



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

**Continuous Ambient Air Quality Monitoring Program
Monthly Report
December 2011**

Operations and Reporting



February 1st, 2012

Alberta Environment
11th Floor, Oxbridge Place
9820-106 Street
Edmonton Alberta T5K 2J6

RE: Peace Airshed Zone Association (PAZA) – December 2011 Ambient Air Report

Enclosed is the PAZA Ambient Monitoring Network Report for the month of **December 2011**.

This report is submitted by PAZA on behalf of the industrial member companies to satisfy the requirements of the following facility Operating Approvals:

Company	Facility	LSD	AENV Approval Number
Advantage Oil & Gas Ltd.	Glacier	05-02-076-13-W6	262479-00-00
AltaGas Ltd.	Pouce Coupe	03-03-081-13-W6	247673-00-00
	Ante Creek	02-26-068-25-W5	266694-00-00
	Gordondale	16-31-78-11-W6M	287474-00-00
Barrick Energy Inc.	Sturgeon/Valleyview	02-02-069-22-W5	1633-02-00
Birchcliff Energy Ltd.	Pouce Coupe	03-22-078-12-W6	252529-00-00
Bonavista Energy Corporation	Rycroft	08-25-077-06-W6	11351-02-00
	Spirit River	08-34-077-06-W6	11096-02-00
Canadian Natural Resources Limited	Bonanza	11-25-081-11-W6	29-01-01
	Progress/Gordondale	01-01-077-10-W6	10036-02-00
	Gold Creek	13-26-067-05-W6	10446-02-00
	Teepee Creek	SE-2-074-04-W6	1635-02-02

Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	212-01-00
Devon Canada	Tangent	16-20-080-24-W5	11346-02-00
	NW Belloy (Dunvegan)	16-36-079-03-W6	9810-02-00
	Eaglesham (South)	02-14-077-25-W5	47669-01-00
	Puskwaskau	03-26-074-01-W6	17524-01-00
	North Normanville	03-36-079-23-W5	47455-01-00
	West Culp	05-34-078-25-W6	136284-00-00
	Cecil	08-15-084-08-W6	10032-02-00
EnCana Corporation	Hythe Brainard	11-18-074-12-W6	10910-02-02
	Sexsmith	04-08-075-07-W6	10002-01-00
Galleon Energy Inc.	Eaglesham	01-25-076-01-W6	241532-00-00
	Kakut	14-12-075-03-W6	248469-00-01
	Donnelly	06-01-077-21-W5	87-02-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	238762-00-02
Longview Oil Corp.	Sunset House	06-22-70-20-W5	138884-01-00
Penn West Petroleum Ltd.	Tangent	13-29-080-23-W5	1746-02-01
	Pouce Coupe	16-07-078-11-W6	614-01-00
Spectra Energy Midstream Corporation	Fourth Creek	16-11-082-09-W6	263-01-00
Suncor Energy Inc.	Progress	07-22-078-09-W6	11428-02-00
Taq North Ltd.	Valhalla	13-21-076-09-W6	17620-01-01
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	113-02-00

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 Continuous Data Summary” and “Continuous Network Equipment Summary” pages of the report.

Continuous Monitoring: Five (5) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge and Valleyview.

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.
- ◆ The PM2.5 analyzer experienced extensive data loss due to negative values, returning an analyzer uptime of 77% in the month of December. This issue is ongoing and is under investigation. **AE Reference #255363**
- ◆ All other analyzers and sensors at the Henry Pirker station had an operational uptime greater than 90% for the month of December.

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 of 100% 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 Evergreen Park station had an operational uptime of 100% 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 of 100% for the month of December.

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 of 100% for the month of December.

Passive Monitoring - 46 Stations throughout the PAZA zone:

There were five duplicate sites sampled in the month of December: Gordondale, Steeprock Creek, Woking, Guy, and Girouxville 3. 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 SO₂ passives ranged from 0.1 ppb to 0.5 ppb, with a mean of 0.2 ppb.
- Monthly average concentrations for NO₂ passives ranged from 0.6 ppb to 10.7 ppb, with a mean of 1.7 ppb.
- Monthly average concentrations for O₃ passives ranged from 25.5 ppb to 44.3 ppb, with a mean of 35.9 ppb.
- Monthly average and mean concentrations for H₂S passives were 0.2 ppb.

If you have any questions or concerns, please contact Shelly Pruden, PAZA Program Manager at 780.833.4343 or 780.882.4071.

On Behalf of the,
Peace Airshed Zone Association



Shelly Pruden
Program Manager

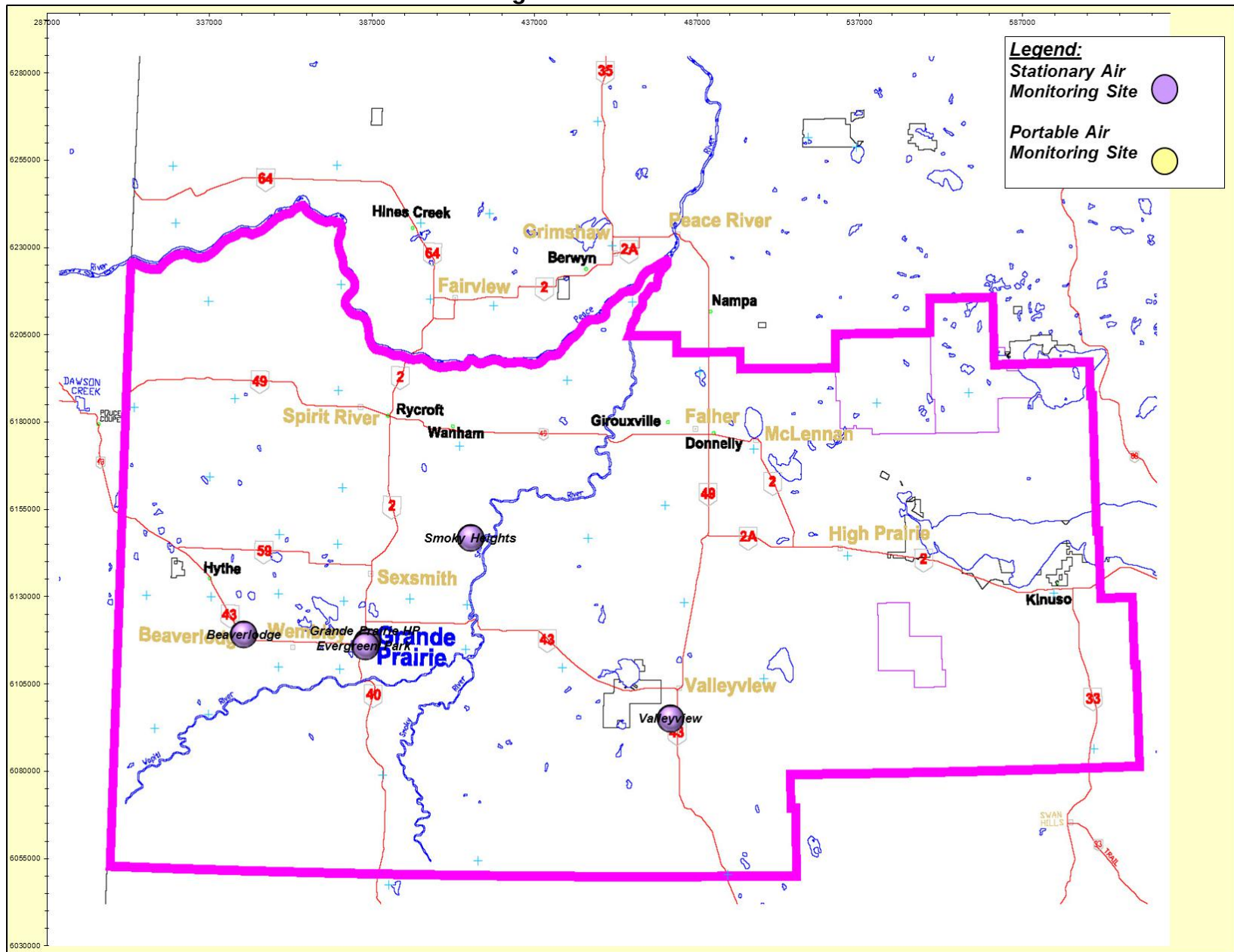


Patrick Andersen, B.Sc.
FOCUS AQM Data Specialist



Jeff Cooper, C.Tech.
AQM Operations Manager

Location of PAZA Continuous Monitoring Stations



PAZA Monthly Continuous Data Summary

Dec-2011 Peace Airshed Zone Association							Maximum Recorded Values				
							1-hr		24-hr / 8-hr		
Pollutant (units)	Objectives		Station	Monthly Average	Exceedence		Conc	Day	Conc	Day	Operational Time (%)
	1-hr	24-hr			1-hr	24-hr					
SO ₂ (ppb)	172	48	Henry Pirker	0.3	0	0	2.5	Dec-31 12:00	0.7	Dec-31	100%
SO ₂ (ppb)	172	48	Evergreen Park	0.1	0	0	0.8	Dec-07 16:00	0.3	Dec-15	100%
SO ₂ (ppb)	172	48	Smoky Heights	0.5	0	0	4.5	Dec-21 11:00	2.1	Dec-21	100%
SO ₂ (ppb)	172	48	Beaverlodge	0.2	0	0	3.1	Dec-04 13:00	0.8	Dec-04	100%
SO ₂ (ppb)	172	48	Valleyview	0.9	0	0	13.0	Dec-24 07:00	4.8	Dec-20	100%
NO (ppb)			Henry Pirker	8.9	0	0	166.4	Dec-14 10:00	46.9	Dec-15	100%
NO ₂ (ppb)	159	106	Henry Pirker	13.8	0	0	46.0	Dec-14 10:00	26.9	Dec-14	100%
NO _x (ppb)			Henry Pirker	22.7	0	0	212.6	Dec-14 10:00	73.6	Dec-15	100%
NO (ppb)			Beaverlodge	0.6	0	0	26.4	Dec-08 06:00	4.7	Dec-08	100%
NO ₂ (ppb)	159	106	Beaverlodge	3.9	0	0	26.1	Dec-08 06:00	14.0	Dec-15	100%
NO _x (ppb)			Beaverlodge	4.5	0	0	52.4	Dec-08 06:00	17.8	Dec-08	100%
O ₃ (ppb)	82		Henry Pirker	19.7	0	-	40.9	Dec-06 01:00	33.6	Dec-01	98%
O ₃ (ppb) - 8-hr			Henry Pirker		0				38.8	Dec-06	
O ₃ (ppb)	82		Beaverlodge	30.8	0	-	42.7	Dec-01 14:00	40.7	Dec-09	100%
O ₃ (ppb) - 8-hr			Beaverlodge		0				42.1	Dec-01	
CO (ppm)	13		Henry Pirker	0.24	0	-	1.2	Dec-15 18:00	0.4	Dec-15	100%
CO (ppm) - 8-hr	5		Henry Pirker		0				0.7	Dec-15	
THC (ppm)			Henry Pirker	2.17	-	-	3.4	Dec-12 12:00	2.9	Dec-15	100%
TRS (ppb)			Henry Pirker	0.4	-	-	1.9	Dec-13 13:00	0.8	Dec-15	100%
TRS (ppb)			Evergreen Park	0.7	-	-	2.6	Dec-17 02:00	1.0	Dec-17	100%
TRS (ppb)			Smoky Heights	0.3	-	-	0.8	Dec-15 15:00	0.4	Dec-15	100%
H ₂ S (ppb)	10	3	Valleyview	0.2	0	0	5.9	Dec-14 00:00	0.6	Dec-10	100%
PM2.5 (µg/m3)	80	30	Henry Pirker	11.1	0	0	61.8	Dec-02 05:00	20.0	Dec-04	77%
PM2.5 (µg/m3)	80	30	Evergreen Park	2.8	0	0	30.2	Dec-14 16:00	10.1	Dec-15	100%
PM2.5 (µg/m3)	80	30	Smoky Heights	1.8	0	0	28.9	Dec-28 10:00	5.8	Dec-30	100%
PM2.5 (µg/m3)	80	30	Beaverlodge	4.5	0	0	25.8	Dec-11 20:00	9.0	Dec-15	100%

PAZA Monthly Continuous Data Summary – continued

Dec-2011Peace Airshed Zone Association							Maximum Recorded Values				
							1-hr		24-hr / 8-hr		
RH (%)			Henry Pirker	65.8	-	-	89.6	Dec-17 21:00	85.9	Dec-17	100%
RH (%)			Evergreen Park	67.7	-	-	95.9	Dec-17 21:00	91.8	Dec-17	100%
RH (%)			Beaverlodge	74.3	-	-	100.0	Dec-10 23:00	98.3	Dec-11	100%
RH (%)			Valleyview	68.9	-	-	97.1	Dec-18 00:00	89.3	Dec-18	100%
SR (W/m²)			Henry Pirker	20.9	-	-	207.4	Dec-18 13:00	38.6	Dec-18	100%
Temp (°C)			Henry Pirker	-2.8	-	-	8.6	Dec-06 02:00	3.7	Dec-25	100%
Temp (°C)			Evergreen Park	-2.0	-	-	10.6	Dec-05 22:00	4.1	Dec-01	100%
Temp (°C)			Smoky Heights	-3.5	-	-	7.3	Dec-05 21:00	2.0	Dec-01	100%
Temp (°C)			Beaverlodge	-1.9	-	-	9.0	Dec-05 20:00	4.9	Dec-05	100%
Temp (°C)			Valleyview	-2.5	-	-	9.9	Dec-06 04:00	5.5	Dec-25	100%
WSPD s (km/hr)			Henry Pirker	11.2	-	-	39.0	Dec-27 11:00	23.3	Dec-01	100%
WSPD s (km/hr)			Evergreen Park	8.1	-	-	37.0	Dec-06 03:00	19.5	Dec-20	100%
WSPD s (km/hr)			Smoky Heights	18.7	-	-	63.0	Dec-23 17:00	37.3	Dec-01	100%
WSPD s (km/hr)			Beaverlodge	13.9	-	-	74.0	Dec-01 17:00	38.1	Dec-01	100%
WSPD s (km/hr)			Valleyview	6.6	-	-	33.0	Dec-01 22:00	16.5	Dec-20	100%
WSPD v (km/hr)			Henry Pirker	7.9	-	-	39.0	Dec-27 11:00	22.4	Dec-01	100%
WSPD v (km/hr)			Evergreen Park	6.3	-	-	37.0	Dec-06 03:00	18.2	Dec-20	100%
WSPD v (km/hr)			Smoky Heights	15.1	-	-	63.0	Dec-23 17:00	36.3	Dec-01	100%
WSPD v (km/hr)			Beaverlodge	9.8	-	-	73.0	Dec-01 17:00	37.7	Dec-01	100%
WSPD v (km/hr)			Valleyview	3.7	-	-	33.0	Dec-01 22:00	14.2	Dec-20	100%
WDIR			Henry Pirker	W	-	-	-	-	-	-	100%
WDIR			Evergreen Park	W	-	-	-	-	-	-	100%
WDIR			Smoky Heights	WSW	-	-	-	-	-	-	100%
WDIR			Beaverlodge	WSW	-	-	-	-	-	-	100%
WDIR			Valleyview	W	-	-	-	-	-	-	100%

Continuous Network Equipment Summary

PAZA – Henry Pirker Station

General Station Issues

Routine monthly calibrations were performed on December 8th (TRS, CO & THC) and December 9th (SO₂, NO_x & O₃).

Parameter	Make	Model	Notes
SO ₂	TEI	43C	No operational issues observed.
NO _x /NO/NO ₂	TEI	42C	No operational issues observed.
O ₃	TEI	49C	Sample pump replaced on December 29 th .
CO	TEI	48C	No operational issues observed.
THC	TEI	51-CLT	Hydrogen cylinder replaced on December 29 th .
TRS	TEI	45C/43C	No operational issues observed.
PM _{2.5}	R&P	1400AB	One hundred sixty-eight (168) hours were flagged invalid due to negative readings. Filter cleaned on December 29 th , analyzer problem still under investigation. AE Reference # 255363.
RH	Met One	083D	No operational issues observed.
ET	Met One	083D	No operational issues observed.
SR	Met One	096-1	No operational issues observed.
WS / WD	Met One	010C/020C	No operational issues observed.

PAZA – Evergreen Park Station

General Station Issues

Routine monthly calibration performed on December 15th (SO₂ & TRS). Maintenance was done on the TEOM on December 15th.

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	One (1) hour was flagged invalid due to negative reading.
ET	Met One/Gill	083D	No operational issues observed.
RH	Met One/Gill		No operational issues observed.
WS / WD	Met One/ Gill		No operational issues observed.

PAZA – Smoky Heights Station

General Station Issues

Routine monthly calibrations were performed on December 19th (SO₂ & TRS). Maintenance was performed on the TEOM on December 19th.

Parameter	Make	Model	Notes
SO ₂	TEI	43C	No operational issues observed.
TRS	TEI	43C	No operational issues observed.
PM _{2.5}	R&P	1400AB	One (1) hour was flagged invalid due to negative reading.
ET	Met One	083D	No operational issues observed.
WS / WD	Met One	010C/020C	No operational issues observed.

PAZA – Beaverlodge Station

General Station Issues

Routine monthly calibrations performed on December 11th (SO₂, NO_x, O₃). Maintenance was performed on the TEOM on December 11th.

Parameter	Make	Model	Notes
SO ₂	TEI	43CTL	No operational issues observed.
NO _x /NO/NO ₂	TEI	42C	No operational issues observed.
O ₃	TEI	49C	No operational issues observed.
PM _{2.5}	R&P	1400AB	No operational issues observed.
ET	n/a	n/a	No operational issues observed.
RH	n/a	n/a	No operational issues observed.
WS / WD	Blue Sky	857	No operational issues observed.

PAZA – Valleyview Station

General Station Issues

Routine monthly calibrations were performed on December 23rd (SO₂ & H₂S).

Parameter	Make	Model	Notes
SO ₂	TEI	43i	No operational issues observed.
H ₂ S	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 / WD	Gill	Met Pak 3	No operational issues observed.

PAZA

Henry Pirker Station

Monthly Summary Tables, Graphs and
Roses

Hourly Averages

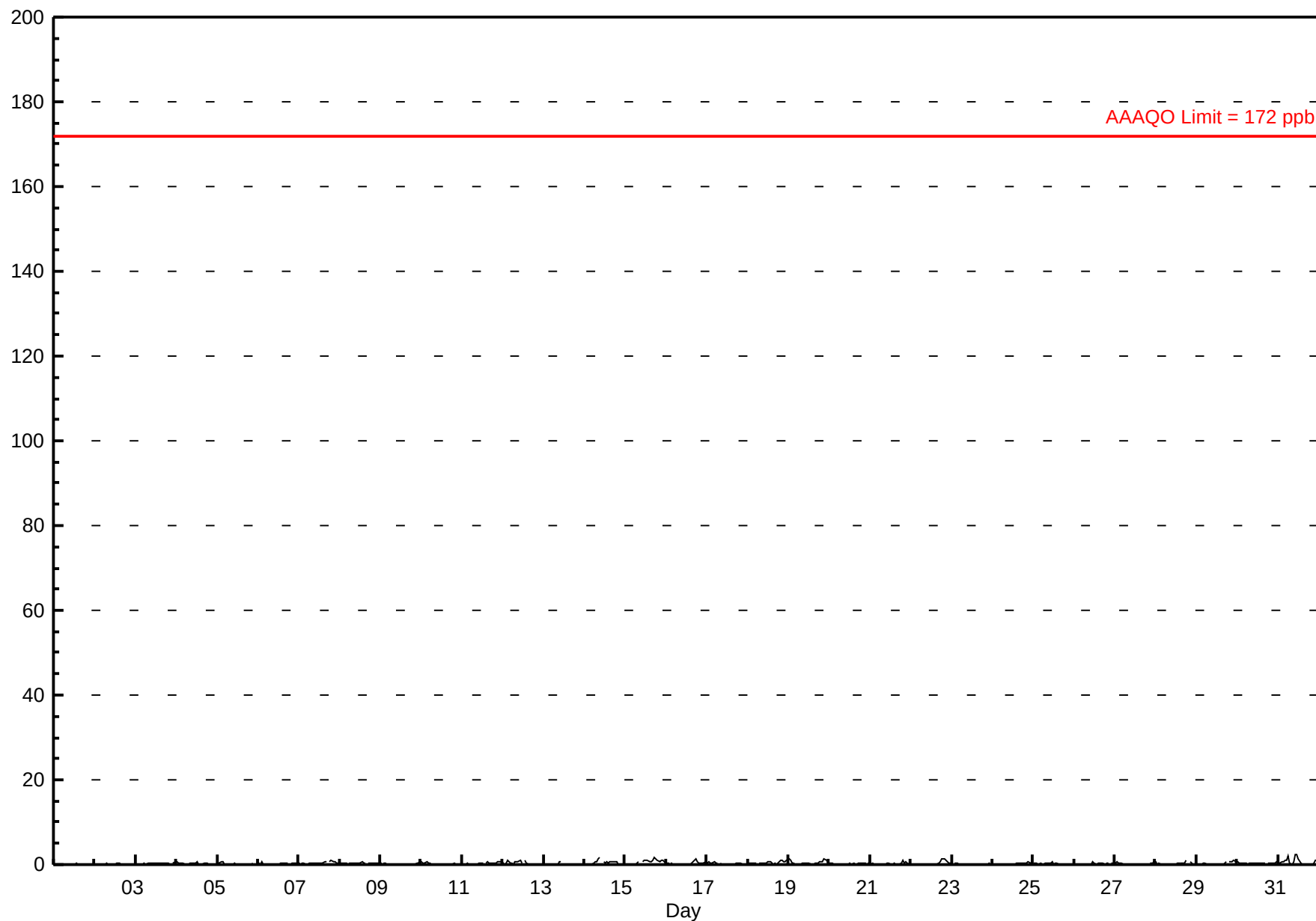
Sulphur Dioxide (SO₂) - ppb

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.5 ppb on Dec 31 12:00 Maximum Daily Average: 0.7 ppb on Dec 31																				Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Minimum Value: 0 ppb on Dec 1 06:00 Maximum Diurnal Average: 0.4 ppb at hour 20 Monthly Average: 0.26 ppb																				Minimum Daily Average: 0.1 ppb on Dec 1 Minimum Diurnal Average: 0.2 ppb at hour 6 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.6 P ₉₉ = 1.4						
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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.1	0.2
2-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	0.1	0.2
3-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	0.2	0.6
4-Dec	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	A	0	0	0	0.2	0.5
5-Dec	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0.1	0.7
6-Dec	0	0	1	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
7-Dec	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	A	1	1	1	1	1	0	0	0.4	1.1
8-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	A	A	0	0	0	0	0	1	0	0.3	0.6
9-Dec	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	A	0	0	0	0	0	0	0	1	0.2	1.0
10-Dec	1	0	0	1	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.2	0.5
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	0	0	0	0	0	1	1	1	0.2	0.8
12-Dec	0	0	0	1	0	0	0	1	1	1	1	0	A	1	0	0	0	0	0	0	0	0	0	0	0.3	1.0
13-Dec	0	0	0	0	0	0	0	0	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.8
14-Dec	0	0	0	0	0	0	1	1	1	2	A	1	0	1	0	1	1	1	1	1	1	0	0	0	0.4	1.7
15-Dec	0	0	0	0	0	0	0	0	1	A	1	1	1	1	1	1	1	2	1	1	1	1	1	1	0.6	1.6
16-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0.3	1.4
17-Dec	0	1	0	0	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6
18-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	1	0.4	1.0
19-Dec	1	1	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0.4	1.4
20-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
21-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0.2	1.0
22-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0.3	1.3
23-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	0.3
24-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	A	0.2	0.7
25-Dec	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	A	0	0.2	0.7
26-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	A	0	0	0.2	0.6
27-Dec	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	1	0.2	0.9
28-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	1	0	0	0	0.2	0.9
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	1	1	1	1	1	0.3	1.1
30-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0.3	0.6
31-Dec	0	0	1	1	1	1	2	0	0	1	2	3	1	0	0	0	A	0	0	0	0	0	1	1	0.7	2.5
0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.3 0.3 0.4 0.3 0.3 0.4 0.3																									Diurnal Average	
1.4 0.9 0.8 0.9 1.1 0.9 2.1 0.8 1.4 1.7 2.4 2.5 1.4 1.0 0.6 0.7 1.1 1.6 1.3 1.2 1.3 1.2 1.1 1.0																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb																										

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2011



Hourly Maximums

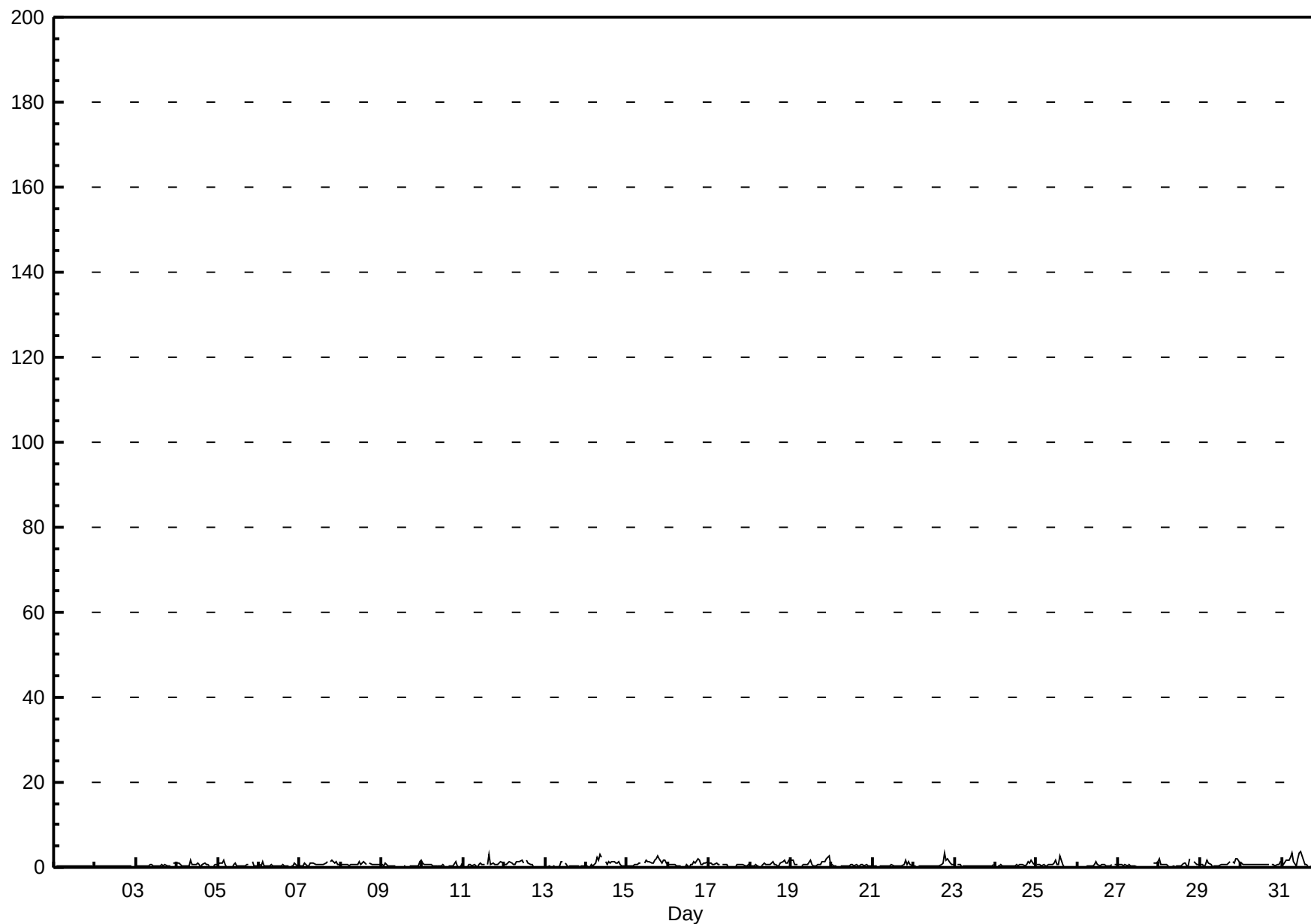
Sulphur Dioxide (SO₂) - ppb

Henry Pirker - December 2011

Maximum Value: 6.9 ppb on Dec 31 23:00																				Maximum Daily Average: 1.7 ppb on Dec 31				Hours in Service: 744		
Minimum Value: 0 ppb on Dec 13 14:00																				Minimum Daily Average: 0.3 ppb on Dec 23				Hours of Data: 707		
Maximum Diurnal Average: 1.0 ppb at hour 23																				Minimum Diurnal Average: 0.5 ppb at hour 6				Hours of Missing Data: 37		
Monthly Average: 0.65 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 0.5 Q ₃ = 0.8 P ₉₀ = 1.3 P ₉₉ = 2.9				Hours of Calibration: 37		
																				Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								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	A	0.3	0.4
2-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	0.4	0.4
3-Dec	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	A	1	1	1	0.5	0.9
4-Dec	1	1	1	0	0	0	0	0	2	1	1	1	1	1	0	1	1	1	1	1	A	0	1	1	0.6	1.7
5-Dec	1	1	1	2	1	0	0	0	0	1	1	0	0	0	0	0	0	1	1	A	1	0	0	0	0.5	1.6
6-Dec	1	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	A	0	0	1	0	1	0.5	1.3
7-Dec	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	A	1	2	1	1	1	1	0.9	1.8
8-Dec	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	A	1	1	1	1	1	1	1	0.8	1.2
9-Dec	1	0	1	1	0	0	0	0	0	C	C	C	C	0	0	A	0	0	0	0	0	0	1	2	0.5	1.8
10-Dec	1	1	1	1	1	1	0	0	0	0	0	0	1	0	A	0	0	0	0	1	0	0	0	1	0.5	1.5
11-Dec	0	0	0	1	1	0	1	0	0	1	1	1	1	A	1	3	1	1	1	1	1	1	2	1	0.7	3.2
12-Dec	1	1	1	2	1	1	1	1	1	1	2	1	A	2	1	1	1	0	0	0	0	0	0	0	0.7	1.5
13-Dec	0	0	0	0	0	0	0	0	0	1	1	A	1	0	0	0	0	0	0	0	0	0	0	0	0.4	1.5
14-Dec	0	0	0	1	0	1	2	2	3	2	A	1	1	1	1	1	2	1	1	2	1	1	0	1	1.1	3.0
15-Dec	0	0	0	0	1	1	1	1	1	1	A	1	2	1	1	1	1	2	2	3	2	1	2	2	1.1	2.6
16-Dec	1	1	1	1	1	0	0	0	A	0	0	1	0	1	1	1	1	2	2	1	1	1	1	1	0.7	2.1
17-Dec	1	1	1	1	1	1	1	A	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	1	0.5	1.1
18-Dec	0	0	0	1	0	0	A	0	1	1	1	1	1	1	1	0	0	1	1	1	2	1	1	2	0.7	1.6
19-Dec	2	2	1	1	1	A	0	1	1	1	1	2	1	0	0	0	1	1	1	1	1	2	3	1	0.9	2.6
20-Dec	1	0	0	0	A	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0	0	0.4	0.8
21-Dec	0	0	0	A	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2	1	1	1	0	0.4	1.7
22-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	2	2	1	1	1	0.6	3.5
23-Dec	1	A	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	0.6
24-Dec	A	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	2	1	A	0.5	1.7
25-Dec	1	1	1	0	1	0	0	1	1	1	1	2	1	1	3	1	0	0	0	0	0	A	0	0	0.6	2.6
26-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	0	1	A	1	1	0.4	1.2
27-Dec	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	2	0.4	1.5
28-Dec	2	1	1	1	1	1	0	0	1	0	0	0	0	0	1	1	0	0	2	A	1	1	1	1	0.7	2.0
29-Dec	1	1	0	1	2	1	1	0	0	0	0	0	1	1	1	1	1	1	A	1	1	2	2	1	0.8	2.2
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0	1	1	1	0.7	1.2
31-Dec	1	1	2	2	2	2	3	1	0	2	3	4	3	1	1	0	A	0	0	0	1	1	7	2	1.7	6.9
0.6		0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.6	0.5	0.6	0.6	0.6	0.6	0.8	0.8	0.7	0.8	1.0	0.8	Diurnal Average	
1.9		1.6	1.7	1.7	1.7	2.4	3.4	1.8	3.0	2.5	3.4	3.7	2.7	1.5	2.6	3.2	1.6	2.1	3.5	2.1	1.9	1.9	6.9	2.2	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																								

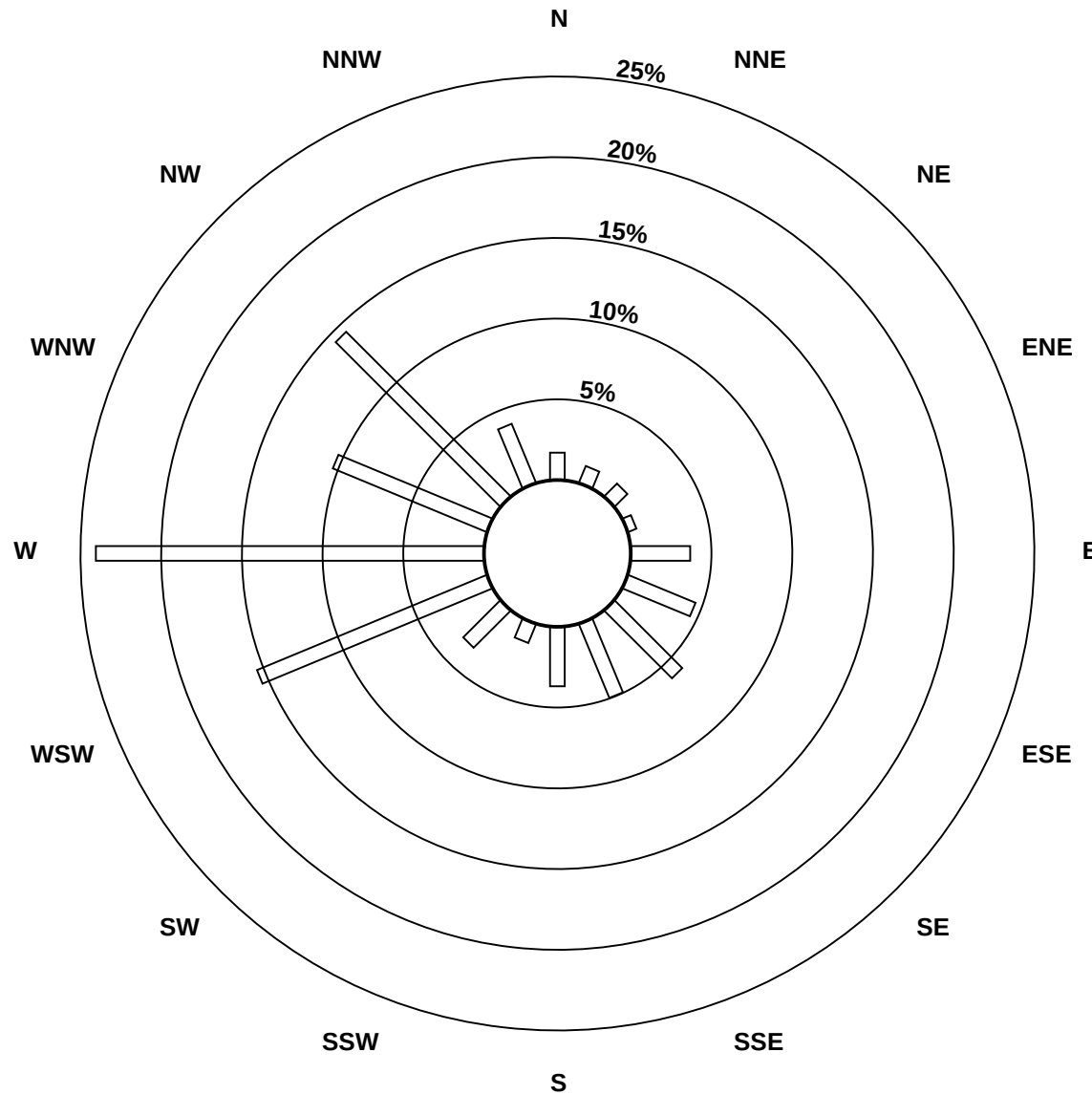
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2011

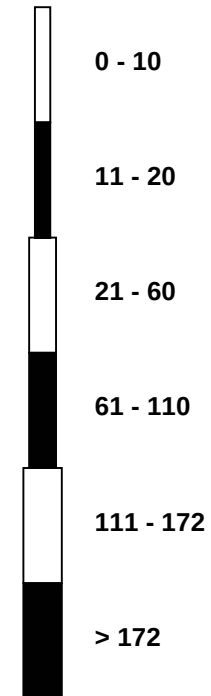


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2011

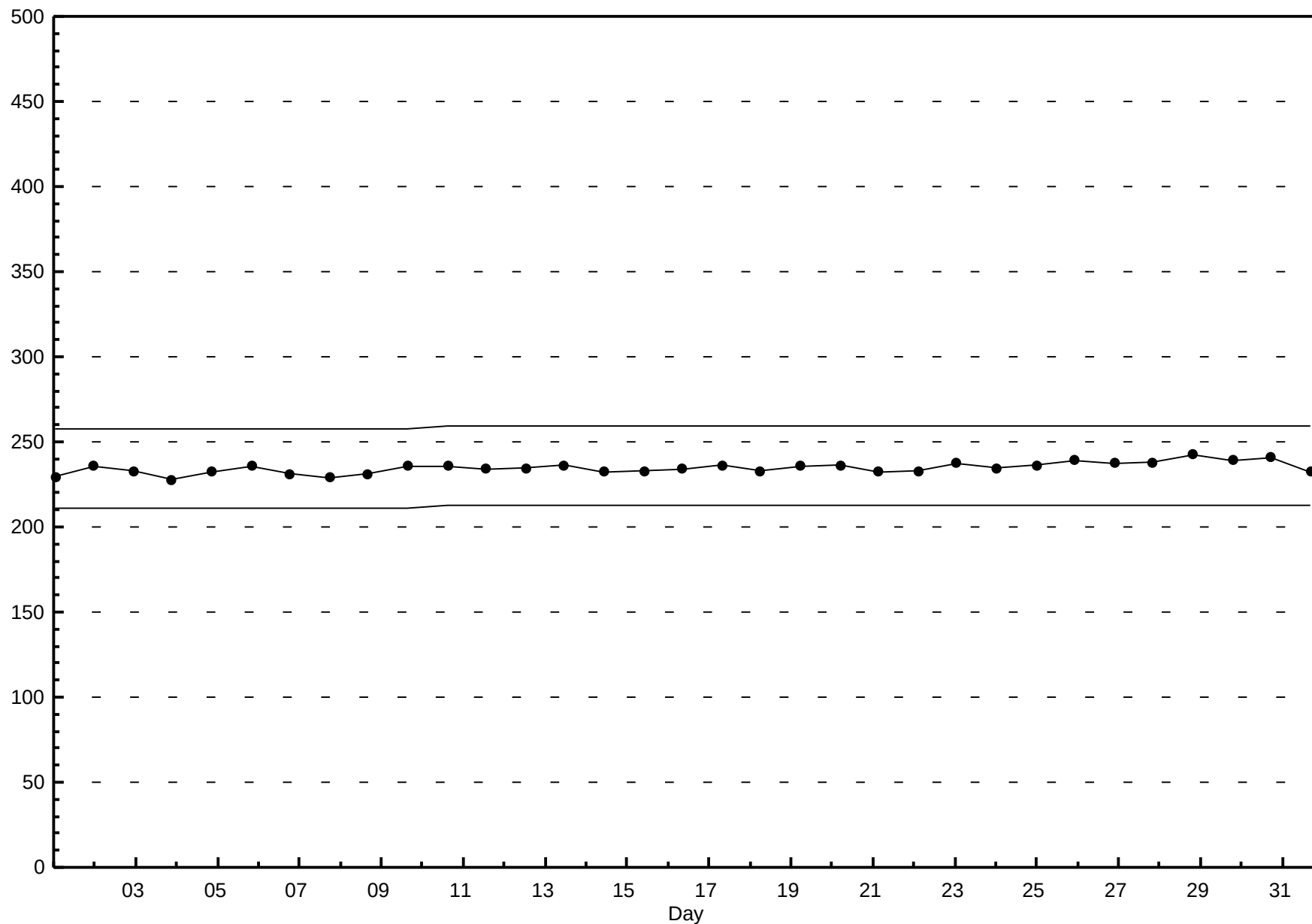


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Henry Pirker - December 2011



Hourly Averages

Total Reduced Sulphur (TRS) - ppb

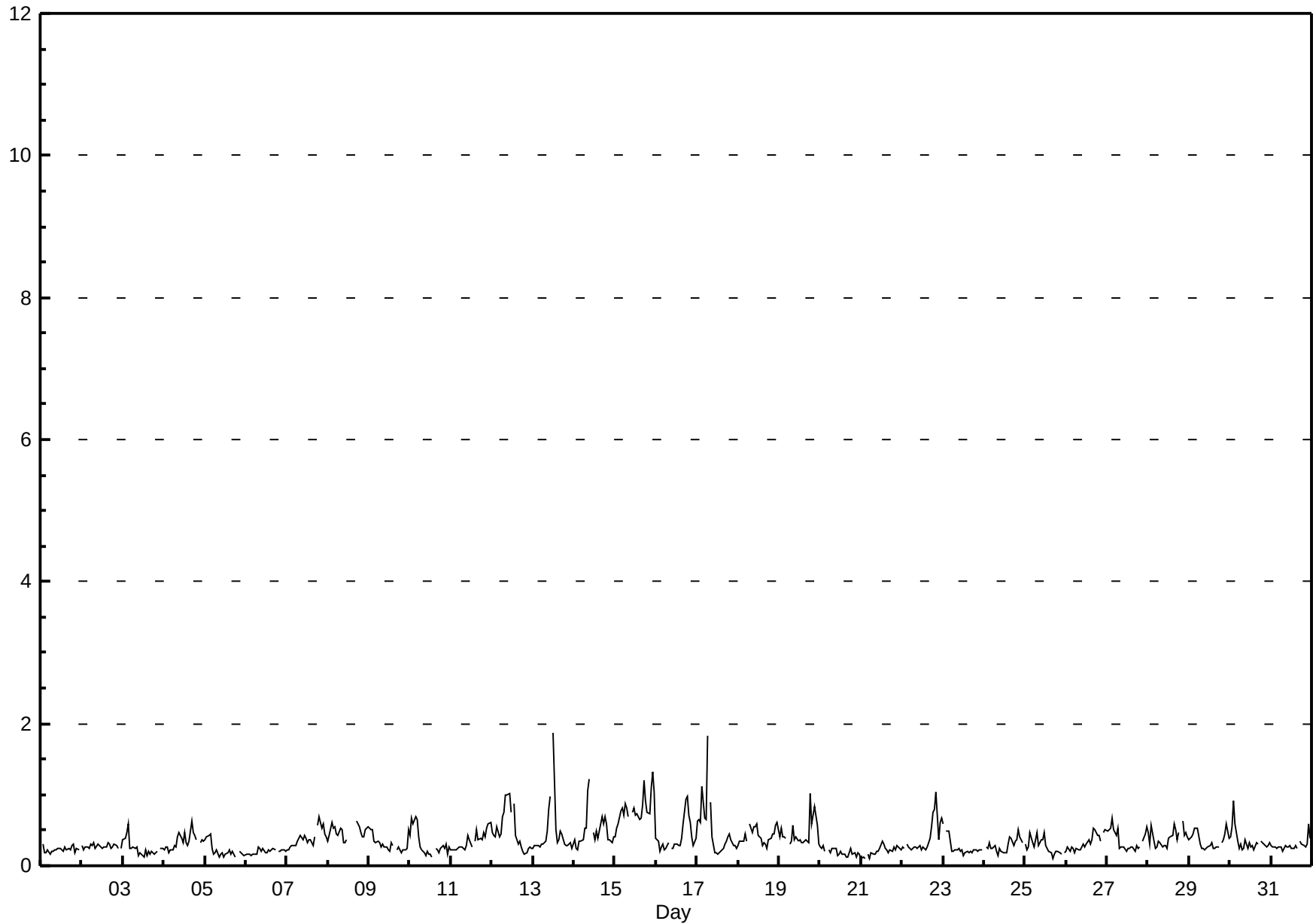
Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744						
Maximum Value: 1.9 ppb on Dec 13 13:00																				Maximum Daily Average: 0.8 ppb on Dec 15		Hours of Data: 708				
Minimum Value: 0 ppb on Dec 21 03:00																				Minimum Daily Average: 0.2 ppb on Dec 20		Hours of Missing Data: 36				
Maximum Diurnal Average: 0.4 ppb at hour 4																				Minimum Diurnal Average: 0.3 ppb at hour 15		Hours of Calibration: 36				
Monthly Average: 0.35 ppb																				Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 1.1		Percent Operational Time: 100.0				
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	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	0.3
2-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	0.3
3-Dec	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.2	0.6
4-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	A	0	0	0	0.3	0.6
5-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	0.2	0.4
6-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
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	1	1	0	0	0.4	0.7
8-Dec	0	0	1	1	1	0	0	1	1	0	0	0	C	C	C	0	A	1	1	0	0	0	1	1	0.5	0.6
9-Dec	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	1	0.3	0.5
10-Dec	0	1	1	1	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.3	0.7
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	0	0	0	0	0	1	1	1	0.3	0.6
12-Dec	0	0	0	1	0	0	1	1	1	1	1	1	A	1	0	0	0	0	0	0	0	0	0	0	0.5	1.0
13-Dec	0	0	0	0	0	0	0	0	0	1	1	A	2	1	0	0	0	0	0	0	0	0	0	0	0.4	1.9
14-Dec	0	0	0	0	0	0	1	1	1	1	A	0	0	0	0	0	1	1	1	1	0	0	0	0	0.5	1.2
15-Dec	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3
16-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0.4	1.0
17-Dec	1	1	1	1	1	1	2	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1.8
18-Dec	0	0	0	0	0	0	A	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0.4	0.6
19-Dec	0	1	0	0	0	A	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0.5	1.0
20-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
21-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
22-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0.4	1.0
23-Dec	1	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	0.6
24-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	A	0.3	0.5
25-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
26-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	A	0	1	0.3	0.5
27-Dec	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	1	0.4	0.7
28-Dec	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	A	1	0	0	0	0.4	0.6
29-Dec	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	1	0	0.4	0.6
30-Dec	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.4	0.9
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0.3	0.6
0.3 0.4 0.4 0.4 0.4 0.3 0.4 0.3 0.4 0.4 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																									Diurnal Average	
0.6 0.7 0.9 1.1 0.8 0.7 1.8 0.8 1.1 1.2 1.0 0.8 1.9 0.9 0.7 0.7 0.9 1.2 1.0 0.8 1.0 1.1 1.3 1.0																									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

Total Reduced Sulphur (TRS) - ppb

Henry Pirker - December 2011



Hourly Maximums

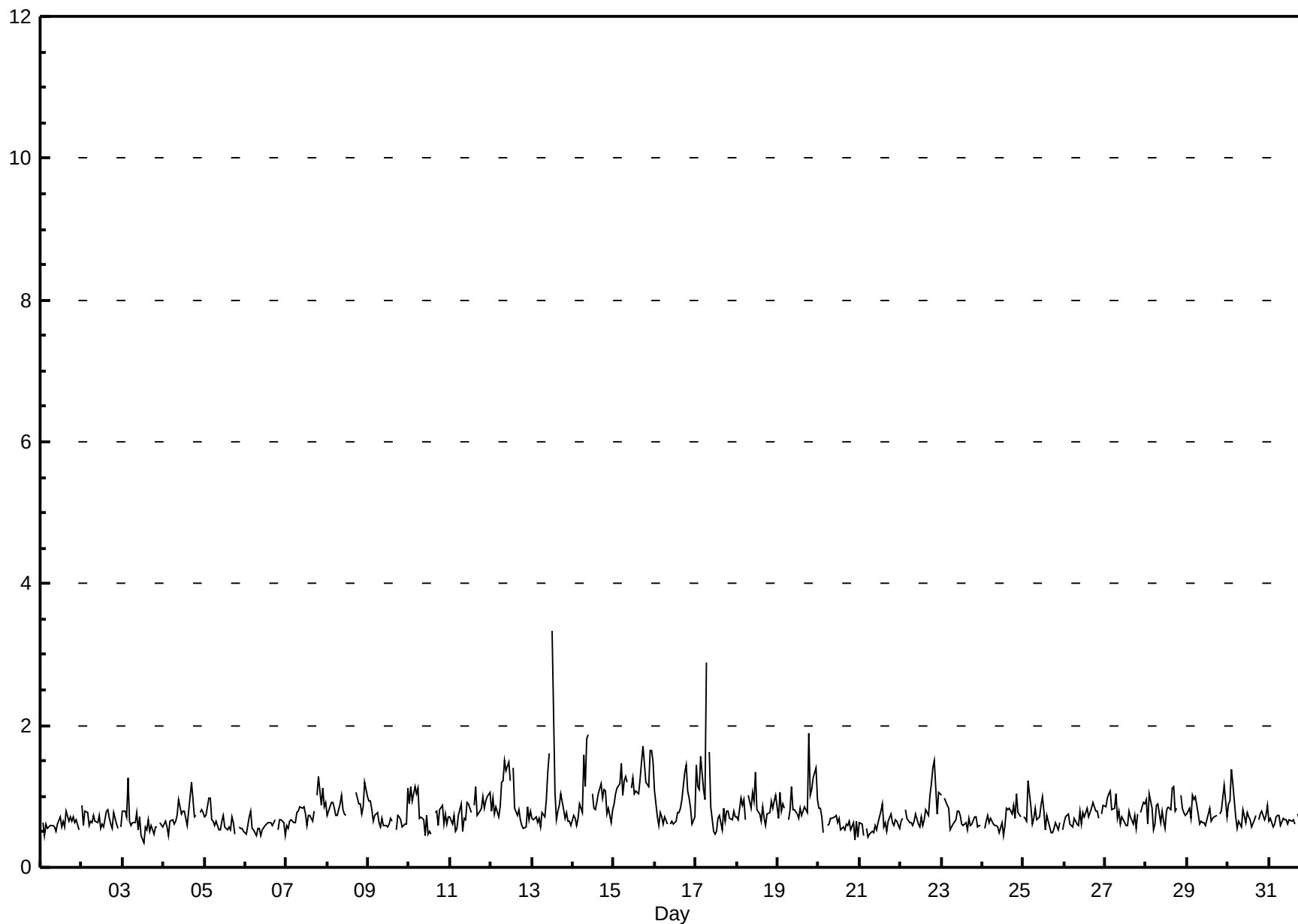
Total Reduced Sulphur (TRS) - ppb

Henry Pirker - December 2011

Maximum Value: 5.9 ppb on Dec 31 23:00																				Maximum Daily Average: 1.3 ppb on Dec 15					Hours in Service: 744	
Minimum Value: 0 ppb on Dec 3 13:00																				Minimum Daily Average: 0.6 ppb on Dec 6					Hours of Data: 708	
Maximum Diurnal Average: 1.0 ppb at hour 23																				Minimum Diurnal Average: 0.7 ppb at hour 6					Hours of Missing Data: 36	
Monthly Average: 0.78 ppb																				Percentiles: P ₁ = 0.4 P ₁₀ = 0.6 Q ₁ = 0.6 Median = 0.7 Q ₃ = 0.8 P ₉₀ = 1.1 P ₉₉ = 1.6					Hours of Calibration: 36	
																									Percent Operational Time: 100.0	
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	A	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.6	0.8
2-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
3-Dec	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	A	1	1	0.6	1.3
4-Dec	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.7	1.2
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	A	1	1	1	1	0.6	1.0
6-Dec	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	A	1	1	1	1	0	0.6	0.8
7-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	0.8	1.3
8-Dec	1	1	1	1	1	1	1	1	1	1	1	C	C	C	1	A	A	1	1	1	1	1	1	1	0.9	1.2
9-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	1.1
10-Dec	1	1	1	1	1	1	1	1	1	0	1	0	1	0	A	1	1	1	1	1	1	1	1	1	0.8	1.1
11-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	1.1
12-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	0.9	1.5
13-Dec	1	1	1	1	1	1	1	1	1	1	2	A	3	1	1	1	1	1	1	1	1	1	1	1	0.9	3.3
14-Dec	1	1	1	1	1	1	2	1	2	2	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.9
15-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	2	1	1	1	2	2	1	1.3	1.7
16-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	0.8	1.4
17-Dec	1	1	1	2	1	1	3	A	2	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1.0	2.9
18-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	1.3
19-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	0.9	1.9
20-Dec	1	1	1	0	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0.6	0.8
21-Dec	1	1	0	A	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.9
22-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	1.5
23-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	1.0
24-Dec	A	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	A	0.7	1.0
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	A	1	0.7	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	0.7	0.9
27-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	1.1
28-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	1.1
29-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	1.2
30-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	0.8	1.4
31-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	6	1	0.9	5.9
0.8 0.8 0.8 0.9 0.8 0.7 0.8 0.7 0.8 0.8 0.8 0.7 0.8 0.7 0.7 0.8 0.8 0.8 0.8 0.8 0.8 1.0 0.8																									Diurnal Average	
1.4 1.1 1.4 1.6 1.5 1.1 2.9 1.3 1.8 1.9 1.6 1.3 3.3 1.4 1.0 1.2 1.5 1.7 1.9 1.4 1.5 1.7 5.9 1.5																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										

Hourly Maximums

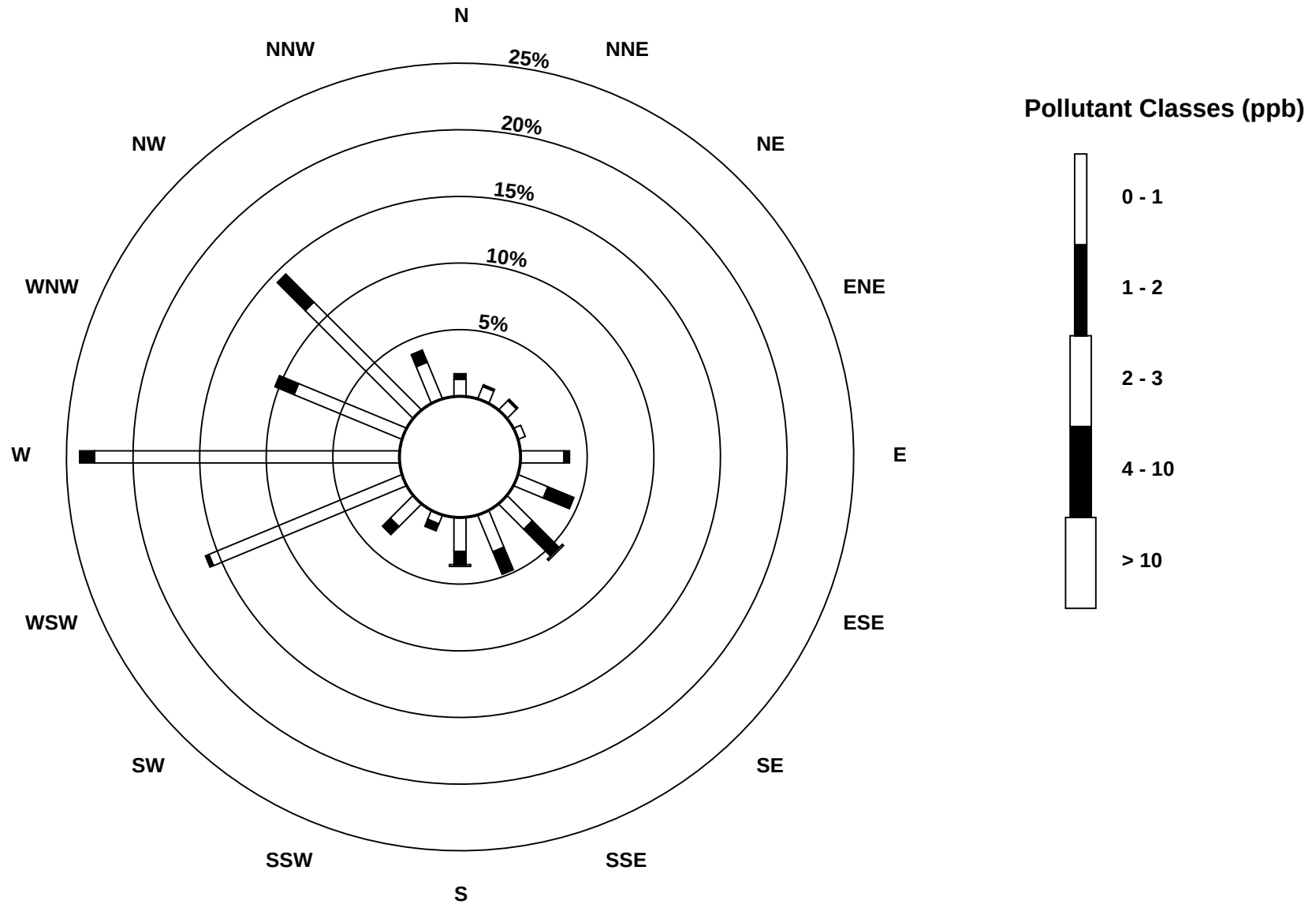
Total Reduced Sulphur (TRS) - ppb
Henry Pirker - December 2011



Pollutant Rose

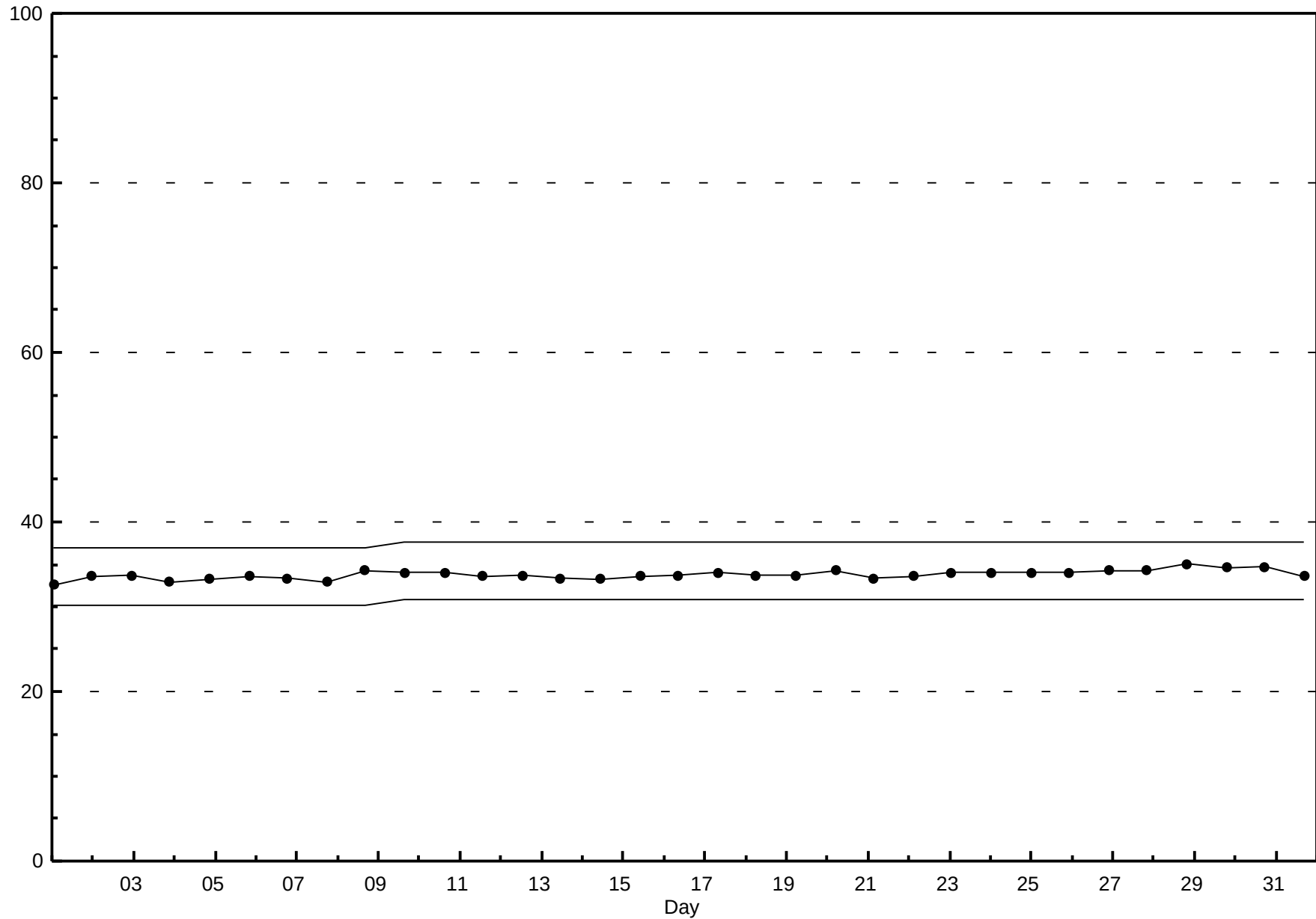
Total Reduced Sulphur (TRS) - ppb

Henry Pirker - December 2011



Span Responses

Total Reduced Sulphur (TRS)
Henry Pirker - December 2011



Hourly Averages

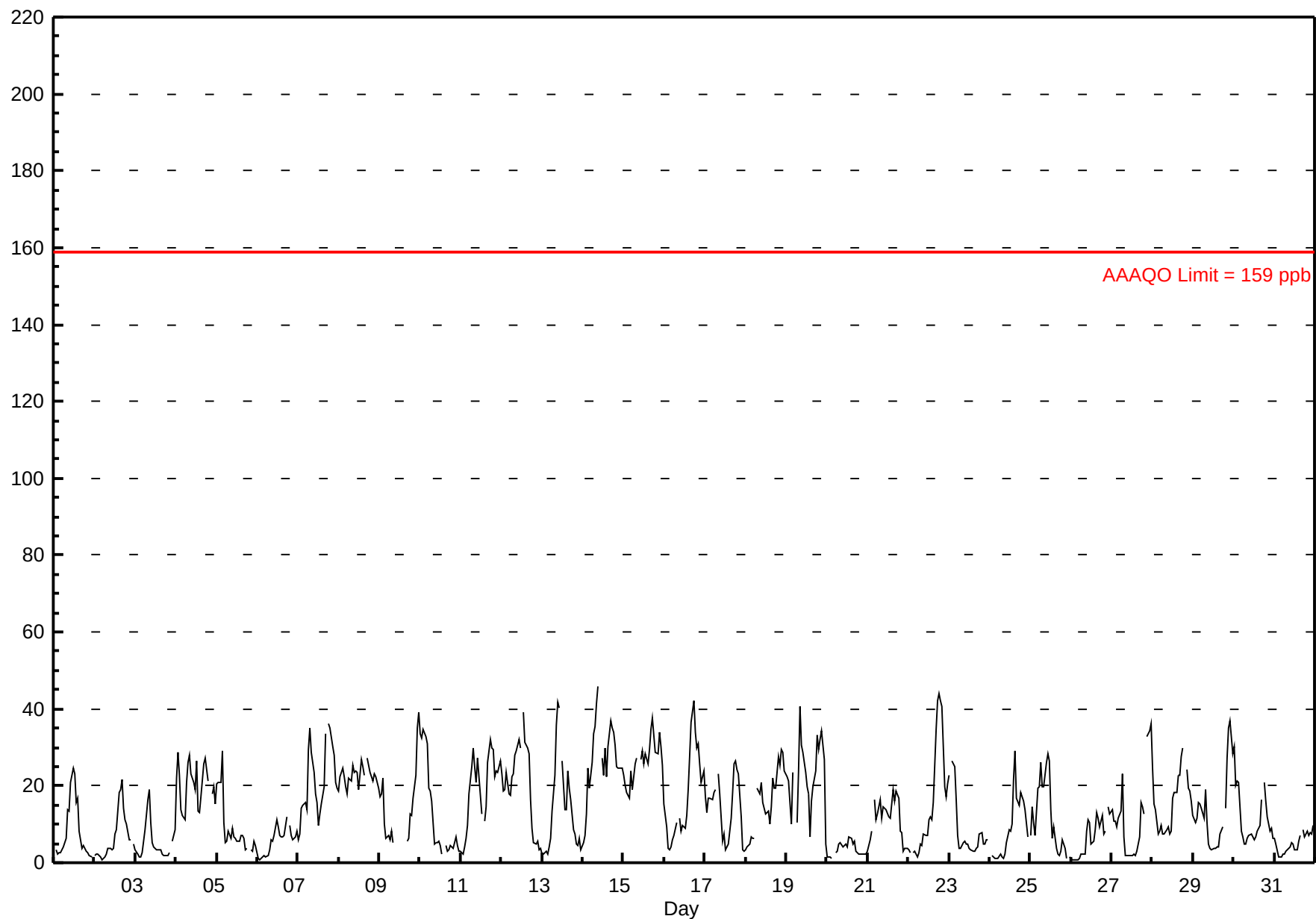
Nitrogen Dioxide (NO₂) - ppb

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 46.0 ppb on Dec 14 10:00 Maximum Daily Average: 26.9 ppb on Dec 14																								Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 39 Percent Operational Time: 100.0		
Minimum Value: 1 ppb on Dec 26 04:00 Minimum Daily Average: 3.4 ppb on Dec 20 Maximum Diurnal Average: 18.1 ppb at hour 19 Minimum Diurnal Average: 9.8 ppb at hour 6 Monthly Average: 13.76 ppb Percentiles: P ₁ = 0.9 P ₁₀ = 2.4 Q ₁ = 4.8 Median = 11.1 Q ₃ = 21.8 P ₉₀ = 28.7 P ₉₉ = 41.4																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
1-Dec	A	4	2	3	2	4	5	6	14	13	21	25	23	16	17	8	4	5	4	3	3	2	1	A	8.3	24.8
2-Dec	2	2	2	2	1	1	1	2	4	4	3	4	8	8	18	19	22	14	11	10	6	6	A	5	6.8	21.6
3-Dec	3	2	2	2	2	6	8	16	19	10	5	4	4	3	3	2	2	2	2	2	3	A	6	9	5.1	19.0
4-Dec	22	29	23	14	12	11	21	26	28	23	21	19	27	14	13	17	26	27	24	21	A	18	20	15	20.4	28.6
5-Dec	21	21	21	29	10	5	6	8	7	9	7	6	6	6	7	7	6	3	4	A	3	3	6	4	8.9	29.0
6-Dec	1	1	1	1	2	2	2	3	6	6	7	11	9	7	7	7	7	12	A	10	7	6	7	8	5.6	11.9
7-Dec	6	7	14	15	16	14	29	35	29	23	18	16	10	13	15	20	33	A	36	35	30	28	21	20	21.0	36.2
8-Dec	19	22	25	22	20	18	22	21	25	23	24	23	19	27	25	23	A	27	23	22	21	23	22	19	22.5	27.2
9-Dec	17	18	22	10	6	7	6	8	5	C	C	C	C	C	C	A	6	6	13	12	17	23	35	39	--	39.2
10-Dec	34	32	35	33	31	19	19	16	5	5	5	5	4	2	A	5	3	3	4	4	5	7	4	3	12.3	34.7
11-Dec	3	2	4	6	10	18	25	30	25	21	27	22	13	A	11	14	26	32	30	30	23	24	24	26	19.4	32.1
12-Dec	23	19	19	24	18	18	22	23	28	29	32	30	A	39	31	30	28	16	9	5	5	6	3	4	20.1	39.1
13-Dec	2	2	3	2	4	6	13	23	36	42	40	A	27	14	14	24	20	16	9	7	5	5	6	3	14.0	41.8
14-Dec	5	7	13	25	19	26	33	36	42	46	A	27	23	30	22	30	37	35	34	30	25	25	25	25	26.9	46.0
15-Dec	23	20	18	17	24	19	22	26	27	A	27	29	26	28	26	29	35	38	33	29	28	34	30	25	26.6	37.8
16-Dec	15	9	4	3	4	6	7	10	A	11	8	10	9	12	19	28	36	42	34	30	31	26	21	24	17.4	42.3
17-Dec	17	13	17	17	17	18	19	A	23	18	6	7	3	4	5	12	18	26	27	24	23	12	3	3	14.4	26.6
18-Dec	3	4	5	7	6	7	A	19	18	21	16	14	13	13	10	15	22	19	19	27	25	29	29	24	15.9	29.4
19-Dec	22	21	15	10	24	A	10	24	41	31	29	23	20	18	7	16	20	24	33	30	32	34	27	5	22.4	40.5
20-Dec	1	2	1	1	A	3	3	5	5	4	4	5	4	7	6	5	5	3	2	2	2	2	2	2	3.4	6.6
21-Dec	3	6	8	A	17	11	13	16	12	15	14	14	12	11	15	19	16	19	17	8	8	3	4	4	11.4	18.8
22-Dec	3	3	A	3	3	1	3	5	5	7	7	7	11	12	11	16	35	42	44	42	41	20	17	21	15.6	44.0
23-Dec	23	A	26	25	17	7	4	4	5	5	5	5	4	3	3	3	4	4	8	8	5	5	6	6	8.0	26.5
24-Dec	A	2	2	1	1	1	2	2	1	2	5	8	8	10	22	29	17	15	18	17	16	14	7	A	9.1	29.2
25-Dec	7	15	11	7	20	20	26	20	20	26	28	27	14	6	9	4	2	2	3	6	4	1	A	2	12.1	28.3
26-Dec	1	1	1	1	1	1	2	2	2	8	11	10	5	6	9	13	12	9	12	7	8	A	14	13	6.5	14.5
27-Dec	14	11	11	9	11	13	23	7	2	2	2	2	2	2	2	3	7	16	15	13	A	33	34	36	11.7	36.2
28-Dec	25	15	14	7	8	10	8	8	9	9	8	8	17	18	18	23	23	28	30	A	24	20	19	16	15.8	29.8
29-Dec	12	10	11	16	15	14	11	19	10	5	4	3	4	4	4	4	7	9	A	14	27	35	37	28	13.3	36.8
30-Dec	30	20	21	21	8	7	5	5	6	7	7	7	6	7	8	10	16	A	21	16	12	8	9	6	11.5	30.2
31-Dec	6	5	2	1	2	2	2	3	4	4	5	5	3	4	5	7	A	9	7	8	7	8	8	10	5.1	9.8
12.6 10.9 11.7 11.1 11.0 9.8 12.5 14.3 15.4 14.8 13.7 13.0 11.4 11.8 12.5 14.7 17.0 17.4 18.1 16.3 15.4 15.8 15.4 14.0 33.7 32.3 34.7 32.7 30.8 26.0 33.4 35.5 41.6 46.0 40.4 29.7 26.6 39.1 31.4 30.3 36.8 42.3 44.0 42.1 40.6 35.0 36.8 39.2																								Diurnal Average	Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - December 2011



Hourly Maximums

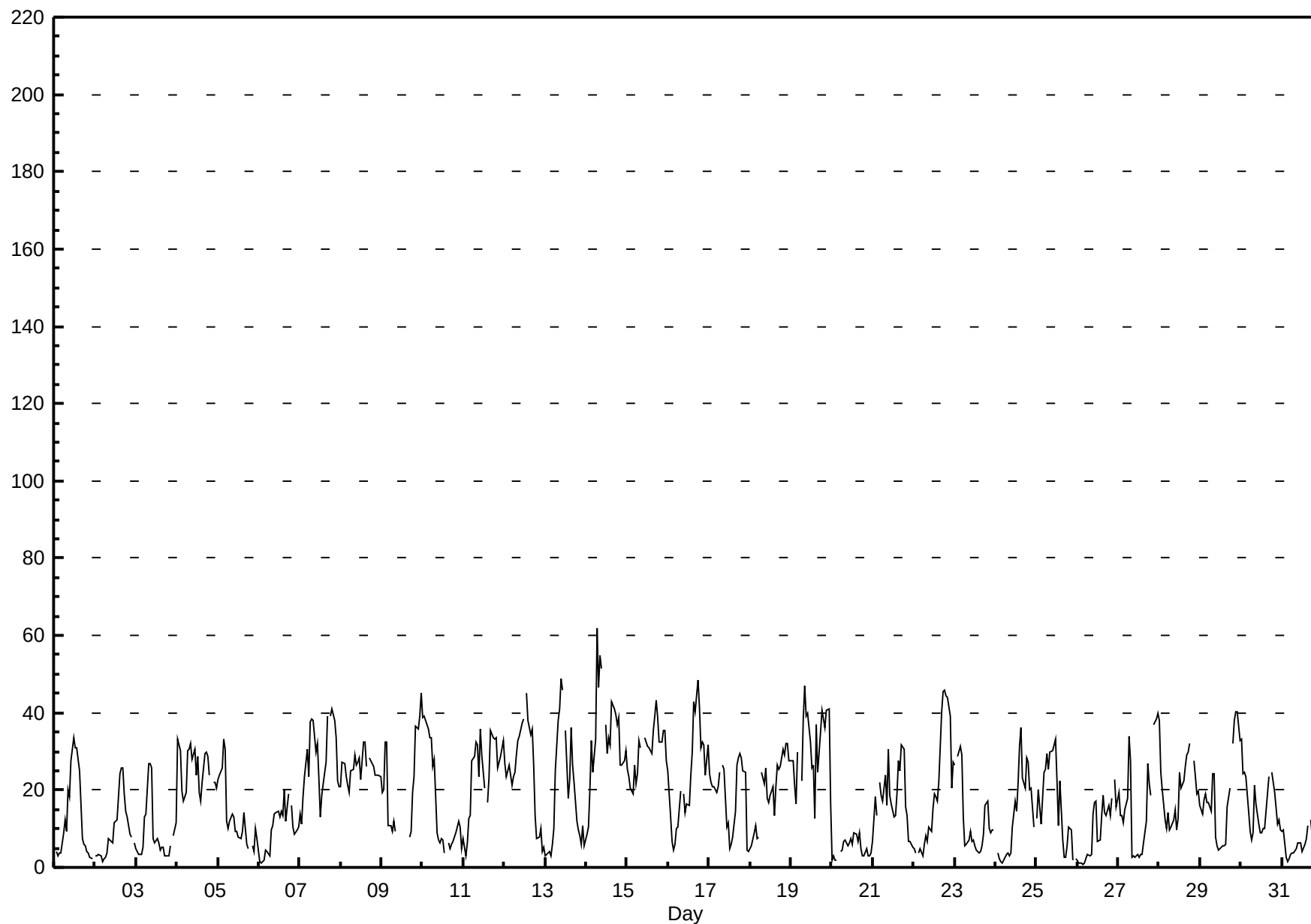
Nitrogen Dioxide (NO₂) - ppb

Henry Pirker - December 2011

Maximum Value: 62.1 ppb on Dec 14 07:00																				Maximum Daily Average: 34.2 ppb on Dec 14					Hours in Service: 744	
Minimum Value: 1 ppb on Dec 26 04:00																				Minimum Daily Average: 5.0 ppb on Dec 20					Hours of Data: 705	
Maximum Diurnal Average: 22.6 ppb at hour 19																				Minimum Diurnal Average: 14.4 ppb at hour 6					Hours of Missing Data: 39	
Monthly Average: 18.48 ppb																				Percentiles: P ₁ = 1.5 P ₁₀ = 3.7 Q ₁ = 7.5 Median = 17.3 Q ₃ = 27.4 P ₉₀ = 35.5 P ₉₉ = 46.5					Hours of Calibration: 39	
																									Percent Operational Time: 100.0	
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	A	4	3	4	4	9	12	9	20	18	28	34	31	31	28	25	7	6	6	4	4	3	2	A	13.3	33.6
2-Dec	3	3	3	3	2	2	3	4	7	7	6	12	12	12	24	26	26	19	15	13	8	8	A	6	9.7	25.7
3-Dec	5	3	3	3	5	13	14	27	27	26	7	6	7	6	5	5	5	3	3	3	6	A	8	12	8.8	26.7
4-Dec	33	32	30	20	17	19	30	31	32	28	30	24	29	19	17	22	30	30	29	24	A	22	22	21	25.7	33.3
5-Dec	23	24	26	33	31	12	10	12	14	13	10	10	8	7	9	14	10	6	5	A	5	4	10	8	13.2	33.4
6-Dec	2	1	2	2	5	4	3	10	11	14	14	15	13	14	13	20	12	19	A	16	11	9	10	11	9.9	20.0
7-Dec	14	11	18	23	31	23	38	38	38	30	32	23	13	19	22	27	39	A	39	41	38	34	22	21	27.6	41.1
8-Dec	21	27	27	24	21	19	25	26	29	27	27	28	23	33	26	A	29	27	26	24	24	24	24	24	25.8	32.5
9-Dec	20	20	32	32	11	11	9	12	9	C	C	C	C	C	C	A	8	9	20	23	37	36	39	45	--	45.1
10-Dec	39	39	38	36	34	34	26	28	9	7	6	8	7	4	A	6	5	6	7	9	10	12	11	5	16.7	39.2
11-Dec	7	3	7	13	14	28	29	32	32	24	36	29	21	A	17	23	35	34	33	34	26	27	29	33	24.4	35.9
12-Dec	27	24	25	27	21	23	24	29	33	34	37	38	A	45	38	34	36	26	14	8	8	10	4	5	24.8	45.0
13-Dec	3	4	4	3	6	10	25	38	41	49	46	A	36	18	23	36	26	22	12	10	8	6	11	6	19.2	48.8
14-Dec	9	11	20	33	25	33	62	47	55	51	A	37	29	33	32	43	41	39	37	39	26	26	27	30	34.2	62.1
15-Dec	25	23	20	19	27	22	24	33	31	A	34	32	31	31	30	36	39	43	39	33	33	35	35	27	30.5	43.2
16-Dec	25	13	7	4	6	10	10	20	A	19	14	17	16	24	30	43	40	49	42	31	32	32	24	32	23.4	48.6
17-Dec	24	22	21	21	20	21	24	A	27	25	11	12	5	6	8	15	26	28	29	28	25	25	4	4	18.7	29.3
18-Dec	5	6	9	11	8	8	A	25	22	26	18	17	19	21	14	21	27	25	26	31	29	32	32	28	19.8	32.1
19-Dec	28	28	21	16	30	A	22	38	47	39	40	33	26	26	13	37	25	35	41	38	36	41	41	16	31.1	47.0
20-Dec	2	3	2	2	A	4	5	7	7	6	6	7	6	9	9	7	9	5	3	3	5	3	3	4	5.0	9.1
21-Dec	7	18	13	A	22	19	17	24	16	31	19	16	13	13	19	28	25	32	30	15	13	7	7	5	17.8	31.8
22-Dec	5	4	A	4	5	3	6	8	7	10	9	15	19	18	17	22	40	45	46	44	44	39	21	27	20.0	46.0
23-Dec	27	A	29	31	29	13	6	6	7	9	7	7	6	5	4	4	5	9	16	17	10	9	10	10	11.9	31.2
24-Dec	A	4	2	2	1	2	3	4	3	4	10	17	14	22	31	36	23	21	28	27	20	21	11	A	13.9	36.2
25-Dec	13	20	16	11	24	25	30	26	30	30	32	33	22	11	22	7	3	3	6	11	10	2	A	2	16.8	33.3
26-Dec	2	1	1	1	1	2	3	3	3	14	17	17	7	7	13	19	14	13	16	13	18	A	23	16	9.8	22.8
27-Dec	19	13	13	12	15	18	34	28	3	3	3	4	3	3	3	6	12	27	22	19	A	37	38	40	16.2	39.7
28-Dec	38	25	20	12	10	14	10	10	12	15	10	13	25	21	22	26	29	30	32	A	28	23	19	20	20.1	37.9
29-Dec	16	14	18	19	17	17	15	24	24	8	6	5	5	5	6	6	16	21	A	32	38	40	40	33	18.4	40.4
30-Dec	33	24	24	24	14	9	7	9	21	16	11	9	9	10	10	19	23	A	25	22	19	11	12	10	16.2	33.2
31-Dec	9	10	3	2	2	3	4	4	5	6	6	6	4	6	7	11	A	12	8	13	13	25	13	17	8.2	24.5
16.6 14.4 15.3 14.8 15.2 14.4 17.7 20.3 20.7 20.3 18.3 18.0 15.8 16.6 17.8 21.7 22.0 22.3 22.6 21.6 20.2 20.7 19.1 17.7																									Diurnal Average	
38.8 39.2 37.9 36.0 33.7 33.6 62.1 46.7 54.6 51.3 45.9 38.2 35.6 45.0 38.1 43.0 41.0 48.6 46.0 44.2 44.2 40.6 40.9 45.1																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										

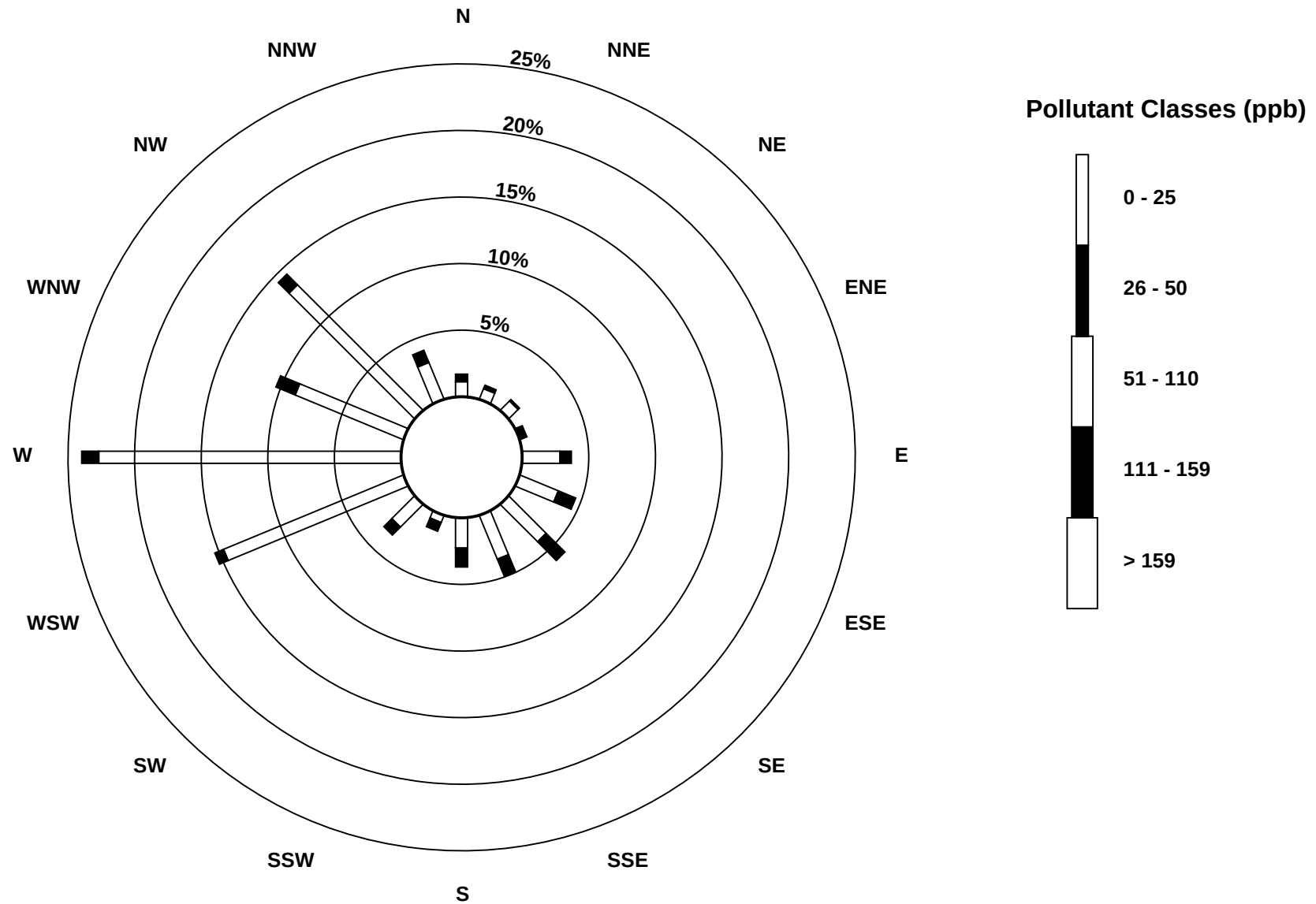
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - December 2011



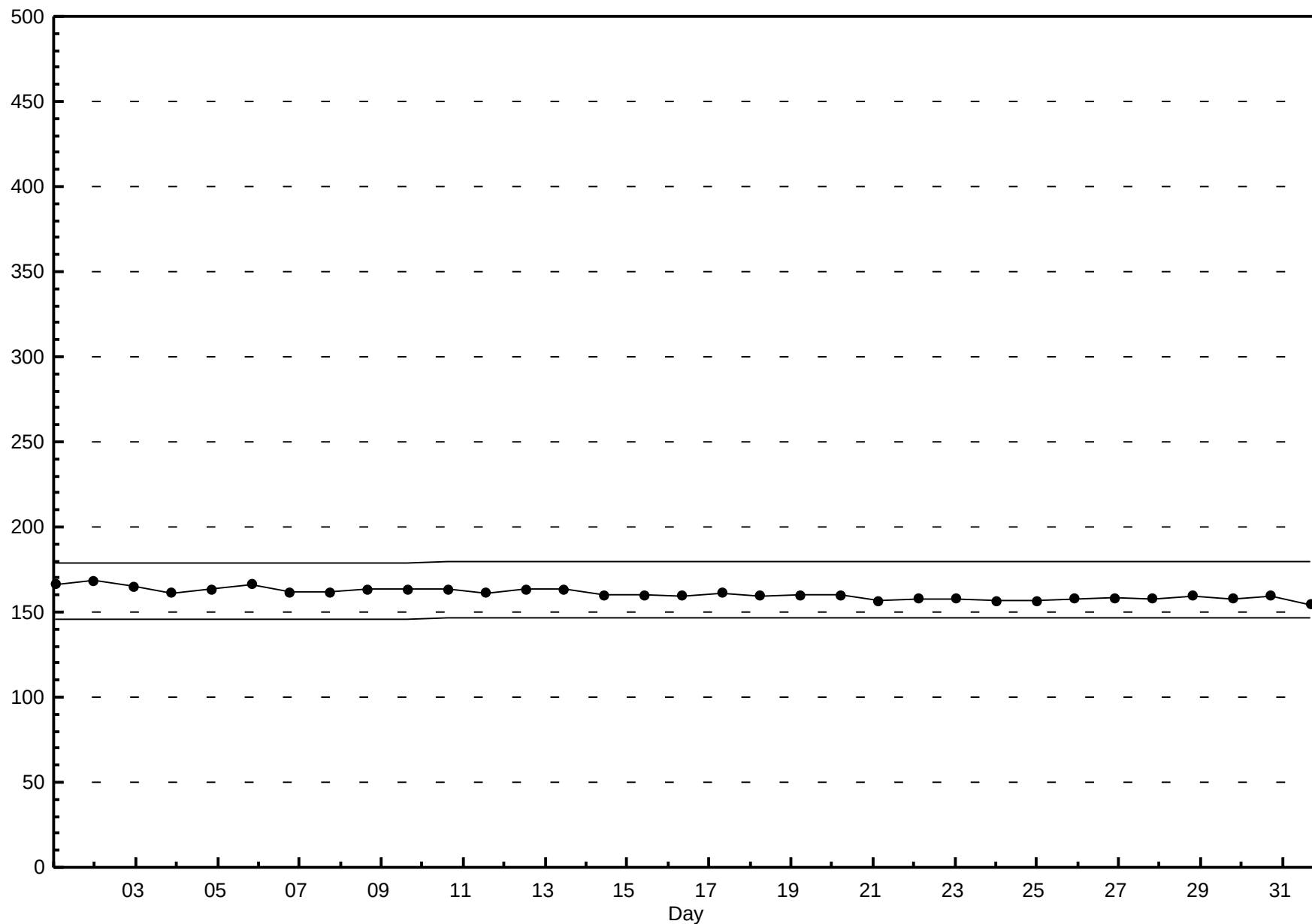
Pollutant Rose

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - December 2011



Span Responses

Nitrogen Dioxide (NO₂)
Henry Pirker - December 2011



Hourly Averages

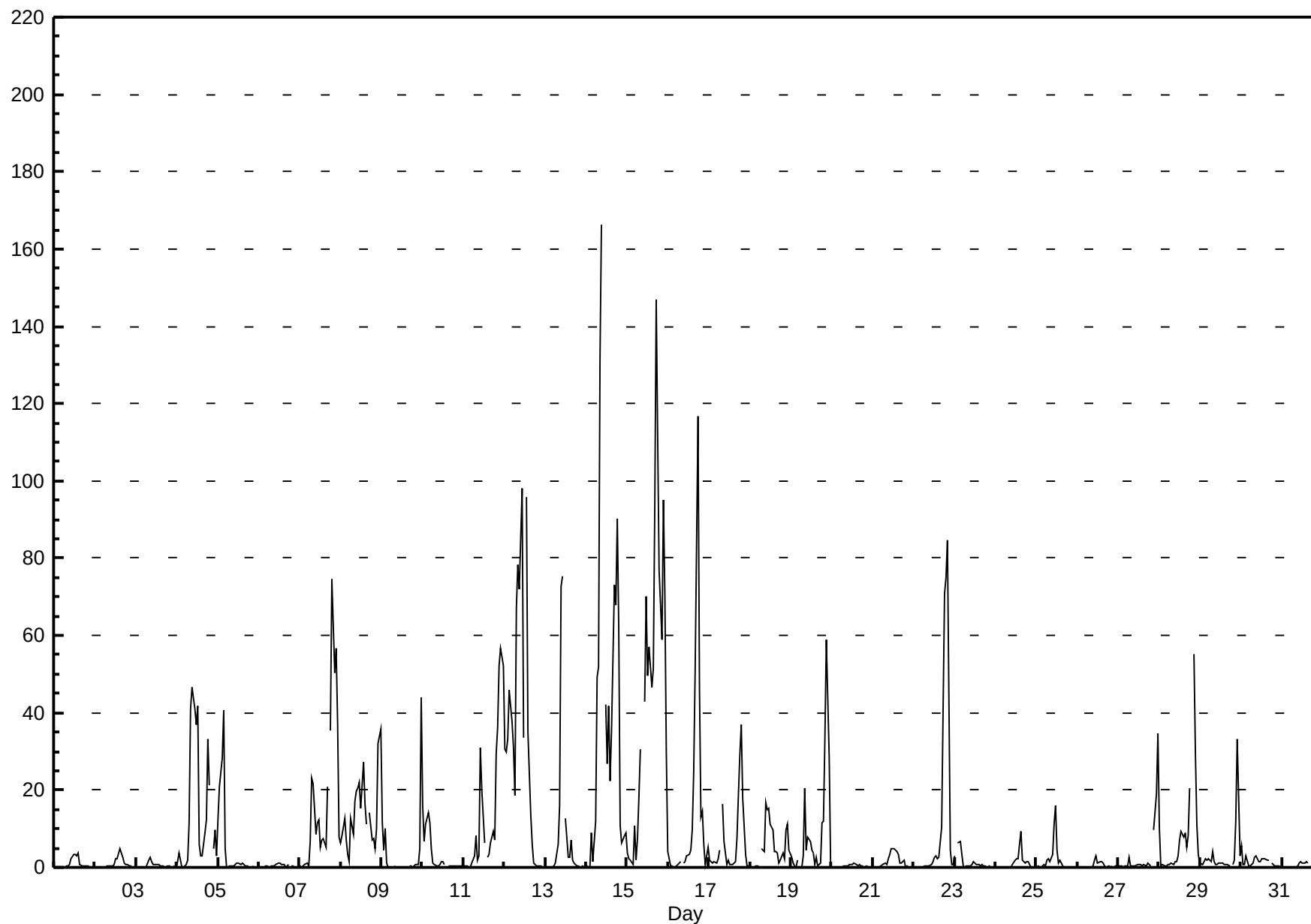
Nitrogen Oxide (NO) - ppb

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 166.4 ppb on Dec 14 10:00 Maximum Daily Average: 46.9 ppb on Dec 15																								Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 39 Percent Operational Time: 100.0		
Minimum Value: 0 ppb on Dec 3 02:00 Minimum Daily Average: 0.3 ppb on Dec 20 Maximum Diurnal Average: 16.4 ppb at hour 19 Minimum Diurnal Average: 2.0 ppb at hour 6 Monthly Average: 8.91 ppb Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.3 Median = 1.1 Q ₃ = 6.4 P ₉₀ = 30.6 P ₉₉ = 94.4																										
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	A	0	0	0	0	0	0	1	1	1	2	3	3	3	4	1	1	0	0	0	0	0	0	A	0.9	3.7
2-Dec	0	0	0	0	0	0	0	0	0	1	1	1	2	2	5	4	3	1	1	1	0	0	A	0	0.9	4.7
3-Dec	0	0	0	0	0	0	0	2	3	1	1	1	1	1	1	0	0	0	0	0	0	A	0	0	0.5	2.7
4-Dec	2	4	2	0	0	1	2	12	41	47	41	37	42	6	3	3	9	12	33	21	A	5	10	3	14.5	46.6
5-Dec	12	21	28	41	5	0	0	0	0	1	1	1	1	1	1	1	1	0	0	A	0	0	0	0	5.0	40.7
6-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	A	0	0	0	0	0	0.4	1.2
7-Dec	0	0	0	1	1	0	7	23	22	9	12	12	5	7	7	5	21	A	35	74	50	57	37	8	17.2	74.4
8-Dec	6	8	13	7	3	2	13	8	17	20	21	22	15	27	16	11	A	14	7	7	5	10	32	36	14.0	35.9
9-Dec	12	5	10	1	0	0	0	0	0	C	C	C	C	C	C	C	A	0	0	0	1	1	5	44	--	43.9
10-Dec	16	7	11	14	12	5	1	1	0	0	1	1	1	1	A	0	0	0	0	0	0	0	0	0	3.2	16.1
11-Dec	0	0	0	0	0	1	3	8	2	3	31	20	6	A	3	3	6	9	7	30	36	52	57	52	14.4	56.8
12-Dec	31	30	33	46	38	31	18	67	78	72	98	34	A	96	35	13	6	1	1	0	0	0	0	0	31.7	98.2
13-Dec	0	0	0	0	0	0	1	6	16	73	75	A	13	3	2	7	2	1	0	0	0	0	0	0	8.7	75.3
14-Dec	0	0	0	9	1	12	49	52	131	166	A	42	27	42	22	36	73	68	90	62	11	6	8	9	39.9	166.4
15-Dec	4	2	2	1	11	2	7	18	31	A	43	70	50	57	46	51	93	147	112	77	59	95	71	30	46.9	147.0
16-Dec	4	0	0	0	0	0	1	1	A	1	1	3	3	5	10	25	51	117	47	13	15	6	1	5	13.4	116.7
17-Dec	2	1	1	2	1	2	4	A	16	7	1	2	1	1	1	2	8	19	29	37	18	3	0	0	6.9	37.0
18-Dec	0	0	0	0	0	0	A	5	4	17	15	15	11	10	4	4	4	1	2	4	2	10	11	4	5.4	16.8
19-Dec	2	1	0	0	2	A	0	3	21	4	8	7	5	4	1	2	1	1	11	12	33	59	28	0	8.9	59.1
20-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0.3	1.1
21-Dec	0	0	0	A	0	0	1	1	1	2	3	5	5	4	4	4	1	1	2	0	0	0	0	0	1.5	5.0
22-Dec	0	0	A	0	0	0	0	0	0	0	1	1	3	3	2	3	10	41	71	75	85	4	1	1	13.1	84.8
23-Dec	3	A	6	7	3	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1.2	6.9
24-Dec	A	0	0	0	0	0	0	0	0	0	1	2	2	2	6	9	2	1	2	2	1	0	0	A	1.4	9.2
25-Dec	0	0	0	0	1	0	2	2	2	3	11	16	4	1	2	0	0	0	0	0	0	0	A	0	2.0	16.0
26-Dec	0	0	0	0	0	0	0	0	0	1	2	3	1	1	1	1	0	0	0	0	0	A	0	0	0.6	3.0
27-Dec	0	0	0	0	0	0	3	1	0	0	0	1	1	1	1	1	0	1	1	0	A	10	19	35	3.3	34.5
28-Dec	10	1	1	1	1	1	1	1	1	2	2	3	7	9	8	9	5	8	20	A	55	30	11	4	8.2	55.3
29-Dec	1	1	1	2	2	2	1	4	1	1	1	1	1	1	1	1	1	1	A	1	2	12	33	3	3.3	33.4
30-Dec	6	1	1	3	0	1	1	1	3	3	1	2	2	2	2	2	2	A	1	1	0	0	0	0	1.5	5.5
31-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	A	0	0	0	0	1	1	1	0.5	1.5
3.9 2.8 3.7 4.5 2.7 2.0 3.9 7.3 13.1 15.0 13.0 10.7 7.5 10.1 6.6 6.7 10.3 15.5 16.4 14.5 13.0 12.5 11.3 8.2																								Diurnal Average		
30.6 29.7 33.1 45.8 37.8 30.9 49.2 67.3 131.2 166.4 98.2 70.2 49.6 95.7 46.5 51.4 93.2 147.0 111.7 77.0 84.8 95.1 70.6 52.4																								Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																										

Hourly Averages

Nitrogen Oxide (NO) - ppb
Henry Pirker - December 2011



Hourly Maximums

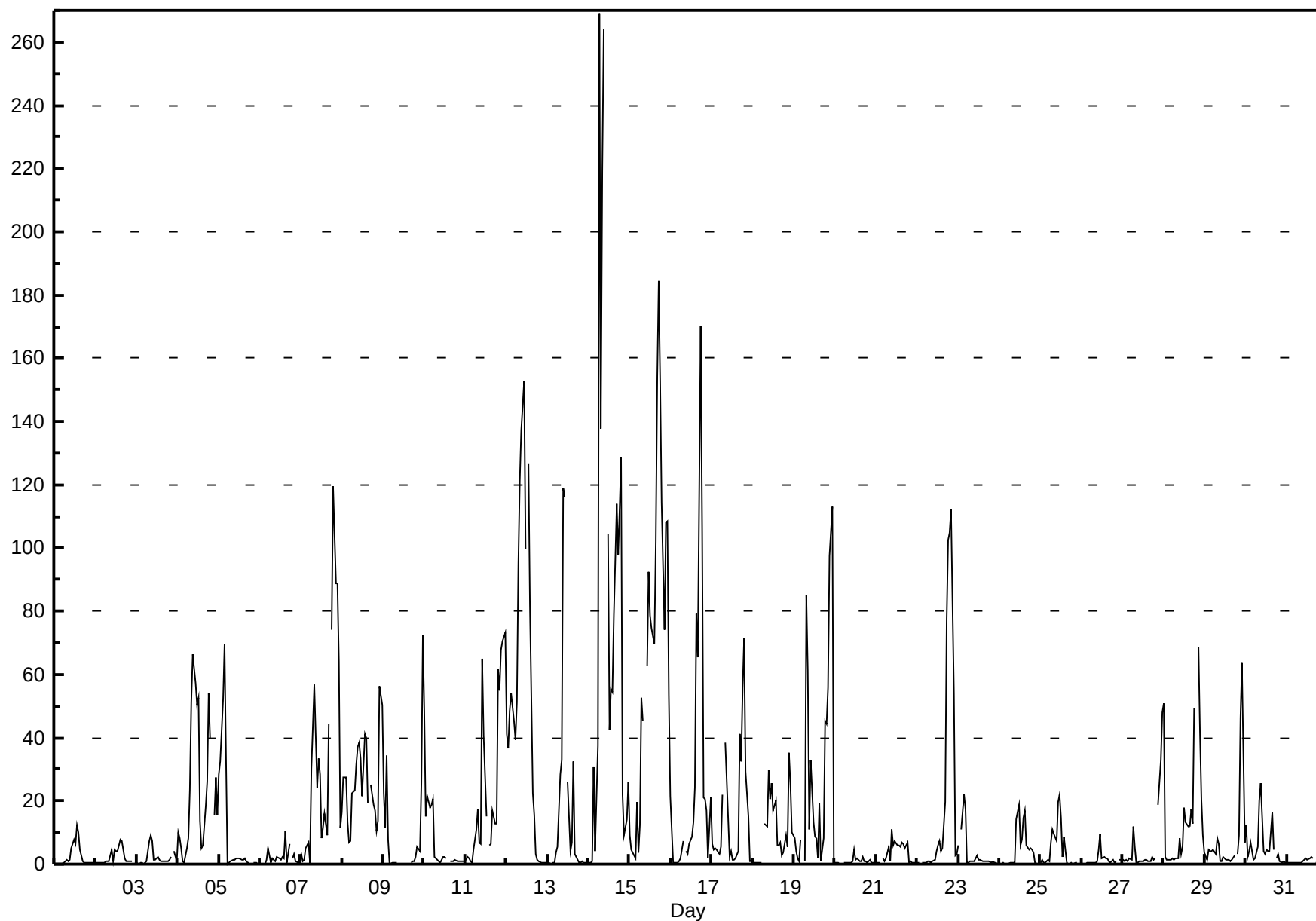
Nitrogen Oxide (NO) - ppb

Henry Pirker - December 2011

Maximum Value: 269.0 ppb on Dec 14 07:00																				Maximum Daily Average: 79.3 ppb on Dec 14										Hours in Service: 744	
Minimum Value: 0 ppb on Dec 24 02:00																				Minimum Daily Average: 1.0 ppb on Dec 20										Hours of Data: 705	
Maximum Diurnal Average: 28.1 ppb at hour 19																				Minimum Diurnal Average: 5.0 ppb at hour 6										Hours of Missing Data: 39	
Monthly Average: 16.90 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.5 Q ₁ = 1.0 Median = 3.0 Q ₃ = 17.0 P ₉₀ = 53.8 P ₉₉ = 152.3										Hours of Calibration: 39	
																				Percent Operational Time: 100.0											
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	A	0	0	0	0	0	1	1	1	2	5	8	7	12	10	4	1	0	1	1	0	0	0	A	2.5	12.4					
2-Dec	0	0	0	0	0	0	1	1	1	5	1	4	4	4	8	7	5	2	1	1	1	1	A	0	2.2	7.8					
3-Dec	0	0	0	0	0	0	1	7	9	7	1	1	2	1	1	1	1	1	1	1	2	A	4	1	2.0	9.3					
4-Dec	10	8	5	1	0	5	8	23	51	66	57	50	53	14	5	6	18	26	54	40	A	16	27	15	24.4	66.3					
5-Dec	28	33	52	70	34	0	0	1	1	1	2	2	2	1	2	2	1	0	0	A	1	0	0	0	10.2	69.5					
6-Dec	0	0	0	0	2	5	0	2	1	1	2	2	2	2	2	11	0	6	A	2	3	1	0	1	2.0	10.7					
7-Dec	3	1	1	5	7	0	30	43	57	24	33	28	8	12	16	9	44	A	74	120	89	89	64	11	33.5	119.5					
8-Dec	16	28	28	13	7	7	22	24	31	37	38	34	21	41	40	19	A	25	19	17	11	14	56	50	26.0	56.1					
9-Dec	23	12	34	8	0	0	0	0	0	C	C	C	C	C	C	A	0	1	1	2	5	4	26	72	--	72.4					
10-Dec	49	15	21	18	19	21	2	2	1	0	1	2	2	2	A	1	1	1	1	1	1	1	1	1	7.2	48.7					
11-Dec	1	3	2	1	0	4	11	18	7	7	65	41	15	A	6	7	17	13	13	62	55	68	70	73	24.2	73.3					
12-Dec	41	37	48	54	45	39	51	95	121	137	153	100	A	127	82	23	16	3	1	1	0	0	0	0	51.2	153.0					
13-Dec	0	0	0	0	0	4	6	29	33	119	116	A	26	4	7	32	3	2	1	0	1	1	0	0	16.8	119.1					
14-Dec	0	0	1	31	4	37	269	138	219	264	A	104	42	56	55	79	114	98	113	128	22	9	14	26	79.3	269.0					
15-Dec	9	5	3	2	20	3	13	53	45	A	62	92	79	75	70	102	154	184	153	114	74	108	108	54	68.8	184.2					
16-Dec	21	0	0	0	0	1	2	7	A	4	3	6	9	13	24	79	65	170	106	21	21	17	2	21	25.9	170.4					
17-Dec	6	5	5	5	3	6	22	A	38	27	2	4	1	1	2	4	41	32	56	71	29	15	1	1	16.5	71.3					
18-Dec	1	0	0	0	0	0	A	13	12	30	21	25	17	20	6	6	7	3	3	9	6	35	26	10	11.0	35.2					
19-Dec	8	4	2	1	8	A	1	85	61	11	33	13	9	8	2	19	1	8	45	44	56	98	113	0	27.4	113.1					
20-Dec	0	0	0	0	A	0	0	0	0	0	1	4	1	2	1	1	2	1	1	0	1	0	0	0	1.0	4.4					
21-Dec	0	0	0	A	2	1	2	5	1	11	6	8	6	6	6	7	7	5	7	0	1	0	0	0	3.6	11.0					
22-Dec	0	0	A	0	0	0	1	1	0	1	1	4	6	8	4	5	20	77	102	105	112	54	3	3	22.2	111.9					
23-Dec	6	A	11	22	18	0	0	1	1	1	2	3	2	2	1	1	1	1	1	0	1	0	0	0	3.3	21.9					
24-Dec	A	0	0	0	0	0	0	0	0	0	14	19	6	8	15	17	6	4	5	4	4	0	0	A	4.8	19.0					
25-Dec	0	2	0	0	1	1	7	11	10	7	20	22	15	2	9	0	0	0	0	0	0	0	A	0	4.7	21.8					
26-Dec	0	0	0	0	0	0	0	0	0	1	5	10	2	2	2	2	1	0	1	0	1	A	2	1	1.5	9.7					
27-Dec	2	1	1	1	2	1	12	5	0	0	1	1	1	1	1	1	1	2	2	2	A	19	33	48	6.1	48.2					
28-Dec	51	2	2	2	1	2	2	2	2	8	3	6	18	13	12	12	18	13	49	A	69	42	21	9	15.5	68.6					
29-Dec	4	2	5	4	4	5	3	8	7	1	1	2	2	2	1	1	1	3	A	3	9	46	64	7	8.0	63.6					
30-Dec	13	2	4	7	1	2	4	5	20	26	4	3	5	4	4	16	5	A	2	3	1	0	1	0	5.8	25.7					
31-Dec	0	0	0	0	0	0	0	0	0	1	1	2	1	2	3	2	A	0	0	0	0	16	9	21	2.8	20.7					
10.2 5.4 7.7 8.2 6.0 5.0 15.8 19.4 24.5 27.6 22.6 20.7 12.5 15.3 13.6 15.9 19.0 23.6 28.1 26.1 19.9 22.6 22.4 14.8																									Diurnal Average						
50.7 36.6 52.2 69.5 45.5 39.3 269.0 137.8 219.4 264.1 153.0 104.2 78.6 126.9 82.1 101.9 154.2 184.2 153.0 128.5 111.9 107.9 113.1 73.3																									Diurnal Maximum						
C - Calibration A - Automated Daily Zero Span																															

Hourly Maximums

Nitrogen Oxide (NO) - ppb
Henry Pirker - December 2011



Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

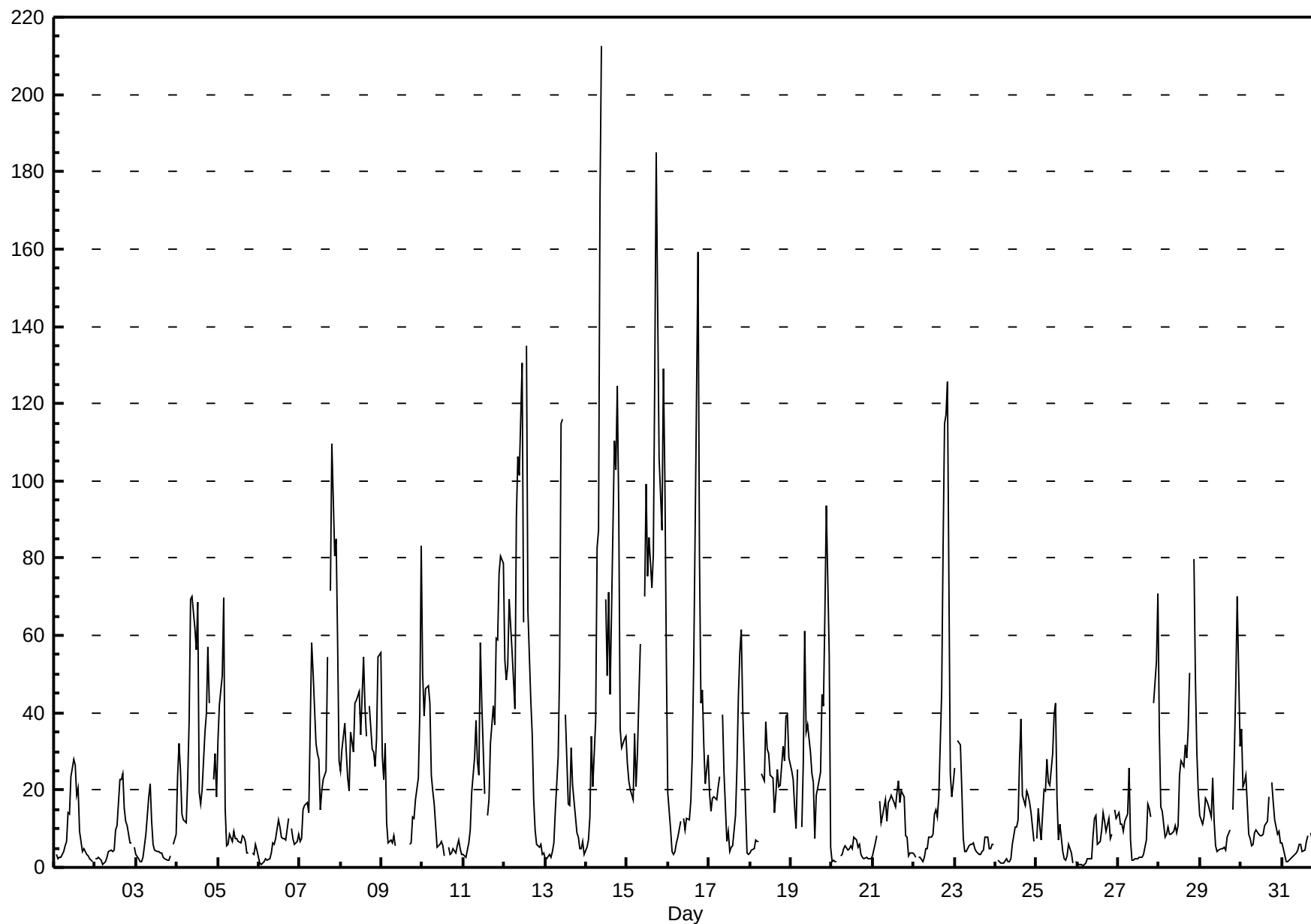
Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 212.6 ppb on Dec 14 10:00 Maximum Daily Average: 73.6 ppb on Dec 15																								Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 39 Percent Operational Time: 100.0		
Minimum Value: 1 ppb on Dec 26 04:00 Minimum Daily Average: 3.7 ppb on Dec 20 Maximum Diurnal Average: 34.5 ppb at hour 19 Minimum Diurnal Average: 11.9 ppb at hour 6 Monthly Average: 22.69 ppb Percentiles: P ₁ = 1.0 P ₁₀ = 2.5 Q ₁ = 5.3 Median = 12.4 Q ₃ = 28.9 P ₉₀ = 55.7 P ₉₉ = 128.1																										
Day	Hourly Period Ending At (MST)																							Daily Average	Daily Maximum	
1-Dec	A	3	2	3	2	4	6	7	14	14	23	28	27	19	20	9	4	5	4	3	3	2	2	A	9.3	28.1
2-Dec	2	2	3	2	1	1	2	3	4	4	4	10	11	23	23	24	15	12	11	6	6	A	5	7.8	24.4	
3-Dec	3	2	2	2	3	6	9	18	22	12	6	5	4	4	4	2	2	2	2	3	A	6	9	5.6	21.7	
4-Dec	24	32	25	14	12	12	23	38	69	70	62	56	69	20	16	20	35	40	57	43	A	23	30	18	35.1	69.9
5-Dec	33	42	49	70	15	5	6	9	7	9	8	7	7	7	8	8	7	4	4	A	4	3	6	5	14.0	69.8
6-Dec	1	1	1	2	2	2	2	4	6	6	8	12	11	8	7	8	7	13	A	10	7	6	7	8	6.0	12.8
7-Dec	7	8	15	16	17	14	36	58	50	32	29	28	15	20	23	25	55	A	72	110	81	85	58	27	38.3	109.6
8-Dec	25	31	37	30	23	20	35	30	43	43	45	45	34	54	41	34	A	42	31	30	26	33	54	56	36.6	55.5
9-Dec	29	23	32	11	6	7	6	8	6	C	C	C	C	C	C	A	6	7	13	13	17	23	40	83	--	83.2
10-Dec	50	39	46	47	42	24	20	16	5	5	6	7	6	3	A	5	3	4	5	4	5	7	5	4	15.6	49.9
11-Dec	3	2	5	7	10	19	28	38	27	24	58	43	19	A	13	18	32	42	37	59	59	76	80	79	33.8	80.5
12-Dec	54	49	52	69	56	49	41	91	106	101	131	63	A	135	66	43	34	17	10	6	5	6	3	4	51.8	135.0
13-Dec	2	2	3	2	4	7	15	29	52	115	116	A	39	16	16	31	21	17	9	8	5	5	7	3	22.8	115.9
14-Dec	5	7	13	34	21	38	83	87	173	213	A	69	50	71	45	66	110	103	125	93	36	31	33	34	66.9	212.6
15-Dec	27	23	20	18	35	21	30	44	58	A	70	99	75	86	72	81	128	185	145	106	87	129	101	55	73.6	185.0
16-Dec	20	10	4	3	4	6	8	12	A	13	10	13	12	17	29	53	87	159	81	43	46	32	22	29	30.9	159.2
17-Dec	19	15	18	18	18	21	24	A	40	25	7	9	4	5	6	13	26	44	56	62	41	15	4	3	21.3	61.6
18-Dec	4	4	5	7	7	7	A	24	22	38	31	30	24	23	14	19	25	21	21	31	28	39	40	28	21.4	39.7
19-Dec	25	23	16	10	25	A	11	27	61	35	37	30	24	22	7	19	20	25	45	42	66	94	55	5	31.4	93.5
20-Dec	1	2	2	1	A	3	3	5	6	4	5	6	5	8	7	5	6	3	3	2	3	2	2	2	3.7	7.7
21-Dec	3	6	8	A	17	11	14	18	12	17	18	19	17	16	19	22	17	20	18	8	8	3	4	4	12.9	22.3
22-Dec	3	2	A	3	3	1	3	5	5	8	8	8	14	15	13	18	45	83	115	117	126	24	18	22	28.7	125.5
23-Dec	26	A	33	32	20	7	4	4	6	6	6	6	5	4	4	3	4	5	8	8	5	5	6	6	9.2	33.0
24-Dec	A	2	2	1	1	1	2	2	1	2	6	10	10	12	28	38	19	16	20	19	17	14	7	A	10.4	38.3
25-Dec	7	15	11	7	20	20	28	22	21	29	40	43	18	7	11	4	2	2	3	6	4	1	A	1	14.0	42.6
26-Dec	1	1	1	1	1	1	2	2	2	8	13	13	6	7	10	14	12	9	13	7	8	A	15	13	7.0	14.8
27-Dec	14	11	11	9	12	14	26	7	2	2	2	2	2	3	2	4	7	16	15	13	A	42	53	71	14.8	70.7
28-Dec	35	16	14	8	9	10	8	8	9	11	9	11	24	28	26	32	28	36	50	A	80	49	30	19	23.9	79.7
29-Dec	13	11	13	18	17	16	13	23	12	5	4	4	5	5	5	5	8	10	A	15	29	47	70	31	16.6	70.2
30-Dec	36	21	22	24	9	7	6	6	9	10	9	8	8	9	11	12	18	A	22	17	12	8	9	6	13.0	35.7
31-Dec	6	5	2	1	2	2	2	3	4	4	6	6	4	5	7	8	A	9	7	8	7	9	8	11	5.5	10.9
16.5 13.7 15.5 15.6 13.8 11.9 16.4 21.6 28.5 29.9 26.7 23.7 18.9 22.0 19.1 21.4 27.4 32.9 34.5 30.9 28.4 28.3 26.7 22.2																								Diurnal Average		
53.8 48.6 52.2 69.8 55.8 48.6 82.7 90.6 172.9 212.6 130.5 99.2 75.3 135.0 72.4 80.9 128.0 185.0 144.9 117.0 125.5 129.0 100.8 83.2																								Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																										

Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - December 2011



Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb

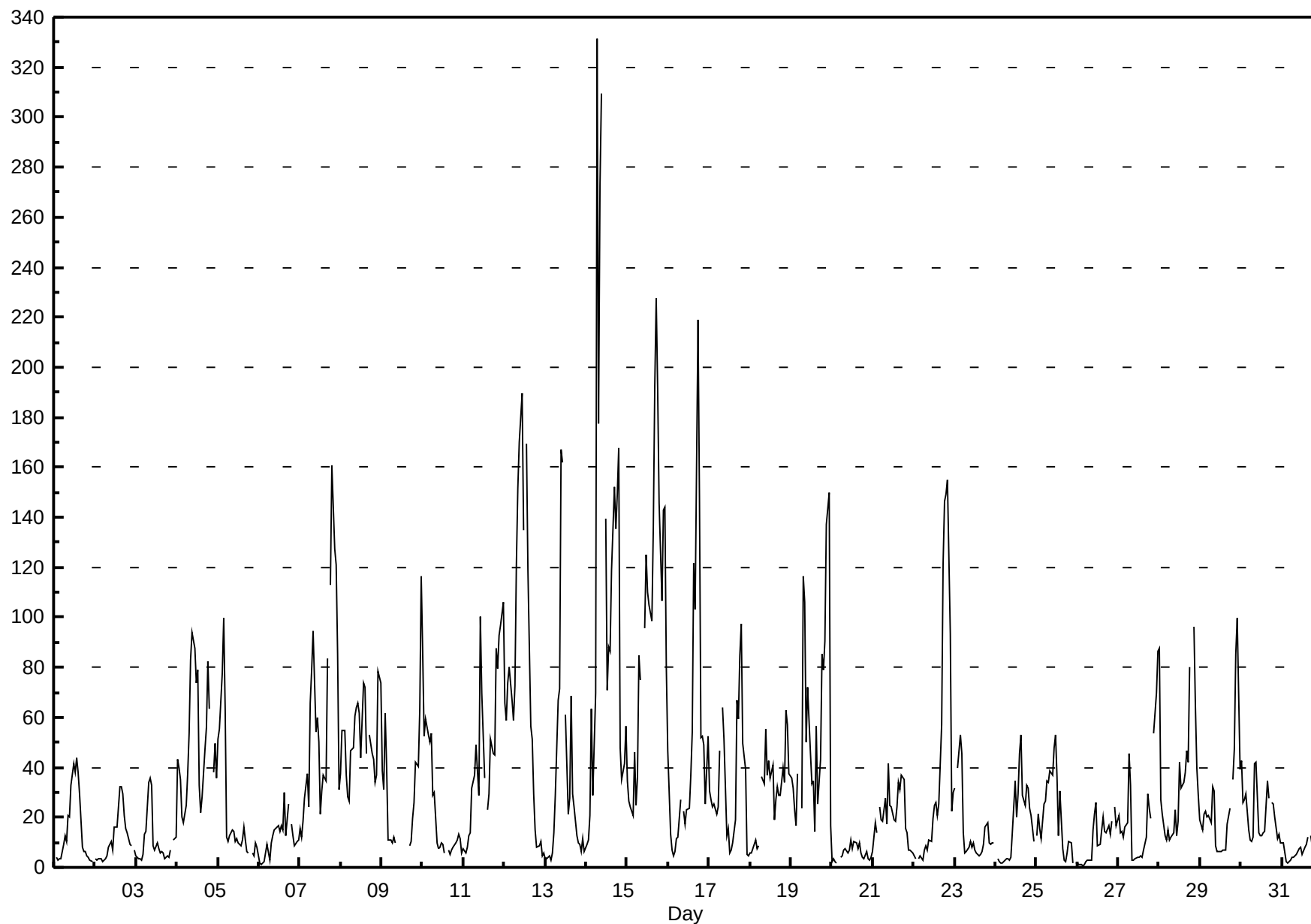
Henry Pirker - December 2011

Maximum Value: 331.3 ppb on Dec 14 07:00																				Maximum Daily Average: 112.3 ppb on Dec 14										Hours in Service: 744	
Minimum Value: 1 ppb on Dec 26 04:00																				Minimum Daily Average: 5.8 ppb on Dec 20										Hours of Data: 705	
Maximum Diurnal Average: 50.1 ppb at hour 19																				Minimum Diurnal Average: 19.0 ppb at hour 6										Hours of Missing Data: 39	
Monthly Average: 34.87 ppb																				Percentiles: P ₁ = 1.4 P ₁₀ = 4.1 Q ₁ = 8.8 Median = 20.7 Q ₃ = 42.6 P ₉₀ = 85.1 P ₉₉ = 190.6										Hours of Calibration: 39	
																														Percent Operational Time: 100.0	
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	A	4	3	4	4	9	13	10	21	20	33	41	38	44	38	30	8	7	6	5	4	3	2	A	15.7	43.7					
2-Dec	4	3	4	4	2	3	3	5	8	10	7	16	16	16	32	32	29	21	16	14	9	9	A	7	11.7	32.3					
3-Dec	5	3	4	3	5	13	14	34	36	33	9	7	10	8	6	6	6	3	5	4	7	A	11	12	10.5	35.7					
4-Dec	43	40	35	20	18	25	38	54	83	94	88	74	79	33	22	28	48	56	83	64	A	38	49	36	49.8	94.2					
5-Dec	51	55	78	100	63	12	11	13	15	14	11	12	10	9	11	16	11	7	6	A	6	4	10	8	23.1	99.8					
6-Dec	2	1	2	2	6	9	3	10	13	15	16	17	15	17	15	30	13	26	A	17	13	9	11	11	11.7	30.2					
7-Dec	15	12	19	27	37	24	66	79	94	54	60	50	21	30	37	35	83	A	113	161	127	121	85	31	60.2	160.9					
8-Dec	37	55	55	37	28	27	47	48	60	64	65	62	44	74	72	46	A	53	45	43	34	37	79	74	51.5	78.6					
9-Dec	39	31	62	40	11	11	10	12	10	C	C	C	C	C	C	A	8	10	19	26	42	40	63	117	--	116.5					
10-Dec	87	53	59	53	50	54	29	30	10	7	8	10	9	6	A	7	5	7	8	10	11	13	12	6	23.6	86.7					
11-Dec	8	6	8	13	14	32	37	49	39	29	100	70	36	A	23	29	51	46	45	88	80	93	97	106	47.7	106.1					
12-Dec	66	59	73	80	67	59	72	121	151	170	190	135	A	169	119	56	52	30	15	8	8	11	5	6	74.8	189.7					
13-Dec	4	4	5	3	6	14	29	67	71	167	162	A	61	22	27	69	29	24	13	10	9	7	12	6	35.6	167.2					
14-Dec	9	11	21	64	29	70	331	178	272	310	A	139	71	88	86	119	152	135	149	168	48	35	41	57	112.3	331.3					
15-Dec	35	27	24	21	46	25	36	85	75	A	96	125	110	105	98	137	193	228	191	146	107	143	144	80	98.9	227.6					
16-Dec	47	13	7	5	6	11	12	27	A	23	18	23	23	37	54	122	103	219	147	52	53	49	26	53	49.1	219.1					
17-Dec	30	27	24	26	22	24	46	A	64	51	13	16	6	7	10	19	67	60	85	97	50	39	5	5	34.4	97.1					
18-Dec	6	6	9	11	8	9	A	36	34	56	37	42	36	41	19	27	32	29	29	39	34	63	57	38	30.2	63.1					
19-Dec	36	32	23	17	37	A	24	116	106	50	72	46	33	34	14	56	25	43	85	79	90	137	150	17	57.5	150.1					
20-Dec	2	4	2	2	A	4	5	7	8	6	7	11	8	11	10	7	10	6	4	4	7	3	3	4	5.8	11.0					
21-Dec	7	18	14	A	24	19	19	28	18	41	25	24	19	18	24	34	31	37	35	16	14	7	7	6	21.0	41.2					
22-Dec	5	4	A	4	5	3	7	9	7	11	11	20	25	26	21	25	57	121	147	149	155	93	23	30	41.5	155.0					
23-Dec	32	A	40	53	45	14	6	7	8	10	8	10	7	6	5	5	7	9	16	18	10	9	10	10	14.9	53.2					
24-Dec	A	4	3	2	2	2	4	4	3	4	14	35	20	29	46	53	29	25	33	32	23	21	11	A	18.0	53.2					
25-Dec	13	22	16	11	25	27	35	34	39	37	48	53	36	13	31	7	3	3	6	11	10	2	A	2	20.9	53.3					
26-Dec	2	1	1	1	1	2	3	3	3	15	21	26	9	9	15	20	15	14	17	14	18	A	24	17	10.8	25.7					
27-Dec	21	14	14	12	16	18	46	33	3	3	4	4	4	4	4	7	12	29	23	20	A	54	70	86	21.8	86.3					
28-Dec	87	27	22	13	11	15	11	12	14	23	12	18	42	32	34	38	47	42	80	A	96	65	40	29	35.2	96.2					
29-Dec	19	15	22	23	20	21	18	32	30	9	7	6	7	7	7	7	17	24	A	35	47	85	99	39	25.9	99.4					
30-Dec	43	26	27	30	15	11	10	12	42	42	14	12	13	14	15	34	28	A	26	25	20	12	13	10	21.4	42.7					
31-Dec	10	10	3	2	3	3	4	4	5	7	8	8	5	8	9	12	A	13	9	13	14	40	22	36	10.7	40.3					
																									Diurnal Average						
																									Diurnal Maximum						
C - Calibration																									A - Automated Daily Zero Span						

