



# **Peace Airshed Zone Association**

## **Ambient Air Monitoring Network Summary**

**Continuous Ambient Air Quality Monitoring Program  
Monthly Report  
December 2012**

**Operations and Reporting**

**FOCUS**  
AIR QUALITY MONITORING

January 24<sup>th</sup>, 2013

**Alberta Environment**  
 11<sup>th</sup> Floor, Oxbridge Place  
 9820-106 Street  
 Edmonton Alberta T5K 2J6

**RE: Peace Airshed Zone Association (PAZA) – December 2012 Ambient Air Report**

Enclosed is the PAZA Ambient Monitoring Network Report for the month of **December 2012**.

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
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
Conocophillips Canada Energy Partnership	Teepee Creek	SE-2-074-04-W6	1635-02-02
	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	Sexsmith	04-08-075-07-W6	10002-01-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	238762-00-02
Long Run Exploration	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
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
Petrus Resources	Rycroft	08-25-077-06-W6	11351-02-00
	Spirit River	08-34-077-06-W6	11096-02-00
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
Taqa North Ltd.	Valhalla	13-21-076-09-W6	17620-01-01
Veresen Energy Infrastructure Inc.	Hythe Brainard	11-18-074-12-W6	10910-02-02
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	113-02-00

New approvals joined the PAZA network effective October 31, 2012:

Alberta Power (2000) Ltd.	Sturgeon	SW-06-69-21-W5	10283-02-02
Apache Enerplus Resources	House Mountain Pouce Coupe	01-08-70-10-W5 SW-06-69-21-W5	10137-02-02 1464-02-03
Canfor Forest Products (CFP)	Grande Prairie	SW-23-71-06-W6	152645-01-00

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: Six (6) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Valleyview, and Portable-Sunset House.**

During the month of **December** the following events were noted:

**Henry Pirker Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Henry Pirker station.
- ◆ All analyzers and sensors at the Henry Pirker station had an operational uptime greater than 90% for the month of December with the exception of the THC analyzer, which failed and continued to be out of service through January. **AE Reference #266707.**

**Evergreen Park Station:**

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

**Smoky Heights Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Smoky Heights station except for PM<sub>2.5</sub>, which had one (1) 1-hour of the AAAQO guideline:
  - December 4 01:00 99.3 µg/m<sup>3</sup> Alberta Environment Reference # 265434
- ◆ All analyzers and sensors at the Smoky Heights station had an operational uptime greater than 90% for the month of December.

**Beaverlodge Station:**

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

**Valleyview Station:**

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

**Sunset House Station:**

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

**Passive Monitoring - 46 Stations throughout the PAZA zone:**

There were five duplicate sites sampled in the month of December: Poplar, Wanham, Shaftesbury, Guy, and Girouxville 4. The passive sample analyses were performed by MAXXAM Analytics Inc.

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

- Monthly average concentrations for SO<sub>2</sub> passives ranged from 0.2 ppb to 1.1 ppb, with a mean of 0.6 ppb.
- Monthly average concentrations for NO<sub>2</sub> passives ranged from 0.9 ppb to 15.9 ppb, with a mean of 3.1 ppb.
- Monthly average concentrations for O<sub>3</sub> passives ranged from 17.4 ppb to 33.4 ppb, with a mean of 25.5 ppb.
- Monthly average concentrations for H<sub>2</sub>S passives ranged from 0.0 ppb to 0.4 ppb, with a mean of 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  
Executive Director

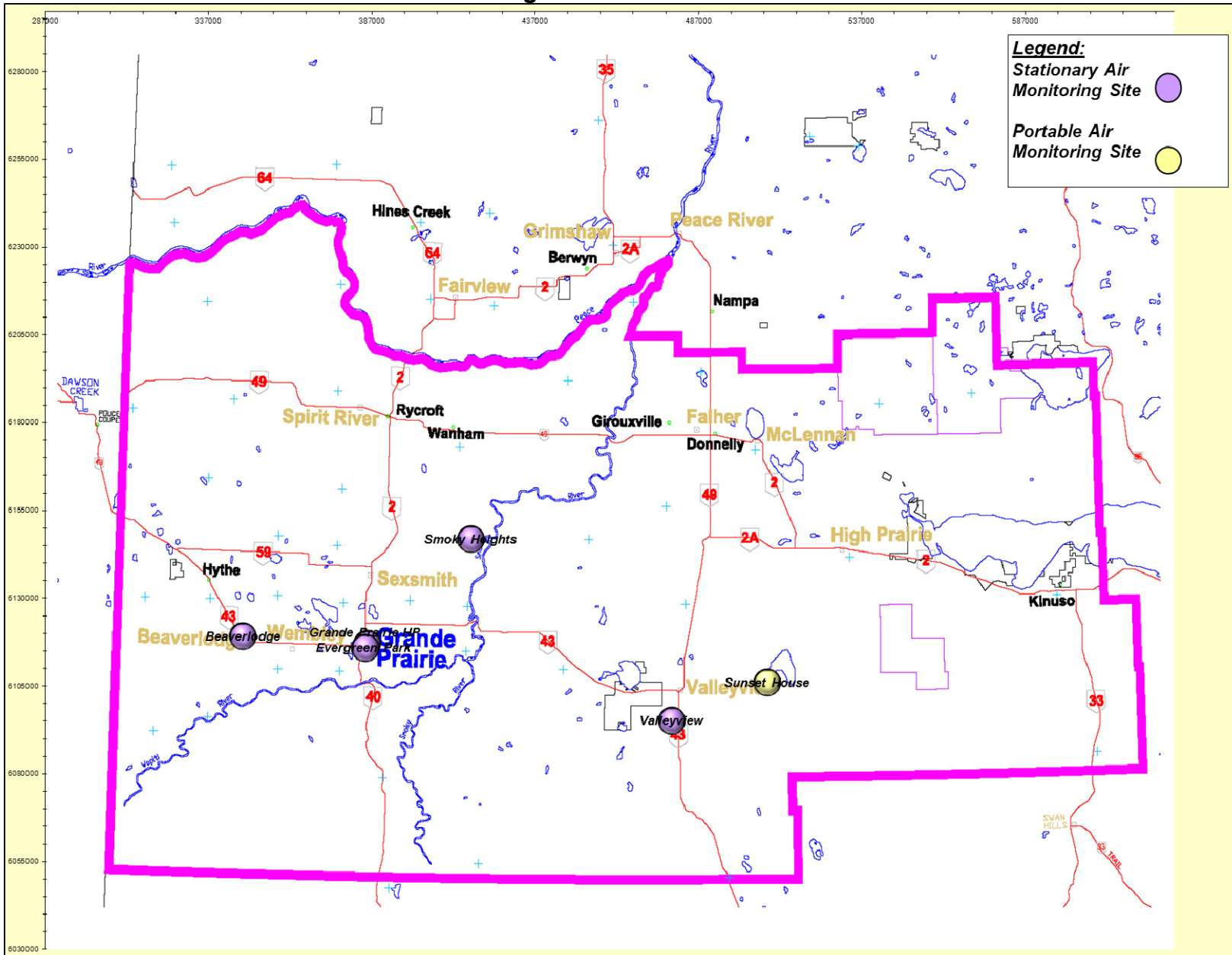


Patrick Andersen, B.Sc.  
FOCUS AQM Data Specialist



Jeff Cooper, C.Tech.  
AQM Operations Manager

# Location of PAZA Continuous Monitoring Stations



## PAZA Monthly Continuous Data Summary

Dec-2012 Peace Airshed Zone Association							Maximum Recorded Values				Operational Time (%)
Pollutant (units)	Objectives		Station	Monthly Average	Exceedence		Conc	Day	24-hr / 8-hr		
	1-hr	24-hr			1-hr	24-hr			Conc	Day	
SO <sub>2</sub> (ppb)	172	48	Henry Pirker	0.7	0	0	3.7	Dec-07 16:00	1.7	Dec-28	100%
SO <sub>2</sub> (ppb)	172	48	Evergreen Park	0.4	0	0	3.0	Dec-07 16:00	1.0	Dec-07	100%
SO <sub>2</sub> (ppb)	172	48	Smoky Heights	0.9	0	0	6.3	Dec-29 15:00	2.3	Dec-05	100%
SO <sub>2</sub> (ppb)	172	48	Beaverlodge	0.8	0	0	5.1	Dec-07 13:00	1.7	Dec-02	100%
SO <sub>2</sub> (ppb)	172	48	Valleyview	0.7	0	0	18.0	Dec-29 20:00	4.1	Dec-21	100%
SO <sub>2</sub> (ppb)	172	48	Sunset House	0.6	0	0	8.2	Dec-08 22:00	2.1	Dec-26	100%
NO (ppb)			Henry Pirker	15.4	0	0	154.8	Dec-28 11:00	44.5	Dec-28	100%
NO <sub>2</sub> (ppb)	159	106	Henry Pirker	18.9	0	0	59.1	Dec-28 19:00	34.2	Dec-15	100%
NO <sub>x</sub> (ppb)			Henry Pirker	34.3	0	0	206.9	Dec-10 20:00	75.2	Dec-28	100%
NO (ppb)			Beaverlodge	2.7	0	0	42.1	Dec-19 14:00	15.3	Dec-19	100%
NO <sub>2</sub> (ppb)	159	106	Beaverlodge	8.6	0	0	40.2	Dec-15 21:00	21.4	Dec-19	100%
NO <sub>x</sub> (ppb)			Beaverlodge	11.3	0	0	81.1	Dec-15 21:00	36.8	Dec-19	100%
NO (ppb)			Sunset House	0.3	0	0	5.9	Dec-20 13:00	1.2	Dec-20	100%
NO <sub>2</sub> (ppb)	159	106	Sunset House	3.4	0	0	18.5	Dec-20 09:00	7.5	Dec-04	100%
NO <sub>x</sub> (ppb)			Sunset House	3.7	0	0	18.9	Dec-20 09:00	8.6	Dec-20	100%
O <sub>3</sub> (ppb)	82		Henry Pirker	13.6	0	-	37.5	Dec-31 23:00	27.9	Dec-21	100%
O <sub>3</sub> (ppb) - 8-hr			Henry Pirker		0				36.8	Jan-01	
O <sub>3</sub> (ppb)	82		Beaverlodge	22.6	0	-	43.4	Dec-10 14:00	40.8	Dec-31	100%
O <sub>3</sub> (ppb) - 8-hr			Beaverlodge		0				41.9	Dec-31	
O <sub>3</sub> (ppb)	82		Sunset House	27.0	0	-	42.5	Dec-13 12:00	38.6	Dec-15	100%
O <sub>3</sub> (ppb) - 8-hr			Sunset House		0				40.8	Dec-19	
CO (ppm)	13		Henry Pirker	0.27	0	-	1.7	Dec-10 20:00	0.5	Dec-28	100%
CO (ppm) - 8-hr		5	Henry Pirker		0				0.8	Dec-10	
THC (ppm)			Henry Pirker	2.54	-	-	3.6	Dec-09 05:00	3.0	Dec-09	33%
TRS (ppb)			Henry Pirker	0.6	-	-	1.9	Dec-09 04:00	1.1	Dec-27	100%
TRS (ppb)			Evergreen Park	0.6	-	-	1.9	Dec-28 21:00	1.0	Dec-16	100%
TRS (ppb)			Smoky Heights	0.2	-	-	0.8	Dec-28 05:00	0.5	Dec-28	100%
TRS (ppb)			Sunset House	0.3	-	-	1.8	Dec-11 20:00	0.9	Dec-17	100%
H <sub>2</sub> S (ppb)	10	3	Valleyview	0.0	0	0	3.7	Jan-01 00:00	0.2	Dec-31	100%
PM2.5 (µg/m3)	80	30	Henry Pirker	7.8	0	0	46.0	Dec-03 19:00	14.7	Dec-16	99%
PM2.5 (µg/m3)	80	30	Evergreen Park	4.1	0	0	24.4	Dec-19 15:00	11.9	Dec-19	97%
PM2.5 (µg/m3)	80	30	Smoky Heights	4.2	1	0	99.3	Dec-04 01:00	14.2	Dec-04	100%
PM2.5 (µg/m3)	80	30	Beaverlodge	7.2	0	0	72.5	Dec-07 09:00	27.1	Dec-07	100%
PM2.5 (µg/m3)	80	30	Sunset House	2.6	0	0	66.0	Dec-18 22:00	6.6	Dec-18	100%

## PAZA Monthly Continuous Data Summary – continued

Dec-2012		Peace Airshed Zone Association				Maximum Recorded Values				
						1-hr		24-hr / 8-hr		
RH (%)		Henry Pirker	67.9	-	-	88.5	Dec-11 01:00	75.4	Dec-29	100%
RH (%)		Evergreen Park	75.3	-	-	95.1	Dec-11 01:00	81.3	Dec-29	100%
RH (%)		Beaverlodge	82.2	-	-	100.0	Dec-10 23:00	89.7	Dec-17	100%
RH (%)		Valleyview	76.5	-	-	95.3	Dec-11 04:00	86.2	Dec-11	100%
SR (W/m <sup>2</sup> )		Henry Pirker	18.9	-	-	185.3	Dec-10 13:00	33.3	Dec-14	100%
Temp (°C)		Henry Pirker	-18.1	-	-	3.0	Dec-31 16:00	-2.0	Dec-10	100%
Temp (°C)		Evergreen Park	-17.5	-	-	3.4	Dec-31 16:00	-0.1	Dec-10	100%
Temp (°C)		Smoky Heights	-17.8	-	-	2.4	Dec-11 08:00	-5.2	Dec-10	100%
Temp (°C)		Beaverlodge	-15.5	-	-	2.9	Dec-31 14:00	-0.4	Dec-10	100%
Temp (°C)		Valleyview	-16.4	-	-	3.0	Dec-31 17:00	-2.0	Dec-10	100%
Temp (°C)		Sunset House	-13.7	-	-	0.8	Dec-31 15:00	-2.7	Dec-31	100%
WSPD s (km/hr)		Henry Pirker	6.7	-	-	31.0	Dec-31 17:00	13.8	Dec-21	100%
WSPD s (km/hr)		Evergreen Park	8.6	-	-	55.0	Dec-31 21:00	19.6	Dec-31	99%
WSPD s (km/hr)		Smoky Heights	10.8	-	-	41.0	Dec-13 18:00	20.9	Dec-13	100%
WSPD s (km/hr)		Beaverlodge	8.6	-	-	45.0	Dec-13 11:00	20.5	Dec-13	100%
WSPD s (km/hr)		Valleyview	3.5	-	-	54.0	Dec-11 04:00	15.4	Dec-11	100%
WSPD s (km/hr)		Sunset House	9.8	-	-	29.0	Dec-15 12:00	19.9	Dec-15	100%
WSPD v (km/hr)		Henry Pirker	3.1	-	-	31.0	Dec-31 17:00	12.6	Dec-21	100%
WSPD v (km/hr)		Evergreen Park	3.4	-	-	55.0	Dec-31 21:00	18.5	Dec-10	99%
WSPD v (km/hr)		Smoky Heights	3.2	-	-	41.0	Dec-13 18:00	20.0	Dec-13	100%
WSPD v (km/hr)		Beaverlodge	4.1	-	-	44.0	Dec-13 11:00	18.8	Dec-13	100%
WSPD v (km/hr)		Valleyview	1.1	-	-	51.0	Dec-11 04:00	11.5	Dec-11	100%
WSPD v (km/hr)		Sunset House	4.6	-	-	29.0	Dec-15 12:00	19.8	Dec-15	100%
WDIR		Henry Pirker	NW	-	-	-	-	-	-	100%
WDIR		Evergreen Park	WNW	-	-	-	-	-	-	99%
WDIR		Smoky Heights	WNW	-	-	-	-	-	-	100%
WDIR		Beaverlodge	WNW	-	-	-	-	-	-	100%
WDIR		Valleyview	WNW	-	-	-	-	-	-	100%
WDIR		Sunset House	S	-	-	-	-	-	-	100%



# Continuous Network Equipment Summary

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## PAZA – Henry Pirker Station

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### General Station Issues

Routine monthly calibrations were performed on December 5<sup>th</sup> (CO, THC) and December 6<sup>th</sup> (SO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>, TRS). Station experienced power outage, causing loss of two (2) hours of data.

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Parameter	Make	Model	Notes
SO <sub>2</sub>	TEI	43C	No operational issues observed.
NO <sub>x</sub> /NO/NO <sub>2</sub>	TEI	42C	No operational issues observed.
O <sub>3</sub>	TEI	49C	No operational issues observed.
CO	TEI	48C	No operational issues observed.
THC	TEI	51-CLT	The analyzer was replaced on December 12 <sup>th</sup> . Internal pump failed, replacement ordered and analyzer will return to operation when repairs complete. <b>AE Reference #266707.</b>
TRS	TEI	45C/43C	No operational issues observed.
PM <sub>2.5</sub>	Sharp	5030	Analyzer intermittently failed to communicate with datalogger, causing loss of nine (9) hours of data.
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.

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**PAZA – Evergreen Park Station**

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**General Station Issues**

Routine monthly calibration performed on December 24<sup>th</sup> (SO<sub>2</sub>, TRS and PM<sub>2.5</sub>).

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<b>Parameter</b>	<b>Make</b>	<b>Model</b>	<b>Notes</b>
SO <sub>2</sub>	TEI	43i	No operational issues observed.
TRS	TEI	43C	No operational issues observed.
PM <sub>2.5</sub>	R&P	1400AB	Analyzer instability caused loss of data during the month.
ET	Met One/Gill	083D	No operational issues observed.
RH	Met One/Gill		No operational issues observed.
WS / WD	Met One/ Gill		Wind head failed to measure valid data likely due to icing conditions, eleven (11) hours of data lost.

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**PAZA – Smoky Heights Station**

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**General Station Issues**

Routine monthly calibration performed on December 30<sup>th</sup> (SO<sub>2</sub> and TRS).

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<b>Parameter</b>	<b>Make</b>	<b>Model</b>	<b>Notes</b>
SO <sub>2</sub>	TEI	43C	No operational issues observed.
TRS	TEI	43C	No operational issues observed.
PM <sub>2.5</sub>	R&P	1400AB	One (1) 1-hour exceedence was recorded on December 4 <sup>th</sup> <b>AE Reference #265434</b>
ET	Met One	083D	No operational issues observed.
WS / WD	Met One	010C/020C	No operational issues observed.

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**PAZA – Beaverlodge Station**

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**General Station Issues**

Routine monthly calibrations performed on December 21<sup>st</sup> (SO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub> and PM<sub>2.5</sub>).

<b>Parameter</b>	<b>Make</b>	<b>Model</b>	<b>Notes</b>
SO <sub>2</sub>	TEI	43CTL	No operational issues observed.
NO <sub>x</sub> /NO/NO <sub>2</sub>	TEI	42C	No operational issues observed.
O <sub>3</sub>	TEI	49C	No operational issues observed.
PM <sub>2.5</sub>	R&P	1400AB	No operational issues observed.
ET	n/a	n/a	Three (3) hours of data lost due to failure of datalogger to record.
RH	n/a	n/a	Three (3) hours of data lost due to failure of datalogger to record.
WS / WD	Blue Sky	857	No operational issues observed.

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**PAZA – Valleyview Station**

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**General Station Issues**

Routine monthly calibrations were performed on December 14<sup>th</sup> (SO<sub>2</sub> & H<sub>2</sub>S).

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<b>Parameter</b>	<b>Make</b>	<b>Model</b>	<b>Notes</b>
SO <sub>2</sub>	TEI	43i	No operational issues observed.
H <sub>2</sub> S	TEI	43A	Irregular analyzer operation on December 29 <sup>th</sup> invalidated three (3) hours of data.
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.

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**PAZA – Portable-Sunset House Station**

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**General Station Issues**

Routine monthly calibrations were performed on December 13<sup>th</sup> (SO<sub>2</sub>, O<sub>3</sub>, NO<sub>x</sub>, TRS).

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<b>Parameter</b>	<b>Make</b>	<b>Model</b>	<b>Notes</b>
SO <sub>2</sub>	TEI	43i	No operational issues observed.
O <sub>3</sub>	TEI	49C	No operational issues observed.
TRS	TEI	39C	Maintenance done on December 12 <sup>th</sup> .
PM <sub>2.5</sub>	R&P	1400AB	One (1) hour was invalidated due to negative swings.
ET	Gill	Met Pak 3	No operational issues observed.
WS / WD	Gill	Met Pak 3	No operational issues observed.

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PAZA

Henry Pirker Station

Monthly Summary Tables, Graphs and  
Roses

## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

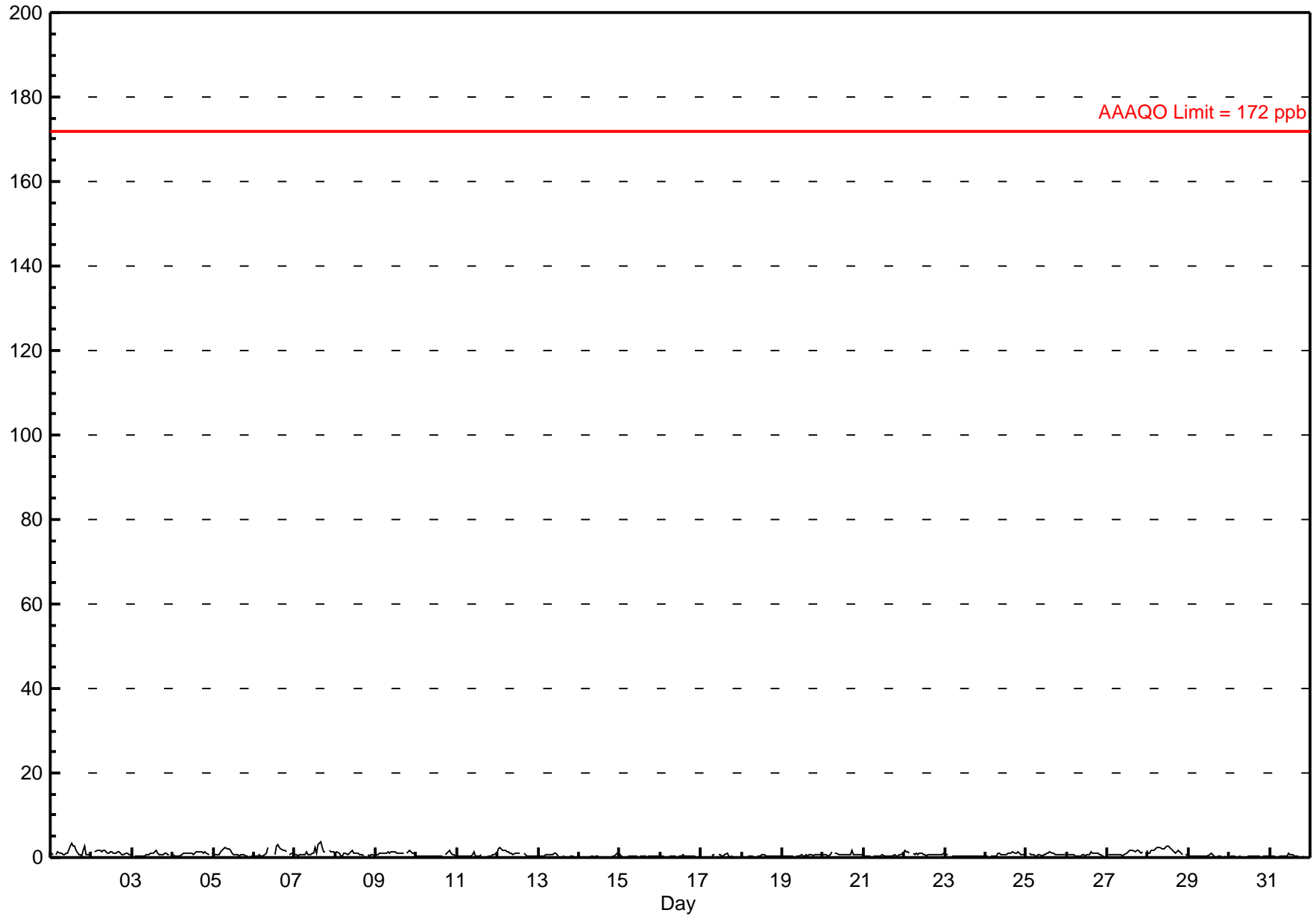
Henry Pirker - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.7 ppb on Dec 7 16:00	Maximum Daily Average: 1.7 ppb on Dec 28		Hours of Data:	706
Minimum Value: 0 ppb on Dec 14 02:00	Minimum Daily Average: 0.2 ppb on Dec 14		Hours of Missing Data:	38
Maximum Diurnal Average: 1.0 ppb at hour 15	Minimum Diurnal Average: 0.5 ppb at hour 23		Hours of Calibration:	36
Monthly Average: 0.72 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.6 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 1.5 P <sub>99</sub> = 2.7		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	1	1	A	1	1	1	1	1	1	1	1	3	3	3	3	2	1	1	1	2	3	1	1	1	1.4	3.5
2-Dec	1	A	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	1.8
3-Dec	A	0	0	0	0	0	0	0	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	A	0.8	1.8
4-Dec	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.9	1.5
5-Dec	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	0	1	1	1	0	0	A	0	0	1.0	2.4
6-Dec	0	0	0	1	1	0	1	1	2	C	C	C	1	3	3	2	2	2	2	1	A	1	1	1	1.3	2.9
7-Dec	1	1	0	1	1	1	1	1	1	1	1	1	2	1	3	4	2	1	1	A	2	1	1	1	1.3	3.7
8-Dec	1	1	1	0	0	1	1	1	1	1	2	1	1	1	1	1	1	0	A	1	0	1	1	0	0.8	1.7
9-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	2	1	1	1	1.0	1.6
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	2	1	1	1	0	0.6	1.7
11-Dec	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	A	0	0	0	0	0	1	1	1	0.4	1.4
12-Dec	2	2	2	2	2	1	1	1	1	1	1	1	1	1	A	1	1	0	0	0	0	0	0	0	1.0	2.3
13-Dec	0	0	0	0	1	1	1	1	1	1	1	0	A	0	0	0	N	N	0	0	0	0	0	0	0.5	1.0
14-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	1	0.2	0.9
15-Dec	1	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.8
16-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	1	0	0	0	0	0	0	0	0	0	0	0.3	0.5
17-Dec	0	0	0	0	0	0	0	1	1	A	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0.3	0.9
18-Dec	0	0	0	0	0	0	0	0	1	A	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0.4	0.6
19-Dec	0	0	0	0	0	0	0	A	0	0	0	1	0	0	1	0	1	1	0	1	1	1	1	1	0.5	0.8
20-Dec	1	1	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	0.7	1.8
21-Dec	0	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	1	1	1	0.5	0.9
22-Dec	2	2	1	1	A	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0.9	1.6
23-Dec	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.9
24-Dec	0	0	A	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
25-Dec	1	A	1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.3
26-Dec	A	1	1	1	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	0	0	A	0.7	1.3
27-Dec	1	1	1	1	1	1	1	1	1	1	0	1	1	1	2	2	2	1	2	2	1	1	2	A	1.1	1.7
28-Dec	1	1	2	2	2	2	2	2	2	2	3	3	3	2	2	1	1	1	2	1	1	A	1	1	1.7	2.6
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	A	0	0	0.3	0.9
30-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	0.5
31-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	A	0	0	0	0	0.3	1.0

C - Calibration      N - Not Valid      A - Automated Daily Zero Span  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb    30-day 11 ppb





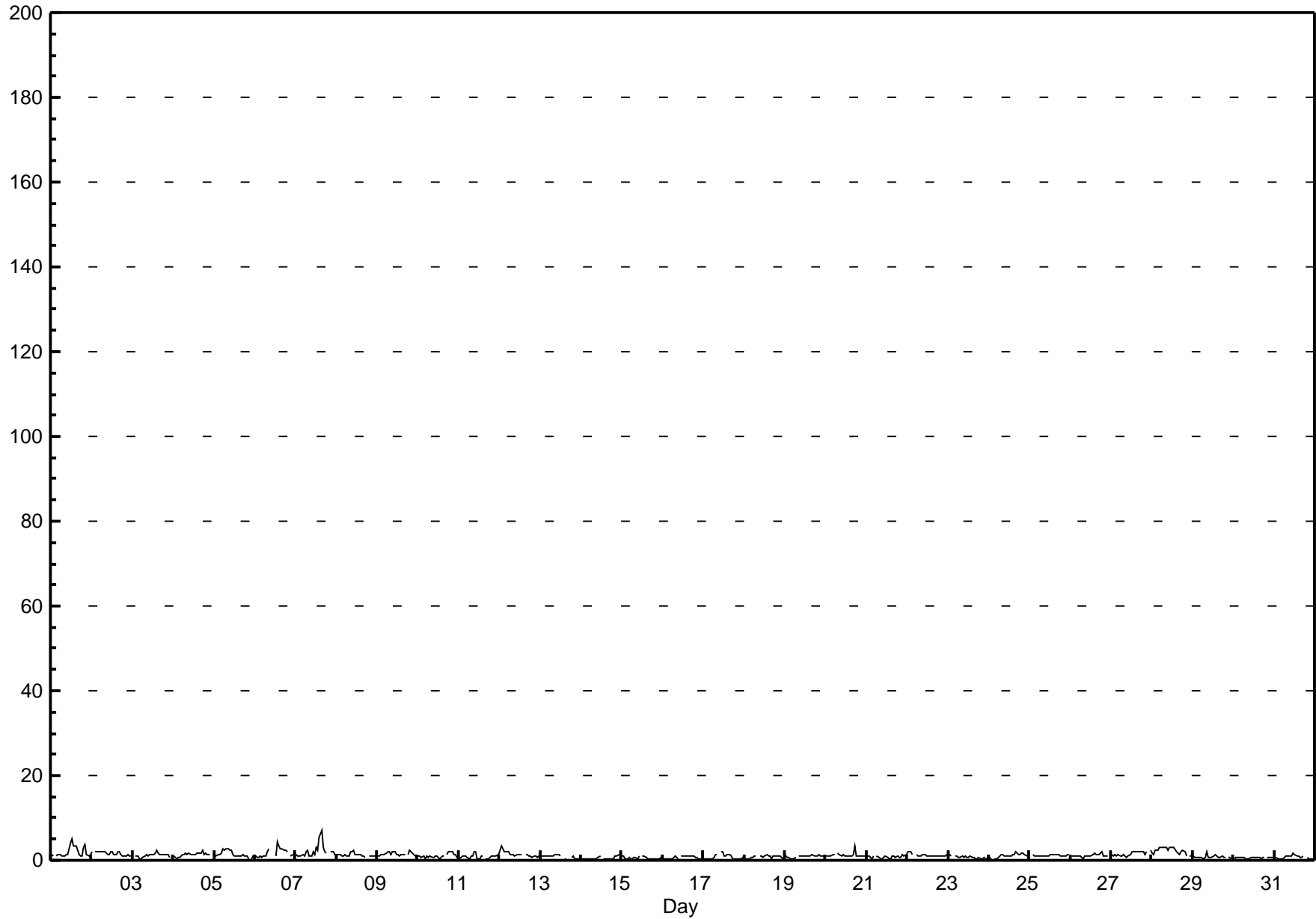
## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Henry Pirker - December 2012

Maximum Value: 7.0 ppb on Dec 7 16:00		Maximum Daily Average: 2.2 ppb on Dec 28		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 30 00:00		Minimum Daily Average: 0.5 ppb on Dec 14		Hours of Data: 706																							
Maximum Diurnal Average: 1.4 ppb at hour 15		Minimum Diurnal Average: 0.9 ppb at hour 23		Hours of Missing Data: 38																							
Monthly Average: 1.15 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.7 Median = 1.0 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 2.0 P <sub>99</sub> = 3.4		Hours of Calibration: 36																							
Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.7 Median = 1.0 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 2.0 P <sub>99</sub> = 3.4		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	1	1	A	1	2	1	1	1	1	1	1	4	5	3	3	3	1	1	1	3	4	1	1	1	2.0	5.0	
2-Dec	2	A	2	2	2	2	2	2	2	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	1.6	2.2	
3-Dec	A	1	1	1	0	0	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	A	1.2	2.3	
4-Dec	1	1	0	1	1	1	1	2	1	2	1	1	1	1	2	2	2	2	1	2	1	1	A	1	1.3	2.3	
5-Dec	1	1	1	1	2	3	2	3	3	2	2	1	1	1	1	1	1	1	1	1	0	A	0	1	1.4	2.9	
6-Dec	1	1	1	1	1	1	1	2	3	C	C	C	1	4	3	3	3	2	2	2	A	1	1	1	1.8	4.3	
7-Dec	1	1	1	1	1	1	2	2	1	1	2	1	3	2	5	7	3	2	2	A	2	2	2	1	2.1	7.0	
8-Dec	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	A	A	1	1	1	1	1.3	2.5	
9-Dec	1	1	1	1	1	2	2	2	1	2	2	1	1	1	1	1	1	A	1	2	2	1	1	1	1.5	2.4	
10-Dec	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	A	A	1	2	2	2	1	1	1.0	2.2	
11-Dec	0	1	1	1	1	1	0	1	1	2	2	0	0	1	1	A	0	0	1	1	1	1	1	1	0.9	2.0	
12-Dec	2	3	3	2	2	2	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1.5	3.4	
13-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0	0	N	N	1	1	0	0	0	0	0.8	1.4	
14-Dec	0	0	0	0	0	0	0	0	0	0	1	1	A	0	0	0	0	0	0	0	0	1	1	1	0.5	1.4	
15-Dec	1	1	0	0	1	0	0	1	1	0	1	A	1	1	1	0	0	0	0	0	0	0	0	0	0.6	0.9	
16-Dec	0	0	0	0	0	0	0	1	1	0	A	1	1	1	1	1	1	1	1	1	1	0	0	0	0.6	0.9	
17-Dec	0	0	0	0	0	0	1	1	1	1	A	2	2	1	1	1	1	0	0	0	0	0	0	1	0.8	1.9	
18-Dec	0	0	0	0	1	1	1	1	1	1	A	1	1	1	1	1	0	1	1	1	1	1	1	0	0.8	1.4	
19-Dec	1	1	1	0	0	0	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.5	
20-Dec	1	1	1	1	1	1	A	2	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1.2	3.5	
21-Dec	1	1	1	0	1	A	1	1	0	0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0.8	1.5	
22-Dec	2	2	2	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	2.0	
23-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	0	0.7	1.4	
24-Dec	1	0	A	0	0	0	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1.1	1.9	
25-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.4	
26-Dec	A	1	1	1	1	1	1	0	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	A	1.1	1.9	
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	2	A	2	1.5	2.4
28-Dec	2	1	2	2	3	3	3	3	3	2	3	3	3	3	2	2	1	2	2	2	2	1	A	1	2.2	3.2	
29-Dec	1	1	1	1	1	1	0	1	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	0.8	2.1	
30-Dec	0	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1	1	A	1	1	1	1	0.6	0.8	
31-Dec	0	1	0	0	0	0	1	1	1	1	1	2	1	1	1	1	1	1	A	1	0	0	0	0	0.7	1.7	
	1.1	1.0	1.0	0.9	1.0	1.1	1.1	1.2	1.3	1.1	1.3	1.3	1.3	1.4	1.4	1.4	1.2	1.2	1.1	1.1	1.1	1.0	0.9	1.0	Diurnal Average		
	2.4	3.4	2.6	2.3	2.9	2.9	2.9	2.9	2.9	2.4	2.9	4.0	5.0	4.3	5.5	7.0	3.0	3.5	2.5	3.0	3.6	2.0	2.0	2.4	Diurnal Maximum		
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																			

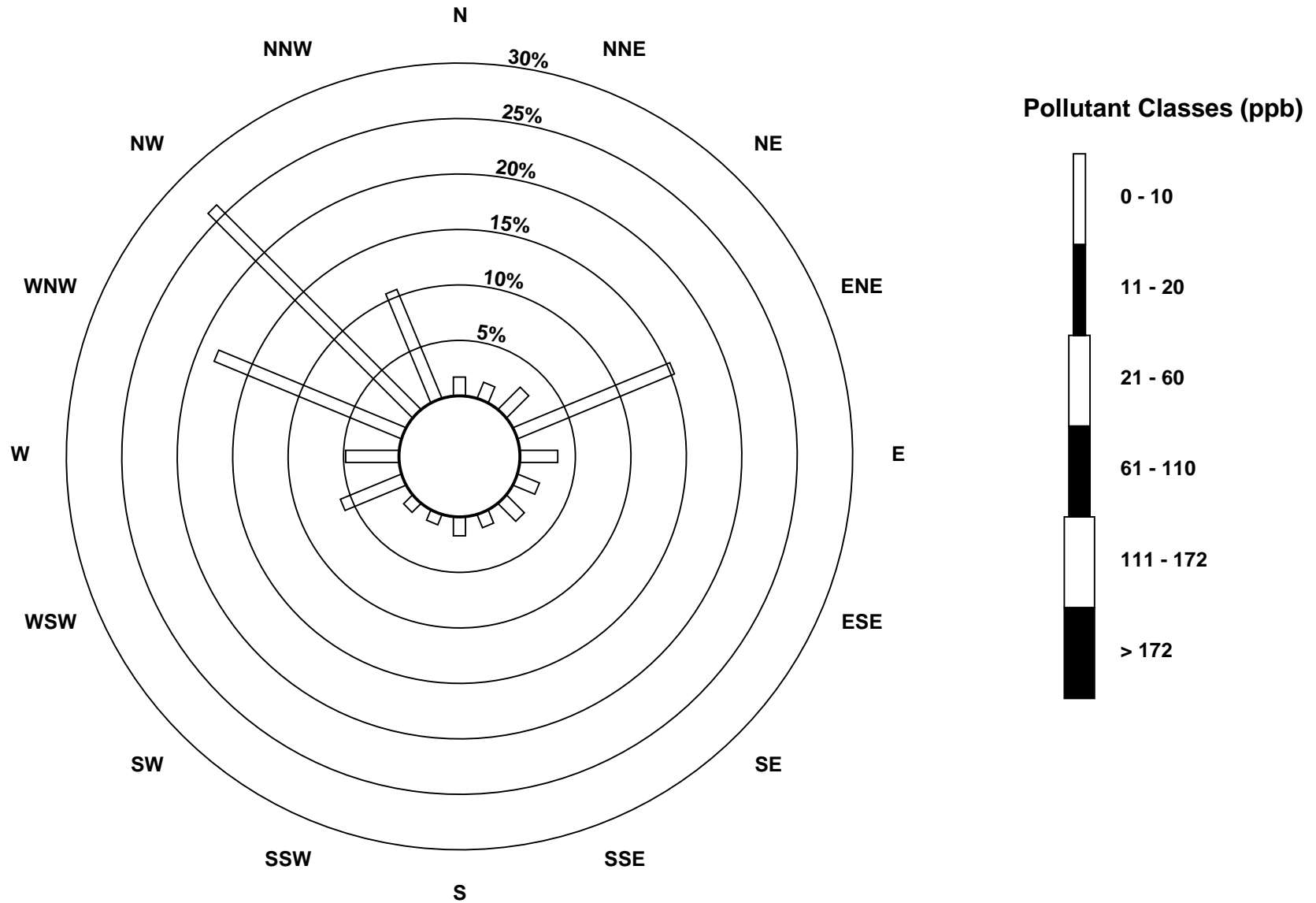
### Hourly Maximums

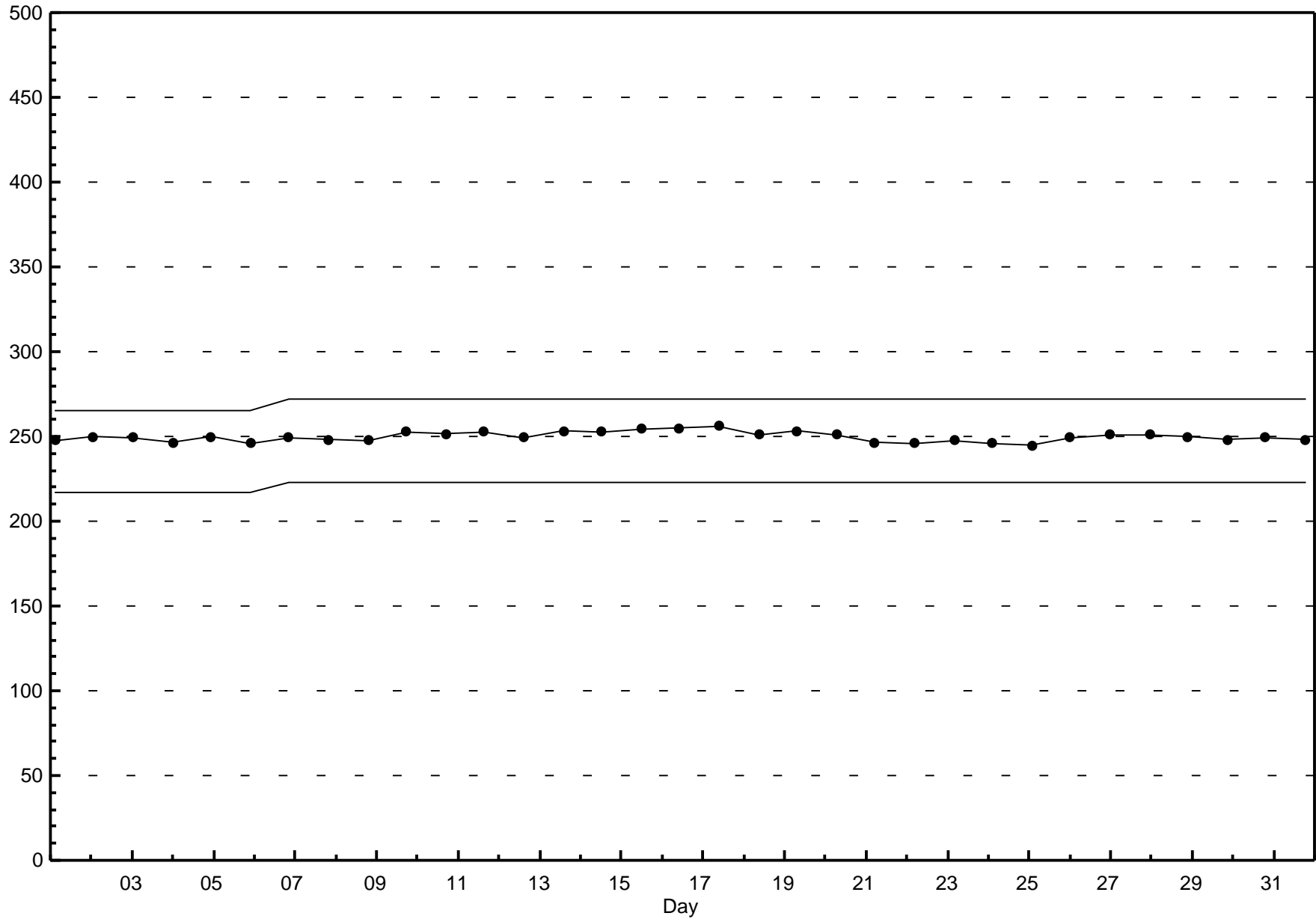
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Henry Pirker - December 2012



**Pollutant Rose**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Henry Pirker - December 2012**





## Hourly Averages

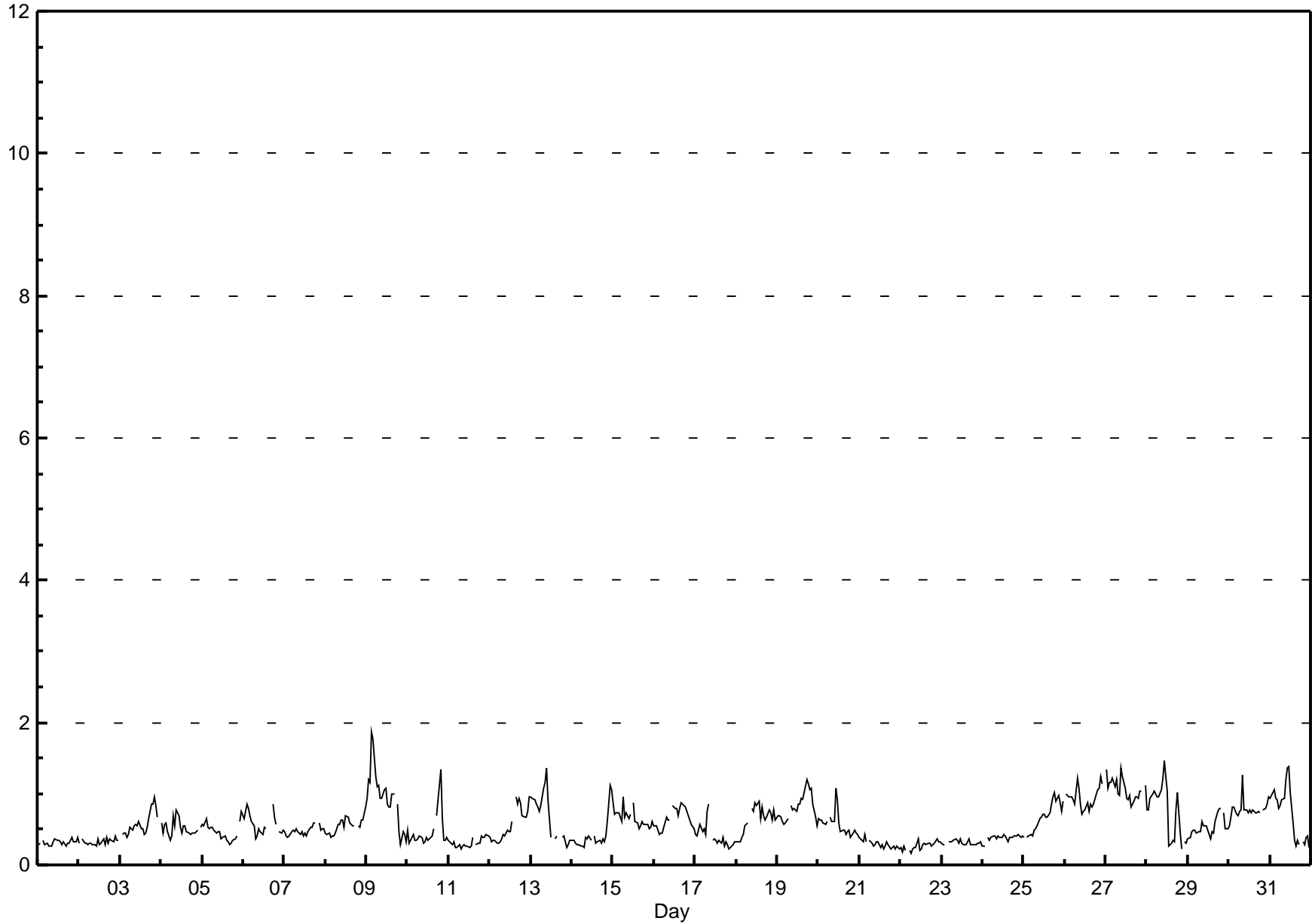
## Total Reduced Sulphur (TRS) - ppb

### Henry Pirker - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.9 ppb on Dec 9 04:00	Maximum Daily Average: 1.1 ppb on Dec 27		Hours of Data:	706
Minimum Value: 0 ppb on Dec 22 07:00	Minimum Daily Average: 0.3 ppb on Dec 22		Hours of Missing Data:	38
Maximum Diurnal Average: 0.6 ppb at hour 11	Minimum Diurnal Average: 0.5 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 0.57 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.3 Median = 0.5 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 1.0 P <sub>99</sub> = 1.4		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	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
2-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
3-Dec	A	0	0	0	0	0	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	A	0.6	1.0
4-Dec	1	0	1	1	0	0	0	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	A	0.5	0.8
5-Dec	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0.5	0.7	
6-Dec	1	1	1	1	1	1	1	0	0	1	0	0	1	1	C	C	C	1	1	1	A	0	0	0.6	0.9	
7-Dec	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	A	1	0	1	0.5	0.6	
8-Dec	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.6	0.8	
9-Dec	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	0	0	0	0.9	1.9	
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	1	1	1	0	0	0.5	1.3	
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.3	0.4	
12-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	A	1	1	1	1	1	1	1	1	0.6	1.0	
13-Dec	1	1	1	1	1	1	1	1	1	1	1	0	A	0	0	N	N	0	0	0	0	0	0	0.7	1.4	
14-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	1	0.4	1.1	
15-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
16-Dec	1	1	0	0	0	0	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0	0.7	0.9	
17-Dec	0	0	0	1	0	1	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.9	
18-Dec	0	0	0	0	0	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.9	
19-Dec	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	1.2	
20-Dec	1	1	1	1	1	1	A	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0.6	1.1	
21-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	
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	0.3	0.4	
23-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	
24-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.4	
25-Dec	0	A	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
26-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.9	1.2	
27-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	1.4	
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	A	0	0.8	1.5	
29-Dec	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	A	1	0.5	0.8	
30-Dec	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	1.3	
31-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	A	0	0	0	0	0.7	1.4	

C - Calibration      N - Not Valid      A - Automated Daily Zero Span  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb      24-hr 3 ppb



## Hourly Maximums

Total Reduced Sulphur (TRS) - ppb

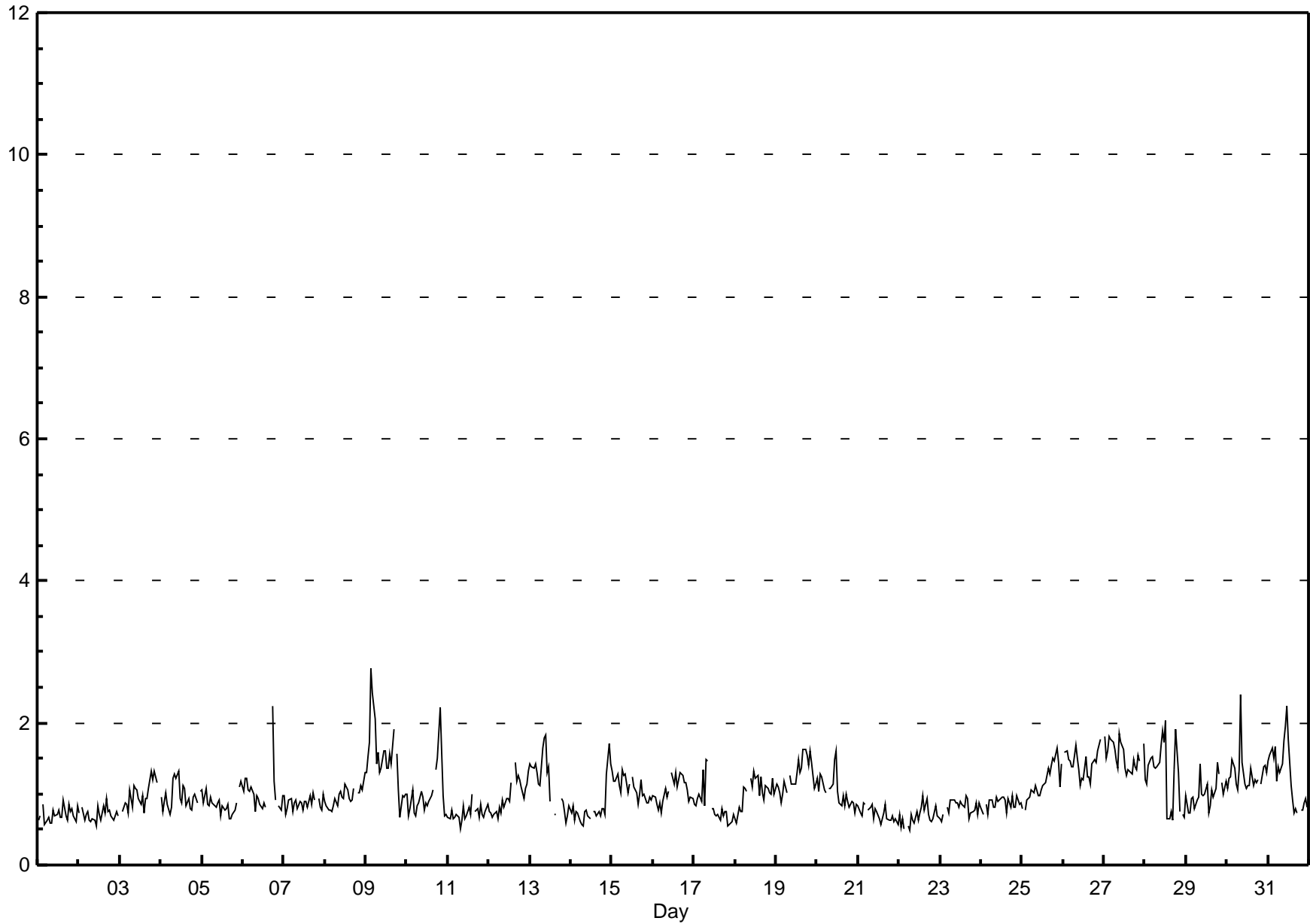
Henry Pirker - December 2012

Maximum Value: 2.8 ppb on Dec 9 04:00		Maximum Daily Average: 1.5 ppb on Dec 27		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 22 07:00		Minimum Daily Average: 0.7 ppb on Dec 22		Hours of Data: 706																							
Maximum Diurnal Average: 1.1 ppb at hour 9		Minimum Diurnal Average: 1.0 ppb at hour 23		Hours of Missing Data: 38																							
Monthly Average: 1.02 ppb		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 0.8 Median = 0.9 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 1.5 P <sub>99</sub> = 2.0		Hours of Calibration: 36																							
		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	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	0.9	
2-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
3-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1.0	1.3	
4-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	1.3	
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.9	1.2	
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	C	2	1	1	A	1	1	1	1	1.0	2.2	
7-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.9	1.0	
8-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1.0	1.3	
9-Dec	1	2	2	3	2	2	2	1	2	1	2	2	1	2	1	2	2	A	2	1	1	1	1	1	1.5	2.8	
10-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	2	2	2	1	1	1	1.0	2.2	
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.7	1.0	
12-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	1.0	1.4	
13-Dec	1	1	1	1	1	1	1	2	2	2	1	1	1	A	1	1	N	N	1	1	1	1	1	1	1.1	1.8	
14-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	2	1	0.8	1.7	
15-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.3	
16-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.3	
17-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.5	
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.3	
19-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1.3	1.6	
20-Dec	1	1	1	1	1	1	A	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.6	
21-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
22-Dec	1	1	1	1	A	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
23-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0	
24-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.0	
25-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1.2	1.7	
26-Dec	A	2	2	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	1	1	2	2	2	A	1.4	1.8	
27-Dec	2	2	2	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1	2	1	A	2	1.5	1.8	
28-Dec	1	1	1	2	2	1	1	1	1	2	2	2	1	1	1	1	1	1	2	1	1	A	1	1	1.3	2.0	
29-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	1.4	
30-Dec	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1.3	2.4	
31-Dec	1	2	2	2	2	1	1	1	1	2	2	2	1	1	1	1	1	1	A	1	1	1	1	1	1.3	2.2	
		1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	Diurnal Average		
		1.8	1.6	1.7	2.8	2.4	2.1	1.6	1.7	2.4	1.8	2.0	2.2	2.0	1.5	1.6	1.4	1.9	2.2	1.9	2.2	1.7	1.7	1.8	1.7	Diurnal Maximum	
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																			



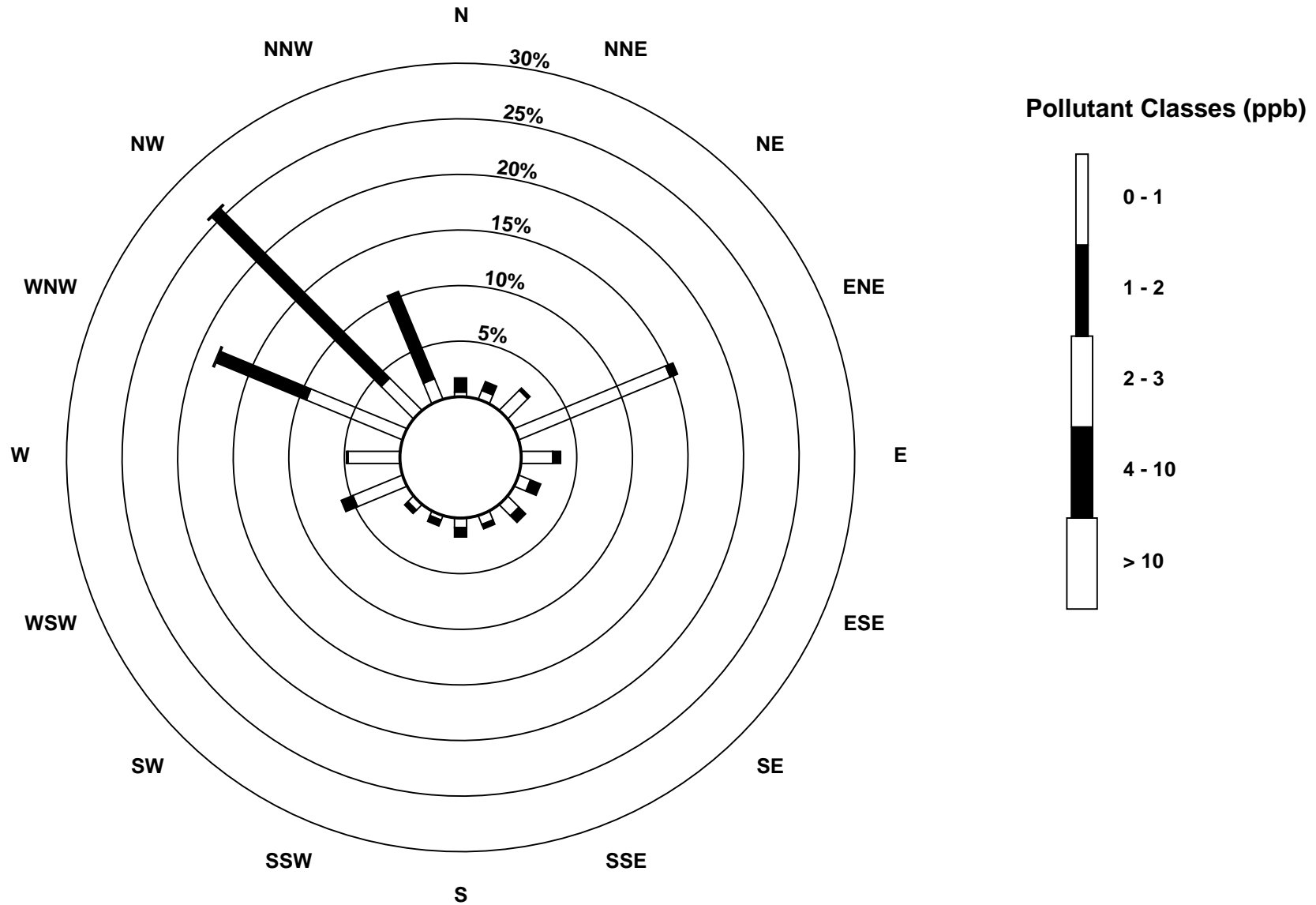
**Hourly Maximums**

**Total Reduced Sulphur (TRS) - ppb**  
**Henry Pirker - December 2012**



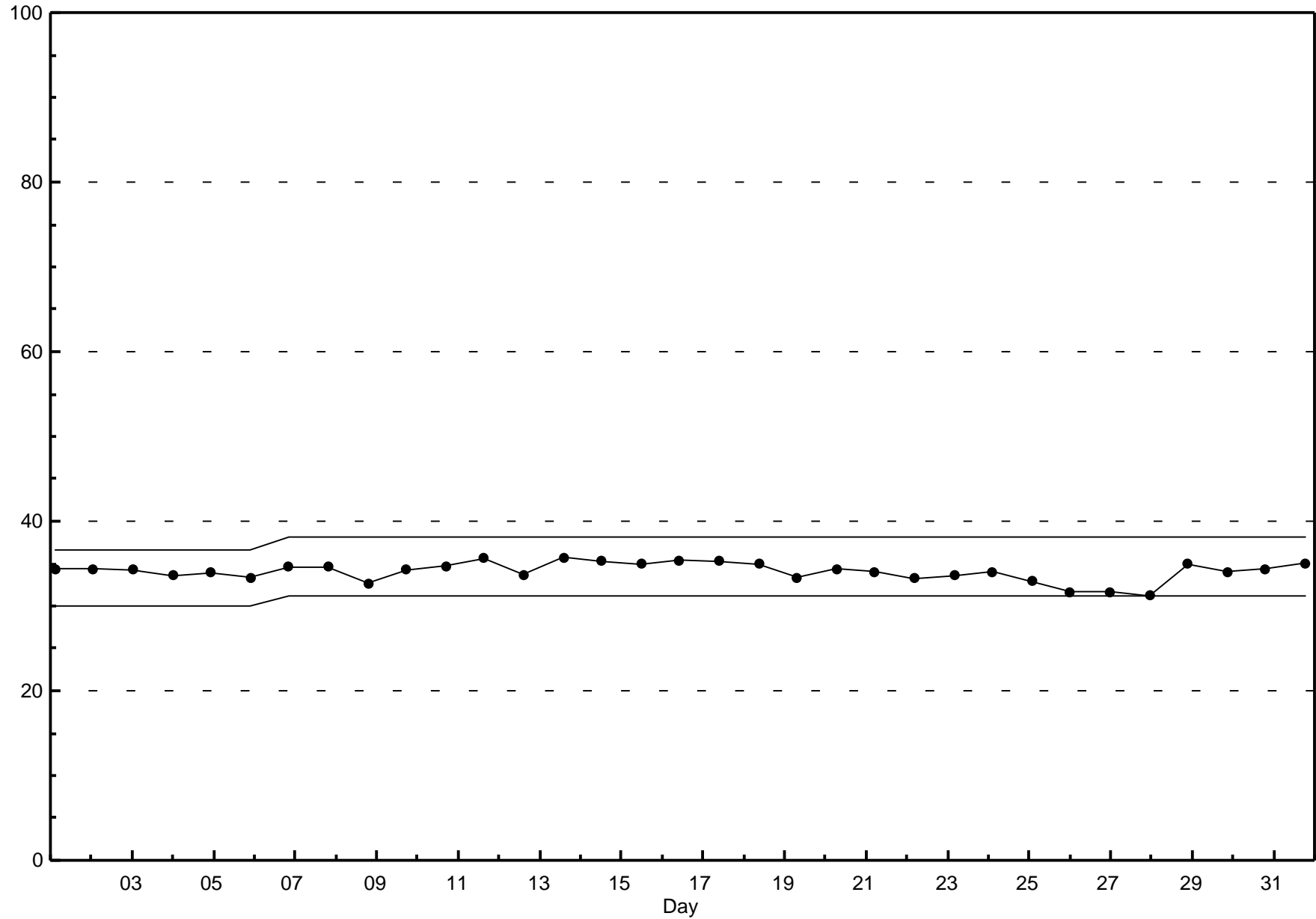
**Pollutant Rose**

**Total Reduced Sulphur (TRS) - ppb**  
**Henry Pirker - December 2012**



### Span Responses

Total Reduced Sulphur (TRS)  
Henry Pirker - December 2012



## Hourly Averages

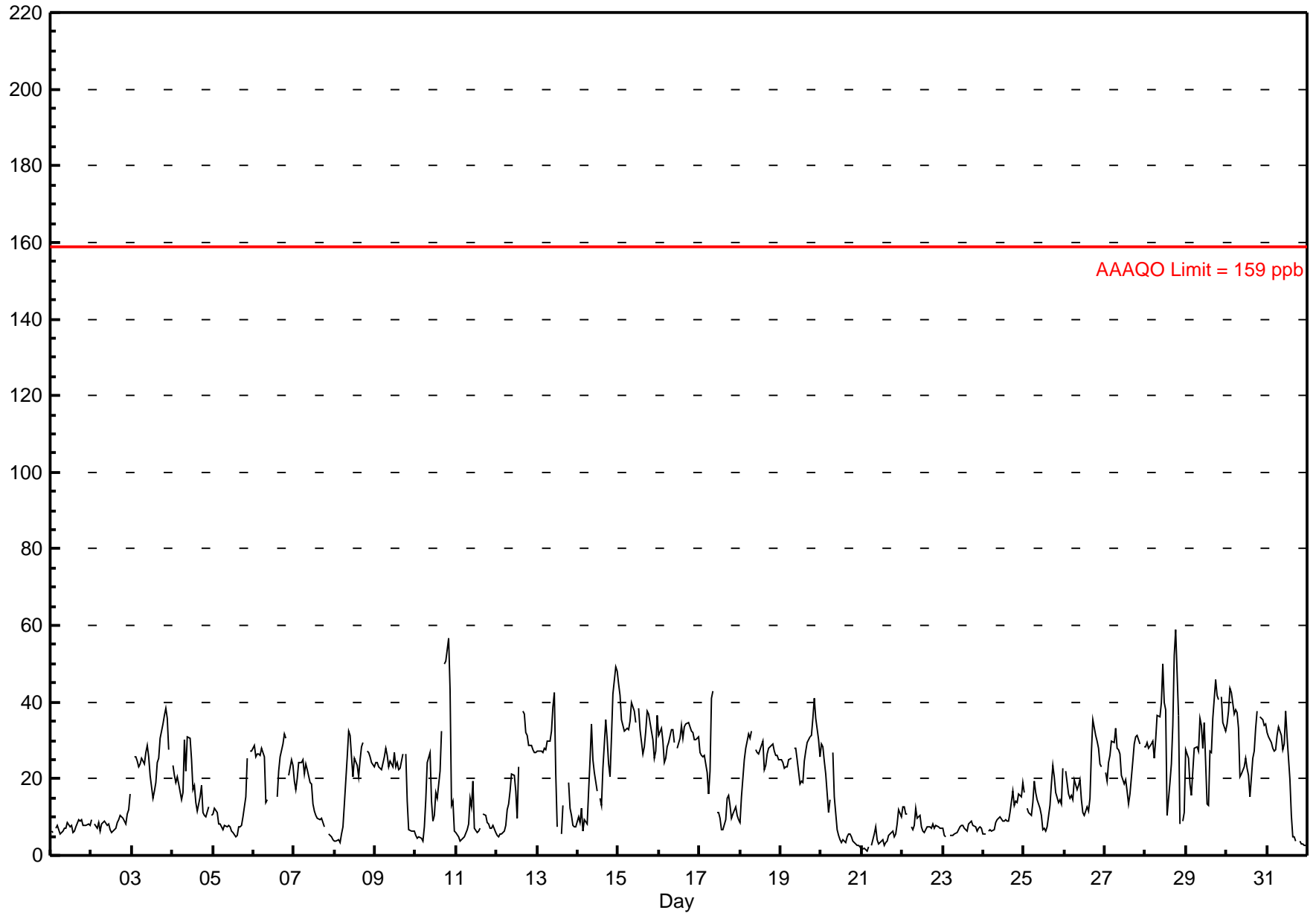
## Nitrogen Dioxide (NO<sub>2</sub>) - ppb

### Henry Pirker - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 59.1 ppb on Dec 28 19:00	Maximum Daily Average: 34.2 ppb on Dec 15		Hours of Data:	704
Minimum Value: 1 ppb on Dec 21 04:00	Minimum Daily Average: 4.6 ppb on Dec 21		Hours of Missing Data:	40
Maximum Diurnal Average: 23.5 ppb at hour 18	Minimum Diurnal Average: 13.7 ppb at hour 15		Hours of Calibration:	38
Monthly Average: 18.91 ppb	Percentiles: P <sub>1</sub> = 2.5 P <sub>10</sub> = 5.6 Q <sub>1</sub> = 8.0 Median = 18.6 Q <sub>3</sub> = 27.7 P <sub>90</sub> = 33.7 P <sub>99</sub> = 49.0		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	6	6	A	7	8	6	6	7	7	7	9	8	8	6	6	7	9	9	9	8	8	8	8	8	7.4	9.3																							
2-Dec	9	A	8	7	8	6	8	9	9	8	8	7	6	6	7	9	9	11	10	10	8	11	12	16	8.8	16.2																							
3-Dec	A	26	26	25	23	24	25	24	27	29	26	21	15	17	19	24	25	30	34	37	39	36	27	A	26.3	38.6																							
4-Dec	24	21	19	21	19	14	17	30	22	31	30	25	17	18	14	12	15	18	11	10	10	13	A	10	18.3	30.8																							
5-Dec	11	12	11	8	8	8	7	8	7	8	7	6	6	5	5	8	7	8	10	15	25	A	27	27	10.7	27.4																							
6-Dec	29	26	27	27	26	28	26	14	15	C	C	C	C	C	15	22	26	29	32	31	A	21	25	23	24.4	31.8																							
7-Dec	19	17	20	24	24	25	21	24	22	19	19	13	12	11	10	9	10	9	8	A	6	5	5	4	14.6	25.0																							
8-Dec	4	4	4	3	5	7	13	26	33	31	26	20	25	23	21	25	28	30	A	27	27	26	24	23	19.8	32.6																							
9-Dec	24	24	23	23	23	26	28	26	23	24	23	27	23	24	22	23	26	A	26	14	7	6	6	6	20.8	28.0																							
10-Dec	5	5	5	4	4	7	15	24	27	14	9	11	17	15	22	32	A	50	51	57	43	13	14	7	19.6	56.8																							
11-Dec	6	5	4	4	4	5	7	8	15	13	19	7	6	6	7	A	11	11	9	8	7	7	8	6	7.9	19.5																							
12-Dec	5	5	5	6	6	8	12	13	17	21	21	17	10	23	A	38	37	32	31	29	29	27	27	27	19.4	37.6																							
13-Dec	27	27	27	27	28	28	30	30	32	39	42	21	8	A	6	13	N	N	19	12	10	8	8	7	21.4	42.5																							
14-Dec	10	8	12	6	9	8	17	25	34	25	22	17	A	15	13	23	35	30	24	20	31	42	49	48	22.8	49.3																							
15-Dec	45	42	36	33	33	33	33	35	40	38	35	A	38	33	26	28	32	38	37	35	30	25	27	36	34.2	44.9																							
16-Dec	31	33	30	24	25	29	30	33	33	30	A	28	31	34	31	34	34	35	34	32	32	30	30	31	31.0	34.8																							
17-Dec	27	26	26	26	22	16	22	41	43	A	11	11	10	7	7	9	15	16	13	10	11	13	10	9	17.4	42.9																							
18-Dec	9	15	25	28	30	32	31	33	A	28	27	27	28	30	22	23	26	28	28	29	27	26	26	25	26.2	32.6																							
19-Dec	25	24	23	23	23	25	25	A	28	28	25	19	19	19	25	27	30	31	31	36	41	36	30	26	26.9	41.2																							
20-Dec	29	28	25	21	11	15	A	27	15	7	5	4	4	4	3	5	6	5	5	4	3	3	2	2	10.1	29.0																							
21-Dec	2	2	1	1	2	A	3	5	7	4	3	3	4	3	3	4	5	6	6	5	6	8	12	10	4.6	11.9																							
22-Dec	13	13	11	11	A	7	7	8	12	10	10	7	6	6	7	8	7	7	8	7	8	8	7	7	8.5	12.9																							
23-Dec	7	5	5	A	5	5	5	6	6	7	8	8	8	7	6	8	9	9	8	7	6	7	7	7	6.8	8.9																							
24-Dec	6	6	A	6	7	6	7	9	9	10	10	9	9	9	9	9	11	17	13	14	14	16	15	19	10.4	19.0																							
25-Dec	16	A	12	11	11	14	20	16	15	12	10	7	7	6	8	13	18	23	21	16	14	14	13	23	14.0	23.4																							
26-Dec	A	22	16	15	16	15	20	17	18	20	14	11	11	13	11	15	27	35	31	30	28	24	23	A	19.6	35.4																							
27-Dec	22	19	24	26	30	29	33	28	28	27	21	19	20	17	14	16	25	29	31	31	30	29	A	28	25.0	33.4																							
28-Dec	28	30	28	29	30	25	30	37	36	40	50	40	38	10	19	24	34	52	59	37	8	A	9	11	30.6	59.1																							
29-Dec	28	25	19	16	22	28	28	27	36	34	28	35	13	13	27	27	36	46	42	41	A	41	35	32	29.5	46.0																							
30-Dec	34	38	44	42	37	38	37	33	21	21	23	25	23	21	15	25	27	33	38	A	36	35	34	34	31.1	43.8																							
31-Dec	32	31	29	28	27	28	31	34	31	28	29	38	31	20	10	5	5	4	A	4	3	3	3	3	19.8	37.6																							
																								18.4	18.8	18.7	17.7	17.5	18.1	19.8	21.8	22.3	21.0	19.7	16.9	15.5	14.5	13.7	17.5	20.2	23.5	23.4	21.2	18.8	18.7	18.1	17.9	Diurnal Average	
																								44.9	41.7	43.8	42.3	37.1	38.1	37.4	40.9	42.9	40.1	49.8	40.0	38.3	34.0	30.5	37.6	36.8	52.2	59.1	56.8	43.1	42.0	49.3	48.0	Diurnal Maximum	

C - Calibration      N - Not Valid      A - Automated Daily Zero Span  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb      24-hr 106 ppb



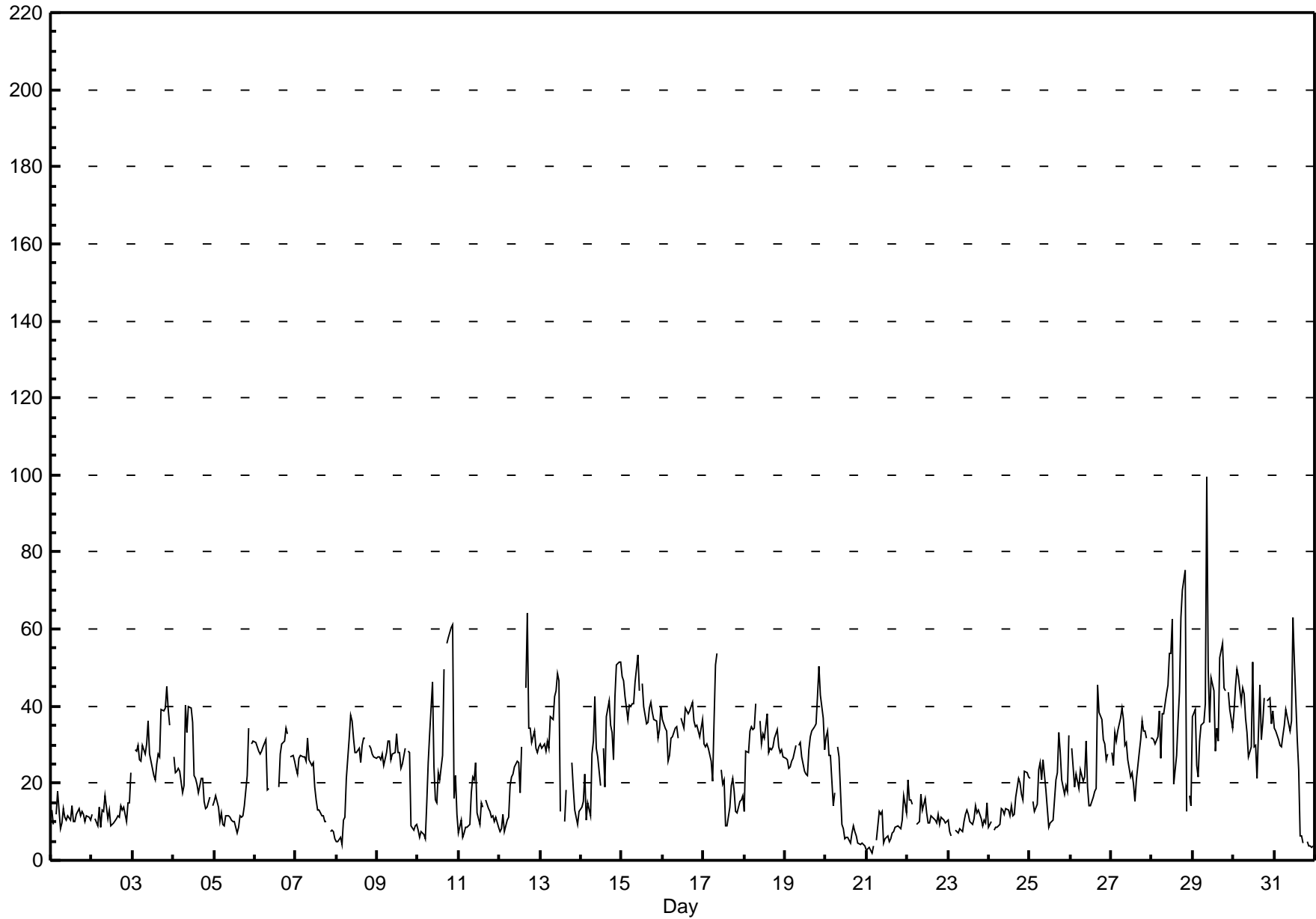
## Hourly Maximums

## Nitrogen Dioxide (NO<sub>2</sub>) - ppb Henry Pirker - December 2012

Maximum Value: 99.7 ppb on Dec 29 09:00		Maximum Daily Average: 41.3 ppb on Dec 29		Hours in Service: 744																						
Minimum Value: 2 ppb on Dec 21 04:00		Minimum Daily Average: 7.4 ppb on Dec 21		Hours of Data: 704																						
Maximum Diurnal Average: 30.6 ppb at hour 9		Minimum Diurnal Average: 18.6 ppb at hour 15		Hours of Missing Data: 40																						
Monthly Average: 23.85 ppb		Percentiles: P <sub>1</sub> = 3.8 P <sub>10</sub> = 8.5 Q <sub>1</sub> = 11.9 Median = 23.9 Q <sub>3</sub> = 32.2 P <sub>90</sub> = 40.4 P <sub>99</sub> = 62.6		Hours of Calibration: 38																						
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	13	9	A	12	18	8	10	13	11	11	12	10	14	10	10	12	14	12	13	12	10	11	11	10	11.6	17.7
2-Dec	12	A	11	9	14	9	13	13	17	11	13	9	9	10	11	12	11	14	13	14	10	15	15	23	12.4	22.9
3-Dec	A	29	28	30	26	26	30	28	30	36	28	26	22	21	25	27	27	39	39	40	45	39	35	A	30.7	45.1
4-Dec	27	23	23	24	23	17	19	40	33	40	39	36	22	21	20	17	21	21	15	14	14	16	A	14	23.5	40.4
5-Dec	15	17	14	10	12	10	9	11	11	11	11	10	10	7	8	11	11	12	14	22	34	A	30	31	14.5	34.4
6-Dec	30	29	28	27	28	29	31	18	19	C	C	C	C	C	19	28	30	31	34	33	A	27	27	26	27.6	34.1
7-Dec	24	23	27	27	27	27	26	32	26	25	26	19	16	13	13	11	11	10	10	A	7	8	7	6	18.2	31.8
8-Dec	5	5	6	4	10	11	21	32	38	36	32	28	28	29	25	30	32	32	A	30	29	28	27	27	23.6	37.8
9-Dec	27	27	26	28	25	28	31	31	26	27	28	33	28	28	24	25	29	A	28	28	9	8	9	9	24.4	32.9
10-Dec	8	6	7	7	5	15	25	33	46	24	16	15	23	21	27	49	A	56	58	60	61	16	22	12	26.7	61.0
11-Dec	7	10	6	7	8	8	9	17	21	21	25	12	9	15	14	A	16	14	13	11	12	10	11	9	12.4	25.5
12-Dec	8	8	12	8	11	11	19	22	23	24	26	25	18	30	A	45	64	34	34	31	34	29	28	30	24.8	64.0
13-Dec	30	29	30	28	31	29	37	37	42	44	48	47	12	A	10	18	N	N	25	19	13	11	9	13	26.9	48.4
14-Dec	14	15	22	10	15	11	27	31	43	29	27	20	A	29	19	37	41	35	33	26	43	51	51	52	29.7	51.5
15-Dec	48	47	43	37	40	40	41	41	46	53	44	A	46	40	35	36	39	41	39	37	36	32	34	40	40.5	53.2
16-Dec	37	34	34	26	27	32	32	34	35	32	A	37	34	39	39	38	39	41	36	35	35	34	32	36	34.6	40.8
17-Dec	30	30	30	29	26	20	36	51	54	A	23	20	21	9	9	14	20	21	18	13	12	15	16	17	23.2	53.6
18-Dec	13	28	28	34	35	34	34	41	A	36	30	33	32	38	28	29	29	29	32	34	30	28	29	27	30.8	40.5
19-Dec	26	26	24	24	26	26	30	A	30	31	27	23	22	22	29	32	33	35	35	42	50	43	37	29	30.5	50.4
20-Dec	32	33	27	27	14	17	A	30	27	9	8	6	6	6	4	7	9	7	6	4	4	4	4	4	12.9	33.4
21-Dec	3	3	3	2	4	A	5	13	12	13	5	6	6	5	6	7	8	9	9	8	8	11	17	12	7.4	16.6
22-Dec	21	16	16	15	A	9	10	10	17	13	16	12	10	10	11	11	11	10	12	9	11	10	10	10	12.1	20.8
23-Dec	10	7	6	A	8	7	7	8	8	10	12	13	12	10	9	11	14	12	13	11	9	11	10	15	10.2	15.1
24-Dec	9	10	A	8	8	8	9	13	13	12	13	13	12	14	12	12	16	21	20	17	16	23	23	22	14.1	23.1
25-Dec	21	A	15	13	15	23	25	21	26	18	14	9	10	10	11	21	23	33	28	21	17	19	18	32	19.2	33.3
26-Dec	A	29	19	22	20	19	23	20	22	31	19	14	14	17	18	18	45	39	37	31	30	26	28	A	24.6	45.3
27-Dec	28	24	33	31	33	37	39	37	30	30	26	21	23	20	15	21	28	31	36	33	34	32	A	32	29.4	39.5
28-Dec	32	31	30	32	39	26	38	38	43	45	54	54	63	20	27	36	44	63	70	75	13	A	17	14	39.3	75.3
29-Dec	37	39	25	22	31	35	36	41	100	50	36	47	44	28	34	31	53	56	45	44	A	44	39	34	41.3	99.7
30-Dec	39	45	50	48	41	45	43	37	33	27	29	52	30	30	21	46	31	36	42	A	41	42	35	39	38.3	51.5
31-Dec	34	33	31	30	29	32	35	39	36	33	36	63	52	31	23	6	6	5	A	5	4	4	3	4	25.0	62.8
22.0		23.0	22.6	21.0	21.7	21.7	25.1	27.7	30.6	27.0	24.9	24.5	22.3	20.1	18.6	23.3	26.0	27.5	27.8	26.1	23.1	22.3	21.9	21.6	Diurnal Average	
47.6		46.5	49.6	47.8	41.0	44.6	43.2	50.6	99.7	53.2	53.8	62.8	62.7	39.8	38.8	49.4	64.0	62.8	69.9	75.3	61.0	50.7	51.5	51.5	Diurnal Maximum	
C - Calibration			N - Not Valid					A - Automated Daily Zero Span																		

### Hourly Maximums

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Henry Pirker - December 2012**

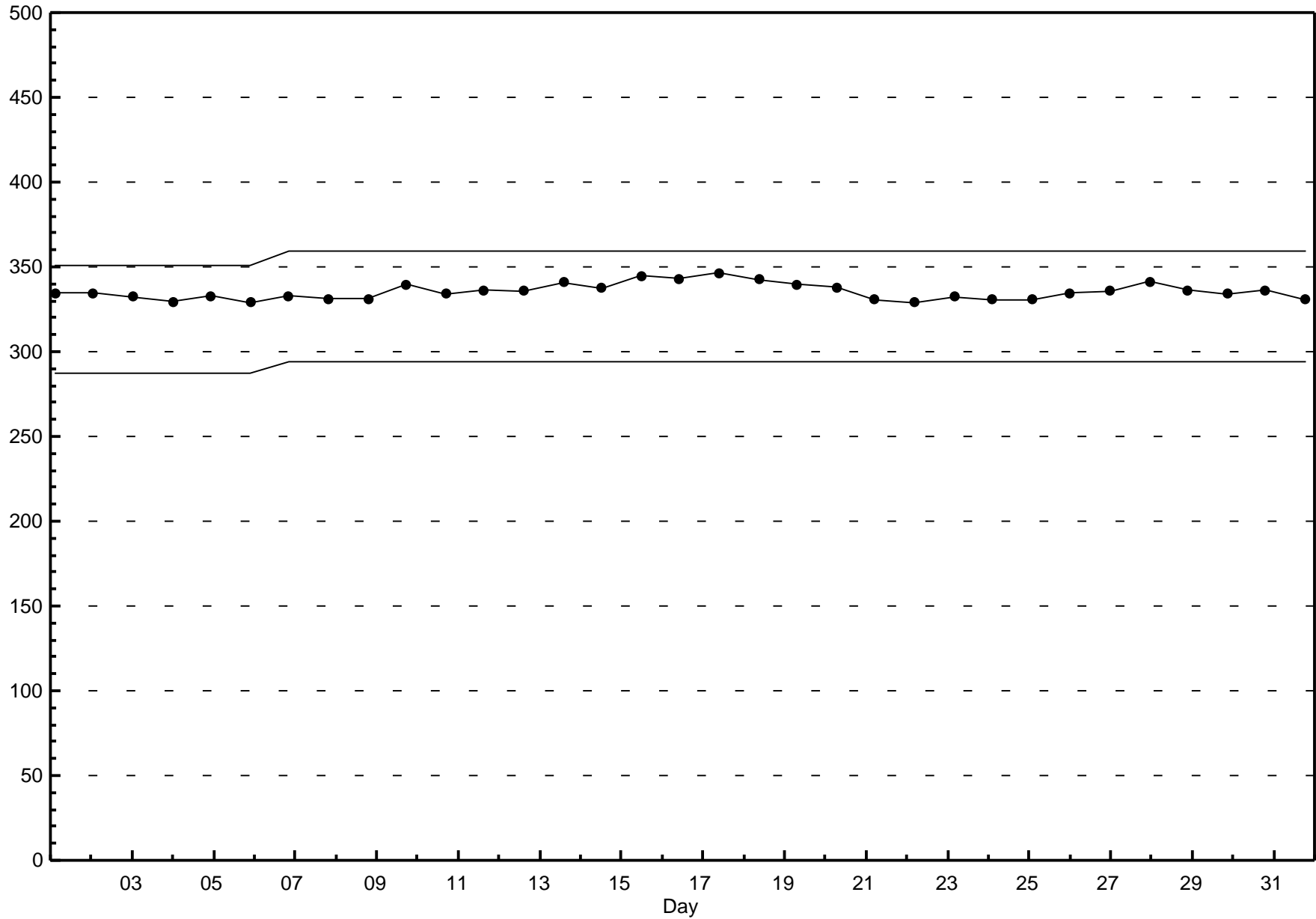






### Span Responses

Nitrogen Dioxide (NO<sub>2</sub>)  
Henry Pirker - December 2012



## Hourly Averages

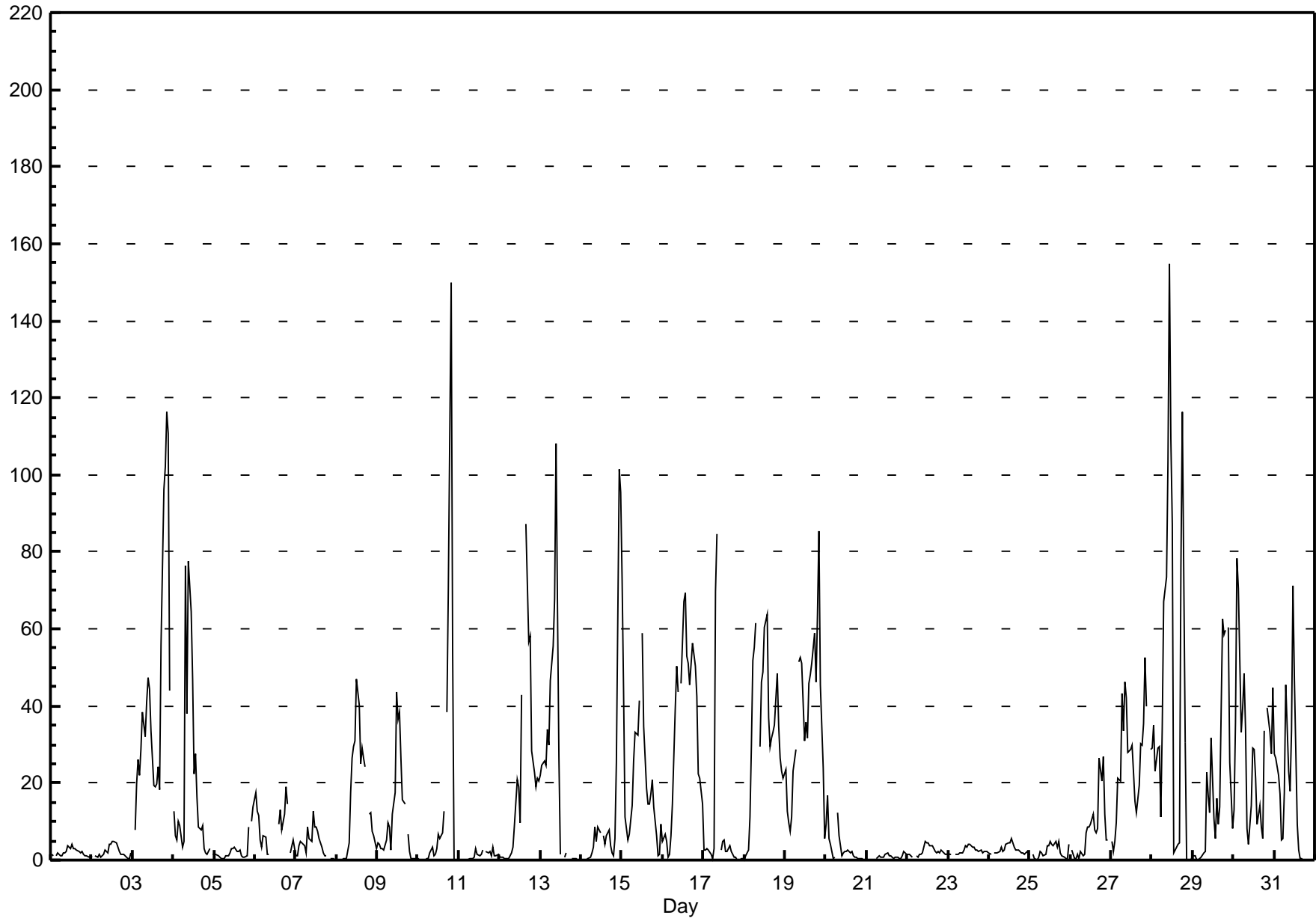
## Nitrogen Oxide (NO) - ppb

### Henry Pirker - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 154.8 ppb on Dec 28 11:00	Maximum Daily Average: 44.5 ppb on Dec 28		Hours of Data:	704
Minimum Value: 0 ppb on Dec 14 00:00	Minimum Daily Average: 0.8 ppb on Dec 21		Hours of Missing Data:	40
Maximum Diurnal Average: 23.8 ppb at hour 11	Minimum Diurnal Average: 7.5 ppb at hour 5		Hours of Calibration:	38
Monthly Average: 15.37 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.4 Median = 4.2 Q <sub>3</sub> = 22.6 P <sub>90</sub> = 46.5 P <sub>99</sub> = 107.5		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	1	1	A	1	2	1	1	2	2	2	4	3	4	3	3	2	2	2	2	2	1	1	1	1	1.9	4.2	
2-Dec	1	A	1	1	1	1	1	1	3	2	4	4	5	5	4	4	2	1	2	1	1	0	0	2	2.1	4.9	
3-Dec	A	8	20	26	22	29	38	32	41	47	44	34	19	19	20	24	18	56	96	102	116	111	44	A	44.0	116.2	
4-Dec	13	6	5	10	9	3	5	76	38	77	65	47	22	28	16	9	8	9	3	2	1	3	A	1	19.9	77.5	
5-Dec	1	2	1	1	0	0	1	1	1	2	3	3	3	2	2	3	1	1	1	1	9	A	10	14	2.7	13.9	
6-Dec	18	13	12	5	3	6	6	1	1	C	C	C	C	C	9	13	8	12	19	14	A	2	5	3	8.4	19.0	
7-Dec	1	1	4	5	4	4	2	9	6	5	13	8	9	7	6	4	2	1	1	A	1	0	0	0	4.0	12.9	
8-Dec	0	0	0	0	0	0	1	5	17	26	29	31	47	40	25	29	27	24	A	12	12	8	6	3	14.9	46.8	
9-Dec	4	4	3	3	2	5	10	9	2	12	17	44	37	38	26	16	15	A	7	2	0	0	0	0	11.2	43.5	
10-Dec	0	0	0	0	0	0	0	2	3	1	2	3	7	6	7	13	A	39	70	150	55	0	0	0	15.6	149.7	
11-Dec	0	0	0	0	0	0	0	0	0	1	3	1	1	2	3	A	2	2	2	1	3	1	1	1	1.1	3.2	
12-Dec	1	1	1	0	0	0	1	2	3	9	21	19	10	43	A	87	72	57	58	28	23	19	21	21	21.6	87.3	
13-Dec	22	25	26	25	34	30	47	56	68	108	66	26	2	A	1	2	N	N	0	0	0	0	0	0	25.6	108.1	
14-Dec	0	0	0	0	0	1	2	3	9	5	9	7	A	6	4	6	8	4	2	1	6	26	102	96	12.9	101.5	
15-Dec	72	44	11	5	7	11	14	26	33	32	41	A	59	35	19	15	15	17	21	14	6	1	1	9	22.1	72.2	
16-Dec	5	7	5	1	1	6	15	40	50	44	A	46	67	69	53	51	46	56	53	50	43	22	21	15	33.3	69.2	
17-Dec	3	3	3	3	2	0	3	70	85	A	3	5	5	2	2	4	2	2	1	1	0	0	1	0	8.6	84.5	
18-Dec	0	1	3	11	30	52	55	61	A	29	46	49	60	64	37	29	32	33	35	48	35	26	23	21	34.0	63.9	
19-Dec	24	13	10	7	11	23	29	A	52	53	51	31	36	32	46	48	51	59	46	64	85	45	24	6	36.7	85.2	
20-Dec	9	17	6	4	0	1	A	12	6	1	2	2	2	2	2	2	1	1	1	0	0	0	0	0	3.2	17.0	
21-Dec	0	0	0	0	0	A	0	1	1	1	1	1	2	1	1	1	1	1	1	0	0	1	2	2	0.8	2.1	
22-Dec	1	1	1	1	A	1	1	2	2	2	2	5	5	4	4	4	4	2	2	2	2	3	2	1	1	2.3	5.0
23-Dec	2	1	2	A	2	2	2	2	2	3	4	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2.5	4.2
24-Dec	2	2	A	2	2	2	2	3	2	3	4	5	5	6	4	3	3	2	2	2	2	2	2	2	2	2.7	5.7
25-Dec	1	A	1	1	0	1	2	2	1	1	4	4	5	4	4	5	3	5	2	1	1	0	0	4	2.3	5.0	
26-Dec	A	2	0	0	1	1	2	1	1	7	9	8	9	12	8	7	8	26	21	27	12	5	5	A	7.9	26.8	
27-Dec	5	2	5	10	21	21	43	34	46	42	28	29	30	23	15	12	19	30	30	36	53	40	A	29	26.2	52.8	
28-Dec	29	35	23	29	30	11	34	67	73	103	155	109	87	2	3	4	4	76	116	30	0	A	0	0	44.5	154.8	
29-Dec	1	1	0	0	0	1	2	2	23	17	12	32	11	6	16	9	14	63	59	60	A	60	26	8	18.3	62.8	
30-Dec	13	36	78	70	33	40	48	34	8	4	14	29	29	21	9	14	9	5	33	A	39	33	28	45	29.3	78.3	
31-Dec	28	27	22	17	5	6	18	45	23	18	33	71	47	9	2	1	0	0	A	0	0	0	0	0	16.2	71.2	
	8.9	8.7	8.3	7.9	7.5	8.6	12.8	20.0	20.1	22.7	23.8	22.7	21.7	17.1	11.9	14.1	13.0	20.3	23.7	22.6	17.5	14.3	11.3	9.9		Diurnal Average	
	72.2	44.1	78.3	70.4	34.1	51.8	55.2	76.3	84.5	108.1	154.8	109.4	87.3	69.2	53.1	87.3	71.8	76.2	116.3	149.7	116.2	110.7	101.5	95.6		Diurnal Maximum	

C - Calibration      N - Not Valid      A - Automated Daily Zero Span



## Hourly Maximums

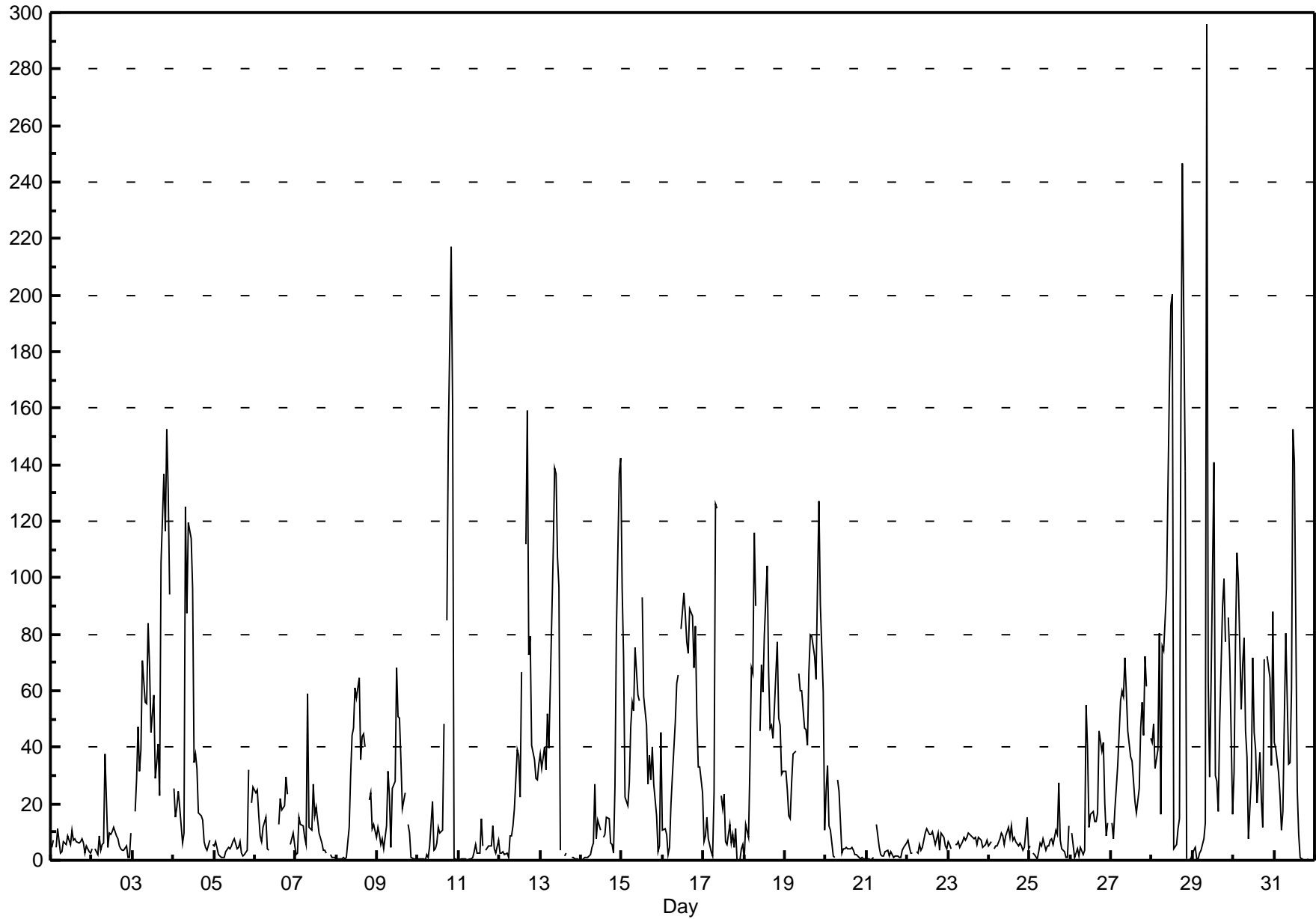
Nitrogen Oxide (NO) - ppb

Henry Pirker - December 2012

Maximum Value: 295.9 ppb on Dec 29 09:00		Maximum Daily Average: 77.5 ppb on Dec 28		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 17 21:00		Minimum Daily Average: 2.5 ppb on Dec 21		Hours of Data: 704																							
Maximum Diurnal Average: 45.3 ppb at hour 9		Minimum Diurnal Average: 14.4 ppb at hour 4		Hours of Missing Data: 40																							
Monthly Average: 27.74 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 4.0 Median = 10.4 Q <sub>3</sub> = 39.3 P <sub>90</sub> = 77.2 P <sub>99</sub> = 156.7		Hours of Calibration: 38																							
				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	4	7	A	5	11	2	3	6	6	6	8	5	11	7	8	7	6	7	8	6	2	5	3	3	6.0	11.3	
2-Dec	4	A	4	2	9	3	6	6	38	4	9	9	10	12	9	8	5	4	3	3	5	1	1	9	7.2	37.6	
3-Dec	A	17	29	47	31	39	71	56	56	84	69	45	58	29	35	41	23	105	137	117	153	131	94	A	66.7	152.6	
4-Dec	25	15	19	25	19	6	10	125	87	119	114	96	34	38	32	17	16	14	6	4	4	7	A	6	36.4	125.1	
5-Dec	5	7	2	1	1	1	1	3	4	4	5	7	7	4	5	6	2	1	2	3	32	A	20	26	6.6	32.2	
6-Dec	24	25	17	9	6	12	15	4	4	C	C	C	C	C	13	22	18	19	29	23	A	5	9	6	14.5	29.4	
7-Dec	2	2	15	13	12	8	5	59	12	10	27	16	19	14	10	6	3	3	2	A	2	1	1	1	10.7	59.2	
8-Dec	0	1	0	1	1	1	1	12	30	44	47	61	58	65	35	44	45	40	A	21	24	11	13	8	24.4	64.7	
9-Dec	12	9	5	7	4	12	31	23	5	25	28	68	51	50	36	18	24	A	13	10	1	1	1	1	18.9	67.9	
10-Dec	0	1	0	0	0	2	1	5	21	3	4	6	11	10	10	48	A	85	150	217	160	1	0	0	32.1	217.3	
11-Dec	0	0	0	0	0	0	1	1	1	3	5	2	2	15	5	A	4	5	5	5	12	4	2	7	3.6	14.9	
12-Dec	3	2	3	2	2	1	9	9	12	18	39	37	22	66	A	112	159	73	80	41	36	29	29	34	35.6	159.1	
13-Dec	38	33	40	32	52	40	62	108	139	137	107	97	3	A	1	3	N	N	1	1	1	1	1	0	42.7	139.0	
14-Dec	0	0	1	1	1	2	4	6	27	8	14	10	A	8	9	15	15	6	5	3	26	81	137	142	22.7	142.4	
15-Dec	97	72	22	19	28	47	56	53	75	59	57	A	93	58	48	27	37	28	40	27	16	3	5	45	44.0	96.7	
16-Dec	11	11	9	2	4	20	30	49	63	65	A	82	95	87	77	73	89	87	68	83	51	33	33	24	49.8	94.7	
17-Dec	7	8	16	8	3	2	24	126	125	A	23	18	23	6	6	12	6	9	4	11	0	0	4	6	19.4	125.9	
18-Dec	1	13	8	35	68	66	116	90	A	46	69	60	80	104	66	47	48	43	54	77	50	48	30	32	54.4	116.2	
19-Dec	31	25	16	15	27	38	39	A	66	60	60	47	46	41	67	80	79	72	64	96	127	91	59	10	54.6	126.9	
20-Dec	24	33	12	11	2	1	A	28	24	2	4	4	5	4	4	5	3	2	2	1	1	1	0	0	7.6	33.3	
21-Dec	0	0	0	0	1	A	13	4	2	2	1	3	3	2	3	2	1	1	1	1	1	3	5	6	2.5	12.8	
22-Dec	7	5	3	3	A	3	2	6	3	4	9	11	10	9	9	10	6	8	9	3	10	8	5	4	6.5	11.2	
23-Dec	7	6	4	A	6	6	7	4	6	8	7	8	10	9	8	7	8	6	8	7	4	5	6	7	6.7	9.8	
24-Dec	5	6	A	4	5	5	7	10	9	6	8	12	8	12	7	8	7	5	6	5	3	4	15	4	7.1	15.3	
25-Dec	5	A	2	2	1	3	6	5	8	3	5	5	7	7	5	10	9	27	7	4	3	1	1	12	6.1	27.4	
26-Dec	A	9	1	2	4	1	5	2	4	55	40	11	16	17	14	14	17	46	39	42	20	9	13	A	17.3	54.8	
27-Dec	13	7	18	25	33	56	60	58	72	59	46	37	35	28	21	17	25	47	56	44	72	61	A	43	40.7	72.5	
28-Dec	41	48	33	39	80	16	76	74	96	133	168	196	200	4	5	11	15	161	246	138	1	A	0	1	77.5	246.4	
29-Dec	2	5	0	0	2	4	8	13	296	63	30	63	141	30	28	17	48	90	100	77	A	86	71	16	51.8	295.9	
30-Dec	31	77	109	99	53	69	79	46	36	7	29	72	45	39	20	38	21	12	71	A	72	65	34	88	52.8	108.6	
31-Dec	42	39	31	23	11	17	50	81	34	35	61	152	141	25	9	1	1	1	A	0	0	0	0	0	32.7	152.4	
		15.3	16.8	14.5	14.4	16.0	16.2	26.6	35.7	45.3	37.1	37.7	42.7	43.0	27.6	20.2	24.3	25.5	34.7	42.0	37.0	30.7	24.0	20.5	18.7	Diurnal Average	
		96.7	77.2	108.6	98.9	80.5	69.2	116.2	125.9	295.9	136.8	167.7	196.0	200.1	104.3	77.2	112.0	159.1	160.6	246.4	217.3	160.0	130.6	137.0	142.4	Diurnal Maximum	
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																			

### Hourly Maximums

Nitrogen Oxide (NO) - ppb  
Henry Pirker - December 2012

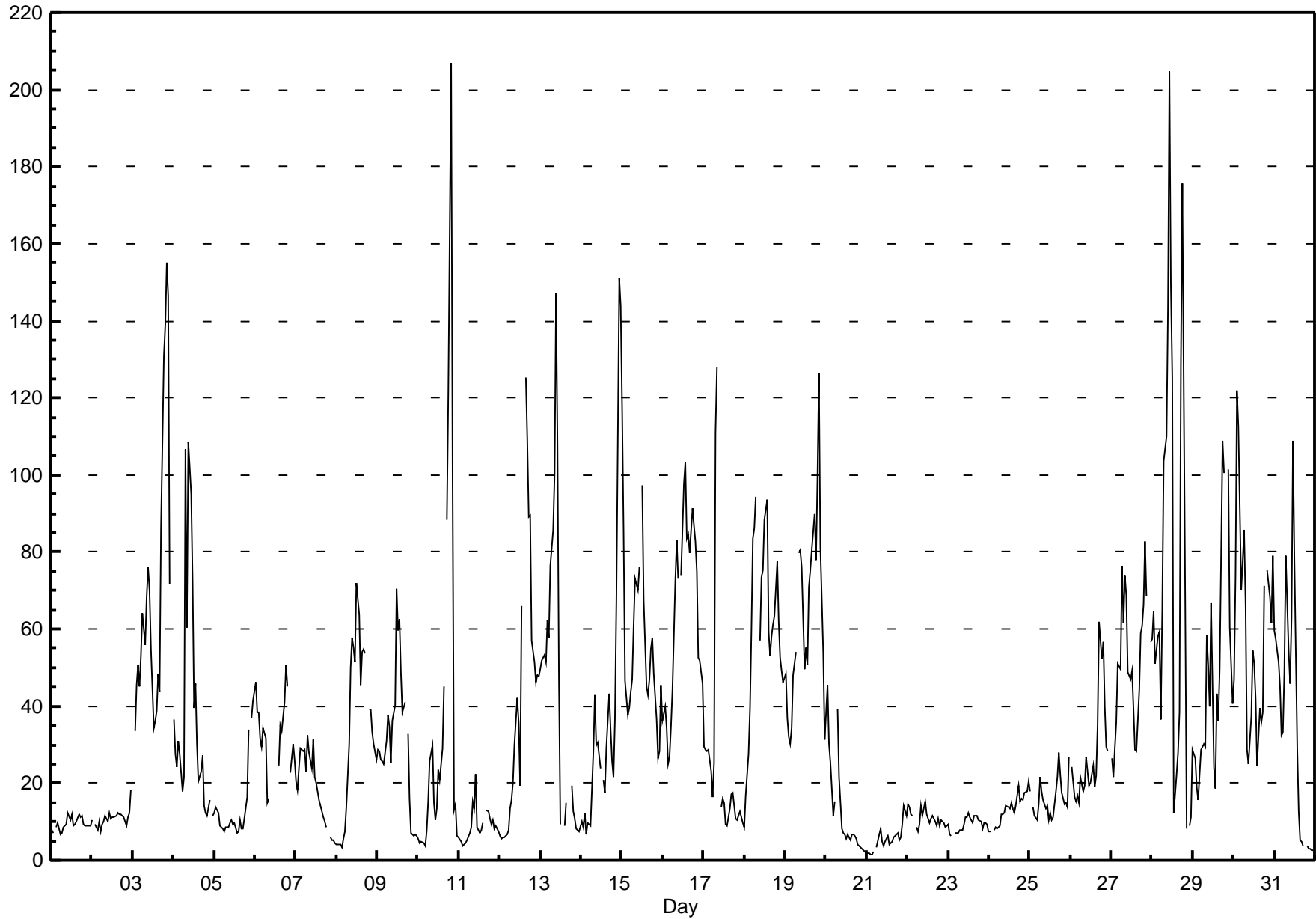


## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Henry Pirker - December 2012

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 206.9 ppb on Dec 10 20:00		Maximum Daily Average: 75.2 ppb on Dec 28		Hours of Data:		704																																											
Minimum Value: 1 ppb on Dec 21 04:00		Minimum Daily Average: 5.5 ppb on Dec 21		Hours of Missing Data:		40																																											
Maximum Diurnal Average: 47.2 ppb at hour 19		Minimum Diurnal Average: 25.1 ppb at hour 5		Hours of Calibration:		38																																											
Monthly Average: 34.32 ppb		Percentiles: P <sub>1</sub> = 2.7 P <sub>10</sub> = 6.9 Q <sub>1</sub> = 10.3 Median = 23.8 Q <sub>3</sub> = 49.6 P <sub>90</sub> = 77.6 P <sub>99</sub> = 146.1		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	8	7	A	8	10	7	7	8	9	9	12	11	12	9	9	10	12	11	11	9	9	9	9	9	9.4	12.4																							
2-Dec	10	A	9	8	10	7	9	10	12	10	12	11	11	11	12	12	12	12	12	11	9	11	12	18	11.0	18.2																							
3-Dec	A	34	46	51	45	53	64	56	68	76	70	55	34	36	39	48	44	87	131	139	155	147	72	A	70.4	155.0																							
4-Dec	36	27	24	31	27	18	22	107	60	109	95	72	40	46	30	20	23	27	14	12	11	16	A	12	38.3	108.5																							
5-Dec	12	14	12	9	9	8	7	9	9	10	10	9	10	7	7	10	8	8	11	16	34	A	37	41	13.4	41.3																							
6-Dec	46	39	38	32	29	34	32	15	16	C	C	C	C	C	25	35	33	41	51	45	A	23	30	26	32.8	50.8																							
7-Dec	20	18	24	29	28	29	23	32	28	24	31	22	20	18	16	13	11	10	9	A	6	5	5	4	18.5	32.3																							
8-Dec	4	4	4	3	6	8	14	30	50	58	55	52	72	64	46	54	55	54	A	39	39	33	30	26	34.8	72.1																							
9-Dec	29	28	26	26	25	31	38	35	26	36	40	71	60	62	49	38	41	A	33	16	7	6	7	6	32.0	70.6																							
10-Dec	5	5	5	4	4	8	15	26	30	15	11	14	23	21	29	45	A	88	121	207	98	13	14	7	35.1	206.9																							
11-Dec	6	5	4	4	5	5	7	8	15	13	22	9	7	8	10	A	13	13	11	9	10	8	9	8	9.1	22.3																							
12-Dec	6	6	6	6	7	8	13	16	20	30	42	36	19	66	A	125	109	89	90	57	51	46	48	48	41.1	125.2																							
13-Dec	49	52	53	52	62	58	77	86	100	147	108	48	9	A	9	15	N	N	19	13	11	8	8	7	47.2	147.3																							
14-Dec	10	9	12	7	10	9	19	28	43	30	30	24	A	21	17	29	43	34	26	22	37	68	151	144	35.7	151.0																							
15-Dec	117	86	47	38	39	44	47	61	73	70	76	A	97	67	45	43	47	55	58	49	37	26	28	46	56.3	117.2																							
16-Dec	36	40	34	25	27	35	44	72	83	73	A	74	98	103	84	85	80	91	87	83	75	53	52	46	64.3	103.2																							
17-Dec	30	29	28	29	23	16	25	111	128	A	14	16	15	9	9	13	17	18	14	11	10	13	11	10	26.1	127.7																							
18-Dec	9	17	27	39	60	84	86	94	A	57	73	75	88	94	59	53	58	61	64	77	62	52	49	46	60.3	94.2																							
19-Dec	49	37	32	30	34	48	54	A	80	81	76	50	55	51	71	75	81	90	78	100	127	81	54	31	63.6	126.6																							
20-Dec	39	45	30	25	11	15	A	39	22	8	7	7	6	7	5	7	7	6	6	6	4	3	3	3	2	13.4	45.4																						
21-Dec	2	2	2	1	2	A	3	7	8	5	4	5	6	4	4	5	6	6	7	5	6	10	14	12	5.5	14.1																							
22-Dec	14	14	12	12	A	8	8	9	14	11	15	12	11	10	11	11	10	9	11	9	10	10	9	9	10.8	15.4																							
23-Dec	9	7	6	A	7	7	7	8	8	9	11	11	12	11	10	12	12	12	10	10	8	10	10	9	9.4	12.2																							
24-Dec	7	7	A	8	9	8	9	12	12	12	14	14	14	15	13	12	14	19	15	16	16	18	18	21	13.2	20.5																							
25-Dec	18	A	14	12	11	15	22	18	16	14	14	10	12	11	11	18	22	28	22	18	14	15	14	27	16.2	28.0																							
26-Dec	A	24	16	15	17	15	22	18	20	27	23	20	20	25	19	22	35	62	52	57	40	29	28	A	27.5	61.7																							
27-Dec	26	22	29	36	51	50	76	62	74	69	49	47	49	39	29	28	44	59	61	67	83	69	A	57	51.1	82.9																							
28-Dec	57	65	51	58	59	37	65	103	110	144	205	150	125	12	22	28	38	129	176	67	8	A	9	11	75.2	204.8																							
29-Dec	29	26	19	16	22	29	30	29	58	51	40	67	24	19	43	36	49	109	101	101	A	102	60	41	47.8	108.8																							
30-Dec	47	73	122	113	70	78	86	67	29	25	37	55	51	42	25	40	36	38	71	A	75	68	61	79	60.4	122.1																							
31-Dec	60	57	52	45	32	33	49	79	54	46	62	109	78	29	13	5	5	4	A	4	3	3	3	3	36.0	109.0																							
																								27.3	27.5	27.1	25.7	25.1	26.8	32.6	41.8	42.5	43.7	43.6	39.7	37.2	31.6	25.7	31.6	33.3	43.8	47.2	43.9	36.4	32.9	29.5	27.8	Diurnal Average	
																								117.2	85.8	122.1	112.8	70.2	83.6	86.2	111.0	127.7	147.3	204.8	149.6	125.3	103.2	83.7	125.2	108.8	128.6	175.6	206.9	155.0	146.7	151.0	143.8	Diurnal Maximum	
C - Calibration																								N - Not Valid				A - Automated Daily Zero Span																					



## Hourly Maximums

Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Henry Pirker - December 2012

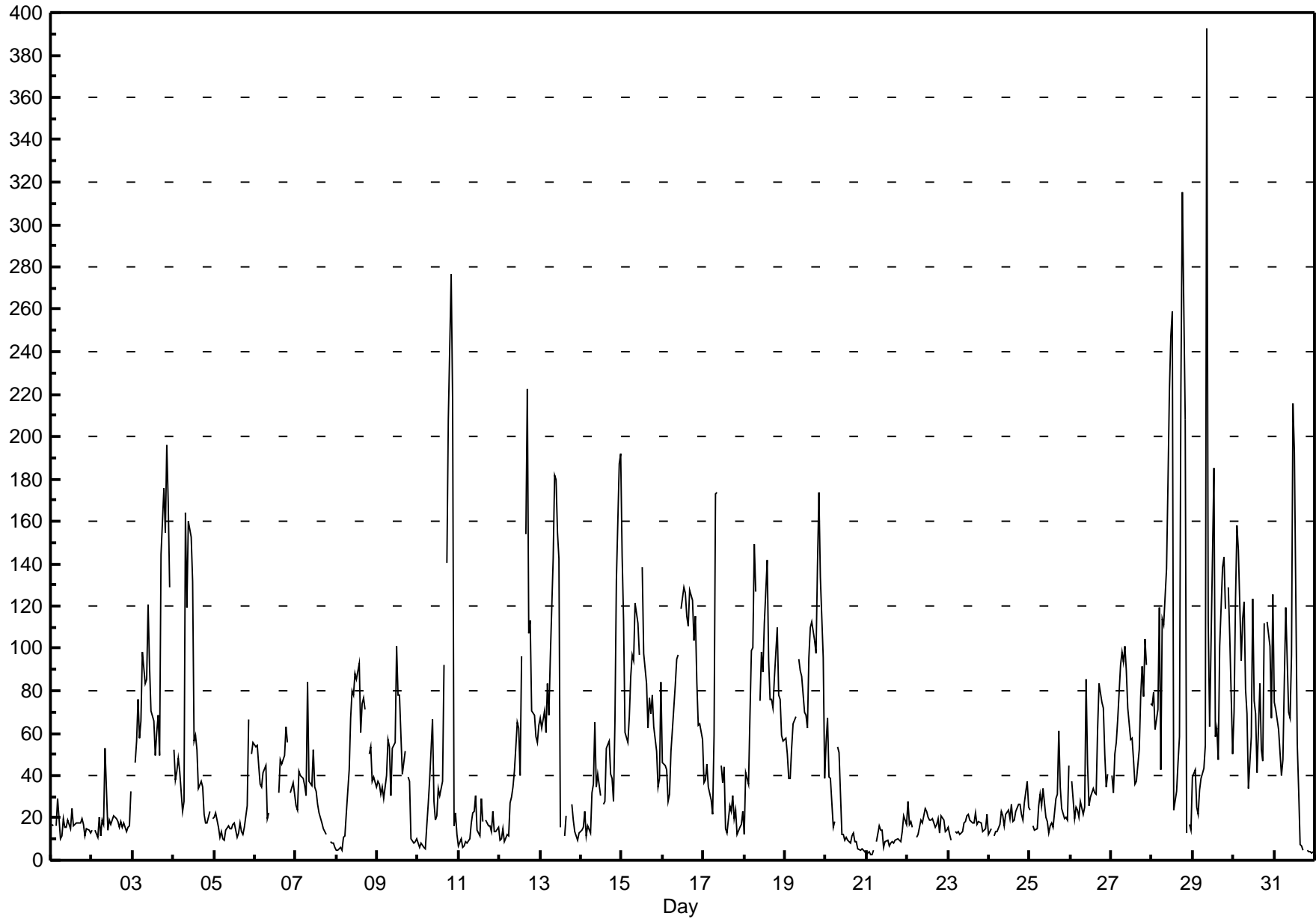
Maximum Value: 392.4 ppb on Dec 29 09:00		Maximum Daily Average: 116.0 ppb on Dec 28		Hours in Service: 744																						
Minimum Value: 3 ppb on Dec 21 04:00		Minimum Daily Average: 9.4 ppb on Dec 21		Hours of Data: 704																						
Maximum Diurnal Average: 74.9 ppb at hour 9		Minimum Diurnal Average: 35.0 ppb at hour 4		Hours of Missing Data: 40																						
Monthly Average: 50.88 ppb		Percentiles: P <sub>1</sub> = 3.9 P <sub>10</sub> = 11.0 Q <sub>1</sub> = 16.6 Median = 34.6 Q <sub>3</sub> = 69.2 P <sub>90</sub> = 113.8 P <sub>99</sub> = 222.0		Hours of Calibration: 38																						
				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	17	16	A	16	29	10	12	20	15	15	19	15	25	17	17	18	18	18	20	17	12	15	14	13	16.8	29.2
2-Dec	14	A	14	11	20	12	19	17	53	15	19	17	19	21	20	18	16	18	16	18	14	16	16	32	18.8	52.6
3-Dec	A	46	56	76	58	66	99	83	86	120	91	71	65	50	60	69	49	145	176	154	196	169	129	A	96.1	196.2
4-Dec	52	38	42	48	42	23	28	164	119	160	153	132	56	59	52	34	37	35	22	17	17	23	A	19	59.8	164.3
5-Dec	21	22	15	11	13	10	9	14	16	15	15	17	17	11	13	18	14	13	16	25	67	A	50	56	20.8	66.6
6-Dec	54	54	45	36	34	42	45	20	22	C	C	C	C	C	32	48	45	50	63	56	A	32	36	31	41.4	62.8
7-Dec	26	24	42	40	39	35	31	84	37	35	52	35	32	26	22	17	15	13	12	A	9	8	8	6	28.2	83.8
8-Dec	5	5	6	4	11	11	22	43	67	80	78	88	85	93	60	74	76	71	A	50	53	38	39	34	47.7	92.9
9-Dec	37	36	31	35	29	40	57	54	30	53	56	101	78	78	59	41	52	A	39	37	10	8	9	10	42.6	100.9
10-Dec	8	6	8	6	5	16	26	38	67	28	19	21	34	30	37	92	A	141	208	277	217	16	22	12	58.1	276.8
11-Dec	7	10	6	7	8	8	10	18	22	23	30	14	12	29	18	A	19	16	16	14	23	14	13	15	15.4	30.4
12-Dec	9	10	15	9	12	12	27	30	35	42	65	62	40	96	A	154	222	107	113	71	69	58	56	64	60.0	222.4
13-Dec	67	62	70	60	83	69	96	142	182	179	154	142	16	A	11	21	N	N	26	19	14	11	10	13	69.0	181.5
14-Dec	14	15	23	11	16	13	32	36	65	34	41	30	A	27	28	53	56	41	38	28	66	132	187	192	51.3	192.1
15-Dec	144	113	60	56	68	87	97	94	122	112	97	A	138	98	83	63	76	69	78	63	52	35	39	84	83.8	143.9
16-Dec	46	45	43	28	31	52	62	83	95	97	A	119	129	126	115	111	128	123	104	116	84	64	65	57	83.4	128.9
17-Dec	37	38	45	35	29	22	59	173	174	A	44	37	44	15	13	26	23	30	19	24	12	15	17	23	41.4	173.7
18-Dec	13	41	36	68	99	100	149	127	A	75	98	89	112	142	94	76	76	72	86	110	78	76	59	57	84.0	148.9
19-Dec	57	50	39	39	53	64	68	A	95	89	87	70	69	62	95	110	113	103	98	139	174	134	95	39	84.4	173.9
20-Dec	56	67	39	38	16	18	A	53	51	12	12	9	11	10	8	12	13	9	9	6	5	5	5	4	20.3	66.9
21-Dec	3	4	3	3	5	A	9	16	14	14	6	9	10	7	8	9	8	10	10	9	9	13	21	17	9.4	21.0
22-Dec	28	17	18	16	A	11	12	16	19	18	25	23	20	19	19	20	16	17	20	13	21	19	14	14	17.9	28.0
23-Dec	16	13	10	A	13	13	14	12	13	17	18	21	22	19	18	18	22	17	19	18	14	14	15	22	16.4	22.0
24-Dec	13	15	A	11	13	14	17	23	21	16	22	24	19	26	19	19	23	26	27	22	19	27	37	25	20.8	37.2
25-Dec	24	A	16	14	15	26	31	26	34	20	19	13	17	18	16	29	31	61	35	24	20	20	19	45	24.8	60.7
26-Dec	A	37	20	25	24	20	28	22	25	86	45	25	30	34	32	31	62	84	75	72	50	34	41	A	41.0	85.7
27-Dec	40	32	50	56	66	92	98	94	101	90	72	57	58	47	36	38	52	77	91	77	105	92	A	74	69.4	104.7
28-Dec	73	79	62	71	120	42	114	111	138	178	221	247	259	24	33	46	58	223	315	208	13	A	17	15	116.0	315.4
29-Dec	40	43	25	22	33	39	44	54	392	113	63	103	185	58	62	47	101	138	143	119	A	129	106	50	91.7	392.4
30-Dec	70	123	158	147	94	114	122	80	69	34	58	123	75	69	42	84	52	47	112	A	112	101	67	125	90.4	158.1
31-Dec	75	71	62	51	40	48	85	119	70	67	97	216	193	55	33	7	7	5	A	5	4	4	3	4	57.3	215.6
		36.7	39.1	36.6	35.0	37.3	37.7	50.7	62.2	74.9	63.3	61.3	66.5	64.5	47.0	38.6	46.7	51.1	61.3	69.2	62.3	53.0	45.7	41.7	39.7	Diurnal Average
		143.9	122.5	158.1	146.6	119.6	113.9	148.9	172.7	392.4	179.3	221.5	247.2	259.2	141.6	115.3	154.1	222.4	223.3	315.4	276.8	216.8	169.0	187.4	192.1	Diurnal Maximum
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																		



### Hourly Maximums

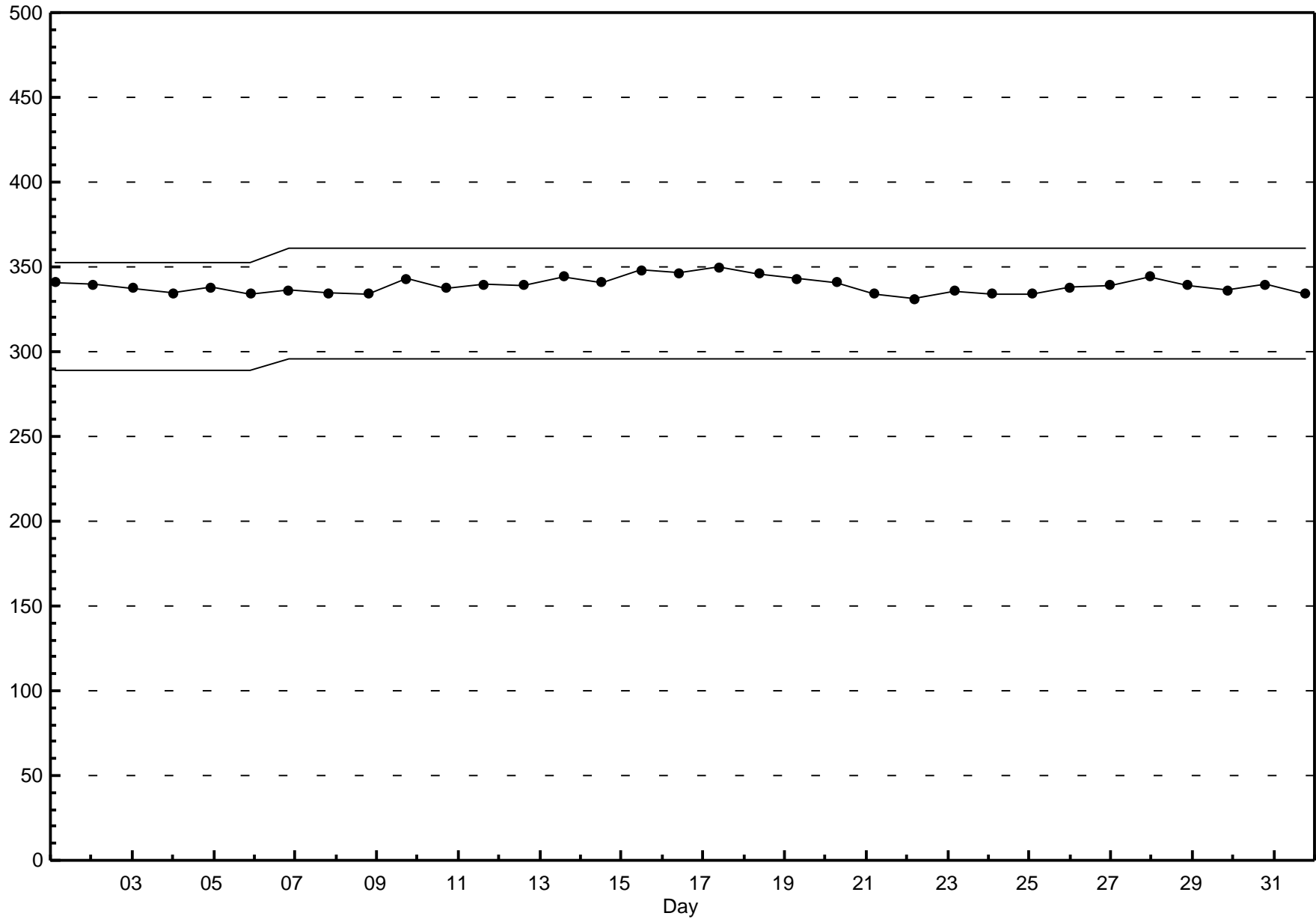
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Henry Pirker - December 2012



### Span Responses

Oxides of Nitrogen (NO<sub>x</sub>)  
Henry Pirker - December 2012



## Hourly Averages

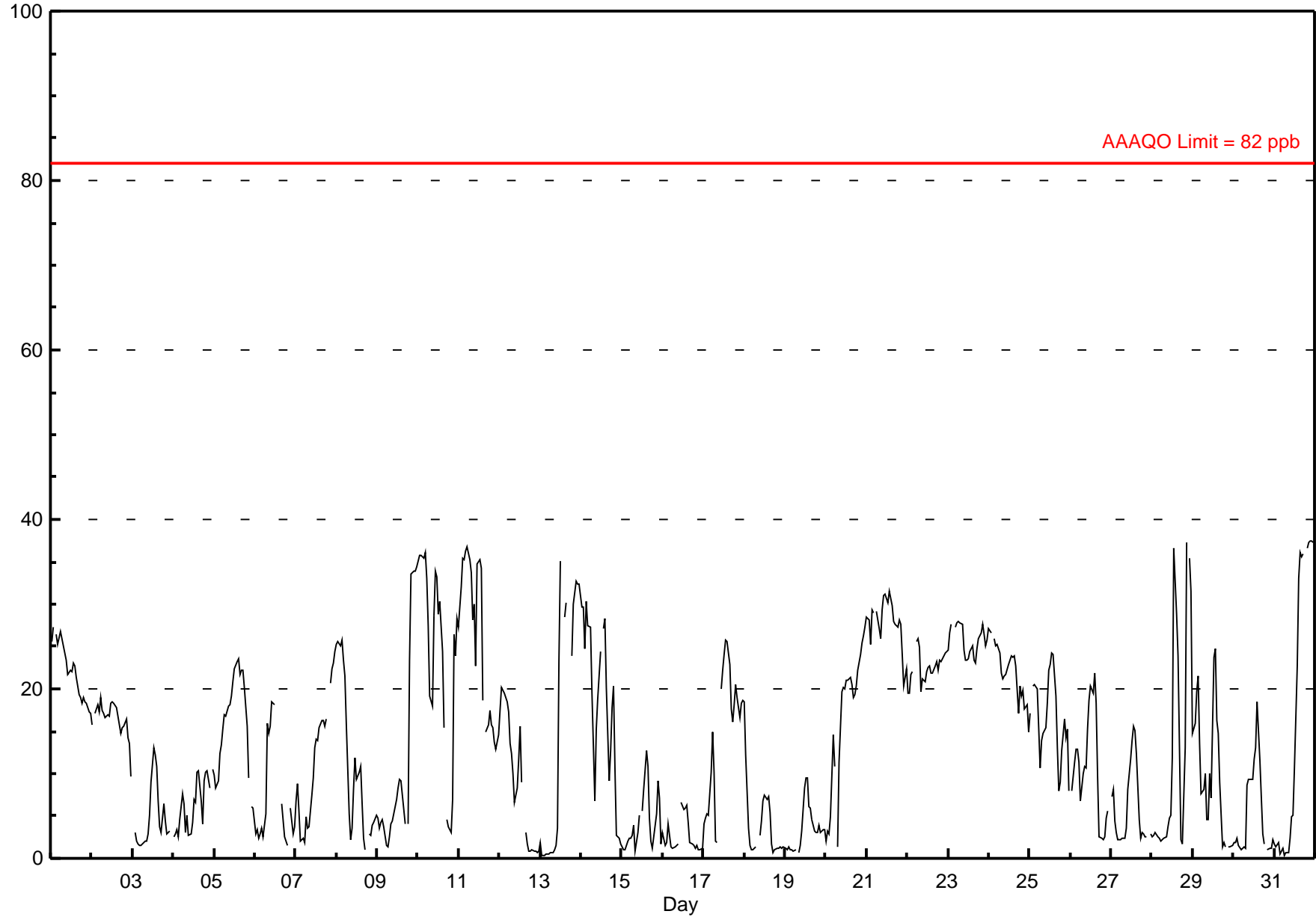
Ozone (O<sub>3</sub>) - ppb

Henry Pirker - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 37.5 ppb on Dec 31 23:00	Maximum Daily Average: 27.9 ppb on Dec 21		Hours of Data:	705
Minimum Value: 0 ppb on Dec 13 03:00	Minimum Daily Average: 2.6 ppb on Dec 16		Hours of Missing Data:	39
Maximum Diurnal Average: 19.3 ppb at hour 15	Minimum Diurnal Average: 10.3 ppb at hour 9		Hours of Calibration:	37
Monthly Average: 13.58 ppb	Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 3.1 Median = 12.5 Q <sub>3</sub> = 22.2 P <sub>90</sub> = 27.7 P <sub>99</sub> = 36.7		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	26	27	A	26	25	27	26	25	24	23	22	22	23	23	21	19	19	18	19	19	18	17	17	22.2	27.3	
2-Dec	16	A	17	18	17	19	17	17	17	17	17	18	18	18	17	16	15	15	16	17	14	14	10	16.4	19.1	
3-Dec	A	3	2	2	1	1	2	2	2	3	5	9	13	12	11	7	4	3	6	4	3	3	3	A	4.7	13.1
4-Dec	3	3	3	3	5	8	6	3	5	3	3	4	7	7	10	10	7	4	9	10	10	8	A	11	6.1	10.6
5-Dec	10	8	9	12	13	15	17	17	18	18	19	21	22	23	24	22	22	22	20	16	10	A	6	6	16.1	23.6
6-Dec	3	3	2	3	3	2	5	16	15	16	18	18	C	C	C	C	6	3	2	2	A	6	3	4	6.9	18.4
7-Dec	7	9	6	2	2	2	5	4	4	7	9	13	14	14	15	16	16	16	A	21	22	23	24	11.7	24.4	
8-Dec	25	26	25	26	23	22	16	5	2	4	8	12	9	10	11	6	2	1	A	3	3	4	4	5	11.0	25.8
9-Dec	5	4	4	5	4	2	1	3	4	4	6	7	8	9	9	8	4	A	4	23	34	34	34	34	10.8	34.5
10-Dec	35	36	36	35	36	33	27	19	18	29	34	33	29	30	24	15	A	5	4	3	7	26	24	28	24.7	36.1
11-Dec	27	32	35	35	36	37	35	34	28	30	23	35	35	34	19	A	15	16	18	16	15	14	13	15	25.9	36.7
12-Dec	18	20	20	20	18	17	14	12	10	7	8	12	16	9	A	3	2	1	1	1	1	1	1	1	9.2	20.2
13-Dec	2	0	0	0	0	1	1	1	1	2	4	23	35	A	28	30	N	N	24	30	31	33	32	32	14.8	35.1
14-Dec	30	30	25	30	27	27	19	13	7	15	19	24	A	27	28	20	9	13	18	20	11	3	2	2	18.3	30.3
15-Dec	1	1	1	2	2	2	3	4	1	3	5	A	6	8	13	11	5	2	1	3	5	9	7	2	4.2	12.8
16-Dec	3	1	2	4	3	1	1	1	2	2	A	7	6	6	6	4	2	2	1	1	1	1	1	1	2.6	6.6
17-Dec	4	5	5	5	10	15	10	2	2	A	20	22	24	26	26	23	18	16	18	20	19	17	18	19	14.9	25.8
18-Dec	18	12	4	1	1	1	1	1	A	3	4	7	7	7	7	5	2	1	1	1	1	1	1	1	4.0	18.4
19-Dec	1	1	1	1	1	1	1	1	A	1	2	3	8	10	9	6	6	5	3	3	4	3	3	3	3.5	9.5
20-Dec	2	3	3	5	14	11	A	1	11	20	20	20	21	21	21	20	19	19	20	22	24	25	26	27	16.5	27.4
21-Dec	28	28	25	29	29	A	29	27	26	29	31	31	30	31	31	30	28	28	27	28	28	24	20	22	27.9	31.5
22-Dec	19	20	22	22	A	26	26	25	20	21	21	22	23	23	22	22	23	23	22	23	23	24	24	24	22.6	26.0
23-Dec	25	27	28	A	27	28	28	28	28	25	23	23	24	24	25	23	23	25	26	27	28	26	25	26	25.6	27.9
24-Dec	27	27	A	26	25	25	24	22	21	22	22	23	23	24	24	24	23	17	20	19	20	18	18	15	22.1	27.1
25-Dec	17	A	20	21	20	15	11	14	15	15	18	22	23	24	24	19	13	8	9	13	16	14	15	8	16.3	24.2
26-Dec	A	8	11	13	13	11	7	10	11	11	15	19	20	19	22	18	10	2	2	2	3	5	6	A	10.8	21.9
27-Dec	7	8	4	3	2	2	2	2	2	4	8	12	14	16	15	12	5	2	3	3	3	3	A	3	5.9	15.5
28-Dec	3	3	3	3	2	2	2	2	3	4	5	5	12	37	29	24	13	2	2	13	37	A	35	32	11.8	37.2
29-Dec	15	16	20	22	14	8	8	10	5	10	7	24	25	16	15	9	1	2	1	A	1	1	1	2	10.2	24.8
30-Dec	2	2	2	2	1	1	1	1	9	9	9	9	12	13	18	12	7	3	2	A	1	1	1	2	5.3	18.5
31-Dec	2	1	2	1	1	1	0	1	1	2	5	5	10	23	33	36	36	36	A	37	37	37	38	37	16.6	37.5
	13.1	12.5	11.7	12.5	12.7	12.1	11.6	10.8	10.3	11.7	13.9	16.5	17.8	19.1	19.3	16.6	12.4	10.6	10.9	13.1	14.8	13.7	14.4	14.2	Diurnal Average	
	35.1	35.7	35.8	35.5	36.3	36.7	35.3	33.7	28.2	30.0	33.9	34.7	35.3	36.6	33.1	36.1	35.7	35.9	27.3	36.7	37.3	37.4	37.5	37.2	Diurnal Maximum	

C - Calibration      N - Not Valid      A - Automated Daily Zero Span  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb      24-hr na



## Hourly Maximums

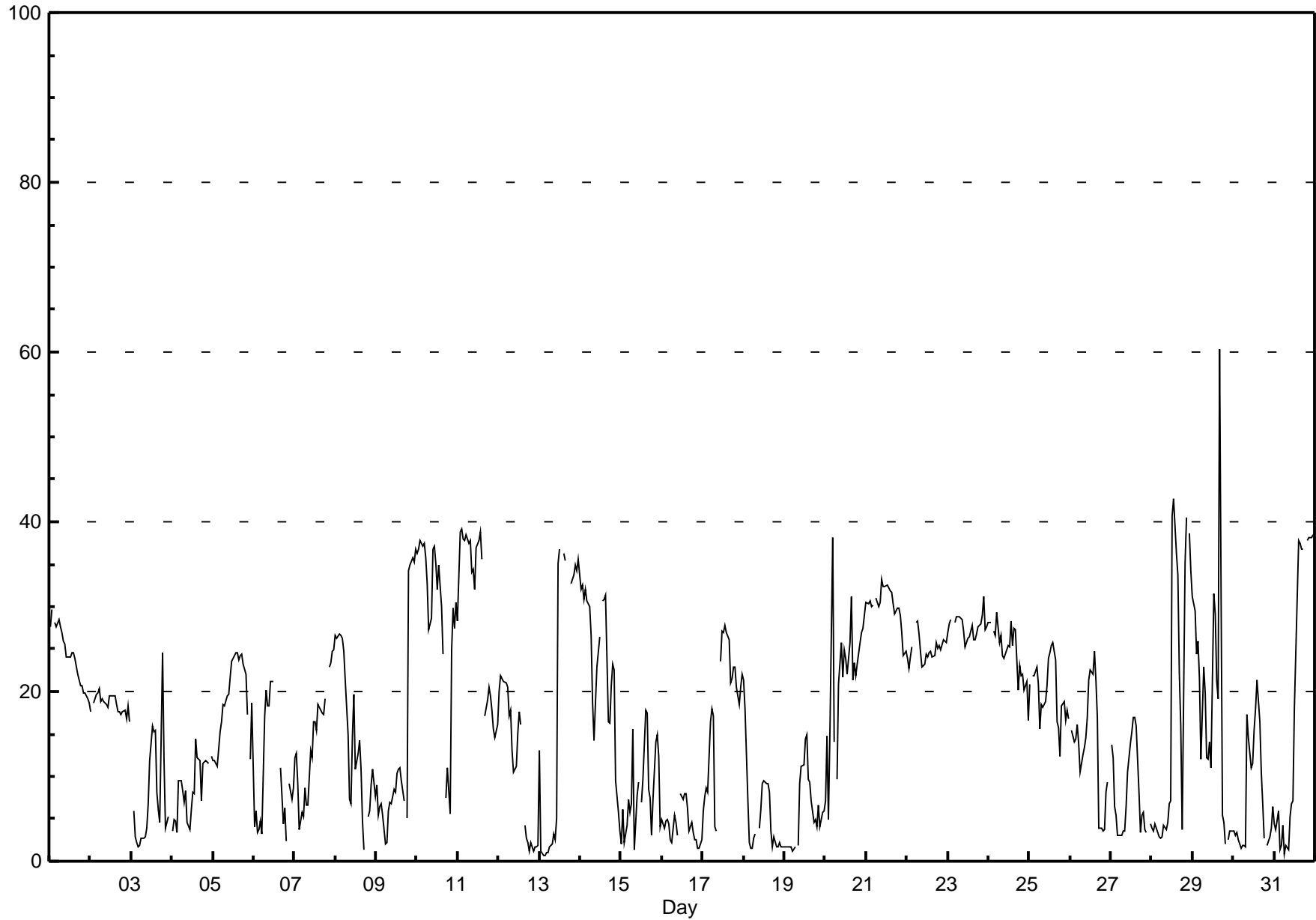
Ozone (O<sub>3</sub>) - ppb

Henry Pirker - December 2012

Maximum Value: 60.3 ppb on Dec 29 17:00		Maximum Daily Average: 30.2 ppb on Dec 21		Hours in Service: 744																							
Minimum Value: 1 ppb on Dec 13 04:00		Minimum Daily Average: 4.4 ppb on Dec 16		Hours of Data: 705																							
Maximum Diurnal Average: 23.0 ppb at hour 15		Minimum Diurnal Average: 13.6 ppb at hour 18		Hours of Missing Data: 39																							
Monthly Average: 16.72 ppb		Percentiles: P <sub>1</sub> = 1.2 P <sub>10</sub> = 2.8 Q <sub>1</sub> = 6.1 Median = 16.9 Q <sub>3</sub> = 25.1 P <sub>90</sub> = 31.5 P <sub>99</sub> = 38.8		Hours of Calibration: 37																							
				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	28	30	A	28	28	29	28	27	26	26	24	24	24	25	25	24	22	21	21	21	20	20	19	19	24.1	29.6	
2-Dec	18	A	19	20	20	20	19	19	19	18	18	19	19	19	19	19	18	18	17	18	18	17	18	16	18.5	20.3	
3-Dec	A	6	3	2	2	2	3	3	3	4	7	12	16	15	15	8	6	5	25	12	4	4	5	A	7.3	24.7	
4-Dec	4	5	5	3	9	10	8	7	8	4	4	6	8	8	14	12	12	7	11	12	12	12	A	12	8.4	14.3	
5-Dec	12	12	11	13	15	17	18	18	19	20	22	24	24	25	25	24	24	24	23	22	17	A	12	19	19.1	24.6	
6-Dec	4	6	3	4	5	3	17	20	18	18	21	21	C	C	C	C	11	4	6	2	A	9	7	9	10.0	21.3	
7-Dec	12	13	9	4	6	5	9	7	7	13	12	17	17	15	18	18	18	17	19	A	23	23	25	25	14.4	25.0	
8-Dec	27	26	27	27	26	25	21	15	7	7	15	20	11	13	14	11	5	1	A	5	6	9	11	8	14.6	26.8	
9-Dec	9	5	6	7	5	2	2	6	7	7	9	8	10	11	11	10	7	A	5	34	35	36	35	37	13.2	36.7	
10-Dec	36	37	38	37	38	36	33	27	29	37	37	35	32	35	30	24	A	7	11	6	25	30	27	30	29.4	37.7	
11-Dec	28	39	39	38	38	39	37	38	34	34	32	37	38	39	36	A	17	19	20	20	18	16	15	16	29.8	39.2	
12-Dec	20	22	22	21	21	21	17	18	13	10	11	15	18	16	A	4	3	2	1	2	1	2	2	2	11.5	21.9	
13-Dec	13	1	1	1	1	1	2	2	3	3	5	35	37	A	36	36	N	N	33	33	34	35	34	36	18.1	36.9	
14-Dec	32	32	31	32	31	30	27	19	14	19	23	26	A	31	31	31	17	16	21	23	23	9	6	4	22.9	32.5	
15-Dec	2	6	2	4	7	6	7	16	1	8	9	A	7	10	18	17	8	7	3	7	14	15	12	4	8.3	17.7	
16-Dec	5	4	5	5	4	2	2	5	5	3	A	8	7	8	8	6	4	5	3	3	3	2	2	3	4.4	8.0	
17-Dec	6	8	9	8	17	18	17	4	4	A	24	27	27	28	27	26	21	22	23	23	21	19	20	22	18.2	27.8	
18-Dec	21	18	7	2	2	2	3	3	A	4	6	9	9	9	8	4	2	3	2	2	2	2	2	2	5.6	21.4	
19-Dec	2	2	2	2	2	1	2	A	2	9	11	11	14	15	10	9	7	5	5	4	7	4	6	6	5.9	15.0	
20-Dec	7	15	5	15	38	14	A	10	21	26	22	25	24	22	26	31	21	23	22	23	26	27	27	29	21.7	38.1	
21-Dec	31	30	31	30	30	A	31	30	30	33	32	32	33	32	32	32	30	29	30	30	29	27	24	25	30.2	33.2	
22-Dec	24	23	24	25	A	28	28	27	25	23	23	24	24	25	25	24	24	26	25	25	25	26	26	26	25.0	28.2	
23-Dec	27	28	28	A	28	29	29	29	29	27	25	26	26	27	28	26	26	27	28	28	29	31	27	28	27.6	31.2	
24-Dec	28	28	A	27	27	29	26	27	24	24	24	25	25	28	25	27	27	20	23	22	22	20	21	17	24.7	29.3	
25-Dec	21	A	22	22	23	21	16	19	18	19	21	24	25	25	26	24	16	16	12	18	19	17	18	17	19.8	25.8	
26-Dec	A	15	14	14	16	14	10	13	13	15	17	21	23	22	25	21	17	4	4	4	4	8	9	A	13.8	24.7	
27-Dec	14	12	7	6	3	3	3	4	4	6	10	14	15	17	17	16	8	3	5	6	4	3	A	4	8.0	17.0	
28-Dec	4	4	4	3	3	3	3	4	4	5	7	7	41	43	36	34	22	16	4	35	41	A	39	34	17.1	42.6	
29-Dec	31	30	24	26	22	12	23	20	12	12	14	11	31	29	21	19	60	5	5	2	A	2	3	3	18.2	60.3	
30-Dec	3	3	3	3	2	2	2	2	17	15	11	11	15	18	21	16	11	7	3	A	2	3	4	6	7.8	21.4	
31-Dec	4	4	6	1	2	4	1	2	1	5	7	7	18	31	38	37	37	37	A	38	38	38	38	38	18.9	38.4	
		16.3	16.0	14.0	14.3	15.6	14.2	14.7	14.6	13.9	15.1	16.8	19.5	21.3	22.1	23.0	20.5	17.3	13.6	14.2	16.5	17.9	16.0	17.1	17.1	Diurnal Average	
		36.3	38.9	39.2	37.9	38.1	38.5	37.4	37.9	34.1	36.7	37.1	36.9	40.6	42.6	37.7	37.5	60.3	36.8	32.8	37.8	40.5	38.2	38.7	38.4	Diurnal Maximum	
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																			

