



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

**Continuous Ambient Air Quality Monitoring Program
Monthly Report
December 2016**

January 31, 2017

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

RE: Peace Airshed Zone Association (PAZA) – December 2016 Ambient Air Report

Enclosed is the PAZA Ambient Monitoring Network Report for the month of December 2016.

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	EPEA Approval Number
Advantage Oil & Gas Ltd.	Glacier	05-02-076-13-W6	262479-00-00
Alberta Power (2000) Ltd. (an ATCO company)	Sturgeon	SW-06-069-21-W5	10283-02-02
ATCO Power Canada	Poplar Hill	11-19-073-08-W6	67774-01-01
ATCO Power Canada	Valleyview	SW-06-069-21-W5	147709-01-01
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
Apache Canada Ltd.	House Mountain	01-08-070-10-W5	10137-02-02
Birchcliff Energy Ltd.	Pouce Coupe	03-22-078-12-W6	252529-00-00
Canadian Natural Resources Limited	Bonanza	11-25-081-11-W6	00000029-01-00
	Progress/Gordondale	01-01-077-10-W6	00010036-02-00
	Gold Creek	13-26-067-05-W6	00010446-02-00

Company	Facility	LSD	EPEA Approval Number
	Teepee Creek	SE-2-074-04-W6	00001635-02-00
	Sturgeon/Valleyview	02-02-069-22-W5	1633-02-00
Canfor Forest Products	Grande Prairie	SW-23-071-06-W6	152645-01-00
Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	00000212-01-00
Devon Canada	NW Belloy (Dunvegan)	16-36-079-03-W6	00009810-02-00
	Eaglesham (South)	02-14-077-25-W5	00047669-01-00
	North Normanville	03-36-079-23-W5	00047455-01-00
	West Culp	05-34-078-25-W6	00136284-00-00
	Cecil	08-15-084-08-W6	00010032-02-00
Encana Corporation	Sexsmith	04-08-075-07-W6	00010002-01-00
Enerplus Resources	Pouce Coupe	SW-06-069-21-W5	1464-02-03
Exshaw Oil Corporation	Spirit River	03-10-077-07-W6	344521-00-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	00238762-00-00
Long Run Exploration	Eaglesham	01-25-076-01-W6	00241532-00-00
	Kakut	14-12-075-03-W6	00248469-00-00
	Donnelly	06-01-077-21-W5	00000087-02-00
	Puskwaskau	03-26-074-01-W6	00017524-01-00
Longview Oil Corp.	Sunset House	06-22-070-20-W5	138884-01-00
Penn West Petroleum Ltd.	Tangent	13-29-080-23-W5	00001746-02-00

Company	Facility	LSD	EPEA Approval Number
	Pouce Coupe	16-07-078-11-W6	00000614-01-00
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	00000263-01-00
	Gordondale	11-26-079-09-W6	00011495-01-01
	Pouce Coupe/Bonanza	3-23-080-13-W6	00070203-01-01
Suncor Energy Inc.	Progress	07-22-078-09-W6	00011428-02-00
TAQA North Ltd.	Valhalla	13-21-076-09-W6	00017620-01-00
Veresen Energy	Hythe Brainard	11-18-074-12-W6	00010910-02-00
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	00000113-02-00

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

Continuous Monitoring: Six (6) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Valleyview, and Rycroft-Portable.

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.

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.
- ◆ 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, with the exception of two 1-hour exceedances for H₂S on December 9, 2016 for the hours ending at 17:00 and 18:00 MST. The concentrations recorded were 38 ppb (17:00) and 21 ppb (18:00), which is greater than the 1-hour AAAQO of 10 ppb. Refer to the attached non-compliance report for details (AEP #319081).
- ◆ All analyzers and sensors at the Valleyview station had an operational uptime greater than 90% for the month of December.

Donnelly Station:

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

Rycroft-Portable Station:

- ◆ The measured ambient air quality was within the AAAQO for the Rycroft-Portable station.
- ◆ All analyzers and sensors at the Rycroft-Portable 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: Hythe, Fitzsimmons, Crooked Creek, High Prairie, and Girouxville 3 (H₂S). The passive sample analyses were performed by MAXXAM Analytics Inc.

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

- Monthly average concentrations for SO₂ passives ranged from 0.1 ppb to 1.2 ppb, with a mean of 0.3 ppb.
- Monthly average concentrations for NO₂ passives ranged from 0.4 ppb to 11.3 ppb, with a mean of 2.1 ppb.
- Monthly average concentrations for O₃ passives ranged from 22.0 ppb to 41.9 ppb, with a mean of 32.2 ppb.
- Monthly average concentrations for H₂S passives ranged from 0.1 ppb to 0.4 ppb, with a mean of 0.3 ppb.

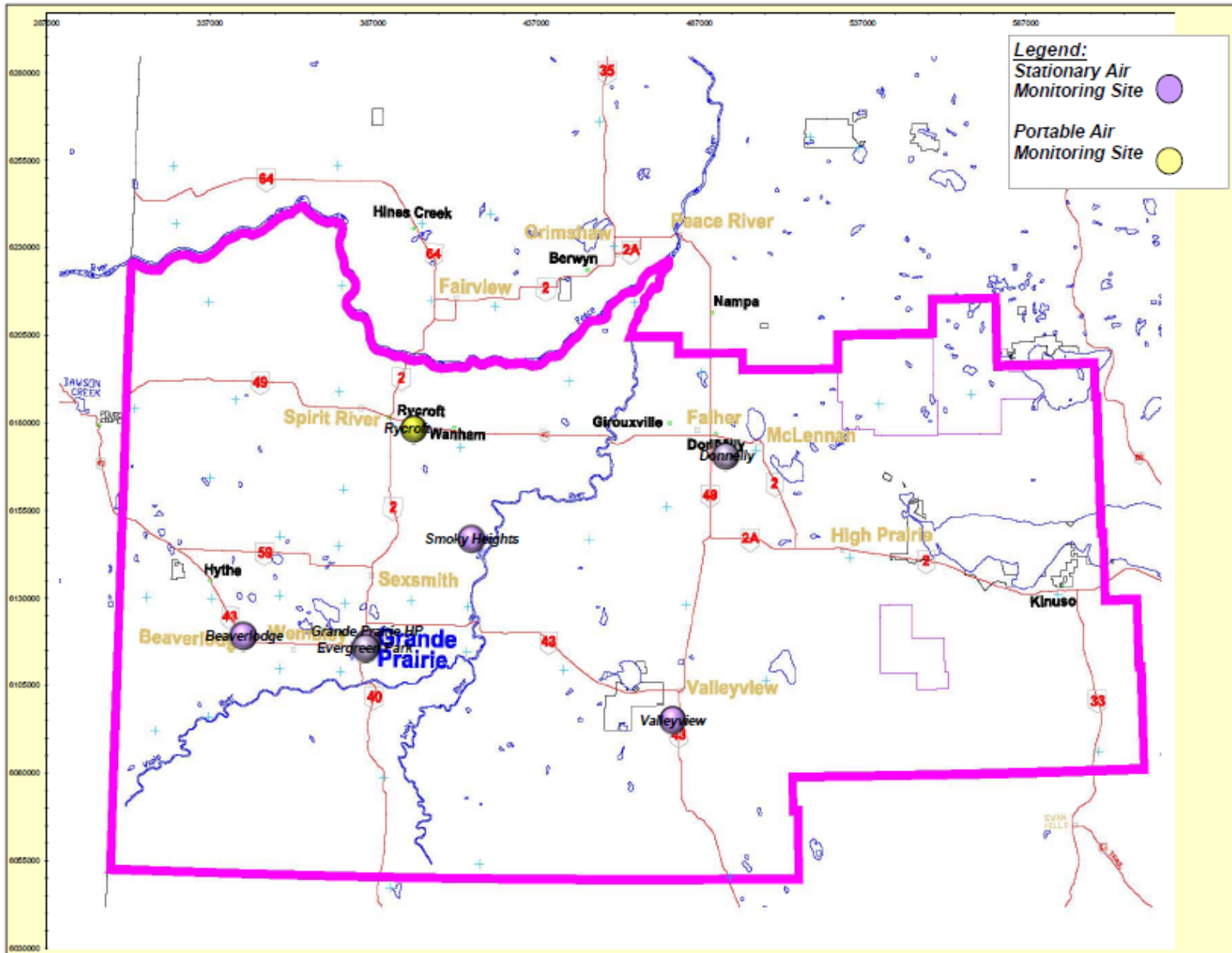
If you have any questions or concerns, please contact Patrick Andersen at 403.505.1041 or the PAZA office at 780.833.4343.

On Behalf of the
Peace Airshed Zone Association



Patrick Andersen, B.Sc.
Program Manager

Location of PAZA Continuous Monitoring Stations



PAZA Monthly Continuous Data Summary

Dec-2016 Peace Airshed Zone Association							Maximum Recorded Values						
Pollutant (units)		Objectives		Station	Monthly Average	Exceedence		1-hr		24-hr / 8-hr			Operational Time (%)
		1-hr	24-hr			1-hr	24-hr	Conc	Day	Conc	Day		
SO ₂ (ppb)	172	48	Henry Pirker	0.3	0	0	7.4	Dec-12 08:00	1.1	Dec-12	99.6%	Dec-05	
SO ₂ (ppb)	172	48	Evergreen Park	0.2	0	0	7.0	Dec-06 20:00	0.7	Dec-10	99.9%	Dec-07	
SO ₂ (ppb)	172	48	Smoky Heights	0.6	0	0	7.0	Dec-28 03:00	1.9	Dec-11	99.7%	Dec-15	
SO ₂ (ppb)	172	48	Beaverlodge	0.3	0	0	1.6	Dec-15 10:00	0.8	Dec-15	100.0%	Dec-14	
SO ₂ (ppb)	172	48	Valleyview	0.7	0	0	14.5	Dec-30 15:00	3.5	Dec-28	99.2%	Dec-16	
SO ₂ (ppb)	172	48	Donnelly	0.2	0	0	2.2	Dec-30 13:00	0.7	Dec-14	99.7%	Dec-09	
SO ₂ (ppb)	172	48	Rycroft-Portable	0.3	0	0	3.7	Dec-30 12:00	0.7	Dec-30	99.3%	Dec-13	
NO (ppb)			Henry Pirker	10.3	-	-	188.1	Dec-20 11:00	39.1	Dec-20	99.5%	Dec-05	
NO ₂ (ppb)	159	106	Henry Pirker	14.5	0	0	57.7	Dec-20 10:00	31.9	Dec-15	99.5%	Dec-05	
NO _x (ppb)			Henry Pirker	25.0	-	-	245.9	Dec-20 11:00	64.5	Dec-20	99.5%	Dec-05	
NO (ppb)			Beaverlodge	1.2	-	-	47.4	Dec-16 13:00	6.3	Dec-07	100.0%	Dec-14	
NO ₂ (ppb)	159	106	Beaverlodge	5.5	0	0	28.6	Dec-20 15:00	14.4	Dec-07	100.0%	Dec-14	
NO _x (ppb)			Beaverlodge	6.6	-	-	74.7	Dec-16 13:00	20.4	Dec-07	100.0%	Dec-14	
NO (ppb)			Rycroft-Portable	0.5	-	-	14.5	Dec-10 11:00	2.0	Dec-16	99.3%	Dec-13	
NO ₂ (ppb)	159	106	Rycroft-Portable	3.8	0	0	21.2	Dec-07 23:00	12.6	Dec-17	99.3%	Dec-13	
NO _x (ppb)			Rycroft-Portable	4.0	-	-	25.8	Dec-07 23:00	14.5	Dec-17	99.3%	Dec-13	
O ₃ (ppb)	82		Henry Pirker	20.3	0	-	39.3	Dec-21 06:00	36.4	Dec-18	99.5%	Dec-05	
O ₃ (ppb) - 8-hr			Henry Pirker		0				37.8	Dec-18		-	
O ₃ (ppb)	82		Beaverlodge	29.0	0	-	41.6	Dec-19 02:00	39.9	Dec-19	100.0%	Dec-14	
O ₃ (ppb) - 8-hr			Beaverlodge		0				40.5	Dec-19		-	
O ₃ (ppb)	82		Rycroft-Portable	28.5	0	-	43.0	Dec-19 02:00	41.7	Dec-19	99.3%	Dec-13	
O ₃ (ppb) - 8-hr			Rycroft-Portable		0				42.5	Dec-19		-	
CO (ppm)	13		Henry Pirker	0.25	0	-	1.5	Dec-20 08:00	0.5	Dec-20	99.6%	Dec-06	
CO (ppm) - 8-hr		5	Henry Pirker		0				0.9	Dec-20		-	

PAZA Monthly Continuous Data Summary – continued

Dec-2016 Peace Airshed Zone Association							Maximum Recorded Values					
							1-hr		24-hr / 8-hr			
THC (ppm)			Henry Pirker	2.1	-	-	3.2	Dec-26 21:00	2.7	Dec-26	99.5%	Dec-06
CH ₄ (ppm)			Henry Pirker	2.1	-	-	3.2	Dec-26 21:00	2.7	Dec-26	99.5%	Dec-06
NMHC (ppm)			Henry Pirker	0.0	-	-	0.0	Dec-05 11:00	0.0	Dec-05	99.5%	Dec-06
THC (ppm)			Rycroft-Portable	1.8	-	-	2.1	Dec-16 23:00	2.0	Dec-17	99.2%	Dec-12
CH ₄ (ppm)			Rycroft-Portable	1.8	-	-	2.1	Dec-16 23:00	2.0	Dec-17	99.2%	Dec-12
NMHC (ppm)			Rycroft-Portable	0.0	-	-	0.0	Dec-13 14:00	0.0	Dec-13	99.2%	Dec-12
TRS (ppb)			Henry Pirker	0.3	-	-	1.3	Dec-20 10:00	0.7	Dec-15	99.5%	Dec-06
TRS (ppb)			Evergreen Park	0.4	-	-	1.5	Dec-20 13:00	0.7	Dec-26	99.9%	Dec-07
TRS (ppb)			Smoky Heights	0.3	-	-	0.9	Dec-16 21:00	0.5	Dec-17	100.0%	Dec-15
TRS (ppb)			Rycroft-Portable	0.3	-	-	0.5	Dec-15 01:00	0.4	Dec-14	99.3%	Dec-12
H ₂ S (ppb)	10	3	Valleyview	0.2	2	0	38.4	Dec-09 17:00	3.2	Dec-09	99.2%	Dec-16
H ₂ S (ppb)	10	3	Donnelly	0.1	0	0	2.3	Dec-23 12:00	0.4	Dec-23	99.6%	Dec-09
PM _{2.5} (µg/m ³)	80	30	Henry Pirker	6.0	0	0	33.5	Dec-01 21:00	15.3	Dec-25	99.6%	Dec-20
PM _{2.5} (µg/m ³)	80	30	Evergreen Park	3.7	0	0	24.5	Dec-25 12:00	11.9	Dec-25	99.3%	Dec-07
PM _{2.5} (µg/m ³)	80	30	Smoky Heights	5.5	0	0	67.8	Dec-07 18:00	16.9	Dec-23	100.0%	Dec-15
PM _{2.5} (µg/m ³)	80	30	Beaverlodge	4.7	0	0	42.7	Dec-02 06:00	15.0	Dec-02	93.8%	Dec-20
PM _{2.5} (µg/m ³)	80	30	Rycroft-Portable	2.4	0	0	25.1	Dec-23 09:00	8.2	Dec-25	99.2%	Nov-04
RH (%)			Henry Pirker	65.7	-	-	84.7	Dec-22 04:00	79.1	Dec-22	99.5%	-
RH (%)			Evergreen Park	70.0	-	-	97.4	Dec-22 08:00	88.4	Dec-22	99.9%	-
RH (%)			Beaverlodge	72.6	-	-	100.0	Dec-22 04:00	96.4	Dec-22	100.0%	-
RH (%)			Valleyview	59.9	-	-	96.0	Dec-22 14:00	87.2	Dec-02	99.3%	-
SR (W/m ²)			Henry Pirker	21.1	-	-	228.6	Dec-01 14:00	40.4	Dec-01	99.5%	-
Temp (°C)			Henry Pirker	-12.6	-	-	3.8	Dec-21 15:00	1.3	Dec-21	99.5%	-
Temp (°C)			Evergreen Park	-12.6	-	-	4.6	Dec-21 14:00	2.7	Dec-21	99.9%	-
Temp (°C)			Smoky Heights	-13.3	-	-	3.3	Dec-21 16:00	0.6	Dec-21	100.0%	-
Temp (°C)			Beaverlodge	-11.9	-	-	2.8	Dec-21 14:00	0.3	Dec-21	100.0%	-
Temp (°C)			Valleyview	-12.0	-	-	5.1	Dec-21 16:00	2.7	Dec-21	99.3%	-
Temp (°C)			Donnelly	-12.7	-	-	3.5	Dec-21 13:00	1.2	Dec-21	100.0%	-
Temp (°C)			Rycroft-Portable	-12.9	-	-	3.6	Dec-02 16:00	1.2	Dec-21	99.5%	-

PAZA Monthly Continuous Data Summary – continued

Dec-2016		Peace Airshed Zone Association					Maximum Recorded Values					
							1-hr		24-hr / 8-hr			
WSPD s (km/hr)			Henry Pirker	10.1	-	-	51.0	Dec-14 04:00	22.1	Dec-18	100.0%	-
WSPD s (km/hr)			Evergreen Park	13.0	-	-	59.0	Dec-18 07:00	33.9	Dec-28	99.9%	-
WSPD s (km/hr)			Smoky Heights	13.8	-	-	45.0	Dec-18 09:00	28.7	Dec-18	100.0%	-
WSPD s (km/hr)			Beaverlodge	12.1	-	-	54.0	Dec-18 13:00	35.0	Dec-19	100.0%	-
WSPD s (km/hr)			Valleyview	5.2	-	-	25.0	Dec-18 10:00	13.3	Dec-18	99.3%	-
WSPD s (km/hr)			Donnelly	13.4	-	-	43.0	Dec-21 10:00	27.1	Dec-19	94.5%	-
WSPD s (km/hr)			Rycroft-Portable	11.7	-	-	40.0	Dec-05 00:00	29.7	Dec-04	94.5%	-
WSPD v (km/hr)			Henry Pirker	6.0	-	-	48.0	Dec-14 04:00	21.2	Dec-18	100.0%	-
WSPD v (km/hr)			Evergreen Park	9.8	-	-	58.0	Dec-18 07:00	33.6	Dec-28	99.9%	-
WSPD v (km/hr)			Smoky Heights	9.7	-	-	45.0	Dec-18 09:00	28.1	Dec-18	100.0%	-
WSPD v (km/hr)			Beaverlodge	7.9	-	-	54.0	Dec-18 13:00	34.1	Dec-19	100.0%	-
WSPD v (km/hr)			Valleyview	3.3	-	-	25.0	Dec-18 10:00	12.0	Dec-18	99.3%	-
WSPD v (km/hr)			Donnelly	9.2	-	-	43.0	Dec-21 10:00	25.3	Dec-19	94.5%	-
WSPD v (km/hr)			Rycroft-Portable	8.8	-	-	40.0	Dec-05 00:00	29.0	Dec-04	94.5%	-
WDIR			Henry Pirker	WSW	-	-	-	-	-	-	100.0%	-
WDIR			Evergreen Park	WSW	-	-	-	-	-	-	99.9%	-
WDIR			Smoky Heights	SW	-	-	-	-	-	-	100.0%	-
WDIR			Beaverlodge	W	-	-	-	-	-	-	100.0%	-
WDIR			Valleyview	W	-	-	-	-	-	-	99.3%	-
WDIR			Donnelly	SW	-	-	-	-	-	-	94.5%	-
WDIR			Rycroft-Portable	SW	-	-	-	-	-	-	94.5%	-

Continuous Network Equipment Summary

PAZA – Henry Pirker Station

General Station Issues:

Power disruption on December 6.

Parameter	Make	Model	Notes
SO ₂	TEI	43i	Power disruption at the station resulted in an uptime of 99.6%.
NOx/NO/NO ₂	TEI	42i	Power disruption at the station resulted in an uptime of 99.5%.
O ₃	TEI	49i	Power disruption at the station resulted in an uptime of 99.5%.
CO	TEI	48C	Power disruption at the station resulted in an uptime of 99.6%.
THC/CH ₄ /NMHC	TEI	55I	Power disruption at the station resulted in an uptime of 99.5%.
TRS	TEI	45C	Power disruption at the station resulted in an uptime of 99.5%.
PM _{2.5}	Sharp	5030	Power disruption at the station resulted in an uptime of 99.6%.
RH	Met One	083D	Power disruption at the station resulted in an uptime of 99.5%.
ET	Met One	083D	Power disruption at the station resulted in an uptime of 99.5%.
SR	Met One	096-1	Power disruption at the station resulted in an uptime of 99.5%.
WS / WD	Met One	010C/020C	No operational issues observed.

PAZA – Evergreen Park Station

General Station Issues

Data logger malfunction on December 7.

Parameter	Make	Model	Notes
SO ₂	TEI	43i	Data logger malfunction resulted in an uptime of 99.9%
TRS	TEI	43C	Data logger malfunction resulted in an uptime of 99.9%
PM _{2.5}	Sharp	5030	Data logger malfunction, analyzer maintenance, and instrument malfunctioning resulted in an uptime of 99.3%.
ET	Met One/Gill	083D	Data logger malfunction resulted in an uptime of 99.9%
RH	Met One/Gill		Data logger malfunction resulted in an uptime of 99.9%
WS / WD	Met One/ Gill		Data logger malfunction resulted in an uptime of 99.9%

PAZA – Smoky Heights Station

General Station Issues

Parameter	Make	Model	Notes
SO ₂	TEI	43C	Instrument malfunctioning resulted in an uptime of 99.7%.
TRS	TEI	43i	No operational issues observed.
PM _{2.5}	Sharp	5030	No operational issues observed.
ET	Met One	083D	No operational issues observed.
WS / WD	Met One	010C/020C	No operational issues observed.

PAZA – Beaverlodge Station

General Station Issues

Parameter	Make	Model	Notes
SO ₂	TEI	43CTL	No operational issues observed.
NO _x /NO/NO ₂	TEI	42C	No operational issues observed.
O ₃	TEI	49C	No operational issues observed.
PM _{2.5}	Sharp	5030	Instrument malfunctioning and analyzer maintenance resulted in an uptime of 93.8%
ET	n/a	n/a	No operational issues observed.
RH	n/a	n/a	No operational issues observed.
WS / WD	Blue Sky	857	No operational issues observed.

PAZA – Valleyview Station

General Station Issues

Power disruption on December 14.

Parameter	Make	Model	Notes
SO ₂	TEI	43i	Power disruption at the station resulted in an uptime of 99.2%.
H ₂ S	TEI	43A	Power disruption at the station resulted in an uptime of 99.2%.
ET	Gill	Met Pak 3	Power disruption at the station resulted in an uptime of 99.3%.
RH	Gill	Met Pak 3	Power disruption at the station resulted in an uptime of 99.3%.
WS / WD	Gill	Met Pak 3	Power disruption at the station resulted in an uptime of 99.3%.

PAZA – Donnelly Station

General Station Issues

Parameter	Make	Model	Notes
SO ₂	TEI	43i	Instrument malfunctioning resulted in an uptime of 99.7%.
H ₂ S	Thermo	450i	Instrument malfunctioning resulted in an uptime of 99.6%.
ET	Gill	RM Young 5103	No operational issues observed.
WS / WD	Gill	RM Young 5103	Instrument malfunctioning, attributed to precipitation causing the wind instrument to freeze up, resulted in an uptime of 94.5%.

PAZA – Portable-Rycroft

General Station Issues

Power disruption December 12-13.

Parameter	Make	Model	Notes
SO ₂	TEI	43i	A power disruption at the station resulted in an uptime of 99.3%.
NOx/NO/NO ₂	TEI	42i	A power disruption at the station resulted in an uptime of 99.3%.
O ₃	TEI	49i	A power disruption at the station resulted in an uptime of 99.3%.
TRS	TEI	39C	A power disruption at the station resulted in an uptime of 99.3%.
THC/CH ₄ /NMHC	TEI	55i	A power disruption at the station and data logger malfunction resulted in an uptime of 99.2%.
PM _{2.5}	Sharp	5030	A power disruption at the station, data logger malfunction, and analyzer maintenance resulted in an uptime of 99.2%.
ET	Gill	Met Pak 3	A power disruption at the station resulted in an uptime of 99.5%.
WS / WD	Gill	Met Pak 3	A power disruption at the station and instrument malfunctioning (attributed to precipitation causing the wind instrument to freeze up) resulted in an uptime of 94.5%.

PAZA

Henry Pirker Station

Monthly Summary Tables, Graphs and
Roses

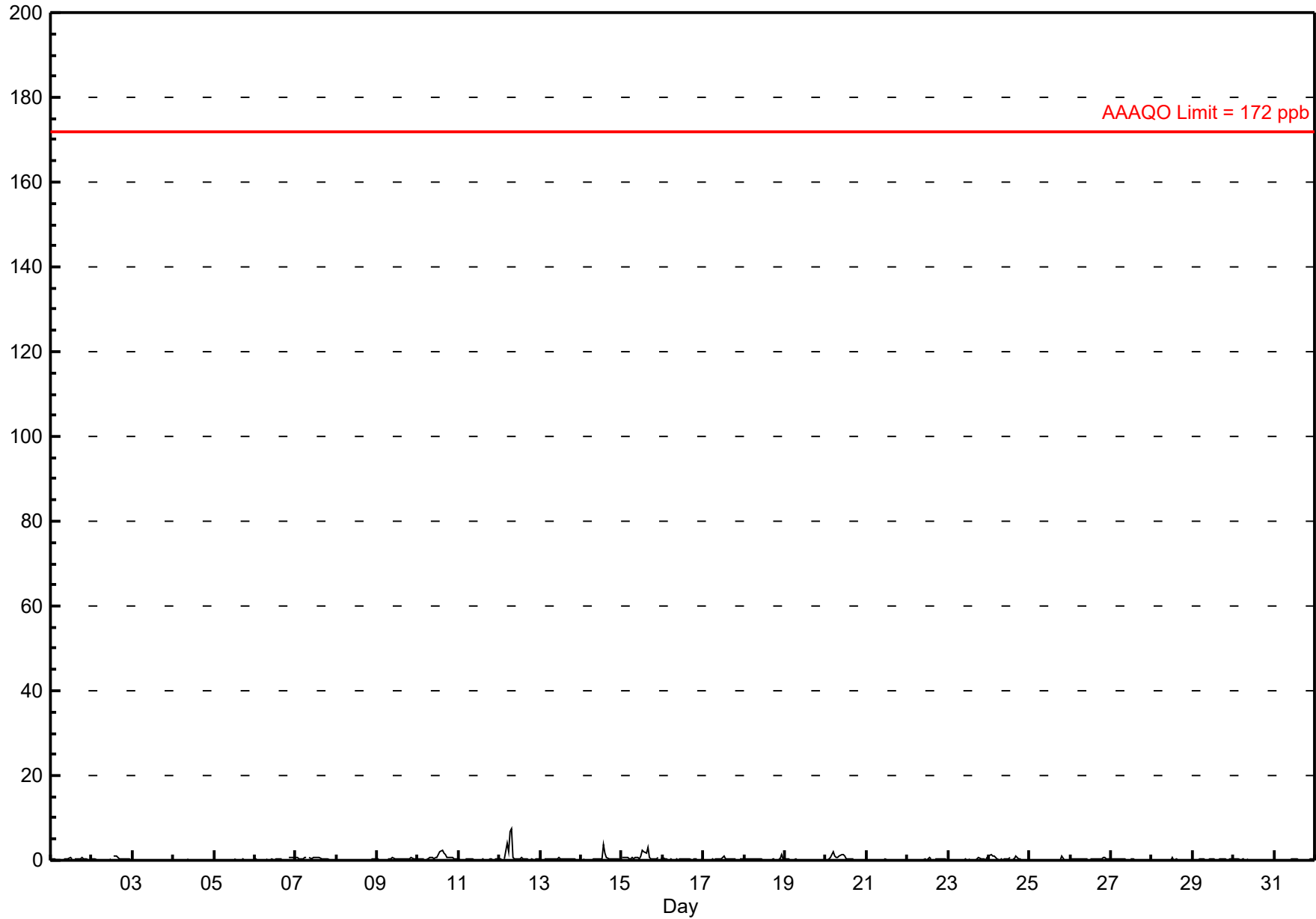
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2016

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 7.4 ppb on Dec 12 08:00	Maximum Daily Average: 1.1 ppb on Dec 12
Minimum Value: 0 ppb on Dec 3 16:00	Hours of Data: 707
Maximum Diurnal Average: 0.5 ppb at hour 14	Hours of Missing Data: 37
Monthly Average: 0.30 ppb	Hours of Calibration: 34
Minimum Daily Average: 0.0 ppb on Dec 4	Percent Operational Time: 99.6
Minimum Diurnal Average: 0.2 ppb at hour 24	
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.6 P ₉₉ = 2.3	

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	A	0	0	0	0	1	0	0	0	0	0	0.3	0.6	
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	1	1	1	0	0	0	0	0	0	0	0	0.3	0.9	
3-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	
4-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	0.2	
5-Dec	0	0	0	0	0	0	0	0	0	A	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	
6-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	P	P	P	1	1	1	0	0.3	0.7	
7-Dec	1	1	0	0	0	1	1	A	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.4	0.6	
8-Dec	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	
9-Dec	0	0	0	0	0	A	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.3	0.6	
10-Dec	0	0	0	0	A	0	0	1	1	0	1	1	1	2	3	2	1	1	1	1	1	1	0	0	0.8	2.5	
11-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	
12-Dec	0	0	A	0	4	2	7	7	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1.1	7.4	
13-Dec	0	A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	4	2	1	0	0	0	0	0	0	0	A	0.5	3.7	
15-Dec	1	1	1	1	0	0	1	0	1	1	0	1	2	2	2	3	1	0	0	0	0	1	A	0	0.8	3.0	
16-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	0.3	0.5	
17-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	A	0	0	0.3	1.0	
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	1	0	0.3	1.4
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0.1	0.4	
20-Dec	0	0	0	1	2	1	1	1	1	1	1	1	0	0	0	0	0	A	0	0	0	0	0	0	0.6	2.1	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.1	0.2	
22-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	0.2	0.7	
23-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	1	0	0	0	0	1	0.2	0.8	
24-Dec	1	1	1	1	1	0	0	0	0	0	0	0	1	A	0	0	1	0	0	0	0	0	0	0	0.5	1.3	
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	1	0	0	0	0	0.1	0.9	
26-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0	0	0	0.3	0.6	
27-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	0.3	
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.7	
29-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	0.2	0.5	
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	
	0.3	0.3	0.2	0.2	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	Diurnal Average		
	1.0	1.3	1.1	0.9	4.0	2.1	6.9	7.4	1.1	1.3	1.3	1.1	2.4	3.7	2.5	3.0	1.2	0.8	0.8	0.9	0.7	0.7	1.4	0.7	Diurnal Maximum		

C - Calibration P - Power Failure A - Automated Daily Zero Span
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb



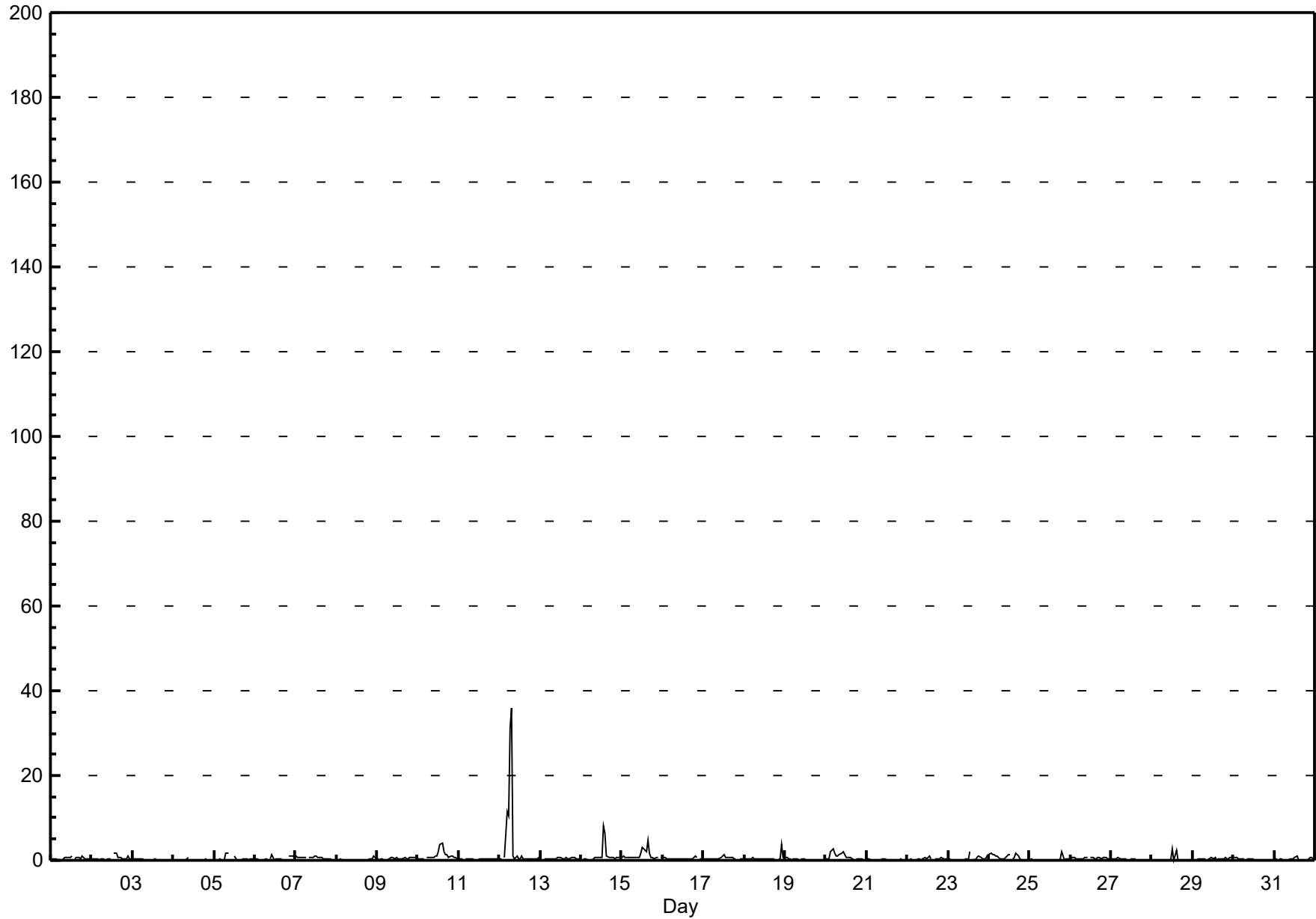
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2016

Maximum Value: 35.8 ppb on Dec 12 08:00		Maximum Daily Average: 4.2 ppb on Dec 12		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 3 16:00		Minimum Daily Average: 0.2 ppb on Dec 4		Hours of Data: 707																						
Maximum Diurnal Average: 1.6 ppb at hour 8		Minimum Diurnal Average: 0.3 ppb at hour 24		Hours of Missing Data: 37																						
Monthly Average: 0.59 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.6 P ₉₀ = 0.9 P ₉₉ = 3.5		Hours of Calibration: 34																						
				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	0	0	0	0	0	0	1	1	1	1	1	A	0	1	1	0	1	1	0	0	0	0	0.4	0.9
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	2	2	1	1	1	0	0	0	1	0	0	0.5	1.6
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
4-Dec	0	0	0	0	0	0	0	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6
5-Dec	0	0	0	0	0	0	0	2	2	A	C	C	1	0	0	0	0	0	0	0	0	0	0	0	0.4	1.7
6-Dec	0	0	0	0	0	0	0	0	A	0	1	0	0	0	0	0	0	P	P	P	1	1	1	1	0.5	1.4
7-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0.5	0.9
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.2	0.9
9-Dec	0	0	0	0	0	0	A	0	0	1	1	0	1	0	0	0	1	0	0	1	1	1	1	1	0.4	0.8
10-Dec	0	0	0	0	A	1	1	1	1	1	1	1	2	4	4	2	1	1	1	1	1	1	1	0	1.1	4.1
11-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
12-Dec	0	0	A	1	11	11	31	36	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	4.2	35.8
13-Dec	1	A	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	1	1	1	0	0	0	0.5	0.8
14-Dec	A	0	0	0	0	0	0	0	1	1	1	1	1	8	7	1	1	1	1	1	1	0	1	1	1.1	8.0
15-Dec	1	1	1	1	1	1	1	1	1	1	1	2	3	3	2	5	2	1	1	0	1	1	A	1	1.2	4.6
16-Dec	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	A	0	0	0.4	0.9
17-Dec	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	A	0	0	0	0.5	1.3
18-Dec	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	4	1	0.5	3.9
19-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0.2	0.5
20-Dec	0	0	0	2	3	2	1	1	1	2	2	1	1	1	1	0	0	A	0	0	0	0	0	0	0.9	2.6
21-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
22-Dec	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	A	0	0	0	0	0	1	0	0	0.3	1.0
23-Dec	0	0	0	0	0	0	0	0	0	0	1	0	0	2	A	0	0	1	1	1	0	0	0	1	0.4	2.0
24-Dec	1	2	1	1	1	1	0	0	0	0	1	1	1	A	0	1	2	1	0	0	0	0	0	0	0.7	1.9
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	2	0	0	0	0.2	2.2
26-Dec	0	1	1	0	0	0	0	0	1	1	1	A	1	1	0	0	1	1	0	1	1	1	0	0	0.5	0.7
27-Dec	0	0	0	0	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0.4	2.6
29-Dec	0	0	0	0	0	0	0	0	0	A	0	0	1	0	1	0	0	0	0	1	0	0	1	1	0.3	0.7
30-Dec	1	1	1	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0.3	0.9
	0.4	0.4	0.3	0.4	0.7	0.7	1.4	1.6	0.5	0.4	0.5	0.6	0.7	1.0	0.8	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	Diurnal Average	
	1.4	1.6	1.4	2.2	11.5	10.5	31.2	35.8	1.7	1.6	2.2	1.8	3.0	8.0	6.6	4.6	1.9	1.2	1.1	2.2	1.0	1.2	3.9	1.0	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																		

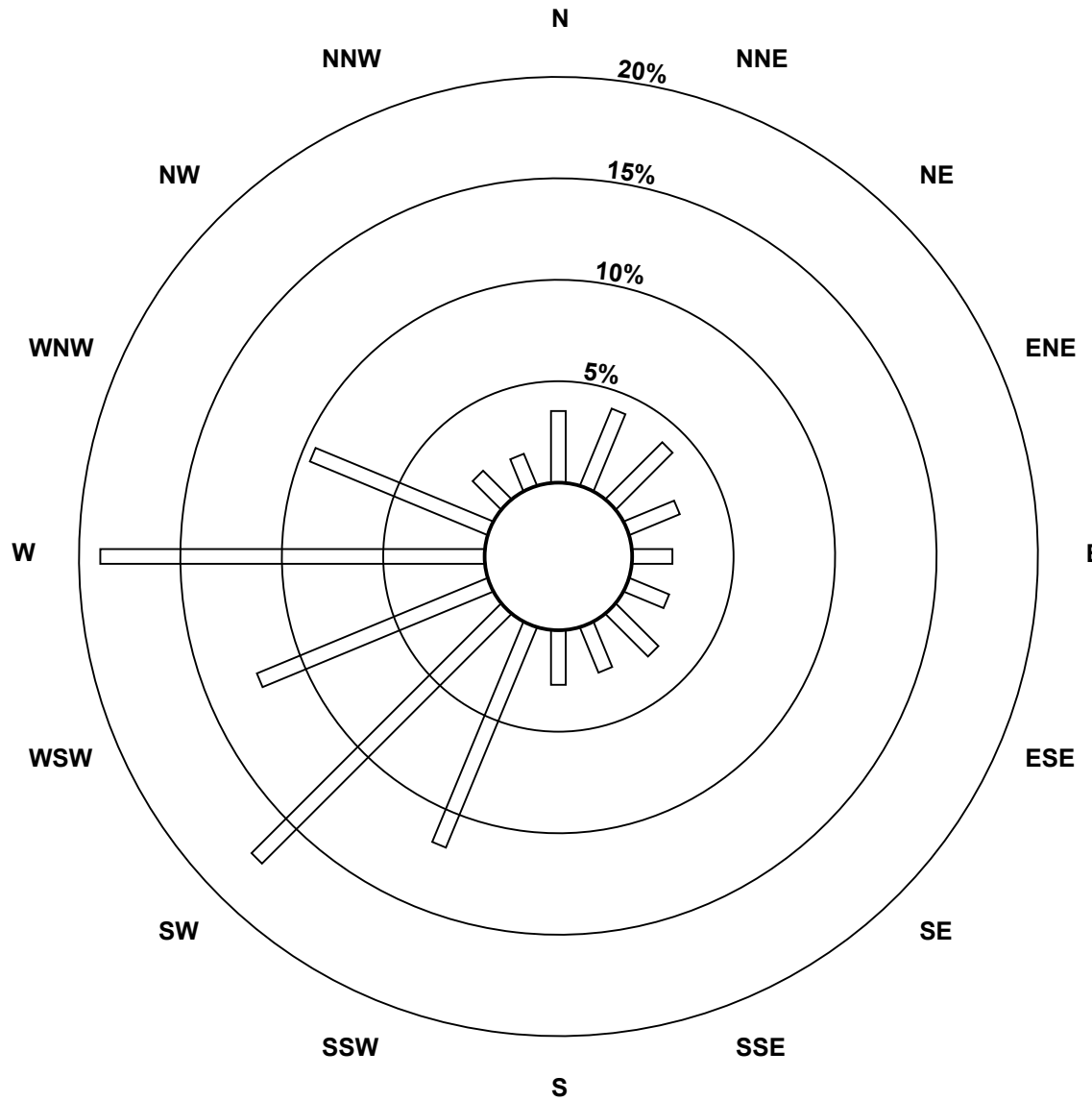
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2016

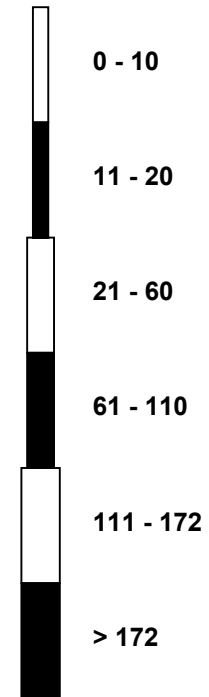


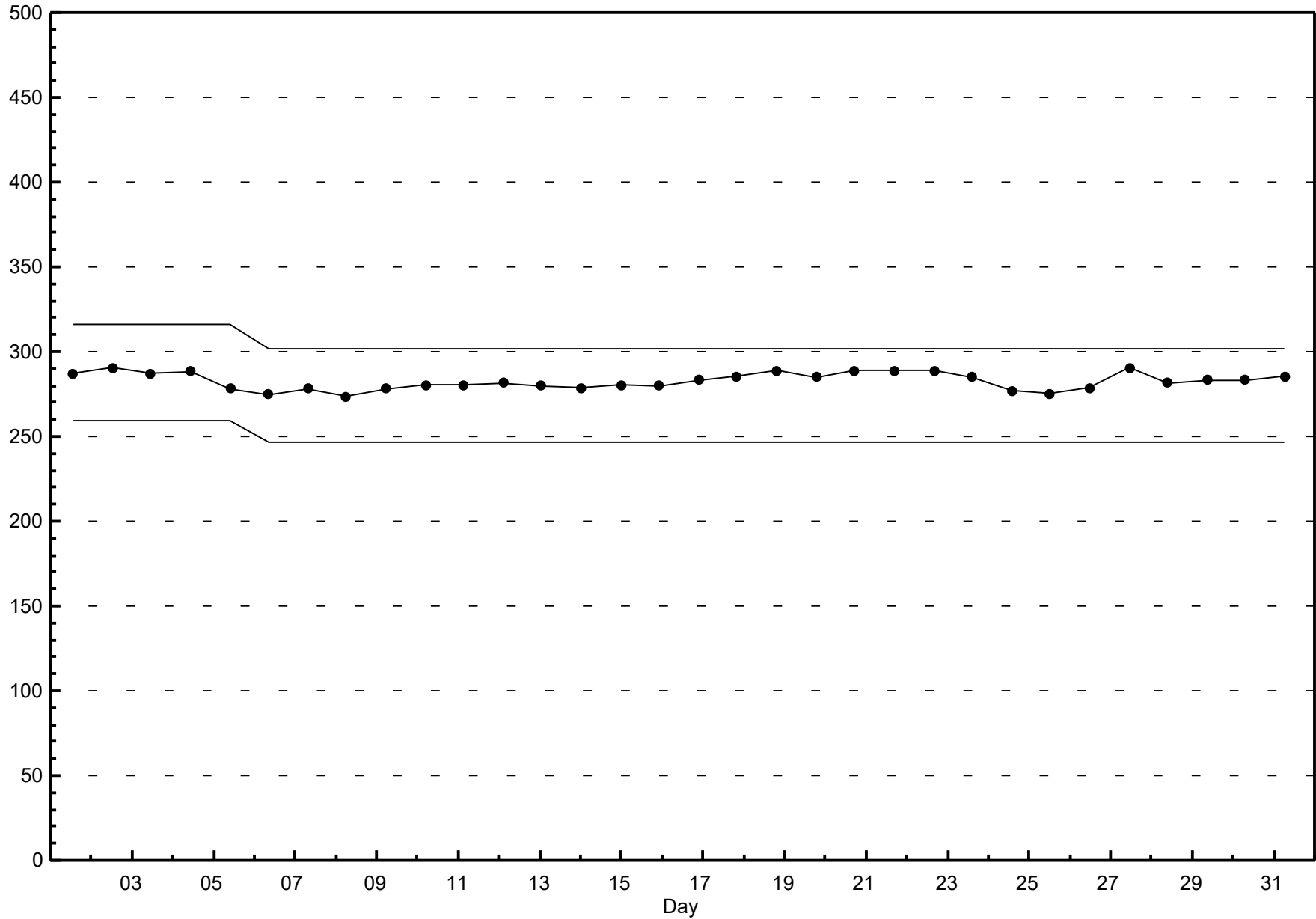
Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - December 2016



Pollutant Classes (ppb)



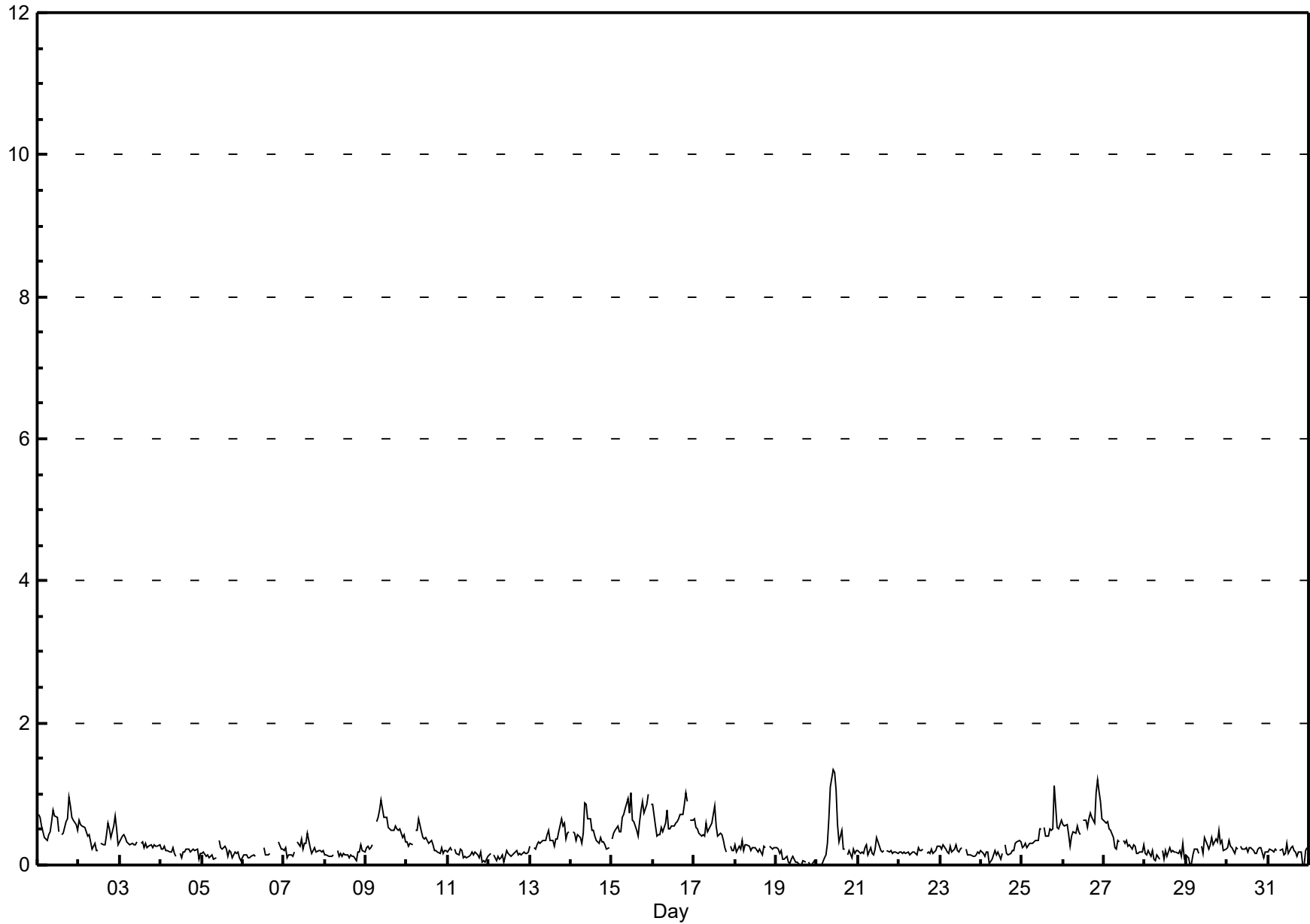


Hourly Averages

Total Reduced Sulphur (TRS) - ppb

Henry Pirker - December 2016

Maximum Value: 1.3 ppb on Dec 20 10:00		Maximum Daily Average: 0.7 ppb on Dec 15		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 19 15:00		Minimum Daily Average: 0.1 ppb on Dec 19		Hours of Data: 705																							
Maximum Diurnal Average: 0.4 ppb at hour 10		Minimum Diurnal Average: 0.3 ppb at hour 5		Hours of Missing Data: 39																							
Monthly Average: 0.31 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 1.0		Hours of Calibration: 35																							
				Percent Operational Time: 99.5																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1	1	1	0	0	0	0	0	1	1	1	1	0	A	0	0	1	1	1	1	1	1	1	0	0.6	1.0	
2-Dec	1	1	1	1	0	0	0	0	0	0	0	0	A	0	0	0	0	1	1	0	1	1	1	0	0.4	0.7	
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	
4-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	0.3	
5-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	
6-Dec	0	0	0	0	0	0	0	0	A	C	C	C	0	0	0	0	0	P	P	P	P	0	0	0	--	0.3	
7-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	
8-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	
9-Dec	0	0	0	0	0	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0.5	0.9	
10-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	0.3	0.6	
11-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	0.2	
12-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	0.2	
13-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0.4	0.7	
14-Dec	A	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	A	0.4	0.9	
15-Dec	0	0	0	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	A	1	0.7	1.0	
16-Dec	1	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.6	1.0	
17-Dec	1	1	1	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	A	0	0	0.4	0.8	
18-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	
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0.1	0.3	
20-Dec	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	A	0	0	0	0	0	0	0.4	1.3	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.2	0.4	
22-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.2	0.3	
23-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.2	0.3	
24-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	0.2	0.3	
25-Dec	0	0	0	0	0	0	0	0	0	0	1	1	A	1	0	0	1	0	1	1	1	1	1	1	0.4	1.1	
26-Dec	1	1	1	0	0	0	0	0	1	0	0	A	1	1	1	1	1	1	1	1	1	1	1	1	0.6	1.2	
27-Dec	1	1	1	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6	
28-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	0.3	
29-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	
31-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	0.2	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	Diurnal Average	
		0.9	0.7	0.6	0.5	0.5	0.5	0.7	0.7	1.1	1.3	1.3	1.1	0.8	0.6	0.6	0.6	0.7	0.8	1.0	1.1	1.2	1.0	0.9	0.9	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

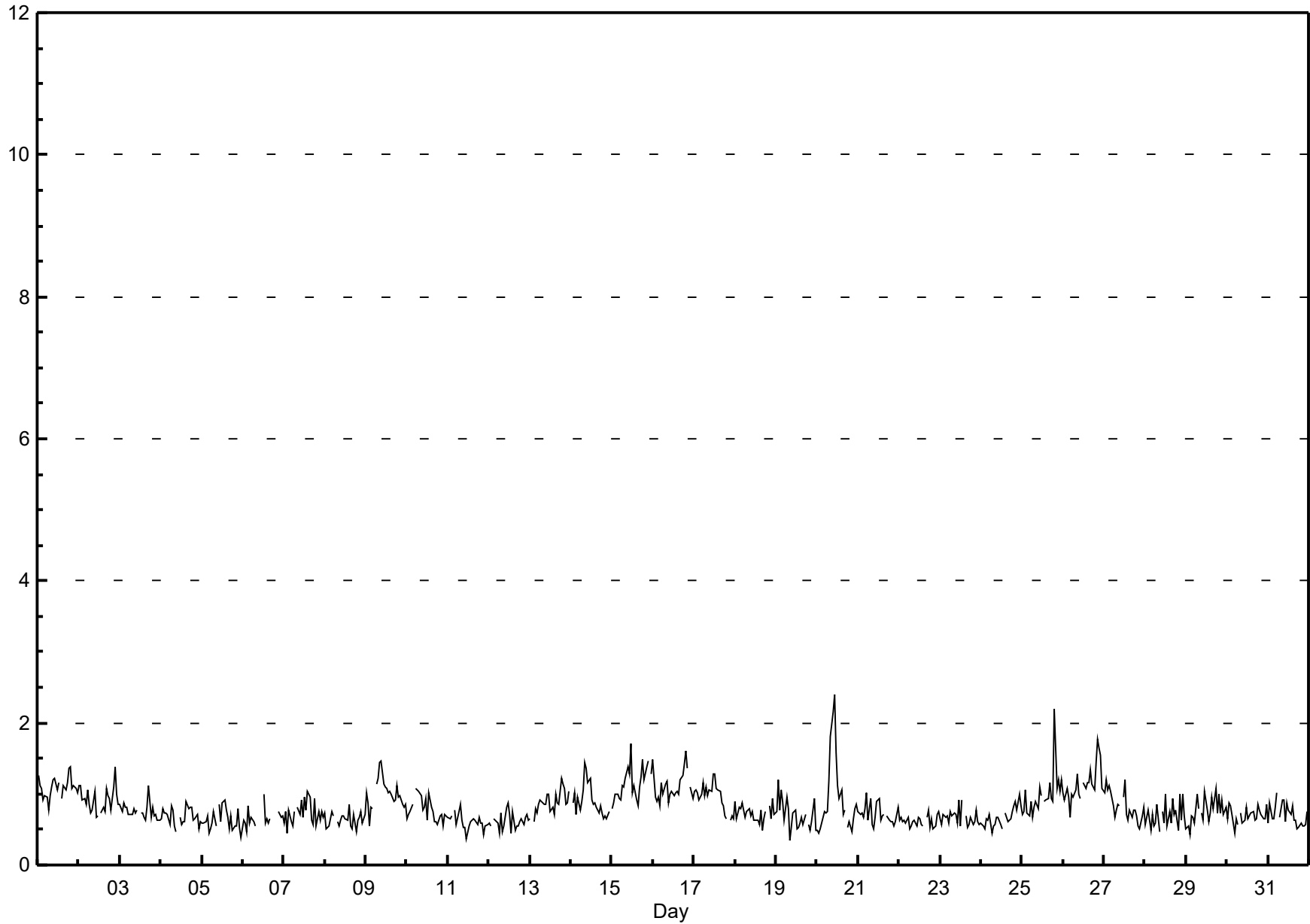


Hourly Maximums

Total Reduced Sulphur (TRS) - ppb

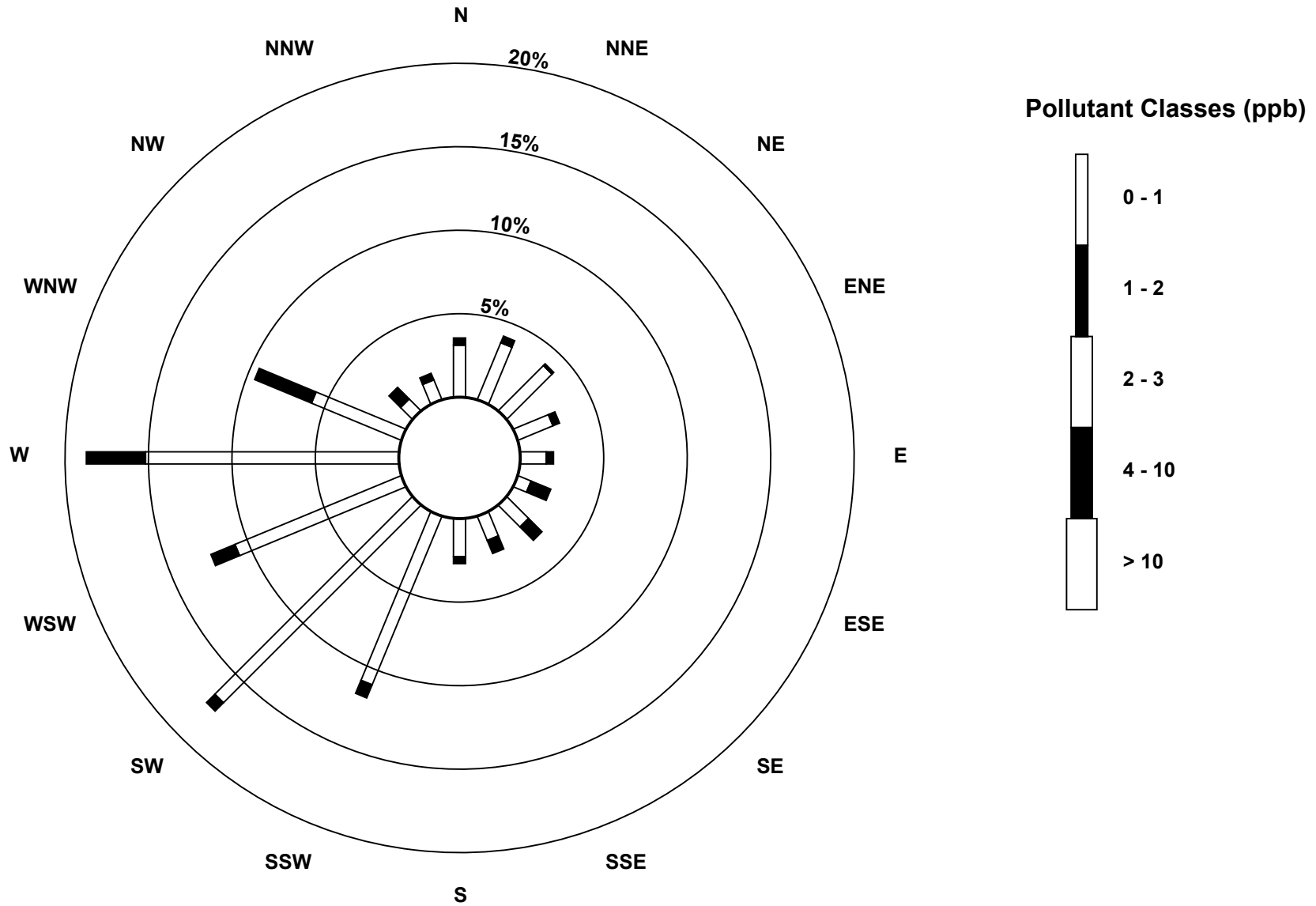
Henry Pirker - December 2016

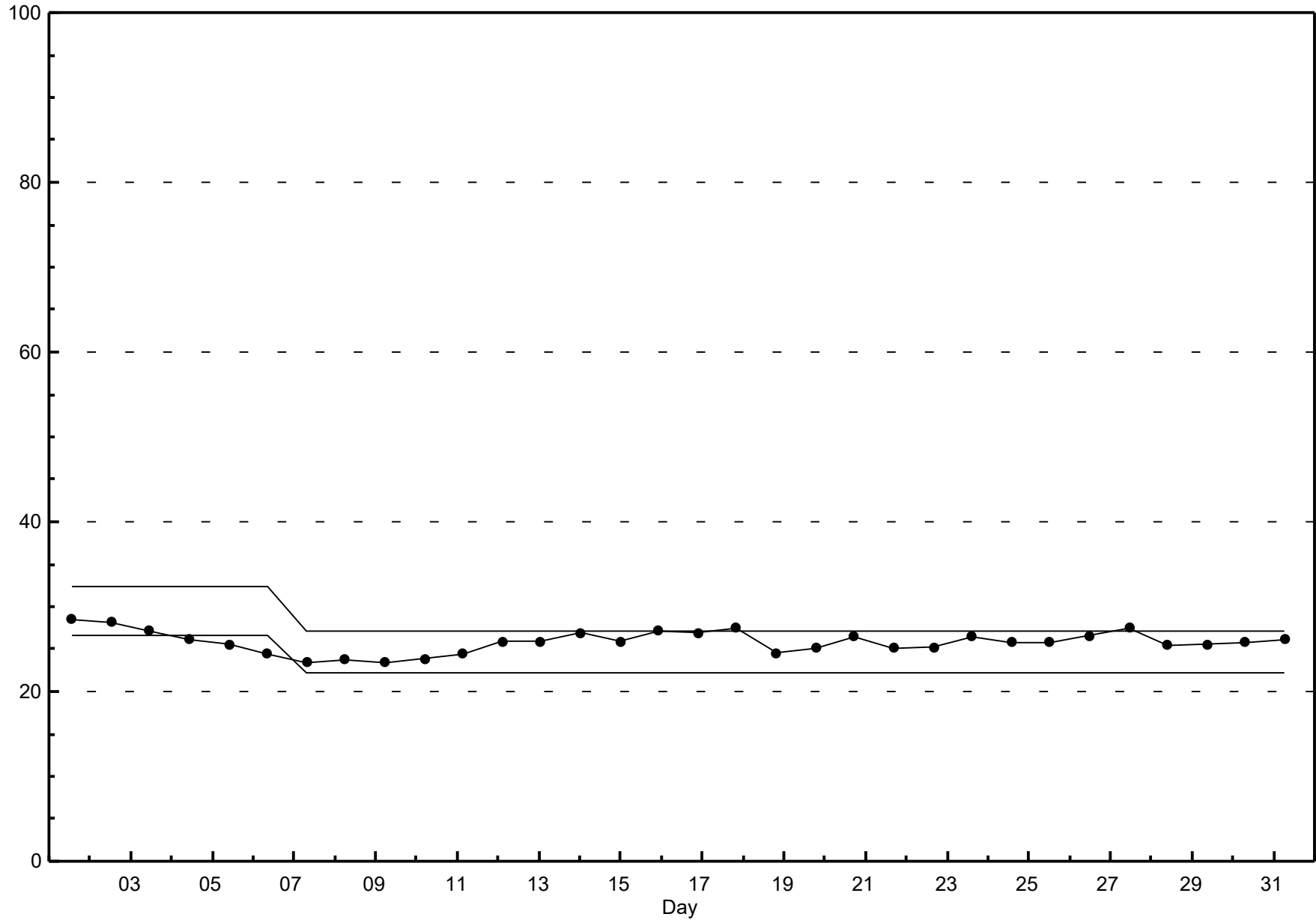
Maximum Value: 2.4 ppb on Dec 20 11:00 Maximum Daily Average: 1.1 ppb on Dec 26 Minimum Value: 0 ppb on Dec 19 09:00 Minimum Daily Average: 0.6 ppb on Dec 11 Maximum Diurnal Average: 0.9 ppb at hour 12 Minimum Diurnal Average: 0.8 ppb at hour 5 Monthly Average: 0.81 ppb Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.8 Q ₃ = 0.9 P ₉₀ = 1.1 P ₉₉ = 1.6																								Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 35 Percent Operational Time: 99.5																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1.1	1.4																								
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.9	1.4																								
3-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	1.1																								
4-Dec	1	1	1	1	1	1	1	1	1	0	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9																								
5-Dec	1	1	1	1	0	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0.6	0.9																								
6-Dec	1	1	0	1	1	1	1	1	A	C	C	C	1	1	1	1	1	P	P	P	P	1	1	1	--	1.0																								
7-Dec	1	1	0	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																								
8-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0.6	0.9																								
9-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	1.5																								
10-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																								
11-Dec	1	1	1	A	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0.6	0.9																								
12-Dec	1	1	A	1	1	1	0	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0.6	0.9																								
13-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.2																								
14-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	1.5																								
15-Dec	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	A	1	1.1	1.7																								
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	A	1	1	1.1	1.6																								
17-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	1.3																								
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	A	1	1	1	1	0.7	0.9																								
19-Dec	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	A	1	0	1	0.7	1.2																								
20-Dec	0	0	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	A	1	1	0	1	1	1	1.0	2.4																								
21-Dec	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.7	1.0																								
22-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	0.6	0.8																								
23-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	0.9																								
24-Dec	1	1	1	1	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.0																								
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	2	1	1	1	1	1.0	2.2																								
26-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	2	2	2	1	1.1	1.8																								
27-Dec	1	1	1	1	1	1	1	1	1	0	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2																								
28-Dec	1	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0	1	1	1	1	0.7	1.0																								
29-Dec	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1																								
30-Dec	1	1	1	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9																								
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0																								
																								Diurnal Average	Diurnal Maximum																									
																								0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
																								1.5	1.2	1.1	1.1	1.0	1.2	1.1	1.2	1.8	2.1	2.4	1.7	1.3	1.1	1.1	1.2	1.3	1.3	1.5	2.2	1.8	1.7	1.5	1.3	1.3	1.3	
C - Calibration																								P - Power Failure				A - Automated Daily Zero Span																						



Pollutant Rose

Total Reduced Sulphur (TRS) - ppb
Henry Pirker - December 2016





Hourly Averages

Nitrogen Dioxide (NO₂) - ppb

Henry Pirker - December 2016

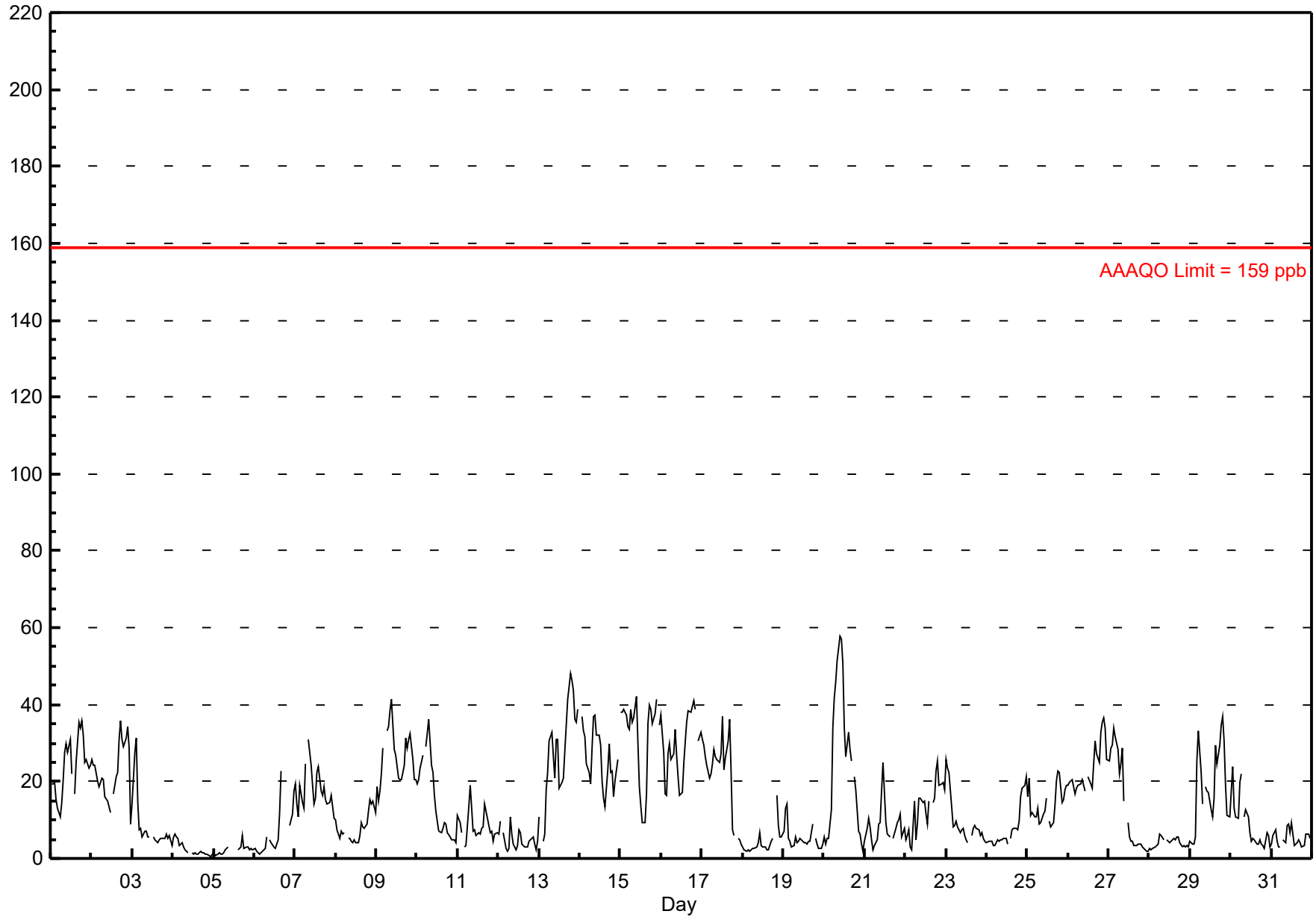
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 57.7 ppb on Dec 20 10:00	Maximum Daily Average: 31.9 ppb on Dec 15
Minimum Value: 0 ppb on Dec 4 23:00	Hours of Data: 704
Maximum Diurnal Average: 17.5 ppb at hour 9	Hours of Missing Data: 40
Monthly Average: 14.45 ppb	Hours of Calibration: 36
Minimum Daily Average: 2.3 ppb on Dec 5	Percent Operational Time: 99.5
Minimum Diurnal Average: 10.8 ppb at hour 14	
Percentiles: P ₁ = 1.1 P ₁₀ = 2.9 Q ₁ = 4.7 Median = 10.2 Q ₃ = 22.5 P ₉₀ = 32.2 P ₉₉ = 45.3	

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	20	19	20	15	13	11	14	21	28	30	27	31	22	A	17	25	35	34	36	32	25	26	23	24	23.8	35.9
2-Dec	26	24	24	20	18	20	21	20	16	15	13	12	A	17	21	22	31	36	31	29	31	34	29	9	22.6	35.8
3-Dec	14	28	31	15	7	8	6	7	7	6	6	A	5	5	4	4	5	5	5	5	6	5	6	3	8.5	31.4
4-Dec	6	6	6	5	3	4	3	2	2	2	A	2	1	1	1	1	2	2	2	1	1	1	0	1	2.4	6.3
5-Dec	1	1	1	1	1	1	1	2	3	A	C	C	C	C	2	3	3	6	3	3	3	2	3	2	2.3	6.1
6-Dec	3	2	1	1	2	2	3	6	A	5	4	3	3	4	5	12	23	P	P	P	P	9	12	17	6.0	22.8
7-Dec	19	14	11	19	14	13	25	A	31	24	19	14	16	22	24	17	16	18	15	14	14	17	14	10	17.5	30.9
8-Dec	10	8	5	7	6	7	A	5	5	5	4	5	4	4	6	9	8	8	9	12	15	14	15	12	8.0	15.2
9-Dec	19	15	18	22	29	A	33	34	38	41	28	27	24	21	20	21	24	31	29	31	32	26	21	20	26.3	41.4
10-Dec	19	20	24	27	A	29	32	36	24	22	16	12	10	7	7	8	9	9	7	6	5	5	5	4	14.9	36.3
11-Dec	11	9	7	A	3	3	13	19	13	7	8	6	7	6	8	8	14	11	9	7	7	5	6	7	8.4	18.9
12-Dec	6	10	A	7	3	2	3	11	6	4	2	3	8	7	4	3	3	3	4	5	6	4	2	5	4.7	10.9
13-Dec	11	A	4	6	18	22	31	33	26	21	31	31	18	20	21	28	35	41	48	46	44	36	35	39	28.1	48.0
14-Dec	A	37	33	32	25	23	20	29	37	37	32	32	30	20	16	13	23	30	22	23	16	20	26	A	26.1	37.2
15-Dec	38	38	39	37	34	33	39	36	37	42	30	19	14	9	9	17	35	40	39	35	38	42	A	35	31.9	42.3
16-Dec	37	28	17	16	27	30	26	27	33	27	21	16	17	25	30	35	38	38	40	41	39	A	31	33	29.2	40.9
17-Dec	31	29	27	24	21	22	25	28	26	26	25	27	37	23	26	31	36	23	8	6	A	5	5	4	22.4	37.0
18-Dec	3	2	2	2	2	2	3	2	3	4	7	3	3	3	2	2	3	4	5	A	16	8	6	6	4.1	16.5
19-Dec	7	13	14	5	4	3	3	5	4	5	5	4	4	4	4	5	5	9	A	5	4	3	3	4	5.3	14.0
20-Dec	6	4	5	5	13	34	42	46	51	58	57	51	34	27	33	28	25	A	21	18	7	6	4	2	25.1	57.7
21-Dec	4	8	10	8	5	2	3	5	9	9	18	25	9	6	6	6	A	5	8	9	10	12	6	8	8.3	25.1
22-Dec	5	6	8	3	2	15	5	9	16	16	15	15	11	9	15	A	15	16	23	25	19	19	20	18	13.1	25.4
23-Dec	26	24	22	13	8	9	10	8	7	8	8	6	5	4	A	6	8	9	8	8	6	7	5	4	9.4	25.9
24-Dec	4	4	5	4	3	3	5	4	5	5	5	5	4	A	5	7	8	8	7	10	16	18	19	21	7.7	21.4
25-Dec	16	21	11	12	11	11	13	9	9	12	12	16	A	10	8	9	14	20	23	23	15	15	18	19	14.2	22.8
26-Dec	19	20	21	19	17	18	19	19	21	19	17	A	21	19	18	25	30	27	25	33	35	37	34	26	23.5	36.6
27-Dec	25	29	30	34	32	28	22	25	29	15	A	9	5	5	4	4	3	4	4	4	3	2	2	2	13.9	34.0
28-Dec	2	2	3	3	3	4	6	6	5	A	5	4	4	5	5	5	6	6	4	3	3	3	3	3	4.0	6.3
29-Dec	5	4	4	5	25	33	22	14	A	19	17	17	13	11	16	29	25	30	35	37	30	19	11	11	18.8	36.7
30-Dec	18	24	13	11	11	20	22	A	11	13	11	7	5	5	5	4	4	5	4	3	3	7	6	3	9.2	23.8
31-Dec	4	6	7	5	3	3	A	5	4	9	9	7	9	3	4	4	5	4	3	3	6	6	7	5	5.2	9.4
	13.8	15.1	14.1	12.9	12.1	13.8	16.2	16.4	17.5	17.3	16.2	14.6	12.2	10.8	11.5	13.1	16.4	16.6	16.4	16.4	15.7	13.7	12.5	11.9		Diurnal Average
	38.0	38.0	38.7	37.4	34.3	34.0	41.9	45.7	51.5	57.7	57.0	50.8	37.0	26.6	33.0	35.4	38.3	41.4	48.0	46.4	43.5	41.5	35.2	39.0		Diurnal Maximum

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

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - December 2016



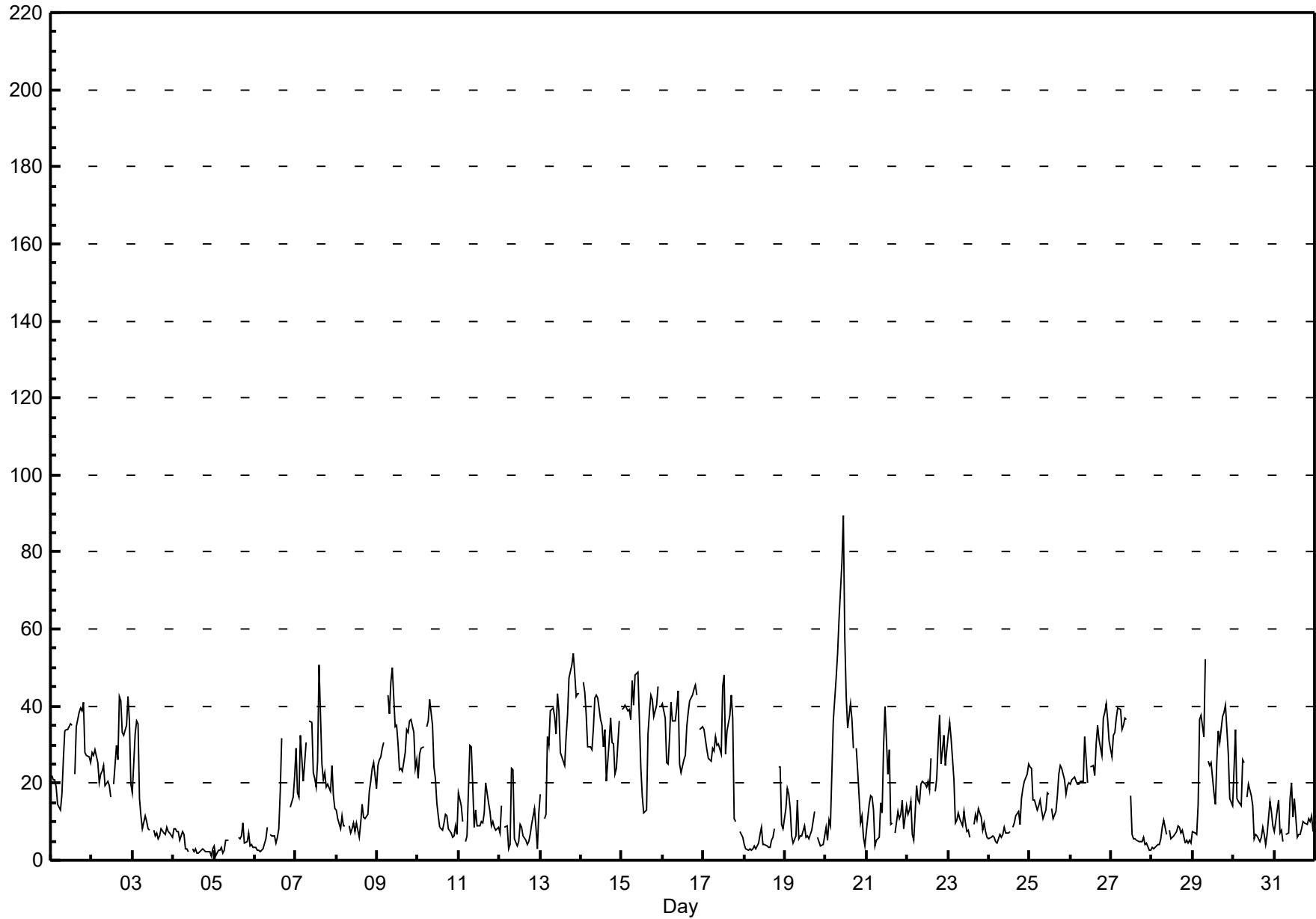
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb Henry Pirker - December 2016

Maximum Value: 89.5 ppb on Dec 20 11:00		Maximum Daily Average: 36.5 ppb on Dec 15		Hours in Service: 744																							
Minimum Value: 1 ppb on Dec 4 23:00		Minimum Daily Average: 3.9 ppb on Dec 4		Hours of Data: 704																							
Maximum Diurnal Average: 23.6 ppb at hour 10		Minimum Diurnal Average: 14.8 ppb at hour 14		Hours of Missing Data: 40																							
Monthly Average: 19.05 ppb		Percentiles: P ₁ = 2.1 P ₁₀ = 4.6 Q ₁ = 7.2 Median = 15.6 Q ₃ = 29.4 P ₉₀ = 38.3 P ₉₉ = 51.7		Hours of Calibration: 36																							
				Percent Operational Time: 99.5																							
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	22	21	21	19	14	13	17	26	33	34	34	35	35	A	22	35	38	39	39	41	28	27	27	25	28.1	41.1	
2-Dec	28	27	29	25	20	22	23	25	19	20	19	16	A	20	30	26	42	42	33	32	35	42	36	20	27.6	42.4	
3-Dec	18	33	36	35	16	11	8	11	10	8	8	A	8	6	7	5	6	8	7	7	8	7	7	6	12.1	36.3	
4-Dec	8	8	8	7	5	7	7	3	3	2	A	3	2	3	2	2	3	3	3	2	2	2	1	3	3.9	8.2	
5-Dec	4	1	3	3	3	2	3	5	5	A	C	C	C	C	6	6	6	10	5	5	7	4	4	3	4.4	9.9	
6-Dec	3	3	3	2	3	3	6	9	A	7	6	6	4	6	8	18	32	P	P	P	P	14	16	21	8.9	31.8	
7-Dec	29	18	16	33	21	25	31	A	36	36	23	21	19	26	51	25	21	23	19	20	18	25	17	13	24.5	50.9	
8-Dec	13	11	8	12	9	9	A	9	7	8	10	7	10	6	10	14	11	11	12	18	21	24	26	19	12.3	25.5	
9-Dec	25	26	27	29	31	A	43	38	46	50	35	35	30	23	24	23	28	34	33	36	36	33	24	26	32.0	50.1	
10-Dec	21	27	29	29	A	34	36	42	35	24	21	15	12	9	8	10	12	12	8	7	6	6	9	7	18.2	41.9	
11-Dec	18	14	10	A	5	6	30	29	20	9	13	9	9	10	10	12	20	15	13	9	10	8	8	9	12.8	29.8	
12-Dec	7	14	A	9	9	3	4	24	23	6	4	5	9	9	6	5	4	5	7	9	13	8	3	12	8.7	24.0	
13-Dec	17	A	11	12	32	30	39	39	37	33	43	39	28	26	25	32	38	47	51	54	48	42	43	43	35.2	53.5	
14-Dec	A	46	44	38	29	29	29	34	42	43	42	36	35	29	34	21	31	37	31	30	22	24	36	A	33.8	46.2	
15-Dec	39	39	40	39	39	37	47	40	48	49	37	24	17	12	13	33	38	43	42	37	40	45	A	40	36.5	48.7	
16-Dec	41	37	25	25	32	41	36	36	40	44	25	23	26	27	35	38	42	43	44	46	43	A	34	35	35.5	45.6	
17-Dec	34	31	29	27	26	29	28	32	30	30	27	45	48	27	34	38	43	37	11	10	A	7	7	6	27.6	48.2	
18-Dec	4	3	3	3	3	3	4	3	5	7	9	4	4	4	3	4	5	6	8	A	24	24	9	8	6.5	24.3	
19-Dec	13	19	17	14	6	5	6	16	6	6	6	9	6	6	6	7	8	13	A	6	5	4	4	6	8.4	18.8	
20-Dec	9	5	11	9	36	42	47	54	63	77	89	58	43	34	41	37	29	A	29	23	10	11	6	4	33.3	89.5	
21-Dec	8	15	17	16	13	4	5	6	15	12	29	40	22	29	9	10	A	7	13	11	12	16	8	14	14.4	39.8	
22-Dec	12	13	15	7	5	19	15	15	20	21	20	19	20	18	27	A	18	21	30	38	25	33	25	29	20.2	37.6	
23-Dec	32	36	32	21	10	11	12	11	9	13	10	8	8	6	A	9	12	11	13	11	8	10	7	6	13.3	35.7	
24-Dec	6	6	6	6	5	4	7	6	7	9	7	7	8	A	8	10	12	13	9	16	19	21	22	25	10.4	25.2	
25-Dec	24	24	16	15	13	14	16	13	11	13	17	17	A	13	11	13	17	22	24	24	21	17	19	20	17.2	24.5	
26-Dec	20	21	22	21	20	20	20	21	32	27	20	A	24	25	22	30	35	31	27	37	38	41	36	31	27.0	40.7	
27-Dec	27	32	33	37	40	39	34	35	37	37	A	17	7	6	6	5	5	5	5	6	4	4	3	3	18.5	39.7	
28-Dec	3	3	3	4	4	6	8	11	7	A	8	5	6	7	8	9	9	7	8	4	5	4	5	5	6.1	10.6	
29-Dec	7	7	7	15	36	38	32	52	A	26	25	26	17	14	26	34	31	37	39	40	34	28	16	14	26.1	52.3	
30-Dec	24	34	16	15	14	26	25	A	16	20	17	14	6	7	6	5	6	9	7	4	7	15	13	9	13.7	34.1	
31-Dec	8	10	16	7	8	5	A	7	7	16	20	11	16	6	7	7	8	10	10	9	11	10	11	7	9.9	20.1	
		17.4	19.5	18.4	17.8	16.9	17.9	21.3	22.5	23.1	23.6	22.3	19.8	17.1	14.8	16.7	17.3	20.3	20.7	20.0	20.4	19.4	18.6	16.1	15.7	Diurnal Average	
		40.7	46.2	43.7	38.7	39.7	41.8	47.4	53.7	62.6	77.2	89.5	57.9	48.2	34.3	50.9	38.3	42.9	47.4	50.8	53.5	48.4	45.1	43.4	43.3	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

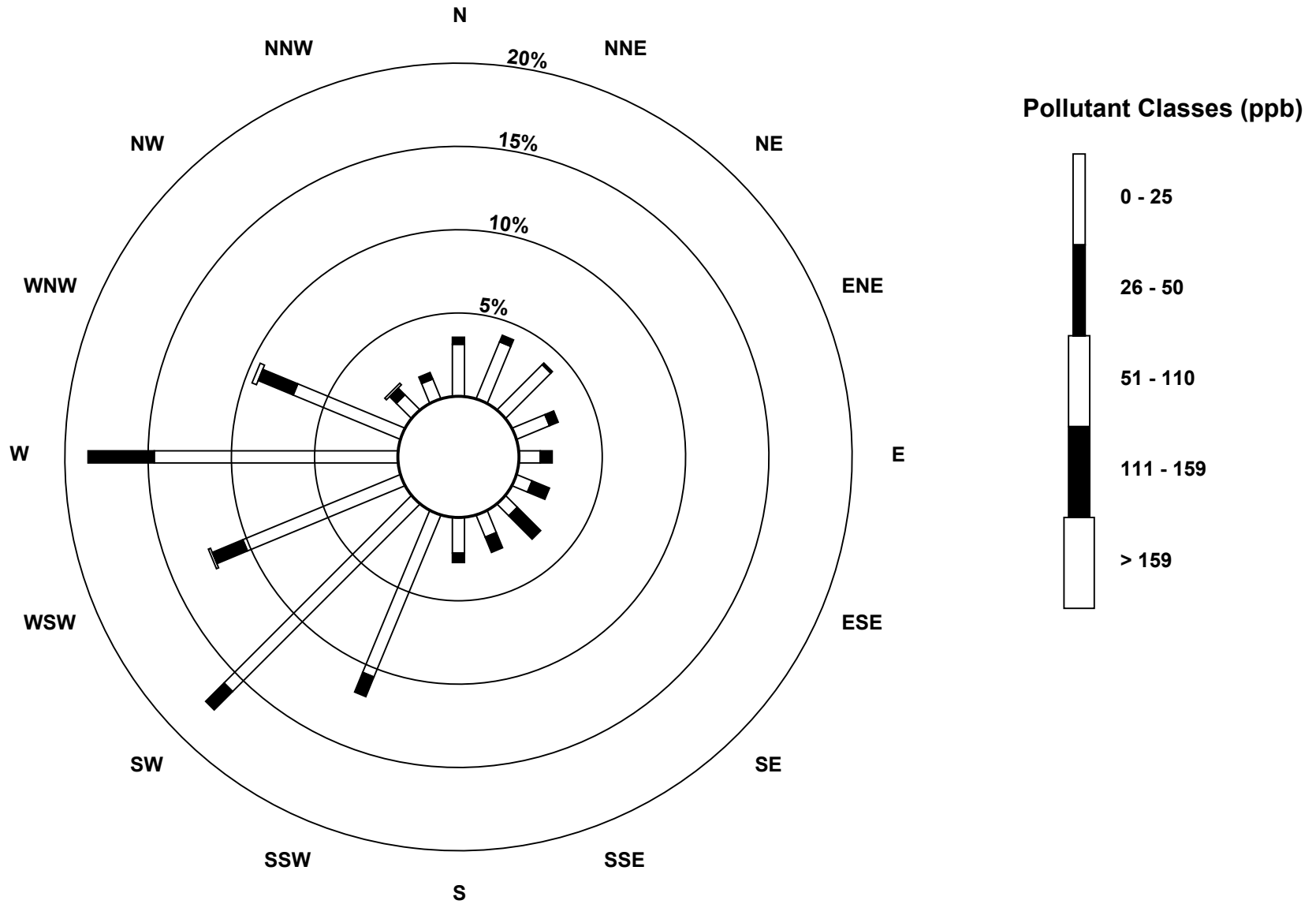
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - December 2016



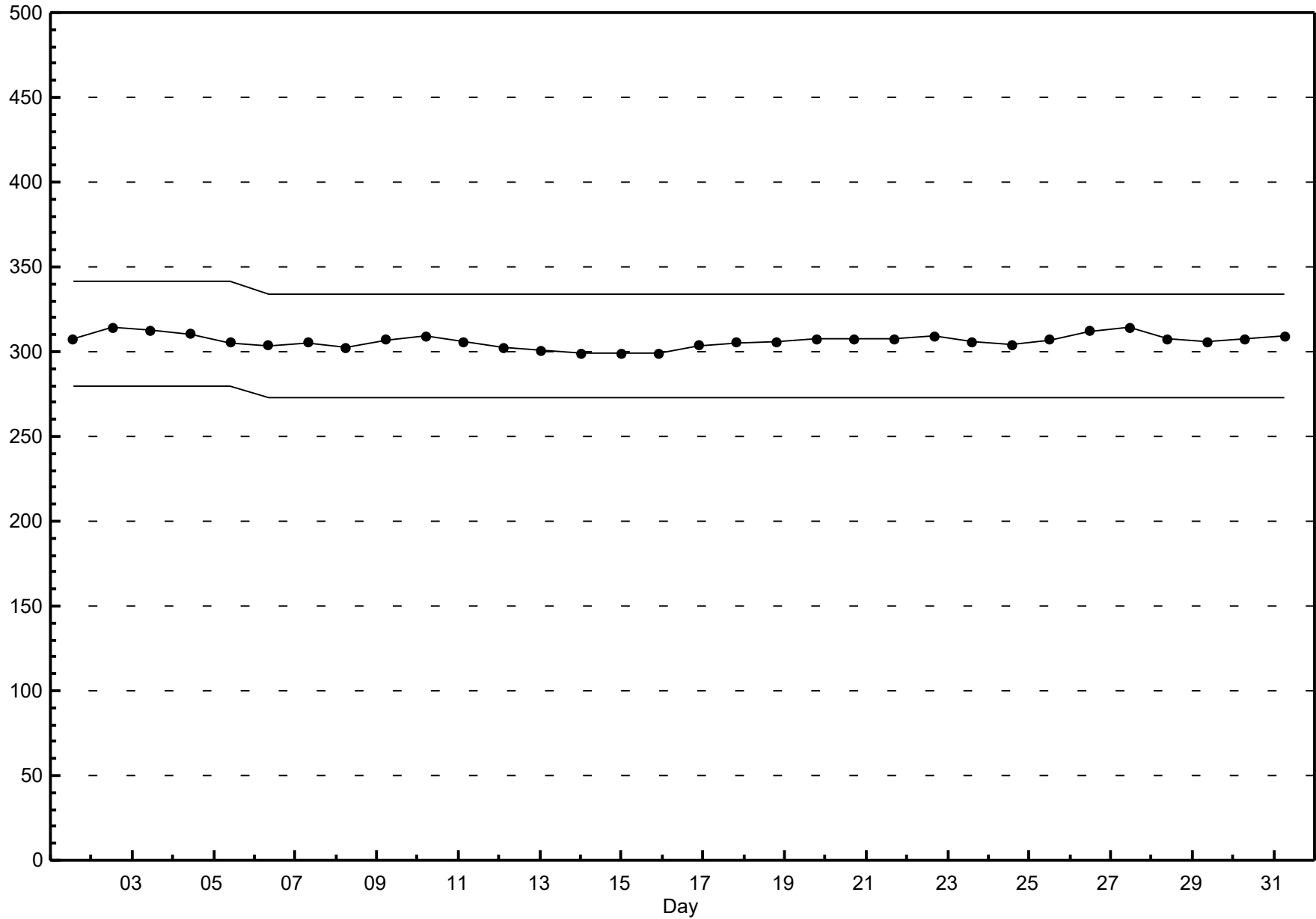
Pollutant Rose

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - December 2016



Span Responses

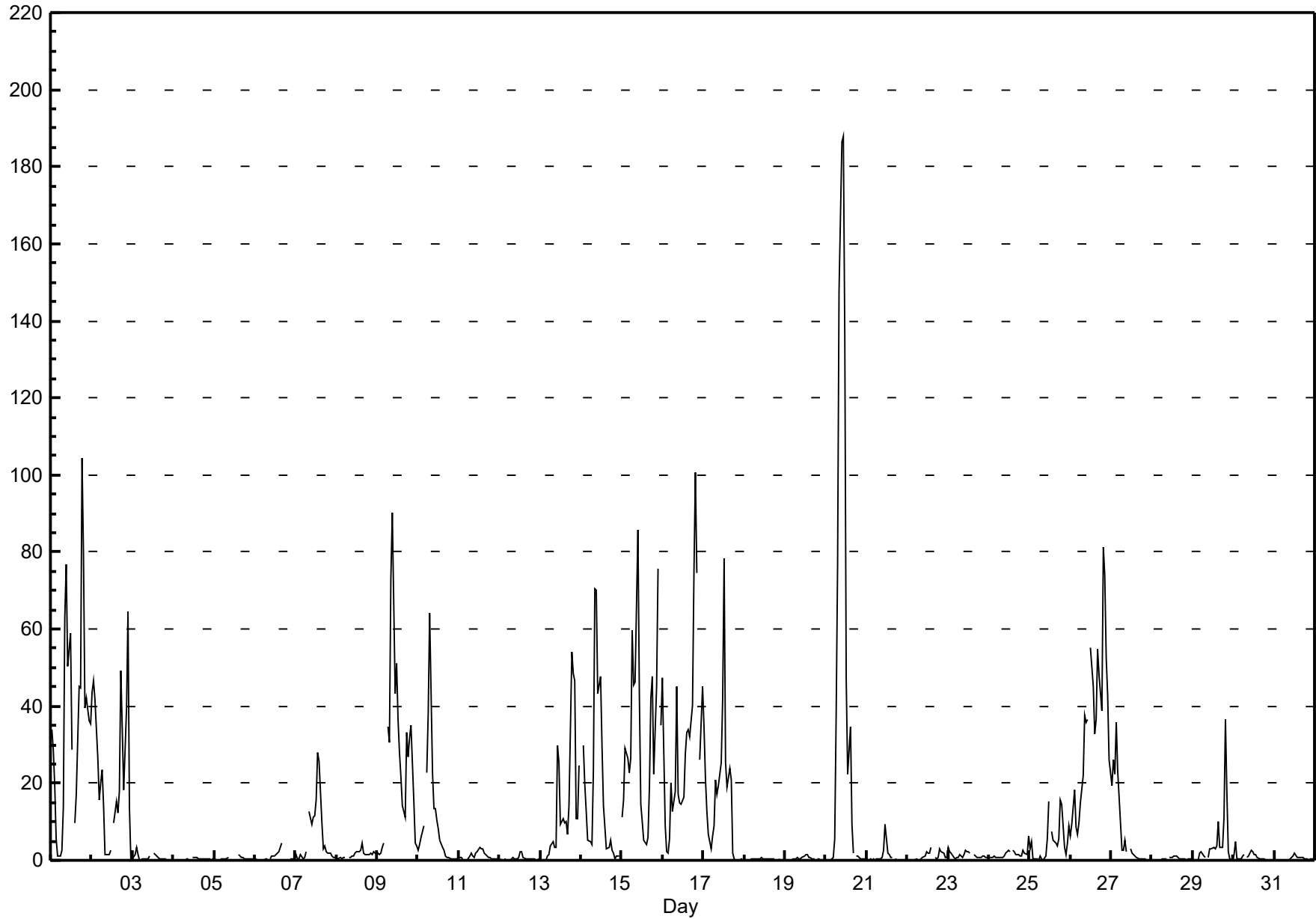
Nitrogen Dioxide (NO₂)
Henry Pirker - December 2016



Hourly Averages

Nitrogen Oxide (NO) - ppb
Henry Pirker - December 2016

Maximum Value: 188.1 ppb on Dec 20 11:00		Maximum Daily Average: 39.1 ppb on Dec 20		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 22 05:00		Minimum Daily Average: 0.3 ppb on Dec 18		Hours of Data: 704																						
Maximum Diurnal Average: 21.5 ppb at hour 10		Minimum Diurnal Average: 3.2 ppb at hour 5		Hours of Missing Data: 40																						
Monthly Average: 10.31 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 1.3 Q ₃ = 9.9 P ₉₀ = 35.6 P ₉₉ = 84.7		Hours of Calibration: 36																						
				Percent Operational Time: 99.5																						
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	34	29	20	6	1	1	2	14	63	77	50	59	29	A	10	17	45	45	104	80	40	42	36	35	36.5	104.5
2-Dec	44	47	42	26	15	20	23	14	1	2	2	2	A	10	15	12	18	49	34	18	39	64	14	0	22.3	64.5
3-Dec	0	2	3	2	0	0	0	0	0	0	1	A	2	2	1	1	0	0	0	0	0	0	0	0	0.7	3.3
4-Dec	0	0	0	0	0	0	0	0	0	0	A	1	1	1	1	0	1	0	0	0	0	0	0	0	0.3	0.8
5-Dec	1	0	0	0	0	0	0	0	1	A	C	C	C	C	1	1	1	1	1	0	0	0	0	0	0.5	1.3
6-Dec	0	0	0	0	0	0	0	0	A	1	1	1	2	2	2	4	4	P	P	P	P	0	0	0	1.0	4.3
7-Dec	1	0	0	2	0	1	2	A	13	9	11	12	16	28	26	10	3	4	2	2	2	1	1	1	6.4	27.8
8-Dec	1	0	1	0	1	1	A	1	1	1	1	2	2	2	3	4	2	2	1	1	2	2	2	1	1.5	4.5
9-Dec	2	1	2	4	5	A	35	30	73	90	43	51	36	28	22	14	11	33	27	32	35	15	4	4	26.0	90.3
10-Dec	3	4	6	9	A	23	38	64	23	14	13	10	8	5	3	2	1	1	1	0	0	0	0	0	10.0	64.3
11-Dec	1	1	0	A	0	0	1	2	1	1	2	2	3	3	3	2	2	1	1	1	0	0	0	0	1.2	3.5
12-Dec	0	0	A	0	0	0	0	0	1	0	0	1	2	2	1	1	0	0	0	0	0	0	0	0	0.5	2.4
13-Dec	0	A	0	0	1	1	4	5	3	3	30	25	9	11	10	10	7	14	54	48	47	11	11	25	14.3	54.2
14-Dec	A	30	20	13	5	5	4	24	70	70	43	48	29	14	9	3	3	5	3	2	0	1	1	A	18.3	70.4
15-Dec	11	16	29	26	23	26	60	45	46	86	43	15	10	5	4	6	19	42	48	23	45	76	A	35	32.1	85.8
16-Dec	47	9	2	2	6	20	13	18	45	17	15	14	16	28	33	34	32	40	75	101	74	A	26	45	30.9	100.8
17-Dec	35	21	12	7	3	6	9	21	17	19	25	42	78	25	19	24	21	2	0	0	A	0	0	0	16.9	78.5
18-Dec	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	A	0	0	0	0	0.3	0.6
19-Dec	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0	0	0	A	0	0	0	0	0.5	1.3
20-Dec	0	0	0	0	1	6	38	77	148	186	188	136	47	23	35	9	2	A	1	1	0	0	0	0	39.1	188.1
21-Dec	0	0	0	0	0	0	0	0	0	1	3	9	2	1	1	1	A	0	0	0	0	0	0	0	0.9	9.2
22-Dec	0	0	0	0	0	0	0	0	0	1	1	2	2	2	3	A	1	0	1	3	2	2	1	1	1.0	3.3
23-Dec	3	2	2	1	1	1	1	1	1	2	3	2	2	2	A	2	1	1	1	1	1	1	1	1	1.4	3.3
24-Dec	1	1	1	1	1	1	1	1	1	1	2	3	2	A	3	2	2	1	1	1	3	2	1	6	1.7	6.3
25-Dec	3	5	0	1	0	0	1	0	0	1	6	15	A	7	5	4	4	6	16	15	3	2	4	9	4.7	15.6
26-Dec	6	9	18	9	7	10	15	22	38	36	37	A	55	45	33	37	55	48	39	81	74	52	43	26	34.5	81.4
27-Dec	19	26	23	36	23	9	3	2	5	2	A	3	2	2	1	1	0	0	0	0	0	0	0	0	6.9	35.9
28-Dec	0	0	0	0	0	0	0	0	0	0	A	1	1	1	1	1	0	0	0	0	0	0	0	0	0.4	1.1
29-Dec	0	0	0	0	2	2	1	1	A	1	3	3	3	3	4	10	3	3	11	36	18	2	0	0	4.7	36.4
30-Dec	1	5	0	0	0	1	2	A	1	1	3	2	2	1	1	1	0	0	0	0	0	0	0	0	1.0	4.9
31-Dec	0	0	0	0	0	0	A	0	0	0	1	1	2	1	1	1	1	1	1	0	0	0	1	0	0.5	1.8
		7.2	7.0	6.1	4.8	3.2	4.5	8.7	11.9	19.1	21.5	18.9	16.6	13.1	9.1	8.3	7.1	8.0	10.4	14.6	15.5	13.4	9.2	5.0	6.4	Diurnal Average
		47.4	46.7	41.9	35.9	23.2	26.5	59.7	76.9	147.7	186.4	188.1	136.4	78.5	45.2	34.6	36.6	54.9	49.2	104.5	100.8	74.5	75.8	42.9	45.2	Diurnal Maximum
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																		



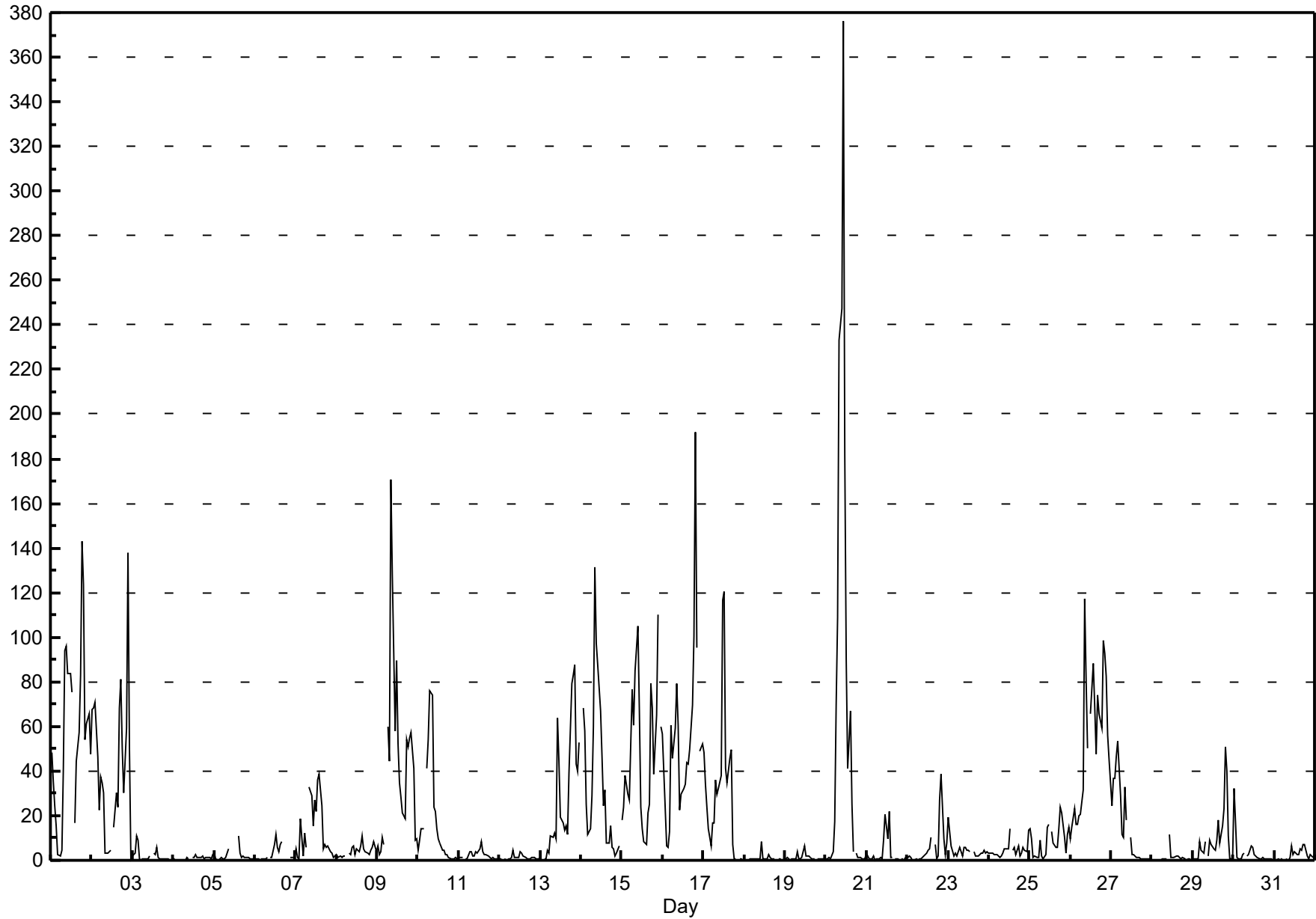
Hourly Maximums

Nitrogen Oxide (NO) - ppb
Henry Pirker - December 2016

Maximum Value: 375.9 ppb on Dec 20 11:00		Maximum Daily Average: 64.2 ppb on Dec 20		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 21 21:00		Minimum Daily Average: 1.0 ppb on Dec 18		Hours of Data: 704																							
Maximum Diurnal Average: 38.7 ppb at hour 9		Minimum Diurnal Average: 6.5 ppb at hour 5		Hours of Missing Data: 40																							
Monthly Average: 18.34 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.9 Median = 3.6 Q ₃ = 21.9 P ₉₀ = 59.4 P ₉₉ = 128.3		Hours of Calibration: 36																							
				Percent Operational Time: 99.5																							
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	48	35	25	16	3	2	4	41	94	96	83	84	75	A	17	44	57	83	143	124	54	61	65	47	56.6	143.1	
2-Dec	68	68	71	47	23	37	35	30	3	3	4	5	A	15	30	24	69	81	50	30	59	138	51	1	40.9	137.9	
3-Dec	2	3	11	9	1	0	0	0	0	1	2	A	3	2	6	1	1	1	1	0	0	1	0	0	2.0	11.0	
4-Dec	1	0	0	0	0	0	0	0	1	1	A	1	1	2	1	1	1	2	1	1	1	1	0	2	1.0	2.4	
5-Dec	3	0	0	0	1	1	1	1	5	A	C	C	C	C	11	4	1	2	1	1	1	1	1	0	1.9	10.8	
6-Dec	1	1	0	0	0	0	1	1	A	1	2	7	12	6	4	7	9	P	P	P	P	2	1	1	2.9	11.7	
7-Dec	5	1	1	19	2	12	6	A	33	29	15	27	22	36	39	25	5	7	6	7	4	3	2	2	13.3	38.6	
8-Dec	3	1	2	2	2	2	A	3	3	6	6	3	5	4	7	11	5	4	3	3	4	6	8	4	4.2	11.0	
9-Dec	6	3	4	11	7	A	60	44	170	128	58	90	52	35	28	21	19	54	51	55	57	41	9	10	44.1	170.4	
10-Dec	4	9	14	14	A	41	54	76	74	24	22	14	10	8	4	4	3	2	1	1	1	1	1	1	16.7	75.7	
11-Dec	2	1	1	A	0	1	4	4	2	2	4	3	5	8	4	3	2	2	1	1	1	1	1	0	2.3	8.2	
12-Dec	1	1	A	0	0	1	0	1	4	1	1	2	4	3	2	1	1	1	1	1	2	1	0	0	1	1.2	4.5
13-Dec	2	A	0	0	4	3	11	10	12	10	64	45	19	17	13	16	12	39	79	83	88	43	40	53	28.9	87.7	
14-Dec	A	68	58	25	11	14	29	60	131	97	88	67	46	24	32	8	8	16	6	5	2	3	6	A	36.5	131.2	
15-Dec	18	24	38	30	27	52	77	61	85	105	67	24	14	8	7	21	25	79	68	39	65	110	A	60	48.0	110.2	
16-Dec	57	23	6	6	13	61	46	60	79	61	23	30	33	34	44	43	50	70	101	192	95	A	49	52	53.3	192.2	
17-Dec	48	34	24	14	6	17	17	36	30	32	38	116	120	41	35	46	50	7	1	1	A	0	0	0	31.0	120.3	
18-Dec	1	0	0	0	0	0	0	1	1	0	8	1	1	1	3	1	1	0	1	A	0	1	0	0	1.0	8.5	
19-Dec	1	1	1	0	0	0	1	4	1	1	1	6	2	2	2	2	1	1	1	A	1	0	0	0	1.2	6.2	
20-Dec	0	0	1	1	4	18	69	109	233	247	376	181	90	41	67	25	4	A	3	2	1	0	1	0	64.2	375.9	
21-Dec	3	1	1	0	2	0	0	1	1	1	9	21	9	22	1	2	A	0	0	0	0	0	1	0	2	3.4	21.9
22-Dec	1	2	1	0	0	0	0	0	1	1	3	3	4	5	10	A	7	1	2	27	39	9	3	8	5.6	38.6	
23-Dec	19	13	6	2	3	2	4	6	2	5	6	5	4	4	A	4	2	2	2	3	3	4	3	4	4.8	19.3	
24-Dec	3	3	3	2	3	2	1	2	3	5	5	5	14	A	5	6	3	6	2	3	6	5	4	14	4.6	14.2	
25-Dec	14	10	2	2	1	1	9	2	0	3	15	16	A	13	8	6	6	14	24	22	11	3	12	15	9.0	23.8	
26-Dec	10	15	23	16	16	20	21	31	117	81	50	A	66	88	69	48	74	65	59	99	93	82	56	45	54.1	117.0	
27-Dec	25	36	37	47	53	29	12	10	33	18	A	11	3	2	2	1	1	1	0	0	1	1	0	0	14.0	53.2	
28-Dec	0	0	0	0	0	0	0	1	1	A	12	1	1	2	2	2	1	1	1	1	0	0	0	0	1.2	11.8	
29-Dec	1	0	0	1	8	5	3	8	A	2	9	7	5	4	9	18	8	15	23	51	40	11	1	0	10.0	50.9	
30-Dec	32	17	1	0	1	3	3	A	2	2	7	6	3	2	1	1	1	1	0	0	0	0	0	0	3.7	32.2	
31-Dec	0	0	0	0	1	0	A	0	0	1	6	3	4	3	3	5	5	7	7	2	1	2	2	1	2.4	7.3	
		12.6	12.5	11.1	8.9	6.5	10.8	16.2	20.8	38.7	33.3	35.1	28.0	22.4	15.5	15.5	13.3	14.3	19.4	22.0	26.0	21.7	17.7	10.7	10.9	Diurnal Average	
		67.7	68.3	71.1	46.6	53.2	60.5	76.8	108.9	233.4	247.5	375.9	181.5	120.3	87.9	68.9	47.7	74.3	83.0	143.1	192.2	95.3	137.9	65.4	59.7	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

Hourly Maximums

Nitrogen Oxide (NO) - ppb
Henry Pirker - December 2016

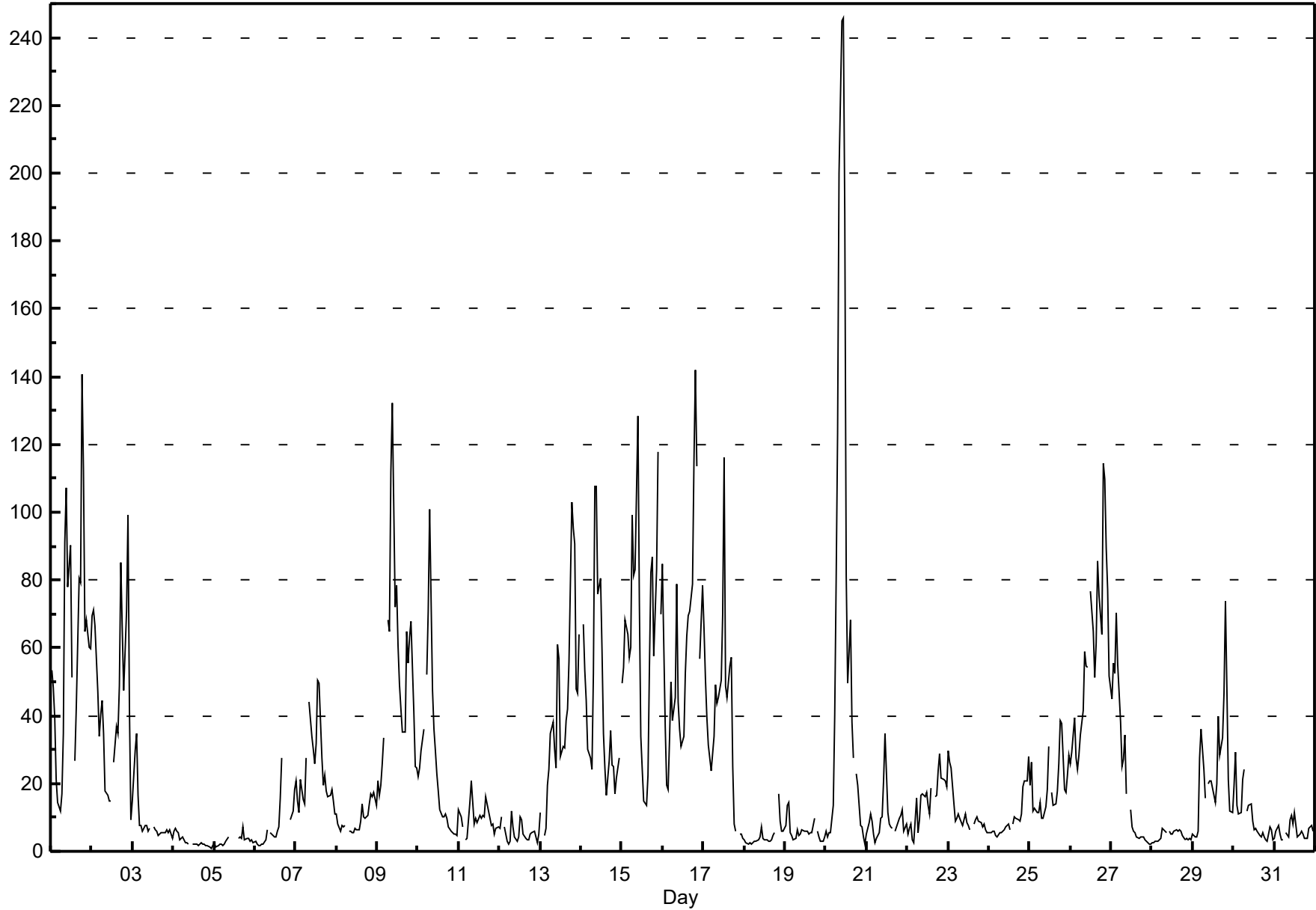


Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - December 2016

Maximum Value: 245.9 ppb on Dec 20 11:00		Maximum Daily Average: 64.6 ppb on Dec 20		Hours in Service: 744																							
Minimum Value: 1 ppb on Dec 4 23:00		Minimum Daily Average: 2.9 ppb on Dec 4		Hours of Data: 704																							
Maximum Diurnal Average: 39.1 ppb at hour 10		Minimum Diurnal Average: 15.6 ppb at hour 5		Hours of Missing Data: 40																							
Monthly Average: 25.04 ppb		Percentiles: P ₁ = 1.7 P ₁₀ = 3.4 Q ₁ = 5.6 Median = 11.7 Q ₃ = 34.2 P ₉₀ = 65.9 P ₉₉ = 127.4		Hours of Calibration: 36																							
				Percent Operational Time: 99.5																							
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	54	48	39	21	14	12	17	35	91	107	78	90	51	A	27	42	81	79	141	112	65	68	60	60	60.5	140.8	
2-Dec	70	71	66	47	34	40	44	35	18	17	15	15	A	26	37	35	49	85	66	48	71	99	42	9	45.2	99.2	
3-Dec	15	29	35	17	8	8	6	7	7	6	7	A	7	6	6	5	5	6	6	6	7	5	6	4	9.3	34.9	
4-Dec	6	7	6	6	4	4	3	2	2	2	A	2	2	2	2	2	2	2	2	2	2	1	1	2	2.9	6.6	
5-Dec	2	1	2	2	2	2	2	3	4	A	C	C	C	C	4	4	4	7	4	4	4	3	3	3	3.1	7.1	
6-Dec	3	2	2	2	2	2	3	6	A	5	5	4	4	6	7	16	27	P	P	P	P	9	12	18	7.3	27.4	
7-Dec	21	15	11	21	15	14	27	A	44	34	30	26	32	51	50	27	20	22	18	16	17	18	15	11	24.1	50.6	
8-Dec	11	8	6	7	7	7	A	6	6	6	5	7	6	6	9	14	10	10	11	14	17	16	17	14	9.6	17.4	
9-Dec	21	17	20	26	33	A	68	65	112	132	72	78	60	49	42	35	35	65	56	63	68	41	25	24	52.5	132.1	
10-Dec	22	25	30	36	A	52	71	101	47	36	30	23	18	12	10	10	11	10	7	6	5	5	5	4	25.1	101.0	
11-Dec	12	10	7	A	3	4	14	21	14	8	10	8	11	10	11	10	16	12	10	8	8	5	7	7	9.8	21.0	
12-Dec	7	10	A	7	3	2	3	12	7	4	3	4	10	9	5	4	4	4	5	6	6	4	3	5	5.5	11.8	
13-Dec	12	A	5	7	19	24	35	38	30	25	61	57	28	31	31	38	42	56	103	95	91	48	47	64	42.8	102.9	
14-Dec	A	67	54	45	30	28	24	53	108	108	76	81	59	35	24	17	27	36	25	25	17	22	27	A	44.8	107.8	
15-Dec	49	54	68	64	57	60	99	81	83	129	73	34	24	15	14	23	54	82	87	58	83	118	A	70	64.4	128.5	
16-Dec	85	37	19	18	33	50	38	45	79	44	36	31	34	52	64	70	71	79	115	142	114	A	57	78	60.5	142.1	
17-Dec	66	51	39	31	24	29	34	49	44	45	51	70	116	49	46	55	57	25	8	6	A	5	5	4	39.5	115.9	
18-Dec	3	3	2	3	2	3	3	3	4	7	4	4	4	3	3	4	5	6	A	17	9	6	6	6	4.5	17.0	
19-Dec	7	14	14	6	5	3	4	6	5	5	6	6	6	6	5	6	5	10	A	6	4	3	3	4	6.0	14.5	
20-Dec	6	4	6	5	14	40	80	123	200	245	246	188	81	50	68	38	28	A	23	19	8	7	4	2	64.6	245.9	
21-Dec	5	8	11	9	5	3	4	5	10	10	21	35	12	8	7	7	A	6	8	10	11	12	6	8	9.6	34.8	
22-Dec	5	7	8	3	3	16	5	9	17	17	16	17	14	11	18	A	16	16	24	29	21	21	21	19	14.5	28.7	
23-Dec	30	26	25	14	9	10	11	10	8	9	11	8	7	6	A	8	9	10	9	9	7	8	6	5	11.1	29.7	
24-Dec	5	6	6	6	4	4	6	6	6	6	7	8	6	A	8	10	10	9	9	11	19	21	21	28	9.7	28.1	
25-Dec	19	26	12	13	12	11	14	10	10	13	18	31	A	17	13	14	18	26	39	38	18	17	22	28	19.2	38.7	
26-Dec	26	29	39	28	24	28	34	41	59	55	54	A	77	65	51	61	86	76	64	115	110	89	77	52	58.3	114.6	
27-Dec	45	55	52	70	55	38	25	27	34	17	A	12	7	6	6	4	4	4	4	4	3	3	2	2	21.0	70.2	
28-Dec	3	2	3	3	3	4	7	7	5	A	6	5	5	6	6	6	6	6	5	3	4	3	4	4	4.6	6.7	
29-Dec	5	4	4	6	28	36	24	16	A	20	21	21	16	14	20	40	28	33	47	74	48	21	12	11	23.9	73.6	
30-Dec	19	29	14	11	11	21	24	A	12	14	14	9	6	7	6	4	4	6	4	4	3	7	6	3	10.4	29.1	
31-Dec	4	6	8	5	3	3	A	5	4	9	10	8	12	4	5	5	6	5	4	4	7	7	7	6	6.0	11.6	
		21.3	22.4	20.4	17.9	15.6	18.6	25.2	28.6	36.9	39.1	35.4	31.5	25.6	20.2	20.1	20.4	24.6	27.2	31.2	32.2	29.4	23.3	17.7	18.6	Diurnal Average	
		84.9	71.3	68.2	70.2	57.3	60.3	99.1	123.2	199.9	245.0	245.9	188.0	115.9	65.0	68.1	69.5	85.7	85.3	140.8	142.1	113.7	117.7	77.3	78.3	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			



Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb

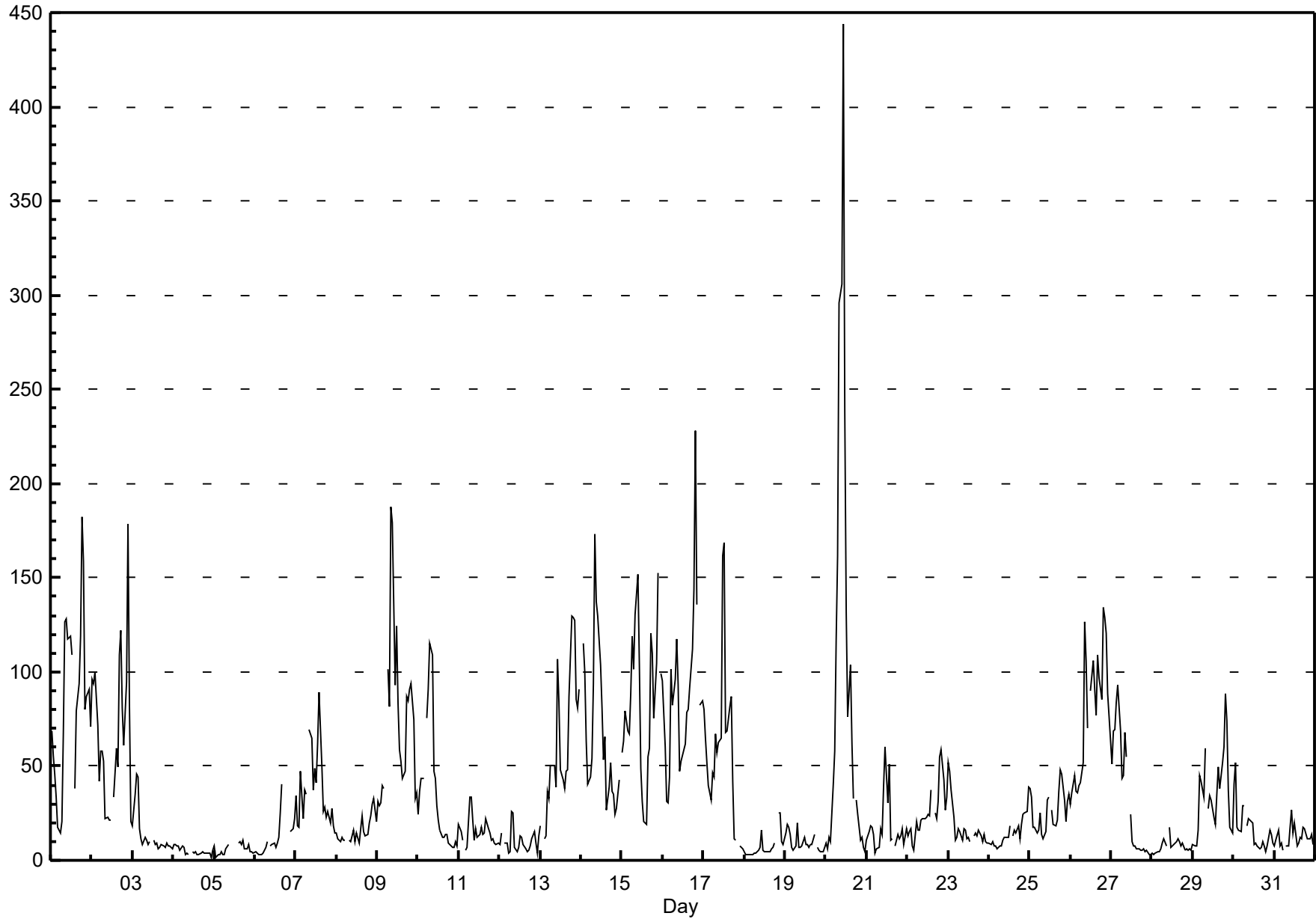
Henry Pirker - December 2016

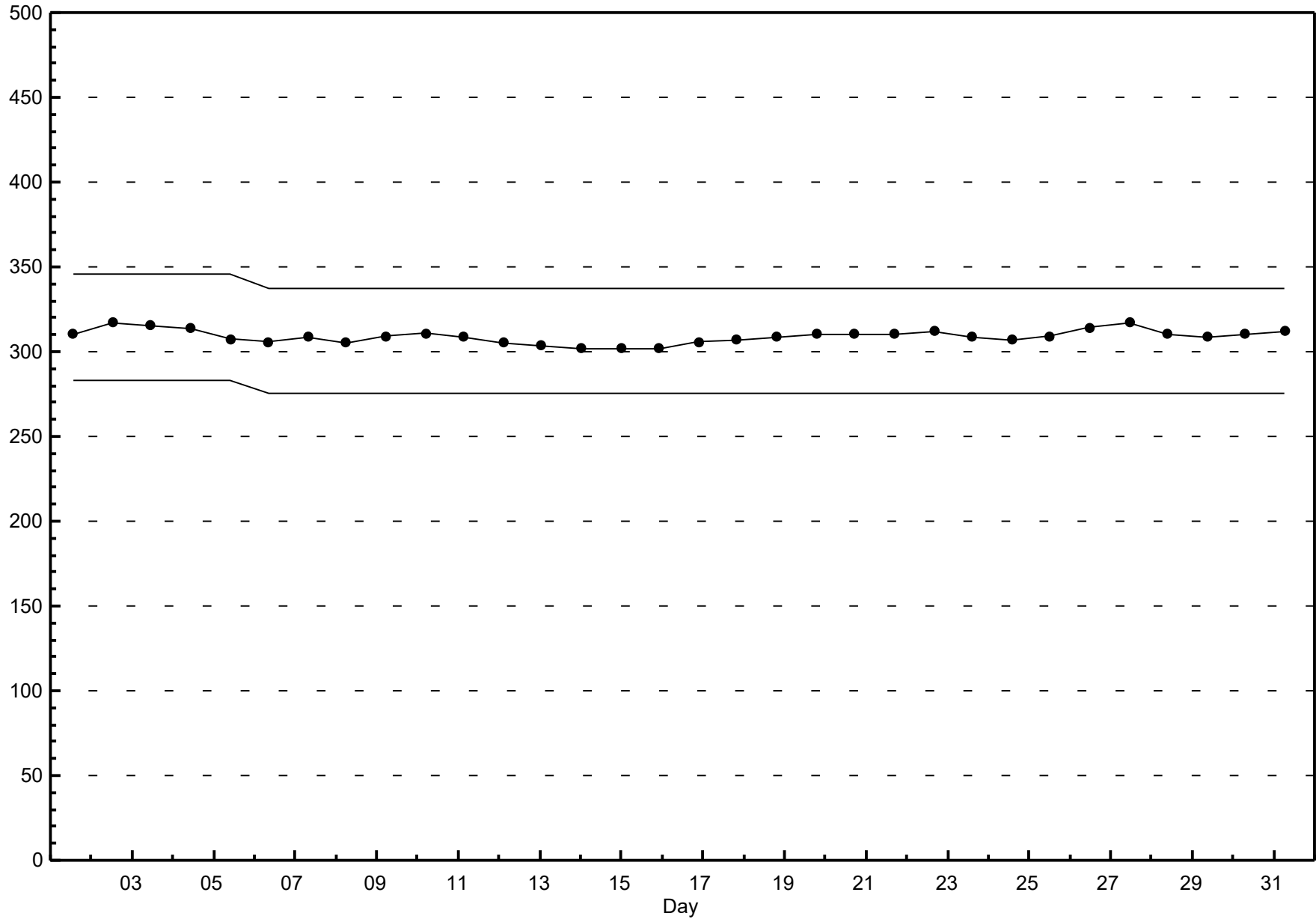
Maximum Value: 443.7 ppb on Dec 20 11:00		Maximum Daily Average: 95.5 ppb on Dec 20		Hours in Service: 744																						
Minimum Value: 1 ppb on Dec 4 23:00		Minimum Daily Average: 4.9 ppb on Dec 4		Hours of Data: 704																						
Maximum Diurnal Average: 59.6 ppb at hour 9		Minimum Diurnal Average: 23.3 ppb at hour 5		Hours of Missing Data: 40																						
Monthly Average: 36.84 ppb		Percentiles: P ₁ = 3.0 P ₁₀ = 5.3 Q ₁ = 8.7 Median = 18.1 Q ₃ = 50.0 P ₉₀ = 93.8 P ₉₉ = 179.2		Hours of Calibration: 36																						
				Percent Operational Time: 99.5																						
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	69	56	46	33	17	15	21	68	126	128	117	119	109	A	38	79	94	119	182	159	80	87	91	71	83.7	182.3
2-Dec	96	94	100	71	42	58	58	53	22	23	21	21	A	34	60	50	109	122	81	61	94	178	83	21	67.5	178.4
3-Dec	18	35	46	44	17	12	9	12	10	8	10	A	11	9	9	6	7	9	8	7	9	8	8	6	13.8	45.8
4-Dec	9	8	8	8	5	8	7	3	4	3	A	4	4	5	3	3	4	5	4	4	3	4	1	6	4.9	8.5
5-Dec	8	2	3	3	5	3	3	6	8	A	C	C	C	C	9	10	8	11	6	6	9	4	5	4	5.9	10.9
6-Dec	4	4	3	3	3	4	7	10	A	8	8	9	7	9	12	25	41	P	P	P	P	15	17	22	11.1	40.7
7-Dec	34	19	17	47	22	38	35	A	69	65	37	49	41	62	90	50	26	28	23	26	20	27	18	15	37.3	89.6
8-Dec	14	12	10	12	11	10	A	11	10	13	16	10	15	9	17	23	15	13	14	20	24	30	33	20	15.7	32.6
9-Dec	31	29	31	39	38	A	101	81	188	179	93	124	83	59	52	44	47	87	84	91	94	74	33	36	74.7	188.0
10-Dec	25	37	43	44	A	76	91	115	109	47	44	29	21	16	12	13	14	14	9	8	7	7	10	7	34.7	115.3
11-Dec	19	16	11	A	5	7	34	33	22	11	17	12	14	18	14	14	22	17	14	10	11	9	9	9	15.1	33.8
12-Dec	8	15	A	9	9	4	5	26	25	7	5	7	13	12	8	6	5	6	8	11	15	9	4	13	10.0	26.0
13-Dec	19	A	12	13	37	33	50	50	50	39	107	84	48	43	38	47	48	87	130	129	127	86	81	90	62.9	129.9
14-Dec	A	115	100	63	41	44	54	94	173	138	130	104	81	54	66	27	39	52	37	35	24	27	43	A	70.0	173.0
15-Dec	57	63	79	68	67	89	119	102	131	152	104	49	31	21	19	55	60	121	110	75	105	153	A	99	83.7	152.6
16-Dec	95	60	31	31	44	101	83	96	118	93	47	53	59	62	79	80	91	112	144	228	136	A	82	85	87.4	227.8
17-Dec	80	65	52	40	32	46	44	67	57	63	65	162	169	68	69	82	87	42	11	11	A	8	7	6	57.9	168.9
18-Dec	5	3	3	3	3	3	4	4	5	7	16	5	5	5	4	4	6	7	9	A	25	25	10	8	7.3	25.0
19-Dec	14	19	18	14	7	5	7	20	7	7	8	12	8	9	7	9	8	14	A	7	5	4	5	7	9.6	20.2
20-Dec	9	6	12	10	40	58	117	162	296	306	444	238	132	76	104	62	33	A	32	25	11	12	7	4	95.5	443.7
21-Dec	11	16	18	17	14	4	6	7	16	13	39	61	31	51	11	11	A	8	13	12	13	17	9	16	17.9	60.5
22-Dec	13	15	17	7	6	20	16	16	21	22	22	23	25	24	37	A	25	22	32	55	59	42	27	33	25.1	58.7
23-Dec	52	47	38	23	11	12	17	15	11	16	16	11	12	10	A	13	14	13	16	13	10	14	10	9	17.5	52.1
24-Dec	9	8	10	8	7	6	8	7	10	12	12	13	18	A	13	16	15	18	12	19	25	25	26	39	14.6	38.8
25-Dec	38	34	17	18	14	16	25	14	12	15	32	33	A	26	19	19	21	37	48	46	32	21	31	35	26.2	48.0
26-Dec	30	36	45	37	36	39	41	52	127	106	70	A	90	106	91	77	109	97	85	134	129	121	88	76	79.2	134.4
27-Dec	51	69	69	84	93	68	43	45	68	55	A	24	10	8	8	6	6	5	5	6	5	5	3	3	32.2	93.1
28-Dec	4	3	4	5	5	6	9	12	8	A	18	7	8	8	10	11	10	8	9	5	6	5	6	5	7.4	17.8
29-Dec	8	8	8	16	45	42	34	59	A	28	34	32	23	19	35	50	38	52	60	88	74	37	17	15	35.7	88.2
30-Dec	41	52	17	16	15	29	29	A	19	22	21	20	9	9	8	6	7	10	7	5	7	16	13	10	16.8	51.7
31-Dec	8	11	16	8	9	5	A	7	8	18	27	14	20	8	9	12	11	18	17	12	12	12	13	9	12.3	27.0
		29.3	31.8	29.4	26.5	23.3	28.7	37.1	43.0	59.6	55.3	56.4	47.4	39.1	29.8	31.7	30.3	34.0	39.7	41.7	45.1	40.3	36.1	26.3	26.0	Diurnal Average
		96.0	114.9	100.2	84.0	93.1	101.4	118.7	161.7	296.1	306.2	443.7	238.3	168.9	105.7	103.7	81.7	109.3	121.8	182.3	227.8	135.7	178.4	91.1	99.4	Diurnal Maximum
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																		

Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - December 2016





Hourly Averages

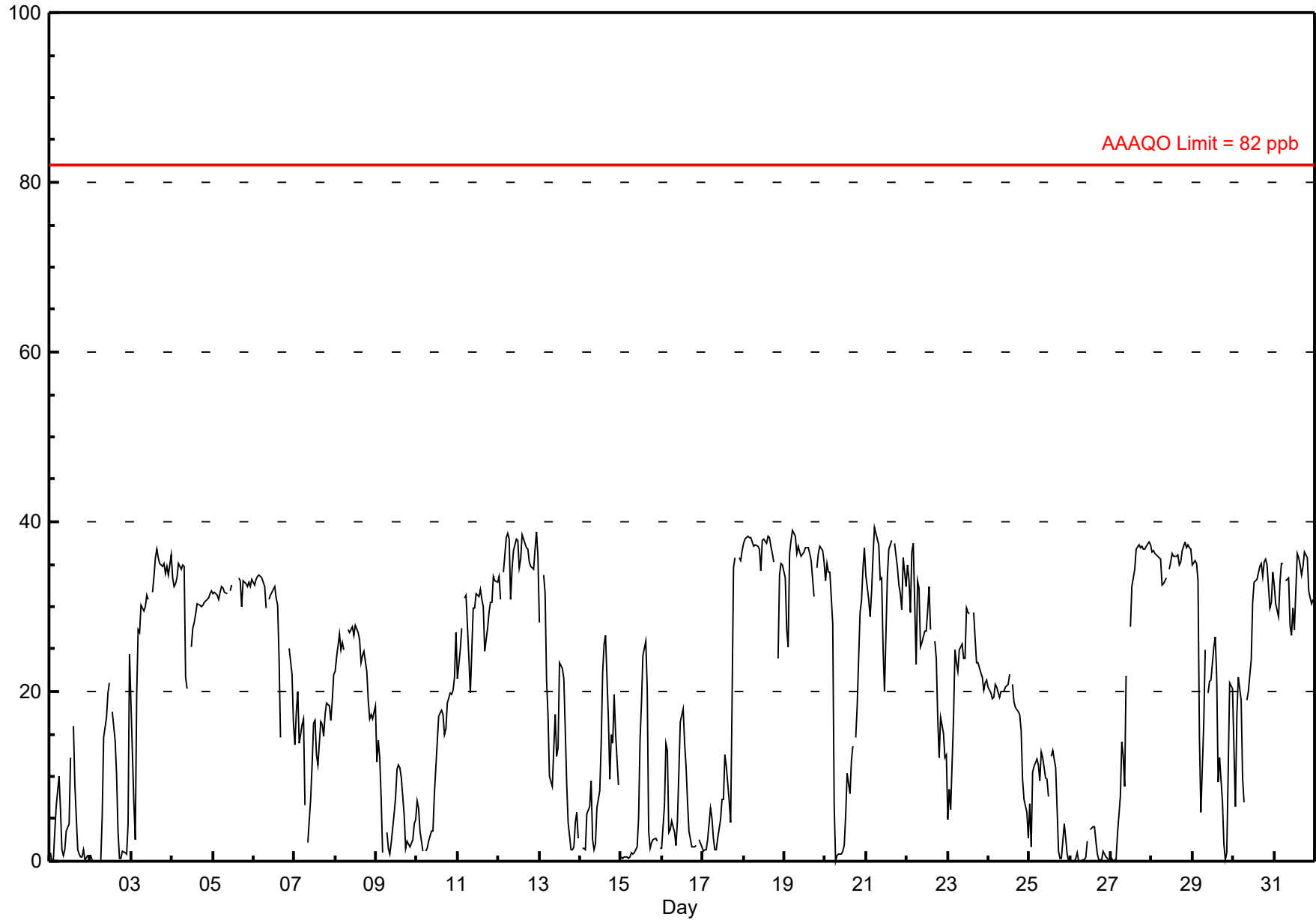
Ozone (O₃) - ppb

Henry Pirker - December 2016

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 39.3 ppb on Dec 21 06:00	Maximum Daily Average: 36.4 ppb on Dec 18		Hours of Data:	705
Minimum Value: 0 ppb on Dec 2 04:00	Minimum Daily Average: 1.0 ppb on Dec 26		Hours of Missing Data:	39
Maximum Diurnal Average: 25.2 ppb at hour 14	Minimum Diurnal Average: 17.1 ppb at hour 9		Hours of Calibration:	35
Monthly Average: 20.28 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 1.3 Q ₁ = 6.9 Median = 21.6 Q ₃ = 33.0 P ₉₀ = 36.3 P ₉₉ = 38.3		Percent Operational Time:	99.5