Hourly Maximums

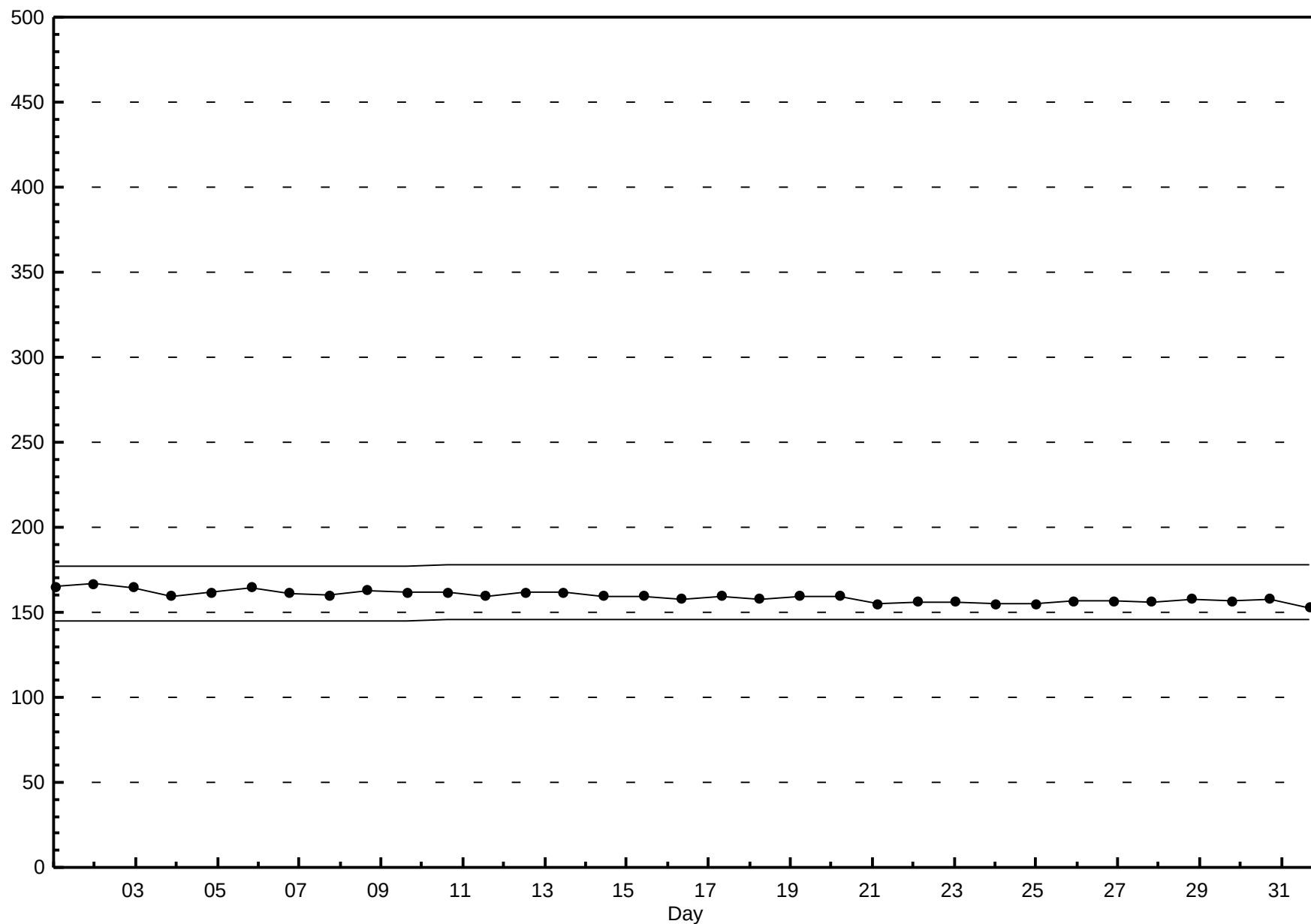
Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - December 2011



Span Responses

Oxides of Nitrogen (NO_x)
Henry Pirker - December 2011



Hourly Averages

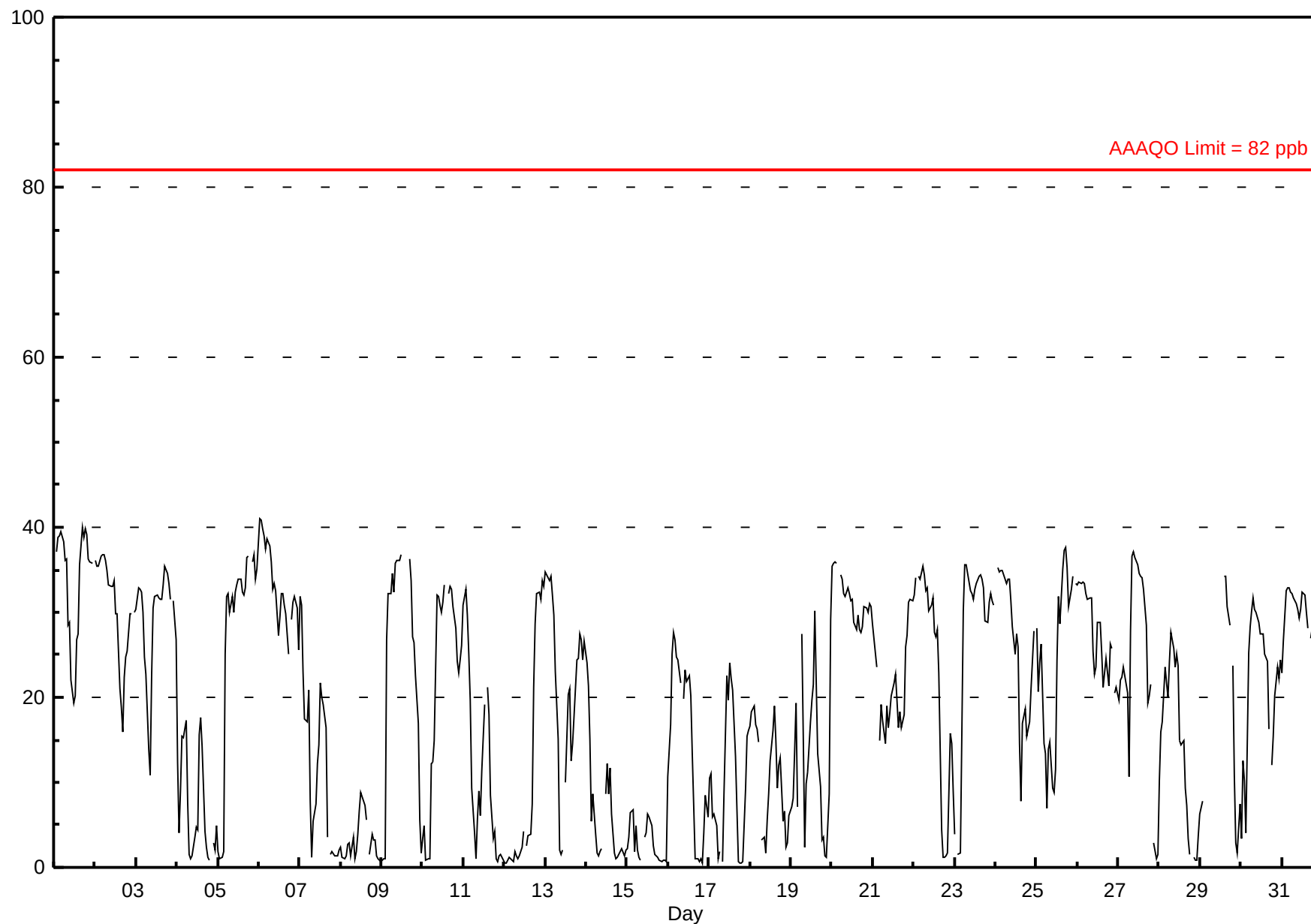
Ozone (O₃) - ppb

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 40.9 ppb on Dec 6 01:00 Maximum Daily Average: 33.6 ppb on Dec 1																				Hours in Service: 744 Hours of Data: 696 Hours of Missing Data: 48 Hours of Calibration: 36 Percent Operational Time: 98.4							
Minimum Value: 1 ppb on Dec 12 01:00 Minimum Daily Average: 2.8 ppb on Dec 15 Maximum Diurnal Average: 23.4 ppb at hour 14 Minimum Diurnal Average: 16.3 ppb at hour 23 Monthly Average: 19.65 ppb Percentiles: P ₁ = 0.6 P ₁₀ = 1.4 Q ₁ = 6.5 Median = 22.0 Q ₃ = 31.5 P ₉₀ = 34.3 P ₉₉ = 38.9																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
1-Dec	A	37	39	39	40	38	36	36	29	29	22	19	20	27	28	36	40	39	40	39	36	36	36	A	33.6	40.0	
2-Dec	36	35	35	37	37	37	36	35	33	33	33	34	30	30	21	19	16	22	25	25	30	30	A	30	30.4	36.8	
3-Dec	30	33	33	32	30	25	23	14	11	23	30	32	32	32	32	32	33	35	35	33	32	A	31	27	29.1	35.4	
4-Dec	12	4	9	15	15	17	8	1	1	1	4	5	4	16	18	14	4	2	1	1	A	3	2	5	7.1	17.6	
5-Dec	2	1	1	2	25	32	32	30	32	30	32	33	34	34	32	32	33	36	37	A	36	37	34	35	27.5	36.7	
6-Dec	41	41	40	39	38	39	38	36	33	33	33	27	30	32	32	31	30	25	A	29	31	32	30	26	33.2	40.9	
7-Dec	32	31	23	18	17	21	8	1	5	7	12	14	22	20	19	16	4	A	2	2	1	1	1	2	12.2	31.8	
8-Dec	2	1	1	1	3	3	1	4	1	2	4	7	9	8	7	6	A	2	4	3	3	1	1	1	3.2	8.8	
9-Dec	1	1	1	27	32	32	35	32	36	36	36	37	C	C	C	A	36	34	27	26	23	17	6	2	23.8	36.8	
10-Dec	3	5	1	1	1	12	12	15	32	32	31	30	31	33	A	32	33	33	31	28	24	23	24	26	21.5	33.2	
11-Dec	31	33	30	25	20	9	4	1	6	9	6	11	19	A	21	18	8	3	4	1	1	1	1	1	11.5	32.7	
12-Dec	1	1	1	1	1	1	2	1	1	1	2	4	A	3	4	4	7	21	29	32	32	32	34	33	10.7	33.7	
13-Dec	35	34	34	34	32	30	23	15	2	2	2	A	10	20	21	13	15	18	24	25	27	27	24	27	21.4	34.7	
14-Dec	24	21	15	5	9	4	2	1	2	2	A	9	12	9	12	6	2	1	1	1	2	2	1	2	6.3	24.0	
15-Dec	2	4	6	7	2	5	2	1	1	A	4	4	6	6	5	3	2	1	1	1	1	1	1	1	2.8	6.7	
16-Dec	11	17	25	28	27	25	24	22	A	20	23	22	23	20	13	7	1	1	1	1	1	4	9	6	14.3	27.7	
17-Dec	11	11	6	6	5	1	2	A	1	9	23	20	24	22	21	13	7	1	1	1	1	9	15	16	9.7	24.1	
18-Dec	17	18	19	17	16	15	A	3	4	2	6	9	13	16	19	15	9	12	13	5	7	2	3	6	10.6	19.0	
19-Dec	7	8	14	19	7	A	28	15	2	10	11	17	20	22	30	22	13	9	3	3	1	1	9	29	13.1	30.1	
20-Dec	35	36	36	36	A	34	34	32	32	33	32	31	32	29	28	30	28	28	28	31	31	30	31	31	31.6	35.9	
21-Dec	29	25	24	A	15	19	17	14	19	16	18	20	22	23	20	16	18	17	18	26	27	31	32	31	21.6	31.6	
22-Dec	32	34	A	34	34	35	34	33	33	30	31	32	28	27	28	23	4	1	1	1	2	16	15	9	22.5	35.4	
23-Dec	4	A	2	2	16	30	36	36	34	32	32	31	33	33	34	34	34	33	29	29	31	32	31	31	27.8	35.6	
24-Dec	A	35	35	35	35	34	33	34	34	31	28	25	27	26	15	8	17	19	15	16	17	21	28	A	25.9	35.2	
25-Dec	28	21	24	26	15	13	7	14	15	9	9	12	24	32	29	35	37	38	35	31	33	34	A	33	24.1	37.6	
26-Dec	33	33	33	34	33	32	31	32	32	25	23	23	29	29	25	21	23	25	21	26	26	A	21	21	27.5	33.5	
27-Dec	20	22	22	24	22	20	11	28	37	37	37	36	35	34	34	33	28	19	20	21	A	3	1	1	23.7	37.1	
28-Dec	10	16	17	24	22	20	24	28	26	23	25	24	15	14	15	9	7	3	2	A	1	1	1	4	14.4	27.6	
29-Dec	6	8	N	N	N	N	N	N	N	N	N	N	N	N	M	34	34	31	28	A	24	11	3	2	7	--	34.3
30-Dec	3	13	10	4	25	28	30	32	30	30	29	27	27	28	25	24	16	A	12	15	20	24	22	24	21.8	31.7	
31-Dec	23	27	33	33	33	32	32	32	31	30	29	30	32	32	30	28	A	27	28	26	27	27	27	24	29.3	32.9	
18.0 20.2 19.6 20.8 20.9 22.3 20.9 19.9 19.0 20.0 20.9 21.6 22.9 23.4 22.5 20.4 18.5 18.4 16.8 17.4 17.7 16.5 16.3 16.9																								Diurnal Average			
40.9 40.9 39.8 39.0 39.5 38.7 37.7 36.3 36.5 37.1 36.5 36.8 34.6 34.2 34.3 35.6 40.0 38.8 39.8 39.1 36.2 36.7 35.8 35.1																								Diurnal Maximum			
C - Calibration M - Maintenance N - Not Valid A - Automated Daily Zero Span																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na																											

Hourly Averages

Ozone (O₃) - ppb
Henry Pirker - December 2011



Hourly Maximums

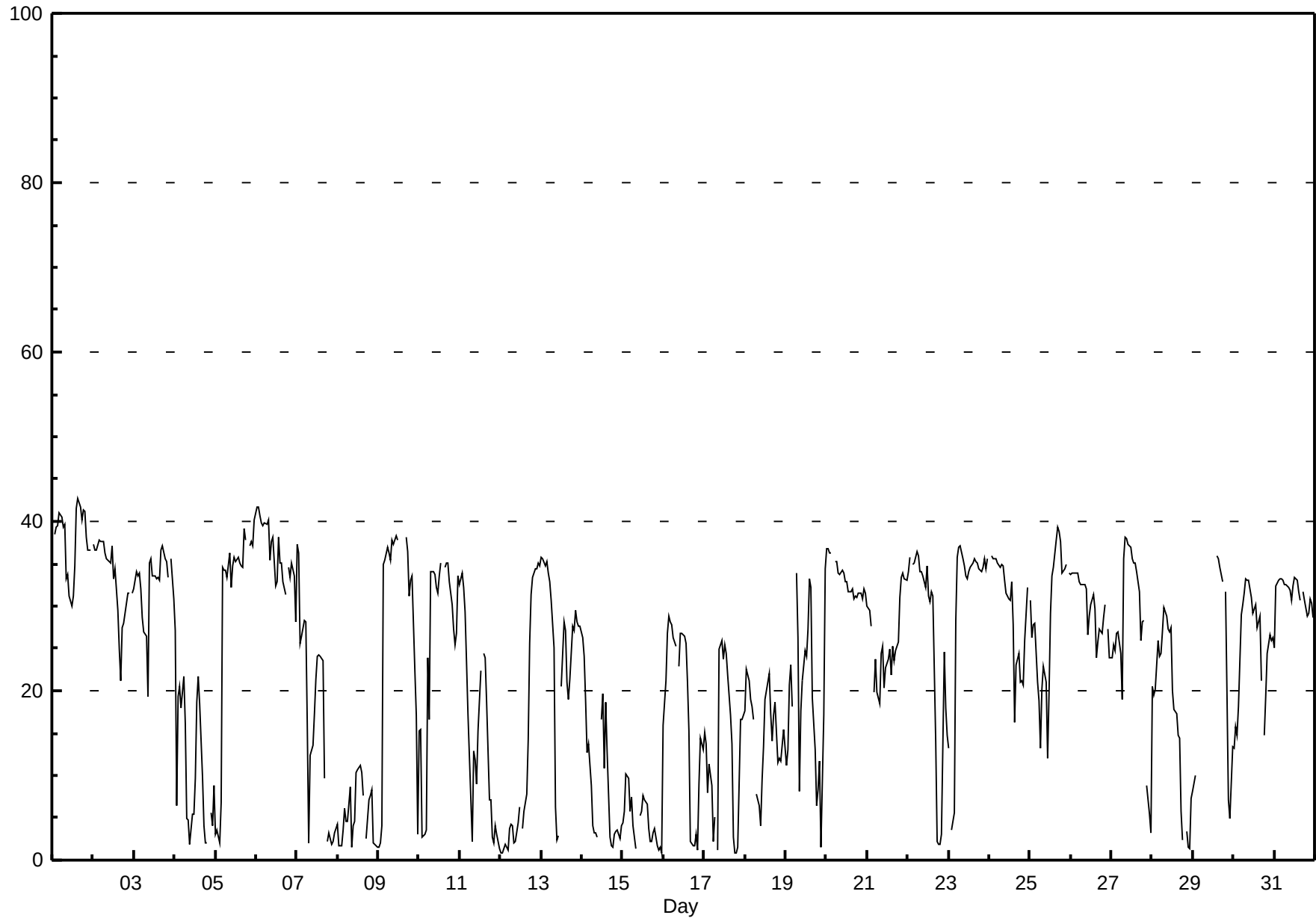
Ozone (O₃) - ppb

Henry Pirker - December 2011

Maximum Value: 42.7 ppb on Dec 1 16:00																				Maximum Daily Average: 37.8 ppb on Dec 1										Hours in Service: 744	
Minimum Value: 1 ppb on Dec 12 01:00																				Minimum Daily Average: 4.5 ppb on Dec 15										Hours of Data: 696	
Maximum Diurnal Average: 26.8 ppb at hour 14																				Minimum Diurnal Average: 19.6 ppb at hour 22										Hours of Missing Data: 48	
Monthly Average: 23.10 ppb																				Percentiles: P ₁ = 1.2 P ₁₀ = 3.2 Q ₁ = 12.7 Median = 26.8 Q ₃ = 33.8 P ₉₀ = 36.2 P ₉₉ = 41.2										Hours of Calibration: 36	
																														Percent Operational Time: 98.4	
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	A	38	39	39	41	40	39	40	33	34	31	30	31	35	42	43	42	40	41	41	38	37	37	A	37.8	42.7					
2-Dec	37	37	37	38	38	38	38	36	36	35	35	37	33	34	29	25	21	27	28	29	32	31	A	31	33.1	37.7					
3-Dec	32	34	34	34	32	29	27	26	19	35	36	34	34	33	33	33	37	37	36	35	33	A	36	31	32.5	37.1					
4-Dec	27	6	19	21	18	22	16	5	5	2	5	5	10	19	22	18	10	4	2	2	A	6	4	9	11.1	27.1					
5-Dec	3	4	2	7	35	34	34	33	36	32	35	36	35	36	35	35	35	39	38	A	37	38	37	40	30.2	40.2					
6-Dec	42	42	41	40	39	40	40	40	35	38	38	32	33	38	35	35	33	31	A	35	33	35	33	28	36.4	41.7					
7-Dec	37	36	26	26	28	28	16	2	12	14	17	21	24	24	24	24	10	A	2	3	2	2	3	4	16.8	37.2					
8-Dec	4	2	2	4	6	5	5	9	2	4	5	10	11	11	10	8	A	2	7	8	8	2	2	1	5.5	11.1					
9-Dec	1	2	4	35	36	37	36	36	38	37	38	38	C	C	C	A	38	36	31	33	34	22	17	3	27.7	38.3					
10-Dec	15	15	3	3	4	24	17	34	34	34	32	32	34	35	A	35	35	35	33	30	27	25	27	34	25.9	35.1					
11-Dec	32	34	32	29	23	17	7	2	13	12	9	15	22	A	24	24	19	7	7	3	2	4	3	1	15.0	33.9					
12-Dec	1	1	1	2	1	4	4	4	2	2	4	6	A	4	6	8	14	26	31	33	34	34	35	35	12.8	35.1					
13-Dec	36	36	35	35	34	33	31	25	6	2	3	A	20	28	27	21	19	21	28	27	29	28	28	28	25.2	35.8					
14-Dec	26	24	19	13	14	9	4	3	3	3	A	17	20	11	19	13	3	2	2	3	3	4	3	4	9.5	26.3					
15-Dec	4	6	10	10	6	7	4	3	1	A	5	6	8	7	7	4	2	2	3	4	2	1	1	1	4.5	10.2					
16-Dec	16	21	27	29	28	28	26	25	A	23	27	27	27	26	21	15	2	2	2	3	1	9	14	13	17.9	28.7					
17-Dec	15	14	8	11	9	2	5	A	1	25	26	24	25	24	22	17	14	3	1	1	1	17	17	17	13.0	25.9					
18-Dec	18	22	21	19	18	17	A	8	6	4	10	13	19	21	22	17	14	17	19	11	12	12	14	15	15.2	22.5					
19-Dec	11	13	21	23	18	A	34	26	8	18	21	25	24	27	33	32	19	13	6	8	12	2	17	34	19.4	34.4					
20-Dec	37	37	36	36	A	35	35	34	34	34	34	33	33	32	32	32	31	31	31	31	31	31	32	31	33.2	36.8					
21-Dec	30	30	28	A	20	24	20	18	24	25	20	23	24	25	22	25	24	25	26	31	33	34	33	33	25.9	33.9					
22-Dec	34	36	A	35	35	36	36	34	34	34	32	35	31	30	32	31	14	2	2	2	3	25	18	15	25.5	36.4					
23-Dec	13	A	4	6	28	36	37	37	36	35	34	33	34	35	35	36	35	35	34	34	35	36	34	36	31.1	37.1					
24-Dec	A	36	36	36	36	35	35	35	35	33	32	31	31	33	28	16	23	24	21	21	21	26	32	A	29.7	36.0					
25-Dec	31	26	28	28	21	19	13	20	23	21	12	20	29	34	35	38	39	39	38	34	34	35	A	34	28.3	39.3					
26-Dec	34	34	34	34	34	33	33	33	33	32	27	29	30	31	30	24	26	27	27	29	30	A	27	24	30.1	34.0					
27-Dec	24	25	25	27	27	24	19	36	38	38	37	37	36	35	35	34	32	26	28	28	A	9	5	3	27.3	38.1					
28-Dec	21	20	20	26	24	24	27	30	29	27	27	27	20	18	17	15	14	6	2	A	3	1	1	7	17.7	29.9					
29-Dec	8	10	N	N	N	N	N	N	N	N	N	N	N	M	36	36	35	33	A	32	20	7	5	13	--	36.0					
30-Dec	13	16	15	18	29	30	32	33	33	33	31	29	30	30	27	29	21	A	15	19	24	27	26	26	25.5	33.2					
31-Dec	25	32	33	33	33	33	33	33	32	32	31	32	33	33	32	31	A	32	31	29	29	31	30	29	31.4	33.4					
21.7 22.9 22.0 24.0 24.6 25.6 24.2 24.1 22.1 24.0 23.9 25.4 26.4 26.8 26.6 25.1 22.7 21.6 19.7 20.7 20.9 19.6 19.7 20.1																									Diurnal Average						
41.7 41.7 40.7 39.8 41.0 40.5 39.7 40.2 38.1 37.9 38.3 37.9 35.5 38.1 41.6 42.7 41.7 40.2 41.4 41.3 38.1 37.7 37.2 40.2																									Diurnal Maximum						
C - Calibration M - Maintenance N - Not Valid A - Automated Daily Zero Span																															

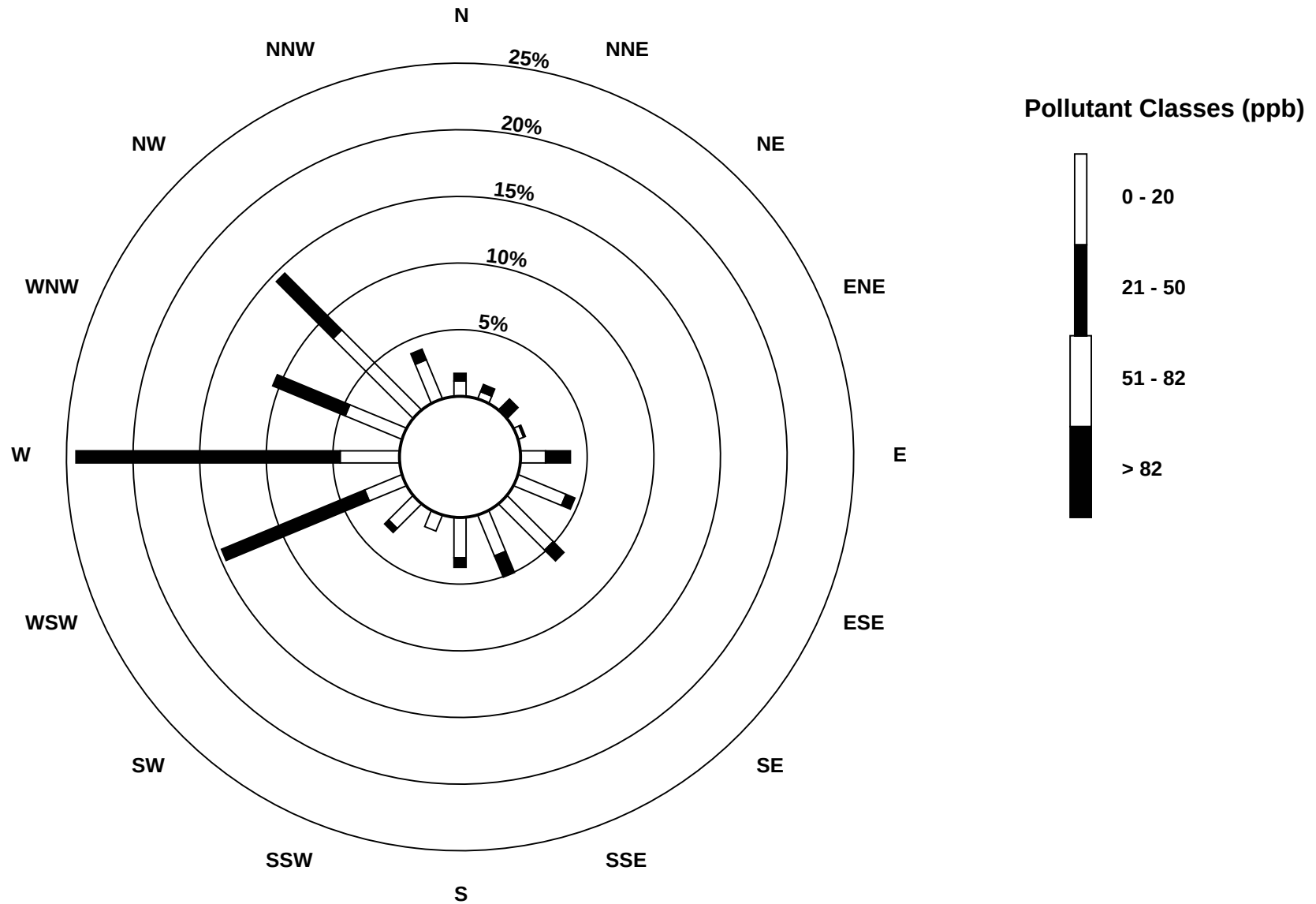
Hourly Maximums

Ozone (O₃) - ppb
Henry Pirker - December 2011



Pollutant Rose

Ozone (O₃) - ppb
Henry Pirker - December 2011



Eight Hour Running Averages

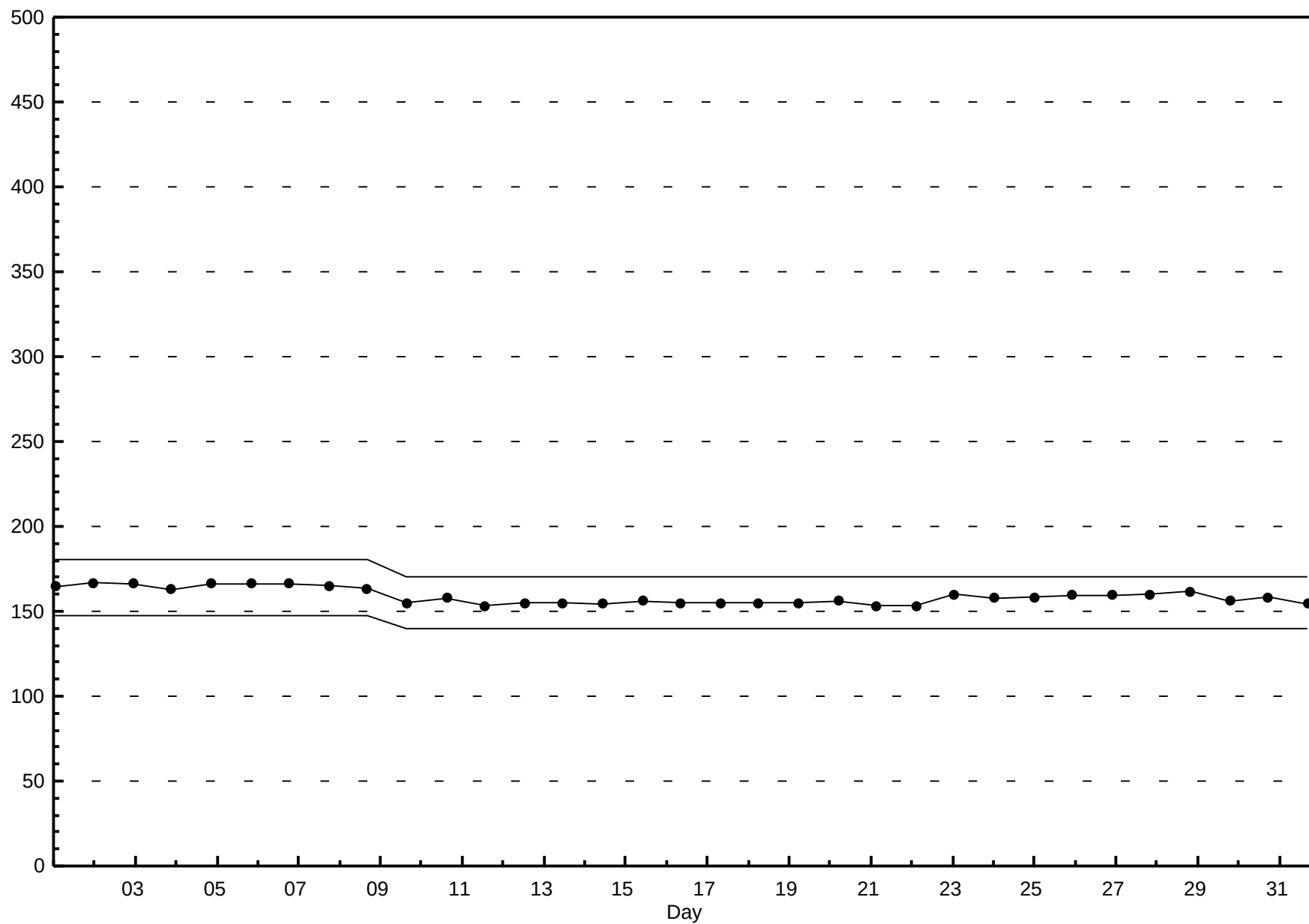
Ozone (O₃) - ppb

Henry Pirker - December 2011

Maximum Value: 38.8 ppb on Dec 6 08:00																						Hours in Service: 744			
Minimum Value: 0.9 ppb on Dec 12 06:00																						Hours of Data: 721			
Percentiles: P ₁ = 1.0 P ₁₀ = 3.6 Q ₁ = 8.9 Median = 20.6 Q ₃ = 29.9 P ₉₀ = 33.4 P ₉₉ = 37.8																						Hours of Missing Data: 23			
																						Hours of Calibration: 7			
																						Percent Operational Time: 97.9			
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	22	26	30	34	37	38	38	37	36	34	31	29	27	26	26	28	29	31	33	35	37	38	38	38.0
2-Dec	37	37	36	36	36	36	36	36	36	35	35	35	34	33	31	29	27	26	25	23	23	24	24	25	37.4
3-Dec	28	29	30	31	31	30	29	27	25	24	23	23	24	25	26	28	31	32	33	33	33	33	33	32	33.0
4-Dec	29	25	21	19	16	16	13	10	9	9	8	7	5	5	6	8	8	8	8	8	8	6	4	3	29.3
5-Dec	2	2	2	2	5	9	12	16	19	23	27	31	32	32	32	32	33	33	34	34	34	35	35	35	35.4
6-Dec	37	37	38	38	38	38	39	39	38	37	36	35	34	33	32	31	31	30	30	30	30	30	30	29	38.8
7-Dec	29	30	29	28	26	25	22	19	15	13	11	11	11	11	13	15	14	15	14	12	9	6	4	2	30.1
8-Dec	2	2	2	1	2	2	2	2	2	2	2	3	4	4	5	5	6	6	6	5	5	4	3	2	6.0
9-Dec	2	2	2	4	8	12	16	20	25	29	33	35	35	35	N	N	N	N	N	N	N	27	24	21	35.3
10-Dec	17	14	10	7	4	4	5	6	10	13	17	21	24	27	29	32	32	32	32	32	31	29	29	28	31.9
11-Dec	28	28	27	27	26	25	22	19	16	13	10	8	8	8	11	13	13	12	12	11	8	7	5	3	27.5
12-Dec	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	4	7	10	14	17	20	24	28	27.5
13-Dec	31	33	33	33	33	33	32	30	26	21	17	15	12	11	10	10	12	14	17	18	20	21	22	23	33.5
14-Dec	24	25	24	21	19	16	13	10	7	5	4	4	5	5	7	7	7	7	6	6	4	3	2	2	24.9
15-Dec	2	2	3	3	3	4	4	4	3	3	3	3	3	3	4	4	4	4	3	3	2	2	1	1	4.1
16-Dec	2	4	7	10	14	17	20	22	24	24	24	23	23	22	20	18	16	14	11	8	6	4	3	3	24.3
17-Dec	4	5	6	7	7	7	6	6	5	4	7	8	11	14	17	16	17	16	13	11	8	7	6	6	17.2
18-Dec	7	10	12	14	16	17	17	15	13	11	9	8	7	7	9	10	11	12	13	13	12	10	8	7	16.8
19-Dec	7	6	7	8	8	9	13	14	13	14	13	13	15	16	16	17	18	18	17	15	13	10	8	9	18.1
20-Dec	11	15	19	23	26	31	34	35	34	34	33	33	33	32	31	31	30	30	29	29	29	29	29	30	34.7
21-Dec	30	29	29	28	26	25	23	20	19	18	17	17	18	19	19	19	19	19	19	20	21	22	23	25	29.7
22-Dec	27	29	30	32	33	33	34	34	34	33	33	33	32	31	30	29	25	22	18	14	11	10	8	6	33.9
23-Dec	6	7	7	7	9	11	14	18	22	23	27	31	33	33	33	33	33	33	33	32	32	32	32	31	33.3
24-Dec	31	31	32	33	33	34	34	34	34	34	33	32	31	30	28	24	22	21	19	18	17	16	18	19	34.5
25-Dec	21	21	22	24	23	22	19	19	17	15	14	12	13	15	18	21	23	27	30	33	34	34	35	34	34.7
26-Dec	34	33	33	33	34	33	33	33	33	32	30	29	28	28	27	26	25	25	25	25	25	24	23	23	33.8
27-Dec	23	22	23	22	22	22	20	21	23	25	27	28	30	32	35	35	34	32	30	28	27	23	18	14	35.1
28-Dec	11	10	10	10	12	14	17	20	22	23	24	24	23	22	21	19	17	14	11	9	7	5	3	3	23.9
29-Dec	3	3	3	3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	27	24	19	15	27.0
30-Dec	11	9	9	7	8	12	15	18	22	24	26	29	29	29	29	28	26	25	23	21	20	20	19	19	29.3
31-Dec	20	21	23	26	27	28	30	31	32	32	32	31	31	31	31	30	30	30	30	29	28	28	27	27	32.0
37.4 37.2 37.6 37.8 38.0 38.2 38.7 38.8 37.8 36.9 36.0 34.7 34.9 35.3 34.5 35.1 34.1 33.4 33.9 34.0 35.5 36.6 37.7 38.0																									
Diurnal Maximums																									
N - Not Valid																									

Span Responses

Ozone (O₃)
Henry Pirker - December 2011



Hourly Averages

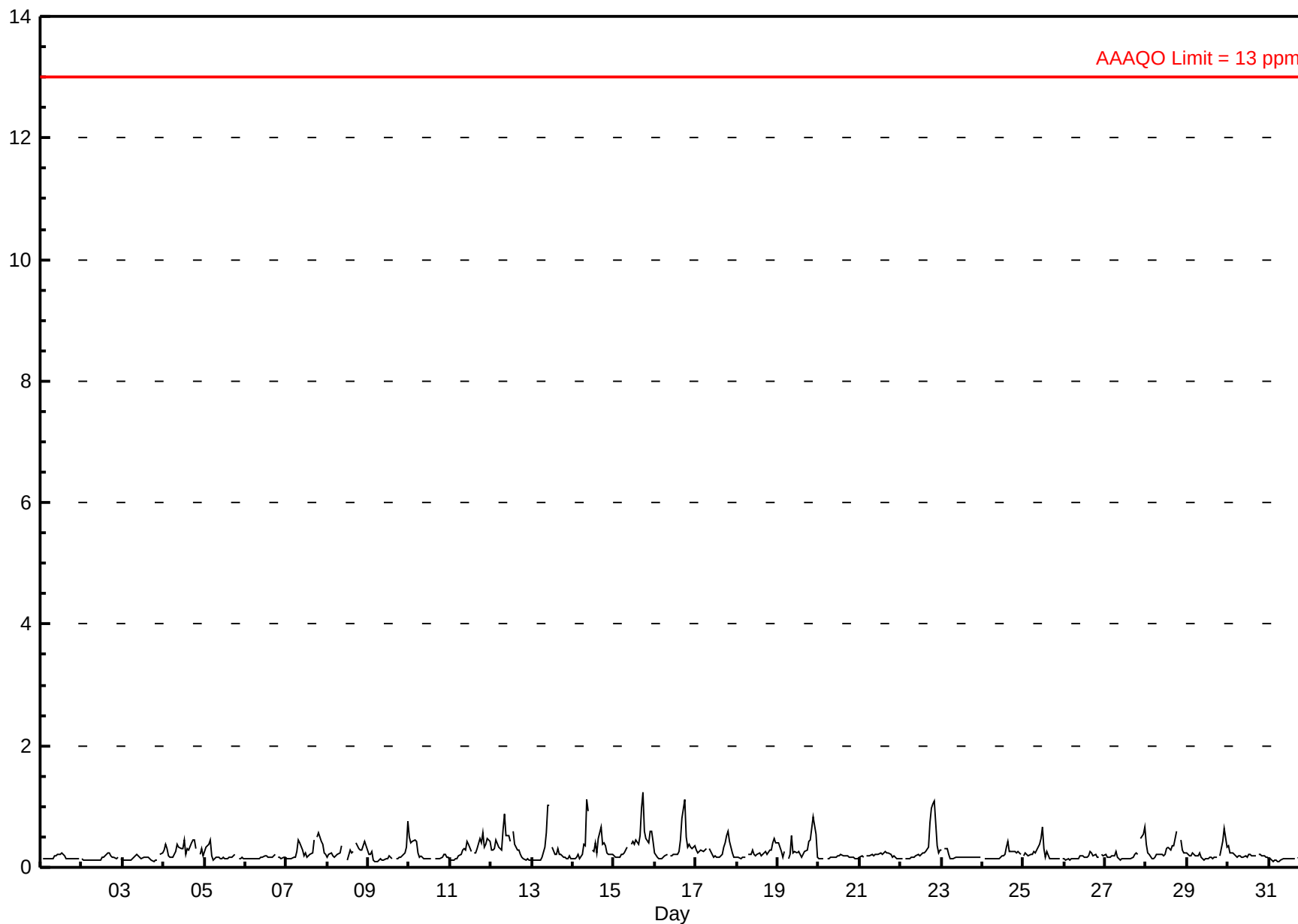
Carbon Monoxide (CO) - ppm

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 1.23 ppm on Dec 15 18:00 Maximum Daily Average: 0.43 ppm on Dec 15																								Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0		
Minimum Value: 0.1 ppm on Dec 31 07:00 Maximum Diurnal Average: 0.33 ppm at hour 18 Monthly Average: 0.242 ppm												Minimum Daily Average: 0.14 ppm on Dec 31 Minimum Diurnal Average: 0.17 ppm at hour 6 Percentiles: P ₁ = 0.11 P ₁₀ = 0.14 Q ₁ = 0.15 Median = 0.19 Q ₃ = 0.27 P ₉₀ = 0.42 P ₉₉ = 1.01														
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	A	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A	0.16	0.23
2-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	0.1	0.2	A	0.1	0.15	0.23
3-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	0.1	0.1	0.1	0.1	0.1	A	0.2	0.2	0.15	0.23
4-Dec	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.5	0.2	0.3	0.3	0.4	0.5	0.4	0.3	A	0.2	0.3	0.2	0.30	0.46
5-Dec	0.3	0.3	0.4	0.5	0.2	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	A	0.1	0.1	0.2	0.2	0.19	0.46
6-Dec	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	A	0.2	0.2	0.1	0.2	0.2	0.16	0.21
7-Dec	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.5	A	0.5	0.6	0.4	0.4	0.2	0.2	0.27	0.57
8-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	C	C	C	0.1	0.3	0.2	0.3	A	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.26	0.42
9-Dec	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	A	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.8	0.19	0.76
10-Dec	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	A	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.22	0.51
11-Dec	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.2	A	0.2	0.2	0.3	0.5	0.4	0.6	0.3	0.4	0.5	0.4	0.30	0.57
12-Dec	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.6	0.9	0.5	0.5	0.4	A	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.34	0.87
13-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.6	1.0	1.0	A	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.27	1.03
14-Dec	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.4	1.1	0.9	A	0.3	0.3	0.4	0.2	0.5	0.7	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.35	1.11
15-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	A	0.4	0.4	0.4	0.5	0.4	0.5	1.0	1.2	0.6	0.5	0.4	0.6	0.6	0.4	0.43	1.23
16-Dec	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	0.3	0.5	0.8	1.1	0.5	0.3	0.4	0.3	0.3	0.4	0.32	1.11
17-Dec	0.3	0.2	0.3	0.3	0.3	0.3	0.3	A	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.4	0.2	0.2	0.2	0.28	0.60
18-Dec	0.2	0.2	0.1	0.2	0.2	0.2	A	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.5	0.4	0.24	0.48
19-Dec	0.4	0.3	0.3	0.2	0.3	A	0.1	0.2	0.5	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	0.5	0.2	0.33	0.83
20-Dec	0.1	0.1	0.1	0.1	A	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	0.2	0.17	0.20
21-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	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.20	0.26
22-Dec	0.1	0.1	A	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.7	1.0	1.1	1.1	0.4	0.2	0.3	0.34	1.10
23-Dec	0.3	A	0.3	0.3	0.2	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	0.18	0.30
24-Dec	A	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.2	A	0.21	0.43
25-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.5	0.7	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.1	A	0.1	0.24	0.66
26-Dec	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	0.3	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.17	0.26
27-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	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	0.5	0.5	0.7	0.23	0.66
28-Dec	0.4	0.2	0.2	0.1	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	0.5	0.6	A	0.5	0.3	0.2	0.2	0.28	0.59
29-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	A	0.2	0.3	0.4	0.6	0.3	0.22	0.63
30-Dec	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	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.20	0.36
31-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	0.2	A	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.14	0.30
0.22 0.20 0.20 0.20 0.18 0.17 0.19 0.22 0.28 0.26 0.25 0.23 0.22 0.22 0.22 0.25 0.29 0.33 0.31 0.29 0.28 0.28 0.28 0.26																								Diurnal Average		
0.51 0.41 0.42 0.46 0.42 0.30 0.37 0.61 1.11 1.02 1.03 0.66 0.45 0.60 0.38 0.52 0.98 1.23 0.97 1.06 1.10 0.83 0.63 0.76																								Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm 24-hr na																										

Hourly Averages

Carbon Monoxide (CO) - ppm
Henry Pirker - December 2011



Hourly Maximums

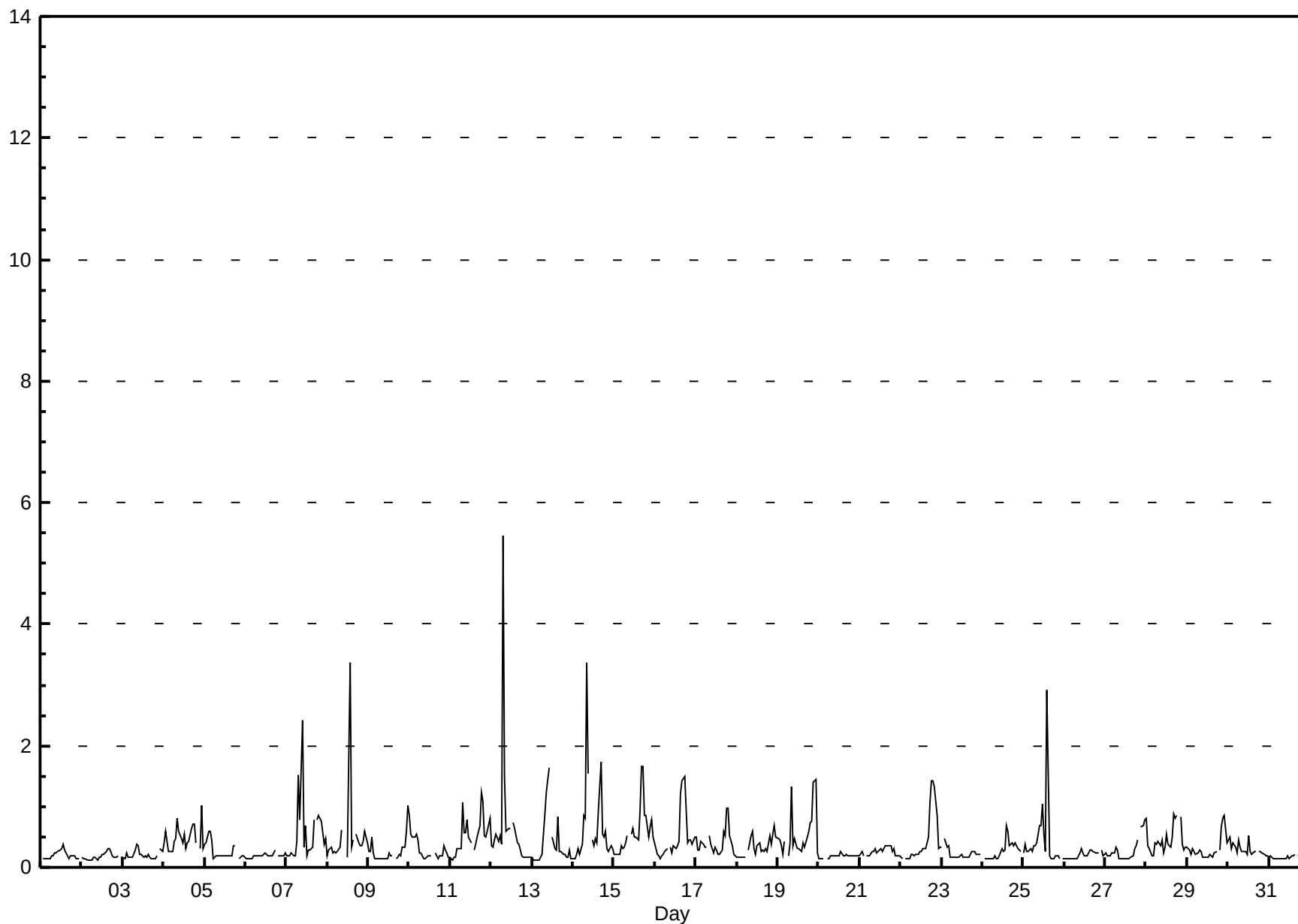
Carbon Monoxide (CO) - ppm

Henry Pirker - December 2011

Maximum Value: 5.46 ppm on Dec 12 08:00																					Maximum Daily Average: 0.66 ppm on Dec 12					Hours in Service: 744	
Minimum Value: 0.1 ppm on Dec 13 04:00																					Minimum Daily Average: 0.18 ppm on Dec 2					Hours of Data: 708	
Maximum Diurnal Average: 0.55 ppm at hour 8																					Minimum Diurnal Average: 0.23 ppm at hour 6					Hours of Missing Data: 36	
Monthly Average: 0.370 ppm																					Percentiles: P ₁ = 0.13 P ₁₀ = 0.15 Q ₁ = 0.19 Median = 0.25 Q ₃ = 0.40 P ₉₀ = 0.69 P ₉₉ = 1.62					Hours of Calibration: 36	
																										Percent Operational Time: 100.0	
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	A	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	A	0.21	0.37	
2-Dec	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	A	0.2	0.18	0.32	
3-Dec	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	A	0.3	0.3	0.20	0.38	
4-Dec	0.4	0.6	0.4	0.3	0.3	0.3	0.4	0.5	0.8	0.6	0.5	0.4	0.6	0.3	0.4	0.4	0.6	0.7	0.7	0.4	A	0.3	1.0	0.3	0.49	1.03	
5-Dec	0.4	0.4	0.6	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	A	0.1	0.2	0.2	0.2	0.2	0.27	0.60	
6-Dec	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	0.3	A	0.2	0.2	0.2	0.2	0.2	0.19	0.29	
7-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.5	0.8	2.4	0.3	0.7	0.2	0.3	0.3	0.3	0.8	A	0.8	0.9	0.8	0.6	0.4	0.5	0.57	2.42	
8-Dec	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.6	C	C	C	0.2	3.4	0.3	0.4	A	0.6	0.4	0.4	0.4	0.4	0.6	0.4	0.51	3.38	
9-Dec	0.2	0.2	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	A	0.1	0.2	0.2	0.2	0.3	0.3	0.6	1.0	0.26	1.01	
10-Dec	0.8	0.5	0.5	0.5	0.5	0.4	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.30	0.85	
11-Dec	0.2	0.1	0.2	0.2	0.3	0.3	0.3	1.1	0.6	0.6	0.8	0.5	0.4	A	0.3	0.4	0.5	0.7	1.2	1.1	0.5	0.5	0.6	0.8	0.52	1.24	
12-Dec	0.3	0.3	0.4	0.5	0.4	0.5	0.4	5.5	1.5	0.6	0.6	0.6	A	0.7	0.6	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.66	5.46	
13-Dec	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.9	1.2	1.4	1.6	A	0.5	0.3	0.3	0.8	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.43	1.63	
14-Dec	0.2	0.2	0.2	0.3	0.2	0.4	0.9	0.8	3.4	1.5	A	0.5	0.4	0.5	0.4	0.9	1.7	0.6	0.5	0.6	0.3	0.3	0.4	0.3	0.66	3.37	
15-Dec	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.4	0.5	A	0.6	0.6	0.5	0.5	0.5	0.9	1.7	1.7	0.9	0.8	0.5	0.7	0.8	0.5	0.60	1.66	
16-Dec	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	A	0.3	0.2	0.3	0.3	0.3	0.4	1.2	1.4	1.5	0.9	0.4	0.4	0.4	0.4	0.5	0.48	1.50	
17-Dec	0.5	0.3	0.3	0.4	0.4	0.3	0.3	A	0.5	0.4	0.2	0.3	0.3	0.2	0.2	0.3	0.6	0.5	1.0	1.0	0.5	0.4	0.2	0.2	0.41	0.98	
18-Dec	0.2	0.2	0.2	0.2	0.2	0.2	A	0.3	0.5	0.6	0.3	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.5	0.7	0.5	0.33	0.70	
19-Dec	0.5	0.5	0.4	0.2	0.4	A	0.2	0.4	1.3	0.4	0.5	0.3	0.3	0.3	0.3	0.4	0.3	0.5	0.6	0.7	0.8	1.4	1.4	0.2	0.53	1.44	
20-Dec	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	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19	0.25	
21-Dec	0.2	0.3	0.2	A	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.26	0.35	
22-Dec	0.2	0.1	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	0.3	0.5	1.1	1.4	1.4	1.3	0.9	0.3	0.3	0.46	1.43	
23-Dec	0.3	A	0.5	0.3	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	0.3	0.2	0.2	0.2	0.2	0.22	0.48	
24-Dec	A	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	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	A	0.28	0.69	
25-Dec	0.2	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.7	0.7	1.0	0.6	0.3	2.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.45	2.93	
26-Dec	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	A	0.3	0.2	0.21	0.30	
27-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.5	A	0.7	0.7	0.8	0.29	0.79	
28-Dec	0.8	0.3	0.3	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.5	0.4	0.3	0.5	0.9	0.8	0.8	A	0.8	0.4	0.3	0.3	0.46	0.87	
29-Dec	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	A	0.3	0.7	0.8	0.9	0.4	0.31	0.85	
30-Dec	0.5	0.5	0.3	0.4	0.3	0.2	0.5	0.3	0.3	0.3	0.3	0.2	0.5	0.3	0.2	0.3	0.3	A	0.3	0.2	0.2	0.2	0.2	0.2	0.30	0.52	
31-Dec	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.8	0.4	1.1	0.24	1.08	
0.30 0.26 0.26 0.25 0.25 0.23 0.27 0.55 0.53 0.46 0.34 0.33 0.30 0.39 0.38 0.39 0.46 0.46 0.47 0.43 0.39 0.41 0.43 0.37																								Diurnal Average			
0.85 0.60 0.60 0.60 0.54 0.52 0.86 5.46 3.37 2.42 1.63 1.05 0.55 3.38 2.93 1.22 1.73 1.66 1.43 1.42 1.32 1.40 1.44 1.08																								Diurnal Maximum			
C - Calibration A - Automated Daily Zero Span																											

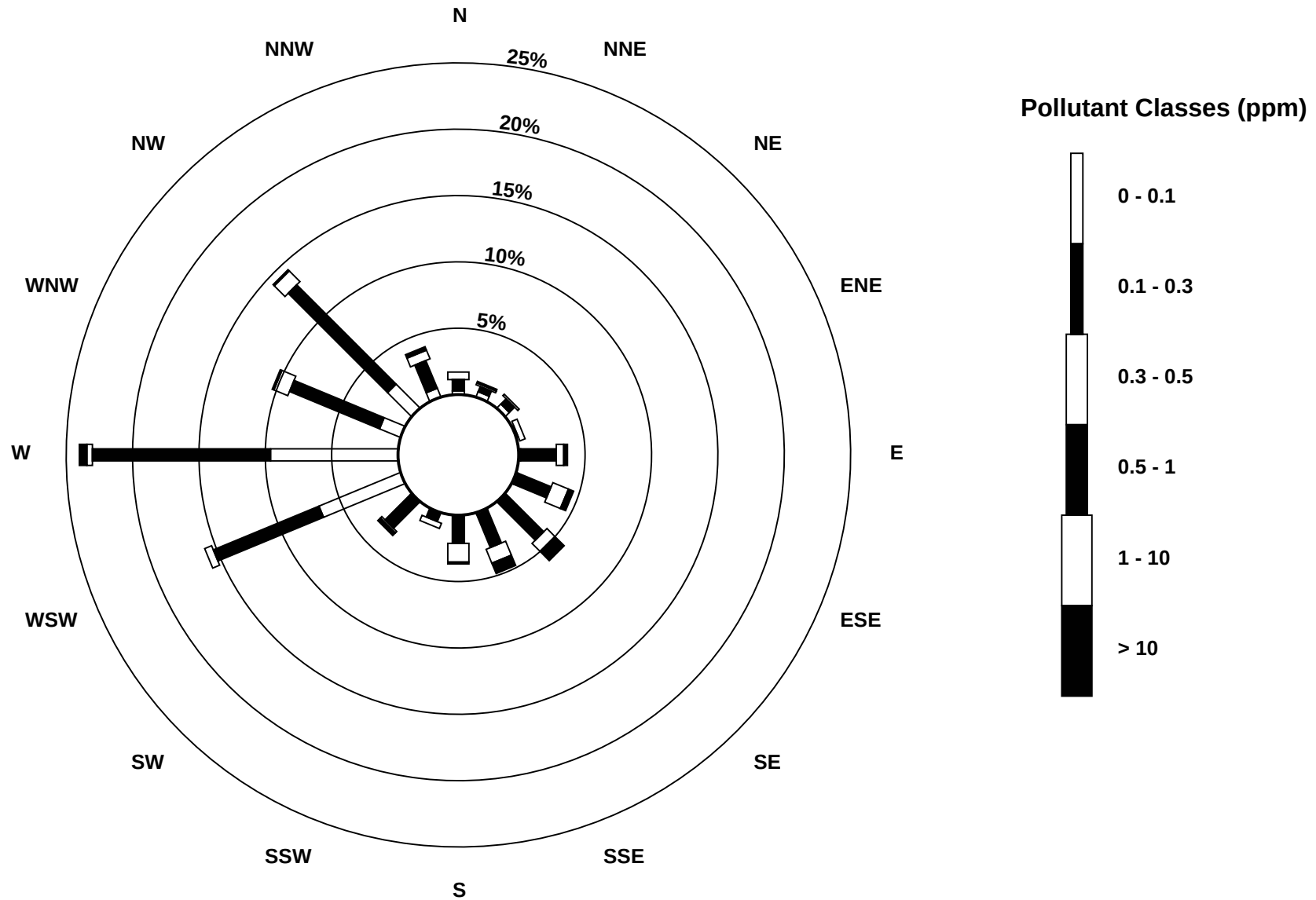
Hourly Maximums

Carbon Monoxide (CO) - ppm
Henry Pirker - December 2011



Pollutant Rose

Carbon Monoxide (CO) - ppm
Henry Pirker - December 2011



Eight Hour Running Averages

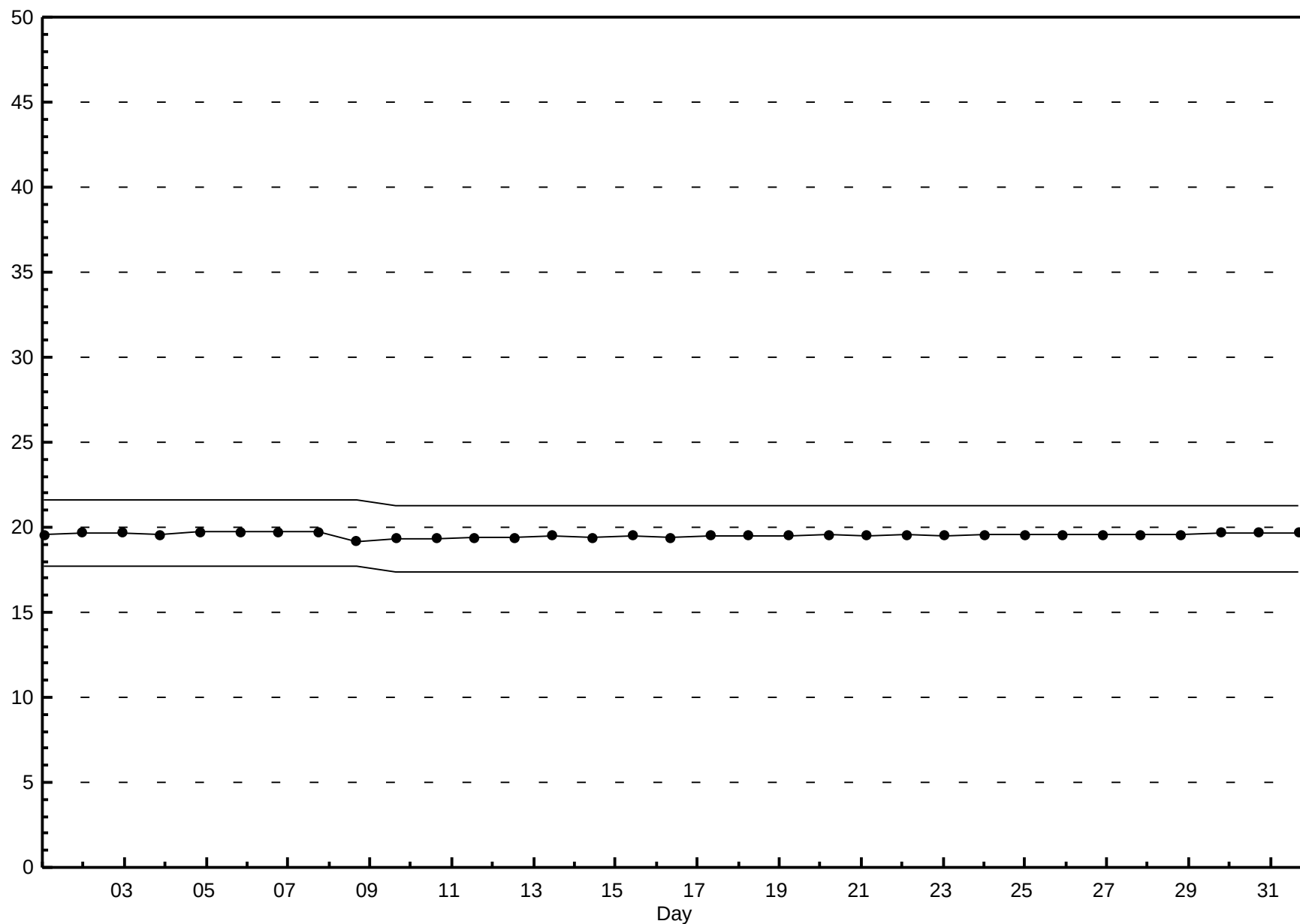
Carbon Monoxide (CO) - ppm

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 8-hr: 0 Maximum Value: 0.68 ppm on Dec 15 23:00																								Hours in Service: 744	
Minimum Value: 0.11 ppm on Dec 31 10:00																								Hours of Data: 737	
Percentiles: P ₁ = 0.12 P ₁₀ = 0.15 Q ₁ = 0.16 Median = 0.20 Q ₃ = 0.30 P ₉₀ = 0.39 P ₉₉ = 0.63																								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	0.2	0.2	0.2	0.2	0.2	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	0.1	0.1	0.1	0.21
2-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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19
3-Dec	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.17
4-Dec	0.2	0.2	0.2	0.2	0.3	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	0.4	0.4	0.3	0.3	0.3	0.3	0.36
5-Dec	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.31
6-Dec	0.2	0.2	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	0.2	0.17
7-Dec	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	0.3	0.3	0.4	0.4	0.4	0.4	0.40
8-Dec	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	N	N	N	N	N	N	N	0.3	0.3	0.3	0.3	0.3	0.3	0.36
9-Dec	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.32
10-Dec	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.44
11-Dec	0.2	0.2	0.2	0.2	0.2	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	0.4	0.4	0.4	0.4	0.4	0.42
12-Dec	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.56
13-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.53
14-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.53
15-Dec	0.3	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	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.68
16-Dec	0.6	0.4	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	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.57
17-Dec	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.45
18-Dec	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	0.3	0.3	0.3	0.34
19-Dec	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.4	0.46
20-Dec	0.4	0.4	0.4	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	0.44
21-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	0.23
22-Dec	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	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.63
23-Dec	0.6	0.6	0.5	0.4	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	0.63
24-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.29
25-Dec	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	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.35
26-Dec	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	0.2	0.2	0.21
27-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	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.36
28-Dec	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.41
29-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	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.36
30-Dec	0.3	0.4	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	0.35
31-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.18
0.63 0.61 0.52 0.41 0.44 0.44 0.42 0.36 0.43 0.46 0.49 0.49 0.51 0.55 0.56 0.53 0.50 0.59 0.62 0.63 0.63 0.65 0.68 0.66																									
Diurnal Maximums																									
N - Not Valid																									
Alberta Ambient Air Quality Objectives (AAAQO): 8-hr 5 ppm																									

Span Responses

Carbon Monoxide (CO)
Henry Pirker - December 2011



Hourly Averages

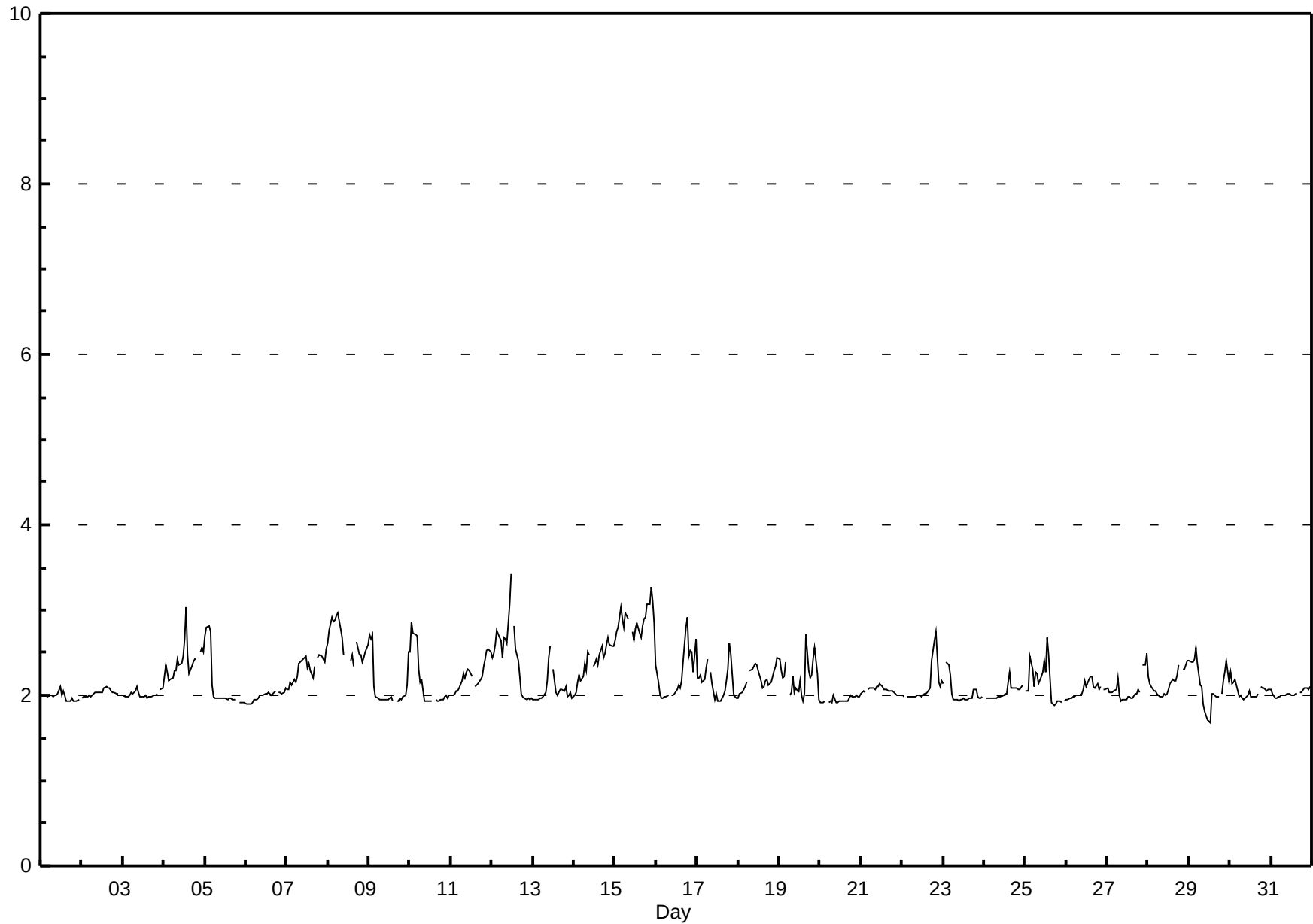
Total Hydrocarbons (THC) - ppm

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.42 ppm on Dec 12 12:00 Maximum Daily Average: 2.87 ppm on Dec 15																								Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0			
Minimum Value: 1.7 ppm on Dec 29 13:00 Maximum Diurnal Average: 2.23 ppm at hour 24 Monthly Average: 2.169 ppm												Minimum Daily Average: 1.95 ppm on Dec 20 Minimum Diurnal Average: 2.11 ppm at hour 13 Percentiles: P ₁ = 1.90 P ₁₀ = 1.95 Q ₁ = 1.99 Median = 2.06 Q ₃ = 2.29 P ₉₀ = 2.57 P ₉₉ = 3.02															
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	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	A	1.98	2.10	
2-Dec	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	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	A	2.0	2.03	2.09	
3-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.1	2.1	2.01	2.11	
4-Dec	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.5	2.7	3.0	2.5	2.3	2.3	2.4	2.4	2.4	A	2.5	2.6	2.5	2.40	3.03	
5-Dec	2.7	2.8	2.8	2.7	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	A	1.9	1.9	1.9	1.9	2.10	2.81	
6-Dec	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	2.0	2.0	2.0	2.0	2.1	A	2.0	2.0	2.0	2.0	2.1	1.99	2.09	
7-Dec	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	2.3	2.4	2.3	2.2	2.3	A	2.4	2.5	2.5	2.4	2.4	2.6	2.32	2.55	
8-Dec	2.6	2.8	2.9	2.9	2.9	2.9	3.0	2.8	2.7	2.5	C	C	C	2.4	2.5	2.3	A	2.6	2.5	2.5	2.4	2.4	2.5	2.6	2.63	2.96	
9-Dec	2.7	2.7	2.7	2.1	2.0	2.0	1.9	2.0	1.9	2.0	2.0	1.9	2.0	2.0	1.9	A	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.5	2.09	2.72	
10-Dec	2.5	2.9	2.7	2.7	2.7	2.3	2.2	2.2	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.15	2.87	
11-Dec	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.2	A	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.5	2.6	2.5	2.22	2.55	
12-Dec	2.4	2.5	2.6	2.8	2.7	2.6	2.4	2.7	2.7	2.6	3.1	3.4	A	2.8	2.5	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.45	3.42	
13-Dec	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.6	A	2.3	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.07	2.57	
14-Dec	2.0	2.0	2.2	2.2	2.2	2.2	2.4	2.3	2.5	2.5	A	2.3	2.4	2.4	2.4	2.5	2.6	2.4	2.5	2.6	2.7	2.6	2.6	2.6	2.39	2.68	
15-Dec	2.6	2.7	2.8	3.0	2.9	2.8	3.0	2.9	2.9	A	2.7	2.6	2.8	2.8	2.7	2.7	2.8	2.9	2.9	3.1	3.1	3.3	3.1	2.9	2.87	3.27	
16-Dec	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.4	2.8	2.9	2.5	2.5	2.5	2.3	2.7	2.24	2.91	
17-Dec	2.2	2.2	2.2	2.2	2.2	2.3	2.4	A	2.3	2.1	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.2	2.3	2.6	2.5	2.0	2.0	2.0	2.15	2.61	
18-Dec	2.0	2.0	2.0	2.1	2.1	2.2	A	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.3	2.3	2.4	2.20	2.44	
19-Dec	2.4	2.3	2.2	2.2	2.4	A	2.0	2.0	2.2	2.0	2.1	2.0	2.2	2.0	1.9	2.0	2.7	2.3	2.2	2.2	2.4	2.6	2.2	2.0	2.20	2.72	
20-Dec	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	2.0	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	1.95	2.00	
21-Dec	2.0	2.0	2.0	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.06	2.14	
22-Dec	2.0	2.0	A	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	2.1	2.4	2.5	2.6	2.7	2.1	2.1	2.2	2.12	2.74	
23-Dec	2.1	A	2.4	2.4	2.2	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.03	2.38	
24-Dec	A	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	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	A	2.04	2.28	
25-Dec	2.0	2.0	2.0	2.5	2.3	2.1	2.3	2.3	2.1	2.2	2.3	2.4	2.3	2.7	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	2.14	2.67	
26-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	A	2.1	2.1	2.06	2.23	
27-Dec	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	A	2.4	2.4	2.5	2.07	2.50	
28-Dec	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.4	A	2.3	2.3	2.4	2.4	2.14	2.41	
29-Dec	2.4	2.4	2.4	2.4	2.6	2.4	2.1	2.1	1.9	1.8	1.8	1.7	1.7	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.2	2.3	2.4	2.2	2.12	2.56
30-Dec	2.3	2.1	2.2	2.2	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	A	2.1	2.1	2.1	2.1	2.1	2.05	2.28	
31-Dec	2.1	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	A	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.03	2.10	
2.20 2.20 2.21 2.21 2.19 2.14 2.15 2.14 2.15 2.11 2.13 2.15 2.11 2.17 2.13 2.11 2.14 2.16 2.20 2.20 2.21 2.21 2.21 2.23 2.72 2.87 2.91 3.03 2.89 2.93 2.97 2.94 2.90 2.62 3.07 3.42 2.77 3.03 2.72 2.68 2.81 2.90 2.91 3.06 3.06 3.27 3.10 2.85																								Diurnal Average	Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																											

Hourly Averages

Total Hydrocarbons (THC) - ppm
Henry Pirker - December 2011



Hourly Maximums

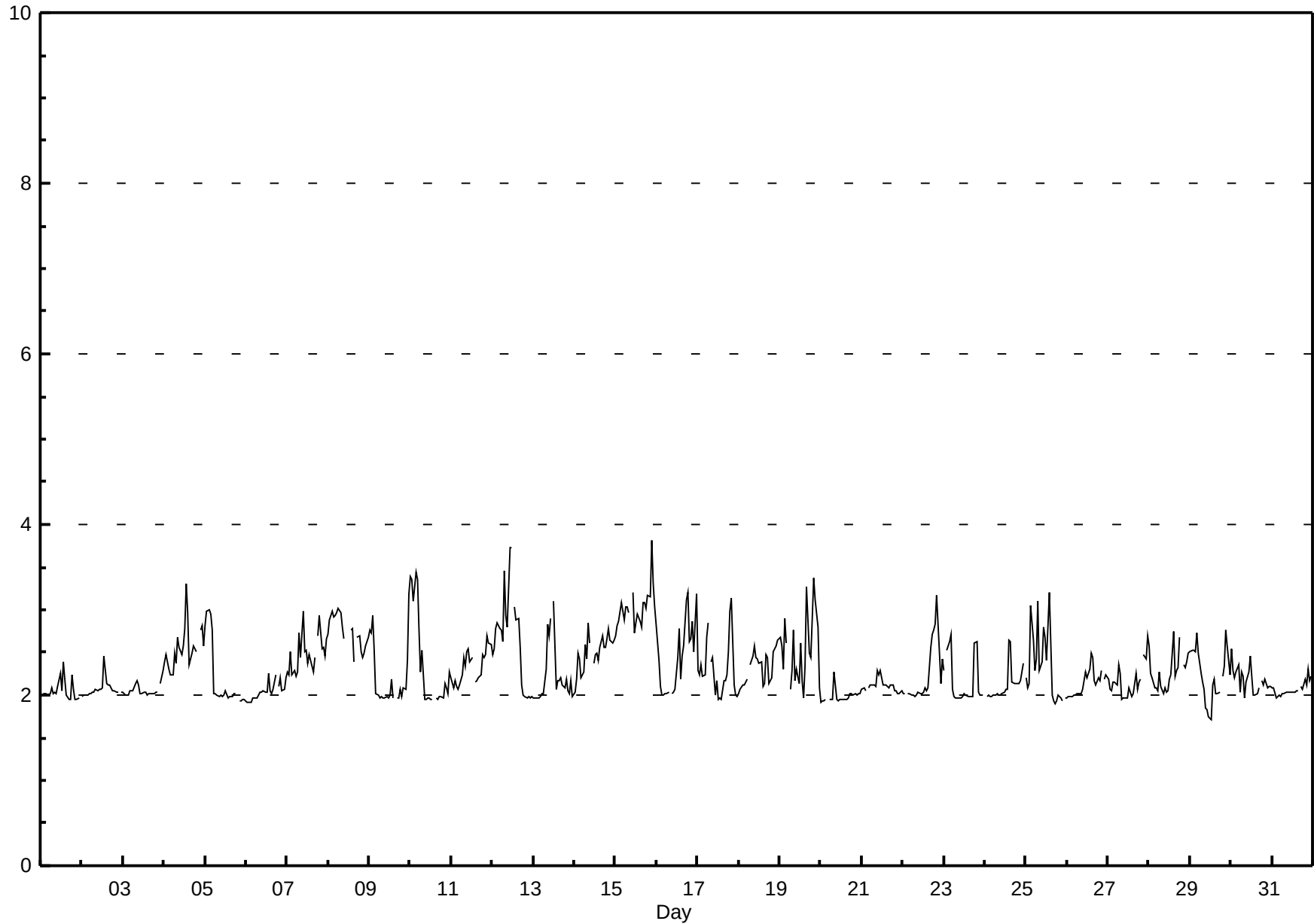
Total Hydrocarbons (THC) - ppm

Henry Pirker - December 2011

Maximum Value: 3.81 ppm on Dec 15 22:00																					Maximum Daily Average: 3.02 ppm on Dec 15				Hours in Service: 744	
Minimum Value: 1.7 ppm on Dec 29 13:00																					Minimum Daily Average: 1.98 ppm on Dec 20				Hours of Data: 708	
Maximum Diurnal Average: 2.36 ppm at hour 24																					Minimum Diurnal Average: 2.21 ppm at hour 6				Hours of Missing Data: 36	
Monthly Average: 2.291 ppm																					Percentiles: P ₁ = 1.92 P ₁₀ = 1.97 Q ₁ = 2.01 Median = 2.15 Q ₃ = 2.50 P ₉₀ = 2.81 P ₉₉ = 3.37				Hours of Calibration: 36	
																					Percent Operational Time: 100.0					
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	A	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.3	2.1	2.4	2.2	2.0	1.9	2.0	2.2	2.1	1.9	2.0	2.0	A	2.06	2.39
2-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.5	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	A	2.0	2.07	2.46
3-Dec	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.1	2.3	2.06	2.29
4-Dec	2.4	2.5	2.4	2.3	2.2	2.2	2.5	2.4	2.7	2.6	2.5	2.6	2.8	3.3	3.0	2.4	2.5	2.6	2.5	2.5	A	2.8	2.8	2.6	2.56	3.30
5-Dec	2.8	3.0	3.0	3.0	2.8	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	A	1.9	1.9	2.0	1.9	2.18	3.01
6-Dec	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.1	2.2	A	2.1	2.2	2.0	2.1	2.2	2.04	2.26
7-Dec	2.3	2.2	2.5	2.2	2.3	2.2	2.3	2.7	2.4	3.0	2.5	2.5	2.4	2.5	2.4	2.3	2.4	A	2.7	2.9	2.5	2.6	2.5	2.7	2.48	2.99
8-Dec	2.7	2.9	3.0	2.9	2.9	3.0	3.0	3.0	2.8	2.7	C	C	C	2.8	2.8	2.4	A	2.7	2.7	2.5	2.4	2.5	2.6	2.7	2.74	3.01
9-Dec	2.8	2.7	2.9	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	A	2.0	2.0	2.1	2.0	2.1	2.1	2.4	3.2	2.20	3.18
10-Dec	3.4	3.3	3.1	3.4	3.4	2.8	2.3	2.5	1.9	1.9	2.0	2.0	1.9	1.9	A	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.0	2.3	2.36	3.44
11-Dec	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.4	2.3	2.5	2.5	2.4	2.4	A	2.1	2.2	2.2	2.2	2.5	2.4	2.5	2.7	2.6	2.6	2.33	2.70
12-Dec	2.5	2.5	2.8	2.9	2.8	2.8	2.6	3.5	2.9	2.8	3.7	3.7	A	3.0	2.9	2.9	2.6	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.64	3.73
13-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.8	2.7	2.9	A	3.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.0	2.2	2.0	2.21	3.09
14-Dec	2.0	2.2	2.5	2.4	2.2	2.3	2.6	2.4	2.8	2.6	A	2.4	2.5	2.5	2.4	2.6	2.7	2.6	2.6	2.7	2.8	2.7	2.6	2.6	2.50	2.85
15-Dec	2.7	2.8	2.9	3.1	3.0	2.9	3.0	3.0	3.0	A	3.2	2.7	2.8	3.0	2.9	2.8	3.1	3.1	3.0	3.2	3.1	3.8	3.3	3.0	3.02	3.81
16-Dec	2.8	2.4	2.1	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	2.4	2.8	2.2	2.5	2.6	3.1	3.2	2.6	2.7	2.9	2.5	3.2	2.44	3.20
17-Dec	2.3	2.2	2.4	2.2	2.2	2.7	2.9	A	2.4	2.4	2.0	2.2	1.9	2.0	1.9	2.2	2.2	2.2	2.5	3.0	3.1	2.1	2.0	2.0	2.31	3.14
18-Dec	2.0	2.1	2.1	2.1	2.2	2.2	A	2.4	2.5	2.6	2.4	2.4	2.4	2.4	2.1	2.1	2.5	2.4	2.1	2.2	2.5	2.5	2.6	2.6	2.33	2.65
19-Dec	2.7	2.6	2.3	2.9	2.6	A	2.1	2.3	2.8	2.2	2.3	2.1	2.6	2.2	2.0	2.3	3.3	2.5	2.4	2.9	3.4	3.1	2.8	2.1	2.54	3.38
20-Dec	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	2.3	1.9	1.9	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.98	2.27
21-Dec	2.1	2.1	2.1	A	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.11	2.30
22-Dec	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.6	2.7	2.8	2.8	3.2	2.5	2.1	2.4	2.24	3.17
23-Dec	2.3	A	2.5	2.6	2.7	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.0	2.0	2.0	2.0	2.14	2.71
24-Dec	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.6	2.6	2.2	2.1	2.1	2.1	2.1	2.2	2.4	A	2.12	2.65
25-Dec	2.2	2.1	2.1	3.1	2.6	2.3	2.4	3.1	2.3	2.4	2.8	2.7	2.4	2.8	3.2	2.0	1.9	1.9	1.9	2.0	2.0	1.9	A	2.0	2.35	3.20
26-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.3	2.5	2.4	2.2	2.1	2.2	2.2	2.3	A	2.2	2.2	2.14	2.50
27-Dec	2.2	2.1	2.0	2.1	2.2	2.1	2.4	2.3	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.2	2.1	2.2	2.2	A	2.5	2.4	2.7	2.15	2.70
28-Dec	2.6	2.3	2.2	2.1	2.1	2.1	2.3	2.1	2.0	2.1	2.0	2.0	2.2	2.2	2.7	2.2	2.3	2.3	2.7	A	2.4	2.3	2.4	2.5	2.26	2.74
29-Dec	2.5	2.5	2.5	2.5	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.7	2.1	2.2	2.0	2.0	2.0	A	2.2	2.3	2.8	2.6	2.2	2.24	2.76
30-Dec	2.6	2.3	2.2	2.3	2.4	2.0	2.3	2.2	2.0	2.2	2.3	2.5	2.2	2.0	2.0	2.0	2.1	A	2.2	2.1	2.2	2.1	2.1	2.1	2.18	2.55
31-Dec	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	A	2.1	2.1	2.2	2.1	2.3	2.2	2.2	2.07	2.30
2.34 2.29 2.32 2.35 2.31 2.21 2.24 2.30 2.28 2.23 2.26 2.24 2.23 2.31 2.29 2.21 2.26 2.26 2.33 2.34 2.35 2.36 2.32 2.36																									Diurnal Average	
3.39 3.35 3.10 3.44 3.36 2.97 3.04 3.45 2.96 2.99 3.73 3.72 3.09 3.30 3.20 2.89 3.28 3.11 3.20 3.17 3.38 3.81 3.31 3.19																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										

Hourly Maximums

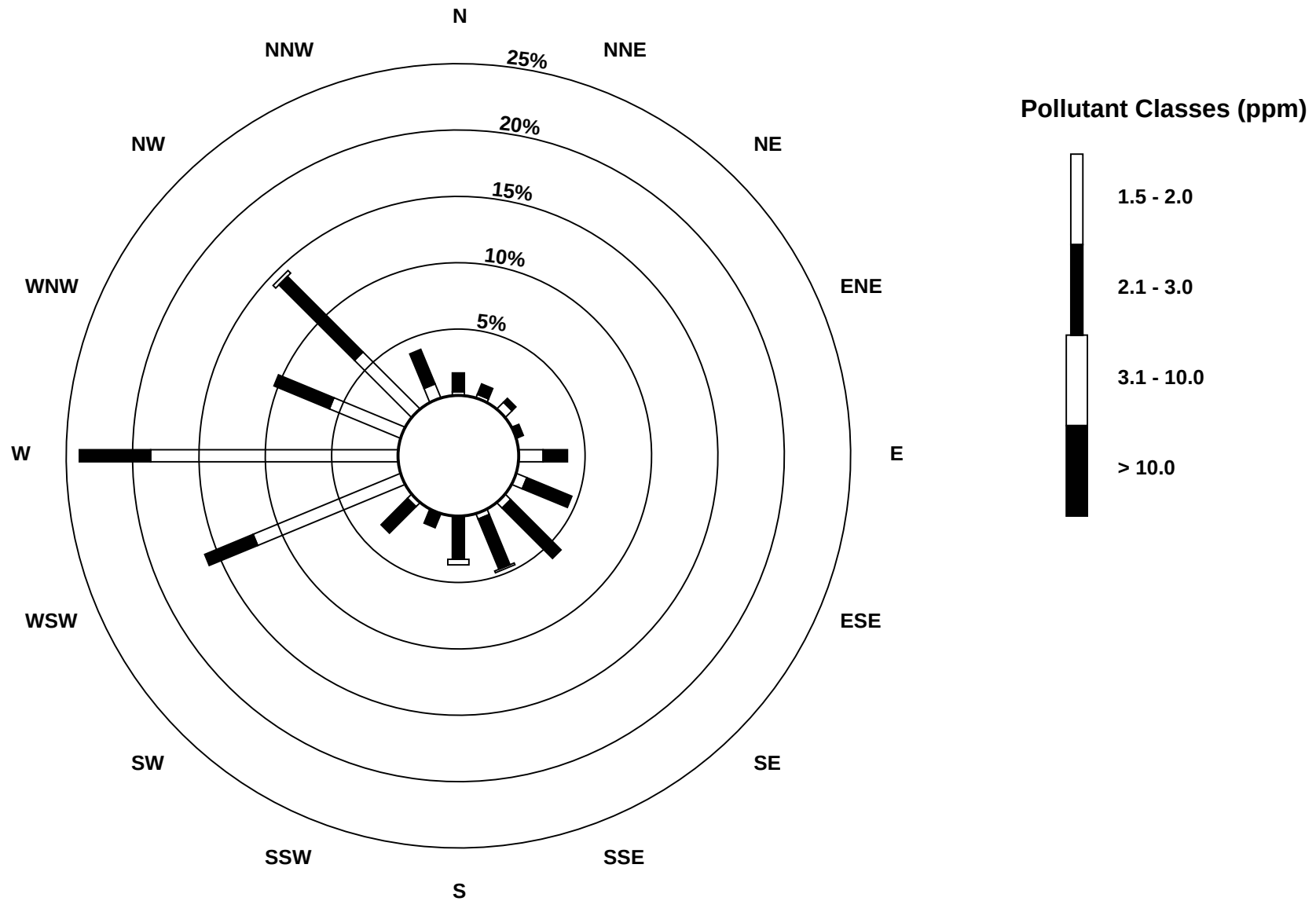
Total Hydrocarbons (THC) - ppm
Henry Pirker - December 2011



Pollutant Rose

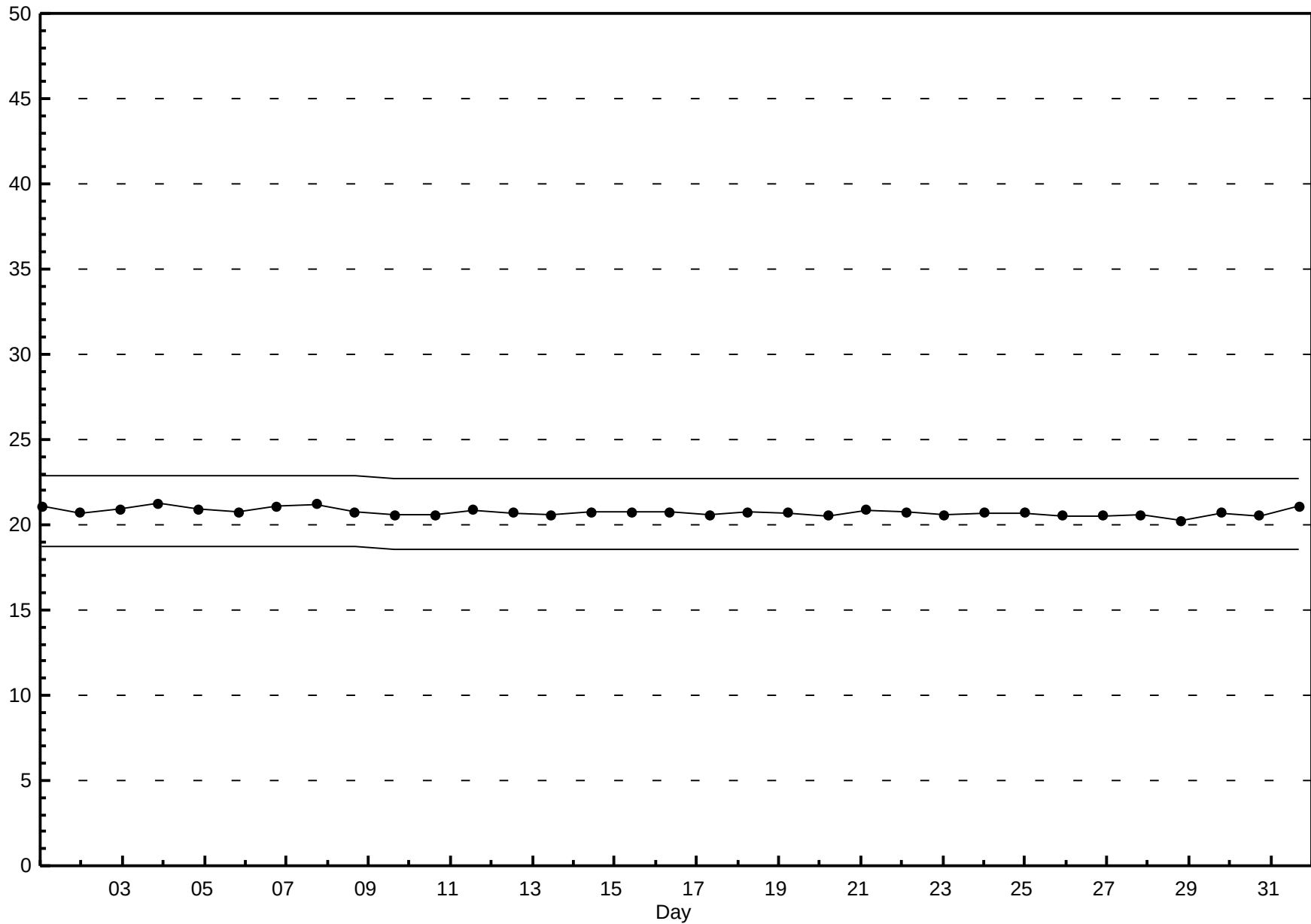
Total Hydrocarbons (THC) - ppm

Henry Pirker - December 2011



Span Responses

Total Hydrocarbons (THC)
Henry Pirker - December 2011

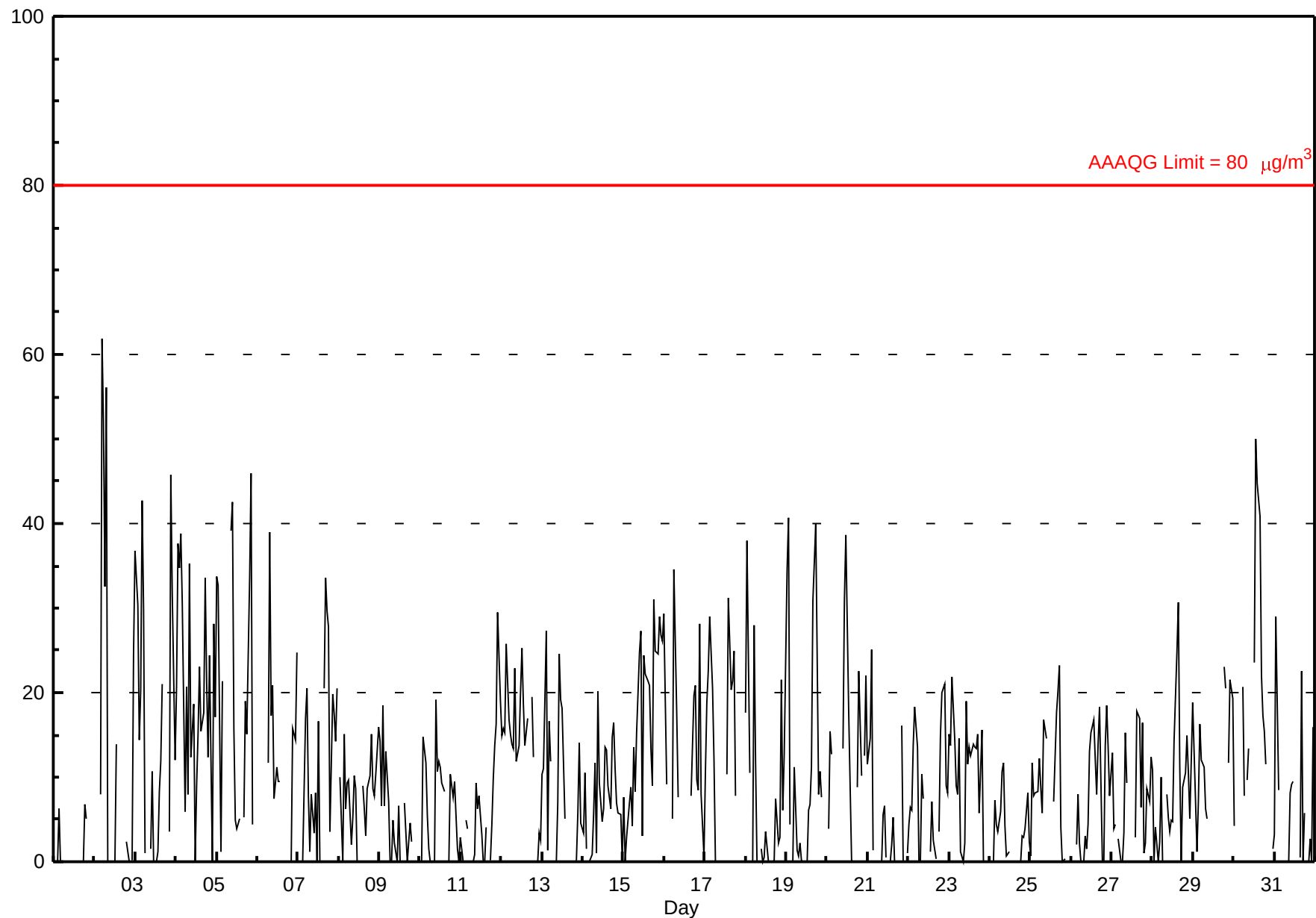


Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Henry Pirker - December 2011

Number of Exceedences: 1-hr: 0 24-hr: 0 Maximum Value: 61.8 µg/m³ on Dec 2 05:00 Minimum Value: 0 µg/m³ on Dec 1 03:00 Maximum Diurnal Average: 14.5 µg/m³ at hour 1 Monthly Average: 11.14 µg/m³																				Maximum Daily Average: 20.0 µg/m³ on Dec 4 Minimum Daily Average: 5.3 µg/m³ on Dec 9 Minimum Diurnal Average: 7.7 µg/m³ at hour 12 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 2.6 Median = 8.8 Q ₃ = 16.3 P ₉₀ = 24.7 P ₉₉ = 45.8																				Hours in Service: 744 Hours of Data: 573 Hours of Missing Data: 171 Hours of Calibration: 0 Percent Operational Time: 77.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum															
1-Dec	N	N	0	6	0	N	N	N	N	N	N	N	N	N	N	N	0	7	5	N	N	N	N	--	6.8																
2-Dec	N	N	N	8	62	52	32	56	0	N	N	N	N	0	14	N	N	4	N	N	2	0	N	0	25	--	61.8														
3-Dec	37	30	14	20	43	30	1	N	N	2	11	0	0	1	8	12	21	N	N	N	4	46	32	12	17.0	45.8															
4-Dec	21	38	35	39	31	6	21	8	35	12	19	0	9	15	23	15	18	34	21	12	24	0	28	17	20.0	38.9															
5-Dec	34	33	1	21	N	N	N	N	39	43	16	5	4	5	N	N	5	19	15	34	46	4	N	N	--	45.9															
6-Dec	N	N	N	N	N	N	12	39	17	21	7	11	10	10	N	N	N	N	N	0	0	16	14	25	--	38.9															
7-Dec	N	11	N	0	17	20	8	1	8	3	8	0	17	0	N	20	34	30	28	4	20	17	14	20	13.4	33.6															
8-Dec	N	10	0	15	6	9	10	2	5	10	9	0	0	N	9	6	3	9	10	15	9	8	10	16	7.8	16.0															
9-Dec	14	7	18	7	13	7	0	0	5	2	0	7	0	M	M	7	0	2	5	2	N	N	N	N	5.3	18.5															
10-Dec	N	0	15	12	5	2	0	N	0	19	11	12	11	9	8	N	N	0	10	8	9	5	2	0	6.9	19.1															
11-Dec	3	0	N	5	4	N	0	0	1	9	6	8	3	0	0	4	N	0	4	10	14	16	29	19	6.5	29.4															
12-Dec	15	16	15	26	17	15	14	13	23	12	14	20	25	19	14	17	N	N	19	12	N	0	3	3	14.9	25.8															
13-Dec	10	11	27	1	17	12	N	N	0	7	25	19	18	5	N	6	N	N	0	0	0	6	14	5	9.7	27.2															
14-Dec	3	10	2	N	0	1	6	12	1	20	9	5	6	14	13	9	6	15	16	11	7	6	6	0	7.7	20.2															
15-Dec	8	0	3	7	9	4	13	8	15	25	27	3	24	22	21	21	13	9	31	25	25	29	27	26	16.5	31.0															
16-Dec	29	9	N	N	N	5	35	18	8	N	N	N	0	N	N	N	8	20	21	10	9	28	8	1	--	34.6															
17-Dec	10	19	22	29	20	12	0	N	N	N	N	N	N	10	31	20	21	25	8	N	N	N	N	N	--	31.2															
18-Dec	18	38	10	N	0	28	12	0	N	2	0	1	4	0	0	0	0	7	2	3	21	6	13	7.5	38.0																
19-Dec	35	41	4	N	0	11	1	1	2	0	0	N	0	6	7	11	31	40	24	8	11	8	N	N	12.0	40.7															
20-Dec	N	4	15	13	N	N	0	N	N	13	31	39	28	18	0	0	N	N	9	23	10	N	12	22	--	38.7															
21-Dec	11	15	25	1	N	2	N	0	0	6	7	1	N	0	2	5	0	N	N	N	16	0	N	1	--	25.2															
22-Dec	4	6	6	14	18	14	0	0	10	7	N	N	N	1	7	3	0	N	4	15	20	21	9	8	8.4	21.0															
23-Dec	15	14	22	14	9	8	15	1	0	2	19	11	14	13	14	14	13	15	6	16	0	N	N	N	11.1	21.9															
24-Dec	N	N	0	7	4	4	6	11	12	4	1	1	N	N	N	N	N	0	0	3	3	4	8	2	--	11.6															
25-Dec	1	12	8	8	8	12	9	6	17	15	N	0	N	N	7	18	20	23	4	0	0	N	N	N	9.3	23.2															
26-Dec	N	0	N	2	8	2	0	0	3	2	4	13	15	17	12	8	14	18	0	0	14	19	14	8	7.8	18.6															
27-Dec	13	4	4	N	3	0	0	3	15	9	N	N	N	N	3	18	17	6	16	1	2	9	7	12	7.6	17.9															
28-Dec	11	0	4	0	2	10	0	N	8	5	4	5	5	14	25	31	11	0	9	10	15	10	5	12	8.5	30.7															
29-Dec	19	7	1	7	16	12	11	6	5	N	6	N	0	M	0	0	N	N	23	21	N	12	21	19	10.4	23.1															
30-Dec	4	N	0	N	N	21	8	N	10	13	N	N	24	50	45	41	22	17	15	12	N	N	N	2	--	50.0															
31-Dec	3	29	8	N	N	0	0	N	0	8	9	9	N	N	N	1	23	0	6	N	0	3	0	16	--	29.0															
14.5 13.9 10.5 11.4 13.0 11.5 7.9 8.8 9.2 10.5 10.5 7.7 9.4 11.0 11.9 11.9 12.9 12.8 11.8 9.6 10.4 12.5 12.3 11.8																								Diurnal Average																	
36.8 40.7 34.7 38.9 61.8 52.0 34.6 56.2 39.2 42.6 31.1 38.7 27.9 50.0 44.7 40.9 33.6 40.0 31.0 33.6 45.9 45.8 31.6 26.1																								Diurnal Maximum																	
M - Maintenance N - Not Valid Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³																																									

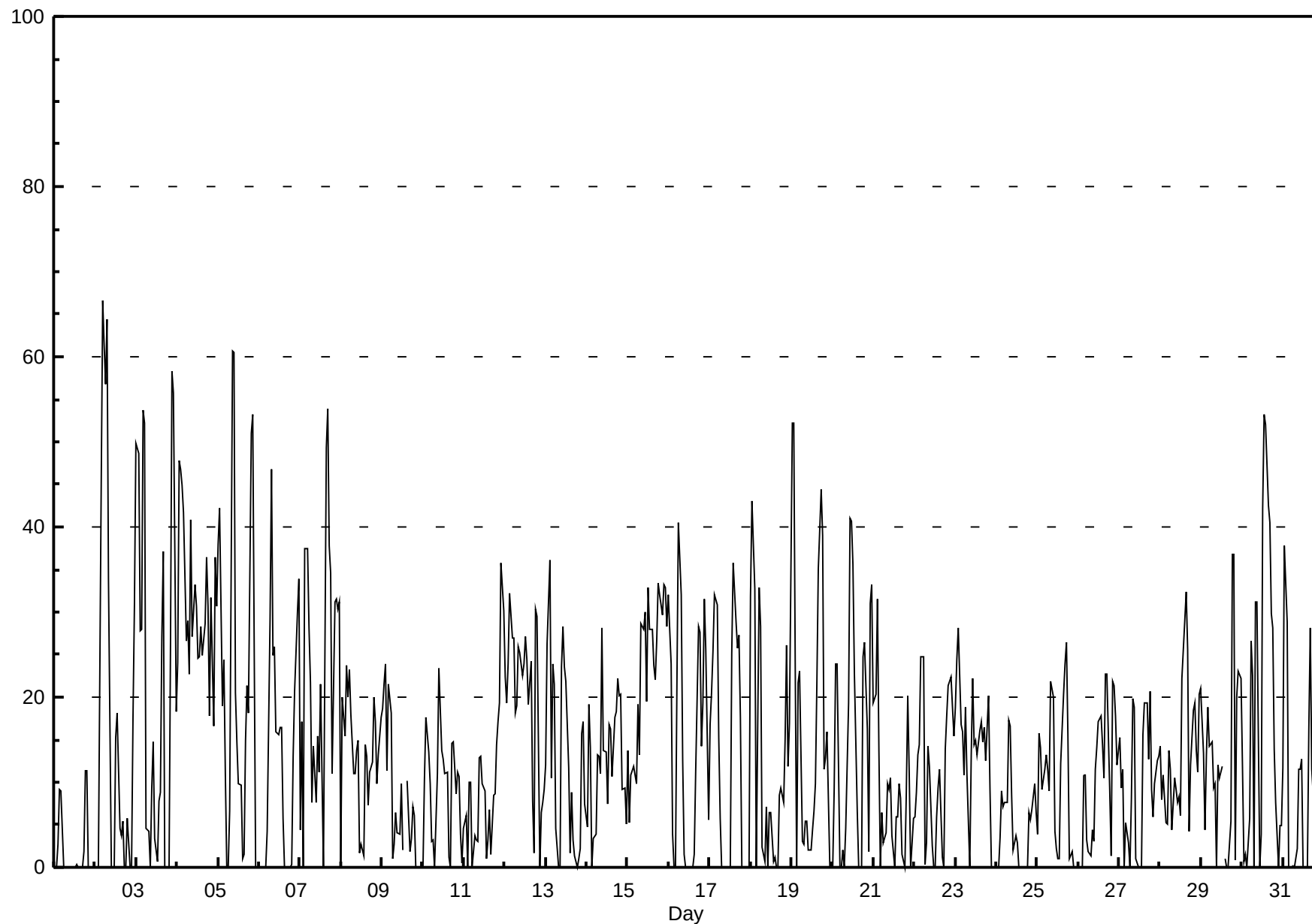


Hourly Maximums

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Henry Pirker - December 2011

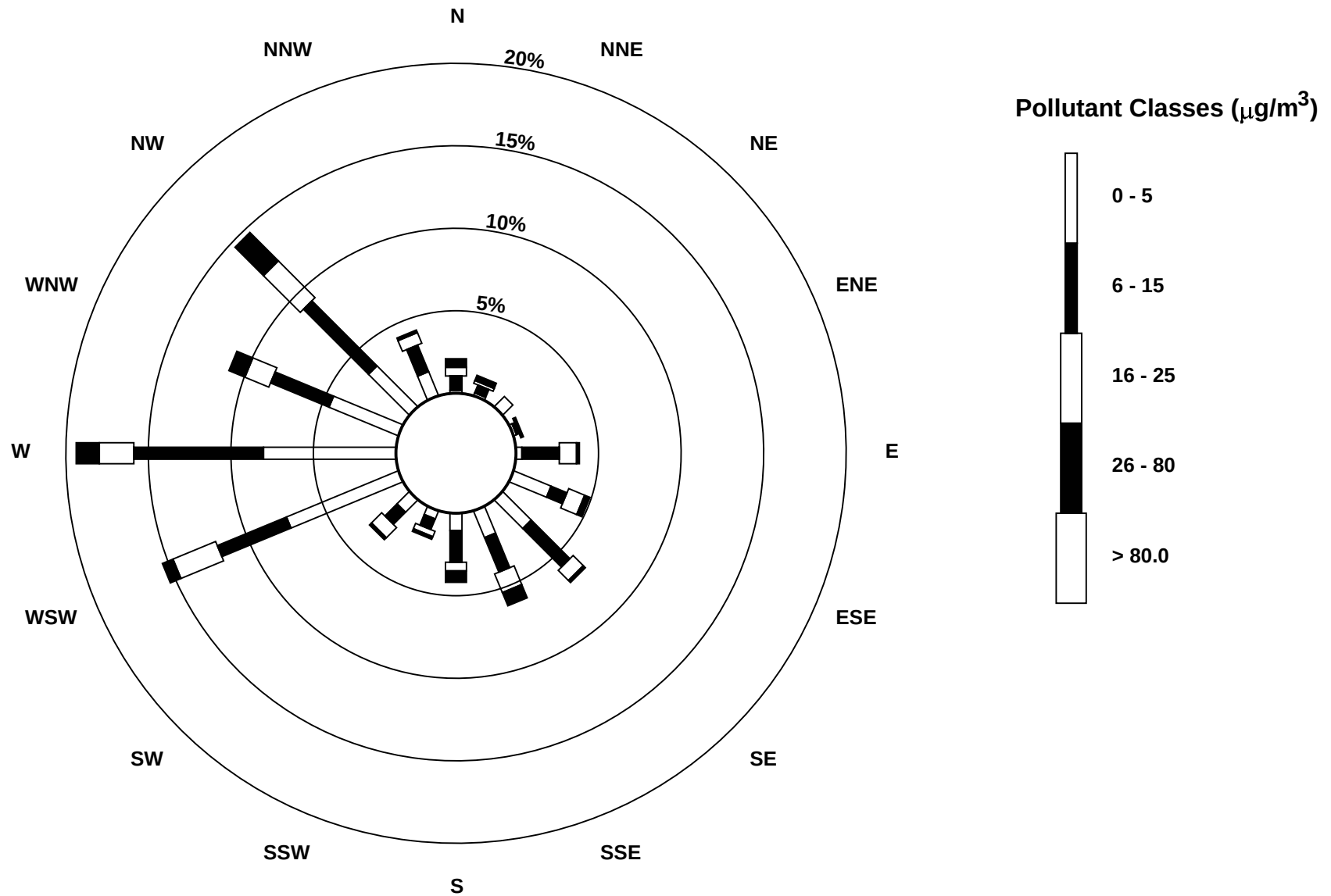
Maximum Value: 66.5 μg/m³ on Dec 2 05:00																								Maximum Daily Average: 31.1 μg/m³ on Dec 4								Hours in Service: 744	
Minimum Value: 0 μg/m³ on Dec 1 01:00																								Minimum Daily Average: 1.9 μg/m³ on Dec 1								Hours of Data: 741	
Maximum Diurnal Average: 18.4 μg/m³ at hour 2																								Minimum Diurnal Average: 10.1 μg/m³ at hour 12								Hours of Missing Data: 3	
Monthly Average: 13.95 μg/m³																								Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 2.2 Median = 11.3 Q ₃ = 21.8 P ₉₀ = 31.4 P ₉₉ = 55.5								Hours of Calibration: 0	
																								Percent Operational Time: 99.6									
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	0	0	3	9	9	0	0	0	0	0	0	0	0	0	0	0	2	11	11	0	0	0	0	0	1.9	11.3							
2-Dec	0	0	0	46	67	61	57	64	34	0	0	0	15	18	5	4	5	0	0	6	0	0	18	31	17.9	66.5							
3-Dec	50	49	28	28	54	52	5	4	0	9	15	3	1	8	9	27	37	0	0	0	26	58	56	18	22.4	58.3							
4-Dec	24	48	47	45	42	27	29	23	41	27	33	31	25	25	28	25	29	36	31	18	32	17	36	31	31.1	47.8							
5-Dec	38	42	19	24	11	0	0	7	61	61	20	15	10	10	1	2	15	21	18	51	53	26	0	0	21.0	60.8							
6-Dec	0	0	0	0	0	4	29	47	25	26	16	16	16	16	6	0	0	0	0	0	13	21	30	34	12.5	46.8							
7-Dec	4	17	0	38	38	28	22	8	14	8	15	11	22	11	0	49	54	38	35	11	31	31	30	31	22.8	53.9							
8-Dec	0	20	15	24	20	23	18	11	11	14	15	2	3	1	14	13	7	11	12	20	17	10	13	18	13.0	23.7							
9-Dec	19	22	24	11	21	18	1	3	6	4	4	10	2	M	M	10	2	3	7	6	0	0	0	0	7.9	24.0							
10-Dec	0	10	18	14	10	3	3	0	11	23	18	14	13	11	11	1	0	15	15	9	11	11	4	0	9.4	23.4							
11-Dec	5	6	0	10	10	0	4	3	3	13	13	10	9	1	3	7	1	8	9	14	17	19	36	30	9.7	35.8							
12-Dec	22	19	24	32	27	27	18	19	26	25	22	24	27	24	19	24	8	2	30	29	0	6	8	9	19.7	32.2							
13-Dec	12	26	36	10	24	22	5	0	0	24	28	24	22	12	2	9	3	1	0	1	2	16	17	7	12.6	36.1							
14-Dec	5	19	14	0	3	4	13	13	11	28	14	14	7	17	16	11	18	18	22	20	20	9	9	5	13.0	28.1							
15-Dec	14	5	11	12	11	10	19	13	29	28	30	20	33	28	28	24	22	27	33	32	30	33	33	28	23.0	33.4							
16-Dec	32	24	4	0	0	22	40	32	13	2	0	0	0	0	0	2	11	28	28	14	19	32	26	6	13.9	40.5							
17-Dec	17	21	25	32	31	15	6	0	0	0	0	0	0	25	36	29	26	27	18	0	0	0	0	0	12.8	35.7							
18-Dec	32	43	33	0	17	33	28	2	1	7	0	6	6	1	1	0	0	9	9	8	15	26	12	17	12.8	43.0							
19-Dec	52	52	24	0	22	23	3	3	5	5	2	2	4	7	10	21	35	44	39	12	13	16	0	0	16.5	52.1							
20-Dec	0	9	24	24	0	0	2	0	5	19	41	41	36	23	7	0	0	0	25	26	16	2	31	33	15.1	41.0							
21-Dec	19	20	32	14	0	6	3	4	10	9	11	4	0	6	6	10	8	2	0	9	20	11	0	6	8.7	31.5							
22-Dec	6	9	13	14	25	25	0	3	14	12	2	0	0	6	9	12	1	0	14	18	21	22	19	15	10.9	24.7							
23-Dec	19	24	28	17	16	11	19	11	0	13	22	14	15	13	16	17	15	16	12	20	9	0	0	0	13.7	28.1							
24-Dec	0	0	4	9	7	8	8	17	17	8	2	4	3	0	0	0	0	0	0	6	6	7	10	6	5.1	17.4							
25-Dec	4	16	14	9	12	13	11	9	22	20	4	2	1	1	12	20	24	26	16	1	2	0	0	0	10.0	26.4							
26-Dec	0	0	0	11	11	3	2	1	4	3	11	14	17	18	14	11	23	23	9	1	22	21	18	12	10.4	22.7							
27-Dec	15	9	12	0	5	3	0	8	20	19	1	0	0	0	16	19	19	13	21	9	6	10	13	13	9.6	20.7							
28-Dec	14	8	11	5	5	14	12	4	11	9	8	8	6	22	29	32	26	4	12	19	19	14	11	20	13.5	32.5							
29-Dec	21	13	4	13	19	14	15	9	10	0	12	11	12	M	1	0	0	5	37	37	1	20	23	22	13.0	36.8							
30-Dec	12	1	2	0	6	27	22	0	31	31	0	4	42	53	52	43	41	30	28	14	8	0	5	5	19.0	53.2							
31-Dec	12	38	29	0	0	0	0	0	2	12	12	13	0	0	0	16	28	12	9	0	8	8	1	29	9.4	37.8							
14.4 18.4 16.0 14.5 16.8 16.0 12.7 10.3 14.0 14.8 12.0 10.1 11.2 12.3 11.7 14.1 14.8 13.6 16.1 13.6 14.1 14.4 14.8 13.8																								Diurnal Average									
52.1 52.1 46.9 45.6 66.5 61.4 56.8 64.4 60.8 60.5 41.0 40.7 42.2 53.2 52.0 49.3 53.9 44.4 39.0 51.0 53.2 58.3 55.8 33.9																								Diurnal Maximum									
M - Maintenance																																	



Pollutant Rose

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Henry Pirker - December 2011



Hourly Averages

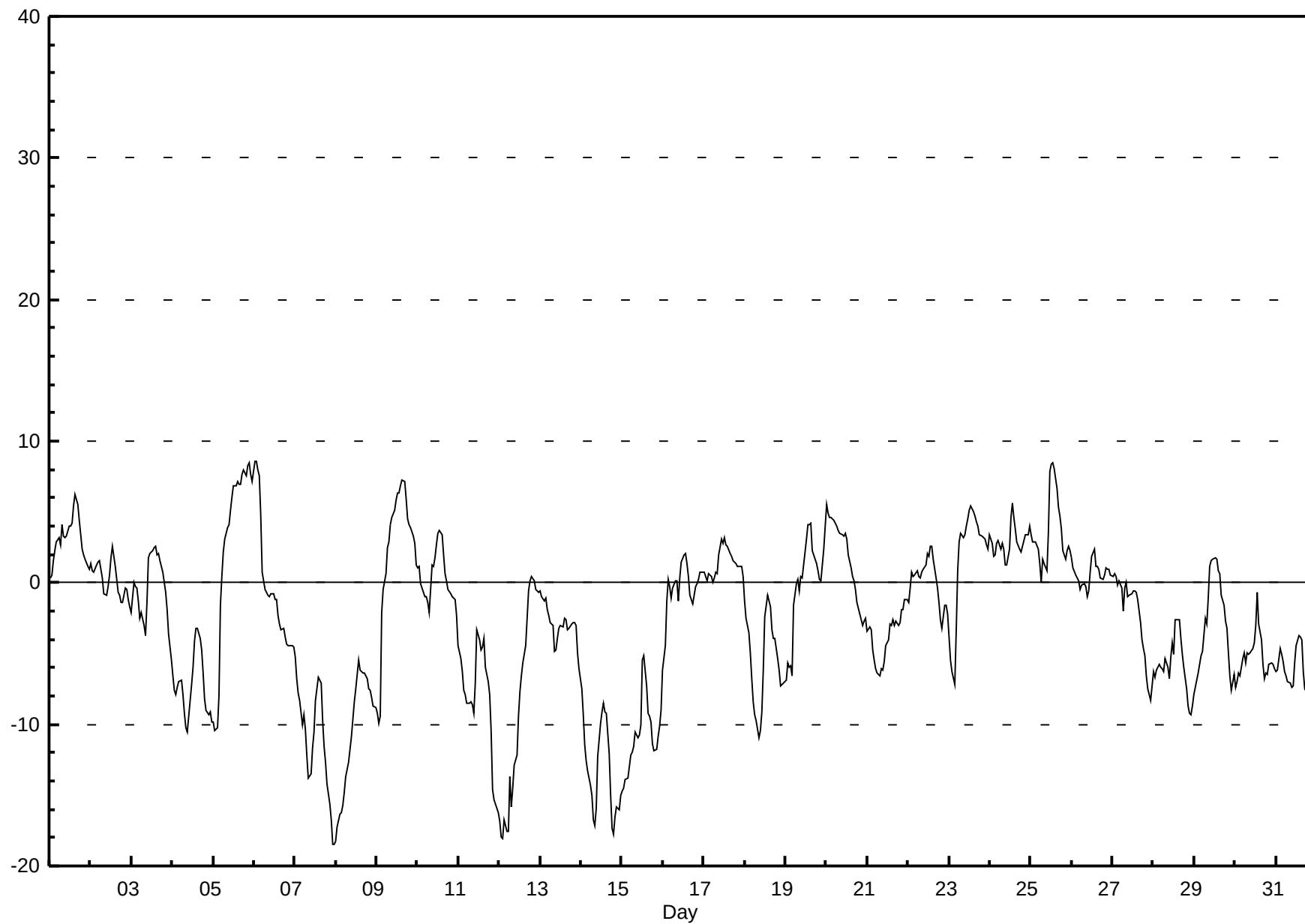
External Temperature (ET) - °C

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8.6 °C on Dec 6 02:00 Maximum Daily Average: 3.7 °C on Dec 25																					Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0					
Minimum Value: -18 °C on Dec 7 23:00 Maximum Diurnal Average: 0.2 °C at hour 14 Monthly Average: -2.75 °C																					Minimum Daily Average: -13.2 °C on Dec 14 Minimum Diurnal Average: -4.1 °C at hour 24 Percentiles: P ₁ = -17.6 P ₁₀ = -10.4 Q ₁ = -6.5 Median = -1.5 Q ₃ = 1.4 P ₉₀ = 3.8 P ₉₉ = 7.9					
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	0	1	2	2	3	3	3	4	3	3	3	4	4	4	5	6	6	4	3	2	2	2	1	1	3.0	6.2
2-Dec	1	1	1	1	1	2	1	0	-1	-1	0	1	2	3	1	0	-1	-1	-1	-1	0	-1	-1	-2	0.2	2.6
3-Dec	-2	0	0	0	-1	-2	-2	-3	-4	-1	2	2	2	2	3	2	2	2	1	0	-1	-2	-4	-5	-0.5	2.6
4-Dec	-7	-8	-8	-7	-7	-7	-8	-9	-10	-11	-8	-7	-6	-4	-3	-3	-4	-5	-6	-8	-9	-9	-9	-10	-7.2	-3.2
5-Dec	-10	-10	-10	-8	-2	0	2	3	4	4	5	6	7	7	7	7	7	8	8	8	8	9	8	7	3.1	8.5
6-Dec	9	9	8	8	5	1	0	-1	-1	-1	-1	-1	-1	-1	-2	-3	-3	-3	-4	-4	-4	-4	-4	-5	-0.3	8.6
7-Dec	-5	-7	-8	-8	-10	-9	-10	-12	-14	-14	-12	-11	-8	-8	-7	-7	-10	-12	-13	-14	-16	-17	-18	-18	-11.1	-5.2
8-Dec	-18	-17	-16	-16	-16	-15	-14	-13	-12	-11	-10	-8	-8	-5	-6	-6	-6	-6	-7	-7	-8	-8	-9	-9	-10.5	-5.5
9-Dec	-9	-10	-9	-2	0	1	2	3	4	5	5	6	6	6	7	7	7	6	4	4	4	3	3	1	2.3	7.2
10-Dec	1	1	0	-1	-1	-1	-1	-2	1	1	2	3	3	4	3	2	1	0	0	-1	-1	-1	-1	-2	0.4	3.7
11-Dec	-4	-5	-6	-8	-8	-8	-9	-8	-9	-9	-7	-3	-4	-5	-5	-4	-6	-7	-8	-10	-15	-15	-16	-16	-8.1	-3.3
12-Dec	-17	-18	-18	-17	-18	-18	-14	-16	-14	-13	-12	-9	-8	-7	-6	-4	-2	-1	0	0	0	0	-1	-1	-8.8	0.4
13-Dec	-1	-1	-1	-1	-2	-2	-3	-3	-5	-5	-4	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-5	-6	-3.0	-0.5
14-Dec	-7	-9	-11	-13	-13	-14	-15	-17	-17	-16	-12	-10	-9	-9	-9	-9	-12	-15	-17	-18	-17	-16	-16	-15	-13.2	-7.5
15-Dec	-15	-14	-14	-14	-13	-12	-12	-12	-11	-11	-11	-10	-5	-5	-7	-9	-9	-10	-11	-12	-12	-11	-10	-9	-10.8	-5.2
16-Dec	-6	-4	-1	0	0	-1	0	0	0	-1	0	1	2	2	1	0	-1	-1	-1	0	0	0	1	1	-0.4	2.1
17-Dec	1	0	0	1	0	0	0	1	1	2	3	3	3	3	3	2	2	2	1	1	1	1	1	0	1.4	3.2
18-Dec	-1	-2	-4	-5	-7	-8	-9	-10	-11	-10	-9	-6	-2	-1	-1	-2	-3	-4	-4	-5	-6	-7	-7	-7	-5.6	-0.9
19-Dec	-7	-6	-6	-6	-7	-2	0	0	-1	0	0	2	3	4	4	4	2	2	1	1	0	0	2	4	-0.1	4.2
20-Dec	5	5	5	5	4	4	4	4	4	3	3	3	3	2	1	0	0	0	-1	-2	-3	-3	-3	-3	1.7	5.5
21-Dec	-3	-3	-3	-5	-5	-6	-6	-7	-6	-6	-6	-4	-4	-3	-3	-3	-3	-3	-3	-3	-2	-2	-1	-1	-3.8	-1.1
22-Dec	-1	0	1	0	1	1	0	0	1	1	1	2	2	3	3	2	0	0	-1	-3	-3	-2	-2	-2	0.1	2.6
23-Dec	-4	-5	-6	-7	-3	1	3	4	3	3	4	5	5	5	5	5	4	4	3	3	3	3	3	2	1.8	5.5
24-Dec	3	3	2	2	3	3	2	3	2	1	1	2	5	6	5	4	3	2	2	3	3	3	3	4	2.9	5.7
25-Dec	3	3	3	3	2	1	0	2	1	1	4	8	8	9	8	7	5	5	4	2	2	2	3	2	3.7	8.5
26-Dec	2	1	1	0	0	0	0	0	0	-1	-1	1	2	2	1	1	1	0	0	1	1	1	1	0	0.6	2.4
27-Dec	0	1	0	0	0	0	-2	0	0	-1	-1	-1	-1	-1	-1	-1	-3	-4	-5	-5	-7	-7	-8	-7	-2.2	0.7
28-Dec	-6	-7	-6	-6	-6	-6	-6	-5	-6	-7	-5	-4	-5	-3	-3	-3	-4	-5	-6	-8	-9	-9	-9	-9	-5.9	-2.6
29-Dec	-8	-7	-6	-6	-5	-5	-3	-3	-1	1	2	2	2	2	1	1	-1	-2	-3	-3	-5	-7	-8	-7	-2.8	1.8
30-Dec	-7	-7	-6	-7	-5	-5	-6	-5	-5	-5	-5	-4	-3	-1	-3	-4	-6	-7	-6	-7	-6	-6	-6	-6	-5.3	-0.6
31-Dec	-6	-6	-5	-5	-6	-6	-7	-7	-7	-7	-7	-6	-4	-4	-4	-4	-6	-7	-8	-10	-10	-10	-10	-11	-6.8	-3.7
																									Diurnal Average	
																									Diurnal Maximum	