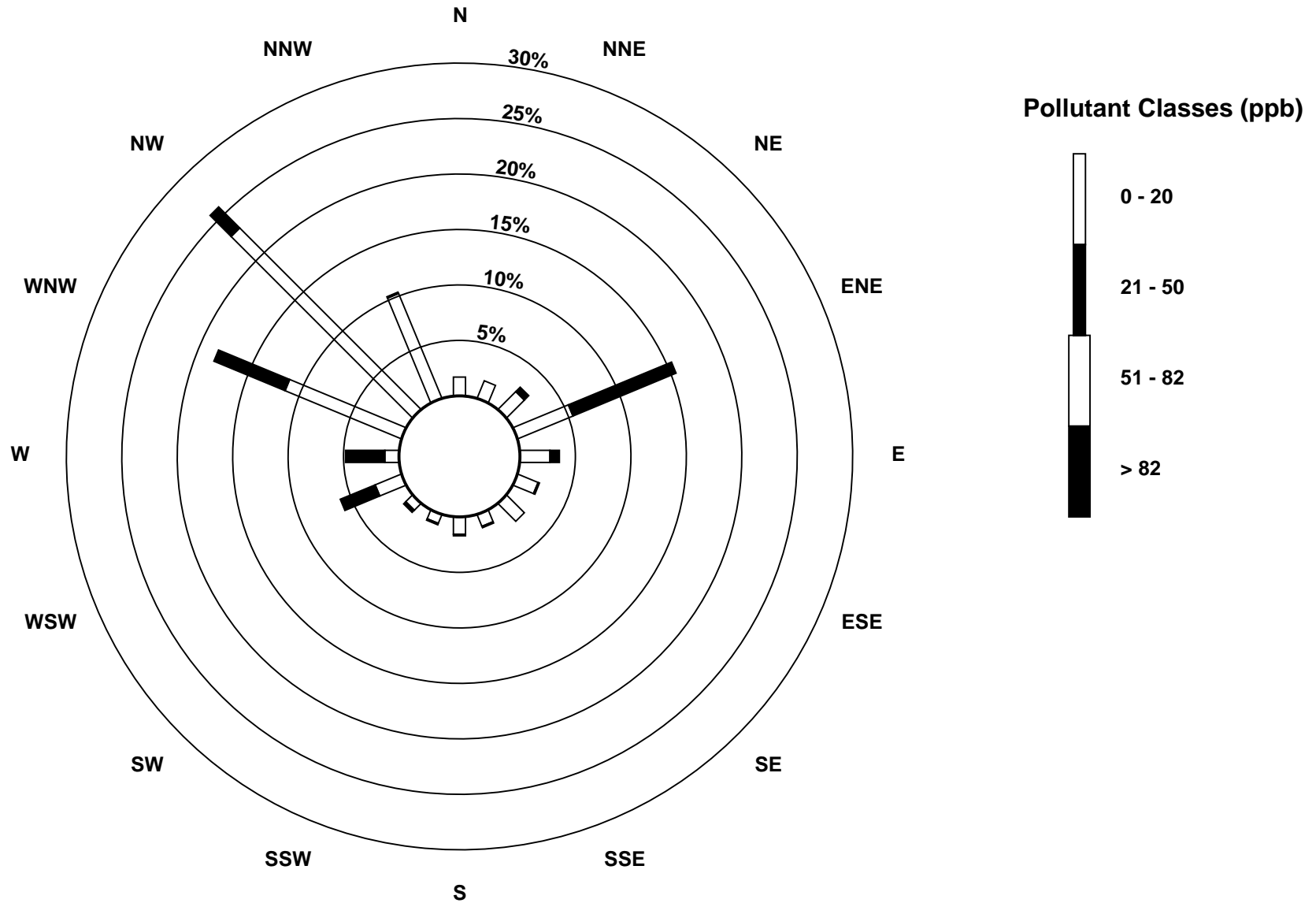
# Hourly Maximums

Ozone (O<sub>3</sub>) - ppb  
Henry Pirker - December 2012



**Pollutant Rose**

Ozone (O<sub>3</sub>) - ppb  
Henry Pirker - December 2012



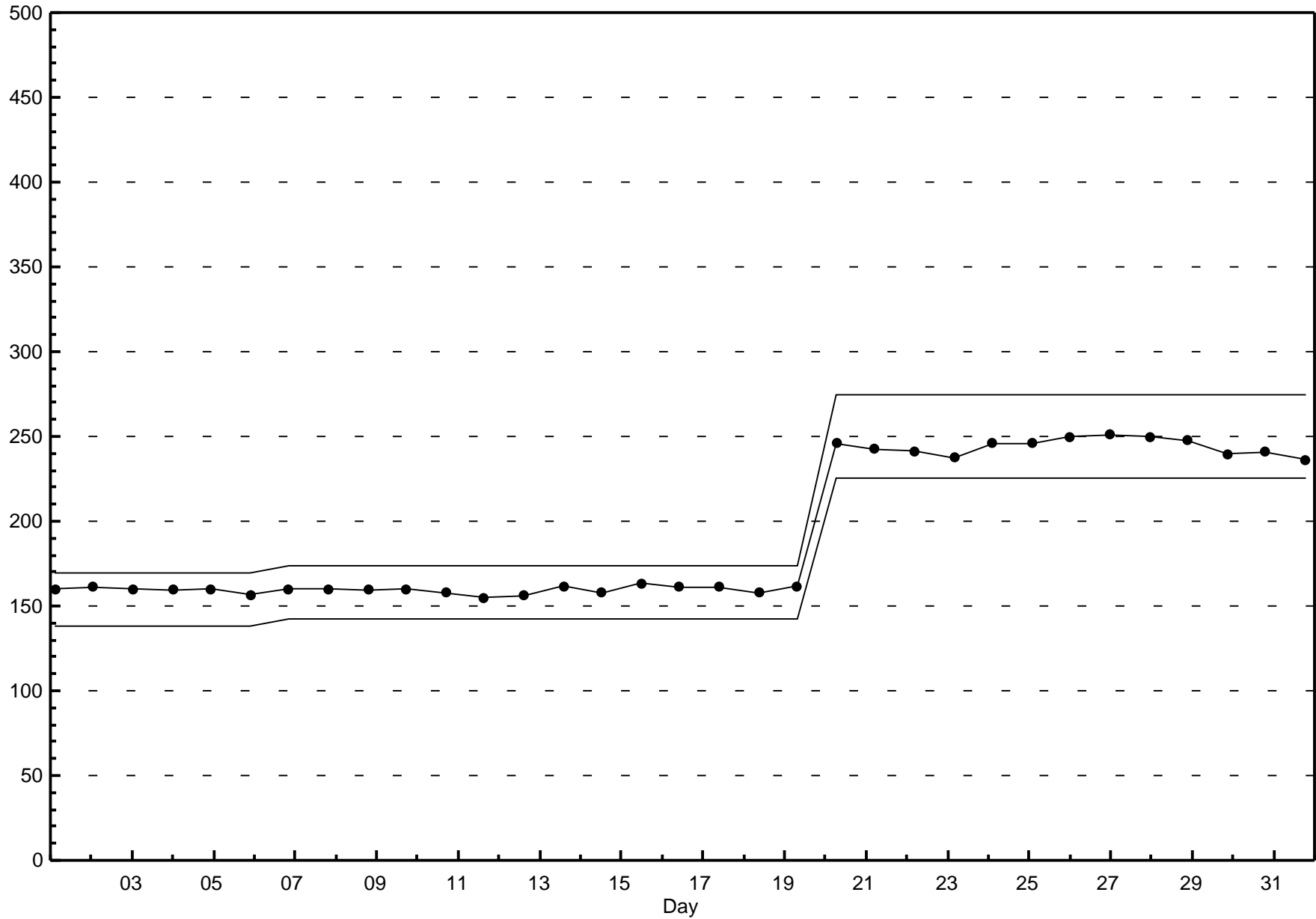
# Eight Hour Running Averages

Ozone (O<sub>3</sub>) - ppb

Henry Pirker - December 2012

Maximum Value: 36.8 ppb on Jan 1 00:00		Hours in Service: 744																								
Minimum Value: 0.6 ppb on Dec 13 09:00		Hours of Data: 732																								
Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 2.4 Q <sub>1</sub> = 4.5 Median = 12.3 Q <sub>3</sub> = 21.4 P <sub>90</sub> = 26.3 P <sub>99</sub> = 33.7		Hours of Missing Data: 12																								
		Hours of Calibration: 12																								
		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	22	23	23	24	25	25	26	26	26	25	25	24	24	23	23	22	21	21	21	21	20	20	19	18	26.0	
2-Dec	18	18	18	17	17	17	17	17	18	17	17	17	18	17	18	17	17	17	17	17	16	16	15	14	17.9	
3-Dec	14	13	11	9	7	5	3	2	2	2	2	3	5	6	7	8	8	8	8	8	6	5	4	4	14.3	
4-Dec	4	4	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	7	8	8	9	8	8	8.6	
5-Dec	9	10	10	10	10	11	12	13	14	15	16	17	18	19	20	21	21	22	22	21	20	19	17	15	22.0	
6-Dec	12	9	7	5	4	4	4	5	6	8	10	12	13	15	N	N	N	N	N	N	N	N	4	4	14.7	
7-Dec	4	5	5	5	5	4	5	5	4	4	4	6	7	9	10	12	13	14	15	15	16	18	19	20	19.8	
8-Dec	21	23	24	24	24	24	23	21	18	15	13	11	10	8	8	8	8	7	6	5	4	3	3	24.4		
9-Dec	4	4	4	4	4	4	4	3	3	3	4	4	4	5	6	7	7	7	7	9	13	17	20	24	23.9	
10-Dec	28	29	33	35	35	35	34	32	30	29	29	29	28	27	27	27	28	24	20	16	13	12	12	14	35.1	
11-Dec	16	19	23	27	31	32	33	34	34	34	32	32	32	32	30	29	27	25	24	22	19	16	15	15	34.1	
12-Dec	15	16	16	17	17	18	18	17	16	15	13	12	12	11	11	9	8	7	6	5	2	1	1	1	17.6	
13-Dec	1	1	1	1	1	1	1	1	1	1	1	4	8	9	13	18	20	N	N	N	N	29	30	30	30.5	
14-Dec	30	30	30	30	30	29	28	25	22	21	20	19	18	18	19	20	20	20	20	19	18	15	12	10	30.4	
15-Dec	9	7	5	3	2	2	2	2	2	2	3	3	3	4	6	7	7	7	6	6	6	6	5	4	8.7	
16-Dec	4	4	4	4	4	3	2	2	2	2	2	2	3	3	4	5	5	5	4	4	3	2	2	1	4.6	
17-Dec	2	2	3	3	4	6	7	7	7	7	9	12	14	15	17	20	23	22	22	21	21	20	19	18	22.6	
18-Dec	18	18	16	14	11	9	7	5	3	2	2	3	4	4	5	6	5	5	4	3	2	2	1	1	18.2	
19-Dec	1	1	1	1	1	1	1	1	1	1	1	2	4	5	6	6	6	6	6	5	4	4	4	3	6.3	
20-Dec	3	3	3	3	5	6	6	6	7	9	12	14	15	16	17	19	20	20	20	21	21	22	22	23	23.0	
21-Dec	24	25	26	27	27	28	28	28	28	28	29	29	29	29	30	30	30	30	30	29	29	28	27	26	30.2	
22-Dec	25	24	23	22	21	22	22	23	23	23	23	23	23	22	22	22	22	22	22	23	23	23	23	23	24.6	
23-Dec	24	24	25	25	26	26	27	27	27	27	27	26	26	25	25	24	24	24	24	25	25	25	25	26	27.5	
24-Dec	26	26	26	26	26	26	26	25	24	24	23	23	23	23	23	23	23	22	22	22	21	21	20	19	26.5	
25-Dec	18	18	18	18	18	18	17	17	17	16	16	16	17	18	19	20	20	19	18	17	16	15	13	12	20.1	
26-Dec	12	12	12	12	12	11	10	10	11	11	11	12	13	14	16	17	17	16	14	12	10	8	6	4	16.9	
27-Dec	4	5	5	5	5	5	4	4	3	3	3	4	6	7	9	10	11	10	10	9	7	6	4	3	10.6	
28-Dec	3	3	3	3	3	3	3	3	3	3	3	3	4	9	12	15	16	16	15	16	20	17	18	19	19.6	
29-Dec	19	21	24	25	22	20	17	14	13	11	10	8	9	12	13	13	14	13	12	12	10	7	4	3	25.1	
30-Dec	2	2	2	2	2	2	2	2	2	3	4	5	7	8	10	11	11	10	9	9	8	6	4	2	11.4	
31-Dec	2	1	1	1	1	1	1	1	1	1	1	2	3	6	10	14	19	23	26	30	34	36	37	37	36.8	
		30.3	30.3	33.2	34.7	35.1	35.0	34.2	34.0	34.1	33.9	32.3	32.2	32.1	31.8	29.7	29.9	30.2	30.0	29.5	30.1	33.9	36.0	36.6	36.8	
		Diurnal Maximums																								
N - Not Valid																										





## Hourly Averages

Carbon Monoxide (CO) - ppm

Henry Pirker - December 2012

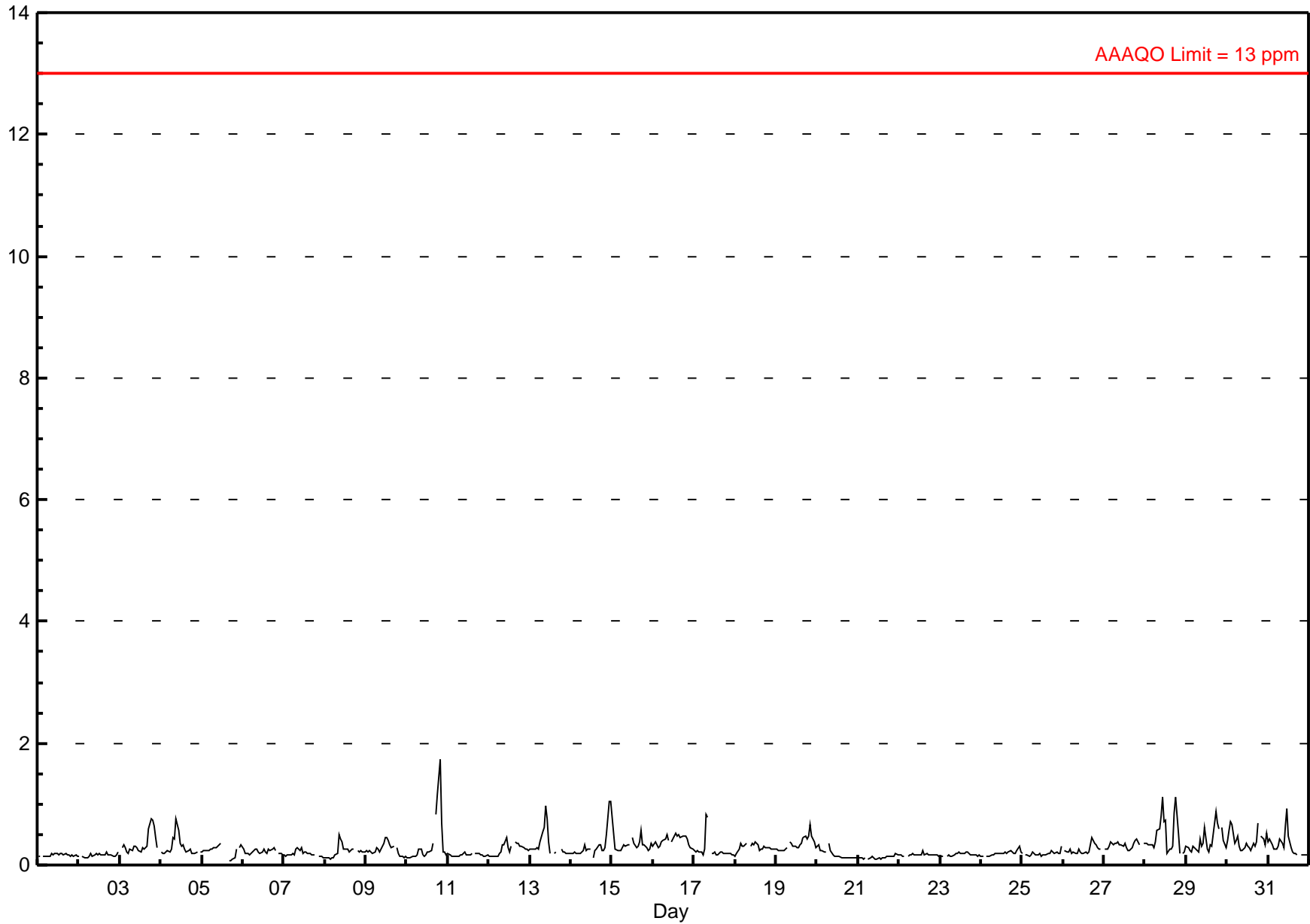
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 1.72 ppm on Dec 10 20:00	Maximum Daily Average: 0.48 ppm on Dec 28
Minimum Value: 0.1 ppm on Dec 5 18:00	Hours of Data: 705
Maximum Diurnal Average: 0.35 ppm at hour 19	Hours of Missing Data: 39
Monthly Average: 0.269 ppm	Hours of Calibration: 37
Percentiles: P <sub>1</sub> = 0.11 P <sub>10</sub> = 0.14 Q <sub>1</sub> = 0.17 Median = 0.22 Q <sub>3</sub> = 0.31 P <sub>90</sub> = 0.44 P <sub>99</sub> = 0.94	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	0.1	0.1	A	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.16	0.20
2-Dec	0.1	A	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.16	0.20
3-Dec	A	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.6	0.7	0.7	0.6	0.5	0.3	A	0.35	0.75
4-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.7	0.6	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.29	0.75
5-Dec	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	C	C	C	C	0.1	0.1	0.1	0.1	0.3	A	0.3	0.3	0.24	0.36
6-Dec	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.2	A	0.2	0.2	0.2	0.22	0.29
7-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.1	0.1	0.19	0.29
8-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	A	0.2	0.2	0.2	0.2	0.2	0.23	0.49
9-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	A	0.3	0.2	0.1	0.1	0.1	0.1	0.26	0.45
10-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	A	0.8	1.2	1.7	0.7	0.2	0.2	0.2	0.35	1.72
11-Dec	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	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17	0.22
12-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.3	A	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.26	0.45
13-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6	1.0	0.8	0.4	0.2	A	0.2	0.2	N	N	0.3	0.2	0.2	0.2	0.2	0.2	0.34	0.97
14-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	A	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.5	1.0	1.0	0.32	1.05
15-Dec	0.8	0.5	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	A	0.5	0.3	0.3	0.3	0.4	0.6	0.3	0.3	0.3	0.2	0.3	0.4	0.35	0.79
16-Dec	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	A	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.40	0.52
17-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.8	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25	0.83
18-Dec	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	A	0.3	0.4	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.29	0.38
19-Dec	0.3	0.2	0.2	0.2	0.2	0.2	0.3	A	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.5	0.7	0.5	0.4	0.3	0.35	0.66
20-Dec	0.3	0.3	0.2	0.2	0.2	0.2	A	0.4	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	0.18	0.35
21-Dec	0.1	0.1	0.1	0.1	0.1	A	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	0.12	0.18
22-Dec	0.2	0.2	0.2	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	0.24
23-Dec	0.2	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	0.2	0.17	0.21
24-Dec	0.1	0.1	A	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	0.3	0.2	0.19	0.30
25-Dec	0.2	A	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.19	0.30
26-Dec	A	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.3	A	0.25	0.44
27-Dec	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.3	A	0.3	0.33	0.43
28-Dec	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.6	0.8	1.1	0.7	0.7	0.2	0.3	0.3	0.3	0.9	1.1	0.5	0.2	A	0.2	0.2	0.48	1.12
29-Dec	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.4	0.3	0.4	0.6	0.3	0.2	0.3	0.3	0.5	0.9	0.7	0.6	A	0.6	0.4	0.3	0.38	0.88
30-Dec	0.4	0.6	0.7	0.7	0.4	0.4	0.5	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.7	A	0.5	0.4	0.3	0.5	0.40	0.72
31-Dec	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.6	0.9	0.5	0.3	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.31	0.93
	0.24	0.24	0.23	0.22	0.21	0.22	0.24	0.30	0.32	0.31	0.33	0.30	0.28	0.24	0.23	0.25	0.26	0.34	0.35	0.33	0.27	0.25	0.25	0.25		Diurnal Average
	0.79	0.56	0.72	0.66	0.38	0.41	0.47	0.83	0.79	0.97	1.12	0.93	0.74	0.52	0.49	0.50	0.50	0.88	1.17	1.72	0.69	0.62	1.05	1.03		Diurnal Maximum

C - Calibration      N - Not Valid      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 2012**



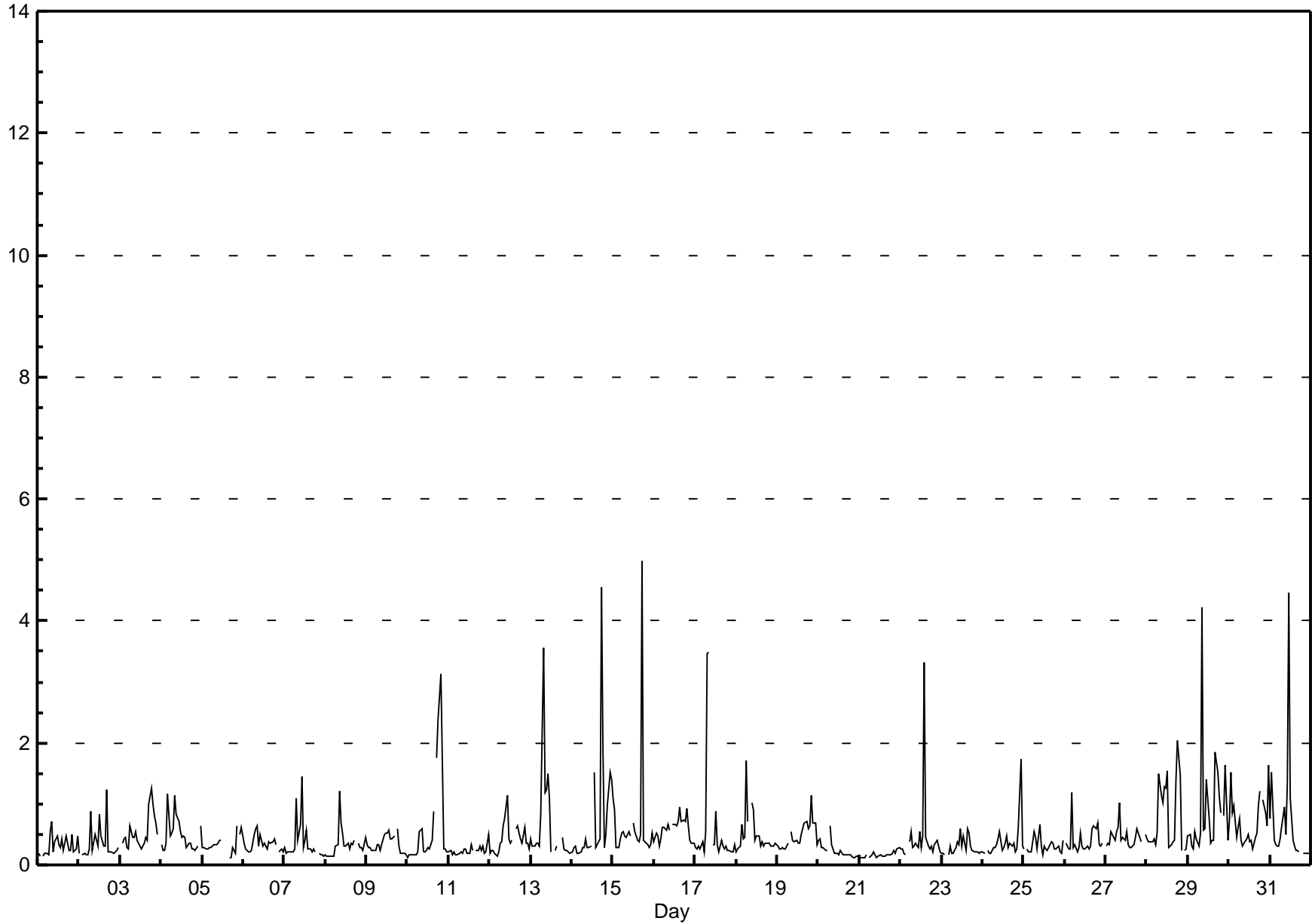
## Hourly Maximums

**Carbon Monoxide (CO) - ppm**  
**Henry Pirker - December 2012**

Maximum Value: 4.99 ppm on Dec 15 18:00		Maximum Daily Average: 0.88 ppm on Dec 29		Hours in Service: 744																						
Minimum Value: 0.1 ppm on Dec 5 18:00		Minimum Daily Average: 0.16 ppm on Dec 21		Hours of Data: 705																						
Maximum Diurnal Average: 0.82 ppm at hour 18		Minimum Diurnal Average: 0.29 ppm at hour 3		Hours of Missing Data: 39																						
Monthly Average: 0.473 ppm		Percentiles: P <sub>1</sub> = 0.12 P <sub>10</sub> = 0.19 Q <sub>1</sub> = 0.24 Median = 0.33 Q <sub>3</sub> = 0.50 P <sub>90</sub> = 0.86 P <sub>99</sub> = 3.47		Hours of Calibration: 37																						
				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	0.2	0.1	A	0.1	0.2	0.2	0.2	0.6	0.7	0.2	0.4	0.5	0.3	0.3	0.4	0.2	0.5	0.3	0.2	0.2	0.5	0.2	0.3	0.5	0.32	0.72
2-Dec	0.2	A	0.2	0.2	0.2	0.2	0.3	0.9	0.2	0.5	0.4	0.3	0.8	0.5	0.3	0.3	1.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.36	1.24
3-Dec	A	0.4	0.4	0.5	0.3	0.3	0.6	0.5	0.5	0.6	0.4	0.4	0.3	0.3	0.4	0.5	0.4	1.0	1.3	1.0	0.8	0.7	0.5	A	0.53	1.25
4-Dec	0.3	0.2	0.2	0.3	1.2	0.5	0.5	0.6	1.1	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	A	0.7	0.49	1.17
5-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	C	C	C	C	0.1	0.1	0.3	0.2	0.6	A	0.5	0.6	0.33	0.63
6-Dec	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.6	0.6	0.3	0.5	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.3	A	0.2	0.3	0.2	0.34	0.64
7-Dec	0.3	0.2	0.2	0.2	0.2	0.2	0.3	1.1	0.4	0.7	1.5	0.3	0.4	0.6	0.3	0.3	0.2	0.3	0.2	A	0.2	0.2	0.2	0.2	0.36	1.46
8-Dec	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	1.2	0.7	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.3	A	0.3	0.3	0.3	0.2	0.5	0.34	1.20
9-Dec	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.5	0.5	0.5	0.6	0.4	0.4	0.5	A	0.6	0.3	0.2	0.2	0.2	0.2	0.35	0.58
10-Dec	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.6	0.2	0.2	0.2	0.3	0.3	0.4	0.9	A	1.8	2.4	3.1	1.7	0.3	0.3	0.2	0.63	3.13
11-Dec	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	0.3	0.2	A	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.5	0.24	0.50
12-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.8	1.1	0.4	0.3	0.4	A	0.6	0.6	0.5	0.4	0.3	0.6	0.3	0.3	0.3	0.42	1.13
13-Dec	0.4	0.3	0.3	0.3	0.3	0.3	0.8	3.6	1.2	1.2	1.5	1.1	0.2	A	0.2	0.3	N	N	0.4	0.3	0.2	0.2	0.2	0.2	0.66	3.56
14-Dec	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	A	1.5	0.3	0.3	0.4	4.5	1.9	0.3	0.5	1.0	1.5	1.4	0.74	4.55
15-Dec	1.1	0.9	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.6	0.5	A	0.7	0.5	0.4	0.4	0.5	5.0	0.4	0.4	0.3	0.3	0.3	0.5	0.69	4.99
16-Dec	0.4	0.5	0.5	0.3	0.4	0.6	0.6	0.6	0.7	0.6	A	0.7	0.7	0.6	0.7	0.9	0.7	0.7	0.7	0.9	0.6	0.4	0.4	0.4	0.59	0.94
17-Dec	0.3	0.3	0.3	0.3	0.4	0.2	0.6	3.5	3.5	A	0.3	0.3	0.9	0.3	0.2	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.60	3.48
18-Dec	0.2	0.3	0.3	0.7	0.4	0.5	1.7	0.7	A	1.0	0.9	0.4	0.5	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.49	1.70
19-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.4	A	0.5	0.4	0.4	0.4	0.3	0.5	0.6	0.7	0.7	0.6	0.6	1.1	0.7	0.7	0.3	0.3	0.48	1.14
20-Dec	0.4	0.4	0.3	0.3	0.2	0.2	A	0.6	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	0.1	0.1	0.2	0.23	0.64
21-Dec	0.1	0.1	0.1	0.1	0.2	A	0.1	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	0.3	0.16	0.28
22-Dec	0.3	0.3	0.2	0.2	A	0.4	0.5	0.3	0.3	0.4	0.3	0.6	0.3	0.5	3.3	0.4	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.45	3.31
23-Dec	0.2	0.2	0.2	A	0.2	0.3	0.2	0.2	0.3	0.4	0.3	0.6	0.3	0.5	0.2	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.29	0.60
24-Dec	0.2	0.2	A	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.2	0.3	0.4	0.5	0.3	0.4	0.3	0.4	0.2	0.3	0.6	1.7	0.3	0.38	1.73
25-Dec	0.3	A	0.3	0.2	0.2	0.4	0.6	0.4	0.3	0.7	0.3	0.2	0.3	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.4	0.31	0.65
26-Dec	A	0.4	0.3	0.3	1.2	0.3	0.3	0.2	0.3	0.5	0.3	0.2	0.3	0.3	0.3	0.3	0.6	0.7	0.6	0.7	0.3	0.3	0.3	A	0.40	1.19
27-Dec	0.3	0.3	0.3	0.5	0.5	0.4	0.5	0.6	1.0	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.4	0.6	0.5	0.4	0.4	A	0.5	0.46	1.03
28-Dec	0.4	0.4	0.4	0.4	0.4	0.3	0.5	1.5	1.1	1.0	1.3	1.2	1.5	0.3	0.3	0.4	0.4	1.4	2.0	1.5	0.2	A	0.2	0.3	0.77	2.03
29-Dec	0.5	0.5	0.3	0.3	0.5	0.4	0.3	0.5	4.2	0.6	0.6	1.4	0.8	0.4	0.4	0.4	1.8	1.5	1.1	0.9	A	0.8	1.6	0.4	0.88	4.21
30-Dec	0.7	1.5	0.9	1.0	0.5	0.6	0.8	0.4	0.3	0.4	0.4	0.5	0.4	0.4	0.3	0.5	0.5	1.0	1.2	A	1.1	0.8	0.6	1.6	0.71	1.64
31-Dec	0.8	1.5	0.4	0.3	0.3	0.3	0.4	0.6	1.0	0.5	1.3	4.5	1.1	0.4	0.3	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.67	4.47
		0.33	0.38	0.29	0.30	0.34	0.31	0.45	0.71	0.77	0.51	0.56	0.59	0.47	0.42	0.43	0.40	0.47	0.82	0.63	0.51	0.44	0.36	0.44	0.41	Diurnal Average
		1.09	1.52	0.86	0.98	1.19	0.61	1.70	3.56	4.21	1.25	1.50	4.47	1.53	1.51	3.31	0.94	1.85	4.99	2.37	3.13	1.68	0.97	1.73	1.64	Diurnal Maximum
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																		

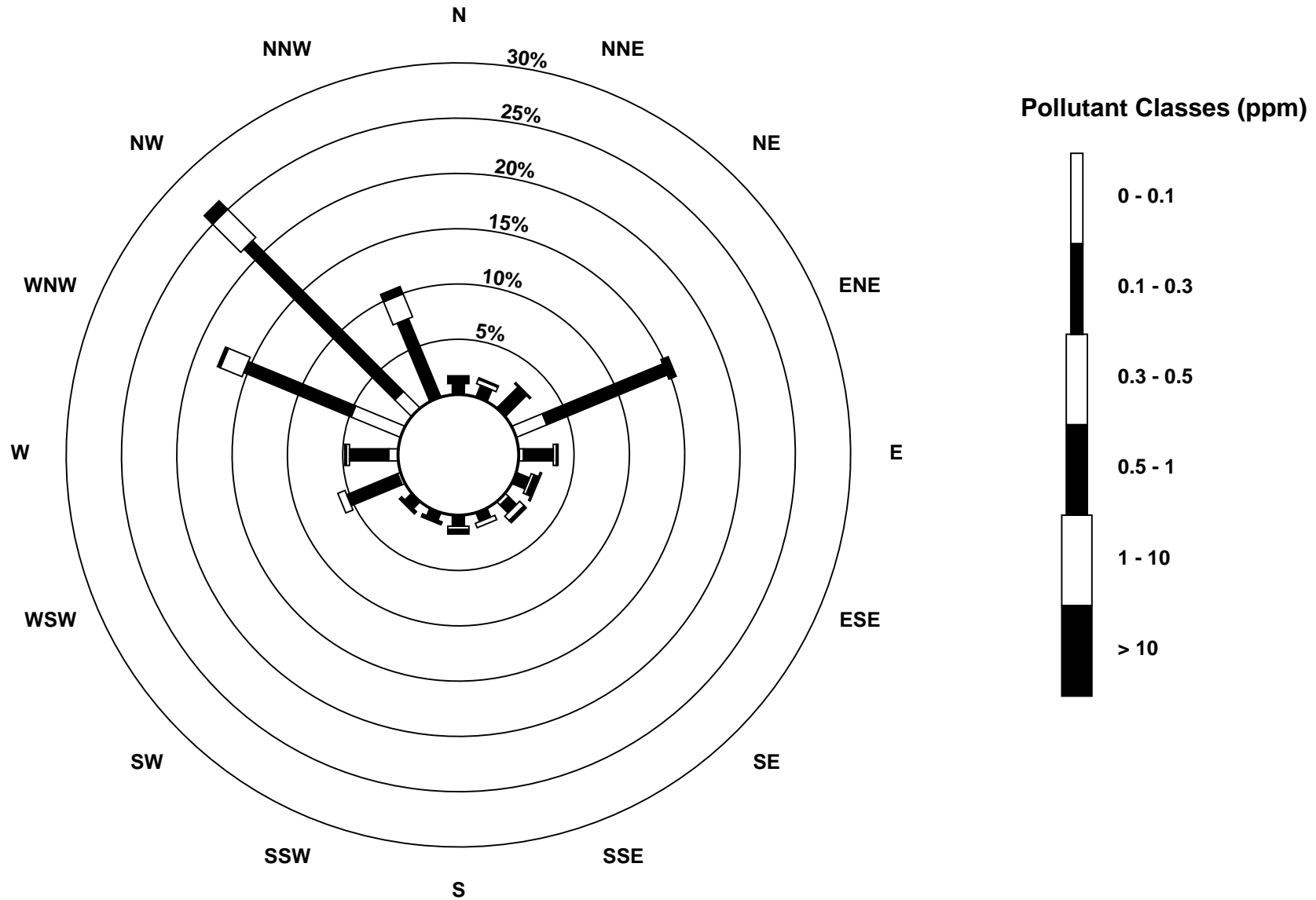
### Hourly Maximums

Carbon Monoxide (CO) - ppm  
Henry Pirker - December 2012



**Pollutant Rose**

**Carbon Monoxide (CO) - ppm**  
**Henry Pirker - December 2012**



## Eight Hour Running Averages

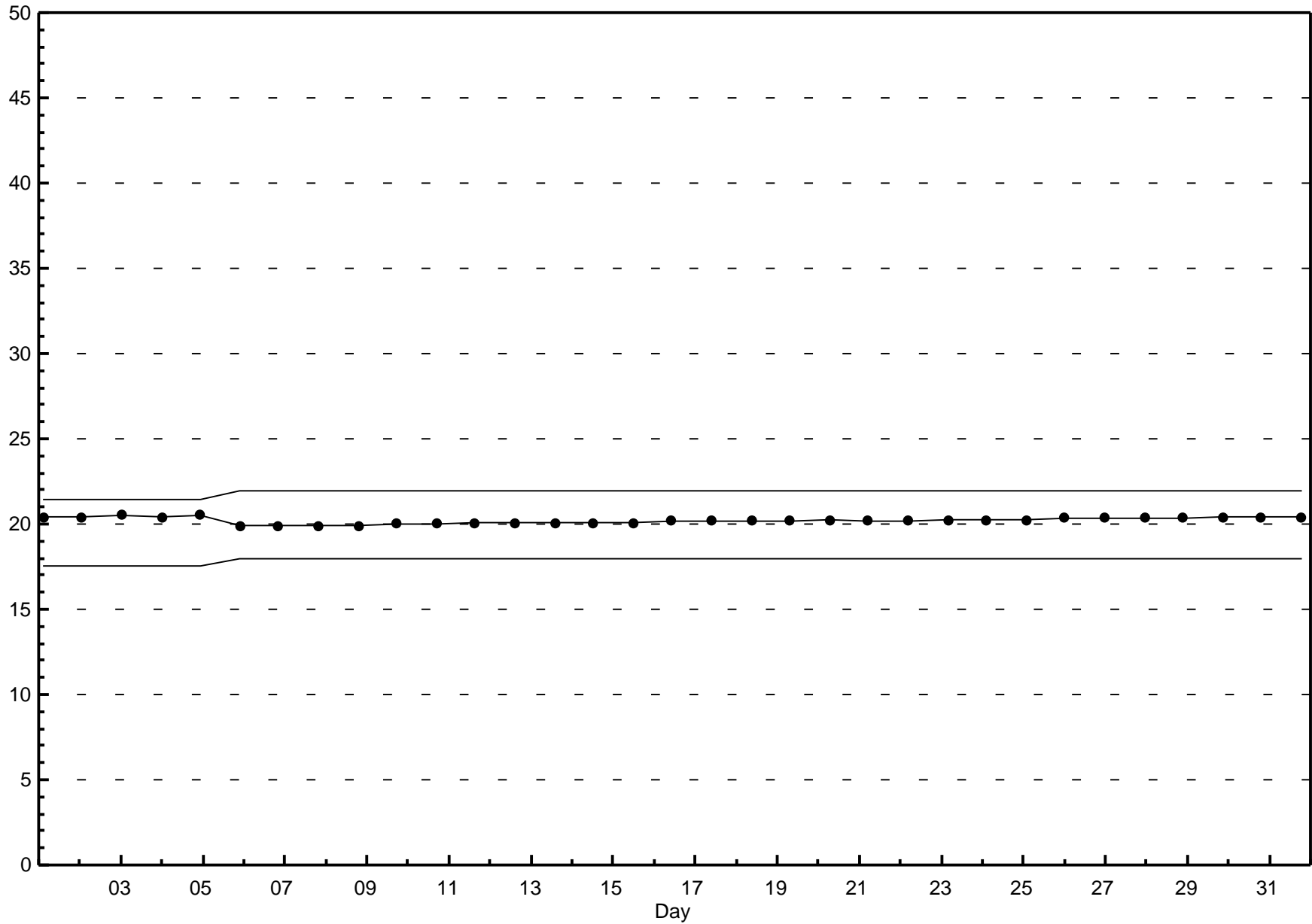
Carbon Monoxide (CO) - ppm

Henry Pirker - December 2012

Number of Exceedences (AAAQO): 8-hr: 0	Hours in Service: 744
Maximum Value: 0.75 ppm on Dec 10 21:00	Hours of Data: 732
Minimum Value: 0.11 ppm on Dec 21 07:00	Hours of Missing Data: 12
	Hours of Calibration: 12
	Percent Operational Time: 100.0
Percentiles: P <sub>1</sub> = 0.11 P <sub>10</sub> = 0.15 Q <sub>1</sub> = 0.18 Median = 0.24 Q <sub>3</sub> = 0.33 P <sub>90</sub> = 0.45 P <sub>99</sub> = 0.64	

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	0.1	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	0.18
2-Dec	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.18
3-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.54
4-Dec	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.53
5-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	N	N	N	N	N	N	N	N	0.1	0.2	0.31
6-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25
7-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.24
8-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.32
9-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.37
10-Dec	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	0.2	0.2	0.2	0.2	0.3	0.5	0.7	0.7	0.7	0.7	0.7	0.75
11-Dec	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.65
12-Dec	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.34
13-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	N	N	N	N	0.2	0.2	0.2	0.55
14-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.5	0.50
15-Dec	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.58
16-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.49
17-Dec	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.38
18-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.35
19-Dec	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.46
20-Dec	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.43
21-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.15
22-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	0.18
23-Dec	0.2	0.2	0.2	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	0.2	0.2	0.2	0.2	0.2	0.20
24-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
25-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.22
26-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.32
27-Dec	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.37
28-Dec	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.65
29-Dec	0.5	0.4	0.3	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	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.57
30-Dec	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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	0.55
31-Dec	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.47
0.65 0.58 0.58 0.58 0.57 0.54 0.48 0.49 0.47 0.45 0.55 0.60 0.65 0.64 0.62 0.59 0.55 0.56 0.56 0.68 0.75 0.74 0.74 0.71																									
Diurnal Maximums																									

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





## Hourly Averages

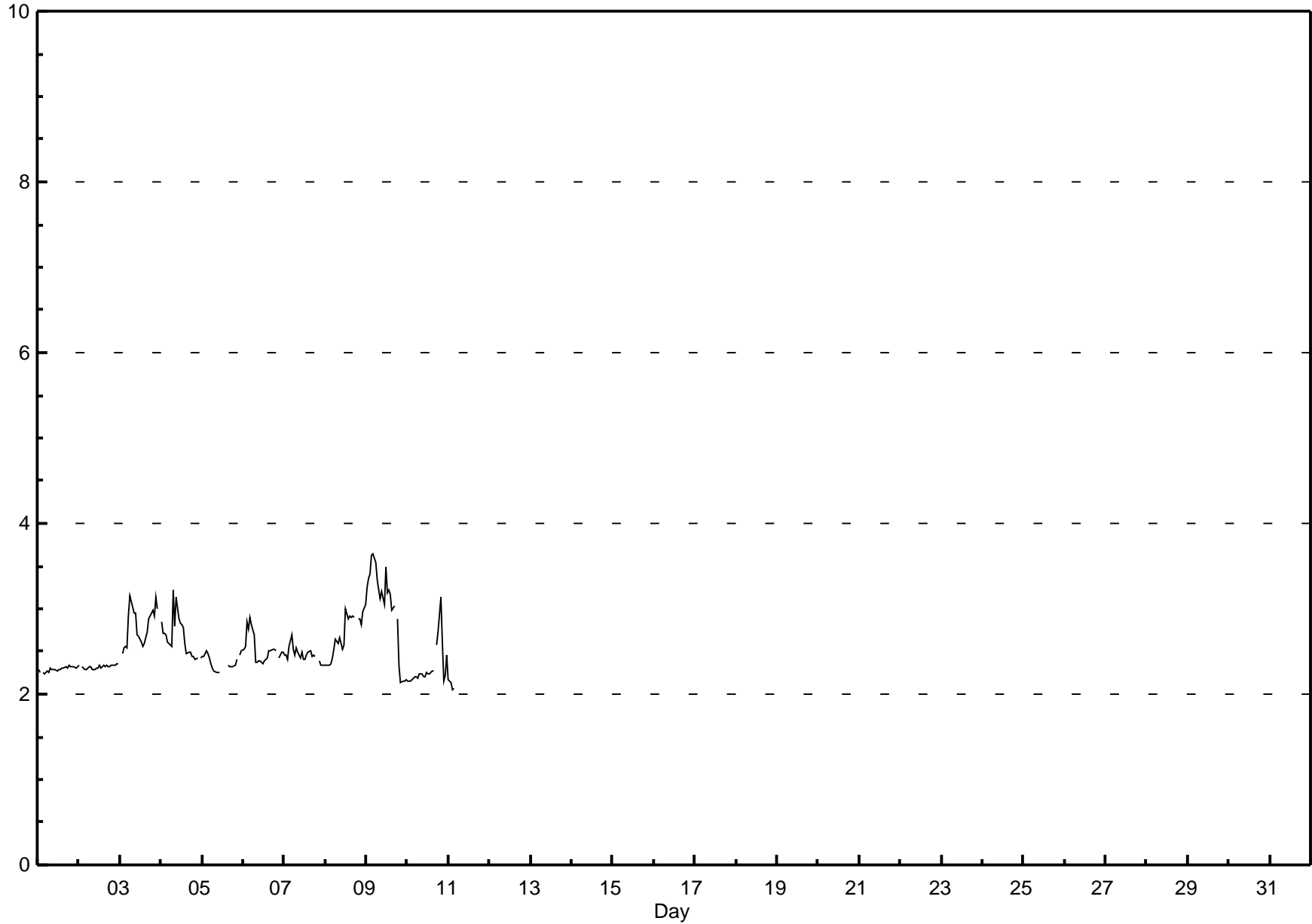
Total Hydrocarbons (THC) - ppm

Henry Pirker - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.64 ppm on Dec 9 05:00	Maximum Daily Average: 3.03 ppm on Dec 9		Hours of Data:	229
Minimum Value: 2.0 ppm on Dec 11 03:00	Minimum Daily Average: 2.29 ppm on Dec 1		Hours of Missing Data:	515
Maximum Diurnal Average: 2.61 ppm at hour 8	Minimum Diurnal Average: 2.46 ppm at hour 22		Hours of Calibration:	15
Monthly Average: 2.542 ppm	Percentiles: P <sub>1</sub> = 2.13 P <sub>10</sub> = 2.24 Q <sub>1</sub> = 2.32 Median = 2.44 Q <sub>3</sub> = 2.70 P <sub>90</sub> = 3.01 P <sub>99</sub> = 3.63		Percent Operational Time:	32.8

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	2.3	2.3	A	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.29	2.33
2-Dec	2.3	A	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.32	2.36
3-Dec	A	2.5	2.5	2.6	2.5	2.9	3.2	3.0	2.9	3.0	2.7	2.7	2.6	2.6	2.6	2.7	2.7	2.9	3.0	3.0	2.9	3.1	3.0	A	2.80	3.15
4-Dec	2.8	2.7	2.7	2.7	2.6	2.6	2.6	3.2	2.8	3.1	2.9	2.8	2.8	2.8	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	A	2.4	2.67	3.22
5-Dec	2.4	2.4	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.3	2.3	C	C	C	C	2.3	2.3	2.3	2.3	2.3	2.4	A	2.5	2.5	2.37	2.51
6-Dec	2.5	2.6	2.9	2.8	2.9	2.8	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	A	2.4	2.5	2.5	2.53	2.89
7-Dec	2.5	2.5	2.4	2.6	2.7	2.5	2.5	2.6	2.5	2.4	2.5	2.4	2.4	2.5	2.5	2.5	2.4	2.5	2.4	A	2.4	2.3	2.3	2.3	2.46	2.70
8-Dec	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.6	2.5	3.0	2.9	2.9	2.9	2.9	2.9	A	A	2.9	2.9	2.8	3.0	3.1	2.70	3.05
9-Dec	3.2	3.3	3.4	3.6	3.6	3.5	3.3	3.2	3.1	3.2	3.1	3.5	3.2	3.2	3.2	3.0	3.0	A	A	2.9	2.3	2.1	2.2	2.2	3.03	3.64
10-Dec	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	A	2.6	2.7	3.1	2.6	2.1	2.2	2.5	2.31	3.13
11-Dec	2.2	2.1	2.0	2.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	2.16
12-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
13-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
14-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
15-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
16-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
17-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
18-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
19-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
20-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
21-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
22-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
23-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
24-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
25-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
26-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
27-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
28-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
29-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
30-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
31-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
	2.48	2.49	2.53	2.53	2.60	2.60	2.59	2.61	2.54	2.57	2.51	2.58	2.58	2.57	2.57	2.53	2.57	2.53	2.55	2.59	2.49	2.46	2.47	2.46	Diurnal Average	
	3.25	3.35	3.41	3.63	3.64	3.54	3.34	3.22	3.12	3.20	3.05	3.50	3.18	3.22	3.17	2.97	3.03	2.90	2.96	3.13	2.92	3.14	3.00	3.05	Diurnal Maximum	

C - Calibration      N - Not Valid      A - Automated Daily Zero Span



## Hourly Maximums

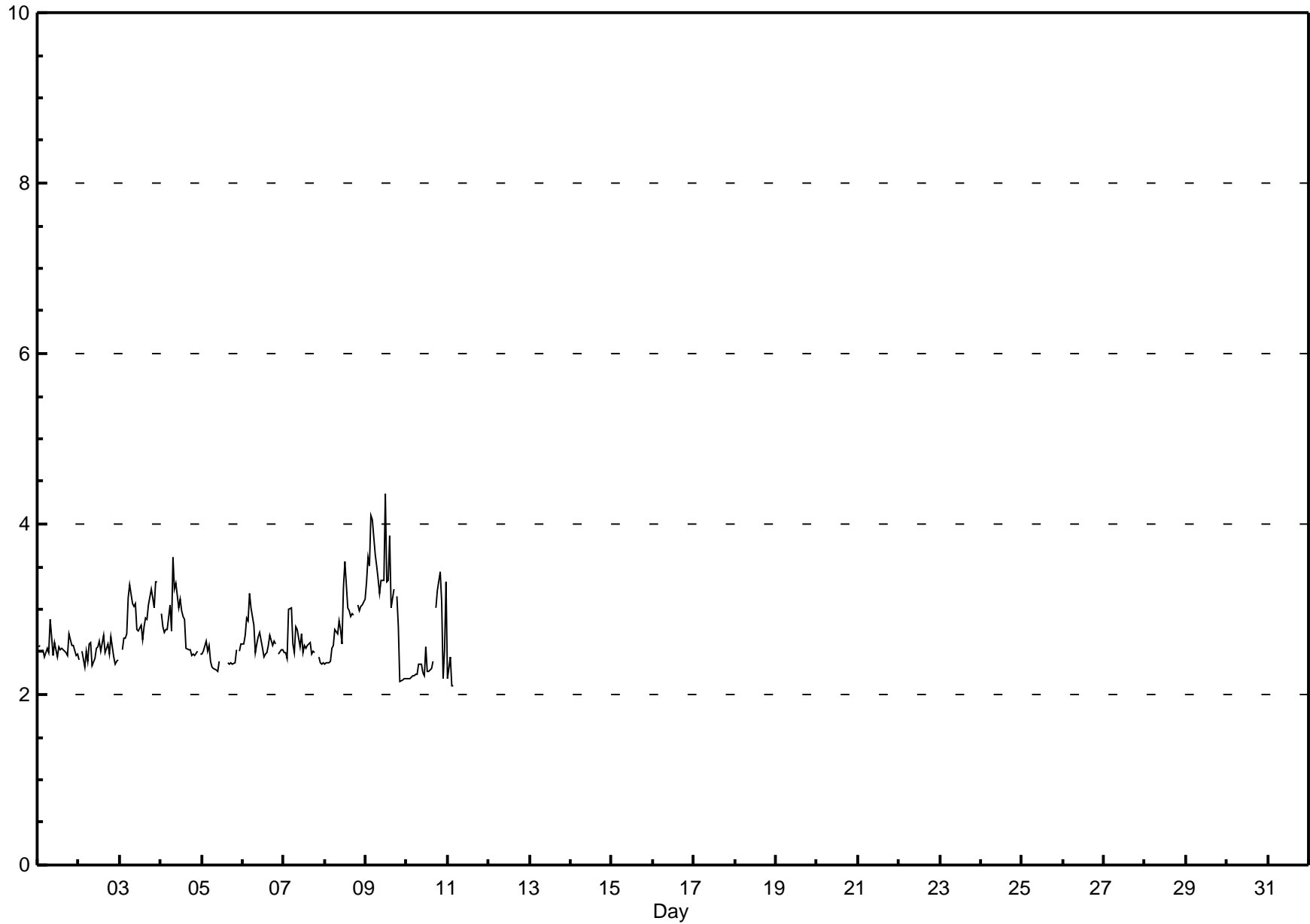
## Total Hydrocarbons (THC) - ppm

### Henry Pirker - December 2012

<b>Maximum Value: 4.35 ppm on Dec 9 12:00</b>		<b>Maximum Daily Average: 3.25 ppm on Dec 9</b>		Hours in Service: 744 Hours of Data: 229 Hours of Missing Data: 515 Hours of Calibration: 15 Percent Operational Time: 32.8																																												
<b>Minimum Value: 2.1 ppm on Dec 11 03:00</b>		<b>Minimum Daily Average: 2.43 ppm on Dec 5</b>																																														
<b>Maximum Diurnal Average: 2.90 ppm at hour 12</b>		<b>Minimum Diurnal Average: 2.55 ppm at hour 1</b>																																														
<b>Monthly Average: 2.699 ppm</b>		Percentiles: P <sub>1</sub> = 2.15 P <sub>10</sub> = 2.32 Q <sub>1</sub> = 2.46 Median = 2.57 Q <sub>3</sub> = 2.92 P <sub>90</sub> = 3.23 P <sub>99</sub> = 3.92																																														
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	2.6	2.6	A	2.5	2.4	2.5	2.5	2.9	2.7	2.5	2.6	2.4	2.6	2.5	2.5	2.5	2.5	2.7	2.6	2.6	2.6	2.5	2.5	2.5	2.55	2.89																						
2-Dec	2.4	A	2.5	2.3	2.5	2.4	2.6	2.6	2.3	2.4	2.5	2.6	2.6	2.5	2.7	2.5	2.5	2.6	2.5	2.7	2.4	2.4	2.4	2.4	2.50	2.69																						
3-Dec	A	2.5	2.7	2.7	2.7	3.1	3.3	3.1	3.0	3.1	2.8	2.7	2.8	2.6	2.8	2.9	2.9	3.1	3.2	3.1	3.0	3.3	3.3	A	2.94	3.33																						
4-Dec	2.9	2.8	2.7	2.8	2.8	3.0	2.7	3.6	3.2	3.3	3.0	3.1	3.0	2.9	2.9	2.6	2.5	2.5	2.5	2.5	2.5	2.5	A	2.5	2.82	3.61																						
5-Dec	2.5	2.5	2.6	2.5	2.6	2.4	2.3	2.3	2.3	2.3	2.4	C	C	C	C	2.4	2.4	2.4	2.4	2.4	2.5	A	2.5	2.6	2.43	2.63																						
6-Dec	2.6	2.7	2.9	2.9	3.2	3.0	2.8	2.5	2.6	2.7	2.7	2.5	2.4	2.5	2.5	2.6	2.7	2.6	2.6	2.6	A	2.5	2.5	2.5	2.66	3.19																						
7-Dec	2.5	2.5	2.4	3.0	3.0	2.6	2.5	2.8	2.8	2.6	2.7	2.5	2.6	2.5	2.6	2.6	2.5	2.5	2.5	A	2.4	2.4	2.4	2.4	2.57	3.01																						
8-Dec	2.4	2.4	2.4	2.4	2.5	2.6	2.8	2.7	2.9	2.8	2.6	3.2	3.6	3.0	3.0	2.9	2.9	2.9	A	3.0	3.0	3.0	3.1	3.1	2.83	3.57																						
9-Dec	3.3	3.6	3.5	4.1	4.1	3.6	3.5	3.4	3.2	3.3	3.3	4.3	3.3	3.3	3.9	3.0	3.2	A	3.2	2.8	2.2	2.2	2.2	2.2	3.25	4.35																						
10-Dec	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.6	2.3	2.3	2.3	2.4	A	3.0	3.2	3.4	3.1	2.2	2.5	3.3	2.49	3.44																						
11-Dec	2.2	2.4	2.1	2.1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	2.44																						
12-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
13-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
14-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
15-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
16-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
17-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
18-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
19-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
20-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
21-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
22-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
23-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
24-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
25-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
26-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
27-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
28-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
29-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
30-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
31-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--																						
																								2.55	2.62	2.60	2.68	2.80	2.76	2.73	2.82	2.73	2.71	2.69	2.90	2.80	2.69	2.80	2.63	2.68	2.67	2.75	2.80	2.63	2.56	2.59	2.61	Diurnal Average
																								3.32	3.61	3.51	4.11	4.06	3.64	3.52	3.61	3.23	3.34	3.34	4.35	3.57	3.34	3.87	3.02	3.24	3.05	3.23	3.44	3.08	3.32	3.33	3.32	Diurnal Maximum
C - Calibration                      N - Not Valid                      A - Automated Daily Zero Span																																																

**Hourly Maximums**

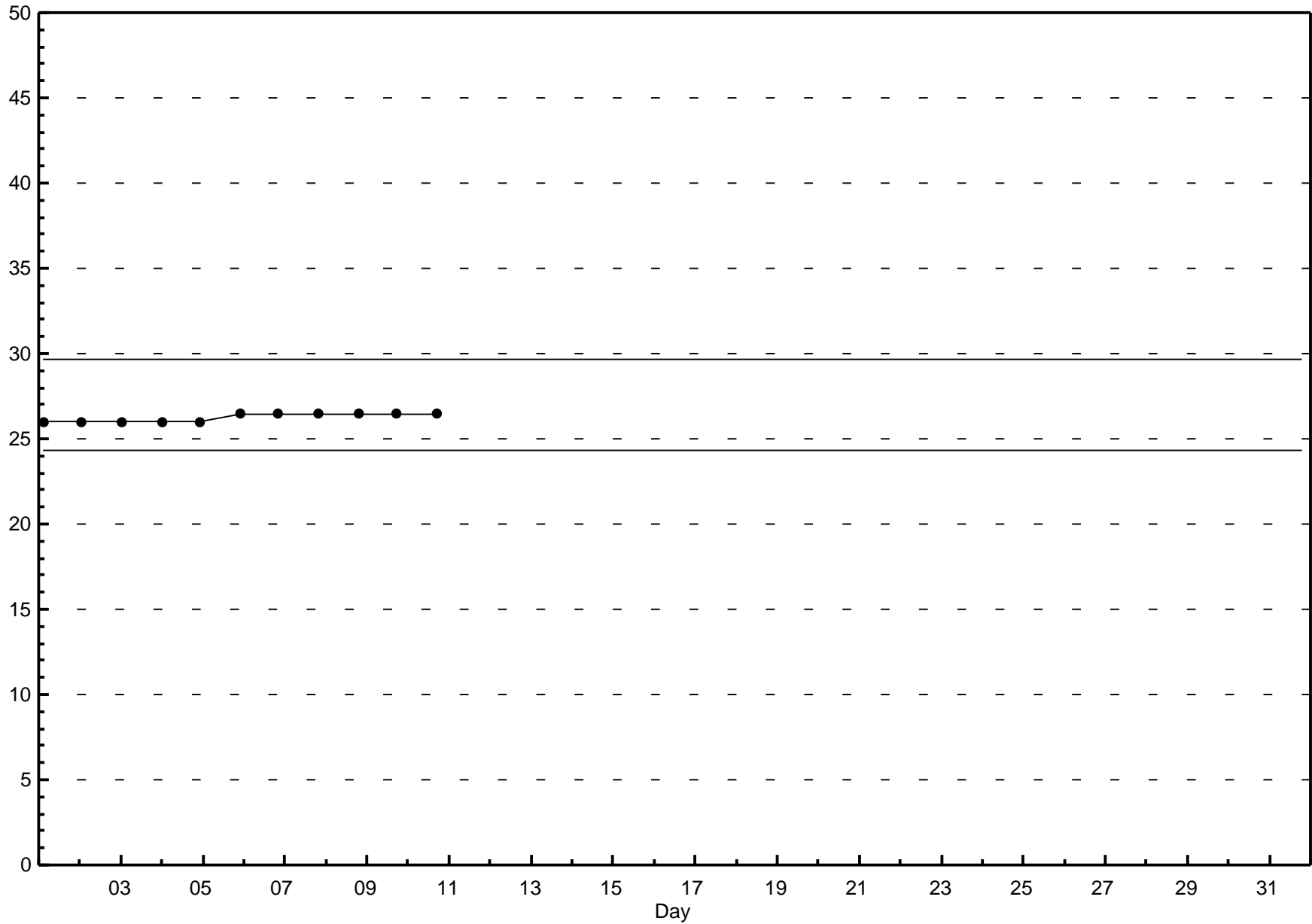
**Total Hydrocarbons (THC) - ppm**  
**Henry Pirker - December 2012**





### Span Responses

Total Hydrocarbons (THC)  
Henry Pirker - December 2012



## Hourly Averages

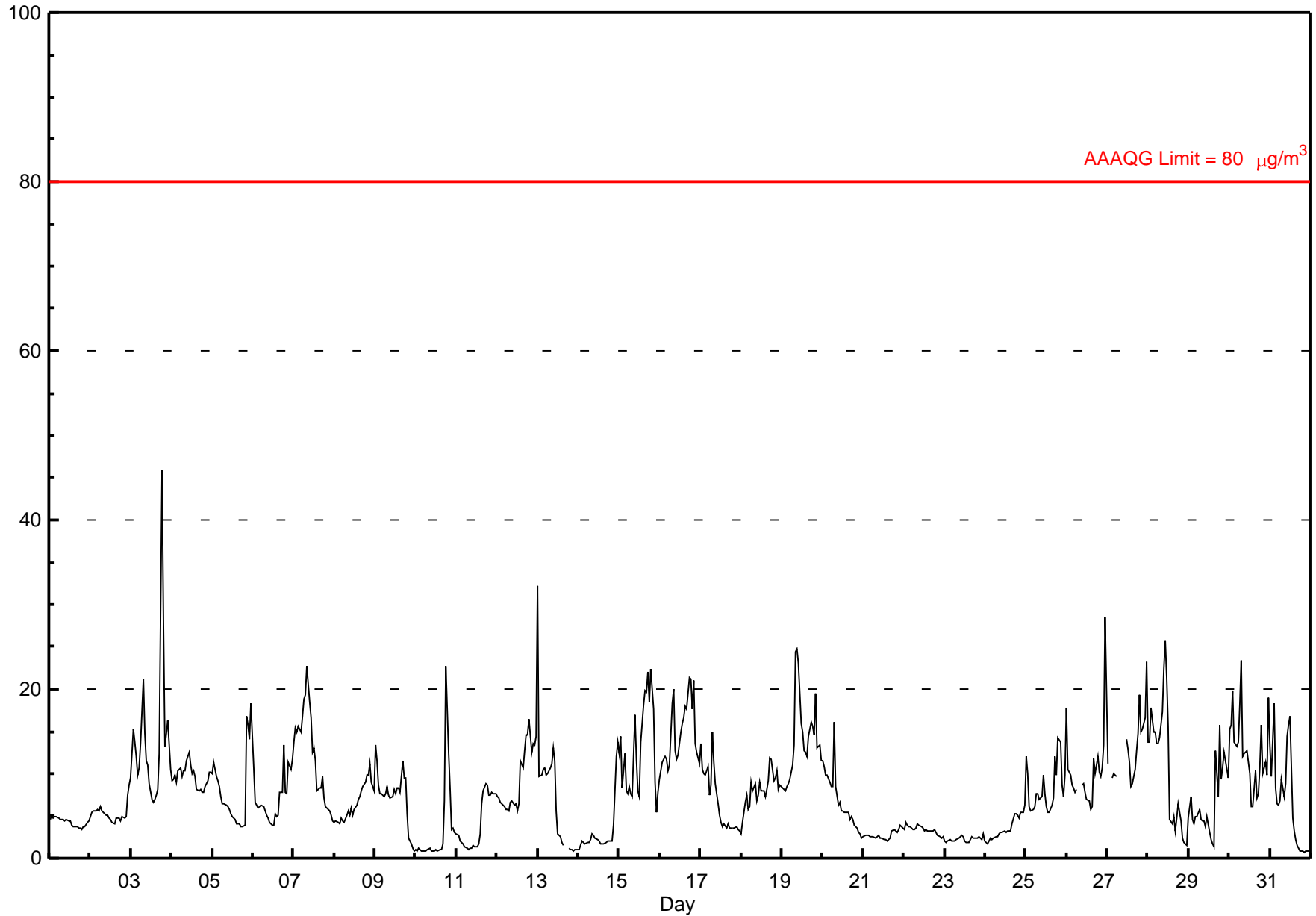
## Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

### Henry Pirker - December 2012

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 46.0 µg/m <sup>3</sup> on Dec 3 19:00	Maximum Daily Average: 14.7 µg/m <sup>3</sup> on Dec 16
Minimum Value: 1 µg/m <sup>3</sup> on Dec 31 21:00	Hours of Data: 733
Maximum Diurnal Average: 10.1 µg/m <sup>3</sup> at hour 19	Hours of Missing Data: 11
Monthly Average: 7.80 µg/m <sup>3</sup>	Hours of Calibration: 0
Minimum Daily Average: 2.2 µg/m <sup>3</sup> on Dec 23	Percent Operational Time: 98.5
Minimum Diurnal Average: 6.0 µg/m <sup>3</sup> at hour 15	
Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 3.6 Median = 6.8 Q <sub>3</sub> = 10.7 P <sub>90</sub> = 15.0 P <sub>99</sub> = 24.1	

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	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4.3	5.0
2-Dec	5	5	6	6	6	6	6	6	5	5	5	5	5	4	4	5	5	5	4	5	5	5	7	9	5.3	8.6
3-Dec	9	15	14	12	10	11	14	21	15	12	11	9	7	7	7	8	12	46	28	13	15	16	11	13.7	46.0	
4-Dec	9	9	10	9	10	11	10	10	10	12	13	11	10	10	10	8	8	8	8	8	8	9	10	10	9.6	12.6
5-Dec	10	11	10	9	8	7	6	6	6	6	6	5	5	4	4	4	4	4	4	4	17	16	14	18	7.9	18.4
6-Dec	11	7	6	6	6	6	6	6	5	5	4	4	4	5	5	5	8	8	13	8	8	11	10	12	7.0	13.4
7-Dec	14	15	15	16	15	17	19	19	23	19	17	13	13	12	8	8	8	10	7	6	6	6	5	4	12.2	22.7
8-Dec	4	4	4	4	5	4	4	5	6	5	6	5	6	6	7	7	8	8	9	10	10	11	9	8	6.5	11.2
9-Dec	13	12	9	8	8	7	8	8	7	7	7	8	8	8	8	8	12	10	10	5	2	2	1	1	7.3	13.4
10-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	7	23	12	8	3	4	3	3.2	22.7
11-Dec	3	3	2	2	2	1	1	1	1	1	1	1	1	2	3	6	8	9	9	8	7	8	8	8	4.0	8.8
12-Dec	7	7	7	6	6	6	6	6	7	7	6	6	6	6	12	11	13	15	15	16	13	14	13	14	9.3	16.5
13-Dec	32	10	10	11	11	10	10	11	11	13	11	6	3	3	2	2	N	N	1	1	1	1	1	1	7.3	32.2
14-Dec	1	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	4	12	14	3.0	13.7
15-Dec	12	14	8	12	8	8	8	8	7	17	12	8	7	14	18	20	20	22	18	22	18	9	5	8	12.7	22.3
16-Dec	9	11	12	12	12	10	11	18	20	13	12	12	15	16	17	18	18	21	21	18	21	14	13	11	14.7	21.4
17-Dec	14	10	10	10	11	7	9	15	11	9	6	5	4	4	4	4	4	4	4	3	4	4	3	3	6.7	14.9
18-Dec	3	4	7	7	6	6	9	8	9	7	7	9	8	8	7	8	9	12	12	9	10	10	8	9	8.0	11.9
19-Dec	8	8	8	8	9	9	11	13	24	25	23	16	15	13	13	12	14	16	16	15	20	13	13	11	13.9	24.8
20-Dec	12	11	10	10	9	8	9	16	9	6	7	6	6	5	5	5	5	5	5	4	4	3	3	2	6.8	16.2
21-Dec	3	3	3	3	3	3	3	2	3	3	2	2	2	2	2	2	2	3	3	3	3	3	4	4	2.7	3.8
22-Dec	3	4	4	4	4	3	3	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	2	3	3.4	4.2
23-Dec	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	3	2	2	2	3	2	2	3	2.2	2.8
24-Dec	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	5	5	5	5	5	5	6	3.5	6.3
25-Dec	12	10	6	6	6	6	8	8	7	7	10	8	6	5	5	6	7	12	10	14	14	9	7	10	8.3	14.2
26-Dec	18	10	10	9	8	8	8	N	N	9	9	8	7	7	6	6	12	10	12	10	10	11	13	29	10.4	28.5
27-Dec	11	N	N	10	10	10	N	N	N	N	N	14	13	11	8	9	11	13	15	19	15	15	17	23	--	23.2
28-Dec	14	14	18	15	15	14	14	14	17	22	26	21	16	5	4	5	3	5	6	4	2	2	2	2	10.8	25.7
29-Dec	5	7	5	4	5	5	6	4	4	4	4	5	3	2	2	1	13	7	16	9	11	13	12	9	6.5	15.8
30-Dec	15	16	20	14	13	14	18	23	12	12	13	11	10	6	6	10	7	8	11	16	10	11	10	19	12.7	23.5
31-Dec	13	10	18	8	6	6	7	9	7	9	14	16	17	5	3	2	2	1	1	1	1	1	1	1	6.6	18.4
	9.1	8.1	8.0	7.5	7.2	6.9	7.5	8.8	8.5	8.4	8.3	7.4	6.8	6.0	6.0	6.3	7.5	8.3	10.1	8.9	8.2	7.6	7.6	8.7	Diurnal Average	
	32.2	15.8	19.8	15.6	15.0	16.8	18.8	23.5	24.4	24.8	25.7	21.3	16.7	15.9	18.2	19.8	19.7	22.0	46.0	27.7	21.0	15.8	16.5	28.5	Diurnal Maximum	

N - Not Valid  
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m<sup>3</sup> Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m<sup>3</sup>



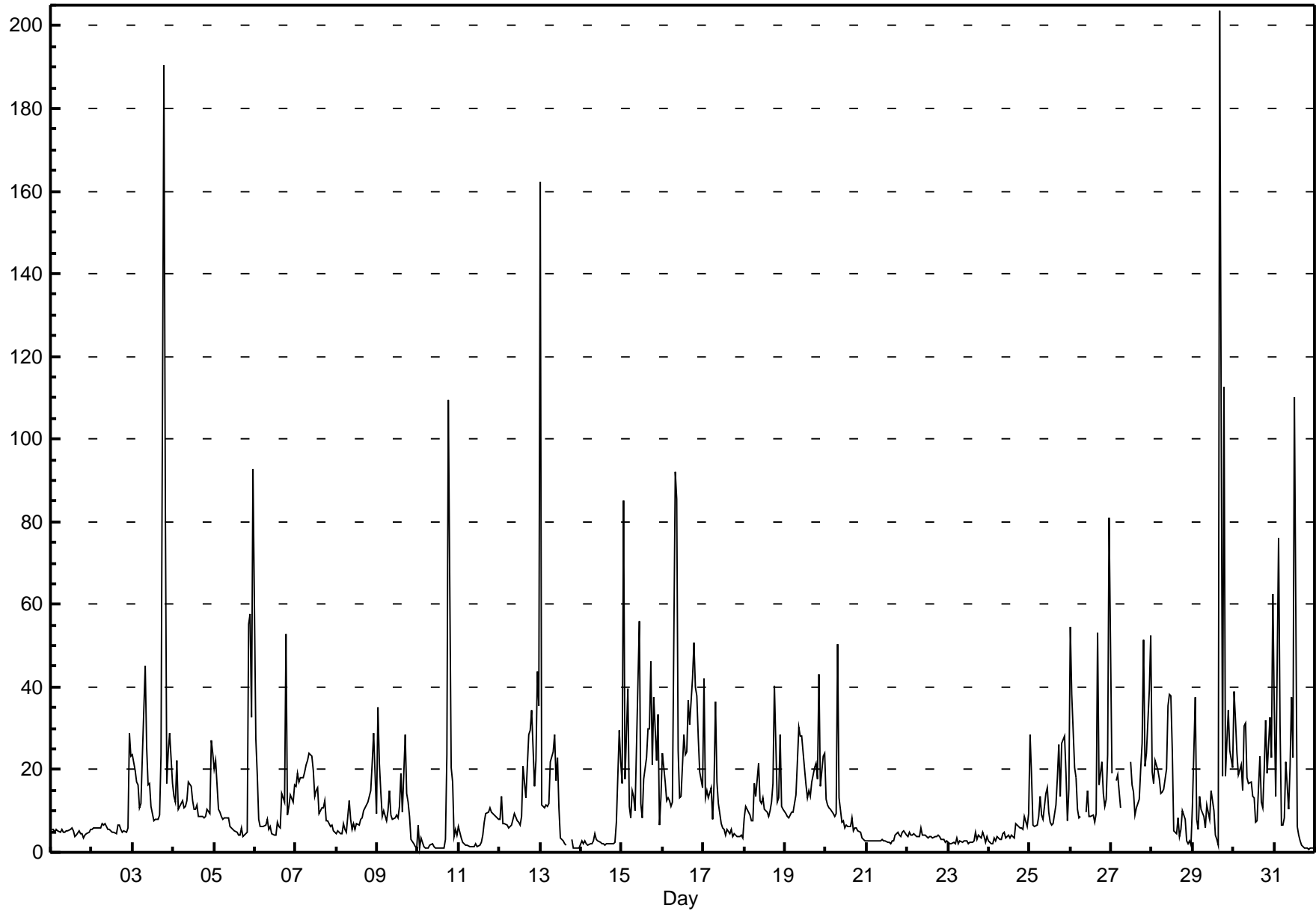


## Hourly Maximums

Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>

Henry Pirker - December 2012

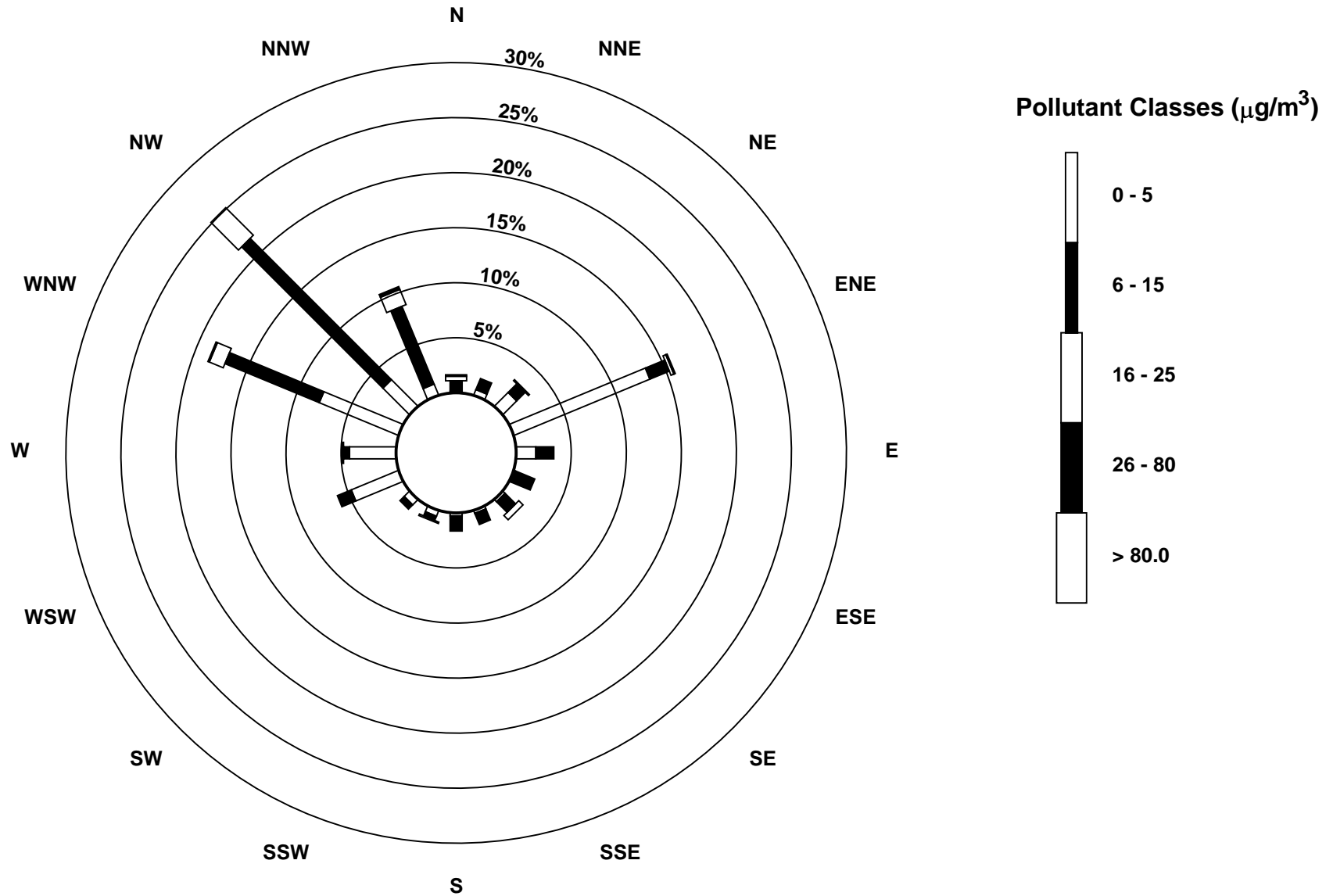
Maximum Value: 203.6 μg/m <sup>3</sup> on Dec 29 17:00		Maximum Daily Average: 29.5 μg/m <sup>3</sup> on Dec 16		Hours in Service: 744																							
Minimum Value: 1 μg/m <sup>3</sup> on Dec 31 21:00		Minimum Daily Average: 2.9 μg/m <sup>3</sup> on Dec 23		Hours of Data: 733																							
Maximum Diurnal Average: 26.5 μg/m <sup>3</sup> at hour 19		Minimum Diurnal Average: 7.5 μg/m <sup>3</sup> at hour 14		Hours of Missing Data: 11																							
Monthly Average: 13.63 μg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 4.4 Median = 8.6 Q <sub>3</sub> = 16.6 P <sub>90</sub> = 28.3 P <sub>99</sub> = 79.1		Hours of Calibration: 0																							
		Percent Operational Time: 98.5																									
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	5	6	5	5	5	5	5	5	5	5	5	6	6	5	4	4	5	5	4	4	4	5	5	6	4.9	5.9	
2-Dec	5	6	6	6	6	6	7	7	7	6	5	5	5	5	4	7	7	5	5	5	5	6	29	23	7.4	28.7	
3-Dec	24	20	17	16	11	12	23	45	25	16	17	11	7	8	8	8	9	24	190	85	17	24	29	17	27.7	190.4	
4-Dec	14	12	22	10	11	13	11	11	12	17	16	12	11	11	12	9	9	9	8	9	10	9	27	24	12.9	27.2	
5-Dec	20	22	10	10	9	8	8	8	8	6	6	6	5	5	4	4	6	4	4	5	55	58	33	93	16.6	92.9	
6-Dec	27	19	8	6	6	6	7	8	5	6	5	4	4	7	6	6	14	12	53	9	11	14	12	16	11.4	52.7	
7-Dec	16	19	17	18	18	20	21	22	24	23	20	14	15	16	9	11	11	13	8	7	6	7	5	5	14.3	23.9	
8-Dec	4	5	5	4	7	5	5	13	8	5	7	6	7	7	8	8	10	11	12	13	15	22	29	9	9.4	28.7	
9-Dec	35	21	15	9	10	7	10	15	9	8	8	9	8	11	19	10	29	14	12	9	3	2	1	1	11.5	35.1	
10-Dec	7	1	3	1	1	1	1	2	2	1	1	1	1	1	1	1	3	24	110	20	17	4	5	4	8.9	109.5	
11-Dec	6	3	2	2	2	2	1	1	1	2	2	2	2	3	4	7	10	10	11	10	9	9	9	8	4.9	10.7	
12-Dec	8	14	7	7	7	6	6	7	8	9	8	7	7	9	21	13	21	29	30	34	16	22	44	35	15.6	43.9	
13-Dec	162	12	11	11	11	12	22	24	28	17	23	11	3	3	2	2	N	N	3	1	1	1	1	1	16.5	162.4	
14-Dec	3	2	3	2	2	2	2	3	5	3	3	2	2	2	2	2	2	2	2	2	3	7	30	22	4.5	29.6	
15-Dec	17	85	18	40	11	8	15	14	10	41	56	12	8	18	23	30	30	46	21	38	22	33	7	13	25.6	85.2	
16-Dec	24	17	13	13	13	11	12	92	85	25	13	13	29	24	24	37	31	42	51	40	38	28	19	16	29.5	92.1	
17-Dec	42	13	15	13	16	8	17	36	17	12	7	6	6	4	5	5	5	4	5	4	4	4	4	3	10.6	42.1	
18-Dec	8	11	10	9	8	8	17	14	22	12	12	13	10	10	9	10	12	17	40	12	13	29	11	11	13.6	40.2	
19-Dec	9	9	8	9	10	10	14	22	30	28	28	20	16	13	15	14	17	20	22	18	43	16	23	24	18.3	42.9	
20-Dec	13	11	11	11	9	9	9	51	13	7	8	6	7	6	6	8	5	6	6	5	5	3	3	3	9.2	50.5	
21-Dec	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	4	5	4	4	5	5	4	3.2	5.2	
22-Dec	4	5	4	4	5	4	4	4	6	4	4	4	3	4	4	3	4	4	4	4	3	3	2	3	3.8	5.9	
23-Dec	2	2	2	2	2	3	2	3	2	3	3	3	2	2	2	3	5	3	4	3	5	4	3	4	2.9	4.9	
24-Dec	3	2	2	4	3	4	3	3	5	5	3	4	3	4	4	4	7	6	6	6	5	9	6	9	4.6	9.5	
25-Dec	28	19	7	6	7	9	14	9	8	14	16	10	7	7	7	12	18	26	14	27	28	19	7	15	13.9	28.4	
26-Dec	55	38	21	18	10	8	9	N	N	10	15	9	9	9	7	9	53	16	22	14	11	13	23	81	20.9	81.0	
27-Dec	19	N	N	18	19	11	N	N	N	N	N	22	16	15	9	11	13	20	27	51	21	24	39	52	--	52.3	
28-Dec	19	17	22	20	18	14	14	15	20	36	38	38	25	5	4	8	4	6	10	8	3	2	3	2	14.6	38.3	
29-Dec	11	38	8	6	14	10	9	6	12	10	8	15	10	4	3	2	204	18	113	18	27	34	25	20	26.0	203.6	
30-Dec	39	32	24	19	21	15	31	31	18	17	17	14	13	7	8	23	12	11	20	32	19	33	23	63	22.6	62.7	
31-Dec	34	14	76	31	7	7	8	22	10	21	37	23	110	6	4	3	2	1	1	1	1	1	1	1	17.6	110.2	
		21.6	15.9	12.5	10.8	9.0	7.9	10.3	17.1	14.1	12.4	13.1	10.0	11.7	7.5	7.8	8.9	18.6	13.7	26.5	16.1	13.7	14.5	15.0	19.0	Diurnal Average	
		162.4	85.2	76.1	39.7	21.2	19.6	30.7	92.1	85.4	40.8	56.0	38.0	110.2	23.7	24.4	36.8	203.6	46.2	190.4	85.2	55.1	57.7	43.9	92.9	Diurnal Maximum	
N - Not Valid																											



**Pollutant Rose**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**

**Henry Pirker - December 2012**

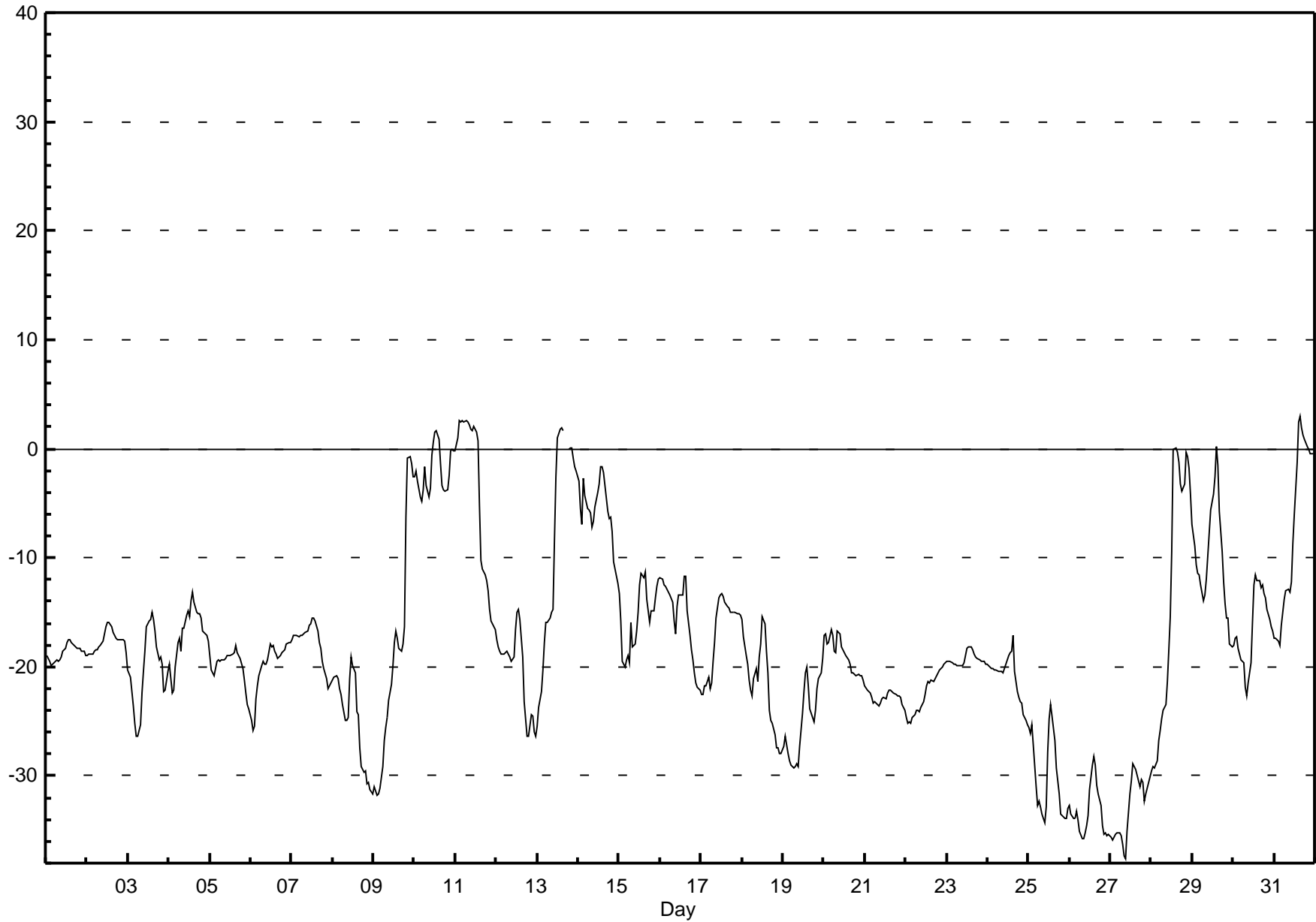


## Hourly Averages

External Temperature (ET) - °C

Henry Pirker - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 744																																														
Maximum Value: 3.0 °C on Dec 31 16:00		Maximum Daily Average: -2.0 °C on Dec 10																																														
Minimum Value: -38 °C on Dec 27 10:00		Hours of Data: 742																																														
Maximum Diurnal Average: -14.1 °C at hour 14		Hours of Missing Data: 2																																														
Monthly Average: -18.06 °C		Hours of Calibration: 0																																														
Minimum Daily Average: -33.3 °C on Dec 26		Percent Operational Time: 99.7																																														
Minimum Diurnal Average: -20.1 °C at hour 3																																																
Percentiles: P <sub>1</sub> = -35.6 P <sub>10</sub> = -29.1 Q <sub>1</sub> = -22.5 Median = -18.9 Q <sub>3</sub> = -14.9 P <sub>90</sub> = -3.4 P <sub>99</sub> = 2.4																																																
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	-19	-19	-19	-20	-20	-20	-19	-19	-19	-19	-19	-18	-18	-18	-18	-18	-18	-18	-18	-18	-19	-19	-19	-19	-18.7	-17.6																						
2-Dec	-19	-19	-19	-19	-19	-18	-18	-18	-18	-18	-17	-16	-16	-16	-16	-17	-17	-17	-17	-18	-17	-17	-18	-19	-17.7	-15.9																						
3-Dec	-20	-21	-22	-24	-25	-26	-26	-25	-22	-20	-19	-16	-16	-16	-15	-16	-17	-18	-19	-19	-20	-22	-22	-20	-20.3	-15.0																						
4-Dec	-20	-21	-22	-22	-20	-18	-17	-19	-17	-16	-15	-15	-15	-14	-13	-14	-15	-15	-15	-16	-17	-17	-17	-18	-17.0	-13.2																						
5-Dec	-19	-20	-21	-20	-20	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-18	-19	-19	-19	-20	-21	-22	-23	-24	-19.9	-18.0																						
6-Dec	-25	-26	-25	-23	-22	-21	-20	-20	-20	-20	-19	-18	-18	-18	-19	-19	-19	-19	-19	-19	-18	-18	-18	-18	-19.9	-17.8																						
7-Dec	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-16	-16	-16	-15	-16	-17	-18	-18	-19	-20	-21	-22	-22	-21	-17.9	-15.5																						
8-Dec	-21	-21	-21	-21	-22	-22	-24	-25	-25	-25	-21	-19	-20	-20	-24	-24	-27	-29	-30	-30	-31	-31	-31	-32	-24.8	-19.1																						
9-Dec	-31	-31	-32	-32	-31	-29	-27	-26	-25	-23	-22	-20	-18	-17	-17	-18	-19	-18	-16	-6	-1	-1	-1	-3	-19.3	-0.7																						
10-Dec	-3	-2	-3	-4	-5	-4	-2	-3	-4	-4	-1	1	2	2	1	-1	-3	-4	-4	-4	-2	0	0	0	-2.0	1.7																						
11-Dec	0	1	3	2	3	3	3	2	2	2	2	2	2	1	-5	-10	-11	-12	-12	-13	-15	-16	-16	-17	-4.2	2.6																						
12-Dec	-18	-18	-19	-19	-19	-19	-19	-19	-19	-20	-19	-17	-15	-15	-16	-19	-23	-25	-26	-26	-24	-24	-26	-26	-20.4	-14.8																						
13-Dec	-25	-24	-22	-20	-18	-16	-16	-16	-15	-15	-8	-3	1	2	2	2	N	N	0	0	0	-1	-2	-2	-8.9	1.9																						
14-Dec	-3	-5	-7	-3	-4	-6	-6	-6	-7	-7	-5	-4	-3	-2	-2	-2	-5	-6	-6	-6	-8	-10	-12	-12	-5.7	-1.6																						
15-Dec	-13	-16	-19	-20	-19	-19	-20	-16	-18	-18	-17	-15	-12	-11	-12	-11	-14	-15	-16	-15	-15	-14	-13	-12	-15.4	-11.3																						
16-Dec	-12	-12	-12	-13	-13	-13	-13	-14	-16	-17	-15	-13	-13	-13	-12	-12	-15	-17	-18	-19	-21	-21	-22	-22	-15.4	-11.6																						
17-Dec	-23	-23	-22	-22	-21	-22	-21	-19	-18	-16	-14	-13	-13	-14	-14	-14	-15	-15	-15	-15	-15	-15	-15	-15	-17.0	-13.2																						
18-Dec	-16	-17	-19	-20	-21	-22	-23	-21	-20	-21	-19	-18	-15	-16	-19	-20	-24	-25	-25	-26	-27	-27	-28	-28	-21.6	-15.4																						
19-Dec	-27	-26	-27	-28	-29	-29	-29	-29	-29	-29	-27	-24	-22	-21	-20	-22	-24	-25	-25	-24	-22	-21	-21	-19	-25.0	-19.3																						
20-Dec	-17	-17	-18	-18	-17	-17	-19	-19	-17	-17	-18	-18	-19	-19	-19	-20	-21	-21	-21	-21	-21	-21	-21	-21	-18.9	-16.6																						
21-Dec	-22	-22	-22	-22	-23	-23	-23	-23	-24	-23	-23	-23	-23	-22	-22	-22	-22	-22	-23	-23	-23	-23	-23	-24	-22.8	-21.8																						
22-Dec	-25	-25	-25	-25	-25	-24	-24	-24	-24	-24	-23	-22	-22	-21	-21	-21	-21	-21	-21	-21	-20	-20	-20	-20	-22.5	-19.6																						
23-Dec	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-19	-18	-18	-18	-18	-19	-19	-19	-19	-19	-19	-20	-20	-19.3	-18.1																						
24-Dec	-20	-20	-20	-20	-20	-20	-20	-20	-20	-21	-20	-19	-19	-19	-19	-17	-20	-22	-23	-23	-23	-24	-25	-25	-20.9	-17.1																						
25-Dec	-26	-26	-25	-27	-31	-33	-32	-33	-34	-34	-33	-28	-25	-24	-25	-27	-29	-31	-32	-33	-34	-34	-34	-33	-30.0	-23.5																						
26-Dec	-33	-33	-34	-34	-33	-34	-35	-36	-36	-35	-35	-34	-31	-29	-28	-29	-31	-32	-33	-35	-35	-35	-35	-35	-33.3	-28.2																						
27-Dec	-36	-36	-36	-35	-35	-35	-35	-36	-37	-38	-35	-32	-30	-29	-29	-29	-30	-31	-30	-31	-32	-32	-31	-30	-33.0	-28.9																						
28-Dec	-29	-29	-29	-29	-27	-26	-25	-24	-23	-21	-18	-15	-10	0	0	0	-1	-3	-4	-3	0	-1	-2	-4	-13.5	0.1																						
29-Dec	-7	-9	-11	-11	-12	-12	-14	-13	-12	-10	-8	-6	-4	-3	0	-2	-6	-10	-12	-14	-16	-16	-18	-18	-10.1	0.2																						
30-Dec	-18	-17	-17	-18	-19	-19	-20	-22	-23	-21	-20	-16	-13	-12	-12	-12	-13	-13	-13	-14	-15	-16	-16	-17	-16.4	-11.6																						
31-Dec	-17	-17	-18	-18	-16	-15	-14	-13	-13	-13	-12	-9	-6	-1	2	3	2	1	1	0	0	0	0	0	-7.3	3.0																						
																								-19.3	-19.7	-20.1	-20.0	-20.0	-19.9	-19.8	-19.8	-19.6	-19.3	-17.9	-16.2	-15.0	-14.1	-14.3	-15.1	-17.1	-17.9	-17.8	-17.8	-17.8	-18.1	-18.4	-18.5	Diurnal Average
																								-0.2	1.0	2.6	2.5	2.6	2.5	2.6	2.5	2.2	1.8	1.6	2.1	1.6	1.8	2.4	3.0	1.9	1.3	0.8	0.2	0.1	-0.2	-0.1	-0.2	Diurnal Maximum
N - Not Valid																																																



# Hourly Averages

Relative Humidity (RH) - %

Henry Pirker - December 2012

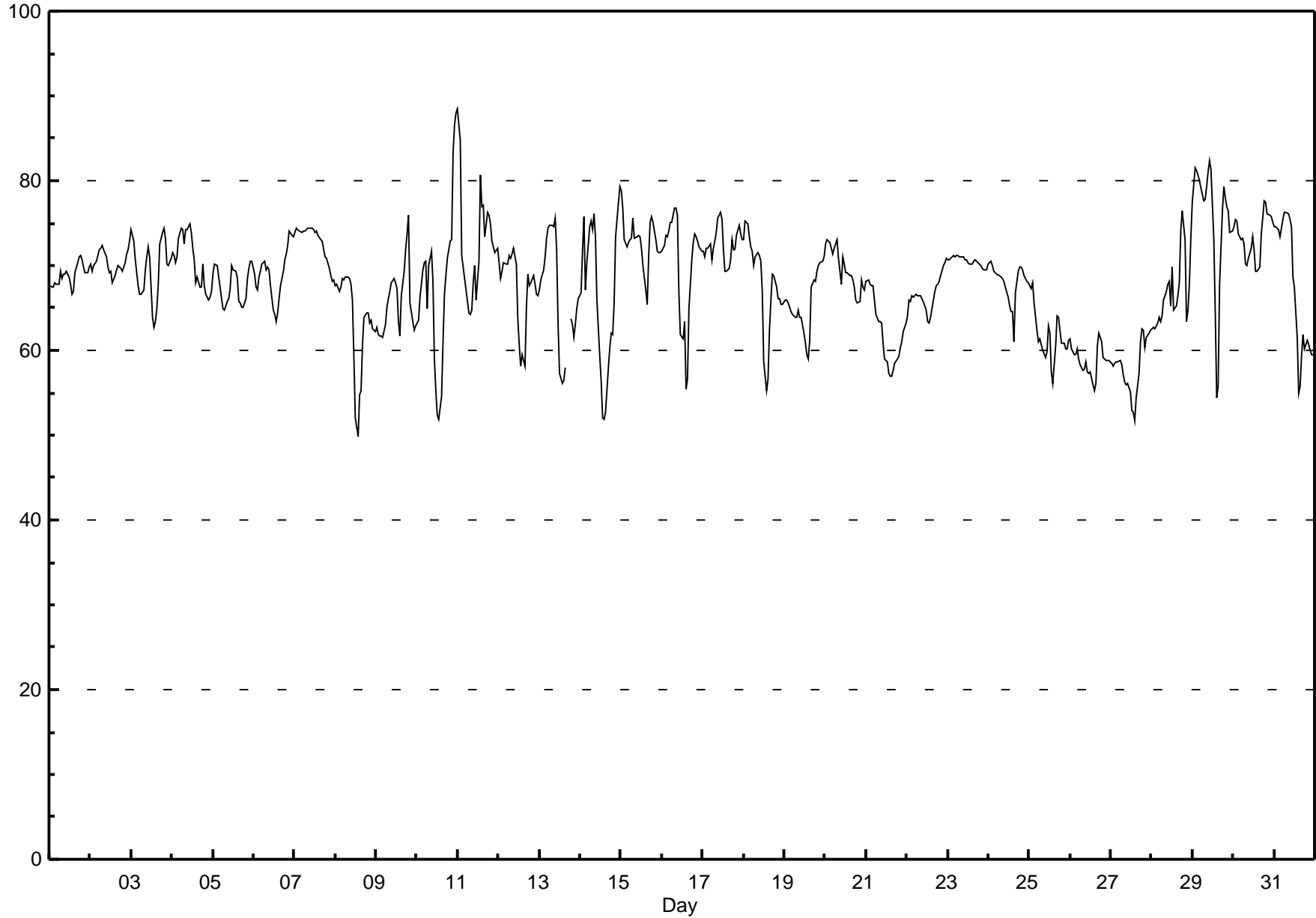
Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 88.5 % on Dec 11 01:00	Maximum Daily Average: 75.4 % on Dec 29		Hours of Data:	742
Minimum Value: 50 % on Dec 8 14:00	Minimum Daily Average: 58.0 % on Dec 27		Hours of Missing Data:	2
Maximum Diurnal Average: 70.0 % at hour 2	Minimum Diurnal Average: 62.2 % at hour 15		Hours of Calibration:	0
Monthly Average: 67.93 %	Percentiles: P <sub>1</sub> = 52.7 P <sub>10</sub> = 59.3 Q <sub>1</sub> = 64.1 Median = 68.7 Q <sub>3</sub> = 71.9 P <sub>90</sub> = 74.5 P <sub>99</sub> = 80.7		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	68	67	68	68	68	68	69	68	69	69	69	69	68	67	67	69	70	71	71	71	70	69	69	70	68.8	71.1
2-Dec	70	69	70	70	71	72	72	72	72	71	70	69	69	68	69	69	70	70	70	69	70	71	72	73	70.4	72.9
3-Dec	74	73	71	69	68	67	67	67	70	71	72	71	64	63	63	65	68	72	74	74	73	70	70	71	69.4	74.3
4-Dec	71	71	70	71	73	74	74	73	74	74	75	74	72	71	68	69	67	67	70	68	67	66	66	67	70.6	74.9
5-Dec	69	70	70	69	68	66	65	65	66	66	67	70	70	69	69	66	66	65	65	66	68	70	71	71	67.7	70.6
6-Dec	69	68	67	69	69	70	70	70	70	70	68	65	64	63	64	66	68	69	71	71	72	74	74	73	68.9	74.0
7-Dec	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	73	72	71	71	70	69	68	68	72.8	74.4
8-Dec	68	68	67	67	68	68	69	69	68	68	66	59	52	50	55	55	61	64	64	64	63	64	63	62	63.4	68.6
9-Dec	63	62	62	62	62	63	65	66	67	68	68	68	67	63	62	66	69	72	74	76	66	63	62	63	65.8	75.9
10-Dec	63	64	66	69	70	70	65	70	72	68	59	55	52	52	55	61	67	69	71	73	73	83	87	88	67.6	88.0
11-Dec	88	85	71	70	68	67	64	64	65	68	70	66	71	81	77	77	73	76	76	75	73	72	72	72	72.6	88.5
12-Dec	70	69	69	70	70	70	71	71	71	72	70	64	61	58	59	58	65	69	68	68	69	68	67	66	67.2	72.0
13-Dec	67	68	69	71	73	74	75	75	75	76	72	63	57	56	56	58	N	N	64	63	61	63	65	66	66.8	75.6
14-Dec	67	72	76	67	70	75	75	74	76	73	66	59	56	52	52	53	58	60	62	62	66	73	77	79	66.7	79.4
15-Dec	79	77	73	72	73	73	73	76	73	73	74	73	72	70	67	65	71	75	76	75	73	72	72	72	72.8	78.8
16-Dec	72	72	74	73	74	75	75	77	77	76	67	62	61	63	55	57	65	71	73	74	73	73	72	72	70.1	76.8
17-Dec	72	71	72	72	73	71	72	73	74	76	76	76	72	69	69	70	71	73	72	72	74	75	74	73	72.5	76.2
18-Dec	73	75	75	73	72	72	70	71	71	71	67	59	55	57	62	66	69	69	67	66	66	65	65	65	67.9	75.2
19-Dec	66	66	66	65	65	64	64	64	65	64	62	61	60	59	61	67	68	68	69	70	70	70	71	71	65.4	71.0
20-Dec	73	73	73	73	71	72	72	73	71	68	71	70	69	69	69	69	68	67	66	66	66	68	67	67	69.7	73.1
21-Dec	68	68	68	68	68	66	64	63	63	63	61	59	59	57	57	57	58	58	59	59	60	61	62	63	62.1	68.3
22-Dec	64	66	66	66	66	67	66	66	66	66	65	65	63	63	64	65	67	68	68	68	69	70	70	71	66.5	70.8
23-Dec	71	71	71	71	71	71	71	71	71	71	71	71	70	70	70	71	71	71	70	70	70	69	70	70	70.5	71.2
24-Dec	70	70	70	69	69	69	69	69	69	68	67	66	65	65	65	61	67	69	70	70	69	69	68	68	68.0	70.5
25-Dec	68	67	68	66	62	61	61	61	60	59	60	63	62	58	56	60	64	64	62	61	61	60	60	61	61.9	68.0
26-Dec	61	60	59	60	60	59	58	58	58	59	58	57	58	56	55	56	61	62	61	59	59	59	59	59	58.7	62.0
27-Dec	58	58	58	59	59	59	58	57	56	56	56	55	53	53	52	54	57	61	63	62	60	61	62	62	58.0	62.6
28-Dec	63	63	63	63	64	63	64	66	67	68	65	70	65	65	66	68	74	76	73	63	65	68	73	73	66.8	76.4
29-Dec	78	82	81	81	80	79	78	78	79	81	82	81	73	64	54	56	68	77	79	78	77	76	74	74	75.4	82.4
30-Dec	75	75	75	74	73	73	73	70	70	71	72	73	72	69	69	70	74	76	78	78	76	76	76	75	73.4	77.7
31-Dec	75	75	74	73	74	75	76	76	76	75	75	69	67	62	55	56	59	62	60	61	61	60	59	59	67.3	76.3
	69.8	70.0	69.6	69.2	69.3	69.3	69.1	69.2	69.5	69.5	68.5	66.5	64.6	63.1	62.2	63.3	66.5	68.7	69.0	68.8	68.0	68.6	68.7	69.2	Diurnal Average	
	88.5	84.7	81.1	80.7	80.0	79.2	77.7	77.9	79.2	81.1	82.4	81.4	74.0	80.6	76.9	77.1	73.7	76.5	79.4	77.9	76.9	83.2	86.5	88.0	Diurnal Maximum	

N - Not Valid

**Hourly Averages**

**Relative Humidity (RH) - %**  
**Henry Pirker - December 2012**



## Hourly Averages

Solar Radiation (SR) - W/m<sup>2</sup>

Henry Pirker - December 2012

Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 185.3 W/m <sup>2</sup> on Dec 10 13:00	Maximum Daily Average: 33.3 W/m <sup>2</sup> on Dec 14		Hours of Data:	742
Minimum Value: 0 W/m <sup>2</sup> on Dec 1 01:00	Minimum Daily Average: 5.6 W/m <sup>2</sup> on Dec 4		Hours of Missing Data:	2
Maximum Diurnal Average: 99.9 W/m <sup>2</sup> at hour 13	Minimum Diurnal Average: 0.0 W/m <sup>2</sup> at hour 1		Hours of Calibration:	0
Monthly Average: 18.88 W/m <sup>2</sup>	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 13.1 P <sub>90</sub> = 72.4 P <sub>99</sub> = 174.2		Percent Operational Time:	99.7

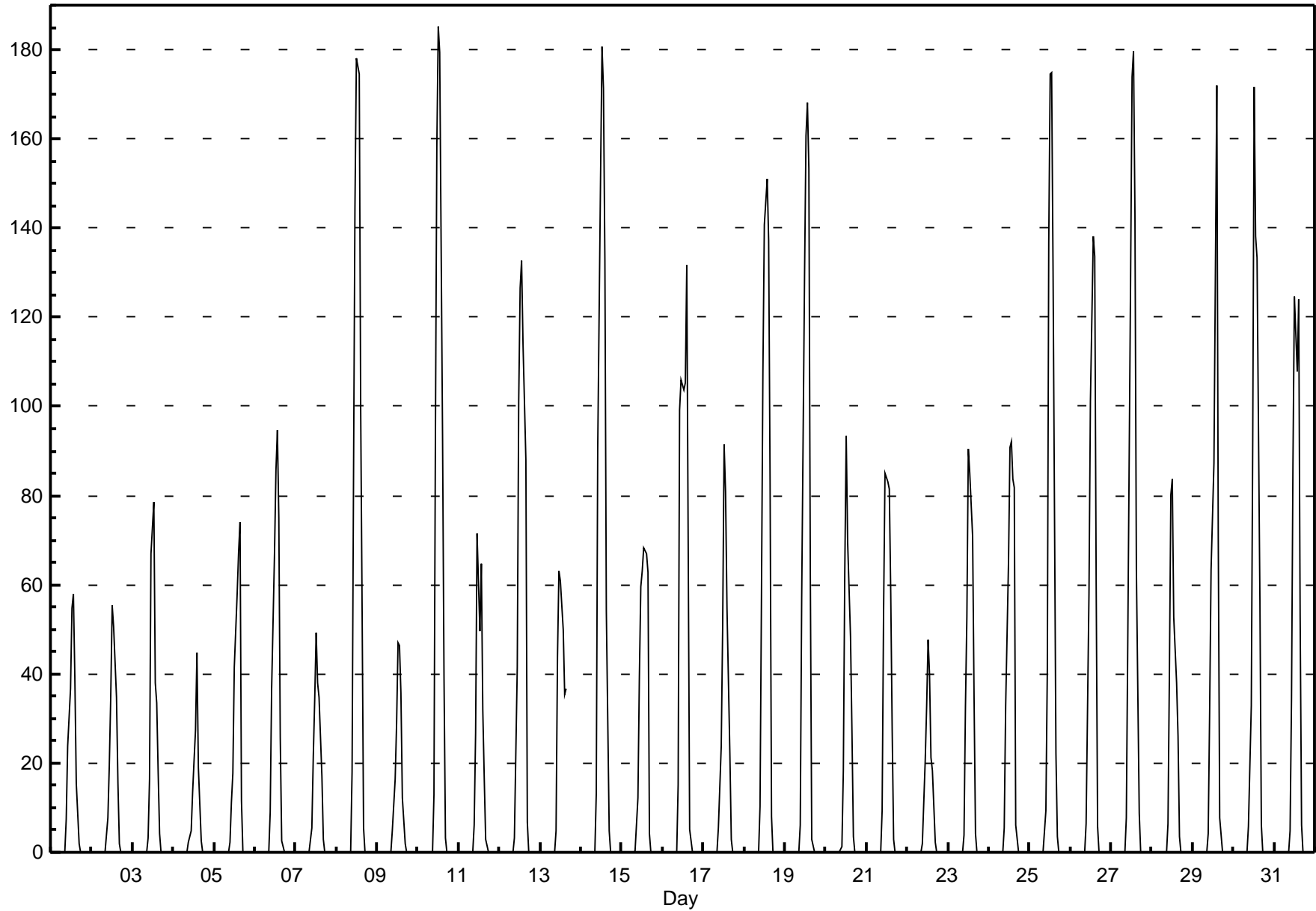
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0	0	0	0	0	0	0	0	0	7	24	37	55	58	39	16	2	0	0	0	0	0	0	0	9.9	58.0
2-Dec	0	0	0	0	0	0	0	0	0	8	20	35	55	50	35	15	2	0	0	0	0	0	0	0	9.2	55.4
3-Dec	0	0	0	0	0	0	0	0	0	3	17	67	79	38	33	18	4	0	0	0	0	0	0	0	10.8	78.6
4-Dec	0	0	0	0	0	0	0	0	0	2	5	14	21	27	45	19	2	0	0	0	0	0	0	0	5.6	44.9
5-Dec	0	0	0	0	0	0	0	0	0	2	11	18	42	58	67	74	11	0	0	0	0	0	0	0	11.8	74.0
6-Dec	0	0	0	0	0	0	0	0	0	9	37	67	86	95	75	26	3	0	0	0	0	0	0	0	16.5	94.7
7-Dec	0	0	0	0	0	0	0	0	0	5	22	34	49	38	35	17	3	0	0	0	0	0	0	0	8.5	49.2
8-Dec	0	0	0	0	0	0	0	0	0	18	83	145	178	175	99	54	6	0	0	0	0	0	0	0	31.6	178.0
9-Dec	0	0	0	0	0	0	0	0	0	5	16	29	47	46	36	12	2	0	0	0	0	0	0	0	8.1	47.2
10-Dec	0	0	0	0	0	0	0	0	0	13	92	158	185	179	93	39	3	0	0	0	0	0	0	0	31.8	185.3
11-Dec	0	0	0	0	0	0	0	0	0	6	27	72	50	65	32	17	3	0	0	0	0	0	0	0	11.2	71.6
12-Dec	0	0	0	0	0	0	0	0	0	3	42	101	127	133	114	88	7	0	0	0	0	0	0	0	25.6	132.8
13-Dec	0	0	0	0	0	0	0	0	0	5	44	63	61	50	35	37	N	N	0	0	0	0	0	0	13.4	63.1
14-Dec	0	0	0	0	0	0	0	0	0	13	90	152	181	171	133	54	5	0	0	0	0	0	0	0	33.3	180.7
15-Dec	0	0	0	0	0	0	0	0	0	12	39	60	63	68	67	63	4	0	0	0	0	0	0	0	15.7	68.3
16-Dec	0	0	0	0	0	0	0	0	0	15	99	106	104	105	132	68	5	0	0	0	0	0	0	0	26.4	131.6
17-Dec	0	0	0	0	0	0	0	0	0	5	24	51	92	81	55	22	3	0	0	0	0	0	0	0	13.8	91.6
18-Dec	0	0	0	0	0	0	0	0	0	10	57	107	141	151	137	83	8	0	0	0	0	0	0	0	29.0	151.2
19-Dec	0	0	0	0	0	0	0	0	0	6	57	129	161	168	153	63	3	0	0	0	0	0	0	0	30.9	168.2
20-Dec	0	0	0	0	0	0	0	0	0	1	18	63	93	70	48	27	3	0	0	0	0	0	0	0	13.5	93.3
21-Dec	0	0	0	0	0	0	0	0	0	9	53	85	83	81	58	27	3	0	0	0	0	0	0	0	16.7	84.9
22-Dec	0	0	0	0	0	0	0	0	0	2	21	33	48	40	21	18	2	0	0	0	0	0	0	0	7.7	47.7
23-Dec	0	0	0	0	0	0	0	0	0	4	32	53	90	85	71	35	4	0	0	0	0	0	0	0	15.6	90.5
24-Dec	0	0	0	0	0	0	0	0	0	6	33	65	91	92	84	82	6	0	0	0	0	0	0	0	19.1	92.1
25-Dec	0	0	0	0	0	0	0	0	0	9	41	137	175	175	130	22	4	0	0	0	0	0	0	0	28.8	175.0
26-Dec	0	0	0	0	0	0	0	0	0	6	32	58	101	138	134	61	6	0	0	0	0	0	0	0	22.4	138.2
27-Dec	0	0	0	0	0	0	0	0	0	8	47	130	174	180	143	63	9	0	0	0	0	0	0	0	31.4	179.6
28-Dec	0	0	0	0	0	0	0	0	0	6	41	80	84	53	38	26	3	0	0	0	0	0	0	0	13.8	83.9
29-Dec	0	0	0	0	0	0	0	0	0	4	32	63	87	130	172	71	8	0	0	0	0	0	0	0	23.6	172.1
30-Dec	0	0	0	0	0	0	0	0	0	6	33	92	172	138	133	57	6	0	0	0	0	0	0	0	26.5	171.6
31-Dec	0	0	0	0	0	0	0	0	0	5	34	87	125	108	124	53	6	0	0	0	0	0	0	0	22.6	124.6
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	39.4	77.1	99.9	98.3	82.9	42.8	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Average	
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	18.2	99.2	158.2	185.3	179.6	172.1	87.8	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Maximum	

N - Not Valid



### Hourly Averages

Solar Radiation (SR) - W/m<sup>2</sup>  
Henry Pirker - December 2012



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Henry Pirker - December 2012

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	7	6	6	5	5	6	4	7	7	6	5	6	5	6	6	5	6	5	4	5	4	4	3	3	5.3	7.2
Dir	70	72	61	65	57	73	65	73	72	65	57	49	56	58	60	56	66	59	65	67	82	78	70	67	64.9	73.3
2 Spd	3	4	4	3	5	4	4	4	4	5	4	6	8	7	6	6	6	7	5	5	3	3	4	3	4.2	7.7
Dir	64	72	68	71	48	60	84	83	59	85	60	61	76	74	75	83	55	39	43	60	59	330	330	343	60.4	76.4
3 Spd	0	3	1	2	3	3	3	3	4	4	3	4	6	5	3	4	3	2	2	3	3	2	4	3	2.0	6.0
Dir	148	170	94	311	339	323	312	326	312	307	319	287	291	294	299	254	199	6	356	72	76	320	318	320	310.3	290.8
4 Spd	4	2	3	2	5	4	3	2	4	3	1	6	7	7	11	16	13	12	15	11	11	10	7	6	4.9	16.1
Dir	298	325	331	18	28	60	65	87	95	173	222	237	239	243	284	286	270	262	287	285	297	283	298	329	284.8	286.1
5 Spd	7	6	8	8	8	10	11	12	14	15	17	17	16	16	14	11	10	10	7	6	4	4	2	3	9.7	17.0
Dir	324	312	330	319	319	308	302	292	294	295	283	290	296	292	293	291	299	296	299	299	297	300	318	332	299.3	290.1
6 Spd	3	1	3	4	4	3	1	5	5	4	4	3	5	7	6	5	4	3	4	3	1	1	1	2	1.9	6.6
Dir	356	343	321	302	310	299	320	112	126	101	59	29	330	324	327	317	313	313	318	307	206	107	299	294	332.8	324.1
7 Spd	1	1	3	1	3	2	3	1	2	1	1	2	4	5	6	9	11	15	17	16	18	15	16	14	6.0	17.8
Dir	97	122	149	269	305	303	304	9	139	126	354	23	3	336	305	313	316	311	314	307	305	301	300	295	309.0	305.0
8 Spd	15	12	12	11	7	6	5	3	3	1	3	3	4	4	5	5	4	4	5	6	5	5	5	4	5.0	15.5
Dir	297	304	304	307	305	304	314	307	26	336	120	139	284	283	293	309	315	320	326	334	318	334	311	319	309.4	296.8
9 Spd	4	4	4	4	3	2	3	5	4	2	4	4	2	5	6	6	5	5	5	14	20	21	19	19	5.8	20.8
Dir	332	321	315	312	299	304	314	319	295	293	161	148	172	297	296	299	325	322	340	289	277	270	266	259	285.2	270.3
10 Spd	20	18	13	8	7	8	11	4	7	10	13	14	9	9	4	3	4	1	1	3	7	7	5	6	6.6	20.3
Dir	256	262	294	313	302	312	268	327	296	285	276	261	250	254	281	218	359	135	124	223	240	198	169	267.1	255.5	
11 Spd	6	14	18	15	16	17	22	20	13	9	4	11	13	11	13	12	12	9	8	2	7	4	7	6	5.4	21.7
Dir	168	267	268	263	261	260	263	271	267	292	292	301	304	324	53	36	28	39	73	40	66	57	41	72	298.1	262.9
12 Spd	7	7	7	7	5	5	5	5	4	4	4	6	5	3	4	5	4	4	5	5	5	4	5	3	1.0	7.0
Dir	86	93	106	125	134	142	142	134	109	90	144	134	179	324	308	300	303	323	315	328	338	323	310	326	89.6	105.9
13 Spd	3	3	3	3	3	2	2	3	1	7	1	17	24	25	22	17	N	N	8	12	14	15	10	9	8.4	25.2
Dir	296	315	315	305	327	303	326	343	339	180	183	241	255	258	257	242	N	N	248	254	250	241	245	247	253.6	257.6
14 Spd	8	6	6	13	13	15	12	11	5	13	14	14	14	14	13	11	8	11	11	11	4	2	3	3	8.9	14.8
Dir	242	321	251	233	242	235	238	237	242	241	236	237	242	251	256	252	247	243	239	236	267	19	118	83	243.2	235.3
15 Spd	4	2	3	3	1	2	2	2	2	4	4	2	2	2	5	4	4	3	4	4	4	4	3	2	2.4	4.7
Dir	69	322	348	333	37	342	14	121	319	305	315	346	298	290	296	325	315	334	322	320	299	313	285	297	321.2	295.7
16 Spd	3	2	5	3	4	3	4	1	2	3	3	3	4	2	3	4	3	3	4	4	4	4	4	4	1.5	5.1
Dir	246	186	167	161	171	156	137	204	303	309	290	311	311	295	320	323	311	328	334	337	321	319	337	316	299.1	166.9
17 Spd	4	3	4	5	6	5	3	1	4	4	7	8	7	9	9	7	9	7	5	3	2	4	3	4	3.5	9.1
Dir	336	348	298	330	345	308	177	316	8	47	77	54	61	59	67	63	24	9	40	62	186	161	59	72	36.9	59.0
18 Spd	2	2	1	0	1	2	1	3	4	4	2	3	3	5	5	6	5	5	5	4	4	4	4	4	2.7	6.0
Dir	113	207	260	107	217	170	291	307	298	328	332	308	300	299	314	326	320	335	333	319	328	305	319	332	314.4	325.6
19 Spd	4	4	4	4	4	4	3	4	4	3	4	5	4	4	4	4	4	4	4	1	1	2	5	3	3.3	5.0
Dir	344	306	317	307	323	312	316	309	314	308	308	328	292	285	305	297	322	321	306	250	297	238	238	284	305.3	327.9
20 Spd	1	4	4	5	10	8	4	2	9	16	20	19	18	18	21	17	15	16	19	18	16	18	18	18	12.6	20.8
Dir	162	210	239	292	306	308	301	314	319	311	315	311	311	302	307	301	297	302	304	299	297	295	295	295	302.1	307.2
21 Spd	19	18	19	19	19	19	18	16	12	16	18	18	14	15	14	13	12	11	9	8	8	4	6	7	12.3	19.0
Dir	296	295	296	298	293	292	293	289	290	295	299	295	294	299	295	297	295	317	318	311	334	49	83	82	299.7	296.2
22 Spd	5	6	4	3	3	6	4	4	4	5	7	7	6	6	6	7	8	7	6	7	8	7	8	7	5.8	8.0
Dir	95	94	74	66	65	79	87	64	33	50	66	76	61	74	70	60	58	74	83	77	73	72	81	79	71.9	73.3

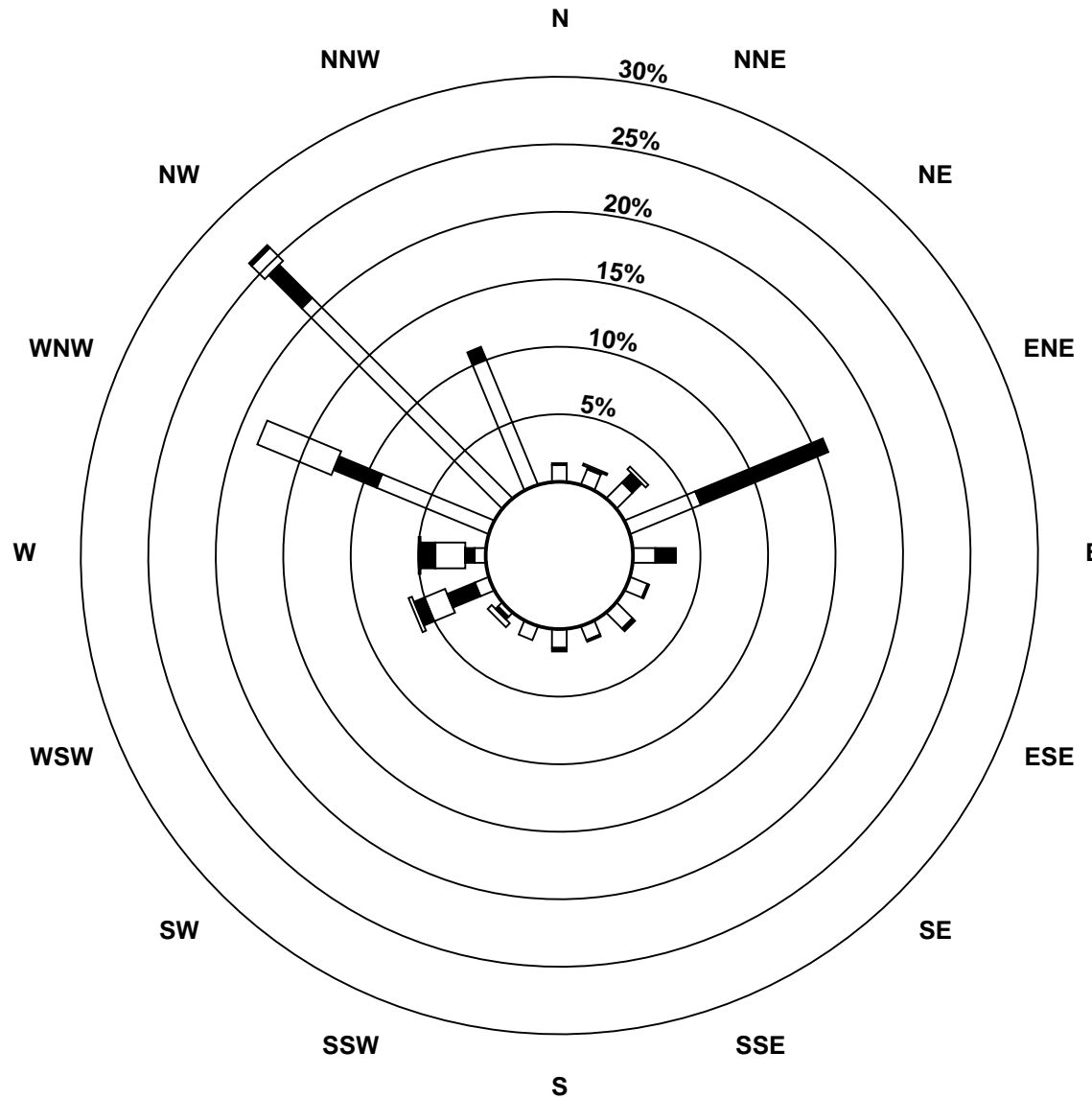
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Henry Pirker - December 2012

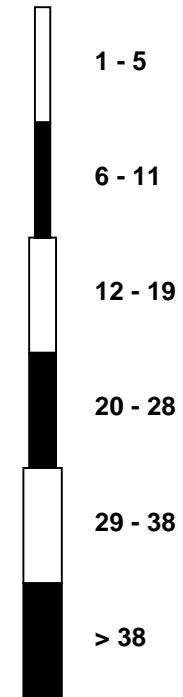
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
23 Spd	9	9	10	10	10	10	10	10	10	10	10	9	9	10	11	9	9	10	10	10	10	10	10	10	9.7	10.6
Dir	69	70	69	72	71	73	71	69	73	73	72	78	73	71	68	64	60	66	67	64	62	62	65	67	68.8	67.8
24 Spd	10	10	9	9	9	8	9	9	7	8	8	8	7	8	7	7	4	6	4	5	4	5	3	6.9	10.1	
Dir	68	69	67	67	65	66	66	66	68	68	72	66	63	70	66	63	66	53	53	60	64	34	38	61	64.3	68.3
25 Spd	3	3	6	2	4	2	4	6	3	4	3	3	4	4	5	4	4	4	4	5	4	3	4	2	2.6	5.8
Dir	50	56	94	103	304	340	286	300	348	310	308	285	309	282	294	293	318	350	331	314	326	333	295	299	319.8	300.2
26 Spd	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3	4	3	3	3	3	3	3.2	4.1
Dir	341	308	325	292	319	306	311	314	306	321	321	290	290	296	307	306	337	345	334	319	319	322	308	332	314.6	289.5
27 Spd	4	3	2	2	3	2	2	3	2	3	3	4	5	5	6	4	3	2	3	3	3	2	2	1	3.0	5.7
Dir	326	308	347	328	326	336	329	323	327	306	311	307	327	320	286	294	310	302	345	324	322	326	324	312	317.7	286.4
28 Spd	1	3	3	3	3	2	1	1	1	0	2	2	5	13	9	6	6	3	2	9	13	11	8	5	4.2	13.4
Dir	283	319	313	333	311	286	144	117	318	135	331	352	282	274	270	291	276	212	260	276	270	274	295	321	283.8	273.7
29 Spd	6	5	4	1	2	2	4	3	4	6	4	4	8	3	3	4	3	1	4	3	3	3	4	2	3.2	8.0
Dir	336	335	337	298	316	206	310	321	314	318	304	316	326	298	286	237	324	317	319	339	292	337	341	316	316.4	325.5
30 Spd	1	2	2	1	0	2	1	3	3	2	1	2	2	2	3	2	3	1	1	3	3	2	2	2	1.4	3.3
Dir	289	55	68	308	17	134	78	314	305	353	219	337	317	303	299	335	315	339	111	328	339	320	312	344	331.3	313.8
31 Spd	3	2	2	2	2	1	0	3	3	3	2	1	7	9	18	26	31	26	27	30	30	25	24	21	11.6	30.9
Dir	316	346	344	330	324	106	81	318	311	311	27	323	298	286	269	266	259	268	262	256	258	258	258	264	267.1	259.3
Spd	1.9	2.1	2.3	2.4	2.8	2.1	2.0	2.0	2.2	2.4	2.3	2.9	4.1	4.7	4.7	4.6	4.2	3.9	3.9	4.1	4.3	4.0	3.5	2.7	Diurnal Average	
Dir	323.5	318.7	321.4	312.5	315.5	304.4	298.3	314.5	325.5	315.8	315.2	300.7	298.3	297.8	302.7	302.2	311.0	318.0	314.9	301.6	296.3	294.7	299.9	306.4	Diurnal Maximum	
Spd	20.3	18.0	19.0	18.5	18.5	18.6	21.7	19.7	13.8	15.7	19.5	18.9	24.0	25.2	22.4	25.6	30.9	26.5	26.7	29.8	29.7	24.9	23.9	21.5	Diurnal Maximum	
Dir	255.5	262.4	296.2	297.7	292.6	292.4	262.9	271.3	293.8	295.4	314.8	310.8	254.7	257.6	257.2	266.0	259.3	267.5	261.6	256.2	258.1	258.4	258.3	263.6	Diurnal Maximum	
Maximum Speed Value: 31 km/h on Dec 31 17:00		Minimum Speed Value: 0 km/h on Dec 3 01:00																Hours in Service: 744								
Maximum Daily Speed Average: 12.6 km/h on Dec 21		Minimum Daily Speed Average: 1.0 km/h on Dec 30																Hours of Data: 742								
Maximum Diurnal Speed Average: 4.7 km/h at hour 15		Minimum Diurnal Speed Average: 1.9 km/h at hour 1																Hours of Missing Data: 2								
Monthly Average Velocity: 3.14 km/h 307.05 deg		Speed Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 3.1 Median = 4.3 Q <sub>3</sub> = 7.8 P <sub>90</sub> = 14.2 P <sub>99</sub> = 24.8																Percent Operational Time: 99.7								
All monthly, daily, and diurnal averages have been calculated using vector methods																										
N - Not Valid																										
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	38	4	0	0	0	0	42																			
NorthEast	39	52	3	0	0	0	94																			
East	31	53	0	0	0	0	84																			
SouthEast	21	6	0	0	0	0	27																			
South	15	5	0	0	0	0	20																			
SouthWest	15	14	11	0	0	0	40																			
West	31	16	34	15	3	0	99																			
NorthWest	231	57	45	3	0	0	336																			
Total	421	207	93	18	3	0	742																			

**Wind Rose**

**Wind Speed (WS) (km/h)**  
**Henry Pirker - December 2012**



**Wind Speed Classes (km/h)**



# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Henry Pirker - December 2012

Maximum Speed: 31 km/h on Dec 31 17:00	Maximum Daily Speed Average: 13.8 km/h on Dec 21	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 18 04:00	Minimum Daily Speed Average: 2.4 km/h on Dec 30	Hours of Data: 742
Maximum Diurnal Speed Average: 8.4 km/h at hour 15	Minimum Diurnal Speed Average: 5.4 km/h at hour 9	Hours of Missing Data: 2
Monthly Average Speed: 6.69 km/h	Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 2.6 Q <sub>1</sub> = 3.5 Median = 4.6 Q <sub>3</sub> = 8.1 P <sub>90</sub> = 14.4 P <sub>99</sub> = 24.7	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	7	6	6	5	5	6	5	7	7	6	6	6	6	7	6	6	6	5	5	5	4	4	4	4	5.5	7.3
2-Dec	4	4	4	4	5	4	4	4	5	5	5	7	8	7	6	6	6	7	6	5	3	3	4	3	5.0	8.0
3-Dec	2	3	2	2	3	3	3	3	4	4	4	5	6	5	3	4	3	3	3	3	3	3	4	4	3.4	6.0
4-Dec	4	3	4	3	5	5	4	3	5	4	5	6	8	7	12	16	13	13	16	11	11	10	7	7	7.6	16.3
5-Dec	7	6	8	8	8	10	11	12	14	15	17	17	16	16	14	11	10	10	7	6	5	5	3	3	10.0	17.1
6-Dec	3	3	4	4	4	3	3	5	5	5	4	3	6	7	6	5	4	4	4	3	2	2	2	2	3.9	6.7
7-Dec	2	2	3	2	3	2	3	2	2	2	2	3	4	5	6	9	11	15	17	16	18	15	16	14	7.3	17.9
8-Dec	16	12	12	11	7	6	5	3	3	2	3	4	4	4	6	5	4	4	5	6	6	5	5	5	5.9	15.5
9-Dec	4	4	4	4	3	3	3	5	4	2	4	4	3	5	6	6	6	5	5	15	21	21	20	19	7.3	21.0
10-Dec	20	18	13	9	7	8	11	6	7	10	14	14	9	9	5	3	4	3	3	4	7	7	6	6	8.5	20.4
11-Dec	6	16	19	16	16	17	22	20	13	10	4	11	13	11	15	12	12	10	8	5	7	5	7	6	11.7	21.8
12-Dec	7	7	7	7	5	5	5	6	4	4	4	6	5	4	4	5	5	4	5	5	6	4	5	3	5.1	7.4
13-Dec	3	3	4	3	3	3	4	4	3	7	4	18	24	25	23	17	N	N	9	13	15	15	11	9	10.0	25.3
14-Dec	8	6	8	13	13	15	12	11	7	13	14	14	15	14	13	11	8	11	11	11	5	4	3	3	10.1	14.9
15-Dec	4	4	4	4	3	4	5	4	4	4	4	3	3	3	5	4	4	4	4	5	5	4	3	3	3.9	5.2
16-Dec	4	3	5	4	4	4	4	3	4	3	3	3	4	3	4	5	4	3	4	4	4	4	4	4	3.9	5.2
17-Dec	4	3	5	5	6	6	4	2	4	5	8	9	8	9	9	8	9	7	5	4	2	4	3	4	5.6	9.5
18-Dec	3	2	2	1	1	2	3	3	4	4	2	3	3	5	6	6	5	5	5	4	4	5	4	4	3.6	6.1
19-Dec	4	4	4	4	4	4	4	4	5	4	4	5	4	4	4	4	5	5	5	4	4	3	5	5	4.1	5.5
20-Dec	2	5	4	5	10	8	5	3	10	16	20	19	18	19	21	17	15	17	19	18	17	18	18	18	13.3	20.9
21-Dec	19	18	19	19	19	19	18	16	12	16	19	18	14	15	14	13	12	11	9	8	8	5	6	7	13.8	19.1
22-Dec	5	6	4	3	4	6	5	4	5	6	7	7	6	7	6	7	8	7	6	8	8	8	8	8	6.2	8.2
23-Dec	9	9	11	11	10	10	10	10	10	11	10	9	10	10	11	9	9	10	10	10	10	10	10	10	9.9	10.8
24-Dec	10	10	9	9	9	8	9	9	7	8	8	8	7	8	7	7	7	4	6	5	5	4	5	3	7.2	10.2
25-Dec	4	4	6	4	4	2	4	6	4	4	4	3	4	4	5	4	4	4	4	5	4	4	4	2	4.0	5.8
26-Dec	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3	4	3	3	3	3	4	3.4	4.2
27-Dec	4	4	2	2	3	3	3	3	2	3	4	4	5	5	6	4	3	2	4	3	3	3	2	2	3.3	5.7
28-Dec	2	3	3	3	3	3	2	2	2	2	2	3	7	14	9	7	6	4	3	9	13	11	8	6	5.3	13.5
29-Dec	6	5	4	3	3	3	4	3	4	6	4	4	8	4	3	4	4	3	4	3	4	3	4	2	4.0	8.1
30-Dec	2	3	3	2	1	2	2	4	3	2	2	2	2	2	3	3	3	2	2	3	3	3	3	2	2.4	3.5
31-Dec	3	3	2	3	2	2	1	3	3	3	3	2	7	10	18	26	31	27	27	30	30	25	24	22	12.7	31.1
	5.9	5.9	6.0	5.6	5.7	5.7	5.8	5.6	5.4	6.1	6.2	7.3	7.7	8.1	8.4	8.0	7.5	7.0	7.2	7.5	7.7	7.1	6.9	6.3	Diurnal Average	
	20.4	18.2	19.1	18.6	18.6	18.6	21.8	19.9	13.8	15.8	19.6	19.0	24.2	25.3	22.6	25.9	31.1	26.7	26.9	29.9	29.7	25.0	24.0	21.7	Diurnal Maximum	

N - Not Valid  
 All monthly, daily, and diurnal averages have been calculated using scalar methods

## Hourly Standard Deviations

Wind Direction (WD) - deg  
Henry Pirker - December 2012

Maximum Value: 91.3 deg on Dec 30 05:00																								Hours in Service: 744	
Minimum Value: 3.3 deg on Dec 25 08:00																								Hours of Data: 742	
Percentiles: P <sub>1</sub> = 4.8 P <sub>10</sub> = 6.8 Q <sub>1</sub> = 10.0 Median = 17.6 Q <sub>3</sub> = 28.9 P <sub>90</sub> = 51.4 P <sub>99</sub> = 84.5																								Hours of Missing Data: 2	
																								Hours of Calibration: 0	
																								Percent Operational Time: 99.7	
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	14	18	14	17	24	21	23	12	14	13	19	18	21	19	17	18	14	15	19	16	15	18	25	23	25.0
2-Dec	24	31	31	39	25	17	20	21	25	17	20	23	15	18	20	19	22	18	30	23	21	42	8	21	42.4
3-Dec	85	16	42	35	18	23	31	18	18	19	22	15	6	13	23	32	22	62	41	21	32	63	20	31	85.1
4-Dec	29	43	38	69	22	15	29	61	36	42	86	34	15	13	27	10	13	12	21	12	10	13	17	26	85.8
5-Dec	19	12	12	10	10	15	9	6	5	8	6	7	6	5	6	7	7	6	8	6	15	21	43	9	42.5
6-Dec	23	72	30	8	27	34	79	30	15	25	18	39	14	10	9	9	14	18	16	18	58	88	64	51	88.1
7-Dec	79	66	27	63	21	34	16	73	18	37	68	33	32	17	13	12	6	6	6	7	6	7	6	5	79.3
8-Dec	5	7	6	6	6	7	10	22	14	56	23	31	19	6	9	9	9	6	8	6	9	10	19	19	55.6
9-Dec	13	14	14	10	19	29	20	16	27	65	21	23	50	42	10	26	22	12	11	22	6	7	7	7	64.8
10-Dec	7	9	10	14	17	16	30	43	19	13	15	9	10	13	36	31	20	80	85	36	28	13	18	8	84.9
11-Dec	8	45	8	13	6	7	6	9	8	18	16	7	7	11	29	17	11	16	12	73	19	29	16	20	73.1
12-Dec	18	14	18	10	22	13	16	19	14	18	19	11	19	46	31	13	15	22	16	15	20	14	21	18	45.5
13-Dec	38	48	39	33	32	56	76	52	84	13	83	30	7	6	6	11	N	N	37	9	7	6	10	11	84.5
14-Dec	15	28	42	7	6	7	7	6	51	5	5	5	7	7	6	9	8	8	7	6	51	58	31	21	58.0
15-Dec	15	73	23	25	86	91	70	83	77	34	29	52	43	45	23	22	22	48	14	18	20	18	29	52	90.7
16-Dec	64	70	12	52	20	25	27	73	69	52	47	37	22	42	49	41	44	35	31	18	10	11	15	38	72.7
17-Dec	23	49	33	20	10	25	67	71	24	41	17	16	19	18	13	19	12	14	19	55	32	16	42	24	71.3
18-Dec	45	23	47	66	44	26	83	31	9	21	28	10	15	11	15	8	7	15	20	18	14	15	13	10	83.1
19-Dec	16	17	24	25	13	17	15	14	15	16	12	9	8	9	18	19	21	32	44	81	74	70	56	44	81.2
20-Dec	72	58	22	28	9	10	34	44	9	7	6	6	7	7	6	7	7	9	6	7	6	4	5	5	72.2
21-Dec	5	5	6	6	6	5	5	6	7	5	6	6	7	7	6	7	7	8	10	10	9	37	13	14	37.2
22-Dec	23	19	29	34	32	17	20	19	22	19	17	14	18	18	18	18	14	13	15	12	11	13	11	11	34.4
23-Dec	10	9	10	10	9	10	10	9	9	9	10	10	9	10	10	11	10	12	8	10	9	12	9	9	12.3
24-Dec	8	9	11	9	9	9	9	10	11	11	11	12	15	12	13	18	13	26	14	18	17	29	15	42	42.2
25-Dec	40	25	9	71	13	47	25	3	23	24	24	15	18	10	14	18	23	15	10	8	15	15	13	36	70.9
26-Dec	15	21	10	17	9	11	13	19	11	26	20	11	14	11	18	19	14	13	10	15	26	25	17	14	26.2
27-Dec	12	33	39	32	26	18	19	21	18	15	21	16	8	16	7	13	19	41	19	16	8	23	26	76	75.6
28-Dec	54	18	11	13	27	33	60	68	50	81	55	44	52	7	8	12	11	21	29	25	8	12	27	32	81.2
29-Dec	11	27	18	88	57	51	14	12	11	20	17	35	10	45	33	22	22	68	27	19	20	30	19	39	87.8
30-Dec	78	45	29	66	91	31	52	18	21	20	77	34	24	22	11	17	21	61	62	28	26	29	25	33	91.3
31-Dec	14	12	20	21	25	72	78	19	29	48	41	84	17	13	7	9	6	8	7	5	4	5	6	7	83.9
85.1	73.1	47.4	87.8	91.3	90.7	83.1	82.9	84.5	81.2	85.8	83.9	52.0	45.5	49.1	40.7	43.6	79.8	84.9	81.2	74.1	88.1	64.0	75.6		
N - Not Valid																									

PAZA

Evergreen Park Station

Monthly Summary Tables, Graphs and  
Roses

## Hourly Averages

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Evergreen Park - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.0 ppb on Dec 7 16:00	Maximum Daily Average: 1.0 ppb on Dec 7		Hours of Data:	707
Minimum Value: 0 ppb on Dec 15 01:00	Minimum Daily Average: 0.1 ppb on Dec 15		Hours of Missing Data:	37
Maximum Diurnal Average: 0.6 ppb at hour 16	Minimum Diurnal Average: 0.3 ppb at hour 4		Hours of Calibration:	37
Monthly Average: 0.41 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.5		Percent Operational Time:	100.0

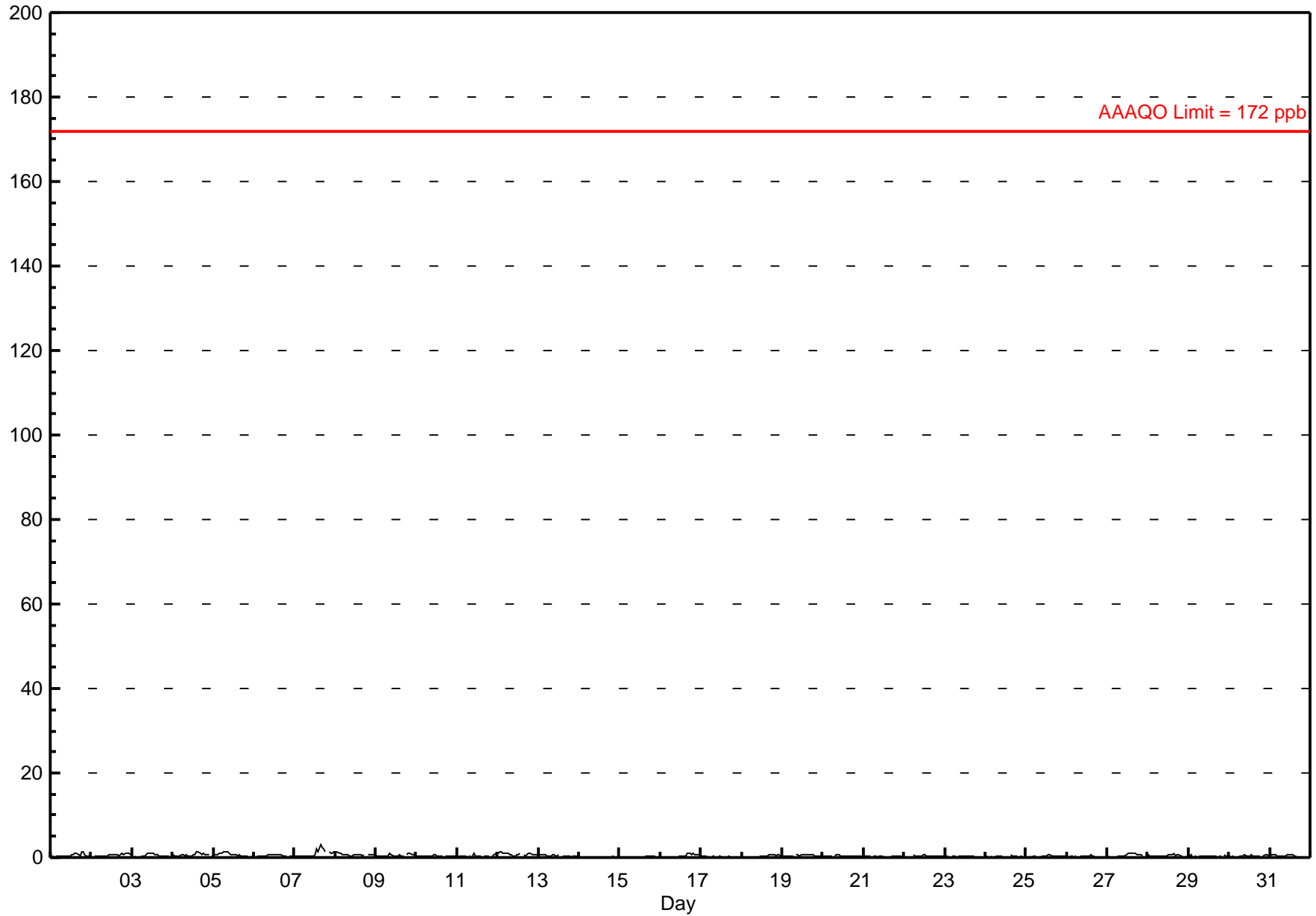
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0	0	A	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	0	0	0	0.6	1.2	
2-Dec	0	A	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0.6	1.2	
3-Dec	A	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	A	0.5	1.2	
4-Dec	1	0	0	0	0	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	A	0	0.6	1.4
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	A	0	0	0.7	1.5	
6-Dec	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	A	0	0	0	0.4	0.8	
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	3	2	2	1	A	1	1	1	2	1.0	3.0	
8-Dec	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	0	A	1	1	1	1	1	0.7	1.3	
9-Dec	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	A	1	1	1	1	1	0	0.5	1.0	
10-Dec	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	A	0	1	0	0	0	0	0	0.3	0.8	
11-Dec	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0.3	1.0
12-Dec	1	1	1	1	1	1	1	1	1	0	0	1	1	1	A	1	0	1	1	1	1	1	1	1	0.8	1.2	
13-Dec	0	1	1	1	1	0	0	0	1	1	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0.4	0.6	
14-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	0.1	0.4	
15-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	0.4	
16-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	1	0.4	0.9	
17-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0.3	0.7	
19-Dec	0	0	0	0	0	0	0	A	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0.5	0.8	
20-Dec	0	0	0	0	0	0	A	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.7	
21-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	
22-Dec	0	0	0	0	A	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6	
23-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	0.5	
24-Dec	0	0	A	0	0	0	0	0	0	0	0	0	C	C	C	C	1	0	0	0	0	0	0	0	0.2	0.6	
25-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0.3	0.6	
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	A	0.2	0.6	
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	A	0.5	1.2	
28-Dec	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	A	0	0.4	1.0	
29-Dec	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	A	1	0	0.3	0.7	
30-Dec	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	A	0	1	1	0.3	0.6	
31-Dec	0	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	A	0	0	0	0	0.4	0.8	

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 (SO<sub>2</sub>) - ppb  
Evergreen Park - December 2012



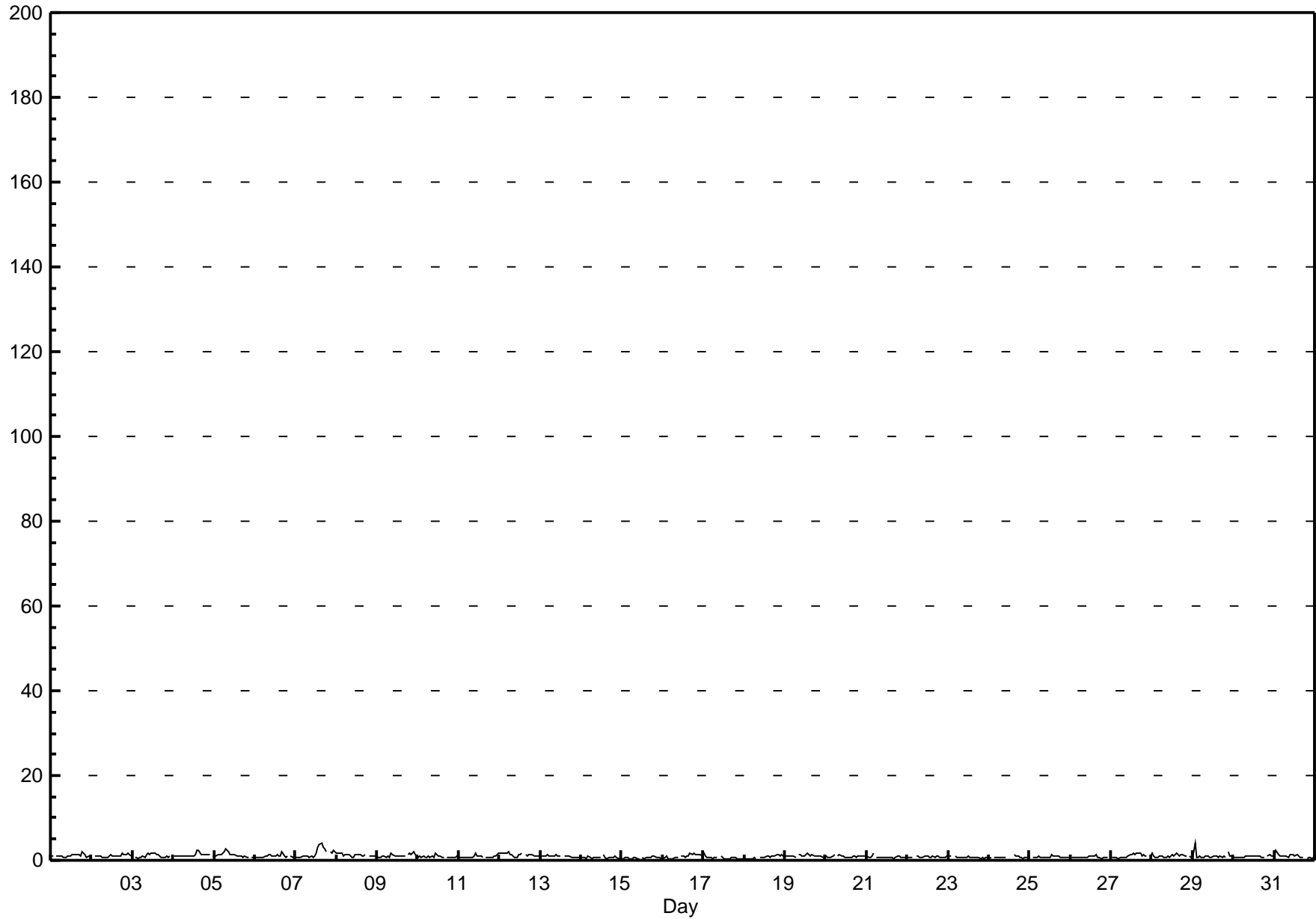
## Hourly Maximums

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Evergreen Park - December 2012

Maximum Value: 4.0 ppb on Dec 29 02:00		Maximum Daily Average: 1.7 ppb on Dec 7		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 15 05:00		Minimum Daily Average: 0.6 ppb on Dec 15		Hours of Data: 707																						
Maximum Diurnal Average: 1.1 ppb at hour 14		Minimum Diurnal Average: 0.8 ppb at hour 4		Hours of Missing Data: 37																						
Monthly Average: 0.96 ppb		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.7 Median = 0.9 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 1.5 P <sub>99</sub> = 2.7		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	A	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1.1	2.0
2-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1.1	1.7
3-Dec	A	1	1	0	1	1	1	1	1	2	1	2	2	2	1	1	1	1	1	1	1	1	1	A	1.0	1.7
4-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	A	1	1.2	2.3
5-Dec	1	1	1	2	1	2	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1.2	2.8
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	A	1	1	1	1.0	2.0
7-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	4	3	3	2	A	2	2	2	2	1.7	3.9
8-Dec	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	A	1	1	1	1	1.2	1.8
9-Dec	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	A	1	2	1	2	1	1	1.1	2.1
10-Dec	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	A	1	1	1	1	1	1	1	0.9	1.6
11-Dec	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	A	1	1	1	1	1	1	1	2	0.8	1.7
12-Dec	2	2	2	2	2	2	1	1	1	1	1	1	1	2	A	1	1	1	1	1	1	1	1	1	1.3	1.9
13-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	1.0	1.3
14-Dec	1	1	1	0	1	1	0	1	1	1	1	1	A	1	1	0	1	1	1	1	1	1	0	1	0.7	1.4
15-Dec	0	0	1	1	0	0	0	1	1	0	0	A	1	0	1	1	1	1	1	1	1	1	1	0	0.6	1.0
16-Dec	0	1	1	0	0	0	0	1	1	1	A	1	1	1	1	1	2	1	2	1	2	1	1	1	0.9	1.6
17-Dec	2	1	1	1	1	0	1	1	1	A	1	1	0	0	0	0	1	1	1	1	1	0	0	0	0.6	1.6
18-Dec	0	0	0	0	0	0	1	0	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3
19-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1.1	1.6
20-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	1.5
21-Dec	1	1	1	1	2	A	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0.8	1.6
22-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1
23-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0.7	1.0
24-Dec	0	1	A	1	1	1	1	1	1	1	1	C	C	C	C	1	1	1	1	1	0	1	1	1	0.7	1.2
25-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
26-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	A	0.7	1.2
27-Dec	1	1	1	1	0	1	1	1	1	1	1	1	1	2	1	2	2	2	1	1	1	1	A	1	1.0	1.7
28-Dec	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	A	1	1	1.1	1.8
29-Dec	0	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	2	1	1	1.0	4.0
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.9	1.2
31-Dec	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0	1	1	0	1	1.0	2.4
		0.9	1.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.1	1.0	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.9	Diurnal Average
		1.8	4.0	1.6	1.7	1.6	1.9	2.0	2.8	2.1	1.7	1.6	1.6	1.7	2.9	3.8	3.9	2.9	2.7	2.1	1.7	2.0	2.1	2.3	2.2	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

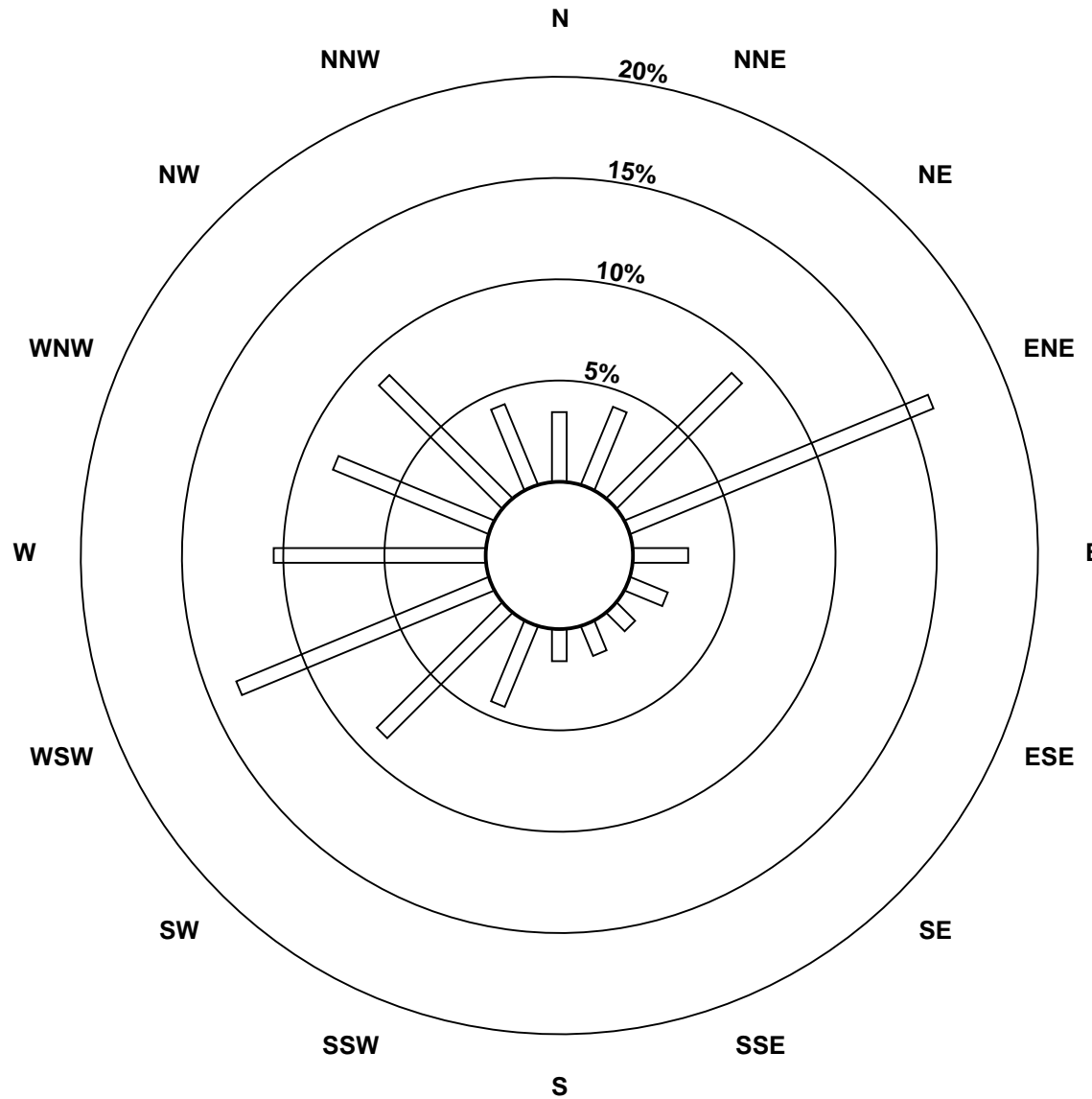
### Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Evergreen Park - December 2012