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	0	0	3	6	10	6	1	1	1	4	4	12	A	16	9	1	1	1	0	1	0	1	1	3.5	15.9
2-Dec	1	0	0	0	0	0	0	5	15	17	20	21	A	18	14	10	4	0	0	1	1	1	4	24	6.8	24.5
3-Dec	19	7	2	20	27	27	30	30	30	31	31	A	32	34	36	37	36	35	35	35	34	35	34	36	29.2	36.8
4-Dec	33	32	33	33	35	34	35	35	22	20	A	25	27	28	29	30	30	30	30	31	31	31	32	32	30.4	35.1
5-Dec	31	32	31	31	32	32	32	32	32	A	32	33	C	C	C	33	33	30	33	33	32	33	32	33	32.1	33.4
6-Dec	33	33	33	34	34	33	32	30	A	31	31	32	32	31	30	24	15	P	P	P	P	25	22	16	29.0	33.7
7-Dec	14	18	20	14	16	17	7	A	2	7	12	16	17	13	11	16	16	15	17	19	18	17	19	22	14.9	22.0
8-Dec	22	24	27	25	26	25	A	27	27	27	28	27	28	27	26	23	24	25	22	19	17	17	17	18	23.8	27.7
9-Dec	12	14	12	7	1	A	3	1	1	2	6	7	11	11	11	10	6	2	2	2	2	3	4	5	5.9	14.2
10-Dec	7	6	4	1	A	1	2	2	4	3	8	11	14	17	18	17	15	16	19	20	20	20	22	27	11.9	27.0
11-Dec	22	25	28	A	31	31	24	20	25	30	30	31	31	32	31	30	25	28	29	31	31	33	33	33	28.8	33.5
12-Dec	34	31	A	34	38	39	38	31	34	37	38	38	35	36	38	38	37	37	35	35	34	37	39	36	35.9	38.8
13-Dec	28	A	34	32	21	17	10	9	13	17	12	13	23	23	22	16	9	5	1	1	2	5	6	3	14.0	33.7
14-Dec	A	1	2	1	6	6	9	2	1	2	6	8	14	22	26	27	17	10	15	14	20	15	9	A	10.6	26.7
15-Dec	1	0	0	1	0	1	1	1	1	2	5	14	19	24	26	20	4	1	2	2	3	2	A	1	5.7	26.0
16-Dec	2	7	14	13	3	4	5	3	2	5	11	16	18	14	11	7	4	2	2	2	2	A	3	2	6.5	17.9
17-Dec	1	1	1	2	6	5	3	1	1	3	5	7	7	13	11	7	5	19	35	36	A	36	35	37	12.1	36.7
18-Dec	37	38	38	38	38	38	37	37	37	37	34	38	38	38	38	38	37	36	35	A	24	34	35	35	36.4	38.3
19-Dec	33	27	25	36	38	39	38	36	37	37	36	36	37	37	37	36	36	31	A	35	36	37	37	35	35.4	39.0
20-Dec	33	35	34	34	28	7	0	1	1	1	1	2	5	10	8	12	14	A	15	18	29	31	34	37	17.0	37.0
21-Dec	34	31	29	32	36	39	39	37	33	33	25	20	34	37	37	38	A	37	35	33	32	30	36	32	33.4	39.3
22-Dec	35	33	29	36	37	23	33	32	25	26	27	27	30	32	27	A	26	24	17	12	17	15	12	12	25.6	37.5
23-Dec	5	8	6	17	25	23	22	25	26	24	24	30	29	29	A	29	26	23	23	22	22	20	21	21	21.8	29.9
24-Dec	21	20	19	19	21	21	19	20	20	20	21	21	22	A	21	19	18	18	17	15	10	7	6	3	17.2	22.1
25-Dec	7	2	10	11	12	11	10	13	12	10	10	8	A	12	13	11	6	1	0	0	4	3	1	0	7.3	13.0
26-Dec	0	0	0	0	1	0	0	0	0	1	2	A	4	4	4	2	1	0	0	1	1	1	0	0	1.0	4.0
27-Dec	0	0	0	0	3	8	14	12	9	22	A	28	32	33	34	37	37	37	37	37	37	37	38	37	23.1	37.6
28-Dec	37	37	36	36	36	36	33	33	33	A	34	35	36	36	36	36	35	35	37	38	37	37	37	37	35.7	37.6
29-Dec	35	35	35	33	14	6	16	25	A	20	21	21	25	27	22	9	12	7	2	0	1	11	21	20	18.2	35.3
30-Dec	13	7	17	22	19	10	7	A	19	20	24	31	33	33	33	35	35	34	35	36	35	30	30	34	25.7	35.5
31-Dec	33	30	29	33	35	35	A	33	33	28	27	30	27	36	36	35	34	35	36	36	32	31	30	31	32.4	36.4
	19.4	17.8	18.3	20.0	20.9	19.3	17.4	18.5	17.1	17.7	19.4	21.8	24.0	25.2	24.2	23.1	19.8	19.7	19.6	19.4	19.4	21.1	21.7	22.1	Diurnal Average	
	37.4	38.0	38.3	38.2	38.2	39.3	38.7	37.4	37.1	36.8	37.9	37.9	37.9	37.5	38.4	38.1	37.2	37.4	37.2	37.6	36.9	37.3	38.8	37.3	Diurnal Maximum	

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



Hourly Maximums

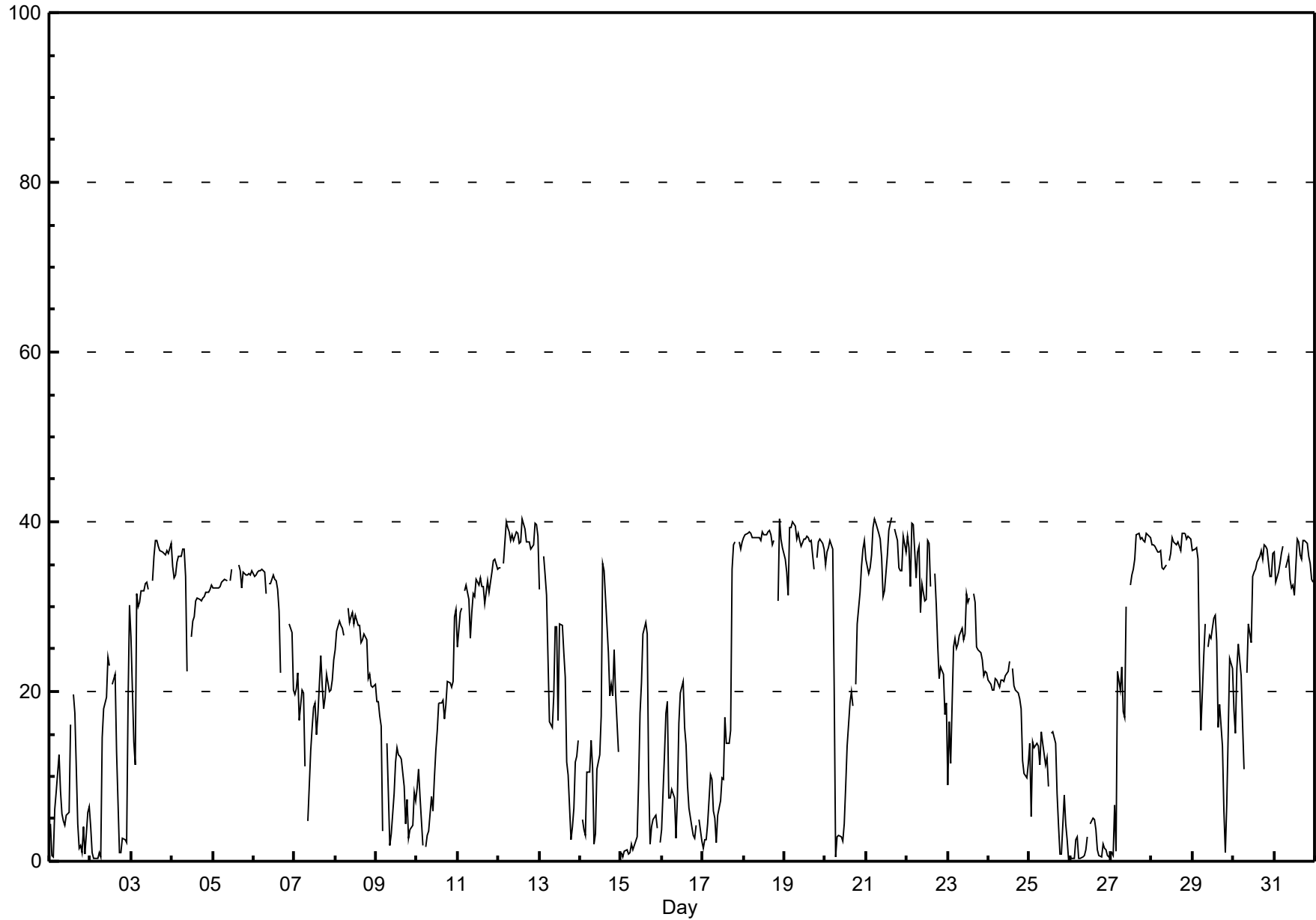
Ozone (O₃) - ppb

Henry Pirker - December 2016

Maximum Value: 40.4 ppb on Dec 21 16:00		Maximum Daily Average: 38.0 ppb on Dec 18		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 26 00:00		Minimum Daily Average: 1.7 ppb on Dec 26		Hours of Data: 705																							
Maximum Diurnal Average: 27.8 ppb at hour 14		Minimum Diurnal Average: 20.0 ppb at hour 9		Hours of Missing Data: 39																							
Monthly Average: 23.19 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 2.9 Q ₁ = 12.0 Median = 26.1 Q ₃ = 34.8 P ₉₀ = 37.8 P ₉₉ = 39.9		Hours of Calibration: 35																							
				Percent Operational Time: 99.5																							
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	4	1	0	6	8	13	8	6	5	4	5	6	16	A	20	17	4	2	2	1	4	1	6	6	6.3	19.7	
2-Dec	4	1	0	0	0	1	0	14	18	19	24	23	A	21	22	13	7	1	1	3	3	2	19	30	9.9	30.2	
3-Dec	27	14	11	32	30	31	32	32	33	33	32	A	33	36	38	38	37	37	36	36	36	37	36	38	32.3	37.8	
4-Dec	35	33	34	35	36	36	37	37	34	22	A	26	28	29	31	31	31	31	31	31	32	32	32	33	32.0	36.9	
5-Dec	32	32	32	32	32	33	33	33	33	A	33	34	C	C	C	35	34	32	34	34	34	34	34	34	33.3	34.9	
6-Dec	34	34	34	34	34	34	34	32	A	33	33	34	33	33	32	30	22	P	P	P	P	28	27	20	31.3	34.4	
7-Dec	20	20	22	17	20	20	11	A	5	13	16	18	19	15	17	24	21	18	19	22	20	20	21	24	18.3	24.3	
8-Dec	25	27	28	28	28	27	A	30	28	29	29	28	29	28	28	26	26	27	26	22	22	21	21	21	26.1	29.8	
9-Dec	19	19	17	16	4	A	14	8	2	3	8	12	13	12	12	12	9	4	7	3	4	4	8	7	9.4	18.8	
10-Dec	9	11	8	2	A	2	3	4	8	6	10	13	15	19	19	19	17	18	21	21	20	21	29	30	14.0	29.7	
11-Dec	25	29	30	A	32	32	31	26	29	32	31	33	33	33	32	32	30	33	32	33	34	35	36	34	31.7	35.7	
12-Dec	35	35	A	35	40	39	39	38	39	38	39	39	37	38	40	39	38	38	38	38	37	37	40	40	38	38.0	40.3
13-Dec	32	A	36	34	31	24	16	16	20	28	28	17	28	28	25	22	12	10	2	4	6	12	12	14	19.8	35.9	
14-Dec	A	5	4	3	10	11	14	11	2	3	11	13	17	35	34	31	25	19	21	20	25	20	13	A	15.7	35.1	
15-Dec	1	1	1	1	1	1	2	1	2	3	9	17	21	27	28	27	10	2	4	5	5	4	A	2	7.6	28.1	
16-Dec	4	13	18	19	8	7	9	8	3	8	16	20	21	16	14	9	6	4	3	3	4	A	5	2	9.5	21.2	
17-Dec	2	2	3	4	10	10	6	5	2	5	7	10	10	17	14	14	15	34	37	38	A	38	37	38	15.6	37.7	
18-Dec	38	38	39	39	39	38	38	38	38	38	39	39	38	39	38	39	38	37	38	A	31	40	38	37	38.0	40.4	
19-Dec	36	34	31	39	39	40	40	38	39	38	37	38	38	38	38	38	38	34	A	36	38	38	38	37	37.3	40.0	
20-Dec	35	36	37	38	37	20	0	3	3	3	2	4	9	14	19	20	18	A	21	28	32	35	37	38	21.2	37.8	
21-Dec	36	34	35	36	39	40	40	39	38	36	31	32	36	39	40	40	A	39	38	35	34	34	38	36	36.8	40.4	
22-Dec	38	37	32	40	40	33	36	37	29	33	31	31	38	38	32	A	34	30	25	21	23	22	17	19	31.2	39.8	
23-Dec	9	17	12	25	26	25	26	27	27	26	27	32	30	31	A	32	31	25	25	24	24	22	22	22	24.6	31.5	
24-Dec	21	21	20	20	22	21	20	21	21	21	22	22	24	A	23	21	20	20	19	18	12	10	10	12	19.2	23.5	
25-Dec	14	5	14	13	14	14	11	15	14	11	12	9	A	15	15	14	8	4	1	1	8	4	3	0	9.6	15.3	
26-Dec	1	0	0	3	3	0	0	1	1	1	3	A	4	5	5	4	1	1	0	2	2	1	1	0	1.7	5.0	
27-Dec	1	1	7	1	22	20	23	18	17	30	A	33	34	34	36	38	39	38	38	38	38	39	38	38	26.9	38.6	
28-Dec	37	37	37	36	36	37	35	34	35	A	35	36	38	38	37	38	37	38	39	39	38	38	38	38	37.0	38.7	
29-Dec	37	37	37	36	23	15	24	28	A	25	27	26	29	29	26	16	18	14	6	1	7	15	24	23	22.7	37.0	
30-Dec	18	15	23	26	22	16	11	A	22	28	26	34	34	34	35	36	37	36	37	37	37	34	34	36	29.0	37.3	
31-Dec	36	33	34	35	36	37	A	35	36	33	32	32	31	38	38	36	36	38	38	37	36	35	33	33	35.2	38.0	
		22.1	20.7	21.2	22.9	24.1	22.6	20.5	21.8	20.0	20.8	22.5	24.5	26.3	27.8	27.2	26.3	23.3	22.9	22.1	21.6	22.2	23.9	24.8	24.7	Diurnal Average	
		38.2	38.4	38.7	39.8	40.0	40.3	39.9	38.7	38.6	38.2	38.7	38.8	38.5	39.0	40.3	40.4	38.6	39.2	38.7	38.6	38.0	40.4	39.7	38.3	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

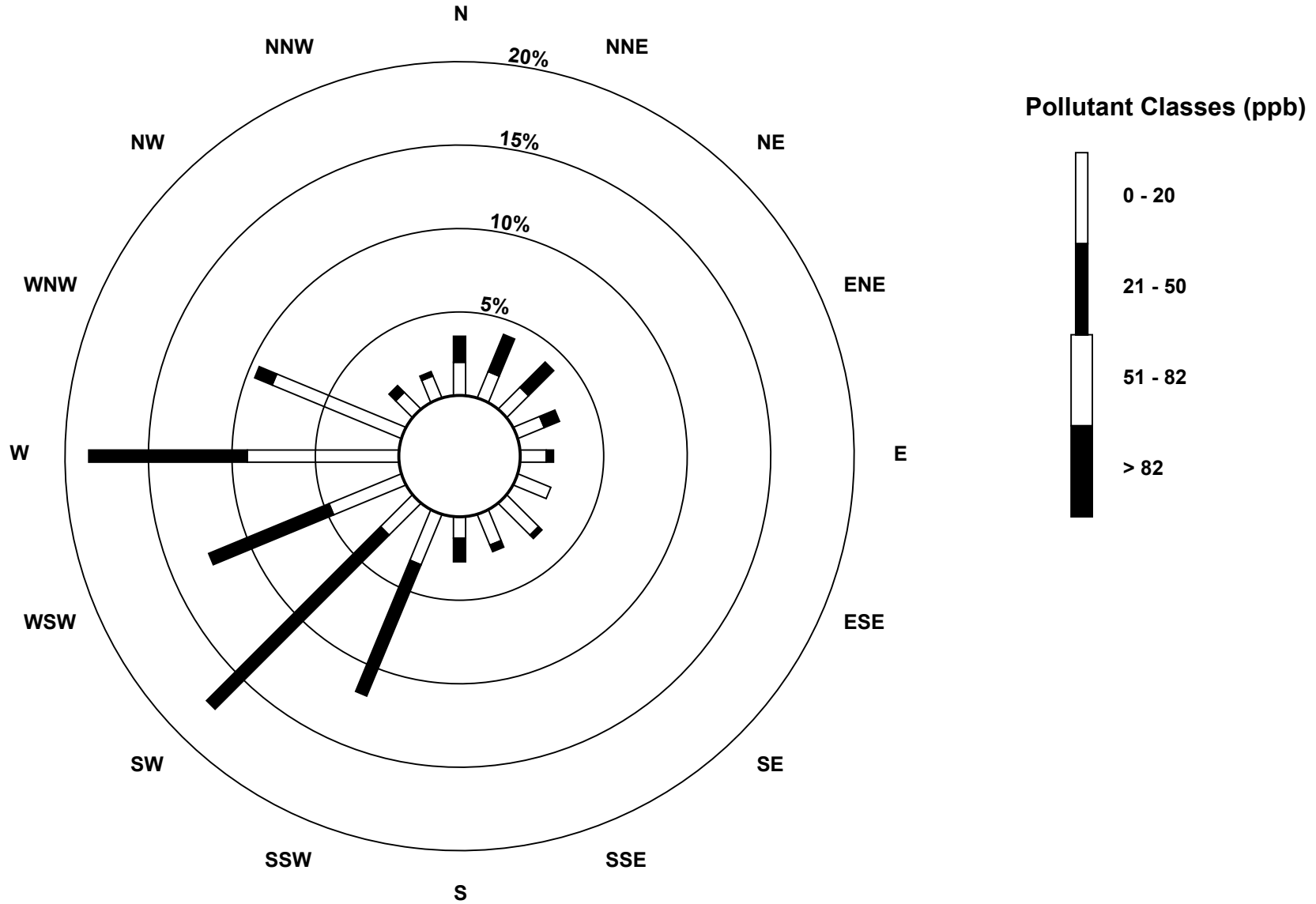
Hourly Maximums

Ozone (O₃) - ppb
Henry Pirker - December 2016



Pollutant Rose

Ozone (O₃) - ppb
Henry Pirker - December 2016



Eight Hour Running Averages

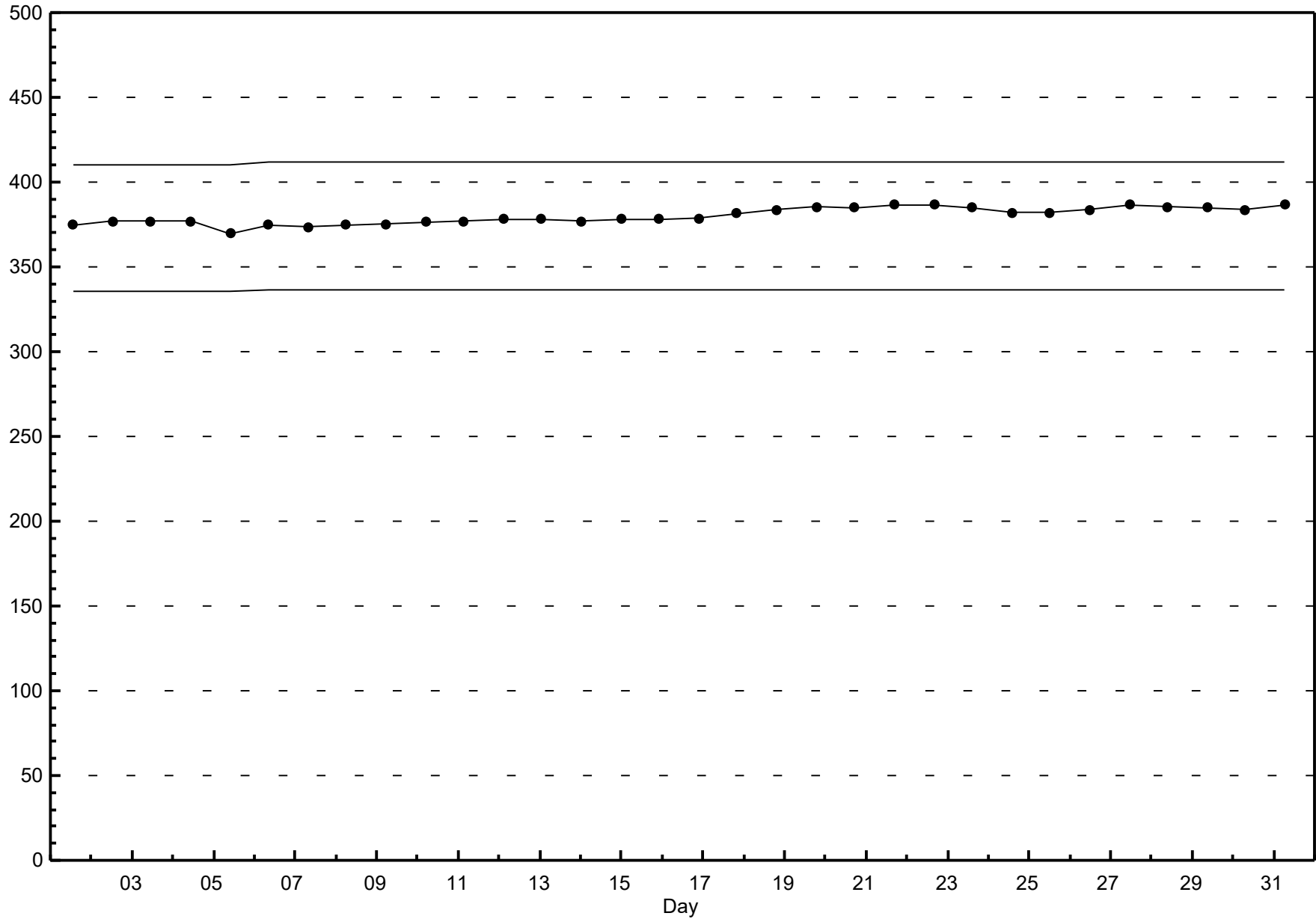
Ozone (O₃) - ppb

Henry Pirker - December 2016

Maximum Value: 37.8 ppb on Dec 18 08:00																					Hours in Service: 744					
Minimum Value: 0.1 ppb on Dec 26 07:00																					Hours of Data: 730					
Percentiles: P ₁ = 0.3 P ₁₀ = 2.8 Q ₁ = 7.6 Median = 20.4 Q ₃ = 32.4 P ₉₀ = 35.4 P ₉₉ = 37.3																					Hours of Missing Data: 14					
																					Hours of Calibration: 7					
																					Percent Operational Time: 99.1					
Day	Hourly Period Ending At (MST)																								Daily Maximum	
1-Dec	0	0	0	1	2	3	3	4	3	4	4	4	5	4	6	7	7	7	6	6	4	4	2	1	6.8	
2-Dec	1	1	1	0	0	0	0	1	2	5	7	10	11	14	16	16	15	12	10	7	6	4	3	5	16.4	
3-Dec	6	7	7	10	13	16	20	20	22	25	28	29	30	31	32	33	34	34	35	35	35	35	35	35	35.2	
4-Dec	35	34	34	34	34	34	34	34	32	31	31	30	28	28	27	26	27	29	29	30	30	30	31	31	34.6	
5-Dec	31	31	31	31	31	32	32	32	32	32	32	32	32	N	N	N	N	N	N	N	32	32	32	32	32.5	
6-Dec	32	33	33	33	33	33	33	33	33	32	32	32	32	31	31	30	28	28	27	N	N	N	N	N	33.2	
7-Dec	N	N	19	18	18	17	15	15	13	12	11	11	11	10	11	12	14	14	15	15	16	16	17	18	19.1	
8-Dec	19	20	21	22	23	24	24	25	26	26	27	27	27	27	27	26	26	25	24	23	22	21	20	27.2		
9-Dec	18	17	16	14	12	12	10	7	6	4	3	3	5	5	6	7	8	8	7	7	6	5	4	3	18.4	
10-Dec	3	4	4	4	4	4	4	3	3	2	3	4	6	8	10	12	13	14	16	17	18	18	18	20	19.7	
11-Dec	21	22	23	23	25	26	27	26	26	27	27	28	28	29	30	30	30	30	30	30	29	30	30	30	30.3	
12-Dec	31	32	32	33	34	34	35	35	35	36	36	37	36	36	36	37	37	37	37	37	36	36	36	36	37.0	
13-Dec	35	35	35	34	32	30	25	22	19	19	16	14	14	15	17	17	17	15	14	12	10	7	6	4	35.1	
14-Dec	3	3	3	3	3	4	4	4	4	4	4	5	6	8	10	13	15	16	17	18	19	18	16	14	18.6	
15-Dec	12	10	8	7	4	2	1	1	1	1	1	3	5	8	11	14	14	14	14	12	10	8	5	2	14.2	
16-Dec	2	3	4	6	6	6	6	6	6	6	6	6	8	9	10	10	11	10	9	7	5	4	3	2	10.6	
17-Dec	2	2	2	2	2	3	3	3	3	3	3	4	4	5	6	7	7	9	13	16	18	21	25	29	28.8	
18-Dec	33	36	37	37	37	38	38	38	38	38	37	37	37	37	37	37	37	37	37	37	37	35	35	34	34	37.8
19-Dec	33	32	31	31	33	34	34	34	35	36	37	37	37	37	37	37	36	36	36	36	35	35	35	35	37.2	
20-Dec	35	35	35	35	34	30	26	21	17	13	9	5	2	3	4	5	7	7	9	12	15	18	22	25	35.4	
21-Dec	28	29	30	32	33	34	35	35	34	35	34	33	33	32	32	32	32	33	34	36	35	34	34	33	35.7	
22-Dec	34	33	32	33	34	33	32	32	31	30	30	29	28	29	28	28	28	28	26	24	22	20	18	17	33.6	
23-Dec	14	12	11	12	13	14	15	17	19	21	23	25	25	26	27	27	27	27	27	26	25	24	23	22	27.4	
24-Dec	22	21	21	20	20	20	20	20	20	20	20	20	20	20	21	20	20	20	19	19	17	16	14	12	21.7	
25-Dec	10	8	7	7	7	8	8	9	10	11	11	11	10	11	11	11	10	9	7	6	6	5	3	2	11.2	
26-Dec	1	1	1	1	1	0	0	0	0	0	1	1	1	2	2	2	3	2	2	2	2	1	1	1	2.5	
27-Dec	0	0	0	0	1	2	3	5	6	9	10	14	18	22	24	28	32	34	35	36	36	37	37	37	37.1	
28-Dec	37	37	37	37	37	36	36	35	35	35	34	34	34	34	35	35	36	36	36	36	36	36	36	37	37.0	
29-Dec	37	37	36	36	33	29	26	25	24	21	19	18	19	22	23	21	20	18	16	13	10	8	8	9	36.5	
30-Dec	9	9	11	14	16	16	14	13	14	16	17	18	20	24	28	28	30	32	34	34	34	34	34	34	34.4	
31-Dec	33	33	32	32	32	32	33	33	33	32	32	32	30	31	31	32	32	32	34	34	35	34	34	33	35.0	
<div style="display: flex; justify-content: space-between;"> 37.037.036.937.137.337.537.737.837.737.637.237.237.137.037.137.237.237.137.337.236.236.737.137.1 </div> <p style="text-align: center;">Diurnal Maximums</p>																										
N - Not Valid																										

Span Responses

Ozone (O₃)
Henry Pirker - December 2016



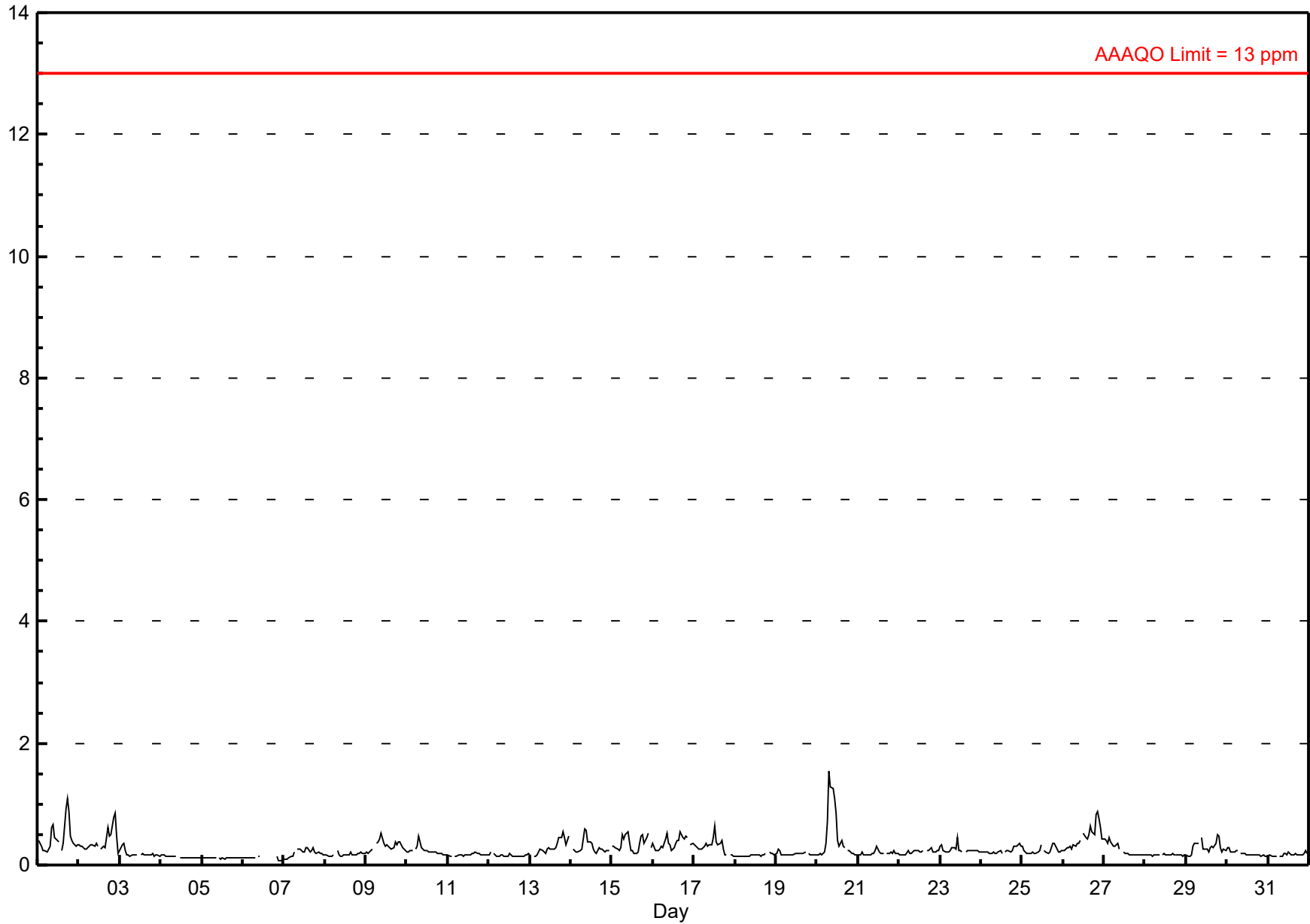
Hourly Averages

Carbon Monoxide (CO) - ppm
Henry Pirker - December 2016

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 1.54 ppm on Dec 20 08:00	Maximum Daily Average: 0.47 ppm on Dec 20
Minimum Value: 0.0 ppm on Dec 6 15:00	Hours of Data: 706
Maximum Diurnal Average: 0.31 ppm at hour 10	Hours of Missing Data: 38
Monthly Average: 0.249 ppm	Hours of Calibration: 35
Percentiles: P ₁ = 0.10 P ₁₀ = 0.14 Q ₁ = 0.16 Median = 0.21 Q ₃ = 0.29 P ₉₀ = 0.41 P ₉₉ = 0.84	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	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.6	0.7	0.4	0.4	0.4	A	0.2	0.3	0.9	1.1	0.9	0.5	0.4	0.4	0.3	0.3	0.44	1.08																						
2-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	A	0.3	0.3	0.3	0.4	0.6	0.5	0.5	0.8	0.8	0.5	0.2	0.38	0.84																						
3-Dec	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.19	0.36																						
4-Dec	0.2	0.2	0.2	0.1	0.1	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	0.13	0.17																						
5-Dec	0.1	0.1	0.1	0.1	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	0.11	0.13																						
6-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A	0.1	0.1	C	C	C	0.0	0.0	0.0	P	P	P	0.1	0.1	0.1	0.1	--	0.15																						
7-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.2	A	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.20	0.29																						
8-Dec	0.2	0.2	0.1	0.2	0.1	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17	0.23																						
9-Dec	0.2	0.2	0.2	0.2	0.3	A	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.31	0.52																						
10-Dec	0.2	0.2	0.2	0.2	A	0.3	0.3	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.23	0.46																						
11-Dec	0.2	0.1	0.2	A	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17	0.21																						
12-Dec	0.2	0.2	A	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.16	0.21																						
13-Dec	0.2	A	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.3	0.4	0.5	0.30	0.54																						
14-Dec	A	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.6	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	A	0.30	0.59																						
15-Dec	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.4	0.5	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.5	0.4	0.4	0.5	A	0.3	0.35	0.55																						
16-Dec	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.5	A	0.3	0.4	0.36	0.54																						
17-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.5	0.6	0.4	0.3	0.4	0.4	0.3	0.2	0.2	A	0.2	0.2	0.2	0.30	0.64																						
18-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.16	0.22																						
19-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	A	0.2	0.2	0.2	0.18	0.25																						
20-Dec	0.2	0.2	0.2	0.2	0.2	0.4	0.7	1.5	1.3	1.2	1.1	0.8	0.4	0.3	0.4	0.3	0.3	A	0.2	0.2	0.2	0.2	0.2	0.2	0.47	1.54																						
21-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19	0.30																						
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	A	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.22	0.28																						
23-Dec	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25	0.46																						
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	A	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.24	0.36																					
25-Dec	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	A	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.24	0.35																						
26-Dec	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	A	0.5	0.4	0.4	0.5	0.6	0.6	0.5	0.8	0.9	0.8	0.6	0.4	0.45	0.87																						
27-Dec	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	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	0.25	0.45																						
28-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17	0.18																						
29-Dec	0.2	0.2	0.1	0.2	0.3	0.3	0.4	0.3	A	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.3	0.2	0.2	0.2	0.29	0.49																						
30-Dec	0.3	0.3	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.19	0.29																						
31-Dec	0.1	0.2	0.2	0.1	0.1	0.1	A	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	0.17	0.23																						
																								0.22	0.22	0.21	0.20	0.20	0.21	0.25	0.30	0.31	0.31	0.28	0.26	0.25	0.23	0.22	0.22	0.27	0.29	0.28	0.28	0.27	0.25	0.23	0.21	Diurnal Average
																								0.42	0.41	0.36	0.45	0.39	0.36	0.71	1.54	1.29	1.25	1.08	0.84	0.64	0.44	0.42	0.49	0.92	1.08	0.87	0.83	0.87	0.84	0.63	0.48	Diurnal Maximum

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



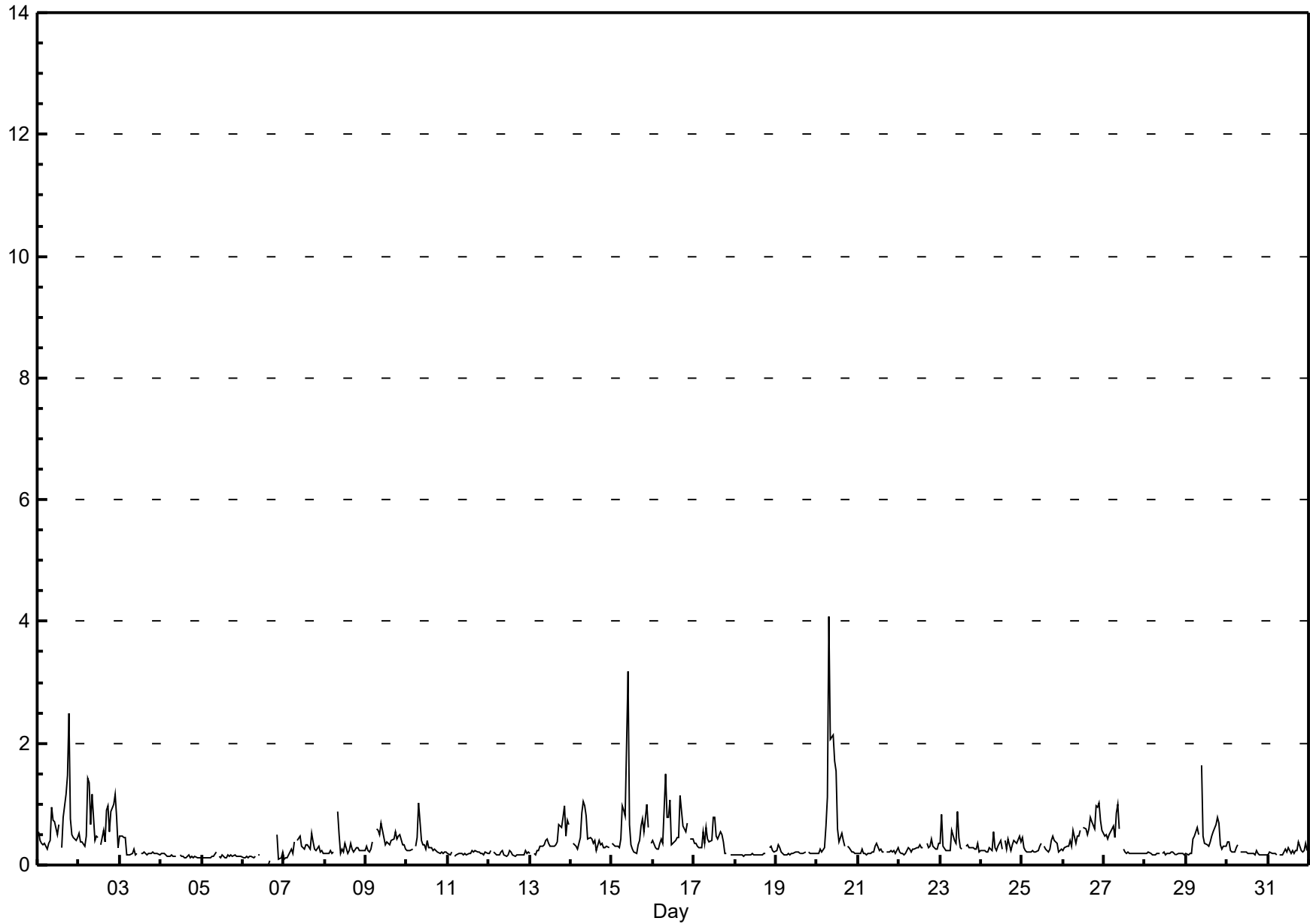
Hourly Maximums

Carbon Monoxide (CO) - ppm Henry Pirker - December 2016

Maximum Value: 4.08 ppm on Dec 20 08:00 Maximum Daily Average: 0.78 ppm on Dec 20 Minimum Value: 0.0 ppm on Dec 6 15:00 Minimum Daily Average: 0.14 ppm on Dec 5 Maximum Diurnal Average: 0.59 ppm at hour 8 Minimum Diurnal Average: 0.24 ppm at hour 4 Monthly Average: 0.349 ppm Percentiles: P ₁ = 0.12 P ₁₀ = 0.16 Q ₁ = 0.19 Median = 0.25 Q ₃ = 0.40 P ₉₀ = 0.62 P ₉₉ = 1.61																								Hours in Service:	744		
																								Hours of Data:	706		
																								Hours of Missing Data:	38		
																								Hours of Calibration:	35		
																								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	0.5	0.4	0.4	0.3	0.4	0.2	0.4	0.4	0.9	0.7	0.7	0.5	0.7	A	0.3	0.8	1.2	1.5	2.5	0.8	0.5	0.4	0.4	0.5	0.66	2.49	
2-Dec	0.5	0.4	0.4	0.3	0.5	1.4	1.4	0.7	1.2	0.4	0.5	0.5	A	0.3	0.6	0.4	0.9	1.0	0.5	0.9	1.0	1.2	0.8	0.3	0.69	1.41	
3-Dec	0.5	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.24	0.47	
4-Dec	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	A	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.15	0.18	
5-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	A	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.14	0.22	
6-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A	0.2	0.2	C	C	C	0.0	0.0	0.1	P	P	P	0.5	0.1	0.1	0.2	--	0.50	
7-Dec	0.1	0.1	0.1	0.2	0.2	0.2	0.4	A	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.28	0.53	
8-Dec	0.2	0.2	0.2	0.2	0.2	0.2	A	0.9	0.5	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.28	0.88	
9-Dec	0.3	0.2	0.2	0.3	0.4	A	0.6	0.6	0.5	0.7	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.4	0.5	0.5	0.3	0.3	0.3	0.40	0.69	
10-Dec	0.2	0.2	0.2	0.3	A	0.3	0.4	1.0	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.30	1.02	
11-Dec	0.2	0.2	0.2	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	0.19	0.23	
12-Dec	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19	0.24	
13-Dec	0.2	A	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.7	0.6	0.8	1.0	0.5	0.7	0.7	0.42	0.97	
14-Dec	A	0.3	0.3	0.3	0.3	0.5	0.8	1.0	1.0	0.8	0.4	0.4	0.4	0.4	0.4	0.2	0.4	0.3	0.4	0.3	0.3	0.3	0.3	A	0.45	1.03	
15-Dec	0.4	0.3	0.3	0.3	0.3	0.4	1.0	0.9	0.8	3.2	0.7	0.3	0.3	0.2	0.2	0.3	0.4	0.6	0.8	0.6	1.0	0.6	A	0.4	0.62	3.17	
16-Dec	0.4	0.3	0.3	0.3	0.3	0.4	0.4	1.5	0.8	0.8	1.1	0.3	0.4	0.4	0.4	0.4	1.1	0.7	0.6	0.5	0.7	A	0.4	0.4	0.56	1.49	
17-Dec	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.6	0.4	0.4	0.4	0.8	0.8	0.5	0.4	0.6	0.5	0.4	0.2	0.2	A	0.2	0.2	0.2	0.40	0.78	
18-Dec	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	A	0.3	0.3	0.2	0.2	0.18	0.30
19-Dec	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.21	0.33
20-Dec	0.2	0.2	0.2	0.2	0.3	0.6	1.1	4.1	2.1	2.1	1.7	1.6	0.6	0.4	0.5	0.4	0.3	A	0.3	0.3	0.2	0.2	0.2	0.2	0.78	4.08	
21-Dec	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.23	0.37	
22-Dec	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	A	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.27	0.42	
23-Dec	0.4	0.8	0.3	0.2	0.2	0.2	0.2	0.6	0.4	0.4	0.9	0.5	0.3	0.3	A	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.36	0.89	
24-Dec	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.5	0.3	0.2	0.3	0.4	0.3	A	0.4	0.3	0.4	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.32	0.54	
25-Dec	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	A	0.3	0.3	0.2	0.3	0.4	0.5	0.4	0.4	0.2	0.2	0.3	0.29	0.47	
26-Dec	0.2	0.3	0.3	0.3	0.4	0.3	0.6	0.3	0.5	0.5	0.6	A	0.6	0.6	0.5	0.6	0.8	0.7	0.6	1.0	1.0	1.0	0.7	0.6	0.56	1.02	
27-Dec	0.5	0.5	0.4	0.5	0.5	0.6	0.5	0.9	1.0	0.6	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	0.37	1.00	
28-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19	0.22	
29-Dec	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.5	A	1.6	0.5	0.4	0.3	0.3	0.4	0.5	0.5	0.7	0.8	0.7	0.3	0.3	0.3	0.3	0.46	1.64	
30-Dec	0.4	0.4	0.2	0.2	0.2	0.3	0.3	A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.22	0.38	
31-Dec	0.2	0.2	0.2	0.2	0.2	0.2	A	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.22	0.38	
	0.27	0.28	0.25	0.24	0.25	0.32	0.40	0.59	0.49	0.56	0.42	0.36	0.32	0.27	0.28	0.29	0.38	0.39	0.41	0.37	0.37	0.31	0.29	0.27		Diurnal Average	
	0.54	0.84	0.45	0.50	0.54	1.41	1.35	4.08	2.06	3.17	1.70	1.55	0.78	0.60	0.57	0.77	1.17	1.48	2.49	0.98	0.99	1.16	0.78	0.67		Diurnal Maximum	
C - Calibration P - Power Failure A - Automated Daily Zero Span																											

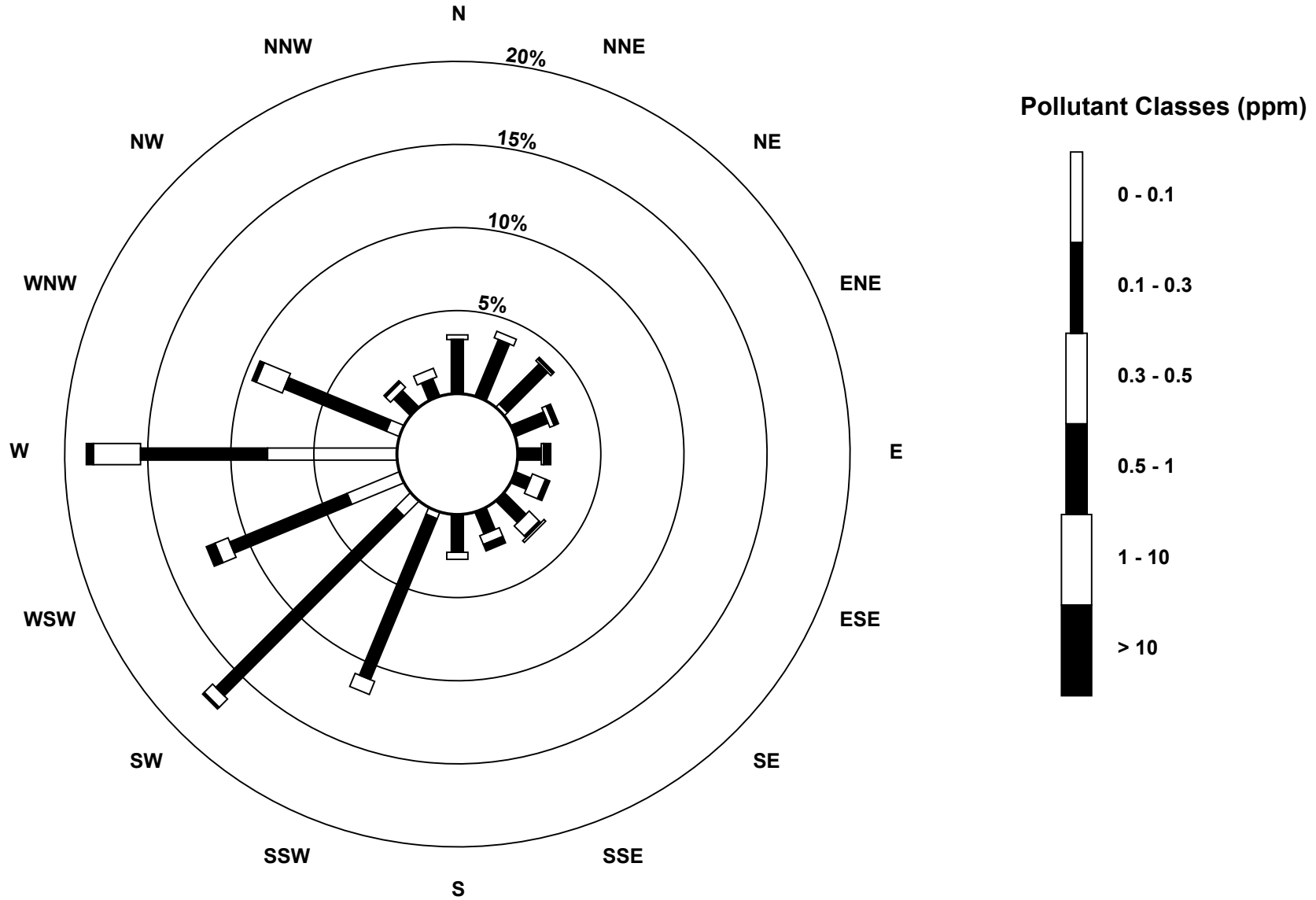
Hourly Maximums

Carbon Monoxide (CO) - ppm
Henry Pirker - December 2016



Pollutant Rose

Carbon Monoxide (CO) - ppm
Henry Pirker - December 2016



Eight Hour Running Averages

Carbon Monoxide (CO) - ppm

Henry Pirker - December 2016

Number of Exceedences (AAAQO): 8-hr: 0	Hours in Service: 744
Maximum Value: 0.94 ppm on Dec 20 13:00	Hours of Data: 731
Minimum Value: 0.10 ppm on Dec 7 02:00	Hours of Missing Data: 13
	Hours of Calibration: 9
	Percent Operational Time: 99.5
Percentiles: P ₁ = 0.11 P ₁₀ = 0.15 Q ₁ = 0.17 Median = 0.22 Q ₃ = 0.30 P ₉₀ = 0.40 P ₉₉ = 0.70	

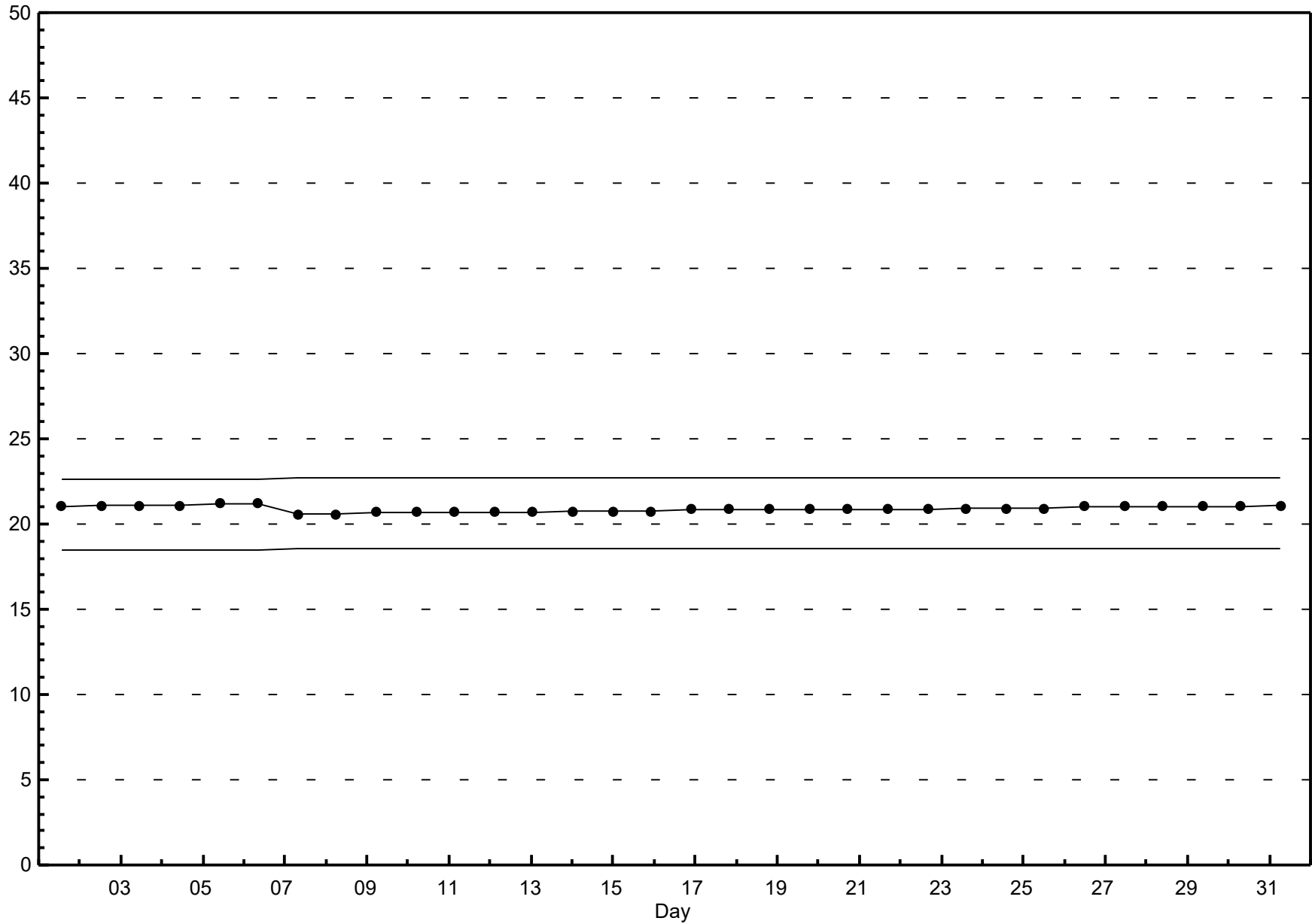
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.62
2-Dec	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.55
3-Dec	0.5	0.5	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.52
4-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.16
5-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	0.1	0.12
6-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	N	N	N	N	N	N	N	N	N	N	N	N	N	0.13
7-Dec	N	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25
8-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.20
9-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	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.38
10-Dec	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.31
11-Dec	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	0.2	0.2	0.18
12-Dec	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17
13-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	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.43
14-Dec	0.4	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	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.45
15-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	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	0.41
16-Dec	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.45
17-Dec	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.40
18-Dec	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.18
19-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	0.2	0.21
20-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.7	0.8	0.9	0.9	0.9	0.9	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.94
21-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.21
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	0.2	0.24
23-Dec	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.29
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	0.3	0.3	0.3	0.3	0.3	0.29
25-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.30
26-Dec	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.6	0.6	0.66
27-Dec	0.6	0.6	0.6	0.5	0.5	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	0.2	0.2	0.2	0.2	0.62
28-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.17
29-Dec	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	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
30-Dec	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.32
31-Dec	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.18
	0.62	0.61	0.59	0.54	0.48	0.42	0.39	0.44	0.58	0.71	0.83	0.91	0.94	0.93	0.89	0.73	0.61	0.55	0.61	0.62	0.62	0.63	0.66	0.65		

Diurnal Maximums

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

Span Responses

Carbon Monoxide (CO)
Henry Pirker - December 2016

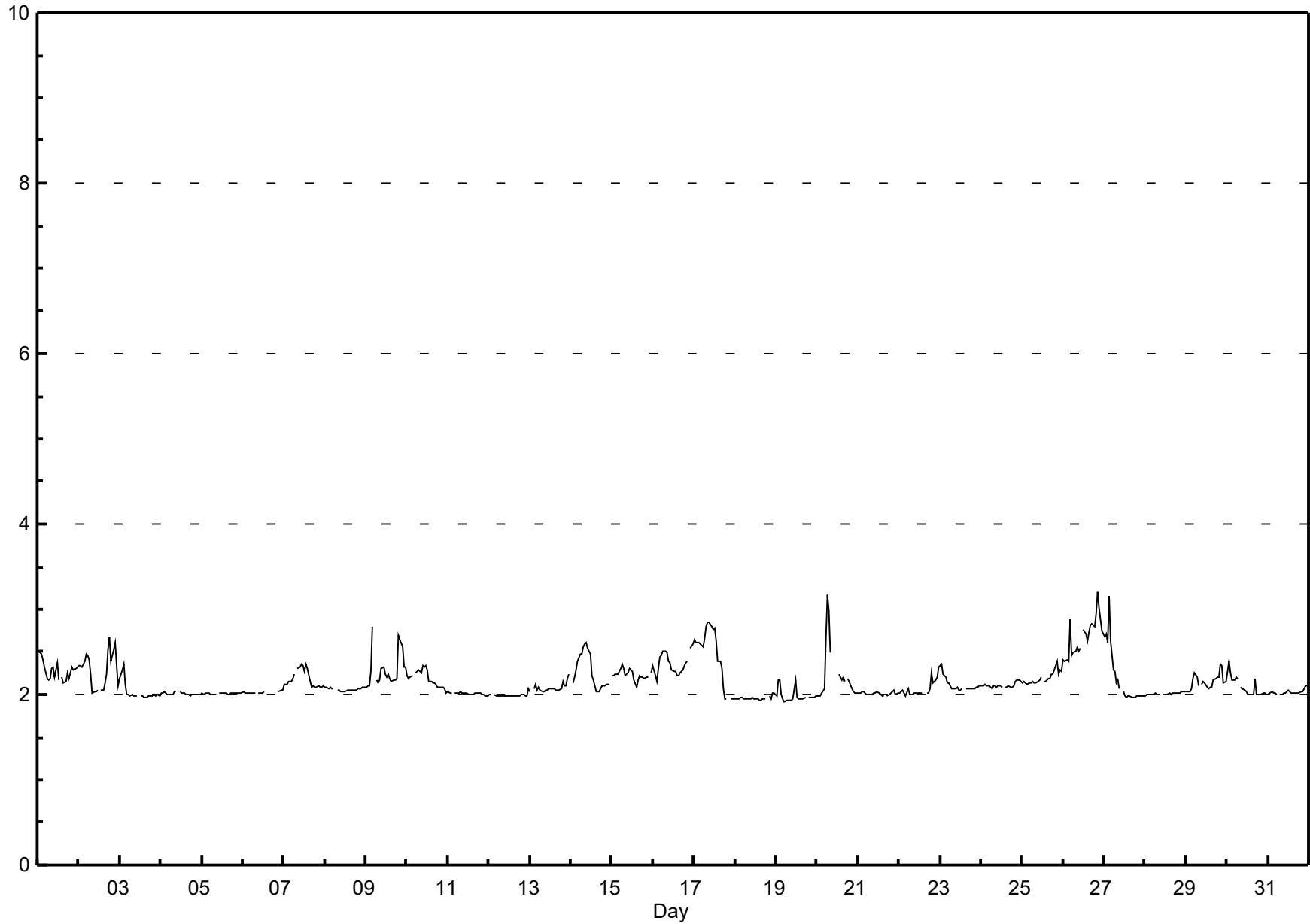


Hourly Averages

Total Hydrocarbons (THC) - ppm

Henry Pirker - December 2016

Maximum Value: 3.20 ppm on Dec 26 21:00		Maximum Daily Average: 2.68 ppm on Dec 26		Hours in Service: 744																							
Minimum Value: 1.9 ppm on Dec 19 06:00		Minimum Daily Average: 1.96 ppm on Dec 18		Hours of Data: 701																							
Maximum Diurnal Average: 2.20 ppm at hour 7		Minimum Diurnal Average: 2.10 ppm at hour 15		Hours of Missing Data: 43																							
Monthly Average: 2.149 ppm		Percentiles: P ₁ = 1.94 P ₁₀ = 1.98 Q ₁ = 2.01 Median = 2.07 Q ₃ = 2.22 P ₉₀ = 2.40 P ₉₉ = 2.85		Hours of Calibration: 39																							
				Percent Operational Time: 99.5																							
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	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.4	2.2	A	2.2	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.29	2.51	
2-Dec	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.2	2.0	2.0	2.0	2.0	A	2.0	2.1	2.1	2.2	2.5	2.7	2.4	2.5	2.6	2.3	2.1	2.29	2.68	
3-Dec	2.2	2.3	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.03	2.36	
4-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.04	
5-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.02	
6-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	C	C	C	2.0	P	P	P	P	2.0	2.0	2.1	--	2.06		
7-Dec	2.1	2.1	2.1	2.2	2.1	2.2	2.2	A	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.1	2.1	P	P	P	P	2.1	2.1	2.1	2.18	2.36	
8-Dec	2.1	2.1	2.1	2.1	2.1	2.1	A	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.06	2.09	
9-Dec	2.1	2.1	2.1	2.3	2.8	A	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.6	2.6	2.3	2.3	2.29	2.80	
10-Dec	2.2	2.2	2.2	2.2	A	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.19	2.34	
11-Dec	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.03	
12-Dec	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	1.99	2.07	
13-Dec	2.0	A	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.08	2.24	
14-Dec	A	2.1	2.2	2.3	2.4	2.5	2.5	2.6	2.6	2.6	2.5	2.5	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	A	2.27	2.61	
15-Dec	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	A	2.24	2.35	
16-Dec	2.3	2.2	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.4	A	2.5	2.6	2.36	2.59	
17-Dec	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.9	2.8	2.8	2.8	2.6	2.4	2.4	2.3	2.1	1.9	1.9	A	1.9	2.0	2.0	2.46	2.86	
18-Dec	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	2.0	2.0	2.0	2.0	1.96	2.02	
19-Dec	2.0	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.0	1.9	1.9	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	1.98	2.17	
20-Dec	2.0	2.0	2.0	2.0	2.1	2.7	3.2	3.0	2.5	C	C	C	C	2.2	2.2	2.2	2.2	A	2.2	2.1	2.1	2.0	2.0	2.0	2.24	3.16	
21-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.01	2.06	
22-Dec	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	2.3	2.1	2.2	2.2	2.3	2.06	2.33	
23-Dec	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.11	2.35	
24-Dec	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.11	2.18	
25-Dec	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	A	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.3	2.3	2.19	2.39	
26-Dec	2.4	2.4	2.4	2.4	2.9	2.5	2.5	2.5	2.6	2.5	2.5	A	2.8	2.7	2.6	2.7	2.8	2.8	2.8	3.0	3.2	3.0	2.9	2.8	2.68	3.20	
27-Dec	2.7	2.7	2.6	3.1	2.6	2.3	2.3	2.1	2.2	2.1	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.20	3.15	
28-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.03	
29-Dec	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.1	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.3	2.1	2.2	2.15	2.35	
30-Dec	2.3	2.4	2.3	2.2	2.2	2.2	2.2	A	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.09	2.39	
31-Dec	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.03	2.10	
		2.16	2.17	2.17	2.18	2.19	2.18	2.20	2.17	2.17	2.16	2.16	2.14	2.13	2.12	2.10	2.10	2.11	2.11	2.12	2.15	2.17	2.14	2.13	2.13	Diurnal Average	
		2.69	2.71	2.62	3.15	2.89	2.68	3.16	2.98	2.84	2.86	2.80	2.76	2.78	2.71	2.63	2.73	2.81	2.83	2.79	2.95	3.20	3.02	2.88	2.75	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			



Hourly Maximums

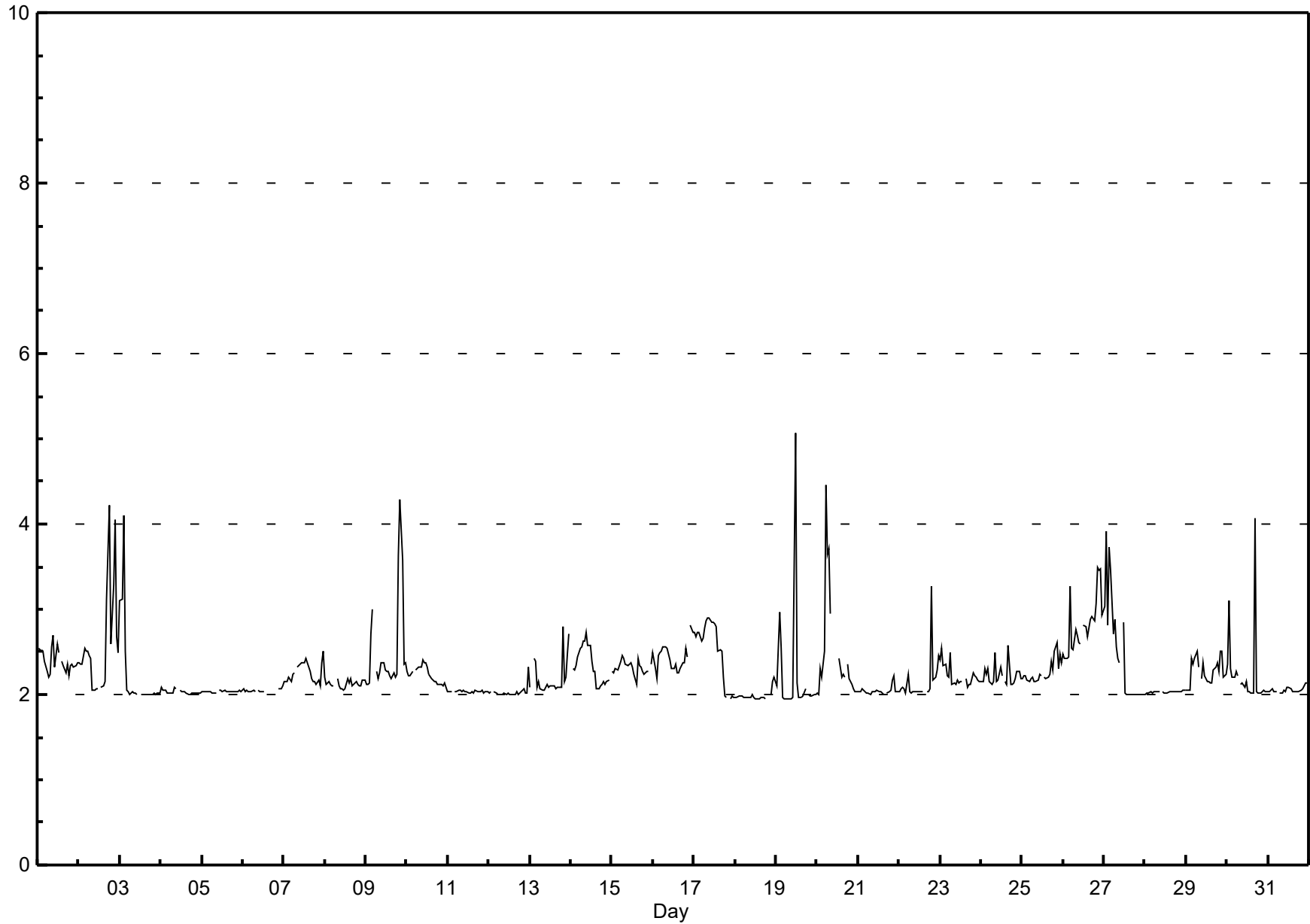
Total Hydrocarbons (THC) - ppm

Henry Pirker - December 2016

Maximum Value: 5.07 ppm on Dec 19 12:00		Maximum Daily Average: 2.82 ppm on Dec 26		Hours in Service: 744																																												
Minimum Value: 1.9 ppm on Dec 19 06:00		Minimum Daily Average: 1.99 ppm on Dec 18		Hours of Data: 701																																												
Maximum Diurnal Average: 2.33 ppm at hour 12		Minimum Diurnal Average: 2.14 ppm at hour 15		Hours of Missing Data: 43																																												
Monthly Average: 2.254 ppm		Percentiles: P ₁ = 1.96 P ₁₀ = 2.01 Q ₁ = 2.03 Median = 2.14 Q ₃ = 2.35 P ₉₀ = 2.61 P ₉₉ = 4.05		Hours of Calibration: 39																																												
				Percent Operational Time: 99.5																																												
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	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.6	2.7	2.3	2.6	2.5	A	2.4	2.3	2.3	2.4	2.2	2.3	2.3	2.3	2.3	2.4	2.40	2.69																						
2-Dec	2.4	2.4	2.3	2.5	2.5	2.5	2.5	2.4	2.1	2.1	2.1	2.1	A	2.1	2.1	2.2	3.1	3.7	4.2	2.6	3.3	4.1	2.7	2.5	2.62	4.22																						
3-Dec	3.1	3.1	4.1	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.22	4.10																						
4-Dec	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	A	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.03	2.08																						
5-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.03	2.05																						
6-Dec	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.0	A	2.1	2.0	2.0	2.0	C	C	C	2.0	P	P	P	P	2.1	2.1	2.1	--	2.10																						
7-Dec	2.1	2.1	2.1	2.2	2.2	2.2	2.3	A	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.4	2.5	2.26	2.51																						
8-Dec	2.2	2.1	2.1	2.1	2.1	2.1	A	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.12	2.19																						
9-Dec	2.1	2.1	2.1	2.7	3.0	A	2.3	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	3.6	4.3	3.6	2.3	2.4	2.51	4.30																						
10-Dec	2.3	2.2	2.2	2.3	A	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.23	2.41																						
11-Dec	2.0	2.0	2.0	A	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.04	2.05																						
12-Dec	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.3	2.03	2.32																						
13-Dec	2.1	A	2.4	2.4	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.2	2.2	2.5	2.20	2.80																						
14-Dec	A	2.3	2.3	2.3	2.4	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	A	2.34	2.73																						
15-Dec	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.3	2.2	2.1	2.4	2.3	2.3	2.3	2.2	2.3	2.3	A	2.4	2.32	2.45																						
16-Dec	2.5	2.3	2.2	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.4	A	2.8	2.7	2.44	2.82																						
17-Dec	2.7	2.7	2.7	2.7	2.6	2.7	2.8	2.9	2.9	2.9	2.8	2.9	2.8	2.8	2.5	2.5	2.5	2.2	2.0	2.0	A	2.0	2.0	2.0	2.54	2.90																						
18-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.1	2.2	1.99	2.21																						
19-Dec	2.1	2.5	3.0	2.5	2.0	1.9	1.9	1.9	2.0	2.0	2.0	5.1	2.1	2.0	2.0	2.0	2.0	2.1	A	2.0	2.0	2.0	2.0	2.0	2.21	5.07																						
20-Dec	2.0	2.0	2.3	2.2	2.5	4.5	3.6	3.7	3.0	C	C	C	C	2.4	2.2	2.2	2.2	A	2.3	2.2	2.1	2.1	2.0	2.0	2.51	4.46																						
21-Dec	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	2.2	2.2	2.0	2.0	2.05	2.22																						
22-Dec	2.0	2.1	2.1	2.1	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	3.3	2.2	2.2	2.3	2.5	2.14	3.27																						
23-Dec	2.4	2.5	2.3	2.4	2.2	2.2	2.5	2.1	2.1	2.1	2.2	2.1	2.1	2.2	A	2.2	2.1	2.1	2.1	2.3	2.2	2.2	2.2	2.2	2.22	2.55																						
24-Dec	2.1	2.1	2.3	2.2	2.3	2.2	2.1	2.2	2.5	2.1	2.2	2.3	2.2	A	2.2	2.1	2.6	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.22	2.58																						
25-Dec	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	A	2.2	2.2	2.2	2.2	2.4	2.3	2.5	2.6	2.3	2.5	2.4	2.26	2.61																						
26-Dec	2.5	2.4	2.4	2.4	3.3	2.5	2.5	2.8	2.7	2.6	2.6	A	2.8	2.8	2.7	2.8	2.9	2.9	2.9	3.1	3.5	3.5	3.5	2.9	2.82	3.49																						
27-Dec	3.0	3.9	2.8	3.7	3.5	2.7	2.9	2.6	2.4	2.4	A	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.47	3.92																						
28-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.03	2.05																						
29-Dec	2.1	2.1	2.1	2.4	2.4	2.4	2.5	2.3	A	2.2	2.4	2.2	2.1	2.2	2.1	2.1	2.3	2.3	2.4	2.3	2.5	2.5	2.2	2.2	2.27	2.51																						
30-Dec	2.3	3.1	2.3	2.2	2.2	2.3	2.2	A	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	4.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.24	4.06																						
31-Dec	2.0	2.0	2.1	2.0	2.0	2.0	A	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.05	2.14																						
																								2.25	2.31	2.32	2.32	2.30	2.30	2.30	2.27	2.25	2.23	2.20	2.33	2.19	2.17	2.14	2.15	2.26	2.20	2.22	2.29	2.31	2.28	2.23	2.24	Diurnal Average
																								3.10	3.92	4.10	3.73	3.47	4.46	3.64	3.71	2.96	2.90	2.84	5.07	2.83	2.80	2.68	2.78	4.06	3.68	4.22	3.63	4.30	4.05	3.48	2.92	Diurnal Maximum
C - Calibration																								P - Power Failure				A - Automated Daily Zero Span																				

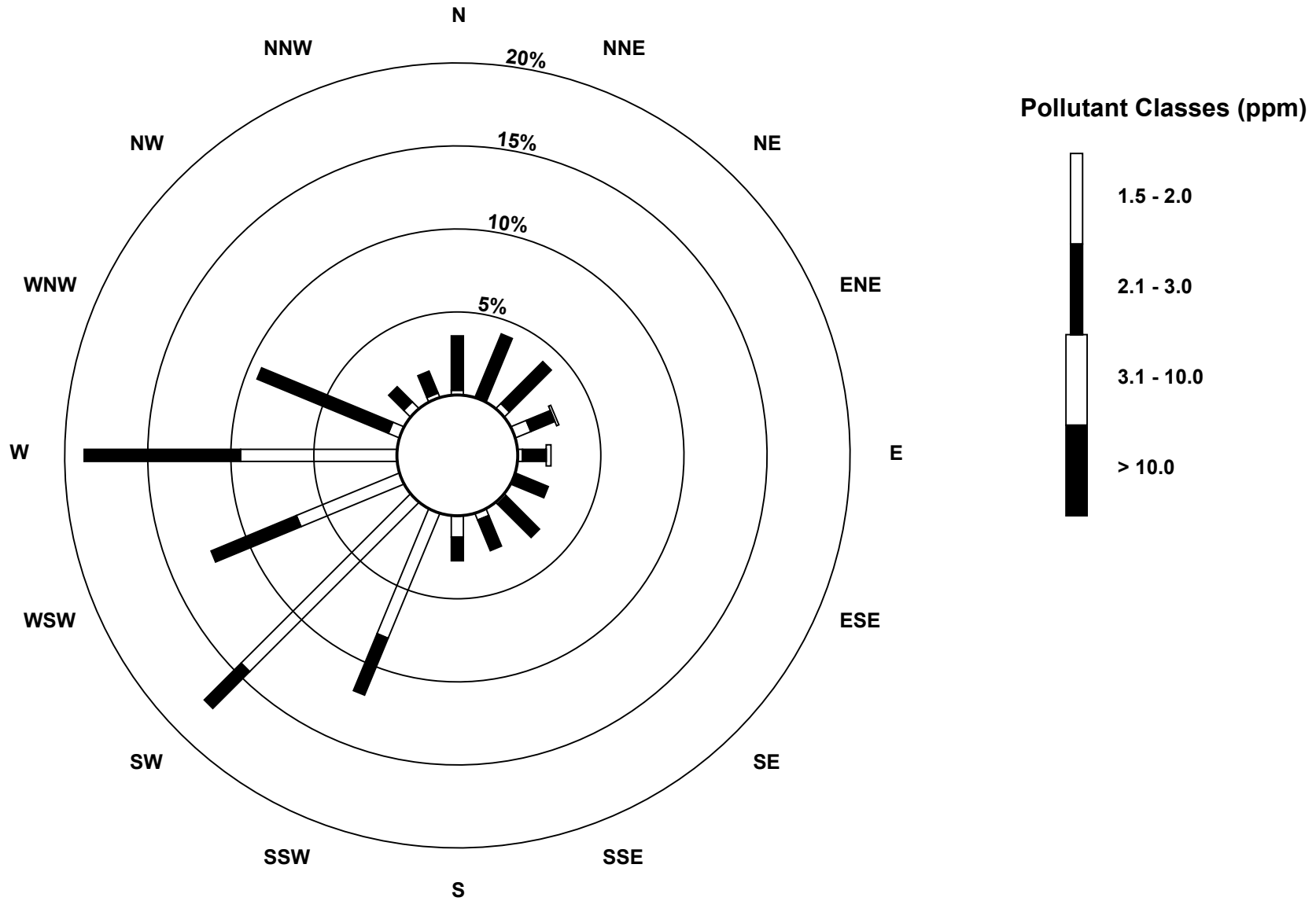
Hourly Maximums

Total Hydrocarbons (THC) - ppm
Henry Pirker - December 2016



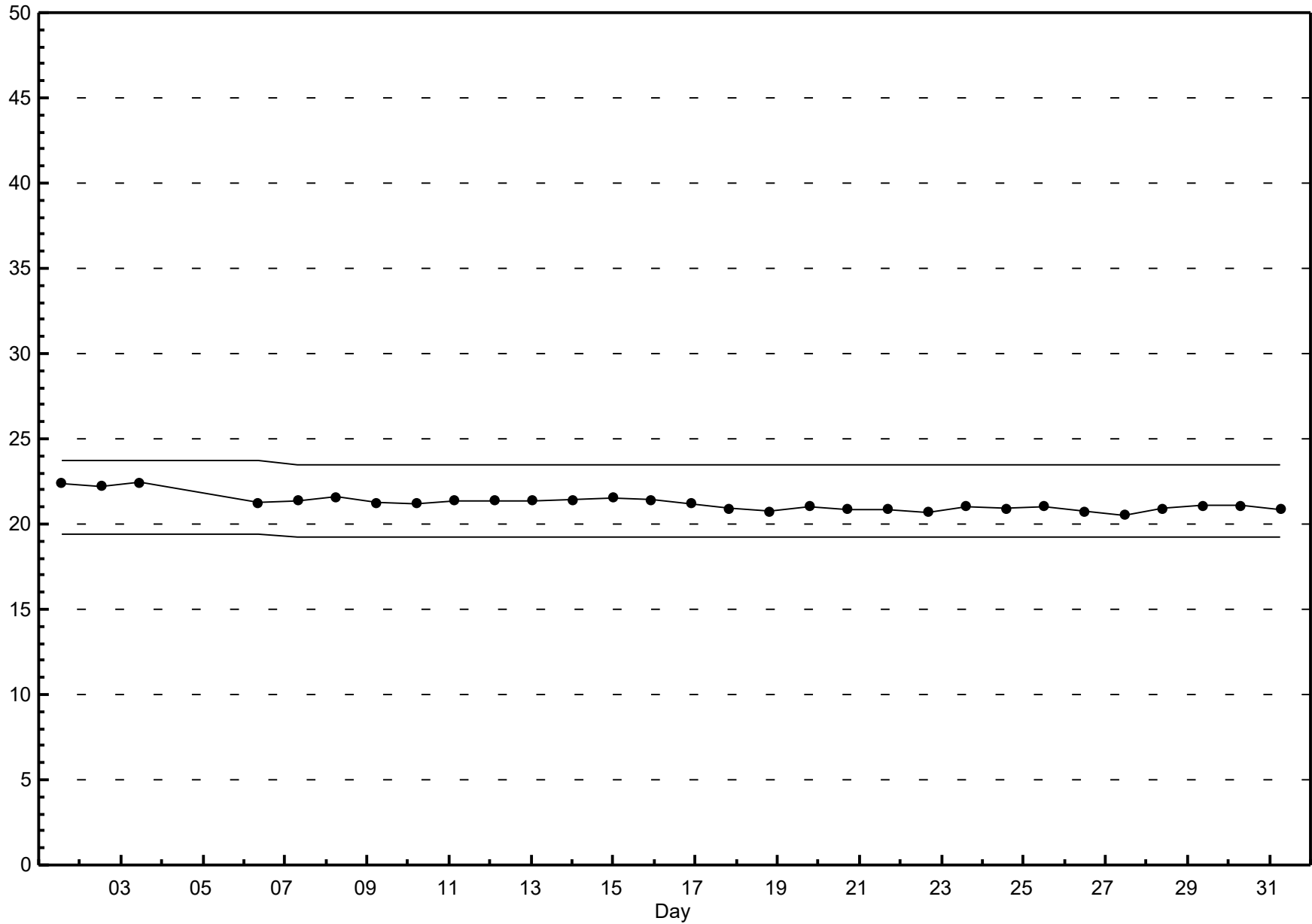
Pollutant Rose

Total Hydrocarbons (THC) - ppm
Henry Pirker - December 2016



Span Responses

Total Hydrocarbons (THC)
Henry Pirker - December 2016



Hourly Averages

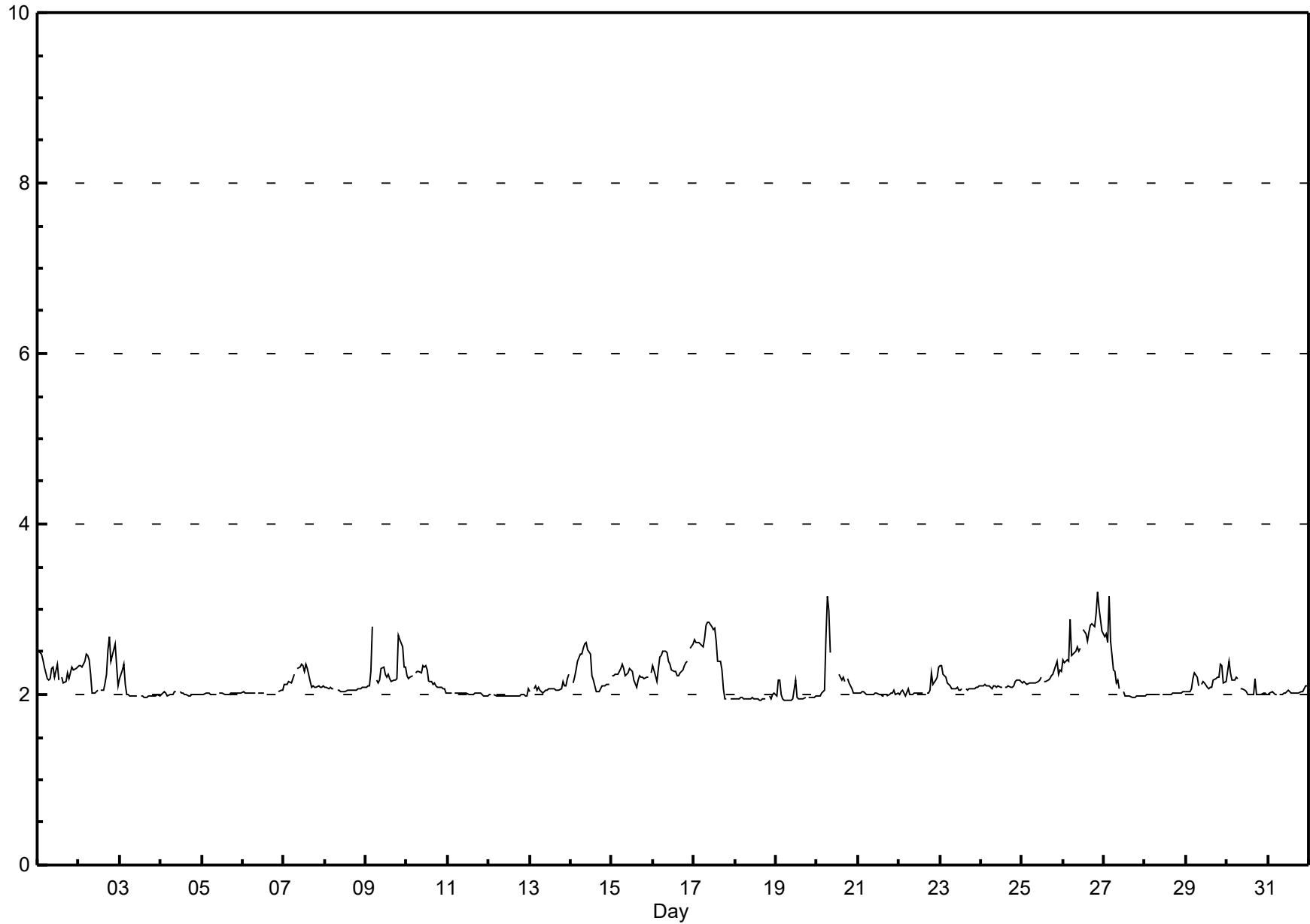
Methane (CH₄) - ppm

Henry Pirker - December 2016

Maximum Value: 3.20 ppm on Dec 26 21:00 Maximum Daily Average: 2.68 ppm on Dec 26 Minimum Value: 1.9 ppm on Dec 19 06:00 Minimum Daily Average: 1.96 ppm on Dec 18 Maximum Diurnal Average: 2.20 ppm at hour 7 Minimum Diurnal Average: 2.10 ppm at hour 15 Monthly Average: 2.147 ppm Percentiles: P ₁ = 1.94 P ₁₀ = 1.98 Q ₁ = 2.01 Median = 2.07 Q ₃ = 2.22 P ₉₀ = 2.40 P ₉₉ = 2.85																								Hours in Service: 744 Hours of Data: 701 Hours of Missing Data: 43 Hours of Calibration: 39 Percent Operational Time: 99.5		
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	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.4	2.2	A	2.2	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.28	2.51
2-Dec	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.2	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	2.2	2.5	2.7	2.4	2.5	2.6	2.3	2.1	2.29	2.68
3-Dec	2.2	2.3	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.03	2.36
4-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.04
5-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.02
6-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	C	C	C	2.0	P	P	P	P	2.0	2.0	2.1	--	2.05	
7-Dec	2.1	2.1	2.1	2.2	2.1	2.2	2.2	A	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.1	2.1	P	P	P	P	2.1	2.1	2.1	2.18	2.36
8-Dec	2.1	2.1	2.1	2.1	2.1	2.1	A	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.06	2.09
9-Dec	2.1	2.1	2.1	2.3	2.8	A	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.6	2.6	2.3	2.3	2.28	2.80
10-Dec	2.2	2.2	2.2	2.2	A	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.19	2.34
11-Dec	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.02
12-Dec	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	1.99	2.07
13-Dec	2.0	A	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.08	2.24
14-Dec	A	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	A	2.27	2.61
15-Dec	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	A	2.24	2.35
16-Dec	2.3	2.2	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.4	A	2.5	2.6	2.36	2.59
17-Dec	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.9	2.8	2.8	2.8	2.6	2.4	2.4	2.3	2.1	2.0	1.9	A	1.9	2.0	2.0	2.46	2.85
18-Dec	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	2.0	2.0	2.0	2.0	1.96	2.02
19-Dec	2.0	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	2.0	1.9	1.9	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	1.98	2.17
20-Dec	2.0	2.0	2.0	2.0	2.1	2.7	3.2	3.0	2.5	C	C	C	C	2.2	2.2	2.2	2.1	A	2.2	2.1	2.1	2.0	2.0	2.0	2.24	3.16
21-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.01	2.06
22-Dec	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	2.3	2.1	2.2	2.2	2.3	2.06	2.33
23-Dec	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.11	2.35
24-Dec	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	A	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.10	2.18
25-Dec	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	A	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.3	2.3	2.19	2.39
26-Dec	2.4	2.4	2.4	2.4	2.9	2.5	2.5	2.5	2.6	2.5	2.5	A	2.8	2.7	2.6	2.7	2.8	2.8	2.8	3.0	3.2	3.0	2.9	2.8	2.68	3.20
27-Dec	2.7	2.7	2.6	3.1	2.6	2.3	2.3	2.1	2.2	2.1	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.19	3.15
28-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.01	2.03
29-Dec	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.1	A	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.3	2.1	2.2	2.15	2.35
30-Dec	2.3	2.4	2.3	2.2	2.2	2.2	2.2	A	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.09	2.38
31-Dec	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.03	2.10
2.16 2.17 2.17 2.18 2.19 2.17 2.20 2.17 2.17 2.16 2.16 2.14 2.13 2.12 2.10 2.10 2.11 2.11 2.12 2.15 2.17 2.14 2.13 2.13 2.68 2.71 2.61 3.15 2.88 2.68 3.16 2.97 2.84 2.85 2.80 2.76 2.78 2.71 2.63 2.72 2.81 2.83 2.79 2.95 3.20 3.02 2.88 2.75																								Diurnal Average	Diurnal Maximum	
C - Calibration P - Power Failure A - Automated Daily Zero Span																										

Hourly Averages

Methane (CH₄) - ppm
Henry Pirker - December 2016



Hourly Maximums

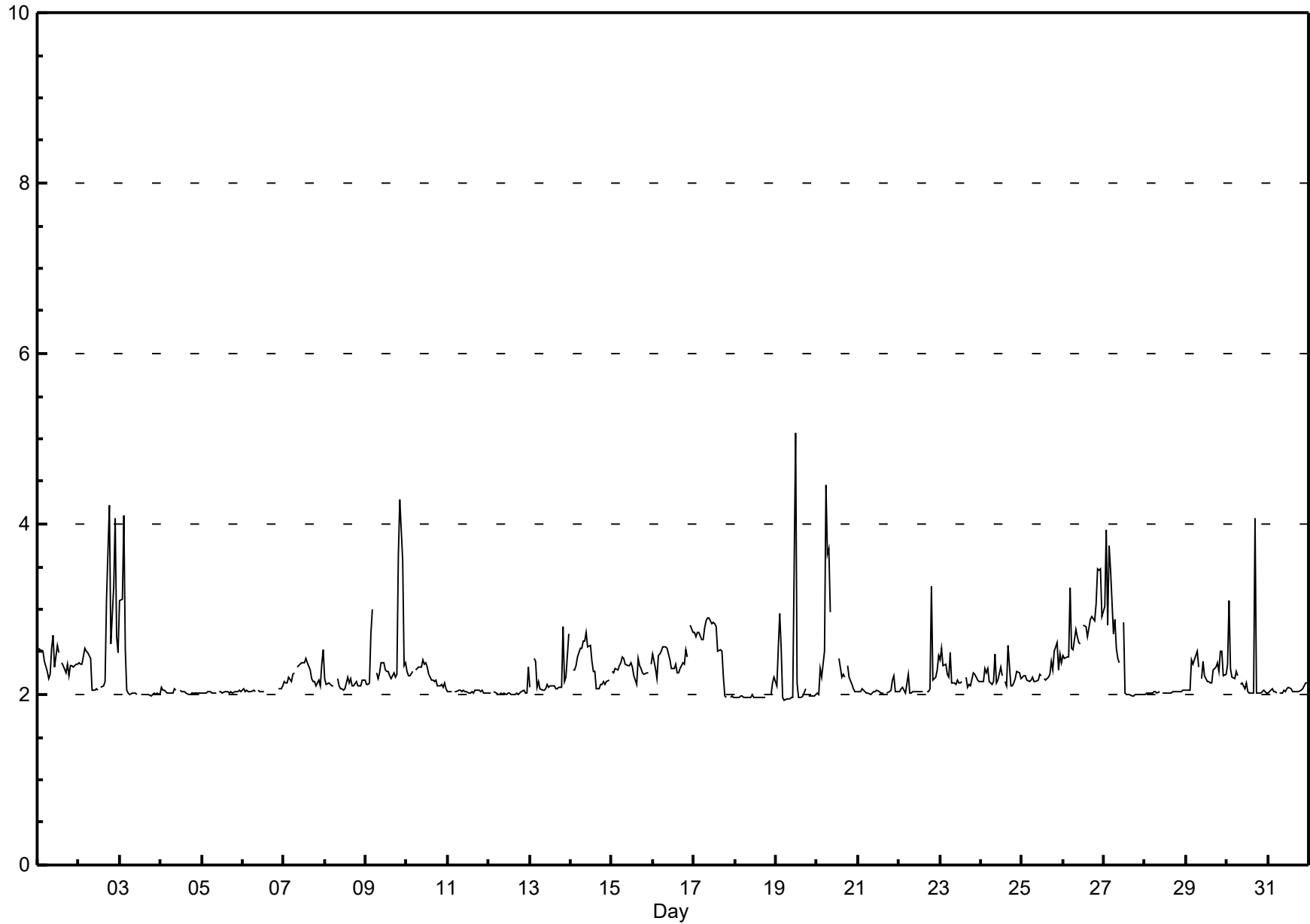
Methane (CH₄) - ppm

Henry Pirker - December 2016

Maximum Value: 5.08 ppm on Dec 19 12:00 Maximum Daily Average: 2.82 ppm on Dec 26 Minimum Value: 1.9 ppm on Dec 19 06:00 Minimum Daily Average: 1.99 ppm on Dec 18 Maximum Diurnal Average: 2.33 ppm at hour 12 Minimum Diurnal Average: 2.14 ppm at hour 15 Monthly Average: 2.252 ppm Percentiles: P ₁ = 1.96 P ₁₀ = 2.00 Q ₁ = 2.03 Median = 2.13 Q ₃ = 2.34 P ₉₀ = 2.61 P ₉₉ = 4.06																						Hours in Service: 744 Hours of Data: 701 Hours of Missing Data: 43 Hours of Calibration: 39 Percent Operational Time: 99.5																											
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	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.5	2.7	2.3	2.6	2.5	A	2.4	2.3	2.3	2.4	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.39	2.69																						
2-Dec	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.1	2.1	2.1	2.1	A	2.1	2.1	2.2	3.1	3.7	4.2	2.6	3.3	4.1	2.7	2.5	2.62	4.23																							
3-Dec	3.1	3.1	4.1	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.22	4.10																							
4-Dec	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	A	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.03	2.08																							
5-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.03	2.05																							
6-Dec	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	A	2.0	2.0	2.0	2.0	C	C	C	2.0	P	P	P	P	2.1	2.1	2.1	--	2.10																							
7-Dec	2.2	2.1	2.1	2.2	2.2	2.2	2.3	A	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.1	2.2	2.1	2.2	2.1	2.4	2.5	2.26	2.52																							
8-Dec	2.2	2.1	2.1	2.1	2.1	2.1	A	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.12	2.20																							
9-Dec	2.1	2.1	2.1	2.7	3.0	A	2.3	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	3.6	4.3	3.6	2.3	2.4	2.51	4.29																							
10-Dec	2.3	2.2	2.2	2.3	A	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.23	2.41																							
11-Dec	2.0	2.0	2.0	A	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.04	2.05																							
12-Dec	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.3	2.03	2.32																							
13-Dec	2.1	A	2.4	2.4	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.2	2.2	2.5	2.7	2.19	2.79																							
14-Dec	A	2.3	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.7	2.6	2.6	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	A	2.34	2.73																							
15-Dec	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.2	2.1	2.4	2.3	2.3	2.3	2.2	2.3	2.3	A	2.4	2.32	2.45																							
16-Dec	2.5	2.3	2.2	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.4	2.2	2.3	2.3	2.4	2.4	2.5	2.4	A	2.8	2.7	2.43	2.82																							
17-Dec	2.7	2.7	2.7	2.7	2.6	2.6	2.8	2.9	2.9	2.9	2.8	2.9	2.8	2.8	2.5	2.5	2.5	2.2	2.0	2.0	A	2.0	2.0	2.0	2.54	2.90																							
18-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.1	2.2	1.99	2.20																							
19-Dec	2.1	2.5	3.0	2.5	2.0	1.9	1.9	2.0	2.0	2.0	2.0	5.1	2.1	2.0	2.0	2.0	2.0	2.1	A	2.0	2.0	2.0	2.0	2.0	2.21	5.08																							
20-Dec	2.0	2.0	2.3	2.2	2.5	4.5	3.6	3.7	3.0	C	C	C	C	2.4	2.2	2.2	2.2	A	2.3	2.2	2.1	2.1	2.0	2.0	2.51	4.46																							
21-Dec	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	2.2	2.2	2.0	2.0	2.04	2.21																							
22-Dec	2.0	2.1	2.1	2.1	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.1	3.3	2.2	2.2	2.3	2.5	2.14	3.27																							
23-Dec	2.4	2.5	2.3	2.4	2.2	2.2	2.5	2.1	2.1	2.1	2.2	2.1	2.1	2.2	A	2.2	2.1	2.1	2.1	2.3	2.2	2.2	2.2	2.2	2.22	2.54																							
24-Dec	2.1	2.2	2.3	2.2	2.3	2.2	2.1	2.2	2.5	2.1	2.2	2.3	2.2	A	2.2	2.1	2.6	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.22	2.58																							
25-Dec	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	A	2.2	2.2	2.2	2.2	2.4	2.3	2.5	2.6	2.3	2.5	2.4	2.26	2.61																							
26-Dec	2.5	2.4	2.4	2.4	3.3	2.5	2.5	2.8	2.7	2.6	2.6	A	2.8	2.8	2.7	2.8	2.9	2.9	2.9	3.1	3.5	3.5	3.5	2.9	2.82	3.48																							
27-Dec	3.0	3.9	2.8	3.7	3.5	2.7	2.9	2.5	2.4	2.4	A	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.47	3.93																							
28-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.03	2.05																							
29-Dec	2.1	2.1	2.1	2.4	2.4	2.4	2.5	2.3	A	2.2	2.4	2.2	2.1	2.2	2.1	2.1	2.3	2.3	2.4	2.3	2.5	2.5	2.2	2.2	2.27	2.51																							
30-Dec	2.4	3.1	2.3	2.2	2.2	2.3	2.2	A	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	4.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.24	4.07																							
31-Dec	2.0	2.0	2.1	2.0	2.0	2.0	A	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.05	2.13																							
																								2.24	2.31	2.32	2.32	2.29	2.30	2.29	2.27	2.25	2.23	2.20	2.33	2.19	2.17	2.14	2.15	2.26	2.20	2.21	2.29	2.31	2.28	2.23	2.23	Diurnal Average	
																								3.09	3.93	4.10	3.74	3.46	4.46	3.64	3.71	2.96	2.90	2.84	5.08	2.84	2.79	2.68	2.78	4.07	3.68	4.23	3.63	4.29	4.06	3.48	2.92	Diurnal Maximum	
C - Calibration																								P - Power Failure				A - Automated Daily Zero Span																					

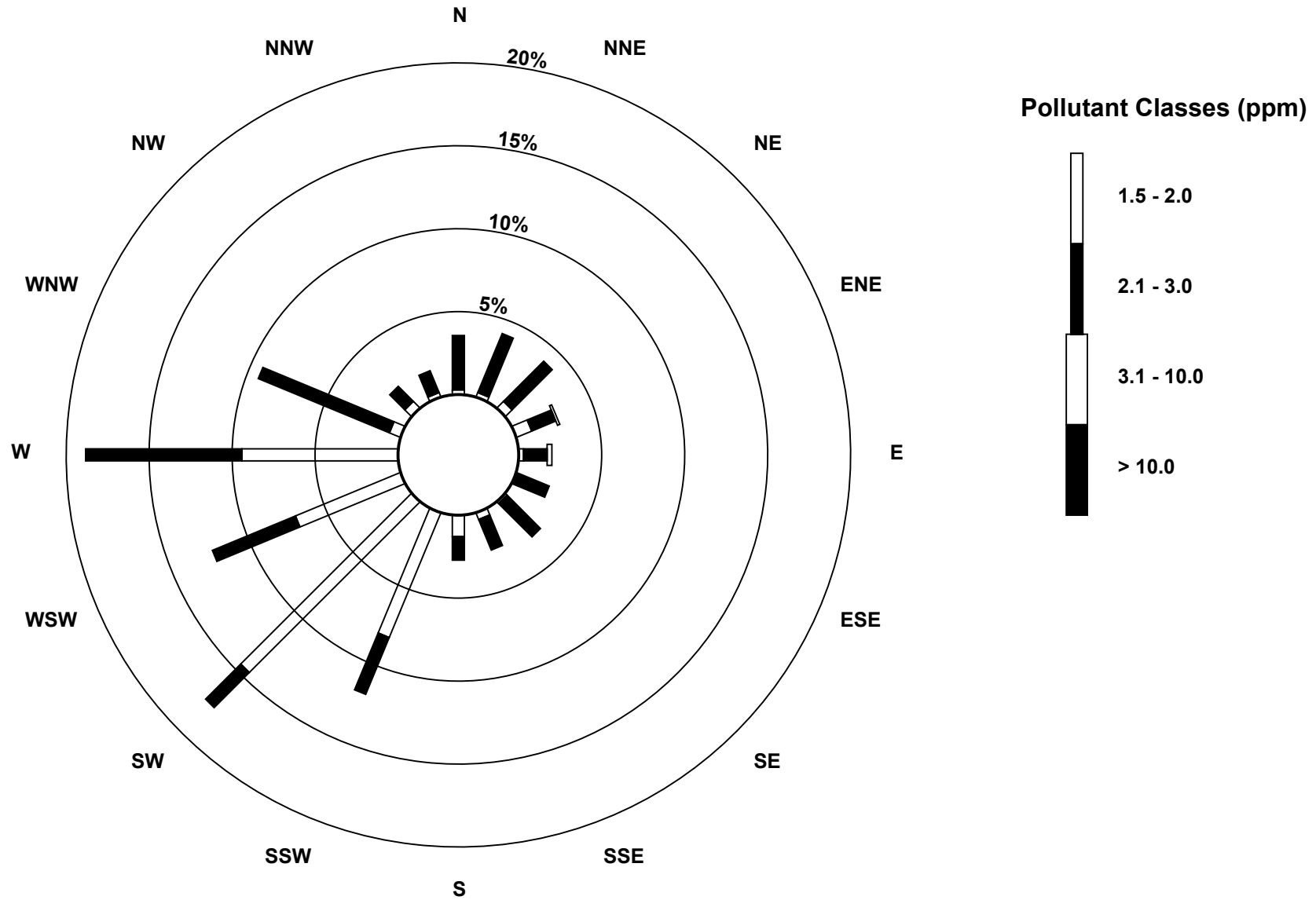
Hourly Maximums

Methane (CH₄) - ppm
Henry Pirker - December 2016



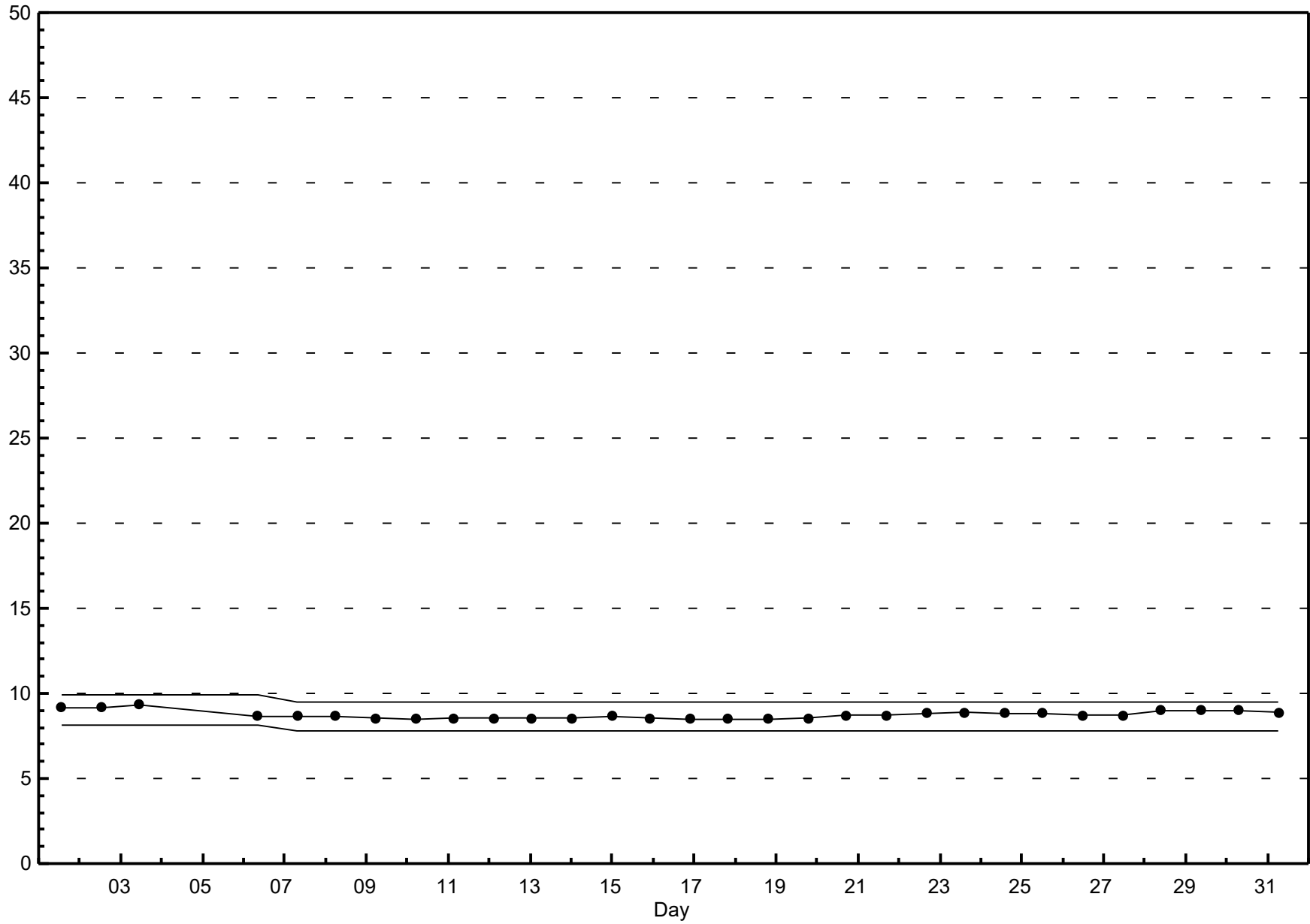
Pollutant Rose

Methane (CH₄) - ppm
Henry Pirker - December 2016



Span Responses

Methane (CH₄)
Henry Pirker - December 2016

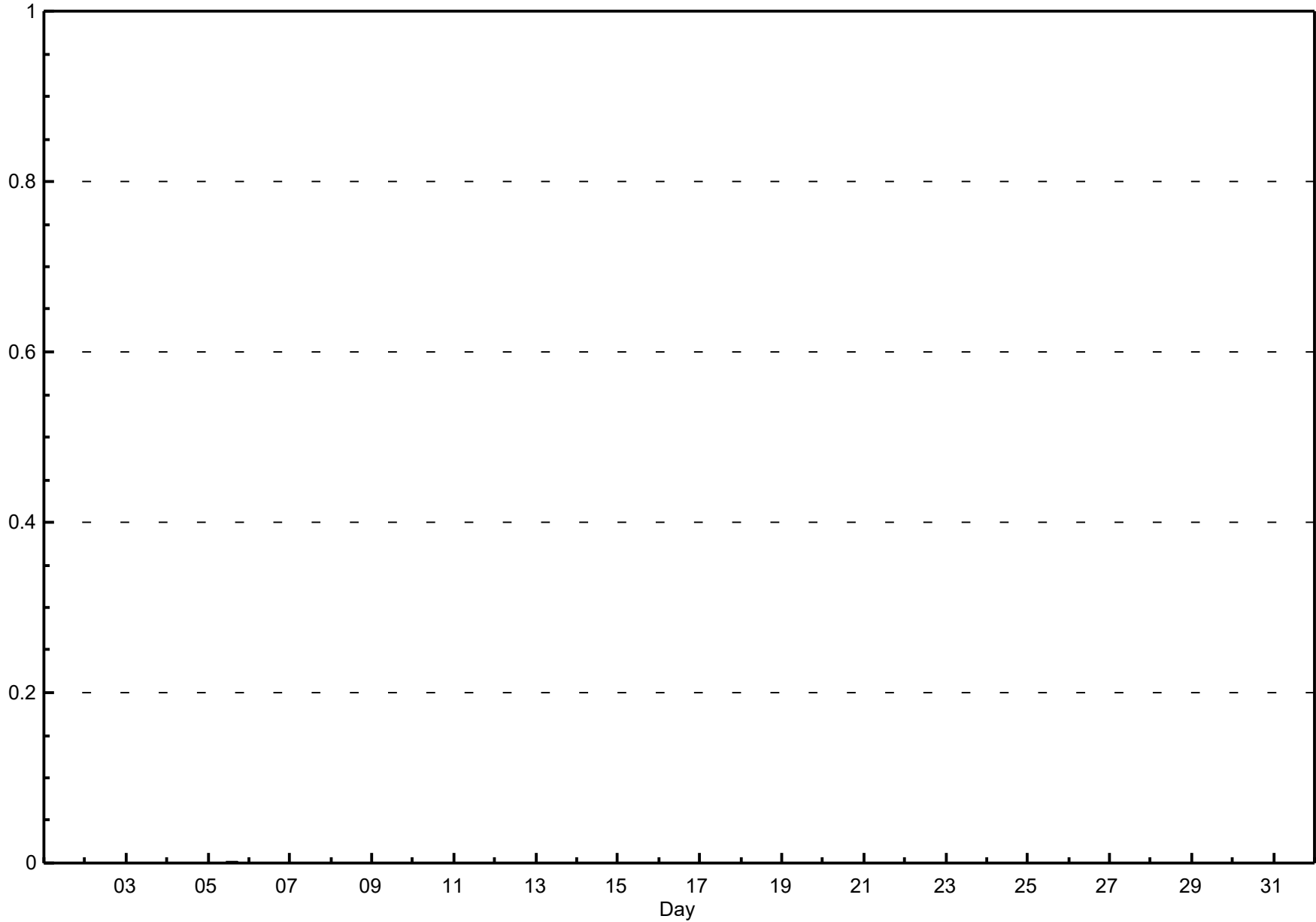


Hourly Averages

Non Methane Hydrocarbon (NMHC) - ppm

Henry Pirker - December 2016

Maximum Value: 0.00 ppm on Dec 5 11:00 Maximum Daily Average: 0.00 ppm on Dec 5 Minimum Value: 0.0 ppm on Dec 1 01:00 Minimum Daily Average: 0.00 ppm on Dec 7 Maximum Diurnal Average: 0.00 ppm at hour 14 Minimum Diurnal Average: 0.00 ppm at hour 7 Monthly Average: 0.000 ppm Percentiles: P ₁ = 0.00 P ₁₀ = 0.00 Q ₁ = 0.00 Median = 0.00 Q ₃ = 0.00 P ₉₀ = 0.00 P ₉₉ = 0.00																								Hours in Service: 744 Hours of Data: 701 Hours of Missing Data: 43 Hours of Calibration: 39 Percent Operational Time: 99.5		
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	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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
3-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
5-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
6-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	C	C	C	0.0	P	P	P	P	0.0	0.0	0.0	--	0.00
7-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
9-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
10-Dec	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
11-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
12-Dec	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
13-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
14-Dec	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.00	0.00
15-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.00	0.00
16-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.00	0.00
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
21-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	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
22-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	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
23-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
24-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
25-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
26-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
28-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
30-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
0.00 0.00																								Diurnal Average		
0.00 0.00																								Diurnal Maximum		
C - Calibration P - Power Failure A - Automated Daily Zero Span																										

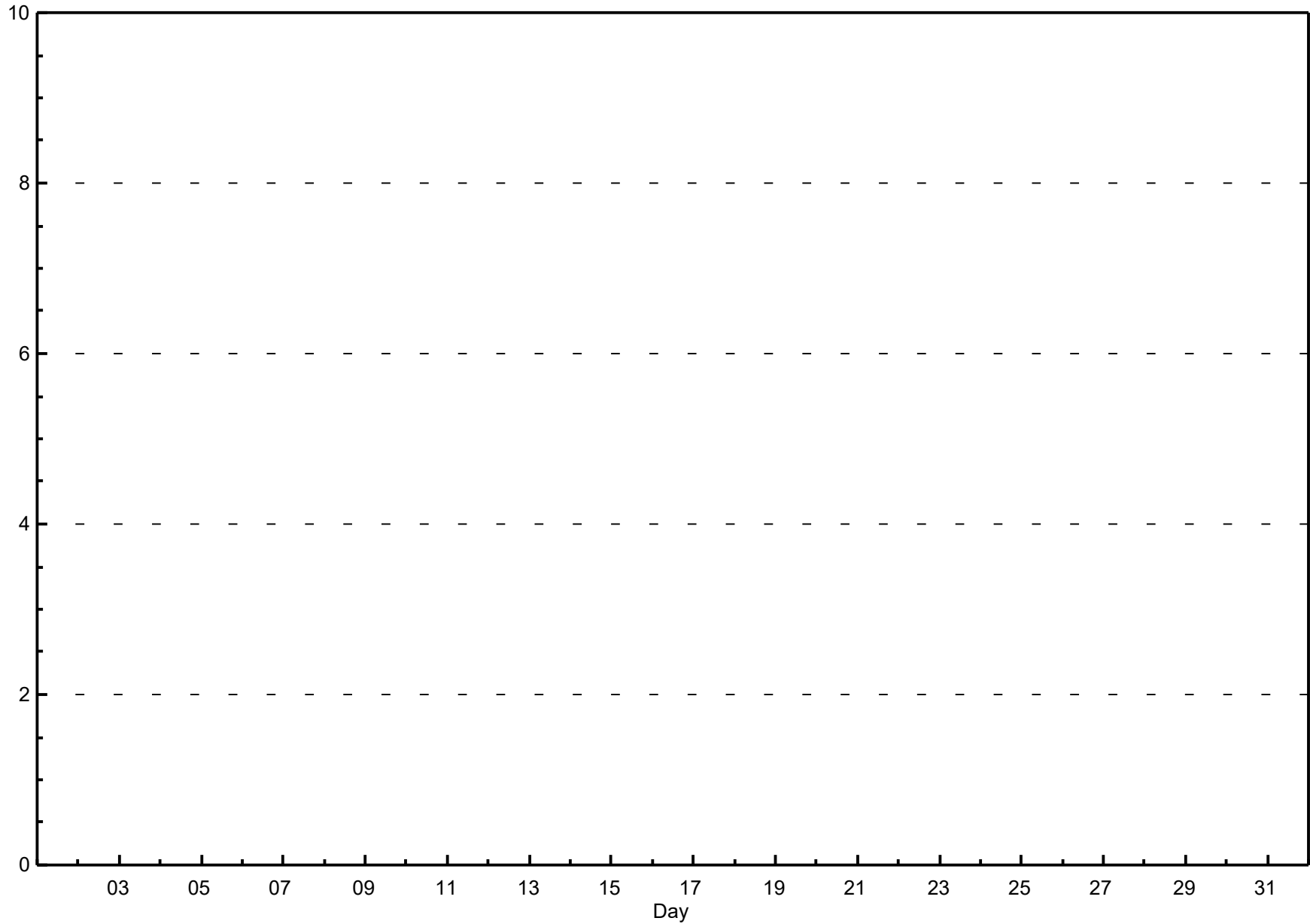


Hourly Maximums

Non Methane Hydrocarbon (NMHC) - ppm

Henry Pirker - December 2016

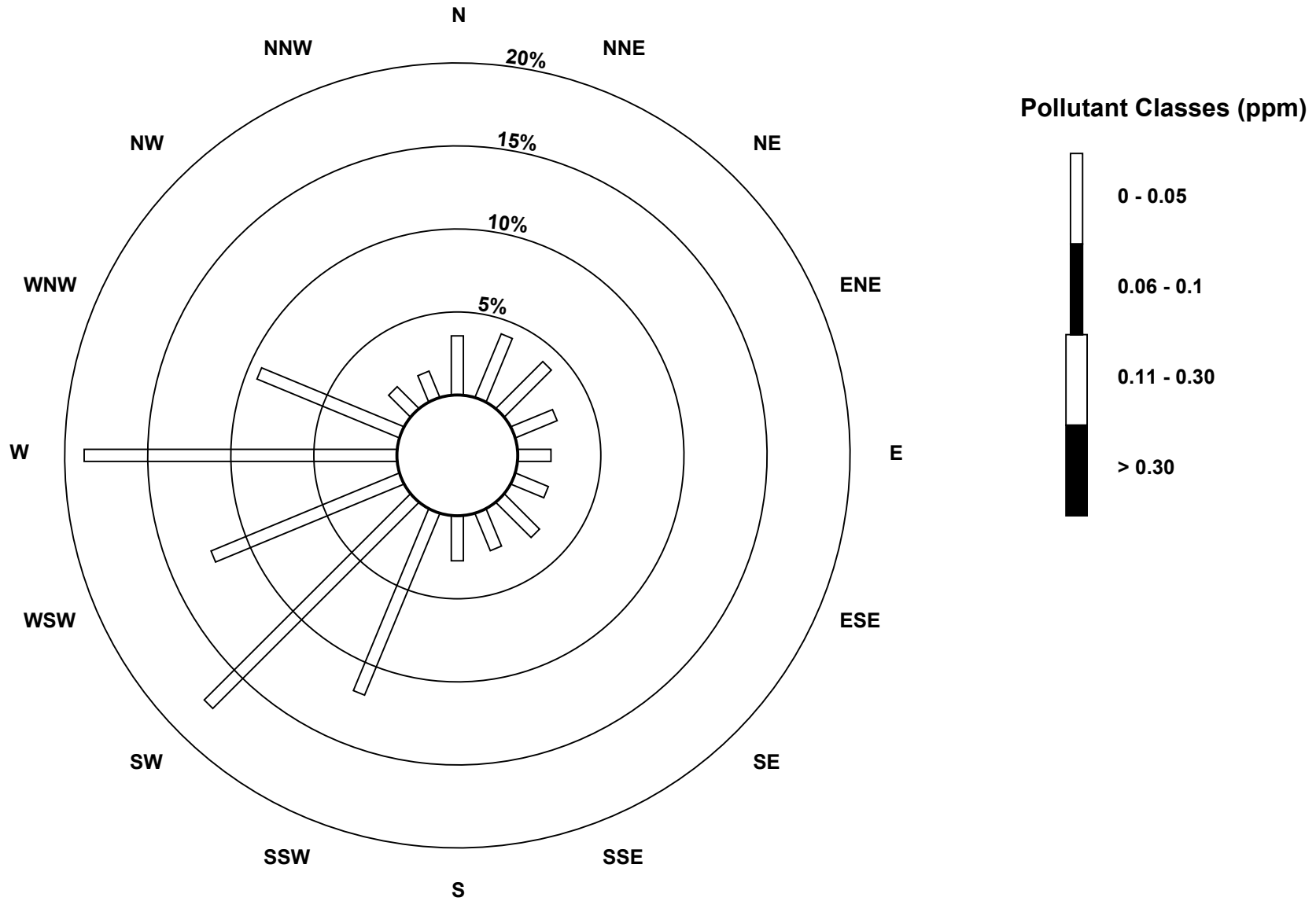
Maximum Value: 0.00 ppm on Dec 5 13:00 Maximum Daily Average: 0.00 ppm on Dec 5 Minimum Value: 0.0 ppm on Dec 7 02:00 Minimum Daily Average: 0.00 ppm on Dec 22 Maximum Diurnal Average: 0.00 ppm at hour 19 Minimum Diurnal Average: 0.00 ppm at hour 8 Monthly Average: 0.001 ppm Percentiles: P ₁ = 0.00 P ₁₀ = 0.00 Q ₁ = 0.00 Median = 0.00 Q ₃ = 0.00 P ₉₀ = 0.00 P ₉₉ = 0.00																								Hours in Service: 744 Hours of Data: 701 Hours of Missing Data: 43 Hours of Calibration: 39 Percent Operational Time: 99.5			
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	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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
5-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
6-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	C	C	C	0.0	P	P	P	P	0.0	0.0	0.0	0.0	--	0.00
7-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
9-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
10-Dec	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
11-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
12-Dec	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
13-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
14-Dec	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.00	0.00
15-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.00	0.00
16-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.00	0.00
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
21-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	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
22-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	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
23-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
24-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
26-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
28-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
30-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
0.00 0.00																								Diurnal Average			
0.00 0.00																								Diurnal Maximum			
C - Calibration P - Power Failure A - Automated Daily Zero Span																											

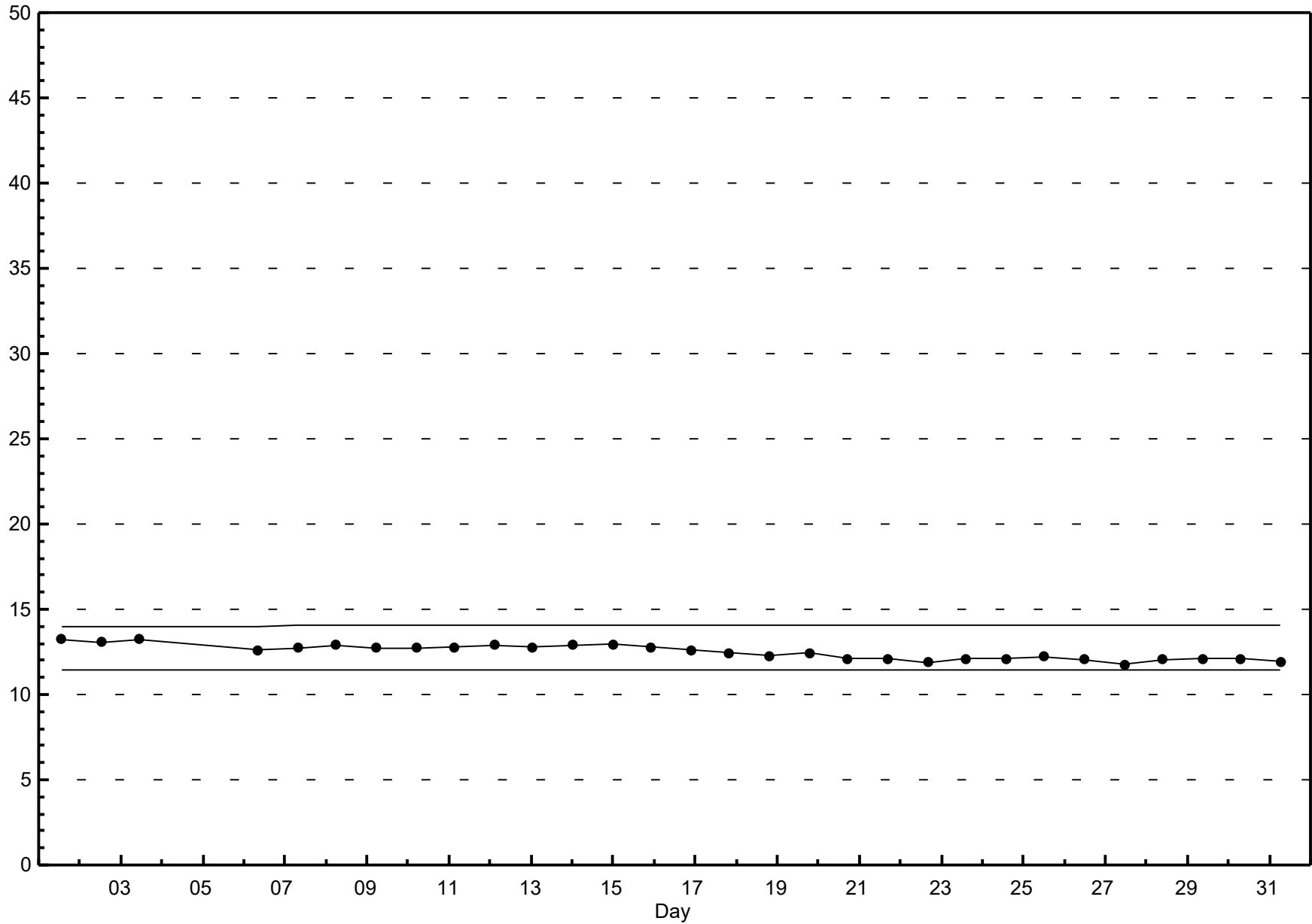


Pollutant Rose

Non Methane Hydrocarbon (NMHC) - ppm

Henry Pirker - December 2016





Hourly Averages

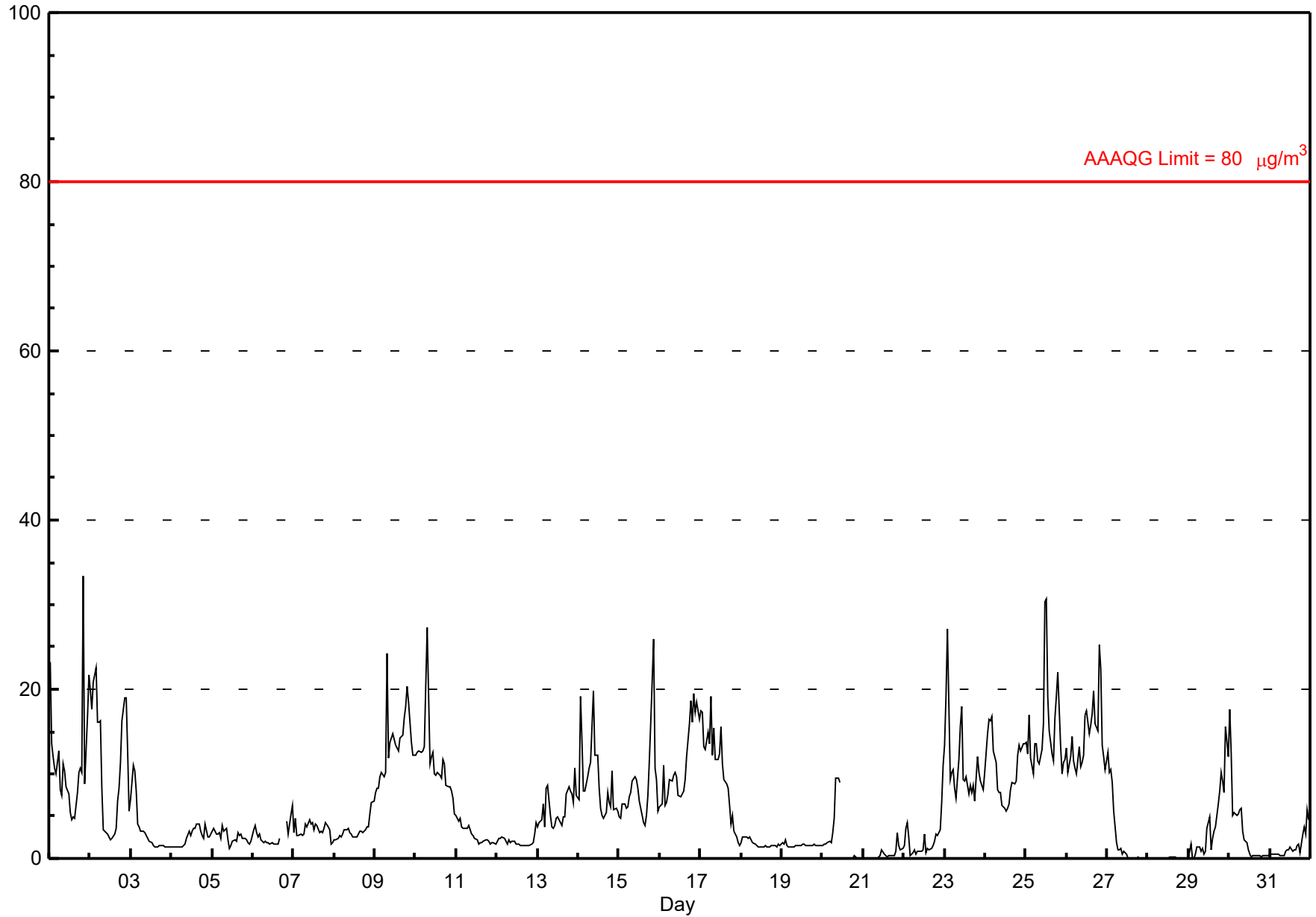
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Henry Pirker - December 2016

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 33.5 µg/m ³ on Dec 1 21:00	Maximum Daily Average: 15.3 µg/m ³ on Dec 25
Minimum Value: 0 µg/m ³ on Dec 20 18:00	Hours of Data: 735
Maximum Diurnal Average: 8.1 µg/m ³ at hour 21	Hours of Missing Data: 9
Monthly Average: 6.03 µg/m ³	Hours of Calibration: 6
Minimum Daily Average: 0.0 µg/m ³ on Dec 28	Percent Operational Time: 99.6
Minimum Diurnal Average: 4.4 µg/m ³ at hour 15	
Percentiles: P ₁ = 0.0 P ₁₀ = 0.4 Q ₁ = 1.6 Median = 3.6 Q ₃ = 9.7 P ₉₀ = 13.8 P ₉₉ = 24.6	

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	23	14	12	11	10	13	8	8	11	10	8	8	5	5	5	5	8	10	11	10	33	9	17	22	11.4	33.5																						
2-Dec	20	18	21	23	16	16	16	8	3	3	3	3	2	2	3	4	7	8	11	16	19	19	13	6	10.8	22.6																						
3-Dec	7	11	10	8	4	4	3	3	3	3	2	2	2	2	1	1	1	1	2	1	1	1	1	1	3.3	11.0																						
4-Dec	1	1	1	1	1	1	1	1	2	2	3	3	3	4	4	4	4	3	3	2	4	3	3	3	2.5	4.1																						
5-Dec	3	3	3	3	3	2	4	3	3	2	1	1	2	2	2	3	3	3	2	2	2	2	2	2	2.5	3.9																						
6-Dec	3	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	P	P	P	4	3	5	6	2.7	6.3																						
7-Dec	3	5	3	3	3	3	3	4	4	5	4	4	3	4	4	3	3	3	4	4	4	3	2	2	3.4	4.7																						
8-Dec	2	2	2	3	3	3	3	3	4	3	3	2	3	3	3	3	3	3	3	4	4	5	7	7	3.4	6.8																						
9-Dec	8	8	8	10	10	10	10	10	24	12	14	15	14	13	13	13	14	15	17	18	20	18	14	12	12	13.4	24.3																					
10-Dec	12	13	13	13	13	13	20	27	11	12	12	10	10	10	10	10	12	11	9	8	8	8	7	5	11.5	27.2																						
11-Dec	5	4	5	4	4	3	3	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2.8	5.1																						
12-Dec	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	2.0	4.3																						
13-Dec	4	4	5	6	4	8	9	5	4	4	4	5	5	4	4	5	5	8	9	8	8	7	11	8	5.8	10.6																						
14-Dec	7	19	14	8	8	10	11	11	16	20	12	12	8	6	5	5	5	8	7	6	10	6	6	6	9.4	19.8																						
15-Dec	5	5	6	6	6	6	7	8	9	10	9	8	7	6	4	4	5	8	12	16	26	11	9	6	8.3	25.9																						
16-Dec	6	6	11	6	7	8	9	9	10	10	10	7	7	8	8	9	12	16	19	16	20	17	18	16	11.1	19.6																						
17-Dec	17	17	13	13	15	14	19	12	15	12	12	12	16	11	9	9	8	6	4	5	3	2	2	1	10.4	19.2																						
18-Dec	2	2	2	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1.7	2.6																						
19-Dec	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1.6	2.1																						
20-Dec	2	2	2	2	2	2	3	5	9	10	9	C	C	C	C	C	C	0	0	0	0	0	0	0	2.6	9.5																						
21-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	3	1	1	1	0.5	3.1																						
22-Dec	2	4	4	3	0	1	1	1	1	1	1	1	3	1	1	1	1	2	2	3	3	3	7	11	2.3	11.1																						
23-Dec	13	19	27	9	10	10	8	7	12	16	18	9	9	10	8	9	8	9	7	12	10	9	9	8	11.1	27.1																						
24-Dec	10	15	17	16	17	13	11	8	8	8	6	6	6	6	6	8	9	9	9	12	13	13	13	14	10.5	16.9																						
25-Dec	14	12	17	12	10	14	13	11	11	13	16	30	31	19	15	12	12	17	19	22	13	10	11	12	15.3	30.7																						
26-Dec	13	10	12	14	12	11	10	13	11	11	12	17	18	15	16	17	20	16	15	25	22	13	12	11	14.4	25.2																						
27-Dec	12	10	11	9	6	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2.3	12.5																						
28-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	0.1																						
29-Dec	0	2	0	0	0	1	1	1	1	1	1	4	5	1	2	3	4	6	8	10	9	8	16	12	4.0	15.6																						
30-Dec	18	12	5	5	5	5	6	6	3	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	3.1	17.7																						
31-Dec	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	2	2	1	3	4	3	6	5	1.5	5.7																						
																								7.0	7.4	7.5	6.4	5.7	5.8	6.2	6.2	5.6	5.8	5.7	5.7	5.6	4.7	4.4	4.6	5.2	5.7	6.0	7.2	8.1	5.7	6.4	6.0	Diurnal Average
																								23.3	19.2	27.1	22.6	16.9	16.1	20.3	27.2	15.7	19.8	17.9	30.3	30.7	19.2	15.7	17.0	19.8	16.6	19.2	25.2	33.5	19.0	18.5	21.7	Diurnal Maximum

C - Calibration P - Power Failure
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³

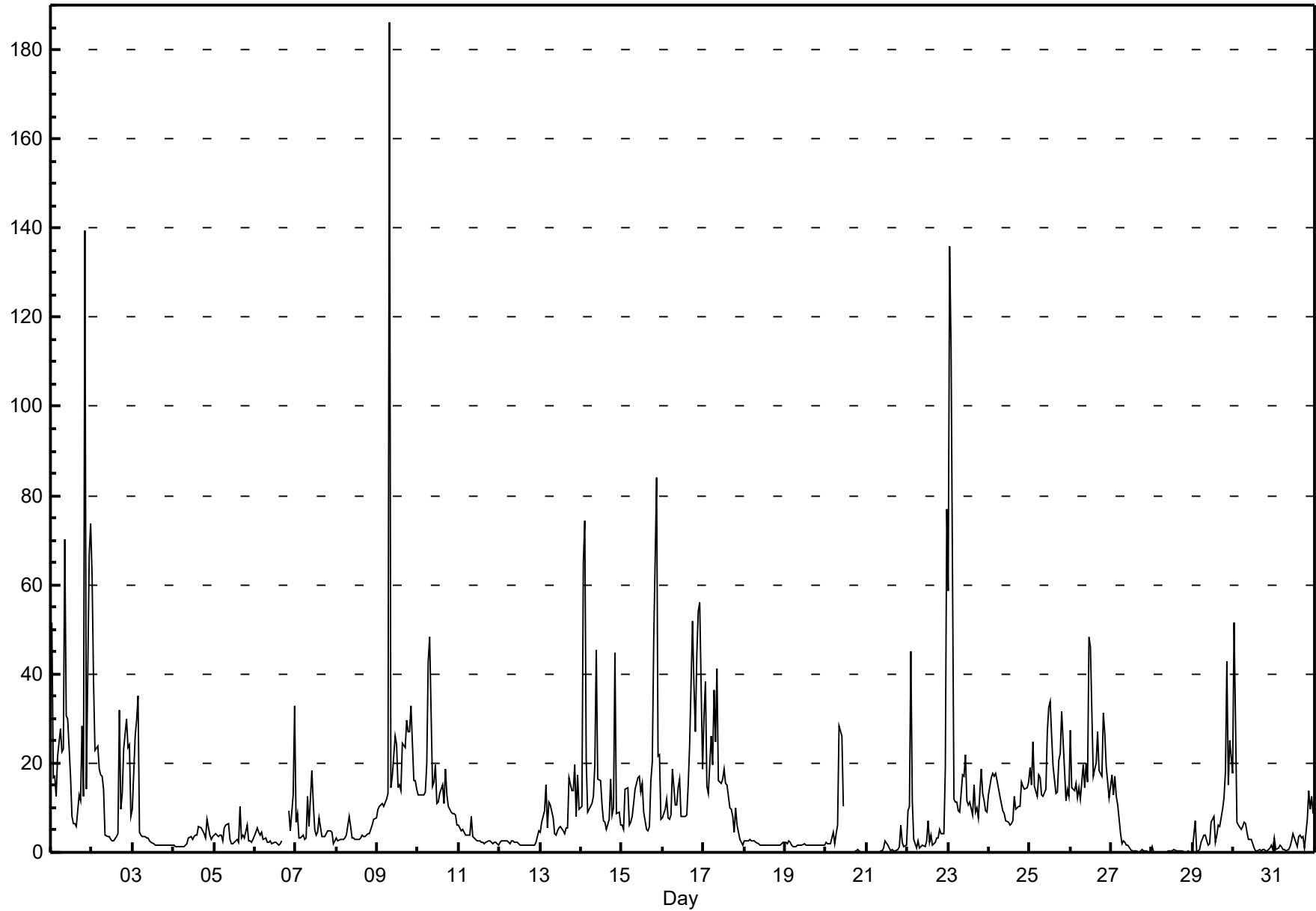


Hourly Maximums

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

Henry Pirker - December 2016

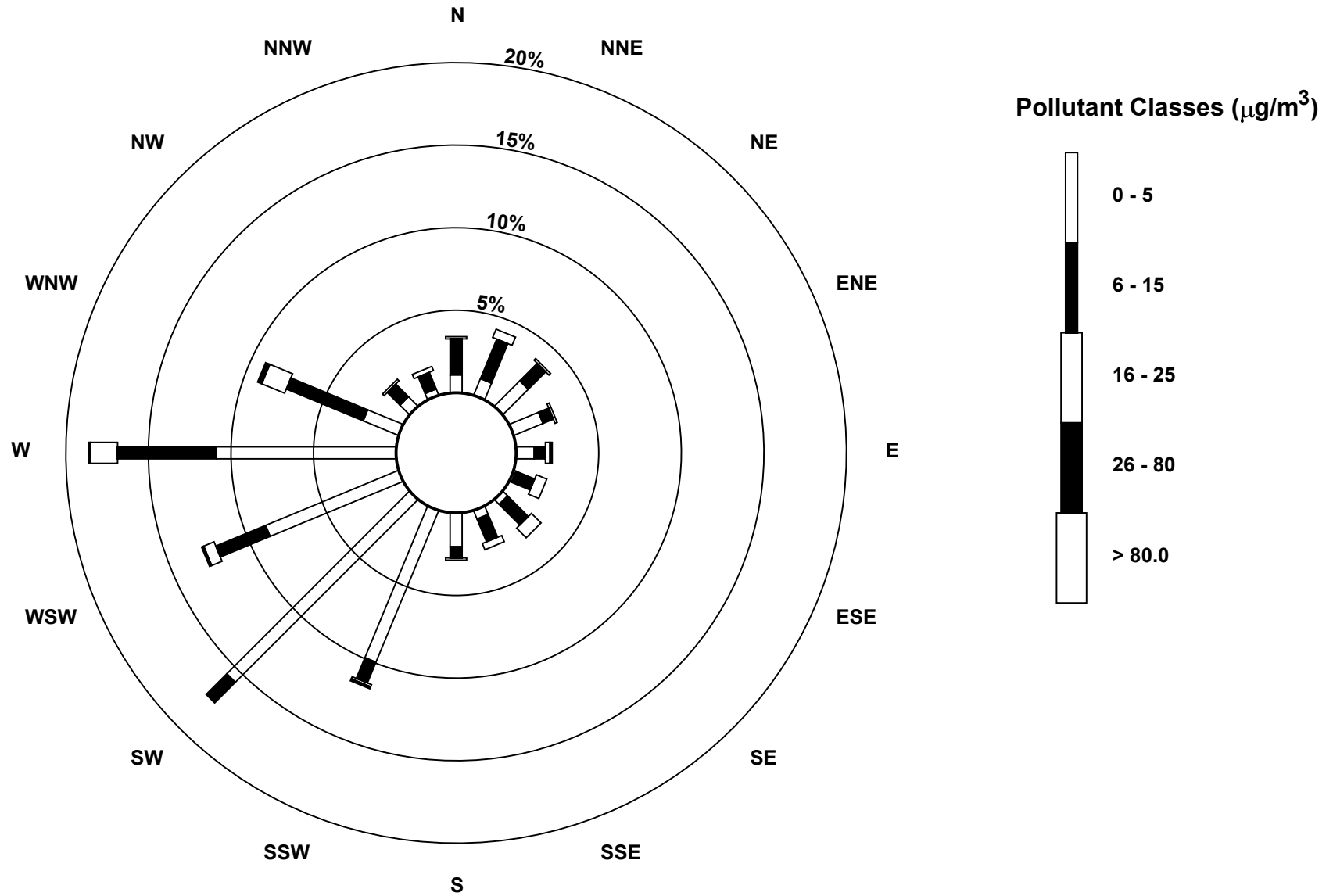
Maximum Value: 186.1 µg/m ³ on Dec 9 08:00		Maximum Daily Average: 30.3 µg/m ³ on Dec 1		Hours in Service: 744																						
Minimum Value: 0 µg/m ³ on Dec 20 23:00		Minimum Daily Average: 0.2 µg/m ³ on Dec 28		Hours of Data: 735																						
Maximum Diurnal Average: 19.0 µg/m ³ at hour 21		Minimum Diurnal Average: 5.7 µg/m ³ at hour 15		Hours of Missing Data: 9																						
Monthly Average: 10.32 µg/m ³		Percentiles: P ₁ = 0.0 P ₁₀ = 0.8 Q ₁ = 2.0 Median = 5.0 Q ₃ = 13.5 P ₉₀ = 23.2 P ₉₉ = 72.0		Hours of Calibration: 6																						
				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	52	17	17	13	22	28	22	23	70	31	30	17	8	6	6	13	12	28	12	139	14	67	74	30.3	139.3	
2-Dec	62	39	23	24	19	17	17	14	4	4	4	3	3	3	4	32	10	13	23	30	24	24	8	16.9	62.0	
3-Dec	10	26	30	35	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	1	6.1	35.1	
4-Dec	2	1	1	1	1	1	1	2	2	3	4	3	4	4	4	6	5	4	3	7	4	3	4	3.2	7.5	
5-Dec	4	4	4	4	4	3	6	6	6	3	2	2	3	2	10	3	4	3	6	3	3	2	3	3.8	10.2	
6-Dec	5	6	5	4	5	3	3	2	2	3	2	2	2	2	2	3	P	P	P	9	5	13	33	5.3	32.9	
7-Dec	7	9	3	3	4	3	3	12	6	18	11	5	4	5	8	4	4	3	4	5	5	5	2	3	5.6	18.2
8-Dec	3	3	3	3	3	3	4	8	6	3	3	3	3	3	4	4	3	4	4	5	6	7	8	4.1	8.2	
9-Dec	10	10	11	11	10	12	13	186	15	17	26	24	14	15	14	24	24	30	27	33	16	16	14	25.0	186.1	
10-Dec	13	13	13	13	13	20	43	48	15	16	20	11	11	13	15	11	19	13	10	9	9	8	6	15.5	48.4	
11-Dec	6	5	5	5	4	4	4	8	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3.3	8.1	
12-Dec	2	2	3	3	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3	5	2.3	4.9	
13-Dec	4	7	9	15	5	11	11	8	4	4	5	6	6	5	4	6	6	17	14	14	20	8	17	10	8.9	19.7
14-Dec	10	65	74	21	9	10	11	13	20	45	16	16	11	7	7	5	7	16	8	10	45	9	9	6	18.8	74.3
15-Dec	6	5	14	15	6	7	8	11	14	17	17	13	15	9	5	5	6	16	20	48	84	21	22	7	16.3	84.0
16-Dec	8	10	12	8	7	8	19	11	11	14	16	8	8	8	15	24	52	37	27	45	54	56	19	20.2	56.0	
17-Dec	31	38	15	13	26	20	36	25	41	16	15	17	19	15	15	10	10	8	5	10	6	3	2	2	16.6	41.2
18-Dec	2	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.0	2.7
19-Dec	2	2	3	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.7	2.6
20-Dec	2	2	2	2	4	2	4	6	28	26	10	C	C	C	C	C	C	0	0	1	0	0	0	5.0	28.3	
21-Dec	0	0	0	0	0	0	0	0	0	0	1	3	2	1	0	1	0	0	1	1	6	2	1	2	0.9	6.2
22-Dec	9	10	45	12	3	1	3	1	1	1	1	3	7	2	4	2	2	3	3	5	4	4	19	77	9.3	77.0
23-Dec	59	136	113	12	11	11	9	9	17	17	22	12	11	11	8	15	9	10	8	19	13	12	9	9	23.5	136.0
24-Dec	13	17	18	17	18	16	12	11	9	9	7	7	6	6	7	13	10	10	10	16	15	14	15	16	12.1	17.7
25-Dec	19	15	25	15	13	17	17	13	13	14	27	33	34	26	19	13	14	21	22	31	18	11	14	13	19.1	33.9
26-Dec	27	14	14	15	12	15	12	20	14	20	16	48	46	17	19	20	27	18	17	31	27	19	16	12	20.7	48.2
27-Dec	17	13	17	13	11	4	2	3	2	2	2	1	0	0	0	0	0	0	1	0	0	0	0	0	3.7	17.5
28-Dec	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.2	1.4
29-Dec	1	7	0	0	1	2	4	4	3	2	2	7	8	2	4	6	6	10	12	18	43	15	25	18	8.3	42.8
30-Dec	51	30	7	6	5	6	7	7	4	3	3	2	1	0	0	1	0	1	1	0	0	1	2	1	5.7	51.4
31-Dec	3	1	1	2	1	1	1	0	1	1	2	4	3	1	4	4	3	4	1	7	14	10	12	9	3.7	13.8
		14.3	16.4	15.7	9.3	7.4	7.6	9.1	14.8	10.4	9.7	8.9	8.6	7.9	5.8	5.7	6.5	8.0	9.2	8.8	11.3	19.0	9.0	12.0	11.7	Diurnal Average
		62.0	136.0	113.0	35.1	26.2	27.8	42.9	186.1	70.3	45.4	30.0	48.2	46.1	26.1	19.3	24.4	31.8	51.9	37.4	47.5	139.3	54.2	66.8	77.0	Diurnal Maximum
C - Calibration		P - Power Failure																								