Hourly Averages

External Temperature (ET) - °C
Henry Pirker - December 2011



Hourly Averages

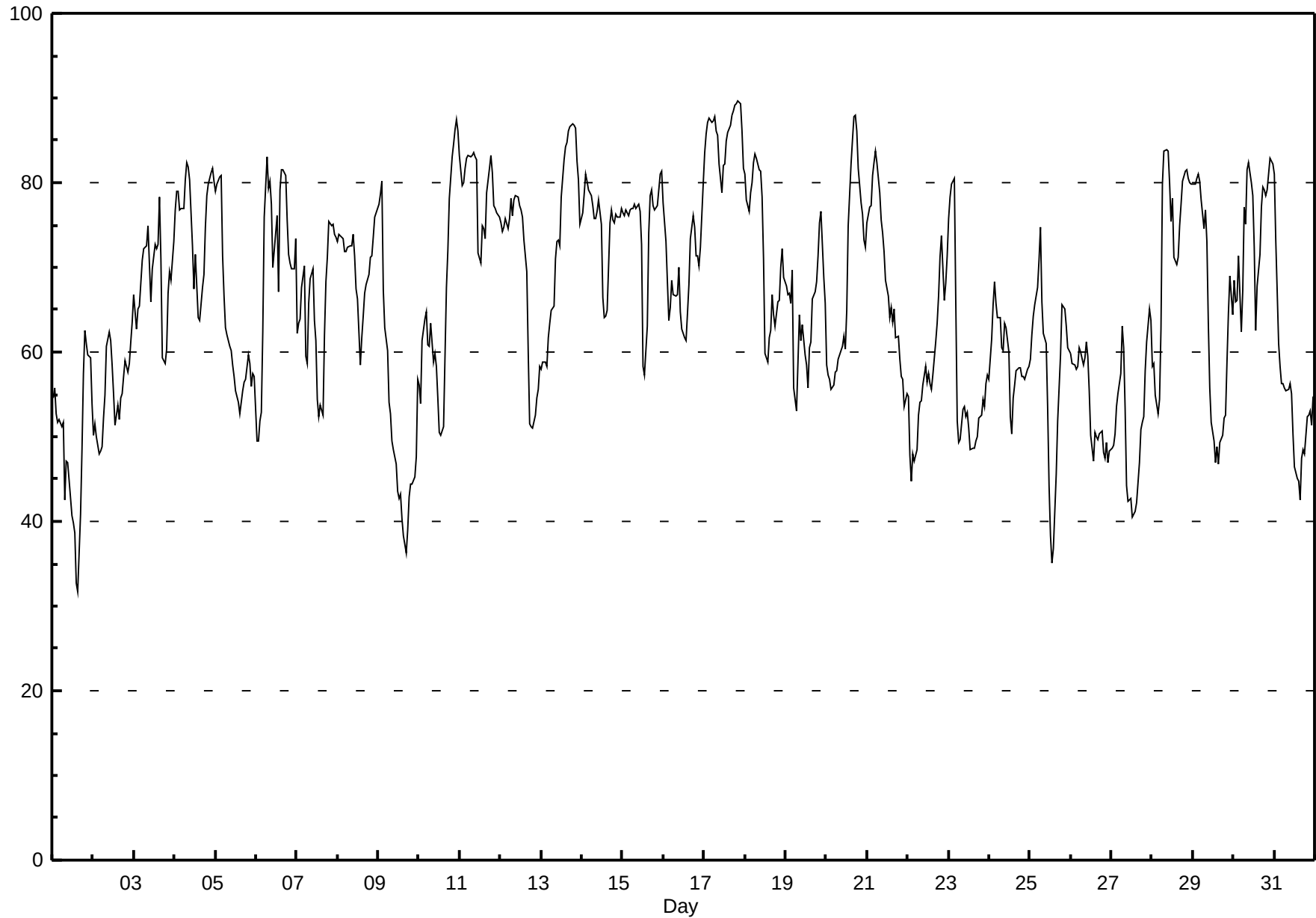
Relative Humidity (RH) - %

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 89.6 % on Dec 17 21:00 Maximum Daily Average: 85.9 % on Dec 17																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0		
Minimum Value: 32 % on Dec 1 16:00 Maximum Diurnal Average: 68.6 % at hour 24 Monthly Average: 65.79 %												Minimum Daily Average: 49.1 % on Dec 1 Minimum Diurnal Average: 58.5 % at hour 14 Percentiles: P ₁ = 38.6 P ₁₀ = 49.6 Q ₁ = 56.3 Median = 65.7 Q ₃ = 76.5 P ₉₀ = 81.4 P ₉₉ = 87.9														
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	55	56	53	52	52	51	52	43	47	47	45	41	40	39	33	32	41	48	58	63	61	60	59	54	49.1	62.6
2-Dec	50	51	50	48	48	49	52	55	61	62	61	58	55	51	54	52	55	55	57	59	58	59	61	64	55.2	63.5
3-Dec	67	63	65	65	68	71	72	73	75	70	66	70	73	72	73	78	71	59	59	60	67	70	69	73	68.7	78.3
4-Dec	77	79	79	77	77	77	80	82	82	80	73	67	72	68	64	64	68	69	75	79	80	81	82	80	75.4	82.3
5-Dec	79	80	81	81	71	67	63	62	61	60	58	57	55	54	53	54	56	56	57	60	59	56	58	57	62.2	80.9
6-Dec	49	49	52	53	62	76	83	79	80	78	70	74	76	67	79	81	81	81	76	72	70	70	70	73	71.0	83.0
7-Dec	62	63	64	68	70	60	59	66	69	70	64	61	54	52	54	53	62	68	71	75	75	75	74	74	65.1	75.5
8-Dec	73	74	74	73	72	72	72	73	73	74	71	67	66	58	62	64	67	68	69	71	71	74	76	77	70.5	77.0
9-Dec	78	79	80	67	63	60	54	53	49	48	47	44	43	40	38	36	39	43	44	44	45	48	57	51.8	80.2	
10-Dec	56	54	61	64	65	61	61	63	59	60	58	55	50	50	51	59	68	72	78	83	85	86	87	86	65.5	87.4
11-Dec	83	80	80	82	83	83	83	83	84	83	83	72	70	75	75	73	79	82	83	81	77	77	77	76	79.3	83.6
12-Dec	75	74	75	76	75	76	78	76	78	78	78	77	77	76	73	69	60	51	51	51	53	55	56	58	68.6	78.5
13-Dec	58	59	59	58	62	63	65	65	71	73	73	72	78	83	84	85	86	87	87	87	86	83	80	75	74.2	87.0
14-Dec	76	79	81	80	79	78	77	76	76	77	78	75	66	64	64	65	75	77	76	75	76	76	76	77	75.0	81.1
15-Dec	76	76	77	76	77	77	77	77	77	78	77	73	58	57	63	74	79	79	77	77	77	79	81	81	75.0	81.3
16-Dec	78	73	68	64	65	68	67	67	67	70	65	63	62	61	65	68	73	76	75	71	71	70	72	80	69.1	79.9
17-Dec	84	86	87	88	87	87	88	86	86	82	79	82	82	85	86	87	88	88	89	89	90	89	86	82	85.9	89.6
18-Dec	81	78	77	79	80	82	83	83	82	81	78	71	60	59	62	63	67	64	63	66	66	70	72	69	72.3	83.4
19-Dec	68	67	67	66	70	56	53	59	64	61	63	60	58	56	61	61	66	67	68	71	75	77	69	66	64.5	76.6
20-Dec	58	57	57	56	56	58	58	59	60	61	62	60	65	75	82	85	88	88	86	82	78	76	73	72	68.8	87.9
21-Dec	75	77	77	81	82	84	82	79	76	74	72	68	67	64	65	64	65	62	62	59	57	57	54	55	69.1	83.7
22-Dec	55	48	45	48	47	48	52	54	54	56	58	56	57	56	56	57	61	63	67	71	74	66	68	71	57.9	73.7
23-Dec	76	78	80	80	66	52	49	50	53	53	52	53	51	48	49	49	50	50	52	53	54	54	56	57	56.9	80.5
24-Dec	57	61	66	68	66	64	64	60	60	63	63	60	52	50	55	56	58	58	58	57	57	57	58	58	59.5	68.3
25-Dec	59	62	64	66	68	71	75	66	62	61	54	44	38	35	37	46	52	56	60	66	65	63	61	60	57.9	74.7
26-Dec	60	59	58	58	58	60	60	58	59	61	60	55	50	47	51	50	50	50	51	48	47	49	47	48	54.0	61.3
27-Dec	49	49	50	54	55	58	63	60	53	44	42	43	41	41	41	42	47	51	52	52	58	61	65	64	51.4	65.1
28-Dec	58	59	55	53	54	63	80	84	84	84	80	75	78	71	70	71	75	78	80	81	82	81	80	80	73.1	83.9
29-Dec	80	80	81	81	80	78	75	77	73	63	56	52	49	47	49	47	49	50	52	53	59	65	69	64	63.6	80.9
30-Dec	68	66	66	71	62	67	77	75	81	82	80	79	72	63	68	71	77	79	79	78	79	83	83	82	74.6	82.8
31-Dec	81	73	61	58	56	56	56	55	56	56	55	50	46	45	45	43	47	49	48	52	53	53	51	55	54.2	81.0
67.8 67.4 67.4 67.4 67.0 66.9 68.1 67.7 68.1 67.5 65.2 62.4 60.2 58.5 60.0 61.3 64.4 65.2 66.4 67.3 67.9 68.2 68.3 68.6																								Diurnal Average		
83.6 85.8 87.1 87.6 87.1 87.2 87.8 86.1 85.6 83.7 82.8 82.1 82.1 85.0 86.0 86.7 87.9 88.4 89.1 89.4 89.6 89.3 87.4 86.1																								Diurnal Maximum		

Hourly Averages

Relative Humidity (RH) - %
Henry Pirker - December 2011



Hourly Averages

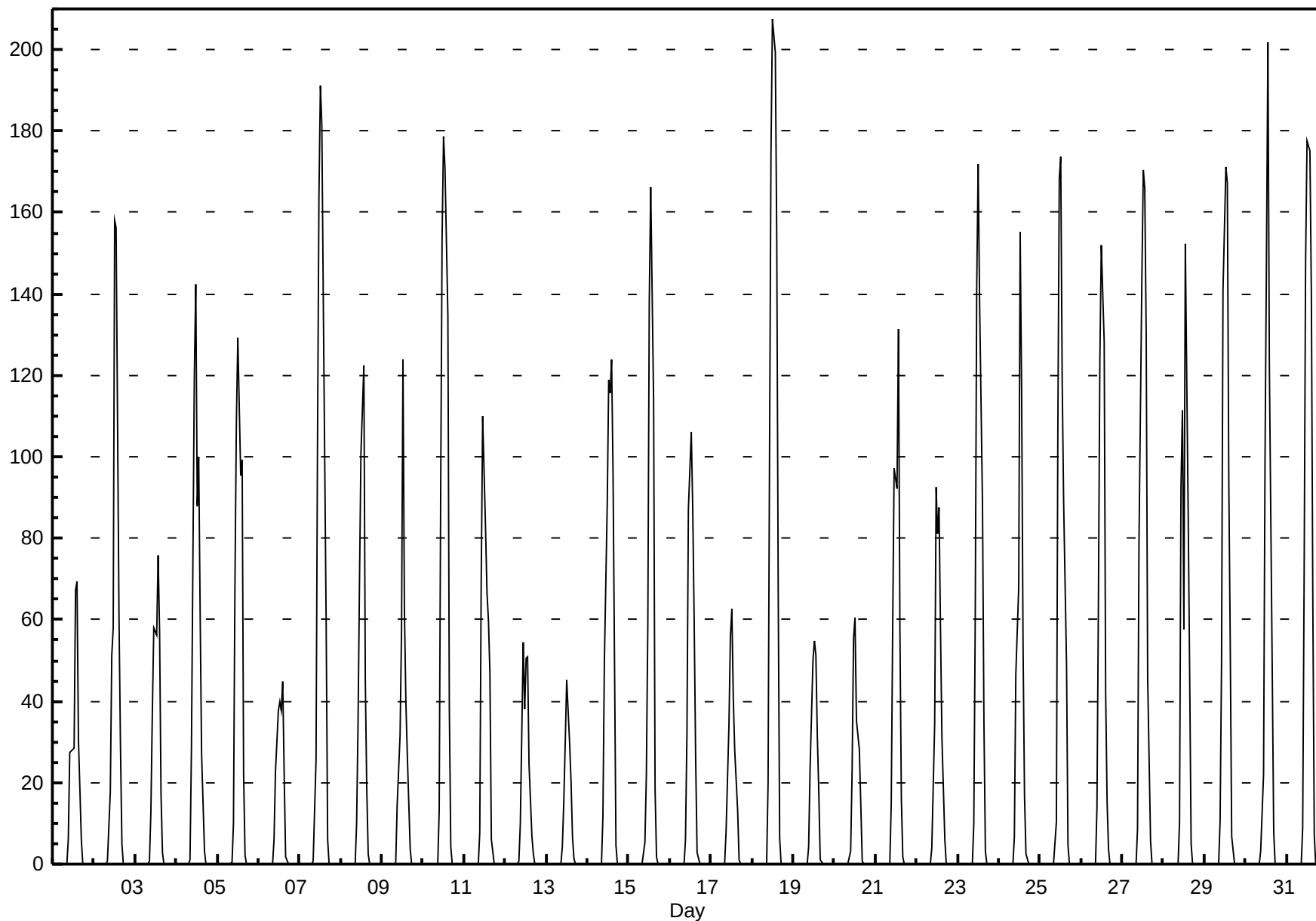
Solar Radiation (SR) - W/m²

Henry Pirker - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 207.4 W/m ² on Dec 18 13:00 Maximum Daily Average: 38.6 W/m ² on Dec 18																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0		
Minimum Value: 0 W/m ² on Dec 1 01:00 Maximum Diurnal Average: 115.3 W/m ² at hour 13 Monthly Average: 20.90 W/m ² Minimum Daily Average: 6.4 W/m ² on Dec 13 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 = 15.0 P ₉₀ = 87.5 P ₉₉ = 176.4																										
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	0	0	0	0	0	0	0	0	0	6	27	28	29	67	69	30	6	0	0	0	0	0	0	0	11.0	69.3
2-Dec	0	0	0	0	0	0	0	0	1	18	51	58	158	156	61	29	5	0	0	0	0	0	0	0	22.3	158.0
3-Dec	0	0	0	0	0	0	0	0	1	13	37	58	56	76	57	17	3	0	0	0	0	0	0	0	13.2	75.9
4-Dec	0	0	0	0	0	0	0	0	1	29	120	142	88	100	62	27	3	0	0	0	0	0	0	0	23.8	142.4
5-Dec	0	0	0	0	0	0	0	0	0	10	67	108	129	95	99	22	2	0	0	0	0	0	0	0	22.2	129.1
6-Dec	0	0	0	0	0	0	0	0	0	6	23	38	40	38	45	22	2	0	0	0	0	0	0	0	8.9	45.0
7-Dec	0	0	0	0	0	0	0	0	1	26	103	164	191	181	138	59	6	0	0	0	0	0	0	0	36.2	191.3
8-Dec	0	0	0	0	0	0	0	0	0	10	35	70	101	122	45	18	2	0	0	0	0	0	0	0	16.8	122.4
9-Dec	0	0	0	0	0	0	0	0	0	15	32	57	124	62	40	27	4	0	0	0	0	0	0	0	15.0	123.8
10-Dec	0	0	0	0	0	0	0	0	0	13	90	154	179	171	134	38	4	0	0	0	0	0	0	0	32.6	178.7
11-Dec	0	0	0	0	0	0	0	0	0	8	70	110	82	66	60	47	6	0	0	0	0	0	0	0	18.7	109.8
12-Dec	0	0	0	0	0	0	0	0	1	10	54	38	51	51	24	7	2	0	0	0	0	0	0	0	9.9	54.4
13-Dec	0	0	0	0	0	0	0	0	0	4	15	30	45	30	20	7	1	0	0	0	0	0	0	0	6.4	45.3
14-Dec	0	0	0	0	0	0	0	0	0	12	49	89	119	116	124	96	5	0	0	0	0	0	0	0	25.4	124.0
15-Dec	0	0	0	0	0	0	0	0	0	5	22	59	138	166	113	19	2	0	0	0	0	0	0	0	21.8	166.3
16-Dec	0	0	0	0	0	0	0	0	0	6	32	87	106	87	59	26	3	0	0	0	0	0	0	0	17.0	106.2
17-Dec	0	0	0	0	0	0	0	0	0	8	34	56	62	41	28	13	1	0	0	0	0	0	0	0	10.2	62.5
18-Dec	0	0	0	0	0	0	0	0	0	20	100	174	207	200	153	67	6	0	0	0	0	0	0	0	38.6	207.4
19-Dec	0	0	0	0	0	0	0	0	0	4	23	50	55	51	31	18	1	0	0	0	0	0	0	0	9.8	54.9
20-Dec	0	0	0	0	0	0	0	0	0	3	23	56	60	35	28	15	1	0	0	0	0	0	0	0	9.2	60.4
21-Dec	0	0	0	0	0	0	0	0	0	15	58	97	92	131	58	16	2	0	0	0	0	0	0	0	19.5	131.3
22-Dec	0	0	0	0	0	0	0	0	0	4	35	92	81	87	58	31	6	0	0	0	0	0	0	0	16.4	92.4
23-Dec	0	0	0	0	0	0	0	0	0	10	61	141	172	138	88	35	3	0	0	0	0	0	0	0	27.0	171.9
24-Dec	0	0	0	0	0	0	0	0	0	7	47	68	155	116	53	17	3	0	0	0	0	0	0	0	19.4	155.4
25-Dec	0	0	0	0	0	0	0	0	0	10	106	168	174	119	89	49	5	0	0	0	0	0	0	0	30.0	173.7
26-Dec	0	0	0	0	0	0	0	0	0	14	64	124	152	128	42	15	3	0	0	0	0	0	0	0	22.6	152.1
27-Dec	0	0	0	0	0	0	0	0	0	9	79	144	170	166	129	46	6	0	0	0	0	0	0	0	31.2	170.4
28-Dec	0	0	0	0	0	0	0	0	0	10	93	111	58	152	85	46	5	0	0	0	0	0	0	0	23.4	152.5
29-Dec	0	0	0	0	0	0	0	0	0	11	50	141	171	167	94	54	7	0	0	0	0	0	0	0	29.0	171.1
30-Dec	0	0	0	0	0	0	0	0	0	3	22	99	149	202	122	47	8	0	0	0	0	0	0	0	27.2	201.7
31-Dec	0	0	0	0	0	0	0	0	0	9	70	147	178	175	140	64	7	0	0	0	0	0	0	0	32.9	177.5
																								Diurnal Average		
																								Diurnal Maximum		

Hourly Averages

Solar Radiation (SR) - W/m²
Henry Pirker - December 2011



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Henry Pirker - December 2011

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 Spd	21	17	22	26	32	18	13	25	14	16	8	5	6	6	14	19	38	36	35	38	38	34	33	32	22.4	38.3
Dir	245	249	264	260	261	269	287	278	250	257	246	219	258	268	255	277	274	259	248	249	256	265	266	271	261.0	255.8
2 Spd	33	24	21	27	30	30	25	21	17	19	17	14	12	9	7	9	10	14	14	12	21	20	17	12	16.6	33.3
Dir	275	266	270	279	288	302	314	318	310	304	299	308	283	266	239	259	241	251	249	242	255	252	251	268	278.9	274.8
3 Spd	8	15	12	14	9	6	9	6	5	14	14	16	16	17	21	19	26	26	26	22	19	15	9	2	13.3	26.2
Dir	285	269	303	306	314	311	287	311	336	308	332	324	318	309	301	295	304	314	321	327	358	15	9	316	315.6	304.2
4 Spd	3	4	1	2	2	3	1	3	2	1	3	3	1	6	4	6	5	3	3	5	5	3	3	3	1.1	5.7
Dir	220	281	339	318	315	325	326	295	1	313	307	293	205	177	166	130	110	67	320	311	323	298	352	276	297.2	176.6
5 Spd	2	1	2	1	11	8	15	12	14	16	19	21	24	21	18	22	26	37	28	19	27	21	12	12	15.7	37.2
Dir	17	98	145	252	252	260	260	274	282	268	269	261	270	266	262	261	256	260	259	266	252	253	259	266	262.0	260.0
6 Spd	31	36	31	29	15	22	20	15	15	16	12	13	16	12	13	7	4	4	7	4	4	2	1	6	10.8	35.7
Dir	265	266	265	273	319	351	338	320	281	281	280	261	258	268	270	304	316	44	40	44	87	101	262	3	288.9	265.6
7 Spd	10	6	5	4	5	6	6	3	5	5	5	8	6	7	9	7	4	2	3	3	2	3	4	4	3.6	9.5
Dir	24	16	25	306	288	282	296	344	303	298	312	341	308	281	253	261	243	192	161	286	298	318	304	307	304.7	24.0
8 Spd	3	1	2	4	4	3	2	6	4	5	1	3	3	3	6	6	4	4	5	5	3	3	2	3	0.3	5.9
Dir	311	306	344	320	317	295	318	299	298	254	206	158	162	140	125	120	114	113	107	117	142	189	310	314	160.0	124.8
9 Spd	4	2	4	12	9	10	15	11	24	32	32	30	21	15	29	32	26	16	7	10	5	5	1	2	14.2	32.1
Dir	331	351	201	260	261	272	270	282	265	258	257	258	252	270	258	259	268	279	251	273	257	269	217	116	262.6	257.5
10 Spd	5	2	2	3	2	6	7	6	17	21	20	18	22	30	21	12	14	15	13	12	11	9	11	9	10.1	29.7
Dir	164	48	149	138	186	276	268	275	270	258	261	276	276	287	295	329	319	319	320	301	291	280	292	14	287.6	286.7
11 Spd	10	9	5	1	3	3	3	2	4	3	1	2	3	5	6	5	5	5	1	3	1	1	1	3	1.2	9.9
Dir	43	45	49	43	288	289	328	185	164	169	258	183	181	160	141	138	126	118	117	261	324	301	283	328	108.0	43.3
12 Spd	3	2	2	2	1	2	3	0	3	3	4	4	3	1	6	6	7	13	19	26	22	17	18	17	6.1	26.4
Dir	313	327	95	147	87	128	141	274	141	173	173	182	201	231	183	214	231	255	252	255	263	256	263	260	245.3	255.0
13 Spd	21	18	18	17	14	6	6	6	2	3	2	3	6	6	3	6	9	9	9	10	12	14	12	11	6.6	21.1
Dir	274	268	255	261	255	312	301	347	336	144	152	163	128	121	81	340	326	319	312	307	297	299	297	309	287.8	274.3
14 Spd	9	7	3	5	5	7	3	3	3	3	2	2	3	2	4	2	3	3	4	5	4	4	4	4	3.6	8.5
Dir	330	331	269	264	309	291	312	284	260	278	338	294	305	345	298	359	344	328	333	317	333	315	322	344	313.2	330.4
15 Spd	5	4	5	4	4	4	5	5	4	4	3	3	1	3	3	2	1	2	3	3	1	3	4	6	2.0	5.6
Dir	311	313	345	297	314	319	320	274	279	265	263	289	238	272	314	146	30	136	308	316	308	166	171	173	289.9	172.6
16 Spd	8	8	21	25	16	10	15	16	14	10	12	10	8	5	6	4	3	3	6	5	3	4	4	5	6.9	24.6
Dir	220	235	250	257	265	279	285	287	297	308	280	309	309	313	291	325	154	220	183	194	195	174	147	136	266.1	256.8
17 Spd	7	7	5	4	2	2	3	3	4	9	10	10	12	11	10	2	2	2	2	4	3	8	12	13	3.1	13.1
Dir	116	123	156	119	103	148	182	297	272	284	298	292	304	312	313	318	11	9	163	166	222	301	310	303	294.2	303.3
18 Spd	11	12	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.7	12.3
Dir	304	316	315	327	319	318	2	319	294	309	307	313	283	233	254	242	218	211	227	255	189	150	142	154	301.7	315.7
19 Spd	1	1	1	1	0	1	8	6	3	5	5	10	7	7	13	9	6	6	4	3	2	2	8	17	3.5	16.9
Dir	162	142	157	191	260	241	242	249	211	276	217	228	206	247	290	255	173	165	123	86	128	125	286	263	237.1	262.7
20 Spd	27	22	28	24	21	27	26	22	22	25	23	27	25	25	19	23	23	24	23	20	17	14	18	15	21.2	28.0
Dir	256	256	252	263	268	259	259	263	260	265	263	259	264	257	267	267	275	307	311	307	309	306	305	303	272.4	251.6
21 Spd	11	8	9	5	6	8	9	8	11	9	9	15	16	14	12	13	7	8	10	8	11	15	18	16	10.3	18.3
Dir	296	273	251	245	255	240	266	263	267	270	277	248	259	252	248	263	296	280	274	286	258	291	266	250	264.9	266.1
22 Spd	15	19	24	19	16	25	25	21	21	18	21	19	13	14	15	11	4	5	3	2	2	8	8	0	11.4	24.8
Dir	247	264	269	273	274	286	281	272	267	270	258	261	268	260	269	282	299	120	126	149	142	121	130	230	266.3	281.3

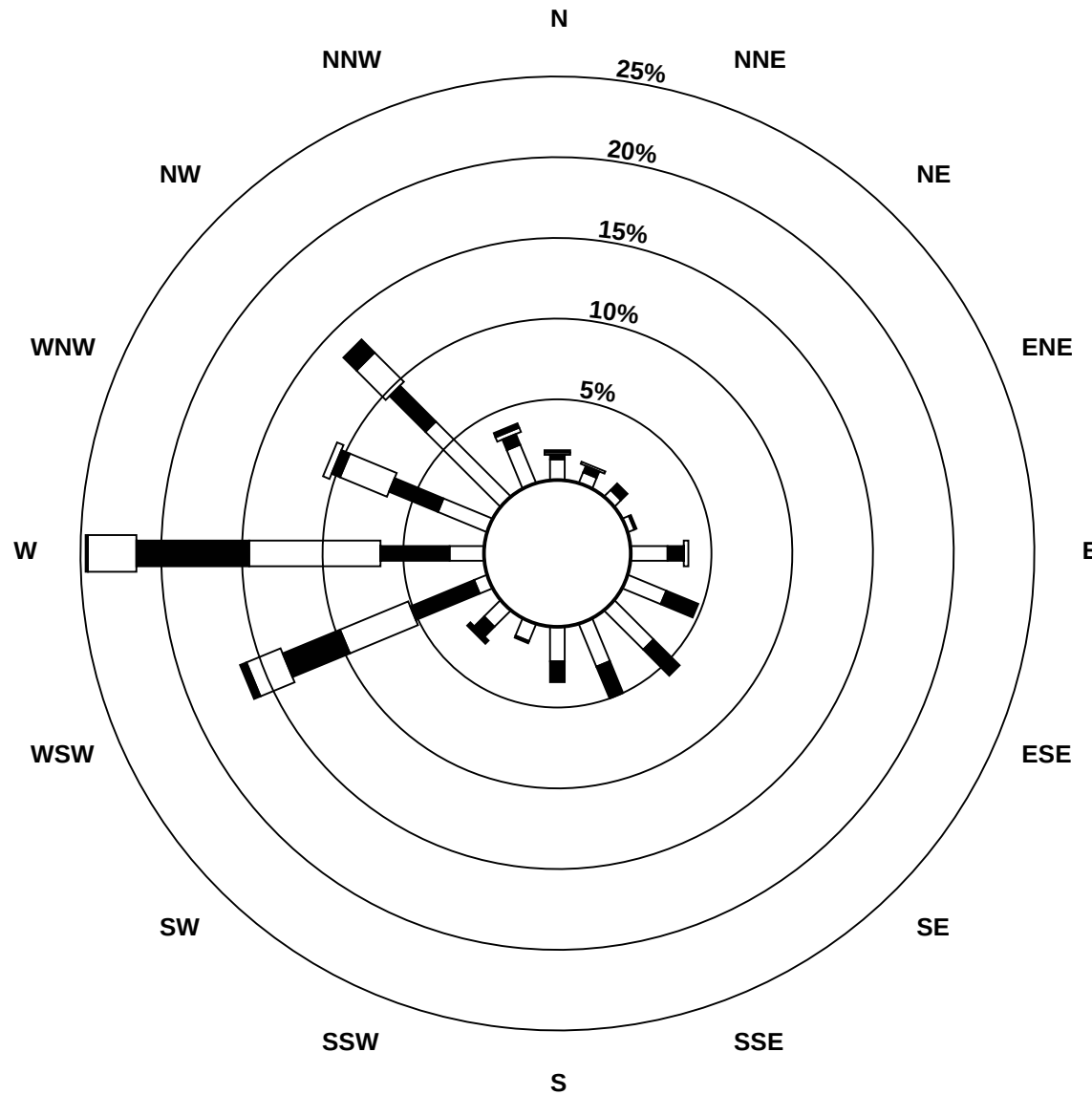
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Henry Pirker - December 2011

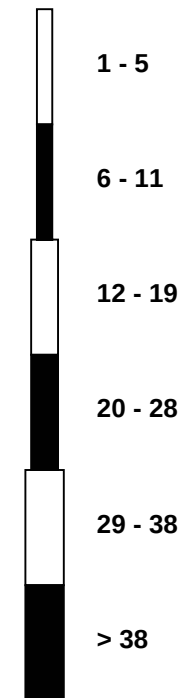
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
23 Spd	5	2	2	2	11	13	20	25	24	26	28	27	29	29	31	36	33	21	14	12	14	11	9	9	17.1	35.8
Dir	323	353	7	277	239	237	225	232	239	249	257	256	262	266	266	262	273	272	267	261	275	260	271	264	258.3	261.9
24 Spd	14	21	16	17	27	24	19	20	21	14	12	6	9	8	2	5	7	9	7	9	8	8	10	10	7.8	27.0
Dir	262	257	263	257	257	268	275	273	278	289	282	290	268	267	183	122	117	116	122	120	137	154	165	166	251.7	257.2
25 Spd	8	8	8	6	6	5	3	7	4	5	2	1	6	5	2	10	14	13	12	7	10	21	30	31	5.1	31.5
Dir	158	140	149	146	129	137	90	87	98	97	113	156	159	182	290	254	258	257	268	250	252	272	259	258	234.6	257.7
26 Spd	31	26	25	29	23	18	22	21	20	12	7	7	6	6	6	8	9	11	9	10	8	8	7	8	9.7	31.3
Dir	259	260	263	258	259	259	257	258	262	246	217	187	171	186	180	147	152	156	138	155	157	151	135	143	233.2	258.8
27 Spd	7	8	8	7	7	7	4	23	34	38	39	39	39	39	33	27	13	10	9	5	2	3	1	2	13.5	39.1
Dir	133	130	127	150	129	144	218	264	263	254	250	252	259	260	267	274	272	244	244	247	184	13	171	87	251.8	249.6
28 Spd	5	5	4	8	7	6	8	10	8	8	9	7	3	2	4	3	4	3	2	2	2	4	4	4	3.7	10.0
Dir	100	140	119	113	121	117	93	100	98	105	118	124	134	140	142	112	88	68	93	303	352	314	328	314	106.4	100.0
29 Spd	4	4	5	4	5	11	16	9	20	30	33	31	31	30	22	23	16	14	11	9	2	2	4	4	12.9	32.8
Dir	327	321	307	236	226	247	246	243	245	250	255	254	255	257	262	270	271	266	258	255	207	69	118	100	256.3	254.9
30 Spd	4	4	2	3	5	8	10	13	16	11	8	7	5	1	6	6	6	5	5	8	10	11	10	10	1.1	16.1
Dir	145	126	113	11	80	94	82	84	96	83	68	54	85	305	314	326	312	303	233	249	271	273	276	259	49.8	95.9
31 Spd	7	14	23	24	23	21	21	19	19	19	19	19	22	18	15	12	12	13	15	8	9	7	8	6	15.2	23.6
Dir	257	255	264	265	263	257	256	260	260	255	255	257	265	263	261	263	254	252	250	243	244	287	303	325	260.7	265.3
Spd	6.9	6.9	7.6	8.5	7.9	7.5	8.2	8.2	9.2	10.4	10.0	9.9	9.9	9.8	9.4	8.6	7.8	7.0	6.2	6.2	6.2	5.9	6.2	5.9	Diurnal Average	
Dir	268.5	265.2	262.8	264.2	267.6	274.9	274.2	275.4	266.8	264.7	264.0	262.5	263.1	264.0	266.1	268.3	271.3	270.4	266.3	267.4	266.8	271.7	272.0	272.6	Diurnal Maximum	
Spd	33.3	35.7	30.7	28.6	31.7	30.4	26.3	24.8	33.7	38.2	39.1	39.0	38.9	38.6	32.5	35.8	38.3	37.2	34.9	37.8	38.3	34.2	33.2	31.5	Diurnal Maximum	
Dir	274.8	265.6	265.3	258.0	261.2	302.0	259.5	231.8	263.3	253.9	249.6	251.9	258.7	260.0	266.9	261.9	273.9	260.0	248.3	249.5	255.8	264.5	265.9	270.6		
Maximum Speed Value: 39 km/h on Dec 27 11:00																								Hours in Service: 744		
Maximum Daily Speed Average: 22.4 km/h on Dec 1																								Hours of Data: 744		
Maximum Diurnal Speed Average: 10.4 km/h at hour 10																								Hours of Missing Data: 0		
Minimum Speed Value: 0 km/h on Dec 23 00:00																										
Minimum Daily Speed Average: 0.3 km/h on Dec 18																										
Minimum Diurnal Speed Average: 5.9 km/h at hour 22																										
Monthly Average Velocity: 7.91 km/h 267.60 deg																								Percent Operational Time: 100.0		
Speed Percentiles: P ₁ = 0.6 P ₁₀ = 1.9 Q ₁ = 3.7 Median = 7.8 Q ₃ = 16.0 P ₉₀ = 24.5 P ₉₉ = 38.2																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										
Frequency Distribution																										
Speed Range (km/h)																										
Direction	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38	Total																			
North	21	7	2	2	0	0	32																			
NorthEast	8	5	0	0	0	0	13																			
East	21	10	3	0	0	0	34																			
SouthEast	47	45	0	0	0	0	92																			
South	34	15	0	0	0	0	49																			
SouthWest	20	25	6	5	0	0	56																			
West	32	61	89	83	37	7	309																			
NorthWest	78	35	34	11	1	0	159																			
Total	261	203	134	101	38	7	744																			

Wind Rose

Wind Speed (WS) (km/h)
Henry Pirker - December 2011



Wind Speed Classes (km/h)



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Henry Pirker - December 2011

Maximum Speed: 39 km/h on Dec 27 11:00																				Maximum Daily Speed Average: 23.3 km/h on Dec 1										Hours in Service: 744			
Minimum Speed: 1 km/h on Dec 18 18:00																				Minimum Daily Speed Average: 2.3 km/h on Dec 18										Hours of Data: 744			
Maximum Diurnal Speed Average: 13.2 km/h at hour 10																				Minimum Diurnal Speed Average: 9.4 km/h at hour 22										Hours of Missing Data: 0			
Monthly Average Speed: 11.18 km/h																				Percentiles: P ₁ = 1.0 P ₁₀ = 3.0 Q ₁ = 4.2 Median = 8.1 Q ₃ = 16.4 P ₉₀ = 24.6 P ₉₉ = 38.4										Percent Operational Time: 100.0			
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	21	18	22	26	32	19	14	25	15	17	8	6	7	8	16	20	38	37	35	38	39	34	33	32	23.3	38.6							
2-Dec	33	24	21	27	31	31	25	21	18	19	17	14	12	10	7	9	10	14	14	12	21	20	17	12	18.3	33.5							
3-Dec	9	16	12	14	9	6	9	6	5	14	15	16	16	17	21	19	26	26	26	22	19	15	9	3	14.7	26.5							
4-Dec	4	4	3	3	3	3	3	3	3	2	3	3	3	6	4	6	5	3	3	5	5	4	4	3	3.7	5.7							
5-Dec	4	2	3	4	11	8	15	13	14	16	19	21	24	21	18	22	26	38	28	20	27	22	12	13	16.7	37.6							
6-Dec	31	36	31	29	22	22	21	17	15	17	12	13	16	13	13	7	4	5	7	5	4	3	2	6	14.6	35.9							
7-Dec	10	6	5	5	5	6	7	4	6	5	7	8	7	7	9	7	4	3	3	4	3	3	4	4	5.4	9.7							
8-Dec	4	2	3	4	4	3	2	6	4	5	2	4	3	3	6	6	5	4	5	5	3	3	3	4	3.9	6.1							
9-Dec	4	3	5	12	9	10	15	12	24	32	32	30	22	15	29	32	27	17	8	10	6	5	2	4	15.2	32.2							
10-Dec	5	4	4	4	4	7	7	6	18	21	20	18	22	30	22	12	14	15	14	12	11	9	11	11	12.6	30.0							
11-Dec	10	9	5	3	3	3	3	2	4	3	3	2	3	5	7	5	5	6	5	3	3	2	2	3	4.2	10.2							
12-Dec	3	2	2	2	2	3	4	2	4	4	4	5	4	3	6	7	8	13	19	27	22	17	18	17	8.1	26.6							
13-Dec	21	18	18	17	14	8	8	6	3	4	4	4	6	6	3	7	9	9	9	10	12	14	12	11	9.8	21.3							
14-Dec	9	7	3	5	6	7	4	3	3	4	2	3	3	2	5	3	3	3	4	5	5	4	5	5	4.2	8.6							
15-Dec	5	5	5	4	4	4	5	5	4	4	4	3	2	4	3	2	2	2	3	3	3	3	4	6	3.8	5.8							
16-Dec	9	10	22	25	16	11	15	16	14	10	12	10	9	6	7	5	4	4	6	5	4	5	4	6	9.7	24.7							
17-Dec	7	7	5	4	3	2	4	4	4	9	10	10	12	11	10	3	3	3	2	4	4	8	12	13	6.4	13.2							
18-Dec	12	12	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.3	12.4							
19-Dec	1	1	1	1	1	1	8	6	5	6	6	10	7	8	13	11	7	7	5	4	4	3	9	17	5.8	17.0							
20-Dec	27	23	28	24	21	27	26	22	22	25	23	27	25	25	19	23	23	25	24	20	17	14	18	15	22.7	28.5							
21-Dec	11	8	9	5	6	8	9	8	11	9	9	15	16	15	12	14	7	8	10	8	12	15	18	17	10.9	18.5							
22-Dec	15	20	25	20	16	25	25	21	21	19	21	19	13	14	15	11	4	5	4	3	3	8	8	4	14.1	24.9							
23-Dec	5	4	5	4	11	13	20	25	24	26	28	27	29	29	31	36	34	21	15	12	14	12	9	9	18.5	36.1							
24-Dec	14	21	16	17	27	25	19	20	21	14	12	6	9	9	5	5	7	9	8	9	8	9	10	10	12.9	27.2							
25-Dec	9	8	8	6	6	5	4	7	5	5	3	4	6	5	4	10	14	13	12	7	11	21	30	32	9.8	31.6							
26-Dec	31	26	25	29	23	18	22	22	20	12	7	7	6	6	6	8	9	11	10	11	9	8	7	8	14.2	31.4							
27-Dec	7	8	8	7	8	7	6	23	34	38	39	39	39	39	33	27	13	10	9	7	5	4	3	4	17.4	39.4							
28-Dec	5	5	5	8	8	7	8	10	9	8	9	7	4	3	4	3	4	3	3	3	3	4	4	4	5.6	10.1							
29-Dec	5	5	5	4	5	12	16	9	20	30	33	31	31	30	23	24	16	14	11	10	4	4	5	4	14.7	33.0							
30-Dec	4	4	3	3	5	8	10	14	16	12	8	7	6	4	6	6	6	5	6	8	10	11	10	10	7.6	16.2							
31-Dec	8	14	23	24	23	21	21	19	19	19	19	19	22	18	15	12	12	14	15	8	9	8	8	6	15.7	23.7							
11.0 10.7 10.9 11.0 10.9 10.7 11.5 11.6 12.4 13.2 12.7 12.6 12.5 12.0 12.0 11.7 11.3 11.2 10.5 9.8 9.7 9.4 9.5 9.4																									Diurnal Average								
33.5 35.9 30.9 28.7 31.9 30.9 26.4 25.0 33.9 38.5 39.4 39.3 39.2 38.8 32.7 36.1 38.5 37.6 35.3 38.1 38.6 34.4 33.5 31.8																									Diurnal Maximum								
All monthly, daily, and diurnal averages have been calculated using scalar methods																																	

Hourly Standard Deviations

Wind Direction (WD) - deg

Henry Pirker - December 2011

Maximum Value: 97.6 deg on Dec 12 08:00																			Hours in Service: 744						
Minimum Value: 3.9 deg on Dec 17 12:00																			Hours of Data: 744						
																			Hours of Missing Data: 0						
Percentiles: P ₁ = 4.9 P ₁₀ = 6.1 Q ₁ = 7.8 Median = 12.8 Q ₃ = 26.3 P ₉₀ = 53.3 P ₉₉ = 83.1																			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	7	10	8	6	6	7	27	6	14	6	16	30	47	62	25	17	6	6	9	6	7	7	6	7	62.3
2-Dec	6	8	8	7	9	10	6	6	6	5	6	7	7	20	8	10	9	10	11	9	6	8	7	18	20.2
3-Dec	31	16	11	9	10	9	6	19	7	10	12	7	8	5	5	6	9	5	5	10	11	8	13	60	60.2
4-Dec	31	11	86	51	41	20	94	39	63	73	13	30	73	10	15	15	20	42	53	15	7	38	52	27	94.0
5-Dec	52	51	77	85	20	26	11	21	12	8	8	8	10	8	7	9	8	8	7	17	10	16	17	16	84.7
6-Dec	8	6	6	5	46	11	13	26	8	12	18	10	6	22	16	11	28	40	22	43	22	51	80	13	80.0
7-Dec	12	18	14	14	18	16	15	40	17	18	37	18	25	10	11	9	13	40	34	57	80	13	14	18	80.4
8-Dec	68	94	30	16	22	27	35	12	33	20	87	48	30	36	15	13	9	13	13	13	31	13	58	23	93.8
9-Dec	25	61	46	5	8	9	8	13	9	6	5	6	7	14	8	6	7	24	28	11	26	24	68	58	67.8
10-Dec	14	69	57	38	57	26	22	30	8	6	6	5	6	8	7	9	8	6	6	8	6	6	12	38	69.2
11-Dec	20	19	26	79	22	56	19	57	8	19	68	38	18	20	19	18	12	6	7	84	56	85	60	10	84.9
12-Dec	16	32	30	30	63	59	66	98	56	21	22	21	57	85	14	25	22	8	6	7	5	8	6	5	97.6
13-Dec	7	8	6	8	11	37	48	15	82	36	78	56	20	8	34	32	10	7	6	5	8	5	6	5	82.2
14-Dec	9	9	32	24	11	11	30	32	21	24	32	40	21	29	14	36	19	11	17	14	12	18	29	33	40.2
15-Dec	25	40	10	21	20	11	11	15	25	29	38	23	83	34	33	37	59	50	35	19	84	54	21	24	84.4
16-Dec	28	33	9	6	14	15	13	7	7	10	19	16	27	31	26	39	47	45	6	8	22	25	16	27	47.1
17-Dec	19	15	13	34	63	41	30	35	25	12	9	4	5	6	6	51	55	60	24	15	38	12	5	5	63.1
18-Dec	12	7	12	11	21	21	43	32	22	21	15	15	40	12	15	9	19	21	9	59	36	16	17	13	58.6
19-Dec	21	23	20	60	79	22	16	38	65	28	26	10	18	31	9	41	7	32	35	41	64	54	33	8	79.5
20-Dec	8	11	11	7	9	6	6	9	7	10	7	7	7	6	7	6	10	8	5	5	6	5	6	7	11.3
21-Dec	7	15	10	14	21	6	9	12	11	15	25	6	6	10	7	15	13	13	9	18	28	13	9	10	27.7
22-Dec	8	7	7	6	9	5	6	8	7	10	5	8	14	7	9	10	40	19	15	60	64	12	11	94	94.1
23-Dec	23	78	86	64	16	9	8	8	7	8	6	7	7	6	7	7	10	8	18	13	8	16	22	9	86.2
24-Dec	9	9	8	8	6	11	6	6	6	5	9	16	9	13	70	11	11	7	10	9	14	7	9	8	70.5
25-Dec	11	10	11	13	11	16	27	11	35	27	45	79	13	25	90	19	7	6	8	16	18	12	6	5	90.4
26-Dec	5	7	6	5	6	7	6	5	8	14	10	15	18	12	18	11	8	7	9	10	25	8	11	12	24.9
27-Dec	13	9	7	13	11	11	53	10	6	6	7	7	7	7	7	6	9	12	19	45	63	53	84	69	84.3
28-Dec	30	17	25	8	9	14	10	8	11	10	8	17	54	73	19	26	35	31	50	47	63	26	21	20	73.4
29-Dec	20	31	22	41	26	19	10	22	9	7	7	6	6	5	8	7	7	8	15	29	76	55	35	14	76.2
30-Dec	30	13	61	35	21	10	10	14	7	8	12	18	31	90	16	13	9	20	16	12	7	7	9	9	90.3
31-Dec	14	11	5	5	6	5	5	6	5	6	6	7	6	7	7	9	13	10	7	16	8	27	12	16	27.0
67.9 93.8 86.2 84.7 79.5 58.9 94.0 97.6 82.2 72.9 86.6 79.3 82.9 90.3 90.4 51.3 58.9 60.5 53.4 83.6 84.4 84.9 84.3 94.1																									

PAZA

Evergreen Park Station

Monthly Summary Tables, Graphs and
Roses

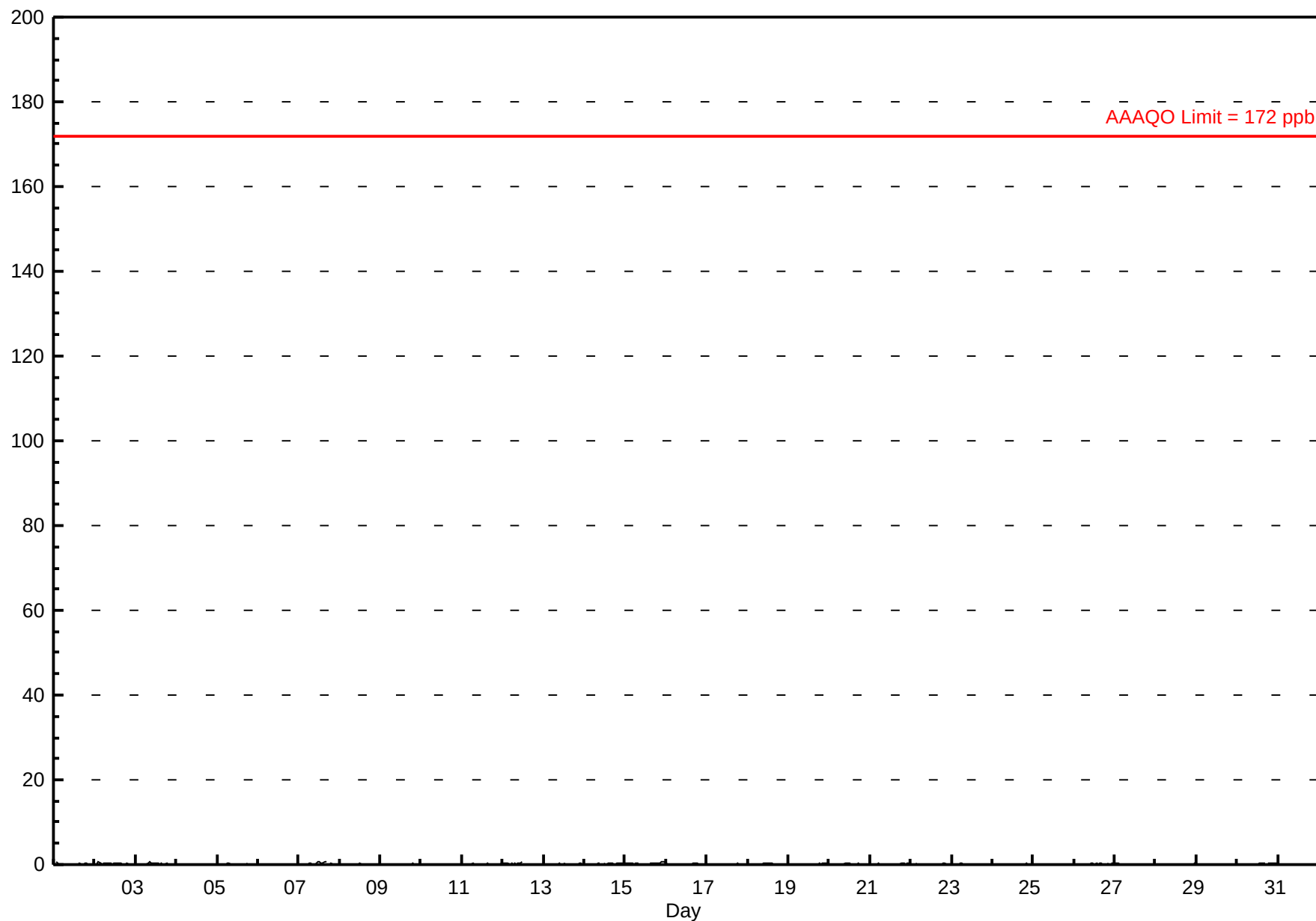
Hourly Averages

Sulphur Dioxide (SO₂) - ppb Evergreen Park - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.8 ppb on Dec 7 16:00 Maximum Daily Average: 0.3 ppb on Dec 15																				Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0						
Minimum Value: 0 ppb on Dec 4 18:00 Minimum Daily Average: 0.0 ppb on Dec 25 Maximum Diurnal Average: 0.1 ppb at hour 12 Minimum Diurnal Average: 0.1 ppb at hour 5 Monthly Average: 0.11 ppb Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.2 P ₉₉ = 0.6																										
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	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.2	0.6
2-Dec	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0.2	0.7
3-Dec	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.2	0.5
4-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	0.1	0.2
5-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	0.1	0.2
6-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	0.0	0.1
7-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	A	0	0	0	0	0	0	0.2	0.8
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0.1	0.2
9-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	0.1	0.2
10-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	0.1
11-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	0.1	0.2
12-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	0.2	0.6
13-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	0.2
14-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
15-Dec	0	0	0	0	0	0	0	0	0	A	0	C	C	C	0	0	0	0	0	0	0	1	1	1	0.3	0.7
16-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
17-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	0.0	0.2
18-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
19-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	0.4
20-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	0.2
21-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	0.1	0.3
22-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
23-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
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	A	0.0	0.2
25-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	0.0	0.1
26-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	0.1	0.4
27-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	0.1	0.3
28-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	0.0	0.2
29-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	0.0	0.2
30-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
31-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	0.1	0.2
0.1 0.1																									Diurnal Average	
0.4 0.6 0.7 0.5 0.2 0.2 0.2 0.3 0.5 0.4 0.4 0.6 0.7 0.5 0.4 0.8 0.5 0.3 0.4 0.3 0.5 0.6 0.7 0.6																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb																										

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - December 2011



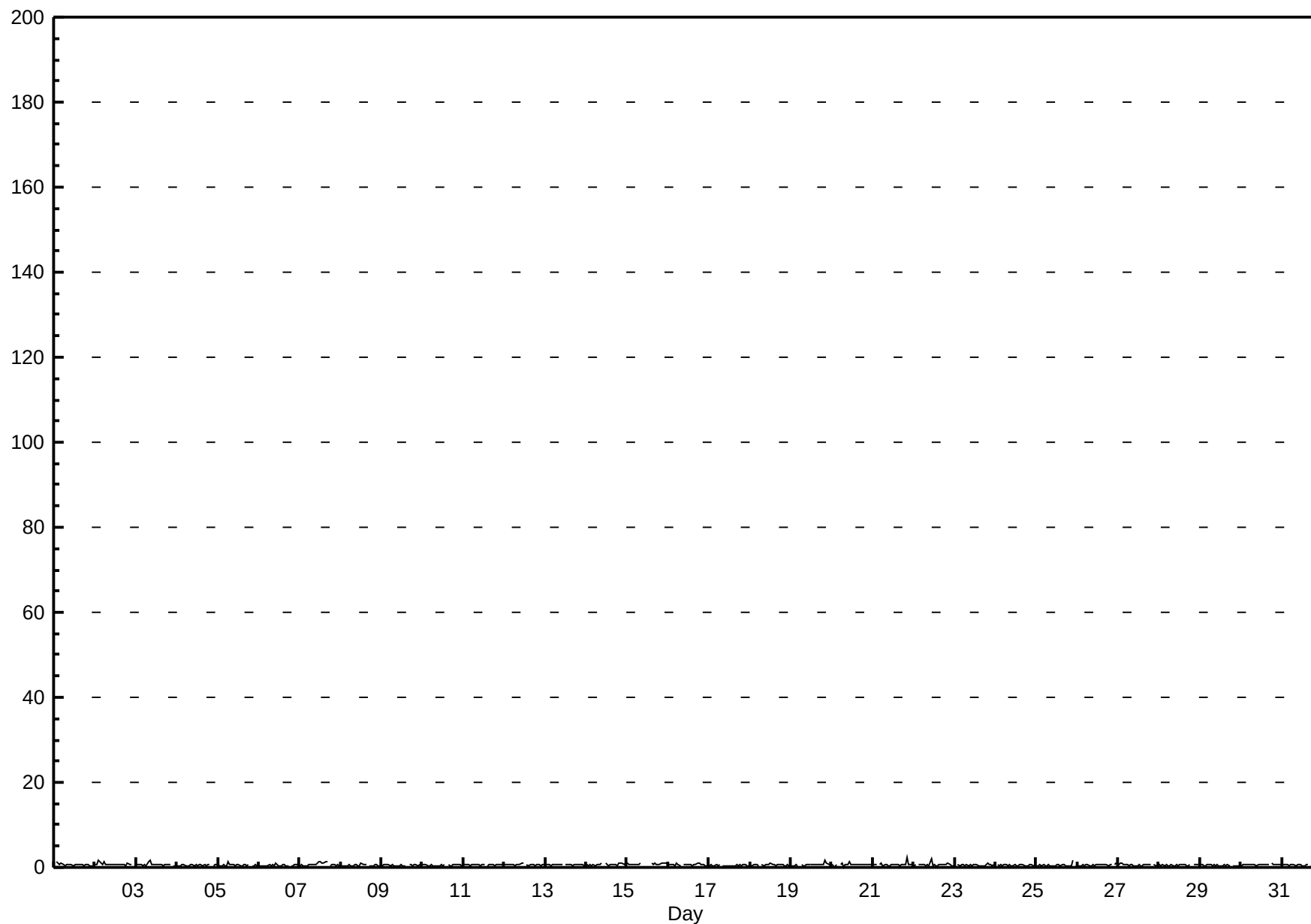
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb Evergreen Park - December 2011

Maximum Value: 2.3 ppb on Dec 21 21:00																				Maximum Daily Average: 0.8 ppb on Dec 15										Hours in Service: 744			
Minimum Value: 0 ppb on Dec 20 03:00																				Minimum Daily Average: 0.5 ppb on Dec 17										Hours of Data: 708			
Maximum Diurnal Average: 0.7 ppb at hour 21																				Minimum Diurnal Average: 0.5 ppb at hour 5										Hours of Missing Data: 36			
Monthly Average: 0.59 ppb																				Percentiles: P ₁ = 0.3 P ₁₀ = 0.4 Q ₁ = 0.5 Median = 0.6 Q ₃ = 0.7 P ₉₀ = 0.8 P ₉₉ = 1.5										Hours of Calibration: 36			
																														Percent Operational Time: 100.0			
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	A	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	A	0.6	1.4							
2-Dec	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	A	1	0.8							
3-Dec	1	1	1	1	0	1	0	1	2	1	1	1	1	1	1	1	0	1	1	1	1	A	0	0	0.7								
4-Dec	0	0	0	1	1	0	0	0	1	1	0	1	0	1	1	0	1	0	1	1	A	0	1	1	0.5								
5-Dec	1	0	0	1	0	0	1	1	1	1	0	1	1	0	0	1	1	0	1	A	0	0	1	0	0.5								
6-Dec	0	0	0	0	0	0	1	0	1	0	1	0	0	1	1	1	0	0	A	0	0	1	1	0	0.5								
7-Dec	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	A	0	1	1	0	1	0	0.7								
8-Dec	0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	0	A	0	0	0	1	1	0	0	0.5								
9-Dec	0	1	1	1	1	0	1	0	0	0	0	1	0	0	0	A	1	1	0	1	1	0	1	1	0.5								
10-Dec	1	1	1	0	0	1	0	0	0	0	0	1	0	1	A	1	0	0	1	1	1	1	1	0	0.5								
11-Dec	1	1	1	1	0	1	1	1	1	1	0	1	1	A	0	1	1	1	0	1	1	1	1	1	0.6								
12-Dec	1	1	1	1	1	1	0	1	1	1	1	1	A	1	0	1	1	1	0	1	1	0	1	1	0.7								
13-Dec	1	1	1	0	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0	0.6								
14-Dec	1	0	1	0	1	0	1	1	1	1	A	1	1	0	1	1	1	1	0	1	1	1	1	1	0.7								
15-Dec	1	1	1	1	1	1	1	1	1	A	1	C	C	C	1	1	1	1	1	1	1	1	1	1	0.8								
16-Dec	1	1	1	1	0	1	1	0	A	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	0.6								
17-Dec	0	1	0	0	1	0	1	A	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0.5								
18-Dec	0	0	1	1	1	0	A	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1.0								
19-Dec	0	0	0	1	0	A	1	0	0	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	0.6								
20-Dec	1	0	0	1	A	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6								
21-Dec	1	1	1	A	1	1	0	1	1	0	0	1	1	1	1	1	0	1	1	1	2	1	1	1	0.7								
22-Dec	1	1	A	1	1	1	1	0	1	1	2	0	1	1	0	1	1	1	1	1	1	1	0	0	0.7								
23-Dec	0	A	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	0	1	1	1	0	1	0.5								
24-Dec	A	1	0	1	0	1	1	0	1	0	0	1	0	0	1	1	1	0	0	0	1	1	0	A	0.5								
25-Dec	0	0	1	0	1	0	0	1	0	0	0	0	1	1	0	1	1	0	0	1	0	2	A	0	0.5								
26-Dec	0	0	0	1	0	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	A	1	1	0.6								
27-Dec	1	1	1	1	1	1	0	1	1	0	0	1	1	0	0	1	1	1	1	1	A	1	0	0	1.1								
28-Dec	1	0	1	0	1	0	0	1	0	0	1	0	1	1	1	1	0	0	1	A	1	1	1	1	0.5								
29-Dec	1	1	0	0	1	1	1	0	1	0	1	0	0	0	1	0	1	0	A	0	0	0	0	1	0.5								
30-Dec	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.6								
31-Dec	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	A	0	0	0	0	1	1	1	0.5								
																								Diurnal Average									
																								Diurnal Maximum									
C - Calibration																																	
A - Automated Daily Zero Span																																	

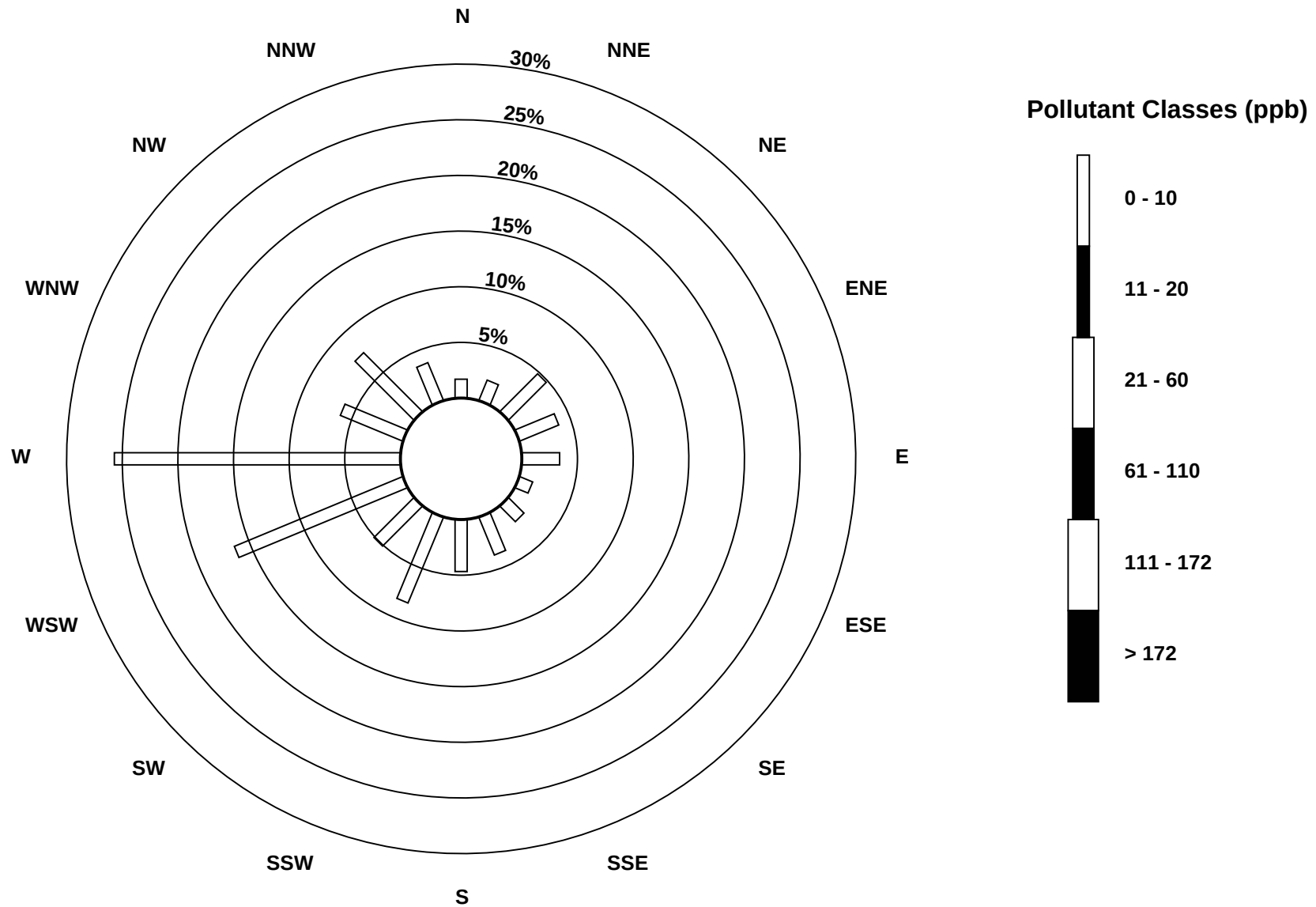
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - December 2011



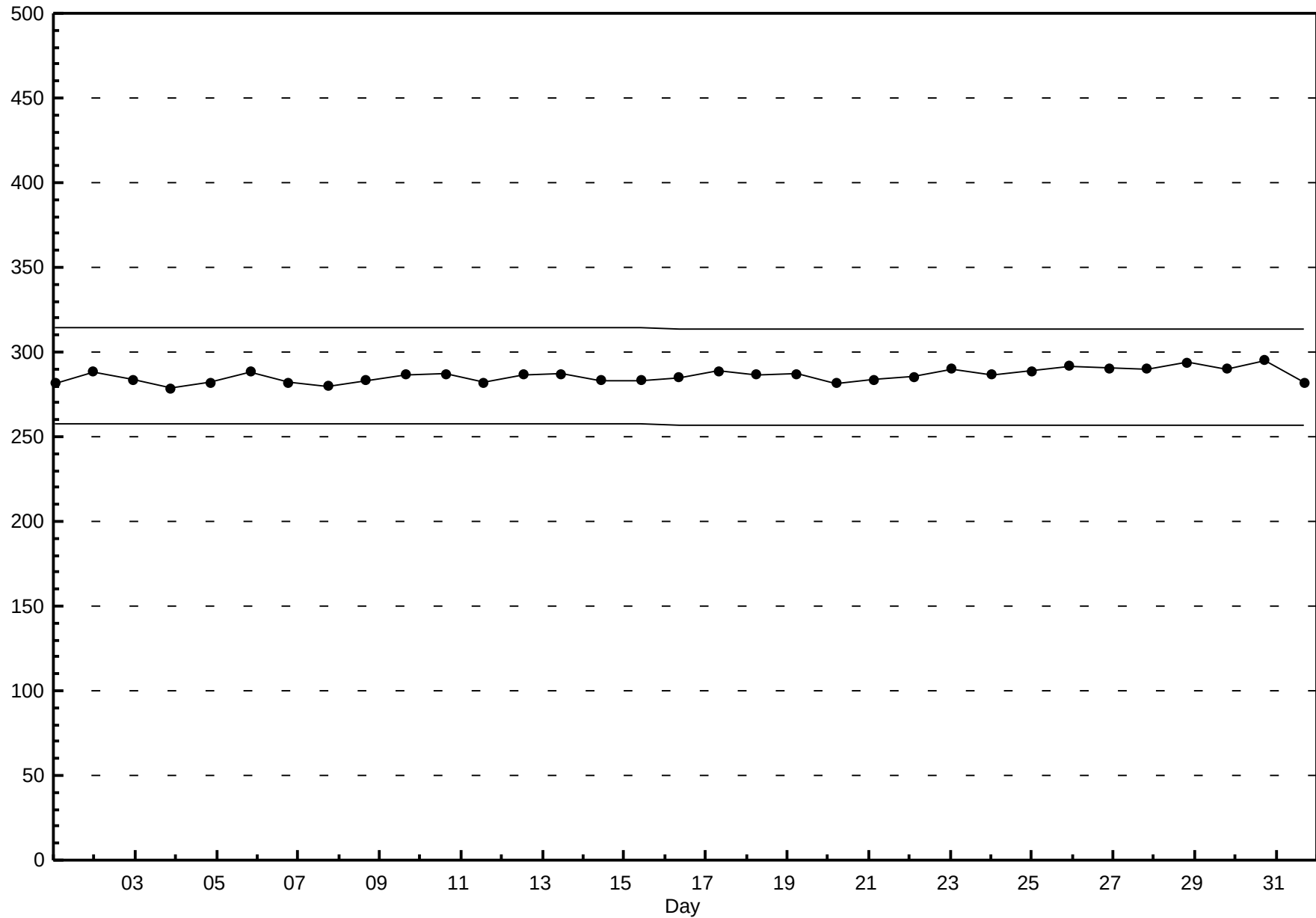
Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - December 2011



Span Responses

Sulphur Dioxide (SO₂)
Evergreen Park - December 2011



Hourly Averages

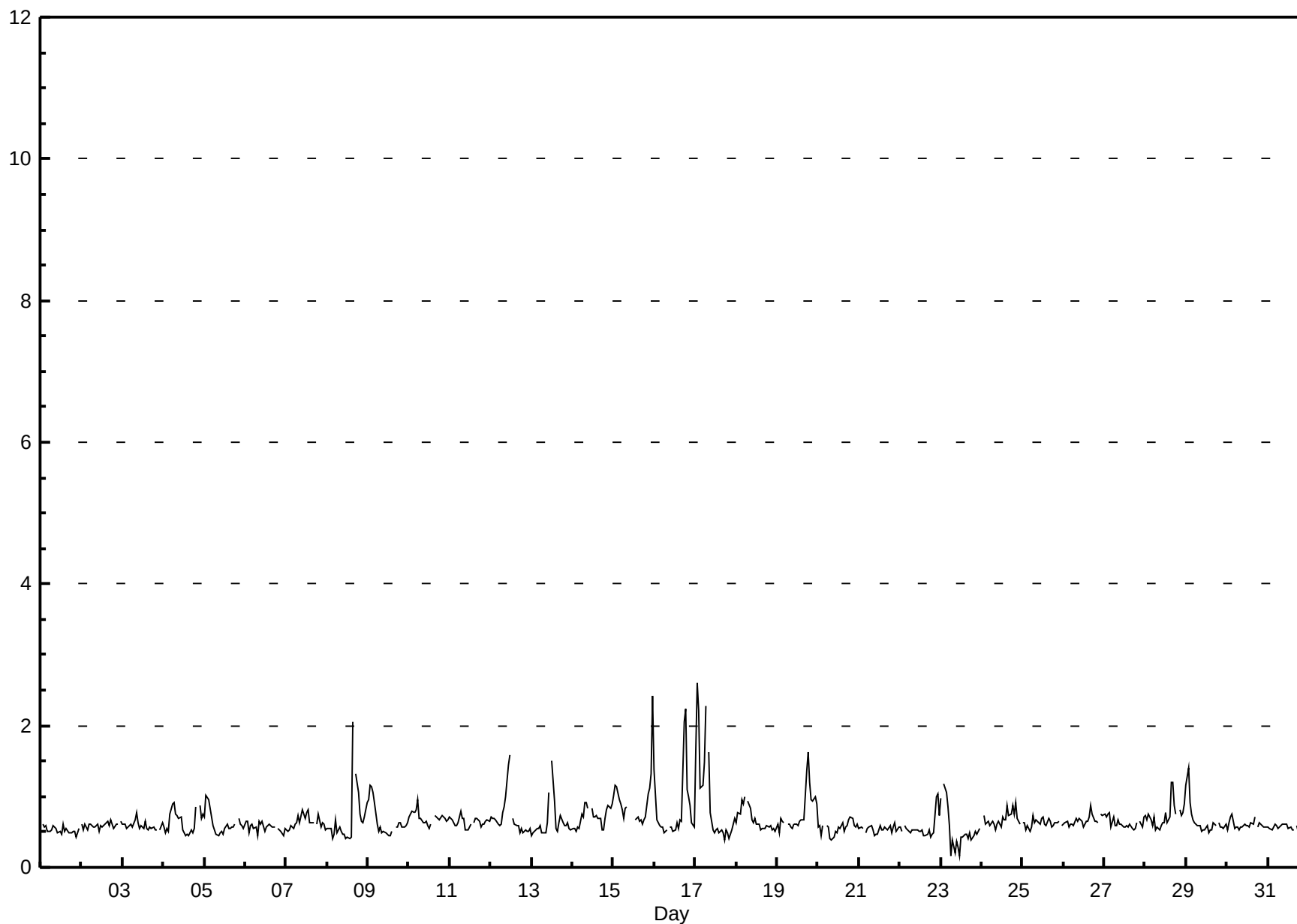
Total Reduced Sulphur (TRS) - ppb

Evergreen Park - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.6 ppb on Dec 17 02:00 Maximum Daily Average: 1.0 ppb on Dec 17																								Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0		
Minimum Value: 0 ppb on Dec 23 12:00 Maximum Diurnal Average: 0.8 ppb at hour 2 Monthly Average: 0.66 ppb												Minimum Daily Average: 0.5 ppb on Dec 23 Minimum Diurnal Average: 0.6 ppb at hour 15 Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.5 Median = 0.6 Q ₃ = 0.7 P ₉₀ = 0.9 P ₉₉ = 2.0														
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	A	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	1	1	0	1	A	0.5	0.6
2-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	0.6	0.7
3-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
4-Dec	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	A	1	1	1	0.6	0.9
5-Dec	1	1	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	A	1	1	1	1	0.6	1.0
6-Dec	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0	1	0.6	0.7
7-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	0.6	0.8
8-Dec	1	1	1	0	0	1	0	1	1	0	0	0	0	0	0	2	A	1	1	1	1	1	1	1	0.7	2.1
9-Dec	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	A	1	1	1	1	1	1	1	1	0.7	1.2
10-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	1.0
11-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	0.6	0.8
12-Dec	1	1	1	1	1	1	1	1	1	1	1	2	A	1	1	1	1	0	1	0	1	1	1	1	0.7	1.6
13-Dec	0	0	1	1	1	1	0	0	0	1	1	A	2	1	1	1	1	1	1	1	1	1	1	1	0.6	1.5
14-Dec	1	1	0	1	1	1	1	1	1	1	A	1	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	A	C	C	C	1	1	1	1	1	1	1	1	1	2	0.9	2.4	
16-Dec	1	1	1	1	1	1	0	1	A	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	0.8	2.2
17-Dec	2	3	2	1	1	1	2	A	2	1	1	0	1	1	0	1	0	0	1	0	0	1	1	1	1.0	2.6
18-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	0.7	1.0
19-Dec	1	0	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	0.8	1.6
20-Dec	1	1	0	1	A	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.7
21-Dec	1	1	1	A	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	0.5	0.6
22-Dec	1	1	A	1	1	1	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	1	1	0.6	1.0
23-Dec	1	A	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0.5	1.2
24-Dec	A	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
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	0.7
26-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
27-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	0.6	0.8
28-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	1.2
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	A	1	1	1	1	1	0.7	1.4
30-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	0.6	0.7
31-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	1	1	1	1	1	0.6	0.6
0.7 0.8 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 0.7 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7																								Diurnal Average		
1.6 2.6 2.2 1.1 1.2 1.5 2.3 0.9 1.6 1.0 1.5 1.6 1.5 0.9 0.7 2.1 1.2 2.1 2.2 1.2 1.0 1.1 1.3 2.4																								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

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - December 2011



Hourly Maximums

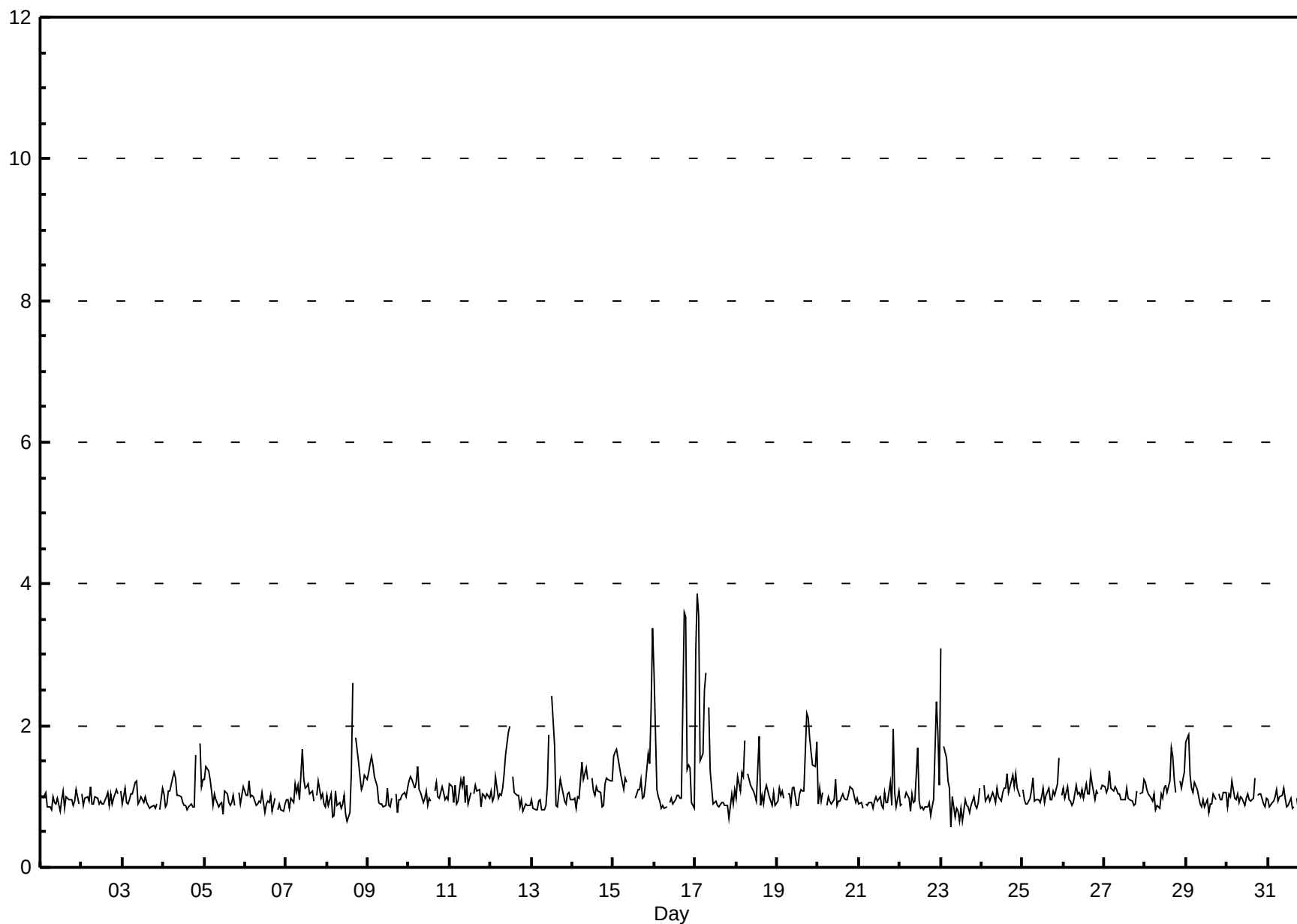
Total Reduced Sulphur (TRS) - ppb

Evergreen Park - December 2011

Maximum Value: 3.9 ppb on Dec 17 02:00																				Maximum Daily Average: 1.5 ppb on Dec 17										Hours in Service: 744											
Minimum Value: 1 ppb on Dec 23 07:00																				Minimum Daily Average: 0.9 ppb on Dec 6										Hours of Data: 708											
Maximum Diurnal Average: 1.3 ppb at hour 1																				Minimum Diurnal Average: 1.0 ppb at hour 12										Hours of Missing Data: 36											
Monthly Average: 1.08 ppb																				Percentiles: P ₁ = 0.7 P ₁₀ = 0.9 Q ₁ = 0.9 Median = 1.0 Q ₃ = 1.1 P ₉₀ = 1.3 P ₉₉ = 3.1										Hours of Calibration: 36											
																																								Percent Operational Time: 100.0	
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	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	1.1															
2-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	1.0	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	A	1	1	1.0	1.2															
4-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	A	2	1	1	1.1	1.8															
5-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	1.4															
6-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	0.9	1.2															
7-Dec	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1.1	1.7															
8-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	A	2	1	1	1	1	1	1	1.1	2.6															
9-Dec	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1.1	1.6															
10-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	1.1	1.4															
11-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	1.1	1.3															
12-Dec	1	1	1	1	1	1	1	1	1	2	2	2	A	1	1	1	1	1	1	1	1	1	1	1	1.1	2.0															
13-Dec	1	1	1	1	1	1	1	1	1	1	2	A	2	2	1	1	1	1	1	1	1	1	1	1	1.1	2.4															
14-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	1.1	1.5															
15-Dec	2	2	2	1	1	1	1	1	1	A	C	C	C	1	1	1	1	1	1	1	2	1	2	3	1.4	3.4															
16-Dec	3	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	4	4	1	1	1	1	1	1.3	3.6															
17-Dec	3	4	4	2	2	2	3	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.5	3.9															
18-Dec	1	1	1	1	1	2	A	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1.1	1.8															
19-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	1.2	2.2															
20-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															
21-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1.0	2.0															
22-Dec	1	1	A	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	1	1.1	2.3															
23-Dec	3	A	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	3.1															
24-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	1.1	1.3															
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	A	1	1.0	1.5															
26-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															
27-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	1.1	1.4															
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	A	1	1	1	1	1.1	1.7															
29-Dec	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1.1	1.9															
30-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	1.0	1.3															
31-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	1.1															
1.3 1.2 1.2 1.1 1.0 1.1 1.1 1.0 1.0 1.0 1.1 1.0 1.0 1.0 1.0 1.1 1.0 1.1 1.1 1.1 1.1 1.1 1.2																									Diurnal Average																
3.1 3.9 3.6 1.5 1.6 2.5 2.7 1.3 2.3 1.7 1.9 2.0 2.4 1.8 1.3 2.6 1.6 3.6 3.5 1.8 2.0 2.3 2.2 3.4																									Diurnal Maximum																
C - Calibration																									A - Automated Daily Zero Span																

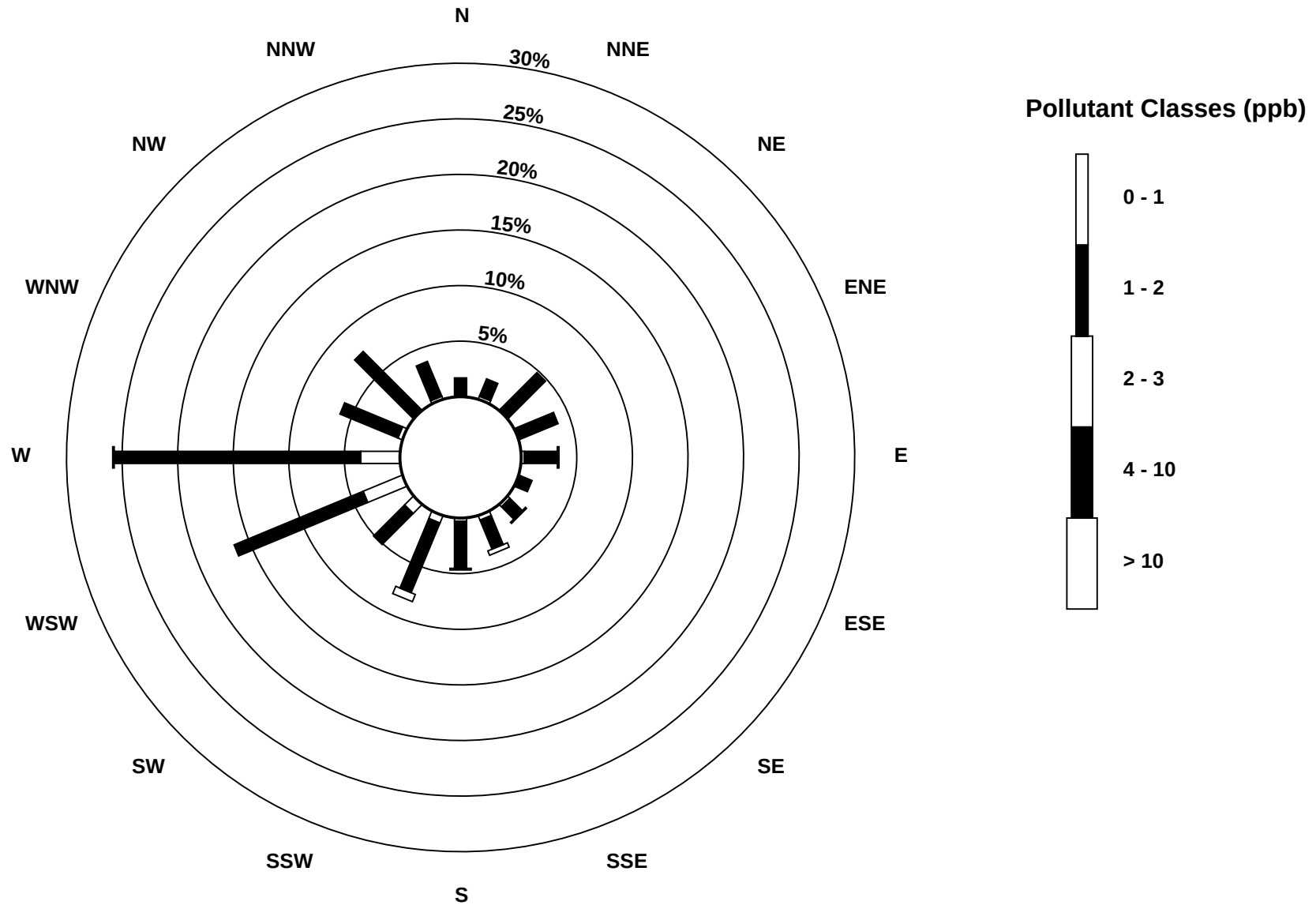
Hourly Maximums

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - December 2011



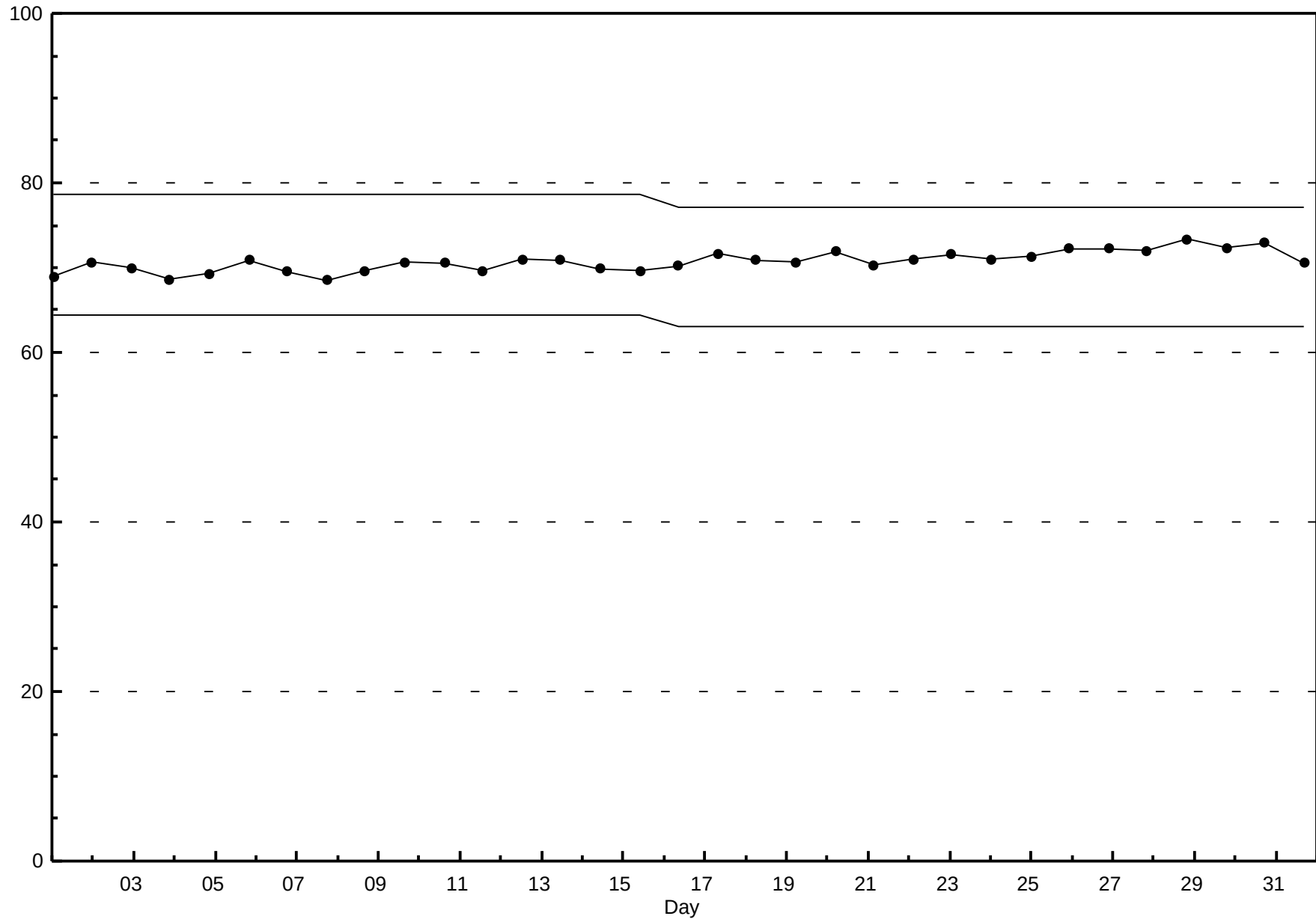
Pollutant Rose

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - December 2011



Span Responses

Total Reduced Sulphur (TRS)
Evergreen Park - December 2011

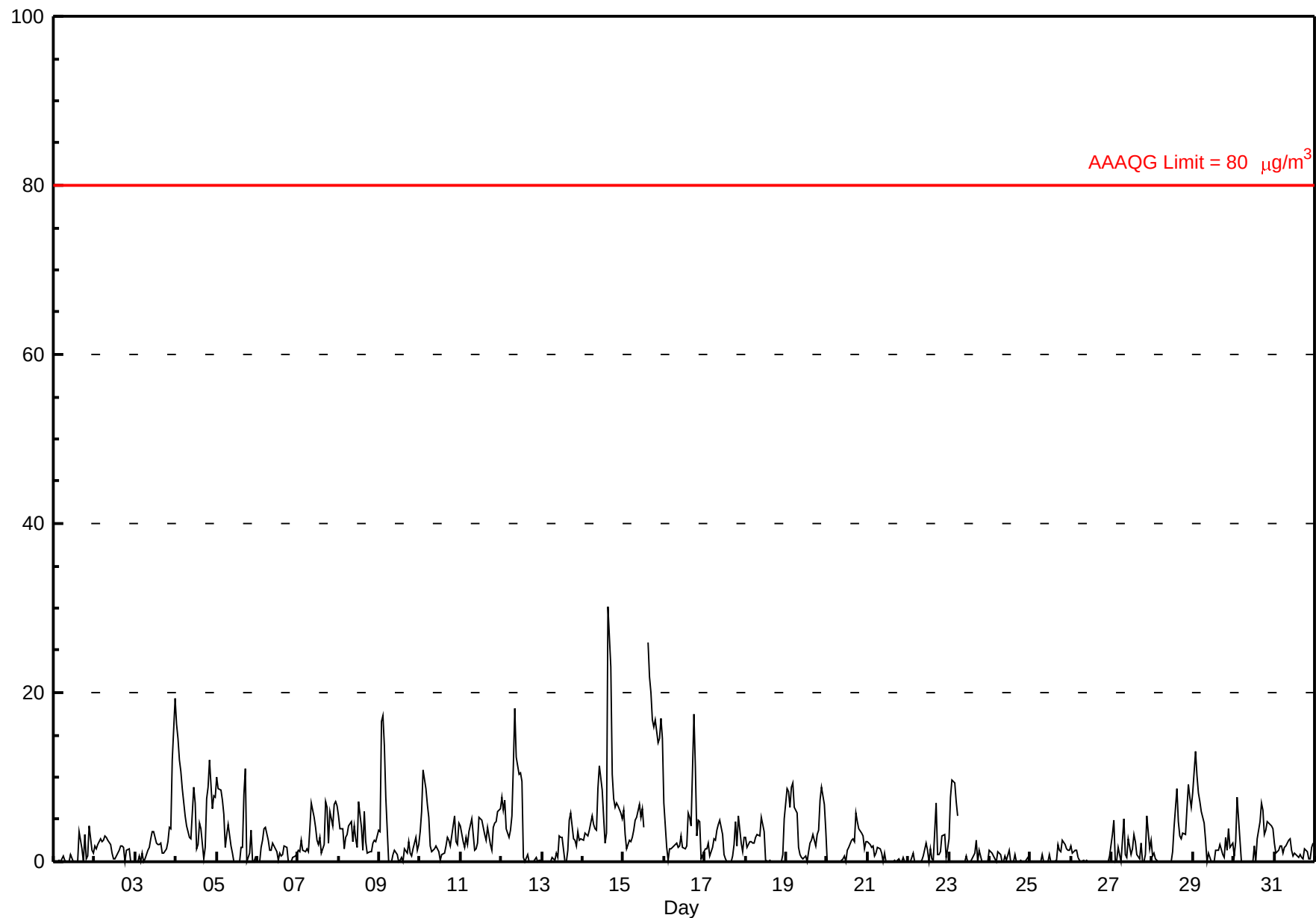


Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Evergreen Park - December 2011

Number of Exceedences: 1-hr: 0 24-hr: 0 Maximum Value: 30.2 µg/m³ on Dec 14 16:00 Minimum Value: 0 µg/m³ on Dec 1 01:00 Maximum Diurnal Average: 3.8 µg/m³ at hour 3 Monthly Average: 2.80 µg/m³																								Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7		
Maximum Daily Average: 10.1 µg/m³ on Dec 15 Minimum Daily Average: 0.3 µg/m³ on Dec 26 Minimum Diurnal Average: 1.2 µg/m³ at hour 14 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 1.7 Q ₃ = 3.7 P ₉₀ = 7.0 P ₉₉ = 17.1																										
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	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	4	2	0	3	0	1	4	1	1	0.7	4.3
2-Dec	2	2	2	3	2	3	3	3	3	2	1	0	0	1	1	2	2	2	0	1	1	0	0	0	1.5	3.1
3-Dec	0	0	1	0	1	0	0	1	2	3	4	4	2	2	2	2	1	1	2	2	4	4	12	19	2.9	19.3
4-Dec	16	15	12	11	9	5	4	4	3	3	9	7	2	2	5	4	0	2	7	9	12	6	8	8	6.7	16.3
5-Dec	10	9	8	7	6	2	3	4	2	1	0	0	0	0	2	2	8	11	0	1	4	0	0	0	3.3	11.0
6-Dec	0	0	2	3	4	4	3	1	1	2	2	1	0	1	1	1	2	2	0	0	0	1	1	1	1.3	4.1
7-Dec	1	1	3	1	1	1	1	4	7	5	4	3	2	3	1	2	7	6	2	6	4	7	7	7	3.6	7.1
8-Dec	5	4	4	1	3	3	4	5	2	4	3	2	7	4	1	6	2	1	1	1	2	3	2	4	3.2	7.0
9-Dec	4	17	17	14	8	0	0	0	1	1	1	0	0	0	0	2	1	2	1	1	2	3	1	2	3.2	17.3
10-Dec	4	6	11	9	7	5	2	1	2	2	2	1	0	1	1	2	3	2	2	4	5	2	2	5	3.3	10.9
11-Dec	4	2	2	3	2	3	5	3	1	2	2	5	5	4	3	3	4	2	1	4	4	5	6	6	3.5	6.2
12-Dec	8	6	7	4	3	4	5	11	18	12	10	10	9	1	0	1	0	0	0	0	0	0	0	0	4.6	18.1
13-Dec	0	0	0	0	0	0	0	0	1	1	3	3	3	0	0	1	5	6	3	3	2	4	3	3	1.6	5.7
14-Dec	3	3	3	3	4	5	4	4	4	9	11	8	5	2	3	30	23	10	7	6	7	7	6	5	7.3	30.2
15-Dec	6	3	2	2	2	3	4	5	5	7	5	6	4	M	26	22	20	17	16	17	14	15	17	15	10.1	26.0
16-Dec	7	2	0	2	1	2	2	2	2	2	3	2	1	2	6	5	4	17	11	3	5	5	0	1	3.6	17.4
17-Dec	2	2	2	1	2	3	2	4	4	5	3	1	0	0	0	0	1	2	5	2	5	2	1	3	2.1	5.5
18-Dec	3	2	2	2	2	2	3	3	3	5	4	4	0	0	0	0	0	0	0	0	0	0	1	5	1.8	5.3
19-Dec	9	8	6	9	9	6	6	2	1	1	0	1	0	1	2	3	3	2	3	4	7	9	7	4	4.3	9.4
20-Dec	0	0	0	0	0	0	0	0	0	0	1	0	1	2	3	3	2	6	5	4	3	3	1	2	1.5	5.7
21-Dec	2	2	2	2	1	1	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0.7	2.4
22-Dec	0	0	1	1	0	0	0	0	0	1	2	1	0	2	0	0	7	1	1	1	3	3	1	2	1.1	7.0
23-Dec	3	8	10	9	7	5	N	0	0	0	1	0	0	0	1	1	3	0	1	0	0	0	0	0	2.1	9.7
24-Dec	1	1	1	0	0	1	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0.4	1.4
25-Dec	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	1	1	3	2	2	1	1	0.6	2.6
26-Dec	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	1.9
27-Dec	3	5	0	0	2	0	3	5	1	1	3	1	1	3	2	1	0	2	0	0	1	5	2	3	1.8	5.4
28-Dec	1	1	0	0	0	0	0	0	0	0	0	0	1	4	9	5	3	3	3	3	6	9	8	6	2.6	9.1
29-Dec	8	13	10	8	7	6	5	3	0	1	1	0	0	1	1	1	2	1	0	3	1	4	2	2	3.4	13.1
30-Dec	1	2	8	5	0	0	0	0	0	0	0	0	2	0	3	5	7	6	3	4	5	4	4	4	2.6	7.6
31-Dec	2	1	1	2	2	1	2	2	2	3	1	1	1	1	1	1	1	0	2	1	0	0	2	2	1.3	2.7
3.4 3.7 3.8 3.3 2.7 2.2 2.2 2.2 2.1 2.3 2.5 2.0 1.6 1.2 2.4 3.5 3.7 3.4 2.7 2.7 3.3 3.4 3.1 3.6																								Diurnal Average		
16.3 16.6 17.3 13.7 9.4 6.4 5.8 11.4 18.1 12.4 11.3 10.4 9.5 4.1 26.0 30.2 23.0 17.4 16.0 16.7 14.1 14.7 16.9 19.3																								Diurnal Maximum		
M - Maintenance N - Not Valid																										
Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³																										



Hourly Maximums

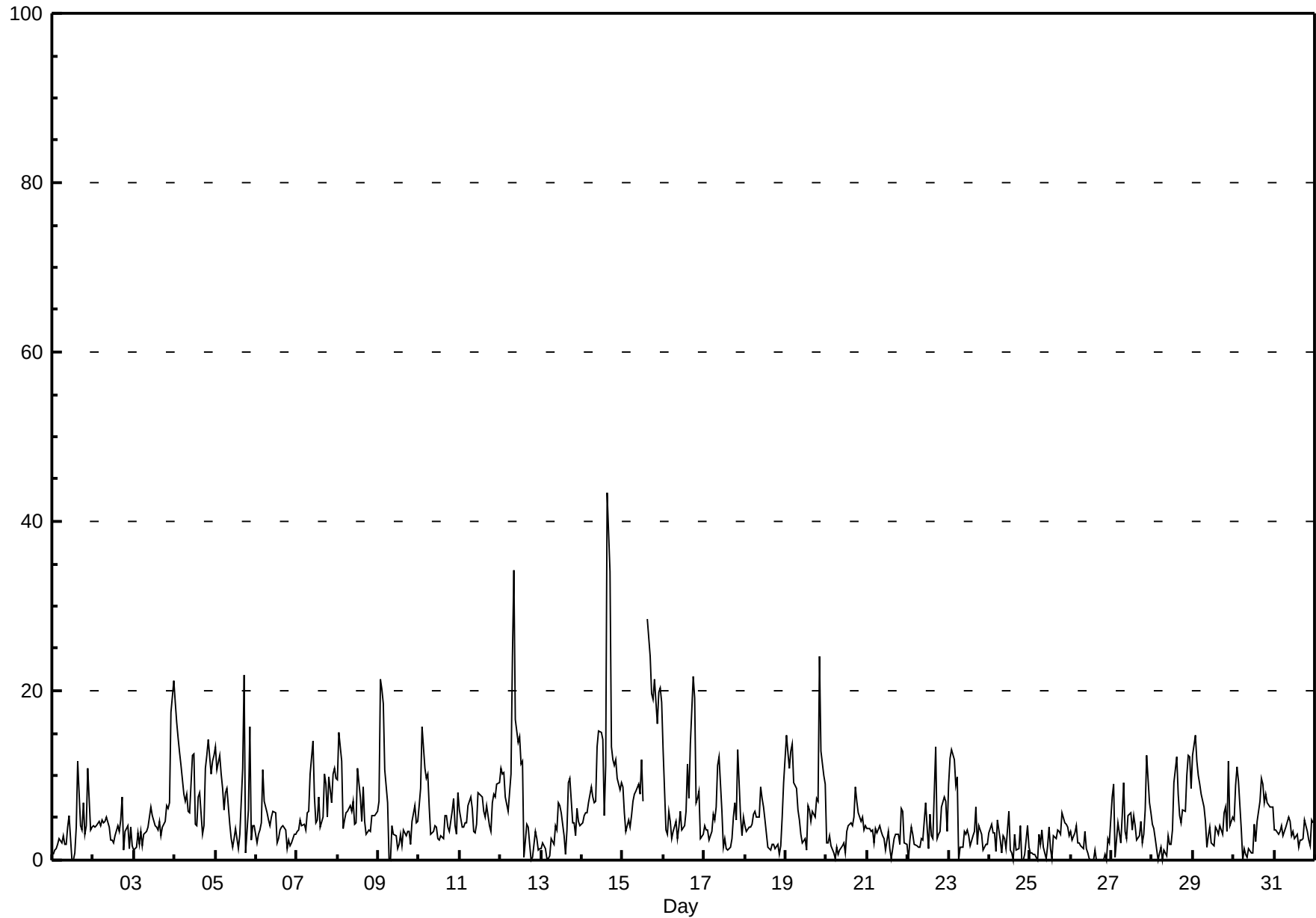
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Evergreen Park - December 2011

Maximum Value: 43.4 μg/m³ on Dec 14 16:00																								Maximum Daily Average: 13.2 μg/m³ on Dec 15				Hours in Service: 744	
Minimum Value: 0 μg/m³ on Dec 1 12:00																								Minimum Daily Average: 1.3 μg/m³ on Dec 26				Hours of Data: 743	
Maximum Diurnal Average: 6.8 μg/m³ at hour 17																								Minimum Diurnal Average: 3.9 μg/m³ at hour 14				Hours of Missing Data: 1	
Monthly Average: 5.45 μg/m³																								Percentiles: P ₁ = 0.0 P ₁₀ = 1.4 Q ₁ = 2.6 Median = 4.1 Q ₃ = 7.0 P ₉₀ = 11.6 P ₉₉ = 24.0				Hours of Calibration: 0	
																								Percent Operational Time: 99.9					
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	1	1	1	2	3	2	3	2	2	4	5	0	0	1	4	12	4	4	7	3	4	11	4	4	3.4	11.7			
2-Dec	4	4	4	5	4	5	4	5	5	4	2	2	2	3	4	3	5	7	1	3	4	1	4	2	3.7	7.5			
3-Dec	1	2	3	2	3	2	3	3	4	5	6	5	4	4	4	5	3	4	5	7	6	7	17	21	5.2	21.1			
4-Dec	19	16	14	13	11	8	7	8	6	6	12	13	4	4	7	8	3	4	11	12	14	10	12	12	9.8	18.7			
5-Dec	13	11	12	10	8	6	8	8	4	3	2	3	4	1	3	7	11	22	1	6	16	2	4	4	7.1	21.9			
6-Dec	2	3	4	4	11	7	6	5	4	5	6	6	2	3	4	4	4	4	1	2	2	2	3	3	3.9	10.7			
7-Dec	3	4	5	4	4	4	6	6	10	14	7	4	5	7	4	5	10	9	5	10	7	10	11	10	6.8	14.1			
8-Dec	9	15	12	4	5	6	6	7	6	7	4	4	11	7	5	9	5	3	4	3	5	5	5	6	6.3	15.0			
9-Dec	7	21	20	18	11	7	0	0	4	3	3	1	2	3	2	4	3	3	3	2	5	7	4	5	5.7	21.4			
10-Dec	7	8	16	11	10	10	6	3	3	4	4	3	2	3	3	5	5	4	3	6	7	4	3	8	5.8	15.8			
11-Dec	6	4	4	4	4	7	7	6	3	3	4	8	8	7	6	5	7	4	3	7	8	7	9	9	5.9	9.2			
12-Dec	11	10	10	7	6	8	10	24	34	17	14	15	11	12	0	4	4	2	0	0	3	3	1	1	8.7	34.2			
13-Dec	1	2	1	0	0	1	3	2	4	3	7	7	6	3	1	4	9	10	4	4	3	6	5	4	3.7	9.7			
14-Dec	4	5	6	6	7	9	7	7	7	13	15	15	14	5	11	43	34	13	12	11	12	10	8	9	11.9	43.4			
15-Dec	9	6	3	5	4	5	7	8	8	9	8	12	7	M	28	26	24	20	19	21	16	20	20	19	13.2	28.5			
16-Dec	13	4	3	6	5	3	3	5	3	4	6	4	4	6	11	7	14	22	19	7	7	8	3	3	7.0	21.6			
17-Dec	4	4	4	2	3	5	5	6	11	12	6	2	3	1	1	2	3	5	7	5	13	5	3	5	4.8	13.1			
18-Dec	4	3	4	4	4	6	6	5	5	9	7	6	5	2	1	1	2	2	1	2	1	2	5	9	4.0	9.2			
19-Dec	15	13	11	13	14	9	8	6	5	3	2	3	1	6	6	5	6	5	7	7	24	13	10	9	8.3	24.0			
20-Dec	2	2	3	2	1	0	2	1	1	2	2	1	3	4	4	4	5	9	7	6	5	5	4	4	3.2	8.7			
21-Dec	4	4	3	4	2	4	3	4	3	3	3	1	3	1	0	1	3	3	3	2	6	6	2	2	2.9	6.0			
22-Dec	0	2	4	3	2	2	2	2	3	2	7	4	1	6	3	3	13	3	3	3	6	7	7	3	3.8	13.3			
23-Dec	9	12	13	12	9	10	0	2	2	3	3	4	3	2	3	3	6	2	4	3	1	2	2	2	4.6	13.0			
24-Dec	3	4	3	3	1	5	2	1	3	3	1	6	1	1	0	3	1	1	4	0	0	1	4	2	2.2	5.8			
25-Dec	1	1	1	1	0	3	2	4	2	0	2	4	1	0	3	3	4	3	3	6	4	4	4	3	2.4	5.5			
26-Dec	3	2	3	4	2	2	2	1	3	1	1	0	0	0	1	0	0	0	0	0	1	0	3	2	1.3	4.0			
27-Dec	7	9	0	2	4	2	5	9	3	3	5	6	4	5	4	2	3	5	2	3	6	12	7	6	4.8	12.4			
28-Dec	4	4	3	0	1	2	0	1	0	3	2	2	4	9	12	8	5	4	6	6	10	12	12	8	4.9	12.4			
29-Dec	12	15	12	10	9	8	6	5	2	3	4	2	2	4	4	3	4	3	6	6	3	12	4	5	5.9	14.8			
30-Dec	5	9	11	9	3	0	1	1	0	1	1	1	4	2	5	7	10	9	7	8	7	6	6	6	5.0	11.1			
31-Dec	4	4	3	3	4	3	3	4	5	5	3	3	3	3	2	2	2	3	5	3	2	2	5	4	3.3	5.0			
6.1 6.5 6.3 5.6 5.0 4.7 4.3 4.7 5.0 5.0 5.0 4.6 4.0 3.9 4.7 6.4 6.8 6.1 5.3 5.3 6.7 6.5 6.1 6.1																								Diurnal Average					
18.7 21.4 20.2 18.4 13.8 10.2 10.1 24.0 34.2 16.7 15.3 15.0 14.3 11.6 28.5 43.4 34.1 21.9 19.2 21.4 24.0 19.8 20.3 21.1																								Diurnal Maximum					
M - Maintenance																													

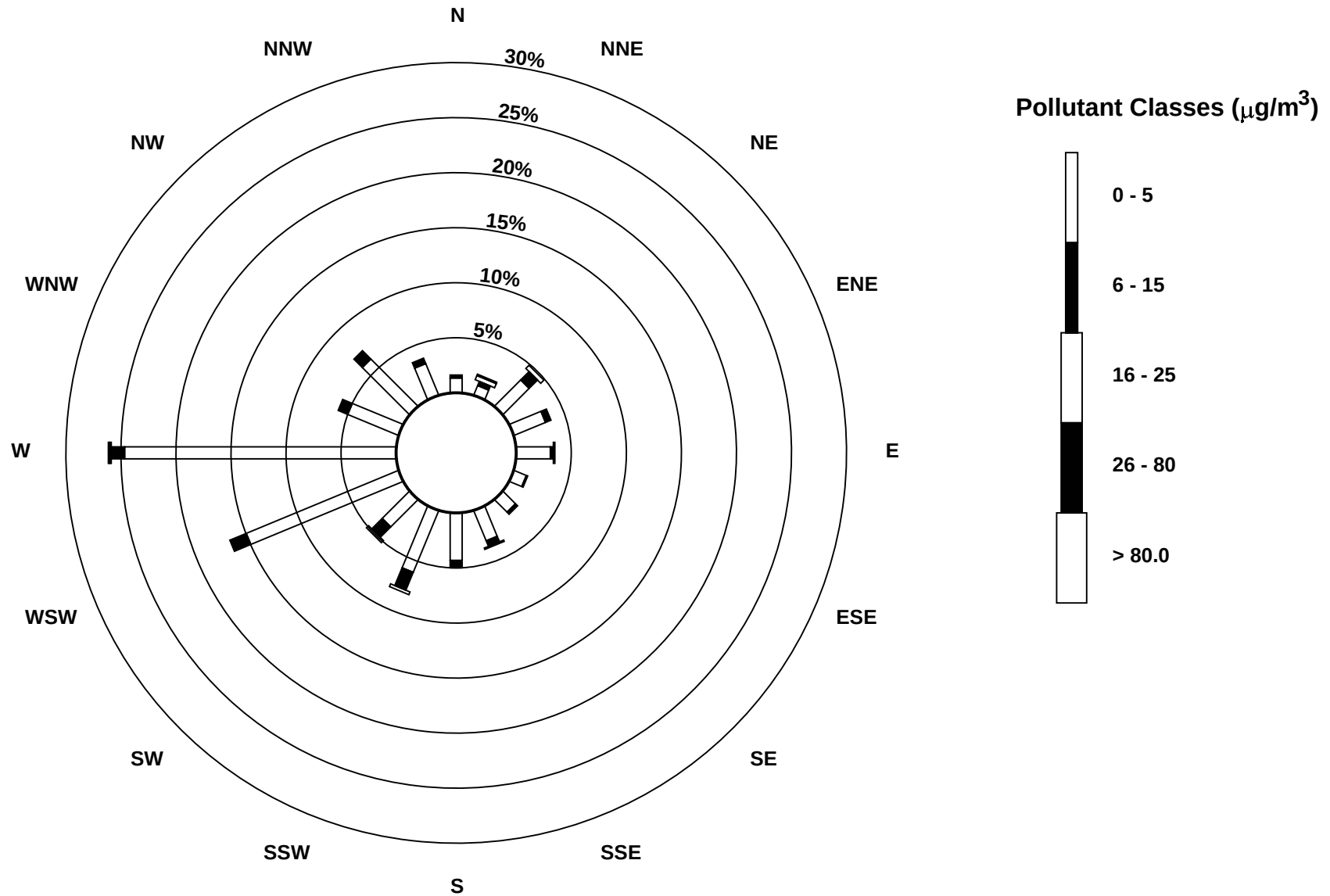
Hourly Maximums

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Evergreen Park - December 2011



Pollutant Rose

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Evergreen Park - December 2011



Hourly Averages

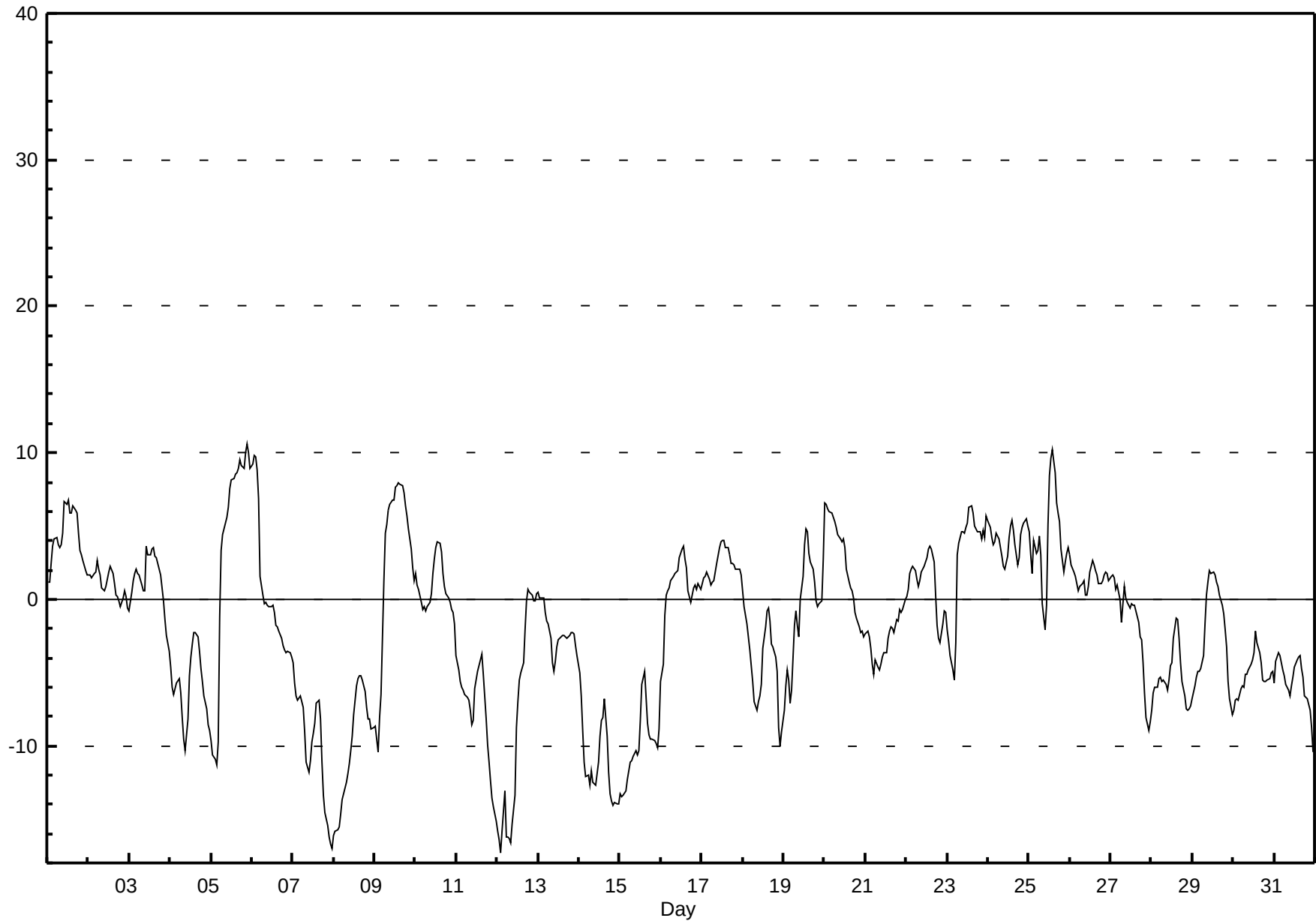
External Temperature (ET) - °C

Evergreen Park - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10.6 °C on Dec 5 22:00 Maximum Daily Average: 4.1 °C on Dec 1																					Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0					
Minimum Value: -17 °C on Dec 12 03:00 Maximum Diurnal Average: 0.7 °C at hour 15 Monthly Average: -1.95 °C										Minimum Daily Average: -11.1 °C on Dec 14 Minimum Diurnal Average: -3.4 °C at hour 24 Percentiles: P ₁ = -16.3 P ₁₀ = -9.8 Q ₁ = -5.8 Median = -0.9 Q ₃ = 2.1 P ₉₀ = 4.8 P ₉₉ = 9.5																
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	1	1	2	4	4	4	4	4	4	5	7	7	7	6	6	6	6	5	3	3	3	2	2	4.1	6.7	
2-Dec	2	2	2	2	2	3	2	2	1	1	1	1	2	2	2	1	0	0	0	-1	0	1	0	-1	1.1	2.6
3-Dec	-1	0	1	2	2	2	2	1	1	1	4	3	3	3	4	3	3	2	2	1	0	-1	-2	-4	1.3	3.7
4-Dec	-5	-6	-6	-6	-6	-5	-6	-8	-10	-10	-8	-5	-4	-3	-2	-2	-3	-4	-5	-6	-7	-8	-9	-9	-5.9	-2.2
5-Dec	-10	-11	-11	-11	-10	-1	3	4	5	6	6	8	8	8	9	9	9	10	9	9	10	11	10	9	3.7	10.6
6-Dec	9	10	10	9	7	2	0	0	0	0	-1	-1	0	-1	-2	-2	-2	-3	-3	-3	-4	-4	-4	-4	0.6	9.8
7-Dec	-4	-6	-7	-7	-7	-7	-7	-9	-11	-12	-11	-10	-9	-8	-7	-7	-8	-11	-13	-15	-15	-16	-17	-17	-10.1	-4.3
8-Dec	-16	-16	-16	-16	-15	-14	-13	-13	-12	-11	-10	-9	-8	-6	-5	-5	-5	-5	-6	-7	-8	-8	-9	-9	-10.1	-5.2
9-Dec	-9	-10	-10	-8	-6	1	4	5	6	6	7	7	8	8	8	8	7	6	6	5	3	2	1	2.7	8.0	
10-Dec	2	1	1	0	-1	-1	-1	-1	0	0	2	3	3	4	4	3	2	1	0	0	0	-1	-1	-2	0.8	3.9
11-Dec	-4	-5	-6	-6	-6	-7	-7	-7	-8	-9	-8	-6	-5	-5	-4	-4	-5	-8	-10	-11	-12	-14	-14	-15	-7.7	-3.7
12-Dec	-16	-16	-17	-16	-13	-16	-16	-16	-17	-15	-13	-9	-7	-6	-5	-4	-2	0	1	0	0	0	0	0	-8.5	0.7
13-Dec	0	0	0	0	-1	-1	-2	-3	-4	-5	-4	-3	-3	-3	-2	-2	-3	-3	-2	-2	-2	-2	-3	-4	-2.3	0.4
14-Dec	-5	-7	-9	-11	-12	-12	-13	-12	-12	-13	-13	-11	-9	-8	-8	-7	-9	-12	-13	-14	-14	-14	-14	-14	-11.1	-5.0
15-Dec	-13	-13	-13	-13	-12	-12	-11	-11	-11	-10	-11	-10	-8	-6	-5	-7	-8	-9	-10	-10	-10	-10	-9	-10.1	-4.9	
16-Dec	-6	-4	-1	0	1	1	1	2	2	2	2	3	3	4	3	2	1	0	0	1	1	1	1	1	0.8	3.6
17-Dec	1	1	2	2	1	1	1	1	2	2	3	4	4	4	4	3	3	2	2	2	2	2	2	2	2.3	4.0
18-Dec	1	-1	-2	-3	-3	-5	-6	-7	-8	-7	-6	-3	-2	-1	-1	-2	-3	-3	-4	-5	-9	-10	-9	-4.3	0.5	
19-Dec	-8	-6	-5	-6	-7	-6	-2	-1	-2	-3	0	2	4	5	5	3	3	2	1	0	0	0	3	-0.8	4.8	
20-Dec	7	6	6	6	6	6	5	5	4	4	4	4	4	2	1	1	1	0	-1	-1	-2	-2	-3	2.5	6.6	
21-Dec	-2	-2	-3	-3	-4	-5	-4	-5	-5	-4	-4	-4	-4	-3	-2	-2	-2	-2	-1	-2	-1	-1	-1	0	-2.7	0.0
22-Dec	0	1	2	2	2	2	1	1	1	2	2	3	3	3	4	3	3	0	-2	-3	-3	-2	-1	-1	1.0	3.6
23-Dec	-2	-3	-4	-5	-5	-3	3	4	5	5	4	5	5	6	6	6	5	5	5	5	4	5	4	6	2.7	6.3
24-Dec	5	5	4	4	4	5	4	4	3	2	2	3	4	5	5	5	4	2	3	4	5	5	6	5	4.1	5.5
25-Dec	5	3	2	4	3	3	4	3	0	-2	0	5	8	10	10	9	7	6	5	3	2	3	3	4	4.1	10.2
26-Dec	3	2	2	2	1	1	1	1	1	0	0	1	2	3	2	2	2	1	1	1	2	2	1	1.5	3.0	
27-Dec	2	2	1	1	1	0	-2	0	1	0	0	-1	0	0	0	-1	-2	-3	-3	-4	-6	-8	-8	-1.7	1.7	
28-Dec	-8	-6	-6	-6	-5	-5	-6	-6	-6	-6	-6	-5	-4	-3	-1	-1	-3	-4	-6	-7	-7	-8	-7	-7	-5.4	-1.3
29-Dec	-7	-6	-5	-5	-5	-5	-4	-2	0	1	2	2	2	2	1	1	0	0	-1	-2	-3	-6	-7	-8	-2.3	1.9
30-Dec	-8	-7	-7	-7	-6	-6	-6	-5	-5	-5	-4	-4	-4	-2	-3	-4	-4	-5	-6	-6	-6	-5	-5	-5	-5.2	-2.1
31-Dec	-6	-4	-4	-4	-4	-5	-5	-6	-6	-7	-6	-5	-5	-4	-4	-4	-5	-5	-7	-7	-7	-8	-9	-10	-5.7	-3.6
-2.9 -3.0 -3.1 -3.1 -3.1 -2.8 -2.4 -2.4 -2.6 -2.7 -1.9 -1.0 -0.1 0.5 0.7 0.4 -0.3 -1.1 -1.7 -2.2 -2.6 -2.9 -3.3 -3.4 9.3 9.8 9.8 8.9 6.8 5.6 5.3 5.1 6.1 6.4 6.8 7.5 8.4 9.6 10.2 8.7 8.9 9.5 9.1 9.0 10.0 10.6 10.0 8.9																								Diurnal Average	Diurnal Maximum	