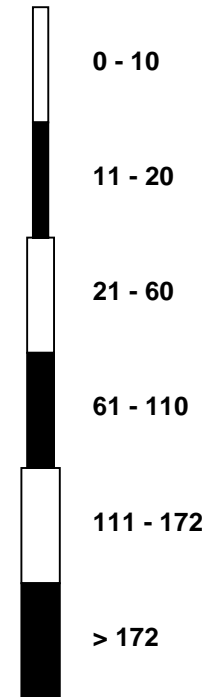


**Pollutant Rose**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Evergreen Park - December 2012**

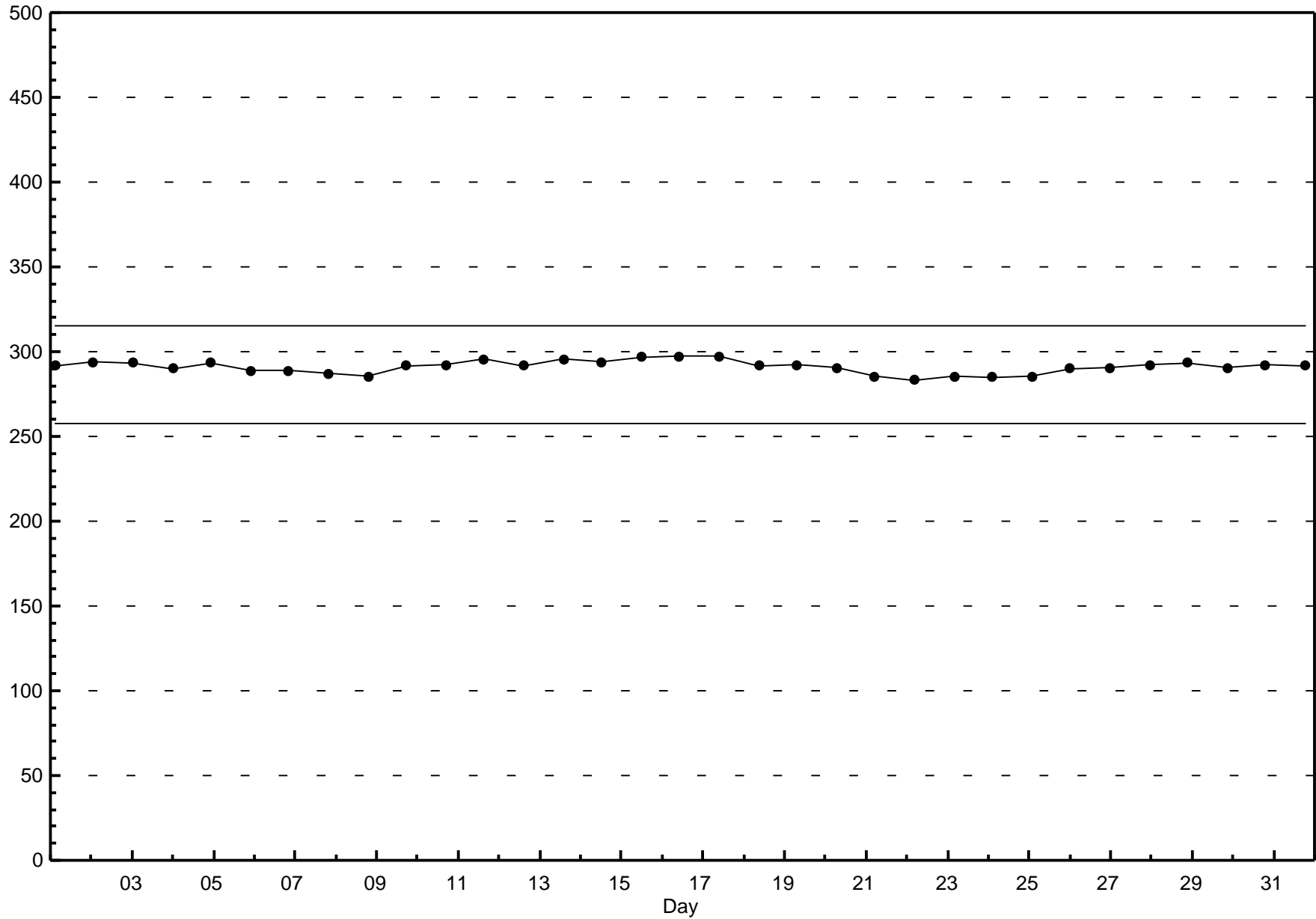


**Pollutant Classes (ppb)**



### Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Evergreen Park - December 2012



## Hourly Averages

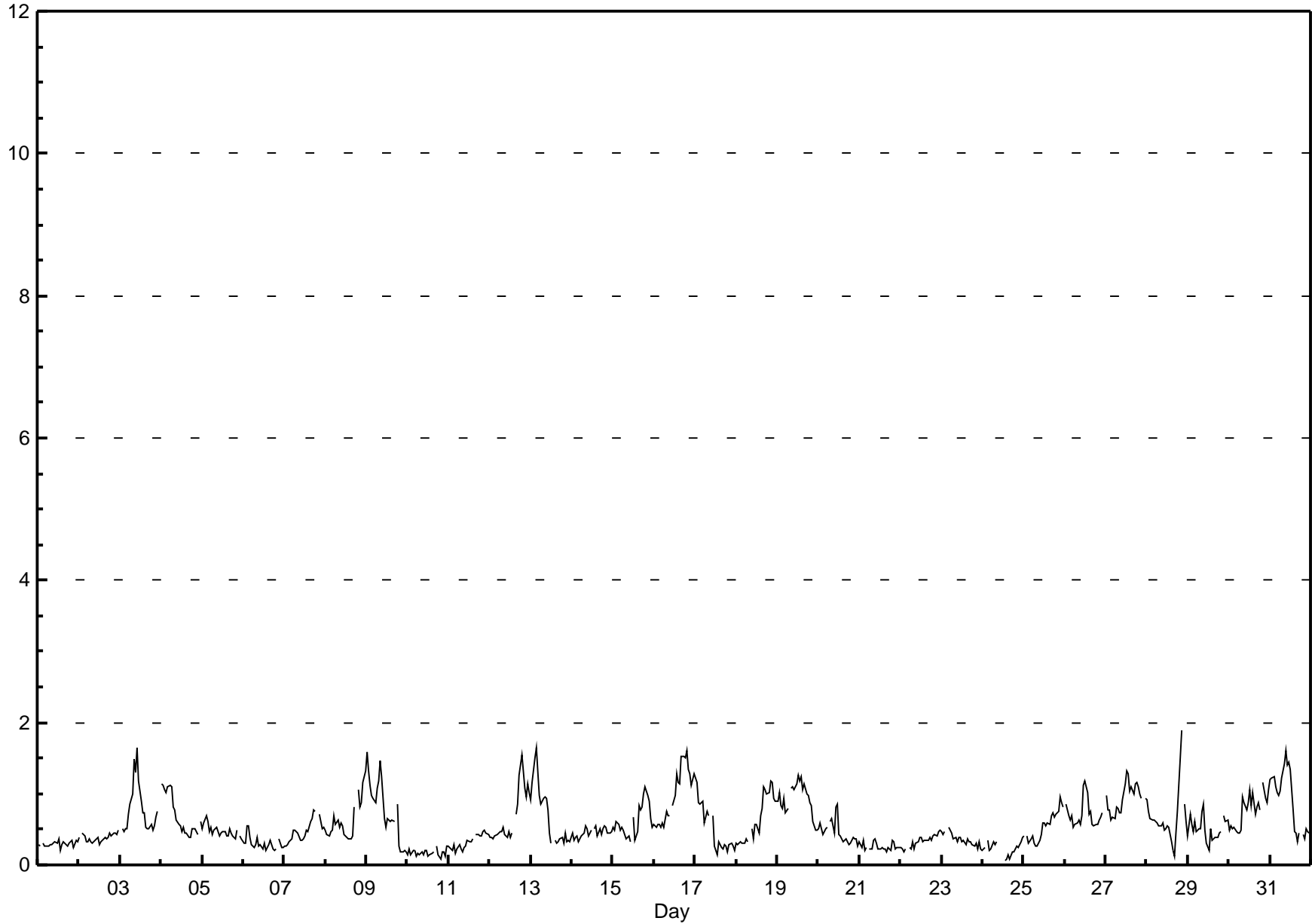
## Total Reduced Sulphur (TRS) - ppb

### Evergreen Park - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.9 ppb on Dec 28 21:00	Maximum Daily Average: 1.0 ppb on Dec 16		Hours of Data:	707
Minimum Value: 0 ppb on Dec 24 14:00	Minimum Daily Average: 0.2 ppb on Dec 10		Hours of Missing Data:	37
Maximum Diurnal Average: 0.7 ppb at hour 21	Minimum Diurnal Average: 0.5 ppb at hour 15		Hours of Calibration:	37
Monthly Average: 0.57 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.5 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.1 P <sub>99</sub> = 1.5		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	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
2-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	0.4	0.5
3-Dec	A	1	0	0	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	0	1	1	1	A	0.8	1.6
4-Dec	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	1	0	0	A	1	0.7	1.1
5-Dec	1	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	A	0	0	0.5	0.7
6-Dec	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.3	0.6
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	A	1	1	1	1	0.5	0.8
8-Dec	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	1	A	A	1	1	1	1	0.6	1.3
9-Dec	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0	0	0	0	0	0	0.8	1.6
10-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
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.3	0.5
12-Dec	0	0	0	0	0	0	0	0	1	0	0	0	0	0	A	1	1	1	1	2	1	1	1	1	0.7	1.5
13-Dec	1	1	2	2	1	1	1	1	1	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.7	1.7
14-Dec	0	0	0	0	0	0	0	0	1	1	0	0	A	1	1	0	1	0	1	1	1	0	0	0	0.5	0.6
15-Dec	1	0	1	1	0	1	0	0	0	0	0	A	1	0	0	1	1	1	1	1	1	1	1	1	0.6	1.1
16-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	2	2	1	2	1	1	1	1	1.0	1.6
17-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	0	0	0	0	0	0	0	0	0	0	0	0.5	1.2
18-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0.6	1.2
19-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0.9	1.3
20-Dec	1	1	1	0	1	1	A	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.9
21-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	0.3	0.4
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	0.3	0.5
23-Dec	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
24-Dec	0	0	A	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0.2	0.4
25-Dec	0	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1.0
26-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.2
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3
28-Dec	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	1	A	1	1	0.7	1.9
29-Dec	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	0.5	0.9
30-Dec	0	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.8	1.2
31-Dec	1	1	1	1	1	1	1	1	1	1	2	1	1	1	0	0	0	0	0	A	0	0	0	0	0.9	1.6

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



## Hourly Maximums

Total Reduced Sulphur (TRS) - ppb

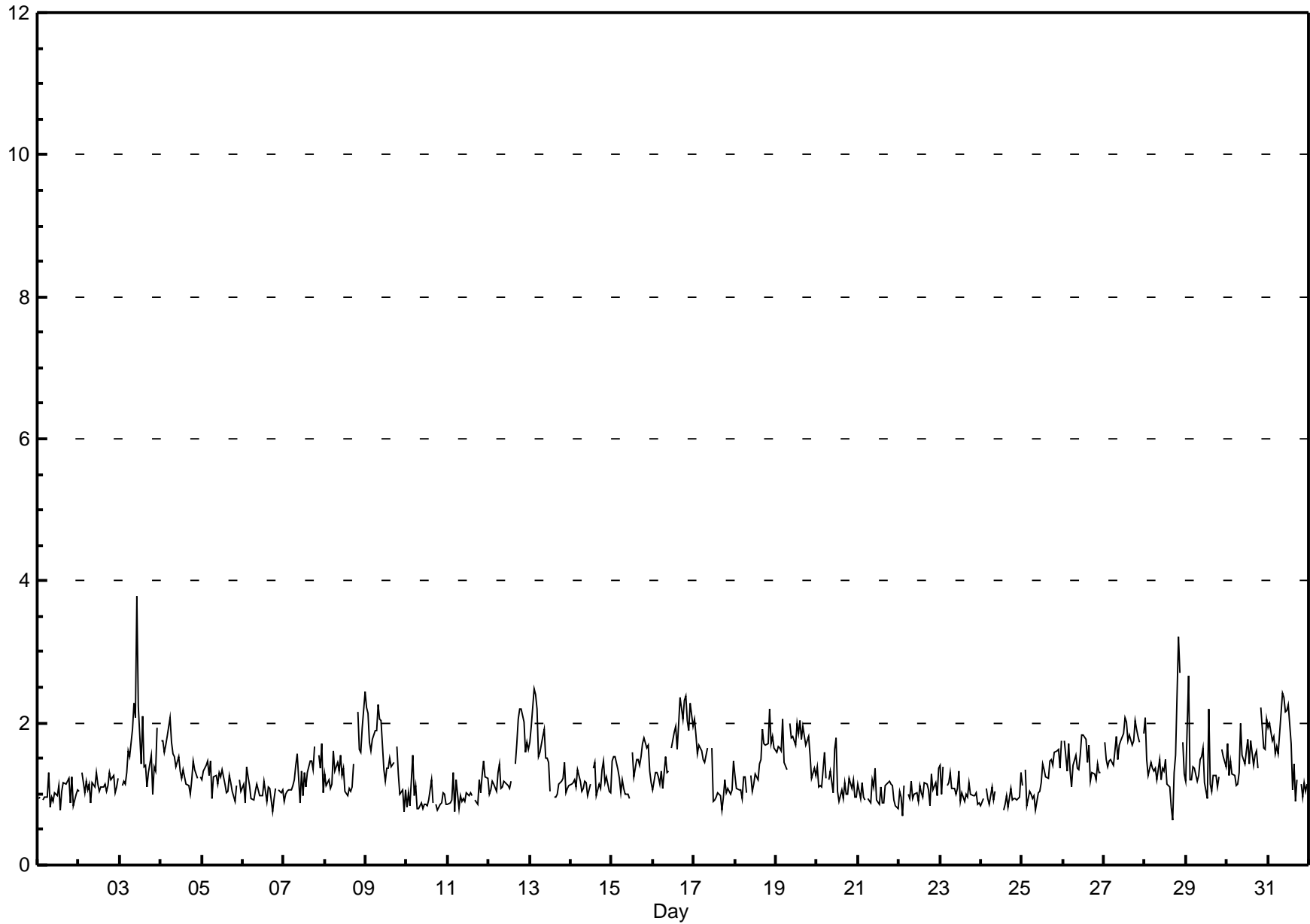
Evergreen Park - December 2012

Maximum Value: 3.8 ppb on Dec 3 11:00		Maximum Daily Average: 1.7 ppb on Dec 27		Hours in Service: 744																						
Minimum Value: 1 ppb on Dec 28 17:00		Minimum Daily Average: 0.9 ppb on Dec 10		Hours of Data: 707																						
Maximum Diurnal Average: 1.4 ppb at hour 21		Minimum Diurnal Average: 1.2 ppb at hour 15		Hours of Missing Data: 37																						
Monthly Average: 1.32 ppb		Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.0 Median = 1.2 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 1.8 P <sub>99</sub> = 2.4		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	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.3
2-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.3
3-Dec	A	1	1	1	1	2	2	2	2	2	4	2	1	2	1	1	1	1	2	1	1	1	2	A	1.6	3.8
4-Dec	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	A	1	1.4	2.1
5-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	1.2	1.5
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1.0	1.4
7-Dec	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	A	2	1	2	1	1	1.3	1.7
8-Dec	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	A	A	2	2	2	2	2	1.4	2.4
9-Dec	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	A	A	1	1	1	1	1	1.6	2.3
10-Dec	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	A	A	1	1	1	1	1	1	1	0.9	1.6
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1.0	1.5
12-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	2	2	2	2	2	2	2	2	2	1.4	2.2
13-Dec	2	2	2	2	2	2	2	2	2	2	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1.5	2.5
14-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1.2	1.5
15-Dec	1	2	2	1	1	1	1	1	1	1	A	2	1	1	1	1	2	2	2	2	2	2	1	1	1.4	1.8
16-Dec	1	1	1	1	1	1	1	2	1	1	A	2	2	2	2	2	2	2	2	2	2	2	2	2	1.7	2.4
17-Dec	2	2	2	2	2	1	1	2	2	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	2.0
18-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1.4	2.2
19-Dec	2	2	2	2	2	1	1	A	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1.7	2.1
20-Dec	1	1	1	1	2	1	A	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1.2	1.8
21-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4
22-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4
23-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.4
24-Dec	1	1	A	1	1	1	1	1	1	1	C	C	C	C	1	1	1	1	1	1	1	1	1	1	1.0	1.3
25-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1.3	1.7
26-Dec	A	2	1	2	1	1	1	2	1	1	2	2	2	2	1	2	1	1	1	1	1	1	1	A	1.5	1.8
27-Dec	2	1	1	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	A	2	1.7	2.1
28-Dec	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	A	2	1	1.5	3.2
29-Dec	1	3	1	1	1	1	1	1	1	2	2	1	1	2	1	1	1	1	1	1	A	2	2	1	1.4	2.7
30-Dec	2	1	1	1	1	1	1	1	2	2	1	2	2	1	2	1	2	2	1	A	2	2	2	2	1.5	2.2
31-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	A	1	1	1	1	1	1.6	2.4
		1.3	1.4	1.3	1.3	1.3	1.2	1.3	1.4	1.3	1.4	1.3	1.3	1.3	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.3	Diurnal Average	
		2.2	2.7	2.5	2.4	2.2	2.1	1.9	2.3	2.4	2.4	3.8	2.2	2.3	2.2	2.0	2.0	2.3	2.1	2.3	3.2	2.7	1.9	2.3	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																								



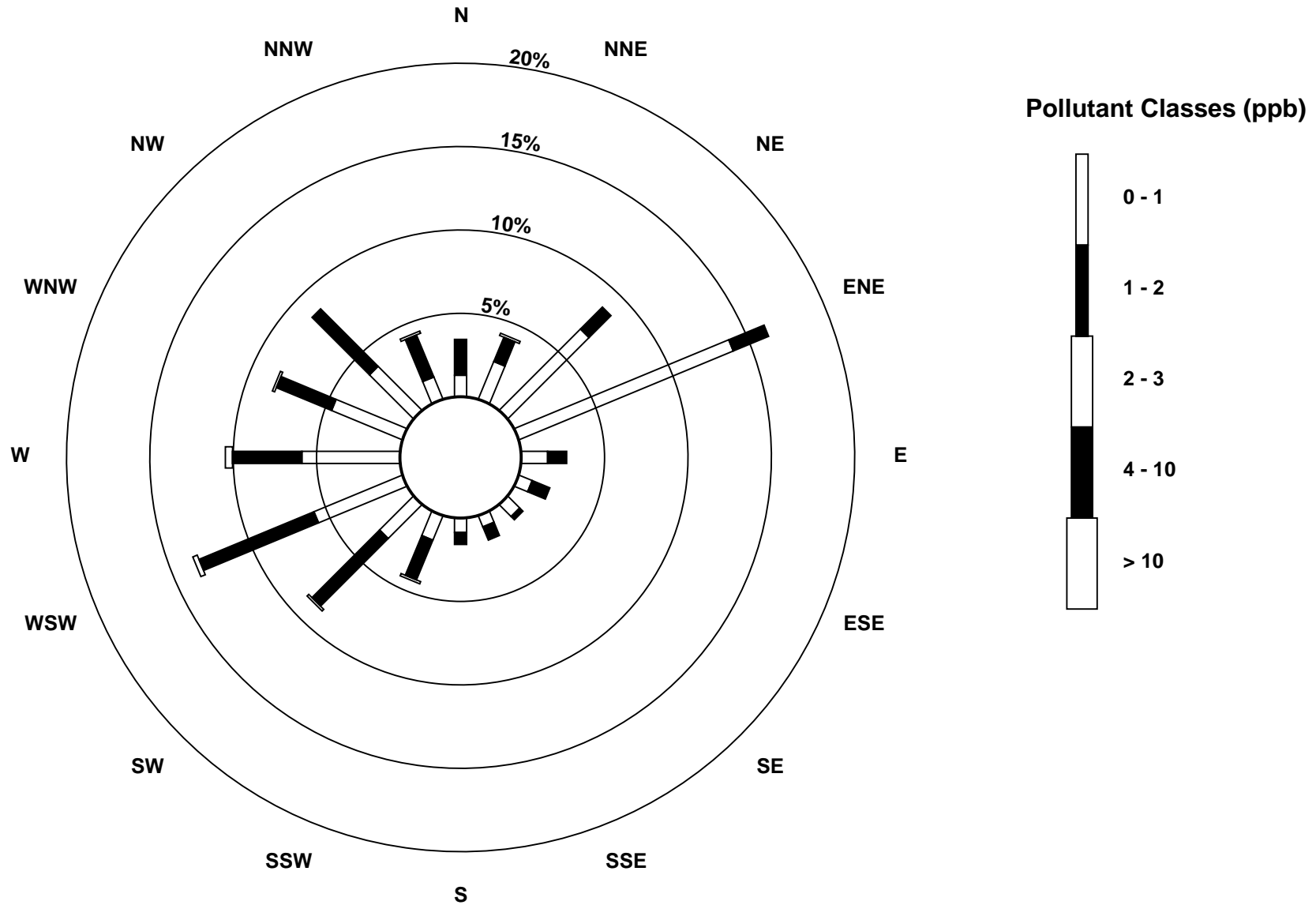
**Hourly Maximums**

**Total Reduced Sulphur (TRS) - ppb**  
**Evergreen Park - December 2012**



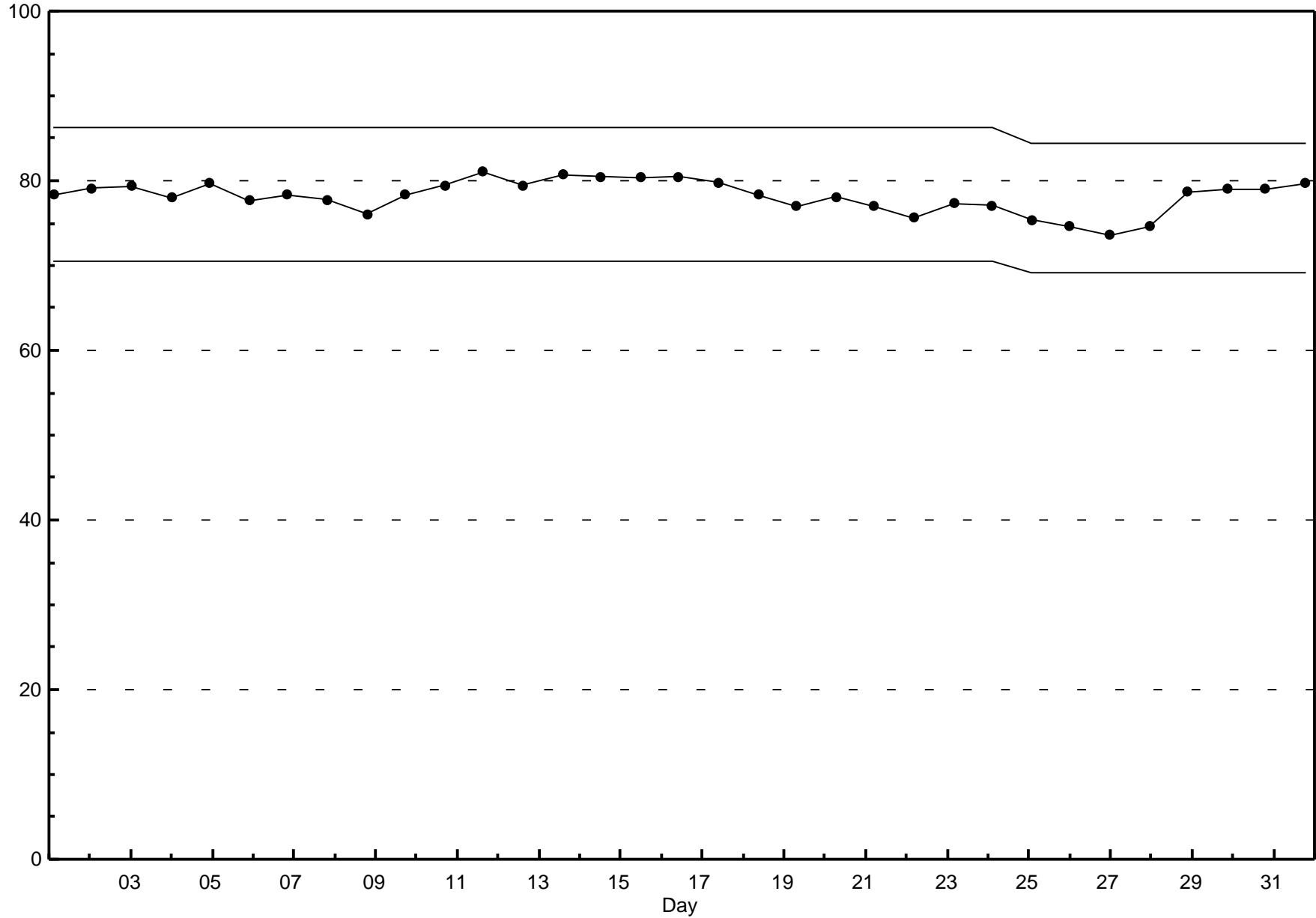
**Pollutant Rose**

**Total Reduced Sulphur (TRS) - ppb**  
**Evergreen Park - December 2012**



**Span Responses**

**Total Reduced Sulphur (TRS)  
Evergreen Park - December 2012**



## Hourly Averages

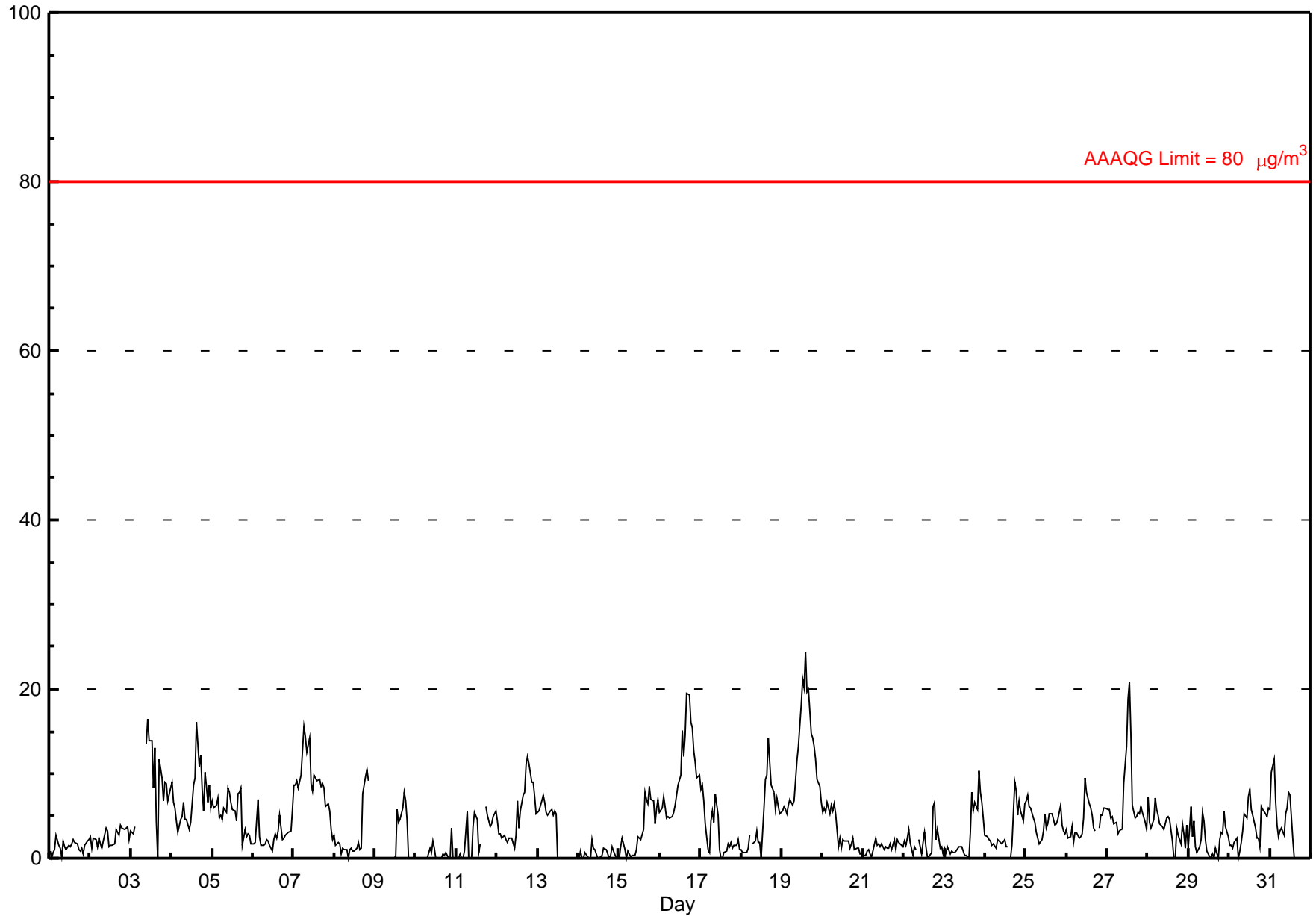
## Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

### Evergreen Park - December 2012

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 24.4 µg/m <sup>3</sup> on Dec 19 15:00	Maximum Daily Average: 11.9 µg/m <sup>3</sup> on Dec 19
Minimum Value: 0 µg/m <sup>3</sup> on Dec 1 02:00	Hours of Data: 718
Maximum Diurnal Average: 5.6 µg/m <sup>3</sup> at hour 18	Hours of Missing Data: 26
Monthly Average: 4.12 µg/m <sup>3</sup>	Hours of Calibration: 1
Minimum Daily Average: 0.4 µg/m <sup>3</sup> on Dec 10	Percent Operational Time: 96.6
Minimum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 6	
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 1.2 Median = 3.0 Q <sub>3</sub> = 5.9 P <sub>90</sub> = 8.9 P <sub>99</sub> = 19.3	

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	0	1	1	3	1	1	0	2	1	1	2	1	2	2	2	2	1	1	1	1	2	2	2	1.4	2.7
2-Dec	2	1	2	2	1	2	2	1	2	4	3	1	2	1	2	3	3	3	4	4	3	3	4	2	2.5	3.8
3-Dec	3	3	4	N	N	N	N	N	N	14	16	14	14	8	13	4	0	12	10	7	9	9	7	8	8.6	16.4
4-Dec	9	7	6	4	3	5	5	7	5	4	3	4	7	9	9	16	11	12	8	6	10	7	9	6	7.1	16.2
5-Dec	7	6	6	7	5	5	5	6	5	8	8	7	6	6	4	8	8	8	2	3	2	3	3	2	5.4	8.3
6-Dec	2	2	4	7	2	2	2	2	2	2	1	1	2	3	2	3	5	2	2	3	3	3	3	6	2.8	6.9
7-Dec	9	9	9	8	10	13	16	14	13	14	9	8	10	9	9	9	8	9	8	6	6	6	3	2	9.1	15.7
8-Dec	3	2	2	2	1	1	1	1	0	1	1	1	1	1	2	1	1	8	10	10	9	N	M	M	2.8	10.4
9-Dec	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	7.8
10-Dec	0	0	0	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	1	0	0	4	0	0	0.4	3.6
11-Dec	0	0	1	0	0	1	6	0	0	0	4	5	5	1	2	N	N	6	5	4	4	4	5	6	2.6	6.0
12-Dec	4	3	3	2	3	2	2	2	2	2	1	3	7	3	6	7	8	11	12	11	9	9	7	5	5.3	12.0
13-Dec	5	6	7	8	7	5	5	6	6	5	6	5	0	0	0	0	0	0	0	0	0	0	0	0	2.9	7.5
14-Dec	0	1	0	0	1	0	0	0	2	1	1	0	0	0	0	1	1	0	0	0	1	1	0	0	0.5	2.2
15-Dec	0	1	2	1	0	1	0	0	0	0	1	3	2	2	3	8	7	7	9	7	7	4	6	7	3.3	8.5
16-Dec	5	6	7	6	5	5	5	5	5	6	7	9	10	15	12	15	19	19	16	15	13	11	10	10	9.9	19.5
17-Dec	8	9	7	4	1	1	4	6	4	8	5	1	0	0	1	1	2	1	2	1	2	2	2	1	3.0	8.6
18-Dec	1	1	1	1	1	3	N	2	2	3	2	2	0	6	9	10	14	11	9	8	6	7	6	5	4.7	14.3
19-Dec	6	6	6	5	6	7	6	7	9	12	13	18	21	20	24	20	20	15	14	13	12	9	8	7	11.9	24.4
20-Dec	5	6	5	7	5	6	6	6	5	1	2	1	2	2	2	2	1	2	2	1	1	1	0	1	3.1	6.7
21-Dec	0	0	1	1	0	0	1	2	2	2	1	2	1	1	1	1	2	1	2	1	2	2	2	1	1.3	2.3
22-Dec	2	2	2	3	2	0	1	1	N	2	0	2	3	1	0	0	1	6	7	2	3	1	1	1	2.0	6.6
23-Dec	1	1	1	0	1	1	1	1	1	1	1	1	0	0	0	3	8	6	7	6	10	8	7	5	3.0	10.4
24-Dec	3	3	2	2	2	2	1	2	2	2	2	2	1	1	C	0	2	9	8	5	7	6	4	6	3.2	9.0
25-Dec	7	8	6	6	5	4	3	2	2	2	3	5	4	4	5	5	5	4	4	4	6	4	3	3	4.3	7.5
26-Dec	3	2	3	4	2	3	3	2	3	3	5	10	8	6	6	5	4	3	N	4	5	5	6	6	4.3	9.6
27-Dec	6	6	5	5	4	4	3	3	3	3	9	13	19	21	15	6	5	5	5	5	6	5	4	3	6.8	20.9
28-Dec	7	4	4	5	7	6	5	4	4	3	4	5	5	5	2	0	0	4	3	2	4	3	1	4	3.7	7.3
29-Dec	1	6	2	4	1	1	1	2	5	4	2	1	0	0	0	0	1	0	2	3	3	6	4	3	2.3	6.0
30-Dec	1	1	1	2	2	0	1	2	3	5	5	7	8	6	5	4	2	2	1	6	6	5	5	6	3.7	8.2
31-Dec	6	10	12	7	4	2	3	4	3	5	6	8	8	2	0	0	0	0	0	0	0	0	0	0	3.3	11.7
	3.6	3.6	3.7	3.6	2.9	2.9	3.2	3.1	3.4	4.1	4.2	4.5	4.7	4.6	4.8	4.6	4.8	5.6	5.3	4.6	4.9	4.3	3.8	3.6	Diurnal Average	
	9.0	10.1	11.7	8.3	9.9	12.7	15.7	14.5	12.6	14.2	16.4	18.2	21.3	20.9	24.4	19.7	19.9	19.4	16.1	15.4	12.7	11.3	9.6	9.8	Diurnal Maximum	

C - Calibration      M - Maintenance      N - Not Valid  
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m<sup>3</sup>      Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m<sup>3</sup>

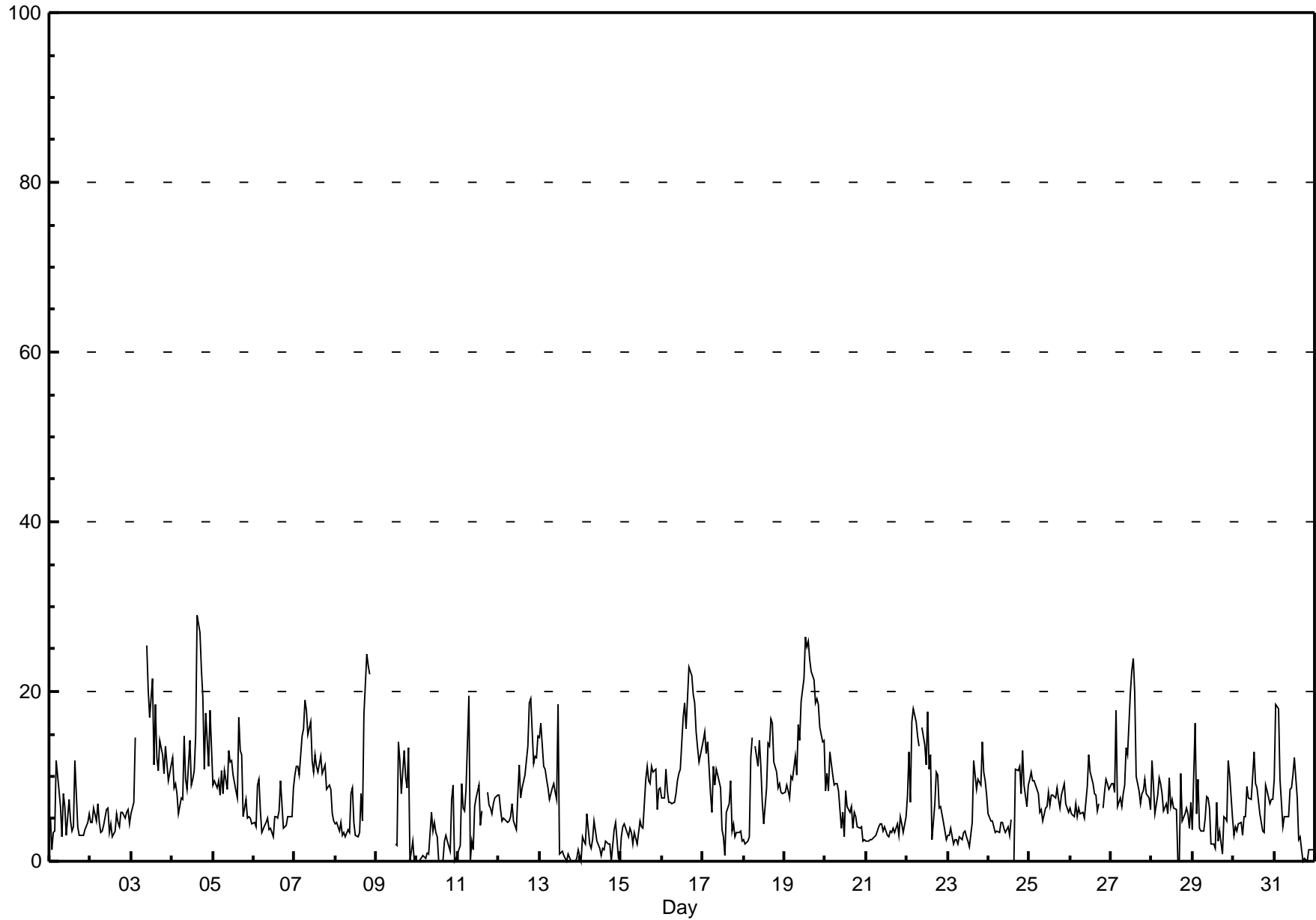


## Hourly Maximums

## Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

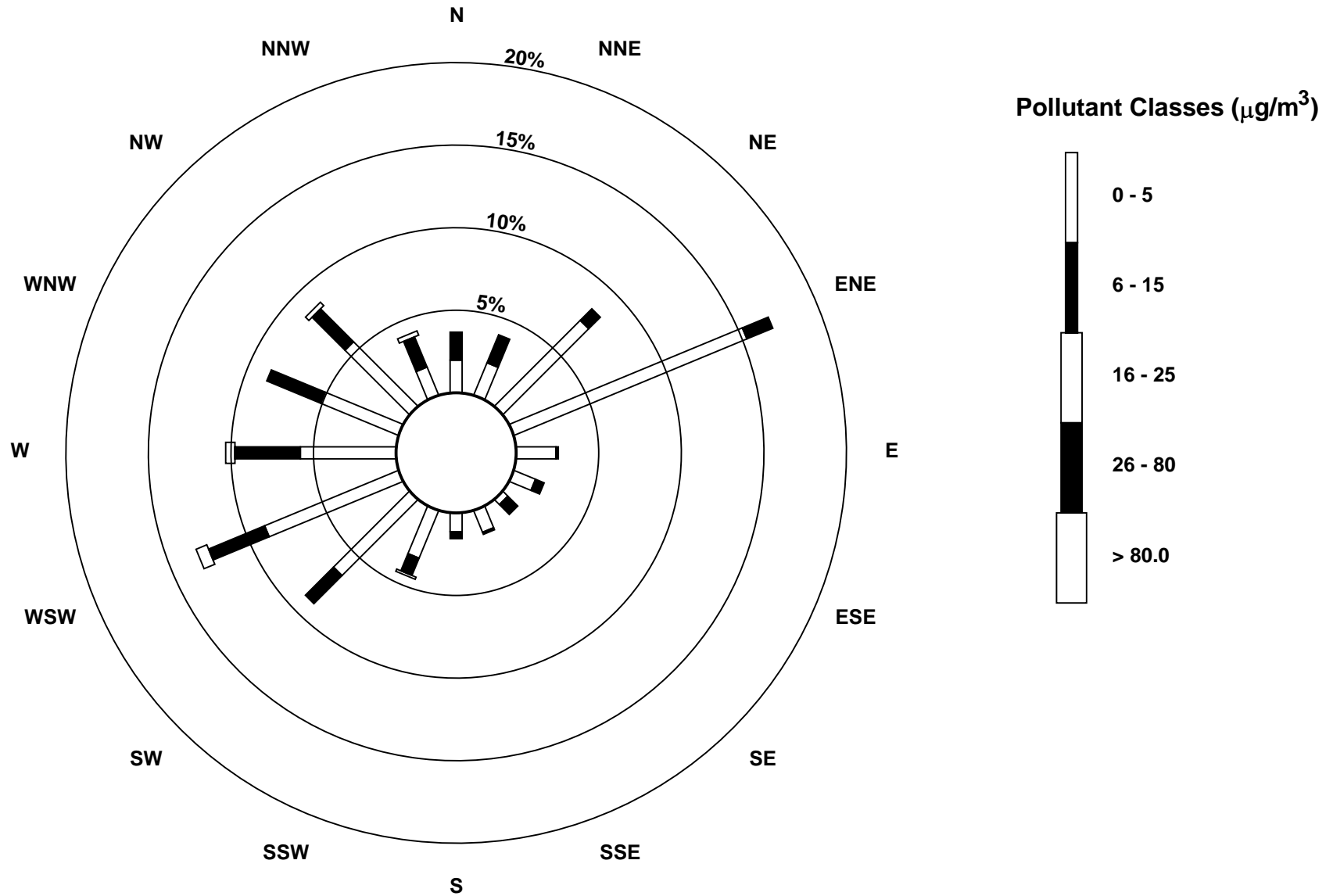
### Evergreen Park - December 2012

Maximum Value: 28.9 µg/m <sup>3</sup> on Dec 4 16:00		Maximum Daily Average: 16.3 µg/m <sup>3</sup> on Dec 19		Hours in Service: 744 Hours of Data: 718 Hours of Missing Data: 26 Hours of Calibration: 1 Percent Operational Time: 96.6																							
Minimum Value: 0 µg/m <sup>3</sup> on Dec 9 21:00 Maximum Diurnal Average: 8.8 µg/m <sup>3</sup> at hour 18 Monthly Average: 7.62 µg/m <sup>3</sup>		Minimum Daily Average: 2.1 µg/m <sup>3</sup> on Dec 10 Minimum Diurnal Average: 6.4 µg/m <sup>3</sup> at hour 23 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 3.8 Median = 6.7 Q <sub>3</sub> = 10.2 P <sub>90</sub> = 14.5 P <sub>99</sub> = 23.9																									
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	5	1	3	4	12	8	6	3	8	6	3	7	5	4	4	12	4	3	3	3	3	4	5	6	5.1	11.9	
2-Dec	5	5	6	5	7	5	3	4	4	6	6	3	4	3	4	6	5	4	6	6	5	6	6	4	4.8	6.7	
3-Dec	6	7	15	N	N	N	N	N	N	26	20	17	22	11	18	12	11	14	13	10	14	12	9	11	13.7	25.5	
4-Dec	12	9	9	8	6	7	7	15	10	8	14	9	10	11	15	29	27	23	19	11	17	11	18	13	13.3	28.9	
5-Dec	9	9	9	9	8	11	8	11	8	13	12	12	10	8	7	17	13	13	5	7	5	5	5	4	9.1	17.0	
6-Dec	5	4	9	10	6	3	4	5	5	4	4	3	5	5	5	6	9	4	4	4	5	5	5	9	5.4	9.7	
7-Dec	10	11	11	10	15	16	19	18	15	16	12	10	13	11	10	12	10	11	11	8	9	8	6	5	11.6	18.9	
8-Dec	4	5	4	5	3	3	3	4	3	8	9	5	3	3	8	5	17	24	23	22	N	M	M	7.8	24.5		
9-Dec	M	M	M	M	M	M	M	M	M	M	M	2	2	14	12	8	13	10	9	13	0	2	0	0	--	14.1	
10-Dec	0	0	0	1	1	0	1	1	1	6	4	5	3	3	0	0	2	3	2	1	7	9	0	0	2.1	9.0	
11-Dec	1	2	9	6	6	8	19	0	2	1	7	7	9	4	6	N	N	8	7	6	6	7	7	8	6.2	19.4	
12-Dec	8	6	5	5	5	5	5	5	7	5	4	8	11	7	9	10	12	14	19	19	12	12	12	15	9.1	19.1	
13-Dec	15	16	11	11	10	9	7	9	9	8	7	18	1	1	1	0	0	1	0	0	0	0	0	1	5.7	18.4	
14-Dec	0	3	2	2	6	2	2	3	5	4	2	2	1	2	1	2	2	2	0	2	4	5	0	0	2.2	5.5	
15-Dec	3	4	4	3	3	4	3	2	3	2	3	5	4	4	10	11	9	9	11	10	11	6	8	9	6.0	11.2	
16-Dec	7	7	11	8	7	7	7	7	8	9	10	11	17	19	16	19	23	22	20	19	15	13	12	13	12.8	22.8	
17-Dec	14	15	13	14	8	6	11	9	11	10	9	4	3	1	6	7	9	4	4	3	3	3	4	2	7.2	15.2	
18-Dec	3	2	2	3	12	15	N	14	11	14	11	7	4	9	14	14	17	16	12	10	9	9	8	8	9.7	16.7	
19-Dec	8	9	8	7	10	10	12	10	16	14	19	22	26	25	26	24	22	21	19	19	18	16	14	14	16.3	26.4	
20-Dec	8	10	8	13	10	9	9	9	8	4	6	3	8	7	6	7	4	6	5	4	4	4	2	3	6.5	12.9	
21-Dec	2	2	3	3	3	3	3	4	4	4	4	4	3	3	4	3	4	3	4	3	5	4	3	5	3.5	5.3	
22-Dec	8	13	7	17	18	16	15	14	N	16	14	11	18	11	13	3	7	10	10	6	7	5	4	3	10.5	18.0	
23-Dec	3	3	4	2	3	3	2	3	3	3	4	3	2	2	5	12	10	8	10	9	14	10	9	8	5.6	14.1	
24-Dec	6	5	5	4	3	4	3	5	5	4	3	4	3	5	C	0	11	11	11	8	13	9	7	9	5.9	13.1	
25-Dec	10	10	9	9	8	8	6	6	5	6	6	8	7	8	8	7	9	7	6	8	9	7	6	6	7.5	10.4	
26-Dec	6	6	5	7	5	6	6	6	5	7	9	13	11	9	8	8	6	7	N	6	8	10	9	8	7.4	12.5	
27-Dec	9	9	8	18	7	7	7	8	9	13	13	20	23	24	20	10	8	7	8	8	10	8	7	6	11.1	23.8	
28-Dec	12	9	6	8	10	9	8	6	7	6	10	7	7	6	6	0	0	10	5	6	6	6	4	7	6.6	11.9	
29-Dec	4	16	6	10	4	4	4	5	8	7	6	2	2	2	7	2	4	1	5	5	5	12	10	5	5.6	16.2	
30-Dec	3	4	4	4	5	3	5	5	9	7	7	10	13	9	9	6	5	4	3	9	8	7	7	7	6.4	12.9	
31-Dec	10	18	18	10	7	4	5	5	5	8	9	10	12	7	3	3	1	0	0	0	1	1	1	1	5.9	18.4	
		6.5	7.4	7.1	7.4	7.0	6.7	6.8	6.6	7.1	8.2	8.2	8.0	8.4	7.5	8.4	8.6	8.7	8.8	8.6	8.0	8.2	7.2	6.4	6.4	Diurnal Average	
		14.5	18.4	18.0	17.7	18.0	16.5	19.4	17.9	16.0	25.5	20.1	21.5	26.4	25.3	26.0	28.9	27.0	22.6	24.5	23.0	22.0	15.8	17.7	14.8	Diurnal Maximum	
C - Calibration		M - Maintenance			N - Not Valid																						



**Pollutant Rose**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Evergreen Park - December 2012**





# Hourly Averages

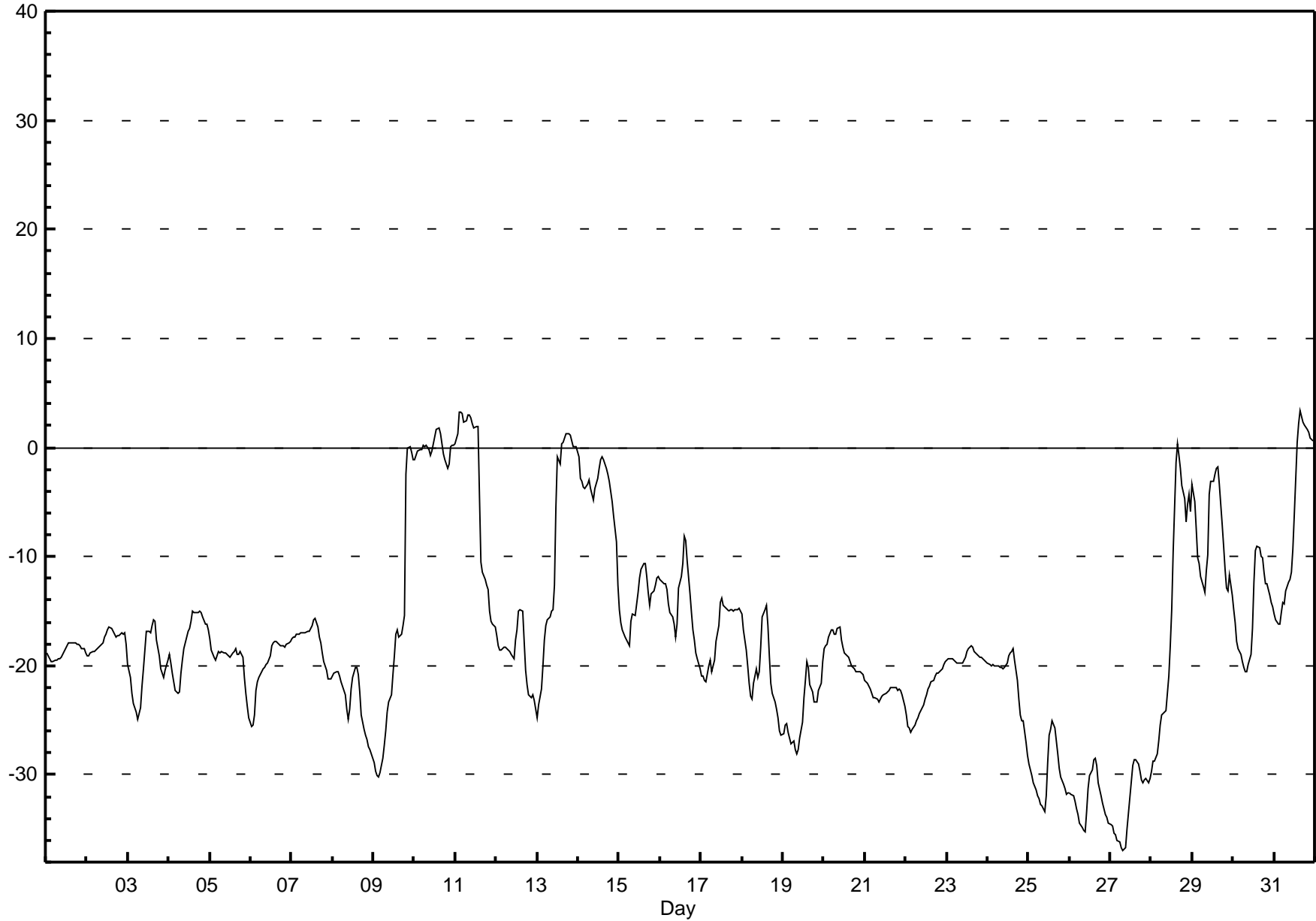
External Temperature (ET) - °C

Evergreen Park - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.4 °C on Dec 31 16:00      Maximum Daily Average: -0.1 °C on Dec 10		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Value: -37 °C on Dec 27 08:00 Maximum Diurnal Average: -14.0 °C at hour 15 Monthly Average: -17.49 °C		Minimum Daily Average: -32.7 °C on Dec 27 Minimum Diurnal Average: -19.6 °C at hour 7 Percentiles: P <sub>1</sub> = -35.4 P <sub>10</sub> = -28.5 Q <sub>1</sub> = -22.2 Median = -18.7 Q <sub>3</sub> = -14.7 P <sub>90</sub> = -1.9 P <sub>99</sub> = 2.9																								
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	-19	-19	-19	-20	-20	-20	-19	-19	-19	-19	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-19	-18.7	-17.9
2-Dec	-19	-19	-19	-19	-19	-19	-18	-18	-18	-18	-17	-17	-17	-16	-17	-17	-17	-17	-17	-17	-17	-17	-17	-18	-17.7	-16.5
3-Dec	-20	-21	-22	-23	-24	-24	-25	-24	-22	-20	-19	-17	-17	-17	-16	-16	-16	-18	-19	-20	-21	-21	-20	-20	-20.1	-15.7
4-Dec	-19	-20	-21	-22	-22	-22	-22	-21	-20	-18	-17	-17	-17	-16	-15	-15	-15	-15	-15	-15	-16	-16	-16	-17	-17.9	-15.0
5-Dec	-18	-19	-19	-20	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-18	-19	-19	-19	-19	-21	-23	-24	-25	-19.6	-17.6
6-Dec	-26	-25	-24	-22	-21	-21	-21	-20	-20	-20	-20	-19	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-19.8	-17.8
7-Dec	-18	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-17	-16	-16	-16	-16	-17	-18	-19	-20	-20	-21	-21	-21	-17.8	-15.6
8-Dec	-21	-21	-21	-21	-21	-21	-22	-23	-24	-25	-24	-22	-21	-20	-20	-21	-22	-25	-26	-26	-27	-27	-28	-29	-23.2	-20.1
9-Dec	-29	-30	-30	-30	-30	-28	-27	-26	-24	-23	-23	-21	-19	-17	-17	-17	-17	-16	-15	-2	0	0	0	-1	-18.5	0.0
10-Dec	-1	-1	0	0	0	0	0	0	0	-1	0	0	1	2	2	1	0	-1	-1	-2	-2	0	0	0	-0.1	1.8
11-Dec	0	1	3	3	3	2	2	3	3	3	2	2	2	2	-4	-10	-11	-12	-13	-13	-15	-16	-16	-16	-4.0	3.3
12-Dec	-17	-18	-19	-19	-18	-18	-18	-19	-19	-19	-19	-18	-17	-15	-15	-15	-18	-20	-22	-23	-23	-23	-23	-24	-19.1	-14.8
13-Dec	-25	-24	-22	-20	-18	-16	-16	-15	-15	-15	-13	-5	-1	-2	0	0	1	1	1	1	1	0	0	0	-8.3	1.3
14-Dec	-1	-3	-3	-4	-4	-3	-3	-4	-4	-5	-4	-3	-2	-1	-1	-1	-2	-2	-3	-4	-5	-6	-9	-13	-3.7	-0.9
15-Dec	-15	-16	-17	-17	-18	-18	-18	-16	-15	-15	-14	-13	-12	-11	-11	-11	-12	-13	-14	-13	-13	-13	-12	-12	-14.2	-10.6
16-Dec	-12	-12	-12	-12	-13	-14	-15	-15	-16	-17	-16	-13	-12	-11	-8	-9	-10	-13	-15	-17	-18	-19	-19	-20	-14.2	-8.1
17-Dec	-21	-21	-21	-21	-20	-20	-21	-20	-20	-18	-16	-14	-14	-14	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-17.1	-13.8
18-Dec	-15	-17	-19	-20	-22	-23	-23	-22	-20	-21	-18	-16	-15	-15	-16	-19	-22	-23	-23	-24	-25	-26	-26	-26	-20.4	-14.5
19-Dec	-26	-25	-25	-26	-27	-27	-27	-28	-28	-28	-27	-25	-23	-21	-20	-20	-22	-22	-23	-23	-23	-22	-22	-20	-24.2	-19.6
20-Dec	-18	-18	-18	-17	-17	-17	-17	-17	-17	-16	-18	-18	-19	-19	-19	-20	-20	-20	-20	-21	-21	-21	-21	-21	-18.7	-16.5
21-Dec	-21	-22	-22	-22	-23	-23	-23	-23	-23	-23	-23	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-22	-23	-24	-22.4	-21.3
22-Dec	-25	-26	-26	-26	-26	-25	-25	-25	-24	-24	-24	-23	-23	-22	-22	-22	-21	-21	-21	-21	-21	-20	-20	-20	-22.9	-19.7
23-Dec	-19	-19	-19	-19	-20	-20	-20	-20	-20	-20	-20	-19	-19	-18	-18	-18	-19	-19	-19	-19	-19	-19	-20	-20	-19.2	-18.1
24-Dec	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-19	-19	-19	-18	-19	-21	-23	-25	-25	-25	-27	-28	-21.2	-18.5
25-Dec	-29	-30	-30	-31	-31	-32	-32	-33	-33	-33	-32	-29	-26	-26	-25	-26	-27	-28	-29	-30	-31	-31	-32	-32	-29.9	-25.0
26-Dec	-32	-32	-32	-32	-33	-34	-34	-35	-35	-35	-33	-31	-30	-30	-29	-29	-29	-31	-32	-33	-33	-34	-34	-34	-32.3	-28.5
27-Dec	-35	-35	-35	-36	-36	-36	-37	-37	-37	-37	-35	-32	-31	-29	-29	-29	-29	-30	-31	-31	-30	-30	-31	-30	-32.7	-28.6
28-Dec	-30	-29	-29	-28	-27	-25	-25	-24	-24	-23	-21	-18	-15	-10	-1	0	-1	-2	-4	-5	-7	-5	-4	-6	-15.0	0.3
29-Dec	-3	-5	-7	-10	-11	-12	-13	-13	-11	-10	-4	-3	-3	-2	-2	-3	-7	-9	-11	-13	-13	-12	-14	-14	-8.1	-1.8
30-Dec	-15	-16	-18	-18	-19	-20	-20	-21	-21	-20	-19	-17	-12	-10	-9	-9	-10	-10	-11	-12	-13	-14	-14	-15	-15.0	-9.0
31-Dec	-15	-16	-16	-16	-15	-14	-14	-13	-12	-12	-11	-9	-6	0	2	3	3	2	2	2	1	1	1	1	-6.4	3.4
																								Diurnal Average		
																								Diurnal Maximum		

### Hourly Averages

External Temperature (ET) - °C  
Evergreen Park - December 2012



## Hourly Averages

Relative Humidity (RH) - %

Evergreen Park - December 2012

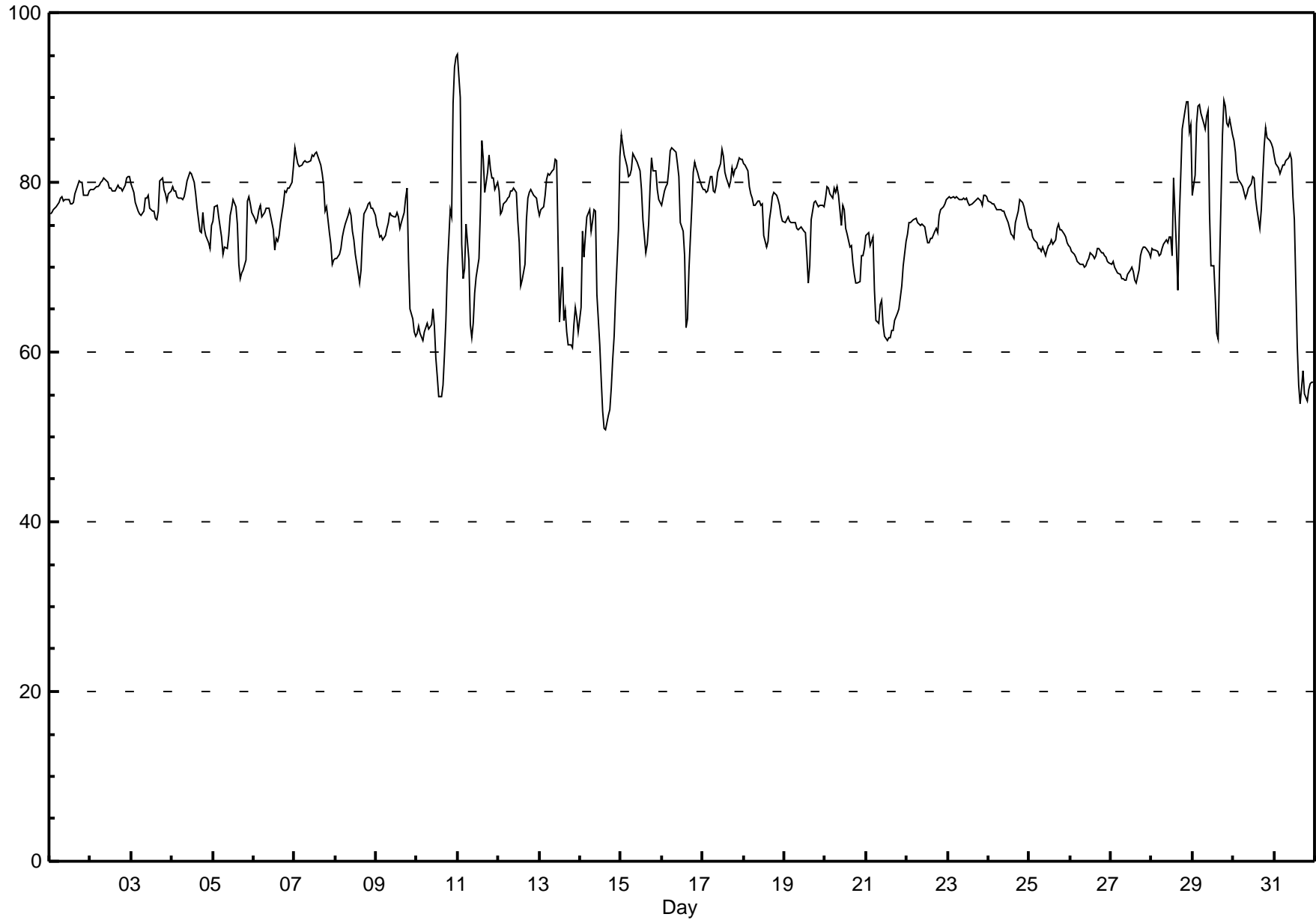
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 95.1 % on Dec 11 01:00	Maximum Daily Average: 81.3 % on Dec 29		Hours of Data:	744
Minimum Value: 51 % on Dec 14 16:00	Minimum Daily Average: 66.1 % on Dec 14		Hours of Missing Data:	0
Maximum Diurnal Average: 77.3 % at hour 2	Minimum Diurnal Average: 70.9 % at hour 16		Hours of Calibration:	0
Monthly Average: 75.29 %	Percentiles: P <sub>1</sub> = 54.7 P <sub>10</sub> = 65.6 Q <sub>1</sub> = 72.2 Median = 76.7 Q <sub>3</sub> = 79.2 P <sub>90</sub> = 82.2 P <sub>99</sub> = 89.4		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	76	76	77	77	77	78	78	78	78	78	78	77	77	78	79	80	80	80	80	78	78	78	79	79	78.1	80.2	
2-Dec	79	79	79	79	80	80	80	80	80	80	80	79	79	79	79	80	79	79	79	80	81	81	81	79.7	80.8		
3-Dec	80	79	78	77	77	76	76	77	78	78	78	77	77	77	76	76	77	80	80	79	79	78	79	77.8	80.5		
4-Dec	79	79	79	78	78	78	78	78	79	80	81	81	81	80	79	77	74	74	76	75	74	73	72	75	77.5	81.2	
5-Dec	75	77	77	76	75	74	72	72	72	74	76	77	78	77	75	70	69	69	70	71	78	78	77	76	74.4	78.4	
6-Dec	76	75	76	77	77	76	76	77	77	77	76	74	72	73	73	74	75	78	79	79	79	79	80	82	76.6	81.9	
7-Dec	84	83	82	82	82	82	82	82	82	83	83	83	83	84	83	82	81	80	77	77	74	73	70	71	80.3	84.1	
8-Dec	71	71	71	72	74	74	75	76	77	76	74	73	72	69	68	70	74	76	77	77	78	77	77	76	74.0	77.6	
9-Dec	75	74	74	74	73	74	75	75	77	76	76	76	76	75	75	77	78	79	71	65	64	62	62	62	73.3	79.4	
10-Dec	62	63	62	61	62	63	63	63	63	65	63	59	57	55	55	56	60	64	70	77	76	89	94	95	66.5	94.7	
11-Dec	95	90	73	69	70	75	71	63	62	63	67	69	71	77	85	83	79	81	83	81	80	80	79	80	76.1	95.1	
12-Dec	79	76	77	77	78	78	78	79	79	79	79	75	73	68	68	70	76	78	79	79	78	78	78	77	76.6	79.3	
13-Dec	76	77	77	79	80	81	81	81	81	83	83	73	64	70	64	65	62	61	61	61	63	65	64	62	71.4	82.7	
14-Dec	65	74	71	74	76	77	74	75	77	77	67	61	57	53	51	51	53	53	56	59	62	67	74	83	66.1	83.1	
15-Dec	86	84	83	82	81	81	82	83	83	82	82	81	79	76	72	73	75	80	83	81	81	79	78	78	80.2	85.5	
16-Dec	77	79	79	80	82	84	84	84	84	82	81	75	74	71	63	64	70	77	81	82	82	81	80	79	78.1	84.0	
17-Dec	79	79	79	79	81	81	79	79	80	81	82	84	83	81	80	80	80	82	81	82	82	83	83	83	80.9	83.8	
18-Dec	82	82	81	79	79	78	77	77	78	78	77	77	74	72	73	76	77	78	79	79	78	77	76	75	77.5	82.3	
19-Dec	75	76	76	75	75	75	75	75	74	75	75	74	74	71	68	70	76	78	78	77	77	77	77	77	75.1	77.9	
20-Dec	78	79	79	79	78	79	79	79	79	78	75	77	77	75	74	72	73	70	69	68	68	68	71	71	72	74.6	79.5
21-Dec	74	74	72	73	74	67	64	63	66	66	63	62	61	62	62	63	63	64	65	65	66	68	70	73	66.6	74.0	
22-Dec	74	75	75	75	76	76	75	75	75	75	75	74	73	73	73	73	74	75	74	76	77	77	78	78	75.0	78.0	
23-Dec	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	78	78	78	78	78	77	78	79	78	78.0	78.6	
24-Dec	78	78	78	77	77	77	77	77	77	77	76	75	75	74	74	73	75	77	78	78	78	77	75	75	76.3	78.0	
25-Dec	74	74	74	73	73	72	72	72	72	71	72	73	73	73	73	73	75	75	74	74	74	74	73	73	73.2	75.1	
26-Dec	72	72	72	71	71	70	70	70	70	70	71	71	72	71	71	71	72	72	72	72	71	71	71	70	71.1	72.4	
27-Dec	70	71	70	70	69	69	69	69	69	68	69	70	70	70	69	68	70	71	72	72	72	72	71	71	70.1	72.4	
28-Dec	72	72	72	72	71	72	72	73	73	73	74	74	71	81	72	67	76	81	86	88	90	89	86	87	76.8	89.5	
29-Dec	79	81	87	89	89	88	87	86	88	89	77	70	70	66	62	61	70	86	90	89	87	87	86	86	81.3	89.6	
30-Dec	85	84	81	80	80	79	79	78	79	79	80	81	81	78	77	75	77	81	84	86	85	85	84	84	80.9	86.4	
31-Dec	83	82	82	81	82	82	82	82	83	83	83	78	76	61	56	54	56	58	55	54	56	56	56	56	69.9	83.4	

77.1	77.3	76.5	76.3	76.5	76.6	76.2	76.1	76.4	76.5	75.9	74.5	73.3	72.5	71.1	70.9	72.5	74.6	75.6	75.7	75.7	76.3	76.2	76.6	Diurnal Average
95.1	90.0	86.9	88.9	89.2	88.1	87.0	86.2	87.7	88.5	83.2	83.8	83.4	83.5	84.9	82.7	81.1	85.6	89.6	89.1	89.5	89.5	93.6	94.7	Diurnal Maximum

**Hourly Averages**

**Relative Humidity (RH) - %**  
**Evergreen Park - December 2012**





Peace Airshed Zone Association

# Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Evergreen Park - December 2012

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	9	7	8	7	6	5	6	6	7	7	7	5	8	7	10	6	4	4	4	3	6	3	2	1	5.6	9.6
Dir	61	67	61	55	48	67	68	69	58	63	55	61	61	49	44	46	29	35	42	46	77	70	29	237	56.6	44.4
2 Spd	0	2	3	3	5	2	2	2	1	1	4	8	10	10	11	9	7	7	4	4	1	4	1	0	3.8	10.5
Dir	196	62	65	71	57	94	84	48	62	164	33	57	77	58	62	53	48	56	52	60	253	325	35	61	57.5	62.4
3 Spd	1	1	1	1	0	0	0	1	2	1	2	3	8	7	5	3	4	1	0	2	1	1	1	1	1.0	8.2
Dir	197	99	11	28	38	225	314	8	345	357	328	245	265	267	254	285	207	95	115	43	29	4	16	5	286.5	265.5
4 Spd	1	0	1	1	2	3	3	2	5	6	5	10	15	17	24	27	23	22	20	14	12	12	5	3	9.1	26.5
Dir	248	66	253	351	11	223	236	311	240	224	244	254	263	264	268	275	264	265	275	267	279	291	303	3	268.8	275.0
5 Spd	7	5	5	9	7	13	11	12	14	16	22	22	14	16	15	12	9	5	2	2	2	1	1	9.1	22.0	
Dir	329	313	335	327	332	318	321	282	272	278	268	282	286	283	274	276	274	286	300	253	218	203	207	64	287.8	282.2
6 Spd	3	1	2	1	2	2	3	4	2	5	8	5	6	5	4	4	3	2	2	2	2	2	3	2.7	8.0	
Dir	54	58	32	31	59	86	74	103	95	64	65	55	347	0	6	18	11	57	62	71	76	50	49	37	46.5	65.3
7 Spd	3	1	1	0	2	1	2	2	2	0	4	4	8	7	6	12	14	16	24	19	23	19	17	14	6.8	23.6
Dir	129	141	136	191	254	323	213	128	165	250	24	24	30	38	350	307	310	317	322	324	330	316	309	302	324.2	321.6
8 Spd	12	11	11	11	13	10	5	3	1	1	3	4	6	6	6	7	4	3	2	2	3	3	3	2	4.7	13.1
Dir	296	311	300	326	322	317	329	342	97	35	50	25	349	20	10	2	6	323	310	323	294	306	275	297	327.4	322.0
9 Spd	1	3	1	3	1	2	2	2	4	5	6	2	2	4	7	7	4	5	3	28	34	36	38	39	8.3	38.6
Dir	249	216	213	213	265	90	59	62	256	208	181	148	318	330	305	288	346	314	48	257	261	268	266	259	265.0	258.5
10 Spd	36	32	32	32	25	28	24	29	17	14	23	28	29	27	24	17	6	2	2	2	3	8	8	7	17.8	35.8
Dir	258	257	262	266	269	262	268	265	286	288	265	265	264	263	257	255	260	314	77	89	220	237	189	178	261.6	257.9
11 Spd	6	15	27	29	26	13	21	24	27	15	8	9	13	11	20	28	19	15	11	11	13	9	12	8	5.0	29.4
Dir	181	245	255	257	254	253	250	264	270	287	279	248	293	311	55	48	43	61	64	58	71	61	58	60	294.2	257.5
12 Spd	8	11	8	5	3	4	6	4	3	2	3	4	10	4	4	3	3	2	2	3	3	2	2	0	1.3	10.6
Dir	73	78	86	116	145	163	134	114	56	74	164	166	212	226	354	31	355	337	326	289	318	289	283	157	105.2	78.2
13 Spd	1	1	1	1	2	4	1	1	6	1	4	20	27	17	20	19	27	29	27	24	20	23	25	20	12.5	28.6
Dir	214	46	31	262	270	285	258	117	209	156	106	233	235	214	243	233	246	244	253	250	247	238	234	236	239.3	244.3
14 Spd	13	3	8	13	18	20	23	16	11	19	26	27	29	31	25	21	20	25	19	16	16	10	4	5	16.2	30.8
Dir	227	342	257	219	238	249	238	242	251	245	250	250	250	254	258	257	256	254	249	229	223	216	67	56	246.2	254.5
15 Spd	3	1	1	1	2	2	2	3	4	4	3	3	2	5	3	5	4	2	1	2	5	4	6	5	1.0	5.6
Dir	41	29	59	39	47	58	105	70	61	37	35	360	7	71	327	263	297	236	252	316	252	291	253	250	338.1	252.9
16 Spd	4	2	5	1	1	1	0	3	1	2	1	1	5	2	4	3	1	1	2	2	1	1	1	1	0.6	5.3
Dir	251	178	195	201	311	107	234	223	273	47	209	324	9	10	5	9	245	275	267	267	242	270	17	265	282.6	8.9
17 Spd	0	2	1	4	4	4	4	1	5	5	3	6	12	13	12	13	13	8	7	2	3	3	0	3	3.2	13.3
Dir	133	235	225	358	336	207	206	288	13	209	67	54	38	41	41	46	45	39	31	47	207	213	216	88	40.5	41.2
18 Spd	2	1	1	0	0	1	2	0	1	1	3	4	2	3	2	5	4	4	3	2	2	3	5	1	1.0	5.4
Dir	144	190	209	51	257	204	207	47	197	218	218	224	283	189	143	6	336	308	272	248	338	231	214	325	248.6	5.9
19 Spd	0	3	0	1	2	3	1	1	1	1	2	5	4	6	5	6	5	3	5	5	4	4	10	7	3.1	10.0
Dir	108	225	337	242	255	257	303	222	255	252	323	311	248	238	256	260	258	299	218	226	222	255	254	288	255.6	254.0
20 Spd	6	8	8	9	9	7	7	4	9	18	21	21	23	21	26	19	18	18	21	21	16	16	19	20	14.3	25.8
Dir	231	229	246	283	286	262	283	296	324	326	323	322	311	312	317	305	304	300	301	309	299	295	306	306	303.6	316.5
21 Spd	20	17	19	20	22	19	19	15	14	16	20	20	16	17	15	12	14	13	9	8	7	6	4	7	13.4	21.8
Dir	315	305	295	287	289	294	290	280	281	302	312	307	312	312	302	318	319	328	326	322	342	300	47	70	305.6	289.0
22 Spd	3	6	5	3	6	6	3	4	6	5	7	8	8	8	8	7	6	2	1	6	7	7	5	6	5.4	8.4
Dir	69	63	81	63	69	71	53	54	48	59	65	68	60	58	60	50	61	50	23	66	64	70	86	81	63.9	58.4

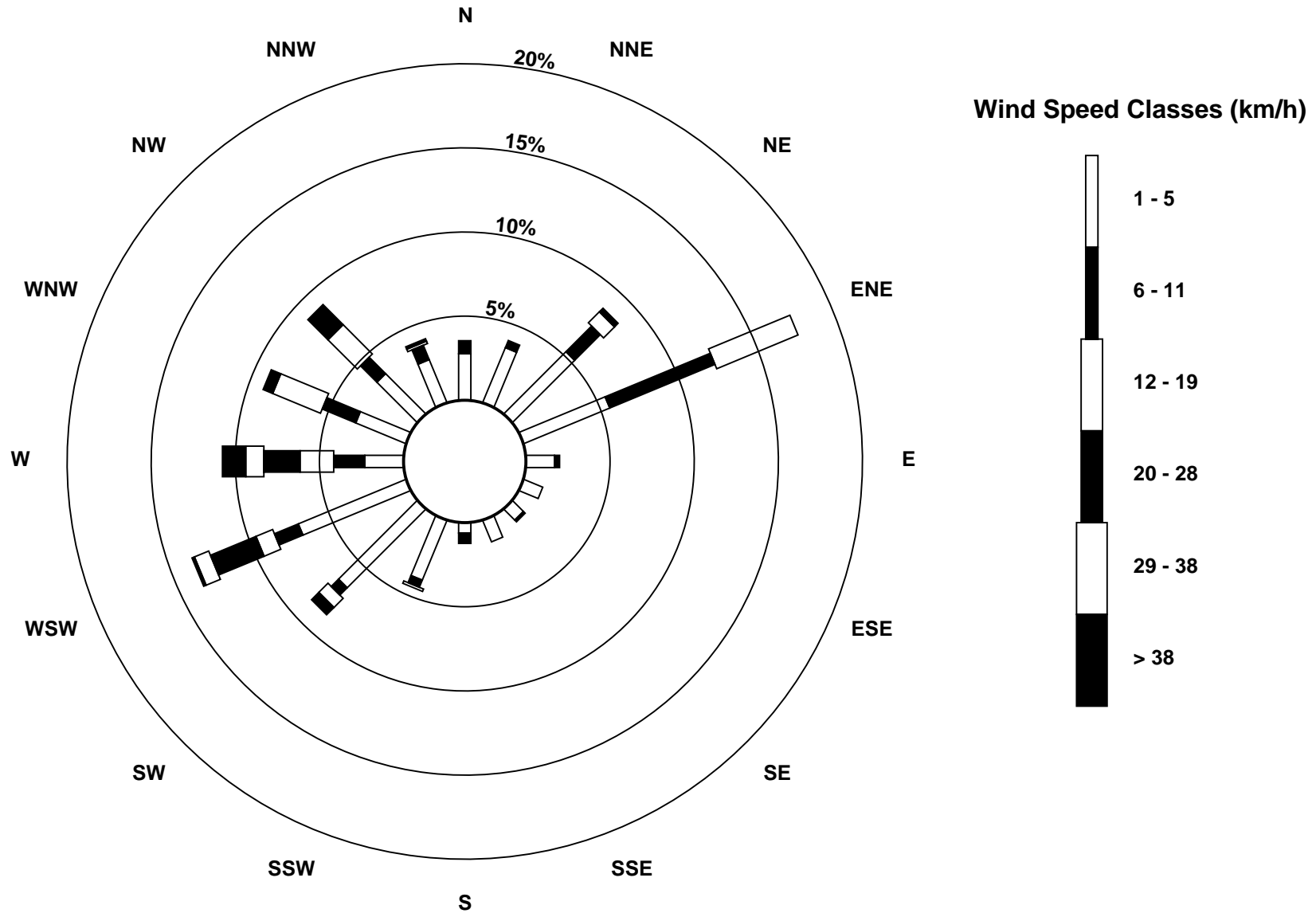
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Evergreen Park - December 2012

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	8	11	13	15	14	14	16	15	13	16	14	13	13	15	13	16	16	16	13	14	15	13	13	12	13.8	16.5
Dir	65	66	67	71	71	68	71	66	70	70	73	69	73	72	67	58	59	61	58	62	65	64	64	63	66.3	57.6
24 Spd	12	12	13	12	12	12	10	10	9	10	10	10	11	12	13	12	5	5	3	6	2	0	0	8.6	12.9	
Dir	58	65	66	66	63	67	70	66	66	67	62	67	64	62	64	74	62	18	15	35	58	326	306	326	61.6	74.2
25 Spd	3	2	2	2	0	0	2	2	1	3	2	2	3	6	6	6	4	1	1	3	3	2	4	1	2.2	6.4
Dir	254	231	229	232	121	217	232	241	59	225	252	247	246	242	282	281	282	254	243	239	252	224	222	352	250.6	242.4
26 Spd	1	2	1	2	1	N	N	N	N	N	1	3	5	5	5	5	2	1	0	2	1	N	N	N	--	5.4
Dir	217	214	110	203	61	N	N	N	N	N	220	235	237	255	277	281	253	70	208	225	228	N	N	N	--	281.1
27 Spd	N	N	N	1	1	1	1	3	0	2	2	2	6	8	9	6	4	2	1	4	2	3	2	1	1.7	9.2
Dir	N	N	N	185	223	178	87	65	16	52	300	285	304	328	267	286	305	242	222	225	264	198	219	225	279.2	267.2
28 Spd	3	2	4	2	3	3	2	3	1	2	3	2	1	4	8	8	3	0	2	6	3	3	3	2	0.8	8.0
Dir	234	207	220	324	295	309	216	94	168	167	66	71	99	66	285	282	51	302	191	192	204	174	114	104	226.9	284.9
29 Spd	7	2	2	1	2	0	2	2	1	0	14	16	11	11	11	6	2	0	4	1	1	3	0	2	3.2	15.6
Dir	295	278	33	93	216	108	209	249	345	326	295	269	270	270	269	270	338	42	224	46	35	61	84	52	277.4	268.6
30 Spd	3	1	2	1	2	3	1	1	3	3	2	2	2	3	4	3	2	2	2	1	1	1	0	1	0.8	3.9
Dir	209	64	48	218	223	212	33	24	232	248	63	341	239	300	292	314	276	63	39	283	212	235	321	262	272.2	291.5
31 Spd	1	1	1	1	2	1	1	1	0	3	1	2	4	9	13	43	47	42	48	45	55	46	43	41	18.5	54.9
Dir	252	348	237	233	241	166	31	269	258	231	204	13	263	270	272	269	263	265	262	265	266	267	265	262	264.9	265.7
Spd	1.9	1.4	2.0	2.5	2.7	2.4	2.1	1.7	2.2	2.1	2.7	3.8	4.7	4.4	5.2	5.6	4.8	4.4	4.4	4.4	4.4	4.5	4.9	4.2	3.2	Diurnal Average
Dir	279.9	287.7	279.6	285.5	291.1	279.4	269.0	282.4	291.8	297.5	304.8	286.3	288.7	297.5	302.3	303.1	300.2	295.5	288.8	277.8	276.5	273.7	272.1	278.2	Diurnal Maximum	
Spd	35.8	31.9	32.0	32.4	26.0	28.4	23.7	28.6	27.0	18.7	25.5	28.1	29.3	30.8	25.8	42.6	47.2	42.0	47.7	45.5	54.9	45.9	43.5	41.1	Diurnal Maximum	
Dir	257.9	256.6	261.7	265.6	254.0	262.1	267.7	264.6	270.2	245.1	250.4	264.6	263.9	254.5	316.5	268.9	263.1	265.3	261.9	265.3	265.7	266.8	264.6	262.5	Diurnal Maximum	
Maximum Speed Value: 55 km/h on Dec 31 21:00																		Minimum Speed Value: 0 km/h on Dec 29 06:00						Hours in Service: 744		
Maximum Daily Speed Average: 18.5 km/h on Dec 10																		Minimum Daily Speed Average: 0.6 km/h on Dec 30						Hours of Data: 733		
Maximum Diurnal Speed Average: 5.6 km/h at hour 16																		Minimum Diurnal Speed Average: 1.4 km/h at hour 2						Hours of Missing Data: 11		
Monthly Average Velocity: 3.39 km/h 288.11 deg																		Speed Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 2.0 Median = 4.3 Q <sub>3</sub> = 11.2 P <sub>90</sub> = 19.8 P <sub>99</sub> = 41.9						Percent Operational Time: 98.5		
All monthly, daily, and diurnal averages have been calculated using vector methods																										
N - Not Valid																										
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	36	11	0	0	0	0	47																			
NorthEast	91	48	29	1	1	0	170																			
East	36	15	12	0	0	0	63																			
SouthEast	16	2	0	0	0	0	18																			
South	21	6	0	0	0	0	27																			
SouthWest	93	13	9	10	1	0	126																			
West	61	33	23	30	14	11	172																			
NorthWest	47	16	32	15	0	0	110																			
Total	401	144	105	56	16	11	733																			

**Wind Rose**

**Wind Speed (WS) (km/h)**  
**Evergreen Park - December 2012**



# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Evergreen Park - December 2012

Maximum Speed: 55 km/h on Dec 31 21:00	Maximum Daily Speed Average: 19.6 km/h on Dec 31	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 25 05:00	Minimum Daily Speed Average: 2.9 km/h on Dec 18	Hours of Data: 733
Maximum Diurnal Speed Average: 12.0 km/h at hour 16	Minimum Diurnal Speed Average: 6.5 km/h at hour 2	Hours of Missing Data: 11
Monthly Average Speed: 8.60 km/h	Percentiles: P <sub>1</sub> = 1.4 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.9 Median = 5.3 Q <sub>3</sub> = 12.0 P <sub>90</sub> = 19.9 P <sub>99</sub> = 42.4	Percent Operational Time: 98.5

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	10	7	8	7	6	6	7	7	7	7	8	6	9	8	10	7	5	4	4	3	7	4	2	2	6.2	10.3																						
2-Dec	2	2	4	4	5	3	2	3	2	2	5	9	11	11	11	9	8	8	5	5	2	4	1	1	4.9	11.0																						
3-Dec	2	2	1	2	2	2	1	2	3	2	2	4	9	7	5	4	4	4	3	3	3	1	3	3	3.0	8.5																						
4-Dec	3	2	3	3	3	3	4	3	5	6	9	11	15	17	24	27	23	22	24	15	13	12	7	7	10.9	27.0																						
5-Dec	8	6	6	10	8	15	12	13	15	17	22	23	15	17	16	16	13	9	6	3	3	3	2	2	10.7	22.6																						
6-Dec	3	2	2	2	3	4	4	5	3	5	9	5	5	6	6	4	5	3	3	2	3	2	2	3	3.7	8.5																						
7-Dec	3	2	3	2	4	2	2	3	2	2	5	4	8	8	8	13	14	17	24	20	24	20	18	15	9.4	24.4																						
8-Dec	12	12	12	12	14	10	6	4	2	1	3	4	6	6	6	7	5	3	2	2	4	3	4	3	6.0	13.6																						
9-Dec	2	3	1	3	2	2	3	3	4	5	6	3	4	5	10	8	6	6	4	28	35	36	38	39	10.8	38.8																						
10-Dec	36	32	32	33	25	29	24	29	17	14	23	28	29	28	24	17	6	4	5	3	4	9	8	7	19.5	35.9																						
11-Dec	6	17	28	30	26	14	21	25	27	16	8	10	14	12	21	29	19	16	11	11	13	9	12	8	16.8	29.8																						
12-Dec	8	11	8	6	4	4	7	5	4	3	3	5	10	5	4	3	4	3	2	4	3	3	4	2	4.8	11.1																						
13-Dec	2	3	2	3	4	6	4	5	9	6	7	21	28	18	20	19	27	29	27	24	20	23	25	20	14.6	28.9																						
14-Dec	14	6	9	13	18	20	24	16	12	19	26	28	29	31	25	21	20	25	19	16	16	11	4	5	17.8	30.9																						
15-Dec	3	2	2	2	3	3	7	4	5	5	4	4	3	5	5	6	5	4	2	3	6	4	6	6	4.1	6.8																						
16-Dec	5	3	6	2	3	3	3	4	4	3	4	2	6	3	5	6	3	5	4	4	3	2	2	2	3.6	5.9																						
17-Dec	1	3	4	4	5	6	5	3	5	6	6	6	13	14	12	13	13	8	7	3	4	3	1	3	6.2	13.7																						
18-Dec	3	2	2	1	1	2	3	2	2	2	3	4	2	4	4	6	5	5	4	3	2	3	5	2	2.9	5.7																						
19-Dec	1	3	2	2	2	2	2	2	2	2	3	6	5	6	6	6	6	5	7	8	7	7	12	8	4.7	11.6																						
20-Dec	7	9	8	11	10	7	8	5	10	19	23	22	24	22	27	20	18	19	22	22	17	16	20	21	16.1	27.0																						
21-Dec	20	18	20	21	22	20	20	15	15	17	21	21	17	18	16	13	14	13	10	9	8	6	4	7	15.2	22.5																						
22-Dec	3	6	6	3	6	6	3	5	6	5	7	9	9	9	8	7	6	2	2	6	7	7	6	6	5.9	9.1																						
23-Dec	8	11	13	15	15	15	16	16	13	16	15	14	14	16	14	17	16	16	14	15	16	14	14	13	14.3	16.8																						
24-Dec	13	12	13	12	13	12	11	11	9	11	10	11	11	12	12	13	13	6	5	3	6	3	1	2	9.4	13.5																						
25-Dec	3	2	2	2	1	2	3	2	3	7	3	3	3	7	7	7	4	2	2	3	3	3	4	3	3.4	6.9																						
26-Dec	2	2	1	2	2	N	N	N	N	N	2	4	5	5	5	6	3	2	2	3	2	N	N	N	--	6.2																						
27-Dec	N	N	N	3	3	3	3	4	2	2	4	3	7	8	9	7	4	3	2	4	3	3	3	1	3.9	9.4																						
28-Dec	4	2	4	2	4	4	4	3	2	3	3	3	1	4	9	8	3	3	3	6	3	5	7	5	4.1	9.1																						
29-Dec	8	6	5	2	4	4	4	3	3	6	15	16	11	11	11	6	4	2	4	2	2	4	3	3	5.7	15.8																						
30-Dec	4	3	2	2	2	4	3	2	3	4	3	3	2	4	5	4	4	2	2	3	3	2	2	3	3.0	5.5																						
31-Dec	2	2	2	3	3	2	3	2	2	4	2	2	6	9	15	43	47	42	48	46	55	46	44	41	19.6	55.2																						
																								6.6	6.5	7.0	7.1	7.2	7.1	7.2	6.8	6.6	7.2	8.5	9.4	10.7	10.8	11.7	12.0	10.5	9.4	9.0	9.1	9.5	9.0	8.8	8.2	Diurnal Average
																								35.9	32.0	32.1	32.5	26.4	28.6	23.9	28.8	27.4	18.8	25.6	28.3	29.5	30.9	27.0	43.0	47.5	42.4	48.1	45.9	55.2	46.1	43.7	41.2	Diurnal Maximum

N - Not Valid  
 All monthly, daily, and diurnal averages have been calculated using scalar methods



## Hourly Standard Deviations

Wind Direction (WD) - deg  
Evergreen Park - December 2012

Maximum Value: 100.0 deg on Dec 18 08:00																						Hours in Service:	744		
Minimum Value: 4.0 deg on Dec 14 21:00																						Hours of Data:	733		
Percentiles: P <sub>1</sub> = 5.0 P <sub>10</sub> = 11.3 Q <sub>1</sub> = 17.3 Median = 31.6 Q <sub>3</sub> = 62.7 P <sub>90</sub> = 82.9 P <sub>99</sub> = 92.8																						Hours of Missing Data:	11		
																						Hours of Calibration:	0		
																						Percent Operational Time:	98.5		
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	28	24	15	19	22	34	22	21	24	23	27	36	33	35	24	23	24	20	21	27	22	32	20	93	
2-Dec	89	40	61	35	24	50	61	54	92	84	40	24	24	22	19	22	18	21	28	32	57	21	59	80	
3-Dec	81	71	63	60	85	89	86	64	58	83	59	68	19	17	28	61	41	80	89	44	81	67	74	76	
4-Dec	86	94	90	84	52	51	63	50	39	51	69	20	10	9	8	11	11	10	39	17	19	20	42	77	
5-Dec	31	48	31	18	32	25	24	25	16	13	10	13	16	13	10	15	14	18	20	61	85	78	69	79	
6-Dec	31	71	42	44	54	70	54	27	46	23	23	37	27	23	27	26	40	34	34	41	43	28	53	39	
7-Dec	29	78	61	91	80	67	32	45	43	89	32	30	19	21	45	17	14	16	15	16	14	15	15	17	
8-Dec	16	16	16	20	16	15	20	48	88	81	24	23	26	19	25	15	28	25	40	26	32	29	25	45	
9-Dec	74	22	70	45	79	64	37	56	41	22	26	82	76	48	53	30	47	25	57	19	7	8	5	6	
10-Dec	5	5	6	6	8	7	8	7	15	17	8	6	6	6	5	4	47	69	77	58	89	19	11	15	
11-Dec	17	30	12	9	9	11	7	9	10	16	13	6	25	26	26	12	14	14	16	18	16	15	13	21	
12-Dec	23	17	26	29	48	32	20	31	38	37	25	58	18	27	34	26	31	52	48	49	34	45	63	94	
13-Dec	91	86	82	88	61	46	92	89	74	85	60	22	13	7	11	7	10	10	6	6	5	6	5	7	
14-Dec	13	76	19	28	14	7	7	8	42	8	5	5	6	6	6	6	7	7	5	8	4	45	35	38	
15-Dec	30	79	74	57	47	70	86	55	36	32	54	30	53	34	55	15	26	76	66	60	30	31	34	41	
16-Dec	58	51	29	72	88	71	92	61	72	67	95	81	30	56	44	71	85	74	61	82	78	63	58	92	
17-Dec	96	57	89	50	46	57	52	91	19	53	79	51	14	15	17	15	16	15	18	69	15	40	82	36	
18-Dec	40	83	87	90	83	66	65	100	75	86	22	12	49	50	89	21	28	30	45	36	60	26	16	70	
19-Dec	91	45	98	66	62	38	75	60	75	65	52	36	37	10	28	24	50	54	70	90	90	85	47	43	
20-Dec	58	27	15	31	25	18	37	33	21	14	20	15	16	16	17	18	16	18	16	17	15	16	14	17	
21-Dec	15	17	17	15	14	15	12	16	14	16	19	21	20	21	22	21	18	17	20	16	24	25	24	20	
22-Dec	28	15	33	45	22	28	48	29	19	29	25	23	31	25	20	26	23	53	63	22	20	22	25	22	
23-Dec	18	15	14	16	16	13	12	14	18	14	15	17	19	20	20	11	12	12	12	14	15	15	16	17	
24-Dec	14	15	15	16	15	13	22	15	17	17	19	23	28	19	19	17	15	30	22	24	13	48	80	80	
25-Dec	47	60	31	44	89	92	73	40	85	71	72	57	46	12	32	33	31	84	78	32	19	20	50	87	
26-Dec	80	53	66	58	77	N	N	N	N	N	69	46	22	18	19	29	28	88	92	58	81	N	N	N	
27-Dec	N	N	N	83	81	78	75	69	90	44	70	59	35	24	14	30	21	64	73	16	70	55	60	87	
28-Dec	39	32	19	42	44	42	74	41	63	67	32	51	84	40	41	18	32	77	52	13	72	58	67	82	
29-Dec	48	71	81	88	72	92	68	73	85	93	17	8	12	10	8	25	55	82	33	62	71	78	84	82	
30-Dec	73	87	65	92	26	64	78	89	64	38	76	55	46	40	45	45	61	31	60	84	81	85	86	83	
31-Dec	50	83	85	88	67	63	74	79	85	38	97	61	54	19	36	8	6	8	8	8	6	5	6	5	
96.2	94.4	97.7	92.5	89.2	92.2	92.2	100.0	91.7	93.0	96.8	81.6	84.5	56.1	89.4	71.2	84.7	88.1	91.5	89.8	89.9	84.7	85.7	93.5		
N - Not Valid																									

PAZA

## Smoky Heights Station

Monthly Summary Tables, Graphs and  
Roses

## Hourly Averages

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Smoky Heights - December 2012

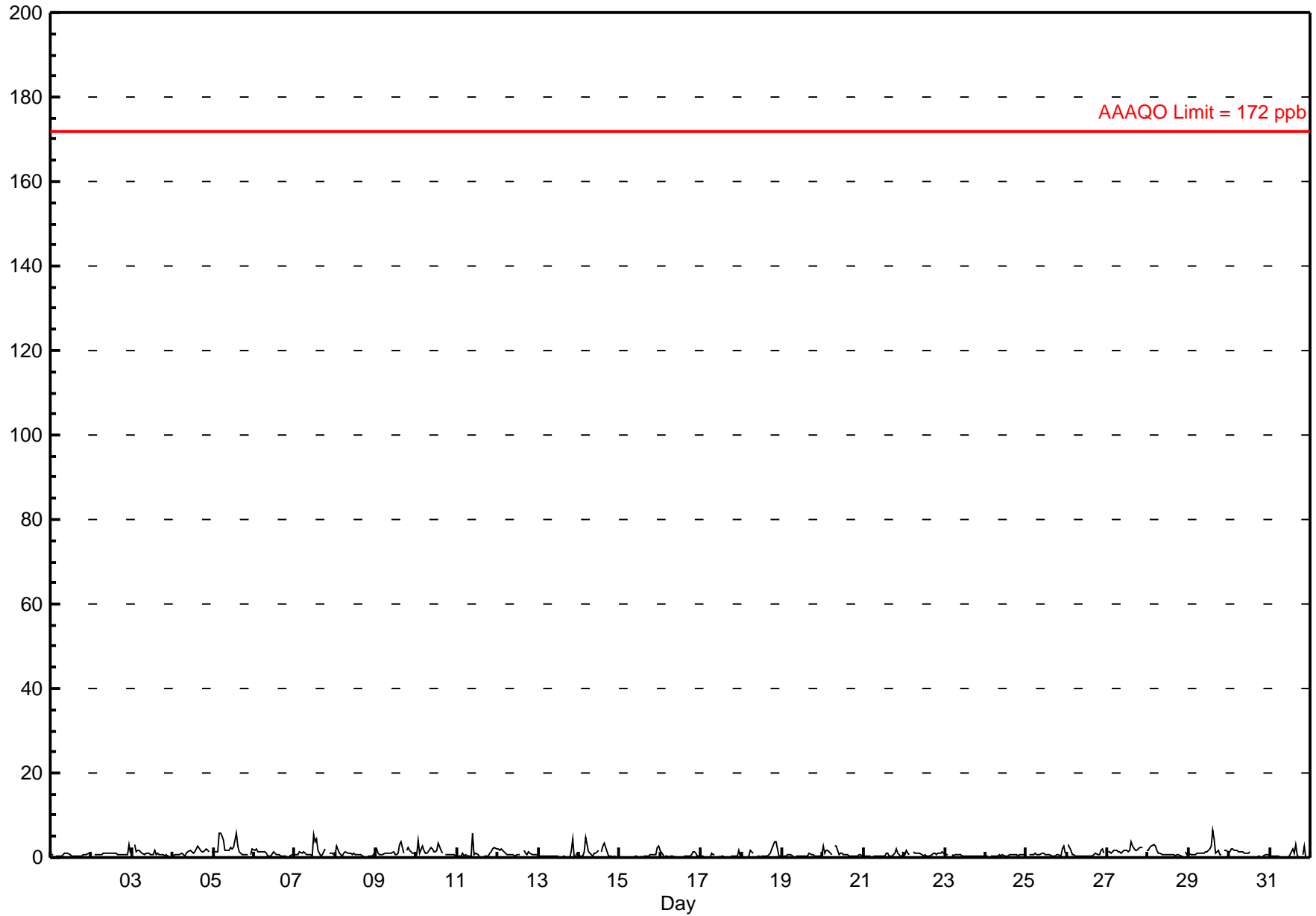
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 6.3 ppb on Dec 29 15:00	Maximum Daily Average: 2.3 ppb on Dec 5
Minimum Value: 0 ppb on Dec 31 10:00	Hours of Data: 708
Maximum Diurnal Average: 1.2 ppb at hour 14	Hours of Missing Data: 36
Monthly Average: 0.94 ppb	Hours of Calibration: 36
Minimum Daily Average: 0.3 ppb on Dec 17	Percent Operational Time: 100.0
Minimum Diurnal Average: 0.6 ppb at hour 18	
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.7 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 1.9 P <sub>99</sub> = 5.1	

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	1	1	A	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0.6	1.0
2-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	0.9	3.1
3-Dec	A	3	1	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	0	1	0	0	A	1	1.0	2.9
4-Dec	0	1	1	1	1	1	1	1	1	1	2	1	1	1	2	3	2	1	1	2	2	1	A	1	1.3	2.8
5-Dec	1	1	1	6	6	5	4	2	2	2	3	2	2	6	3	1	1	1	1	1	A	1	2	2.3	5.8	
6-Dec	2	2	1	1	2	1	1	1	0	0	0	1	1	1	1	0	0	0	0	A	0	1	1	0.9	2.0	
7-Dec	1	1	1	1	1	1	1	1	1	1	0	5	4	4	2	0	1	1	2	A	1	1	1	1	1.4	5.4
8-Dec	1	3	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	A	0	0	0	0	1	0.8	2.6	
9-Dec	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	4	1	A	2	2	1	1	1	1.3	3.9	
10-Dec	1	4	1	3	2	1	1	2	2	2	1	1	2	3	2	1	A	1	1	1	1	1	0	1.4	3.9	
11-Dec	0	0	0	1	0	1	0	0	0	6	1	1	1	0	0	A	0	0	0	1	1	2	2	2	1.0	5.8
12-Dec	2	2	2	2	1	1	1	1	1	1	0	1	1	1	A	2	1	1	1	1	1	1	1	1	1.0	2.1
13-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	2	4	0	0	1	0.5	4.4
14-Dec	0	0	0	1	5	1	1	1	0	1	1	2	A	1	3	3	1	0	0	0	0	0	0	0	1.1	4.9
15-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	1	1	1	1	2	3	0.4	2.8
16-Dec	2	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	1	0	0	0.5	1.6
17-Dec	0	0	0	0	0	0	1	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.3	1.8
18-Dec	0	0	0	0	0	2	1	1	A	0	0	0	0	0	0	0	1	1	2	4	4	2	0	0	0.9	3.8
19-Dec	0	0	0	1	1	1	1	A	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0.4	0.9	
20-Dec	3	1	2	2	1	1	A	3	3	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1.0	2.7
21-Dec	0	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0	0	0	1	2	1	1	0	0	0.5	2.0
22-Dec	1	2	1	1	A	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0.8	1.6
23-Dec	1	1	1	A	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.9
24-Dec	0	0	A	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	0.5	0.7
25-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	2	3	1	0.8	2.6
26-Dec	A	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	1	A	0.8	3.0
27-Dec	1	1	1	2	2	2	1	1	1	1	2	2	1	2	4	3	2	2	2	2	2	2	A	2	1.8	3.7
28-Dec	2	2	3	3	3	2	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	A	1	1	1.1	3.1
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	4	1	2	1	1	A	2	2	1	1.6	6.3
30-Dec	1	2	2	2	2	1	1	1	1	1	1	1	C	C	C	0	0	0	A	0	1	1	1	1	1.1	2.1
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	3	1	0	A	1	3	0	0	0	0.6	3.2
	0.9	1.2	0.9	1.1	1.1	1.0	0.9	0.8	0.8	0.9	0.8	1.0	0.8	1.2	1.2	1.1	0.6	0.6	0.8	0.9	1.1	0.9	1.0	0.9	Diurnal Average	
	2.6	3.9	2.7	5.8	5.6	5.2	4.0	2.7	2.6	5.8	2.5	5.4	3.7	5.8	6.3	4.5	1.8	1.8	2.2	3.7	4.4	2.4	3.1	2.8	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 (SO<sub>2</sub>) - ppb  
Smoky Heights - December 2012



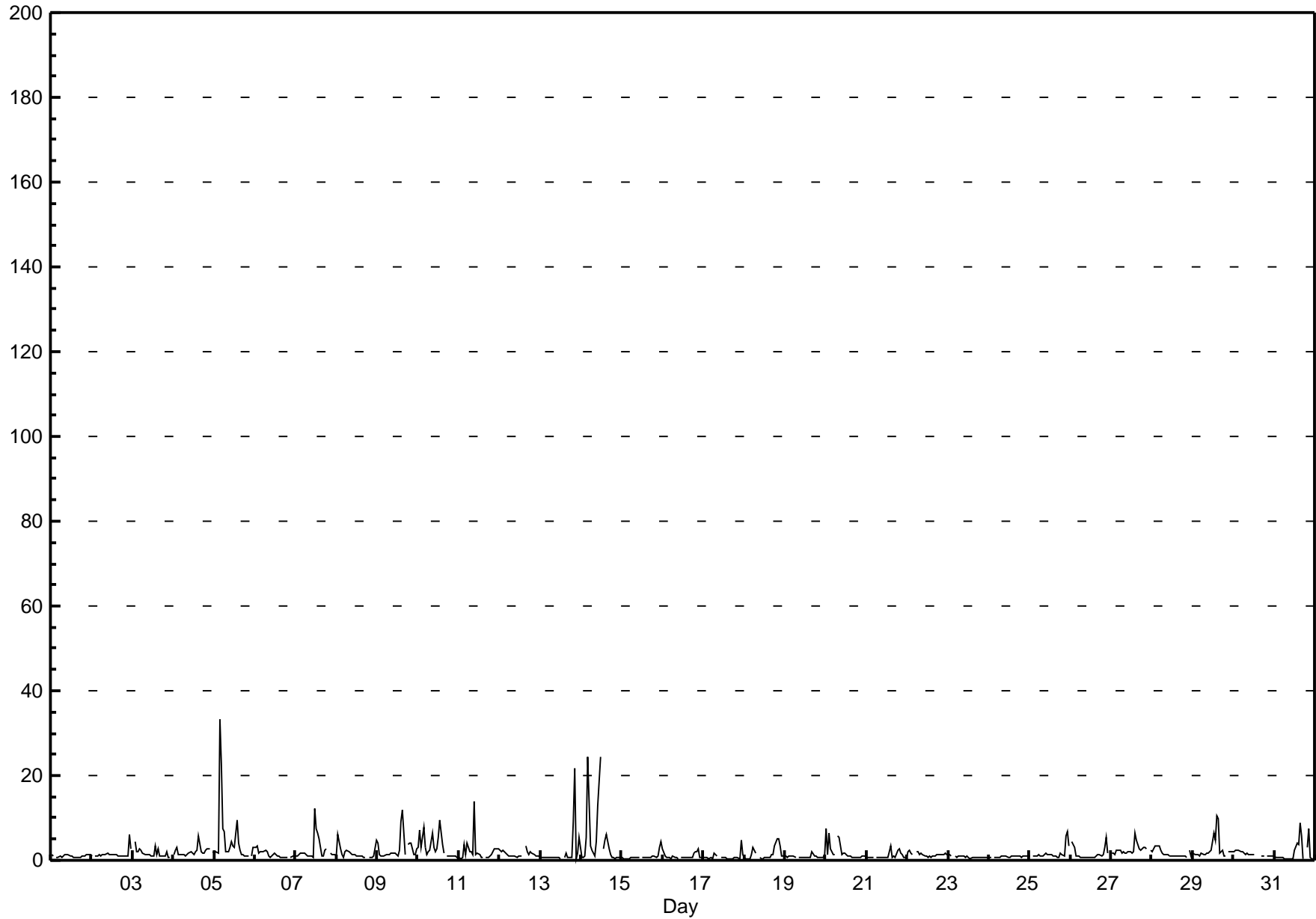
## Hourly Maximums

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Smoky Heights - December 2012

Maximum Value: 33.3 ppb on Dec 5 04:00		Maximum Daily Average: 5.2 ppb on Dec 5		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 31 10:00		Minimum Daily Average: 0.8 ppb on Dec 23		Hours of Data: 708																						
Maximum Diurnal Average: 2.8 ppb at hour 4		Minimum Diurnal Average: 1.1 ppb at hour 18		Hours of Missing Data: 36																						
Monthly Average: 1.87 ppb		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.8 Median = 1.1 Q <sub>3</sub> = 1.9 P <sub>90</sub> = 3.4 P <sub>99</sub> = 12.0		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	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4
2-Dec	1	A	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	6	3	1.5	6.2
3-Dec	A	4	2	2	3	3	2	1	1	1	1	1	3	1	3	1	1	1	1	2	1	1	A	2	1.7	4.4
4-Dec	1	2	3	1	1	1	1	1	1	2	2	2	1	2	2	6	2	2	2	2	3	3	A	2	2.1	5.7
5-Dec	2	2	2	33	23	7	7	2	2	3	4	3	3	10	4	2	1	1	1	1	1	A	1	3	5.2	33.3
6-Dec	3	3	2	2	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	A	1	1	1	1.4	3.3
7-Dec	1	1	1	2	2	2	1	1	1	1	1	12	7	6	5	1	1	2	3	A	2	1	1	1	2.5	12.2
8-Dec	1	6	3	1	1	2	2	2	2	1	1	1	1	1	1	1	1	A	A	1	1	1	1	5	1.6	6.1
9-Dec	4	1	1	1	1	1	1	1	2	2	2	1	1	2	9	12	1	A	4	4	4	1	1	3	2.7	11.9
10-Dec	3	7	3	8	3	1	2	2	6	3	2	3	5	9	4	2	A	1	1	1	1	1	1	1	3.1	9.4
11-Dec	1	1	1	4	1	4	2	2	1	14	1	2	1	1	1	A	1	1	1	1	2	3	3	3	2.1	14.0
12-Dec	2	2	2	2	1	1	1	1	1	1	1	1	1	1	A	3	2	1	2	2	1	1	1	1	1.5	3.4
13-Dec	1	1	1	1	1	1	1	1	1	1	1	0	A	1	2	1	1	1	1	9	22	0	2	5	2.2	21.6
14-Dec	1	1	1	5	24	4	2	2	1	4	13	24	A	3	5	6	3	1	1	1	0	1	1	1	4.5	24.4
15-Dec	1	0	0	0	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	3	4	0.9	4.3
16-Dec	3	1	1	1	1	0	1	1	1	1	1	A	1	1	1	1	1	1	2	2	2	3	1	1	1.0	2.7
17-Dec	1	1	1	0	1	0	2	2	2	1	A	1	1	1	1	0	0	0	0	1	1	1	5	1	0.9	4.7
18-Dec	1	0	0	1	1	3	2	2	A	1	1	0	1	1	1	1	1	1	3	5	5	3	1	1	1.6	5.3
19-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0.8	1.9
20-Dec	7	1	6	3	1	1	A	6	5	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2.0	7.4
21-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	2	3	1	1	1	2	3	2	1	1	1	1.1	3.3
22-Dec	2	2	2	1	A	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1.4	2.2
23-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3
24-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.1
25-Dec	1	A	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	6	7	3	1.7	6.6
26-Dec	A	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	5	2	A	1.4	5.3
27-Dec	2	2	1	2	2	2	2	2	2	2	2	2	2	2	6	5	3	3	3	3	3	3	A	2	2.5	6.4
28-Dec	2	3	3	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	3	1	1.6	3.5
29-Dec	2	1	1	1	1	2	1	1	2	2	2	3	7	5	11	10	2	2	1	1	1	A	2	2	2.7	10.5
30-Dec	2	2	2	2	2	2	2	1	2	2	1	1	1	C	C	C	1	1	1	A	1	1	1	1	1.5	2.5
31-Dec	1	1	1	1	1	1	0	0	0	0	0	0	2	4	4	9	6	0	A	3	7	1	0	0	1.9	9.0
	1.7	1.9	1.7	2.8	2.8	1.8	1.5	1.5	1.4	1.8	1.6	2.4	1.6	2.2	2.4	2.5	1.3	1.1	1.4	1.8	2.5	1.6	1.7	1.8	Diurnal Average	
	7.4	7.1	6.4	33.3	24.3	7.3	6.7	5.8	6.4	14.0	12.7	24.4	7.4	9.6	10.5	11.9	5.6	2.5	3.8	9.1	21.6	5.9	6.6	5.4	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																								

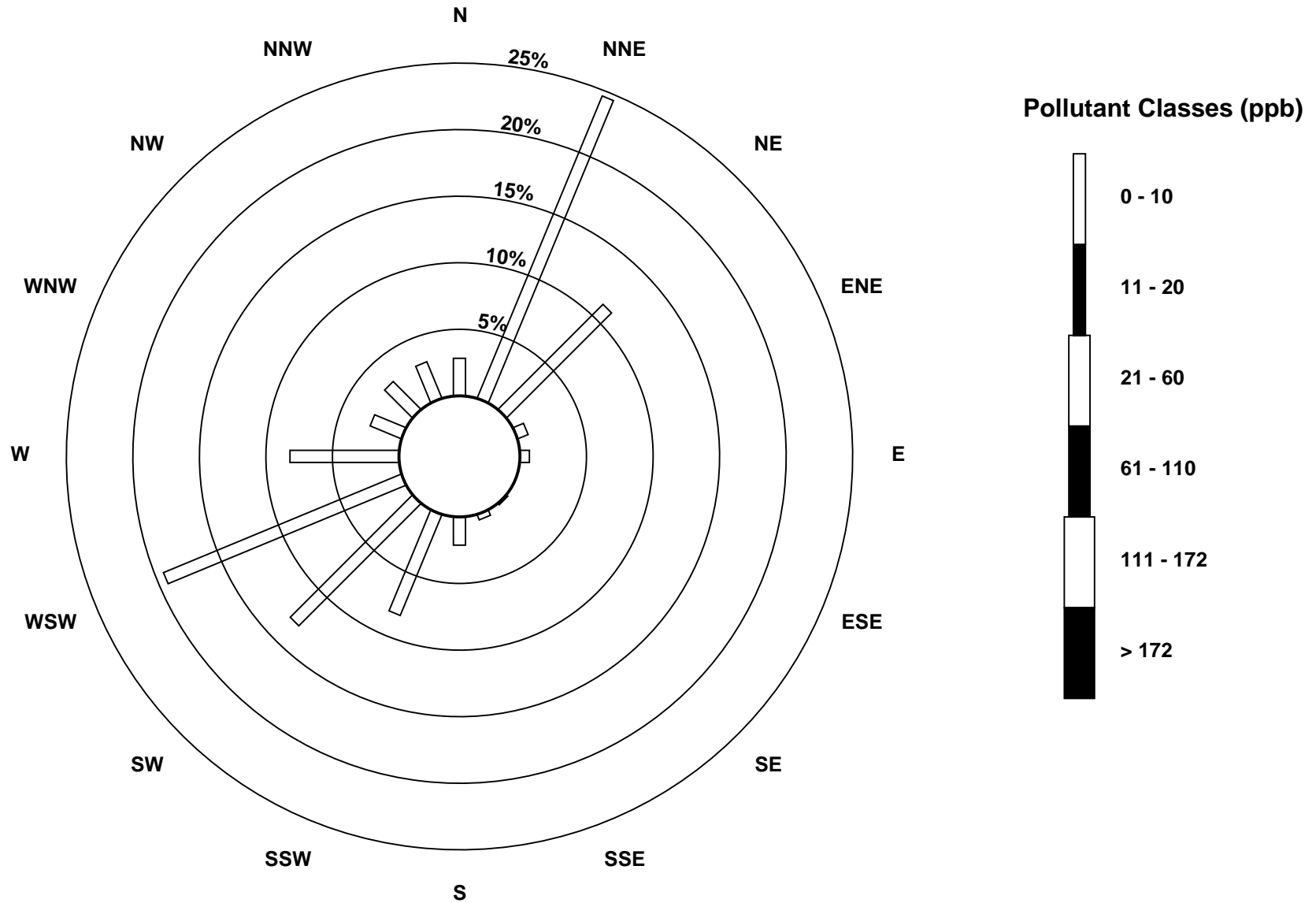
### Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Smoky Heights - December 2012



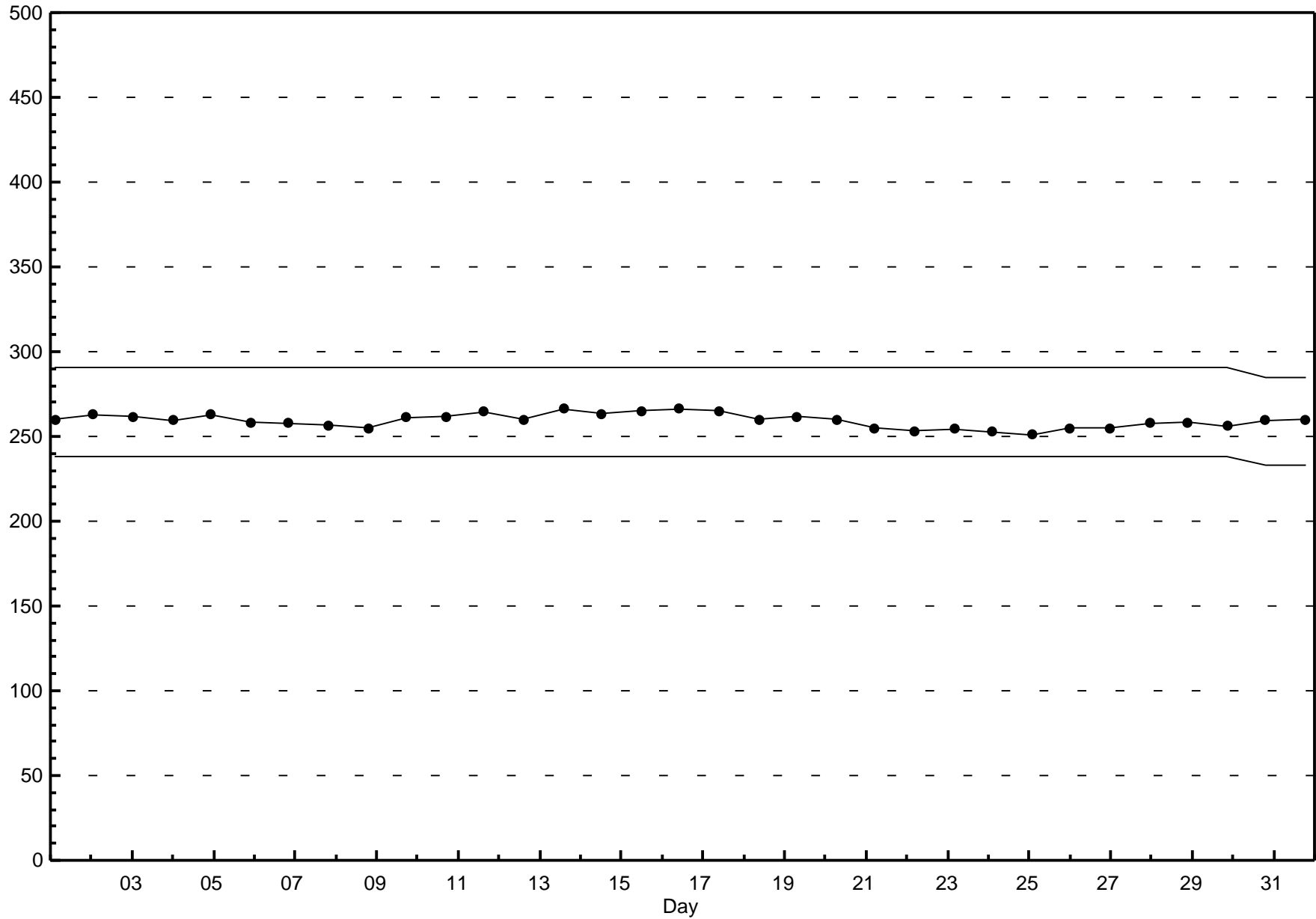
**Pollutant Rose**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Smoky Heights - December 2012**



**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>)  
Smoky Heights - December 2012**



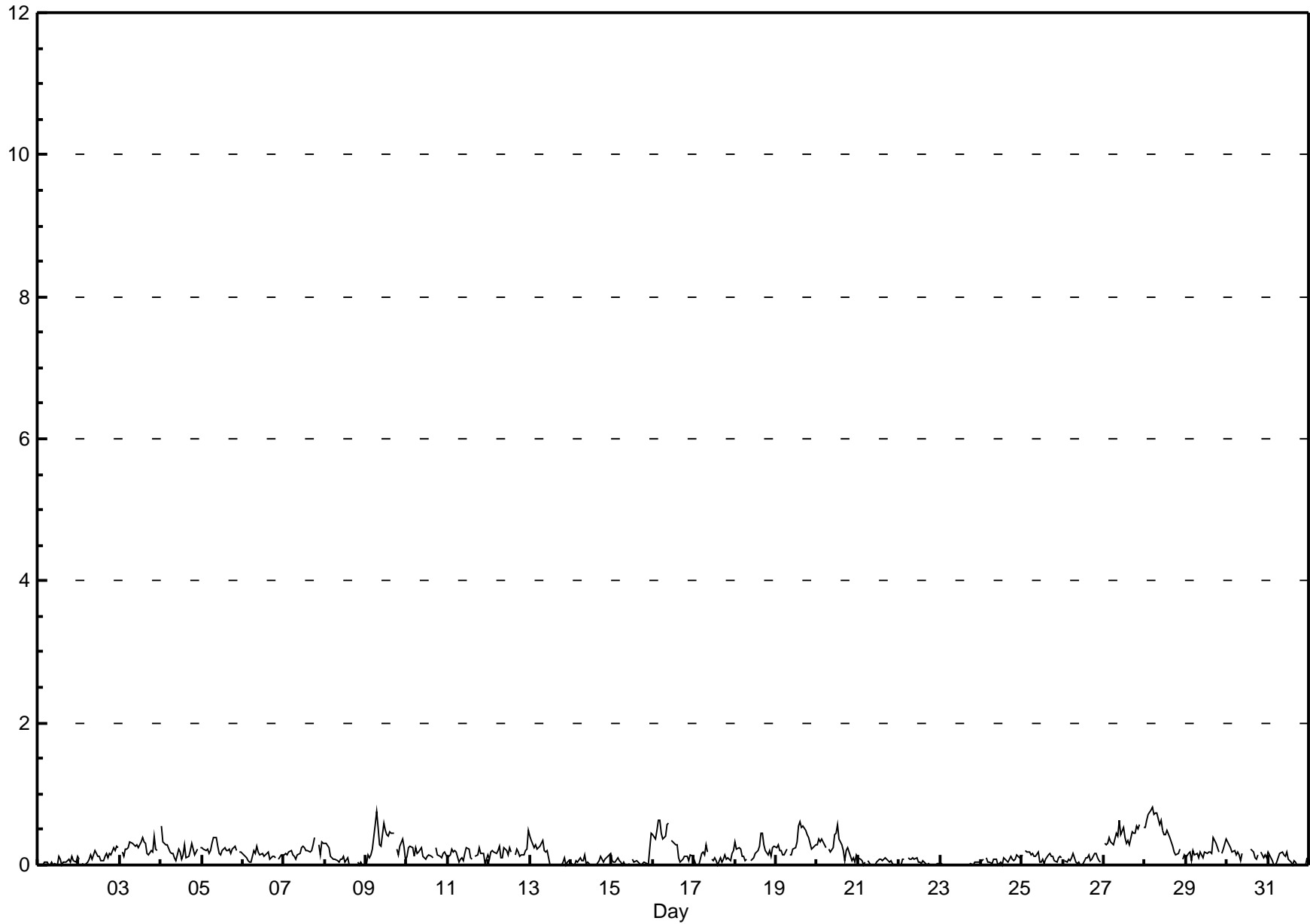


## Hourly Averages

## Total Reduced Sulphur (TRS) - ppb Smoky Heights - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.8 ppb on Dec 28 05:00 Maximum Daily Average: 0.5 ppb on Dec 28		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 01:00 Maximum Diurnal Average: 0.2 ppb at hour 2 Monthly Average: 0.17 ppb		Minimum Daily Average: 0.0 ppb on Dec 23 Minimum Diurnal Average: 0.1 ppb at hour 22 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.4 P <sub>99</sub> = 0.7																								
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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
2-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
3-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.3	0.4
4-Dec	1	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	0.5
5-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	0.4
6-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
7-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
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.1	0.3
9-Dec	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0.3	0.7
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.2	0.3
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.1	0.2
12-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	0.5
13-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	0.4
14-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
15-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	0.1	0.5
16-Dec	0	0	0	1	1	0	0	0	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
17-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
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
19-Dec	0	0	0	0	0	0	0	A	A	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0.3	0.6
20-Dec	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
21-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	0.1
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	0.0	0.1
23-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	0.0	0.0
24-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	0.1
25-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
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.1	0.2
27-Dec	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	1	A	1	0.4	0.6
28-Dec	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.5	0.8
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.2	0.4
30-Dec	0	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	A	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	0	0	A	0	0	0	0	0	0.1	0.2
																								Diurnal Average	Diurnal Maximum	
																								0.2	0.5	
																								0.2	0.6	
																								0.2	0.7	
																								0.2	0.8	
																								0.2	0.8	
																								0.2	0.7	
																								0.2	0.7	
																								0.2	0.7	
																								0.2	0.6	
																								0.2	0.6	
																								0.2	0.6	
																								0.2	0.5	
																								0.2	0.6	
																								0.2	0.6	
																								0.2	0.5	
																								0.1	0.6	
																								0.2	0.5	
																								0.1	0.5	
																								0.1	0.5	
																								0.1	0.6	
																								0.1	0.3	
																								0.2	0.5	

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



## Hourly Maximums

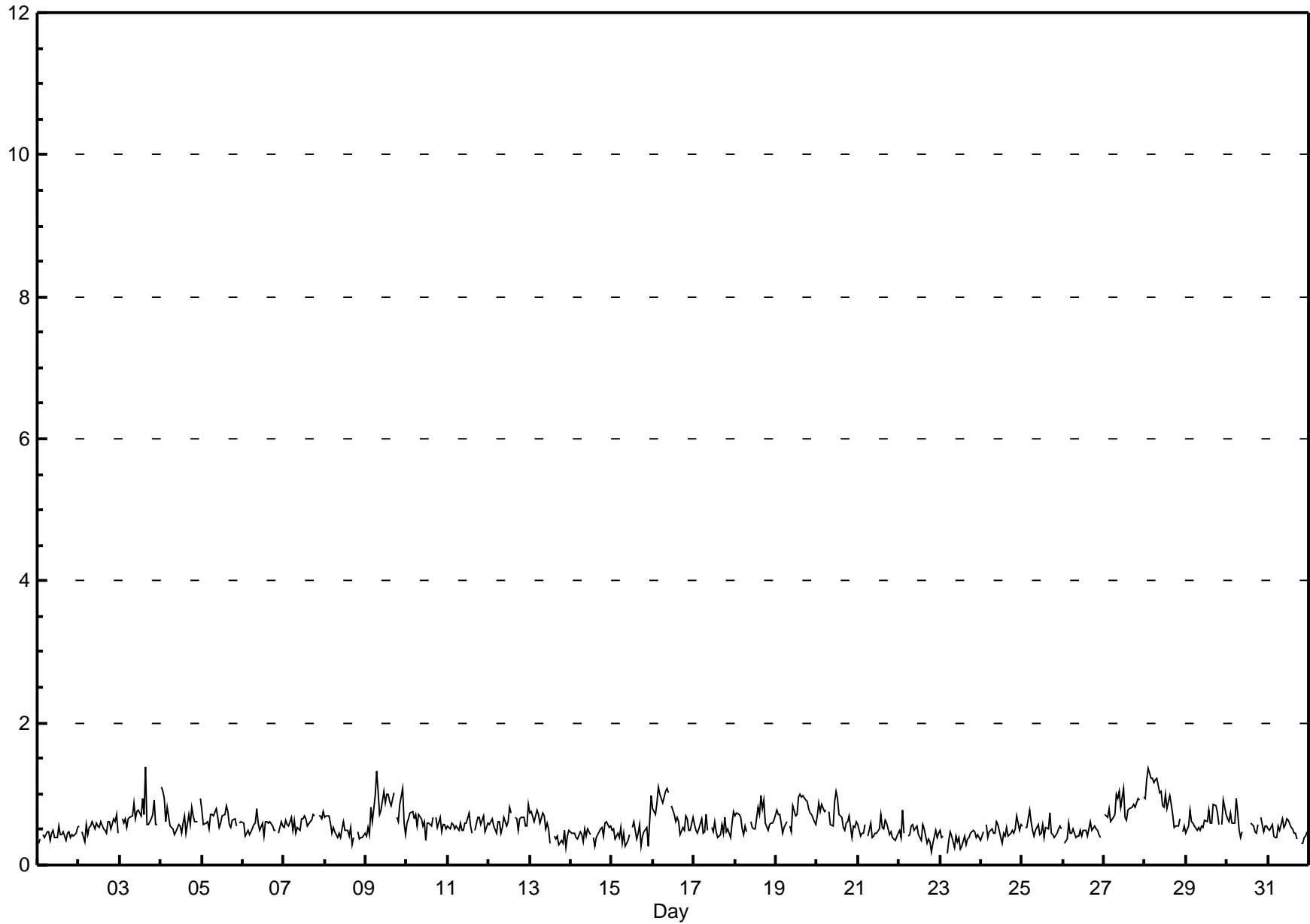
Total Reduced Sulphur (TRS) - ppb

Smoky Heights - December 2012

Maximum Value: 1.4 ppb on Dec 3 16:00		Maximum Daily Average: 0.9 ppb on Dec 28		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 23 05:00		Minimum Daily Average: 0.4 ppb on Dec 23		Hours of Data: 707																							
Maximum Diurnal Average: 0.6 ppb at hour 3		Minimum Diurnal Average: 0.5 ppb at hour 23		Hours of Missing Data: 37																							
Monthly Average: 0.58 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 0.6 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.2		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	0	0	A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.4	0.5	
2-Dec	1	A	0	0	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0.5	0.7	
3-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.7	1.4	
4-Dec	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1	0	1	1	1	1	1	1	A	1	0.7	1.1	
5-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	
6-Dec	1	0	0	0	0	0	1	1	1	1	0	1	0	1	1	1	1	1	0	0	A	0	1	1	0.5	0.8	
7-Dec	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	A	1	1	1	1	0.6	0.7	
8-Dec	1	1	1	1	0	1	0	0	0	0	1	1	0	0	0	1	0	0	A	0	0	0	0	0	0.5	0.7	
9-Dec	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0	0.8	1.3	
10-Dec	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	A	1	1	1	1	0	1	1	0.6	0.7	
11-Dec	1	1	1	1	0	1	0	1	0	0	1	1	1	1	0	A	0	1	1	1	1	1	0	1	0.6	0.7	
12-Dec	1	1	1	1	0	1	1	0	1	1	1	1	1	1	A	1	1	0	1	1	1	1	1	1	0.6	0.9	
13-Dec	1	1	1	1	1	1	1	1	1	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.5	0.8	
14-Dec	0	0	0	0	0	0	0	0	1	0	0	0	A	0	0	0	0	1	1	0	1	1	1	1	0.5	0.6	
15-Dec	0	1	0	0	0	1	0	0	0	0	0	A	1	1	0	0	1	0	0	0	1	0	1	1	0.5	1.0	
16-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0	1	0	1	1	0	0	1	0.7	1.1	
17-Dec	1	0	0	1	1	0	0	1	0	1	0	A	1	0	0	0	1	0	1	0	1	0	1	1	0.5	0.7	
18-Dec	1	1	1	1	1	0	1	0	1	0	A	1	1	1	1	1	1	1	1	0	1	1	1	1	0.6	1.0	
19-Dec	1	1	1	1	0	1	1	A	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
20-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0.7	1.0	
21-Dec	1	0	0	0	1	A	0	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0.5	0.7	
22-Dec	0	0	1	0	A	0	0	1	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0.4	0.8	
23-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	0.4	0.5	
24-Dec	0	0	A	1	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	1	1	0	1	0.5	0.7	
25-Dec	1	A	1	1	1	1	0	0	0	1	0	0	1	0	1	1	1	0	0	0	0	1	1	1	0.5	0.8	
26-Dec	A	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	A	0.5	0.6	
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1	
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0	1	0.9	1.4	
29-Dec	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.6	0.9	
30-Dec	1	1	1	1	1	1	1	0	0	0	C	C	C	C	1	1	0	0	1	A	1	0	1	1	0.6	0.9	
31-Dec	1	0	1	0	0	0	1	0	1	1	1	1	1	1	1	0	0	0	A	0	0	0	0	0	0.5	0.7	
		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.5	0.6	Diurnal Average		
		1.1	1.2	1.4	1.2	1.2	1.2	1.3	1.2	1.1	1.0	1.0	1.1	1.0	1.0	1.0	1.4	1.0	0.9	0.9	0.9	0.9	1.1	0.9	1.0	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

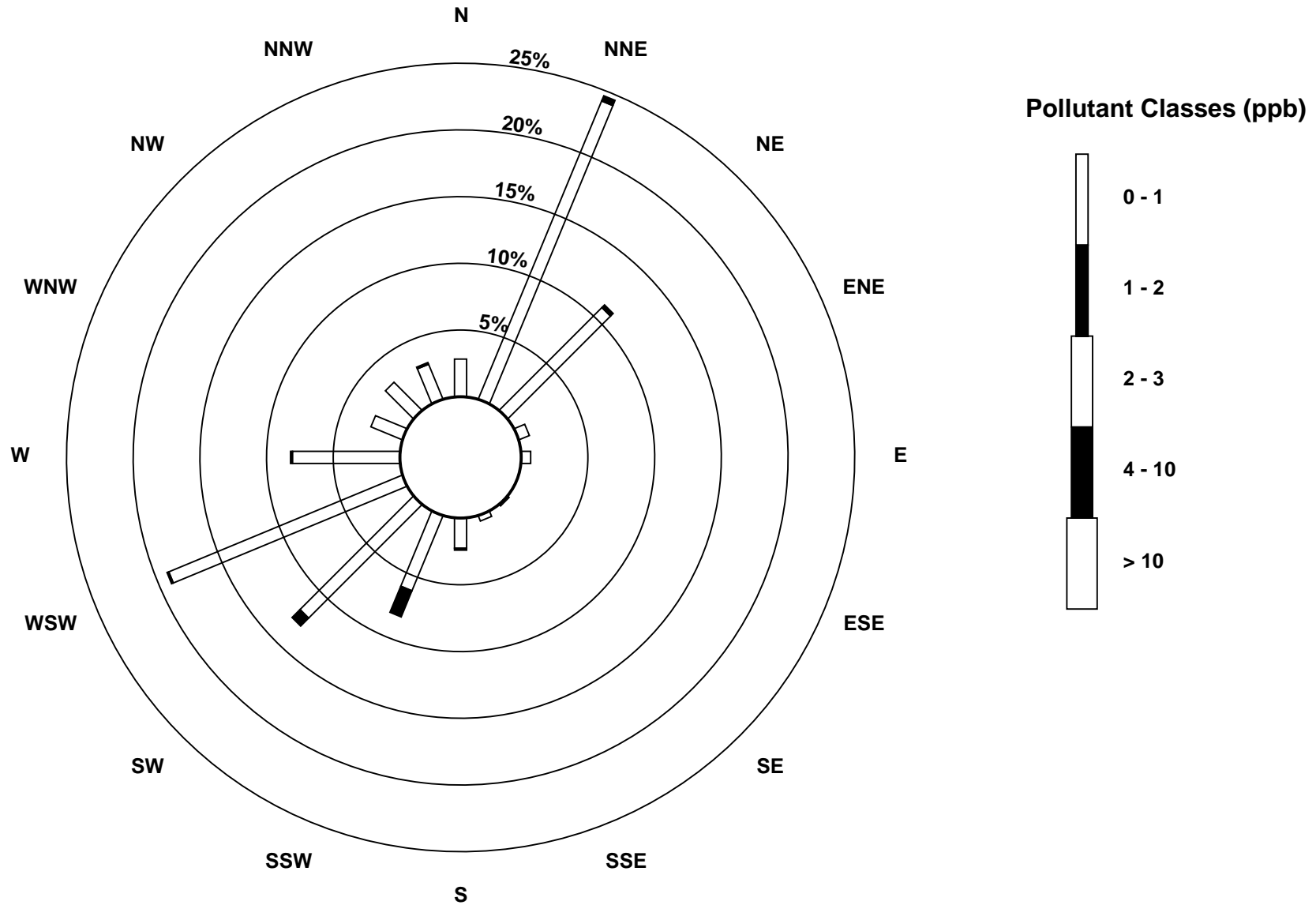
**Hourly Maximums**

**Total Reduced Sulphur (TRS) - ppb  
Smoky Heights - December 2012**



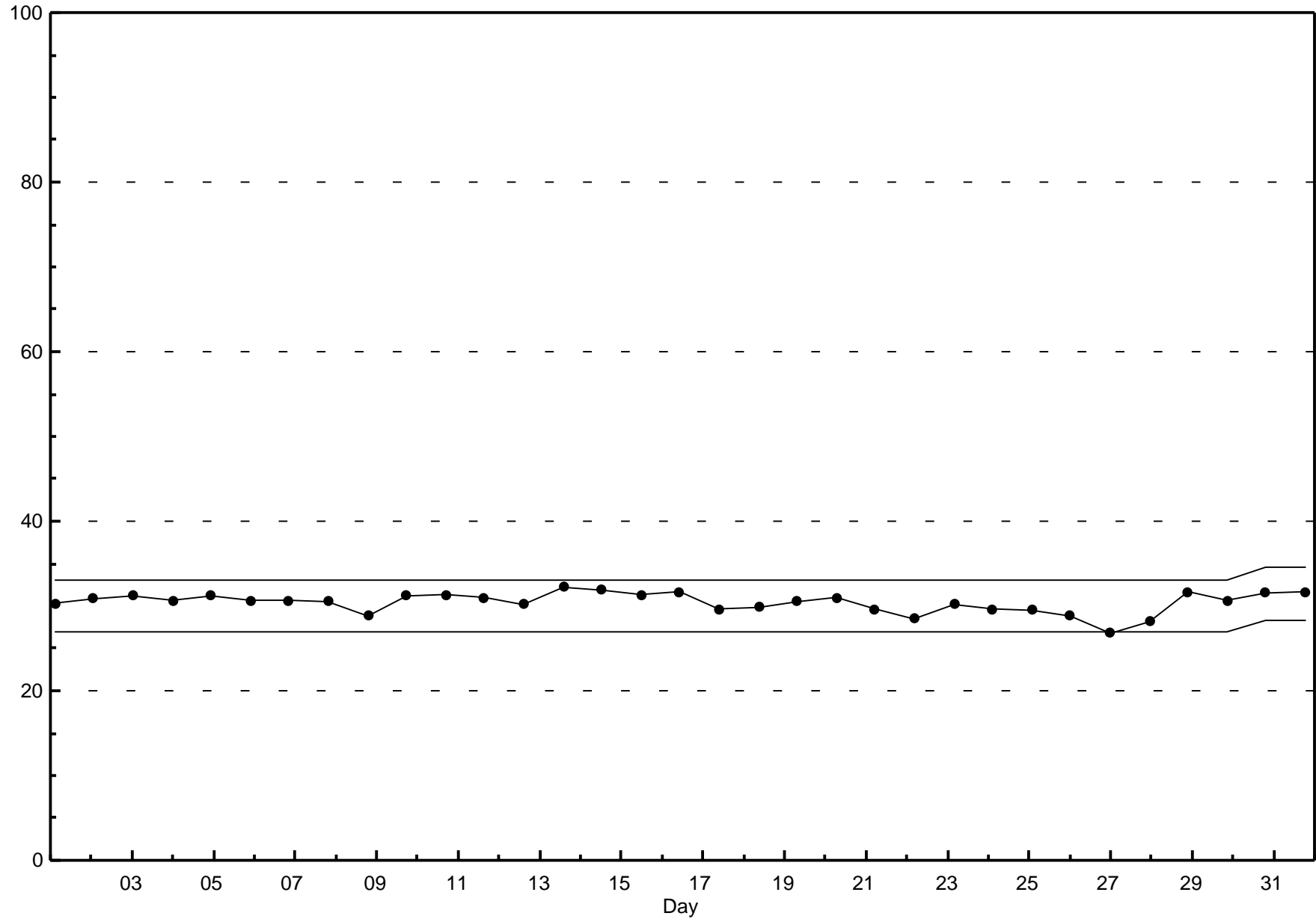
**Pollutant Rose**

**Total Reduced Sulphur (TRS) - ppb**  
**Smoky Heights - December 2012**



**Span Responses**

**Total Reduced Sulphur (TRS)  
Smoky Heights - December 2012**



## Hourly Averages

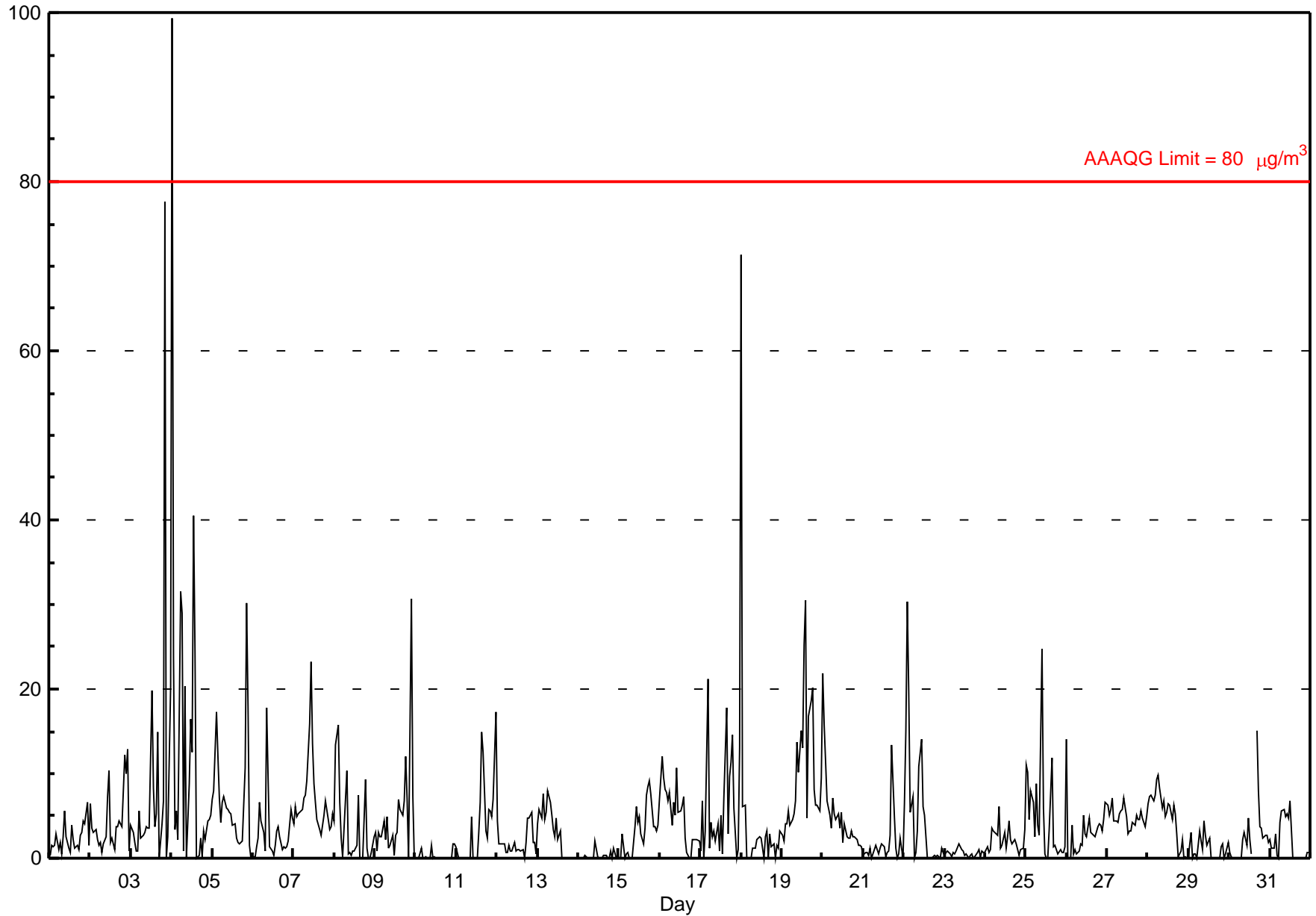
## Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

### Smoky Heights - December 2012

Number of Exceedences: 1-hr: 1 24-hr: 0	Hours in Service: 744
Maximum Value: 99.3 µg/m <sup>3</sup> on Dec 4 01:00	Maximum Daily Average: 14.2 µg/m <sup>3</sup> on Dec 4
Minimum Value: 0 µg/m <sup>3</sup> on Dec 3 18:00	Hours of Data: 742
Maximum Diurnal Average: 9.4 µg/m <sup>3</sup> at hour 1	Hours of Missing Data: 2
Monthly Average: 4.23 µg/m <sup>3</sup>	Hours of Calibration: 0
Minimum Daily Average: 0.2 µg/m <sup>3</sup> on Dec 14	Percent Operational Time: 99.7
Minimum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 23	
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.6 Median = 2.5 Q <sub>3</sub> = 5.2 P <sub>90</sub> = 9.1 P <sub>99</sub> = 30.2	

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0	2	1	2	3	1	2	0	3	6	2	1	1	4	2	1	2	1	3	3	4	4	7	2	2.3	6.7
2-Dec	6	4	3	3	2	2	2	1	2	3	7	10	2	2	1	4	4	4	4	4	12	10	13	1	4.4	12.9
3-Dec	4	3	2	1	1	6	2	3	3	4	3	4	20	8	4	5	15	0	4	7	78	0	2	20	8.3	77.7
4-Dec	99	24	3	6	2	32	29	1	20	0	9	16	13	41	24	0	0	2	0	3	2	4	5	5	14.2	99.3
5-Dec	7	8	17	12	7	4	7	7	6	6	5	5	4	4	2	2	2	2	2	11	30	18	2	0	7.1	30.1
6-Dec	0	0	1	2	7	4	3	1	18	9	1	1	0	2	3	4	3	1	1	1	1	2	6	5	3.2	17.8
7-Dec	4	6	5	5	6	6	7	7	9	16	23	14	9	7	5	3	3	4	5	7	5	3	4	5	6.9	23.3
8-Dec	4	13	16	7	2	0	3	10	1	1	0	1	1	2	7	0	0	0	9	1	0	0	1	2	3.4	15.8
9-Dec	3	1	3	3	2	4	2	5	1	2	3	0	3	3	7	6	5	7	12	7	0	31	7	0	4.9	30.7
10-Dec	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.3	1.7
11-Dec	1	0	0	0	0	0	0	0	0	5	0	0	0	3	7	15	13	3	2	6	6	5	7	17	3.7	17.3
12-Dec	4	2	2	2	2	1	1	2	1	1	2	1	1	1	1	1	0	2	5	5	5	2	2	0	1.8	5.4
13-Dec	4	6	5	8	5	5	8	7	5	3	3	5	2	3	0	0	0	0	0	0	0	0	0	0	2.8	8.0
14-Dec	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0.2	2.1
15-Dec	0	0	3	0	1	1	0	0	0	4	6	4	5	3	2	4	7	8	9	8	4	4	3	4	3.3	9.2
16-Dec	7	12	9	8	8	7	8	4	7	5	11	5	6	6	7	2	1	0	0	2	2	2	2	2	5.2	12.1
17-Dec	1	7	0	3	21	1	4	2	3	2	4	1	5	0	7	18	3	10	11	14	6	0	1	13	5.8	21.1
18-Dec	71	6	6	0	0	0	0	1	1	2	2	3	2	0	2	3	0	3	1	2	0	1	1	3	4.7	71.4
19-Dec	3	2	4	4	6	4	5	5	7	14	10	15	13	25	30	5	17	19	20	8	6	6	6	10	10.1	30.4
20-Dec	22	16	11	7	5	4	7	5	5	5	4	5	2	4	3	2	2	3	3	3	2	2	1	1	5.2	21.8
21-Dec	0	1	1	0	1	0	0	1	1	1	1	2	1	0	1	1	3	13	5	1	0	0	2	0	1.6	13.4
22-Dec	7	15	30	20	5	7	0	1	3	11	14	6	5	3	0	0	0	0	0	0	0	0	1	1	5.4	30.3
23-Dec	0	1	1	0	0	1	0	1	2	1	1	1	0	0	0	0	1	0	0	1	1	0	1	1	0.6	1.7
24-Dec	1	1	1	1	4	3	3	3	6	1	2	3	1	3	4	2	2	2	2	1	0	1	1	3	2.1	6.1
25-Dec	11	10	5	8	7	3	9	4	3	25	6	1	0	0	3	12	1	2	1	1	1	1	1	1	4.7	24.8
26-Dec	14	0	0	4	1	1	0	1	2	2	5	3	3	5	3	3	3	2	4	4	4	3	5	7	3.2	14.0
27-Dec	6	5	6	7	4	4	4	5	6	6	7	5	3	3	3	4	4	5	5	5	6	5	4	5	4.9	7.1
28-Dec	6	7	7	7	7	9	10	8	6	7	5	5	6	6	4	6	5	3	0	1	2	0	0	0	5.0	9.8
29-Dec	0	3	0	1	1	0	3	2	1	4	3	2	2	0	0	0	0	0	0	1	2	0	0	2	1.1	4.4
30-Dec	1	0	0	0	0	0	0	0	2	3	2	5	2	1	M	M	15	8	4	4	2	3	3	2	2.5	15.1
31-Dec	2	1	1	3	0	0	4	6	6	5	5	5	7	0	0	0	0	0	0	0	0	0	1	1	1.9	6.8
	9.4	5.0	4.6	4.0	3.5	3.5	4.0	3.0	4.1	4.9	4.8	4.1	3.8	4.5	4.5	3.5	3.5	3.4	3.6	3.5	5.9	3.5	2.9	3.7	Diurnal Average	
	99.3	23.9	30.3	19.7	21.1	31.6	29.0	10.3	20.4	24.8	23.3	16.5	19.8	40.5	30.4	17.7	16.8	18.7	20.2	14.5	77.7	30.7	12.9	20.4	Diurnal Maximum	

M - Maintenance  
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m<sup>3</sup> Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m<sup>3</sup>