Pollutant Rose

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

Henry Pirker - December 2016

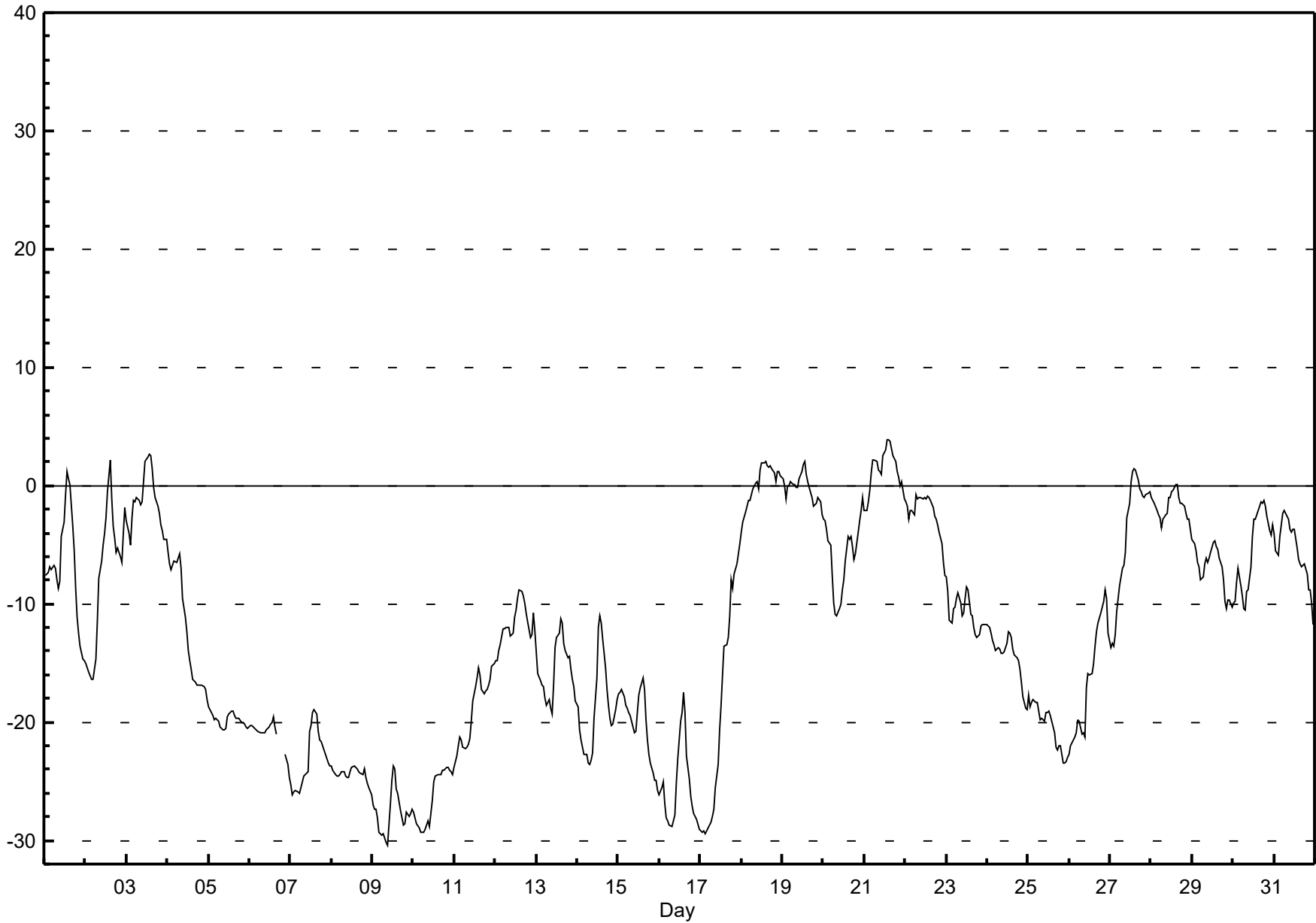


Hourly Averages

External Temperature (ET) - °C

Henry Pirker - December 2016

Maximum Value: 3.8 °C on Dec 21 15:00		Maximum Daily Average: 1.3 °C on Dec 21		Hours in Service: 744																							
Minimum Value: -30 °C on Dec 9 10:00		Minimum Daily Average: -27.6 °C on Dec 9		Hours of Data: 740																							
Maximum Diurnal Average: -9.8 °C at hour 15		Minimum Diurnal Average: -14.1 °C at hour 3		Hours of Missing Data: 4																							
Monthly Average: -12.62 °C		Percentiles: P ₁ = -29.3 P ₁₀ = -25.0 Q ₁ = -20.5 Median = -12.4 Q ₃ = -3.8 P ₉₀ = -0.5 P ₉₉ = 2.5		Hours of Calibration: 0																							
				Percent Operational Time: 99.5																							
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	-8	-7	-7	-7	-7	-7	-7	-8	-9	-8	-4	-3	-1	1	1	0	-4	-6	-9	-11	-13	-14	-15	-15	-6.9	1.1	
2-Dec	-15	-15	-16	-16	-16	-16	-15	-12	-8	-6	-5	-4	-3	-1	2	-1	-3	-4	-6	-5	-6	-6	-4	-2	-7.6	2.2	
3-Dec	-3	-4	-5	-3	-1	-1	-1	-1	-2	-1	0	2	2	3	3	1	0	-1	-2	-2	-3	-4	-5	-5	-1.4	2.7	
4-Dec	-6	-7	-7	-7	-6	-7	-6	-6	-7	-10	-11	-12	-14	-15	-15	-16	-17	-17	-17	-17	-17	-17	-17	-18	-12.0	-5.6	
5-Dec	-19	-19	-19	-20	-20	-20	-20	-20	-21	-21	-21	-20	-19	-19	-19	-19	-20	-20	-20	-20	-20	-20	-20	-20	-19.8	-18.7	
6-Dec	-20	-20	-20	-21	-21	-21	-21	-21	-21	-21	-21	-20	-20	-20	-20	-20	-21	P	P	P	P	-23	-24	-25	-21.0	-19.6	
7-Dec	-25	-26	-26	-26	-26	-26	-26	-25	-25	-24	-24	-21	-20	-19	-19	-19	-21	-22	-22	-22	-23	-23	-23	-24	-23.2	-19.0	
8-Dec	-24	-24	-24	-25	-24	-24	-24	-24	-25	-25	-25	-24	-24	-24	-24	-24	-24	-24	-24	-24	-25	-25	-26	-26	-24.4	-23.7	
9-Dec	-27	-27	-27	-28	-29	-30	-29	-30	-30	-30	-27	-25	-24	-24	-26	-26	-27	-28	-29	-29	-28	-28	-28	-27	-27.6	-23.7	
10-Dec	-28	-28	-29	-29	-29	-29	-29	-29	-28	-29	-28	-27	-25	-25	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-26.4	-23.9	
11-Dec	-24	-23	-22	-21	-21	-22	-22	-22	-22	-21	-20	-18	-17	-16	-15	-16	-17	-18	-17	-17	-17	-16	-15	-15	-19.0	-15.0	
12-Dec	-15	-15	-14	-13	-12	-12	-12	-12	-12	-13	-12	-11	-11	-10	-9	-9	-9	-10	-11	-11	-13	-13	-11	-12	-11.7	-8.9	
13-Dec	-14	-16	-16	-17	-17	-18	-19	-18	-19	-19	-17	-14	-13	-12	-11	-12	-13	-14	-15	-14	-16	-16	-17	-18	-15.6	-11.3	
14-Dec	-19	-21	-21	-22	-23	-23	-23	-24	-23	-23	-20	-16	-12	-11	-12	-13	-15	-17	-19	-20	-20	-20	-19	-18	-18.9	-11.0	
15-Dec	-18	-17	-17	-18	-19	-19	-19	-19	-20	-21	-21	-19	-18	-17	-16	-17	-20	-22	-23	-23	-24	-25	-25	-26	-20.1	-16.2	
16-Dec	-26	-26	-25	-27	-28	-28	-29	-29	-28	-28	-25	-23	-20	-19	-17	-19	-23	-25	-26	-27	-28	-28	-28	-29	-25.5	-17.4	
17-Dec	-29	-29	-29	-29	-29	-29	-29	-28	-27	-26	-24	-21	-19	-16	-14	-13	-13	-11	-8	-9	-8	-7	-6	-5	-19.0	-4.9	
18-Dec	-4	-3	-2	-2	-1	-1	-1	0	0	0	0	1	2	2	2	2	2	1	1	0	1	1	1	1	0.2	2.1	
19-Dec	1	0	-1	0	0	0	0	0	0	0	1	1	2	2	1	0	0	-1	-2	-2	-1	-1	-1	-2	-0.2	2.1	
20-Dec	-3	-3	-4	-5	-5	-8	-10	-11	-11	-10	-10	-9	-8	-6	-4	-5	-4	-5	-6	-6	-4	-3	-2	-1	-5.9	-0.9	
21-Dec	-2	-2	-1	0	1	2	2	2	1	1	1	3	3	4	4	4	3	3	2	1	1	0	0	-1	1.3	3.8	
22-Dec	-1	-2	-3	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-3	-3	-3	-4	-5	-6	-8	-2.3	-0.7	
23-Dec	-8	-9	-11	-12	-10	-10	-10	-9	-10	-11	-11	-10	-9	-9	-11	-11	-12	-13	-13	-13	-12	-12	-12	-12	-10.7	-7.7	
24-Dec	-12	-12	-12	-13	-13	-14	-14	-14	-14	-14	-14	-13	-12	-13	-13	-14	-14	-15	-15	-16	-17	-18	-19	-19	-14.3	-11.8	
25-Dec	-18	-19	-18	-18	-18	-18	-19	-20	-20	-20	-19	-19	-19	-19	-20	-21	-22	-22	-22	-22	-23	-23	-23	-23	-20.3	-17.8	
26-Dec	-23	-22	-22	-21	-21	-20	-20	-21	-21	-21	-17	-16	-16	-16	-15	-14	-12	-12	-11	-10	-10	-9	-10	-12	-16.3	-8.8	
27-Dec	-14	-13	-14	-13	-11	-8	-8	-7	-7	-6	-3	-1	0	1	1	1	0	0	-1	-1	-1	-1	-1	-1	-4.3	1.5	
28-Dec	-1	-1	-1	-2	-2	-3	-4	-3	-2	-2	-1	-1	0	0	0	0	-1	-1	-1	-2	-2	-3	-4	-1.8	0.1		
29-Dec	-5	-5	-6	-6	-7	-8	-8	-7	-6	-6	-6	-5	-5	-5	-5	-6	-7	-8	-10	-10	-10	-10	-10	-6.9	-4.5		
30-Dec	-10	-10	-8	-7	-9	-9	-10	-10	-9	-9	-7	-4	-3	-3	-2	-2	-1	-2	-1	-2	-3	-4	-4	-3	-5.5	-1.2	
31-Dec	-4	-5	-6	-4	-3	-2	-2	-2	-3	-4	-4	-4	-4	-5	-6	-7	-7	-7	-7	-7	-9	-9	-10	-12	-5.5	-2.1	
		-13.6	-13.9	-14.1	-14.0	-13.9	-14.0	-14.0	-13.9	-13.8	-13.8	-12.7	-11.5	-10.5	-10.1	-9.8	-10.3	-11.3	-11.5	-11.8	-12.2	-12.6	-13.0	-13.1	-13.4	Diurnal Average	
		0.6	0.0	-1.1	0.0	1.0	2.2	2.2	2.1	1.3	1.1	0.9	2.5	3.1	3.8	3.8	3.8	3.1	2.5	2.0	1.2	0.7	1.2	1.2	0.8	Diurnal Maximum	
P - Power Failure																											



Hourly Averages

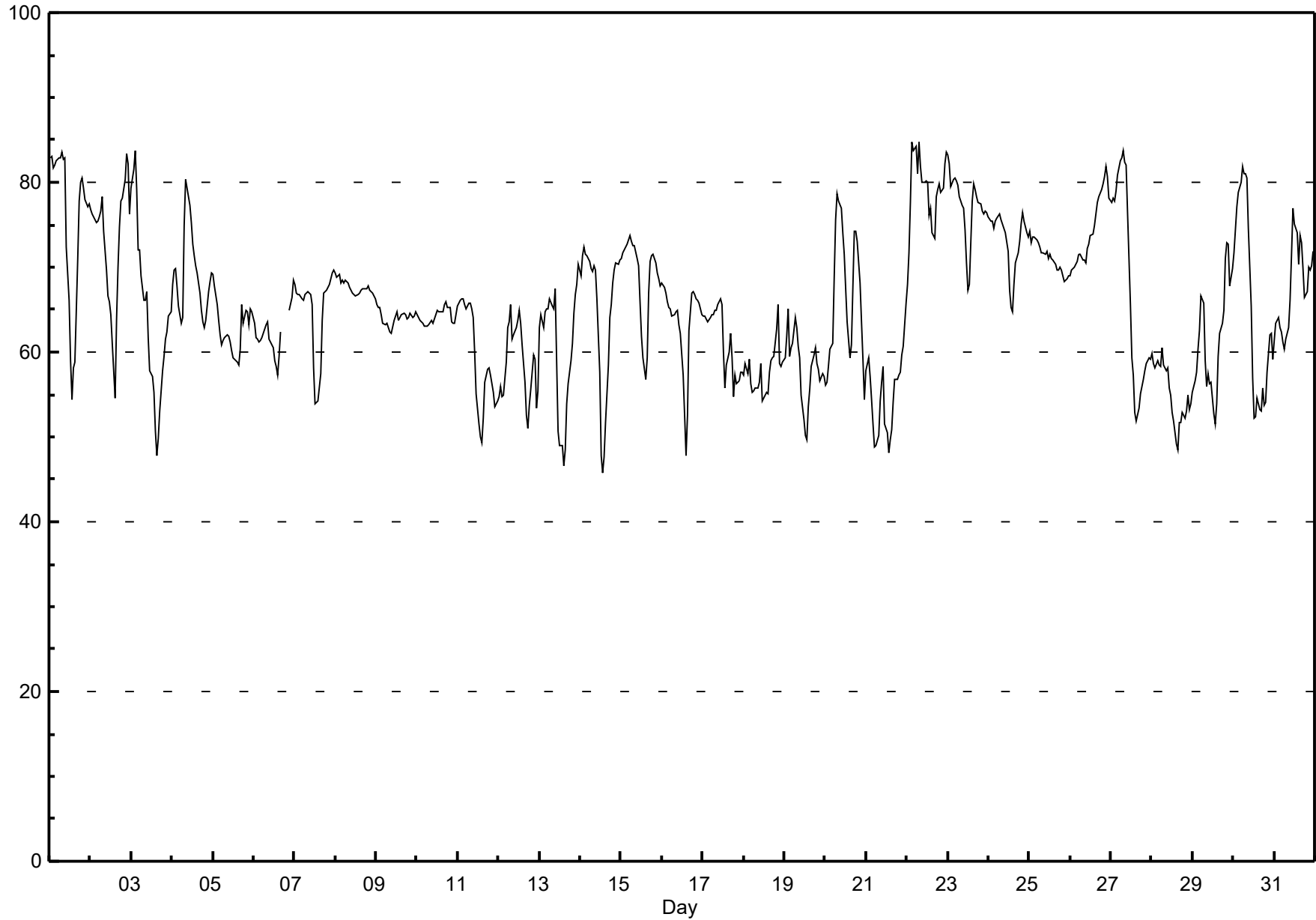
Relative Humidity (RH) - %

Henry Pirker - December 2016

Maximum Value: 84.7 % on Dec 22 04:00		Maximum Daily Average: 79.1 % on Dec 22		Hours in Service: 744																							
Minimum Value: 46 % on Dec 14 14:00		Minimum Daily Average: 54.9 % on Dec 21		Hours of Data: 740																							
Maximum Diurnal Average: 68.7 % at hour 8		Minimum Diurnal Average: 59.1 % at hour 15		Hours of Missing Data: 4																							
Monthly Average: 65.65 %		Percentiles: P ₁ = 48.4 P ₁₀ = 54.6 Q ₁ = 59.1 Median = 65.1 Q ₃ = 71.5 P ₉₀ = 78.1 P ₉₉ = 83.4		Hours of Calibration: 0																							
				Percent Operational Time: 99.5																							
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	83	83	82	82	83	83	83	84	83	83	72	66	59	54	58	59	71	78	80	81	79	78	77	77	75.7	83.5	
2-Dec	77	76	76	75	75	76	77	78	74	70	67	66	64	61	55	64	70	75	78	78	80	83	82	76	73.1	83.4	
3-Dec	79	82	84	79	72	72	69	66	66	67	62	58	57	55	51	48	50	53	58	59	62	62	64	65	64.1	83.7	
4-Dec	68	70	70	68	65	63	64	75	80	79	77	75	73	71	70	69	67	65	64	63	64	67	68	69	69.4	80.3	
5-Dec	69	68	66	64	62	61	61	62	62	62	61	60	59	59	59	59	60	66	63	65	65	63	65	65	62.7	69.2	
6-Dec	63	62	62	61	61	62	63	63	63	62	61	61	59	58	57	60	62	P	P	P	P	65	66	68	62.0	68.4	
7-Dec	68	67	67	67	66	66	67	67	67	67	66	58	54	54	54	57	64	67	67	67	68	69	69	70	64.7	69.7	
8-Dec	69	69	69	68	69	68	68	68	68	67	67	67	67	67	67	67	67	67	67	68	67	67	67	66	67.6	69.3	
9-Dec	66	65	65	64	63	63	63	63	62	62	64	64	65	64	64	64	65	64	64	64	65	64	64	65	64.1	65.6	
10-Dec	64	64	64	63	63	63	63	63	64	63	64	64	65	65	65	65	66	66	65	65	64	63	63	64	64.1	65.9	
11-Dec	65	66	66	66	66	65	66	66	65	64	60	55	51	50	49	52	56	58	58	57	56	55	54	54	59.3	66.2	
12-Dec	55	56	55	55	59	63	64	66	61	62	63	64	65	63	61	56	53	51	54	56	60	59	53	55	58.6	65.6	
13-Dec	63	64	63	65	65	65	66	65	65	67	59	51	49	49	47	48	54	56	59	61	65	67	68	70	60.5	70.3	
14-Dec	69	71	72	71	71	71	70	69	70	70	66	58	48	46	48	52	59	64	66	68	70	71	70	71	65.0	72.3	
15-Dec	71	72	72	73	73	74	73	73	72	71	70	66	62	59	57	59	67	71	71	72	70	69	69	68	68.9	73.7	
16-Dec	68	68	67	66	65	65	64	64	65	65	63	62	57	52	48	53	63	67	67	67	66	66	66	64	63.3	68.2	
17-Dec	64	64	64	64	64	64	64	65	65	66	66	66	60	56	58	60	62	59	55	57	56	57	58	58	61.3	66.2	
18-Dec	57	59	57	59	56	55	55	56	56	56	59	54	55	55	55	58	59	59	59	63	66	59	58	59	57.7	65.6	
19-Dec	59	62	65	59	61	61	64	63	61	59	55	52	50	50	54	56	58	60	61	59	58	57	58	57	58.2	65.2	
20-Dec	56	56	58	60	61	69	76	79	78	77	74	71	67	64	59	61	68	74	74	73	68	64	59	54	66.7	78.6	
21-Dec	58	59	57	54	52	49	49	50	54	57	58	52	51	48	50	51	54	57	57	57	58	60	61	66	54.9	65.8	
22-Dec	68	72	78	85	84	84	81	85	82	80	80	80	80	76	77	74	73	78	79	80	79	79	82	84	79.1	84.7	
23-Dec	83	82	80	80	80	80	80	78	77	77	74	71	67	68	78	80	79	78	78	77	77	76	77	76	77.3	83.2	
24-Dec	76	75	75	75	75	76	76	76	75	75	74	72	67	65	65	68	71	72	73	75	76	75	74	74	73.1	76.4	
25-Dec	74	73	74	74	73	73	72	72	72	72	72	71	72	71	71	70	70	70	70	70	68	69	69	69	71.2	74.2	
26-Dec	69	70	70	70	71	71	71	71	71	71	72	73	74	74	75	76	78	78	79	80	81	82	81	78	74.4	81.9	
27-Dec	78	78	78	79	81	83	83	84	82	82	77	66	59	57	53	52	53	55	56	57	58	59	59	59	67.8	83.7	
28-Dec	60	59	58	59	58	58	60	58	58	58	56	55	53	52	49	49	52	52	53	52	53	55	53	54	55.2	60.5	
29-Dec	55	57	58	60	63	67	66	59	56	57	56	57	53	52	54	59	62	63	65	71	73	73	68	70	61.4	72.9	
30-Dec	72	74	77	79	80	82	81	81	80	75	65	57	52	52	55	53	53	56	54	54	58	62	62	59	65.6	81.9	
31-Dec	61	63	64	63	62	61	60	61	63	66	71	77	75	74	70	74	73	70	66	67	70	70	70	72	67.7	77.0	
		67.4	67.9	68.1	68.0	67.7	68.2	68.4	68.7	68.3	68.0	66.2	63.5	60.9	59.4	59.1	60.4	63.1	65.0	65.3	66.1	66.6	66.6	66.3	66.4	Diurnal Average	
		83.2	83.0	83.7	84.7	83.7	84.3	83.0	84.7	82.7	82.8	80.0	80.1	79.9	76.0	77.9	79.8	79.1	78.3	80.1	80.6	80.6	83.4	82.3	83.5	Diurnal Maximum	
P - Power Failure																											

Hourly Averages

Relative Humidity (RH) - %
Henry Pirker - December 2016

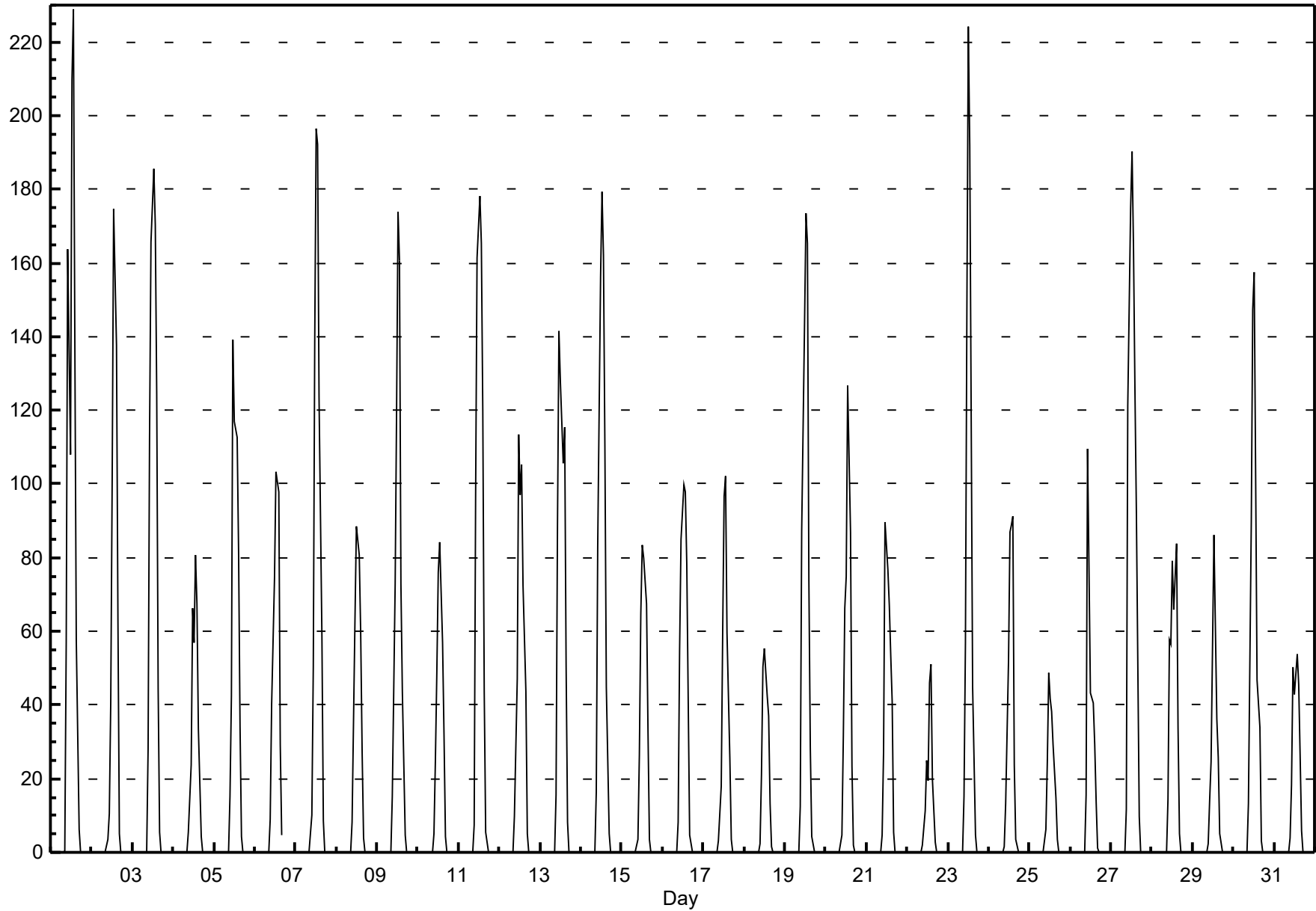


Hourly Averages

Solar Radiation (SR) - W/m²

Henry Pirker - December 2016

Maximum Value: 228.6 W/m² on Dec 1 14:00		Maximum Daily Average: 40.4 W/m² on Dec 1		Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5																							
Minimum Value: 0 W/m² on Dec 1 01:00 Maximum Diurnal Average: 113.6 W/m² at hour 13 Monthly Average: 21.05 W/m²		Minimum Daily Average: 7.4 W/m² on Dec 22 Minimum Diurnal Average: 0.0 W/m² at hour 1 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 15.2 P ₉₀ = 84.4 P ₉₉ = 188.7																									
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	57	164	108	210	229	138	58	6	0	0	0	0	0	0	0	0	40.4	228.6
2-Dec	0	0	0	0	0	0	0	0	0	4	10	41	102	175	138	63	5	0	0	0	0	0	0	0	0	22.4	174.7
3-Dec	0	0	0	0	0	0	0	0	0	28	112	166	185	170	124	45	5	0	0	0	0	0	0	0	0	34.8	185.4
4-Dec	0	0	0	0	0	0	0	0	0	6	24	66	57	81	67	34	4	0	0	0	0	0	0	0	0	14.1	80.6
5-Dec	0	0	0	0	0	0	0	0	0	15	42	139	117	113	82	34	4	0	0	0	0	0	0	0	0	22.8	139.0
6-Dec	0	0	0	0	0	0	0	0	0	9	40	74	103	100	98	29	5	P	P	P	P	0	0	0	0	22.9	103.3
7-Dec	0	0	0	0	0	0	0	0	0	10	50	138	197	192	124	59	8	0	0	0	0	0	0	0	0	32.5	196.6
8-Dec	0	0	0	0	0	0	0	0	0	8	35	63	89	81	59	27	4	0	0	0	0	0	0	0	0	15.3	88.5
9-Dec	0	0	0	0	0	0	0	0	0	15	73	121	174	160	73	44	5	0	0	0	0	0	0	0	0	27.7	173.8
10-Dec	0	0	0	0	0	0	0	0	0	5	25	49	76	84	57	32	4	0	0	0	0	0	0	0	0	13.8	84.2
11-Dec	0	0	0	0	0	0	0	0	0	7	96	161	178	165	119	44	5	0	0	0	0	0	0	0	0	32.4	178.3
12-Dec	0	0	0	0	0	0	0	0	0	10	47	113	97	105	73	44	5	0	0	0	0	0	0	0	0	20.6	113.3
13-Dec	0	0	0	0	0	0	0	0	0	16	89	141	128	105	116	51	8	0	0	0	0	0	0	0	0	27.2	141.3
14-Dec	0	0	0	0	0	0	0	0	0	16	83	156	179	162	110	45	5	0	0	0	0	0	0	0	0	31.5	179.1
15-Dec	0	0	0	0	0	0	0	0	0	3	27	65	83	80	67	33	3	0	0	0	0	0	0	0	0	15.1	83.4
16-Dec	0	0	0	0	0	0	0	0	0	8	55	85	100	98	78	41	5	0	0	0	0	0	0	0	0	19.6	99.9
17-Dec	0	0	0	0	0	0	0	0	0	3	18	60	97	102	60	25	3	0	0	0	0	0	0	0	0	15.4	102.2
18-Dec	0	0	0	0	0	0	0	0	0	2	21	50	55	42	37	13	1	0	0	0	0	0	0	0	0	9.3	55.4
19-Dec	0	0	0	0	0	0	0	0	0	13	87	144	174	165	74	29	4	0	0	0	0	0	0	0	0	28.7	173.6
20-Dec	0	0	0	0	0	0	0	0	0	5	32	66	75	127	87	23	2	0	0	0	0	0	0	0	0	17.4	126.7
21-Dec	0	0	0	0	0	0	0	0	0	5	27	90	77	67	54	41	5	0	0	0	0	0	0	0	0	15.2	89.7
22-Dec	0	0	0	0	0	0	0	0	0	2	11	25	20	46	51	20	3	0	0	0	0	0	0	0	0	7.4	50.9
23-Dec	0	0	0	0	0	0	0	0	0	15	57	147	224	192	45	25	5	0	0	0	0	0	0	0	0	29.6	224.0
24-Dec	0	0	0	0	0	0	0	0	0	2	13	52	87	89	91	24	3	0	0	0	0	0	0	0	0	15.1	91.4
25-Dec	0	0	0	0	0	0	0	0	0	6	25	49	42	38	29	15	3	0	0	0	0	0	0	0	0	8.6	48.6
26-Dec	0	0	0	0	0	0	0	0	0	16	109	77	43	41	29	14	1	0	0	0	0	0	0	0	0	13.7	109.4
27-Dec	0	0	0	0	0	0	0	0	0	12	121	175	190	164	125	92	10	0	0	0	0	0	0	0	0	37.1	190.2
28-Dec	0	0	0	0	0	0	0	0	0	15	58	56	79	66	84	34	5	0	0	0	0	0	0	0	0	16.5	83.8
29-Dec	0	0	0	0	0	0	0	0	0	2	14	25	86	61	36	26	5	0	0	0	0	0	0	0	0	10.7	86.0
30-Dec	0	0	0	0	0	0	0	0	0	13	90	147	158	104	47	34	3	0	0	0	0	0	0	0	0	24.8	157.6
31-Dec	0	0	0	0	0	0	0	0	0	4	18	50	43	54	46	26	6	0	0	0	0	0	0	0	0	10.3	53.8
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	54.0	93.6	113.6	111.5	78.0	36.2	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Average	
		0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	56.9	163.9	175.1	224.0	228.6	138.4	92.4	9.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Maximum	
P - Power Failure																											



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Henry Pirker - December 2016

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	3	3	3	5	5	6	5	4	2	3	3	1	3	3	3	1	2	2	3	5	3	3	4	2	2.3	6.2
Dir	285	287	288	278	292	302	293	256	250	241	263	273	188	185	153	252	39	77	271	279	302	284	290	259	274.5	302.4
2 Spd	2	3	2	3	2	3	2	5	5	4	5	7	7	5	3	5	2	5	3	3	3	4	5	1.1	7.4	
Dir	297	284	282	282	297	276	272	74	72	67	68	76	85	93	246	273	163	149	149	84	121	160	111	228	105.4	85.1
3 Spd	4	2	3	5	8	7	12	11	9	13	9	12	14	19	22	23	18	19	17	14	12	13	12	14	11.6	23.3
Dir	138	138	144	236	244	221	199	186	189	200	206	216	207	212	216	218	225	214	216	222	231	218	208	216	212.3	218.0
4 Spd	11	11	11	12	14	13	10	16	20	23	24	24	26	24	23	25	23	21	20	20	20	20	22	22	17.3	25.7
Dir	202	204	206	208	214	218	264	257	275	276	278	276	279	277	277	278	279	277	273	275	274	276	274	274	265.9	279.0
5 Spd	19	17	18	15	18	19	19	17	17	17	14	15	17	17	17	15	15	10	17	14	13	14	12	13	15.8	19.4
Dir	274	273	265	266	276	277	275	272	271	270	257	265	269	266	273	275	278	273	277	279	276	272	263	272	271.7	277.2
6 Spd	13	14	15	14	13	13	12	13	12	12	14	15	15	13	13	9	7	8	8	9	10	8	8	5	11.2	15.0
Dir	270	274	278	273	273	267	258	257	261	264	256	263	264	262	253	251	249	253	270	272	269	258	262	287	264.4	263.2
7 Spd	4	4	4	5	4	3	3	3	3	5	3	2	5	6	4	1	4	5	4	5	4	4	4	3	2.0	5.6
Dir	293	276	296	301	272	283	198	205	301	293	237	280	274	283	183	36	39	29	35	46	26	346	359	29	313.2	282.7
8 Spd	4	6	5	4	5	2	4	5	5	6	6	5	7	6	6	5	6	5	5	5	5	5	4	4	4.2	7.0
Dir	38	77	47	237	51	87	33	52	70	58	80	66	52	45	37	32	28	34	31	2	1	352	10	4	41.0	52.1
9 Spd	1	2	3	3	3	2	3	1	1	3	3	5	4	4	6	6	7	6	4	5	5	5	4	3	2.2	7.1
Dir	84	344	17	114	126	86	317	265	224	280	262	251	249	108	9	262	261	273	280	265	261	295	270	216	273.3	260.6
10 Spd	4	4	2	1	1	3	4	4	6	6	7	5	4	8	10	11	8	10	12	14	16	14	15	10	6.6	15.9
Dir	194	197	189	138	159	206	286	266	267	271	278	283	167	278	281	281	282	267	256	255	263	252	256	251	260.0	263.0
11 Spd	10	11	14	14	12	13	10	11	12	15	15	14	14	14	11	12	12	15	17	18	14	17	16	15	13.3	18.3
Dir	210	214	232	252	252	253	221	227	224	220	223	218	212	211	220	231	212	219	218	224	234	222	235	229	225.5	223.7
12 Spd	15	12	15	16	24	23	18	11	19	26	26	21	18	17	20	22	22	20	16	16	13	17	23	15	18.1	26.3
Dir	235	226	223	230	258	258	258	238	260	263	269	256	237	239	255	258	260	257	253	253	253	255	257	248	252.1	263.2
13 Spd	9	6	7	8	7	6	6	6	8	9	8	5	6	5	6	6	5	6	5	2	1	2	3	2	5.1	9.4
Dir	207	247	258	255	221	212	214	231	258	270	261	231	222	224	203	199	218	237	246	268	285	263	302	281	237.7	270.5
14 Spd	3	4	3	48	2	27	7	9	1	3	4	5	3	6	8	8	7	6	6	6	3	20	2	1	4.2	48.4
Dir	268	252	173	137	166	138	156	146	67	245	252	262	197	242	254	260	256	283	299	285	262	134	235	173	175.3	136.8
15 Spd	1	1	2	2	1	0	3	2	2	15	22	7	7	8	7	7	4	5	29	19	1	10	2	2	3.0	29.2
Dir	186	194	273	301	243	226	327	300	328	152	106	285	283	270	257	251	185	176	135	140	205	120	290	217	163.4	134.9
16 Spd	2	5	7	5	1	5	1	1	4	3	4	13	3	2	3	2	2	9	21	7	14	19	25	18	3.8	25.0
Dir	196	199	225	256	270	260	244	286	303	300	305	30	353	259	247	225	192	151	148	134	125	133	145	120	148.6	144.5
17 Spd	23	2	4	4	4	2	10	4	3	2	1	1	3	3	4	4	4	8	13	10	13	13	18	19	3.7	22.7
Dir	121	18	303	81	296	158	115	305	125	356	320	233	142	183	245	280	268	247	226	260	237	245	218	217	217.4	121.1
18 Spd	23	25	25	27	32	33	29	33	24	17	9	21	26	28	35	33	25	20	16	12	5	10	8	7	21.2	34.9
Dir	214	213	219	222	218	218	219	218	230	226	217	229	229	235	239	243	236	219	216	214	202	196	155	160	222.2	238.7
19 Spd	2	3	2	10	13	20	24	25	29	28	23	18	19	20	21	23	21	14	13	18	22	21	21	13	16.6	28.8
Dir	139	80	144	182	192	200	203	207	215	218	219	239	235	238	242	236	242	227	220	217	218	219	210	189	218.2	214.9
20 Spd	11	12	4	3	2	1	1	1	1	0	2	3	4	4	3	5	6	6	6	8	14	16	20	30	5.9	30.4
Dir	191	202	262	282	276	7	83	129	255	326	287	301	264	272	242	196	207	191	199	209	203	213	209	218	215.0	217.7
21 Spd	13	8	8	10	14	23	25	25	14	12	6	4	10	16	16	17	23	17	11	7	6	6	10	6	12.5	24.9
Dir	212	206	198	195	196	210	206	209	207	204	206	195	176	188	194	194	193	191	187	175	168	170	188	217	197.5	208.8
22 Spd	8	6	6	8	7	5	8	9	9	7	3	5	5	4	5	6	7	4	5	4	5	4	4	3	4.7	8.7
Dir	280	256	291	275	265	202	252	222	205	204	223	221	272	231	234	309	318	271	244	290	306	293	288	286	257.9	205.2

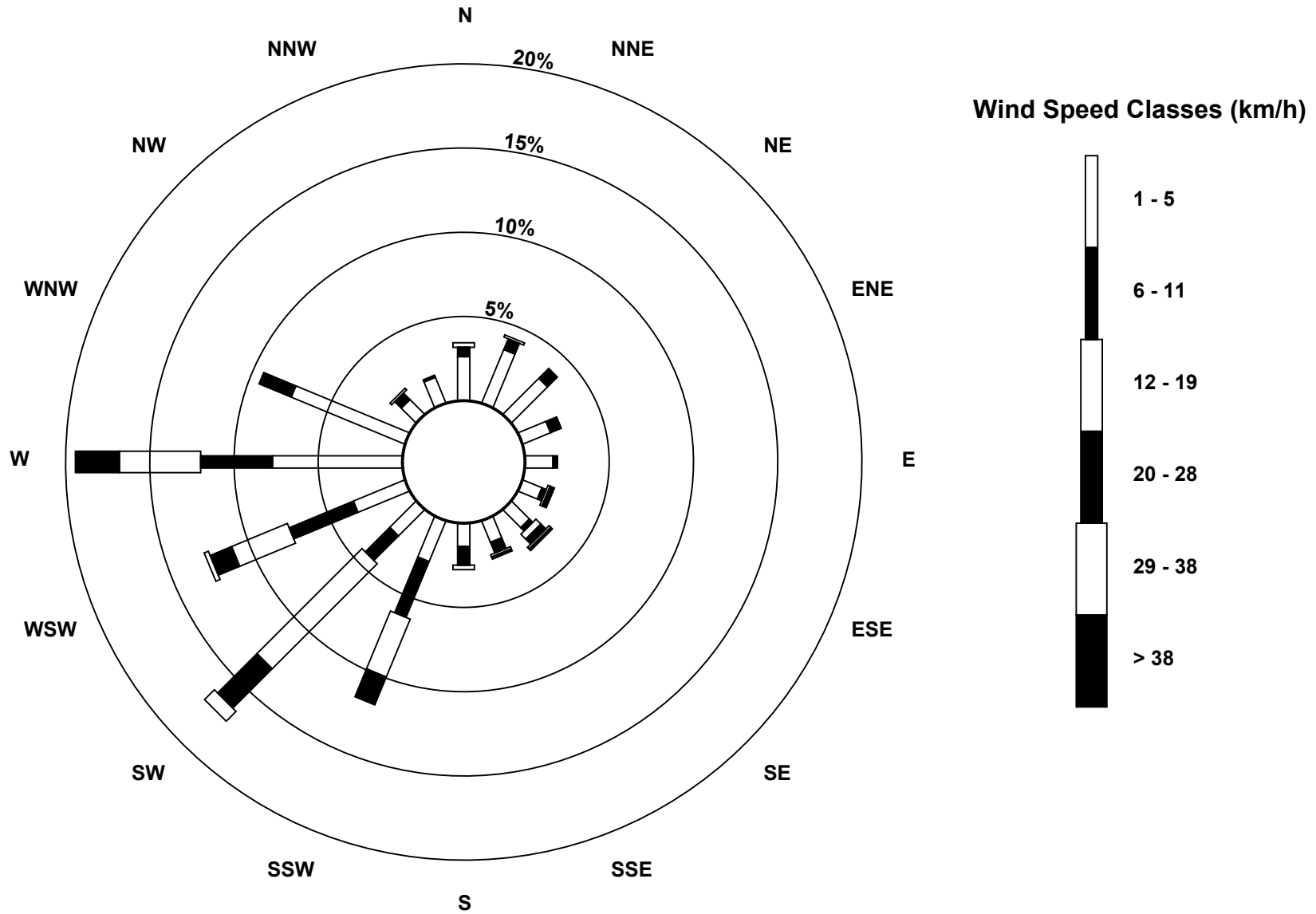
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Henry Pirker - December 2016

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	3	3	4	3	3	3	4	5	7	6	5	6	7	7	7	6	7	4	4	4	5	5	5	5	4.4	7.5
Dir	319	348	293	40	27	14	27	18	34	37	19	36	33	30	24	29	355	16	37	41	33	359	2	6	19.5	30.4
24 Spd	5	5	4	5	6	6	5	4	5	5	5	4	5	4	3	3	5	4	5	5	4	3	2	3	3.9	6.4
Dir	11	8	17	21	6	7	348	17	13	5	13	11	359	344	357	15	44	49	57	69	42	49	104	88	22.0	5.6
25 Spd	1	5	1	2	2	1	3	4	2	2	1	3	1	4	5	2	3	1	2	3	4	3	2	3	1.7	4.9
Dir	39	347	174	341	112	261	326	295	282	262	242	87	252	293	260	276	275	295	336	304	284	270	278	263	293.1	347.2
26 Spd	2	0	3	3	1	1	0	2	2	2	1	2	2	4	3	0	2	2	0	1	3	4	1	3	0.4	4.1
Dir	269	126	114	128	164	299	103	148	301	287	230	247	276	271	276	195	264	274	195	103	97	87	214	293	242.3	86.9
27 Spd	1	3	1	2	2	1	2	1	2	4	5	7	16	17	18	24	23	24	23	22	20	22	23	19	10.8	24.0
Dir	281	325	30	75	341	78	222	100	115	208	208	211	200	203	210	209	218	216	213	215	213	217	219	222	213.6	208.5
28 Spd	15	14	15	15	15	15	12	16	18	18	19	18	18	19	19	21	17	17	20	20	15	19	18	15	16.9	20.6
Dir	221	221	220	219	215	216	206	217	218	217	219	221	229	233	225	217	222	226	224	220	226	216	212	202	219.5	217.4
29 Spd	13	9	6	1	3	4	5	7	6	2	4	2	4	4	2	5	1	1	2	4	4	7	5	4	0.9	13.2
Dir	209	255	275	252	61	85	66	75	66	40	23	36	48	76	10	299	50	18	11	265	272	294	289	268	319.2	208.7
30 Spd	3	3	7	7	8	4	4	7	8	8	11	16	19	17	14	15	19	15	17	16	15	9	9	11	10.5	19.0
Dir	261	204	206	217	202	205	243	247	231	215	198	225	218	226	231	230	234	239	230	229	245	249	253	258	229.5	234.3
31 Spd	10	9	6	6	10	11	10	8	7	2	6	6	5	12	12	10	8	11	13	9	6	9	9	9	6.8	12.9
Dir	250	245	273	292	267	253	238	250	267	272	286	291	344	4	357	341	324	314	313	298	270	281	268	277	289.6	313.1
Spd	4.9	4.6	4.8	4.8	5.4	5.9	5.5	5.9	5.4	6.0	5.1	5.7	6.2	6.9	7.8	8.2	7.3	6.8	6.6	6.4	6.1	6.3	7.1	6.4	Diurnal Average	
Dir	224.6	237.2	241.5	221.2	239.3	227.0	231.3	227.9	240.7	240.0	241.5	248.9	237.8	241.0	245.6	246.0	244.7	236.7	226.2	236.4	241.4	228.9	231.1	230.8	Diurnal Maximum	
Spd	23.3	25.3	24.9	48.4	32.3	32.9	28.7	32.6	28.8	28.0	25.9	23.5	26.5	28.3	34.9	33.2	25.4	23.6	29.2	21.7	21.6	22.1	25.0	30.4	Diurnal Maximum	
Dir	213.8	213.2	218.7	136.8	218.4	218.1	218.5	217.9	214.9	217.9	269.3	275.6	228.5	234.9	238.7	242.6	235.8	216.2	134.9	214.7	218.5	216.9	144.5	217.7		
Maximum Speed Value: 48 km/h on Dec 14 04:00																		Minimum Speed Value: 0 km/h on Dec 26 19:00						Hours in Service: 744		
Maximum Daily Speed Average: 21.2 km/h on Dec 18																		Minimum Daily Speed Average: 0.4 km/h on Dec 26						Hours of Data: 744		
Maximum Diurnal Speed Average: 8.2 km/h at hour 16																		Minimum Diurnal Speed Average: 4.6 km/h at hour 2						Hours of Missing Data: 0		
Monthly Average Velocity: 6.04 km/h 236.52 deg																		Speed Percentiles: P ₁ = 0.6 P ₁₀ = 2.0 Q ₁ = 3.5 Median = 6.2 Q ₃ = 14.2 P ₉₀ = 20.2 P ₉₉ = 28.7						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	38	9	2	0	0	0	49																			
NorthEast	34	18	1	0	0	0	53																			
East	24	10	0	1	0	0	35																			
SouthEast	20	7	4	6	1	1	39																			
South	30	18	16	2	0	0	66																			
SouthWest	35	42	87	41	10	0	215																			
West	90	67	52	29	0	0	238																			
NorthWest	36	11	2	0	0	0	49																			
Total	307	182	164	79	11	1	744																			

Wind Rose

Wind Speed (WS) (km/h)
Henry Pirker - December 2016



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Henry Pirker - December 2016

Maximum Speed: 51 km/h on Dec 14 04:00	Maximum Daily Speed Average: 22.1 km/h on Dec 18	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 15 06:00	Minimum Daily Speed Average: 2.8 km/h on Dec 26	Hours of Data: 744
Maximum Diurnal Speed Average: 11.8 km/h at hour 19	Minimum Diurnal Speed Average: 7.6 km/h at hour 2	Hours of Missing Data: 0
Monthly Average Speed: 10.08 km/h	Percentiles: P ₁ = 1.6 P ₁₀ = 2.9 Q ₁ = 4.4 Median = 7.2 Q ₃ = 14.5 P ₉₀ = 20.6 P ₉₉ = 31.7	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	3	4	3	6	5	6	6	4	4	3	4	2	3	3	3	2	2	3	5	5	3	3	5	3	3.7	6.2
2-Dec	7	3	2	4	3	4	3	5	6	4	5	8	8	6	4	5	3	5	5	4	3	4	5	6	4.7	7.6
3-Dec	4	4	5	7	8	7	12	11	9	13	9	12	14	19	22	23	18	19	17	14	12	14	12	14	12.5	23.5
4-Dec	11	11	11	12	14	13	11	16	20	23	24	24	26	24	24	25	23	21	20	20	20	20	22	22	19.0	25.8
5-Dec	19	17	18	15	18	20	19	18	17	17	14	15	17	17	17	15	15	11	17	14	13	15	12	13	16.0	19.5
6-Dec	13	14	15	14	13	13	12	13	12	12	14	15	15	13	13	9	7	8	9	9	11	8	8	6	11.4	15.2
7-Dec	5	6	7	5	7	8	9	9	3	5	10	5	7	6	8	4	4	5	4	5	4	5	5	3	5.8	9.7
8-Dec	4	6	6	12	5	7	4	5	6	6	7	6	7	6	7	6	6	5	5	5	5	5	4	4	5.8	11.5
9-Dec	7	3	4	3	3	3	4	3	3	7	4	5	4	16	14	6	7	7	8	8	5	6	6	5	5.9	16.0
10-Dec	4	4	3	2	1	3	5	5	7	7	7	6	12	9	10	11	9	10	12	14	16	14	15	11	8.1	16.1
11-Dec	10	11	14	14	12	13	10	11	12	15	15	14	14	14	11	12	12	15	18	18	14	17	17	15	13.7	18.5
12-Dec	15	12	16	16	24	23	18	12	19	26	26	21	18	17	20	22	22	20	16	16	13	17	23	15	18.6	26.4
13-Dec	9	7	8	8	7	6	6	6	8	10	8	5	6	6	7	6	5	6	5	3	4	3	6	3	6.1	9.6
14-Dec	4	5	14	51	16	33	23	18	17	9	6	5	3	7	9	8	7	6	6	6	10	27	3	1	12.2	51.4
15-Dec	2	1	3	3	2	1	4	3	3	23	41	7	7	8	8	7	4	10	37	22	3	22	9	7	9.8	41.5
16-Dec	3	5	8	11	4	6	14	4	4	4	6	17	8	5	3	7	7	14	25	12	24	33	35	30	12.1	35.1
17-Dec	38	11	4	13	8	9	21	6	11	10	5	1	4	4	5	4	6	8	13	10	13	14	18	19	10.7	37.9
18-Dec	23	25	25	27	32	33	29	33	24	18	9	22	27	28	35	33	26	20	16	12	5	10	9	8	22.1	35.0
19-Dec	2	3	3	10	13	20	24	25	29	28	23	18	19	21	21	23	21	14	13	18	22	22	21	13	17.7	28.9
20-Dec	11	12	6	4	5	2	2	2	3	2	3	3	4	4	3	5	6	6	6	8	14	16	21	31	7.4	30.6
21-Dec	13	8	8	10	14	23	25	25	14	12	6	5	10	16	16	17	23	17	11	7	6	6	10	7	12.9	25.0
22-Dec	9	6	6	8	7	5	8	9	9	7	4	5	5	5	6	7	7	5	5	4	5	4	4	3	6.0	8.9
23-Dec	3	3	5	3	3	4	4	5	7	6	5	6	8	8	7	7	7	4	5	4	5	5	5	5	5.1	7.7
24-Dec	5	5	4	5	7	6	5	4	5	5	5	5	5	4	3	4	5	4	5	5	4	3	3	4	4.6	6.6
25-Dec	3	8	8	3	3	2	3	4	2	2	2	3	2	4	5	3	3	2	3	4	4	3	3	3	3.4	8.2
26-Dec	2	1	3	3	2	2	2	2	3	3	2	2	4	5	4	2	2	2	2	3	4	4	3	4	2.8	4.7
27-Dec	3	5	3	3	4	2	3	4	5	5	5	8	16	17	18	24	23	24	23	22	20	22	23	19	12.6	24.2
28-Dec	15	15	15	15	16	15	12	16	18	18	19	18	19	19	19	21	17	17	20	20	15	19	19	16	17.1	20.7
29-Dec	13	9	7	4	4	4	5	7	6	3	4	3	4	4	3	5	2	2	3	5	5	7	5	4	4.9	13.4
30-Dec	3	4	7	8	8	4	4	7	8	8	11	16	19	17	14	15	19	15	17	17	15	9	9	11	11.1	19.1
31-Dec	10	9	7	7	10	11	10	9	7	2	6	6	5	12	13	10	8	11	13	9	6	9	10	9	8.8	13.0
	8.8	7.6	8.0	9.8	9.0	9.9	10.2	9.7	9.7	10.2	10.0	9.3	10.3	11.1	11.3	11.2	10.5	10.2	11.8	10.5	9.9	11.7	11.2	10.0	Diurnal Average	
	37.9	25.5	25.0	51.4	32.4	33.3	28.9	32.7	28.9	28.1	41.5	23.7	26.7	28.5	35.0	33.3	25.6	23.7	37.1	22.1	24.4	33.2	35.1	30.6	Diurnal Maximum	

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

Hourly Standard Deviations

Wind Direction (WD) - deg
Henry Pirker - December 2016

Maximum Value: 97.6 deg on Dec 20 10:00																							Hours in Service:	744	
Minimum Value: 3.6 deg on Dec 12 22:00																							Hours of Data:	744	
Percentiles: P ₁ = 4.7 P ₁₀ = 6.1 Q ₁ = 7.8 Median = 15.8 Q ₃ = 35.1 P ₉₀ = 63.0 P ₉₉ = 88.9																							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	33	26	24	18	21	9	27	28	65	42	27	60	17	16	25	32	47	19	54	26	16	21	47	45	65.4
2-Dec	52	33	44	28	52	53	57	63	25	18	14	14	12	55	47	29	75	15	31	48	46	34	49	32	74.7
3-Dec	49	80	58	59	12	11	7	10	10	9	12	11	8	8	6	6	7	6	6	9	10	8	8	7	79.9
4-Dec	5	6	5	7	6	6	20	6	7	7	5	6	5	6	6	5	6	6	6	6	7	6	6	6	20.2
5-Dec	6	7	7	8	7	7	7	8	7	7	8	9	8	7	7	7	6	11	6	6	7	9	7	6	11.1
6-Dec	6	6	6	8	8	8	8	5	8	8	6	8	8	11	8	8	7	5	11	7	9	11	10	35	34.7
7-Dec	14	35	39	9	46	49	60	60	14	19	49	40	35	18	49	84	12	9	13	12	19	22	28	24	83.6
8-Dec	23	19	16	69	16	43	16	23	26	18	22	20	15	18	16	17	16	17	21	20	16	20	19	29	68.9
9-Dec	48	33	39	25	21	65	37	72	65	62	34	7	9	72	61	17	11	20	62	41	18	16	33	48	72.3
10-Dec	17	17	47	56	34	22	29	37	27	35	15	15	70	31	13	11	17	13	7	6	7	5	8	13	69.7
11-Dec	10	9	9	6	5	5	11	10	10	7	10	7	8	8	11	12	7	7	7	8	8	8	7	7	12.2
12-Dec	5	7	7	6	8	4	5	17	14	5	6	6	6	8	5	5	5	5	5	5	5	4	4	13	16.8
13-Dec	20	20	13	14	11	13	16	18	11	12	8	24	19	24	12	9	14	9	17	67	62	45	48	53	67.4
14-Dec	36	31	64	36	49	77	70	84	68	53	41	16	26	25	17	11	8	13	10	16	50	77	47	37	83.6
15-Dec	29	31	43	40	61	82	28	42	40	61	85	13	12	10	13	8	24	54	71	69	47	76	60	65	84.7
16-Dec	36	16	22	50	55	45	64	67	13	46	41	58	53	48	26	74	53	83	76	72	86	96	87	89	95.7
17-Dec	83	53	23	88	57	65	85	32	80	66	47	68	18	32	43	29	51	22	12	18	15	12	7	7	88.4
18-Dec	7	8	6	6	5	5	7	5	7	14	16	8	7	6	5	5	5	7	11	10	9	15	9	16	16.1
19-Dec	53	36	48	11	8	7	7	7	6	5	6	8	7	7	8	7	8	8	8	6	6	6	8	8	52.8
20-Dec	9	7	47	57	65	64	78	66	74	98	72	30	23	25	29	13	14	11	21	11	7	12	9	5	97.6
21-Dec	8	10	10	7	10	8	7	6	8	9	13	32	12	9	11	9	7	8	7	9	11	8	11	29	32.0
22-Dec	18	8	13	7	18	13	15	17	9	16	20	14	20	16	33	35	9	24	7	25	9	17	11	35	35.1
23-Dec	33	40	33	42	17	23	18	16	13	14	20	17	16	13	14	15	22	43	38	38	14	21	14	17	42.6
24-Dec	16	19	19	14	16	15	20	25	19	19	16	19	20	21	32	33	16	18	17	13	10	22	41	24	40.8
25-Dec	77	36	68	47	32	79	22	19	26	24	64	20	73	19	17	23	43	64	35	32	17	31	38	24	78.5
26-Dec	64	93	19	24	90	78	79	55	59	60	81	59	65	49	51	84	57	32	92	85	45	26	61	75	92.5
27-Dec	81	67	63	54	82	74	64	96	72	48	19	42	8	8	7	7	7	6	6	7	6	6	6	8	96.4
28-Dec	7	6	7	6	6	5	7	5	5	5	5	6	7	7	8	5	6	8	9	6	8	6	6	6	9.0
29-Dec	9	16	18	84	58	29	20	13	10	38	16	62	35	25	60	16	50	73	59	33	22	12	10	22	83.6
30-Dec	58	34	13	17	7	24	25	19	11	21	8	13	6	7	6	7	8	6	7	8	7	5	7	5	58.1
31-Dec	5	8	17	13	14	9	10	30	15	37	11	15	18	13	12	16	8	8	7	6	15	12	9	7	36.8
83.5	92.5	68.1	88.4	89.7	81.9	84.9	96.4	80.3	97.6	84.7	68.0	73.5	72.3	61.1	83.7	74.7	83.4	91.8	84.6	85.7	95.7	86.5	89.3		

PAZA

Evergreen Park Station

Monthly Summary Tables, Graphs and
Roses

Hourly Averages

Sulphur Dioxide (SO₂) - ppb Evergreen Park - December 2016

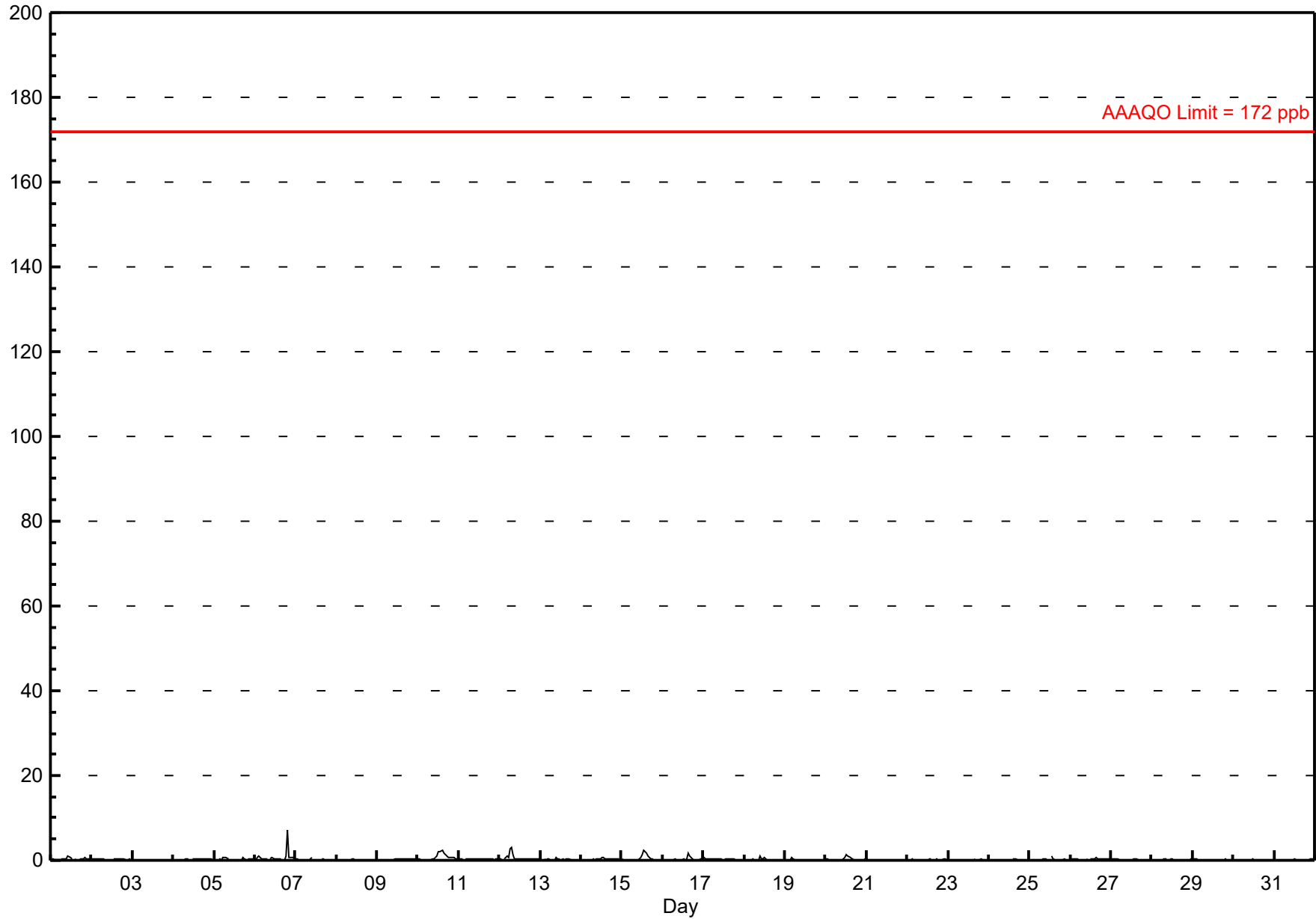
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 7.0 ppb on Dec 6 20:00	Maximum Daily Average: 0.7 ppb on Dec 10		Hours of Data:	708
Minimum Value: 0 ppb on Dec 3 20:00	Minimum Daily Average: 0.0 ppb on Dec 3		Hours of Missing Data:	36
Maximum Diurnal Average: 0.4 ppb at hour 20	Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 0.23 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 0.4 P ₉₉ = 1.8		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	0	0	0	0	0	0	0	1	1	1	0	A	0	0	0	0	0	0	1	0	0	0	0.3	0.9
2-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	0.5
3-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
4-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
5-Dec	0	0	0	0	0	1	1	1	0	A	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.2	0.7
6-Dec	0	1	1	1	0	0	0	0	A	0	1	0	0	0	0	0	0	0	1	7	1	1	1	0	0.7	7.0
7-Dec	0	0	0	0	0	0	0	A	0	1	D	1	C	C	C	0	0	0	0	0	0	0	0	0	0.2	0.6
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
9-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	0.2	0.4
10-Dec	0	0	0	0	A	0	0	0	0	0	1	1	2	2	2	2	1	1	1	1	1	1	0	0	0.7	2.2
11-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
12-Dec	0	0	A	0	1	1	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	2.9
13-Dec	0	A	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.7
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	A	0.2	0.7
15-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	1	1	0	0	0	0	0	A	0	0.4	2.3
16-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	A	0	0.2	1.5
17-Dec	1	0	1	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
18-Dec	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.2	1.1
19-Dec	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0.1	0.7
20-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	A	A	0	0	0	0	0	0.3	1.3
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0.1	0.2
22-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.1	0.3
23-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.1	0.3
24-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	0.3
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0.2	1.0
26-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	1	0	0	0	0	0	0	0	0	0.3	0.6
27-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
28-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	0.3
29-Dec	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	Diurnal Average	
	0.5	0.7	1.1	0.7	1.0	0.8	2.7	2.9	1.2	1.1	0.9	1.1	1.9	2.3	2.2	1.7	1.2	1.0	0.9	7.0	0.7	0.7	0.5	0.4	Diurnal Maximum	

C - Calibration D - DAS Failure A - Automated Daily Zero Span
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb

Hourly Averages

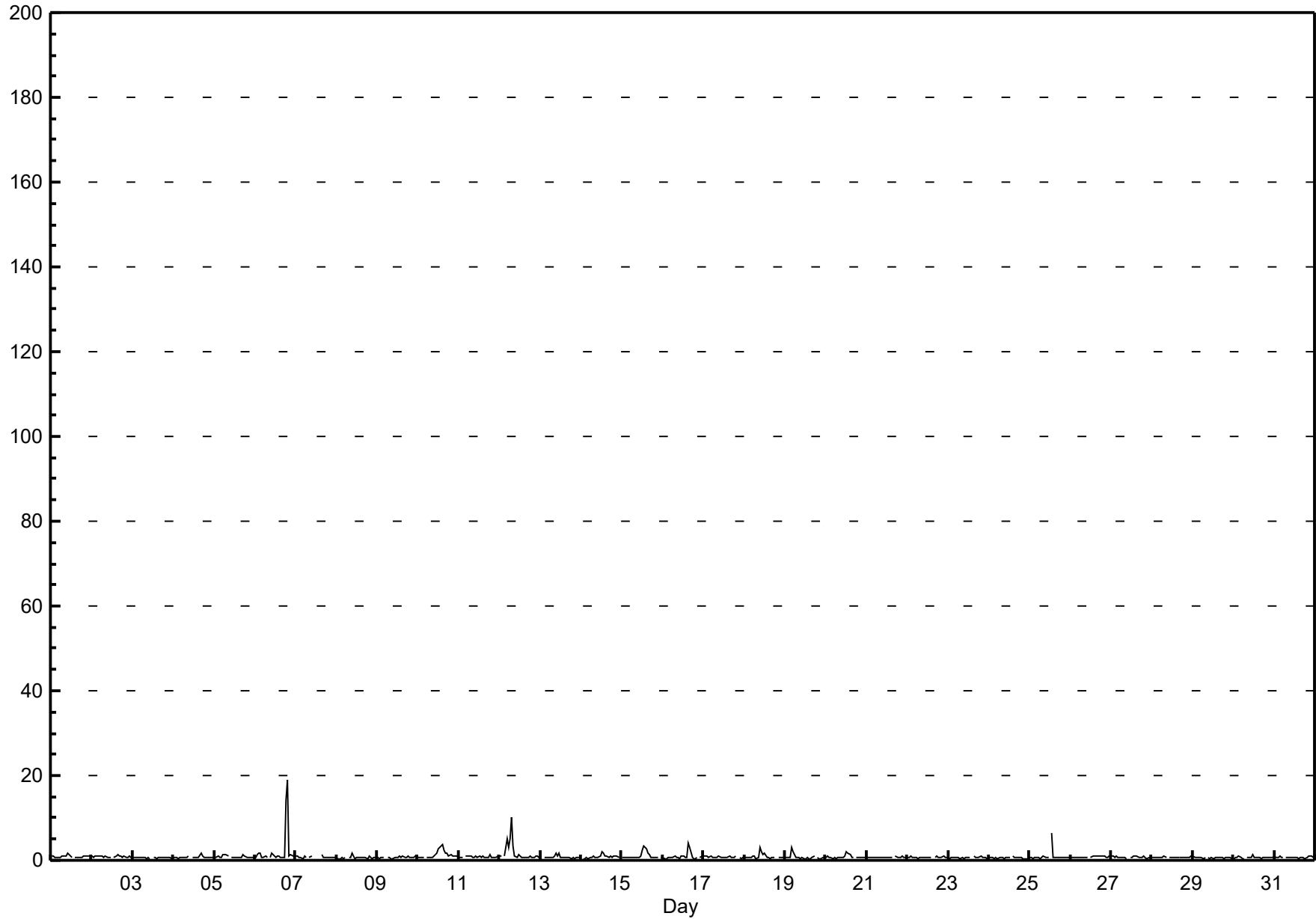
Sulphur Dioxide (SO₂) - ppb
Evergreen Park - December 2016



Hourly Maximums

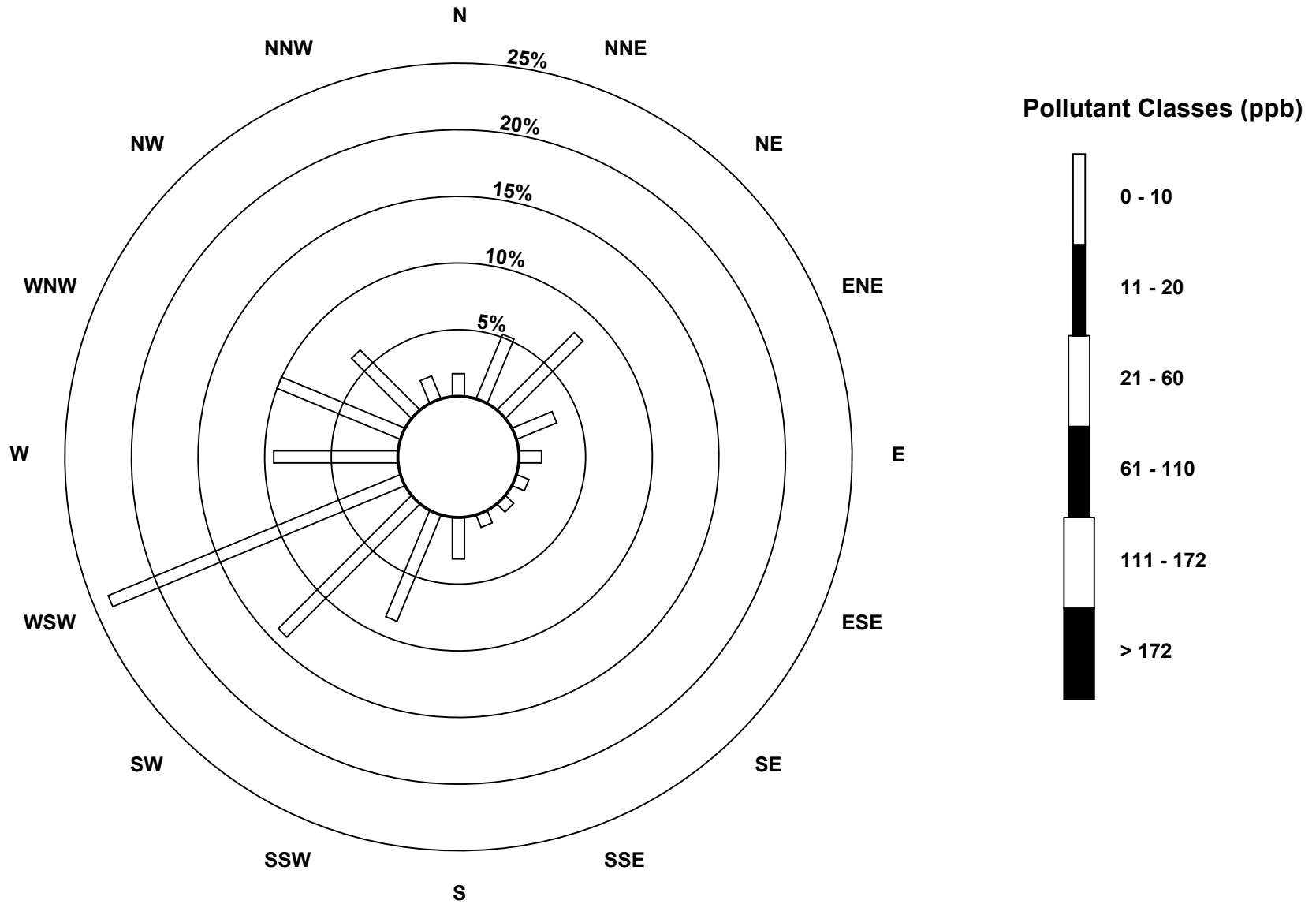
Sulphur Dioxide (SO₂) - ppb Evergreen Park - December 2016

Maximum Value: 19.1 ppb on Dec 6 20:00		Maximum Daily Average: 2.4 ppb on Dec 6		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 16 11:00		Minimum Daily Average: 0.6 ppb on Dec 3		Hours of Data: 708																							
Maximum Diurnal Average: 1.4 ppb at hour 20		Minimum Diurnal Average: 0.7 ppb at hour 21		Hours of Missing Data: 36																							
Monthly Average: 0.87 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.7 Q ₃ = 0.9 P ₉₀ = 1.1 P ₉₉ = 3.4		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	1	1	1	1	1	1	1	1	1	1	2	1	1	A	1	1	1	1	1	1	1	1	1	1	0.9	1.5	
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.9	1.5	
3-Dec	1	1	1	1	1	1	1	1	0	1	0	A	1	1	0	1	1	1	1	1	1	1	1	0	0.6	0.8	
4-Dec	1	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	2	1	1	1	1	1	1	1	0.8	1.7	
5-Dec	1	1	1	1	1	1	1	2	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.5	
6-Dec	1	1	2	2	1	1	1	1	A	1	2	1	1	1	1	1	1	1	14	19	1	1	1	1	2.4	19.1	
7-Dec	1	1	1	1	0	1	1	A	1	1	D	1	C	C	C	1	1	1	1	1	1	1	1	1	0.8	1.2	
8-Dec	1	1	0	1	0	1	A	1	1	2	1	0	1	1	1	1	1	1	0	1	1	0	1	1	0.6	1.6	
9-Dec	1	0	1	1	1	A	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
10-Dec	1	1	1	1	A	1	1	1	1	1	1	2	3	3	4	2	2	2	1	1	1	1	1	1	1.3	3.8	
11-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	1.4	
12-Dec	1	1	A	1	5	3	5	10	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.9	10.2	
13-Dec	1	A	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	0	1	0	1	1	1	0.8	1.7	
14-Dec	A	0	0	1	0	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	A	0.9	2.2	
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	2	1	1	1	1	1	1	A	1	1.1	3.2	
16-Dec	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	4	3	1	0	0	1	A	1	1	0.9	4.0	
17-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0	0.8	1.1	
18-Dec	1	1	1	1	1	1	1	0	1	3	2	1	2	1	1	0	1	1	1	A	1	1	1	1	0.9	3.2	
19-Dec	1	1	1	1	3	2	1	1	1	1	1	0	0	1	0	0	1	1	1	A	1	0	0	1	1	0.8	3.0
20-Dec	1	1	1	1	0	1	1	1	1	1	1	1	2	2	1	1	1	A	1	1	1	1	1	1	0.8	1.9	
21-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.7	1.0	
22-Dec	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.7	0.9	
23-Dec	1	1	1	1	1	1	1	0	1	0	1	1	1	1	A	1	1	1	1	1	1	1	1	0	0.6	1.0	
24-Dec	1	1	1	0	1	0	1	1	1	0	1	1	1	A	1	1	1	1	1	1	1	0	1	0	0.6	0.9	
25-Dec	1	1	0	1	1	1	1	1	1	1	1	A	6	1	1	1	1	1	1	1	1	1	1	1	0.9	6.4	
26-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	1.1	
27-Dec	1	1	1	1	1	1	1	1	1	0	A	1	1	1	1	1	1	1	1	1	1	0	1	1	0.7	1.1	
28-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
29-Dec	1	1	1	1	1	1	0	1	A	1	0	1	0	1	1	1	1	1	0	1	1	1	1	0	0.6	0.9	
30-Dec	0	1	1	1	1	0	0	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	1.5	
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0.7	1.0	
		0.7	0.7	0.7	0.7	0.9	0.8	0.9	1.1	0.8	0.9	0.8	0.9	0.9	1.2	0.9	1.0	0.9	0.8	1.1	1.4	0.7	0.7	0.7	0.7	Diurnal Average	
		1.0	1.3	1.7	1.6	5.2	2.9	5.1	10.2	3.4	3.2	1.9	1.8	2.7	6.4	3.8	4.0	3.1	1.5	14.3	19.1	1.2	1.2	1.2	1.0	Diurnal Maximum	
C - Calibration		D - DAS Failure						A - Automated Daily Zero Span																			



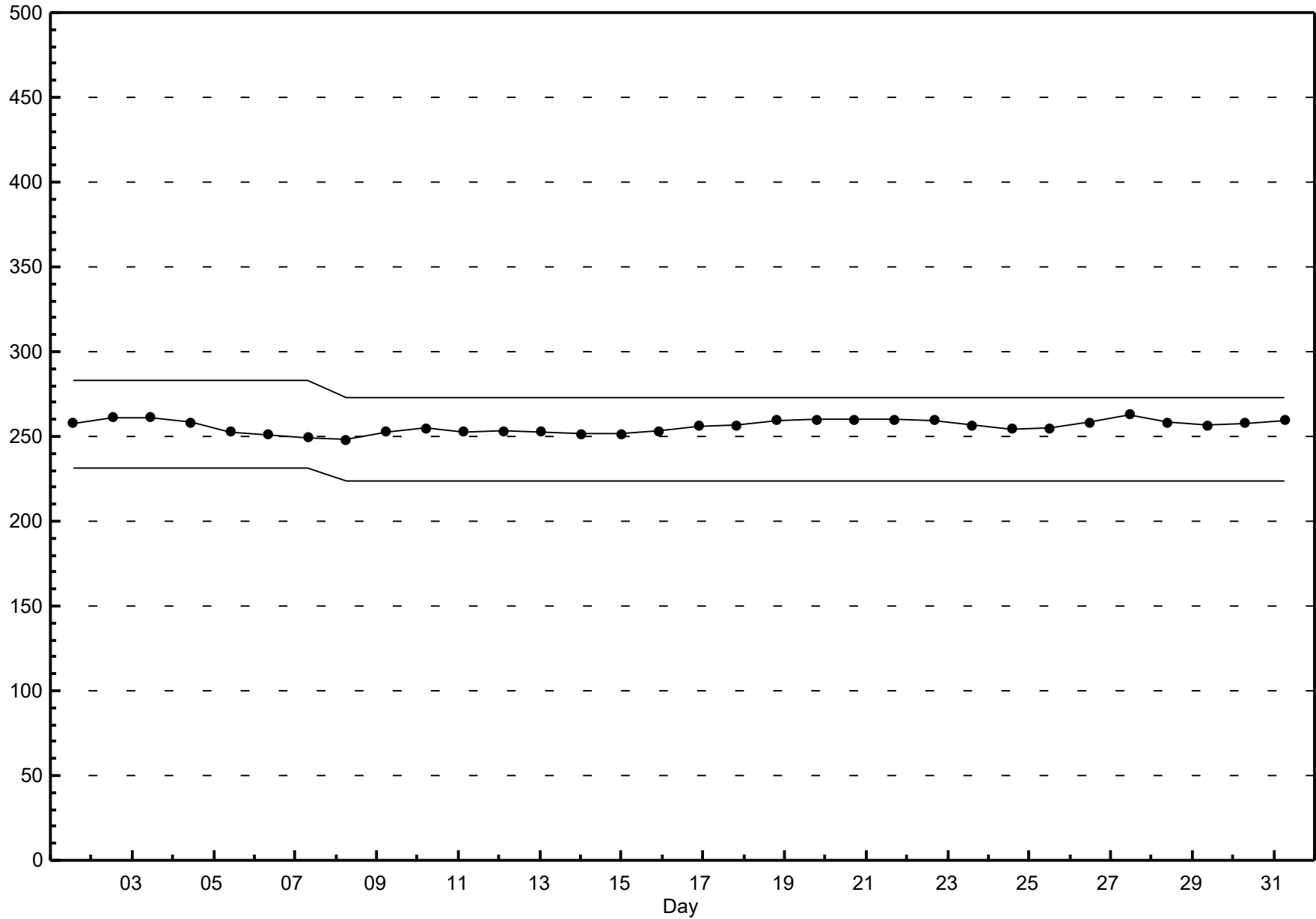
Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - December 2016



Span Responses

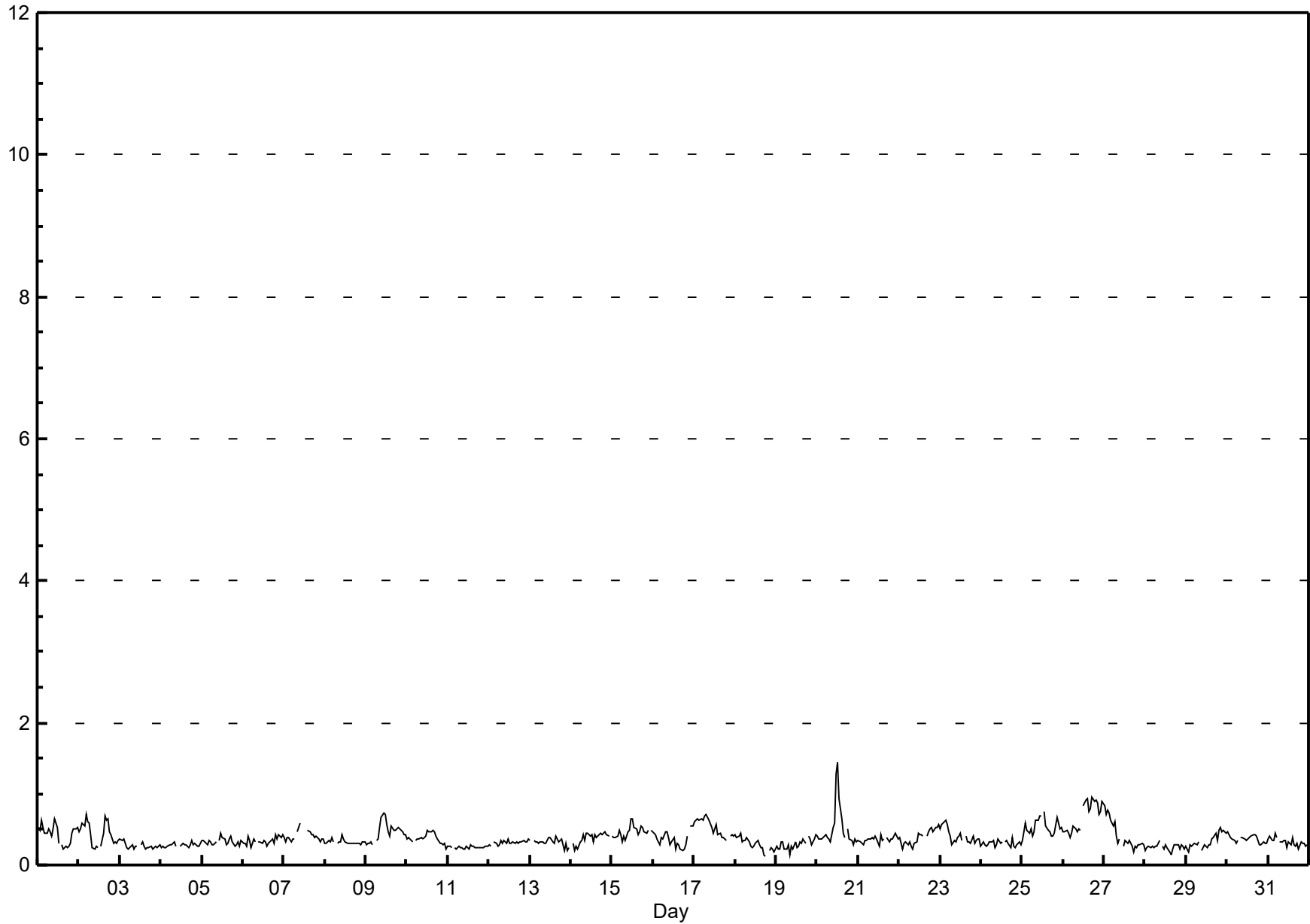
**Sulphur Dioxide (SO₂)
Evergreen Park - December 2016**



Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - December 2016

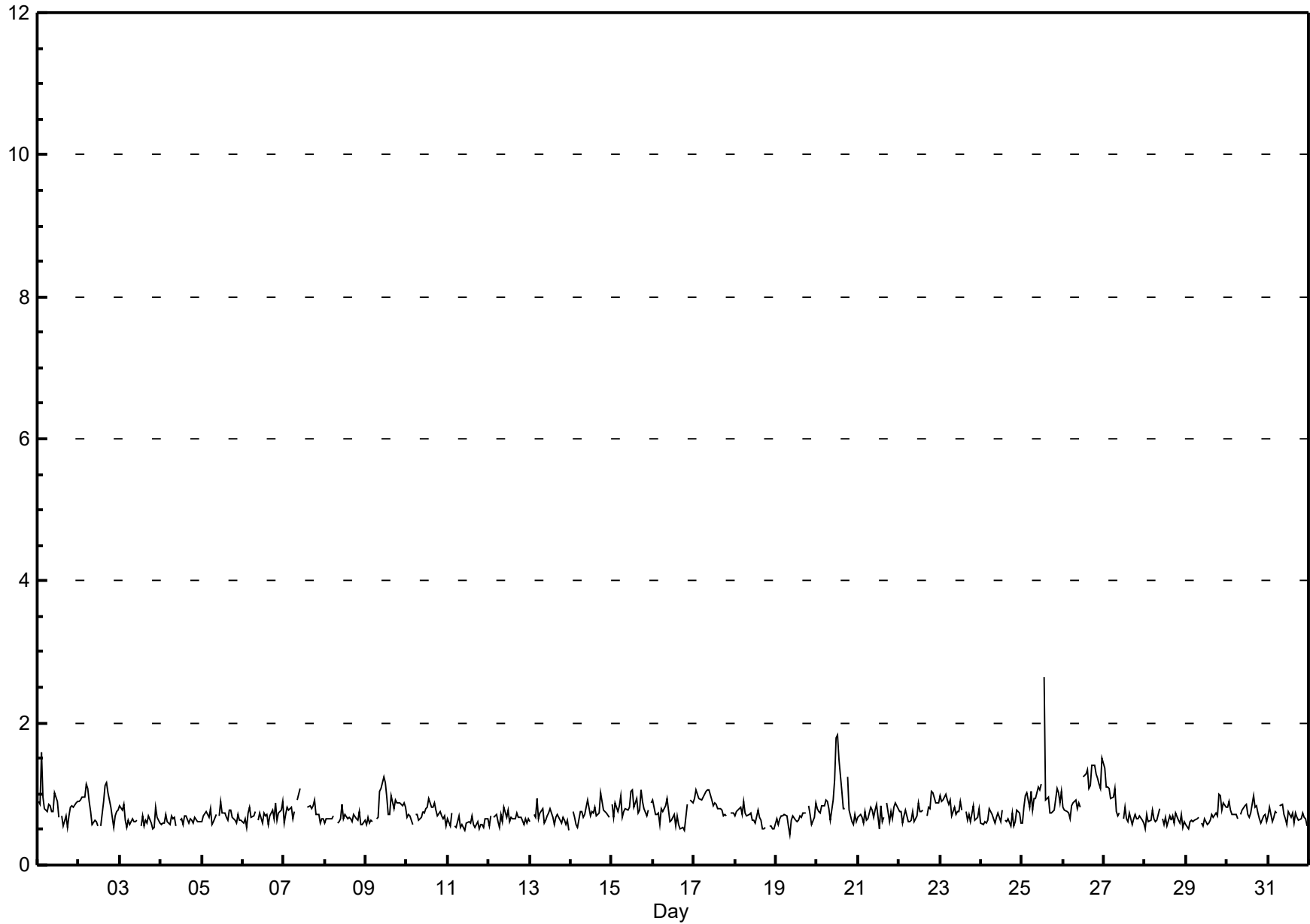
Maximum Value: 1.5 ppb on Dec 20 13:00		Maximum Daily Average: 0.7 ppb on Dec 26		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 18 19:00		Minimum Daily Average: 0.2 ppb on Dec 11		Hours of Data: 708																						
Maximum Diurnal Average: 0.4 ppb at hour 13		Minimum Diurnal Average: 0.4 ppb at hour 9		Hours of Missing Data: 36																						
Monthly Average: 0.38 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 0.3 Q ₃ = 0.4 P ₉₀ = 0.5 P ₉₉ = 0.9		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	1	0	1	1	0	0	1	0	0	1	1	1	0	A	0	0	0	0	0	0	0	0	1	1	0.4	0.7
2-Dec	0	1	1	1	1	1	1	0	0	0	0	0	A	0	0	1	1	1	0	0	0	0	0	0	0.4	0.7
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
4-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3
5-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
6-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
7-Dec	0	0	0	0	0	0	0	A	0	1	D	C	C	C	0	0	0	0	0	0	0	0	0	0	0.4	0.6
8-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
9-Dec	0	0	0	0	0	A	0	0	1	1	1	1	1	0	0	1	0	0	0	1	1	0	0	0	0.5	0.7
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
11-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
12-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
13-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
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.4	0.5
15-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	0	0	A	0	0.5	0.7
16-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0.4	0.6
17-Dec	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	A	0	0	0.5	0.7
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	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0.3	0.4
20-Dec	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	A	A	1	0	0	0	0	0.5	1.5
21-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	0.4	0.4
22-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	1	1	0	1	1	1	0.4	0.6
23-Dec	1	1	1	1	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.4	0.6
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.3	0.4
25-Dec	0	0	1	0	0	1	0	0	1	1	1	1	A	1	1	0	0	0	0	0	1	1	1	1	0.5	0.7
26-Dec	0	0	0	0	0	0	1	1	0	1	0	A	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0
27-Dec	1	1	1	1	1	1	1	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.8
28-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.3	0.5
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	Diurnal Average
		0.8	0.7	0.8	0.7	0.6	0.7	0.7	0.7	0.7	0.7	1.3	1.5	0.9	0.9	0.8	0.8	1.0	0.9	0.9	0.9	0.7	0.7	0.9	0.9	Diurnal Maximum
C - Calibration		D - DAS Failure						A - Automated Daily Zero Span																		



Hourly Maximums

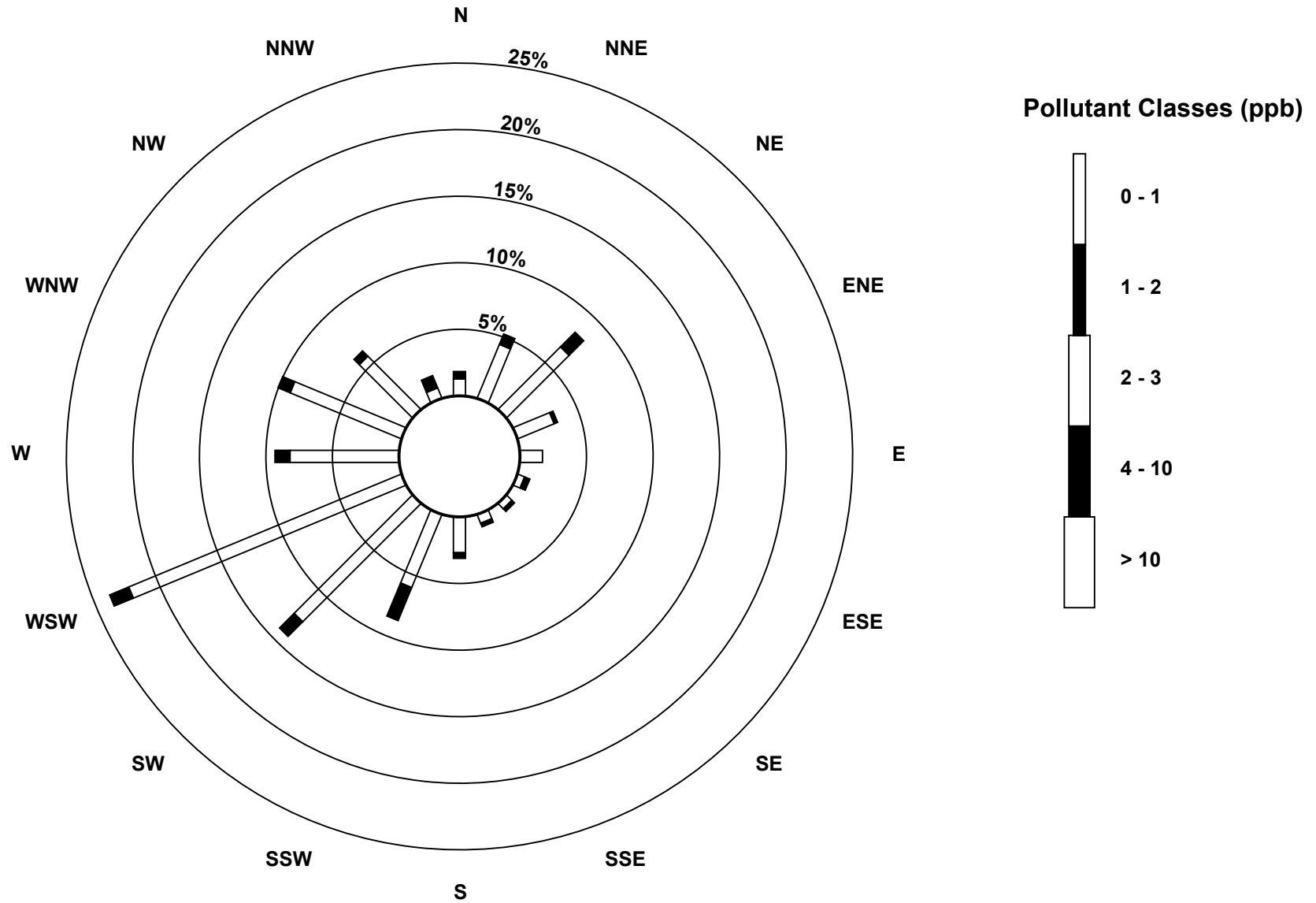
Total Reduced Sulphur (TRS) - ppb Evergreen Park - December 2016

Maximum Value: 2.6 ppb on Dec 25 14:00		Maximum Daily Average: 1.0 ppb on Dec 26		Hours in Service:	744																					
Minimum Value: 0 ppb on Dec 19 09:00		Minimum Daily Average: 0.6 ppb on Dec 11		Hours of Data:	708																					
Maximum Diurnal Average: 0.8 ppb at hour 14		Minimum Diurnal Average: 0.7 ppb at hour 22		Hours of Missing Data:	36																					
Monthly Average: 0.75 ppb		Percentiles: P ₁ = 0.5 P ₁₀ = 0.6 Q ₁ = 0.6 Median = 0.7 Q ₃ = 0.8 P ₉₀ = 0.9 P ₉₉ = 1.4		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	1	1	2	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.8	1.6
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
3-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0	1	1	1	1	0.6	0.9
4-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.7
5-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
6-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
7-Dec	1	1	1	1	1	1	1	A	1	1	D	C	C	C	1	1	1	1	1	1	1	1	1	1	0.8	1.1
8-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	0.8
9-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
10-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
11-Dec	1	1	1	A	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.7
12-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.8
13-Dec	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.7	0.9
14-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	1.0
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.8	1.1
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	A	1	1	0.7	0.9
17-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.9	1.1
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.7	0.9
19-Dec	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.7	0.9
20-Dec	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	A	1	1	1	1	1	1	0.9	1.8
21-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.7	0.9
22-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	0.8	1.0
23-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	1.0
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.6	0.8
25-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	3	1	1	1	1	1	1	1	1	1	1	1.0	2.6
26-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	2	1.0	1.5
27-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	1.4
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	0.6	0.8
29-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
30-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
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
																								Diurnal Average		
																								Diurnal Maximum		
C - Calibration																										
D - DAS Failure																										
A - Automated Daily Zero Span																										



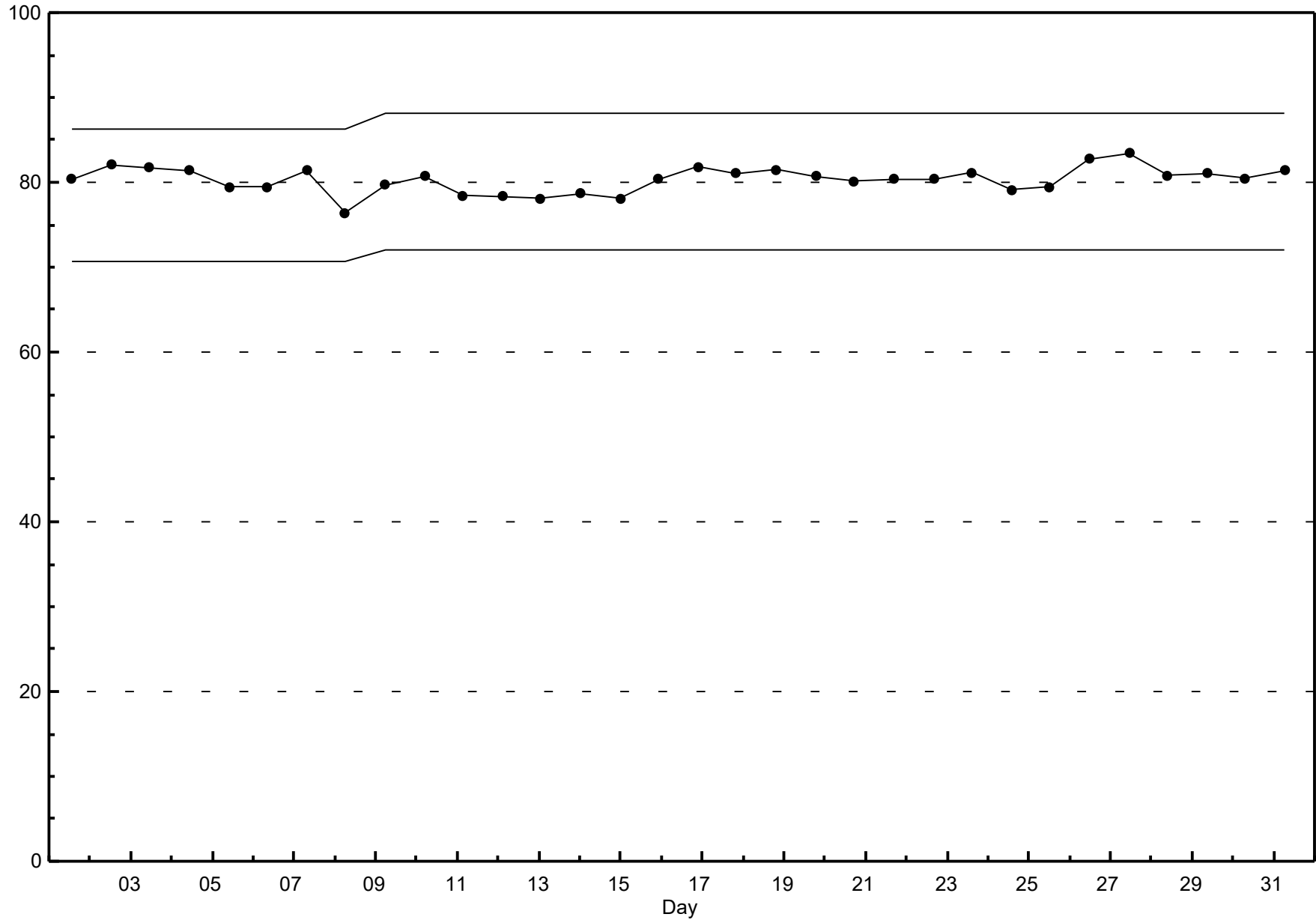
Pollutant Rose

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - December 2016



Span Responses

**Total Reduced Sulphur (TRS)
Evergreen Park - December 2016**



Hourly Averages

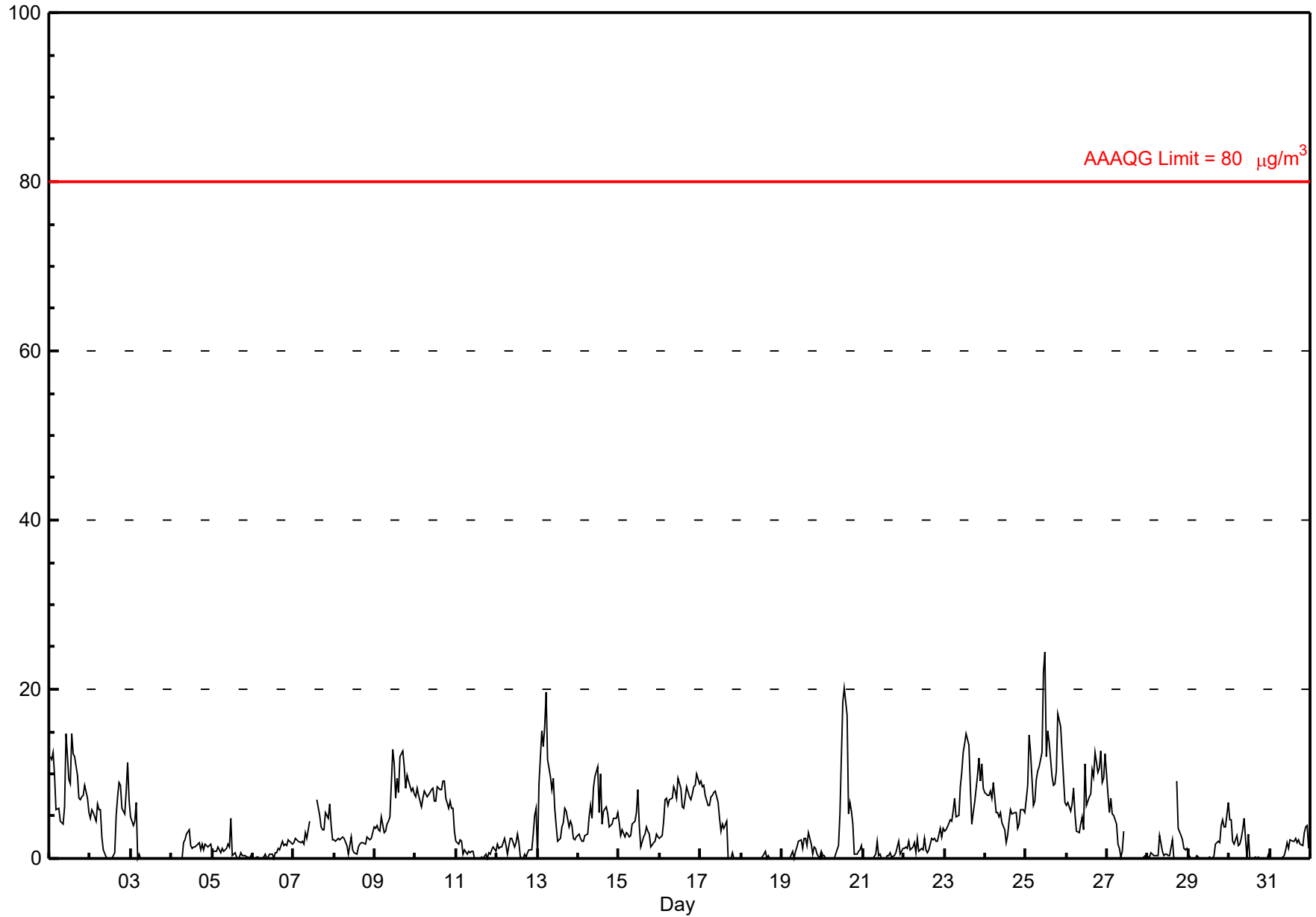
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Evergreen Park - December 2016

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 24.5 µg/m ³ on Dec 25 12:00	Maximum Daily Average: 11.9 µg/m ³ on Dec 25
Minimum Value: 0 µg/m ³ on Dec 2 11:00	Hours of Data: 737
Maximum Diurnal Average: 5.1 µg/m ³ at hour 12	Hours of Missing Data: 7
Monthly Average: 3.69 µg/m ³	Hours of Calibration: 2
Minimum Daily Average: 0.1 µg/m ³ on Dec 18	Percent Operational Time: 99.3
Minimum Diurnal Average: 3.0 µg/m ³ at hour 7	
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.5 Median = 2.3 Q ₃ = 5.9 P ₉₀ = 9.1 P ₉₉ = 16.7	

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	12	12	13	10	6	6	4	4	4	6	15	9	9	15	12	12	10	7	7	7	7	9	7	5	8.7	14.8
2-Dec	5	6	5	4	6	6	6	3	1	0	0	0	0	0	1	5	7	9	9	6	5	8	11	7	4.6	11.4
3-Dec	5	4	4	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	6.6
4-Dec	0	0	0	0	0	0	0	2	2	3	3	2	1	1	1	2	2	1	2	1	2	1	1	2	1.2	3.3
5-Dec	1	1	1	1	1	1	1	1	1	2	1	5	0	1	0	0	0	1	0	0	0	0	0	0	0.8	4.7
6-Dec	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1	2	2	2	1	2	2	2	0.8	2.2
7-Dec	2	2	2	2	2	2	2	3	2	4	D	6	C	C	7	5	4	3	3	5	5	6	4	2	3.6	7.0
8-Dec	2	2	2	2	2	2	2	1	1	2	3	1	1	1	1	2	2	2	2	3	2	2	2	4	1.9	3.8
9-Dec	4	4	3	3	5	3	3	4	4	5	13	11	7	9	8	12	13	11	8	10	9	8	8	8	7.2	13.0
10-Dec	7	8	7	6	7	8	8	7	8	8	8	7	7	8	8	8	9	9	7	6	7	6	6	3	7.3	9.1
11-Dec	2	2	2	2	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0.8	2.2
12-Dec	2	1	1	1	2	2	1	1	2	2	1	2	3	2	0	0	0	0	1	1	1	3	5	6	1.7	5.9
13-Dec	0	9	15	13	16	20	12	10	8	9	6	4	2	2	4	4	6	6	4	4	4	2	2	3	6.8	19.6
14-Dec	3	2	2	2	3	3	5	6	5	8	10	11	5	10	4	6	6	5	4	4	4	5	5	5	5.1	10.9
15-Dec	4	3	3	3	3	3	3	3	4	4	5	8	4	1	2	3	4	3	3	1	2	2	3	3	3.2	8.2
16-Dec	2	3	4	7	7	6	7	7	9	8	7	9	8	6	6	7	8	7	7	8	8	9	10	9	7.1	10.0
17-Dec	9	8	9	7	6	6	7	7	8	8	7	5	3	4	4	4	0	0	0	1	0	0	0	0	4.3	9.1
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.1	0.8
19-Dec	0	0	0	0	0	0	1	0	1	1	2	2	1	2	2	2	3	2	1	1	1	0	0	1	1.0	3.1
20-Dec	0	0	0	0	0	0	0	0	0	1	5	12	18	20	17	5	7	6	4	1	0	1	1	2	4.2	20.1
21-Dec	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	1	1	2	1	1	0.5	2.1
22-Dec	1	1	1	2	1	1	2	1	2	1	1	1	2	1	1	1	2	2	2	2	2	4	2	4	1.7	3.6
23-Dec	3	3	4	5	4	6	7	5	5	9	10	12	14	15	13	9	4	5	7	10	12	9	11	8	7.9	14.7
24-Dec	8	7	7	8	7	9	5	5	5	5	4	3	2	3	4	6	5	6	5	4	4	6	6	5	5.4	8.9
25-Dec	7	9	15	13	6	7	9	10	11	13	22	24	12	15	14	10	9	9	10	17	16	12	9	7	11.9	24.5
26-Dec	6	7	6	6	8	5	3	3	4	5	3	11	6	7	8	10	10	12	10	11	13	9	9	12	7.8	12.7
27-Dec	8	5	7	5	5	4	2	1	0	1	3	N	N	N	0	0	0	0	0	0	0	0	0	0	2.0	7.6
28-Dec	0	0	1	0	0	0	0	3	1	0	1	0	0	0	2	0	M	9	4	3	2	1	1	1	1.3	9.1
29-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	5	4	4	7	7	1.2	6.6
30-Dec	5	5	2	2	3	2	2	2	3	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1.4	4.7
31-Dec	0	0	0	0	0	0	0	0	0	1	2	1	2	2	2	2	2	2	2	1	3	4	4	1	1.3	3.9
	3.2	3.4	3.8	3.6	3.3	3.3	3.0	3.0	3.1	3.7	4.5	5.1	3.8	4.4	4.0	3.8	3.9	3.9	3.4	3.7	3.8	3.8	3.8	3.5	Diurnal Average	
	12.1	11.7	15.1	13.3	15.6	19.6	11.7	10.4	10.9	12.6	22.1	24.5	18.4	20.1	16.9	12.0	12.6	12.5	10.3	17.2	15.6	12.5	11.4	12.4	Diurnal Maximum	

C - Calibration D - DAS Failure M - Maintenance N - Not Valid
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³



Hourly Maximums

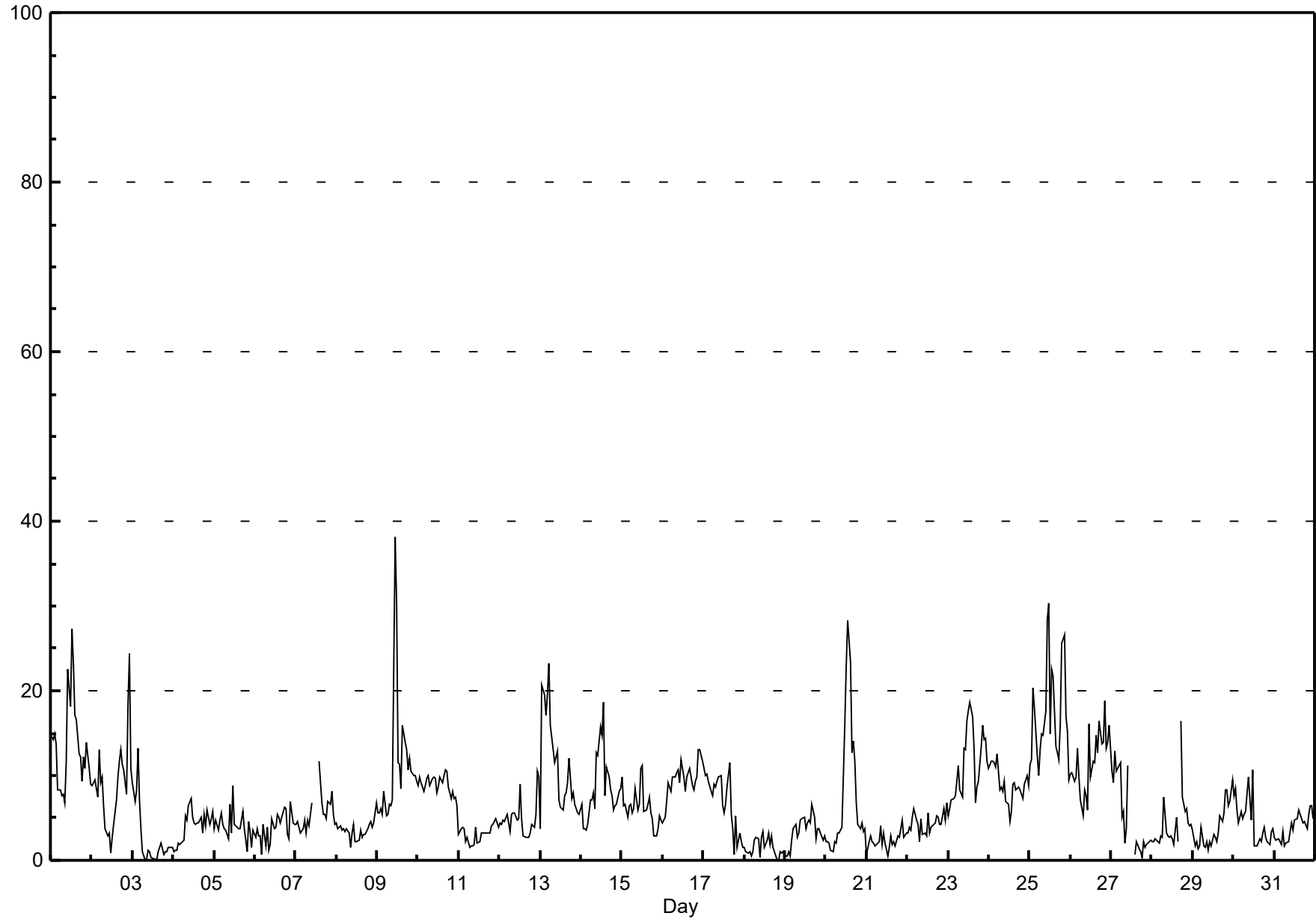
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Evergreen Park - December 2016

Maximum Value: 38.1 µg/m ³ on Dec 9 11:00	Maximum Daily Average: 17.1 µg/m ³ on Dec 25	Hours in Service: 744
Minimum Value: 0 µg/m ³ on Dec 3 08:00	Minimum Daily Average: 1.6 µg/m ³ on Dec 18	Hours of Data: 737
Maximum Diurnal Average: 8.7 µg/m ³ at hour 12	Minimum Diurnal Average: 5.4 µg/m ³ at hour 9	Hours of Missing Data: 7
Monthly Average: 6.69 µg/m ³	Percentiles: P ₁ = 0.3 P ₁₀ = 1.8 Q ₁ = 3.2 Median = 5.2 Q ₃ = 9.1 P ₉₀ = 13.0 P ₉₉ = 26.0	Hours of Calibration: 2
		Percent Operational Time: 99.3

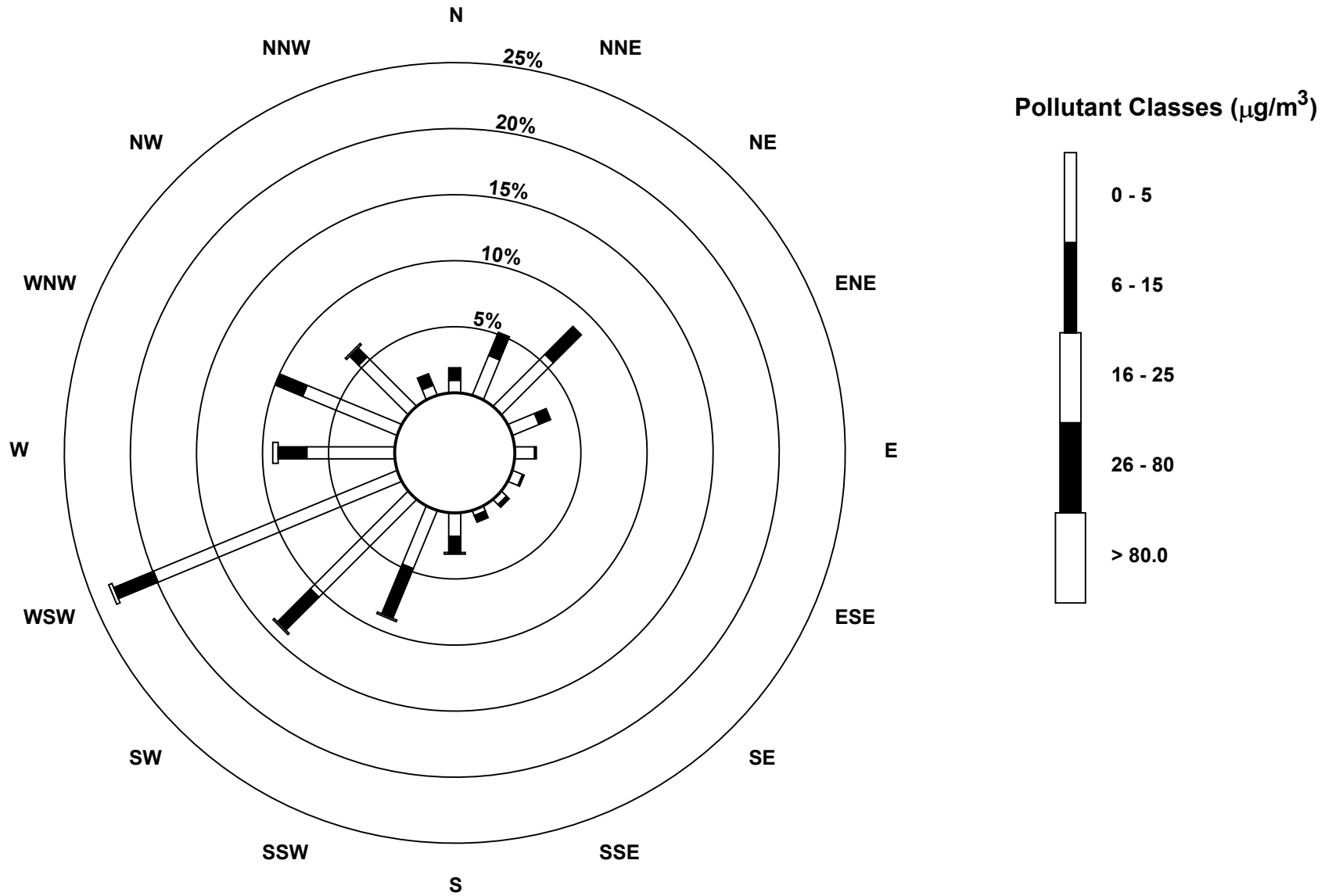
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	15	14	15	14	8	8	8	8	7	11	22	18	27	23	17	17	13	12	9	12	11	14	11	9	13.5	27.4
2-Dec	9	9	10	7	13	9	10	6	4	3	3	1	3	4	7	10	12	13	11	11	8	18	24	11	9.0	24.4
3-Dec	9	7	8	13	7	4	1	0	0	1	1	0	0	0	0	1	1	2	1	1	1	2	2	1	2.7	13.2
4-Dec	1	1	1	2	2	2	2	5	5	6	7	5	4	4	4	4	5	3	5	4	6	4	5	6	4.0	7.3
5-Dec	4	5	4	5	6	4	4	3	3	7	3	9	4	4	4	4	5	6	4	1	5	3	1	4	4.1	8.8
6-Dec	3	4	3	3	1	4	2	4	1	2	5	4	4	5	5	4	5	6	6	3	2	7	4	4	3.8	6.9
7-Dec	4	5	4	3	4	5	3	5	4	7	D	9	C	C	12	7	5	5	5	7	7	8	5	4	5.6	11.7
8-Dec	4	4	4	3	4	3	4	3	2	3	4	2	2	2	4	3	3	3	4	4	5	4	4	7	3.6	6.8
9-Dec	6	6	6	5	8	5	5	7	6	7	38	30	12	11	8	16	14	13	11	12	11	10	10	9	11.1	38.1
10-Dec	9	10	9	8	9	10	10	9	10	10	10	8	9	10	9	10	11	11	9	7	8	7	7	6	8.9	10.7
11-Dec	3	4	4	4	2	3	1	2	2	2	4	2	2	3	3	3	3	3	3	4	4	5	5	4	3.1	5.0
12-Dec	4	4	5	5	5	4	3	5	6	6	5	5	9	5	3	3	3	3	3	4	4	5	11	10	5.0	10.5
13-Dec	4	21	20	17	20	23	16	13	12	12	13	7	6	6	8	8	9	12	7	8	7	6	6	5	11.0	23.2
14-Dec	7	4	4	4	4	7	7	8	6	13	12	16	15	19	8	11	10	8	8	6	6	7	8	8	8.5	18.6
15-Dec	10	6	7	5	6	7	6	6	8	6	7	11	11	6	6	7	7	6	5	3	3	4	5	5	6.3	11.3
16-Dec	4	5	7	9	9	8	10	10	10	11	9	12	10	8	10	10	11	9	8	9	10	13	13	12	9.5	13.0
17-Dec	11	10	10	9	8	8	9	9	9	10	10	6	6	7	9	12	5	4	1	5	2	3	2	1	6.9	11.6
18-Dec	2	1	1	1	1	1	2	3	3	0	3	3	2	2	3	2	3	1	1	0	0	1	1	1	1.6	3.5
19-Dec	1	1	1	1	2	4	4	3	3	5	5	4	4	4	5	4	7	5	2	4	4	3	2	3	3.4	6.6
20-Dec	2	2	2	1	1	2	2	3	3	4	10	16	23	28	23	13	14	12	7	4	4	4	3	4	7.9	28.3
21-Dec	1	2	3	2	2	2	2	2	4	2	3	2	1	1	3	2	2	2	3	3	4	5	3	3	2.4	4.7
22-Dec	3	4	3	5	6	5	4	2	5	3	3	3	6	3	4	4	4	5	5	4	4	6	5	7	4.4	6.8
23-Dec	5	6	7	7	8	9	11	8	7	13	13	16	18	19	17	13	7	9	9	13	16	14	14	12	11.4	18.7
24-Dec	11	12	12	12	11	13	8	9	8	9	7	7	5	6	9	9	8	9	8	8	7	9	10	9	8.9	12.6
25-Dec	11	12	20	18	12	10	13	15	15	18	28	30	15	22	22	13	13	12	16	26	27	17	15	10	17.1	30.3
26-Dec	10	10	9	10	13	10	7	5	8	8	6	16	10	12	12	15	13	16	14	14	19	13	14	16	11.6	18.8
27-Dec	11	9	13	11	11	12	5	6	2	4	11	N	N	N	1	2	1	1	0	2	2	2	2	2	5.2	12.8
28-Dec	2	2	3	2	2	3	3	7	3	3	3	3	3	2	5	2	M	16	7	6	6	4	4	4	4.2	16.4
29-Dec	3	2	2	1	2	4	2	1	2	1	2	2	3	3	2	3	5	5	6	8	8	6	7	9	3.8	9.4
30-Dec	8	8	6	4	6	5	5	6	8	10	5	11	2	2	2	3	2	3	4	3	2	2	3	4	4.7	10.6
31-Dec	3	2	3	2	2	3	2	2	2	3	4	4	5	5	6	5	5	4	5	4	5	6	6	5	3.9	6.4
	5.7	6.2	6.6	6.3	6.3	6.3	5.6	5.7	5.4	6.4	8.6	8.7	7.5	7.8	7.4	7.1	6.9	7.1	6.0	6.5	6.6	6.9	6.9	6.3	Diurnal Average	
	14.6	20.6	20.4	17.9	19.7	23.2	16.0	14.9	14.7	17.7	38.1	30.3	27.4	28.3	23.5	16.6	14.0	16.5	15.9	25.6	26.7	18.3	24.4	15.9	Diurnal Maximum	

C - Calibration D - DAS Failure M - Maintenance N - Not Valid



Pollutant Rose

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Evergreen Park - December 2016



Hourly Averages

External Temperature (ET) - °C
Evergreen Park - December 2016

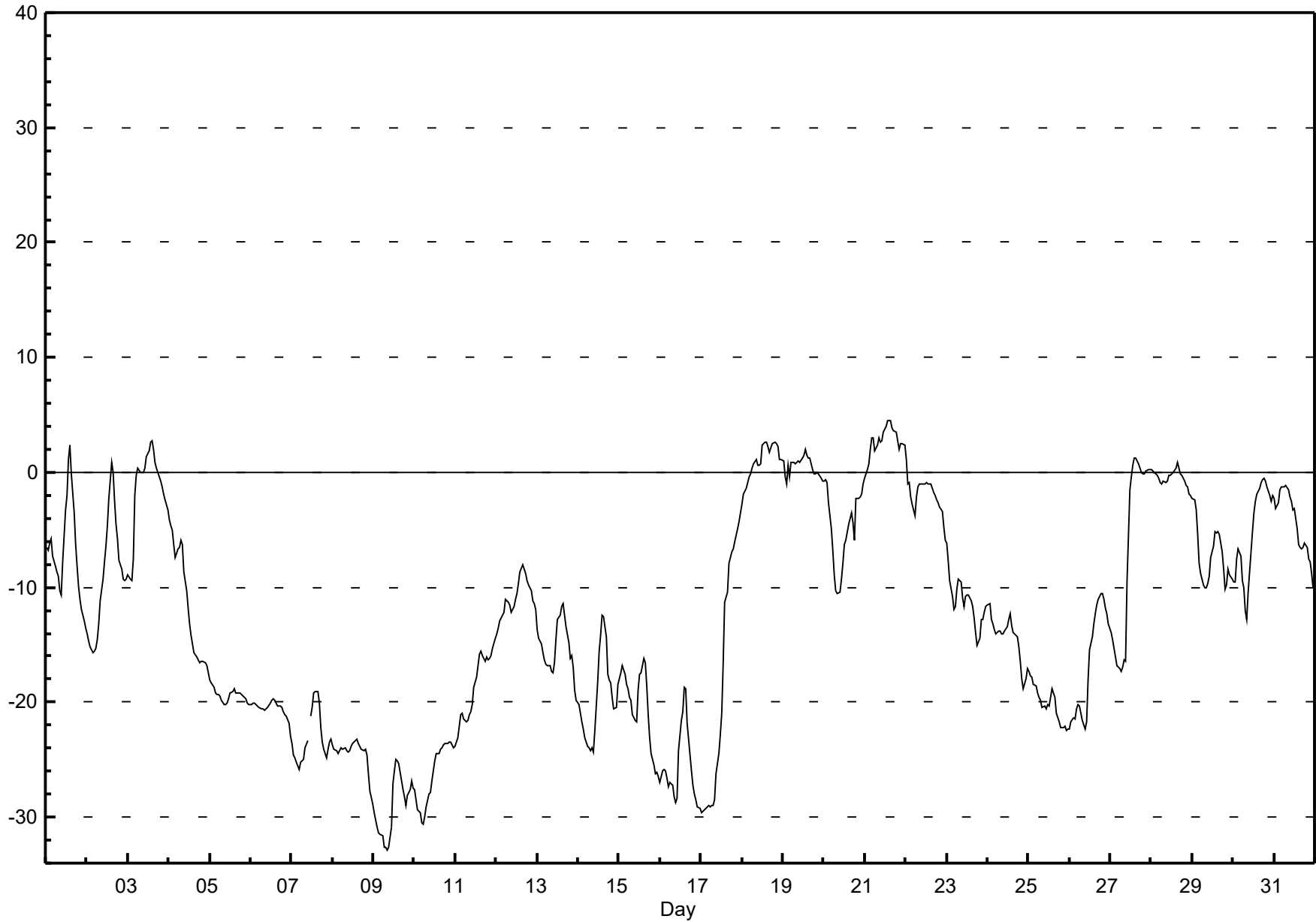
Maximum Value: 4.6 °C on Dec 21 14:00	Maximum Daily Average: 2.7 °C on Dec 21	Hours in Service: 744
Minimum Value: -33 °C on Dec 9 09:00	Minimum Daily Average: -29.1 °C on Dec 9	Hours of Data: 743
Maximum Diurnal Average: -9.7 °C at hour 15	Minimum Diurnal Average: -14.3 °C at hour 10	Hours of Missing Data: 1
Monthly Average: -12.58 °C	Percentiles: P ₁ = -30.9 P ₁₀ = -25.0 Q ₁ = -20.5 Median = -12.8 Q ₃ = -2.7 P ₉₀ = 0.3 P ₉₉ = 3.4	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	-7	-7	-6	-6	-7	-8	-9	-9	-10	-11	-8	-3	-2	1	2	0	-4	-6	-8	-10	-11	-12	-13	-14	-6.9	2.3																							
2-Dec	-14	-15	-15	-16	-16	-15	-15	-13	-11	-9	-8	-6	-5	-2	1	0	-2	-5	-6	-8	-8	-9	-9	-9	-9.0	0.9																							
3-Dec	-9	-9	-9	-8	-2	0	0	0	0	0	0	1	2	3	3	2	1	0	0	-1	-1	-2	-2	-3	-1.5	2.8																							
4-Dec	-4	-5	-5	-6	-7	-7	-6	-6	-6	-9	-10	-12	-13	-14	-15	-16	-16	-16	-17	-16	-16	-17	-17	-17	-11.4	-4.1																							
5-Dec	-18	-18	-19	-19	-19	-19	-19	-20	-20	-20	-20	-20	-19	-19	-19	-19	-19	-19	-19	-19	-20	-20	-20	-20	-19.4	-18.1																							
6-Dec	-20	-20	-20	-20	-20	-20	-21	-21	-21	-21	-20	-20	-20	-20	-20	-20	-20	-20	-20	-21	-21	-21	-22	-23	-20.5	-19.7																							
7-Dec	-24	-25	-25	-25	-26	-25	-25	-25	-24	-23	D	-21	-20	-19	-19	-19	-20	-22	-24	-24	-25	-24	-23	-23	-23.1	-19.1																							
8-Dec	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-24	-23	-23	-23	-24	-24	-24	-24	-24	-25	-26	-28	-29	-24.5	-23.2																							
9-Dec	-30	-30	-31	-31	-32	-32	-33	-33	-33	-33	-31	-27	-26	-25	-25	-25	-27	-28	-28	-29	-28	-28	-27	-27	-29.1	-25.0																							
10-Dec	-28	-28	-29	-30	-30	-31	-30	-29	-28	-28	-27	-26	-25	-25	-24	-24	-24	-24	-24	-24	-23	-23	-24	-24	-26.3	-23.5																							
11-Dec	-24	-23	-22	-21	-21	-21	-22	-22	-21	-21	-20	-19	-18	-17	-16	-16	-16	-16	-16	-16	-16	-16	-15	-14	-18.7	-14.5																							
12-Dec	-14	-14	-13	-13	-12	-11	-11	-11	-12	-12	-12	-11	-11	-10	-9	-8	-8	-9	-9	-10	-10	-11	-11	-12	-11.0	-8.1																							
13-Dec	-14	-14	-15	-16	-16	-17	-17	-17	-17	-17	-17	-15	-13	-12	-12	-11	-12	-13	-15	-16	-16	-17	-19	-20	-15.3	-11.5																							
14-Dec	-20	-21	-22	-22	-23	-24	-24	-24	-24	-24	-22	-18	-16	-14	-12	-13	-14	-18	-18	-18	-20	-21	-20	-18	-19.6	-12.5																							
15-Dec	-18	-17	-17	-18	-18	-19	-20	-20	-21	-22	-22	-19	-18	-17	-16	-17	-19	-21	-23	-24	-25	-26	-26	-26	-20.4	-16.2																							
16-Dec	-27	-26	-26	-26	-27	-27	-27	-27	-28	-29	-28	-24	-22	-21	-19	-19	-22	-25	-26	-27	-28	-28	-29	-29	-25.7	-18.7																							
17-Dec	-30	-29	-29	-29	-29	-29	-29	-29	-28	-26	-25	-23	-21	-17	-11	-10	-8	-7	-7	-7	-6	-5	-4	-4	-18.4	-3.6																							
18-Dec	-3	-2	-1	-1	0	0	0	1	1	1	1	1	1	2	3	3	2	2	3	3	3	2	1	1	1.0	2.7																							
19-Dec	1	0	-1	1	0	1	1	1	1	1	1	1	1	2	2	1	1	0	0	0	0	0	-1	-1	0.5	2.0																							
20-Dec	-1	-1	-1	-3	-5	-7	-9	-10	-10	-10	-9	-8	-6	-6	-5	-4	-4	-4	-6	-2	-2	-2	-2	-1	-4.9	-0.7																							
21-Dec	0	0	1	2	3	3	2	2	3	3	3	3	4	5	4	4	4	4	3	3	2	2	3	2	2.7	4.6																							
22-Dec	1	-1	-1	-2	-3	-4	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-2	-3	-3	-3	-5	-6	-2.0	1.1																							
23-Dec	-6	-8	-9	-11	-12	-12	-10	-9	-10	-11	-12	-11	-11	-11	-11	-12	-13	-14	-15	-14	-13	-13	-12	-12	-11.2	-6.1																							
24-Dec	-12	-11	-13	-13	-14	-14	-14	-14	-14	-14	-14	-13	-13	-12	-13	-14	-14	-14	-15	-16	-18	-19	-18	-17	-14.3	-11.5																							
25-Dec	-17	-18	-18	-18	-19	-19	-20	-20	-20	-20	-21	-20	-20	-20	-19	-20	-20	-21	-22	-22	-22	-22	-22	-22	-20.1	-17.3																							
26-Dec	-22	-22	-21	-21	-21	-20	-20	-22	-22	-22	-22	-18	-15	-14	-13	-12	-12	-11	-11	-11	-11	-12	-12	-13	-16.7	-10.5																							
27-Dec	-14	-15	-15	-16	-17	-17	-17	-17	-16	-16	-10	-2	0	1	1	1	1	0	0	0	0	0	0	0	-7.0	1.3																							
28-Dec	0	0	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	1	0	0	0	-1	-1	-1	-1	-2	-2	-0.5	0.8																							
29-Dec	-2	-2	-3	-5	-8	-9	-10	-10	-10	-10	-9	-7	-6	-5	-5	-5	-7	-8	-10	-10	-8	-9	-9	-9	-7.3	-2.3																							
30-Dec	-10	-10	-8	-7	-7	-9	-10	-12	-13	-10	-7	-5	-3	-3	-2	-1	-1	-1	-1	-1	-1	-2	-2	-2	-5.3	-0.5																							
31-Dec	-2	-3	-3	-1	-1	-1	-1	-1	-1	-2	-2	-3	-3	-5	-6	-7	-7	-7	-6	-7	-8	-8	-9	-10	-4.4	-1.2																							
																								-13.2	-13.5	-13.6	-13.8	-14.0	-14.2	-14.2	-14.3	-14.3	-14.3	-13.2	-11.9	-11.0	-10.3	-9.7	-9.8	-10.5	-11.2	-11.8	-12.2	-12.4	-12.6	-12.9	-13.1	Diurnal Average	
																								1.1	0.3	0.8	2.0	3.1	3.0	1.9	2.4	3.0	2.6	2.7	3.5	4.0	4.6	4.5	4.5	3.9	3.6	3.5	2.8	2.5	2.4	2.5	2.4	Diurnal Maximum	

D - DAS Failure

Hourly Averages

External Temperature (ET) - °C
Evergreen Park - December 2016



Hourly Averages

Relative Humidity (RH) - %

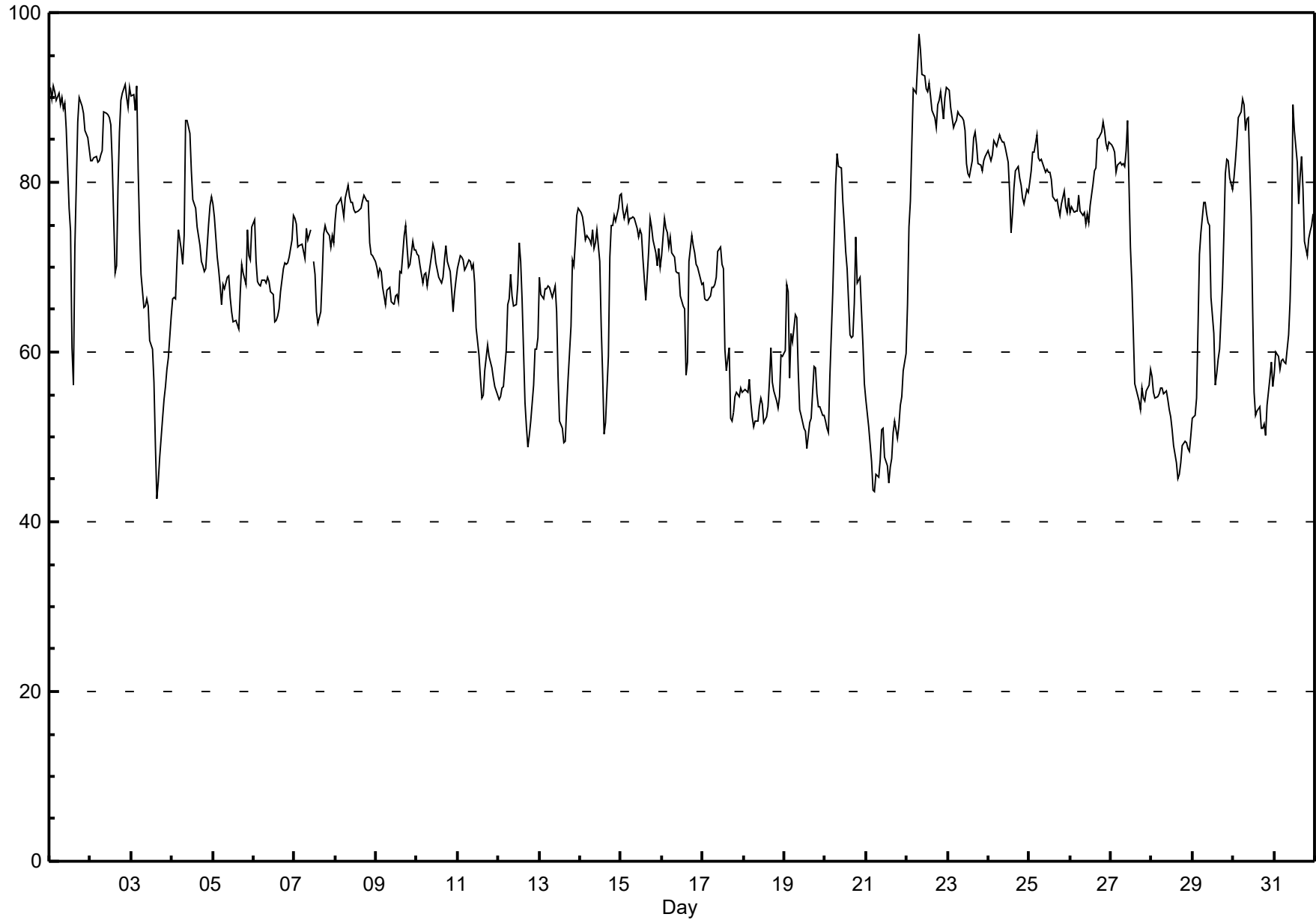
Evergreen Park - December 2016

Maximum Value: 97.4 % on Dec 22 08:00		Maximum Daily Average: 88.4 % on Dec 22		Hours in Service: 744																						
Minimum Value: 43 % on Dec 3 16:00		Minimum Daily Average: 49.7 % on Dec 21		Hours of Data: 743																						
Maximum Diurnal Average: 73.5 % at hour 10		Minimum Diurnal Average: 63.6 % at hour 15		Hours of Missing Data: 1																						
Monthly Average: 70.02 %		Percentiles: P ₁ = 45.5 P ₁₀ = 52.8 Q ₁ = 60.3 Median = 70.7 Q ₃ = 78.2 P ₉₀ = 86.1 P ₉₉ = 91.2		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	91	90	91	91	90	91	89	90	89	89	86	77	74	60	56	72	87	90	90	89	88	86	85	84	84.4	91.3
2-Dec	83	83	83	83	82	82	83	84	88	88	88	88	87	82	69	70	79	86	90	91	91	90	89	91	84.6	91.5
3-Dec	90	90	89	91	82	74	69	65	65	66	65	61	60	56	49	43	45	48	52	54	56	58	59	64	64.7	91.4
4-Dec	66	66	66	71	74	72	70	74	87	87	86	81	78	77	77	75	73	71	70	69	70	75	77	78	74.7	87.4
5-Dec	77	76	71	70	68	66	68	67	69	69	67	65	64	64	63	63	67	70	69	68	74	71	71	75	68.8	77.4
6-Dec	76	71	68	68	68	68	68	68	69	68	67	67	64	64	64	65	67	70	71	70	70	71	73	76	68.8	76.1
7-Dec	76	75	72	73	73	72	71	74	73	74	D	71	69	65	63	65	69	74	75	74	74	72	74	73	71.8	75.7
8-Dec	76	77	78	78	77	76	78	80	78	78	78	77	76	77	77	77	78	78	78	73	71	71	71	71	76.5	79.6
9-Dec	70	69	70	69	68	66	67	67	68	66	66	67	67	66	69	69	74	75	72	70	70	73	72	72	69.2	74.9
10-Dec	72	71	70	68	69	69	68	69	71	73	72	70	70	69	68	69	71	73	71	69	67	65	67	68	69.6	72.8
11-Dec	70	71	71	71	70	70	71	71	70	70	68	63	60	57	55	55	58	61	60	59	58	57	56	55	63.5	71.4
12-Dec	54	55	56	56	60	66	66	69	67	65	66	68	73	71	66	54	51	49	50	52	56	60	60	62	60.5	72.8
13-Dec	69	67	66	67	68	68	68	66	67	68	65	57	52	51	49	50	54	57	63	71	70	73	76	77	64.1	76.9
14-Dec	76	76	75	73	74	73	73	74	72	73	74	71	63	57	50	52	59	71	75	75	76	75	77	79	70.6	78.5
15-Dec	79	77	76	77	75	76	76	76	76	75	74	74	74	71	66	69	72	76	75	73	72	70	72	70	73.7	78.6
16-Dec	71	76	75	74	72	74	72	71	70	69	69	67	66	65	57	59	71	74	72	72	70	70	69	68	69.7	75.7
17-Dec	68	66	66	66	67	68	68	68	69	72	72	70	70	60	58	60	52	52	53	55	55	55	56	55	62.5	72.4
18-Dec	56	56	55	57	54	52	51	52	52	54	55	54	52	52	54	57	61	56	55	54	53	55	60	59	54.8	60.6
19-Dec	60	68	67	57	62	61	64	64	58	53	53	51	51	49	50	52	52	58	58	55	54	54	53	53	56.5	68.0
20-Dec	52	51	51	57	67	73	80	83	82	82	78	75	72	70	62	62	62	66	74	68	69	65	61	56	67.3	83.5
21-Dec	54	51	49	47	44	44	46	45	47	51	51	48	47	45	46	48	51	52	50	51	54	55	58	60	49.7	59.8
22-Dec	66	75	78	85	91	91	94	97	96	93	92	91	91	92	90	88	88	86	89	90	91	88	90	91	88.4	97.4
23-Dec	91	91	89	87	87	87	88	88	88	87	86	82	81	81	83	85	86	84	82	82	81	83	83	83	85.2	91.0
24-Dec	84	83	83	85	85	84	86	85	85	85	84	82	79	74	76	79	81	82	81	80	78	77	79	79	81.5	85.6
25-Dec	80	81	84	84	86	83	83	83	82	81	82	81	81	80	78	78	78	77	76	77	79	77	76	78	80.2	85.6
26-Dec	76	77	77	77	77	78	77	76	76	75	76	75	77	80	81	82	85	85	86	87	86	85	84	85	80.0	87.1
27-Dec	84	84	84	81	82	82	82	82	82	84	87	72	68	62	56	56	54	53	56	55	54	55	56	58	69.6	87.3
28-Dec	57	55	55	55	55	56	56	55	55	54	53	52	51	49	47	45	46	47	49	50	49	49	48	50	51.6	57.1
29-Dec	52	52	55	63	72	74	78	78	76	75	75	67	62	56	57	59	60	68	74	81	83	82	80	79	69.1	82.8
30-Dec	80	83	85	88	88	90	89	86	87	88	76	65	55	53	53	54	51	51	52	50	54	57	59	56	68.7	89.7
31-Dec	57	60	59	58	59	59	59	59	62	66	73	89	86	82	78	81	83	79	73	71	73	74	75	76	70.5	89.2
		71.4	71.7	71.4	71.8	72.4	72.4	72.8	73.2	73.4	73.5	72.7	70.3	68.3	65.7	63.6	64.2	66.6	68.4	69.0	69.1	69.4	69.3	69.9	70.4	Diurnal Average
		91.2	90.9	91.3	91.4	91.1	90.6	93.9	97.4	95.7	92.7	92.5	91.0	90.7	91.8	90.1	88.4	87.6	90.0	89.6	90.5	91.5	90.1	90.0	91.1	Diurnal Maximum