Hourly Averages

External Temperature (ET) - °C
Evergreen Park - December 2011



Hourly Averages

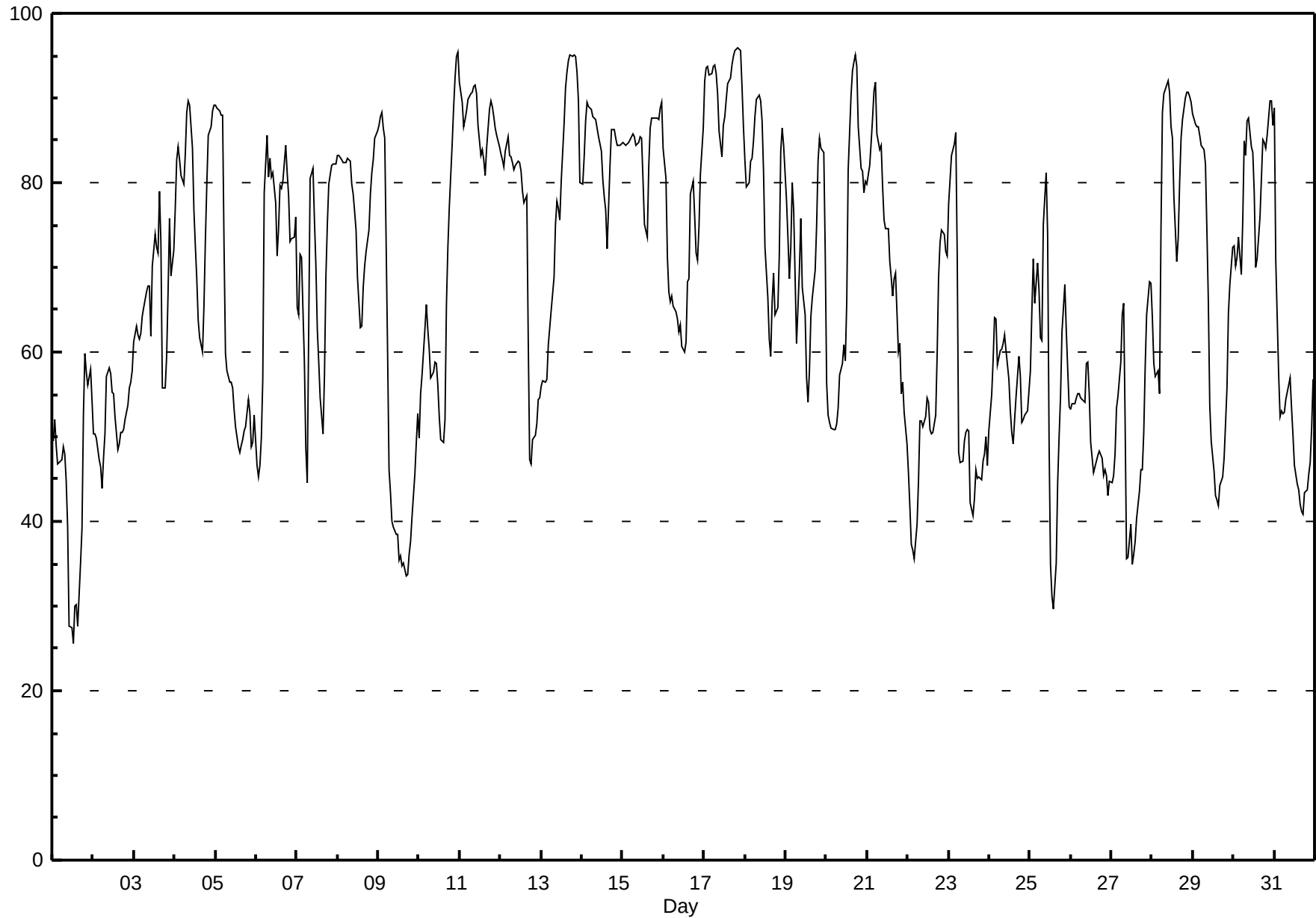
Relative Humidity (RH) - %

Evergreen Park - December 2011

Number of Exceedences (AAQO): 1-hr: 0 24-hr: 0 Maximum Value: 95.9 % on Dec 17 21:00 Maximum Daily Average: 91.8 % on Dec 17																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0		
Minimum Value: 26 % on Dec 1 13:00 Maximum Diurnal Average: 71.8 % at hour 23 Monthly Average: 67.67 %												Minimum Daily Average: 43.9 % on Dec 1 Minimum Diurnal Average: 60.2 % at hour 15 Percentiles: P ₁ = 31.0 P ₁₀ = 45.9 Q ₁ = 52.9 Median = 68.6 Q ₃ = 83.4 P ₉₀ = 88.7 P ₉₉ = 95.0														
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	50	52	49	47	47	47	49	48	45	39	28	28	26	30	30	28	35	39	52	60	58	56	58	54	43.9	59.8
2-Dec	50	50	50	47	46	44	47	50	57	58	57	55	55	52	49	49	50	51	51	52	54	56	56	58	52.0	58.1
3-Dec	61	63	62	62	62	64	65	67	68	68	62	70	74	72	72	79	73	56	56	59	67	76	69	72	66.6	79.0
4-Dec	77	83	84	83	81	80	83	88	90	89	84	77	73	69	64	62	60	65	73	80	86	87	88	89	78.9	89.7
5-Dec	89	89	89	88	88	72	60	58	56	57	56	53	51	49	48	49	50	51	51	54	53	49	49	53	60.9	89.1
6-Dec	47	45	47	50	57	79	86	81	83	81	81	78	71	75	80	79	80	84	81	79	73	73	74	76	72.4	85.6
7-Dec	65	64	72	71	59	49	45	63	81	82	76	70	63	59	55	50	57	69	75	80	82	82	82	82	68.0	82.3
8-Dec	83	83	83	82	82	82	83	83	80	79	77	74	69	63	63	68	70	72	74	79	81	83	85	86	77.7	86.2
9-Dec	87	88	88	86	85	60	46	43	40	39	39	39	35	36	35	35	34	34	36	38	41	46	49	53	50.4	88.3
10-Dec	50	55	57	63	66	63	60	57	58	59	59	56	52	50	49	52	66	72	77	85	89	92	95	95	65.7	95.4
11-Dec	92	89	87	87	89	90	90	91	91	92	90	87	83	84	83	81	84	89	90	89	88	86	86	84	87.6	91.8
12-Dec	83	83	82	84	86	83	83	82	82	82	82	82	81	79	78	78	62	47	47	50	50	52	54	55	71.9	85.5
13-Dec	56	57	56	57	61	63	65	69	75	78	77	76	80	87	91	93	94	95	95	95	95	93	90	80	78.2	95.1
14-Dec	80	83	87	90	89	89	88	88	87	87	85	84	80	78	77	72	82	86	86	86	85	84	84	85	84.3	89.5
15-Dec	85	85	84	85	85	85	86	85	84	85	85	85	80	75	74	82	87	88	88	88	88	87	89	90	84.7	89.5
16-Dec	84	81	71	67	66	67	65	65	64	62	63	61	60	61	68	69	79	80	76	72	71	75	81	87	70.6	86.5
17-Dec	92	94	94	93	93	94	94	93	90	86	83	87	88	90	92	92	94	95	96	96	96	96	91	87	91.8	95.9
18-Dec	83	79	80	83	83	85	88	90	90	90	87	81	72	66	62	60	66	69	64	65	72	84	86	84	77.9	90.4
19-Dec	78	74	69	72	80	77	61	65	70	76	68	64	57	54	58	64	66	70	75	82	85	84	84	72	71.0	85.3
20-Dec	56	53	52	51	51	51	52	53	57	59	61	59	66	82	90	93	94	95	94	87	82	81	79	80	69.9	95.0
21-Dec	80	82	85	88	91	92	86	84	84	79	76	75	75	71	69	67	69	69	60	61	55	56	53	49	73.1	91.9
22-Dec	46	42	37	37	36	40	45	52	52	51	52	55	54	51	50	50	53	60	69	73	74	74	72	71	53.9	74.4
23-Dec	77	80	83	85	86	71	48	47	47	50	51	51	51	42	41	43	46	45	45	45	47	48	50	47	55.2	86.0
24-Dec	51	55	59	64	64	58	60	60	61	62	60	57	53	51	49	52	55	59	57	52	52	53	53	55	56.3	64.1
25-Dec	58	65	71	66	70	67	62	61	75	81	74	50	35	31	30	35	45	50	55	62	68	63	58	54	57.7	81.1
26-Dec	53	54	54	55	55	55	55	54	54	59	59	55	49	46	46	47	48	48	47	45	46	45	43	45	50.8	58.8
27-Dec	45	45	48	53	55	59	64	66	52	36	36	40	35	36	38	40	44	46	46	51	58	64	68	68	49.7	68.4
28-Dec	64	59	57	58	55	74	88	90	92	92	91	87	85	78	71	73	80	85	87	90	91	91	90	90	79.9	92.0
29-Dec	88	87	87	87	86	84	84	82	74	66	54	50	46	43	42	42	44	45	47	52	56	65	68	72	64.6	88.1
30-Dec	73	70	71	74	69	76	85	83	87	88	84	83	79	70	71	76	81	85	85	84	86	90	90	87	80.2	89.7
31-Dec	89	71	57	52	53	53	53	54	56	57	53	50	47	44	44	42	41	41	43	44	46	47	51	57	51.9	88.8
70.0 69.6 69.4 69.8 70.1 69.4 68.6 69.5 70.4 69.9 67.4 65.1 62.1 60.4 60.2 61.4 64.1 65.8 67.1 68.8 70.1 71.5 71.8 71.5																								Diurnal Average		
92.0 93.5 93.7 92.7 92.8 93.8 93.9 92.9 91.5 92.0 90.7 86.8 87.8 89.9 91.8 93.2 94.4 95.1 95.6 95.8 95.9 95.6 95.0 95.4																								Diurnal Maximum		

Hourly Averages

Relative Humidity (RH) - %
Evergreen Park - December 2011



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Evergreen Park - December 2011

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 Spd	23	18	24	27	27	14	4	4	5	14	21	13	10	4	5	7	17	25	35	31	30	30	28	25	18.2	35.2
Dir	252	253	257	260	260	260	250	238	232	257	251	249	250	311	250	266	275	256	252	252	261	268	266	266	258.3	252.5
2 Spd	22	21	21	20	18	15	15	15	11	13	10	9	8	6	6	6	5	9	11	10	12	16	14	11	11.2	22.0
Dir	275	263	265	266	276	302	325	330	316	315	312	324	267	272	264	248	243	254	244	226	255	262	251	247	276.2	275.0
3 Spd	10	12	16	16	9	6	7	5	5	6	12	11	9	9	11	10	14	20	21	19	11	8	7	2	8.6	21.3
Dir	248	263	264	266	293	307	281	322	317	306	331	330	321	315	304	290	318	333	339	341	24	37	36	51	315.6	339.0
4 Spd	2	2	1	1	0	0	0	2	0	0	1	1	3	4	2	2	2	1	1	1	2	2	1	1	0.7	3.7
Dir	216	240	217	339	317	205	160	209	92	56	13	215	195	194	178	146	152	49	322	295	275	188	17	238	207.1	193.7
5 Spd	1	0	1	1	0	6	15	13	11	11	18	19	20	24	22	21	23	31	19	14	20	27	13	6	13.6	30.7
Dir	66	34	95	67	148	251	253	254	265	264	268	267	267	270	270	265	267	257	248	256	252	248	249	255	259.9	257.2
6 Spd	24	32	37	23	12	11	11	9	9	9	8	9	10	8	7	5	3	4	4	3	2	1	1	2	7.8	37.0
Dir	267	265	268	273	311	16	354	338	281	290	273	273	265	275	274	321	340	49	54	41	77	109	104	28	287.3	268.1
7 Spd	6	5	2	1	2	3	4	3	5	3	4	5	4	6	7	4	2	0	1	1	0	0	1	1	1.8	6.6
Dir	48	43	35	347	351	311	309	294	286	269	279	305	338	271	270	279	278	187	199	213	159	233	207	204	299.5	269.9
8 Spd	3	3	1	1	1	0	2	4	3	4	2	3	2	1	2	2	1	1	2	1	0	0	0	0	1.0	4.2
Dir	215	218	171	186	215	296	203	245	234	244	226	210	215	156	157	135	92	91	64	69	56	186	231	186	206.1	244.3
9 Spd	0	0	1	1	1	12	15	15	23	29	25	20	21	13	19	20	15	5	5	2	2	0	1	2	9.9	28.9
Dir	161	152	203	200	124	268	268	268	263	262	266	266	260	273	265	260	260	276	302	310	356	213	122	183	264.9	262.3
10 Spd	1	1	0	1	1	4	3	3	3	9	15	15	14	16	13	9	9	10	8	9	5	7	8	6	6.0	15.6
Dir	178	201	60	159	254	251	244	311	261	257	265	267	278	284	296	316	336	336	335	328	282	280	282	2	291.6	284.0
11 Spd	9	9	6	2	1	2	1	2	1	2	0	0	3	2	2	2	1	1	1	1	0	1	1	1	0.7	8.9
Dir	52	45	54	58	279	282	249	190	201	197	256	54	207	165	158	147	112	83	48	3	324	41	213	247	72.5	45.2
12 Spd	1	0	0	2	1	1	1	1	1	0	0	2	2	3	2	2	8	15	19	17	12	11	13	14	4.8	19.4
Dir	258	228	162	199	192	58	53	34	30	269	309	199	247	204	202	214	243	243	247	245	252	265	265	274	249.8	247.4
13 Spd	17	16	13	14	12	9	2	0	1	1	0	2	2	1	2	3	6	5	4	7	6	7	7	7	4.9	16.6
Dir	258	254	261	263	259	263	299	252	138	192	82	191	100	55	39	344	332	321	294	319	301	265	294	314	277.0	258.1
14 Spd	5	2	1	2	1	2	2	2	3	2	1	1	2	1	2	0	1	1	1	1	0	1	1	1	0.9	4.6
Dir	350	256	233	212	285	235	0	336	309	266	97	297	309	2	266	31	17	47	20	297	347	342	317	23	312.2	350.3
15 Spd	1	2	1	3	1	2	1	4	5	4	2	3	1	1	1	1	1	1	1	0	1	2	1	2	1.1	4.7
Dir	272	331	301	225	325	325	256	276	262	246	204	223	275	268	262	100	48	49	18	275	256	200	225	200	257.1	262.3
16 Spd	8	6	17	16	14	15	16	16	16	13	4	12	4	1	1	1	2	4	5	3	2	2	1	1	6.8	17.4
Dir	222	235	251	253	261	258	259	263	260	259	287	264	275	349	41	192	197	205	208	202	211	197	151	133	251.8	251.4
17 Spd	2	2	2	1	1	1	2	0	2	4	7	6	6	5	5	1	0	1	1	1	1	4	4	5	1.6	6.6
Dir	147	154	173	151	41	200	213	263	279	231	268	287	280	323	333	196	88	32	222	207	294	270	273	291	269.8	268.5
18 Spd	6	7	7	4	5	2	2	1	2	4	3	3	7	7	8	7	4	5	9	4	2	1	1	1	3.1	8.7
Dir	296	312	313	314	320	303	326	350	280	258	313	296	273	265	256	248	218	210	225	204	169	143	94	91	269.9	225.0
19 Spd	1	2	4	1	0	2	2	1	2	1	4	3	3	3	1	5	2	1	1	1	1	1	2	9	1.2	9.4
Dir	139	147	190	185	214	219	210	181	95	99	199	213	252	313	311	198	183	156	154	51	38	56	202	256	208.7	255.6
20 Spd	23	24	29	26	27	25	26	22	16	13	14	21	24	22	16	20	23	15	15	14	13	9	7	7	17.5	29.5
Dir	257	260	253	259	263	266	263	255	248	261	264	266	265	263	265	270	314	311	326	318	317	305	288	285	271.8	252.8
21 Spd	8	7	4	2	2	4	8	5	6	10	12	11	9	9	10	9	3	4	9	5	10	6	15	18	7.5	17.9
Dir	281	276	258	249	220	237	257	274	263	256	256	251	255	250	232	247	239	242	258	256	251	294	260	259	256.4	259.2
22 Spd	19	18	21	23	21	16	11	13	14	15	15	13	9	10	9	5	3	1	0	0	1	2	3	1	9.6	22.8
Dir	250	257	267	268	271	270	274	269	258	261	268	267	263	267	270	267	231	135	32	229	93	146	167	347	263.8	267.9

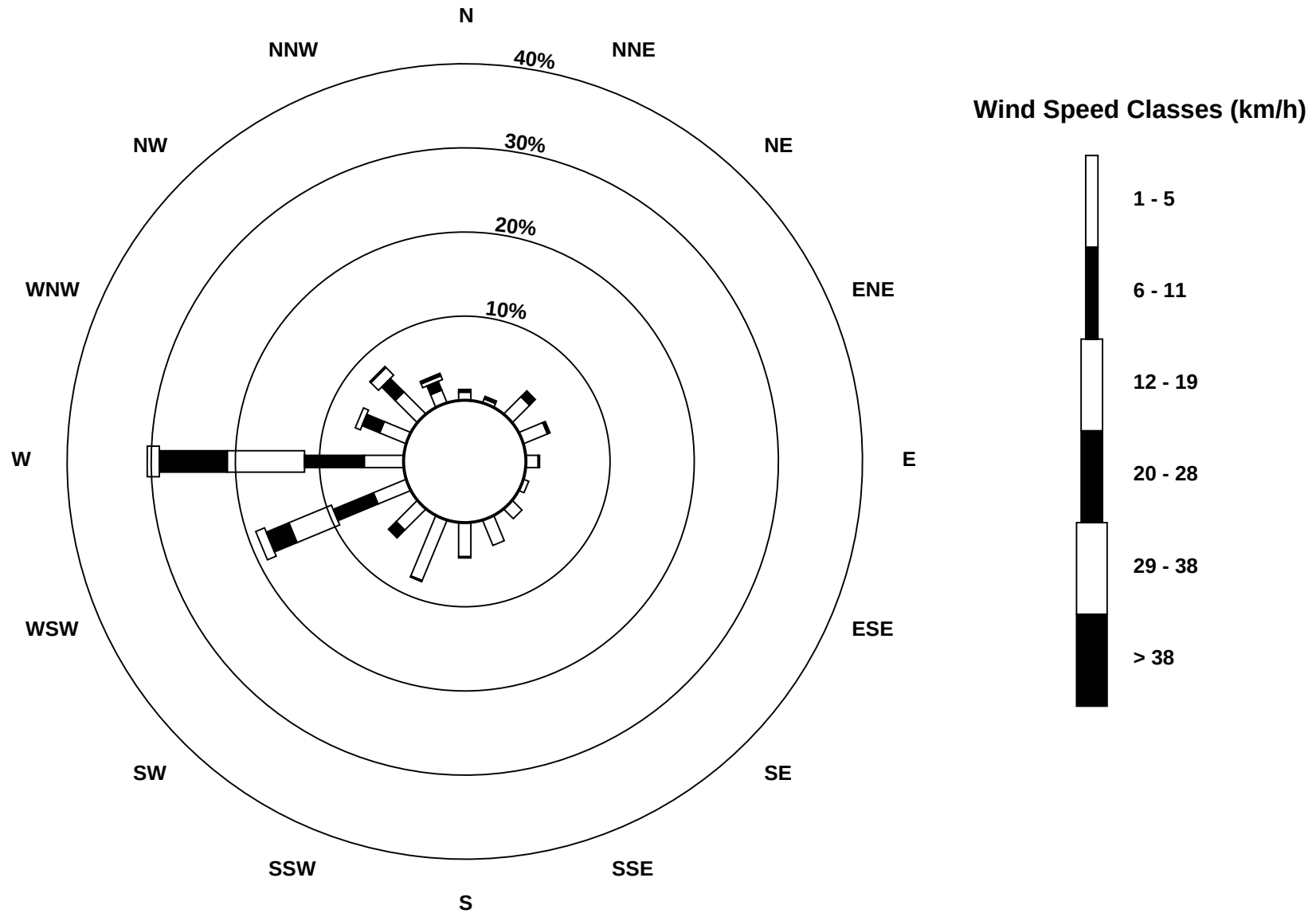
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Evergreen Park - December 2011

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										
23 Spd	1	1	1	1	2	7	17	22	24	26	25	25	17	23	25	22	17	13	7	8	2	11	8	20	13.1	25.8								
Dir	305	279	350	171	238	224	242	237	248	249	254	249	260	263	265	262	270	257	266	252	262	263	258	254	254.5	249.4								
24 Spd	20	23	18	17	21	23	14	11	10	6	6	3	1	2	2	2	1	1	3	5	5	5	7	5	7.2	23.3								
Dir	260	259	255	253	256	265	283	290	270	249	251	292	260	261	127	121	129	86	180	172	168	179	185	195	251.3	259.3								
25 Spd	3	1	1	3	2	5	7	2	2	1	0	1	3	4	1	6	4	10	8	2	1	7	21	25	3.9	25.0								
Dir	165	94	194	193	151	198	201	184	63	71	61	216	195	202	339	267	265	255	260	282	34	262	261	266	246.1	266.3								
26 Spd	24	26	26	22	18	14	18	18	21	9	4	4	4	4	3	4	4	5	4	5	4	5	4	3	8.9	26.0								
Dir	264	262	261	264	256	251	257	256	259	245	213	198	195	204	181	159	172	178	172	182	168	177	172	171	244.4	260.8								
27 Spd	3	3	3	3	2	1	2	12	27	35	36	31	34	32	29	18	10	5	4	1	1	1	1	1	11.3	35.7								
Dir	184	174	174	196	172	111	235	268	267	258	253	254	262	268	269	272	275	247	263	100	119	198	45	60	259.4	253.3								
28 Spd	1	1	1	2	1	3	3	3	2	3	2	2	2	2	1	1	1	1	0	0	1	1	1	1	0.9	3.5								
Dir	111	177	67	88	126	118	77	72	74	100	86	131	163	228	207	127	82	17	35	188	38	344	1	324	97.1	71.8								
29 Spd	1	1	3	4	6	7	7	6	16	21	26	29	26	28	26	25	16	11	9	3	0	1	1	1	11.1	28.7								
Dir	309	285	295	239	259	262	256	265	244	252	258	260	259	261	262	265	269	271	262	260	68	79	79	64	260.5	259.6								
30 Spd	1	1	2	2	3	4	7	8	7	5	4	4	4	1	4	3	2	4	3	5	8	7	7	4	1.0	8.0								
Dir	143	91	56	44	71	68	66	77	86	71	66	65	70	306	302	306	297	255	268	283	284	274	273	267	359.2	283.8								
31 Spd	6	13	19	22	18	17	17	14	14	13	16	18	18	18	16	13	11	8	7	11	11	8	1	2	12.8	22.0								
Dir	227	251	261	265	266	260	260	261	263	263	261	264	266	265	264	267	256	248	229	248	254	262	299	334	260.1	264.5								
Spd	6.3	6.9	7.9	7.6	6.5	6.0	6.1	5.8	7.1	8.2	8.5	8.5	8.1	7.8	7.3	6.4	5.3	5.0	4.9	4.1	3.7	4.5	4.5	4.7	Diurnal Average									
Dir	259.2	260.5	260.5	260.2	266.8	267.0	267.9	269.4	263.0	260.5	263.9	263.5	263.3	267.7	267.4	265.0	276.4	268.6	265.9	267.0	266.8	262.2	260.5	265.3	Diurnal Maximum									
Spd	24.3	31.9	37.0	27.0	27.2	25.0	26.4	21.8	26.9	34.9	35.7	31.1	33.7	32.5	28.8	25.0	22.9	30.7	35.2	30.9	30.4	30.3	27.8	25.4	Diurnal Maximum									
Dir	264.4	265.3	268.1	260.3	262.7	266.0	263.2	255.1	266.7	257.7	253.3	254.5	262.4	268.1	268.8	264.6	314.5	257.2	252.5	252.3	260.6	267.9	265.5	265.7										
Maximum Speed Value: 37 km/h on Dec 6 03:00																				Minimum Speed Value: 0 km/h on Dec 8 23:00										Hours in Service:				744
Maximum Daily Speed Average: 18.2 km/h on Dec 20																				Minimum Daily Speed Average: 0.7 km/h on Dec 4										Hours of Data:				744
Maximum Diurnal Speed Average: 8.5 km/h at hour 12																				Minimum Diurnal Speed Average: 3.7 km/h at hour 21										Hours of Missing Data:				0
Monthly Average Velocity: 6.31 km/h 264.63 deg										Speed Percentiles: P ₁ = 0.2 P ₁₀ = 0.7 Q ₁ = 1.5 Median = 4.3 Q ₃ = 12.0 P ₉₀ = 21.1 P ₉₉ = 31.4										Percent Operational Time:				100.0										
All monthly, daily, and diurnal averages have been calculated using vector methods																																		
Frequency Distribution																																		
Speed Range (km/h)																																		
Direction	0 to 5		5 to 11		11 to 19		19 to 28		28 to 38		> 38		Total																					
North	26		3		1		2		0		0		32																					
NorthEast	50		7		1		0		0		0		58																					
East	41		2		0		0		0		0		43																					
SouthEast	33		0		0		0		0		0		33																					
South	77		7		0		0		0		0		84																					
SouthWest	68		18		4		2		0		0		92																					
West	56		80		89		71		16		0		312																					
NorthWest	47		27		14		2		0		0		90																					
Total	398		144		109		77		16		0		744																					

Wind Rose

Wind Speed (WS) (km/h)
Evergreen Park - December 2011



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Evergreen Park - December 2011

Maximum Speed: 37 km/h on Dec 6 03:00																				Maximum Daily Speed Average: 19.5 km/h on Dec 20										Hours in Service: 744	
Minimum Speed: 1 km/h on Dec 12 03:00																				Minimum Daily Speed Average: 1.8 km/h on Dec 4										Hours of Data: 744	
Maximum Diurnal Speed Average: 10.0 km/h at hour 11																				Minimum Diurnal Speed Average: 6.0 km/h at hour 21										Hours of Missing Data: 0	
Monthly Average Speed: 8.12 km/h																				Percentiles: P ₁ = 0.9 P ₁₀ = 1.4 Q ₁ = 2.0 Median = 4.6 Q ₃ = 12.4 P ₉₀ = 21.2 P ₉₉ = 31.5										Percent Operational Time: 100.0	
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	23	18	24	27	27	14	5	4	5	14	22	13	10	5	5	7	17	25	35	31	31	30	28	26	18.6	35.4					
2-Dec	22	21	21	21	18	16	16	15	11	13	11	9	9	6	6	6	5	9	11	10	12	16	14	11	12.9	22.3					
3-Dec	10	12	16	16	10	7	7	6	5	7	12	12	9	9	12	11	15	20	21	20	12	8	7	3	11.1	21.5					
4-Dec	2	2	2	1	1	1	1	2	1	1	1	2	3	4	2	2	2	2	1	2	3	2	2	2	1.8	3.8					
5-Dec	2	1	2	2	1	6	15	13	11	11	18	20	21	24	22	21	23	31	19	15	20	27	14	6	14.4	30.9					
6-Dec	24	32	37	23	18	11	12	10	9	9	9	10	10	9	7	6	3	4	4	4	3	1	1	2	10.8	37.2					
7-Dec	6	5	2	1	3	3	4	3	6	3	5	5	4	6	7	5	2	1	2	1	1	1	1	2	3.3	6.7					
8-Dec	3	3	1	1	2	1	2	4	3	4	2	3	2	2	2	2	1	1	2	1	1	1	1	1	2.0	4.3					
9-Dec	1	1	1	2	1	12	15	15	23	29	26	21	21	13	20	21	15	6	5	2	2	1	2	3	10.7	29.0					
10-Dec	1	2	1	2	2	5	5	4	4	9	15	15	14	16	13	10	10	10	8	9	5	8	8	9	7.7	15.8					
11-Dec	9	9	6	2	1	2	1	2	1	2	1	1	3	3	3	2	1	1	1	1	1	1	1	1	2.3	9.0					
12-Dec	1	1	1	2	2	2	2	1	1	1	2	2	2	3	2	3	9	15	19	17	12	11	14	14	5.8	19.5					
13-Dec	17	16	13	14	12	9	5	3	2	1	1	2	3	1	2	3	7	6	4	7	7	7	7	8	6.5	16.7					
14-Dec	5	3	2	3	2	2	2	2	3	3	1	2	2	1	2	1	1	1	1	2	1	1	1	1	1.9	4.7					
15-Dec	2	2	2	3	1	2	2	4	5	4	2	3	2	2	1	1	1	1	1	1	1	2	2	2	2.1	4.9					
16-Dec	8	6	18	17	14	15	16	16	16	13	5	12	5	2	2	2	3	4	5	3	2	2	1	1	7.7	17.6					
17-Dec	3	3	3	2	1	2	2	1	3	4	7	6	6	5	5	1	1	1	1	2	1	4	4	5	3.1	6.8					
18-Dec	7	7	7	4	5	3	2	2	2	4	4	4	7	7	8	7	4	5	9	4	2	2	2	2	4.6	8.8					
19-Dec	3	3	4	3	2	3	3	3	3	2	5	3	4	3	3	5	2	2	2	2	2	2	3	10	3.1	10.0					
20-Dec	23	25	30	26	27	25	27	22	16	13	14	21	24	22	17	20	31	16	16	14	13	9	8	8	19.5	31.2					
21-Dec	8	7	4	3	2	5	8	5	6	10	12	11	9	9	10	9	3	4	9	5	10	6	15	18	7.9	18.0					
22-Dec	19	18	21	23	22	16	11	13	14	15	16	13	9	10	9	5	3	1	1	1	2	2	3	2	10.4	23.0					
23-Dec	2	3	3	3	3	7	17	22	24	26	25	25	17	23	25	22	17	13	7	9	4	11	8	21	14.0	26.0					
24-Dec	20	23	18	17	21	23	14	11	10	6	6	3	2	3	2	2	2	1	4	5	5	6	7	5	9.1	23.4					
25-Dec	3	2	2	3	2	6	7	3	3	2	1	3	4	4	2	6	4	10	8	2	3	8	21	25	5.6	25.2					
26-Dec	24	26	26	22	18	14	19	19	21	9	4	4	4	4	3	4	4	5	4	5	5	5	4	3	10.7	26.1					
27-Dec	3	3	3	3	2	3	3	12	27	35	36	31	34	33	29	18	11	5	4	3	2	2	2	2	12.7	36.0					
28-Dec	2	1	2	2	2	4	3	4	2	3	2	2	2	2	2	2	1	2	1	1	2	1	2	1	2.0	3.6					
29-Dec	2	2	3	4	6	8	7	7	16	21	26	29	26	28	27	25	16	11	9	4	3	2	2	1	11.9	28.9					
30-Dec	2	1	2	2	3	4	7	8	8	5	4	4	4	2	4	3	3	4	4	6	8	8	7	5	4.4	8.1					
31-Dec	7	13	19	22	18	17	17	14	14	13	16	18	18	18	16	13	12	9	7	11	11	8	3	2	13.2	22.1					
																									Diurnal Average						
																									Diurnal Maximum						

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

Hourly Standard Deviations

Wind Direction (WD) - deg

Evergreen Park - December 2011

Maximum Value: 97.6 deg on Dec 23 03:00																		Hours in Service: 744							
Minimum Value: 4.3 deg on Dec 16 10:00																		Hours of Data: 744							
																		Hours of Missing Data: 0							
Percentiles: P ₁ = 4.9 P ₁₀ = 6.2 Q ₁ = 8.9 Median = 18.5 Q ₃ = 51.7 P ₉₀ = 73.5 P ₉₉ = 92.6																		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	5	6	6	5	6	12	40	22	13	6	6	8	14	31	16	19	13	10	6	6	8	7	7	7	39.8
2-Dec	8	6	7	5	11	17	12	11	18	13	17	15	16	16	11	8	11	6	8	6	10	7	6	5	17.8
3-Dec	8	7	6	7	26	17	14	22	18	33	15	12	14	17	14	15	17	9	7	7	19	11	11	64	64.0
4-Dec	41	25	88	72	84	82	95	37	79	81	45	78	16	15	33	40	29	57	65	45	38	46	74	87	94.8
5-Dec	82	78	66	68	77	30	6	7	11	9	7	11	10	7	5	6	8	8	10	16	9	7	11	22	81.9
6-Dec	7	7	6	8	53	19	21	27	12	16	18	19	11	15	15	25	43	24	28	30	46	70	61	34	69.6
7-Dec	15	16	25	36	29	19	17	38	22	37	55	34	33	14	12	15	32	71	77	51	89	93	36	49	92.7
8-Dec	26	15	58	53	89	76	28	11	22	15	60	18	25	47	27	33	26	37	24	70	87	81	94	68	93.6
9-Dec	66	74	68	70	68	17	8	7	6	6	6	6	6	11	6	5	7	39	22	38	53	89	61	52	89.1
10-Dec	62	88	82	87	64	22	51	40	49	8	6	7	9	10	16	17	11	10	15	18	16	11	19	48	87.7
11-Dec	11	9	15	31	48	13	18	36	76	53	97	81	18	52	46	28	47	61	57	67	75	59	59	43	96.8
12-Dec	72	68	69	49	79	41	64	46	43	92	92	33	31	26	32	62	25	7	5	7	7	15	8	9	92.3
13-Dec	6	5	7	6	6	8	73	92	66	78	81	39	40	34	27	19	12	23	17	15	22	13	14	17	92.1
14-Dec	13	52	62	66	67	35	42	34	27	62	71	51	40	48	48	89	83	67	58	63	76	67	57	58	88.6
15-Dec	52	49	66	12	54	25	45	20	13	15	46	41	75	44	70	57	54	49	77	93	41	37	77	45	93.1
16-Dec	6	12	9	7	10	6	6	6	5	4	24	6	20	55	47	74	67	6	9	7	26	27	25	47	73.8
17-Dec	45	29	39	61	66	80	55	93	58	11	16	14	11	17	11	77	78	67	37	71	72	17	18	13	93.0
18-Dec	13	15	17	18	14	31	43	71	47	13	36	30	10	10	7	6	16	14	6	25	48	74	72	71	74.2
19-Dec	71	55	18	88	96	85	80	75	55	69	48	44	38	17	84	14	32	54	54	46	76	73	58	48	96.2
20-Dec	8	8	8	6	7	7	6	8	7	7	7	6	6	7	8	9	31	23	12	11	11	13	15	18	30.7
21-Dec	12	12	13	21	19	19	5	17	15	5	5	5	7	6	7	9	34	46	8	13	14	30	8	6	45.8
22-Dec	6	7	7	6	6	10	9	13	6	6	7	10	7	8	9	12	52	57	84	94	75	54	41	92	94.0
23-Dec	70	93	98	77	65	19	11	8	11	7	6	7	8	7	6	7	10	17	40	15	84	7	13	7	97.6
24-Dec	6	6	7	8	9	8	15	14	11	7	9	39	62	48	37	21	35	71	50	10	10	10	9	18	70.8
25-Dec	25	65	68	9	22	14	7	67	42	57	81	71	53	15	66	13	26	7	15	54	78	16	6	6	81.2
26-Dec	6	5	5	6	6	8	6	6	6	17	27	15	40	32	23	20	15	18	14	11	29	11	15	20	40.1
27-Dec	20	16	31	35	52	55	62	17	7	6	7	9	7	7	6	9	10	21	31	71	65	92	67	71	91.9
28-Dec	57	66	79	27	42	43	17	19	19	24	36	48	51	56	74	63	66	69	81	91	47	69	77	57	90.9
29-Dec	59	48	34	32	16	12	15	25	5	7	7	7	7	5	6	5	9	11	8	79	90	85	70	57	89.9
30-Dec	53	60	15	23	18	12	11	15	15	15	14	23	41	65	23	19	22	16	18	13	11	9	11	57	65.3
31-Dec	23	6	5	6	6	5	5	6	5	5	5	6	6	6	6	6	9	15	11	5	5	8	67	39	67.2
81.9 93.1 97.6 87.5 96.2 85.5 94.8 93.0 79.3 91.8 96.8 81.4 74.7 65.3 83.9 88.6 83.2 70.9 84.5 94.0 89.9 92.7 93.6 91.9																									

PAZA
Smoky Heights Station
Monthly Summary Tables, Graphs and
Roses

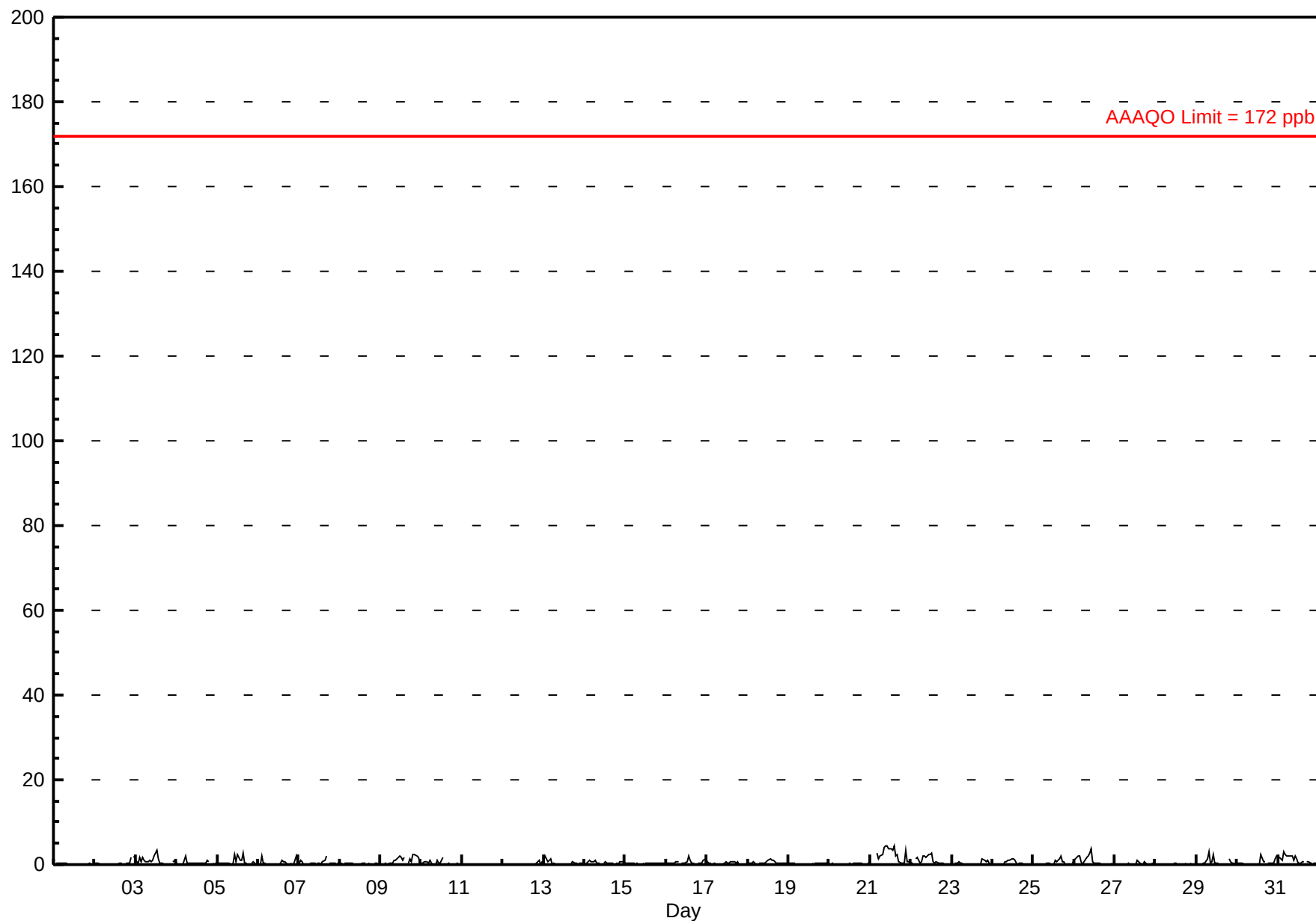
Hourly Averages

Sulphur Dioxide (SO₂) - ppb Smoky Heights - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.5 ppb on Dec 21 11:00 Maximum Daily Average: 2.1 ppb on Dec 21																				Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0							
Minimum Value: 0 ppb on Dec 11 04:00 Maximum Diurnal Average: 0.8 ppb at hour 11 Monthly Average: 0.49 ppb																				Minimum Daily Average: 0.0 ppb on Dec 11 Minimum Diurnal Average: 0.3 ppb at hour 18 Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.5 P ₉₀ = 1.3 P ₉₉ = 3.6							
Day	Hourly Period Ending At (MST)																								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	0.2	0.5	
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	A	2	0.3	2.2	
3-Dec	1	0	2	1	2	1	1	1	1	1	1	2	3	1	0	0	0	0	0	0	0	0	A	1	1	0.8	3.2
4-Dec	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	A	0	0	0	0.3	2.1	
5-Dec	0	0	0	0	0	0	0	0	0	0	2	1	2	1	1	3	0	0	0	A	0	1	0	0	0.6	2.8	
6-Dec	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	A	0	0	0	2	0	0.4	2.0	
7-Dec	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	A	0	0	0	0	0	0	0.4	2.0	
8-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	0.3	
9-Dec	0	0	0	0	0	0	0	0	1	1	2	2	2	1	2	A	0	1	1	2	2	2	2	0	1.0	2.5	
10-Dec	0	0	1	1	0	1	0	0	0	1	0	0	1	2	A	0	0	0	0	0	0	0	0	0	0.4	1.6	
11-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	0.1	
12-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0	1	0.2	1.1	
13-Dec	1	2	1	1	1	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0.4	2.0	
14-Dec	0	0	1	1	1	1	1	0	0	0	A	0	1	0	0	0	0	0	0	0	0	1	1	1	0.4	0.9	
15-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	0.3	0.4	
16-Dec	0	0	0	0	0	0	1	1	A	0	0	0	1	2	1	0	0	0	0	0	0	0	1	1	0.5	2.0	
17-Dec	1	0	0	0	0	0	0	A	0	0	0	1	0	0	1	1	1	0	1	0	0	0	0	0	0.3	0.7	
18-Dec	0	0	0	1	0	0	A	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0.5	1.3	
19-Dec	0	0	0	0	0	A	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	1	0.3	0.5		
20-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	
21-Dec	0	0	0	A	3	1	2	2	4	4	5	4	4	3	4	2	2	1	0	0	0	3	1	1	2.1	4.5	
22-Dec	0	0	A	1	2	0	1	2	2	2	2	2	3	1	0	1	0	0	0	0	0	0	0	0	0.9	2.6	
23-Dec	0	A	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0.3	1.4	
24-Dec	A	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	A	0	0.4	1.4	
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	0	0	A	0	0	0.4	1.9	
26-Dec	1	1	2	2	1	0	1	2	2	3	4	1	0	0	0	0	0	0	0	0	0	A	0	0	0.9	3.7	
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	A	0	0	0	0.2	0.9	
28-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	0.1	0.2	
29-Dec	0	0	0	0	0	0	1	3	0	1	2	0	0	0	0	0	0	0	A	1	1	0	0	0	0.6	3.1	
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	A	0	0	0	0	1	2	0.4	2.4	
31-Dec	2	2	1	3	2	2	2	2	2	1	2	1	1	0	1	1	A	1	1	0	0	0	0	0	1.2	3.1	
0.3 0.4 0.4 0.5 0.5 0.4 0.4 0.6 0.5 0.6 0.8 0.6 0.8 0.6 0.7 0.5 0.5 0.3 0.3 0.3 0.3 0.5 0.4 0.5																									Diurnal Average		
1.6 2.0 1.9 3.1 2.8 2.1 2.0 3.1 4.2 4.5 4.5 3.7 3.8 3.3 4.4 2.8 2.2 1.3 1.4 2.5 2.4 3.4 2.0 2.2																									Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb																											

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - December 2011



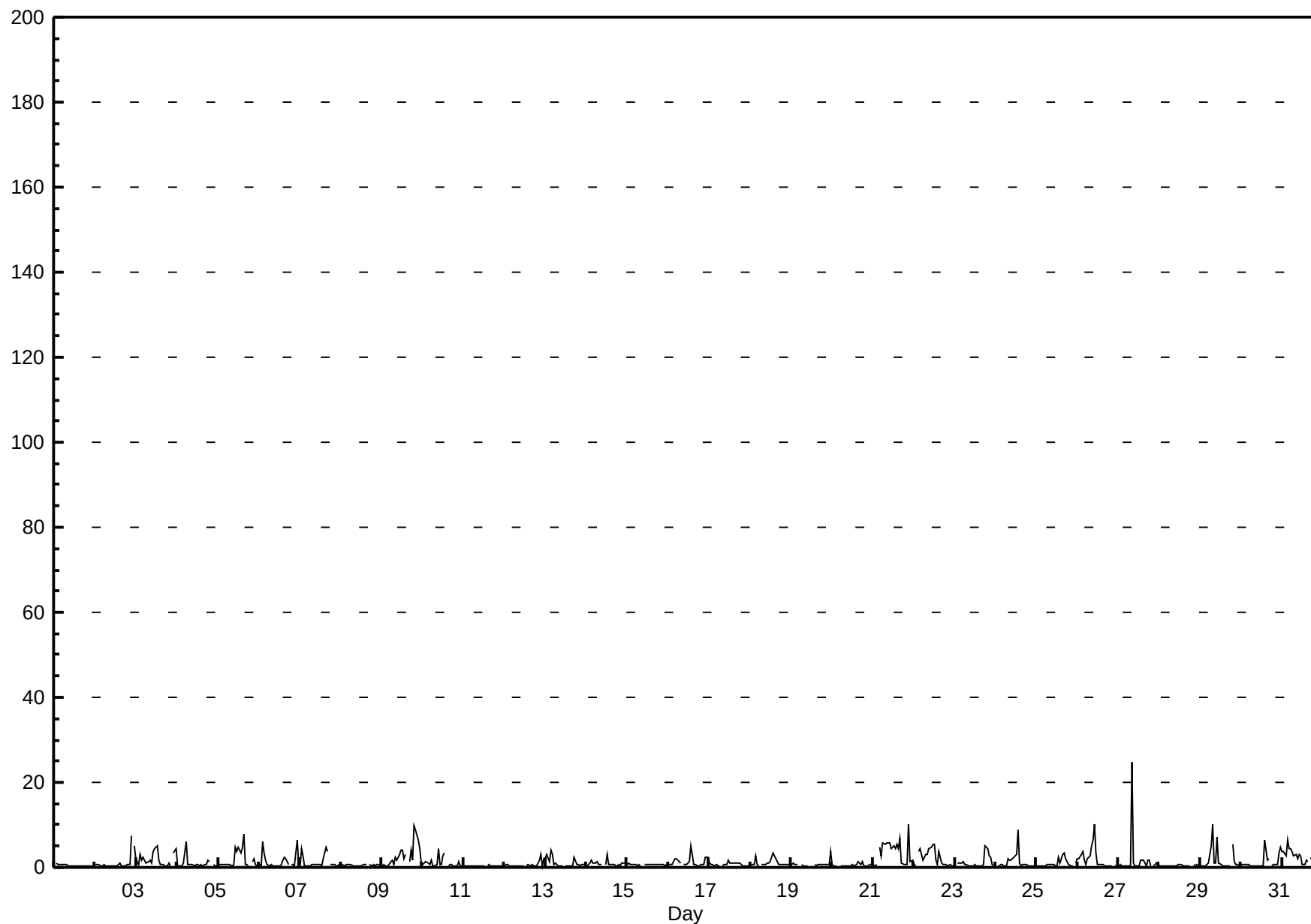
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb Smoky Heights - December 2011

Maximum Value: 24.8 ppb on Dec 27 09:00																				Maximum Daily Average: 3.7 ppb on Dec 21										Hours in Service: 744	
Minimum Value: 0 ppb on Dec 11 01:00																				Minimum Daily Average: 0.4 ppb on Dec 11										Hours of Data: 708	
Maximum Diurnal Average: 1.9 ppb at hour 9																				Minimum Diurnal Average: 0.8 ppb at hour 1										Hours of Missing Data: 36	
Monthly Average: 1.30 ppb																				Percentiles: P ₁ = 0.3 P ₁₀ = 0.4 Q ₁ = 0.5 Median = 0.6 Q ₃ = 1.3 P ₉₀ = 3.4 P ₉₉ = 8.6										Hours of Calibration: 36	
																				Percent Operational Time: 100.0											
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	A	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	A	0.5	0.9					
2-Dec	1	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	8	A	5	1.0	7.5					
3-Dec	2	1	3	2	3	2	1	1	2	1	4	4	5	2	1	1	1	0	0	1	0	A	3	5	1.9	5.0					
4-Dec	0	0	0	0	1	6	1	1	1	1	0	1	1	0	1	0	1	1	2	1	A	1	0	0	0.9	6.0					
5-Dec	0	1	1	1	1	1	1	1	0	1	5	4	5	3	5	8	1	1	0	A	1	2	1	0	1.8	7.8					
6-Dec	1	0	6	3	2	1	0	1	0	0	0	0	0	1	2	2	2	1	A	1	1	0	7	1	1.4	6.5					
7-Dec	0	4	3	0	0	0	0	1	1	1	1	1	1	0	2	5	4	A	1	1	1	1	0	1	1.2	4.6					
8-Dec	1	1	0	1	1	1	1	0	0	0	0	0	0	1	1	1	A	1	0	1	0	1	1	0	0.5	0.7					
9-Dec	0	1	0	0	0	1	2	1	2	2	3	4	4	2	3	A	2	4	2	10	9	7	4	1	2.8	9.8					
10-Dec	1	1	1	1	1	2	0	0	1	4	1	1	3	3	A	0	1	1	0	0	0	1	0	0	1.1	4.4					
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	0	0	0	0	0	0	0	0	0.4	0.6					
12-Dec	0	1	1	0	0	0	0	0	0	0	0	0	A	0	1	0	1	0	0	0	2	3	0	2	0.7	3.2					
13-Dec	2	3	1	4	3	1	1	0	0	0	0	A	0	0	0	0	1	3	1	1	0	1	1	1	1.1	4.2					
14-Dec	0	1	1	2	1	1	1	1	1	1	A	1	3	1	1	1	1	0	0	1	0	1	1	1	0.9	3.1					
15-Dec	1	1	1	1	1	1	0	1	0	A	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.7	0.8					
16-Dec	1	1	1	1	2	2	2	1	A	1	1	1	1	5	3	1	1	0	0	1	1	1	2	2	1.3	5.0					
17-Dec	1	1	1	0	1	0	0	A	0	1	1	2	1	1	1	1	1	1	1	1	1	0	0	0	0.7	1.7					
18-Dec	1	1	1	3	1	0	A	1	1	1	1	1	1	3	3	2	1	1	1	1	1	1	1	1	1.1	3.5					
19-Dec	1	1	1	1	1	A	1	0	0	0	0	C	C	C	1	0	1	1	1	1	1	1	1	4	0.8	3.9					
20-Dec	1	0	0	0	A	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0	1	1	0.6	1.5					
21-Dec	1	1	1	A	5	3	6	5	6	6	6	5	5	5	6	4	7	1	1	1	1	10	1	2	3.7	10.1					
22-Dec	1	0	A	4	5	2	3	3	3	4	5	5	5	2	1	4	1	1	1	1	0	1	0	0	2.2	5.3					
23-Dec	1	A	1	1	1	1	1	1	0	0	0	0	1	0	0	0	0	1	5	4	3	2	1	0	1.1	5.1					
24-Dec	A	0	0	1	1	0	0	2	2	2	2	3	3	9	1	0	1	1	1	0	0	0	0	A	1.4	9.0					
25-Dec	0	0	0	0	0	0	1	1	1	1	1	0	0	2	1	3	3	2	1	1	0	0	A	1	1.0	3.4					
26-Dec	2	2	3	4	2	1	2	3	5	7	10	3	1	1	1	1	0	0	1	0	0	A	0	0	2.1	10.2					
27-Dec	1	1	0	0	0	0	0	0	25	1	0	0	0	2	2	2	0	2	2	0	A	1	1	1	1.8	24.8					
28-Dec	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	A	1	0	1	0	0.4	0.6					
29-Dec	0	0	0	0	1	1	5	10	1	1	7	1	1	1	0	0	0	0	A	5	1	1	1	0	1.8	10.3					
30-Dec	1	1	1	1	1	1	0	0	0	0	0	0	0	1	6	2	2	A	1	1	1	1	3	5	1.2	6.5					
31-Dec	4	4	3	6	4	4	4	3	3	2	3	3	1	1	2	1	A	2	1	1	1	2	1	1	2.4	6.4					
0.8 0.9 1.1 1.3 1.3 1.1 1.2 1.3 1.9 1.3 1.8 1.5 1.6 1.7 1.5 1.5 1.2 0.9 0.9 1.2 1.0 1.6 1.2 1.3																									Diurnal Average						
3.8 4.4 6.0 6.4 4.8 6.0 5.9 10.3 24.8 6.5 10.2 5.3 5.3 9.0 6.5 7.8 6.9 4.2 5.1 9.8 8.7 10.1 6.5 5.1																									Diurnal Maximum						
C - Calibration																									A - Automated Daily Zero Span						

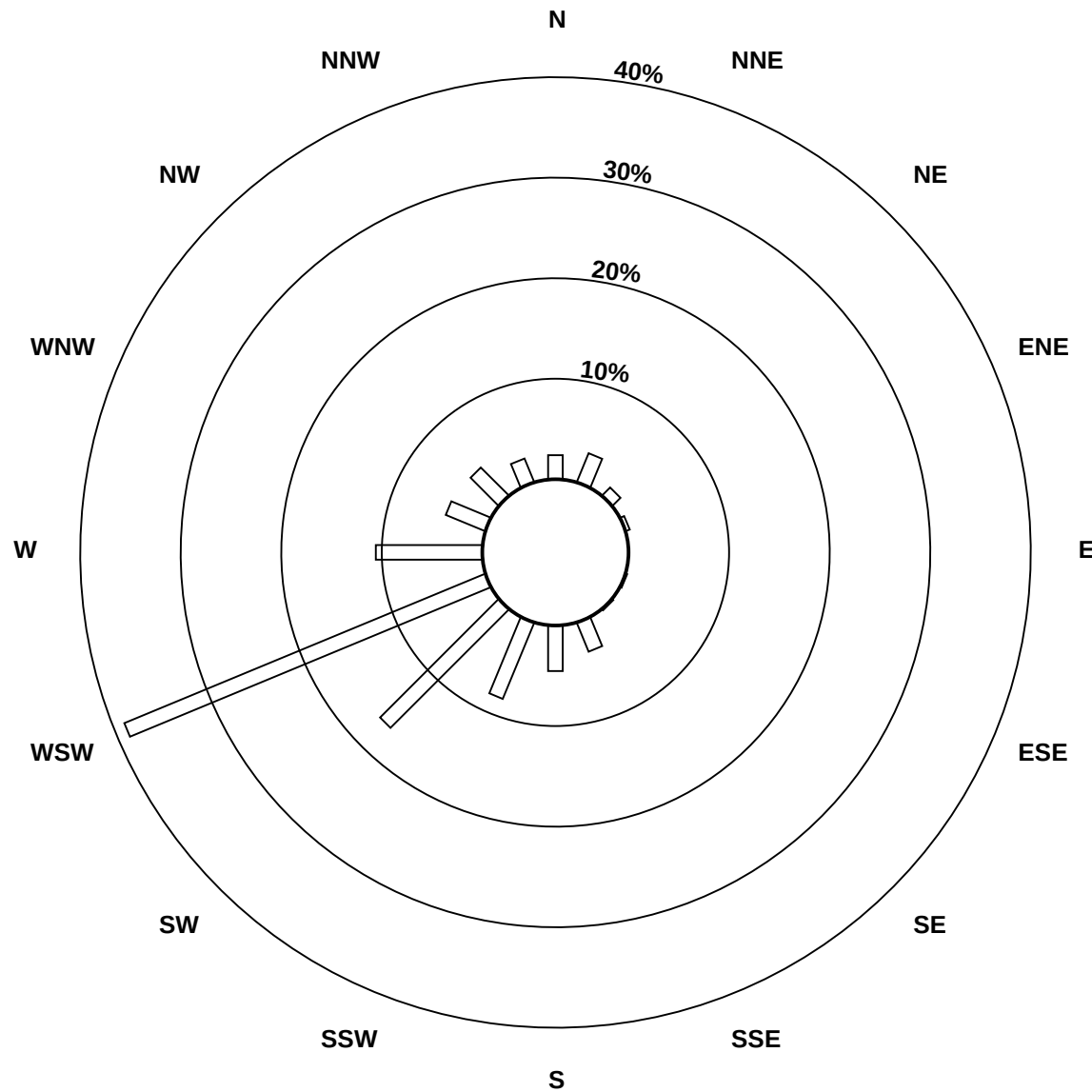
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - December 2011

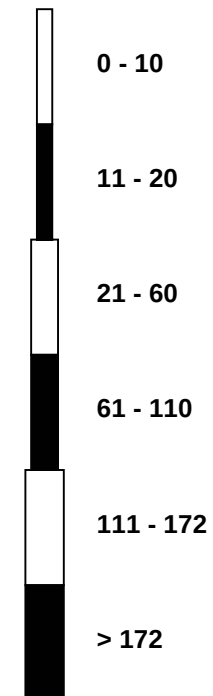


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - December 2011

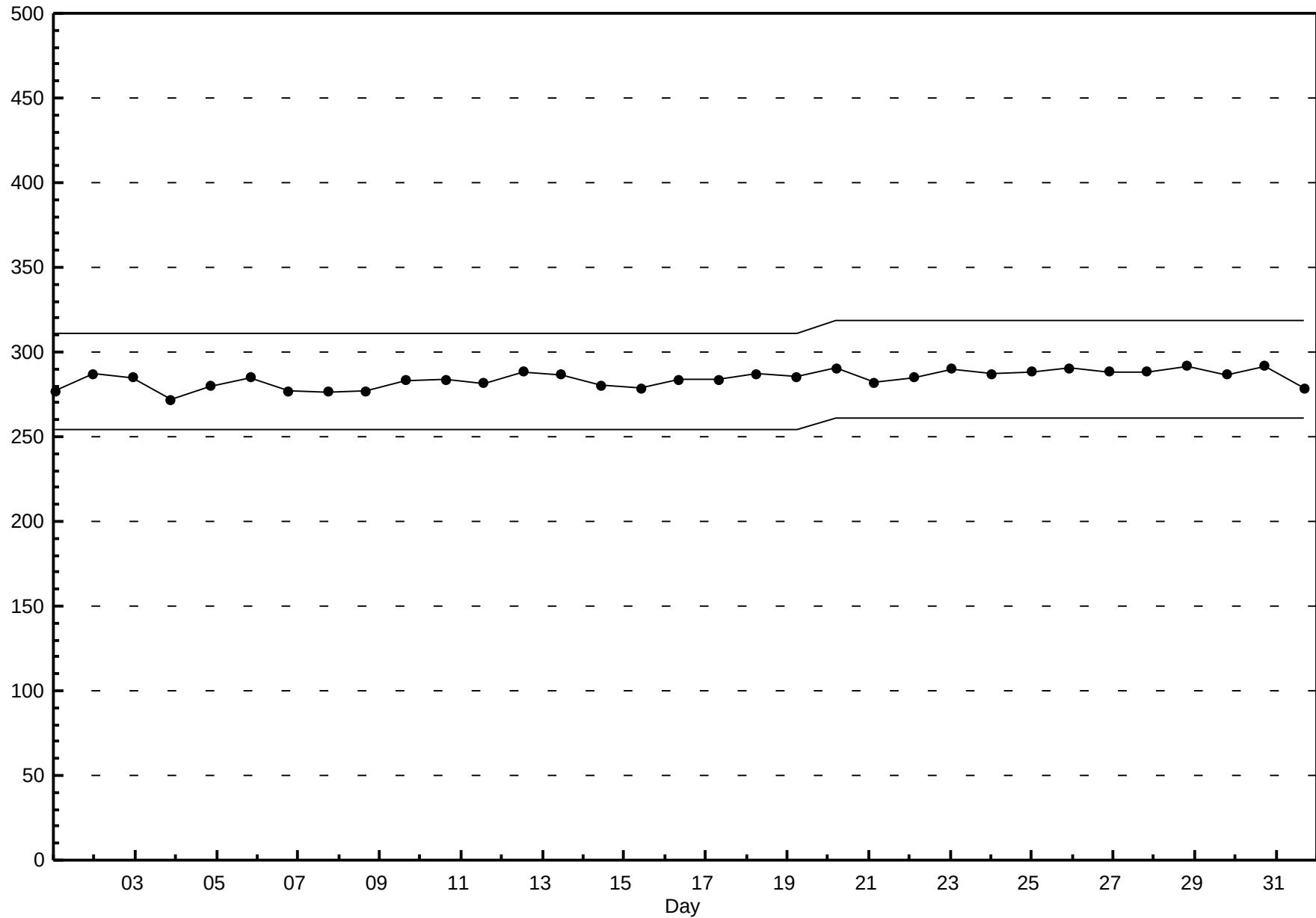


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Smoky Heights - December 2011



Hourly Averages

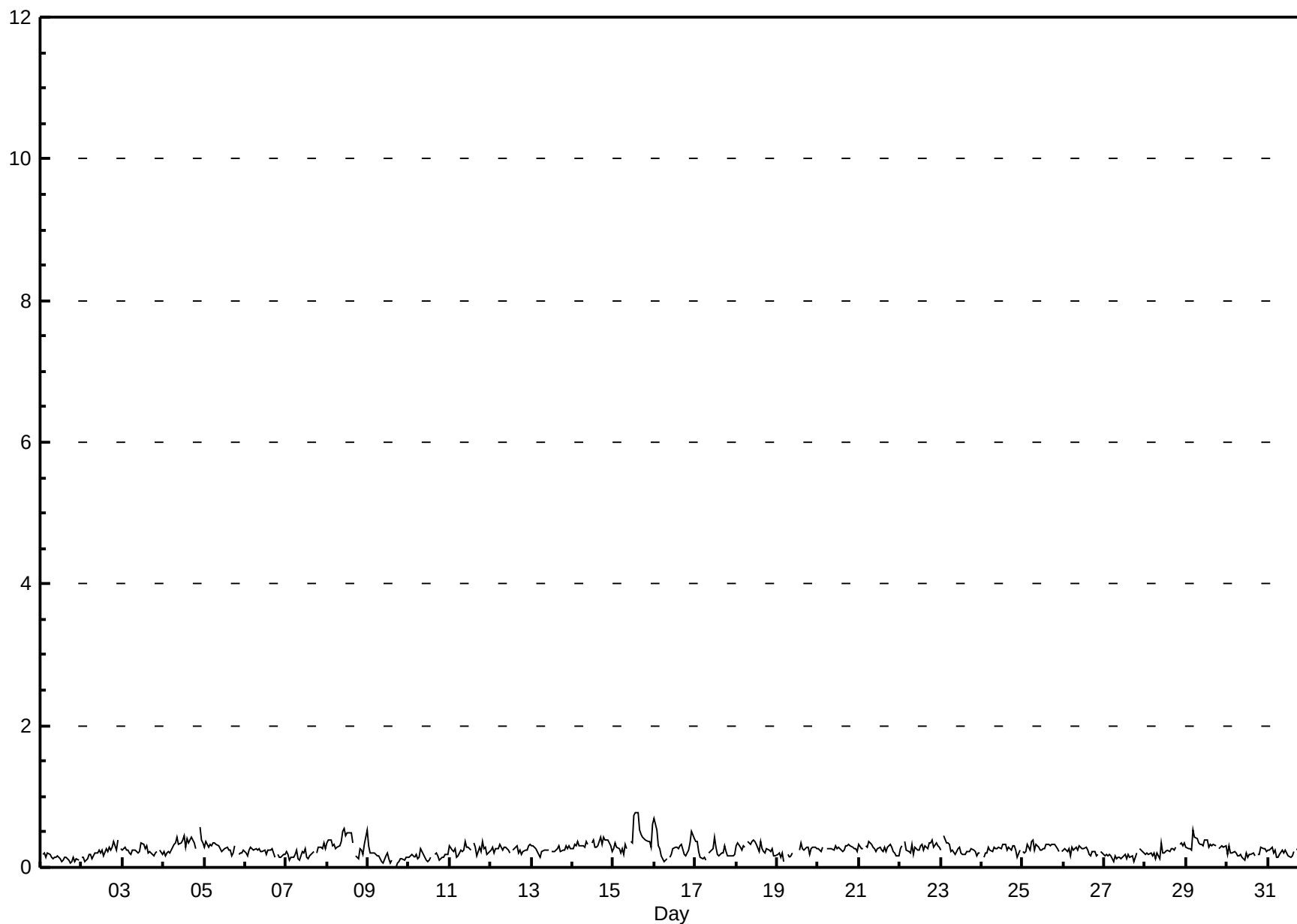
Total Reduced Sulphur (TRS) - ppb

Smoky Heights - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744						
Maximum Value: 0.8 ppb on Dec 15 15:00																				Maximum Daily Average: 0.4 ppb on Dec 15		Hours of Data: 708				
Minimum Value: 0 ppb on Dec 9 17:00																				Minimum Daily Average: 0.1 ppb on Dec 1		Hours of Missing Data: 36				
Maximum Diurnal Average: 0.3 ppb at hour 15																				Minimum Diurnal Average: 0.2 ppb at hour 7		Hours of Calibration: 36				
Monthly Average: 0.25 ppb																				Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.4 P ₉₉ = 0.5		Percent Operational Time: 100.0				
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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.1	0.2
2-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	0.2	0.4
3-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	0.2	0.3
4-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0.3	0.6
5-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	0.3	0.4
6-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
7-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	0.3
8-Dec	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	A	0	0	0	0	0	0	1	0.4	0.5
9-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	0.1	0.3
10-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	0.2	0.3
11-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	0.3	0.4
12-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	0.3
13-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	0.2	0.3
14-Dec	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	0.4
15-Dec	0	0	0	0	0	0	0	0	0	A	0	0	1	1	1	1	0	0	0	0	0	0	0	1	0.4	0.8
16-Dec	1	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.3	0.7
17-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	0.4
18-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
19-Dec	0	0	0	0	0	A	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
20-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	0.3	0.3
21-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	0.4
22-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	0.3	0.4
23-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
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	A	0.3	0.3
25-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
26-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	0.2	0.3
27-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	0.3
28-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	0.2	0.4
29-Dec	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.3	0.5
30-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	0.3
31-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	0.3
0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.3 0.3 0.2 0.3 0.3 0.2 0.2 0.2 0.3 0.2 0.3 0.3 0.3																									Diurnal Average	
0.7 0.5 0.5 0.4 0.5 0.4 0.4 0.4 0.4 0.4 0.5 0.5 0.4 0.7 0.8 0.8 0.5 0.5 0.4 0.4 0.4 0.6 0.5 0.6																									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

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - December 2011



Hourly Maximums

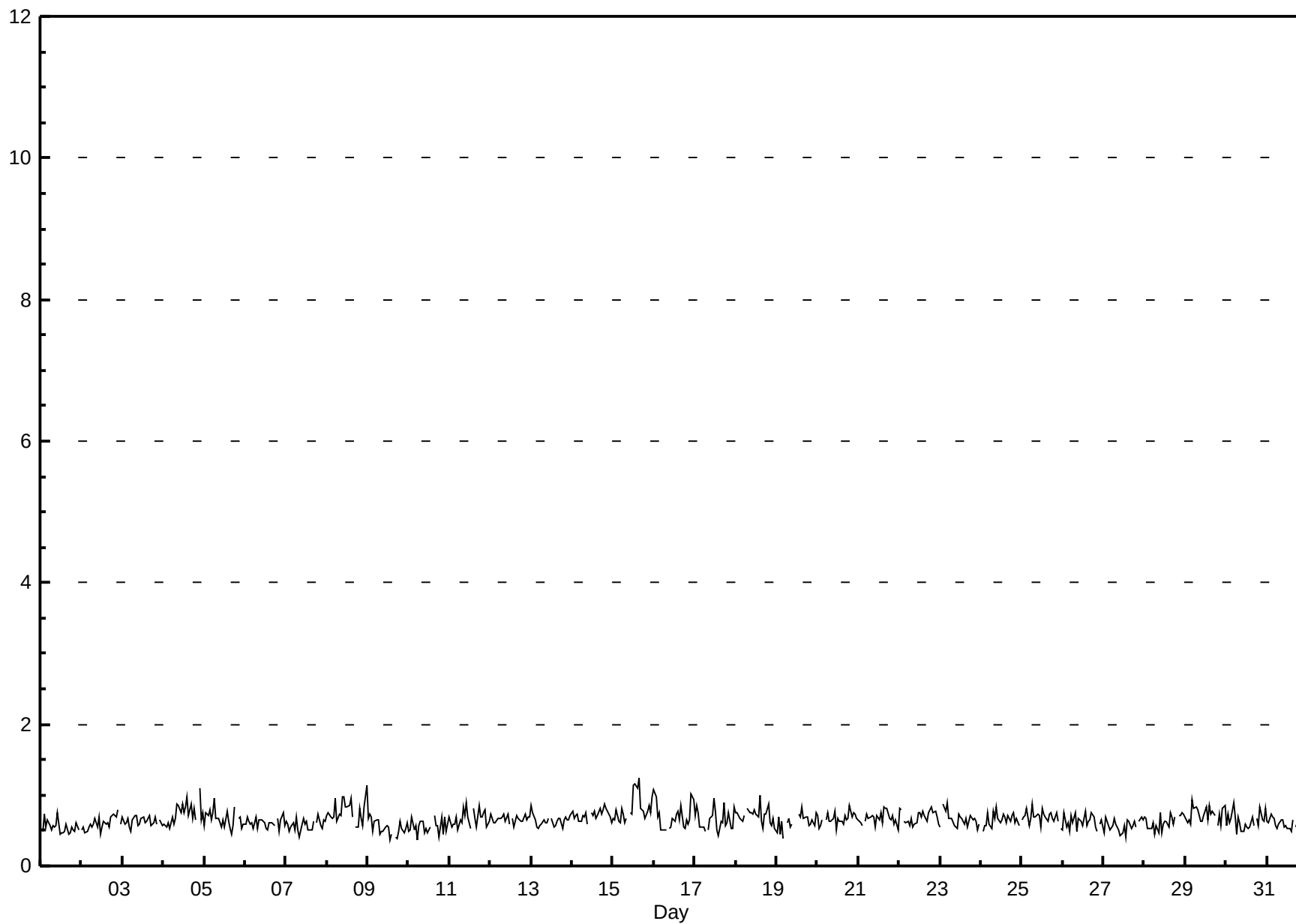
Total Reduced Sulphur (TRS) - ppb

Smoky Heights - December 2011

Maximum Value: 1.2 ppb on Dec 15 16:00																				Maximum Daily Average: 0.8 ppb on Dec 15				Hours in Service: 744		
Minimum Value: 0 ppb on Dec 9 14:00																				Minimum Daily Average: 0.5 ppb on Dec 9				Hours of Data: 708		
Maximum Diurnal Average: 0.7 ppb at hour 24																				Minimum Diurnal Average: 0.6 ppb at hour 5				Hours of Missing Data: 36		
Monthly Average: 0.65 ppb																				Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.6 Q ₃ = 0.7 P ₉₀ = 0.8 P ₉₉ = 1.1				Hours of Calibration: 36		
																				Percent Operational Time: 100.0						
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	A	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	1	0	1	1	A	0.5	0.7
2-Dec	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	A	1	0.6	0.8
3-Dec	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.6	0.7
4-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	1.1
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	A	1	1	1	1	0.7	1.0
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	1	1	1	0.6	0.8
7-Dec	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0.6	0.7
8-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	A	1	1	1	1	1	1	1	0.8	1.1
9-Dec	1	1	1	0	1	1	1	0	0	0	1	1	1	0	1	A	1	0	0	1	1	0	1	1	0.5	0.7
10-Dec	0	1	1	1	1	0	1	1	1	0	1	0	1	1	A	1	1	1	0	1	0	1	0	1	0.6	0.7
11-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	0.7	0.9
12-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	0.7
13-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	0.6	0.9
14-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	0.7	0.9
15-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	0.8	1.2
16-Dec	1	1	1	1	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1
17-Dec	1	1	1	1	1	1	0	A	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0.6	0.9
18-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	0.7	1.0
19-Dec	0	1	0	1	0	A	1	1	1	1	C	C	C	1	1	1	1	1	1	1	1	1	1	1	0.6	0.8
20-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	0.7	0.9
21-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
22-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	0.7	0.8
23-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.7	0.9
24-Dec	A	0	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
25-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
26-Dec	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	A	1	1	0.6	0.8
27-Dec	0	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	A	1	1	1	0.6	0.7
28-Dec	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.8
29-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
30-Dec	1	1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	A	1	1	1	1	1	1	0.6	0.9
31-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	A	1	1	1	1	1	1	1	0.6	0.7
0.7 0.7 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.6 0.7 0.7 0.7 0.7 0.7 0.7 0.7																								Diurnal Average		
1.1 1.0 0.9 0.8 0.9 0.9 1.0 0.8 0.9 1.0 1.0 0.9 1.1 1.2 1.1 1.2 0.9 0.9 0.8 0.9 0.8 1.1 1.0 1.1																								Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																										

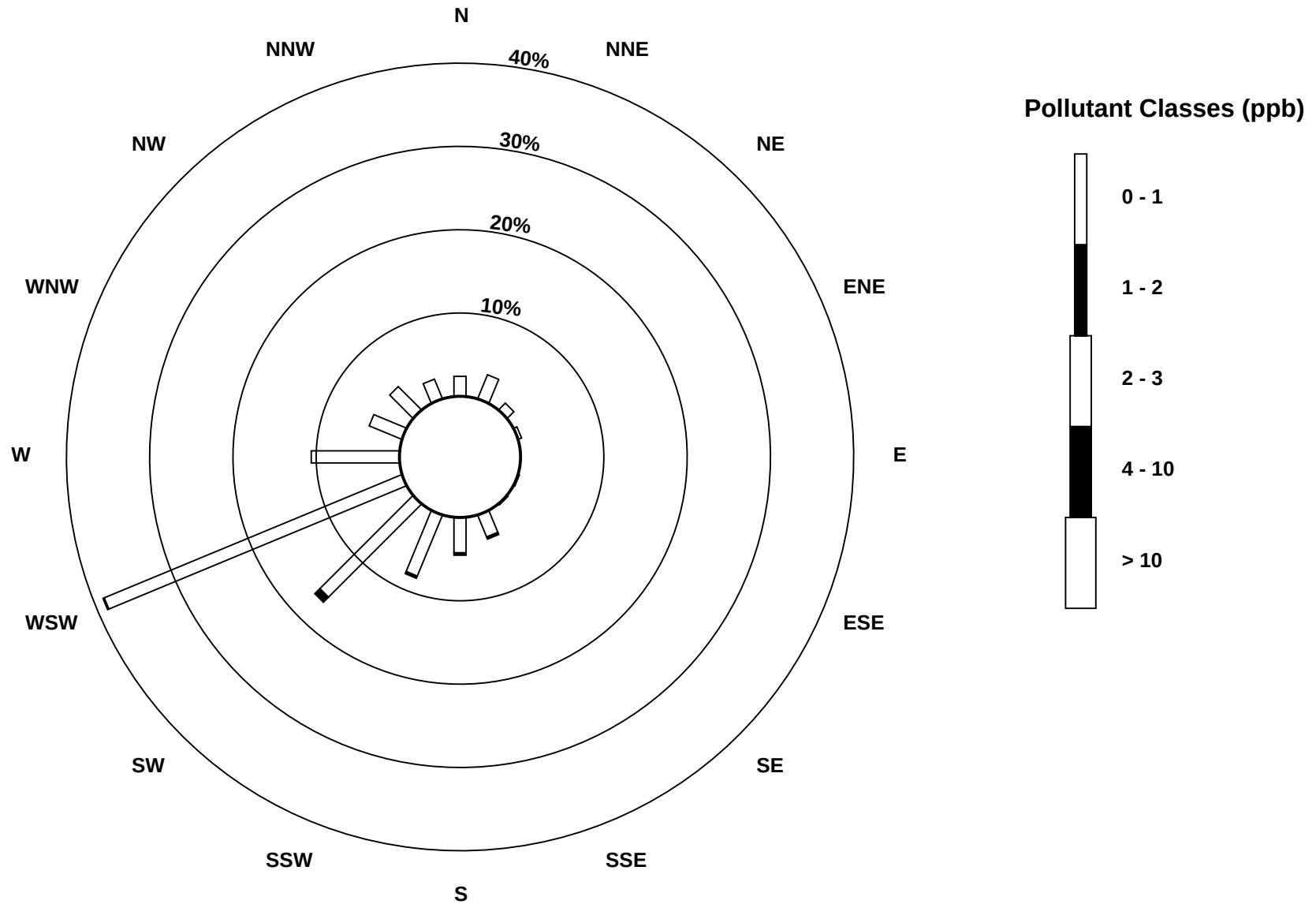
Hourly Maximums

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - December 2011



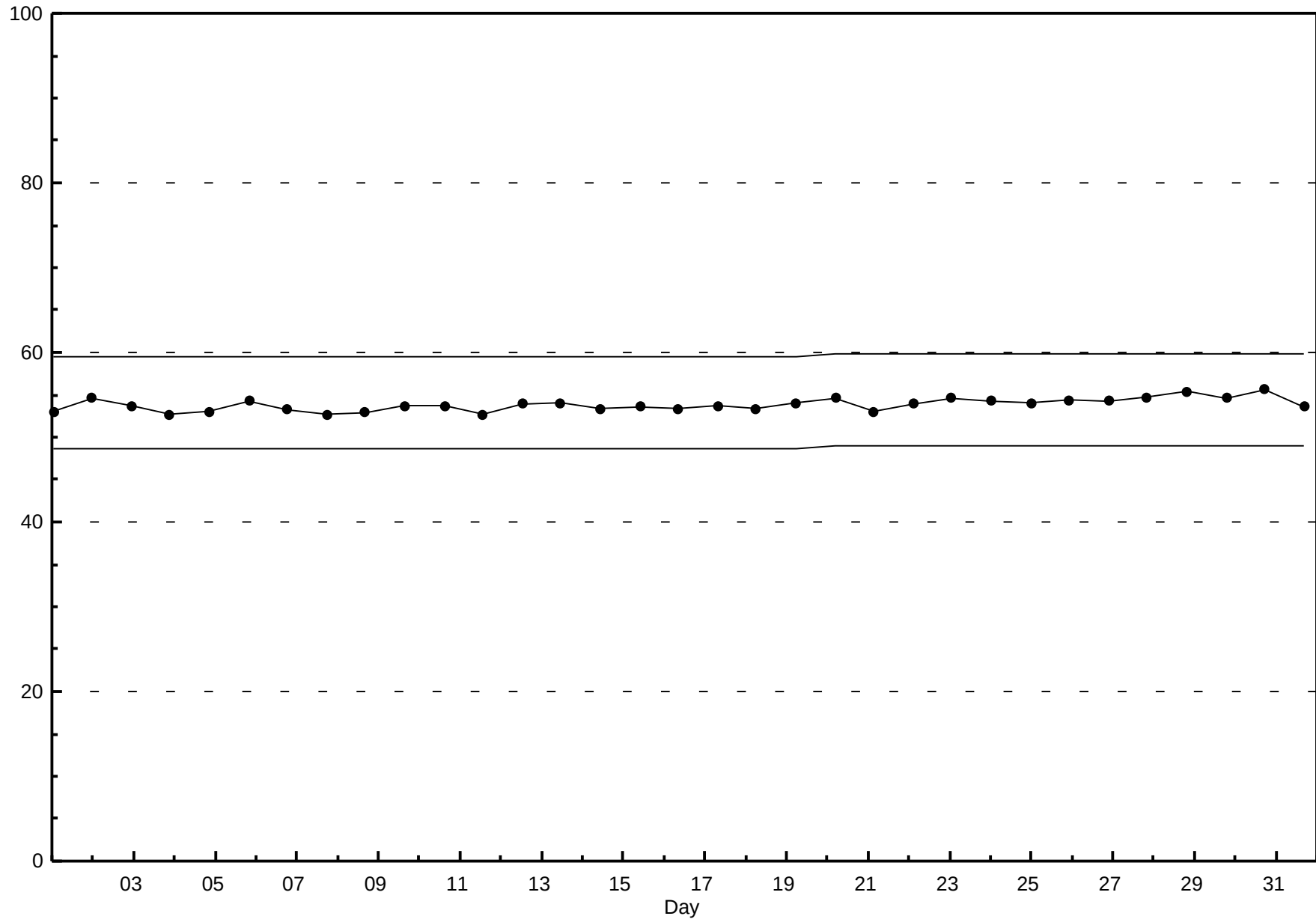
Pollutant Rose

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - December 2011



Span Responses

Total Reduced Sulphur (TRS)
Smoky Heights - December 2011

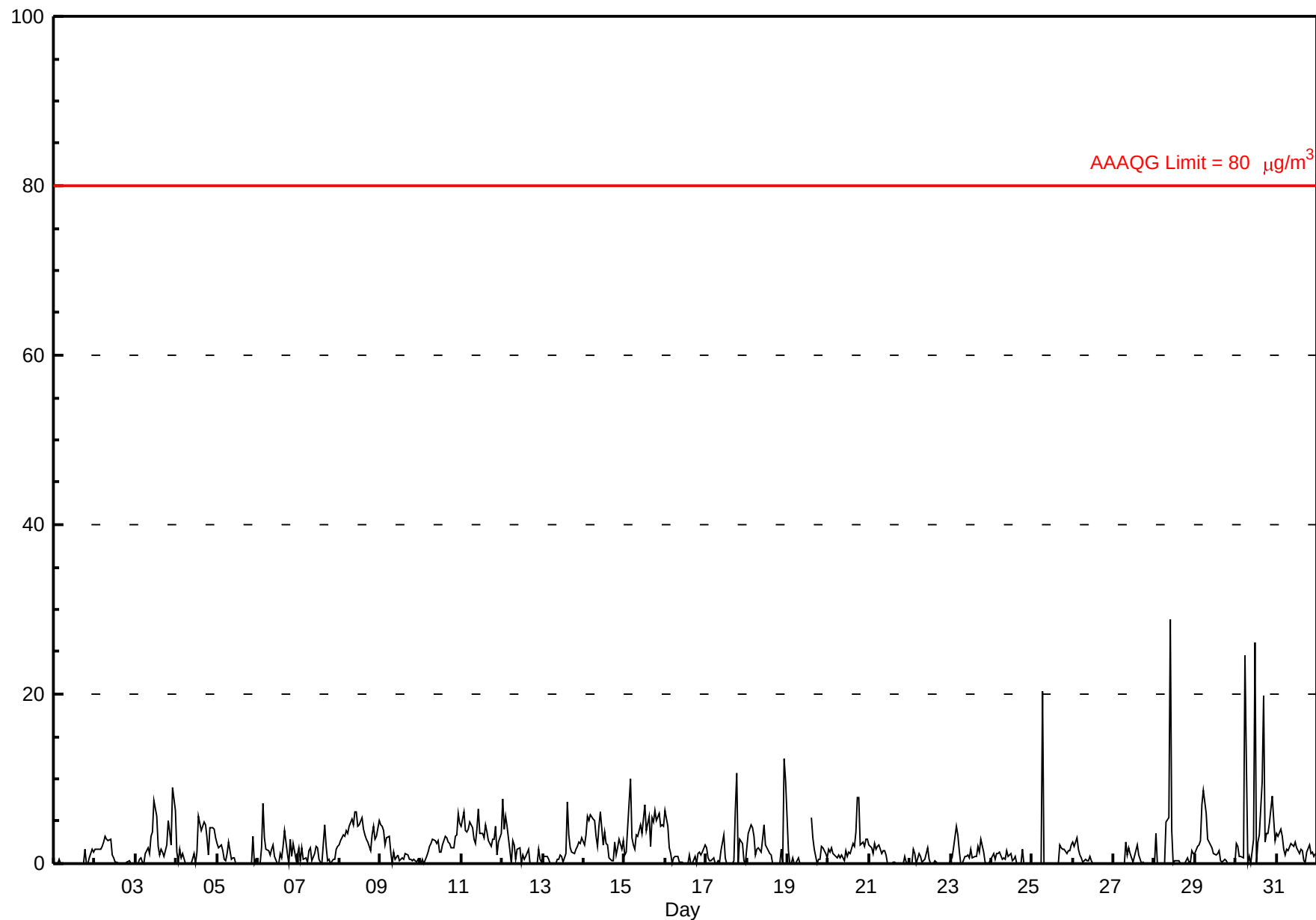


Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Smoky Heights - December 2011

Number of Exceedences: 1-hr: 0 24-hr: 0 Maximum Value: 28.9 µg/m³ on Dec 28 10:00 Minimum Value: 0 µg/m³ on Dec 1 01:00 Maximum Diurnal Average: 2.6 µg/m³ at hour 10 Monthly Average: 1.81 µg/m³																								Maximum Daily Average: 5.8 µg/m³ on Dec 30 Minimum Daily Average: 0.3 µg/m³ on Dec 1 Minimum Diurnal Average: 1.2 µg/m³ at hour 20 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 1.1 Q ₃ = 2.5 P ₉₀ = 4.4 P ₉₉ = 11.0																								Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7	
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0	0	2	0	0	1	2	1	0.3	1.7																							
2-Dec	2	2	2	2	2	3	3	3	3	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1.1	3.3																							
3-Dec	0	0	0	1	0	0	1	2	1	3	4	7	6	2	1	2	1	1	2	5	4	2	9	6	2.6	9.0																							
4-Dec	1	0	2	1	1	0	0	0	0	0	1	0	1	6	5	4	5	5	3	1	4	4	4	3	2.1	5.5																							
5-Dec	2	2	2	2	1	0	1	3	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0.8	3.2																							
6-Dec	0	0	2	7	3	2	2	1	2	2	1	0	0	1	1	2	4	1	0	3	1	2	1	1	1.6	7.1																							
7-Dec	2	0	2	0	1	0	1	2	0	1	2	2	1	0	0	5	2	0	1	0	0	0	2	2	1.1	4.6																							
8-Dec	2	3	3	3	4	3	4	5	5	6	6	4	5	5	4	3	3	2	1	3	4	3	3	5	3.9	6.2																							
9-Dec	5	4	4	2	3	3	1	0	1	1	1	0	1	1	1	1	1	0	0	0	0	0	1	0	1.4	4.5																							
10-Dec	0	0	0	1	1	2	2	3	3	2	3	1	1	2	3	3	3	2	2	2	3	3	6	5	2.3	6.0																							
11-Dec	4	6	4	4	4	5	4	3	2	4	6	4	4	3	5	4	3	2	3	3	4	1	2	4	3.6	6.4																							
12-Dec	8	4	6	4	2	0	3	2	0	2	2	0	1	0	1	2	0	0	0	0	0	2	0	0	1.6	7.6																							
13-Dec	1	1	1	1	0	0	0	0	0	0	1	1	0	1	7	3	2	1	1	2	2	3	2	3	1.4	7.3																							
14-Dec	2	3	6	5	6	5	5	3	2	4	6	2	4	2	2	1	0	0	3	1	2	3	2	3	3.0	6.2																							
15-Dec	1	1	4	10	3	2	2	3	3	5	4	5	7	4	6	2	5	5	6	5	6	4	5	4	4.3	10.0																							
16-Dec	6	4	2	1	0	1	1	1	0	0	0	0	0	0	1	0	0	1	0	1	1	1	1	2	1.1	6.3																							
17-Dec	2	1	0	0	1	0	0	0	0	2	3	1	0	0	0	0	0	6	11	0	3	2	0	0	1.4	10.6																							
18-Dec	2	4	5	4	3	1	2	2	1	3	5	2	2	1	1	0	0	0	0	0	2	0	12	10	2.5	12.3																							
19-Dec	2	0	0	1	0	0	1	0	0	0	0	0	0	0	M	5	3	2	0	1	0	2	1	1	0.9	5.4																							
20-Dec	2	1	2	1	1	1	1	1	1	0	1	1	1	1	2	2	4	8	8	2	3	2	3	3	2.2	7.8																							
21-Dec	2	2	1	2	2	2	2	1	2	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0.8	2.3																							
22-Dec	0	0	2	1	0	1	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.9																							
23-Dec	1	1	2	4	3	1	0	0	1	1	1	1	2	1	1	1	2	1	3	1	0	0	0	0	1.2	4.3																							
24-Dec	0	1	1	1	1	1	0	1	0	2	1	1	0	1	1	0	0	0	2	0	0	0	0	0	0.6	1.8																							
25-Dec	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	2	2	2	2	1	1	2	2	1.4	20.4																							
26-Dec	3	2	3	2	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	3.1																							
27-Dec	0	0	0	0	0	0	0	3	1	2	1	0	1	1	2	1	0	0	0	0	0	0	0	0	0.5	2.6																							
28-Dec	0	4	0	0	0	0	0	5	5	29	4	0	0	0	0	0	0	0	0	1	0	0	2	1	2.1	28.9																							
29-Dec	1	2	2	3	7	9	6	3	3	2	2	1	1	1	2	0	0	0	0	0	0	0	0	0	1.9	8.6																							
30-Dec	2	2	1	1	1	25	12	0	1	0	3	26	0	2	3	10	20	3	4	4	5	8	5	3	5.8	26.1																							
31-Dec	4	3	4	3	2	1	2	2	2	2	2	3	2	1	2	2	0	0	1	2	1	1	1	1	1.8	4.1																							
1.8 1.7 2.0 2.2 1.7 2.2 2.5 1.6 1.4 2.6 2.1 2.1 1.3 1.3 1.9 1.6 1.9 1.4 1.8 1.2 1.6 1.7 2.1 2.0 Diurnal Average																																																	
7.6 6.0 5.5 10.0 7.0 24.6 20.4 5.2 5.4 28.9 6.4 26.1 7.0 5.5 7.3 9.6 19.9 7.8 10.6 5.1 6.0 7.9 12.3 9.9 Diurnal Maximum																																																	
M - Maintenance N - Not Valid																																																	
Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³																																																	



Hourly Maximums

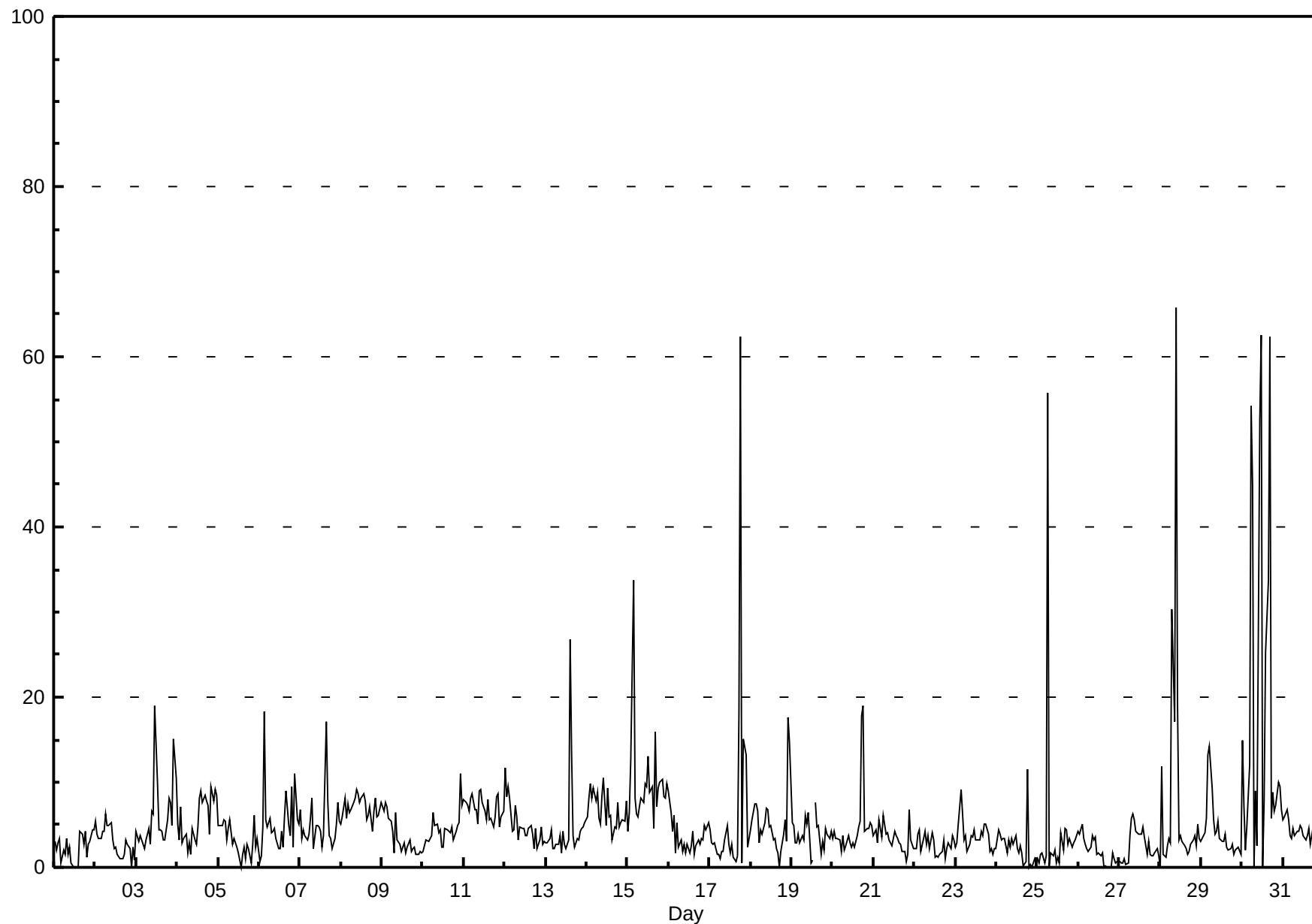
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Smoky Heights - December 2011

Maximum Value: 65.8 μg/m³ on Dec 28 10:00																				Maximum Daily Average: 18.8 μg/m³ on Dec 30					Hours in Service: 744	
Minimum Value: 0 μg/m³ on Dec 1 12:00																				Minimum Daily Average: 2.0 μg/m³ on Dec 26					Hours of Data: 743	
Maximum Diurnal Average: 7.5 μg/m³ at hour 7																				Minimum Diurnal Average: 3.6 μg/m³ at hour 14					Hours of Missing Data: 1	
Monthly Average: 5.15 μg/m³																				Percentiles: P ₁ = 0.0 P ₁₀ = 1.4 Q ₁ = 2.4 Median = 3.8 Q ₃ = 5.7 P ₉₀ = 8.6 P ₉₉ = 51.0					Hours of Calibration: 0	
																									Percent Operational Time: 99.9	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
1-Dec	3	2	3	3	1	2	1	3	1	2	1	0	0	0	4	4	3	4	1	3	3	4	4	2.2	4.5	
2-Dec	5	4	3	3	4	4	6	5	5	5	3	2	2	1	1	1	3	3	2	0	2	1	3.0	6.3		
3-Dec	4	3	4	3	3	2	3	5	3	7	6	19	10	4	4	4	3	3	6	8	8	5	15	10	5.9	19.1
4-Dec	5	3	7	3	3	4	2	3	2	4	3	3	5	8	9	8	9	8	7	4	10	8	9	8	5.6	9.5
5-Dec	5	5	5	6	5	3	5	6	3	3	3	2	2	0	2	2	1	3	2	1	3	6	2	3	3.2	6.0
6-Dec	1	1	5	18	6	5	6	4	4	4	3	2	2	4	2	6	9	5	4	10	2	11	6	5	5.3	18.4
7-Dec	7	3	4	4	3	4	6	8	2	5	5	5	4	2	4	17	8	4	3	2	3	5	8	5	5.1	17.2
8-Dec	5	6	8	6	7	6	7	8	8	9	9	8	8	9	8	6	6	7	4	7	8	6	6	8	7.0	9.2
9-Dec	7	7	8	7	6	5	4	2	6	3	3	2	2	3	2	2	3	2	2	1	1	2	2	2	3.6	7.6
10-Dec	2	2	3	3	3	4	6	5	5	4	4	2	2	5	4	4	4	5	3	4	5	5	11	7	4.4	11.0
11-Dec	8	8	7	7	8	9	7	7	5	9	9	8	7	6	8	6	6	5	6	8	9	5	6	7	7.0	9.1
12-Dec	12	8	10	8	4	4	7	6	3	5	5	5	4	4	5	5	4	2	5	2	3	5	3	3	5.0	11.8
13-Dec	3	3	3	4	2	2	3	3	4	2	4	3	2	3	27	13	4	2	3	3	4	5	5	5	4.7	26.8
14-Dec	6	8	10	8	9	8	9	6	5	8	11	5	9	6	6	3	5	5	8	5	5	6	5	8	6.8	10.6
15-Dec	4	6	12	34	8	6	6	7	8	8	10	10	13	9	10	5	16	7	9	10	10	8	8	10	9.8	33.7
16-Dec	9	6	4	6	2	5	2	3	2	3	2	3	2	3	4	2	3	3	3	3	3	5	4	5	3.6	9.0
17-Dec	4	3	3	3	2	1	1	2	2	3	5	3	2	3	1	1	1	18	62	1	15	13	2	3	6.4	62.4
18-Dec	4	6	7	7	7	3	4	4	5	7	7	5	5	3	3	2	2	0	2	4	6	3	18	15	5.4	17.6
19-Dec	5	5	3	3	4	3	4	3	6	5	6	1	1	M	8	5	5	2	3	2	5	4	3	4	3.9	7.6
20-Dec	3	4	3	3	3	2	4	2	2	4	3	2	3	2	4	5	5	18	19	4	5	5	5	5	4.8	19.1
21-Dec	4	4	3	6	5	4	6	4	4	3	3	2	4	4	3	3	3	2	2	1	1	7	3	2	3.4	6.7
22-Dec	2	2	4	4	2	3	4	3	4	2	4	3	1	1	1	1	2	3	1	2	3	2	4	3	2.7	4.4
23-Dec	2	3	5	9	6	3	4	2	3	4	4	4	3	3	3	4	4	5	5	4	2	2	1	2	3.7	9.1
24-Dec	2	4	4	3	3	3	2	3	2	3	3	4	2	2	3	2	0	1	12	0	0	0	1	0	2.5	11.5
25-Dec	1	1	1	2	1	1	56	0	2	1	2	1	1	1	4	2	5	4	3	3	2	3	3	4	4.3	55.8
26-Dec	4	4	5	3	3	2	2	2	4	3	3	1	2	1	2	0	0	0	0	0	2	1	1	1	2.0	5.1
27-Dec	1	1	1	1	0	0	4	6	6	6	4	4	4	4	5	4	1	3	1	1	1	2	2	1	2.6	6.3
28-Dec	0	12	2	1	2	3	3	30	17	66	19	3	4	3	3	2	2	2	3	3	4	2	5	3	8.1	65.8
29-Dec	3	4	4	6	13	14	9	6	4	4	5	3	3	3	4	2	2	2	3	2	2	2	2	1	4.4	14.3
30-Dec	15	7	2	5	12	54	45	0	9	2	53	63	0	8	25	34	62	6	9	7	7	10	10	7	18.8	62.5
31-Dec	6	6	7	6	4	3	4	4	4	4	5	5	4	3	4	5	3	4	5	6	5	5	4	4	4.5	6.7
4.6 4.6 4.9 6.0 4.6 5.7 7.5 4.8 4.6 6.5 6.6 5.9 3.7 3.6 5.4 5.1 5.8 4.3 6.5 3.6 4.5 4.7 5.2 4.8																									Diurnal Average	
14.9 11.8 12.5 33.7 13.2 54.3 55.8 30.3 17.1 65.8 52.6 62.5 13.0 8.9 26.8 33.7 62.3 18.1 62.4 10.0 15.0 13.3 17.6 14.7																									Diurnal Maximum	
M - Maintenance																										

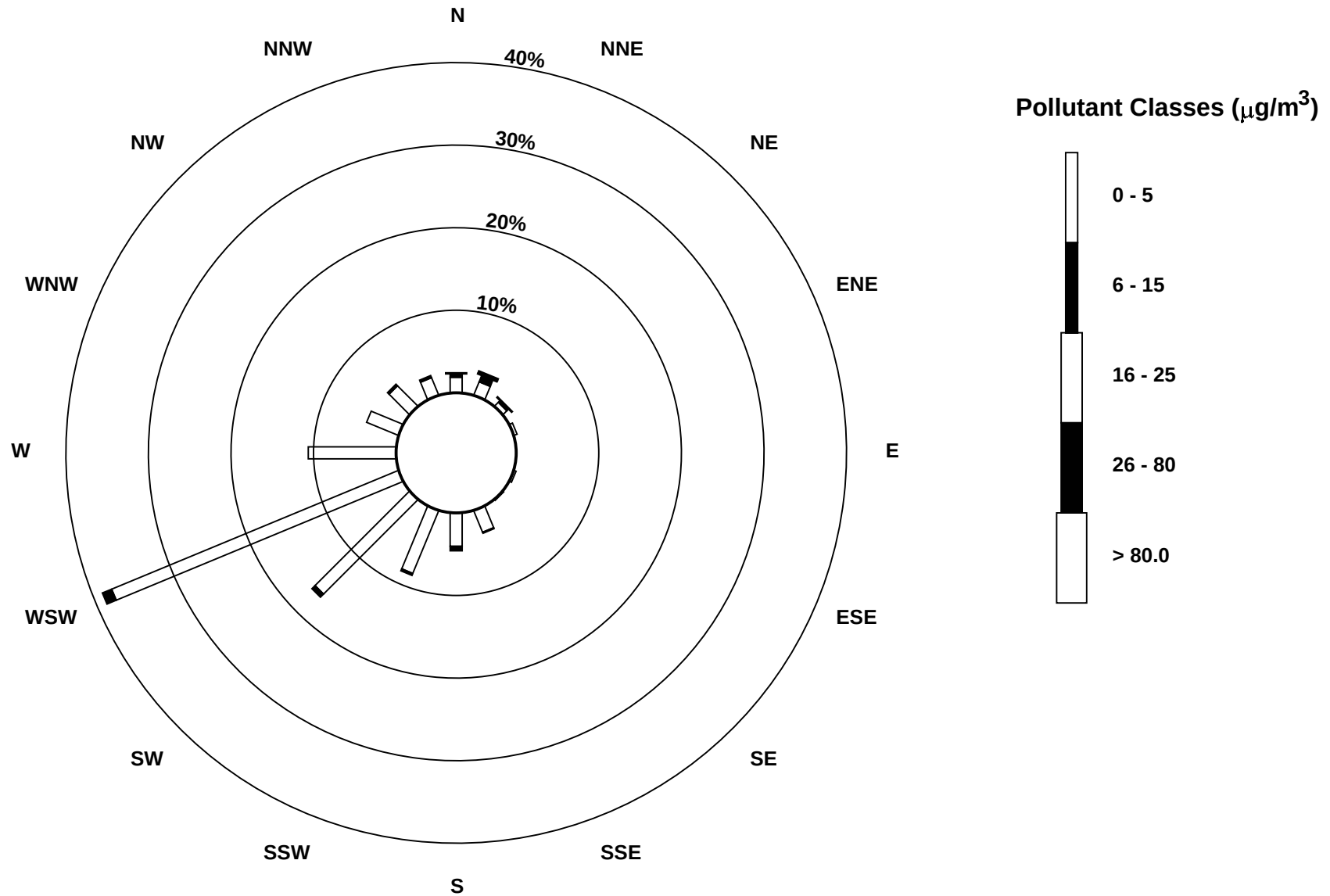
Hourly Maximums

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Smoky Heights - December 2011



Pollutant Rose

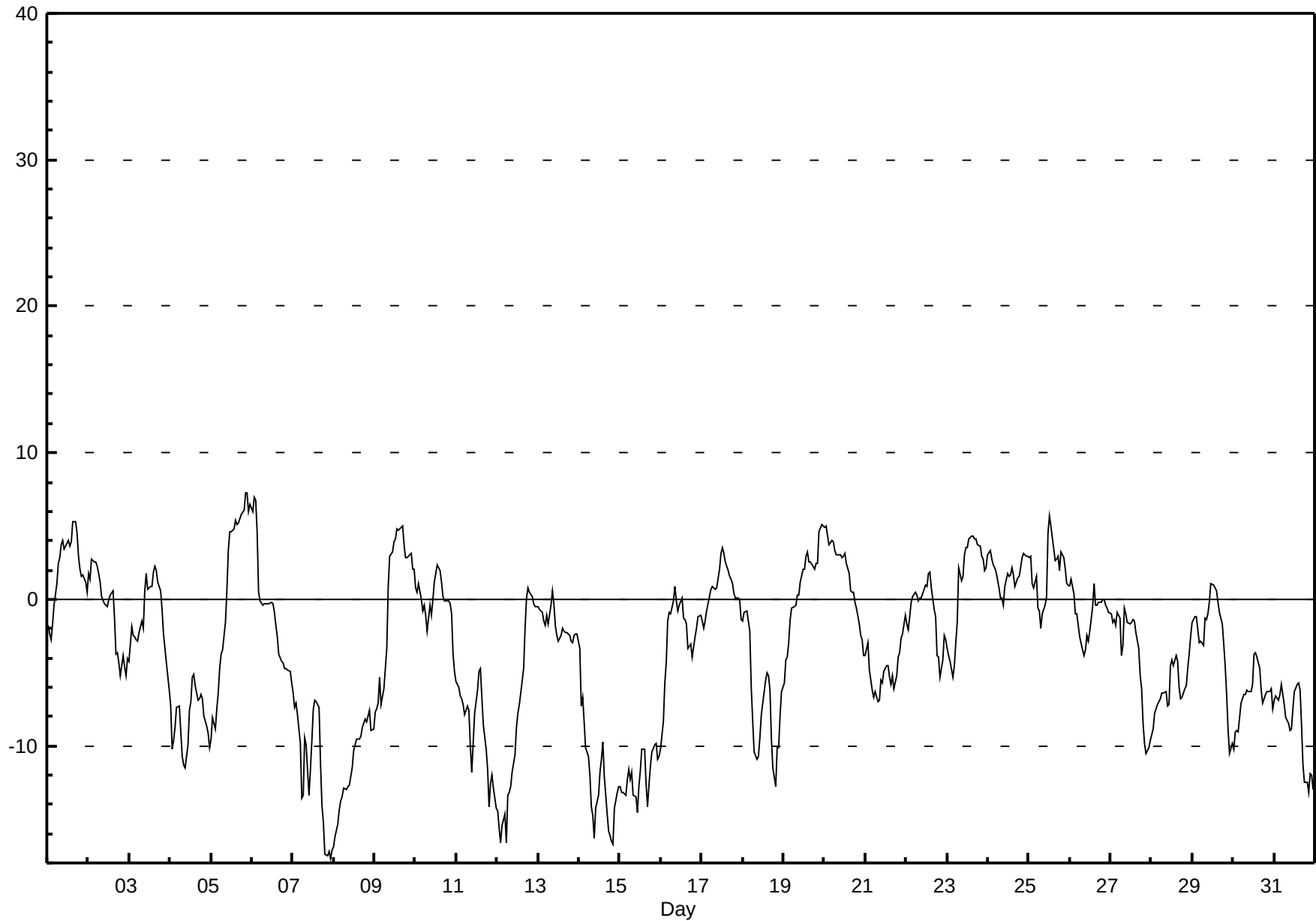
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Smoky Heights - December 2011



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7.3 °C on Dec 5 21:00 Maximum Daily Average: 2.0 °C on Dec 1																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -18 °C on Dec 7 23:00 Maximum Diurnal Average: -1.4 °C at hour 15 Monthly Average: -3.53 °C										Minimum Daily Average: -12.3 °C on Dec 14 Minimum Diurnal Average: -4.4 °C at hour 24 Percentiles: P ₁ = -16.7 P ₁₀ = -11.7 Q ₁ = -7.2 Median = -2.5 Q ₃ = 0.7 P ₉₀ = 3.0 P ₉₉ = 5.9																
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	-2	-2	-3	-2	0	1	2	3	4	4	3	4	4	4	4	5	5	5	3	2	2	2	1	1	2.0	5.3
2-Dec	2	1	3	3	3	2	2	1	0	0	0	-1	0	0	1	-1	-4	-4	-4	-5	-4	-5	-5	-4	-0.8	2.7
3-Dec	-4	-2	-3	-3	-3	-3	-2	-1	-2	1	2	1	1	1	2	2	2	1	1	-1	-2	-3	-4	-6	-1.1	2.3
4-Dec	-7	-10	-10	-9	-7	-7	-9	-11	-11	-11	-10	-8	-7	-5	-5	-6	-7	-7	-6	-7	-8	-9	-9	-10	-8.2	-5.1
5-Dec	-10	-8	-9	-7	-6	-5	-4	-3	-2	1	3	5	5	5	5	5	5	6	6	6	7	7	6	6	1.0	7.3
6-Dec	6	7	7	5	1	0	0	0	0	0	0	0	0	-1	-2	-3	-4	-4	-4	-5	-5	-5	-5	-6	-0.8	7.0
7-Dec	-6	-7	-7	-8	-10	-14	-13	-9	-10	-13	-12	-10	-7	-7	-7	-7	-11	-14	-15	-17	-18	-17	-18	-17	-11.5	-6.4
8-Dec	-17	-16	-15	-14	-14	-13	-13	-13	-13	-13	-12	-12	-10	-10	-10	-10	-9	-9	-8	-8	-8	-8	-9	-9	-11.3	-7.6
9-Dec	-8	-7	-7	-5	-7	-6	-5	-3	1	3	3	4	4	5	5	5	4	3	3	3	3	3	2	2	0.2	5.0
10-Dec	1	0	1	0	-1	0	-1	-2	0	-1	0	1	2	2	2	1	0	0	0	0	0	-1	-4	-5	-0.2	2.4
11-Dec	-6	-6	-7	-7	-7	-8	-7	-8	-10	-12	-10	-8	-6	-5	-5	-7	-9	-10	-12	-14	-13	-12	-13	-14	-8.9	-4.7
12-Dec	-14	-16	-17	-15	-15	-17	-13	-13	-13	-12	-11	-9	-8	-7	-6	-5	-2	0	1	1	0	0	-1	-1	-8.0	0.8
13-Dec	0	-1	-1	-1	-2	-1	-2	0	1	0	-2	-2	-3	-3	-2	-2	-2	-2	-2	-3	-3	-2	-2	-2	-1.7	0.6
14-Dec	-3	-7	-7	-8	-10	-11	-12	-14	-15	-16	-14	-13	-12	-11	-10	-12	-15	-16	-16	-17	-17	-14	-13	-13	-12.3	-3.4
15-Dec	-13	-13	-13	-13	-12	-12	-12	-12	-13	-14	-15	-13	-12	-10	-10	-13	-14	-13	-11	-10	-10	-10	-11	-11	-12.1	-9.8
16-Dec	-10	-8	-6	-4	-2	-1	-1	0	1	0	-1	0	0	-1	-1	-2	-3	-3	-4	-3	-3	-2	-1	-1	-2.4	0.9
17-Dec	-1	-2	-1	-1	0	1	1	1	1	1	2	3	3	3	3	2	2	1	1	0	0	0	0	-1	0.7	3.5
18-Dec	-1	-1	-1	-1	-2	-6	-8	-10	-11	-11	-9	-8	-7	-6	-5	-5	-6	-10	-12	-13	-10	-10	-8	-6	-7.0	-0.8
19-Dec	-6	-4	-4	-3	-1	-1	-1	0	0	0	1	2	2	3	3	3	3	2	2	2	2	5	5	5	0.9	5.1
20-Dec	5	5	4	4	4	4	3	3	3	3	3	3	3	2	2	1	1	0	0	-1	-2	-2	-3	-4	1.7	5.0
21-Dec	-4	-3	-5	-5	-6	-7	-6	-7	-7	-6	-6	-5	-4	-5	-5	-6	-5	-6	-5	-4	-4	-3	-2	-1	-4.9	-1.1
22-Dec	-2	-2	-1	0	0	1	0	0	0	0	1	1	1	2	2	1	-1	-1	-4	-4	-5	-4	-3	-3	-0.9	1.9
23-Dec	-3	-4	-4	-5	-5	-3	-2	2	1	2	3	4	4	4	4	4	4	4	4	4	3	3	2	2	1.1	4.3
24-Dec	3	3	3	2	2	2	1	0	0	0	1	2	2	2	2	2	1	1	2	2	3	3	3	3	1.8	3.3
25-Dec	3	3	1	1	2	-1	-1	-2	-1	0	0	5	6	5	4	3	3	3	2	3	3	2	1	1	1.8	5.7
26-Dec	1	1	0	-1	-1	-2	-3	-3	-4	-3	-3	-3	-2	0	1	0	0	0	0	0	0	0	-1	-1	-1.0	1.3
27-Dec	-1	-2	-1	-2	-1	-1	-4	-3	-1	-1	-2	-2	-2	-1	-1	-2	-3	-5	-6	-8	-10	-11	-10	-10	-3.7	-0.6
28-Dec	-9	-9	-8	-7	-7	-7	-6	-6	-6	-7	-7	-5	-4	-4	-4	-4	-6	-7	-7	-6	-6	-5	-4	-3	-6.0	-2.6
29-Dec	-2	-1	-1	-2	-3	-3	-3	-1	-1	-1	0	1	1	1	1	0	-1	-2	-3	-5	-7	-9	-11	-10	-2.6	1.1
30-Dec	-10	-9	-9	-9	-7	-7	-6	-7	-6	-6	-6	-6	-4	-4	-4	-5	-6	-7	-7	-7	-6	-6	-6	-7	-6.6	-3.6
31-Dec	-7	-7	-7	-6	-6	-6	-7	-8	-8	-9	-9	-7	-6	-6	-6	-6	-9	-11	-12	-12	-13	-12	-12	-13	-8.6	-5.8
																									Diurnal Average	
																									Diurnal Maximum	

Hourly Averages

External Temperature (ET) - °C
Smoky Heights - December 2011



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Smoky Heights - December 2011

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 Spd	31	27	17	23	28	38	48	44	42	41	27	26	17	13	19	30	45	58	51	58	54	58	51	45	36.3	58.0
Dir	261	247	213	243	248	251	247	247	251	248	227	222	212	236	221	244	256	251	248	244	245	254	262	260	247.1	244.4
2 Spd	40	33	40	44	48	43	48	44	39	29	29	29	26	17	19	21	18	22	22	20	21	17	21	18	26.3	48.3
Dir	272	261	282	292	300	304	309	314	317	315	301	293	289	265	238	240	246	244	248	243	246	243	260	249	282.1	309.4
3 Spd	16	25	27	23	23	21	19	14	10	20	26	23	5	2	32	27	34	29	34	27	24	19	17	7	15.4	33.9
Dir	229	262	257	259	259	258	258	273	200	318	332	358	12	116	317	304	318	320	320	356	10	4	2	312	306.7	320.1
4 Spd	12	10	13	12	9	11	6	9	12	8	9	13	13	14	10	13	17	16	17	18	18	15	15	12	11.5	17.8
Dir	314	269	271	263	258	260	244	232	233	246	212	221	227	203	229	235	258	254	253	246	241	205	216	215	241.2	246.4
5 Spd	15	18	15	18	16	21	25	20	25	24	32	37	28	30	40	42	34	36	40	39	56	38	27	19	28.2	56.0
Dir	220	206	221	208	220	228	215	218	233	239	239	251	241	245	258	254	240	240	240	235	246	254	224	237	237.8	245.9
6 Spd	21	35	36	20	24	15	17	14	16	17	18	18	17	14	13	14	10	6	8	1	3	3	7	10	11.8	36.2
Dir	239	249	250	309	349	329	311	288	284	285	294	297	306	332	341	345	346	335	343	352	264	300	329	8	300.0	249.7
7 Spd	8	7	8	8	9	10	13	15	12	11	10	12	9	14	10	5	2	6	8	12	7	9	9	9	6.8	15.1
Dir	357	331	329	320	286	244	268	312	304	259	257	263	302	337	345	9	232	199	255	266	211	231	244	235	283.5	311.8
8 Spd	10	10	11	10	8	9	6	8	7	6	6	7	7	5	6	6	7	7	9	10	9	11	12	12	7.4	12.3
Dir	192	232	235	223	218	198	200	190	149	166	170	201	221	168	151	180	200	235	237	242	232	231	237	218	211.2	236.9
9 Spd	12	18	20	20	11	11	14	15	24	30	33	38	34	34	28	28	17	12	13	17	17	16	11	13	18.0	38.4
Dir	203	190	198	219	160	174	188	196	253	259	261	258	260	256	257	254	248	229	250	256	257	256	252	250	241.5	257.9
10 Spd	10	6	9	5	6	9	9	12	19	18	20	25	21	24	24	20	17	15	13	13	10	13	19	18	11.1	24.6
Dir	260	252	212	233	243	254	245	229	250	255	255	260	254	275	293	296	298	286	289	288	310	356	26	25	277.8	260.4
11 Spd	13	14	14	9	4	3	4	3	3	7	6	7	9	9	7	8	7	7	7	6	7	5	6	6	1.6	14.3
Dir	27	18	22	29	29	18	27	58	231	216	241	219	215	208	187	170	172	202	247	230	232	214	236	244	230.7	18.5
12 Spd	6	5	4	4	4	4	5	7	7	6	6	11	11	9	8	16	24	33	42	41	42	39	35	38	16.3	42.0
Dir	250	207	222	251	263	231	231	237	227	220	200	208	200	208	203	215	227	231	244	245	249	252	253	246	237.5	249.0
13 Spd	41	33	32	26	25	31	22	25	25	7	5	5	5	4	3	5	6	6	7	5	6	11	12	11	12.5	40.6
Dir	249	247	248	249	261	254	255	272	273	211	148	102	141	170	19	352	333	295	289	266	240	299	296	307	259.8	249.4
14 Spd	9	10	5	6	10	8	6	9	10	7	6	12	7	6	5	7	7	7	9	9	7	7	7	9	7.3	12.2
Dir	267	267	256	209	237	225	268	249	255	230	244	262	217	221	237	259	252	205	269	270	265	271	268	268	250.6	262.3
15 Spd	2	6	5	5	3	2	5	4	2	5	4	5	5	4	5	4	7	9	10	6	11	11	11	11	3.8	11.3
Dir	320	30	21	12	357	147	226	251	75	226	205	210	176	153	201	215	222	226	255	243	216	218	219	226	224.1	215.6
16 Spd	13	13	20	22	34	38	35	33	36	28	23	23	22	15	7	9	7	6	7	9	10	10	16	13	17.8	37.5
Dir	231	228	236	251	256	258	260	261	260	261	262	263	257	228	173	185	224	240	228	241	223	224	237	241	248.4	258.0
17 Spd	9	7	5	7	4	7	8	8	8	6	10	14	7	3	4	2	1	4	4	5	2	2	1	1	3.7	14.3
Dir	239	221	216	243	251	221	214	213	207	203	233	254	278	198	229	234	287	35	45	61	43	39	313	274	232.3	254.0
18 Spd	1	1	1	1	1	1	1	1	1	1	1	1	1	6	14	17	15	7	8	12	12	8	16	23	5.4	22.6
Dir	297	303	334	335	322	244	245	245	272	264	267	246	211	250	249	241	238	200	251	243	231	209	187	188	226.4	188.2
19 Spd	24	22	23	23	23	27	25	19	15	19	20	25	30	26	20	13	11	11	12	15	10	24	22	28	19.5	30.2
Dir	188	195	197	206	225	229	224	208	231	220	225	228	230	232	228	200	207	174	195	192	227	220	239	235	217.2	230.1
20 Spd	35	39	32	31	33	35	29	33	34	33	30	27	28	35	28	26	18	17	2	2	4	3	5	4	22.1	38.7
Dir	233	239	237	241	245	244	242	242	238	236	244	249	256	259	260	259	286	330	346	313	310	312	289	263	249.4	238.9
21 Spd	3	3	6	8	8	5	5	5	5	5	18	29	29	32	22	19	14	17	20	26	30	34	32	42	16.9	41.9
Dir	260	278	259	226	253	259	258	257	245	255	248	248	246	246	229	214	202	212	232	250	249	257	253	252	243.7	251.6
22 Spd	25	29	23	36	49	59	48	45	48	42	44	34	30	30	41	27	19	16	13	12	14	11	17	15	29.2	58.9
Dir	241	241	250	259	252	258	256	256	258	254	256	257	252	261	258	239	209	200	264	263	256	206	203	247	250.4	257.8



Hourly Averages

Wind Speed (km/h)

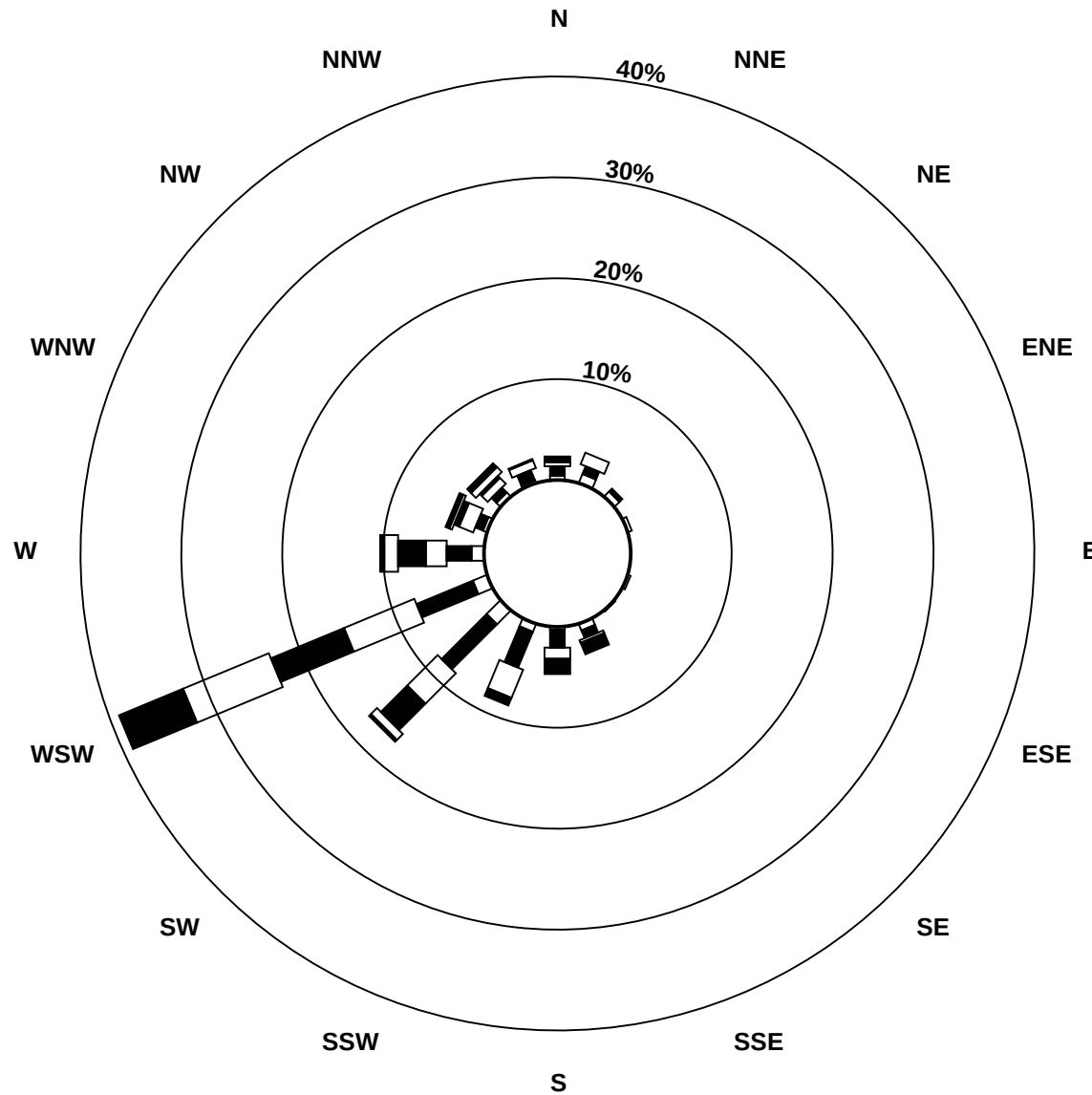
Wind Direction (deg)