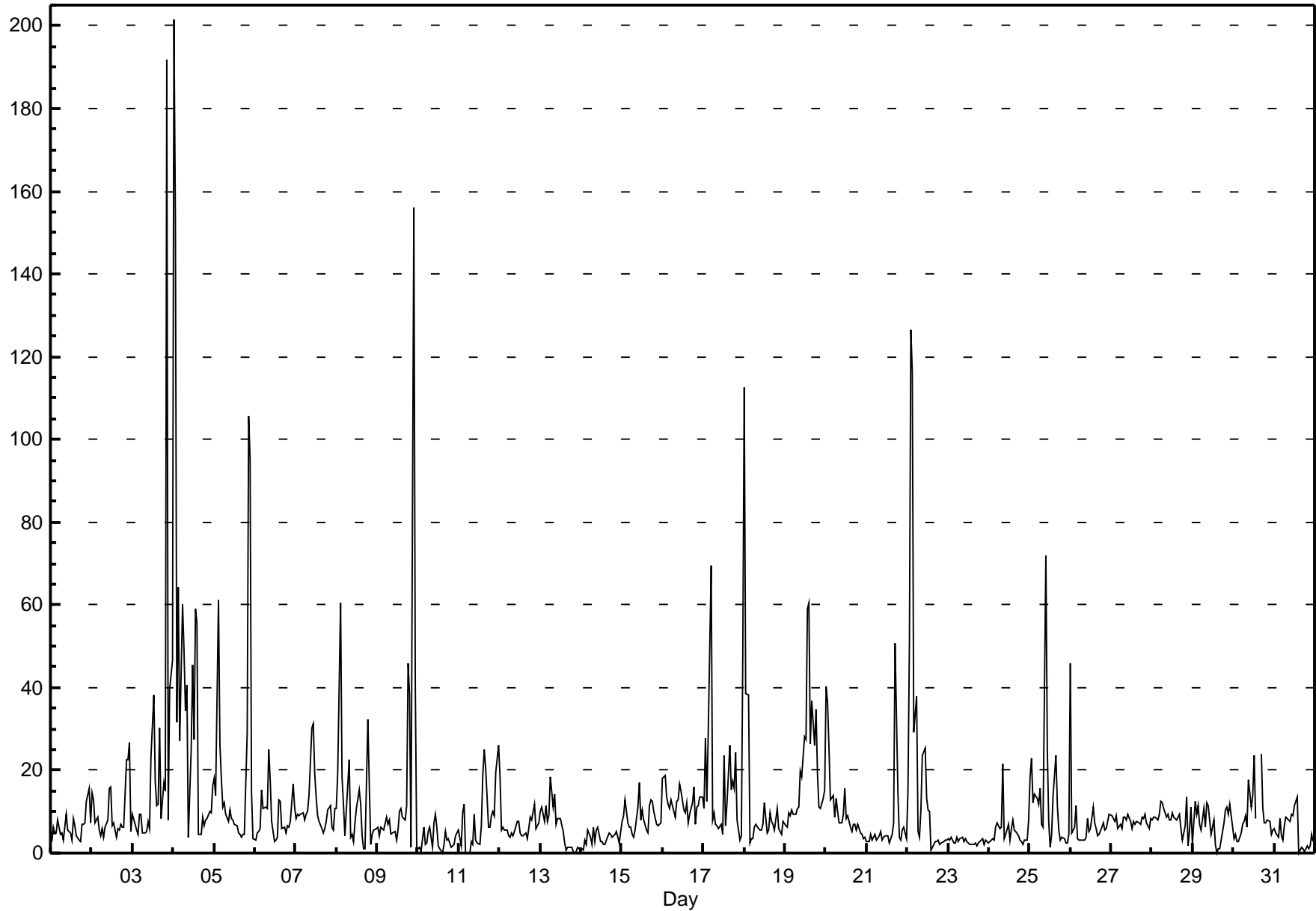


# Hourly Maximums

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

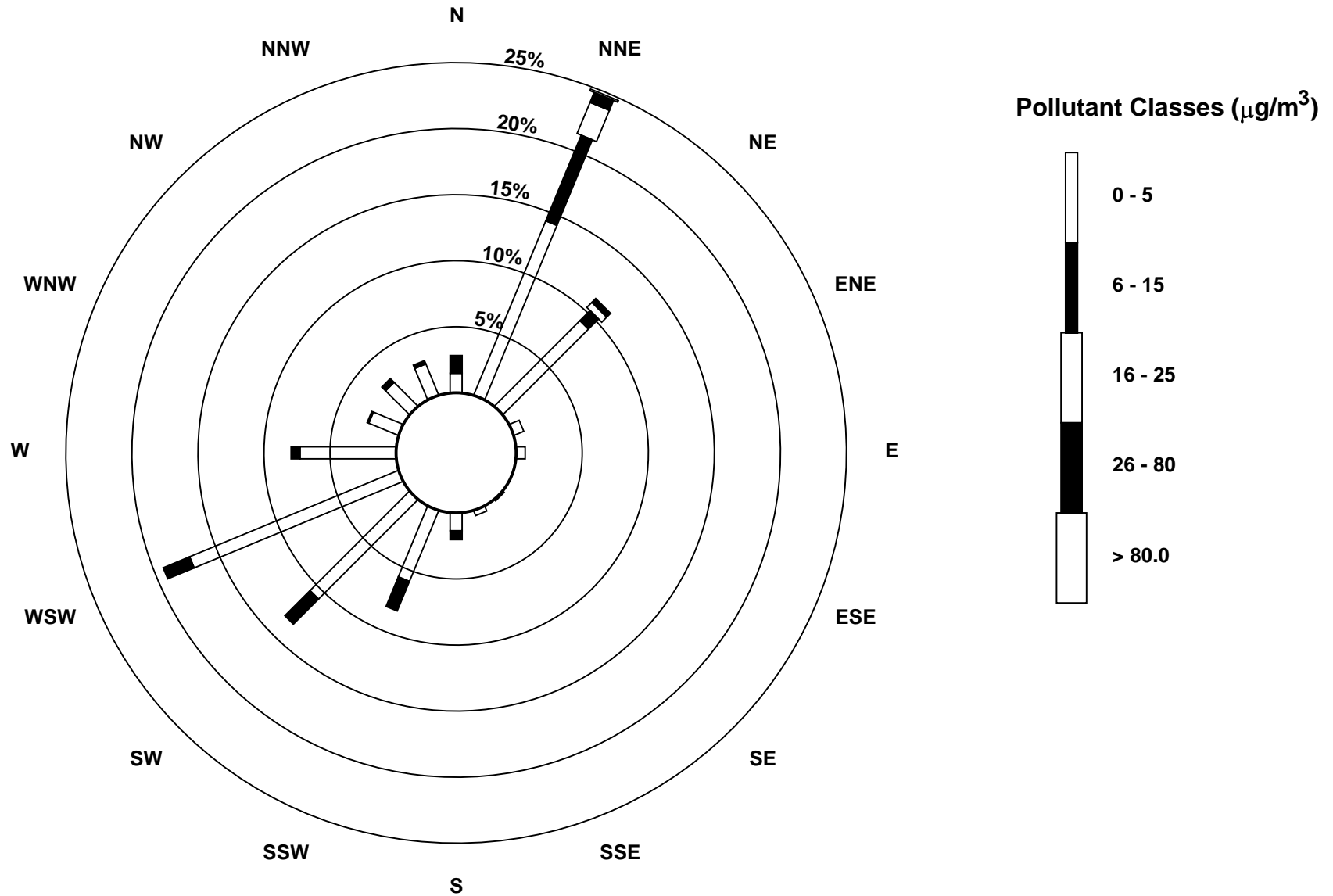
Smoky Heights - December 2012

Maximum Value: 201.4 µg/m <sup>3</sup> on Dec 4 01:00		Maximum Daily Average: 39.8 µg/m <sup>3</sup> on Dec 4		Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7																							
Minimum Value: 0 µg/m <sup>3</sup> on Dec 10 15:00 Maximum Diurnal Average: 20.1 µg/m <sup>3</sup> at hour 1 Monthly Average: 11.36 µg/m <sup>3</sup>		Minimum Daily Average: 2.8 µg/m <sup>3</sup> on Dec 23 Minimum Diurnal Average: 8.0 µg/m <sup>3</sup> at hour 16 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 4.3 Median = 7.1 Q <sub>3</sub> = 11.1 P <sub>90</sub> = 22.6 P <sub>99</sub> = 109.4																									
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	3	6	5	5	8	4	5	3	6	10	5	5	3	8	7	4	3	3	7	7	7	13	16	7	6.3	15.6	
2-Dec	14	13	7	9	6	4	6	4	6	8	16	16	7	7	4	6	5	7	6	6	22	23	27	5	9.7	26.8	
3-Dec	9	7	5	4	10	10	5	5	5	8	6	23	38	17	12	12	30	8	17	15	192	8	40	47	22.2	191.9	
4-Dec	201	153	31	64	27	60	49	34	41	4	25	45	27	59	55	4	5	9	7	8	8	10	10	16	39.8	201.4	
5-Dec	18	14	61	26	18	11	12	10	8	11	8	8	7	7	5	4	4	4	4	29	106	95	15	3	20.3	105.8	
6-Dec	3	5	5	6	15	11	11	11	25	18	8	3	3	4	13	13	6	6	5	7	6	8	17	11	9.1	25.0	
7-Dec	9	10	9	10	10	8	9	10	14	30	31	19	14	9	8	6	5	6	8	10	12	6	6	11	11.2	31.2	
8-Dec	11	20	60	18	12	4	11	22	4	5	3	7	11	15	12	4	1	1	32	16	2	5	6	6	12.0	60.4	
9-Dec	6	4	6	6	5	9	7	8	4	5	5	3	6	10	11	9	8	12	46	38	1	156	41	1	17.0	156.1	
10-Dec	1	1	0	6	2	2	5	6	1	7	9	6	2	1	0	2	5	3	4	1	2	2	4	5	3.4	9.3	
11-Dec	6	2	10	12	0	0	0	3	2	9	3	2	2	7	19	25	20	6	6	9	10	9	20	26	8.6	25.9	
12-Dec	18	6	6	5	5	4	4	5	4	5	8	8	5	4	4	5	3	6	9	8	12	6	7	7	6.4	18.3	
13-Dec	10	11	8	12	8	9	18	11	14	7	8	8	8	5	2	1	1	1	1	0	0	0	2	1	6.2	18.4	
14-Dec	1	1	3	2	6	4	2	6	3	6	6	3	3	2	2	3	5	5	4	4	4	5	2	5	3.6	6.2	
15-Dec	8	9	13	7	6	6	4	4	5	11	17	8	10	8	5	5	12	13	13	10	7	7	7	7	8.4	16.9	
16-Dec	18	19	14	12	11	13	11	9	12	13	17	15	11	10	12	7	9	12	16	7	11	12	14	14	12.4	18.8	
17-Dec	11	28	13	30	69	8	10	7	7	6	7	5	23	7	12	26	15	17	15	24	8	3	4	48	16.8	69.4	
18-Dec	113	38	38	2	3	3	6	7	6	5	5	7	12	5	5	10	8	7	6	11	6	5	5	8	13.4	112.7	
19-Dec	7	6	10	9	10	9	10	11	11	20	18	28	28	59	61	26	37	26	35	19	11	11	13	15	20.4	60.6	
20-Dec	40	36	25	13	14	9	13	10	7	7	10	16	8	9	6	5	7	7	6	7	5	5	3	4	11.4	40.3	
21-Dec	3	3	4	3	4	4	3	4	5	3	4	4	4	2	3	4	7	51	15	4	3	5	6	3	6.4	50.6	
22-Dec	15	51	127	116	29	38	5	4	10	24	25	13	10	10	1	1	3	3	3	2	2	3	3	3	20.9	126.5	
23-Dec	3	3	4	3	2	4	3	3	4	3	3	3	2	2	2	2	2	2	2	3	3	2	3	3	2.8	4.0	
24-Dec	2	3	3	3	6	7	6	6	21	3	5	7	3	6	8	6	5	4	3	3	2	3	3	8	5.4	21.4	
25-Dec	18	23	12	14	13	12	16	7	6	72	25	7	1	5	14	24	12	6	3	4	3	2	2	5	12.7	72.1	
26-Dec	46	5	6	12	3	3	3	3	3	4	8	5	6	11	7	6	4	5	6	7	6	6	8	9	7.6	45.7	
27-Dec	9	8	8	9	6	7	6	9	9	8	9	8	6	8	7	8	7	7	9	8	9	7	6	8	7.7	9.4	
28-Dec	8	9	9	8	9	12	12	11	9	10	8	8	10	9	8	9	10	6	3	7	13	2	6	11	8.5	13.5	
29-Dec	2	13	10	12	7	6	11	6	12	12	8	4	8	2	0	1	1	5	7	10	11	9	12	6	7.3	12.5	
30-Dec	3	4	3	3	5	7	8	9	6	18	11	14	23	8	M	M	24	11	7	7	8	8	4	6	9.0	24.0	
31-Dec	6	5	4	8	4	3	6	9	8	8	9	9	12	14	0	1	1	1	0	2	1	2	4	3	5.0	13.7	
		20.1	16.6	16.8	14.5	10.8	9.5	8.9	8.3	9.0	11.5	10.7	10.3	10.1	10.6	10.2	8.0	8.6	8.3	9.8	9.5	16.0	14.1	10.1	10.1	Diurnal Average	
		201.4	153.4	126.5	116.3	69.4	60.1	48.8	34.2	40.6	72.1	31.2	45.4	38.4	59.2	60.6	26.3	36.9	50.6	45.8	38.1	191.9	156.1	41.1	48.1	Diurnal Maximum	
M - Maintenance																											



**Pollutant Rose**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Smoky Heights - December 2012**



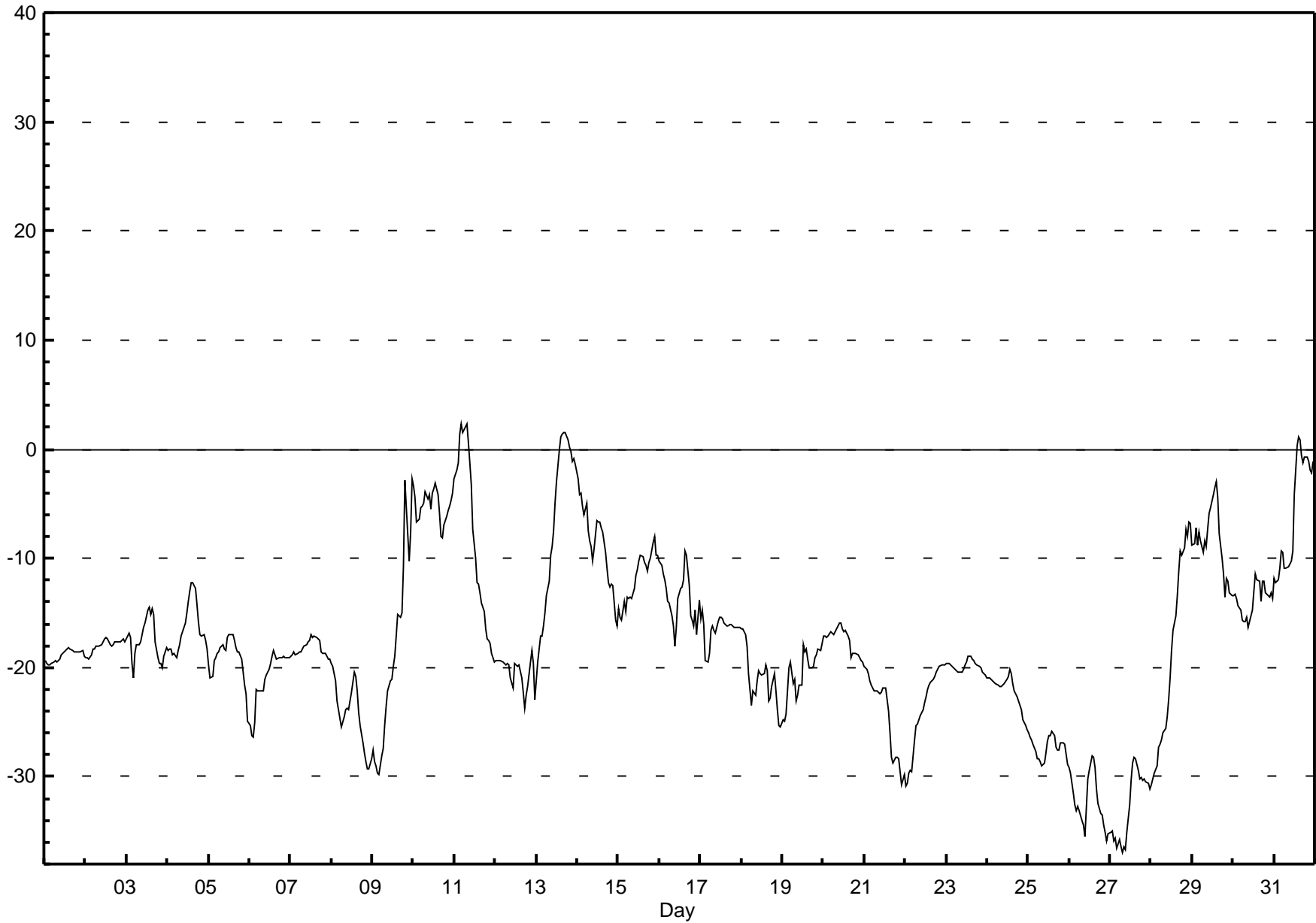
# Hourly Averages

## External Temperature (ET) - °C Smoky Heights - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.4 °C on Dec 11 08:00 Maximum Daily Average: -5.2 °C on Dec 10		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Value: -37 °C on Dec 27 08:00 Maximum Diurnal Average: -15.7 °C at hour 15 Monthly Average: -17.80 °C		Minimum Daily Average: -32.7 °C on Dec 27 Minimum Diurnal Average: -19.1 °C at hour 4 Percentiles: P <sub>1</sub> = -35.8 P <sub>10</sub> = -28.3 Q <sub>1</sub> = -21.7 Median = -18.6 Q <sub>3</sub> = -13.6 P <sub>90</sub> = -6.7 P <sub>99</sub> = 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	-19	-20	-20	-20	-20	-19	-19	-19	-19	-19	-19	-19	-18	-18	-18	-18	-18	-19	-19	-19	-19	-19	-18	-19	-18.9	-18.2
2-Dec	-19	-19	-19	-19	-18	-18	-18	-18	-18	-18	-18	-17	-17	-17	-18	-18	-18	-18	-18	-18	-18	-18	-17	-18	-18.0	-17.3
3-Dec	-17	-17	-17	-20	-21	-19	-18	-18	-18	-17	-16	-16	-15	-14	-15	-15	-15	-18	-19	-20	-20	-20	-19	-18	-17.5	-14.5
4-Dec	-18	-18	-18	-19	-19	-19	-19	-18	-17	-17	-16	-15	-14	-13	-12	-12	-13	-14	-16	-17	-17	-17	-18	-18	-16.4	-12.3
5-Dec	-20	-21	-21	-19	-19	-19	-19	-18	-18	-18	-18	-17	-17	-17	-17	-18	-18	-19	-19	-19	-20	-22	-22	-25	-19.1	-16.9
6-Dec	-25	-26	-26	-25	-22	-22	-22	-22	-22	-21	-21	-20	-20	-19	-18	-19	-19	-19	-19	-19	-19	-19	-19	-19	-21.0	-18.4
7-Dec	-19	-19	-19	-19	-19	-19	-19	-18	-18	-18	-18	-17	-17	-17	-17	-17	-17	-17	-19	-19	-19	-19	-19	-19	-18.2	-17.0
8-Dec	-20	-20	-21	-23	-24	-25	-25	-25	-24	-24	-24	-23	-22	-20	-21	-22	-24	-25	-27	-28	-29	-29	-29	-28	-24.3	-19.6
9-Dec	-28	-29	-29	-30	-30	-28	-27	-25	-24	-22	-21	-20	-19	-17	-15	-15	-15	-11	-3	-5	-10	-8	-3	-18.9	-2.7	
10-Dec	-3	-4	-7	-6	-5	-5	-5	-4	-4	-4	-6	-4	-4	-3	-4	-6	-8	-8	-7	-6	-6	-5	-4	-5.2	-3.2	
11-Dec	-3	-2	-1	1	2	2	2	2	1	-1	-3	-7	-10	-12	-12	-13	-14	-15	-16	-17	-17	-18	-19	-19	-8.0	2.4
12-Dec	-19	-19	-19	-19	-20	-20	-20	-20	-20	-21	-22	-20	-20	-20	-20	-21	-22	-24	-23	-22	-20	-18	-20	-23	-20.4	-18.4
13-Dec	-21	-20	-17	-17	-16	-15	-13	-12	-10	-9	-7	-5	-3	0	1	1	1	2	1	0	0	-1	-1	-1	-6.8	1.5
14-Dec	-3	-4	-4	-5	-6	-5	-7	-8	-9	-10	-9	-7	-7	-7	-7	-8	-9	-11	-12	-13	-12	-13	-16	-16	-8.7	-2.8
15-Dec	-15	-15	-16	-14	-15	-14	-14	-14	-14	-13	-12	-11	-10	-10	-10	-10	-11	-11	-10	-10	-9	-8	-10	-10	-11.8	-8.0
16-Dec	-10	-11	-11	-12	-13	-14	-14	-15	-16	-18	-16	-14	-13	-13	-12	-9	-10	-12	-15	-16	-16	-15	-17	-14	-13.6	-9.3
17-Dec	-16	-15	-16	-19	-19	-19	-17	-16	-17	-17	-16	-15	-15	-16	-16	-16	-16	-16	-16	-16	-16	-16	-16	-16	-16.4	-14.7
18-Dec	-16	-16	-17	-18	-21	-22	-23	-22	-23	-21	-20	-21	-21	-21	-20	-20	-23	-23	-22	-21	-22	-24	-25	-25	-21.1	-16.4
19-Dec	-25	-25	-24	-22	-20	-19	-21	-21	-23	-23	-22	-22	-18	-19	-18	-19	-20	-20	-20	-19	-19	-18	-18	-18	-20.6	-17.7
20-Dec	-17	-17	-17	-17	-17	-17	-17	-17	-16	-16	-16	-16	-17	-17	-17	-17	-19	-19	-19	-19	-19	-19	-19	-19	-17.5	-16.0
21-Dec	-20	-20	-21	-21	-22	-22	-22	-22	-22	-22	-22	-22	-22	-23	-24	-26	-28	-29	-28	-28	-28	-30	-31	-30	-24.4	-19.9
22-Dec	-31	-31	-30	-29	-29	-27	-25	-25	-25	-24	-24	-23	-23	-22	-22	-21	-21	-21	-20	-20	-20	-20	-20	-20	-23.8	-19.7
23-Dec	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-19	-19	-19	-19	-19	-20	-20	-20	-20	-20	-21	-21	-19.9	-19.0
24-Dec	-21	-21	-21	-21	-21	-22	-22	-22	-22	-22	-21	-21	-21	-20	-21	-21	-22	-23	-23	-24	-24	-25	-25	-26	-22.1	-20.2
25-Dec	-26	-26	-27	-27	-28	-28	-28	-29	-29	-29	-28	-27	-26	-26	-26	-26	-27	-27	-28	-27	-27	-27	-28	-29	-27.3	-25.8
26-Dec	-29	-30	-32	-33	-33	-33	-33	-34	-34	-36	-33	-30	-29	-28	-28	-29	-31	-32	-33	-34	-34	-35	-36	-35	-32.3	-28.1
27-Dec	-35	-35	-36	-36	-37	-36	-36	-37	-36	-37	-35	-33	-30	-29	-28	-28	-29	-30	-30	-30	-30	-30	-31	-31	-32.7	-28.3
28-Dec	-31	-30	-30	-29	-27	-27	-27	-26	-26	-24	-23	-21	-18	-17	-15	-13	-11	-9	-10	-9	-7	-8	-7	-7	-18.8	-6.6
29-Dec	-9	-9	-7	-9	-8	-8	-9	-8	-9	-7	-6	-5	-4	-3	-3	-4	-8	-10	-11	-14	-12	-12	-13	-13	-8.5	-2.9
30-Dec	-13	-13	-14	-14	-15	-16	-16	-16	-15	-16	-15	-15	-13	-11	-12	-12	-14	-12	-12	-13	-13	-14	-13	-14	-13.8	-11.4
31-Dec	-12	-12	-12	-11	-9	-9	-11	-11	-11	-11	-10	-9	-4	0	1	1	-1	-1	-1	-1	-1	-2	-2	-1	-5.8	1.1
																								Diurnal Average		
																								Diurnal Maximum		

**Hourly Averages**

**External Temperature (ET) - °C**  
**Smoky Heights - December 2012**



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Smoky Heights - December 2012

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	12	11	12	12	12	11	10	12	13	12	14	15	16	14	14	14	12	10	9	9	10	10	9	9	11.7	15.5
Dir	36	29	33	32	30	35	29	29	25	22	25	29	28	24	28	26	28	30	21	23	23	23	25	28	27.7	27.5
2 Spd	7	8	10	8	10	11	11	13	15	13	13	13	13	13	14	12	10	11	11	10	6	6	4	4	10.2	15.0
Dir	25	26	25	15	22	25	31	34	24	31	25	22	26	17	14	24	11	18	22	26	20	17	12	355	22.4	24.4
3 Spd	4	1	3	1	4	3	3	3	2	3	7	10	9	7	6	3	3	3	1	3	6	4	4	6	2.3	9.6
Dir	5	254	182	177	262	284	157	215	275	17	38	36	26	22	39	7	31	264	53	280	25	18	358	25	12.7	35.5
4 Spd	8	8	10	10	13	17	16	17	18	21	17	18	20	17	12	8	4	6	11	8	8	12	8	3	7.7	20.8
Dir	30	23	19	19	20	26	27	24	30	35	32	30	32	26	17	337	281	266	266	218	225	247	221	246	14.7	35.5
5 Spd	2	4	4	7	4	2	6	7	4	2	4	2	5	8	9	12	13	9	3	6	7	9	10	3	1.4	13.0
Dir	320	8	17	22	45	290	187	230	200	359	58	199	213	218	236	240	245	245	207	19	34	35	38	287	273.4	244.8
6 Spd	4	3	3	2	4	6	8	11	9	10	11	11	8	6	4	5	5	5	4	5	6	7	7	8	5.9	10.7
Dir	309	333	332	329	36	33	33	34	19	28	34	41	46	48	39	36	34	42	42	38	35	30	22	27	29.5	40.8
7 Spd	7	6	7	6	7	8	7	6	5	6	6	7	8	9	8	9	10	10	11	2	5	5	3	1	5.8	10.8
Dir	36	29	33	35	40	37	38	34	33	27	16	3	353	356	353	347	328	332	322	326	342	305	333	27	3.6	321.5
8 Spd	4	5	6	4	1	1	2	2	1	1	3	4	2	3	0	3	5	6	3	4	2	3	6	8	1.8	7.6
Dir	1	25	16	358	67	148	347	348	312	5	249	266	256	95	311	281	279	301	17	10	342	311	259	250	319.6	250.2
9 Spd	8	8	11	11	10	8	8	8	6	9	10	9	7	10	10	11	9	11	12	24	12	6	6	24	9.2	24.1
Dir	246	222	218	209	207	211	205	218	213	225	211	188	221	247	222	224	212	223	245	256	257	34	249	254	229.8	256.3
10 Spd	25	26	24	24	21	20	19	19	21	11	8	8	12	17	14	14	12	10	8	7	6	5	6	6	14.2	25.6
Dir	256	258	264	259	251	250	247	253	247	263	291	257	258	248	244	251	259	263	244	218	213	245	218	201	251.9	258.2
11 Spd	8	9	10	25	32	25	26	31	12	9	11	17	21	23	18	21	25	22	20	17	15	16	15	12	7.6	31.6
Dir	208	194	203	255	260	258	259	267	299	18	45	36	33	36	28	20	23	37	39	34	30	20	27	20	351.5	260.5
12 Spd	8	6	6	6	4	5	5	4	2	3	5	7	6	8	8	8	11	13	12	12	12	13	14	13	4.4	14.2
Dir	33	44	57	80	75	91	127	153	266	258	211	194	233	264	249	237	256	258	254	250	244	232	218	227	236.1	218.4
13 Spd	14	12	14	11	9	10	13	19	15	14	21	21	23	24	29	35	37	41	29	25	20	20	22	22	20.0	40.9
Dir	231	224	211	208	191	196	219	229	199	209	240	242	233	237	239	244	242	251	258	253	245	228	234	235	235.0	250.5
14 Spd	21	18	21	18	20	19	16	16	17	14	16	20	18	13	13	11	12	13	15	18	16	16	12	10	15.5	21.4
Dir	222	231	241	256	265	250	262	249	251	257	260	253	249	251	258	263	264	264	264	267	261	257	221	236	251.6	240.7
15 Spd	7	10	10	10	9	9	10	7	9	7	4	7	8	9	11	10	11	10	9	10	9	9	7	9	8.7	11.1
Dir	227	239	226	235	228	242	246	226	246	247	249	241	225	228	243	255	260	255	261	254	236	229	235	214	239.8	243.0
16 Spd	9	8	11	11	10	10	8	10	10	10	12	11	10	10	11	10	7	10	10	9	6	6	6	4	8.2	12.3
Dir	193	197	180	205	204	208	230	220	184	196	204	205	216	244	261	268	241	246	252	235	254	249	200	239	220.3	203.6
17 Spd	4	6	7	3	4	11	14	19	17	14	17	23	21	22	18	13	11	13	13	14	9	6	6	6	10.6	23.0
Dir	232	262	266	275	53	29	25	23	39	31	29	29	29	29	19	13	1	10	12	17	16	350	333	10	18.1	28.8
18 Spd	6	3	2	2	2	4	5	5	4	4	5	6	5	8	8	8	9	9	9	9	10	8	6	7	4.7	9.6
Dir	16	0	28	57	273	265	266	254	224	210	178	192	250	253	240	224	230	253	255	256	234	251	217	223	242.5	234.5
19 Spd	5	4	4	4	5	5	6	4	4	4	3	3	1	2	5	12	15	15	17	18	19	20	21	16	5.1	20.8
Dir	229	216	231	235	253	255	249	225	240	253	243	250	236	43	35	34	23	20	20	24	21	25	19	13	7.6	19.0
20 Spd	16	16	12	7	8	12	7	4	6	7	9	8	11	9	14	7	8	12	16	14	17	16	13	9	9.7	16.5
Dir	14	12	8	347	328	346	16	5	338	308	340	346	338	320	322	337	310	309	311	303	315	319	304	289	331.4	315.4
21 Spd	14	17	16	16	17	16	8	3	12	12	8	8	12	13	12	9	4	5	2	3	3	3	4	4	8.2	17.1
Dir	305	305	296	289	283	285	307	246	257	283	285	273	260	241	242	270	283	19	53	251	280	14	232	303	281.5	304.7
22 Spd	4	4	5	6	4	8	15	16	15	13	13	13	14	15	16	18	18	17	17	15	16	16	14	15	12.6	17.9
Dir	51	41	24	40	22	31	33	33	32	28	23	27	26	29	36	37	38	39	38	42	48	48	49	45	36.3	37.8

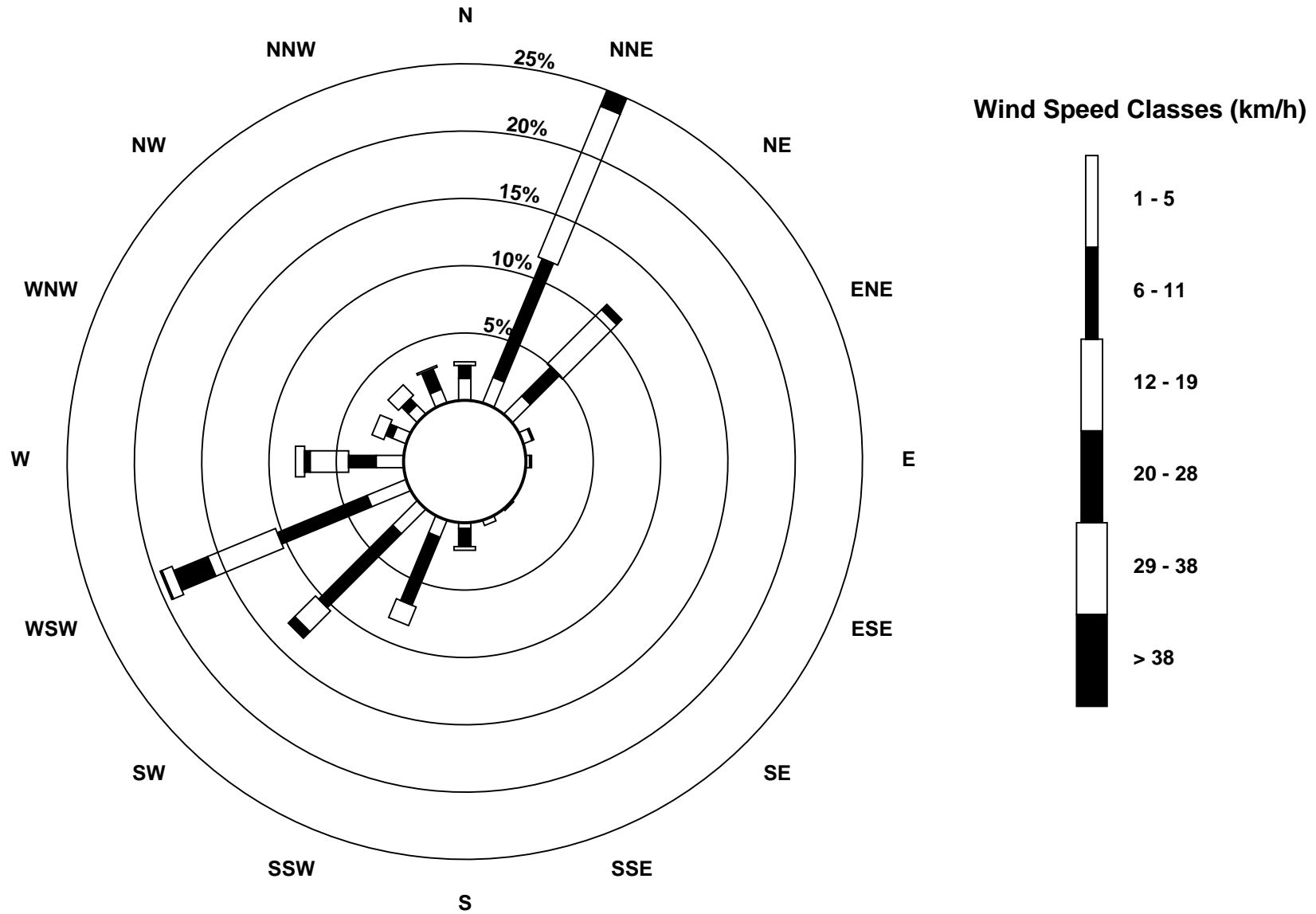
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Smoky Heights - December 2012

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	17	19	18	17	16	15	17	17	17	17	16	16	17	16	17	16	17	16	16	15	15	16	15	13	16.3	18.5
Dir	45	48	47	47	47	42	38	36	37	38	39	39	38	43	46	42	44	44	46	43	40	35	36	34	41.6	47.6
24 Spd	13	14	15	13	14	15	15	13	13	14	14	14	13	13	11	12	13	14	15	15	14	13	12	12	13.4	15.2
Dir	38	39	36	32	23	26	25	28	28	31	33	31	31	28	20	15	14	13	16	20	23	22	17	20	25.5	35.8
25 Spd	12	12	10	11	12	12	11	10	10	9	10	9	10	12	11	11	10	13	11	12	13	12	11	9	10.9	13.0
Dir	21	15	14	20	23	22	21	19	22	24	28	31	33	30	23	22	16	21	21	25	19	20	24	24	22.3	18.9
26 Spd	9	7	5	3	1	3	2	1	1	1	1	1	3	2	1	4	6	4	3	3	4	4	5	5	1.1	8.6
Dir	25	32	42	63	85	263	304	12	285	313	91	191	197	207	217	259	247	228	236	285	250	258	223	229	269.5	24.9
27 Spd	5	3	4	3	4	5	5	6	5	4	6	8	7	5	6	6	7	6	7	8	11	12	10	11	6.1	12.4
Dir	218	194	217	242	220	228	204	213	229	242	250	260	258	247	212	216	244	246	223	230	234	220	227	205	228.7	219.5
28 Spd	11	14	13	15	13	12	12	14	13	9	12	8	8	8	9	7	8	8	7	11	13	14	13	13	10.4	15.2
Dir	206	203	213	225	218	198	194	192	197	200	190	205	219	224	206	208	201	206	213	231	248	259	249	238	215.2	225.0
29 Spd	12	10	11	10	13	12	12	9	6	9	10	15	14	15	16	15	16	14	9	10	9	11	14	17	11.7	17.5
Dir	225	243	248	244	250	263	263	254	236	257	252	248	248	266	263	266	266	258	261	217	211	235	270	265	252.5	265.1
30 Spd	19	18	17	15	12	8	10	10	9	9	8	7	7	9	9	9	8	8	8	7	10	8	12	9	9.4	19.2
Dir	265	263	263	256	256	251	258	234	220	233	249	228	237	197	187	189	193	241	219	217	203	230	227	237	236.5	265.3
31 Spd	9	5	7	12	13	9	8	5	6	12	10	15	18	23	22	21	19	15	11	31	29	30	29	31	14.6	31.0
Dir	212	248	235	252	247	216	181	170	177	179	180	199	220	244	252	240	227	239	243	253	255	260	262	259	238.7	252.8
Spd	2.5	2.6	2.6	3.5	3.6	3.0	2.4	2.4	1.9	2.2	2.3	2.1	2.8	3.4	3.7	4.1	4.4	4.8	4.2	4.4	3.8	4.0	3.5	4.1	Diurnal Average	
Dir	294.0	298.6	285.8	281.3	281.0	294.4	300.8	294.9	309.0	335.8	345.1	334.1	318.8	311.3	301.0	299.3	294.4	299.3	308.0	293.5	299.9	305.4	287.7	277.2	Diurnal Maximum	
Spd	25.0	25.6	24.4	24.8	31.6	25.1	26.3	31.5	21.4	20.8	20.9	23.0	23.4	23.7	28.7	34.8	37.3	40.9	28.5	31.0	29.0	29.5	28.5	31.0	Diurnal Maximum	
Dir	256.0	258.2	263.9	255.0	260.5	257.7	258.6	266.9	247.1	35.5	240.3	28.8	233.0	237.0	238.9	243.8	242.5	250.5	257.6	252.8	255.3	260.4	261.6	258.8	Diurnal Maximum	
Maximum Speed Value: 41 km/h on Dec 13 18:00																		Minimum Speed Value: 0 km/h on Dec 8 15:00						Hours in Service: 744		
Maximum Daily Speed Average: 20.0 km/h on Dec 13																		Minimum Daily Speed Average: 1.1 km/h on Dec 26						Hours of Data: 744		
Maximum Diurnal Speed Average: 4.8 km/h at hour 18																		Minimum Diurnal Speed Average: 1.9 km/h at hour 9						Hours of Missing Data: 0		
Monthly Average Velocity: 3.15 km/h 299.93 deg																		Speed Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 3.6 Q <sub>1</sub> = 6.2 Median = 9.8 Q <sub>3</sub> = 13.9 P <sub>90</sub> = 17.7 P <sub>99</sub> = 30.9						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	24	38	41	2	0	0	105																			
NorthEast	25	58	104	12	0	0	199																			
East	5	1	0	0	0	0	6																			
SouthEast	4	0	0	0	0	0	4																			
South	8	24	8	0	0	0	40																			
SouthWest	31	108	39	13	3	0	194																			
West	33	46	53	18	8	1	159																			
NorthWest	13	13	11	0	0	0	37																			
Total	143	288	256	45	11	1	744																			

**Wind Rose**

**Wind Speed (WS) (km/h)**  
**Smoky Heights - December 2012**





# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

## Smoky Heights - December 2012

Maximum Speed: 41 km/h on Dec 13 18:00	Maximum Daily Speed Average: 20.9 km/h on Dec 13	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 26 15:00	Minimum Daily Speed Average: 3.6 km/h on Dec 26	Hours of Data: 744
Maximum Diurnal Speed Average: 11.9 km/h at hour 18	Minimum Diurnal Speed Average: 9.7 km/h at hour 10	Hours of Missing Data: 0
Monthly Average Speed: 10.76 km/h	Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 4.0 Q <sub>1</sub> = 6.3 Median = 10.0 Q <sub>3</sub> = 14.0 P <sub>90</sub> = 17.7 P <sub>99</sub> = 30.9	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	12	11	12	12	12	12	10	12	13	12	14	15	16	14	14	14	12	10	9	9	10	10	9	9	11.8	15.6
2-Dec	7	8	10	8	10	11	11	13	15	13	13	13	13	13	14	12	11	11	11	10	7	7	4	4	10.3	15.0
3-Dec	4	3	4	2	4	4	3	3	3	4	7	10	9	7	6	4	3	3	3	3	6	4	5	6	4.5	9.7
4-Dec	8	9	10	10	13	17	16	17	18	21	17	18	20	17	12	8	5	8	11	9	8	12	9	6	12.5	20.8
5-Dec	6	6	4	8	5	5	7	7	5	7	5	3	5	8	9	12	13	9	3	7	7	9	10	5	6.9	13.1
6-Dec	4	3	4	2	4	6	8	11	9	10	11	11	8	6	4	5	5	5	4	5	6	7	7	8	6.4	10.7
7-Dec	8	6	7	6	7	8	7	6	5	6	6	7	8	9	8	10	10	11	11	5	5	5	3	3	7.0	10.9
8-Dec	4	6	6	4	3	3	3	2	2	3	3	4	2	3	2	3	5	6	4	4	3	3	6	8	3.7	7.8
9-Dec	8	8	11	11	10	8	8	8	6	9	10	9	7	10	10	11	9	11	12	24	16	7	12	24	10.9	24.1
10-Dec	25	26	24	24	21	20	19	19	21	14	8	8	13	17	14	15	15	12	10	8	7	6	5	6	14.8	25.7
11-Dec	8	9	11	25	32	25	26	32	16	9	12	17	21	23	19	21	25	22	20	17	15	16	15	12	18.6	31.7
12-Dec	8	6	6	6	5	5	5	4	3	3	5	7	7	9	8	9	11	13	12	12	13	13	14	13	8.2	14.3
13-Dec	14	12	14	11	9	10	13	19	16	14	21	21	23	24	29	35	37	41	29	25	21	20	22	22	20.9	40.9
14-Dec	21	18	21	18	20	19	16	16	17	14	16	20	18	14	13	11	12	13	15	18	16	16	12	10	16.0	21.5
15-Dec	8	10	10	10	9	9	10	8	9	8	4	7	8	9	11	10	11	10	9	10	9	9	7	10	9.1	11.2
16-Dec	9	9	11	11	10	10	10	11	10	10	12	12	10	10	11	10	7	10	10	10	7	6	7	4	9.5	12.4
17-Dec	5	6	7	5	5	11	14	19	17	14	17	23	21	23	18	14	11	13	13	14	10	6	6	6	12.5	23.0
18-Dec	6	3	3	2	2	4	5	6	4	4	5	6	6	8	8	8	9	10	9	9	10	8	7	7	6.3	9.6
19-Dec	6	4	4	5	5	6	6	4	4	4	3	4	1	2	5	12	15	15	17	18	19	20	21	16	9.0	20.9
20-Dec	16	16	12	7	8	12	8	5	6	7	9	8	11	10	14	7	8	12	16	15	17	16	14	9	11.0	16.6
21-Dec	15	17	17	16	17	17	9	5	13	12	9	9	12	13	12	9	5	5	3	3	4	4	5	5	9.7	17.2
22-Dec	4	4	5	6	4	8	15	16	15	13	13	14	14	15	16	18	18	17	17	15	16	17	14	15	12.8	17.9
23-Dec	17	19	18	17	17	15	17	17	17	17	16	16	17	16	17	16	17	16	16	15	15	16	15	13	16.3	18.6
24-Dec	13	14	15	13	14	15	15	13	14	14	14	14	13	13	11	13	13	14	15	15	14	13	12	12	13.6	15.2
25-Dec	12	12	10	11	12	12	11	10	10	9	10	9	10	12	12	11	10	13	11	12	13	12	11	9	11.0	13.1
26-Dec	9	7	5	4	2	3	2	2	2	2	2	1	4	2	1	4	6	5	4	3	4	4	5	5	3.6	8.7
27-Dec	5	3	4	3	4	5	5	6	5	4	6	8	7	5	6	6	7	6	8	9	11	12	10	11	6.5	12.4
28-Dec	11	14	13	15	13	12	12	14	13	9	12	8	9	8	9	7	8	8	7	11	13	15	13	13	11.1	15.3
29-Dec	12	10	11	10	13	12	12	9	6	10	10	15	14	15	16	15	16	14	9	10	10	12	14	17	12.2	17.5
30-Dec	19	18	17	15	13	10	10	10	10	10	9	7	7	9	9	9	8	9	8	8	10	8	12	9	10.5	19.3
31-Dec	9	5	8	13	13	10	8	5	6	12	10	15	19	23	22	21	19	15	12	31	29	30	29	31	16.4	31.1
	10.1	9.7	10.2	10.0	10.1	10.4	10.4	10.5	10.0	9.7	10.0	10.9	11.4	11.8	11.6	11.6	11.6	11.9	11.0	11.7	11.3	11.0	10.9	10.6	Diurnal Average	
	25.2	25.7	24.5	24.9	31.6	25.1	26.4	31.7	21.4	20.8	21.1	23.0	23.5	23.7	28.7	34.9	37.4	40.9	28.7	31.1	29.0	29.6	28.6	31.0	Diurnal Maximum	

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

# Hourly Standard Deviations

Wind Direction (WD) - deg  
Smoky Heights - December 2012

Maximum Value: 89.5 deg on Dec 8 15:00																		Hours in Service: 744							
Minimum Value: 1.8 deg on Dec 10 09:00																		Hours of Data: 744							
Percentiles: P <sub>1</sub> = 2.7 P <sub>10</sub> = 4.3 Q <sub>1</sub> = 5.4 Median = 7.9 Q <sub>3</sub> = 14.7 P <sub>90</sub> = 29.5 P <sub>99</sub> = 77.9																		Hours of Missing Data: 0							
																		Hours of Calibration: 0							
																		Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	6	5	4	4	5	4	7	6	6	6	5	5	5	5	5	5	5	4	6	5	5	4	6	5	7.1
2-Dec	5	5	6	8	8	7	7	5	5	5	6	6	6	6	6	5	6	7	6	7	7	10	18	13	18.1
3-Dec	21	57	25	85	18	58	20	35	22	35	8	8	6	13	18	37	41	22	84	23	6	9	17	16	84.7
4-Dec	5	7	7	7	7	5	5	5	5	3	6	5	5	5	11	23	73	38	15	32	20	8	37	89	88.6
5-Dec	71	63	24	11	33	74	27	14	15	77	37	61	26	6	7	7	4	12	39	34	6	6	5	57	76.7
6-Dec	23	25	24	37	14	6	6	5	8	7	6	6	6	18	19	11	9	10	13	10	6	6	8	7	37.0
7-Dec	9	8	8	8	9	6	6	6	7	8	9	10	10	10	10	9	9	15	7	81	16	24	25	88	88.2
8-Dec	36	9	12	17	72	51	39	37	69	64	13	13	26	38	89	11	4	15	26	21	37	18	17	10	89.5
9-Dec	5	14	6	6	4	6	4	8	9	7	9	11	18	8	13	9	10	16	15	2	67	56	87	5	86.9
10-Dec	6	4	3	3	4	3	5	3	2	49	21	11	7	5	7	13	10	7	11	14	20	22	19	10	49.3
11-Dec	7	10	15	6	4	4	5	7	46	12	11	5	6	4	12	6	6	6	7	5	5	7	8	6	46.3
12-Dec	8	11	11	14	13	13	21	11	48	20	26	12	25	13	7	9	4	4	5	5	11	6	6	5	47.6
13-Dec	9	14	5	8	7	9	16	4	15	10	8	6	6	3	3	3	4	3	7	5	8	4	3	6	15.5
14-Dec	5	12	5	7	10	5	5	6	4	5	7	6	7	11	4	8	5	9	6	3	4	13	7	14	13.6
15-Dec	20	8	14	11	11	10	10	11	9	16	21	24	11	8	9	7	5	5	9	4	16	6	26	13	25.6
16-Dec	12	26	18	10	6	8	44	12	30	8	8	11	16	10	8	7	19	17	14	17	28	16	31	19	44.3
17-Dec	54	21	11	75	64	5	7	4	5	7	6	5	7	7	6	8	11	8	8	6	9	15	26	10	75.3
18-Dec	11	22	46	36	39	14	8	7	23	21	21	9	12	9	6	5	7	4	12	6	8	8	21	18	45.6
19-Dec	7	15	10	12	8	8	8	9	12	11	22	8	59	32	16	4	5	6	5	5	6	6	5	9	59.0
20-Dec	7	6	11	20	19	9	18	28	14	12	16	18	11	14	7	10	11	11	8	7	6	8	11	19	28.1
21-Dec	7	5	15	4	7	7	31	59	20	7	22	30	8	6	4	13	25	26	76	10	34	49	21	37	76.2
22-Dec	31	46	31	16	27	6	2	3	4	5	7	6	6	6	4	3	4	6	6	5	4	4	5	4	45.6
23-Dec	4	5	4	5	4	4	4	3	3	3	4	4	3	4	5	5	4	5	4	5	4	4	5	7	6.6
24-Dec	7	3	4	4	5	4	4	4	5	5	3	5	4	5	5	7	7	6	5	5	4	5	6	5	7.0
25-Dec	5	7	6	5	4	4	5	5	6	5	5	5	4	6	6	5	7	5	6	5	7	7	5	6	7.3
26-Dec	9	6	11	31	77	21	11	46	41	66	76	52	11	14	30	21	13	11	30	24	15	18	19	9	77.3
27-Dec	9	18	22	13	12	6	9	12	7	9	8	7	6	10	6	4	14	7	9	9	9	5	9	4	22.3
28-Dec	5	6	5	5	9	3	3	3	6	10	5	6	7	12	8	8	10	8	8	9	9	5	6	5	11.7
29-Dec	5	10	7	7	6	7	5	13	23	30	11	7	11	8	7	8	4	6	22	8	15	17	10	4	29.5
30-Dec	3	2	3	2	23	35	12	10	12	15	10	14	8	9	9	9	16	17	10	19	6	13	5	12	35.2
31-Dec	8	26	21	18	4	29	6	17	9	9	6	10	16	6	6	6	17	16	29	5	3	4	3	3	28.8
	70.6	62.6	45.6	84.7	77.3	74.1	44.3	58.9	68.7	76.7	76.0	60.6	59.0	38.4	89.5	36.9	72.7	38.0	83.6	80.7	67.0	55.9	86.9	88.6	

PAZA

Beaverlodge Station

Monthly Summary Tables, Graphs and  
Roses

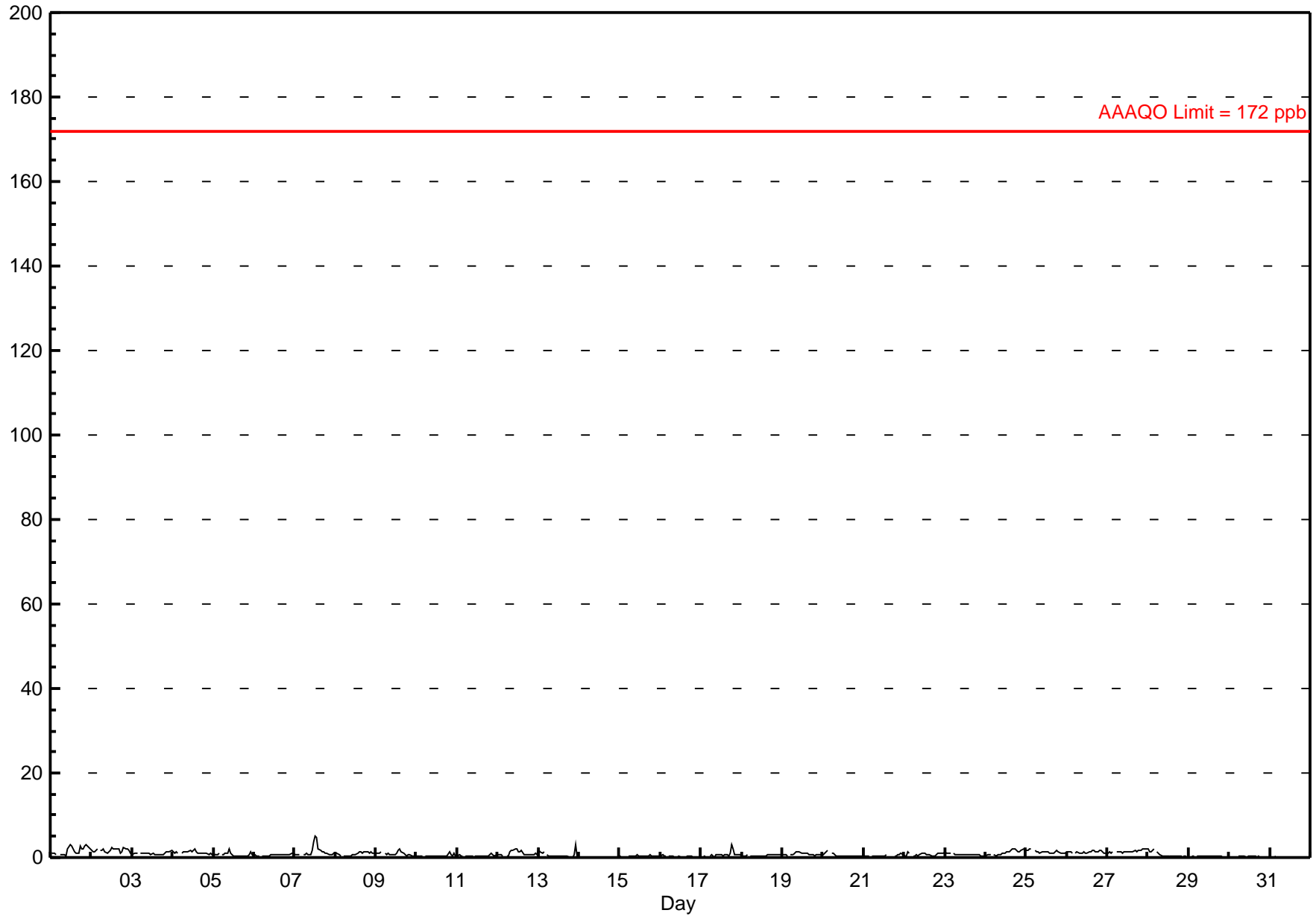
## Hourly Averages

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Beaverlodge - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 5.1 ppb on Dec 7 13:00	Maximum Daily Average: 1.7 ppb on Dec 2		Hours of Data:	709
Minimum Value: 0 ppb on Dec 14 11:00	Minimum Daily Average: 0.1 ppb on Dec 14		Hours of Missing Data:	35
Maximum Diurnal Average: 0.9 ppb at hour 13	Minimum Diurnal Average: 0.6 ppb at hour 9		Hours of Calibration:	35
Monthly Average: 0.77 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.6 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 1.5 P <sub>99</sub> = 2.9		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	1	1	1	1	0	2	3	3	2	1	1	1	3	2	2	3	3	3	2	1.6	3.0
2-Dec	2	1	1	2	A	2	2	2	1	1	1	2	2	2	2	2	2	1	1	2	2	2	2	1	1.7	2.4
3-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	1.5
4-Dec	1	1	1	1	A	1	1	1	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1.2	2.1
5-Dec	1	1	1	1	A	1	1	1	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0.7	2.0
6-Dec	1	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.9
7-Dec	1	1	1	1	A	1	1	1	1	1	2	4	5	5	2	2	2	1	1	1	1	1	1	1	1.5	5.1
8-Dec	1	1	1	0	A	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.4
9-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	0	0	0.9	2.0
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0.3	1.2
11-Dec	0	1	0	0	A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1	0.4	0.8
12-Dec	1	1	1	0	A	0	0	1	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1.0	2.1
13-Dec	2	1	1	1	A	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3	0	0.6	2.9
14-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
15-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0.3	0.6
16-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	0.2	0.6
17-Dec	0	0	0	0	A	0	1	0	0	1	1	1	1	0	1	1	0	1	3	2	1	1	1	1	0.7	3.0
18-Dec	0	0	0	1	A	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0.5	0.8
19-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0.8	1.5
20-Dec	1	1	1	2	A	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.5	1.6
21-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	C	C	C	C	0	0	0	1	1	1	1	0.4	0.9
22-Dec	0	0	1	1	A	0	0	1	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0.7	1.3
23-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0.7	1.2
24-Dec	0	1	1	1	A	1	0	1	1	1	1	1	1	1	2	2	2	2	2	1	1	2	2	2	1.2	2.1
25-Dec	2	2	2	2	A	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1.3	1.9
26-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1.3	1.7
27-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	1.4	2.1
28-Dec	2	1	1	2	A	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	2.1
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	0.2	0.3
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	0.2	0.2
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	0.2
	0.8	0.7	0.7	0.8	--	0.6	0.6	0.7	0.6	0.7	0.8	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.7		Diurnal Average
	2.0	1.8	1.9	2.1	--	1.7	1.8	2.2	1.8	2.0	2.1	3.8	5.1	4.8	2.2	2.0	1.9	2.6	3.0	2.3	2.7	3.0	2.9	2.0		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



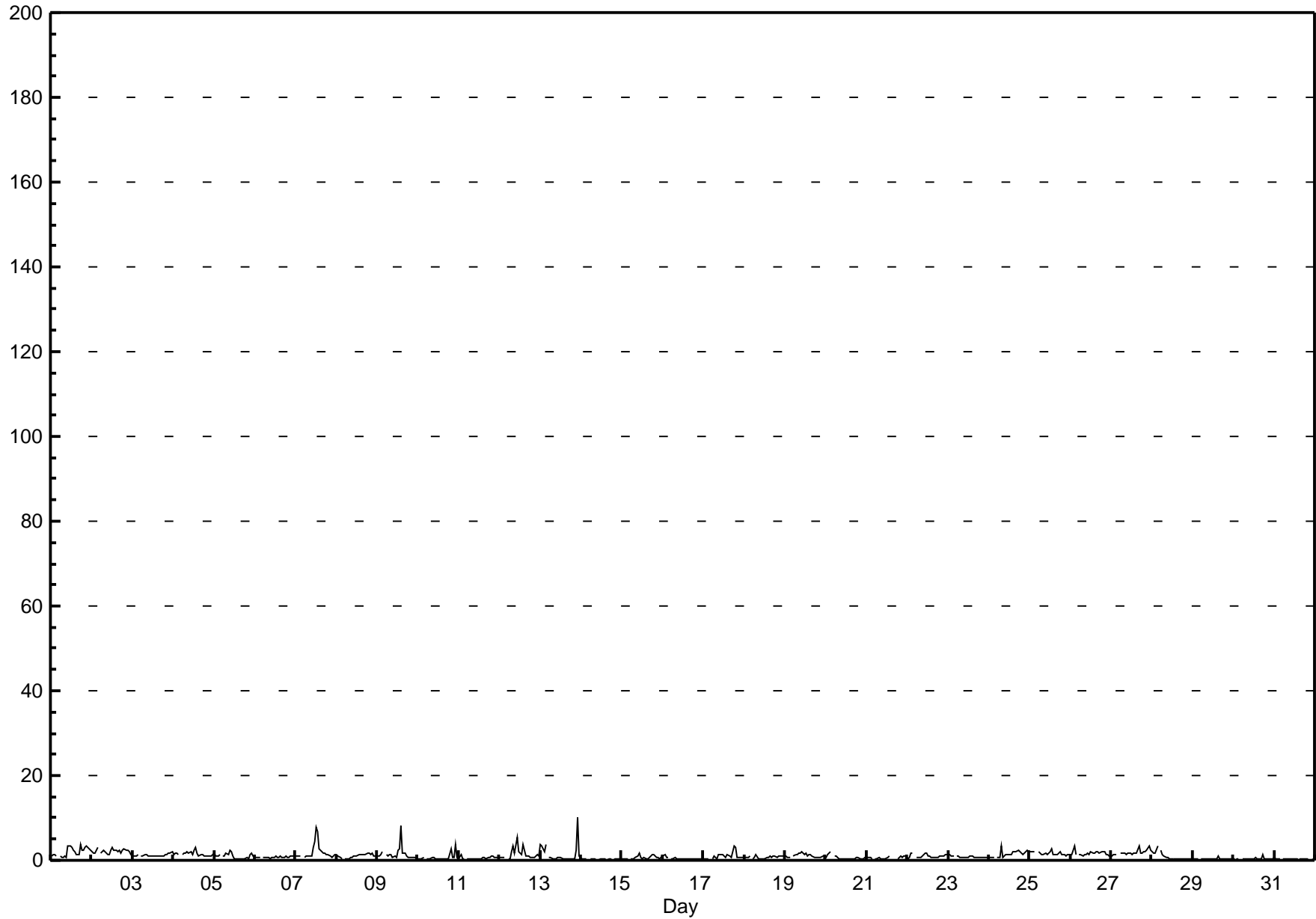
## Hourly Maximums

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Beaverlodge - December 2012

Maximum Value: 10.3 ppb on Dec 13 23:00		Maximum Daily Average: 2.1 ppb on Dec 2		Hours in Service: 744																										
Minimum Value: 0 ppb on Dec 14 10:00		Minimum Daily Average: 0.2 ppb on Dec 14		Hours of Data: 709																										
Maximum Diurnal Average: 1.5 ppb at hour 23		Minimum Diurnal Average: 0.8 ppb at hour 7		Hours of Missing Data: 35																										
Monthly Average: 1.06 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.8 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 2.0 P <sub>99</sub> = 3.2		Hours of Calibration: 35																										
				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	1	1	1	1	1	3	4	3	2	2	1	1	4	2	2	3	3	3	2	2.0	3.7				
2-Dec	2	2	2	3	A	2	2	2	2	1	2	2	3	2	2	2	2	2	2	3	2	2	2	1	2.1	3.0				
3-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1.2	1.9				
4-Dec	1	2	2	1	A	1	2	2	2	2	2	1	2	3	2	1	1	1	1	1	1	1	1	1	1.5	2.9				
5-Dec	2	1	1	1	A	1	1	2	1	2	2	1	0	0	0	0	0	0	0	1	0	2	2	1	1.0	2.4				
6-Dec	1	1	1	1	A	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1				
7-Dec	1	1	1	1	A	1	1	1	1	1	3	5	8	7	3	2	2	2	1	1	1	1	1	1	2.0	7.8				
8-Dec	1	1	1	0	A	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1.1	1.8				
9-Dec	1	1	1	2	A	1	1	1	1	1	1	1	2	3	8	2	2	1	1	1	1	1	1	0	1.5	8.2				
10-Dec	0	0	0	1	A	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3	1	1	4	1	0.7	3.6				
11-Dec	1	1	0	0	A	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0.5	1.3				
12-Dec	1	1	1	1	A	0	0	2	4	2	5	2	2	1	4	1	1	1	1	1	1	1	1	1	1.5	5.3				
13-Dec	4	3	2	4	A	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3	10	1	1.5	10.3				
14-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4				
15-Dec	0	0	0	0	A	0	0	0	1	1	2	1	0	1	0	0	1	1	1	1	1	1	0	1	0.6	1.8				
16-Dec	1	1	1	1	A	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.2				
17-Dec	0	0	0	0	A	0	1	1	0	1	1	1	1	1	1	1	1	2	4	3	1	1	1	1	1.0	3.6				
18-Dec	1	1	1	1	A	0	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0.7	1.5				
19-Dec	1	1	1	1	A	1	1	1	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1.1	1.9				
20-Dec	1	1	2	2	A	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0.7	1.9				
21-Dec	1	1	1	0	A	0	0	1	0	0	1	0	1	1	C	C	C	C	0	1	1	1	1	1	0.6	1.1				
22-Dec	0	1	2	2	A	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.8				
23-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.4				
24-Dec	1	1	1	1	A	1	1	3	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1.5	3.3				
25-Dec	2	2	2	2	A	2	2	1	1	2	2	2	2	3	1	1	1	2	2	1	1	1	1	1	1.7	2.6				
26-Dec	1	1	3	1	A	2	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1	1	1	1.7	3.3				
27-Dec	1	1	1	1	A	2	2	2	2	1	2	2	2	2	2	2	3	2	2	2	2	2	3	2	1.8	3.5				
28-Dec	2	2	2	3	A	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	3.2				
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	0.3	1.0				
30-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0.3	1.3				
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	0.7				
		1.0	1.0	1.0	1.1	--	0.9	0.8	1.0	0.9	0.9	1.2	1.1	1.3	1.3	1.3	1.0	1.0	1.0	1.0	1.1	0.9	1.1	1.5	1.0	Diurnal Average				
		3.6	3.4	3.3	3.6	--	2.2	2.0	3.3	3.5	2.4	5.3	4.5	7.8	6.8	8.2	2.2	3.5	3.7	3.6	2.9	3.0	3.3	10.3	2.4	Diurnal Maximum				
C - Calibration					A - Automated Daily Zero Span																									

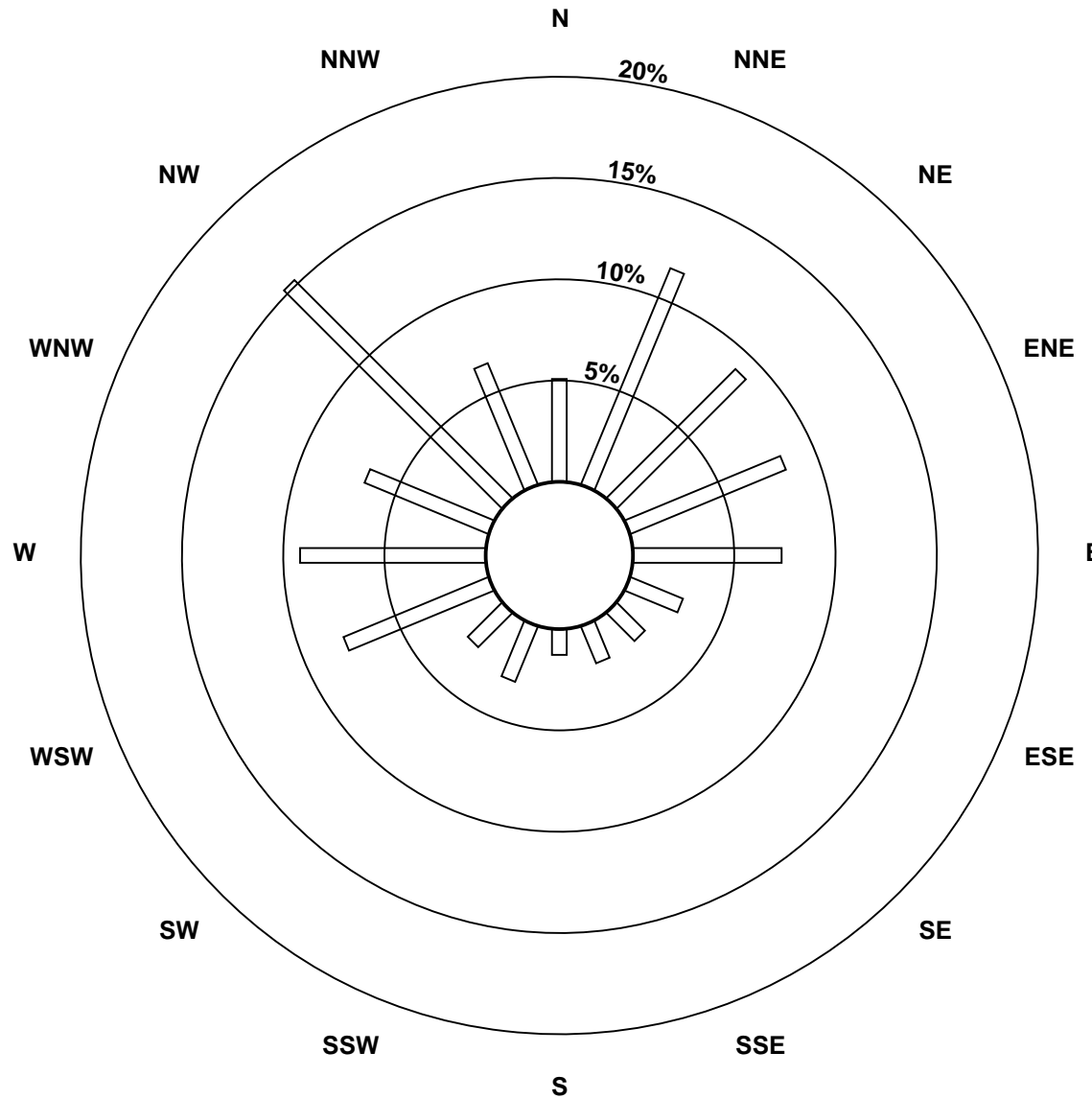
### Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Beaverlodge - December 2012

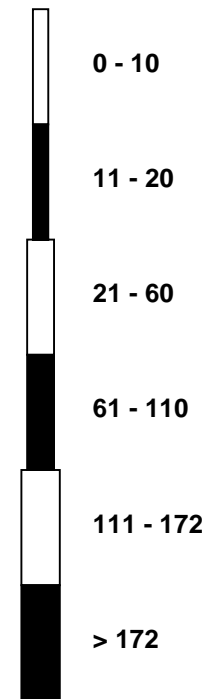


**Pollutant Rose**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Beaverlodge - December 2012**



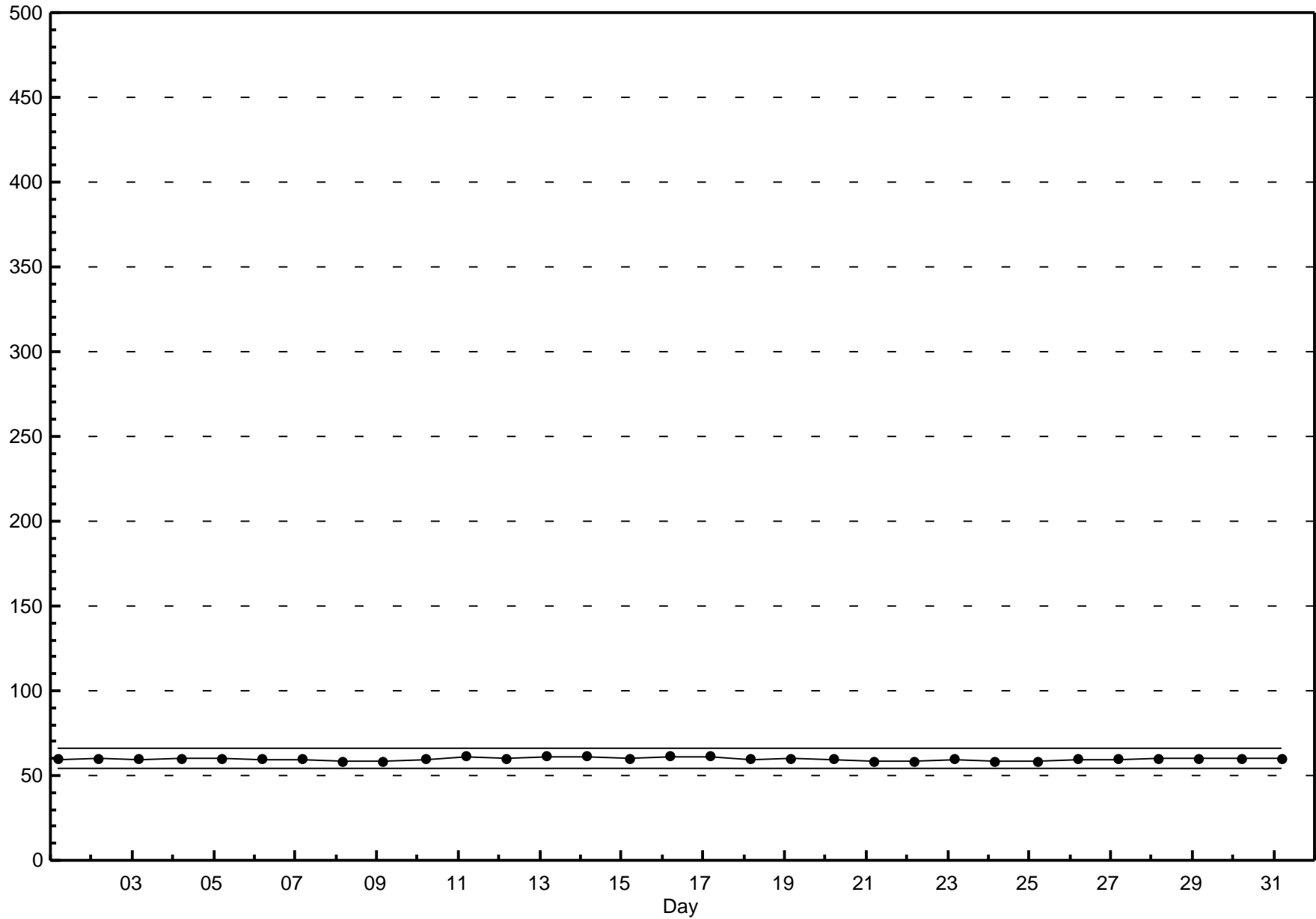
**Pollutant Classes (ppb)**





### Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Beaverlodge - December 2012



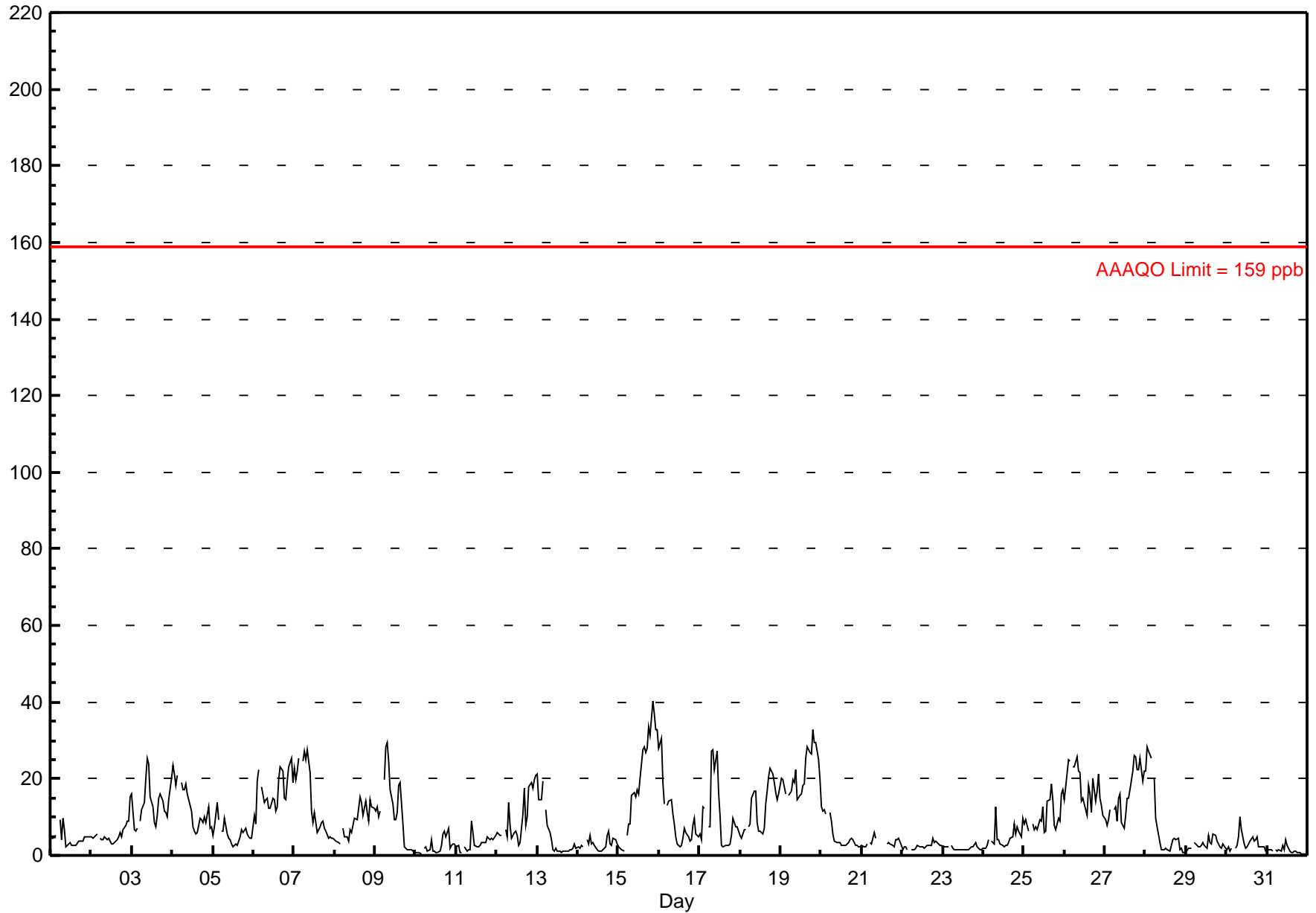
## Hourly Averages

## Nitrogen Dioxide (NO<sub>2</sub>) - ppb Beaverlodge - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 40.2 ppb on Dec 15 21:00	Maximum Daily Average: 21.4 ppb on Dec 19
Minimum Value: 0 ppb on Jan 1 00:00	Hours of Data: 707
Maximum Diurnal Average: 10.5 ppb at hour 8	Hours of Missing Data: 37
Monthly Average: 8.60 ppb	Hours of Calibration: 37
Minimum Daily Average: 1.3 ppb on Dec 31	Percent Operational Time: 100.0
Minimum Diurnal Average: 5.7 ppb at hour 14	
Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.6 Median = 5.4 Q <sub>3</sub> = 13.1 P <sub>90</sub> = 20.2 P <sub>99</sub> = 30.6	

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	4	5	5	5	A	9	4	10	7	2	3	3	2	3	2	3	4	4	4	4	5	5	5	5	4.4	9.6																						
2-Dec	5	5	5	6	A	4	4	4	5	4	4	4	3	3	4	4	5	6	5	7	8	9	9	15	5.5	15.5																						
3-Dec	16	7	6	7	A	9	12	14	20	26	24	15	13	8	7	11	15	16	14	11	11	10	14	20	13.3	25.5																						
4-Dec	23	21	18	21	A	19	17	17	19	16	13	12	8	6	5	6	10	9	9	10	9	13	7	7	12.8	23.3																						
5-Dec	5	8	14	9	A	6	6	10	6	4	4	3	2	3	3	4	5	7	6	7	5	5	4	5	5.7	13.7																						
6-Dec	10	8	19	22	A	18	14	15	15	12	12	15	15	12	13	20	23	22	15	14	19	23	25	19	16.6	25.5																						
7-Dec	23	20	22	25	A	25	27	25	28	22	11	8	11	9	6	8	9	9	7	6	5	5	4	5	13.9	27.6																						
8-Dec	4	4	3	3	A	7	5	5	4	7	6	8	10	9	12	15	14	10	14	11	9	15	13	12	8.7	15.5																						
9-Dec	11	13	10	11	A	20	28	29	25	17	13	9	9	11	18	19	8	2	2	2	2	1	1	1	11.5	29.5																						
10-Dec	1	1	1	1	A	2	2	1	1	4	1	1	1	1	1	3	6	6	5	7	2	2	3	3	2.4	7.1																						
11-Dec	2	3	1	1	A	2	1	2	2	9	6	3	2	2	3	3	3	3	5	4	4	4	4	5	3.3	9.1																						
12-Dec	6	5	5	5	A	7	5	14	8	5	6	6	5	3	3	11	18	8	10	18	19	17	20	21	9.7	20.7																						
13-Dec	21	14	15	19	A	12	8	6	4	1	1	2	1	1	1	1	1	1	1	1	2	2	3	2	5.3	21.3																						
14-Dec	2	2	3	2	A	4	3	5	3	3	3	2	1	1	1	2	2	5	6	3	3	4	4	3	2.9	6.4																						
15-Dec	2	2	2	1	A	5	8	8	16	16	15	17	16	20	27	28	27	28	34	31	40	37	33	33	19.5	40.2																						
16-Dec	28	31	19	14	A	13	14	15	11	8	5	3	2	3	4	7	6	5	4	4	8	10	5	5	9.7	30.6																						
17-Dec	6	4	13	12	A	8	7	27	28	22	27	16	10	3	2	2	3	3	5	10	7	7	6	6	10.1	27.5																						
18-Dec	5	4	7	7	A	7	8	15	17	17	9	6	6	5	7	13	17	21	23	21	19	17	15	16	12.3	22.7																						
19-Dec	20	20	18	16	A	16	17	20	19	22	15	15	16	18	19	25	28	27	26	33	29	29	25	20	21.4	32.8																						
20-Dec	13	11	12	11	A	11	9	5	4	3	3	3	3	2	3	3	4	4	4	4	3	3	2	2	5.3	12.7																						
21-Dec	3	2	2	3	A	3	3	6	5	C	C	C	C	C	C	3	4	3	3	2	4	4	5	3	--	6.0																						
22-Dec	1	2	2	1	A	2	2	1	2	3	2	2	2	2	2	3	3	3	4	4	4	3	2	3	2.4	4.5																						
23-Dec	2	2	2	2	A	2	2	2	2	2	2	1	1	2	2	2	2	2	2	3	2	2	1	2	1.9	3.3																						
24-Dec	2	2	2	4	A	4	3	13	4	4	3	3	2	3	3	3	4	5	8	5	7	6	5	10	4.6	12.6																						
25-Dec	8	9	8	6	A	8	7	8	7	9	9	13	6	6	14	14	19	15	8	7	10	9	16	17	10.1	18.7																						
26-Dec	15	18	25	24	A	23	23	26	22	21	14	15	13	11	18	16	11	20	14	17	21	15	13	10	17.7	25.8																						
27-Dec	9	8	9	12	A	12	13	9	15	16	9	7	10	15	15	17	22	26	26	22	22	26	19	22	15.7	26.2																						
28-Dec	22	28	27	26	A	20	10	7	3	2	2	1	2	1	1	2	4	5	4	4	1	2	1	1	7.7	28.2																						
29-Dec	1	2	2	2	A	3	3	2	2	3	3	2	2	5	3	3	5	5	4	3	2	2	3	2	2.8	5.5																						
30-Dec	2	2	1	2	A	2	3	5	10	7	3	2	2	3	4	5	4	4	5	2	2	2	2	1	3.3	10.1																						
31-Dec	1	1	2	1	A	1	1	1	1	3	1	4	3	1	1	1	1	1	1	1	1	1	0	0	1.3	3.9																						
																								8.9	8.5	9.0	9.1	--	9.2	8.7	10.5	10.0	9.7	7.7	6.8	6.0	5.7	6.8	8.3	9.2	9.2	8.9	8.9	9.3	9.3	8.8	8.9	Diurnal Average
																								27.8	30.6	27.0	25.5	--	24.8	28.4	29.5	27.6	25.5	27.2	17.1	16.0	20.1	27.4	28.3	28.2	28.1	33.7	32.8	40.2	37.0	32.8	33.0	Diurnal Maximum

C - Calibration      A - Automated Daily Zero Span  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb    24-hr 106 ppb



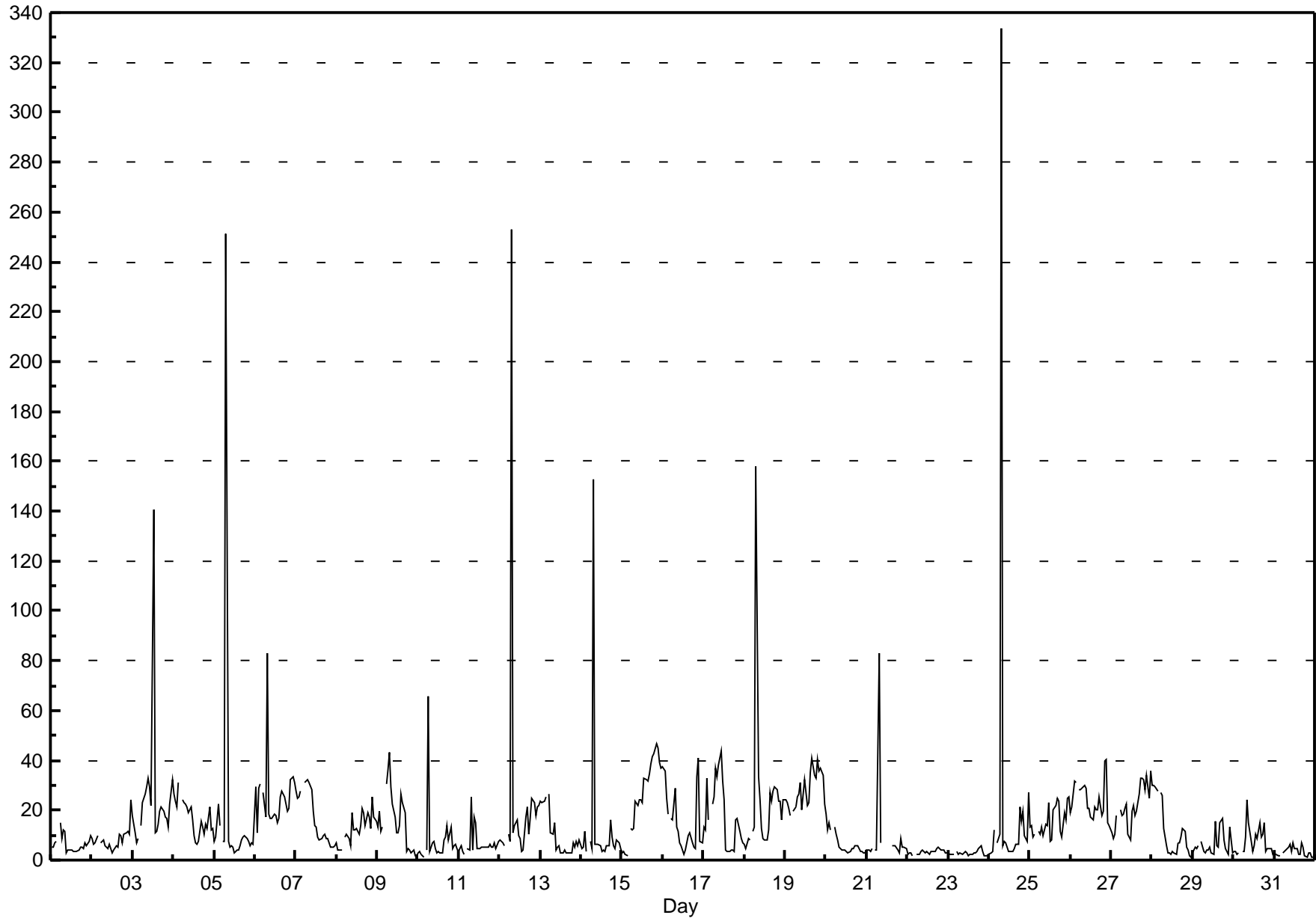
# Hourly Maximums

## Nitrogen Dioxide (NO<sub>2</sub>) - ppb Beaverlodge - December 2012

Maximum Value: 333.5 ppb on Dec 24 08:00 Minimum Value: 1 ppb on Dec 10 04:00 Maximum Diurnal Average: 55.3 ppb at hour 8 Monthly Average: 14.63 ppb		Maximum Daily Average: 28.1 ppb on Dec 19 Minimum Daily Average: 2.8 ppb on Dec 23 Minimum Diurnal Average: 8.6 ppb at hour 14 Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 3.0 Q <sub>1</sub> = 4.4 Median = 8.9 Q <sub>3</sub> = 19.9 P <sub>90</sub> = 29.4 P <sub>99</sub> = 50.2		Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
1-Dec	5	5	7	7	A	15	9	12	12	3	4	4	4	4	3	3	4	5	5	5	7	6	8	10	6.4	14.9	
2-Dec	9	7	7	10	A	7	7	8	6	5	6	4	3	4	6	5	10	10	7	10	11	12	10	24	8.2	24.0	
3-Dec	18	11	7	9	A	14	23	26	29	33	30	22	141	11	11	14	20	21	20	17	16	13	22	32	24.3	140.8	
4-Dec	26	24	21	31	A	24	23	23	22	19	21	16	10	7	6	8	15	13	11	15	13	21	12	13	17.1	30.8	
5-Dec	8	9	23	14	A	7	7	251	7	5	6	5	3	4	4	6	8	9	10	9	7	6	7	6	18.4	251.4	
6-Dec	30	11	29	30	A	27	17	83	18	16	17	19	18	15	17	25	28	25	23	19	21	32	34	31	25.5	83.0	
7-Dec	28	25	25	28	A	31	32	33	31	28	20	14	13	9	8	9	10	10	8	8	5	5	5	6	17.0	32.5	
8-Dec	7	4	4	4	A	9	10	9	6	19	12	12	13	11	14	21	19	14	19	17	13	25	17	15	12.8	25.3	
9-Dec	13	19	12	13	A	30	36	43	29	22	17	11	11	14	27	23	19	3	5	4	3	4	2	2	15.8	43.5	
10-Dec	3	3	2	1	A	4	66	4	7	8	4	3	4	3	3	8	9	14	8	13	5	6	7	4	8.2	65.7	
11-Dec	3	6	4	2	A	5	4	25	4	17	15	5	5	5	5	5	5	5	6	5	5	7	5	8	6.8	25.5	
12-Dec	8	8	7	6	A	10	8	253	11	14	16	10	9	3	4	17	21	10	17	25	23	18	21	22	23.6	252.8	
13-Dec	24	23	24	26	A	26	11	11	15	4	5	6	3	3	4	3	3	3	3	7	5	7	6	8	9.9	26.5	
14-Dec	5	5	12	3	A	8	5	153	6	7	6	5	3	4	4	6	6	16	9	6	5	8	7	4	12.7	152.7	
15-Dec	3	3	2	2	A	13	12	13	24	22	24	24	23	33	32	32	35	39	42	43	46	45	39	37	25.5	46.4	
16-Dec	37	36	25	18	A	17	16	29	13	11	7	6	2	4	7	10	11	7	5	5	33	41	7	7	15.4	41.0	
17-Dec	13	12	33	16	A	22	25	37	33	38	44	32	24	4	3	4	4	4	4	16	17	11	9	7	18.0	44.0	
18-Dec	6	5	9	8	A	11	13	158	33	24	13	8	8	8	12	27	24	28	30	28	24	24	16	24	23.5	157.7	
19-Dec	24	23	21	18	A	20	21	25	27	31	20	32	27	22	23	35	41	34	33	40	36	37	34	23	28.1	41.0	
20-Dec	19	12	15	12	A	13	10	8	5	4	4	4	3	3	3	4	5	6	6	6	4	4	3	3	6.8	18.6	
21-Dec	4	4	4	5	A	4	4	83	7	C	C	C	C	C	C	6	6	6	4	3	8	5	5	5	--	83.1	
22-Dec	2	3	3	2	A	3	3	2	3	4	3	4	3	3	3	4	4	4	5	5	4	4	3	3	3.3	5.1	
23-Dec	3	3	2	2	A	3	2	3	2	3	4	3	2	2	2	3	3	3	4	6	3	2	2	2	2.8	5.8	
24-Dec	2	3	3	12	A	7	10	334	6	7	7	4	3	4	3	5	6	6	21	15	19	10	7	27	22.8	333.5	
25-Dec	13	14	9	10	A	11	10	13	10	14	14	23	7	8	20	22	25	24	11	9	19	16	25	25	15.4	25.3	
26-Dec	19	21	32	31	A	29	28	29	30	29	21	21	17	16	22	20	20	25	18	19	40	40	15	14	24.2	40.4	
27-Dec	11	9	11	18	A	20	18	18	21	22	10	8	19	22	18	19	27	33	33	33	28	34	25	36	21.4	36.0	
28-Dec	30	30	29	27	A	27	26	13	6	3	3	3	4	3	3	7	7	9	12	12	5	4	2	1	11.6	30.0	
29-Dec	3	5	4	6	A	7	3	3	4	4	5	3	2	16	6	5	15	17	8	4	3	3	13	3	6.2	16.9	
30-Dec	3	4	2	3	A	3	4	9	24	15	7	3	6	10	9	15	9	11	15	4	5	5	4	2	7.5	24.2	
31-Dec	3	2	2	2	A	3	3	4	5	6	3	7	5	4	3	2	7	5	2	1	3	3	1	1	3.4	7.1	
		12.3	11.2	12.6	12.1	--	13.9	15.1	55.3	14.7	14.7	12.3	10.7	13.2	8.6	9.5	12.0	13.8	13.6	12.9	13.2	14.1	14.7	12.1	13.1	Diurnal Average	
		37.4	35.8	33.0	30.9	--	30.9	65.7	333.5	33.3	38.3	44.0	32.4	140.8	32.7	32.3	35.0	41.0	38.7	41.6	42.6	46.4	45.1	39.3	36.6	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

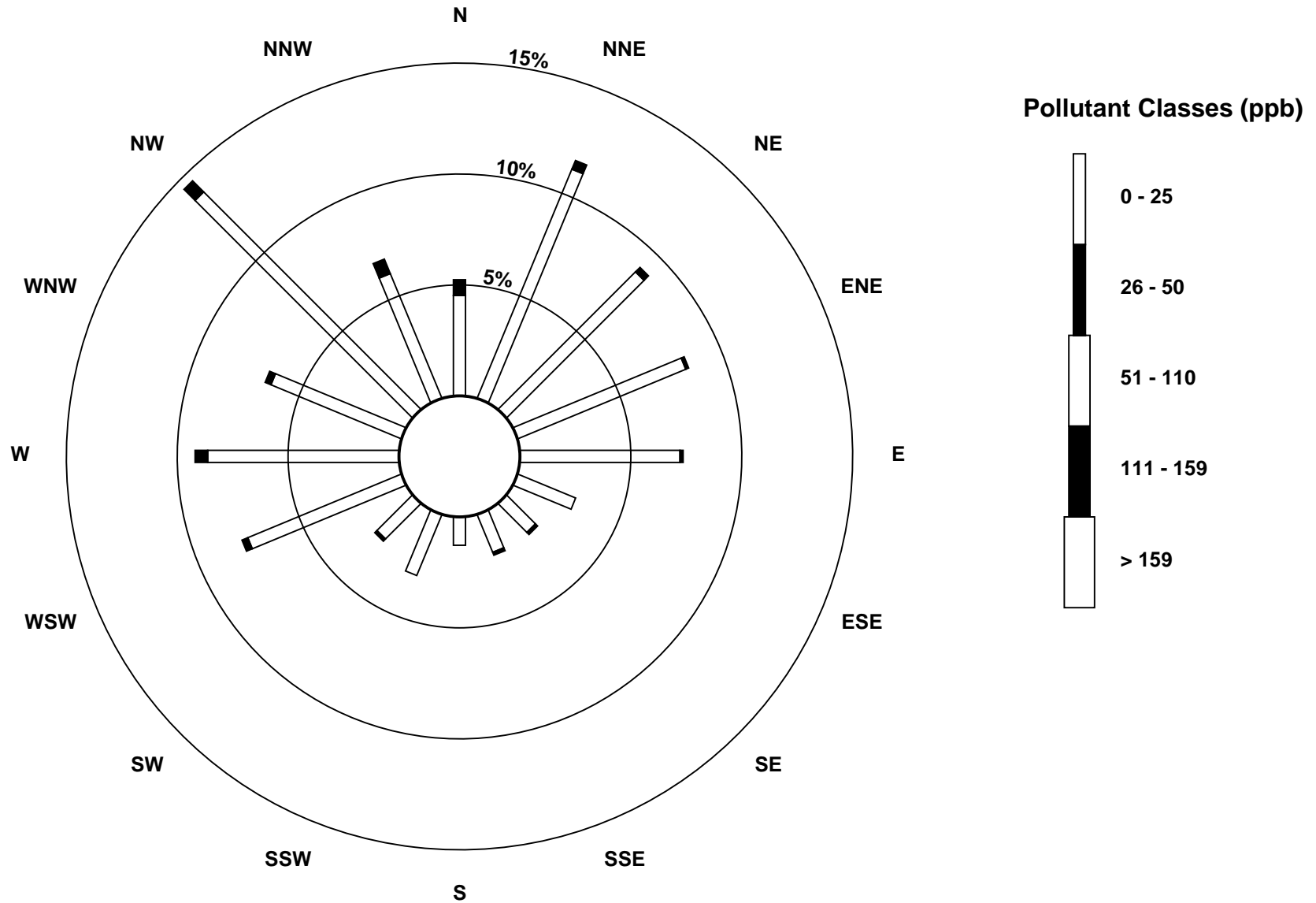
### Hourly Maximums

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Beaverlodge - December 2012



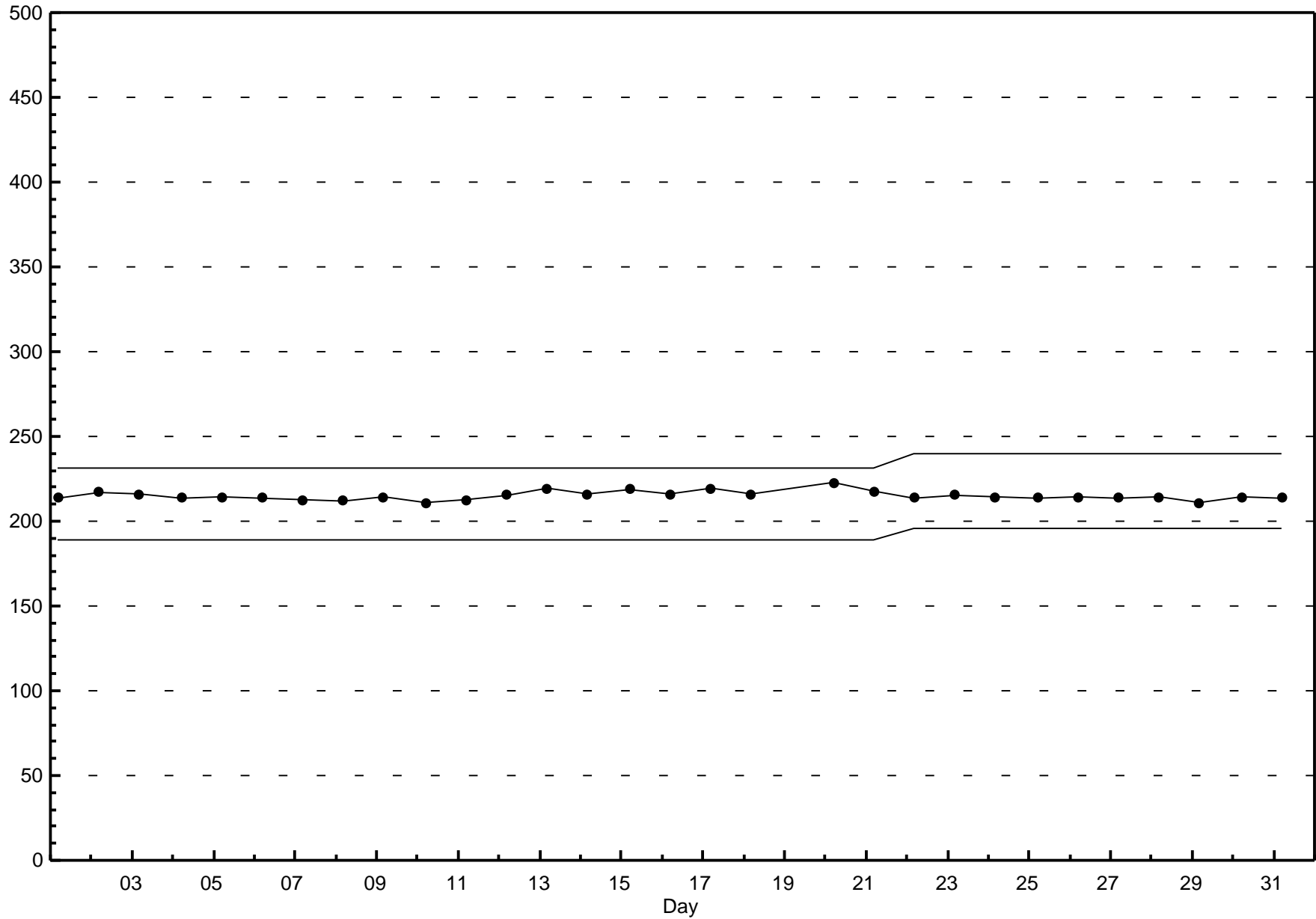
**Pollutant Rose**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Beaverlodge - December 2012**



### Span Responses

Nitrogen Dioxide (NO<sub>2</sub>)  
Beaverlodge - December 2012



## Hourly Averages

## Nitrogen Oxide (NO) - ppb

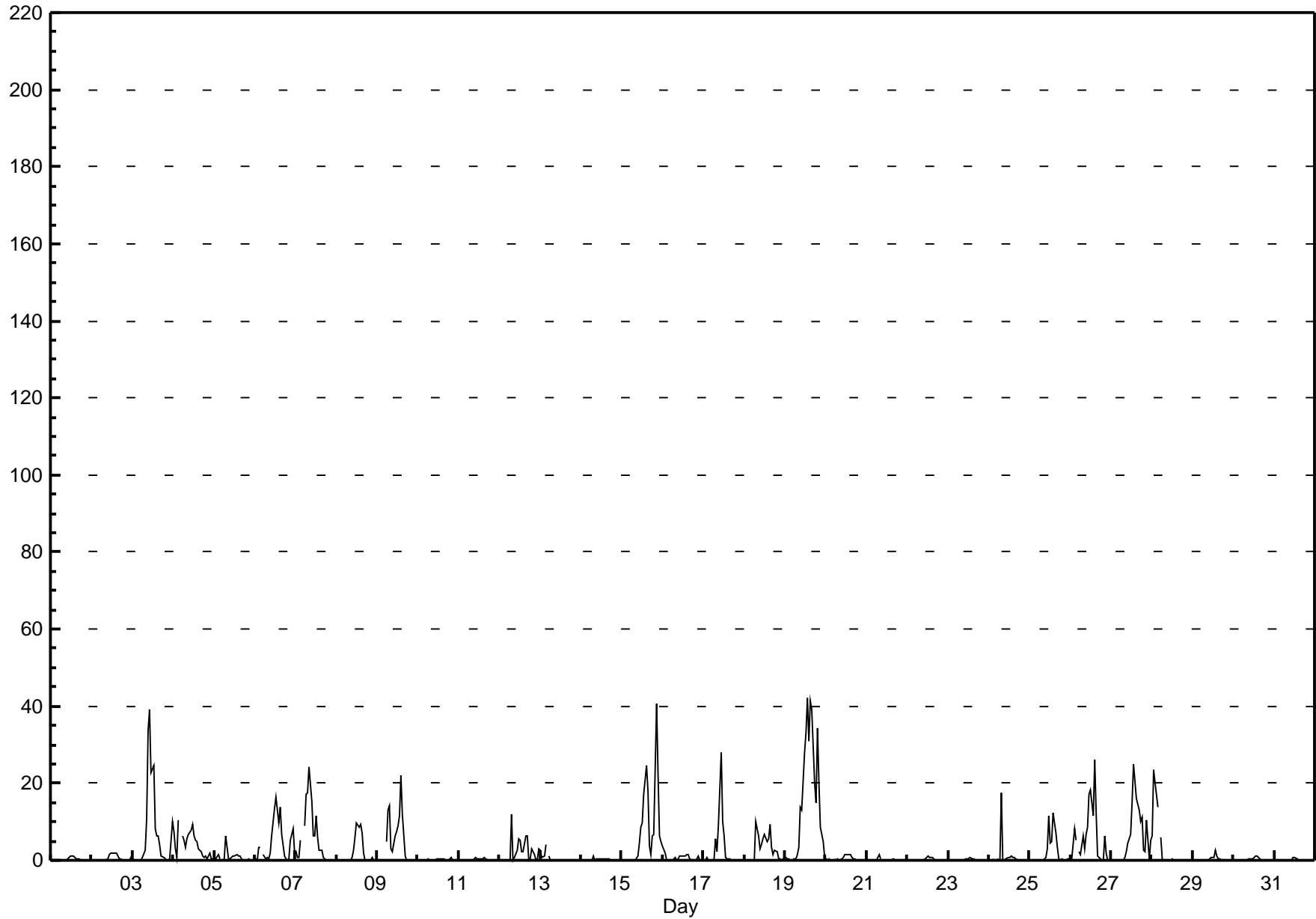
### Beaverlodge - December 2012

Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 42.1 ppb on Dec 19 14:00	Maximum Daily Average: 15.3 ppb on Dec 19		Hours of Data:	707
Minimum Value: 0 ppb on Dec 14 02:00	Minimum Daily Average: 0.1 ppb on Dec 31		Hours of Missing Data:	37
Maximum Diurnal Average: 6.3 ppb at hour 15	Minimum Diurnal Average: 0.7 ppb at hour 23		Hours of Calibration:	37
Monthly Average: 2.70 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 8.7 P <sub>99</sub> = 33.2		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	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.3	1.0
2-Dec	0	0	0	0	A	0	0	0	0	0	1	2	2	2	2	1	0	0	0	0	0	0	0	1	0.5	1.9
3-Dec	0	0	0	0	A	0	1	3	11	34	39	23	25	8	6	6	4	1	1	0	0	0	0	10	7.5	39.3
4-Dec	7	3	1	10	A	6	5	3	5	7	8	9	6	5	5	3	2	1	1	1	0	2	0	0	4.0	10.3
5-Dec	0	0	1	0	A	0	0	6	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.8	6.3
6-Dec	0	0	3	3	A	1	0	1	0	2	6	13	17	13	10	14	7	1	0	0	0	5	8	2	4.7	16.5
7-Dec	2	1	1	5	A	9	17	17	24	15	6	6	11	6	3	2	1	0	0	0	0	0	0	0	5.6	24.2
8-Dec	0	0	0	0	A	0	0	0	0	1	3	6	10	8	9	7	2	0	0	0	0	1	0	0	2.1	9.5
9-Dec	0	0	0	0	A	5	13	14	3	2	6	7	9	12	22	12	1	0	0	0	0	0	0	0	4.7	21.9
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0.7
11-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0.2	0.7
12-Dec	0	0	0	0	A	0	0	12	0	1	3	6	5	2	2	6	6	0	0	3	1	0	0	3	2.3	11.9
13-Dec	3	1	1	4	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	4.0
14-Dec	0	0	0	0	A	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	1.1
15-Dec	0	0	0	0	A	0	0	0	0	1	5	9	10	17	25	18	4	1	6	7	41	22	6	5	7.7	40.8
16-Dec	4	2	0	0	A	0	0	1	0	0	1	1	1	1	1	1	0	0	0	0	0	1	0	0	0.7	3.7
17-Dec	0	0	1	0	A	0	0	6	2	9	28	10	6	1	1	0	0	0	0	0	0	0	0	0	2.8	28.0
18-Dec	0	0	0	0	A	0	0	10	6	3	4	6	7	5	6	9	3	1	3	2	0	0	0	1	2.9	10.2
19-Dec	1	0	0	0	A	0	0	1	3	14	13	28	33	42	31	42	39	20	15	34	20	9	5	1	15.3	42.1
20-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.4	1.4
21-Dec	0	0	0	0	A	0	0	2	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	--	1.5
22-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0.2	1.0
23-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.1	0.6
24-Dec	0	0	0	0	A	0	0	18	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1.0	17.6
25-Dec	0	0	0	0	A	0	0	0	0	1	3	11	5	5	12	7	3	0	0	0	0	0	0	0	2.1	12.4
26-Dec	0	0	8	5	A	2	2	6	3	7	9	17	18	11	26	12	1	1	0	0	6	2	0	0	6.0	26.2
27-Dec	0	0	0	0	A	0	0	0	1	2	5	7	15	25	20	16	13	10	11	3	2	11	1	5	6.4	24.9
28-Dec	6	23	20	14	A	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.1	23.5
29-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	3	1	0	0	0	0	0	0	0	0	0	0.3	2.6
30-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0.2	1.3
31-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	0.1	0.7
	0.8	1.0	1.2	1.4	--	1.1	1.3	3.3	2.0	3.4	4.9	5.7	6.3	5.8	6.3	5.3	2.9	1.2	1.3	1.7	2.4	1.7	0.7	0.9	Diurnal Average	
	7.4	23.5	20.0	13.9	--	9.0	17.1	17.6	24.2	33.6	39.3	27.9	33.1	42.1	30.9	41.5	39.3	20.2	14.9	34.4	40.8	22.3	8.1	10.1	Diurnal Maximum	

C - Calibration                      A - Automated Daily Zero Span





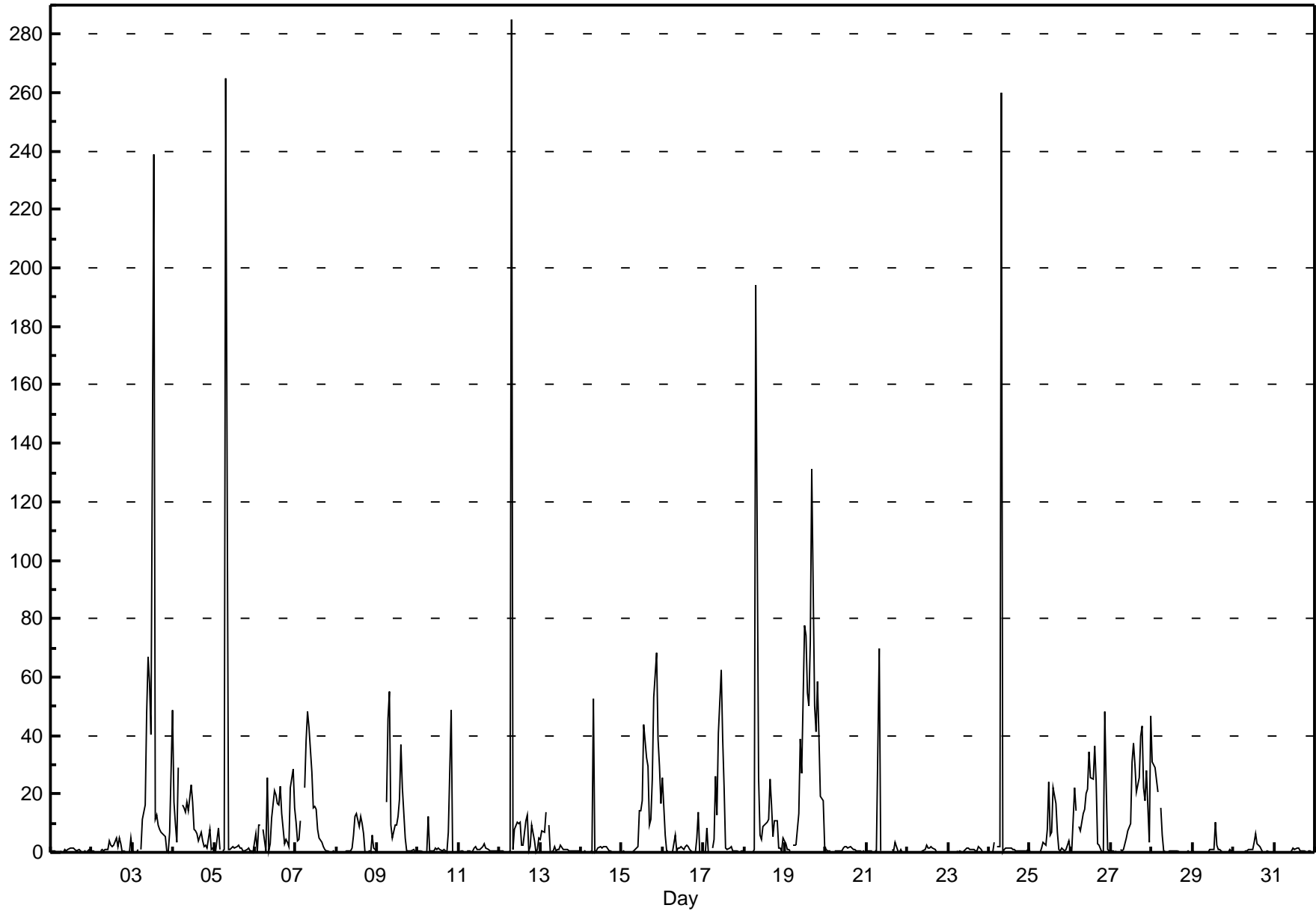
## Hourly Maximums

## Nitrogen Oxide (NO) - ppb Beaverlodge - December 2012

Maximum Value: 285.2 ppb on Dec 12 08:00		Maximum Daily Average: 34.1 ppb on Dec 19		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 31 04:00		Minimum Daily Average: 0.4 ppb on Dec 31		Hours of Data: 707																						
Maximum Diurnal Average: 43.4 ppb at hour 8		Minimum Diurnal Average: 2.1 ppb at hour 2		Hours of Missing Data: 37																						
Monthly Average: 8.36 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.3 Median = 0.9 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 22.4 P <sub>99</sub> = 46.8		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	1	0	1	2	1	2	1	1	1	0	0	0	0	0	1	1	0.7	1.6
2-Dec	1	0	0	0	A	0	1	0	1	1	4	2	2	2	5	2	5	3	0	1	0	0	0	5	1.6	5.1
3-Dec	1	0	0	1	A	1	11	16	48	67	58	40	239	11	13	9	8	7	6	6	1	0	7	49	26.0	239.1
4-Dec	17	10	3	29	A	16	15	14	17	14	23	17	8	8	6	4	7	4	2	2	1	8	1	2	10.0	28.9
5-Dec	1	1	8	1	A	1	1	265	1	1	2	2	2	2	3	2	2	1	1	1	2	0	1	0	12.9	264.8
6-Dec	6	0	9	9	A	8	1	26	1	3	12	21	20	17	16	23	13	3	4	3	2	22	28	15	11.4	28.4
7-Dec	10	4	4	11	A	22	38	48	43	27	15	16	15	8	5	3	2	1	1	1	0	0	1	0	12.0	48.2
8-Dec	1	0	0	0	A	0	1	1	0	1	6	12	13	9	12	10	6	0	0	0	0	6	1	0	3.6	13.1
9-Dec	0	0	0	0	A	17	46	55	9	5	9	9	13	18	37	22	5	0	1	1	0	1	0	0	10.9	55.1
10-Dec	0	1	1	0	A	0	12	1	0	1	1	1	2	1	0	1	1	0	7	48	0	0	0	0	3.4	48.5
11-Dec	0	0	0	0	A	0	0	0	1	1	2	1	1	2	3	1	1	0	0	0	0	0	1	0	0.8	3.0
12-Dec	1	0	0	0	A	0	0	285	1	8	10	10	10	3	3	11	13	0	2	10	4	0	1	5	16.4	285.2
13-Dec	4	7	7	14	A	9	0	1	2	1	1	1	3	1	1	1	1	0	1	0	1	1	1	0	2.5	13.8
14-Dec	0	0	0	0	A	1	0	53	0	1	1	2	2	2	2	2	1	1	0	0	0	0	0	0	2.9	52.7
15-Dec	0	0	0	0	A	0	0	0	1	2	14	14	18	44	32	30	10	11	25	53	68	39	29	17	17.8	68.4
16-Dec	26	6	0	0	A	0	0	6	0	1	2	2	1	2	2	2	1	0	0	0	5	14	0	0	3.2	25.8
17-Dec	0	1	8	0	A	1	5	26	13	41	62	39	22	1	1	1	2	0	0	1	0	0	0	0	9.8	62.4
18-Dec	0	0	0	0	A	0	1	194	26	6	5	9	9	10	11	25	16	5	11	11	1	2	1	5	15.1	194.0
19-Dec	3	1	1	0	A	2	2	8	13	39	27	77	74	55	50	72	131	50	41	59	40	19	18	2	34.1	131.3
20-Dec	1	0	1	0	A	0	0	1	1	1	1	2	2	2	2	1	1	1	1	0	1	0	0	0	0.8	2.1
21-Dec	0	0	0	0	A	0	1	70	1	C	C	C	C	C	C	1	1	4	0	0	1	0	0	0	--	69.7
22-Dec	0	0	0	0	A	0	0	0	0	0	1	2	2	1	2	1	1	0	0	0	0	0	0	0	0.5	2.4
23-Dec	0	0	0	0	A	0	0	1	0	0	1	2	1	1	1	1	1	1	2	1	0	0	0	0	0.6	1.9
24-Dec	0	0	0	4	A	2	2	260	0	1	1	1	1	1	1	1	1	0	1	0	1	0	1	2	12.3	260.1
25-Dec	0	0	0	0	A	0	0	1	4	3	8	24	6	7	22	17	7	1	1	2	1	1	2	4	4.7	24.1
26-Dec	0	1	22	14	A	9	7	13	15	20	22	34	25	25	36	24	3	2	0	1	48	22	1	0	15.1	48.2
27-Dec	0	0	0	1	A	1	0	1	3	5	7	10	31	37	30	21	26	40	43	22	18	28	3	47	16.2	46.5
28-Dec	31	30	29	21	A	15	6	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	6.0	30.8
29-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	10	2	1	1	0	0	0	0	0	1	0	0.9	10.4
30-Dec	0	0	0	0	A	0	0	1	0	1	1	1	3	6	3	2	1	0	0	0	0	0	0	0	0.9	6.4
31-Dec	0	0	0	0	A	0	0	0	0	0	0	2	1	1	1	0	0	0	0	0	0	1	0	0	0.4	1.7
		3.4	2.1	3.2	3.5	--	3.5	4.9	43.4	6.5	8.4	10.0	11.9	17.6	9.6	10.2	9.5	8.6	4.5	4.8	7.2	6.3	5.4	3.2	5.0	Diurnal Average
		30.8	30.0	29.0	28.9	--	22.3	45.8	285.2	47.8	66.9	62.4	77.5	239.1	54.6	49.9	72.0	131.3	50.3	43.2	58.5	68.4	38.7	29.4	48.6	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

### Hourly Maximums

Nitrogen Oxide (NO) - ppb  
Beaverlodge - December 2012

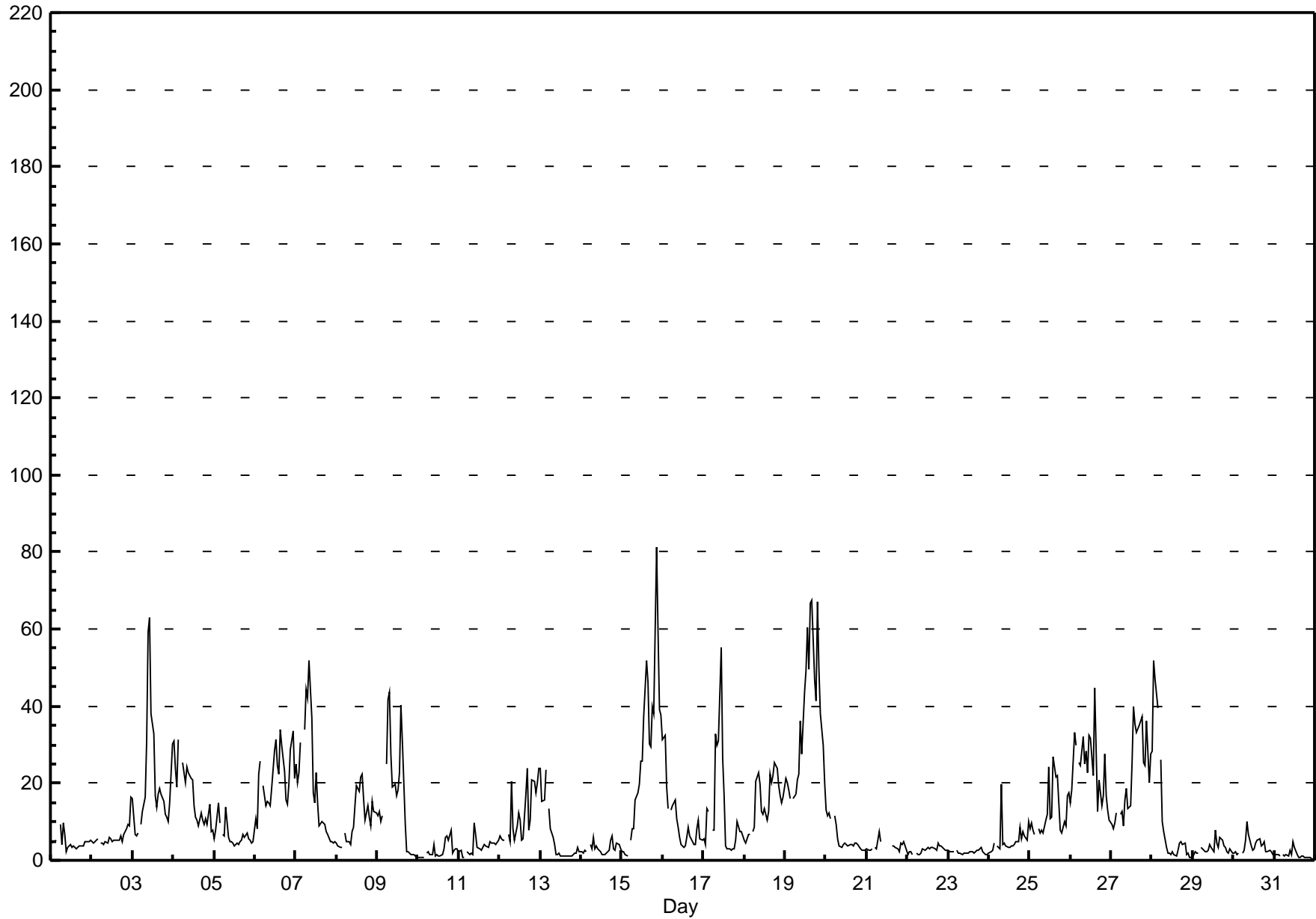


## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Beaverlodge - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 81.1 ppb on Dec 15 21:00      Maximum Daily Average: 36.8 ppb on Dec 19		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 Jan 1 00:00 Maximum Diurnal Average: 13.7 ppb at hour 16 Monthly Average: 11.30 ppb		Minimum Daily Average: 1.4 ppb on Dec 31 Minimum Diurnal Average: 9.6 ppb at hour 2 Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 3.0 Median = 5.8 Q <sub>3</sub> = 15.9 P <sub>90</sub> = 28.5 P <sub>99</sub> = 58.6																								
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	4	5	5	5	A	9	4	10	7	2	3	4	4	3	3	4	4	4	4	5	5	5	5	4.7	9.6	
2-Dec	5	5	5	6	A	4	4	4	5	5	6	6	5	5	5	5	6	5	7	8	9	9	16	6.1	16.3	
3-Dec	16	7	6	7	A	9	13	16	31	59	63	38	33	17	14	17	19	17	15	12	11	10	15	30	20.7	63.2
4-Dec	31	24	19	31	A	25	23	20	24	23	21	21	14	11	10	9	12	10	9	11	9	15	7	8	16.9	31.2
5-Dec	6	8	15	10	A	7	6	14	6	5	5	4	4	4	5	5	7	6	7	6	5	4	5	6.4	15.1	
6-Dec	11	8	22	26	A	19	14	15	15	14	19	28	31	25	22	34	30	23	16	15	20	29	34	21	21.3	33.8
7-Dec	25	20	23	31	A	34	44	42	52	37	18	15	23	15	9	10	10	9	7	7	5	5	4	5	19.5	51.9
8-Dec	4	4	3	3	A	7	5	5	4	7	9	14	19	18	22	23	16	10	14	11	9	15	13	12	10.8	22.5
9-Dec	11	13	10	11	A	25	42	44	27	19	20	17	18	23	40	31	10	2	2	2	2	1	1	1	16.2	43.7
10-Dec	1	1	1	1	A	2	2	1	1	4	1	1	1	1	1	3	6	6	5	8	2	2	3	3	2.5	7.8
11-Dec	2	3	1	1	A	2	1	2	2	10	7	3	3	3	4	4	4	3	5	5	4	4	4	5	3.5	9.6
12-Dec	6	6	5	5	A	7	5	21	8	5	9	12	10	5	6	17	24	8	10	21	21	18	20	24	11.8	24.0
13-Dec	24	15	16	24	A	13	8	6	4	2	1	2	1	1	1	1	1	1	1	2	2	2	3	2	5.8	24.0
14-Dec	2	2	3	2	A	4	3	6	3	4	3	2	1	1	1	2	2	5	6	3	3	4	4	3	3.1	6.4
15-Dec	2	2	2	1	A	5	8	8	16	17	20	26	26	37	52	46	30	29	40	38	81	59	39	38	27.2	81.1
16-Dec	31	32	19	14	A	13	14	15	11	9	6	4	3	4	6	9	6	5	4	4	8	11	5	5	10.4	32.5
17-Dec	6	4	14	13	A	8	8	33	30	31	55	26	17	4	3	3	3	3	3	5	10	7	7	6	13.0	55.3
18-Dec	5	4	7	7	A	7	8	21	23	20	13	12	13	10	13	23	20	22	26	24	19	17	15	16	15.0	25.5
19-Dec	21	20	18	16	A	16	17	21	22	36	28	43	49	61	50	67	67	47	41	67	50	38	30	20	36.8	67.5
20-Dec	13	12	12	11	A	12	9	6	4	4	4	5	4	4	4	4	4	4	5	4	3	3	2	2	5.8	12.9
21-Dec	3	2	2	3	A	4	3	8	5	C	C	C	C	C	C	4	4	3	3	2	4	4	5	3	--	7.5
22-Dec	1	2	2	2	A	2	2	1	2	3	3	3	3	3	3	3	3	3	5	4	4	3	3	3	2.7	4.5
23-Dec	2	2	2	2	A	3	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	1	2	2.1	3.4
24-Dec	2	2	2	5	A	4	3	20	4	4	4	3	3	4	4	4	5	5	9	6	8	6	5	10	5.3	19.9
25-Dec	8	10	8	7	A	8	7	8	7	10	12	24	11	11	27	22	22	15	8	7	10	9	17	18	12.4	26.9
26-Dec	15	18	33	30	A	26	25	32	25	28	23	33	32	22	45	29	13	21	14	17	28	17	13	11	23.8	44.8
27-Dec	9	8	10	12	A	12	13	9	16	19	13	14	25	40	35	33	35	36	37	25	25	36	20	28	22.2	40.0
28-Dec	28	52	47	40	A	26	10	7	3	2	2	2	2	1	3	4	5	4	4	1	2	1	1	1	10.8	51.8
29-Dec	1	2	2	2	A	3	3	2	2	3	4	3	2	8	4	3	6	5	4	3	2	2	3	2	3.2	7.8
30-Dec	2	2	1	2	A	2	3	5	10	7	4	2	3	5	5	6	4	4	5	2	2	2	2	1	3.5	10.2
31-Dec	1	1	2	1	A	1	1	1	1	3	2	5	3	2	1	1	1	1	1	1	1	1	1	0	1.4	4.7
		9.7	9.6	10.3	10.6	--	10.3	10.0	13.1	12.0	13.1	12.6	12.5	12.3	11.6	13.2	13.7	12.1	10.5	10.2	10.6	11.7	11.1	9.6	9.9	Diurnal Average
		31.5	51.8	47.1	39.6	--	33.8	44.2	43.7	51.9	59.3	63.2	43.4	49.1	60.6	51.9	66.8	67.5	46.9	41.3	67.2	81.1	59.3	39.2	37.7	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								



## Hourly Maximums

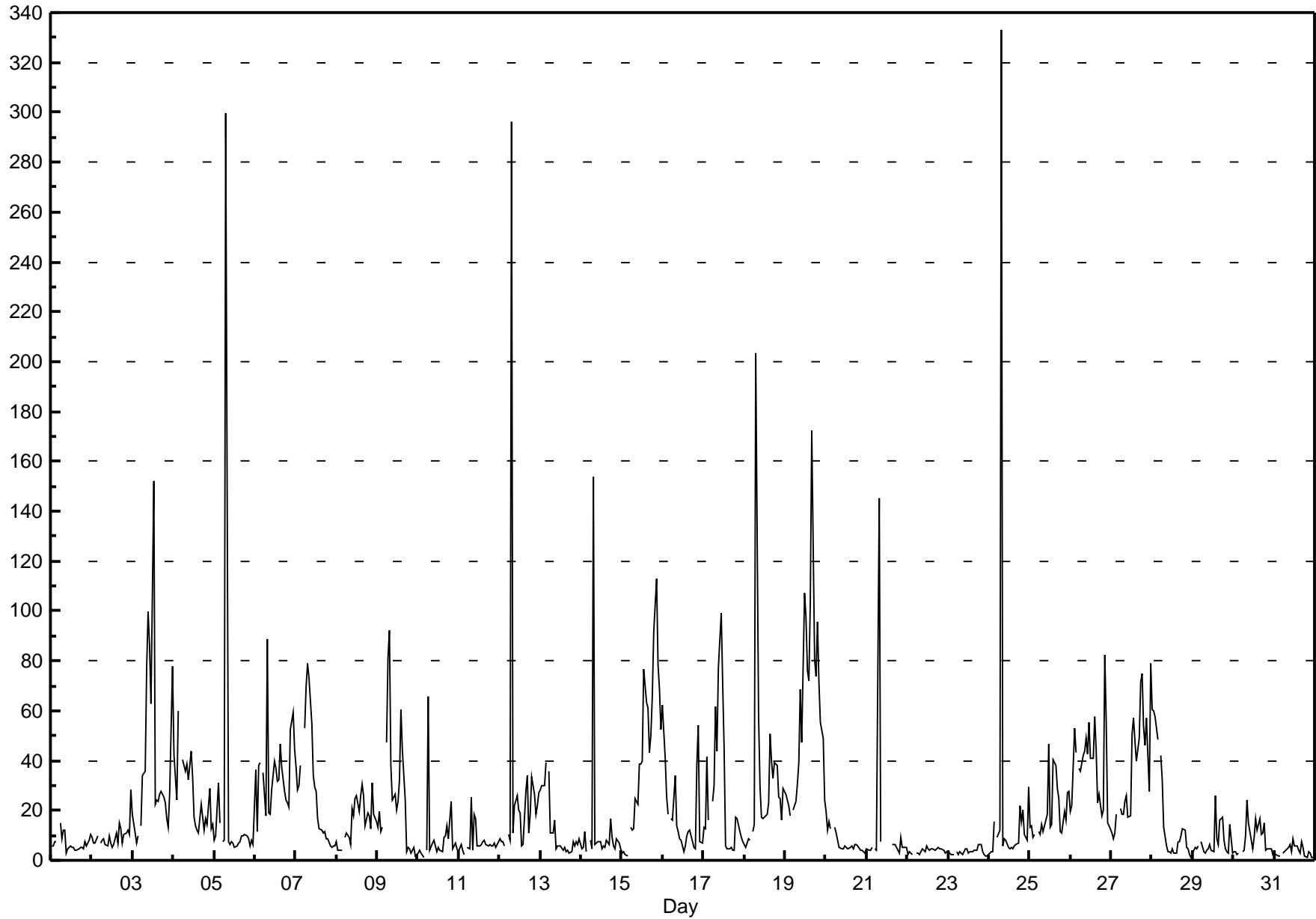
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Beaverlodge - December 2012

Maximum Value: 333.1 ppb on Dec 24 08:00		Maximum Daily Average: 60.8 ppb on Dec 19		Hours in Service: 744																						
Minimum Value: 1 ppb on Dec 10 04:00		Minimum Daily Average: 3.4 ppb on Dec 23		Hours of Data: 707																						
Maximum Diurnal Average: 67.4 ppb at hour 8		Minimum Diurnal Average: 13.2 ppb at hour 2		Hours of Missing Data: 37																						
Monthly Average: 20.91 ppb		Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 3.4 Q <sub>1</sub> = 5.1 Median = 10.4 Q <sub>3</sub> = 25.8 P <sub>90</sub> = 49.0 P <sub>99</sub> = 151.3		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	6	6	8	7	A	15	9	12	12	3	5	6	5	5	4	4	5	5	5	5	7	6	8	11	6.8	14.9
2-Dec	9	7	7	10	A	7	8	8	6	6	10	7	5	7	11	7	15	13	7	11	11	12	10	28	9.7	28.4
3-Dec	18	11	7	10	A	14	34	36	77	99	87	63	152	22	24	23	26	28	26	23	17	13	27	78	39.7	152.2
4-Dec	43	33	24	60	A	40	38	35	39	32	44	33	18	14	12	11	22	17	12	17	14	29	13	14	26.8	59.7
5-Dec	8	10	31	15	A	8	8	300	8	6	8	7	5	6	7	7	10	10	11	10	9	6	8	6	21.9	299.9
6-Dec	36	11	38	39	A	35	18	88	19	18	28	40	37	31	32	47	37	28	24	23	21	52	59	44	35.2	88.5
7-Dec	38	28	30	38	A	53	70	79	73	55	34	30	28	16	13	12	11	11	9	9	6	5	6	6	28.6	79.0
8-Dec	7	4	4	4	A	9	11	9	7	21	18	25	26	19	26	31	26	14	19	18	13	31	19	16	16.3	31.3
9-Dec	13	19	12	13	A	47	81	92	38	24	27	20	23	32	60	45	24	3	5	5	3	5	2	2	26.0	92.3
10-Dec	3	4	3	1	A	4	66	4	7	8	6	4	5	4	3	9	10	14	9	24	5	6	7	4	9.1	65.8
11-Dec	3	6	4	3	A	5	4	26	4	19	17	6	6	7	7	8	6	6	7	6	6	7	5	8	7.6	25.6
12-Dec	8	8	7	6	A	11	8	296	11	22	26	20	19	6	7	27	34	11	19	33	27	18	22	27	29.3	296.4
13-Dec	28	30	30	39	A	35	11	11	16	5	6	6	5	4	5	4	4	3	3	7	6	8	6	9	12.2	39.4
14-Dec	5	5	12	3	A	8	5	154	6	7	7	7	5	6	5	8	6	17	9	6	5	8	7	4	13.3	153.8
15-Dec	3	3	2	2	A	13	12	13	25	22	39	39	40	76	63	61	43	50	65	92	113	79	69	52	42.5	112.7
16-Dec	62	41	25	18	A	17	16	34	14	12	8	8	4	6	10	11	12	7	5	5	38	54	8	7	18.4	62.2
17-Dec	13	13	42	16	A	23	30	61	44	77	99	71	45	6	4	5	5	4	4	17	17	11	9	7	27.2	99.3
18-Dec	6	5	9	8	A	12	14	203	58	29	17	17	18	23	51	40	33	39	38	25	25	16	29	31.8	203.3	
19-Dec	27	24	22	18	A	20	24	30	39	69	47	107	97	76	72	104	173	81	74	96	71	55	49	24	60.8	172.6
20-Dec	20	12	16	13	A	13	11	8	5	5	5	6	5	4	5	6	5	6	6	6	4	4	3	3	7.4	19.6
21-Dec	5	4	4	5	A	5	4	145	7	C	C	C	C	C	C	6	6	6	4	3	9	5	5	5	--	145.1
22-Dec	2	3	3	2	A	3	3	3	4	5	4	5	5	4	5	5	4	5	5	5	4	4	3	3	3.8	5.5
23-Dec	3	3	2	2	A	4	2	3	2	4	5	5	3	3	3	4	4	4	6	6	3	2	2	2	3.4	6.5
24-Dec	3	3	3	16	A	9	12	333	6	9	8	5	5	5	4	6	7	7	22	16	20	10	8	29	23.7	333.1
25-Dec	13	14	9	10	A	12	11	14	12	16	18	46	13	15	40	38	29	25	12	11	20	16	27	28	19.5	46.5
26-Dec	19	22	53	43	A	37	35	42	44	49	42	55	41	41	58	44	23	27	18	20	82	56	15	14	38.3	82.2
27-Dec	11	9	11	18	A	21	18	19	24	26	17	18	51	57	48	40	49	72	75	53	46	57	28	79	36.7	78.9
28-Dec	60	60	58	48	A	42	32	13	6	3	3	3	4	3	3	8	7	10	13	12	5	5	2	1	17.5	60.4
29-Dec	3	5	4	6	A	8	3	3	4	5	6	4	3	26	8	6	16	17	8	4	3	3	14	3	7.1	25.8
30-Dec	3	4	3	3	A	3	4	10	24	15	8	4	9	17	12	17	10	11	15	4	5	5	4	2	8.3	24.4
31-Dec	3	3	2	2	A	3	4	4	5	6	3	9	6	6	4	3	7	5	2	1	3	3	1	1	3.8	8.8
		15.6	13.2	15.6	15.5	--	17.3	19.6	67.4	20.8	22.5	21.7	22.5	22.9	18.1	19.3	21.2	21.9	17.7	17.3	18.8	19.9	19.4	14.9	17.7	Diurnal Average
		62.2	59.8	57.8	59.7	--	53.0	81.4	333.1	77.1	99.4	99.3	107.5	152.2	76.5	72.0	103.6	172.6	80.9	75.1	95.9	112.7	78.6	68.7	78.9	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

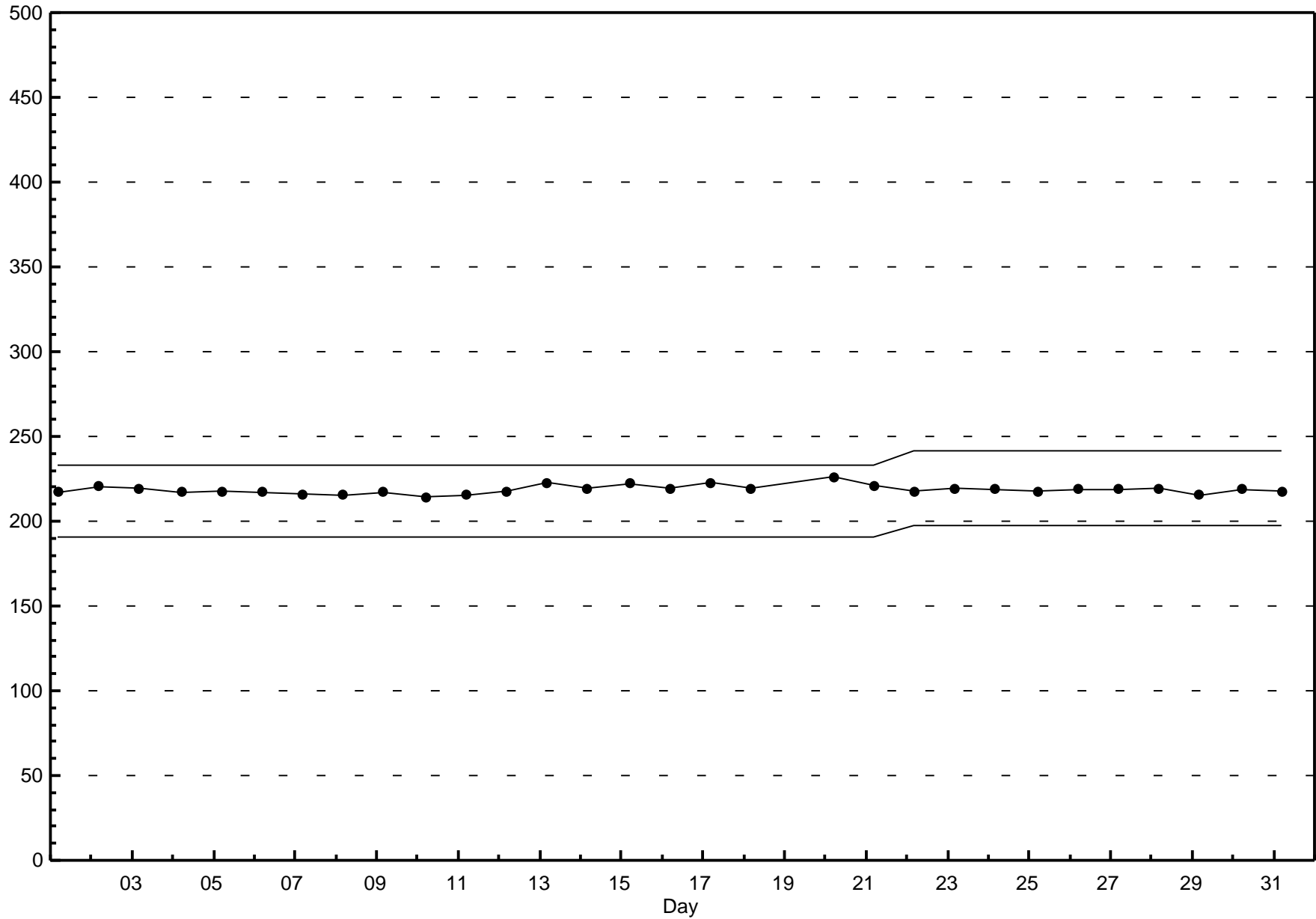
### Hourly Maximums

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Beaverlodge - December 2012



### Span Responses

Oxides of Nitrogen (NO<sub>x</sub>)  
Beaverlodge - December 2012





## Hourly Averages

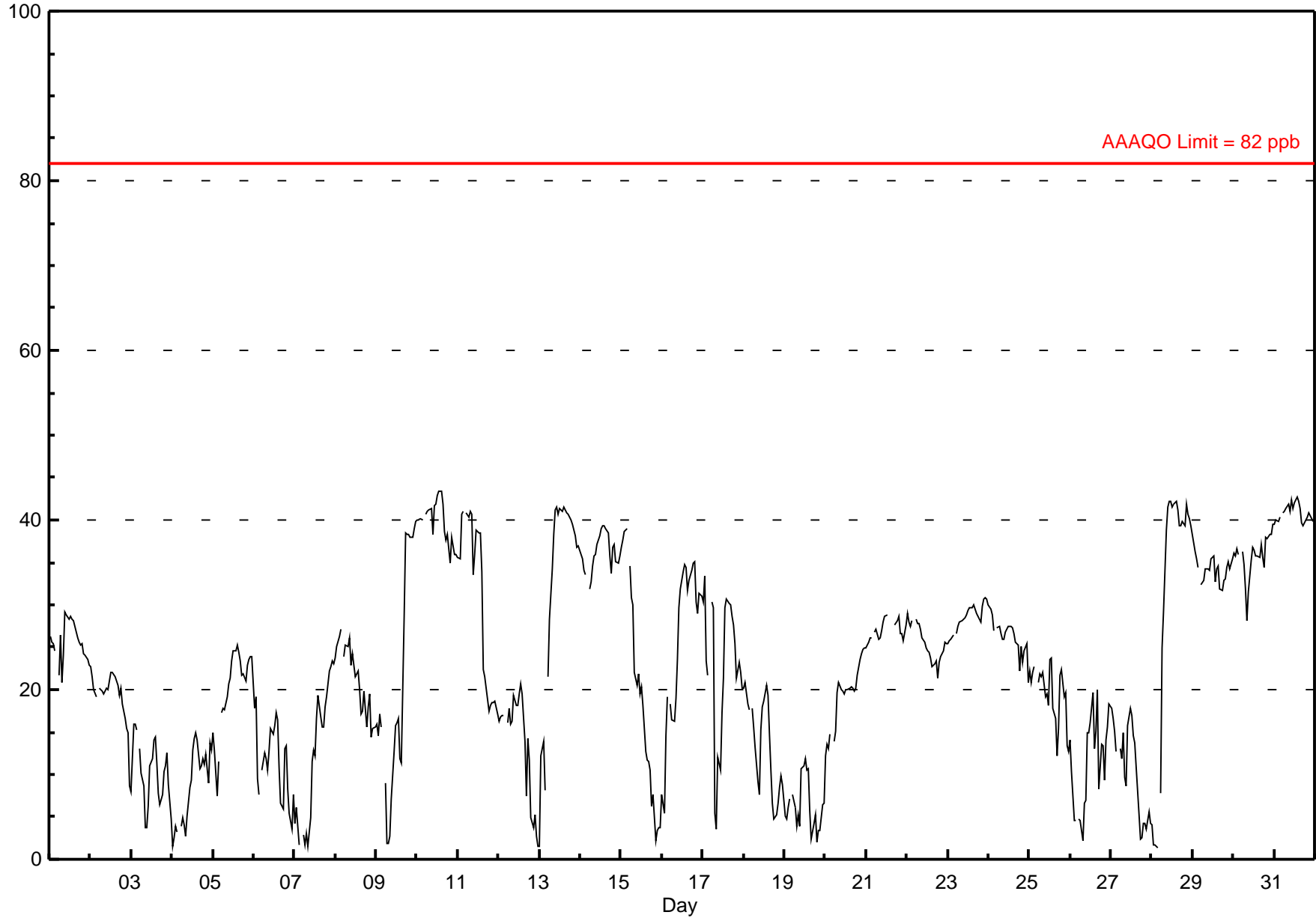
Ozone (O<sub>3</sub>) - ppb

Beaverlodge - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 43.4 ppb on Dec 10 14:00	Maximum Daily Average: 40.8 ppb on Dec 31		Hours of Data:	709
Minimum Value: 1 ppb on Dec 28 04:00	Minimum Daily Average: 6.3 ppb on Dec 19		Hours of Missing Data:	35
Maximum Diurnal Average: 26.2 ppb at hour 14	Minimum Diurnal Average: 20.8 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 22.57 ppb	Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 6.2 Q <sub>1</sub> = 13.9 Median = 22.0 Q <sub>3</sub> = 31.6 P <sub>90</sub> = 39.3 P <sub>99</sub> = 42.2		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	26	26	25	25	A	22	26	21	24	29	29	28	29	28	27	26	26	25	25	24	24	24	23	25.7	29.1	
2-Dec	23	21	20	19	A	20	20	20	20	20	20	21	22	22	22	21	20	19	20	18	17	16	15	9	19.3	22.7
3-Dec	8	16	16	15	A	13	10	9	4	4	6	11	12	14	14	11	8	6	8	10	11	13	9	5	10.1	16.0
4-Dec	2	3	4	3	A	4	5	4	3	5	8	9	13	14	15	14	11	11	12	11	12	9	14	13	8.6	14.9
5-Dec	15	13	7	11	A	17	18	18	19	21	21	23	25	25	25	24	23	22	22	21	23	24	24	24	20.2	25.3
6-Dec	18	19	10	8	A	11	13	12	11	13	15	15	16	17	16	11	7	6	13	13	8	5	4	8	11.6	19.1
7-Dec	4	6	4	2	A	3	2	3	2	5	12	13	12	17	19	17	16	16	18	19	22	23	23	23	12.1	23.4
8-Dec	24	25	26	27	A	24	25	25	26	23	24	23	22	22	20	17	17	20	16	18	19	14	15	16	21.3	27.1
9-Dec	16	14	17	16	A	9	2	2	3	7	13	16	16	17	12	11	29	39	38	38	38	38	39	40	20.4	39.9
10-Dec	40	40	40	40	A	41	41	41	41	38	42	42	43	43	43	42	39	38	38	35	38	37	36	36	39.7	43.4
11-Dec	36	35	41	41	A	41	40	41	41	34	36	39	39	38	34	22	21	19	18	18	19	18	19	17	30.7	41.0
12-Dec	16	17	17	17	A	16	18	16	16	19	18	18	20	21	19	14	7	14	12	5	4	5	3	2	13.6	20.7
13-Dec	2	12	14	8	A	22	28	34	38	41	42	41	41	41	41	41	41	41	40	39	39	38	37	37	33.0	41.6
14-Dec	36	35	34	34	A	32	33	34	36	36	37	38	39	39	39	39	38	36	34	37	37	35	35	36	36.1	39.4
15-Dec	37	38	39	39	A	35	31	30	22	20	22	20	20	18	13	12	11	10	6	8	2	3	4	4	19.3	38.9
16-Dec	8	5	15	19	A	18	16	16	19	23	30	32	34	35	34	32	33	34	35	35	30	29	31	31	25.9	35.0
17-Dec	30	33	23	22	A	30	30	5	4	12	11	17	21	30	31	30	30	29	28	25	21	23	22	20	23.0	33.4
18-Dec	20	21	18	18	A	18	16	13	9	8	15	18	19	21	19	15	11	7	5	5	7	8	10	9	13.4	20.9
19-Dec	5	5	6	7	A	8	6	4	5	4	11	11	12	10	11	6	2	4	5	2	3	3	6	7	6.3	11.9
20-Dec	12	14	13	15	A	14	15	20	21	20	20	20	20	20	20	20	20	20	20	22	24	24	25	25	19.2	24.9
21-Dec	25	26	26	26	A	27	27	26	26	27	28	29	29	C	C	C	C	28	28	29	27	27	26	28	26.9	28.7
22-Dec	29	28	28	28	A	28	28	28	27	26	26	25	25	24	24	23	23	23	21	23	24	25	26	25	25.5	29.0
23-Dec	25	26	26	26	A	27	27	28	28	28	29	29	29	30	30	30	30	29	29	28	30	31	31	31	28.5	30.9
24-Dec	30	30	29	27	A	27	27	27	26	26	27	27	28	27	27	27	26	25	22	25	23	25	25	21	26.2	29.9
25-Dec	22	21	22	23	A	21	22	21	22	19	20	18	23	24	18	17	12	15	22	22	19	20	13	13	19.5	23.7
26-Dec	14	10	5	5	A	5	5	2	7	7	15	15	16	20	13	15	20	8	14	13	9	14	16	18	11.5	19.9
27-Dec	18	17	15	13	A	13	12	15	10	9	16	18	17	15	14	11	5	2	3	4	4	3	6	4	10.5	17.8
28-Dec	4	2	2	1	A	8	25	29	39	42	42	42	42	42	42	41	39	39	40	39	42	41	40	39	31.4	42.2
29-Dec	38	36	35	34	A	32	33	34	34	34	34	35	36	33	34	35	32	32	33	33	34	35	34	35	34.3	38.3
30-Dec	36	36	37	36	A	36	35	32	28	31	35	37	37	36	36	36	37	36	34	38	38	38	38	39	35.7	39.4
31-Dec	40	40	40	40	A	41	41	41	42	41	42	41	42	43	42	41	40	39	40	40	41	41	40	40	40.8	42.6
	21.2	21.6	21.1	20.8	--	21.3	21.8	21.0	21.0	21.7	24.0	24.9	25.7	26.2	25.2	23.4	22.5	22.3	22.5	22.6	22.2	22.2	22.2	21.8	Diurnal Average	
	40.1	40.1	40.6	41.0	--	40.8	41.0	41.4	41.9	41.6	42.4	42.2	42.8	43.4	43.4	41.8	40.8	40.6	40.1	40.4	41.9	40.7	40.2	39.9	Diurnal Maximum	

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



# Hourly Maximums

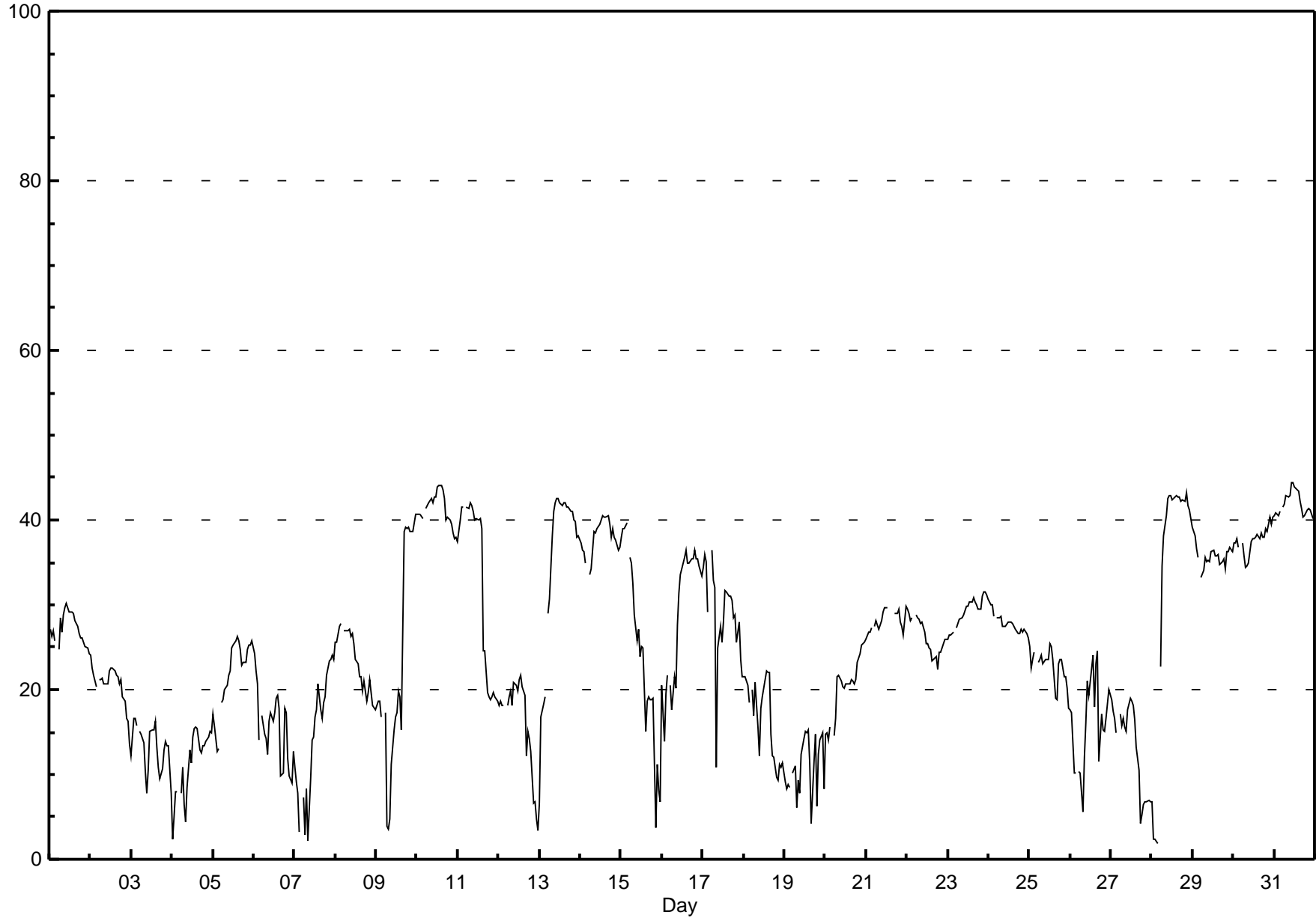
Ozone (O<sub>3</sub>) - ppb

Beaverlodge - December 2012

Maximum Value: 44.4 ppb on Dec 31 11:00		Maximum Daily Average: 41.9 ppb on Dec 31		Hours in Service: 744																							
Minimum Value: 2 ppb on Dec 28 04:00		Minimum Daily Average: 10.8 ppb on Dec 19		Hours of Data: 709																							
Maximum Diurnal Average: 27.9 ppb at hour 14		Minimum Diurnal Average: 22.8 ppb at hour 4		Hours of Missing Data: 35																							
Monthly Average: 25.03 ppb		Percentiles: P <sub>1</sub> = 3.4 P <sub>10</sub> = 10.8 Q <sub>1</sub> = 17.2 Median = 24.5 Q <sub>3</sub> = 35.0 P <sub>90</sub> = 40.4 P <sub>99</sub> = 43.5		Hours of Calibration: 35																							
				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	27	26	27	26	A	25	29	27	29	30	30	29	29	29	28	28	27	26	26	26	25	25	24	27.2	30.1		
2-Dec	24	22	22	20	A	21	21	21	21	21	21	22	23	23	22	22	22	21	21	19	19	17	16	14	20.6	24.0	
3-Dec	12	17	17	16	A	15	15	14	10	8	10	15	15	15	16	13	11	10	11	13	14	13	13	8	13.1	16.7	
4-Dec	2	5	8	8	A	8	11	6	4	8	13	11	14	15	16	15	13	13	13	13	14	14	15	15	11.1	15.6	
5-Dec	17	16	13	13	A	18	19	20	20	22	22	25	25	26	26	26	25	23	23	23	25	25	25	26	21.9	26.2	
6-Dec	24	22	21	14	A	17	15	14	12	16	17	16	17	19	19	18	10	10	18	17	12	10	9	13	15.7	24.3	
7-Dec	11	9	8	3	A	7	3	8	2	10	14	14	17	18	21	18	17	18	19	22	23	24	24	24	14.5	24.1	
8-Dec	26	26	28	28	A	27	27	27	27	26	27	25	24	23	22	22	20	21	19	20	21	20	18	18	23.4	27.8	
9-Dec	18	19	19	17	A	17	4	4	5	11	15	17	17	20	19	15	39	39	39	39	39	40	41	41	23.0	40.6	
10-Dec	41	41	41	40	A	41	42	42	43	42	43	43	44	44	44	44	43	40	40	40	40	39	38	38	41.3	44.1	
11-Dec	38	40	41	42	A	41	41	42	42	41	40	40	40	39	25	25	20	19	19	19	20	19	19	19	32.6	42.0	
12-Dec	18	19	18	18	A	18	19	20	18	21	20	20	21	22	20	19	12	15	14	13	7	7	5	3	16.0	21.6	
13-Dec	7	17	18	19	A	29	31	38	41	42	43	43	42	42	42	42	42	41	41	41	40	40	38	38	35.5	42.6	
14-Dec	37	36	36	35	A	34	34	36	39	38	39	39	40	40	40	40	40	39	38	39	38	38	36	37	37.9	40.5	
15-Dec	38	39	39	40	A	36	35	33	29	26	27	24	25	25	15	19	19	19	19	19	4	11	8	7	24.1	39.6	
16-Dec	20	14	20	22	A	21	18	22	20	28	31	34	35	36	36	35	35	35	35	36	35	35	35	33	29.2	36.5	
17-Dec	34	36	35	29	A	36	33	32	11	25	27	26	28	32	31	31	31	30	28	29	26	28	24	22	28.9	36.4	
18-Dec	22	22	21	19	A	20	17	21	16	12	18	19	20	22	22	22	15	12	12	10	9	11	11	11	16.6	22.1	
19-Dec	9	8	9	8	A	10	11	6	9	8	12	14	15	15	15	11	4	12	15	6	12	14	15	8	10.8	15.2	
20-Dec	15	15	14	16	A	15	17	22	22	21	20	20	21	21	21	21	21	21	21	23	24	25	25	26	20.2	25.7	
21-Dec	26	27	27	27	A	28	28	27	28	28	29	30	30	C	C	C	C	29	29	29	28	27	26	30	28.0	29.9	
22-Dec	29	29	28	29	A	29	28	28	28	28	27	25	25	25	25	23	24	24	22	24	24	25	26	26	26.2	29.4	
23-Dec	26	26	26	27	A	27	28	28	29	29	29	30	30	30	30	31	30	30	29	29	31	31	31	31	29.2	31.5	
24-Dec	31	30	30	29	A	29	29	29	27	28	28	28	28	28	28	27	27	27	27	27	27	27	26	26	27.8	30.6	
25-Dec	25	23	24	24	A	23	24	24	23	24	24	24	25	25	24	19	19	23	23	24	22	22	20	18	22.8	25.4	
26-Dec	18	17	10	10	A	10	10	6	12	16	21	19	21	24	18	23	24	12	17	15	15	17	18	20	16.3	24.5	
27-Dec	19	18	17	15	A	17	16	17	16	15	18	19	19	18	16	13	11	4	5	6	7	7	7	7	13.2	19.0	
28-Dec	7	2	2	2	A	23	34	38	41	42	43	43	42	43	43	43	43	42	42	42	43	42	41	40	34.1	43.2	
29-Dec	39	38	37	36	A	33	34	36	35	35	35	36	36	36	36	36	35	35	35	34	36	36	37	36	35.8	39.2	
30-Dec	37	37	38	37	A	37	36	34	35	35	37	38	38	38	38	38	38	38	38	39	39	40	39	40	37.6	40.4	
31-Dec	40	41	41	41	A	41	42	43	43	43	44	44	44	44	43	42	41	40	40	41	41	41	41	40	41.9	44.4	
		23.8	23.7	23.6	22.8	--	24.3	24.1	24.7	23.7	25.1	26.6	26.9	27.4	27.9	27.3	26.0	25.4	24.8	25.2	25.1	24.5	24.8	24.3	23.8	Diurnal Average	
		40.6	40.8	41.5	41.5	--	41.5	41.9	42.9	42.7	42.9	44.4	44.4	43.9	44.1	44.1	43.6	42.8	42.3	42.3	42.2	43.2	41.8	41.2	40.6	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