D - DAS Failure

Hourly Averages

Relative Humidity (RH) - %
Evergreen Park - December 2016





Peace Airshed Zone Association

Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Evergreen Park - December 2016

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	1	1	4	5	3	4	4	4	1	2	2	1	4	1	1	1	1	0	0	0	0	0	0	0	1.3	4.8
Dir	276	243	288	259	329	226	245	232	148	243	244	230	197	211	217	27	50	98	211	255	263	209	254	197	244.9	259.1
2 Spd	1	1	1	2	1	1	1	3	5	4	4	2	2	1	2	7	3	4	1	4	1	1	2	4	1.0	7.0
Dir	38	26	23	8	45	359	53	54	42	55	55	62	45	43	258	275	224	195	224	49	53	40	150	57	40.4	275.0
3 Spd	2	4	0	3	8	22	22	21	22	29	28	30	32	34	37	41	31	37	31	28	24	23	22	19	22.4	41.2
Dir	83	180	105	337	247	233	235	225	227	230	233	236	233	239	239	245	245	240	237	241	247	244	237	238	237.5	244.8
4 Spd	15	14	18	12	14	19	15	14	25	32	29	31	30	31	30	27	25	21	21	24	25	26	28	23	20.1	31.9
Dir	233	229	233	247	242	242	255	264	309	320	319	313	313	315	310	314	313	305	297	309	311	312	313	303	298.1	319.7
5 Spd	22	15	19	17	19	23	22	20	17	19	18	17	21	19	22	22	15	10	21	22	12	15	13	12	18.0	22.8
Dir	309	302	301	298	305	307	311	308	303	298	298	292	302	301	307	302	309	301	311	322	293	307	297	293	304.0	306.7
6 Spd	10	15	18	16	15	13	15	15	13	16	15	14	16	15	15	12	9	7	7	11	10	9	7	5	12.2	18.3
Dir	270	298	307	303	295	289	289	294	294	294	295	273	289	289	276	264	281	273	274	295	284	296	286	282	288.7	307.4
7 Spd	4	4	2	0	2	0	0	3	1	1	D	2	5	4	6	3	2	3	3	1	0	2	2	1	0.9	6.2
Dir	288	279	288	180	195	284	23	205	92	302	D	322	237	322	354	34	58	42	42	202	245	16	25	59	329.7	353.9
8 Spd	5	4	6	4	2	2	4	4	4	4	4	4	6	6	8	9	10	7	6	7	3	3	1	0	4.2	9.9
Dir	56	72	53	67	80	84	54	91	80	89	69	88	61	36	36	35	50	47	43	34	33	353	74	208	55.2	35.3
9 Spd	1	1	3	1	0	1	3	2	1	0	0	1	2	3	5	6	7	6	3	4	4	3	4	6	1.7	6.9
Dir	170	200	185	184	170	36	41	197	201	76	51	230	233	251	343	299	286	292	255	210	292	279	229	218	259.9	285.7
10 Spd	7	5	2	1	3	4	1	0	4	5	7	10	10	14	16	14	8	7	10	12	13	14	14	13	7.0	16.1
Dir	227	218	193	134	185	199	210	199	266	292	300	300	309	304	316	317	303	293	286	283	292	284	285	286	288.9	315.9
11 Spd	11	13	17	19	16	14	11	13	19	16	18	22	28	28	26	22	22	18	26	26	26	25	25	20	19.8	27.9
Dir	239	238	255	269	269	261	258	258	250	250	252	252	253	255	255	253	244	243	242	250	251	247	250	256	251.8	253.2
12 Spd	20	19	20	22	24	27	22	17	22	20	29	22	23	26	23	23	23	23	21	21	18	20	20	19	21.1	28.9
Dir	256	262	247	258	278	293	289	259	272	279	300	280	257	263	278	289	284	292	286	290	281	257	265	255	274.7	300.4
13 Spd	21	21	15	13	15	14	17	17	17	12	17	20	23	19	19	15	12	10	4	1	3	2	3	4	12.6	22.8
Dir	259	259	273	280	271	265	261	268	270	254	253	257	262	266	256	263	255	252	214	272	231	182	184	204	260.0	262.0
14 Spd	3	3	2	1	2	1	1	5	2	4	4	9	13	11	9	6	5	3	8	4	4	2	3	4	3.9	13.0
Dir	200	204	200	202	213	38	206	202	217	204	247	238	253	243	269	245	239	289	317	258	272	236	242	253	245.9	253.0
15 Spd	3	1	1	1	1	0	0	0	0	1	2	4	8	10	9	8	6	1	2	1	3	0	4	2	2.1	9.6
Dir	263	246	275	286	195	192	12	68	217	208	198	293	317	305	257	269	250	265	204	209	198	214	220	217	263.3	305.3
16 Spd	4	6	9	9	5	10	5	6	3	4	3	0	5	6	6	4	0	1	0	0	1	1	0	1	3.5	10.5
Dir	215	243	235	252	233	222	238	229	263	218	181	180	212	211	272	222	175	185	359	202	219	201	332	199	230.1	222.2
17 Spd	1	0	2	2	2	1	2	2	3	2	4	4	6	1	5	4	19	16	22	20	23	38	44	45	10.7	44.7
Dir	202	202	206	201	209	196	208	194	200	224	219	212	199	213	301	262	236	264	234	256	255	246	245	244	243.1	243.6
18 Spd	43	45	41	46	50	47	58	55	44	18	15	16	35	35	35	31	25	25	32	24	21	19	6	11	31.7	58.5
Dir	244	241	240	247	248	248	246	245	244	225	231	242	243	247	261	256	247	232	240	232	221	212	186	201	242.0	245.8
19 Spd	6	2	10	16	14	38	42	41	49	50	49	37	40	42	38	40	35	31	34	38	40	35	25	28	31.9	49.9
Dir	187	127	207	217	240	225	230	229	239	243	246	254	250	251	254	246	255	246	242	240	243	245	236	230	241.0	242.8
20 Spd	29	31	23	2	1	2	0	1	1	1	1	2	1	5	4	6	4	3	5	24	24	25	29	43	10.5	43.4
Dir	235	235	238	232	22	44	118	133	166	36	34	347	219	248	252	231	246	217	238	234	232	238	235	239	236.5	238.6
21 Spd	34	21	19	26	33	29	23	34	39	31	27	31	33	41	41	43	47	39	29	18	17	23	25	23	30.2	47.2
Dir	235	230	223	229	232	223	210	224	231	223	225	224	220	224	225	225	223	222	220	220	214	224	227	233	224.7	223.2
22 Spd	9	7	6	3	1	5	6	7	13	13	6	8	6	5	4	2	6	4	6	4	6	3	1	2	4.1	12.6
Dir	272	247	265	347	259	189	236	254	236	223	208	215	260	259	293	326	13	302	251	298	324	335	287	212	256.1	235.5

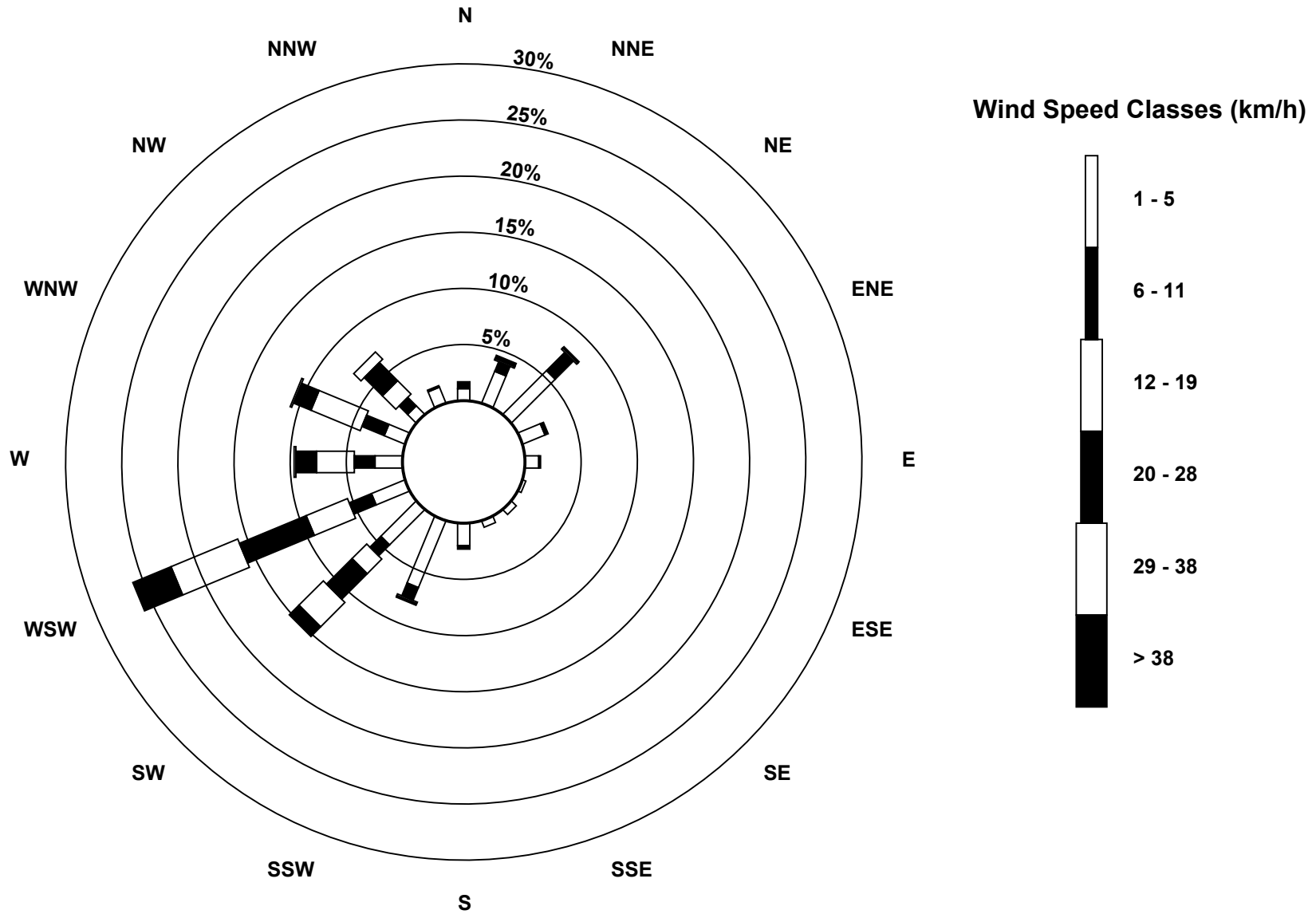
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Evergreen Park - December 2016

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	2	2	2	2	3	3	3	4	8	11	7	6	9	12	10	8	6	0	3	1	1	2	1	3	3.9	11.6
Dir	18	339	346	31	38	28	41	42	52	47	46	65	56	45	45	39	35	222	193	205	231	360	35	36	42.8	44.8
24 Spd	3	1	1	4	7	7	7	7	7	5	5	4	4	3	3	2	2	2	1	0	1	0	0	0	3.2	7.2
Dir	29	22	59	39	26	25	32	35	26	30	30	46	61	24	3	24	61	54	82	65	24	48	38	126	33.7	31.9
25 Spd	2	1	1	1	1	2	1	0	3	2	1	3	3	2	4	2	1	1	1	2	3	2	1	2	0.4	4.4
Dir	29	26	56	60	119	46	65	157	166	128	178	203	208	330	268	269	195	69	20	310	276	230	231	244	243.3	268.0
26 Spd	1	1	1	1	1	2	1	1	0	0	1	1	1	2	1	1	1	0	1	0	1	1	1	1	0.2	2.4
Dir	177	186	173	163	236	310	158	180	111	105	217	6	351	307	329	229	353	322	77	246	26	36	223	268	280.6	310.1
27 Spd	4	1	2	0	3	3	1	2	1	1	15	22	30	35	33	27	33	34	30	33	32	35	42	39	17.8	42.2
Dir	189	133	29	114	38	42	117	78	94	81	226	229	231	229	230	229	237	236	233	238	243	244	248	247	236.1	247.6
28 Spd	39	38	33	37	36	31	32	36	34	35	37	37	26	27	31	36	36	33	42	36	28	32	25	29	33.6	42.3
Dir	246	244	244	239	241	237	236	244	246	242	245	242	240	249	247	245	246	246	245	240	244	246	239	239	243.0	244.8
29 Spd	24	23	17	3	2	1	1	0	3	1	4	3	3	1	4	2	1	0	0	4	4	4	3	4	2.4	24.4
Dir	240	243	239	51	55	24	37	39	34	27	29	68	47	69	4	18	188	315	266	222	272	275	324	237	256.0	239.6
30 Spd	4	6	13	12	11	8	8	3	4	12	26	28	33	32	22	14	18	23	27	32	23	13	13	16	15.3	32.9
Dir	227	212	240	239	224	199	203	225	330	237	236	241	240	242	254	254	261	267	259	256	270	305	302	282	251.5	239.8
31 Spd	13	10	15	24	22	20	21	23	12	8	12	10	8	23	25	20	11	11	12	7	8	12	15	8	8.8	24.6
Dir	289	307	286	253	256	257	247	252	271	289	312	315	4	33	35	27	16	358	12	356	336	316	322	281	309.4	35.1
Spd	9.3	8.7	8.5	7.8	8.2	8.8	8.8	9.4	9.1	8.2	9.6	10.1	11.5	11.7	11.6	10.9	10.4	9.9	10.6	10.8	10.5	10.6	10.3	11.0	Diurnal Average	
Dir	248.6	247.8	251.2	254.7	255.3	250.0	249.3	247.0	255.6	255.1	259.3	255.9	254.8	261.1	268.0	264.1	258.5	255.7	253.5	256.2	257.5	256.8	255.4	248.9	Diurnal Maximum	
Spd	43.3	44.9	40.6	45.6	49.8	46.8	58.5	54.8	49.3	49.9	49.5	37.5	40.5	42.2	41.3	43.3	47.2	39.2	42.3	38.5	39.8	38.5	43.6	44.7	Diurnal Maximum	
Dir	244.1	241.1	240.0	247.4	248.2	247.6	245.8	245.3	238.6	242.8	246.2	242.4	250.2	250.7	224.7	224.6	223.2	222.4	244.8	239.6	243.1	246.1	245.3	243.6	Diurnal Maximum	
Maximum Speed Value: 58 km/h on Dec 18 07:00																		Minimum Speed Value: 0 km/h on Dec 7 07:00						Hours in Service: 744		
Maximum Daily Speed Average: 33.6 km/h on Dec 28																		Minimum Daily Speed Average: 0.2 km/h on Dec 26						Hours of Data: 743		
Maximum Diurnal Speed Average: 11.7 km/h at hour 14																		Minimum Diurnal Speed Average: 7.8 km/h at hour 4						Hours of Missing Data: 1		
Monthly Average Velocity: 9.81 km/h 255.30 deg																		Speed Percentiles: P ₁ = 0.2 P ₁₀ = 0.8 Q ₁ = 2.2 Median = 6.9 Q ₃ = 21.4 P ₉₀ = 31.8 P ₉₉ = 45.3						Percent Operational Time: 99.9		
All monthly, daily, and diurnal averages have been calculated using vector methods																										
D - DAS Failure																										
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	22	5	2	0	0	0	29																			
NorthEast	77	23	1	3	0	0	104																			
East	24	1	0	0	0	0	25																			
SouthEast	13	0	0	0	0	0	13																			
South	54	5	1	0	0	0	60																			
SouthWest	75	24	26	41	57	29	252																			
West	39	26	47	43	5	6	166																			
NorthWest	21	17	27	22	7	0	94																			
Total	325	101	104	109	69	35	743																			

Wind Rose

Wind Speed (WS) (km/h)
Evergreen Park - December 2016



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Evergreen Park - December 2016

Maximum Speed: 59 km/h on Dec 18 07:00	Maximum Daily Speed Average: 33.9 km/h on Dec 28	Hours in Service: 744
Minimum Speed: 0 km/h on Dec 17 02:00	Minimum Daily Speed Average: 1.5 km/h on Dec 26	Hours of Data: 743
Maximum Diurnal Speed Average: 16.7 km/h at hour 14	Minimum Diurnal Speed Average: 10.6 km/h at hour 4	Hours of Missing Data: 1
Monthly Average Speed: 12.95 km/h	Percentiles: P ₁ = 0.5 P ₁₀ = 1.3 Q ₁ = 2.8 Median = 7.4 Q ₃ = 21.9 P ₉₀ = 32.2 P ₉₉ = 46.0	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	2	2	4	6	4	5	4	4	4	4	3	1	4	2	2	1	1	1	1	1	2	1	1	0	2.4	5.7
2-Dec	1	2	1	3	2	2	1	3	5	4	4	2	3	3	4	8	4	4	2	5	3	3	3	6	3.2	8.1
3-Dec	5	5	3	12	8	22	22	21	22	29	28	30	32	34	37	42	31	37	32	28	25	23	22	19	23.8	41.6
4-Dec	15	14	18	13	14	19	15	14	26	32	30	32	31	32	31	28	26	22	22	25	25	26	28	24	23.5	32.2
5-Dec	23	15	20	17	19	24	23	21	18	20	19	18	22	20	23	23	16	11	23	22	13	16	14	12	18.8	23.6
6-Dec	11	15	19	17	16	14	15	15	14	16	16	15	18	16	16	12	9	7	8	11	10	10	7	5	13.1	18.9
7-Dec	5	4	2	1	2	1	1	3	1	1	D	2	5	6	7	4	2	3	3	1	1	2	2	1	2.6	6.7
8-Dec	5	4	6	5	3	3	5	5	5	4	4	7	7	9	9	10	8	6	7	4	3	2	0	2	5.1	10.2
9-Dec	2	2	5	2	1	1	3	2	1	1	1	1	2	5	6	7	7	6	3	4	4	3	4	6	3.2	7.1
10-Dec	7	6	3	1	3	4	1	1	4	5	8	11	11	14	17	15	9	7	11	13	14	14	15	14	8.6	16.8
11-Dec	12	13	17	19	16	14	11	14	19	16	18	22	28	28	26	22	22	18	26	26	27	25	26	20	20.2	28.1
12-Dec	20	19	20	22	25	27	23	18	23	20	30	23	23	26	24	24	24	24	22	22	19	20	21	20	22.5	29.8
13-Dec	21	21	16	14	15	15	17	18	17	12	17	20	23	20	19	16	12	10	4	2	4	2	3	4	13.4	23.2
14-Dec	3	3	2	1	3	1	1	5	2	4	5	9	13	11	10	6	5	3	8	4	4	2	3	4	4.8	13.4
15-Dec	3	1	1	1	1	1	1	2	1	1	2	4	8	10	9	8	6	2	2	1	3	0	4	2	3.1	10.3
16-Dec	4	6	9	9	6	11	5	6	3	4	3	1	5	7	6	4	1	2	1	1	1	1	1	1	4.2	10.6
17-Dec	2	0	2	2	2	1	2	2	3	2	5	5	6	2	6	7	19	17	22	22	24	39	44	45	11.6	45.1
18-Dec	44	45	41	46	50	47	59	55	44	19	15	16	35	36	35	32	25	26	32	24	21	20	6	11	32.6	58.8
19-Dec	6	3	10	16	14	38	42	41	49	50	50	37	41	43	39	40	36	31	34	39	40	35	25	28	32.9	50.3
20-Dec	29	31	24	5	2	2	1	2	2	2	2	2	2	5	4	6	4	3	6	24	24	26	30	44	11.8	43.5
21-Dec	34	21	19	26	33	30	23	34	40	31	27	31	33	42	42	44	48	39	29	19	17	23	25	23	30.6	47.7
22-Dec	10	7	7	3	1	6	8	7	13	13	6	9	7	6	5	3	6	5	6	5	7	3	2	3	6.1	12.8
23-Dec	2	3	2	2	3	3	3	4	8	11	7	6	9	12	10	8	6	0	3	1	1	2	1	3	4.7	12.0
24-Dec	3	1	1	5	7	7	8	7	7	6	5	4	5	4	4	3	2	3	1	1	1	1	1	1	3.6	7.5
25-Dec	2	2	2	2	2	2	1	1	3	2	1	3	3	2	5	2	1	1	1	2	4	2	2	3	2.1	4.8
26-Dec	1	1	1	1	1	3	2	1	2	1	1	1	2	3	2	2	2	1	1	2	2	2	1	1	1.5	3.0
27-Dec	4	5	3	1	3	4	4	4	3	4	15	22	30	35	33	27	34	34	30	33	33	35	43	39	20.0	42.5
28-Dec	39	38	34	37	36	31	32	37	34	35	38	38	27	27	31	37	36	33	43	36	29	32	25	29	33.9	42.6
29-Dec	25	24	17	3	3	2	2	1	3	1	4	4	4	3	4	5	2	2	2	4	5	4	3	5	5.4	24.5
30-Dec	4	6	13	12	11	8	8	4	4	13	26	28	33	33	22	14	18	24	27	32	24	14	13	16	16.9	33.2
31-Dec	13	10	16	25	22	21	21	23	13	8	13	10	9	23	25	20	11	11	12	8	8	12	15	9	15.0	25.0
	11.5	10.7	10.8	10.6	10.7	11.8	11.8	12.2	12.7	12.0	13.4	13.4	15.5	16.7	16.5	15.5	14.0	12.7	13.6	13.6	12.7	12.9	12.6	12.9	Diurnal Average	
	43.5	45.1	41.0	45.9	50.1	47.2	58.8	55.2	49.5	50.3	49.9	37.8	40.9	42.6	41.7	43.6	47.7	39.4	42.6	38.7	40.0	38.7	43.9	45.1	Diurnal Maximum	

D - DAS Failure
 All monthly, daily, and diurnal averages have been calculated using scalar methods

Hourly Standard Deviations

Wind Direction (WD) - deg
Evergreen Park - December 2016

Maximum Value: 99.3 deg on Dec 7 07:00	Hours in Service: 744
Minimum Value: 4.3 deg on Dec 4 00:00	Hours of Data: 743
Percentiles: P ₁ = 5.2 P ₁₀ = 6.8 Q ₁ = 10.5 Median = 18.9 Q ₃ = 43.9 P ₉₀ = 76.1 P ₉₉ = 93.7	Hours of Missing Data: 1
	Hours of Calibration: 0
	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	79	74	30	38	39	44	26	42	79	77	59	32	15	34	41	54	33	89	87	75	99	94	84	84	99.0
2-Dec	72	81	71	53	82	49	59	20	13	31	20	51	65	75	83	34	52	48	86	58	89	82	55	68	89.2
3-Dec	74	69	84	72	17	8	6	6	9	6	7	8	7	7	7	8	9	7	7	7	9	7	5	4	84.1
4-Dec	5	5	6	11	7	5	17	11	22	8	11	13	12	14	13	13	13	15	15	14	14	14	13	15	22.1
5-Dec	15	17	17	13	15	16	15	14	15	16	16	17	18	18	16	14	15	19	19	10	19	17	14	17	19.5
6-Dec	15	16	15	18	18	16	15	15	16	17	20	21	23	24	23	14	15	16	22	20	16	21	17	21	24.2
7-Dec	22	20	63	91	48	97	99	32	35	74	D	56	23	48	26	32	15	8	6	82	83	44	19	36	99.3
8-Dec	20	40	22	29	40	39	21	37	31	34	34	34	40	21	17	22	21	27	13	22	26	45	79	75	78.9
9-Dec	52	87	64	84	84	71	40	53	39	79	94	37	40	42	30	29	14	14	31	11	32	34	23	10	94.3
10-Dec	8	12	35	35	11	11	48	94	35	17	24	22	23	17	17	19	18	16	15	17	18	17	15	26	94.0
11-Dec	12	10	14	11	12	9	19	17	9	8	8	9	7	8	9	9	6	7	7	8	9	8	8	14	19.5
12-Dec	13	16	8	12	14	12	14	18	17	16	15	17	11	11	15	15	14	13	13	15	15	13	11	11	18.0
13-Dec	8	9	21	15	15	14	10	13	11	11	7	8	10	11	8	11	10	11	13	91	52	23	19	19	91.2
14-Dec	30	24	23	65	61	75	31	10	34	26	47	17	13	10	24	18	14	34	11	27	30	25	21	21	75.1
15-Dec	34	44	58	91	52	69	79	83	93	67	46	44	21	23	15	23	20	51	41	65	15	87	41	48	93.4
16-Dec	22	9	11	17	35	11	11	21	32	17	30	91	59	33	21	56	92	90	72	93	40	83	90	56	93.0
17-Dec	37	98	33	45	59	46	44	38	25	54	12	21	9	74	42	66	15	25	10	26	11	7	6	7	98.3
18-Dec	6	6	7	7	7	7	6	7	8	11	18	29	7	7	10	10	8	7	8	10	9	9	12	8	29.3
19-Dec	10	69	12	9	11	7	7	6	5	7	7	10	8	9	10	7	10	8	5	6	6	7	7	6	69.2
20-Dec	6	6	6	85	82	49	88	86	80	69	88	51	77	22	21	11	28	54	62	6	11	9	7	5	88.1
21-Dec	5	6	8	9	8	14	8	6	7	6	7	7	8	8	8	7	8	6	6	6	5	7	7	7	13.6
22-Dec	28	25	23	19	59	19	45	22	11	12	25	15	33	22	30	43	13	38	17	33	16	23	62	77	76.8
23-Dec	56	54	36	65	21	20	35	26	15	14	18	19	18	17	17	17	19	93	42	75	53	27	49	16	93.1
24-Dec	17	47	72	15	16	21	19	15	15	20	21	36	29	47	33	22	30	28	39	56	30	80	98	72	97.7
25-Dec	38	30	27	50	54	58	42	83	24	31	44	18	35	32	26	54	71	45	24	44	26	34	46	47	83.4
26-Dec	37	73	65	76	67	60	64	87	84	84	92	91	67	71	80	76	60	67	92	90	74	38	84	78	92.2
27-Dec	38	86	58	93	55	63	73	71	65	82	8	6	5	5	6	8	10	8	7	5	7	7	7	6	92.7
28-Dec	6	6	6	5	6	5	5	7	6	7	7	7	9	7	6	7	7	6	7	5	8	8	6	6	8.6
29-Dec	5	7	13	48	68	82	77	94	34	41	39	80	28	64	32	68	89	83	82	42	36	39	42	33	93.8
30-Dec	45	21	9	12	10	12	12	55	33	15	5	6	7	6	10	12	11	11	10	10	19	17	21	15	54.9
31-Dec	14	13	16	12	11	15	8	8	24	18	24	12	26	13	11	14	12	19	18	23	18	16	8	27	27.4
	78.9	98.3	84.1	92.7	84.1	97.4	99.3	94.0	93.4	83.8	94.3	91.4	76.7	75.1	83.5	76.4	91.6	93.1	92.2	93.0	99.0	93.9	97.7	84.3	

D - DAS Failure

PAZA

Smoky Heights Station

Monthly Summary Tables, Graphs and
Roses

Hourly Averages

Sulphur Dioxide (SO₂) - ppb Smoky Heights - December 2016

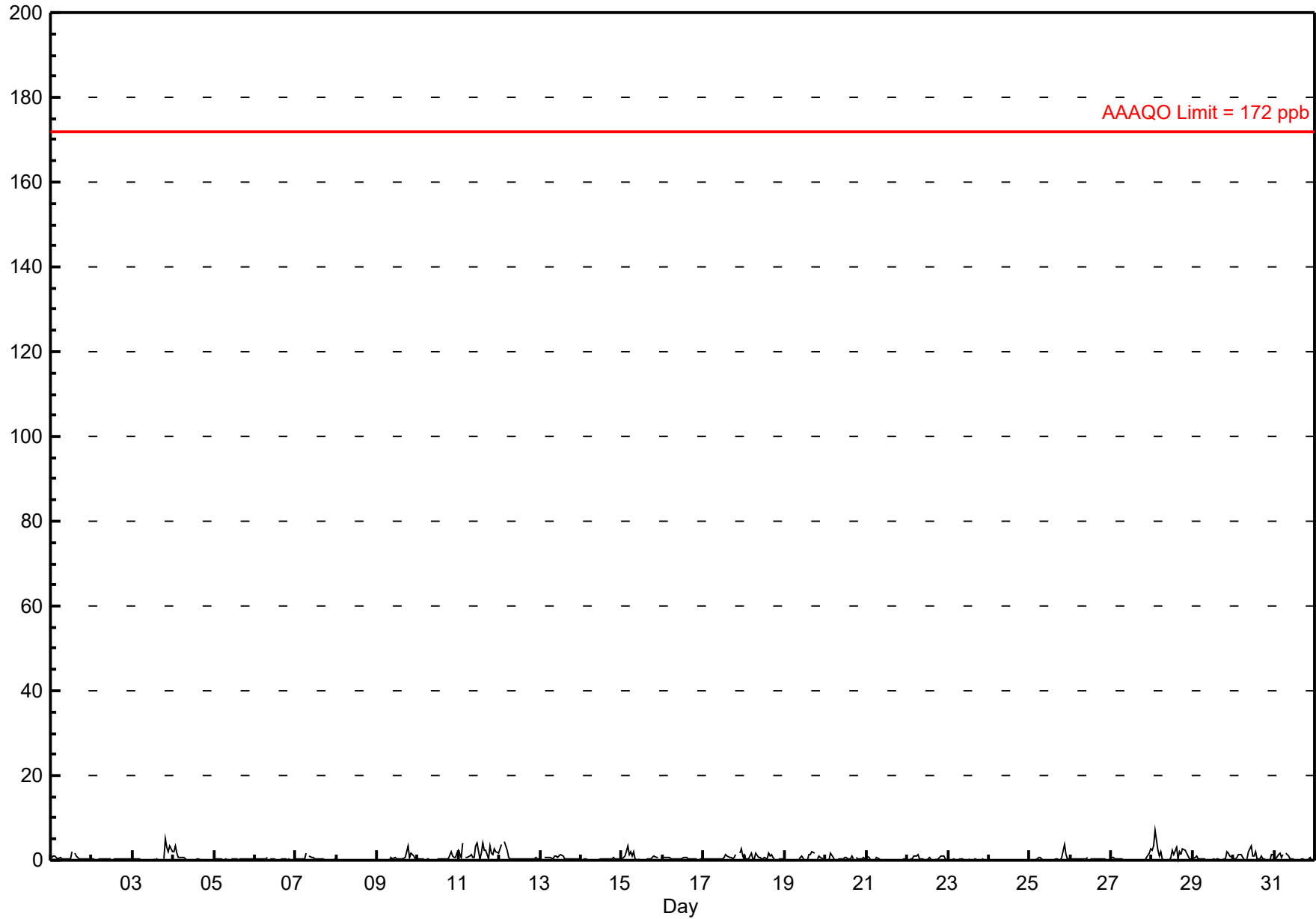
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 7.0 ppb on Dec 28 03:00	Maximum Daily Average: 1.9 ppb on Dec 11		Hours of Data:	707
Minimum Value: 0 ppb on Dec 8 05:00	Minimum Daily Average: 0.0 ppb on Dec 8		Hours of Missing Data:	37
Maximum Diurnal Average: 0.8 ppb at hour 3	Minimum Diurnal Average: 0.3 ppb at hour 9		Hours of Calibration:	35
Monthly Average: 0.55 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.6 P ₉₀ = 1.4 P ₉₉ = 3.5		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	1	1	0	1	0	0	0	0	0	0	2	A	2	1	0	0	0	0	0	0	0	0	0	0.6	2.1
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	N	N	0	5	3	2	3	2	0.9	5.0	
4-Dec	2	3	2	1	1	1	1	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	3.3	
5-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	0.3	
6-Dec	0	0	0	0	0	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6	
7-Dec	0	0	0	0	0	0	2	A	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.7	
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1	
9-Dec	0	0	0	0	0	0	A	0	0	1	0	1	0	0	0	0	1	2	3	1	2	1	0	0	0.6	3.4	
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1	2	0.5	2.0	
11-Dec	2	1	4	A	1	1	1	1	1	1	3	4	0	2	4	2	2	0	3	2	1	3	2	2	1.9	4.2	
12-Dec	3	4	A	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.9	4.4	
13-Dec	1	A	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0.6	1.2	
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	A	0.2	0.6	
15-Dec	0	1	1	3	1	2	1	2	0	0	0	C	C	C	0	0	0	0	1	1	1	1	A	1	0.9	3.4	
16-Dec	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	A	0	0	0.4	0.8	
17-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	A	2	3	1	0.7	2.7	
18-Dec	1	0	0	1	2	0	0	2	1	1	0	1	0	2	1	1	1	1	0	A	0	0	0	0	0.7	1.8	
19-Dec	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2	2	A	0	1	1	0	0	0.5	1.9	
20-Dec	0	0	0	2	1	0	0	0	0	0	0	1	1	0	0	1	0	A	1	0	0	0	1	0	0.4	1.6	
21-Dec	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.2	1.0	
22-Dec	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	A	0	0	0	1	1	1	0	0	0.5	1.3	
23-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	0.2	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.0	0.2	
25-Dec	0	0	0	0	0	1	1	0	0	0	0	0	A	0	0	0	0	0	0	1	4	1	0	0	0.4	3.7	
26-Dec	0	0	0	0	0	0	0	0	0	0	1	A	0	1	1	0	0	0	0	0	0	0	0	0	0.3	0.5	
27-Dec	1	1	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	2	3	0.4	2.7	
28-Dec	2	3	7	2	1	2	0	0	0	0	A	0	1	2	1	3	1	2	2	3	2	2	1	0	0	1.7	7.0
29-Dec	0	1	1	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	2	2	1	1	0.4	2.1	
30-Dec	0	0	1	1	2	1	0	A	0	2	3	1	1	2	0	0	1	0	0	0	0	0	1	2	0.9	3.4	
31-Dec	1	0	1	2	1	1	A	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.6	1.7	
	0.7	0.7	0.8	0.8	0.6	0.5	0.4	0.4	0.3	0.4	0.5	0.4	0.5	0.5	0.6	0.4	0.5	0.4	0.5	0.7	0.7	0.7	0.6	0.6		Diurnal Average	
	2.6	3.6	7.0	4.4	2.3	2.2	1.7	1.9	1.2	2.1	3.4	4.1	2.3	2.0	4.0	2.4	2.5	1.9	3.4	5.0	3.7	2.7	3.3	2.7		Diurnal Maximum	

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 Averages

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - December 2016



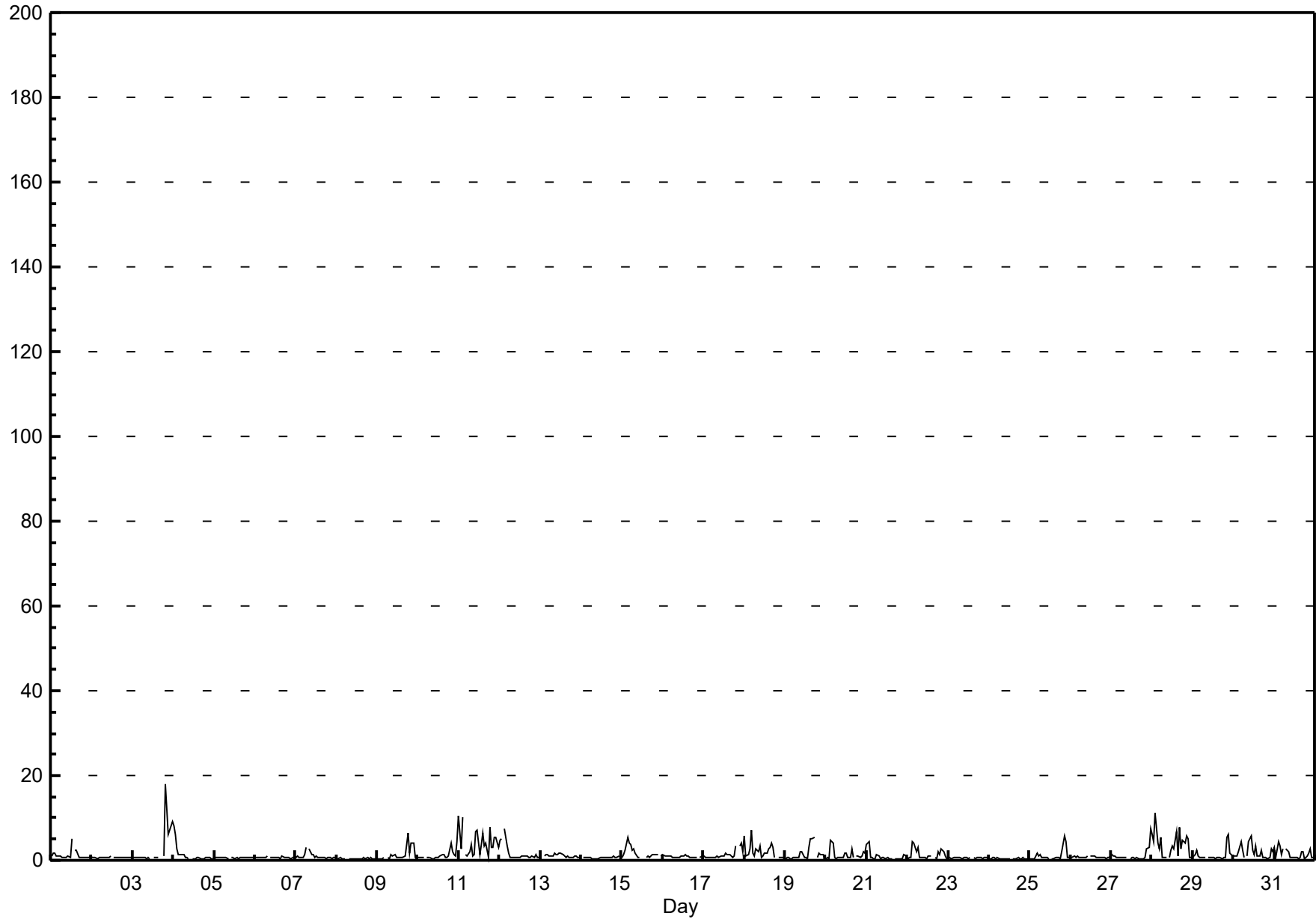
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb Smoky Heights - December 2016

Maximum Value: 18.0 ppb on Dec 3 20:00		Maximum Daily Average: 4.1 ppb on Dec 11		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 25 03:00		Minimum Daily Average: 0.4 ppb on Dec 8		Hours of Data: 707																						
Maximum Diurnal Average: 2.0 ppb at hour 1		Minimum Diurnal Average: 0.9 ppb at hour 9		Hours of Missing Data: 37																						
Monthly Average: 1.37 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.7 Q ₃ = 1.2 P ₉₀ = 3.4 P ₉₉ = 7.8		Hours of Calibration: 35																						
				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	2	2	1	1	1	1	1	1	1	1	1	5	A	2	2	1	1	1	1	1	1	1	1	1.2	5.1
2-Dec	1	1	1	0	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0
3-Dec	1	1	1	1	1	1	1	1	0	1	0	A	1	1	1	1	N	N	1	18	12	6	7	9	3.0	18.0
4-Dec	8	6	3	1	1	1	1	1	1	1	A	0	0	1	1	1	0	N	0	1	1	1	0	0	1.3	8.2
5-Dec	0	1	1	1	1	1	1	1	0	A	1	1	0	1	0	1	1	1	1	1	1	1	1	1	0.6	0.8
6-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0.6	1.1
7-Dec	1	1	1	1	1	1	3	A	3	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1.0	3.1
8-Dec	0	0	1	0	0	0	A	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0.4	0.6
9-Dec	0	0	0	0	1	A	1	0	1	1	1	1	1	1	1	1	1	4	6	2	4	4	1	1	1.4	6.3
10-Dec	1	1	1	1	A	1	1	1	0	0	1	1	1	1	1	1	1	1	1	4	2	1	1	4	1.1	4.2
11-Dec	10	3	10	A	1	1	2	4	1	1	7	7	1	4	6	3	4	1	8	3	3	5	6	3	4.1	10.4
12-Dec	5	5	A	8	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.6	7.6
13-Dec	1	A	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1.1	1.8
14-Dec	A	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	A	0.7	1.1
15-Dec	1	1	2	5	4	4	2	3	2	1	1	C	C	C	1	1	1	1	1	1	1	1	A	1	1.8	5.3
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.9	1.3
17-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	3	A	3	4	2	1.3	4.1
18-Dec	6	1	1	3	7	2	1	3	2	4	1	1	2	2	3	3	4	3	1	A	1	1	1	1	2.2	7.2
19-Dec	0	1	1	0	0	1	1	1	1	2	2	1	1	0	3	5	5	5	A	1	2	1	1	0	1.5	5.3
20-Dec	0	1	0	5	4	1	0	1	1	1	1	2	2	1	1	3	1	A	1	1	1	1	2	2	1.3	4.8
21-Dec	4	4	1	1	0	0	1	1	0	1	1	0	1	0	0	0	A	0	0	0	0	0	0	1	0.9	4.3
22-Dec	0	1	1	4	4	2	3	1	1	1	1	0	1	1	1	A	1	1	2	2	3	2	1	0	1.4	4.4
23-Dec	1	1	0	1	1	1	1	1	0	1	1	1	0	1	A	1	0	1	1	1	0	1	1	1	0.6	0.7
24-Dec	1	0	1	1	0	1	0	0	0	0	0	0	0	A	1	0	0	1	0	0	1	0	0	0	0.4	0.6
25-Dec	0	0	0	1	2	1	1	1	1	1	1	0	A	0	0	1	1	1	0	2	6	5	1	1	1.1	5.7
26-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0	1	1	0.8	1.0
27-Dec	2	1	1	1	1	1	1	1	1	1	1	A	0	1	1	0	1	1	0	0	1	3	3	7	1.1	7.3
28-Dec	6	4	11	4	3	5	1	1	1	A	1	2	3	3	7	1	8	3	5	4	6	5	1	1	3.6	11.3
29-Dec	1	1	2	1	1	1	1	1	A	1	1	1	1	0	1	1	1	0	1	1	6	6	2	1	1.2	5.9
30-Dec	1	1	1	2	4	2	1	A	1	5	6	2	1	4	1	1	2	1	1	1	1	1	3	2	1.9	5.9
31-Dec	3	1	4	4	1	3	A	3	2	1	1	1	1	1	0	1	2	2	0	1	2	3	1	1	1.6	4.3
	2.0	1.4	1.7	1.7	1.6	1.2	1.0	1.0	0.9	1.0	1.2	1.1	1.1	1.1	1.3	1.2	1.4	1.1	1.3	1.8	1.9	1.9	1.4	1.5	Diurnal Average	
	10.4	6.0	11.3	7.6	7.2	5.4	3.1	3.8	2.6	4.5	6.7	7.1	5.1	3.6	6.7	5.1	7.7	5.3	7.7	18.0	12.1	6.2	7.1	9.0	Diurnal Maximum	
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																		

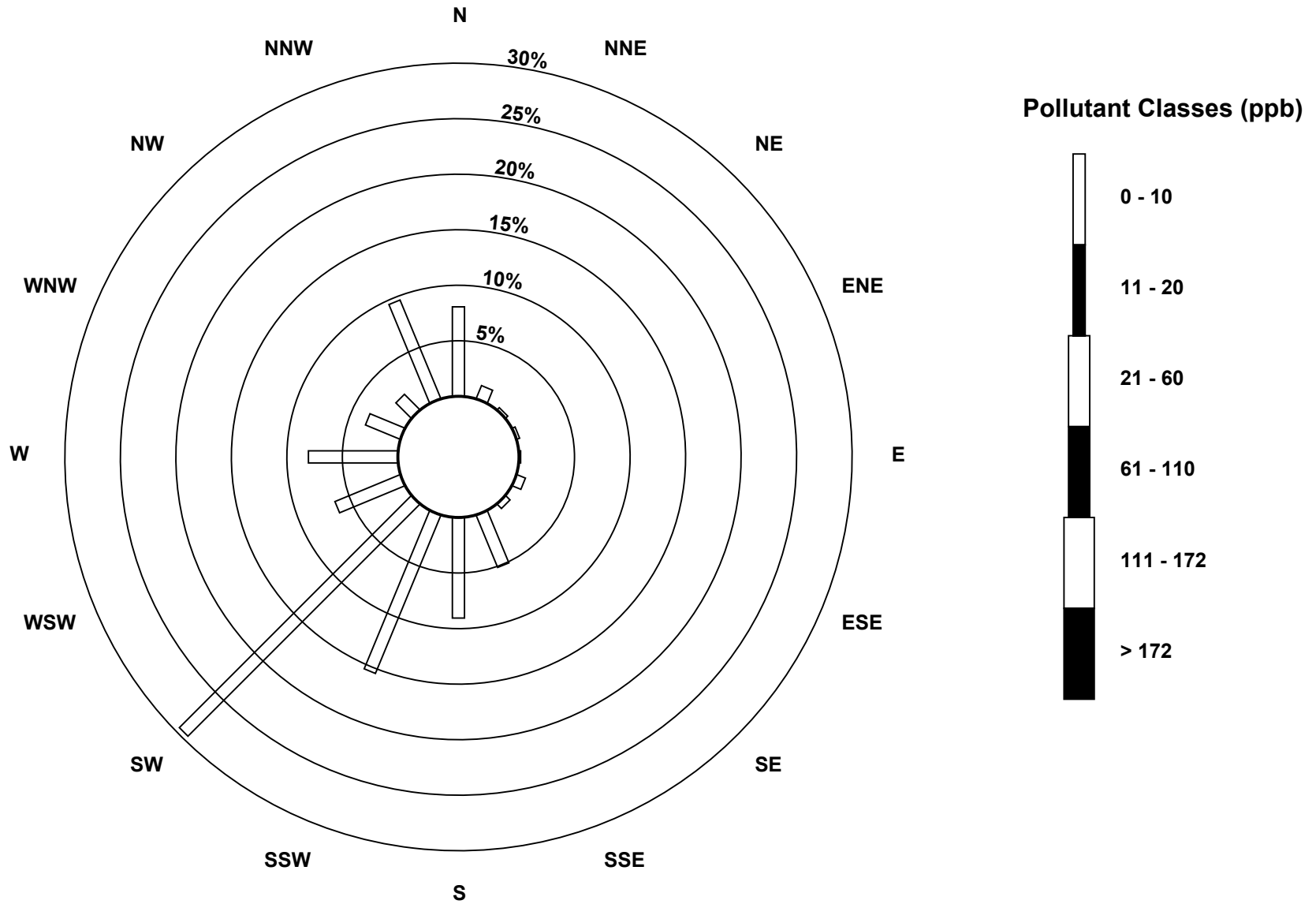
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - December 2016



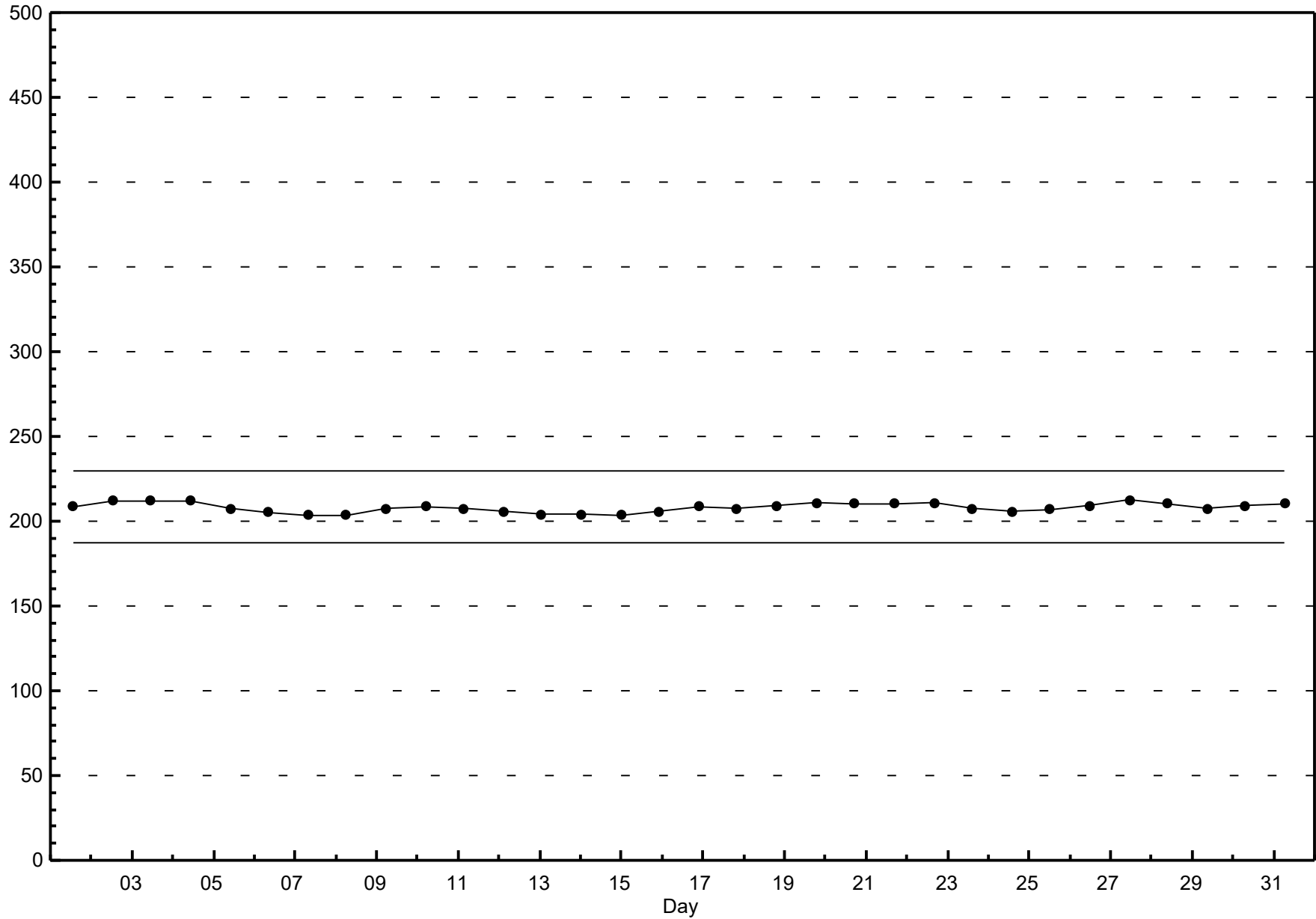
Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - December 2016



Span Responses

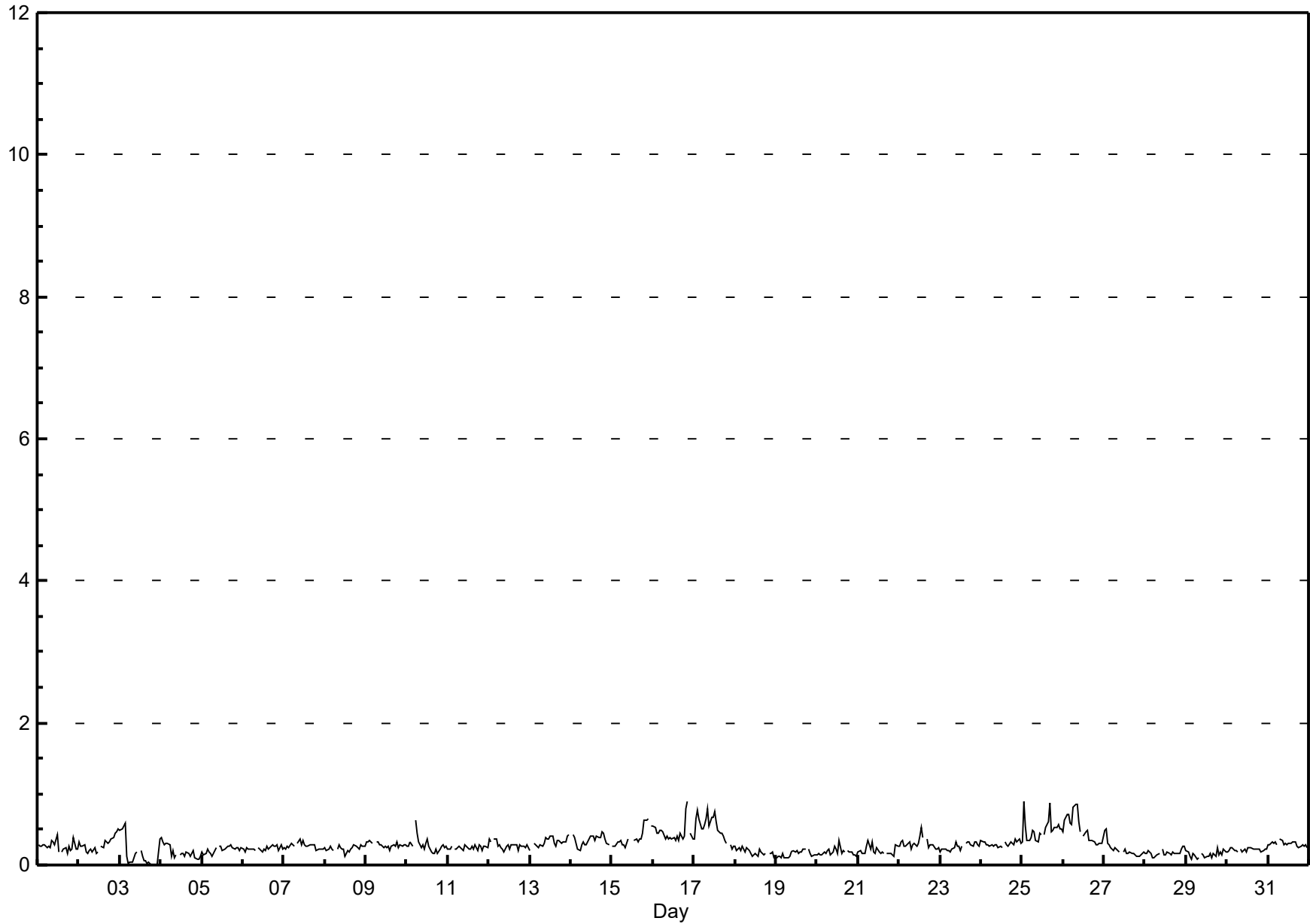
**Sulphur Dioxide (SO₂)
Smoky Heights - December 2016**



Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - December 2016

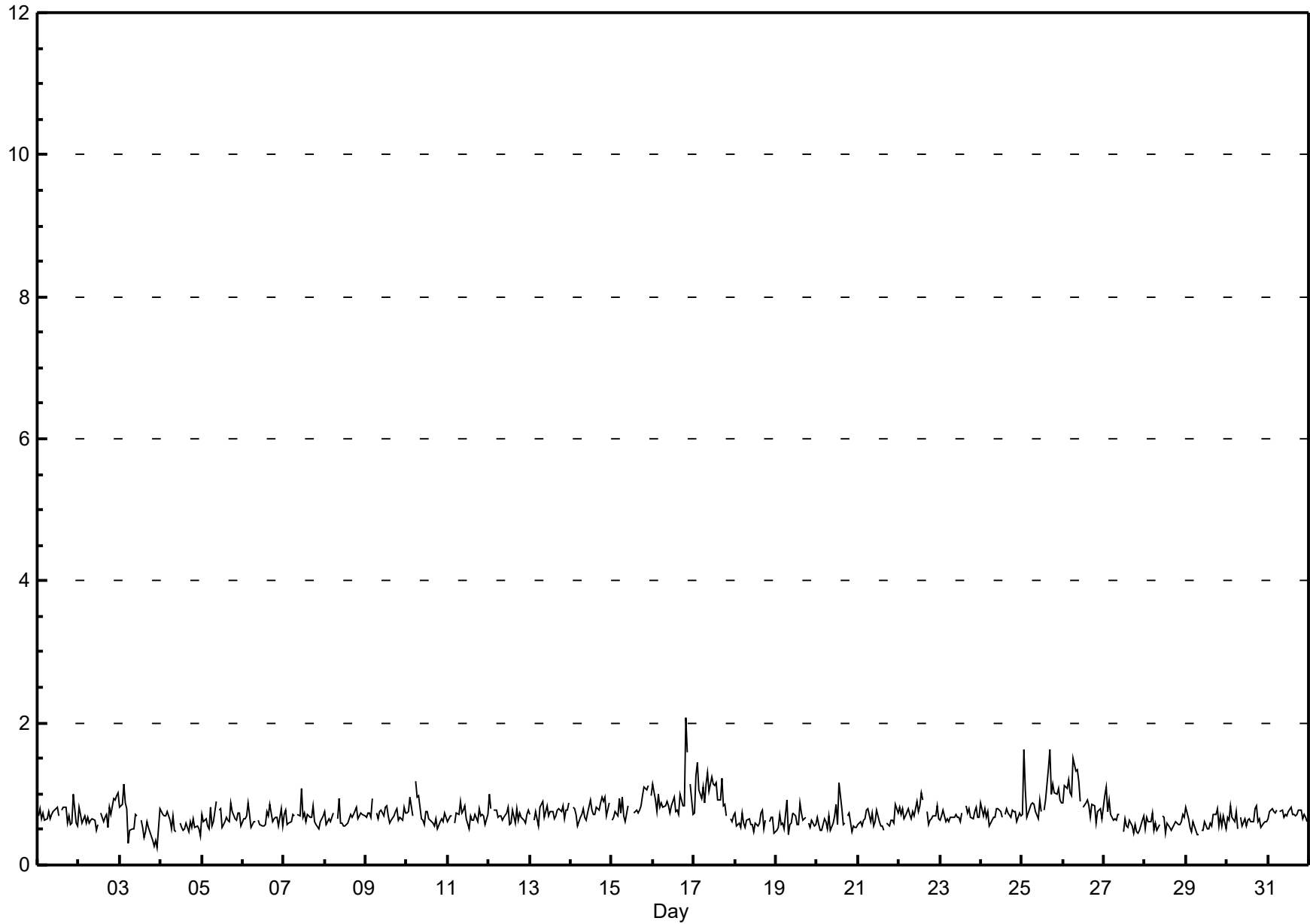
Maximum Value: 0.9 ppb on Dec 16 21:00 Minimum Value: 0 ppb on Dec 3 19:00 Maximum Diurnal Average: 0.3 ppb at hour 2 Monthly Average: 0.28 ppb		Maximum Daily Average: 0.5 ppb on Dec 17 Minimum Daily Average: 0.1 ppb on Dec 29 Minimum Diurnal Average: 0.3 ppb at hour 16 Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.3 P ₉₀ = 0.4 P ₉₉ = 0.8		Hours in Service: 744 Hours of Data: 709 Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
1-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	0.3	0.4
2-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	1	0.3	0.5
3-Dec	0	0	1	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6
4-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	0.2	0.4
5-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	0.2	0.3
6-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
7-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
8-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	0.2	0.3
9-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	0.3	0.4
10-Dec	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
11-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	0.2	0.3
12-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	0.3	0.4
13-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	0.3	0.4
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.3	0.5
15-Dec	0	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	1	1	1	A	1	0.4	0.6	
16-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	A	0	0	0.5	0.9	
17-Dec	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	A	0	0	0	0.5	0.8	
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.2	0.3	
19-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	0.2	
20-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	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.2	0.3	
22-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	0.3	0.5	
23-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.3	0.3	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.3	0.4	
25-Dec	0	1	1	0	0	0	0	0	0	0	0	0	A	0	1	1	1	0	0	1	1	1	1	1	0.5	0.9	
26-Dec	0	1	1	1	1	1	1	1	1	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.9	
27-Dec	0	1	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5	
28-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	0.3	
29-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	0.3	
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4	
	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	0.3	0.3	0.3	Diurnal Average	
	0.6	0.9	0.8	0.7	0.6	0.6	0.8	0.9	0.9	0.6	0.7	0.7	0.7	0.6	0.5	0.6	0.9	0.5	0.5	0.8	0.9	0.6	0.5	0.6	Diurnal Maximum		
C - Calibration		A - Automated Daily Zero Span																									



Hourly Maximums

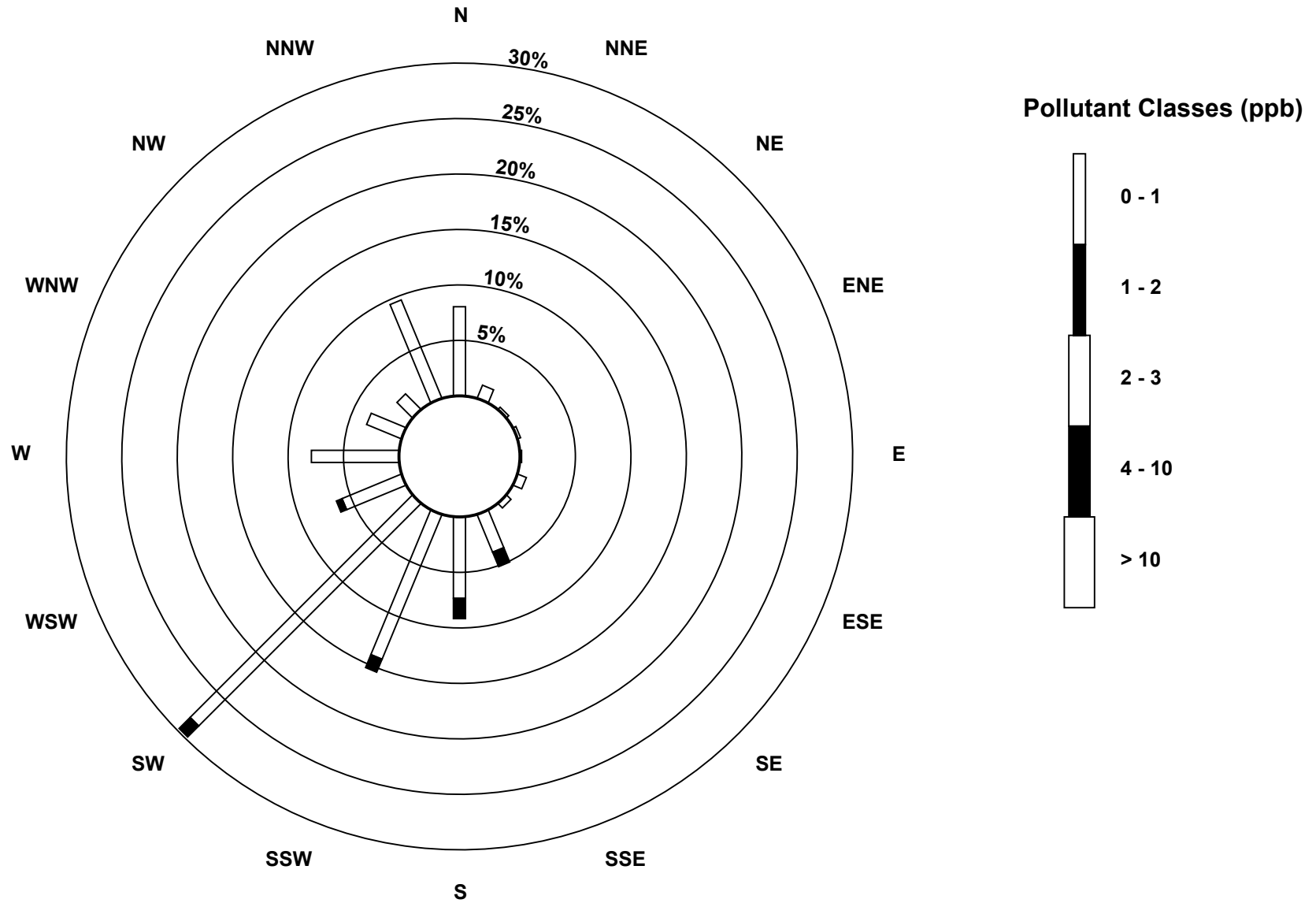
Total Reduced Sulphur (TRS) - ppb Smoky Heights - December 2016

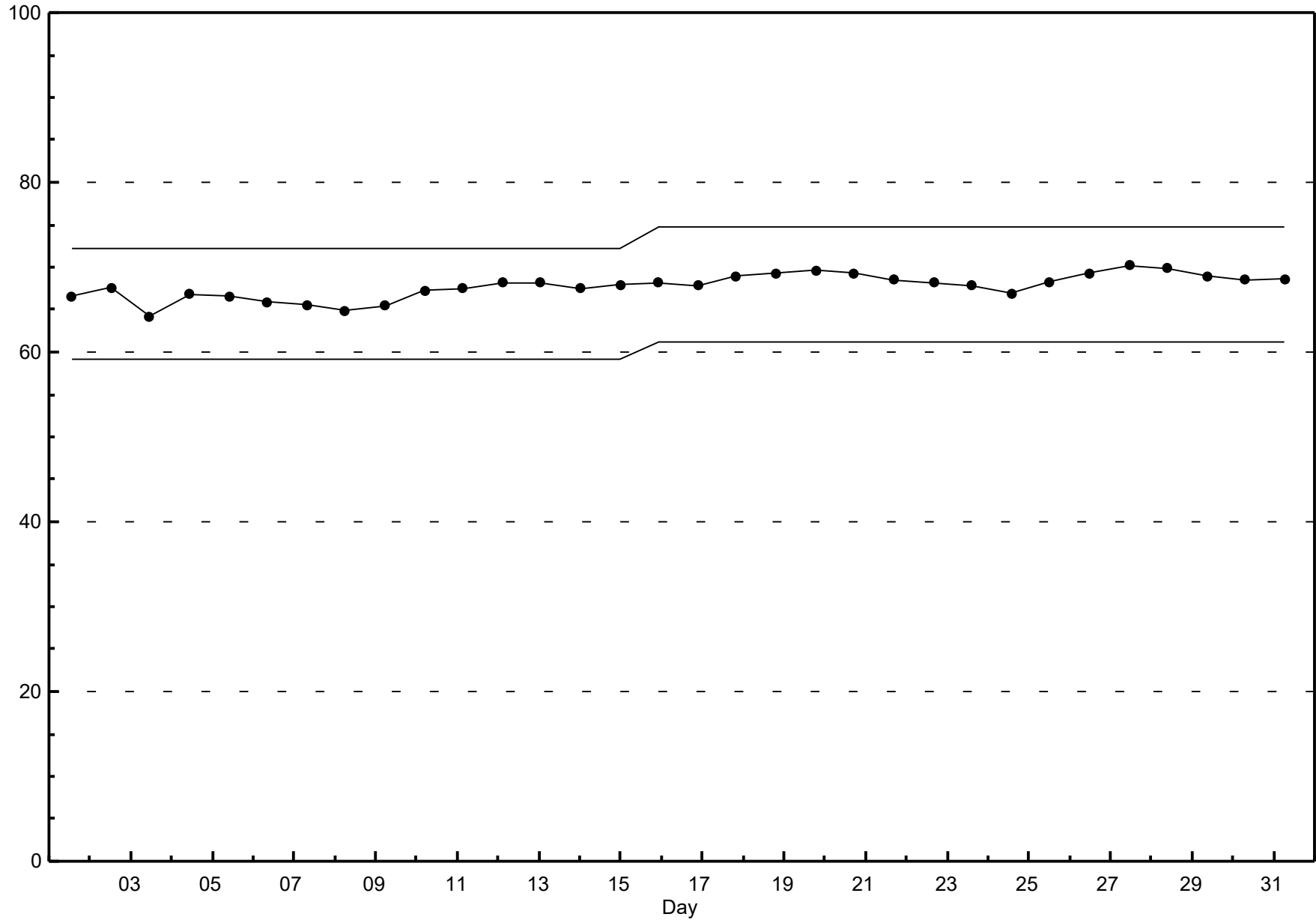
Maximum Value: 2.1 ppb on Dec 16 20:00		Maximum Daily Average: 1.0 ppb on Dec 17		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 3 23:00		Minimum Daily Average: 0.6 ppb on Dec 3		Hours of Data: 709																							
Maximum Diurnal Average: 0.8 ppb at hour 2		Minimum Diurnal Average: 0.7 ppb at hour 13		Hours of Missing Data: 35																							
Monthly Average: 0.71 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.7 Q ₃ = 0.8 P ₉₀ = 0.9 P ₉₉ = 1.3		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	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
2-Dec	1	1	1	1	1	1	1	1	1	1	0	1	A	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
3-Dec	1	1	1	1	1	0	0	1	0	1	1	A	1	1	0	0	1	1	0	0	0	0	0	1	0.6	1.1	
4-Dec	1	1	1	1	1	1	1	1	0	0	A	1	1	0	1	1	0	1	1	1	1	1	1	0	0.6	0.8	
5-Dec	1	1	1	1	0	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
6-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
7-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	1.1	
8-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
9-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	
10-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.2	
11-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
12-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	1.0	
13-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	
14-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	0.8	1.0	
15-Dec	1	1	1	1	1	1	1	1	1	1	C	C	C	1	1	1	1	1	1	1	1	1	A	1	0.8	1.1	
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	A	1	0.9	2.1	
17-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	
18-Dec	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	A	1	0	0.6	0.8	
19-Dec	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0.6	0.9	
20-Dec	1	1	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	A	1	1	0	1	1	1	0.6	1.2	
21-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	A	1	1	1	1	1	1	1	1	0.6	0.9	
22-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	1.0	
23-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	0.8	
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
25-Dec	1	2	1	1	1	1	1	1	1	1	1	1	A	1	1	1	2	1	1	1	1	1	1	1	1.0	1.6	
26-Dec	1	1	1	1	1	1	2	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.5	
27-Dec	1	1	1	1	1	1	1	1	1	1	A	0	1	1	1	1	1	0	1	0	0	0	1	1	0.6	1.1	
28-Dec	1	1	1	1	1	0	1	0	1	A	1	0	1	1	0	1	1	1	1	1	1	1	1	1	0.6	0.7	
29-Dec	1	1	1	0	1	1	0	0	1	A	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.8	
30-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	0.6	0.8	
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.8	
		0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	Diurnal Average		
		1.1	1.6	1.4	1.2	1.0	1.2	1.5	1.3	1.3	1.2	1.2	1.1	1.1	1.2	0.9	1.4	1.6	1.0	1.1	2.1	1.6	1.1	1.1	Diurnal Maximum		
C - Calibration		A - Automated Daily Zero Span																									



Pollutant Rose

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - December 2016





Hourly Averages

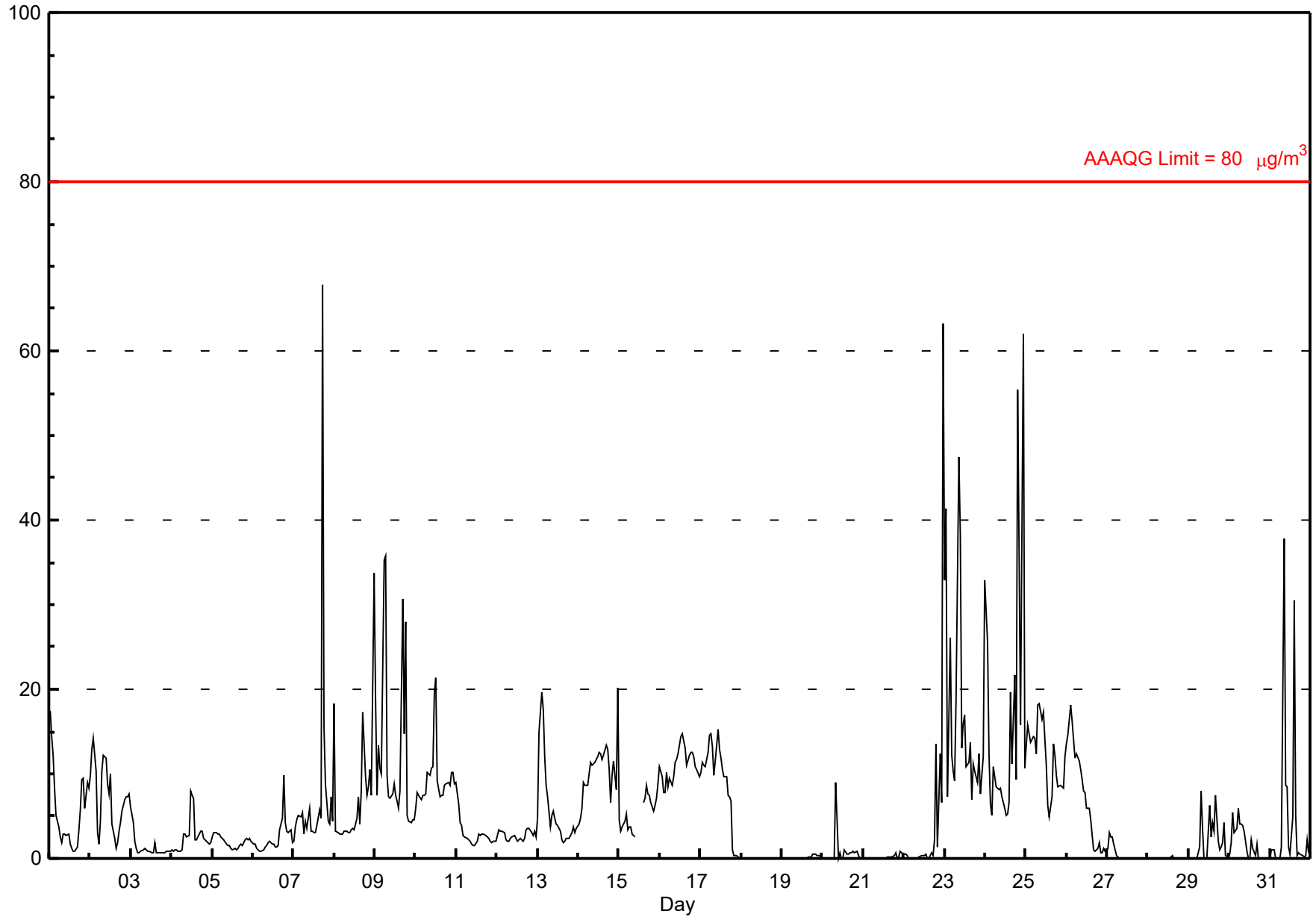
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Smoky Heights - December 2016

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 67.8 µg/m ³ on Dec 7 18:00	Maximum Daily Average: 16.9 µg/m ³ on Dec 23
Minimum Value: 0 µg/m ³ on Dec 18 01:00	Hours of Data: 740
Maximum Diurnal Average: 7.3 µg/m ³ at hour 9	Hours of Missing Data: 4
Monthly Average: 5.54 µg/m ³	Hours of Calibration: 4
Minimum Daily Average: 0.0 µg/m ³ on Dec 18	Percent Operational Time: 100.0
Minimum Diurnal Average: 4.2 µg/m ³ at hour 14	
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.6 Median = 3.0 Q ₃ = 8.4 P ₉₀ = 12.6 P ₉₉ = 35.4	

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	17	14	12	8	5	4	3	2	3	3	3	2	1	1	1	1	3	6	9	10	6	9	8	5.6	17.5	
2-Dec	10	13	14	10	3	2	4	10	12	12	9	8	10	4	2	1	2	3	4	6	7	7	7	8	7.0	14.2
3-Dec	6	4	2	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1.3	6.1
4-Dec	1	1	1	1	1	1	1	3	3	3	3	8	7	7	2	2	3	3	3	2	2	2	2	2	2.6	8.0
5-Dec	2	3	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2.0	3.1
6-Dec	2	2	1	1	1	1	1	1	2	2	2	2	2	1	1	1	3	5	10	4	3	3	3	2	2.3	9.8
7-Dec	2	4	4	5	5	5	3	4	3	6	3	3	3	3	4	6	5	68	16	9	4	4	7	4	7.6	67.8
8-Dec	18	3	3	3	3	3	3	3	3	3	3	4	3	5	7	4	8	17	10	7	8	11	8	34	7.3	33.7
9-Dec	19	7	13	11	10	35	36	10	7	7	8	9	7	7	6	8	31	15	28	5	4	4	5	5	12.3	35.7
10-Dec	6	8	7	7	7	7	8	10	10	11	11	20	21	9	7	7	7	9	9	9	9	10	10	9	9.5	21.3
11-Dec	9	6	4	4	3	3	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2.9	8.9
12-Dec	3	3	3	3	3	2	2	2	2	3	3	2	2	2	2	2	2	3	4	3	3	3	3	3	2.7	3.6
13-Dec	5	15	20	18	12	9	7	4	5	6	5	4	4	3	2	2	2	2	2	3	3	4	3	3	5.9	19.7
14-Dec	4	5	6	9	9	9	10	11	11	11	11	12	13	12	12	12	13	13	10	7	10	12	8	20	10.4	20.2
15-Dec	5	3	4	4	5	3	4	4	3	3	C	C	C	C	7	7	9	8	8	7	6	6	7	9	5.5	8.8
16-Dec	11	10	8	8	10	8	9	9	10	11	12	12	14	15	14	13	11	12	13	13	12	11	10	10	11.1	14.7
17-Dec	10	11	11	11	12	15	15	13	10	11	15	13	12	11	10	10	8	7	7	1	0	0	0	0	8.9	15.3
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	0.0	0.0
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0.1	0.5
20-Dec	0	0	0	0	0	0	0	0	9	0	1	0	0	1	1	1	1	1	1	1	1	0	0	0	0.7	9.0
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0.1	0.8
22-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	14	1	12	7	63	4.3	63.3
23-Dec	33	41	7	26	12	10	9	19	48	38	13	16	17	11	11	14	7	11	10	9	12	8	10	12	16.9	47.5
24-Dec	33	26	12	7	5	11	8	8	8	8	7	6	5	5	7	20	11	22	9	56	36	16	62	11	16.6	62.1
25-Dec	13	16	15	14	14	14	12	18	18	16	17	14	11	6	5	7	14	12	10	8	9	9	8	12	12.2	18.2
26-Dec	14	15	18	16	14	12	12	11	10	9	8	8	6	6	5	3	1	1	1	2	1	1	1	1	7.3	18.2
27-Dec	1	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	3.1
28-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	0.4
29-Dec	0	0	0	0	0	0	1	8	4	0	0	0	6	3	4	3	7	2	1	1	2	4	0	0	2.0	8.0
30-Dec	1	2	5	3	4	6	4	4	4	3	1	0	0	2	1	0	2	0	0	0	0	0	0	0	1.7	5.9
31-Dec	0	1	1	0	0	0	0	1	38	9	9	1	0	5	31	5	0	1	0	0	0	0	2	1	4.4	37.8
	7.2	7.0	5.8	5.7	4.7	5.3	5.1	5.2	7.3	5.8	4.9	4.9	5.0	4.2	4.8	4.3	5.0	7.2	5.5	5.9	4.8	4.5	5.8	7.1	Diurnal Average	
	33.0	41.3	19.7	26.1	14.4	35.3	35.7	18.7	47.5	38.2	17.2	19.5	21.3	14.7	30.5	19.7	30.7	67.8	27.9	55.5	36.4	15.8	62.1	63.3	Diurnal Maximum	

C - Calibration
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³

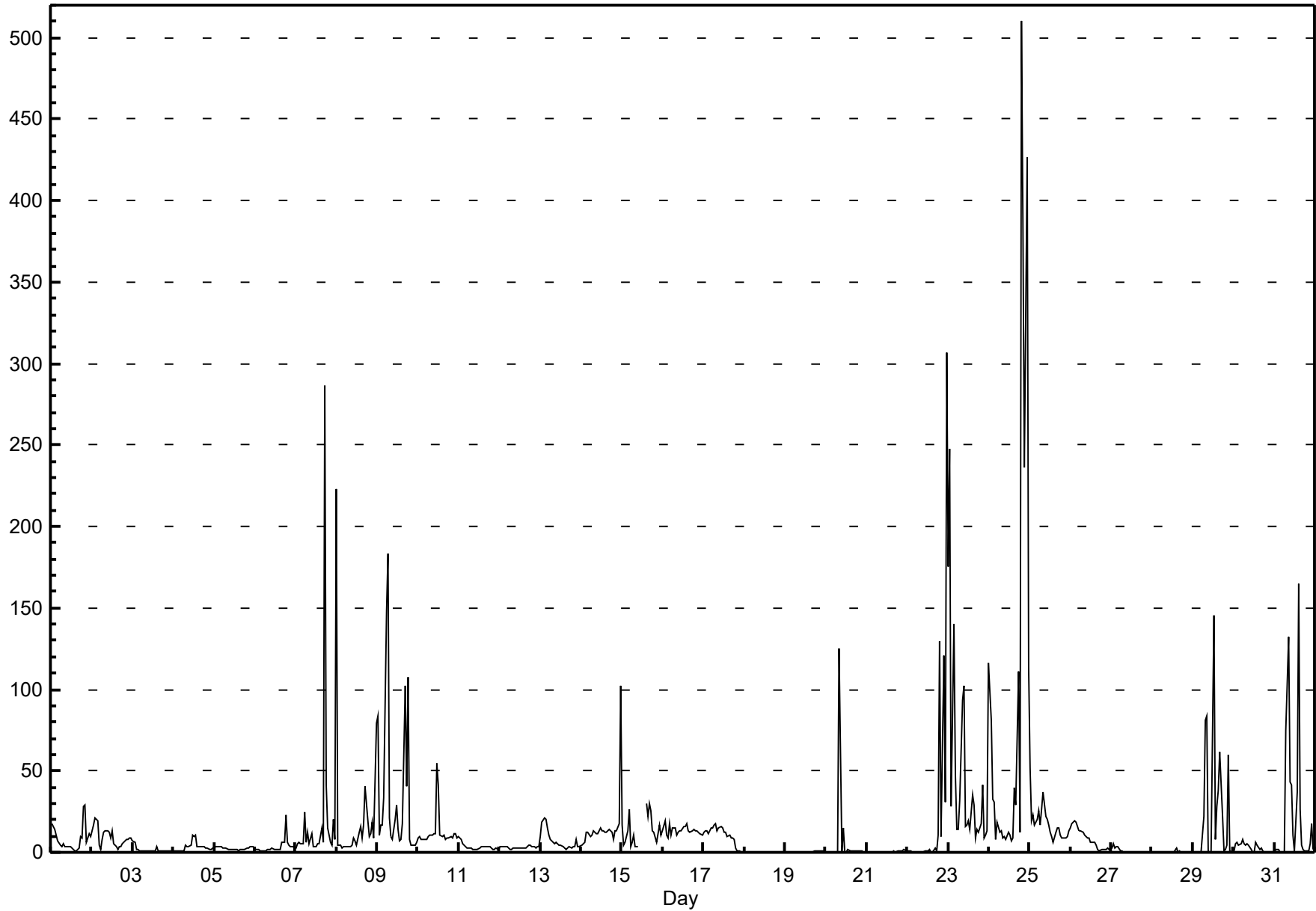


Hourly Maximums

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

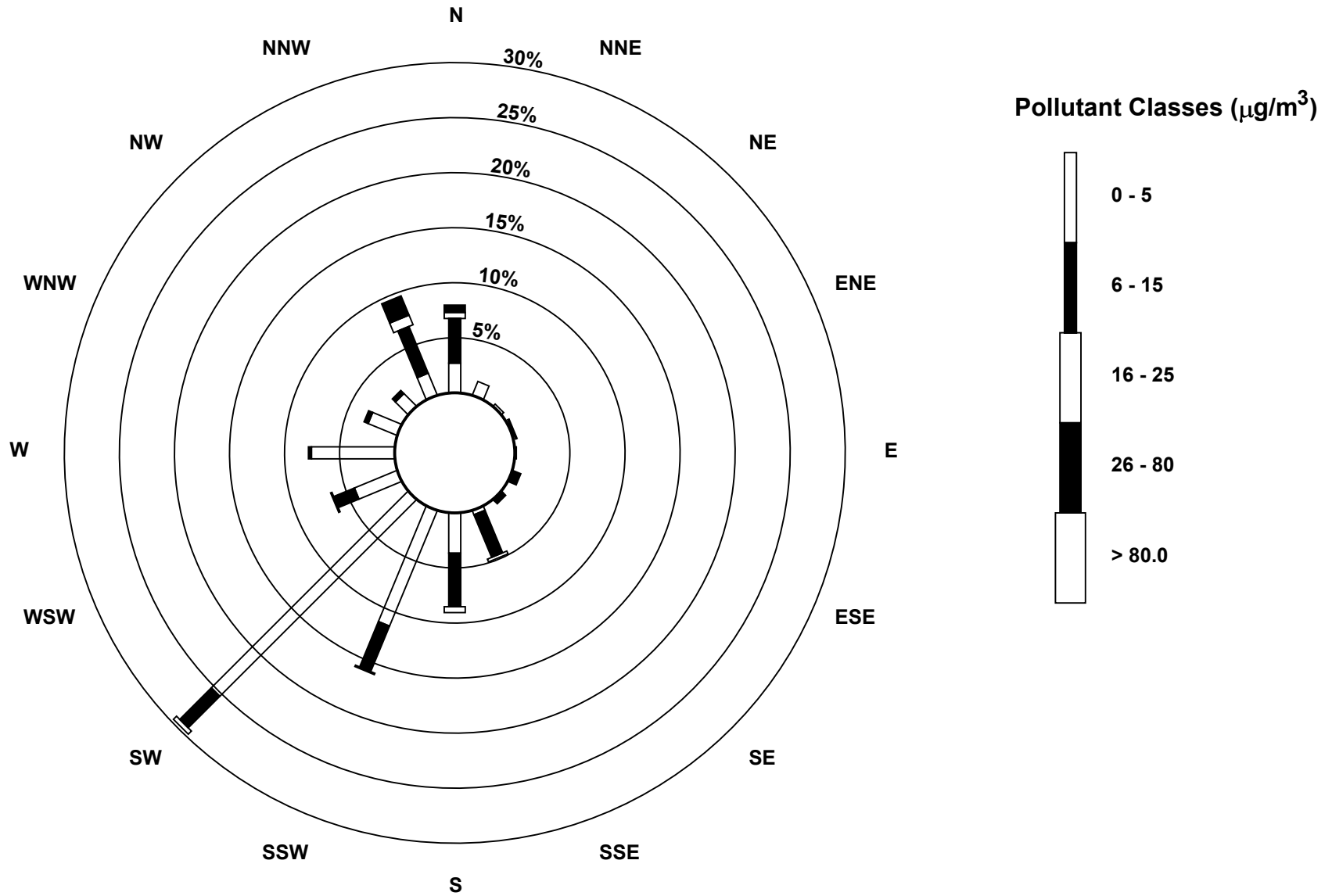
Smoky Heights - December 2016

Maximum Value: 510.3 µg/m ³ on Dec 24 20:00		Maximum Daily Average: 93.5 µg/m ³ on Dec 24		Hours in Service: 744																							
Minimum Value: 0 µg/m ³ on Dec 18 02:00		Minimum Daily Average: 0.0 µg/m ³ on Dec 18		Hours of Data: 740																							
Maximum Diurnal Average: 26.1 µg/m ³ at hour 20		Minimum Diurnal Average: 6.7 µg/m ³ at hour 14		Hours of Missing Data: 4																							
Monthly Average: 14.19 µg/m ³		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.9 Median = 3.9 Q ₃ = 12.4 P ₉₀ = 21.8 P ₉₉ = 225.6		Hours of Calibration: 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	18	16	14	10	7	4	3	5	4	3	3	3	3	1	1	1	3	9	9	29	29	7	12	10	8.5	29.0	
2-Dec	13	17	21	19	4	2	8	12	13	14	12	9	14	5	3	2	3	4	5	7	8	8	9	9	9.3	21.5	
3-Dec	7	6	2	2	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1.6	7.1	
4-Dec	1	1	1	1	1	1	1	4	4	4	4	10	9	10	3	3	3	4	4	3	2	2	2	2	3.4	10.5	
5-Dec	3	3	4	3	3	3	3	3	2	2	2	1	1	2	1	1	2	2	2	3	3	3	3	3	2.5	3.6	
6-Dec	2	2	1	1	1	1	1	2	2	2	3	2	2	2	2	2	6	6	23	6	4	4	4	3	3.5	22.7	
7-Dec	3	5	6	6	6	25	6	12	5	12	4	4	3	5	6	15	6	287	42	15	6	5	20	8	21.3	286.7	
8-Dec	223	5	4	3	3	3	4	4	4	4	9	7	4	13	16	9	16	41	20	9	11	18	9	80	21.6	222.7	
9-Dec	84	11	17	17	34	149	184	21	9	8	20	29	14	7	8	18	102	41	108	8	5	5	5	6	37.8	183.6	
10-Dec	8	10	8	8	8	8	10	10	10	10	11	11	55	42	10	10	11	8	9	9	10	9	11	11	9	12.8	54.7
11-Dec	9	8	5	5	3	3	3	2	2	2	2	2	2	3	3	3	4	3	3	3	2	2	2	2	3.3	9.5	
12-Dec	3	4	4	4	3	3	2	2	3	3	3	3	3	3	3	2	3	4	4	4	3	3	4	3	3.1	4.1	
13-Dec	9	19	21	20	15	10	8	7	6	6	6	5	4	4	3	2	3	3	3	3	3	8	3	4	7.3	21.0	
14-Dec	5	5	6	13	12	9	11	13	12	12	12	15	13	13	13	13	14	14	12	8	14	14	18	102	15.5	101.8	
15-Dec	16	4	6	13	26	4	6	10	4	3	C	C	C	C	30	22	30	26	13	12	6	11	17	10	13.5	30.2	
16-Dec	13	19	11	8	18	11	15	15	11	12	13	14	16	16	18	14	12	13	14	13	13	12	11	11	13.4	19.3	
17-Dec	13	13	13	12	15	15	17	17	13	15	16	15	12	12	10	10	9	9	8	2	1	1	0	0	10.3	17.3	
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	0.0	0.2	
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0.2	1.0	
20-Dec	0	0	0	0	0	0	0	0	125	0	15	0	0	2	1	1	1	1	1	1	1	1	0	0	6.3	125.3	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0.3	1.4	
22-Dec	1	1	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	1	10	129	10	121	31	307	25.8	307.0	
23-Dec	175	247	28	140	47	14	14	31	94	102	16	16	19	14	35	29	9	14	12	17	42	9	11	13	47.9	247.4	
24-Dec	116	82	33	31	8	19	12	13	9	10	8	12	10	7	9	40	30	111	13	510	387	236	427	114	93.5	510.3	
25-Dec	52	19	23	16	21	26	17	27	37	22	20	17	12	10	6	13	15	15	11	9	9	9	10	13	17.9	52.2	
26-Dec	15	18	19	18	16	14	13	12	11	10	9	9	7	7	6	4	1	1	2	2	2	2	2	2	8.4	19.3	
27-Dec	3	5	3	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	5.1	
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0.2	2.9	
29-Dec	0	0	0	0	0	0	22	81	83	1	0	0	145	8	28	38	62	22	1	2	5	60	1	0	23.3	145.3	
30-Dec	1	5	6	4	5	8	5	5	5	5	2	0	0	7	4	2	3	1	0	0	0	0	0	0	2.8	7.8	
31-Dec	0	2	2	0	0	0	0	75	133	43	41	11	1	37	164	27	5	1	1	0	1	6	18	1	23.7	164.4	
		25.6	17.0	8.4	11.5	8.4	10.8	11.8	12.4	19.4	9.9	7.7	8.0	11.3	6.7	12.5	9.1	11.4	20.7	10.7	26.1	18.6	18.0	20.5	23.1	Diurnal Average	
		222.7	247.4	32.7	139.9	47.4	148.5	183.6	80.8	132.6	101.8	41.2	54.7	145.3	36.6	164.4	39.8	102.0	286.7	107.9	510.3	386.5	235.9	426.5	307.0	Diurnal Maximum	
C - Calibration																											



Pollutant Rose

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Smoky Heights - December 2016



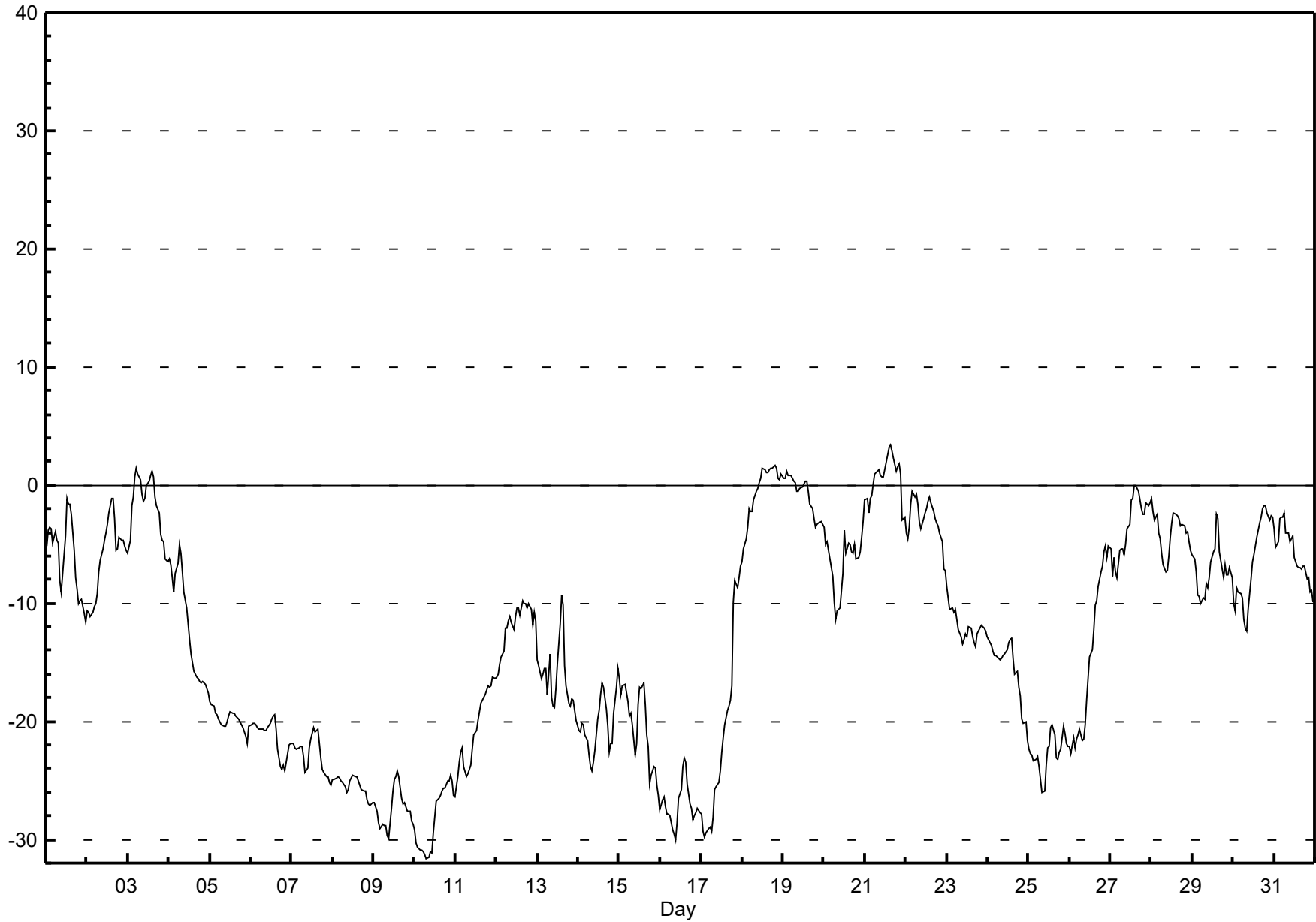
Hourly Averages

External Temperature (ET) - °C
Smoky Heights - December 2016

Maximum Value: 3.3 °C on Dec 21 16:00		Maximum Daily Average: 0.6 °C on Dec 21																		Hours in Service: 744 Hours of Data: 744							
Minimum Value: -32 °C on Dec 10 08:00 Maximum Diurnal Average: -11.1 °C at hour 15 Monthly Average: -13.25 °C		Minimum Daily Average: -28.3 °C on Dec 10 Minimum Diurnal Average: -14.7 °C at hour 10 Percentiles: P ₁ = -30.9 P ₁₀ = -25.9 Q ₁ = -21.9 Median = -12.3 Q ₃ = -4.7 P ₉₀ = -1.1 P ₉₉ = 1.8																		Hours of Missing Data: 0 Hours of Calibration: 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	-5	-4	-4	-4	-5	-4	-5	-5	-8	-9	-7	-4	-1	-2	-2	-2	-6	-8	-9	-10	-10	-10	-11	-12	-6.0	-1.1	
2-Dec	-11	-11	-11	-11	-10	-10	-9	-7	-6	-5	-5	-4	-3	-2	-1	-1	-3	-6	-5	-4	-5	-5	-5	-6	-6.1	-1.1	
3-Dec	-6	-5	-2	-1	1	1	1	0	-1	-1	-1	0	0	1	1	1	-1	-2	-2	-4	-5	-5	-6	-7	-1.7	1.4	
4-Dec	-6	-7	-8	-9	-7	-7	-5	-6	-7	-9	-10	-12	-13	-14	-15	-16	-16	-16	-17	-17	-17	-17	-17	-18	-11.9	-5.0	
5-Dec	-18	-19	-19	-19	-19	-20	-20	-20	-20	-20	-20	-20	-19	-19	-19	-20	-20	-20	-20	-21	-21	-21	-22	-20	-19.9	-18.3	
6-Dec	-20	-20	-20	-20	-21	-21	-21	-21	-21	-21	-21	-20	-20	-20	-19	-21	-22	-24	-24	-24	-24	-23	-22	-22	-21.3	-19.4	
7-Dec	-22	-22	-22	-22	-22	-22	-22	-23	-24	-24	-22	-21	-21	-21	-21	-21	-22	-23	-24	-24	-25	-25	-25	-25	-22.8	-20.5	
8-Dec	-25	-25	-25	-25	-25	-25	-25	-26	-26	-26	-25	-25	-25	-25	-25	-25	-25	-26	-26	-26	-27	-27	-27	-27	-25.5	-24.5	
9-Dec	-27	-27	-28	-29	-29	-29	-29	-29	-30	-30	-27	-26	-25	-25	-24	-25	-27	-27	-27	-27	-28	-28	-28	-29	-27.4	-24.2	
10-Dec	-29	-30	-31	-31	-31	-31	-31	-32	-32	-31	-31	-29	-28	-27	-26	-26	-26	-26	-26	-25	-25	-25	-25	-26	-28.3	-24.5	
11-Dec	-26	-25	-23	-23	-22	-24	-25	-24	-24	-24	-22	-21	-21	-20	-19	-18	-18	-18	-17	-17	-17	-17	-16	-16	-20.8	-16.2	
12-Dec	-16	-16	-15	-15	-14	-12	-12	-11	-11	-12	-12	-11	-10	-10	-11	-10	-10	-10	-10	-10	-10	-12	-11	-12	-11.8	-9.8	
13-Dec	-15	-15	-16	-16	-16	-16	-18	-14	-18	-19	-19	-17	-15	-12	-9	-10	-15	-17	-18	-19	-18	-18	-19	-20	-16.2	-9.3	
14-Dec	-21	-21	-20	-20	-21	-22	-23	-24	-24	-23	-22	-20	-19	-18	-17	-17	-19	-20	-23	-22	-22	-19	-17	-16	-20.4	-15.6	
15-Dec	-16	-18	-17	-17	-18	-18	-20	-19	-20	-23	-22	-19	-17	-17	-17	-19	-21	-22	-25	-24	-24	-24	-25	-26	-20.4	-16.4	
16-Dec	-27	-27	-26	-27	-28	-28	-28	-29	-30	-30	-29	-26	-26	-24	-23	-23	-25	-27	-27	-28	-28	-28	-27	-28	-27.1	-23.1	
17-Dec	-28	-29	-30	-29	-29	-29	-29	-28	-26	-26	-25	-24	-23	-21	-20	-19	-19	-18	-17	-10	-8	-9	-8	-7	-21.3	-6.9	
18-Dec	-7	-5	-5	-4	-2	-2	-2	-1	-1	0	0	1	1	1	1	1	1	1	2	1	1	0	1	-0.6	1.6		
19-Dec	1	1	1	1	1	1	0	0	-1	-1	0	0	0	0	0	-2	-2	-3	-4	-3	-3	-3	-3	-0.8	1.2		
20-Dec	-4	-5	-5	-6	-7	-8	-10	-11	-11	-10	-9	-7	-4	-6	-5	-5	-6	-6	-5	-6	-6	-6	-4	-3	-6.4	-3.0	
21-Dec	-1	-1	-2	-1	-1	0	1	1	1	1	1	1	2	3	3	3	3	2	1	2	2	1	-3	-3	0.6	3.3	
22-Dec	-4	-5	-4	-2	-1	-1	-1	-2	-3	-4	-3	-2	-2	-1	-1	-1	-2	-3	-3	-3	-4	-5	-7	-7	-2.9	-0.5	
23-Dec	-9	-10	-10	-10	-11	-10	-11	-12	-13	-13	-13	-13	-13	-12	-12	-13	-13	-14	-13	-12	-12	-12	-12	-12	-11.9	-8.6	
24-Dec	-13	-13	-14	-14	-14	-14	-15	-15	-15	-14	-14	-14	-13	-13	-13	-15	-16	-16	-17	-18	-20	-20	-20	-22	-15.5	-12.9	
25-Dec	-22	-23	-23	-23	-23	-23	-24	-25	-26	-26	-24	-22	-22	-21	-20	-21	-23	-23	-23	-22	-20	-21	-22	-22	-22.7	-20.3	
26-Dec	-22	-23	-21	-22	-22	-21	-21	-22	-21	-20	-18	-16	-14	-14	-12	-10	-10	-9	-7	-7	-6	-5	-6	-5	-14.8	-5.1	
27-Dec	-5	-8	-6	-7	-8	-5	-5	-5	-6	-5	-4	-3	-1	-1	0	0	-1	-1	-2	-2	-2	-2	-1	-3.5	0.0		
28-Dec	-1	-2	-3	-2	-4	-5	-6	-7	-7	-7	-6	-4	-3	-2	-3	-3	-3	-3	-3	-4	-4	-5	-5	-4.0	-1.1		
29-Dec	-6	-6	-7	-9	-9	-10	-10	-10	-8	-9	-8	-7	-6	-5	-3	-3	-6	-7	-8	-7	-8	-8	-7	-8	-7.2	-2.5	
30-Dec	-10	-11	-9	-9	-9	-10	-11	-12	-12	-11	-8	-7	-6	-5	-4	-3	-3	-2	-2	-2	-2	-3	-3	-3	-6.5	-1.7	
31-Dec	-4	-5	-5	-3	-3	-3	-2	-4	-4	-5	-4	-4	-6	-7	-7	-7	-7	-7	-7	-8	-8	-9	-9	-10	-5.7	-2.3	
		-13.7	-14.0	-13.8	-13.9	-13.8	-13.7	-14.1	-14.3	-14.7	-14.7	-13.9	-12.9	-12.0	-11.6	-11.1	-11.3	-12.3	-12.8	-13.2	-13.0	-13.1	-13.1	-13.4	-13.5	Diurnal Average	
		0.6	0.6	1.2	0.9	0.8	1.4	1.0	1.1	1.3	0.9	0.7	0.7	1.9	2.6	3.2	3.3	3.0	2.3	1.5	1.6	1.9	1.0	0.5	0.9	Diurnal Maximum	

Hourly Averages

External Temperature (ET) - °C
Smoky Heights - December 2016





Peace Airshed Zone Association

Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Smoky Heights - December 2016

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	13	14	14	10	11	13	10	4	11	7	10	14	10	8	9	9	8	8	8	8	6	8	8	7	9.1	14.5
Dir	198	226	236	239	230	239	252	261	232	220	222	229	212	218	212	207	206	230	234	222	216	208	179	185	222.3	229.0
2 Spd	8	8	9	9	9	9	9	15	11	6	4	4	4	8	10	16	12	10	12	18	14	15	10	11	9.4	18.1
Dir	186	197	193	206	216	212	180	155	159	178	186	153	190	186	183	195	208	213	203	203	211	209	239	231	197.7	203.0
3 Spd	10	13	14	17	20	28	28	28	19	18	16	16	27	25	27	31	24	26	28	22	22	23	19	21	21.2	30.9
Dir	175	178	182	184	210	213	210	205	209	205	209	210	218	217	216	217	217	220	227	227	229	223	217	220	212.7	216.5
4 Spd	19	19	15	13	16	11	12	18	23	21	20	21	24	22	21	23	25	23	26	25	21	19	21	17	17.5	26.4
Dir	224	216	224	229	217	221	252	296	297	304	308	302	294	290	288	286	285	290	290	283	275	281	281	279	277.0	289.8
5 Spd	17	15	19	16	20	20	18	20	14	12	9	11	14	17	17	19	18	16	16	14	14	8	4	10	14.9	20.5
Dir	278	277	280	278	272	271	283	276	270	257	274	277	272	278	283	277	279	277	273	283	286	266	241	272	275.7	276.4
6 Spd	10	8	10	12	12	9	12	14	13	14	12	13	13	10	12	10	7	4	6	4	2	2	3	6	8.7	14.3
Dir	270	263	268	272	271	269	269	275	272	268	257	263	261	256	267	255	251	233	246	233	218	241	228	186	261.2	267.7
7 Spd	4	4	4	4	1	2	5	4	2	1	5	3	3	0	0	3	6	5	5	6	5	7	7	7	2.4	7.1
Dir	179	192	228	244	192	349	359	349	12	335	20	79	43	29	5	1	0	354	342	350	331	330	330	328	341.4	330.5
8 Spd	9	9	8	7	4	5	4	5	4	3	2	3	3	4	5	5	7	8	9	8	7	8	9	9	5.8	9.3
Dir	358	6	3	10	25	39	15	17	28	1	17	23	0	352	348	354	337	339	335	357	340	345	347	342	356.7	341.9
9 Spd	8	9	9	7	7	7	7	6	6	6	7	7	7	7	6	9	10	10	11	11	8	3	5	5	7.3	10.6
Dir	340	342	344	359	354	346	345	345	351	354	345	355	1	360	356	338	337	344	349	352	360	2	69	17	351.3	359.7
10 Spd	0	3	5	3	4	3	3	4	4	3	3	1	3	3	6	4	4	6	6	5	4	8	12	11	3.2	11.7
Dir	351	231	231	201	207	231	163	164	207	146	172	64	172	356	330	319	239	226	179	214	231	246	241	222	224.0	241.4
11 Spd	12	12	16	16	15	12	10	18	19	19	20	23	24	26	27	30	28	27	29	31	27	26	29	28	21.7	31.0
Dir	213	227	226	236	253	228	210	218	216	212	218	225	219	223	229	228	229	226	223	227	222	228	225	224	224.6	227.1
12 Spd	23	21	21	19	14	20	18	18	21	27	29	29	26	19	13	23	23	28	26	29	22	17	24	20	20.8	29.4
Dir	224	219	222	230	232	280	270	270	276	275	278	276	280	248	240	271	268	265	268	274	265	248	269	261	261.1	277.5
13 Spd	20	16	15	12	17	18	18	18	20	19	18	14	8	7	7	9	6	7	8	9	11	10	8	8	11.9	20.3
Dir	215	208	218	221	218	229	234	259	239	235	236	237	226	191	225	253	222	194	166	179	219	234	226	204	224.5	239.4
14 Spd	9	9	9	8	7	8	8	7	6	5	6	4	5	3	5	4	4	6	3	2	4	4	4	7	4.1	9.4
Dir	199	189	185	189	159	160	160	166	152	173	169	150	116	122	149	122	183	248	249	251	143	253	311	336	175.6	199.4
15 Spd	8	3	6	7	8	7	3	5	5	0	8	2	3	2	1	2	1	4	7	11	11	5	10	10	2.9	10.9
Dir	326	351	335	329	328	319	336	329	298	328	268	275	154	185	245	152	230	227	205	240	247	210	181	189	263.6	247.2
16 Spd	8	11	5	8	9	11	11	7	10	11	8	5	6	5	7	6	5	6	6	7	7	8	11	8	6.8	11.0
Dir	196	214	192	187	226	188	174	149	176	174	177	121	119	151	161	170	192	184	222	222	220	224	229	210	190.0	174.3
17 Spd	7	7	9	11	10	8	10	12	12	11	9	9	9	10	9	10	7	9	12	24	27	24	23	24	10.9	26.7
Dir	199	162	162	167	164	161	170	180	184	178	160	157	150	153	150	157	164	155	173	218	224	229	228	227	189.7	224.1
18 Spd	18	18	19	26	35	28	29	35	45	35	37	36	41	36	34	31	31	28	27	28	24	13	15	18	28.1	45.1
Dir	211	218	227	225	227	219	213	222	228	219	217	219	226	232	230	229	220	222	222	221	218	191	182	178	220.2	227.6
19 Spd	16	19	23	28	32	30	39	42	37	38	41	38	34	30	25	19	17	21	21	22	25	26	26	26	26.8	42.2
Dir	175	172	179	179	198	204	211	218	217	225	230	232	236	234	227	220	218	226	224	228	222	223	227	226	216.9	218.1
20 Spd	25	20	21	18	12	9	12	8	6	7	8	8	7	9	11	11	14	12	13	12	20	20	29	30	13.7	30.0
Dir	224	228	223	227	188	194	226	218	203	287	255	221	207	199	201	215	213	211	210	228	210	213	228	225	219.2	224.5
21 Spd	42	31	15	22	25	23	30	36	37	30	24	22	24	25	26	34	32	31	23	24	26	18	13	15	25.5	41.6
Dir	225	220	191	172	179	201	213	216	215	213	211	198	192	190	204	203	203	201	208	203	200	212	241	219	206.0	225.3
22 Spd	12	14	15	17	16	13	14	9	9	9	9	4	5	3	3	2	2	6	6	6	6	6	5	7	6.3	17.0
Dir	201	229	228	225	225	214	211	207	216	230	245	197	250	236	278	250	268	283	311	327	322	331	317	344	238.7	224.7



Peace Airshed Zone Association

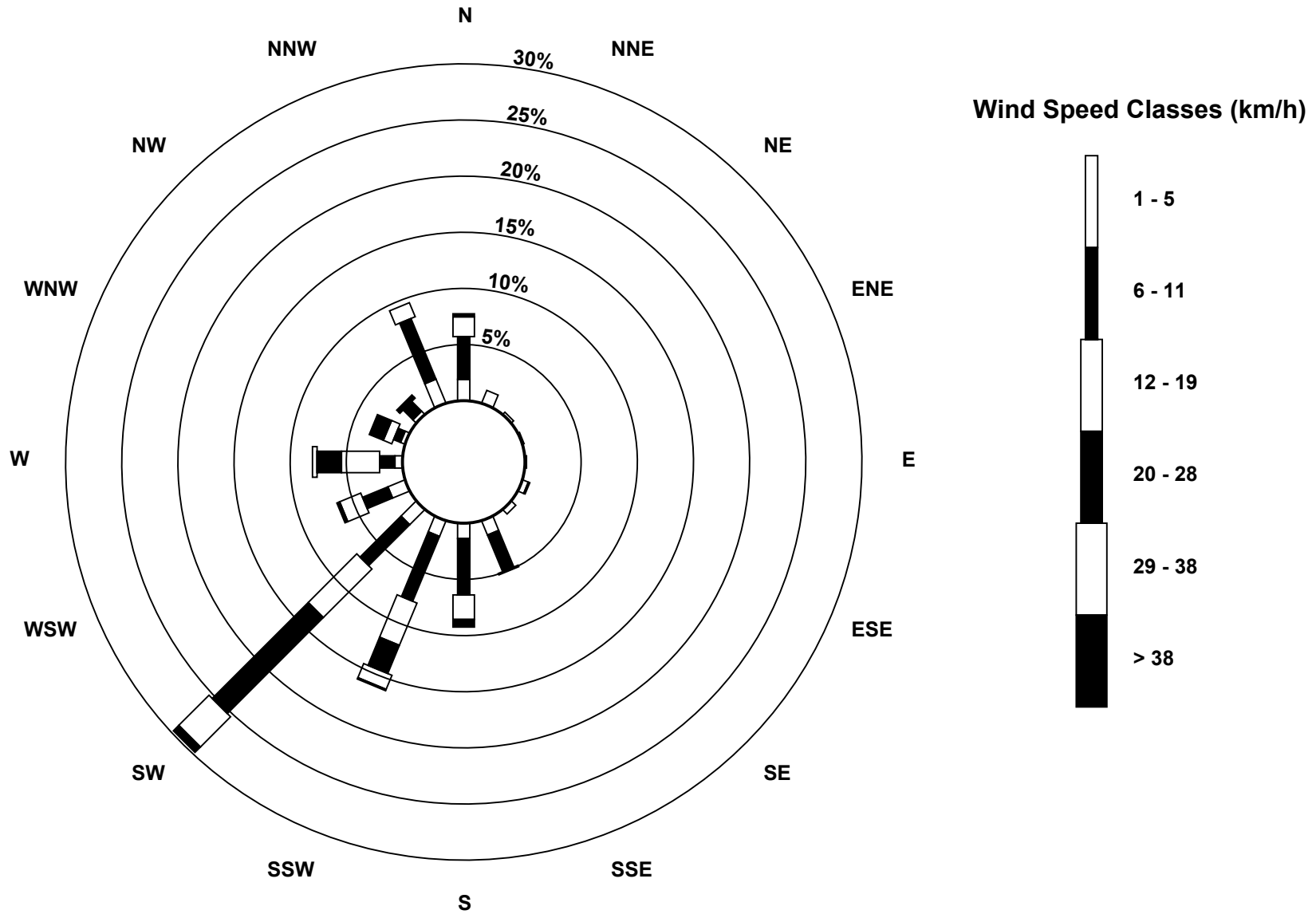
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Smoky Heights - December 2016

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
23 Spd	6	6	7	7	7	7	7	9	10	10	12	12	12	12	9	11	11	11	13	12	12	12	12	12	10.0	13.2	
Dir	345	354	348	350	346	345	359	345	345	348	360	7	359	359	358	348	357	352	354	355	354	359	358	353	353.9	353.7	
24 Spd	12	13	14	15	14	14	14	13	12	10	8	7	8	7	7	7	5	4	4	5	5	4	6	5	3	8.7	14.9
Dir	349	344	348	356	355	346	341	334	332	346	343	341	354	344	347	346	350	331	329	332	339	339	356	348	328	344.6	355.6
25 Spd	2	3	4	2	2	0	1	1	4	4	3	3	5	6	7	8	6	7	8	10	10	7	9	9	4.4	10.3	
Dir	331	239	237	201	276	266	118	228	181	162	152	143	187	212	227	227	199	193	224	233	228	209	198	199	211.0	227.9	
26 Spd	8	9	11	11	10	11	8	8	7	8	7	9	10	9	11	11	11	8	8	9	12	12	11	15	9.5	14.7	
Dir	174	179	179	176	193	178	156	183	181	194	182	199	187	206	213	198	202	210	198	198	179	178	200	187	188.8	186.6	
27 Spd	13	14	21	14	15	20	21	20	24	23	29	25	35	35	37	35	30	24	23	22	23	25	25	27	24.0	36.5	
Dir	207	201	198	222	204	210	214	212	210	207	207	217	216	212	217	221	215	215	214	213	217	227	224	229	214.5	217.0	
28 Spd	26	22	23	25	22	23	22	20	21	22	22	23	25	27	25	21	20	20	24	24	22	24	21	20	22.6	27.1	
Dir	235	235	230	232	234	231	232	233	234	235	232	227	225	231	231	234	232	222	228	225	228	230	235	230	230.8	230.8	
29 Spd	19	15	10	10	11	11	12	5	4	6	6	6	4	1	2	2	6	5	8	10	9	11	10	8	5.2	19.1	
Dir	234	221	159	158	192	229	229	205	224	212	243	295	1	329	289	327	10	300	245	250	254	327	295	297	242.1	233.5	
30 Spd	4	9	13	19	18	16	12	11	12	18	24	23	23	22	24	20	19	24	26	24	22	21	21	18	18.0	25.8	
Dir	133	206	229	220	218	209	196	192	198	223	233	229	216	224	226	216	214	224	234	232	231	229	242	230	222.4	234.4	
31 Spd	15	13	7	16	15	14	11	7	4	4	4	12	23	22	17	12	11	13	14	8	10	9	7	12	7.2	23.0	
Dir	204	196	212	245	243	244	273	190	340	358	335	342	356	354	352	335	326	326	328	314	319	311	319	291	304.8	356.2	
Spd	9.7	9.5	9.0	9.3	10.1	9.9	9.7	9.6	10.1	9.6	9.9	8.9	9.0	9.1	9.6	10.2	9.4	9.8	10.2	10.9	10.8	9.8	10.1	10.2	Diurnal Average		
Dir	222.5	220.1	220.8	220.7	223.0	226.1	226.5	228.6	230.6	231.8	234.8	236.8	234.5	232.6	233.6	234.4	235.1	236.9	238.5	238.9	235.5	237.1	239.1	234.4	Diurnal Maximum		
Spd	41.6	31.1	23.2	27.8	34.9	30.0	38.6	42.2	45.1	37.8	40.7	37.7	40.8	35.9	36.5	34.5	32.2	31.2	29.1	31.0	27.1	26.4	28.7	30.0	Diurnal Maximum		
Dir	225.3	220.2	229.6	178.9	226.7	204.4	211.5	218.1	227.6	225.0	230.5	232.0	226.3	232.2	217.0	221.1	202.7	201.2	223.1	227.1	221.8	223.0	224.9	224.5	Diurnal Maximum		
Maximum Speed Value: 45 km/h on Dec 18 09:00																		Minimum Speed Value: 0 km/h on Dec 15 10:00						Hours in Service:		744	
Maximum Daily Speed Average: 28.1 km/h on Dec 18																		Minimum Daily Speed Average: 2.4 km/h on Dec 7						Hours of Data:		744	
Maximum Diurnal Speed Average: 10.9 km/h at hour 20																		Minimum Diurnal Speed Average: 8.9 km/h at hour 12						Hours of Missing Data:		0	
Monthly Average Velocity: 9.71 km/h 231.48 deg																		Speed Percentiles: P ₁ = 0.9 P ₁₀ = 4.0 Q ₁ = 6.9 Median = 11.1 Q ₃ = 19.9 P ₉₀ = 26.0 P ₉₉ = 37.1						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	23	58	22	2	0	0	105																				
NorthEast	7	0	0	0	0	0	7																				
East	2	0	0	0	0	0	2																				
SouthEast	12	14	1	0	0	0	27																				
South	19	69	31	11	2	0	132																				
SouthWest	24	63	78	109	41	6	321																				
West	12	19	38	22	4	0	95																				
NorthWest	13	30	7	5	0	0	55																				
Total	112	253	177	149	47	6	744																				

Wind Rose

Wind Speed (WS) (km/h)
Smoky Heights - December 2016



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Smoky Heights - December 2016

Maximum Speed: 45 km/h on Dec 18 09:00	Maximum Daily Speed Average: 28.7 km/h on Dec 18	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 7 15:00	Minimum Daily Speed Average: 4.4 km/h on Dec 7	Hours of Data: 744
Maximum Diurnal Speed Average: 14.6 km/h at hour 20	Minimum Diurnal Speed Average: 12.8 km/h at hour 2	Hours of Missing Data: 0
Monthly Average Speed: 13.76 km/h	Percentiles: P ₁ = 1.9 P ₁₀ = 4.4 Q ₁ = 7.1 Median = 11.3 Q ₃ = 20.0 P ₉₀ = 26.2 P ₉₉ = 36.9	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	13	14	14	10	12	13	11	6	12	8	10	14	10	8	9	9	8	8	8	8	6	8	8	7	9.8	14.5
2-Dec	8	8	9	9	9	9	9	15	11	7	5	4	5	8	11	16	14	10	13	18	14	15	11	12	10.3	18.2
3-Dec	10	14	15	17	20	29	28	28	19	18	16	16	27	25	27	31	24	26	28	22	22	24	20	21	21.9	30.9
4-Dec	19	19	15	13	16	11	12	18	23	21	20	22	24	22	21	23	25	23	26	25	21	19	21	17	20.0	26.5
5-Dec	17	15	19	16	20	20	18	21	14	12	9	12	14	18	17	19	18	16	16	14	14	9	5	11	15.2	20.6
6-Dec	10	8	10	12	12	10	12	14	13	14	12	13	13	10	12	11	7	5	6	4	2	2	3	6	9.2	14.4
7-Dec	5	5	4	4	3	3	5	5	2	2	5	3	4	1	1	3	6	5	5	6	5	7	7	7	4.4	7.2
8-Dec	9	9	9	7	4	5	4	5	4	3	2	3	4	4	5	5	7	8	9	9	7	8	9	9	6.2	9.3
9-Dec	8	9	9	7	7	7	7	6	6	6	7	8	7	7	7	6	9	10	10	11	11	8	3	5	7.6	10.7
10-Dec	2	3	5	3	4	3	4	5	5	4	4	2	3	4	6	5	5	6	6	6	5	8	12	11	5.0	11.9
11-Dec	12	13	16	16	15	12	10	18	19	19	20	23	24	26	27	30	28	28	29	31	27	26	29	28	21.9	31.0
12-Dec	23	21	21	19	14	20	18	18	21	27	30	30	26	19	14	23	23	28	26	29	22	18	24	21	22.4	29.6
13-Dec	20	16	15	13	18	18	18	19	20	19	18	14	9	7	7	9	7	8	8	9	11	10	8	8	12.9	20.3
14-Dec	10	9	9	8	7	8	8	7	6	5	7	5	6	5	6	4	4	6	3	3	4	4	4	7	6.1	9.8
15-Dec	8	5	6	7	8	7	3	6	5	1	8	3	3	3	3	3	2	5	7	11	11	7	10	10	5.9	10.9
16-Dec	8	11	7	9	9	11	11	7	10	11	8	6	6	5	7	6	6	6	6	7	7	8	11	8	8.0	11.1
17-Dec	7	7	9	11	10	8	10	12	12	12	9	9	9	10	9	10	7	9	12	24	27	24	24	24	12.7	26.9
18-Dec	19	18	19	26	35	28	29	36	45	35	37	36	41	36	34	31	31	29	27	28	24	13	15	18	28.7	45.2
19-Dec	16	19	23	28	32	30	39	42	37	38	41	38	34	30	25	19	17	21	22	22	25	26	26	26	28.2	42.4
20-Dec	25	20	21	18	12	10	12	8	10	8	9	9	9	10	11	11	14	12	13	12	20	20	29	30	14.8	30.1
21-Dec	42	31	16	22	25	24	30	37	37	30	24	22	24	25	26	34	32	31	23	24	26	19	13	15	26.4	41.6
22-Dec	12	14	15	17	16	13	14	9	9	9	9	4	5	3	4	3	2	6	6	6	6	6	7	7	8.4	17.1
23-Dec	6	6	7	7	7	7	7	9	10	10	12	12	12	12	9	11	11	11	13	12	12	12	12	12	10.1	13.3
24-Dec	12	13	14	15	14	14	14	13	12	10	8	8	8	7	7	7	6	4	4	5	4	6	5	4	8.9	15.1
25-Dec	3	4	5	3	3	1	2	1	4	4	4	4	5	6	7	8	6	8	8	10	10	8	9	9	5.4	10.4
26-Dec	8	10	11	11	10	11	8	8	7	8	7	9	10	10	11	11	12	9	8	9	12	13	12	15	10.1	14.8
27-Dec	14	14	21	14	15	20	21	20	24	23	30	25	35	35	37	35	30	24	23	22	23	25	25	27	24.3	36.7
28-Dec	26	22	23	25	22	23	22	20	21	22	22	23	25	27	25	21	20	24	24	22	25	21	20	20	22.7	27.1
29-Dec	19	15	11	10	11	12	12	6	4	6	7	7	4	4	3	4	6	5	8	10	9	11	10	8	8.5	19.1
30-Dec	5	10	14	19	18	16	13	11	12	19	24	24	23	22	24	20	19	24	26	24	23	22	21	18	18.7	25.9
31-Dec	15	13	7	16	15	14	12	9	4	4	4	13	23	22	17	12	11	13	14	8	10	9	8	12	12.0	23.1
	13.3	12.8	12.9	13.3	13.6	13.5	13.6	14.1	14.2	13.4	13.8	13.5	14.6	14.0	13.8	14.2	13.5	13.7	14.2	14.6	14.4	13.6	13.5	14.0	Diurnal Average	
	41.6	31.2	23.2	27.9	35.1	30.0	38.9	42.4	45.2	37.9	40.8	37.7	40.9	36.0	36.7	34.6	32.3	31.3	29.3	31.0	27.2	26.5	28.8	30.1	Diurnal Maximum	

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

Hourly Standard Deviations

Wind Direction (WD) - deg
Smoky Heights - December 2016

Maximum Value: 93.7 deg on Dec 15 10:00																								Hours in Service:	744
Minimum Value: 1.9 deg on Dec 27 20:00																								Hours of Data:	744
Percentiles: P ₁ = 2.5 P ₁₀ = 3.5 Q ₁ = 5.3 Median = 8.1 Q ₃ = 14.6 P ₉₀ = 27.9 P ₉₉ = 79.5																								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	9	6	7	8	4	15	65	14	29	18	4	9	7	7	3	5	6	7	7	12	18	11	8	64.5
2-Dec	6	8	6	13	18	14	10	7	13	31	21	30	44	13	9	4	25	15	14	6	8	7	19	16	44.5
3-Dec	25	26	14	13	4	5	3	4	11	4	7	9	3	4	4	3	4	4	5	5	4	5	4	4	25.6
4-Dec	5	3	7	10	5	7	19	8	6	7	8	9	8	9	12	7	6	7	4	7	8	8	8	11	18.9
5-Dec	9	10	8	10	7	7	7	7	11	9	18	14	9	10	9	7	9	7	6	7	6	38	41	12	40.9
6-Dec	12	14	12	8	8	10	7	6	7	7	7	7	10	12	6	13	12	20	16	41	33	34	16	18	40.7
7-Dec	28	28	18	27	87	68	12	60	49	53	18	29	50	92	75	32	15	9	8	6	9	6	8	11	91.9
8-Dec	10	7	9	10	12	18	30	17	18	19	51	25	23	15	11	9	7	8	7	12	7	7	5	6	51.0
9-Dec	6	7	5	17	8	5	6	5	7	6	6	17	7	6	8	8	7	7	8	9	5	9	40	27	40.1
10-Dec	85	13	6	29	22	20	27	12	28	58	54	71	26	39	13	18	29	12	20	23	19	10	9	17	85.2
11-Dec	8	6	4	6	6	9	6	3	4	3	7	3	3	4	5	3	3	3	6	3	5	4	5	3	8.9
12-Dec	3	3	4	4	12	13	9	8	8	8	6	7	6	15	14	7	7	5	6	5	18	25	8	23	24.9
13-Dec	4	7	5	11	9	10	5	21	4	2	3	8	25	10	20	10	46	35	8	10	9	10	10	10	45.6
14-Dec	16	11	6	12	10	5	7	4	8	17	14	15	19	42	25	15	32	23	25	69	39	26	30	12	68.5
15-Dec	8	43	22	9	14	14	21	14	10	94	27	81	24	53	70	59	69	27	15	3	3	39	11	6	93.7
16-Dec	7	9	75	23	7	12	9	8	14	5	12	17	16	16	12	8	16	22	9	6	7	7	6	13	74.5
17-Dec	10	17	5	7	5	6	5	13	8	9	8	11	6	5	7	8	9	8	17	3	5	4	5	3	17.4
18-Dec	8	8	6	3	5	3	4	5	4	3	3	6	4	4	3	4	5	7	3	6	7	10	8	7	9.8
19-Dec	7	4	3	4	6	3	7	5	3	3	3	3	3	3	5	11	8	4	4	4	3	3	4	4	11.2
20-Dec	3	6	5	8	14	27	12	27	65	22	29	29	46	24	14	7	7	7	12	20	8	7	5	5	65.2
21-Dec	3	6	17	5	5	13	4	4	3	3	4	4	3	4	4	4	3	4	3	3	3	18	7	7	18.2
22-Dec	8	5	2	7	7	10	9	9	9	10	12	23	20	25	38	36	60	15	17	8	9	9	26	6	59.6
23-Dec	6	14	9	7	7	6	10	8	7	6	6	7	6	6	11	6	16	5	5	5	8	5	6	5	16.4
24-Dec	17	7	5	8	10	7	5	7	8	9	12	10	9	9	8	8	13	10	5	9	13	7	13	17	17.4
25-Dec	32	59	49	51	55	81	76	61	19	28	30	18	21	8	2	8	15	15	3	11	9	12	8	11	81.0
26-Dec	18	9	14	11	11	10	7	11	12	17	14	16	11	25	11	8	19	12	13	8	15	22	17	5	25.0
27-Dec	18	10	4	12	13	4	4	6	5	4	4	6	4	4	6	3	3	3	3	2	6	6	4	3	18.4
28-Dec	3	3	3	3	3	3	3	4	4	3	2	3	4	3	3	3	4	4	4	3	6	5	4	3	6.4
29-Dec	2	17	15	6	14	11	11	79	23	13	14	16	32	92	83	78	30	38	5	4	18	11	9	8	92.2
30-Dec	36	21	9	5	6	7	13	13	16	10	2	6	5	6	6	4	4	4	6	4	5	5	5	5	36.0
31-Dec	8	4	18	4	7	6	18	44	16	29	14	18	6	9	8	6	6	6	6	6	8	10	23	5	43.6
85.2	59.3	74.5	50.6	87.3	81.0	76.1	78.5	65.2	93.7	53.7	80.8	50.4	92.2	82.5	78.2	68.6	37.6	24.6	68.5	39.4	39.1	40.9	27.4		

PAZA

Beaverlodge Station

Monthly Summary Tables, Graphs and
Roses

Hourly Averages

Sulphur Dioxide (SO₂) - ppb Beaverlodge - December 2016

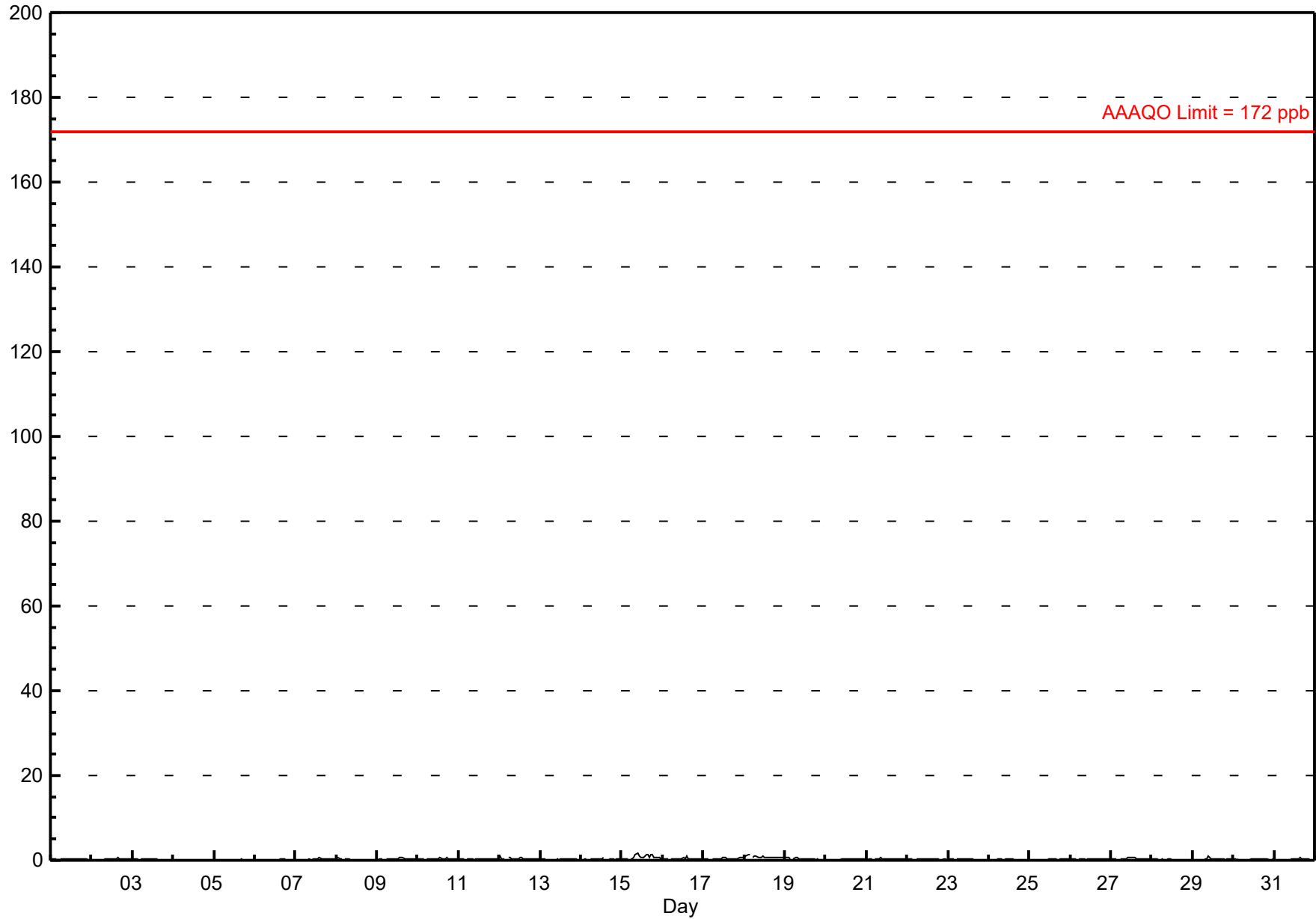
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.6 ppb on Dec 15 10:00	Maximum Daily Average: 0.8 ppb on Dec 15		Hours of Data:	711
Minimum Value: 0 ppb on Dec 5 04:00	Minimum Daily Average: 0.1 ppb on Dec 4		Hours of Missing Data:	33
Maximum Diurnal Average: 0.4 ppb at hour 15	Minimum Diurnal Average: 0.2 ppb at hour 24		Hours of Calibration:	33
Monthly Average: 0.28 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.5 P ₉₉ = 1.2		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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4	
2-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.6
3-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
4-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
5-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
6-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	0.1	0.2
7-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.2	0.5
8-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	0.2	0.6
9-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0.3	0.6
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0.4	0.5
11-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
12-Dec	1	0	0	1	A	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0.4	1.0
13-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	0.2	0.4
14-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	1	C	C	0	0	0	0	0	0	0	0	0	0.3	0.8
15-Dec	0	0	0	0	A	0	0	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.8	1.6	
16-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0.4	0.9
17-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	1	1	0.4	0.8
18-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	0.8	1.2
19-Dec	1	1	1	0	A	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
20-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
21-Dec	0	0	0	0	A	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
23-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
24-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
25-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
26-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	0.3	0.4
27-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	0.4	0.6
28-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
29-Dec	0	0	0	0	A	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.9
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	0.2	0.2
31-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.6
	0.3	0.2	0.2	0.3	--	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	Diurnal Average	
	1.0	0.9	1.2	1.2	--	0.7	1.0	0.9	1.5	1.6	1.1	1.0	0.8	0.8	1.4	1.2	0.8	1.3	1.5	0.7	0.8	0.8	0.6	0.7	Diurnal Maximum		

C - Calibration A - Automated Daily Zero Span
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - December 2016



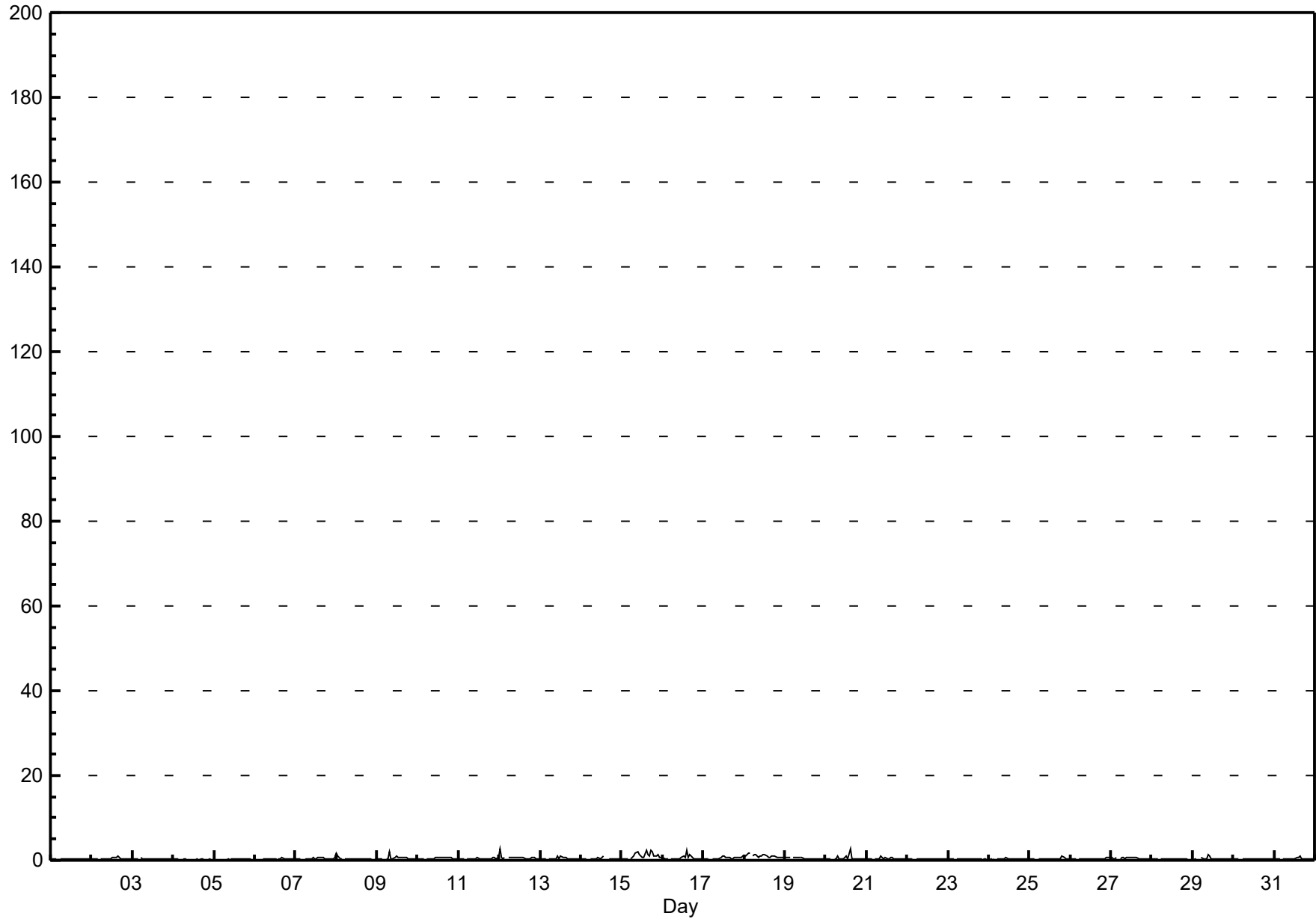
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb Beaverlodge - December 2016