Smoky Heights - December 2011

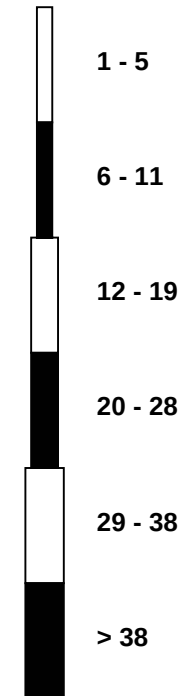
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
23 Spd	13	16	15	16	21	22	30	41	30	35	48	58	52	47	49	59	63	63	44	36	22	26	22	26	34.9	63.1					
Dir	245	246	233	239	226	244	220	215	224	224	238	243	242	243	246	248	247	250	253	256	221	246	228	236	239.9	247.5					
24 Spd	26	30	40	41	32	35	27	25	27	26	25	30	29	25	19	16	14	13	13	19	17	22	28	21	21.4	40.8					
Dir	239	246	245	241	243	246	242	249	252	241	247	253	245	220	196	192	194	176	165	168	170	169	172	178	225.1	240.7					
25 Spd	26	16	16	15	22	17	6	13	16	20	23	19	9	9	6	7	3	12	13	22	30	32	33	37	14.3	37.2					
Dir	178	169	198	185	219	246	48	280	307	265	208	219	230	287	315	246	277	272	240	237	245	244	245	247	236.2	247.0					
26 Spd	31	44	33	24	27	28	29	32	33	30	31	24	15	18	18	22	25	26	27	27	26	25	24	27	20.9	43.7					
Dir	244	248	253	258	253	242	246	248	258	254	245	251	245	223	186	187	171	161	162	166	168	169	162	159	219.7	248.1					
27 Spd	23	20	25	23	25	23	18	19	38	54	54	61	54	54	50	30	25	16	16	10	10	16	13	10	24.8	60.9					
Dir	168	197	181	180	166	159	221	227	252	245	240	243	247	254	253	259	266	233	222	251	259	255	267	240	234.3	243.0					
28 Spd	8	4	7	3	3	3	5	4	6	6	6	8	10	10	10	8	11	15	12	11	13	12	15	12	5.8	14.9					
Dir	234	243	222	266	328	205	159	39	31	29	167	167	184	189	184	218	248	254	253	255	247	238	249	257	231.9	253.9					
29 Spd	12	11	14	17	13	23	19	28	34	31	34	40	38	42	41	33	31	35	21	20	10	12	11	11	24.0	42.2					
Dir	247	260	239	209	235	238	253	244	236	241	251	242	242	240	242	246	249	243	245	243	230	252	239	278	243.0	239.8					
30 Spd	5	6	7	5	6	10	9	10	15	18	16	15	10	8	9	10	8	7	7	9	12	13	15	17	4.1	18.4					
Dir	281	231	258	227	360	22	33	37	33	32	31	23	35	354	349	353	5	221	235	259	263	240	242	253	333.6	31.8					
31 Spd	22	22	27	28	31	29	27	24	21	19	21	24	30	28	24	23	16	15	17	16	18	20	20	20	22.4	30.9					
Dir	246	239	248	248	250	249	247	245	254	248	251	256	259	261	253	254	247	257	252	253	262	264	261	261	252.5	249.7					
Spd	13.5	14.6	14.8	14.1	14.4	16.2	15.1	15.5	16.6	16.6	17.4	19.2	17.2	16.3	15.1	14.8	13.6	14.1	13.9	14.0	14.2	13.9	13.3	13.8	Diurnal Average						
Dir	239.1	240.2	240.6	245.0	250.7	249.0	249.5	250.5	255.2	251.6	248.7	250.7	247.3	247.0	249.5	246.2	247.8	242.0	247.4	244.7	242.6	243.5	242.4	242.6	Diurnal Maximum						
Spd	40.6	43.7	40.0	43.6	48.5	58.9	48.3	44.6	47.9	53.9	54.3	60.9	54.3	54.1	49.5	59.0	63.1	63.1	50.7	58.0	56.0	57.6	50.8	45.2	Diurnal Maximum						
Dir	249.4	248.1	244.8	292.2	252.4	257.8	309.4	256.3	258.1	244.6	240.1	243.0	247.1	253.8	253.2	248.0	247.5	249.6	248.4	244.4	245.9	254.2	261.9	260.3							
Maximum Speed Value: 63 km/h on Dec 23 17:00																					Minimum Speed Value: 1 km/h on Dec 6 20:00					Hours in Service:				744	
Maximum Daily Speed Average: 36.3 km/h on Dec 1																					Minimum Daily Speed Average: 1.6 km/h on Dec 17					Hours of Data:				744	
Maximum Diurnal Speed Average: 19.2 km/h at hour 12																					Minimum Diurnal Speed Average: 13.3 km/h at hour 23					Hours of Missing Data:				0	
Monthly Average Velocity: 15.05 km/h 246.65 deg																					Speed Percentiles: P ₁ = 1.0 P ₁₀ = 4.9 Q ₁ = 8.2 Median = 15.5 Q ₃ = 26.3 P ₉₀ = 36.1 P ₉₉ = 57.9					Percent Operational Time:				100.0	
All monthly, daily, and diurnal averages have been calculated using vector methods																															
Frequency Distribution																															
Speed Range (km/h)																															
Direction	0 to 5		5 to 11		11 to 19		19 to 28		28 to 38		> 38		Total																		
North	8		13		7		4		0		0		32																		
NorthEast	9		8		6		1		0		0		24																		
East	1		1		0		0		0		0		2																		
SouthEast	5		2		0		0		0		0		7																		
South	4		27		23		23		1		0		78																		
SouthWest	21		86		72		58		42		27		306																		
West	19		41		52		47		46		33		238																		
NorthWest	12		13		14		6		7		5		57																		
Total	79		191		174		139		96		65		744																		

Wind Rose

Wind Speed (WS) (km/h)
Smoky Heights - December 2011



Wind Speed Classes (km/h)



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Smoky Heights - December 2011

Maximum Speed: 63 km/h on Dec 23 17:00																				Maximum Daily Speed Average: 37.3 km/h on Dec 1					Hours in Service: 744	
Minimum Speed: 1 km/h on Dec 18 12:00																				Minimum Daily Speed Average: 5.8 km/h on Dec 17					Hours of Data: 744	
Maximum Diurnal Speed Average: 22.8 km/h at hour 12																				Minimum Diurnal Speed Average: 17.1 km/h at hour 1					Hours of Missing Data: 0	
Monthly Average Speed: 18.74 km/h																				Percentiles: P ₁ = 1.0 P ₁₀ = 5.4 Q ₁ = 8.7 Median = 15.7 Q ₃ = 26.4 P ₉₀ = 36.1 P ₉₉ = 58.0					Percent Operational Time: 100.0	
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	31	27	18	25	28	38	48	44	43	42	27	26	17	13	19	30	46	58	51	58	54	58	51	45	37.3	58.1
2-Dec	40	33	40	44	48	44	49	45	39	29	29	29	26	18	19	21	18	22	22	20	21	17	21	18	29.7	48.6
3-Dec	17	26	27	23	23	21	19	15	12	22	27	23	8	7	32	27	34	29	34	29	24	19	18	9	21.9	34.4
4-Dec	12	10	13	12	10	11	6	9	12	8	9	13	13	14	10	13	17	16	17	18	18	15	15	13	12.8	17.9
5-Dec	15	18	15	18	16	21	25	21	25	24	32	37	28	30	40	43	35	37	41	39	56	38	28	20	29.2	56.2
6-Dec	21	35	36	29	24	15	18	14	16	17	18	18	17	15	13	14	11	7	8	4	4	3	8	11	15.7	36.3
7-Dec	8	7	8	8	9	10	13	15	12	11	10	12	11	14	10	5	3	6	8	12	8	9	9	9	9.5	15.2
8-Dec	10	10	11	10	8	9	7	8	7	6	7	7	7	5	6	6	7	7	9	10	9	11	12	12	8.4	12.3
9-Dec	13	18	20	20	11	11	15	15	24	30	33	38	34	34	28	28	17	13	14	18	17	16	12	13	20.5	38.4
10-Dec	10	7	9	6	6	10	11	12	19	18	20	25	22	25	24	20	17	15	13	13	10	14	19	18	15.1	24.7
11-Dec	13	14	14	9	4	3	4	3	4	7	7	7	9	9	8	8	8	7	7	6	7	6	6	6	7.3	14.3
12-Dec	6	5	4	4	4	4	5	7	7	6	7	11	12	9	9	16	24	33	42	41	42	39	35	38	17.1	42.1
13-Dec	41	33	32	26	25	31	23	25	25	10	7	6	6	4	3	5	6	6	8	5	6	11	12	11	15.3	40.7
14-Dec	9	10	6	7	10	9	7	9	10	8	6	12	8	6	6	7	7	8	9	9	7	7	7	9	8.0	12.2
15-Dec	3	6	5	5	3	3	5	5	3	5	5	5	6	5	5	4	7	9	10	7	11	11	11	11	6.3	11.4
16-Dec	13	13	20	23	34	38	35	33	36	28	23	23	22	16	9	10	7	7	7	9	10	10	16	13	18.9	37.6
17-Dec	9	8	6	8	4	8	8	8	8	7	10	14	8	5	4	3	2	4	4	5	2	3	1	1	5.8	14.4
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	6	14	17	15	7	8	12	12	9	16	23	6.3	22.7
19-Dec	25	23	23	23	23	28	25	20	15	19	21	25	30	26	20	13	12	11	12	15	11	24	23	28	20.6	30.2
20-Dec	35	39	32	31	33	35	29	33	34	33	30	27	29	35	28	26	19	19	2	2	4	3	5	4	23.6	38.8
21-Dec	3	3	6	9	8	5	5	5	5	5	18	30	29	32	22	20	14	17	20	26	31	34	32	42	17.6	42.0
22-Dec	25	29	23	36	49	59	48	45	48	42	44	34	30	30	42	27	21	17	14	12	14	11	17	16	30.5	59.1
23-Dec	14	16	17	17	23	22	30	41	30	35	48	58	52	47	49	59	63	63	45	36	24	26	22	26	35.9	63.3
24-Dec	26	30	40	41	33	35	27	25	27	26	25	30	29	25	19	17	14	13	19	19	17	22	29	21	25.4	40.9
25-Dec	27	17	17	15	23	17	15	17	18	21	24	19	10	10	9	7	7	12	13	22	30	32	33	37	18.8	37.3
26-Dec	32	44	33	24	27	29	29	32	33	31	31	24	15	20	18	22	25	26	27	27	26	26	24	27	27.2	43.9
27-Dec	23	21	25	24	26	23	21	20	39	54	54	61	55	54	50	30	25	17	16	11	11	16	13	12	29.1	61.0
28-Dec	9	5	7	4	3	4	6	5	7	6	7	8	10	11	10	10	11	15	13	11	13	13	15	12	8.9	15.3
29-Dec	12	11	15	17	14	23	20	28	34	32	34	40	38	42	41	34	31	35	21	20	13	13	12	11	24.6	42.2
30-Dec	6	6	7	5	6	10	9	10	15	18	16	15	10	9	9	10	9	9	8	9	12	13	15	17	10.6	18.4
31-Dec	22	22	27	29	31	29	27	25	21	19	21	24	30	28	24	23	16	15	17	16	18	20	20	20	22.6	31.0
17.1 17.6 18.0 17.8 18.3 19.5 19.0 19.2 20.3 20.1 21.0 22.8 20.1 19.5 19.3 18.6 17.6 18.1 17.3 17.5 17.6 17.7 18.0 17.8																									Diurnal Average	
40.7 43.9 40.1 43.7 48.7 59.1 48.6 44.8 48.0 54.2 54.4 61.0 54.5 54.3 49.6 59.2 63.3 63.2 50.8 58.1 56.2 57.8 50.9 45.3																									Diurnal Maximum	
All monthly, daily, and diurnal averages have been calculated using scalar methods																										

Hourly Standard Deviations

Wind Direction (WD) - deg

Smoky Heights - December 2011

Maximum Value: 89.2 deg on Dec 6 20:00																			Hours in Service: 744						
Minimum Value: 2.3 deg on Dec 16 10:00																			Hours of Data: 744						
																			Hours of Missing Data: 0						
Percentiles: P ₁ = 2.8 P ₁₀ = 3.6 Q ₁ = 4.9 Median = 8.0 Q ₃ = 14.8 P ₉₀ = 26.4 P ₉₉ = 64.7																			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	3	9	9	21	8	4	3	3	6	7	5	4	8	10	8	13	4	5	4	4	4	3	3	3	21.2
2-Dec	8	4	8	5	5	6	6	7	6	7	9	5	5	19	9	9	8	6	5	3	4	6	4	6	19.3
3-Dec	22	4	3	3	4	7	9	8	40	46	11	15	65	66	7	7	11	8	7	21	8	9	11	51	65.7
4-Dec	16	18	14	5	17	6	23	11	10	16	15	13	9	8	11	6	4	3	3	8	4	10	7	10	23.5
5-Dec	6	8	4	5	11	5	4	13	3	7	6	4	7	6	3	5	5	4	6	7	6	6	8	8	13.0
6-Dec	9	4	5	48	10	14	11	9	11	6	6	7	8	20	12	13	13	18	25	89	33	39	27	15	89.2
7-Dec	11	16	6	11	22	8	15	6	21	9	7	5	33	11	12	29	63	15	15	3	29	19	14	8	63.3
8-Dec	12	14	9	5	13	8	13	9	20	13	21	13	19	13	12	10	11	7	6	7	8	9	4	8	21.4
9-Dec	10	5	9	9	13	7	13	11	18	3	3	3	5	4	4	3	7	9	15	4	5	10	16	9	17.7
10-Dec	9	35	14	23	16	13	37	7	4	4	3	4	6	18	7	6	5	6	5	4	17	24	6	5	37.0
11-Dec	7	4	5	10	9	26	30	20	63	6	15	14	9	10	18	17	24	17	12	7	9	15	14	11	62.6
12-Dec	8	18	11	13	10	12	11	10	6	13	11	9	6	21	22	6	5	5	5	3	4	5	5	4	22.1
13-Dec	4	4	4	7	3	3	4	6	4	42	42	23	40	31	26	10	8	11	9	29	15	14	11	9	42.1
14-Dec	12	7	21	35	6	10	36	20	8	20	19	4	27	13	17	9	18	18	12	5	7	6	13	10	36.0
15-Dec	46	18	17	42	26	73	34	57	52	28	29	27	33	36	11	27	12	6	7	20	8	7	7	10	73.5
16-Dec	6	6	11	4	3	2	3	3	3	2	4	3	3	13	38	17	11	25	9	14	6	12	5	10	37.7
17-Dec	9	26	26	23	14	18	13	17	8	9	15	8	43	56	27	61	56	41	20	9	31	54	40	17	61.2
18-Dec	16	7	9	6	27	10	16	15	12	7	8	15	15	30	7	5	11	16	18	9	8	20	6	6	29.9
19-Dec	9	8	5	8	12	7	7	18	12	5	5	5	4	5	7	15	18	7	9	12	14	8	10	8	17.8
20-Dec	4	4	4	5	5	6	4	3	4	3	4	3	5	3	3	3	14	29	16	6	6	5	12	11	29.3
21-Dec	13	11	22	19	6	6	3	6	3	6	4	7	5	4	10	8	6	6	9	4	7	10	3	4	22.4
22-Dec	5	3	8	3	5	5	4	4	3	4	4	4	5	4	5	10	28	25	11	12	18	17	18	17	28.1
23-Dec	14	17	24	17	18	9	6	4	3	5	6	3	3	5	5	4	4	3	5	5	22	7	6	5	24.1
24-Dec	4	5	4	4	4	3	4	4	5	3	5	4	6	13	10	12	10	17	56	17	8	6	5	6	56.3
25-Dec	7	6	17	10	21	15	76	41	32	18	15	13	10	23	50	21	79	15	12	5	4	4	3	4	78.7
26-Dec	5	4	4	4	4	3	5	7	4	3	4	9	10	24	6	5	6	5	6	5	4	12	5	3	24.3
27-Dec	8	16	4	5	7	4	31	20	19	6	4	4	5	4	3	4	6	11	6	18	21	6	11	32	31.8
28-Dec	25	72	13	22	32	44	45	25	26	18	50	11	8	14	7	30	7	5	5	12	7	10	16	12	72.5
29-Dec	10	6	30	10	7	8	9	4	3	4	7	5	3	3	4	4	6	4	12	5	37	17	17	7	37.2
30-Dec	32	12	8	36	20	6	13	7	5	4	5	7	8	23	12	12	31	33	27	10	14	5	6	7	35.6
31-Dec	5	7	3	6	4	3	5	4	5	8	9	4	3	4	3	3	6	8	4	5	3	4	4	4	8.5
45.7 72.5 29.5 48.2 32.4 73.5 76.0 57.2 62.6 46.2 50.2 26.5 65.2 65.7 49.8 61.2 78.7 40.8 56.3 89.2 37.2 53.7 39.6 51.0																									

PAZA
Beaverlodge Station
Monthly Summary Tables, Graphs and
Roses

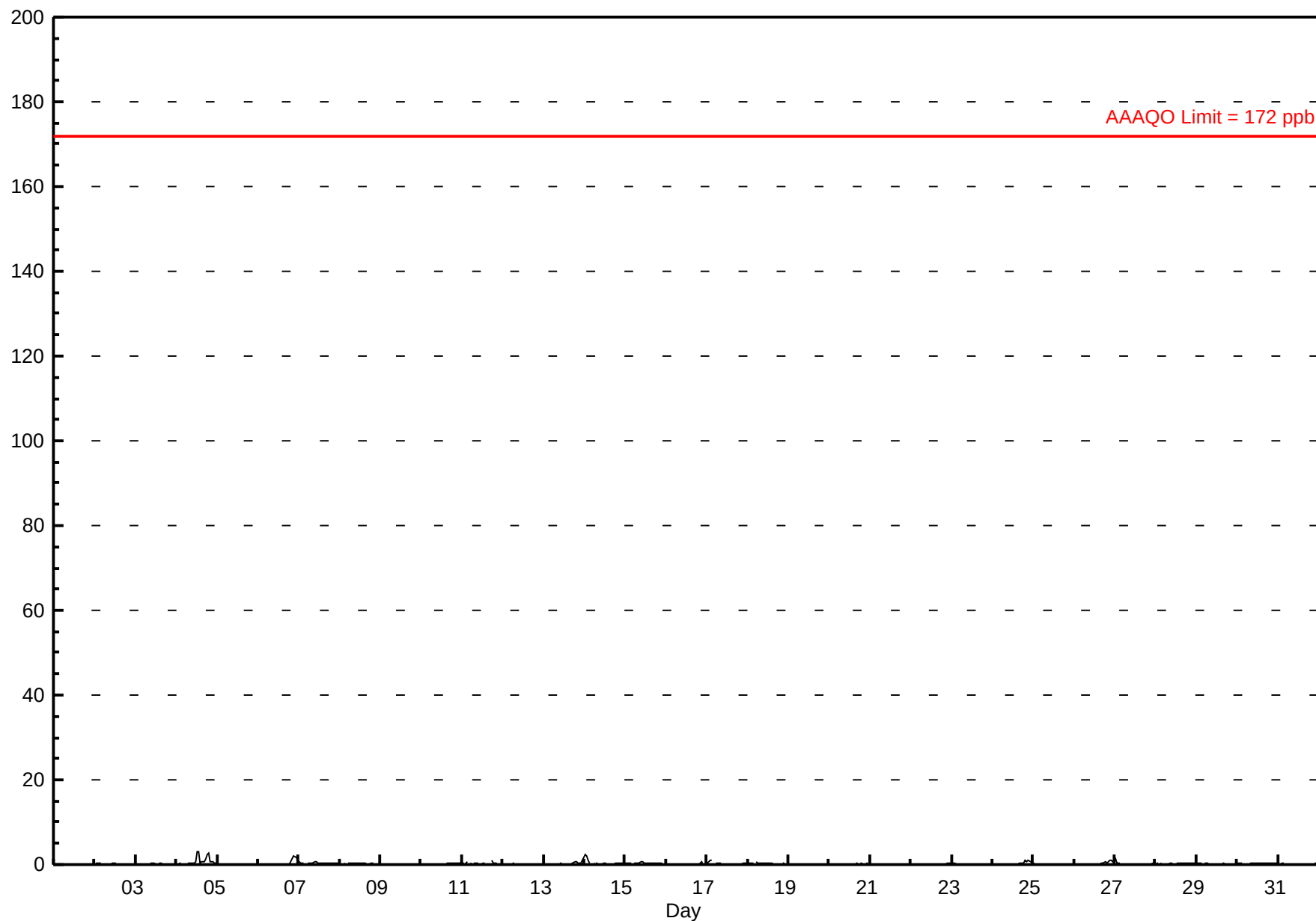
Hourly Averages

Sulphur Dioxide (SO₂) - ppb Beaverlodge - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744						
Maximum Value: 3.1 ppb on Dec 4 13:00																				Maximum Daily Average: 0.8 ppb on Dec 4		Hours of Data: 710				
Minimum Value: 0 ppb on Dec 26 04:00																				Hours of Missing Data: 34						
Maximum Diurnal Average: 0.3 ppb at hour 22																				Hours of Calibration: 34						
Monthly Average: 0.20 ppb																				Percent Operational Time: 100.0						
Minimum Daily Average: 0.0 ppb on Dec 21																										
Minimum Diurnal Average: 0.1 ppb at hour 8																										
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.4 P ₉₉ = 2.0																										
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	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	0.1
2-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
3-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
4-Dec	0	0	0	0	A	0	0	0	0	0	0	1	3	3	0	1	1	1	3	3	1	1	0	0	0.8	3.1
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	0	0.1	0.2
6-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	1	0.4	2.0
7-Dec	1	0	0	0	A	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.7
8-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
9-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	0.1
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	1	0	0	1	A	0	0	0	0	0	0	0	0	0	C	C	C	1	0	0	0	0	0	0	0.3	1.0
12-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	0.2
13-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.2	0.9
14-Dec	3	2	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	2.5
15-Dec	0	0	0	0	A	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
16-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1	0.5
17-Dec	0	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1.0
18-Dec	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.7
19-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	0.1
20-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	0.2
21-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	0.1
22-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
23-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
24-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0.3	1.2
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	0.1	0.2
26-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0.2	0.9
27-Dec	1	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	1.3
28-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	0.3	0.5
29-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	0.4
30-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	0.3	0.4
31-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
0.3 0.2 0.2 0.2 -- 0.1 0.1 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.1 0.1 0.2 0.2 0.3 0.3 0.3 0.3 0.2 0.2																									Diurnal Average	
2.5 2.1 1.0 1.0 -- 0.7 0.4 0.5 0.5 0.7 0.6 0.6 3.1 2.9 0.4 0.7 0.8 1.4 2.5 2.6 1.5 2.0 1.7 1.0																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb																										

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - December 2011



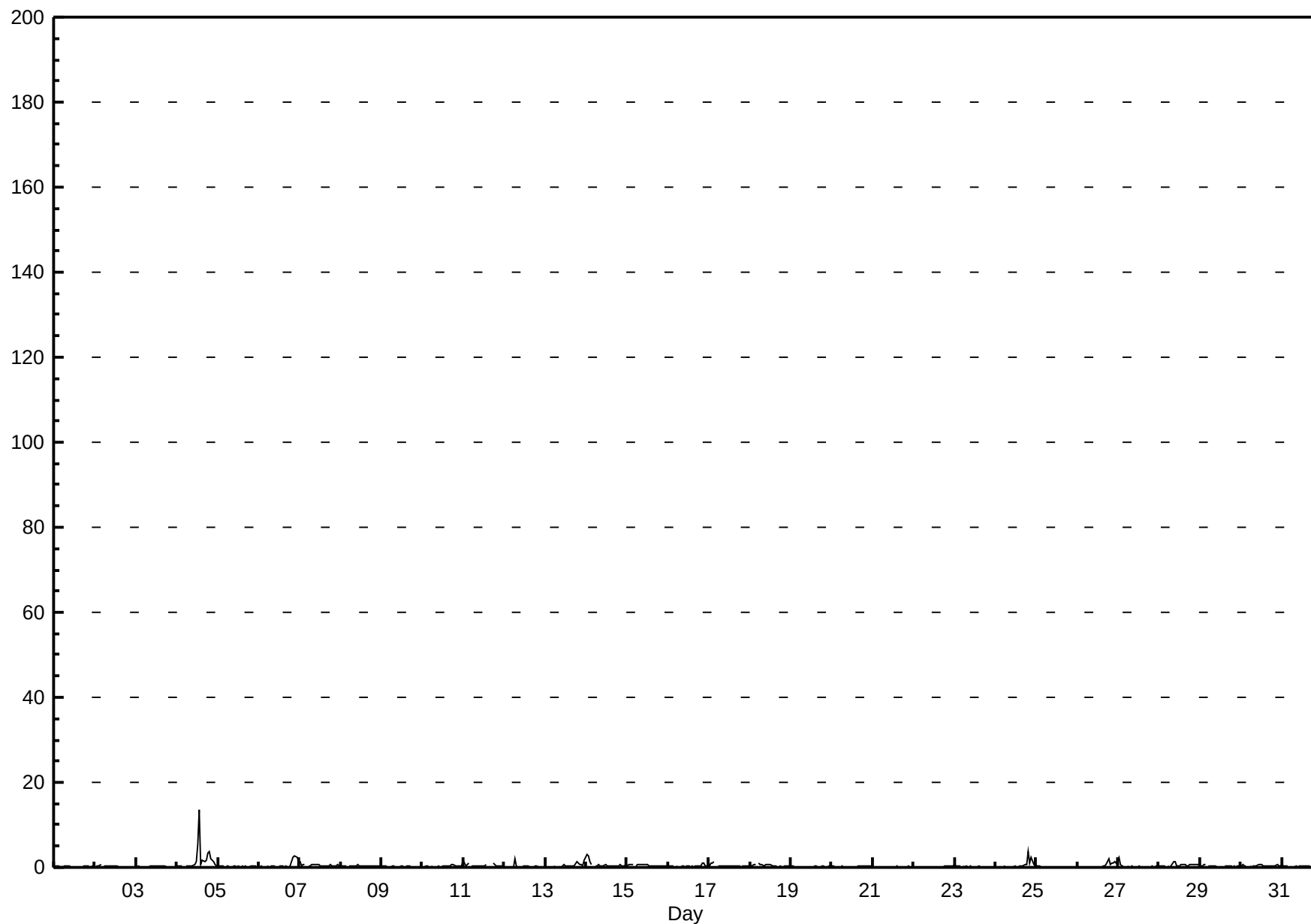
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb Beaverlodge - December 2011

Maximum Value: 13.5 ppb on Dec 4 14:00																				Maximum Daily Average: 1.8 ppb on Dec 4					Hours in Service: 744	
Minimum Value: 0 ppb on Dec 22 00:00																				Minimum Daily Average: 0.1 ppb on Dec 21					Hours of Data: 710	
Maximum Diurnal Average: 0.7 ppb at hour 14																				Minimum Diurnal Average: 0.2 ppb at hour 8					Hours of Missing Data: 34	
Monthly Average: 0.37 ppb																				Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 2.5					Hours of Calibration: 34	
																				Percent Operational Time: 100.0						
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	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
2-Dec	0	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
3-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.5
4-Dec	0	0	0	0	A	0	0	0	0	0	1	1	5	13	1	2	1	2	3	4	2	1	1	0	1.8	13.5
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	0	0.2	0.3
6-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	2	1	0.6	2.7
7-Dec	1	0	1	1	A	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0.6	1.5
8-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.7
9-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	0.2
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0.3	0.5
11-Dec	2	0	1	1	A	0	0	0	0	0	0	0	0	1	C	C	C	1	1	0	0	0	0	0	0.5	1.8
12-Dec	0	0	0	0	A	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	2.0
13-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0	2	0.4	1.7
14-Dec	3	3	1	1	A	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0.6	3.1
15-Dec	0	1	1	1	A	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0.5	0.7
16-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	0.3	0.9
17-Dec	0	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.3
18-Dec	0	0	1	1	A	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0.4	1.1
19-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	0.2
20-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
21-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	0.2
22-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
23-Dec	1	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	0.6
24-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	1	2	1	1	0.5	3.7
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	0.1	0.4
26-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	0.5	2.1
27-Dec	2	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	2.4
28-Dec	0	0	0	0	A	0	0	0	1	1	0	0	0	1	1	1	0	0	1	1	1	1	1	1	0.5	1.2
29-Dec	0	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.8
30-Dec	0	1	0	0	A	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0.4	0.6
31-Dec	1	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	0.6
0.5 0.4 0.4 0.4 -- 0.3 0.3 0.2 0.3 0.3 0.3 0.3 0.4 0.7 0.3 0.3 0.3 0.3 0.5 0.6 0.5 0.5 0.4 0.4																									Diurnal Average	
3.1 2.7 1.5 1.3 -- 1.1 2.0 0.8 1.2 1.2 0.7 1.2 5.4 13.5 0.7 1.8 1.4 1.8 3.3 3.9 2.4 2.7 2.3 1.7																									Diurnal Maximum	
C - Calibration																									A - Automated Daily Zero Span	

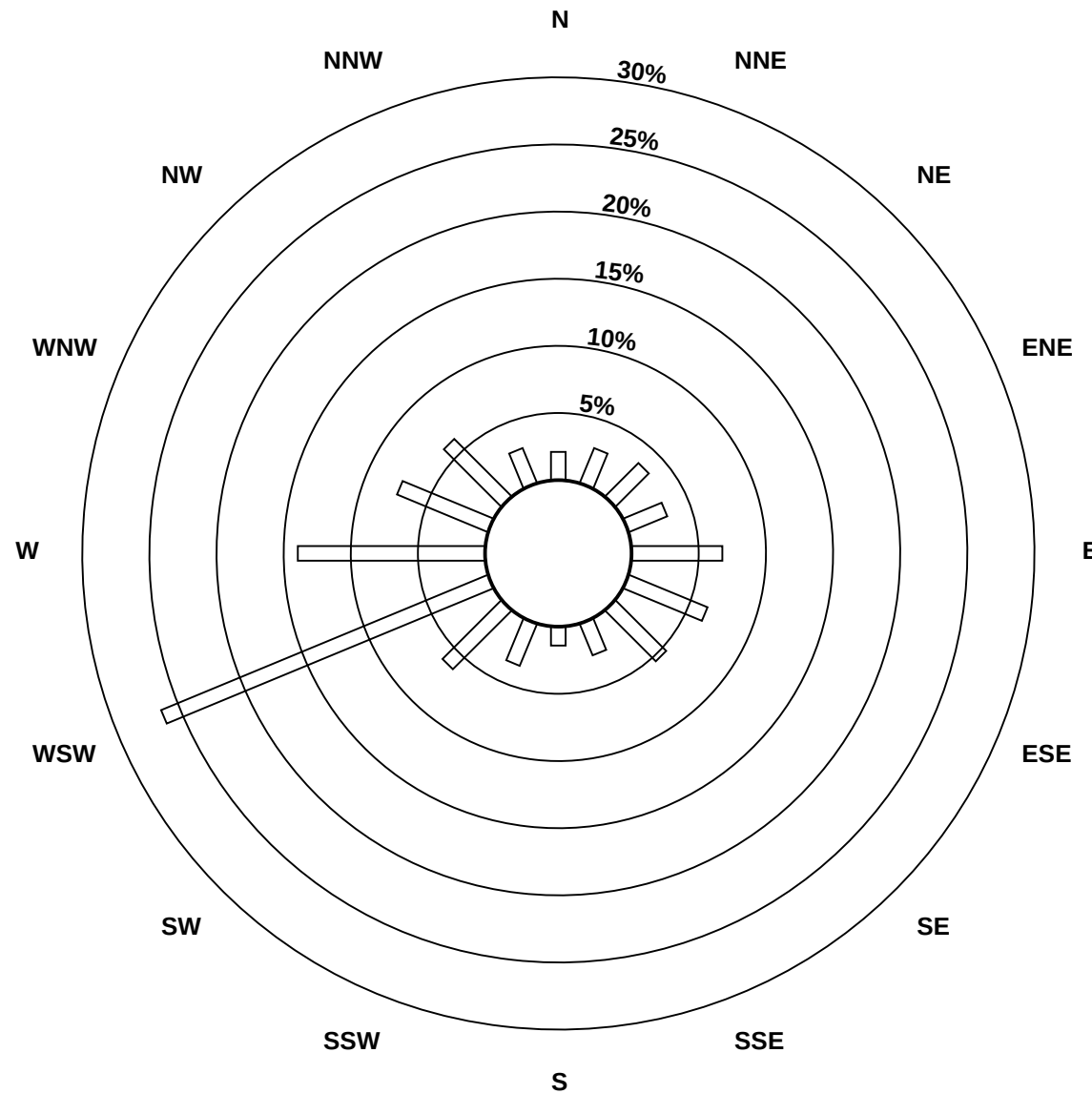
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - December 2011

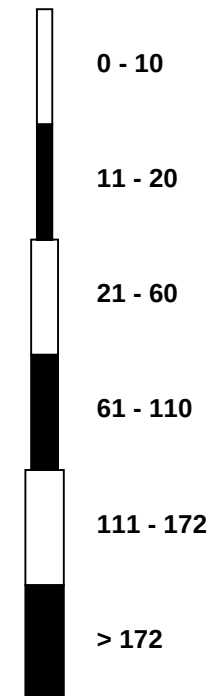


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - December 2011

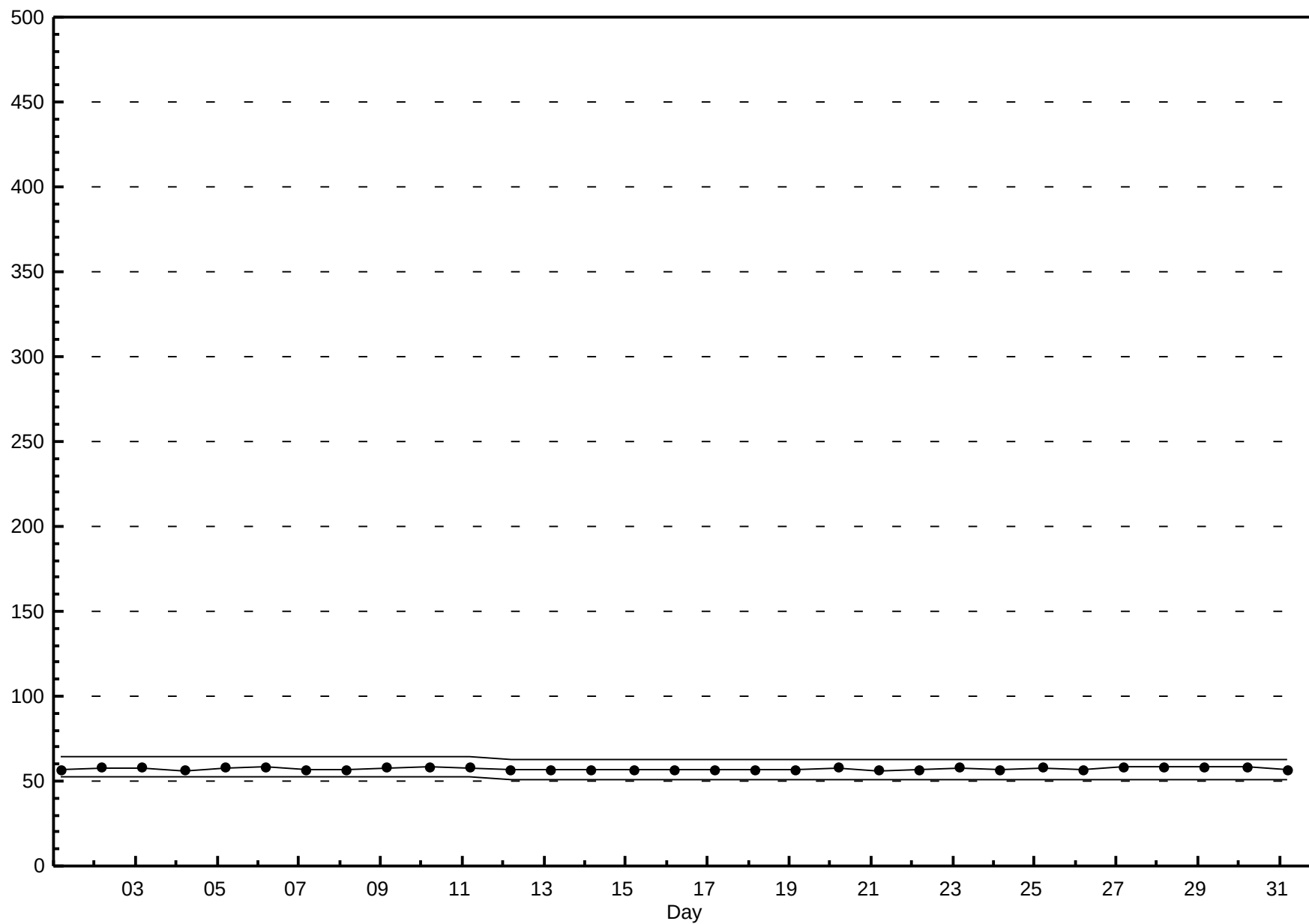


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Beaverlodge - December 2011



Hourly Averages

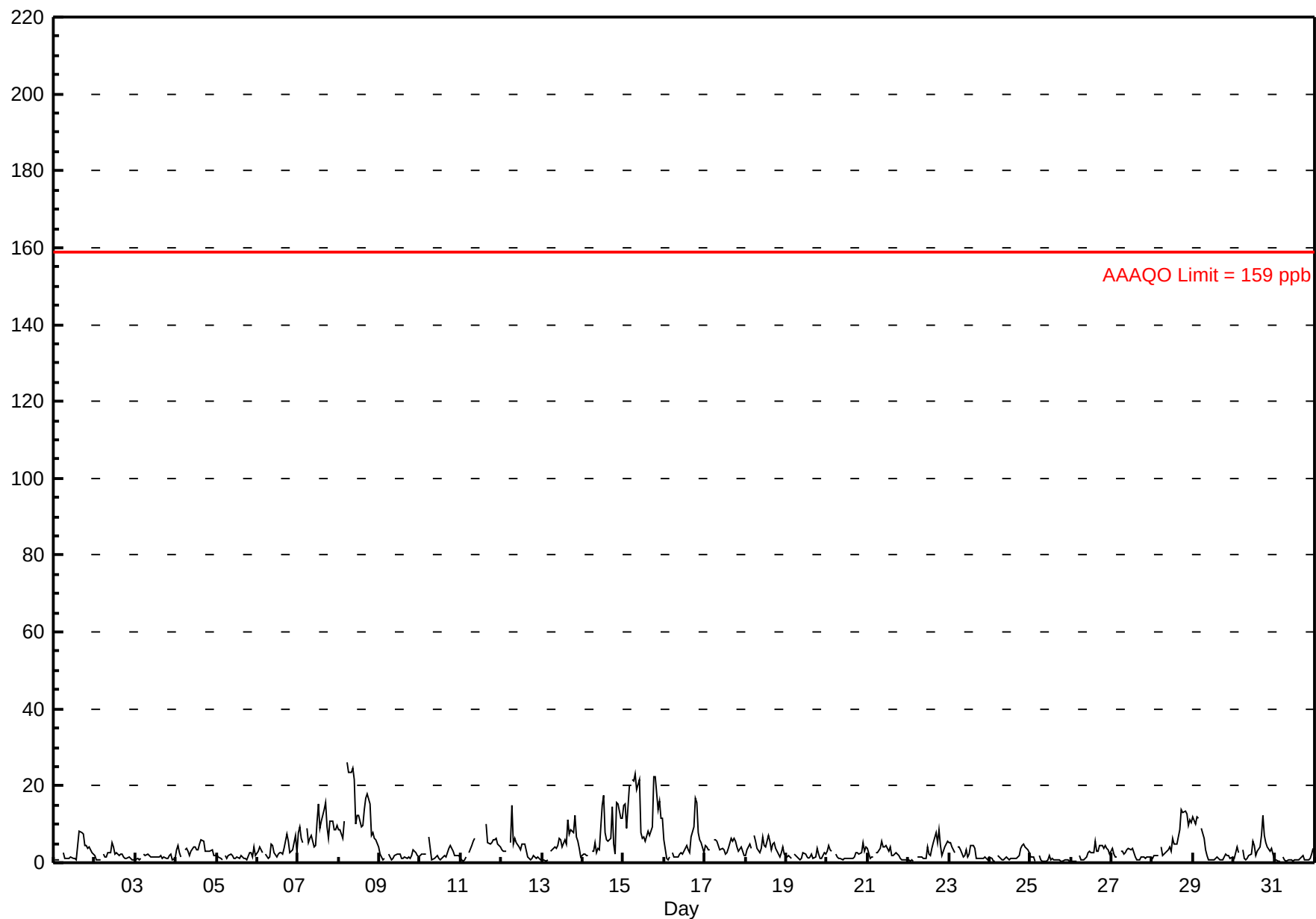
Nitrogen Dioxide (NO₂) - ppb

Beaverlodge - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 26.1 ppb on Dec 8 06:00 Maximum Daily Average: 14.0 ppb on Dec 15																				Hours in Service: 744 Hours of Data: 707						
Minimum Value: 0 ppb on Dec 25 20:00 Minimum Daily Average: 0.8 ppb on Dec 25 Maximum Diurnal Average: 5.3 ppb at hour 18 Minimum Diurnal Average: 2.7 ppb at hour 3 Monthly Average: 3.91 ppb Percentiles: P ₁ = 0.4 P ₁₀ = 0.8 Q ₁ = 1.3 Median = 2.5 Q ₃ = 4.7 P ₉₀ = 8.7 P ₉₉ = 22.0																				Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
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	1	1	1	1	A	3	1	1	1	1	1	1	1	1	4	8	8	8	4	4	4	4	3	2	2.8	8.1
2-Dec	2	1	1	1	A	2	1	2	2	3	5	4	2	3	2	2	2	1	1	1	1	1	1	1	1.9	5.3
3-Dec	1	1	1	1	A	2	2	2	2	1	1	2	2	2	1	2	1	1	1	1	2	2	1	1	1.4	2.3
4-Dec	3	5	3	2	A	3	4	3	2	3	4	4	3	3	5	6	6	3	3	3	3	3	2	2	3.3	5.8
5-Dec	2	2	1	1	A	2	1	2	2	2	1	1	2	1	2	2	1	1	1	3	3	1	4	2	1.7	4.2
6-Dec	3	4	3	2	A	2	1	2	5	5	3	1	2	3	3	2	4	8	5	3	3	3	7	3	3.3	7.5
7-Dec	8	9	6	5	A	9	5	6	7	4	5	11	15	9	11	14	15	9	6	11	11	9	9	10	8.8	15.5
8-Dec	9	8	6	11	A	26	23	23	25	22	10	12	12	9	10	14	17	18	15	7	8	6	6	4	13.1	26.1
9-Dec	2	2	1	1	A	2	1	1	1	2	2	2	2	1	1	1	1	1	1	2	3	2	2	2	1.7	3.3
10-Dec	2	2	2	2	A	7	4	1	1	1	2	1	1	1	2	2	2	4	5	3	2	2	2	2	2.3	6.7
11-Dec	1	0	1	1	A	3	5	6	6	C	C	C	C	C	C	10	5	5	5	6	6	6	5	4	--	10.0
12-Dec	3	3	3	3	A	5	15	5	6	5	4	3	5	5	5	1	1	1	1	2	1	1	1	1	3.5	14.9
13-Dec	1	1	0	1	A	3	4	4	4	4	6	6	4	6	5	11	7	9	8	12	7	6	4	1	5.0	12.4
14-Dec	2	2	2	2	A	3	3	5	2	4	3	15	18	8	6	6	6	14	5	2	16	15	11	12	7.1	17.6
15-Dec	15	15	9	20	A	21	21	23	19	22	8	6	7	6	8	7	8	9	22	22	14	16	12	12	14.0	23.1
16-Dec	6	1	1	1	A	3	1	2	2	2	3	2	4	4	3	3	7	9	17	16	8	6	5	3	4.7	16.6
17-Dec	4	4	4	3	A	6	6	6	4	3	4	3	2	3	4	6	6	6	6	4	3	4	3	2	4.2	6.2
18-Dec	2	4	5	4	A	7	5	4	2	4	7	5	4	7	5	3	5	5	4	2	2	3	4	2	4.1	7.1
19-Dec	1	2	1	1	A	2	1	1	1	1	3	2	2	1	1	2	1	1	4	2	1	1	3	2	1.7	3.6
20-Dec	3	4	4	3	A	2	1	1	1	1	1	1	1	1	1	1	2	2	3	2	3	5	3	4	2.2	5.4
21-Dec	4	1	2	1	A	3	3	4	6	4	4	5	3	4	2	2	2	2	2	1	1	1	1	1	2.5	5.6
22-Dec	1	1	1	1	A	2	1	2	1	1	1	4	2	2	4	5	8	5	9	5	2	4	5	6	3.1	8.6
23-Dec	5	5	4	3	A	4	4	3	2	2	3	1	2	5	5	4	1	1	1	1	1	1	1	1	2.6	5.2
24-Dec	1	1	1	0	A	2	1	1	1	1	1	1	1	1	1	1	1	2	4	4	5	4	3	3	1.8	4.9
25-Dec	2	1	1	0	A	2	1	0	0	0	1	2	1	1	1	1	1	1	0	0	1	1	1	1	0.8	1.8
26-Dec	0	0	0	0	A	2	1	1	1	1	2	3	3	3	6	3	3	5	4	4	4	4	3	2	2.5	5.5
27-Dec	4	2	2	2	A	3	3	2	3	3	4	4	4	3	1	1	1	2	2	1	1	1	2	1	2.2	3.9
28-Dec	1	2	2	2	A	4	2	2	3	3	4	3	6	5	5	7	9	14	13	13	13	10	11	11	6.3	13.7
29-Dec	12	10	12	12	A	9	7	3	2	1	1	1	1	1	2	1	1	1	2	2	2	2	1	1	3.7	12.0
30-Dec	1	3	4	3	A	3	1	1	1	2	2	6	4	2	3	4	7	12	7	5	4	3	4	2	3.7	12.4
31-Dec	1	1	1	0	A	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	4	1.1	3.9
3.3 3.1 2.7 2.9 -- 4.8 4.2 3.8 3.8 3.7 3.3 3.8 3.9 3.3 3.6 4.3 4.5 5.3 5.2 4.7 4.3 4.2 3.9 3.3 Diurnal Average																										
14.8 15.2 12.0 20.3 -- 26.1 23.4 23.4 24.7 21.8 10.0 14.7 17.6 9.4 10.7 13.8 16.6 17.8 22.2 22.5 15.7 16.0 11.5 11.7 Diurnal Maximum																										
C - Calibration A - Automated Daily Zero Span																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb 24-hr 106 ppb																										

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - December 2011



Hourly Maximums

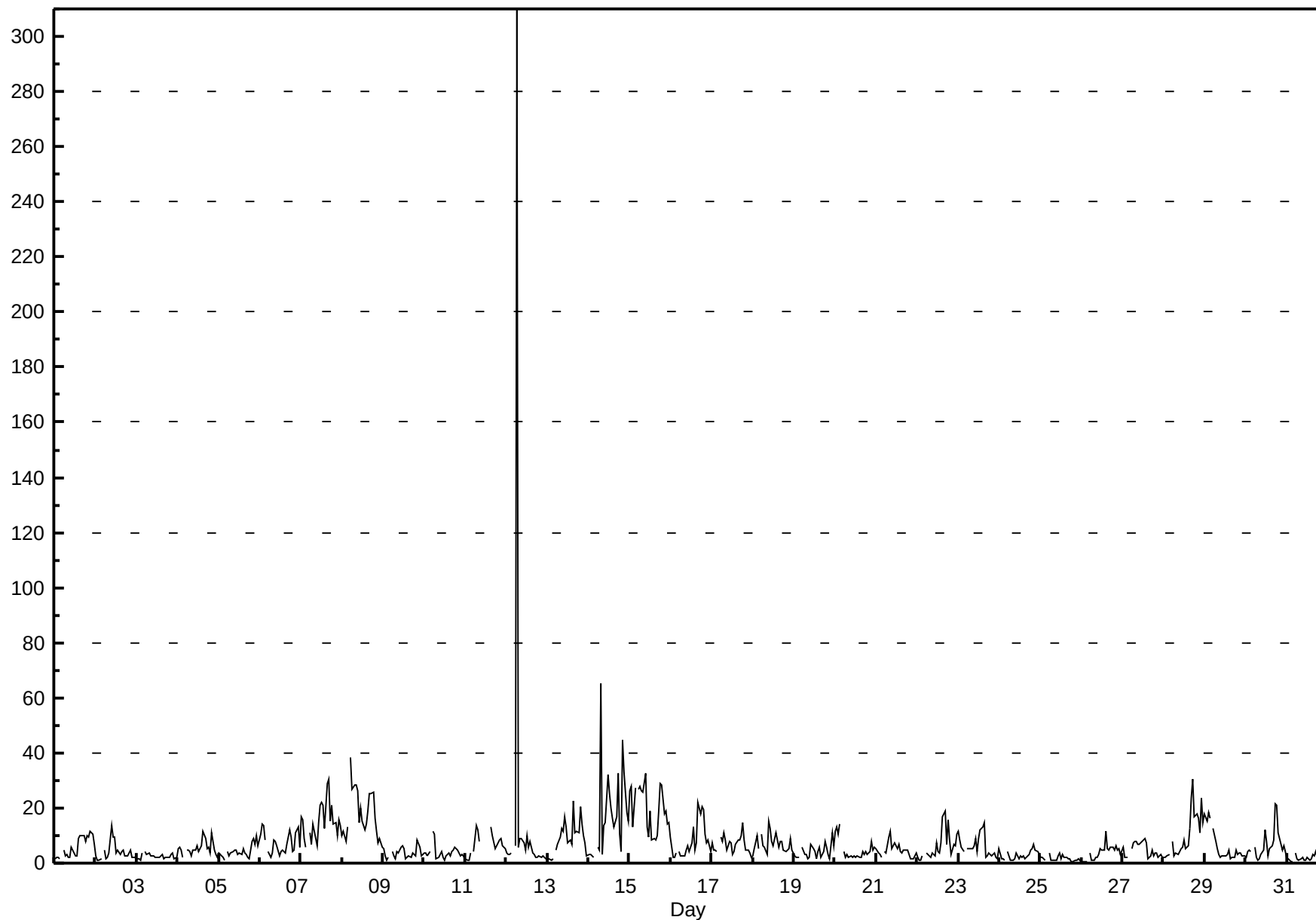
Nitrogen Dioxide (NO₂) - ppb

Beaverlodge - December 2011

Maximum Value: 309.8 ppb on Dec 12 07:00																				Maximum Daily Average: 19.7 ppb on Dec 15					Hours in Service: 744	
Minimum Value: 1 ppb on Dec 26 04:00																				Minimum Daily Average: 1.7 ppb on Dec 25					Hours of Data: 707	
Maximum Diurnal Average: 15.7 ppb at hour 7																				Minimum Diurnal Average: 4.4 ppb at hour 3					Hours of Missing Data: 37	
Monthly Average: 7.35 ppb																				Percentiles: P ₁ = 0.7 P ₁₀ = 1.7 Q ₁ = 2.6 Median = 4.6 Q ₃ = 8.7 P ₉₀ = 15.1 P ₉₉ = 32.5					Hours of Calibration: 37	
																				Percent Operational Time: 100.0						
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	1	2	2	2	A	5	2	3	2	2	6	4	3	3	9	10	10	10	8	10	10	11	10	7	5.7	11.3
2-Dec	3	1	1	2	A	5	2	2	4	14	10	9	4	5	3	4	5	3	2	3	5	2	2	2	4.0	13.7
3-Dec	2	1	1	4	A	4	3	4	3	2	3	2	2	2	3	3	2	2	2	2	3	4	2	2	2.5	4.3
4-Dec	5	6	5	2	A	5	5	4	2	5	5	6	4	5	6	12	9	5	6	4	11	5	3	2	5.3	11.7
5-Dec	4	3	2	1	A	4	2	4	4	5	4	3	3	3	5	4	3	2	2	8	9	7	10	6	4.3	10.0
6-Dec	11	14	14	8	A	4	2	4	9	8	6	3	4	5	4	4	7	12	9	4	5	11	13	6	7.2	14.2
7-Dec	17	16	9	6	A	11	7	14	11	6	15	21	22	21	12	29	30	15	21	14	15	10	16	14	15.3	30.3
8-Dec	10	11	8	13	A	38	27	29	29	26	15	20	15	12	14	19	25	25	26	16	12	7	9	6	18.0	38.3
9-Dec	5	3	1	2	A	4	3	1	4	4	6	6	5	2	2	2	3	3	3	8	6	3	3	3	3.6	8.3
10-Dec	4	4	3	4	A	12	10	2	2	3	4	2	1	3	3	3	4	5	6	5	3	3	3	3	4.0	11.6
11-Dec	2	1	1	4	A	4	14	12	8	C	C	C	C	C	C	13	10	5	6	7	9	9	6	5	--	13.9
12-Dec	4	3	3	4	A	6	310	6	9	9	7	5	10	6	8	4	3	2	2	3	2	3	2	1	17.9	309.8
13-Dec	1	1	1	2	A	5	7	9	13	11	17	13	7	8	7	23	11	11	11	21	14	10	7	2	9.3	22.8
14-Dec	3	3	3	2	A	6	5	65	3	14	15	32	25	20	16	13	17	33	11	4	44	33	18	15	17.4	65.3
15-Dec	26	28	13	27	A	27	28	26	26	33	13	9	19	8	9	9	10	19	29	29	18	19	14	15	19.7	32.6
16-Dec	10	2	2	3	A	4	3	3	3	5	7	4	7	13	5	8	22	18	20	20	11	7	8	4	8.2	22.0
17-Dec	7	5	5	4	A	9	8	11	9	5	8	7	3	4	7	8	8	10	14	8	5	5	4	2	6.8	14.5
18-Dec	3	5	10	5	A	11	6	6	3	15	12	8	6	11	9	6	8	8	5	4	5	6	9	5	7.2	15.4
19-Dec	3	2	2	2	A	6	3	3	2	2	7	5	4	2	4	6	2	4	8	6	3	2	11	6	4.1	11.0
20-Dec	12	13	11	14	A	4	2	3	2	3	2	3	2	3	2	2	4	3	4	3	4	8	5	6	5.0	14.2
21-Dec	5	4	3	2	A	4	4	9	12	6	6	8	5	7	4	4	5	5	5	3	2	1	1	4	4.7	11.6
22-Dec	2	1	1	3	A	3	3	3	2	3	3	7	4	4	7	17	19	7	16	9	3	7	6	10	6.2	18.7
23-Dec	11	8	6	4	A	5	5	5	5	6	9	4	9	12	13	15	2	3	4	2	3	3	2	2	6.1	14.6
24-Dec	5	2	2	1	A	4	1	1	1	2	3	2	3	2	3	2	2	3	5	5	7	4	4	3	2.9	6.8
25-Dec	2	2	2	1	A	4	1	1	1	1	2	4	2	3	2	2	2	2	1	1	1	1	1	1	1.7	3.8
26-Dec	1	1	1	1	A	4	1	1	2	2	3	5	5	5	12	5	5	6	6	5	6	5	5	3	3.9	11.8
27-Dec	6	2	2	2	A	5	8	8	8	7	7	8	8	9	7	1	2	5	3	4	3	2	3	2	4.9	9.1
28-Dec	2	2	3	3	A	8	2	4	3	4	5	6	9	5	6	12	24	30	17	18	16	11	23	14	10.0	30.3
29-Dec	18	15	18	16	A	12	8	5	3	2	3	2	3	3	5	2	2	2	5	3	4	4	3	3	6.1	18.4
30-Dec	2	4	5	4	A	6	2	1	2	3	5	12	8	3	5	6	8	21	21	11	9	5	6	4	6.7	21.4
31-Dec	2	2	1	1	A	3	2	1	1	2	1	1	2	1	2	3	3	4	2	3	2	2	4	8	2.3	8.5
6.1 5.4 4.4 4.8 -- 7.5 15.7 8.1 6.0 7.0 6.9 7.4 6.8 6.3 6.5 8.1 8.5 9.2 9.0 7.6 8.1 6.8 7.0 5.5																								Diurnal Average		
26.4 27.7 18.4 27.3 -- 38.3 309.8 65.3 28.6 32.6 17.0 32.1 25.0 21.1 16.1 28.8 30.3 32.5 28.8 28.6 44.4 32.9 23.4 15.3																								Diurnal Maximum		
C - Calibration																								A - Automated Daily Zero Span		

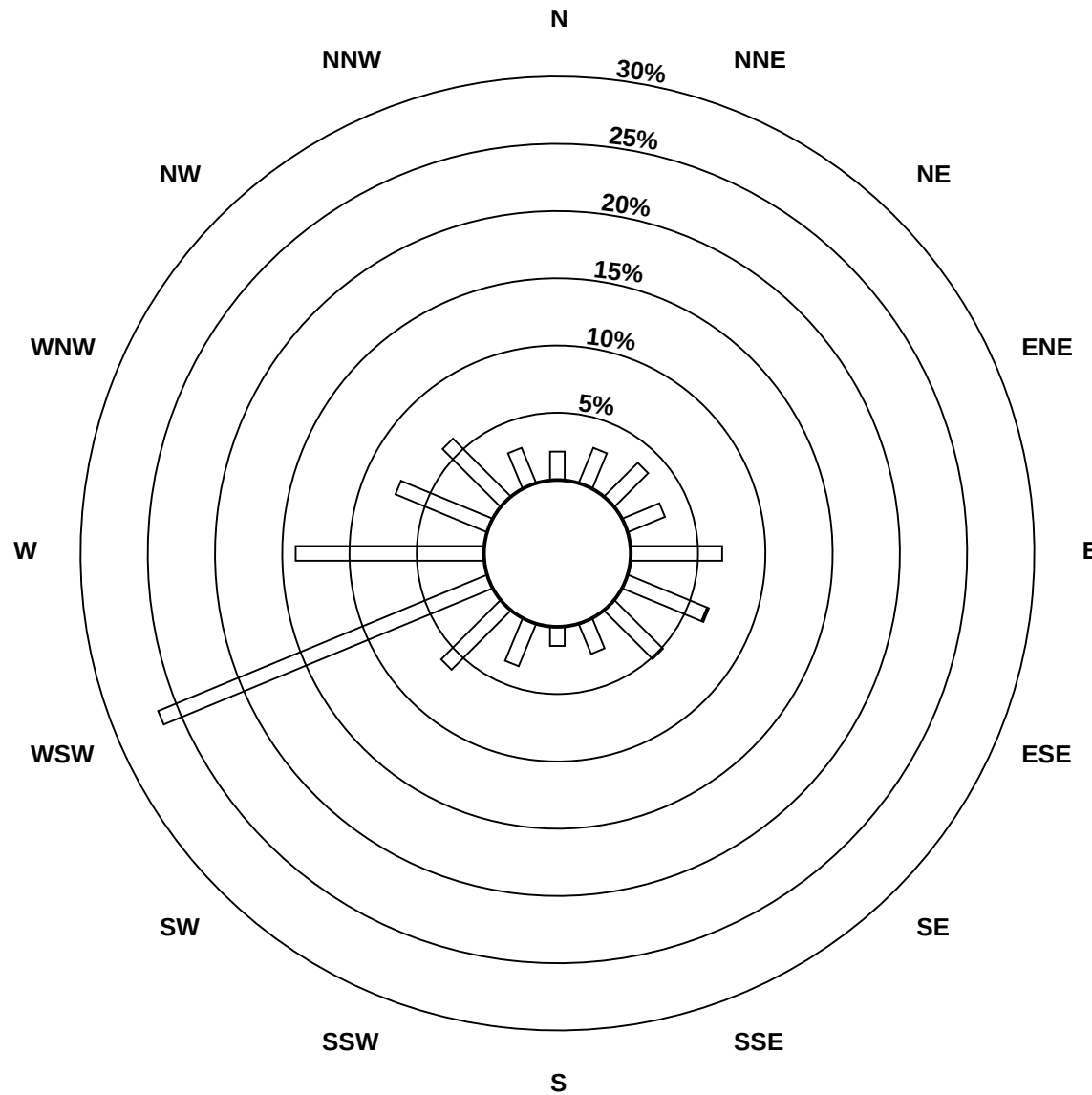
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - December 2011

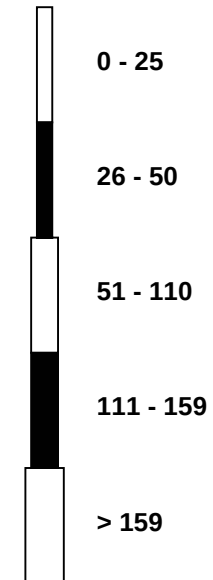


Pollutant Rose

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - December 2011

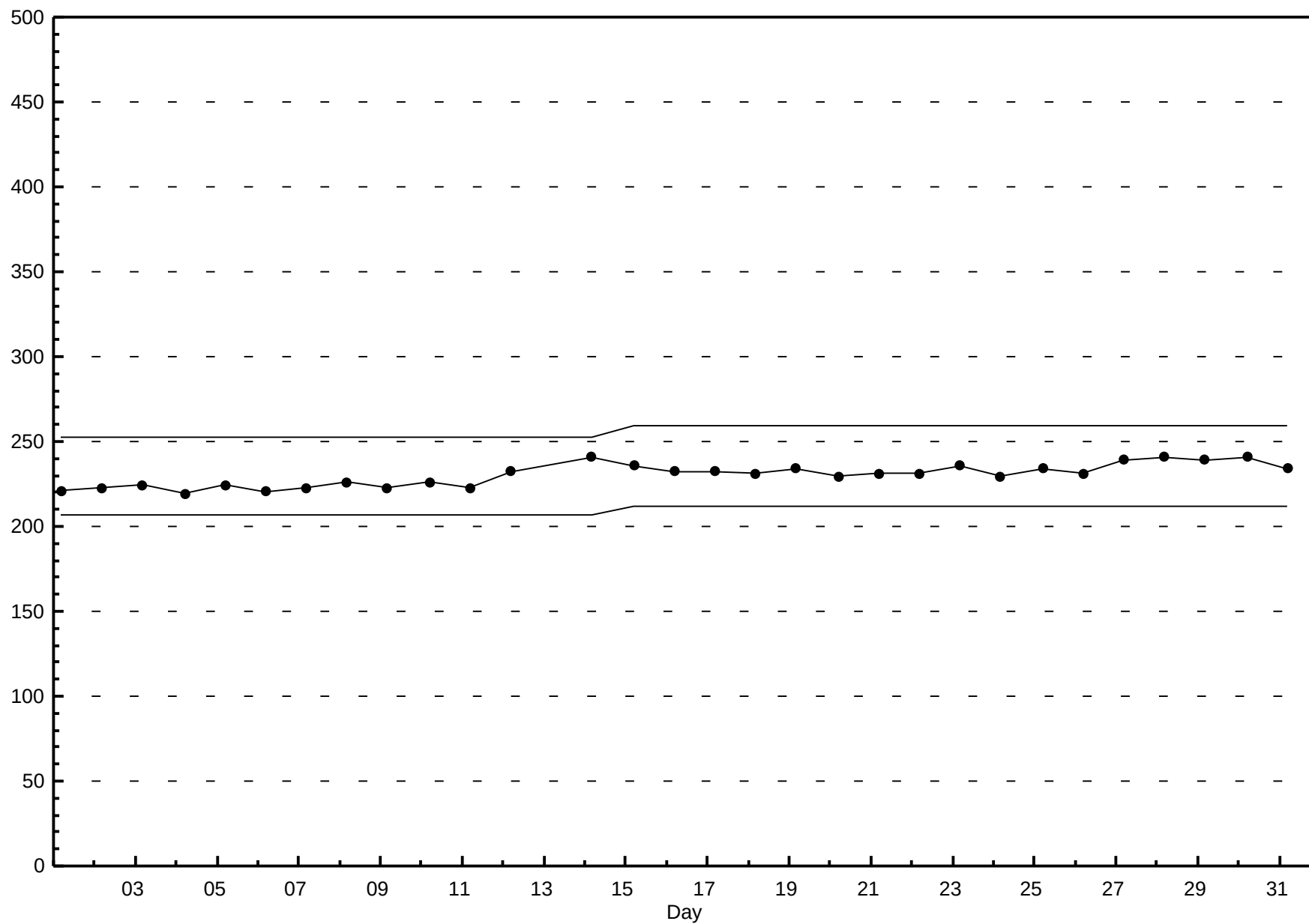


Pollutant Classes (ppb)



Span Responses

Nitrogen Dioxide (NO₂)
Beaverlodge - December 2011



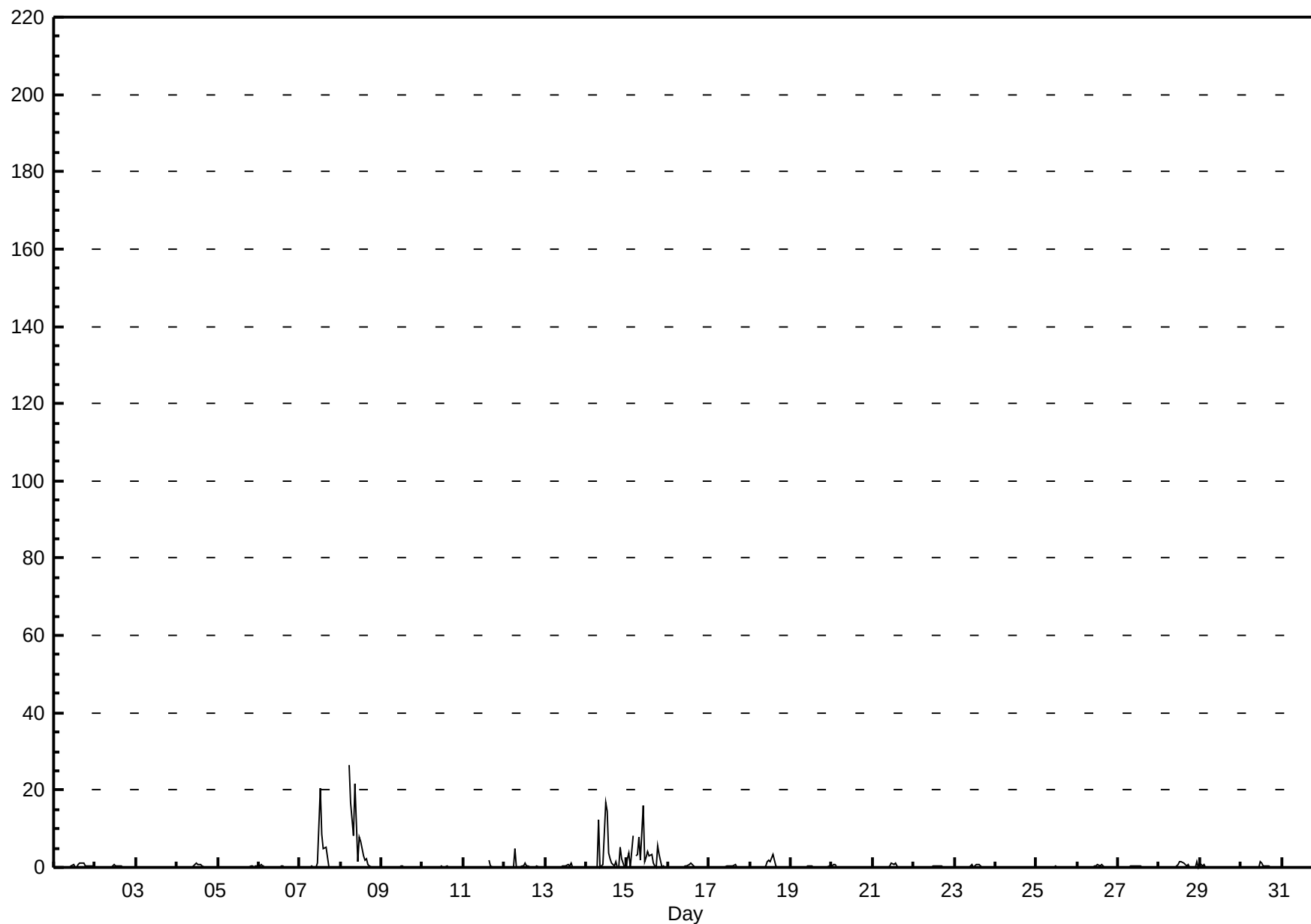
Hourly Averages

Nitrogen Oxide (NO) - ppb Beaverlodge - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 26.4 ppb on Dec 8 06:00 Maximum Daily Average: 4.7 ppb on Dec 8																				Hours in Service: 744						
Minimum Value: 0 ppb on Dec 3 02:00 Minimum Daily Average: 0.0 ppb on Dec 25 Maximum Diurnal Average: 1.9 ppb at hour 13 Minimum Diurnal Average: 0.0 ppb at hour 24 Monthly Average: 0.56 ppb Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.8 P ₉₉ = 13.5																				Hours of Data: 707						
																				Hours of Missing Data: 37						
																				Hours of Calibration: 37						
																				Percent Operational Time: 100.0						
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	0	0	0	0	A	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0	0	1	0	0	0.3	1.0
2-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	0.1	0.8
3-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	0.1
4-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.2	1.0
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	0	0.1	0.5
6-Dec	0	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6
7-Dec	0	0	0	0	A	0	0	0	0	0	1	11	21	9	5	5	2	0	0	0	0	0	0	0	2.4	20.6
8-Dec	0	0	0	0	A	26	17	8	22	12	1	8	7	3	2	2	1	0	0	0	0	0	0	0	4.7	26.4
9-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	0.2
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	0.2
11-Dec	0	0	0	0	A	0	0	0	0	C	C	C	C	C	C	2	0	0	0	0	0	0	0	0	--	1.8
12-Dec	0	0	0	0	A	0	5	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0.4	5.0
13-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0.2	1.1
14-Dec	0	0	0	0	A	0	0	12	0	0	1	17	14	4	2	1	0	2	0	0	5	2	0	0	2.7	16.9
15-Dec	2	4	0	8	A	3	4	8	2	16	2	3	4	3	4	1	0	0	5	3	0	0	0	0	3.2	15.9
16-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0.2	1.2
17-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0.2	0.6
18-Dec	0	0	0	0	A	0	0	0	0	0	1	2	1	3	2	0	0	0	0	0	0	0	0	0	0.5	3.5
19-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	0.4
20-Dec	0	1	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.7
21-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0.2	1.1
22-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	0.1	0.5
23-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0.2	0.9
24-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	0.2
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	0.2
26-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0.1	0.6
27-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5
28-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	2	1	1	0	1	0	0	0	0	2	0	0.4	1.5
29-Dec	1	0	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	1.0
30-Dec	0	0	0	0	A	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0.2	1.6
31-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	0.1
0.2 0.2 0.1 0.3 -- 1.0 0.8 0.9 0.8 1.0 0.4 1.7 1.9 1.1 0.8 0.6 0.2 0.2 0.2 0.2 0.2 0.1 0.1 0.0																									Diurnal Average	
2.2 3.7 0.7 8.2 -- 26.4 16.8 12.4 21.5 15.9 1.7 16.9 20.6 8.6 4.9 5.1 2.4 1.7 5.5 3.4 5.3 2.2 1.5 0.3																									Diurnal Maximum	
C - Calibration																									A - Automated Daily Zero Span	

Hourly Averages

Nitrogen Oxide (NO) - ppb
Beaverlodge - December 2011



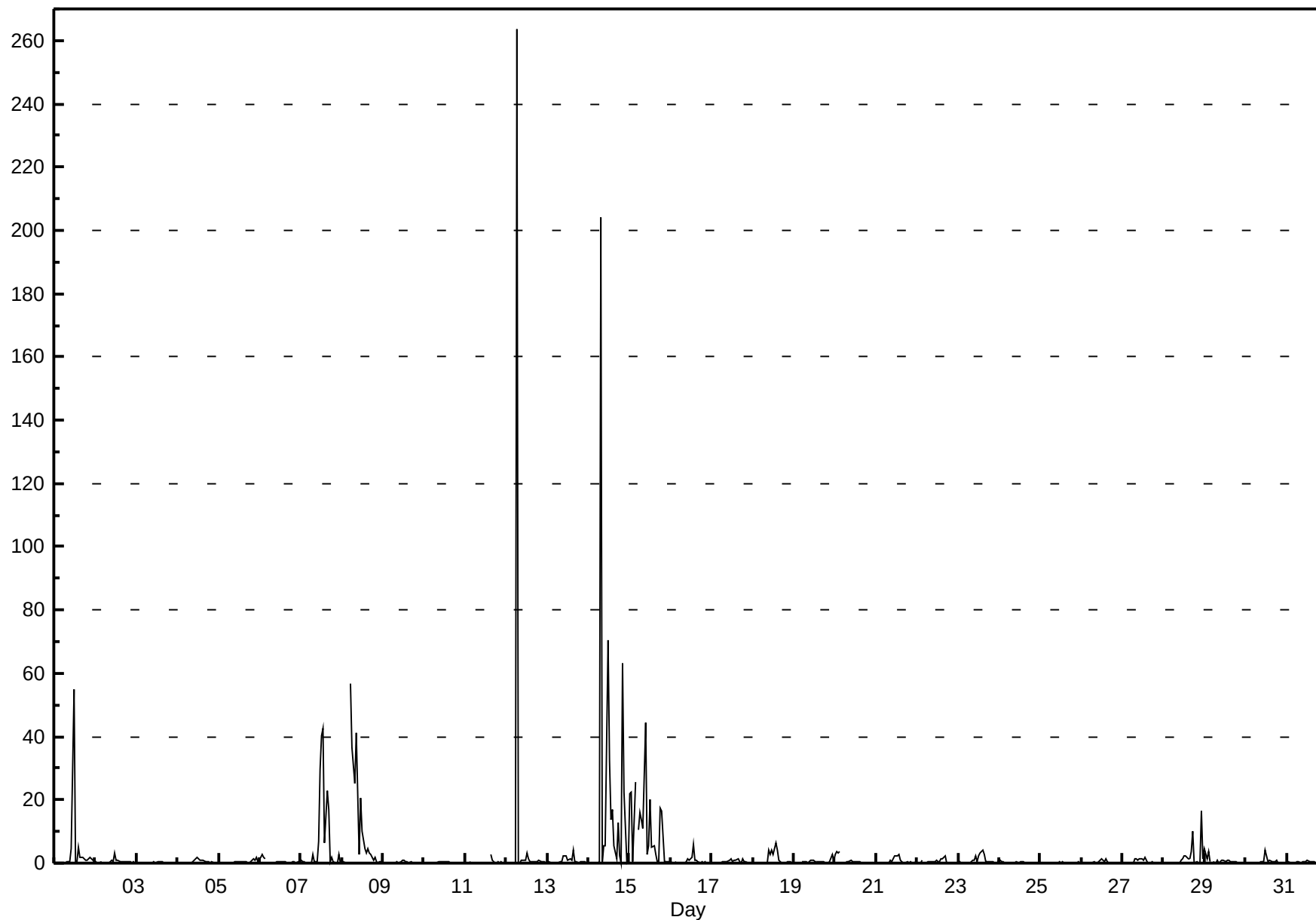
Hourly Maximums

Nitrogen Oxide (NO) - ppb Beaverlodge - December 2011

Maximum Value: 263.5 ppb on Dec 12 07:00																				Maximum Daily Average: 19.9 ppb on Dec 14										Hours in Service: 744	
Minimum Value: 0 ppb on Dec 25 03:00																				Minimum Daily Average: 0.1 ppb on Dec 25										Hours of Data: 707	
Maximum Diurnal Average: 10.4 ppb at hour 7																				Minimum Diurnal Average: 0.3 ppb at hour 24										Hours of Missing Data: 37	
Monthly Average: 2.54 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.7 P ₉₀ = 2.8 P ₉₉ = 38.6										Hours of Calibration: 37	
																				Percent Operational Time: 100.0											
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	0	0	0	0	A	0	0	0	0	0	5	55	0	1	5	2	2	2	1	1	2	2	1	1	3.5	55.1					
2-Dec	0	0	0	0	A	0	0	0	0	1	1	3	1	1	1	1	0	0	0	1	0	0	0	0	0.5	3.2					
3-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					
4-Dec	0	0	0	0	A	0	0	0	0	0	1	2	1	1	1	1	0	0	1	0	0	0	0	0	0.5	2.0					
5-Dec	0	0	0	0	A	0	0	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1	2	1	0.5	1.8					
6-Dec	2	3	2	1	A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0.6	2.9					
7-Dec	1	1	0	0	A	0	0	3	0	1	7	30	40	42	6	23	17	1	2	0	0	0	3	0	7.7	42.5					
8-Dec	0	0	0	0	A	57	37	25	41	22	3	20	10	5	3	5	3	3	1	2	0	0	0	0	10.3	56.9					
9-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0.2	0.7					
10-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.6					
11-Dec	0	0	0	0	A	0	0	0	0	C	C	C	C	C	C	3	1	0	0	1	0	0	0	0	--	2.6					
12-Dec	0	0	0	0	A	0	263	0	0	1	1	1	3	1	1	0	0	1	0	1	0	1	0	0	12.0	263.5					
13-Dec	0	0	0	0	A	0	0	0	0	2	2	2	1	1	1	4	1	0	0	1	0	0	0	0	0.8	4.0					
14-Dec	0	0	0	0	A	0	0	204	0	6	6	70	33	14	17	6	2	13	2	0	63	23	0	0	19.9	204.1					
15-Dec	22	22	0	26	A	11	16	14	11	45	3	6	20	5	5	3	1	0	17	16	0	0	0	0	10.6	44.6					
16-Dec	0	0	0	0	A	0	0	0	0	0	2	1	2	6	1	1	0	0	0	0	0	0	0	0	0.7	6.2					
17-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0.4	1.2					
18-Dec	0	0	0	0	A	0	0	0	0	4	3	4	3	6	4	1	0	0	0	0	0	0	0	0	1.3	6.5					
19-Dec	0	0	0	0	A	1	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	3	1	0.5	2.6					
20-Dec	3	4	3	4	A	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0.8	3.7					
21-Dec	0	0	0	0	A	0	0	0	1	1	1	2	2	3	1	1	0	0	0	0	0	0	0	1	0.6	2.9					
22-Dec	0	0	0	1	A	0	0	0	0	0	0	1	1	1	1	1	2	0	0	0	0	0	0	0	0.5	2.1					
23-Dec	0	0	0	0	A	0	0	0	1	1	2	0	2	3	4	3	0	1	0	1	0	0	0	0	0.9	3.9					
24-Dec	1	0	0	0	A	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0.2	1.3					
25-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	0.1	0.6					
26-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0.3	1.6					
27-Dec	0	0	0	0	A	0	0	1	1	1	1	2	1	2	1	0	0	0	0	0	0	0	0	0	0.5	1.7					
28-Dec	0	0	0	0	A	0	0	0	0	0	1	1	2	2	1	1	4	10	0	0	0	0	16	1	1.9	16.5					
29-Dec	4	1	3	1	A	0	0	1	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0.7	4.4					
30-Dec	0	0	0	0	A	0	0	0	0	0	1	4	2	1	1	1	0	1	1	0	0	0	0	0	0.6	4.3					
31-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0.3	0.8					
1.2 1.1 0.4 1.1 -- 2.3 10.4 8.1 1.9 3.0 1.5 7.1 4.4 3.4 2.1 2.0 1.2 1.1 1.0 0.9 2.3 1.0 0.9 0.3																									Diurnal Average						
21.7 22.3 3.5 25.8 -- 56.9 263.5 204.1 41.1 44.6 6.9 70.5 40.2 42.5 16.7 23.0 16.9 12.7 17.5 16.3 63.0 22.6 16.5 1.2																									Diurnal Maximum						
C - Calibration					A - Automated Daily Zero Span																										

Hourly Maximums

Nitrogen Oxide (NO) - ppb
Beaverlodge - December 2011



Hourly Averages

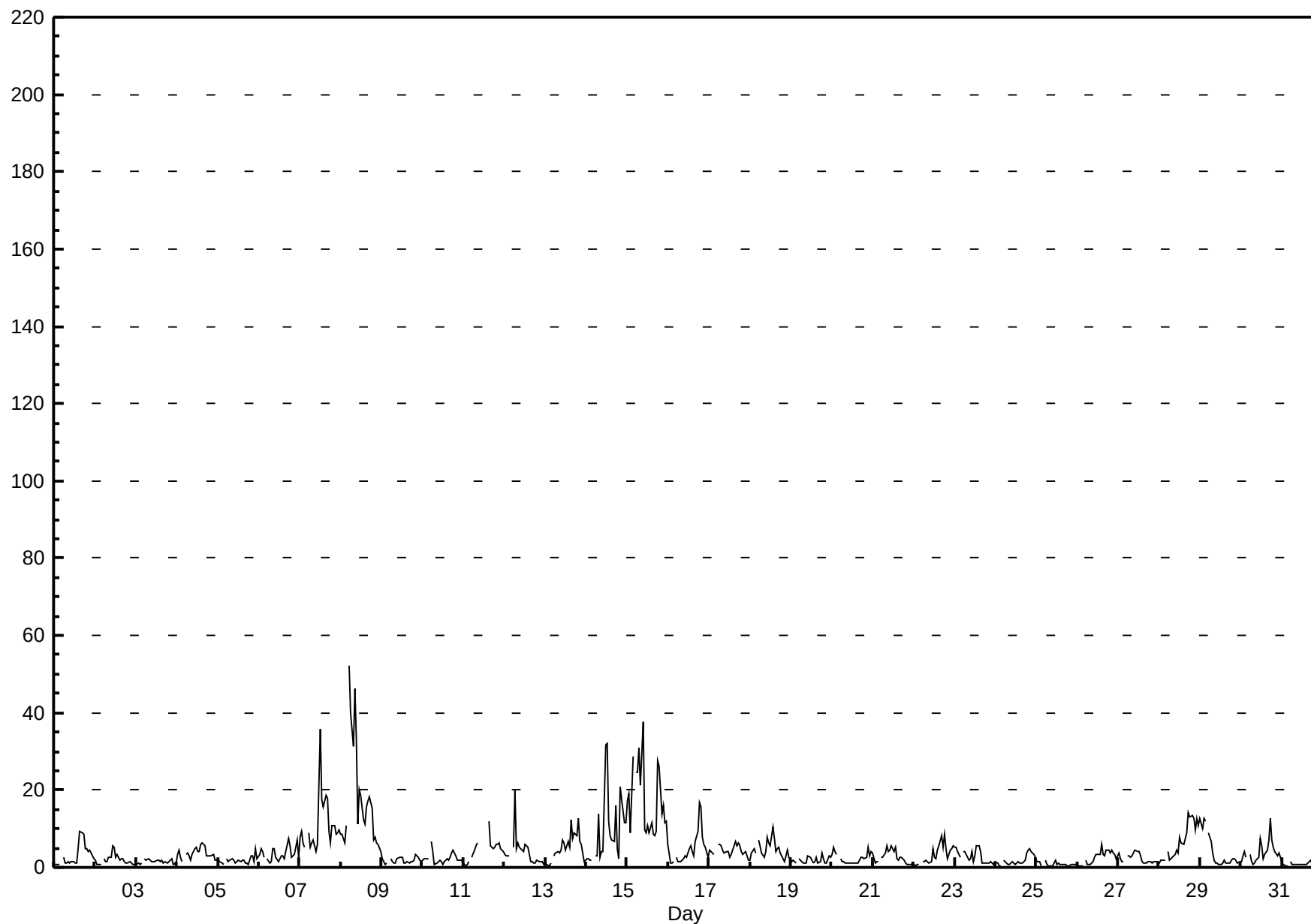
Oxides of Nitrogen (NO_x) - ppb

Beaverlodge - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 52.4 ppb on Dec 8 06:00 Maximum Daily Average: 17.8 ppb on Dec 8																				Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Minimum Value: 0 ppb on Dec 25 20:00 Maximum Diurnal Average: 5.8 ppb at hour 13 Monthly Average: 4.49 ppb										Minimum Daily Average: 0.9 ppb on Dec 25 Minimum Diurnal Average: 2.8 ppb at hour 3 Percentiles: P ₁ = 0.4 P ₁₀ = 0.9 Q ₁ = 1.4 Median = 2.6 Q ₃ = 5.1 P ₉₀ = 9.2 P ₉₉ = 31.3																
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	1	1	1	1	A	3	1	1	1	1	2	2	1	1	5	9	9	9	5	5	4	4	3	2	3.1	9.1
2-Dec	2	1	1	1	A	2	1	2	3	3	6	5	3	3	2	2	2	2	1	1	1	1	1	1	2.0	5.6
3-Dec	1	1	1	1	A	2	2	2	2	1	2	2	2	2	1	2	1	1	1	1	2	2	1	1	1.5	2.3
4-Dec	3	5	3	2	A	3	4	3	2	3	5	5	4	4	6	6	6	3	3	3	3	3	2	2	3.5	6.3
5-Dec	2	2	1	1	A	2	1	2	2	2	1	1	2	1	2	2	1	1	1	3	3	2	5	2	1.8	4.7
6-Dec	3	5	4	3	A	2	1	2	5	5	3	1	2	3	3	2	4	7	5	3	3	3	7	3	3.4	7.5
7-Dec	8	9	6	5	A	9	5	6	7	4	6	21	36	18	16	19	18	9	6	11	11	9	9	10	11.2	35.9
8-Dec	9	8	6	11	A	52	40	31	46	33	11	20	19	12	11	16	17	18	15	7	8	6	6	4	17.8	52.4
9-Dec	2	2	1	1	A	2	1	1	1	2	2	3	2	1	1	1	1	2	1	2	3	2	2	2	1.7	3.4
10-Dec	2	2	2	2	A	7	4	1	1	1	2	1	1	1	2	2	3	4	5	3	2	2	2	2	2.3	6.7
11-Dec	1	0	1	2	A	3	5	6	6	C	C	C	C	C	C	12	6	5	5	6	6	6	5	4	--	11.8
12-Dec	3	3	3	3	A	5	20	5	6	5	4	4	6	5	5	1	1	1	1	2	1	2	1	1	4.0	20.0
13-Dec	1	1	1	1	A	3	4	4	4	5	7	6	4	7	5	12	8	9	8	13	7	6	4	2	5.2	12.5
14-Dec	2	2	2	2	A	3	3	14	3	4	4	32	32	12	8	7	7	16	5	2	21	17	12	12	9.6	32.0
15-Dec	17	19	9	29	A	25	25	31	21	38	10	9	11	9	12	8	8	9	28	26	14	16	12	12	17.2	37.7
16-Dec	6	1	1	1	A	3	1	2	2	2	3	3	5	6	4	3	7	9	17	16	8	6	5	3	4.9	16.8
17-Dec	4	4	4	3	A	6	6	6	4	4	4	4	3	3	4	7	6	6	6	4	3	4	3	2	4.4	6.8
18-Dec	2	4	5	4	A	7	5	4	3	4	8	6	6	11	7	4	5	5	4	2	2	3	4	2	4.6	10.6
19-Dec	1	2	2	1	A	2	1	1	1	1	3	3	2	1	2	2	1	1	4	2	1	1	3	3	1.8	3.6
20-Dec	4	5	4	3	A	2	1	1	1	1	1	1	1	1	1	1	2	2	3	2	3	5	3	4	2.4	5.4
21-Dec	4	1	2	1	A	3	3	4	6	4	4	6	4	5	2	2	2	3	2	1	1	1	1	1	2.7	5.7
22-Dec	1	1	1	1	A	2	2	2	2	1	1	5	2	2	4	6	8	5	9	5	2	4	5	6	3.2	8.6
23-Dec	5	5	4	3	A	4	4	3	2	2	4	2	3	5	5	4	1	1	1	1	1	2	1	1	2.9	5.5
24-Dec	2	1	1	0	A	2	1	1	1	1	2	1	1	1	1	1	1	2	4	4	5	4	3	3	1.9	5.0
25-Dec	2	1	1	0	A	2	1	1	1	0	1	2	1	1	1	1	1	1	0	0	1	1	1	1	0.9	2.0
26-Dec	0	0	0	0	A	2	1	1	1	1	3	4	3	3	6	3	3	5	4	4	4	4	4	2	2.6	6.1
27-Dec	4	2	2	2	A	3	3	2	3	4	4	4	4	3	2	1	1	2	2	1	1	1	2	1	2.3	4.4
28-Dec	1	2	2	2	A	4	2	2	3	3	4	4	8	6	6	8	9	14	13	14	13	10	13	11	6.7	14.3
29-Dec	13	10	13	12	A	9	7	4	2	1	1	1	1	1	2	1	1	1	2	2	2	2	1	1	3.9	12.8
30-Dec	1	3	4	3	A	3	1	1	1	2	3	7	6	2	3	5	7	13	7	5	4	3	4	2	4.0	12.5
31-Dec	1	1	1	0	A	2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	4	1.1	3.9
3.5 3.3 2.8 3.2 -- 5.8 5.1 4.7 4.6 4.7 3.7 5.5 5.8 4.5 4.4 4.9 4.8 5.4 5.4 4.9 4.5 4.4 4.0 3.4																								Diurnal Average		
17.1 18.9 12.7 28.6 -- 52.4 40.1 31.4 46.1 37.7 11.4 31.6 35.9 17.5 15.7 18.7 17.9 18.1 27.7 26.0 21.0 17.5 12.7 11.8																								Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span																										

Hourly Averages

Oxides of Nitrogen (NO_x) - ppb
Beaverlodge - December 2011



Hourly Maximums

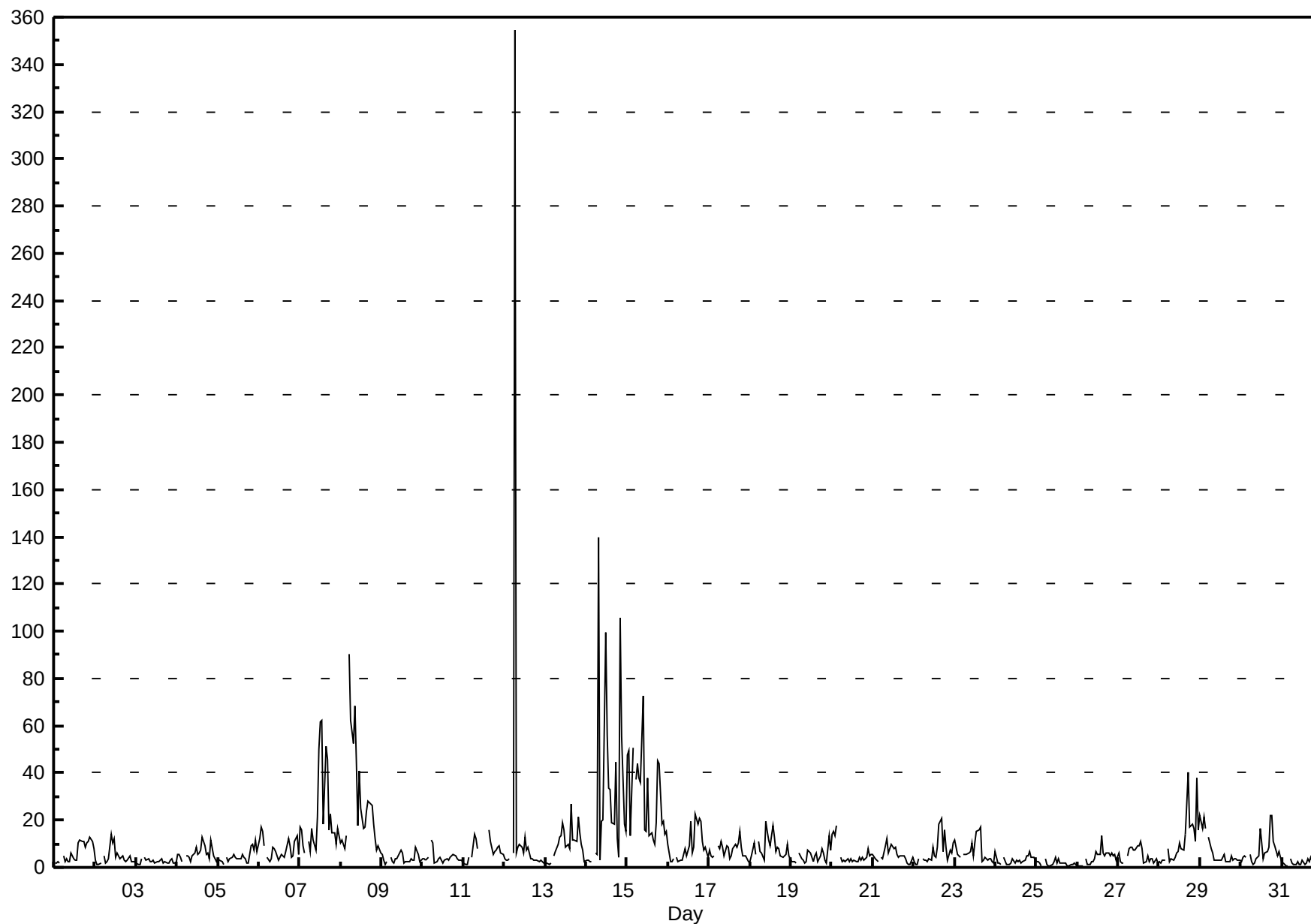
Oxides of Nitrogen (NO_x) - ppb

Beaverlodge - December 2011

Maximum Value: 354.7 ppb on Dec 12 07:00																				Maximum Daily Average: 31.3 ppb on Dec 14										Hours in Service: 744	
Minimum Value: 1 ppb on Dec 26 04:00																				Minimum Daily Average: 1.8 ppb on Dec 25										Hours of Data: 707	
Maximum Diurnal Average: 18.9 ppb at hour 7																				Minimum Diurnal Average: 4.8 ppb at hour 3										Hours of Missing Data: 37	
Monthly Average: 9.17 ppb																				Percentiles: P ₁ = 0.8 P ₁₀ = 1.9 Q ₁ = 2.9 Median = 4.8 Q ₃ = 9.5 P ₉₀ = 17.3 P ₉₉ = 66.2										Hours of Calibration: 37	
																														Percent Operational Time: 100.0	
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	2	2	2	2	A	5	3	3	2	2	6	4	3	3	10	12	11	11	8	10	11	13	11	8	6.3	12.6					
2-Dec	3	1	1	2	A	5	2	2	4	14	10	12	4	6	4	5	5	3	3	3	5	2	3	2	4.4	14.1					
3-Dec	2	1	1	4	A	4	3	4	3	3	3	2	2	2	3	3	2	2	2	2	3	4	2	2	2.5	4.3					
4-Dec	5	6	5	2	A	5	5	4	2	5	6	8	5	6	7	13	9	5	6	4	11	5	3	2	5.7	12.8					
5-Dec	4	3	2	1	A	4	2	4	4	6	4	4	4	4	6	4	3	2	2	9	10	7	11	7	4.7	11.5					
6-Dec	12	17	15	9	A	4	2	4	9	8	7	3	4	5	5	4	7	12	9	4	5	11	13	6	7.7	17.1					
7-Dec	17	16	9	6	A	11	7	16	12	7	21	50	62	62	19	51	46	16	23	14	14	10	17	14	22.6	62.2					
8-Dec	10	12	8	13	A	90	63	52	68	45	17	41	25	16	17	24	28	28	26	18	12	7	9	6	27.7	90.0					
9-Dec	5	3	1	2	A	4	3	2	4	4	6	7	6	2	3	3	3	4	3	3	8	6	3	3	3.7	8.3					
10-Dec	4	3	3	4	A	12	10	2	3	3	4	3	2	3	4	3	4	5	6	5	3	3	3	3	4.1	11.6					
11-Dec	2	1	1	4	A	4	14	12	8	C	C	C	C	C	C	16	11	5	6	7	9	9	6	5	--	15.6					
12-Dec	4	3	3	4	A	6	355	6	9	10	8	6	13	7	8	4	4	3	3	3	3	3	2	2	20.4	354.7					
13-Dec	2	2	1	2	A	5	7	10	13	13	19	16	8	10	8	27	12	12	11	21	15	10	7	3	10.1	26.8					
14-Dec	3	3	3	2	A	6	5	140	3	19	20	99	56	33	33	19	18	44	12	4	106	55	18	15	31.3	139.6					
15-Dec	48	49	13	51	A	37	44	38	36	73	16	15	38	13	14	11	10	19	45	44	18	20	14	15	29.7	72.5					
16-Dec	10	2	2	4	A	4	3	3	3	5	8	5	9	20	6	8	22	18	21	20	11	7	8	4	8.9	22.5					
17-Dec	7	5	5	5	A	9	8	11	9	5	9	8	4	5	8	10	8	10	16	8	5	5	4	2	7.2	15.5					
18-Dec	3	5	10	6	A	11	6	6	3	20	15	12	9	17	13	6	8	8	5	4	5	6	10	5	8.4	19.8					
19-Dec	3	2	2	2	A	6	4	3	2	2	7	6	5	2	5	6	2	5	8	6	3	2	14	7	4.6	13.7					
20-Dec	14	15	14	17	A	4	3	3	3	4	3	3	3	3	3	2	4	3	4	3	4	8	5	6	5.7	17.5					
21-Dec	5	4	3	2	A	4	4	9	12	6	8	10	8	9	5	4	5	5	5	3	2	1	1	4	5.3	12.4					
22-Dec	2	1	1	4	A	3	3	3	3	4	3	9	5	4	9	18	21	7	16	9	3	7	6	11	6.6	20.8					
23-Dec	12	8	6	4	A	5	5	5	6	7	10	5	10	15	16	17	2	3	4	3	4	4	2	2	6.8	17.3					
24-Dec	7	2	2	1	A	4	1	1	1	2	4	2	3	2	3	2	2	3	5	5	7	4	4	3	3.1	6.8					
25-Dec	2	2	2	1	A	4	1	1	1	1	3	4	2	4	2	2	2	2	1	1	1	1	2	1	1.8	4.3					
26-Dec	1	1	1	1	A	4	1	1	2	2	4	6	6	5	13	6	5	6	6	5	6	5	5	3	4.1	13.3					
27-Dec	6	2	2	2	A	5	8	9	9	8	8	9	9	11	8	2	3	5	3	4	4	2	3	2	5.3	10.7					
28-Dec	2	2	3	3	A	8	3	4	3	4	6	7	10	8	7	14	27	40	17	18	17	11	38	16	11.7	40.4					
29-Dec	22	17	22	17	A	13	8	6	3	3	3	3	3	4	5	2	2	2	5	3	4	4	3	3	6.8	22.1					
30-Dec	2	4	5	4	A	6	2	1	2	4	5	16	10	3	6	7	8	22	22	11	9	5	6	4	7.2	22.1					
31-Dec	2	2	1	1	A	4	2	1	1	2	1	1	3	2	2	4	3	4	2	3	2	2	4	9	2.5	9.1					
7.1 6.4 4.8 5.9 -- 9.6 18.9 11.8 7.8 9.7 8.2 12.6 11.1 9.6 8.4 9.9 9.6 10.1 9.8 8.4 10.3 7.7 7.7 5.7																									Diurnal Average						
47.8 49.4 21.5 50.8 -- 90.0 354.7 139.6 68.5 72.5 21.4 99.2 61.7 62.2 33.0 51.0 45.8 44.4 45.1 44.1 105.7 55.4 37.9 15.7																									Diurnal Maximum						
C - Calibration					A - Automated Daily Zero Span																										

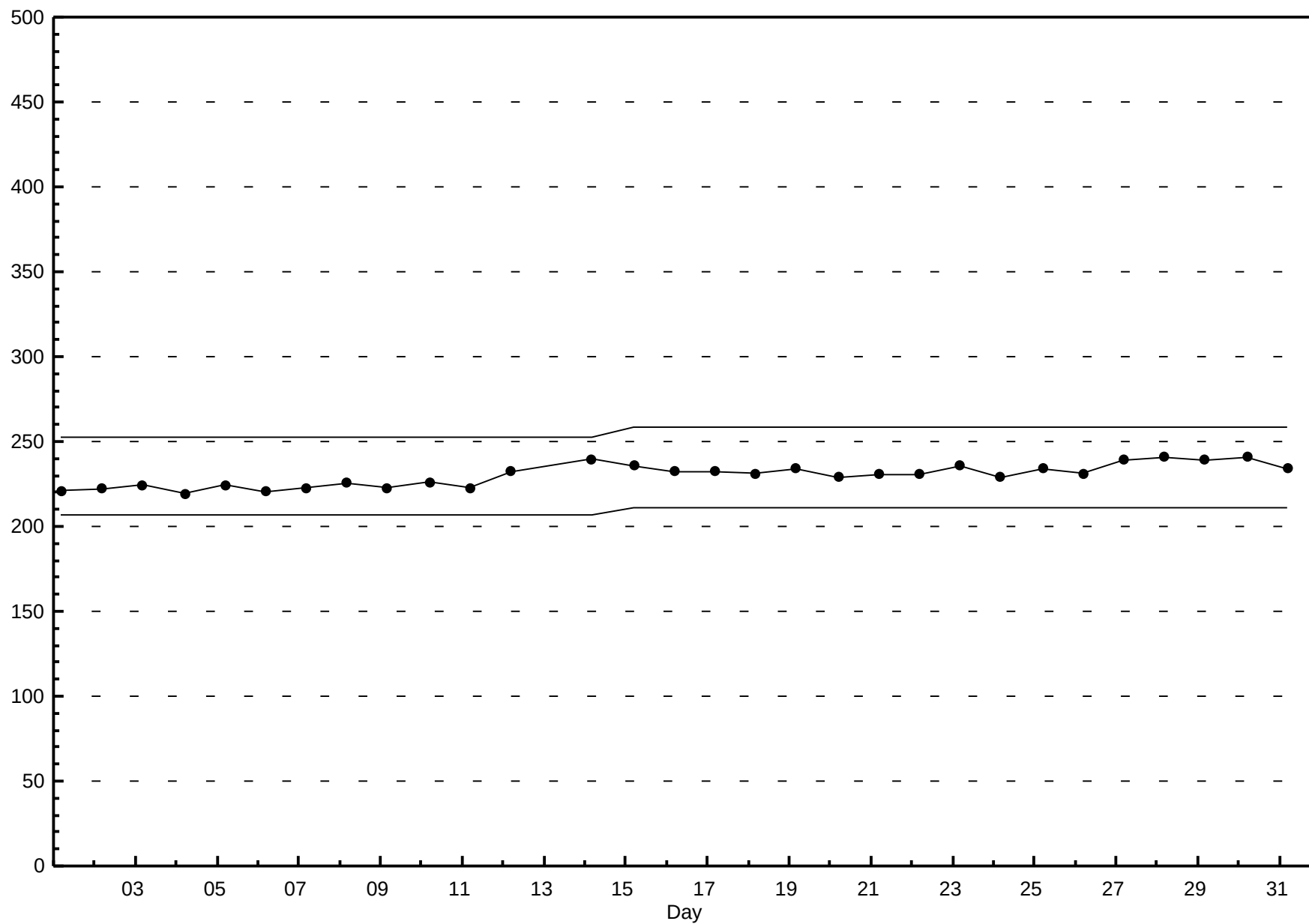
Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb
Beaverlodge - December 2011



Span Responses

Oxides of Nitrogen (NO_x)
Beaverlodge - December 2011



Hourly Averages

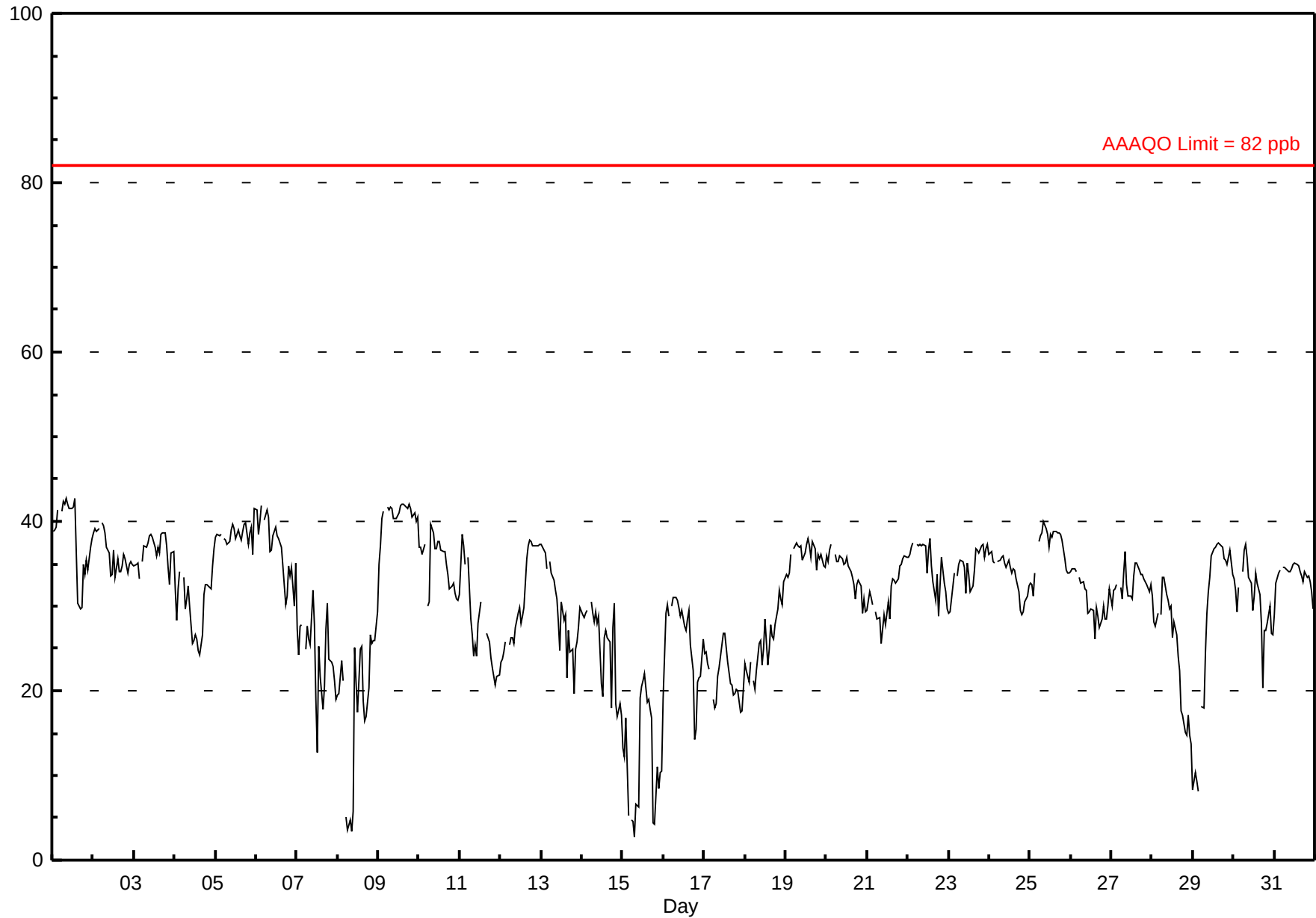
Ozone (O₃) - ppb

Beaverlodge - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 42.7 ppb on Dec 1 14:00 Maximum Daily Average: 40.7 ppb on Dec 9																								Hours in Service: 744 Hours of Data: 710 Hours of Missing Data: 34 Hours of Calibration: 34 Percent Operational Time: 100.0		
Minimum Value: 3 ppb on Dec 15 08:00 Maximum Diurnal Average: 32.2 ppb at hour 14 Monthly Average: 30.84 ppb												Minimum Daily Average: 12.0 ppb on Dec 15 Minimum Diurnal Average: 29.6 ppb at hour 23 Percentiles: P ₁ = 4.7 P ₁₀ = 20.5 Q ₁ = 27.2 Median = 32.6 Q ₃ = 36.3 P ₉₀ = 38.5 P ₉₉ = 41.9														
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	39	39	39	41	A	41	42	42	43	42	41	42	43	36	30	30	30	35	34	35	34	37	38	38.1	42.7	
2-Dec	39	39	39	39	A	40	40	39	37	36	34	34	37	33	36	34	34	35	36	36	34	35	35	35	36.3	39.8
3-Dec	35	35	35	33	A	35	37	37	37	38	38	38	37	36	37	36	39	39	39	37	35	33	36	36	36.4	38.6
4-Dec	32	28	32	34	A	33	30	31	32	30	26	26	27	26	25	24	27	31	33	32	32	32	35	37	30.2	36.7
5-Dec	38	38	38	38	A	38	38	37	38	39	40	39	38	39	38	38	39	40	40	37	39	39	36	41	38.5	41.5
6-Dec	41	38	40	42	A	40	41	41	36	37	38	39	38	38	38	37	35	30	31	35	34	35	30	35	36.9	41.8
7-Dec	27	24	28	28	A	25	28	26	25	32	28	19	13	25	22	18	20	27	30	24	23	23	21	19	24.2	31.8
8-Dec	19	20	24	21	A	5	4	5	3	6	25	21	17	25	19	16	17	20	27	26	26	26	29	18.5	29.3	
9-Dec	35	37	40	41	A	42	41	42	42	40	40	41	41	42	42	42	42	41	42	42	41	41	40	41	40.7	42.0
10-Dec	37	37	36	37	A	30	31	40	39	37	37	38	38	37	36	36	35	34	32	32	33	32	31	31	34.9	39.7
11-Dec	31	38	37	35	A	36	28	27	24	25	24	28	31	C	C	C	27	26	24	23	22	21	22	22	27.5	38.5
12-Dec	23	24	25	26	A	25	26	26	26	27	29	30	28	29	30	36	37	38	38	37	37	37	37	37	30.8	37.7
13-Dec	37	37	36	34	A	35	34	33	32	31	28	25	31	28	29	22	27	25	25	20	25	26	27	30	29.4	37.3
14-Dec	29	29	29	30	A	31	29	28	29	28	29	21	19	26	27	26	26	18	27	30	18	17	19	17	25.3	30.6
15-Dec	13	12	17	5	A	5	5	3	7	6	19	20	21	22	19	19	18	17	4	4	11	8	10	10	12.0	22.1
16-Dec	19	29	30	29	A	30	31	31	31	30	29	29	28	27	28	30	25	22	14	15	21	22	22	26	26.0	31.0
17-Dec	24	25	23	23	A	19	18	19	22	23	25	27	27	25	23	21	21	20	20	20	20	17	18	20	21.7	26.8
18-Dec	23	22	21	23	A	21	20	22	26	26	23	25	28	23	25	28	26	26	28	30	32	31	30	33	25.8	32.9
19-Dec	34	33	34	36	A	37	37	37	37	37	35	36	37	38	37	36	38	37	34	36	36	36	35	35	36.0	38.0
20-Dec	36	35	37	37	A	36	35	35	36	36	35	35	36	35	34	33	32	31	33	33	32	29	31	29	34.0	37.3
21-Dec	29	32	31	30	A	29	28	29	26	27	29	28	30	28	32	33	33	33	33	35	35	36	36	36	31.2	35.9
22-Dec	36	36	37	37	A	37	37	37	37	37	37	34	37	38	35	33	31	34	29	32	36	33	32	30	34.8	38.0
23-Dec	29	29	31	34	A	34	35	35	35	35	31	35	34	32	32	34	37	37	36	37	37	36	37	37	34.3	37.3
24-Dec	36	36	35	35	A	35	35	36	36	35	35	35	35	34	34	34	33	32	29	29	29	30	31	32	33.7	36.4
25-Dec	33	33	31	34	A	38	38	39	40	39	38	37	39	38	39	39	39	39	39	38	36	34	34	34	36.7	40.0
26-Dec	34	34	34	34	A	33	33	33	32	32	29	29	30	30	26	30	29	27	28	30	28	29	30	32	30.7	34.4
27-Dec	30	32	32	33	A	32	31	34	36	32	31	31	31	34	35	35	34	34	34	33	33	33	32	33	32.8	36.5
28-Dec	31	28	28	29	A	29	33	33	31	31	30	30	26	28	27	24	22	18	17	15	15	17	15	14	24.8	33.4
29-Dec	8	10	9	8	A	18	18	25	29	32	33	36	37	37	37	37	37	37	36	35	35	36	37	34	28.8	37.4
30-Dec	33	32	29	32	A	34	37	37	36	33	33	29	31	34	33	31	28	20	27	27	28	30	27	27	30.8	37.2
31-Dec	29	33	34	34	A	35	35	34	34	34	34	35	35	35	35	34	34	33	34	33	34	33	32	30	33.6	35.1
																								Diurnal Average		
																								Diurnal Maximum		
C - Calibration A - Automated Daily Zero Span Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na																										

Hourly Averages

Ozone (O₃) - ppb
Beaverlodge - December 2011



Hourly Maximums

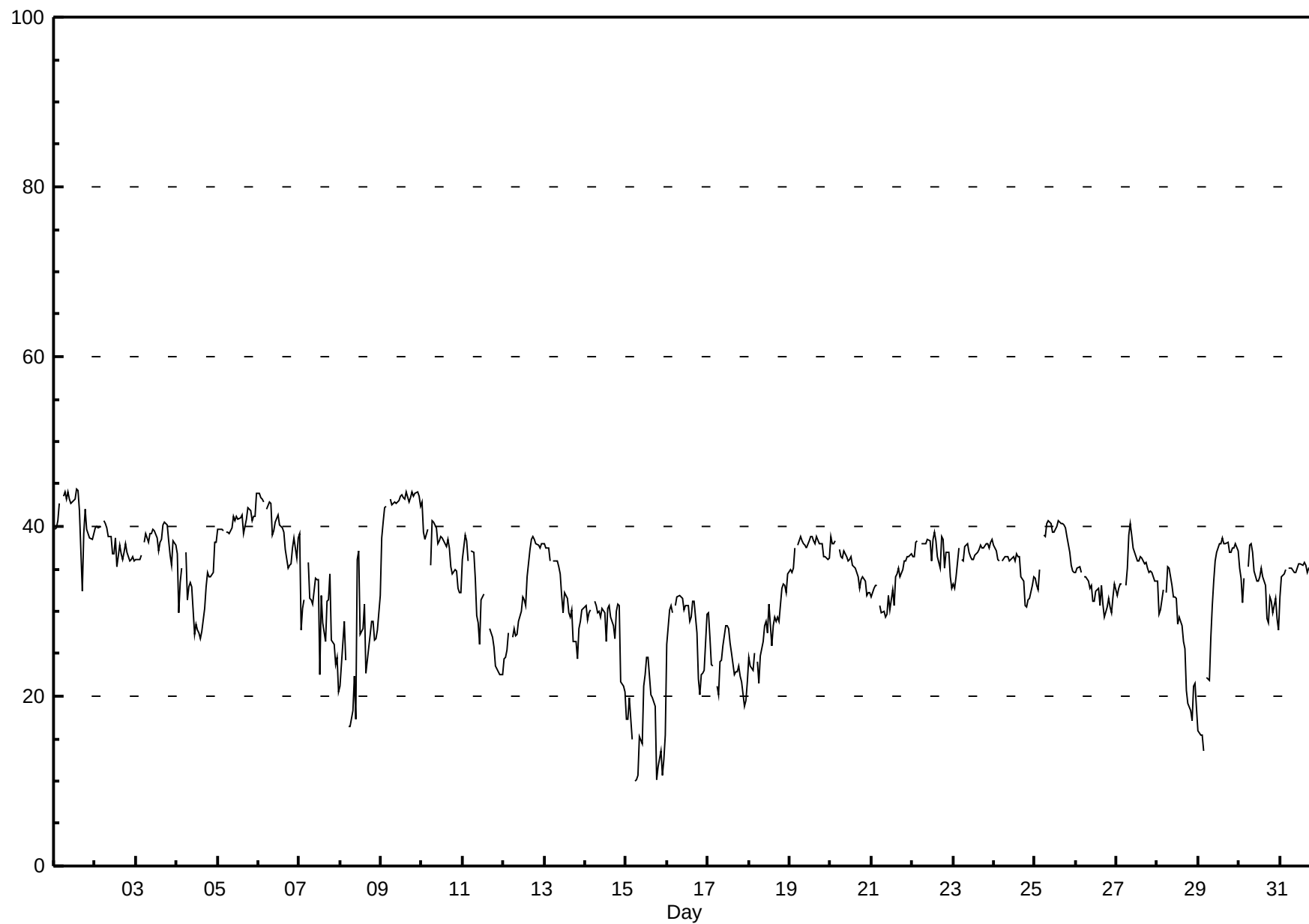
Ozone (O₃) - ppb

Beaverlodge - December 2011

Maximum Value: 44.4 ppb on Dec 1 14:00																				Maximum Daily Average: 42.9 ppb on Dec 9										Hours in Service: 744	
Minimum Value: 10 ppb on Dec 15 06:00																				Minimum Daily Average: 16.3 ppb on Dec 15										Hours of Data: 710	
Maximum Diurnal Average: 34.6 ppb at hour 12																				Minimum Diurnal Average: 31.7 ppb at hour 22										Hours of Missing Data: 34	
Monthly Average: 33.31 ppb																				Percentiles: P ₁ = 13.5 P ₁₀ = 23.7 Q ₁ = 29.9 Median = 34.8 Q ₃ = 37.9 P ₉₀ = 40.3 P ₉₉ = 44.0										Hours of Calibration: 34	
																				Percent Operational Time: 100.0											
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	40	40	41	43	A	44	44	43	44	43	43	43	43	44	44	42	32	39	42	40	39	39	38	39	41.3	44.4					
2-Dec	40	40	40	40	A	41	40	40	39	39	37	37	39	35	38	37	36	37	38	37	36	36	36	36	37.9	40.7					
3-Dec	36	36	36	37	A	38	39	38	39	39	40	39	39	37	38	38	40	41	40	38	37	35	38	38	38.1	40.5					
4-Dec	37	30	33	35	A	37	31	33	33	33	27	28	28	28	27	28	30	33	35	34	34	35	38	38	32.4	38.1					
5-Dec	40	40	40	40	A	39	39	39	40	41	41	41	41	41	41	39	40	41	42	42	41	41	41	44	40.6	43.8					
6-Dec	44	43	43	43	A	42	43	43	39	40	40	41	40	40	40	39	37	35	35	36	37	39	36	39	39.8	43.8					
7-Dec	39	28	30	31	A	36	32	31	31	34	34	34	23	32	29	27	31	31	34	27	26	24	25	21	29.9	39.1					
8-Dec	21	24	29	24	A	16	16	18	22	17	36	37	27	28	31	23	24	26	29	29	27	27	28	32	25.7	37.1					
9-Dec	39	41	42	42	A	43	43	43	43	43	43	44	44	43	43	44	43	43	44	44	44	44	44	42	42.9	44.1					
10-Dec	43	39	39	40	A	35	41	41	40	38	38	39	39	38	38	38	37	35	34	35	35	33	32	32	37.4	42.8					
11-Dec	36	39	38	36	A	37	37	34	29	29	26	31	32	C	C	C	28	27	26	24	23	23	23	23	30.0	39.0					
12-Dec	24	25	25	27	A	27	28	27	27	29	30	32	31	31	34	37	38	39	38	38	38	37	38	38	32.2	38.8					
13-Dec	38	37	37	36	A	36	36	36	35	34	32	30	32	32	30	29	30	26	26	24	28	29	30	30	32.0	37.9					
14-Dec	31	29	30	30	A	31	31	30	30	29	30	30	26	30	31	29	28	27	30	31	31	22	21	21	28.6	31.2					
15-Dec	17	17	20	15	A	10	10	11	15	14	21	23	25	25	20	20	19	19	10	12	14	11	13	15	16.3	24.6					
16-Dec	26	30	31	30	A	31	32	32	32	32	30	31	31	29	29	31	31	27	22	20	23	23	23	30	28.5	31.9					
17-Dec	30	27	24	24	A	21	20	24	24	26	28	28	28	26	25	23	23	23	24	22	22	19	20	22	24.0	29.8					
18-Dec	25	24	23	25	A	24	21	25	26	28	29	27	31	26	28	29	29	29	29	33	33	33	32	34	28.0	34.4					
19-Dec	35	35	35	37	A	38	39	38	38	38	37	38	39	39	38	38	39	38	38	38	36	36	36	36	37.4	38.9					
20-Dec	39	38	38	38	A	37	36	36	37	36	36	36	36	35	35	35	34	33	34	34	34	32	32	32	35.4	38.8					
21-Dec	32	33	33	33	A	31	30	30	29	30	32	30	33	31	34	34	35	34	35	36	36	36	36	37	33.0	36.8					
22-Dec	36	36	38	38	A	38	38	38	38	38	38	36	38	39	38	37	35	39	38	35	37	37	34	33	37.2	39.4					
23-Dec	33	33	34	37	A	36	36	38	38	37	36	36	36	37	37	37	38	37	37	38	38	37	38	38	36.7	38.4					
24-Dec	38	37	36	36	A	36	36	36	36	36	36	36	36	37	36	36	34	34	31	30	31	32	33	34	35.0	37.8					
25-Dec	34	33	33	35	A	39	39	40	41	40	39	39	40	40	41	40	40	40	40	39	37	36	35	35	38.0	40.8					
26-Dec	35	35	35	35	A	34	34	34	33	33	31	31	32	33	31	33	31	29	30	32	30	30	32	33	32.4	35.2					
27-Dec	32	33	33	33	A	33	35	39	40	39	37	37	36	36	36	36	36	36	35	35	35	35	34	34	35.4	40.3					
28-Dec	34	30	30	32	A	32	35	35	33	32	32	31	28	29	28	26	26	21	19	18	17	21	21	19	27.4	35.2					
29-Dec	16	15	15	14	A	22	22	27	31	34	36	37	38	38	39	38	38	38	37	37	37	37	38	37	31.3	38.7					
30-Dec	35	34	31	34	A	35	38	38	37	35	34	34	34	35	34	33	29	29	32	31	30	31	29	28	33.0	38.0					
31-Dec	32	34	34	35	A	35	35	35	35	35	35	36	36	35	36	35	35	35	35	34	34	34	34	30	34.5	35.8					
33.3 32.7 33.2 33.4 -- 33.4 33.5 33.9 34.1 33.9 34.4 34.6 34.2 34.3 34.3 33.8 33.2 32.9 32.9 32.3 32.2 31.7 31.9 32.2																									Diurnal Average						
43.8 43.3 43.3 42.8 -- 43.6 44.1 43.2 44.0 43.2 43.1 43.6 43.8 44.4 44.2 44.1 42.9 43.4 44.1 43.5 43.9 44.0 43.5 43.8																									Diurnal Maximum						
C - Calibration																									A - Automated Daily Zero Span						