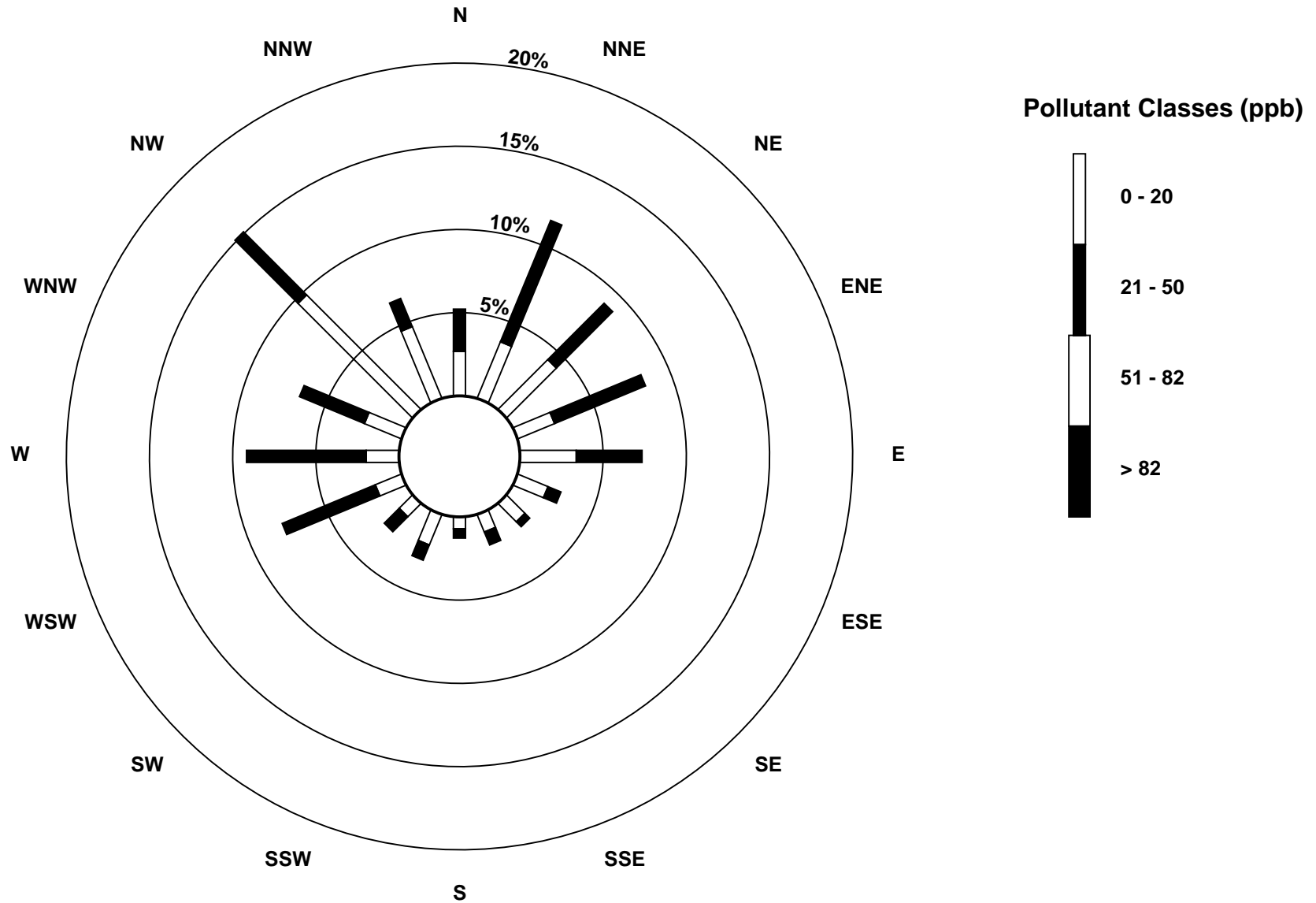
# Hourly Maximums

Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - December 2012



**Pollutant Rose**

Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - December 2012



## Eight Hour Running Averages

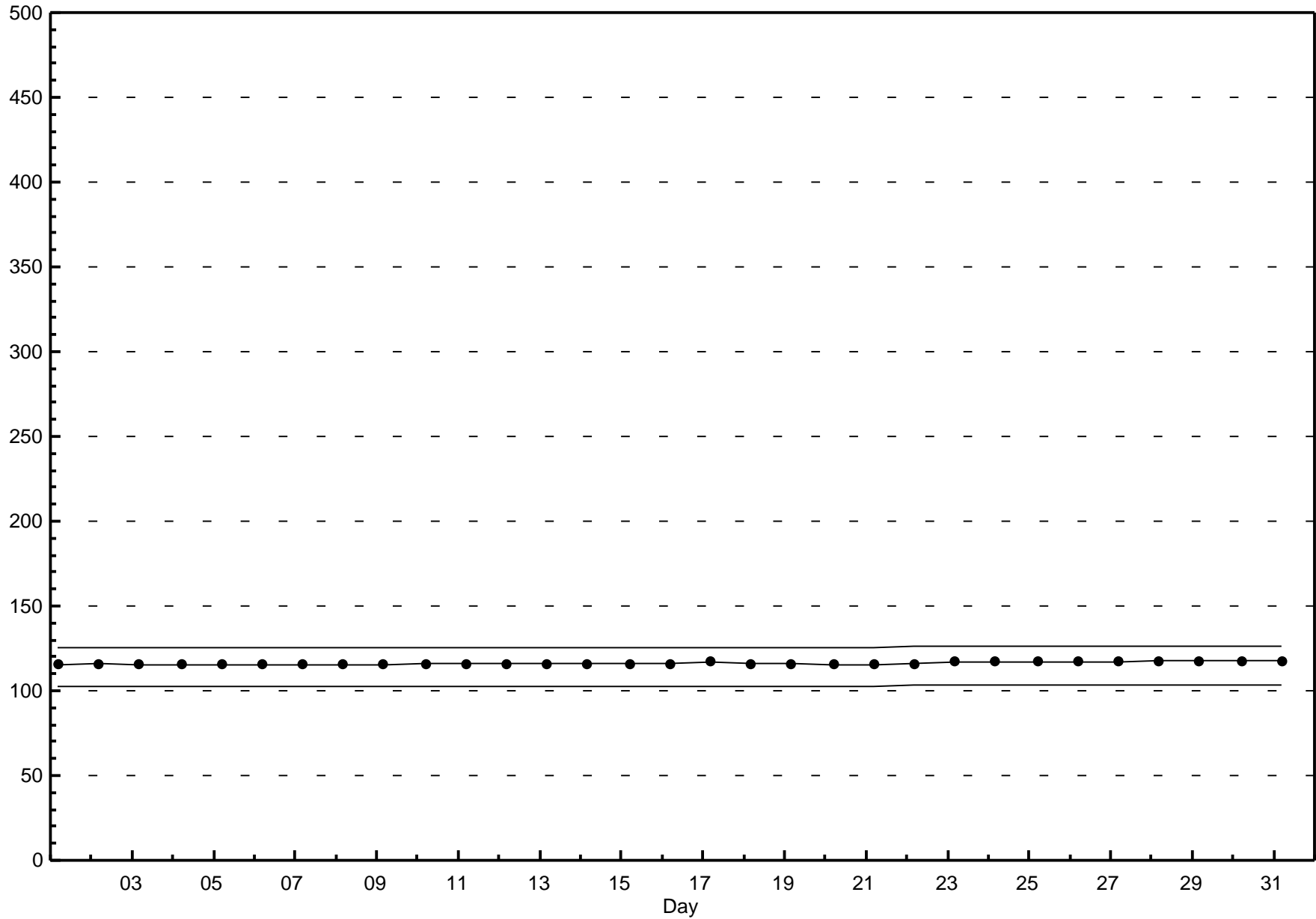
Ozone (O<sub>3</sub>) - ppb

Beaverlodge - December 2012

Maximum Value: 41.9 ppb on Dec 31 15:00																					Hours in Service:	744			
Minimum Value: 2.8 ppb on Dec 7 10:00																					Hours of Data:	737			
Percentiles: P <sub>1</sub> = 3.6 P <sub>10</sub> = 7.7 Q <sub>1</sub> = 13.6 Median = 22.1 Q <sub>3</sub> = 31.3 P <sub>90</sub> = 38.5 P <sub>99</sub> = 41.4																					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	26	26	26	26	26	25	25	24	24	25	25	26	26	27	27	28	28	28	27	27	26	26	25	25	28.1
2-Dec	24	24	23	22	22	21	21	20	20	20	20	20	21	21	21	21	21	21	21	21	20	19	18	17	24.2
3-Dec	15	15	14	14	13	13	12	12	12	10	9	8	9	9	9	10	10	10	11	10	10	10	9	9	15.1
4-Dec	8	7	7	6	5	4	4	3	4	4	5	5	6	8	9	10	11	12	12	13	13	12	12	12	12.6
5-Dec	12	12	12	12	12	13	14	14	15	16	18	20	20	21	22	23	23	24	24	23	23	23	23	23	23.7
6-Dec	22	22	20	19	18	16	14	13	12	11	12	13	13	14	14	14	14	13	13	12	11	10	8	8	22.1
7-Dec	8	8	7	5	5	4	4	3	3	3	4	6	6	8	10	12	14	15	16	17	18	19	19	20	19.9
8-Dec	21	22	23	24	24	25	25	25	26	25	24	24	24	24	23	22	21	21	20	19	19	18	17	17	25.5
9-Dec	17	16	16	16	15	15	13	11	9	8	7	8	9	11	12	15	19	22	25	28	30	34	37	37.3	
10-Dec	39	39	39	39	40	40	40	40	41	40	41	41	41	41	42	42	41	41	41	40	39	39	38	37	41.8
11-Dec	37	36	37	37	37	38	39	39	40	40	39	39	39	38	38	35	33	31	29	26	24	21	19	19	40.0
12-Dec	18	18	18	17	17	17	17	17	17	17	17	17	18	18	18	18	17	16	16	14	12	10	8	6	18.4
13-Dec	6	5	6	6	7	9	12	17	22	27	30	35	36	38	40	41	41	41	41	41	40	40	39	39	41.2
14-Dec	38	38	37	36	36	35	34	34	34	34	34	35	36	37	37	38	38	38	38	38	37	37	36	36	38.3
15-Dec	36	36	37	37	37	37	36	35	33	31	28	26	25	23	21	18	17	16	14	12	10	8	7	6	36.9
16-Dec	6	5	6	7	8	10	12	14	16	18	20	22	24	26	28	30	32	33	34	34	34	33	32	32	33.9
17-Dec	32	32	30	29	29	29	29	25	21	18	16	16	16	16	16	19	23	25	27	28	28	27	26	25	32.0
18-Dec	24	23	21	20	20	20	19	18	16	14	14	14	14	15	15	16	15	14	13	11	10	8	8	8	23.6
19-Dec	7	7	7	7	7	7	7	6	6	6	6	7	8	8	8	9	8	8	8	7	6	5	4	4	8.7
20-Dec	5	7	8	9	10	11	13	15	16	17	18	18	19	19	20	20	20	20	20	20	21	21	22	22	22.4
21-Dec	23	24	24	25	25	26	26	26	26	26	27	27	27	27	27	N	N	N	N	N	N	N	27	27	27.4
22-Dec	28	28	27	27	28	28	28	28	28	28	27	27	27	26	26	25	24	24	23	23	23	23	23	24	28.1
23-Dec	24	24	25	25	26	26	26	26	27	27	28	28	28	29	29	29	29	29	29	29	29	29	30	30	29.6
24-Dec	30	30	30	30	30	29	29	28	27	27	27	27	27	27	27	27	27	27	26	26	25	25	25	24	29.8
25-Dec	24	23	23	23	23	22	22	22	22	21	21	20	21	21	21	20	19	18	19	19	19	18	18	17	23.6
26-Dec	17	17	15	12	11	9	8	6	5	5	6	8	9	11	12	13	15	15	15	15	14	13	14	14	17.3
27-Dec	14	15	15	15	16	16	15	15	13	12	12	13	14	14	14	13	13	12	11	9	7	6	5	4	15.7
28-Dec	4	4	4	3	3	4	7	10	15	21	27	32	34	38	40	41	42	41	41	41	41	40	40	40	41.5
29-Dec	40	39	39	38	38	37	36	35	34	34	34	34	34	34	34	34	34	34	34	33	33	34	33	34	39.8
30-Dec	34	35	35	35	36	36	36	35	34	34	33	34	34	34	34	34	36	36	36	36	36	37	37	37	37.4
31-Dec	38	38	39	39	39	40	40	40	41	41	41	41	42	42	42	42	42	41	41	41	41	41	40	40	41.9
39.8 39.5 39.2 39.4 39.6 39.9 40.2 40.4 40.7 40.9 41.3 41.4 41.5 41.7 41.9 41.9 41.6 41.4 41.1 40.9 40.8 40.5 40.3 40.1																									
Diurnal Maximums																									
N - Not Valid																									

### Span Responses

Ozone (O<sub>3</sub>)  
Beaverlodge - December 2012



## Hourly Averages

## Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

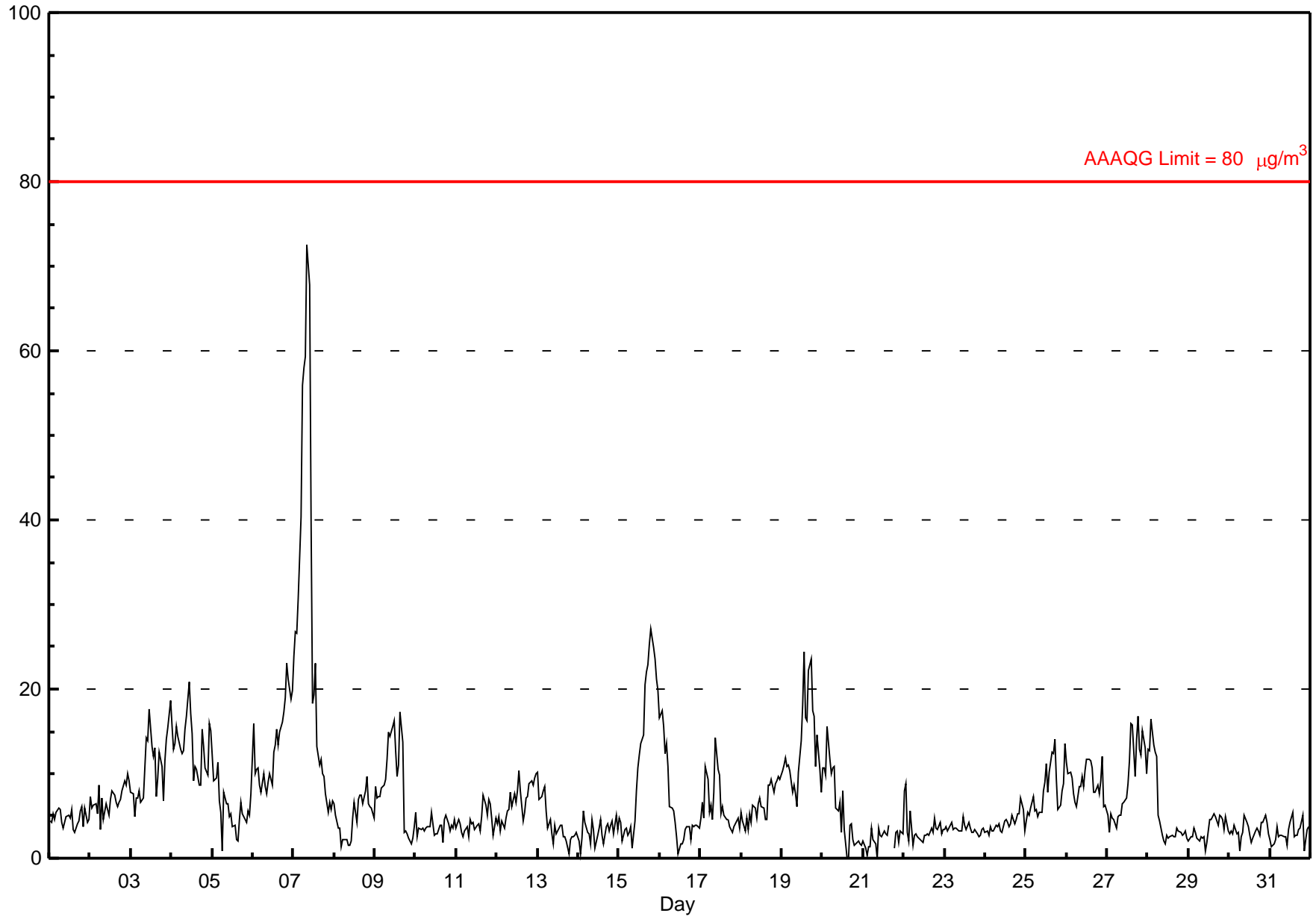
### Beaverlodge - December 2012

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 72.5 µg/m <sup>3</sup> on Dec 7 09:00	Maximum Daily Average: 27.1 µg/m <sup>3</sup> on Dec 7
Minimum Value: 0 µg/m <sup>3</sup> on Dec 20 15:00	Hours of Data: 742
Maximum Diurnal Average: 8.0 µg/m <sup>3</sup> at hour 10	Hours of Missing Data: 2
Monthly Average: 7.21 µg/m <sup>3</sup>	Hours of Calibration: 2
Minimum Daily Average: 2.3 µg/m <sup>3</sup> on Dec 21	Percent Operational Time: 100.0
Minimum Diurnal Average: 6.6 µg/m <sup>3</sup> at hour 7	
Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 3.3 Median = 5.1 Q <sub>3</sub> = 9.1 P <sub>90</sub> = 14.0 P <sub>99</sub> = 39.3	

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	4	4	5	5	6	6	6	4	3	4	5	5	5	6	3	3	4	4	6	6	4	6	4	5	4.7	6.0																						
2-Dec	7	6	6	6	5	9	3	7	5	6	6	5	7	8	7	7	6	7	7	8	9	9	10	9	6.9	10.1																						
3-Dec	8	8	5	7	7	8	7	7	11	14	14	18	13	12	13	7	10	12	11	7	12	14	15	19	10.7	18.6																						
4-Dec	16	13	14	16	14	13	12	13	15	17	21	17	15	9	11	10	9	9	15	13	11	10	16	15	13.5	20.8																						
5-Dec	12	9	10	11	7	5	1	8	7	6	5	5	4	4	2	2	5	7	5	5	4	6	5	8	5.9	12.2																						
6-Dec	16	10	11	11	9	8	10	9	8	9	10	9	12	13	15	13	15	16	17	19	23	21	19	20	13.4	23.1																						
7-Dec	24	27	27	31	40	56	58	59	73	68	40	18	19	23	13	11	12	10	10	8	5	7	6	7	27.1	72.5																						
8-Dec	6	5	4	3	1	2	2	2	1	2	2	5	7	4	7	7	7	6	8	10	6	6	6	5	4.8	9.6																						
9-Dec	9	7	7	7	8	9	9	12	15	14	16	16	13	10	11	17	14	3	3	3	2	2	2	4	8.9	17.3																						
10-Dec	5	2	4	3	4	3	4	4	4	5	4	3	3	3	4	4	2	5	5	4	3	4	4	5	3.7	5.4																						
11-Dec	4	5	4	3	3	3	4	3	5	4	4	3	4	4	3	5	7	6	5	7	6	5	3	5	4.3	7.4																						
12-Dec	4	5	3	4	3	5	6	6	8	6	8	7	8	10	8	4	5	7	7	9	9	9	9	10	6.7	10.3																						
13-Dec	10	7	7	8	8	6	4	4	3	2	4	3	3	4	4	3	2	2	0	2	3	3	3	3	4.1	10.1																						
14-Dec	2	0	2	6	4	3	3	2	5	3	1	3	4	5	3	2	4	4	3	4	4	3	5	3	3.2	5.6																						
15-Dec	5	4	2	3	3	3	3	4	1	4	8	11	12	14	15	20	22	23	25	27	25	24	21	20	12.5	27.1																						
16-Dec	17	17	16	12	14	11	6	6	6	4	3	0	2	2	2	3	4	4	2	4	4	4	4	4	6.2	17.5																						
17-Dec	5	7	5	11	9	5	6	5	8	14	11	10	5	6	5	5	5	4	3	3	4	4	5	4	6.1	14.2																						
18-Dec	5	4	3	5	3	5	4	6	6	5	6	7	6	6	5	5	9	9	9	8	9	9	10	9	6.4	9.6																						
19-Dec	10	11	12	11	11	10	8	9	8	6	10	14	18	24	17	16	22	24	17	17	11	15	10	8	13.3	24.4																						
20-Dec	11	11	10	16	12	10	11	11	6	6	7	3	8	3	0	0	4	4	2	1	2	2	2	2	5.9	15.6																						
21-Dec	2	1	0	1	1	4	2	2	0	4	3	3	3	3	3	4	C	C	1	3	3	2	3	3	2.3	3.9																						
22-Dec	8	9	3	2	6	2	3	3	3	2	2	2	3	3	3	3	4	3	5	4	3	4	3	3	3.5	8.9																						
23-Dec	3	4	3	4	4	3	3	4	3	3	3	5	4	3	4	4	3	3	3	3	3	3	3	4	3.5	4.9																						
24-Dec	3	3	3	4	3	3	4	4	4	3	3	4	5	4	4	4	5	4	5	5	5	7	6	3	4.1	7.1																						
25-Dec	4	5	5	6	7	6	6	5	5	5	8	9	11	8	10	13	12	14	9	6	6	8	9	13	8.0	14.0																						
26-Dec	11	10	10	9	8	7	6	9	8	10	8	10	12	12	12	11	8	8	9	8	9	12	6	6	9.1	12.0																						
27-Dec	5	3	5	5	5	4	5	5	5	6	7	7	9	11	16	16	10	14	17	13	12	15	13	10	9.1	16.8																						
28-Dec	13	13	16	13	13	12	5	4	3	2	2	3	2	3	3	2	3	4	3	3	3	3	3	2	5.5	16.5																						
29-Dec	2	3	3	4	3	2	2	2	2	3	1	2	5	5	5	5	5	4	5	5	5	3	5	3	3.4	5.2																						
30-Dec	3	3	3	4	3	3	1	2	3	5	4	4	3	2	2	3	4	3	3	4	4	5	4	3	3.3	5.1																						
31-Dec	2	1	2	2	4	3	3	3	3	3	2	3	4	5	3	3	3	3	4	5	1	2	3	4	2.9	5.4																						
																								7.6	7.0	6.7	7.5	7.4	7.3	6.6	7.1	7.6	8.0	7.3	6.9	7.3	7.4	6.8	6.9	7.4	7.5	7.3	7.2	6.8	7.2	7.0	7.0	Diurnal Average
																								24.0	26.7	26.6	30.6	40.3	55.9	57.9	59.3	72.5	67.7	39.8	18.4	19.4	24.4	16.7	20.4	22.2	23.5	25.2	27.1	24.8	23.6	21.2	19.8	Diurnal Maximum

C - Calibration  
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m<sup>3</sup> Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m<sup>3</sup>



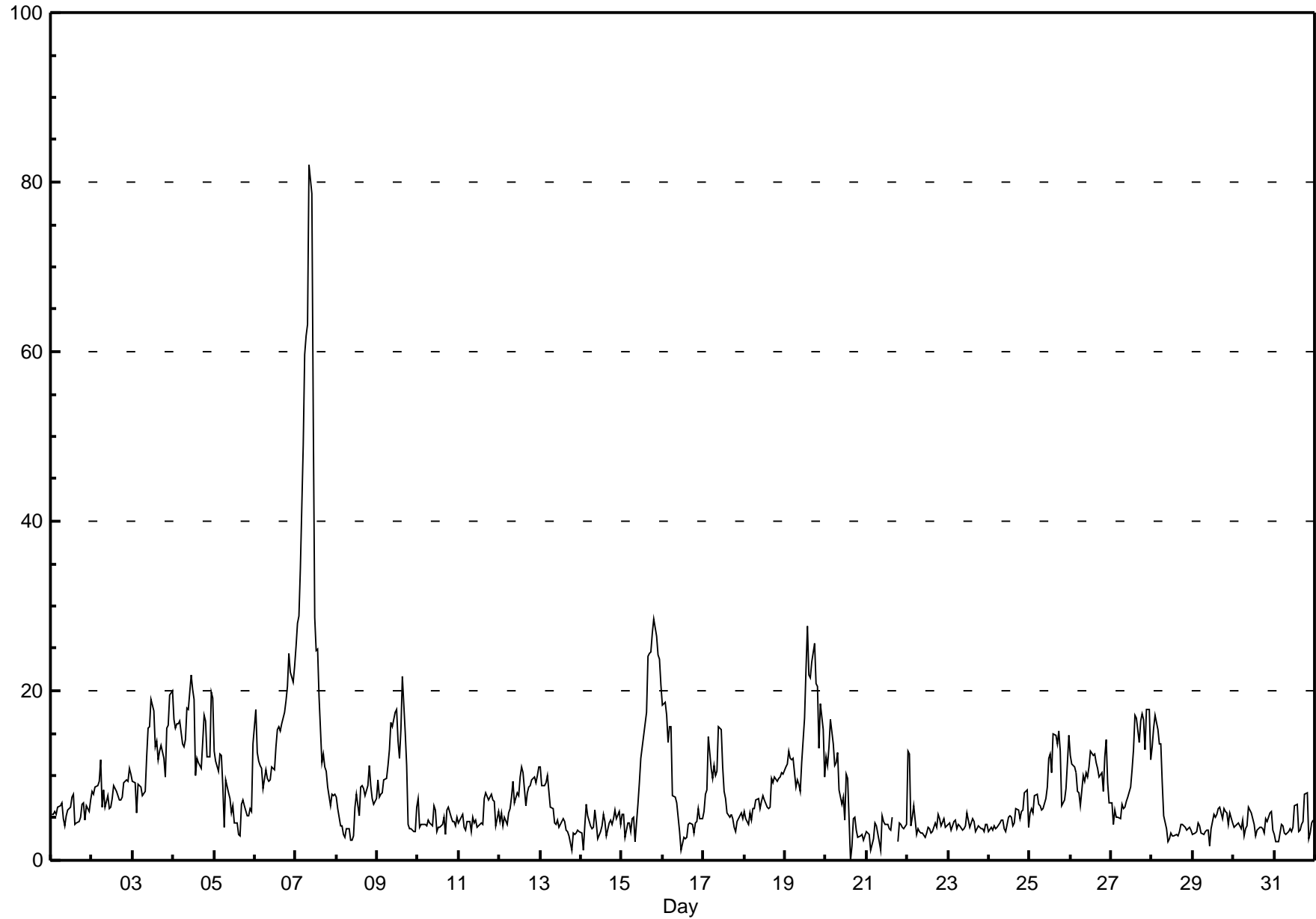


## Hourly Maximums

## Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

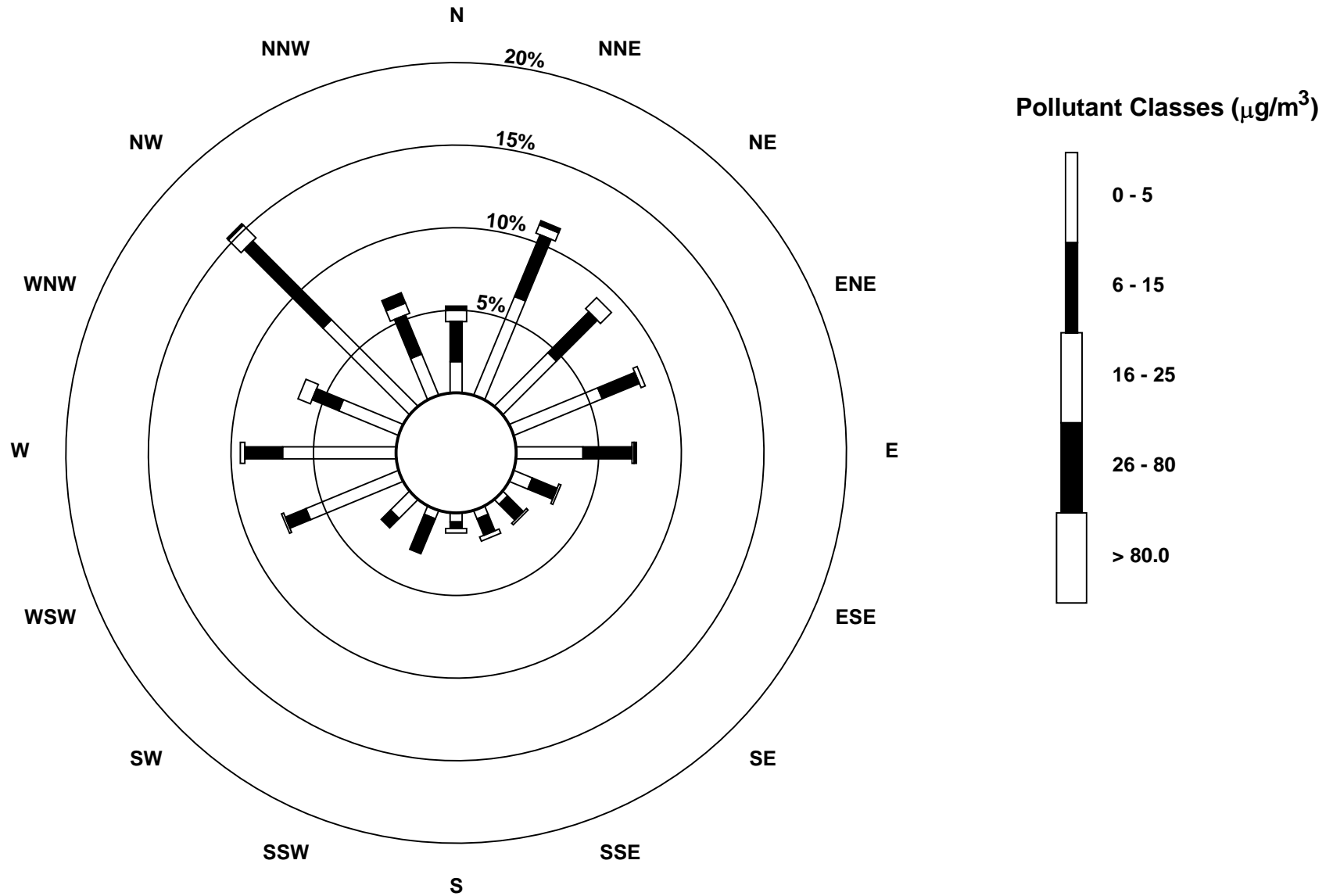
Beaverlodge - December 2012

Maximum Value: 82.1 µg/m <sup>3</sup> on Dec 7 09:00		Maximum Daily Average: 31.0 µg/m <sup>3</sup> on Dec 7		Hours in Service: 744																							
Minimum Value: 0 µg/m <sup>3</sup> on Dec 20 15:00		Minimum Daily Average: 3.5 µg/m <sup>3</sup> on Dec 21		Hours of Data: 742																							
Maximum Diurnal Average: 9.4 µg/m <sup>3</sup> at hour 10		Minimum Diurnal Average: 7.9 µg/m <sup>3</sup> at hour 3		Hours of Missing Data: 2																							
Monthly Average: 8.63 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 3.4 Q <sub>1</sub> = 4.2 Median = 6.3 Q <sub>3</sub> = 10.8 P <sub>90</sub> = 16.3 P <sub>99</sub> = 46.3		Hours of Calibration: 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	5	5	6	5	6	6	7	5	4	5	6	6	8	8	4	4	5	5	7	7	5	6	6	7	5.8	7.8	
2-Dec	8	8	9	9	9	12	6	8	6	8	6	6	7	9	8	8	7	7	7	9	9	9	11	10	8.2	11.8	
3-Dec	9	9	6	9	9	9	8	8	12	16	16	19	18	13	14	12	13	14	12	10	16	16	19	20	12.7	20.0	
4-Dec	17	16	16	16	16	14	13	14	18	18	22	20	19	10	12	11	11	14	17	16	12	12	20	19	15.6	21.9	
5-Dec	13	12	11	13	12	9	4	10	8	7	6	6	4	4	3	3	7	7	6	5	5	6	6	14	7.5	13.7	
6-Dec	18	13	12	11	11	8	11	10	9	10	11	11	13	15	16	15	16	18	19	21	24	22	21	23	14.9	24.4	
7-Dec	25	28	29	34	49	60	62	63	82	79	52	29	25	25	19	12	13	11	11	9	6	8	8	8	31.0	82.1	
8-Dec	7	6	4	4	3	3	4	4	2	2	3	6	8	5	9	9	8	8	9	11	9	7	7	7	6.1	11.2	
9-Dec	9	8	8	8	10	10	11	13	16	16	18	18	14	12	16	22	15	11	4	4	3	3	3	6	10.8	21.7	
10-Dec	7	4	4	4	4	4	5	4	4	4	6	6	3	4	4	5	3	6	6	5	5	5	4	5	4.7	7.3	
11-Dec	4	5	5	4	4	5	5	3	5	4	5	4	4	4	4	7	8	7	8	8	7	7	4	6	5.3	8.0	
12-Dec	5	6	4	5	4	6	6	7	9	7	8	8	10	11	10	6	8	9	9	9	10	9	10	11	7.8	11.0	
13-Dec	11	9	9	9	10	8	6	6	4	4	5	4	4	5	5	4	3	3	1	3	3	3	4	3	5.3	11.0	
14-Dec	3	1	4	7	5	4	4	4	6	4	2	3	4	5	5	3	4	5	4	5	6	5	6	4	4.3	6.6	
15-Dec	5	5	3	4	4	3	5	5	2	7	9	12	13	15	18	24	24	25	27	29	26	24	24	21	14.0	28.5	
16-Dec	18	19	17	14	16	16	8	8	7	5	3	1	3	3	3	4	4	4	3	4	5	6	5	5	7.5	18.6	
17-Dec	6	8	8	15	11	10	11	10	11	16	15	11	8	7	6	5	5	5	4	3	5	5	6	5	8.1	15.8	
18-Dec	6	5	4	6	5	6	6	7	7	6	7	8	7	6	6	6	10	9	10	9	10	10	10	10	7.4	10.3	
19-Dec	11	11	13	12	12	12	9	9	9	8	11	17	23	28	22	22	23	26	21	20	13	18	15	10	15.6	27.6	
20-Dec	12	11	13	17	14	11	11	13	8	7	8	5	10	10	0	2	5	5	4	3	3	3	2	3	7.5	16.6	
21-Dec	3	3	1	2	3	4	4	2	1	5	5	4	4	4	4	5	C	C	2	4	4	4	4	4	3.5	5.2	
22-Dec	13	13	4	5	6	3	4	3	3	3	3	3	4	4	3	3	4	4	5	5	4	5	4	4	4.7	12.9	
23-Dec	4	4	4	5	5	4	4	4	4	4	4	6	5	4	5	5	3	4	4	4	4	3	4	4	4.1	5.7	
24-Dec	3	4	4	4	4	4	4	5	5	4	3	5	5	5	4	4	6	6	5	6	6	8	8	4	4.8	8.2	
25-Dec	6	6	6	8	8	7	6	6	6	7	9	12	12	10	15	15	14	15	13	7	7	9	11	15	9.5	15.2	
26-Dec	12	11	11	10	8	8	7	10	9	10	10	11	13	12	13	12	11	10	10	8	12	14	9	7	10.4	14.2	
27-Dec	7	4	6	5	5	5	7	6	6	7	8	9	11	13	17	17	14	16	17	17	13	18	18	12	10.7	17.8	
28-Dec	13	16	17	15	14	14	9	5	4	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	6.5	17.1	
29-Dec	3	3	3	4	4	3	3	3	4	4	2	4	5	5	5	6	6	5	6	6	6	4	6	4	4.4	6.3	
30-Dec	4	4	4	4	4	5	3	4	4	4	6	6	5	4	3	4	4	4	4	3	5	5	6	4	4.3	6.3	
31-Dec	3	2	2	3	4	4	3	3	3	3	4	3	4	6	7	3	4	4	5	8	8	3	3	4	4.1	8.1	
		8.8	8.3	7.9	8.8	9.0	8.9	8.2	8.5	9.1	9.4	8.8	8.5	9.0	8.7	8.3	8.4	8.8	9.0	8.6	8.5	8.0	8.5	8.7	8.5	Diurnal Average	
		25.3	27.9	28.8	34.3	49.0	59.7	61.8	63.2	82.1	78.7	51.8	28.6	24.7	27.6	21.9	24.1	24.4	25.6	26.8	28.5	26.5	24.2	23.7	22.9	Diurnal Maximum	
C - Calibration																											



**Pollutant Rose**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Beaverlodge - December 2012**



# Hourly Averages

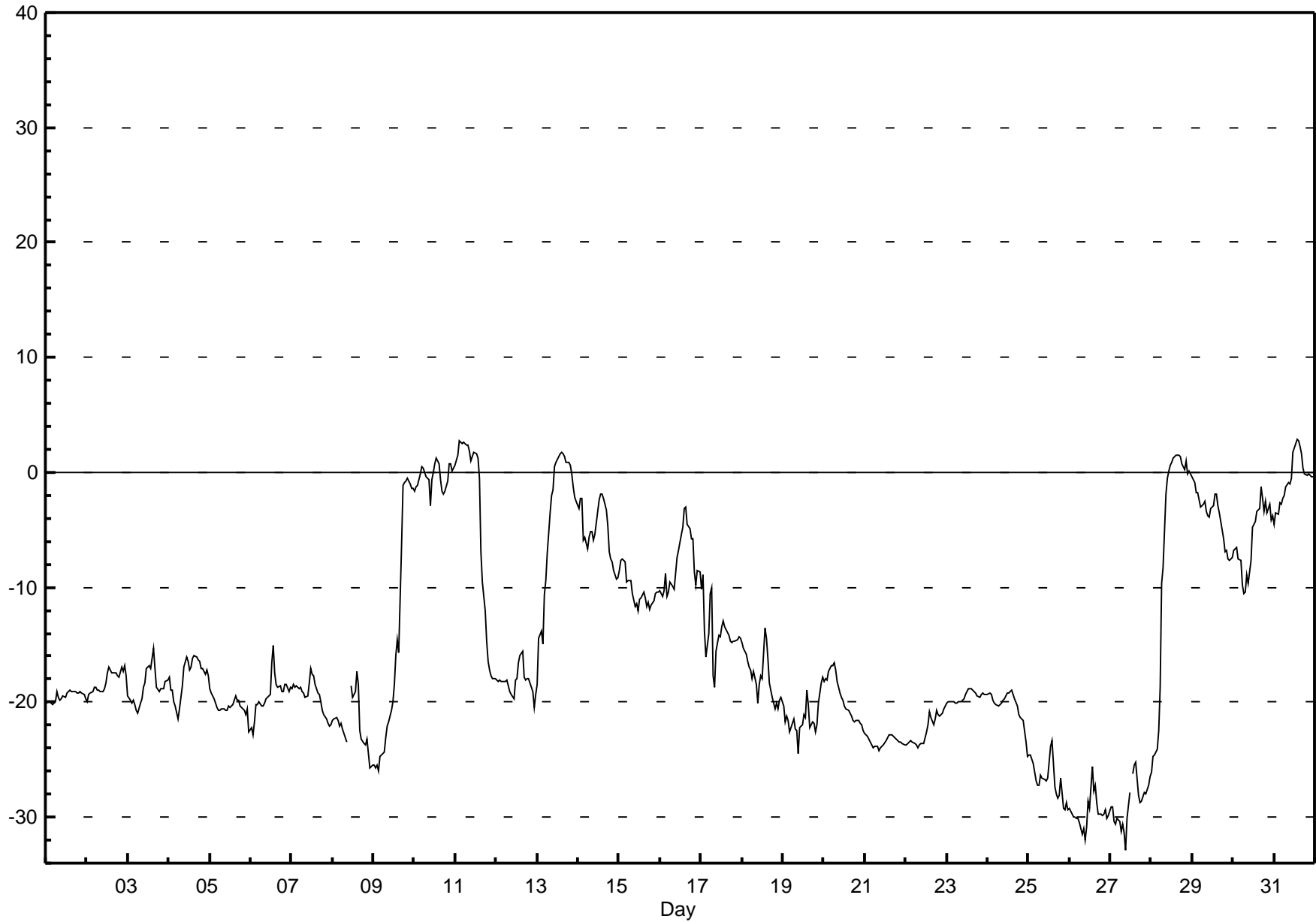
External Temperature (ET) - °C

Beaverlodge - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.9 °C on Dec 31 14:00 Maximum Daily Average: -0.4 °C on Dec 10		Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6																																															
Minimum Value: -33 °C on Dec 27 10:00 Maximum Diurnal Average: -13.3 °C at hour 15 Monthly Average: -15.45 °C		Minimum Daily Average: -29.6 °C on Dec 26 Minimum Diurnal Average: -16.7 °C at hour 4 Percentiles: P <sub>1</sub> = -30.7 P <sub>10</sub> = -24.8 Q <sub>1</sub> = -21.1 Median = -18.7 Q <sub>3</sub> = -8.7 P <sub>90</sub> = -0.8 P <sub>99</sub> = 2.4																																															
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	-20	-20	-20	-20	-20	-20	-19	-20	-20	-20	-20	-20	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-20	-19.5	-19.0																							
2-Dec	-20	-19	-19	-19	-19	-19	-19	-19	-19	-19	-19	-18	-17	-17	-17	-17	-17	-17	-18	-18	-17	-17	-17	-18	-18.2	-16.8																							
3-Dec	-19	-20	-20	-20	-20	-21	-21	-20	-20	-19	-18	-17	-17	-17	-16	-15	-17	-19	-19	-19	-19	-19	-18	-18	-18.7	-15.4																							
4-Dec	-18	-19	-19	-20	-20	-21	-21	-20	-19	-17	-16	-16	-17	-17	-16	-16	-16	-16	-16	-17	-17	-18	-17	-18	-17.8	-16.0																							
5-Dec	-19	-19	-20	-20	-20	-21	-21	-21	-21	-21	-21	-20	-20	-20	-20	-20	-20	-20	-20	-21	-21	-21	-21	-23	-20.3	-18.8																							
6-Dec	-22	-23	-22	-20	-20	-20	-20	-20	-20	-20	-20	-19	-17	-15	-17	-18	-19	-19	-19	-19	-18	-18	-19	-19	-19.3	-15.1																							
7-Dec	-19	-18	-19	-19	-19	-19	-19	-19	-20	-19	-18	-17	-18	-18	-18	-19	-19	-20	-21	-21	-22	-22	-22	-22	-19.4	-17.1																							
8-Dec	-22	-21	-21	-22	-22	-22	-22	-23	-23	N	N	-19	-20	-19	-17	-18	-22	-23	-24	-24	-23	-24	-26	-25	-22.0	-17.3																							
9-Dec	-25	-26	-26	-26	-25	-24	-24	-23	-22	-22	-21	-20	-19	-16	-15	-16	-6	-1	-1	-1	0	-1	-1	-1	-15.1	-0.5																							
10-Dec	-2	-1	-1	0	0	0	0	0	-1	-3	-1	0	1	1	1	-1	-2	-2	-2	-1	1	1	0	0	-0.4	1.2																							
11-Dec	1	1	3	3	2	3	2	2	2	1	1	2	2	1	-1	-7	-10	-12	-15	-16	-17	-18	-18	-18	-4.4	2.8																							
12-Dec	-18	-18	-18	-18	-18	-18	-18	-19	-19	-19	-20	-18	-18	-17	-16	-16	-18	-18	-18	-18	-19	-19	-20	-19	-18.2	-15.6																							
13-Dec	-18	-14	-14	-15	-11	-9	-7	-4	-2	-2	0	1	1	2	2	2	1	1	1	1	0	-1	-2	-2	-3.8	1.8																							
14-Dec	-3	-2	-2	-6	-6	-7	-6	-5	-5	-6	-5	-3	-2	-2	-2	-2	-3	-5	-7	-7	-8	-9	-9	-9	-5.1	-1.9																							
15-Dec	-9	-8	-8	-8	-10	-9	-9	-9	-11	-12	-11	-12	-11	-11	-10	-11	-12	-11	-12	-12	-11	-10	-10	-10	-10.3	-7.6																							
16-Dec	-10	-11	-10	-9	-11	-10	-10	-10	-10	-9	-7	-7	-5	-5	-3	-3	-4	-5	-6	-6	-9	-10	-8	-9	-7.8	-3.1																							
17-Dec	-10	-9	-14	-16	-14	-11	-10	-18	-19	-16	-14	-14	-13	-13	-13	-14	-14	-15	-15	-15	-15	-15	-14	-14	-13.9	-8.9																							
18-Dec	-15	-15	-16	-16	-17	-17	-18	-17	-19	-20	-18	-18	-18	-14	-14	-16	-18	-19	-20	-21	-20	-21	-20	-20	-17.8	-13.5																							
19-Dec	-20	-22	-21	-22	-23	-22	-21	-22	-22	-24	-22	-22	-21	-21	-19	-20	-22	-22	-22	-23	-22	-20	-18	-18	-21.4	-17.8																							
20-Dec	-18	-18	-18	-17	-17	-17	-17	-17	-18	-19	-20	-20	-20	-21	-21	-21	-21	-22	-22	-22	-22	-22	-22	-22	-19.7	-16.6																							
21-Dec	-23	-23	-23	-23	-24	-24	-24	-24	-24	-24	-24	-24	-23	-23	-23	-23	-23	-23	-23	-23	-23	-24	-24	-24	-23.4	-22.8																							
22-Dec	-24	-24	-23	-23	-23	-24	-24	-24	-24	-24	-24	-23	-23	-22	-21	-21	-22	-21	-21	-21	-21	-21	-21	-20	-22.4	-20.4																							
23-Dec	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-19	-19	-19	-19	-19	-19	-19	-19	-20	-19	-19	-19	-19	-19.5	-18.8																							
24-Dec	-19	-19	-19	-20	-20	-20	-20	-20	-20	-20	-20	-19	-19	-19	-19	-19	-20	-20	-21	-21	-21	-22	-23	-25	-20.3	-19.0																							
25-Dec	-25	-25	-25	-25	-27	-27	-27	-26	-27	-27	-27	-27	-25	-24	-23	-27	-28	-28	-28	-27	-29	-29	-29	-29	-26.7	-23.3																							
26-Dec	-29	-30	-30	-30	-30	-30	-30	-31	-31	-32	-31	-29	-29	-26	-28	-27	-29	-30	-30	-30	-30	-29	-30	-30	-29.6	-25.7																							
27-Dec	-29	-29	-30	-31	-30	-30	-31	-31	-31	-33	-30	-28	N	-26	-25	-25	-28	-29	-29	-28	-28	-27	-26	-26	-28.9	-25.2																							
28-Dec	-26	-25	-25	-24	-22	-19	-10	-8	-2	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	-6.3	1.5																							
29-Dec	0	-1	-2	-2	-2	-3	-3	-3	-3	-4	-4	-3	-3	-2	-2	-3	-4	-5	-6	-7	-7	-8	-8	-7	-3.7	-0.4																							
30-Dec	-7	-7	-7	-8	-8	-10	-11	-10	-9	-10	-8	-5	-4	-4	-3	-3	-1	-2	-3	-2	-4	-3	-4	-4	-5.7	-1.3																							
31-Dec	-5	-4	-4	-3	-3	-2	-2	-1	-1	-1	0	2	2	3	3	2	2	0	0	0	0	0	0	0	-0.5	2.9																							
																								-16.6	-16.4	-16.5	-16.7	-16.7	-16.6	-16.2	-16.2	-16.1	-15.9	-15.2	-14.6	-13.7	-13.5	-13.3	-14.0	-14.5	-14.8	-15.2	-15.4	-15.5	-15.7	-15.8	-15.8	Diurnal Average	
																								0.6	1.4	2.8	2.6	2.5	2.6	2.4	2.4	1.8	1.0	1.4	1.8	2.2	2.9	2.8	2.2	1.6	1.4	0.9	0.6	0.9	0.8	0.2	0.4	Diurnal Maximum	
N - Not Valid																																																	

**Hourly Averages**

**External Temperature (ET) - °C**  
**Beaverlodge - December 2012**



# Hourly Averages

Relative Humidity (RH) - %

Beaverlodge - December 2012

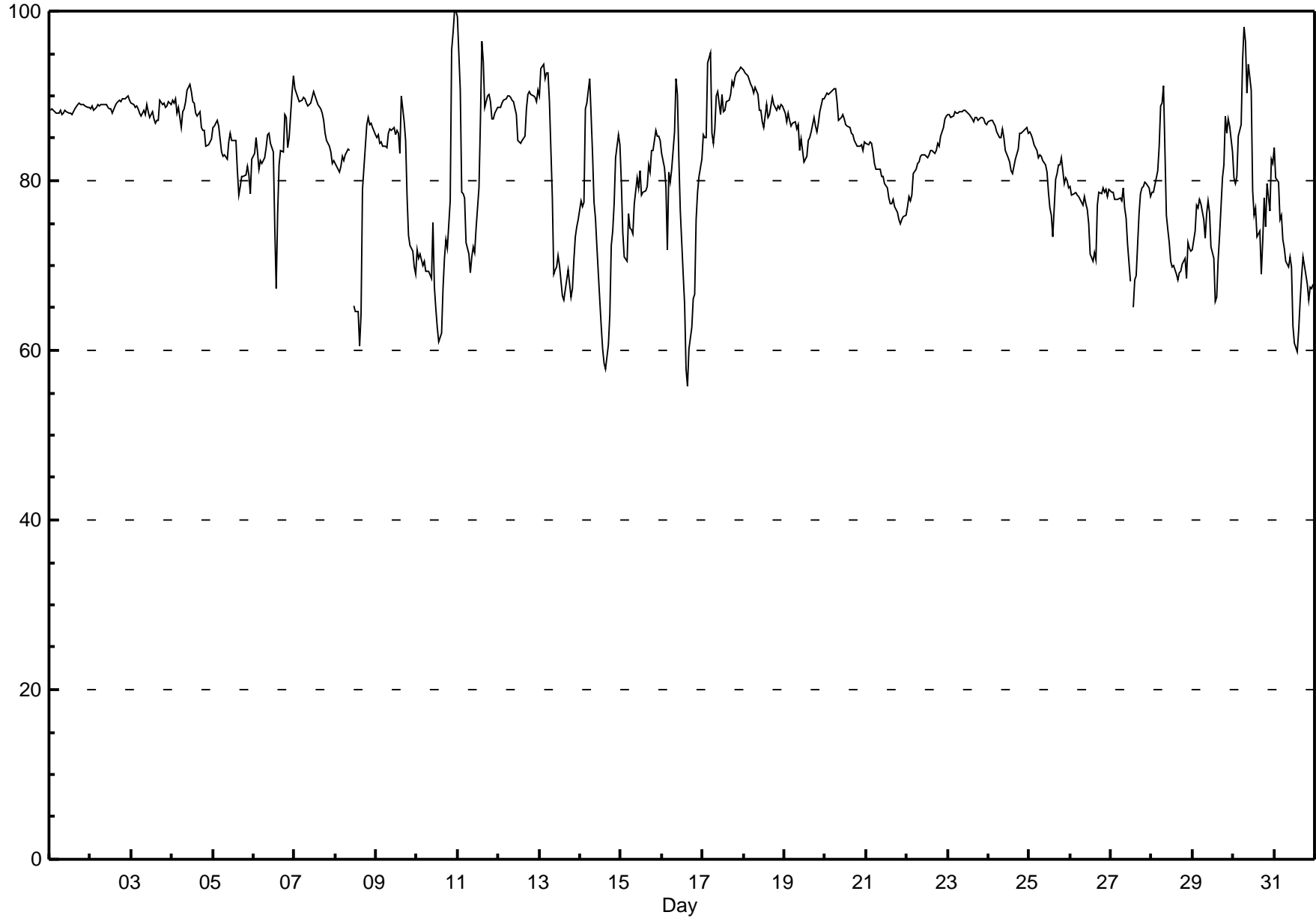
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 100.0 % on Dec 10 23:00	Maximum Daily Average: 89.7 % on Dec 17		Hours of Data:	741
Minimum Value: 56 % on Dec 16 16:00	Minimum Daily Average: 70.0 % on Dec 31		Hours of Missing Data:	3
Maximum Diurnal Average: 84.7 % at hour 1	Minimum Diurnal Average: 77.6 % at hour 15		Hours of Calibration:	0
Monthly Average: 82.15 %	Percentiles: P <sub>1</sub> = 60.5 P <sub>10</sub> = 70.0 Q <sub>1</sub> = 77.8 Median = 84.2 Q <sub>3</sub> = 88.2 P <sub>90</sub> = 89.9 P <sub>99</sub> = 96.5		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	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	89	89	89	89	89	89	89	89	88.4	89.1
2-Dec	88	89	88	89	89	89	89	89	89	89	89	89	88	88	89	89	89	89	89	90	90	90	90	90	88.0	90.0
3-Dec	89	89	89	89	89	88	88	88	88	89	88	88	88	87	87	87	87	89	89	89	89	89	89	89	88.4	89.5
4-Dec	89	89	90	88	89	86	88	88	89	91	91	90	89	89	88	88	88	86	86	86	84	84	85	85	87.8	91.3
5-Dec	86	86	87	86	85	83	83	83	83	85	86	85	85	85	81	78	79	80	80	81	82	81	78	83	83.0	87.2
6-Dec	83	85	83	81	82	82	83	84	86	86	84	83	75	67	76	82	84	83	88	87	84	85	90	92	83.2	92.4
7-Dec	91	90	90	89	89	90	90	89	89	89	90	91	90	90	89	88	88	87	86	85	84	83	82	82	88.0	90.8
8-Dec	82	82	81	82	83	82	83	84	83	N	N	65	65	65	61	64	79	82	87	87	87	86	85	79.1	87.4	
9-Dec	85	85	84	85	84	84	84	86	86	86	86	85	86	86	83	90	87	85	78	74	72	72	70	69	82.2	90.0
10-Dec	72	71	71	70	71	69	69	69	68	75	67	65	63	61	62	67	71	73	72	78	95	98	100	100	74.1	100.0
11-Dec	99	91	79	78	78	73	71	69	71	72	72	74	79	87	96	94	89	90	90	89	87	87	88	89	83.1	99.3
12-Dec	89	89	89	90	90	90	90	90	90	89	88	85	85	84	85	85	88	90	91	90	90	90	89	91	88.5	90.7
13-Dec	90	93	94	92	93	93	89	78	69	69	70	71	70	66	66	67	68	70	66	67	71	73	75	75	76.5	93.8
14-Dec	78	77	77	89	89	92	88	83	77	76	72	66	63	60	59	58	61	64	72	74	77	83	85	84	75.2	92.0
15-Dec	80	74	71	71	76	74	74	74	77	80	79	81	78	79	79	79	82	81	84	84	86	85	85	85	79.1	85.9
16-Dec	83	82	79	72	81	80	81	86	92	90	83	76	69	65	58	56	60	63	66	67	75	79	80	83	75.2	92.1
17-Dec	85	85	85	94	95	86	84	86	90	91	88	90	88	88	89	89	90	92	91	92	93	93	93	93	89.7	95.0
18-Dec	93	93	92	92	91	91	90	91	90	88	88	87	86	89	87	88	89	90	89	88	89	88	89	89	89.5	93.0
19-Dec	88	87	88	87	86	87	87	86	87	84	85	82	83	83	85	85	86	87	86	86	87	88	90	90	86.2	89.7
20-Dec	90	90	90	90	91	91	91	89	87	87	88	87	87	86	86	86	85	85	84	84	84	84	84	84	87.2	90.9
21-Dec	84	84	85	84	83	82	81	81	81	81	81	80	79	78	77	77	78	77	76	75	75	75	76	76	79.5	84.6
22-Dec	77	78	78	78	81	81	82	82	83	83	83	83	83	83	84	83	83	84	84	84	85	86	87	88	82.7	87.6
23-Dec	88	88	87	88	88	88	88	88	88	88	88	88	88	88	87	87	87	87	87	87	87	87	87	87	87.6	88.3
24-Dec	87	87	87	87	86	86	85	85	86	85	84	83	82	81	81	82	83	84	86	86	86	86	86	86	84.8	87.2
25-Dec	86	85	85	84	84	83	83	83	82	82	81	79	77	76	73	80	81	82	82	83	80	80	80	79	81.2	85.8
26-Dec	79	78	79	79	78	78	78	77	78	77	77	75	71	70	71	71	77	79	78	79	79	79	78	79	76.9	79.2
27-Dec	79	79	78	78	78	78	78	79	77	76	73	68	N	65	68	69	76	78	79	79	80	80	79	78	76.1	79.7
28-Dec	79	79	80	81	84	89	89	91	76	74	73	70	70	70	69	68	69	69	70	71	68	73	72	72	75.3	91.1
29-Dec	72	74	77	77	78	77	76	73	76	78	76	72	71	66	66	71	74	80	82	88	86	87	86	83	76.9	87.7
30-Dec	80	80	80	85	87	94	98	96	90	94	91	79	76	77	73	74	69	73	78	75	80	76	82	82	82.1	98.1
31-Dec	84	80	80	75	76	73	72	71	70	71	70	63	61	60	62	66	69	71	70	68	66	67	67	68	70.0	83.9
	84.7	84.1	83.6	83.8	84.6	84.1	83.9	83.5	82.8	83.1	81.9	79.6	78.7	77.7	77.6	78.6	80.1	81.3	81.8	82.0	82.8	83.4	83.9	84.0	Diurnal Average	
	99.3	93.3	93.8	93.9	95.0	94.2	98.1	96.5	92.1	93.8	91.3	90.6	90.0	89.5	96.5	94.2	90.1	91.7	91.2	92.2	95.5	97.5	100.0	100.0	Diurnal Maximum	

N - Not Valid

**Hourly Averages**

**Relative Humidity (RH) - %  
Beaverlodge - December 2012**







Peace Airshed Zone Association

# Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Beaverlodge - December 2012

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	8	6	4	3	4	3	1	2	2	6	7	8	7	7	7	7	6	5	5	6	5	4	4	3	4.6	8.4
Dir	341	353	348	337	325	304	70	264	357	34	15	13	14	12	11	7	16	27	28	32	28	17	22	31	9	13
2 Spd	3	4	2	1	7	6	6	2	5	6	7	9	6	5	6	7	6	6	5	4	1	0	1	3	3.1	8.6
Dir	44	52	124	70	99	137	131	80	341	18	12	17	27	8	343	344	12	13	23	27	182	307	83	130	32	17
3 Spd	2	4	5	4	3	2	1	1	2	3	4	4	6	4	3	2	2	4	2	3	3	3	4	2	0.7	5.7
Dir	130	90	86	81	58	71	201	241	15	314	305	307	281	193	202	201	205	43	44	84	105	108	77	33	76	281
4 Spd	1	3	2	4	2	3	5	3	8	6	8	16	18	20	21	19	14	13	12	11	9	6	7	6	8.5	20.9
Dir	174	333	39	268	351	347	319	21	323	332	319	309	314	310	306	309	297	294	298	300	314	308	340	349	312	306
5 Spd	11	6	9	12	12	14	15	13	20	26	24	21	18	15	12	12	6	3	5	5	8	9	2	4	10.4	25.8
Dir	356	348	335	319	323	319	320	317	312	308	302	303	307	304	305	306	320	15	27	19	23	34	53	59	322	308
6 Spd	1	3	2	1	2	3	2	2	2	3	4	2	0	1	4	2	1	3	3	1	2	3	4	4	0.1	4.3
Dir	40	51	76	133	262	234	202	226	226	165	163	276	356	262	22	292	338	50	52	35	116	163	285	67	203	163
7 Spd	4	1	2	1	1	1	3	2	2	5	5	7	12	11	13	15	14	15	14	16	18	15	15	16	8.2	17.9
Dir	291	79	327	23	333	355	340	326	324	358	18	351	332	323	316	312	318	321	328	326	324	316	313	306	323	324
8 Spd	15	13	10	7	4	3	4	7	7	2	3	2	2	3	2	2	3	2	1	1	0	1	2	0	2.0	15.3
Dir	309	317	315	324	6	335	5	27	34	56	70	154	156	123	145	121	95	134	183	358	252	264	59	19	350	309
9 Spd	1	1	1	1	1	0	2	4	4	1	3	4	2	2	1	6	16	30	29	36	39	37	36	33	10.6	39.3
Dir	36	13	85	223	270	197	281	36	247	167	179	165	196	59	355	46	262	262	264	267	271	271	271	264	267	271
10 Spd	24	26	30	32	36	34	30	26	20	7	22	24	28	26	21	13	5	1	3	8	17	3	6	5	17.6	36.1
Dir	253	260	264	269	272	271	267	265	264	237	257	258	263	262	265	253	228	16	71	243	275	205	160	150	262	272
11 Spd	6	13	18	24	23	24	25	27	16	12	12	18	18	13	16	27	18	14	17	16	20	17	13	9	12.2	27.3
Dir	186	236	245	242	245	255	262	262	261	276	283	288	281	295	347	19	6	350	321	325	333	330	336	332	292	262
12 Spd	9	8	6	6	7	5	1	4	4	3	4	4	5	5	5	5	8	6	3	3	3	3	1	4	1.6	9.2
Dir	331	333	330	327	324	317	84	123	71	70	98	110	96	92	92	118	119	89	108	181	193	202	101	117	69	331
13 Spd	3	4	3	1	3	1	3	13	23	27	44	44	38	33	34	34	36	33	21	19	18	18	14	15	18.8	44.4
Dir	139	109	115	193	67	126	96	253	249	245	256	245	247	251	248	244	245	247	252	248	235	236	227	242	245	256
14 Spd	5	7	4	5	7	12	10	12	11	10	15	21	27	28	25	23	21	13	1	3	4	4	2	6	10.2	28.0
Dir	266	281	301	196	215	209	266	252	242	231	252	254	258	261	259	261	261	255	72	223	227	207	111	89	251	261
15 Spd	5	5	6	5	5	5	7	2	4	2	2	3	0	1	0	1	3	2	2	2	2	3	2	3	1.2	6.9
Dir	88	77	91	98	121	102	125	188	208	256	287	43	280	41	165	145	61	306	11	332	254	327	29	282	88	125
16 Spd	5	3	4	2	3	2	2	3	2	4	3	5	6	6	3	3	2	2	4	3	3	3	3	2	2.8	6.4
Dir	12	297	46	111	121	95	57	57	85	45	86	69	95	76	79	111	92	46	71	75	89	123	70	10	71	76
17 Spd	1	4	5	3	3	11	13	3	2	5	3	4	6	13	13	14	14	9	11	2	6	6	7	8	5.5	14.0
Dir	54	19	62	160	1	12	28	85	9	306	268	308	355	17	21	20	26	13	22	23	284	292	327	317	6	20
18 Spd	9	9	8	7	6	2	4	2	3	2	3	3	4	1	1	2	2	2	1	0	2	2	2	0	1.7	8.9
Dir	314	321	315	320	321	314	39	358	240	84	122	124	82	211	233	325	62	249	198	168	273	27	37	343	331	321
19 Spd	1	0	2	0	1	3	1	0	2	4	2	3	2	3	3	1	4	6	6	3	6	6	12	21	3.0	21.1
Dir	207	72	36	93	280	51	253	264	24	52	6	57	314	351	356	90	315	1	328	270	330	316	316	323	335	323
20 Spd	19	20	14	17	14	13	12	17	20	20	22	17	20	16	15	16	11	14	15	17	17	18	17	17	16.5	22.0
Dir	314	310	306	314	326	326	311	320	325	315	315	317	318	318	320	317	323	319	311	314	315	313	310	309	316	315
21 Spd	17	15	16	16	17	18	19	17	13	15	17	17	15	14	11	9	8	9	8	8	8	7	7	9	11.6	18.5
Dir	307	307	307	304	302	301	307	299	309	311	308	307	309	314	319	330	337	357	358	18	17	21	31	30	319	307
22 Spd	7	7	6	9	9	7	6	8	4	5	8	9	8	5	1	6	9	4	1	3	7	7	7	7	5.4	9.4
Dir	31	34	83	93	95	83	50	95	70	12	22	23	20	15	111	30	41	67	173	46	31	53	78	68	54	41

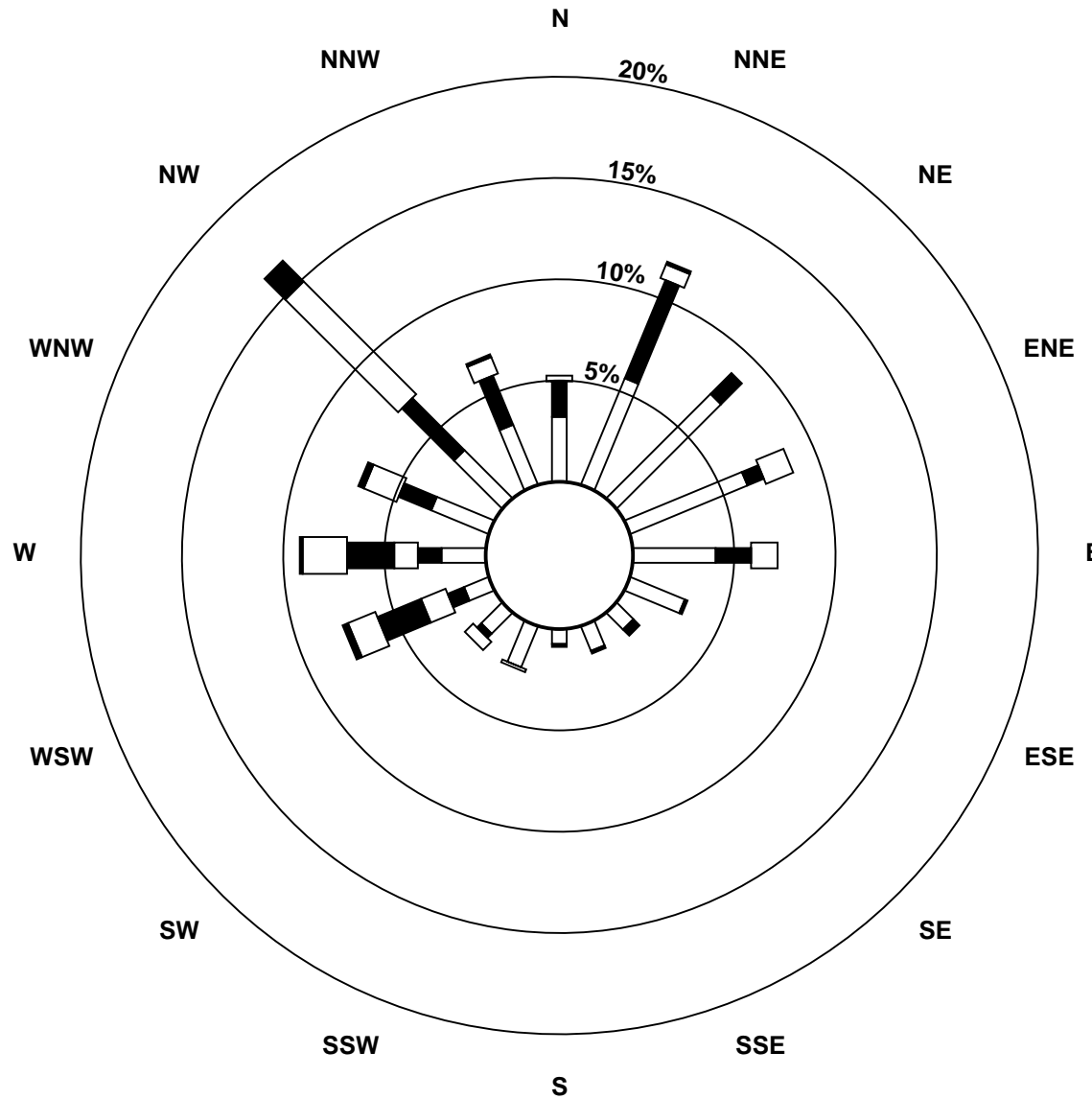
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Beaverlodge - December 2012

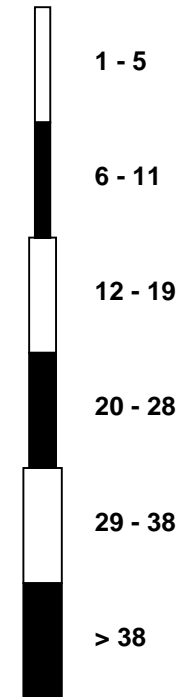
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
23 Spd	12	13	15	16	17	15	14	12	13	14	13	17	17	15	13	15	13	15	12	8	7	5	9	8	12.4	17.2
Dir	70	74	67	67	71	74	77	81	79	86	85	91	87	87	80	83	74	68	61	13	23	43	76	64	74	91
24 Spd	4	2	2	6	8	9	7	5	1	2	3	6	7	6	6	5	6	1	6	2	4	2	1	3.8	8.7	
Dir	40	10	8	1	13	18	25	24	318	41	49	86	83	53	55	55	38	64	337	33	287	299	31	336	34	18
25 Spd	1	1	2	6	2	1	3	2	4	2	2	2	2	1	2	5	2	4	5	8	1	3	2	2	1.4	7.5
Dir	344	264	238	279	21	212	94	156	33	321	33	274	339	43	260	284	345	335	359	4	49	43	303	33	343	4
26 Spd	2	1	3	1	2	1	1	1	1	2	3	2	2	1	2	2	2	2	1	1	2	9	5	8	1.7	8.9
Dir	29	242	329	45	38	300	220	359	25	6	24	303	24	318	313	38	317	210	302	47	290	325	318	328	334	325
27 Spd	8	10	2	2	1	3	1	5	1	1	0	2	2	1	3	1	2	1	1	1	1	0	1	0	1.3	10.0
Dir	325	325	32	36	330	34	60	44	222	93	92	240	250	327	299	286	340	254	17	315	68	262	40	164	341	325
28 Spd	0	0	0	1	1	2	8	3	12	23	19	13	9	20	21	11	9	12	8	8	16	11	23	22	9.8	23.5
Dir	318	234	39	2	36	51	257	40	241	257	261	260	252	257	264	271	285	291	288	283	262	247	260	258	264	260
29 Spd	22	9	7	10	11	8	8	11	10	10	10	12	10	5	1	3	1	1	2	4	3	2	2	4	5.6	22.4
Dir	265	303	318	287	275	291	295	296	307	306	298	301	310	296	268	49	63	34	223	58	62	83	8	286	298	265
30 Spd	6	5	5	1	4	2	5	8	4	1	4	2	2	1	3	3	2	2	3	2	4	1	2	3	1.7	8.3
Dir	281	277	293	21	66	138	50	47	4	332	47	46	90	59	311	45	286	70	75	71	53	277	51	59	27	47
31 Spd	3	3	2	3	5	5	4	3	1	0	0	12	11	25	35	34	36	29	25	27	30	33	32	33	13.9	36.1
Dir	56	50	61	59	56	55	56	59	64	298	183	265	266	266	258	256	253	244	243	251	261	259	262	259	258	253
Spd	3.8	3.7	2.8	2.9	2.8	2.7	2.8	2.9	3.9	3.9	4.9	5.3	5.4	5.6	5.8	4.7	4.2	4.0	3.6	4.3	5.3	4.6	4.1	4.3	Diurnal Average	
Dir	314	320	319	302	314	309	314	304	295	301	294	291	295	293	293	307	302	303	312	305	296	294	300	299	Diurnal Maximum	
Spd	23.6	26.1	29.5	32.1	36.1	34.5	29.8	27.3	23.0	27.2	44.4	43.7	37.6	33.1	35.0	34.4	36.1	32.8	29.3	36.1	39.3	37.0	36.3	33.3	Diurnal Maximum	
Dir	253	260	264	269	272	271	267	262	249	245	256	245	247	251	258	244	253	247	264	267	271	271	271	259	Diurnal Maximum	
Maximum Speed Value: 44 km/h on Dec 13 11:00		Minimum Speed Value: 0 km/h on Dec 15 13:00		Hours in Service: 744																						
Maximum Daily Speed Average: 18.8 km/h on Dec 13		Minimum Daily Speed Average: 0.1 km/h on Dec 27		Hours of Data: 744																						
Maximum Diurnal Speed Average: 5.8 km/h at hour 15		Minimum Diurnal Speed Average: 2.7 km/h at hour 6		Hours of Missing Data: 0																						
Monthly Average Velocity: 4.05 km/h 301.6 deg		Speed Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 2.2 Median = 4.9 Q <sub>3</sub> = 11.8 P <sub>90</sub> = 19.5 P <sub>99</sub> = 36.0		Percent Operational Time: 100.0																						
All monthly, daily, and diurnal averages have been calculated using vector methods																										
Frequency Distribution																										
Direction	Speed Range (km/h)						Total																			
	0 to 5	5 to 11	11 to 19	19 to 28	28 to 38	> 38																				
North	52	40	6	1	0	0	99																			
NorthEast	102	31	5	0	0	0	138																			
East	61	20	16	0	0	0	97																			
SouthEast	25	5	0	0	0	0	30																			
South	29	2	0	0	0	0	31																			
SouthWest	25	6	9	4	5	1	50																			
West	39	17	18	27	22	2	125																			
NorthWest	49	42	69	14	0	0	174																			
Total	382	163	123	46	27	3	744																			

**Wind Rose**

**Wind Speed (WS) (km/h)**  
**Beaverlodge - December 2012**



**Wind Speed Classes (km/h)**



# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Beaverlodge - December 2012

Maximum Speed: 45 km/h on Dec 13 11:00	Maximum Daily Speed Average: 20.5 km/h on Dec 13	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 28 03:00	Minimum Daily Speed Average: 2.7 km/h on Dec 6	Hours of Data: 744
Maximum Diurnal Speed Average: 10.5 km/h at hour 13	Minimum Diurnal Speed Average: 6.7 km/h at hour 3	Hours of Missing Data: 0
Monthly Average Speed: 8.63 km/h	Percentiles: P <sub>1</sub> = 1.2 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 3.1 Median = 5.5 Q <sub>3</sub> = 12.2 P <sub>90</sub> = 19.9 P <sub>99</sub> = 36.2	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	8	6	4	4	5	3	2	2	4	6	7	8	7	7	7	7	6	5	5	6	5	4	4	3	5.2	8.4
2-Dec	3	5	3	2	7	6	6	6	6	6	7	9	6	5	7	7	7	6	6	4	2	2	1	3	5.1	8.7
3-Dec	2	4	5	4	3	2	2	2	3	5	5	5	6	5	3	2	3	4	3	4	3	3	5	5	3.5	5.8
4-Dec	3	4	3	6	4	4	6	4	8	6	10	16	18	20	21	19	14	14	12	11	9	6	7	7	9.7	21.0
5-Dec	11	6	9	12	13	15	15	13	20	26	24	21	18	15	13	12	6	3	5	5	8	10	2	4	11.9	25.9
6-Dec	3	4	2	2	2	3	3	3	2	4	4	3	2	2	2	4	3	1	3	3	1	2	3	4	2.7	4.5
7-Dec	4	2	2	2	1	3	3	3	4	6	5	8	12	11	13	15	14	15	14	16	18	15	15	16	9.1	18.0
8-Dec	15	13	10	7	4	3	4	7	7	3	3	2	3	4	2	3	3	2	1	2	1	3	2	2	4.4	15.3
9-Dec	1	1	1	2	2	2	4	4	5	3	4	4	3	3	3	7	21	30	29	36	39	37	36	33	13.0	39.4
10-Dec	24	26	30	32	36	35	30	26	20	8	22	24	28	26	21	13	6	3	3	10	17	13	6	5	19.4	36.1
11-Dec	6	13	18	24	23	24	25	27	16	12	12	18	18	13	18	27	19	15	17	16	20	17	13	9	17.6	27.4
12-Dec	9	8	6	6	7	5	3	5	4	3	4	5	5	5	5	5	8	6	4	3	4	3	2	4	5.0	9.3
13-Dec	4	4	3	3	3	3	5	15	23	27	45	44	38	33	34	34	36	33	21	19	18	19	14	15	20.5	44.6
14-Dec	7	9	5	5	7	12	10	12	11	10	15	21	27	28	25	23	21	13	3	5	5	4	4	6	12.0	28.1
15-Dec	6	5	6	5	5	5	7	4	5	3	3	4	2	3	2	2	3	3	3	5	2	5	4	4	3.9	7.2
16-Dec	9	6	4	3	3	3	3	4	3	4	4	6	6	7	4	3	3	2	4	3	4	4	3	4	4.1	8.7
17-Dec	2	5	8	4	4	11	13	5	5	7	4	8	8	14	14	14	14	10	11	5	6	7	7	9	8.0	14.0
18-Dec	9	9	8	7	6	3	4	4	3	2	3	4	5	2	2	3	3	3	1	2	3	2	3	3	3.9	8.9
19-Dec	1	2	3	1	3	3	2	2	3	4	4	3	6	6	6	2	7	8	9	5	8	9	13	21	5.5	21.3
20-Dec	19	20	14	17	14	13	12	18	20	20	22	17	20	16	15	16	11	14	15	17	17	18	17	18	16.7	22.1
21-Dec	17	15	16	16	17	18	19	17	13	15	17	17	16	14	12	10	8	9	8	9	8	7	7	9	13.1	18.6
22-Dec	7	7	7	9	9	8	6	8	4	5	8	9	8	5	2	6	9	4	2	4	7	8	7	8	6.5	9.5
23-Dec	12	13	15	16	17	15	14	13	13	14	13	17	17	15	13	15	13	15	12	8	7	6	10	8	13.0	17.3
24-Dec	5	3	3	6	8	9	7	5	2	3	4	6	7	6	6	6	5	6	4	7	3	4	3	3	5.2	8.8
25-Dec	2	2	2	6	2	2	3	3	4	4	3	3	3	2	2	5	3	5	5	8	2	4	2	2	3.3	7.6
26-Dec	2	2	4	2	3	2	2	3	3	4	4	2	3	2	4	2	3	2	2	1	3	9	6	8	3.2	9.0
27-Dec	8	10	4	3	2	3	2	5	2	1	2	2	2	2	3	1	3	1	2	2	2	2	1	1	2.8	10.0
28-Dec	2	1	1	3	3	4	11	5	12	23	19	13	9	21	21	11	9	12	8	8	17	12	24	22	11.2	23.5
29-Dec	23	10	7	10	12	8	8	11	10	10	10	12	10	5	3	3	2	2	3	4	3	3	4	6	7.5	22.5
30-Dec	6	5	5	3	4	3	6	8	6	3	4	2	3	2	4	4	3	3	4	3	5	4	2	3	4.0	8.3
31-Dec	3	3	2	3	5	5	4	3	2	4	3	12	11	25	35	34	36	29	25	27	30	33	32	33	16.7	36.2
	7.5	7.2	6.7	7.2	7.5	7.7	7.8	7.9	7.9	8.1	9.6	10.4	10.5	10.4	10.4	10.2	9.8	9.1	7.9	8.4	8.9	8.8	8.4	8.9	Diurnal Average	
	23.8	26.1	29.6	32.1	36.1	34.5	29.9	27.4	23.2	27.2	44.6	43.8	37.7	33.1	35.1	34.5	36.2	33.0	29.3	36.1	39.4	37.1	36.3	33.3	Diurnal Maximum	

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

# Hourly Standard Deviations

Wind Direction (WD) - deg  
Beaverlodge - December 2012

Maximum Value: 100.8 deg on Dec 15 13:00																		Hours in Service: 744							
Minimum Value: 2.0 deg on Dec 10 15:00																		Hours of Data: 744							
Percentiles: P <sub>1</sub> = 2.6 P <sub>10</sub> = 4.4 Q <sub>1</sub> = 7.1 Median = 19.6 Q <sub>3</sub> = 53.1 P <sub>90</sub> = 74.3 P <sub>99</sub> = 92.7																		Hours of Missing Data: 0							
																		Hours of Calibration: 0							
																		Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	4	16	17	17	26	20	33	48	64	9	9	4	5	4	8	5	9	4	5	6	9	10	9	21	63.7
2-Dec	14	19	72	72	14	9	23	68	30	8	7	7	14	20	11	9	19	9	16	15	57	87	53	17	86.5
3-Dec	22	16	14	9	38	33	68	90	54	84	28	38	11	27	20	35	35	29	30	40	23	25	15	78	89.7
4-Dec	76	61	61	48	75	59	39	70	12	27	34	13	4	4	6	5	12	19	14	11	16	16	21	25	75.9
5-Dec	10	20	16	14	34	13	9	10	5	3	3	5	4	4	6	7	17	30	7	6	4	12	45	15	45.2
6-Dec	86	50	25	50	41	26	42	46	31	19	16	49	88	84	63	50	63	65	11	13	51	44	23	32	88.2
7-Dec	41	79	48	57	63	88	40	40	73	34	25	28	14	11	6	5	5	5	7	6	5	6	5	4	88.4
8-Dec	6	6	7	10	12	28	22	7	3	48	30	19	30	9	27	23	21	27	75	59	98	79	37	94	98.4
9-Dec	32	43	75	77	72	89	83	38	62	72	51	19	56	58	82	66	80	3	3	3	4	4	3	3	89.1
10-Dec	8	3	2	3	3	3	4	2	5	27	3	4	3	3	2	4	54	83	14	58	8	73	19	20	82.6
11-Dec	9	22	9	4	3	3	4	4	4	4	6	4	5	19	30	8	13	10	7	7	4	5	6	9	30.0
12-Dec	7	8	10	8	5	8	65	28	10	13	25	23	18	10	16	7	10	6	23	31	18	28	78	17	78.2
13-Dec	39	19	30	86	34	76	58	54	8	3	6	5	2	4	3	3	3	7	8	10	8	8	10	12	85.8
14-Dec	77	52	50	22	19	11	16	6	4	11	8	3	3	3	3	3	5	27	69	62	27	17	60	16	77.1
15-Dec	10	11	7	13	15	24	25	59	48	81	75	33	101	80	78	72	40	83	50	58	49	63	65	67	100.8
16-Dec	55	65	24	40	39	35	50	53	53	14	47	13	12	10	29	40	52	39	24	32	37	33	34	63	65.1
17-Dec	81	26	52	40	65	9	7	50	58	42	49	59	67	12	9	3	5	25	17	68	11	25	10	8	81.3
18-Dec	6	4	6	5	8	74	14	76	41	73	45	54	16	63	83	45	48	72	82	79	56	46	63	86	86.0
19-Dec	62	93	73	99	77	34	76	80	71	38	85	41	74	55	55	75	63	40	56	78	52	60	36	6	99.0
20-Dec	5	6	11	8	7	6	7	5	5	4	5	6	5	5	8	7	11	10	7	5	6	5	5	6	11.0
21-Dec	7	6	5	6	7	5	5	5	9	6	6	7	7	7	9	11	10	10	9	16	7	7	5	5	15.9
22-Dec	6	7	24	7	8	17	29	10	25	30	7	6	10	9	73	42	8	27	49	24	9	16	11	7	72.7
23-Dec	5	4	4	3	3	4	5	5	5	5	5	4	5	4	6	5	6	4	13	14	23	39	15	12	39.0
24-Dec	46	38	45	15	5	9	4	7	61	48	28	17	16	14	18	12	14	17	87	24	53	28	35	78	87.1
25-Dec	57	85	49	14	41	79	45	56	47	58	50	68	60	72	43	10	57	27	26	11	84	60	51	64	85.1
26-Dec	63	78	48	90	45	76	82	91	78	65	64	57	51	56	67	39	67	38	58	61	59	30	67	27	90.6
27-Dec	16	7	62	73	66	44	73	9	70	32	94	18	68	84	58	63	56	88	41	57	58	82	79	84	93.7
28-Dec	85	91	93	72	78	67	73	63	12	4	5	10	15	6	4	8	11	8	20	16	7	26	4	4	92.8
29-Dec	6	23	22	13	6	6	7	7	6	5	4	5	5	22	90	37	73	74	75	9	41	57	61	59	90.3
30-Dec	6	18	9	67	11	57	27	5	48	81	39	26	51	64	49	37	66	43	46	37	21	86	37	34	86.4
31-Dec	57	23	45	11	9	14	13	24	83	91	87	11	14	7	5	5	5	6	6	3	5	2	3	3	90.6
85.9	92.9	92.8	99.0	77.9	89.1	83.0	90.6	83.5	90.6	93.7	67.9	100.8	84.4	90.3	75.2	79.8	88.4	87.1	79.4	98.4	86.5	78.8	93.6		

**PAZA**  
**Valleyview Station**  
**Monthly Summary Tables, Graphs and**  
**Roses**

## Hourly Averages

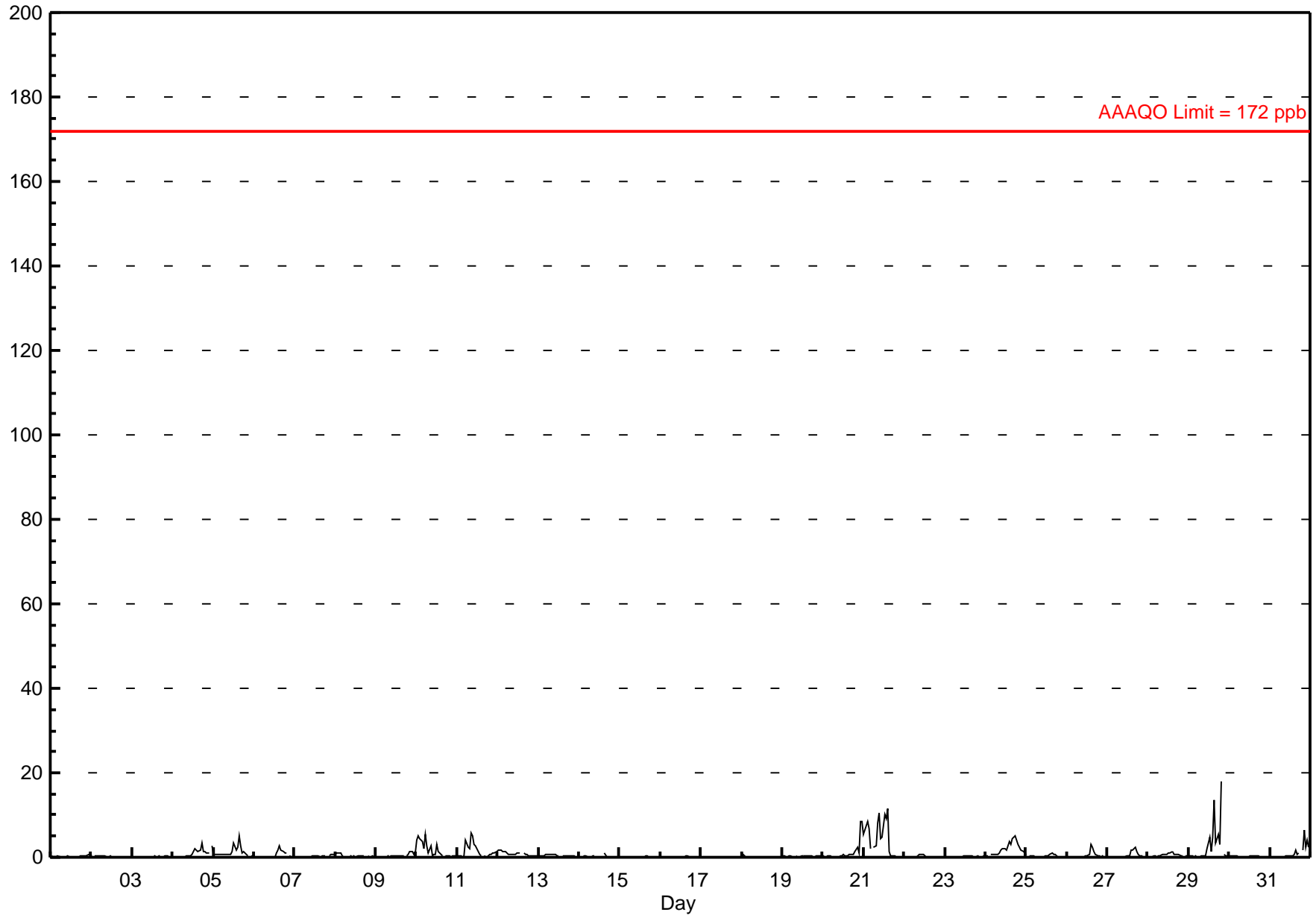
## Sulphur Dioxide (SO<sub>2</sub>) - ppb

### Valleyview - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 18.0 ppb on Dec 29 20:00	Maximum Daily Average: 4.1 ppb on Dec 21
Minimum Value: 0 ppb on Dec 3 03:00	Hours of Data: 707
Maximum Diurnal Average: 1.4 ppb at hour 16	Hours of Missing Data: 37
Monthly Average: 0.71 ppb	Hours of Calibration: 37
Minimum Daily Average: 0.0 ppb on Dec 17	Percent Operational Time: 100.0
Minimum Diurnal Average: 0.3 ppb at hour 5	
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.7 P <sub>99</sub> = 8.4	

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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.2	0.6	
2-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	0.2	0.5
3-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.1	0.4
4-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	1	2	3	1	1	1	1	A	3	0.9	3.2	
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	3	2	2	5	3	1	1	1	0	A	0	0	1.2	5.1	
6-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	1	1	1	1	A	0	0	0	0.5	2.8	
7-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	1	0.2	0.8	
8-Dec	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0.3	1.0	
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	1	1	1	0.4	1.4	
10-Dec	4	5	4	4	2	5	3	1	3	0	1	1	3	1	1	0	A	0	0	0	0	0	0	0	1.7	5.4	
11-Dec	0	0	0	0	0	4	2	2	6	5	3	3	1	1	0	A	0	0	0	1	1	1	1	1	1.5	5.9	
12-Dec	2	2	2	2	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0	0	0	0	0	0	0.8	1.6	
13-Dec	0	0	0	0	1	1	1	1	1	1	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0.4	0.7	
14-Dec	0	0	0	0	0	0	0	0	0	0	C	C	C	C	C	1	0	0	0	0	0	0	0	0	0.1	1.0	
15-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	0.0	0.2	
16-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	
17-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	0.0	0.0	
18-Dec	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.8	
19-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	0.4	
20-Dec	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0	1	1	1	1	1	1	2	1	8	9	1.2	8.6
21-Dec	5	7	8	7	2	A	2	3	8	10	4	5	10	9	11	1	0	0	0	0	0	0	0	0	4.1	11.4	
22-Dec	0	0	0	0	A	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.7	
23-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	
24-Dec	0	0	A	1	1	1	1	1	1	1	2	2	2	2	3	4	3	4	5	4	3	3	2	1	1	1.9	5.1
25-Dec	1	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0.3	1.2	
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	2	1	0	0	0	0	0	A	0.5	2.9	
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	1	0	0	0	A	0	0.5	2.5	
28-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	A	0	0	0.5	1.3	
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	2	5	1	5	14	3	5	3	18	A	1	0	2.6	18.0	
30-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	
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	A	2	6	2	4	2	1.0	6.3	
	0.5	0.7	0.7	0.6	0.3	0.5	0.4	0.3	0.8	0.8	0.6	0.7	1.1	0.9	1.3	1.4	0.8	0.8	0.6	1.1	0.6	0.4	0.7	0.7		Diurnal Average	
	5.4	7.4	8.5	6.6	2.2	5.4	2.7	2.6	8.2	10.4	4.3	4.6	10.0	9.0	11.4	13.6	4.4	5.4	4.1	18.0	6.3	2.3	8.4	8.6		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 Maximums

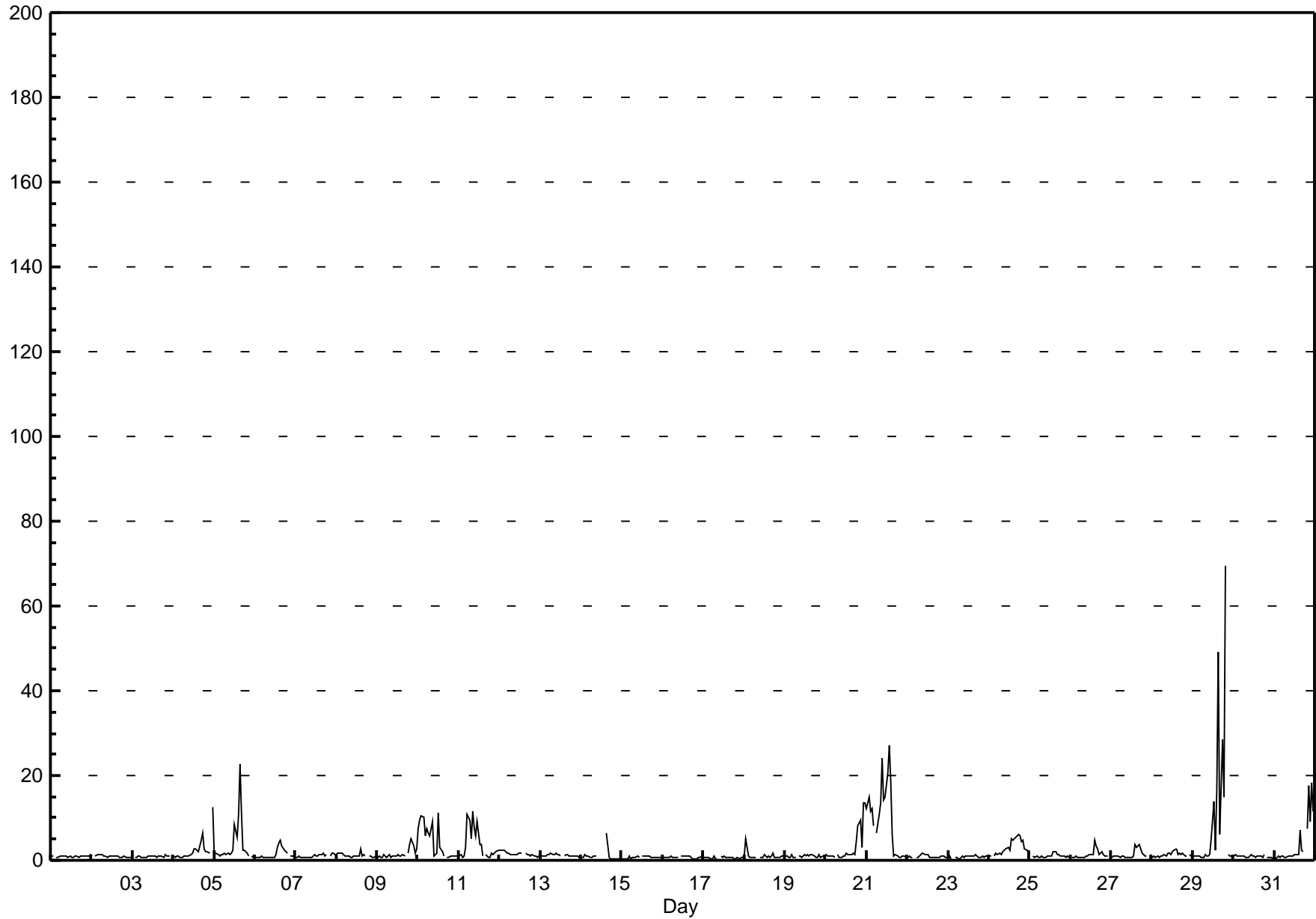
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Valleyview - December 2012

Maximum Value: 69.4 ppb on Dec 29 20:00		Maximum Daily Average: 9.7 ppb on Dec 21		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 15 00:00		Minimum Daily Average: 0.6 ppb on Dec 17		Hours of Data: 707																							
Maximum Diurnal Average: 4.4 ppb at hour 16		Minimum Diurnal Average: 1.4 ppb at hour 6		Hours of Missing Data: 37																							
Monthly Average: 2.18 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 0.8 Median = 1.0 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 4.3 P <sub>99</sub> = 19.6		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	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3	
2-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4	
3-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.9	1.4	
4-Dec	1	1	1	1	1	1	1	1	1	1	2	2	3	3	2	2	5	7	3	2	2	2	A	13	2.3	12.5	
5-Dec	2	2	1	1	1	1	2	1	2	2	2	2	9	6	11	23	11	3	2	2	1	A	1	1	3.8	22.7	
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	3	4	5	3	2	2	2	A	1	1	1	1	1.5	4.6	
7-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	A	1	2	2	1	1	1.0	1.7	
8-Dec	2	2	2	2	1	1	1	1	1	1	1	1	1	3	1	1	1	A	A	1	1	1	1	1	1.2	2.6	
9-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	2	4	5	3	2	3	1.5	4.9	
10-Dec	8	10	10	10	6	8	6	6	9	1	1	2	11	3	2	1	A	1	1	1	1	1	1	1	4.3	11.2	
11-Dec	1	1	1	1	3	11	10	5	12	8	6	9	4	4	1	A	1	1	1	2	1	2	2	2	3.8	11.6	
12-Dec	2	2	2	2	2	2	1	1	1	1	1	2	2	2	A	2	1	1	1	1	1	1	1	1	1.6	2.4	
13-Dec	1	1	1	1	1	2	2	1	1	2	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1.2	1.7	
14-Dec	1	1	1	1	1	1	1	1	1	1	C	C	C	C	C	7	1	0	0	0	0	0	0	0	1.0	6.6	
15-Dec	0	0	0	0	1	0	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
16-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0	0	0	1	1	1	0.7	1.0	
17-Dec	1	1	1	1	0	0	1	0	0	A	1	1	1	1	1	1	1	1	0	0	1	0	1	1	0.6	0.9	
18-Dec	1	5	1	1	1	1	1	1	A	A	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1.0	5.2	
19-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.3	
20-Dec	1	1	1	1	1	1	A	1	1	1	1	1	2	1	1	1	2	1	4	8	9	3	14	14	3.1	13.7	
21-Dec	12	15	12	12	8	A	7	11	13	24	14	15	21	27	19	6	1	1	1	1	1	1	1	1	9.7	27.2	
22-Dec	1	1	1	1	A	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.7	
23-Dec	1	1	0	A	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.3	
24-Dec	1	1	A	1	2	1	2	1	2	3	3	3	3	5	5	5	5	6	6	4	5	3	2	1	3.0	5.9	
25-Dec	2	A	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1.1	2.1	
26-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	5	3	3	1	2	1	1	1	1	A	1.4	4.8	
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	3	4	3	2	1	1	1	A	1	1.4	3.9	
28-Dec	1	1	1	1	1	1	1	1	1	2	2	1	2	2	3	1	2	1	2	1	1	A	1	1	1.3	2.6	
29-Dec	1	1	1	1	1	1	1	1	1	1	1	5	14	2	17	49	6	29	15	69	A	1	1	1	9.6	69.4	
30-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	
31-Dec	1	0	1	1	1	1	1	1	1	1	1	1	1	1	7	3	2	A	7	18	9	18	12	3.9	18.4		
		1.6	1.9	1.6	1.6	1.5	1.4	1.6	1.6	2.0	2.0	1.7	2.1	3.0	2.6	3.2	4.4	2.2	2.5	1.9	4.1	2.1	1.5	2.0	2.2	Diurnal Average	
		12.3	14.8	11.5	12.2	8.1	10.9	9.6	10.7	13.5	24.2	14.1	14.9	20.7	27.2	18.8	49.2	11.2	28.6	14.9	69.4	17.6	9.0	18.4	13.7	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

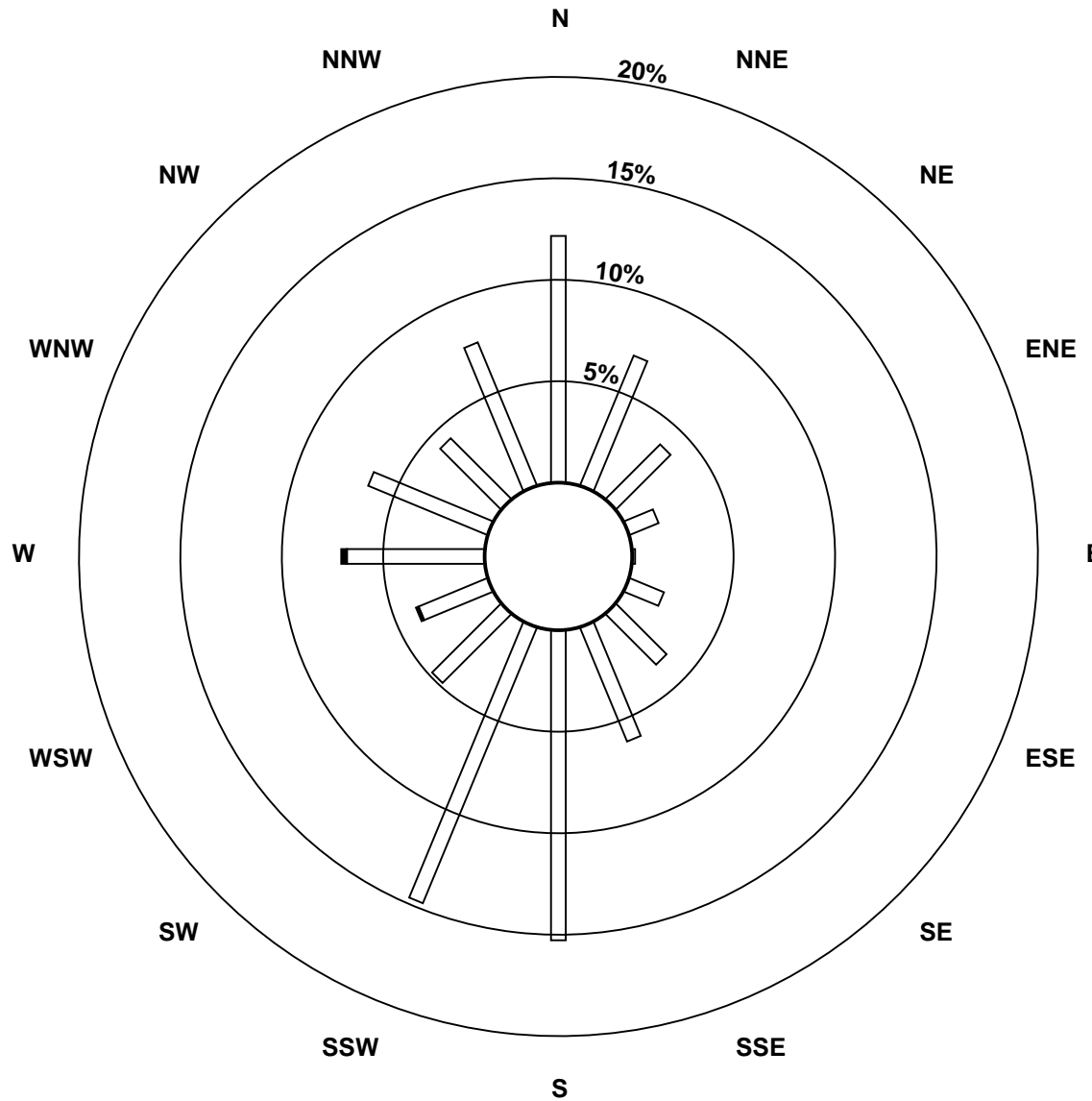
### Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Valleyview - December 2012

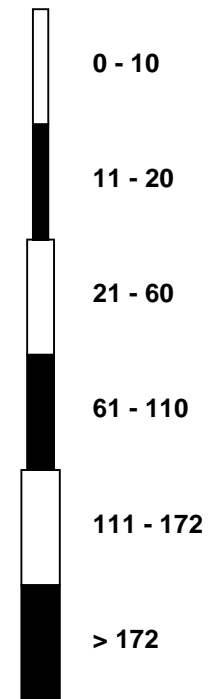


**Pollutant Rose**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Valleyview - December 2012**

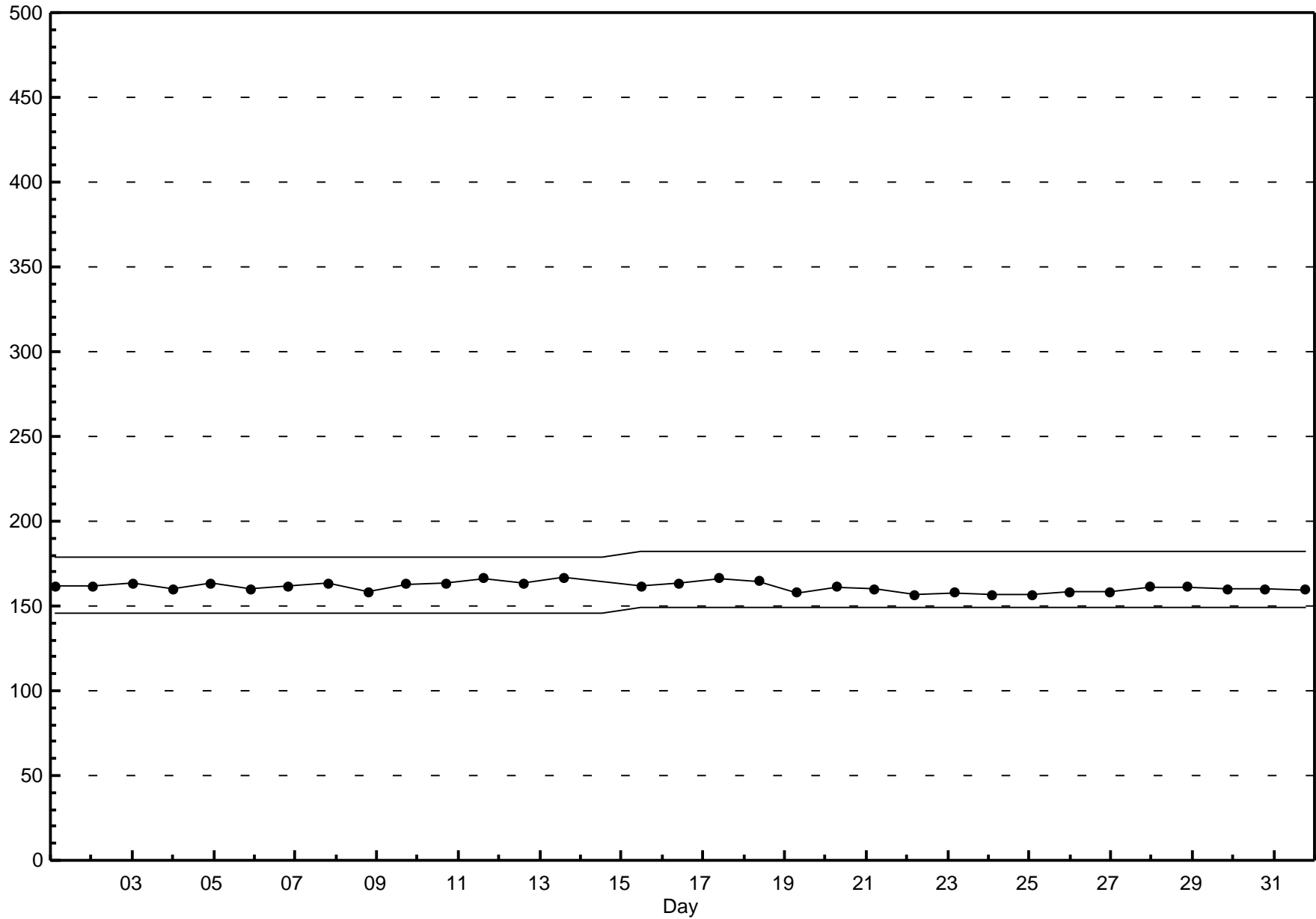


**Pollutant Classes (ppb)**



### Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Valleyview - December 2012



## Hourly Averages

## Hydrogen Sulphide (H<sub>2</sub>S) - ppb Valleyview - December 2012

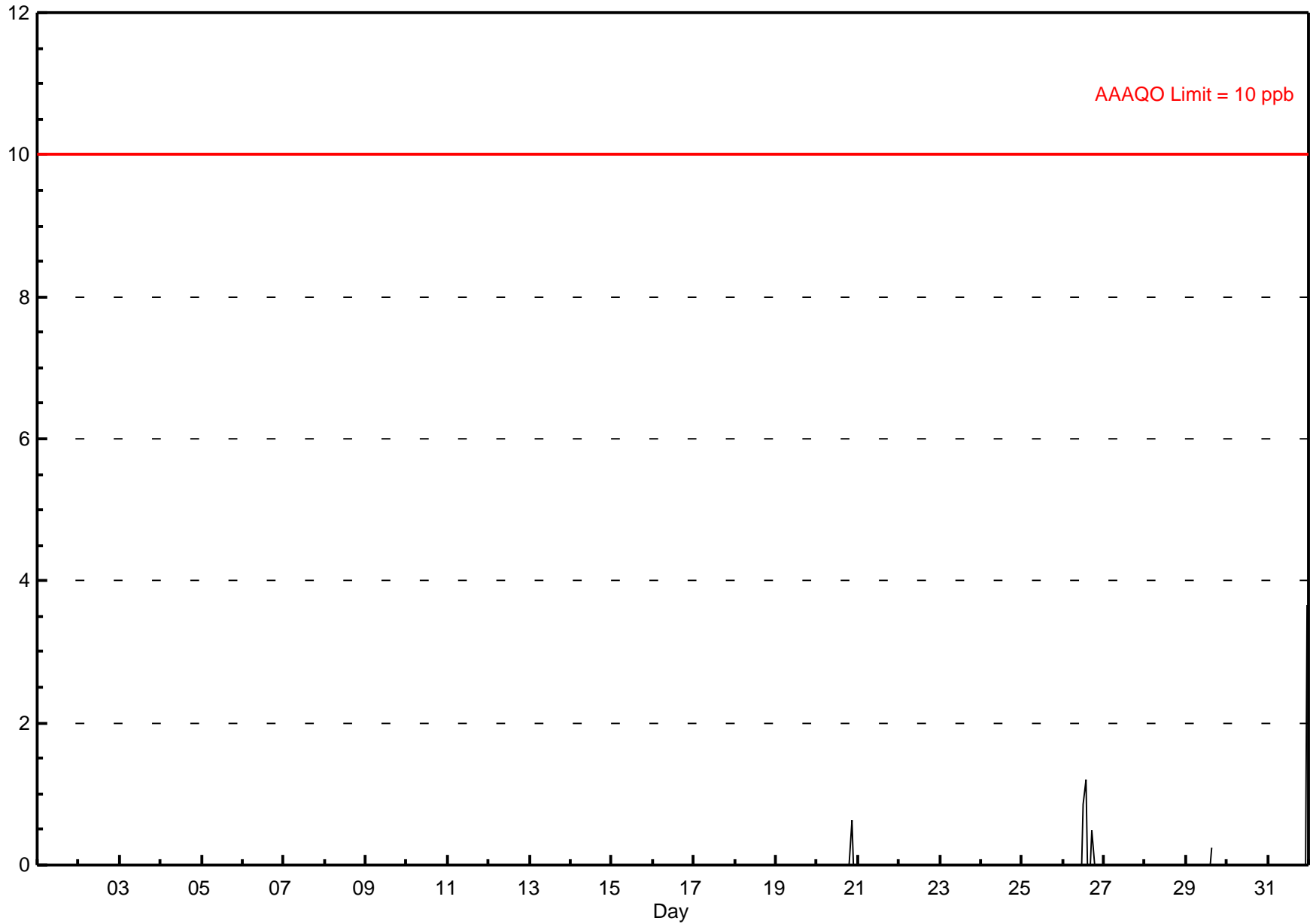
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.7 ppb on Jan 1 00:00	Maximum Daily Average: 0.2 ppb on Dec 31		Hours of Data:	705
Minimum Value: 0 ppb on Dec 1 01:00	Minimum Daily Average: 0.0 ppb on Dec 1		Hours of Missing Data:	39
Maximum Diurnal Average: 0.1 ppb at hour 24	Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Calibration:	36
Monthly Average: 0.01 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.1		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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	
2-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	0.0	0.0
3-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
4-Dec	0	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	0.0
5-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	0.0
6-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	0.0	0.0
7-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	0.0	0.0
8-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	0.0
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	A	0	0	0	0	0	0.0	0.0
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	A	0	0	0	0	0	0	0.0	0.0
11-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	0.0	0.0
12-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	0.0	0.0
13-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	0.0
14-Dec	0	0	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
15-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	0.0	0.0
16-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	0.0	0.0
17-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	0.0	0.0
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
20-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	0.0	0.6
21-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	0.0
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	0.0	0.0
23-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	0.0	0.0
24-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	0.0	0.0
25-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	0.0	0.0
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0.1	1.2
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
28-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	0.0
29-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	0.1	1.8
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	N	N	0	0	0	0	0	0.0	0.0
31-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	4	0.2	3.7
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	Diurnal Average	
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.2	0.0	0.3	0.0	0.5	0.0	1.8	0.6	0.0	0.0	0.0	3.7	Diurnal Maximum		

C - Calibration                      N - Not Valid                      A - Automated Daily Zero Span  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb      24-hr 3 ppb

### Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Valleyview - December 2012



## Hourly Maximums

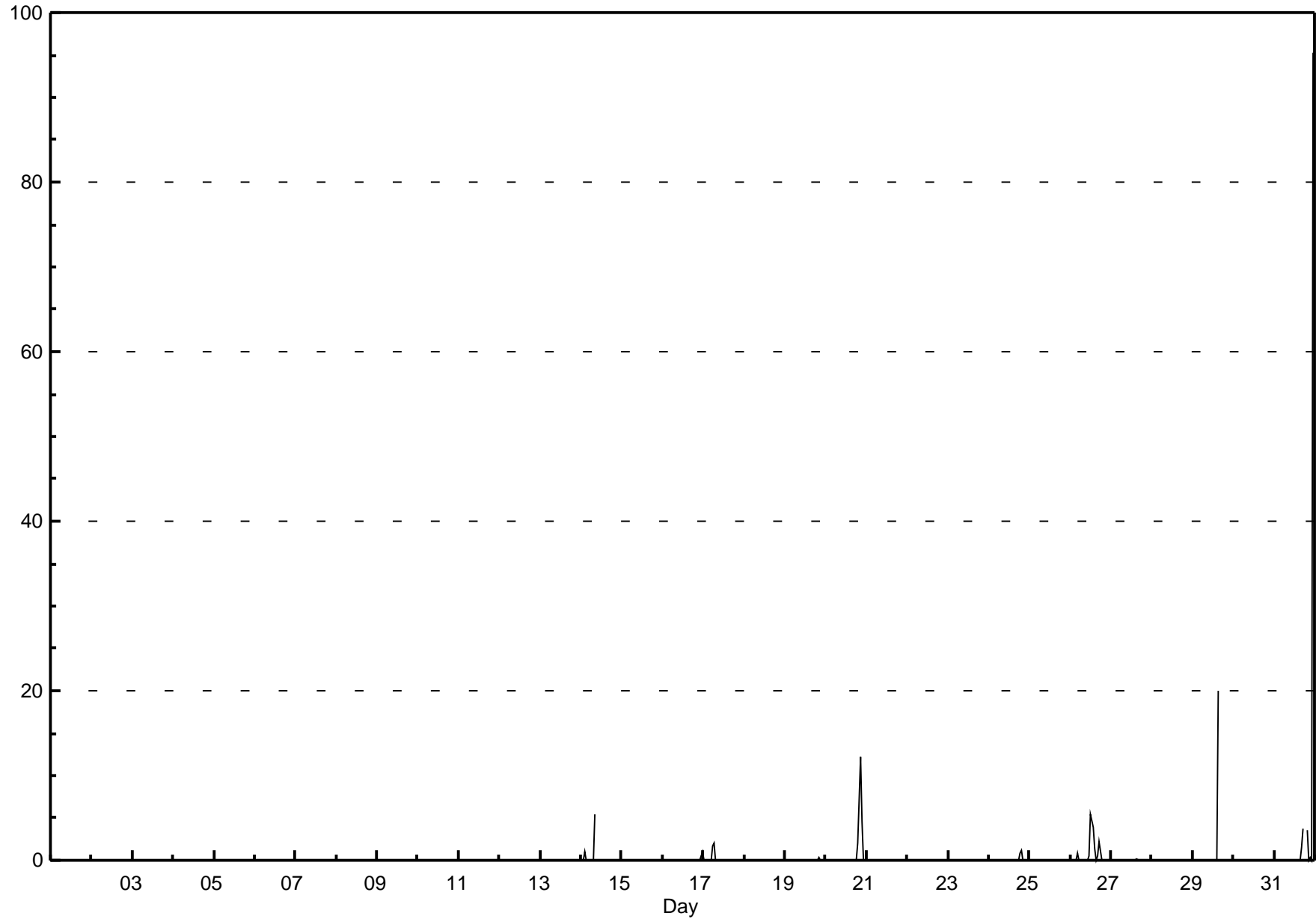
Hydrogen Sulphide (H<sub>2</sub>S) - ppb

Valleyview - December 2012

Maximum Value: 95.2 ppb on Jan 1 00:00		Maximum Daily Average: 4.5 ppb on Dec 31		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 1 01:00		Minimum Daily Average: 0.0 ppb on Dec 1		Hours of Data: 705																							
Maximum Diurnal Average: 3.3 ppb at hour 24		Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 39																							
Monthly Average: 0.25 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 3.5		Hours of Calibration: 36																							
				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	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	
2-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	0.0	0.0	
3-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	
4-Dec	0	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	0.0
5-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	0.0	0.0	
6-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	0.0	0.0	
7-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	0.0	
8-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	0.0	
9-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	0.0	0.0	
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.0	0.0	
11-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	0.0	0.0	
12-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	0.0	0.0	
13-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	0.0	
14-Dec	0	0	1	0	0	0	0	0	5	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.3	5.5	
15-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	0.0	0.0	
16-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0	1.0	
17-Dec	0	0	0	0	0	2	2	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	2.1	
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	
19-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	0.0	0.3	
20-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12	5	0	0.8	12.2	
21-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	
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	0.0	0.0	
23-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	0.0	0.0	
24-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.1	1.3	
25-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	0.0	0.0	
26-Dec	A	0	0	0	1	0	0	0	0	0	0	5	4	1	0	0	2	0	0	0	0	0	0	A	0.7	5.4	
27-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	
28-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	0.0	0.0	
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	N	N	N	3	A	0	0	0	1.2	20.0	
30-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	0.0	
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	A	4	0	0	0	95	4.5	95.2		
		0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.7	0.1	0.2	0.0	0.3	0.4	0.2	0.0	3.3	Diurnal Average	
		0.0	0.0	0.9	0.0	0.8	1.6	2.1	0.0	5.5	0.0	0.0	0.5	5.4	3.9	1.4	20.0	1.6	3.8	0.8	3.5	12.2	4.5	0.0	95.2	Diurnal Maximum	
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																			

**Hourly Maximums**

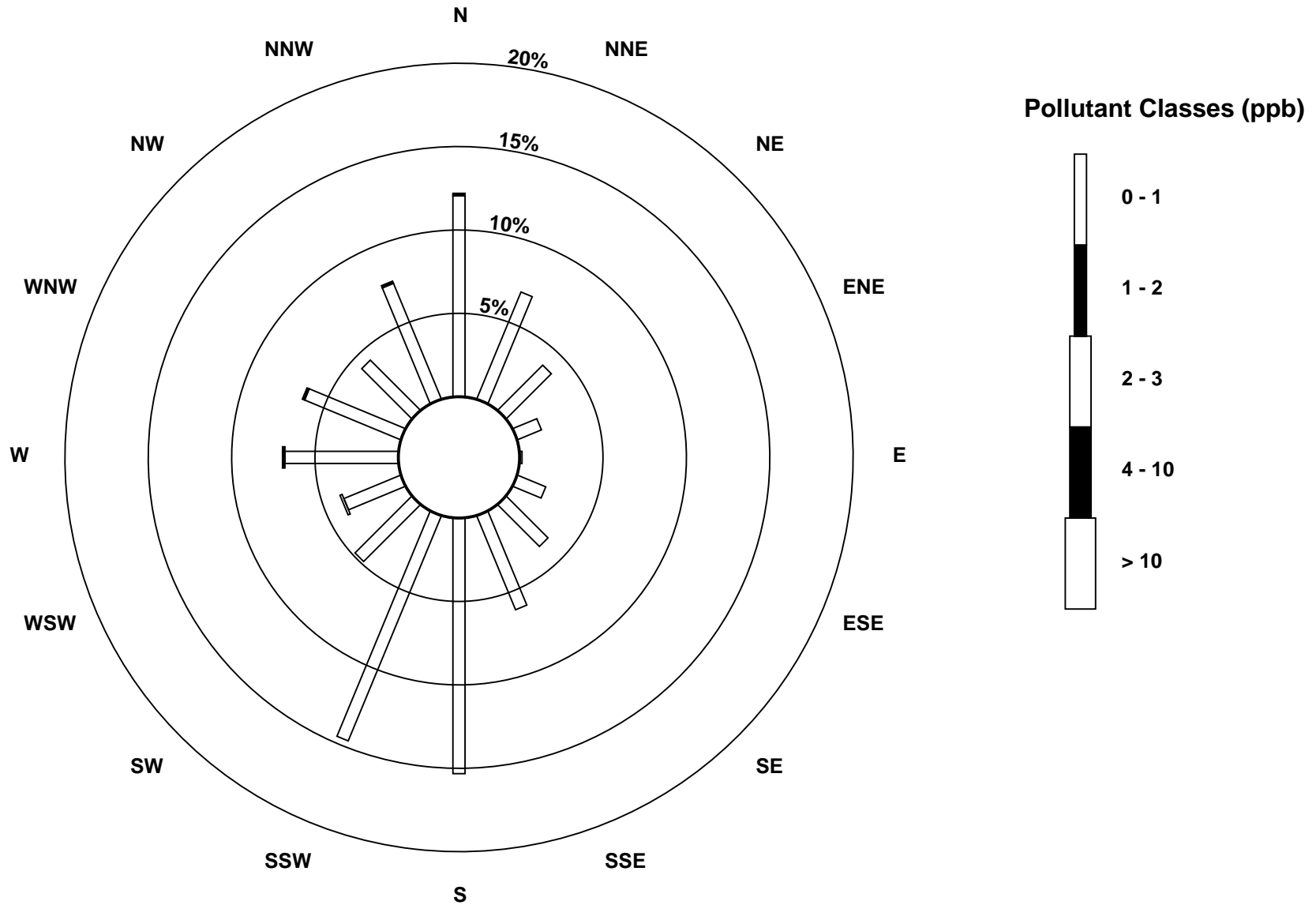
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Valleyview - December 2012**





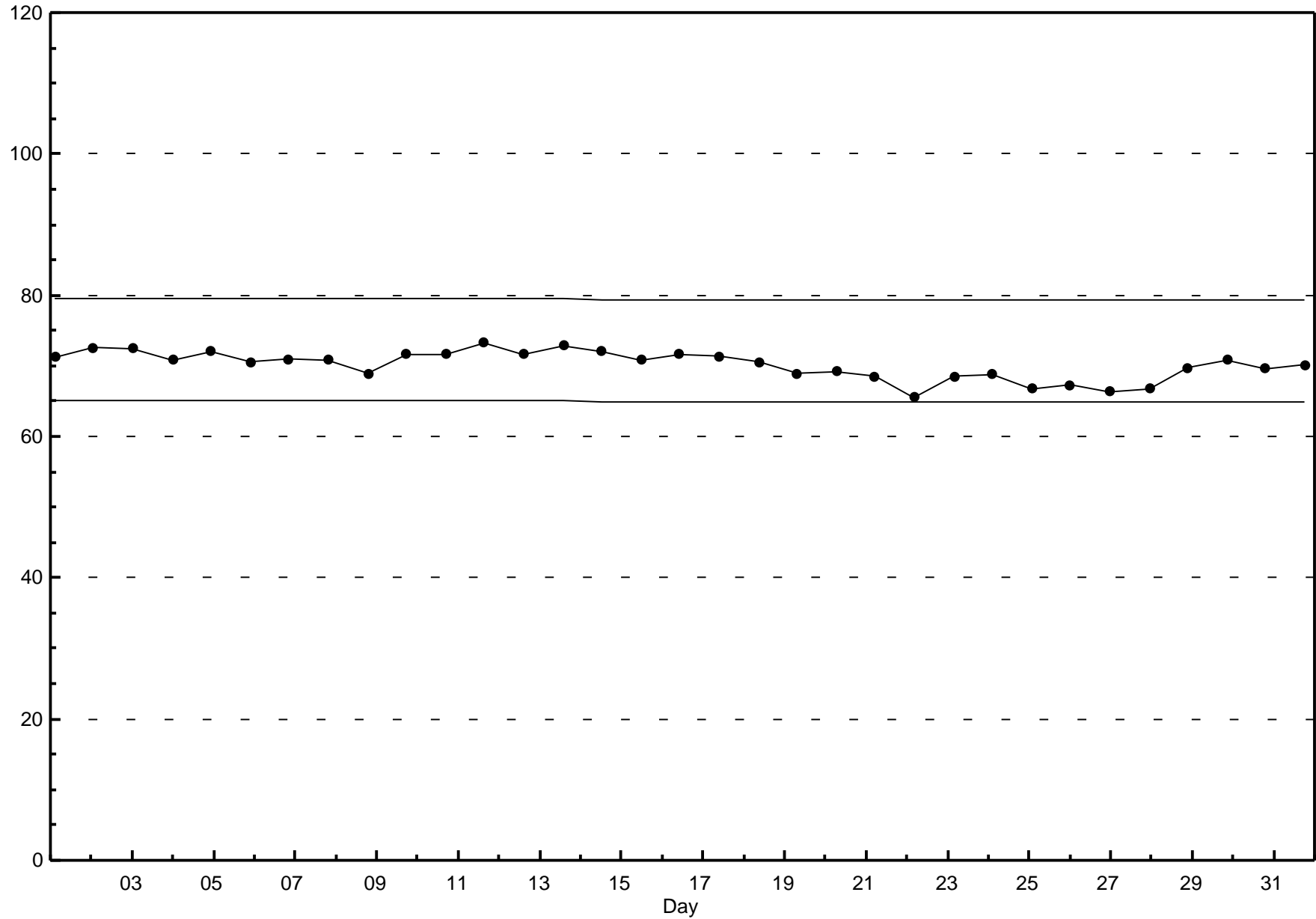
**Pollutant Rose**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Valleyview - December 2012**



### Span Responses

Hydrogen Sulphide (H<sub>2</sub>S)  
Valleyview - December 2012

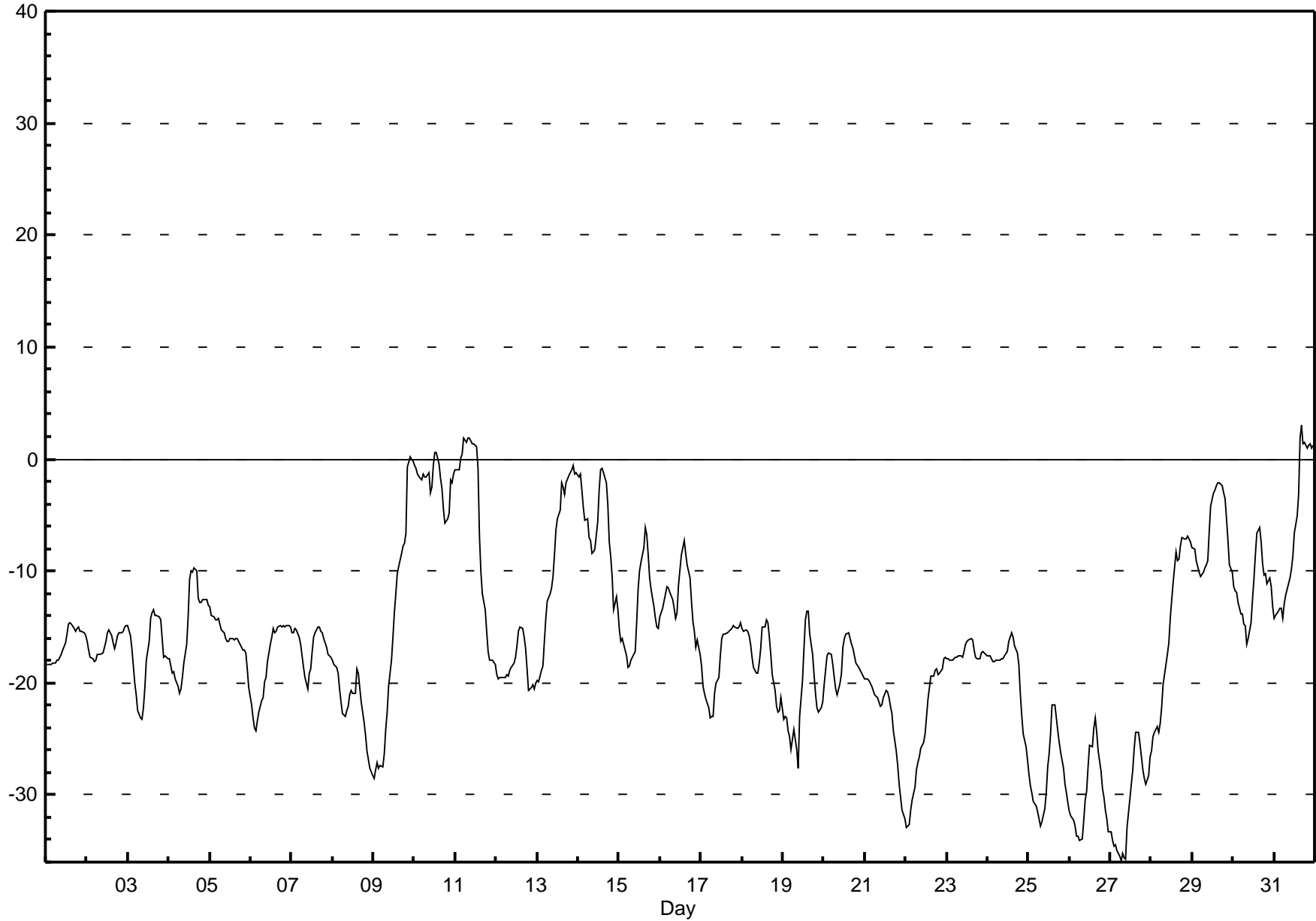


# Hourly Averages

External Temperature (ET) - °C

Valleyview - December 2012

Number of Exceedences (AAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.0 °C on Dec 31 17:00      Maximum Daily Average: -2.0 °C on Dec 10		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Value: -36 °C on Dec 27 07:00 Maximum Diurnal Average: -12.7 °C at hour 16 Monthly Average: -16.36 °C		Minimum Daily Average: -30.7 °C on Dec 27 Minimum Diurnal Average: -18.8 °C at hour 7 Percentiles: P <sub>1</sub> = -34.5 P <sub>10</sub> = -26.9 Q <sub>1</sub> = -20.6 Median = -16.9 Q <sub>3</sub> = -12.6 P <sub>90</sub> = -3.9 P <sub>99</sub> = 1.5																								
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	-18	-18	-18	-18	-18	-18	-18	-18	-18	-17	-17	-16	-16	-15	-15	-15	-15	-15	-15	-15	-15	-15	-16	-16	-16.5	-14.6
2-Dec	-16	-17	-18	-18	-18	-18	-17	-17	-17	-17	-17	-16	-16	-15	-16	-16	-17	-16	-16	-15	-16	-15	-15	-15	-16.5	-14.8
3-Dec	-15	-16	-17	-18	-20	-21	-22	-23	-23	-22	-20	-18	-16	-14	-14	-13	-14	-14	-14	-14	-16	-18	-18	-18	-17.5	-13.5
4-Dec	-18	-18	-19	-19	-20	-20	-21	-21	-20	-18	-17	-14	-11	-10	-10	-10	-10	-12	-13	-13	-13	-13	-13	-13	-15.1	-9.7
5-Dec	-13	-14	-14	-14	-14	-14	-15	-15	-15	-16	-16	-16	-16	-16	-16	-16	-16	-16	-17	-17	-17	-17	-19	-20	-15.9	-13.3
6-Dec	-22	-23	-24	-24	-23	-23	-22	-21	-20	-19	-18	-17	-16	-15	-16	-15	-15	-15	-15	-15	-15	-15	-15	-15	-18.2	-14.9
7-Dec	-15	-16	-15	-15	-16	-17	-18	-19	-20	-21	-19	-19	-17	-16	-16	-15	-15	-15	-16	-16	-17	-17	-18	-18	-16.8	-14.9
8-Dec	-18	-18	-19	-19	-20	-22	-23	-23	-22	-22	-21	-21	-21	-19	-19	-20	-22	-23	-25	-26	-27	-28	-28	-28	-22.0	-18.0
9-Dec	-29	-28	-27	-28	-27	-27	-26	-24	-23	-20	-18	-16	-14	-12	-10	-10	-8	-8	-7	-7	-1	0	0	0	-15.4	0.2
10-Dec	-1	-1	-1	-2	-2	-1	-2	-2	-1	-3	-3	-1	1	1	0	-2	-3	-4	-6	-5	-5	-2	-2	-1	-2.0	0.6
11-Dec	-1	-1	-1	0	0	2	1	2	2	2	1	1	1	-1	-7	-10	-12	-13	-15	-17	-18	-18	-18	-18	-5.7	1.9
12-Dec	-19	-20	-19	-19	-19	-19	-19	-19	-19	-19	-18	-18	-17	-15	-15	-15	-16	-17	-19	-21	-20	-20	-21	-20	-18.5	-15.0
13-Dec	-20	-20	-19	-18	-16	-14	-13	-12	-11	-11	-9	-6	-5	-5	-2	-3	-3	-2	-1	-1	-1	-1	-1	-1	-8.2	-0.6
14-Dec	-2	-1	-3	-4	-5	-5	-7	-7	-8	-8	-8	-6	-3	-1	-1	-1	-2	-4	-7	-9	-11	-13	-12	-13	-6.0	-0.8
15-Dec	-15	-16	-16	-17	-18	-19	-18	-18	-18	-17	-15	-12	-10	-9	-8	-6	-7	-9	-11	-12	-13	-14	-15	-15	-13.6	-6.1
16-Dec	-14	-13	-13	-12	-11	-11	-12	-13	-13	-14	-14	-11	-9	-8	-7	-8	-9	-11	-13	-14	-15	-17	-16	-17	-12.4	-7.3
17-Dec	-18	-20	-21	-21	-22	-23	-23	-23	-21	-20	-19	-18	-16	-16	-16	-16	-15	-15	-15	-15	-15	-15	-15	-15	-18.1	-14.6
18-Dec	-15	-15	-15	-15	-16	-17	-18	-19	-19	-19	-18	-17	-15	-15	-14	-15	-16	-17	-19	-21	-22	-23	-22	-21	-17.7	-14.3
19-Dec	-23	-23	-23	-24	-25	-26	-24	-25	-26	-28	-23	-20	-17	-14	-14	-14	-16	-18	-19	-21	-22	-23	-22	-22	-21.3	-13.5
20-Dec	-20	-19	-18	-17	-18	-18	-20	-21	-21	-20	-19	-17	-16	-16	-15	-16	-17	-17	-18	-18	-19	-19	-19	-19	-18.1	-15.5
21-Dec	-20	-20	-20	-20	-20	-21	-21	-21	-22	-22	-22	-21	-21	-21	-21	-22	-23	-24	-26	-27	-29	-30	-31	-32	-23.2	-19.6
22-Dec	-33	-33	-33	-31	-30	-29	-28	-27	-27	-26	-25	-25	-23	-21	-20	-19	-19	-19	-19	-19	-19	-19	-18	-18	-24.2	-17.7
23-Dec	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-17	-17	-16	-16	-16	-16	-17	-18	-18	-18	-17	-17	-17	-17	-17.3	-16.1
24-Dec	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-17	-16	-16	-16	-16	-17	-17	-18	-21	-23	-24	-26	-27	-18.8	-15.5
25-Dec	-28	-29	-30	-31	-31	-31	-32	-33	-32	-31	-30	-27	-26	-25	-22	-22	-23	-24	-25	-26	-28	-29	-30	-31	-28.2	-21.9
26-Dec	-31	-32	-32	-33	-34	-34	-34	-34	-32	-30	-30	-28	-26	-26	-24	-23	-24	-26	-28	-29	-30	-31	-32	-33	-29.9	-23.1
27-Dec	-33	-34	-35	-34	-35	-35	-36	-35	-36	-36	-33	-30	-29	-28	-26	-24	-24	-25	-27	-28	-29	-29	-28	-27	-30.7	-24.5
28-Dec	-26	-25	-24	-24	-24	-22	-20	-18	-17	-16	-14	-13	-11	-8	-9	-9	-8	-7	-7	-7	-7	-7	-7	-7	-14.8	-6.8
29-Dec	-8	-8	-9	-10	-10	-11	-10	-10	-10	-9	-7	-4	-3	-3	-2	-2	-2	-2	-3	-4	-5	-7	-9	-10	-6.6	-2.1
30-Dec	-11	-12	-12	-13	-14	-14	-15	-15	-17	-16	-15	-13	-11	-9	-7	-6	-7	-9	-10	-10	-11	-11	-11	-13	-11.7	-6.1
31-Dec	-14	-14	-14	-13	-13	-14	-13	-12	-11	-11	-10	-9	-7	-5	-3	2	3	1	2	1	1	1	1	1	-6.2	3.0
																								Diurnal Average		
																								Diurnal Maximum		



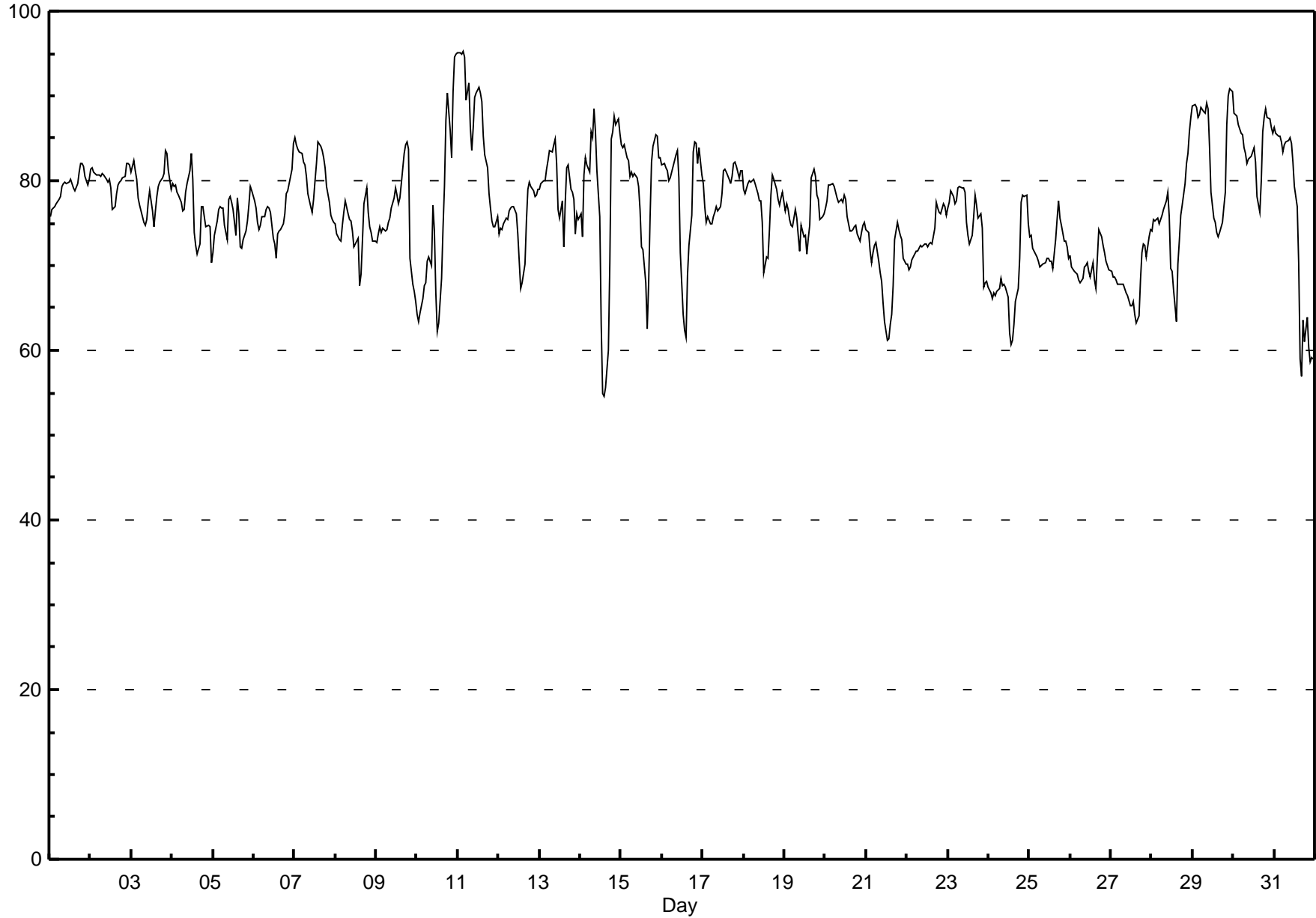
# Hourly Averages

Relative Humidity (RH) - %  
Valleyview - December 2012

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 95.3 % on Dec 11 04:00 Maximum Daily Average: 86.2 % 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: 55 % on Dec 14 15:00 Maximum Diurnal Average: 78.5 % at hour 20 Monthly Average: 76.51 %		Minimum Daily Average: 68.2 % on Dec 27 Minimum Diurnal Average: 71.8 % at hour 15 Percentiles: P <sub>1</sub> = 59.1 P <sub>10</sub> = 68.0 Q <sub>1</sub> = 72.7 Median = 76.8 Q <sub>3</sub> = 80.5 P <sub>90</sub> = 84.6 P <sub>99</sub> = 94.6																																														
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	76	77	77	77	77	78	78	79	80	80	80	80	80	80	79	79	80	81	82	82	82	81	79	80	79.3	82.1																						
2-Dec	81	82	81	81	81	81	81	81	81	80	80	80	79	77	77	79	79	80	80	80	81	82	82	82	80.2	82.0																						
3-Dec	81	82	81	80	78	77	76	75	75	75	77	79	76	75	76	78	79	80	80	81	84	83	81	79	78.8	83.6																						
4-Dec	80	79	80	79	78	77	76	77	79	80	81	83	80	74	72	71	73	77	77	76	75	75	74	70	76.8	83.3																						
5-Dec	72	74	75	77	77	77	77	75	73	78	78	77	77	74	78	76	72	72	73	74	75	77	79	79	75.6	79.3																						
6-Dec	78	77	75	74	75	76	76	77	77	77	76	73	73	71	74	74	74	75	76	78	79	80	81	84	76.2	84.5																						
7-Dec	85	84	84	83	83	82	82	81	78	77	76	78	80	82	85	84	84	83	81	79	77	76	76	75	80.6	85.1																						
8-Dec	75	74	73	73	75	76	78	76	75	75	74	72	73	73	68	69	73	77	79	76	75	74	73	73	74.1	79.1																						
9-Dec	73	74	75	74	74	74	74	75	76	77	78	79	78	77	78	80	83	84	85	84	71	68	67	66	75.9	84.6																						
10-Dec	64	63	64	66	68	68	70	71	70	77	74	67	62	63	69	74	79	87	90	86	83	91	95	95	74.9	95.0																						
11-Dec	95	95	95	95	95	89	92	86	83	86	90	90	91	90	89	85	83	82	79	77	75	75	75	76	86.2	95.3																						
12-Dec	74	74	74	75	76	75	76	77	77	77	76	74	70	67	68	70	75	79	80	79	79	78	78	79	75.4	79.9																						
13-Dec	79	80	80	80	81	82	84	83	84	85	82	77	76	78	72	77	82	82	79	79	78	74	76	75	79.3	85.0																						
14-Dec	76	73	81	83	82	81	86	85	88	86	81	76	63	55	55	56	60	70	85	86	88	87	87	86	77.3	88.5																						
15-Dec	84	84	84	83	82	80	81	80	81	80	79	77	72	72	68	63	68	76	82	84	85	85	83	83	79.0	85.4																						
16-Dec	82	82	81	81	80	80	81	82	83	84	80	72	64	62	62	69	72	76	83	85	84	82	84	81	78.0	84.6																						
17-Dec	80	77	75	76	75	75	76	76	77	77	77	79	81	81	81	80	80	80	82	82	82	80	81	81	78.8	82.2																						
18-Dec	79	78	80	80	80	80	80	80	78	78	78	75	69	71	71	74	78	81	80	79	78	77	78	79	77.5	80.7																						
19-Dec	76	77	77	75	75	75	77	76	74	72	75	73	74	71	73	75	80	81	80	78	78	75	76	76	75.8	81.4																						
20-Dec	77	78	79	80	80	79	79	78	77	78	78	78	78	76	74	74	74	75	75	74	73	74	75	75	76.5	79.7																						
21-Dec	74	74	72	70	72	72	73	70	69	68	66	63	61	61	63	64	68	73	75	74	74	73	71	70	69.6	75.1																						
22-Dec	70	69	70	71	71	72	72	72	72	72	72	73	72	73	73	73	74	77	77	76	76	77	77	76	73.2	77.4																						
23-Dec	77	77	79	78	77	78	79	79	79	79	79	75	73	73	74	76	78	77	76	76	74	67	68	68	75.7	79.3																						
24-Dec	67	67	66	67	66	67	67	68	68	68	67	66	62	61	61	63	66	67	71	77	78	78	78	75	68.5	78.4																						
25-Dec	73	74	72	72	71	70	70	70	70	70	71	71	71	70	70	73	75	78	76	75	73	73	72	71	72.1	77.6																						
26-Dec	71	70	69	69	69	68	68	68	70	70	70	69	69	70	68	67	71	74	73	72	72	70	70	69	70.0	74.2																						
27-Dec	69	69	69	68	68	68	68	68	67	67	66	65	65	66	64	63	64	68	71	73	72	71	73	74	68.2	74.2																						
28-Dec	74	75	75	76	75	75	76	77	78	79	76	70	69	67	63	70	73	76	77	80	82	83	86	87	75.8	87.4																						
29-Dec	89	89	89	87	88	89	88	88	88	89	88	84	79	76	75	74	73	74	75	77	79	87	90	91	90	83.6	90.9																					
30-Dec	88	88	88	87	86	85	84	83	82	83	83	83	84	82	78	76	80	86	87	89	87	87	86	86	84.5	88.5																						
31-Dec	86	86	85	85	85	83	84	85	85	85	84	82	79	77	70	59	57	64	61	64	60	59	59	59	74.3	86.3																						
																								77.6	77.5	77.6	77.4	77.4	77.2	77.7	77.4	77.3	77.6	77.1	75.3	73.5	72.4	71.8	72.4	74.5	77.2	78.4	78.5	77.9	77.5	77.8	77.4	Diurnal Average
																								95.1	95.1	95.0	95.3	94.7	89.4	91.6	87.9	89.1	88.4	89.9	90.3	90.9	90.4	89.3	85.3	83.6	87.1	90.4	88.5	87.6	90.5	94.6	95.0	Diurnal Maximum

**Hourly Averages**

**Relative Humidity (RH) - %**  
**Valleyview - December 2012**



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Valleyview - December 2012

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	4	4	4	4	3	3	2	3	2	3	4	4	5	6	9	9	7	7	4	5	7	5	3	2	4.3	9.3
Dir	9	7	17	354	352	4	24	21	27	26	22	16	12	357	349	0	358	352	332	322	338	2	12	19	360	349
2 Spd	2	4	1	2	2	3	2	4	1	0	2	3	5	9	9	6	5	4	4	3	5	3	2	2	3.2	8.9
Dir	348	344	360	332	357	34	17	26	318	324	2	349	349	353	351	337	331	6	36	12	342	347	309	285	353	351
3 Spd	1	1	0	1	0	1	1	0	1	0	3	1	2	1	1	1	1	1	1	1	3	3	1	0	0.3	3.4
Dir	252	186	71	169	151	349	157	233	168	102	22	8	322	297	255	233	175	211	145	123	358	344	318	25	326	344
4 Spd	1	2	3	1	2	1	1	2	4	2	4	2	7	10	12	6	5	9	6	6	4	3	3	5	1.6	11.9
Dir	322	21	340	7	359	4	359	353	2	33	13	1	173	169	170	190	247	261	241	246	231	224	259	291	235	170
5 Spd	1	3	3	3	3	1	5	7	7	7	6	6	6	7	7	5	6	5	5	2	0	1	1	1	3.4	7.5
Dir	337	328	340	359	3	358	299	305	328	290	294	300	267	261	251	261	267	257	266	279	150	204	214	210	288	305
6 Spd	0	1	1	0	1	3	2	4	2	1	1	1	0	2	1	1	1	1	1	2	3	3	3	4	1.2	4.3
Dir	189	205	199	250	20	18	356	6	24	307	264	349	332	327	279	13	355	174	302	12	23	23	18	23	4	6
7 Spd	4	3	3	3	3	1	3	2	0	0	0	4	6	9	11	8	10	6	5	10	9	8	9	9	4.8	10.6
Dir	359	23	12	358	3	359	10	336	333	106	315	342	356	358	0	353	2	18	341	326	315	309	314	322	344	0
8 Spd	6	8	8	6	5	2	2	0	0	1	1	1	2	3	2	3	2	2	3	1	1	1	1	1	2.0	8.4
Dir	315	311	319	314	8	357	340	347	265	0	189	185	349	339	339	335	345	338	341	351	173	180	185	172	327	311
9 Spd	1	1	1	2	2	1	1	1	1	2	3	2	2	1	0	1	3	3	3	2	14	17	17	14	2.6	17.0
Dir	171	194	193	193	212	195	205	218	187	191	178	167	168	166	31	177	186	187	177	186	289	286	289	287	258	289
10 Spd	12	12	9	10	8	8	4	7	6	1	0	1	4	1	2	1	1	1	2	2	3	3	3	3	3.3	12.0
Dir	279	274	272	273	270	275	266	283	296	33	48	17	282	251	170	184	186	175	175	180	178	202	162	167	263	279
11 Spd	4	2	47	51	24	12	7	8	13	8	10	8	10	9	14	15	16	18	17	16	13	10	8	7	11.5	51.0
Dir	171	15	358	360	352	271	258	284	275	277	281	280	283	342	359	9	9	7	7	8	8	10	8	20	347	360
12 Spd	6	4	5	5	3	3	1	2	1	1	2	3	4	1	1	2	3	2	0	0	2	1	1	1	0.6	5.7
Dir	18	25	18	22	32	32	119	140	157	161	162	165	167	155	170	179	177	182	231	206	179	187	223	201	104	18
13 Spd	2	3	2	2	2	4	5	5	4	5	4	4	4	4	3	2	3	3	5	4	4	3	4	3	3.3	5.4
Dir	210	204	197	180	188	180	206	190	194	190	185	177	181	185	184	252	171	193	176	175	176	171	152	158	184	190
14 Spd	3	3	1	3	4	3	3	2	3	2	2	2	5	8	9	7	1	1	2	2	2	2	2	1	2.2	8.5
Dir	165	172	344	210	199	192	150	179	180	210	198	193	246	271	267	256	179	187	193	199	190	200	201	221	218	267
15 Spd	1	1	1	1	1	1	2	1	1	1	1	2	5	4	4	4	2	1	1	1	0	1	0	1	1.4	4.9
Dir	201	192	279	230	180	197	228	191	266	216	218	186	193	200	188	182	196	225	232	226	256	218	197	207	202	193
16 Spd	0	1	2	2	2	1	2	2	2	2	2	3	2	1	0	1	0	0	1	1	1	2	1	0	1.1	2.5
Dir	192	228	207	193	201	193	198	192	209	201	198	187	194	203	280	249	134	77	2	187	202	176	177	332	197	187
17 Spd	0	1	0	0	1	1	1	2	1	1	3	3	6	8	9	8	6	4	4	3	3	3	1	1	2.2	9.5
Dir	156	161	107	280	134	344	204	174	185	5	344	11	0	5	355	360	19	29	10	355	317	314	299	296	359	355
18 Spd	3	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	1	0.8	3.5
Dir	267	258	238	235	208	207	212	212	194	198	186	179	177	268	292	291	344	220	336	284	196	194	246	241	235	258
19 Spd	1	0	0	0	0	1	0	1	0	1	1	0	0	1	1	2	2	1	0	0	0	0	0	1	0.0	1.9
Dir	207	209	208	203	205	192	201	183	196	160	162	40	70	341	1	18	347	334	41	45	170	300	34	349	318	347
20 Spd	0	2	2	0	1	0	1	1	1	1	1	2	3	4	4	9	9	8	8	9	8	7	8	8	3.6	9.1
Dir	149	8	359	59	143	134	207	180	208	240	181	300	305	331	308	309	304	299	292	292	288	291	279	283	296	309
21 Spd	10	10	12	11	9	10	10	8	11	12	9	7	8	8	5	4	2	1	2	0	0	1	1	0	6.0	12.4
Dir	288	281	282	282	287	281	287	286	274	280	290	286	280	280	279	311	335	152	178	163	288	197	155	38	283	282
22 Spd	0	0	1	0	2	2	1	0	1	1	1	1	2	1	1	0	1	3	1	1	0	1	3	4	0.6	3.9
Dir	280	354	41	267	160	147	68	313	341	26	24	38	6	323	15	19	121	38	161	182	41	2	43	58	45	58