Maximum Value: 2.7 ppb on Dec 12 01:00 Minimum Value: 0 ppb on Dec 4 11:00 Maximum Diurnal Average: 0.6 ppb at hour 15 Monthly Average: 0.43 ppb		Maximum Daily Average: 1.1 ppb on Dec 15 Minimum Daily Average: 0.2 ppb on Dec 4 Minimum Diurnal Average: 0.3 ppb at hour 23 Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 0.3 Q ₃ = 0.5 P ₉₀ = 0.7 P ₉₉ = 2.0		Hours in Service: 744 Hours of Data: 711 Hours of Missing Data: 33 Hours of Calibration: 33 Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5
2-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0.4	1.1
3-Dec	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.6
4-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3
5-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
6-Dec	0	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
7-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	1	1	1	1	0	0	0	0	0	0	0	1	0.4	0.8
8-Dec	2	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.9
9-Dec	0	0	0	0	A	0	0	2	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0.5	2.1
10-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0.5	0.7
11-Dec	0	0	0	0	A	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0.4	0.7
12-Dec	3	1	0	1	A	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0.6	2.7
13-Dec	0	0	0	0	A	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0.4	1.0
14-Dec	0	0	0	0	A	0	0	0	0	0	1	0	1	1	C	C	0	0	0	0	0	0	0	0	0	0.4	1.1
15-Dec	0	0	0	0	A	0	1	1	2	2	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1.1	2.4
16-Dec	1	0	0	0	A	0	0	0	0	0	1	1	1	1	2	1	2	1	0	0	0	0	0	0	0	0.6	2.4
17-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0.5	1.0
18-Dec	1	1	2	2	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.6
19-Dec	1	1	1	1	A	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.7
20-Dec	0	0	0	0	A	0	0	1	0	0	0	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0.5	2.6
21-Dec	0	0	0	0	A	0	0	0	1	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0.4	1.1
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	0.3	0.4
23-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
24-Dec	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.7
25-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0.3	0.8
26-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0.4	0.6
27-Dec	1	0	0	1	A	0	1	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.5	0.8
28-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
29-Dec	0	0	0	0	A	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1.4
30-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
31-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0.3	1.1
	0.5	0.4	0.4	0.4	--	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4		Diurnal Average	
	2.7	1.1	1.6	1.6	--	1.0	1.3	2.1	1.7	1.9	1.3	1.2	1.3	1.1	2.6	1.5	1.5	2.4	2.2	1.0	1.2	1.2	0.8	0.9		Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

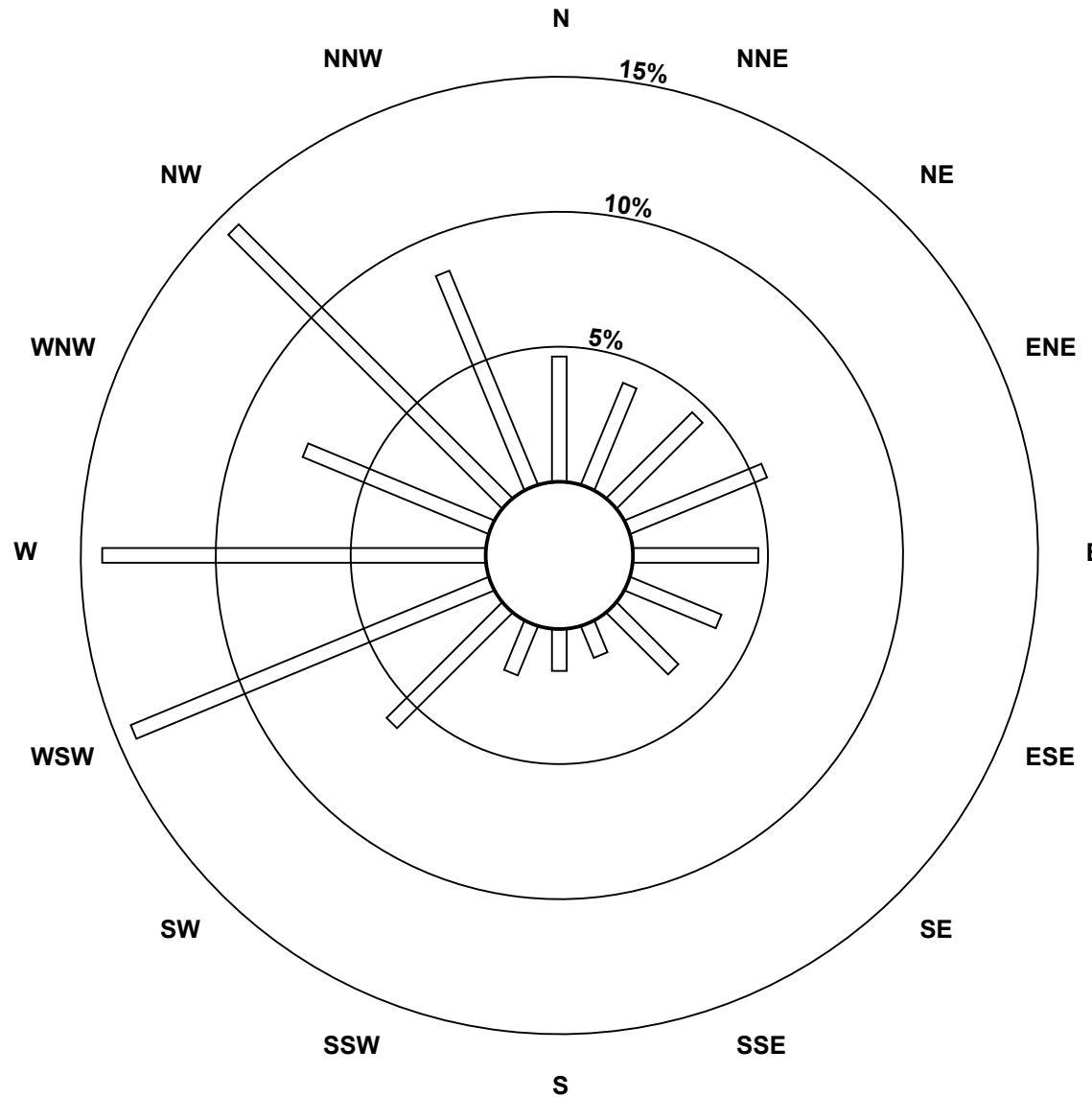
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - December 2016

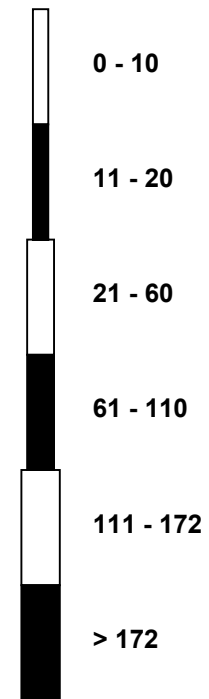


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - December 2016

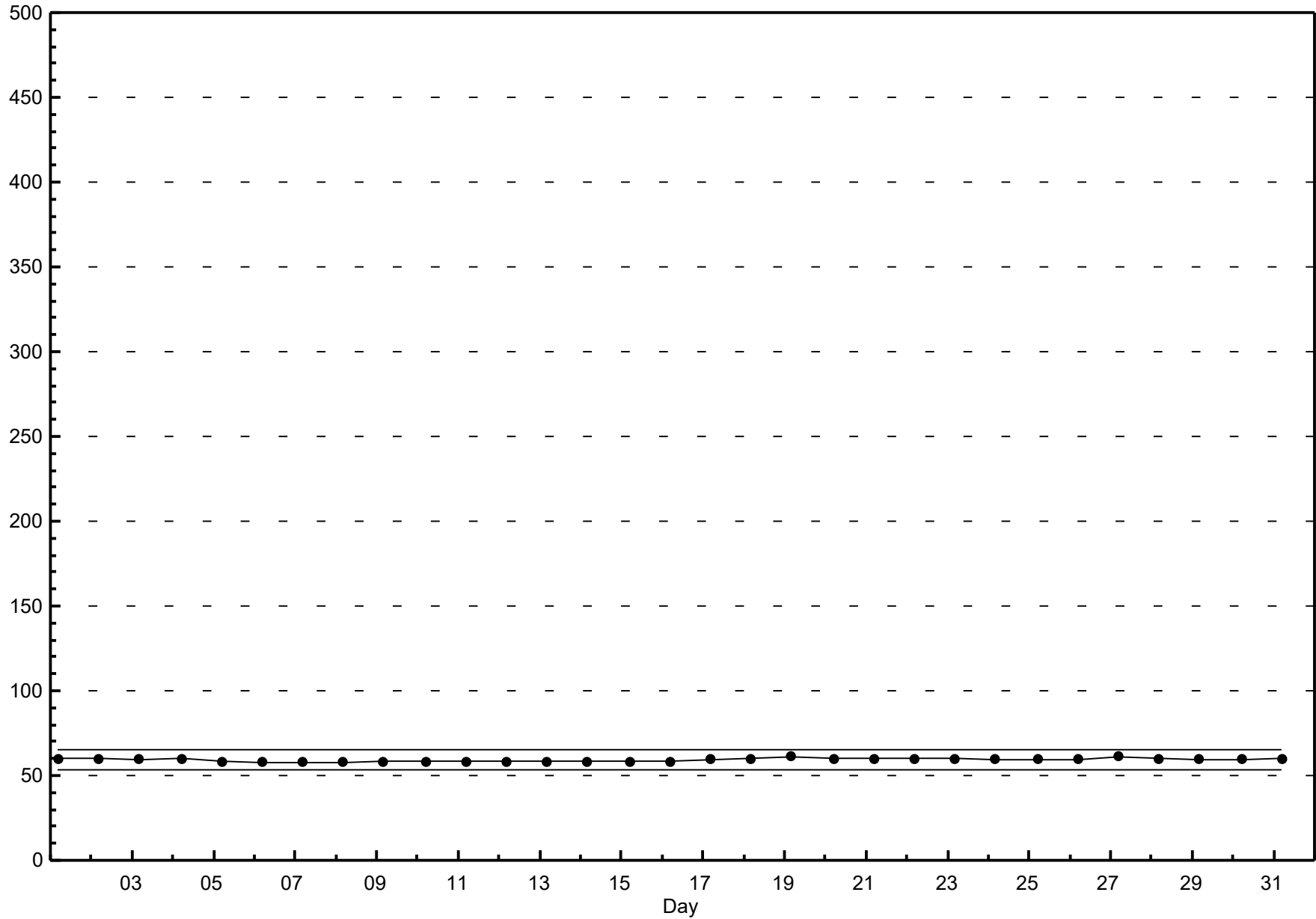


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Beaverlodge - December 2016



Hourly Averages

Nitrogen Dioxide (NO₂) - ppb

Beaverlodge - December 2016

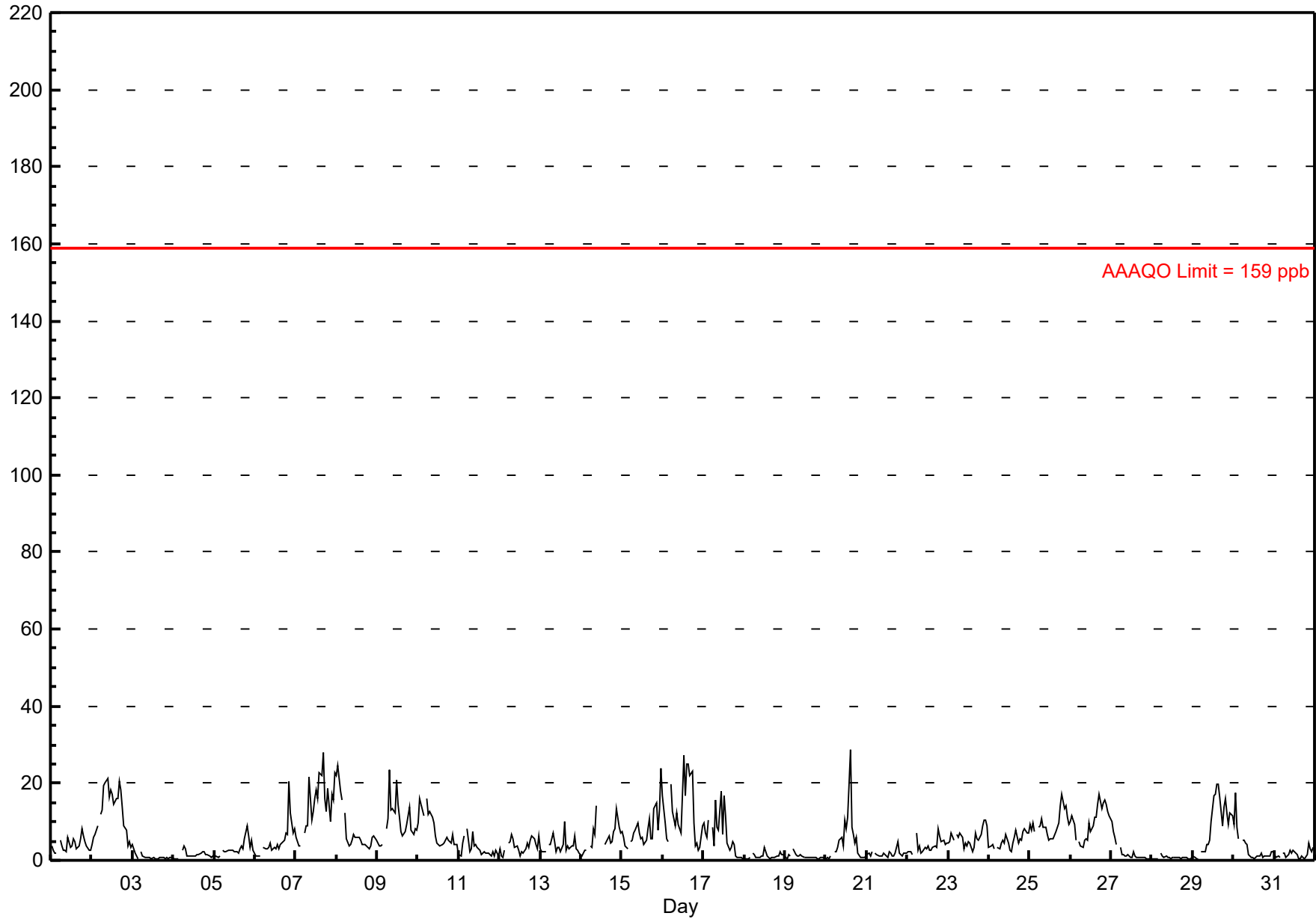
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 28.6 ppb on Dec 20 15:00	Maximum Daily Average: 14.1 ppb on Dec 7		Hours of Data:	709
Minimum Value: 0 ppb on Dec 28 04:00	Minimum Daily Average: 0.7 ppb on Dec 28		Hours of Missing Data:	35
Maximum Diurnal Average: 6.6 ppb at hour 17	Minimum Diurnal Average: 3.9 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 5.47 ppb	Percentiles: P ₁ = 0.4 P ₁₀ = 0.7 Q ₁ = 1.4 Median = 3.8 Q ₃ = 7.3 P ₉₀ = 13.3 P ₉₉ = 23.7		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	4	2	2	2	A	5	4	3	2	2	6	3	4	6	5	3	4	6	8	7	5	4	3	3	4.0	8.2
2-Dec	4	6	7	9	A	12	13	19	20	21	16	18	17	15	16	16	20	18	14	9	8	4	5	3	12.7	21.3
3-Dec	4	2	1	1	A	2	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1.0	4.2
4-Dec	0	0	0	0	A	3	4	3	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1.4	3.9
5-Dec	1	1	1	1	A	3	2	2	2	3	3	3	2	2	2	3	4	3	6	9	6	3	5	3	3.0	9.0
6-Dec	1	1	1	1	A	3	3	3	3	5	3	3	3	4	3	4	4	5	7	7	21	12	7	8	5.0	20.7
7-Dec	6	5	4	4	A	7	9	9	21	11	13	16	18	16	23	22	28	16	13	19	10	17	16	23	14.1	28.1
8-Dec	22	24	18	16	A	12	6	4	4	5	7	6	6	6	5	4	4	4	3	3	4	6	6	5	7.8	24.5
9-Dec	5	4	4	4	A	8	11	24	13	14	12	21	15	11	7	6	8	9	12	14	8	7	8	8	10.0	23.5
10-Dec	10	16	15	11	A	16	12	13	11	10	6	4	4	4	4	4	5	6	5	4	7	4	4	4	7.9	15.9
11-Dec	2	1	4	6	A	8	2	3	7	4	4	3	3	1	2	2	2	2	1	1	2	1	2	1	2.9	8.3
12-Dec	3	1	1	2	A	4	5	7	6	3	4	2	1	2	2	3	4	4	5	6	6	4	3	6	3.7	6.5
13-Dec	3	2	2	2	A	4	4	7	5	2	3	3	2	4	10	2	4	3	4	4	6	3	3	2	3.7	10.1
14-Dec	1	2	3	3	A	4	3	8	7	14	C	C	C	C	4	5	6	4	5	8	8	13	9	7	6.0	14.3
15-Dec	7	6	4	3	A	5	5	7	8	10	7	6	6	4	5	8	11	6	5	14	15	8	13	24	8.1	24.0
16-Dec	17	10	5	5	A	20	13	9	12	9	8	7	27	17	25	25	22	23	10	4	4	3	3	9	12.5	27.4
17-Dec	10	7	6	10	A	9	4	16	8	8	18	7	17	12	4	3	4	5	4	1	1	1	1	0	6.7	17.8
18-Dec	1	0	0	1	A	2	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	2	1	2	1.1	3.2
19-Dec	1	1	1	1	A	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0.9	2.9
20-Dec	0	1	0	1	A	2	2	3	5	6	4	11	8	11	29	9	7	5	6	2	1	1	1	1	5.0	28.6
21-Dec	1	2	1	2	A	2	1	1	1	1	2	1	1	2	2	1	1	2	5	2	2	1	2	2	1.7	4.9
22-Dec	2	2	2	1	A	7	3	4	2	2	3	3	4	3	3	3	4	3	8	6	5	5	4	5	3.7	8.1
23-Dec	4	5	7	5	A	7	6	7	6	3	5	4	5	4	2	3	7	6	5	7	9	10	11	9	6.0	10.6
24-Dec	3	4	4	3	A	3	3	4	5	5	7	4	3	2	4	6	8	5	5	5	7	8	7	7	5.0	8.1
25-Dec	9	8	10	7	A	9	9	11	9	9	7	5	6	6	6	7	9	10	14	17	13	14	11	9	9.3	17.2
26-Dec	10	11	9	5	A	5	4	3	5	6	5	10	7	9	11	11	14	17	14	15	16	15	13	12	9.9	17.2
27-Dec	10	7	6	4	A	3	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	0	0	2.1	9.9
28-Dec	0	0	0	0	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0.7	1.7
29-Dec	1	1	1	0	A	2	2	2	4	4	5	10	17	17	20	20	17	9	14	16	12	9	12	11	9.0	19.9
30-Dec	9	18	9	6	A	5	5	5	4	2	1	1	1	1	1	1	2	1	1	1	1	1	2	2	3.4	17.5
31-Dec	2	1	1	1	A	2	2	1	2	3	2	3	2	1	1	1	1	1	1	1	4	3	2	3	1.7	4.4
	5.0	4.9	4.2	3.9	--	5.8	4.6	5.9	5.8	5.3	5.2	5.3	6.2	5.6	6.5	5.8	6.6	5.7	5.8	6.0	6.0	5.2	5.1	5.6	Diurnal Average	
	22.0	24.5	17.7	15.8	--	19.8	13.0	23.5	21.5	21.3	17.8	20.8	27.4	17.3	28.6	24.8	28.1	23.1	14.3	18.6	20.7	17.1	15.6	24.0	Diurnal Maximum	

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

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - December 2016



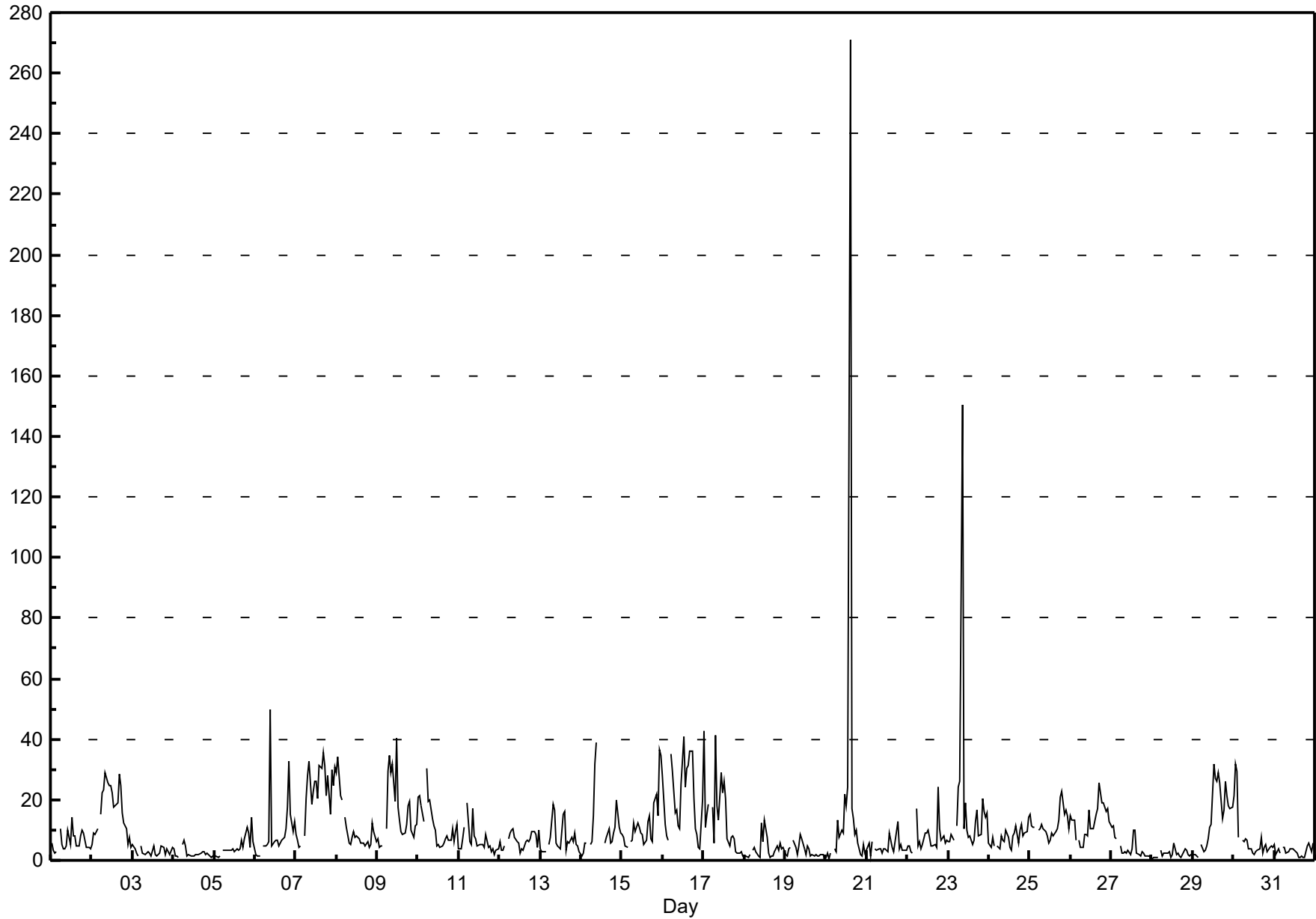
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb Beaverlodge - December 2016

Maximum Value: 271.0 ppb on Dec 20 15:00		Maximum Daily Average: 22.0 ppb on Dec 7		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 28 01:00		Minimum Daily Average: 2.0 ppb on Dec 28		Hours of Data: 709																							
Maximum Diurnal Average: 17.0 ppb at hour 15		Minimum Diurnal Average: 5.8 ppb at hour 4		Hours of Missing Data: 35																							
Monthly Average: 9.68 ppb		Percentiles: P ₁ = 0.8 P ₁₀ = 1.8 Q ₁ = 3.5 Median = 6.2 Q ₃ = 11.4 P ₉₀ = 21.4 P ₉₉ = 40.2		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	6	4	2	3	A	10	5	4	4	5	10	5	14	8	8	5	5	8	10	9	7	4	4	4	6.3	14.4	
2-Dec	5	9	8	11	A	15	22	23	29	26	25	25	22	18	19	19	29	25	15	12	10	5	7	4	16.7	28.9	
3-Dec	5	4	2	1	A	5	2	2	2	3	2	1	5	2	2	2	2	5	4	2	4	3	2	4	2.9	5.4	
4-Dec	4	1	1	1	A	5	7	5	1	2	2	1	2	2	2	2	2	3	3	2	2	2	1	1	2.3	6.6	
5-Dec	1	1	1	1	A	4	3	3	3	3	3	4	3	4	3	4	7	4	7	11	9	4	14	6	4.6	14.2	
6-Dec	2	1	1	1	A	5	5	5	6	50	5	6	7	7	5	5	7	8	10	18	33	15	10	13	9.7	49.9	
7-Dec	9	6	4	5	A	8	20	28	33	18	23	26	26	20	31	30	36	31	22	28	15	30	25	31	22.0	35.7	
8-Dec	29	34	21	20	A	14	11	6	5	8	10	7	8	7	5	6	6	5	6	4	5	12	9	6	10.7	34.3	
9-Dec	7	4	5	5	A	10	30	35	29	32	19	40	18	13	9	9	9	12	18	19	10	7	11	12	15.8	40.5	
10-Dec	21	21	18	13	A	30	19	20	14	11	10	5	5	4	5	6	7	8	7	7	10	6	9	12	11.7	30.4	
11-Dec	4	4	7	11	A	19	6	5	17	8	7	5	5	5	4	9	4	5	3	4	2	3	4	4	6.4	19.1	
12-Dec	6	3	3	5	A	7	9	10	10	8	6	6	2	4	3	6	7	6	7	10	10	8	4	10	6.6	10.5	
13-Dec	4	3	3	3	A	5	8	18	17	6	5	4	4	15	16	4	6	6	8	6	9	5	5	3	7.0	18.4	
14-Dec	1	2	6	6	A	5	6	15	32	39	C	C	C	C	6	8	10	6	6	9	11	20	11	9	10.9	39.1	
15-Dec	9	7	5	4	A	6	6	12	9	13	11	9	8	5	7	13	15	7	6	19	22	15	37	35	12.2	36.8	
16-Dec	28	12	8	7	A	35	29	16	17	11	10	25	41	24	30	31	36	36	20	10	9	4	4	20	20.2	40.9	
17-Dec	43	11	15	18	A	17	6	41	18	13	29	22	26	21	7	5	8	8	7	3	3	2	3	2	14.2	42.7	
18-Dec	1	1	1	2	A	4	4	3	1	1	12	6	14	7	2	1	1	1	3	5	3	6	4	4	3.9	13.5	
19-Dec	2	2	4	4	A	6	4	2	5	9	7	4	2	5	4	1	2	1	2	2	1	2	2	1	3.2	8.6	
20-Dec	1	2	1	2	A	4	3	13	8	10	9	22	18	24	271	17	14	8	10	6	2	2	5	2	19.7	271.0	
21-Dec	3	6	2	6	A	4	3	4	4	3	4	4	3	9	6	4	3	6	13	4	5	3	4	3	4.6	12.8	
22-Dec	5	5	3	2	A	17	5	6	4	5	9	9	10	7	5	5	5	4	24	11	7	8	6	7	7.3	24.2	
23-Dec	6	6	9	7	A	11	24	26	151	10	19	10	8	8	5	6	13	16	8	9	21	16	14	16	18.2	150.5	
24-Dec	6	4	8	5	A	5	4	8	7	6	10	8	4	3	8	9	11	6	10	12	8	9	9	14	7.6	14.1	
25-Dec	15	11	11	11	A	10	10	12	11	9	8	6	6	9	8	9	11	13	21	23	15	17	15	11	11.8	22.9	
26-Dec	15	13	13	7	A	7	4	4	8	8	8	17	10	10	13	15	17	26	19	19	18	16	17	13	13.0	25.7	
27-Dec	11	11	8	7	A	5	2	2	3	2	3	2	4	10	10	2	2	2	3	2	1	1	2	1	4.2	11.3	
28-Dec	0	1	1	1	A	3	2	2	2	2	3	1	2	6	2	2	2	1	2	4	3	2	1	2	2.0	5.9	
29-Dec	2	2	2	1	A	5	3	3	5	7	11	12	32	27	26	29	26	14	17	26	21	18	17	17	14.0	31.6	
30-Dec	21	32	30	7	A	7	6	7	7	4	4	2	2	3	3	4	8	2	4	5	3	4	5	4	7.6	31.9	
31-Dec	5	2	4	2	A	4	4	2	3	4	4	4	3	2	1	1	1	1	1	5	5	4	3	6	3.1	5.9	
		8.9	7.3	6.6	5.8	--	9.5	8.9	11.1	15.0	10.8	9.5	9.9	10.4	9.7	17.0	8.6	10.2	9.1	9.7	9.8	9.2	8.2	8.5	8.9	Diurnal Average	
		42.7	34.3	29.5	20.2	--	34.9	29.6	41.1	150.5	49.9	29.0	40.5	40.9	27.2	271.0	31.3	36.0	35.8	24.2	28.1	32.7	29.9	36.8	34.9	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

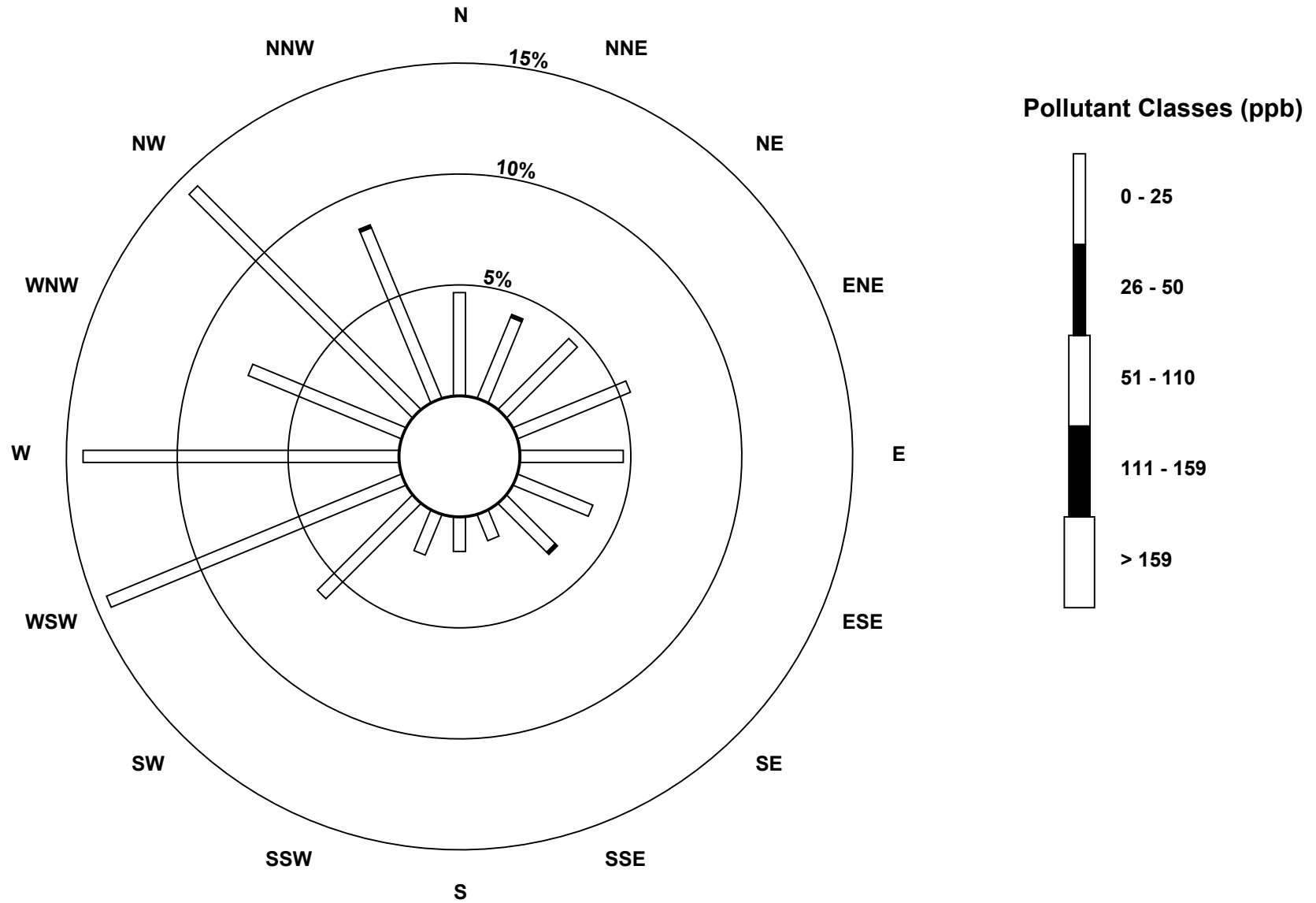
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - December 2016



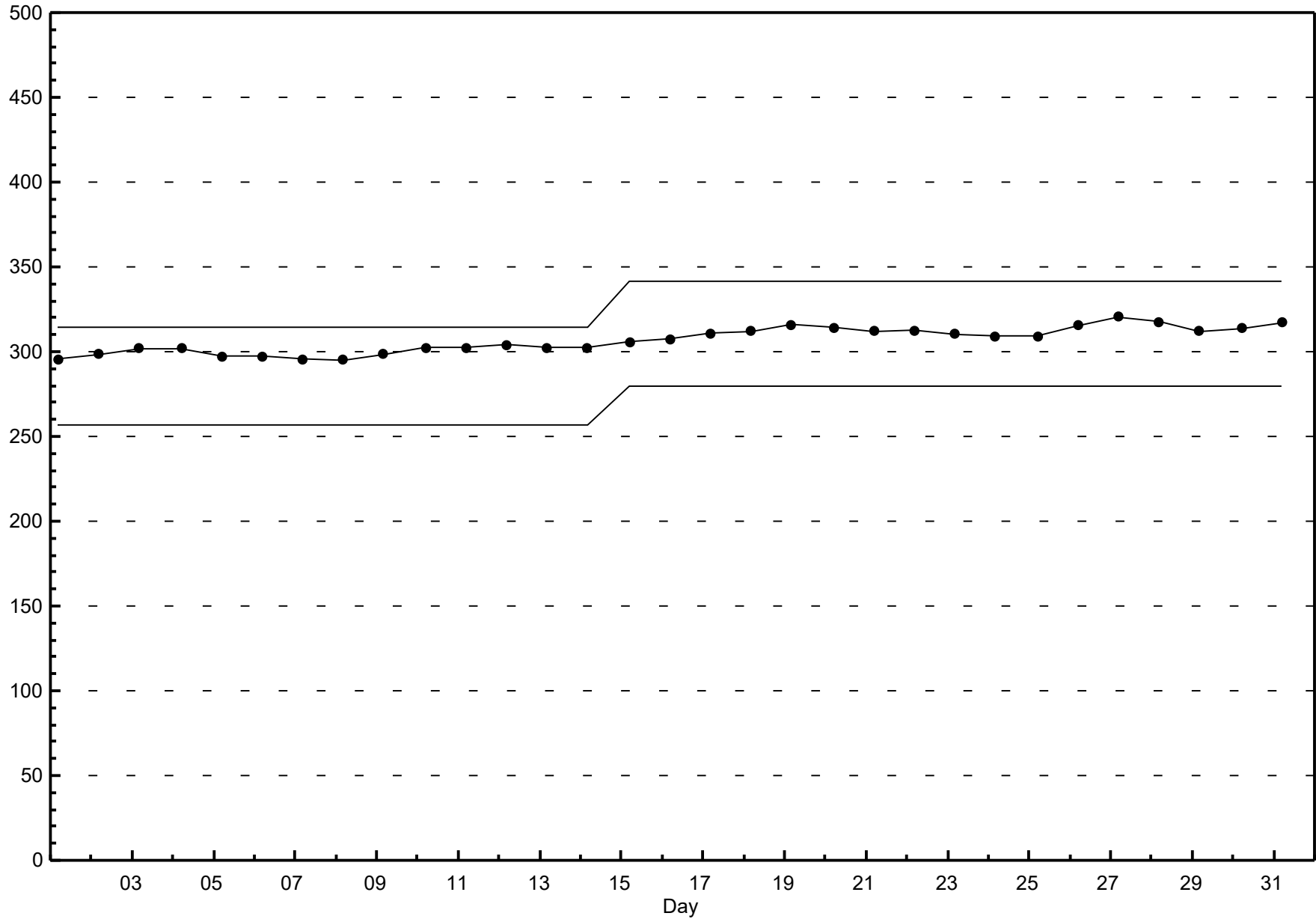
Pollutant Rose

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - December 2016



Span Responses

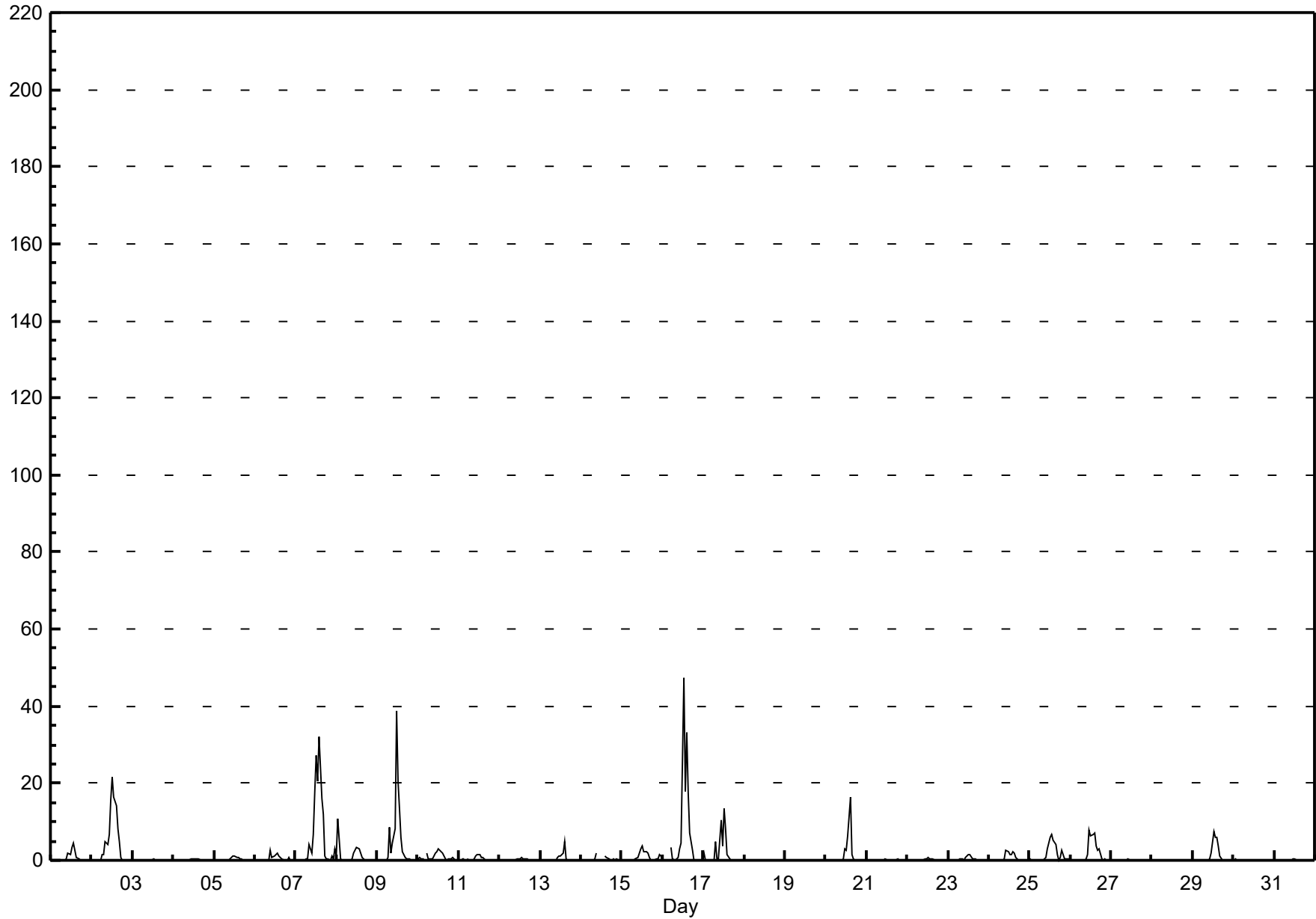
**Nitrogen Dioxide (NO₂)
Beaverlodge - December 2016**



Hourly Averages

Nitrogen Oxide (NO) - ppb Beaverlodge - December 2016

Maximum Value: 47.4 ppb on Dec 16 13:00		Maximum Daily Average: 6.3 ppb on Dec 7		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 6 01:00		Minimum Daily Average: 0.0 ppb on Dec 27		Hours of Data: 709																						
Maximum Diurnal Average: 5.9 ppb at hour 13		Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Missing Data: 35																						
Monthly Average: 1.19 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 2.5 P ₉₉ = 20.0		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	0	0	0	0	A	0	0	0	0	0	2	1	3	4	3	1	0	0	0	0	0	0	0	0	0.7	4.5
2-Dec	0	0	0	0	A	0	1	2	5	4	7	15	22	16	14	8	5	1	0	0	0	0	0	0	4.4	21.7
3-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
4-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
5-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0.2	1.0
6-Dec	0	0	0	0	A	0	0	0	0	2	1	1	1	2	1	1	0	0	0	0	0	1	0	0	0.5	2.5
7-Dec	0	0	0	0	A	0	0	0	4	2	7	17	27	20	32	16	12	1	0	0	0	1	0	3	6.3	32.0
8-Dec	1	11	0	0	A	0	0	0	0	0	2	3	3	3	2	1	0	0	0	0	0	0	0	0	1.2	10.9
9-Dec	0	0	0	0	A	0	1	9	2	4	8	39	21	13	6	2	1	0	0	0	0	0	0	0	4.7	38.6
10-Dec	0	1	1	0	A	2	1	0	0	1	2	2	3	3	2	1	0	0	0	0	0	1	0	0	0.9	3.0
11-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	0.4	1.5
12-Dec	0	0	0	0	A	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0.2	0.6
13-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	2	5	0	0	0	0	0	0	0	0	0	0.5	4.7
14-Dec	0	0	0	0	A	0	0	0	1	2	C	C	C	C	1	1	0	0	0	0	0	0	0	0	0.3	1.9
15-Dec	0	0	0	0	A	0	0	0	0	1	2	3	4	2	2	2	1	0	0	0	0	0	1	1	0.9	3.8
16-Dec	0	0	0	0	A	3	0	0	0	1	3	5	47	18	33	17	7	3	0	0	0	0	0	0	6.0	47.4
17-Dec	2	0	0	0	A	0	0	5	0	0	11	4	14	8	1	0	0	0	0	0	0	0	0	0	2.0	13.6
18-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
19-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
20-Dec	0	0	0	0	A	0	0	0	0	0	0	3	3	6	16	1	0	0	0	0	0	0	0	0	1.3	16.4
21-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
22-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.1	0.6
23-Dec	0	0	0	0	A	0	0	0	0	0	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0.4	1.6
24-Dec	0	0	0	0	A	0	0	0	0	0	2	2	2	1	2	2	1	0	0	0	0	0	0	0	0.6	2.4
25-Dec	0	0	0	0	A	0	0	0	0	1	3	5	6	7	5	4	2	0	1	2	0	0	0	0	1.6	6.8
26-Dec	0	0	0	0	A	0	0	0	0	0	1	8	6	7	7	4	2	3	0	0	0	0	0	0	1.8	8.0
27-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2
28-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
29-Dec	0	0	0	0	A	0	0	0	0	0	0	2	7	6	6	4	1	0	0	0	0	0	0	0	1.2	7.4
30-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
31-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4
		0.2	0.4	0.1	0.1	--	0.2	0.1	0.6	0.5	0.7	1.9	3.9	5.9	4.2	4.6	2.2	1.1	0.3	0.1	0.2	0.1	0.1	0.1	0.2	Diurnal Average
		1.7	10.9	0.5	0.5	--	3.2	1.4	8.6	4.7	4.4	10.5	38.6	47.4	20.4	33.1	17.4	12.1	2.8	0.7	2.5	0.6	1.1	1.5	3.1	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								



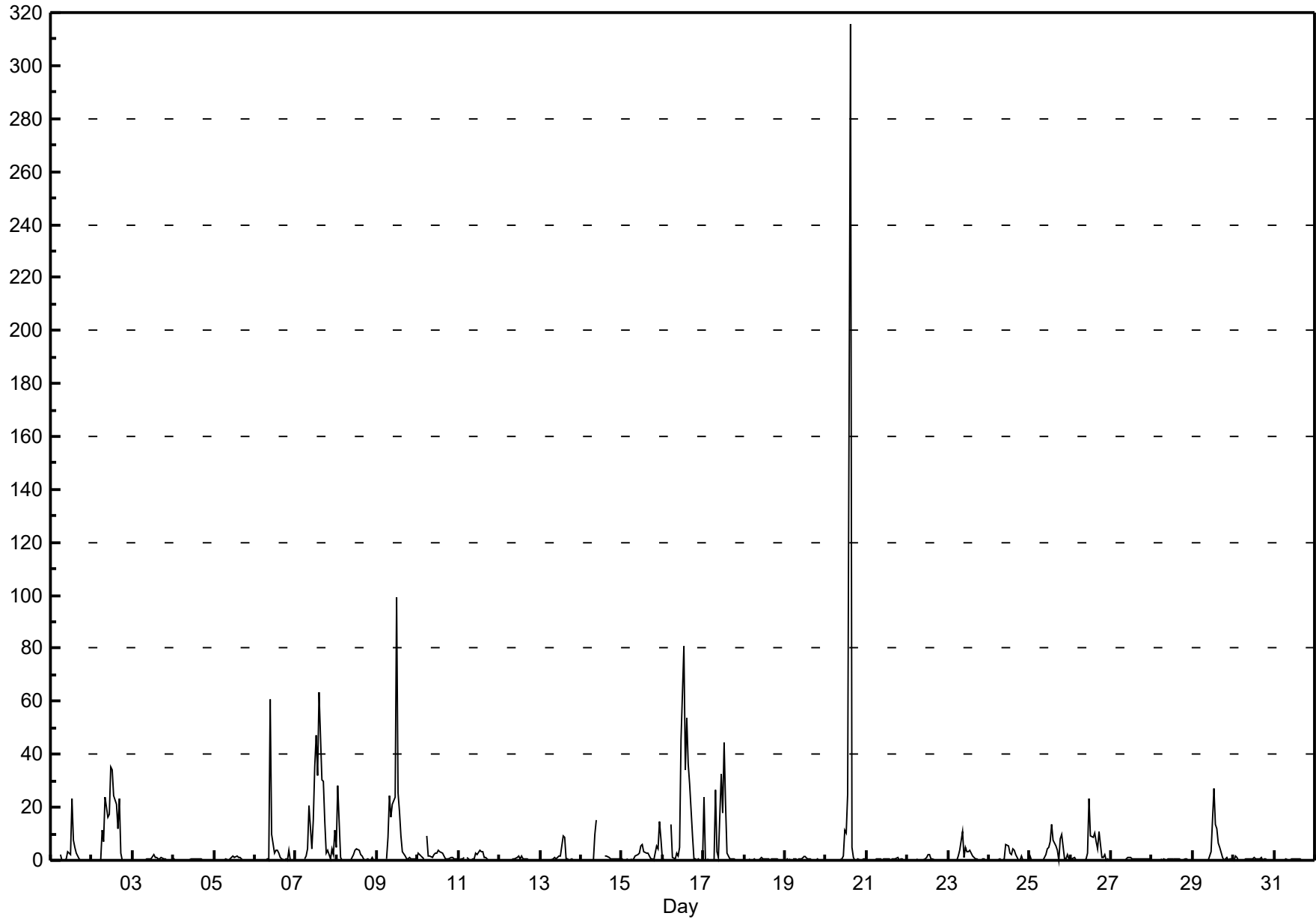
Hourly Maximums

Nitrogen Oxide (NO) - ppb Beaverlodge - December 2016

Maximum Value: 315.6 ppb on Dec 20 15:00		Maximum Daily Average: 16.2 ppb on Dec 20		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 27 06:00		Minimum Daily Average: 0.2 ppb on Dec 31		Hours of Data: 709																						
Maximum Diurnal Average: 17.3 ppb at hour 15		Minimum Diurnal Average: 0.2 ppb at hour 4		Hours of Missing Data: 35																						
Monthly Average: 3.49 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.4 Q ₃ = 1.4 P ₉₀ = 7.6 P ₉₉ = 43.8		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	0	0	0	0	A	2	0	0	0	1	3	2	23	8	5	3	1	0	0	0	0	0	0	0	2.2	23.5
2-Dec	0	0	0	0	A	0	11	7	24	16	18	35	34	24	21	12	23	3	0	0	0	0	0	0	10.0	35.4
3-Dec	0	0	0	0	A	0	0	0	1	1	0	1	2	1	1	1	1	1	1	0	0	0	0	0	0.5	2.3
4-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0.3	0.8
5-Dec	0	0	0	0	A	0	0	0	0	1	1	2	1	2	1	1	0	0	0	0	0	0	0	0	0.5	1.8
6-Dec	0	0	0	0	A	0	0	0	0	61	10	3	4	4	3	1	0	0	1	0	4	0	0	0	3.9	60.7
7-Dec	0	0	0	0	A	0	2	4	20	5	15	35	47	32	63	30	30	15	3	4	1	5	2	11	14.1	63.4
8-Dec	5	28	1	0	A	0	0	0	0	1	2	4	4	4	2	2	1	0	1	0	0	1	0	0	2.5	28.1
9-Dec	0	0	0	0	A	0	8	24	16	21	24	100	26	18	9	3	2	1	1	1	0	0	0	1	11.2	99.5
10-Dec	3	2	2	0	A	9	2	2	1	2	3	3	4	3	3	2	1	1	1	1	1	1	1	1	2.0	9.5
11-Dec	0	0	1	1	A	1	0	0	0	1	3	2	4	3	3	1	1	0	0	0	0	0	0	0	1.0	3.6
12-Dec	0	0	0	0	A	0	0	0	0	0	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0.4	1.7
13-Dec	0	0	0	0	A	0	0	1	1	1	1	2	2	9	9	1	1	0	0	0	0	0	0	0	1.2	9.0
14-Dec	0	0	0	0	A	0	0	0	10	15	C	C	C	C	2	1	1	0	0	0	1	1	0	0	1.7	15.4
15-Dec	0	0	0	0	A	0	0	0	2	2	3	6	6	3	3	3	2	1	0	0	5	4	14	8	2.8	14.4
16-Dec	1	0	0	0	A	13	1	1	3	2	5	46	81	34	53	37	29	9	0	1	0	0	0	0	13.7	80.9
17-Dec	24	0	0	0	A	0	0	27	3	1	33	18	44	21	3	1	0	0	0	0	0	0	0	0	7.7	44.3
18-Dec	0	0	0	0	A	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0.3	0.9
19-Dec	0	0	0	1	A	0	0	0	0	1	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0.4	1.5
20-Dec	0	0	0	0	A	0	0	0	0	0	2	11	10	25	316	5	1	0	0	0	0	0	0	0	16.2	315.6
21-Dec	0	0	0	0	A	0	1	1	1	0	1	1	1	1	0	1	1	0	1	0	1	0	0	0	0.4	1.1
22-Dec	0	0	0	0	A	0	0	0	0	0	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0.4	2.2
23-Dec	0	0	0	0	A	0	1	4	11	1	5	3	3	4	2	1	1	1	0	0	0	0	0	0	1.7	11.0
24-Dec	0	0	0	0	A	0	0	0	0	1	6	6	3	2	4	4	2	0	0	2	0	0	0	1	1.4	5.7
25-Dec	1	0	0	0	A	0	0	0	0	2	4	5	7	14	8	5	4	0	8	10	1	1	2	1	3.2	13.7
26-Dec	1	0	1	0	A	0	0	0	0	1	3	24	9	9	10	7	5	11	1	1	2	0	0	0	3.7	23.6
27-Dec	0	0	0	0	A	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0.3	1.0
28-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.3	0.6
29-Dec	0	0	0	0	A	0	0	0	0	0	1	3	27	14	12	7	5	1	0	0	1	0	0	0	3.2	27.0
30-Dec	0	2	1	0	A	0	0	0	1	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0.5	1.9
31-Dec	0	0	0	0	A	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6
		1.2	1.2	0.3	0.2	--	1.0	1.0	2.4	3.1	4.4	4.9	10.6	11.7	8.0	17.3	4.2	3.6	1.5	0.7	0.8	0.7	0.5	0.8	0.8	Diurnal Average
		24.1	28.1	1.8	1.1	--	13.5	11.2	26.8	23.8	60.7	32.8	99.5	80.9	34.1	315.6	36.6	29.6	14.6	8.0	10.0	5.5	4.5	14.4	11.4	Diurnal Maximum
C - Calibration		A - Automated Daily Zero Span																								

Hourly Maximums

Nitrogen Oxide (NO) - ppb
Beaverlodge - December 2016

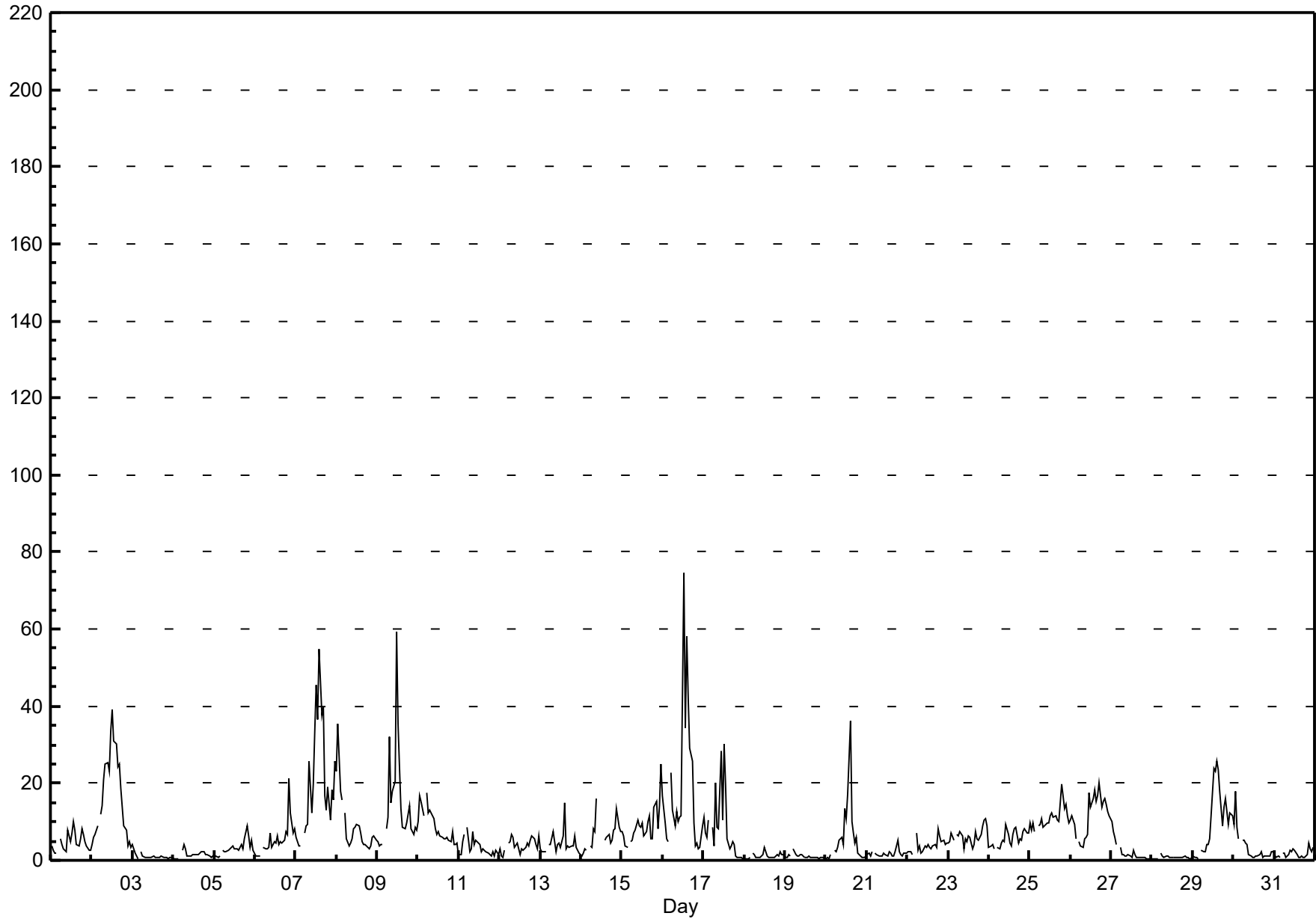


Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

Beaverlodge - December 2016

Maximum Value: 74.7 ppb on Dec 16 13:00		Maximum Daily Average: 20.4 ppb on Dec 7		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 28 04:00		Minimum Daily Average: 0.7 ppb on Dec 28		Hours of Data: 709																							
Maximum Diurnal Average: 12.1 ppb at hour 13		Minimum Diurnal Average: 3.9 ppb at hour 4		Hours of Missing Data: 35																							
Monthly Average: 6.64 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 0.7 Q ₁ = 1.5 Median = 4.1 Q ₃ = 8.3 P ₉₀ = 15.1 P ₉₉ = 38.8		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	4	2	2	2	A	5	4	3	3	2	8	5	7	10	8	4	4	6	8	7	5	4	3	3	4.7	10.1	
2-Dec	4	6	7	9	A	12	14	21	25	25	23	34	39	31	30	24	25	19	14	9	8	4	5	3	17.0	39.0	
3-Dec	4	2	1	1	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	4.2	
4-Dec	0	0	0	0	A	3	4	3	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1.5	3.9	
5-Dec	1	1	1	1	A	3	2	2	2	3	3	4	3	3	3	3	4	3	6	9	6	3	5	3	3.2	9.1	
6-Dec	1	1	1	1	A	3	3	3	4	7	3	5	4	6	4	5	5	5	7	7	21	12	7	8	5.5	21.2	
7-Dec	6	5	4	4	A	7	9	9	26	12	20	33	45	37	55	38	40	17	13	19	10	18	16	26	20.4	54.7	
8-Dec	23	35	18	16	A	12	6	4	4	6	8	8	9	9	7	5	4	4	3	3	4	6	6	5	9.0	35.3	
9-Dec	5	4	4	4	A	8	11	32	15	18	21	59	35	24	13	9	8	10	12	14	8	7	8	8	14.7	59.4	
10-Dec	10	17	15	12	A	18	12	13	11	11	8	7	7	6	6	6	6	6	5	5	7	4	4	4	8.8	17.7	
11-Dec	2	1	5	7	A	8	2	3	8	4	5	5	4	2	3	3	2	2	2	1	2	1	2	1	3.3	8.5	
12-Dec	3	1	1	2	A	5	5	7	6	4	4	3	1	3	2	3	5	4	5	6	6	4	3	6	3.9	6.6	
13-Dec	3	2	2	2	A	4	4	7	5	2	4	4	3	6	15	3	4	3	4	4	6	3	3	2	4.2	14.8	
14-Dec	1	2	3	3	A	4	3	8	7	16	C	C	C	C	5	6	7	5	5	8	8	14	9	7	6.3	16.1	
15-Dec	7	6	4	3	A	5	5	7	8	10	9	9	10	6	7	10	11	6	5	14	15	8	14	25	9.0	25.0	
16-Dec	17	10	6	5	A	23	13	9	13	10	11	12	75	34	58	42	29	26	10	4	5	3	3	9	18.5	74.7	
17-Dec	11	7	6	10	A	9	4	20	9	8	28	10	30	20	6	3	4	5	4	1	1	1	1	0	8.6	30.3	
18-Dec	1	0	0	1	A	2	2	1	1	1	1	1	3	1	1	1	1	1	1	1	1	2	2	2	1.1	3.3	
19-Dec	1	1	1	1	A	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1.0	2.9	
20-Dec	0	1	0	1	A	2	2	3	5	6	4	14	11	17	36	10	7	5	6	2	1	1	1	1	5.9	36.0	
21-Dec	1	2	1	2	A	2	1	1	1	1	2	2	1	2	2	1	1	2	5	2	2	1	2	2	1.7	5.0	
22-Dec	2	2	2	1	A	7	3	4	2	2	4	3	4	3	3	4	4	3	8	6	5	5	4	5	3.8	8.1	
23-Dec	4	5	7	5	A	7	6	8	6	3	5	5	6	6	3	4	7	6	5	7	9	11	11	9	6.3	10.6	
24-Dec	3	4	4	3	A	3	3	4	5	5	9	7	4	4	7	8	9	5	5	5	7	8	7	7	5.6	9.3	
25-Dec	10	8	10	7	A	9	9	11	9	9	10	10	12	12	11	12	10	10	15	20	14	15	12	10	11.0	19.7	
26-Dec	10	12	9	5	A	5	4	3	5	6	7	18	14	16	18	15	17	20	14	15	16	15	13	12	11.7	20.1	
27-Dec	10	7	6	4	A	3	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	0	0	0	2.1	9.9	
28-Dec	0	0	0	0	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0.7	1.7	
29-Dec	1	1	1	1	A	2	2	2	4	4	5	12	24	23	26	24	18	9	14	16	13	9	12	12	10.2	25.8	
30-Dec	9	18	9	6	A	5	5	5	4	2	1	1	1	1	1	1	2	1	1	1	1	1	2	2	3.5	17.9	
31-Dec	2	1	1	1	A	2	2	1	2	3	2	3	3	2	1	1	1	1	1	1	4	3	2	3	1.7	4.5	
		5.1	5.3	4.2	3.9	--	6.0	4.7	6.4	6.3	6.0	7.1	9.2	12.1	9.8	10.8	8.0	7.7	6.0	5.9	6.2	6.1	5.3	5.2	5.7	Diurnal Average	
		23.0	35.3	18.0	15.8	--	22.9	14.3	32.0	25.6	25.3	28.3	59.4	74.7	36.6	58.2	42.2	40.0	25.6	15.0	19.7	21.2	18.2	15.7	25.6	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									



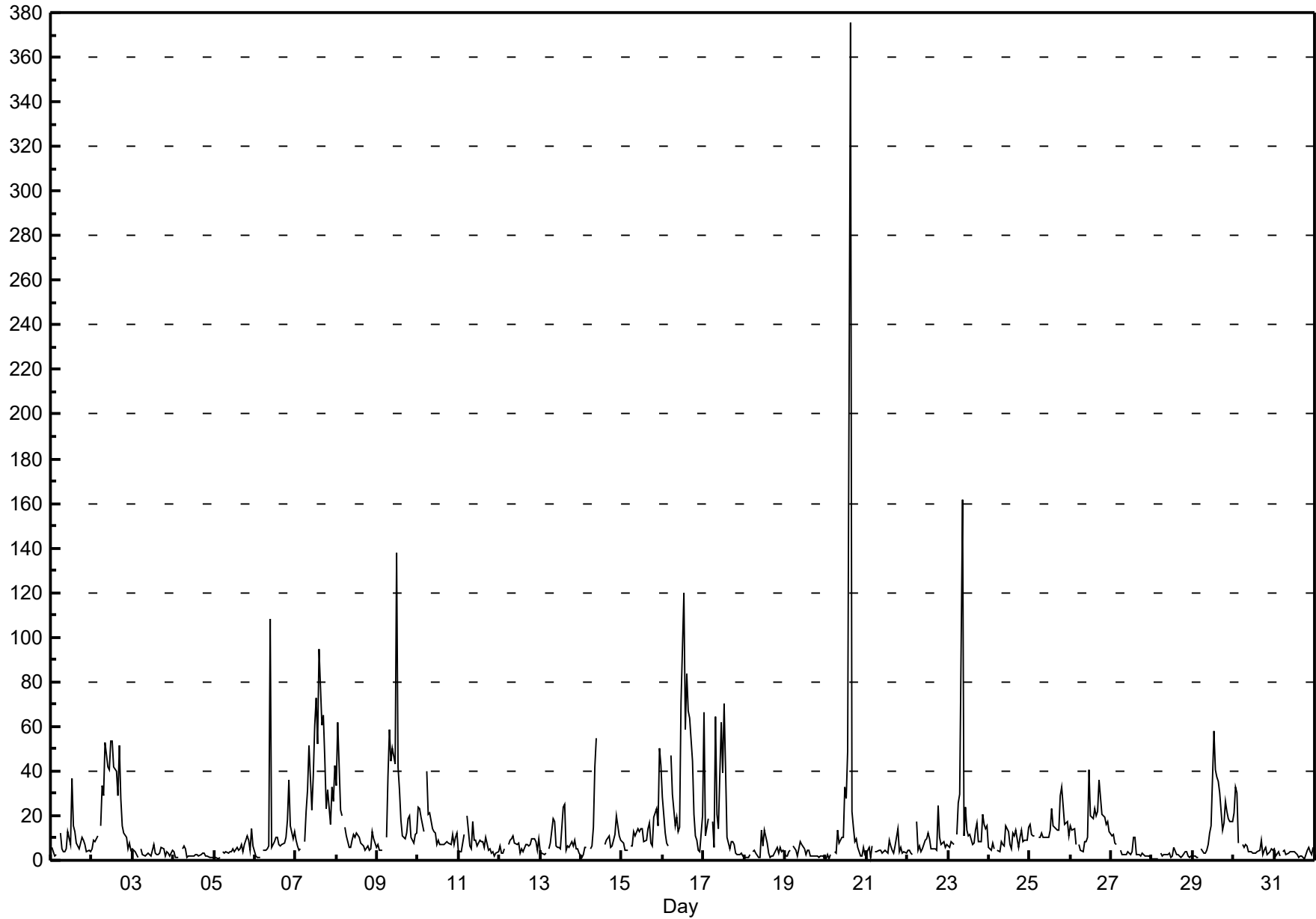
Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb Beaverlodge - December 2016

Maximum Value: 375.5 ppb on Dec 20 15:00		Maximum Daily Average: 35.7 ppb on Dec 7		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 28 01:00		Minimum Daily Average: 2.2 ppb on Dec 28		Hours of Data: 709																							
Maximum Diurnal Average: 27.4 ppb at hour 15		Minimum Diurnal Average: 5.9 ppb at hour 4		Hours of Missing Data: 35																							
Monthly Average: 12.66 ppb		Percentiles: P ₁ = 0.9 P ₁₀ = 2.1 Q ₁ = 3.8 Median = 6.9 Q ₃ = 13.2 P ₉₀ = 28.9 P ₉₉ = 77.1		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	6	4	2	3	A	12	5	4	4	5	13	7	37	16	13	7	5	8	10	9	7	4	4	4	8.3	37.0	
2-Dec	5	9	8	11	A	15	33	29	53	42	40	53	54	42	40	29	52	28	15	12	10	5	7	4	26.0	53.6	
3-Dec	5	4	2	1	A	5	2	2	3	3	3	2	7	3	3	3	3	6	5	2	4	3	2	4	3.4	7.0	
4-Dec	4	1	1	1	A	5	7	5	1	2	2	2	2	2	2	2	3	3	3	2	2	2	1	1	2.5	6.7	
5-Dec	1	1	1	1	A	4	3	4	3	4	4	5	4	6	4	5	7	4	7	11	9	4	14	6	4.9	14.3	
6-Dec	2	2	2	1	A	5	5	5	6	108	6	8	10	10	7	7	7	8	10	18	36	15	10	13	13.1	107.9	
7-Dec	9	7	4	5	A	8	22	31	52	23	38	60	73	52	94	60	65	46	23	31	16	33	27	42	35.7	94.4	
8-Dec	34	62	22	20	A	15	11	6	6	9	12	11	12	11	8	7	6	5	7	4	5	13	9	6	13.0	61.5	
9-Dec	7	4	5	5	A	10	38	59	44	50	43	138	42	32	18	11	10	12	19	20	10	8	11	12	26.5	137.7	
10-Dec	24	23	19	13	A	40	21	22	14	13	13	7	9	7	7	8	8	7	7	7	12	7	10	12	13.4	39.7	
11-Dec	4	4	8	12	A	20	6	5	17	9	9	7	9	8	8	6	10	5	5	3	4	2	4	4	7.3	20.3	
12-Dec	6	4	3	5	A	7	9	10	11	8	7	8	3	5	4	7	7	6	7	10	10	9	4	10	6.9	10.6	
13-Dec	4	3	3	3	A	5	8	19	17	6	6	6	5	24	25	4	7	6	8	6	9	5	5	3	8.1	25.2	
14-Dec	1	2	6	6	A	5	6	15	42	54	C	C	C	C	7	9	11	6	6	9	11	20	11	9	12.5	54.4	
15-Dec	9	8	5	4	A	7	6	13	11	14	13	14	14	8	9	14	17	8	7	19	23	16	50	42	14.4	50.0	
16-Dec	28	12	8	7	A	47	30	16	19	13	15	71	120	58	83	67	63	45	20	11	9	5	4	20	33.5	119.9	
17-Dec	66	11	15	19	A	17	6	65	21	14	62	39	70	41	10	5	8	8	7	3	3	2	3	2	21.6	70.3	
18-Dec	1	2	1	2	A	4	4	3	1	1	13	6	14	8	3	1	2	2	3	6	3	6	4	4	4.1	13.6	
19-Dec	2	2	4	5	A	7	4	2	5	9	7	5	3	5	4	2	2	2	2	2	2	2	2	1	3.4	8.6	
20-Dec	1	3	1	2	A	4	3	13	8	10	10	33	28	49	376	22	15	9	10	6	2	2	5	3	26.7	375.5	
21-Dec	3	6	2	6	A	4	4	5	4	3	4	4	3	9	6	4	3	6	14	4	6	3	4	3	4.8	13.9	
22-Dec	5	5	3	2	A	17	5	6	4	5	9	10	12	9	5	5	5	5	24	11	7	8	6	7	7.6	24.3	
23-Dec	6	6	9	7	A	11	26	29	162	11	24	14	11	11	7	8	13	17	8	9	21	16	14	16	19.8	161.5	
24-Dec	6	4	8	5	A	5	4	8	7	6	15	13	7	5	12	11	13	6	10	14	8	9	9	15	8.7	15.4	
25-Dec	16	11	11	11	A	10	10	12	11	11	11	10	13	23	16	14	14	13	29	33	16	17	17	11	14.7	32.9	
26-Dec	15	14	14	7	A	7	4	4	9	9	11	40	20	18	23	20	22	36	21	20	19	16	17	13	16.5	40.3	
27-Dec	11	11	8	7	A	5	2	2	3	2	4	3	4	10	10	2	2	2	3	3	2	2	2	1	4.4	11.4	
28-Dec	0	1	1	1	A	3	2	3	2	2	3	1	2	6	2	3	2	1	2	4	4	2	1	2	2.2	6.0	
29-Dec	2	2	2	1	A	5	3	3	5	7	12	15	58	41	38	35	30	14	17	26	22	18	17	17	17.0	58.1	
30-Dec	21	33	30	7	A	7	6	7	7	4	4	3	3	4	4	4	9	2	5	6	3	4	5	4	7.9	33.0	
31-Dec	5	2	4	2	A	4	4	2	3	4	4	4	4	3	1	2	2	1	1	5	6	4	3	6	3.3	5.9	
		10.0	8.4	6.8	5.9	--	10.3	9.7	13.2	17.9	14.9	13.9	20.0	21.8	17.6	27.4	12.4	13.6	10.5	10.2	10.5	9.7	8.5	9.2	9.6	Diurnal Average	
		66.4	61.5	30.2	20.2	--	47.3	38.0	64.7	161.5	107.9	61.5	137.7	119.9	58.5	375.5	67.0	65.1	45.9	28.9	32.9	36.3	32.7	50.0	42.5	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

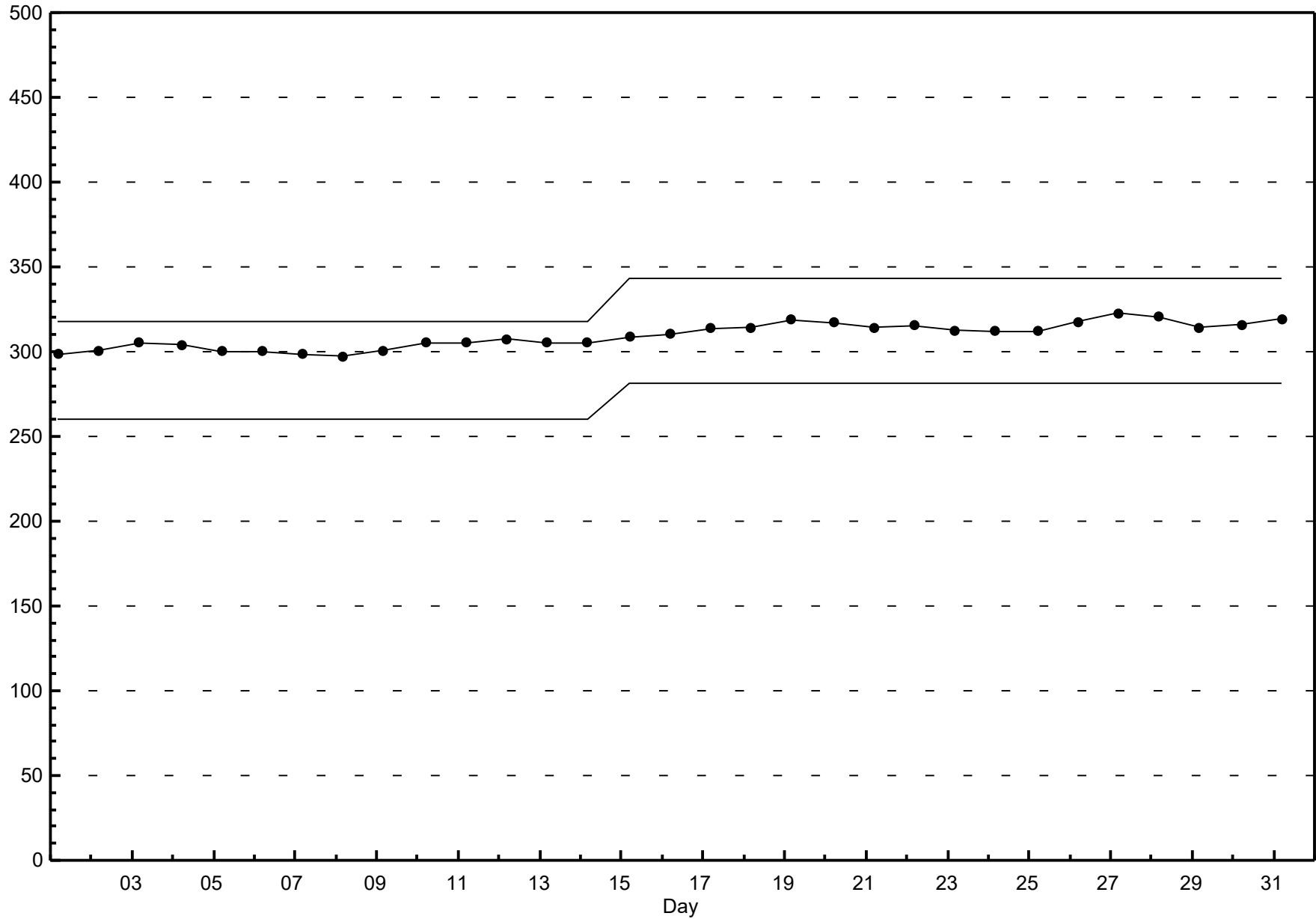
Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb
Beaverlodge - December 2016



Span Responses

**Oxides of Nitrogen (NO_x)
Beaverlodge - December 2016**



Hourly Averages

Ozone (O₃) - ppb

Beaverlodge - December 2016

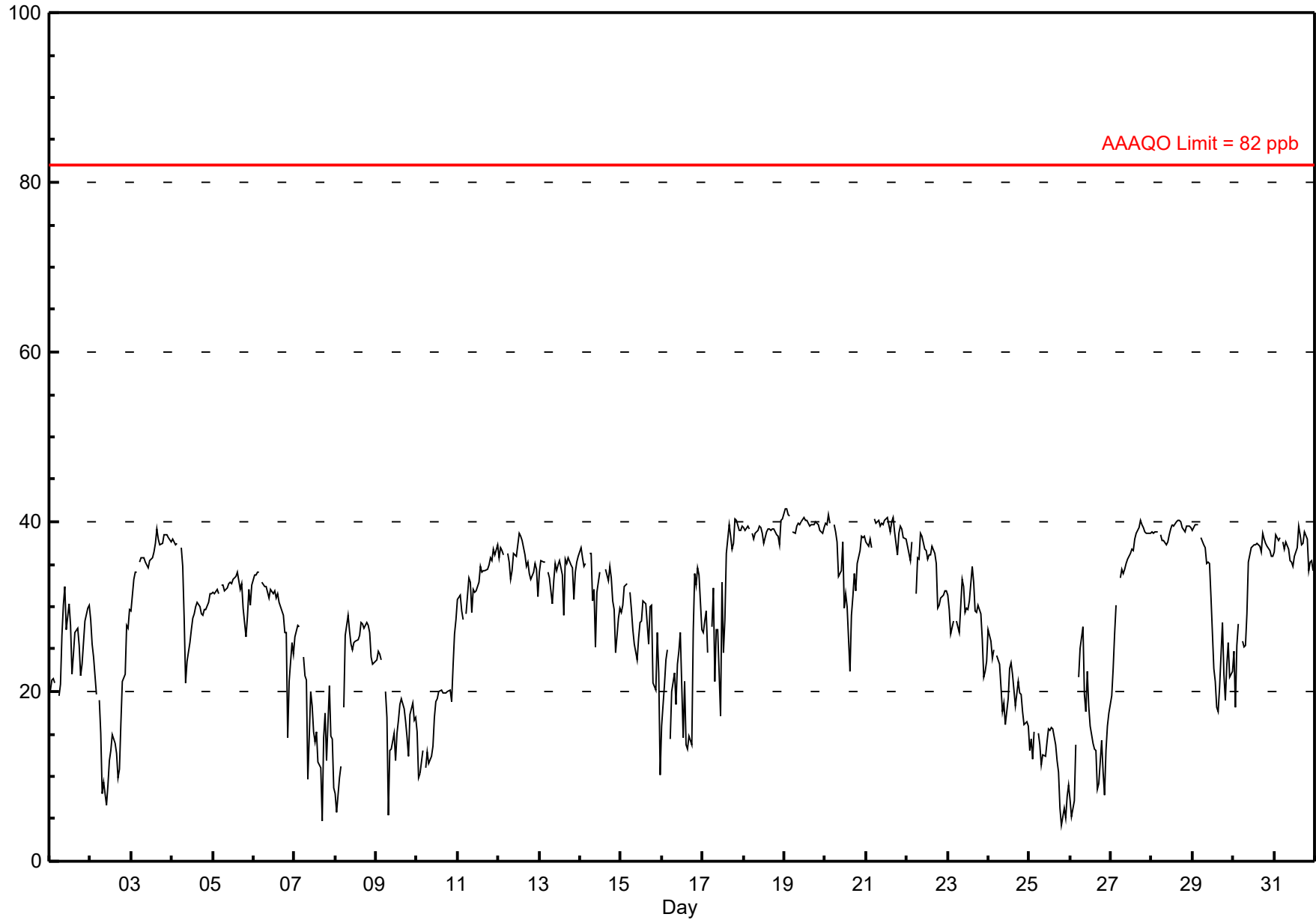
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 41.6 ppb on Dec 19 02:00	Maximum Daily Average: 39.9 ppb on Dec 19
Minimum Value: 4 ppb on Dec 25 20:00	Hours of Data: 710
Maximum Diurnal Average: 29.8 ppb at hour 7	Hours of Missing Data: 34
Monthly Average: 28.98 ppb	Hours of Calibration: 34
Minimum Daily Average: 11.8 ppb on Dec 25	Percent Operational Time: 100.0
Minimum Diurnal Average: 28.0 ppb at hour 9	
Percentiles: P ₁ = 6.2 P ₁₀ = 14.5 Q ₁ = 22.4 Median = 31.3 Q ₃ = 36.8 P ₉₀ = 39.1 P ₉₉ = 40.4	

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	21	21	21	A	20	21	27	30	32	27	30	28	22	24	27	27	25	22	23	26	28	30	30	25.4	32.4																							
2-Dec	28	26	24	20	A	19	15	8	9	7	9	12	13	15	14	13	10	11	16	21	22	28	27	30	17.2	29.6																							
3-Dec	29	33	34	34	A	35	36	36	35	35	35	35	36	36	37	39	38	37	38	39	38	39	38	38	36.1	39.2																							
4-Dec	38	38	37	37	A	37	35	29	21	24	26	27	29	29	30	31	30	29	29	30	30	31	31	32	30.8	37.9																							
5-Dec	32	31	32	32	A	32	32	32	32	33	33	33	33	34	34	33	32	33	30	26	29	32	30	32	31.9	34.1																							
6-Dec	34	34	34	34	A	33	32	32	32	31	32	31	32	31	32	30	30	29	27	27	15	21	26	24	29.7	34.1																							
7-Dec	26	27	28	28	A	24	22	21	10	20	18	15	14	15	12	11	5	15	17	12	21	15	14	9	17.3	27.9																							
8-Dec	8	6	10	11	A	18	27	29	27	26	25	26	26	26	27	28	28	28	28	27	24	23	24	24	23.0	28.9																							
9-Dec	24	25	24	24	A	20	17	5	13	13	15	12	15	17	18	19	18	16	15	12	17	19	17	17	17.1	24.7																							
10-Dec	15	10	10	13	A	11	13	12	12	14	17	19	19	20	20	20	20	20	20	20	19	23	27	28	17.5	28.5																							
11-Dec	31	31	30	28	A	29	33	33	29	32	32	32	33	35	34	34	34	34	35	36	35	37	36	37	33.1	37.3																							
12-Dec	36	37	37	36	A	36	35	33	34	36	36	37	39	38	38	36	35	35	34	33	34	35	34	31	35.5	38.7																							
13-Dec	34	35	35	35	A	34	33	30	33	35	34	35	35	34	29	36	35	36	35	35	31	34	35	36	34.2	36.0																							
14-Dec	37	36	35	35	A	36	36	31	32	25	32	34	C	C	C	34	33	35	33	31	30	25	29	30	32.4	36.9																							
15-Dec	29	30	32	33	A	32	30	27	26	24	26	28	28	31	30	28	26	30	30	21	20	27	22	10	27.0	32.7																							
16-Dec	16	21	24	25	A	14	20	22	18	23	25	27	15	21	14	13	15	14	27	34	33	35	34	27	22.4	34.6																							
17-Dec	27	28	29	25	A	28	32	21	27	27	17	33	25	29	36	40	38	37	37	40	40	39	39	39	31.9	40.4																							
18-Dec	39	39	39	39	A	39	38	39	39	39	39	39	38	39	39	39	39	39	39	38	38	37	40	40	38.9	40.3																							
19-Dec	41	42	41	41	A	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39.9	41.6																							
20-Dec	40	40	41	40	A	40	39	38	34	34	38	30	32	30	22	29	31	34	32	35	37	38	38	38	35.1	40.8																							
21-Dec	38	37	38	37	A	40	40	40	39	40	40	40	41	40	39	40	40	39	36	39	39	39	38	38	39.0	40.5																							
22-Dec	37	36	35	38	A	32	36	36	39	38	37	37	36	36	36	37	36	35	30	30	31	31	32	32	34.9	38.7																							
23-Dec	31	30	27	28	A	28	28	27	33	32	29	30	30	31	35	33	29	29	30	29	26	22	22	24	28.8	34.8																							
24-Dec	27	26	24	25	A	24	23	21	18	19	16	19	23	23	22	20	18	21	20	20	18	16	16	16	20.7	27.3																							
25-Dec	13	14	12	15	A	15	14	11	13	12	14	16	15	16	16	14	12	10	6	4	6	5	8	9	11.8	15.7																							
26-Dec	7	5	7	14	A	22	25	28	20	18	22	18	16	14	13	13	8	9	14	10	8	13	16	17	14.7	27.6																							
27-Dec	20	23	27	30	A	33	34	34	34	35	36	36	37	37	38	39	39	40	40	39	39	39	39	39	35.0	40.1																							
28-Dec	39	39	39	39	A	38	38	38	37	38	38	39	40	40	40	40	40	40	39	39	40	40	40	39	39.0	40.2																							
29-Dec	39	40	40	40	A	38	37	37	35	35	35	31	23	21	18	18	21	28	22	19	23	26	22	22	29.1	39.7																							
30-Dec	25	18	25	28	A	26	25	26	29	35	37	37	37	37	37	37	36	39	38	38	37	37	36	36	32.9	38.6																							
31-Dec	36	38	38	38	A	38	37	38	37	35	35	35	36	37	39	39	37	37	39	38	34	35	35	34	36.8	39.5																							
																								28.9	28.9	29.3	29.7	--	29.4	29.8	28.3	28.0	28.6	28.9	29.5	28.7	29.1	28.8	29.3	28.4	29.2	29.0	28.6	28.4	29.3	29.5	29.0	Diurnal Average	
																								41.5	41.6	40.8	40.7	--	40.3	39.8	40.1	39.8	39.9	40.0	40.5	40.5	40.1	40.0	40.2	40.5	40.1	39.9	40.4	40.2	39.5	40.1	40.3	Diurnal Maximum	

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

Hourly Averages

Ozone (O₃) - ppb
Beaverlodge - December 2016



Hourly Maximums

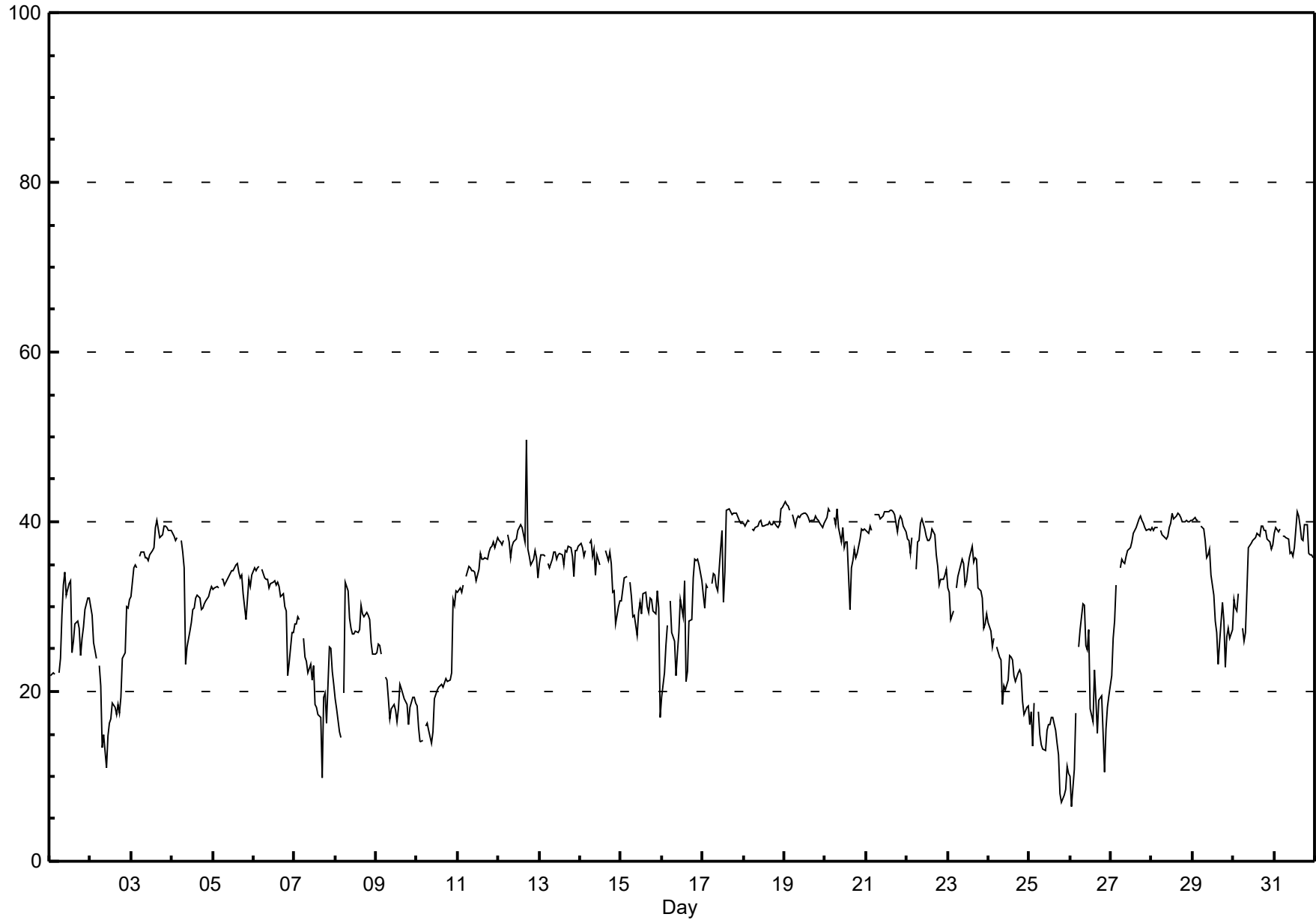
Ozone (O₃) - ppb

Beaverlodge - December 2016

Maximum Value: 49.7 ppb on Dec 12 17:00 Maximum Daily Average: 40.6 ppb on Dec 19 Minimum Value: 6 ppb on Dec 26 02:00 Minimum Daily Average: 13.7 ppb on Dec 25 Maximum Diurnal Average: 31.9 ppb at hour 12 Minimum Diurnal Average: 30.7 ppb at hour 20 Monthly Average: 31.37 ppb Percentiles: P ₁ = 10.3 P ₁₀ = 18.4 Q ₁ = 26.2 Median = 33.4 Q ₃ = 38.1 P ₉₀ = 40.1 P ₉₉ = 41.5		Hours in Service: 744 Hours of Data: 710 Hours of Missing Data: 34 Hours of Calibration: 34 Percent Operational Time: 100.0																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
1-Dec	22	22	22	22	A	22	24	29	33	34	31	33	33	25	26	28	28	27	24	26	28	30	31	31	27.4	34.1	
2-Dec	30	29	26	24	A	23	21	13	15	11	15	16	17	19	18	17	18	17	19	24	25	30	30	31	21.2	30.8	
3-Dec	31	35	35	35	A	36	36	36	36	36	35	36	37	37	39	40	39	38	38	40	39	39	39	39	37.1	40.1	
4-Dec	39	38	38	38	A	38	36	35	23	25	27	28	30	30	31	31	31	30	30	30	31	31	32	32	31.9	38.6	
5-Dec	32	32	32	32	A	33	33	33	33	34	34	34	34	35	35	34	33	34	31	28	31	33	32	34	33.0	35.1	
6-Dec	35	34	35	35	A	34	33	33	33	32	33	33	33	33	33	32	31	31	30	29	22	23	27	27	31.4	34.7	
7-Dec	28	28	29	29	A	26	24	23	22	23	21	23	19	18	17	17	10	19	20	16	25	25	22	21	22.0	28.8	
8-Dec	19	18	15	15	A	20	33	32	29	27	27	27	27	27	30	29	29	29	29	29	28	26	24	24	25.7	32.9	
9-Dec	25	26	25	24	A	22	21	19	17	18	19	18	16	18	21	20	19	19	18	16	18	19	19	19	19.9	25.6	
10-Dec	18	16	14	14	A	16	16	15	14	15	19	20	20	21	21	21	21	22	21	21	22	31	30	32	20.0	31.8	
11-Dec	32	32	32	33	A	34	35	35	34	34	34	33	34	36	36	36	36	36	37	37	37	37	38	37	38	34.9	38.1
12-Dec	38	38	37	38	A	38	38	36	37	38	38	39	39	40	39	38	50	37	36	35	36	37	36	33	37.8	49.7	
13-Dec	35	36	36	36	A	35	35	36	36	36	36	36	36	36	35	37	36	37	37	36	34	37	37	37	36.0	37.2	
14-Dec	38	37	36	37	A	38	38	36	37	34	36	35	C	C	C	37	35	36	35	32	32	28	30	31	34.8	37.9	
15-Dec	31	32	33	34	A	33	31	29	29	27	29	31	29	32	32	30	29	31	31	30	29	32	30	17	29.9	33.6	
16-Dec	19	22	26	28	A	31	27	26	22	25	27	31	29	33	21	22	28	29	33	36	35	36	35	33	28.4	35.6	
17-Dec	31	30	33	32	A	33	34	34	32	32	37	39	31	34	41	42	41	41	41	41	41	40	40	40	36.5	41.6	
18-Dec	40	39	40	40	A	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	39	40	42	42	39.8	41.7	
19-Dec	42	42	42	41	A	41	39	40	41	40	41	41	41	41	41	40	40	40	41	40	40	40	39	40	40.6	42.3	
20-Dec	40	40	41	41	A	41	40	42	39	38	39	37	38	38	30	35	35	37	36	36	38	39	39	39	38.1	41.5	
21-Dec	39	39	39	39	A	41	41	41	40	41	41	41	41	41	41	41	41	41	39	40	41	40	39	39	40.3	41.4	
22-Dec	38	38	36	38	A	34	38	38	40	40	39	38	38	38	38	39	38	36	35	33	33	33	34	34	36.8	40.3	
23-Dec	32	32	28	29	A	32	34	34	36	35	32	33	35	36	37	35	36	36	32	32	31	27	28	29	32.7	37.1	
24-Dec	28	27	25	26	A	25	24	24	18	21	20	21	24	24	24	22	21	22	23	22	19	17	18	18	22.4	28.1	
25-Dec	16	18	14	19	A	18	15	14	13	13	15	16	16	17	17	15	14	13	8	7	8	9	11	10	13.7	18.6	
26-Dec	10	6	11	18	A	25	27	30	30	25	25	27	18	16	23	19	15	19	20	15	10	16	18	20	19.3	30.3	
27-Dec	22	26	28	32	A	35	36	35	35	36	37	37	38	39	39	39	40	41	40	40	39	39	39	39	36.1	40.8	
28-Dec	39	39	39	39	A	39	38	38	38	38	39	40	41	40	41	41	41	41	40	40	40	40	40	40	39.7	41.0	
29-Dec	40	41	40	40	A	40	39	38	36	36	37	34	31	28	27	23	26	30	28	23	26	28	26	27	32.4	40.5	
30-Dec	31	30	30	32	A	27	26	27	32	37	38	38	38	38	39	38	39	40	39	39	38	38	37	37	35.0	39.5	
31-Dec	39	39	39	39	A	38	38	38	38	36	36	36	37	41	41	39	38	38	40	40	36	36	36	36	38.0	41.2	
	30.9	31.0	30.9	31.6	--	31.8	31.9	31.5	30.9	30.9	31.5	31.9	31.3	31.6	31.6	31.6	31.6	31.7	31.8	31.3	30.7	30.7	31.5	31.5	31.3	Diurnal Average	
	42.3	42.1	41.9	41.4	--	40.9	40.9	41.5	40.7	40.5	40.9	41.2	41.3	41.2	41.4	41.6	49.7	40.9	41.0	41.0	40.9	40.3	41.5	41.7	41.7	Diurnal Maximum	
C - Calibration		A - Automated Daily Zero Span																									

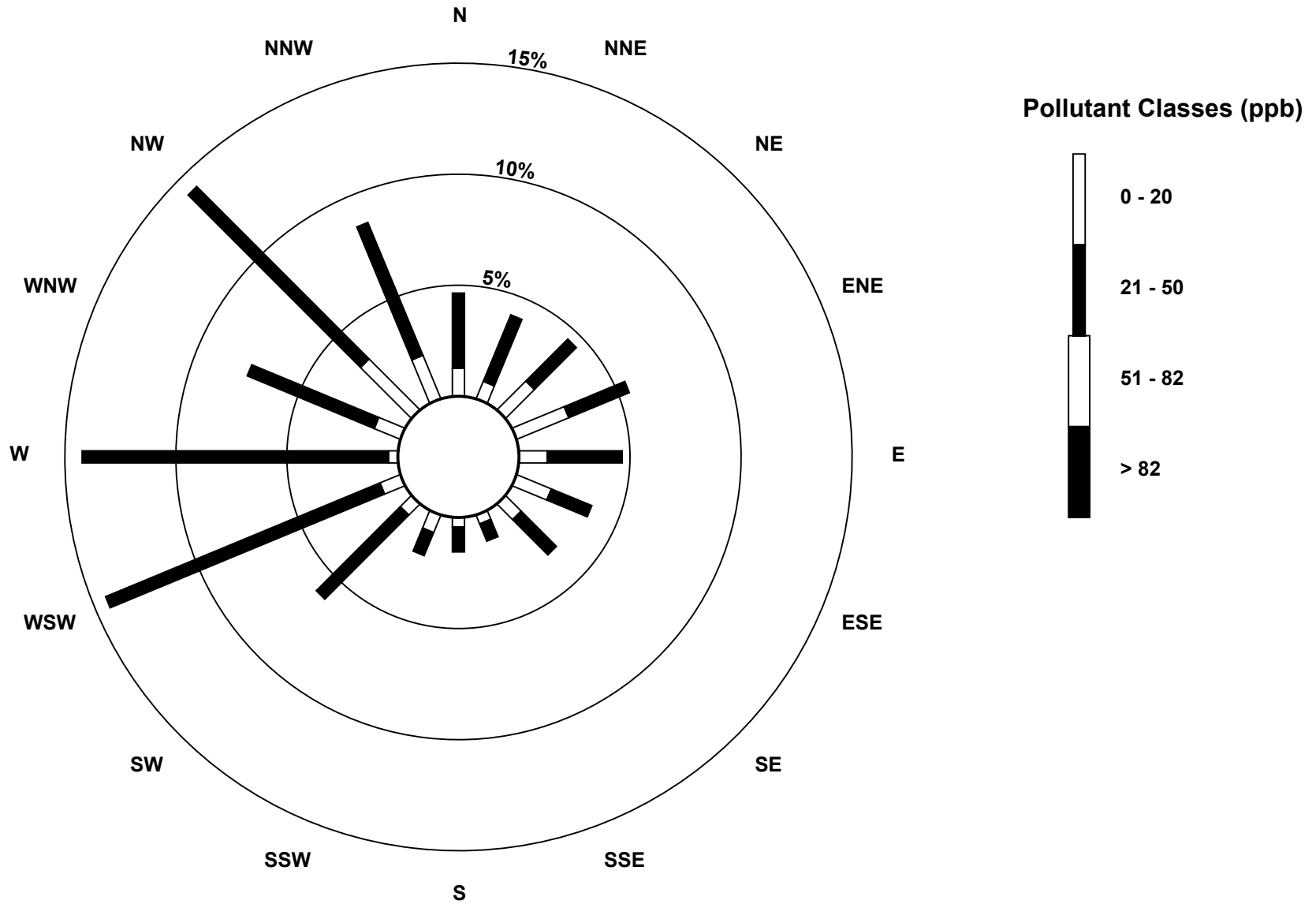
Hourly Maximums

Ozone (O₃) - ppb
Beaverlodge - December 2016



Pollutant Rose

Ozone (O₃) - ppb
Beaverlodge - December 2016



Eight Hour Running Averages

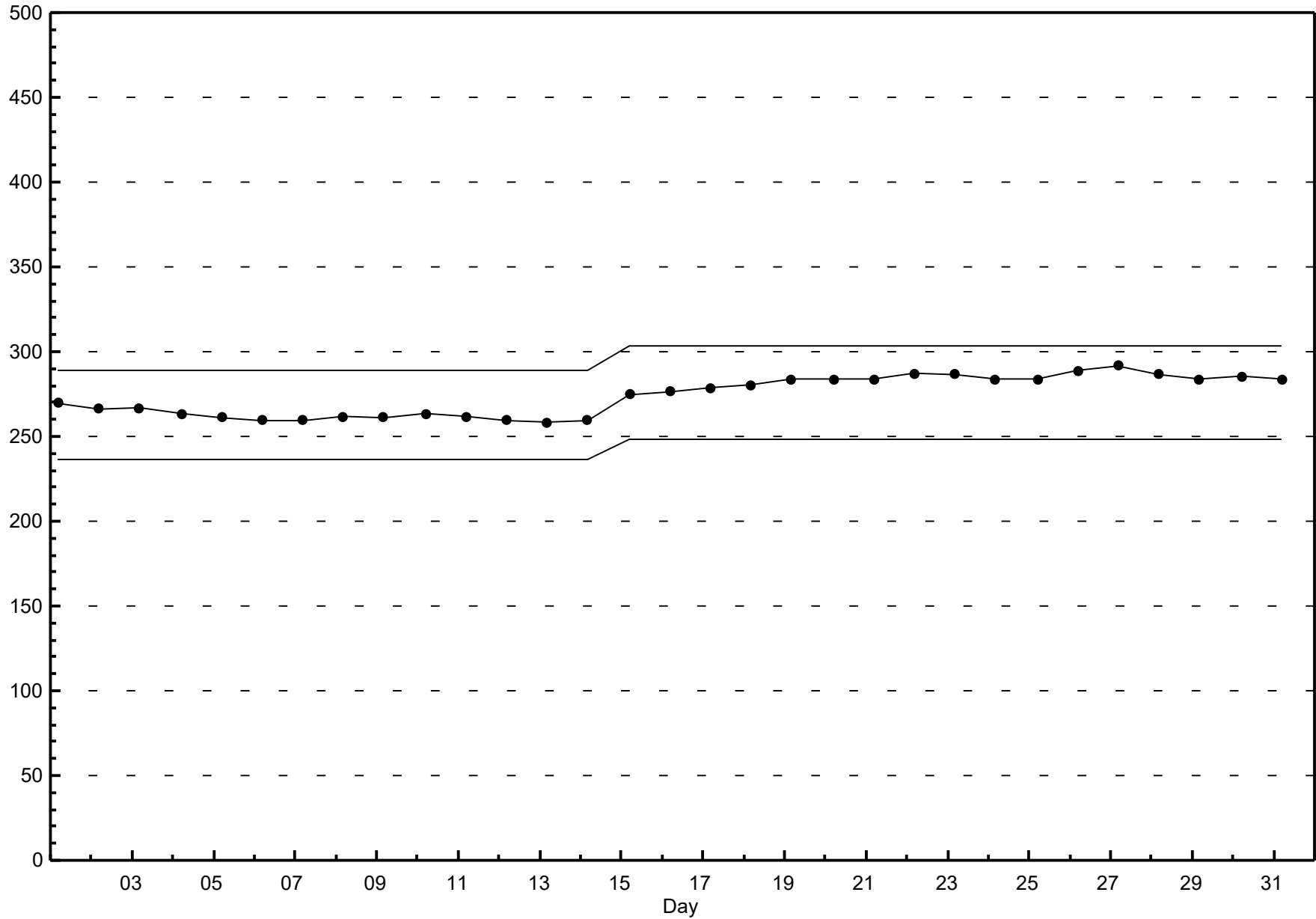
Ozone (O₃) - ppb

Beaverlodge - December 2016

Maximum Value: 40.5 ppb on Dec 19 06:00																					Hours in Service:	744			
Minimum Value: 6.4 ppb on Dec 26 02:00																					Hours of Data:	738			
Percentiles: P ₁ = 8.1 P ₁₀ = 14.5 Q ₁ = 22.2 Median = 30.8 Q ₃ = 36.5 P ₉₀ = 38.9 P ₉₉ = 40.0																					Hours of Missing Data:	6			
																					Hours of Calibration:	6			
																					Percent Operational Time:	100.0			
Day	Hourly Period Ending At (MST)																								Daily Maximum
1-Dec	8	10	13	15	17	19	20	22	23	25	25	27	27	28	28	27	26	26	25	25	25	26	26	27.7	
2-Dec	27	27	27	26	27	25	23	20	17	15	12	11	11	11	11	11	12	13	14	15	17	19	21	26.9	
3-Dec	23	26	28	30	31	32	33	34	35	35	35	35	35	36	36	36	37	37	37	38	38	38	38	38.2	
4-Dec	38	38	38	38	38	38	37	36	33	31	30	28	28	27	27	28	29	29	30	30	30	30	30	38.0	
5-Dec	30	31	31	31	31	32	32	32	32	32	32	32	33	33	33	33	33	33	32	31	31	31	31	33.1	
6-Dec	31	31	31	32	33	33	33	33	33	33	32	32	32	32	32	31	31	31	30	30	28	26	26	25	33.3
7-Dec	24	24	24	24	26	26	26	25	23	22	20	19	18	17	16	14	14	13	13	13	13	14	13	26.1	
8-Dec	14	13	12	12	10	11	13	16	18	21	23	25	25	26	26	26	27	27	27	27	27	27	26	27.4	
9-Dec	26	25	25	24	24	23	22	20	18	17	15	14	14	13	14	15	16	16	16	17	17	17	16	25.6	
10-Dec	16	15	15	15	14	13	13	12	12	12	13	14	15	16	17	18	19	19	20	20	20	21	22	22.1	
11-Dec	24	25	26	27	28	29	30	31	31	31	31	31	32	32	32	33	33	34	34	34	35	35	35	36	35.6
12-Dec	36	36	36	36	37	36	36	36	36	36	35	35	36	36	36	37	37	37	37	36	35	35	35	34	36.9
13-Dec	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	34	34	34	34	34	35	35	34.6
14-Dec	35	35	35	35	35	36	36	35	34	33	32	32	32	32	N	N	N	N	N	N	33	32	31	31	35.9
15-Dec	30	30	29	30	30	31	31	30	30	29	28	28	28	27	28	28	28	28	29	28	27	27	25	23	30.8
16-Dec	22	21	20	21	21	19	19	20	21	21	21	21	21	21	21	20	19	18	18	19	21	23	25	27	27.2
17-Dec	29	31	31	30	29	28	28	27	27	27	25	27	26	26	27	29	31	32	34	35	37	39	39	39	38.8
18-Dec	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39.5
19-Dec	39	40	40	40	40	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	40.5
20-Dec	39	39	40	40	40	40	40	39	39	38	37	36	35	34	32	31	31	31	30	31	31	32	34	35	39.7
21-Dec	36	37	37	38	38	38	38	39	39	39	39	40	40	40	40	40	40	40	39	39	39	39	39	39	40.0
22-Dec	38	38	38	38	37	36	36	36	36	36	36	36	36	36	37	37	37	37	36	35	35	34	33	32	38.2
23-Dec	32	31	30	30	30	30	29	28	29	29	29	30	30	30	31	32	31	31	31	31	30	29	28	26	31.6
24-Dec	26	26	25	24	24	25	25	24	23	22	21	20	20	20	20	20	20	20	21	21	20	19	19	18	26.2
25-Dec	17	17	16	15	15	15	14	14	14	13	14	14	14	14	14	14	14	14	13	12	11	9	8	8	17.5
26-Dec	7	6	6	8	8	10	13	15	17	19	21	22	21	20	19	17	15	14	13	12	11	11	12	12	21.8
27-Dec	13	15	17	19	21	24	26	29	31	33	34	35	35	35	36	36	37	38	38	39	39	39	39	39	39.1
28-Dec	39	39	39	39	39	39	39	38	38	38	38	38	38	38	39	39	39	40	40	40	40	40	40	40	39.7
29-Dec	39	39	39	39	39	39	39	39	38	37	37	36	34	32	29	27	25	24	23	21	21	22	22	23	39.5
30-Dec	23	22	22	24	24	24	24	25	25	28	29	31	32	33	34	36	37	37	37	37	37	37	37	37	37.4
31-Dec	37	37	37	37	37	37	37	38	38	37	37	36	36	36	37	37	37	37	37	38	38	37	37	36	37.8
39.5 39.6 39.8 40.1 40.3 40.5 40.3 40.2 40.0 39.7 39.6 39.9 40.0 39.9 40.0 40.0 39.9 39.9 39.9 39.9 39.8 39.7 39.6 39.5																									
Diurnal Maximums																									
N - Not Valid																									

Span Responses

Ozone (O₃)
Beaverlodge - December 2016



Hourly Averages

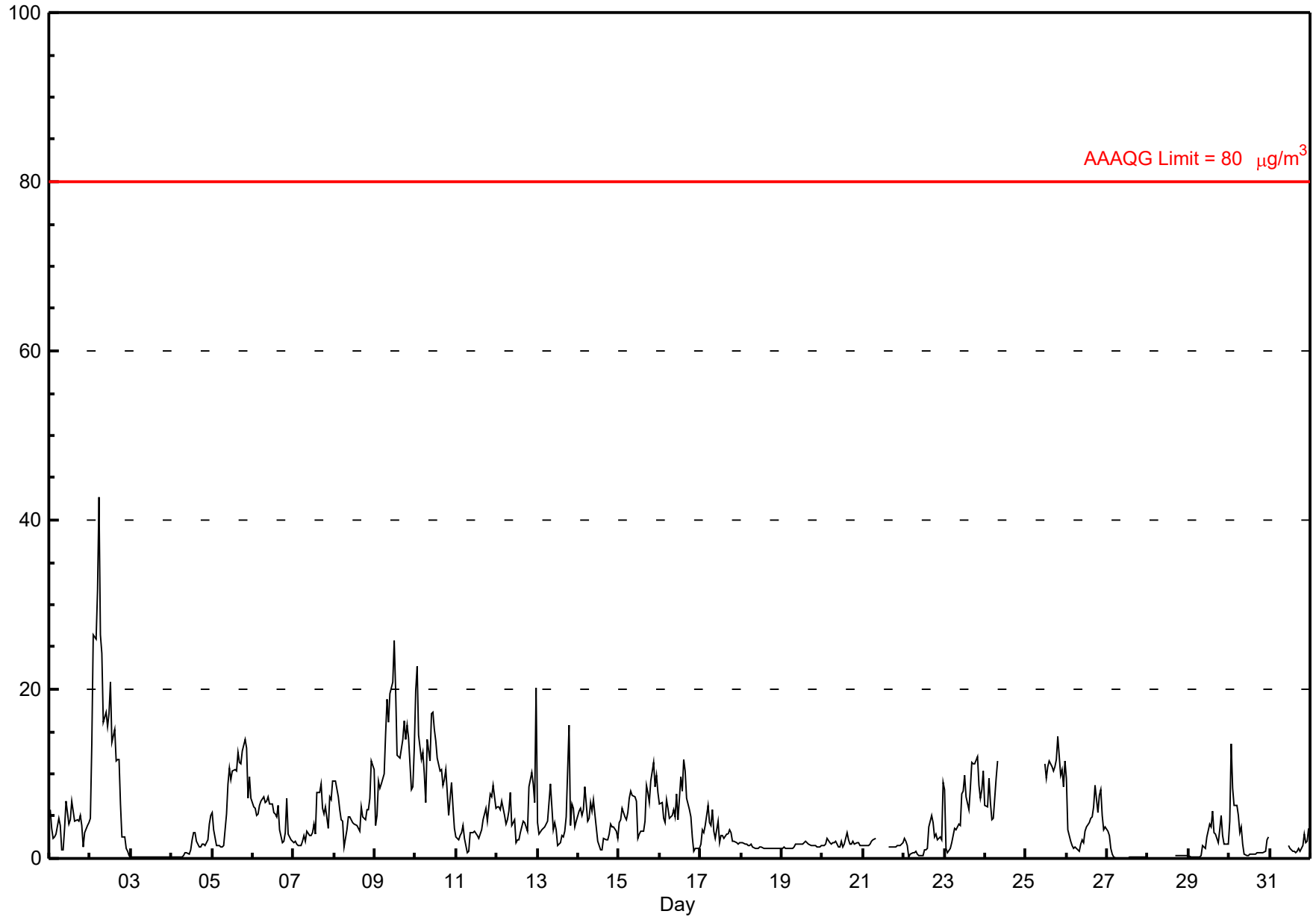
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Beaverlodge - December 2016

Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 42.7 µg/m ³ on Dec 2 06:00	Maximum Daily Average: 15.0 µg/m ³ on Dec 2
Minimum Value: 0 µg/m ³ on Dec 27 06:00	Hours of Data: 691
Maximum Diurnal Average: 5.3 µg/m ³ at hour 11	Hours of Missing Data: 53
Monthly Average: 4.65 µg/m ³	Hours of Calibration: 7
Minimum Daily Average: 0.2 µg/m ³ on Dec 3	Percent Operational Time: 93.8
Minimum Diurnal Average: 4.0 µg/m ³ at hour 22	
Percentiles: P ₁ = 0.0 P ₁₀ = 0.3 Q ₁ = 1.4 Median = 3.1 Q ₃ = 6.4 P ₉₀ = 10.8 P ₉₉ = 23.6	

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	6	3	2	3	3	5	4	1	1	4	7	4	5	7	6	4	5	4	5	4	1	3	4	4	3.9	6.8																						
2-Dec	5	14	27	26	32	43	26	24	16	17	16	17	21	14	15	11	12	12	6	3	3	1	1	0	15.0	42.7																						
3-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	0.2																						
4-Dec	0	0	0	0	0	0	0	0	1	1	0	1	2	3	3	2	1	1	2	2	1	2	4	5	1.4	5.1																						
5-Dec	5	3	1	2	1	1	1	2	5	9	11	9	10	10	10	13	11	11	13	14	13	7	10	7	7.6	14.0																						
6-Dec	6	6	5	5	6	7	7	7	7	7	6	7	5	5	5	6	3	2	2	3	7	3	2	2	5.1	7.3																						
7-Dec	2	2	2	1	1	2	3	2	3	3	3	3	4	3	8	8	9	6	5	6	4	7	7	9	4.3	9.2																						
8-Dec	9	9	7	6	5	4	1	3	5	5	4	4	4	4	3	6	5	5	6	6	7	11	10	5.6	11.5																							
9-Dec	4	5	9	8	9	10	15	19	16	19	21	26	20	12	12	12	14	16	14	16	14	8	8	13	13.4	25.8																						
10-Dec	20	23	15	12	12	10	7	14	12	17	17	15	14	12	10	10	9	9	11	5	7	9	6	4	11.6	22.7																						
11-Dec	2	2	3	3	4	2	1	1	3	3	3	3	3	2	3	3	5	6	4	6	8	7	9	6	3.9	8.7																						
12-Dec	6	6	6	7	5	4	5	6	8	4	5	2	2	2	3	4	4	4	3	9	10	9	7	20	5.8	20.1																						
13-Dec	4	3	3	4	4	4	4	9	6	3	4	3	2	2	3	2	3	5	16	4	6	6	4	4	4.6	15.7																						
14-Dec	6	6	5	6	8	4	5	7	6	7	5	2	1	1	1	2	2	2	3	4	4	4	3	2	4.0	8.4																						
15-Dec	4	4	6	5	5	5	7	8	8	7	7	2	3	3	3	4	9	8	7	9	11	9	10	8	6.3	11.4																						
16-Dec	6	7	5	4	7	6	5	5	6	5	8	5	10	8	12	10	7	6	5	3	1	1	1	1	5.5	11.8																						
17-Dec	2	3	3	4	6	4	4	6	3	2	4	2	3	3	2	3	3	3	3	2	2	2	2	2	3.1	6.3																						
18-Dec	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.4	1.9																						
19-Dec	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1.5	2.0																						
20-Dec	2	2	2	2	2	2	2	2	2	1	1	2	1	2	3	2	2	2	2	2	2	2	2	1	1.8	3.1																						
21-Dec	1	2	1	2	2	2	2	2	C	C	C	C	C	C	C	1	1	1	1	1	2	2	2	2	--	2.3																						
22-Dec	2	2	1	0	1	1	1	1	0	0	0	0	1	1	1	4	5	4	3	3	2	2	2	9	2.0	9.1																						
23-Dec	8	1	1	1	2	3	4	3	4	4	8	8	10	7	6	8	11	11	11	12	9	7	8	10	6.5	12.0																						
24-Dec	6	6	9	7	5	5	9	11	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	11.5																						
25-Dec	N	N	N	N	N	N	N	N	N	N	N	11	10	11	11	11	10	11	12	14	10	11	8	11	--	14.5																						
26-Dec	9	3	2	1	1	1	1	1	2	2	2	3	4	4	5	5	6	9	5	7	8	5	3	4	4.0	9.4																						
27-Dec	3	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	3.2																						
28-Dec	0	0	0	0	0	0	0	0	0	N	N	N	N	N	N	M	0	0	0	0	0	0	0	0	--	0.4																						
29-Dec	0	0	0	0	0	0	0	0	0	1	1	1	2	4	4	6	3	3	2	3	5	3	2	2	1.9	5.6																						
30-Dec	4	14	8	6	6	5	3	4	2	1	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2.7	13.6																						
31-Dec	N	N	N	N	N	N	N	N	N	N	N	2	1	1	1	1	1	1	1	1	3	2	2	4	--	3.6																						
																								4.4	4.6	4.4	4.1	4.5	4.6	4.1	4.9	4.6	4.9	5.3	4.9	5.1	4.5	4.9	4.8	4.9	4.8	4.9	4.8	4.7	4.0	4.1	4.9	Diurnal Average
																								19.8	22.7	26.5	25.9	31.8	42.7	26.4	24.2	16.1	19.5	20.9	25.8	20.8	13.8	15.2	12.5	14.0	16.3	15.7	15.7	14.2	10.5	11.5	20.1	Diurnal Maximum

C - Calibration M - Maintenance N - Not Valid
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³

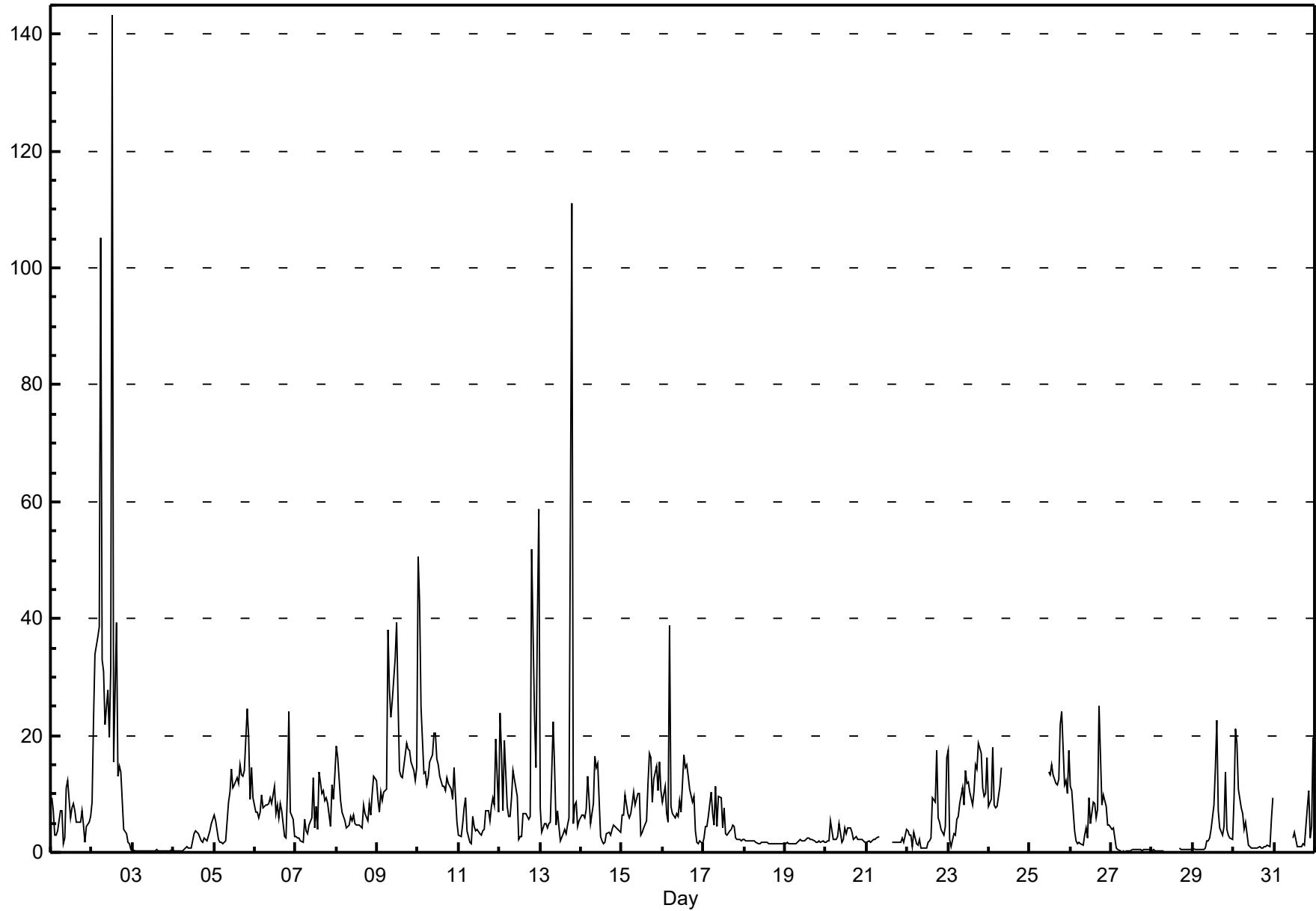


Hourly Maximums

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

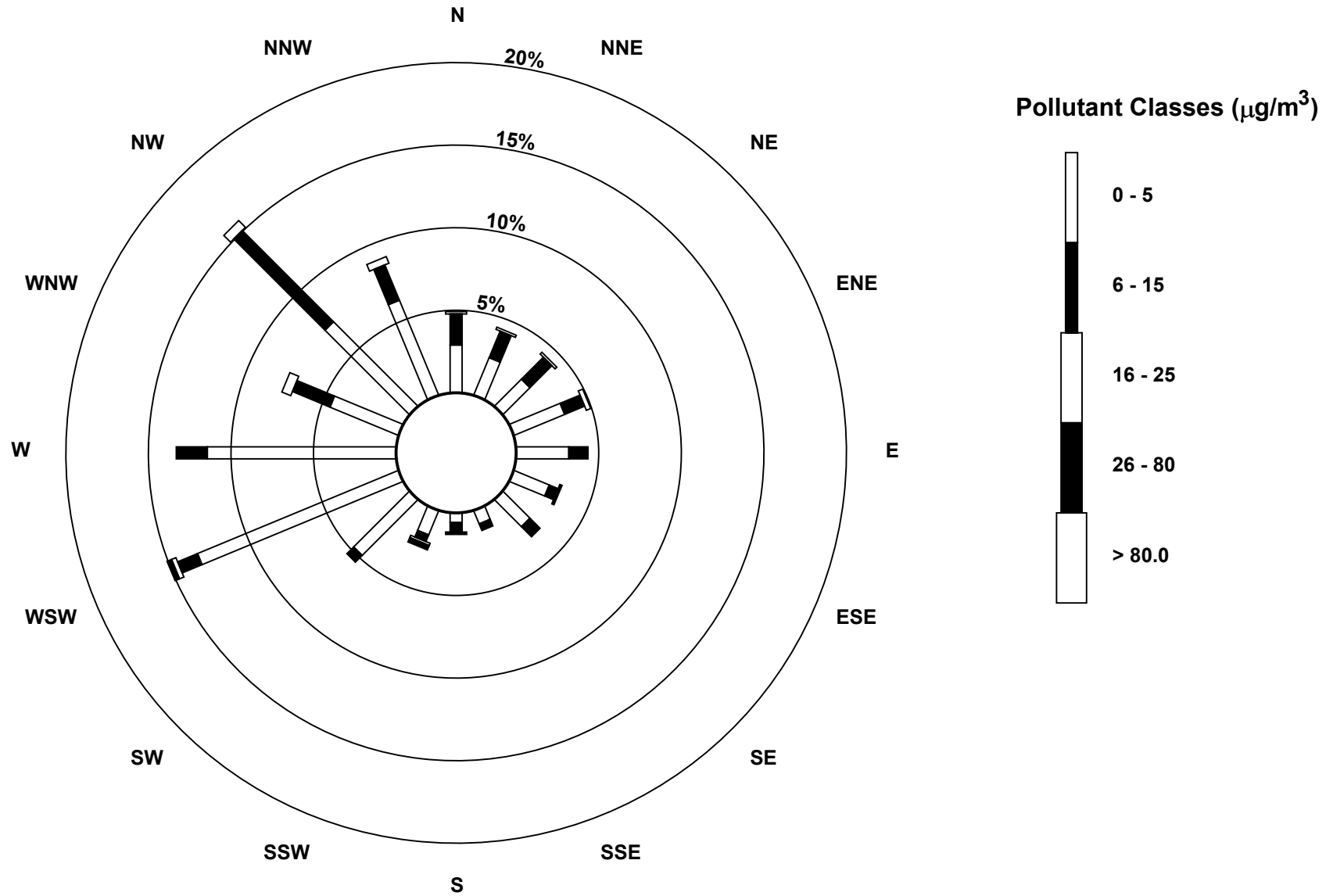
Beaverlodge - December 2016

Maximum Value: 143.4 µg/m ³ on Dec 2 13:00		Maximum Daily Average: 27.9 µg/m ³ on Dec 2		Hours in Service: 744																										
Minimum Value: 0 µg/m ³ on Dec 27 07:00		Minimum Daily Average: 0.2 µg/m ³ on Dec 3		Hours of Data: 691																										
Maximum Diurnal Average: 11.2 µg/m ³ at hour 13		Minimum Diurnal Average: 5.7 µg/m ³ at hour 22		Hours of Missing Data: 53																										
Monthly Average: 7.44 µg/m ³		Percentiles: P ₁ = 0.2 P ₁₀ = 0.5 Q ₁ = 1.9 Median = 4.6 Q ₃ = 9.5 P ₉₀ = 15.6 P ₉₉ = 39.6		Hours of Calibration: 7																										
				Percent Operational Time: 93.8																										
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	9	7	3	3	4	7	7	1	2	11	12	6	8	8	7	5	5	5	7	5	2	4	5	6	5.8	12.2				
2-Dec	9	23	34	37	39	105	33	31	22	28	20	32	143	16	39	13	15	14	9	4	3	2	1	0	27.9	143.4				
3-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				
4-Dec	0	0	0	0	0	0	0	1	1	1	1	2	3	4	3	3	2	2	2	2	2	4	5	6	1.8	5.6				
5-Dec	6	5	2	2	2	1	2	2	8	10	14	11	11	13	12	15	13	13	14	25	20	9	14	9	9.7	24.7				
6-Dec	7	7	6	7	10	8	8	8	8	9	8	11	7	8	6	8	7	3	2	10	24	7	6	3	7.8	24.2				
7-Dec	3	2	2	2	2	6	4	3	5	6	13	4	8	4	14	10	10	9	9	8	4	11	9	13	6.7	13.7				
8-Dec	18	16	9	7	6	5	4	5	6	5	6	5	5	4	4	8	7	5	8	6	10	13	12	12	7.5	18.3				
9-Dec	9	7	10	9	10	11	38	28	23	26	33	39	26	14	13	13	17	19	18	18	16	14	12	15	18.2	39.4				
10-Dec	51	43	25	14	14	11	13	16	17	21	21	16	15	13	11	11	10	13	12	11	9	14	9	5	16.4	50.6				
11-Dec	3	3	5	8	9	4	2	1	6	4	4	4	3	3	4	4	7	7	5	8	9	8	20	7	5.7	19.5				
12-Dec	24	17	7	19	8	6	6	9	14	12	9	2	3	3	7	7	6	6	6	52	23	14	39	59	14.9	58.7				
13-Dec	8	3	5	5	4	5	5	22	14	5	7	4	2	3	4	3	5	6	111	5	8	8	4	5	10.5	111.1				
14-Dec	6	6	6	7	13	5	7	8	16	14	15	3	2	1	2	3	3	3	4	5	4	4	4	3	6.1	16.4				
15-Dec	6	6	10	7	6	7	8	10	8	10	10	3	3	4	5	12	17	16	8	12	15	10	16	10	9.2	17.1				
16-Dec	8	11	7	5	39	8	7	6	7	6	9	7	17	15	15	13	11	8	10	4	2	1	2	1	9.0	38.9				
17-Dec	2	4	4	6	10	7	5	11	4	9	9	4	8	3	3	4	4	5	4	2	2	2	2	2	4.9	11.4				
18-Dec	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1.6	2.1				
19-Dec	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.8	2.4				
20-Dec	2	2	2	5	2	2	2	3	5	2	2	4	3	4	4	3	2	2	3	2	2	2	2	2	2.7	5.3				
21-Dec	2	2	2	2	2	2	2	3	C	C	C	C	C	C	C	C	2	2	2	2	2	2	2	4	--	3.9				
22-Dec	4	3	3	1	3	1	1	2	1	1	1	1	2	2	2	9	8	18	6	5	4	3	4	16	4.2	17.6				
23-Dec	17	2	1	3	3	6	6	8	11	8	14	12	12	10	8	10	15	14	19	17	11	10	10	16	10.1	18.6				
24-Dec	8	9	18	8	8	8	11	14	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	18.0				
25-Dec	N	N	N	N	N	N	N	N	N	N	N	14	13	15	13	12	11	12	22	24	11	12	10	18	--	24.2				
26-Dec	11	11	4	2	1	2	1	1	3	4	2	9	5	9	8	6	7	25	8	10	9	8	5	5	6.5	25.1				
27-Dec	4	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	4.1				
28-Dec	0	0	0	0	0	0	0	0	N	N	N	N	N	N	N	M	1	0	0	0	0	0	0	0	--	0.7				
29-Dec	1	0	0	0	0	0	0	1	2	2	2	4	8	15	23	7	4	3	4	14	4	3	2	2	4.3	22.5				
30-Dec	9	21	19	11	8	7	4	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	6	9	4.7	21.2				
31-Dec	N	N	N	N	N	N	N	N	N	N	N	2	3	1	1	1	1	1	1	8	11	2	4	20	--	19.5				
		8.0	7.6	6.5	6.0	7.1	7.8	6.2	7.0	7.3	7.7	8.4	7.3	11.2	6.3	7.6	6.3	6.6	7.2	9.9	8.8	6.9	5.7	7.0	8.4	Diurnal Average				
		50.6	42.8	34.0	36.9	38.9	105.2	38.1	30.9	23.2	27.9	33.2	39.4	143.4	15.6	39.4	14.9	17.1	25.1	111.1	51.9	24.2	14.4	39.4	58.7	Diurnal Maximum				
C - Calibration		M - Maintenance					N - Not Valid																							



Pollutant Rose

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Beaverlodge - December 2016

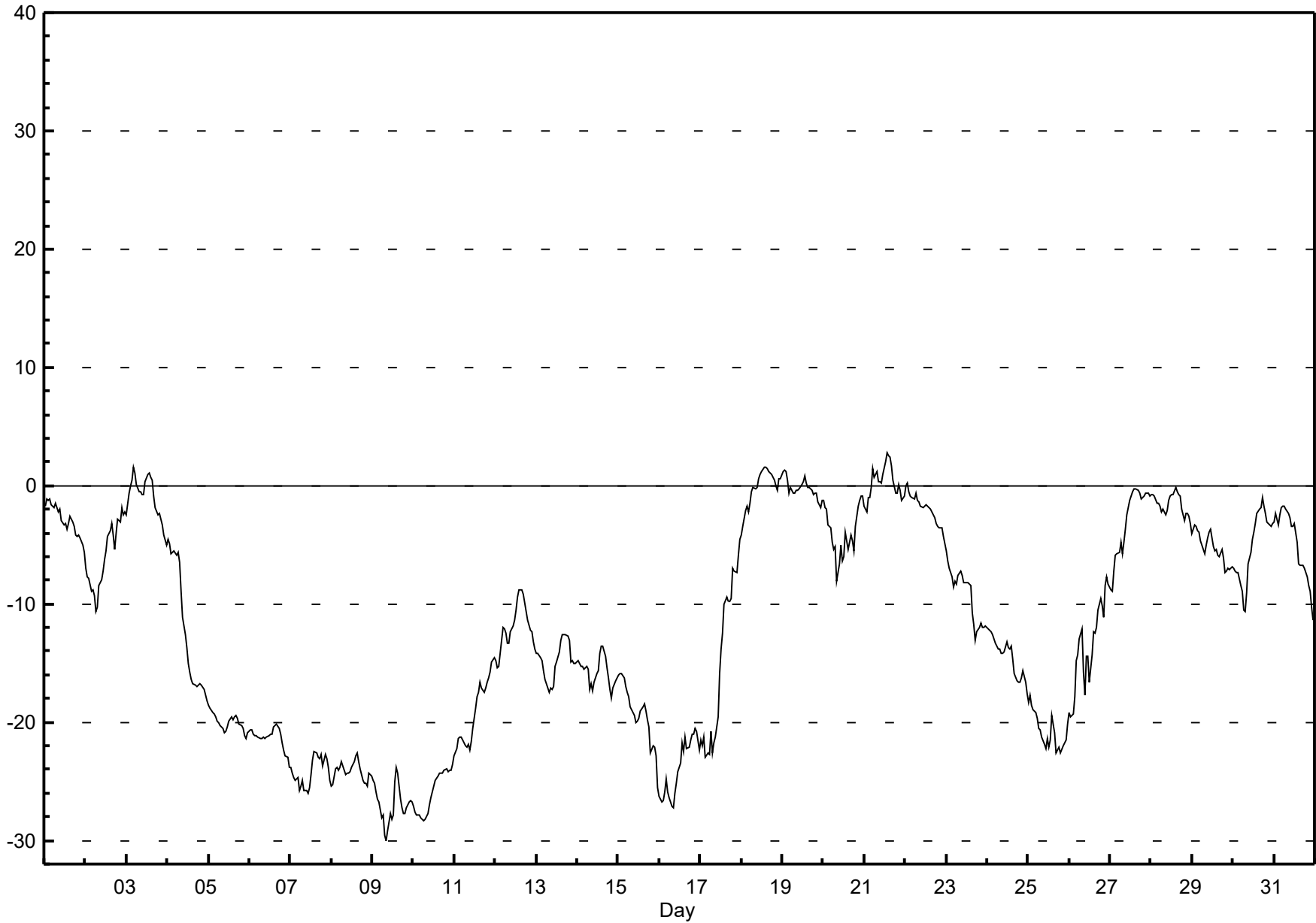


Hourly Averages

External Temperature (ET) - °C

Beaverlodge - December 2016

Maximum Value: 2.8 °C on Dec 21 14:00		Maximum Daily Average: 0.3 °C on Dec 21																		Hours in Service: 744							
Minimum Value: -30 °C on Dec 9 09:00		Minimum Daily Average: -27.0 °C on Dec 9																		Hours of Data: 744							
Maximum Diurnal Average: -10.7 °C at hour 15		Minimum Diurnal Average: -12.9 °C at hour 9																		Hours of Missing Data: 0							
Monthly Average: -11.90 °C		Percentiles: P₁ = -28.1 P₁₀ = -24.3 Q₁ = -20.6 Median = -11.9 Q₃ = -3.1 P₉₀ = -0.6 P₉₉ = 1.6																		Hours of Calibration: 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	-2	-1	-1	-1	-2	-2	-2	-2	-2	-2	-3	-3	-3	-4	-3	-3	-3	-3	-4	-4	-4	-4	-5	-6	-2.9	-1.1	
2-Dec	-7	-8	-8	-9	-9	-9	-11	-10	-8	-8	-7	-6	-6	-4	-4	-3	-4	-5	-4	-3	-3	-2	-2	-2	-6.0	-1.9	
3-Dec	-2	-1	0	0	2	1	0	0	-1	-1	-1	0	1	1	1	0	-1	-2	-2	-2	-3	-3	-4	-5	-0.9	1.5	
4-Dec	-5	-5	-6	-6	-5	-6	-6	-6	-9	-11	-13	-14	-15	-16	-16	-17	-17	-17	-17	-17	-17	-17	-18	-18	-12.2	-4.6	
5-Dec	-19	-19	-19	-19	-19	-20	-20	-20	-20	-21	-21	-20	-20	-20	-20	-20	-19	-20	-20	-20	-21	-21	-21	-21	-20.0	-18.5	
6-Dec	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-20	-20	-20	-21	-21	-22	-22	-23	-23	-24	-21.3	-20.1	
7-Dec	-24	-24	-25	-25	-25	-26	-25	-25	-26	-26	-26	-26	-24	-23	-23	-23	-23	-23	-23	-24	-23	-23	-24	-25	-24.2	-22.5	
8-Dec	-25	-25	-24	-24	-24	-24	-23	-24	-24	-24	-24	-24	-23	-23	-23	-23	-23	-24	-25	-25	-25	-25	-24	-25	-24.2	-22.6	
9-Dec	-25	-25	-26	-27	-27	-28	-28	-30	-30	-29	-28	-28	-28	-25	-24	-24	-27	-27	-28	-28	-27	-27	-27	-27	-27.0	-23.8	
10-Dec	-27	-28	-28	-28	-28	-28	-28	-28	-28	-27	-26	-26	-25	-25	-25	-24	-24	-24	-24	-24	-24	-24	-24	-24	-25.9	-23.5	
11-Dec	-23	-22	-21	-21	-21	-21	-22	-22	-22	-22	-22	-21	-19	-18	-17	-17	-17	-17	-17	-17	-16	-16	-15	-15	-19.2	-14.6	
12-Dec	-15	-15	-15	-14	-12	-12	-12	-13	-13	-12	-12	-11	-10	-9	-9	-9	-9	-10	-11	-11	-12	-12	-13	-14	-12.0	-8.8	
13-Dec	-14	-14	-15	-15	-16	-16	-17	-18	-17	-17	-17	-15	-15	-14	-13	-13	-13	-13	-13	-13	-15	-15	-15	-15	-14.8	-12.6	
14-Dec	-15	-15	-15	-15	-15	-15	-16	-17	-17	-17	-17	-16	-16	-14	-14	-14	-14	-15	-16	-17	-18	-17	-16	-16	-15.8	-13.5	
15-Dec	-16	-16	-16	-16	-17	-18	-18	-19	-19	-19	-20	-20	-19	-19	-19	-19	-19	-20	-20	-23	-22	-22	-23	-26	-19.3	-15.9	
16-Dec	-26	-27	-27	-26	-25	-26	-26	-27	-27	-26	-25	-24	-23	-22	-22	-21	-22	-22	-21	-21	-21	-20	-21	-22	-23.9	-20.5	
17-Dec	-21	-22	-21	-23	-23	-23	-21	-23	-22	-21	-19	-16	-14	-13	-10	-9	-10	-10	-10	-7	-7	-7	-6	-5	-15.1	-4.5	
18-Dec	-4	-3	-2	-2	-2	-1	0	0	0	0	1	1	1	2	2	1	1	1	1	0	0	0	1	1	-0.2	1.6	
19-Dec	1	1	1	1	-1	0	-1	-1	0	0	0	0	0	1	0	0	0	0	-1	-1	-1	-1	-2	-1	-0.2	1.3	
20-Dec	-1	-2	-2	-3	-4	-5	-5	-5	-8	-7	-5	-6	-6	-4	-5	-5	-4	-5	-5	-3	-2	-1	-1	-1	-4.0	-0.9	
21-Dec	-2	-2	-1	-1	0	1	1	1	0	0	0	1	2	3	3	2	2	0	-1	-1	0	0	-1	-1	0.3	2.8	
22-Dec	0	0	0	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2	-3	-3	-3	-4	-4	-4	-5	-2.0	0.2	
23-Dec	-6	-6	-7	-8	-9	-8	-8	-8	-7	-8	-8	-8	-8	-8	-8	-11	-12	-13	-12	-12	-12	-12	-12	-12	-9.3	-5.5	
24-Dec	-12	-12	-12	-13	-13	-13	-14	-14	-14	-14	-14	-13	-14	-14	-14	-15	-16	-16	-17	-17	-16	-16	-17	-18	-14.4	-11.9	
25-Dec	-18	-18	-19	-19	-19	-20	-21	-21	-21	-22	-22	-21	-22	-22	-19	-21	-23	-22	-22	-23	-22	-22	-21	-20	-20.8	-17.7	
26-Dec	-19	-20	-19	-18	-15	-14	-13	-12	-16	-18	-14	-14	-17	-14	-12	-12	-12	-11	-10	-10	-11	-8	-8	-8	-13.6	-7.7	
27-Dec	-9	-9	-7	-6	-6	-6	-5	-6	-5	-4	-3	-1	-1	-1	0	0	0	-1	-1	-1	-1	-1	-1	-1	-3.0	-0.2	
28-Dec	-1	-1	-1	-1	-1	-2	-2	-2	-3	-2	-1	-1	-1	-1	0	-1	-1	-1	-2	-3	-2	-2	-3	-3	-1.6	-0.2	
29-Dec	-4	-3	-3	-4	-4	-5	-5	-6	-5	-4	-4	-4	-5	-6	-5	-6	-6	-5	-6	-7	-7	-7	-7	-7	-5.3	-3.3	
30-Dec	-7	-7	-7	-7	-8	-9	-11	-11	-9	-7	-6	-5	-4	-3	-2	-2	-2	-1	-2	-2	-3	-3	-3	-3	-5.2	-1.0	
31-Dec	-3	-2	-3	-2	-2	-2	-2	-2	-2	-3	-3	-3	-3	-5	-7	-7	-7	-7	-7	-8	-8	-9	-10	-11	-5.0	-1.7	
		-12.0	-12.0	-12.0	-12.1	-12.0	-12.2	-12.3	-12.7	-12.9	-12.8	-12.4	-11.9	-11.6	-11.0	-10.7	-10.8	-11.2	-11.5	-11.7	-11.9	-11.9	-11.8	-12.0	-12.2	Diurnal Average	
		1.2	1.3	1.1	0.5	1.5	1.4	0.7	1.1	0.3	0.4	0.5	1.0	2.1	2.8	2.6	2.4	1.7	1.0	0.9	0.4	0.0	-0.3	0.6	0.6	Diurnal Maximum	