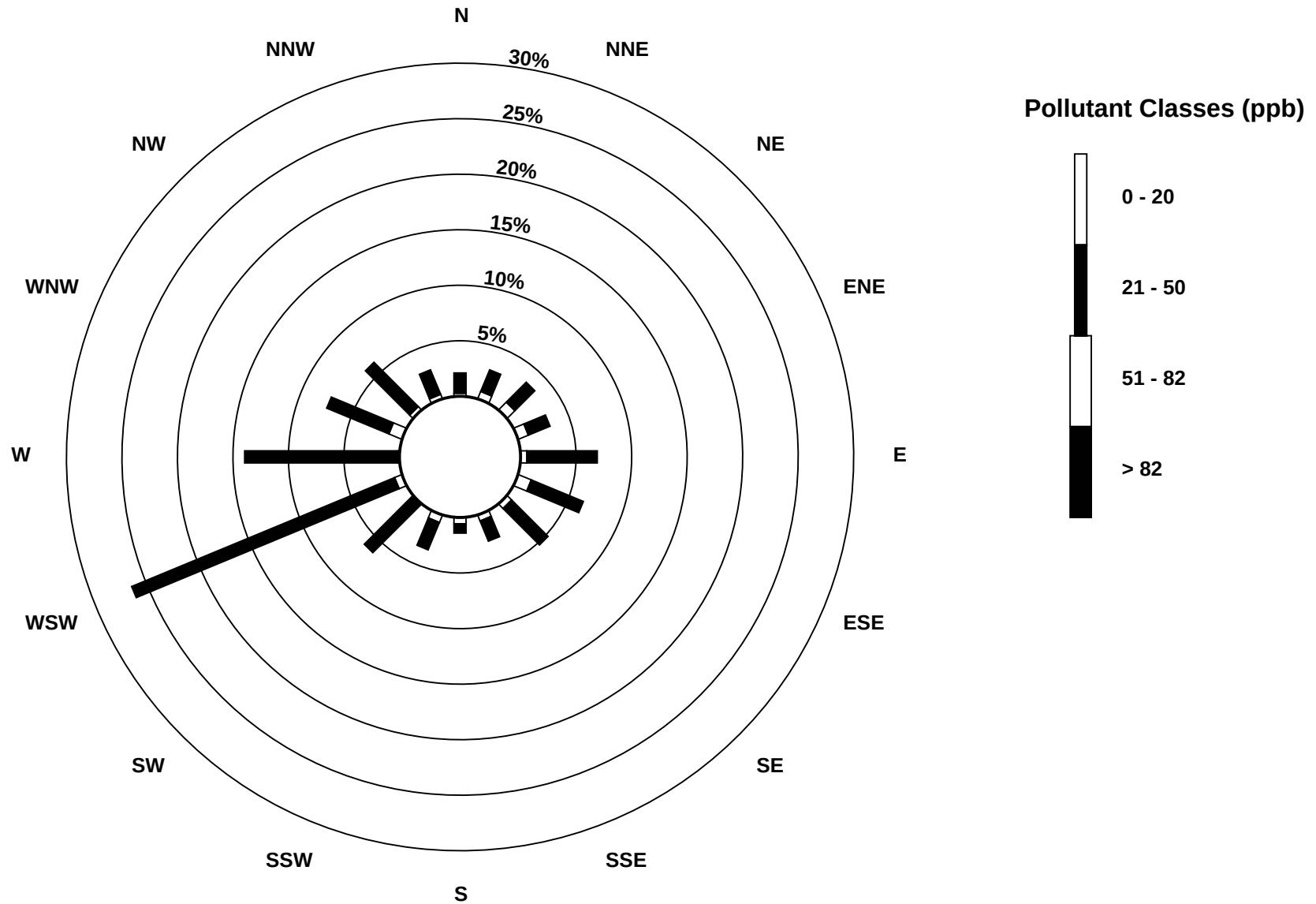
Hourly Maximums

Ozone (O₃) - ppb
Beaverlodge - December 2011



Pollutant Rose

Ozone (O₃) - ppb
Beaverlodge - December 2011



Eight Hour Running Averages

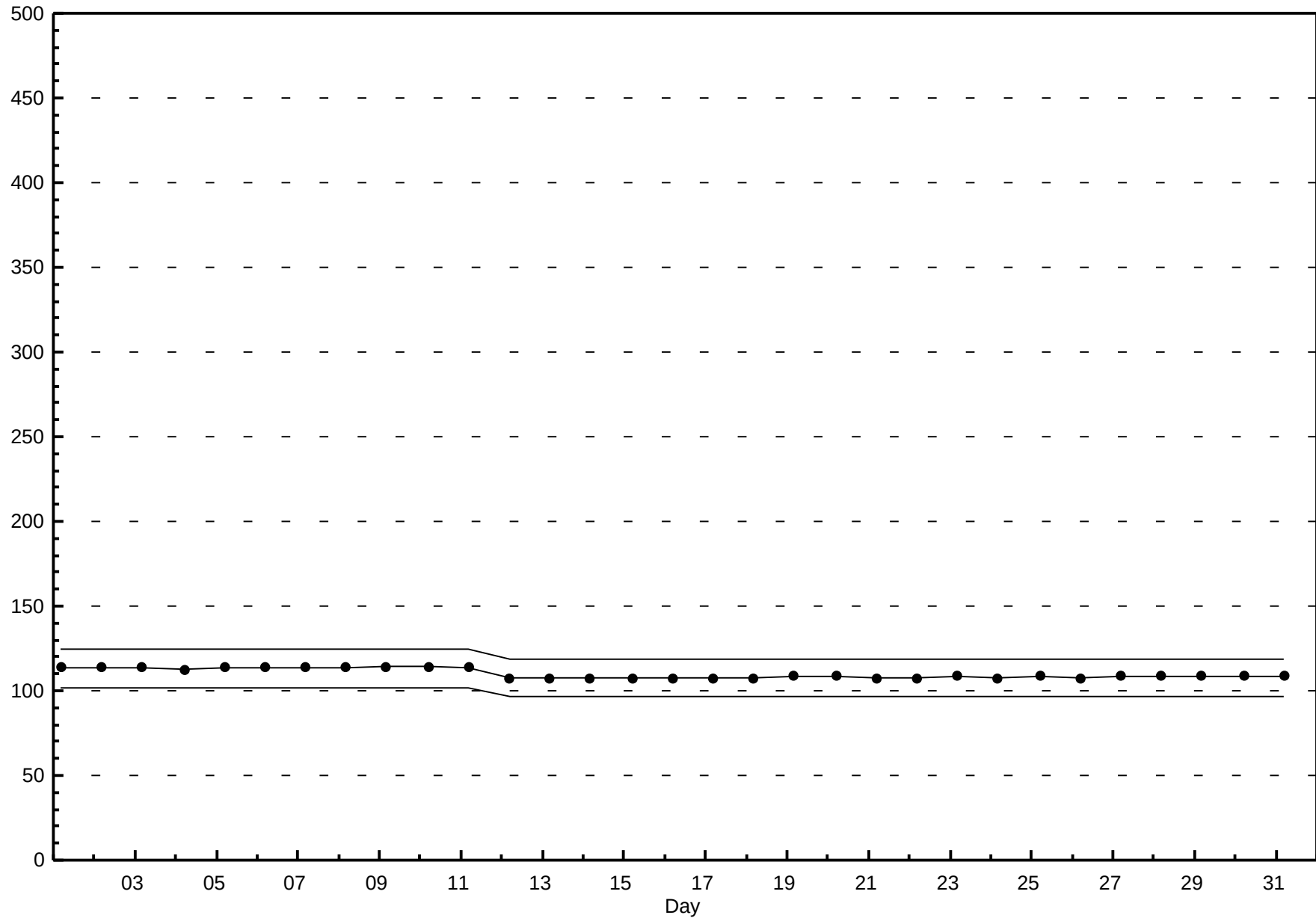
Ozone (O₃) - ppb

Beaverlodge - December 2011

Maximum Value: 42.1 ppb on Dec 1 14:00																								Hours in Service: 744	
Minimum Value: 6.7 ppb on Dec 15 10:00																								Hours of Data: 738	
																								Hours of Missing Data: 6	
Percentiles: P ₁ = 9.8 P ₁₀ = 21.2 Q ₁ = 27.2 Median = 33.0 Q ₃ = 35.9 P ₉₀ = 38.4 P ₉₉ = 41.6																								Hours of Calibration: 6	
																								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	36	36	37	38	39	39	40	41	41	42	42	42	42	41	40	38	37	36	35	34	33	33	34	42.1	
2-Dec	35	36	37	38	38	39	39	39	39	38	38	37	37	36	36	35	35	34	35	35	35	35	35	35	39.1
3-Dec	35	35	35	35	35	35	35	35	36	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37.5
4-Dec	36	34	34	33	33	33	32	32	32	32	31	30	29	28	28	27	26	26	27	28	29	30	31	32	35.8
5-Dec	34	35	35	36	37	38	38	38	38	38	38	38	38	38	39	39	39	39	39	39	39	39	38	39	38.9
6-Dec	39	39	39	40	40	40	41	41	40	40	39	39	39	39	38	38	37	37	36	35	35	34	33	33	40.7
7-Dec	32	31	31	30	30	28	28	27	26	27	27	26	24	24	24	23	22	21	22	22	24	23	23	24	32.1
8-Dec	23	22	22	21	21	18	16	14	12	10	10	10	11	13	16	18	19	21	20	21	22	22	22	23	23.4
9-Dec	26	28	31	33	34	36	38	40	41	41	41	41	41	41	41	41	41	42	42	42	42	41	41	41	41.7
10-Dec	41	40	39	39	38	37	35	35	36	36	36	36	36	37	38	37	37	36	36	35	34	34	33	32	40.5
11-Dec	32	33	33	33	34	34	34	33	32	30	28	27	28	27	26	N	N	N	N	N	N	24	23	23	34.2
12-Dec	23	22	23	23	23	24	24	25	25	26	27	27	27	28	28	29	31	32	33	34	35	36	37	37	37.3
13-Dec	37	37	37	37	37	36	36	35	35	34	32	31	31	30	30	28	28	27	26	26	25	25	24	26	37.3
14-Dec	26	26	27	28	28	29	29	29	29	29	29	28	27	26	26	26	25	24	24	25	25	24	23	22	29.4
15-Dec	20	19	18	15	14	13	11	8	8	7	7	9	11	13	15	17	18	19	18	16	14	13	12	10	20.0
16-Dec	11	12	15	18	19	23	26	28	30	30	30	30	30	29	29	29	28	27	26	24	23	22	21	21	30.2
17-Dec	21	21	22	23	23	23	23	21	21	21	21	22	22	23	24	24	24	24	23	22	21	20	20	19	24.1
18-Dec	20	20	20	21	21	21	22	22	22	23	23	23	24	24	25	25	26	26	26	27	27	28	29	29	29.5
19-Dec	30	31	32	33	33	34	35	36	36	37	37	37	37	37	37	37	37	37	37	37	36	36	36	36	37.0
20-Dec	35	35	36	36	36	36	36	36	36	36	36	35	36	35	35	35	35	34	34	33	33	32	32	31	36.0
21-Dec	31	31	31	31	30	30	30	30	29	29	28	28	28	28	29	29	30	31	31	32	33	34	34	34	34.5
22-Dec	35	35	36	36	36	36	37	37	37	37	37	37	37	37	37	36	35	35	34	33	33	33	32	32	37.3
23-Dec	32	31	31	32	31	31	32	32	33	34	34	34	34	34	34	34	34	34	35	35	35	36	36	37	36.7
24-Dec	37	37	37	36	36	36	36	36	36	35	35	35	35	35	35	35	34	34	33	33	32	31	31	31	36.6
25-Dec	31	31	31	32	32	33	34	35	36	37	38	38	38	39	39	39	38	38	38	38	38	38	37	36	38.6
26-Dec	36	35	35	34	34	34	34	34	33	33	32	31	31	30	30	30	29	29	29	29	29	28	29	29	35.8
27-Dec	29	30	30	31	31	32	32	32	33	33	33	32	33	33	33	33	33	33	33	34	34	34	33	33	33.9
28-Dec	33	32	31	31	30	30	30	30	30	31	31	31	30	30	30	28	27	26	24	22	21	19	18	17	32.7
29-Dec	15	14	13	12	12	12	12	14	17	20	23	27	28	31	33	35	36	37	37	37	37	36	36	36	36.8
30-Dec	35	35	34	33	33	33	33	34	34	34	35	34	34	34	33	33	32	30	29	29	29	28	27	27	35.3
31-Dec	27	28	29	30	30	31	32	33	34	34	34	34	35	35	35	35	34	34	34	34	34	34	33	33	34.6
40.5 40.0 39.2 39.6 39.8 39.9 40.7 40.6 41.2 41.6 41.9 41.9 41.9 42.1 41.3 41.2 41.2 41.4 41.6 41.7 41.6 41.5 41.3 41.1																									
Diurnal Maximums																									
N - Not Valid																									

Span Responses

Ozone (O₃)
Beaverlodge - December 2011

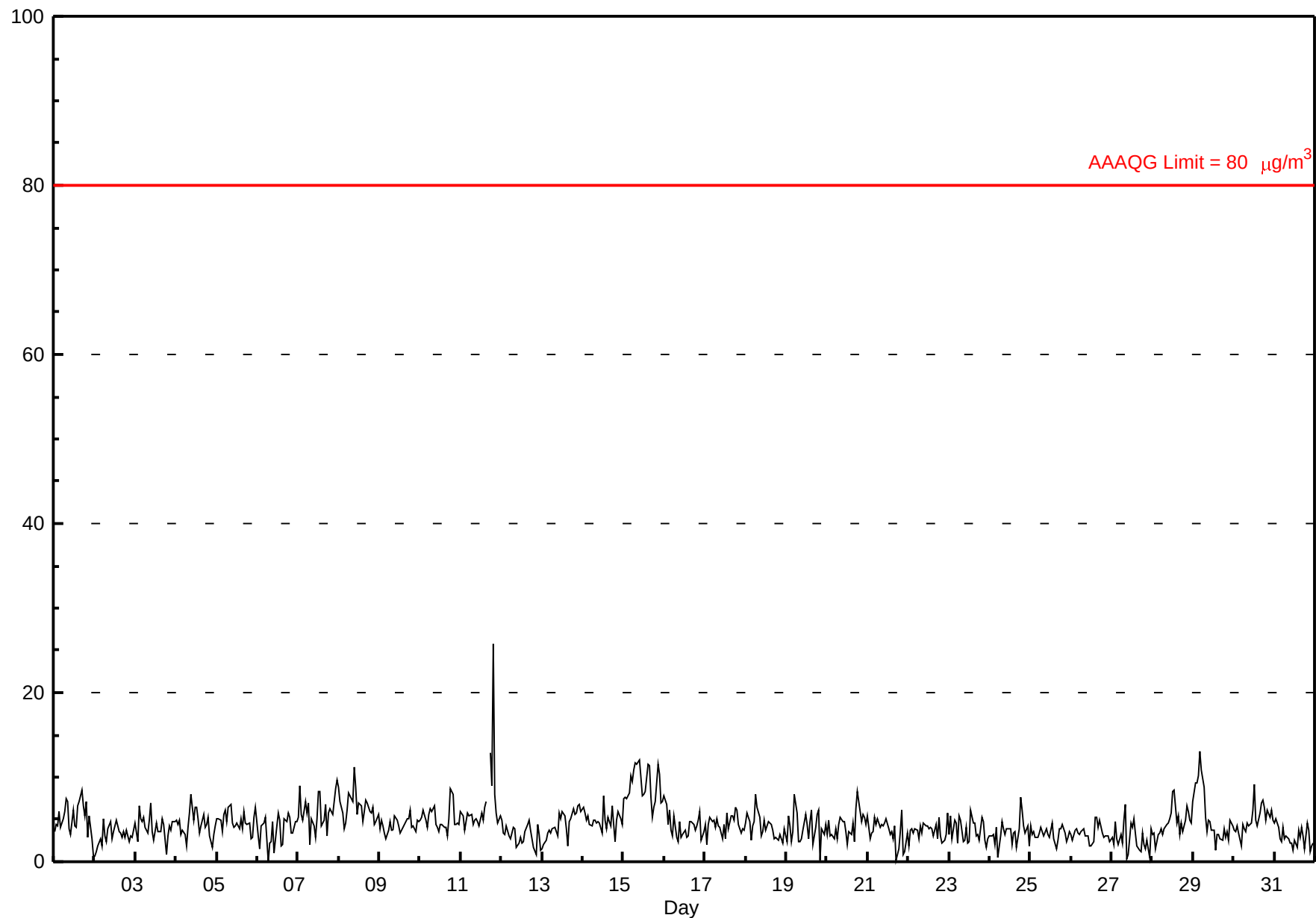


Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Beaverlodge - December 2011

Number of Exceedences: 1-hr: 0 24-hr: 0 Maximum Value: 25.8 µg/m³ on Dec 11 20:00 Minimum Value: 0 µg/m³ on Dec 6 07:00 Maximum Diurnal Average: 5.4 µg/m³ at hour 20 Monthly Average: 4.46 µg/m³																					Maximum Daily Average: 9.0 µg/m³ on Dec 15 Minimum Daily Average: 2.8 µg/m³ on Dec 27 Minimum Diurnal Average: 4.0 µg/m³ at hour 23 Percentiles: P ₁ = 0.7 P ₁₀ = 2.4 Q ₁ = 3.2 Median = 4.3 Q ₃ = 5.2 P ₉₀ = 6.8 P ₉₉ = 11.4										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 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	4	4	4	6	4	5	6	7	7	4	3	6	4	4	7	7	8	7	5	7	3	5	3	1	5.1	8.4						
2-Dec	1	1	2	3	2	5	3	2	4	5	3	4	4	5	3	3	3	4	3	4	2	3	3	4	3.1	5.1						
3-Dec	5	2	7	5	5	5	4	3	5	7	4	3	5	3	3	4	5	4	1	3	4	4	5	5	4.2	6.9						
4-Dec	5	4	5	3	4	3	2	4	6	8	5	6	7	5	3	4	6	4	4	5	3	2	3	4	4.4	8.0						
5-Dec	5	5	5	3	6	6	5	6	7	5	4	4	5	4	5	4	6	5	4	5	3	3	5	6	4.8	6.8						
6-Dec	3	2	4	4	5	5	0	2	2	5	1	4	6	5	2	2	5	5	6	5	3	3	5	5	3.7	5.8						
7-Dec	5	9	6	5	7	6	7	2	5	4	3	5	8	8	4	5	7	3	6	6	6	7	9	10	6.0	9.7						
8-Dec	9	7	6	4	5	6	8	7	7	11	9	6	7	7	5	6	7	7	6	6	6	4	5	6	6.5	11.1						
9-Dec	4	5	4	3	3	4	5	4	4	5	5	4	3	4	4	4	5	5	6	4	4	4	5	5	4.3	6.0						
10-Dec	5	5	6	5	4	6	6	6	7	4	4	4	4	4	4	4	3	5	9	8	4	4	5	4	5.0	8.6						
11-Dec	6	5	4	5	6	5	6	4	5	5	5	4	6	5	6	7	M	13	9	26	8	6	5	5	6.8	25.8						
12-Dec	5	3	3	4	3	3	3	4	4	2	2	3	2	2	4	4	5	4	3	2	1	4	3	1	3.1	5.0						
13-Dec	1	2	3	3	4	3	4	4	4	3	6	5	6	5	4	2	5	5	6	6	6	7	7	6	4.4	6.8						
14-Dec	6	6	5	5	4	4	5	5	5	5	5	3	8	5	4	5	4	7	4	2	5	6	5	4	4.9	7.9						
15-Dec	7	8	8	8	10	10	11	12	12	12	10	8	8	8	11	11	8	5	6	7	11	10	7	7	9.0	12.0						
16-Dec	8	7	4	6	4	3	5	3	2	5	3	3	4	3	3	5	5	4	4	4	5	6	3	4	4.2	7.8						
17-Dec	4	2	4	5	5	5	4	5	4	4	3	4	3	6	4	5	5	5	6	6	4	3	4	4	4.4	6.5						
18-Dec	5	6	5	3	4	5	8	7	5	3	4	5	4	5	5	4	4	3	3	2	3	3	2	4	4.1	7.9						
19-Dec	2	5	4	2	3	8	6	2	2	3	4	6	4	3	5	6	2	4	6	6	0	4	3	4	4.0	7.9						
20-Dec	3	5	3	3	3	4	3	4	5	5	5	4	2	4	3	5	2	6	8	7	5	6	5	4	4.3	8.2						
21-Dec	5	3	3	3	5	4	5	4	4	4	5	5	4	3	4	3	4	0	2	4	6	1	1	3	3.6	6.2						
22-Dec	2	4	4	3	4	4	3	4	3	5	4	4	4	4	4	3	4	3	5	3	2	2	3	6	3.7	5.8						
23-Dec	3	5	3	5	5	2	5	5	2	3	4	2	2	6	5	5	3	3	3	5	5	3	2	3	3.7	6.1						
24-Dec	3	3	3	2	4	0	3	5	4	3	4	4	4	2	3	4	2	4	8	6	4	3	4	2	3.5	7.7						
25-Dec	4	3	4	3	3	3	4	3	3	4	3	3	4	5	3	2	3	4	4	4	3	2	3	3	3.4	4.6						
26-Dec	3	3	4	4	3	3	4	4	3	3	3	2	2	2	5	5	4	5	3	3	3	3	3	2	3.3	5.3						
27-Dec	3	2	5	3	2	3	2	5	7	0	1	5	4	5	3	2	1	1	3	2	1	3	0	4	2.8	6.7						
28-Dec	3	3	1	3	3	4	3	4	4	5	5	6	8	9	5	5	3	5	4	5	7	6	5	5	4.6	8.6						
29-Dec	7	9	9	10	13	11	9	5	4	5	5	4	4	1	3	3	3	3	4	3	3	3	5	4	5.4	13.0						
30-Dec	4	4	4	3	2	4	4	4	5	4	5	6	9	5	4	6	7	7	6	5	6	5	6	5	5.0	9.1						
31-Dec	5	5	4	3	2	4	3	3	3	2	2	1	3	2	4	3	4	3	2	5	4	1	2	2	2.9	5.0						
4.4 4.5 4.4 4.2 4.4 4.7 4.7 4.6 4.6 4.6 4.0 4.3 4.7 4.5 4.3 4.5 4.4 4.6 4.8 5.4 4.3 4.1 4.0 4.3																									Diurnal Average							
8.8 9.2 9.3 10.2 13.0 10.9 10.9 11.7 11.5 12.0 10.0 7.8 9.1 8.6 11.4 11.4 8.4 12.9 9.0 25.8 11.5 10.3 8.7 9.7																									Diurnal Maximum							
M - Maintenance Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³																																

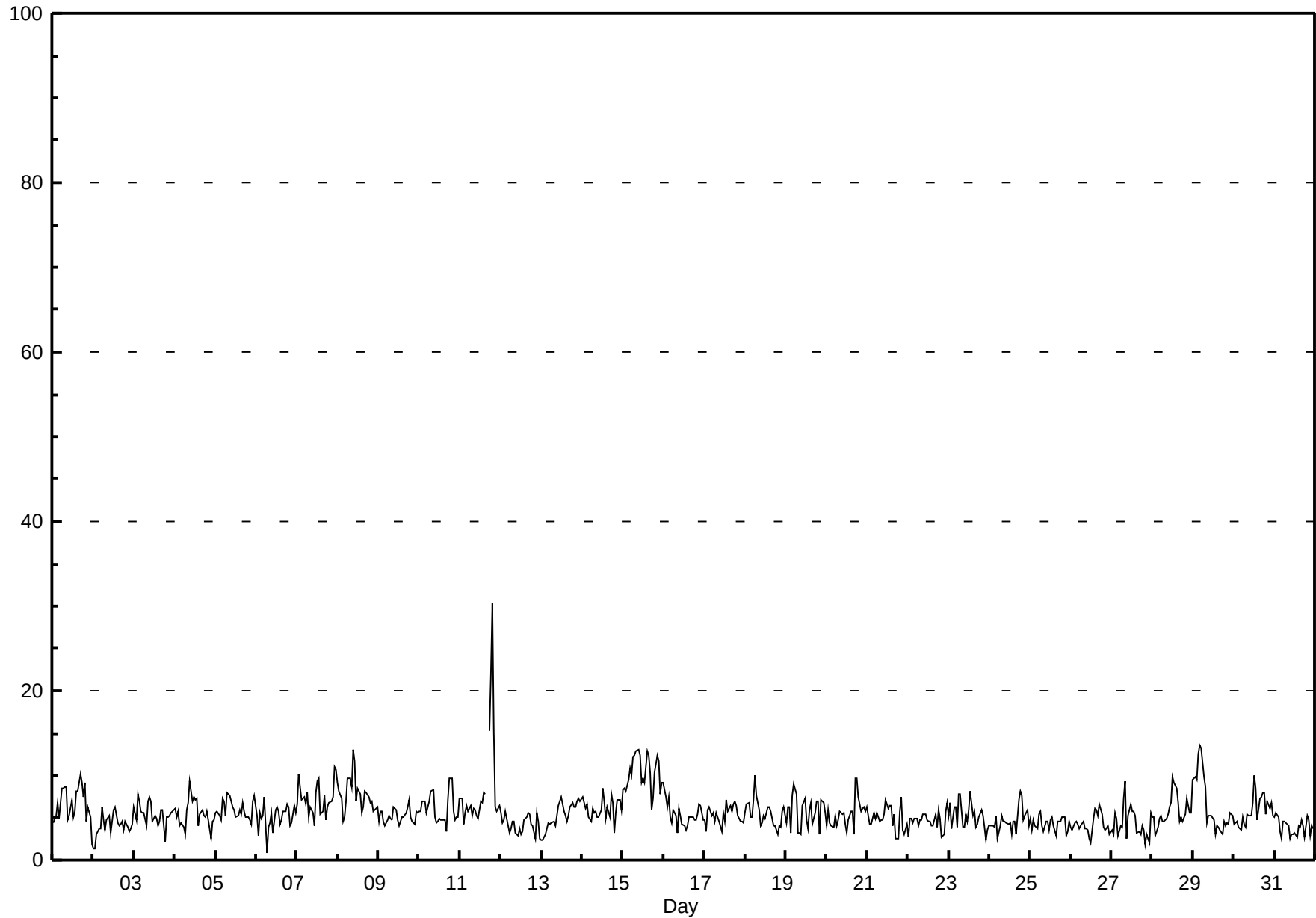


Hourly Maximums

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

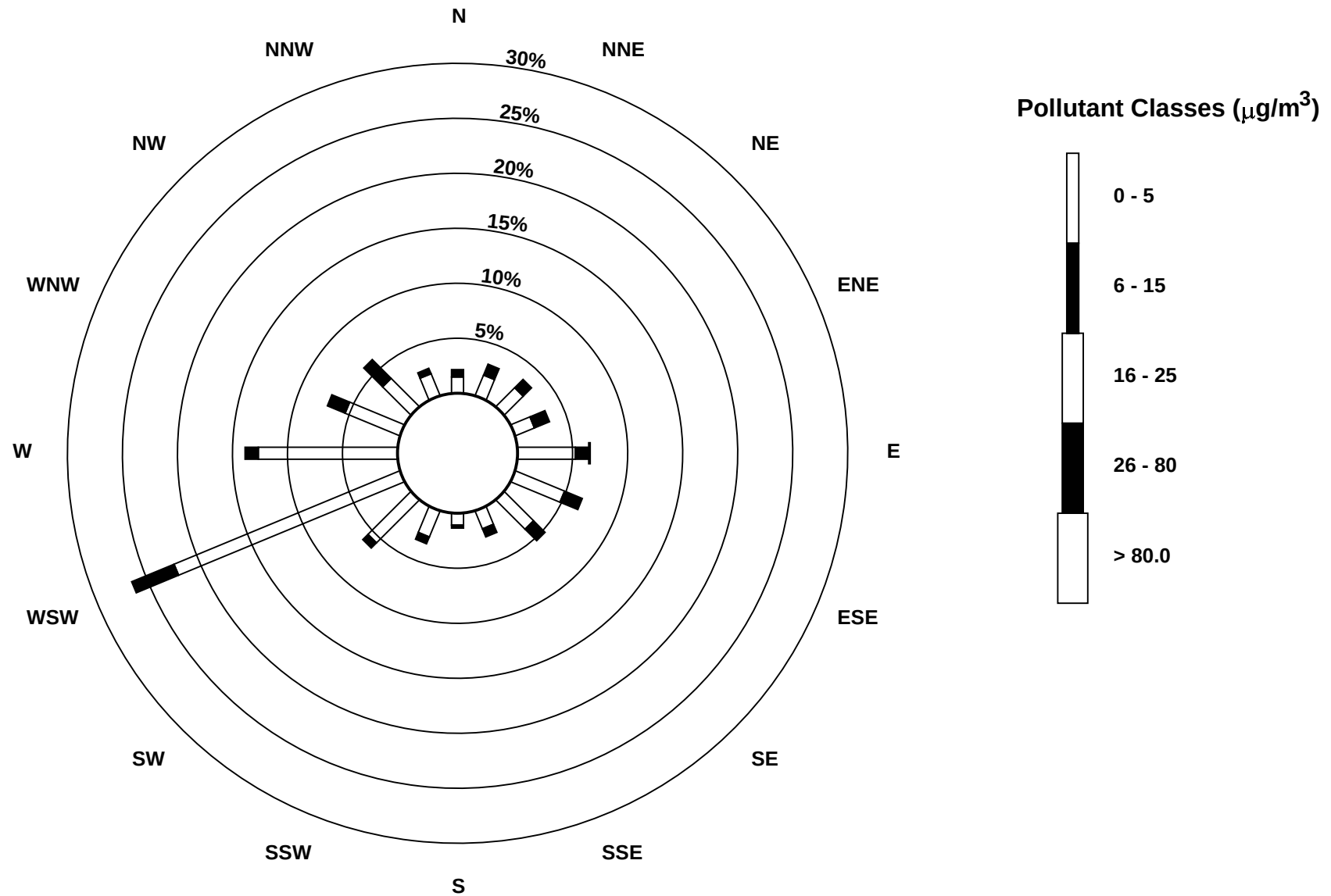
Beaverlodge - December 2011

Maximum Value: 30.4 μg/m ³ on Dec 11 20:00																				Maximum Daily Average: 10.3 μg/m ³ on Dec 15					Hours in Service: 744	
Minimum Value: 1 μg/m ³ on Dec 6 07:00																				Minimum Daily Average: 3.9 μg/m ³ on Dec 31					Hours of Data: 743	
Maximum Diurnal Average: 6.6 μg/m ³ at hour 20																				Minimum Diurnal Average: 5.1 μg/m ³ at hour 22					Hours of Missing Data: 1	
Monthly Average: 5.66 μg/m ³																				Percentiles: P ₁ = 2.2 P ₁₀ = 3.5 Q ₁ = 4.3 Median = 5.3 Q ₃ = 6.5 P ₉₀ = 8.2 P ₉₉ = 13.0					Hours of Calibration: 0	
																									Percent Operational Time: 99.9	
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	4	5	5	7	5	8	8	9	9	5	5	7	5	6	8	8	10	9	8	9	5	6	5	2	6.6	10.2
2-Dec	1	1	3	4	4	6	5	4	5	5	3	5	6	6	4	4	4	5	4	5	4	3	4	4	4.1	6.3
3-Dec	6	5	8	7	6	6	6	4	7	8	7	5	5	5	4	5	6	6	2	5	5	5	6	6	5.5	7.7
4-Dec	6	5	6	4	4	4	3	6	7	9	7	7	7	7	4	5	6	5	5	6	5	3	5	5	5.5	9.4
5-Dec	6	6	5	5	7	7	5	8	8	7	6	6	5	5	6	5	7	6	5	5	5	4	7	8	6.0	8.0
6-Dec	5	3	6	5	5	7	1	4	4	6	3	6	6	6	4	5	6	6	7	6	4	4	7	6	5.0	7.5
7-Dec	7	10	9	7	7	7	8	5	6	6	4	8	9	10	5	6	8	5	6	7	7	7	11	11	7.3	11.0
8-Dec	9	8	7	5	5	7	10	10	9	13	12	7	8	8	6	6	8	8	7	7	7	6	6	6	7.7	13.1
9-Dec	4	6	6	5	4	5	5	5	5	6	6	5	4	5	5	5	6	6	7	5	5	4	6	6	5.2	7.0
10-Dec	6	6	7	7	6	6	7	8	8	5	4	5	5	5	5	5	3	7	10	10	6	5	5	5	6.0	9.7
11-Dec	7	7	4	6	7	6	7	5	6	6	5	5	7	7	8	8	M	15	22	30	15	6	6	6	8.8	30.4
12-Dec	6	4	5	6	4	3	4	5	5	3	3	4	3	3	5	5	6	5	4	4	3	6	5	3	4.2	5.7
13-Dec	2	2	3	4	4	4	4	5	4	5	7	7	7	6	5	5	5	6	7	6	6	7	7	7	5.3	7.4
14-Dec	8	7	6	7	5	5	6	6	6	5	5	6	8	7	5	6	5	8	7	3	6	7	7	6	6.1	8.5
15-Dec	8	8	8	9	11	10	12	12	13	13	12	9	10	9	13	12	10	6	7	10	12	12	8	9	10.3	13.1
16-Dec	9	7	6	7	5	4	6	5	3	6	5	4	4	4	4	5	5	5	5	5	5	7	6	5	5.4	9.1
17-Dec	5	3	6	6	5	6	5	6	5	5	3	6	5	7	6	6	6	7	7	7	5	5	5	4	5.4	7.2
18-Dec	6	7	7	5	5	7	10	8	6	4	4	5	5	6	6	6	5	4	4	3	4	4	6	6	5.5	10.0
19-Dec	4	6	6	3	8	9	8	3	3	3	6	7	5	4	6	7	4	6	7	7	3	7	7	6	5.6	8.9
20-Dec	4	6	4	4	4	5	4	5	6	5	6	4	3	5	6	6	3	10	10	7	6	6	6	6	5.4	9.7
21-Dec	6	4	4	5	6	5	6	5	5	5	5	7	6	6	6	4	5	3	3	6	7	3	3	4	5.0	7.5
22-Dec	3	5	5	4	5	5	4	5	5	5	5	5	5	5	4	4	5	4	6	5	3	3	6	7	4.7	6.8
23-Dec	5	7	4	6	6	4	8	8	4	4	6	4	6	8	5	6	4	4	5	6	5	4	2	4	5.2	8.2
24-Dec	4	4	4	4	5	3	4	5	5	5	4	4	4	3	5	5	3	7	8	8	5	5	6	4	4.7	8.2
25-Dec	5	4	5	4	4	5	6	4	3	5	5	4	5	5	4	3	5	5	5	5	5	3	3	5	4.3	5.7
26-Dec	4	4	4	5	4	4	4	5	4	4	4	3	2	5	6	6	5	7	5	4	4	4	4	3	4.2	6.6
27-Dec	4	3	6	5	3	4	4	7	9	3	5	7	6	6	5	3	3	3	4	4	2	3	2	6	4.4	9.4
28-Dec	5	5	3	4	5	5	5	5	5	5	6	7	10	9	8	7	5	5	5	5	7	6	6	6	5.8	9.9
29-Dec	9	10	9	13	14	13	10	9	4	5	5	5	5	3	4	4	4	3	5	4	4	4	6	5	6.6	13.6
30-Dec	4	4	5	4	4	5	4	4	5	5	5	7	10	8	5	7	7	8	8	5	7	6	7	5	5.9	9.9
31-Dec	5	6	5	3	3	5	5	4	4	3	3	3	3	3	4	4	5	4	3	5	5	3	4	4	3.9	5.5
5.4 5.4 5.5 5.4 5.4 5.8 5.8 5.8 5.7 5.6 5.5 5.6 5.8 5.8 5.6 5.6 5.5 6.0 6.3 6.6 5.5 5.1 5.5 5.4																									Diurnal Average	
9.4 10.2 9.5 12.6 13.6 13.3 12.2 12.4 12.9 13.1 12.4 9.2 9.9 9.6 12.8 12.5 10.4 15.3 22.0 30.4 15.2 11.7 11.0 10.6																									Diurnal Maximum	
M - Maintenance																										



Pollutant Rose

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Beaverlodge - December 2011



Hourly Averages

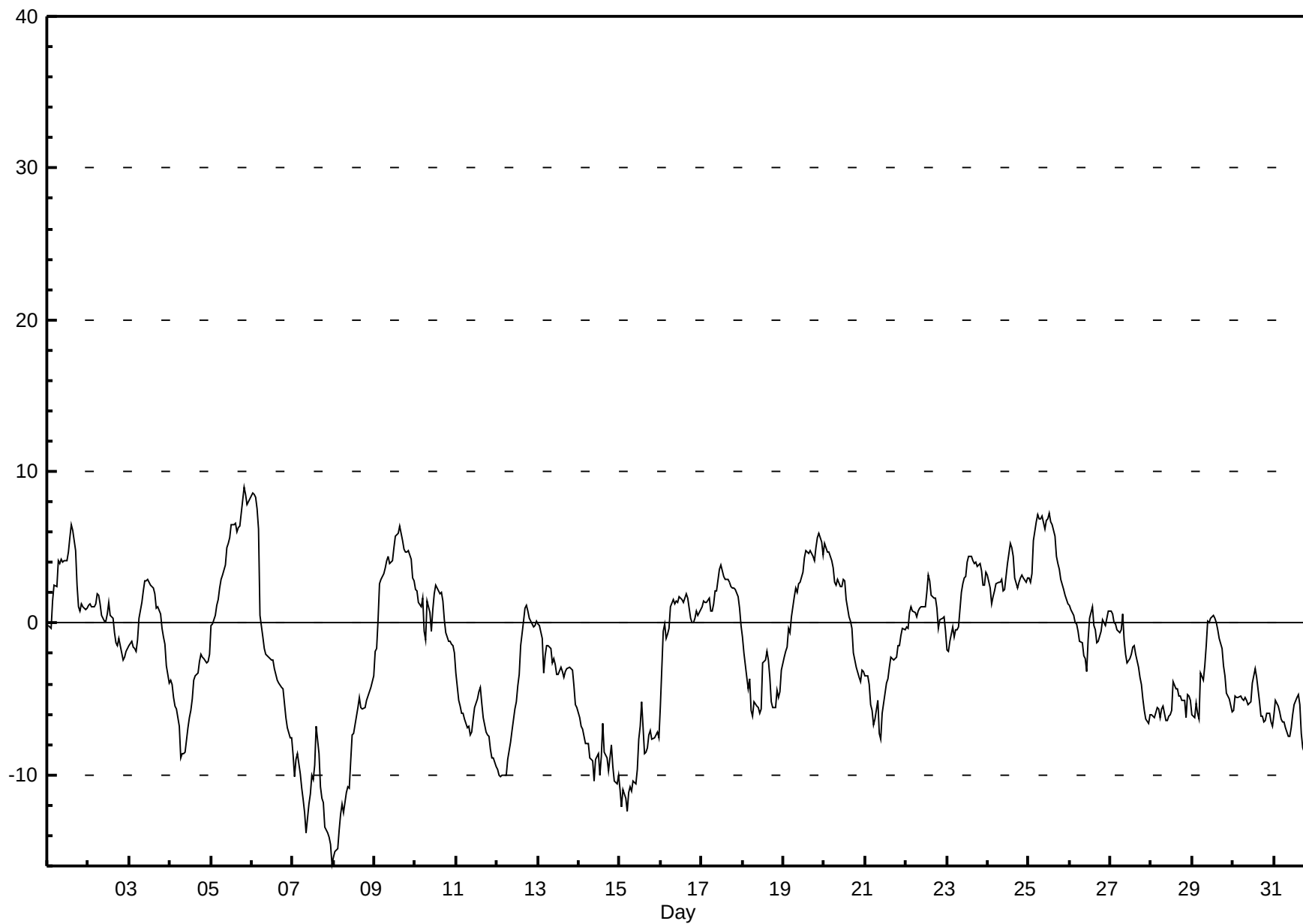
External Temperature (ET) - °C

Beaverlodge - December 2011

Number of Exceedences (AAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9.0 °C on Dec 5 20:00 Maximum Daily Average: 4.9 °C on Dec 5																				Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9						
Minimum Value: -16 °C on Dec 8 00:00 Maximum Diurnal Average: -0.3 °C at hour 15 Monthly Average: -1.90 °C Minimum Daily Average: -11.2 °C on Dec 7 Minimum Diurnal Average: -2.7 °C at hour 23 Percentiles: P ₁ = -13.8 P ₁₀ = -8.6 Q ₁ = -5.6 Median = -1.5 Q ₃ = 1.8 P ₉₀ = 4.1 P ₉₉ = 7.9																										
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	0	0	0	1	2	2	4	4	4	4	4	4	5	6	6	6	5	2	1	1	1	1	1	1	2.8	6.5
2-Dec	1	1	1	1	1	2	2	1	0	0	0	1	1	1	0	-1	-1	-1	-1	-1	-2	-2	-2	-2	0.0	2.0
3-Dec	-1	-1	-2	-2	-2	-1	0	1	2	3	3	3	3	2	2	2	1	1	1	0	-1	-1	-3	-4	0.2	2.9
4-Dec	-4	-4	-5	-5	-6	-7	-9	-9	-9	-8	-7	-6	-6	-5	-4	-3	-3	-3	-2	-2	-2	-3	-3	-2	-4.8	-2.0
5-Dec	0	0	1	1	2	2	3	3	4	5	5	6	6	7	7	6	6	6	7	9	8	8	8	8	4.9	9.0
6-Dec	9	8	8	8	6	1	-1	-2	-2	-2	-2	-2	-2	-3	-3	-4	-4	-4	-4	-5	-6	-7	-8	-8	-1.3	8.6
7-Dec	-9	-10	-9	-9	-10	-11	-12	-13	-14	-12	-11	-10	-10	-9	-7	-9	-11	-12	-12	-13	-14	-14	-15	-16	-11.2	-6.8
8-Dec	-15	-15	-15	-14	-13	-12	-13	-11	-11	-11	-9	-7	-7	-6	-6	-5	-6	-6	-6	-5	-5	-5	-4	-3	-8.7	-3.4
9-Dec	-2	-2	0	3	3	3	4	4	4	4	4	5	6	6	6	6	5	5	5	5	5	4	3	3	3.7	6.4
10-Dec	2	2	1	1	2	-1	-1	1	1	-1	1	2	3	2	2	2	1	0	-1	-1	-1	-1	-2	-2	0.6	2.5
11-Dec	-3	-5	-5	-6	-6	-6	-7	-7	-7	-7	-6	-6	-5	-4	-4	-5	-6	-7	-7	-7	-8	-9	-9	-9	-6.4	-3.2
12-Dec	-10	-10	-10	-10	-10	-10	-9	-8	-8	-7	-6	-5	-4	-3	-1	0	1	1	1	0	0	0	0	0	-4.5	1.2
13-Dec	0	0	-1	-3	-2	-1	-1	-2	-3	-2	-3	-3	-3	-3	-3	-4	-3	-3	-3	-3	-3	-4	-5	-6	-2.7	-0.1
14-Dec	-6	-7	-7	-7	-8	-8	-9	-9	-9	-10	-9	-9	-10	-9	-7	-9	-9	-10	-9	-8	-9	-10	-11	-10	-8.7	-6.3
15-Dec	-11	-12	-11	-12	-12	-11	-11	-11	-10	-11	-10	-8	-7	-5	-9	-9	-8	-7	-7	-8	-8	-7	-7	-8	-9.1	-5.2
16-Dec	-5	0	0	-1	-1	0	1	2	1	1	1	2	2	1	2	2	2	0	0	0	0	1	0	1	0.5	2.0
17-Dec	1	1	1	1	2	1	1	1	2	2	4	4	3	3	3	3	3	2	2	2	2	2	1	0	2.0	3.9
18-Dec	-1	-2	-4	-4	-4	-6	-6	-5	-5	-6	-6	-6	-3	-2	-2	-2	-4	-5	-6	-6	-4	-5	-5	-3	-4.2	-0.9
19-Dec	-2	-2	-2	0	-1	0	2	2	2	3	3	3	4	5	5	5	5	4	4	5	6	6	5	5	2.8	6.0
20-Dec	5	5	5	5	4	4	3	3	3	2	2	3	3	2	0	0	0	-2	-2	-3	-4	-4	-3	-3	1.1	5.3
21-Dec	-3	-3	-4	-5	-6	-7	-6	-5	-7	-8	-6	-5	-4	-4	-3	-2	-2	-2	-2	-2	-1	-1	0	0	-3.8	-0.3
22-Dec	0	0	1	1	1	1	0	1	1	1	1	1	2	3	3	2	2	2	1	0	0	0	0	-1	0.9	3.2
23-Dec	-2	-2	-1	0	-1	0	0	0	2	3	3	3	4	4	4	4	4	4	4	4	4	2	3	3	2.0	4.4
24-Dec	3	2	1	2	2	3	3	3	3	2	2	4	5	5	5	4	3	2	3	3	3	3	3	3	3.0	5.2
25-Dec	3	3	3	5	7	7	7	7	7	6	7	7	7	7	6	6	4	4	4	3	2	2	2	1	4.9	7.3
26-Dec	1	1	1	0	0	-1	-1	-1	-2	-2	-3	-1	0	1	0	0	-1	-1	-1	0	0	0	0	1	-0.4	1.2
27-Dec	1	1	0	0	0	-1	0	1	-1	-2	-3	-2	-2	-2	-1	-2	-3	-4	-4	-5	-6	-6	-7	-6	-2.3	0.8
28-Dec	-6	-6	-6	-6	-6	-6	-6	-5	-6	-6	-6	-6	-6	-4	-4	-4	-5	-5	-5	-5	-6	-5	-5	-5	-5.5	-3.9
29-Dec	-6	-6	-5	-6	-6	-3	-4	-3	-2	0	0	0	1	0	0	0	-1	-2	-3	-3	-5	-5	-5	-6	-2.9	0.5
30-Dec	-6	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-4	-4	-3	-4	-5	-6	-6	-7	-6	-6	-6	-7	-7	-5.2	-3.0
31-Dec	-6	-5	-5	-6	-6	-7	-7	-7	-7	-7	-7	-6	-5	-5	-5	-5	-7	-8	-8	-9	-9	-10	-11	N	-7.0	-4.7
-2.4 -2.4 -2.4 -2.3 -2.3 -2.5 -2.5 -2.2 -2.3 -2.3 -1.9 -1.3 -0.8 -0.4 -0.3 -0.7 -1.3 -1.7 -1.9 -2.0 -2.2 -2.5 -2.7 -2.5																										
8.6 8.5 8.3 7.5 6.7 7.2 6.9 6.8 7.1 6.2 6.7 6.9 7.3 6.7 6.6 6.4 6.3 6.4 7.2 9.0 8.4 7.9 8.0 8.2																										
Diurnal Average																										
Diurnal Maximum																										
N - Not Valid																										

Hourly Averages

External Temperature (ET) - °C
Beaverlodge - December 2011



Hourly Averages

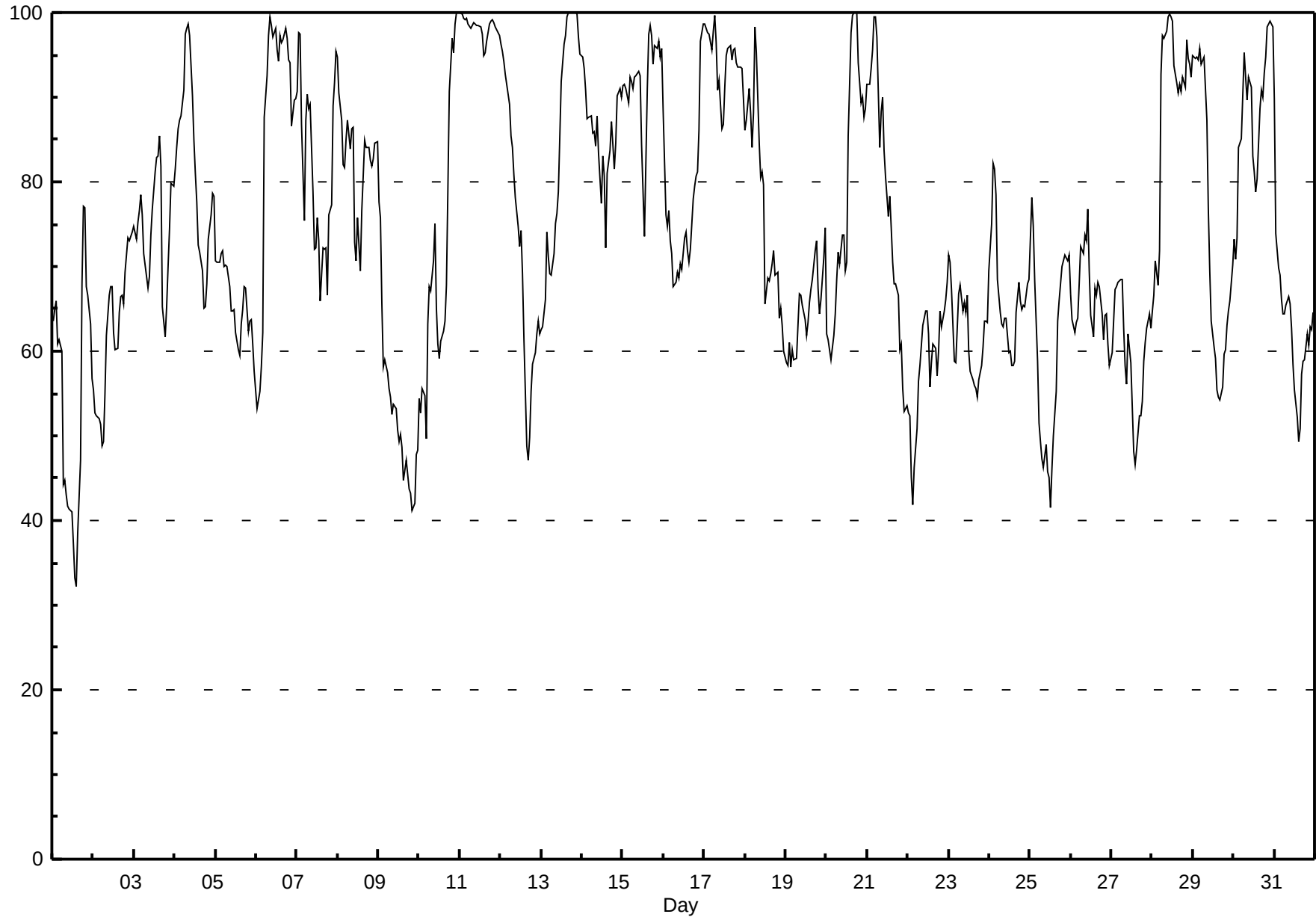
Relative Humidity (RH) - %

Beaverlodge - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100.0 % on Dec 10 23:00 Maximum Daily Average: 98.3 % on Dec 11																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0		
Minimum Value: 32 % on Dec 1 15:00 Maximum Diurnal Average: 77.2 % at hour 23 Monthly Average: 74.31 %												Minimum Daily Average: 52.7 % on Dec 9 Minimum Diurnal Average: 69.5 % at hour 14 Percentiles: P ₁ = 41.5 P ₁₀ = 54.9 Q ₁ = 62.9 Median = 71.5 Q ₃ = 89.7 P ₉₀ = 97.0 P ₉₉ = 100.0														
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	64	65	66	61	61	60	44	45	43	42	41	41	37	33	32	38	47	68	77	77	68	67	63	57	54.1	77.2
2-Dec	55	53	52	52	51	49	49	55	62	67	68	68	62	60	60	65	66	67	66	69	73	73	74	74	62.1	74.1
3-Dec	75	73	75	77	79	76	71	69	68	69	74	77	81	83	83	85	82	65	62	65	70	74	80	80	74.7	85.4
4-Dec	82	84	86	87	88	91	97	98	99	97	90	85	81	78	72	72	69	65	65	68	73	76	79	78	81.7	98.7
5-Dec	71	70	71	72	72	70	70	70	68	65	65	65	62	60	60	63	65	68	67	62	64	64	61	58	65.9	71.9
6-Dec	53	54	55	58	62	88	93	97	99	98	97	98	96	94	97	96	97	98	97	94	94	87	90	90	86.8	99.4
7-Dec	91	98	97	87	76	87	90	89	89	79	72	72	76	73	66	72	72	72	67	76	77	89	92	95	81.4	97.7
8-Dec	95	91	87	82	82	85	87	84	86	86	73	71	76	69	77	81	85	84	84	83	82	83	85	85	82.5	94.8
9-Dec	78	76	66	58	59	57	56	55	53	54	53	51	49	50	49	45	47	45	44	43	41	42	48	48	52.7	77.7
10-Dec	54	53	56	55	50	63	68	67	71	75	65	61	59	61	62	64	68	79	91	97	95	99	100	100	71.3	100.0
11-Dec	100	100	99	99	99	99	98	99	99	99	99	98	98	97	95	95	97	99	99	99	99	98	98	97	98.3	100.0
12-Dec	96	95	94	93	90	89	85	84	81	78	75	72	74	69	62	49	47	50	55	59	60	62	64	62	72.7	96.4
13-Dec	63	63	66	74	71	69	69	71	75	76	79	85	92	96	97	100	100	100	100	100	100	100	97	95	85.0	100.0
14-Dec	95	93	91	88	88	88	86	86	84	88	83	77	83	81	72	81	84	87	84	81	85	90	91	90	85.7	94.7
15-Dec	91	92	91	89	92	92	91	92	93	93	93	84	79	74	91	98	99	97	94	96	96	97	95	96	91.8	98.6
16-Dec	89	76	75	77	73	72	68	68	69	69	70	70	73	74	72	71	72	78	79	81	81	86	97	99	76.5	98.6
17-Dec	99	98	98	98	96	98	100	96	91	92	86	87	91	95	96	96	94	96	96	94	94	94	93	90	94.4	99.6
18-Dec	86	87	91	88	84	88	98	95	85	81	81	80	66	69	68	69	70	72	69	69	64	65	63	60	77.0	98.4
19-Dec	59	58	61	58	60	59	59	63	67	67	65	64	62	63	66	67	68	72	73	67	64	66	71	75	64.8	74.5
20-Dec	62	61	60	59	62	64	68	72	70	74	74	69	70	85	98	100	100	100	100	94	89	90	88	89	79.1	100.0
21-Dec	92	92	93	96	99	99	97	84	88	90	84	81	76	78	75	70	68	68	67	60	61	56	53	54	78.3	99.5
22-Dec	53	52	45	42	46	51	56	58	61	63	65	65	62	56	59	61	60	57	60	65	63	65	66	68	58.3	68.2
23-Dec	71	70	67	59	59	63	67	68	65	66	65	67	60	58	57	56	56	55	57	58	61	64	64	63	62.2	71.3
24-Dec	69	75	82	82	78	69	65	63	63	64	64	60	60	58	58	59	65	68	66	65	66	65	68	69	66.7	82.2
25-Dec	73	78	75	68	59	52	49	47	46	49	46	45	41	46	50	55	64	66	68	70	71	71	71	71	59.7	78.1
26-Dec	67	64	62	63	64	68	72	72	74	73	77	70	64	62	67	67	68	68	64	61	64	64	61	58	66.4	76.8
27-Dec	60	64	67	68	68	69	68	63	58	56	62	59	53	48	47	48	52	52	54	59	61	63	64	63	59.4	68.5
28-Dec	65	67	71	68	72	93	97	97	98	100	100	100	99	94	92	91	92	91	92	91	97	95	94	92	89.3	99.9
29-Dec	95	95	95	94	96	94	95	91	87	77	70	64	61	59	55	55	54	56	60	60	63	65	66	70	73.9	95.7
30-Dec	73	71	73	84	85	90	95	92	90	92	91	83	81	79	80	89	91	90	93	95	98	99	99	98	88.0	98.9
31-Dec	90	74	70	69	66	64	64	65	67	66	63	58	55	52	49	51	57	59	59	62	61	63	62	65	63.0	89.8
76.2 75.5 75.4 74.3 73.8 76.0 76.6 76.0 75.7 75.6 73.8 71.8 70.4 69.5 69.8 71.2 72.8 73.9 74.5 74.9 75.3 76.4 77.2 77.0																								Diurnal Average		
100.0 99.9 99.3 99.2 99.5 99.4 99.6 98.5 99.4 99.5 99.9 99.5 98.9 97.4 97.6 99.6 100.0 100.0 100.0 100.0 100.0 99.9 100.0 100.0																								Diurnal Maximum		

Hourly Averages

Relative Humidity (RH) - %
Beaverlodge - December 2011



Hourly Averages

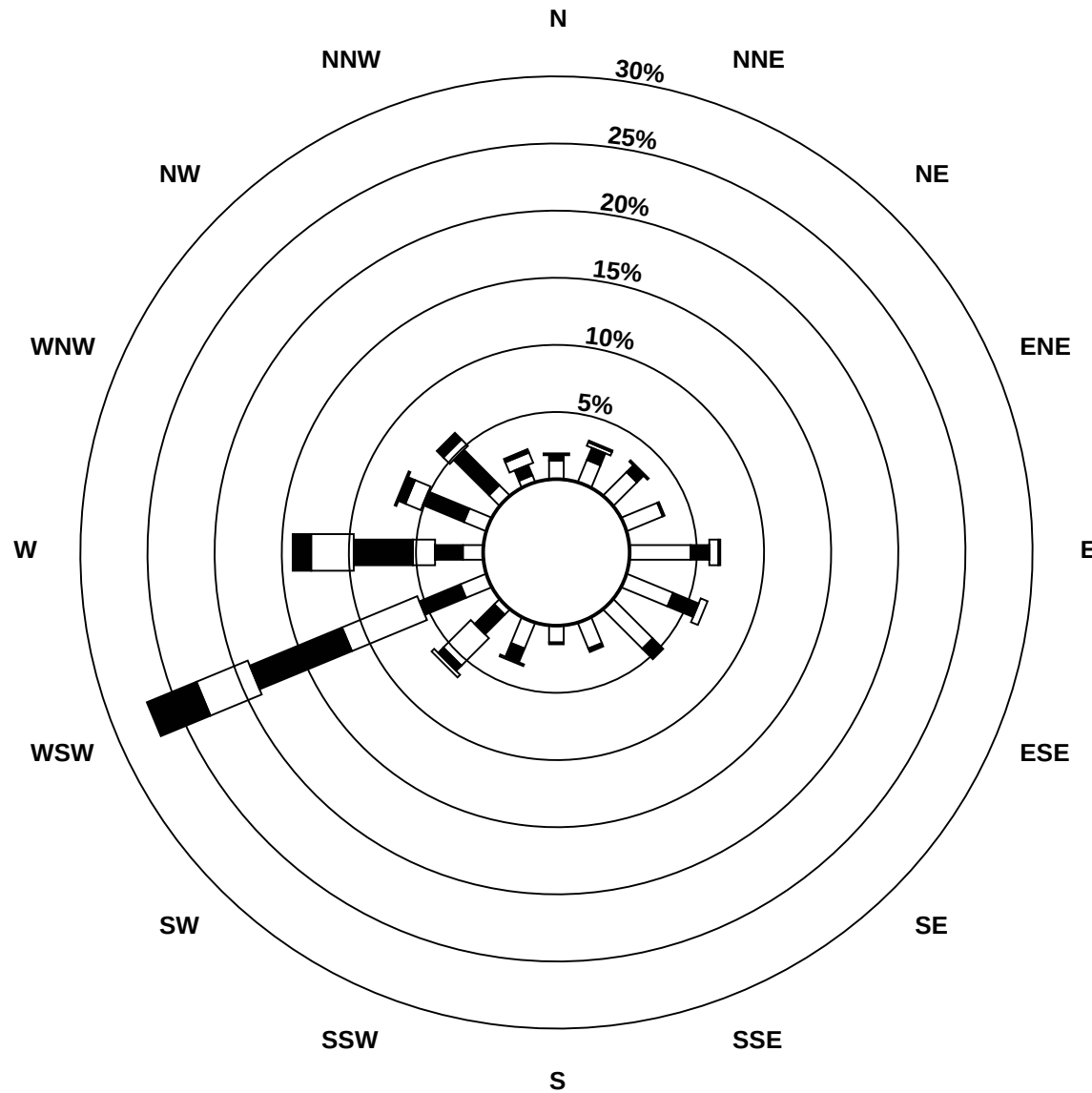
Wind Speed (km/h)
Wind Direction (deg)
Beaverlodge - December 2011

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 Spd	22	15	13	25	22	16	32	31	35	29	38	29	28	28	53	68	73	60	47	46	49	54	50	49	37.7	73.4
Dir	247	254	253	249	253	255	258	261	259	259	250	249	249	251	252	256	255	247	241	246	255	260	264	269	254	255
2 Spd	41	35	35	31	23	29	24	20	11	8	7	6	6	7	14	13	15	17	20	21	13	12	20	16	16.3	41.2
Dir	267	273	277	280	298	300	310	322	330	335	323	257	234	224	236	230	242	243	249	244	247	253	256	257	272	267
3 Spd	11	5	9	4	3	2	4	11	18	22	20	20	16	18	17	18	19	18	24	23	18	14	12	7	11.9	23.6
Dir	257	264	264	227	64	89	296	304	293	290	293	313	309	293	289	303	332	321	333	333	333	338	28	18	312	333
4 Spd	4	4	4	8	6	1	4	3	3	4	5	5	4	4	4	3	4	4	2	3	1	1	2	2	1.2	8.2
Dir	287	293	345	328	322	350	81	93	97	120	141	162	140	110	92	106	97	82	81	49	73	128	258	32	74	328
5 Spd	9	11	13	16	14	14	14	12	13	23	27	21	15	19	18	20	28	33	24	48	43	30	47	41	22.9	48.5
Dir	259	263	257	247	244	248	243	232	251	256	251	244	231	236	230	240	247	242	246	255	249	250	247	251	247	255
6 Spd	46	54	52	47	23	24	22	15	13	11	10	11	9	9	9	5	4	4	5	8	7	4	4	5	12.3	54.2
Dir	256	261	261	264	278	17	357	329	294	287	268	235	268	278	312	323	356	315	7	25	35	23	292	6	285	261
7 Spd	10	12	12	9	7	10	8	7	3	2	2	0	0	4	1	2	2	4	3	1	3	3	3	2	3.0	12.3
Dir	338	330	341	21	10	316	307	295	37	45	54	35	354	3	299	32	40	60	94	113	112	99	143	89	357	330
8 Spd	5	2	4	3	2	1	3	2	1	5	6	2	1	3	2	2	3	3	3	4	3	3	5	4	2.2	6.1
Dir	53	110	84	82	37	112	256	254	198	46	45	139	151	73	85	128	121	105	74	65	63	80	47	47	73	45
9 Spd	3	5	6	13	14	12	20	29	22	7	9	8	8	11	20	14	17	16	13	10	8	3	2	4	10.3	28.7
Dir	274	259	259	263	254	237	247	254	254	213	212	205	233	237	240	240	247	256	278	287	287	299	87	40	251	254
10 Spd	2	0	2	2	6	7	13	23	20	15	13	17	25	21	16	16	12	9	9	10	11	10	10	9	10.1	24.8
Dir	93	65	196	9	268	246	247	258	256	245	269	266	271	276	294	288	295	348	324	287	283	288	300	349	278	271
11 Spd	12	17	10	6	5	6	1	3	2	3	2	3	4	4	5	7	6	6	3	2	3	3	2	3	3.3	16.6
Dir	19	34	46	17	31	1	316	179	87	70	92	126	167	139	122	121	100	108	91	90	106	90	136	113	71	34
12 Spd	2	3	4	6	6	6	4	3	3	3	2	1	5	2	12	24	30	29	38	38	34	36	31	36	11.6	37.8
Dir	134	138	115	118	124	120	97	128	115	132	125	112	260	105	229	242	256	260	258	256	260	252	255	267	249	258
13 Spd	35	34	19	9	21	18	10	8	5	6	6	3	5	1	1	8	10	9	9	6	8	9	9	13	8.7	35.4
Dir	265	264	247	236	254	270	283	309	22	19	28	172	136	211	240	306	313	313	309	292	299	283	297	313	279	265
14 Spd	10	8	7	7	7	8	6	5	8	5	4	3	1	4	2	4	2	3	7	5	3	1	2	2	2.6	10.0
Dir	306	306	306	312	305	299	303	333	307	52	27	277	72	57	94	58	73	66	44	53	103	173	101	183	340	306
15 Spd	4	3	3	3	4	2	4	2	3	1	2	1	1	1	5	5	5	4	4	4	3	3	3	2	1.1	4.7
Dir	300	42	34	267	31	344	299	10	21	73	25	309	111	171	70	73	90	120	151	133	137	138	192	148	73	73
16 Spd	8	21	15	12	11	4	3	10	3	10	1	7	9	10	2	3	3	2	3	4	4	2	4	6	4.5	20.6
Dir	228	249	233	229	242	210	236	256	242	228	129	249	225	235	314	27	354	136	123	103	185	206	105	75	231	249
17 Spd	6	6	2	3	2	4	2	2	8	7	10	16	10	9	8	5	7	5	6	7	7	8	8	11	4.3	15.7
Dir	136	140	135	106	142	179	99	203	229	248	277	291	305	306	299	284	282	285	253	287	302	301	306	309	280	291
18 Spd	6	7	5	7	5	2	3	5	8	6	3	3	5	3	3	9	7	5	5	12	13	13	11	13	3.4	13.3
Dir	308	309	358	25	18	336	295	323	315	313	100	42	281	99	237	241	204	207	195	227	237	220	217	210	254	210
19 Spd	8	6	4	15	20	18	19	22	23	23	10	15	21	35	20	4	24	20	8	6	22	42	41	38	18.7	41.7
Dir	201	204	203	253	243	240	241	247	245	254	262	268	273	265	274	244	247	238	221	261	267	265	251	244	252	265
20 Spd	44	47	44	42	31	28	18	21	26	26	21	31	38	26	23	22	22	24	20	19	13	10	11	10	24.2	47.4
Dir	255	256	254	260	251	253	248	250	252	249	252	260	263	264	261	269	288	313	306	310	305	293	297	300	265	256
21 Spd	8	6	2	1	3	1	4	6	2	1	5	5	11	9	15	16	12	13	12	17	18	22	28	22	8.9	28.4
Dir	285	243	252	120	63	93	284	260	125	359	249	225	251	237	236	233	229	228	231	229	248	269	266	258	248	266
22 Spd	22	21	23	34	26	30	41	37	28	27	21	9	15	21	9	9	4	5	2	6	8	7	7	2	14.7	40.9
Dir	245	245	264	268	261	257	263	260	254	262	259	260	252	267	250	241	199	248	155	94	87	117	114	316	256	263

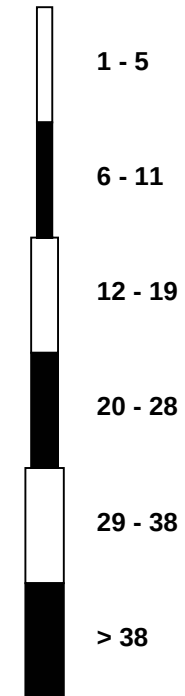
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
23 Spd	6	1	4	3	5	18	13	12	36	41	46	34	41	45	47	37	34	34	33	37	30	13	13	23	24.6	46.7					
Dir	346	43	267	259	219	233	234	230	238	241	248	245	250	252	253	251	251	253	262	259	257	241	236	245	249	253					
24 Spd	41	34	23	31	29	27	25	21	17	2	5	7	11	2	5	5	8	13	11	9	6	4	5	3	8.9	41.3					
Dir	245	243	241	236	248	259	260	264	269	2	119	219	239	88	51	85	84	106	130	130	133	137	135	110	236	245					
25 Spd	2	5	13	21	25	26	22	25	36	22	12	7	13	12	14	14	19	17	24	24	17	14	25	28	17.4	36.1					
Dir	127	61	225	234	236	235	241	235	234	249	270	228	250	257	245	237	242	258	247	250	246	259	246	249	243	234					
26 Spd	29	32	27	22	29	22	21	26	9	2	2	3	5	3	4	7	9	10	11	9	6	4	5	5	8.0	31.8					
Dir	255	260	262	260	258	250	246	237	252	172	153	195	207	161	112	86	107	124	133	146	139	141	150	150	234	260					
27 Spd	5	6	6	4	5	1	14	48	44	48	48	45	45	47	38	28	21	12	12	16	5	2	5	3	19.0	48.2					
Dir	143	171	167	113	156	163	257	255	249	236	240	243	246	256	258	260	264	270	275	249	266	167	58	86	248	255					
28 Spd	3	1	6	5	9	13	17	14	11	9	9	7	4	5	7	5	5	3	4	1	2	1	1	1	5.4	16.8					
Dir	79	149	95	129	118	109	108	112	112	107	117	123	149	136	164	150	119	167	179	198	55	282	113	341	120	108					
29 Spd	2	2	0	3	3	5	5	9	14	27	26	29	34	36	36	35	33	24	19	3	3	6	5	5	12.9	36.4					
Dir	30	29	336	69	62	244	194	240	236	241	240	243	250	241	247	255	259	256	260	280	289	34	58	72	249	247					
30 Spd	6	7	6	9	12	15	18	18	23	16	6	3	4	6	8	6	5	2	5	5	10	10	7	9	2.6	22.5					
Dir	100	101	96	97	95	85	80	80	88	90	80	293	236	251	274	324	320	245	256	271	262	273	241	248	89	88					
31 Spd	24	25	25	32	27	26	28	29	24	24	24	27	29	26	25	19	11	7	11	14	12	7	8	2	19.7	32.4					
Dir	249	254	261	263	261	261	266	266	265	263	262	257	263	268	266	255	249	235	246	247	238	212	197	125	258	263					
Spd	10.6	10.5	9.4	10.2	8.9	8.1	9.1	11.5	11.0	9.9	9.4	10.3	12.1	11.5	11.6	10.7	10.5	9.0	8.4	9.3	8.8	8.3	8.6	8.2	Diurnal Average						
Dir	259	260	260	260	258	260	262	260	255	253	253	250	253	256	255	255	258	255	257	259	260	260	255	263							
Spd	45.7	54.2	51.8	46.8	30.8	30.1	40.9	48.2	44.3	48.0	48.2	45.0	45.4	47.2	53.4	68.1	73.4	60.1	47.3	48.5	48.8	53.8	49.7	49.2	Diurnal Maximum						
Dir	256	261	261	264	251	257	263	255	249	236	240	243	246	256	252	256	255	247	241	255	255	260	264	269							
Maximum Speed Value: 73 km/h on Dec 1 17:00																					Minimum Speed Value: 0 km/h on Dec 7 12:00					Hours in Service:				744	
Maximum Daily Speed Average: 37.7 km/h on Dec 1																					Minimum Daily Speed Average: 1.1 km/h on Dec 15					Hours of Data:				744	
Maximum Diurnal Speed Average: 12.1 km/h at hour 13																					Minimum Diurnal Speed Average: 8.1 km/h at hour 6					Hours of Missing Data:				0	
Monthly Average Velocity: 9.82 km/h 257.2 deg																					Speed Percentiles: P ₁ = 0.7 P ₁₀ = 2.2 Q ₁ = 4.1 Median = 8.7 Q ₃ = 20.6 P ₉₀ = 31.5 P ₉₉ = 50.2					Percent Operational Time:				100.0	
All monthly, daily, and diurnal averages have been calculated using vector methods																															
Frequency Distribution																															
Speed Range (km/h)																															
Direction	0 to 5		5 to 11		11 to 19		19 to 28		28 to 38		> 38		Total																		
North	14		14		3		2		0		0		33																		
NorthEast	38		13		2		0		0		0		53																		
East	60		17		9		1		0		0		87																		
SouthEast	51		22		1		0		0		0		74																		
South	22		6		0		0		0		0		28																		
SouthWest	15		31		49		29		11		10		145																		
West	19		43		37		60		49		30		238																		
NorthWest	17		43		16		9		1		0		86																		
Total	236		189		117		101		61		40		744																		

Wind Rose

Wind Speed (WS) (km/h)
Beaverlodge - December 2011



Wind Speed Classes (km/h)



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Beaverlodge - December 2011

Maximum Speed: 74 km/h on Dec 1 17:00																				Maximum Daily Speed Average: 38.1 km/h on Dec 1										Hours in Service: 744	
Minimum Speed: 2 km/h on Dec 8 13:00																				Minimum Daily Speed Average: 3.4 km/h on Dec 8										Hours of Data: 744	
Maximum Diurnal Speed Average: 15.8 km/h at hour 8																				Minimum Diurnal Speed Average: 11.9 km/h at hour 22										Hours of Missing Data: 0	
Monthly Average Speed: 13.92 km/h																				Percentiles: P ₁ = 2.1 P ₁₀ = 3.2 Q ₁ = 4.8 Median = 9.0 Q ₃ = 20.7 P ₉₀ = 31.7 P ₉₉ = 50.2										Percent Operational Time: 100.0	
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	22	15	13	25	22	16	32	31	35	29	38	29	28	28	54	68	74	60	47	46	49	54	50	49	38.1	73.5					
2-Dec	41	35	35	31	23	29	24	20	11	8	8	7	7	7	14	13	15	17	20	21	13	12	20	16	18.6	41.3					
3-Dec	11	6	9	4	4	3	5	11	18	22	21	20	16	18	17	18	19	19	24	23	19	15	12	8	14.3	23.8					
4-Dec	5	5	4	8	6	3	4	3	4	4	5	5	4	4	4	4	5	4	3	3	2	2	4	4	4.1	8.3					
5-Dec	9	11	13	17	14	15	15	12	13	23	27	21	16	19	19	20	29	34	25	49	43	31	47	41	23.3	48.8					
6-Dec	46	54	52	47	29	25	23	16	13	11	11	11	10	10	9	6	4	4	6	9	8	6	5	6	17.5	54.3					
7-Dec	10	13	12	9	7	10	8	8	3	3	2	2	3	6	2	3	3	4	4	2	3	3	4	3	5.3	12.6					
8-Dec	5	3	4	3	3	2	3	3	3	5	6	3	2	3	3	2	3	3	3	4	4	3	5	4	3.4	6.2					
9-Dec	5	6	8	13	14	13	21	29	22	8	10	8	9	12	20	14	17	16	14	10	8	4	3	4	12.0	28.7					
10-Dec	4	3	3	4	6	8	15	23	21	16	13	17	25	21	16	16	13	9	9	10	11	10	10	10	12.1	24.9					
11-Dec	13	17	10	6	5	6	2	3	3	3	2	3	4	4	5	7	6	6	3	3	3	3	3	3	5.2	16.6					
12-Dec	3	3	5	6	6	6	5	4	3	4	2	3	6	3	12	24	30	29	38	38	34	37	31	36	15.3	37.9					
13-Dec	36	34	20	10	21	18	10	9	5	6	7	4	5	2	2	8	10	9	9	6	9	9	9	13	11.3	35.5					
14-Dec	10	8	7	8	8	8	8	5	8	6	4	4	3	5	3	4	3	3	7	6	4	3	3	4	5.4	10.1					
15-Dec	5	3	3	4	4	3	5	3	3	2	3	3	3	2	5	5	5	5	4	4	4	3	4	3	3.7	5.3					
16-Dec	9	21	15	12	11	5	4	11	4	11	5	8	9	10	5	4	5	3	3	4	4	2	5	6	7.4	20.7					
17-Dec	7	6	2	4	3	4	3	3	8	7	10	16	10	9	8	5	7	5	7	7	7	8	8	11	6.9	15.8					
18-Dec	6	7	6	8	5	4	6	5	8	7	4	4	6	3	5	9	7	5	6	12	13	13	11	13	7.3	13.4					
19-Dec	8	7	5	15	21	18	19	23	23	23	10	15	21	35	20	6	24	20	9	6	22	42	42	38	19.8	41.9					
20-Dec	44	48	44	42	31	28	18	21	26	26	21	31	38	26	24	23	23	24	20	19	13	10	11	10	25.8	47.6					
21-Dec	8	6	4	3	3	3	5	6	4	4	6	6	11	9	15	16	12	13	12	17	19	22	28	22	10.6	28.4					
22-Dec	22	21	24	34	26	30	41	37	28	27	22	9	15	21	9	9	5	5	4	6	8	8	7	5	17.6	41.1					
23-Dec	8	5	6	7	7	19	13	12	36	41	46	34	41	45	47	37	34	34	33	37	30	13	13	24	25.9	46.8					
24-Dec	41	34	24	31	29	27	25	21	17	3	6	8	12	3	5	6	8	13	11	9	8	5	6	5	15.0	41.4					
25-Dec	4	5	14	21	25	26	22	25	36	22	13	8	13	13	14	14	19	17	24	24	17	14	25	28	18.5	36.2					
26-Dec	29	32	27	22	29	22	21	26	10	4	3	4	6	4	4	8	9	10	11	9	6	5	5	5	13.0	31.8					
27-Dec	5	6	6	4	5	4	15	49	45	48	48	45	46	47	38	28	21	12	12	16	6	5	6	4	21.8	48.6					
28-Dec	4	2	7	7	9	13	17	14	11	9	9	8	5	5	7	6	5	3	4	2	3	2	3	5	6.7	16.8					
29-Dec	3	4	4	4	5	5	5	9	15	27	26	29	34	36	37	35	33	24	19	6	6	6	5	6	16.0	36.5					
30-Dec	7	7	7	9	12	15	18	18	23	16	7	3	5	6	8	6	5	2	5	6	10	10	8	9	9.2	22.6					
31-Dec	24	25	25	32	27	26	28	29	24	24	24	27	29	27	25	20	11	7	11	14	12	7	8	3	20.4	32.4					
14.6 14.6 13.5 14.6 13.6 13.4 14.3 15.8 15.6 14.5 13.5 12.8 14.2 14.3 14.7 14.3 15.0 13.5 13.2 13.7 12.9 11.9 12.9 12.9																									Diurnal Average						
45.8 54.3 51.9 46.9 30.9 30.2 41.1 48.6 44.6 48.1 48.3 45.1 45.5 47.4 53.6 68.2 73.5 60.2 47.3 48.8 48.9 53.9 49.8 49.3																									Diurnal Maximum						
All monthly, daily, and diurnal averages have been calculated using scalar methods																															

Hourly Standard Deviations

Wind Direction (WD) - deg
Beaverlodge - December 2011

Maximum Value: 99.5 deg on Dec 29 03:00																			Hours in Service: 744						
Minimum Value: 2.2 deg on Dec 1 01:00																			Hours of Data: 744						
																			Hours of Missing Data: 0						
Percentiles: P ₁ = 2.8 P ₁₀ = 4.0 Q ₁ = 5.7 Median = 11.9 Q ₃ = 30.8 P ₉₀ = 59.7 P ₉₉ = 89.9																			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	2	4	7	6	6	9	5	5	4	8	4	4	5	6	5	3	3	4	3	4	4	4	4	3	9.3
2-Dec	4	4	4	6	9	5	5	6	8	19	10	34	17	8	7	6	3	4	4	3	4	5	3	4	34.0
3-Dec	8	43	7	16	61	42	61	9	11	7	10	4	8	5	4	8	15	8	7	7	6	22	9	30	61.1
4-Dec	27	39	26	5	10	81	18	22	26	20	13	29	22	20	14	31	15	22	53	53	90	71	86	56	89.9
5-Dec	11	12	7	8	6	5	7	7	9	5	3	5	19	7	11	4	11	8	7	9	5	6	4	7	18.7
6-Dec	4	4	4	3	44	14	16	18	8	13	18	7	21	24	6	21	38	20	22	15	29	62	37	38	62.3
7-Dec	18	21	15	6	10	9	30	51	57	33	61	89	96	44	78	78	45	21	42	63	9	22	34	47	95.9
8-Dec	8	38	27	24	73	70	22	59	73	13	11	40	54	16	24	19	11	24	23	14	17	26	22	16	73.0
9-Dec	81	87	58	13	7	28	31	3	6	30	15	13	39	44	3	14	4	6	15	18	16	30	64	31	86.8
10-Dec	62	94	66	60	29	50	59	6	11	13	6	6	5	6	4	6	18	11	13	6	4	4	9	17	93.9
11-Dec	28	6	7	11	9	18	80	25	49	14	26	50	28	15	6	8	4	6	30	40	42	26	40	18	80.0
12-Dec	40	29	20	13	10	12	16	21	24	29	31	79	80	60	8	13	5	5	3	3	4	4	7	4	79.5
13-Dec	4	4	21	26	5	6	9	10	55	22	47	53	17	75	52	10	9	9	6	8	15	9	11	6	74.7
14-Dec	10	9	9	13	12	8	52	29	9	31	32	47	73	56	45	11	37	19	5	7	49	64	68	57	73.1
15-Dec	43	41	63	55	45	42	62	43	31	90	41	55	79	47	14	9	10	23	14	26	31	34	70	63	89.7
16-Dec	19	6	15	8	8	39	77	29	85	24	71	68	10	15	70	34	67	51	30	17	17	32	40	21	84.8
17-Dec	16	14	31	31	40	17	47	62	9	16	20	6	6	5	5	6	4	9	26	9	8	6	5	5	61.7
18-Dec	22	11	19	13	15	58	62	24	9	47	45	33	43	48	79	6	14	31	10	13	13	6	12	6	78.5
19-Dec	12	52	37	7	5	7	16	7	3	9	9	13	10	7	7	91	7	13	22	17	5	5	5	3	91.0
20-Dec	7	5	4	4	5	6	5	3	4	3	4	5	5	7	34	24	20	4	7	4	8	3	7	4	34.1
21-Dec	8	19	88	52	11	80	68	25	66	79	65	33	7	6	5	4	6	7	9	6	24	8	4	7	87.5
22-Dec	6	4	8	4	6	4	4	5	3	4	5	10	5	6	21	16	38	25	57	14	8	28	24	83	82.5
23-Dec	43	89	52	83	67	4	6	9	6	4	4	4	4	4	4	8	5	9	4	4	6	9	8	10	89.4
24-Dec	4	4	3	6	3	7	6	6	19	67	40	29	22	75	9	15	11	6	9	8	39	33	37	47	75.1
25-Dec	53	16	34	4	6	3	5	4	4	3	15	38	13	14	12	10	7	12	5	5	10	12	5	4	53.0
26-Dec	4	3	4	6	4	5	6	3	57	71	57	49	27	34	16	14	14	11	9	7	16	20	27	25	71.4
27-Dec	11	13	11	25	24	78	27	7	6	4	4	3	4	5	5	6	5	15	13	5	47	66	49	45	78.2
28-Dec	59	60	29	47	6	4	5	5	7	8	8	14	27	23	13	15	14	36	17	69	80	90	82	90	90.1
29-Dec	65	70	100	59	77	21	15	15	27	6	4	4	5	4	4	3	4	6	6	73	68	17	19	37	99.5
30-Dec	26	14	12	19	8	4	5	5	5	6	35	45	38	28	10	6	9	47	26	20	8	9	17	5	46.9
31-Dec	3	5	4	3	3	3	3	3	3	2	4	3	6	4	5	8	3	26	8	5	9	17	12	66	66.2
80.6 93.9 99.5 83.0 77.0 80.9 80.0 61.7 84.8 89.7 70.7 88.7 95.9 75.1 78.5 91.0 67.4 50.8 56.6 73.1 89.9 89.9 86.1 90.1																									

PAZA
Valleyview Station
Monthly Summary Tables, Graphs and
Roses

Hourly Averages

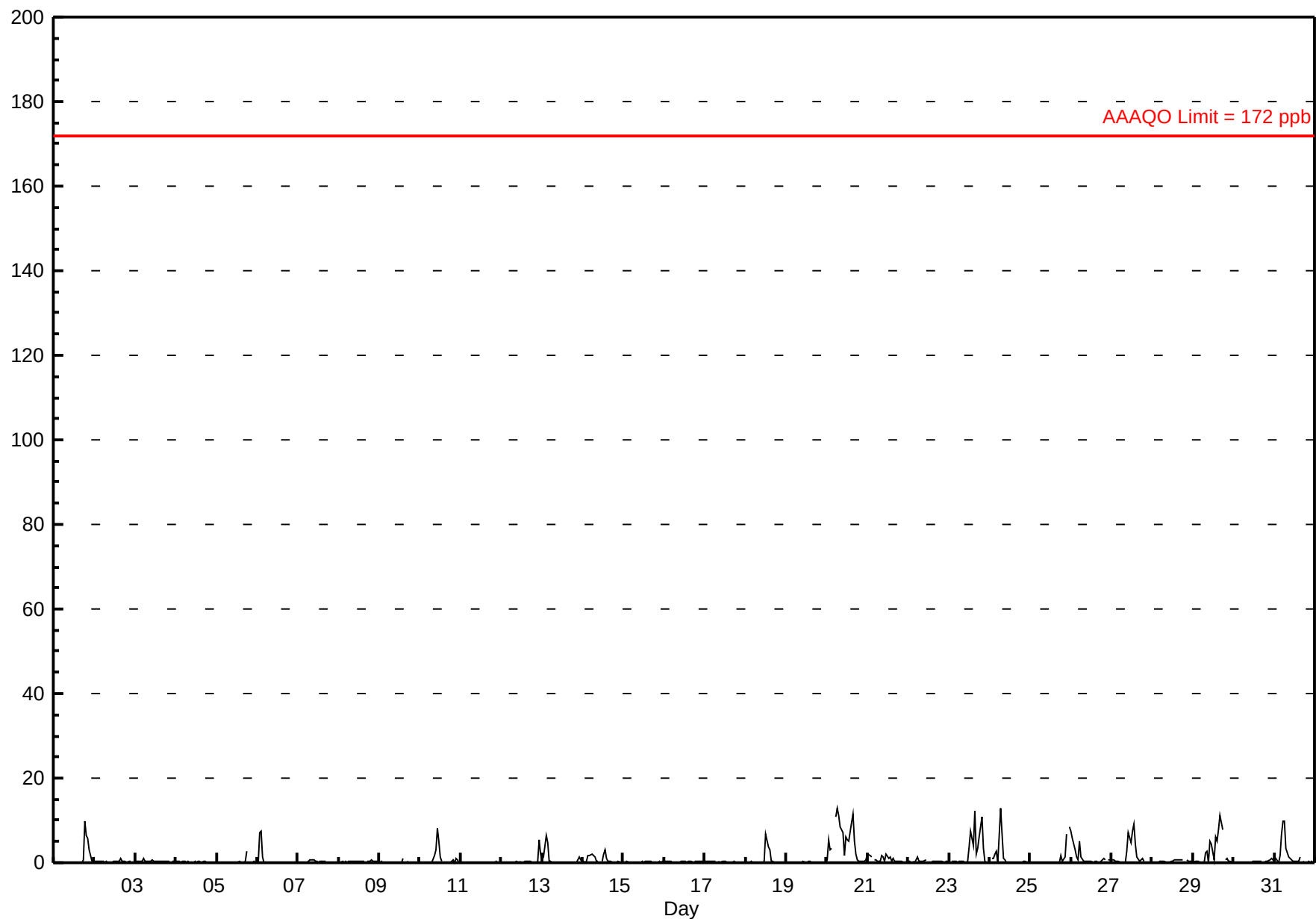
Sulphur Dioxide (SO₂) - ppb

Valleyview - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 13.0 ppb on Dec 24 07:00 Maximum Daily Average: 4.8 ppb on Dec 20																				Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0							
Minimum Value: 0 ppb on Dec 1 02:00 Maximum Diurnal Average: 1.4 ppb at hour 14 Monthly Average: 0.85 ppb										Minimum Daily Average: 0.0 ppb on Dec 11 Minimum Diurnal Average: 0.4 ppb at hour 23 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 2.0 P ₉₉ = 10.7																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
1-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	6	6	3	0	A	1.2	9.9		
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	A	0	0	0.3	1.0	
3-Dec	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0.3	0.9	
4-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	0.2	0.3	
5-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	A	0	0	0	0	0	0.2	2.6	
6-Dec	0	7	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0.7	7.4	
7-Dec	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.2	0.8	
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	0	0	0	0	0.3	0.5	
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0	0	0	0	0	0	0	0	0.1	1.1	
10-Dec	0	0	0	0	0	0	0	0	2	3	8	5	1	0	A	0	0	0	1	0	1	1	0	0	1.0	8.0	
11-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	0.2	
12-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	6	2	0.5	5.6		
13-Dec	1	1	7	5	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	1	1	1	0.7	6.5		
14-Dec	0	0	0	2	2	2	2	1	0	0	A	0	2	3	1	0	0	0	0	0	0	0	0	0	0.8	3.0	
15-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	0.1	0.3	
16-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	0.2	0.4	
17-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	0.1	0.3	
18-Dec	0	0	0	0	0	0	A	0	0	0	0	0	7	4	3	0	0	0	0	0	0	0	0	0	0.7	6.8	
19-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	0.2	
20-Dec	1	5	3	3	A	11	13	11	8	7	2	6	5	5	9	12	5	2	1	0	0	0	1	4.8	12.7		
21-Dec	2	2	2	A	1	1	0	0	2	2	0	2	1	1	0	1	0	0	0	0	0	0	0	0.8	1.9		
22-Dec	0	0	A	0	0	1	0	0	0	0	1	C	C	C	0	0	0	0	0	0	0	0	0	0.3	1.3		
23-Dec	0	A	0	0	0	0	0	0	0	0	0	0	4	7	4	12	2	3	6	11	3	0	0	2.4	12.3		
24-Dec	A	1	1	2	3	0	13	7	1	1	0	0	0	0	0	0	0	0	0	0	0	0	A	1.3	13.0		
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	7	A	8	0.8	8.4		
26-Dec	8	6	3	1	1	5	1	0	0	0	0	0	0	0	0	0	0	1	1	1	A	1	1	1.4	7.5		
27-Dec	1	1	0	0	0	0	0	0	0	3	7	5	7	9	4	1	0	1	1	0	A	0	0	1.8	9.1		
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	A	1	0	0	0	0.4	0.8		
29-Dec	0	0	0	0	0	0	0	2	3	0	5	4	1	6	5	8	11	8	A	1	1	0	0	2.5	11.1		
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	1	1	1	0.2	0.9		
31-Dec	1	1	0	2	7	10	10	3	1	1	1	0	0	0	1	A	0	0	0	0	0	0	0	1.8	9.8		
0.5 0.9 0.9 0.7 0.5 1.1 1.4 1.0 0.7 0.7 0.9 0.9 1.1 1.4 1.1 1.4 0.8 0.6 0.9 0.8 0.6 0.6 0.4 0.5																								Diurnal Average			
7.5 7.3 7.4 4.9 6.6 10.8 13.0 11.0 8.3 7.1 8.0 6.0 7.3 9.1 9.4 12.3 11.1 7.6 9.9 10.8 5.9 6.9 5.6 8.4																								Diurnal Maximum			
C - Calibration A - Automated Daily Zero Span																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb																											

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - December 2011



Hourly Maximums

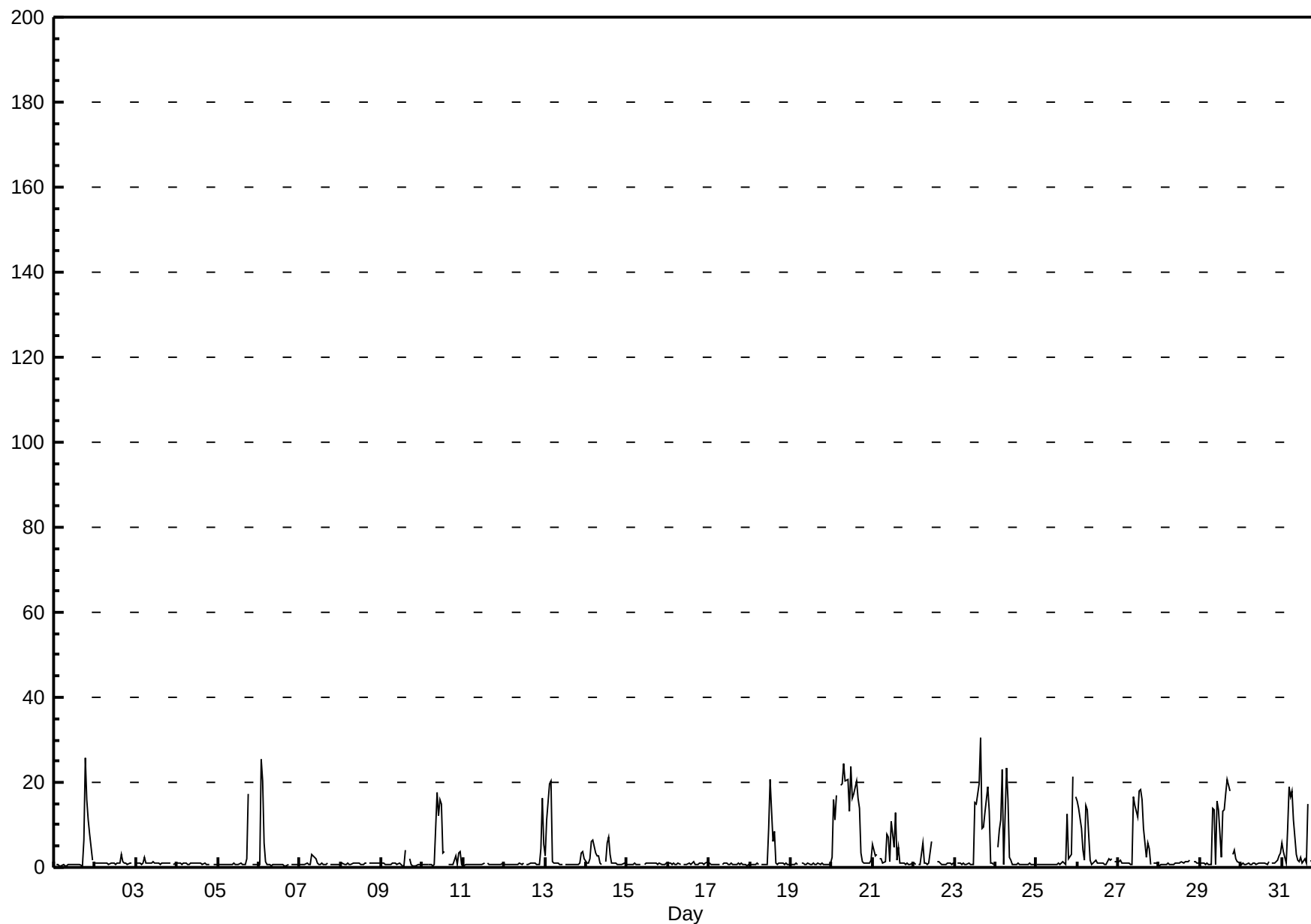
Sulphur Dioxide (SO₂) - ppb

Valleyview - December 2011

Maximum Value: 30.4 ppb on Dec 23 16:00																				Maximum Daily Average: 12.3 ppb on Dec 20				Hours in Service: 744		
Minimum Value: 0 ppb on Dec 11 01:00																				Minimum Daily Average: 0.7 ppb on Dec 11				Hours of Data: 708		
Maximum Diurnal Average: 3.9 ppb at hour 14																				Minimum Diurnal Average: 1.7 ppb at hour 23				Hours of Missing Data: 36		
Monthly Average: 2.80 ppb																				Percentiles: P ₁ = 0.4 P ₁₀ = 0.6 Q ₁ = 0.7 Median = 0.9 Q ₃ = 1.2 P ₉₀ = 9.2 P ₉₉ = 22.8				Hours of Calibration: 36		
																								Percent Operational Time: 100.0		
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	A	1	1	0	0	1	0	0	1	1	1	1	1	1	1	1	0	6	26	16	11	8	2	A	3.5	25.7
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	A	1	1.0	3.1
3-Dec	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1.1	2.5
4-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	1.2
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	17	A	1	1	1	1	1.5	17.2
6-Dec	1	26	20	6	1	1	1	0	1	1	1	1	1	1	1	0	0	1	A	1	1	1	1	1	2.8	25.6
7-Dec	1	1	1	1	1	1	1	3	3	2	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1.0	3.1
8-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	A	1	1	1	1	1	1	1	1.0	1.2
9-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	A	2	1	0	0	1	1	1	1	0.9	4.0
10-Dec	1	1	1	1	1	1	0	1	18	12	16	15	3	4	A	1	1	1	1	3	1	3	4	1	3.8	17.7
11-Dec	0	1	1	1	1	1	1	1	1	1	1	1	1	A	1	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	A	1	1	1	1	1	1	1	1	4	16	5	1.8	16.3
13-Dec	3	11	20	20	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	3	4	2	3.3	20.3
14-Dec	1	1	2	6	7	3	3	3	1	1	A	1	6	7	3	1	1	1	1	1	1	1	1	1	2.3	7.2
15-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	0.8	1.1
16-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	0.9	1.3
17-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	1.1
18-Dec	1	1	1	1	1	1	A	1	1	1	1	9	21	6	9	1	1	1	1	1	1	1	1	1	2.5	20.5
19-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	1.2
20-Dec	2	16	11	17	A	19	20	24	20	21	13	24	16	17	20	16	14	3	1	1	1	1	1	2	12.3	24.4
21-Dec	5	3	3	A	2	2	1	1	8	7	1	11	5	13	2	5	1	1	1	1	1	1	1	1	3.3	12.8
22-Dec	1	1	A	1	1	6	1	1	1	1	6	C	C	C	1	1	1	1	1	1	1	1	1	1	1.4	6.1
23-Dec	1	A	1	1	1	1	1	1	1	1	1	1	15	15	19	30	9	10	13	19	13	1	1	1	6.8	30.4
24-Dec	A	5	9	11	23	1	23	16	2	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	4.6	23.3
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	2	3	21	A	17	3.0	21.3
26-Dec	16	14	9	4	2	15	14	2	1	1	1	2	1	1	1	1	1	1	2	2	2	A	1	1	4.0	15.6
27-Dec	1	2	1	1	1	1	1	1	1	17	14	12	18	18	16	9	2	6	5	1	A	1	1	1	5.6	18.3
28-Dec	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	A	1	1	1	1	1.0	1.5
29-Dec	1	1	1	1	1	1	1	14	14	1	16	14	2	13	14	17	21	18	A	3	4	2	1	1	6.9	20.8
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	A	1	1	1	2	3	3	1.1	3.3
31-Dec	6	4	1	9	19	17	18	11	3	2	1	2	1	2	1	15	A	2	1	1	1	1	1	1	5.2	19.1
1.8 3.2 3.1 3.0 2.5 2.7 3.2 3.0 2.8 2.7 2.9 3.6 3.6 3.9 3.5 3.9 2.4 2.3 3.3 2.2 1.9 2.1 1.7 1.7																									Diurnal Average	
15.6 25.6 20.2 20.3 22.9 19.3 23.3 24.4 20.5 20.8 16.0 23.6 20.5 18.3 20.4 30.4 20.8 17.9 25.7 19.1 13.1 21.3 16.3 16.7																									Diurnal Maximum	
C - Calibration A - Automated Daily Zero Span																										

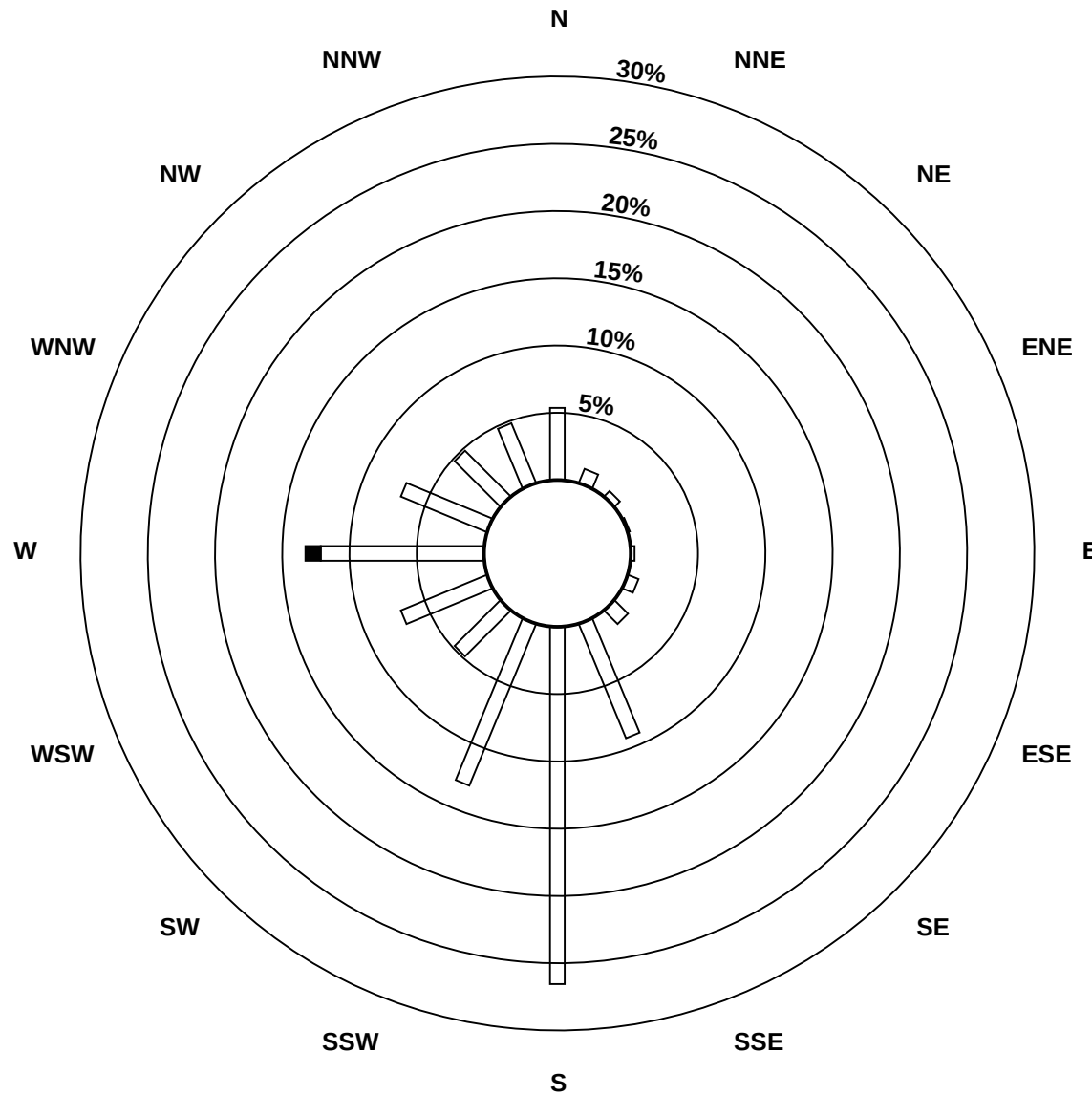
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Valleyview - December 2011

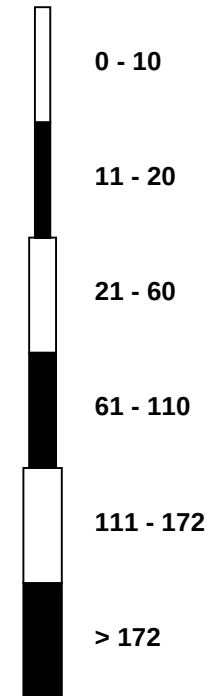


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Valleyview - December 2011

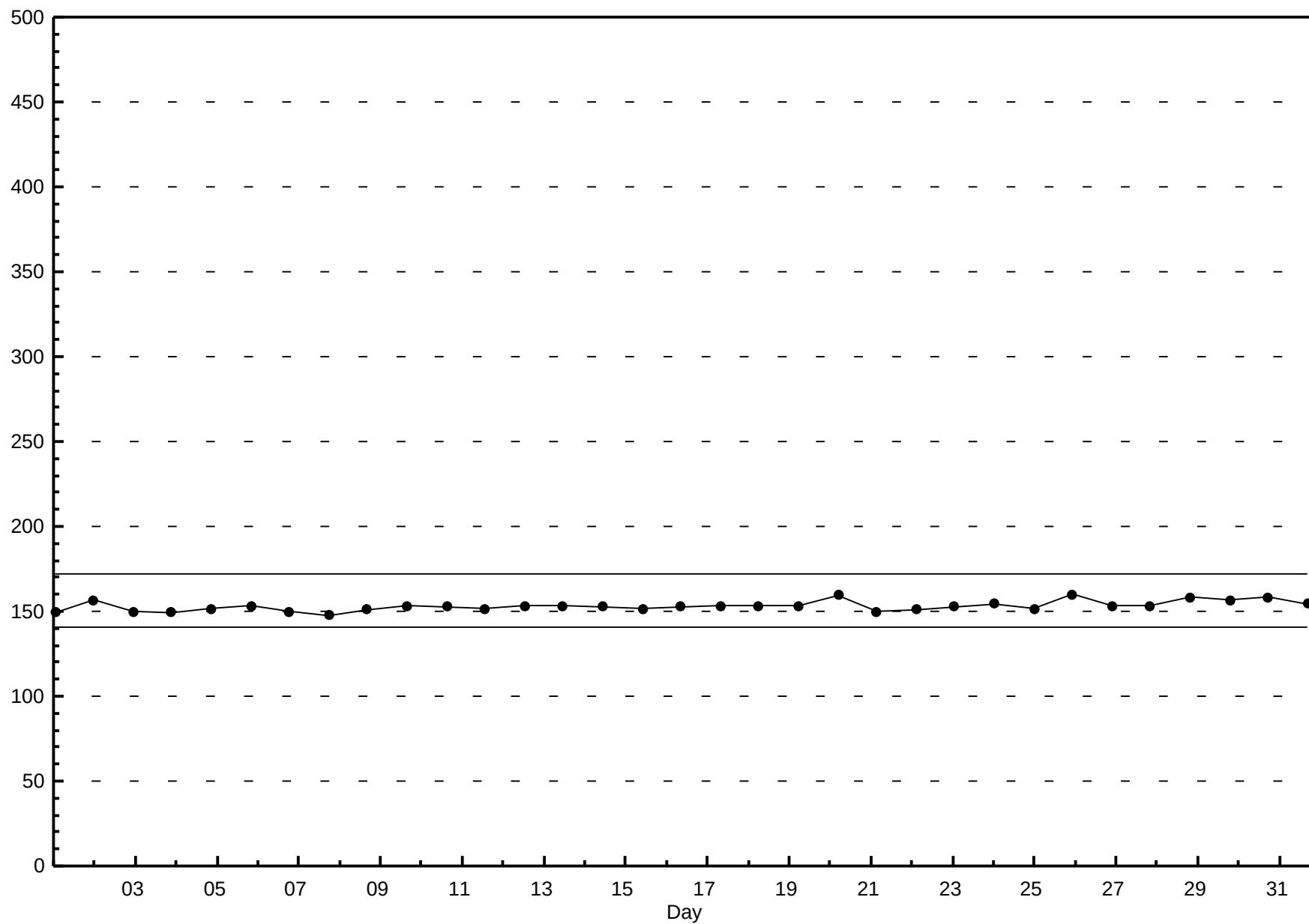


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Valleyview - December 2011



Hourly Averages

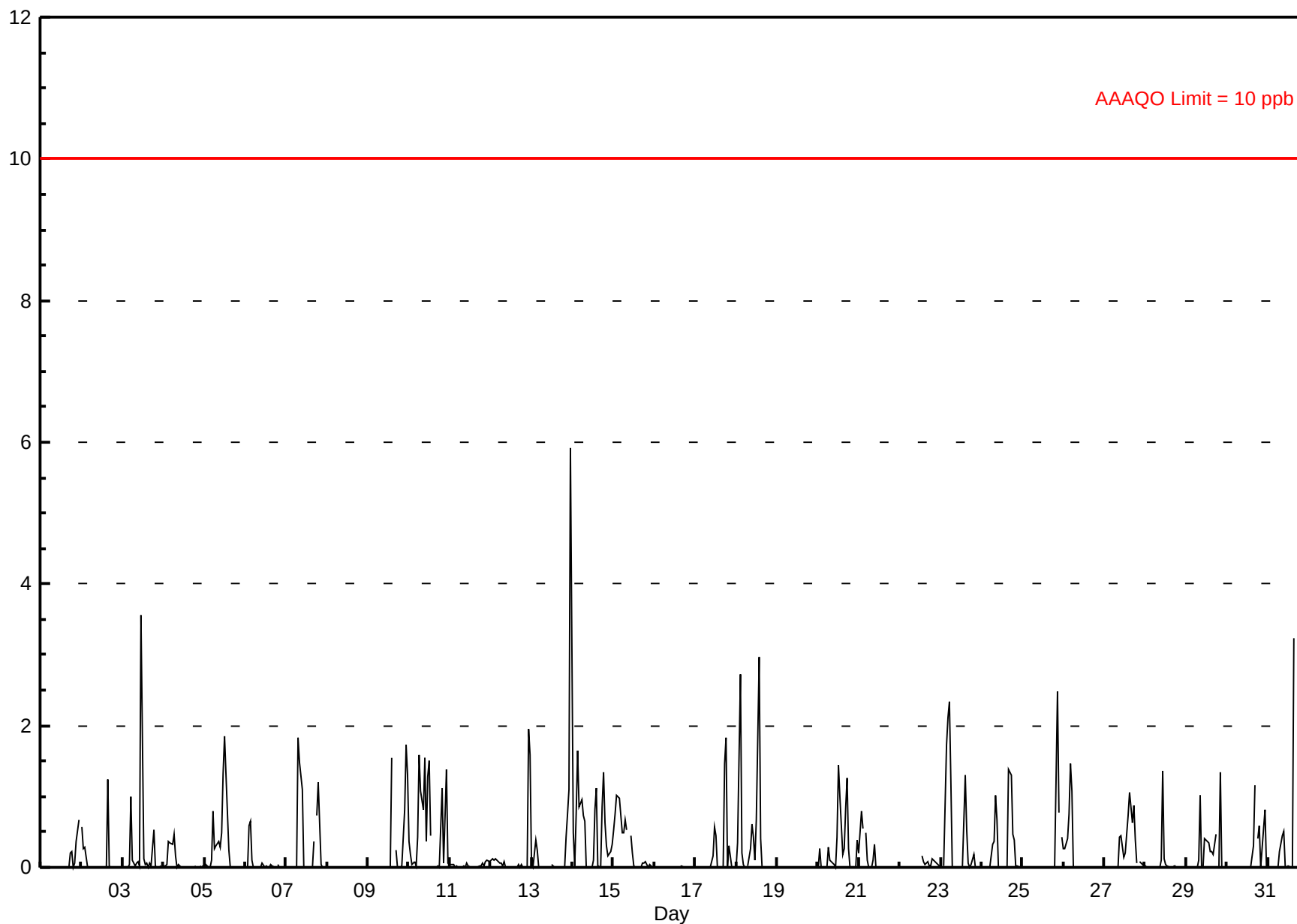
Hydrogen Sulphide (H₂S) - ppb

Valleyview - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5.9 ppb on Dec 14 00:00 Maximum Daily Average: 0.6 ppb on Dec 10																				Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Minimum Value: 0 ppb on Dec 1 02:00 Maximum Diurnal Average: 0.4 ppb at hour 24 Monthly Average: 0.21 ppb										Minimum Daily Average: 0.0 ppb on Dec 8 Minimum Diurnal Average: 0.1 ppb at hour 1 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.7 P ₉₉ = 2.3																
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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0.1	0.7
2-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	A	0	0.1	1.2
3-Dec	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	A	0	0	0.3	3.6
4-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	0.1	0.5
5-Dec	0	0	0	0	0	1	0	0	0	0	0	1	2	1	0	0	0	0	0	A	0	0	0	0	0.3	1.8
6-Dec	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.1	0.6
7-Dec	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	A	1	1	0	0	0	0	0.3	1.8
8-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	0.0	0.0
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	A	0	0	0	0	0	1	2	1	0.2	1.7
10-Dec	0	0	0	0	0	0	2	1	1	2	0	1	2	0	A	0	0	0	0	1	0	1	1	0	0.6	1.6
11-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	0.1
12-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	2	2	0.2	1.9
13-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	1	6	0.4	5.9
14-Dec	0	0	1	2	1	1	1	1	0	0	A	0	0	1	1	0	0	1	1	1	1	0	0	0	0.5	1.7
15-Dec	1	1	1	1	1	0	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1.0
16-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	0.0
17-Dec	0	0	0	0	0	0	0	A	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	0	0.2	1.8
18-Dec	0	0	3	0	0	0	A	0	0	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0.4	3.0
19-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	0.0	0.0
20-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0.3	1.4
21-Dec	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.8
22-Dec	0	0	A	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2
23-Dec	0	A	0	2	2	2	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0.4	2.3
24-Dec	A	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	A	0	0.3	1.4
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	A	0	0.2	2.5
26-Dec	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.2	1.5
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	A	0	0	0	0.2	1.1
28-Dec	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0.1	1.4
29-Dec	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	A	0	1	0	0	0	0.2	1.3
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	0	1	0	1	1	0	0.2	1.2
31-Dec	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	A	0	0	0	0	0	0	0	0.2	3.2
																									Diurnal Average	
																									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

Hydrogen Sulphide (H₂S) - ppb
Valleyview - December 2011



Hourly Maximums

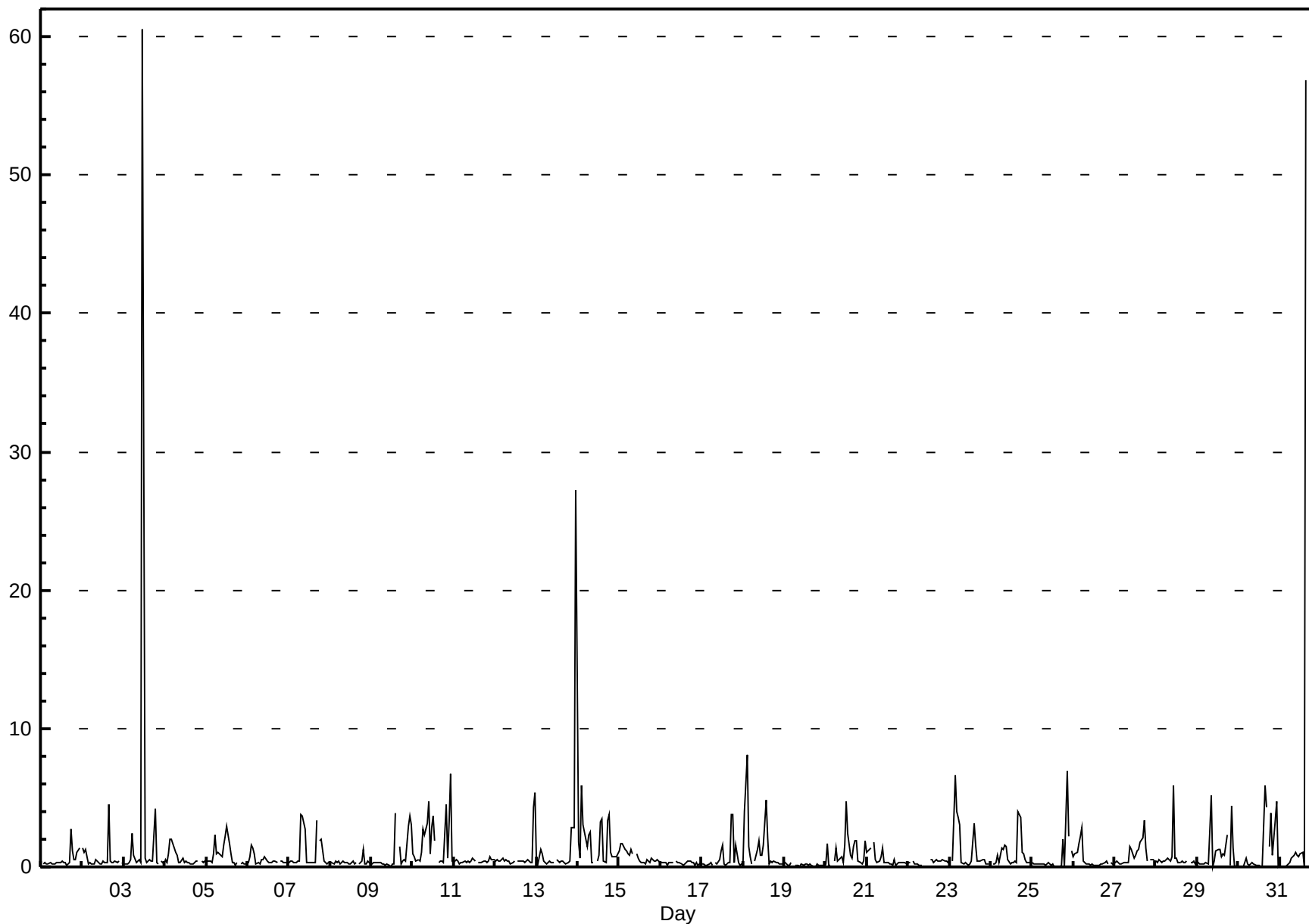
Hydrogen Sulphide (H₂S) - ppb

Valleyview - December 2011

Maximum Value: 60.5 ppb on Dec 3 12:00																				Maximum Daily Average: 3.3 ppb on Dec 3										Hours in Service: 744	
Minimum Value: 0 ppb on Dec 20 00:00																				Minimum Daily Average: 0.1 ppb on Dec 19										Hours of Data: 707	
Maximum Diurnal Average: 2.7 ppb at hour 12																				Minimum Diurnal Average: 0.5 ppb at hour 1										Hours of Missing Data: 37	
Monthly Average: 0.99 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 0.4 Q ₃ = 0.8 P ₉₀ = 2.1 P ₉₉ = 6.6										Hours of Calibration: 37	
																				Percent Operational Time: 100.0											
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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	1	1	A	0.5	2.7						
2-Dec	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	A	A	0	0.6	4.5					
3-Dec	0	0	0	0	1	2	1	0	0	1	0	61	1	0	0	0	0	0	4	0	0	A	0	0	3.3	60.5					
4-Dec	1	0	1	2	2	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0.6	2.0					
5-Dec	0	0	0	0	1	2	1	1	1	1	2	2	3	2	1	0	0	0	0	A	0	0	0	0	0.8	3.0					
6-Dec	0	1	2	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	A	0	0	0	0	0	0.5	1.5					
7-Dec	0	0	0	0	0	0	0	4	4	3	0	0	0	0	0	0	3	A	2	2	0	0	0	0	1.0	3.8					
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	1	0	0	0	0	0.3	1.2					
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	A	1	0	0	0	3	4	3	0.9	3.9						
10-Dec	1	1	0	0	0	1	3	2	3	5	1	3	4	2	A	0	0	0	0	4	1	3	7	0	1.9	6.7					
11-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	A	0	0	0	0	0	0	1	1	0	0.4	0.8						
12-Dec	0	0	0	0	1	0	1	0	0	0	0	0	A	0	0	0	0	0	0	1	0	4	5	0.8	5.4						
13-Dec	0	0	1	1	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	3	3	3	27	1.9	27.2						
14-Dec	2	1	6	3	3	1	2	3	0	0	A	0	1	3	3	0	0	3	4	1	1	1	1	1	1.8	5.9					
15-Dec	1	2	2	1	1	1	1	1	1	A	1	1	0	0	0	0	0	0	0	1	0	1	0	0.8	1.7						
16-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4						
17-Dec	0	0	0	0	0	0	0	A	0	0	1	1	2	0	0	0	0	4	4	0	2	0	0	0.7	3.8						
18-Dec	0	4	8	1	1	0	A	0	1	2	1	1	2	5	2	0	0	0	0	0	0	0	0	1.4	8.1						
19-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3						
20-Dec	0	2	0	0	A	0	1	0	0	1	0	2	5	2	1	1	1	2	2	0	0	0	2	1.1	4.8						
21-Dec	1	1	1	A	2	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0.6	1.8						
22-Dec	0	0	A	0	0	0	0	0	0	C	C	C	C	1	1	0	1	0	0	0	0	0	0	0.4	0.6						
23-Dec	1	A	0	7	4	4	3	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	1.2	6.6						
24-Dec	A	0	0	0	1	0	1	1	2	1	1	0	0	0	0	0	4	4	1	1	1	0	A	0.9	4.0						
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	7	2	A	1	0.7	6.9					
26-Dec	1	1	1	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.6	2.8						
27-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	3	1	0	A	0	1	0	0.9	3.4					
28-Dec	0	0	0	0	0	0	1	1	0	1	6	1	1	0	0	0	0	0	0	A	0	0	0	0	0.7	5.9					
29-Dec	0	0	0	0	0	0	0	3	5	0	0	1	1	1	1	1	1	2	A	0	4	1	0	0	1.1	5.1					
30-Dec	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6	4	A	2	4	1	3	5	0	1.2	5.8					
31-Dec	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	57	A	0	0	0	0	0	0	0	2.8	56.9					
																								Diurnal Average							
																								Diurnal Maximum							
C - Calibration A - Automated Daily Zero Span																															

Hourly Maximums

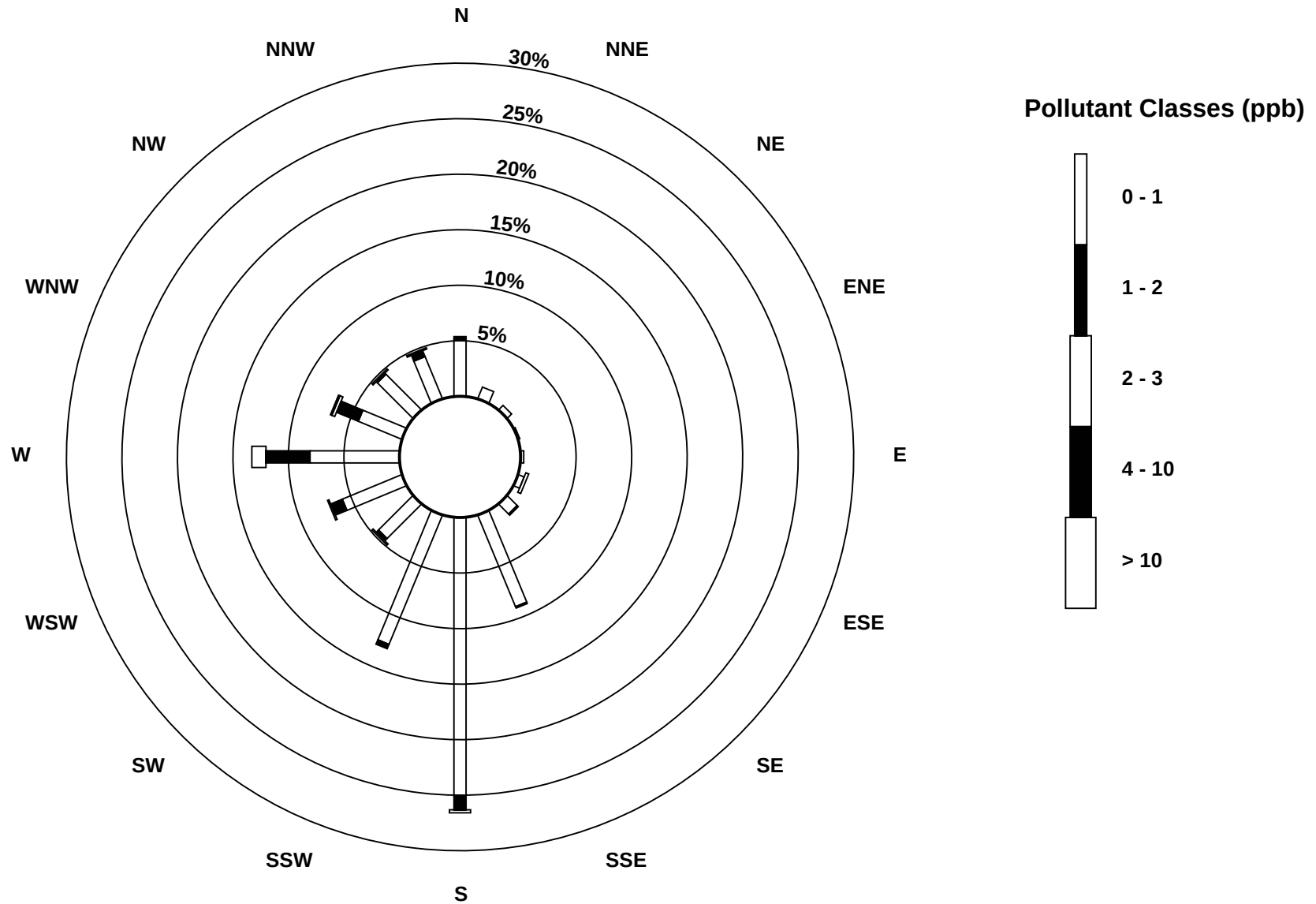
Hydrogen Sulphide (H₂S) - ppb
Valleyview - December 2011