# Hourly Averages

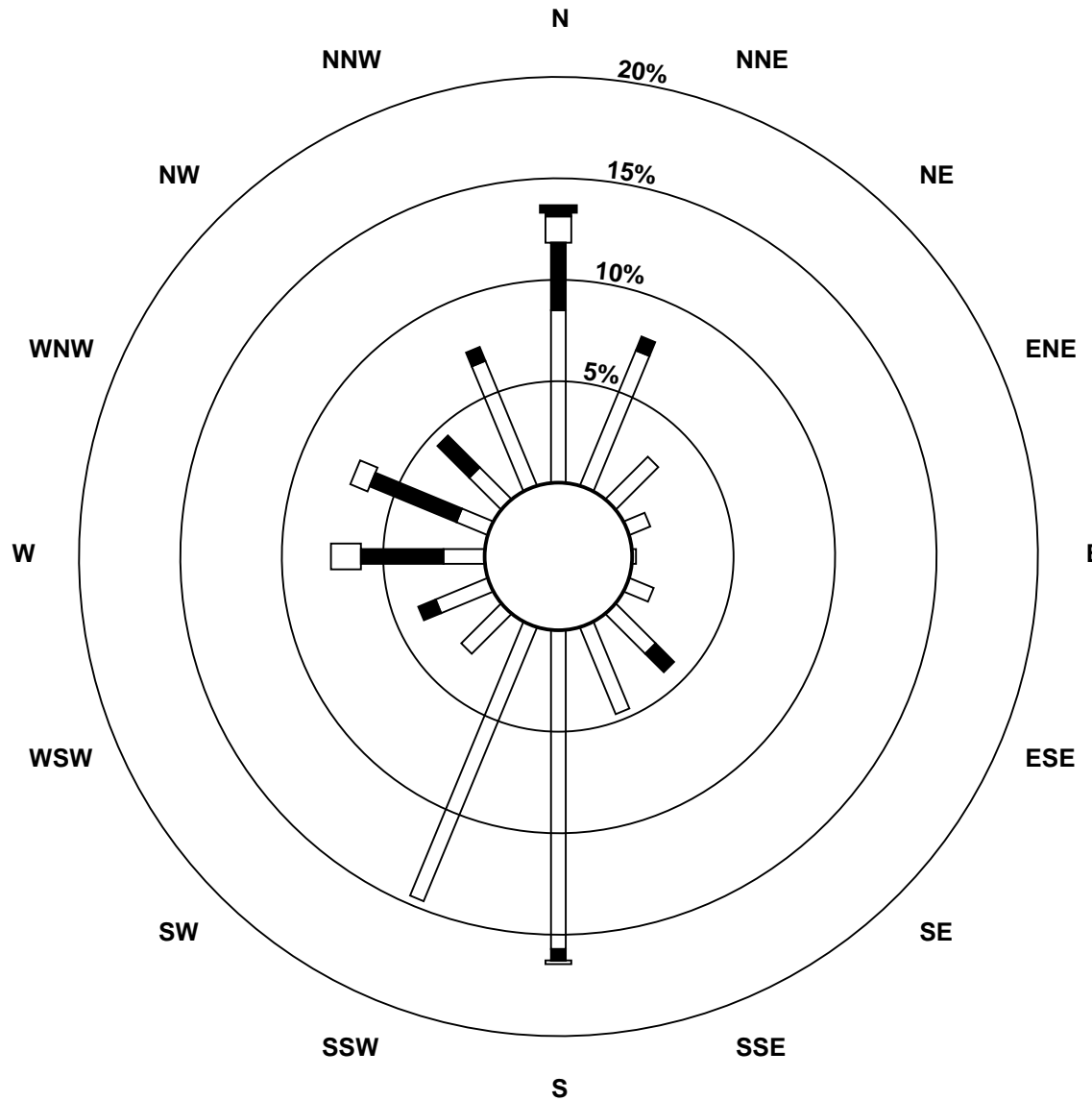
Wind Speed (km/h)  
Wind Direction (deg)  
Valleyview - December 2012

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	4	4	5	5	4	3	4	4	3	3	3	5	5	4	4	3	4	4	4	3	2	6	5	5	3.4	5.7
Dir	43	40	54	67	69	47	53	55	57	54	68	113	116	111	107	81	49	51	59	53	105	144	122	125	78	144
24 Spd	4	3	4	6	6	5	4	3	3	3	4	5	6	6	4	5	6	4	0	1	1	2	2	1	3.1	6.3
Dir	126	128	128	129	132	132	131	135	130	147	145	146	138	131	130	126	126	132	164	5	20	347	344	340	130	132
25 Spd	1	2	1	1	1	0	0	1	0	1	2	1	1	1	1	1	2	1	1	0	1	0	1	0	0.4	1.9
Dir	36	348	359	354	3	348	156	355	320	157	162	175	318	332	299	19	29	12	53	244	189	360	7	202	356	348
26 Spd	1	0	0	0	1	1	7	1	1	1	2	0	0	2	1	0	0	1	1	2	1	1	1	2	0.4	6.8
Dir	343	70	187	166	358	271	140	189	156	164	360	55	344	351	330	279	255	293	166	163	175	179	191	163	159	140
27 Spd	1	1	4	1	0	1	2	1	0	1	0	1	2	3	2	1	1	0	0	1	1	1	1	0	0.4	4.3
Dir	201	167	174	190	119	179	181	164	322	163	169	267	343	338	343	359	46	356	218	185	163	169	167	180	188	174
28 Spd	1	2	2	2	1	1	2	2	1	1	2	1	2	2	1	1	1	3	3	4	4	3	4	3	1.9	4.0
Dir	220	226	211	211	211	215	198	200	183	211	210	177	210	248	200	217	208	204	186	186	196	193	193	197	202	193
29 Spd	3	4	3	3	3	3	3	3	2	2	5	4	5	9	7	10	9	4	1	1	1	1	1	2	2.9	9.5
Dir	201	203	204	198	192	201	204	204	202	219	240	242	291	296	291	278	275	276	261	237	181	202	215	213	248	278
30 Spd	2	2	2	2	3	3	2	0	1	2	3	3	3	2	2	2	1	0	1	3	1	3	2	1	1.8	3.4
Dir	201	225	217	218	211	206	211	219	171	202	196	191	182	184	187	208	220	236	215	212	195	181	190	2	201	196
31 Spd	1	2	3	3	1	2	2	4	3	3	4	5	3	3	3	9	9	4	7	5	10	15	17	18	4.4	18.0
Dir	256	190	183	195	214	198	196	183	185	183	188	187	182	191	203	275	290	252	285	264	265	277	276	277	253	277
Spd	0.9	1.1	2.0	1.9	1.0	0.8	0.8	0.8	1.0	0.9	0.8	0.6	1.1	1.5	1.5	1.8	1.5	1.1	0.9	1.1	1.5	1.6	1.6	1.4	Diurnal Average	
Dir	290	294	335	336	333	268	230	270	267	248	254	245	268	306	314	315	324	327	314	303	294	288	284	288	Diurnal Maximum	
Spd	12.0	11.8	47.0	51.0	23.9	12.1	9.5	8.1	13.1	11.6	9.8	8.3	10.4	10.4	13.8	14.6	15.6	18.2	17.4	15.9	13.9	16.9	17.3	18.0	Diurnal Maximum	
Dir	279	274	358	360	352	271	287	286	275	280	281	280	283	169	359	9	9	7	7	8	289	286	276	277	Diurnal Maximum	
Maximum Speed Value: 51 km/h on Dec 11 04:00																		Minimum Speed Value: 0 km/h on Dec 19 19:00						Hours in Service:		744
Maximum Daily Speed Average: 11.5 km/h on Dec 11																		Minimum Daily Speed Average: 0.0 km/h on Dec 19						Hours of Data:		744
Maximum Diurnal Speed Average: 2.0 km/h at hour 3																		Minimum Diurnal Speed Average: 0.6 km/h at hour 12						Hours of Missing Data:		0
Monthly Average Velocity: 1.08 km/h 298.2 deg																		Speed Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.9 Median = 2.0 Q <sub>3</sub> = 4.0 P <sub>90</sub> = 8.1 P <sub>99</sub> = 17.2						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	120	29	7	1	0	2	159																			
NorthEast	50	2	0	0	0	0	52																			
East	14	0	0	0	0	0	14																			
SouthEast	40	9	0	0	0	0	49																			
South	204	5	1	0	0	0	210																			
SouthWest	90	4	0	0	0	0	94																			
West	41	47	14	0	0	0	102																			
NorthWest	45	19	0	0	0	0	64																			
Total	604	115	22	1	0	2	744																			

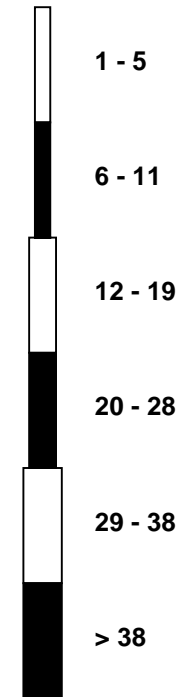


**Wind Rose**

**Wind Speed (WS) (km/h)**  
**Valleyview - December 2012**



**Wind Speed Classes (km/h)**



# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Valleyview - December 2012

Maximum Speed: 54 km/h on Dec 11 04:00	Maximum Daily Speed Average: 15.4 km/h on Dec 11	Hours in Service: 744
Minimum Speed: 0 km/h on Dec 26 03:00	Minimum Daily Speed Average: 0.9 km/h on Dec 19	Hours of Data: 744
Maximum Diurnal Speed Average: 4.7 km/h at hour 3	Minimum Diurnal Speed Average: 2.6 km/h at hour 10	Hours of Missing Data: 0
Monthly Average Speed: 3.52 km/h	Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.3 Median = 2.2 Q <sub>3</sub> = 4.1 P <sub>90</sub> = 8.3 P <sub>99</sub> = 17.3	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	4	4	3	3	2	3	2	3	4	4	5	6	9	9	7	7	4	5	7	5	3	2	4.6	9.5
2-Dec	2	4	2	3	2	3	2	4	2	2	2	3	5	9	9	6	5	4	4	4	5	4	3	2	3.7	8.9
3-Dec	2	1	1	1	1	1	1	1	1	1	4	3	2	1	1	1	1	1	1	1	3	4	1	1	1.4	3.5
4-Dec	1	2	3	1	2	2	2	3	4	2	4	3	7	11	12	7	7	9	6	7	5	4	3	5	4.6	12.1
5-Dec	1	3	3	3	3	2	5	8	7	8	6	6	6	8	7	5	6	5	5	3	1	1	1	1	4.3	7.8
6-Dec	1	1	1	1	2	3	2	4	2	2	1	1	1	2	2	2	1	1	2	2	3	3	3	4	2.0	4.3
7-Dec	4	3	3	3	3	1	3	3	1	1	1	4	6	10	11	8	10	6	5	10	9	8	9	9	5.5	10.7
8-Dec	7	9	8	6	5	2	2	1	1	1	1	1	2	3	2	3	3	2	3	1	1	1	1	1	2.7	8.5
9-Dec	1	1	1	2	2	1	1	1	1	2	3	3	2	1	1	1	3	3	3	4	14	17	17	14	4.2	17.1
10-Dec	12	12	9	10	8	8	5	7	8	2	2	1	4	2	2	1	1	1	2	2	3	3	3	3	4.7	12.1
11-Dec	4	11	50	54	27	12	8	8	13	8	10	9	11	11	14	15	16	18	18	16	13	10	9	7	15.4	53.9
12-Dec	6	4	5	5	3	3	2	2	1	1	2	3	4	2	2	2	3	2	1	1	2	1	1	1	2.5	5.8
13-Dec	2	3	3	2	2	4	5	5	5	6	4	4	4	4	3	2	3	3	5	4	4	3	4	3	3.6	6.0
14-Dec	3	3	2	3	4	3	3	2	3	2	2	2	5	8	9	7	2	1	2	2	2	2	2	1	3.1	8.7
15-Dec	1	1	1	1	1	1	2	1	1	2	2	3	5	4	4	4	2	1	1	1	1	1	1	1	1.7	4.9
16-Dec	1	1	3	3	2	2	2	2	2	2	2	3	2	1	1	1	1	1	2	1	1	2	1	1	1.5	2.8
17-Dec	1	1	1	1	1	2	2	2	2	2	3	3	6	8	10	9	6	4	4	3	3	3	1	1	3.2	9.7
18-Dec	3	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	3.6
19-Dec	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	0.9	2.0
20-Dec	2	3	3	2	1	2	2	1	1	1	1	2	3	4	4	9	9	8	8	9	8	7	8	8	4.6	9.2
21-Dec	10	11	12	11	10	10	10	8	11	12	9	7	8	8	5	4	2	1	2	1	1	1	1	1	6.5	12.5
22-Dec	1	1	2	1	2	2	1	1	1	1	1	2	2	1	1	1	1	3	1	1	1	1	3	4	1.4	4.0
23-Dec	4	4	5	5	4	3	4	4	3	3	3	5	5	4	4	4	4	4	4	3	3	6	5	5	4.1	5.8
24-Dec	4	3	5	6	6	5	4	3	3	3	4	5	6	6	4	5	6	4	1	1	1	2	2	1	3.8	6.4
25-Dec	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	2	1	1	1.2	2.1
26-Dec	2	1	0	1	1	1	11	2	1	1	2	1	1	2	1	1	1	1	1	2	1	1	1	2	1.6	11.4
27-Dec	1	2	5	1	1	1	2	1	1	1	1	1	2	3	2	1	1	1	1	1	1	1	2	1	1.3	4.7
28-Dec	1	2	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	3	3	4	4	3	4	3	2.2	4.1
29-Dec	3	4	3	3	3	3	3	3	3	2	2	6	4	6	9	7	10	9	4	2	2	1	2	2	3.8	9.6
30-Dec	2	2	2	2	3	3	2	1	1	2	3	3	3	3	2	2	2	1	2	3	1	3	2	2	2.1	3.5
31-Dec	2	2	3	3	1	2	2	4	3	3	4	5	3	3	3	10	9	5	8	5	11	15	17	18	5.8	18.2
	2.8	3.4	4.7	4.6	3.4	2.9	3.0	2.9	2.8	2.6	2.9	3.0	3.9	4.5	4.5	4.3	4.0	3.5	3.3	3.2	3.6	3.8	3.7	3.4	Diurnal Average	
	12.1	12.0	49.9	53.9	27.4	12.2	11.4	8.3	13.3	11.7	10.0	8.5	10.6	10.7	13.9	14.8	15.7	18.3	17.5	16.1	14.1	17.1	17.4	18.2	Diurnal Maximum	

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

# Hourly Standard Deviations

Wind Direction (WD) - deg  
Valleyview - December 2012

Maximum Value: 100.3 deg on Dec 19 19:00																						Hours in Service:	744		
Minimum Value: 4.7 deg on Dec 12 17:00																						Hours of Data:	744		
Percentiles: P <sub>1</sub> = 5.8 P <sub>10</sub> = 9.5 Q <sub>1</sub> = 12.9 Median = 22.3 Q <sub>3</sub> = 46.9 P <sub>90</sub> = 73.9 P <sub>99</sub> = 92.6																						Hours of Missing Data:	0		
																						Hours of Calibration:	0		
																						Percent Operational Time:	100.0		
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	11	11	11	14	10	16	21	12	18	13	12	14	13	10	11	9	9	10	14	9	10	10	13	20.7	
2-Dec	19	13	43	31	31	18	20	15	61	74	60	8	11	9	5	11	18	20	15	16	9	15	23	27	73.9
3-Dec	44	34	87	31	87	79	49	79	55	84	34	71	30	35	61	43	41	68	34	57	38	22	82	79	87.3
4-Dec	47	27	30	71	62	55	32	54	16	54	28	74	46	8	9	23	42	14	22	19	32	51	40	24	74.2
5-Dec	78	34	37	28	19	72	23	13	13	17	15	18	24	20	19	16	13	13	20	41	70	19	27	38	78.0
6-Dec	69	13	42	90	54	17	30	9	40	44	57	37	69	89	58	41	75	36	87	69	20	23	23	13	89.7
7-Dec	12	15	32	24	24	64	18	24	83	70	83	20	10	13	10	10	15	11	28	7	7	9	8	8	83.2
8-Dec	10	10	10	11	22	17	25	62	81	32	61	34	59	28	37	22	22	32	16	81	27	32	57	19	80.9
9-Dec	33	31	14	15	21	31	32	37	43	23	19	15	26	44	86	60	11	15	25	49	10	9	8	8	85.8
10-Dec	8	9	9	8	9	9	14	10	57	86	81	67	24	62	12	13	17	23	12	40	33	36	11	11	86.2
11-Dec	11	58	37	27	71	8	10	14	11	12	13	13	11	38	6	9	8	7	8	9	6	8	11	9	71.4
12-Dec	9	14	13	13	18	18	33	13	28	34	13	12	14	79	76	20	5	23	53	76	13	38	60	30	78.7
13-Dec	24	28	22	22	21	25	29	12	14	24	9	10	14	9	9	43	30	14	9	6	5	11	12	13	42.7
14-Dec	9	23	93	15	15	9	34	53	15	12	15	20	33	16	10	10	29	26	13	16	21	10	15	13	92.9
15-Dec	31	34	37	63	15	25	17	33	72	73	57	53	9	8	5	8	16	17	37	42	75	36	78	60	77.9
16-Dec	69	47	14	31	20	23	25	20	23	17	15	9	33	75	74	38	84	74	83	44	51	11	22	97	97.1
17-Dec	93	26	68	74	65	87	56	18	76	40	12	23	13	14	14	9	13	15	13	22	14	15	22	75	92.6
18-Dec	21	14	17	24	15	20	17	12	23	19	13	12	33	15	12	24	68	80	75	85	38	42	77	51	85.4
19-Dec	12	23	24	29	46	17	40	36	54	14	21	70	50	69	51	17	14	58	100	91	88	90	94	64	100.3
20-Dec	83	44	37	84	57	98	42	47	54	53	48	21	19	15	14	9	10	11	12	11	10	12	10	10	97.8
21-Dec	10	10	8	9	10	10	9	11	12	8	12	14	16	13	12	16	23	68	18	50	90	43	50	93	93.2
22-Dec	62	81	85	72	19	21	56	82	78	61	32	31	26	55	51	80	48	15	39	24	88	29	18	13	87.6
23-Dec	12	10	9	15	13	17	11	11	21	12	16	12	10	13	17	19	16	13	12	14	34	14	10	10	34.3
24-Dec	11	17	14	8	10	14	13	11	13	20	18	14	14	13	17	10	7	9	59	44	49	27	37	60	59.7
25-Dec	65	32	57	25	29	84	74	24	65	58	13	74	36	31	38	38	56	50	74	68	45	61	97	52	97.0
26-Dec	27	90	80	63	28	73	55	50	23	41	56	78	83	14	28	74	82	82	11	10	29	27	24	14	90.2
27-Dec	27	30	25	51	87	47	19	70	84	40	50	47	21	14	12	13	59	84	68	29	53	39	66	53	86.9
28-Dec	21	17	23	26	29	59	43	22	46	36	29	22	38	41	52	52	41	22	10	7	9	9	7	10	59.0
29-Dec	12	12	11	12	7	5	7	9	8	11	10	21	58	11	11	9	9	26	89	46	28	18	26	15	88.7
30-Dec	13	13	17	15	12	6	10	66	72	13	11	9	15	16	35	35	45	89	57	16	40	16	23	80	88.7
31-Dec	53	20	13	6	30	56	13	11	12	11	9	7	17	14	25	32	19	32	17	21	11	8	8	7	55.5
92.6	90.2	92.9	89.7	87.2	97.8	74.3	82.2	83.6	86.2	82.5	77.9	83.2	88.6	85.8	79.9	84.0	88.7	100.3	90.9	90.0	89.9	97.0	97.1		

PAZA

Portable – Sunset House Station  
Monthly Summary Tables, Graphs and  
Roses

## Hourly Averages

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Sunset House - December 2012

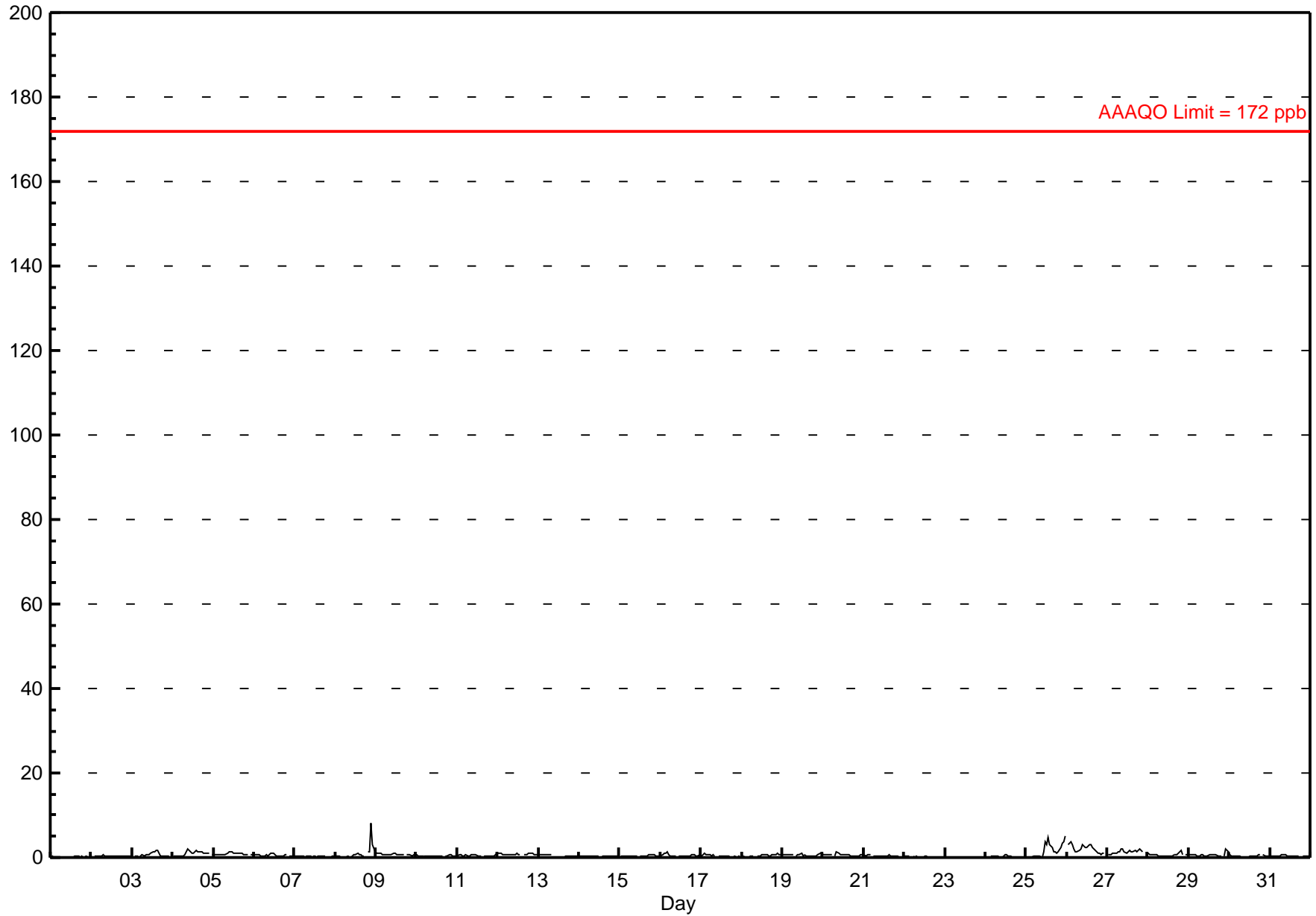
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 8.2 ppb on Dec 8 22:00	Maximum Daily Average: 2.1 ppb on Dec 26		Hours of Data:	707
Minimum Value: 0 ppb on Dec 23 12:00	Minimum Daily Average: 0.0 ppb on Dec 23		Hours of Missing Data:	37
Maximum Diurnal Average: 0.8 ppb at hour 22	Minimum Diurnal Average: 0.4 ppb at hour 7		Hours of Calibration:	37
Monthly Average: 0.60 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.3 Median = 0.4 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.2 P <sub>99</sub> = 3.2		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	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	0.3	
2-Dec	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	
3-Dec	A	0	0	0	0	0	1	1	1	1	1	1	1	2	2	1	0	0	0	0	0	0	0	A	0.6	1.7	
4-Dec	0	0	0	0	0	0	0	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	A	1	1.0	2.0	
5-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.9	1.4	
6-Dec	1	1	1	1	0	1	0	1	0	1	1	1	0	0	0	0	0	0	1	1	A	0	0	0	0.5	0.9	
7-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	
8-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	A	1	1	8	3	1	0.9	8.2	
9-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0	1	1	0.7	1.2	
10-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	1	1	0	0	0.4	0.6	
11-Dec	0	1	1	0	0	1	1	0	1	1	1	1	0	0	0	A	0	0	0	0	0	0	0	1	0.5	0.9	
12-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	0.8	1.2	
13-Dec	1	1	1	1	1	1	1	1	C	C	C	C	0	A	0	0	0	0	0	0	0	0	0	0	0.5	0.8	
14-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	
15-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	1	1	1	0	0	0	0.4	0.6	
16-Dec	0	1	1	1	1	1	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	0	0	1	0.5	1.3	
17-Dec	0	1	1	1	1	1	0	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.2	
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	1	1	1	1	0.4	1.0	
19-Dec	1	1	1	1	1	1	1	A	A	0	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0.6	1.0	
20-Dec	1	1	1	1	1	1	A	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0.6	1.4	
21-Dec	1	0	1	1	1	A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0.4	0.6	
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	0.4	
23-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	0.0	0.1	
24-Dec	0	0	A	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.2	0.7	
25-Dec	0	A	0	0	0	0	0	0	0	0	0	1	4	3	5	3	2	1	1	1	1	2	3	4	5	1.7	4.9
26-Dec	A	3	4	3	2	1	1	2	2	3	3	2	3	3	3	2	2	2	1	1	1	1	1	A	2.1	3.7	
27-Dec	1	1	1	1	1	1	1	1	2	2	1	1	1	2	2	1	2	1	2	2	2	1	A	1	1.3	1.9	
28-Dec	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	2	1	A	1	1	0.6	1.6	
29-Dec	1	1	1	1	1	0	0	1	1	0	1	1	1	1	1	1	0	0	0	A	0	0	2	1	0.6	2.0	
30-Dec	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	A	1	0	0	0	0.4	0.8	
31-Dec	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.4	0.6	

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 (SO<sub>2</sub>) - ppb  
Sunset House - December 2012



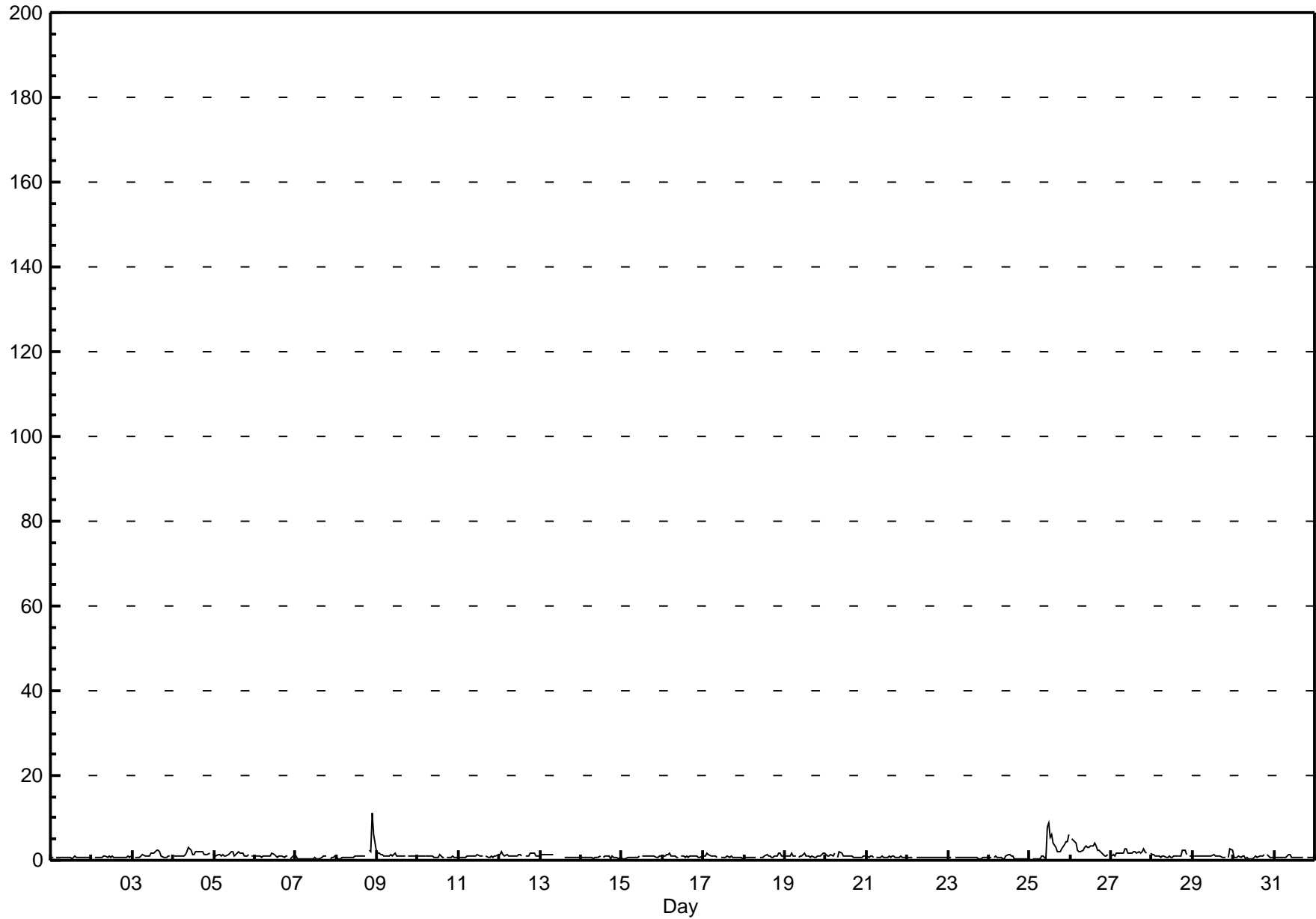
## Hourly Maximums

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Sunset House - December 2012

Maximum Value: 11.1 ppb on Dec 8 22:00		Maximum Daily Average: 3.0 ppb on Dec 25		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 24 19:00		Minimum Daily Average: 0.5 ppb on Dec 23		Hours of Data: 707																						
Maximum Diurnal Average: 1.4 ppb at hour 22		Minimum Diurnal Average: 0.9 ppb at hour 7		Hours of Missing Data: 37																						
Monthly Average: 1.10 ppb		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.6 Median = 0.9 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 1.7 P <sub>99</sub> = 5.2		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	1	1	A	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.6	0.9
2-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	1.1
3-Dec	A	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	A	1.2	2.4
4-Dec	1	1	1	1	1	1	1	1	2	3	2	1	1	2	2	2	2	2	1	1	1	2	A	1	1.6	2.9
5-Dec	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	2	2	2	1	1	1	A	1	1	1.4	2.0
6-Dec	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	A	0	1	1	1.0	1.5
7-Dec	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	A	0	1	1	1	0.6	1.0
8-Dec	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	2	2	11	6	2	1.6	11.1
9-Dec	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	A	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	1	A	1	1	1	1	1	1	1	1	0.9	1.3
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.9	1.4
12-Dec	1	2	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	2	2	2	1	1	1	1.2	1.9
13-Dec	1	1	1	1	1	1	1	1	C	C	C	C	1	A	1	1	1	1	1	1	1	1	1	1	0.9	1.3
14-Dec	1	1	1	1	1	1	1	0	1	1	1	1	A	1	1	1	1	0	1	1	1	1	0	1	0.8	1.0
15-Dec	0	0	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
16-Dec	1	1	1	2	2	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.7
17-Dec	1	1	2	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0	0.9	1.6
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	0.9	1.6
19-Dec	1	1	1	1	2	1	1	A	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	1.1	1.6
20-Dec	1	1	1	1	1	2	A	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	2.1
21-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	1.1
22-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	0.6	0.6
23-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0.5	0.5
24-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.7	1.5
25-Dec	0	A	0	0	0	0	0	1	1	0	8	9	5	6	4	3	2	2	2	3	4	5	5	6	3.0	9.0
26-Dec	A	5	5	4	3	2	2	3	3	4	3	3	4	4	4	4	3	3	2	2	1	1	2	A	2.8	5.0
27-Dec	1	1	1	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	3	2	2	A	2	1.8	2.6
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	A	1	1	1.1	2.4
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	3	2	1.1	2.8
30-Dec	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	A	1	1	1	1	0.8	1.3
31-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	1.3
		0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.0	1.3	1.4	1.2	1.3	1.3	1.1	1.1	1.0	1.0	1.1	1.1	1.4	1.2	1.2	Diurnal Average
		1.6	5.0	4.5	4.2	2.5	2.0	2.0	2.5	3.2	3.5	8.0	9.0	5.5	6.0	4.0	3.5	2.5	2.5	2.4	2.8	3.8	11.1	6.1	6.2	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

### Hourly Maximums

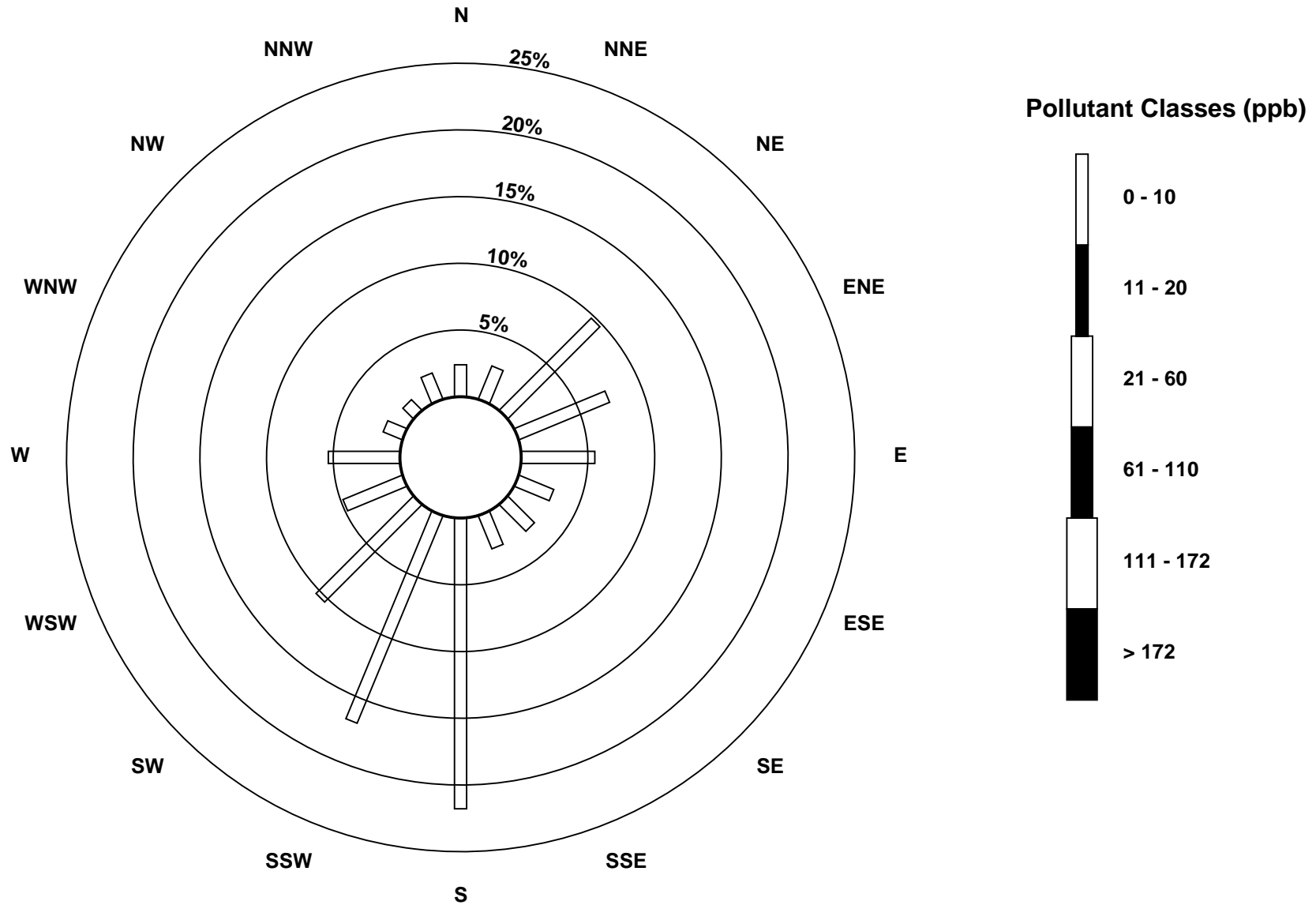
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Sunset House - December 2012





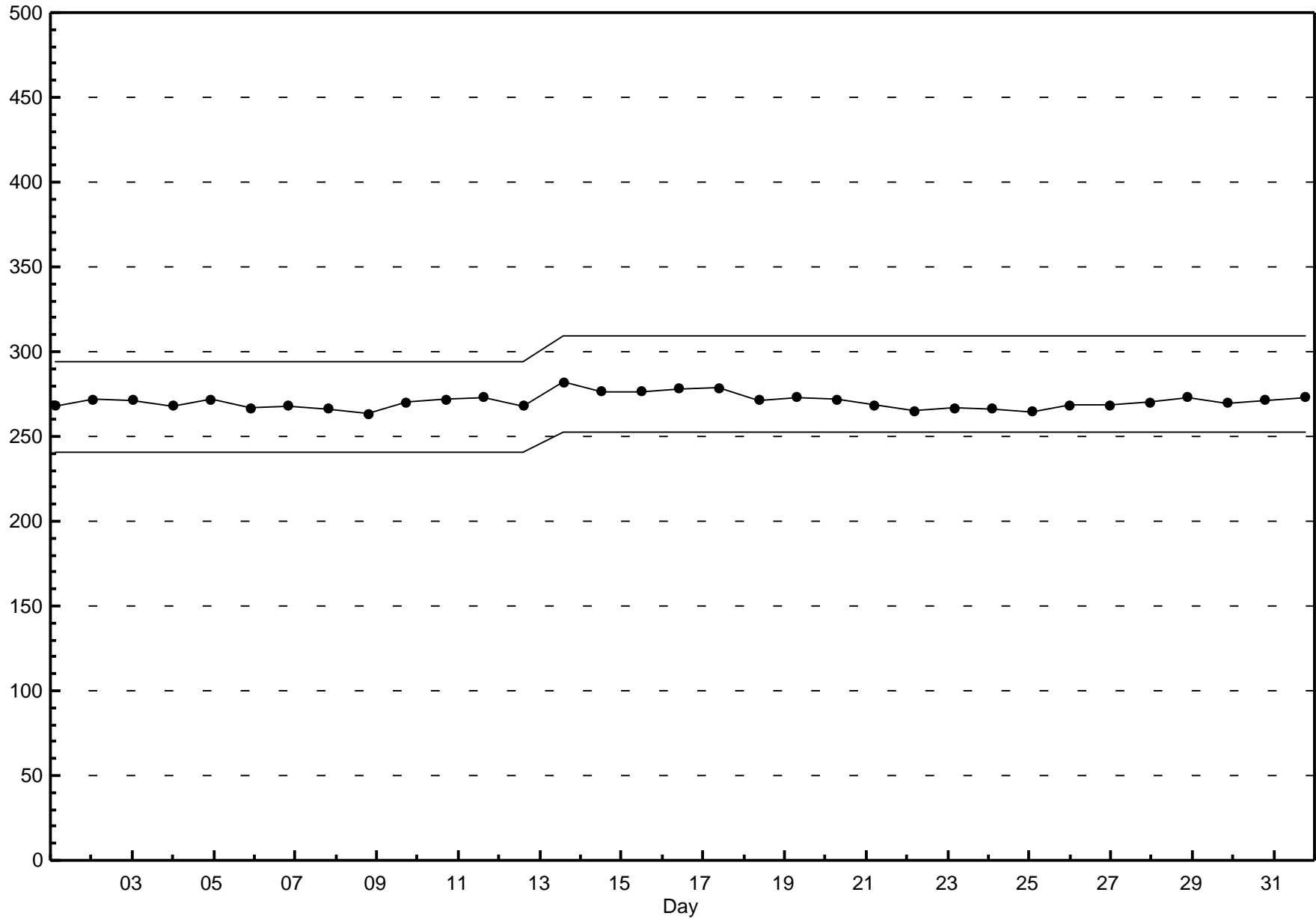
**Pollutant Rose**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Sunset House - December 2012**



**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>)**  
**Sunset House - December 2012**



## Hourly Averages

## Total Reduced Sulphur (TRS) - ppb

### Sunset House - December 2012

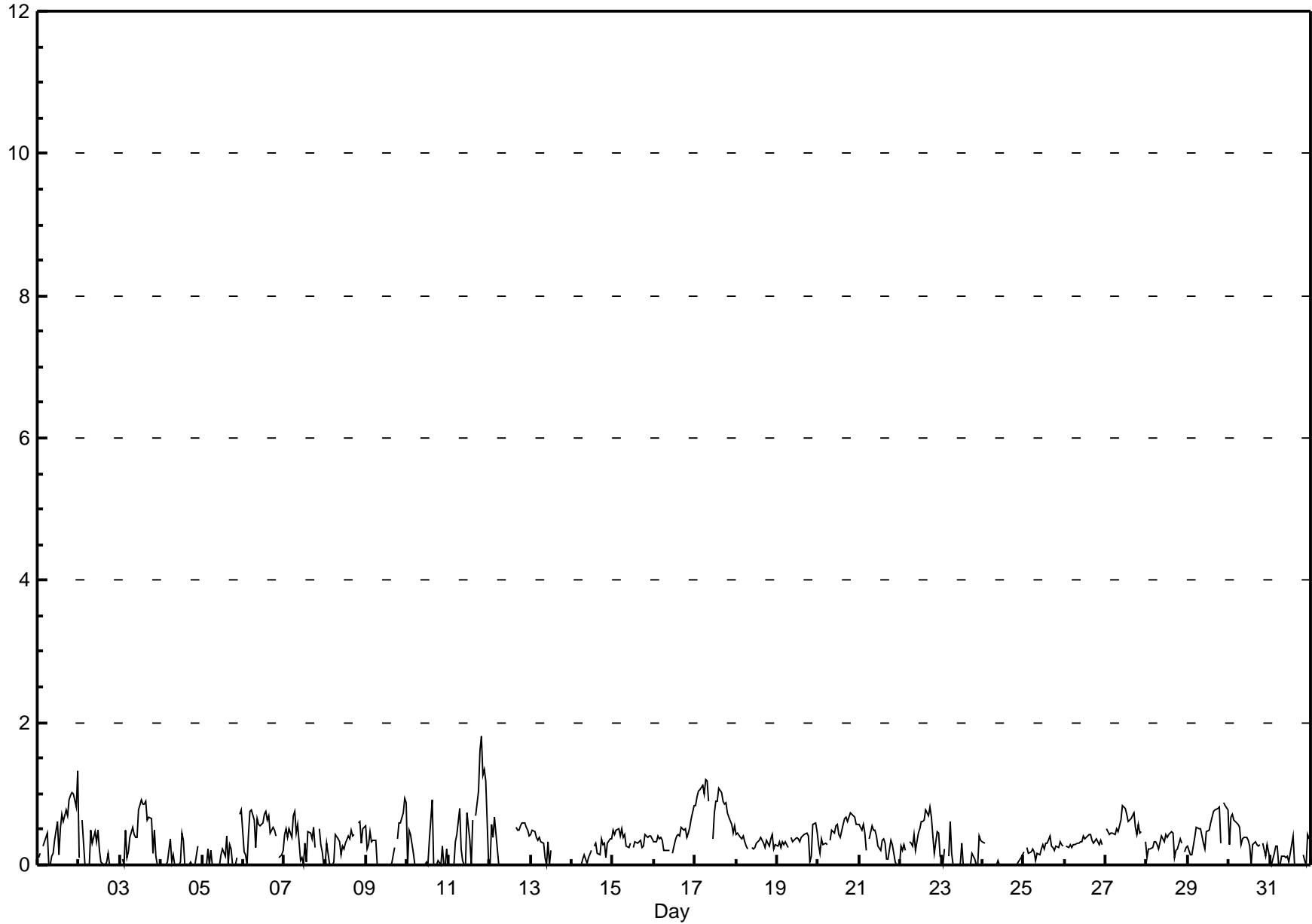
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.8 ppb on Dec 11 20:00	Maximum Daily Average: 0.9 ppb on Dec 17		Hours of Data:	708
Minimum Value: 0 ppb on Dec 1 07:00	Minimum Daily Average: 0.0 ppb on Dec 24		Hours of Missing Data:	36
Maximum Diurnal Average: 0.4 ppb at hour 15	Minimum Diurnal Average: 0.2 ppb at hour 10		Hours of Calibration:	35
Monthly Average: 0.33 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.7 P <sub>99</sub> = 1.2		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	0	0	A	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0.5	1.3	
2-Dec	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6	
3-Dec	A	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	A	0.5	0.9	
4-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	0.4	
5-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	0.1	0.8	
6-Dec	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	0	A	0	0	0	0.5	0.8	
7-Dec	0	1	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	A	0	0	0	0	0	0.4	0.7	
8-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	0	1	1	0.3	0.6	
9-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	1	1	1	0.3	0.9	
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	A	0	0	0	0	0	0	0	0	0.1	0.9	
11-Dec	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	A	1	1	2	2	1	1	1	0	0.5	1.8	
12-Dec	0	1	0	1	0	0	0	0	0	0	0	0	0	M	A	1	0	0	1	1	1	1	0	0	0.3	0.7	
13-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	C	C	0	0	0	0	0	0	0	0	0.2	0.5	
14-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	0.2	0.4	
15-Dec	0	0	0	1	0	1	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5	
16-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0	1	0	0	1	1	1	0.4	0.8	
17-Dec	1	1	1	1	1	1	1	1	1	1	A	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0.9	1.2
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	
19-Dec	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.3	0.6	
20-Dec	0	0	0	0	0	0	A	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0.5	0.7	
21-Dec	1	0	1	0	0	A	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6	
22-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0.4	0.8	
23-Dec	0	0	0	A	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6	
24-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	0.0	0.3	
25-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	
26-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.3	0.4	
27-Dec	1	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0	0	A	0	0.5	0.8	
28-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	0.5	
29-Dec	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	A	1	1	1	0.5	0.9	
30-Dec	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0.4	0.7	
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.1	0.4	

C - Calibration	M - Maintenance	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  
Sunset House - December 2012

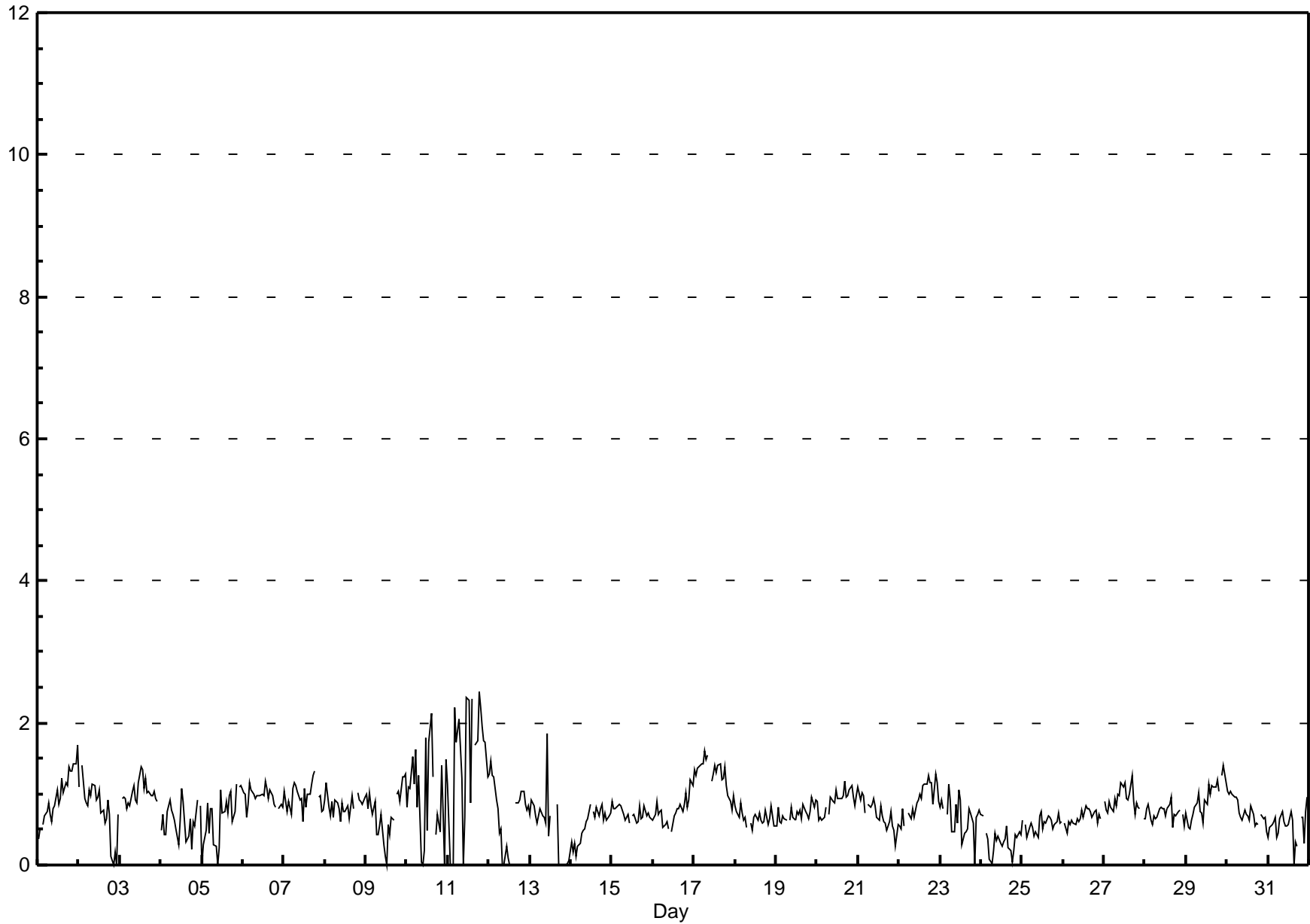


## Hourly Maximums

Total Reduced Sulphur (TRS) - ppb

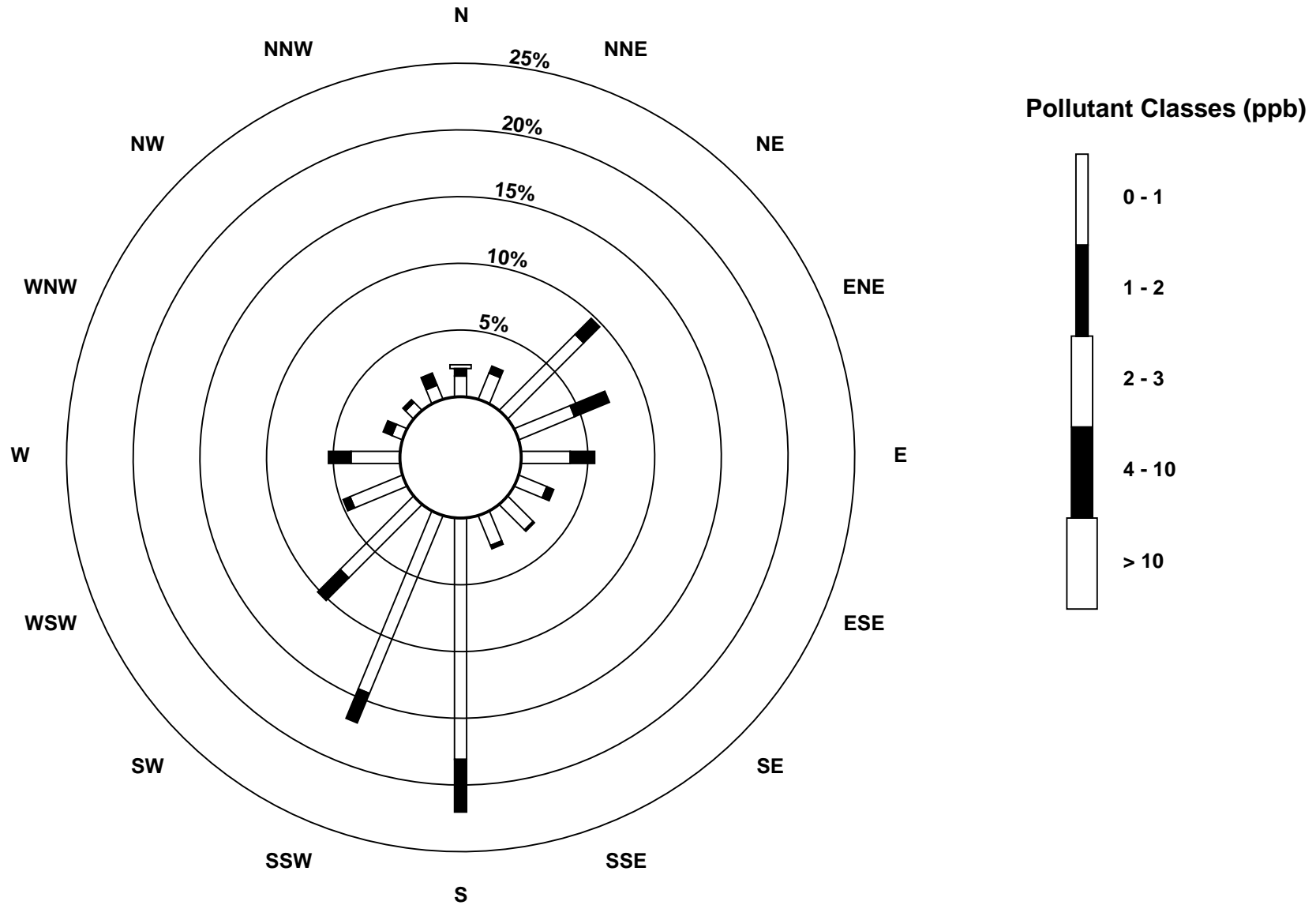
Sunset House - December 2012

Maximum Value: 2.4 ppb on Dec 11 19:00		Maximum Daily Average: 1.4 ppb on Dec 11		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 2 21:00		Minimum Daily Average: 0.3 ppb on Dec 24		Hours of Data: 708																							
Maximum Diurnal Average: 0.9 ppb at hour 15		Minimum Diurnal Average: 0.6 ppb at hour 10		Hours of Missing Data: 36																							
Monthly Average: 0.80 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.6 Median = 0.8 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.2 P <sub>99</sub> = 2.1		Hours of Calibration: 35																							
				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	0	0	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1.0	1.7	
2-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0.8	1.4	
3-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1.0	1.4	
4-Dec	0	1	0	0	1	1	1	1	1	1	0	1	1	1	1	0	0	1	0	1	1	1	A	1	0.6	1.1	
5-Dec	0	0	0	1	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	A	1	1	0.7	1.1	
6-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1.0	1.2	
7-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1.0	1.3	
8-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	
9-Dec	1	1	1	1	1	1	0	0	1	1	0	0	0	1	0	1	1	A	1	1	1	1	1	1	0.7	1.3	
10-Dec	1	1	1	2	1	2	1	1	0	0	0	2	0	2	2	1	A	0	1	0	1	1	0	1	1.0	2.1	
11-Dec	1	0	0	0	2	2	2	2	1	0	1	2	2	1	2	A	2	2	2	2	2	2	2	1	1.4	2.4	
12-Dec	1	1	1	1	1	1	0	1	0	0	0	0	0	M	A	1	1	1	1	1	1	1	1	1	0.7	1.5	
13-Dec	1	1	1	1	1	1	1	1	1	1	2	0	1	A	C	C	1	0	0	0	0	0	0	0	0.5	1.9	
14-Dec	0	0	0	0	0	0	0	0	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.6	0.9	
15-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
16-Dec	1	1	1	1	1	1	1	1	1	1	1	A	0	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2	
17-Dec	1	1	1	1	1	1	2	1	2	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.3	1.6	
18-Dec	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
19-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	0.7	1.0	
20-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	1.2	
21-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1	0.7	1.1	
22-Dec	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3	
23-Dec	1	1	1	A	1	1	1	0	0	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	0.7	1.1	
24-Dec	1	1	A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.3	0.7	
25-Dec	1	A	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.7	
26-Dec	A	1	0	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	
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3	
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
29-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.9	1.4	
30-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0	0.8	1.0	
31-Dec	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0	0	0	A	1	1	0	1	1	0.5	1.0	
		0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.6	0.7	0.9	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	Diurnal Average		
		1.4	1.5	1.4	1.5	2.2	1.7	2.1	1.7	1.5	1.1	1.9	2.4	2.3	1.7	2.3	1.4	1.7	1.7	2.4	2.2	2.0	1.8	1.7	1.7	Diurnal Maximum	
C - Calibration		M - Maintenance						A - Automated Daily Zero Span																			



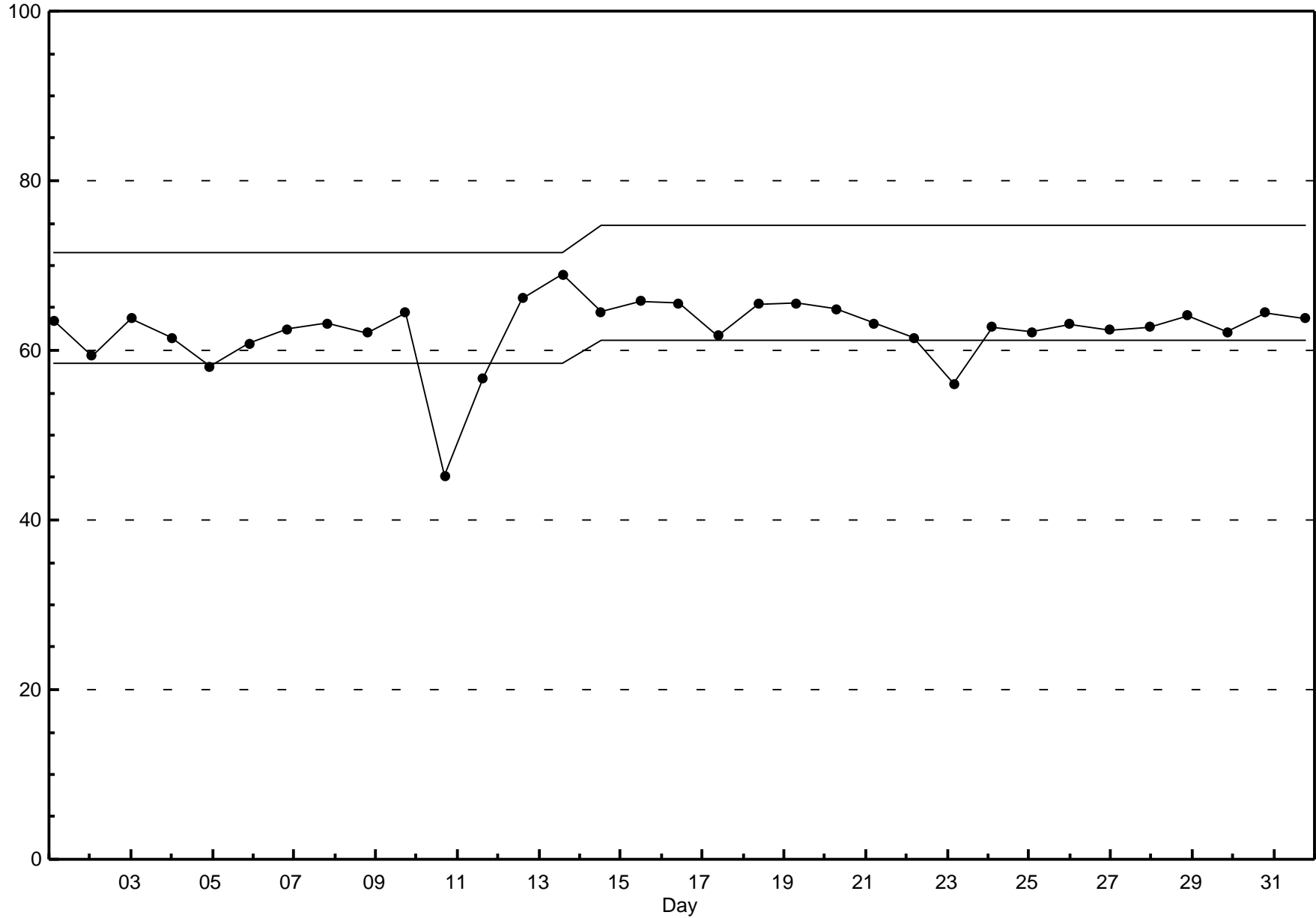
**Pollutant Rose**

**Total Reduced Sulphur (TRS) - ppb**  
**Sunset House - December 2012**



**Span Responses**

**Total Reduced Sulphur (TRS)  
Sunset House - December 2012**





## Hourly Averages

## Nitrogen Dioxide (NO<sub>2</sub>) - ppb Sunset House - December 2012

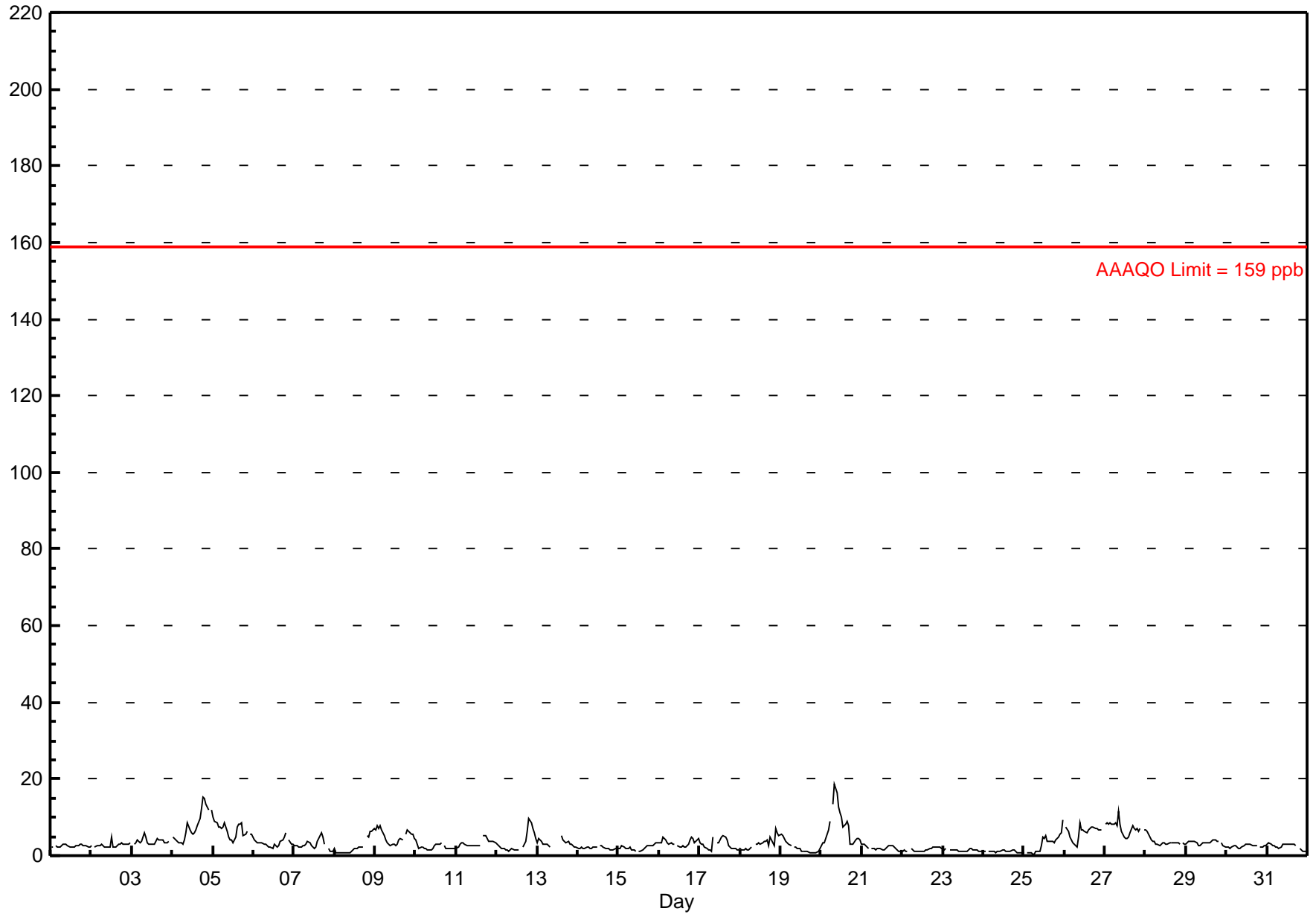
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 18.5 ppb on Dec 20 09:00	Maximum Daily Average: 7.5 ppb on Dec 4
Minimum Value: 0 ppb on Dec 25 07:00	Hours of Data: 706
Maximum Diurnal Average: 4.1 ppb at hour 20	Hours of Missing Data: 38
Monthly Average: 3.42 ppb	Hours of Calibration: 38
Minimum Daily Average: 1.1 ppb on Dec 24	Percent Operational Time: 100.0
Minimum Diurnal Average: 2.7 ppb at hour 7	
Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 2.0 Median = 2.8 Q <sub>3</sub> = 4.0 P <sub>90</sub> = 6.7 P <sub>99</sub> = 12.3	

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	2	2	A	2	2	2	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	2	2	2	2.5	3.1	
2-Dec	3	A	2	3	3	3	3	3	2	2	2	2	5	2	2	2	3	3	3	3	3	3	3	3	2.8	5.0	
3-Dec	A	3	3	4	4	3	4	6	5	3	3	3	3	4	5	4	4	4	3	3	3	4	A	3.7	5.8		
4-Dec	5	5	4	4	4	3	4	6	9	7	6	5	6	7	8	10	12	15	15	14	12	A	12	7.5	15.3		
5-Dec	10	9	8	8	7	7	7	9	6	5	4	4	3	5	7	8	8	9	5	6	6	A	6	6.7	10.1		
6-Dec	4	4	3	3	3	3	3	3	3	2	2	2	3	3	2	3	4	4	5	6	A	4	3	3.3	6.1		
7-Dec	3	3	2	2	2	3	3	3	4	3	3	2	2	2	4	5	6	5	3	A	2	1	1	1	2.9	6.1	
8-Dec	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	A	A	5	5	6	6	7	2.4	7.0
9-Dec	7	8	7	8	7	5	4	3	3	2	3	3	3	3	4	4	4	A	A	5	7	6	6	6	5	4.9	8.0
10-Dec	4	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	A	A	2	2	2	2	2	2	2.3	3.9	
11-Dec	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	A	5	5	4	4	4	4	4	3	3.2	5.3	
12-Dec	3	3	2	2	2	2	2	1	2	2	1	2	1	1	A	2	3	4	6	10	8	7	6	5	3.3	9.9	
13-Dec	3	5	4	3	3	3	3	2	C	C	C	C	C	C	5	4	4	3	4	3	3	2	2	2	3.3	5.4	
14-Dec	2	2	2	2	2	2	2	2	2	2	2	2	A	3	2	2	2	2	2	2	1	1	2	2	2.0	2.6	
15-Dec	2	2	3	2	2	2	2	2	1	1	1	A	1	1	2	2	2	3	3	3	3	3	3	3	2.1	3.2	
16-Dec	3	3	5	4	4	3	3	3	3	3	A	2	2	2	2	2	2	3	4	5	4	3	4	4	3.4	4.9	
17-Dec	3	3	3	2	2	1	1	1	1	5	A	3	3	4	5	5	4	3	2	2	2	2	1	1	2.8	5.1	
18-Dec	2	1	2	2	1	1	2	2	A	A	3	3	3	4	4	4	3	5	3	2	7	6	5	5	3.1	7.0	
19-Dec	6	5	4	4	3	3	3	A	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2.1	5.5	
20-Dec	3	3	3	4	7	9	A	13	19	16	13	11	10	8	8	9	8	3	3	3	4	5	4	4	7.4	18.5	
21-Dec	3	3	3	2	2	A	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	1	1	2.0	3.1	
22-Dec	1	1	1	1	A	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1.6	2.3	
23-Dec	2	2	2	A	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1.4	1.8	
24-Dec	1	1	A	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.6	
25-Dec	1	A	1	1	1	0	0	1	1	1	3	5	4	5	4	4	4	4	3	4	5	5	6	9	3.1	9.3	
26-Dec	A	7	6	5	4	3	3	2	5	9	7	7	6	6	7	7	7	7	7	7	7	7	7	A	6.1	8.6	
27-Dec	8	9	8	9	8	8	9	8	11	8	6	5	4	5	5	6	8	7	7	7	7	7	A	7	7.2	11.4	
28-Dec	7	6	6	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	A	3	3	3.7	6.9	
29-Dec	3	4	4	4	4	4	3	3	3	3	3	3	3	3	3	4	4	4	4	4	A	3	3	2	3.4	4.2	
30-Dec	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	A	2	2	2	2	2.5	3.1	
31-Dec	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	A	2	1	1	1	2.4	3.2	

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 (NO<sub>2</sub>) - ppb  
Sunset House - December 2012



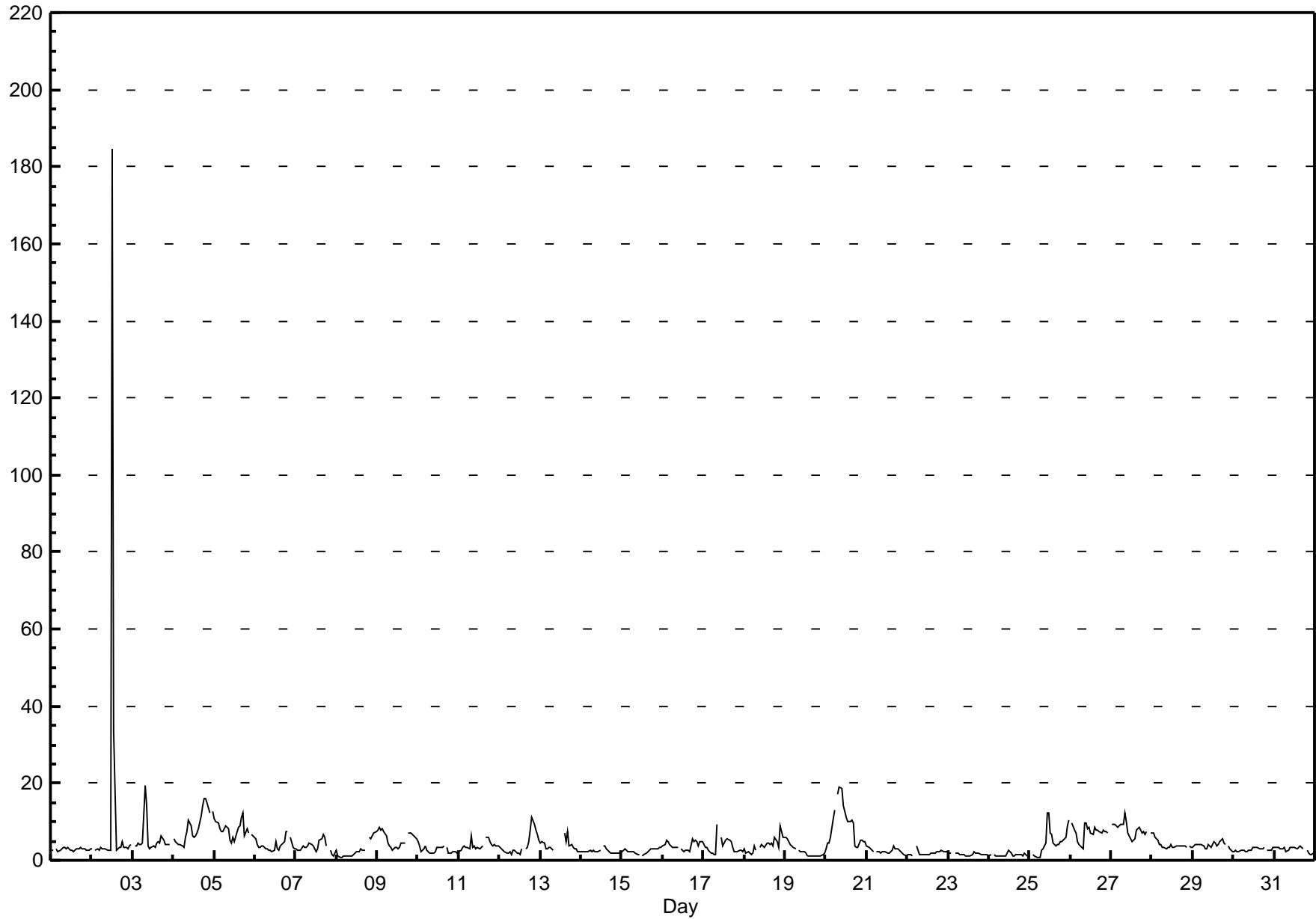
## Hourly Maximums

## Nitrogen Dioxide (NO<sub>2</sub>) - ppb Sunset House - December 2012

Maximum Value: 184.5 ppb on Dec 2 13:00		Maximum Daily Average: 12.3 ppb on Dec 2		Hours in Service: 744																							
Minimum Value: 1 ppb on Dec 25 07:00		Minimum Daily Average: 1.4 ppb on Dec 24		Hours of Data: 706																							
Maximum Diurnal Average: 9.9 ppb at hour 13		Minimum Diurnal Average: 3.2 ppb at hour 7		Hours of Missing Data: 38																							
Monthly Average: 4.36 ppb		Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 2.3 Median = 3.3 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 7.7 P <sub>99</sub> = 15.4		Hours of Calibration: 38																							
				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	3	A	3	2	2	3	3	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	2.8	3.3	
2-Dec	3	A	3	3	3	3	3	3	3	3	3	3	184	34	2	3	3	3	5	3	3	3	4	4	12.3	184.5	
3-Dec	A	4	4	4	4	4	4	19	14	4	3	3	4	3	5	5	5	6	5	4	4	4	4	A	5.3	19.2	
4-Dec	6	5	4	4	4	4	4	6	7	10	9	6	6	6	7	8	12	14	16	16	15	12	A	13	8.5	16.0	
5-Dec	11	10	10	8	8	8	8	9	8	5	4	6	5	7	9	9	11	12	6	8	7	A	7	6	7.9	12.3	
6-Dec	6	4	3	3	4	4	3	3	3	3	2	3	5	3	3	4	4	5	7	7	A	6	3	3	3.9	7.4	
7-Dec	3	3	3	2	4	4	3	4	4	4	4	3	2	3	5	6	7	6	4	A	2	2	1	2	3.4	6.6	
8-Dec	3	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	A	A	6	6	6	7	7	2.8	7.4
9-Dec	8	8	8	8	8	6	4	4	3	3	4	3	3	3	4	4	4	A	A	7	7	7	6	6	5.5	8.4	
10-Dec	5	4	2	3	4	3	2	2	2	2	2	3	3	4	4	4	A	A	3	2	2	2	2	2	2.7	4.9	
11-Dec	2	3	3	4	4	3	3	6	3	4	3	3	3	3	4	A	6	6	5	4	4	4	4	4	3.8	6.4	
12-Dec	3	3	3	2	2	2	2	2	3	3	2	2	2	3	A	3	3	5	8	11	9	8	7	5	4.0	11.1	
13-Dec	5	5	4	3	3	3	3	3	C	C	C	C	C	C	7	5	7	4	4	4	3	3	2	2	3.9	7.4	
14-Dec	2	2	2	2	2	2	2	2	2	2	2	3	A	4	4	3	2	2	2	2	2	2	2	2	2.4	3.7	
15-Dec	2	3	3	2	2	2	2	2	2	2	2	A	1	1	2	2	3	3	3	3	3	3	3	3	2.4	3.5	
16-Dec	4	4	5	5	4	4	3	3	3	3	A	3	2	3	3	3	2	6	5	5	5	4	5	5	3.9	5.7	
17-Dec	4	3	3	2	2	2	2	2	9	A	6	4	4	5	5	5	5	3	2	2	2	3	3	2	3.5	9.2	
18-Dec	3	2	2	2	2	2	4	3	A	A	3	4	4	3	4	4	5	4	6	5	3	9	7	6	3.9	9.1	
19-Dec	6	6	5	4	4	3	3	A	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2.4	5.8	
20-Dec	3	4	4	6	11	13	A	17	19	19	14	13	11	10	10	10	10	10	4	3	3	5	5	5	8.9	19.1	
21-Dec	4	3	3	3	2	A	2	2	2	2	2	2	2	2	2	3	4	3	3	3	2	2	2	1	2.4	3.7	
22-Dec	1	2	1	1	A	4	3	1	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	1.9	3.7	
23-Dec	2	2	2	A	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1.6	2.4	
24-Dec	1	1	A	2	1	1	1	1	1	1	1	3	2	2	1	1	1	2	2	2	2	1	2	1	1.4	2.6	
25-Dec	1	A	1	1	1	1	1	3	3	5	12	12	7	7	4	4	4	4	5	5	6	6	9	10	4.8	12.4	
26-Dec	A	10	8	7	5	4	4	3	10	10	8	9	7	7	9	8	8	8	7	8	7	8	7	A	7.2	9.7	
27-Dec	9	9	9	9	9	9	9	10	12	10	7	6	5	5	5	8	9	8	7	7	7	7	A	7	8.0	12.3	
28-Dec	7	7	6	5	4	4	3	3	3	3	3	4	4	3	4	4	4	4	4	4	3	A	4	3	4.1	7.3	
29-Dec	4	4	4	4	4	4	4	3	3	3	4	4	4	5	4	4	4	5	6	4	4	A	4	3	3.9	5.6	
30-Dec	2	3	2	2	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	A	2	3	3	2.8	3.4	
31-Dec	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	4	3	3	A	2	2	2	2	2	2.9	3.8	
		4.0	4.1	3.9	3.7	3.7	3.7	3.2	4.2	4.7	4.1	4.1	4.0	9.9	4.7	4.1	4.2	4.7	4.5	4.6	4.7	4.2	4.2	3.8	4.0	Diurnal Average	
		10.9	9.9	9.8	9.1	10.9	12.9	9.4	19.2	19.1	18.5	14.0	12.5	184.5	33.7	10.2	10.3	11.6	14.2	16.0	16.0	14.8	12.3	8.9	12.8	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

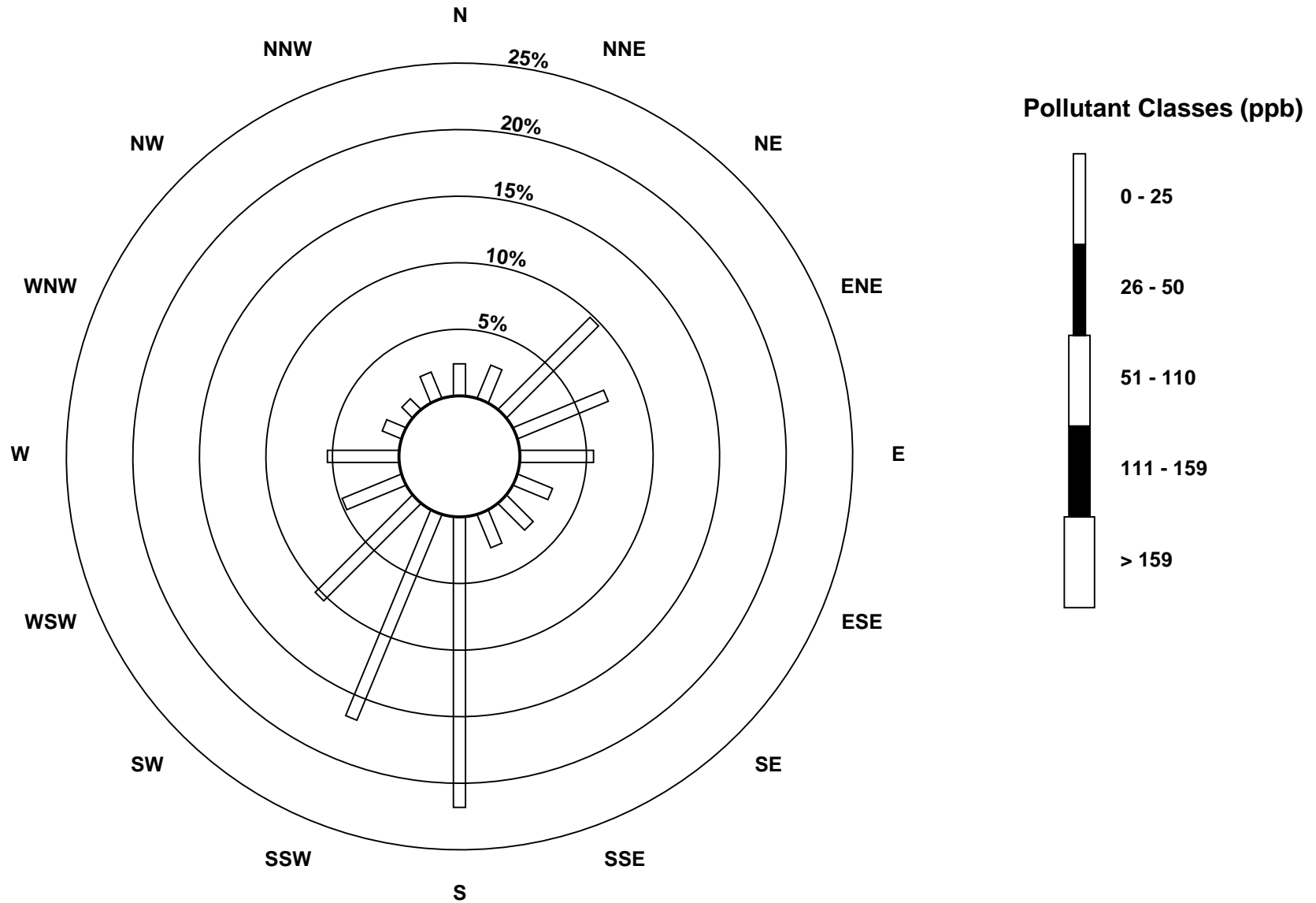
### Hourly Maximums

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sunset House - December 2012



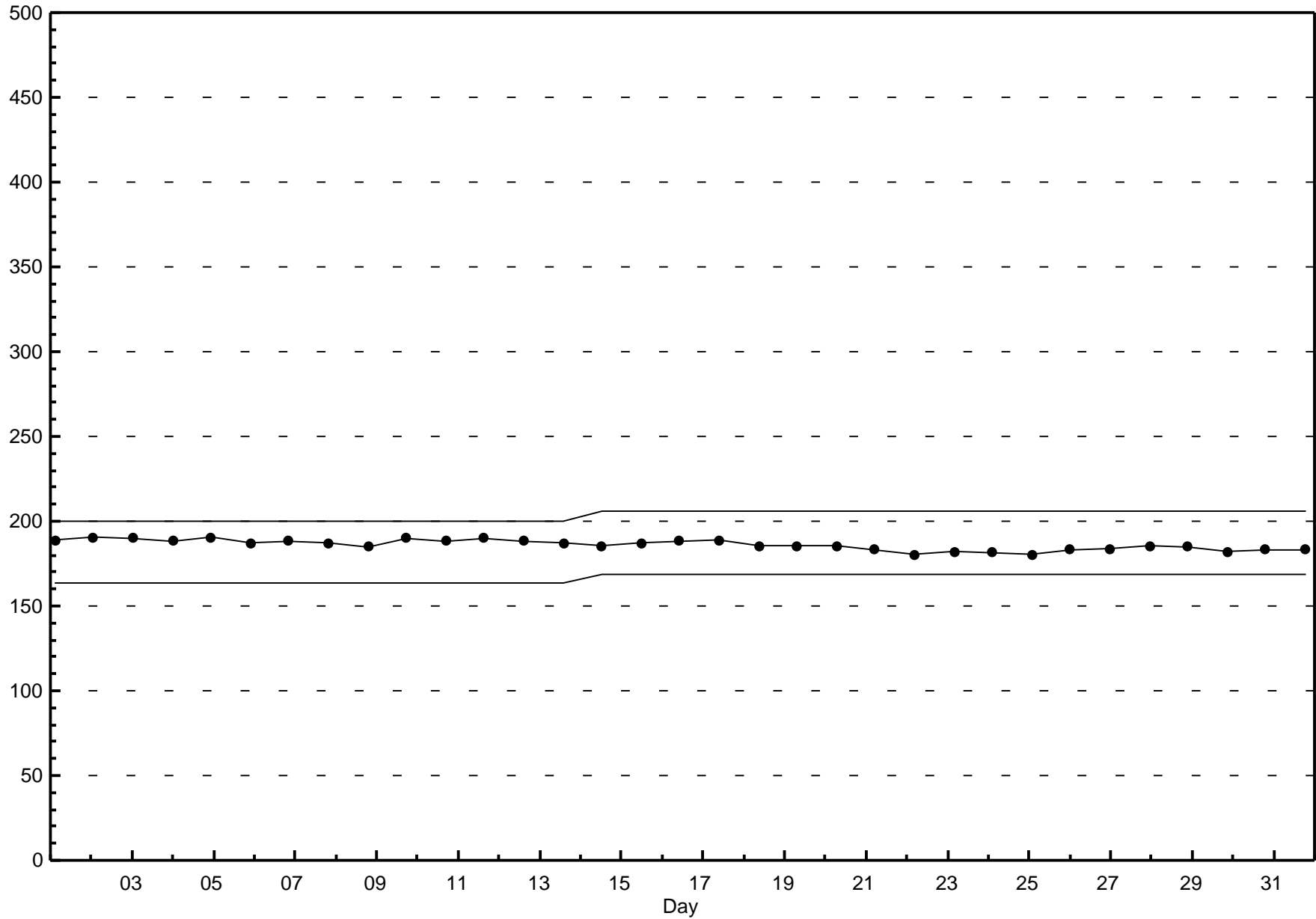
**Pollutant Rose**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Sunset House - December 2012**



### Span Responses

Nitrogen Dioxide (NO<sub>2</sub>)  
Sunset House - December 2012



## Hourly Averages

## Nitrogen Oxide (NO) - ppb

### Sunset House - December 2012

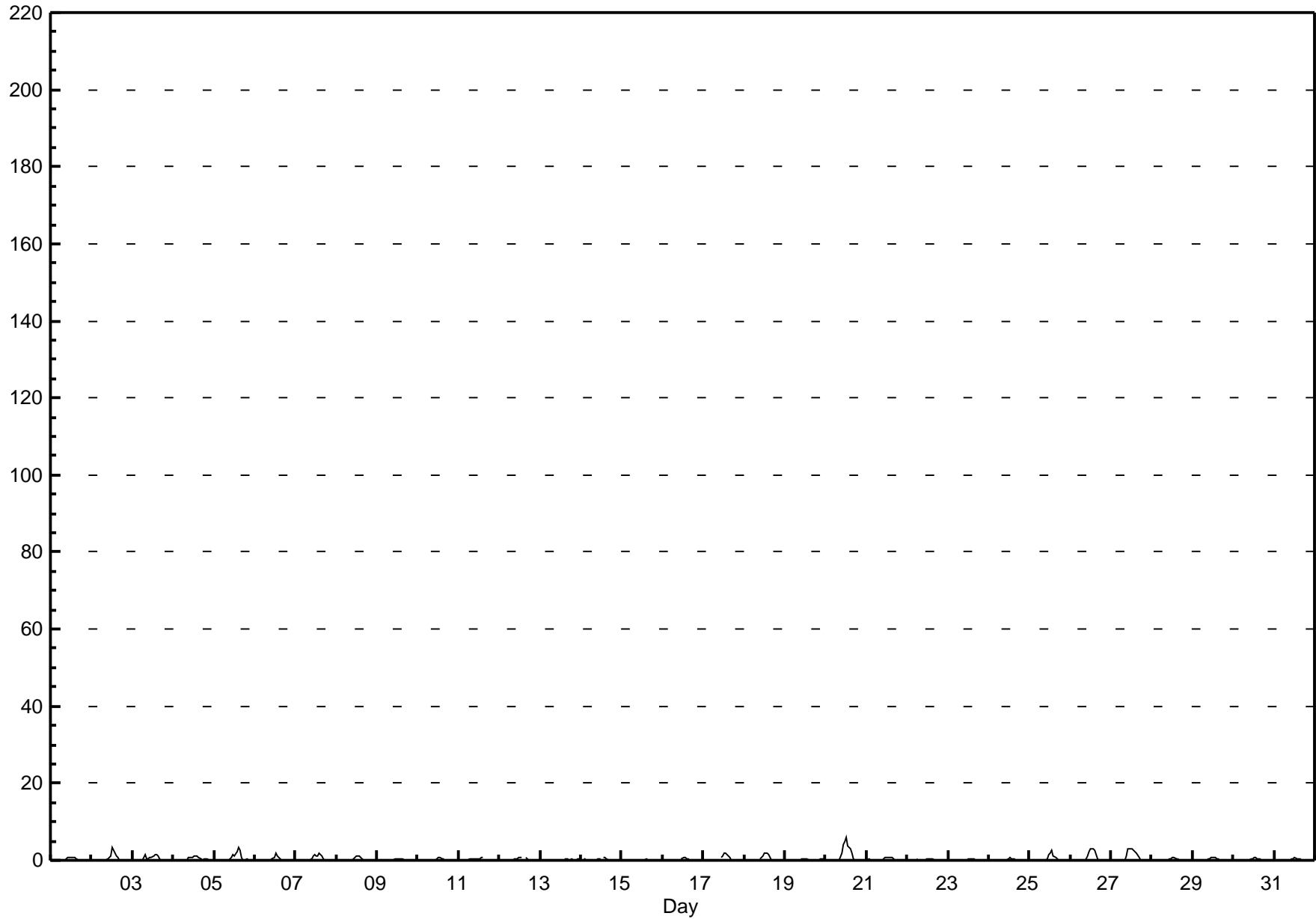
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 5.9 ppb on Dec 20 13:00	Maximum Daily Average: 1.2 ppb on Dec 20		Hours of Data:	706
Minimum Value: 0 ppb on Dec 8 03:00	Minimum Daily Average: 0.1 ppb on Dec 23		Hours of Missing Data:	38
Maximum Diurnal Average: 1.3 ppb at hour 13	Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Calibration:	38
Monthly Average: 0.31 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.8 P <sub>99</sub> = 3.0		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	0	0	A	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.2	0.7
2-Dec	0	A	0	0	0	0	0	0	0	0	1	1	3	3	1	1	0	0	0	0	0	0	0	0	0.5	3.4
3-Dec	A	0	0	0	0	0	0	2	0	0	1	1	1	2	1	1	0	0	0	0	0	0	0	A	0.5	1.6
4-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	A	0	0.4	1.2
5-Dec	0	0	0	0	0	0	0	0	0	0	1	2	1	2	3	3	1	0	0	0	0	A	0	0	0.6	3.5
6-Dec	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	0	0	0	0	A	0	0	0	0.3	1.7
7-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	1	0	0	0	A	0	0	0	0	0.4	1.9
8-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	A	A	0	0	0	0	0.2	1.2
9-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	A	A	0	0	0	0	0	0.2	0.6
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	A	A	0	0	0	0	0	0	0.1	0.7
11-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	A	0	0	0	0	0	0	0	0	0.2	0.7
12-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	A	1	0	0	0	0	0	0	0	0	0.2	0.9
13-Dec	0	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0.2	0.4
14-Dec	0	0	0	0	0	0	0	0	0	0	0	1	A	1	1	0	0	0	0	0	0	0	0	0	0.2	0.7
15-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
16-Dec	0	0	0	0	0	0	0	0	0	0	A	1	1	1	1	0	0	0	0	0	0	0	0	0	0.2	0.6
17-Dec	0	0	0	0	0	0	0	0	0	0	A	1	1	2	2	1	1	0	0	0	0	0	0	0	0.3	2.0
18-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	1	0	0	0	0	0	0	0	0.4	2.0
19-Dec	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
20-Dec	0	0	0	0	0	0	A	0	0	2	4	5	6	4	3	2	0	0	0	0	0	0	0	0	1.2	5.9
21-Dec	0	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0.3	0.9
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	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
24-Dec	0	0	A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6
25-Dec	0	A	0	0	0	0	0	0	0	0	0	1	2	2	1	1	0	0	0	0	0	0	0	0	0.4	2.5
26-Dec	A	0	0	0	0	0	0	0	0	0	1	2	3	3	3	2	0	0	0	0	0	0	0	A	0.7	3.1
27-Dec	0	0	0	0	0	0	0	0	0	1	3	3	3	3	2	2	1	0	0	0	0	0	A	0	0.8	3.1
28-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	A	0	0	0.2	0.6
29-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	A	0	0	0.2	0.7
30-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	A	0	0	0	0.1	0.7
31-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	A	0	0	0	0	0.2	0.6

0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7	1.0	1.3	1.2	1.0	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.6	0.4	1.8	4.0	4.7	5.9	3.8	3.5	2.6	0.7	0.2	0.2	0.3	0.2	0.4	0.2	0.2	Diurnal Maximum

### Hourly Averages

**Nitrogen Oxide (NO) - ppb**  
**Sunset House - December 2012**





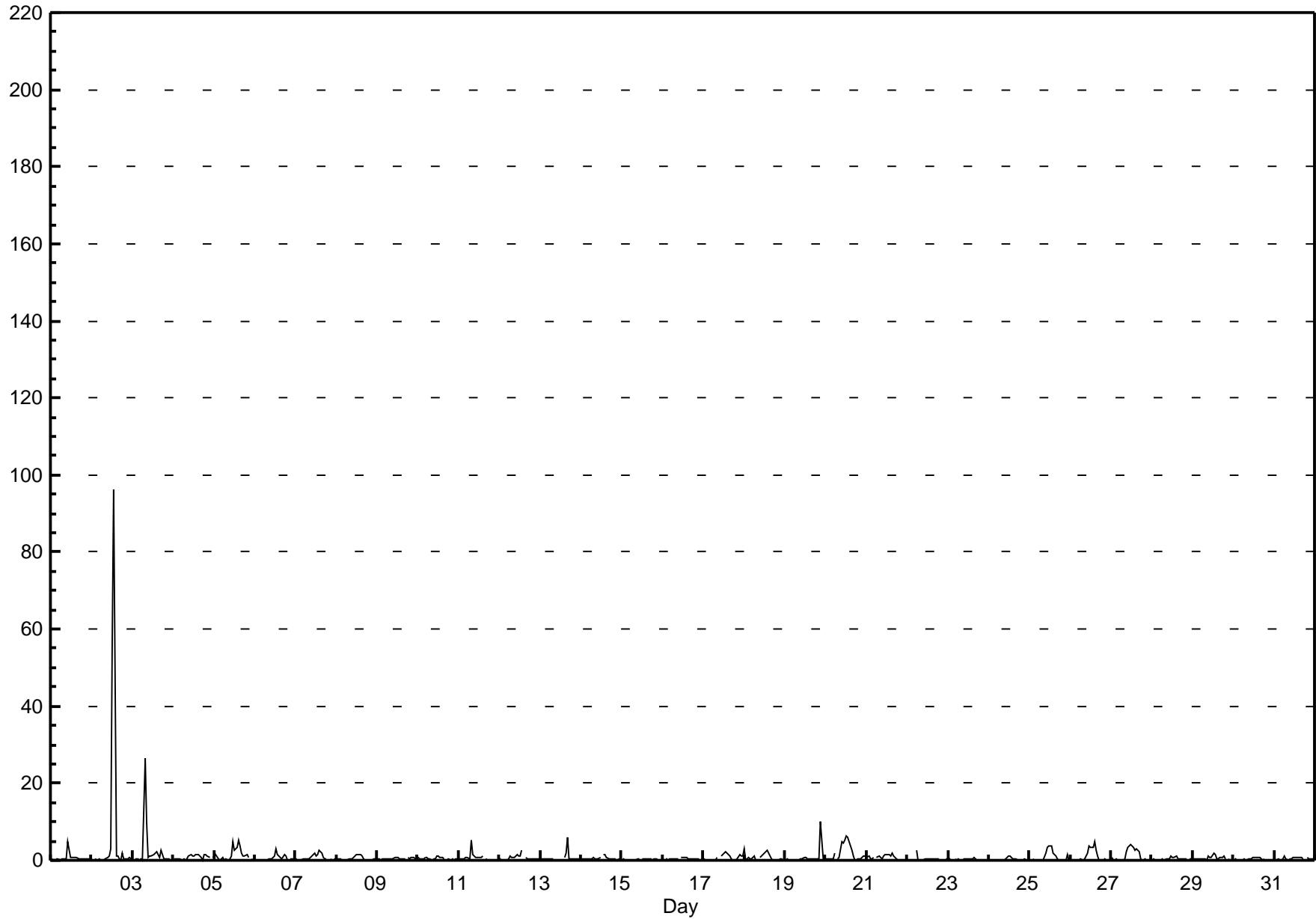
## Hourly Maximums

## Nitrogen Oxide (NO) - ppb Sunset House - December 2012

Maximum Value: 96.3 ppb on Dec 2 14:00		Maximum Daily Average: 7.1 ppb on Dec 2		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 31 09:00		Minimum Daily Average: 0.2 ppb on Dec 15		Hours of Data: 706																							
Maximum Diurnal Average: 4.8 ppb at hour 14		Minimum Diurnal Average: 0.2 ppb at hour 4		Hours of Missing Data: 38																							
Monthly Average: 0.92 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.6 P <sub>99</sub> = 5.6		Hours of Calibration: 38																							
				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	A	0	0	0	0	0	0	0	5	1	1	1	1	1	0	0	0	0	0	0	0	0	0.5	4.9	
2-Dec	0	A	0	0	0	0	0	0	0	1	1	3	56	96	1	1	0	0	2	0	0	0	1	0	7.1	96.3	
3-Dec	A	0	0	0	0	0	0	27	10	1	1	1	2	2	2	1	1	3	0	0	0	0	0	A	2.4	26.5	
4-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	1	1	0	2	1	1	1	A	1	0.8	1.7	
5-Dec	1	1	1	0	0	1	0	0	0	0	1	5	3	3	5	4	2	1	1	2	1	A	0	0	1.4	5.1	
6-Dec	0	0	0	0	0	0	0	0	0	0	0	1	3	1	1	1	0	2	1	0	A	0	0	0	0.6	2.9	
7-Dec	0	0	0	0	0	0	0	0	0	1	1	2	1	2	2	2	1	0	0	A	0	0	0	0	0.6	2.4	
8-Dec	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	0	0	A	0	0	0	0	0	0.5	1.5	
9-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	A	1	1	1	1	0	0	0.4	0.9	
10-Dec	1	0	0	0	1	1	0	0	0	0	0	1	1	1	1	0	A	0	0	0	0	0	0	0	0.4	1.2	
11-Dec	0	0	0	0	1	1	1	5	1	1	1	1	1	1	1	A	0	0	0	0	0	0	0	0	0.7	5.1	
12-Dec	0	0	0	0	0	0	1	1	1	1	1	1	1	3	A	1	0	0	0	0	0	0	0	0	0.6	2.6	
13-Dec	0	0	0	0	0	0	0	0	C	C	C	C	C	C	1	2	6	0	0	0	0	0	0	0	0.7	5.9	
14-Dec	0	0	0	0	0	0	0	1	0	0	1	1	A	1	1	1	0	0	0	0	0	0	0	0	0.5	1.5	
15-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	0.4	
16-Dec	0	0	0	0	0	0	0	0	0	0	A	1	1	1	1	1	0	1	0	0	0	0	0	0	0.3	0.7	
17-Dec	0	0	0	0	0	0	0	0	0	1	A	1	2	2	2	2	1	0	0	0	0	0	1	1	1	0.7	2.4
18-Dec	3	0	1	0	0	1	1	0	A	A	1	1	2	2	3	2	1	0	0	0	0	0	0	0	0.8	3.0	
19-Dec	0	0	0	0	0	0	0	0	A	0	0	0	1	1	0	0	0	0	0	0	0	10	0	0	0.7	9.9	
20-Dec	0	0	0	0	0	2	A	0	1	5	5	5	6	6	4	3	1	0	0	0	0	1	1	1	1.9	6.5	
21-Dec	1	1	1	0	1	A	1	1	1	0	1	1	1	1	1	2	1	1	0	0	0	0	0	0	0.8	1.7	
22-Dec	0	0	0	0	A	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	2.4	
23-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.2	0.6	
24-Dec	0	0	A	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0.3	1.1	
25-Dec	0	A	1	0	0	0	0	0	0	2	3	4	4	4	2	1	0	0	0	0	0	0	1	0	1.0	3.7	
26-Dec	A	0	0	0	0	0	0	0	1	1	2	4	3	3	5	2	1	0	0	0	0	0	0	A	1.1	5.0	
27-Dec	1	0	0	0	0	0	0	0	0	2	3	4	4	3	3	3	2	0	0	0	0	0	A	0	1.2	4.0	
28-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	A	0	0	0.4	1.3	
29-Dec	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	1	1	1	0	A	0	0	0	0.5	1.7	
30-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	A	0	0	0	0	0.3	0.9	
31-Dec	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	0	A	1	0	0	0	0	0.4	1.2	
		0.4	0.3	0.2	0.2	0.2	0.4	0.3	1.3	0.6	0.8	1.2	1.6	3.5	4.8	1.5	1.1	0.8	0.4	0.4	0.3	0.3	0.6	0.3	0.3	Diurnal Average	
		3.0	1.4	0.7	0.4	0.8	2.4	1.2	26.5	9.6	4.8	4.9	5.2	55.8	96.3	5.1	3.9	5.9	2.7	1.9	1.6	1.0	9.9	1.4	1.1	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

### Hourly Maximums

Nitrogen Oxide (NO) - ppb  
Sunset House - December 2012



## Hourly Averages

## Oxides of Nitrogen (NO<sub>x</sub>) - ppb

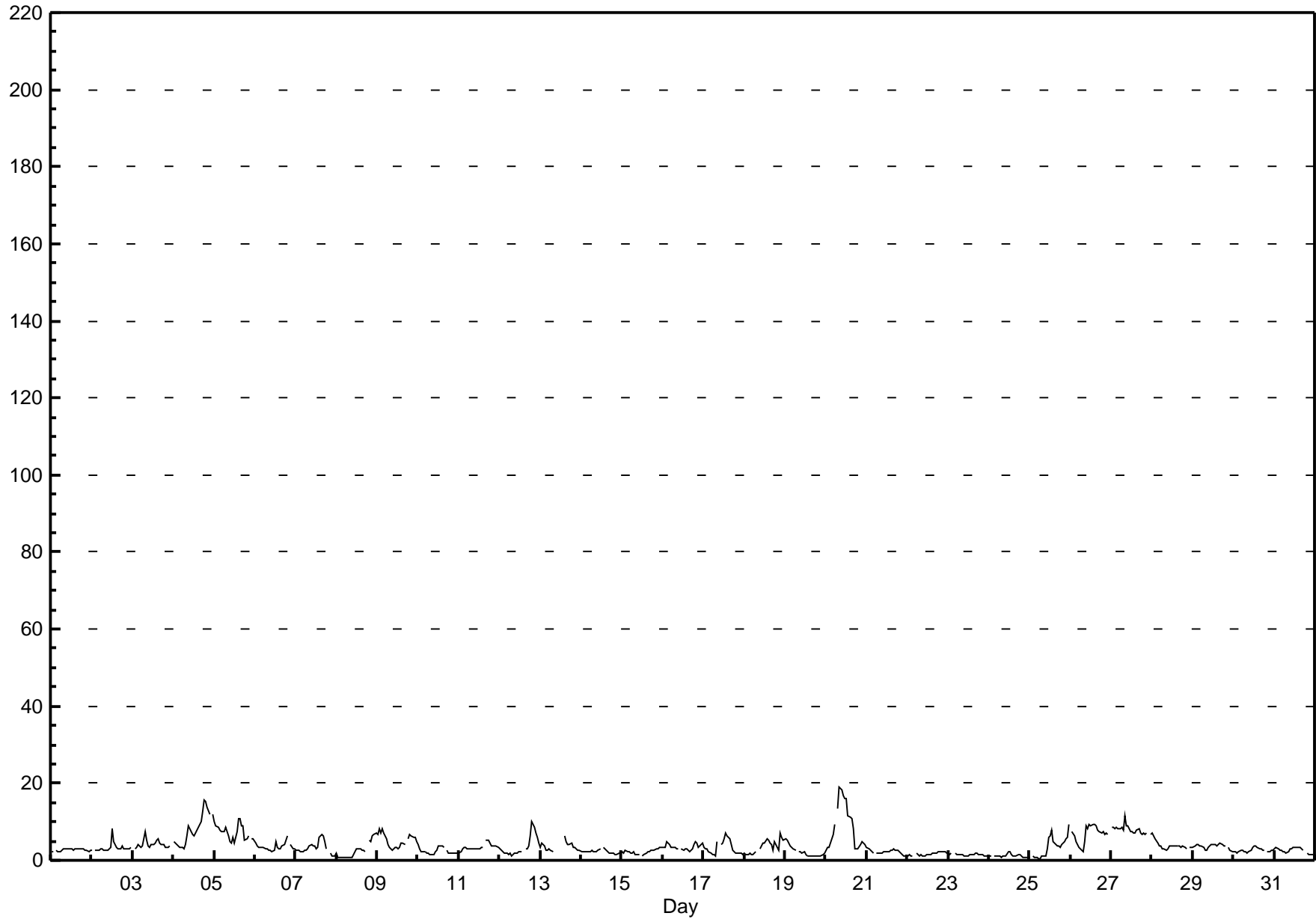
### Sunset House - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 18.9 ppb on Dec 20 09:00	Maximum Daily Average: 8.6 ppb on Dec 20		Hours of Data:	706
Minimum Value: 0 ppb on Dec 25 07:00	Minimum Daily Average: 1.2 ppb on Dec 24		Hours of Missing Data:	38
Maximum Diurnal Average: 4.5 ppb at hour 15	Minimum Diurnal Average: 2.7 ppb at hour 7		Hours of Calibration:	38
Monthly Average: 3.72 ppb	Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 2.1 Median = 3.0 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 7.2 P <sub>99</sub> = 15.1		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	2	2	A	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2.7	3.1	
2-Dec	3	A	2	3	3	3	3	3	2	3	3	3	8	5	3	3	3	3	4	3	3	3	3	3	3.2	8.3	
3-Dec	A	3	3	4	4	3	4	7	5	4	4	4	4	4	5	5	4	4	4	3	3	3	4	A	4.1	7.4	
4-Dec	5	5	4	4	4	3	3	4	6	9	8	7	6	7	8	9	10	12	16	15	14	12	A	12	7.9	15.7	
5-Dec	10	9	9	8	7	7	7	9	6	5	5	6	4	7	11	11	9	9	5	6	6	A	6	6	7.3	11.0	
6-Dec	4	4	3	3	3	3	3	3	3	3	2	3	5	3	3	3	4	4	5	6	A	4	3	3	3.5	6.2	
7-Dec	3	3	2	2	2	3	3	3	4	4	4	4	3	3	6	7	6	5	3	A	2	1	1	1	3.2	6.6	
8-Dec	2	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	2	A	A	5	5	6	7	7	2.6	7.1
9-Dec	7	8	7	8	7	5	4	3	3	3	3	3	3	3	4	5	4	A	A	6	7	6	6	6	5	5.1	8.1
10-Dec	4	3	2	2	2	2	2	2	2	2	2	3	4	4	4	4	A	A	2	2	2	2	2	2	2	2.4	4.1
11-Dec	2	2	3	4	3	3	3	3	3	3	3	3	3	3	3	A	5	5	4	4	4	4	4	4	3	3.4	5.3
12-Dec	3	3	2	2	2	2	2	1	2	2	2	2	2	2	A	3	3	4	6	10	9	7	6	5	3.5	9.9	
13-Dec	3	5	4	3	3	3	3	2	C	C	C	C	C	C	6	5	4	4	4	4	3	3	3	2	3.5	6.2	
14-Dec	2	2	2	2	2	2	2	2	2	2	3	3	A	3	3	3	2	2	2	2	2	2	2	2	2.3	3.4	
15-Dec	2	2	3	2	2	2	2	2	1	1	1	A	1	1	2	2	2	3	3	3	3	3	3	3	2.2	3.3	
16-Dec	3	3	5	4	4	3	3	3	3	3	A	3	3	3	3	3	2	3	4	5	4	3	4	4	3.5	5.0	
17-Dec	3	3	3	2	2	1	1	1	5	A	4	4	6	7	7	5	4	3	2	2	2	2	2	2	3.1	7.0	
18-Dec	2	1	2	2	1	1	2	2	A	A	3	4	4	5	6	5	4	3	5	3	2	7	6	5	3.5	7.1	
19-Dec	6	5	4	4	4	3	3	A	A	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2.2	5.6	
20-Dec	3	3	3	4	7	9	A	13	19	18	17	16	16	11	11	11	8	3	3	3	4	5	5	4	8.6	18.9	
21-Dec	3	3	3	2	2	A	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	1	1	2.3	3.3	
22-Dec	1	1	1	1	A	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1.7	2.3	
23-Dec	2	2	2	A	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1.5	1.8	
24-Dec	1	1	A	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1.2	2.1	
25-Dec	1	A	1	1	1	1	0	1	1	1	1	3	6	6	8	5	4	4	4	4	4	5	6	6	9	3.5	9.4
26-Dec	A	7	6	5	4	3	3	2	5	9	8	9	9	9	9	9	8	7	7	7	7	7	7	A	6.8	9.4	
27-Dec	8	9	8	9	8	8	9	8	12	9	9	7	8	7	7	8	8	7	7	7	7	7	7	A	7	8.0	11.5
28-Dec	7	6	6	4	4	4	3	3	3	3	3	4	4	4	4	4	4	4	3	4	3	A	3	3	3.9	7.0	
29-Dec	3	4	4	4	4	4	3	3	3	3	3	4	4	4	4	4	4	4	4	4	A	3	3	2	3.6	4.4	
30-Dec	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	3	3	3	3	3	A	2	2	2	2	2.6	3.8
31-Dec	3	3	3	3	3	2	2	2	2	2	3	3	3	4	3	3	3	3	3	A	2	1	1	1	1	2.6	3.5

3.5	3.7	3.5	3.3	3.2	3.1	2.7	3.2	3.6	3.7	3.8	4.1	4.3	4.2	4.5	4.4	4.2	3.8	4.0	4.2	3.8	3.8	3.3	3.6	Diurnal Average
10.2	9.0	8.6	8.8	8.2	9.3	8.8	13.5	18.9	18.2	16.8	16.2	16.1	11.5	11.3	10.9	10.0	12.5	15.7	15.3	13.9	12.1	6.8	12.0	Diurnal Maximum

C - Calibration                      A - Automated Daily Zero Span



## Hourly Maximums

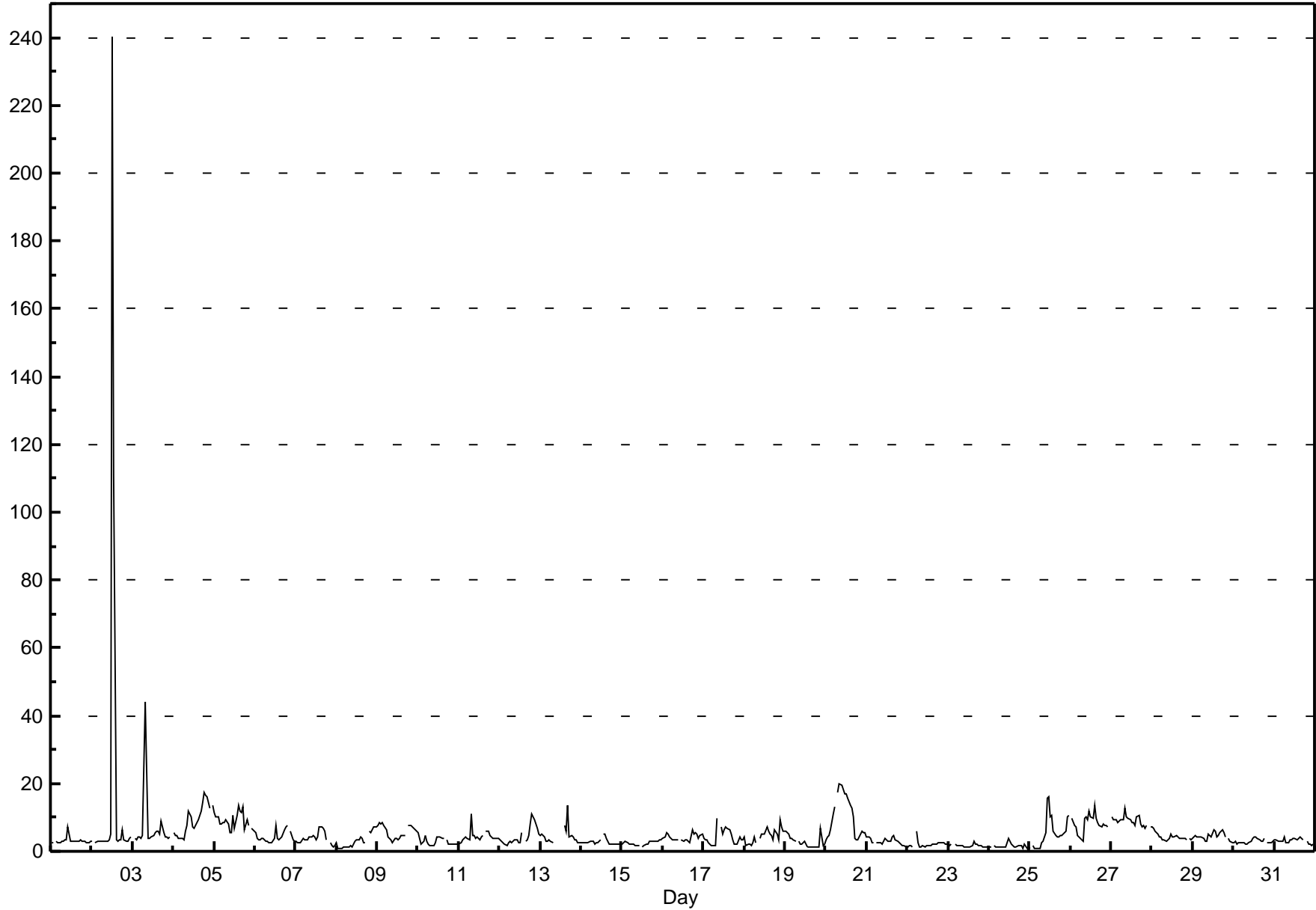
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

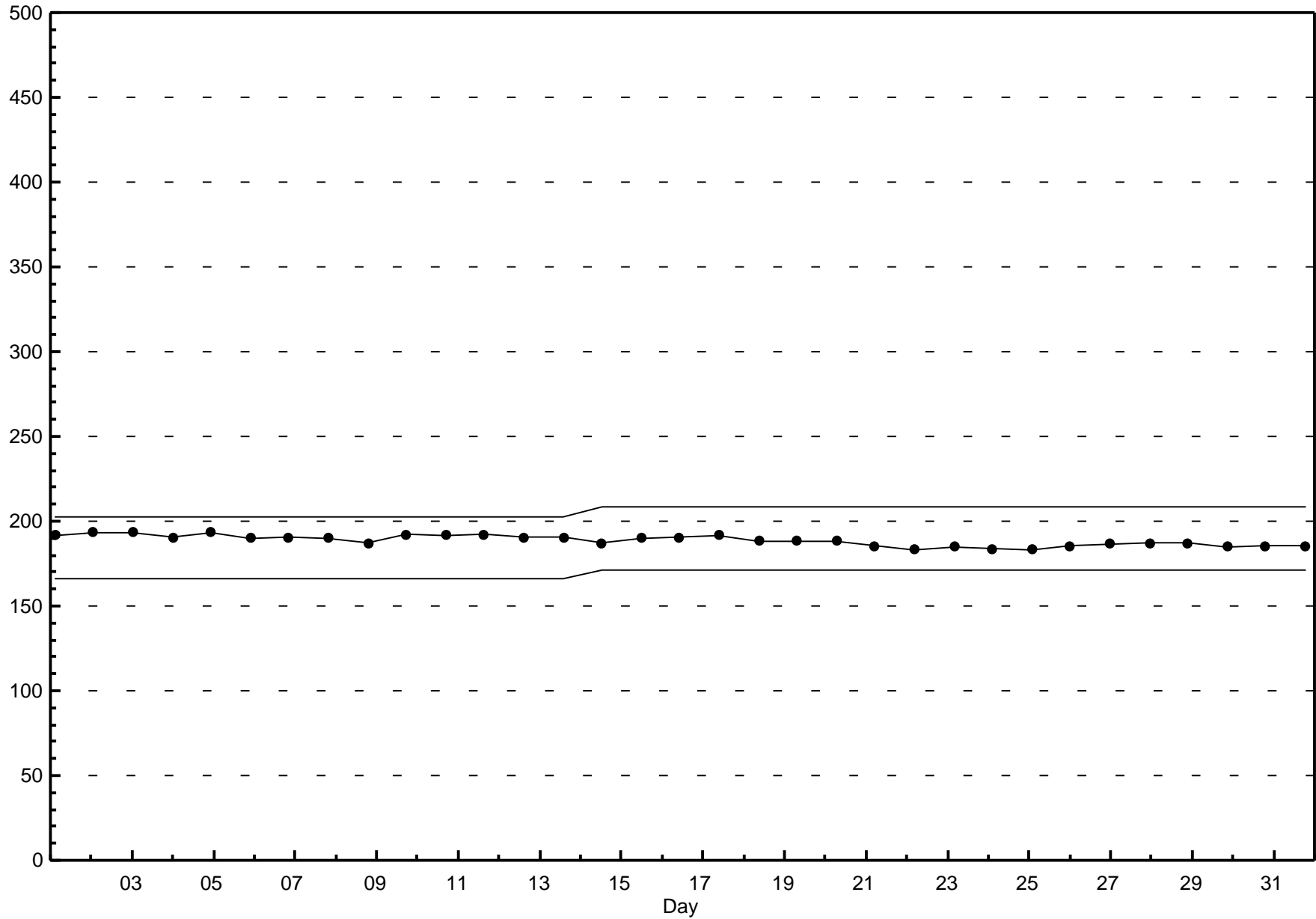
Sunset House - December 2012

Maximum Value: 240.1 ppb on Dec 2 13:00		Maximum Daily Average: 18.4 ppb on Dec 2		Hours in Service: 744																						
Minimum Value: 1 ppb on Dec 25 07:00		Minimum Daily Average: 1.6 ppb on Dec 24		Hours of Data: 706																						
Maximum Diurnal Average: 13.1 ppb at hour 13		Minimum Diurnal Average: 3.3 ppb at hour 7		Hours of Missing Data: 38																						
Monthly Average: 5.04 ppb		Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 2.5 Median = 3.6 Q <sub>3</sub> = 5.5 P <sub>90</sub> = 9.1 P <sub>99</sub> = 17.2		Hours of Calibration: 38																						
				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	A	3	2	2	3	3	3	3	7	3	3	3	3	3	3	3	3	3	3	3	2	3	3.1	7.4
2-Dec	3	A	3	3	3	3	3	3	3	3	3	5	240	111	3	3	3	3	6	3	3	3	4	4	18.4	240.1
3-Dec	A	4	4	4	4	4	4	44	24	4	4	4	5	5	6	6	5	9	6	4	4	4	4	A	7.3	44.0
4-Dec	6	5	4	4	4	4	4	6	8	12	10	7	7	8	8	9	12	14	17	17	16	13	A	13	9.0	17.2
5-Dec	11	10	10	8	8	8	8	9	8	5	6	11	7	11	14	12	11	13	6	9	8	A	7	6	9.0	13.6
6-Dec	6	4	3	3	4	4	3	3	3	3	3	4	8	4	4	4	4	6	7	7	A	6	3	3	4.3	7.8
7-Dec	3	3	3	2	4	4	3	4	4	4	5	4	3	4	7	7	7	6	4	A	2	2	1	2	3.8	7.4
8-Dec	3	1	1	1	1	1	1	1	2	1	2	3	4	3	4	4	3	2	A	6	6	6	7	7	3.1	7.4
9-Dec	8	8	8	8	8	6	4	4	3	3	4	4	3	4	5	5	4	A	8	8	8	7	7	6	5.7	8.4
10-Dec	6	4	2	3	5	3	2	2	2	2	2	4	4	4	4	4	A	3	2	2	2	2	2	2	3.0	5.5
11-Dec	2	3	4	4	4	4	3	11	5	5	4	4	3	4	5	A	6	6	5	4	4	4	4	4	4.3	11.2
12-Dec	3	3	2	2	2	2	3	3	3	3	3	3	2	6	A	3	3	5	8	11	9	8	7	5	4.4	11.2
13-Dec	4	5	4	3	3	3	3	2	C	C	C	C	C	C	8	6	14	4	5	4	4	3	3	3	4.5	13.7
14-Dec	3	2	3	2	3	3	3	3	2	3	3	3	A	5	5	4	2	2	2	2	2	2	2	2	2.7	5.0
15-Dec	2	3	3	2	2	2	2	2	2	2	2	A	1	2	2	2	3	3	3	3	3	3	4	3	2.5	3.6
16-Dec	4	4	6	5	4	4	3	3	3	3	A	3	3	3	3	3	2	6	5	5	5	4	5	5	4.0	6.2
17-Dec	4	3	3	2	2	2	2	2	10	A	7	5	6	7	7	6	5	3	2	2	2	4	4	3	4.1	9.9
18-Dec	4	2	2	2	2	2	4	3	A	4	5	5	5	7	6	5	5	4	6	5	3	9	7	6	4.5	9.2
19-Dec	6	6	5	4	4	3	3	A	3	2	2	3	2	1	1	1	1	1	1	1	1	7	2	2	2.8	6.9
20-Dec	4	4	5	6	11	13	A	17	20	20	18	17	17	16	14	13	10	4	3	3	5	6	6	6	10.3	20.0
21-Dec	4	4	4	3	2	A	3	3	3	2	3	4	3	3	3	4	5	3	3	3	2	2	2	1	3.0	4.6
22-Dec	1	2	2	1	A	6	3	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	5.8
23-Dec	2	2	2	A	2	2	2	2	2	1	1	1	1	1	2	3	2	2	2	2	1	1	1	1	1.7	2.8
24-Dec	1	1	A	2	1	1	1	1	1	1	1	4	3	2	2	1	1	2	2	2	1	2	1	1	1.6	3.6
25-Dec	1	A	2	1	1	1	1	2	3	5	16	16	10	10	6	5	4	4	5	5	6	6	10	10	5.7	15.9
26-Dec	A	10	8	7	5	4	4	3	10	10	9	12	10	10	14	10	9	8	7	8	8	8	7	A	8.1	13.7
27-Dec	10	9	9	9	9	9	9	10	13	10	10	10	8	8	8	10	11	8	7	8	7	7	A	7	9.0	12.5
28-Dec	7	7	6	5	4	4	4	3	3	3	3	4	5	4	4	4	4	4	4	4	3	A	4	3	4.3	7.3
29-Dec	4	5	4	4	4	4	4	3	3	3	5	5	4	6	6	4	5	6	6	5	4	A	4	3	4.4	6.4
30-Dec	2	3	2	2	3	3	3	2	2	3	3	4	4	4	4	3	3	3	3	4	A	2	3	3	3.0	4.0
31-Dec	3	3	3	3	3	3	4	3	3	3	3	4	4	4	4	4	4	4	3	A	3	2	2	2	3.1	4.4
		4.1	4.2	4.0	3.7	3.7	3.9	3.3	5.3	5.2	4.4	5.1	5.4	13.1	8.7	5.3	5.0	5.2	4.8	4.8	4.8	4.3	4.6	3.9	4.1	Diurnal Average
		11.4	10.0	10.0	9.2	11.0	13.2	9.5	44.0	23.8	19.6	18.1	17.1	240.1	110.8	13.7	12.6	13.7	14.3	17.2	16.7	16.0	12.6	10.3	13.5	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

### Hourly Maximums

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Sunset House - December 2012





## Hourly Averages

Ozone (O<sub>3</sub>) - ppb

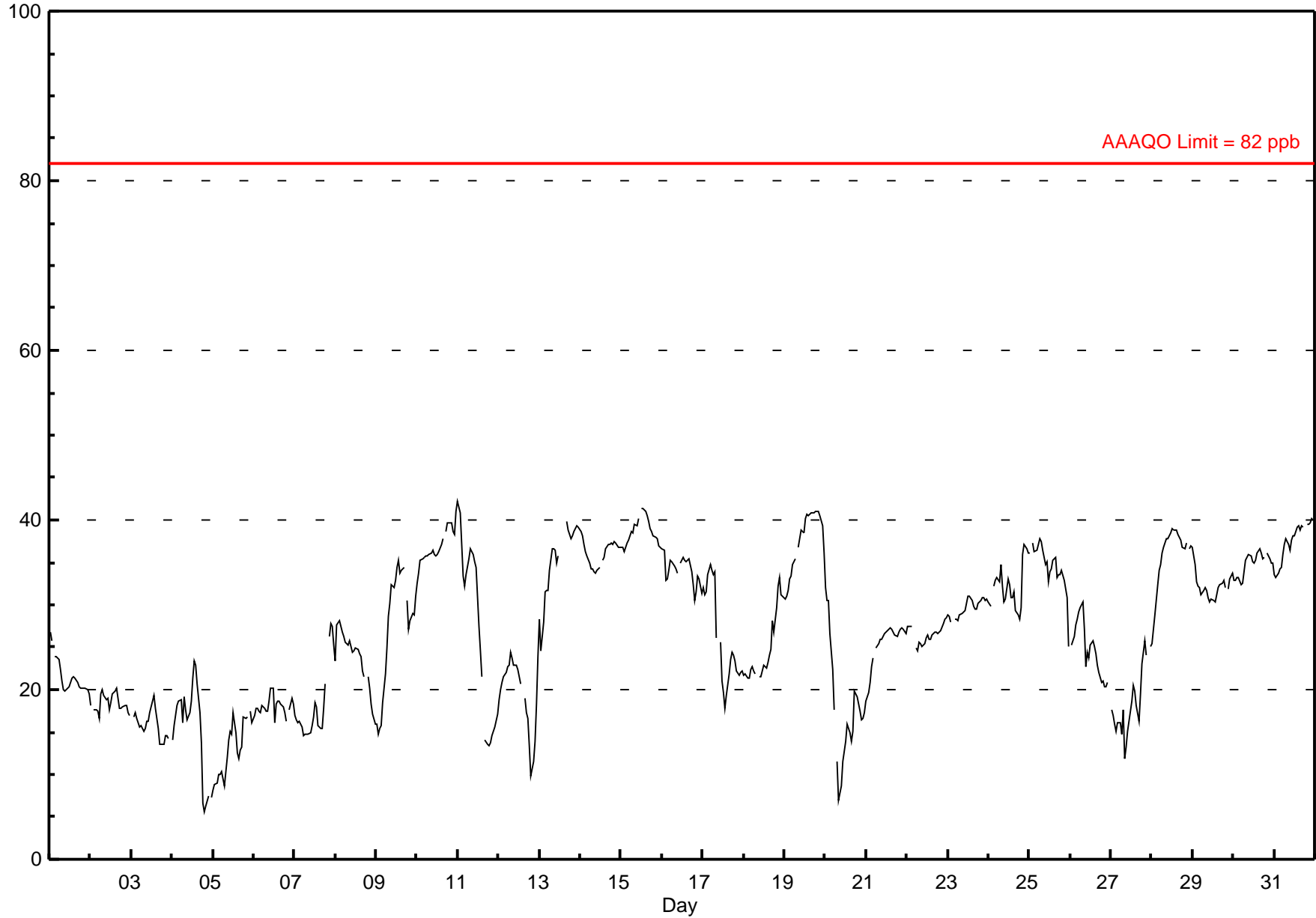
Sunset House - December 2012

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 42.2 ppb on Dec 11 01:00	Maximum Daily Average: 38.6 ppb on Dec 15		Hours of Data:	708
Minimum Value: 6 ppb on Dec 4 20:00	Minimum Daily Average: 12.9 ppb on Dec 5		Hours of Missing Data:	36
Maximum Diurnal Average: 27.9 ppb at hour 23	Minimum Diurnal Average: 26.2 ppb at hour 20		Hours of Calibration:	36
Monthly Average: 26.97 ppb	Percentiles: P <sub>1</sub> = 8.6 P <sub>10</sub> = 15.7 Q <sub>1</sub> = 19.3 Median = 27.4 Q <sub>3</sub> = 34.8 P <sub>90</sub> = 37.8 P <sub>99</sub> = 40.9		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	27	26	A	24	24	23	22	21	20	20	20	20	21	21	22	21	21	20	20	20	20	20	20	20	21.5	26.7
2-Dec	18	A	18	18	18	17	20	20	19	19	19	18	18	20	20	20	19	18	18	18	18	18	17	17	18.4	20.1
3-Dec	A	17	17	17	16	16	16	15	15	16	16	17	19	19	18	17	15	14	14	13	15	15	14	A	15.9	19.3
4-Dec	14	16	17	18	19	19	16	19	18	17	17	19	21	23	23	21	17	14	7	6	6	8	A	7	15.7	23.4
5-Dec	8	9	9	10	10	10	9	9	12	14	15	15	17	15	13	12	13	13	17	17	17	A	17	16	12.9	17.5
6-Dec	17	18	18	18	17	18	18	17	17	19	20	20	16	18	19	19	18	18	17	16	A	18	19	18	18.0	20.1
7-Dec	17	16	16	16	16	15	15	15	15	15	16	17	18	18	16	15	15	18	21	A	26	28	27	25	18.1	27.8
8-Dec	23	28	28	28	27	26	26	25	26	25	24	25	25	25	24	24	22	21	A	22	20	18	17	16	23.7	28.1
9-Dec	16	15	15	16	18	22	25	29	30	32	32	33	34	35	34	34	34	A	30	27	28	29	29	31	27.4	35.3
10-Dec	33	34	35	35	36	36	36	36	36	36	36	36	36	36	37	38	A	39	40	40	40	39	38	41	36.8	41.0
11-Dec	42	41	37	33	32	34	35	37	36	36	35	34	27	25	21	A	14	14	13	14	15	15	16	17	27.1	42.2
12-Dec	19	20	21	21	22	23	23	24	24	23	23	22	22	21	A	19	17	17	13	10	11	14	18	24	19.6	24.3
13-Dec	28	25	28	32	32	32	34	37	37	36	35	36	C	C	C	C	40	39	38	38	39	39	39	39	35.0	39.8
14-Dec	39	38	37	36	36	35	34	34	34	34	34	34	A	35	36	37	37	37	37	37	37	37	37	37	36.1	38.7
15-Dec	37	37	36	37	38	38	39	38	40	39	40	A	41	41	41	40	40	39	39	38	38	38	37	37	38.6	41.4
16-Dec	37	36	33	33	34	35	35	35	34	34	A	35	36	35	35	35	35	34	32	30	32	33	33	31	34.0	36.6
17-Dec	32	31	32	34	35	34	34	34	26	A	26	21	20	18	19	22	24	24	24	23	22	22	22	22	26.1	34.8
18-Dec	22	22	21	21	22	23	22	22	A	21	22	22	23	23	23	24	25	28	27	30	32	33	31	31	24.8	33.2
19-Dec	31	31	32	33	33	35	36	A	37	38	39	39	40	41	41	41	41	41	41	41	41	41	39	36	37.6	41.1
20-Dec	32	31	31	27	22	18	A	11	7	9	12	13	14	16	15	14	15	20	20	19	17	17	17	17	17.9	32.0
21-Dec	19	20	21	23	24	A	25	25	26	26	26	27	27	27	27	27	27	26	26	27	27	27	27	27	25.4	27.3
22-Dec	27	27	27	27	A	25	24	26	25	25	25	26	26	26	26	26	27	27	27	27	27	27	28	28	26.5	28.4
23-Dec	29	29	28	A	28	28	28	29	29	29	29	30	31	31	30	30	29	30	30	31	31	31	31	31	29.6	31.0
24-Dec	30	30	A	32	33	33	33	35	32	30	31	33	32	31	31	31	29	29	28	30	36	37	37	36	32.2	37.1
25-Dec	36	A	37	36	36	37	38	38	37	35	35	33	34	34	35	36	33	34	33	34	33	32	31	25	34.4	37.8
26-Dec	A	25	26	28	28	29	30	30	27	23	24	24	25	26	25	24	23	22	21	21	20	20	21	A	24.7	30.4
27-Dec	18	17	16	15	16	16	15	18	12	13	15	17	19	20	20	18	16	20	23	24	26	24	A	25	18.4	25.8
28-Dec	25	27	29	32	34	35	36	37	38	38	38	39	39	39	38	38	38	37	37	37	A	37	37	37	35.8	38.9
29-Dec	37	35	33	32	32	31	32	32	32	31	30	31	31	30	31	32	32	33	33	32	A	32	33	34	32.1	36.8
30-Dec	33	33	33	33	32	33	34	35	36	36	36	35	35	35	36	37	36	35	36	A	36	35	35	35	34.8	36.5
31-Dec	34	33	34	34	34	36	37	38	37	37	38	38	38	39	39	39	39	39	A	40	40	40	40	40	37.5	40.1

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





## Hourly Maximums

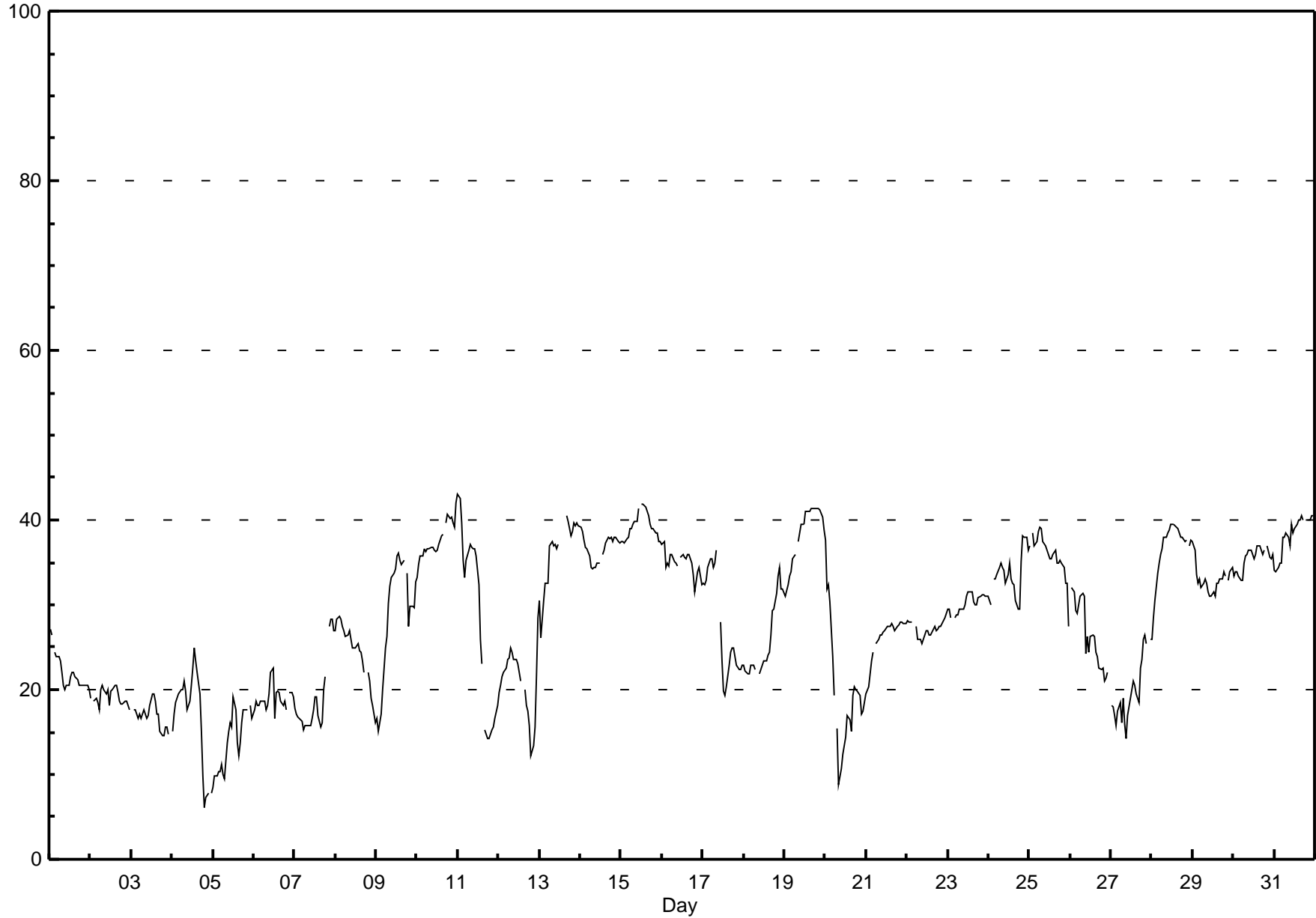
Ozone (O<sub>3</sub>) - ppb

Sunset House - December 2012

Maximum Value: 43.1 ppb on Dec 11 01:00		Maximum Daily Average: 39.2 ppb on Dec 15		Hours in Service: 744																						
Minimum Value: 6 ppb on Dec 4 20:00		Minimum Daily Average: 13.9 ppb on Dec 5		Hours of Data: 708																						
Maximum Diurnal Average: 28.7 ppb at hour 23		Minimum Diurnal Average: 27.2 ppb at hour 20		Hours of Missing Data: 36																						
Monthly Average: 27.94 ppb		Percentiles: P <sub>1</sub> = 9.8 P <sub>10</sub> = 16.6 Q <sub>1</sub> = 20.0 Median = 28.3 Q <sub>3</sub> = 35.7 P <sub>90</sub> = 38.5 P <sub>99</sub> = 41.4		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	27	26	A	24	24	24	23	22	20	20	21	21	21	22	22	21	21	21	21	21	21	21	21	20	21.9	27.2
2-Dec	19	A	19	19	19	18	20	21	20	20	20	18	20	20	21	21	20	19	18	18	19	19	18	18	19.1	20.5
3-Dec	A	18	18	17	17	17	17	18	17	17	17	18	20	20	19	17	17	15	14	15	16	16	15	A	16.9	19.6
4-Dec	15	17	18	19	20	20	20	21	20	18	19	21	22	25	23	22	20	15	10	6	7	8	A	8	17.1	24.9
5-Dec	8	10	10	10	10	11	10	9	14	15	16	16	19	18	14	12	14	16	18	18	18	A	18	17	13.9	19.1
6-Dec	18	19	18	18	19	19	19	18	18	20	22	23	17	20	20	20	19	18	19	18	A	20	20	19	18.9	22.6
7-Dec	18	17	17	17	16	15	16	16	16	16	17	18	19	19	17	16	16	20	22	A	27	28	28	27	19.0	28.4
8-Dec	27	28	29	28	27	27	26	26	27	26	25	25	25	25	25	24	23	22	A	22	21	19	18	16	24.5	28.7
9-Dec	17	15	16	17	20	25	26	30	32	33	34	34	36	36	35	35	35	A	34	27	30	30	30	33	28.7	36.2
10-Dec	33	35	36	36	37	36	37	37	37	37	36	36	36	37	38	38	A	40	41	40	40	40	39	42	37.5	42.1
11-Dec	43	43	40	35	33	35	36	37	37	37	37	36	32	26	23	A	15	14	14	15	15	16	17	18	28.4	43.1
12-Dec	20	21	22	22	23	23	24	25	24	23	23	23	22	21	A	20	18	17	16	12	13	16	22	29	20.8	28.5
13-Dec	31	26	30	33	33	33	37	37	37	37	37	37	C	C	C	C	41	40	38	39	40	39	40	39	36.1	40.6
14-Dec	39	39	38	37	37	36	34	34	34	34	35	35	A	36	36	37	38	38	38	37	38	38	37	37	36.7	39.2
15-Dec	37	37	37	38	38	39	39	39	40	40	41	A	42	42	42	41	40	39	39	39	38	38	37	37	39.2	41.9
16-Dec	37	37	34	35	34	36	36	35	35	35	A	36	36	36	36	36	36	35	33	31	33	34	34	32	34.9	37.5
17-Dec	32	32	33	34	35	35	34	35	36	A	28	23	20	19	20	23	24	25	25	24	23	22	22	23	27.4	36.4
18-Dec	23	22	22	22	23	23	23	22	A	22	22	23	23	23	24	24	26	29	29	31	33	34	32	32	25.7	34.4
19-Dec	31	32	32	33	34	35	36	A	37	38	39	39	41	41	41	41	41	41	41	41	41	41	40	39	38.3	41.4
20-Dec	38	32	32	30	24	19	A	15	9	11	12	13	14	17	16	15	19	20	20	20	19	17	17	18	19.6	37.7
21-Dec	19	20	22	23	24	A	25	26	26	26	27	27	27	27	27	28	27	27	27	28	28	28	28	28	26.0	28.0
22-Dec	28	28	28	28	A	27	26	26	26	25	26	27	27	26	26	27	27	27	27	27	27	27	28	29	27.2	29.0
23-Dec	29	29	28	A	28	29	29	29	29	29	30	31	31	31	31	30	30	30	31	31	31	31	31	31	30.2	31.5
24-Dec	31	30	A	33	33	33	34	35	34	34	33	34	35	33	32	32	30	30	30	35	38	38	38	36	33.6	38.2
25-Dec	37	A	38	37	38	39	39	39	39	37	37	36	36	35	36	36	35	35	35	35	35	34	32	32	35.8	39.1
26-Dec	A	32	31	29	29	30	31	31	31	24	26	24	26	26	26	24	24	22	22	22	21	21	22	A	26.3	32.0
27-Dec	18	18	17	16	17	18	16	19	16	14	17	19	20	21	20	19	18	22	23	26	26	25	A	26	19.8	26.5
28-Dec	26	28	30	34	35	36	37	38	38	38	39	40	40	40	39	39	38	38	38	38	38	A	37	38	36.6	39.5
29-Dec	38	37	34	33	33	32	33	33	33	31	31	31	31	31	32	32	33	33	34	33	A	33	34	34	33.0	37.5
30-Dec	33	34	34	33	33	33	35	36	36	36	36	36	35	36	37	37	36	36	36	A	37	36	35	36	35.4	36.9
31-Dec	34	34	34	35	35	38	38	38	38	37	39	38	39	39	40	40	40	40	A	40	40	40	40	40	38.2	40.5
		27.8	27.5	27.5	27.5	27.6	28.1	28.5	28.3	28.5	27.7	28.1	27.9	28.1	28.3	28.3	27.9	27.5	27.5	27.4	27.2	28.1	27.9	28.7	28.6	Diurnal Average
		43.1	42.6	39.7	37.8	37.9	38.9	39.1	39.4	39.9	39.9	41.3	39.5	41.9	41.9	41.5	40.9	41.4	41.4	41.4	41.4	41.4	41.3	40.5	42.1	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

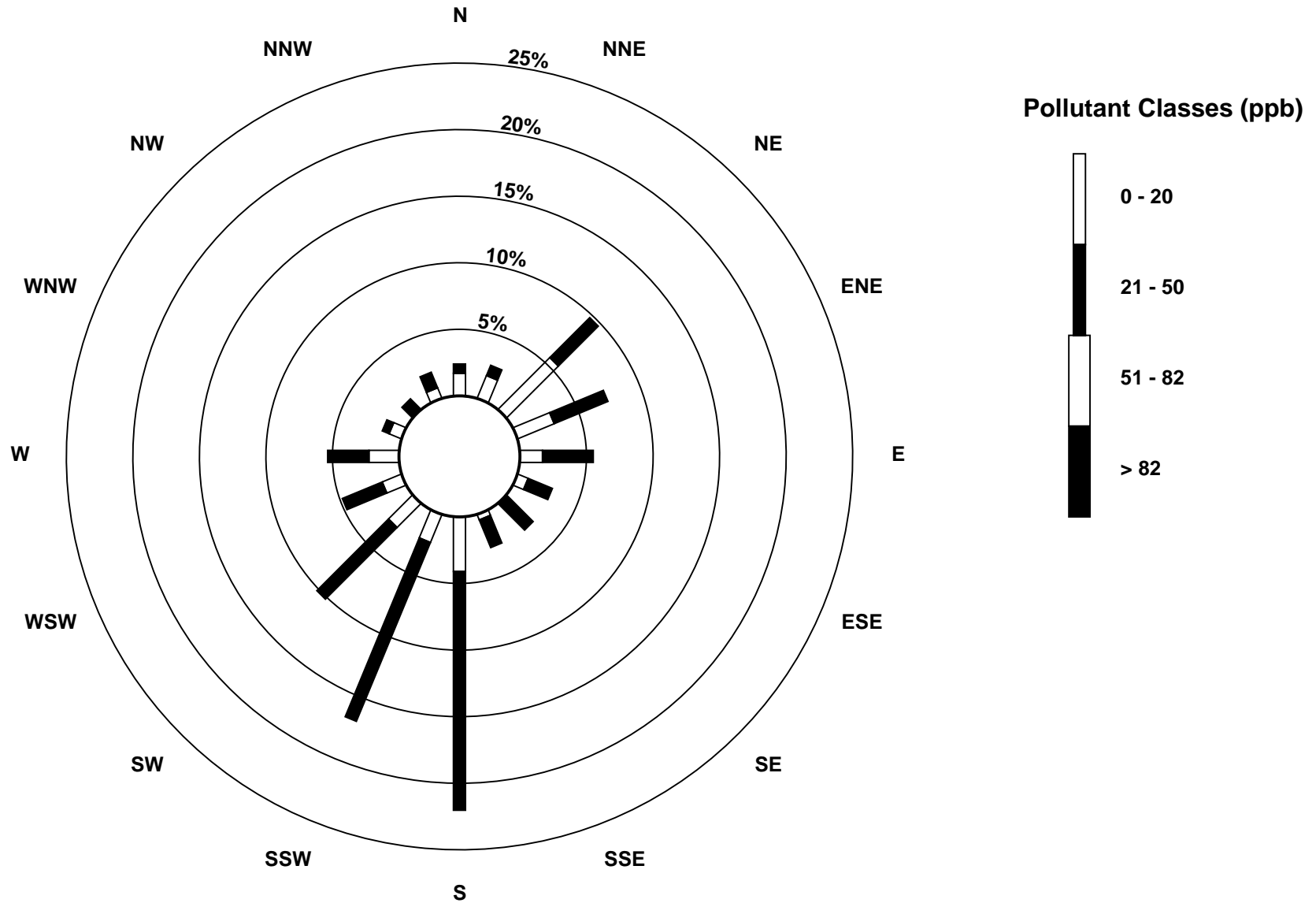
# Hourly Maximums

Ozone (O<sub>3</sub>) - ppb  
Sunset House - December 2012



**Pollutant Rose**

Ozone (O<sub>3</sub>) - ppb  
Sunset House - December 2012



## Eight Hour Running Averages

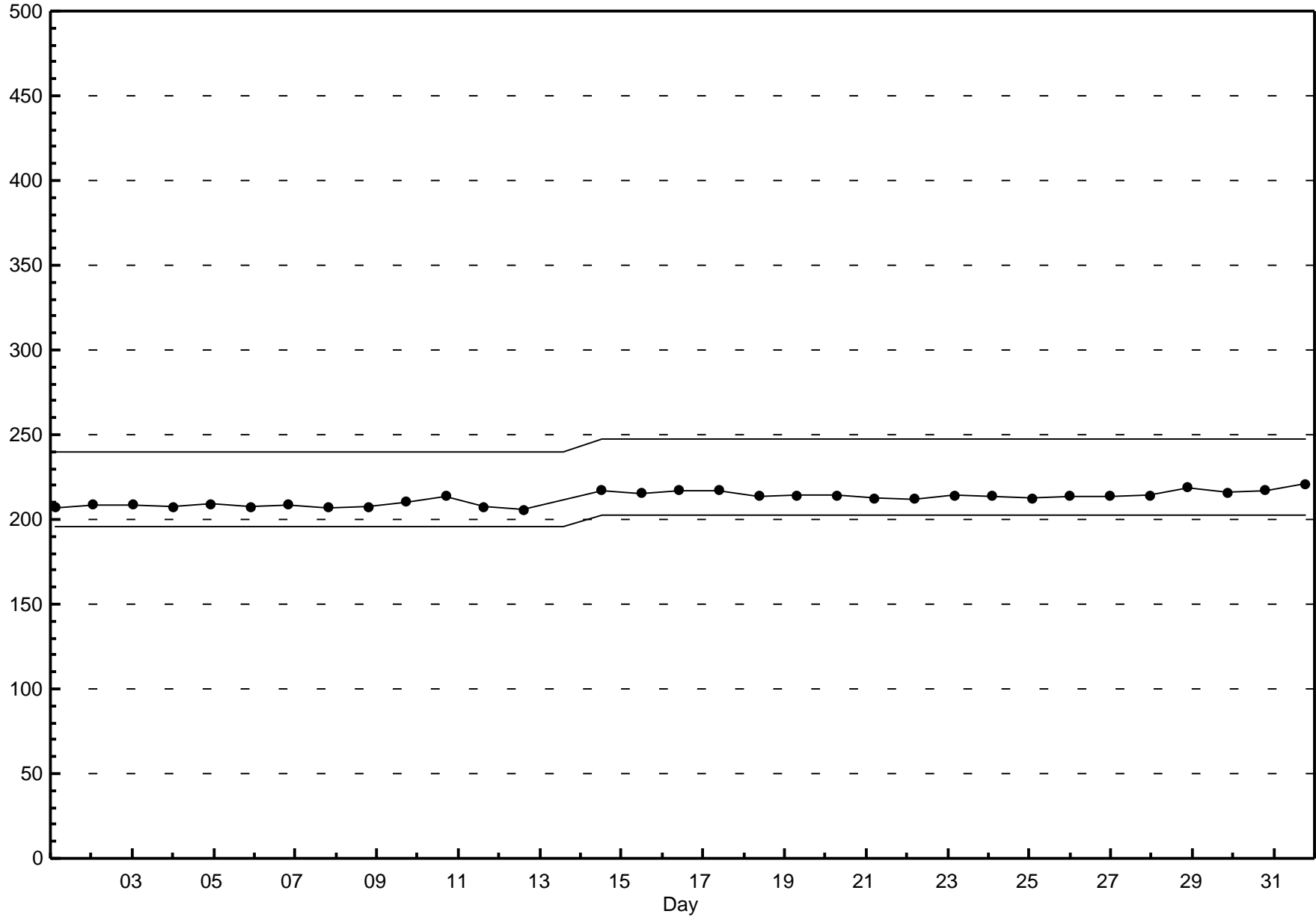
Ozone (O<sub>3</sub>) - ppb

Sunset House - December 2012

Maximum Value: 40.8 ppb on Dec 19 21:00																					Hours in Service:	744			
Minimum Value: 7.2 ppb on Dec 5 02:00																					Hours of Data:	737			
Percentiles: P <sub>1</sub> = 9.2 P <sub>10</sub> = 16.1 Q <sub>1</sub> = 18.8 Median = 27.0 Q <sub>3</sub> = 34.4 P <sub>90</sub> = 37.3 P <sub>99</sub> = 40.4																					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	27	27	27	27	26	25	25	24	23	22	22	21	21	21	21	21	21	21	21	21	21	21	20	20	27.3
2-Dec	20	20	19	19	19	18	18	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19	18	18	19.8
3-Dec	18	18	18	17	17	17	16	16	16	16	16	16	16	17	17	17	17	17	17	16	16	15	15	14	17.7
4-Dec	14	14	15	15	16	17	17	17	18	18	18	18	18	19	20	20	20	19	18	16	15	13	11	9	19.8
5-Dec	8	7	7	8	9	9	9	9	10	10	11	12	13	13	14	14	14	14	14	15	14	14	15	16	15.7
6-Dec	16	17	17	17	17	17	17	18	18	18	18	18	18	18	19	19	19	19	18	18	18	18	18	18	18.6
7-Dec	18	17	17	17	17	17	16	16	15	15	15	15	16	16	16	16	17	17	17	18	20	22	23	23.0	
8-Dec	24	25	27	27	27	27	26	26	27	26	25	25	25	25	25	24	24	24	23	23	22	21	20	20	26.7
9-Dec	19	18	17	17	16	17	18	19	21	23	26	28	30	31	32	33	34	34	34	33	32	31	30	30	33.8
10-Dec	30	30	31	32	33	34	34	35	35	36	36	36	36	36	36	36	36	37	37	38	38	39	39	39	39.4
11-Dec	40	40	40	39	38	37	37	36	36	35	35	35	34	33	31	31	28	24	21	18	16	15	14	15	40.0
12-Dec	15	16	17	18	19	20	21	22	22	23	23	23	23	23	23	22	21	20	19	17	15	15	15	16	23.0
13-Dec	17	18	20	22	25	27	29	31	32	33	34	35	35	36	N	N	N	N	N	N	N	39	39	39	38.8
14-Dec	39	39	38	38	38	37	37	36	36	35	35	34	34	34	34	35	35	36	36	37	37	37	37	37	38.7
15-Dec	37	37	37	37	37	37	37	37	38	38	39	39	39	40	40	40	41	40	40	40	40	39	39	38	40.5
16-Dec	38	37	37	36	36	35	35	35	34	34	34	35	35	35	35	35	35	35	35	34	34	33	33	33	37.7
17-Dec	32	32	32	32	33	33	33	33	32	33	32	30	28	25	23	22	21	22	21	22	22	23	23	23	33.1
18-Dec	23	22	22	22	22	22	22	22	22	22	22	22	22	22	22	23	23	24	24	25	26	28	29	30	29.6
19-Dec	30	31	31	32	32	32	33	33	34	35	36	37	37	38	39	39	40	40	40	41	41	41	41	40	40.8
20-Dec	39	38	36	35	32	29	28	24	21	18	15	13	12	12	12	12	13	15	16	17	17	17	18	39.0	
21-Dec	18	18	18	19	20	20	21	22	23	24	25	26	26	26	26	27	27	27	27	27	27	27	27	27	26.9
22-Dec	27	27	27	27	27	27	27	26	26	26	25	25	25	26	26	26	26	26	26	26	27	27	27	27	27.3
23-Dec	28	28	28	28	28	28	28	28	28	29	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30.3
24-Dec	30	30	31	31	31	31	32	32	33	33	32	32	32	32	32	31	31	31	31	30	31	31	32	33	32.7
25-Dec	34	34	36	36	37	37	37	37	37	37	36	36	36	35	35	35	34	34	34	34	34	34	33	32	37.0
26-Dec	32	30	29	29	28	28	27	28	28	28	27	27	27	26	26	25	24	24	24	23	23	22	22	21	31.7
27-Dec	20	20	19	18	18	17	16	16	16	15	15	15	16	16	17	17	17	18	19	20	21	21	22	23	22.6
28-Dec	24	25	26	27	28	30	30	32	33	35	36	37	37	38	38	38	38	38	38	38	38	37	37	37	38.4
29-Dec	37	37	36	35	35	34	34	33	32	31	31	31	31	31	31	31	31	31	32	32	32	32	33	33	37.0
30-Dec	33	33	33	33	33	33	33	33	34	34	34	35	35	35	35	36	36	36	36	36	36	36	36	36	35.9
31-Dec	35	35	35	35	34	34	35	35	35	36	36	37	37	38	38	38	38	39	39	39	39	39	39	40	39.6
39.7 40.0 39.7 38.9 38.0 37.4 37.3 37.5 37.8 38.2 38.6 38.8 39.4 39.8 40.2 40.5 40.5 40.5 40.4 40.7 40.8 40.8 40.7 40.1																									
Diurnal Maximums																									
N - Not Valid																									