Hourly Averages

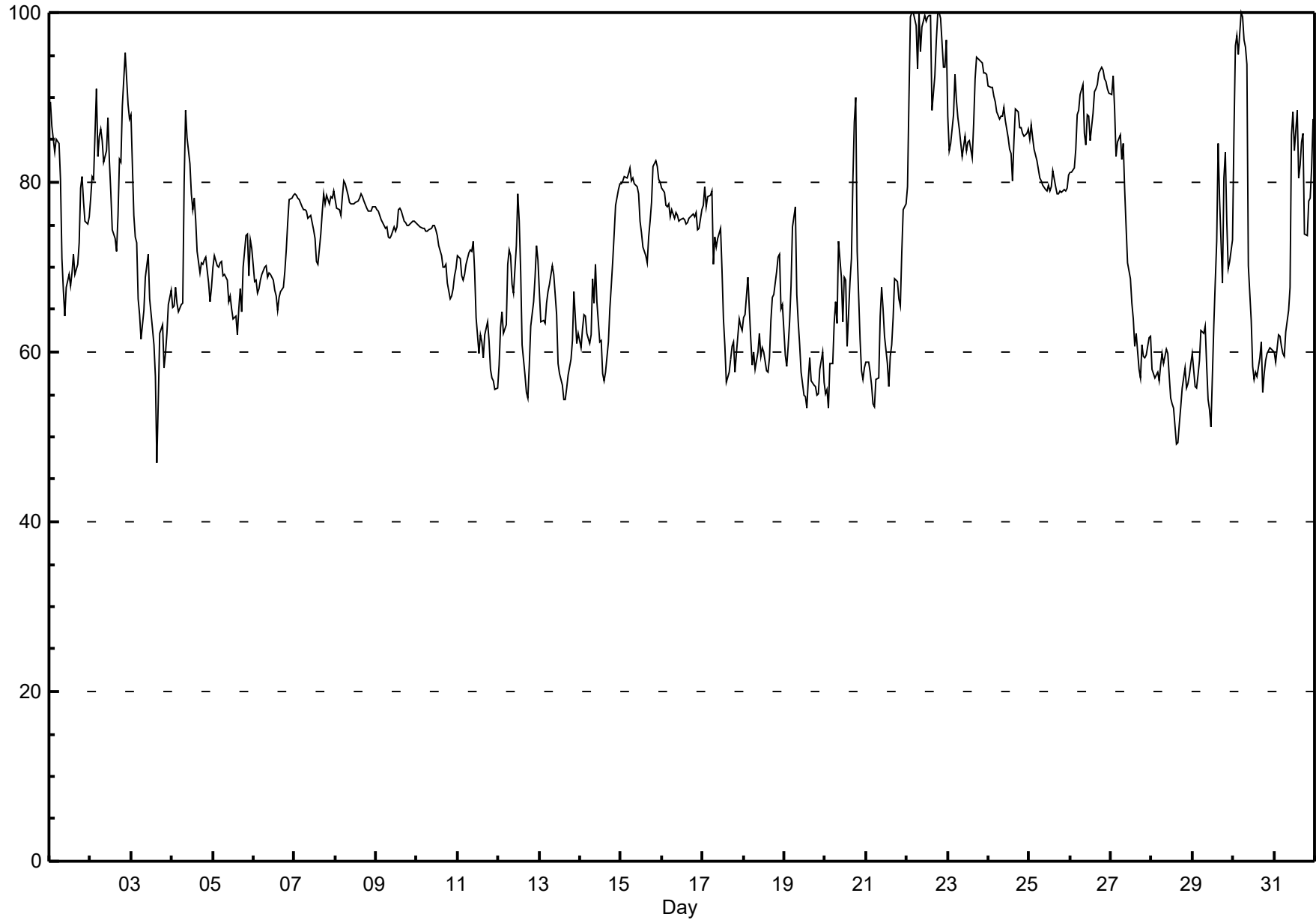
Relative Humidity (RH) - %

Beaverlodge - December 2016

Maximum Value: 100.0 % on Dec 22 04:00		Maximum Daily Average: 96.4 % on Dec 22		Hours in Service: 744																							
Minimum Value: 47 % on Dec 3 16:00		Minimum Daily Average: 56.2 % on Dec 28		Hours of Data: 744																							
Maximum Diurnal Average: 74.6 % at hour 6		Minimum Diurnal Average: 68.9 % at hour 15		Hours of Missing Data: 0																							
Monthly Average: 72.62 %		Percentiles: P ₁ = 53.4 P ₁₀ = 57.7 Q ₁ = 63.3 Median = 72.3 Q ₃ = 79.7 P ₉₀ = 88.1 P ₉₉ = 99.7		Hours of Calibration: 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	90	87	85	84	85	85	80	71	67	64	68	69	68	69	72	69	70	73	79	81	78	75	75	76	75.8	89.6	
2-Dec	78	81	80	91	83	85	86	85	82	84	88	83	79	74	73	72	76	83	82	89	95	92	89	87	83.3	95.3	
3-Dec	88	76	74	73	66	64	62	65	69	70	72	66	63	61	57	47	54	62	63	58	60	62	66	67	65.2	88.0	
4-Dec	65	65	68	66	65	66	66	80	89	85	82	79	77	78	76	72	69	70	70	71	71	68	66	68	72.1	88.6	
5-Dec	70	71	70	70	70	71	69	69	68	66	67	65	64	64	62	65	67	65	70	74	74	69	73	72	68.6	73.9	
6-Dec	68	69	67	67	68	69	70	70	69	69	69	68	67	67	65	66	67	68	70	72	75	78	78	78	69.8	78.4	
7-Dec	79	78	78	78	77	77	77	77	76	76	75	74	73	71	70	74	76	79	77	79	77	78	78	79	76.4	79.0	
8-Dec	78	77	77	76	78	80	80	79	78	77	77	77	78	78	78	79	78	78	77	77	77	77	77	77	77.7	80.2	
9-Dec	77	77	76	76	75	75	75	73	73	74	75	74	75	77	77	77	75	75	75	75	75	75	75	75	75.2	77.0	
10-Dec	75	75	75	75	75	74	74	74	75	75	75	74	74	73	71	70	70	70	68	66	67	68	69	70	72.1	75.1	
11-Dec	71	71	69	68	69	70	72	72	72	73	69	64	60	62	61	59	62	64	61	58	57	57	56	56	64.8	73.1	
12-Dec	58	63	65	62	63	70	72	71	68	67	72	79	75	70	61	57	55	55	59	63	66	69	72	71	66.0	78.7	
13-Dec	67	64	64	63	66	67	68	70	69	67	64	59	57	56	54	54	56	57	59	61	67	64	61	62	62.4	70.3	
14-Dec	61	63	64	64	62	61	62	69	66	70	66	61	61	57	57	58	61	65	68	71	74	77	79	80	65.7	79.9	
15-Dec	80	80	81	80	81	82	80	81	80	80	79	75	74	72	71	71	74	75	78	82	83	82	80	80	78.3	82.6	
16-Dec	79	79	77	77	77	76	77	76	76	76	75	76	76	76	75	75	76	76	76	76	76	74	75	77	76.2	79.4	
17-Dec	77	80	77	78	78	79	70	74	72	73	74	70	64	61	56	58	59	61	61	58	60	64	63	62	67.9	79.5	
18-Dec	64	64	69	65	61	58	60	58	60	62	59	60	60	58	58	59	64	67	67	70	71	72	65	66	63.2	71.6	
19-Dec	60	58	61	64	68	75	77	67	64	61	58	55	55	53	57	59	57	56	56	55	55	58	60	56	60.1	77.2	
20-Dec	55	56	53	59	59	63	66	63	73	69	64	69	68	61	68	71	80	87	90	72	62	58	57	58	65.8	90.0	
21-Dec	59	59	58	56	54	54	57	57	64	68	65	62	59	56	59	61	64	69	68	66	65	72	77	77	62.7	77.4	
22-Dec	80	90	100	100	100	98	93	100	95	98	100	99	99	100	100	89	93	97	100	100	99	93	94	97	96.4	100.0	
23-Dec	88	84	85	88	93	90	88	86	83	84	85	84	85	85	83	87	92	95	95	94	94	93	93	93	88.5	94.7	
24-Dec	91	91	91	90	89	88	88	88	88	89	87	85	84	83	80	85	89	88	86	86	86	85	86	86	87.1	91.4	
25-Dec	85	87	85	84	83	81	80	80	80	79	79	80	79	80	81	80	79	79	79	79	79	79	79	81	80.7	86.8	
26-Dec	81	81	82	84	88	89	90	91	86	84	88	88	85	88	91	91	92	93	94	93	92	92	91	91	88.5	93.6	
27-Dec	90	93	89	83	85	86	83	85	79	75	71	69	66	64	61	62	58	57	61	60	59	60	62	62	71.5	92.6	
28-Dec	58	58	57	58	57	59	60	59	60	60	57	55	54	53	49	49	52	54	56	58	56	56	57	59	56.2	60.4	
29-Dec	60	56	56	57	59	63	62	63	58	54	53	51	63	68	73	85	78	68	81	84	75	70	71	73	65.9	84.6	
30-Dec	86	96	97	95	100	99	97	96	94	70	64	58	57	58	57	59	61	55	57	59	60	60	60	60	73.2	100.0	
31-Dec	60	59	62	62	61	60	60	62	65	68	86	88	84	89	81	82	85	86	74	74	78	78	82	87	73.7	88.6	
		73.5	73.7	73.9	74.0	74.1	74.6	74.2	74.5	74.1	73.2	73.0	71.5	70.4	69.7	68.9	69.1	70.6	71.8	72.8	72.8	73.0	72.8	73.1	73.7	Diurnal Average	
		91.4	96.1	99.6	100.0	100.0	99.5	96.8	100.0	95.4	98.3	99.7	99.0	99.5	99.7	99.7	91.1	92.5	96.6	99.8	100.0	99.3	93.5	93.5	96.7	Diurnal Maximum	

Hourly Averages

**Relative Humidity (RH) - %
Beaverlodge - December 2016**



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Beaverlodge - December 2016

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1 Spd	5	6	11	10	9	7	9	13	10	5	3	5	3	3	5	5	5	2	3	2	3	3	2	3	2.4	12.5
Dir	286	300	306	328	350	341	334	319	322	301	277	84	128	136	84	80	78	86	108	159	73	104	113	121	347	319
2 Spd	3	2	2	1	2	3	1	4	2	3	1	3	5	3	4	2	4	1	3	4	5	3	6	2	0.8	5.7
Dir	108	130	179	202	207	255	120	204	316	359	66	251	290	355	25	73	172	155	145	193	65	166	196	193	181	196
3 Spd	4	7	10	28	43	35	26	24	29	24	17	27	28	36	32	30	30	31	24	26	20	19	15	14	23.9	42.7
Dir	207	230	231	238	247	246	243	248	243	244	239	245	247	248	251	257	250	248	251	261	264	266	260	264	249	247
4 Spd	21	19	14	20	22	18	13	14	20	21	21	20	21	22	24	21	19	17	16	16	19	21	21	16	17.2	23.9
Dir	265	265	259	267	271	276	305	318	330	334	328	328	328	325	320	323	324	324	328	327	324	327	327	331	312	320
5 Spd	17	14	16	15	16	16	15	14	16	17	15	15	16	16	17	17	15	12	8	8	8	8	7	10	13.6	17.0
Dir	324	324	327	325	327	325	323	322	323	317	317	318	312	316	316	312	311	321	318	308	313	314	307	312	319	316
6 Spd	14	12	15	14	13	12	12	12	12	10	12	14	13	11	10	11	9	10	8	8	4	4	5	6	10.4	15.1
Dir	322	325	322	323	314	315	314	314	314	311	312	304	304	297	301	310	322	333	343	318	304	315	332	323	316	322
7 Spd	4	4	4	6	13	6	5	7	3	2	1	1	2	2	3	1	1	4	4	3	5	2	1	1	2.9	12.6
Dir	332	354	8	2	326	355	343	341	10	357	228	79	303	73	312	37	16	37	40	73	66	325	6	246	357	326
8 Spd	0	1	1	2	4	5	4	9	9	8	10	10	8	7	4	8	10	11	10	6	5	5	2	5	5.4	11.1
Dir	8	339	34	123	155	124	118	115	104	105	124	129	125	136	111	108	104	99	94	94	86	54	55	11	107	99
9 Spd	6	6	5	4	2	5	3	1	5	2	0	3	5	2	2	2	7	9	14	13	11	10	7	6	4.2	14.0
Dir	27	23	30	48	159	41	336	336	38	17	243	247	293	233	30	353	18	331	330	330	330	333	334	315	345	330
10 Spd	6	6	4	5	5	5	5	5	5	7	9	11	11	13	13	13	12	12	15	16	11	13	11	9	9.2	15.6
Dir	308	288	312	322	300	321	309	315	309	311	318	318	319	316	319	318	315	310	306	309	292	298	308	284	310	309
11 Spd	12	14	15	14	12	10	12	11	8	7	4	1	4	13	8	13	15	12	14	13	12	12	9	11	10.3	14.9
Dir	261	273	293	294	296	299	272	264	274	239	247	178	227	264	235	273	266	272	264	275	274	270	284	268	272	293
12 Spd	9	11	9	6	18	14	11	12	15	16	14	18	19	18	21	19	16	16	13	11	10	10	12	10	13.3	21.4
Dir	276	252	249	299	306	293	300	304	299	304	300	281	278	291	299	303	301	298	298	300	300	308	306	293	294	299
13 Spd	10	11	12	11	12	8	9	6	8	11	4	5	3	5	2	4	4	3	1	2	2	2	2	2	4.5	11.6
Dir	299	311	313	309	314	319	309	312	332	321	359	326	1	355	13	45	36	23	75	115	150	220	234	46	324	314
14 Spd	3	1	1	2	3	2	1	0	3	5	9	12	12	15	12	9	10	12	12	12	6	10	5	6	6.1	15.1
Dir	59	133	15	34	287	60	92	244	292	309	325	332	313	316	320	323	340	0	346	341	346	352	343	349	335	316
15 Spd	5	6	5	8	9	6	5	5	11	9	11	12	12	11	11	7	7	12	12	4	1	4	3	2	6.6	12.3
Dir	338	348	358	358	348	1	17	2	14	343	324	327	326	324	311	308	320	328	330	190	295	1	303	117	337	328
16 Spd	4	5	3	4	6	1	2	2	7	6	4	4	1	1	4	1	1	1	2	0	1	2	3	3	1.8	6.7
Dir	61	48	35	297	308	221	72	99	50	54	72	50	343	309	42	233	345	1	213	61	81	89	76	67	42	50
17 Spd	3	3	3	2	2	3	4	3	2	2	1	2	8	1	9	11	9	4	4	9	11	18	13	24	3.7	24.1
Dir	90	88	68	56	70	72	58	81	81	41	47	41	269	203	248	246	231	210	225	259	247	247	245	257	248	257
18 Spd	30	29	35	33	27	30	53	39	24	27	37	51	54	45	37	34	37	28	17	9	11	19	11	31.0	53.9	
Dir	247	246	254	251	241	252	267	263	250	247	261	265	263	267	264	268	260	251	245	250	246	218	235	238	256	263
19 Spd	19	31	36	32	24	43	38	36	45	47	48	46	38	42	35	36	32	35	36	38	35	22	17	28	34.1	47.5
Dir	237	238	234	227	241	244	246	252	259	262	263	265	262	267	260	253	272	273	268	268	269	262	255	255	257	263
20 Spd	30	16	16	5	13	2	4	4	3	4	1	3	3	5	2	7	6	6	5	21	25	27	36	22	9.3	36.4
Dir	251	239	258	271	253	94	71	28	125	75	223	266	20	248	139	219	222	243	231	254	259	256	256	252	252	256
21 Spd	6	8	14	5	9	33	26	32	28	24	16	23	32	41	43	42	34	22	17	17	19	18	9	10	21.6	43.1
Dir	190	179	238	216	212	232	230	236	235	233	236	228	233	235	237	234	232	229	225	228	238	235	235	271	232	237
22 Spd	13	12	8	9	5	7	7	5	6	6	7	3	4	9	6	7	7	5	7	8	8	10	8	4	4.9	13.0
Dir	290	289	310	317	288	231	344	257	245	237	249	218	177	221	280	330	346	349	292	293	12	355	14	345	298	290

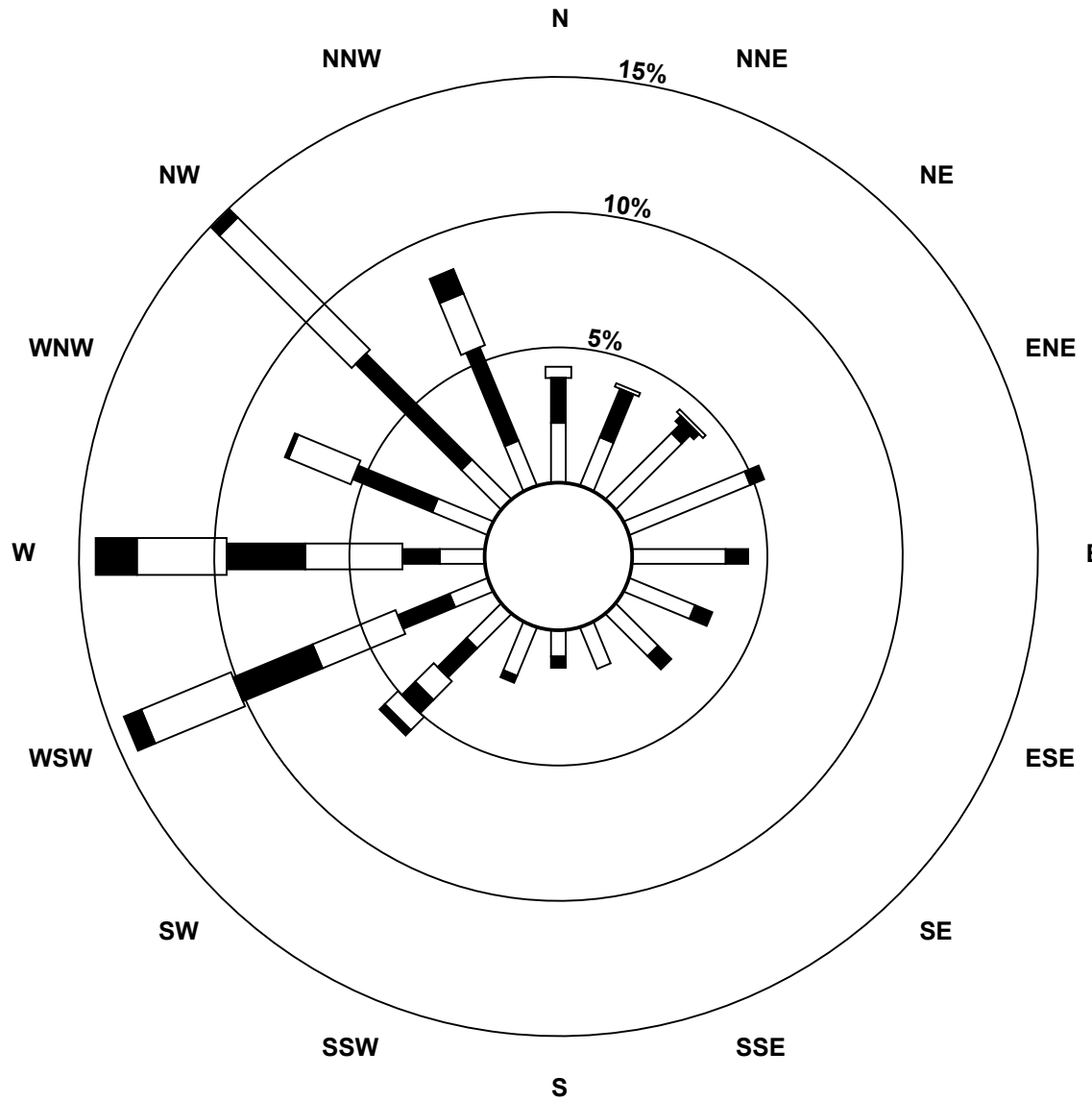
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Beaverlodge - December 2016

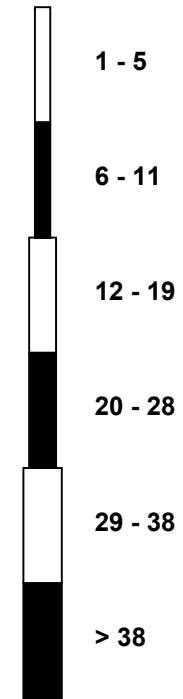
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
23 Spd	7	10	11	6	1	4	2	3	6	4	6	2	2	5	8	0	7	7	7	7	4	2	5	4	2.7	11.3
Dir	355	13	16	16	270	163	99	14	95	115	2	332	275	266	354	84	340	251	279	298	292	273	279	319	336	16
24 Spd	3	3	3	6	7	8	7	3	2	1	1	1	6	2	1	3	2	3	2	5	1	2	2	1	1.9	8.5
Dir	8	36	13	31	28	22	23	75	158	262	57	117	176	217	181	89	106	73	63	72	108	106	99	343	55	22
25 Spd	3	4	3	5	4	4	1	2	3	3	3	2	1	3	1	2	4	3	1	4	2	2	2	3	1.4	5.2
Dir	61	121	156	144	152	94	333	75	63	51	43	62	250	264	111	174	146	82	92	342	66	143	30	44	97	144
26 Spd	2	3	6	6	5	3	2	2	2	2	3	1	2	1	1	1	1	3	3	4	4	2	2	2	1.4	6.0
Dir	89	103	72	63	65	80	129	143	136	192	129	103	228	52	132	75	171	246	91	207	213	58	82	105	109	63
27 Spd	2	6	2	4	11	3	17	8	12	19	24	33	33	43	41	37	33	31	28	35	35	38	36	36	22.9	42.6
Dir	197	129	131	255	236	283	241	237	246	245	244	251	245	248	249	244	250	252	251	259	257	260	261	266	251	248
28 Spd	33	31	29	26	26	29	28	26	18	19	28	28	39	31	22	27	30	35	20	16	25	23	22	15	25.9	39.0
Dir	269	268	271	268	269	266	252	267	254	252	263	266	262	259	265	270	268	271	274	252	264	256	252	239	263	262
29 Spd	18	17	20	15	15	2	5	9	9	9	7	2	5	6	3	2	12	9	3	3	10	10	10	9	2.9	20.1
Dir	232	234	241	246	255	213	96	80	77	78	92	153	267	309	11	265	331	24	157	285	316	337	335	358	285	241
30 Spd	10	7	1	5	5	1	3	6	6	19	19	30	31	19	15	16	15	24	20	20	13	12	6	10	11.8	31.4
Dir	321	292	253	242	213	136	79	50	274	262	254	264	264	255	266	255	253	271	261	263	276	279	292	276	266	264
31 Spd	12	21	14	16	14	15	17	20	10	11	11	9	11	26	29	20	13	14	18	8	8	10	10	4	9.5	28.9
Dir	284	272	276	278	287	279	282	272	296	300	300	299	342	38	42	35	8	358	13	347	327	334	327	300	324	42
Spd	7.1	6.8	7.1	6.9	8.3	7.2	7.4	6.9	6.2	7.2	7.8	9.5	11.1	10.7	9.1	9.0	8.6	8.7	7.4	8.5	7.8	7.7	7.3	6.9	Diurnal Average	
Dir	275	270	275	277	274	269	274	275	279	277	276	274	270	272	279	274	278	282	281	276	279	280	278	278		
Spd	33.3	30.5	35.8	32.6	42.7	42.7	53.0	39.1	45.1	47.1	47.5	50.9	53.9	44.6	43.1	41.5	34.1	36.6	35.8	38.1	35.3	38.3	36.4	36.2	Diurnal Maximum	
Dir	269	238	234	251	247	244	267	263	259	262	263	265	263	267	237	234	260	251	268	268	257	260	256	266		
Maximum Speed Value: 54 km/h on Dec 18 13:00		Minimum Speed Value: 0 km/h on Dec 8 01:00		Hours in Service: 744																						
Maximum Daily Speed Average: 34.1 km/h on Dec 19		Minimum Daily Speed Average: 0.8 km/h on Dec 26		Hours of Data: 744																						
Maximum Diurnal Speed Average: 11.1 km/h at hour 13		Minimum Diurnal Speed Average: 6.2 km/h at hour 9		Hours of Missing Data: 0																						
Monthly Average Velocity: 7.94 km/h 275.8 deg				Speed Percentiles: P ₁ = 0.6 P ₁₀ = 1.8 Q ₁ = 3.5 Median = 8.5 Q ₃ = 15.6 P ₉₀ = 28.2 P ₉₉ = 43.9				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	35	32	9	0	0	0	76																			
NorthEast	46	13	0	2	1	0	62																			
East	53	17	1	0	0	0	71																			
SouthEast	33	8	0	0	0	0	41																			
South	18	4	0	0	0	0	22																			
SouthWest	30	20	19	15	17	5	106																			
West	26	21	45	33	40	16	181																			
NorthWest	22	66	84	13	0	0	185																			
Total	263	181	158	63	58	21	744																			

Wind Rose

Wind Speed (WS) (km/h)
Beaverlodge - December 2016



Wind Speed Classes (km/h)



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Beaverlodge - December 2016

Maximum Speed: 54 km/h on Dec 18 13:00	Maximum Daily Speed Average: 35.0 km/h on Dec 19	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 16 20:00	Minimum Daily Speed Average: 3.3 km/h on Dec 25	Hours of Data: 744
Maximum Diurnal Speed Average: 15.1 km/h at hour 14	Minimum Diurnal Speed Average: 9.8 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Speed: 12.05 km/h	Percentiles: P ₁ = 1.6 P ₁₀ = 2.8 Q ₁ = 4.5 Median = 8.6 Q ₃ = 15.8 P ₉₀ = 28.3 P ₉₉ = 44.0	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	5	7	11	10	9	7	9	13	10	6	3	5	5	5	5	5	5	3	3	3	3	4	3	3	5.9	12.6
2-Dec	3	2	2	3	3	4	3	5	5	5	3	4	6	6	5	3	7	4	5	4	6	5	7	5	4.4	6.8
3-Dec	6	8	11	28	43	35	26	24	29	24	18	27	28	36	32	30	30	31	24	26	20	19	15	15	24.4	42.8
4-Dec	21	19	14	20	22	18	13	15	20	21	21	20	22	22	24	21	19	17	16	16	19	21	21	16	19.2	24.0
5-Dec	17	14	16	15	17	16	15	14	16	17	15	15	16	16	17	17	15	12	8	8	8	8	8	10	13.7	17.1
6-Dec	14	13	15	14	14	12	12	12	12	11	12	14	14	11	11	11	10	10	9	8	4	4	5	7	10.8	15.2
7-Dec	4	5	5	7	13	7	5	7	4	3	2	1	4	3	4	2	2	4	4	4	5	3	2	2	4.2	12.6
8-Dec	2	2	2	3	5	5	5	9	9	8	10	10	8	7	5	8	10	11	10	6	6	5	3	5	6.4	11.3
9-Dec	6	6	5	4	2	5	4	4	5	3	1	4	5	2	3	3	7	9	14	13	11	10	7	6	5.7	14.1
10-Dec	6	6	5	5	5	5	5	5	5	8	10	11	11	13	13	13	12	13	15	16	11	14	12	10	9.5	15.7
11-Dec	12	14	15	14	12	10	12	11	8	7	4	2	5	13	8	13	15	12	14	13	12	12	9	11	10.8	14.9
12-Dec	9	12	9	7	18	14	11	12	16	16	15	18	19	18	21	19	16	16	13	11	10	10	12	10	13.8	21.5
13-Dec	10	11	12	11	12	8	9	7	9	11	5	5	4	5	3	4	4	4	3	2	2	3	3	2	6.2	11.6
14-Dec	3	2	2	2	4	3	2	1	4	5	9	12	12	15	12	9	10	12	12	12	6	10	5	6	7.1	15.1
15-Dec	5	6	6	8	9	6	5	6	11	10	11	12	12	11	11	7	7	12	12	4	3	5	4	2	7.7	12.3
16-Dec	4	5	5	5	7	3	3	3	7	6	4	4	2	2	4	1	3	2	2	1	2	2	3	3	3.6	6.9
17-Dec	3	3	3	2	2	4	4	4	2	4	2	4	8	2	9	11	10	5	6	9	11	18	13	24	6.8	24.2
18-Dec	30	29	35	33	27	31	53	39	24	27	38	51	54	45	38	37	34	37	28	17	9	11	19	11	31.6	54.1
19-Dec	19	31	36	32	24	43	38	36	45	47	48	46	38	42	35	36	33	35	36	38	35	23	17	28	35.0	47.6
20-Dec	30	17	16	5	13	3	4	5	4	5	2	4	5	6	4	7	6	6	6	21	25	27	36	22	11.6	36.5
21-Dec	8	9	14	7	10	33	26	32	28	24	16	23	32	41	43	42	34	22	17	17	19	18	9	10	22.3	43.1
22-Dec	13	12	9	9	6	8	8	6	7	6	8	4	5	10	8	7	7	5	7	9	8	10	8	4	7.6	13.0
23-Dec	7	10	11	7	3	5	3	5	6	6	7	4	4	5	9	5	7	8	8	7	4	3	5	4	6.0	11.3
24-Dec	4	3	3	6	7	8	7	4	2	2	2	2	6	3	2	3	3	3	3	6	2	2	3	4	3.7	8.5
25-Dec	4	5	3	6	5	5	2	2	3	3	3	2	2	3	2	3	4	4	3	5	3	2	3	4	3.3	5.9
26-Dec	2	3	6	6	5	4	3	3	4	4	3	4	4	3	4	4	3	5	4	5	5	2	3	3	3.7	6.2
27-Dec	5	7	6	9	12	6	17	8	12	19	24	33	33	43	41	37	33	31	28	35	35	38	36	36	24.4	42.7
28-Dec	33	31	29	26	26	29	28	26	19	19	28	28	39	31	23	28	30	36	21	16	25	23	23	16	26.3	39.1
29-Dec	18	18	20	15	15	4	7	9	9	9	8	4	6	6	5	6	13	10	5	5	11	11	10	9	9.7	20.3
30-Dec	10	7	3	6	5	2	4	6	8	19	19	30	31	19	15	16	16	24	20	20	13	12	7	10	13.4	31.4
31-Dec	12	21	14	16	14	15	17	20	11	11	11	10	12	26	29	21	13	14	18	8	8	10	10	4	14.4	29.0
	10.6	10.8	11.0	11.0	11.9	11.6	11.6	11.4	11.4	11.8	11.7	13.4	14.5	15.1	14.3	13.8	13.4	13.5	12.0	11.8	11.1	11.2	10.4	9.8	Diurnal Average	
	33.3	30.6	35.8	32.9	42.8	42.8	53.1	39.4	45.2	47.1	47.6	51.0	54.1	44.7	43.1	41.6	34.3	36.6	35.8	38.1	35.4	38.4	36.5	36.2	Diurnal Maximum	

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

Hourly Standard Deviations

Wind Direction (WD) - deg
Beaverlodge - December 2016

Maximum Value: 95.0 deg on Dec 26 16:00																		Hours in Service: 744							
Minimum Value: 2.0 deg on Dec 21 17:00																		Hours of Data: 744							
Percentiles: P ₁ = 2.5 P ₁₀ = 3.8 Q ₁ = 6.0 Median = 10.4 Q ₃ = 36.7 P ₉₀ = 65.6 P ₉₉ = 89.5																		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	47	15	7	16	8	21	11	8	6	18	65	11	49	43	12	8	10	19	37	61	24	36	45	22	65.2
2-Dec	30	55	40	69	62	45	76	41	93	53	85	63	37	64	45	58	60	78	56	18	19	53	49	89	93.2
3-Dec	70	32	11	6	4	3	2	5	4	3	8	4	3	4	6	5	4	3	3	3	6	6	6	8	69.8
4-Dec	4	3	4	4	3	6	14	10	6	7	6	9	7	7	5	6	6	6	8	7	7	6	9	9	14.3
5-Dec	6	8	7	7	7	7	7	7	7	6	6	7	7	9	6	6	8	7	6	7	9	8	6	8	8.9
6-Dec	7	8	7	8	7	6	6	6	6	6	8	7	7	8	20	9	13	8	9	14	17	14	8	42	41.7
7-Dec	35	25	24	31	5	32	29	18	47	68	91	63	71	51	48	57	66	9	43	44	14	74	70	83	91.3
8-Dec	92	70	56	55	17	12	34	12	7	7	7	6	7	11	34	18	12	10	7	13	31	12	50	17	92.1
9-Dec	9	6	8	15	31	31	36	70	52	69	90	49	14	61	67	78	8	21	3	5	10	9	10	9	89.5
10-Dec	10	16	13	10	8	7	8	10	7	6	8	8	8	8	8	7	6	8	7	7	7	15	11	21	21.3
11-Dec	6	13	5	4	5	11	4	4	11	6	23	56	25	10	7	10	4	8	8	5	8	8	7	5	55.5
12-Dec	16	18	10	40	7	5	9	4	5	13	8	5	6	5	4	5	4	3	6	5	4	7	7	3	39.9
13-Dec	4	5	6	5	3	12	9	63	31	6	39	20	50	31	63	7	11	32	85	30	29	63	63	22	84.9
14-Dec	6	69	63	43	59	54	75	87	37	14	16	9	6	6	6	6	10	7	6	9	13	5	29	16	86.9
15-Dec	21	12	10	6	6	17	31	35	6	22	4	4	3	5	5	9	9	5	3	31	65	32	68	64	67.8
16-Dec	17	8	73	39	36	69	31	50	6	15	18	58	71	88	14	60	79	85	61	92	73	31	13	29	91.8
17-Dec	23	28	17	33	41	20	22	38	59	84	56	79	22	67	11	10	29	37	64	12	9	3	7	4	84.0
18-Dec	5	4	5	8	5	10	3	7	6	4	6	3	4	5	5	5	4	3	8	10	17	8	3	7	17.0
19-Dec	5	2	3	2	5	4	4	3	4	3	3	4	4	5	4	4	6	4	3	3	3	10	7	4	9.9
20-Dec	4	22	18	28	15	75	30	45	51	21	66	73	55	48	58	15	12	54	51	4	6	5	3	6	74.8
21-Dec	38	16	22	69	47	3	5	3	2	2	3	3	3	3	3	2	2	2	2	3	3	2	6	19	68.8
22-Dec	3	7	23	6	30	31	23	25	16	13	8	78	60	11	34	9	11	13	18	17	9	5	7	26	78.1
23-Dec	8	6	4	55	68	41	66	76	49	70	25	72	76	19	31	75	26	35	11	9	36	51	16	17	76.5
24-Dec	52	23	37	11	6	5	15	45	33	50	35	47	7	51	70	20	28	19	56	22	80	48	69	75	80.3
25-Dec	62	33	22	36	30	34	81	22	11	17	11	67	22	18	73	30	22	39	87	44	60	68	69	40	87.4
26-Dec	49	16	17	19	42	34	56	46	59	67	38	88	72	90	81	95	78	76	58	50	81	79	78	51	95.0
27-Dec	65	19	68	66	30	85	14	24	12	7	4	4	4	4	4	3	5	5	4	3	3	4	4	3	85.1
28-Dec	3	3	3	3	4	4	7	5	9	4	6	5	5	4	7	8	4	4	8	6	6	4	6	17	16.8
29-Dec	9	11	8	6	4	59	42	7	9	10	38	59	40	35	53	77	27	22	54	70	12	18	6	17	76.9
30-Dec	10	10	93	43	10	56	17	20	53	4	4	3	4	9	8	10	14	6	7	5	7	7	14	6	92.6
31-Dec	7	10	8	6	4	6	7	5	13	7	8	10	17	9	4	5	7	6	5	16	5	6	8	50	49.7
	92.1	69.8	92.6	68.9	67.8	85.1	81.1	86.9	93.2	84.0	91.3	87.8	76.5	90.4	80.8	95.0	79.3	84.6	87.4	91.8	81.4	79.5	77.7	89.0	

PAZA
Valleyview Station
Monthly Summary Tables, Graphs and
Roses

Hourly Averages

Sulphur Dioxide (SO₂) - ppb

Valleyview - December 2016

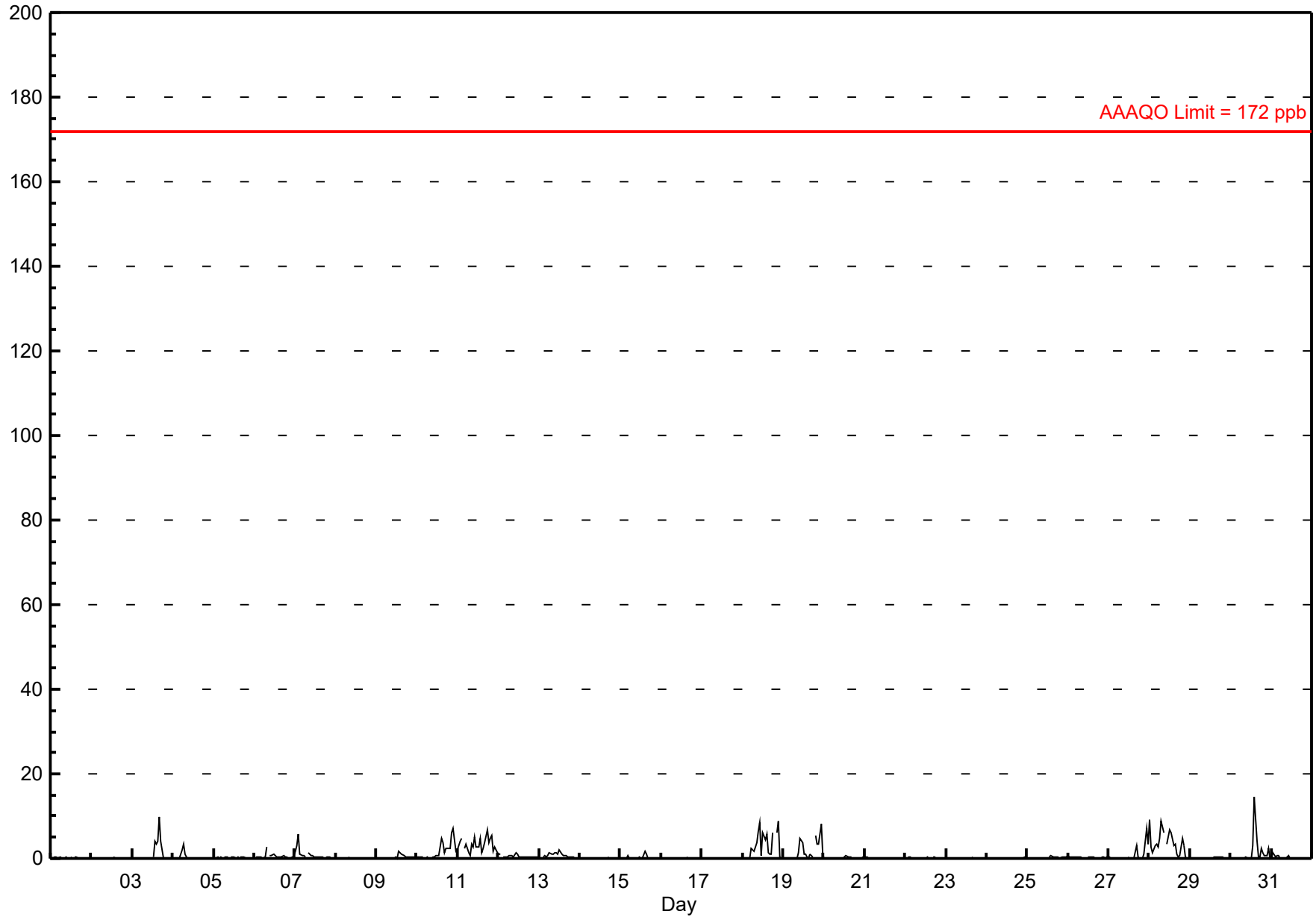
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 14.5 ppb on Dec 30 15:00	Maximum Daily Average: 3.5 ppb on Dec 28		Hours of Data:	704
Minimum Value: 0 ppb on Dec 2 08:00	Minimum Daily Average: 0.0 ppb on Dec 17		Hours of Missing Data:	40
Maximum Diurnal Average: 1.4 ppb at hour 15	Minimum Diurnal Average: 0.3 ppb at hour 4		Hours of Calibration:	34
Monthly Average: 0.69 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 2.3 P ₉₉ = 7.8		Percent Operational Time:	99.2

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	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.2	0.4	
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	4	3	4	10	4	0	0	0	0	0	0	1.1	9.8	
4-Dec	0	0	0	0	0	2	3	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	3.3	
5-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	0.3	
6-Dec	0	0	0	0	0	0	0	3	A	1	1	1	1	0	0	0	0	1	0	0	0	0	0	1	0.5	2.6	
7-Dec	2	3	6	1	1	1	0	A	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	5.9	
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	
9-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0.3	1.7	
10-Dec	0	0	0	0	A	0	0	0	0	0	0	1	1	1	5	4	1	2	2	3	6	7	4	2	1.8	7.1	
11-Dec	2	4	5	A	2	4	1	1	3	3	5	3	3	5	1	3	4	7	4	5	5	2	3	1	3.2	6.8	
12-Dec	1	1	A	1	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1.2	
13-Dec	0	A	0	1	0	1	1	1	1	1	1	1	2	1	1	1	1	0	0	0	0	0	0	0	0.7	2.2	
14-Dec	A	0	0	0	0	0	0	0	0	0	P	P	P	P	P	P	0	0	0	0	0	0	0	A	--	0.4	
15-Dec	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	A	0	0.2	1.8	
16-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	C	C	0	0	0	0	0	0	0	A	0	0.0	0.3	
17-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	0.1	
18-Dec	0	0	0	0	0	2	2	2	4	6	8	1	6	4	6	1	1	1	6	A	A	6	9	0	2.9	8.7	
19-Dec	0	0	0	0	0	0	0	0	0	1	5	4	1	1	0	0	1	0	A	A	5	3	3	8	1	1.5	8.1
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	A	A	0	0	0	0	1	0.2	0.7	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0.1	0.2	
22-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0.1	0.5	
23-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0	0	0	0	0	0	0	0.0	0.3	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.0	0.2	
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	0	0	0	0	0	0	0	0	0	0.2	0.8	
26-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	0.2	0.5	
27-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	3	0	0	0	0	1	7	0.7	7.3	
28-Dec	9	3	2	3	3	3	5	9	6	A	3	5	7	6	3	3	1	0	1	5	3	0	0	0	3.5	9.2	
29-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	
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	3	15	4	0	0	2	1	1	1	2	0	1.3	14.5	
31-Dec	0	1	0	1	1	0	A	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	1.4	
	0.6	0.5	0.5	0.3	0.4	0.5	0.5	0.6	0.6	0.5	1.0	0.6	0.8	1.1	1.4	0.9	0.9	0.6	0.6	0.7	0.9	0.8	0.9	0.4	Diurnal Average		
	9.2	4.0	5.9	2.9	3.5	3.5	4.6	8.7	6.1	6.3	8.5	5.2	6.9	5.9	14.5	4.2	9.8	6.8	6.2	5.5	6.2	8.7	8.1	3.3	Diurnal Maximum		

C - Calibration P - Power Failure A - Automated Daily Zero Span
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - December 2016



Hourly Maximums

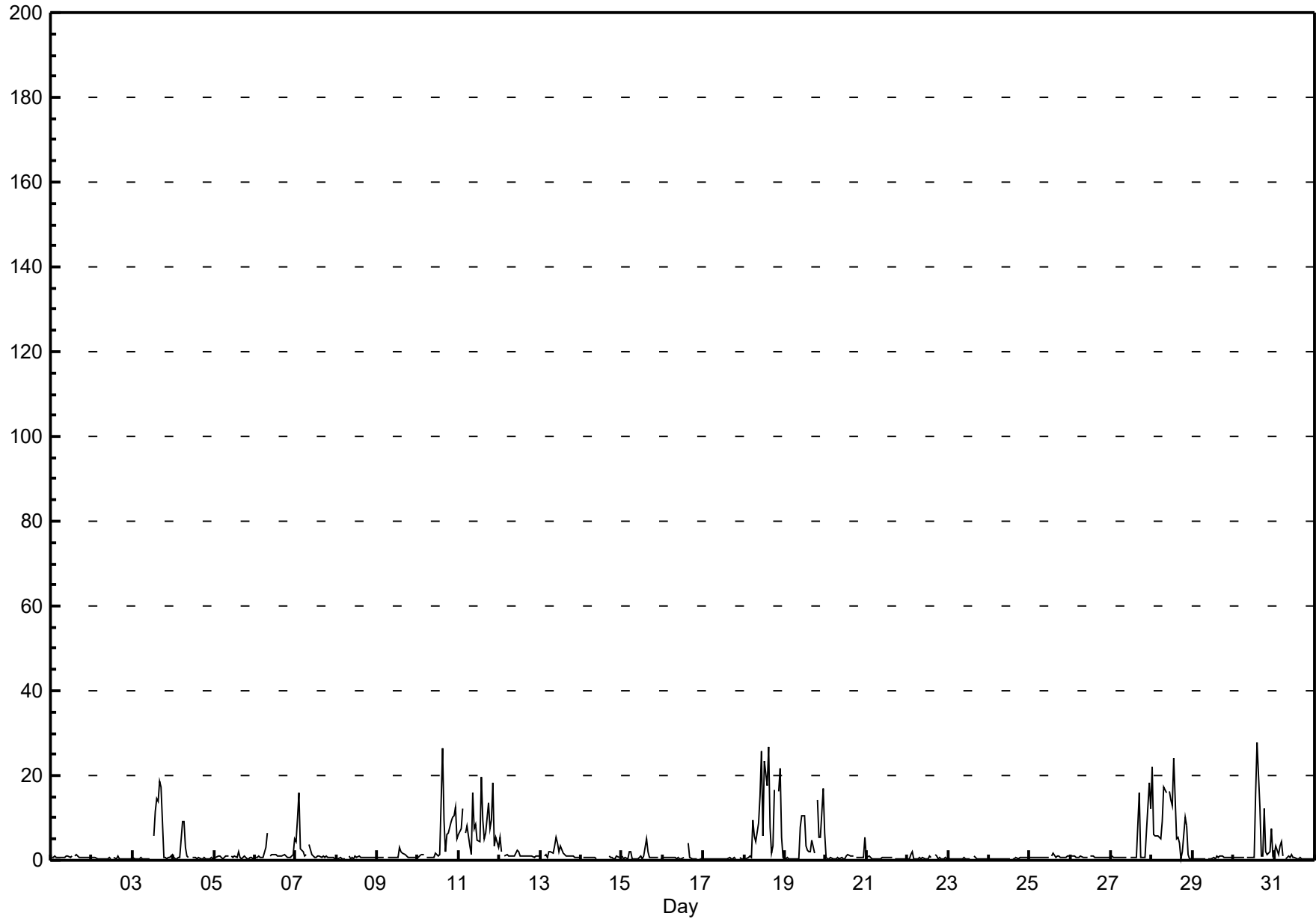
Sulphur Dioxide (SO₂) - ppb

Valleyview - December 2016

Maximum Value: 27.8 ppb on Dec 30 15:00		Maximum Daily Average: 9.6 ppb on Dec 18		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 4 15:00		Minimum Daily Average: 0.5 ppb on Dec 17		Hours of Data: 704																							
Maximum Diurnal Average: 4.8 ppb at hour 15		Minimum Diurnal Average: 1.0 ppb at hour 4		Hours of Missing Data: 40																							
Monthly Average: 2.18 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.5 Median = 0.7 Q ₃ = 1.1 P ₉₀ = 6.0 P ₉₉ = 21.5		Hours of Calibration: 34																							
				Percent Operational Time: 99.2																							
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	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.3	
2-Dec	1	1	1	0	0	0	0	0	0	0	0	0	0	A	1	0	1	0	0	0	0	0	0	0	0	0.5	0.9
3-Dec	1	0	0	0	0	1	0	0	0	0	0	A	6	12	14	14	19	17	1	1	0	1	1	1	4.0	18.7	
4-Dec	1	0	0	1	1	9	9	3	1	1	A	1	1	1	0	1	0	0	1	0	0	0	1	0	1.4	9.2	
5-Dec	1	1	1	1	1	0	1	1	1	A	1	1	1	1	2	1	0	1	1	0	0	1	1	0	0.8	1.9	
6-Dec	1	1	1	1	1	1	3	6	A	1	1	2	1	1	1	1	1	1	1	1	1	1	1	5	1.5	6.3	
7-Dec	5	10	16	3	2	1	1	A	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.3	16.1	
8-Dec	1	0	1	0	0	0	A	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	1.0	
9-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	3	2	2	1	1	1	1	1	1	1	1	0.9	3.1	
10-Dec	1	1	1	1	A	1	1	1	1	1	2	1	1	1	26	10	2	6	6	9	10	11	13	5	4.9	26.3	
11-Dec	6	8	12	A	7	8	3	1	16	8	9	5	4	20	9	5	7	14	7	9	18	3	6	3	8.2	19.7	
12-Dec	5	2	A	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1.3	5.3	
13-Dec	1	A	1	2	1	2	2	2	3	6	4	2	4	2	1	1	1	1	1	1	1	1	1	1	1.7	5.5	
14-Dec	A	1	1	1	1	1	1	1	1	1	P	P	P	P	P	P	1	1	1	0	0	1	1	A	--	1.1	
15-Dec	1	0	1	0	2	2	0	0	0	0	1	1	0	1	5	2	1	1	1	1	1	1	A	0	1.0	5.2	
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	C	C	4	1	0	0	0	0	0	A	0	0.7	4.2	
17-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	A	1	0	0	0.5	0.8	
18-Dec	0	0	1	1	1	10	6	4	9	15	26	6	23	17	27	8	2	3	17	A	16	22	5	1	9.6	26.7	
19-Dec	0	1	0	0	0	0	0	0	0	8	10	10	3	3	2	2	5	2	A	14	5	5	17	6	4.2	16.8	
20-Dec	1	0	0	1	0	0	0	1	1	1	0	0	1	2	1	1	1	A	1	1	1	1	1	5	0.9	5.3	
21-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	0	0	0	0	0	0.6	0.8	
22-Dec	0	0	1	2	0	0	0	1	0	1	0	0	0	1	1	A	1	1	0	1	0	0	1	0	0.7	2.0	
23-Dec	1	0	0	0	0	0	0	0	0	1	0	1	1	0	A	1	1	1	0	1	0	1	0	1	0.5	1.0	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	1	1	1	1	1	1	1	0.5	0.7	
25-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	2	1	1	1	1	1	1	1	1	1	1	0.8	1.7	
26-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	1.1	
27-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	16	1	1	1	1	7	18	12	2.8	18.3	
28-Dec	22	6	6	6	5	5	9	17	16	A	16	14	13	24	5	6	4	0	2	10	8	1	0	0	8.6	24.2	
29-Dec	0	0	0	0	0	0	0	0	0	A	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0.6	1.0	
30-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	16	28	12	1	1	12	2	1	2	7	1	4.0	27.8	
31-Dec	1	3	1	3	5	1	A	0	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	1.1	4.5	
		1.9	1.4	1.8	1.0	1.2	1.7	1.6	1.6	2.1	1.8	3.0	1.9	2.5	4.1	4.8	2.7	2.4	2.0	2.0	2.0	2.4	2.2	2.7	1.7	Diurnal Average	
		22.2	9.8	16.1	5.7	6.6	9.6	9.2	17.4	15.9	15.3	25.8	14.3	23.4	24.2	27.8	13.9	18.7	17.4	16.8	14.3	18.5	21.6	18.3	12.3	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

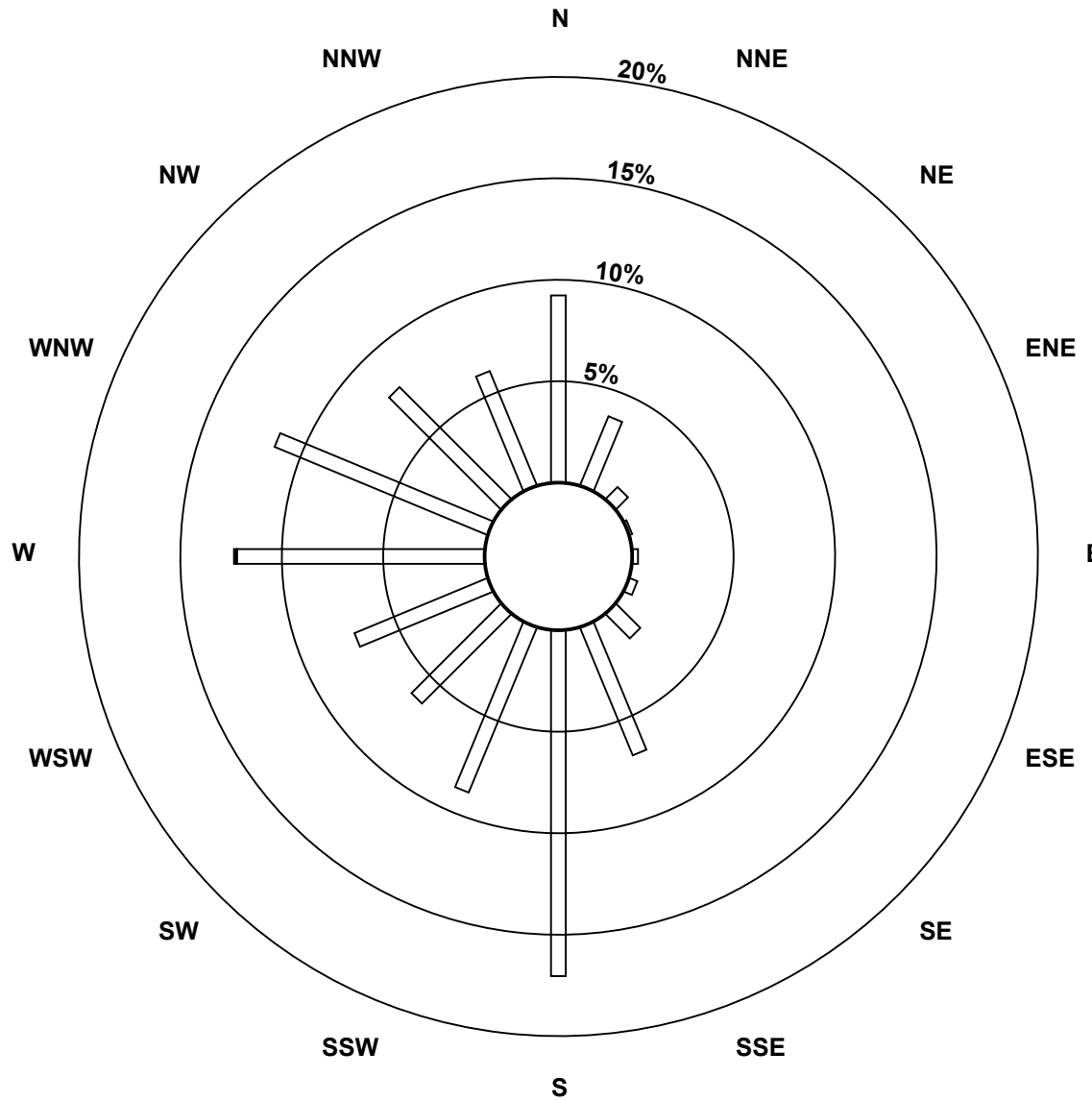
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Valleyview - December 2016

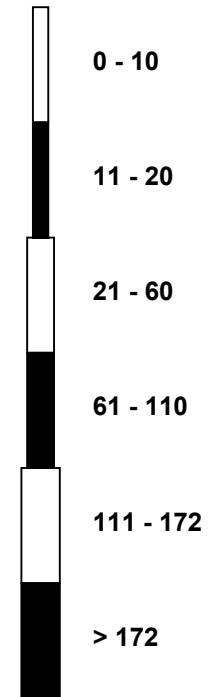


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Valleyview - December 2016

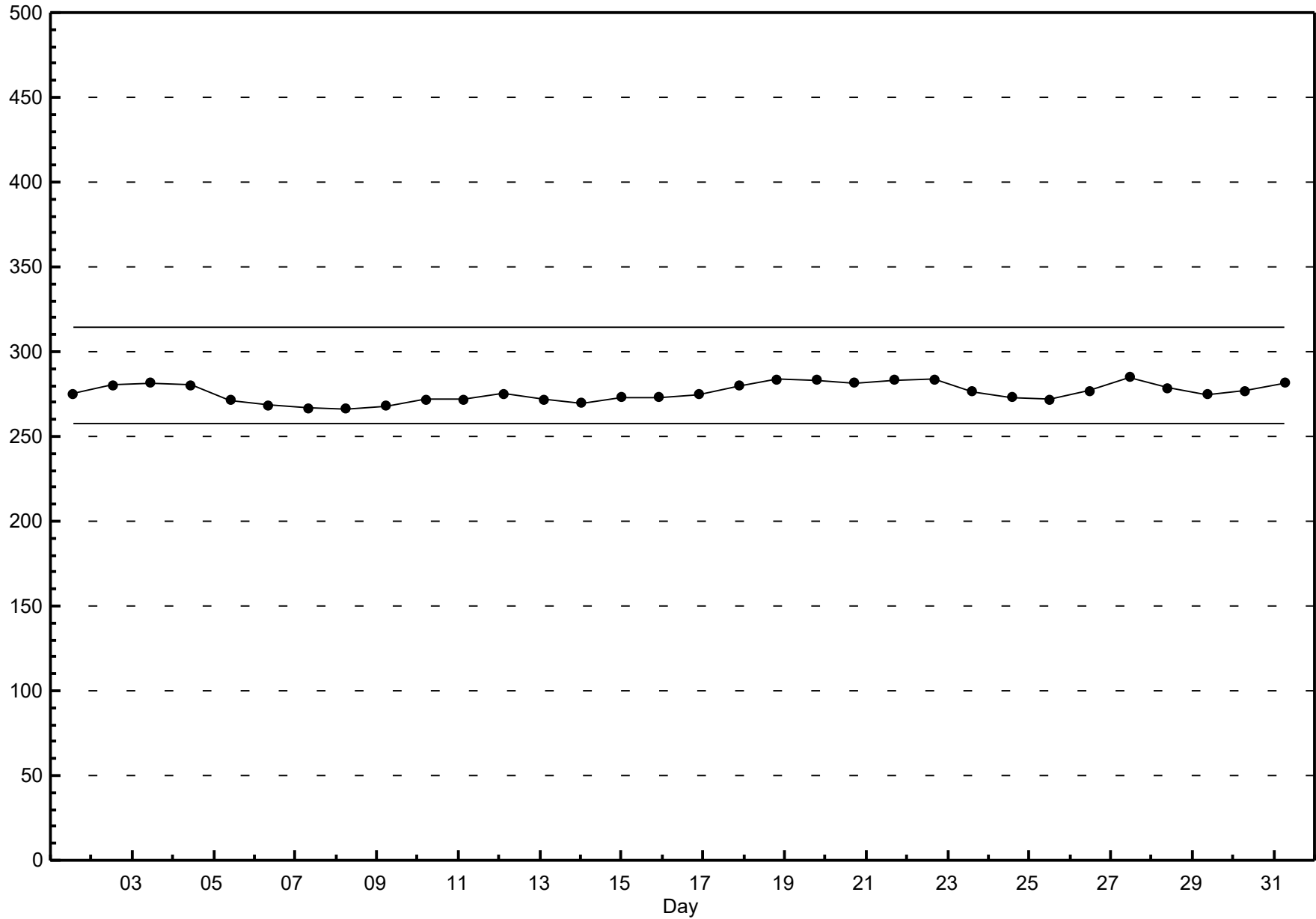


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Valleyview - December 2016



Hourly Averages

Hydrogen Sulphide (H₂S) - ppb

Valleyview - December 2016

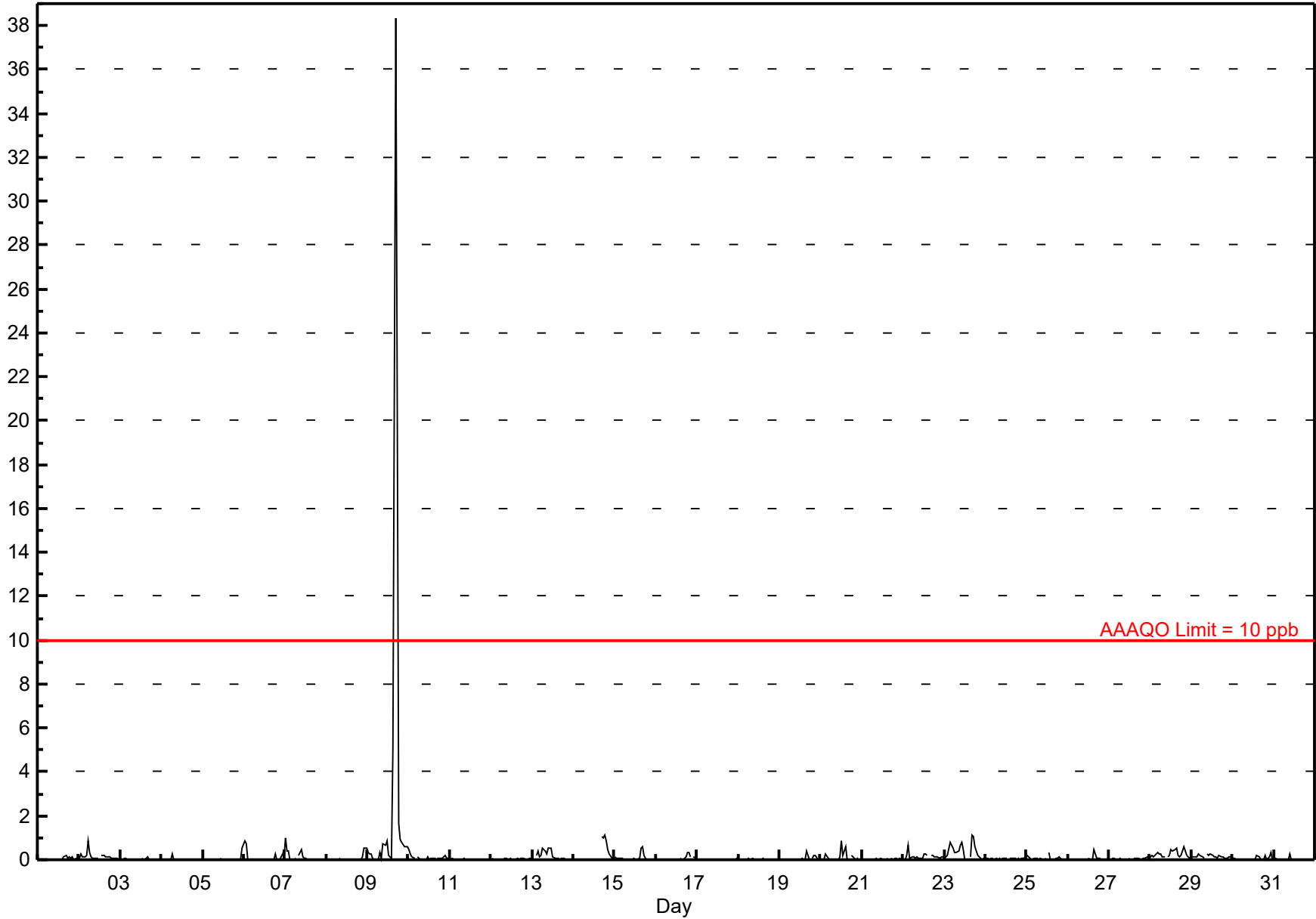
Number of Exceedences (AAAQO):	1-hr: 2	24-hr: 0	Hours in Service:	744
Maximum Value: 38.4 ppb on Dec 9 17:00	Maximum Daily Average: 3.2 ppb on Dec 9		Hours of Data:	703
Minimum Value: 0 ppb on Dec 1 02:00	Minimum Daily Average: 0.0 ppb on Dec 17		Hours of Missing Data:	41
Maximum Diurnal Average: 1.4 ppb at hour 17	Minimum Diurnal Average: 0.1 ppb at hour 8		Hours of Calibration:	35
Monthly Average: 0.19 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.3 P ₉₉ = 1.1		Percent Operational Time:	99.2

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	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.0	0.2	
2-Dec	0	0	0	0	0	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0.2	0.9	
3-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	0.1	
4-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	0.3	
5-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	0.6	
6-Dec	1	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.8	
7-Dec	1	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	1.0	
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	0.6	
9-Dec	0	0	0	0	0	0	A	0	0	1	1	1	0	0	0	5	38	21	2	1	1	1	1	1	3.2	38.4	
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.4	
11-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	
12-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	
13-Dec	0	A	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.6	
14-Dec	A	0	0	0	0	0	0	0	0	0	P	P	P	P	P	P	1	1	1	1	0	0	0	A	--	1.1	
15-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	A	0	0.1	0.6
16-Dec	0	0	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	A	0	0.1	0.3	
17-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	0.1	
18-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	0.1	
19-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	0.4	
20-Dec	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	A	0	0	0	0	0	0	0	0.1	0.9	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.0	0.1	
22-Dec	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.2	0.6	
23-Dec	0	0	0	1	1	1	0	0	0	1	1	0	0	0	A	0	1	1	1	0	0	0	0	0	0.4	1.1	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.1	0.2	
25-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	0.3	
26-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	0.5	
27-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	0.1	
28-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0.3	0.6	
29-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	
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	
31-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	0.3	
	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	0.3	1.4	0.8	0.2	0.1	0.1	0.1	0.1	0.1	Diurnal Average		
	1.0	0.8	0.4	0.8	0.7	0.9	0.5	0.4	0.4	0.8	0.8	0.9	0.9	0.4	0.6	5.1	38.4	20.6	1.6	0.9	0.8	0.6	0.6	0.6	Diurnal Maximum		

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

Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Valleyview - December 2016



Hourly Maximums

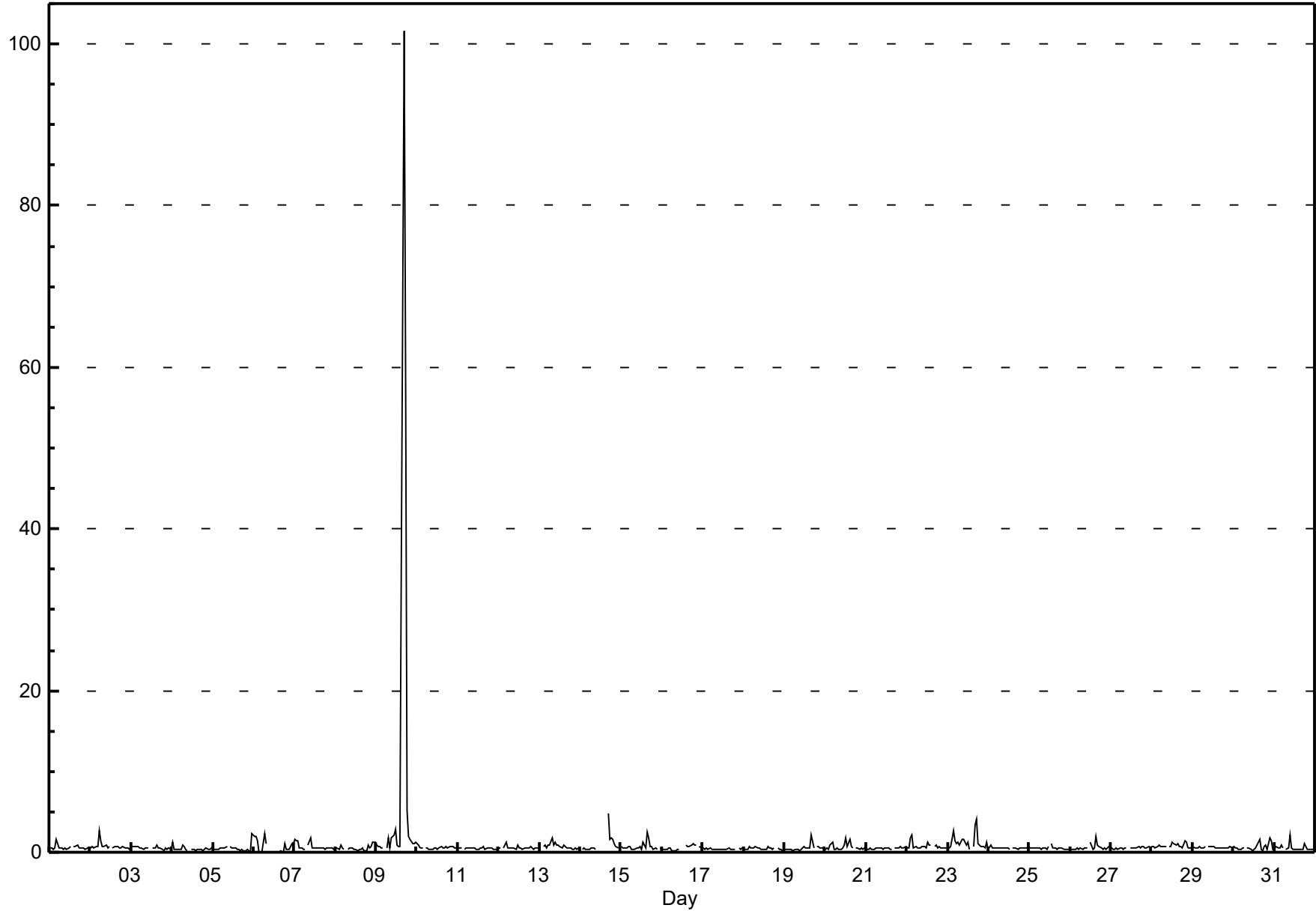
Hydrogen Sulphide (H₂S) - ppb

Valleyview - December 2016

Maximum Value: 101.6 ppb on Dec 9 17:00		Maximum Daily Average: 9.7 ppb on Dec 9		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 6 04:00		Minimum Daily Average: 0.4 ppb on Dec 4		Hours of Data: 703																							
Maximum Diurnal Average: 4.2 ppb at hour 17		Minimum Diurnal Average: 0.6 ppb at hour 9		Hours of Missing Data: 41																							
Monthly Average: 0.91 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.3 Q ₁ = 0.4 Median = 0.5 Q ₃ = 0.7 P ₉₀ = 1.1 P ₉₉ = 3.0		Hours of Calibration: 35																							
				Percent Operational Time: 99.2																							
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	0	0	1	2	1	1	1	0	1	0	1	A	A	1	1	1	1	1	1	1	0	1	0	0.6	1.5	
2-Dec	0	1	1	1	1	3	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0	0	0.8	2.7	
3-Dec	1	1	1	1	1	1	1	0	0	0	0	A	1	1	1	1	1	0	0	0	0	0	0	0	0.5	0.8	
4-Dec	1	0	0	0	0	0	1	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	1	0.4	1.2	
5-Dec	0	0	0	0	0	1	0	1	1	A	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0.5	2.3	
6-Dec	2	2	1	0	0	0	2	1	A	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0.6	2.4	
7-Dec	2	1	1	1	0	0	0	A	1	2	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0.7	1.8	
8-Dec	0	1	0	1	0	0	A	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0.5	1.3	
9-Dec	1	1	1	1	1	A	1	2	0	2	2	3	1	1	1	36	102	59	5	2	2	1	1	1	9.7	101.6	
10-Dec	1	1	1	1	A	0	1	0	0	0	1	1	0	0	1	0	0	1	0	1	1	1	0	0	0.6	1.1	
11-Dec	1	1	1	A	0	1	1	0	1	0	0	0	0	1	1	1	0	1	1	0	1	0	0	0	0.5	0.6	
12-Dec	0	1	A	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	0	1	0	1	1	1	0.6	1.2	
13-Dec	1	A	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	0.7	1.8	
14-Dec	A	0	1	0	0	0	0	0	1	0	P	P	P	P	P	P	5	2	2	2	1	1	1	A	--	4.8	
15-Dec	1	1	1	0	1	1	0	0	0	1	1	1	0	1	1	2	2	1	1	0	0	0	A	1	0.7	2.5	
16-Dec	0	0	0	0	0	1	0	0	0	0	0	C	C	C	1	1	1	1	1	1	1	A	1	1	0.6	1.0	
17-Dec	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	A	1	0	1	0.4	0.5
18-Dec	0	0	0	1	0	1	1	1	1	1	0	0	0	0	1	0	0	0	1	0	0	A	1	0	0	0.5	0.7
19-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	2	1	1	1	1	1	0	0	0.5	2.1	
20-Dec	0	1	0	1	1	0	0	0	0	0	0	1	2	1	2	1	1	A	0	1	0	0	0	0	0.7	1.8	
21-Dec	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	A	1	0	1	1	1	0	1	0.5	0.7	
22-Dec	0	0	2	2	1	1	1	1	1	1	1	0	1	1	1	A	1	1	1	1	1	1	0	1	0.8	2.1	
23-Dec	1	1	1	3	1	1	1	1	2	2	1	1	1	0	A	1	3	4	1	1	1	1	0	1	1.3	4.1	
24-Dec	0	1	1	0	1	1	1	1	1	1	0	0	0	A	0	0	0	0	1	1	1	0	1	1	0.5	1.0	
25-Dec	1	1	1	1	1	1	1	0	1	0	0	1	A	1	0	0	0	1	1	1	0	0	0	0	0.5	1.0	
26-Dec	0	0	0	0	1	0	1	0	1	0	0	A	1	0	0	2	1	1	1	0	1	0	0	1	0.6	1.9	
27-Dec	1	0	0	0	0	1	1	0	0	0	A	1	0	0	1	0	1	1	1	1	1	0	1	1	0.5	0.7	
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0.8	1.4	
29-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0.6	0.8	
30-Dec	1	1	1	0	0	0	0	A	1	1	0	0	0	1	1	2	0	0	1	1	0	2	1	0	0.6	1.7	
31-Dec	0	1	1	1	1	1	A	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.5	2.2	
		0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.7	0.6	0.6	1.9	4.2	2.6	0.8	0.7	0.6	0.6	0.6	0.6	Diurnal Average	
		1.9	2.0	1.8	2.7	1.5	2.7	2.4	1.8	1.6	2.2	2.1	2.8	1.8	1.3	1.6	36.1	101.6	58.6	5.1	1.9	1.7	1.7	1.4	2.3	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

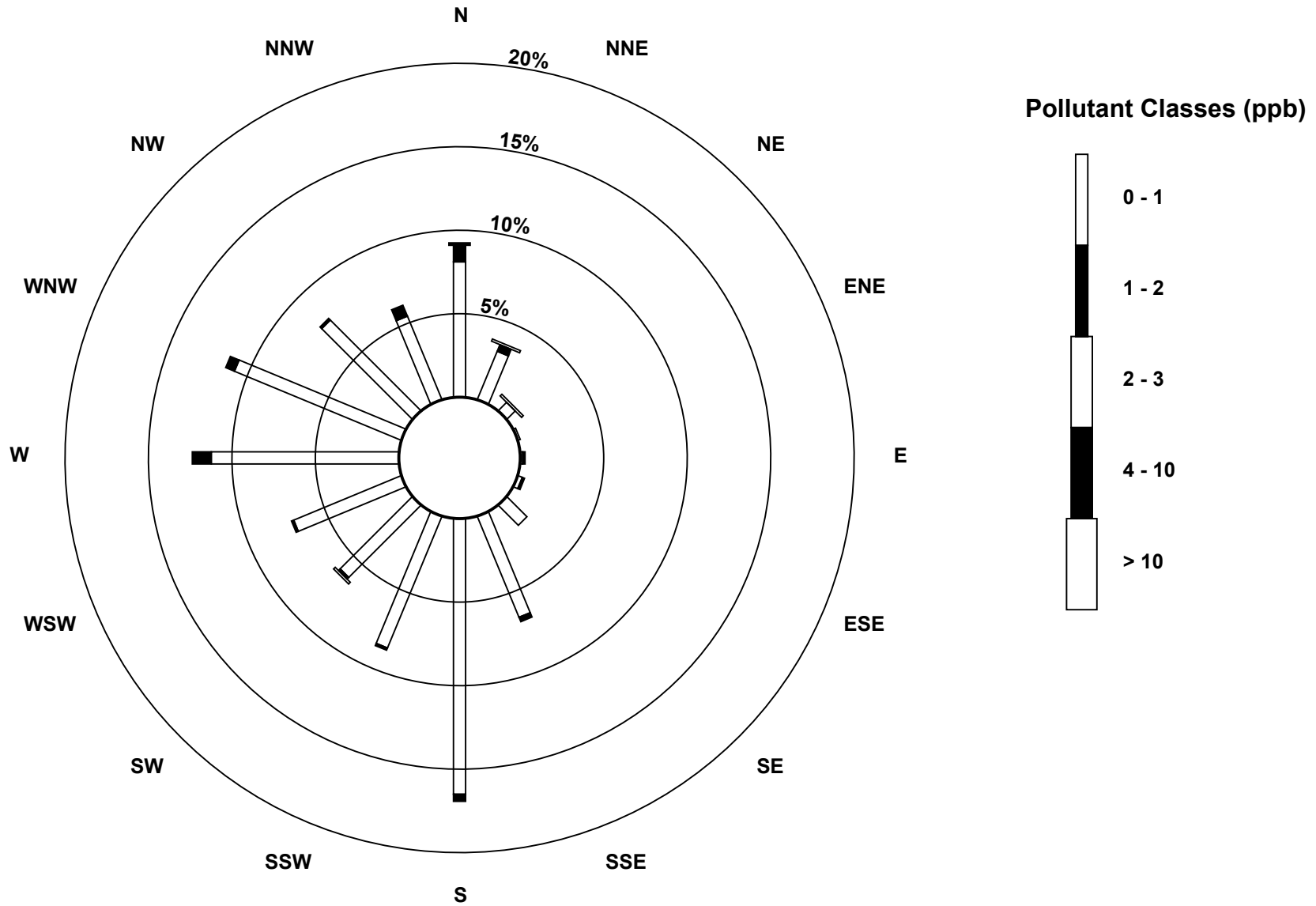
Hourly Maximums

Hydrogen Sulphide (H₂S) - ppb
Valleyview - December 2016



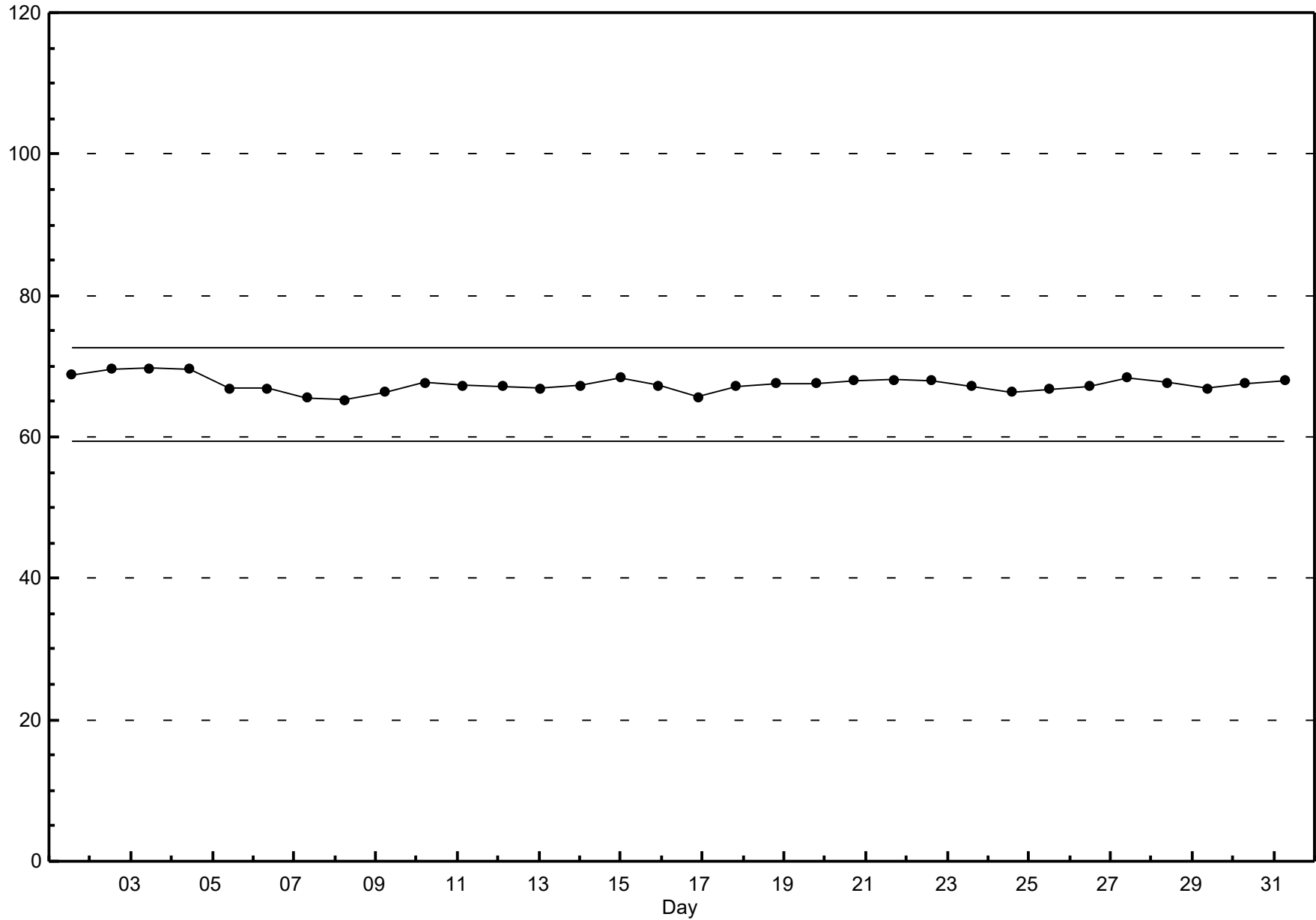
Pollutant Rose

Hydrogen Sulphide (H₂S) - ppb
Valleyview - December 2016



Span Responses

Hydrogen Sulphide (H₂S)
Valleyview - December 2016



Hourly Averages

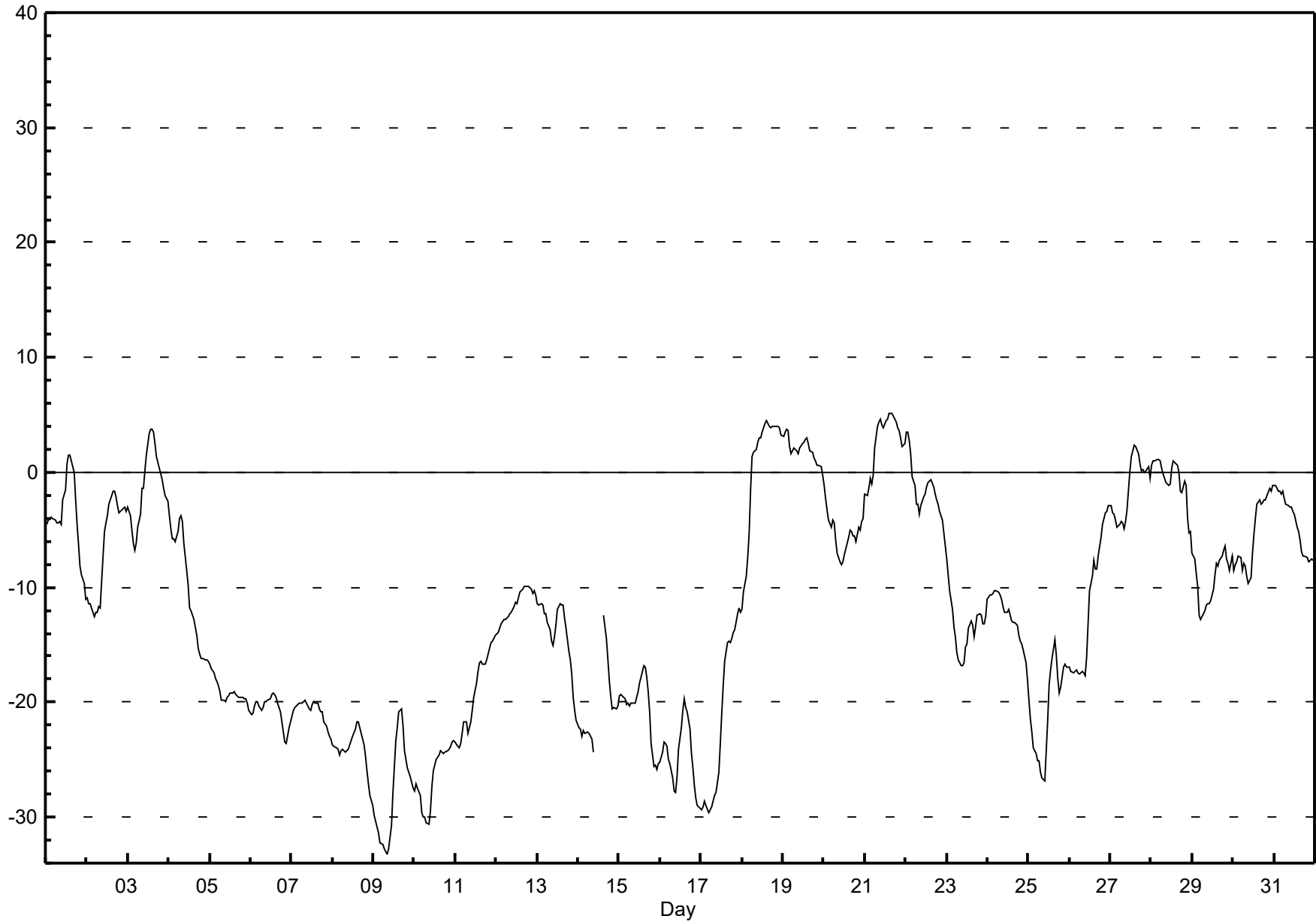
External Temperature (ET) - °C

Valleyview - December 2016

Maximum Value: 5.1 °C on Dec 21 16:00		Maximum Daily Average: 2.7 °C on Dec 21																			Hours in Service: 744						
Minimum Value: -33 °C on Dec 9 09:00		Minimum Daily Average: -27.8 °C on Dec 9																			Hours of Data: 739						
Maximum Diurnal Average: -9.5 °C at hour 15		Minimum Diurnal Average: -13.6 °C at hour 9																			Hours of Missing Data: 5						
Monthly Average: -12.00 °C		Percentiles: P ₁ = -30.9 P ₁₀ = -24.4 Q ₁ = -20.1 Median = -12.1 Q ₃ = -3.4 P ₉₀ = 1.1 P ₉₉ = 4.3																			Hours of Calibration: 0						
		Percent Operational Time: 99.3																									
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	-5	-4	-4	-4	-4	-4	-4	-4	-4	-4	-2	-1	1	1	1	1	0	-2	-5	-6	-8	-9	-10	-11	-3.9	1.5	
2-Dec	-11	-11	-11	-12	-13	-12	-12	-12	-12	-7	-5	-4	-4	-3	-2	-2	-2	-2	-3	-3	-3	-3	-3	-3	-6.5	-1.6	
3-Dec	-3	-4	-5	-6	-7	-6	-5	-4	-1	-1	0	2	3	4	4	3	3	1	0	0	-1	-1	-2	-3	-1.2	3.8	
4-Dec	-4	-5	-6	-6	-6	-5	-4	-4	-4	-6	-8	-10	-12	-12	-12	-13	-14	-15	-16	-16	-16	-16	-16	-16	-10.2	-3.8	
5-Dec	-17	-17	-17	-18	-18	-19	-19	-20	-20	-20	-20	-19	-19	-19	-19	-19	-19	-20	-20	-20	-20	-20	-20	-21	-19.1	-16.6	
6-Dec	-21	-21	-20	-20	-20	-20	-21	-20	-20	-20	-20	-20	-19	-19	-19	-20	-20	-21	-22	-23	-23	-24	-22	-22	-20.7	-19.2	
7-Dec	-21	-21	-20	-20	-20	-20	-20	-20	-20	-20	-21	-21	-20	-20	-20	-20	-21	-21	-21	-22	-22	-23	-23	-23	-20.8	-19.9	
8-Dec	-24	-24	-24	-24	-25	-24	-24	-24	-24	-24	-23	-23	-22	-22	-22	-22	-22	-23	-24	-25	-26	-27	-28	-29	-24.2	-21.7	
9-Dec	-30	-30	-31	-31	-32	-32	-33	-33	-33	-33	-31	-28	-26	-23	-22	-21	-21	-22	-24	-25	-26	-27	-27	-27	-27.8	-20.6	
10-Dec	-28	-27	-27	-28	-30	-30	-30	-31	-31	-29	-27	-26	-25	-25	-25	-24	-24	-24	-24	-24	-24	-24	-23	-23	-26.5	-23.3	
11-Dec	-23	-24	-24	-24	-23	-22	-22	-23	-22	-22	-21	-20	-18	-17	-17	-16	-17	-17	-16	-16	-15	-15	-15	-14	-19.2	-14.2	
12-Dec	-14	-14	-14	-13	-13	-13	-13	-13	-12	-12	-12	-11	-11	-11	-10	-10	-10	-10	-10	-10	-10	-11	-10	-11	-11.6	-9.9	
13-Dec	-11	-12	-11	-12	-12	-12	-13	-14	-15	-15	-14	-13	-12	-11	-11	-12	-13	-14	-16	-16	-18	-20	-21	-22	-14.1	-11.5	
14-Dec	-22	-22	-23	-23	-23	-23	-23	-23	-23	-24	P	P	P	P	P	-12	-14	-16	-18	-19	-21	-20	-21	-20	-20.6	-12.4	
15-Dec	-20	-19	-19	-20	-20	-20	-20	-20	-20	-20	-20	-19	-18	-18	-17	-17	-18	-19	-21	-24	-26	-26	-26	-25	-20.5	-16.9	
16-Dec	-25	-24	-23	-24	-24	-25	-25	-27	-28	-28	-27	-24	-22	-21	-20	-20	-21	-22	-24	-26	-27	-28	-29	-29	-24.8	-19.7	
17-Dec	-29	-29	-29	-29	-30	-29	-29	-29	-28	-28	-26	-24	-21	-19	-16	-15	-15	-15	-14	-14	-14	-12	-12	-12	-21.5	-11.8	
18-Dec	-12	-10	-9	-7	-5	-2	1	2	2	3	3	3	3	4	4	4	4	4	4	4	4	4	3	0.6	4.5		
19-Dec	3	4	4	4	2	2	2	2	2	2	2	3	3	3	3	2	2	2	1	1	1	1	0	0	2.0	3.7	
20-Dec	-1	-2	-3	-4	-5	-4	-4	-6	-7	-8	-8	-7	-7	-6	-5	-5	-6	-5	-6	-5	-5	-4	-4	-5.2	-1.2		
21-Dec	-2	-2	-1	0	-1	0	2	4	4	5	4	4	4	5	5	5	5	5	4	4	4	3	2	3	2.7	5.1	
22-Dec	3	3	3	2	0	-1	-3	-3	-4	-3	-2	-2	-1	-1	-1	-1	-1	-2	-2	-3	-3	-4	-5	-6	-1.6	3.5	
23-Dec	-8	-9	-10	-12	-13	-14	-16	-16	-17	-17	-17	-15	-15	-14	-13	-13	-14	-13	-12	-12	-12	-13	-13	-13	-13.4	-7.5	
24-Dec	-11	-11	-11	-11	-10	-10	-10	-11	-11	-12	-12	-12	-12	-12	-13	-13	-13	-13	-14	-15	-15	-15	-17	-18	-12.6	-10.3	
25-Dec	-20	-21	-23	-24	-25	-25	-25	-26	-27	-27	-24	-22	-18	-17	-16	-15	-16	-18	-19	-19	-17	-17	-17	-17	-20.6	-14.6	
26-Dec	-17	-17	-17	-17	-17	-17	-18	-17	-17	-18	-16	-13	-10	-9	-8	-8	-8	-7	-6	-5	-4	-4	-3	-3	-11.6	-3.0	
27-Dec	-3	-4	-4	-4	-5	-4	-4	-4	-5	-4	-3	0	1	2	2	2	2	1	0	0	0	0	-1	-1.4	2.4		
28-Dec	1	1	1	1	1	1	0	0	-1	-1	-1	-1	0	1	1	0	-2	-2	-1	-1	-4	-5	-5	-0.6	1.1		
29-Dec	-7	-8	-9	-10	-12	-13	-12	-12	-12	-11	-11	-10	-9	-8	-8	-8	-7	-7	-6	-7	-8	-9	-7	-7	-9.3	-6.4	
30-Dec	-8	-8	-8	-7	-7	-9	-8	-8	-9	-10	-9	-7	-5	-4	-3	-2	-3	-3	-2	-2	-2	-1	-2	-1	-5.4	-1.1	
31-Dec	-1	-1	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	-4	-5	-5	-6	-7	-7	-7	-7	-8	-8	-8	-8	-4.4	-1.1	
		-12.6	-12.7	-12.9	-13.1	-13.5	-13.4	-13.3	-13.5	-13.6	-13.5	-12.5	-11.6	-10.6	-10.0	-9.5	-9.5	-10.0	-10.6	-11.1	-11.5	-11.8	-12.1	-12.4	-12.6	Diurnal Average	
		3.5	3.5	3.7	3.6	2.2	1.6	2.2	4.0	4.3	4.6	4.1	3.8	4.5	4.6	5.1	5.1	5.1	4.9	4.4	4.0	4.0	4.0	3.9	3.2	Diurnal Maximum	
P - Power Failure																											

Hourly Averages

External Temperature (ET) - °C
Valleyview - December 2016



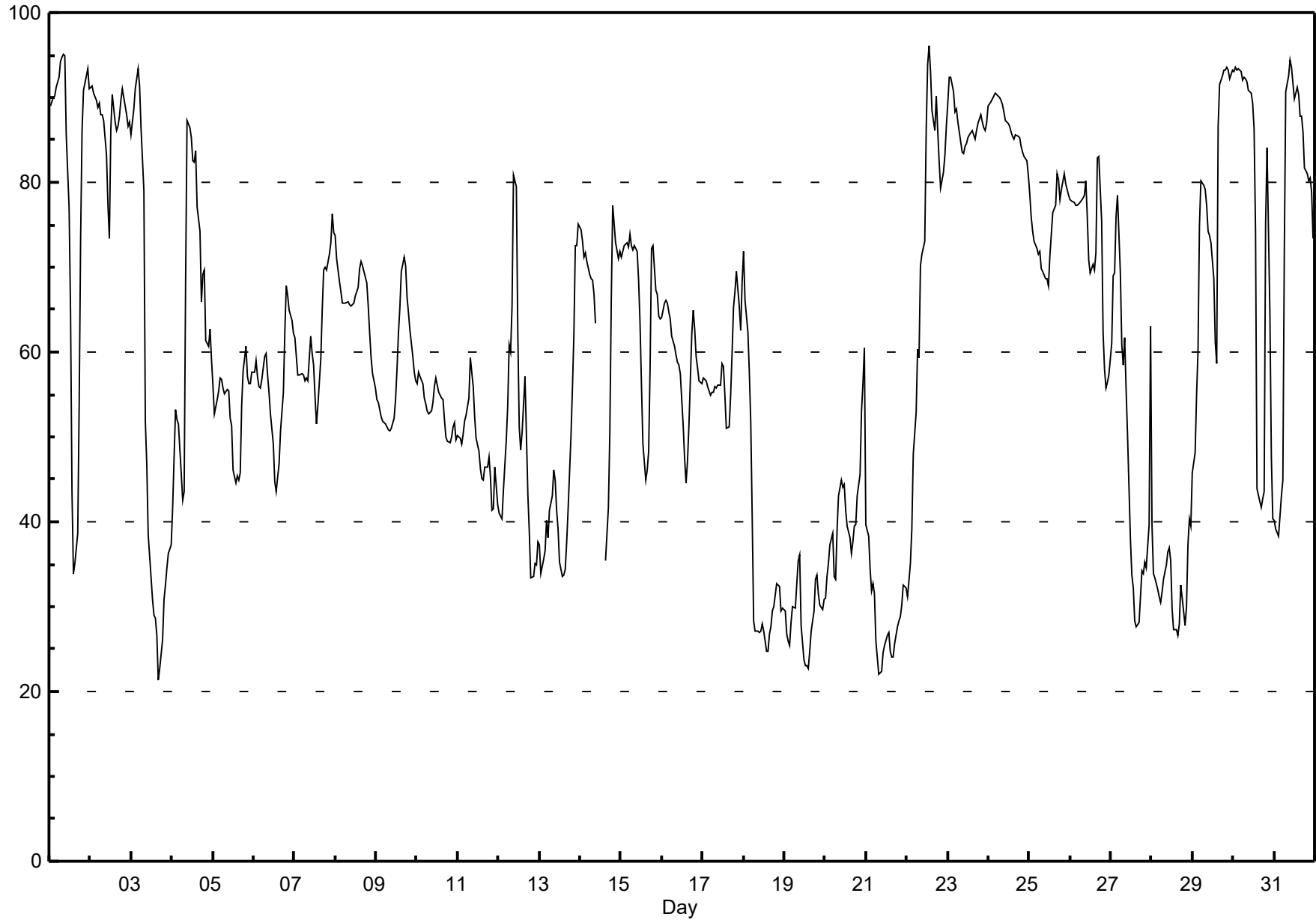
Hourly Averages

Relative Humidity (RH) - %
Valleyview - December 2016

Maximum Value: 96.0 % on Dec 22 14:00		Maximum Daily Average: 87.2 % on Dec 2		Hours in Service: 744																							
Minimum Value: 21 % on Dec 3 17:00		Minimum Daily Average: 28.4 % on Dec 21		Hours of Data: 739																							
Maximum Diurnal Average: 63.3 % at hour 10		Minimum Diurnal Average: 53.6 % at hour 15		Hours of Missing Data: 5																							
Monthly Average: 59.88 %		Percentiles: P ₁ = 23.1 P ₁₀ = 31.5 Q ₁ = 43.6 Median = 58.5 Q ₃ = 77.0 P ₉₀ = 88.6 P ₉₉ = 93.5		Hours of Calibration: 0																							
				Percent Operational Time: 99.3																							
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	89	89	90	90	91	92	94	95	95	95	86	77	65	43	34	35	39	54	73	86	91	92	93	91	78.3	95.0	
2-Dec	91	91	90	90	89	89	88	88	87	83	77	73	86	90	87	86	87	88	90	91	89	88	87	87	87.2	91.4	
3-Dec	86	89	91	92	93	91	86	79	52	47	38	36	31	29	29	27	21	23	26	31	33	35	36	37	51.6	93.3	
4-Dec	42	48	53	52	51	46	43	44	68	87	86	85	82	82	84	77	74	66	69	70	61	61	63	59	64.7	87.3	
5-Dec	56	53	54	55	57	57	56	55	56	55	52	51	46	45	45	45	46	54	58	61	57	56	56	58	53.5	60.6	
6-Dec	58	59	57	56	56	57	60	60	57	55	53	49	45	44	45	47	51	55	62	68	67	65	64	62	56.2	67.8	
7-Dec	62	59	57	57	58	57	57	57	57	62	60	59	55	52	54	59	65	70	70	70	71	73	76	74	62.0	76.3	
8-Dec	74	71	68	67	66	66	66	66	66	65	66	66	67	68	70	71	70	70	68	65	62	59	57	56	66.2	73.8	
9-Dec	54	54	53	52	52	52	51	51	51	51	52	54	58	62	65	69	71	70	66	64	62	60	58	57	58.0	71.2	
10-Dec	56	58	57	56	55	54	53	53	53	54	56	57	56	55	55	54	52	50	49	49	50	51	52	50	53.6	57.6	
11-Dec	50	50	49	50	52	53	55	59	58	56	52	50	48	46	45	45	46	46	48	45	41	42	47	42	49.0	59.3	
12-Dec	41	41	40	44	50	54	61	60	65	81	79	62	51	49	51	57	50	43	39	33	34	35	35	38	49.7	80.8	
13-Dec	37	34	36	37	40	38	41	43	46	45	41	39	35	34	34	34	38	42	50	56	62	73	73	75	45.1	75.0	
14-Dec	74	73	71	72	71	69	69	68	67	63	P	P	P	P	P	35	42	51	66	77	75	73	71	72	66.3	77.3	
15-Dec	71	72	73	73	72	74	73	72	72	72	68	63	56	49	45	46	48	58	72	73	67	67	64	64	65.2	73.9	
16-Dec	64	66	66	66	65	64	62	61	60	59	58	57	51	47	45	47	51	62	65	63	59	58	57	56	58.7	66.1	
17-Dec	57	57	57	56	55	55	55	56	56	56	56	59	58	55	51	51	55	60	65	67	70	65	62	68	58.4	69.5	
18-Dec	72	66	62	58	52	40	28	27	27	27	28	27	25	25	27	28	30	30	33	33	32	29	30	30	35.9	71.8	
19-Dec	30	27	26	25	28	30	30	33	35	36	28	24	23	23	23	25	27	29	33	34	32	30	30	31	28.8	36.2	
20-Dec	31	34	35	37	39	34	33	39	43	45	44	44	41	40	38	36	38	39	40	43	46	53	56	61	41.2	60.5	
21-Dec	40	38	34	32	33	32	26	22	22	22	25	25	27	27	25	24	24	26	28	28	29	30	32	32	28.4	39.6	
22-Dec	31	33	35	39	48	53	60	59	70	71	73	86	94	96	93	88	86	90	86	82	79	81	83	87	71.1	96.0	
23-Dec	89	92	92	91	88	89	87	86	84	83	84	85	85	86	86	86	85	86	87	88	87	87	86	87	86.9	92.4	
24-Dec	89	89	90	90	91	90	90	90	89	88	87	87	87	86	85	85	86	85	85	84	84	83	83	81	86.9	90.5	
25-Dec	79	76	74	73	72	71	72	70	70	69	69	68	71	74	76	77	81	80	78	79	81	80	79	79	74.9	81.1	
26-Dec	78	78	78	77	77	77	78	78	78	80	76	71	69	70	70	72	83	83	75	62	58	56	56	57	72.4	83.0	
27-Dec	61	69	69	76	78	69	61	59	62	56	50	38	34	32	28	28	28	31	34	34	35	35	40	63	48.7	78.4	
28-Dec	40	34	33	32	31	30	32	33	35	36	37	35	30	27	27	28	33	31	28	30	37	40	39	39	32.8	40.3	
29-Dec	46	48	55	60	75	80	80	79	77	74	74	73	69	61	59	87	91	93	93	93	94	93	92	93	76.6	93.6	
30-Dec	93	94	93	93	93	92	92	92	92	91	90	89	86	74	44	42	42	43	44	75	84	64	48	40	74.7	93.6	
31-Dec	40	39	38	41	43	45	71	91	92	94	93	92	90	91	90	88	88	86	82	81	80	81	79	73	74.5	94.3	
		60.7	60.6	60.7	61.0	61.9	61.3	61.6	62.1	62.6	63.3	61.3	59.5	57.5	55.4	53.6	54.1	55.5	57.9	60.1	61.7	61.4	61.1	60.8	61.2	Diurnal Average	
		93.1	93.6	93.2	93.4	93.3	92.4	94.3	94.7	95.0	94.9	93.5	91.8	93.9	96.0	93.0	88.5	91.5	92.5	93.2	93.3	93.6	93.2	93.4	93.2	Diurnal Maximum	
P - Power Failure																											

Hourly Averages

**Relative Humidity (RH) - %
Valleyview - December 2016**





Peace Airshed Zone Association

Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Valleyview - December 2016

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1 Spd	5	4	3	2	2	1	2	1	1	1	1	1	1	2	5	3	1	1	1	0	1	0	0	0	1.0	4.8
Dir	169	175	176	181	198	185	157	152	141	224	229	154	257	312	304	274	270	179	195	224	169	203	224	188	200	169
2 Spd	1	0	0	0	1	0	1	0	1	4	6	6	6	5	5	6	4	3	3	2	3	3	3	3	2.7	6.4
Dir	204	285	212	236	296	150	219	245	186	184	175	177	166	167	178	170	174	188	191	189	185	180	172	180	179	175
3 Spd	3	1	1	2	2	4	4	4	4	3	3	3	8	13	8	8	16	10	8	11	10	9	5	6	5.2	15.6
Dir	178	185	252	220	212	208	188	154	167	175	158	206	250	259	257	262	269	259	249	247	255	251	243	247	242	269
4 Spd	3	1	1	2	2	5	7	8	11	12	13	14	14	10	10	14	13	16	10	11	11	10	9	10	7.3	15.6
Dir	227	198	203	215	229	257	272	285	295	347	9	11	15	6	5	328	318	327	311	309	312	309	313	316	326	327
5 Spd	12	15	14	11	10	9	9	6	6	7	7	5	8	9	7	7	5	3	4	3	4	5	5	5	7.3	14.5
Dir	319	322	326	320	316	320	315	320	321	329	322	304	315	312	301	315	304	306	297	296	304	315	303	282	315	322
6 Spd	5	6	5	5	6	4	3	5	5	5	6	6	8	7	6	5	3	2	0	1	1	1	2	1	3.9	7.6
Dir	282	282	288	296	302	300	280	275	290	291	291	302	303	308	291	305	302	311	277	234	213	199	263	294	292	303
7 Spd	2	3	4	3	2	3	3	2	1	2	3	4	4	4	6	5	4	2	2	4	3	3	3	3	2.5	6.2
Dir	280	283	285	285	301	308	322	320	284	290	328	346	340	343	341	18	27	43	8	11	8	19	29	33	341	341
8 Spd	3	2	0	1	1	0	0	1	1	1	0	1	2	2	2	3	2	2	2	1	0	0	0	0	1.1	2.8
Dir	14	27	39	358	342	349	353	352	36	66	102	26	360	342	353	360	349	356	355	340	42	232	97	218	2	14
9 Spd	0	0	0	1	0	10	8	8	4	1	0	0	1	3	4	2	1	1	0	0	1	0	0	0	0.6	9.6
Dir	347	236	357	348	321	183	183	203	193	327	25	4	7	349	351	353	19	35	229	346	353	350	353	174	208	183
10 Spd	0	1	1	1	1	0	0	0	0	1	0	3	4	4	4	5	6	6	5	4	4	4	4	4	2.5	6.2
Dir	181	261	254	235	156	157	211	178	185	175	192	285	302	326	277	313	301	285	298	286	278	279	289	288	288	285
11 Spd	7	8	6	6	6	8	5	3	9	9	12	13	12	12	12	14	12	13	13	16	15	16	10	7	10.0	16.3
Dir	265	276	266	250	258	273	256	232	273	263	268	274	279	278	279	281	272	270	270	271	274	283	289	319	274	271
12 Spd	12	12	13	14	10	11	13	12	10	4	7	14	14	13	13	13	14	13	11	13	13	10	10	13	11.5	14.2
Dir	283	277	287	290	301	304	306	308	318	308	305	308	309	300	291	286	296	304	292	306	305	296	304	309	299	308
13 Spd	11	12	12	10	7	9	8	3	3	9	10	12	10	12	8	6	4	1	2	2	2	1	1	1	5.9	12.4
Dir	302	286	282	277	283	282	275	273	269	276	277	279	292	292	300	295	324	313	135	136	153	154	192	202	284	282
14 Spd	1	1	1	1	2	1	1	2	0	1	P	P	P	P	P	1	2	1	0	1	0	0	1	1	0.7	2.4
Dir	202	172	193	193	200	190	201	196	216	192	P	P	P	P	P	296	342	162	114	197	159	128	173	180	200	342
15 Spd	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	3	4	1	1	2	1	1	1	0.4	3.8
Dir	39	166	208	195	222	222	150	90	332	173	300	347	349	358	224	267	287	292	273	178	157	204	179	204	283	292
16 Spd	1	2	2	2	0	1	0	1	2	2	2	2	1	2	2	3	0	0	0	0	0	1	0	0	1.0	2.9
Dir	189	197	183	184	355	177	188	185	172	191	178	174	194	201	236	250	165	336	29	221	179	183	193	175	195	250
17 Spd	1	1	1	0	0	1	1	1	1	2	1	2	3	3	2	0	2	2	1	1	2	2	1	2	1.3	3.3
Dir	192	189	201	226	180	198	204	202	197	201	184	180	179	182	174	231	182	200	167	196	178	182	166	192	187	179
18 Spd	3	3	3	2	3	5	14	18	20	25	18	13	11	19	21	22	22	19	17	20	13	13	5	5	12.0	24.8
Dir	166	166	162	177	194	257	277	277	273	269	265	255	262	275	277	280	280	282	275	276	267	266	215	177	268	269
19 Spd	5	5	5	5	5	4	6	16	19	19	23	23	22	21	15	10	11	13	12	16	15	16	13	9	11.3	23.2
Dir	181	189	191	181	168	184	193	247	250	259	270	275	281	282	286	289	287	286	276	272	276	276	267	250	264	270
20 Spd	3	2	1	1	3	2	2	2	1	1	0	1	1	1	1	1	0	1	0	2	3	3	3	2	1.2	3.3
Dir	221	184	150	131	157	177	207	208	167	194	282	279	29	307	187	179	167	188	163	171	193	188	167	228	188	221
21 Spd	10	4	8	3	3	4	12	18	24	24	15	8	12	10	8	10	12	14	12	8	8	6	4	4	9.4	24.1
Dir	245	229	243	207	160	154	236	242	249	251	248	227	232	228	218	227	231	232	228	222	218	209	191	190	233	251
22 Spd	5	7	4	2	0	1	1	1	1	2	0	1	1	2	3	3	5	3	4	3	4	3	5	3	1.3	7.4
Dir	217	239	257	247	350	175	155	155	185	181	207	191	302	337	299	314	330	346	343	338	354	358	355	350	304	239

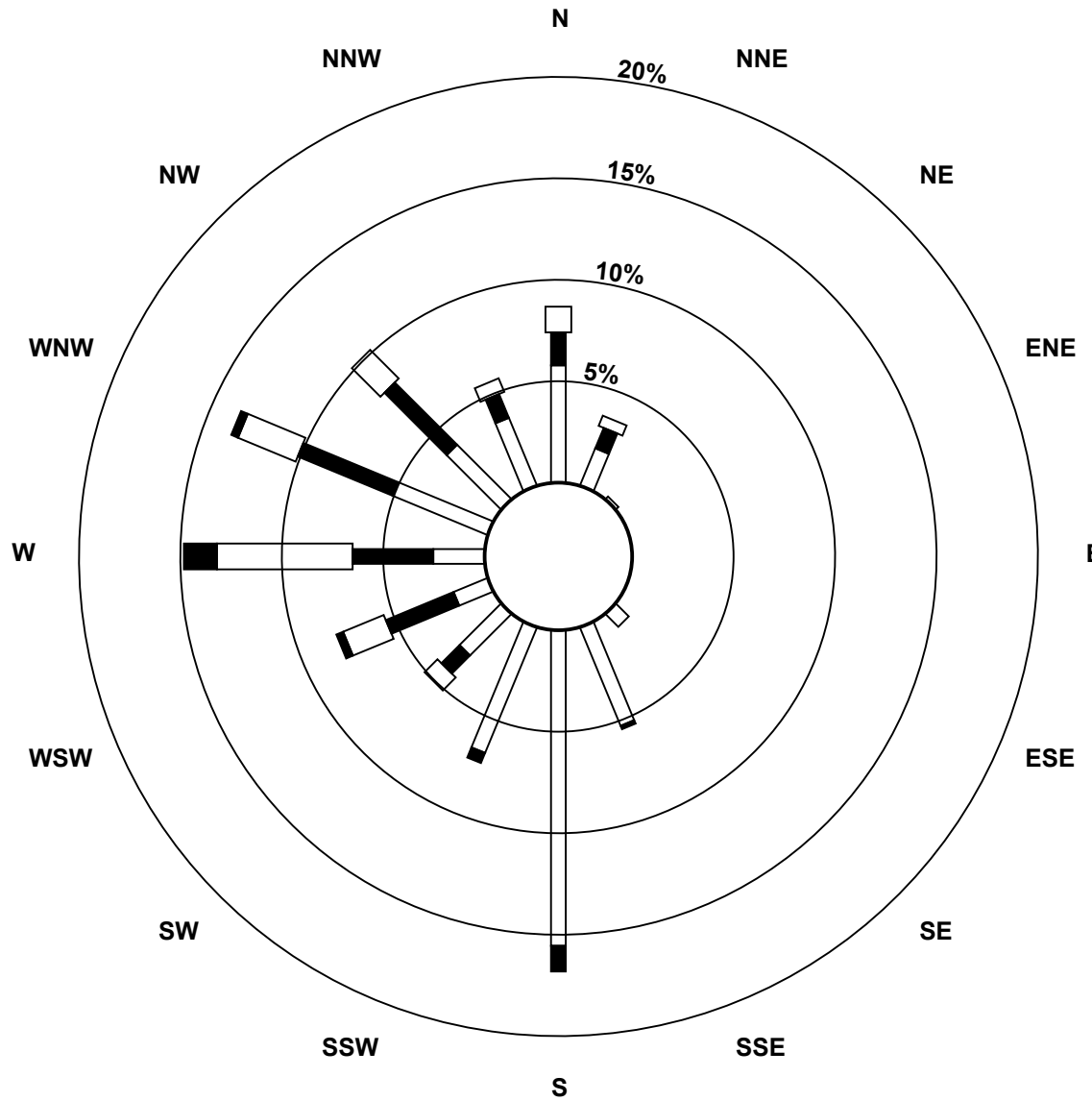
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Valleyview - December 2016

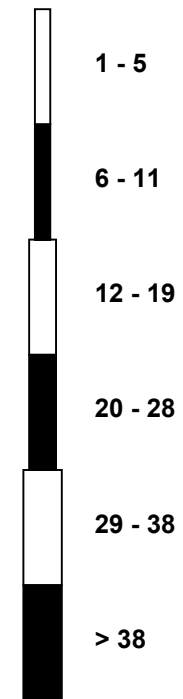
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
23 Spd	1	0	0	1	0	0	0	1	0	0	1	0	2	1	0	0	1	1	0	2	0	1	0	1	0.5	2.5
Dir	329	290	185	1	318	174	166	5	326	20	357	5	10	344	189	242	345	344	2	7	129	157	350	2	356	10
24 Spd	3	2	5	6	10	9	7	8	7	8	8	6	4	6	6	6	5	3	5	1	0	1	1	1	4.7	9.5
Dir	8	7	1	2	7	18	21	15	17	8	14	11	3	338	333	332	356	10	350	357	28	343	336	263	3	7
25 Spd	0	0	1	1	1	1	1	0	0	0	0	0	1	3	2	1	1	0	0	1	3	4	4	4	0.5	4.0
Dir	136	180	223	152	184	266	174	329	190	153	167	329	304	343	338	284	4	309	13	175	174	178	171	173	192	178
26 Spd	4	4	3	4	4	3	1	1	1	2	2	2	2	1	2	1	1	3	4	4	4	7	7	5	2.8	6.6
Dir	174	172	179	173	176	177	185	193	196	201	190	184	186	261	236	297	184	189	183	181	189	173	174	177	182	174
27 Spd	2	3	4	3	4	3	4	3	3	2	3	10	18	16	18	18	11	8	3	5	6	9	20	15	7.0	20.1
Dir	193	185	177	179	170	179	182	177	181	178	188	238	245	247	251	251	257	246	210	228	229	254	267	259	240	267
28 Spd	12	14	14	15	16	18	15	12	11	13	7	6	10	15	13	9	1	2	1	7	5	2	3	2	8.6	17.9
Dir	267	280	282	279	276	278	273	264	260	259	252	252	274	278	274	270	233	150	146	274	258	143	154	155	269	278
29 Spd	2	2	1	1	0	1	2	1	0	1	0	1	0	1	0	3	1	2	1	0	1	0	1	0	0.1	2.9
Dir	151	155	139	161	195	193	197	192	174	239	327	9	150	135	16	12	357	344	349	256	143	262	103	335	158	12
30 Spd	1	1	1	1	0	1	1	2	2	1	1	1	1	3	8	6	5	2	6	13	7	6	9	9	2.9	13.3
Dir	208	166	182	174	175	192	187	163	167	182	190	186	181	262	271	269	249	217	265	278	314	264	271	297	265	278
31 Spd	12	14	9	3	2	11	10	7	5	3	3	6	8	13	12	12	15	17	17	15	11	8	8	9	8.0	17.5
Dir	289	281	287	280	293	321	307	292	318	287	323	12	10	8	17	16	3	6	8	6	2	346	350	332	343	6
Spd	2.6	2.8	2.7	2.1	1.7	2.3	2.9	3.3	3.6	3.8	3.3	3.5	4.2	5.2	5.1	4.7	4.3	3.6	3.0	3.9	3.1	3.1	2.6	2.5	Diurnal Average	
Dir	262	265	270	267	271	269	264	263	266	269	275	282	288	290	287	290	292	291	285	280	275	269	272	275	Diurnal Maximum	
Spd	11.9	14.5	14.1	15.4	16.5	17.9	15.4	17.9	23.6	24.8	23.2	23.1	21.7	20.5	21.4	21.7	22.3	18.8	17.4	20.3	15.1	16.3	20.1	14.7	Diurnal Maximum	
Dir	319	322	326	279	276	278	273	242	249	269	270	275	281	282	277	280	280	282	8	276	276	283	267	259	Diurnal Maximum	
Maximum Speed Value: 25 km/h on Dec 18 10:00		Minimum Speed Value: 0 km/h on Dec 9 23:00										Hours in Service: 744														
Maximum Daily Speed Average: 12.0 km/h on Dec 18		Minimum Daily Speed Average: 0.1 km/h on Dec 23										Hours of Data: 739														
Maximum Diurnal Speed Average: 5.2 km/h at hour 14		Minimum Diurnal Speed Average: 1.7 km/h at hour 5										Hours of Missing Data: 5														
Monthly Average Velocity: 3.27 km/h 277.5 deg		Speed Percentiles: P ₁ = 0.1 P ₁₀ = 0.4 Q ₁ = 1.0 Median = 2.9 Q ₃ = 7.7 P ₉₀ = 12.7 P ₉₉ = 21.1										Percent Operational Time: 99.3														
All monthly, daily, and diurnal averages have been calculated using vector methods																										
P - Power Failure																										
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	78	20	11	0	0	0	109																			
NorthEast	16	0	0	0	0	0	16																			
East	4	0	0	0	0	0	4																			
SouthEast	38	0	0	0	0	0	38																			
South	186	14	0	0	0	0	200																			
SouthWest	58	16	10	0	0	0	84																			
West	44	57	60	15	0	0	176																			
NorthWest	50	43	19	0	0	0	112																			
Total	474	150	100	15	0	0	739																			

Wind Rose

Wind Speed (WS) (km/h)
Valleyview - December 2016



Wind Speed Classes (km/h)



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Valleyview - December 2016

Maximum Speed: 25 km/h on Dec 18 10:00	Maximum Daily Speed Average: 13.3 km/h on Dec 18	Hours in Service: 744
Minimum Speed: 0 km/h on Dec 9 23:00	Minimum Daily Speed Average: 0.9 km/h on Dec 23	Hours of Data: 739
Maximum Diurnal Speed Average: 7.2 km/h at hour 14	Minimum Diurnal Speed Average: 3.6 km/h at hour 5	Hours of Missing Data: 5
Monthly Average Speed: 5.18 km/h	Percentiles: P ₁ = 0.1 P ₁₀ = 0.6 Q ₁ = 1.2 Median = 3.1 Q ₃ = 7.9 P ₉₀ = 13.1 P ₉₉ = 21.3	Percent Operational Time: 99.3

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	5	4	3	2	2	2	2	1	1	1	1	2	2	2	5	3	1	1	1	0	1	1	1	0	1.8	5.0
2-Dec	1	1	1	0	1	1	2	1	1	4	6	6	6	5	5	6	5	3	3	2	3	3	3	3	3.0	6.4
3-Dec	3	1	2	2	2	4	4	4	4	3	3	4	8	13	9	8	16	10	8	12	10	9	5	6	6.3	15.8
4-Dec	3	1	1	2	2	5	8	9	11	14	13	14	14	10	10	14	13	16	10	11	12	10	9	10	9.2	15.7
5-Dec	12	15	14	11	10	9	9	7	6	7	7	5	9	10	7	7	5	4	4	3	4	5	5	5	7.5	14.7
6-Dec	5	6	5	5	6	4	3	5	5	5	6	6	8	7	6	5	3	2	0	1	1	1	2	2	4.2	7.8
7-Dec	3	3	4	3	2	3	3	2	2	2	3	4	4	4	6	5	4	2	2	4	3	3	3	3	3.3	6.2
8-Dec	3	2	1	1	1	1	0	1	1	1	1	1	2	2	3	2	2	2	1	1	1	0	0	0	1.3	2.9
9-Dec	0	1	1	1	2	10	9	10	8	1	0	1	1	3	4	2	1	1	1	1	1	0	0	0	2.4	10.0
10-Dec	0	1	1	1	1	1	0	0	0	1	1	3	5	4	5	5	6	6	5	4	4	4	5	6	2.9	6.4
11-Dec	7	8	6	6	6	9	5	3	9	9	12	14	12	12	13	14	12	13	14	16	15	16	12	12	10.7	16.5
12-Dec	12	13	13	14	10	11	13	12	10	4	8	14	14	13	14	13	14	13	11	14	13	10	11	13	11.8	14.4
13-Dec	12	12	13	10	8	9	8	3	4	9	10	12	10	12	8	6	4	2	2	2	2	1	1	1	6.8	12.5
14-Dec	1	1	1	1	2	1	1	2	1	1	P	P	P	P	P	1	2	1	0	1	1	0	1	1	1.1	2.4
15-Dec	0	0	0	0	0	1	0	0	0	0	0	2	2	1	1	1	3	4	2	1	2	1	1	1	1.1	3.8
16-Dec	1	2	2	2	1	1	0	1	2	2	2	2	2	2	3	3	0	1	0	0	0	1	0	0	1.3	2.9
17-Dec	1	1	1	1	1	1	1	1	1	2	1	2	3	3	2	1	2	2	2	1	2	2	1	2	1.4	3.4
18-Dec	3	3	3	2	3	6	14	18	20	25	19	13	11	19	22	22	23	19	17	21	14	13	6	5	13.3	25.1
19-Dec	5	6	6	5	5	4	6	16	19	19	23	23	22	21	16	11	11	14	12	17	15	16	13	9	13.1	23.5
20-Dec	4	2	2	2	3	3	2	2	1	1	1	1	1	2	1	1	1	1	1	2	3	3	3	3	1.8	3.6
21-Dec	10	4	8	5	3	4	12	18	24	24	15	8	12	10	8	10	12	14	12	8	8	6	4	4	10.1	24.3
22-Dec	5	7	4	2	1	1	1	1	2	2	1	1	1	2	3	3	5	3	4	3	4	3	5	3	2.8	7.5
23-Dec	1	1	1	1	1	0	0	1	1	0	1	1	3	1	0	0	1	1	0	2	1	1	1	1	0.9	2.6
24-Dec	3	2	5	6	10	9	7	8	7	8	8	6	5	6	6	6	5	3	5	1	0	1	1	1	5.0	9.6
25-Dec	0	0	1	1	1	1	1	0	1	0	0	1	1	3	2	1	1	1	0	1	3	4	4	4	1.2	4.1
26-Dec	4	4	3	4	4	3	1	1	1	2	2	2	2	1	3	2	1	3	4	5	4	7	7	5	3.1	6.6
27-Dec	2	3	4	3	4	3	4	3	3	3	3	10	18	16	19	18	11	8	3	5	6	9	20	15	8.0	20.4
28-Dec	12	14	14	16	17	18	16	13	11	13	8	6	10	15	14	9	1	2	1	7	5	2	3	3	9.5	18.1
29-Dec	2	2	1	1	1	1	2	1	0	1	0	1	0	1	1	3	2	2	1	0	1	1	1	1	1.2	3.2
30-Dec	1	1	1	1	0	1	1	2	2	1	1	1	1	3	8	6	5	2	6	13	7	6	10	9	3.7	13.4
31-Dec	12	15	9	4	4	11	11	7	6	3	3	6	8	13	12	13	15	18	18	15	11	8	8	9	9.9	17.6
	4.3	4.3	4.3	3.7	3.6	4.4	4.8	5.0	5.3	5.4	5.3	5.7	6.6	7.2	7.1	6.6	6.0	5.5	4.9	5.6	5.0	4.8	4.6	4.5	Diurnal Average	
	12.1	14.7	14.2	15.6	16.6	18.1	15.5	18.3	23.7	25.1	23.5	23.3	21.9	20.7	21.6	21.9	22.6	19.1	17.6	20.6	15.3	16.5	20.4	14.9	Diurnal Maximum	

P - Power Failure
 All monthly, daily, and diurnal averages have been calculated using scalar methods

Hourly Standard Deviations

Wind Direction (WD) - deg
Valleyview - December 2016

Maximum Value: 96.4 deg on Dec 25 08:00		Hours in Service: 744																							
Minimum Value: 5.2 deg on Dec 16 03:00		Hours of Data: 739																							
Percentiles: P ₁ = 6.1 P ₁₀ = 8.0 Q ₁ = 9.9 Median = 14.9 Q ₃ = 33.4 P ₉₀ = 67.8 P ₉₉ = 90.9		Hours of Missing Data: 5																							
		Hours of Calibration: 0																							
		Percent Operational Time: 99.3																							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	9	7	8	9	10	22	12	20	35	45	25	29	62	68	17	16	62	13	12	22	29	56	69	67	68.8
2-Dec	63	91	70	52	84	52	45	51	23	9	8	9	11	17	8	6	7	16	12	20	8	12	12	8	90.9
3-Dec	7	40	74	54	21	13	10	17	17	20	13	31	34	12	12	15	11	10	16	6	7	7	10	9	73.9
4-Dec	23	10	8	9	19	19	11	15	9	29	9	9	8	11	9	18	11	6	12	9	8	7	10	9	28.6
5-Dec	9	8	8	11	11	10	8	9	9	9	11	15	11	11	14	11	10	13	14	14	14	10	15	8	14.9
6-Dec	9	9	12	14	11	9	12	11	12	13	13	12	12	12	12	13	15	16	35	13	22	25	41	77	76.6
7-Dec	22	24	16	19	24	23	15	18	32	14	25	10	7	9	6	10	12	18	22	9	11	19	12	12	32.4
8-Dec	17	35	42	36	13	65	70	25	50	40	46	27	43	15	25	16	8	16	7	76	69	59	71	91	90.8
9-Dec	87	75	86	87	70	47	85	64	91	52	74	32	20	15	6	14	51	81	83	68	34	67	73	54	91.1
10-Dec	59	54	36	20	24	19	74	51	19	15	51	20	23	16	21	31	13	14	18	18	14	15	18	16	74.3
11-Dec	15	11	16	12	17	15	12	23	15	13	11	9	13	11	9	9	10	8	11	7	11	9	47	57	56.6
12-Dec	9	8	9	8	11	9	10	8	8	14	13	10	10	12	12	10	10	10	12	10	9	12	10	9	13.8
13-Dec	11	10	7	11	12	12	12	68	65	9	9	9	9	10	11	12	17	75	15	30	16	27	45	18	74.7
14-Dec	12	24	12	18	8	10	10	7	70	20	P	P	P	P	P	37	39	20	64	53	79	92	17	16	92.2
15-Dec	64	70	54	19	90	55	75	91	94	88	55	20	18	19	79	24	16	6	77	19	13	29	17	20	94.1
16-Dec	25	18	5	6	89	19	48	20	12	10	9	17	31	35	37	14	40	58	72	91	39	20	70	35	90.5
17-Dec	19	19	13	37	24	15	14	13	10	11	18	17	10	10	21	66	29	43	53	73	36	19	69	19	73.1
18-Dec	13	12	11	19	16	37	10	10	8	9	9	8	10	10	8	8	8	9	13	10	15	11	27	7	37.2
19-Dec	10	10	9	10	9	13	14	18	6	9	9	9	8	8	9	10	13	10	10	7	9	8	10	13	18.3
20-Dec	22	15	26	23	18	16	15	37	26	44	94	80	74	39	47	12	62	27	80	19	8	8	23	40	93.8
21-Dec	10	23	19	44	12	14	29	16	6	6	10	12	10	12	15	13	13	12	14	15	13	13	13	14	44.4
22-Dec	18	12	22	38	86	30	11	48	46	12	82	11	65	25	17	21	15	24	6	20	10	11	9	14	85.9
23-Dec	26	82	46	85	82	80	85	53	71	71	47	51	21	32	79	73	31	8	74	64	60	18	86	13	85.8
24-Dec	7	17	6	8	7	10	12	10	14	9	10	11	13	8	7	6	11	15	10	43	26	22	27	60	60.4
25-Dec	70	19	30	28	32	48	62	96	70	62	76	36	36	13	49	58	19	79	80	79	10	8	7	7	96.4
26-Dec	7	8	7	8	8	9	13	50	41	12	12	16	32	66	38	90	24	10	7	9	17	8	7	8	90.0
27-Dec	27	15	7	7	14	14	10	10	55	29	10	12	6	7	7	8	9	13	12	15	14	17	9	10	55.4
28-Dec	9	12	8	9	8	8	8	10	9	8	10	16	12	9	10	11	36	15	58	18	25	36	31	49	57.6
29-Dec	47	33	54	77	78	26	8	20	76	24	57	55	44	40	92	27	76	10	12	52	27	62	52	84	91.8
30-Dec	20	17	12	13	66	16	12	8	8	19	6	12	19	35	10	10	8	12	26	9	17	21	16	11	66.4
31-Dec	12	7	11	54	65	12	11	12	17	25	22	16	12	7	9	13	7	7	9	7	6	11	9	9	65.0
	86.7	90.9	85.8	87.4	90.0	79.9	85.2	96.4	94.1	88.2	93.8	79.6	73.8	67.9	91.8	90.0	76.1	81.0	83.3	90.5	79.3	92.2	85.8	90.8	
P - Power Failure																									

PAZA

Donnelly Station

Monthly Summary Tables, Graphs and
Roses

Hourly Averages

Sulphur Dioxide (SO₂) - ppb

Donnelly - December 2016

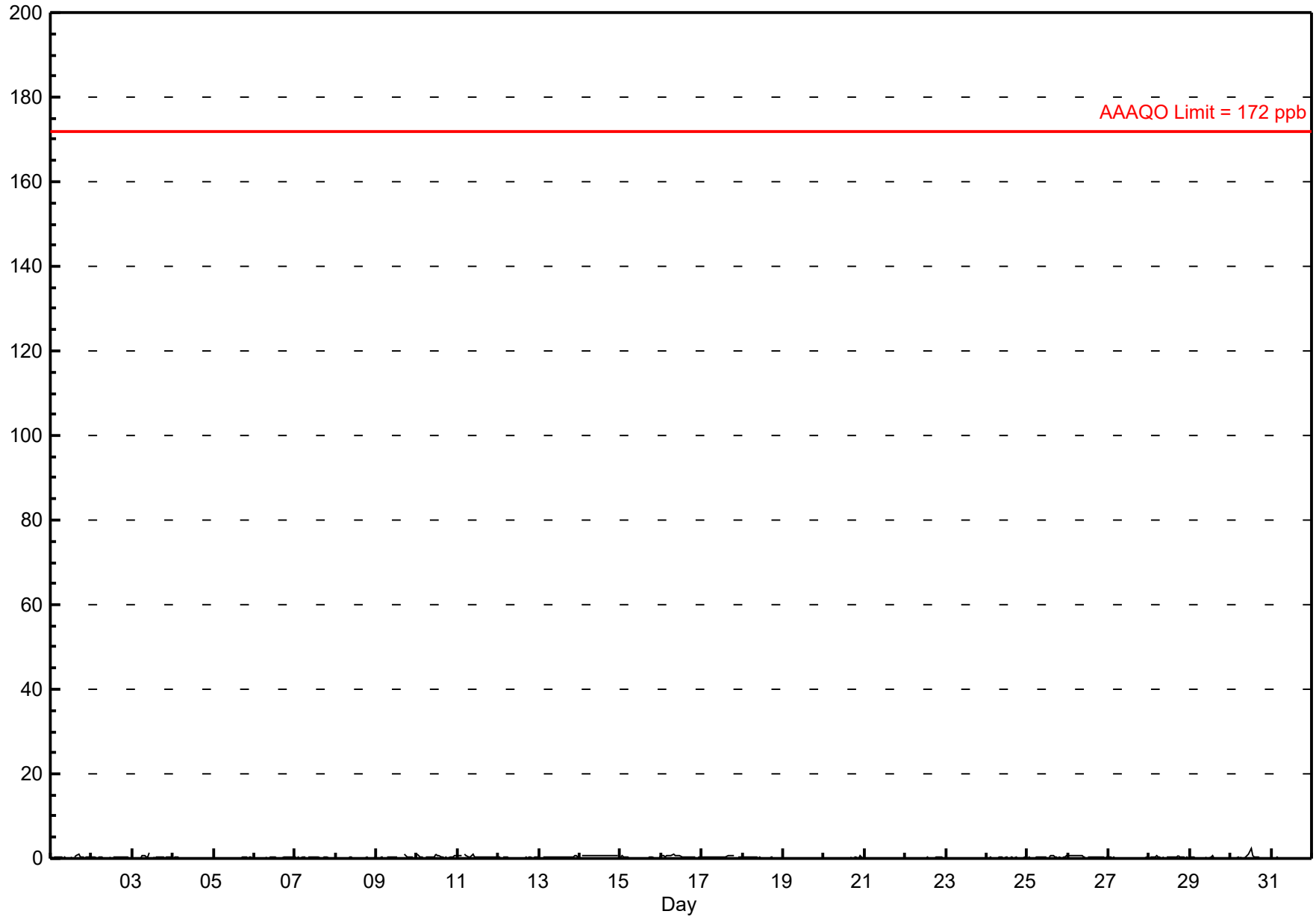
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.2 ppb on Dec 30 13:00	Maximum Daily Average: 0.7 ppb on Dec 14		Hours of Data:	707
Minimum Value: 0 ppb on Dec 4 14:00	Minimum Daily Average: 0.0 ppb on Dec 19		Hours of Missing Data:	37
Maximum Diurnal Average: 0.3 ppb at hour 11	Minimum Diurnal Average: 0.2 ppb at hour 21		Hours of Calibration:	35
Monthly Average: 0.24 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.5 P ₉₉ = 1.0		Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	0	0	0	0	0	0	0	0.3	1.1
2-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	0.2
3-Dec	0	0	0	0	0	0	1	1	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1.5
4-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	0.3
5-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	0.2
6-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	0.2	0.3
7-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.5
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
9-Dec	0	0	0	0	0	A	A	0	0	0	0	0	0	C	C	C	1	1	0	0	0	0	0	0	0.3	1.0
10-Dec	1	1	0	0	A	0	0	0	0	0	0	1	1	C	0	0	0	0	0	0	0	0	1	1	0.4	1.0
11-Dec	1	1	1	A	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1.1
12-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
13-Dec	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.4	0.7
14-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	0.8
15-Dec	0	1	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
16-Dec	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	A	0	0.5	0.9
17-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	A	0	0	0	0.4	0.8
18-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
19-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	0.1
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0.1	0.6
21-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	0.1
22-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0.1	0.3
23-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
24-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	0.2	0.3
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	1	0	0	0	0	0	0	0	1	0.3	0.7
26-Dec	1	1	1	1	1	1	1	1	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.8
27-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
28-Dec	0	0	0	0	1	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0.3	0.7
29-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.1	0.8
30-Dec	0	0	0	0	0	0	0	A	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0.4	2.2
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2

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 Averages

Sulphur Dioxide (SO₂) - ppb
Donnelly - December 2016



Hourly Maximums

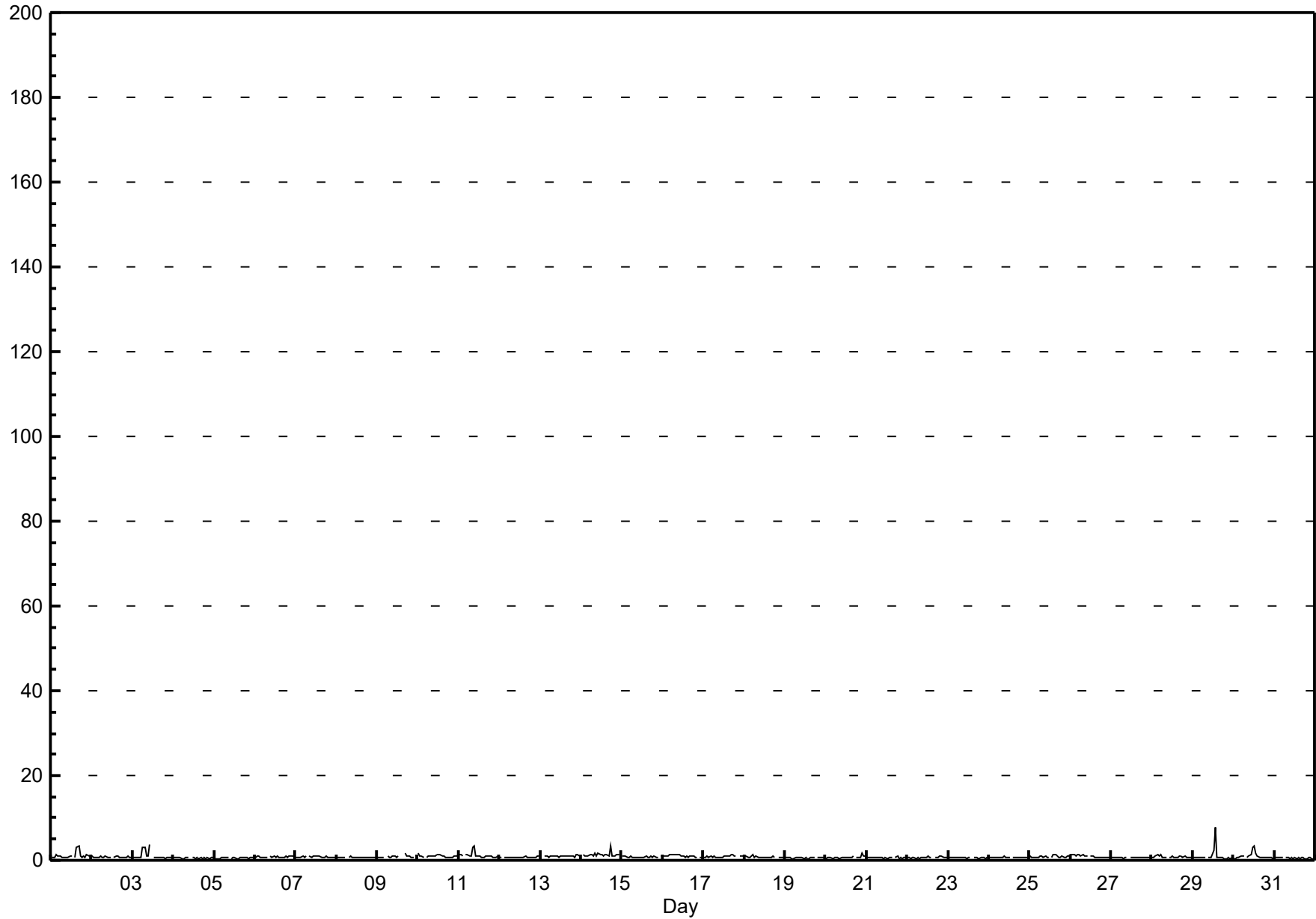
Sulphur Dioxide (SO₂) - ppb

Donnelly - December 2016

Maximum Value: 7.7 ppb on Dec 29 14:00		Maximum Daily Average: 1.3 ppb on Dec 14		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 31 23:00		Minimum Daily Average: 0.6 ppb on Dec 31		Hours of Data: 707																							
Maximum Diurnal Average: 1.0 ppb at hour 14		Minimum Diurnal Average: 0.7 ppb at hour 21		Hours of Missing Data: 37																							
Monthly Average: 0.83 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.7 Q ₃ = 0.9 P ₉₀ = 1.1 P ₉₉ = 3.1		Hours of Calibration: 35																							
				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	1	1	1	1	1	1	1	1	1	1	1	A	1	3	3	1	1	1	1	1	1	1	1.1	3.4	
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1	
3-Dec	1	1	1	1	1	1	3	3	1	1	4	A	1	1	1	1	1	1	1	0	1	1	1	1	1.0	3.8	
4-Dec	1	1	1	1	1	0	0	1	1	1	A	1	1	0	1	0	1	0	1	0	1	0	1	1	0.6	0.8	
5-Dec	0	0	0	0	1	1	1	1	1	A	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0.6	0.8	
6-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
7-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1	
8-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
9-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	C	C	C	2	1	1	1	1	1	1	1	0.9	1.6	
10-Dec	2	1	1	1	A	1	1	1	1	1	1	1	1	1	C	1	1	1	1	1	1	1	1	1	1.0	1.8	
11-Dec	1	1	1	A	1	1	1	1	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	3.5	
12-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	
13-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	
14-Dec	A	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	4	1	1	1	1	1	A	1.3	3.5	
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.8	1.1	
16-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	1.4	
17-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	
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.8	1.3	
19-Dec	1	1	1	1	0	0	1	1	1	1	1	0	1	0	0	1	1	1	1	1	A	1	1	1	0.6	0.8	
20-Dec	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	A	1	1	1	1	2	1	0.7	1.8	
21-Dec	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	A	1	1	0	1	0	1	1	0.6	1.0	
22-Dec	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.7	0.9	
23-Dec	1	1	1	1	1	1	1	1	1	1	1	0	1	1	A	1	1	1	1	0	1	1	1	0	0.6	0.8	
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
25-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.2	
26-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	1.4	
27-Dec	1	1	1	1	1	1	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.8	
28-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3	
29-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	2	8	1	1	1	1	0	0	0	1	0	1.0	7.7	
30-Dec	0	0	1	1	1	1	1	A	1	1	1	3	3	2	1	1	1	1	1	1	1	1	1	0	1.0	3.5	
31-Dec	1	1	1	1	1	1	A	1	1	0	1	0	1	0	1	0	1	1	0	0	1	1	0	0	0.6	0.8	
	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.9	0.9	0.9	0.9	0.9	1.0	0.8	0.8	0.9	0.9	0.8	0.8	0.7	0.8	0.8	0.8	Diurnal Average		
	1.8	1.4	1.4	1.3	1.3	1.4	3.1	3.0	3.2	3.5	3.8	3.0	3.5	7.7	1.4	3.2	3.4	3.5	1.1	1.2	1.2	1.8	1.4	1.1	Diurnal Maximum		
C - Calibration																								N - Not Valid		A - Automated Daily Zero Span	