Pollutant Rose

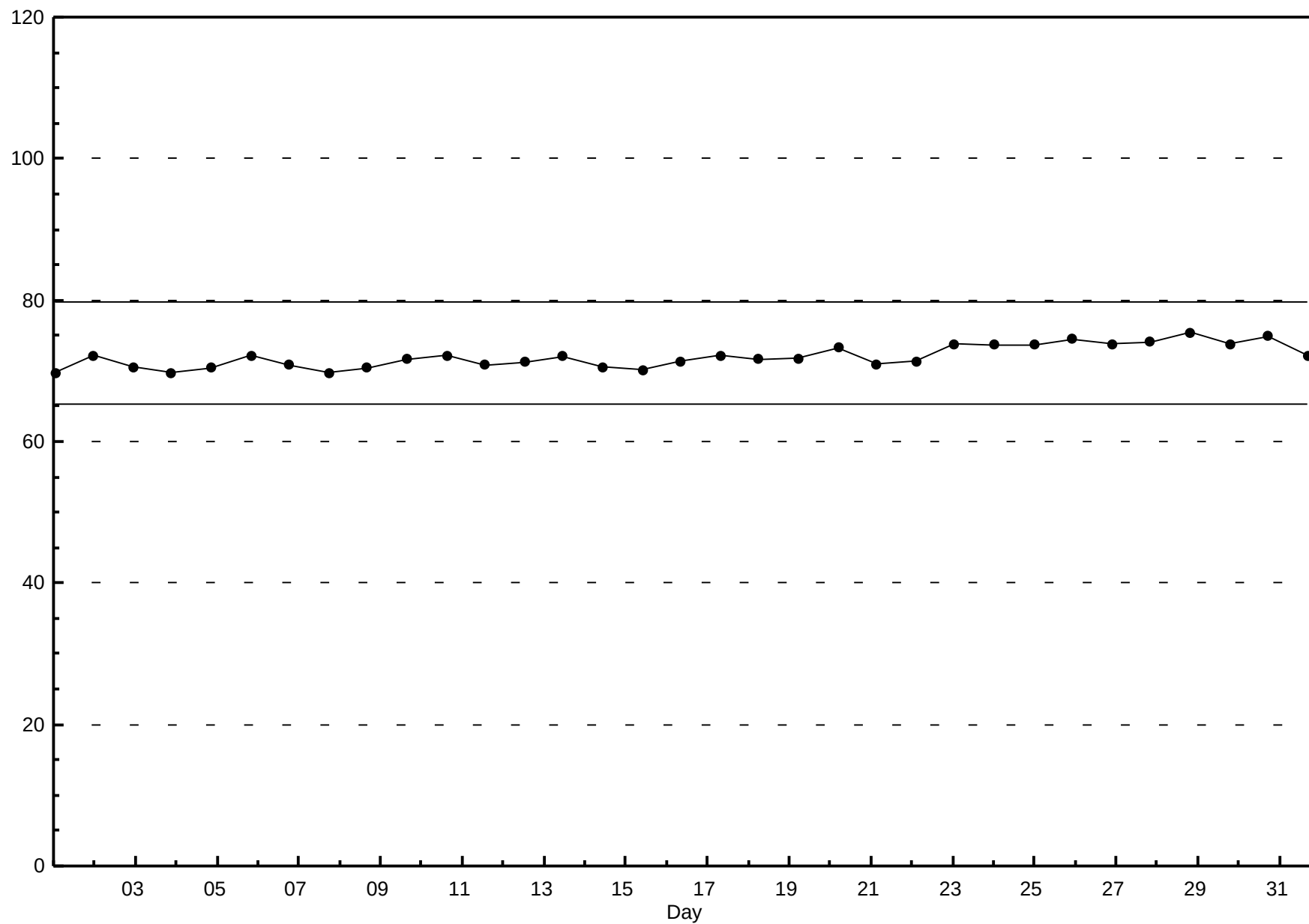
Hydrogen Sulphide (H₂S) - ppb

Valleyview - December 2011



Span Responses

Hydrogen Sulphide (H₂S)
Valleyview - December 2011



Hourly Averages

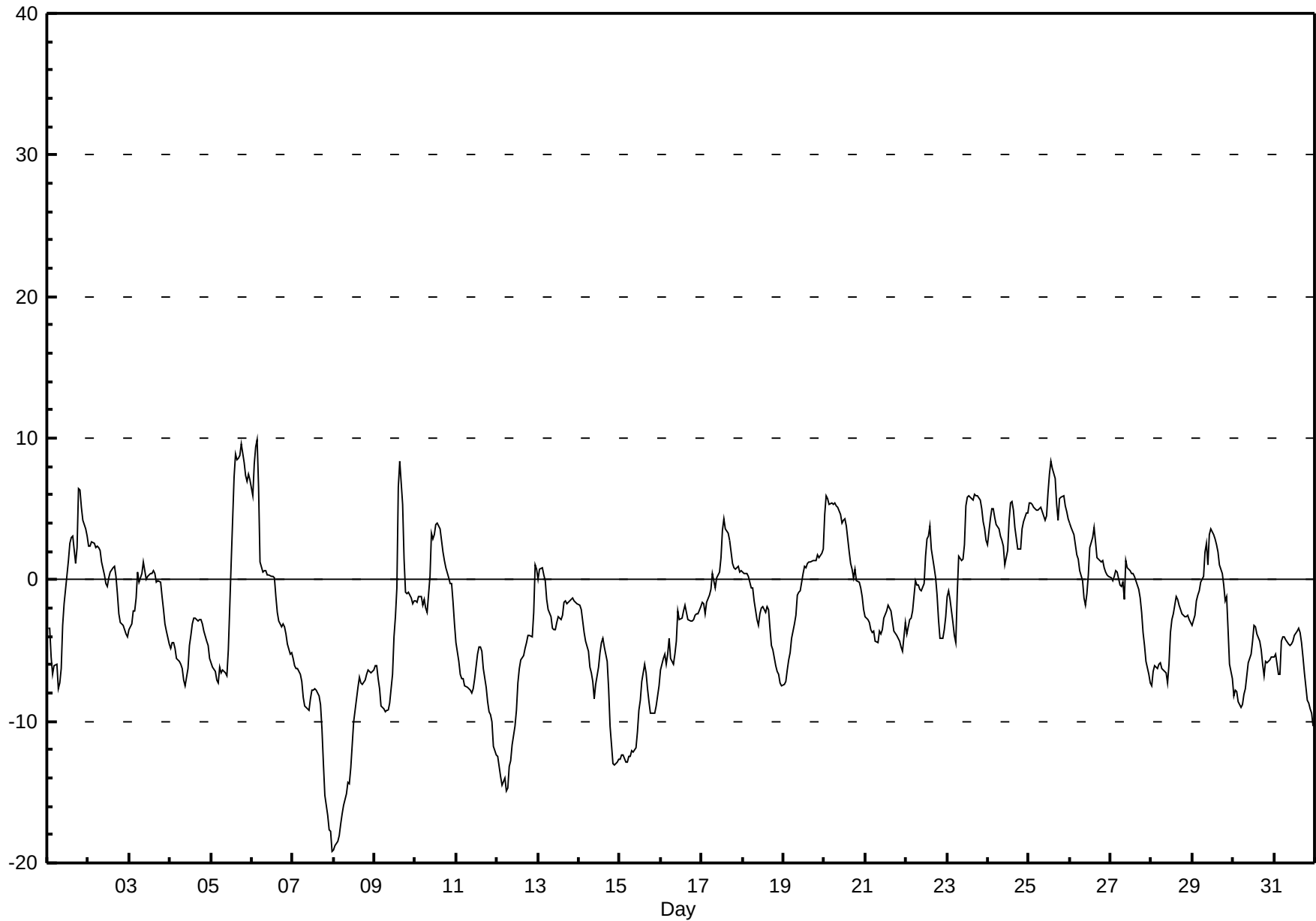
External Temperature (ET) - °C

Valleyview - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744						
Maximum Value: 9.9 °C on Dec 6 04:00																				Maximum Daily Average: 5.5 °C on Dec 25		Hours of Data: 744				
Minimum Value: -19 °C on Dec 8 00:00																				Minimum Daily Average: -11.7 °C on Dec 8		Hours of Missing Data: 0				
Maximum Diurnal Average: 0.1 °C at hour 15																				Minimum Diurnal Average: -3.7 °C at hour 7		Hours of Calibration: 0				
Monthly Average: -2.48 °C																				Percentiles: P ₁ = -17.3 P ₁₀ = -8.7 Q ₁ = -6.0 Median = -2.4 Q ₃ = 0.9 P ₉₀ = 4.3 P ₉₉ = 8.5		Percent Operational Time: 100.0				
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	-3	-5	-7	-6	-6	-8	-7	-6	-3	-2	0	1	3	3	3	1	2	6	6	5	4	4	3	-0.6	6.4
2-Dec	2	2	3	3	2	2	2	2	1	0	0	-1	0	1	1	1	0	-1	-2	-3	-3	-4	-4	-4	0.1	2.6
3-Dec	-3	-3	-2	-2	-1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	-1	-2	-3	-4	-4	-0.9	1.3
4-Dec	-5	-4	-4	-5	-6	-6	-6	-6	-7	-7	-6	-5	-4	-3	-3	-3	-3	-3	-3	-3	-4	-4	-5	-6	-4.6	-2.7
5-Dec	-6	-6	-6	-7	-7	-6	-7	-6	-7	-7	-5	-2	1	7	9	9	9	9	10	8	7	7	7	7	0.7	9.6
6-Dec	6	8	9	10	7	1	1	1	1	0	0	0	0	0	-1	-2	-3	-3	-3	-3	-4	-5	-5	-5	0.4	9.9
7-Dec	-6	-6	-6	-6	-7	-7	-8	-9	-9	-9	-8	-8	-8	-8	-8	-8	-9	-11	-13	-15	-17	-18	-18	-19	-10.0	-5.5
8-Dec	-19	-19	-18	-18	-17	-17	-16	-15	-14	-14	-13	-12	-10	-8	-8	-7	-7	-7	-7	-7	-6	-7	-7	-6	-11.7	-6.3
9-Dec	-6	-6	-7	-8	-9	-9	-9	-9	-9	-9	-7	-4	-3	-1	7	8	5	2	-1	-1	-1	-1	-2	-1	-3.4	8.4
10-Dec	-1	-2	-1	-1	-2	-1	-2	-2	0	3	3	3	4	4	4	3	2	1	1	0	0	0	-2	-3	0.4	4.0
11-Dec	-4	-6	-7	-7	-7	-7	-8	-8	-8	-8	-8	-7	-5	-5	-5	-5	-6	-8	-9	-9	-10	-10	-12	-12	-7.5	-4.5
12-Dec	-12	-13	-14	-14	-14	-15	-15	-13	-13	-12	-10	-9	-7	-6	-6	-5	-5	-4	-4	-4	-4	-2	1	1	-8.4	1.1
13-Dec	0	1	1	0	0	-1	-2	-3	-3	-4	-4	-3	-3	-3	-3	-2	-1	-2	-2	-1	-1	-1	-2	-2	-1.6	0.9
14-Dec	-2	-2	-3	-4	-4	-5	-6	-7	-7	-8	-7	-6	-5	-4	-4	-5	-6	-8	-10	-12	-13	-13	-13	-13	-7.0	-1.8
15-Dec	-13	-12	-12	-13	-13	-12	-12	-12	-12	-12	-11	-9	-8	-7	-6	-7	-8	-9	-9	-9	-9	-9	-8	-7	-10.1	-6.0
16-Dec	-6	-6	-5	-6	-5	-4	-6	-6	-5	-4	-2	-3	-3	-2	-2	-2	-3	-3	-3	-3	-3	-2	-2	-2	-3.7	-1.8
17-Dec	-2	-2	-2	-2	-1	-1	0	0	-1	0	1	2	3	4	4	3	3	2	1	1	1	1	1	1	0.7	4.3
18-Dec	1	0	0	0	0	-1	-1	-2	-3	-3	-2	-2	-2	-2	-2	-2	-3	-5	-5	-6	-6	-7	-7	-8	-2.8	0.5
19-Dec	-7	-7	-6	-6	-5	-4	-3	-2	-1	-1	-1	0	1	1	1	1	1	1	1	1	2	2	2	2	-1.1	2.2
20-Dec	5	6	6	5	5	5	5	5	5	5	4	4	4	4	2	1	1	0	1	0	0	-1	-1	-2	2.9	5.9
21-Dec	-3	-3	-3	-4	-4	-4	-4	-4	-4	-4	-4	-3	-2	-2	-2	-2	-3	-4	-4	-4	-4	-5	-5	-3	-3.4	-1.8
22-Dec	-4	-3	-3	-3	-2	0	0	0	-1	-1	0	2	3	3	4	2	1	0	-1	-3	-4	-4	-3	-3	-0.9	3.8
23-Dec	-1	-1	-1	-3	-4	-4	-1	2	1	2	3	5	6	6	6	6	6	6	6	6	5	4	4	3	2.4	6.0
24-Dec	3	4	5	5	4	4	4	3	3	2	1	2	4	5	6	5	4	2	2	2	4	4	5	5	3.6	5.5
25-Dec	5	5	5	5	5	5	5	5	5	4	5	6	7	8	8	7	5	4	6	6	6	5	5	4	5.5	8.4
26-Dec	4	4	3	2	2	1	1	0	-1	-2	-1	0	2	3	4	3	2	1	1	1	1	0	0	0	1.3	4.0
27-Dec	0	0	0	1	1	0	-1	0	-1	1	1	1	0	0	0	0	-1	-1	-2	-4	-5	-6	-7	-7	-1.2	1.4
28-Dec	-7	-6	-6	-6	-6	-6	-6	-6	-7	-7	-6	-4	-3	-2	-1	-1	-2	-2	-2	-3	-3	-3	-3	-3	-4.2	-1.2
29-Dec	-3	-2	-2	-1	-1	0	0	2	3	1	3	4	3	3	2	2	1	0	0	-2	-1	-4	-6	-7	-0.2	3.6
30-Dec	-8	-8	-8	-9	-9	-9	-8	-8	-7	-6	-5	-4	-3	-3	-4	-4	-5	-6	-7	-6	-6	-6	-5	-5	-6.2	-3.3
31-Dec	-5	-5	-7	-7	-4	-4	-4	-4	-4	-5	-5	-4	-4	-4	-3	-4	-4	-6	-7	-9	-9	-9	-9	-10	-5.7	-3.4
	-3.3	-3.1	-3.2	-3.4	-3.5	-3.6	-3.7	-3.6	-3.6	-3.4	-2.8	-1.8	-0.9	-0.3	0.1	-0.2	-0.9	-1.6	-1.9	-2.4	-2.7	-3.0	-3.3	-3.5	Diurnal Average	
	5.9	8.2	9.3	9.9	6.6	5.3	5.4	5.2	5.1	4.6	4.6	6.1	7.4	8.4	8.9	8.5	8.5	8.8	9.6	8.2	7.4	6.9	7.5	7.0	Diurnal Maximum	

Hourly Averages

External Temperature (ET) - °C
Valleyview - December 2011



Hourly Averages

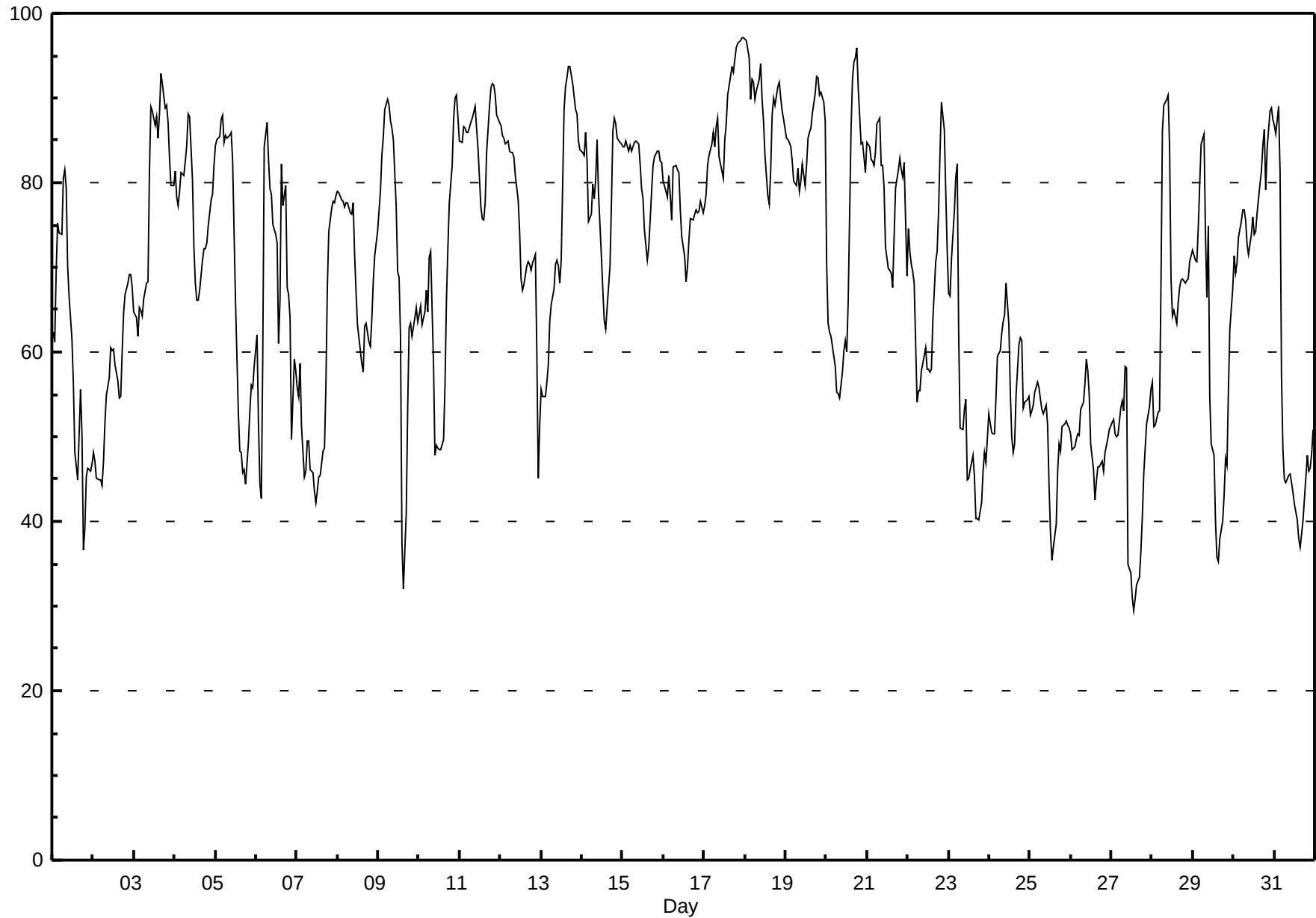
Relative Humidity (RH) - %

Valleyview - December 2011

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 97.1 % on Dec 18 00:00 Maximum Daily Average: 89.3 % on Dec 18																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0		
Minimum Value: 29 % on Dec 27 14:00 Maximum Diurnal Average: 72.5 % at hour 7 Monthly Average: 68.85 %												Minimum Daily Average: 45.4 % on Dec 27 Minimum Diurnal Average: 60.8 % at hour 15 Percentiles: P ₁ = 34.9 P ₁₀ = 46.2 Q ₁ = 54.8 Median = 70.7 Q ₃ = 83.1 P ₉₀ = 88.2 P ₉₉ = 95.5														
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	62	61	70	75	74	74	81	82	79	70	67	61	56	48	47	45	56	50	37	39	45	46	46	47	59.1	81.6
2-Dec	48	47	45	45	45	44	47	52	55	57	60	60	60	58	57	55	55	60	65	67	68	69	69	68	56.5	69.2
3-Dec	65	64	62	65	65	64	66	68	68	81	89	88	87	88	85	88	93	92	89	89	87	83	80	80	78.6	92.9
4-Dec	81	78	77	79	81	81	83	84	88	88	80	72	68	66	66	67	71	72	72	73	75	78	79	82	76.8	88.2
5-Dec	84	85	85	87	88	85	86	85	86	86	82	74	66	53	48	48	46	46	44	49	53	56	56	58	68.3	88.0
6-Dec	62	51	44	43	60	84	87	83	79	79	75	74	73	61	66	82	77	80	68	67	64	50	59	58	67.7	87.2
7-Dec	56	55	59	51	45	46	49	50	46	46	44	42	44	45	45	48	49	56	68	74	77	78	78	79	55.3	78.5
8-Dec	79	79	78	78	77	78	78	76	76	78	72	67	63	60	59	58	63	63	61	61	64	68	71	74	70.0	78.9
9-Dec	77	79	83	85	89	90	89	87	86	85	77	70	69	62	37	32	41	53	63	63	62	64	65	64	69.7	89.9
10-Dec	64	65	63	65	67	65	71	72	58	48	49	49	48	48	50	56	66	72	78	82	87	90	90	88	66.4	90.4
11-Dec	85	85	87	87	86	86	87	88	88	89	86	84	77	76	76	78	84	89	91	92	91	90	88	87	85.7	91.7
12-Dec	87	86	85	85	85	84	84	84	83	81	78	74	69	67	68	70	71	70	70	70	72	60	45	51	74.1	86.8
13-Dec	56	55	55	56	58	64	66	68	70	71	70	68	71	89	91	92	94	94	92	90	89	88	85	84	75.6	93.8
14-Dec	84	83	86	83	75	76	80	78	80	85	79	71	67	64	63	65	70	78	86	88	87	85	85	85	78.4	87.6
15-Dec	84	84	85	84	84	84	84	85	85	85	82	79	78	74	71	72	76	79	82	83	84	84	83	82	81.4	84.9
16-Dec	80	79	78	81	78	76	82	82	82	81	77	74	71	68	70	73	76	76	76	77	76	77	78	76	76.8	82.0
17-Dec	77	79	82	83	85	86	84	87	88	83	81	81	85	87	90	93	94	93	95	96	97	97	97	97	88.1	97.1
18-Dec	97	97	95	90	92	92	90	91	92	94	90	87	83	78	77	81	88	90	89	91	92	90	89	87	89.3	97.0
19-Dec	85	85	85	84	83	80	80	82	79	80	82	80	82	85	86	86	88	91	92	92	90	91	90	87	85.2	92.5
20-Dec	70	63	62	62	59	58	55	55	55	58	60	61	60	66	86	92	94	95	96	91	85	85	83	81	72.3	95.9
21-Dec	85	84	83	83	82	84	87	88	82	82	79	72	70	70	69	68	74	79	81	83	82	81	82	69	79.1	87.7
22-Dec	75	72	70	70	68	54	55	55	58	59	60	58	58	58	58	64	71	72	77	84	89	86	79	72	67.5	89.4
23-Dec	67	67	71	77	81	82	62	51	51	53	54	45	45	46	48	45	40	40	40	42	46	48	47	50	54.1	82.2
24-Dec	53	51	50	50	55	59	60	62	64	64	68	63	55	50	48	49	55	61	62	61	53	54	54	55	56.5	68.1
25-Dec	53	53	54	55	56	56	54	53	53	54	51	44	39	35	37	40	46	49	48	51	52	52	51	51	49.5	56.5
26-Dec	50	49	49	50	50	50	53	54	56	59	58	55	49	46	43	45	46	46	47	46	48	49	50	51	50.0	59.1
27-Dec	52	52	50	50	50	53	54	53	58	58	35	34	31	29	31	33	33	36	40	46	49	52	54	56	45.4	58.3
28-Dec	56	51	51	53	53	68	86	89	90	90	84	69	64	65	63	66	68	68	69	68	69	69	71	71	68.8	90.3
29-Dec	72	71	71	75	80	85	86	74	66	75	55	49	48	40	36	35	38	40	43	48	47	55	63	67	59.1	85.7
30-Dec	71	69	70	73	75	77	77	76	73	72	74	76	74	74	76	80	81	84	86	79	84	89	89	88	77.8	88.7
31-Dec	87	86	89	81	57	48	45	45	45	46	45	43	42	40	38	37	38	40	43	48	46	46	48	51	51.4	89.1
71.1 69.8 70.2 70.4 70.5 71.4 72.5 72.2 71.6 72.1 69.2 65.4 63.0 61.2 60.8 62.7 65.8 68.3 69.3 70.7 71.2 71.3 71.0 70.8																								Diurnal Average		
97.0 96.8 94.7 89.8 92.2 91.8 89.9 90.8 92.2 94.0 89.8 88.4 86.7 88.6 91.4 92.5 94.3 94.8 95.9 96.0 96.5 96.8 97.1 97.1																								Diurnal Maximum		

Hourly Averages

Relative Humidity (RH) - %
Valleyview - December 2011



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Valleyview - December 2011

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 Spd	5	4	3	3	4	3	4	3	3	3	3	3	3	2	4	3	3	4	15	27	31	33	31	30	7.3	32.8
Dir	165	160	167	198	159	181	199	202	197	172	190	179	166	192	179	191	220	246	265	267	272	276	281	284	256	276
2 Spd	27	24	25	24	21	25	25	29	32	24	14	7	10	9	8	8	7	2	2	3	3	3	2	3	12.5	32.3
Dir	284	285	288	292	299	304	313	324	329	326	321	309	310	304	293	277	260	201	201	200	196	196	207	208	301	329
3 Spd	2	2	2	3	2	3	2	2	7	12	10	10	9	7	7	6	9	2	9	13	19	17	15	11	6.0	19.2
Dir	193	204	176	145	183	265	177	358	315	329	350	340	333	316	311	316	346	17	347	10	5	5	356	353	345	5
4 Spd	6	7	6	1	2	2	2	2	2	3	6	5	8	6	7	5	7	8	7	7	6	3	4	4	3.1	8.0
Dir	351	338	326	237	226	296	131	200	187	175	169	174	167	166	167	169	165	168	168	170	175	183	183	187	177	168
5 Spd	4	4	4	4	4	2	1	1	1	1	2	2	1	3	2	2	4	12	11	6	7	4	1	3	2.9	11.5
Dir	178	186	190	189	196	191	206	213	235	92	198	178	114	235	190	208	201	251	253	177	177	180	201	168	205	251
6 Spd	2	8	17	28	23	22	19	14	12	12	14	12	12	13	16	14	15	11	10	8	9	17	7	7	12.1	28.1
Dir	199	260	273	283	320	351	334	315	299	293	304	301	312	319	332	338	341	330	324	329	358	358	322	330	318	283
7 Spd	12	11	6	7	12	10	6	6	9	11	10	11	16	15	12	6	4	2	1	2	1	2	2	1	6.1	16.2
Dir	6	4	340	325	329	318	314	278	281	287	295	313	329	334	328	319	298	333	178	170	191	177	202	183	320	329
8 Spd	2	2	1	2	1	2	3	2	0	2	4	2	1	1	1	0	1	1	2	4	4	3	3	3	1.9	4.3
Dir	197	195	215	189	217	195	183	159	155	173	164	164	141	180	180	199	196	166	176	170	177	175	172	184	178	170
9 Spd	3	2	2	2	2	3	3	3	3	3	3	3	4	3	9	6	2	2	1	1	0	0	2	1	2.0	9.2
Dir	174	180	204	213	193	199	202	200	195	188	172	185	175	150	278	268	190	131	165	113	184	234	180	130	202	278
10 Spd	2	2	1	0	0	1	1	2	4	10	10	13	18	20	17	16	12	7	5	5	5	4	9	10	6.1	20.2
Dir	181	173	57	236	147	300	177	181	258	273	267	275	281	287	295	306	317	331	308	292	292	262	346	5	294	287
11 Spd	11	12	11	10	9	6	4	4	1	0	1	1	2	3	3	4	5	3	1	3	4	2	1	1	1.5	11.6
Dir	5	6	1	6	355	358	354	13	52	173	170	140	166	171	160	162	168	182	190	185	180	195	194	204	12	6
12 Spd	1	1	1	1	2	1	2	3	4	5	7	8	7	5	5	5	4	5	3	4	3	4	10	7	3.4	10.3
Dir	219	205	224	203	216	207	190	188	179	176	172	172	175	179	174	182	191	175	194	186	193	231	279	275	198	279
13 Spd	7	9	9	9	3	2	2	1	2	2	1	2	2	1	6	4	6	10	10	7	6	6	10	10	3.4	10.1
Dir	254	262	274	266	245	153	148	147	169	205	224	185	187	43	12	2	358	343	336	325	301	289	283	283	294	343
14 Spd	12	12	7	9	11	7	3	2	2	3	1	3	3	2	2	1	0	1	1	0	1	1	1	0	2.8	12.4
Dir	311	305	291	270	268	273	245	248	172	183	130	229	238	250	252	222	116	197	172	255	199	186	327	214	271	305
15 Spd	0	0	1	1	2	0	1	1	2	1	1	2	3	3	1	2	2	1	1	1	1	2	2	5	1.0	5.0
Dir	354	286	344	354	333	21	199	178	160	168	175	163	158	155	184	168	164	222	193	253	207	197	187	178	178	178
16 Spd	6	4	6	4	4	3	1	2	4	4	3	2	3	3	2	1	1	3	3	3	2	3	2	3	2.7	6.3
Dir	177	181	181	189	192	51	147	110	151	151	143	169	147	177	204	173	192	194	186	198	194	201	189	177	173	177
17 Spd	1	0	2	1	1	1	1	1	1	2	1	1	4	11	9	3	3	2	1	2	2	2	3	2	1.3	10.7
Dir	199	335	199	202	190	210	179	232	259	201	6	182	288	305	312	349	12	265	239	241	354	352	16	22	308	305
18 Spd	3	2	7	9	7	4	4	2	1	2	1	4	9	10	3	2	2	3	3	2	3	3	2	4	2.3	10.2
Dir	316	278	282	295	323	335	318	287	221	258	144	242	268	276	250	155	176	167	173	192	175	172	178	167	263	276
19 Spd	4	5	6	5	5	5	5	5	5	5	5	4	3	4	3	3	3	3	3	3	3	3	3	3	3.8	5.7
Dir	175	174	170	173	171	168	167	150	166	167	172	169	181	197	189	183	169	193	176	184	180	212	189	199	176	170
20 Spd	10	16	17	16	20	17	17	17	16	8	8	18	14	18	14	12	15	19	13	18	15	23	19	18	14.2	22.8
Dir	249	271	262	263	268	268	271	267	265	259	251	271	276	276	267	268	293	323	303	353	339	328	295	280	283	328
21 Spd	5	8	6	4	6	7	3	3	8	4	5	9	7	3	3	3	2	2	2	2	4	4	2	4	3.7	9.4
Dir	262	272	264	264	261	264	229	221	255	242	241	255	249	240	232	237	182	145	164	162	166	171	189	189	239	255
22 Spd	4	4	4	3	3	12	8	5	3	2	1	1	1	6	2	3	3	3	2	0	0	3	4	5	2.6	11.9
Dir	156	174	172	190	167	255	246	244	155	168	293	310	163	249	193	169	162	181	190	207	186	187	188	178	205	255

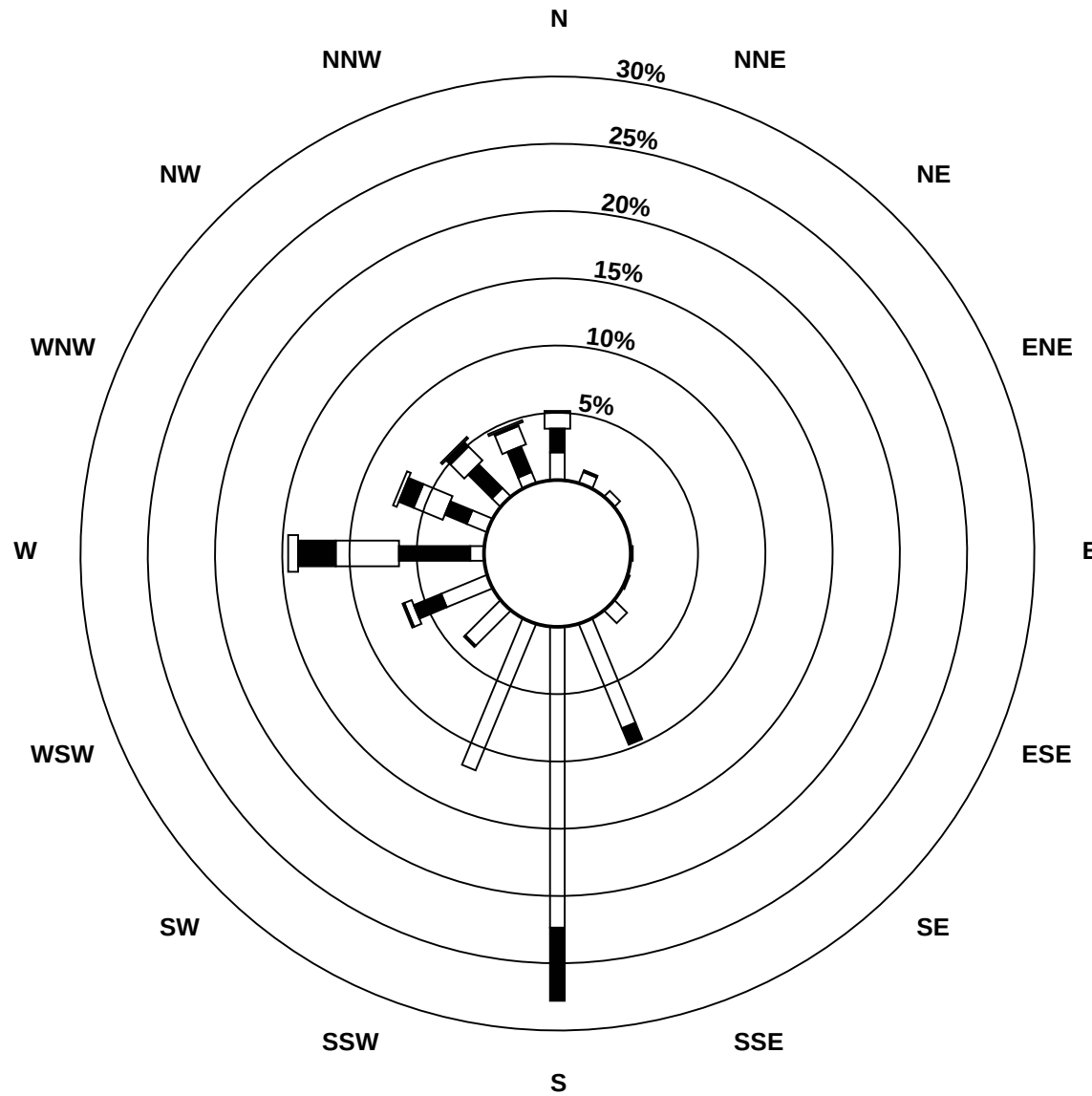
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Valleyview - December 2011

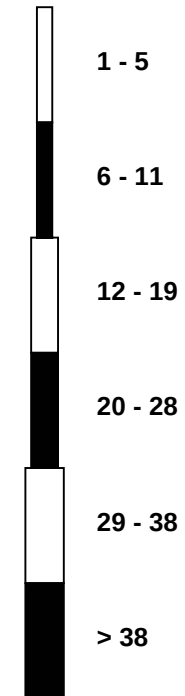
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
23 Spd	6	5	2	1	1	1	3	5	4	5	6	20	22	21	15	11	23	27	26	18	5	3	3	2	8.7	26.7			
Dir	179	176	230	307	109	231	200	194	185	196	224	253	262	265	276	267	261	264	267	264	255	189	203	186	253	264			
24 Spd	2	10	14	17	13	12	10	10	10	9	4	3	4	4	2	2	0	1	1	1	5	6	4	6	4.7	17.3			
Dir	198	251	260	259	257	258	268	266	273	266	187	154	150	154	153	138	241	187	195	171	170	175	178	178	238	259			
25 Spd	7	7	7	7	7	8	7	5	6	5	5	7	8	5	5	3	2	1	6	7	7	14	18	24	5.0	23.5			
Dir	173	172	175	169	175	174	169	175	174	178	164	167	171	174	176	191	204	227	253	253	274	272	272	272	213	272			
26 Spd	26	29	29	22	14	10	7	4	3	2	1	7	3	3	3	4	6	7	8	8	10	8	8	6	6.6	29.1			
Dir	273	275	276	275	279	271	243	237	214	214	197	246	205	182	174	168	172	172	169	169	169	174	173	173	241	275			
27 Spd	5	5	5	6	5	4	4	4	3	19	24	27	31	27	27	20	13	7	2	1	2	2	3	1	8.3	31.0			
Dir	176	181	175	173	179	192	189	191	225	282	270	263	270	272	277	280	287	282	181	180	175	196	207	92	260	270			
28 Spd	3	5	2	2	2	2	2	2	3	2	1	7	6	6	5	5	6	6	7	6	5	3	2	2	3.0	7.1			
Dir	187	173	177	150	172	158	39	339	340	322	185	170	169	171	173	175	175	180	179	178	178	182	198	218	177	170			
29 Spd	3	2	3	4	2	2	2	7	7	3	17	24	18	25	25	22	15	10	3	1	3	1	2	3	7.6	25.5			
Dir	198	190	205	179	193	174	184	268	259	203	262	275	282	271	274	273	269	269	255	163	285	212	208	194	263	271			
30 Spd	3	2	0	0	3	3	2	3	1	0	1	3	4	5	4	2	1	0	1	3	5	5	6	5	1.6	5.5			
Dir	200	183	212	107	358	357	7	5	358	3	13	9	350	347	349	258	286	300	223	279	288	282	264	247	309	264			
31 Spd	4	3	4	5	14	17	18	16	18	18	17	17	18	17	15	12	8	7	2	3	4	4	5	3	9.6	18.5			
Dir	237	246	180	243	265	272	272	277	280	280	284	286	285	286	289	284	272	253	227	222	216	213	231	152	272	272			
Spd	2.9	3.9	4.4	4.7	4.1	3.9	3.1	3.1	3.4	3.6	3.6	5.2	5.2	5.8	5.1	3.9	3.2	2.8	2.9	2.3	2.1	2.7	3.5	3.1	Diurnal Average				
Dir	255	263	263	264	273	280	267	271	269	267	261	259	267	272	277	270	269	261	254	254	258	268	270	260	Diurnal Maximum				
Spd	26.8	29.1	28.5	28.1	23.2	24.7	24.5	28.8	32.3	24.2	24.1	26.6	31.0	26.9	26.8	22.2	23.1	26.7	25.9	27.0	31.1	32.8	31.1	29.9	Diurnal Maximum				
Dir	284	275	276	283	320	304	313	324	329	326	270	263	270	272	277	273	261	264	267	267	272	276	281	284					
Maximum Speed Value: 33 km/h on Dec 1 22:00																		Minimum Speed Value: 0 km/h on Dec 30 10:00										Hours in Service: 744	
Maximum Daily Speed Average: 14.2 km/h on Dec 20																		Minimum Daily Speed Average: 1.0 km/h on Dec 15										Hours of Data: 744	
Maximum Diurnal Speed Average: 5.8 km/h at hour 14																		Minimum Diurnal Speed Average: 2.1 km/h at hour 21										Hours of Missing Data: 0	
Monthly Average Velocity: 3.66 km/h 266.2 deg																		Speed Percentiles: P ₁ = 0.3 P ₁₀ = 1.1 Q ₁ = 2.1 Median = 3.8 Q ₃ = 8.0 P ₉₀ = 16.3 P ₉₉ = 28.4										Percent Operational Time: 100.0	
All monthly, daily, and diurnal averages have been calculated using vector methods																													
Frequency Distribution																													
Speed Range (km/h)																													
Direction	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38																					Total			
North	29	17	13	2	0																					61			
NorthEast	5	0	0	0	0																					5			
East	5	0	0	0	0																					5			
SouthEast	35	0	0	0	0																					35			
South	252	63	0	0	0																					315			
SouthWest	81	4	0	0	0																					85			
West	25	55	47	26	8																					161			
NorthWest	15	28	24	8	2																					77			
Total	447	167	84	36	10																					744			

Wind Rose

Wind Speed (WS) (km/h)
Valleyview - December 2011



Wind Speed Classes (km/h)



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Valleyview - December 2011

Maximum Speed: 33 km/h on Dec 1 22:00																				Maximum Daily Speed Average: 16.5 km/h on Dec 20										Hours in Service: 744	
Minimum Speed: 1 km/h on Dec 8 16:00																				Minimum Daily Speed Average: 1.7 km/h on Dec 15										Hours of Data: 744	
Maximum Diurnal Speed Average: 8.7 km/h at hour 14																				Minimum Diurnal Speed Average: 5.5 km/h at hour 19										Hours of Missing Data: 0	
Monthly Average Speed: 6.61 km/h																				Percentiles: P ₁ = 0.8 P ₁₀ = 1.6 Q ₁ = 2.3 Median = 4.0 Q ₃ = 8.0 P ₉₀ = 16.8 P ₉₉ = 28.7										Percent Operational Time: 100.0	
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	5	4	3	3	5	3	4	3	3	3	4	3	3	2	4	3	4	6	15	27	31	33	31	30	9.8	33.1					
2-Dec	27	24	25	24	21	25	25	29	32	24	14	7	10	9	9	8	7	2	2	3	3	3	2	3	14.2	32.4					
3-Dec	2	2	2	3	3	4	2	3	7	12	10	10	10	7	7	6	9	2	11	13	19	17	15	11	7.9	19.4					
4-Dec	7	7	6	1	2	3	2	2	2	4	6	5	8	6	7	5	7	8	7	7	6	4	4	4	5.0	8.0					
5-Dec	4	4	4	4	4	2	1	2	2	2	2	2	2	4	3	3	5	12	12	6	7	4	3	3	3.9	11.7					
6-Dec	3	9	17	28	29	22	19	14	13	12	14	13	12	14	16	14	15	11	10	8	9	17	8	7	14.0	29.4					
7-Dec	12	11	6	7	12	10	6	6	10	11	10	11	16	15	12	6	4	2	1	2	1	2	2	2	7.4	16.3					
8-Dec	2	2	1	2	2	2	3	2	1	2	4	2	2	2	1	1	1	1	2	4	4	3	3	4	2.1	4.4					
9-Dec	3	2	2	2	2	4	3	4	3	3	3	4	4	3	10	6	3	2	2	1	1	1	2	2	3.1	10.1					
10-Dec	2	2	2	1	2	1	1	3	6	10	10	13	19	20	18	17	12	7	5	5	5	4	12	10	7.8	20.4					
11-Dec	11	12	11	10	9	7	4	5	1	1	1	2	2	3	3	4	5	3	2	3	4	2	1	1	4.4	11.7					
12-Dec	1	1	1	1	3	1	2	3	4	5	7	8	7	5	5	5	4	5	3	4	3	4	10	8	4.3	10.4					
13-Dec	7	9	10	9	4	2	2	2	2	2	1	2	2	2	6	4	6	10	10	7	6	6	10	10	5.6	10.2					
14-Dec	12	13	7	9	12	7	3	4	3	3	2	3	3	3	2	1	1	1	1	1	1	1	1	1	3.9	12.5					
15-Dec	1	1	1	1	2	1	1	1	2	1	1	2	3	3	1	2	2	1	1	1	1	2	2	5	1.7	5.0					
16-Dec	6	4	6	4	4	5	2	3	4	4	3	3	3	3	2	1	2	3	3	3	2	3	2	3	3.4	6.3					
17-Dec	1	1	2	1	1	2	2	1	2	2	2	1	5	11	9	4	3	2	1	2	3	2	3	2	2.6	10.8					
18-Dec	3	3	7	10	8	4	4	3	2	3	1	4	10	10	4	2	2	3	3	2	3	3	2	4	4.1	10.3					
19-Dec	4	5	6	5	5	5	5	5	5	5	5	4	3	4	4	3	3	3	3	3	3	3	3	3	4.0	5.7					
20-Dec	10	17	17	16	20	17	17	17	17	9	8	19	15	18	15	12	18	24	14	19	15	24	19	19	16.5	24.1					
21-Dec	5	8	6	5	6	7	4	3	8	5	5	10	7	4	3	3	2	2	2	3	4	4	2	4	4.6	9.5					
22-Dec	4	5	4	3	3	12	8	5	3	2	3	2	2	6	3	3	3	3	2	1	1	3	4	5	3.8	12.1					
23-Dec	6	5	2	4	2	2	4	5	4	5	7	20	22	21	15	12	23	27	26	18	6	3	3	3	10.1	26.9					
24-Dec	2	10	14	18	13	12	10	10	10	10	5	3	4	4	2	2	1	1	1	2	5	6	5	6	6.5	17.6					
25-Dec	7	7	7	7	7	8	7	5	6	5	5	7	8	5	5	3	2	1	6	7	7	14	18	24	7.5	23.7					
26-Dec	26	29	29	22	15	11	7	4	3	2	2	7	4	3	3	4	6	7	8	8	10	9	8	6	9.7	29.4					
27-Dec	5	5	5	6	5	4	4	4	3	20	24	27	31	27	27	20	14	7	2	2	2	2	3	2	10.5	31.4					
28-Dec	3	5	2	3	2	2	2	2	3	2	2	7	6	6	5	5	6	6	7	6	5	3	2	2	3.9	7.2					
29-Dec	4	4	4	4	3	3	2	7	8	3	18	24	18	26	26	22	15	10	4	2	4	1	2	3	9.0	25.8					
30-Dec	4	2	1	1	3	3	2	3	2	1	2	3	4	5	4	2	2	1	2	3	5	5	6	5	3.0	5.7					
31-Dec	4	3	4	6	14	17	19	16	18	18	18	18	18	17	16	13	8	7	3	3	5	5	5	3	10.6	18.7					
6.2 7.0 6.9 7.1 7.1 6.7 5.8 5.7 6.1 6.2 6.4 8.0 8.4 8.7 8.0 6.4 6.2 5.9 5.5 5.7 5.9 6.3 6.3 6.2																									Diurnal Average						
27.0 29.4 28.7 28.4 29.4 24.9 24.7 29.0 32.4 24.3 24.4 26.9 31.4 27.2 27.1 22.4 23.4 26.9 26.0 27.4 31.4 33.1 31.3 30.2																									Diurnal Maximum						

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

Hourly Standard Deviations

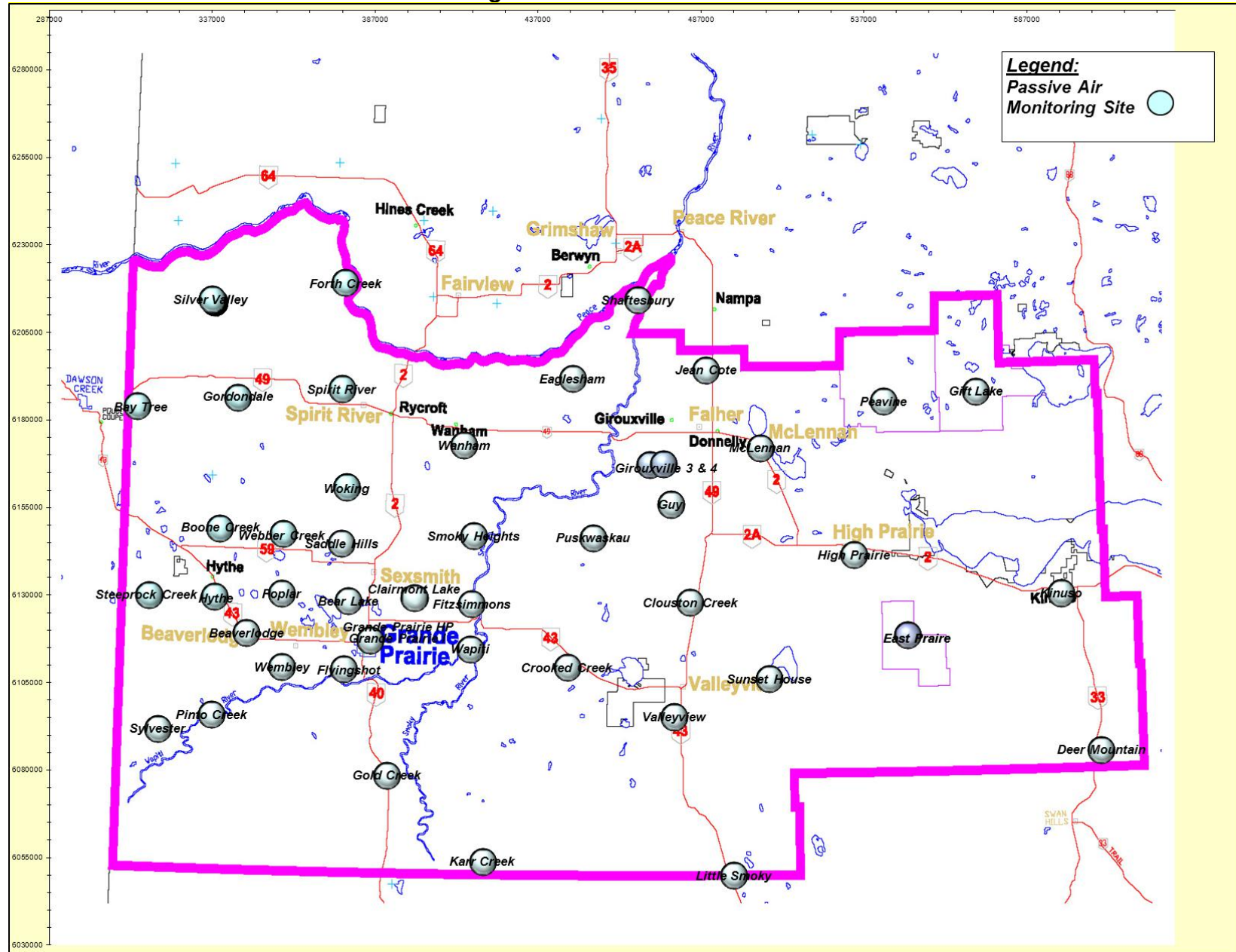
Wind Direction (WD) - deg
Valleyview - December 2011

Maximum Value: 93.0 deg on Dec 30 10:00																			Hours in Service: 744						
Minimum Value: 4.6 deg on Dec 25 05:00																			Hours of Data: 744						
																			Hours of Missing Data: 0						
Percentiles: P ₁ = 5.6 P ₁₀ = 7.3 Q ₁ = 8.9 Median = 14.3 Q ₃ = 29.1 P ₉₀ = 56.8 P ₉₉ = 83.7																			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	19	15	26	21	13	32	9	15	14	18	31	18	17	17	10	16	22	45	9	10	8	8	7	7	45.4
2-Dec	7	7	8	8	8	7	8	7	5	6	6	16	9	13	10	14	9	13	16	11	7	8	7	7	16.3
3-Dec	11	10	20	12	35	49	37	55	10	18	9	8	16	9	8	10	9	56	45	10	7	10	8	8	55.7
4-Dec	15	16	13	68	14	34	57	31	15	9	7	9	6	9	8	8	8	8	7	7	7	18	9	10	68.4
5-Dec	7	7	12	7	9	57	37	83	77	76	37	31	76	45	45	42	31	10	33	6	8	14	84	36	83.7
6-Dec	14	21	10	7	38	7	11	10	10	10	12	10	12	22	12	7	5	11	11	10	10	12	20	17	38.4
7-Dec	10	9	12	9	6	8	15	12	9	10	11	14	7	10	8	9	18	27	70	29	20	17	19	14	70.1
8-Dec	30	9	39	14	35	16	13	33	79	27	12	20	60	20	24	53	49	23	16	11	9	7	13	11	78.9
9-Dec	16	18	18	30	49	20	13	15	12	21	32	27	23	34	50	13	58	21	66	64	89	77	35	59	89.1
10-Dec	27	42	70	71	86	60	76	43	67	25	10	10	9	8	10	12	9	15	16	20	14	23	43	12	85.9
11-Dec	10	9	7	9	11	9	14	20	28	66	43	26	69	22	15	10	9	8	17	8	9	20	48	27	68.9
12-Dec	20	23	18	16	26	20	31	13	8	7	7	6	9	10	8	11	20	21	17	8	14	25	9	15	30.8
13-Dec	12	10	10	9	42	23	25	76	50	24	58	16	26	56	8	28	11	8	11	10	17	11	11	11	76.4
14-Dec	10	7	18	8	8	23	23	67	33	17	68	33	26	49	43	27	73	16	12	80	77	46	44	63	80.4
15-Dec	87	64	51	52	29	62	30	36	10	48	20	19	20	26	61	23	22	29	24	57	64	10	16	10	87.4
16-Dec	8	10	7	8	10	57	67	63	20	21	28	41	20	14	33	45	75	8	9	12	8	35	15	13	75.3
17-Dec	23	74	29	49	59	56	48	74	65	22	85	77	57	8	8	39	44	34	54	35	13	29	18	31	84.8
18-Dec	21	22	15	13	35	17	20	61	73	45	33	26	9	10	34	14	17	13	7	15	13	8	18	7	72.8
19-Dec	13	8	6	7	8	24	16	12	9	14	5	9	20	14	21	15	14	24	15	10	8	17	12	16	24.3
20-Dec	13	8	7	9	6	7	8	8	10	17	17	12	11	9	9	8	24	33	20	10	10	13	12	8	33.4
21-Dec	24	10	13	13	11	12	22	24	14	36	20	10	15	31	32	23	21	23	15	17	10	11	33	19	36.1
22-Dec	7	10	16	10	15	14	10	35	19	32	81	82	68	10	28	22	21	11	31	80	79	9	6	11	81.6
23-Dec	9	16	20	86	77	57	13	6	9	11	22	8	8	7	6	7	8	7	6	9	35	19	13	11	86.3
24-Dec	15	16	8	9	11	7	8	7	6	11	34	14	13	13	17	13	81	19	35	67	9	6	12	7	81.4
25-Dec	6	5	7	5	5	5	6	7	8	7	15	7	6	12	9	31	12	24	14	12	12	10	8	7	31.0
26-Dec	6	8	6	7	8	12	10	15	13	10	28	11	18	8	10	7	6	6	7	8	6	6	9	9	28.4
27-Dec	6	6	7	9	6	15	9	13	31	14	8	8	9	8	8	8	10	15	19	49	37	41	13	59	59.1
28-Dec	60	10	30	26	16	33	32	14	32	49	79	9	9	9	10	8	7	7	6	7	7	13	19	14	78.9
29-Dec	44	67	37	17	55	54	49	23	28	11	12	8	9	9	8	8	8	12	60	70	31	64	23	17	69.7
30-Dec	32	12	69	80	31	28	63	23	70	93	43	25	9	17	21	25	55	90	43	32	29	15	16	16	93.0
31-Dec	21	22	17	31	10	7	8	7	8	8	9	7	9	9	9	8	9	6	50	18	38	35	19	15	50.0
87.4 74.4 69.9 86.3 85.9 62.2 75.5 82.9 78.9 93.0 84.8 81.6 76.4 56.2 61.3 52.5 81.4 89.5 70.1 80.4 89.1 77.2 83.7 62.7																									

PAZA

Monthly Passive Data Summary

Location of PAZA Passive Monitoring Stations



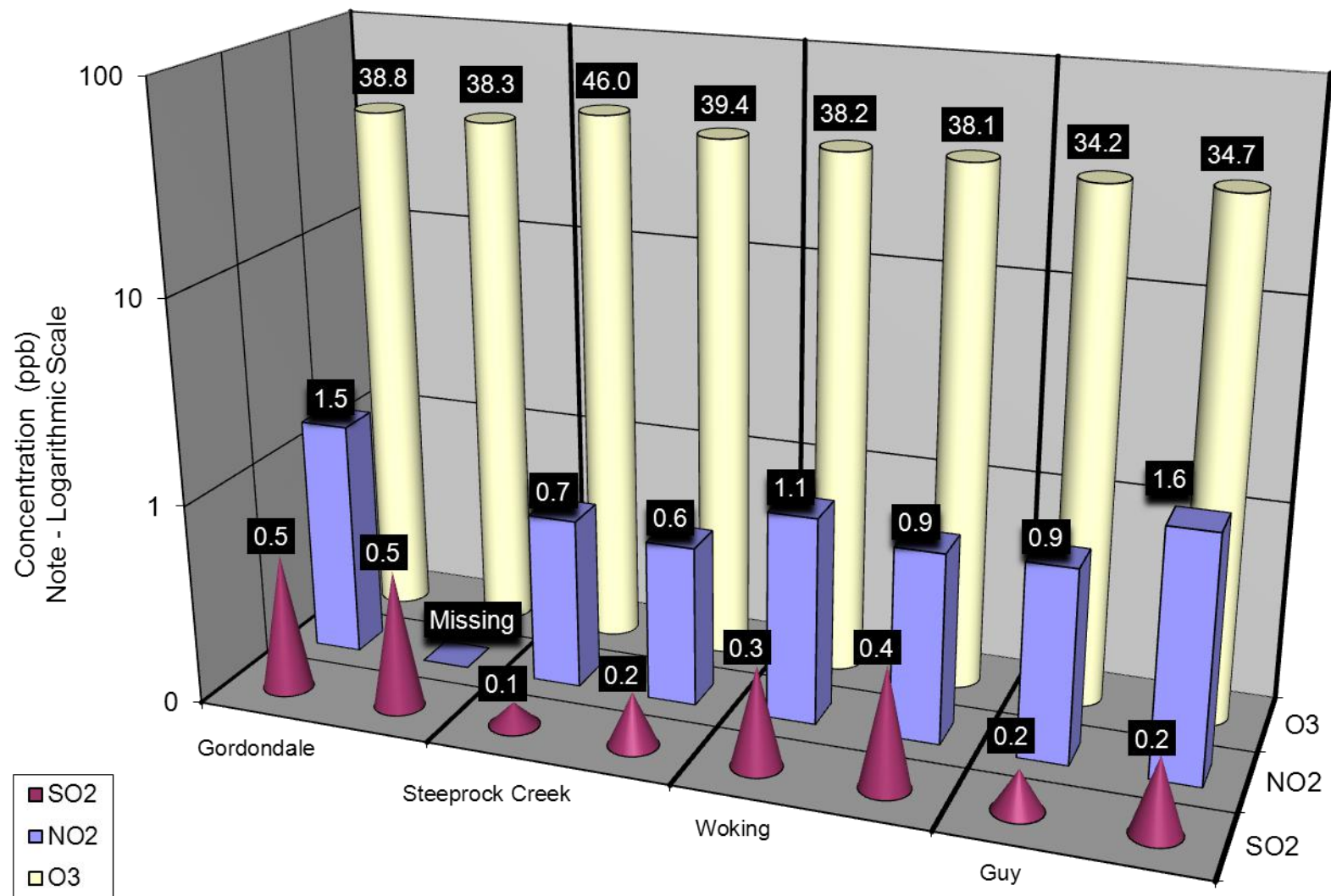
PAZA Passive Results for December 2011

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	Site Legal
Duplicates						
4a	Gordondale	0.5	38.8	1.5		
4b	Gordondale	0.5	38.3	Missing		
7a	Steeprock Creek	0.1	46.0	0.7		
7b	Steeprock Creek	0.2	39.4	0.6		
10a	Woking	0.3	38.2	1.1		
10b	Woking	0.4	38.1	0.9		
36a	Guy	0.2	34.2	0.9		
36b	Guy	0.2	34.7	1.6		
64a	Girouxville 3				0.2	
64b	Girouxville 3				0.2	

1	Silver Valley	0.4	37.2	1.2		08-27-081-11 W6M
2	Bay Tree	0.1	38.3	0.6		13-16-078-13 W6M
3	Fourth Creek	0.4	42.7	0.7		04-13-082-07 W6M
4	Gordondale	0.5	38.6	1.5		04-34-078-10 W6M
5	Boone Creek	0.2	34.6	1.3		16-36-074-11 W6M
7	Steeprock Creek	0.2	42.7	0.7		09-35-072-13 W6M
9	Spirit River	0.3	38.3	1.4		08-12-079-07 W6M
10	Woking	0.4	38.2	1.0		01-13-076-07 W6M
11	Webber Creek	0.4	32.9	1.7		09-36-074-09 W6M
12	Hythe	0.1	35.5	1.3		14-36-072-11 W6M
14	Sylvester	0.1	36.4	0.7		08-06-069-12 W6M
16	Beaverlodge	0.2	44.0	2.4		15-36-071-10 W6M
17	Poplar	0.2	34.2	2.0		13-06-073-08 W6M
18	Saddle Hills	0.4	36.9	1.9		04-25-074-07 W6M
19	Wanham	0.4	36.8	1.0		16-22-077-03 W6M
20	Shaftesbury	0.3	36.8	1.7		04-03-082-23 W5M
21	Eaglesham	0.2	30.2	0.7		16-21-079-25 W5M
23	Bear Lake	0.2	34.0	2.7		15-31-072-06 W6M

PAZA Passive Results for December 2011 (Continued)

24	Wembley	0.1	36.1	1.5	12-31-070-08 W6M
25	Pinto Creek	0.1	36.3	0.9	04-24-069-11 W6M
26	Flyingshot	0.2	33.7	2.4	15-36-070-07 W6M
27	Grande Prairie I	0.1	31.6	8.6	08-15-071-06 W6M
28	Clairmont Lake	0.3	37.5	2.3	09-06-073-04 W6M
29	Smoky Heights	0.5	37.0	1.5	04-06-075-02 W6M
30	Fitzsimmons	0.2	28.9	1.5	15-36-072-03 W6M
32	Gold Creek	0.4	38.2	1.0	06-33-067-05 W6M
33	Wapiti	0.2	42.7	0.7	02-25-071-03 W6M
34	Puskwaskau	0.1	33.2	0.6	15-35-074-25 W5M
35	Jean Cote	0.2	35.3	1.1	12-35-079-21 W5M
36	Guy	0.2	34.4	1.3	03-04-076-22 W5M
37	Crooked Creek	0.4	38.2	1.0	16-01-071-26 W5M
38	Karr Creek	0.3	36.2	0.9	10-16-065-02 W6M
39	Clouston Creek	0.2	34.4	1.3	12-01-073-22 W5M
40	McLennan	0.2	34.4	1.3	03-29-077-19 W5M
41	Valleyview	0.2	44.3	1.7	09-30-069-22 W5M
42	Sunset House	0.2	41.3	1.4	05-32-070-19 W5M
43	High Prairie	0.1	37.5	0.9	16-13-074-17 W5M
44	Peavine	0.1	33.2	0.6	03-05-079-15 W5M
45	Gift Lake	0.1	32.6	0.9	10-07-079-12 W5M
46	Little Smoky	0.1	26.8	3.8	12-01-065-21 W5M
47	Kinuso	0.1	30.7	0.6	12-10-073-10 W5M
48	Deer Mountain	0.2	39.1	0.6	15-22-068-09 W5M
49	Grande Prairie HP	0.2	25.5	10.7	17-26-071-06 W6M
62	East Prairie	0.1	33.2	1.0	13-02-072-15 W5M
63	Girouxville 3			0.2	14-02-077-23 W5M
64	Girouxville 4			0.2	4-08-077-22 W5M



Duplicate Summary Chart

Passive Summary for December 2011

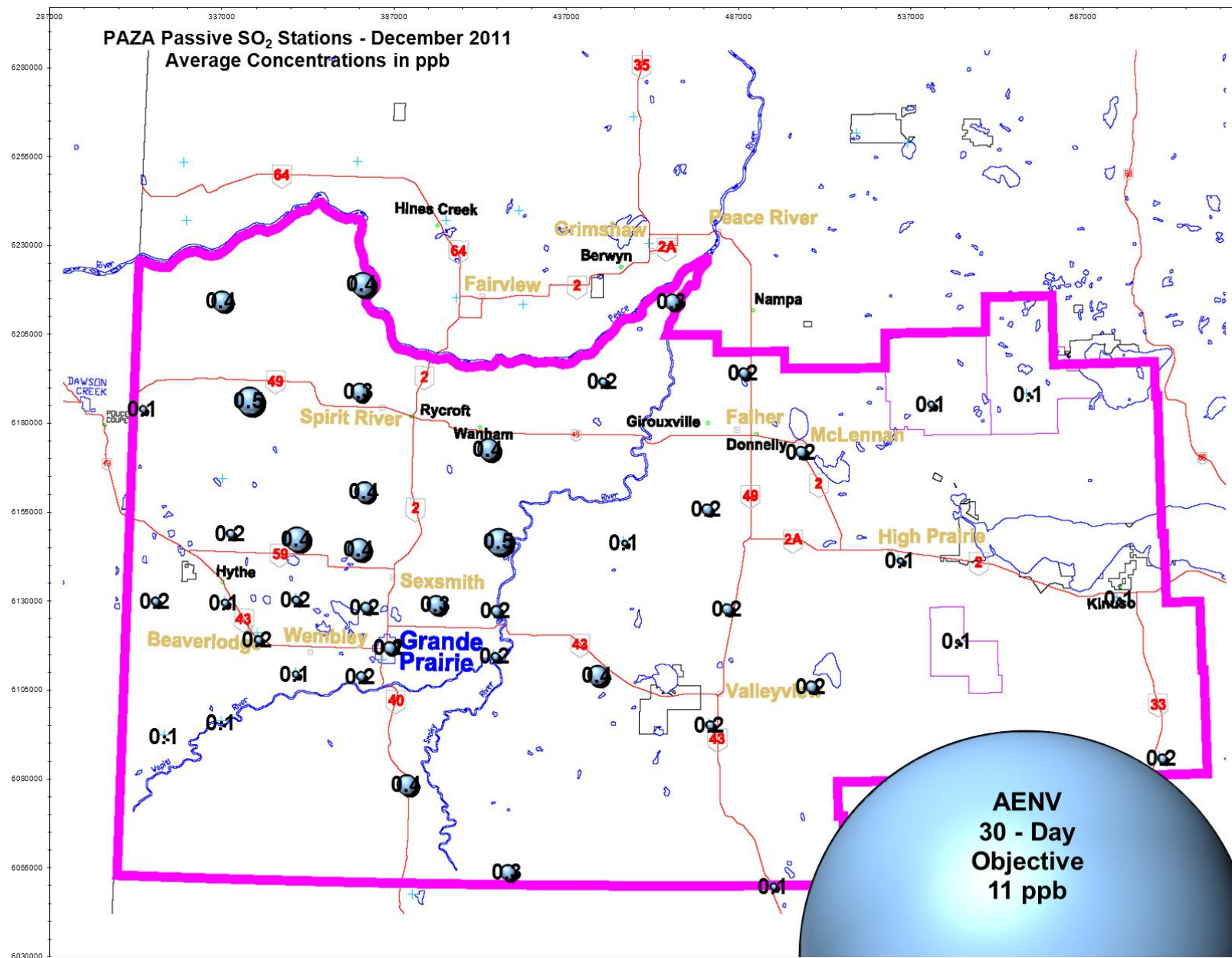
Stats	Sulphur Dioxide SO ₂	Ozone O ₃	Nitrogen Dioxide NO ₂	Hydrogen Sulphide H ₂ S
	ppb	ppb	ppb	ppb
Passive Summary for December 2011 (PAZA Zone)				
Mean	0.2	35.9	1.7	0.2
Standard Deviation	0.1	4.1	1.9	0.0
Minimum	0.1	25.5	0.6	0.2
Minimum At	Pinto Creek (#25)	Grande Prairie HP	Kinuso (#47)	Girouxville 3
Maximum	0.5	44.3	10.7	0.2
Maximum At	Gordondale (#4)	Valleyview (#41)	Grande Prairie HP	Girouxville 4

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

	SO ₂	O ₃	NO ₂
PAZA Beaverlodge station	0.2	30.8	3.9
PAZA Beaverlodge passive	0.2	44.0	2.4

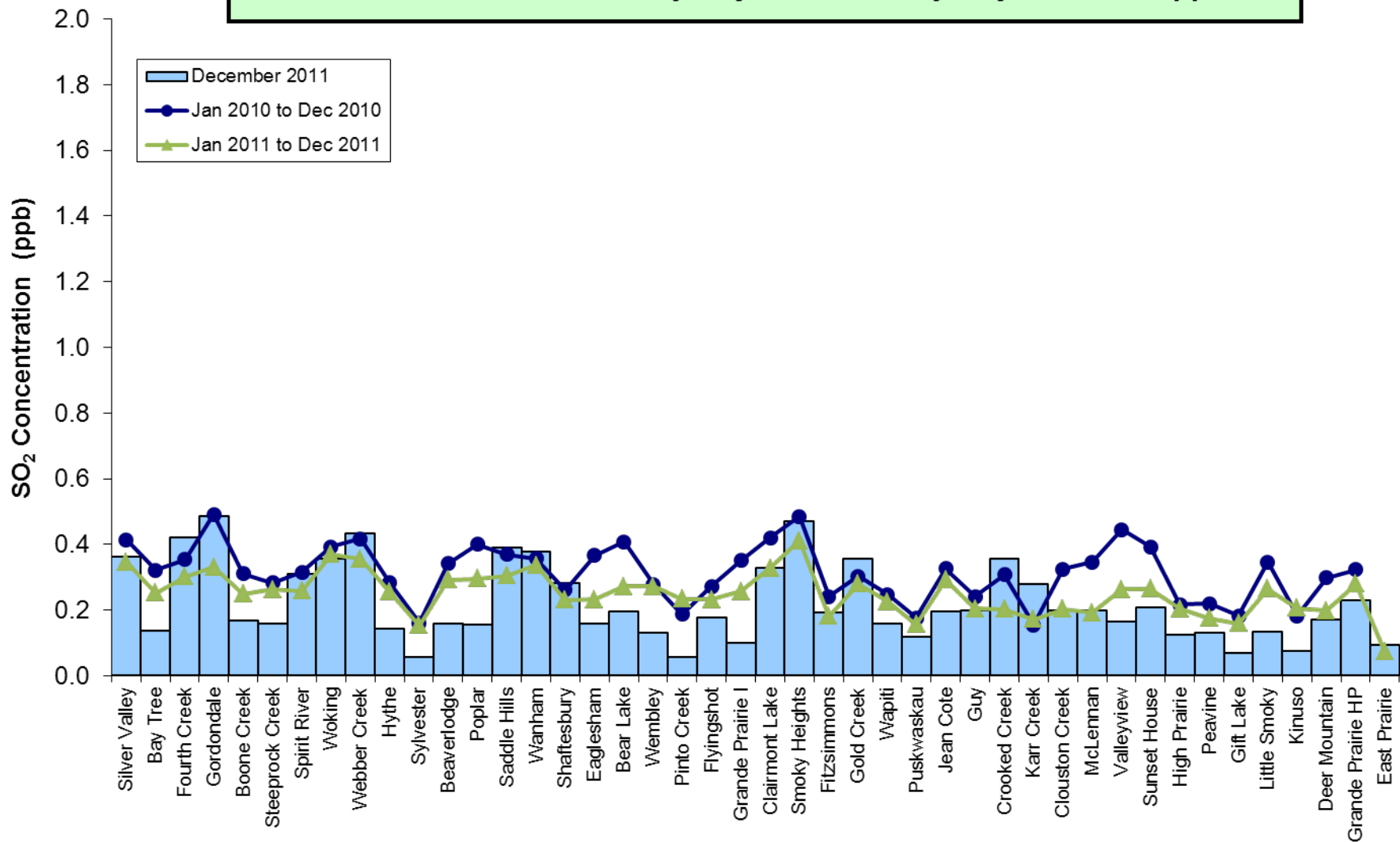
Comparison between Continuous and Passive monitoring at Henry Pirker (passive #49 Grande Prairie HP)

	SO ₂	O ₃	NO ₂
PAZA Henry Pirker station	0.3	19.4	13.8
PAZA Grande Prairie passive	0.2	25.5	10.7

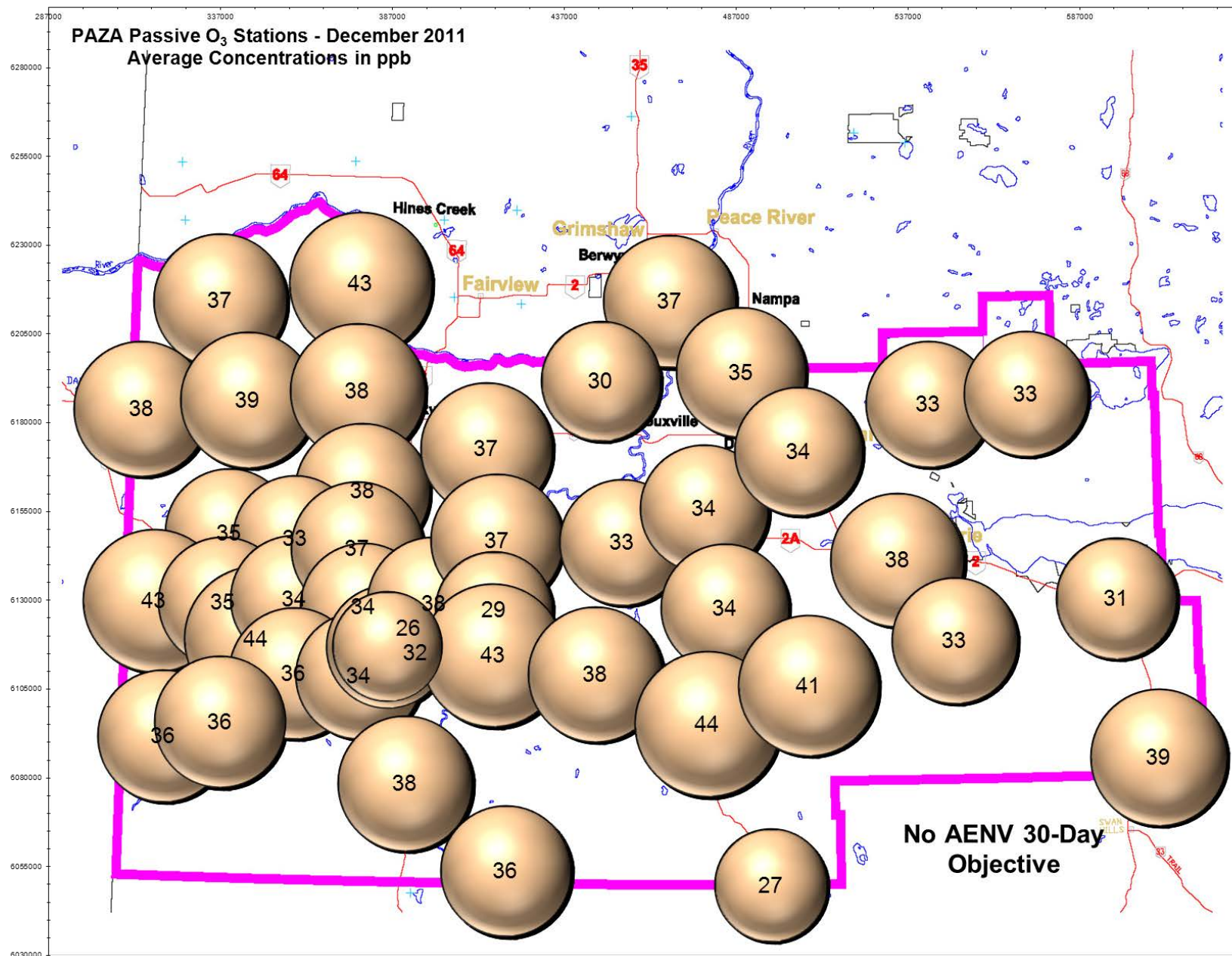


SO₂ Bubble Chart

Alberta Ambient Air Quality Objective - 30-day Objective is 11 ppb

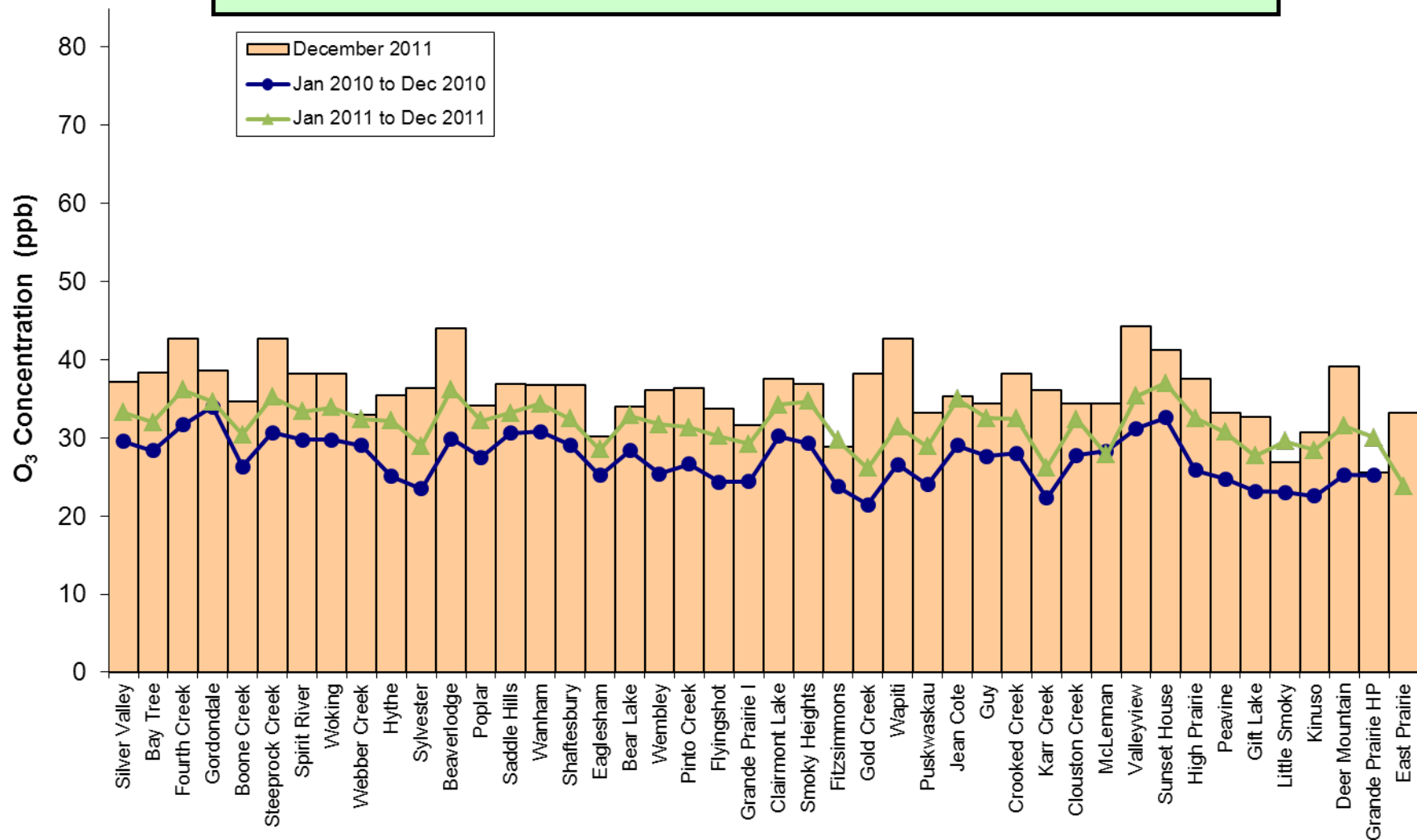


SO₂ Summary Chart



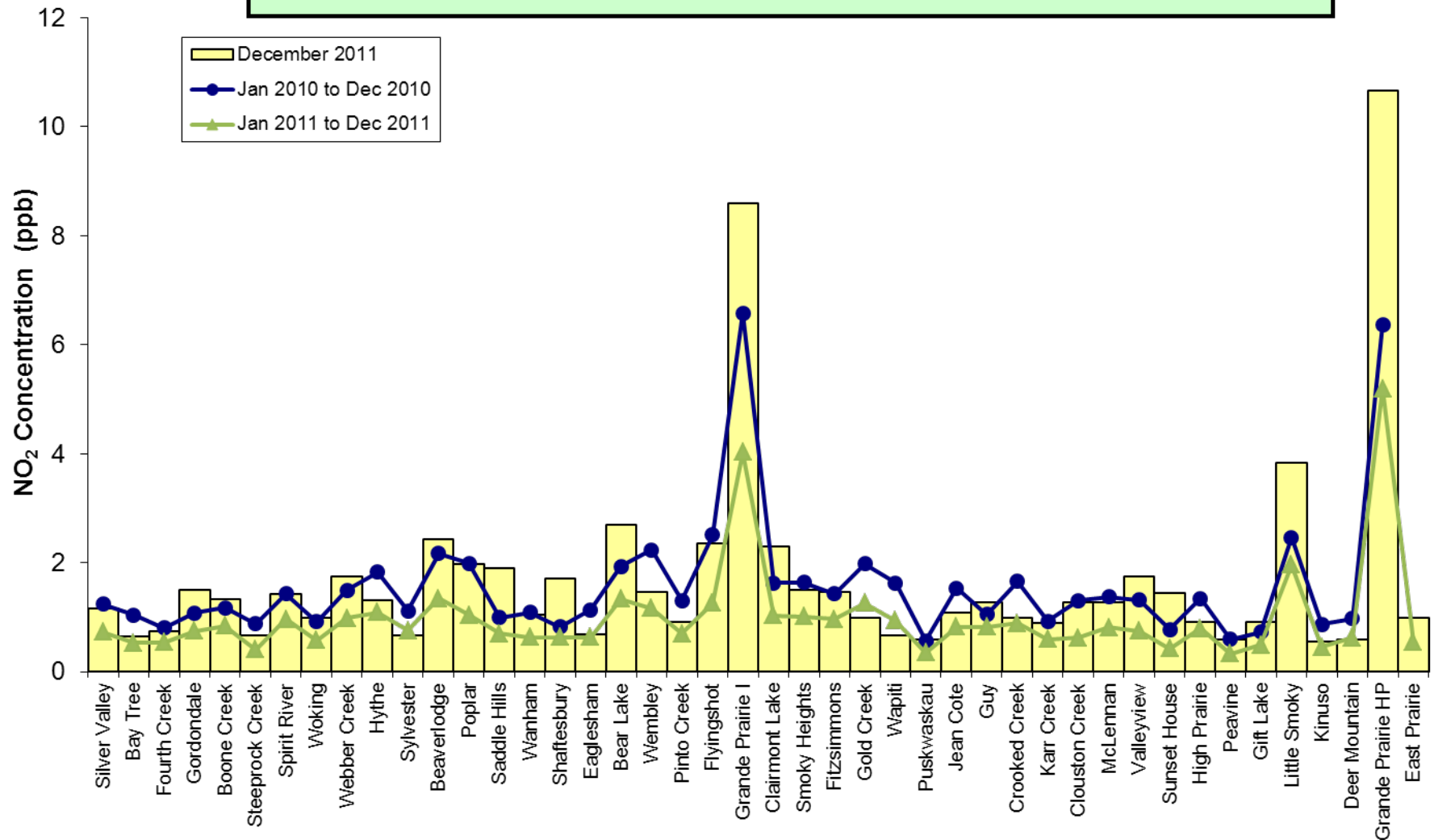
O₃ Bubble Chart

Alberta Ambient Air Quality Objective - No Annual O₃ Objective

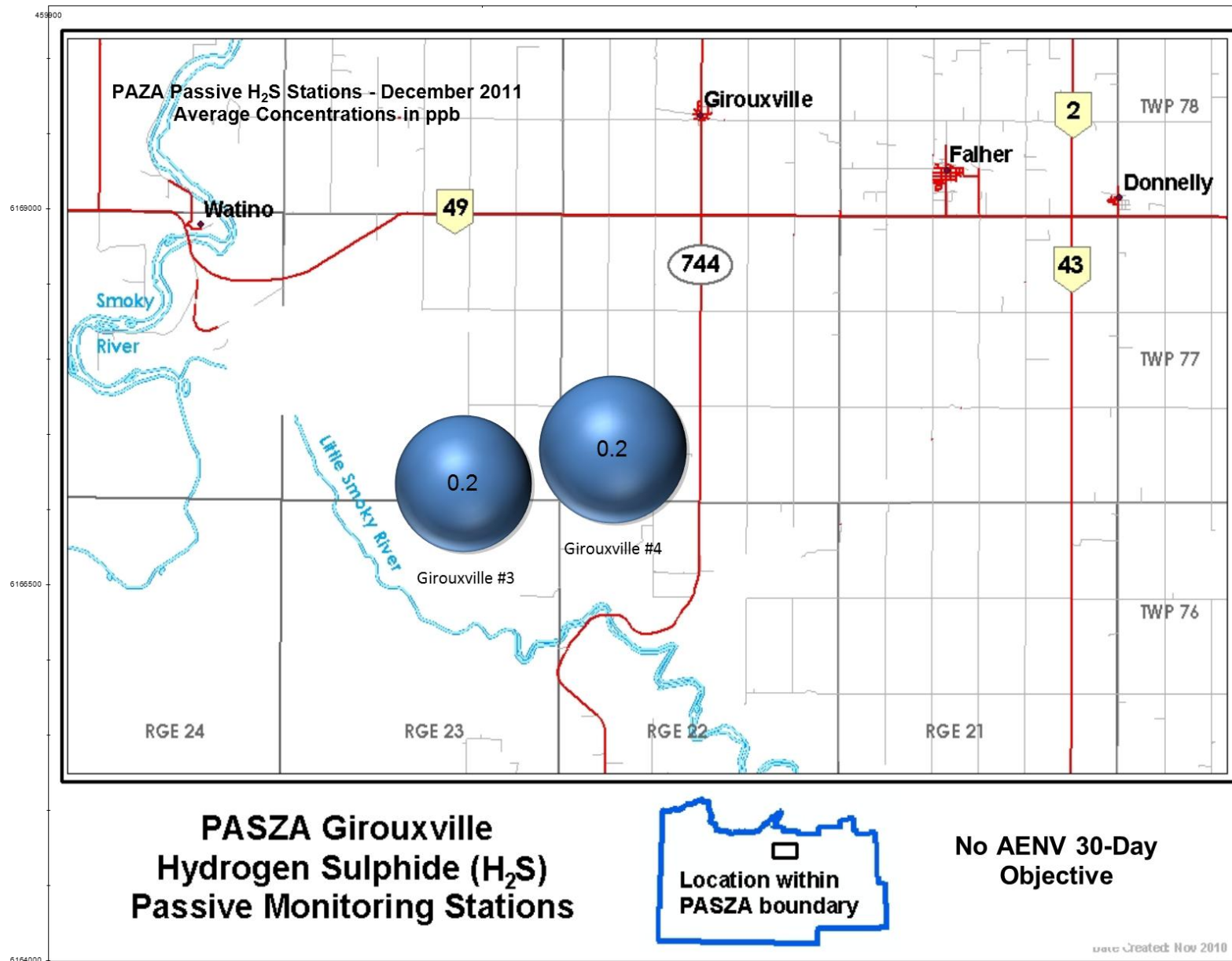


O₃ Summary Chart

Alberta Ambient Air Quality Objective - Annual NO₂ Objective is 24 ppb



NO₂ Summary Chart



H₂S Bubble Chart

PAZA

ALBERTA ENVIRONMENT INCIDENCE REPORTS

December 2011

Air Monitoring Directive Exceedence Report

Alberta Environment
Environmental Service Response Centre
111 Twin Atria Building
4999 – 98th Avenue
Edmonton, Alberta T6B 2X3
Phone: (780) 422-4505
Fax: (780) 427-1044

Reference Number:	255363	Reported To (AENV Contact):	Krysta
Date & Time Incident Reported to AENV:	January 24, 2012	Reported By:	Patrick Andersen
Reported on Behalf of:	PAZA	Approval Number (if applicable):	Not Applicable
Location(s) of Incident:	Henry Pirker Station		
Start Date & Time of Incident:	December 1, 2011 @01:00 MDT.	End Date & Time of Incident:	January 1, 2012 @00:00 MDT.
Reason or Nature of Incident:			
PM2.5 (particulate matter less than 2.5 microns) analyzer housed within the PAZA Henry Pirker station has not met the 90% uptime requirement for the month of December due to negative readings.			
Immediate Actions Taken:			
Called in to AENV			
Investigation Details:			
NA			
Actions Taken to Prevent Reoccurrence (if any):			
Analyzer maintenance will be performed.			
Additional Actions Required (if any):			
NA			
Report Completed By:	January 24, 2012	Date Report Submitted:	January 24, 2012
7-Day Letter Due Date:	January 31, 2012		

December 2011 Calibration Reports

PAZA - Henry Pirker Station with the following calibrations:

SO₂, NO, NO₂, NO_x, O₃, CO, THC, TRS

PAZA – Evergreen Park Station with the following calibrations:

SO₂, TRS

PAZA – Smoky Heights Station with the following calibrations:

SO₂, TRS

PAZA – Beaverlodge Station with the following calibrations:

SO₂, NO, NO₂, NO_x, O₃

PAZA – Valleyview Station with the following calibrations:

SO₂ & H₂S

Calibration Report

Parameter SO2

Air Monitoring Network PASZA



Station Information

Calibration Date	December 9, 2011		Previous Calibration	November 16, 2011	
Station Number	1		Station Location	Henry Pirker	
Reason:	☒ Routine	☐ Install	☐ Removal	☐ Other:	
Start Time (MST)	9:04		End Time (MST)	12:45	
Barometric Pressure	0.922	ATM	Station Temperature	20.0	Deg C
Calibrator	Envionics		Serial Number	3474	
Cal Gas Conc	49.8	ppm	Cal Gas Cert Date	3/28/2013	
			Cal Gas Cylinder #	LL85275	
DACS make	CR3000		DACS serial No.	5408	
DACS voltage range	0 - 1 volt		DACS channel #	10	
	Before			After	
Calculated slope	1.002510		Calculated slope	1.001051	
Calculated intercept	-1.900543		Calculated intercept	-1.770650	
Analyzer make	TEI 43C		Analyzer serial #	610816292	

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	9.0		9.0	
Coefficient	0.781		0.782	
Pressure	641.4	mm Hg	637.1	mm Hg
Flow	0.503	lpm	0.500	lpm
Lamp Voltage	43788	Hz	44102	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)
4989	0.00	0.0	-0.3	N/A
4989	39.84	394.5	395.0	0.9989
4989	19.91	198.0	200.0	0.9897
4989	9.93	98.9	103.1	0.9595
4989	0.00	0.0	-0.2	As Found Zero
4989	39.84	394.5	395.0	As Found Span
Average Correction Factor				0.9827

Calculated value of As Found Response: 394.2 ppb Percent Change of As Found: 0.1%

	before calibration		after calibration	
Auto zero	0.1	ppb	0.1	ppb
Auto span	248.1	ppb	236.0	ppb

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



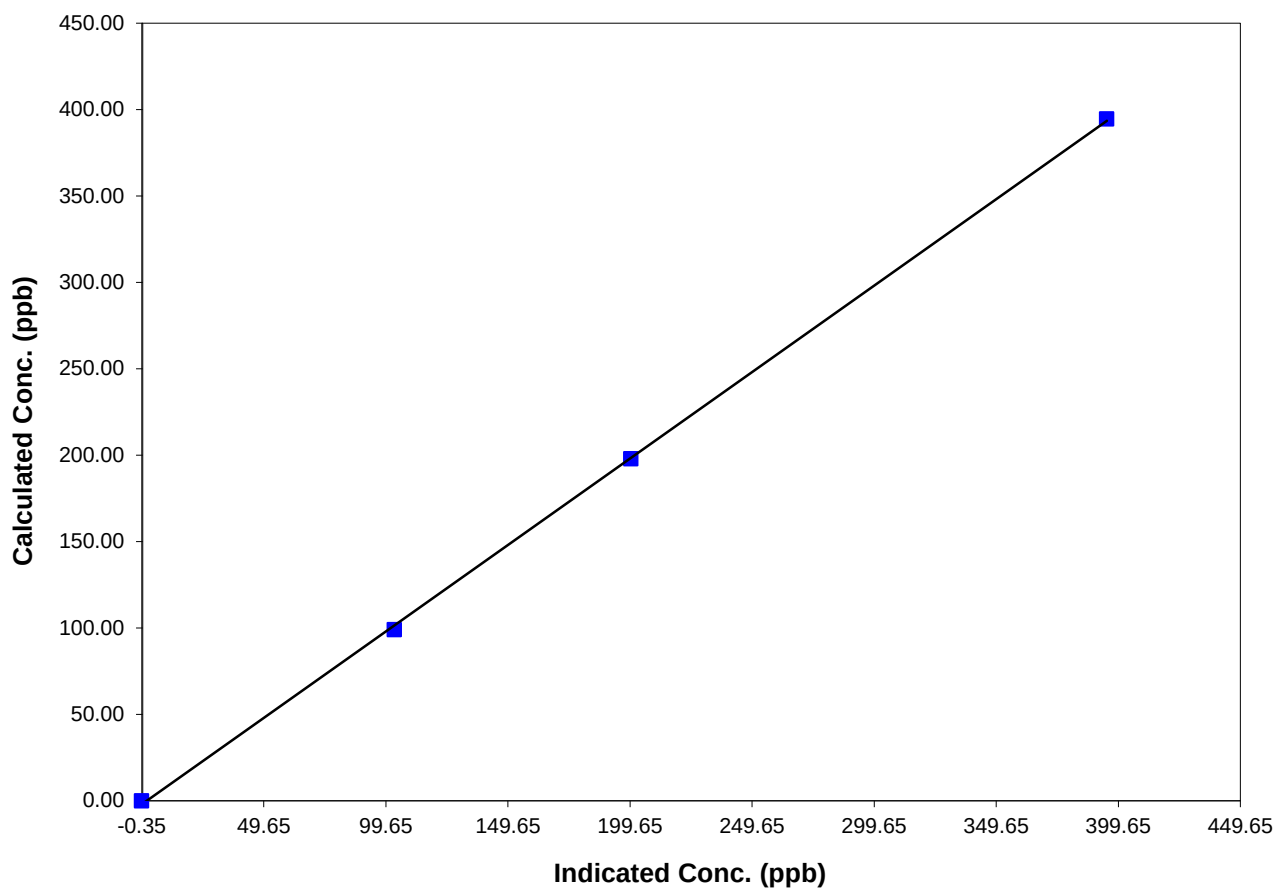
Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 16, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:04	End Time (MST)	12:45
Analyzer make/model	TEI 43C	Analyzer serial #	610816292

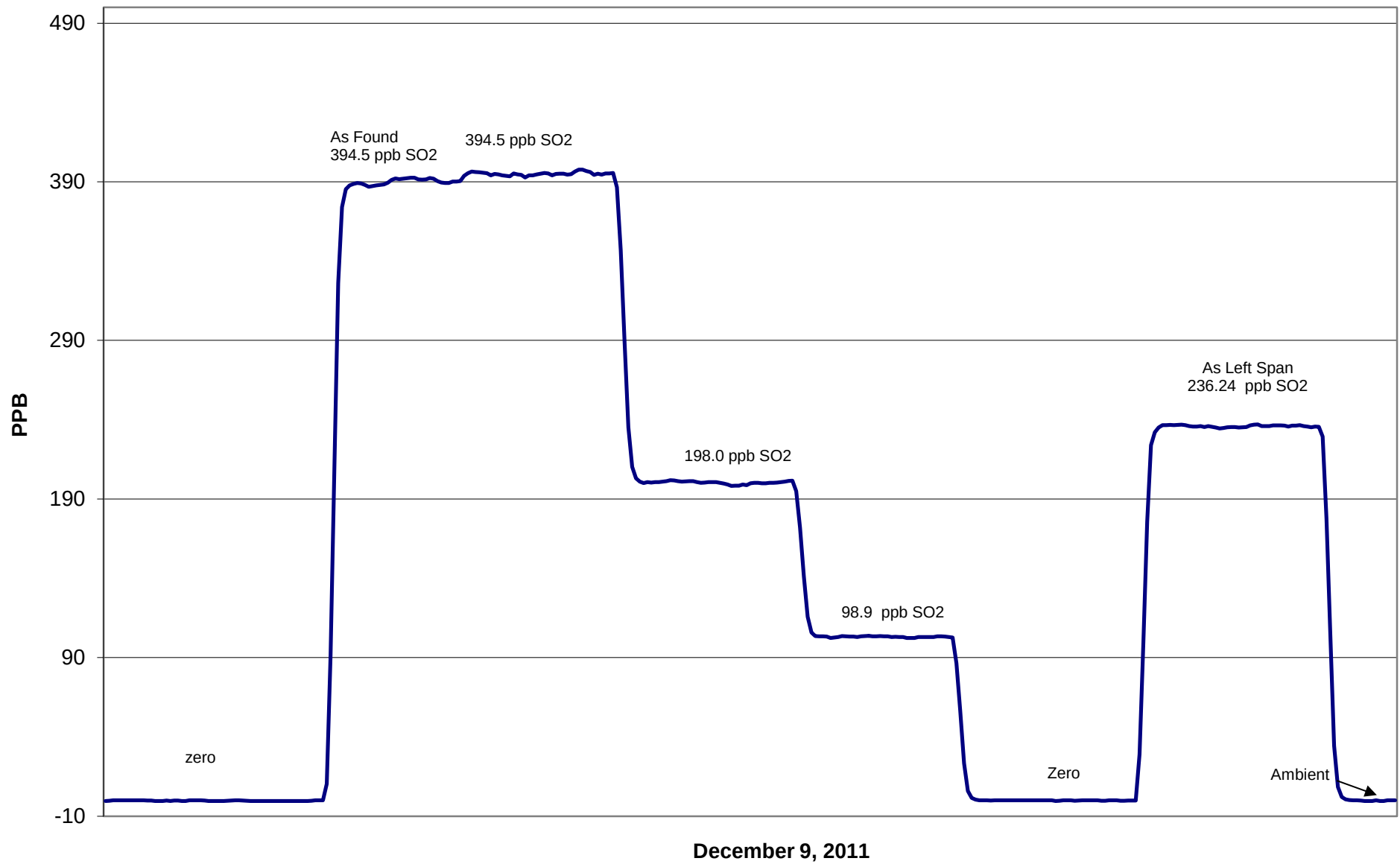
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.3	N/A		
394.5	395.0	0.9989	Correlation Coefficient	0.999861
198.0	200.0	0.9897		
98.9	103.1	0.9595	Slope	1.001051
			Intercept	-1.770650

SO2 Calibration Curve



SO2 Calibration



Calibration Report

Parameter

NO_x-NO-NO₂

Air Monitoring Network

PASZA



Station Information

Calibration Date	December 9, 2011		Previous Calibration	November 16, 2011	
Station Number	1		Station Location	Henry Pirker	
Reason:	☒ Routine	☐ Installation	☐ Removal	Other: _____	
Start Time (MST)	9:11		End Time (MST)	13:55	
Barometric Pressure	0.922	Atm	Station Temperature	20.0	Deg C
Calibrator	EnviroNics		Serial Number	3474	
NO Cal Gas Conc	52.5	ppm	Cal Gas Expiry Date	March 28, 2013	
NO _x Cal Gas Conc	52.5	ppm	Cal Gas Serial #	LL85275	

DACS Information

DACS make	CR3000		DACS serial No.	5408	
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	Parameter	NO ₂	NO _x	NO
Before	Data Slope	1.000238	1.004726	1.003467
	Data Offset	0.044423	-2.717888	-2.451270
After	Data Slope	1.002101	1.005114	1.004409
	Data Offset	0.150478	-2.615947	-2.523484
	Channel #	8	6	7
	Voltage Range	0 - 5 VDC	0 - 5 VDC	0 - 5 VDC

Analyzer Information

Analyzer make/model	TEI 42C		Analyzer serial #	508011073	
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Test Point	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
NO offset	10.0	mV	9.9	mV
NO _x bkgnd	10.4	mV	10.3	mV
NO coefficient	0.733		0.732	
NO _x coefficient	1.000		0.999	
NO ₂ conv temp	318.0	Deg C	318.0	Deg C
PMT Temp	-2.5	Deg C	-2.5	Deg C
PMT Volt	-786.0	mV	-786.0	mV
R Cell Press	172.9	in Hg	173.0	in Hg

Calibration Report

Parameter **NOx-NO-NO₂**
Air Monitoring Network **PAZA**



Calibration Date: December 9, 2011 Station Location: Henry Pirker

	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	4989	0.00	0.0	0.0	0.0	0.1	0.0	0.0	N/A	N/A
1	4989	39.84	415.9	415.9	0.0	415.1	415.3	-0.3	1.0021	1.0015
2	4989	19.91	208.7	208.7	0.0	211.6	211.5	0.1	0.9863	0.9866
3	4989	9.94	104.4	104.4	0.0	109.0	109.0	-0.1	0.9579	0.9574
AFZ	4989	0.00	0.0	0.0	0.0	0.1	0.0	0.0	0.0000	0.0000
AFS	4989	39.83	415.8	415.8	0.0	415.1	415.3	-0.3	1.0018	1.0013
Average Correction Factor									0.9821	0.9818

As Found Concentrations: NO_x= 412.3 NO= 412.9 As Found Percent Change NO_x= -0.9% NO= -0.7%

Dilution Flow 4989 ccm Source Gas Flow 39.85 ccm

O3 Setpoint (ppb)	Indicated NO high point (ppb)	Indicated NO drop 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	0.1	0.0	0.0	N/A	N/A	N/A	N/A
NO point	415.2	415.2	0.0	414.7	415.2	-0.5	1.0012	1.0000	N/A	N/A
300	415.2	176.1	239.1	414.6	176.1	238.6	1.0015	1.0000	1.0021	99.8%
200	415.2	253.2	162.0	414.4	253.2	161.3	1.0018	1.0000	1.0039	99.6%
100	415.2	324.2	91.0	414.6	324.2	90.4	1.0013	1.0000	1.0058	99.4%
Average Correction Factor							1.0015	1.0000	1.0039	99.6%

	Previous calibration				Current calibration			
Parameter	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	-0.1	0.0	0.0	ppb	0.1	-0.1	0.0	ppb
Auto span	168.4	169.5	1.2	ppb	162.3	161.6	1.0	ppb

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter NO₂

Air Monitoring Network PASZA



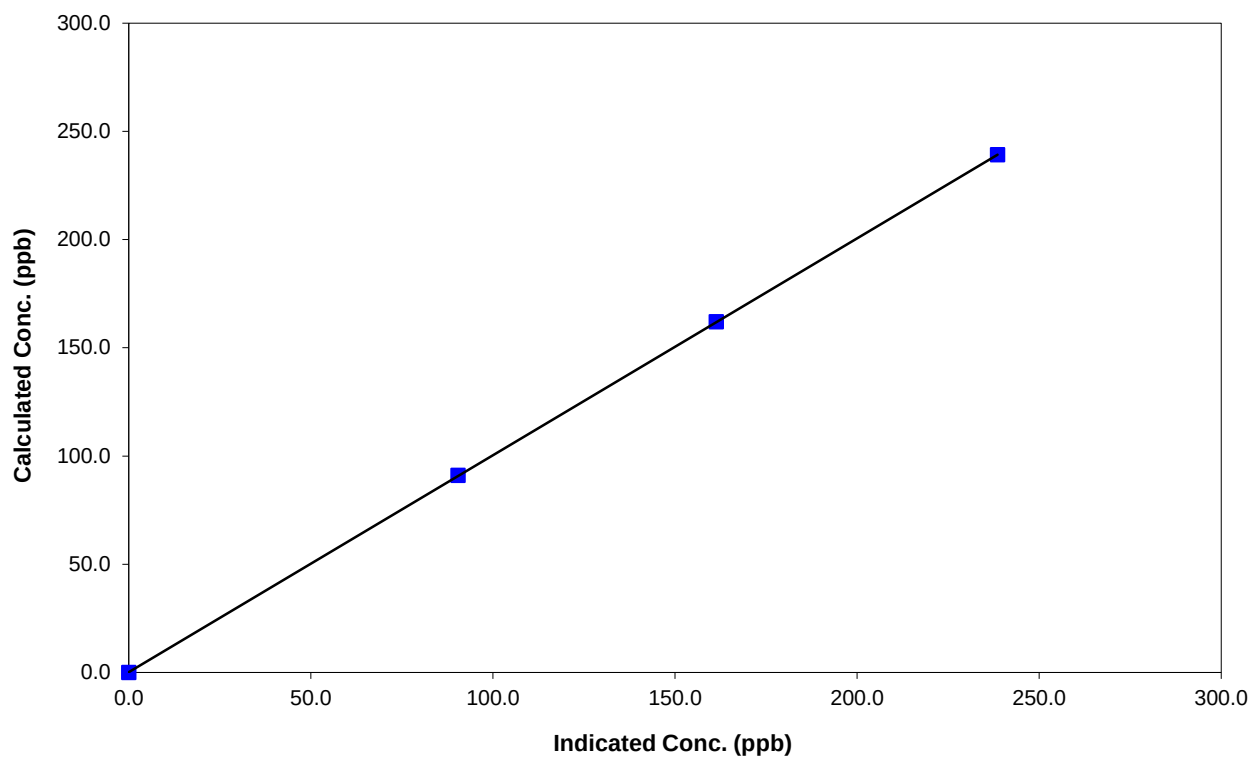
Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 16, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:11	End Time (MST)	13:55
Analyzer make	TEI 42C	Analyzer serial #	508011073

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A	Correlation Coefficient	0.999997
239.1	238.6	1.0021		
162.0	161.3	1.0039		
91.0	90.4	1.0058	Slope	1.002101
			Intercept	0.150478

NO₂ Calibration Curve



Calibration Summary

Parameter NO_x

Air Monitoring Network PASZA



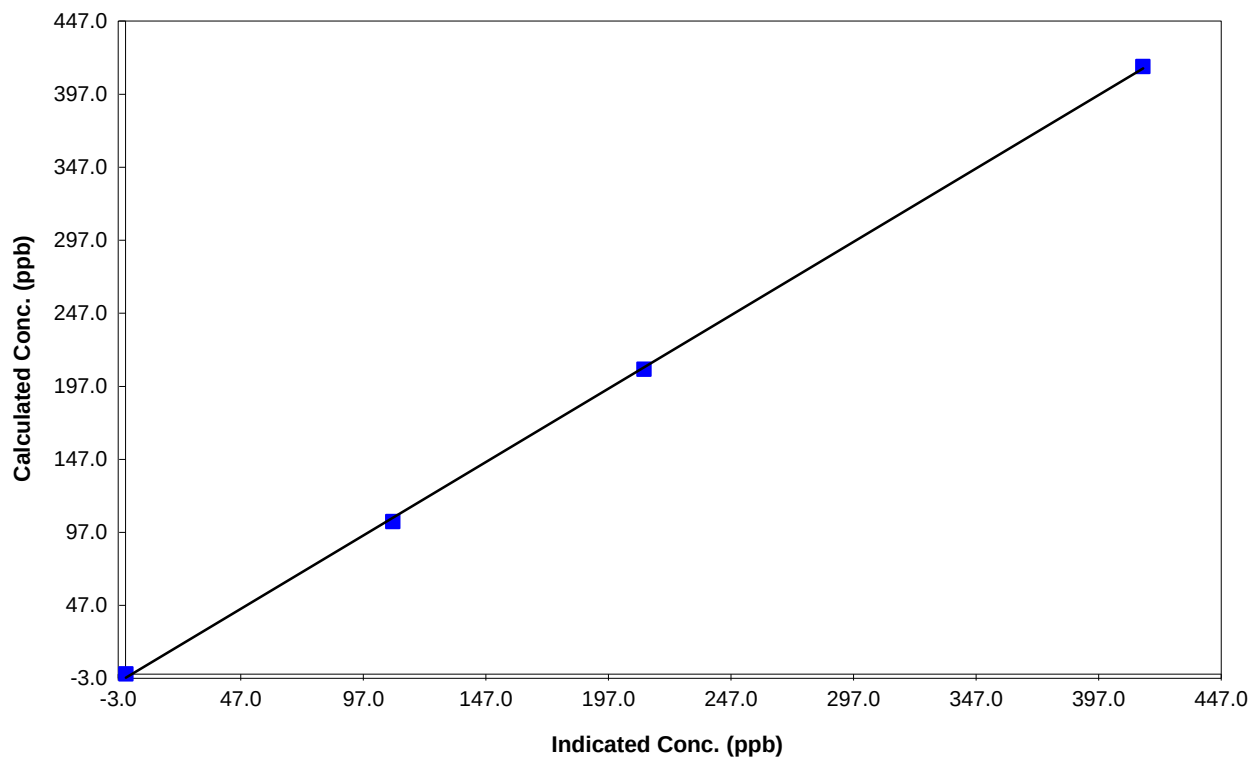
Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 16, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:11	End Time (MST)	13:55
Analyzer make	TEI 42C	Analyzer serial #	508011073

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	N/A	Correlation Coefficient	0.999826
415.9	415.1	1.0021		
208.7	211.6	0.9863		
104.4	109.0	0.9579	Slope	1.005114
			Intercept	-2.615947

NO_x Calibration Curve



Calibration Summary

Parameter NO

Air Monitoring Network PASZA



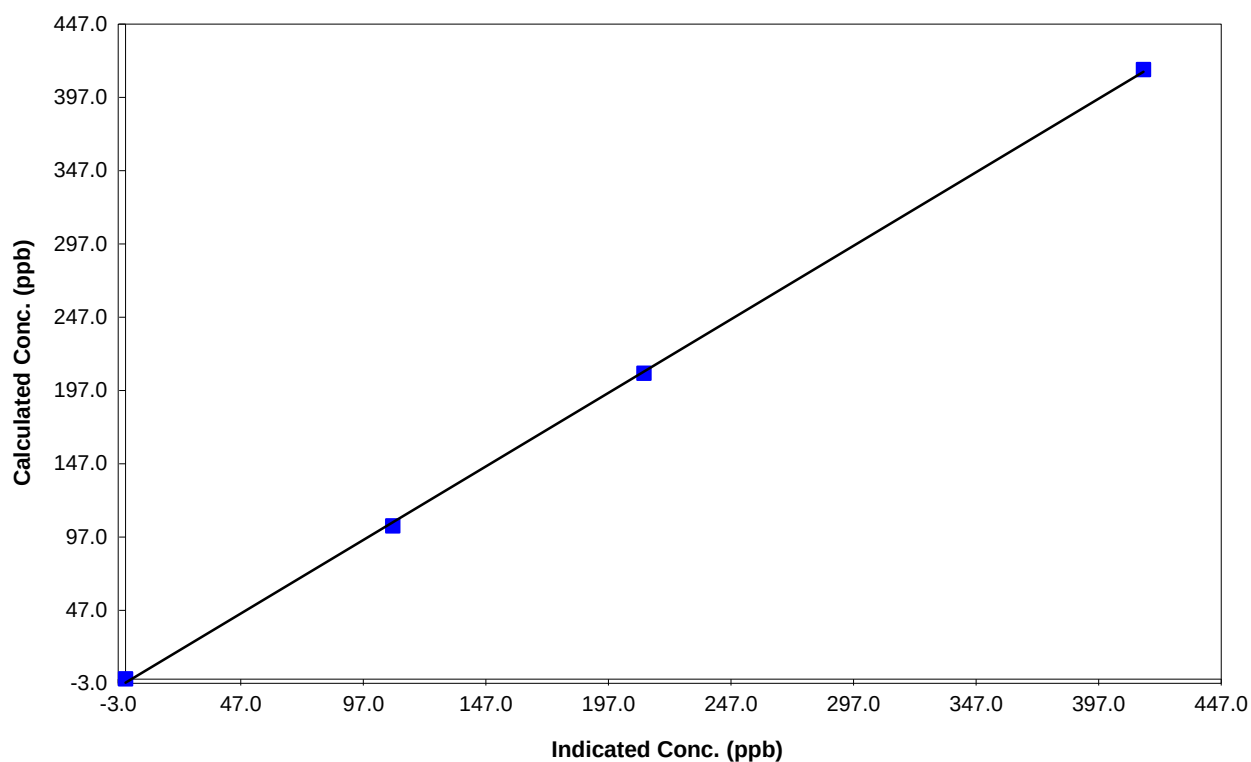
Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 16, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:11	End Time (MST)	13:55
Analyzer make	TEI 42C	Analyzer serial #	508011073

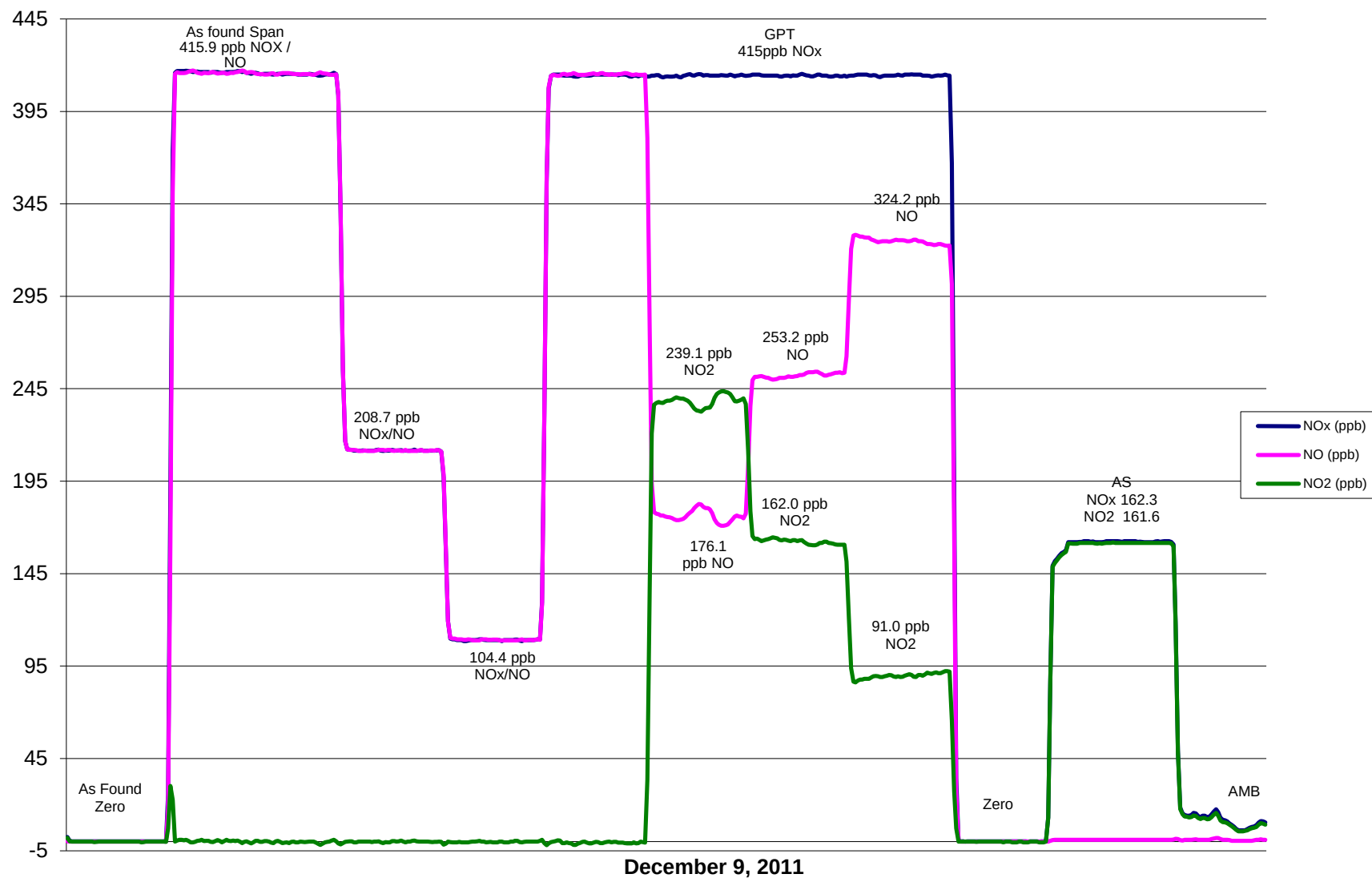
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A	Correlation Coefficient	0.999825
415.9	415.3	1.0015		
208.7	211.5	0.9866		
104.4	109.0	0.9574	Slope	1.004409
			Intercept	-2.523484

NO Calibration Curve



PASZA NO_x Calibration



Calibration Report

Parameter 03

Air Monitoring Network PASZA



Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 16, 2011
Station Number	1	Station Location	Henry Pirker
Reason:	Routine	Install	Removal
Start Time (MST)	12:30	End Time (MST)	14:59
Barometric Pressure	0.922 atm	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	NA	Cal Gas Expiry Date	NA
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 1 volt	DACS channel #	5
	Before		After
Calculated slope	1.010873	Calculated slope	0.967316
Calculated intercept	0.234438	Calculated intercept	-1.863901
Analyzer make	TECO 49C	Analyzer serial #	607415761
	before		after
Concentration range	500 ppb	500 ppb	
offset	-0.6 ppb	-0.6 ppb	
slope	1.011	1.011	
O3 Lamp temp	71.1 Deg C	71.1 Deg C	
Intensities	83250/72982 mV	83555/73228 mV	
Pressure	687.1 inches Hg	694.8 inches Hg	
Flow A	0.719 ccm	0.724 ccm	
Flow B	0.736 ccm	0.742 ccm	

Calibration Data

Referenced concentration (ppb)	Dilution air flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
0	4989	0.0	0.3	N/A
300	4989	239.1	247.1	0.9675
200	4989	162.0	171.3	0.9459
100	4989	91.0	97.7	0.9315
0	4989	0.0	0.3	As found zero
300	4989	239.1	247.1	As found span
Average Correction Factor				0.9483

Calculated value of As Found Response: 249.7 ppm Percent Change of As Found: 4.4%

	before calibration		after calibration	
Auto zero	0.3 ppb		0.3 ppb	
Auto span	156.4 ppb		161.9 ppb	

Notes: No adjustment made. GPT Ozone seemed a little off.