**Span Responses**

**Ozone (O<sub>3</sub>)**  
**Sunset House - December 2012**



## Hourly Averages

PM2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Sunset House - December 2012

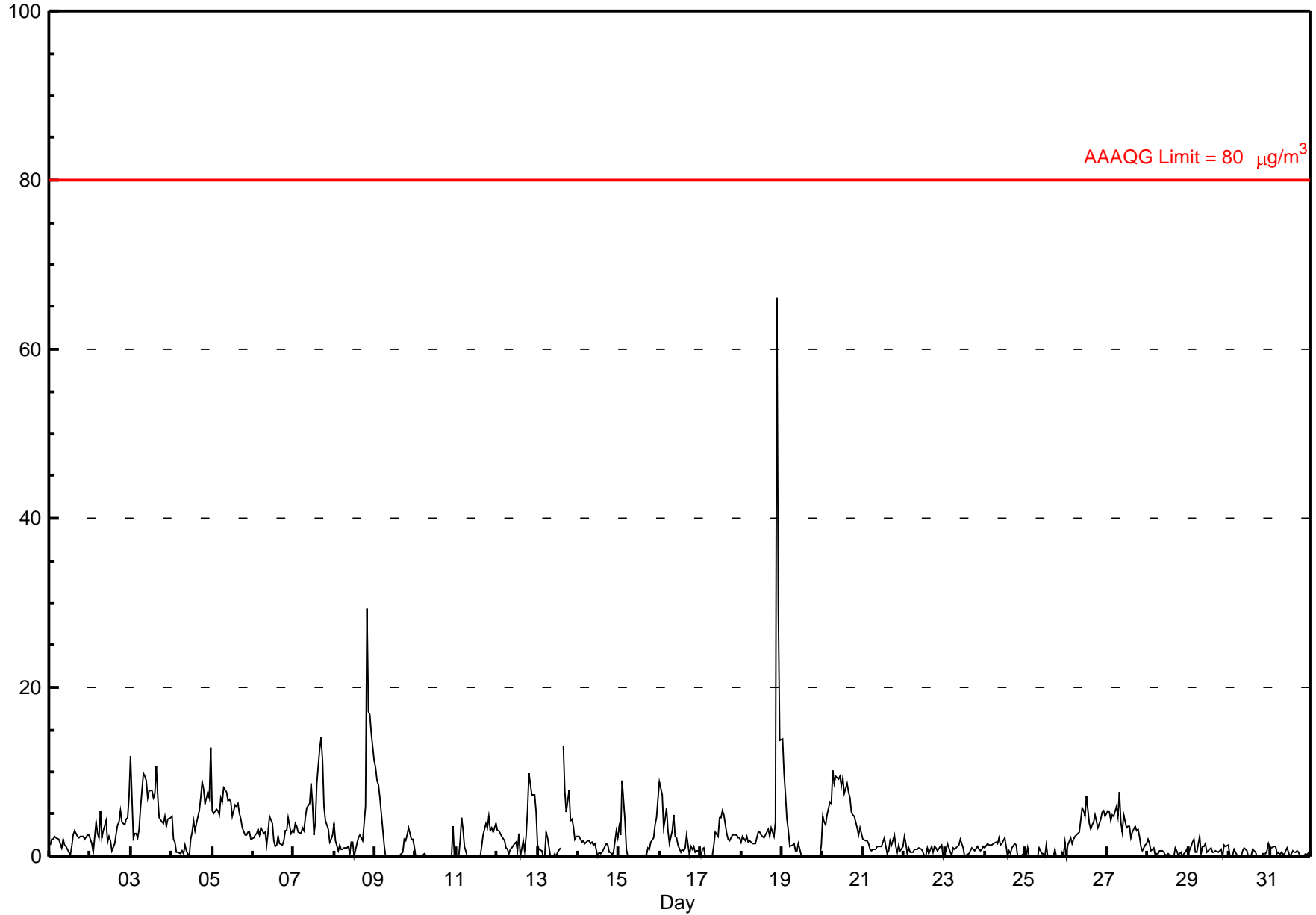
Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 66.0 µg/m <sup>3</sup> on Dec 18 22:00	Maximum Daily Average: 6.6 µg/m <sup>3</sup> on Dec 18
Minimum Value: 0 µg/m <sup>3</sup> on Dec 4 11:00	Hours of Data: 742
Maximum Diurnal Average: 4.8 µg/m <sup>3</sup> at hour 22	Hours of Missing Data: 2
Monthly Average: 2.56 µg/m <sup>3</sup>	Hours of Calibration: 0
Minimum Daily Average: 0.2 µg/m <sup>3</sup> on Dec 10	Percent Operational Time: 99.7
Minimum Diurnal Average: 1.8 µg/m <sup>3</sup> at hour 14	
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.5 Median = 1.6 Q <sub>3</sub> = 3.3 P <sub>90</sub> = 6.2 P <sub>99</sub> = 13.5	

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	2	2	2	2	2	2	1	2	1	1	0	0	1	3	3	2	2	2	2	2	3	2	1.9	3.0	
2-Dec	2	2	0	4	3	2	5	2	3	4	2	2	2	1	2	3	4	4	5	4	4	4	5	7	3.2	7.1
3-Dec	12	2	3	3	2	3	6	10	10	9	7	8	8	7	7	11	7	5	4	4	5	4	4	5	6.0	11.9
4-Dec	5	2	2	0	0	0	1	0	1	1	0	2	3	4	3	4	5	7	9	8	6	8	7	13	3.8	12.8
5-Dec	6	5	6	5	5	7	6	8	8	7	7	6	5	6	6	6	5	4	3	3	3	3	3	2	5.2	8.1
6-Dec	2	2	3	3	3	3	3	3	1	3	5	4	2	1	1	2	2	1	2	3	3	5	3	3	2.6	4.8
7-Dec	3	4	3	3	3	3	3	5	6	6	9	6	3	4	9	13	14	11	6	4	3	2	2	3	5.3	14.0
8-Dec	4	2	1	1	1	1	1	1	1	0	2	2	0	1	2	3	2	2	6	29	17	17	15	11	5.1	29.4
9-Dec	10	9	8	7	5	1	0	0	0	0	0	0	0	0	0	0	0	2	3	3	2	2	1	2.4	10.4	
10-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.2	3.5
11-Dec	0	0	2	5	3	1	0	0	0	0	0	0	N	0	0	1	3	4	3	5	3	3	3	4	1.7	4.8
12-Dec	3	3	3	2	2	1	1	0	1	1	2	2	1	3	0	2	1	2	5	10	7	7	7	5	3.0	9.7
13-Dec	1	1	1	0	0	3	2	0	0	0	0	0	1	1	M	13	8	5	8	4	4	3	2	2	2.6	13.0
14-Dec	2	2	2	2	2	2	2	2	2	1	1	0	1	0	0	1	2	1	1	1	0	0	3	2	1.3	3.1
15-Dec	3	3	9	4	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	4	5	7	1.7	9.0
16-Dec	9	7	3	4	6	3	2	3	5	2	2	1	0	1	1	1	3	0	1	1	1	0	1	1	2.5	8.7
17-Dec	0	1	1	0	0	0	0	0	1	3	2	5	5	6	5	3	2	2	2	2	3	3	2	2	2.1	5.5
18-Dec	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	3	3	2	3	2	4	66	29	14	6.6	66.0
19-Dec	14	10	7	4	3	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2.0	13.9
20-Dec	5	4	4	5	6	6	10	9	9	9	9	8	9	7	9	8	7	5	5	5	3	3	3	3	6.4	10.2
21-Dec	2	2	2	2	1	1	1	1	1	1	1	1	2	1	0	1	2	1	3	1	0	1	1	1	1.3	2.6
22-Dec	2	1	0	1	0	0	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	0	0.8	2.4
23-Dec	1	1	2	1	0	1	1	1	1	2	2	1	0	0	0	1	1	1	1	1	1	1	1	1	0.9	2.0
24-Dec	1	1	1	1	1	2	2	1	2	1	1	2	1	0	1	0	1	1	1	0	0	0	0	0	1.0	2.2
25-Dec	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0.3	1.8
26-Dec	0	1	2	2	2	2	2	3	4	6	5	5	7	4	3	4	4	5	3	4	4	5	5	5	3.7	7.2
27-Dec	5	5	4	5	5	6	5	8	4	3	5	3	4	4	2	3	4	3	3	2	1	1	1	2	3.7	7.6
28-Dec	2	2	1	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	0.5	2.0
29-Dec	0	1	2	2	1	0	2	0	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1.0	2.4
30-Dec	0	0	0	1	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	1	2	0.3	1.6
31-Dec	1	1	1	1	0	1	0	0	0	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1	0.5	1.2
	3.2	2.6	2.5	2.4	1.9	1.8	2.0	2.0	2.2	2.2	2.3	2.1	1.9	1.8	2.0	2.8	2.7	2.5	2.7	3.3	2.7	4.8	3.7	3.3	Diurnal Average	
	13.9	9.8	9.0	6.9	6.5	7.0	10.2	9.8	9.5	9.2	9.5	8.4	9.3	7.4	8.7	13.0	14.0	11.4	8.8	29.4	17.0	66.0	29.1	13.7	Diurnal Maximum	

M - Maintenance N - Not Valid  
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m<sup>3</sup> Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m<sup>3</sup>

### Hourly Averages

PM2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Sunset House - December 2012





## Hourly Maximums

PM2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Sunset House - December 2012

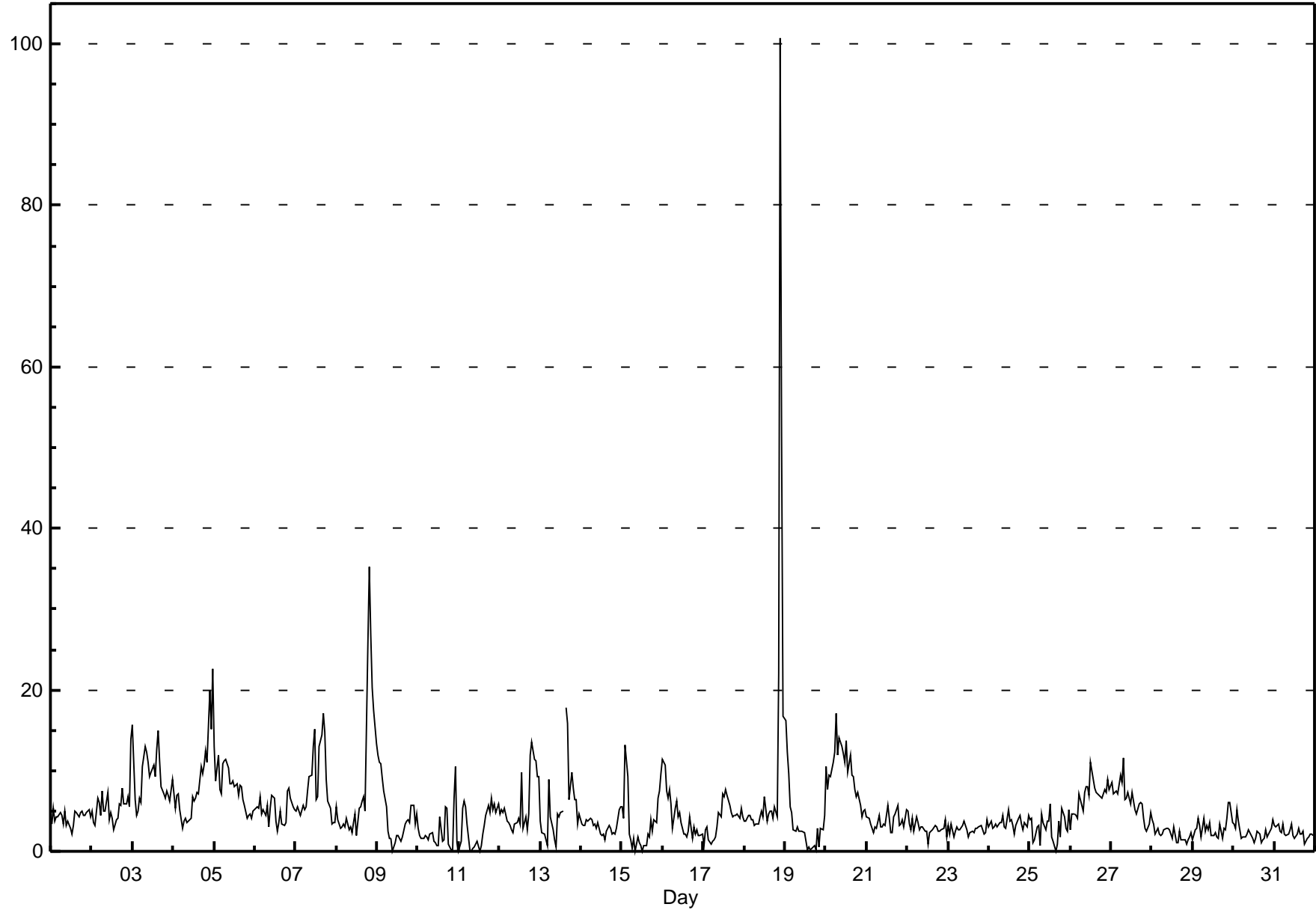
Maximum Value: 100.7 µg/m <sup>3</sup> on Dec 18 22:00	Maximum Daily Average: 11.6 µg/m <sup>3</sup> on Dec 18	Hours in Service: 744
Minimum Value: 0 µg/m <sup>3</sup> on Dec 9 10:00	Minimum Daily Average: 2.2 µg/m <sup>3</sup> on Dec 28	Hours of Data: 743
Maximum Diurnal Average: 8.7 µg/m <sup>3</sup> at hour 22	Minimum Diurnal Average: 4.2 µg/m <sup>3</sup> at hour 13	Hours of Missing Data: 1
Monthly Average: 5.06 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 2.5 Median = 3.9 Q <sub>3</sub> = 6.2 P <sub>90</sub> = 9.6 P <sub>99</sub> = 21.6	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	3	5	4	4	4	5	4	3	5	3	4	3	2	3	5	5	4	5	5	5	4	5	5	4	4.2	5.4	
2-Dec	5	3	3	7	6	4	7	5	5	7	4	5	4	3	4	4	6	6	8	6	6	7	6	14	5.6	13.9	
3-Dec	16	6	4	5	7	6	10	13	12	11	9	10	11	9	13	15	11	8	7	7	8	7	6	9	9.1	15.6	
4-Dec	7	5	7	7	5	3	4	4	4	4	4	7	6	7	7	7	10	10	11	12	11	20	15	23	8.3	22.7	
5-Dec	13	9	12	8	7	11	11	11	10	8	8	9	8	8	7	8	8	6	6	4	4	5	4	5	8.0	12.9	
6-Dec	5	6	5	7	5	5	4	6	3	5	7	7	4	2	4	5	3	3	4	7	8	7	6	5	5.1	7.9	
7-Dec	5	6	5	5	6	5	6	8	9	9	13	15	6	7	13	14	17	15	9	6	5	3	4	4	8.1	17.1	
8-Dec	5	4	3	3	3	3	4	3	3	2	4	5	2	5	5	6	7	5	26	35	27	20	17	13	8.8	35.3	
9-Dec	12	11	11	9	7	5	2	2	2	0	1	2	2	2	1	2	3	4	4	4	6	6	3	5	4.4	11.9	
10-Dec	3	2	2	2	2	2	1	2	2	1	1	1	1	4	1	1	6	5	1	0	0	7	10	1	2.5	10.5	
11-Dec	0	1	5	6	6	3	0	0	0	1	1	1	0	1	2	3	4	6	5	7	5	6	5	6	3.1	6.6	
12-Dec	5	5	5	5	4	4	3	3	2	3	4	4	3	10	3	4	3	5	12	14	11	11	9	9	5.9	13.6	
13-Dec	4	2	2	1	1	9	4	3	1	1	5	4	5	5	M	18	16	6	10	8	6	6	3	5	5.4	17.8	
14-Dec	3	3	3	4	4	4	4	3	3	3	3	2	2	2	2	2	3	3	2	2	2	3	5	6	3.1	5.5	
15-Dec	6	4	13	9	2	1	0	2	0	2	1	1	0	1	1	2	2	4	2	4	4	7	7	10	3.5	13.2	
16-Dec	11	11	7	7	8	6	3	5	6	4	5	4	2	2	2	2	4	2	3	2	3	2	2	2	4.4	11.4	
17-Dec	1	3	3	1	1	1	1	2	3	5	4	7	7	8	7	6	5	4	5	5	5	4	5	4	4.0	7.6	
18-Dec	4	4	4	4	4	4	3	3	3	4	5	4	7	4	5	5	4	6	4	6	4	22	101	51	17	11.6	100.7
19-Dec	16	12	10	6	5	3	3	3	2	2	3	2	1	0	1	0	0	1	0	3	1	3	3	4	3.5	16.3	
20-Dec	10	8	10	9	11	12	17	12	14	13	12	11	14	10	12	9	9	8	7	7	6	4	5	5	9.8	17.0	
21-Dec	4	4	3	3	2	3	3	5	3	3	3	3	6	4	2	2	4	5	6	3	3	4	3	5	3.7	5.8	
22-Dec	5	3	3	4	3	4	4	3	3	3	3	2	1	2	2	3	3	3	3	3	3	3	4	2	2.9	5.0	
23-Dec	3	2	3	2	3	3	3	3	3	4	3	3	2	2	2	2	3	3	3	3	3	2	2	4	2.7	3.9	
24-Dec	3	4	3	3	3	3	4	4	5	3	3	5	4	4	3	2	3	4	4	3	3	4	3	4	3.5	5.2	
25-Dec	4	4	1	1	3	3	1	5	4	3	4	4	6	2	1	0	1	4	2	5	4	3	3	5	3.0	5.9	
26-Dec	3	5	5	4	4	7	6	5	7	8	8	7	11	9	8	7	7	7	7	7	8	7	9	8	6.8	11.1	
27-Dec	8	7	7	7	7	9	9	11	6	7	7	6	7	6	5	5	6	6	6	4	3	3	3	5	6.3	11.5	
28-Dec	4	3	2	3	2	2	2	3	3	3	3	2	2	3	1	1	2	1	1	1	1	2	2	2	2.2	3.9	
29-Dec	1	3	3	4	3	2	4	2	3	3	4	2	2	2	2	2	3	2	3	3	4	6	6	4	3.0	6.1	
30-Dec	3	3	5	4	2	2	2	2	2	3	2	2	1	2	2	2	1	1	2	3	2	2	3	4	2.3	5.2	
31-Dec	3	3	3	2	2	3	2	2	2	3	3	2	2	2	3	2	2	2	1	2	2	2	2	2	2.3	3.5	
	5.7	4.9	5.1	4.7	4.2	4.5	4.3	4.4	4.3	4.2	4.5	4.5	4.2	4.2	4.2	4.8	5.3	4.7	5.4	5.8	5.8	8.7	6.9	6.3	Diurnal Average		
	16.3	12.4	13.2	9.3	11.0	12.2	17.0	13.0	14.0	12.9	13.0	15.1	13.7	9.8	12.9	17.8	17.1	14.9	25.6	35.3	26.9	100.7	51.4	22.7	Diurnal Maximum		

M - Maintenance

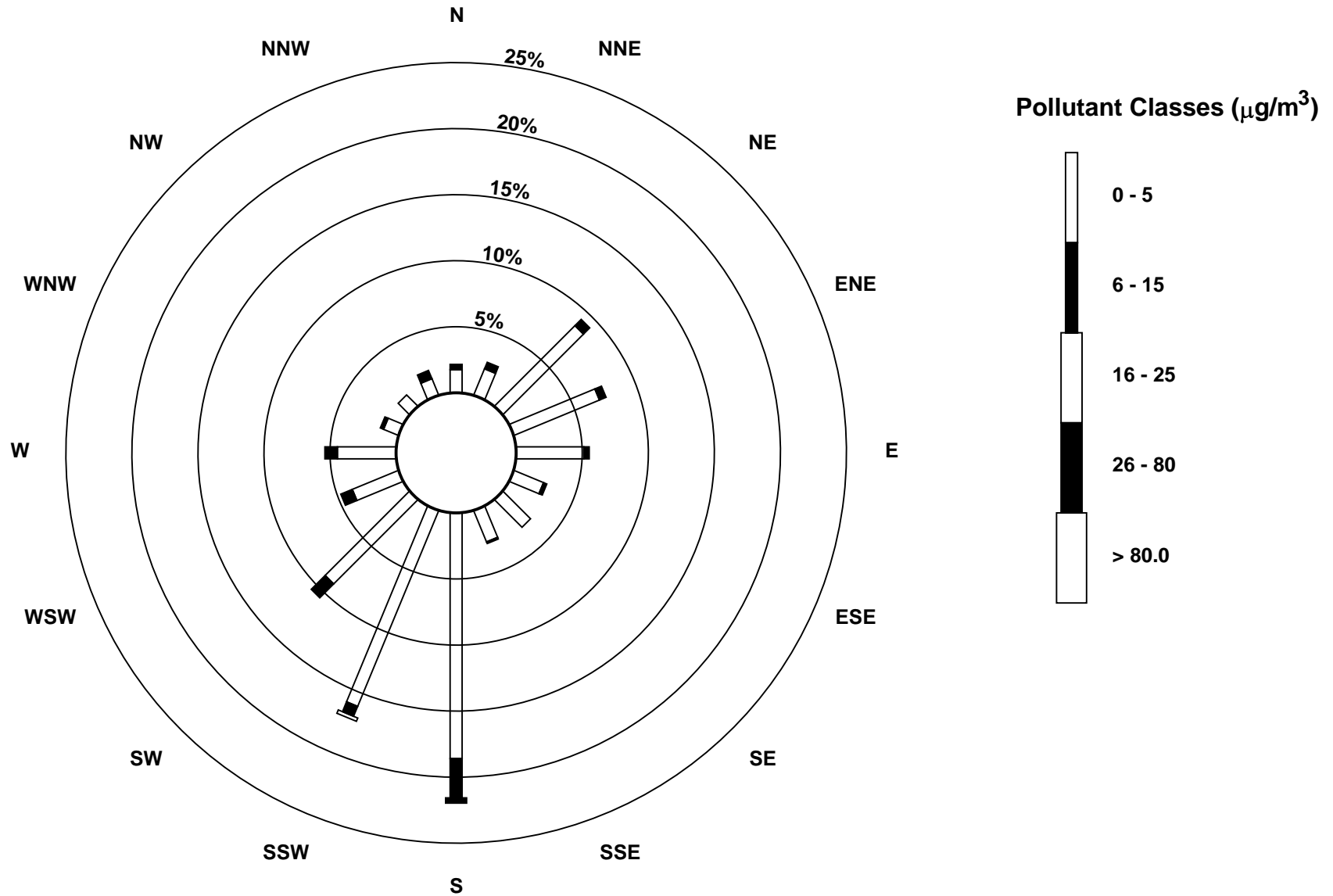
### Hourly Maximums

PM2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Sunset House - December 2012



**Pollutant Rose**

**PM<sub>2.5</sub> (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Sunset House - December 2012**



# Hourly Averages

External Temperature (ET) - °C

Sunset House - December 2012

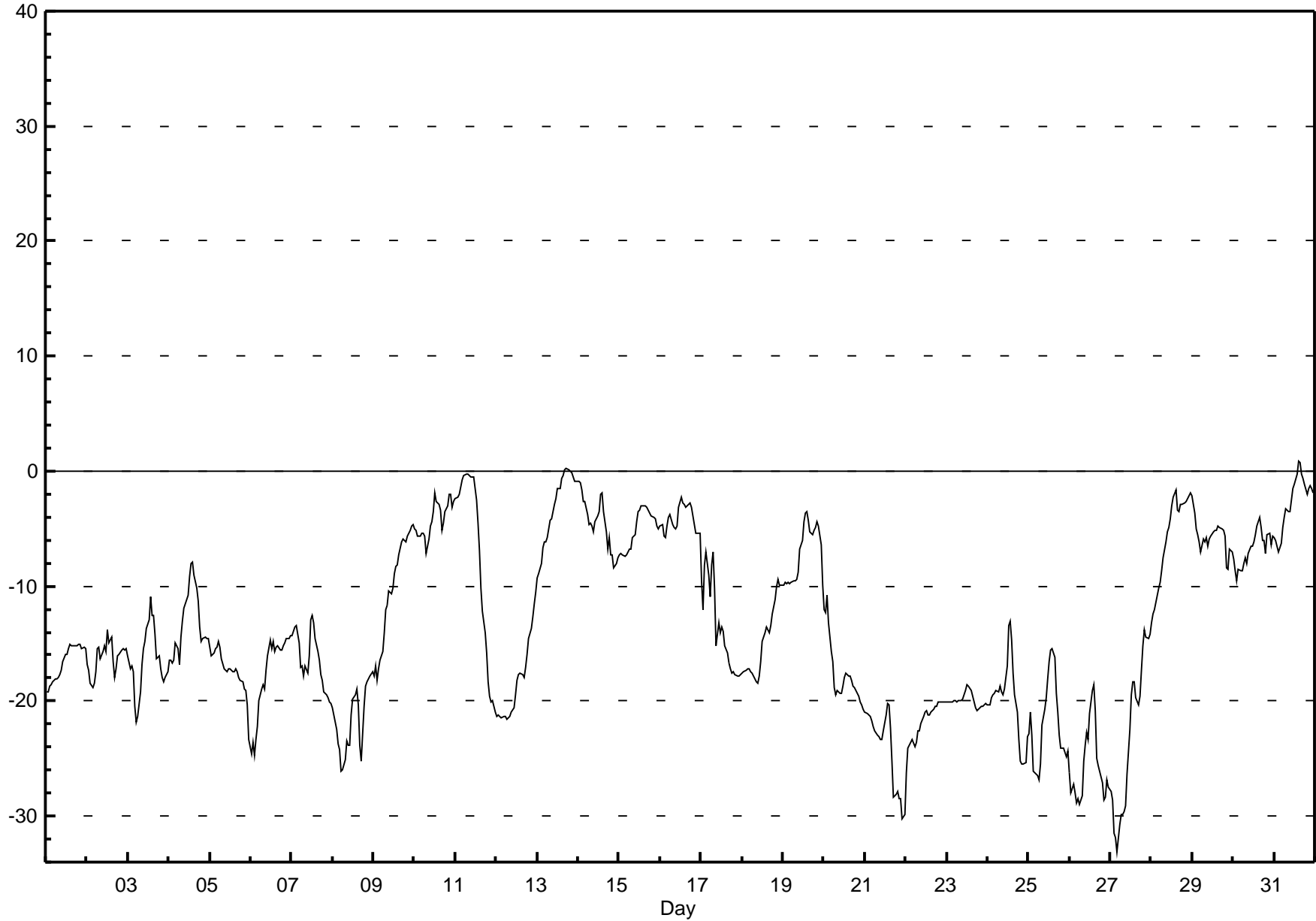
Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 0.8 °C on Dec 31 15:00	Maximum Daily Average: -2.7 °C on Dec 31		Hours of Data:	744
Minimum Value: -33 °C on Dec 27 05:00	Minimum Daily Average: -25.6 °C on Dec 26		Hours of Missing Data:	0
Maximum Diurnal Average: -11.1 °C at hour 14	Minimum Diurnal Average: -15.2 °C at hour 6		Hours of Calibration:	0
Monthly Average: -13.65 °C	Percentiles: P <sub>1</sub> = -29.9 P <sub>10</sub> = -23.3 Q <sub>1</sub> = -19.5 Median = -15.2 Q <sub>3</sub> = -6.0 P <sub>90</sub> = -3.1 P <sub>99</sub> = -0.3		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	-19	-19	-19	-19	-18	-18	-18	-18	-18	-17	-17	-16	-16	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-16.6	-15.0
2-Dec	-17	-17	-18	-19	-18	-17	-15	-15	-16	-16	-15	-16	-14	-15	-14	-17	-18	-17	-16	-16	-16	-15	-16	-15	-16.2	-13.8
3-Dec	-16	-17	-17	-17	-20	-22	-21	-19	-17	-15	-15	-14	-13	-11	-12	-13	-14	-16	-16	-17	-18	-18	-18	-18	-16.5	-10.9
4-Dec	-16	-16	-17	-16	-15	-15	-17	-14	-13	-12	-11	-11	-9	-8	-8	-9	-10	-11	-14	-15	-15	-14	-15	-15	-13.2	-7.9
5-Dec	-15	-16	-16	-15	-15	-15	-15	-16	-17	-17	-18	-17	-17	-17	-17	-17	-17	-18	-18	-18	-19	-19	-20	-23	-17.4	-14.8
6-Dec	-25	-24	-25	-23	-22	-20	-19	-19	-19	-17	-16	-15	-15	-15	-16	-15	-15	-16	-16	-15	-15	-15	-15	-14	-17.7	-14.3
7-Dec	-14	-14	-14	-13	-15	-17	-17	-18	-17	-18	-16	-13	-13	-15	-16	-16	-18	-18	-19	-20	-20	-20	-20	-20	-16.4	-12.6
8-Dec	-21	-21	-22	-24	-24	-26	-26	-25	-23	-24	-24	-21	-20	-19	-19	-20	-24	-25	-20	-19	-18	-18	-17	-17	-21.7	-17.5
9-Dec	-18	-17	-18	-17	-16	-16	-14	-12	-12	-10	-11	-10	-9	-8	-8	-7	-6	-6	-6	-6	-5	-5	-5	-5	-10.4	-4.6
10-Dec	-5	-5	-6	-6	-5	-5	-6	-7	-6	-5	-4	-4	-2	-3	-3	-3	-5	-5	-3	-3	-2	-2	-3	-3	-4.2	-1.8
11-Dec	-2	-2	-2	-1	-1	0	0	0	0	0	0	-1	-3	-5	-7	-10	-12	-14	-16	-18	-20	-20	-20	-21	-7.4	-0.3
12-Dec	-21	-21	-21	-21	-21	-21	-22	-22	-21	-21	-21	-19	-18	-18	-18	-18	-18	-17	-16	-15	-14	-13	-12	-11	-18.3	-10.6
13-Dec	-9	-9	-8	-7	-6	-6	-6	-4	-4	-4	-3	-2	-2	-2	-1	0	0	0	0	0	0	0	-1	-1	-3.1	0.2
14-Dec	-1	-1	-2	-3	-3	-4	-5	-5	-5	-5	-4	-4	-4	-2	-2	-3	-5	-7	-6	-7	-7	-8	-8	-8	-4.5	-0.9
15-Dec	-7	-7	-7	-7	-7	-7	-7	-7	-6	-6	-4	-4	-3	-3	-3	-3	-3	-3	-4	-4	-4	-4	-5	-5	-5.0	-3.0
16-Dec	-5	-5	-6	-6	-5	-4	-4	-5	-5	-5	-5	-3	-2	-3	-3	-3	-3	-3	-3	-4	-5	-5	-5	-5	-4.2	-2.3
17-Dec	-10	-12	-8	-7	-9	-11	-8	-7	-10	-15	-13	-14	-14	-15	-16	-17	-17	-18	-18	-18	-18	-18	-18	-18	-13.5	-7.1
18-Dec	-18	-17	-17	-17	-17	-17	-18	-18	-18	-18	-17	-15	-14	-14	-14	-14	-13	-12	-11	-10	-9	-10	-10	-10	-14.9	-9.4
19-Dec	-10	-10	-10	-10	-10	-10	-10	-9	-9	-9	-7	-6	-4	-4	-4	-4	-5	-5	-5	-4	-5	-6	-10	-10	-7.1	-3.5
20-Dec	-12	-12	-11	-13	-16	-17	-19	-20	-19	-19	-19	-19	-18	-18	-18	-18	-18	-19	-19	-19	-20	-20	-20	-21	-17.6	-10.8
21-Dec	-21	-21	-21	-21	-22	-22	-23	-23	-23	-23	-23	-23	-21	-20	-20	-22	-25	-28	-28	-28	-28	-28	-30	-30	-24.0	-20.3
22-Dec	-26	-24	-24	-24	-23	-24	-24	-23	-23	-22	-21	-21	-21	-21	-21	-21	-21	-21	-20	-20	-20	-20	-20	-20	-21.8	-20.0
23-Dec	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-19	-19	-19	-19	-20	-20	-21	-21	-21	-20	-20	-20	-20	-19.9	-18.6
24-Dec	-20	-20	-20	-19	-19	-19	-19	-19	-19	-19	-19	-17	-13	-13	-15	-18	-19	-21	-23	-25	-26	-25	-25	-23	-19.9	-13.0
25-Dec	-23	-21	-23	-26	-26	-27	-27	-25	-22	-21	-20	-18	-17	-16	-15	-16	-19	-21	-23	-24	-24	-25	-25	-24	-22.0	-15.5
26-Dec	-26	-28	-27	-28	-29	-28	-29	-28	-25	-24	-23	-23	-21	-19	-19	-21	-25	-26	-27	-27	-29	-28	-27	-27	-25.6	-18.5
27-Dec	-28	-29	-32	-32	-33	-31	-30	-30	-30	-29	-26	-22	-19	-18	-18	-20	-20	-20	-17	-15	-14	-14	-15	-14	-23.2	-13.8
28-Dec	-13	-12	-12	-11	-10	-10	-9	-8	-6	-5	-4	-3	-2	-2	-3	-4	-3	-3	-3	-3	-2	-2	-2	-2	-5.7	-1.6
29-Dec	-2	-4	-5	-6	-6	-7	-6	-6	-6	-7	-6	-6	-5	-5	-5	-5	-5	-5	-6	-8	-9	-7	-7	-5.7	-2.2	
30-Dec	-8	-9	-9	-9	-9	-9	-8	-8	-8	-7	-7	-7	-6	-5	-5	-4	-5	-6	-6	-7	-6	-5	-6	-6	-6.8	-4.0
31-Dec	-6	-6	-7	-7	-6	-5	-4	-3	-3	-4	-3	-1	-1	0	1	1	0	-1	-1	-2	-1	-1	-2	-2	-2.7	0.8

-14.7	-14.8	-14.9	-15.0	-15.1	-15.2	-14.9	-14.6	-14.3	-14.0	-13.3	-12.4	-11.5	-11.1	-11.3	-12.0	-12.9	-13.4	-13.4	-13.6	-13.6	-13.7	-13.8	-13.9	Diurnal Average
-0.9	-1.1	-1.6	-1.4	-0.7	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5	-0.5	-1.2	-0.3	0.8	0.7	0.1	0.2	0.1	0.0	-0.2	-0.5	-0.9	-0.8	Diurnal Maximum

### Hourly Averages

External Temperature (ET) - °C  
Sunset House - December 2012





Peace Airshed Zone Association

# Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Sunset House - December 2012

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	8	11	14	14	10	7	11	12	9	8	10	11	13	13	11	12	11	9	6	5	7	7	4	3	9.3	14.1
Dir	44	49	66	73	78	62	66	66	56	48	39	39	62	63	66	65	61	60	64	68	52	67	86	109	61.3	65.8
2 Spd	1	5	7	4	4	6	9	11	14	10	2	5	4	9	10	8	7	7	3	6	3	3	2	2	4.9	13.7
Dir	43	58	65	53	51	58	100	87	68	77	102	289	353	57	43	42	51	64	58	48	54	85	234	185	61.5	68.1
3 Spd	5	6	6	5	3	3	2	4	3	4	8	10	12	8	10	5	5	1	2	3	5	5	5	2	2.9	12.0
Dir	221	208	208	207	166	94	109	114	67	24	45	63	71	83	67	86	181	152	181	104	90	63	22	81	92.4	71.3
4 Spd	2	2	2	4	2	7	4	1	7	5	7	7	3	12	11	12	14	15	13	9	10	9	7	6	2.6	15.4
Dir	52	81	56	46	42	37	22	9	22	45	36	35	56	181	198	219	227	228	239	241	233	226	245	235	227.9	228.0
5 Spd	2	4	1	4	4	4	6	7	7	4	4	5	6	8	7	6	6	7	7	5	3	3	4	4	2.7	7.6
Dir	236	241	265	28	44	50	5	340	360	345	254	271	254	257	267	263	261	240	234	246	253	219	199	187	270.4	256.6
6 Spd	5	5	4	3	2	5	7	5	8	11	8	1	3	2	3	2	2	4	4	2	3	3	5	4	1.4	10.6
Dir	189	198	186	181	64	51	50	50	49	68	79	77	256	291	225	275	291	223	264	24	69	17	40	47	63.6	68.2
7 Spd	5	5	4	4	2	2	2	2	2	1	4	5	7	9	10	11	10	8	7	7	10	10	9	9	4.6	10.8
Dir	47	49	46	33	67	96	101	109	152	101	41	37	34	36	20	12	358	342	329	324	331	323	325	331	6.1	11.9
8 Spd	9	8	6	7	4	3	3	3	2	4	6	7	6	6	5	5	3	2	11	13	16	19	19	18	4.4	19.3
Dir	336	341	349	17	6	43	80	94	189	171	187	193	189	196	206	191	140	161	174	185	192	193	188	189	188.6	188.4
9 Spd	16	16	13	16	15	17	17	18	18	19	18	19	17	17	20	19	15	10	9	9	7	8	8	8	13.8	19.5
Dir	188	188	195	185	187	182	184	182	185	182	191	181	177	181	182	190	201	221	236	229	233	234	235	234	192.6	181.6
10 Spd	8	8	7	7	8	7	6	4	5	7	6	7	6	8	9	8	8	9	10	10	13	14	9	10	7.5	13.6
Dir	241	231	224	234	242	229	208	198	210	204	219	222	220	209	205	203	191	186	183	179	180	189	180	169	203.4	189.1
11 Spd	14	19	19	14	11	9	8	5	3	3	3	3	8	9	14	17	16	16	16	16	13	10	8	7	2.3	19.2
Dir	173	174	183	204	219	242	239	249	248	257	242	293	5	34	36	30	28	14	6	3	360	355	345	349	350.3	183.1
12 Spd	9	8	6	5	4	4	3	2	1	1	6	8	10	9	11	11	14	16	21	20	19	22	21	22	7.7	22.1
Dir	357	357	334	322	323	297	263	232	224	221	207	196	197	201	190	191	188	188	188	189	185	179	178	178	193.3	178.9
13 Spd	22	22	23	25	26	21	25	25	25	22	21	19	18	16	16	11	11	14	16	15	15	13	13	13	18.3	25.5
Dir	180	180	179	178	179	193	182	185	189	190	194	194	199	198	197	219	218	200	192	197	191	198	187	190	190.0	179.4
14 Spd	14	9	11	12	11	7	7	8	10	9	10	9	9	7	6	5	6	7	7	8	11	10	11	13	8.7	13.7
Dir	193	201	199	197	202	212	210	214	207	213	202	217	215	250	256	242	211	201	202	197	187	186	184	182	203.8	193.2
15 Spd	13	15	16	17	18	18	17	20	25	25	27	29	28	24	23	20	18	18	19	19	17	17	17	16	19.8	29.1
Dir	179	178	172	173	176	171	166	174	173	177	178	177	178	179	175	171	171	170	172	176	179	179	180	180	175.4	176.8
16 Spd	17	16	15	14	14	11	10	13	13	14	13	14	15	15	15	15	15	17	15	15	14	13	14	14	14.0	17.3
Dir	182	190	193	184	192	184	192	186	184	183	184	187	194	188	184	179	181	175	174	173	175	174	170	174	182.6	182.1
17 Spd	11	9	13	11	5	10	15	19	5	5	10	16	16	14	17	12	8	7	8	6	6	4	4	3	4.4	18.6
Dir	179	180	176	170	76	56	80	85	110	138	48	41	51	44	36	29	338	340	352	341	309	266	260	268	58.1	84.6
18 Spd	4	5	6	6	8	7	6	6	6	7	8	8	10	11	12	13	15	16	17	16	18	17	17	17	10.2	17.6
Dir	227	214	222	227	232	230	226	222	206	203	188	199	200	202	196	194	185	182	178	177	177	179	181	181	193.4	176.9
19 Spd	17	17	17	17	18	17	16	16	16	16	18	17	16	14	14	15	19	25	26	28	29	22	13	9	16.8	29.0
Dir	177	179	178	178	176	171	177	174	168	166	171	173	173	169	158	154	136	136	140	138	139	140	120	86	157.4	138.9
20 Spd	2	2	5	4	4	3	7	7	8	6	5	4	1	2	3	5	6	6	6	7	8	7	7	7	3.3	8.2
Dir	86	139	37	316	208	242	204	194	216	233	228	266	265	296	263	293	343	335	303	289	280	277	266	264	265.1	280.4
21 Spd	8	7	9	10	10	11	9	9	9	10	9	7	8	8	8	7	5	4	6	5	4	4	4	3	5.5	10.8
Dir	269	265	268	277	275	274	270	272	271	274	269	270	270	271	271	269	255	195	187	164	99	107	135	115	261.9	273.9
22 Spd	5	5	10	14	14	1	9	9	11	10	9	14	16	17	18	18	15	16	17	16	16	17	17	16	12.6	18.3
Dir	49	23	54	62	73	60	53	52	55	47	55	78	88	74	76	81	84	86	79	84	78	76	82	85	73.1	81.2

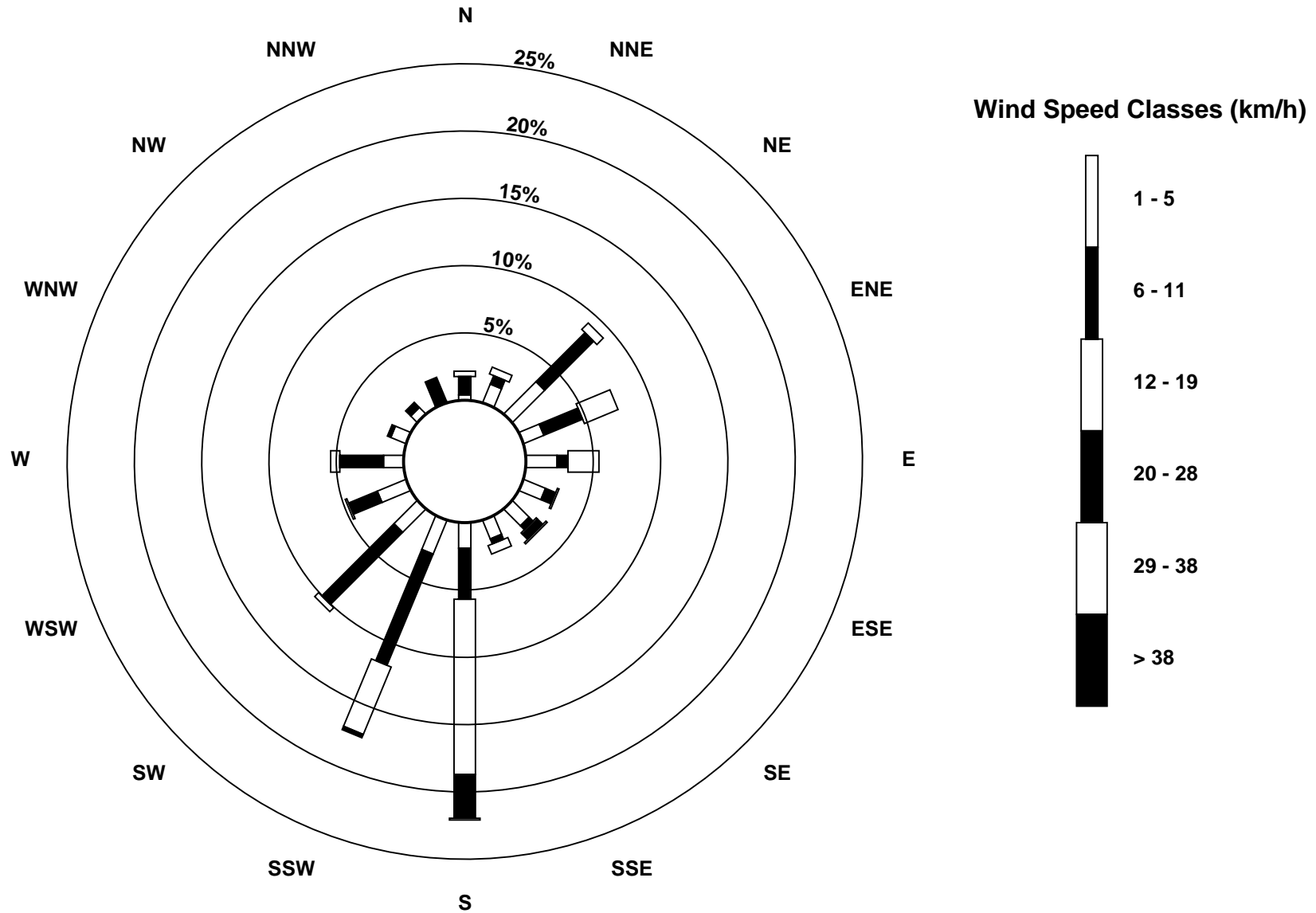
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Sunset House - December 2012

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	18	18	15	14	18	14	14	14	12	9	8	9	9	12	13	13	11	11	11	8	8	8	9	6	11.4	18.5
Dir	81	77	77	79	86	91	87	88	86	62	52	70	78	73	74	68	53	54	47	49	51	56	54	65	71.9	80.9
24 Spd	7	6	5	3	7	8	6	7	4	5	3	9	2	5	3	7	8	9	6	4	4	2	4	6	3.7	8.8
Dir	54	67	128	95	125	130	131	151	140	96	134	168	290	355	36	103	79	78	48	106	133	196	171	191	110.1	77.8
25 Spd	7	10	3	4	3	2	3	3	3	0	2	4	7	11	9	10	7	7	4	3	3	2	2	7	3.6	11.1
Dir	194	165	221	38	89	132	126	128	77	152	167	94	108	112	117	110	96	106	113	112	134	166	242	211	127.7	111.9
26 Spd	4	2	5	3	2	3	2	2	2	2	3	4	3	4	3	3	4	6	1	2	3	3	4	4	0.8	6.1
Dir	213	155	194	199	145	149	113	54	248	24	25	244	256	303	316	317	34	53	152	159	227	203	193	235	211.4	53.5
27 Spd	5	4	5	5	4	6	7	7	5	6	7	5	3	5	6	6	7	8	15	20	18	17	17	17	8.4	20.2
Dir	215	210	194	186	193	187	188	190	174	177	182	206	211	216	220	225	204	190	192	183	189	193	194	191	193.5	183.3
28 Spd	19	18	17	18	17	16	15	13	14	12	11	10	10	9	8	7	9	10	10	10	12	10	9	10	11.9	19.4
Dir	184	185	186	183	185	190	191	197	199	204	200	210	215	226	236	225	210	205	206	205	196	202	216	227	199.4	183.9
29 Spd	8	6	6	6	5	6	7	6	6	5	7	8	7	7	8	7	6	6	5	5	5	9	11	11	6.5	10.7
Dir	228	226	221	217	220	216	208	202	226	245	228	228	237	237	225	231	239	227	233	219	181	199	199	204	219.8	198.9
30 Spd	9	8	9	11	12	15	14	14	13	14	13	14	11	10	10	9	9	9	8	8	12	13	10	12	11.0	14.6
Dir	211	208	200	197	201	197	200	194	189	189	199	201	207	210	206	207	210	206	208	193	193	183	186	195	198.8	197.4
31 Spd	14	12	9	10	10	7	8	9	11	11	13	13	13	11	10	10	13	13	11	8	12	13	12	10	9.5	13.6
Dir	191	195	200	199	201	229	236	220	204	203	202	202	204	218	224	255	271	272	265	258	260	266	264	259	228.7	191.1
Spd	5.1	5.2	5.3	4.8	4.9	4.1	4.5	4.9	4.6	4.4	4.6	4.7	4.2	3.7	3.5	3.0	3.1	3.8	4.6	5.0	5.4	5.6	5.4	5.8	Diurnal Average	
Dir	183.7	179.1	179.0	175.6	174.3	177.0	168.3	166.0	172.0	176.1	180.2	183.2	177.7	173.9	171.0	172.6	178.0	174.2	182.2	177.2	179.1	183.6	186.2	187.8	Diurnal Maximum	
Spd	21.7	22.0	22.5	24.6	25.5	21.1	25.1	24.7	25.4	25.4	26.5	29.1	27.7	24.3	23.2	19.9	19.3	24.6	26.2	28.1	29.0	22.2	21.5	21.8	Diurnal Maximum	
Dir	179.6	179.5	178.6	178.1	179.4	192.6	181.6	185.1	173.0	177.3	177.9	176.8	178.1	179.3	178.8	175.4	135.8	136.4	140.4	138.1	138.9	139.9	178.1	178.3	Diurnal Maximum	
Maximum Speed Value: 29 km/h on Dec 15 12:00																		Minimum Speed Value: 0 km/h on Dec 25 10:00						Hours in Service: 744		
Maximum Daily Speed Average: 19.8 km/h on Dec 15																		Minimum Daily Speed Average: 0.8 km/h on Dec 26						Hours of Data: 744		
Maximum Diurnal Speed Average: 5.8 km/h at hour 24																		Minimum Diurnal Speed Average: 3.0 km/h at hour 16						Hours of Missing Data: 0		
Monthly Average Velocity: 4.57 km/h 177.87 deg																		Speed Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 3.1 Q <sub>1</sub> = 5.1 Median = 8.3 Q <sub>3</sub> = 13.4 P <sub>90</sub> = 17.3 P <sub>99</sub> = 24.9						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	7	23	4	0	0	0	34																			
NorthEast	36	57	18	0	0	0	111																			
East	29	19	33	0	0	0	81																			
SouthEast	22	6	2	4	2	0	36																			
South	27	56	136	34	1	0	254																			
SouthWest	29	105	12	0	0	0	146																			
West	22	34	5	0	0	0	61																			
NorthWest	10	11	0	0	0	0	21																			
Total	182	311	210	38	3	0	744																			

**Wind Rose**

**Wind Speed (WS) (km/h)**  
**Sunset House - December 2012**





# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Sunset House - December 2012

Maximum Speed: 29 km/h on Dec 15 12:00	Maximum Daily Speed Average: 19.9 km/h on Dec 15	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 12 09:00	Minimum Daily Speed Average: 3.5 km/h on Dec 26	Hours of Data: 744
Maximum Diurnal Speed Average: 10.7 km/h at hour 15	Minimum Diurnal Speed Average: 8.8 km/h at hour 6	Hours of Missing Data: 0
Monthly Average Speed: 9.83 km/h	Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 3.8 Q <sub>1</sub> = 5.6 Median = 8.6 Q <sub>3</sub> = 13.6 P <sub>90</sub> = 17.4 P <sub>99</sub> = 25.0	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	8	11	14	14	10	8	11	12	9	8	11	11	14	13	11	12	11	9	6	5	7	7	5	3	9.6	14.3
2-Dec	3	5	8	5	5	6	9	12	14	10	4	5	6	9	10	8	7	7	3	7	4	4	3	2	6.5	14.0
3-Dec	5	6	7	5	4	3	3	5	4	4	8	10	12	8	11	6	6	4	3	4	5	6	5	4	5.7	12.1
4-Dec	3	3	4	4	3	8	6	4	7	5	8	7	5	13	11	12	15	16	13	10	10	10	7	7	8.0	15.5
5-Dec	3	5	2	5	5	6	7	7	7	4	4	5	6	8	7	6	6	7	7	5	3	3	4	5	5.4	7.9
6-Dec	5	5	4	4	2	5	7	6	8	11	8	5	4	3	4	4	3	4	4	4	4	4	5	5	4.9	10.7
7-Dec	6	5	4	4	4	5	2	2	3	1	4	5	7	9	10	11	10	8	7	7	10	10	9	9	6.4	10.9
8-Dec	10	8	7	7	4	3	4	3	3	4	6	7	7	6	6	5	4	3	11	13	16	19	19	18	8.0	19.4
9-Dec	17	16	13	16	15	17	17	18	18	19	18	19	18	17	20	19	15	10	9	9	7	8	8	8	14.6	19.7
10-Dec	8	8	7	8	8	7	6	5	6	7	7	7	7	8	9	8	9	9	10	10	13	14	9	10	8.3	13.8
11-Dec	14	19	19	14	11	9	8	5	3	3	3	4	8	9	14	17	16	16	16	16	13	10	8	7	11.0	19.4
12-Dec	9	8	6	5	4	4	3	2	1	1	6	8	10	9	11	11	14	16	21	20	19	22	21	22	10.6	22.2
13-Dec	22	22	23	25	26	21	25	25	25	22	21	19	18	16	16	11	12	15	16	15	15	13	13	13	18.7	25.6
14-Dec	14	9	11	12	11	7	8	8	10	9	11	10	9	7	6	5	6	7	7	8	11	10	11	13	9.2	13.7
15-Dec	13	15	16	17	18	18	17	20	26	26	27	29	28	24	23	20	18	18	19	19	17	17	17	16	19.9	29.1
16-Dec	17	16	16	14	14	11	10	13	13	14	14	14	15	15	15	15	15	17	16	15	14	13	14	14	14.2	17.4
17-Dec	11	9	13	11	6	10	15	19	10	6	10	16	16	15	17	12	8	8	8	6	7	4	5	4	10.3	18.7
18-Dec	4	5	7	6	8	7	6	6	6	7	8	9	10	11	12	13	15	16	17	16	18	17	17	17	10.8	17.6
19-Dec	17	17	17	18	18	17	16	16	16	16	18	17	16	14	14	15	19	25	26	28	29	23	14	10	18.2	29.1
20-Dec	9	7	10	6	5	4	8	7	8	7	5	4	3	4	4	5	6	6	6	7	8	7	7	8	6.3	9.9
21-Dec	8	7	9	10	10	11	9	9	9	10	9	8	8	8	8	7	5	5	6	6	5	5	4	4	7.5	11.0
22-Dec	5	5	10	15	14	6	10	10	11	10	9	14	16	17	18	18	15	16	18	16	16	17	17	16	13.3	18.4
23-Dec	19	18	15	14	18	15	14	14	12	9	8	9	9	12	13	13	11	11	11	9	8	8	9	6	11.9	18.5
24-Dec	8	6	6	4	7	8	7	8	8	6	4	9	5	6	5	8	8	9	6	5	4	3	4	6	6.3	8.9
25-Dec	7	10	6	4	3	2	4	4	4	2	3	5	8	11	9	10	7	7	5	4	4	2	4	7	5.5	11.3
26-Dec	4	3	5	3	2	3	3	2	3	3	4	4	3	4	3	3	5	6	3	2	3	3	4	4	3.5	6.1
27-Dec	5	5	5	5	4	6	7	7	5	6	7	6	4	5	6	6	8	8	15	20	18	17	18	17	8.7	20.2
28-Dec	19	18	18	18	17	16	15	13	14	12	11	11	10	9	8	7	9	10	10	10	12	11	9	10	12.4	19.5
29-Dec	8	6	6	6	5	6	7	6	6	6	7	8	8	7	8	8	6	6	5	5	5	9	11	11	6.9	10.8
30-Dec	9	8	9	11	12	15	14	14	13	14	13	14	11	10	10	10	9	9	8	8	12	13	11	12	11.2	14.6
31-Dec	14	12	9	10	10	8	8	9	11	11	14	13	13	12	11	10	13	14	11	9	12	13	12	11	11.2	13.7
	9.8	9.7	9.8	9.7	9.3	8.8	9.2	9.4	9.5	8.8	9.3	10.1	10.1	10.4	10.7	10.1	10.1	10.4	10.5	10.3	10.6	10.4	9.8	9.5	Diurnal Average	
	21.7	22.1	22.6	24.6	25.6	21.5	25.2	24.8	25.5	25.5	26.6	29.1	27.8	24.5	23.3	20.0	19.4	24.7	26.2	28.2	29.1	22.8	21.5	21.9	Diurnal Maximum	

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

# Hourly Standard Deviations

Wind Direction (WD) - deg

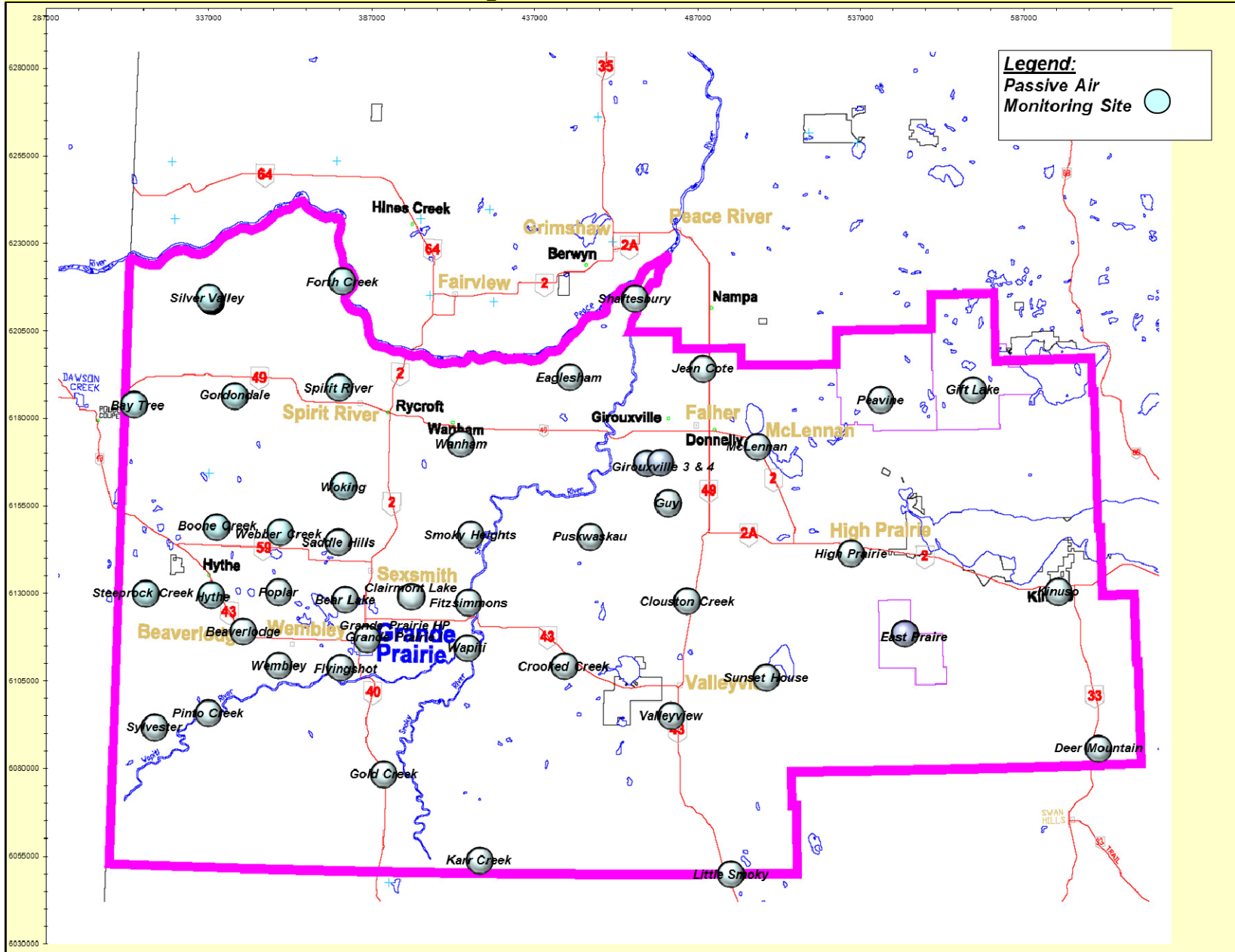
Sunset House - December 2012

Maximum Value: 92.4 deg on Dec 22 06:00																								Hours in Service:	744
Minimum Value: 2.6 deg on Dec 17 03:00																								Hours of Data:	744
Percentiles: P <sub>1</sub> = 3.2 P <sub>10</sub> = 4.9 Q <sub>1</sub> = 6.7 Median = 10.7 Q <sub>3</sub> = 19.2 P <sub>90</sub> = 40.2 P <sub>99</sub> = 80.7																								Hours of Missing Data:	0
																								Hours of Calibration:	0
																								Percent Operational Time:	100.0
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	6	6	9	4	7	28	5	8	6	9	8	7	7	8	10	7	7	6	10	17	6	6	35	20	34.6
2-Dec	80	14	10	30	32	14	15	19	13	25	65	20	57	17	13	12	8	10	60	11	29	45	24	21	79.6
3-Dec	13	12	11	8	27	35	19	21	42	33	8	8	7	16	16	48	38	71	59	38	34	23	24	61	70.8
4-Dec	66	74	83	41	64	30	61	89	20	38	48	24	86	23	18	14	10	8	11	15	12	28	18	29	88.8
5-Dec	45	40	60	43	37	60	32	19	20	41	25	15	18	15	12	13	15	14	10	16	39	21	19	20	59.8
6-Dec	16	12	14	31	43	9	4	26	9	7	20	86	46	71	45	72	79	29	44	65	77	42	22	23	86.5
7-Dec	13	13	24	26	81	64	31	41	34	32	14	8	7	8	9	5	7	10	13	11	12	10	10	9	81.4
8-Dec	16	16	21	11	13	19	27	18	32	13	5	9	17	25	19	13	25	57	14	6	5	4	4	4	56.9
9-Dec	5	7	10	4	4	4	5	5	7	5	9	5	7	7	9	8	7	12	12	11	19	14	11	13	18.6
10-Dec	16	13	12	23	19	16	16	23	19	7	13	13	19	10	7	12	13	12	8	6	4	9	17	5	23.0
11-Dec	5	5	10	7	11	14	10	13	14	14	14	44	14	11	7	5	6	6	8	5	9	9	11	11	43.6
12-Dec	10	9	17	15	19	22	20	27	13	14	13	9	9	9	7	6	5	5	4	4	4	3	3	5	26.5
13-Dec	5	5	5	4	4	12	4	5	5	8	7	8	6	4	7	12	17	8	6	6	5	5	8	5	17.2
14-Dec	5	6	6	5	12	14	13	12	7	12	8	11	11	21	19	21	12	9	10	7	6	7	8	6	20.6
15-Dec	4	7	4	3	3	3	3	6	6	5	5	5	4	8	6	6	4	7	6	6	5	6	4	5	7.8
16-Dec	6	10	16	10	7	10	10	7	7	10	8	5	7	7	5	5	5	5	7	7	4	5	3	4	16.3
17-Dec	7	8	3	10	31	9	6	4	72	43	8	6	6	9	6	12	18	15	16	12	24	25	21	35	72.1
18-Dec	13	10	10	8	8	10	10	10	9	7	11	8	8	8	6	5	3	4	4	5	4	9	4	6	13.2
19-Dec	6	6	4	4	4	3	5	3	4	5	5	4	7	7	8	7	6	5	4	5	5	16	25	33	32.6
20-Dec	91	66	82	55	52	68	46	13	16	13	20	23	79	71	34	12	20	16	10	10	12	11	13	13	91.2
21-Dec	10	14	13	9	8	9	11	10	10	9	10	10	11	11	11	10	17	27	26	14	29	47	25	33	47.0
22-Dec	46	10	10	7	8	92	56	10	7	7	8	10	6	6	5	5	7	6	4	5	6	6	6	6	92.4
23-Dec	5	5	5	6	6	7	7	7	10	14	12	10	10	8	7	7	6	4	5	10	7	8	9	10	14.1
24-Dec	11	13	29	44	15	20	45	24	62	35	36	14	74	23	67	13	11	10	15	33	20	53	31	23	74.0
25-Dec	16	10	66	31	42	27	28	28	32	74	64	44	41	11	14	8	8	18	24	36	13	40	64	6	74.0
26-Dec	25	35	11	30	28	21	38	45	44	34	41	14	23	25	19	24	54	4	68	13	16	17	23	7	67.9
27-Dec	12	12	6	6	12	17	7	6	10	10	6	24	26	18	15	17	17	12	6	4	7	8	6	9	26.2
28-Dec	6	3	6	4	4	6	6	8	9	12	10	11	11	15	15	13	9	9	14	10	6	11	9	11	15.2
29-Dec	13	16	11	15	18	16	11	10	17	19	9	11	18	13	10	15	13	22	22	15	14	11	7	8	22.3
30-Dec	8	13	7	5	6	5	6	6	5	6	6	11	8	8	10	10	8	8	11	23	16	4	9	9	23.2
31-Dec	6	4	6	5	9	30	26	23	9	8	18	10	11	12	11	18	11	10	14	16	14	10	11	16	29.9
91.2	74.2	83.2	55.2	81.4	92.4	61.5	88.8	72.1	74.0	65.5	86.5	86.0	71.4	66.9	71.8	79.1	70.8	67.9	65.1	76.8	52.6	64.1	61.4		

# PAZA

## Monthly Passive Data Summary

# Location of PAZA Passive Monitoring Stations



## PAZA Passive Results for December 2012

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	Site Legal
<b>Duplicates</b>						
17a	Poplar	0.8	23.7	2.6		
17b	Poplar	0.8	24.6	2.8		
19a	Wanham	0.7	28.0	1.6		
19b	Wanham	0.6	29.1	1.8		
20a	Shaftesbury*	-	-	-		
20b	Shaftesbury*	-	-	-		
36a	Guy	0.4	28.1	1.7		
36b	Guy	0.3	26.5	1.7		
64a	Girouxville 4				0.3	
64b	Girouxville 4				0.5	
1	Silver Valley	0.8	27.9	1.8		08-27-081-11 W6M
2	Bay Tree	0.4	27.3	2.5		13-16-078-13 W6M
3	Fourth Creek	0.5	28.9	2.0		04-13-082-07 W6M
4	Gordondale	1.0	33.4	2.1		04-34-078-10 W6M
5	Boone Creek	0.7	28.1	1.7		16-36-074-11 W6M
7	Steeprock Creek	0.5	26.8	1.7		09-35-072-13 W6M
9	Spirit River	0.6	27.1	1.7		08-12-079-07 W6M
10	Woking	0.7	28.4	1.6		01-13-076-07 W6M
11	Webber Creek	1.1	26.4	1.8		09-36-074-09 W6M
12	Hythe	1.0	26.1	2.9		14-36-072-11 W6M
14	Sylvester	0.5	24.0	1.7		08-06-069-12 W6M
16	Beaverlodge	0.7	29.9	5.5		15-36-071-10 W6M
17	Poplar	0.8	24.1	2.7		13-06-073-08 W6M
18	Saddle Hills	0.9	32.2	1.6		04-25-074-07 W6M
19	Wanham	0.7	28.6	1.7		16-22-077-03 W6M
20	Shaftesbury*	-	-	-		04-03-082-23 W5M
21	Eaglesham	0.7	24.8	1.6		16-21-079-25 W5M
23	Bear Lake	0.7	27.2	3.7		15-31-072-06 W6M

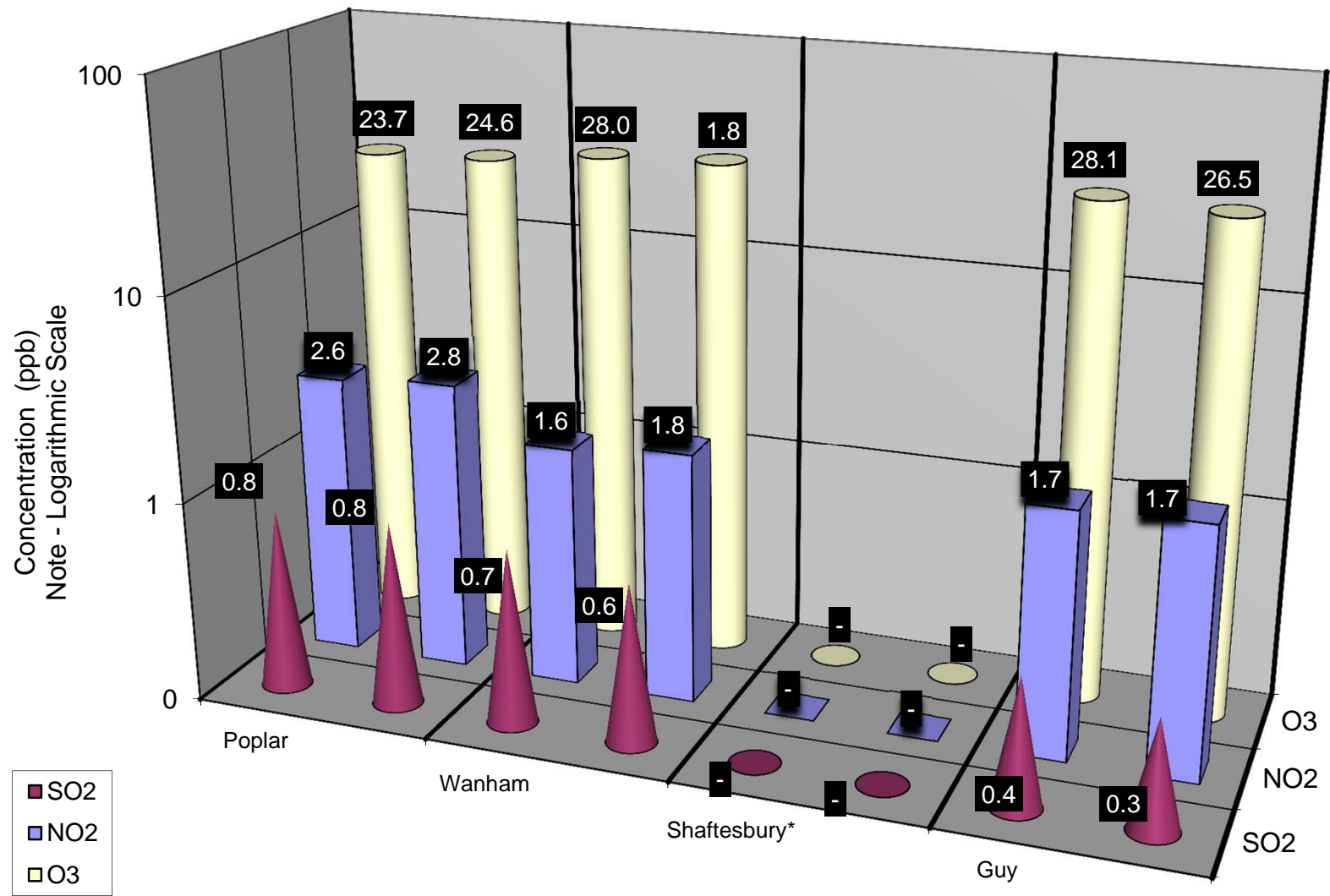
## PAZA Passive Results for December 2012 (Continued)

24	Wembley	0.5	24.1	3.3		12-31-070-08 W6M
25	Pinto Creek	0.4	24.2	2.0		04-24-069-11 W6M
26	Flyingshot	0.4	22.2	5.4		15-36-070-07 W6M
27	Grande Prairie I	0.5	17.4	15.7		08-15-071-06 W6M
28	Clairmont Lake	0.8	30.7	3.6		09-06-073-04 W6M
29	Smoky Heights	0.6	25.7	2.4		04-06-075-02 W6M
30	Fitzsimmons	0.3	24.2	2.9		15-36-072-03 W6M
32	Gold Creek	0.2	18.5	4.1		06-33-067-05 W6M
33	Wapiti	0.3	22.8	4.1		02-25-071-03 W6M
34	Puskwaskau	0.7	22.5	0.9		15-35-074-25 W5M
35	Jean Cote	0.6	30.5	2.2		12-35-079-21 W5M
36	Guy	0.4	27.3	1.7		03-04-076-22 W5M
37	Crooked Creek	0.3	24.7	3.0		16-01-071-26 W5M
38	Karr Creek	0.3	20.7	2.1		10-16-065-02 W6M
39	Clouston Creek	0.5	26.4	2.8		12-01-073-22 W5M
40	McLennan	0.6	26.5	2.4		03-29-077-19 W5M
41	Valleyview	0.8	28.9	3.7		09-30-069-22 W5M
42	Sunset House	0.5	32.6	2.1		05-32-070-19 W5M
43	High Prairie	0.6	26.1	2.3		16-13-074-17 W5M
44	Peavine	0.5	23.4	1.3		03-05-079-15 W5M
45	Gift Lake	0.2	23.2	1.9	0.2	10-07-079-12 W5M
46	Little Smoky	0.4	20.1	5.0		12-01-065-21 W5M
47	Kinuso	0.3	20.3	2.0		12-10-073-10 W5M
48	Deer Mountain	0.3	26.3	1.9		15-22-068-09 W5M
49	Grande Prairie HP	0.6	18.2	15.9		17-26-071-06 W6M
62	East Prairie	0.3	19.1	1.5		13-02-072-15 W5M
63	Girouxville 3				0.0	14-02-077-23 W5M
64	Girouxville 4				0.4	4-08-077-22 W5M

\*BDL = Below Detection Level

\*NS - No sample

\*Shaftesbury not collected in December due to road conditions



## Passive Summary for December 2012

Stats	Sulphur Dioxide SO <sub>2</sub>	Ozone O <sub>3</sub>	Nitrogen Dioxide NO <sub>2</sub>	Hydrogen Sulphide H <sub>2</sub> S
	ppb	ppb	ppb	ppb

Passive Summary for December 2012 (PAZA Zone)				
<b>Mean</b>	<b>0.6</b>	<b>25.5</b>	<b>3.1</b>	<b>0.2</b>
<b>Standard Deviation</b>	<b>0.2</b>	<b>3.9</b>	<b>3.0</b>	<b>0.2</b>
<b>Minimum</b>	<b>0.2</b>	<b>17.4</b>	<b>0.9</b>	<b>0.0</b>
<b>Minimum At</b>	<b>Gold Creek (#32)</b>	<b>Grande Prairie I (#27)</b>	<b>Puskwaskau (#34)</b>	<b>Girouxville 3 (#63)</b>
<b>Maximum</b>	<b>1.1</b>	<b>33.4</b>	<b>15.9</b>	<b>0.4</b>
<b>Maximum At</b>	<b>Webber Creek (#11)</b>	<b>Gordondale (#4)</b>	<b>Grande Prairie HP</b>	<b>Girouxville 4</b>

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

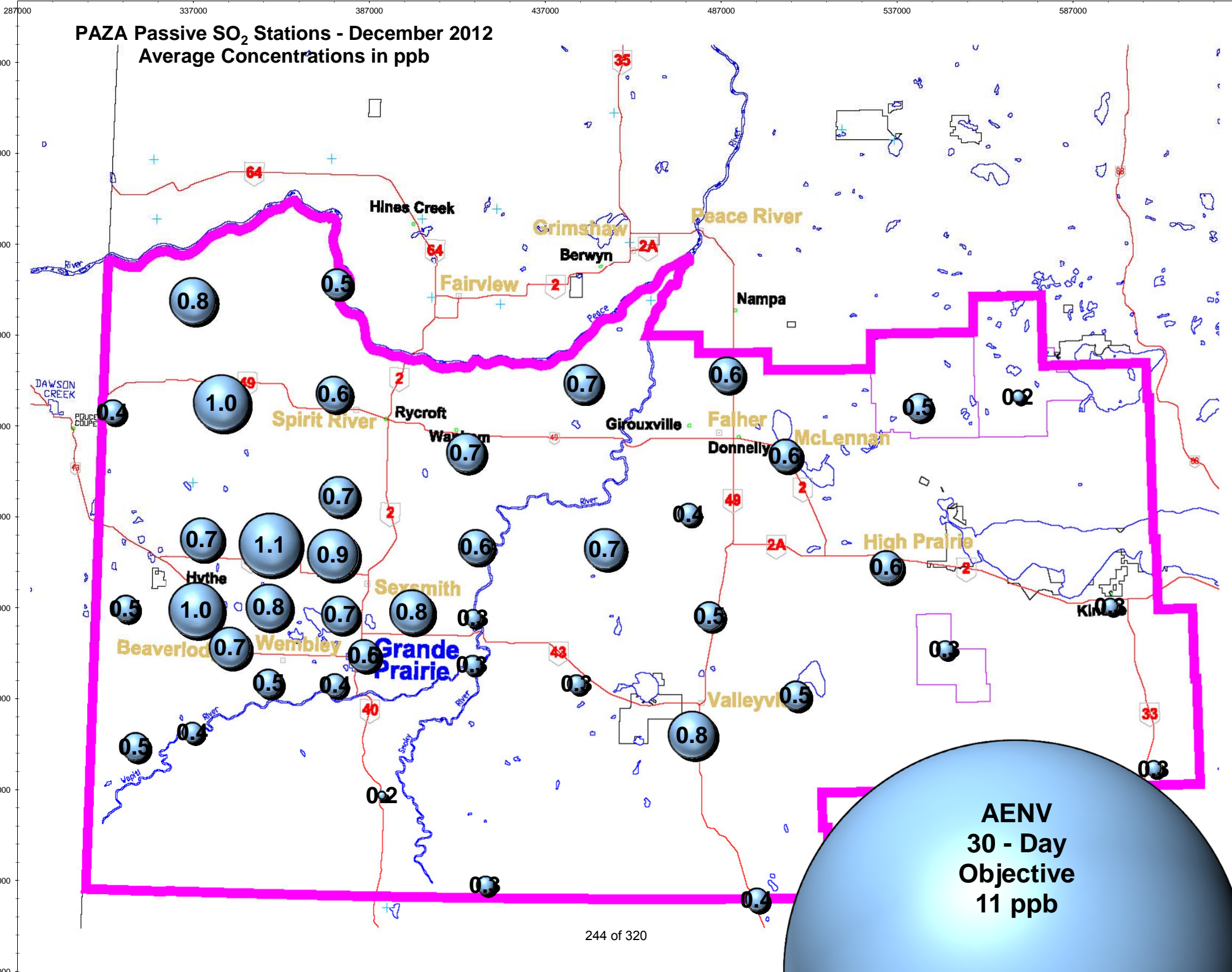
	SO <sub>2</sub>	O <sub>3</sub>	NO <sub>2</sub>
PAZA Beaverlodge station	0.8	22.6	8.6
PAZA Beaverlodge passive	0.7	29.9	5.5

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

	SO <sub>2</sub>	O <sub>3</sub>	NO <sub>2</sub>
PAZA Henry Pirker station	0.7	13.6	18.9
PAZA Grande Prairie passive	0.6	18.2	15.9

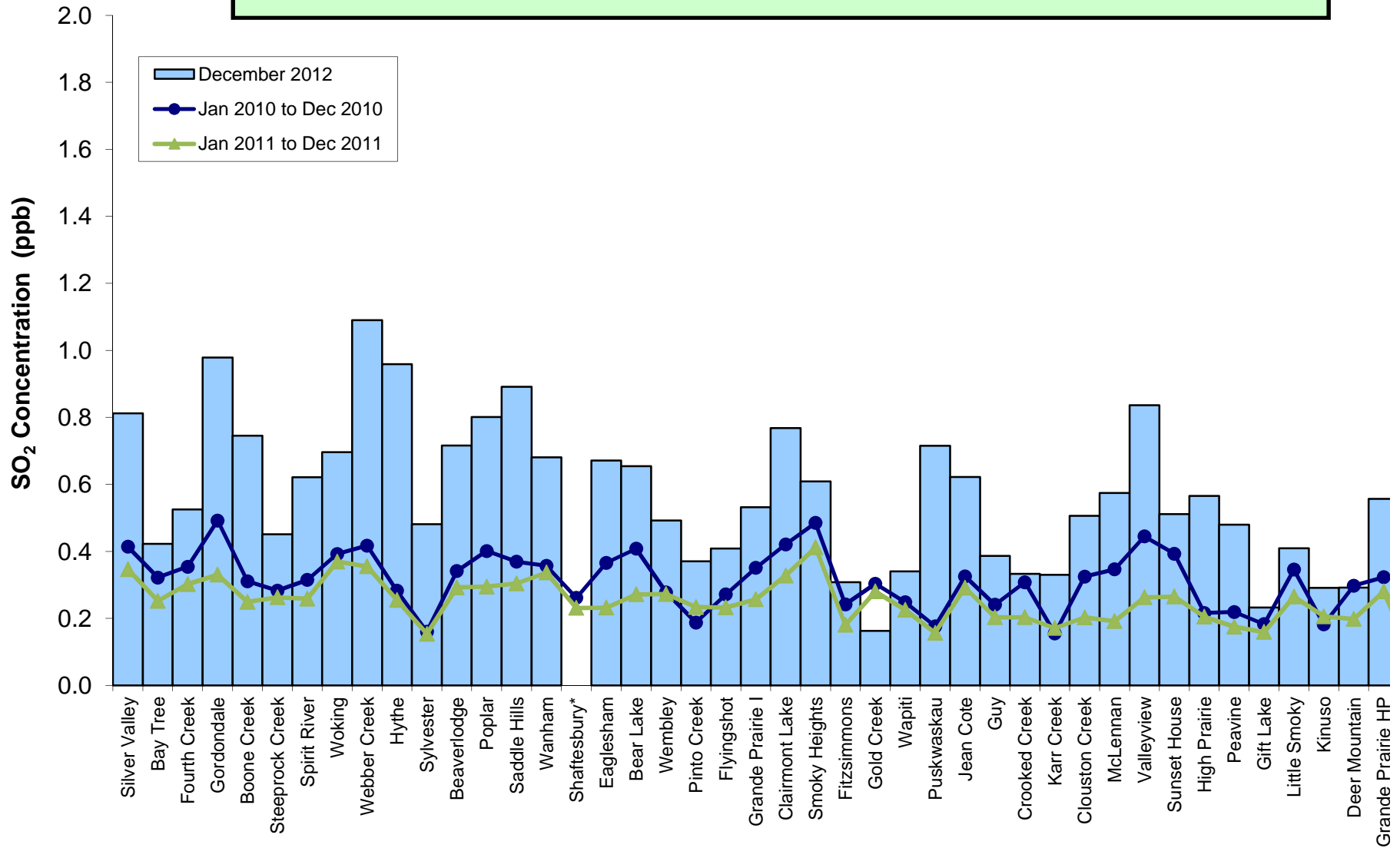


PAZA Passive SO<sub>2</sub> Stations - December 2012  
Average Concentrations in ppb

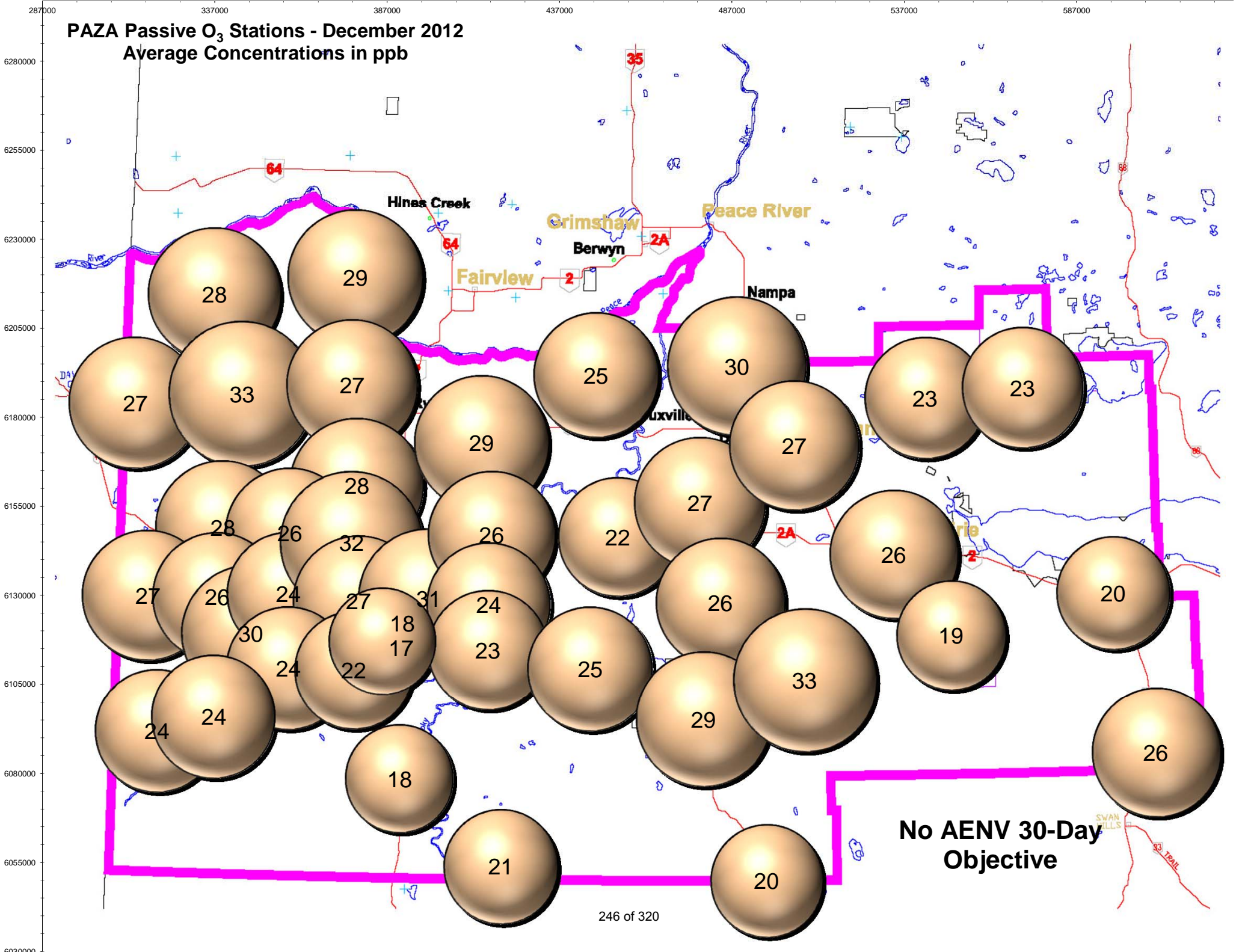


**AENV  
30 - Day  
Objective  
11 ppb**

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

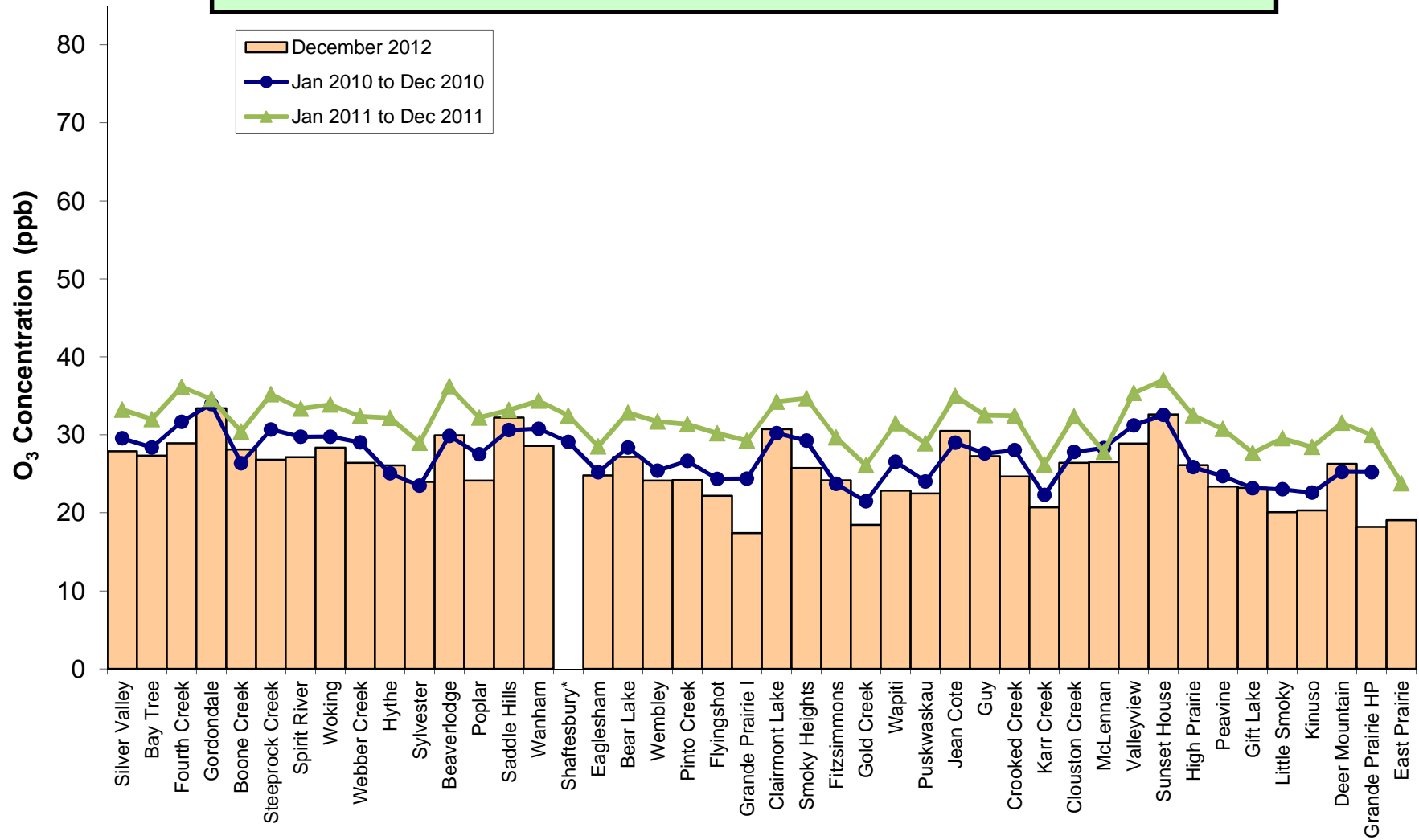


**PAZA Passive O<sub>3</sub> Stations - December 2012**  
**Average Concentrations in ppb**



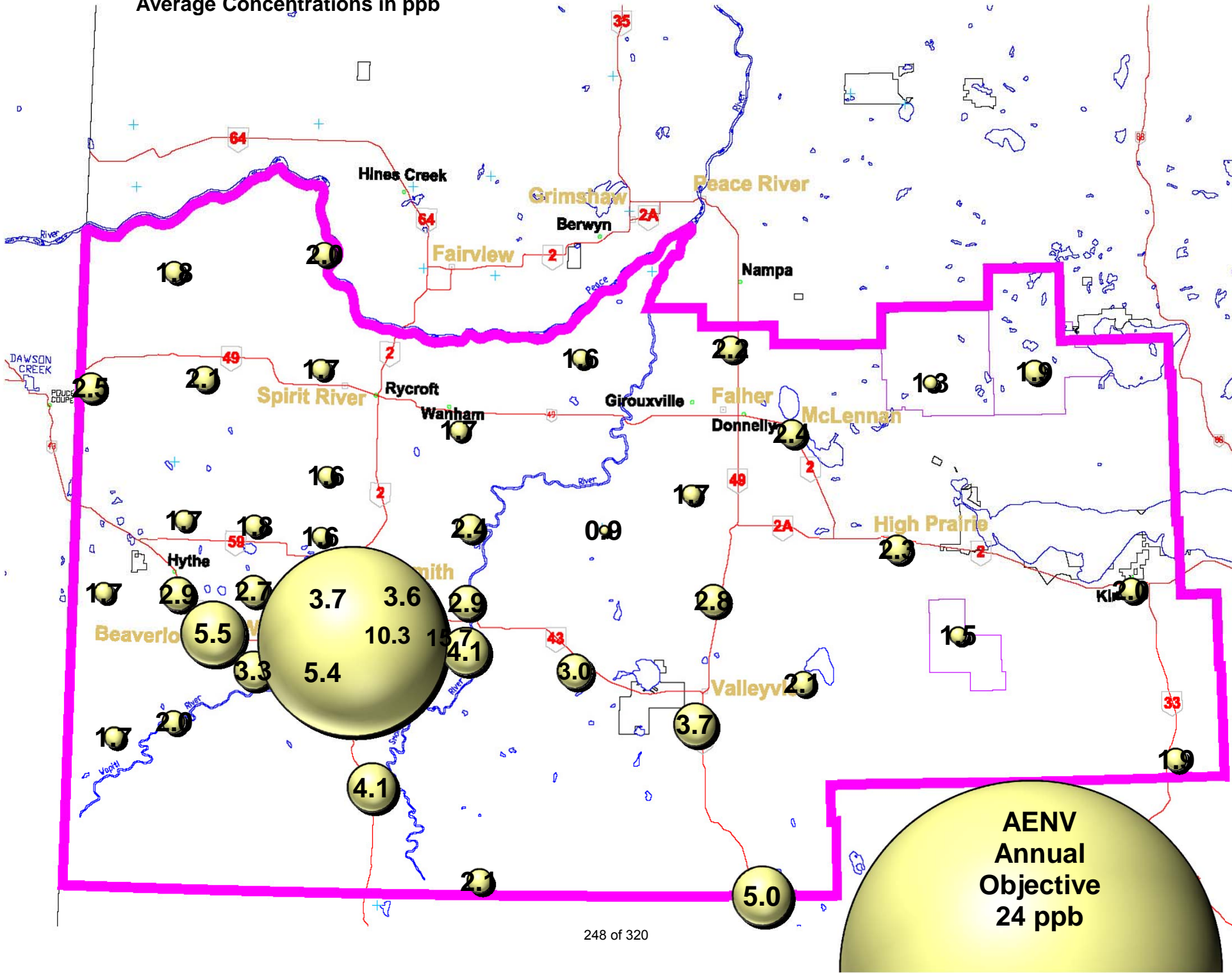
**No AENV 30-Day Objective**

## Alberta Ambient Air Quality Objective - No Annual O<sub>3</sub> Objective

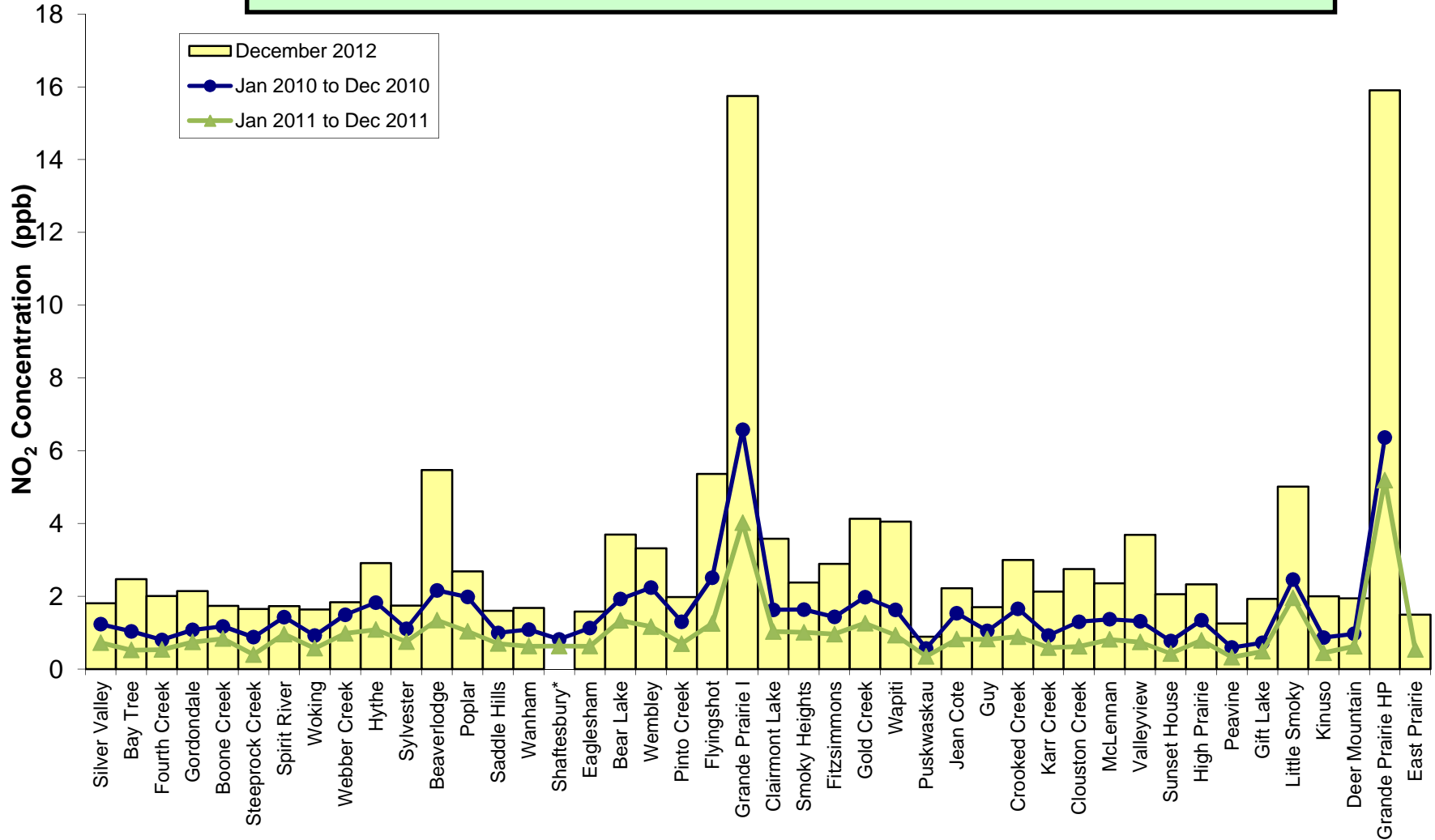




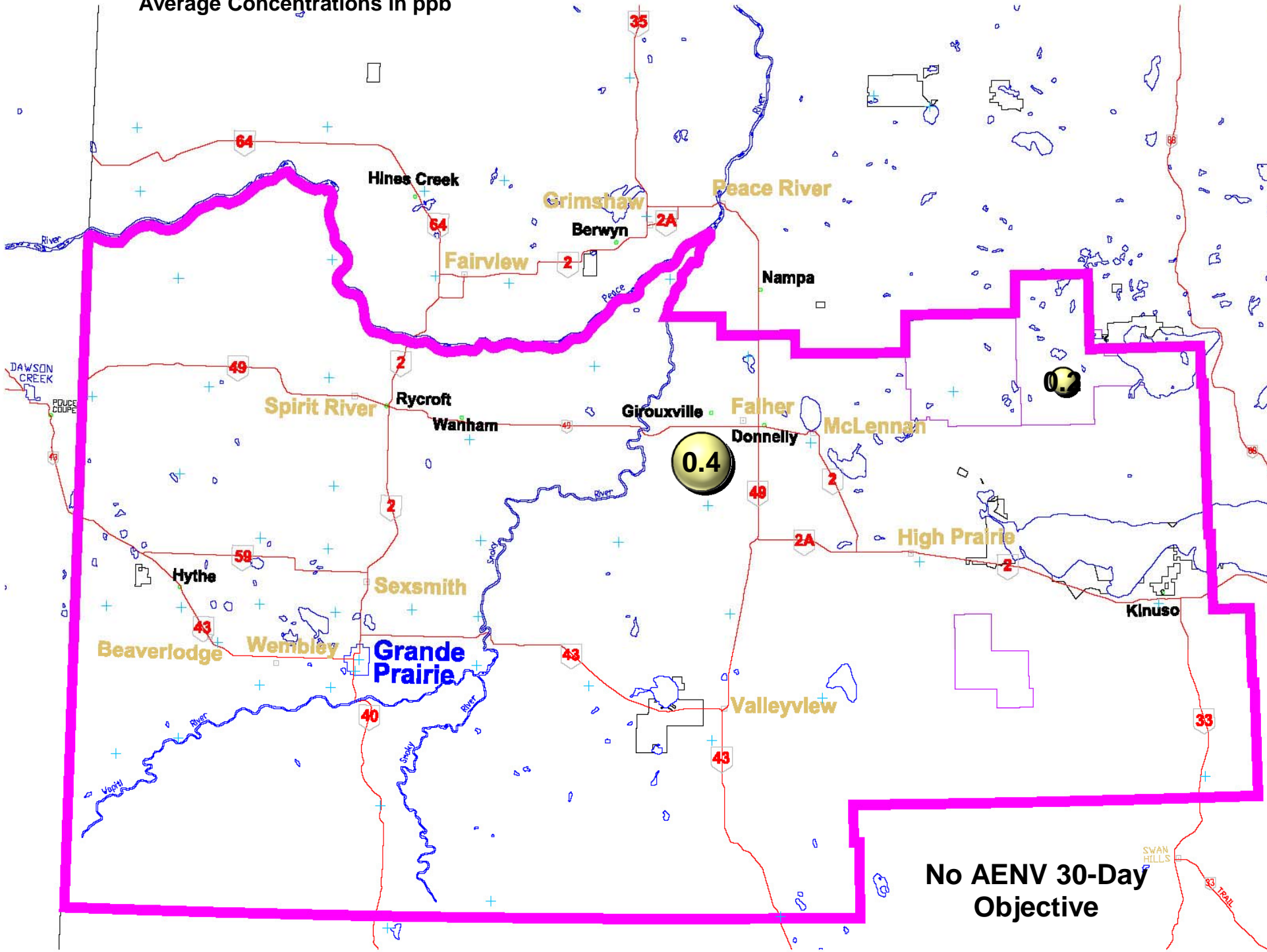
**PAZA Passive NO<sub>2</sub> Stations - December 2012**  
**Average Concentrations in ppb**



**Alberta Ambient Air Quality Objective - Annual NO<sub>2</sub> Objective is 24 ppb**



PAZA Passive H<sub>2</sub>S Stations - December 2012  
Average Concentrations in ppb



# PAZA

## **ALBERTA ENVIRONMENT AND SUSTAINABLE RESOURCES INCIDENCE REPORT**

### **December 2012**



## Air Monitoring Directive Exceedence Report

Alberta Environment and Sustainable Resource Development  
 Environmental Service Response Centre  
 111 Twin Atria Building  
 4999 – 98<sup>th</sup> Avenue  
 Edmonton, Alberta T6B 2X3  
 Phone: (780) 422-4505  
 Fax: (780) 427-1044

<b>Reference Number:</b>	<b>265434</b>	<b>Reported To (AENV Contact):</b>	Laura
<b>Date &amp; Time Incident Reported to AENV:</b>	December 4, 2012 10:25	<b>Reported By:</b>	Focus-Lee Loran
<b>Reported on Behalf of:</b>	PAZA	<b>Approval Number (if applicable):</b>	Not applicable
<b>Location(s) of Incident:</b>	Smoky Heights Air Quality Station		
<b>Start Date &amp; Time of Incident:</b>	December 4, 2012 00:00 MST	<b>End Date &amp; Time of Incident:</b>	December 4, 2012 01:00 MST
<b>Reason or Nature of Incident:</b>			
<p>The PM<sub>2.5</sub> analyzer exceeded the Alberta Air Quality Ambient Guideline limit for a 1-hour average of PM<sub>2.5</sub> which is 80 µg/m<sup>3</sup>.</p> <p>00:00–01:00 MST    PM<sub>2.5</sub>= 99.3 µg/m<sup>3</sup>    WS = 8.4 km/h    WD = 30.4 deg</p>			
<b>Immediate Actions Taken:</b>			
Confirmed validity of data and reported to AESRD Environmental Service Response Centre.			
<b>Investigation Details:</b>			
Operation of the PM <sub>2.5</sub> analyzer appeared to be normal during the time of this report. Local technician contacted landowner in area and confirmed there was smoke in the area. Suspect smoke from wood boiler heating system due to NNE wind direction at the time of the incident.			
<b>Actions Taken to Prevent Reoccurrence (if any):</b>			
Not applicable			
<b>Additional Actions Required (if any):</b>			
Not applicable			
<b>Report Completed By:</b>	Lee Loran	<b>Date Report Submitted:</b>	December 4, 2012
<b>7-Day Letter Due Date:</b>	December 11, 2012		

## Air Monitoring Directive Exceedence Report

Alberta Environment and Sustainable Resource Development  
 Environmental Service Response Centre  
 111 Twin Atria Building  
 4999 – 98<sup>th</sup> Avenue  
 Edmonton, Alberta T6B 2X3  
 Phone: (780) 422-4505  
 Fax: (780) 427-1044

<b>Reference Number:</b>	<b>266707</b>	<b>Reported To (AENV Contact):</b>	Wendy
<b>Date &amp; Time Incident Reported to AENV:</b>	January 24 <sup>th</sup> , 2013	<b>Reported By:</b>	Focus-Patrick Andersen
<b>Reported on Behalf of:</b>	PAZA	<b>Approval Number (if applicable):</b>	Not applicable
<b>Location(s) of Incident:</b>	Henry Pirker Air Quality Station		
<b>Start Date &amp; Time of Incident:</b>	December 1, 2012 00:00 MST	<b>End Date &amp; Time of Incident:</b>	February 1, 2013 01:00 MST
<b>Reason or Nature of Incident:</b>			
The THC analyzer failed on December 11 <sup>th</sup> . Replacement is ongoing.			
<b>Immediate Actions Taken:</b>			
Analyzer replacement is underway.			
<b>Investigation Details:</b>			
Not applicable			
<b>Actions Taken to Prevent Reoccurrence (if any):</b>			
Not applicable			
<b>Additional Actions Required (if any):</b>			
Not applicable			
<b>Report Completed By:</b>	Patrick	<b>Date Report Submitted:</b>	January 24 <sup>th</sup> , 2013
<b>7-Day Letter Due Date:</b>	January 31 <sup>st</sup> , 2013		

# December 2012 Calibration Reports

**PAZA - Henry Pirker Station with the following calibrations:**

**SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>, CO, THC, TRS**

**PAZA – Evergreen Park Station with the following calibrations:**

**SO<sub>2</sub>, TRS, PM<sub>2.5</sub>**

**PAZA – Smoky Heights Station with the following calibrations:**

**SO<sub>2</sub>, TRS**

**PAZA – Beaverlodge Station with the following calibrations:**

**SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>, PM<sub>2.5</sub>**

**PAZA – Valleyview Station with the following calibrations:**

**SO<sub>2</sub> & H<sub>2</sub>S**

**PAZA – Sunset House Station with the following calibrations:**

**SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>, TRS**

# Calibration Report



Parameter SO2  
 Air Monitoring Network PAZA

## Station Information

Calibration Date	December 6, 2012		Previous Calibration	November 9, 2012	
Station Number	1		Station Location	Henry Pirker	
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal	<input type="checkbox"/> Other:	
Start Time (MST)	8:45		End Time (MST)	12:04	
Barometric Pressure	0.922	ATM	Station Temperature	20.0	Deg C
Calibrator	EnviroNics		Serial Number	3474	
Cal Gas Conc	50.8	ppm	Cal Gas Cert Date	March 12, 2014	
			Cal Gas Cylinder #	LL107272	
DACS make	CR3000		DACS serial No.	5408	
DACS voltage range	0 - 1 volt		DACS channel #	10	
	Before			After	
Calculated slope	0.999085		Calculated slope	1.001058	
Calculated intercept	2.282222		Calculated intercept	1.849842	
Analyzer make	TEI 43C		Analyzer serial #	610816292	

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	9.1		9.2	
Coefficient	0.793		0.801	
Pressure	643.7	mm Hg	639.6	mm Hg
Flow	0.498	lpm	0.494	lpm
Lamp Voltage	44256	Hz	44110	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)
4995	0.00	0.0	0.0	N/A
4995	39.94	403.0	401.8	1.0030
4995	19.96	202.2	198.7	1.0174
4995	9.94	100.9	97.4	1.0358
4995	0.00	0.0	0.0	As Found Zero
4995	39.94	403.0	395.8	As Found Span
Average Correction Factor				1.0187

Calculated value of As Found Response: 397.7 ppb      Percent Change of As Found: 1.3%

	before calibration		after calibration	
Auto zero	0.1	ppb	0.1	ppb
Auto span	235.4	ppb	247.2	ppb

Notes: Slight adjust 80% point.

Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter SO2

Air Monitoring Network PAZA



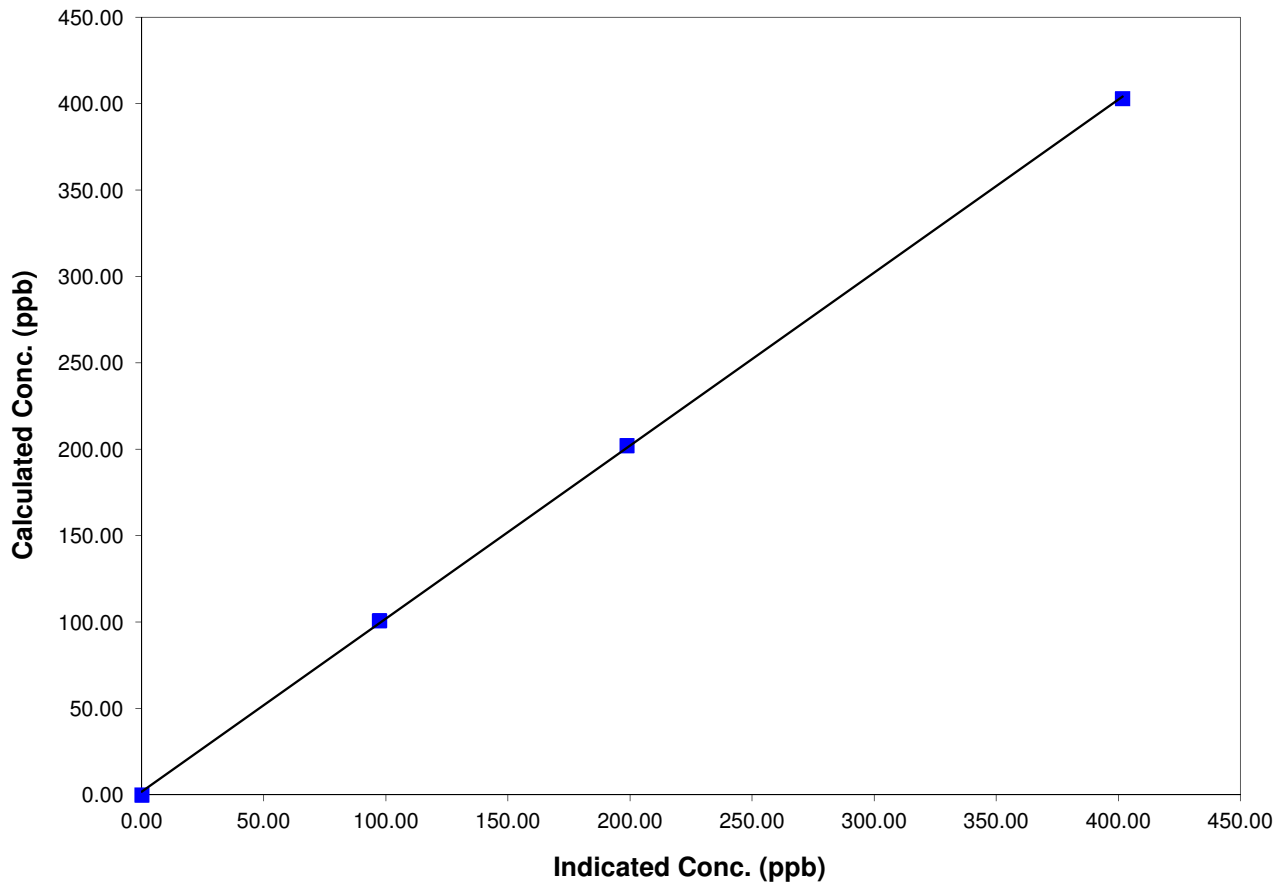
## Station Information

Calibration Date	December 6, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	8:45	End Time (MST)	12:04
Analyzer make/model	TEI 43C	Analyzer serial #	610816292

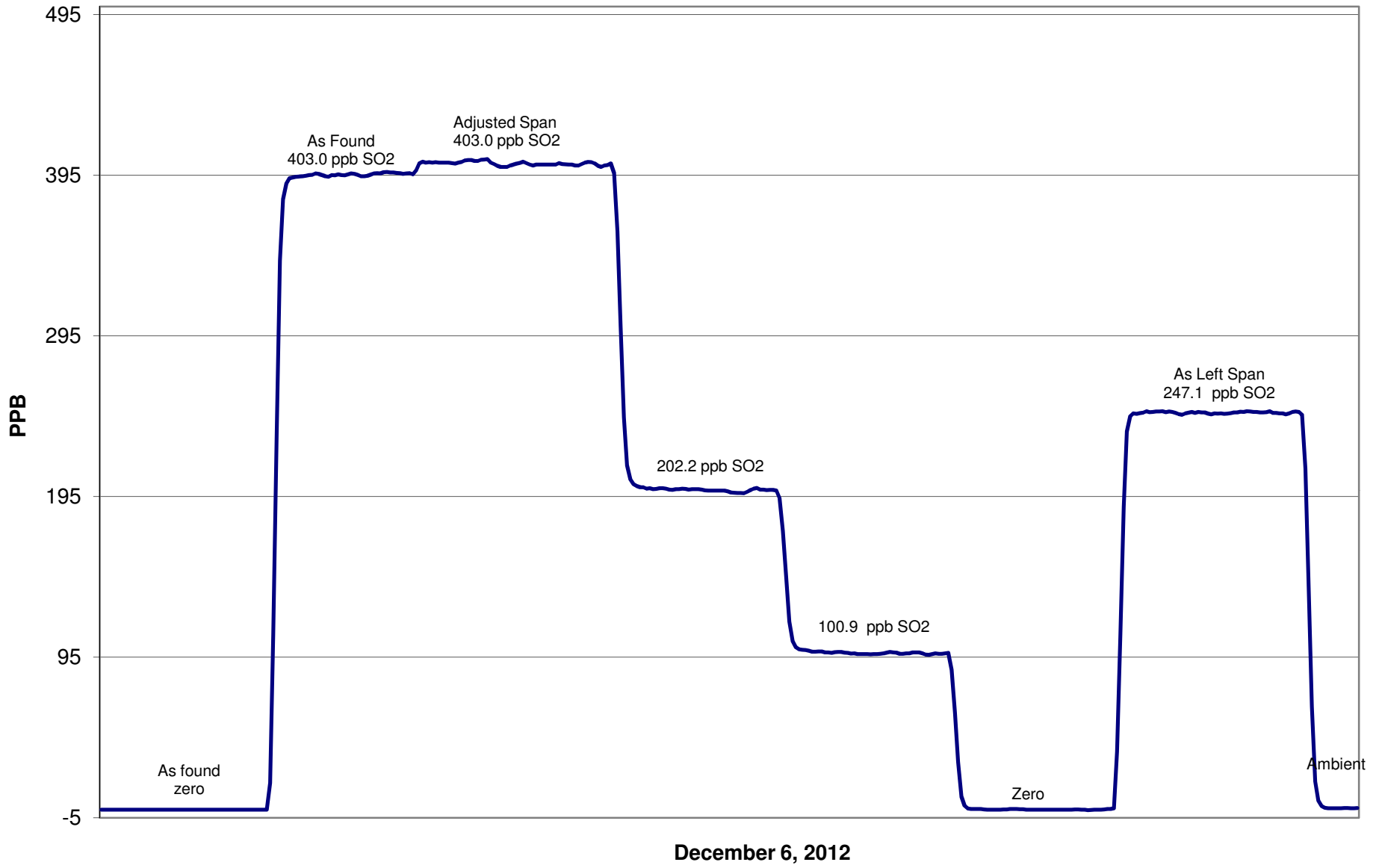
## Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A	Correlation Coefficient	0.999899
403.0	401.8	1.0030		
202.2	198.7	1.0174	Slope	1.001058
100.9	97.4	1.0358		
			Intercept	1.849842

### SO2 Calibration Curve



# SO2 Calibration



# Calibration Report

Parameter

NO<sub>x</sub>-NO-NO<sub>2</sub>

Air Monitoring Network

PAZA



## Station Information

Calibration Date	December 6, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Reason:	<input type="checkbox"/> Routine <input type="checkbox"/> Installation <input type="checkbox"/> Removal <input checked="" type="checkbox"/> Other:		
Start Time (MST)	8:45	End Time (MST)	13:50
Barometric Pressure	0.922 Atm	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
NO Cal Gas Conc	51.2 ppm	Cal Gas Expiry Date	March 12, 2014
NO <sub>x</sub> Cal Gas Conc	51.2 ppm	Cal Gas Serial #	LL107272

## DACS Information

DACS make	CR3000	DACS serial No.	5408
Parameter	NO <sub>2</sub>	NO <sub>x</sub>	NO
Before	Data Slope	0.992736	0.997797
	Data Offset	-0.191499	2.058694
After	Data Slope	1.000566	0.997182
	Data Offset	-0.203672	1.811101
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	
Test Point	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
NO offset	12.9	mV	13.1	mV
NO <sub>x</sub> bkgnd	13.3	mV	13.5	mV
NO coefficient	1.101		1.119	
NO <sub>x</sub> coefficient	1.001		0.997	
NO <sub>2</sub> conv temp	318.0	Deg C	318.0	Deg C
PMT Temp	-2.5	Deg C	-2.5	Deg C
PMT Volt	-768.0	mV	-768.0	mV
R Cell Press	182.0	in Hg	182.1	in Hg

# Calibration Report

Parameter **NOx-NO-NO<sub>2</sub>**  
 Air Monitoring Network **PAZA**



Calibration Date: December 6, 2012 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	4995	0.00	0.0	0.0	0.0	0.0	0.0	-0.1	N/A	N/A	
1	4995	39.94	406.1	406.1	0.0	405.3	406.3	-1.1	1.0021	0.9996	
2	4995	19.96	203.8	203.8	0.0	201.4	201.8	-0.5	1.0120	1.0097	
3	4995	9.94	101.7	101.7	0.0	98.0	98.3	-0.3	1.0381	1.0347	
AFZ	4995	0.00	0.0	0.0	0.0	0.0	0.0	-0.1	0.0000	0.0000	
AFS	4995	39.94	406.1	406.1	0.0	400.9	400.2	0.7	1.0130	1.0150	
									Average Correction Factor	1.0174	1.0147

As Found Concentrations: NO<sub>x</sub>= 402.9 NO= 402.2 As Found Percent Change NO<sub>x</sub>= -0.8% NO= -1.0%

Dilution Flow 4995 ccm Source Gas Flow 39.94 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	0.0	0.0	-0.1	N/A	N/A	N/A	N/A	
NO point	404.5	404.5	0.0	403.5	404.5	-1.1	1.0025	1.0000	N/A	N/A	
300	404.5	97.2	307.2	404.0	97.2	307.0	1.0011	1.0000	1.0009	99.9%	
200	404.5	196.0	208.5	404.7	196.0	208.8	0.9996	1.0000	0.9986	100.1%	
100	404.5	295.1	109.4	405.0	295.1	110.0	0.9987	1.0000	0.9947	100.5%	
							Average Correction Factor	0.9998	1.0000	0.9980	100.2%

Parameter	Previous calibration				Current calibration			
	NOx	NO2	NO	ppb	NOx	NO2	NO	ppb
Auto zero	-0.1	0.0	0.0	ppb	0.0	-0.3	0.0	ppb
Auto span	168.4	169.5	1.2	ppb	328.3	326.9	1.6	ppb

Calibration Performed By: Grover Christiansen



# Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network PAZA



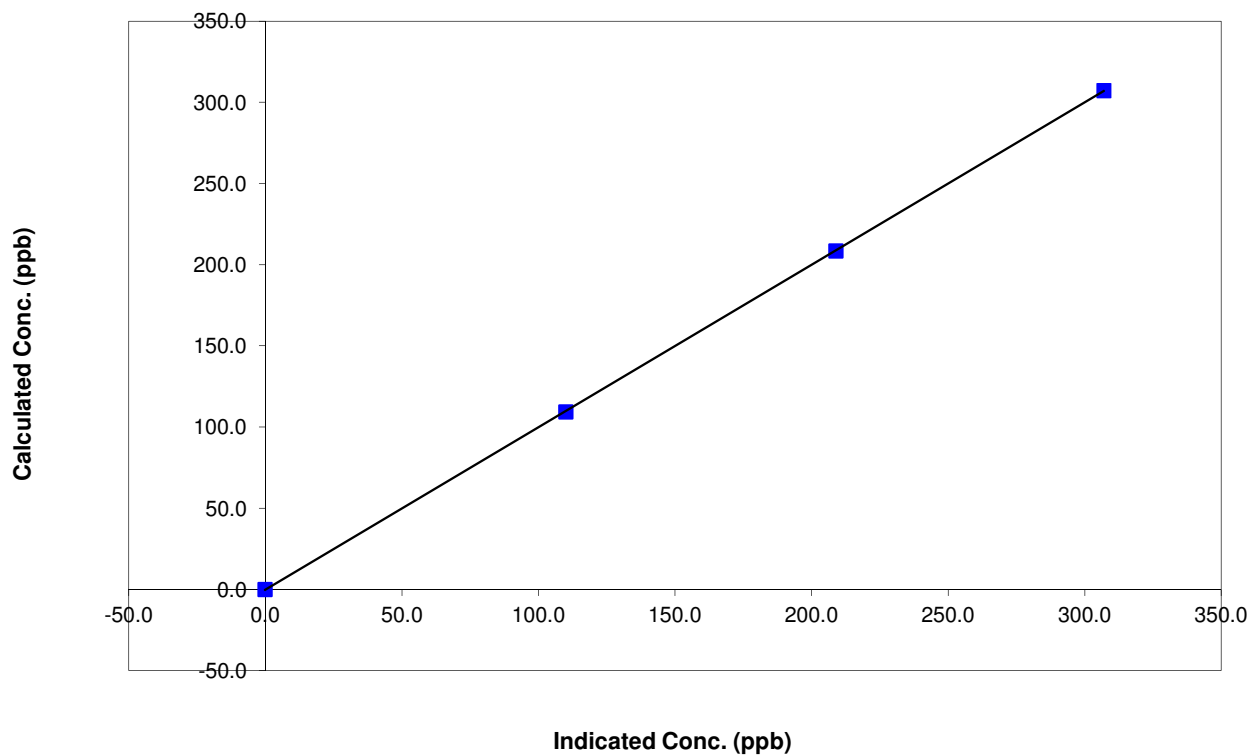
## Station Information

Calibration Date	December 6, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	8:45	End Time (MST)	13:50
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		
307.2	307.0	1.0009	Correlation Coefficient	0.999991
208.5	208.8	0.9986		
109.4	110.0	0.9947	Slope	1.000566
			Intercept	-0.203672

## NO<sub>2</sub> Calibration Curve



# Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network PAZA



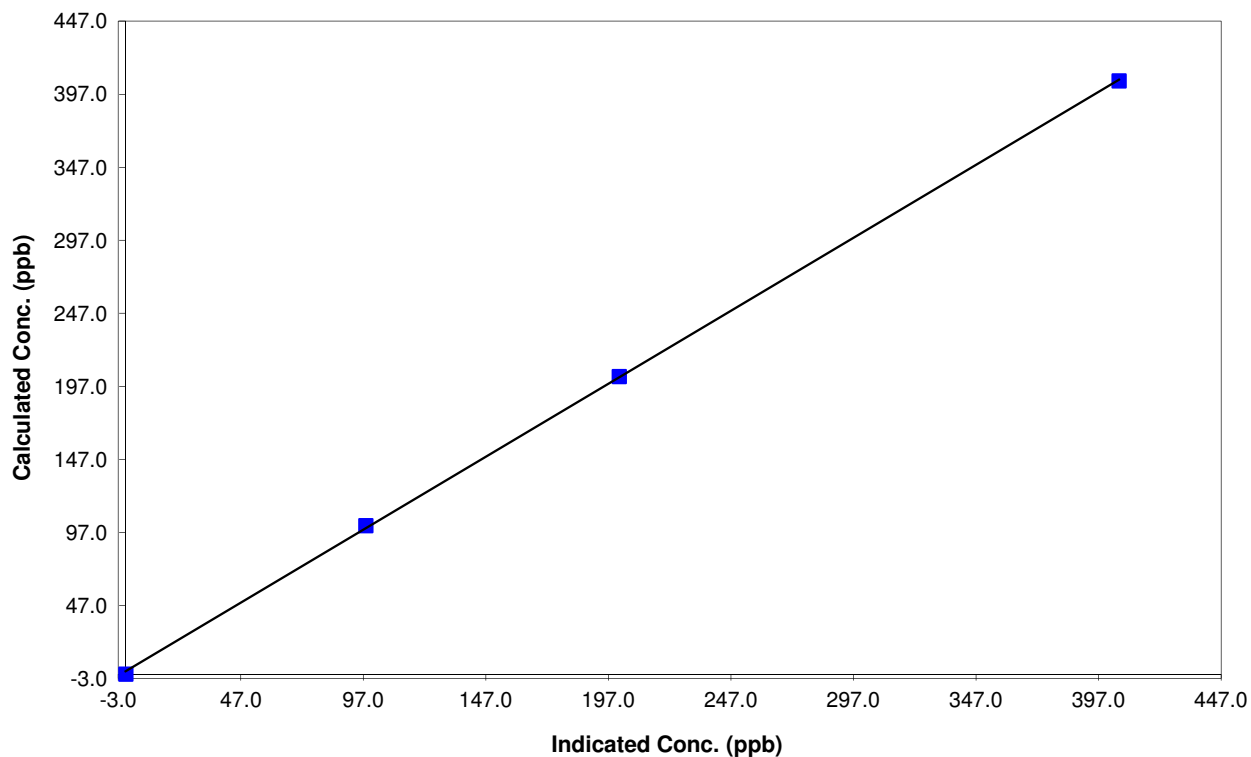
## Station Information

Calibration Date	December 6, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	8:45	End Time (MST)	13:50
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	0.999910
406.1	405.3	1.0021		
203.8	201.4	1.0120	Slope	0.999561
101.7	98.0	1.0381		
			Intercept	1.829232

## NO<sub>x</sub> Calibration Curve



# Calibration Summary

Parameter NO

Air Monitoring Network PAZA



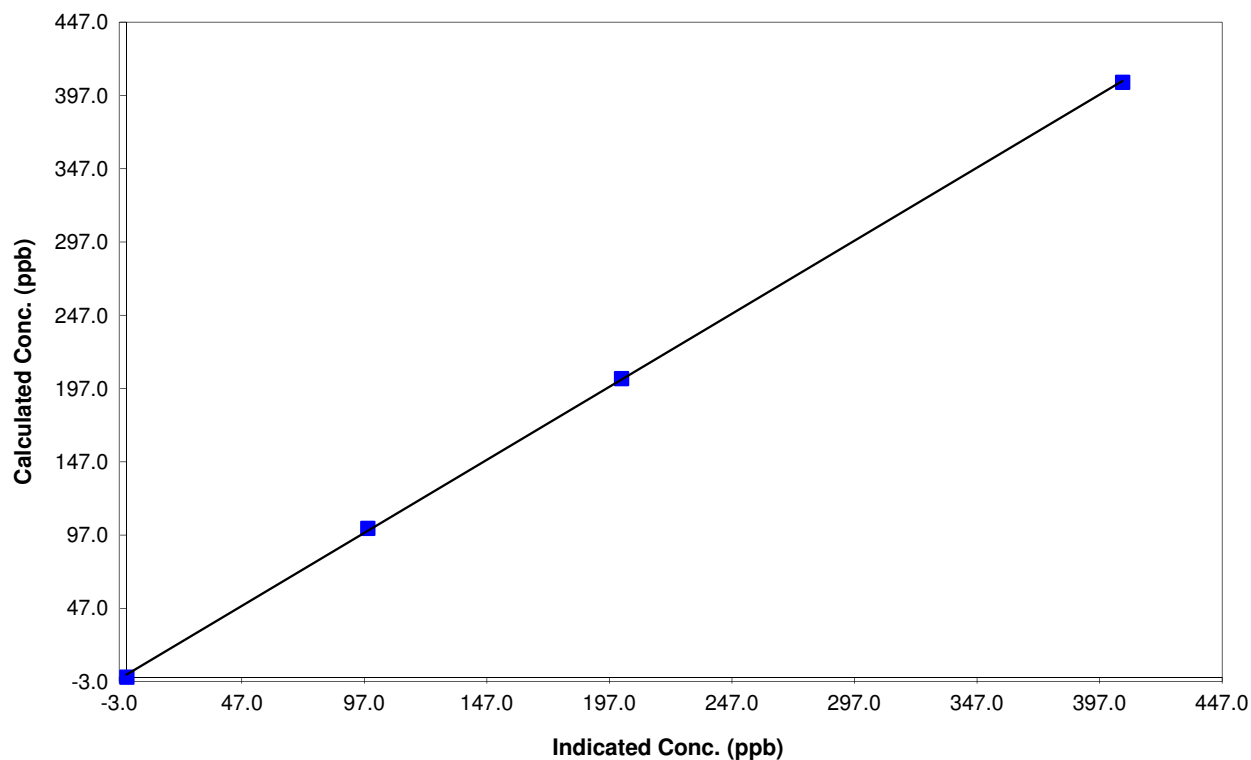
## Station Information

Calibration Date	December 6, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	8:45	End Time (MST)	13:50
Analyzer make	TEI 42C	Analyzer serial #	508011073

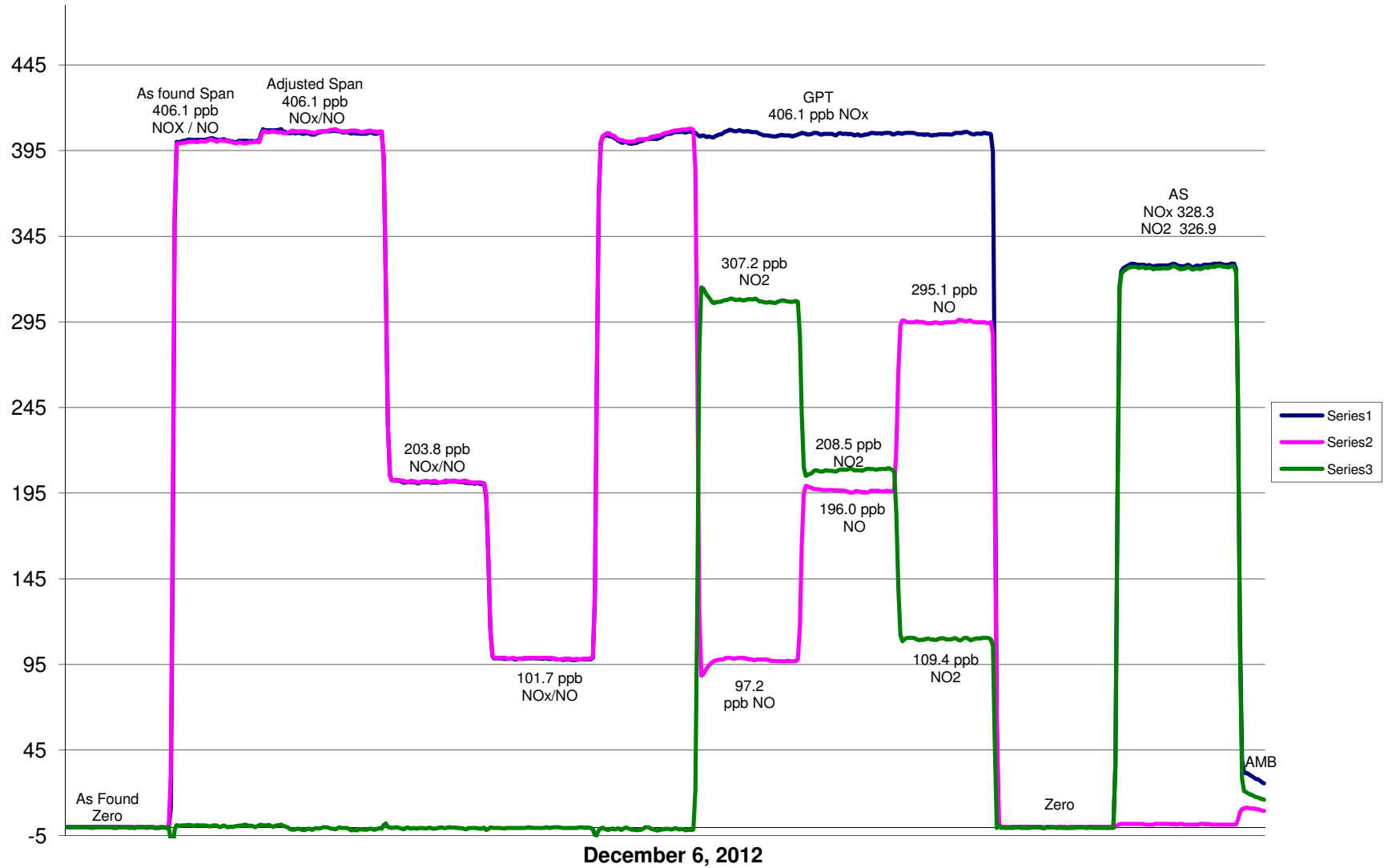
## Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
406.1	406.3	0.9996	Correlation Coefficient	0.999913
203.8	201.8	1.0097		
101.7	98.3	1.0347	Slope	0.997182
			Intercept	1.811101

## NO Calibration Curve



# PAZA NO<sub>x</sub> Calibration



# Calibration Report



Parameter 03  
Air Monitoring Network PAZA

## Station Information

Calibration Date	December 6, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Reason:	<b>Routine</b>	Install	Removal
		Other:	
Start Time (MST)	12:40	End Time (MST)	15:40
Barometric Pressure	0.922 atm	Station Temperature	20.0 Deg C
Calibrator	Enviroics 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	0.994275	Calculated slope	0.993541
Calculated intercept	-0.269654	Calculated intercept	-0.185395
Analyzer make	TECO 49C	Analyzer serial #	607415761

	before		after	
Concentration range	500	ppb	500	ppb
offset	-0.7	ppb	-0.7	ppb
slope	1.177		1.177	
O3 Lamp temp	71.1	Deg C	71.1	Deg C
Intensities	76180/67472	mV	76530/67310	mV
Pressure	699.3	inches Hg	699.4	inches Hg
Flow A	0.729	ccm	0.728	ccm
Flow B	0.742	ccm	0.741	ccm

## Calibration Data

Dilution air flow rate (cc/min)	Referenced concentration (ppb)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
5036	0	0.0	0.1	N/A
5036	300	307.2	309.7	0.9920
5036	200	208.5	209.3	0.9960
5036	100	109.4	110.9	0.9869
5036	0	0.0	0.1	As found zero
5036	300	307.2	309.6	As found span
Average Correction Factor				0.9916

Calculated value of As Found Response: 307.5 ppm      Percent Change of As Found: 0.1%

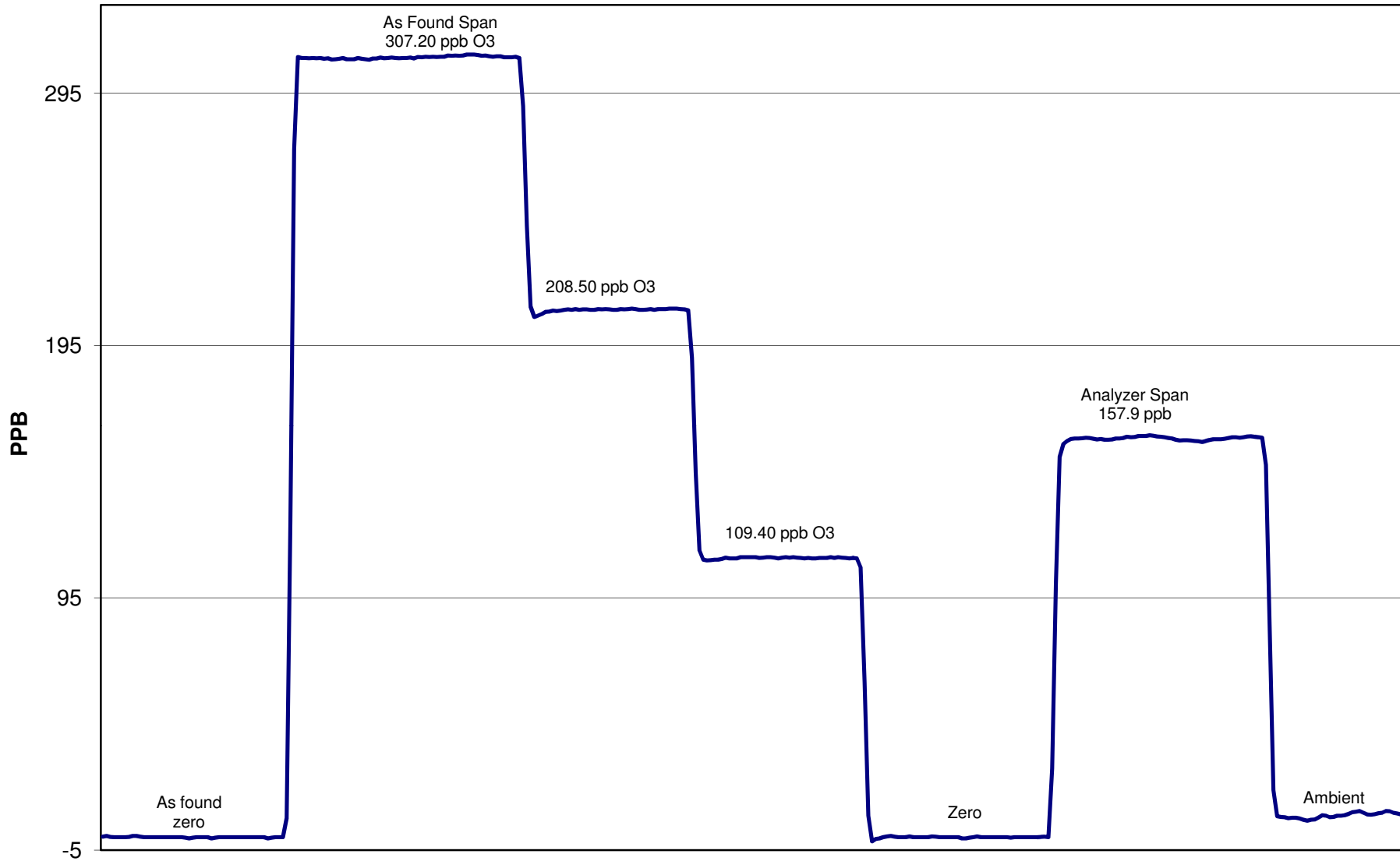
	before calibration		after calibration	
Auto zero	0.3	ppb	0.3	ppb
Auto span	154.9	ppb	157.9	ppb

Notes: No adjustment.

Calibration Performed By: Grover Christiansen



# O3 Calibration



December 6, 2012

# Calibration Report



Parameter CO

Air Monitoring Network PAZA

## Station Information

Calibration Date	December 5, 2012	Previous Calibration	November 8, 2012
Station Number	1	Station Location	Henry Pirker
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
			<input type="checkbox"/> Other:
Start Time (MST)	12:30	End Time (MST)	15:30
Barometric Pressure	0.922 ATM	Station Temperature	21.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Conc	2898 ppm	Cal Gas Expiry Date	04/02/2013
		Cal Gas Cylinder #	LL83909
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 1 volt	DACS channel #	9
	Before		After
Calculated slope	1.000409	Calculated slope	1.004178
Calculated intercept	-0.269917	Calculated intercept	-0.273276
Analyzer make	TEI Model 48C	Analyzer serial #	508011062

	before		after	
Concentration range	0 - 50	ppm	0 - 50	ppm
CO span setting	1.110		1.110	
CO zero setting	3.849		4.156	
Sample pressure	674.9	mm Hg	684.2	mm Hg
Sample Flow	1.118	LPM	1.128	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)
4995	0.00	0.00	0.36	N/A
4995	69.94	40.02	40.16	0.9965
4995	34.95	20.14	20.31	0.9915
4995	18.95	10.95	11.08	0.9889
4995	0.00	0.00	0.70	As Found Zero
4995	69.95	40.02	40.16	As Found Span
Average Correction Factor				0.9923

Calculated value of As Found Response: 39.202 ppm      Percent Change of As Found: 2.1%

	before calibration		after calibration	
Auto zero	0.03	ppm	0.03	ppm
Auto span	19.56	ppm	19.96	ppm

Notes: DAS reading 0.4 ppb above analyzer reading. Slight zero adjust.

Calibration Performed By: Grover Christiansen



# Calibration Summary

Parameter CO  
 Air Monitoring Network PAZA



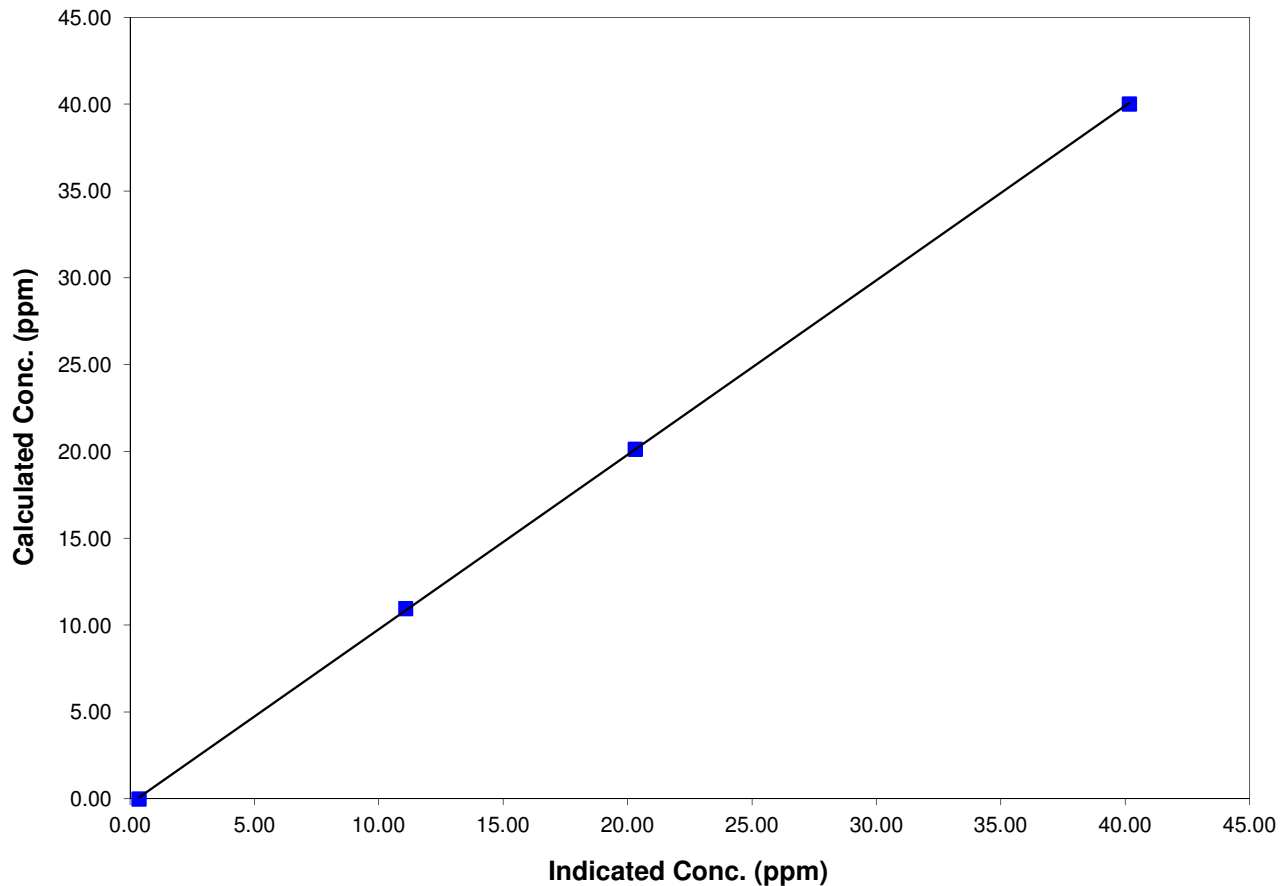
## Station Information

Calibration Date	December 5, 2012	Previous Calibration	November 8, 2012
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	12:30	End Time (MST)	15:30
Analyzer make/model	TEI Model 48C	Analyzer serial #	508011062

## Calibration Data

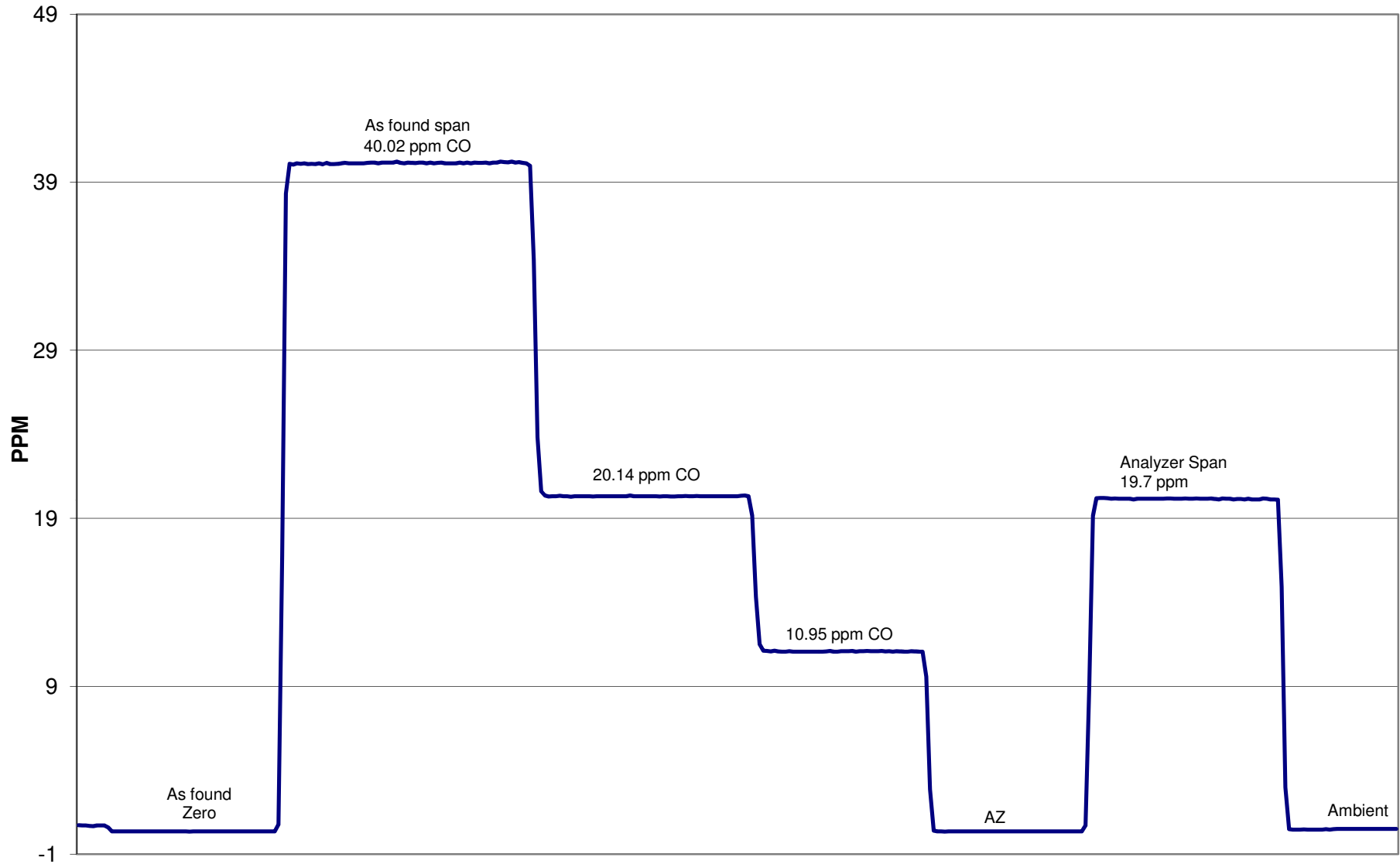
Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.356	N/A	Correlation Coefficient	0.999977
40.017	40.159	0.9965		
20.136	20.309	0.9915	Slope	1.004178
10.953	11.076	0.9889		
			Intercept	-0.273276

### CO Calibration Curve



11.15 ppm CO

# CO Calibration



December 5, 2012

# Calibration Report

Parameter THC

Air Monitoring Network PAZA



## Station Information

Calibration Date	December 5, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Reason:	<input type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input checked="" type="checkbox"/> Other:	Maintenance
Start Time (MST)	10:50	End Time (MST)	14:16
Barometric Pressure	0.922 ATM	Station Temperature	20.0 Deg C
Calibrator	Enviroics 6100	Serial Number	3474
Cal Gas Concentration	404 ppm CH4/ 201 ppm C3H8	Cal Gas Expiry Date	04/02/2010
Cal Gas CH4 equiv	956.75 ppm	Cal Gas Cylinder #	ALM 004476
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 1 volt	DACS channel #	9
	<u>Before</u>		<u>After</u>
Calculated slope	1.003296	Calculated slope	1.015372
Calculated intercept	0.016629	Calculated intercept	0.109655
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	11511	capture	11511	capture
THC zero counts	1782	capture	1782	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)
2995	0.00	0.00	-0.02	N/A
2995	69.95	21.84	21.43	1.0190
2995	29.96	9.48	9.17	1.0331
2995	9.98	3.18	2.95	1.0770
2995	0.00	0.00	-0.02	As Found Zero
2995	69.95	21.84	21.43	As Found Span
Average Correction Factor				1.0430

Calculated value of As Found Response: 21.533 ppm      Percent Change of As Found: 1.4%

	before calibration		after calibration	
Auto zero	0.08	ppm	0.09	ppm
Auto span	22.47	ppm	22.75	ppm

Notes: No adjustment made.