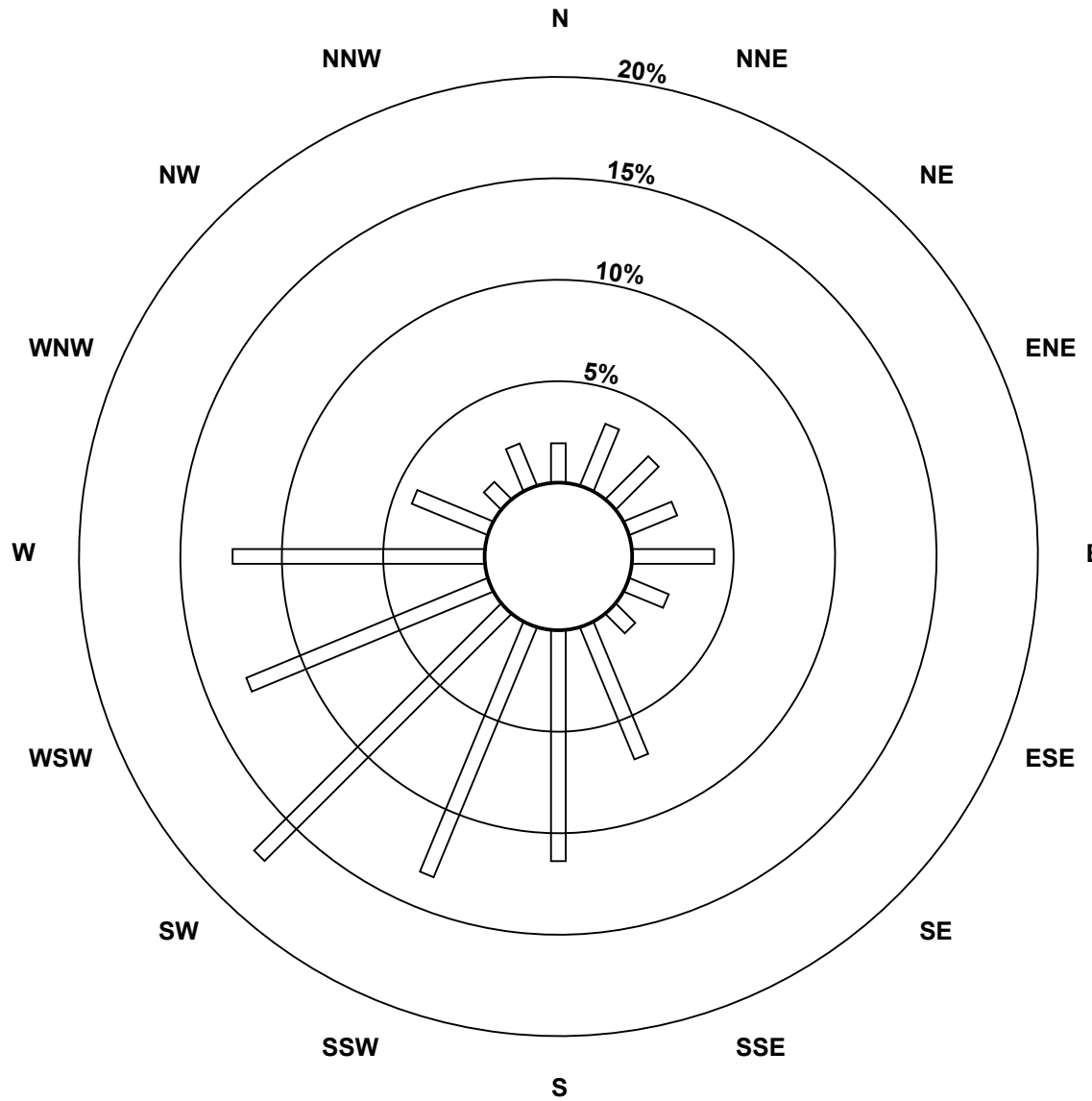
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Donnelly - December 2016

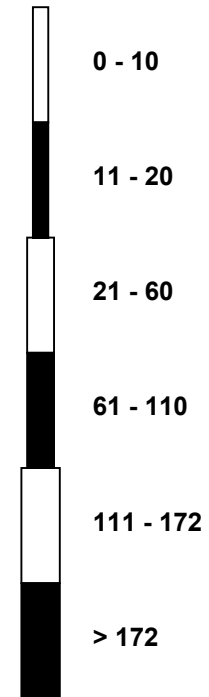


Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Donnelly - December 2016

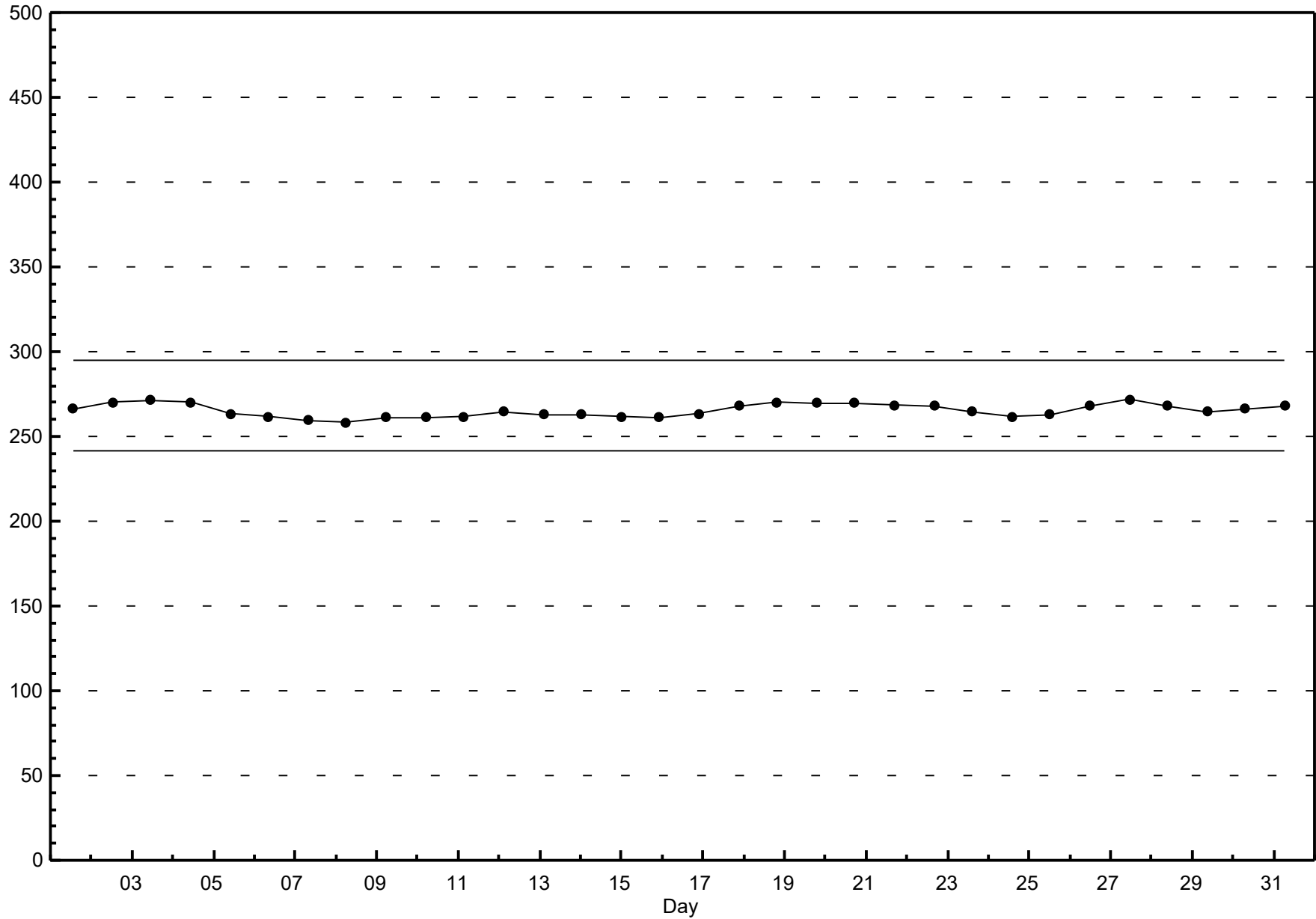


Pollutant Classes (ppb)



Span Responses

Sulphur Dioxide (SO₂)
Donnelly - December 2016



Hourly Averages

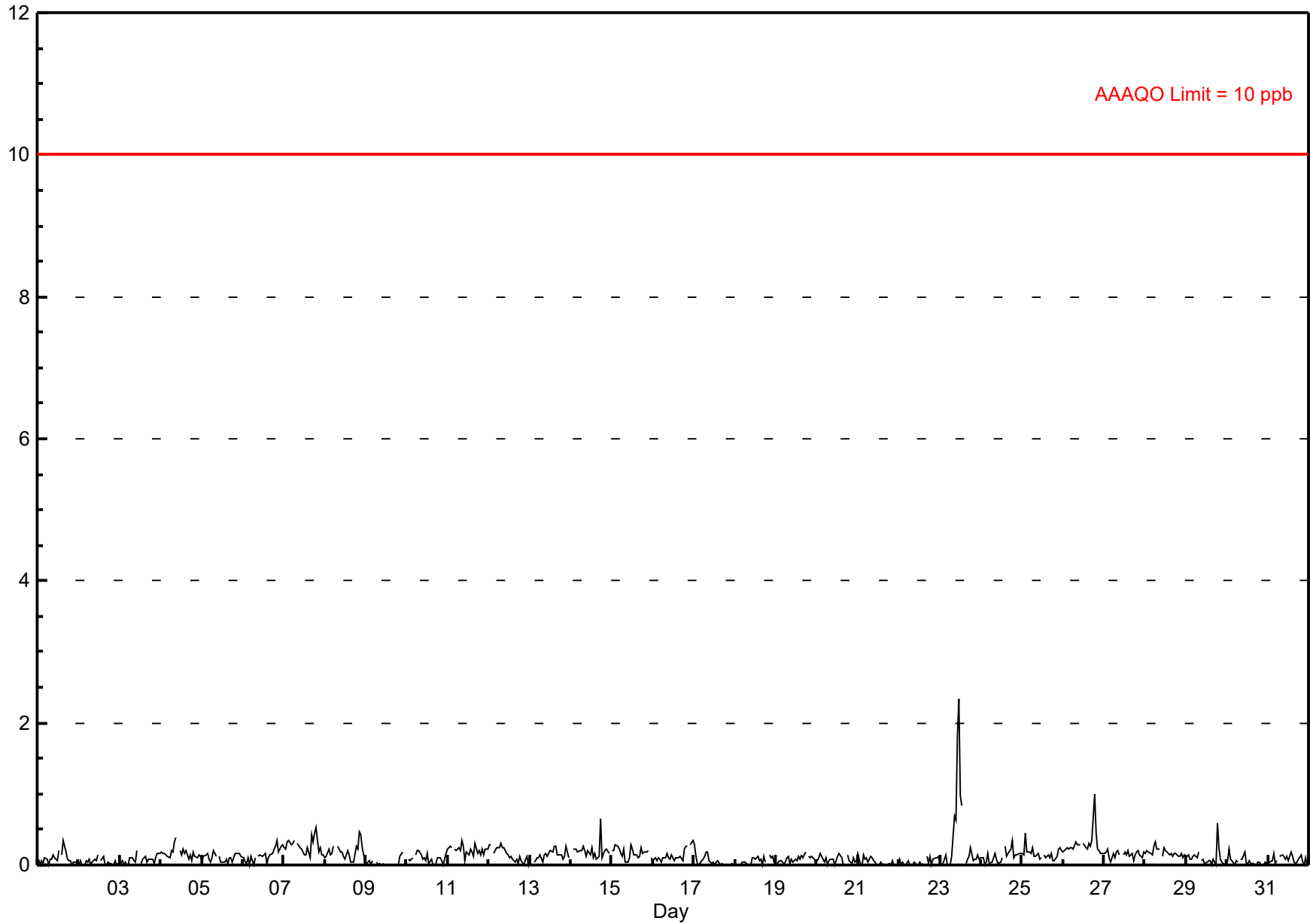
Hydrogen Sulphide (H₂S) - ppb

Donnelly - December 2016

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.3 ppb on Dec 23 12:00	Maximum Daily Average: 0.4 ppb on Dec 23		Hours of Data:	705
Minimum Value: 0 ppb on Dec 1 02:00	Minimum Daily Average: 0.0 ppb on Dec 2		Hours of Missing Data:	39
Maximum Diurnal Average: 0.2 ppb at hour 12	Minimum Diurnal Average: 0.1 ppb at hour 16		Hours of Calibration:	36
Monthly Average: 0.13 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.2 P ₉₉ = 0.6		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	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
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
3-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	0.1	0.2
4-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	0.2	0.4
5-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	0.1	0.2
6-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
7-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
8-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	0.2	0.5
9-Dec	0	0	0	0	0	A	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0	--	0.2
10-Dec	N	0	0	0	A	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	0	N	N	0.1	0.2
11-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	0.2	0.4
12-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	0.1	0.3
13-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	0.1	0.3
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	A	0.2	0.6
15-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	0.2	0.3
16-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	0.3
17-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	0.1	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	0.1	0.1
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	A	0	0	0	0.1	0.2
20-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	0.1	0.2
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0.0	0.2
22-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	0.1
23-Dec	0	0	0	0	0	0	0	0	1	1	2	2	1	1	A	0	0	0	0	0	0	0	0	0	0	0.4	2.3
24-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	0.1	0.3
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.4
26-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	1	0	0	0	0	0	0	0.3	1.0
27-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	0.2	0.2
28-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	0.2	0.3
29-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.1	0.6
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
31-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	0.1	0.2
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average	
	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.7	0.6	1.8	2.3	1.0	0.8	0.3	0.4	0.4	0.6	1.0	0.5	0.5	0.4	0.3	0.3	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 Maximums

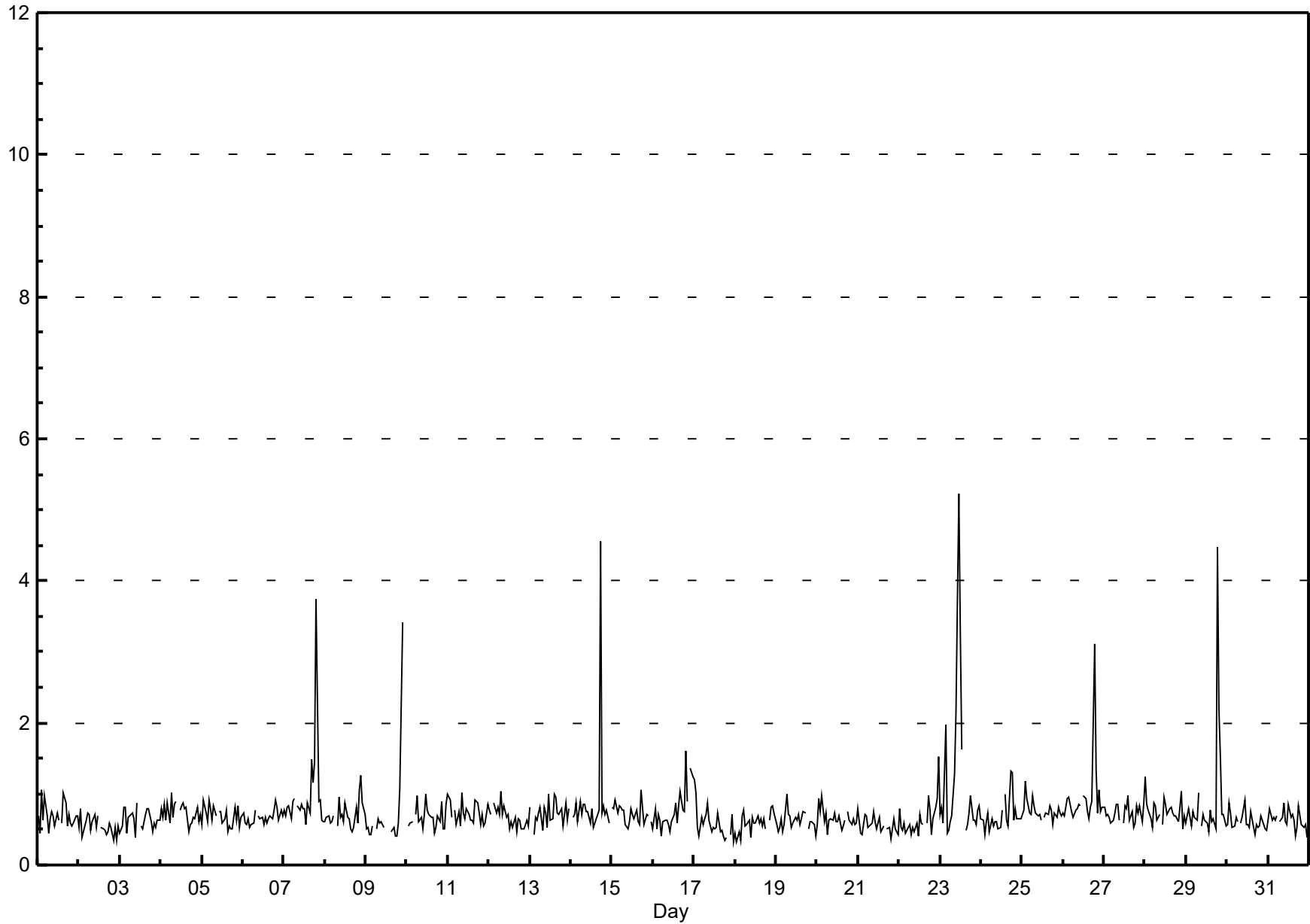
Hydrogen Sulphide (H₂S) - ppb

Donnelly - December 2016

Maximum Value: 5.2 ppb on Dec 23 12:00		Maximum Daily Average: 1.3 ppb on Dec 23		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 18 00:00		Minimum Daily Average: 0.6 ppb on Dec 2		Hours of Data: 705																							
Maximum Diurnal Average: 0.9 ppb at hour 19		Minimum Diurnal Average: 0.6 ppb at hour 16		Hours of Missing Data: 39																							
Monthly Average: 0.73 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.7 Q ₃ = 0.8 P ₉₀ = 0.9 P ₉₉ = 3.2		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	1	0	1	1	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.1	
2-Dec	1	1	0	1	1	1	1	0	1	1	1	1	A	1	1	0	0	0	1	1	0	1	0	1	0.6	0.8	
3-Dec	0	1	1	1	0	1	1	1	1	0	1	A	1	1	1	1	1	1	1	0	1	1	1	1	0.6	0.9	
4-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0	1	1	1	1	1	1	1	0.7	1.0	
5-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0.7	0.9	
6-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9	
7-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1.0	3.7	
8-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0.7	1.3	
9-Dec	1	1	0	0	1	A	1	1	1	1	1	C	C	C	C	0	1	0	0	1	1	3	N	N	--	3.4	
10-Dec	N	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0.7	1.0	
11-Dec	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
12-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0.7	1.0	
13-Dec	1	A	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
14-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	A	0.9	4.6	
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.7	1.1	
16-Dec	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	2	1	A	1	1	0.8	1.6	
17-Dec	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	A	0	1	0	0.6	1.2	
18-Dec	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.6	0.8	
19-Dec	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.6	1.0	
20-Dec	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	A	1	1	1	1	1	1	0.7	1.0	
21-Dec	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	A	1	1	1	0	1	1	1	0	0.6	0.8	
22-Dec	1	1	0	1	0	1	1	0	1	0	1	0	1	1	1	A	1	1	1	0	1	1	1	2	0.6	1.5	
23-Dec	1	1	1	2	0	0	1	1	1	2	4	5	3	2	A	0	1	1	1	1	1	1	1	1	1.3	5.2	
24-Dec	1	1	0	1	1	0	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.3	
25-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	1.2	
26-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	3	1	1	1	1	1	0.9	3.1	
27-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
28-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2	
29-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	0	1	1	1	1	1	4	2	2	1	1	0.9	4.5	
30-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0.6	0.9	
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0.6	0.9	
		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.6	0.7	0.8	0.9	0.8	0.7	0.8	0.7	0.7	Diurnal Average		
		1.2	1.0	1.2	2.0	1.0	0.9	1.0	1.0	1.3	2.2	3.7	5.2	3.3	1.6	1.0	1.0	1.5	4.6	4.5	3.7	1.5	3.4	1.4	1.5	Diurnal Maximum	
C - Calibration		N - Not Valid						A - Automated Daily Zero Span																			

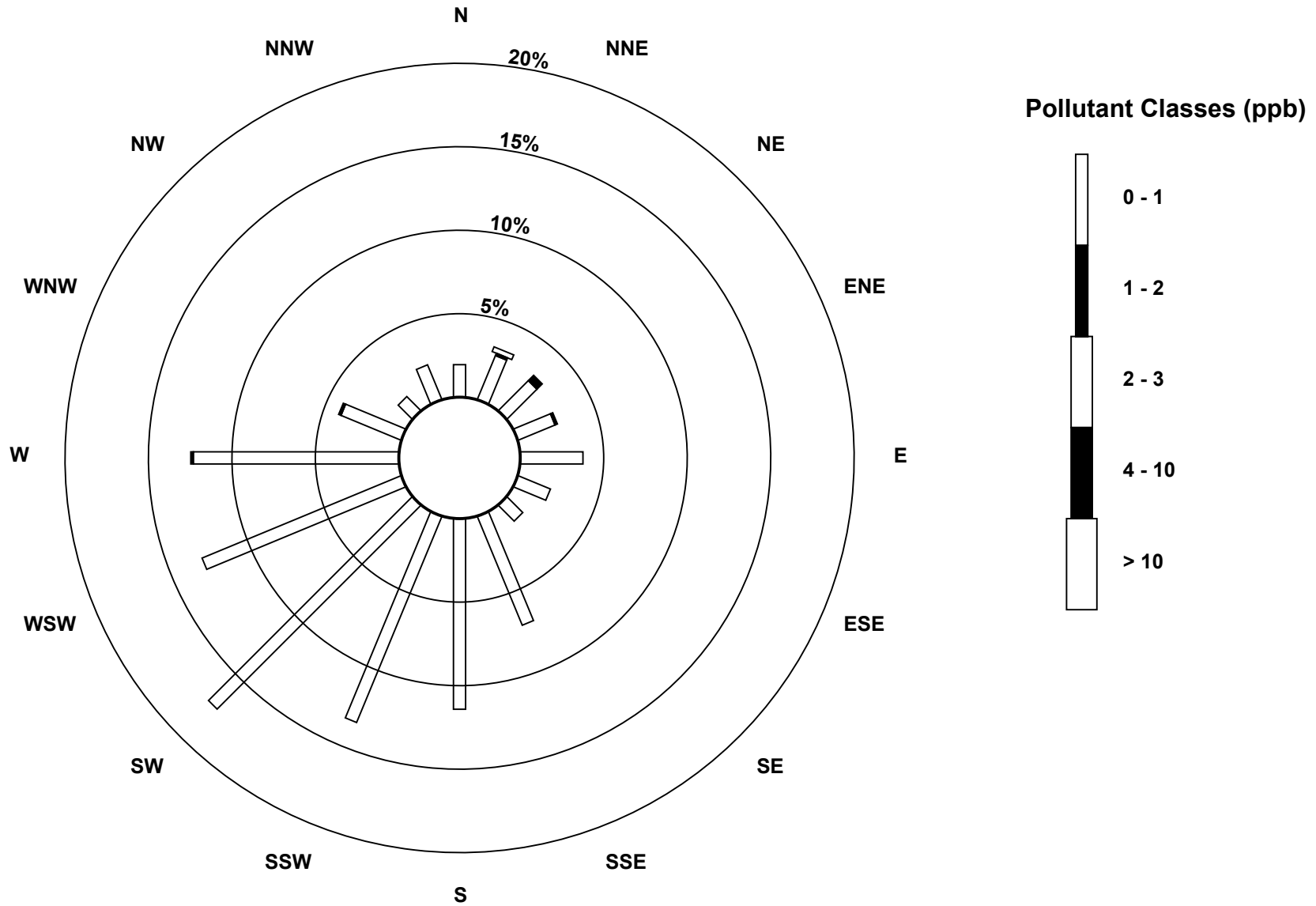
Hourly Maximums

Hydrogen Sulphide (H₂S) - ppb
Donnelly - December 2016



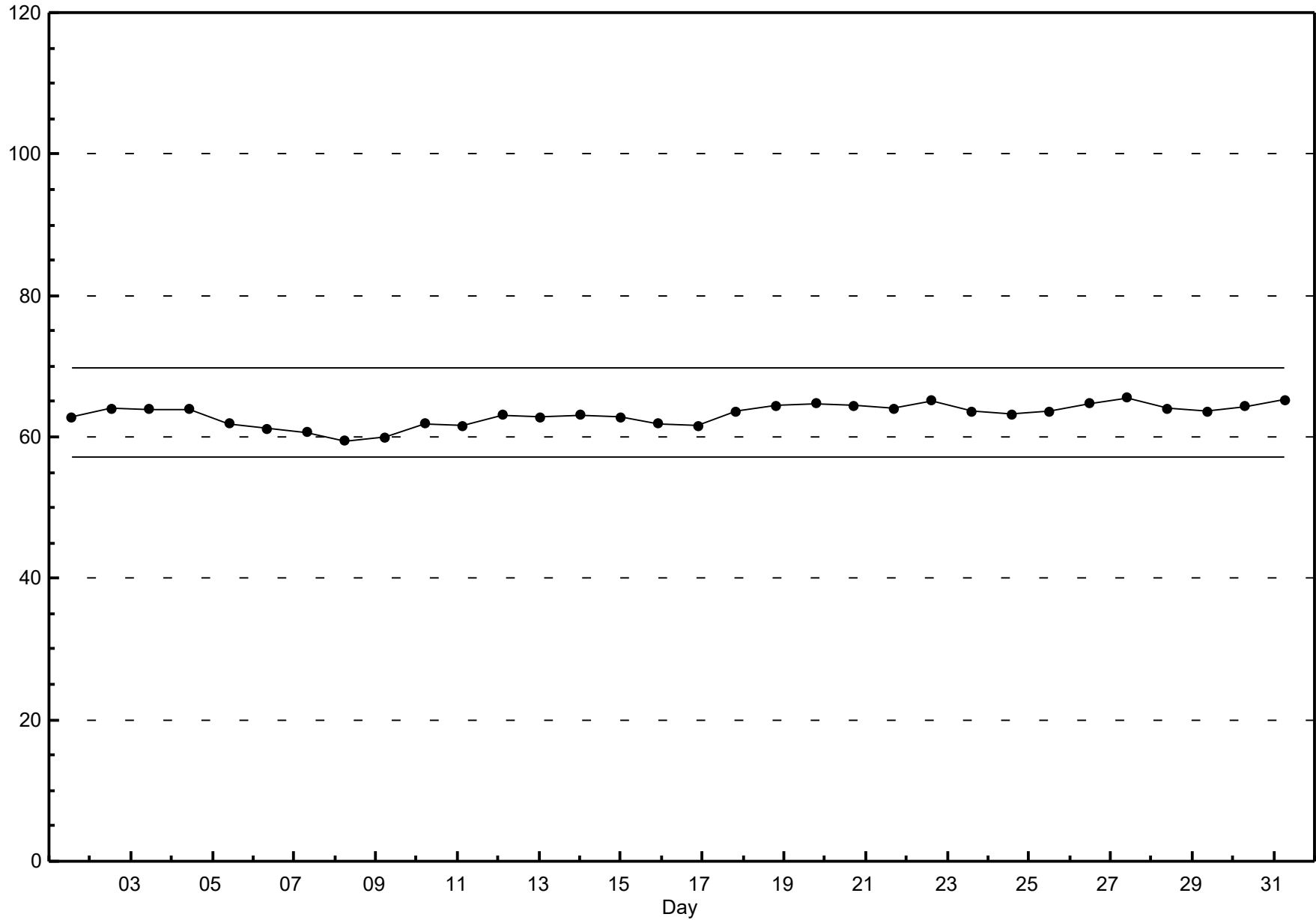
Pollutant Rose

Hydrogen Sulphide (H₂S) - ppb
Donnelly - December 2016



Span Responses

Hydrogen Sulphide (H₂S)
Donnelly - December 2016



Hourly Averages

External Temperature (ET) - °C

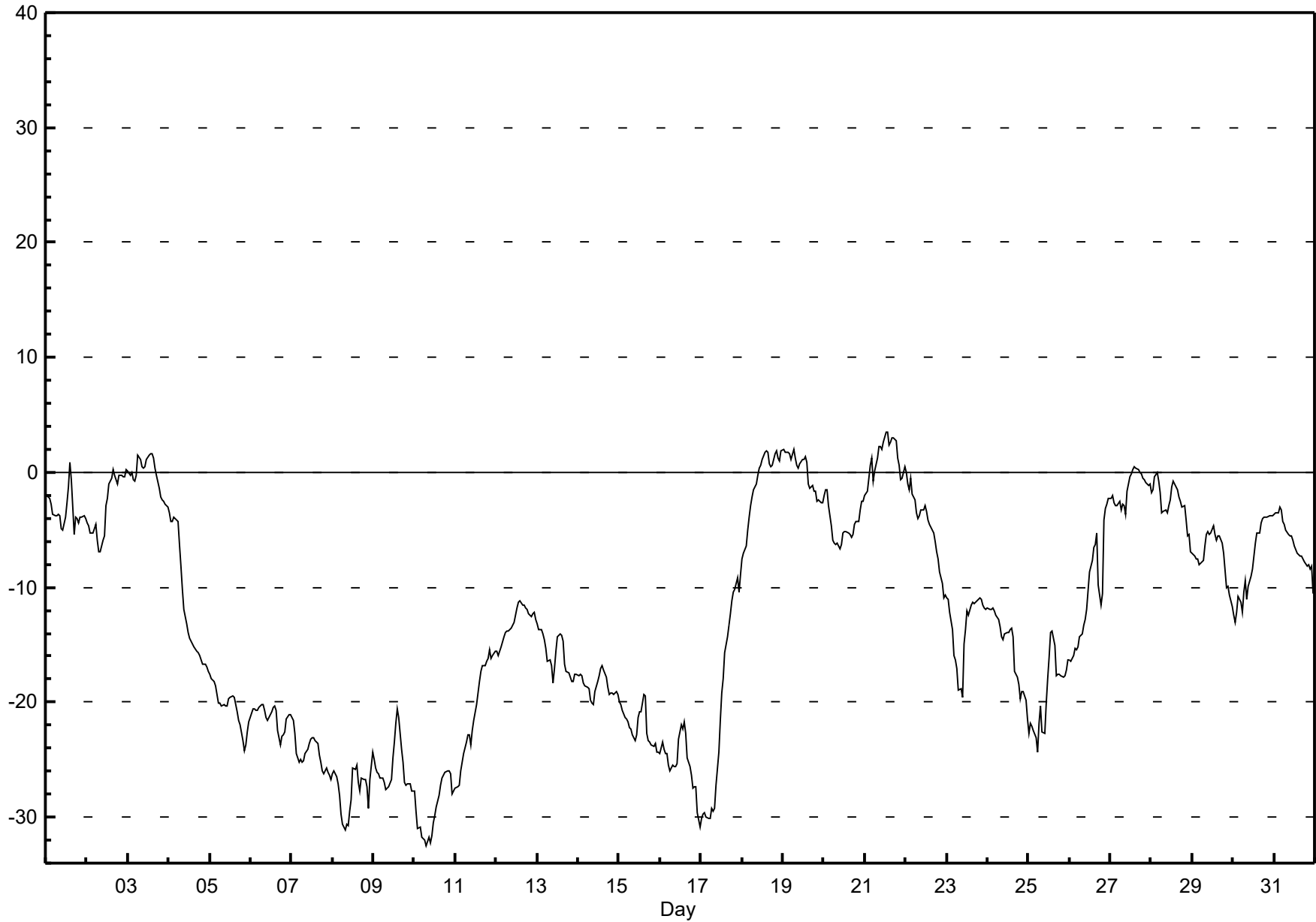
Donnelly - December 2016

Maximum Value: 3.5 °C on Dec 21 13:00		Maximum Daily Average: 1.2 °C on Dec 21		Hours in Service: 744																							
Minimum Value: -33 °C on Dec 10 08:00		Minimum Daily Average: -29.2 °C on Dec 10		Hours of Data: 744																							
Maximum Diurnal Average: -10.9 °C at hour 15		Minimum Diurnal Average: -14.1 °C at hour 10		Hours of Missing Data: 0																							
Monthly Average: -12.74 °C		Percentiles: P ₁ = -31.1 P ₁₀ = -26.2 Q ₁ = -21.1 Median = -12.4 Q ₃ = -3.7 P ₉₀ = -0.3 P ₉₉ = 2.5		Hours of Calibration: 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	-2	-2	-2	-3	-4	-4	-4	-4	-4	-5	-5	-4	-3	-1	1	-1	-5	-4	-4	-4	-4	-4	-4	-4	-3.3	0.8	
2-Dec	-4	-5	-5	-5	-5	-4	-6	-7	-7	-6	-6	-3	-2	-1	0	0	0	-1	-1	0	0	0	0	0	-2.9	0.2	
3-Dec	0	0	0	-1	-1	0	1	1	1	0	1	1	1	2	2	1	0	0	-1	-2	-2	-3	-3	-3	-0.2	1.7	
4-Dec	-3	-4	-4	-4	-4	-4	-6	-8	-10	-12	-13	-14	-14	-15	-15	-15	-16	-16	-16	-16	-17	-17	-17	-17	-11.6	-3.5	
5-Dec	-18	-18	-18	-19	-19	-20	-20	-20	-20	-20	-20	-20	-20	-19	-20	-20	-21	-22	-22	-23	-24	-24	-23	-22	-20.5	-17.5	
6-Dec	-21	-21	-21	-21	-21	-20	-20	-20	-21	-21	-22	-21	-21	-20	-20	-21	-22	-24	-23	-23	-23	-21	-21	-21	-21.2	-20.2	
7-Dec	-21	-22	-23	-24	-25	-25	-25	-25	-25	-24	-24	-23	-23	-23	-23	-24	-25	-25	-26	-26	-26	-26	-26	-27	-24.4	-21.3	
8-Dec	-26	-26	-26	-27	-28	-30	-31	-31	-31	-31	-30	-29	-26	-26	-25	-27	-28	-27	-27	-27	-27	-29	-27	-24	-27.7	-24.3	
9-Dec	-25	-26	-26	-26	-27	-27	-27	-28	-27	-27	-27	-25	-23	-22	-21	-21	-24	-25	-27	-27	-27	-27	-28	-28	-25.7	-20.5	
10-Dec	-28	-30	-31	-31	-32	-32	-32	-33	-32	-32	-32	-30	-30	-29	-28	-27	-27	-26	-26	-26	-26	-26	-28	-28	-29.2	-25.9	
11-Dec	-27	-27	-27	-26	-25	-24	-24	-23	-23	-24	-22	-22	-20	-19	-18	-17	-17	-17	-16	-16	-15	-16	-16	-16	-20.8	-15.4	
12-Dec	-16	-16	-16	-15	-14	-14	-14	-14	-14	-14	-13	-12	-12	-11	-11	-12	-12	-12	-12	-12	-13	-12	-12	-13	-13.1	-11.2	
13-Dec	-13	-14	-14	-14	-15	-15	-16	-16	-17	-18	-17	-16	-14	-14	-14	-15	-17	-17	-17	-18	-18	-18	-18	-18	-16.0	-13.1	
14-Dec	-18	-18	-18	-18	-19	-19	-19	-20	-20	-20	-19	-18	-18	-17	-17	-17	-18	-19	-19	-19	-19	-19	-19	-19	-18.6	-16.8	
15-Dec	-20	-20	-21	-21	-21	-22	-22	-22	-23	-23	-23	-21	-21	-21	-19	-19	-23	-23	-23	-24	-24	-24	-24	-24	-22.1	-19.4	
16-Dec	-25	-23	-24	-25	-25	-25	-26	-26	-26	-26	-25	-23	-22	-22	-22	-23	-25	-26	-26	-28	-27	-27	-30	-31	-25.2	-21.7	
17-Dec	-30	-30	-30	-30	-30	-30	-29	-29	-29	-27	-24	-22	-19	-18	-16	-14	-13	-12	-11	-10	-10	-9	-10	-9	-20.6	-8.9	
18-Dec	-8	-7	-6	-5	-4	-3	-2	-1	-1	0	0	1	1	2	2	2	1	1	1	2	2	1	1	2	-0.9	1.9	
19-Dec	2	2	2	2	2	1	2	1	1	0	1	1	1	1	1	-1	-1	-1	-2	-2	-2	-3	-3	0.1	2.0		
20-Dec	-2	-1	-1	-3	-5	-6	-6	-6	-6	-7	-6	-5	-5	-5	-5	-5	-6	-5	-5	-4	-4	-3	-3	-2	-4.6	-1.5	
21-Dec	-2	-2	-1	1	1	-1	0	1	2	2	2	3	4	3	2	3	3	3	3	1	1	-1	-1	0	1.2	3.5	
22-Dec	0	-1	-1	-1	-2	-2	-3	-4	-4	-3	-3	-3	-3	-4	-4	-5	-5	-6	-7	-8	-9	-10	-11	-11	-4.6	0.0	
23-Dec	-11	-11	-12	-14	-16	-16	-17	-19	-19	-20	-15	-14	-12	-12	-12	-11	-11	-11	-11	-11	-11	-12	-12	-12	-13.4	-10.9	
24-Dec	-12	-12	-12	-12	-12	-12	-13	-13	-14	-15	-14	-14	-14	-14	-14	-14	-17	-18	-18	-20	-19	-19	-20	-21	-15.1	-11.8	
25-Dec	-23	-22	-22	-23	-23	-24	-22	-20	-23	-23	-20	-18	-16	-14	-14	-15	-18	-18	-18	-18	-18	-18	-17	-16	-19.2	-13.9	
26-Dec	-16	-16	-16	-15	-15	-15	-14	-14	-13	-13	-12	-10	-9	-8	-7	-6	-5	-10	-12	-11	-4	-3	-3	-2	-10.4	-2.3	
27-Dec	-2	-2	-3	-3	-3	-3	-3	-3	-3	-4	-2	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	-1.4	0.4	
28-Dec	-2	-2	0	0	-1	-2	-4	-3	-3	-4	-3	-2	-1	-1	-1	-2	-3	-3	-3	-4	-6	-5	-7	-2.6	0.0		
29-Dec	-7	-7	-7	-8	-8	-8	-8	-8	-6	-5	-5	-5	-5	-5	-6	-6	-6	-6	-7	-8	-10	-10	-11	-12	-7.2	-4.6	
30-Dec	-12	-13	-12	-11	-11	-12	-10	-9	-11	-10	-9	-8	-7	-6	-5	-5	-4	-4	-4	-4	-4	-4	-4	-4	-7.7	-3.7	
31-Dec	-4	-4	-4	-3	-3	-4	-5	-5	-5	-6	-6	-6	-6	-7	-7	-7	-7	-8	-8	-8	-8	-8	-8	-11	-6.1	-3.1	
		-12.8	-12.9	-13.0	-13.0	-13.4	-13.7	-13.7	-13.8	-13.9	-14.1	-13.3	-12.4	-11.6	-11.2	-10.9	-11.1	-12.0	-12.3	-12.6	-12.8	-12.7	-12.8	-13.0	-13.0	Diurnal Average	
		2.0	1.8	1.8	1.8	1.6	1.1	2.0	1.3	2.2	2.2	2.0	2.6	3.5	3.5	2.3	2.7	3.0	3.0	2.7	1.7	1.8	1.2	1.0	1.9	Diurnal Maximum	

Hourly Averages

External Temperature (ET) - °C

Donnelly - December 2016



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Donnelly - December 2016

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	20	16	13	13	10	11	10	9	4	4	6	6	5	2	1	2	4	7	9	10	13	13	15	18	6.8	20.2	
Dir	164	168	192	239	257	249	262	256	271	242	213	227	240	283	65	112	158	161	154	154	161	160	161	162	191	164	
2 Spd	18	16	19	19	18	12	7	8	9	9	7	15	22	18	20	21	22	16	9	13	12	18	18	19	14.3	22.0	
Dir	159	155	162	160	157	141	110	110	105	109	65	151	161	144	149	155	160	150	146	154	157	172	175	173	152	160	
3 Spd	20	22	20	19	19	17	24	27	28	27	26	25	25	26	24	25	23	23	22	22	22	23	23	22	22.2	27.6	
Dir	174	173	176	178	180	186	208	211	213	213	210	214	221	223	222	219	217	215	213	213	217	220	220	218	208	213	
4 Spd	19	17	17	17	25	21	15	17	16	17	15	14	16	16	17	16	18	20	20	18	16	15	16	15	13.9	24.6	
Dir	225	226	226	232	250	254	346	347	330	334	329	326	313	307	304	293	286	286	287	287	294	287	290	290	288	250	
5 Spd	20	19	18	17	16	15	14	15	14	15	15	16	17	16	15	13	13	10	10	9	9	8	10	12	13.9	19.8	
Dir	277	276	275	273	271	273	273	264	271	264	263	273	272	269	275	273	269	261	258	254	248	247	242	249	267	277	
6 Spd	13	12	12	10	10	11	12	12	12	10	5	10	14	12	9	7	8	6	8	7	8	9	11	10	9.8	14.1	
Dir	253	261	269	262	270	272	274	273	266	263	271	264	262	271	282	276	257	243	236	240	243	260	266	271	264	262	
7 Spd	8	6	5	3	3	2	3	2	2	1	4	5	5	5	4	1	1	1	N	N	N	N	N	N	3.0	7.9	
Dir	274	282	278	264	243	254	256	265	297	284	289	303	303	333	336	350	327	27	N	N	N	N	N	N	290	274	
8 Spd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	2	4	3	4	2	1	2	1	1	3	--	3.8
Dir	N	N	N	N	N	N	N	N	N	N	N	N	N	N	333	26	48	51	49	60	47	47	44	121	82	--	49
9 Spd	4	4	5	7	6	7	7	7	6	6	6	7	8	7	5	4	4	3	3	0	2	1	2	2	4.6	8.2	
Dir	84	83	80	81	81	82	83	81	82	81	80	82	83	82	75	66	62	52	28	333	358	51	47	56	76	83	
10 Spd	2	2	6	2	7	7	6	8	8	6	5	6	6	6	7	9	12	16	16	14	12	13	11	13	7.3	15.9	
Dir	60	196	194	185	193	191	200	199	226	252	256	268	273	281	272	267	253	251	244	232	228	214	198	211	232	251	
11 Spd	14	15	14	16	14	14	15	16	17	15	19	18	18	20	21	23	24	23	28	26	30	22	24	29	19.1	29.7	
Dir	214	217	212	216	221	230	236	242	228	206	224	227	229	233	235	238	236	233	238	244	261	259	253	256	236	261	
12 Spd	25	24	23	23	27	24	23	18	17	17	17	20	23	32	30	28	29	26	23	22	20	20	25	22	23.1	32.5	
Dir	259	254	249	253	261	274	277	276	258	255	264	273	266	261	258	261	264	263	266	270	263	264	257	249	262	261	
13 Spd	20	23	23	18	19	16	16	19	17	12	15	17	19	21	19	14	9	8	9	10	9	9	9	9	14.3	23.0	
Dir	239	249	251	254	255	253	249	259	260	247	253	259	263	262	259	257	246	234	230	232	229	197	193	182	248	251	
14 Spd	9	10	13	6	9	10	6	10	12	10	10	11	11	9	7	6	2	1	1	2	3	5	3	4	6.6	12.8	
Dir	180	182	176	189	183	186	197	193	196	198	193	210	230	229	237	227	232	260	220	240	238	227	224	261	203	176	
15 Spd	3	2	2	0	1	2	2	3	2	4	5	4	6	6	2	1	3	7	7	6	6	8	9	8	3.6	9.3	
Dir	239	267	258	247	303	267	225	265	240	207	197	220	244	272	283	268	213	191	201	197	200	189	188	191	215	188	
16 Spd	6	9	7	6	7	9	7	6	6	6	5	3	2	3	1	3	2	3	3	N	N	N	N	N	4.5	9.0	
Dir	185	185	184	194	208	200	188	191	194	186	185	161	209	162	250	228	108	125	133	N	N	N	N	N	187	200	
17 Spd	N	N	5	6	4	5	4	N	N	N	N	1	1	1	3	6	11	16	16	14	12	12	11	10	5.6	16.0	
Dir	N	N	59	59	71	66	59	N	N	N	N	291	190	196	190	182	177	177	184	187	179	183	194	190	173	184	
18 Spd	12	14	15	16	17	19	22	26	23	22	32	36	33	34	30	27	17	16	12	26	33	35	23	21	22.5	35.6	
Dir	187	201	199	201	205	213	221	221	221	220	230	227	229	240	251	253	249	235	219	233	230	227	221	205	226	227	
19 Spd	23	22	20	17	19	22	36	39	40	37	37	39	38	31	29	19	20	23	23	23	21	22	22	23	25.3	39.9	
Dir	202	190	181	188	197	194	216	225	228	228	237	248	254	255	249	241	228	222	220	218	212	214	211	210	223	228	
20 Spd	25	29	30	21	17	16	15	16	16	15	13	15	14	14	13	13	12	9	17	16	19	22	23	24	16.9	29.8	
Dir	215	222	222	204	195	192	186	171	178	180	174	171	169	173	186	191	194	192	196	194	195	208	213	218	197	222	
21 Spd	24	21	24	25	23	16	20	25	37	43	39	38	35	25	15	19	19	15	16	13	13	14	17	19	22.5	42.6	
Dir	224	218	220	216	216	175	195	206	224	224	219	215	218	221	198	205	224	221	206	183	186	188	194	198	212	224	
22 Spd	20	20	21	24	8	7	10	6	11	9	5	7	4	2	4	3	2	1	1	6	6	4	1	3	5.3	23.7	
Dir	195	191	200	203	243	227	198	187	196	196	210	247	278	265	257	229	269	309	351	19	23	28	19	38	209	203	

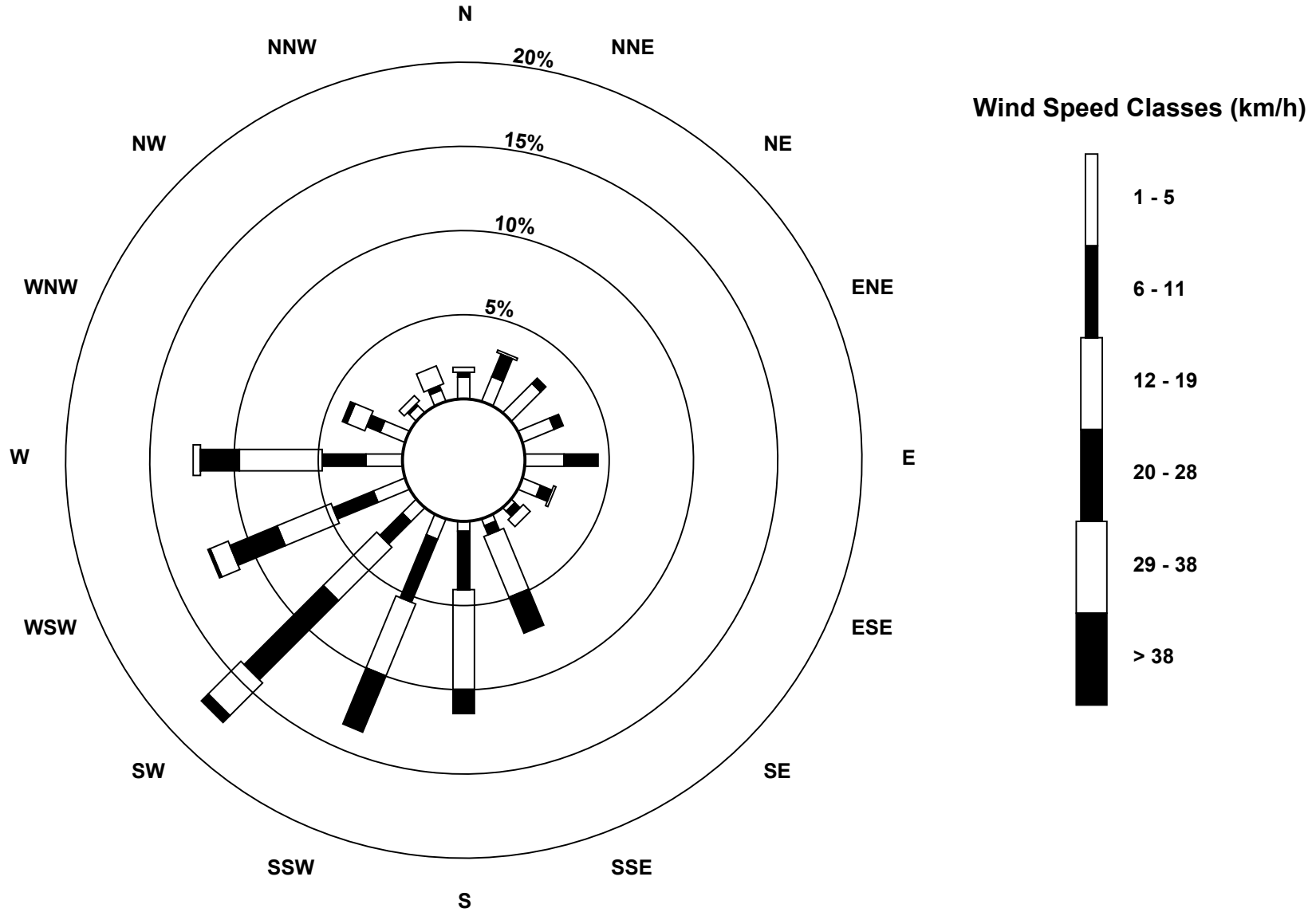
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Donnelly - December 2016

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	3	5	3	1	5	1	0	2	3	3	1	4	1	4	2	2	1	5	3	3	5	8	6	4	2.4	7.9
Dir	38	9	11	123	250	316	54	46	38	55	29	25	27	294	340	334	279	29	28	52	47	41	25	1	20	41
24 Spd	9	11	11	10	10	10	12	9	6	3	2	4	3	2	3	2	N	N	N	1	1	N	N	N	5.6	12.0
Dir	18	21	26	28	23	15	25	34	33	22	6	355	10	328	305	285	N	N	N	257	295	N	N	N	18	25
25 Spd	N	N	N	N	N	3	4	5	2	2	2	2	3	5	3	4	8	12	7	7	5	4	9	4.4	11.6	
Dir	N	N	N	N	N	70	112	121	107	90	93	86	85	87	108	101	98	103	106	95	88	83	81	125	100	106
26 Spd	21	19	20	21	23	22	21	20	19	19	19	18	20	19	11	16	14	6	10	7	19	21	17	21	16.5	23.3
Dir	161	162	162	160	163	161	163	160	157	159	156	157	161	159	139	143	145	73	50	71	156	162	156	163	155	163
27 Spd	21	22	18	20	19	20	21	23	21	20	24	34	31	33	31	30	31	31	26	27	26	24	22	20	22.9	33.8
Dir	168	174	172	174	170	172	178	198	201	196	211	221	228	229	227	229	228	227	225	224	228	227	224	223	211	221
28 Spd	15	15	28	23	18	12	12	15	11	12	18	22	24	24	20	20	19	19	18	21	17	15	16	14	17.1	28.4
Dir	224	246	254	261	263	243	216	221	218	210	216	224	228	228	227	219	223	220	217	220	210	206	210	190	226	254
29 Spd	14	14	14	13	12	14	15	15	14	14	15	15	8	5	6	5	5	4	3	2	1	2	3	7	7.4	15.3
Dir	187	189	185	188	187	181	171	161	157	157	160	164	151	87	88	99	61	64	70	91	34	61	206	232	165	164
30 Spd	8	4	6	9	10	11	13	12	7	14	16	14	13	14	14	14	17	14	13	21	22	16	18	15	11.8	22.0
Dir	214	202	189	190	202	194	214	213	184	176	185	190	193	201	208	201	208	223	232	247	249	250	253	261	216	249
31 Spd	18	23	27	20	16	14	10	4	3	2	8	10	11	12	12	12	15	12	7	7	10	8	11	13	9.1	27.2
Dir	258	254	253	258	278	281	294	298	273	322	347	6	351	349	346	340	347	353	347	294	310	300	297	262	298	253
Spd	11.0	10.7	10.9	10.0	9.5	8.1	8.0	8.9	9.3	9.3	9.6	10.1	10.3	9.5	8.3	8.1	8.3	7.6	7.9	8.9	9.0	9.7	10.0	10.5	Diurnal Average	
Dir	209	212	213	213	219	214	217	218	219	214	221	226	232	238	239	231	229	226	223	225	224	219	220	216	Diurnal Maximum	
Spd	25.4	28.5	29.8	25.4	27.0	23.6	35.6	39.5	39.9	42.6	39.4	38.8	37.5	33.9	31.2	29.8	31.5	30.9	27.8	27.2	32.5	35.1	25.1	28.9	Diurnal Maximum	
Dir	215	222	222	216	261	274	216	225	228	224	219	248	254	240	227	229	228	227	238	224	230	227	257	256	Diurnal Maximum	
Maximum Speed Value: 43 km/h on Dec 21 10:00																		Minimum Speed Value: 0 km/h on Dec 15 04:00						Hours in Service:		744
Maximum Daily Speed Average: 25.3 km/h on Dec 19																		Minimum Daily Speed Average: 2.4 km/h on Dec 23						Hours of Data:		703
Maximum Diurnal Speed Average: 11.0 km/h at hour 1																		Minimum Diurnal Speed Average: 7.6 km/h at hour 18						Hours of Missing Data:		41
Monthly Average Velocity: 9.20 km/h 221.5 deg																		Speed Percentiles: P ₁ = 0.9 P ₁₀ = 2.5 Q ₁ = 6.0 Median = 12.7 Q ₃ = 19.3 P ₉₀ = 24.1 P ₉₉ = 37.1						Percent Operational Time:		94.5
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	12	6	9	0	0	0	27																			
NorthEast	35	15	1	0	0	0	51																			
East	23	23	1	0	0	0	47																			
SouthEast	4	6	17	3	0	0	30																			
South	10	49	67	39	0	0	165																			
SouthWest	19	28	51	70	20	5	193																			
West	28	28	56	34	11	1	158																			
NorthWest	16	7	9	0	0	0	32																			
Total	147	162	211	146	31	6	703																			

Wind Rose

Wind Speed (WS) (km/h)
Donnelly - December 2016



Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Donnelly - December 2016

Maximum Speed: 43 km/h on Dec 21 10:00	Maximum Daily Speed Average: 27.1 km/h on Dec 19	Hours in Service: 744
Minimum Speed: 0 km/h on Dec 15 04:00	Minimum Daily Speed Average: 3.4 km/h on Dec 23	Hours of Data: 703
Maximum Diurnal Speed Average: 15.1 km/h at hour 3	Minimum Diurnal Speed Average: 11.9 km/h at hour 18	Hours of Missing Data: 41
Monthly Average Speed: 13.38 km/h	Percentiles: P ₁ = 1.0 P ₁₀ = 2.7 Q ₁ = 6.1 Median = 12.8 Q ₃ = 19.4 P ₉₀ = 24.1 P ₉₉ = 37.1	Percent Operational Time: 94.5

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	20	16	13	13	10	12	10	9	5	5	6	7	6	2	1	2	4	7	9	10	13	13	15	18	9.4	20.2	
2-Dec	18	16	19	19	18	13	7	9	9	9	8	15	22	18	20	21	22	16	10	13	12	19	18	19	15.4	22.1	
3-Dec	21	22	20	20	19	17	25	27	28	27	26	25	25	26	24	25	23	24	22	22	22	23	23	22	23.1	27.7	
4-Dec	19	17	17	17	25	21	16	17	17	17	15	14	16	17	17	16	18	20	20	18	16	15	16	15	17.3	24.7	
5-Dec	20	19	18	17	16	15	14	15	14	15	15	16	17	16	15	13	13	10	10	9	9	9	10	12	14.1	19.9	
6-Dec	13	12	12	10	10	11	12	12	12	10	5	10	14	12	9	7	8	6	8	7	8	9	11	10	10.0	14.1	
7-Dec	8	6	5	4	3	3	3	3	2	2	4	5	5	5	4	2	1	2	N	N	N	N	N	N	3.6	7.9	
8-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	2	4	3	4	2	1	2	1	2	3	--	3.8
9-Dec	4	4	5	7	6	7	7	7	6	6	6	7	8	7	5	4	4	3	3	1	2	1	2	2	4.8	8.2	
10-Dec	2	2	6	2	7	7	6	8	8	6	5	6	7	6	7	9	12	16	16	14	12	13	11	13	8.5	16.0	
11-Dec	14	15	14	16	14	14	15	16	18	15	19	18	18	20	21	23	24	23	28	27	30	22	24	29	19.8	29.7	
12-Dec	25	24	23	24	27	24	23	18	17	17	17	20	23	32	30	29	30	26	23	22	20	20	25	22	23.4	32.5	
13-Dec	20	23	23	18	19	16	16	19	17	12	15	17	19	22	19	14	9	8	9	10	9	9	9	9	15.0	23.1	
14-Dec	9	10	13	7	9	10	7	10	12	10	10	11	11	9	7	6	2	1	2	2	3	5	3	4	7.2	12.9	
15-Dec	3	2	2	0	1	2	2	3	3	4	6	4	6	6	2	1	3	7	7	6	6	8	9	8	4.3	9.3	
16-Dec	6	9	7	6	7	9	7	6	6	6	5	3	2	4	2	3	2	3	3	N	N	N	N	N	5.1	9.0	
17-Dec	N	N	5	6	4	5	4	N	N	N	N	1	2	1	3	6	11	16	16	14	12	12	11	11	7.7	16.1	
18-Dec	12	14	15	16	17	19	22	26	23	22	32	36	33	34	30	27	17	16	13	26	33	35	23	21	23.4	35.7	
19-Dec	23	22	20	17	19	22	36	40	40	37	37	39	38	32	29	19	20	24	23	24	21	22	22	23	27.1	40.0	
20-Dec	26	29	30	22	17	16	15	16	16	15	13	15	14	14	13	13	12	9	17	16	19	22	23	25	17.8	29.8	
21-Dec	24	21	24	25	23	16	20	25	38	43	39	39	35	25	15	19	19	15	17	13	13	14	17	19	23.2	42.6	
22-Dec	20	20	21	24	9	7	10	6	11	9	5	7	4	3	4	3	2	2	1	6	6	5	1	3	7.9	23.9	
23-Dec	3	5	3	3	5	1	1	2	3	3	2	4	1	4	2	2	2	6	3	3	5	8	6	5	3.4	7.9	
24-Dec	9	11	11	10	10	10	12	9	6	3	2	4	3	2	3	2	N	N	N	1	1	N	N	N	6.2	12.0	
25-Dec	N	N	N	N	N	3	4	5	2	2	2	2	2	3	5	3	4	8	12	7	7	6	5	10	4.7	11.6	
26-Dec	22	19	20	21	23	22	21	20	19	19	19	18	20	19	11	16	14	6	10	7	19	21	17	21	17.7	23.3	
27-Dec	22	22	18	20	19	20	21	23	21	20	24	34	32	33	31	30	32	31	26	27	26	24	22	20	24.9	33.9	
28-Dec	15	15	29	23	18	12	12	15	12	12	18	22	24	20	20	19	19	18	21	17	15	16	14	14	18.0	28.6	
29-Dec	14	14	14	14	12	15	15	15	14	14	15	15	9	5	6	5	7	5	3	2	2	3	4	7	9.5	15.3	
30-Dec	9	4	6	9	10	11	13	12	7	14	16	14	13	14	14	15	17	14	13	21	22	17	18	15	13.2	22.0	
31-Dec	18	23	27	20	16	14	10	5	3	2	8	10	11	12	12	12	15	12	8	7	10	8	11	13	12.0	27.2	
	14.9	14.8	15.1	14.0	13.6	12.4	12.9	13.7	13.3	13.0	13.6	14.6	14.7	13.8	12.4	12.0	12.3	11.9	12.1	12.3	13.0	13.4	13.3	14.1	Diurnal Average		
	25.6	28.6	29.8	25.5	27.1	23.7	35.9	39.5	40.0	42.6	39.5	38.9	37.6	33.9	31.3	29.9	31.5	30.9	27.8	27.3	32.6	35.2	25.2	28.9	Diurnal Maximum		

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

Hourly Standard Deviations

Wind Direction (WD) - deg

Donnelly - December 2016

Maximum Value: 90.5 deg on Dec 17 13:00		Hours in Service: 744																									
Minimum Value: 1.1 deg on Dec 29 05:00		Hours of Data: 703																									
Percentiles: P ₁ = 1.9 P ₁₀ = 2.8 Q ₁ = 3.7 Median = 5.6 Q ₃ = 10.7 P ₉₀ = 19.8 P ₉₉ = 61.8		Hours of Missing Data: 41																									
		Hours of Calibration: 0																									
		Percent Operational Time: 94.5																									
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	3	6	13	16	6	5	8	5	17	26	18	12	13	45	87	20	13	4	7	7	3	5	3	3	87.1		
2-Dec	4	5	4	3	4	16	12	11	10	7	21	30	8	9	6	5	6	8	42	7	7	4	2	3	41.8		
3-Dec	3	2	3	2	2	7	5	3	3	3	4	4	4	4	4	3	3	3	2	2	2	3	3	4	7.2		
4-Dec	4	3	2	7	5	10	17	7	7	7	6	7	6	5	7	4	5	4	4	4	7	5	4	8	17.0		
5-Dec	4	4	4	5	4	3	3	5	5	5	4	5	5	5	4	5	6	3	3	3	4	3	3	4	5.6		
6-Dec	4	5	6	3	5	4	4	5	4	5	9	6	5	6	7	7	12	4	2	4	7	9	6	4	11.6		
7-Dec	5	5	6	20	10	15	13	14	18	17	9	14	12	16	12	29	13	10	N	N	N	N	N	N	28.9		
8-Dec	N	N	N	N	N	N	N	N	N	N	N	N	N	33	7	5	10	8	14	22	16	6	64	13	64.2		
9-Dec	8	8	6	5	5	5	5	5	6	6	6	6	11	12	9	6	13	33	50	21	11	8	7	49.9			
10-Dec	9	75	6	8	6	4	4	4	6	10	11	8	12	12	10	8	8	5	5	4	4	6	3	7	75.1		
11-Dec	4	3	4	5	5	3	9	5	10	10	3	6	7	5	4	8	3	4	3	7	3	3	5	4	10.2		
12-Dec	2	2	4	5	5	4	3	3	6	8	4	4	5	3	3	5	3	3	4	6	3	4	4	8	8.0		
13-Dec	5	3	4	3	4	6	2	4	4	6	5	4	4	3	4	3	2	9	5	2	11	5	2	8	11.0		
14-Dec	2	5	3	13	3	6	24	5	3	3	4	11	5	6	8	6	15	24	20	26	11	8	18	9	26.1		
15-Dec	14	21	19	14	20	18	14	16	28	20	12	7	23	14	17	44	15	8	13	16	12	5	2	4	44.4		
16-Dec	5	3	6	10	6	6	3	6	6	4	8	15	44	77	54	24	43	15	11	N	N	N	N	N	77.3		
17-Dec	N	N	7	5	10	4	6	N	N	N	N	39	91	79	15	9	6	4	8	6	6	9	5	6	90.5		
18-Dec	3	5	2	4	3	5	3	3	3	3	5	3	5	3	6	3	4	5	13	6	4	5	5	7	13.5		
19-Dec	3	7	7	7	2	3	8	3	3	3	3	4	3	3	4	5	6	9	6	5	3	3	2	4	8.7		
20-Dec	6	3	3	9	4	4	7	2	6	5	7	4	3	4	4	3	4	5	4	5	3	8	4	8	9.2		
21-Dec	3	4	4	5	9	7	9	6	4	3	4	4	3	5	7	8	4	5	15	4	4	3	2	4	15.0		
22-Dec	5	3	6	9	20	21	6	8	7	13	13	11	13	34	16	30	30	19	34	11	11	17	33	13	33.9		
23-Dec	24	12	11	66	29	43	78	29	46	15	50	14	47	31	20	24	46	14	25	23	10	6	12	14	78.1		
24-Dec	5	4	4	5	5	6	5	7	9	25	66	13	21	13	12	25	N	N	N	34	16	N	N	N	66.4		
25-Dec	N	N	N	N	N	15	18	8	28	30	14	11	10	17	14	11	6	7	3	7	4	14	30	20	30.5		
26-Dec	4	5	3	4	2	3	4	4	5	4	4	5	5	5	10	7	16	17	7	17	13	4	5	4	17.1		
27-Dec	4	3	2	2	3	3	5	5	3	3	6	3	3	3	3	2	2	2	3	3	3	3	5	7	7.3		
28-Dec	12	10	8	4	6	10	10	6	11	6	4	3	2	3	3	3	3	2	2	3	7	7	6	3	12.2		
29-Dec	3	4	3	2	1	4	8	3	3	3	4	3	43	13	6	31	49	23	26	61	56	56	56	8	61.4		
30-Dec	13	12	14	5	9	3	11	15	8	2	5	3	5	6	3	4	6	7	3	7	3	10	6	6	14.9		
31-Dec	4	4	3	8	5	8	4	9	25	18	13	7	9	5	5	7	10	8	14	10	17	11	11	10	24.7		
	23.5	75.1	18.8	66.4	28.8	42.8	78.1	29.1	46.3	30.5	66.4	39.4	90.5	78.7	87.1	44.4	48.8	23.7	41.8	61.4	56.0	55.8	64.2	19.7			
N - Not Valid																											

PAZA

Portable – Rycroft Station

Monthly Summary Tables, Graphs and
Roses

Hourly Averages

Sulphur Dioxide (SO₂) - ppb Portable Rycroft - December 2016

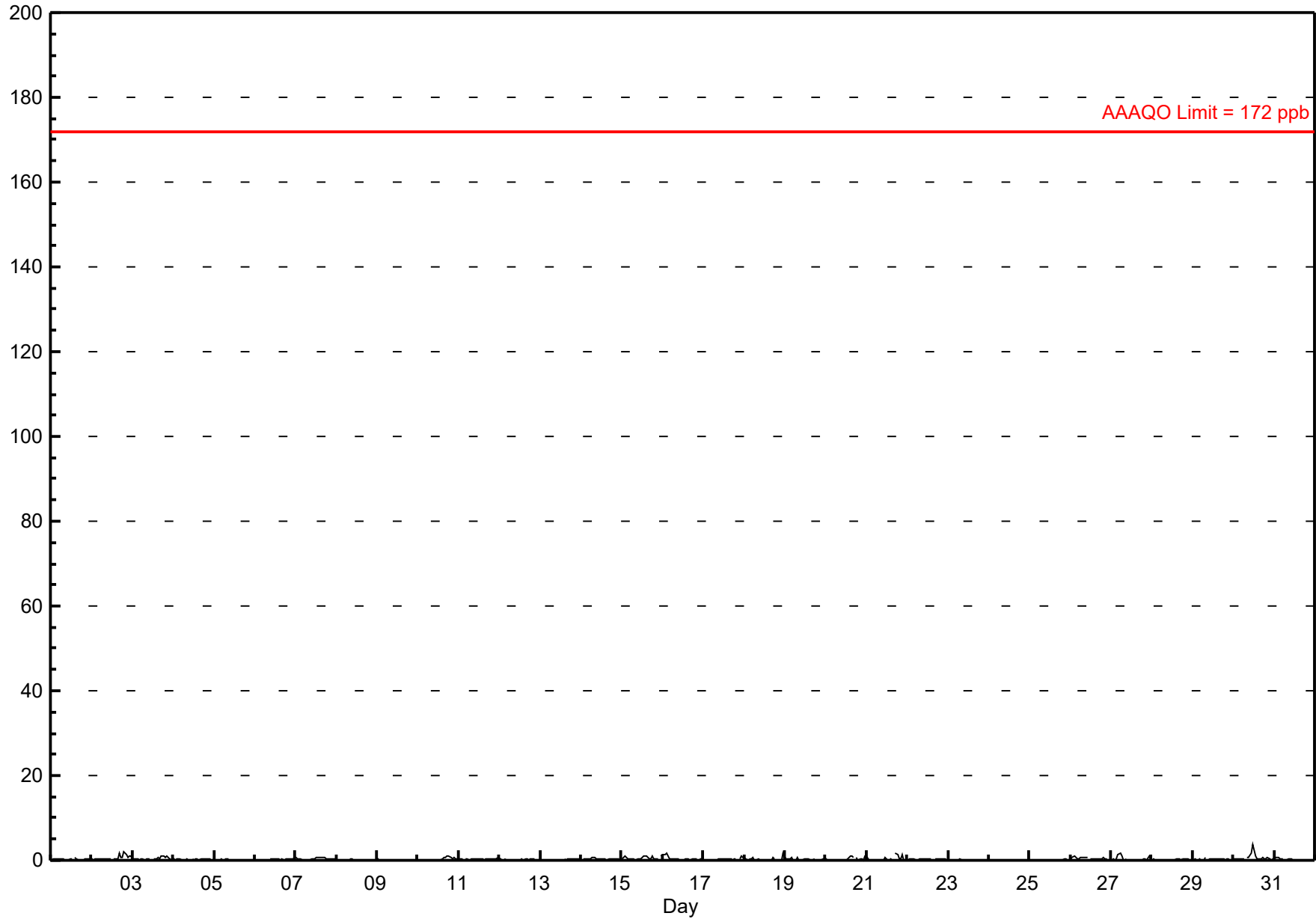
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.7 ppb on Dec 30 12:00	Maximum Daily Average: 0.7 ppb on Dec 30		Hours of Data:	705
Minimum Value: 0 ppb on Dec 5 13:00	Minimum Daily Average: 0.0 ppb on Dec 24		Hours of Missing Data:	39
Maximum Diurnal Average: 0.4 ppb at hour 24	Minimum Diurnal Average: 0.2 ppb at hour 7		Hours of Calibration:	34
Monthly Average: 0.27 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 1.6		Percent Operational Time:	99.3

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	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0.2	0.8
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	2	1	1	2	1	1	1	1	0.6	2.1
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	1	0	1	1	1	1	1	0	0	0.4	1.1
4-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
5-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	0.4
6-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2	0.6
7-Dec	1	0	0	0	0	0	0	A	0	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0.4	0.7
8-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
9-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0.3	1.1
11-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.3	0.7
12-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P	P	0.2	0.5
13-Dec	P	P	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	1	0	0	0.2	0.5
14-Dec	A	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.4	0.6
15-Dec	0	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	A	1	0.5	1.2
16-Dec	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0.4	1.7
17-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	1	0.2	0.9
18-Dec	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	A	0	0	2	0.3	1.6
19-Dec	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.3	0.8
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	A	1	0	0	0	0	1	0.3	1.1
21-Dec	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	A	2	1	0	0	1	0	0	0.3	1.6
22-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
23-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
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.0	0.1
25-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
26-Dec	0	1	1	1	0	0	1	1	1	1	1	A	0	0	0	0	0	0	0	1	0	0	0	0	0.5	0.9
27-Dec	0	0	0	0	1	2	1	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	1	0	0.3	1.6
28-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3
29-Dec	0	0	0	0	0	0	0	0	1	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.7
30-Dec	0	0	0	0	0	0	0	A	1	1	2	4	2	1	0	0	0	1	0	0	1	0	0	1	0.7	3.7
31-Dec	0	1	1	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.7
	0.3	0.3	0.3	0.2	0.3	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	0.4	Diurnal Average	
	1.4	1.2	1.7	0.9	1.4	1.6	1.0	0.8	0.6	0.8	1.6	3.7	2.3	1.2	1.1	1.0	1.7	1.6	1.2	2.1	1.2	1.2	1.0	1.6	Diurnal Maximum	

C - Calibration P - Power Failure A - Automated Daily Zero Span
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb 30-day 11 ppb

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Portable Rycroft - December 2016



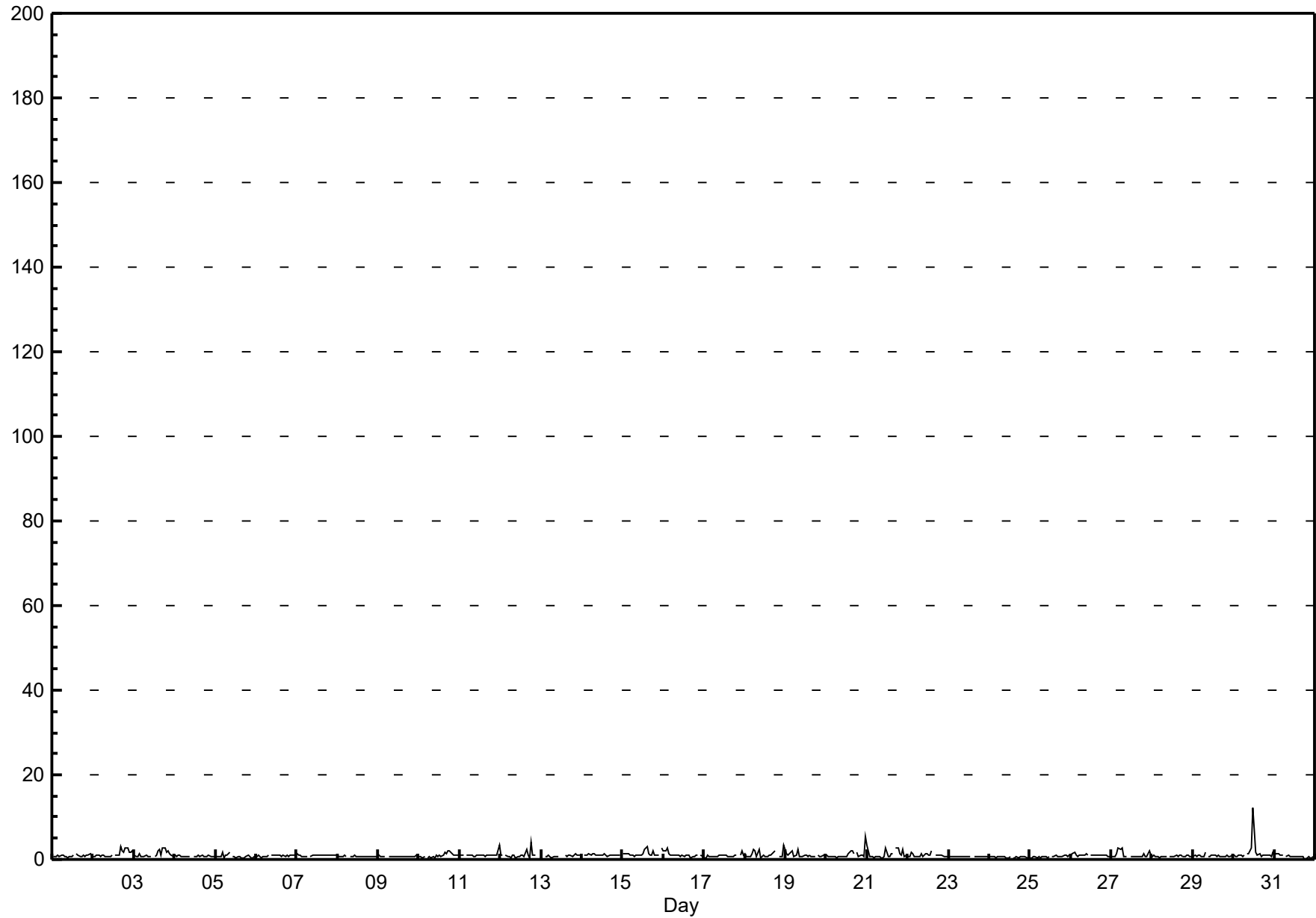
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb Portable Rycroft - December 2016

Maximum Value: 12.2 ppb on Dec 30 12:00		Maximum Daily Average: 1.9 ppb on Dec 30		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 31 19:00		Minimum Daily Average: 0.6 ppb on Dec 24		Hours of Data: 705																							
Maximum Diurnal Average: 1.3 ppb at hour 12		Minimum Diurnal Average: 0.7 ppb at hour 10		Hours of Missing Data: 39																							
Monthly Average: 0.96 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.6 Median = 0.8 Q ₃ = 1.0 P ₉₀ = 1.4 P ₉₉ = 3.3		Hours of Calibration: 34																							
				Percent Operational Time: 99.3																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.8	1.5	
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	3	2	2	3	3	2	2	2	1.3	3.0	
3-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	2	2	1	3	3	2	2	1	1	1	1.2	2.6	
4-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1	
5-Dec	1	1	1	1	2	0	1	1	2	A	1	1	0	1	1	0	0	0	0	1	1	1	0	0	1	0.7	1.8
6-Dec	1	1	1	0	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.1	
7-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	1.2	
8-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1	
9-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	0.6	1.0	
10-Dec	1	1	0	1	A	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	0.9	1.9	
11-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	3.4	
12-Dec	1	1	A	1	1	1	0	1	1	0	1	1	1	1	1	2	1	0	4	1	1	P	P	P	1.0	3.9	
13-Dec	P	P	1	1	1	1	0	1	1	1	1	C	C	C	1	1	1	1	1	1	1	1	1	1	0.8	1.2	
14-Dec	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	1.4	
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	2	1	1	1	A	3	1.3	2.9	
16-Dec	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	A	1	1.1	2.8	
17-Dec	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	2	0.8	2.1	
18-Dec	1	1	1	1	1	2	2	1	1	3	0	1	1	1	1	1	1	2	2	A	1	1	1	3	1.2	3.3	
19-Dec	1	1	1	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.0	2.4	
20-Dec	1	1	1	1	1	1	0	1	1	1	1	1	1	1	2	2	1	A	2	1	1	1	1	5	1.2	5.3	
21-Dec	3	1	1	1	1	1	1	1	0	0	1	3	1	1	1	1	A	3	3	1	1	2	1	1	1.2	3.3	
22-Dec	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	A	1	1	1	1	1	1	1	1	1.0	1.9	
23-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	0.8	
24-Dec	1	1	1	1	0	1	1	1	1	1	1	0	1	A	0	0	1	0	1	1	1	1	0	0	0.6	0.7	
25-Dec	0	0	1	1	0	1	0	1	1	1	0	1	A	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1	
26-Dec	1	1	2	1	1	1	1	1	1	2	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1.1	1.7	
27-Dec	1	1	1	1	3	3	3	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	2	1	1.1	2.7	
28-Dec	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.1	
29-Dec	1	1	1	1	1	1	1	1	2	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.7	
30-Dec	1	1	1	1	1	1	1	A	1	1	3	12	7	2	1	1	1	1	1	1	1	1	1	2	1.9	12.2	
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0.7	1.3	
	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9	1.3	1.0	1.0	1.0	1.0	0.9	1.0	1.2	1.0	1.0	0.9	0.9	1.3	Diurnal Average		
	3.3	2.0	2.8	1.6	2.7	2.5	2.6	2.4	2.5	1.5	2.7	12.2	7.1	2.2	2.9	2.4	3.0	2.7	3.9	2.8	2.6	2.2	2.1	5.3	Diurnal Maximum		
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

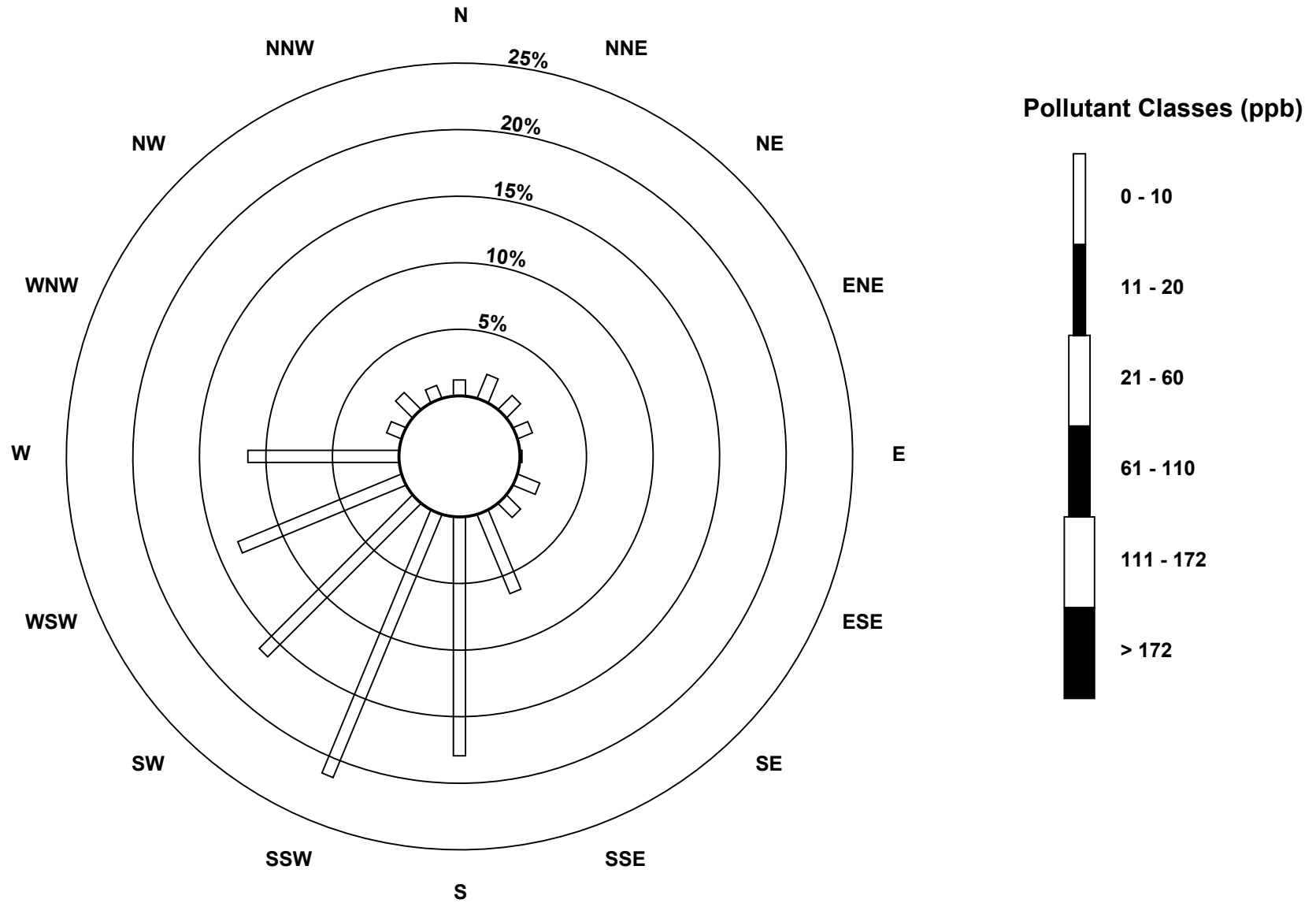
Hourly Maximums

Sulphur Dioxide (SO₂) - ppb
Portable Rycroft - December 2016



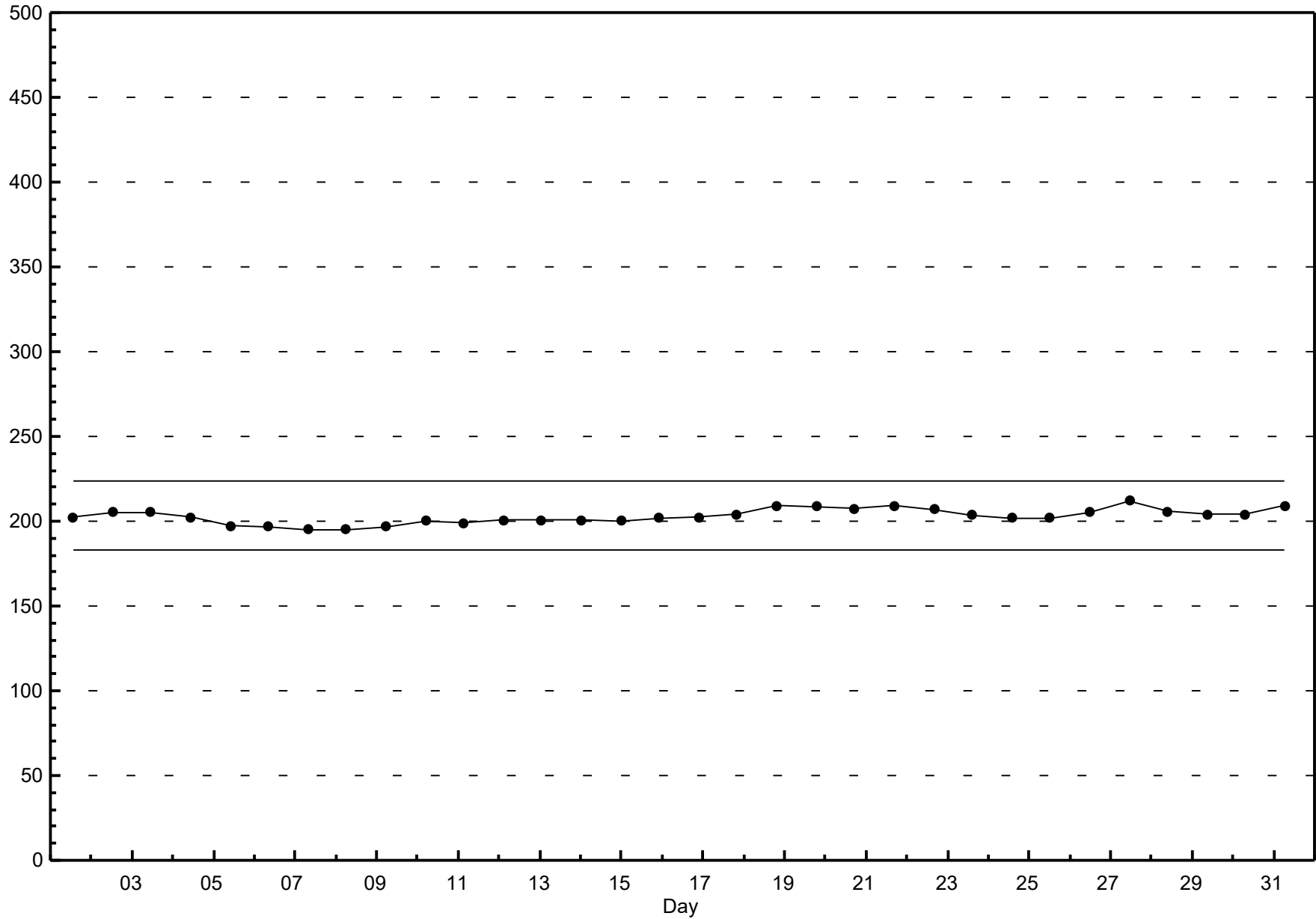
Pollutant Rose

Sulphur Dioxide (SO₂) - ppb
Portable Rycroft - December 2016



Span Responses

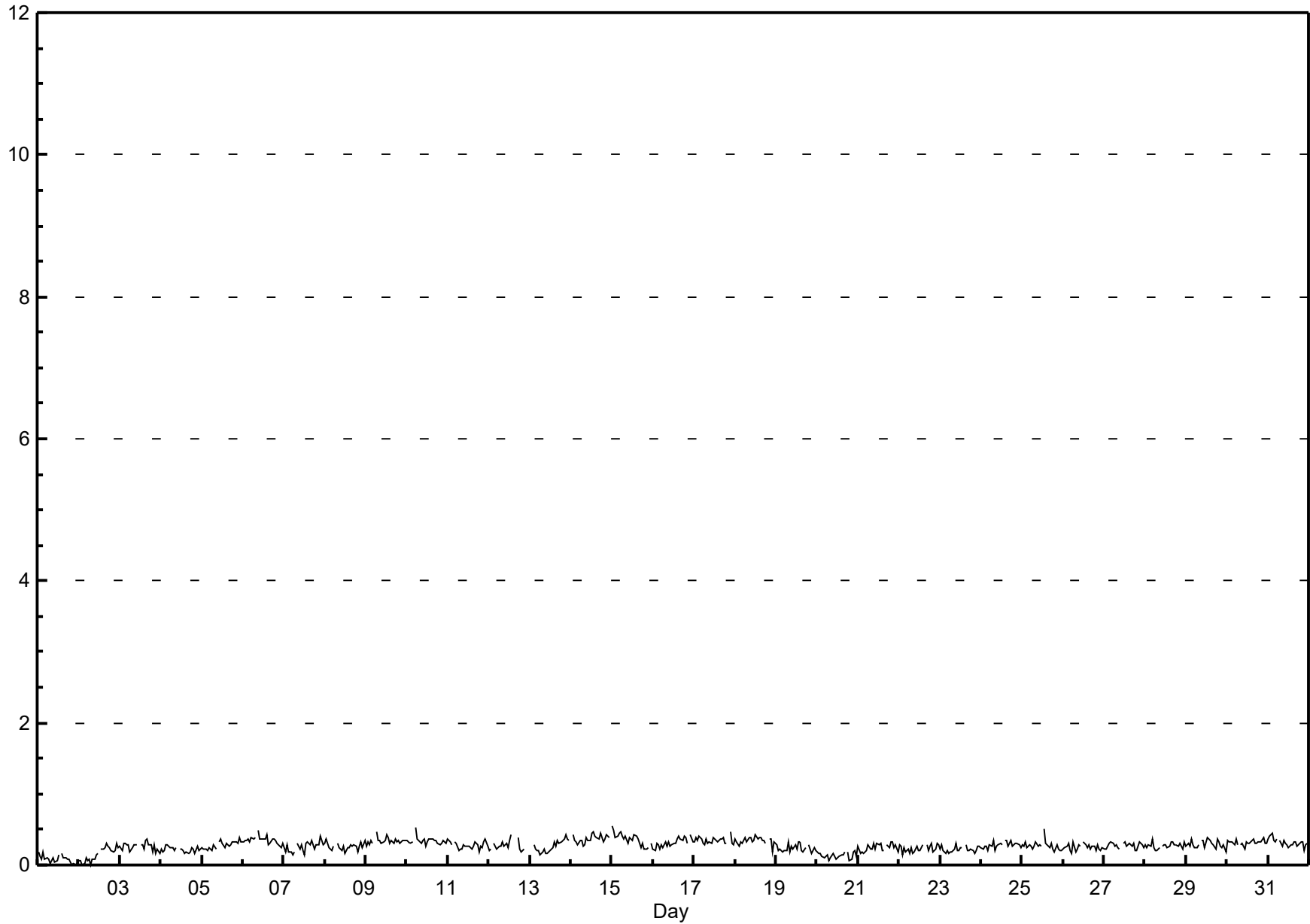
Sulphur Dioxide (SO₂)
Portable Rycroft - December 2016



Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Portable Rycroft - December 2016

Maximum Value: 0.5 ppb on Dec 15 01:00 Minimum Value: 0 ppb on Dec 1 21:00 Maximum Diurnal Average: 0.3 ppb at hour 14 Monthly Average: 0.27 ppb		Maximum Daily Average: 0.4 ppb on Dec 14 Minimum Daily Average: 0.1 ppb on Dec 1 Minimum Diurnal Average: 0.2 ppb at hour 9 Percentiles: P ₁ = 0.0 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.3 P ₉₀ = 0.4 P ₉₉ = 0.5		Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 34 Percent Operational Time: 99.3																						
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	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.1	0.2
2-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	0.3
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
4-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	0.3
5-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
6-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
7-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
8-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
9-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	0.5
10-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5
11-Dec	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
12-Dec	0	0	A	0	0	0	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0	P	P	P	--	0.4
13-Dec	P	P	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
14-Dec	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0.4	0.5
15-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	0.4	0.5
16-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0.3	0.4
17-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
18-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.3	0.4
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0.2	0.3
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.1	0.2
21-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
22-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
23-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
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.3	0.3
25-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0.3	0.5
26-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	0.3
27-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.3
28-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
29-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
30-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
31-Dec	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
	0.3	0.3	0.3	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	0.3	0.3	0.3	0.3	0.3	Diurnal Average
	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	Diurnal Maximum
C - Calibration P - Power Failure A - Automated Daily Zero Span																										



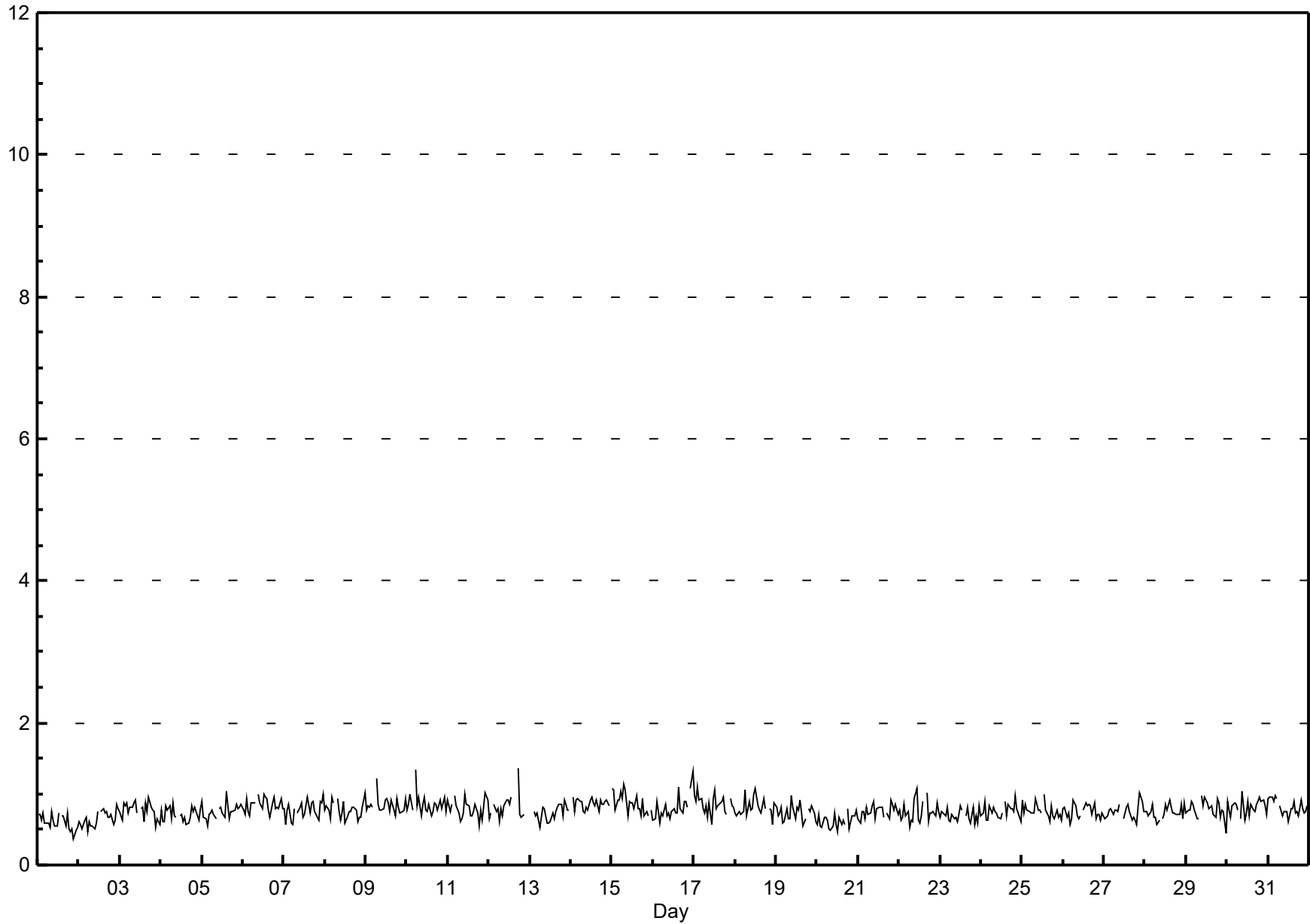
Hourly Maximums

Total Reduced Sulphur (TRS) - ppb
Portable Rycroft - December 2016

Maximum Value: 1.4 ppb on Dec 12 18:00		Maximum Daily Average: 0.9 ppb on Dec 15		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 1 22:00		Minimum Daily Average: 0.6 ppb on Dec 1		Hours of Data: 705																						
Maximum Diurnal Average: 0.8 ppb at hour 15		Minimum Diurnal Average: 0.7 ppb at hour 9		Hours of Missing Data: 39																						
Monthly Average: 0.77 ppb		Percentiles: P ₁ = 0.5 P ₁₀ = 0.6 Q ₁ = 0.7 Median = 0.8 Q ₃ = 0.8 P ₉₀ = 0.9 P ₉₉ = 1.1		Hours of Calibration: 34																						
				Percent Operational Time: 99.3																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	0	1	0	0	1	0.6	0.8
2-Dec	1	1	0	1	1	0	1	1	1	0	1	1	A	1	1	1	1	1	1	1	1	1	1	1	0.6	0.8
3-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
4-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	0.9
5-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
6-Dec	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
7-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
8-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
9-Dec	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.2
10-Dec	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.3
11-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
12-Dec	1	1	A	1	1	1	1	1	1	1	1	1	1	1	C	C	C	1	1	1	1	P	P	P	--	1.4
13-Dec	P	P	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
14-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	1.0
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.9	1.1
16-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	0.8	1.3
17-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	1.1
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	0.8	1.1
19-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
20-Dec	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	A	1	1	1	1	1	1	0.6	0.8
21-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0.8	0.9
22-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	1.1
23-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	0.7	0.8
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.8	1.0
25-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
26-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
27-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	1.0
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	0.9
29-Dec	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.8	1.0
30-Dec	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
31-Dec	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1.0
		0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	Diurnal Average	
		1.1	1.0	1.1	0.9	1.0	1.3	1.2	1.1	1.1	1.0	1.1	1.0	1.1	1.0	1.0	1.1	1.0	1.4	1.0	1.0	1.0	1.1	1.3	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																		

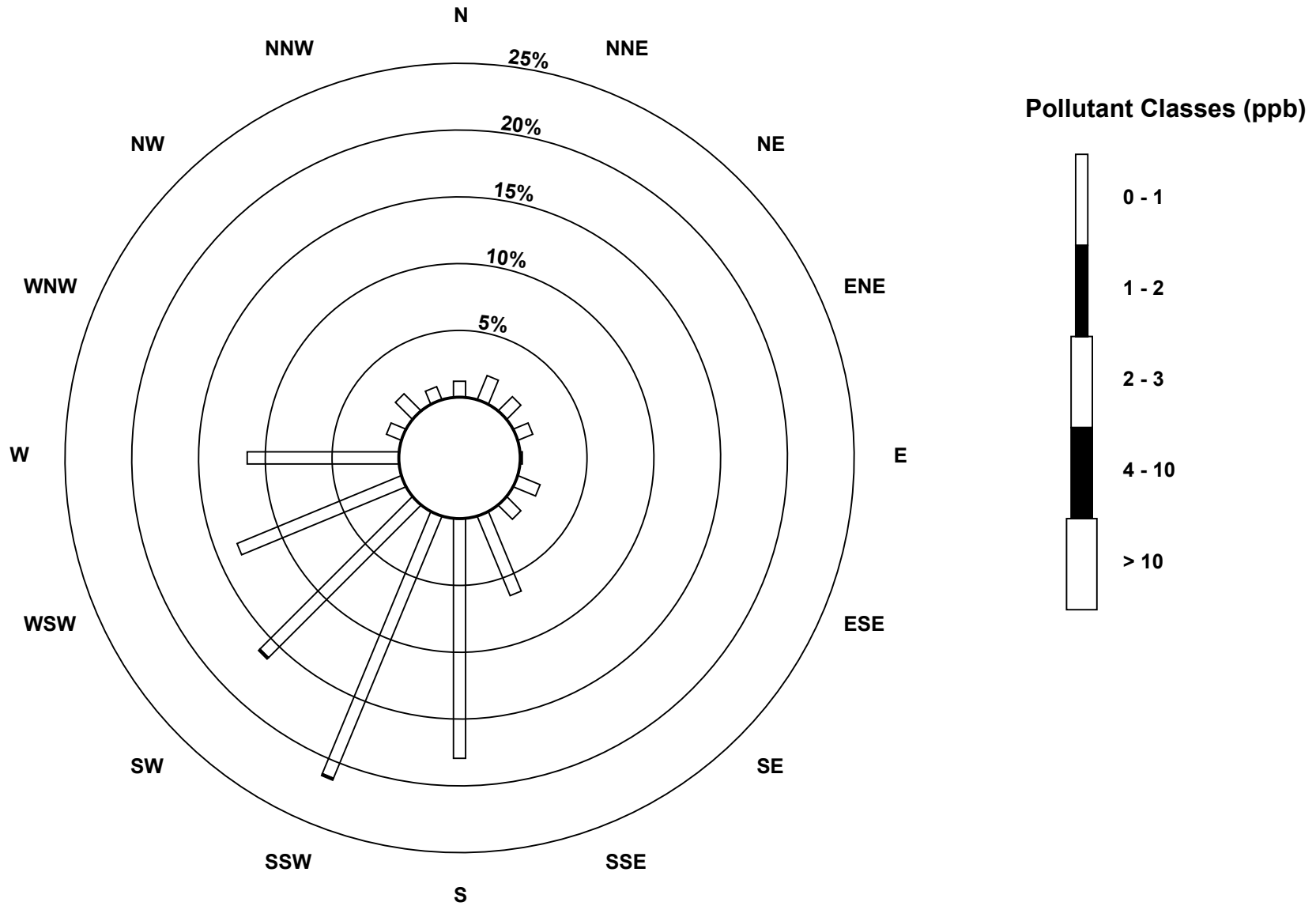
Hourly Maximums

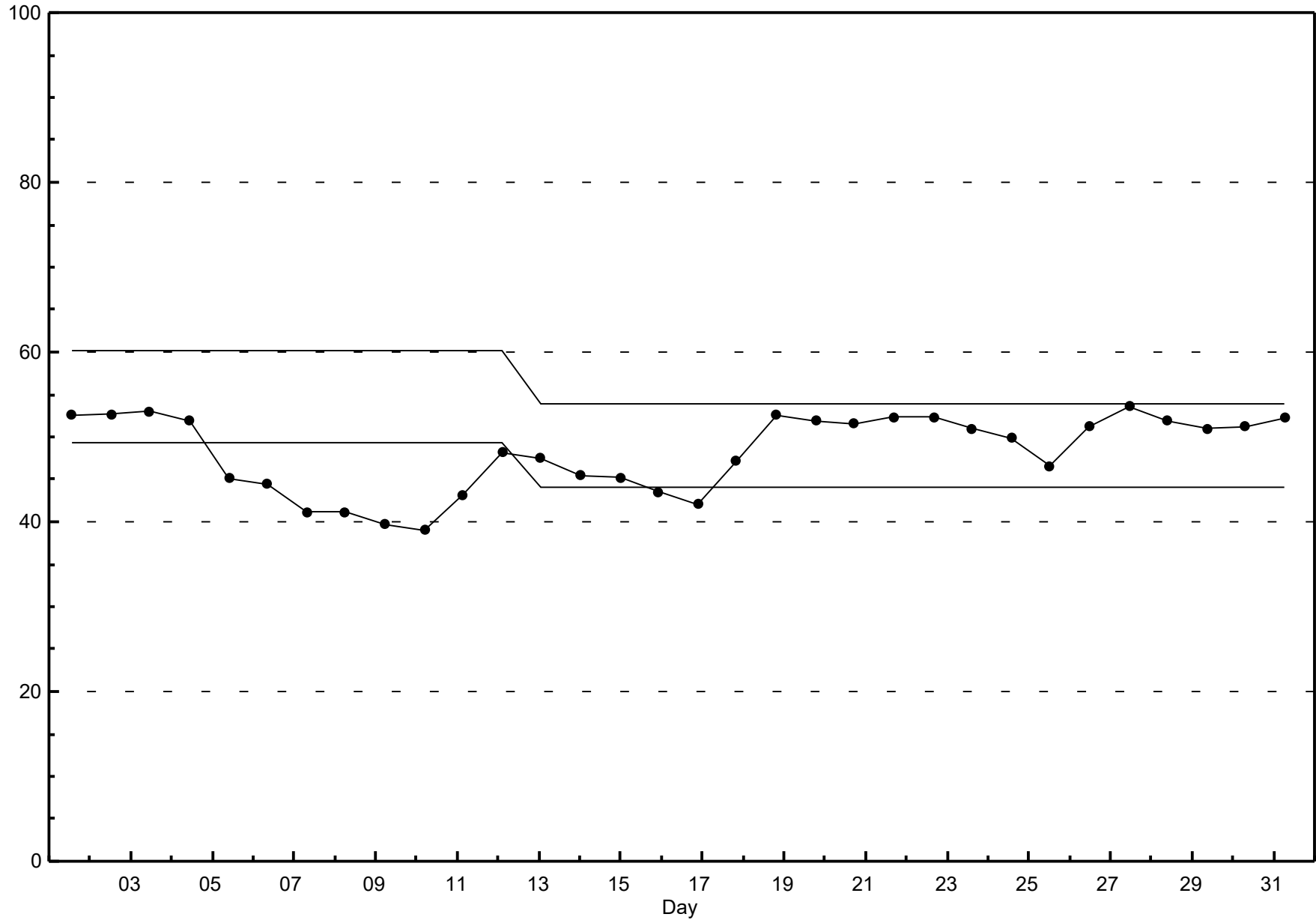
Total Reduced Sulphur (TRS) - ppb
Portable Rycroft - December 2016



Pollutant Rose

Total Reduced Sulphur (TRS) - ppb
Portable Rycroft - December 2016





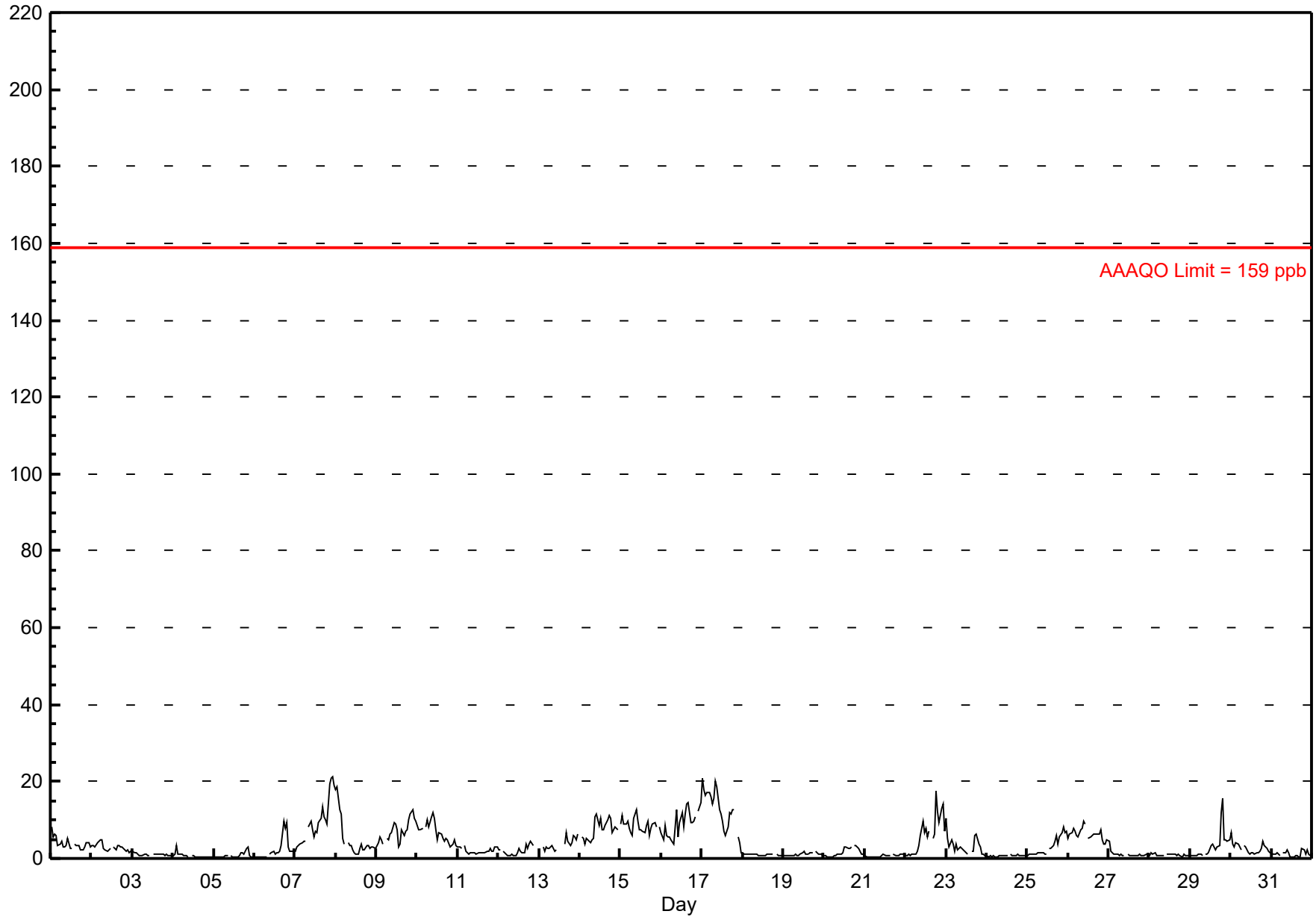
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb Portable Rycroft - December 2016

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.2 ppb on Dec 7 23:00	Maximum Daily Average: 12.6 ppb on Dec 17		Hours of Data:	704
Minimum Value: 0 ppb on Dec 5 04:00	Minimum Daily Average: 0.7 ppb on Dec 4		Hours of Missing Data:	40
Maximum Diurnal Average: 5.1 ppb at hour 20	Minimum Diurnal Average: 2.9 ppb at hour 8		Hours of Calibration:	35
Monthly Average: 3.81 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.6 Q ₁ = 1.0 Median = 2.2 Q ₃ = 5.5 P ₉₀ = 9.5 P ₉₉ = 18.7		Percent Operational Time:	99.3

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	8	5	6	6	3	4	5	3	3	3	5	2	3	A	4	3	3	2	2	2	3	4	4	3	3.8	8.3	
2-Dec	3	3	3	4	5	5	5	3	2	2	2	3	A	3	2	3	3	3	3	2	2	2	2	2	3.0	4.7	
3-Dec	2	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	1.7	
4-Dec	1	1	3	1	1	1	1	1	1	1	A	1	1	0	0	0	0	0	0	0	0	0	0	0	0.7	3.5	
5-Dec	0	0	0	0	0	0	0	1	1	A	1	1	0	0	0	1	2	2	1	2	3	1	1	0	0.8	2.8	
6-Dec	0	0	0	0	0	0	1	1	A	1	1	2	1	1	1	2	3	10	8	9	3	2	2	2	2.3	9.7	
7-Dec	2	3	3	4	4	5	4	A	8	10	7	6	7	7	9	10	13	11	10	9	19	21	21	19	9.3	21.2	
8-Dec	18	19	13	12	5	4	A	4	3	3	2	1	1	1	3	4	2	2	3	3	3	3	3	3	5.1	18.8	
9-Dec	4	4	6	5	4	A	5	5	6	7	9	9	7	3	4	7	6	7	8	10	12	13	10	10	7.0	12.6	
10-Dec	8	8	7	8	A	8	10	8	11	12	11	7	5	7	6	5	5	5	5	3	3	4	5	3	6.7	12.0	
11-Dec	3	3	2	A	3	2	1	2	2	1	1	1	1	1	1	1	2	2	2	3	2	2	3	3	2.0	3.3	
12-Dec	2	2	A	2	1	1	1	1	1	1	1	2	3	2	1	2	4	2	4	5	4	P	P	P	2.0	4.6	
13-Dec	P	P	3	2	3	3	3	3	3	2	2	C	C	C	C	4	7	4	3	4	6	6	5	6	3.8	6.9	
14-Dec	A	6	5	4	5	5	4	5	5	11	11	9	10	7	7	9	10	11	11	7	7	8	7	A	7.5	11.4	
15-Dec	9	11	9	9	10	8	7	6	10	13	10	7	7	7	7	8	10	6	8	9	9	8	A	8	8.5	12.7	
16-Dec	7	5	8	6	6	6	5	4	8	13	6	9	12	8	12	14	15	9	9	10	11	A	12	14	9.0	14.7	
17-Dec	21	18	16	17	17	16	14	16	20	19	13	12	10	7	6	8	12	12	13	13	A	6	4	1	12.6	20.8	
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	1.4	
19-Dec	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	A	2	1	1	1	1	1.1	1.8
20-Dec	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	A	3	3	3	3	2	1	1	1.6	3.3
21-Dec	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	0.7	1.2
22-Dec	1	1	1	1	1	1	1	2	3	6	10	7	8	5	7	A	5	6	18	12	9	13	14	7	6.1	17.7	
23-Dec	11	5	3	5	4	2	4	2	3	3	2	2	2	1	A	2	2	6	6	4	3	1	1	1	3.2	10.6	
24-Dec	1	1	1	1	1	1	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.0	
25-Dec	1	1	1	1	1	1	1	1	1	1	1	A	2	2	3	4	6	4	6	7	8	7	7	7	3.1	8.1	
26-Dec	5	6	7	8	7	6	6	8	8	10	9	A	5	5	6	6	6	6	6	7	5	4	4	5	6.4	9.8	
27-Dec	5	2	2	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	4.6	
28-Dec	1	2	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	1.5	
29-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	3	4	3	2	3	3	12	16	5	5	4	5	3.3	15.6
30-Dec	7	4	3	4	4	3	2	A	3	3	2	1	1	1	1	1	2	2	3	4	3	2	2	2	2.6	6.9	
31-Dec	1	1	1	2	1	1	A	1	1	2	1	0	0	0	1	1	0	0	3	2	1	2	1	1	1.2	2.8	
	4.3	3.8	3.7	3.6	3.1	2.9	3.0	2.9	3.8	4.5	4.0	3.3	3.5	3.1	3.3	3.6	4.3	4.2	5.0	5.1	4.3	4.2	4.1	3.8	Diurnal Average		
	20.8	18.8	16.3	17.2	17.3	16.2	14.2	15.7	20.2	18.7	12.8	11.7	12.1	8.0	11.6	14.2	14.7	11.5	17.7	15.6	19.5	21.0	21.2	18.9	Diurnal Maximum		

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



Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb Portable Rycroft - December 2016

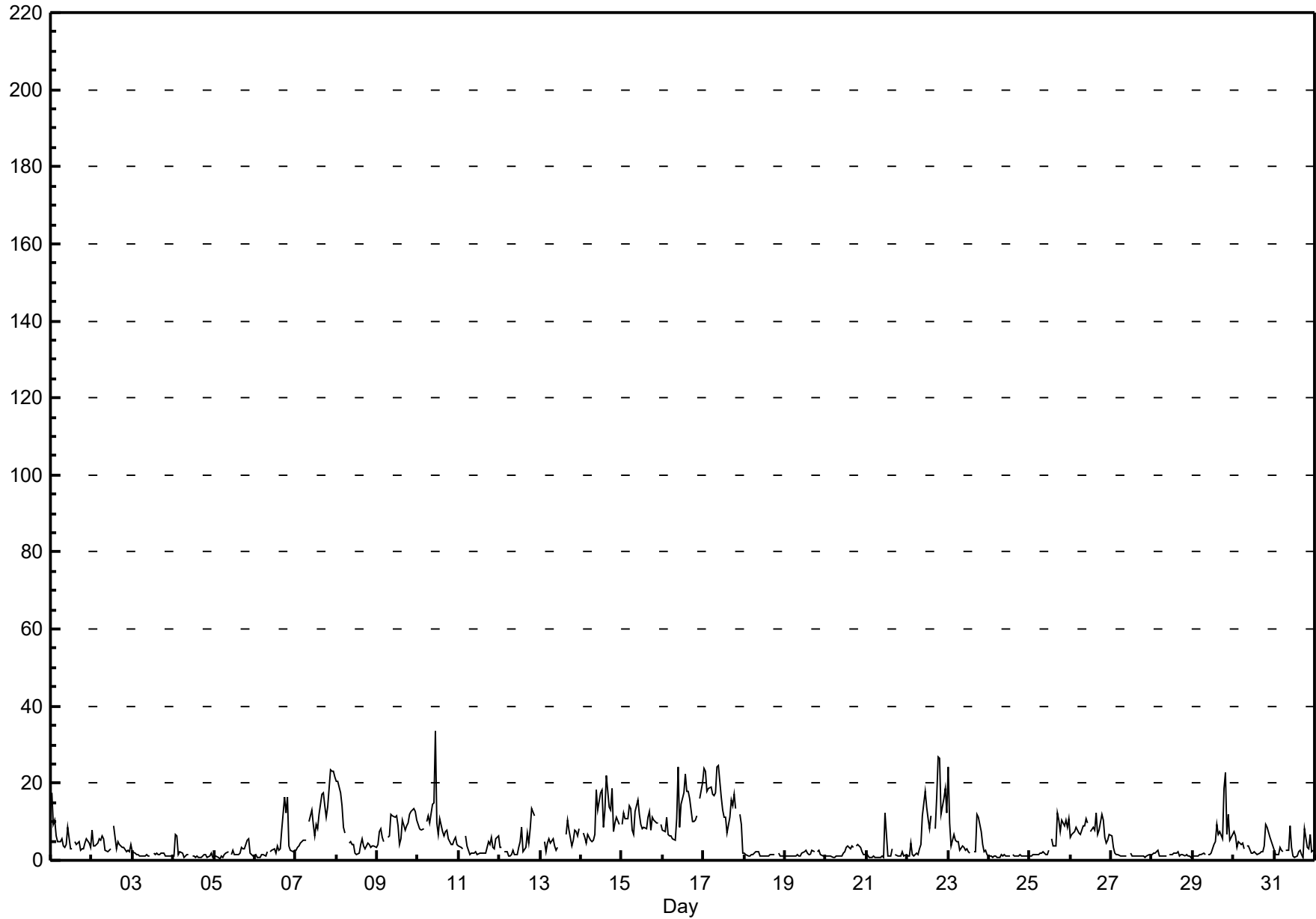
Maximum Value: 33.4 ppb on Dec 10 11:00	Maximum Daily Average: 15.5 ppb on Dec 17	Hours in Service: 744
Minimum Value: 1 ppb on Dec 5 04:00	Minimum Daily Average: 1.1 ppb on Dec 24	Hours of Data: 704
Maximum Diurnal Average: 7.8 ppb at hour 20	Minimum Diurnal Average: 3.8 ppb at hour 7	Hours of Missing Data: 40
Monthly Average: 5.45 ppb	Percentiles: P ₁ = 0.8 P ₁₀ = 1.1 Q ₁ = 1.5 Median = 3.4 Q ₃ = 7.9 P ₉₀ = 12.8 P ₉₉ = 24.1	Hours of Calibration: 35
		Percent Operational Time: 99.3

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	18	9	10	6	5	5	6	4	3	4	9	3	3	A	5	4	5	3	3	3	4	5	4	4	5.4	17.6	
2-Dec	8	4	4	4	5	5	6	6	3	2	3	3	A	9	3	5	4	4	4	3	2	3	2	4	4.2	8.9	
3-Dec	2	2	2	2	1	1	1	1	1	1	1	A	2	1	2	2	2	2	2	1	1	1	1	1	1.5	2.3	
4-Dec	1	7	6	2	2	2	1	1	2	1	A	1	1	1	1	1	1	1	2	2	1	1	2	1	1.7	6.6	
5-Dec	1	1	1	1	1	1	1	2	2	A	1	3	1	1	1	2	3	3	3	5	6	2	2	1	2.0	5.7	
6-Dec	2	1	1	1	2	1	1	2	A	2	3	3	2	4	3	3	8	17	12	16	4	3	2	3	4.1	16.5	
7-Dec	2	3	4	5	5	5	5	A	10	13	9	6	9	8	12	17	18	14	11	14	23	23	23	22	11.5	23.4	
8-Dec	21	20	17	14	8	7	A	5	5	4	4	2	2	2	4	5	4	3	5	4	3	4	4	3	6.5	20.6	
9-Dec	4	7	8	6	5	A	6	6	12	12	11	12	9	4	6	11	8	9	10	12	13	13	13	11	9.0	13.3	
10-Dec	9	8	8	8	A	10	11	10	14	15	33	10	7	11	7	6	7	8	6	4	4	5	6	4	9.3	33.4	
11-Dec	4	3	3	A	6	4	2	2	2	2	2	2	2	2	2	2	2	5	4	6	3	3	6	6	3.2	6.4	
12-Dec	3	3	A	2	2	1	1	1	3	1	2	3	5	9	2	3	7	4	8	14	12	P	P	P	4.4	13.6	
13-Dec	P	P	5	2	5	6	4	6	4	3	3	C	C	C	C	7	10	8	4	5	8	8	6	8	5.6	10.3	
14-Dec	A	7	6	5	7	5	5	5	7	18	13	17	18	9	13	22	14	13	18	7	10	11	9	A	10.9	22.0	
15-Dec	9	12	11	11	14	14	8	7	13	16	12	9	8	9	8	11	13	8	11	10	10	10	A	9	10.5	15.5	
16-Dec	8	7	11	7	6	6	6	5	11	24	9	15	17	22	18	18	16	10	10	10	11	A	16	20	12.4	24.2	
17-Dec	24	23	18	18	19	17	17	18	24	24	16	13	11	11	7	11	16	14	17	14	A	12	9	2	15.5	24.5	
18-Dec	2	2	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	A	A	2	1	1	1	1.4	2.2	
19-Dec	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	A	A	2	3	1	1	1	1.6	2.7
20-Dec	1	1	1	1	1	1	1	1	1	1	2	2	3	4	3	4	3	A	A	4	4	3	2	1	1	2.1	4.2
21-Dec	2	1	1	1	1	1	1	1	1	1	1	12	1	1	1	3	A	1	1	1	1	2	1	1	1.7	12.1	
22-Dec	1	1	5	2	1	2	1	3	4	11	18	14	11	8	11	A	8	16	27	27	12	16	19	12	10.0	26.7	
23-Dec	24	10	4	7	5	5	5	3	4	3	3	3	2	2	A	2	2	12	11	8	4	2	3	1	5.4	24.3	
24-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	1.1	1.5	
25-Dec	1	1	1	1	1	1	2	2	2	2	1	2	A	5	4	4	12	10	7	11	9	10	9	11	4.9	12.3	
26-Dec	6	7	7	9	8	7	7	9	9	11	10	A	7	9	8	12	7	8	12	10	6	4	5	7	8.0	12.2	
27-Dec	6	3	2	2	2	1	1	1	1	1	A	2	1	1	1	1	1	1	1	1	1	1	2	2	1.6	6.3	
28-Dec	1	2	2	3	1	1	1	1	1	1	A	2	1	2	2	2	1	1	1	1	1	1	1	1	1.5	2.5	
29-Dec	1	1	1	1	1	1	2	1	A	1	1	2	4	5	9	7	8	6	19	23	7	12	5	7	5.4	22.6	
30-Dec	7	6	3	5	4	4	3	A	4	4	2	2	2	2	1	2	2	2	2	4	9	9	6	5	4	4.1	9.2
31-Dec	3	2	2	3	2	2	A	3	3	9	3	1	1	1	2	2	2	1	8	3	3	7	2	3	2.9	8.8	
	6.0	5.3	4.9	4.4	4.2	4.0	3.8	3.8	5.1	6.6	6.2	5.3	4.9	5.2	4.9	5.7	6.3	6.3	7.6	7.8	5.9	5.9	5.6	5.2	Diurnal Average		
	24.3	22.9	17.9	18.5	19.0	17.0	16.7	17.6	24.1	24.5	33.4	17.4	18.3	22.4	17.8	22.0	17.6	16.5	26.7	26.6	23.4	23.1	23.3	21.5	Diurnal Maximum		

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

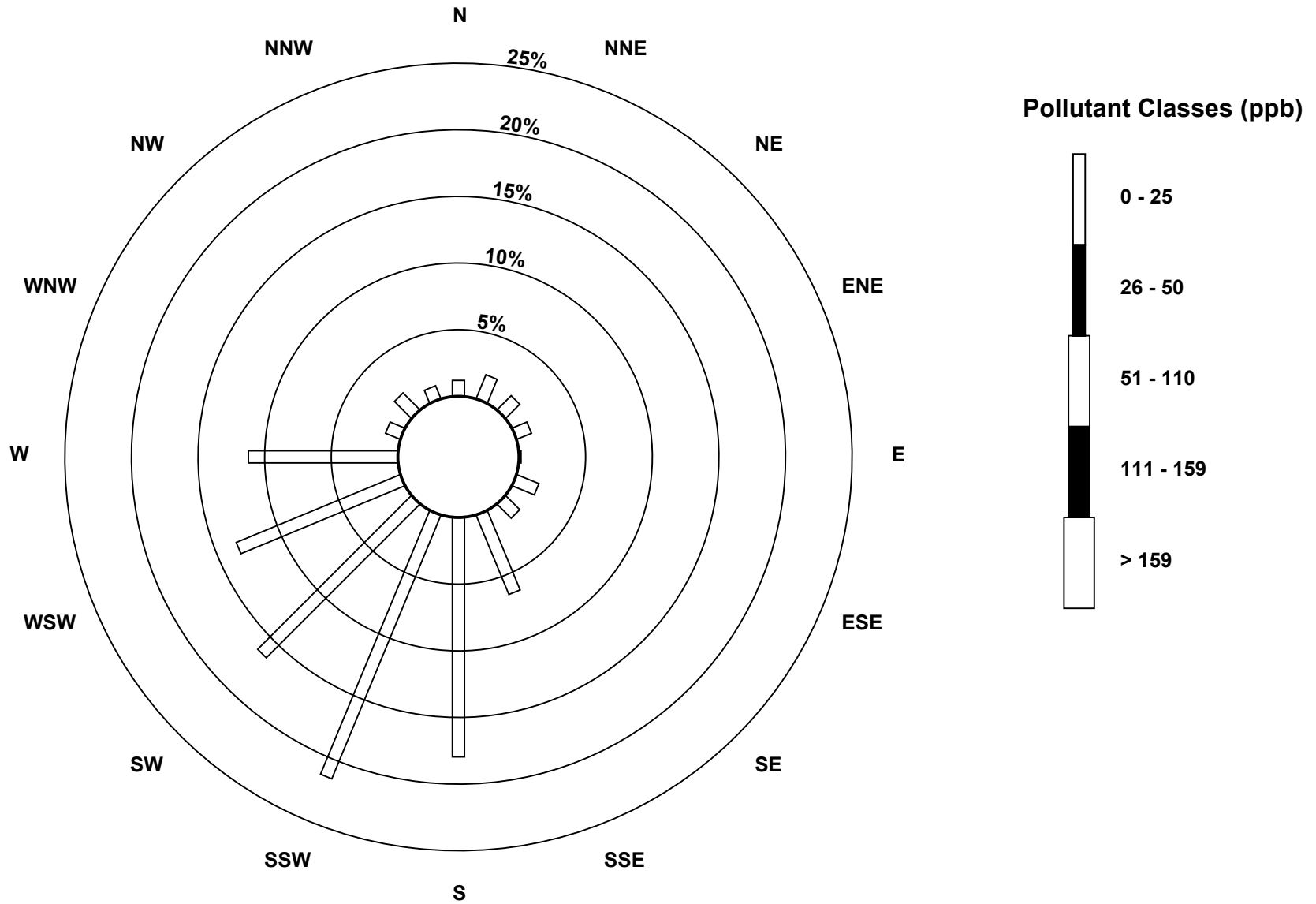
Hourly Maximums

Nitrogen Dioxide (NO₂) - ppb
Portable Rycroft - December 2016



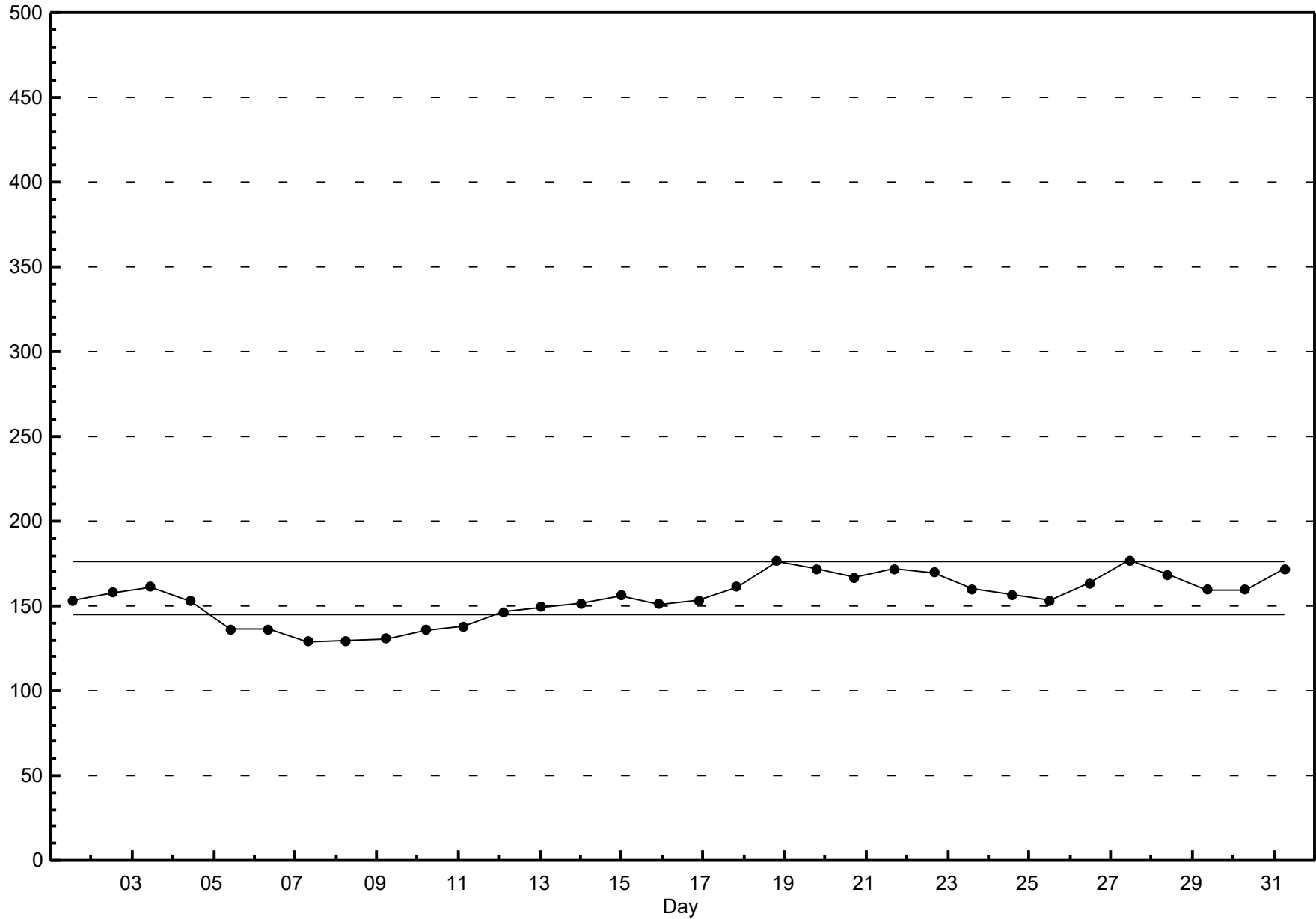
Pollutant Rose

Nitrogen Dioxide (NO₂) - ppb
Portable Rycroft - December 2016



Span Responses

Nitrogen Dioxide (NO₂)
Portable Rycroft - December 2016



Hourly Averages

Nitrogen Oxide (NO) - ppb
 Portable Rycroft - December 2016

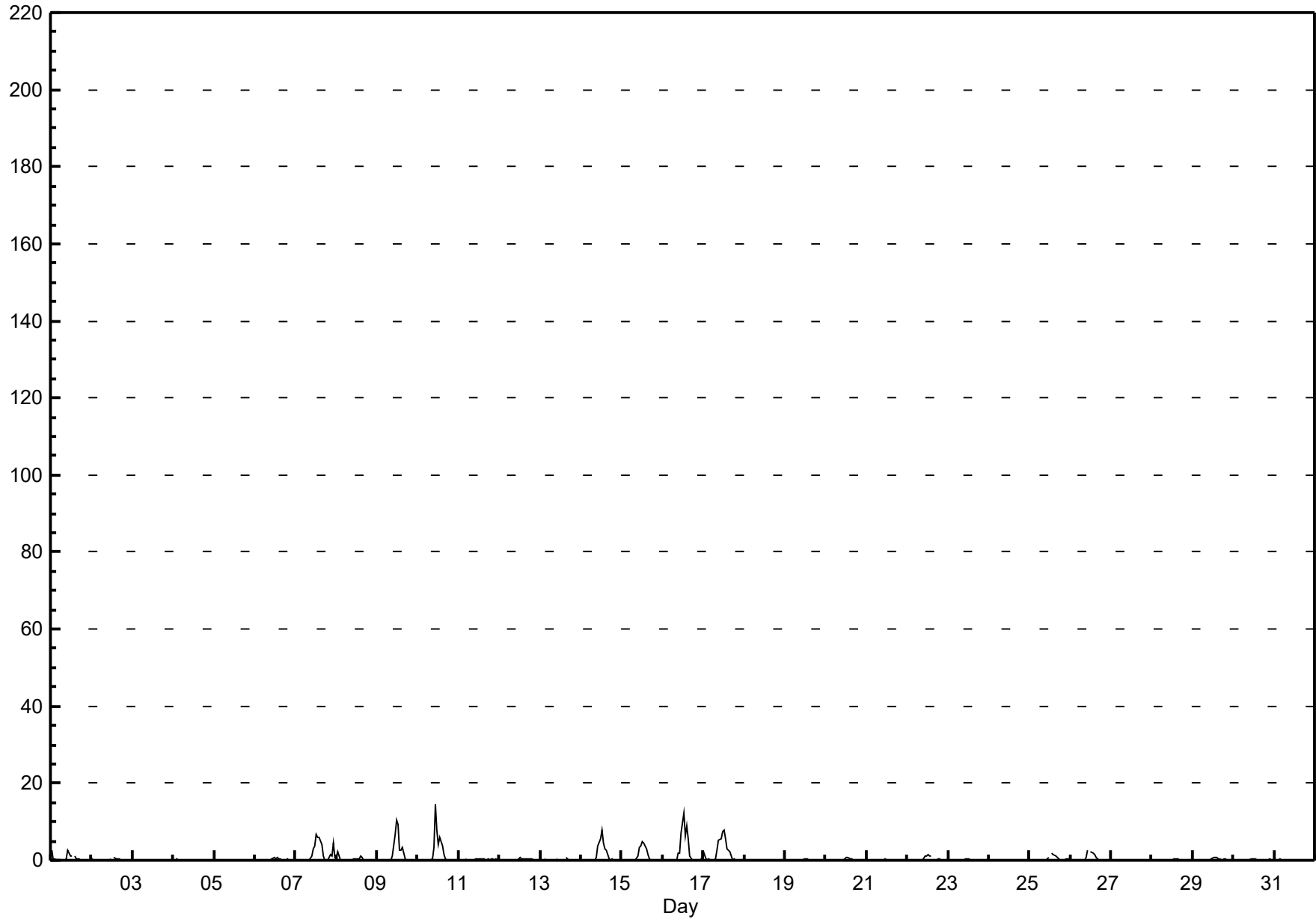
Maximum Value: 14.5 ppb on Dec 10 11:00	Maximum Daily Average: 2.0 ppb on Dec 16	Hours in Service: 744
Minimum Value: 0 ppb on Dec 2 05:00	Minimum Daily Average: 0.0 ppb on Dec 27	Hours of Data: 704
Maximum Diurnal Average: 2.3 ppb at hour 13	Minimum Diurnal Average: 0.0 ppb at hour 7	Hours of Missing Data: 40
Monthly Average: 0.50 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 1.0 P ₉₉ = 7.9	Hours of Calibration: 35
		Percent Operational Time: 99.3

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	3	0	0	0	0	0	0	0	0	0	2	1	1	A	1	1	0	0	0	0	0	0	0	0	0.4	2.6	
2-Dec	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	0	0	0	0	0	0	0	0	0.1	0.8	
3-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	
4-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	0.3	
5-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	0.2	
6-Dec	0	0	0	0	0	0	0	0	0	A	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0.2	0.7	
7-Dec	0	0	0	0	0	0	0	0	A	0	1	3	4	7	6	6	4	1	0	0	0	1	1	5	1	1.8	6.6
8-Dec	1	2	0	0	0	0	0	0	A	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0.3	2.2	
9-Dec	0	0	0	0	0	0	0	0	A	0	0	1	7	11	9	3	3	1	0	0	0	0	0	0	1.6	10.6	
10-Dec	0	0	0	0	0	A	0	0	0	0	3	15	8	4	6	4	1	0	0	0	0	0	0	0	1.8	14.5	
11-Dec	0	0	0	0	A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.2	0.5	
12-Dec	0	0	0	A	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	P	P	0.2	0.7	
13-Dec	P	P	0	0	0	0	0	0	0	0	0	0	C	C	C	C	1	0	0	0	0	0	0	0	0.2	0.7	
14-Dec	A	0	0	0	0	0	0	0	0	1	4	6	8	4	3	3	0	0	0	0	0	0	0	0	1.3	7.9	
15-Dec	0	0	0	0	0	0	0	0	0	1	3	4	5	4	3	2	0	0	0	0	0	0	0	A	0	1.0	4.9
16-Dec	0	0	0	0	0	0	0	0	0	2	2	7	12	6	9	5	1	0	0	0	0	0	0	A	0	2.0	12.3
17-Dec	2	1	0	0	0	0	0	0	3	5	6	7	8	5	3	2	1	0	0	0	0	0	A	0	1.9	7.7	
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	0.1	
19-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0.1	0.4	
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	A	0	0	0	0.1	0.7	
21-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0.1	0.3	
22-Dec	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	A	0	0	0	0	0	0	0	0	0.3	1.5	
23-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	0.5	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0.0	0.2	
25-Dec	0	0	0	0	0	0	0	0	0	0	0	1	A	2	2	1	1	0	0	0	0	0	0	0	0.4	1.9	
26-Dec	0	0	0	0	0	0	0	0	0	1	3	A	2	2	1	1	0	0	0	0	0	0	0	0	0.5	2.8	
27-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	0.1	
28-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	0.1	0.3	
29-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	1	1	1	0	0	0	0	0	0	0	0	0.2	0.8	
30-Dec	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.5	
31-Dec	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	
	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.6	1.7	1.9	2.3	1.7	1.4	0.9	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average	
	2.6	2.2	0.3	0.2	0.4	0.1	0.1	0.2	2.6	5.1	14.5	10.6	12.3	6.4	9.0	5.5	1.2	0.2	0.4	0.4	1.4	1.2	4.6	0.9	Diurnal Maximum		