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter 03

Air Monitoring Network PASZA



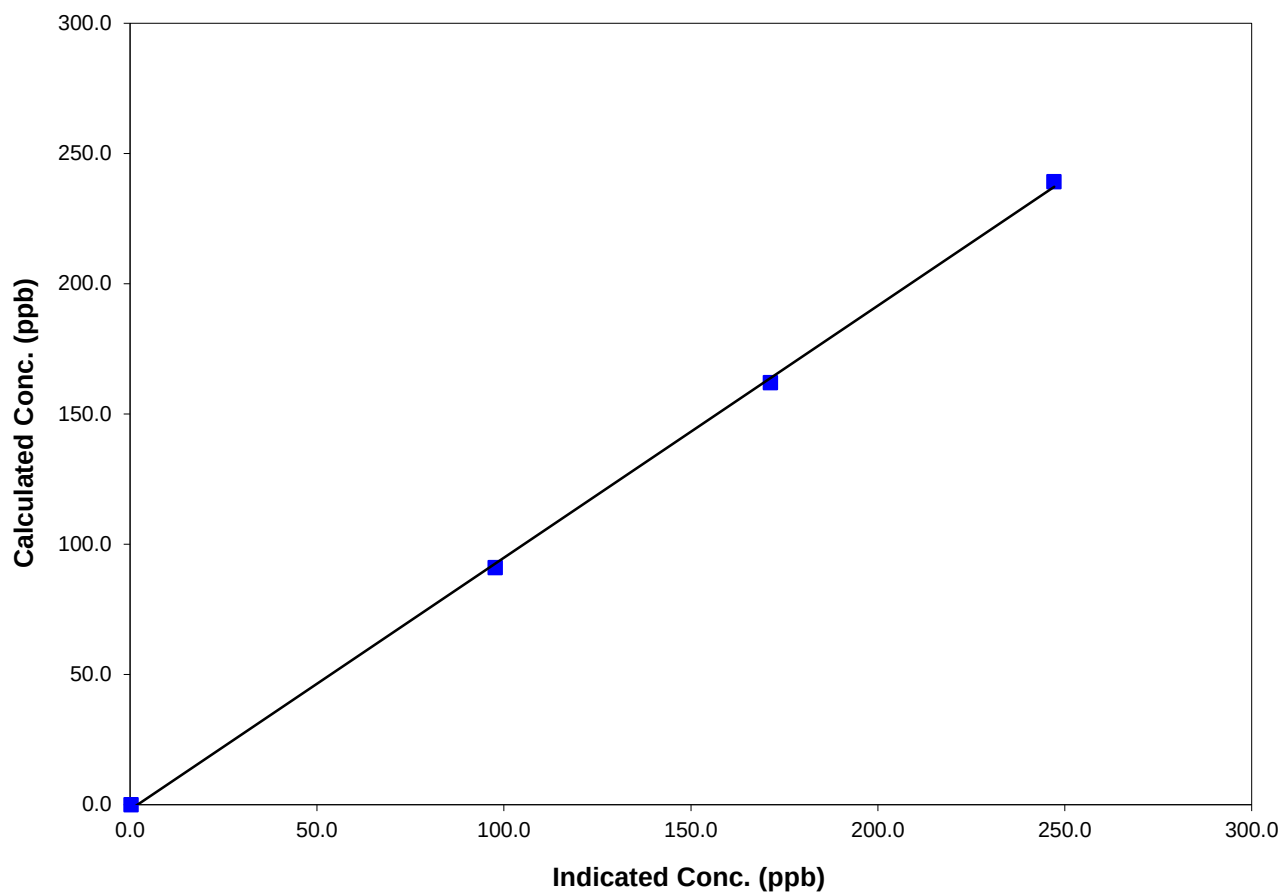
Station Information

Calibration Date	December 9, 2011	Previous Calibration	November 16, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	12:30	End Time (MST)	14:59
Analyzer make/model	TECO 49C	Analyzer serial #	607415761

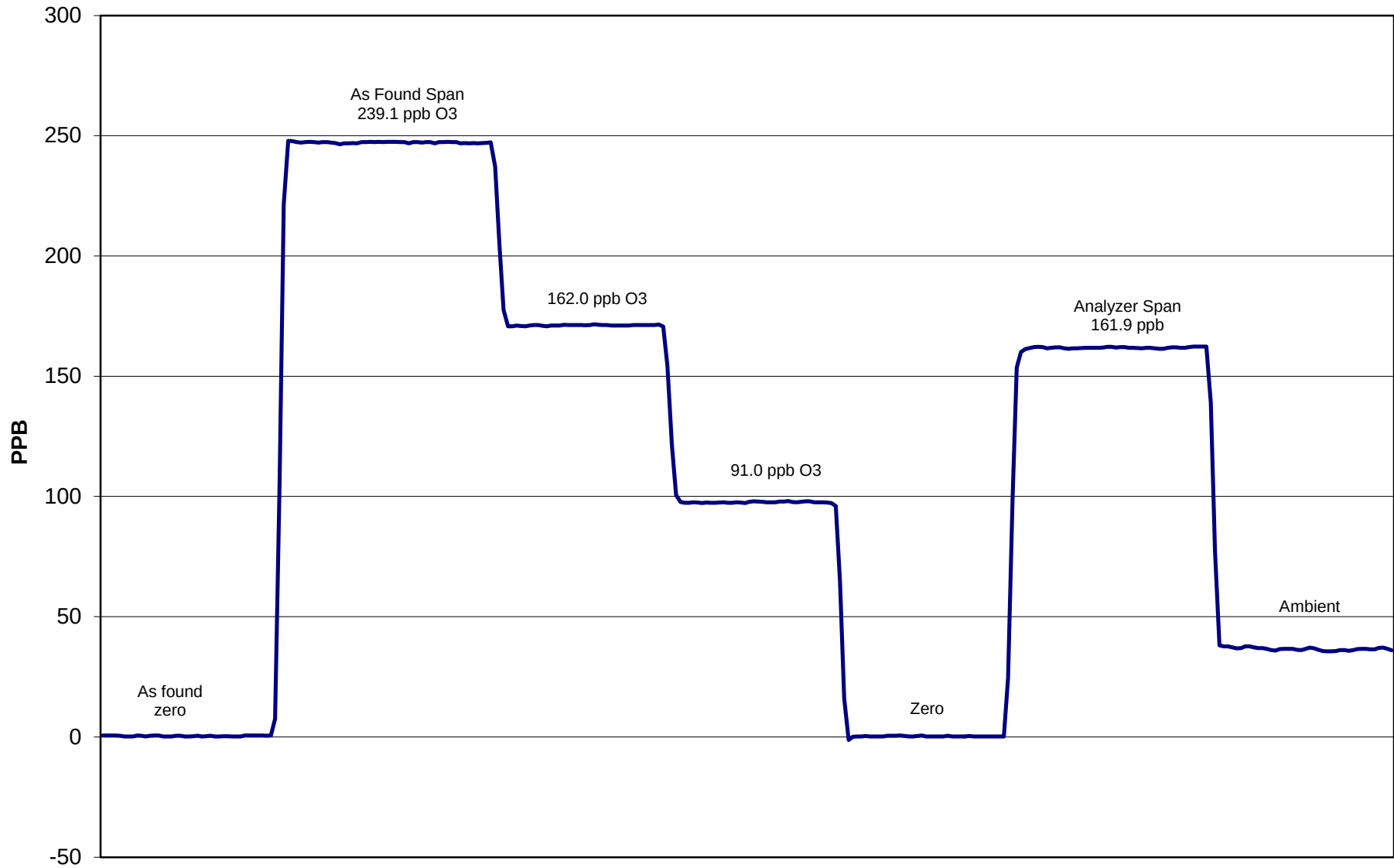
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	NA	Correlation Coefficient	0.999617
239.1	247.1	0.9675		
162.0	171.3	0.9459		
91.0	97.7	0.9315	Slope	0.967316
			Intercept	-1.863901

O3 Calibration Curve



O3 Calibration



December 9, 2011

Calibration Report

Parameter CO

Air Monitoring Network PASZA



Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 15, 2011
Station Number	1	Station Location	Henry Pirker
Reason:	☒ Routine	☐ Install	☐ Removal
		☐ Other:	
Start Time (MST)	9:10	End Time (MST)	11:38
Barometric Pressure	0.933 ATM	Station Temperature	21.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Conc	3000 ppm	Cal Gas Expiry Date	AUG 28/05
		Cal Gas Cylinder #	AAL20565
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 1 volt	DACS channel #	9
	Before		After
Calculated slope	1.001221	Calculated slope	1.004656
Calculated intercept	-0.474542	Calculated intercept	-0.493814
Analyzer make	TEI Model 48C	Analyzer serial #	508011062

	before		after	
Concentration range	0 - 50	ppm	0 - 50	ppm
CO span setting	1.088		1.088	
CO zero setting	1.308		2.109	
Sample pressure	691.9	mm Hg	685	mm Hg
Sample Flow	1.151	LPM	1.143	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)
4989	0.00	0.00	0.36	N/A
4989	39.85	23.77	24.09	0.9870
4989	19.91	11.92	12.42	0.9602
4989	9.93	5.96	6.57	0.9076
4989	0.00	0.00	0.66	As Found Zero
4989	39.85	23.77	24.08	As Found Span
Average Correction Factor				0.9516

Calculated value of As Found Response: 22.975 ppm Percent Change of As Found: 3.4%

	before calibration		after calibration	
Auto zero	0.03	ppm	0.03	ppm
Auto span	19.56	ppm	19.24	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter CO

Air Monitoring Network PASZA



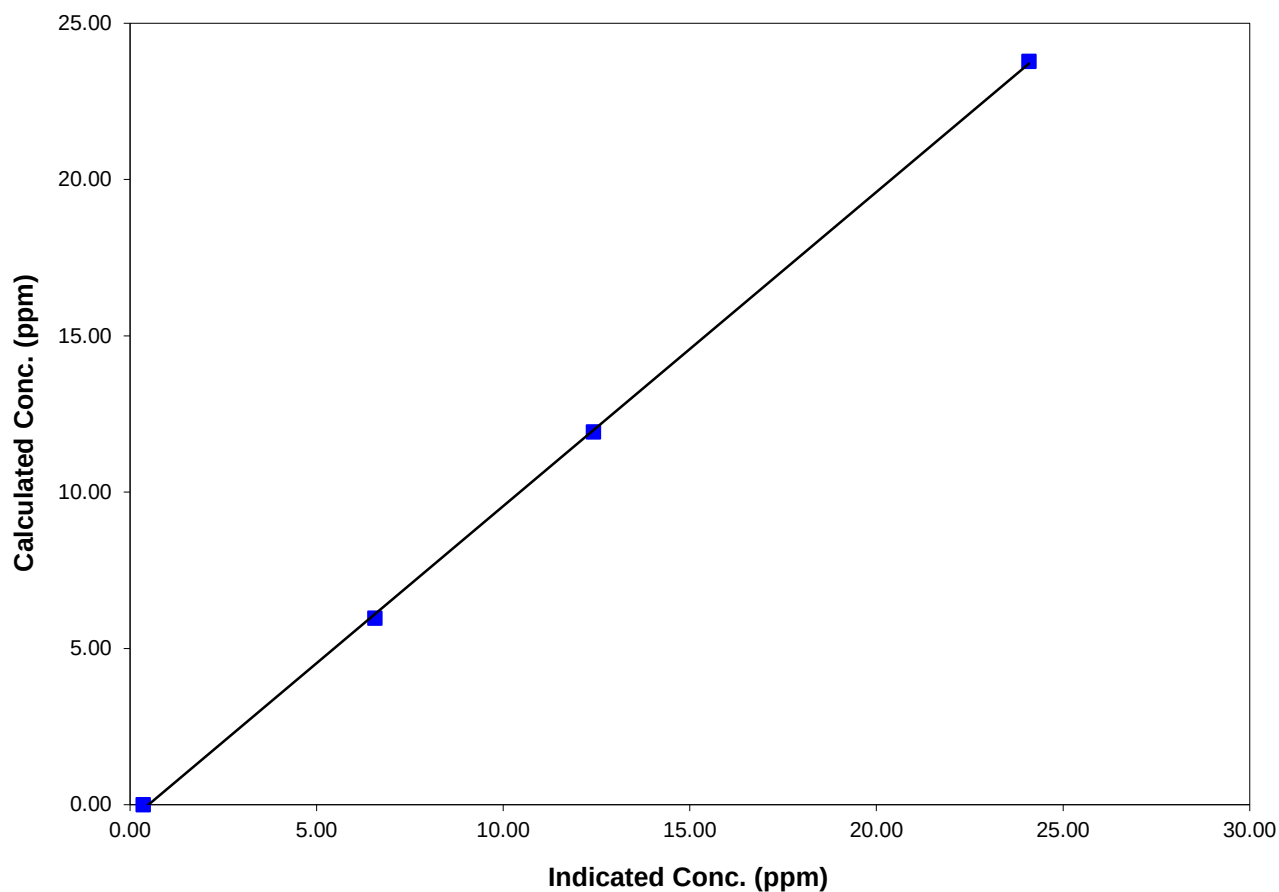
Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 15, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:10	End Time (MST)	11:38
Analyzer make/model	TEI Model 48C	Analyzer serial #	508011062

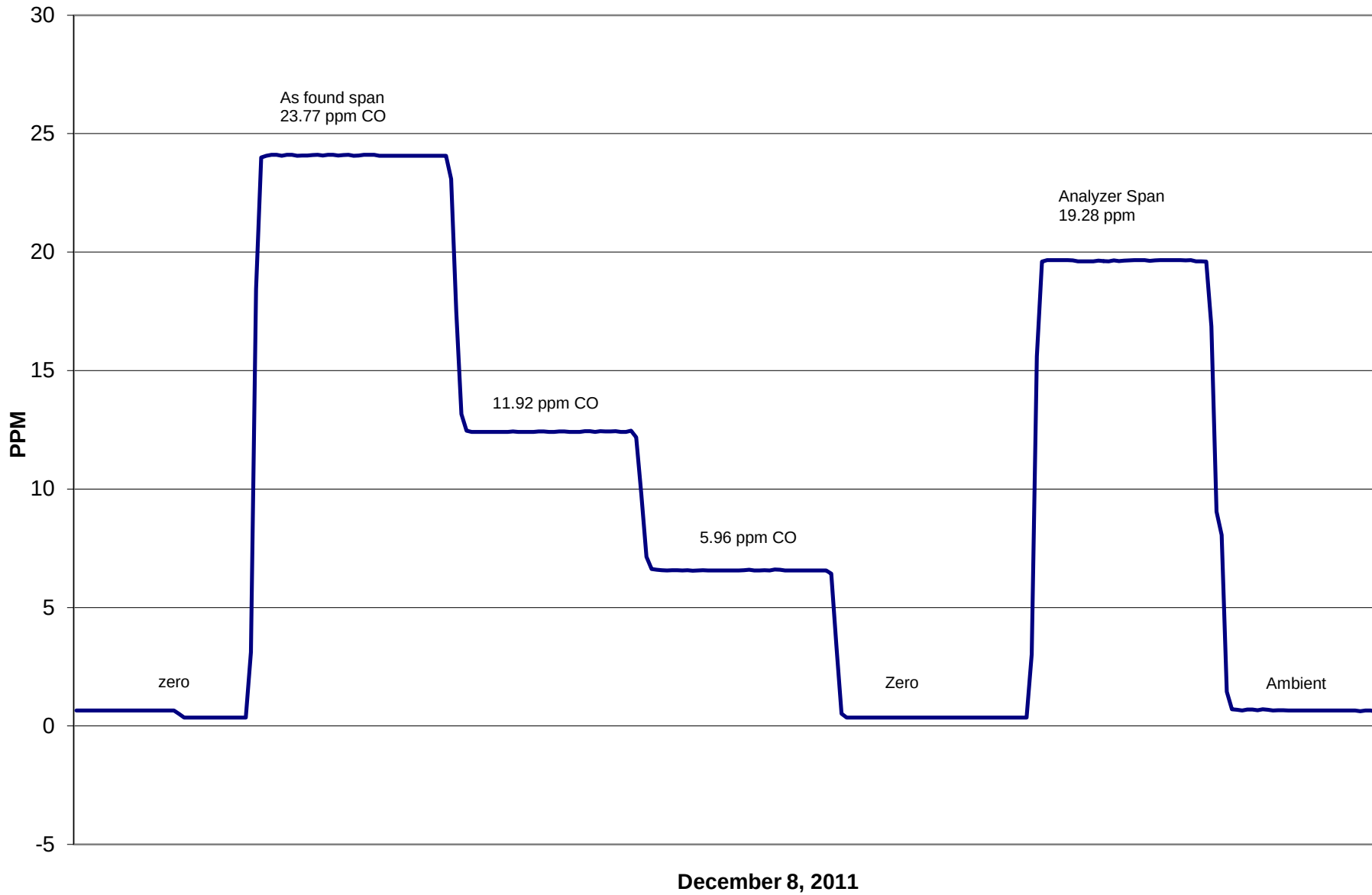
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.357	N/A	Correlation Coefficient	0.999849
23.773	24.087	0.9870		
11.925	12.420	0.9602		
5.959	6.566	0.9076	Slope	1.004656
			Intercept	-0.493814

CO Calibration Curve



CO Calibration



Calibration Report

Parameter THC

Air Monitoring Network PASZA



Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 15, 2011
Station Number	1	Station Location	Henry Pirker
Reason:	☒ Routine	☐ Install	☐ Removal
			☐ Other:
Start Time (MST)	10:26	End Time (MST)	13:08
Barometric Pressure	0.933 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 004476
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 1 volt	DACS channel #	9
	Before		After
Calculated slope	1.057011	Calculated slope	1.049379
Calculated intercept	-0.060751	Calculated intercept	-0.077754
Analyzer make	TEI Model 51C-LT	Analyzer serial #	51CLT-79009-390

	before		after	
Concentration range	0 - 25	ppm	0 - 25	ppm
THC sample pressure	6.50	psi	6.50	psi
THC span counts	9616	capture	9616	capture
THC zero counts	447	capture	447	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)
4989	0.00	0.00	0.06	N/A
4989	69.79	21.01	20.13	1.0441
4989	29.87	9.07	8.63	1.0510
4989	9.92	3.02	3.03	0.9987
4989	0.00	0.00	0.06	As Found Zero
4989	69.79	21.01	20.13	As Found Span
Average Correction Factor				1.0313

Calculated value of As Found Response: 21.148 ppm Percent Change of As Found: -0.6%

	before calibration		after calibration	
Auto zero	0.10	ppm	-0.01	ppm
Auto span	21.83	ppm	20.78	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter THC

Air Monitoring Network PASZA



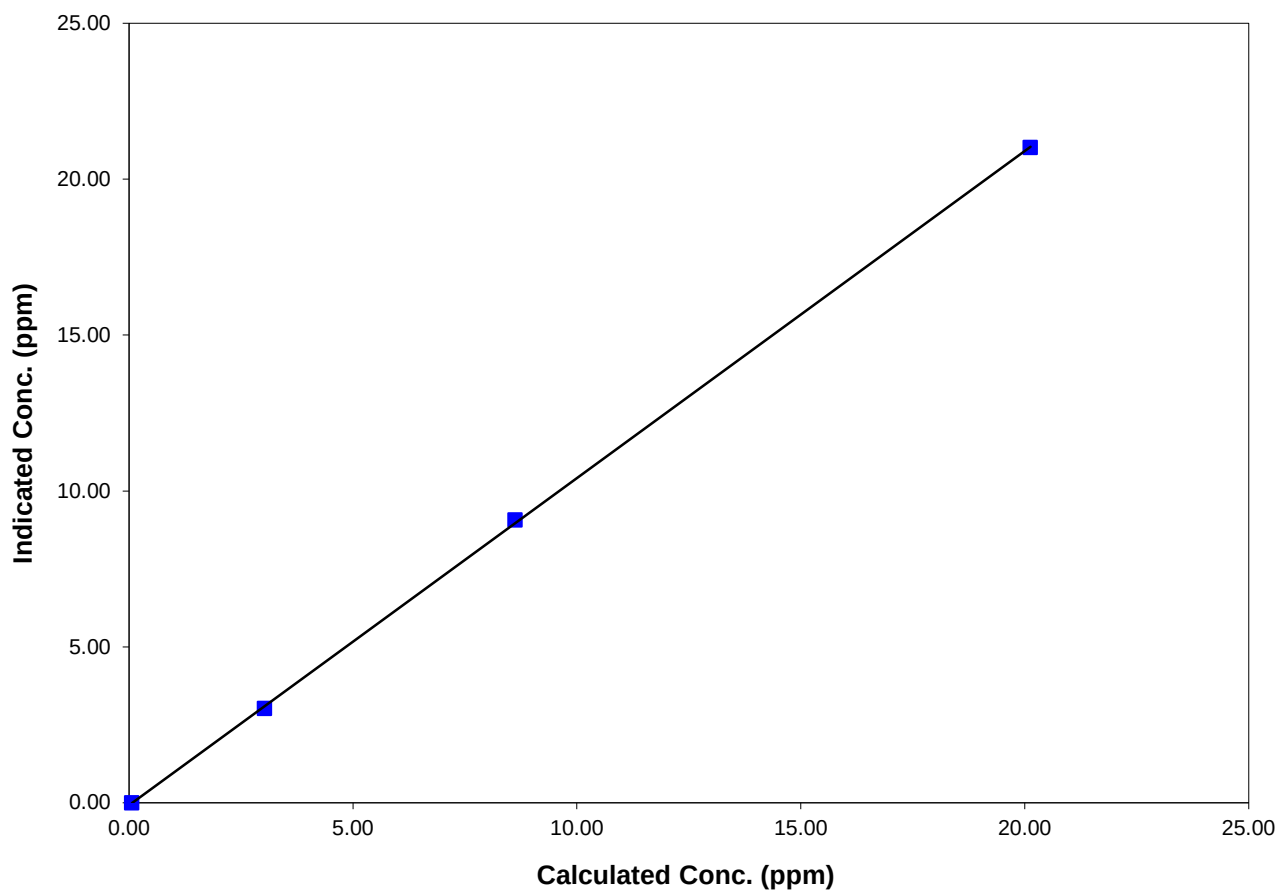
Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 15, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	10:26	End Time (MST)	13:08
Analyzer make/model	TEI Model 51C-LT	Analyzer serial #	51CLT-79009-390

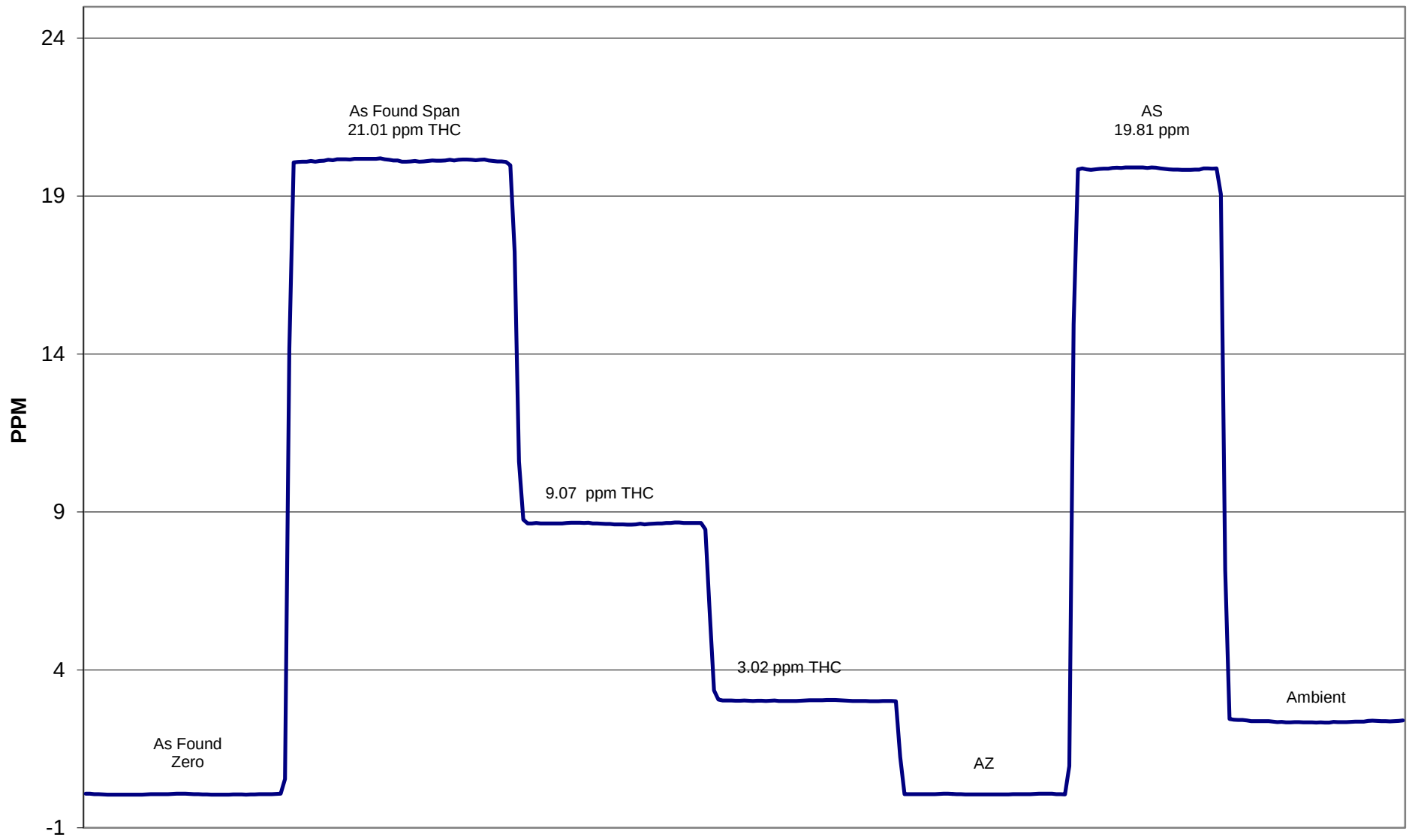
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.063	N/A	Correlation Coefficient	0.999942
21.014	20.127	1.0441		
9.066	8.625	1.0510		
3.023	3.027	0.9987	Slope	1.049379
			Intercept	-0.077754

THC Calibration Curve



THC Calibration



December 8, 2011

Air Monitoring Network PASZA

Station Information

Calibration Date		December 8, 2011		Previous Calibration		November 15, 2011	
Station Number		1		Station Location		Henry Pirker	
Reason:		☒ Routine ☐ Install ☐ Removal		Other:			
Start Time (MST)	12:00		End Time (MST)	14:54			
Barometric Pressure	0.923 ATM		Station Temperature	20.0 Deg C			
Calibrator	Envionics 6100		Serial Number	3474			
Cal Gas Conc	5.77 ppb		Cal Gas Expiry Date	9/3/2011			
			Cal Gas Cylinder #	BLM001434			
DACS make	CR3000		DACS serial No.	5408			
DACS voltage range	0 - 1 volt		DACS channel #	9			
	<u>Before</u>			<u>After</u>			
Calculated slope	0.994364		Calculated slope	1.018041			
Calculated intercept	-0.014341		Calculated intercept	-0.315825			
Analyzer make	TEI 45C		Analyzer serial #	630718528			

Concentration range Coefficient Background Pressure Flow Lamp Voltage	before		after	
	0 - 100	ppb	0 - 100	ppb
	1.107		1.107	
	11.1		11.1	
	667.7	mm Hg	662.2	mm Hg
	0.46	ccm	0.458	ccm
	822	v	822	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	0.18	N/A
4989	69.78	79.59	78.53	1.0136
4989	34.88	40.06	39.53	1.0135
4989	8.96	10.34	10.70	0.9666
4989	0.00	0.00	0.18	As Found Zero
4989	69.78	79.59	78.53	As Found Span
Average Correction Factor				0.9979

Calculated value of As Found Response:	77.9 ppb	Percent Change of As Found:	2.1%
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	before calibration		after calibration	
Auto zero	-0.29	ppb	-0.13	ppb
Auto span	33.10	ppb	34.27	ppb

Notes:

No adjustment made.

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



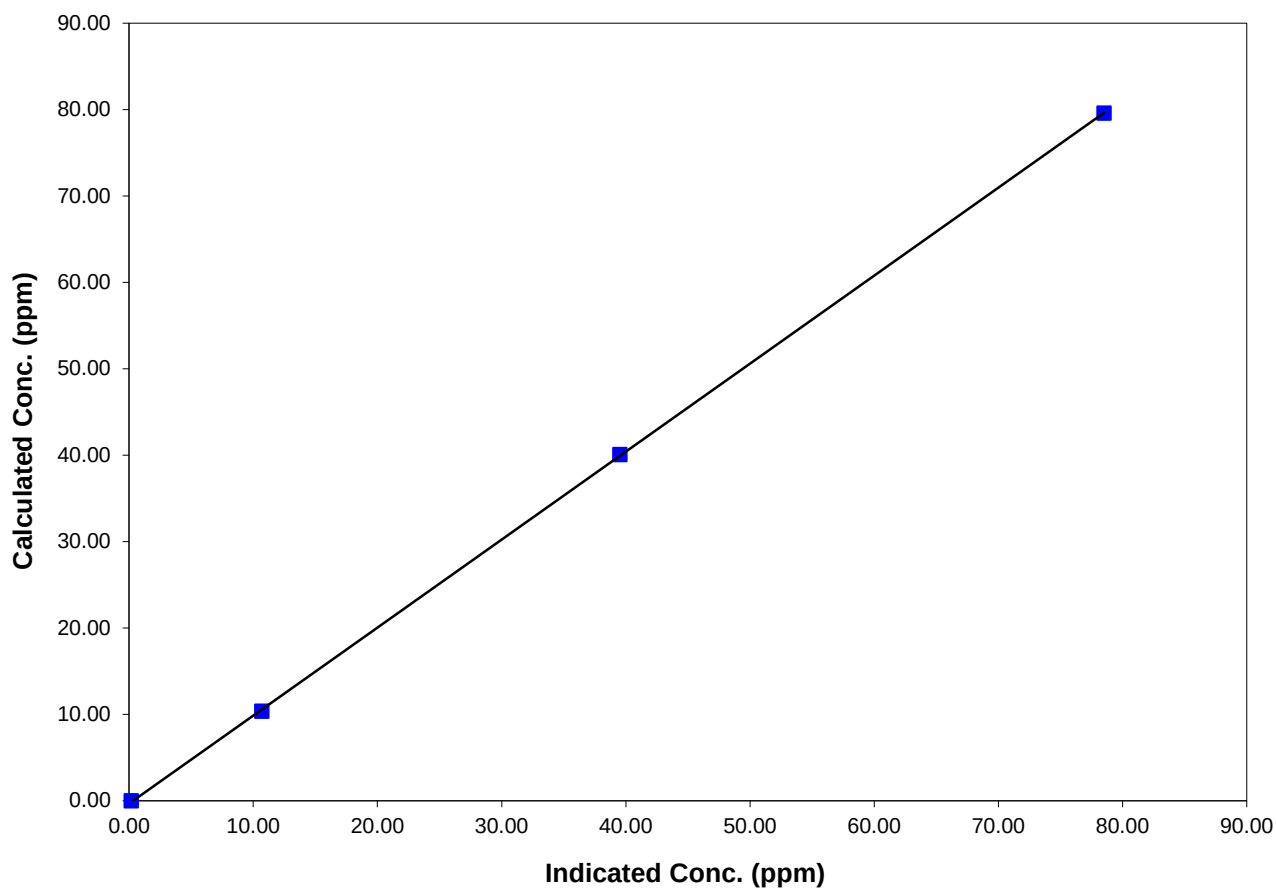
Station Information

Calibration Date	December 8, 2011	Previous Calibration	November 15, 2011
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	12:00	End Time (MST)	14:54
Analyzer make/model	TEI 45C	Analyzer serial #	630718528

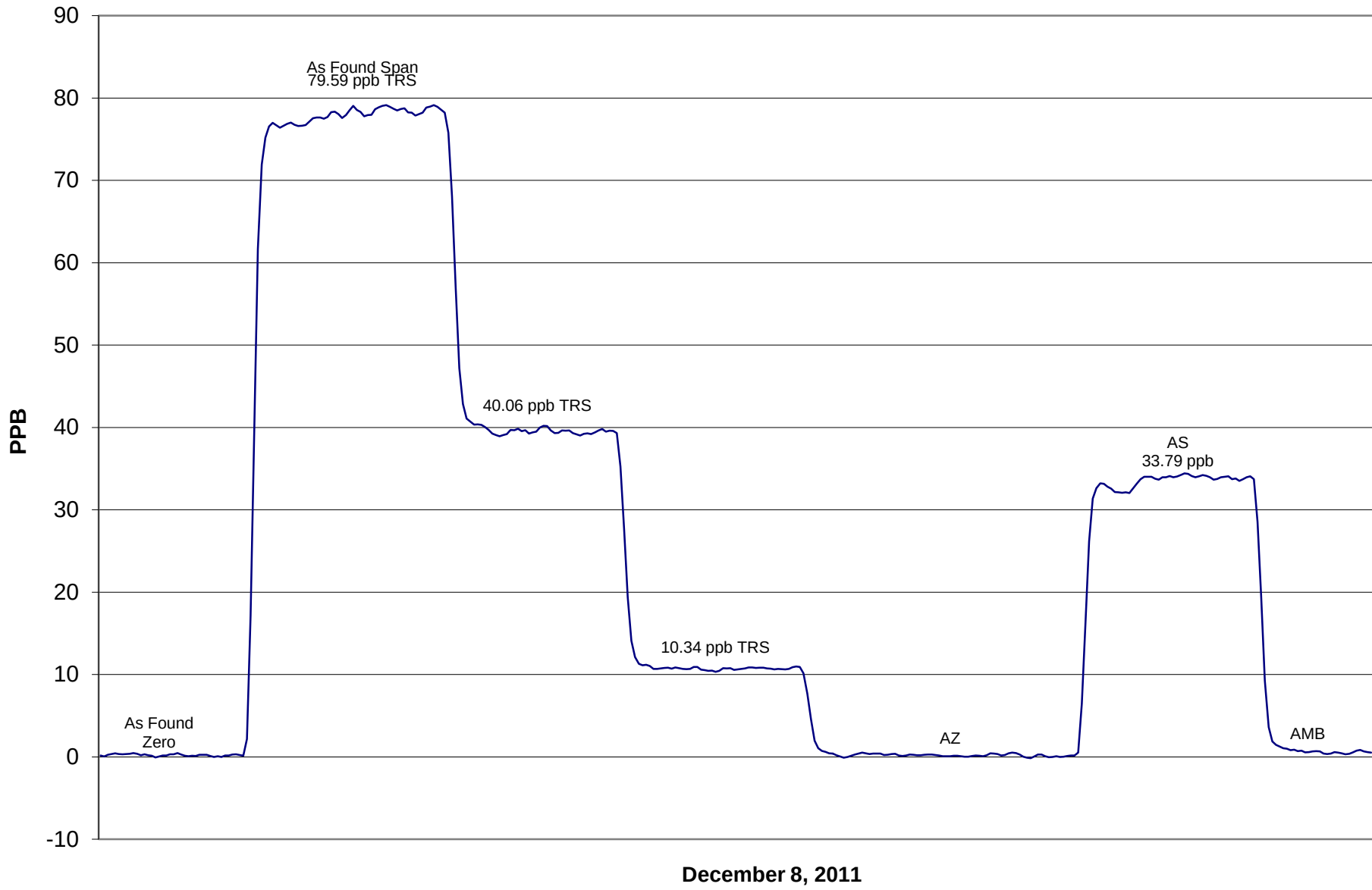
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.177	N/A	Correlation Coefficient	0.999976
79.590	78.526	1.0136		
40.060	39.527	1.0135		
10.344	10.702	0.9666	Slope	1.018041
			Intercept	-0.315825

TRS Calibration Curve



TRS Calibration



Calibration Report



Parameter SO₂
Air Monitoring Network PASZA

Station Information

Calibration Date	December 15, 2011	Previous Calibration	November 28, 2011
Station Number	2	Station Location	Evergreen Park
Reason:	☒ Routine	☐ Install	☐ Removal
		☐ Other:	
Start Time (MST)	11:00	End Time (MST)	13:37
Barometric Pressure	0.928 ATM	Station Temperature	20.0 Deg C
Calibrator	Envionics	Serial Number	3474
Cal Gas Concentration	49.8 ppm	Cal Gas Expiry Date	3/28/2013
Correction factor	0.031545	Cal Gas Cylinder #	SGAL3245
DACS make	CR3000	DACS serial No.	5236
DACS voltage range	0 - 5 volt	DACS channel #	6
	<u>Before</u>		<u>After</u>
Calculated slope	0.999622	Calculated slope	1.002223
Calculated intercept	-1.341013	Calculated intercept	-1.298782
Analyzer make	Teco 43i	Analyzer serial #	701120008

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	11.1		11	
coefficient	1.069		1.069	
Lamp Voltage	830	volts	830	volts
Chamber Temp	45.2	Deg C	45.2	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	671.3	mm Hg	673.1	mm Hg
Sample Flow	0.456	ccm	0.459	ccm
Lamp Intensity	90	%	90	%

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4989	0.0	0.00	0.6	N/A
4989	39.84	394.5	394.9	0.9991
4989	20.15	200.3	200.6	0.9985
4989	10.10	100.6	103.0	0.9771
4989	0.0	0.0	0.6	As Found Zero
4989	39.84	394.5	394.9	As Found Span
Average Correction Factor				0.9916

Calculated value of As Found Response: 392.780 ppm Percent Change of As Found: 0.4%

	before calibration		after calibration	
Auto zero	0.6	ppm	0.7	ppm
Auto span	292.7	ppm	284.6	ppm

Notes: No adjustment made.

Calibration Performed By: Grover Christiansen

Calibration Report



Parameter TRS

Air Monitoring Network PASZA

Station Information

Calibration Date	December 15, 2011	Previous Calibration	November 9, 2011
Station Number	2	Station Location	Evergreen Park
Reason:	☒ Routine	☐ Install	☐ Removal
			☐ Other:
Start Time (MST)	9:40	End Time (MST)	12:27
Barometric Pressure	0.928 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Conc	5.77 ppm	Cal Gas Expiry Date	9/3/2011
Correction factor	0.031545	Cal Gas Cylinder #	BLM1715
DACS make	CR3000	DACS serial No.	5236
DACS voltage range	0 - 5 volt	DACS channel #	5
	<u>Before</u>		<u>After</u>
Calculated slope	0.992455	Calculated slope	1.006409
Calculated intercept	0.350549	Calculated intercept	-0.403589
Analyzer make	TEI Model 43C	Analyzer serial #	436610005

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	18.6	ppb	18.6	ppb
coefficient	0.922		0.922	
Lamp Voltage	810	volts	812	volts
Chamber Temp	45	Deg C	44.3	Deg C
Perm Gas Temp	45.01	Deg C	44.97	Deg C
Pressure	648.6	mm Hg	648.3	mm Hg
Sample Flow	0.478	ccm	0.480	ccm
Lamp Intensity	45,430	mv	45,249	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	0.4	N/A
4990	69.81	79.61	79.5	1.0008
4990	34.88	40.05	40.1	0.9990
4990	8.96	10.34	10.8	0.9598
4990	0.00	0.00	0.4	As Found Zero
4990	69.81	79.61	79.5	As Found Span
Average Correction Factor				0.9866

Calculated value of As Found Response: 78.93 ppm Percent Change of As Found: **0.9%**

	before calibration		after calibration	
Auto zero	0.2	ppm	-0.1	ppm
Auto span	71.9	ppm	70.6	ppm

Notes: **No adjustments required**

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



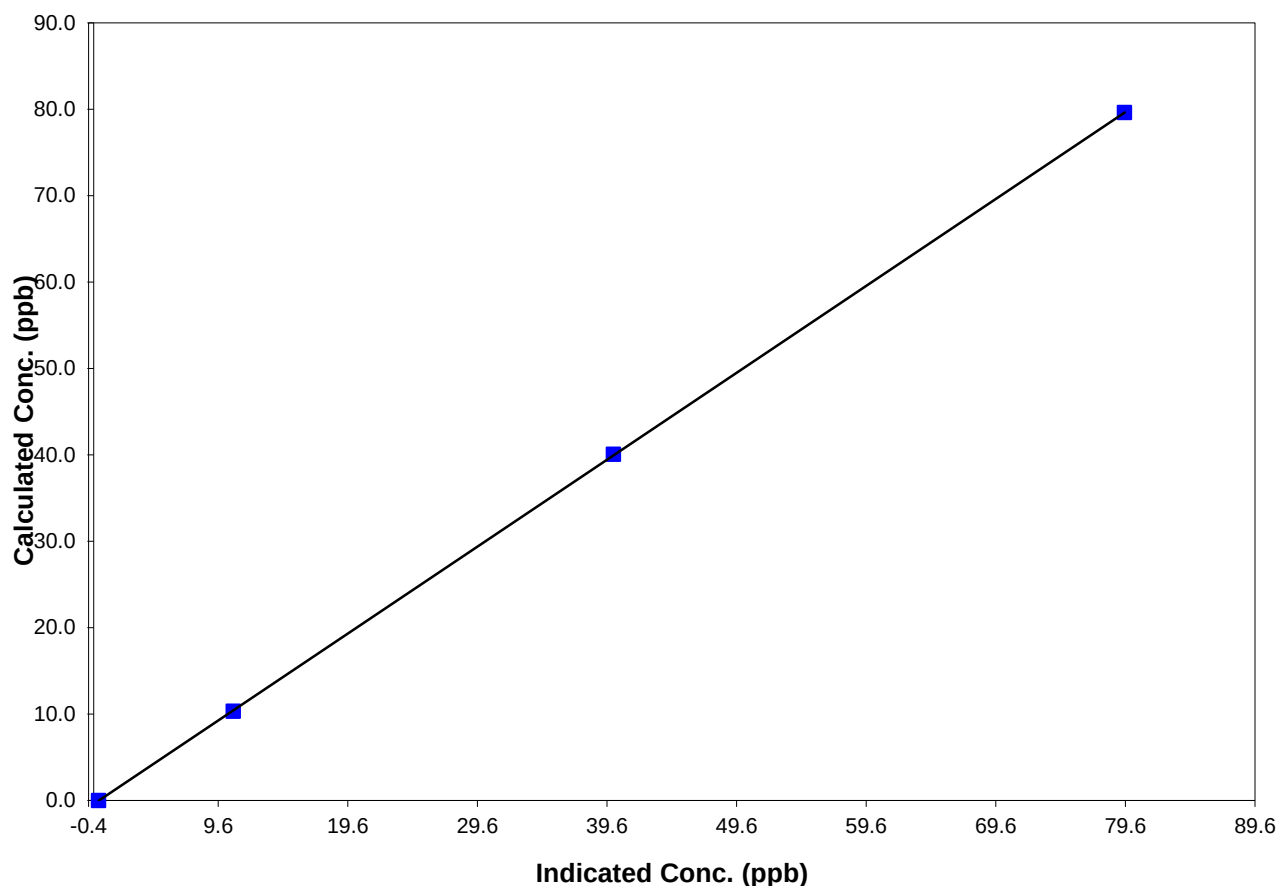
Station Information

Calibration Date	December 15, 2011	Previous Calibration	November 9, 2011
Station Number	2	Station Location	Evergreen Park
Start Time (MST)	9:40	End Time (MST)	12:27
Analyzer make/model	TEI Model 43C	Analyzer serial #	436610005

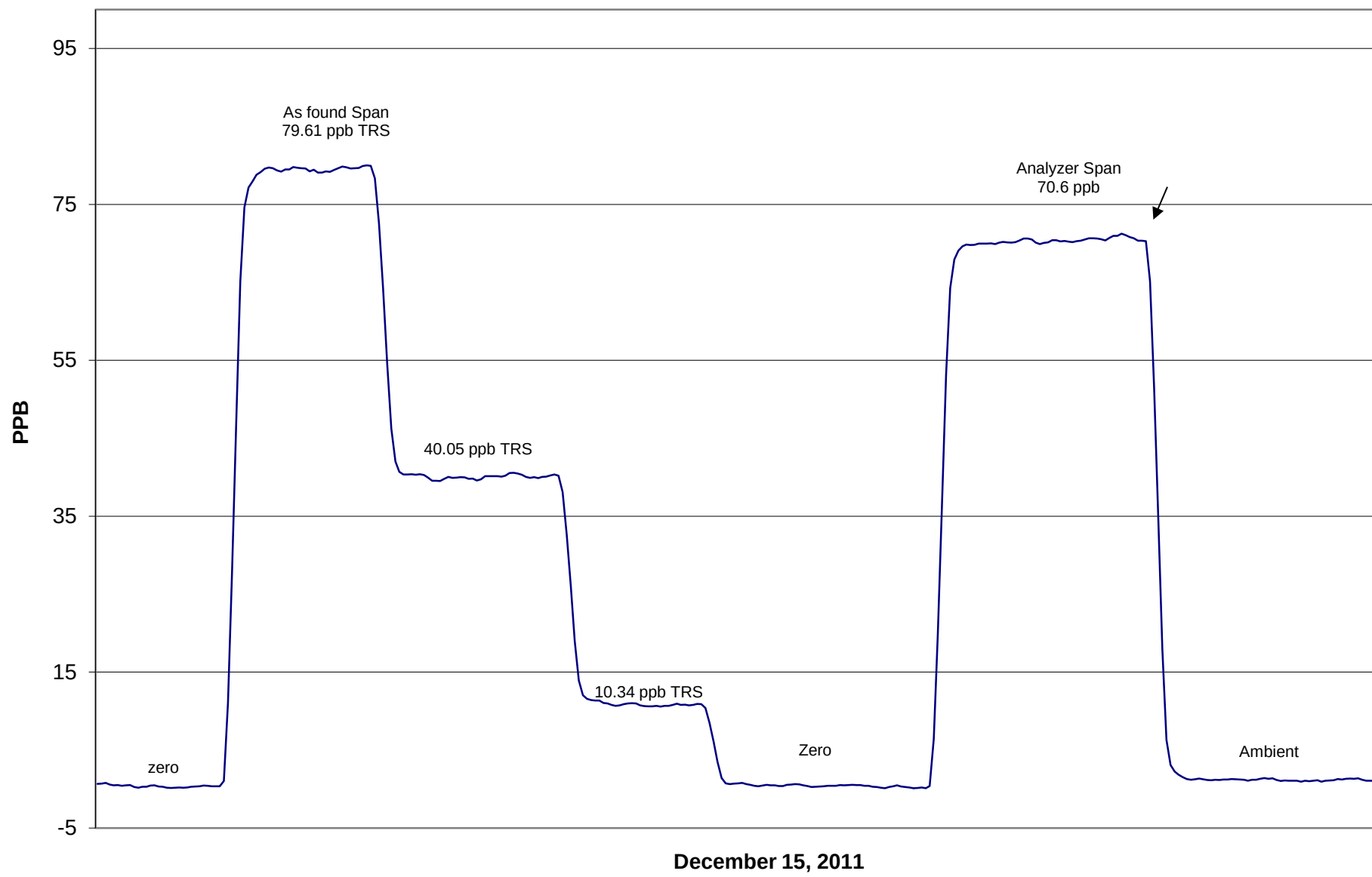
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	N/A	Correlation Coefficient	0.999994
79.6	79.5	1.0008		
40.1	40.1	0.9990		
10.3	10.8	0.9598	Slope	1.006409
			Intercept	-0.403589

TRS Calibration Curve



TRS Calibration



Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



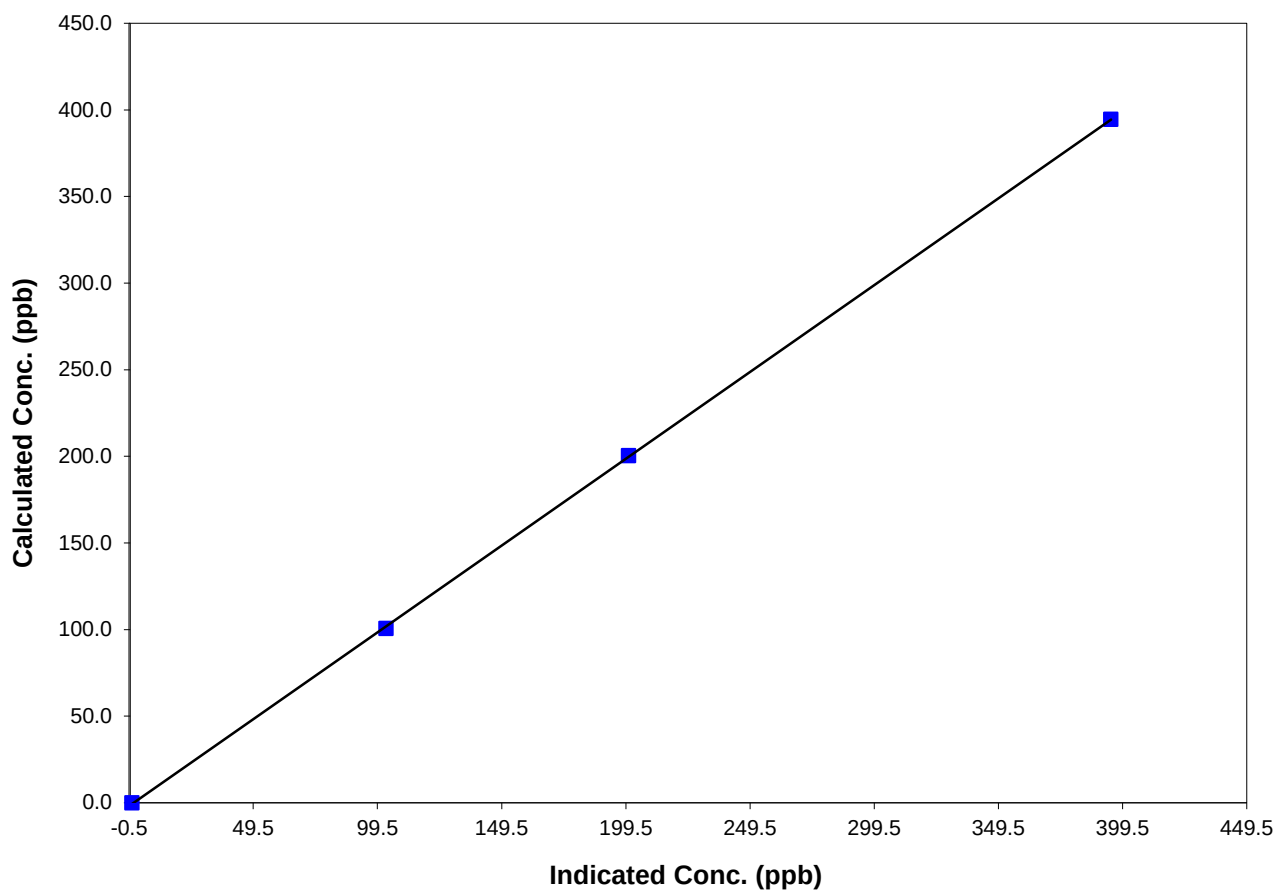
Station Information

Calibration Date	December 15, 2011	Previous Calibration	November 28, 2011
Station Number	2	Station Location	Evergreen Park
Start Time (MST)	11:00	End Time (MST)	13:37
Analyzer make/model	Teco 43i	Analyzer serial #	701120008

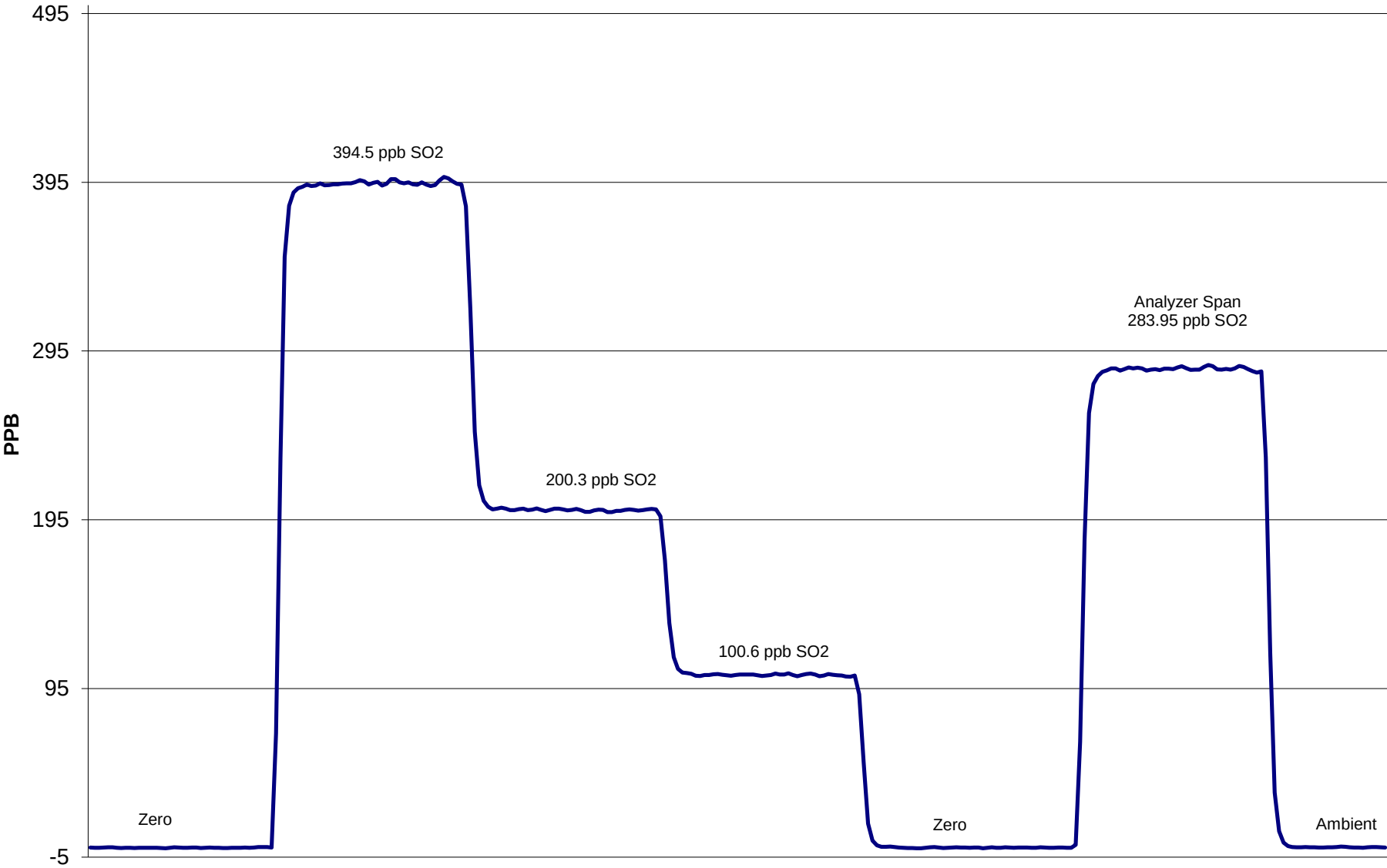
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.6	N/A	Correlation Coefficient	0.999971
394.5	394.9	0.9991		
200.3	200.6	0.9985		
100.6	103.0	0.9771	Slope	1.002223
			Intercept	-1.298782

SO2 Calibration Curve



SO2 Calibration



December 15, 2011

Calibration Report



Parameter SO₂

Air Monitoring Network PASZA

Station Information

Calibration Date	December 19, 2011	Previous Calibration	November 28, 2011
Station Number	3	Station Location	Smokey Heights
Reason:	☒ Routine	☐ Install	☐ Removal
		☐ Other:	
Start Time (MST)	11:15	End Time (MST)	13:50
Barometric Pressure	0.917 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	49.8 ppm	Cal Gas Cert Date	3/28/2011
Correction factor	0.031171	Cal Gas Cylinder #	LL85275
DACS make	CR3000	DACS serial No.	5238
DACS voltage range	0 - 5 volt	DACS channel #	6
	<u>Before</u>		<u>After</u>
Calculated slope	1.000169	Calculated slope	0.996895
Calculated intercept	-2.333834	Calculated intercept	-2.179825
Analyzer make	Teco 43i	Analyzer serial #	701120009

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	9.9		9.9	
coefficient	0.978		0.978	
Lamp Voltage	920	volts	920	volts
Chamber Temp	45	Deg C	45	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	662.7	mm Hg	674.7	mm Hg
Sample Flow	0.437	ccm	0.444	ccm
Lamp Intensity	87	%	87	%

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)
4989	0.0	0.00	0.3	N/A
4989	39.84	394.53	397.1	0.9935
4989	19.91	197.95	201.3	0.9834
4989	9.94	99.02	103.7	0.9549
4989	0.0	0.00	0.3	As Found Zero
4989	39.84	394.53	397.1	As Found Span
Average Correction Factor				0.9773

Calculated value of As Found Response: 394.531 ppm Percent Change of As Found: 0.0%

	before calibration		after calibration	
Auto zero	0.4	ppb	0.4	ppb
Auto span	304.5	ppb	295.0	ppb

Notes: No adjust.

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



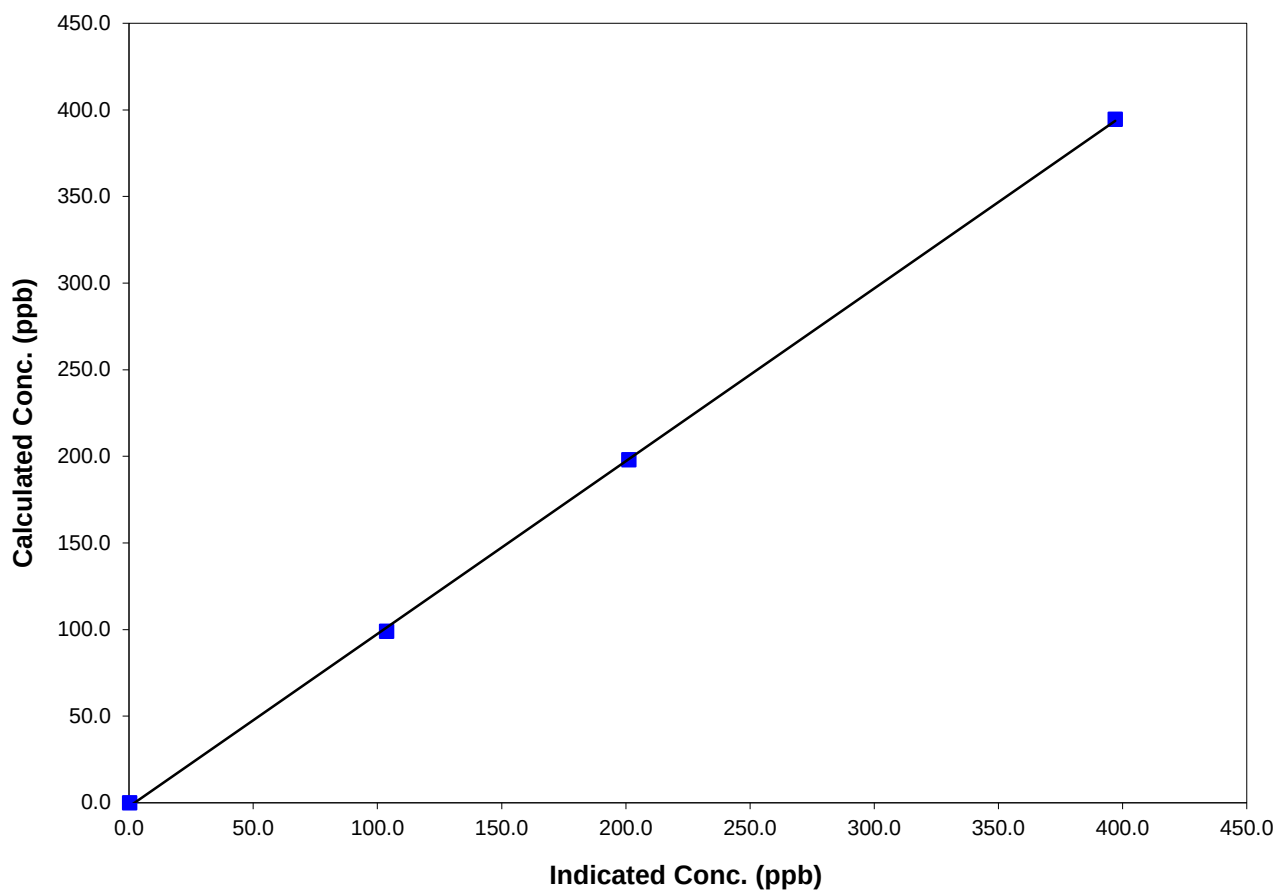
Station Information

Calibration Date	December 19, 2011	Previous Calibration	November 28, 2011
Station Number	3	Station Location	Smokey Heights
Start Time (MST)	11:15	End Time (MST)	13:50
Analyzer make/model	Teco 43i	Analyzer serial #	701120009

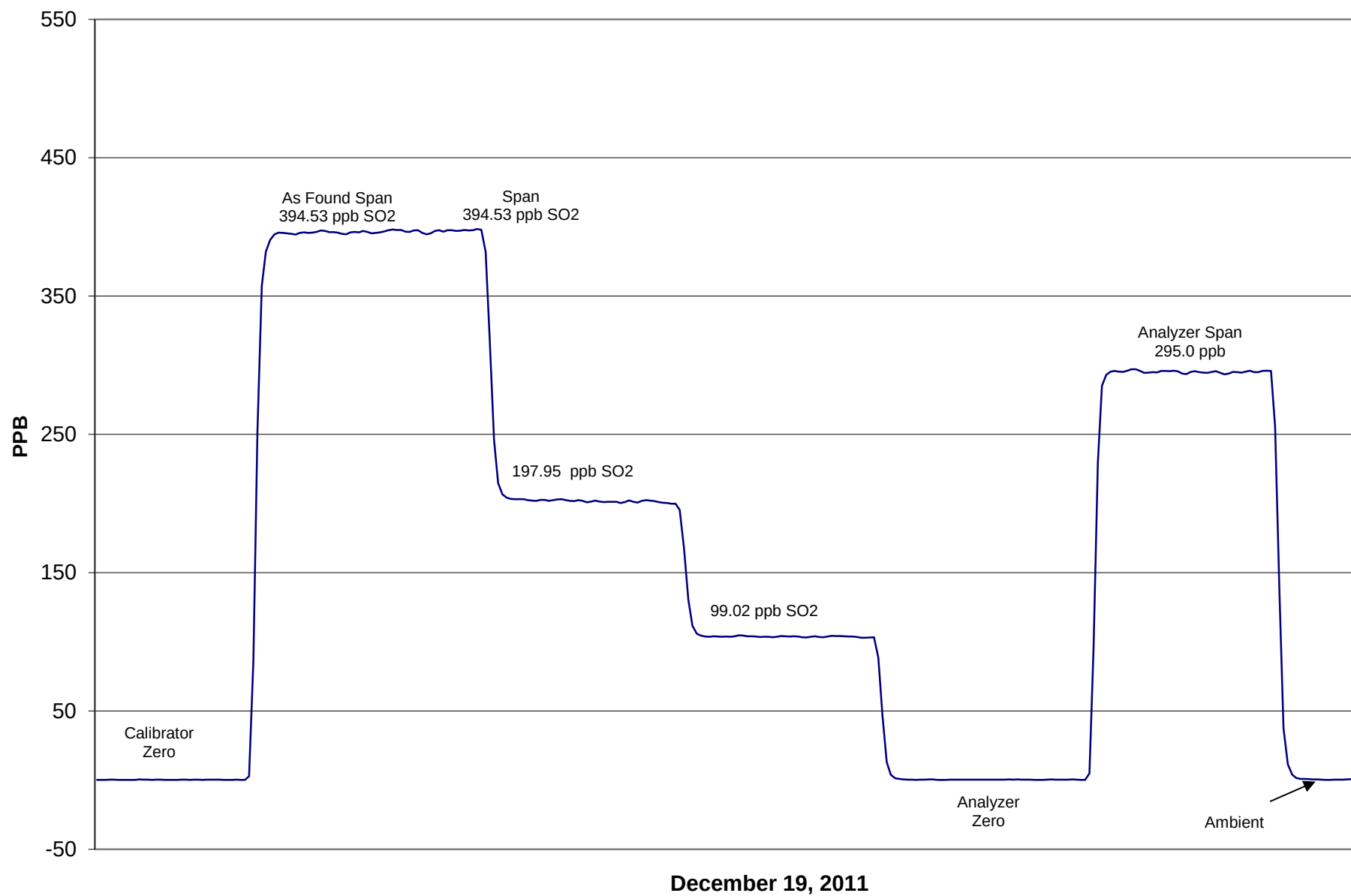
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	N/A	Correlation Coefficient	0.999891
394.5	397.1	0.9935		
198.0	201.3	0.9834		
99.0	103.7	0.9549	Slope	0.996895
			Intercept	-2.179825

SO2 Calibration Curve



Smokey Heights SO₂ Calibration



Calibration Report



Parameter TRS

Air Monitoring Network PASZA

Station Information

Calibration Date	December 19, 2011	Previous Calibration	November 28, 2011
Station Number	3	Station Location	Smokey Heights
Reason:	☐ Routine	☐ Install	☐ Removal
			☒ Other: Maintenance
Start Time (MST)	9:50	End Time (MST)	12:57
Barometric Pressure	0.917 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Conc	5.77 ppm	Cal Gas Expiry Date	9/3/2011
Correction factor	0.031171	Cal Gas Cylinder #	BLM001434
DACS make	CR3000	DACS serial No.	5238
DACS voltage range	0 - 5 volt	DACS channel #	5
	Before		After
Calculated slope	1.008209	Calculated slope	1.008597
Calculated intercept	-0.475020	Calculated intercept	-0.379659

Analyzer make TEI Model 43C Analyzer serial # 0436610005

	before		after	
Concentration range	100	ppb	100	ppb
Background	17.4	ppb	17.4	ppb
coefficient	0.946		0.946	
Lamp Voltage	797	volts	797	volts
Chamber Temp	44	Deg C	44.99	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	544.5	mm Hg	537	mm Hg
Sample Flow	0.589	ccm	0.586	ccm
Lamp Intensity	35,533	mv	35,430	mv

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4989	0.0	0.00	0.4	N/A
4989	69.80	79.61	79.3	1.0039
4989	34.88	40.06	40.1	0.9984
4989	8.96	10.34	10.6	0.9772
4989	0.0	0.00	0.4	As Found Zero
4989	69.80	79.61	79.3	As Found Span
Average Correction Factor				0.9932

Calculated value of As Found Response: 79.11 ppm Percent Change of As Found: 0.6%

	before calibration		after calibration	
Auto zero	0.0	ppm	-0.1	ppm
Auto span	52.9	ppm	54.5	ppm

Notes: No span adjust

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



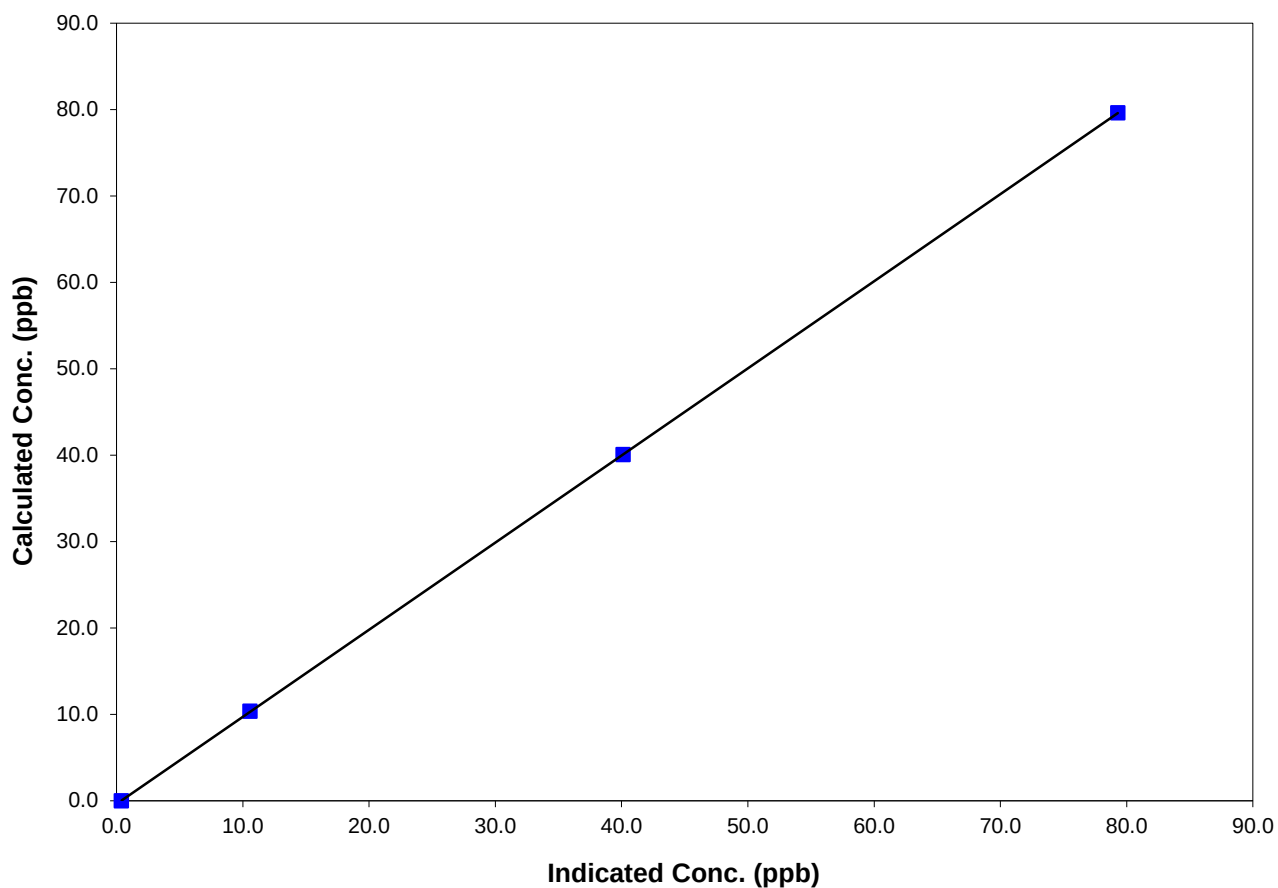
Station Information

Calibration Date	December 19, 2011	Previous Calibration	November 28, 2011
Station Number	3	Station Location	Smokey Heights
Start Time (MST)	9:50	End Time (MST)	12:57
Analyzer make/model	TEI Model 43C	Analyzer serial #	0436610005

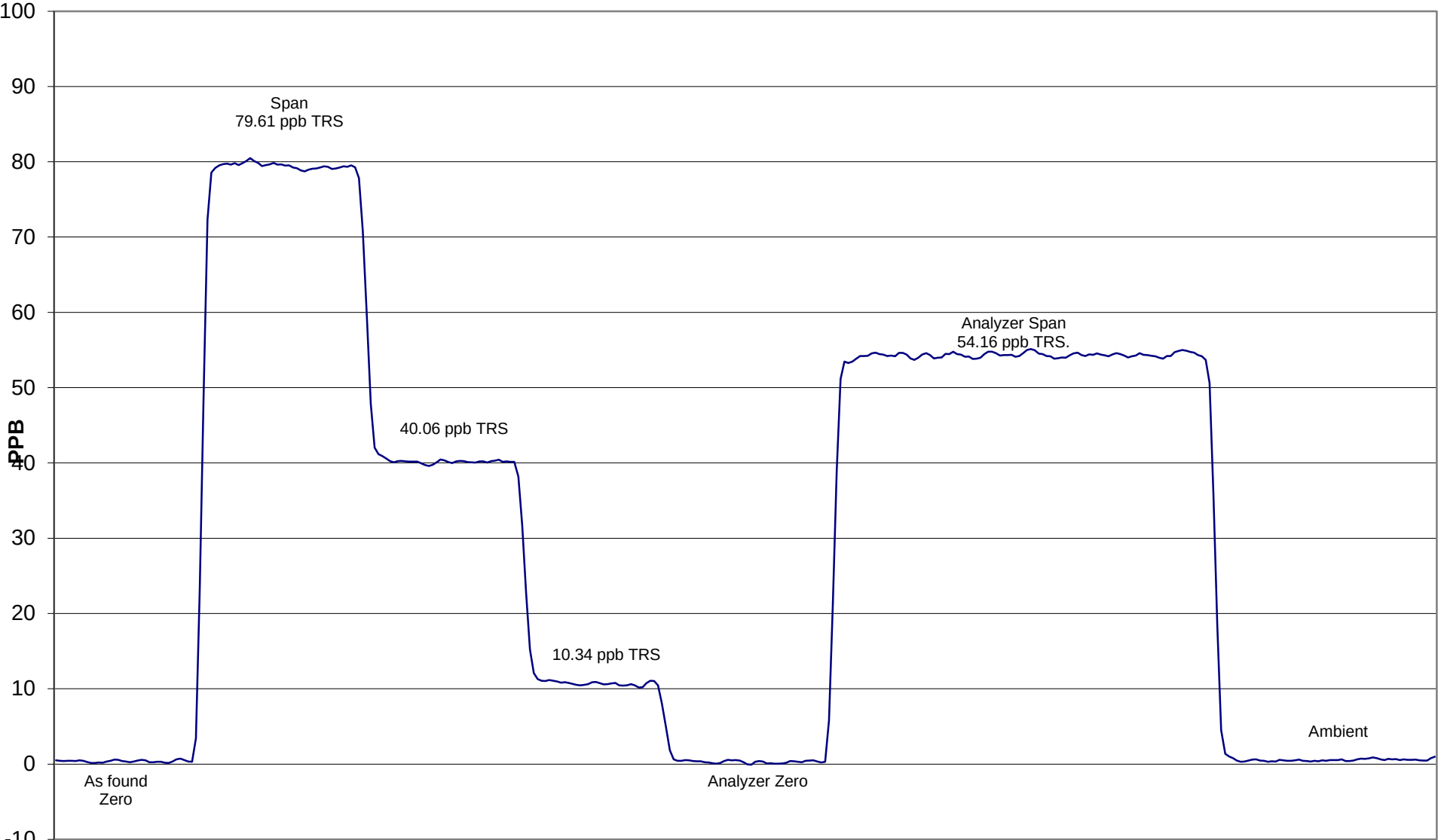
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	N/A	Correlation Coefficient	0.999999
79.6	79.3	1.0039		
40.1	40.1	0.9984		
10.3	10.6	0.9772	Slope	1.008597
			Intercept	-0.379659

TRS Calibration Curve



Smokey Heights TRS Calibration



December 19, 2011

Calibration Report

Parameter SO2
Air Monitoring Network PASZA



Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	Beaverlodge
Reason:	Routine	Install	Removal
		Other:	
Start Time (MST)	14:45	End Time (MST)	17:24
Barometric Pressure	0.917 atm	Station Temperature	23.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	10.1 ppm	Cal Gas Expiry Date	1/25/2010
Gas Cert Reference	SAGL 671		
DACS make	CR3000	DACS serial No.	5237
DACS voltage range	0 - 5 volt	DACS channel #	5
	Before		After
DACS Scale High	100	DACS slope	100
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.006756	Calculated slope	1.009235
Calculated intercept	-0.875637	Calculated intercept	-0.796277
Analyzer make	TEI Model 43i-TLE	Analyzer serial #	713021137

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	2.45		2.37	
Coefficient	1.080		1.056	
PMT	-767.8	V	-767.6	V
UV Lamp Voltage	1056	V	1052	V
Chamber Temp	45	Deg C	45.2	Deg C
Pressure	666.1	mm Hg	671.3	mm Hg
Sample Flow	0.49	LPM	0.495	LPM
Lamp Intesity	96%	%	96%	%

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)
4989	0.00	0.0	0.2	N/A
4989	39.83	80.0	79.7	1.0034
4989	19.90	40.1	40.9	0.9815
4989	9.93	20.1	21.3	0.9441
4989	0.00	0.0	0.2	As found zero
4989	39.83	80.0	80.8	As found span
Average Correction Factor				0.9763

Calculated value of As Found Response: 80.272 ppm Percent Change of As Found: -0.3%

	before calibration		after calibration	
Auto zero	-0.3	ppb	-0.6	ppb
Auto span	58.2	ppb	56.4	ppb

Notes: Slight adjust first point.

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



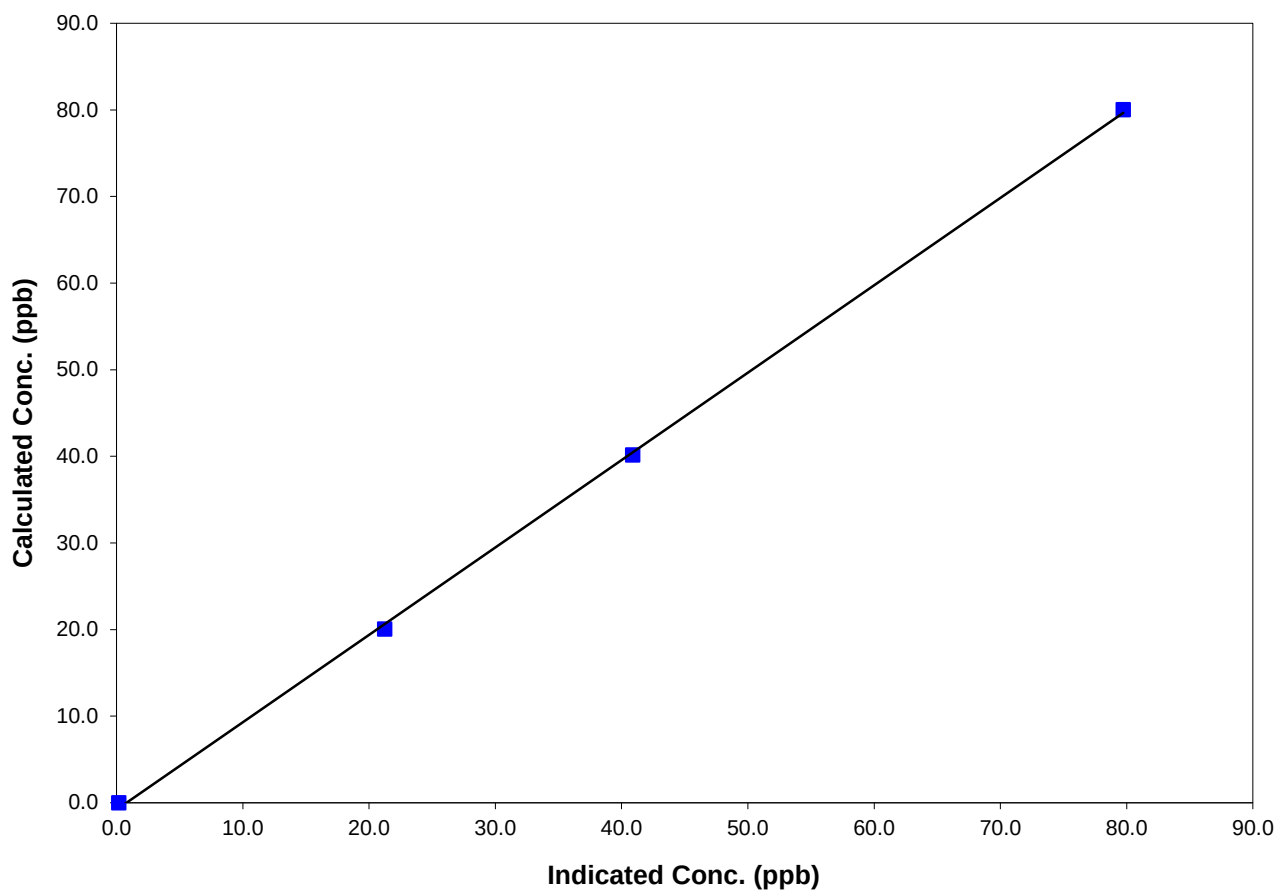
Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	14:45	End Time (MST)	17:24
Analyzer make/model	TEI Model 43i-TLE	Analyzer serial #	713021137

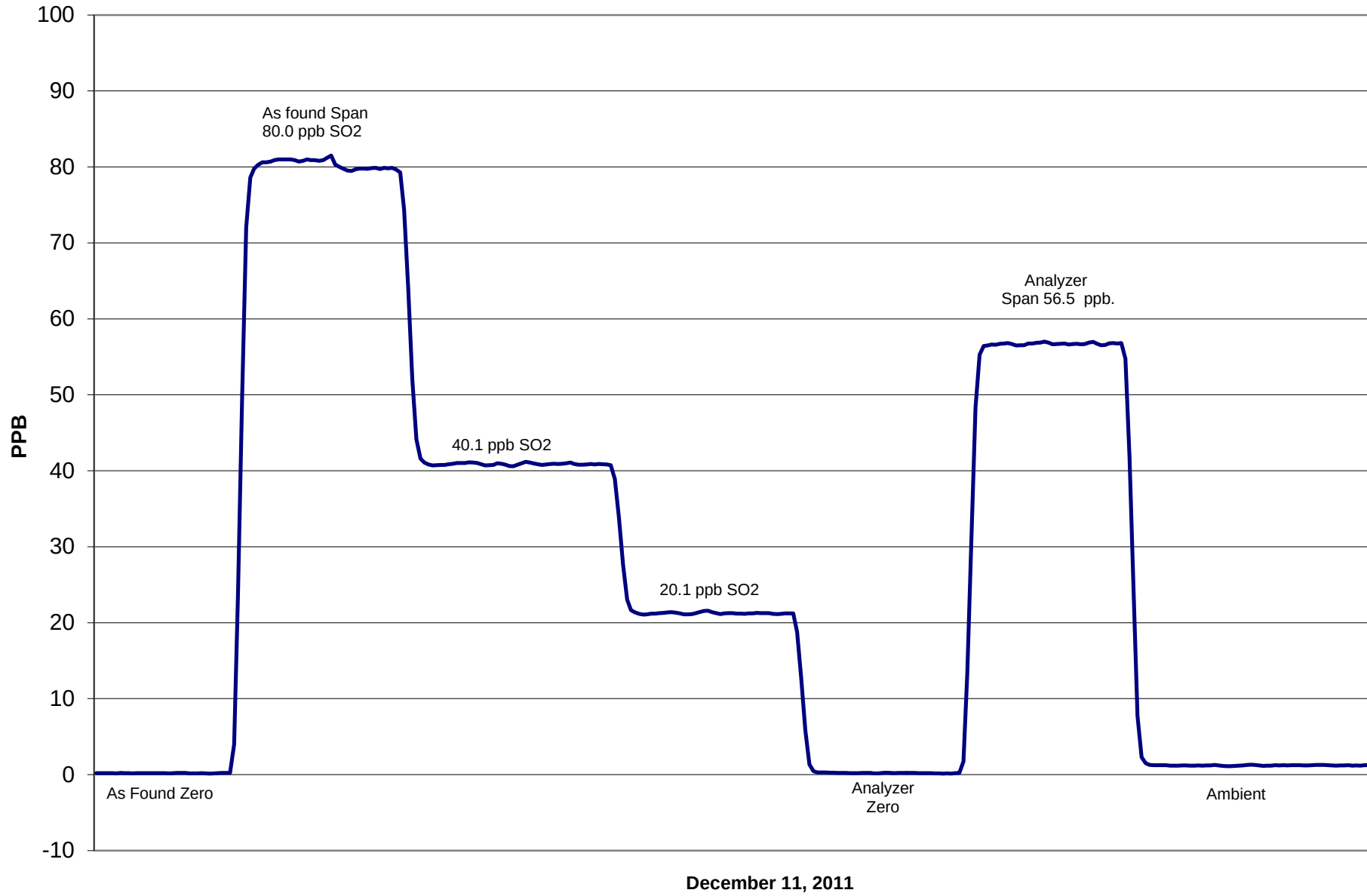
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.2	N/A	Correlation Coefficient	0.999735
80.0	79.7	1.0034		
40.1	40.9	0.9815		
20.1	21.3	0.9441	Slope	1.009235
			Intercept	-0.796277

SO2 Calibration Curve



SO2 Calibration



Calibration Report

Parameter

NO_x-NO-NO₂

Air Monitoring Network

PAZA



Station Information

Calibration Date	December 11, 2011		Previous Calibration	November 20, 2011	
Station Number	4		Station Location	BeaverLodge	
Reason:	Routine	Installation	Removal	Other:	
Start Time (MST)	10:11		End Time (MST)	14:29	
Barometric Pressure	0.917	Atm	Station Temperature	23.0	Deg C
Calibrator	EnviroNics		Serial Number	2844	
NO Cal Gas Conc	52.5	ppm	Cal Gas Expiry Date	March 28, 2013	
NOx Cal Gas Conc	52.5	ppm	Cal Gas Serial #	LL8575	

DACS Information

DACS make	AP1000		DACS serial No.		
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Parameter		NO2	NOx	NO
Before	Data Slope	1.005464	1.001015	1.000749
	Data Offset	0.601760	-0.575022	-0.358099
After	Data Slope	0.999469	1.002909	1.002890
	Data Offset	0.214555	-2.920264	-2.660140
Channel #		8	6	7
Voltage Range		0 - 5 VDC	0 - 5 VDC	0 - 5 VDC

Analyzer Information

Analyzer make/model	TEI 42i		Analyzer serial #	906535068	
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Test Point	before		after	
Concentration range	0-500	ppb	0-500	ppb
NO offset	2.1	mV	2.2	mV
NOx bkgnd	2.7	mV	2.4	mV
NO coefficient	1.342		1.410	
NOx coefficient	1.002		0.992	
NO2 conv temp	325.7	Deg C	326.8	Deg C
PMT Temp	-3.0	Deg C	-2.9	Deg C
PMT Volt	-671.9	mV	-671.2	mV
R Cell Press	157.9	in Hg	159.1	in Hg
Sample Flow	0.698	ccm	0.698	ccm

Calibration Report

Parameter **NOX-NO-NO2**
Air Monitoring Network **PAZA**



Station Information

Calibration Date: December 11, 2011 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	4989	0.00	0.0	0.0	0.0	0.0	-0.1	-0.1	N/A	N/A
1	4989	39.84	415.9	415.9	0.0	416.0	415.9	-0.2	0.9999	1.0000
2	4989	19.91	208.7	208.7	0.0	212.8	212.1	-0.1	0.9806	0.9838
3	4989	9.93	104.3	104.3	0.0	109.6	109.4	0.0	0.9513	0.9530
AFZ	4989	0.00	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0000	0.0000
AFS	4989	39.84	415.9	415.9	0.8	401.5	400.0	1.3	1.0358	1.0398
Average Correction Factor									0.9773	0.9789

As Found Concentrations: NO_x= 401.0 NO= 399.7 As Found Percent Change NO_x= -3.6% NO= -3.9%

GPT Calibration Data

Dilution Flow 4989 ccm Source Gas Flow 39.84 ccm

O3 Setpoint (ppb)	Indicated NO high point (ppb)	Indicated NO drop 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	-0.1	-0.1	0.0	0.0	-0.1	-0.1	N/A	N/A	N/A	N/A
NO point	416.1	416.1	0.0	416.1	416.1	-0.2	0.9999	1.0000	N/A	N/A
300	416.1	172.6	243.4	416.6	172.6	243.3	0.9986	1.0000	1.0004	100.0%
200	416.1	246.8	169.3	416.6	246.8	169.4	0.9987	1.0000	0.9996	100.0%
100	416.1	319.5	96.6	415.7	319.5	96.1	1.0009	1.0000	1.0053	99.5%
Average Correction Factor							0.9994	1.0000	1.0018	99.8%

AIC Data

	Previous calibration				Current calibration			
Parameter	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	-0.2	-0.3	-0.2	ppb	0.0	-0.1	-0.1	ppb
Auto span	238.0	235.5	1.6	ppb	237.6	235.4	1.5	ppb

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter NO₂

Air Monitoring Network PAZA



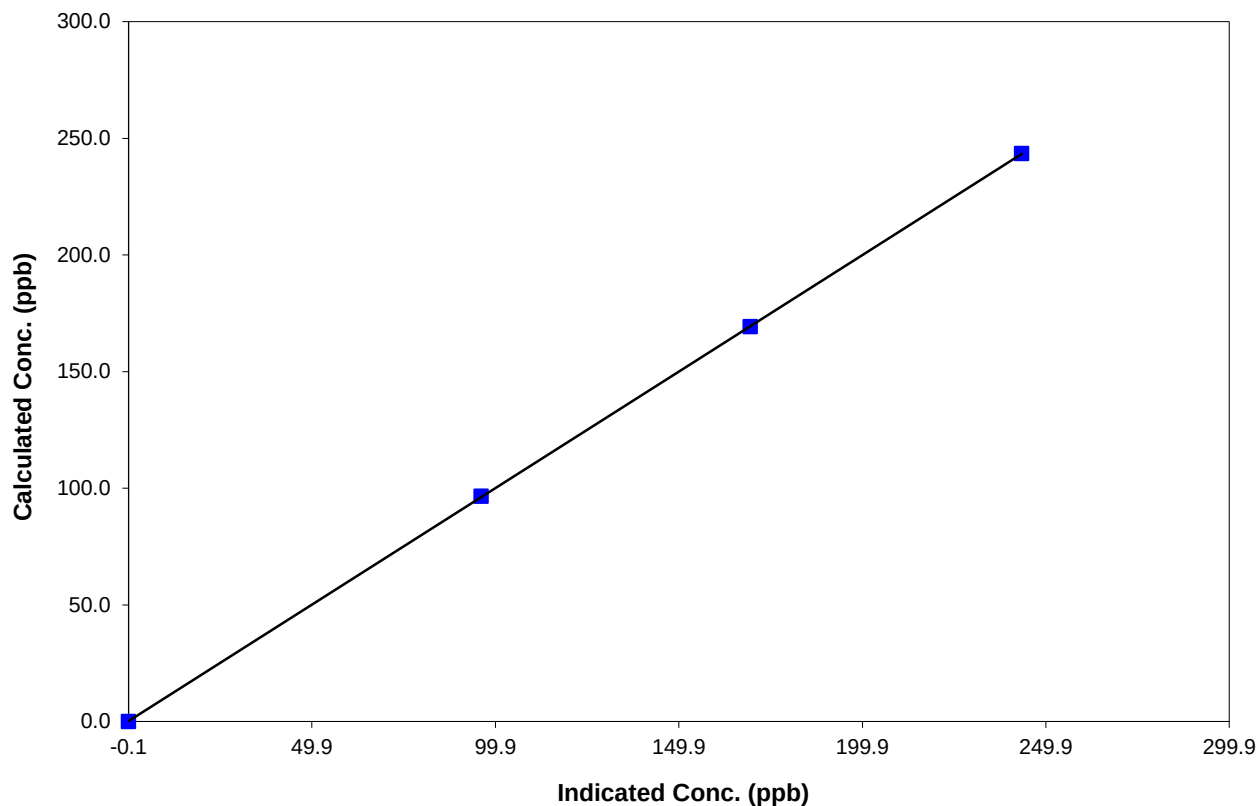
Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	BeaverLodge
Start Time (MST)	10:11	End Time (MST)	14:29
Analyzer make	TEI 42i	Analyzer serial #	906535068

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.1	N/A	Correlation Coefficient	0.999994
243.4	243.3	1.0004		
169.3	169.4	0.9996	Slope	0.999469
96.6	96.1	1.0053		
			Intercept	0.214555

NO₂ Calibration Curve



Calibration Summary

Parameter NO_x

Air Monitoring Network PAZA



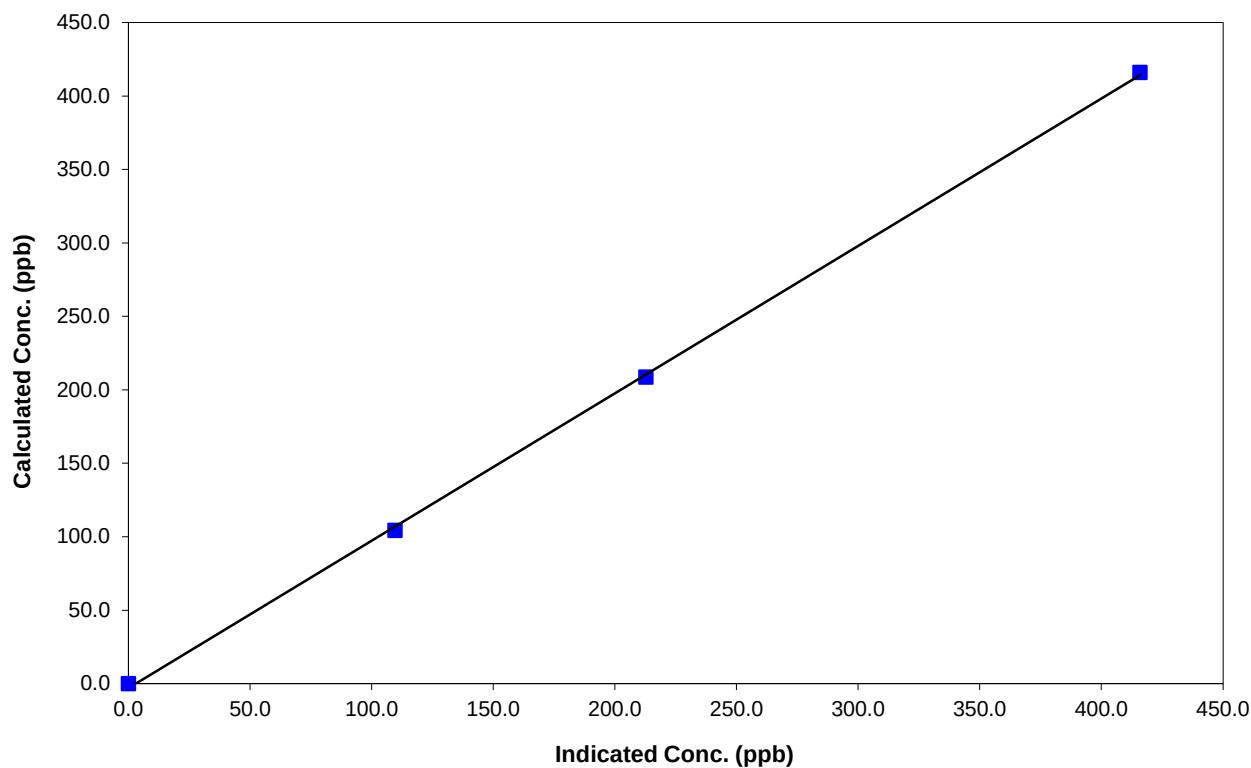
Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	BeaverLodge
Start Time (MST)	10:11	End Time (MST)	14:29
Analyzer make	TEI 42i	Analyzer serial #	906535068

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A	Correlation Coefficient	0.999768
415.9	416.0	0.9999		
208.7	212.8	0.9806		
104.3	109.6	0.9513	Slope	1.002909
			Intercept	-2.920264

NO_x Calibration Curve



Calibration Summary

Parameter NO

Air Monitoring Network PAZA



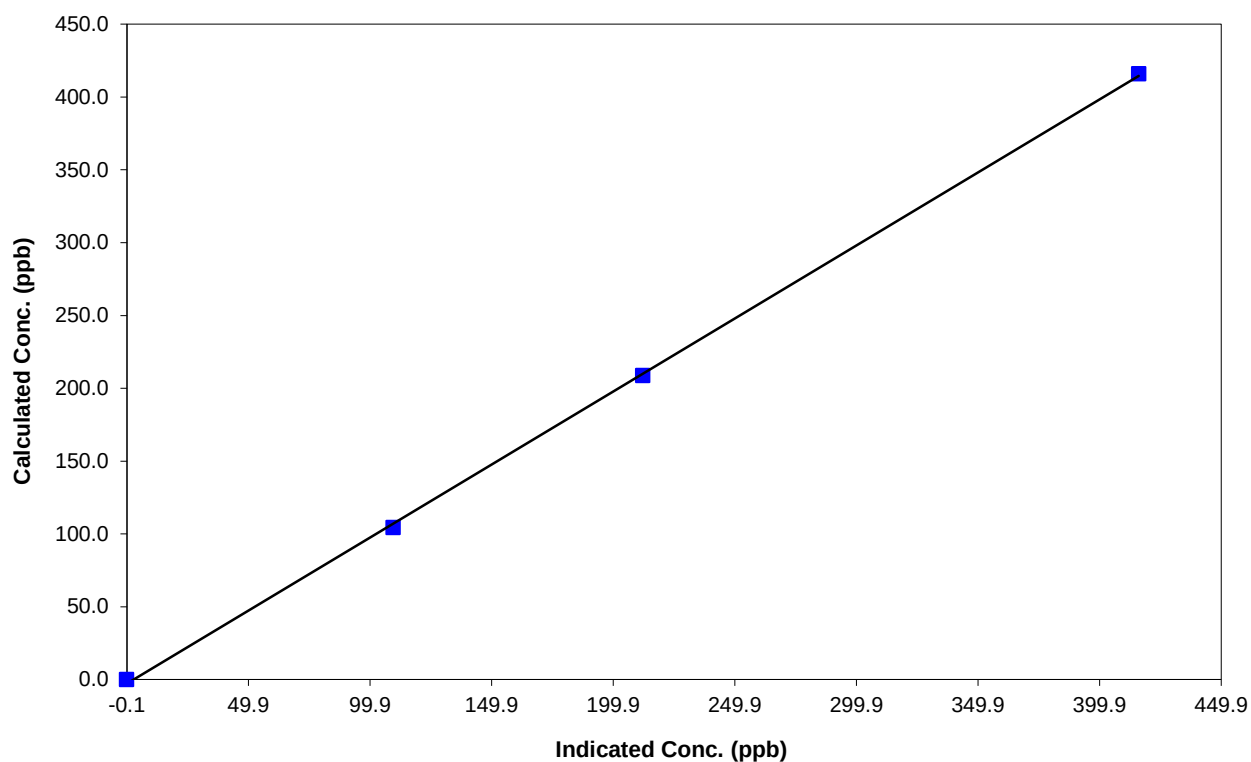
Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	BeaverLodge
Start Time (MST)	10:11	End Time (MST)	14:29
Analyzer make	TEI 42i	Analyzer serial #	906535068

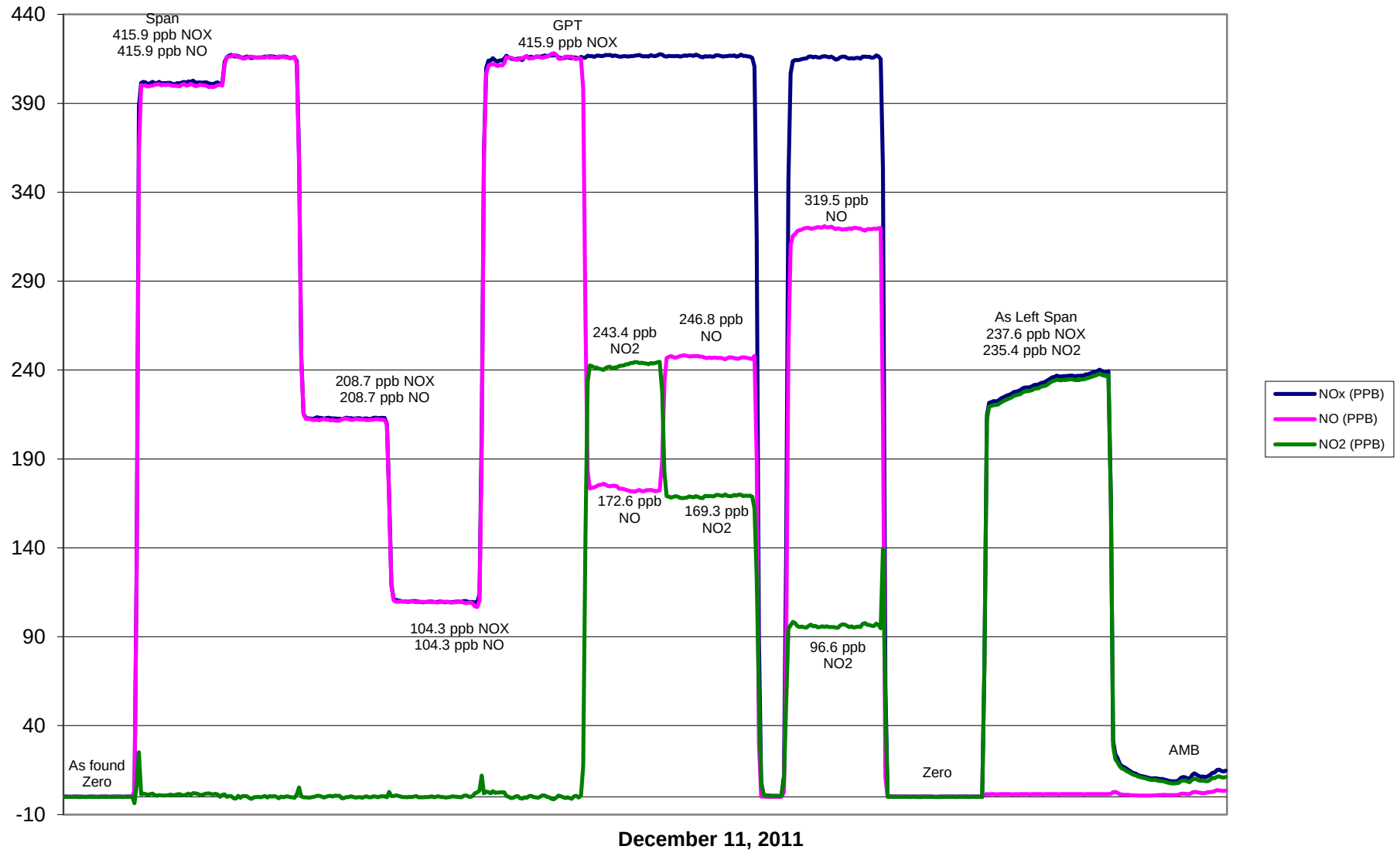
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.1	N/A	Correlation Coefficient	0.999795
415.9	415.9	1.0000		
208.7	212.1	0.9838		
104.3	109.4	0.9530	Slope	1.002890
			Intercept	-2.660140

NO Calibration Curve



PASZA Beaverlodge NO_x Calibration



Calibration Report

Parameter 03

Air Monitoring Network PASZA



Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	Beaverlodge
Reason:	Routine	Install	Removal
		Other:	

Start Time (MST)	13:20	End Time (MST)	15:52
Barometric Pressure	0.905 atm	Station Temperature	23.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	NA	Cal Gas Expiry Date	NA

DACS make	CR3000	DACS serial No.	5237
DACS voltage range	0 - 5 volt	DACS channel #	9
	Before		After
Calculated slope	1.028008	Calculated slope	0.958455
Calculated intercept	-2.225420	Calculated intercept	-0.130155

Analyzer make	Teco 49C	Analyzer serial #	49C-76443-383
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	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
offset	-1.60	ppb	-0.90	ppb
slope	1.030		1.030	
Lamp temp	56.3	mV	56.3	mV
Lamp Intensity A/B	58146/59595	mV	58029/59625	mV
Pressure	683.1	mm Hg	682.2	mm Hg
Flow A	0.764	ccm	0.764	ccm
Flow B	0.710	ccm	0.710	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)
4989	0.00	0.0	0.5	N/A
4989	0.00	243.4	254.4	0.9566
4989	0.00	169.3	176.5	0.9590
4989	0.00	96.6	100.4	0.9618
4989	0.00	0.0	0.5	As found zero
4989	0.00	243.4	254.4	As found span
Average Correction Factor				0.9591

Calculated value of As Found Response: 258.8 ppm Percent Change of As Found: **6.3%**

	before calibration		after calibration	
Auto zero	0.1	ppb	-0.3	ppb
Auto span	114.3	ppb	112.1	ppb

Notes: No adjustment made.

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter O3

Air Monitoring Network PASZA



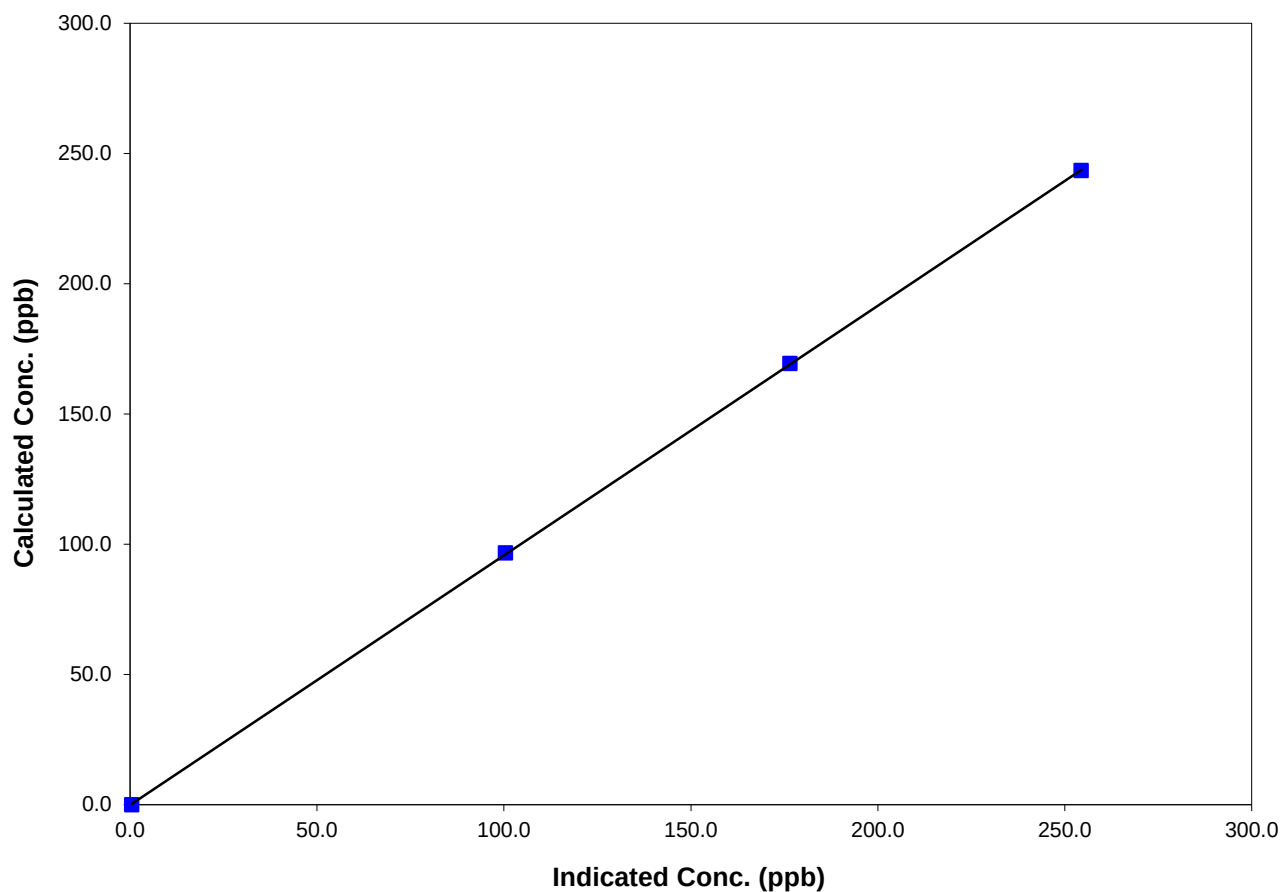
Station Information

Calibration Date	December 11, 2011	Previous Calibration	November 20, 2011
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	13:20	End Time (MST)	15:52
Analyzer make/model	Teco 49C	Analyzer serial #	49C-76443-383

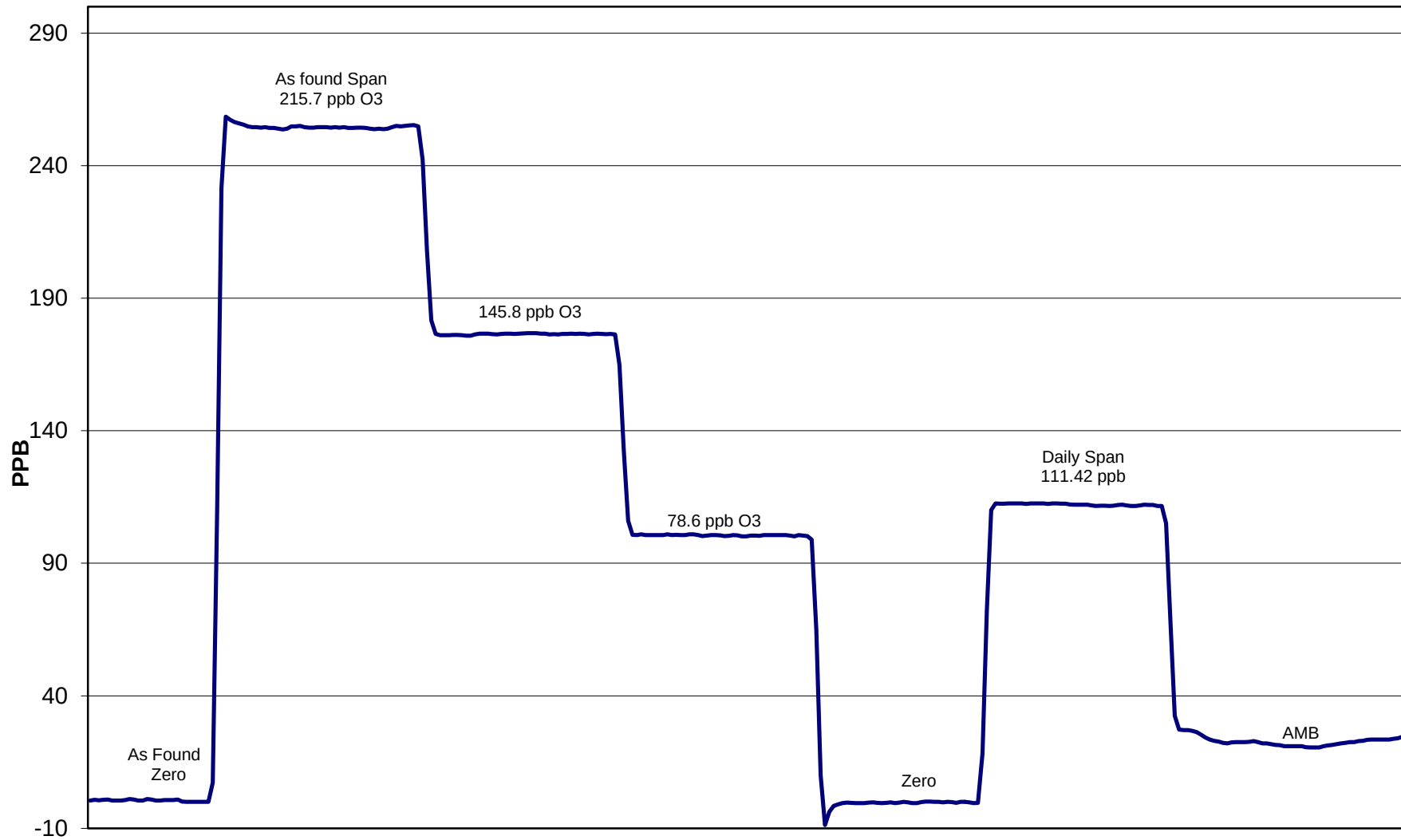
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.5	NA	Correlation Coefficient	0.999984
243.4	254.4	0.9566		
169.3	176.5	0.9590		
96.6	100.4	0.9618	Slope	0.958455
			Intercept	-0.130155

O3 Calibration Curve



O3 Calibration



December 11, 2011

Calibration Report

Parameter SO2
Air Monitoring Network

PASZA



Station Information

Calibration Date	December 22, 2011	Previous Calibration	November 23, 2011
Station Number	6	Station Location	Valleyview
Reason:	☒ Routine	☐ Install	☐ Removal
			☐ Other:
Start Time (MST)	11:10	End Time (MST)	14:07
Barometric Pressure	702.00 mmHg	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	49.8 ppm	Cal Gas Cert Date	7/23/2010
Gas Cert Reference	SGAL3245		
DACS make	CR3000	DACS serial No.	5409
DACS voltage range	0 - 5 volt	DACS channel #	4
	<u>Before</u>		<u>After</u>
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.004851	Calculated slope	1.003047
Calculated intercept	-2.338781	Calculated intercept	-2.200892
Analyzer make	TEI 45C	Analyzer serial #	45C-57531-313

	before		after	
Concentration range	0 - 1000	ppb	0 - 1000	ppb
Background	30.1		29.7	
Coefficient	0.865		0.865	
UV Lamp Voltage	957	LPM	957	LPM
Chamber Temp	44.4	V	44.5	V
Perm Gas Temp	35.1	C	35.1	C
Pressure	611.8	in Hg	612.5	in Hg
Sample Flow	0.561	LPM	0.562	LPM
Lamp Intensity	48484	Hz	48327	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)
4989	0.00	0.0	0.4	N/A
4989	39.84	394.5	394.6	0.9997
4989	19.89	197.8	200.1	0.9884
4989	9.94	99.0	102.9	0.9625
4989	0.00	0.0	0.4	As found zero
4989	39.84	394.5	394.4	As found span
Average Correction Factor				0.9835

Calculated value of As Found Response: 393.548 ppm Percent Change of As Found: 0.2%

	before calibration		after calibration	
Auto zero	0.0	ppm	0.0	ppm
Auto span	155.5	ppm	155.2	ppm

Notes: No span adjust.

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



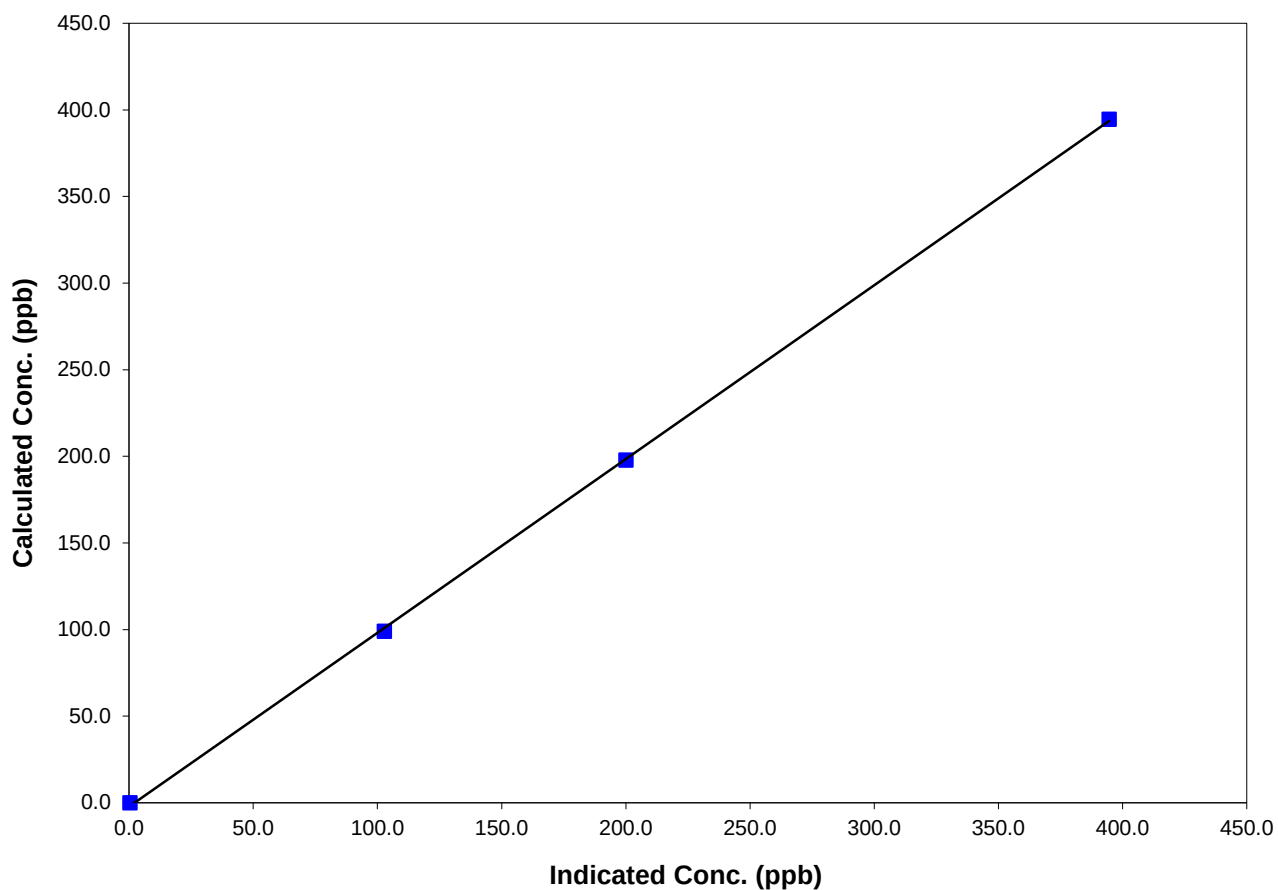
Station Information

Calibration Date	December 22, 2011	Previous Calibration	November 23, 2011
Station Number	6	Station Location	Valleyview
Start Time (MST)	11:10	End Time (MST)	14:42
Analyzer make/model	TEI 45C	Analyzer serial #	45C-57531-313

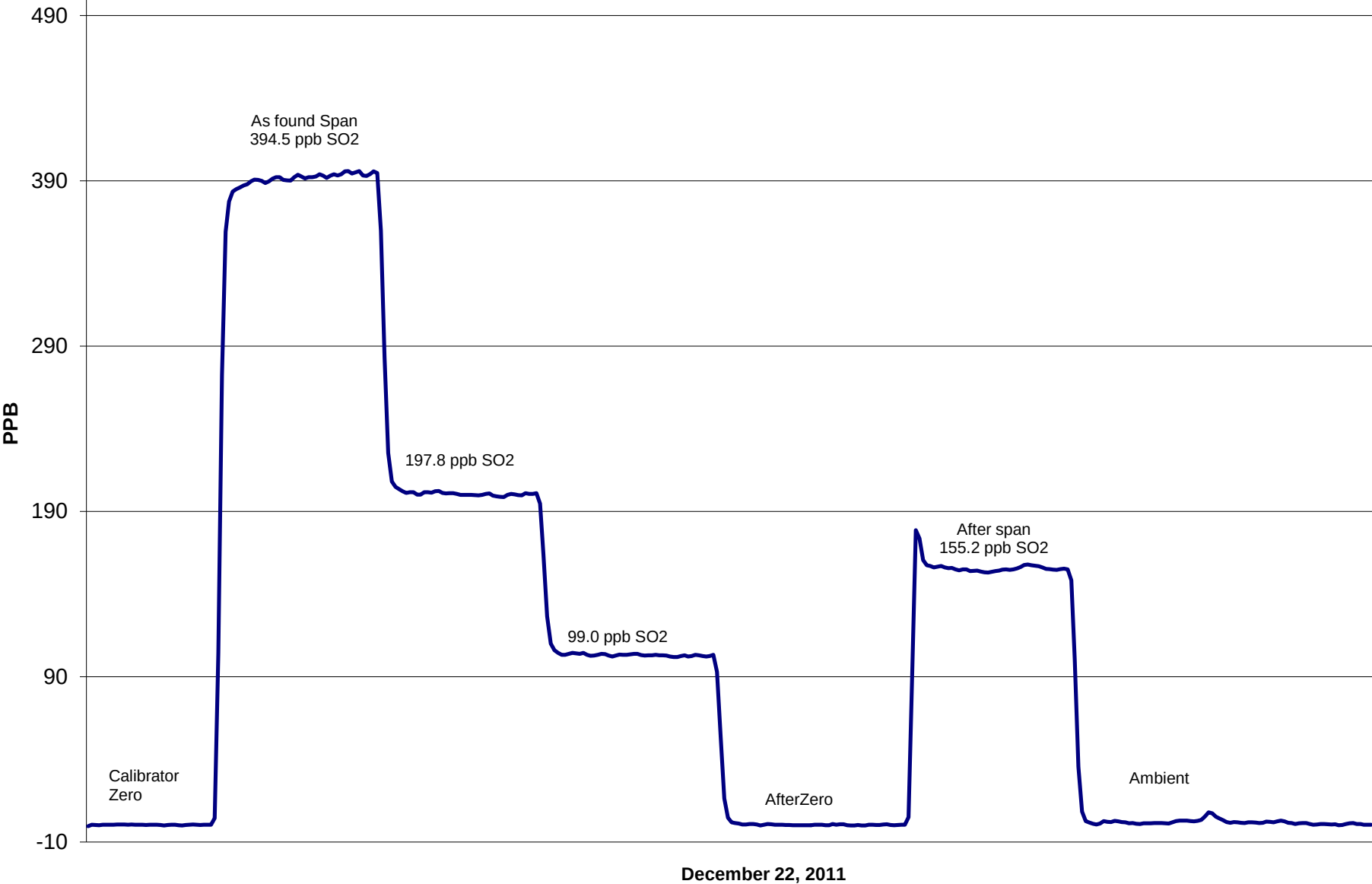
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	N/A	Correlation Coefficient	0.999900
394.5	394.6	0.9997		
197.8	200.1	0.9884		
99.0	102.9	0.9625	Slope	1.003047
			Intercept	-2.200892

SO2 Calibration Curve



SO2 Calibration



Calibration Report

Parameter H2S

Air Monitoring Network PASZA



Station Information

Calibration Date	December 22, 2011	Previous Calibration	November 23, 2011
Station Number	6	Station Location	Valleyview
Reason:	☒ Routine	☐ Install	☐ Removal
		☐ Other:	
Start Time (MST)	9:00	End Time (MST)	12:31
Barometric Pressure	702.00 mm	Station Temperature	21.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	5.77 ppm	Cal Gas Expiry Date	9/3/2012
Gas Cert Reference	BLM001434		
DACS make	CR3000	DACS serial No.	5409
DACS voltage range	0 - 5 volt	DACS channel #	9
	<u>Before</u>		<u>After</u>
DACS Scale High	100	DACS slope	100
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.003340	Calculated slope	1.001953
Calculated intercept	-0.376791	Calculated intercept	-0.262029
Analyzer make	TEI Model 43i - APSCB	Analyzer serial #	701120010

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Back Ground	7.1	ppb	7.2	ppb
Coefficient	1.343		1.368	
Lamp Voltage	785	v	786	v
Chamber Temp	45.01	c	44.9	c
Perm Oven Temp	45.01	c	45.00	c
Pressure	625.50	mm Hg	624.40	mm Hg
Sample Flow	.424	ccm	.422	ccm
Lamp Intensity	91.0	%	91.0	%

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)
4989	0.00	0.0	0.3	N/A
4989	69.79	79.6	79.8	0.9974
4989	34.87	40.0	40.0	1.0013
4989	8.96	10.3	10.7	0.9657
4989	0.00	0.0	0.3	As found zero
4989	69.79	79.6	78.2	As found span
Average Correction Factor				0.9881

Calculated value of As Found Response: 77.71 ppm Percent Change of As Found: 2.4%

	before calibration		after calibration	
Auto zero	0.0	ppm	0.0	ppm
Auto span	70.6	ppm	73.3	ppm

Notes:

Calibration Performed By: Grover Christiansen

Calibration Summary

Parameter H2S

Air Monitoring Network PASZA



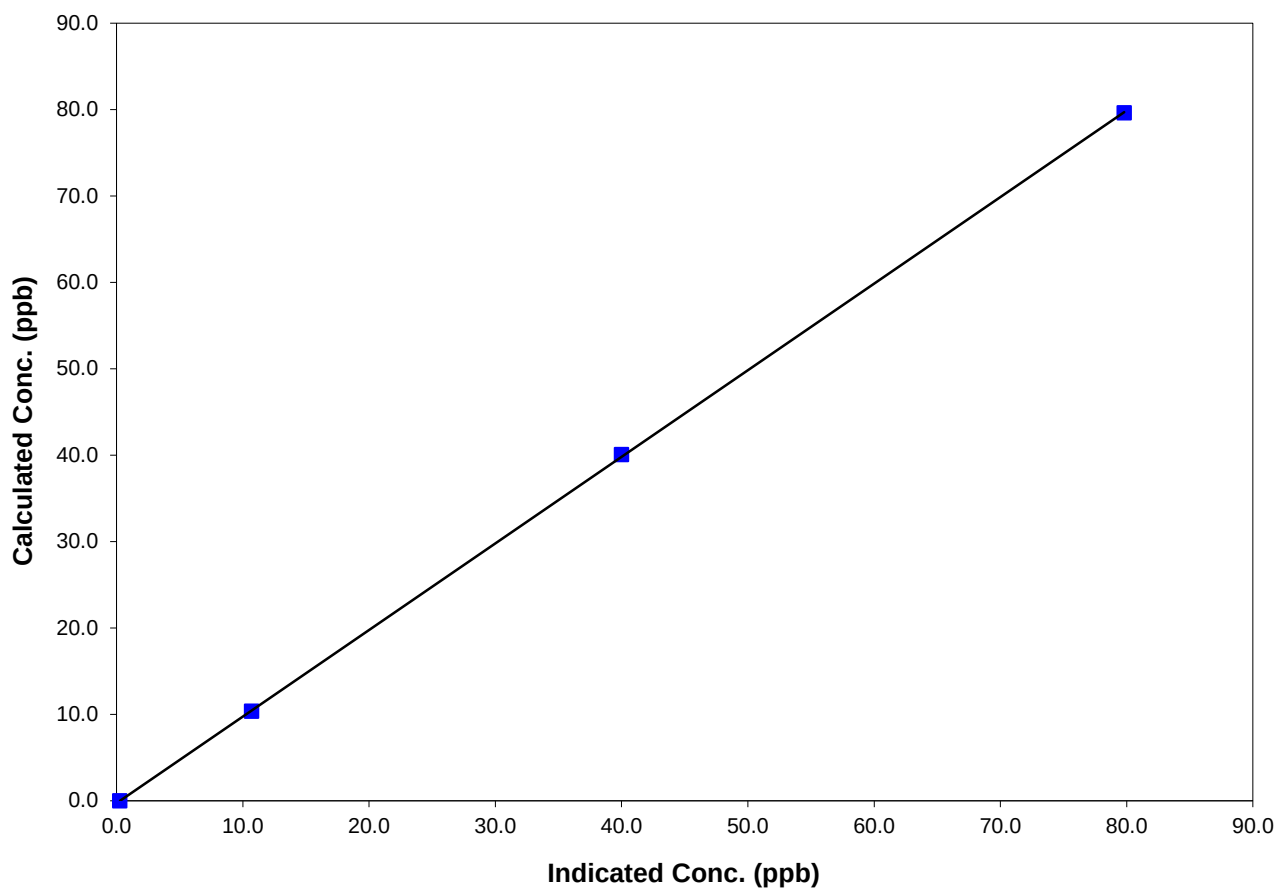
Station Information

Calibration Date	December 22, 2011	Previous Calibration	November 23, 2011
Station Number	6	Station Location	Valleyview
Start Time (MST)	9:00	End Time (MST)	12:31
Analyzer make/model	TEI Model 43i - APSCB	Analyzer serial #	701120010

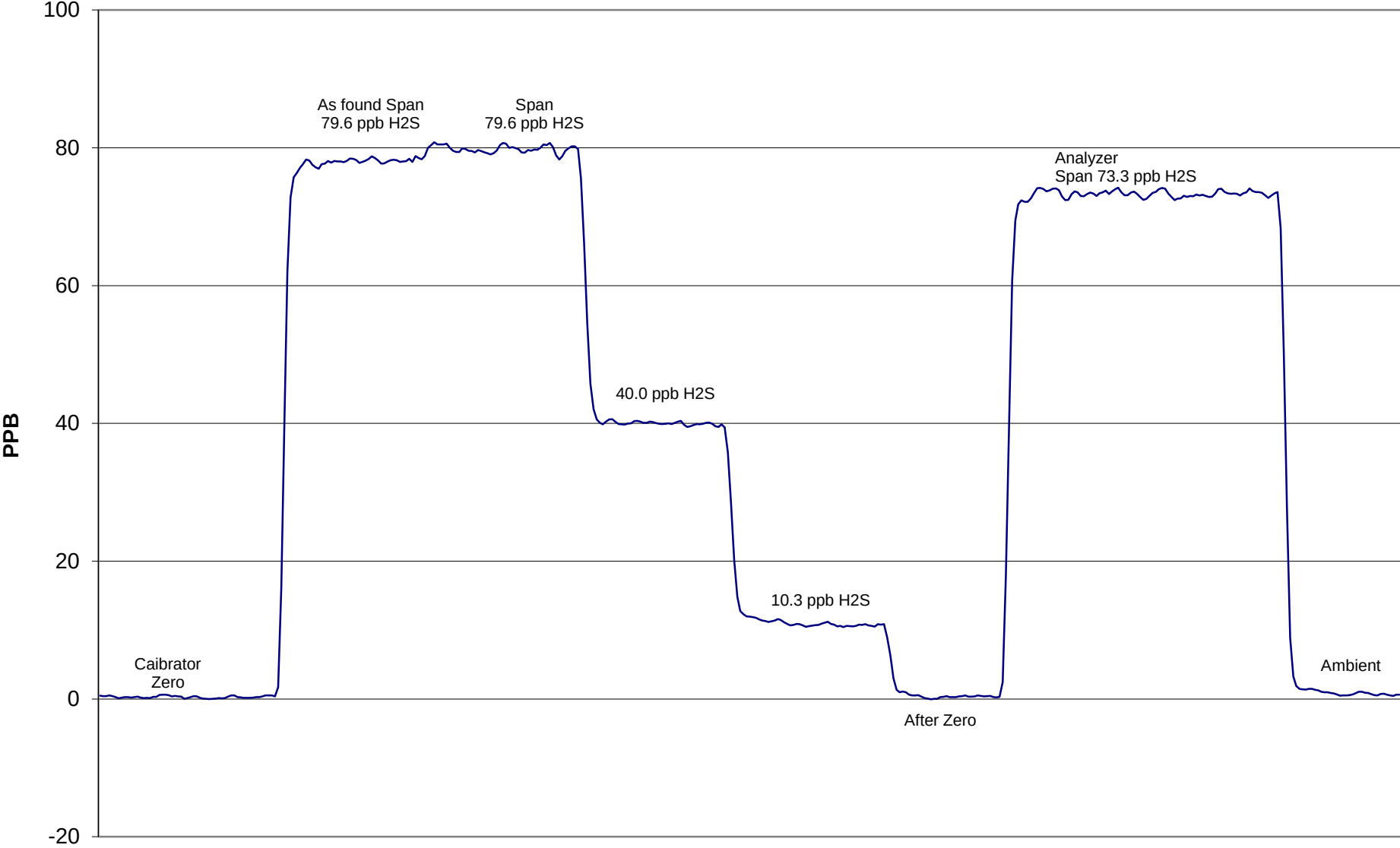
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	N/A	Correlation Coefficient	0.999979
79.6	79.8	0.9974		
40.0	40.0	1.0013		
10.3	10.7	0.9657	Slope	1.001953
			Intercept	-0.262029

H2S Calibration Curve



H2S Calibration



December 22, 2011