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Calibration Performed By: Grover Christiansen

# Calibration Summary



Parameter THC  
 Air Monitoring Network PAZA

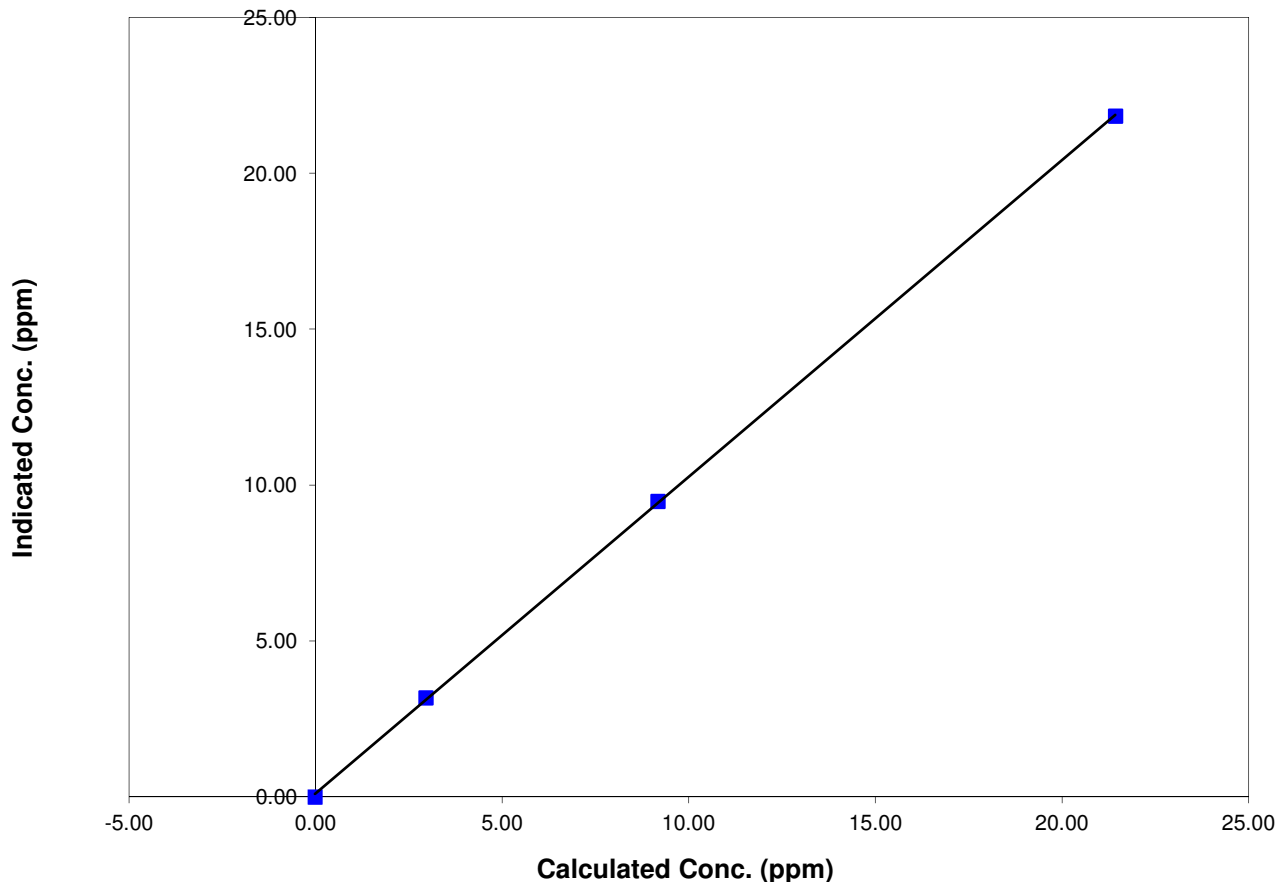
### Station Information

Calibration Date	December 5, 2012	Previous Calibration	November 9, 2012
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	10:50	End Time (MST)	14:16
Analyzer make/model	TEI Model 51C-LT	Analyzer serial #	51CLT-79009-390

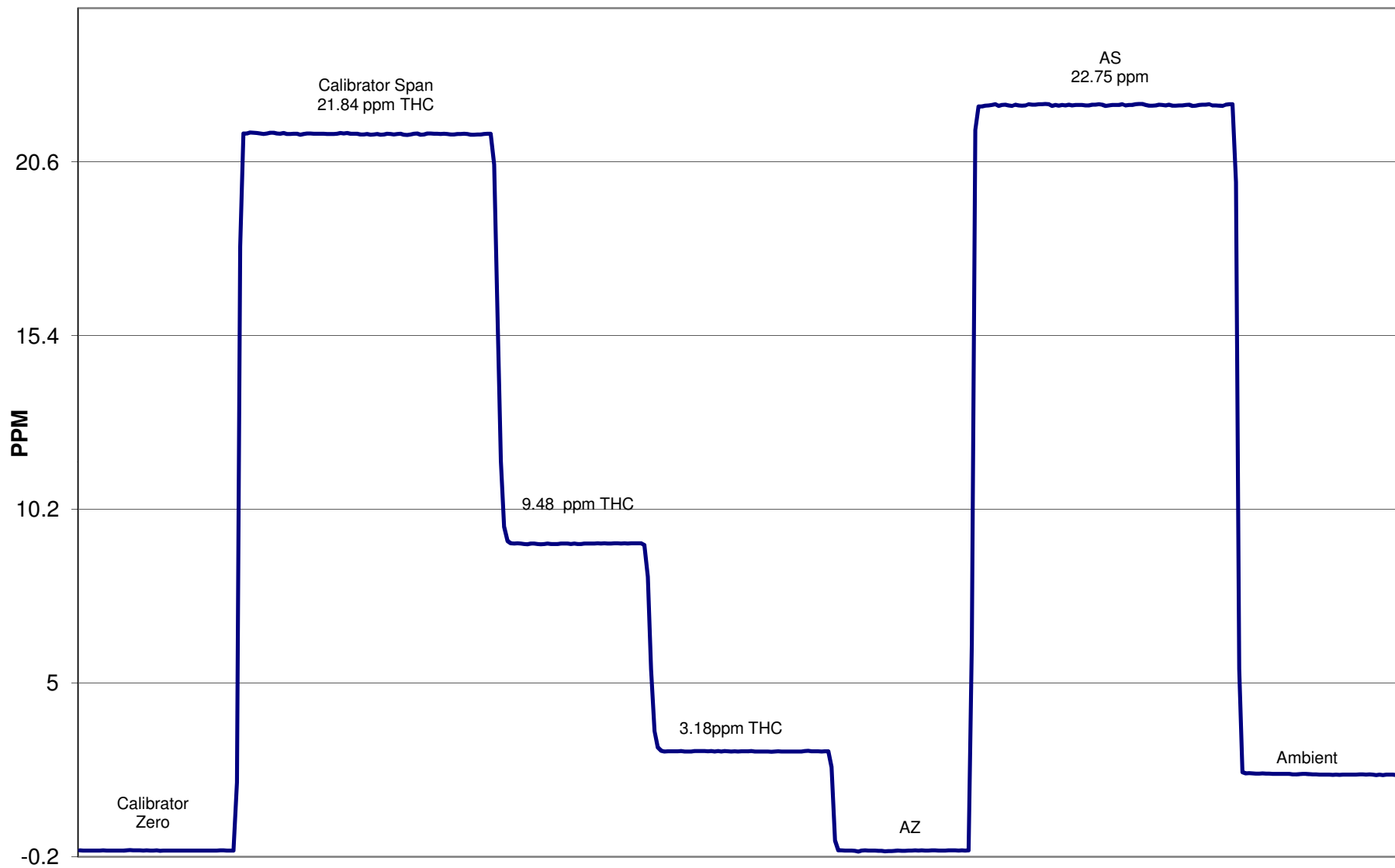
### Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	-0.017	N/A	Correlation Coefficient	0.999937
21.835	21.429	1.0190		
9.476	9.172	1.0331	Slope	1.015372
3.178	2.950	1.0770		
			Intercept	0.109655

### THC Calibration Curve



# THC Calibration



December 5, 2012

# Calibration Report

Parameter TR3  
 Air Monitoring Network PAZA



## Station Information

Calibration Date	<u>December 06,2012</u>	Previous Calibration	<u>November 08,2012</u>
Station Number	<u>1</u>	Station Location	<u>Henry Pirker</u>
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
			<input type="checkbox"/> Other:
Start Time (MST)	<u>14:20:00 PM</u>	End Time (MST)	<u>17:15</u>
Barometric Pressure	<u>0.922</u> ATM	Station Temperature	<u>20.0</u> Deg C
Calibrator	<u>Enviroics 6100</u>	Serial Number	<u>3474</u>
Cal Gas Conc	<u>10.1</u> ppb	Cal Gas Expiry Date	<u>05/11/2013</u>
		Cal Gas Cylinder #	<u>LL160692</u>
DACS make	<u>CR3000</u>	DACS serial No.	<u>5408</u>
DACS voltage range	<u>0 - 1 volt</u>	DACS channel #	<u>9</u>
	<u>Before</u>		<u>After</u>
Calculated slope	<u>0.975309</u>	Calculated slope	<u>0.998221</u>
Calculated intercept	<u>0.217058</u>	Calculated intercept	<u>0.089391</u>
Analyzer make	<u>TEI 45C</u>	Analyzer serial #	<u>630718528</u>

	before		after	
Concentration range	<u>0 - 100</u>	<u>ppb</u>	<u>0 - 100</u>	<u>ppb</u>
Coefficient	<u>1.132</u>		<u>1.132</u>	
Background	<u>11.4</u>		<u>11.5</u>	
Pressure	<u>662.1</u>	<u>mm Hg</u>	<u>655.3</u>	<u>mm Hg</u>
Flow	<u>0.452</u>	<u>ccm</u>	<u>0.451</u>	<u>ccm</u>
Lamp Voltage	<u>826</u>	<u>v</u>	<u>825</u>	<u>v</u>

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Correction factor (Cc/lc)
4995	0.00	0.00	N/A
4995	39.93	80.10	0.9973
4995	19.95	40.18	1.0075
8995	8.94	10.03	1.0276
4995	0.00	0.00	As Found Zero
4995	39.93	80.10	As Found Span
Average Correction Factor			<u>1.0108</u>

Calculated value of As Found Response: 78.3 ppb      Percent Change of As Found: 2.2%

	before calibration		after calibration	
Auto zero	<u>-0.29</u>	<u>ppb</u>	<u>0.55</u>	<u>ppb</u>
Auto span	<u>33.10</u>	<u>ppb</u>	<u>34.61</u>	<u>ppb</u>

Notes: Sox scrubber checked. No adjustment made.

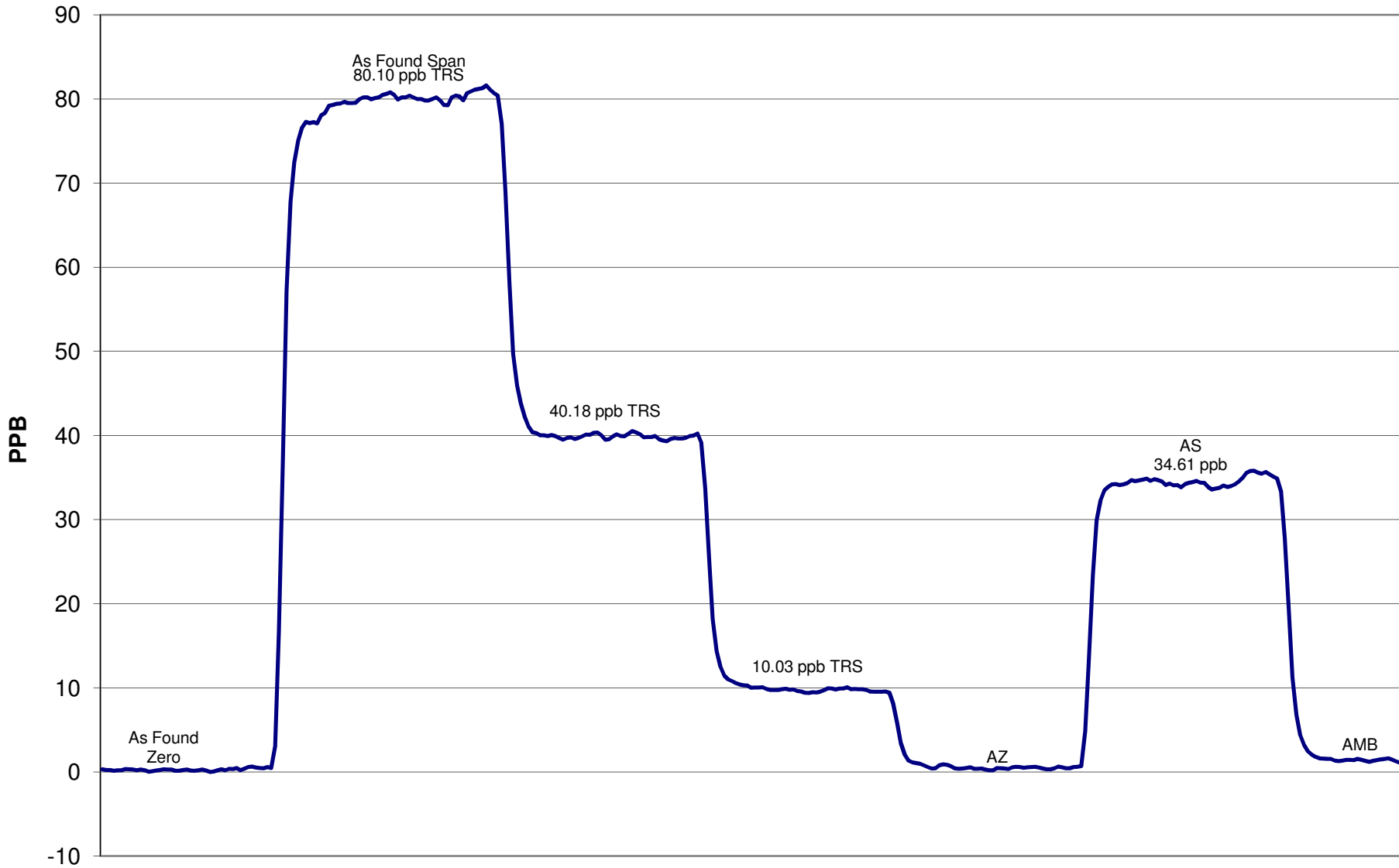
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Calibration Performed By: Grover Christiansen



# TRS Calibration



December 06, 2012



# Calibration Report



Parameter SO<sub>2</sub>

Air Monitoring Network PAZA

## Station Information

Calibration Date	December 24, 2012	Previous Calibration	November 20, 2012
Station Number	2	Station Location	Evergreen Park
Reason:	<b>Routine</b>	Install	Removal
			Other:
Start Time (MST)	11:20	End Time (MST)	14:59
Barometric Pressure	0.937 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Concentration	50.8 ppm	Cal Gas Expiry Date	12/03/2014
Correction factor	0.031851	Cal Gas Cylinder #	LL107272
DACS make	CR3000	DACS serial No.	5236
DACS voltage range	0 - 5 volt	DACS channel #	6
	Before		After
Calculated slope	1.004908	Calculated slope	0.995342
Calculated intercept	1.320313	Calculated intercept	1.088450
Analyzer make	Teco 43i	Analyzer serial #	701120008

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	11.3		11.5	
coefficient	1.213		1.24	
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	678.3	mm Hg	681.3	mm Hg
Sample Flow	0.455	ccm	0.458	ccm
Lamp Intensity	90	%	89	%

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4995	0.0	0.00	0.4	N/A
4995	39.93	402.9	404.4	0.9962
4995	19.97	202.3	201.4	1.0047
4995	9.97	101.2	99.2	1.0202
4995	0.0	0.0	0.4	As Found Zero
4995	39.93	402.9	395.3	As Found Span
Average Correction Factor				1.0070

Calculated value of As Found Response: 398.172 ppm      Percent Change of As Found: 1.2%

	before calibration		after calibration	
Auto zero	0.0	ppm	0.4	ppm
Auto span	287.4	ppm	286.5	ppm

Notes: Slight adjust up on 80% point.

Calibration Performed By: Grover Christiansen



# Calibration Summary



Parameter TRS  
Air Monitoring Network PAZA

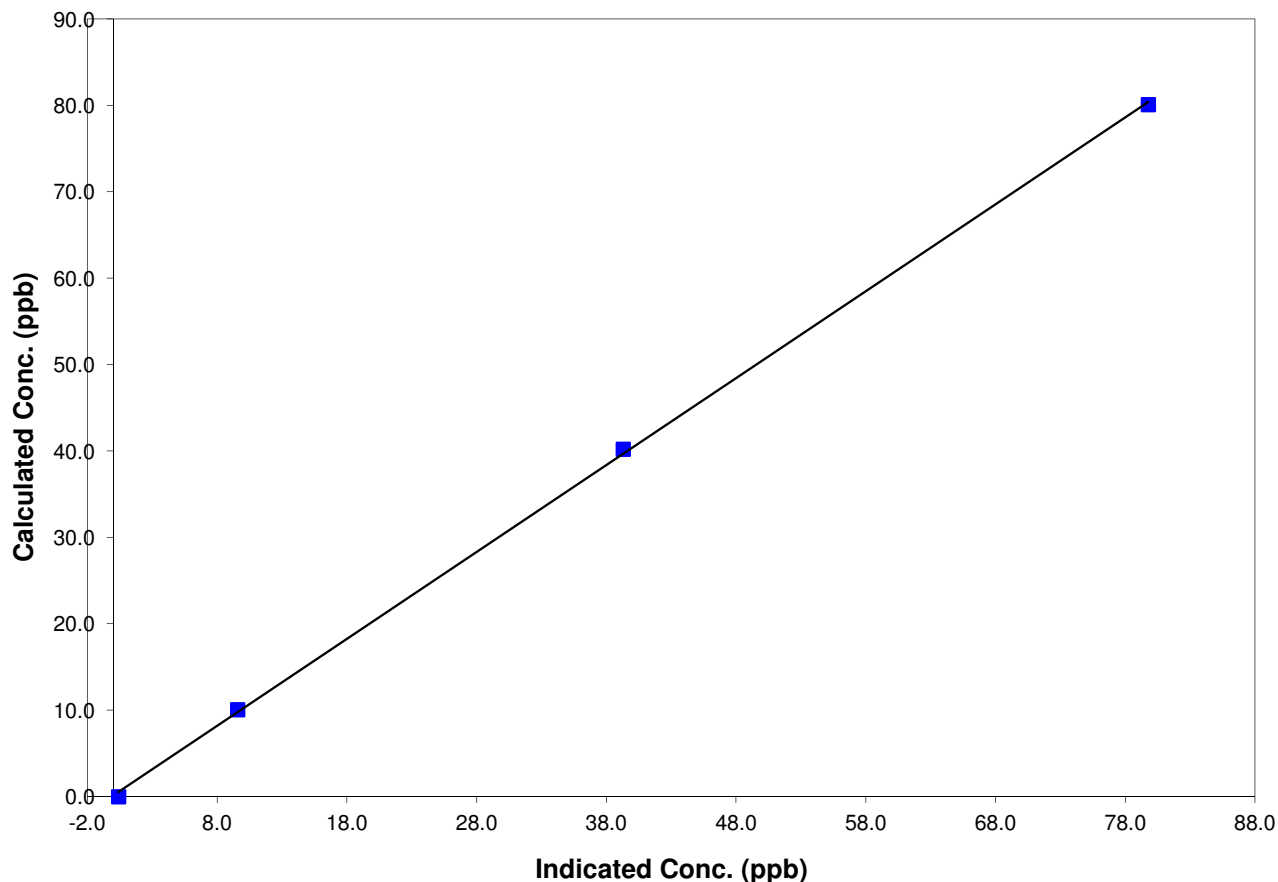
### Station Information

Calibration Date	<u>December 24, 2012</u>	Previous Calibration	<u>November 20, 2012</u>
Station Number	<u>2</u>	Station Location	<u>Evergreen Park</u>
Start Time (MST)	<u>9:00</u>	End Time (MST)	<u>12:30</u>
Analyzer make/model	<u>TEI Model 43C</u>	Analyzer serial #	<u>3199000000491</u>

### Calibration Data

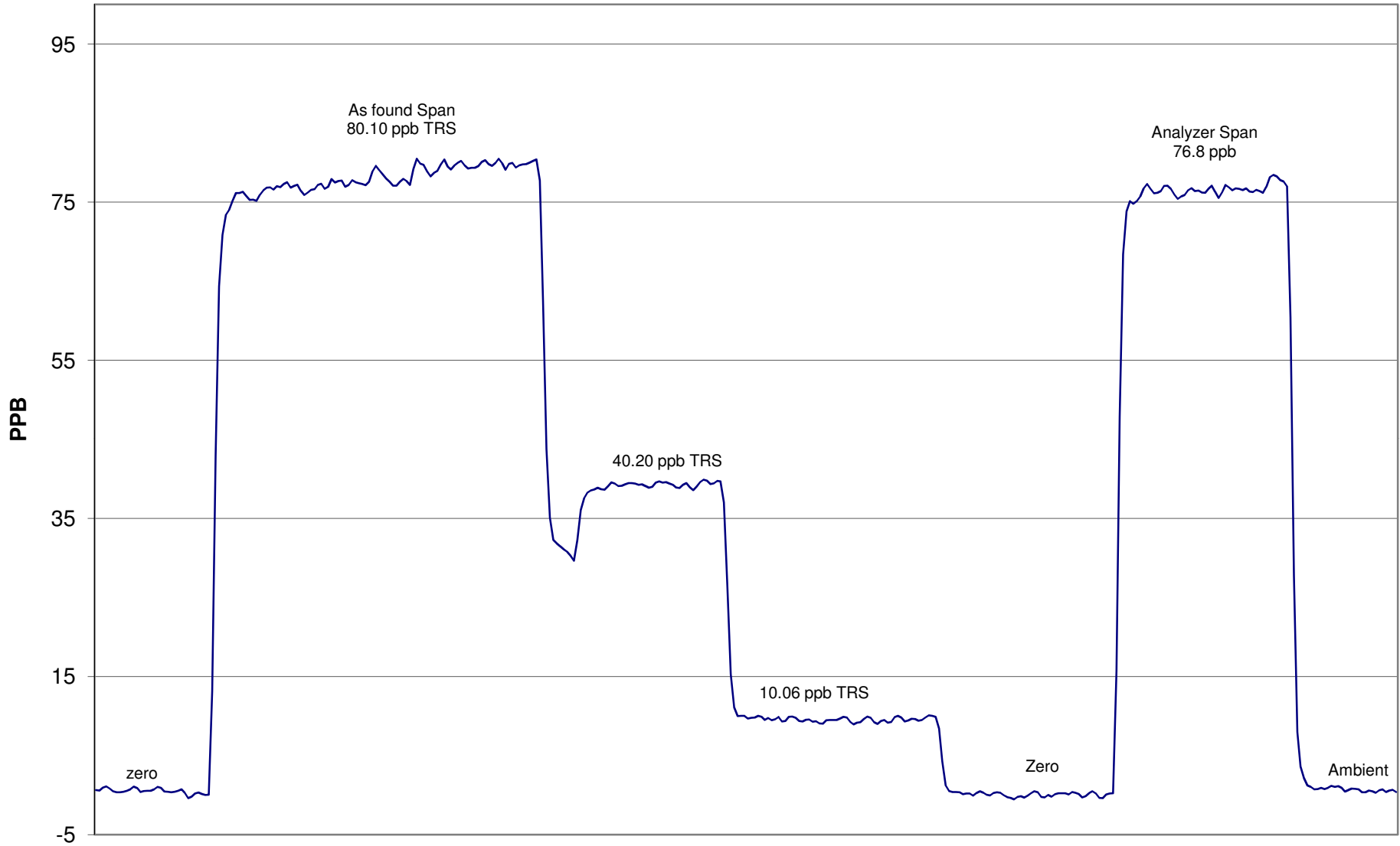
Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	N/A	Correlation Coefficient	0.999807
80.1	79.8	1.0041		
40.2	39.3	1.0232		
10.1	9.6	1.0520	Slope	1.006068
			Intercept	0.140318

## TRS Calibration Curve



As found Span  
80.10 ppb TRS

### TRS Calibration



December 24, 2012

# AB TEOM PM2.5 Calibration



STATION: Evergreen Park  
 LOCATION: PAZA - Grande Prairie

OPERATOR: Grover Christiansen  
 DATE: 24/12/2012

MONITOR INFO / PARAMETER VALUES:

Make/Model	TEOM AB
Configuration	PM2.5
Serial Number	21554
Site Number	2
Inlet Type	PM 10 / SCC
FAdj. Main Setting	1.000
FAdj. Aux. Setting	1.000
T-Case Indicated / Set Point	40/40
T-Air Indicated / Set Point	40/40
T-Cap Indicated / Set Point	40/40
Splitter Assembly Alignment (cm)	15.5

( vs. specified depth of 15.5 cm from top of flow tube to top of concentric 1/2 in. tube )

RECENT CALIBRATION AND AUDIT HISTORY

Previous Audit	24/7/2012
Previous Calibration	NA

PUMP CAPACITY CHECK *	PASS
-----------------------	------

\* capacity test or pump on timed test utilized to verify pump integrity  
 "FAIL" indicates that pump requires service.

LEAK CHECK	Indicated Flow (lpm)	
	Main	Auxiliary
PUMP ON	0.050	0.280
PUMP OFF	0.000	0.000
NET	0.050	0.280
<b>LIMITS</b>	<b>&lt;0.15</b>	<b>&lt;0.60</b>

	Ambient Temp. (°C)	Ambient Pres. (atm)	Ko *	Bypass flow (lpm)	Sample flow (lpm)
SET POINT ( S )	na	na	16147	13.67	3.000
INDICATED ( I )	19.6	0.938	<del>16147</del>	13.66	2.999
MEASURED ( AF )	19.0	0.937	<del>16147</del>	13.83	3.025
MEASURED ( M )	19.0	0.937	16267	13.66	3.000
DIFFERENCE (M-I)	-0.6	-0.001	0.7%	-0.07	0.00
<b>LIMITS</b>	<b>± 2 ° C</b>	<b>± 0.005 atm</b>	<b>± 2.5 %</b>	<b>± 1.0 L/min</b>	<b>± 0.2 L/min</b>

As Found Data  
 Adjusted Data

Ko Audit Filter data      Weight: 0.11014      Serial #: CVK 2123

COMMENTS: Pass.

Replaced sample filter. Filter loaded @ 19%.

**Sample Head Inspection/Cleaning:**

**Large In Line Filter Inspection & Or Cleaning:**

# Calibration Report



Parameter SO<sub>2</sub>

Air Monitoring Network PAZA

## Station Information

Calibration Date	December 30, 2012	Previous Calibration	November 16, 2012
Station Number	3	Station Location	Smokey Heights
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
			<input type="checkbox"/> Other:
Start Time (MST)	12:45	End Time (MST)	16:09
Barometric Pressure	0.925 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	50.8 ppm	Cal Gas Cert Date	12/03/2014
Correction factor	0.031443	Cal Gas Cylinder #	LL107272
DACS make	CR3000	DACS serial No.	5238
DACS voltage range	0 - 5 volt	DACS channel #	6
	Before		After
Calculated slope	0.996995	Calculated slope	0.999174
Calculated intercept	1.983318	Calculated intercept	1.053338
Analyzer make	Teco 43i	Analyzer serial #	701120009

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	10.9		11.5	
coefficient	0.971		0.985	
Lamp Voltage	930	volts	930	volts
Chamber Temp	45	Deg C	45	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	668.1	mm Hg	670.8	mm Hg
Sample Flow	0.447	ccm	0.446	ccm
Lamp Intensity	89	%	89	%

## Calibration Data

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4995	0.0	0.00	0.5	N/A
4995	39.93	402.87	402.9	0.9998
4995	19.97	202.29	200.5	1.0090
4995	9.97	101.19	98.8	1.0240
4995	0.0	0.00	0.8	As Found Zero
4995	39.93	402.87	395.5	As Found Span
Average Correction Factor				1.0109

Calculated value of As Found Response: 395.487 ppm      Percent Change of As Found: 1.8%

	before calibration		after calibration	
Auto zero	0.4	ppb	0.2	ppb
Auto span	304.5	ppb	258.7	ppb

Notes: Slight span adjust

Calibration Performed By: Grover Christiansen

# Calibration Summary



Parameter SO2  
 Air Monitoring Network PAZA

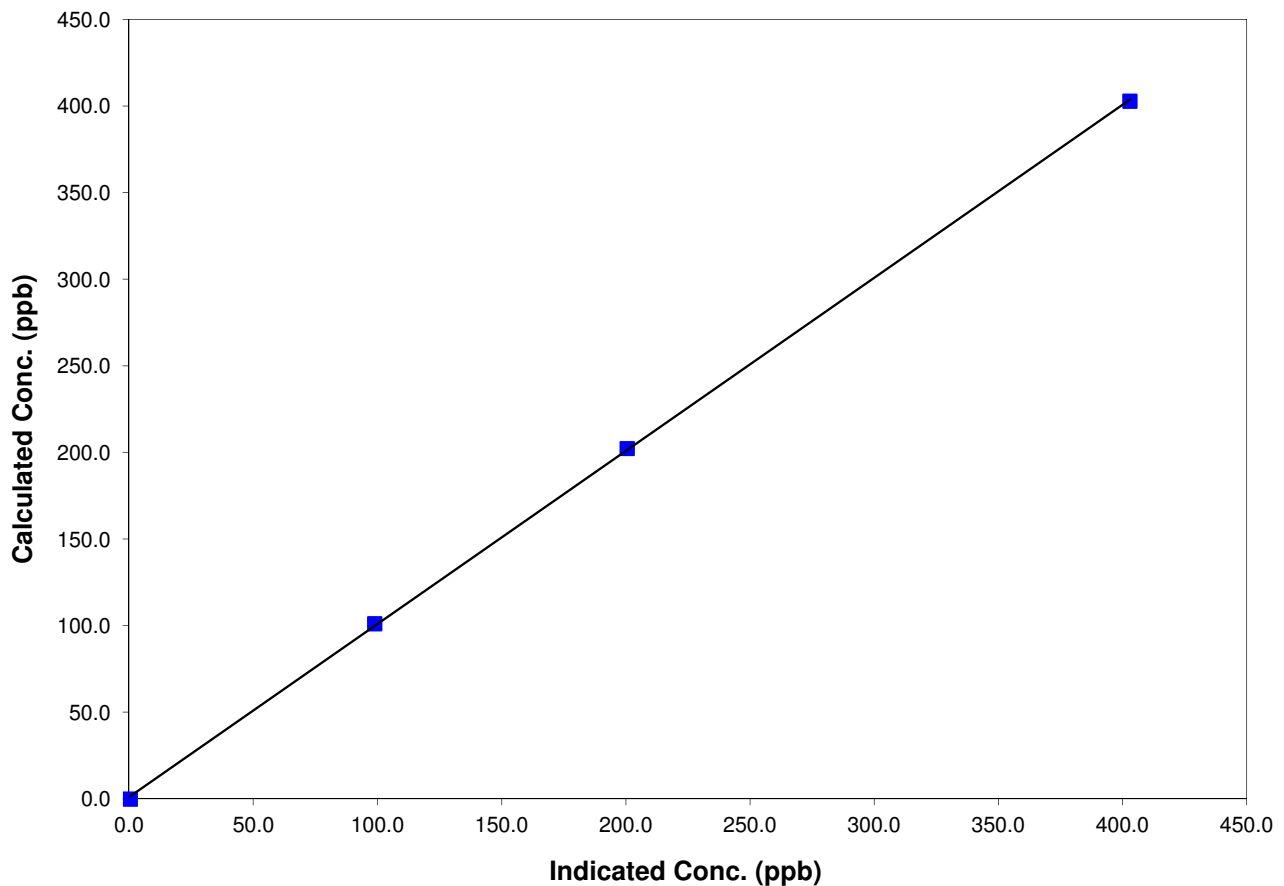
### Station Information

Calibration Date	December 30, 2012	Previous Calibration	November 16, 2012
Station Number	3	Station Location	Smokey Heights
Start Time (MST)	12:45	End Time (MST)	16:09
Analyzer make/model	Teco 43i	Analyzer serial #	701120009

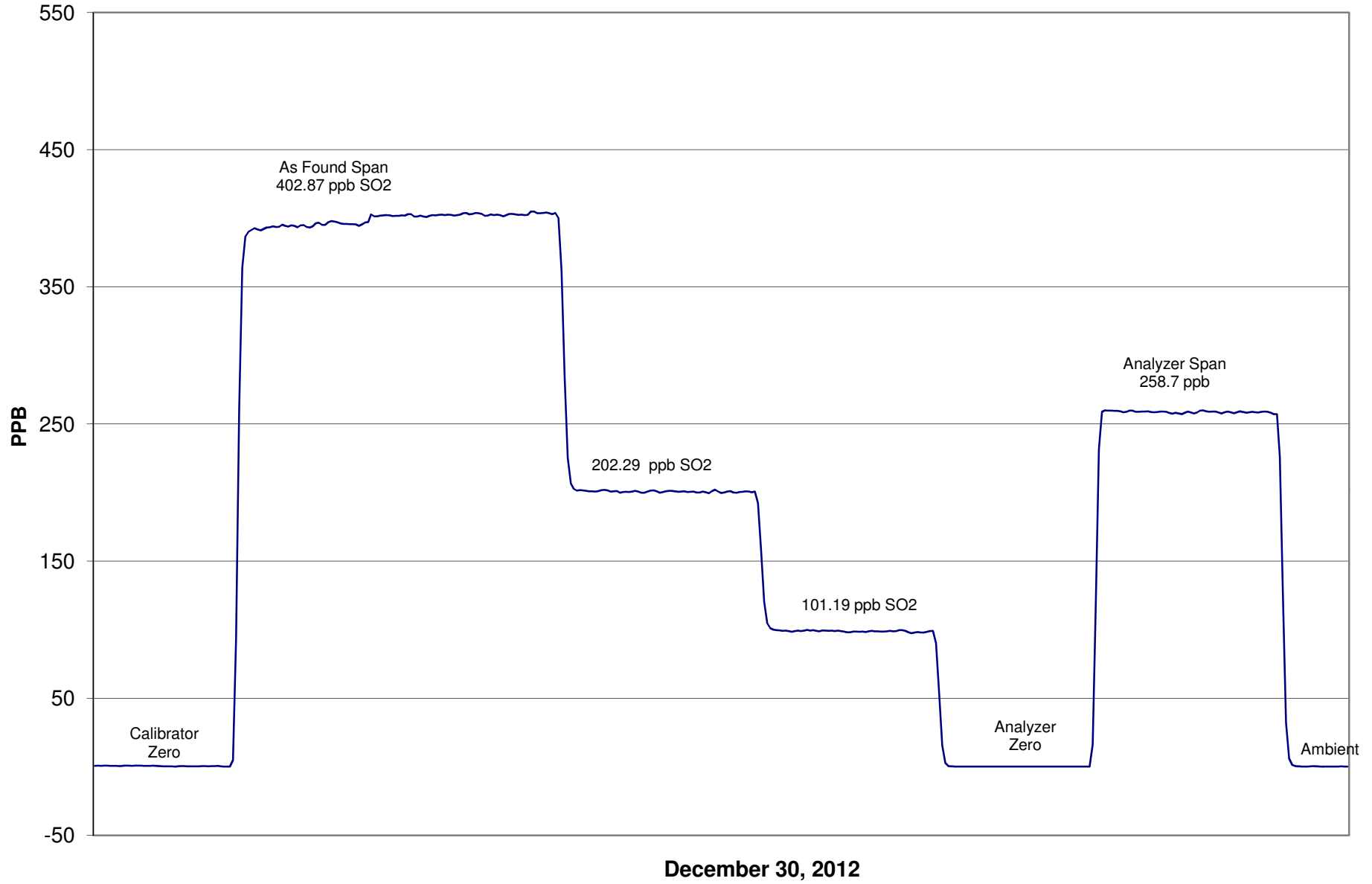
### Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.5	N/A	Correlation Coefficient	0.999936
402.9	402.9	0.9998		
202.3	200.5	1.0090		
101.2	98.8	1.0240	Slope	0.999174
			Intercept	1.053338

## SO2 Calibration Curve



# Smokey Heights SO<sub>2</sub> Calibration





# Calibration Report



Parameter TRS  
 Air Monitoring Network PAZA

### Station Information

Calibration Date	December 30, 2012	Previous Calibration	November 16, 2012
Station Number	3	Station Location	Smokey Heights
Reason:	<input type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input checked="" type="checkbox"/> Other:	Maintenance
Start Time (MST)	10:50	End Time (MST)	14:25
Barometric Pressure	0.925 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Conc	10.1 ppm	Cal Gas Expiry Date	11/05/2013
Correction factor	0.031443	Cal Gas Cylinder #	LL160692
DACS make	CR3000	DACS serial No.	5238
DACS voltage range	0 - 5 volt	DACS channel #	5
	<u>Before</u>		<u>After</u>
Calculated slope	0.995031	Calculated slope	1.000895
Calculated intercept	0.114921	Calculated intercept	0.065912
Analyzer make	TEI Model 43C	Analyzer serial #	0436610005

	before		after	
Concentration range	100	ppb	100	ppb
Background	18.6	ppb	18.7	ppb
coefficient	0.951		0.951	
Lamp Voltage	821	volts	821	volts
Chamber Temp	43.5	Deg C	43.5	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	554.4	mm Hg	552.4	mm Hg
Sample Flow	0.591	ccm	0.597	ccm
Lamp Intensity	35,991	mv	35,265	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)
4995	0.0	0.00	0.2	N/A
4995	39.94	80.12	80.1	0.9997
4995	19.97	40.22	39.8	1.0102
8995	8.96	10.05	9.9	1.0148
4995	0.0	0.00	0.2	As Found Zero
4995	39.94	80.12	80.1	As Found Span
Average Correction Factor				1.0082

Calculated value of As Found Response: 79.69 ppm      Percent Change of As Found: **0.5%**

	before calibration		after calibration	
Auto zero	0.0	ppm	0.4	ppm
Auto span	52.9	ppm	31.5	ppm

Notes: 80% confirmed, replace oxidizer thermocouple. No adjustment made.  
SO2 scrubber checked after last cal point.

Calibration Performed By: Grover Christiansen

# Calibration Summary



Parameter                  TRS     
 Air Monitoring Network    PAZA   

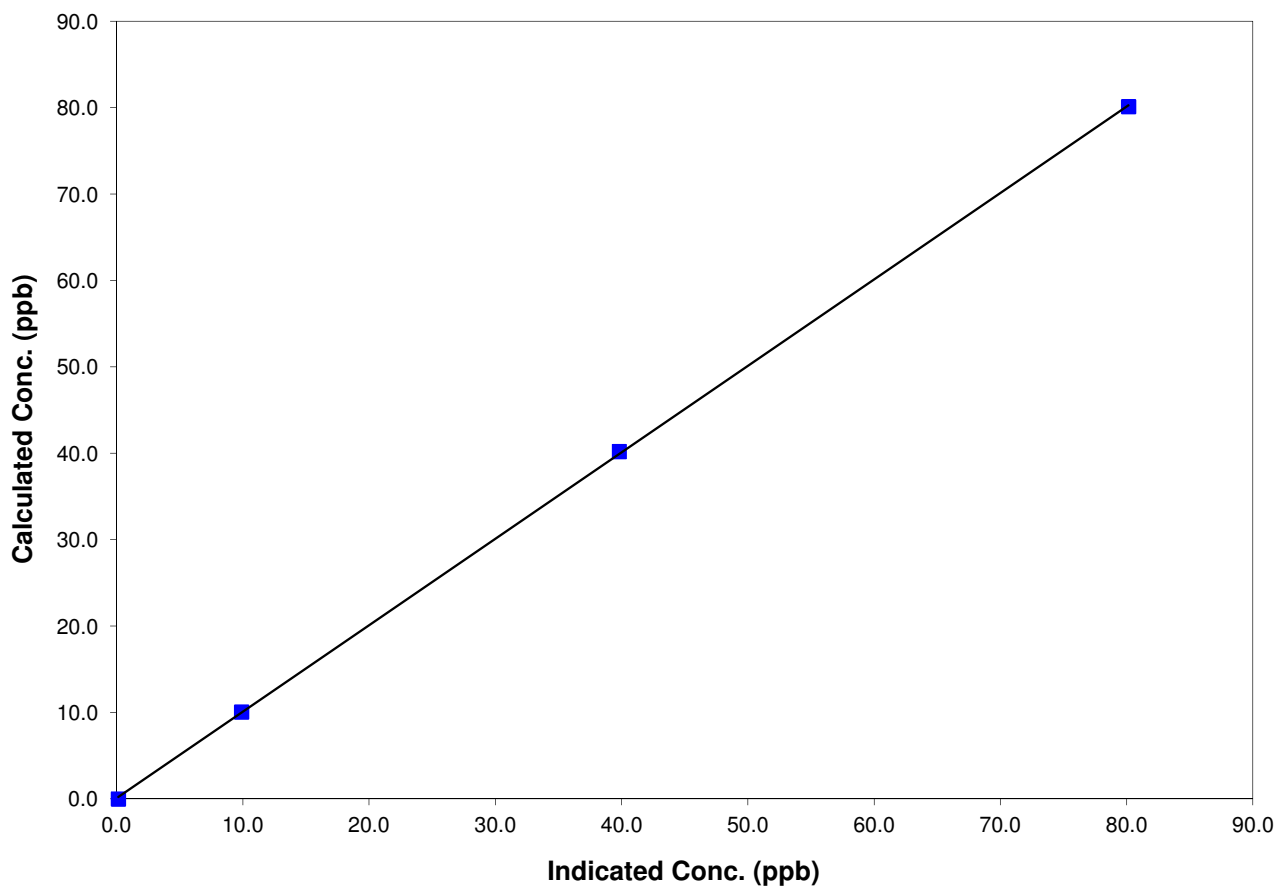
## Station Information

Calibration Date	<u>December 30, 2012</u>	Previous Calibration	<u>November 16, 2012</u>
Station Number	<u>3</u>	Station Location	<u>Smokey Heights</u>
Start Time (MST)	<u>10:50</u>	End Time (MST)	<u>14:25</u>
Analyzer make/model	<u>TEI Model 43C</u>	Analyzer serial #	<u>0436610005</u>

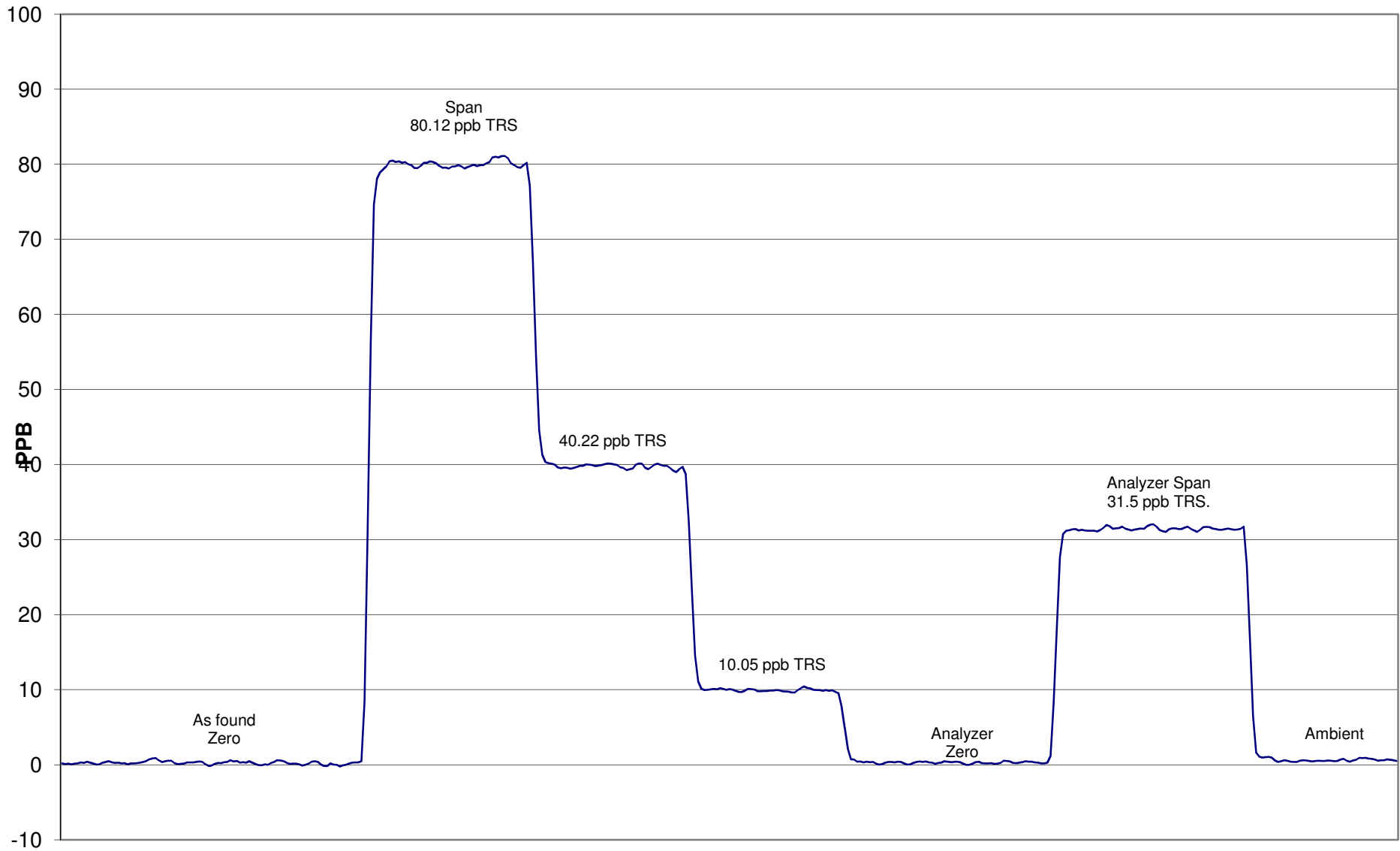
## Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.2	N/A	Correlation Coefficient	0.999956
80.1	80.1	0.9997		
40.2	39.8	1.0102	Slope	1.000895
10.1	9.9	1.0148		
			Intercept	0.065912

## TRS Calibration Curve



# Smokey Heights TRS Calibration



December 30, 2012

# Calibration Report

Parameter SO2  
 Air Monitoring Network PAZA



## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Reason:	<b>Routine</b>	Install	Removal
		Other:	
Start Time (MST)	14:40	End Time (MST)	17:44
Barometric Pressure	0.911 atm	Station Temperature	23.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
Cal Gas Concentration	10.8 ppm	Cal Gas Expiry Date	28/09/2012
Gas Cert Reference	FF14871		
DACS make	CR3000	DACS serial No.	5237
DACS voltage range	0 - 5 volt	DACS channel #	5
	<u>Before</u>		<u>After</u>
DACS Scale High	100	DACS slope	100
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.009577	Calculated slope	1.021843
Calculated intercept	-0.124290	Calculated intercept	-0.256148
Analyzer make	TEI Model 43i-TLE	Analyzer serial #	713021137

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	2.41		2.39	
Coefficient	1.071		1.071	
PMT	-767.6	V	-767.6	V
UV Lamp Voltage	1063	V	1063	V
Chamber Temp	45.2	Deg C	45.2	Deg C
Pressure	669.1	mm Hg	675.2	mm Hg
Sample Flow	0.486	LPM	0.492	LPM
Lamp Intesity	97%	%	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)
4995	0.00	0.0	0.4	N/A
4995	39.93	85.7	84.1	1.0182
4995	19.97	43.0	42.3	1.0166
4995	9.97	21.5	21.2	1.0157
4995	0.00	0.0	0.4	As found zero
4995	39.93	85.7	84.1	As found span
Average Correction Factor				1.0169

Calculated value of As Found Response: 84.434 ppm      Percent Change of As Found: 1.4%

	before calibration		after calibration	
Auto zero	0.3	ppb	0.1	ppb
Auto span	58.5	ppb	58.7	ppb

Notes: No adjustments made.

Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter SO2

Air Monitoring Network PAZA



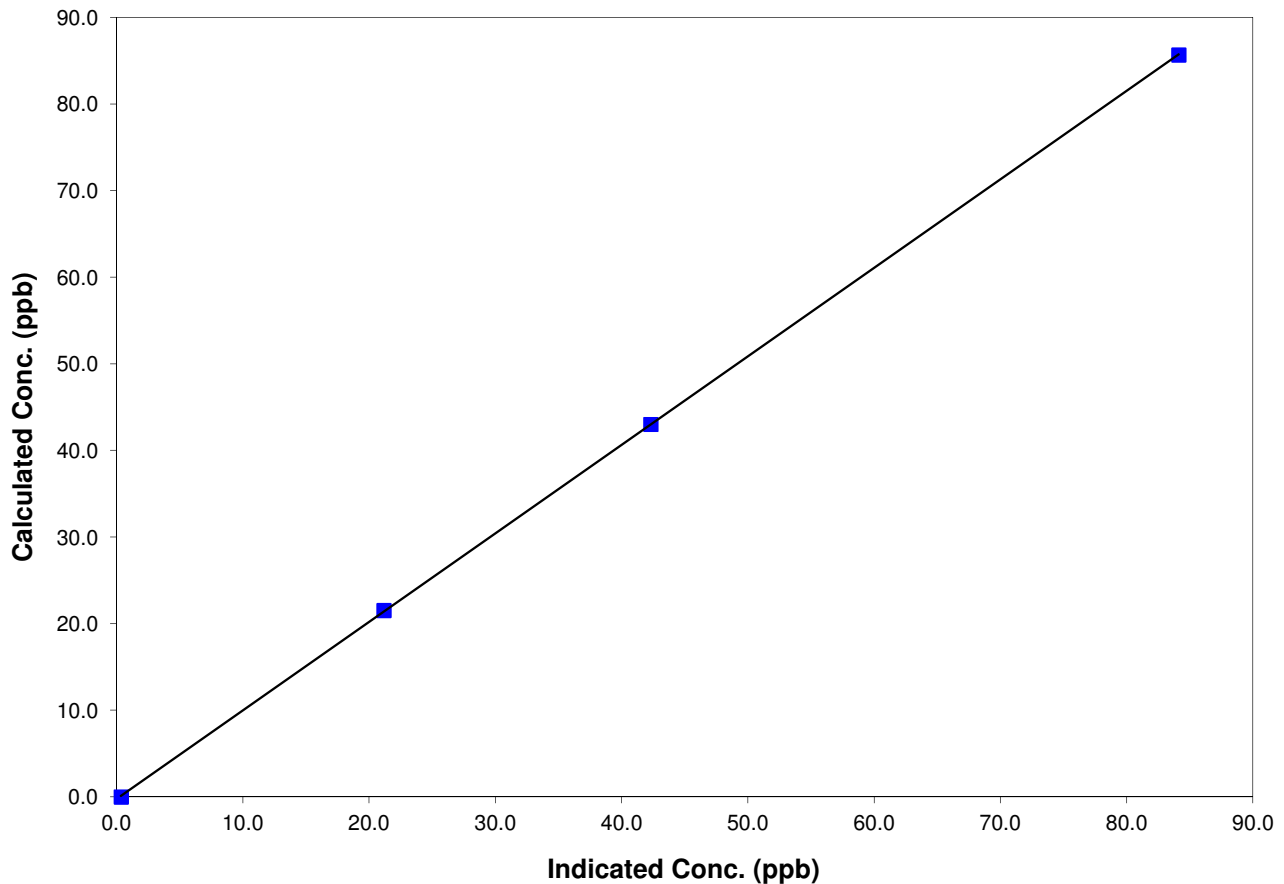
## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	14:40	End Time (MST)	17:44
Analyzer make/model	TEI Model 43i-TLE	Analyzer serial #	713021137

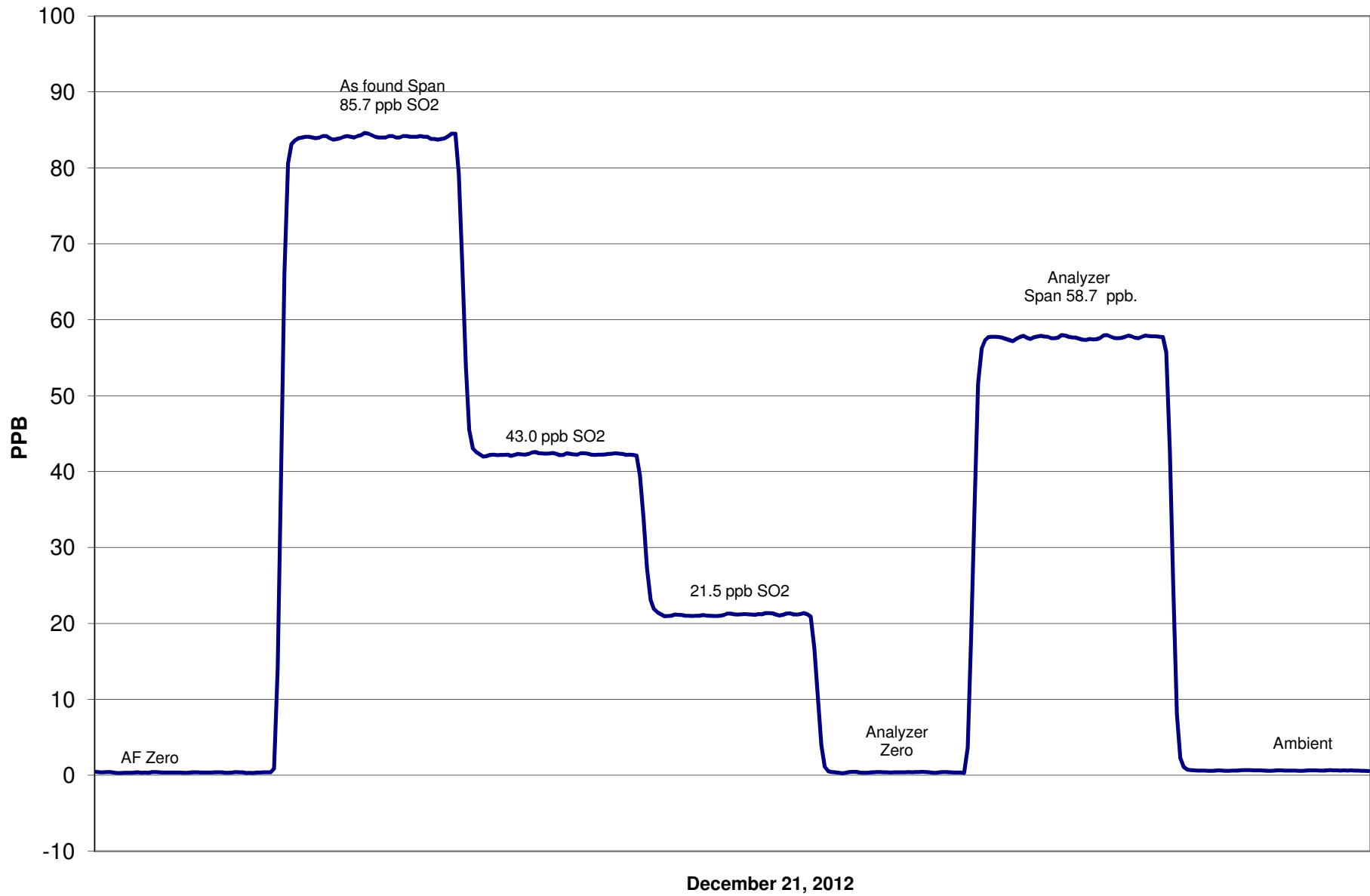
## Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.4	N/A	Correlation Coefficient	0.999992
85.7	84.1	1.0182		
43.0	42.3	1.0166		
21.5	21.2	1.0157		
			Slope	1.021843
			Intercept	-0.256148

## SO2 Calibration Curve



# SO2 Calibration



# Calibration Report

Parameter

**NO<sub>x</sub>-NO-NO<sub>2</sub>**

Air Monitoring Network

**PAZA**



## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Reason:	<b>Routine</b> Installation Removal Other:		
Start Time (MST)	9:20	End Time (MST)	15:03
Barometric Pressure	0.912 Atm	Station Temperature	23.0 Deg C
Calibrator	EnviroNics	Serial Number	2844
NO Cal Gas Conc	51.2 ppm	Cal Gas Expiry Date	March 12, 2014
NO <sub>x</sub> Cal Gas Conc	51.2 ppm	Cal Gas Serial #	LL107272

## DACS Information

DACS make	CR3000	DACS serial No.	5237	
	<b>Parameter</b>	<b>NO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>NO</b>
Before	Data Slope	0.998512	1.001873	1.001147
	Data Offset	0.509575	1.426932	1.455315
After	Data Slope	0.993215	1.000826	0.999397
	Data Offset	-0.242782	0.845194	1.432065
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	
<b>Test Point</b>	<b>before</b>		<b>after</b>	
Concentration range	0-500	ppb	0-500	ppb
NO offset	2.1	mV	2.1	mV
NO <sub>x</sub> bkgnd	2.3	mV	2.3	mV
NO coefficient	1.410		1.400	
NO <sub>x</sub> coefficient	0.998		1.002	
NO <sub>2</sub> conv temp	326.0	Deg C	326.0	Deg C
PMT Temp	-2.8	Deg C	-2.8	Deg C
PMT Volt	-671.9	mV	-671.9	mV
R Cell Press	170.8	in Hg	172.6	in Hg
Sample Flow	0.793	ccm	0,881	ccm

Notes: No adjustment.

# Calibration Report

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



## Station Information

Calibration Date: December 21, 2012 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	4995	0.00	0.0	0.0	0.0	0.0	-0.2	0.0	N/A	N/A	
1	4995	39.94	406.1	406.1	0.0	405.1	405.5	-1.2	1.0025	1.0015	
2	4995	19.97	203.9	203.9	0.0	203.2	202.1	0.2	1.0033	1.0087	
3	4995	9.97	102.0	102.0	0.0	99.7	99.2	0.4	1.0228	1.0279	
AFZ	4995	0.00	0.0	0.0	0.0	0.0	-0.2	0.0	0.0000	0.0000	
AFS	4995	39.94	406.1	406.1	0.8	405.1	405.5	-1.2	1.0025	1.0015	
									Average Correction Factor	1.0095	1.0127

As Found Concentrations: NO<sub>x</sub>= 406.6 NO= 407.1 As Found Percent Change NO<sub>x</sub>= 0.1% NO= 0.2%

## GPT Calibration Data

Dilution Flow 4995 ccm Source Gas Flow 39.94 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	-0.2	-0.2	0.0	0.0	-0.2	0.0	N/A	N/A	N/A	N/A	
NO point	404.7	404.7	0.0	406.0	404.7	0.5	0.9970	1.0000	N/A	N/A	
300	404.7	105.1	299.7	407.5	105.1	301.9	0.9932	1.0000	0.9928	100.7%	
200	404.7	200.6	204.1	407.2	200.6	205.7	0.9940	1.0000	0.9924	100.8%	
100	404.7	297.4	107.3	406.7	297.4	108.7	0.9951	1.0000	0.9871	101.3%	
							Average Correction Factor	0.9941	1.0000	0.9907	100.9%

## AIC Data

Parameter	Previous calibration				Current calibration			
	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	0.0	-0.1	0.0	ppb	-0.1	-0.1	-0.1	ppb
Auto span	205.5	203.2	1.6	ppb	219.5	217.9	0.9	ppb

Calibration Performed By: Grover Christiansen



# Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network PAZA



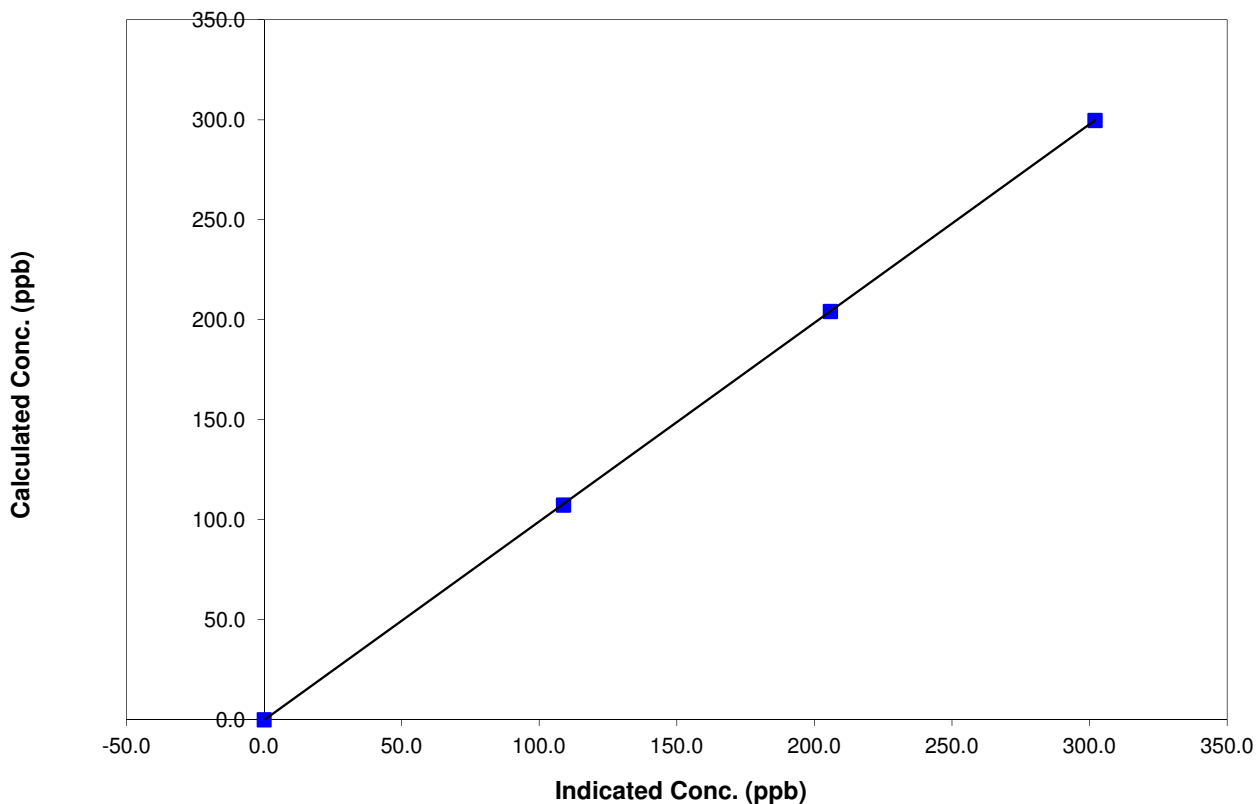
## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	9:20	End Time (MST)	15:03
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	0.999995
299.7	301.9	0.9928		
204.1	205.7	0.9924		
107.3	108.7	0.9871	Slope	0.993215
			Intercept	-0.242782

### NO<sub>2</sub> Calibration Curve



# Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network PAZA



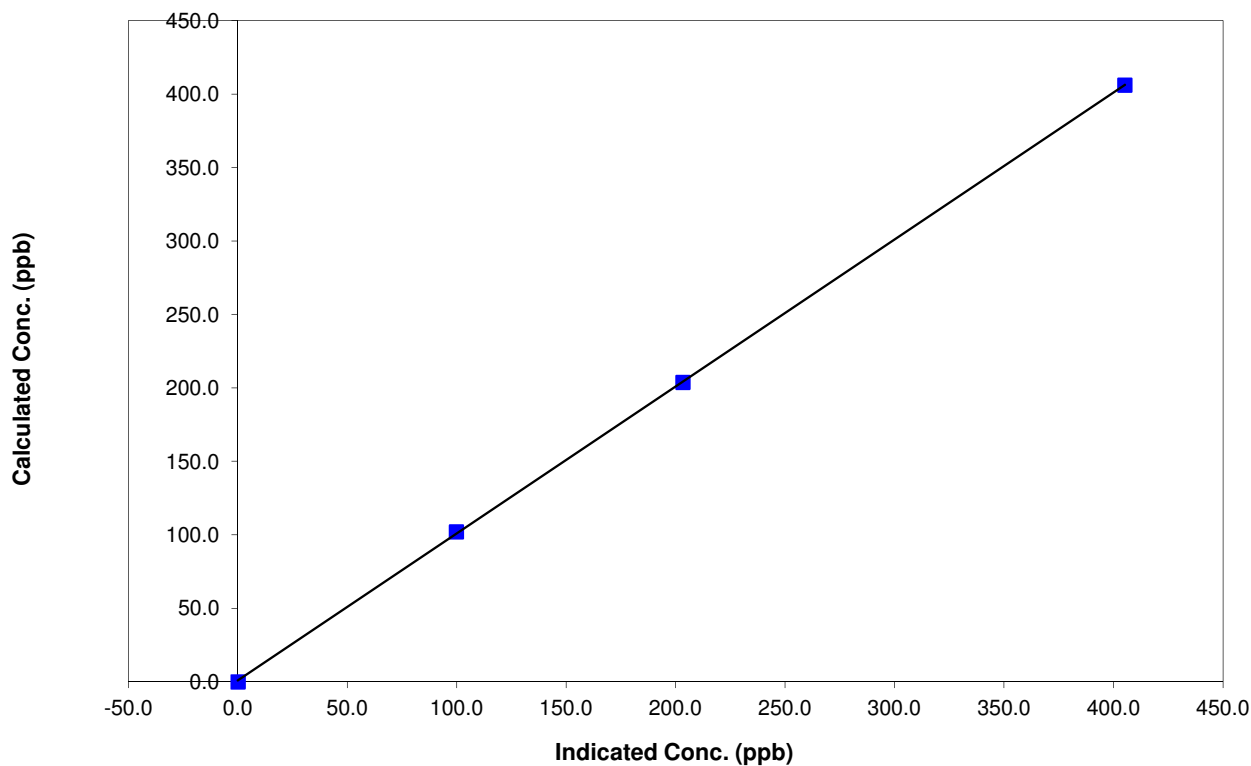
## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	9:20	End Time (MST)	15:03
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	0.999971
406.1	405.1	1.0025		
203.9	203.2	1.0033		
102.0	99.7	1.0228		
			Slope	1.000826
			Intercept	0.845194

## NO<sub>x</sub> Calibration Curve



# Calibration Summary

Parameter NO

Air Monitoring Network PAZA



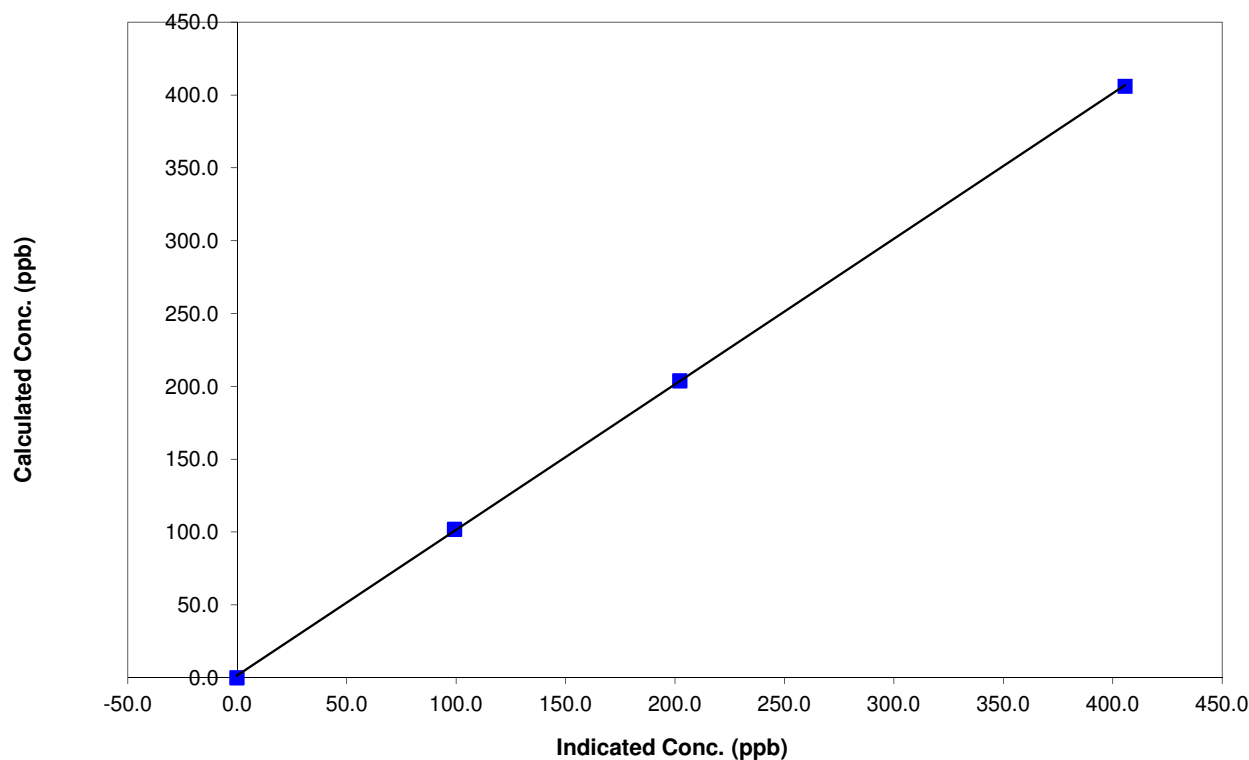
## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	9:20	End Time (MST)	15:03
Analyzer make	TEI 42i	Analyzer serial #	906535068

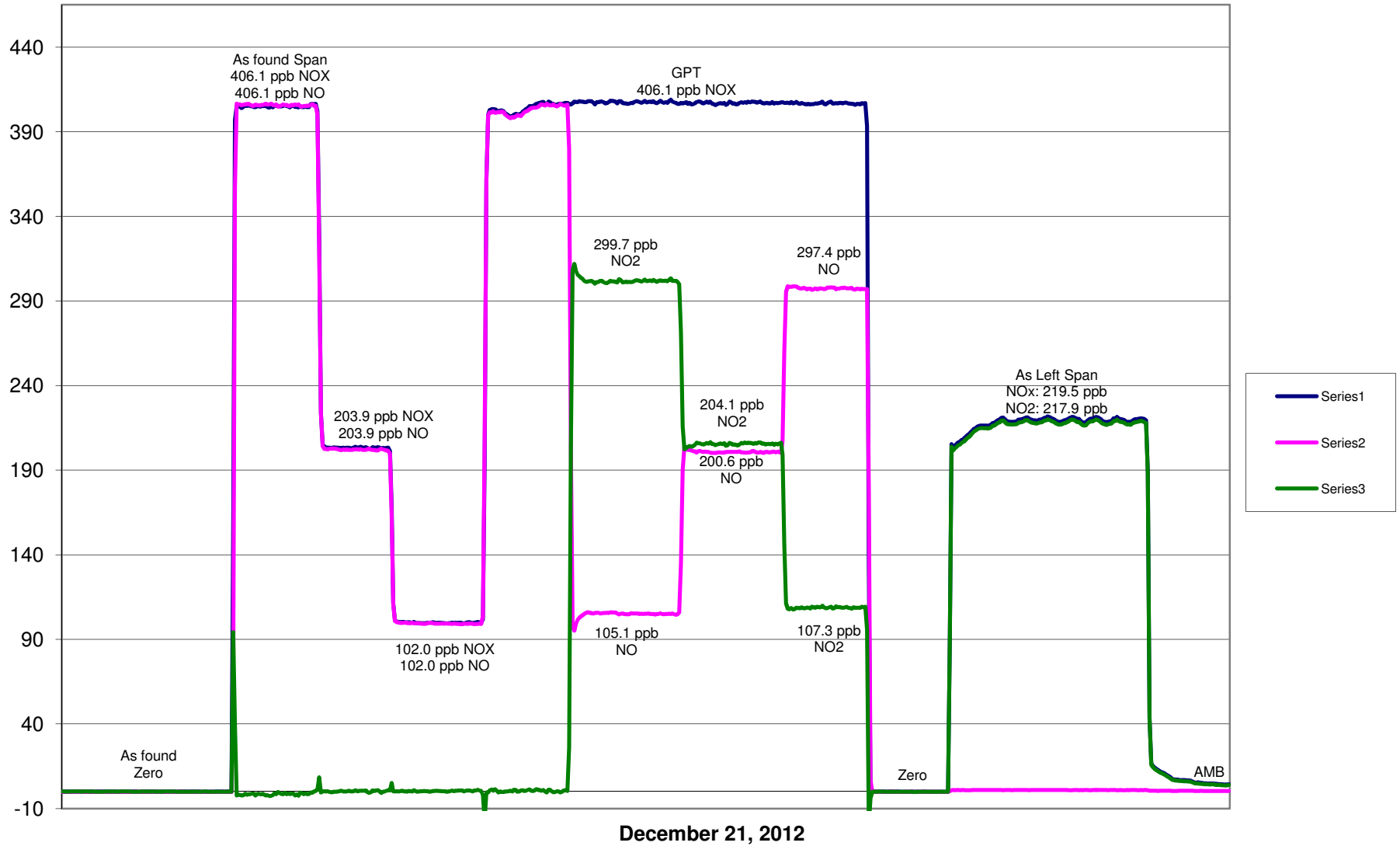
## Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.2	N/A	Correlation Coefficient	0.999955
406.1	405.5	1.0015		
203.9	202.1	1.0087		
102.0	99.2	1.0279	Slope	0.999397
			Intercept	1.432065

## NO Calibration Curve



# PAZA Beaverlodge NO<sub>x</sub> Calibration



# Calibration Report



Parameter 03

Air Monitoring Network PAZA

## Station Information

Calibration Date	December 21, 2012	Previous Calibration	November 14, 2012
Station Number	4	Station Location	Beaverlodge
Reason:	<b>Routine</b>	Install	Removal
		Other:	
Start Time (MST)	13:00:00 PM	End Time (MST)	15:45
Barometric Pressure	0.912 atm	Station Temperature	23.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	2844
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	0.993586	Calculated slope	0.992002
Calculated intercept	0.206550	Calculated intercept	0.202591
Analyzer make	Teco 49C	Analyzer serial #	49C-76443-383

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
offset	-1.50	ppb	-1.50	ppb
slope	1.036		1.036	
Lamp temp	56.4	mV	56.4	mV
Lamp Intensity A/B	50574/54600	mV	50750/54862	mV
Pressure	697.8	mm Hg	692.3	mm Hg
Flow A	0.77	ccm	0.767	ccm
Flow B	0.720	ccm	0.717	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)
5035	0.0	0.0	0.1	N/A
5035	0.3	299.7	302.4	0.9909
5035	0.2	204.1	204.7	0.9968
5035	0.1	107.3	108.0	0.9938
5035	0.0	0.0	0.1	As found zero
5035	0.3	299.7	302.4	As found span
Average Correction Factor				0.9939

Calculated value of As Found Response: 300.7 ppm      Percent Change of As Found: 0.3%

	before calibration		after calibration	
Auto zero	0.4	ppb	0.2	ppb
Auto span	110.0	ppb	115.1	ppb

Notes: No adjust

Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter 03  
Air Monitoring Network PAZA

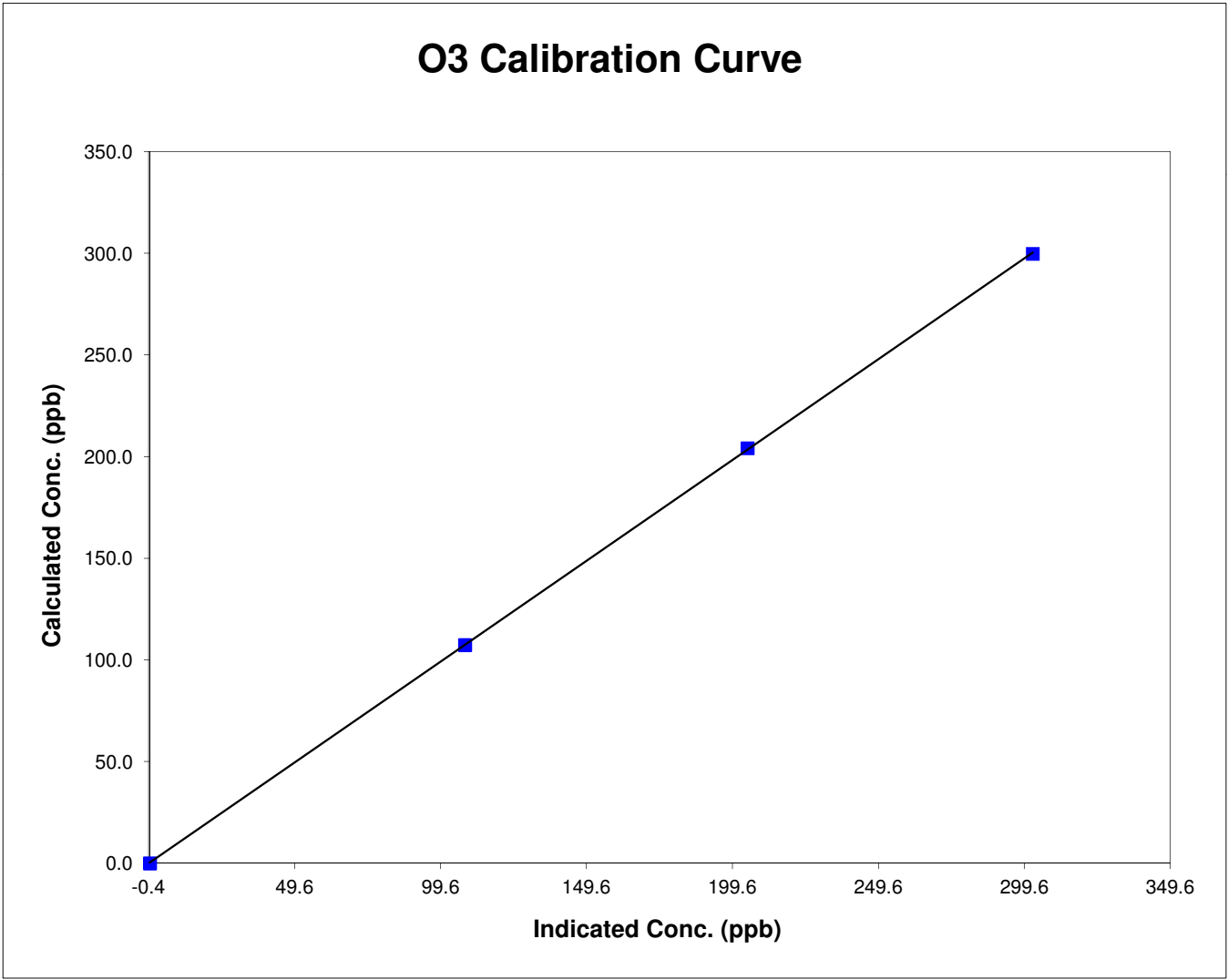


### Station Information

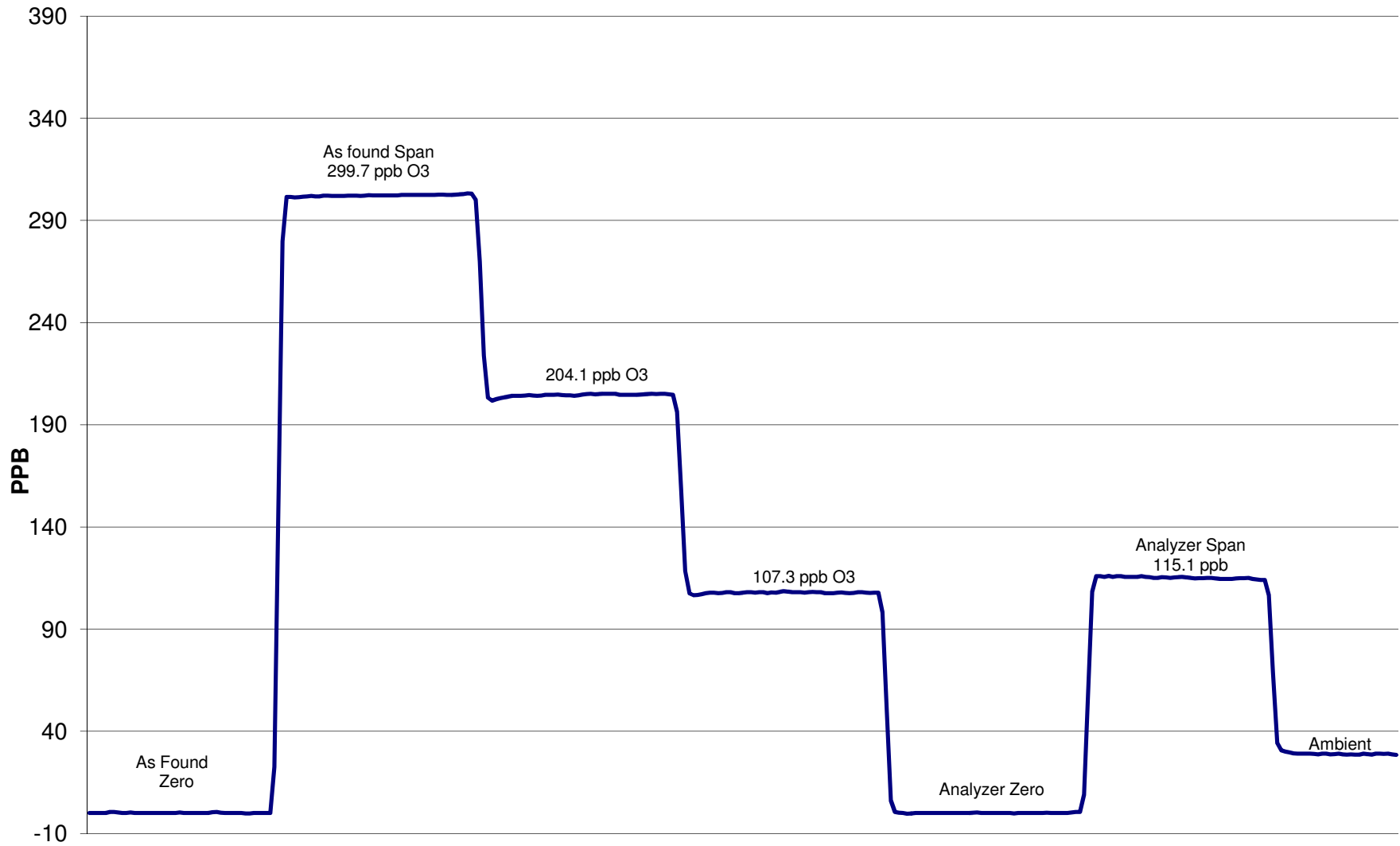
Calibration Date	<u>December 21, 2012</u>	Previous Calibration	<u>November 14, 2012</u>
Station Number	<u>4</u>	Station Location	<u>Beaverlodge</u>
Start Time (MST)	<u>13:00:00 PM</u>	End Time (MST)	<u>15:45</u>
Analyzer make/model	<u>Teco 49C</u>	Analyzer serial #	<u>49C-76443-383</u>

### Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	NA	Correlation Coefficient	0.999981
299.7	302.4	0.9909		
204.1	204.7	0.9968		
107.3	108.0	0.9938	Slope	0.992002
			Intercept	0.202591



# O3 Calibration



December 21, 2012

# FDMS TEOM PM2.5 AUDIT



STATION: BeaverLodge  
 LOCATION: PASZA - Grande Prairie

OPERATOR: Grover Christiansen  
 DATE: 21-Dec-12

MONITOR INFO / PARAMETER VALUES:

Make/Model	TEOM AB
Configuration	PM2.5
Serial Number	AMU1649
Site Number	4
Inlet Type	PM 10 / SCC
FAdj. Main Setting	1.000
FAdj. Aux. Setting	1.000
T-Case Indicated / Set Point	30/30
T-Air Indicated / Set Point	30/30
T-Cap Indicated / Set Point	30/30
Splitter Assembly Alignment (cm)	15.5

( vs. specified depth of 15.5 cm from top of flow tube to top of concentric 1/2 in. tube )

RECENT CALIBRATION AND AUDIT HISTORY

Previous Audit	16-Aug-12
Previous Calibration	

PUMP CAPACITY CHECK *	PASS
-----------------------	------

\* capacity test or pump on timed test utilized to verify pump integrity  
 "FAIL" indicates that pump requires service.

LEAK CHECK	Indicated Flow (lpm)	
	Main	Auxiliary
PUMP ON	-0.10	0.10
PUMP OFF	0.02	0.02
NET	-0.12	0.08
<b>LIMITS</b>	<b>&lt;0.15</b>	<b>&lt;0.60</b>

	Ambient Temp. (°C)	Ambient Pres. (atm)	Ko *	Bypass flow (lpm)	Sample flow (lpm)
SET POINT ( S )	na	na	14287	13.67	3.00
INDICATED ( I )	-22.6	0.922	<del>XXXXXXXXXX</del>	13.68	3.00
MEASURED ( AF )	-22.7	0.923	<del>XXXXXXXXXX</del>	13.69	3.01
MEASURED ( M )	-22.7	0.923	14196	13.69	3.01
DIFFERENCE (M-I)	-0.1	0.001	-0.6%	0.01	0.01
<b>LIMITS</b>	<b>± 2 ° C</b>	<b>± 0.005 atm</b>	<b>± 2.5 %</b>	<b>± 1.0 L/min</b>	<b>± 0.2 L/min</b>

As Found Data  
 Adjusted Data

Ko Audit Filter data      Weight: 0.11477      Serial #: CVK 3532

COMMENTS:      PASS

Sample heads were cleaned.

Reference leak check: Main: -0.11 Aux: 0.12

**PASS**

**Sample Head Inspection Or Cleaning:**      **TEOM / FDMS IN LINE FILTER INSPECTION OR REPLACI**



# Calibration Report



Parameter SO2

Air Monitoring Network PAZA

## Station Information

Calibration Date	December 14, 2012	Previous Calibration	November 3, 2012
Station Number	6	Station Location	Valleyview
Reason:	<b>Routine</b>	Install	Removal
		Other:	
Start Time (MST)	11:00	End Time (MST)	14:30
Barometric Pressure	702.00 mmHg	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	3016
Cal Gas Concentration	50.8 ppm	Cal Gas Cert Date	12/03/2013
Gas Cylinder Num.	LL107272	Cal gas Exp. Date	12/03/2014
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	0.992296	Calculated slope	0.984224
Calculated intercept	1.685774	Calculated intercept	2.989262
Analyzer make	TEI 45C	Analyzer serial #	45C-57531-313

	before		after	
Concentration range	0 - 1000	ppb	0 - 1000	ppb
Background	34		35.9	
Coefficient	0.882		0.882	
UV Lamp Voltage	982	LPM	982	LPM
Chamber Temp	43.9	V	43.9	V
Perm Gas Temp	32.3	C	32.3	C
Pressure	589.3	in Hg	597.8	in Hg
Sample Flow	0.550	LPM	0.555	LPM
Lamp Intensity	48083	Hz	48076	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)
4995	0.00	0.0	-0.3	N/A
4995	39.94	403.0	408.2	0.9872
4995	19.97	202.3	199.6	1.0134
4995	9.94	100.9	97.8	1.0321
4995	0.00	0.0	-0.3	As found zero
4995	39.94	403.0	408.2	As found span
Average Correction Factor				1.0109

Calculated value of As Found Response: 407.0 ppm      Percent Change of As Found: -1.0%

	before calibration		after calibration	
Auto zero	0.0	ppm	0.0	ppm
Auto span	160.1	ppm	165.3	ppm

Notes: No adjustment.

Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter SO2

Air Monitoring Network PAZA



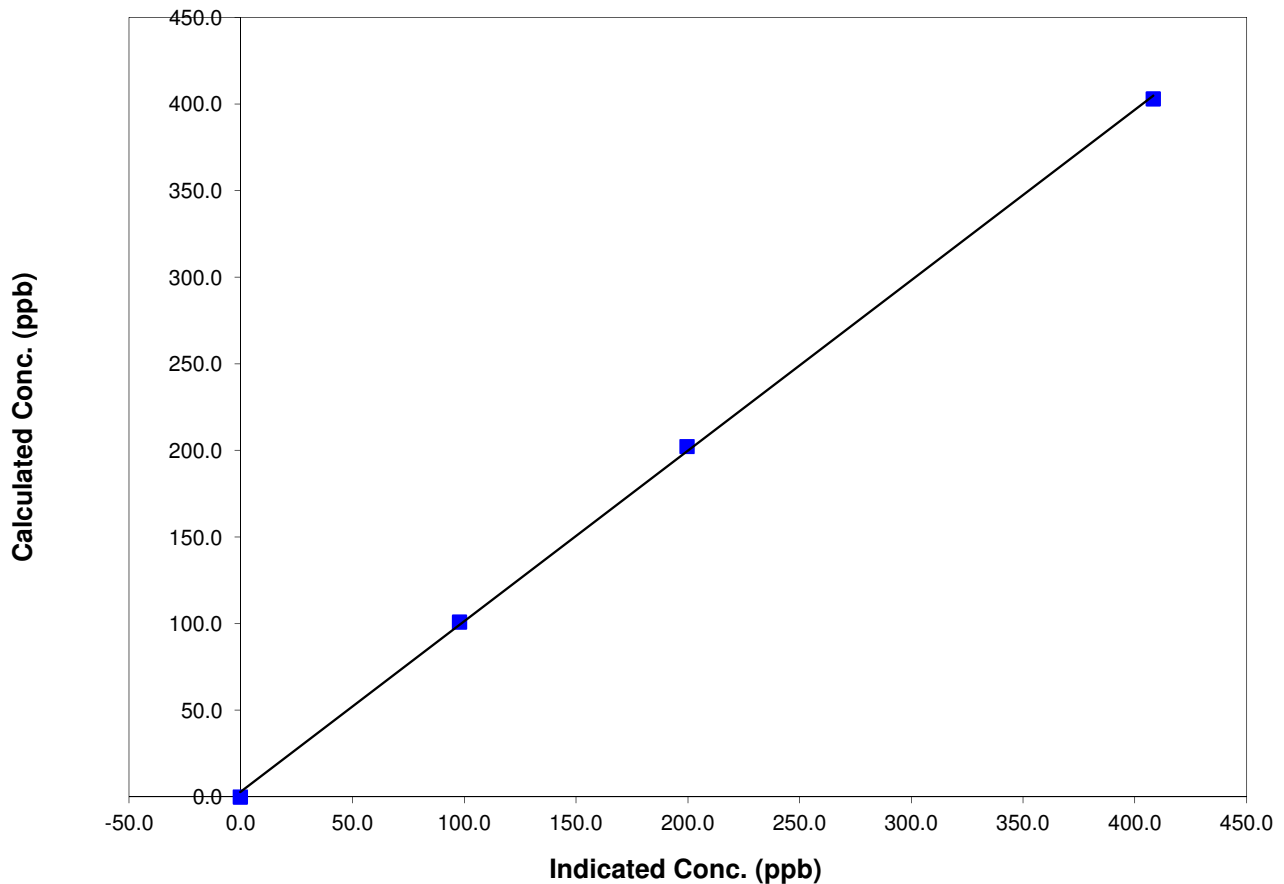
## Station Information

Calibration Date	December 14, 2012	Previous Calibration	November 3, 2012
Station Number	6	Station Location	Valleyview
Start Time (MST)	11:00	End Time (MST)	14:42
Analyzer make/model	TEI 45C	Analyzer serial #	45C-57531-313

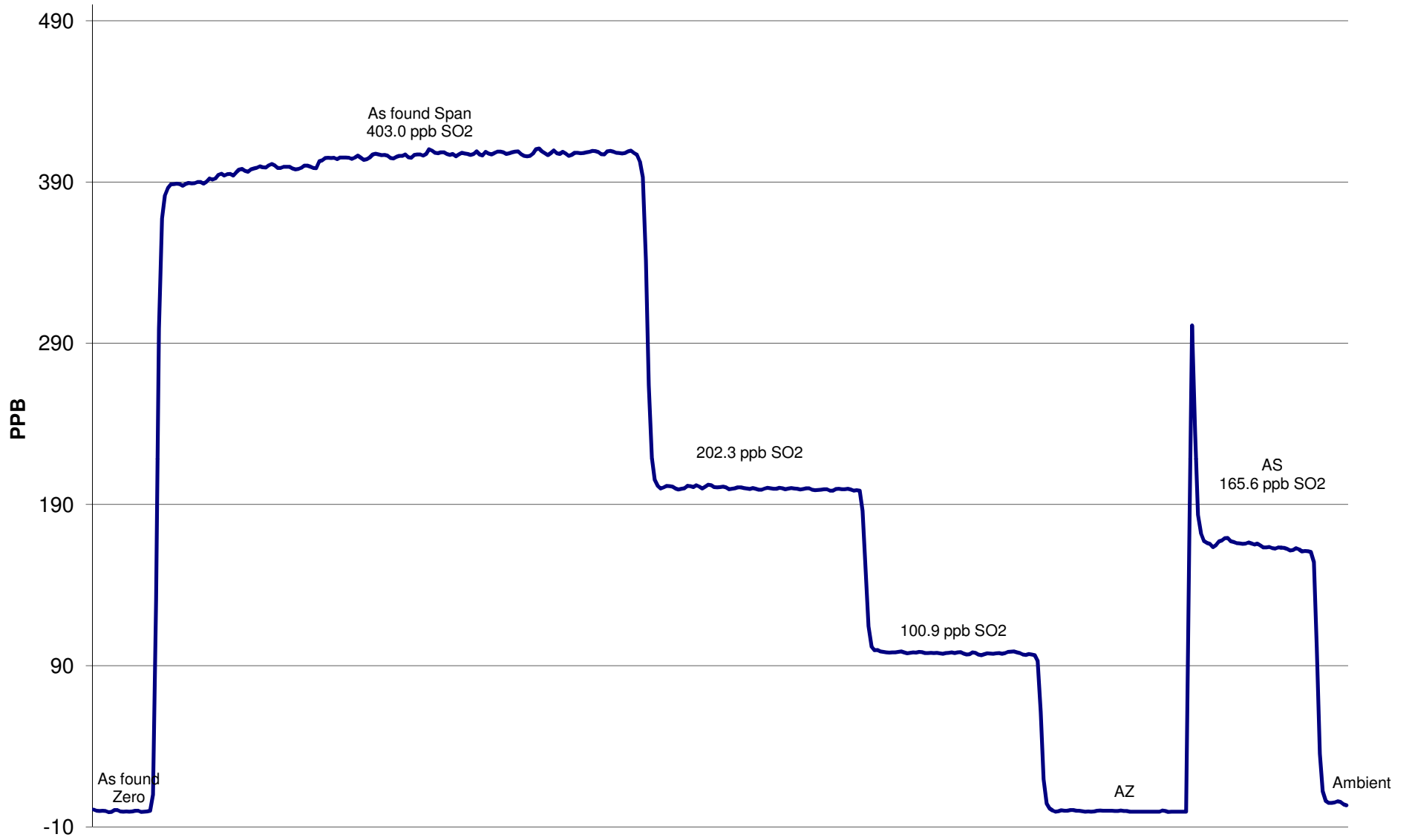
## Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.3	N/A	Correlation Coefficient	0.999757
403.0	408.2	0.9872		
202.3	199.6	1.0134	Slope	0.984224
100.9	97.8	1.0321		
			Intercept	2.989262

### SO2 Calibration Curve



# SO2 Calibration



December 14, 2012

# Calibration Report



Parameter H2S

Air Monitoring Network PAZA

### Station Information

Calibration Date	December 14, 2012	Previous Calibration	November 3, 2012
Station Number	6	Station Location	Valleyview
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input type="checkbox"/> Other:	
Start Time (MST)	9:00	End Time (MST)	12:21
Barometric Pressure	702.00 mm	Station Temperature	21.0 Deg C
Calibrator	EnviroNics 6100	Serial Number	LL160692
Cal Gas Concentration	10.1 ppm	Cal Gas Expiry Date	11/05/2013
Gas Cert Reference	15/05/2012		
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	0.995635	Calculated slope	0.978110
Calculated intercept	0.018608	Calculated intercept	0.149549
Analyzer make	TEI Model 43i - APSCB	Analyzer serial #	701120010

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Back Ground	7.9	ppb	7.9	ppb
Coefficient	1.040		1.040	
Lamp Voltage	790	V	791	V
Chamber Temp	45.1	c	45.1	c
Perm Oven Temp	44.33	c	44.33	c
Pressure	602.70	mm Hg	599.10	mm Hg
Sample Flow	0.408	ccm	0.406	ccm
Lamp Intensity	92.0	%	92.0	%

### 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)
4995	0.00	0.0	0.0	N/A
4995	39.95	80.1	81.9	0.9785
4995	19.97	40.2	40.8	0.9868
8979	8.97	10.1	10.1	1.0024
4995	0.00	0.0	0.0	As found zero
4995	39.95	80.1	81.9	As found span
Average Correction Factor				0.9893

Calculated value of As Found Response: 81.52 ppm      Percent Change of As Found: -1.7%

	before calibration		after calibration	
Auto zero	0.0	ppm	0.2	ppm
Auto span	70.6	ppm	72.2	ppm

Notes: No adjust 80% point.

\_\_\_\_\_

\_\_\_\_\_

Calibration Performed By: Grover Christiansen

### Calibration Summary

Parameter         H2S          
 Air Monitoring Network                     PAZA                    

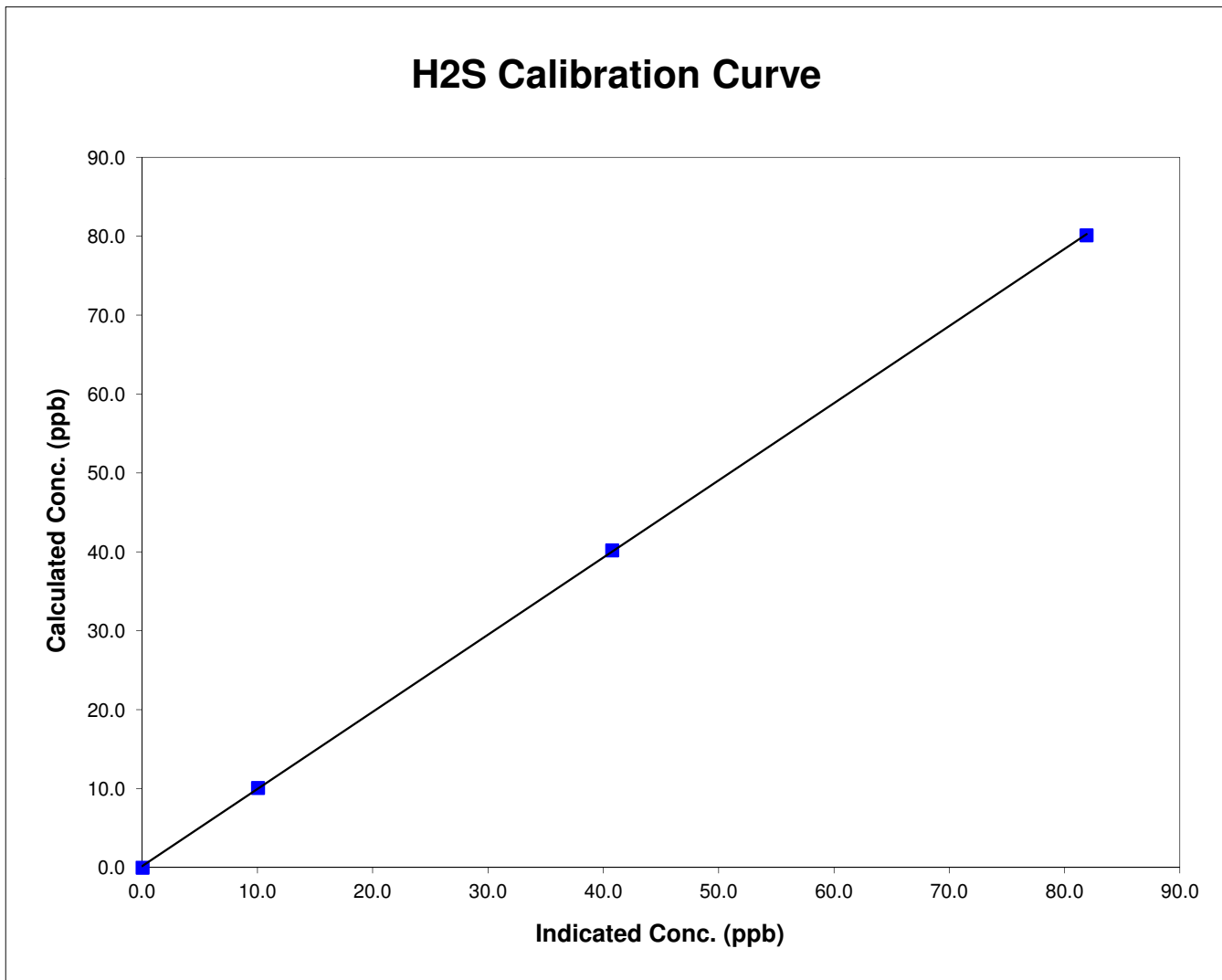


#### Station Information

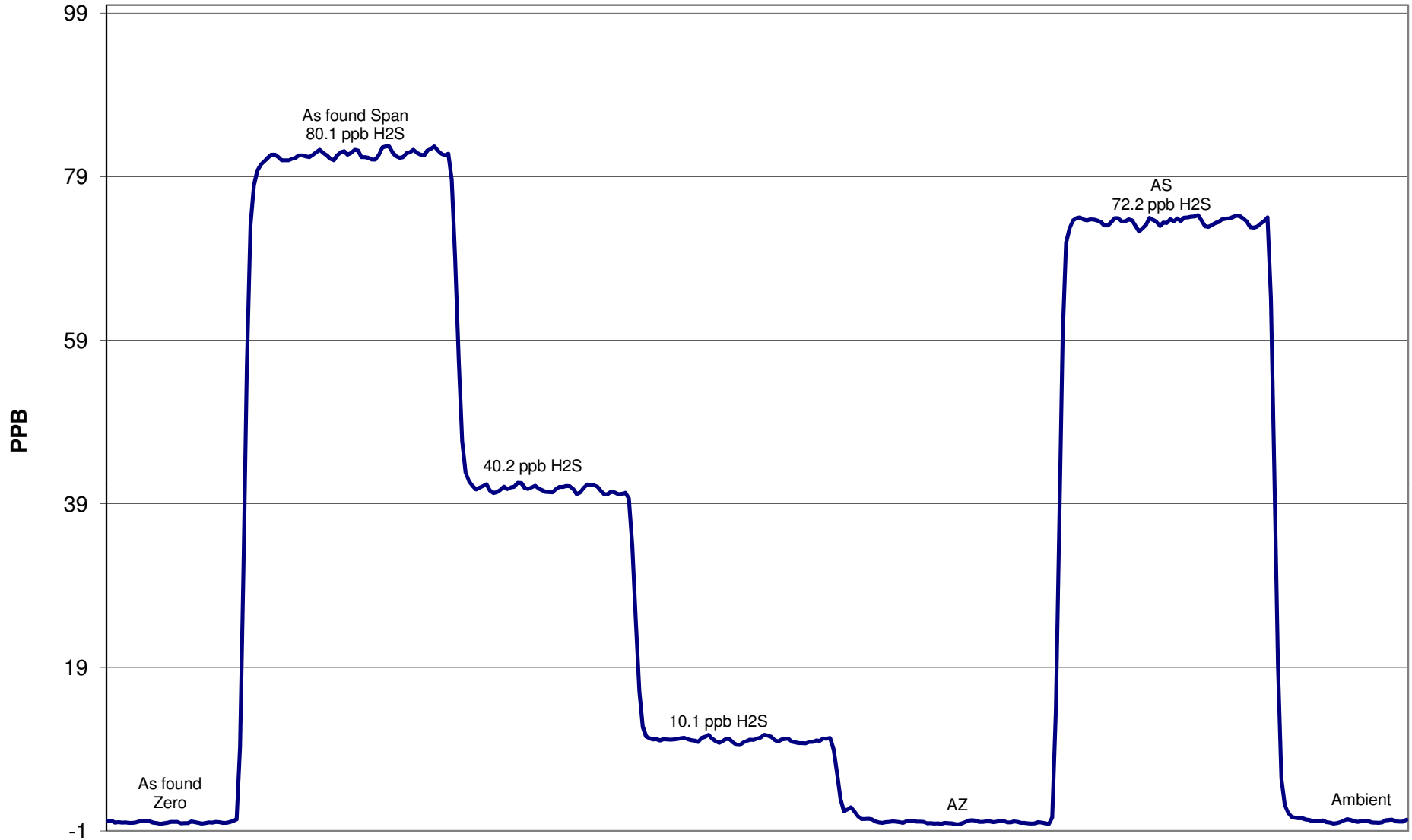
Calibration Date	<u>December 14, 2012</u>	Previous Calibration	<u>November 3, 2012</u>
Station Number	<u>6</u>	Station Location	<u>Valleyview</u>
Start Time (MST)	<u>9:00</u>	End Time (MST)	<u>12:21</u>
Analyzer make/model	<u>TEI Model 43i - APSCB</u>	Analyzer serial #	<u>701120010</u>

#### Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A	Correlation Coefficient	0.999974
80.1	81.9	0.9785		
40.2	40.8	0.9868		
10.1	10.1	1.0024	Slope	0.978110
			Intercept	0.149549



# H2S Calibration



December 14, 2012

# Calibration Report



Parameter SO2

Air Monitoring Network PAZA

## Station Information

Calibration Date	<u>December 13, 2012</u>	Previous Calibration	<u>November 2, 2012</u>
Station Number	<u>9</u>	Station Location	<u>Sunset House</u>
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input type="checkbox"/> Other:	
Start Time (MST)	<u>8:35</u>	End Time (MST)	<u>11:55</u>
Barometric Pressure	<u>31.70</u> inches Hg	Station Temperature	<u>19.7</u> Deg C
Calibrator	<u>EnviroNics 6100</u>	Serial Number	<u>3016</u>
Cal Gas Concentration	<u>50.8</u> ppm	Cal Gas Expiry Date	<u>06/04/2012</u>
Gas Cert Reference	<u>LL85275</u>		
DACS make	<u>CR3000</u>	DACS serial No.	<u>5407</u>
DACS voltage range	<u>0 - 5 Volt</u>	DACS channel #	<u>2</u>
	<u>Before</u>		<u>After</u>
DACS Scale High	<u>500</u>	DACS slope	<u>500</u>
DACS Scale Low	<u>0</u>	DACS intercept	<u>0</u>
Calculated slope	<u>0.995734</u>	Calculated slope	<u>0.994450</u>
Calculated intercept	<u>2.675371</u>	Calculated intercept	<u>2.385343</u>
Analyzer make	<u>TEI 43C</u>	Analyzer serial #	<u>609716238</u>

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Background	17.6		18.6	
Coefficient	0.997		1.011	
UV Lamp Voltage	836	V	835	V
Chamber Temp	44.9	C	44.9	C
Perm Gas Temp	45	C	45	C
Pressure	650.6	mm Hg	648.7	mm Hg
Sample Flow	0.476	LPM	0.474	LPM
Lamp Intesity	37374	Hz	37294	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)
4995	0.00	0.0	0.2	N/A
4995	39.93	402.9	404.3	0.9966
4995	19.97	202.3	198.9	1.0173
4995	9.96	101.1	97.3	1.0390
4995	0.00	0.0	0.2	As found zero
4995	39.93	402.9	395.7	As found span
Average Correction Factor				1.0176

Calculated value of As Found Response: 396.519 ppm      Percent Change of As Found: 1.6%

	before calibration		after calibration	
Auto zero	0.3	ppm	0.3	ppm
Auto span	264.0	ppm	281.0	ppm

Notes: Slight span adjust.

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Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter SO2

Air Monitoring Network PAZA



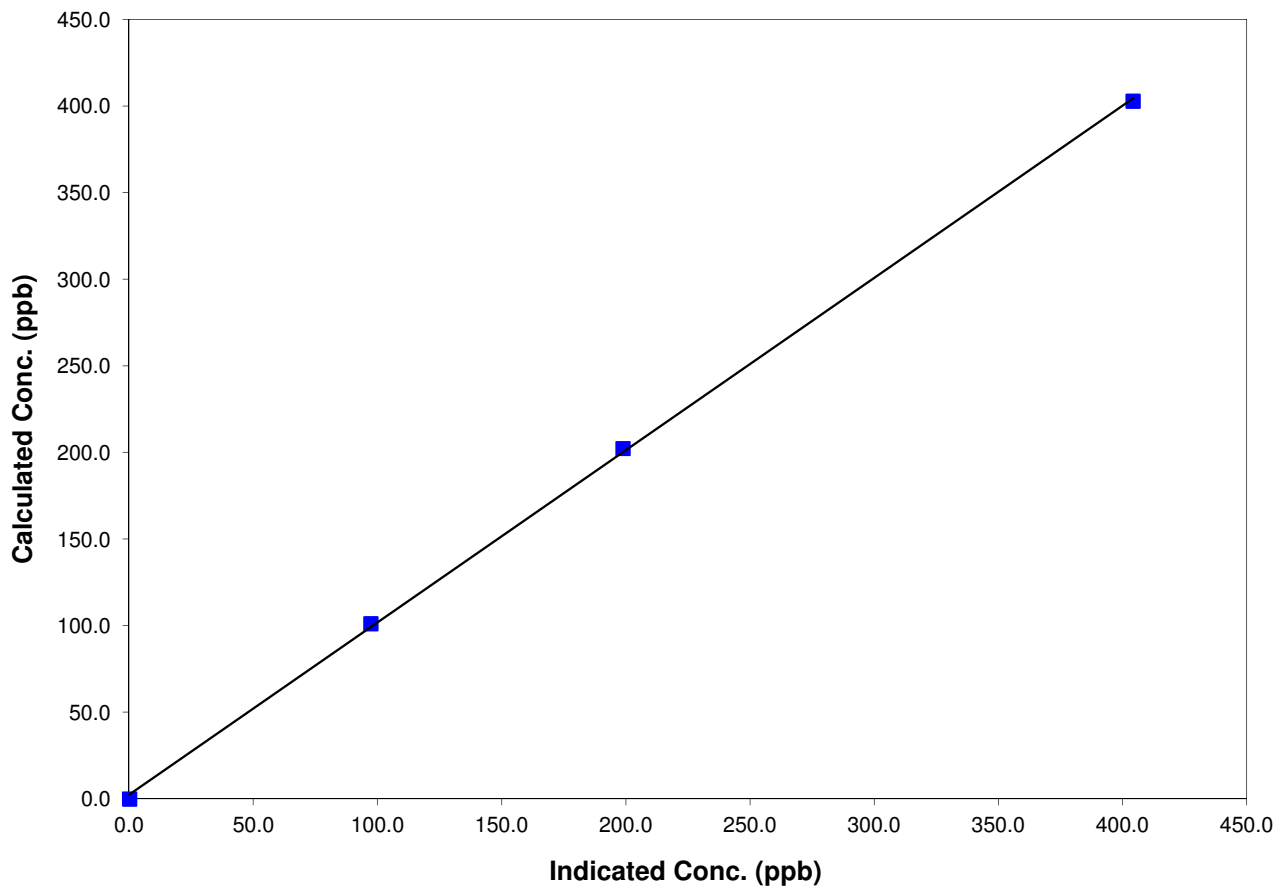
## Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Number	9	Station Location	Sunset House
Start Time (MST)	8:35	End Time (MST)	11:55
Analyzer make/model	TEI 43C	Analyzer serial #	609716238

## Calibration Data

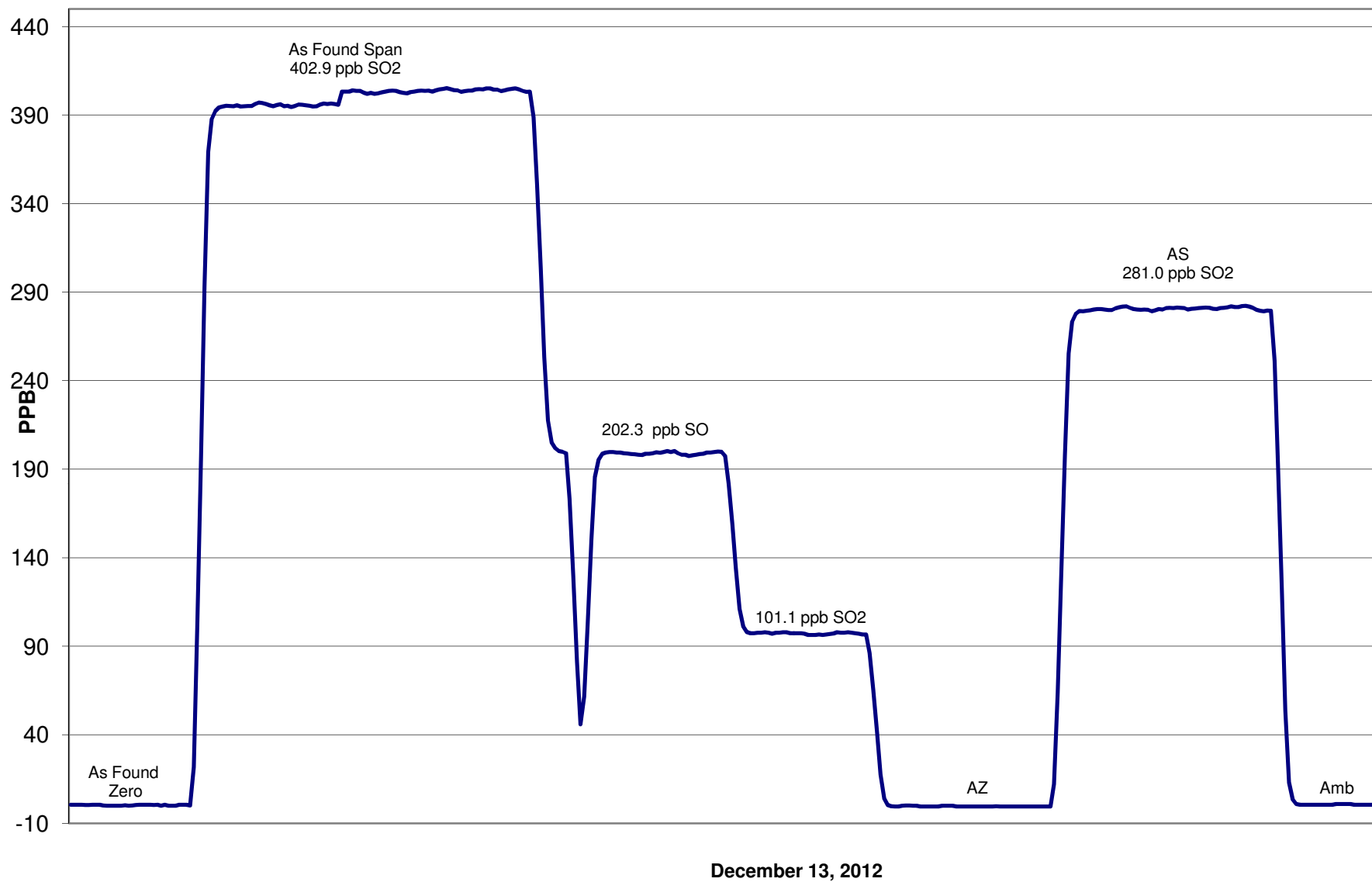
Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.2	N/A	Correlation Coefficient	0.999804
402.9	404.3	0.9966		
202.3	198.9	1.0173		
101.1	97.3	1.0390	Slope	0.994450
			Intercept	2.385343

### SO2 Calibration Curve





# SO2 Calibration



# Calibration Report

Parameter

NO<sub>x</sub>-NO-NO<sub>2</sub>

Air Monitoring Network

PAZA



## Station Information

Calibration Date	December 13, 2012		Previous Calibration	November 2, 2012	
Station Number	9		Station Location	Sunset House	
Reason:	<b>Routine</b>	Install	Removal	Other:	
Start Time (MST)	8:35		End Time (MST)	14:01	
Barometric Pressure	0.894	Atm	Station Temperature	20.0	Deg C
Calibrator	EnviroNics		Serial Number	3016	
NO Cal Gas Conc	51.2	ppm	Cal Gas Expiry Date	March 12, 2014	
NO <sub>x</sub> Cal Gas Conc	51.2	ppm	Cal Gas Serial #	LL107272	

## DACS Information

DACS make	CR3000		DACS serial No.	5407	
	Parameter	NO <sub>2</sub>	NO <sub>x</sub>	NO	
Before	Data Slope	1.000837	0.995916	0.998349	
	Data Offset	0.707708	1.714903	1.648429	
After	Data Slope	1.000198	0.991049	0.997592	
	Data Offset	-0.000267	1.423214	1.225121	
	Channel #	5	3	4	
	Voltage Range	0 - 5 VDC	0 - 5 VDC	0 - 5 VDC	

## Analyzer Information

Analyzer make/model	TEI 42i		Analyzer serial #	0701120011	
Test Point	before		after		
Concentration range	0 - 500	ppb	0 - 500	ppb	
NO offset	4.9	mV	4.8	mV	
NO <sub>x</sub> bkgnd	5.1	mV	5.0	mV	
NO coefficient	1.101		1.077		
NO <sub>x</sub> coefficient	0.999		1.001		
NO <sub>2</sub> conv temp	325.0	Deg C	325.0	Deg C	
PMT Temp	-2.8	Deg C	-2.8	Deg C	
PMT Volt	-805.2	mV	-805.2	mV	
R Cell Press	167.5	in Hg	169.3	in Hg	
Sample Flow	0.772	ccm	0.774	ccm	

NOTES: Slight span adjust.

# Calibration Report



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

## Station Information

Calibration Date: December 13, 2012 Station Location: Sunset House

## 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	4995	0.00	0.0	0.0	0.0	0.6	0.6	0.0	N/A	N/A	
1	4995	39.93	406.0	406.0	0.0	409.4	406.8	0.8	0.9918	0.9980	
2	4995	19.97	203.9	203.9	0.0	202.8	201.8	0.2	1.0053	1.0105	
3	4995	9.96	101.9	101.9	0.0	99.7	99.4	0.3	1.0221	1.0250	
AFZ	4995	0.00	0.0	0.0	0.0	0.6	0.6	0.0	0.0000	0.0000	
AFS	4995	39.93	406.0	406.0	0.0	417.8	416.6	-0.6	0.9719	0.9746	
									Average Correction Factor	1.0064	1.0112

As Found Concentrations: NO<sub>x</sub>= 418.9 NO= 417.7 As Found Percent Change NO<sub>x</sub>= 3.2% NO= 2.9%

## GPT Calibration Data

Dilution Flow 4995 ccm Source Gas Flow 39.93 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	0.6	0.6	0.0	0.6	0.6	0.0	N/A	N/A	N/A	N/A	
NO point	405.8	405.8	0.0	407.9	405.8	0.0	0.9947	1.0000	N/A	N/A	
300	405.8	111.9	293.8	407.5	111.9	293.9	0.9958	1.0000	0.9997	100.0%	
200	405.8	204.5	201.2	407.6	204.5	200.9	0.9956	1.0000	1.0014	99.9%	
100	405.8	300.8	104.9	407.9	300.8	105.0	0.9949	1.0000	0.9997	100.0%	
							Average Correction Factor	0.9954	1.0000	1.0003	100.0%

## AIC Data

Parameter	Previous calibration				Current calibration			
	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	0.8	0.2	0.7	ppb	0.7	0.0	0.8	ppb
Auto span	169.8	167.0	2.2	ppb	189.8	187.0	1.9	ppb

Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network PAZA



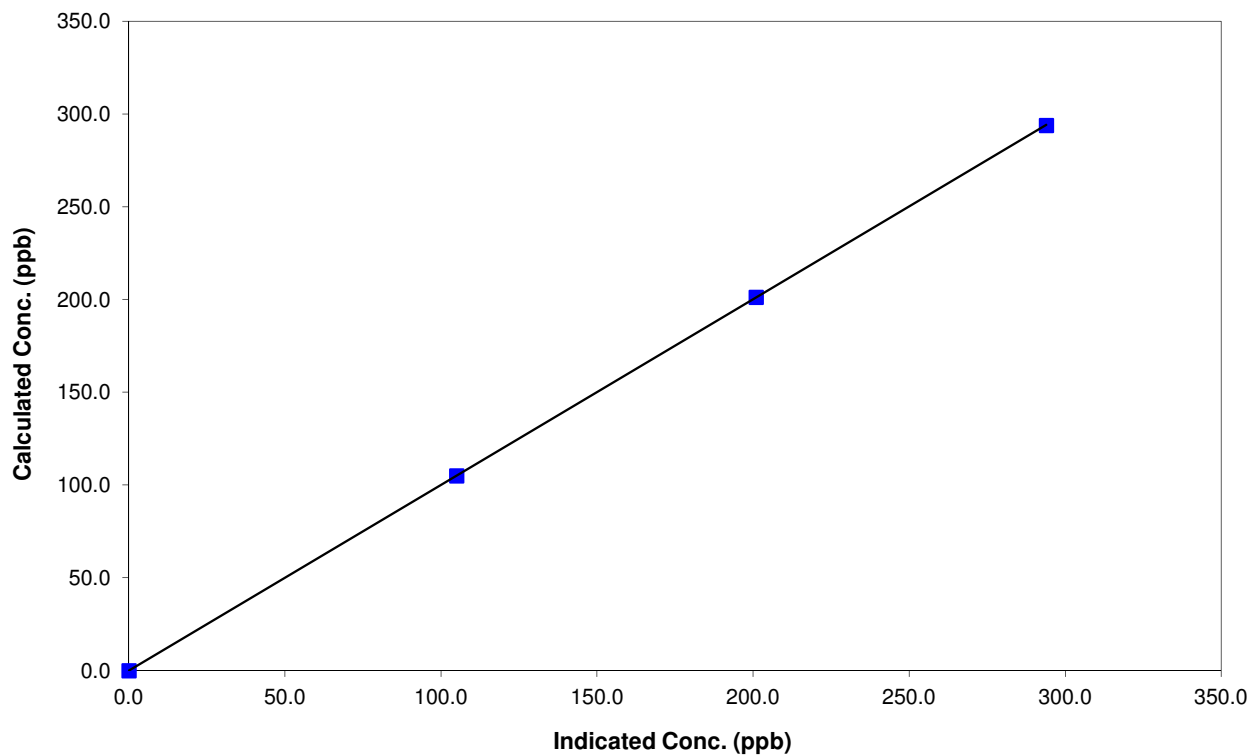
## Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Number	9	Station Location	Sunset House
Start Time (MST)	8:35	End Time (MST)	14:01
Analyzer make	TEI 42i	Analyzer serial #	0701120011

## Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
293.8	293.9	0.9997	Correlation Coefficient	0.999998
201.2	200.9	1.0014		
104.9	105.0	0.9997	Slope	1.000198
			Intercept	-0.000267

## NO<sub>2</sub> Calibration Curve



# Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network PAZA



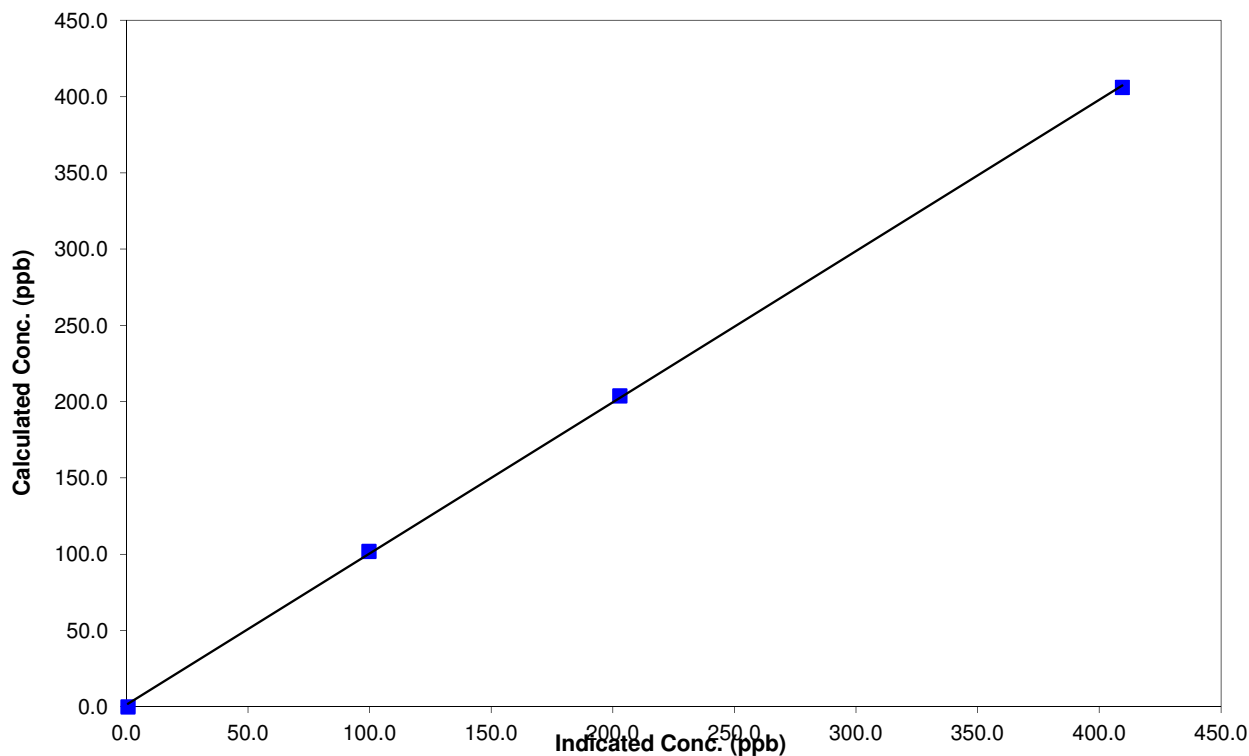
## Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Number	9	Station Location	Sunset House
Start Time (MST)	8:35	End Time (MST)	14:01
Analyzer make	TEI 42i	Analyzer serial #	0701120011

## Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.6	N/A	Correlation Coefficient	0.999886
406.0	409.4	0.9918		
203.9	202.8	1.0053		
101.9	99.7	1.0221	Slope	0.991049
			Intercept	1.423214

## NO<sub>x</sub> Calibration Curve



# Calibration Summary

Parameter NO

Air Monitoring Network PAZA



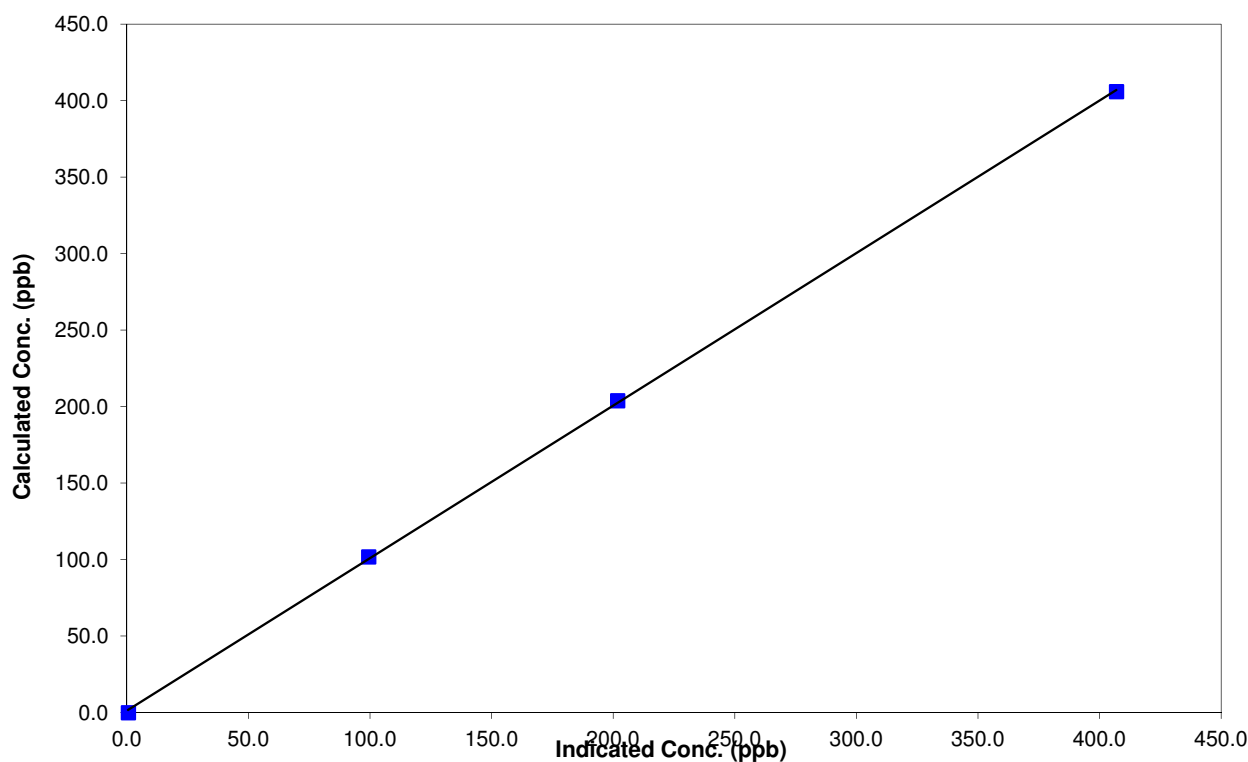
## Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Number	9	Station Location	Sunset House
Start Time (MST)	8:35	End Time (MST)	14:01
Analyzer make	TEI 42i	Analyzer serial #	0701120011

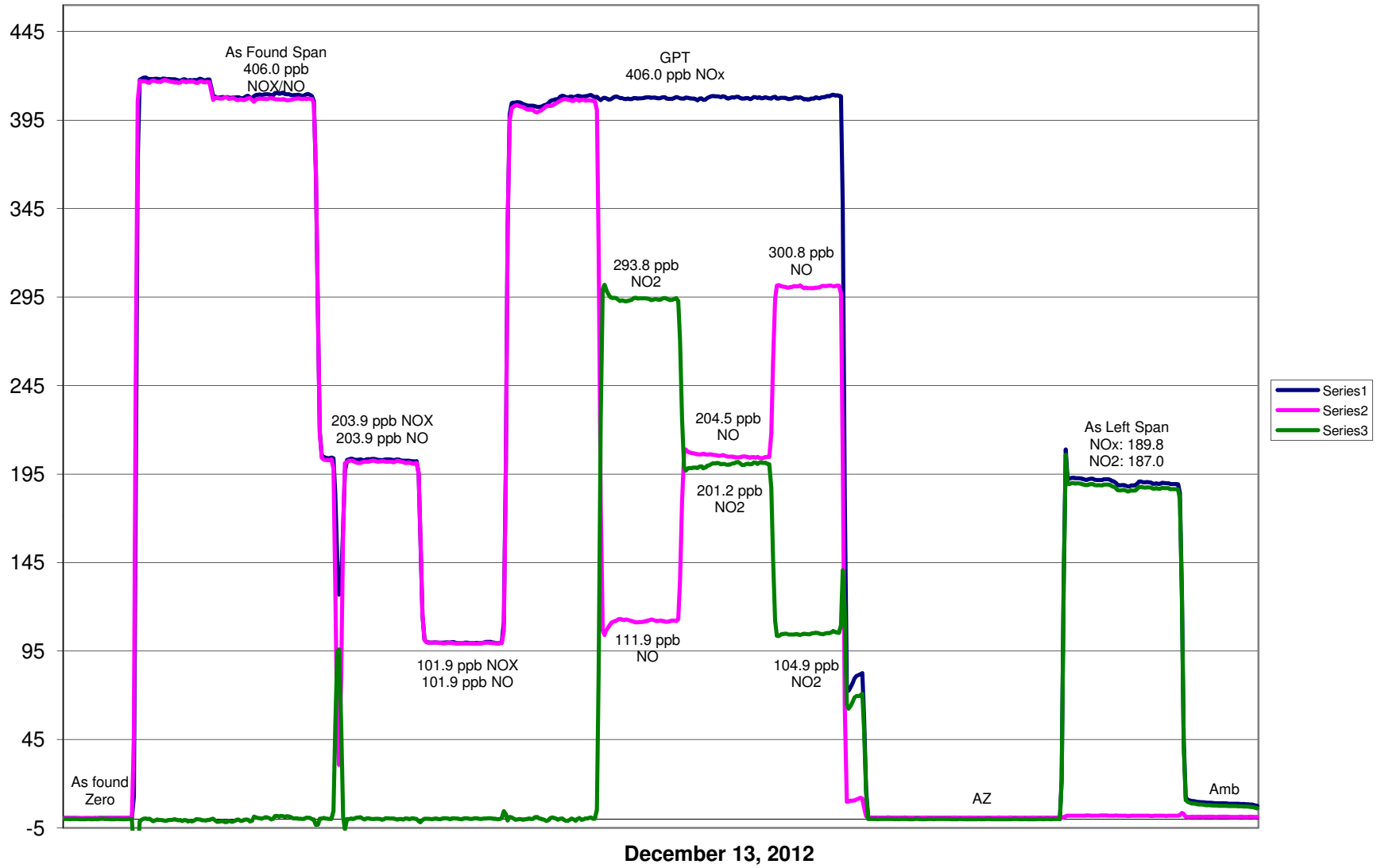
## Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.6	N/A	Correlation Coefficient	0.999905
406.0	406.8	0.9980		
203.9	201.8	1.0105	Slope	0.997592
101.9	99.4	1.0250		
			Intercept	1.225121

## NO Calibration Curve



# PASZA Sunset House NO<sub>x</sub> Calibration



# Calibration Report



Parameter 03  
 Air Monitoring Network PAZA

## Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Number	9	Station Location	Sunset House
Reason:	<b>Routine</b>	<input type="checkbox"/> Install	<input type="checkbox"/> Removal remove
		<input type="checkbox"/> Other:	
Start Time (MST)	12:10	End Time (MST)	15:51
Barometric Pressure	0.916 atm	Station Temperature	15.7 Deg C
Calibrator	EnviroNics 6100	Serial Number	3474
DACS make	CR3000	DACS serial No.	5407
DACS voltage range	0 - 5 Volts	DACS channel #	6
	Before		After
Calculated slope	0.980549	Calculated slope	1.001920
Calculated intercept	1.127105	Calculated intercept	0.227192
Analyzer make	TEI Model 49C	Analyzer serial #	49C-0609716240

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Offset	0.3	ppb	0.3	ppb
Span	1.035		1.035	
Cell A intensity	88567	Hz	88589	Hz
Cell B intensity	82248	Hz	82427	Hz
Pressure	678.00	in Hg	667.90	in Hg
CellA Flow	0.926	ccm	0.922	ccm
Cell B Flow	0.715	cmm	0.712	cmm

## Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
5040	0.00	0.0	0.1	N/A
5040	0.30	293.8	293.8	0.9999
5040	0.20	201.2	199.4	1.0091
5040	0.10	104.9	104.5	1.0039
5040	0.00	0.0	0.1	As found zero
5040	0.30	293.8	293.8	As found span
Average Correction Factor				1.0043

Calculated value of As Found Response: 289.1 ppm      Percent Change of As Found: -1.6%

	before calibration		after calibration	
Auto zero	0.6	ppb	0.3	ppb
Auto span	137.7	ppb	224.6	ppb

Notes: No adjust.

Calibration Performed By: Grover Christiansen



# Calibration Summary

Parameter                 O3                

Air Monitoring Network                                 PAZA                                



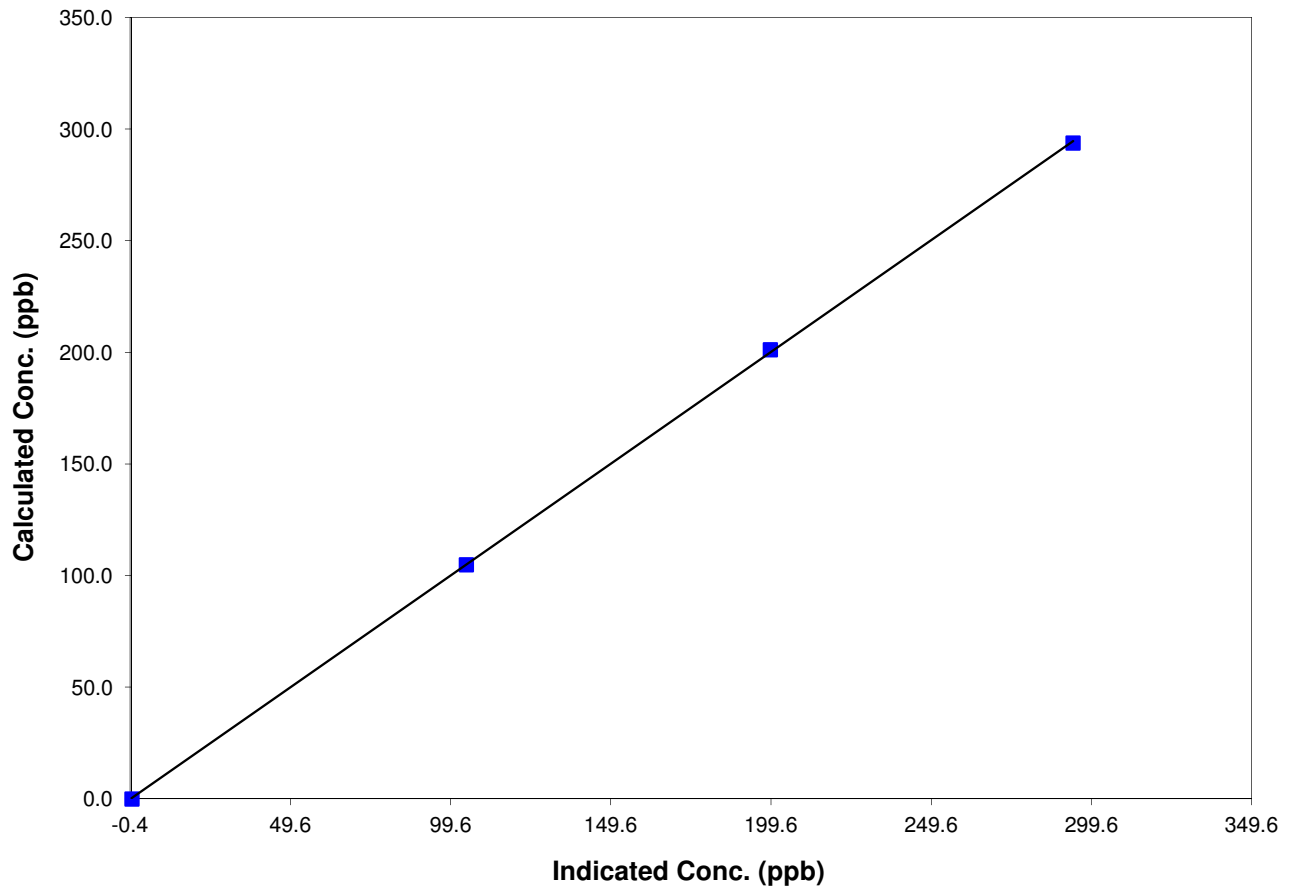
## Station Information

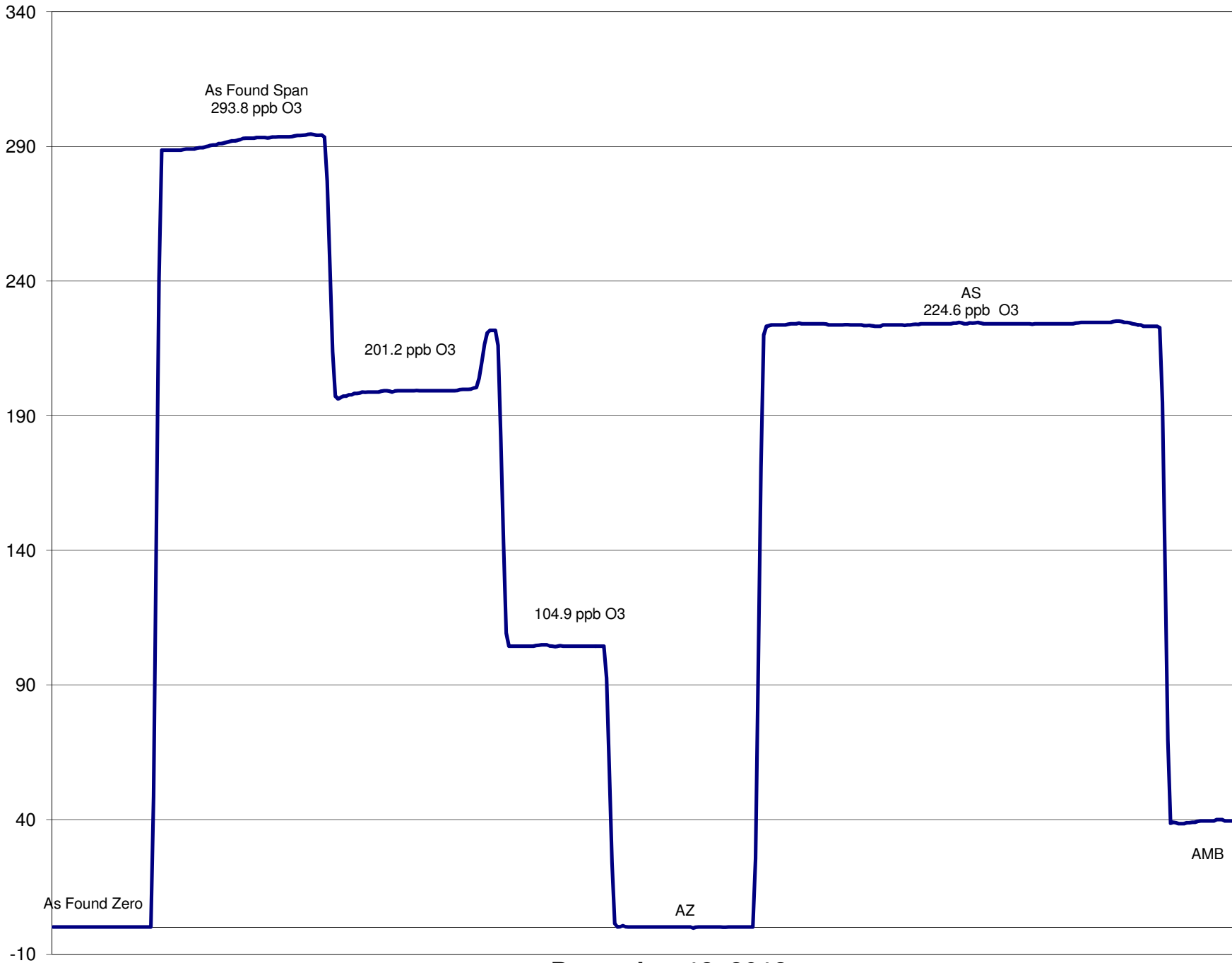
Calibration Date	<u>                December 13, 2012                </u>	Previous Calibration	<u>                November 2, 2012                </u>
Station Number	<u>                                9                                </u>	Station Location	<u>                                Sunset House                                </u>
Start Time (MST)	<u>                                12:10                                </u>	End Time (MST)	<u>                                15:51                                </u>
Analyzer make/model	<u>                TEI Model 49C                </u>	Analyzer serial #	<u>                49C-0609716240                </u>

## Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	NA		
293.8	293.8	0.9999	Correlation Coefficient	0.999953
201.2	199.4	1.0091		
104.9	104.5	1.0039	Slope	1.001920
			Intercept	0.227192

### O3 Calibration Curve





**December 13, 2012**

# Calibration Report



Parameter TRS

Air Monitoring Network PAZA

### Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Name	PAZA Rover	Station Location	Sunset House
Reason:	<b>Routine</b>	Install	Removal
		Other:	
Start Time (MST)	13:45:00 PM	End Time (MST)	16:18
Barometric Pressure	27.5 inches Hg	Station Temperature	20.0 Deg C
Calibrator	Enviroics 6100	Serial Number	3474
Cal Gas Concentration	10.1 ppm	Cal Gas Expiry Date	03/09/2011
Gas Cert Reference	BLM001434		
DACS make	CR3000	DACS serial No.	5407
DACS voltage range	0 - 5 Volt	DACS channel #	1
	<u>Before</u>		<u>After</u>
DACS Scale High	100	DACS slope	100
DACS Scale Low	0	DACS intercept	0
Calculated slope	0.989382	Calculated slope	0.986477
Calculated intercept	1.156528	Calculated intercept	0.251515
Analyzer make	TEI 43C	Analyzer serial #	609716238

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	14.6	ppb	15.7	ppb
Coefficient	1.399		1.399	
Lamp Voltage	793	V	844	V
Chamber Temp	43.8	C	43.8	C
Perm gas Temp	45.0	C	45.0	C
Pressure	635.0	mmHg	649.0	mmHg
Sample Flow	0.433	ccm	0.440	ccm
Lamp Intensity	34160.0	Hz	38630.0	Hz

### Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4995	0.0	0.0	0.1	N/A
4995	39.94	80.1	81.0	0.9894
4995	19.96	40.2	40.6	0.9912
8995	8.94	10.0	9.5	1.0523
4995	0.00	0.0	0.1	As found zero
4995	39.94	80.1	81.0	As found span
Average Correction Factor				1.0110

Calculated value of As Found Response: 81.22 ppm      Percent Change of As Found: -1.4%

	before calibration		after calibration	
Auto zero	-0.6	ppm	0.2	ppm
Auto span	69.6	ppm	68.0	ppm

Notes: Dec 12th installed used socket & lamp, allow settle overnight.  
Dec 13th - calibrate with no adjust.

Calibration Performed By: Grover Christiansen

# Calibration Summary

Parameter TRS  
 Air Monitoring Network PAZA



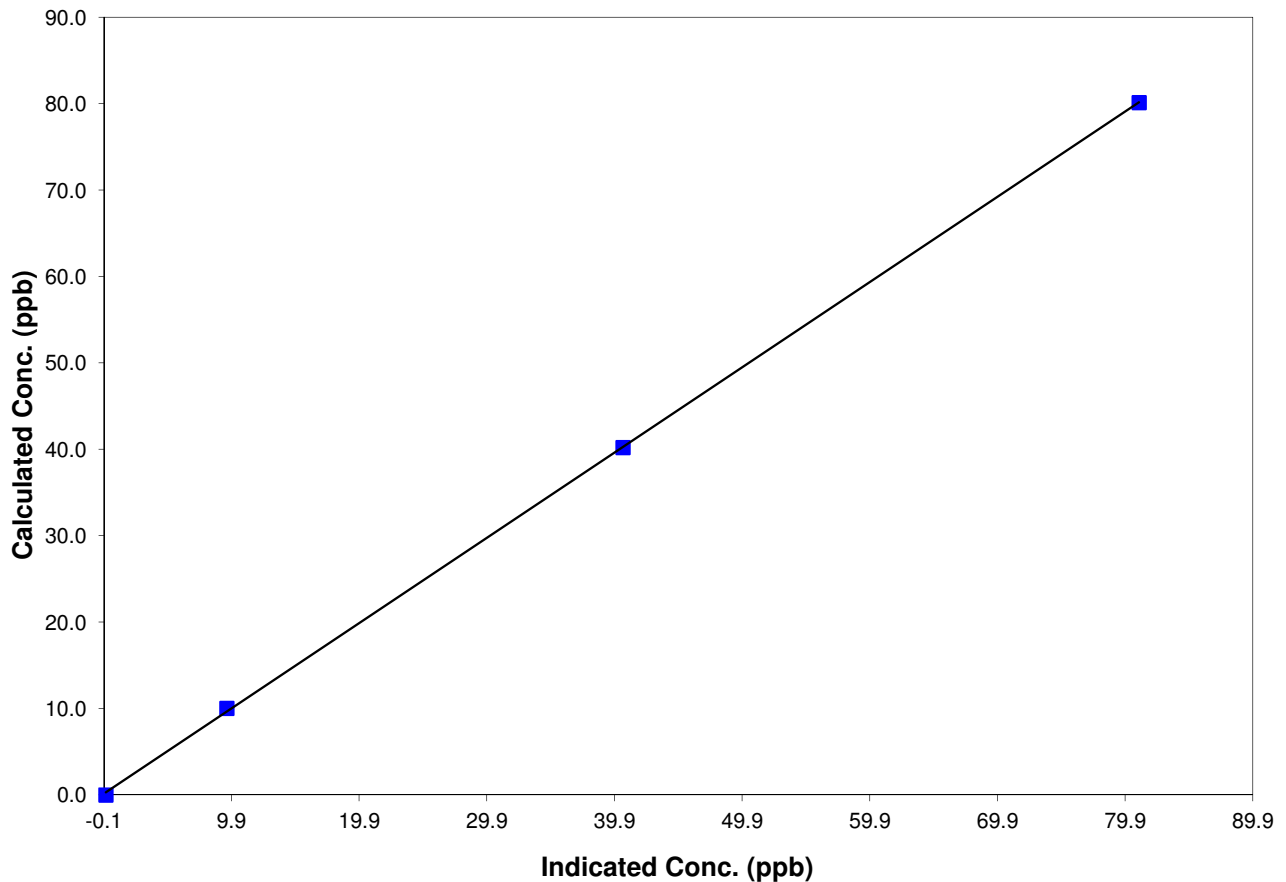
### Station Information

Calibration Date	December 13, 2012	Previous Calibration	November 2, 2012
Station Number	PAZA Rover	Station Location	Sunset House
Start Time (MST)	13:45:00 PM	End Time (MST)	16:18
Analyzer make/model	TEI 43C	Analyzer serial #	609716238

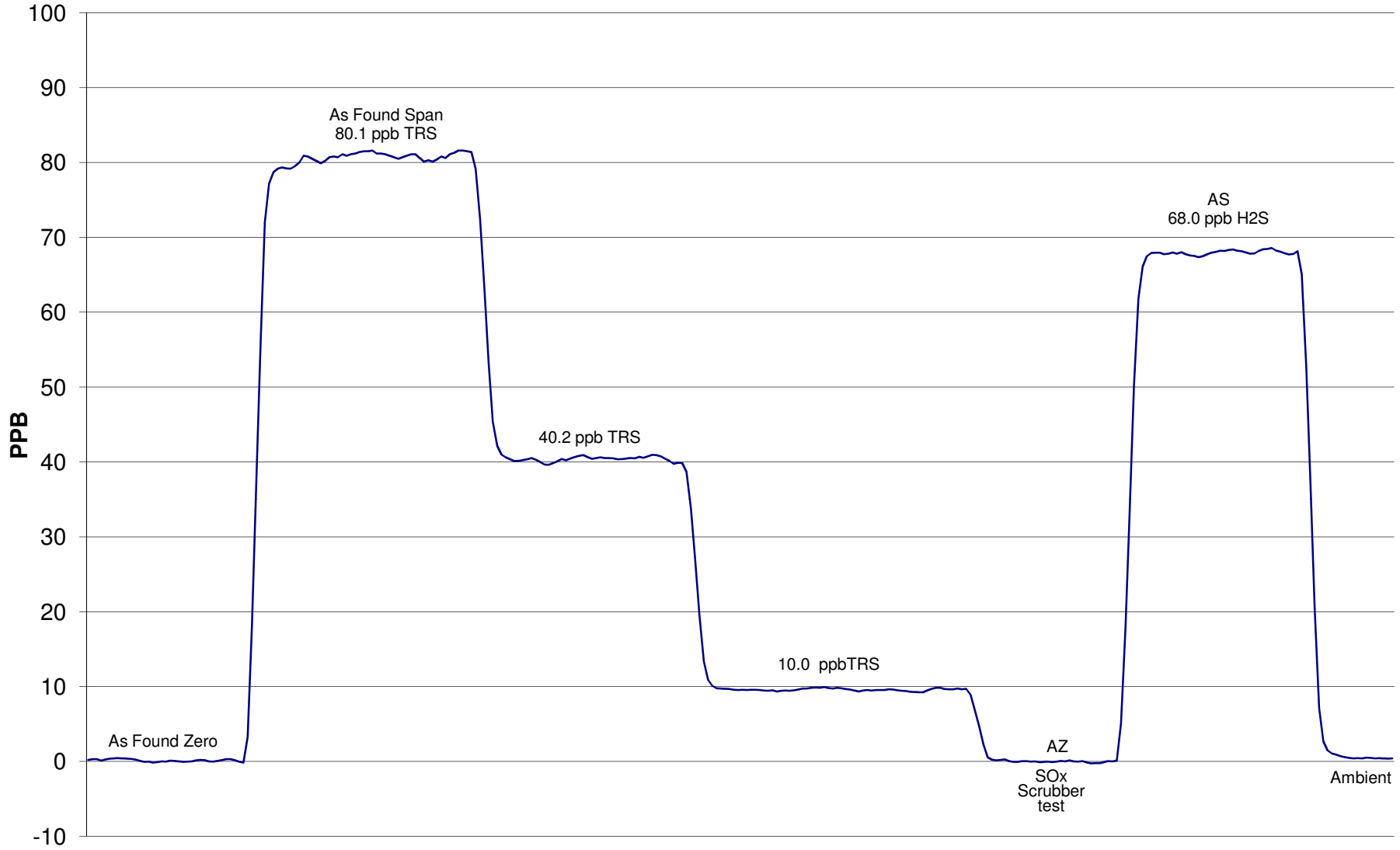
### Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	N/A	Correlation Coefficient	0.999939
80.1	81.0	0.9894		
40.2	40.6	0.9912	Slope	0.986477
10.0	9.5	1.0523		
			Intercept	0.251515

### TRS Calibration Curve



# TRS Calibration



December 13, 2012