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

Hourly Averages

Nitrogen Oxide (NO) - ppb
Portable Rycroft - December 2016



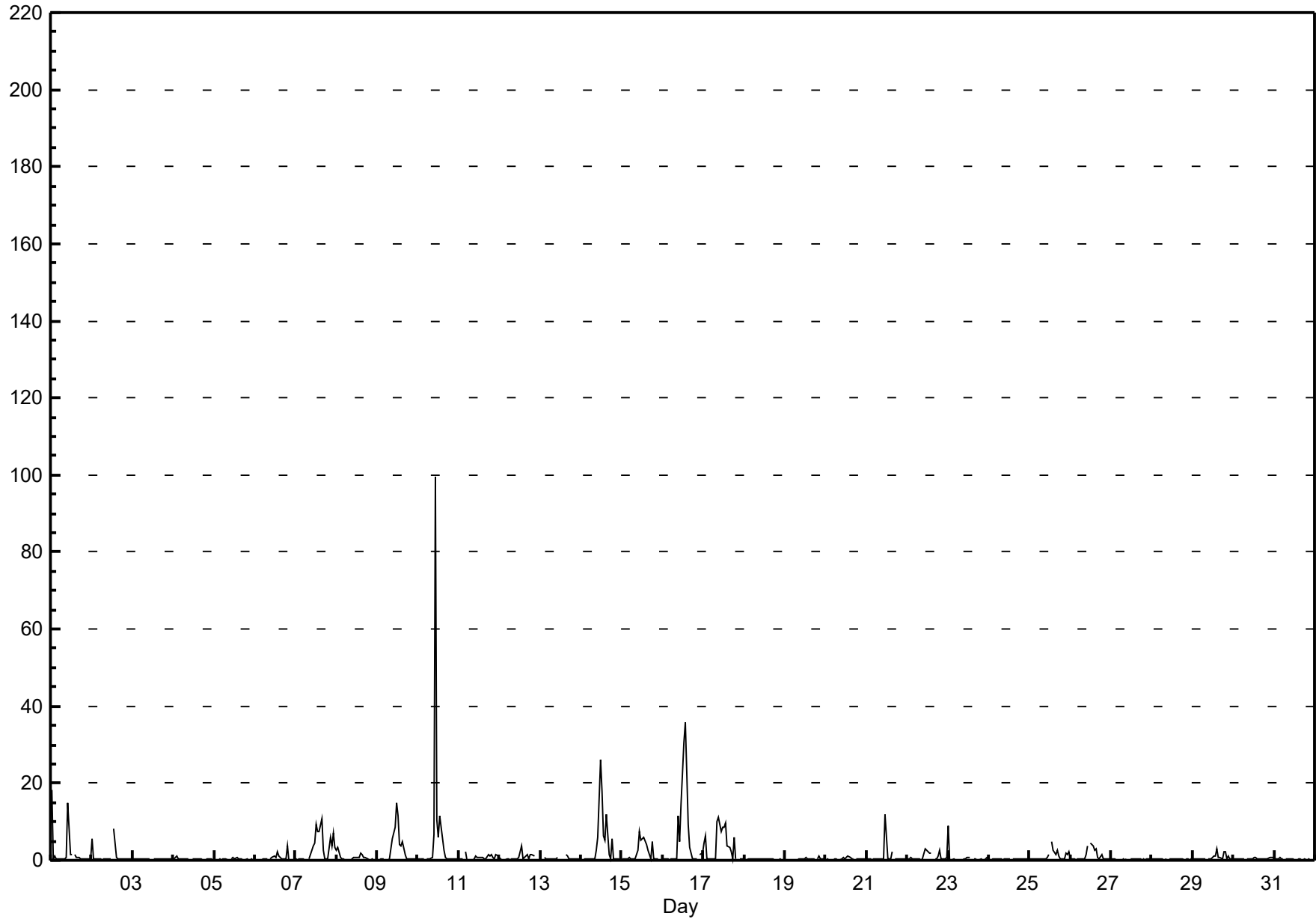
Hourly Maximums

Nitrogen Oxide (NO) - ppb
Portable Rycroft - December 2016

Maximum Value: 99.4 ppb on Dec 10 11:00		Maximum Daily Average: 6.4 ppb on Dec 10		Hours in Service: 744																						
Minimum Value: 0 ppb on Dec 19 05:00		Minimum Daily Average: 0.2 ppb on Dec 27		Hours of Data: 704																						
Maximum Diurnal Average: 5.8 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 7		Hours of Missing Data: 40																						
Monthly Average: 1.38 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.6 P ₉₀ = 3.0 P ₉₉ = 17.9		Hours of Calibration: 35																						
				Percent Operational Time: 99.3																						
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	18	1	1	0	0	0	0	0	0	1	15	1	1	A	1	1	1	0	0	0	0	0	0	0	1.9	18.4
2-Dec	6	0	0	0	0	0	0	0	0	0	0	1	A	8	1	1	0	0	0	0	0	0	0	0	0.9	8.1
3-Dec	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.4
4-Dec	0	1	1	0	0	0	0	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1.1
5-Dec	0	0	0	0	0	0	0	0	0	A	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0.3	0.8
6-Dec	0	0	0	0	0	0	0	0	A	0	1	1	1	2	1	1	0	0	0	4	0	0	0	0	0.6	3.7
7-Dec	0	0	0	0	0	0	0	A	0	2	4	5	9	7	8	11	2	0	0	1	6	4	7	3	3.1	10.6
8-Dec	2	3	1	0	0	0	0	A	0	0	1	1	1	1	2	2	1	1	0	0	0	0	0	0	0.8	3.5
9-Dec	0	0	0	0	0	0	A	0	0	3	6	9	15	12	4	4	5	1	0	0	0	0	0	0	2.6	14.7
10-Dec	0	0	0	0	A	0	0	0	0	1	7	99	11	6	12	6	3	1	0	0	0	0	0	0	6.4	99.4
11-Dec	0	0	0	A	2	0	0	0	0	0	1	1	1	1	1	0	0	2	1	1	1	0	1	1	0.7	2.3
12-Dec	0	0	A	0	0	0	0	0	0	0	0	1	2	4	1	1	2	1	2	2	1	P	P	P	0.9	3.6
13-Dec	P	P	1	0	0	0	0	0	0	0	1	C	C	C	C	2	1	0	0	0	0	0	0	0	0.5	1.5
14-Dec	A	0	0	0	0	0	0	0	0	2	6	26	18	6	5	12	1	0	6	0	0	0	0	A	3.9	26.1
15-Dec	0	0	0	0	1	0	0	0	0	3	7	5	5	6	4	2	1	0	5	0	0	0	A	0	1.9	7.3
16-Dec	0	0	0	0	0	0	0	0	0	12	5	14	31	36	23	9	3	0	0	0	0	0	A	1	6.1	35.9
17-Dec	5	6	0	0	0	0	0	1	10	11	7	8	9	10	4	3	2	0	6	0	A	0	0	0	3.7	11.2
18-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	0.3	0.4
19-Dec	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	A	0	1	0	0	0.3	1.1
20-Dec	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	A	0	0	0	0	0	0	0.3	0.9
21-Dec	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	2	A	0	0	0	0	0	0	0	0.9	12.1
22-Dec	0	0	1	0	0	0	0	0	0	1	3	3	2	2	2	A	0	0	1	3	0	0	0	1	0.9	3.1
23-Dec	9	0	0	0	0	0	0	0	0	0	0	1	1	1	A	0	0	0	0	0	0	0	0	1	0.7	9.1
24-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	0.2	0.4
25-Dec	0	0	0	0	0	0	0	0	0	0	1	2	A	5	3	2	3	1	0	0	0	2	2	2	1.1	5.0
26-Dec	0	0	0	0	0	1	0	0	0	2	4	A	4	4	3	3	1	0	2	0	0	0	0	0	1.1	4.4
27-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	0.3
28-Dec	0	0	0	0	0	0	0	0	0	0	A	0	0	0	1	0	0	0	0	0	0	0	0	0	0.3	0.5
29-Dec	0	0	0	0	0	0	0	0	A	0	0	0	1	1	3	1	1	0	2	2	0	1	0	0	0.7	3.0
30-Dec	0	0	0	0	0	0	0	A	0	0	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0.4	0.9
31-Dec	0	0	0	1	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.7
		1.6	0.6	0.3	0.3	0.3	0.2	0.2	0.3	0.7	1.8	5.8	4.0	3.9	4.1	2.5	2.1	0.8	0.4	1.0	0.6	0.5	0.4	0.6	0.5	Diurnal Average
		18.4	6.2	1.1	0.7	2.3	0.5	0.4	0.5	10.0	11.7	99.4	26.1	30.6	35.9	22.6	11.9	3.3	1.7	6.1	3.7	6.1	3.6	7.0	3.4	Diurnal Maximum
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																		

Hourly Maximums

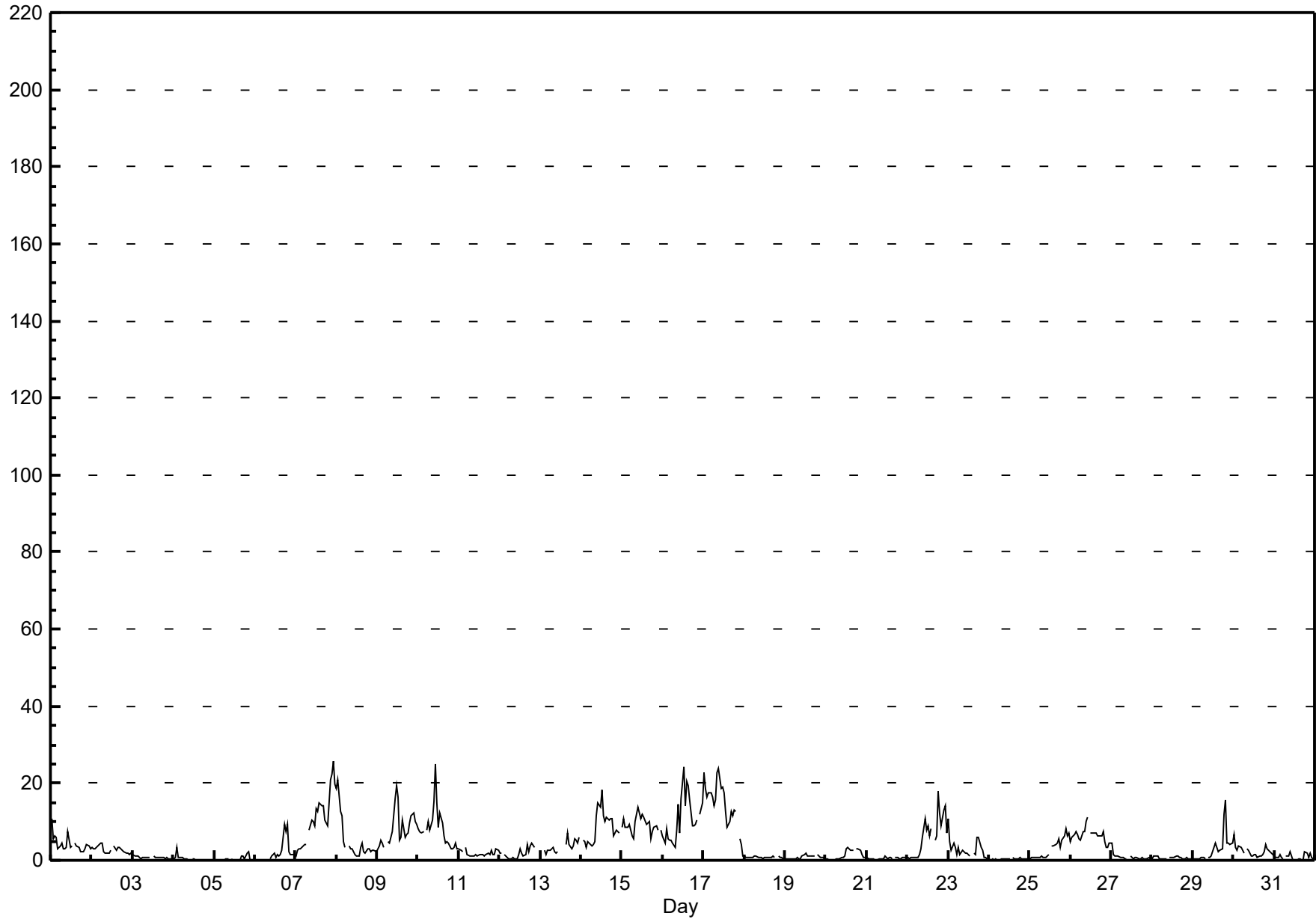
Nitrogen Oxide (NO) - ppb
Portable Rycroft - December 2016



Hourly Averages

Oxides of Nitrogen (NO_x) - ppb Portable Rycroft - December 2016

Maximum Value: 25.8 ppb on Dec 7 23:00		Maximum Daily Average: 14.5 ppb on Dec 17		Hours in Service: 744																							
Minimum Value: 0 ppb on Dec 4 15:00		Minimum Daily Average: 0.3 ppb on Dec 24		Hours of Data: 704																							
Maximum Diurnal Average: 5.4 ppb at hour 13		Minimum Diurnal Average: 2.5 ppb at hour 8		Hours of Missing Data: 40																							
Monthly Average: 3.96 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.3 Q ₁ = 0.6 Median = 2.0 Q ₃ = 5.5 P ₉₀ = 10.7 P ₉₉ = 21.9		Hours of Calibration: 35																							
				Percent Operational Time: 99.3																							
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	11	5	6	6	3	4	4	3	3	4	8	3	4	A	5	4	3	2	2	2	3	4	4	3	4.1	10.9	
2-Dec	3	3	3	4	4	4	4	2	2	2	2	3	A	4	3	3	3	3	3	2	2	2	1	2	2.8	4.5	
3-Dec	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	1	1	1	1	0	1	0	0	0	0.7	1.4	
4-Dec	0	1	3	1	1	1	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	3.4	
5-Dec	0	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	1	1	1	2	2	0	0	0	0.4	2.3	
6-Dec	0	0	0	0	0	0	0	0	A	1	1	2	1	2	1	2	3	9	7	9	2	1	1	1	1.9	9.4	
7-Dec	1	2	3	3	4	4	4	A	8	11	10	9	13	13	15	14	14	10	10	9	21	22	26	20	10.7	25.8	
8-Dec	19	21	13	12	5	4	A	4	3	3	2	1	1	1	3	4	2	2	3	3	2	3	3	2	5.1	20.9	
9-Dec	3	4	5	5	3	A	5	4	6	7	16	19	16	5	6	10	6	7	7	10	11	12	10	9	8.2	19.4	
10-Dec	8	7	7	7	A	8	10	8	11	15	25	15	9	12	10	6	4	5	5	3	3	4	5	3	8.2	24.8	
11-Dec	3	3	2	A	3	1	1	1	1	1	1	1	1	2	1	1	1	2	1	3	2	2	3	3	1.8	3.3	
12-Dec	2	2	A	1	1	0	0	1	1	0	0	2	3	2	1	2	4	2	4	5	3	P	P	P	1.8	4.6	
13-Dec	P	P	3	2	3	2	2	3	2	2	2	C	C	C	C	4	7	4	3	4	6	5	5	6	3.6	6.9	
14-Dec	A	5	5	3	5	4	4	4	5	12	15	14	18	12	10	11	10	11	11	6	7	8	7	A	8.5	18.1	
15-Dec	8	11	9	9	9	8	6	6	10	14	12	11	12	11	9	10	10	6	8	9	9	8	A	8	9.2	13.6	
16-Dec	6	4	8	6	5	5	5	3	8	15	7	16	24	14	20	20	16	9	9	9	10	A	12	15	10.8	24.1	
17-Dec	23	19	16	17	17	16	14	16	23	24	18	19	17	12	9	10	13	11	13	13	A	6	4	1	14.5	23.8	
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	1	1	1	0.8	1.2	
19-Dec	1	0	0	0	0	0	0	1	0	1	1	2	2	1	1	1	1	1	1	A	1	1	1	1	0.8	1.9	
20-Dec	0	0	0	0	0	0	0	0	1	1	1	1	3	3	3	3	3	A	3	3	3	2	1	1	1	1.3	3.4
21-Dec	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	A	1	1	0	0	1	1	1	0.5	1.1	
22-Dec	1	0	1	1	1	1	1	1	3	6	11	8	9	6	8	A	5	6	18	12	9	13	14	7	6.2	17.8	
23-Dec	11	5	3	4	3	2	3	2	3	2	2	2	2	1	A	2	1	6	6	3	3	1	1	0	2.9	10.8	
24-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	A	1	0	0	1	1	0	0	0	0	0	0.3	0.7	
25-Dec	0	1	1	1	1	1	1	1	1	1	1	1	A	4	4	4	5	6	3	5	6	8	6	7	3.0	8.1	
26-Dec	5	6	7	8	7	6	5	7	8	10	11	A	7	7	7	7	6	6	6	7	5	3	3	5	6.5	11.3	
27-Dec	4	2	1	1	1	1	1	1	0	0	A	1	1	1	1	1	0	0	1	0	0	0	1	1	0.8	4.3	
28-Dec	1	1	1	1	0	0	0	0	0	1	A	1	1	1	1	1	1	1	0	1	0	0	0	0	0.7	1.2	
29-Dec	0	0	0	0	1	1	1	0	A	1	1	1	3	4	3	2	3	3	12	16	4	5	4	4	3.0	15.7	
30-Dec	7	3	3	4	3	3	2	A	3	3	1	1	1	1	1	1	1	1	2	2	4	3	2	2	1	2.4	6.5
31-Dec	1	1	1	1	1	0	A	1	1	2	1	0	0	0	0	0	0	0	2	2	1	2	1	0	0.9	2.4	
		4.2	3.7	3.4	3.3	2.8	2.6	2.6	2.5	3.6	4.7	5.3	4.8	5.4	4.4	4.3	4.2	4.2	4.0	4.8	4.8	4.0	4.0	4.0	3.5	Diurnal Average	
		22.8	20.9	16.4	17.4	17.5	16.2	14.2	15.8	22.8	23.8	24.8	19.4	24.1	14.2	20.3	19.6	15.8	11.4	17.8	15.7	20.8	22.2	25.8	19.7	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			



Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb Portable Rycroft - December 2016

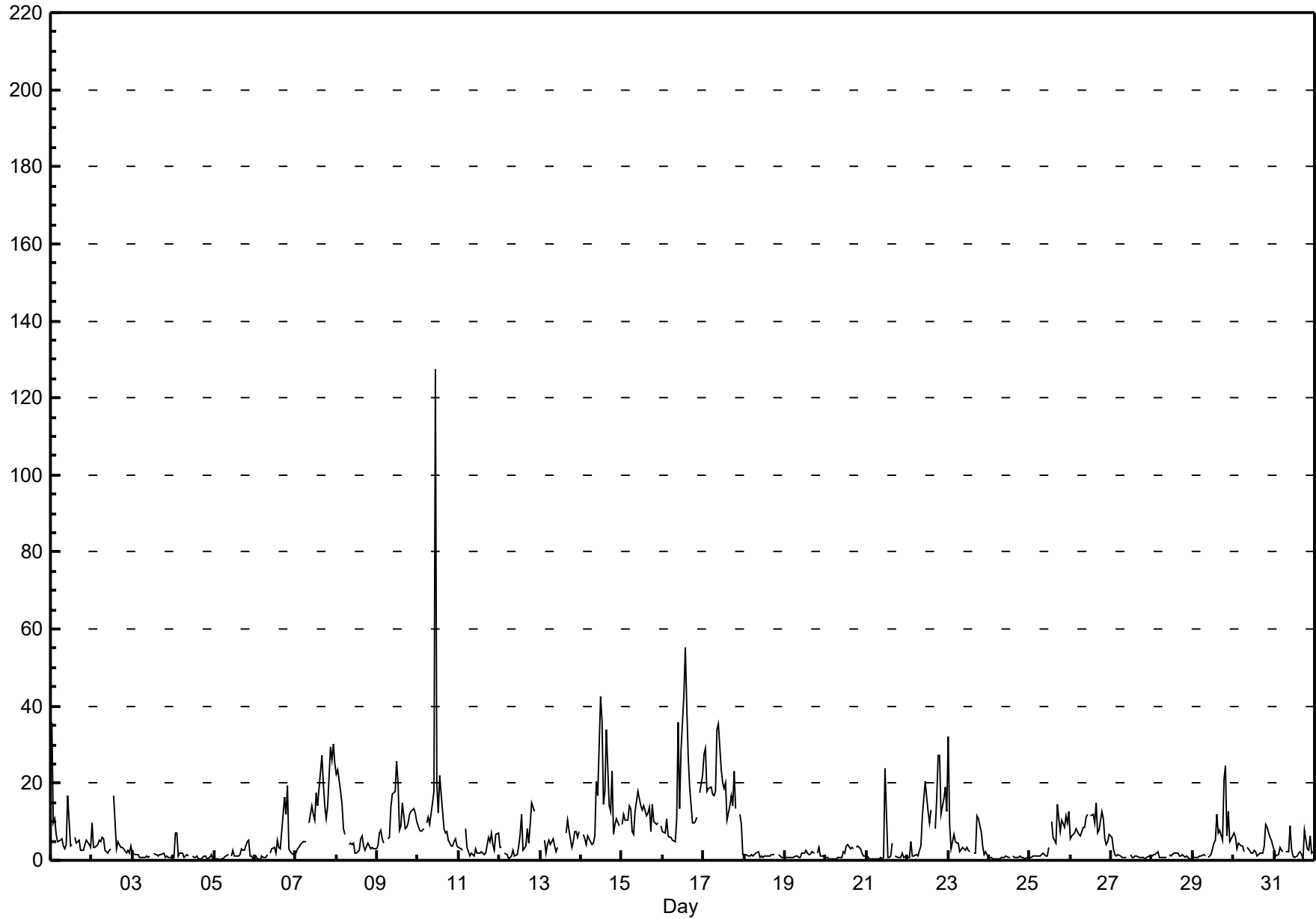
Maximum Value: 127.7 ppb on Dec 10 11:00	Maximum Daily Average: 18.8 ppb on Dec 17	Hours in Service: 744
Minimum Value: 0 ppb on Dec 5 04:00	Minimum Daily Average: 0.7 ppb on Dec 24	Hours of Data: 704
Maximum Diurnal Average: 10.8 ppb at hour 11	Minimum Diurnal Average: 3.4 ppb at hour 7	Hours of Missing Data: 40
Monthly Average: 6.23 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.7 Q ₁ = 1.1 Median = 3.2 Q ₃ = 8.4 P ₉₀ = 14.1 P ₉₉ = 35.7	Hours of Calibration: 35
		Percent Operational Time: 99.3

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	36	10	11	7	5	5	6	4	3	4	17	4	4	A	6	5	5	3	3	3	4	5	4	3	6.7	35.8	
2-Dec	10	3	3	4	5	5	6	6	3	2	2	3	A	17	3	5	4	3	3	3	2	2	2	4	4.4	16.8	
3-Dec	2	1	1	1	1	1	1	1	1	1	1	A	2	1	2	1	1	2	2	1	1	1	1	1	1.2	2.0	
4-Dec	1	7	7	1	2	2	1	1	2	1	A	1	1	1	1	1	0	1	1	1	0	1	2	0	1.5	7.0	
5-Dec	1	0	0	0	0	0	1	1	2	A	1	3	1	1	1	1	3	3	3	5	5	1	1	0	1.5	5.1	
6-Dec	1	0	0	0	1	1	1	2	A	2	3	4	2	5	3	3	7	17	12	19	3	2	2	2	4.0	19.3	
7-Dec	2	3	3	4	5	5	5	A	10	14	12	10	18	14	19	27	20	14	11	14	29	26	30	25	13.9	30.2	
8-Dec	22	23	18	14	8	7	A	4	4	4	4	2	2	2	5	6	4	3	4	4	3	3	3	3	6.7	23.4	
9-Dec	4	7	8	6	4	A	5	6	14	17	18	26	20	8	9	15	8	9	10	12	13	13	12	10	11.0	25.8	
10-Dec	9	8	7	8	A	10	11	9	15	18	128	20	12	22	13	8	7	8	5	4	4	5	6	4	14.8	127.7	
11-Dec	3	3	3	A	8	3	1	2	1	1	3	2	2	2	2	2	2	6	5	7	4	3	7	7	3.4	8.2	
12-Dec	3	3	A	2	2	1	1	1	2	1	2	4	7	12	2	4	8	4	9	15	13	P	P	P	4.8	15.1	
13-Dec	P	P	5	2	4	5	4	6	4	2	3	C	C	C	C	7	10	8	3	5	8	7	6	8	5.4	10.3	
14-Dec	A	7	6	4	6	5	4	5	7	20	17	43	36	15	18	34	14	13	23	7	9	11	9	A	14.2	42.6	
15-Dec	9	12	11	11	14	13	8	7	13	18	16	14	13	14	12	12	14	8	14	10	9	10	A	9	11.7	17.8	
16-Dec	7	7	11	6	6	6	5	5	11	36	13	29	43	55	40	27	19	10	10	10	11	A	18	22	17.7	55.2	
17-Dec	28	29	18	19	19	17	17	18	34	35	24	20	19	20	10	14	17	14	23	14	A	12	9	2	18.8	35.4	
18-Dec	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.2	2.2	
19-Dec	1	1	1	1	1	1	1	1	1	1	2	2	3	2	1	1	2	2	A	2	3	1	1	1	1.3	3.4	
20-Dec	1	1	0	0	0	0	1	1	1	1	2	2	4	4	3	3	3	A	3	4	3	2	1	1	1.8	4.1	
21-Dec	1	0	0	1	0	0	0	1	1	1	1	24	1	1	1	5	A	1	1	1	1	2	1	1	2.0	24.0	
22-Dec	1	1	5	1	1	2	1	3	4	12	21	16	13	10	13	A	8	16	27	27	12	16	19	13	10.5	27.3	
23-Dec	32	9	3	7	5	4	5	2	3	3	3	3	3	2	A	2	2	12	11	7	4	2	2	2	5.5	32.2	
24-Dec	1	1	0	0	0	0	0	1	1	1	1	1	1	A	1	1	1	1	1	1	1	1	1	1	0.7	1.2	
25-Dec	1	1	1	1	1	1	1	1	2	1	1	3	A	10	6	5	15	11	7	10	8	12	10	13	5.3	14.6	
26-Dec	6	6	7	8	7	7	6	9	9	11	12	A	12	12	10	15	7	8	13	11	6	4	5	7	8.5	15.1	
27-Dec	6	3	2	1	1	1	1	1	1	1	A	2	1	1	1	1	1	1	1	1	1	1	1	1	1.3	6.1	
28-Dec	1	2	2	2	1	1	1	1	1	1	A	1	2	2	2	2	2	1	1	2	1	1	1	1	1.2	2.2	
29-Dec	1	1	1	1	1	1	1	1	1	1	A	1	1	2	5	5	12	7	8	5	21	25	6	13	5.6	24.8	
30-Dec	7	6	3	4	4	4	2	A	3	3	2	2	2	2	1	2	2	2	2	4	9	9	6	5	4	3.8	9.2
31-Dec	3	1	1	4	3	2	A	2	2	9	3	1	1	1	2	2	1	0	8	3	2	6	2	2	2.7	9.0	
	6.9	5.3	4.7	4.0	3.9	3.7	3.4	3.5	5.3	7.7	10.8	8.6	8.1	8.7	6.9	7.3	6.5	6.1	8.0	7.8	5.9	5.8	5.6	5.2	Diurnal Average		
	35.8	29.2	18.0	18.7	19.2	17.1	16.8	18.0	34.1	35.9	127.7	42.6	43.0	55.2	40.0	33.8	19.7	16.6	27.3	27.2	29.5	26.1	30.2	24.8	Diurnal Maximum		

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

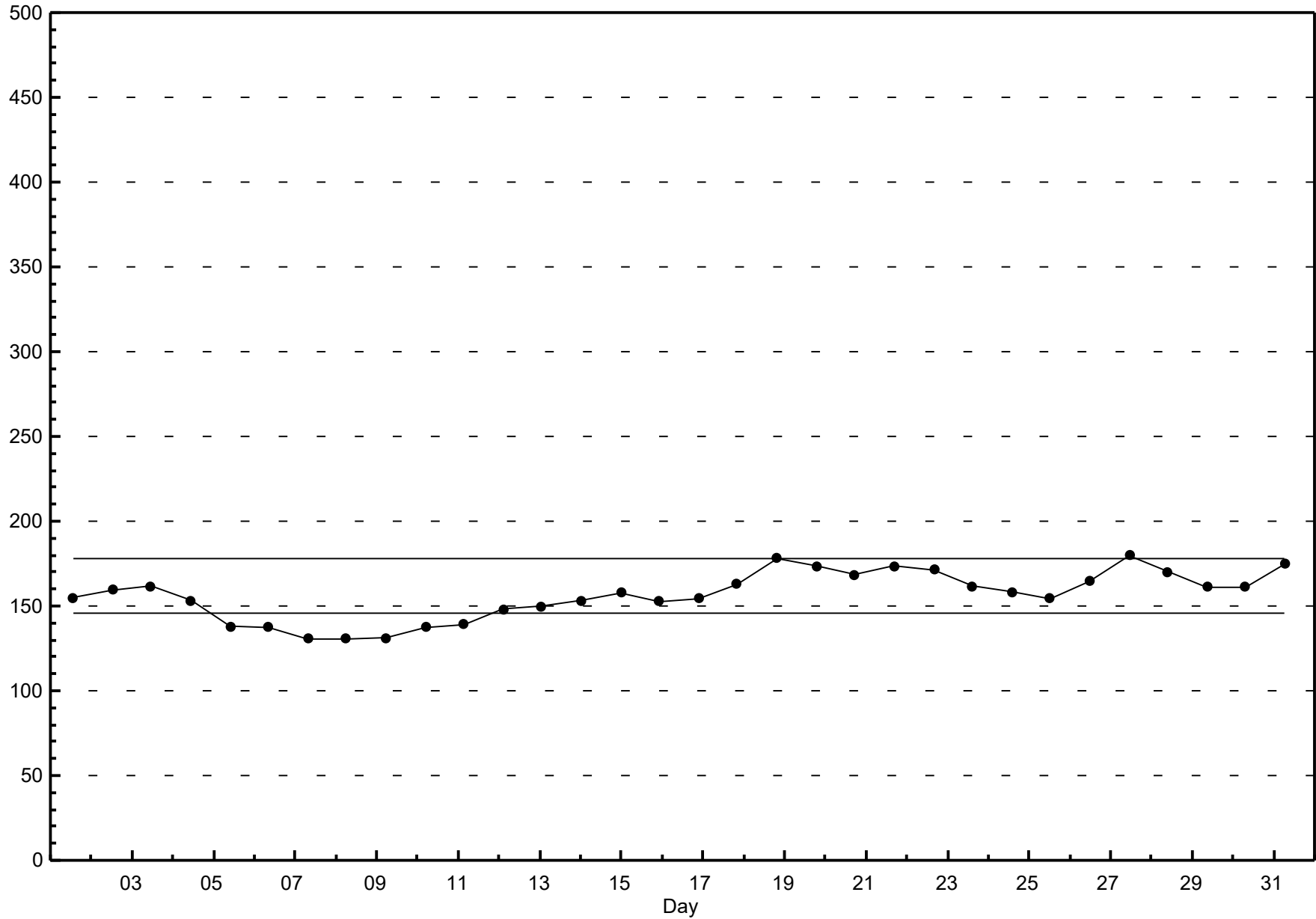
Hourly Maximums

Oxides of Nitrogen (NO_x) - ppb
Portable Rycroft - December 2016



Span Responses

Oxides of Nitrogen (NO_x)
Portable Rycroft - December 2016



Hourly Averages

Ozone (O₃) - ppb

Portable Rycroft - December 2016

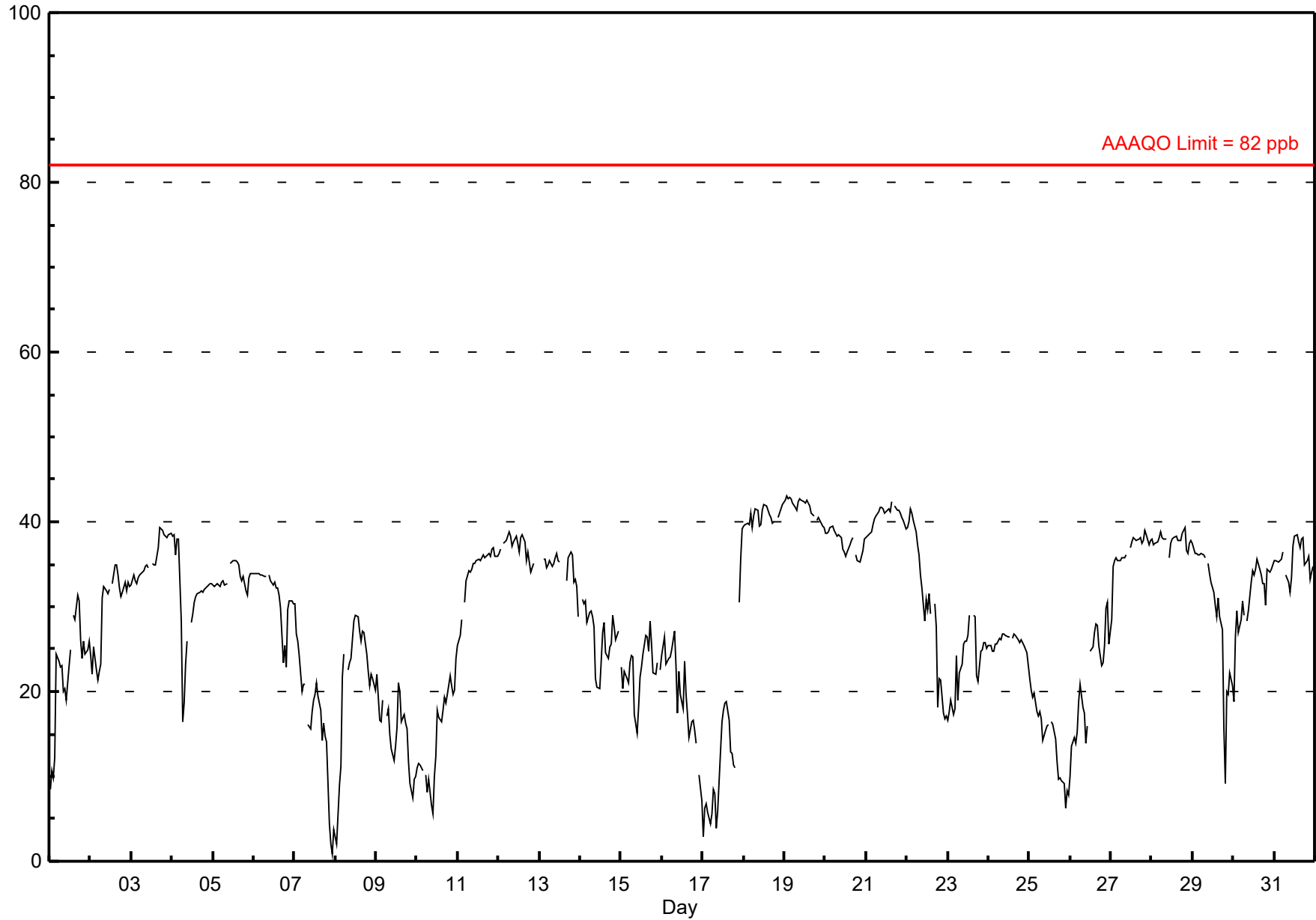
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 43.0 ppb on Dec 19 02:00	Maximum Daily Average: 41.7 ppb on Dec 19		Hours of Data:	705
Minimum Value: 1 ppb on Dec 7 23:00	Minimum Daily Average: 13.6 ppb on Dec 17		Hours of Missing Data:	39
Maximum Diurnal Average: 30.9 ppb at hour 14	Minimum Diurnal Average: 26.8 ppb at hour 1		Hours of Calibration:	34
Monthly Average: 28.52 ppb	Percentiles: P ₁ = 4.3 P ₁₀ = 15.1 Q ₁ = 21.9 Median = 30.7 Q ₃ = 36.1 P ₉₀ = 39.3 P ₉₉ = 42.5		Percent Operational Time:	99.3

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	9	11	10	12	24	24	23	23	20	20	19	23	25	A	29	29	31	31	26	24	26	24	25	26	22.3	31.4																						
2-Dec	24	22	25	22	21	22	23	31	32	32	32	32	A	33	35	35	34	32	31	32	33	32	33	32	29.6	35.0																						
3-Dec	33	34	33	33	33	34	34	34	35	35	35	A	35	35	35	36	37	39	39	39	38	38	39	39	35.6	39.3																						
4-Dec	38	38	36	38	38	28	17	19	23	26	A	28	29	30	31	32	32	32	32	32	33	33	33	30.8	38.4																							
5-Dec	33	32	33	33	32	33	33	33	33	A	35	35	35	35	35	35	34	33	34	32	31	33	34	34	33.5	35.5																						
6-Dec	34	34	34	34	34	34	34	34	A	34	33	33	33	32	32	31	30	23	25	23	30	31	31	30	31.4	34.0																						
7-Dec	30	27	26	24	20	21	21	A	16	16	18	19	20	21	20	18	14	16	15	14	4	2	1	4	16.8	30.3																						
8-Dec	3	2	9	11	22	24	A	23	23	24	26	28	29	29	27	26	27	27	24	22	21	22	22	20	21.4	29.1																						
9-Dec	22	19	17	16	19	A	17	18	15	13	12	13	16	21	20	16	17	16	16	12	9	7	10	10	15.3	22.0																						
10-Dec	11	12	11	11	A	10	8	10	7	6	10	12	18	17	16	18	19	19	20	22	21	20	20	24	14.8	23.9																						
11-Dec	25	27	28	A	30	33	34	34	34	35	35	35	36	35	36	36	36	36	36	36	37	37	36	36	34.1	36.9																						
12-Dec	36	37	A	37	38	38	39	38	37	38	38	38	37	38	38	38	35	36	35	34	35	P	P	P	37.1	38.8																						
13-Dec	P	P	36	36	35	35	35	35	35	36	36	35	35	C	C	C	33	36	36	36	33	33	32	29	34.6	36.4																						
14-Dec	A	31	30	31	28	29	30	29	28	22	20	20	24	27	28	25	24	25	26	29	28	26	27	A	26.6	30.8																						
15-Dec	23	20	22	22	21	23	24	24	17	15	18	22	23	24	27	26	25	28	26	22	22	23	A	23	22.7	28.3																						
16-Dec	24	26	23	24	24	24	25	27	23	17	22	20	18	24	20	17	15	16	17	15	14	A	10	7	19.7	27.2																						
17-Dec	3	6	7	6	4	6	8	8	4	6	13	17	18	19	19	17	13	13	11	11	A	30	36	39	13.6	39.1																						
18-Dec	39	40	40	40	41	39	41	42	41	39	40	41	42	42	41	41	41	40	40	A	41	41	42	42	40.6	42.1																						
19-Dec	43	43	43	43	43	42	42	41	42	43	43	42	42	43	42	42	41	41	A	40	41	40	39	39	41.7	43.0																						
20-Dec	39	39	39	39	39	39	39	38	38	38	37	36	36	36	37	38	38	A	36	35	35	36	37	38	37.5	39.5																						
21-Dec	38	38	39	39	40	40	41	41	42	42	42	41	41	42	41	42	A	42	41	41	41	41	40	39	40.6	42.4																						
22-Dec	39	40	42	41	40	39	37	36	34	32	28	31	30	32	29	A	30	28	18	22	21	17	17	17	30.4	41.5																						
23-Dec	17	18	19	17	18	24	19	22	23	26	26	26	27	29	A	29	29	22	21	25	25	26	26	25	23.4	29.0																						
24-Dec	25	25	25	25	26	26	26	26	27	27	27	26	26	A	26	27	27	26	26	26	26	25	25	23	25.8	26.9																						
25-Dec	22	20	19	20	18	17	18	17	14	15	16	16	A	16	16	14	12	10	10	9	9	6	8	8	14.4	21.6																						
26-Dec	10	13	15	14	15	19	21	18	17	14	16	A	25	25	27	28	28	25	23	23	25	30	31	26	21.2	30.5																						
27-Dec	29	35	35	36	36	35	36	36	36	36	A	37	38	38	38	38	38	38	38	38	39	38	37	38	36.6	39.0																						
28-Dec	38	37	37	38	38	39	38	38	38	A	36	37	38	38	38	38	38	38	39	39	37	36	38	38	37.8	39.4																						
29-Dec	37	36	36	36	36	36	36	36	A	35	34	33	32	30	29	31	29	27	16	9	20	20	22	21	29.4	37.4																						
30-Dec	19	26	29	27	28	31	29	A	28	30	33	34	34	34	36	34	34	34	33	33	30	34	34	35	31.3	35.6																						
31-Dec	35	35	35	35	36	36	A	34	33	32	33	37	38	38	38	37	38	38	35	35	36	33	34	35	35.6	38.4																						
																								26.8	27.5	27.8	27.9	29.2	29.4	28.5	29.1	27.5	27.0	28.0	29.3	30.3	30.9	30.6	30.1	29.2	28.9	27.4	27.0	28.1	28.2	28.1	27.9	Diurnal Average
																								42.6	43.0	42.7	42.8	42.6	42.1	41.7	41.6	42.3	42.7	42.5	42.3	42.2	42.6	42.2	42.4	41.0	41.8	41.4	41.3	41.0	41.0	41.6	42.1	Diurnal Maximum

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

Hourly Averages

Ozone (O₃) - ppb
Portable Rycroft - December 2016



Hourly Maximums

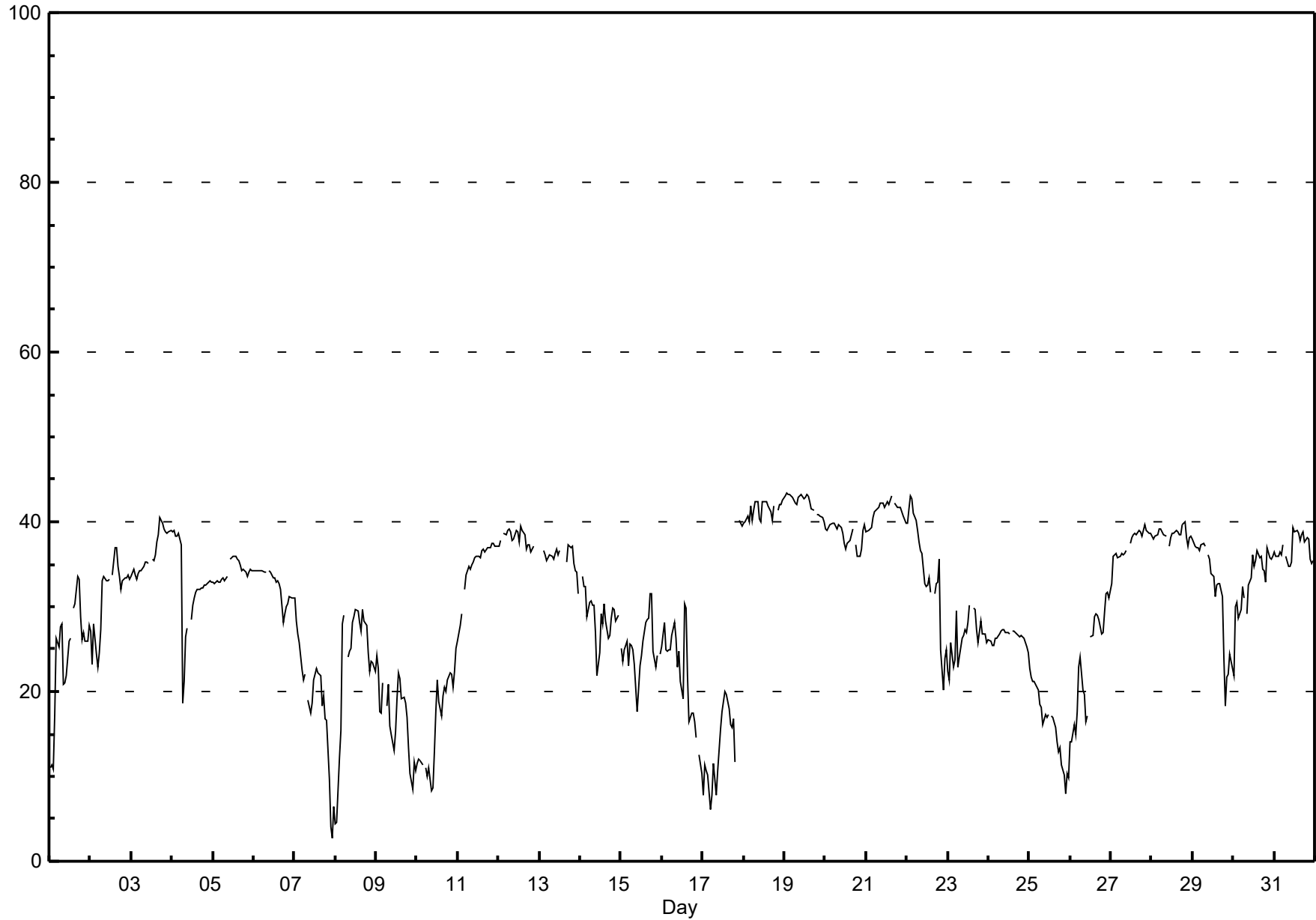
Ozone (O₃) - ppb

Portable Rycroft - December 2016

Maximum Value: 43.4 ppb on Dec 19 02:00		Maximum Daily Average: 42.3 ppb on Dec 19		Hours in Service: 744																							
Minimum Value: 3 ppb on Dec 7 23:00		Minimum Daily Average: 16.2 ppb on Dec 25		Hours of Data: 705																							
Maximum Diurnal Average: 32.1 ppb at hour 15		Minimum Diurnal Average: 28.4 ppb at hour 1		Hours of Missing Data: 39																							
Monthly Average: 30.13 ppb		Percentiles: P ₁ = 7.7 P ₁₀ = 17.1 Q ₁ = 24.5 Median = 32.6 Q ₃ = 37.3 P ₉₀ = 39.9 P ₉₉ = 43.1		Hours of Calibration: 34																							
				Percent Operational Time: 99.3																							
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	11	11	11	17	26	25	28	28	21	21	22	26	26	A	30	30	34	33	29	26	27	26	26	28	24.4	33.6	
2-Dec	27	23	28	24	23	25	27	33	33	33	33	33	A	34	37	37	35	34	32	33	33	33	34	33	31.2	37.0	
3-Dec	34	34	34	33	34	34	34	35	35	35	35	A	36	35	36	38	38	40	40	39	39	39	39	39	36.3	40.4	
4-Dec	39	39	38	38	39	37	19	21	26	27	A	29	30	31	32	32	32	32	32	33	33	33	33	33	32.1	39.0	
5-Dec	33	33	33	33	33	33	33	33	34	A	36	36	36	36	36	35	35	34	34	34	34	34	34	34	34.2	35.9	
6-Dec	34	34	34	34	34	34	34	34	A	34	34	33	33	33	33	33	32	28	29	30	30	31	31	31	32.6	34.3	
7-Dec	31	28	27	26	23	21	22	A	19	17	19	21	22	23	22	22	18	19	17	17	10	4	3	6	19.0	31.0	
8-Dec	4	5	12	15	28	29	A	24	25	25	28	29	30	30	28	27	30	28	28	25	22	24	23	22	23.5	29.6	
9-Dec	24	23	18	17	21	A	18	21	16	15	13	15	19	22	21	19	19	19	17	13	10	8	12	11	17.1	24.2	
10-Dec	12	12	12	11	A	11	10	11	8	9	13	18	21	19	17	19	21	20	21	22	22	20	22	25	16.4	25.1	
11-Dec	26	28	29	A	32	34	35	34	35	35	36	36	36	36	37	37	36	37	37	37	37	37	37	37	34.8	37.5	
12-Dec	37	38	A	39	38	39	39	39	38	38	39	39	38	39	39	38	37	37	37	37	37	P	P	P	38.1	39.4	
13-Dec	P	P	37	36	35	36	36	36	36	36	37	36	37	C	C	C	35	37	37	37	35	34	34	31	35.7	37.3	
14-Dec	A	34	32	32	29	31	31	30	30	27	22	25	29	28	30	28	26	27	29	30	30	28	29	A	28.9	33.5	
15-Dec	25	24	25	26	23	26	25	25	23	18	20	23	24	26	28	28	29	32	31	25	23	24	A	24	25.1	31.5	
16-Dec	25	28	25	25	25	25	27	28	26	23	25	21	19	30	30	22	16	18	17	16	15	A	13	10	22.1	30.4	
17-Dec	8	11	11	10	6	8	12	10	8	11	16	18	19	20	20	18	16	16	17	12	A	40	40	40	16.7	40.2	
18-Dec	40	40	41	40	42	40	41	42	42	40	40	42	42	42	42	42	41	40	42	A	41	42	42	43	41.3	42.6	
19-Dec	43	43	43	43	43	43	42	42	43	43	43	43	43	43	43	42	42	41	A	41	41	41	40	40	42.3	43.4	
20-Dec	39	39	39	40	40	40	40	39	40	39	39	38	37	37	38	39	39	A	37	36	36	37	39	40	38.5	39.9	
21-Dec	39	39	39	39	40	41	41	42	42	42	42	42	42	42	43	43	A	42	42	42	42	41	41	40	41.2	43.1	
22-Dec	40	41	43	43	41	40	39	38	37	36	33	32	33	33	32	A	31	33	33	36	25	20	24	25	34.2	43.1	
23-Dec	22	21	26	23	24	29	23	24	26	27	27	27	28	30	A	30	30	27	26	28	27	27	27	26	26.3	30.2	
24-Dec	26	26	25	25	26	26	27	27	27	27	27	27	27	A	27	27	27	27	26	27	26	26	25	25	26.4	27.3	
25-Dec	23	22	21	21	20	20	18	18	16	17	17	17	A	17	17	16	14	13	13	11	10	8	10	10	16.2	22.8	
26-Dec	14	14	16	15	18	23	24	20	20	16	17	A	26	27	29	29	29	29	27	27	29	32	32	31	23.6	31.8	
27-Dec	33	36	36	36	36	36	36	36	36	37	A	37	38	39	39	38	39	39	38	39	40	39	39	39	37.4	39.6	
28-Dec	38	38	38	38	39	39	39	38	38	A	37	38	39	39	39	39	38	38	40	40	38	37	38	38	38.5	39.9	
29-Dec	38	37	37	37	37	37	37	37	A	36	36	34	33	31	33	33	33	31	24	18	22	22	24	23	31.7	38.0	
30-Dec	22	30	30	29	30	32	31	A	29	32	33	36	35	36	37	36	36	34	34	33	37	36	36	36	33.0	37.0	
31-Dec	36	36	36	36	36	37	A	36	35	35	35	39	39	39	39	38	39	39	38	38	38	36	35	35	36.9	39.3	
		28.4	28.9	29.2	29.5	30.7	31.1	30.0	30.4	29.1	28.7	29.4	30.7	31.6	32.0	32.1	31.6	30.9	30.8	30.2	29.3	29.6	29.7	29.7	29.5	Diurnal Average	
		43.0	43.4	43.2	43.2	43.1	42.8	42.3	42.4	42.9	43.1	43.2	42.8	42.9	43.2	43.0	43.1	41.6	42.3	41.9	41.7	41.7	42.0	42.0	42.6	Diurnal Maximum	
C - Calibration		P - Power Failure						A - Automated Daily Zero Span																			

Hourly Maximums

Ozone (O₃) - ppb
Portable Rycroft - December 2016



Eight Hour Running Averages

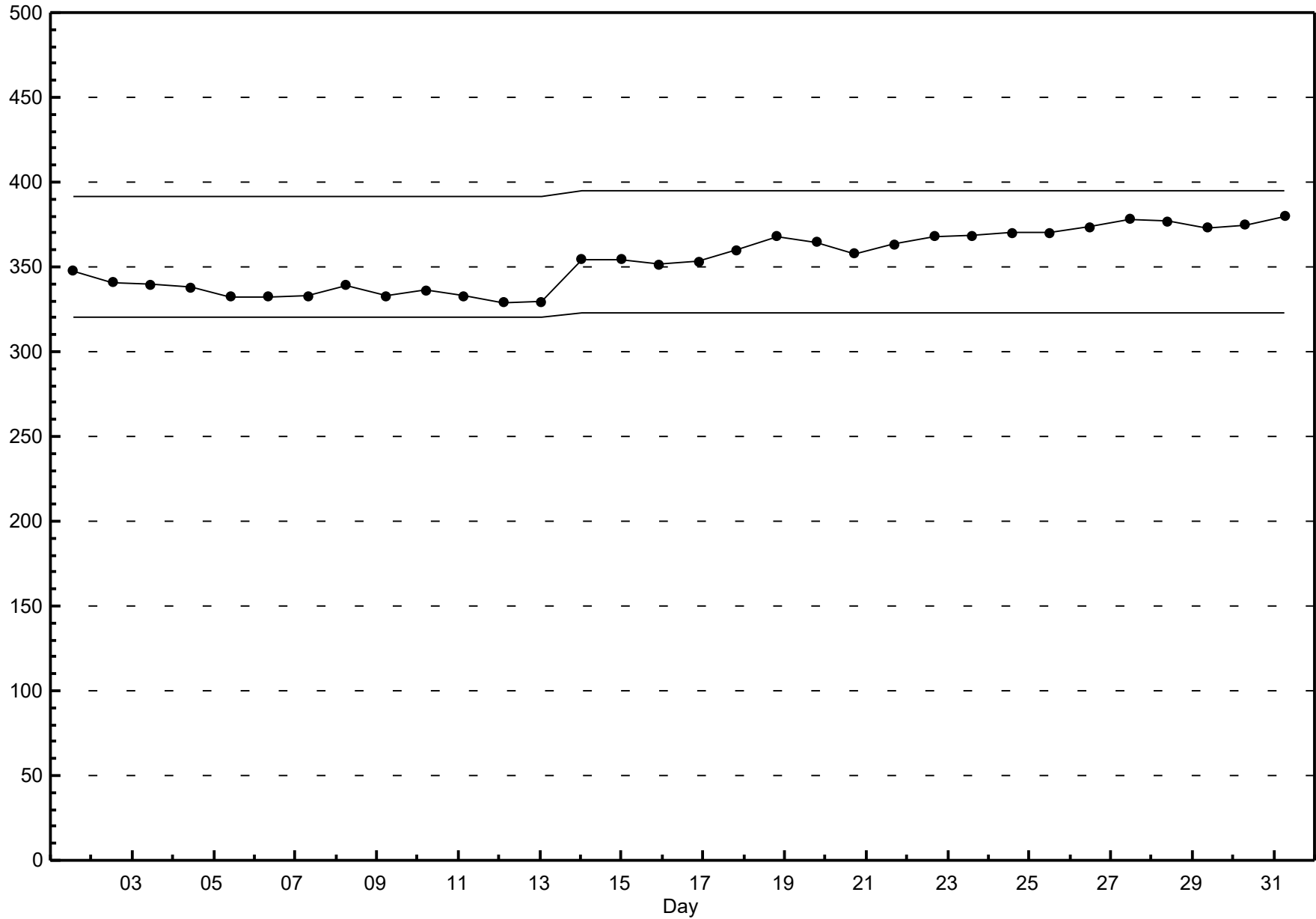
Ozone (O₃) - ppb

Portable Rycroft - December 2016

Maximum Value: 42.5 ppb on Dec 19 07:00																					Hours in Service:	744			
Minimum Value: 4.5 ppb on Dec 8 04:00																					Hours of Data:	730			
Percentiles: P ₁ = 6.1 P ₁₀ = 15.1 Q ₁ = 22.0 Median = 29.6 Q ₃ = 36.3 P ₉₀ = 39.2 P ₉₉ = 42.3																					Hours of Missing Data:	14			
																					Hours of Calibration:	6			
																					Percent Operational Time:	98.9			
Day	Hourly Period Ending At (MST)																								Daily Maximum
1-Dec	11	12	12	12	13	14	16	17	18	20	21	22	22	23	24	25	27	28	28	28	27	27	27	27.9	
2-Dec	26	25	25	24	24	24	23	24	25	26	27	28	29	31	32	33	33	33	33	33	33	33	32	33.1	
3-Dec	32	32	33	33	33	33	33	33	34	34	34	34	34	35	35	35	35	36	37	37	37	38	38	38.4	
4-Dec	39	38	38	38	38	37	34	32	30	28	27	26	24	25	27	29	30	31	31	31	32	32	32	38.6	
5-Dec	32	32	32	33	33	33	33	33	33	33	33	33	34	34	35	35	35	35	35	34	34	33	33	35.0	
6-Dec	33	33	33	34	34	34	34	34	34	34	34	33	33	33	33	32	31	30	29	28	28	28	28	33.9	
7-Dec	28	28	28	29	27	26	25	24	22	21	19	19	19	19	18	18	18	18	17	15	13	11	9	28.6	
8-Dec	7	6	5	5	7	9	11	13	16	19	22	24	25	26	26	27	27	27	27	25	25	24	23	27.5	
9-Dec	23	22	21	20	20	19	19	18	17	16	16	15	15	16	16	16	16	17	17	16	14	13	12	22.5	
10-Dec	11	11	10	10	10	11	10	10	10	9	9	9	10	11	12	13	15	16	17	19	19	20	20	20.5	
11-Dec	21	22	23	24	25	27	29	30	32	33	34	34	35	35	35	35	36	36	36	36	36	36	36	36.2	
12-Dec	36	36	36	37	37	37	37	38	38	38	38	38	38	38	38	37	37	37	36	36	36	36	N	38.0	
13-Dec	N	N	N	N	N	N	N	35	35	35	35	35	35	35	N	N	N	N	N	N	35	34	34	35.4	
14-Dec	34	33	32	31	31	30	30	30	29	28	27	26	25	25	25	24	24	24	25	26	26	26	26	33.6	
15-Dec	26	25	25	24	23	23	22	22	22	21	21	21	21	21	22	22	24	25	25	25	25	25	24	26.2	
16-Dec	24	24	23	24	24	24	24	25	25	23	23	23	22	22	21	20	19	19	18	18	17	16	15	24.7	
17-Dec	12	10	9	8	6	6	6	6	6	6	7	8	10	12	13	14	15	16	16	15	15	16	19	21.9	
18-Dec	26	30	34	38	38	39	40	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41.1	
19-Dec	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	40	42.5	
20-Dec	40	40	39	39	39	39	39	39	39	39	39	38	38	37	37	37	37	37	37	37	37	36	36	39.9	
21-Dec	36	37	37	37	38	39	39	39	40	40	41	41	41	41	42	42	42	42	42	42	41	41	41	41.6	
22-Dec	41	40	40	40	40	40	40	39	39	38	36	35	33	32	31	31	30	30	28	27	26	24	21	40.6	
23-Dec	20	18	18	18	17	18	19	19	20	21	22	23	24	25	25	26	27	27	26	26	26	25	25	27.3	
24-Dec	24	25	25	25	25	25	25	25	26	26	26	26	26	26	27	27	27	26	26	26	26	26	25	26.6	
25-Dec	25	24	23	23	21	20	20	19	18	17	17	16	16	16	16	15	14	13	13	12	11	10	9	24.8	
26-Dec	9	9	10	10	11	13	14	16	17	17	17	19	19	20	22	23	25	26	26	26	26	27	26	26.7	
27-Dec	26	28	29	31	32	33	33	35	36	36	36	36	36	37	37	37	37	38	38	38	38	38	38	38.1	
28-Dec	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38.2	
29-Dec	38	37	37	37	37	37	37	36	36	36	36	35	35	34	33	32	32	31	28	25	24	23	20	37.7	
30-Dec	19	19	21	23	24	25	26	27	28	29	30	31	32	33	33	34	34	34	33	34	33	33	33	33.9	
31-Dec	34	34	34	35	35	35	35	35	35	34	34	34	35	35	35	36	36	37	37	37	37	36	36	37.4	
Diurnal Maximums																									
N - Not Valid																									

Span Responses

Ozone (O₃)
Portable Rycroft - December 2016



Hourly Averages

Total Hydrocarbons (THC) - ppm
Portable Rycroft - December 2016

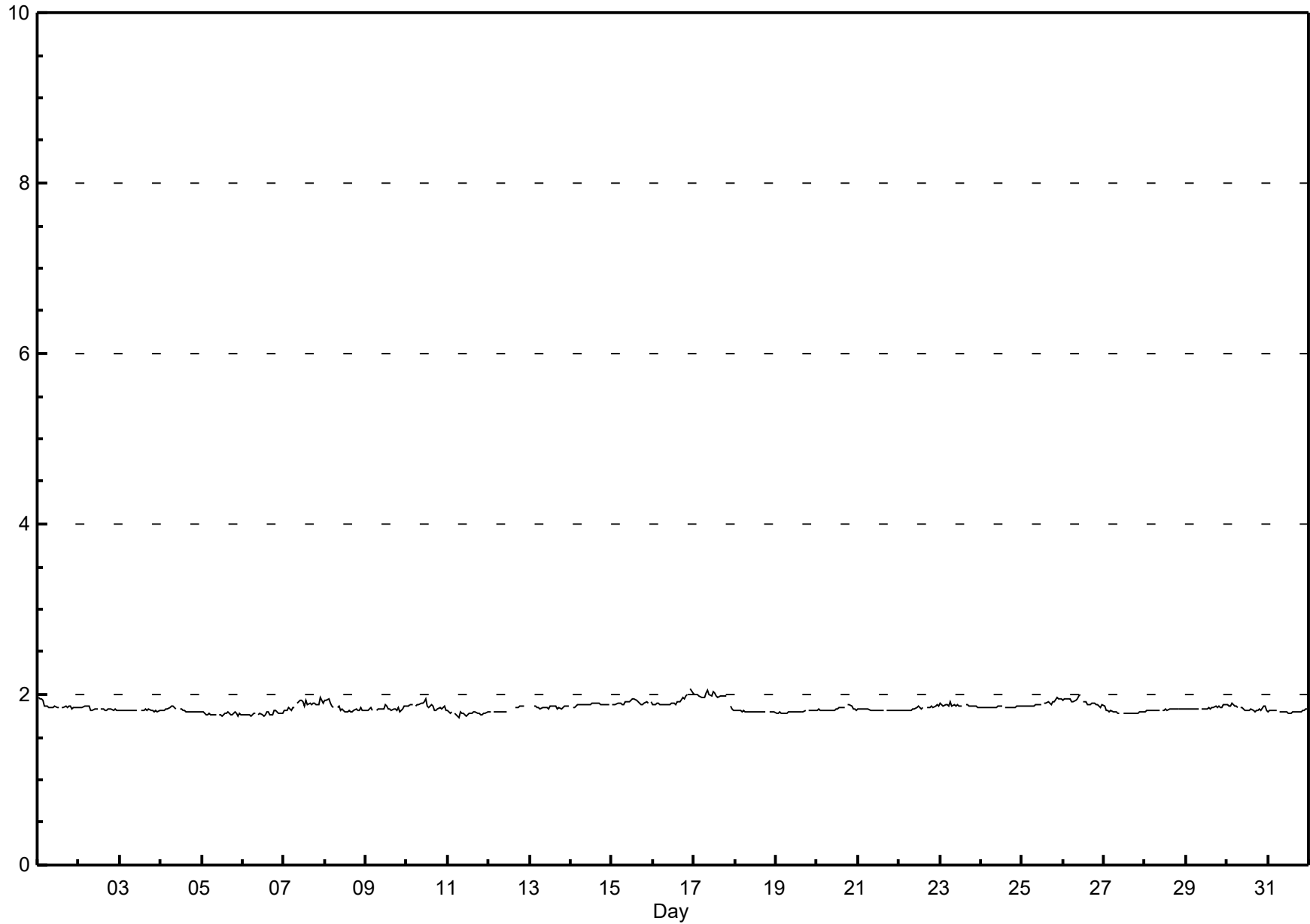
Maximum Value: 2.06 ppm on Dec 16 23:00	Maximum Daily Average: 1.97 ppm on Dec 17	Hours in Service: 744
Minimum Value: 1.7 ppm on Dec 11 07:00	Minimum Daily Average: 1.77 ppm on Dec 5	Hours of Data: 704
Maximum Diurnal Average: 1.85 ppm at hour 4	Minimum Diurnal Average: 1.84 ppm at hour 6	Hours of Missing Data: 40
Monthly Average: 1.843 ppm	Percentiles: P ₁ = 1.76 P ₁₀ = 1.79 Q ₁ = 1.81 Median = 1.83 Q ₃ = 1.87 P ₉₀ = 1.91 P ₉₉ = 2.00	Hours of Calibration: 34
		Percent Operational Time: 99.2

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	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.9	A	1.9	1.9	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.87	1.96																						
2-Dec	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.87																						
3-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.82																						
4-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.87																						
5-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.77	1.80																						
6-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.77	1.81																						
7-Dec	1.8	1.8	1.8	1.8	1.8	1.9	1.8	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.88	1.96																						
8-Dec	1.9	1.9	2.0	1.9	1.9	1.9	A	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.84	1.95																						
9-Dec	1.8	1.8	1.8	1.9	1.8	A	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.83	1.87																						
10-Dec	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.86	1.95																						
11-Dec	1.8	1.8	1.8	A	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.78	1.81																						
12-Dec	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	D	C	C	C	1.8	1.8	1.8	1.9	1.9	1.9	P	P	P	--	1.87																							
13-Dec	P	P	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.85	1.87																						
14-Dec	A	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.88	1.90																						
15-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.91	1.96																						
16-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	A	2.1	2.0	1.92	2.06																							
17-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	1.9	1.8	1.8	1.97	2.05																						
18-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.80	1.81																						
19-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.80	1.82																						
20-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.9	1.9	1.9	1.8	1.8	1.8	1.83	1.89																						
21-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.83																						
22-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	A	1.8	1.8	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.84	1.89																						
23-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.87	1.92																						
24-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.9	1.9	1.9	A	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.85	1.86																						
25-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.89	1.96																						
26-Dec	1.9	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.91	1.99																						
27-Dec	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.79	1.87																						
28-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.83																						
29-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.84	1.88																						
30-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.84	1.89																						
31-Dec	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.80	1.83																						
																								1.85	1.84	1.85	1.85	1.84	1.84	1.84	1.84	1.85	1.85	1.85	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.85	1.84	1.84	1.85	1.84	Diurnal Average	
																								1.99	1.99	2.00	1.98	1.97	1.96	1.96	2.02	2.05	2.00	1.99	2.03	2.02	1.99	1.96	1.98	1.99	1.98	1.99	1.99	2.01	1.96	2.06	2.03	Diurnal Maximum	

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

Hourly Averages

Total Hydrocarbons (THC) - ppm
Portable Rycroft - December 2016



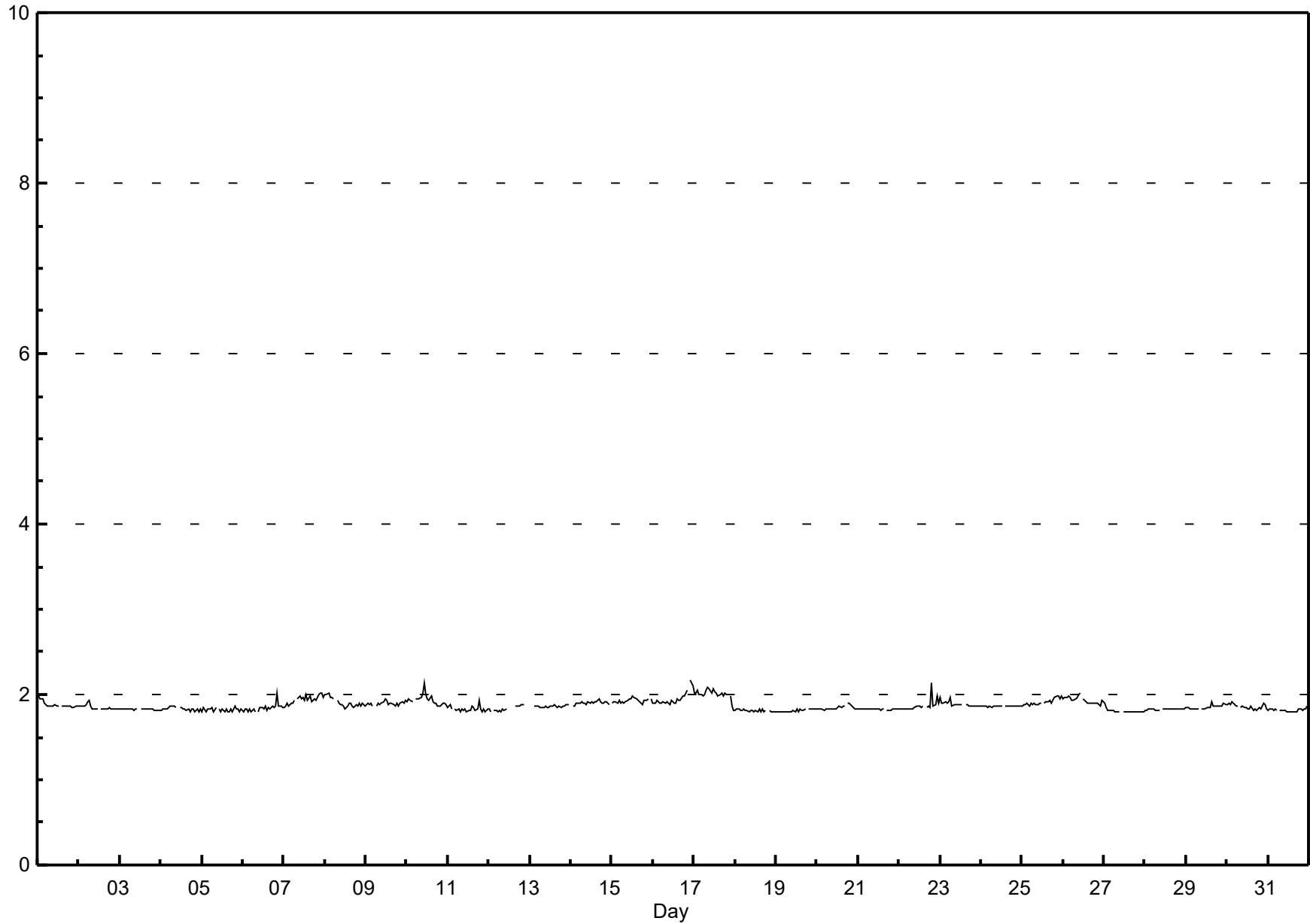
Hourly Maximums

Total Hydrocarbons (THC) - ppm Portable Rycroft - December 2016

Maximum Value: 2.18 ppm on Dec 16 23:00		Maximum Daily Average: 2.00 ppm on Dec 17		Hours in Service: 744																							
Minimum Value: 1.8 ppm on Dec 31 14:00		Minimum Daily Average: 1.80 ppm on Dec 27		Hours of Data: 704																							
Maximum Diurnal Average: 1.88 ppm at hour 20		Minimum Diurnal Average: 1.86 ppm at hour 8		Hours of Missing Data: 40																							
Monthly Average: 1.870 ppm		Percentiles: P ₁ = 1.79 P ₁₀ = 1.81 Q ₁ = 1.82 Median = 1.86 Q ₃ = 1.90 P ₉₀ = 1.95 P ₉₉ = 2.05		Hours of Calibration: 34																							
				Percent Operational Time: 99.2																							
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	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.88	1.98	
2-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.85	1.93	
3-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.83	
4-Dec	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.87	
5-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.82	1.86	
6-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.9	1.8	1.9	2.0	1.9	1.9	1.8	1.84	2.02	
7-Dec	1.8	1.9	1.9	1.9	1.9	1.9	1.9	A	2.0	2.0	2.0	2.0	1.9	2.0	1.9	2.0	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	1.94	2.02	
8-Dec	2.0	2.0	2.0	2.0	2.0	2.0	A	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.91	2.02	
9-Dec	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.90	1.94	
10-Dec	1.9	2.0	1.9	1.9	A	1.9	1.9	2.0	2.0	2.0	2.1	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.94	2.13	
11-Dec	1.8	1.9	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.83	1.93	
12-Dec	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	D	C	C	C	1.9	1.9	1.9	1.9	1.9	1.9	P	P	P	--	1.88	
13-Dec	P	P	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.86	1.88	
14-Dec	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.90	1.94	
15-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.93	1.98	
16-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	A	2.2	2.1	1.95	2.18	
17-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	1.9	1.8	2.00	2.09
18-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.81	1.83
19-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.81	1.84
20-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.9	1.9	A	1.9	1.9	1.9	1.9	1.8	1.8	1.84	1.89	
21-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.84	
22-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.9	A	1.8	1.9	1.8	2.1	1.9	1.9	2.0	1.87	2.14	
23-Dec	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.89	1.96	
24-Dec	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.86	1.87	
25-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.91	1.99	
26-Dec	1.9	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	A	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.93	2.01	
27-Dec	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.80	1.89	
28-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.84	
29-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.85	1.92	
30-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.86	1.92	
31-Dec	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.82	1.86	
1.87		1.87	1.87	1.87	1.86	1.86	1.87	1.86	1.87	1.87	1.88	1.87	1.87	1.86	1.87	1.87	1.86	1.86	1.87	1.88	1.87	1.87	1.87	1.87	1.87	Diurnal Average	
2.02		2.01	2.05	2.00	2.00	1.99	2.00	2.06	2.09	2.07	2.13	2.06	2.04	2.02	1.98	2.00	2.02	1.99	2.02	2.14	2.06	2.02	2.18	2.11	Diurnal Maximum		
C - Calibration				P - Power Failure				D - DAS Failure				A - Automated Daily Zero Span															

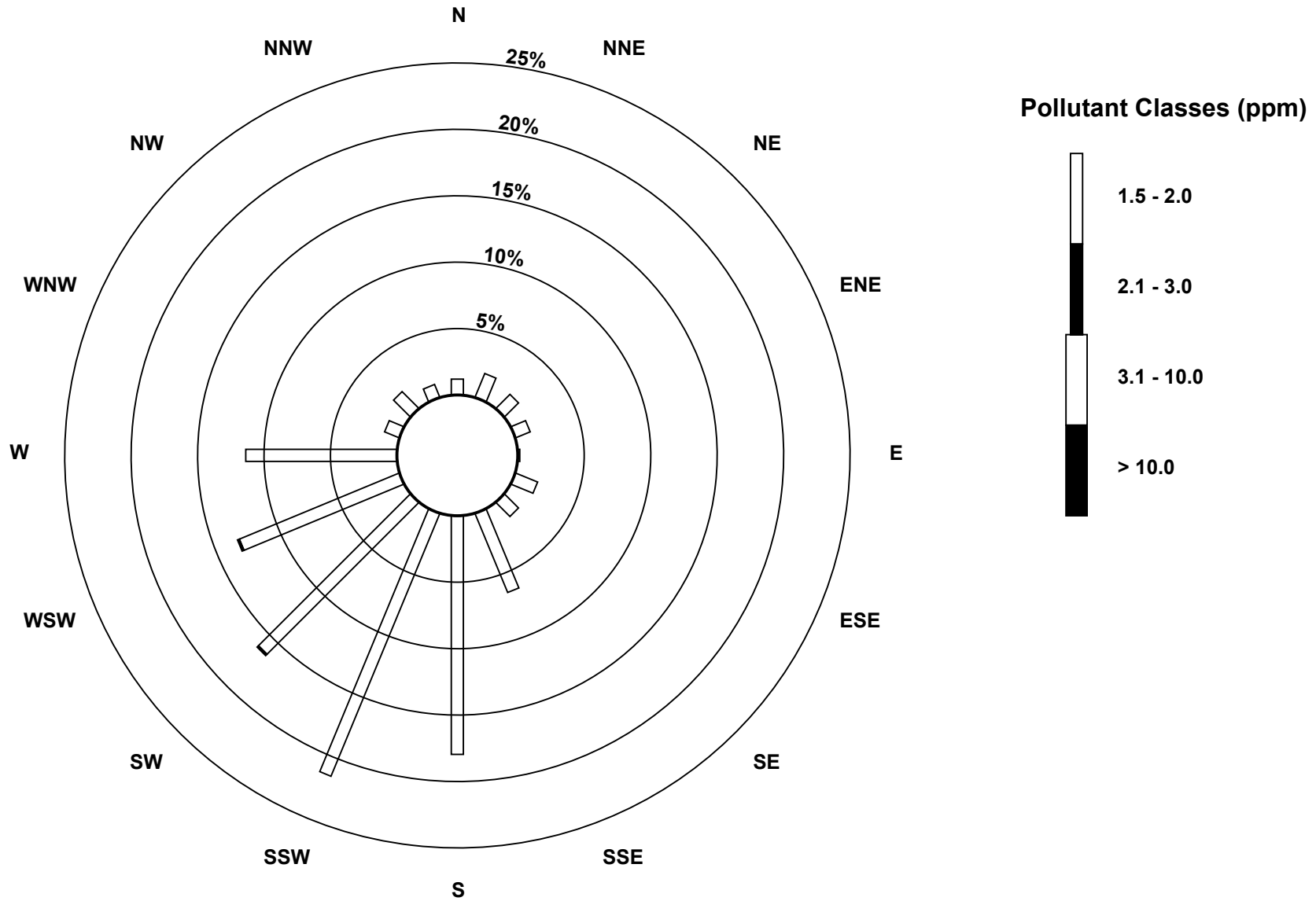
Hourly Maximums

**Total Hydrocarbons (THC) - ppm
Portable Rycroft - December 2016**



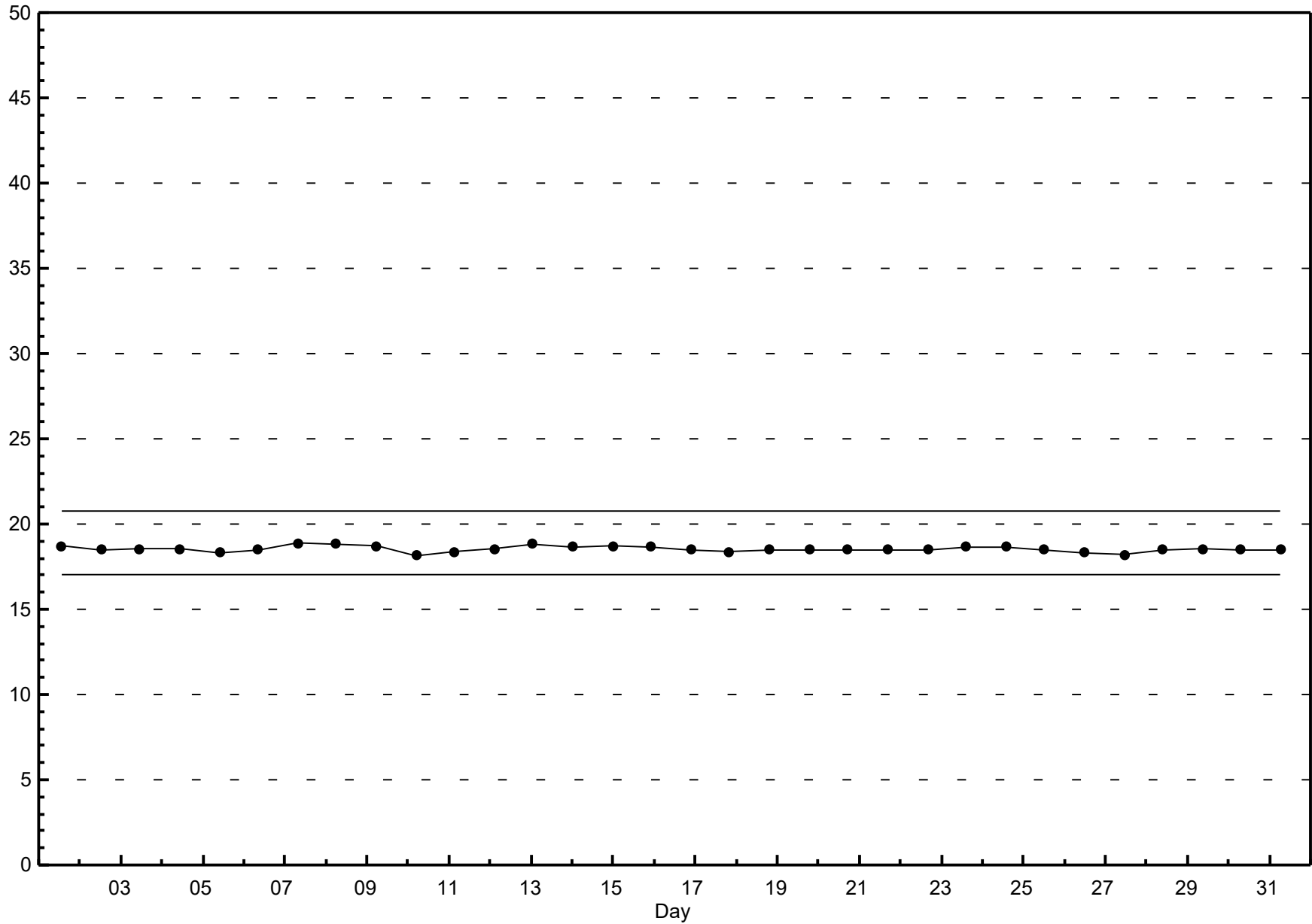
Pollutant Rose

Total Hydrocarbons (THC) - ppm
Portable Rycroft - December 2016



Span Responses

**Total Hydrocarbons (THC)
Portable Rycroft - December 2016**



Hourly Averages

Methane (CH₄) - ppm

Portable Rycroft - December 2016

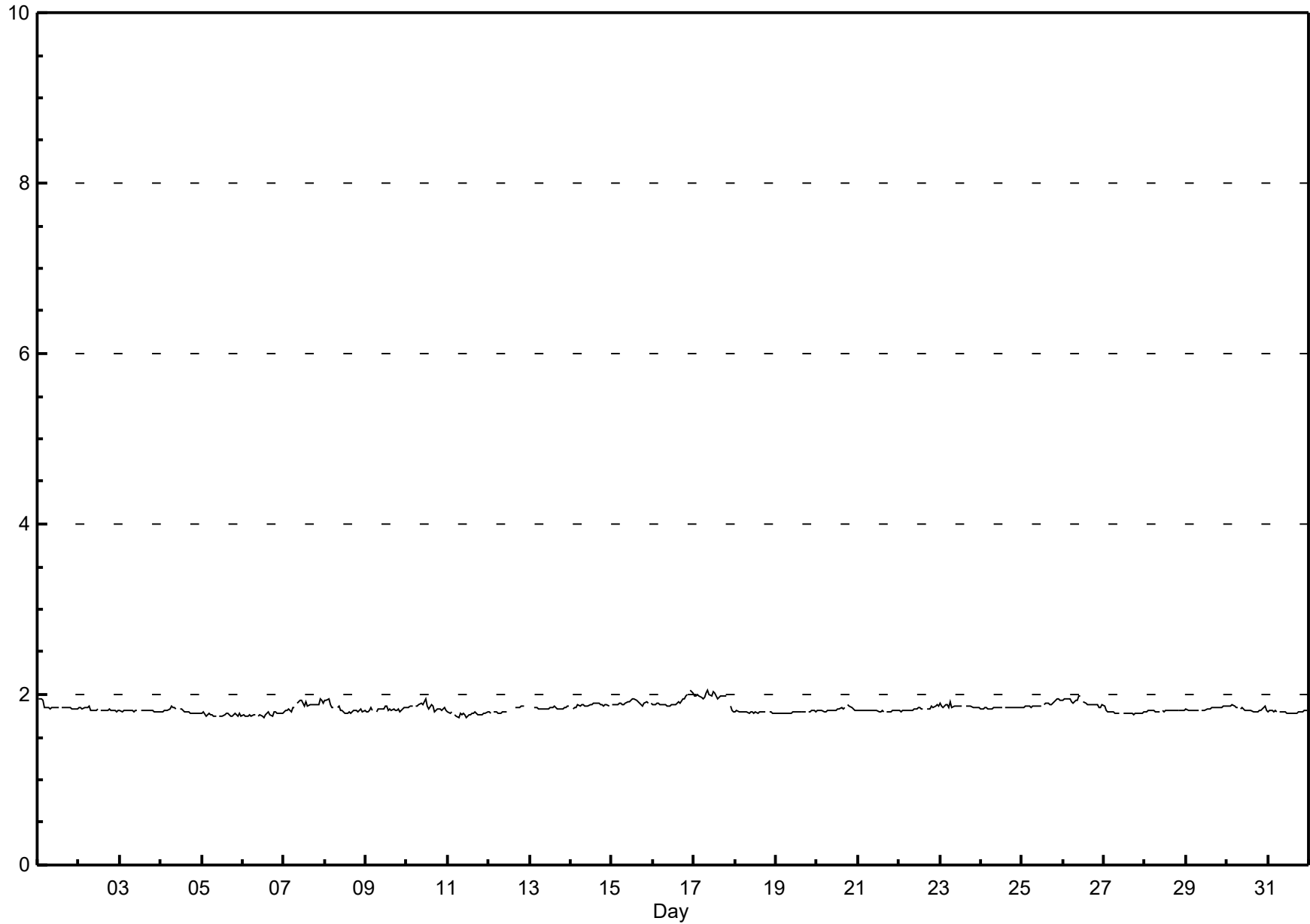
Maximum Value: 2.06 ppm on Dec 16 23:00	Maximum Daily Average: 1.97 ppm on Dec 17	Hours in Service: 744
Minimum Value: 1.7 ppm on Dec 11 07:00	Minimum Daily Average: 1.76 ppm on Dec 5	Hours of Data: 704
Maximum Diurnal Average: 1.84 ppm at hour 4	Minimum Diurnal Average: 1.83 ppm at hour 6	Hours of Missing Data: 40
Monthly Average: 1.836 ppm	Percentiles: P ₁ = 1.75 P ₁₀ = 1.78 Q ₁ = 1.80 Median = 1.82 Q ₃ = 1.86 P ₉₀ = 1.90 P ₉₉ = 2.00	Hours of Calibration: 34
		Percent Operational Time: 99.2

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	2.0	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.8	A	1.8	1.8	1.9	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.86	1.95																						
2-Dec	1.8	1.8	1.8	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.86																						
3-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.81																						
4-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.86																						
5-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.7	1.76	1.79																							
6-Dec	1.8	1.7	1.7	1.8	1.8	1.7	1.8	1.8	A	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.77	1.80																							
7-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.88	1.95																							
8-Dec	1.9	1.9	1.9	1.9	1.9	1.8	A	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.95																							
9-Dec	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.83	1.87																							
10-Dec	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.86	1.95																							
11-Dec	1.8	1.8	1.8	A	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.77	1.80																							
12-Dec	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	D	C	C	C	1.8	1.8	1.8	1.9	1.9	1.9	P	P	P	--	1.86																							
13-Dec	P	P	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.84	1.86																							
14-Dec	A	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.87	1.89																							
15-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.90	1.95																							
16-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	A	2.1	2.0	1.91	2.06																							
17-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	1.9	1.8	1.8	1.97	2.05																						
18-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.79	1.81																						
19-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.79	1.81																						
20-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.9	1.9	1.9	1.8	1.8	1.8	1.82	1.88																							
21-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.82																							
22-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	A	1.8	1.8	1.8	1.9	1.8	1.9	1.9	1.9	1.83	1.88																							
23-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.8	1.8	1.86	1.91																							
24-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.84	1.85																							
25-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.89	1.95																							
26-Dec	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.91	1.99																							
27-Dec	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.79	1.86																							
28-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.82																							
29-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.9	1.83	1.87																							
30-Dec	1.9	1.9	1.9	1.9	1.9	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.83	1.89																							
31-Dec	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.80	1.82																							
																								1.84	1.84	1.84	1.84	1.83	1.83	1.83	1.83	1.84	1.84	1.84	1.84	1.84	1.83	1.84	1.84	1.83	1.83	1.84	1.84	1.83	1.83	1.84	1.83	Diurnal Average	
																								1.99	1.99	1.99	1.97	1.96	1.96	1.96	2.01	2.05	2.00	1.99	2.03	2.02	1.98	1.95	1.98	1.99	1.98	1.99	1.98	2.00	1.95	2.06	2.02	Diurnal Maximum	

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

Hourly Averages

Methane (CH₄) - ppm
Portable Rycroft - December 2016



Hourly Maximums

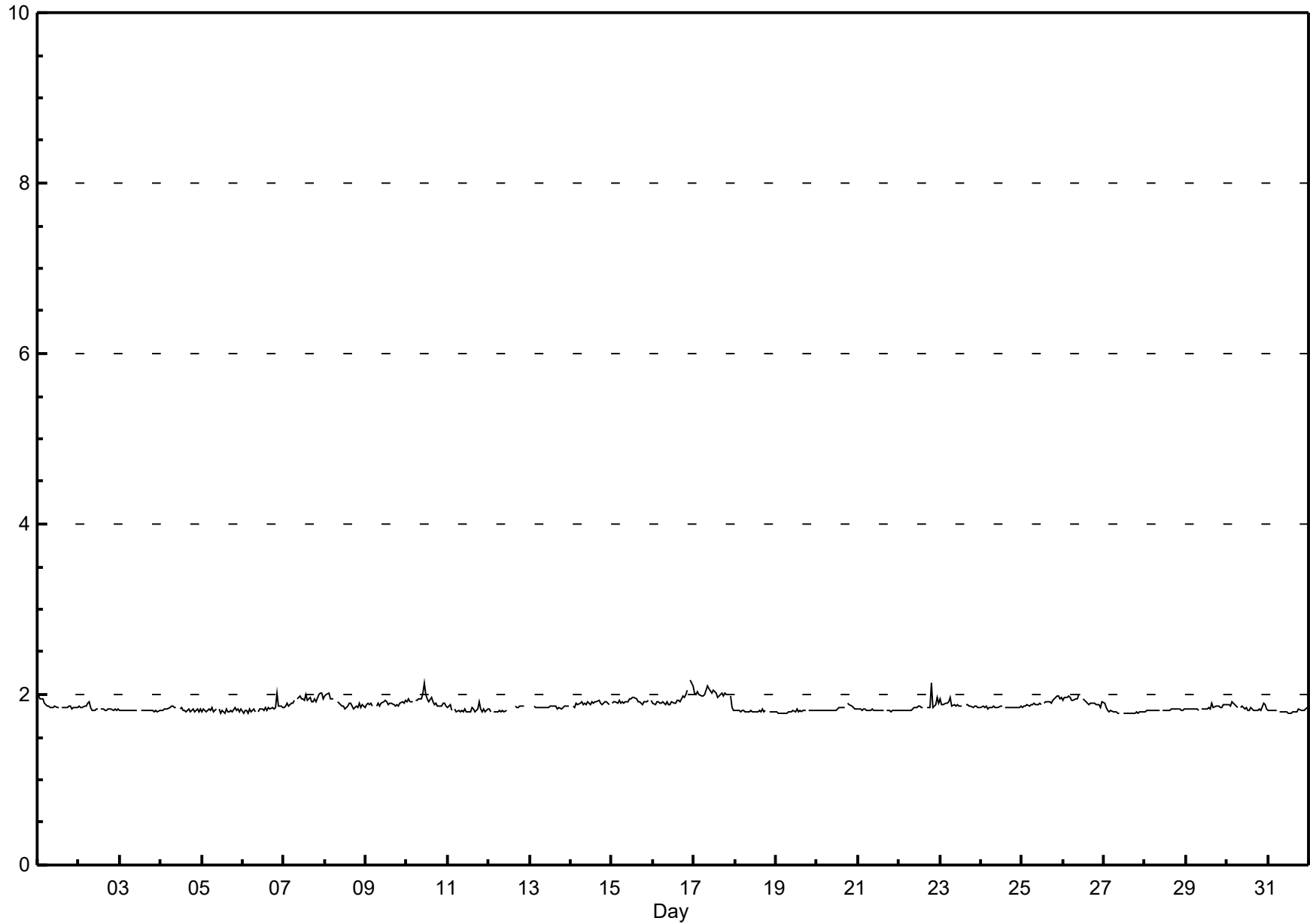
Methane (CH₄) - ppm

Portable Rycroft - December 2016

Maximum Value: 2.16 ppm on Dec 16 23:00		Maximum Daily Average: 2.00 ppm on Dec 17		Hours in Service: 744																																												
Minimum Value: 1.8 ppm on Dec 27 13:00		Minimum Daily Average: 1.80 ppm on Dec 27		Hours of Data: 704																																												
Maximum Diurnal Average: 1.87 ppm at hour 20		Minimum Diurnal Average: 1.85 ppm at hour 8		Hours of Missing Data: 40																																												
Monthly Average: 1.863 ppm		Percentiles: P ₁ = 1.78 P ₁₀ = 1.80 Q ₁ = 1.82 Median = 1.85 Q ₃ = 1.90 P ₉₀ = 1.95 P ₉₉ = 2.06		Hours of Calibration: 34																																												
				Percent Operational Time: 99.2																																												
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	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.8	1.8	A	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.8	1.87	1.98																						
2-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.84	1.92																						
3-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.82																						
4-Dec	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.83	1.87																						
5-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.85																						
6-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.9	2.0	1.9	1.9	1.8	1.83	2.02																						
7-Dec	1.8	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	2.0	1.9	2.0	1.9	2.0	1.9	2.0	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	1.94	2.02																						
8-Dec	2.0	2.0	2.0	2.0	2.0	2.0	A	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.90	2.02																						
9-Dec	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.89	1.94																						
10-Dec	1.9	1.9	1.9	1.9	A	1.9	1.9	2.0	2.0	2.0	2.1	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.93	2.13																						
11-Dec	1.8	1.9	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.82	1.92																							
12-Dec	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	D	C	C	C	1.9	1.9	1.8	1.9	1.9	1.9	P	P	P	--	1.87																						
13-Dec	P	P	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.86	1.87																						
14-Dec	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.90	1.93																						
15-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.92	1.97																						
16-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	A	2.2	2.1	1.94	2.16																						
17-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	A	2.0	1.8	2.00	2.09																						
18-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.81	1.83																						
19-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.80	1.83																						
20-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	A	1.9	1.9	1.9	1.9	1.8	1.8	1.83	1.89																						
21-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.83																						
22-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.9	A	1.8	1.8	1.8	2.1	1.9	1.9	2.0	1.9	1.86	2.14																						
23-Dec	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.88	1.96																						
24-Dec	1.8	1.9	1.8	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.85	1.87																						
25-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	A	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.91	1.99																						
26-Dec	1.9	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	A	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.93	2.01																						
27-Dec	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.80	1.89																						
28-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.82	1.83																						
29-Dec	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.84	1.90																						
30-Dec	1.9	1.9	1.9	1.9	1.9	1.9	1.8	A	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.85	1.91																						
31-Dec	1.8	1.8	1.8	1.8	1.8	1.8	A	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.81	1.85																						
																								1.86	1.87	1.86	1.86	1.86	1.86	1.86	1.85	1.86	1.86	1.87	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.87	1.87	1.87	1.87	1.86	Diurnal Average
																								2.02	2.00	2.04	1.99	1.99	1.98	1.99	2.06	2.09	2.06	2.13	2.05	2.03	2.02	1.97	2.00	2.02	1.99	2.02	2.14	2.05	2.02	2.16	2.11	Diurnal Maximum
C - Calibration																								P - Power Failure				D - DAS Failure				A - Automated Daily Zero Span																

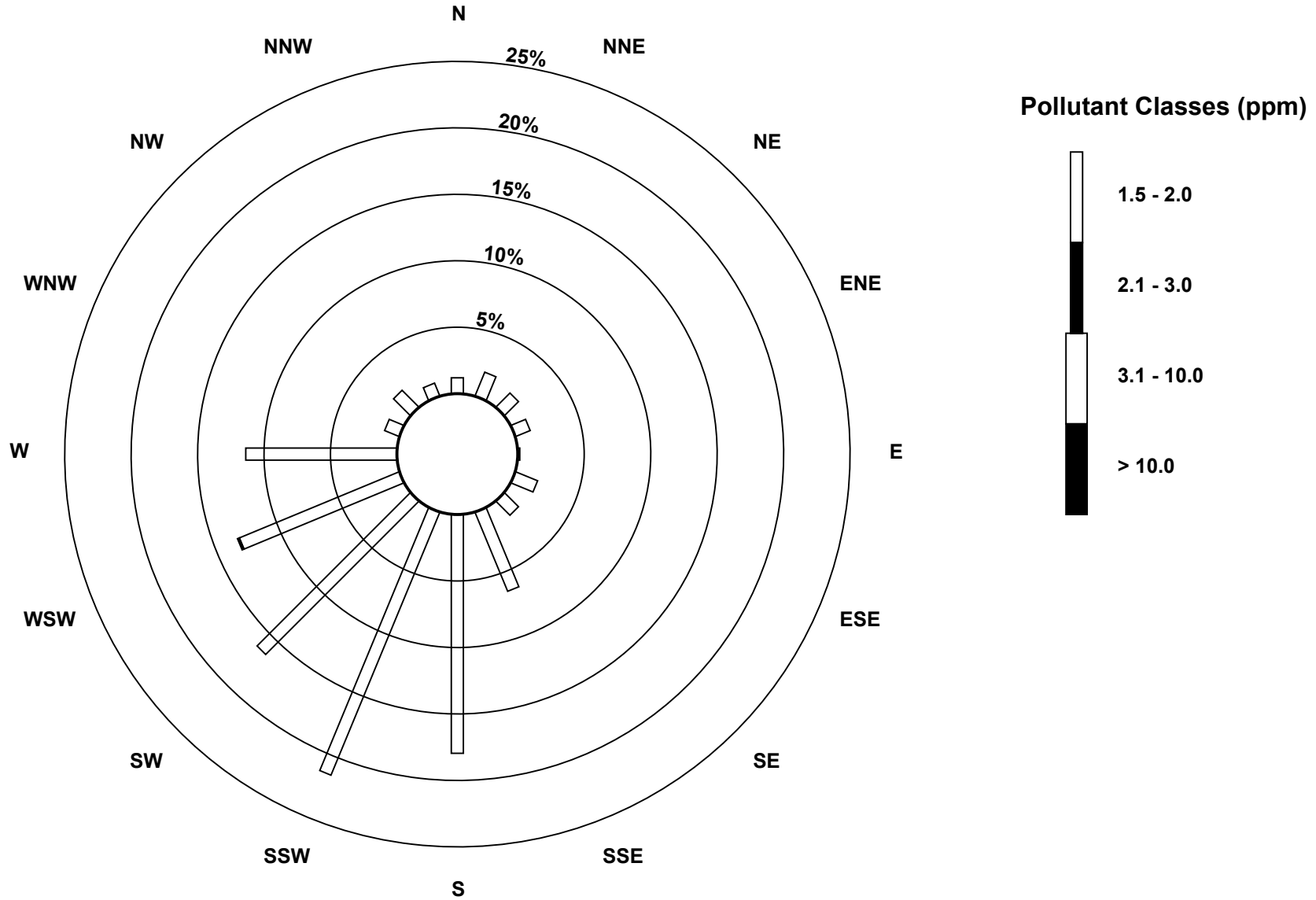
Hourly Maximums

Methane (CH₄) - ppm
Portable Rycroft - December 2016



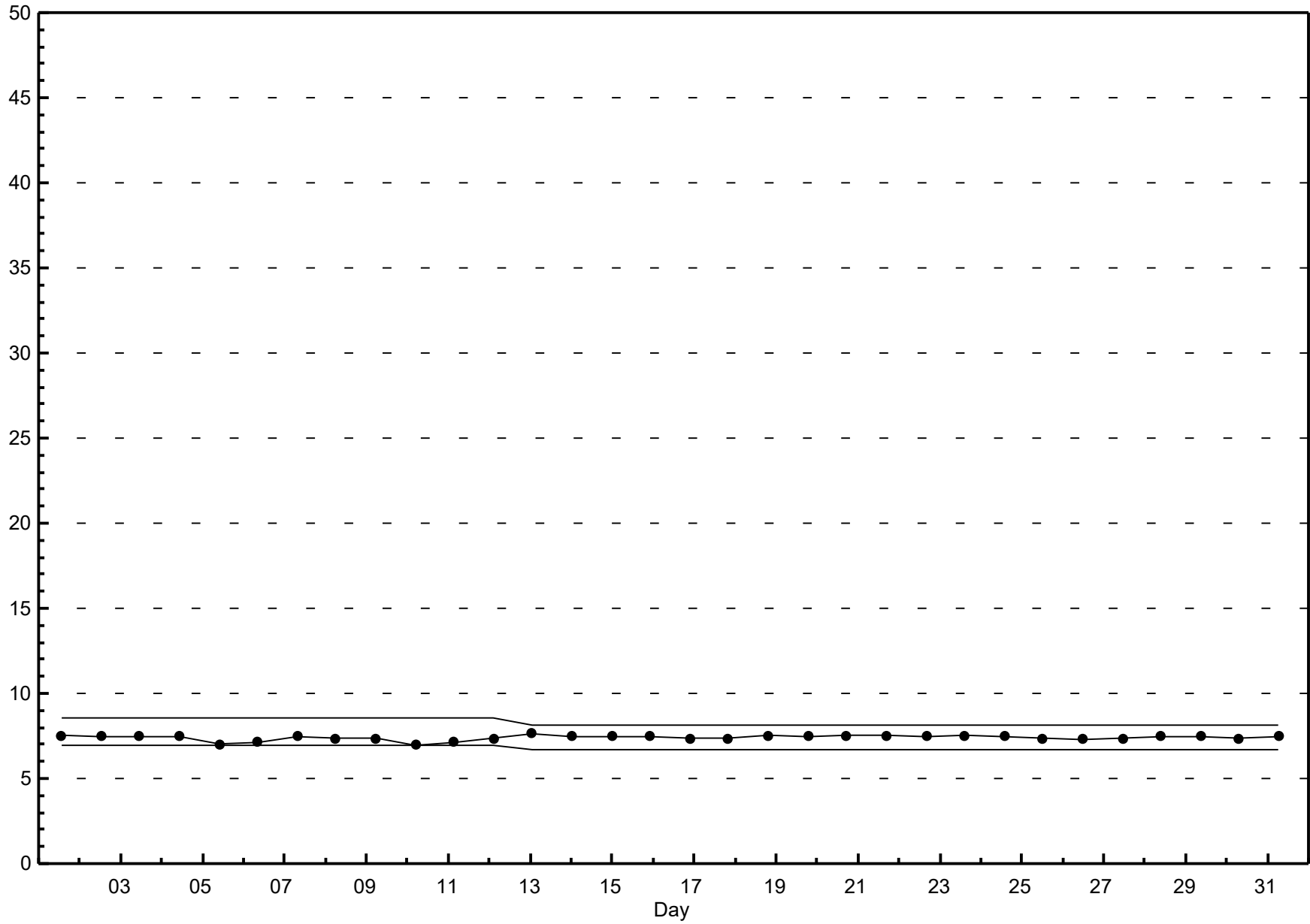
Pollutant Rose

Methane (CH₄) - ppm
Portable Rycroft - December 2016



Span Responses

Methane (CH₄)
Portable Rycroft - December 2016

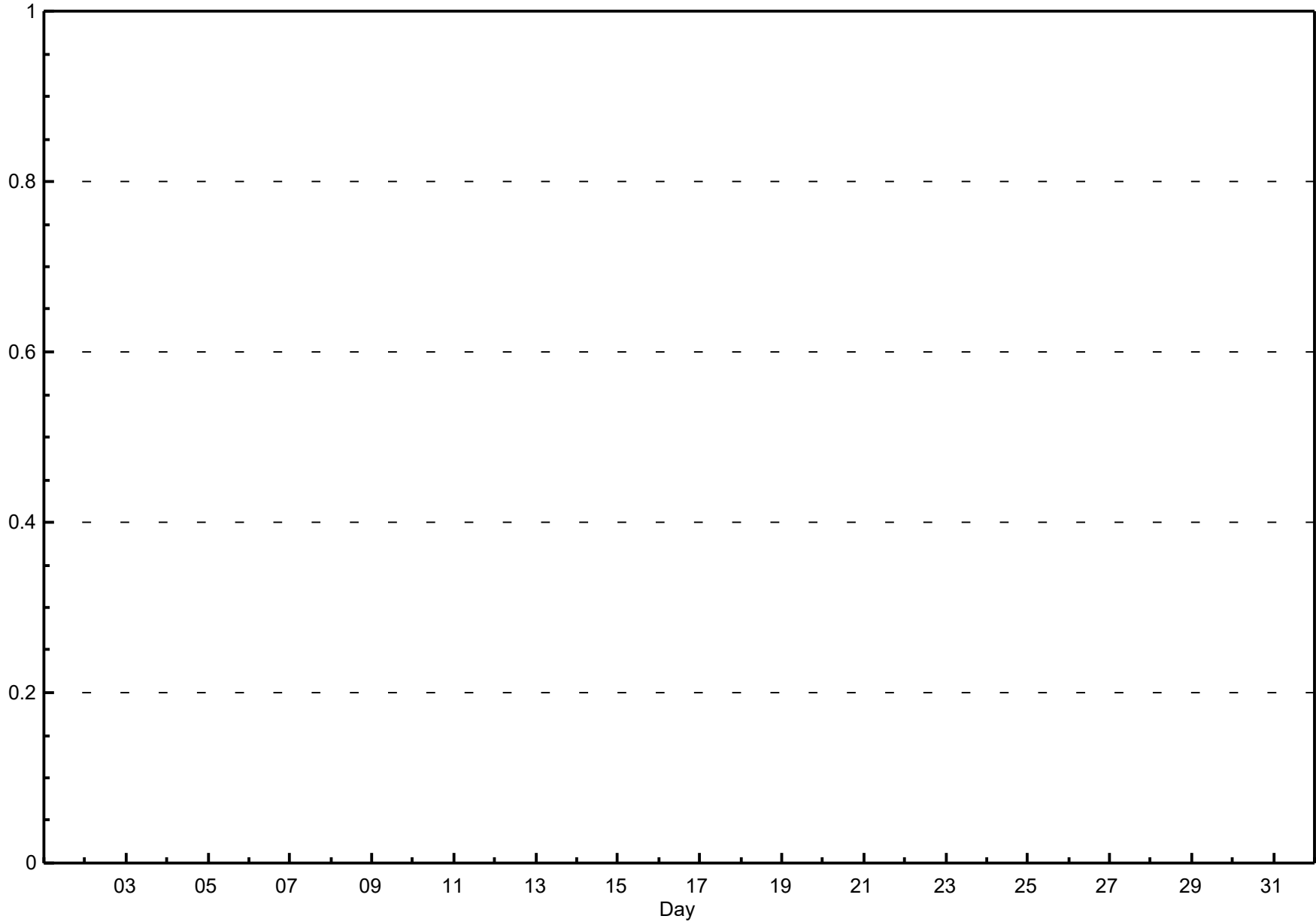


Hourly Averages

Non Methane Hydrocarbon (NMHC) - ppm

Portable Rycroft - December 2016

Maximum Value: 0.00 ppm on Dec 13 14:00 Maximum Daily Average: 0.00 ppm on Dec 13 Minimum Value: 0.0 ppm on Dec 1 01:00 Minimum Daily Average: 0.00 ppm on Dec 1 Maximum Diurnal Average: 0.00 ppm at hour 14 Minimum Diurnal Average: 0.00 ppm at hour 24 Monthly Average: 0.000 ppm Percentiles: P ₁ = 0.00 P ₁₀ = 0.00 Q ₁ = 0.00 Median = 0.00 Q ₃ = 0.00 P ₉₀ = 0.00 P ₉₉ = 0.00																								Hours in Service: 744 Hours of Data: 704 Hours of Missing Data: 40 Hours of Calibration: 34 Percent Operational Time: 99.2			
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
5-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
7-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
9-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
10-Dec	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
11-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
12-Dec	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	D	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	P	P	P	--	0.00
13-Dec	P	P	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	0.0	0.0	0.0	0.0	0.00	0.00
14-Dec	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.00	0.00
15-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.00	0.00
16-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.00	0.00
20-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.00	0.00
21-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	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
22-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	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
23-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
24-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
25-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	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	0.00	0.00
26-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
28-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	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	0.00	0.00
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
30-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
																								Diurnal Average			
																								Diurnal Maximum			
C - Calibration P - Power Failure D - DAS Failure A - Automated Daily Zero Span																											



Hourly Maximums

Non Methane Hydrocarbon (NMHC) - ppm

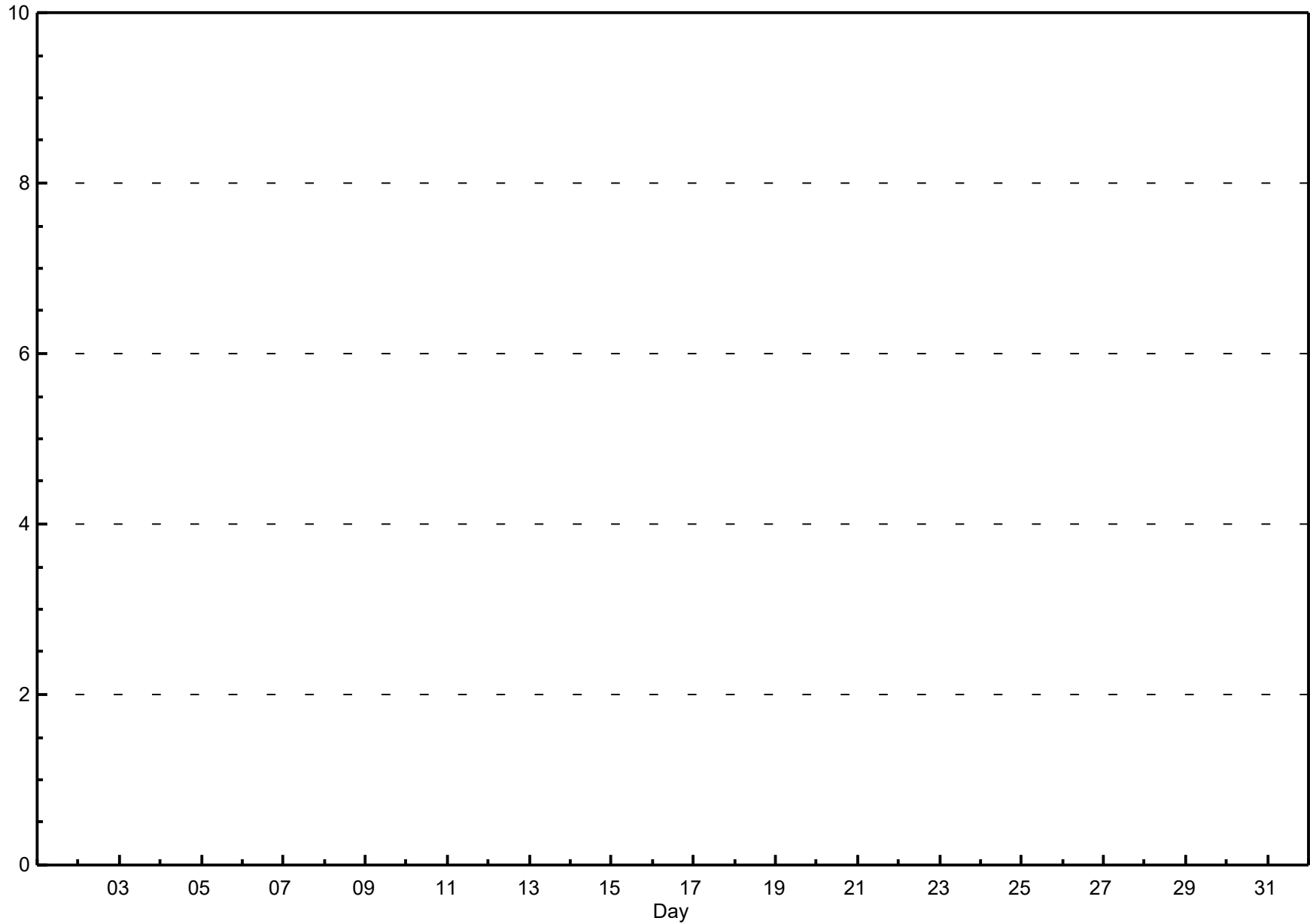
Portable Rycroft - December 2016

Maximum Value: 0.00 ppm on Dec 19 12:00 Maximum Daily Average: 0.00 ppm on Dec 13 Minimum Value: 0.0 ppm on Dec 1 01:00 Minimum Daily Average: 0.00 ppm on Dec 1 Maximum Diurnal Average: 0.00 ppm at hour 14 Minimum Diurnal Average: 0.00 ppm at hour 1 Monthly Average: 0.000 ppm Percentiles: P ₁ = 0.00 P ₁₀ = 0.00 Q ₁ = 0.00 Median = 0.00 Q ₃ = 0.00 P ₉₀ = 0.00 P ₉₉ = 0.00																								Hours in Service:	744	
																								Hours of Data:	704	
																								Hours of Missing Data:	40	
																								Hours of Calibration:	34	
																								Percent Operational Time:	99.2	
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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
2-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
5-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
6-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
9-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
10-Dec	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
11-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
12-Dec	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	D	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	P	P	P	--	0.00
13-Dec	P	P	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	0.0	0.0	0.0	0.00	0.00
14-Dec	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.00	0.00
15-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.00	0.00
16-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.00	0.00
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	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.00	0.00
20-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	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.00	0.00
21-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	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
22-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	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
23-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
24-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	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
26-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
28-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
30-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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
																								Diurnal Average	0.00	
																								Diurnal Maximum	0.00	
C - Calibration P - Power Failure D - DAS Failure A - Automated Daily Zero Span																										

Hourly Maximums

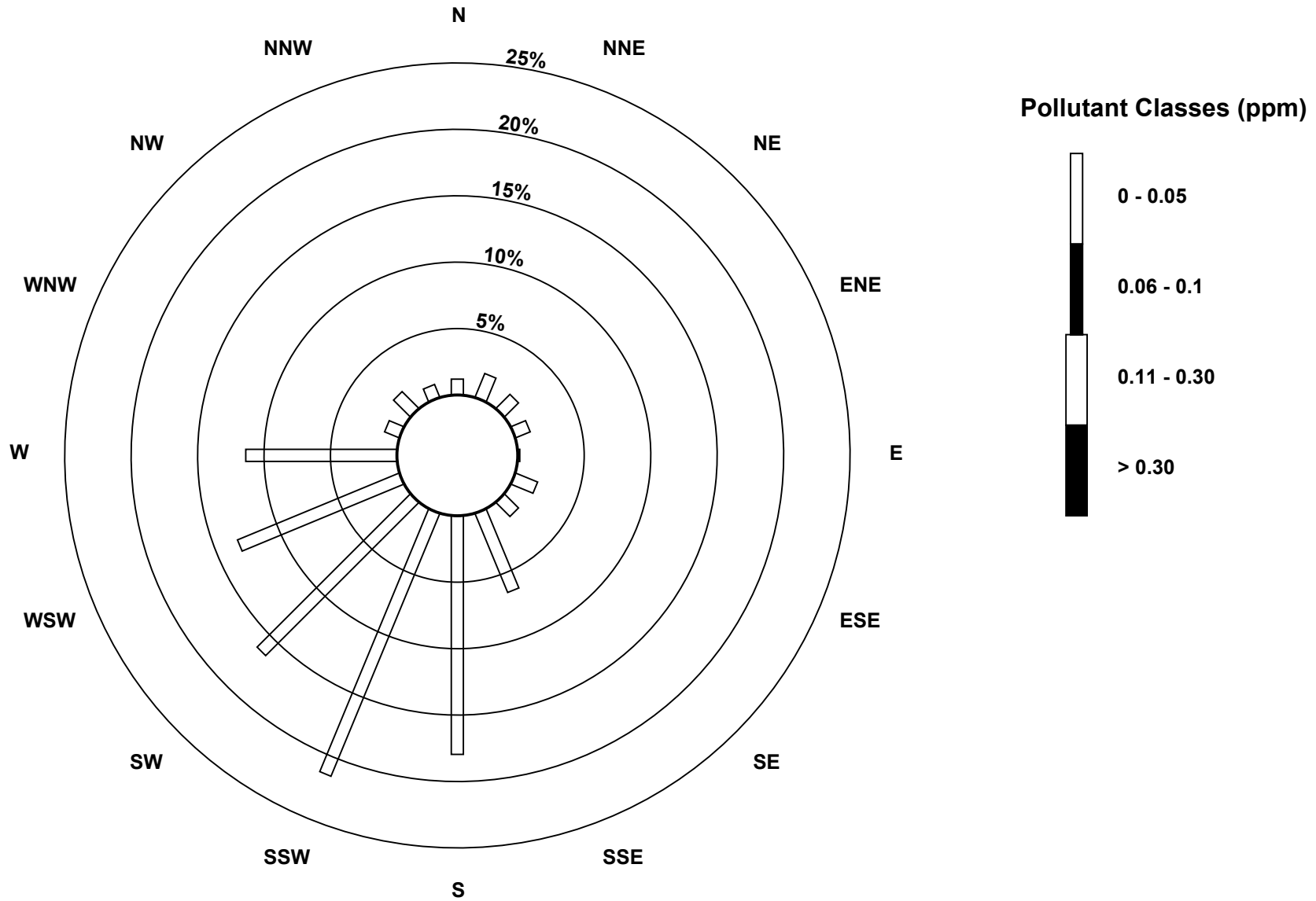
Non Methane Hydrocarbon (NMHC) - ppm

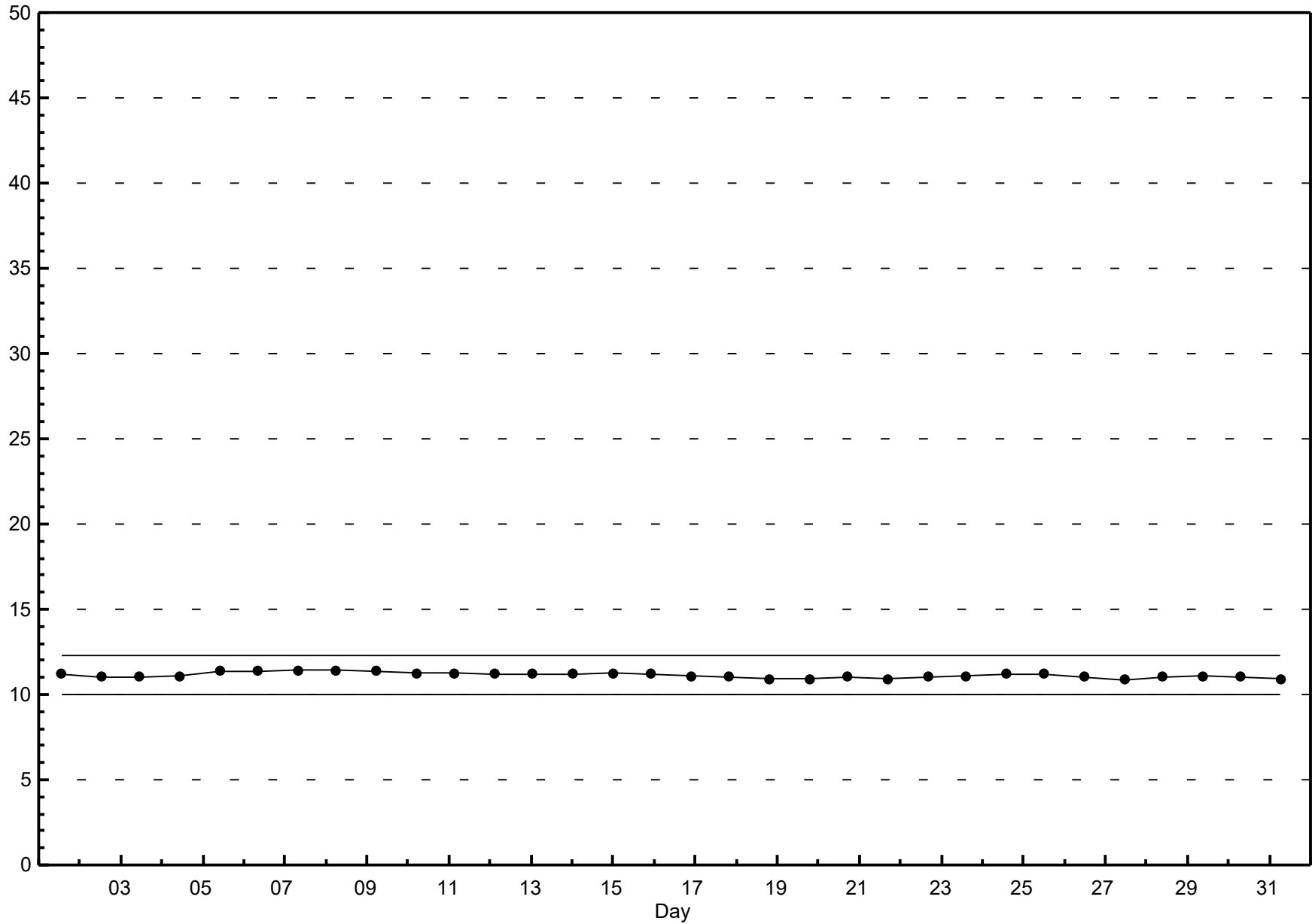
Portable Rycroft - December 2016



Pollutant Rose

Non Methane Hydrocarbon (NMHC) - ppm
Portable Rycroft - December 2016





Hourly Averages

PM2.5 (PM_{2.5}) - µg/m³

Portable Rycroft - December 2016

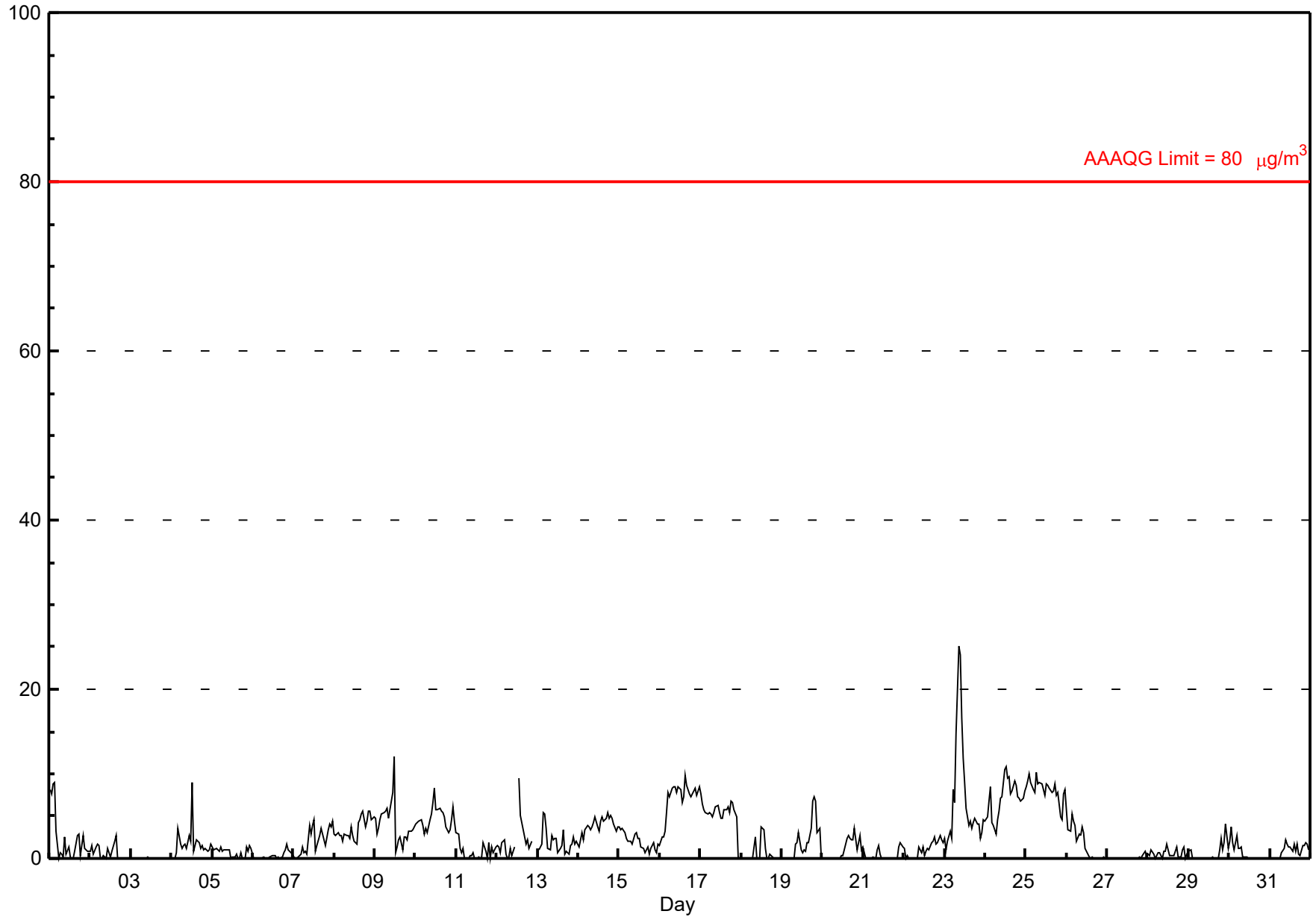
Number of Exceedences: 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 25.1 µg/m ³ on Dec 23 09:00	Maximum Daily Average: 8.2 µg/m ³ on Dec 25
Minimum Value: 0 µg/m ³ on Dec 1 06:00	Hours of Data: 738
Maximum Diurnal Average: 3.2 µg/m ³ at hour 10	Hours of Missing Data: 6
Monthly Average: 2.42 µg/m ³	Hours of Calibration: 0
Minimum Daily Average: 0.0 µg/m ³ on Dec 3	Percent Operational Time: 99.2
Minimum Diurnal Average: 1.9 µg/m ³ at hour 7	
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 1.3 Q ₃ = 3.7 P ₉₀ = 6.8 P ₉₉ = 10.1	

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	8	8	9	9	3	0	1	0	0	3	0	1	0	0	0	1	3	3	0	1	3	1	1	1	2.4	9.0																						
2-Dec	1	2	0	1	2	1	0	0	0	0	1	1	0	1	2	3	0	0	0	0	0	0	0	0	0.6	2.7																						
3-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	0.3																						
4-Dec	0	0	0	1	4	2	1	2	2	1	3	2	9	1	1	2	2	1	2	1	1	1	1	2	1.7	9.0																						
5-Dec	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	0	0	1	1	1	1	0.7	1.5																						
6-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	0.3	1.7																						
7-Dec	0	0	0	0	0	1	1	1	1	4	3	4	5	1	2	3	3	3	2	2	3	4	4	4	2.1	4.6																						
8-Dec	3	3	3	3	3	2	3	3	3	2	4	3	2	2	4	5	5	6	4	4	6	6	5	5	3.6	5.7																						
9-Dec	5	3	3	5	5	6	6	6	5	6	8	12	1	1	2	3	1	3	2	2	3	3	3	4	4.0	12.1																						
10-Dec	4	4	4	5	4	3	4	3	5	5	7	8	6	6	6	6	5	5	4	3	3	5	6	4	4.8	8.2																						
11-Dec	3	3	1	1	1	0	0	0	0	0	1	0	0	0	0	0	2	1	0	2	0	1	1	1	0.8	3.0																						
12-Dec	2	1	1	2	2	1	0	0	1	0	1	D	M	10	5	3	3	2	2	1	2	P	P	P	2.0	9.5																						
13-Dec	P	1	2	5	5	4	1	1	3	2	2	2	1	1	3	0	1	0	2	2	3	2	2	2	2.0	5.4																						
14-Dec	1	2	3	2	3	4	4	3	4	4	5	4	3	4	5	4	5	5	5	5	5	4	3	4	3.9	5.4																						
15-Dec	4	3	4	3	2	2	2	2	2	3	3	2	2	1	1	1	1	1	1	1	2	1	1	2	2.0	3.7																						
16-Dec	1	3	3	3	5	8	7	8	8	8	8	8	8	7	7	10	9	8	7	8	8	8	7	9	7.0	9.8																						
17-Dec	8	7	6	5	5	5	5	5	5	6	6	5	5	5	6	6	6	5	7	7	6	5	0	0	5.3	7.6																						
18-Dec	0	0	0	0	0	0	0	0	3	0	0	0	4	3	1	0	0	0	0	0	0	0	0	0	0.5	3.7																						
19-Dec	0	0	0	0	0	0	0	0	2	2	3	1	1	1	1	2	2	4	7	7	7	3	4	0	1.9	7.3																						
20-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	2	2	2	4	1	2	3	1	1.0	3.6																						
21-Dec	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0.4	1.8																						
22-Dec	1	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	2	2	3	2	2	3	2	2	1.0	2.7																						
23-Dec	2	1	2	3	2	8	7	15	25	24	17	12	9	6	4	4	4	4	5	4	4	2	3	5	7.2	25.1																						
24-Dec	4	5	7	8	4	4	3	5	6	7	7	10	11	10	10	8	8	9	9	7	7	7	7	8	7.1	10.9																						
25-Dec	9	9	10	9	8	8	10	9	9	9	8	7	9	9	8	8	8	9	7	8	5	5	8	8	8.2	10.1																						
26-Dec	6	3	3	5	4	4	2	3	3	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	1.8	5.8																						
27-Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.1	0.9																						
28-Dec	1	0	1	0	0	0	1	1	0	1	1	2	1	0	0	0	1	1	0	0	1	1	0	0	0.6	1.8																						
29-Dec	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2	4	1	0.6	4.1																						
30-Dec	2	4	2	1	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	3.7																						
31-Dec	0	0	0	0	0	0	0	1	1	2	2	1	1	1	2	1	2	1	0	2	1	2	2	1	0.9	2.1																						
																								2.3	2.0	2.1	2.4	2.2	2.1	1.9	2.2	2.8	3.2	3.1	3.0	2.6	2.3	2.4	2.4	2.4	2.5	2.3	2.4	2.5	2.4	2.4	2.2	Diurnal Average
																								8.6	9.2	10.0	9.0	8.2	8.2	10.1	14.7	25.1	24.1	16.6	12.1	10.9	9.6	9.6	9.8	8.7	9.1	8.6	7.9	8.0	8.2	7.6	8.5	Diurnal Maximum

P - Power Failure D - DAS Failure M - Maintenance
 Alberta Ambient Air Quality Guideline (AAAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAAQO): 24-hr 30 µg/m³

Hourly Averages

PM2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Portable Rycroft - December 2016





Peace Airshed Zone Association

Hourly Maximums

PM2.5 (PM_{2.5}) - µg/m³

Portable Rycroft - December 2016

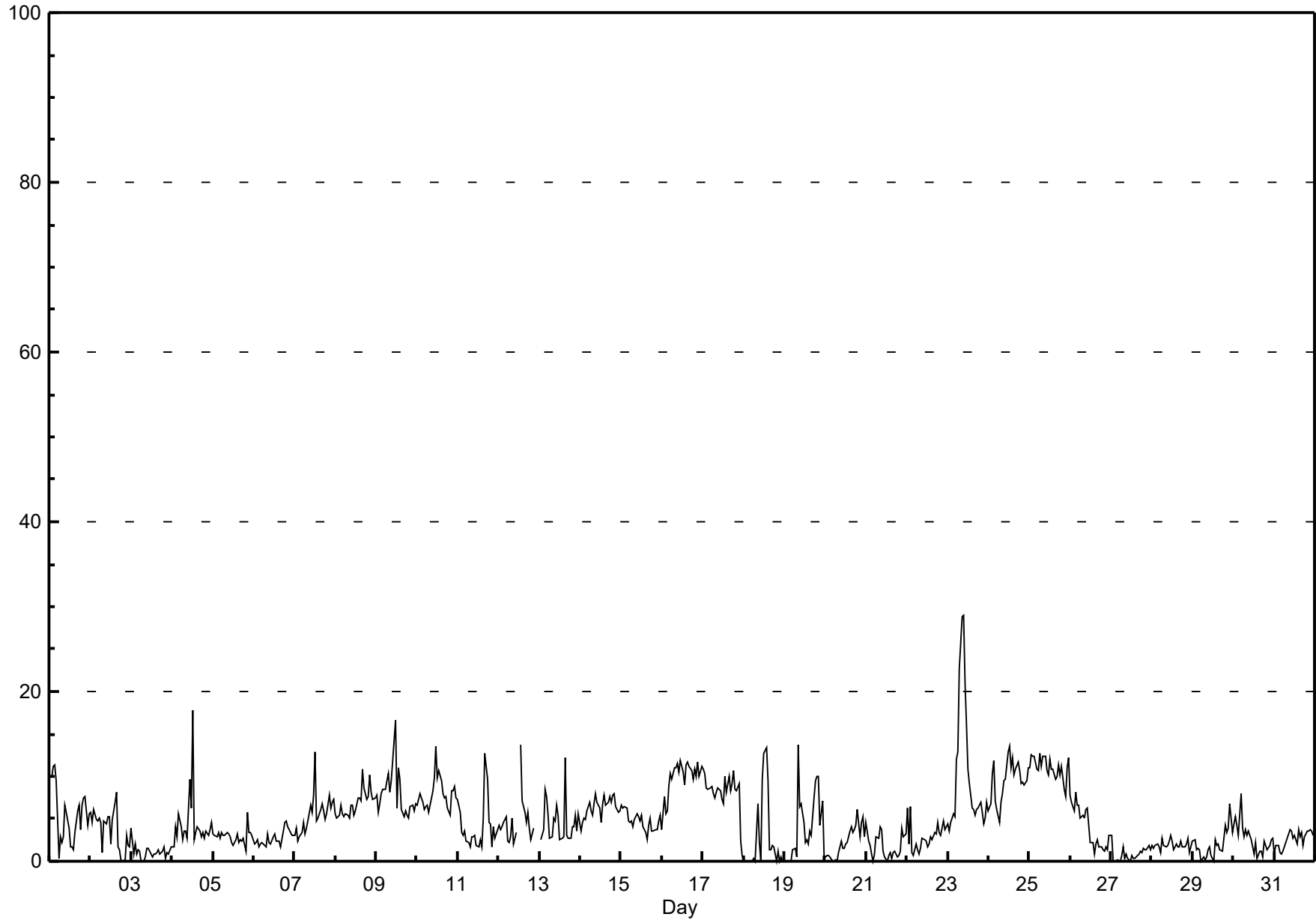
Maximum Value: 29.0 µg/m ³ on Dec 23 10:00	Maximum Daily Average: 11.0 µg/m ³ on Dec 25	Hours in Service: 744
Minimum Value: 0 µg/m ³ on Dec 2 20:00	Minimum Daily Average: 0.8 µg/m ³ on Dec 27	Hours of Data: 738
Maximum Diurnal Average: 5.8 µg/m ³ at hour 10	Minimum Diurnal Average: 4.0 µg/m ³ at hour 7	Hours of Missing Data: 6
Monthly Average: 4.81 µg/m ³	Percentiles: P ₁ = 0.0 P ₁₀ = 0.9 Q ₁ = 2.0 Median = 3.8 Q ₃ = 6.8 P ₉₀ = 10.1 P ₉₉ = 15.6	Hours of Calibration: 0
		Percent Operational Time: 99.2

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	10	10	11	11	9	0	3	2	3	7	6	4	2	2	1	3	6	7	4	7	8	8	4	6	5.5	11.4	
2-Dec	6	5	6	5	5	5	5	1	5	4	5	5	2	5	7	8	2	1	0	0	0	3	2	2	3.7	8.2	
3-Dec	4	1	2	1	1	1	0	0	1	2	1	1	0	1	1	1	1	1	1	2	0	1	1	2	1.1	4.0	
4-Dec	2	2	4	3	6	4	3	4	4	3	10	6	18	3	3	4	4	3	3	3	4	3	4	4	4.3	17.8	
5-Dec	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	2	3	2	3	1	6	3	3	3	2.9	5.8	
6-Dec	2	2	3	2	2	2	2	2	3	2	2	3	3	2	2	2	2	4	5	5	4	4	3	3	2.7	4.8	
7-Dec	3	4	2	3	3	5	3	4	5	7	6	8	13	5	5	6	7	6	5	6	8	6	7	7	5.5	12.9	
8-Dec	6	5	5	7	6	5	6	5	5	7	7	5	6	8	7	7	11	9	7	8	10	8	7	7	6.8	10.8	
9-Dec	8	6	7	8	9	8	9	10	8	10	14	17	6	11	10	6	5	6	5	5	7	7	6	7	8.1	16.6	
10-Dec	7	7	8	7	6	6	7	6	7	8	10	14	10	11	10	8	8	8	6	5	8	8	9	7	7.9	13.6	
11-Dec	7	6	3	3	4	2	2	2	3	3	3	2	2	3	2	5	13	10	5	4	2	4	3	4	3.9	12.8	
12-Dec	4	4	4	5	5	2	2	3	5	2	3	D	M	14	7	6	5	6	4	3	4	P	P	P	4.6	13.8	
13-Dec	P	3	4	8	8	6	3	3	5	5	7	6	3	3	3	12	3	3	3	4	4	5	4	6	4.7	12.2	
14-Dec	4	5	5	5	6	7	6	6	7	8	7	6	5	7	8	7	7	8	7	8	8	6	6	6	6.3	8.0	
15-Dec	7	6	6	6	5	5	5	4	5	6	5	5	5	4	3	2	4	5	4	4	4	4	5	5	4.7	6.5	
16-Dec	4	8	6	6	9	10	10	11	11	12	11	12	10	9	11	12	11	11	10	11	10	12	10	11	9.8	11.9	
17-Dec	11	10	9	9	9	9	8	7	8	9	8	7	7	10	8	10	8	9	11	9	8	9	2	1	8.1	10.8	
18-Dec	0	0	0	0	0	0	0	0	7	2	0	10	13	13	9	1	1	2	2	0	1	0	0	0	2.6	13.4	
19-Dec	0	0	0	0	0	1	1	1	14	7	7	5	2	3	2	4	3	7	9	10	10	4	7	1	4.1	13.8	
20-Dec	1	1	1	0	0	0	0	0	1	2	1	2	2	2	3	4	3	4	4	4	6	3	5	5	3	2.2	6.1
21-Dec	5	2	2	1	0	1	3	3	4	4	1	1	0	1	1	0	1	1	0	1	1	4	3	3	1.8	4.6	
22-Dec	6	2	6	1	1	2	1	1	1	3	3	2	2	2	3	3	3	3	5	3	3	5	4	4	2.9	6.4	
23-Dec	4	4	4	6	5	12	13	23	29	29	21	16	11	9	6	6	6	6	6	7	6	4	5	7	10.2	29.0	
24-Dec	6	7	10	12	7	6	5	7	8	9	10	13	14	11	12	10	11	12	11	9	9	9	9	11	9.5	13.6	
25-Dec	11	12	12	12	11	11	13	11	12	12	11	10	12	11	11	10	10	11	10	11	8	8	11	12	11.0	12.7	
26-Dec	8	7	6	8	7	7	5	5	5	6	6	4	2	2	1	2	2	2	2	1	1	2	1	3	4.0	8.2	
27-Dec	3	0	0	0	0	0	1	2	0	1	0	0	1	0	0	0	1	1	1	2	1	1	2	1	0.8	3.1	
28-Dec	2	2	2	2	2	1	3	2	2	2	2	3	2	1	2	2	2	2	2	2	2	3	1	2	1.9	3.1	
29-Dec	2	3	1	2	1	0	1	0	1	1	2	1	0	3	2	2	1	1	3	4	3	4	7	3	2.0	6.8	
30-Dec	4	5	4	3	8	4	3	4	3	4	3	2	1	2	0	1	1	1	2	2	1	2	3	3	2.7	8.0	
31-Dec	1	2	2	1	1	1	2	2	3	4	4	3	3	2	4	3	3	2	3	4	4	4	4	3	2.6	3.8	
	4.6	4.2	4.5	4.5	4.4	4.1	4.0	4.3	5.7	5.8	5.7	5.8	5.3	5.2	4.9	4.9	4.8	4.9	4.6	4.6	4.8	4.8	4.6	4.6	Diurnal Average		
	11.0	12.5	12.3	12.4	10.9	12.1	12.9	22.7	28.7	29.0	21.0	16.6	17.8	13.8	12.3	12.2	12.8	11.7	10.6	11.2	10.2	11.7	11.0	12.2	Diurnal Maximum		

P - Power Failure D - DAS Failure M - Maintenance

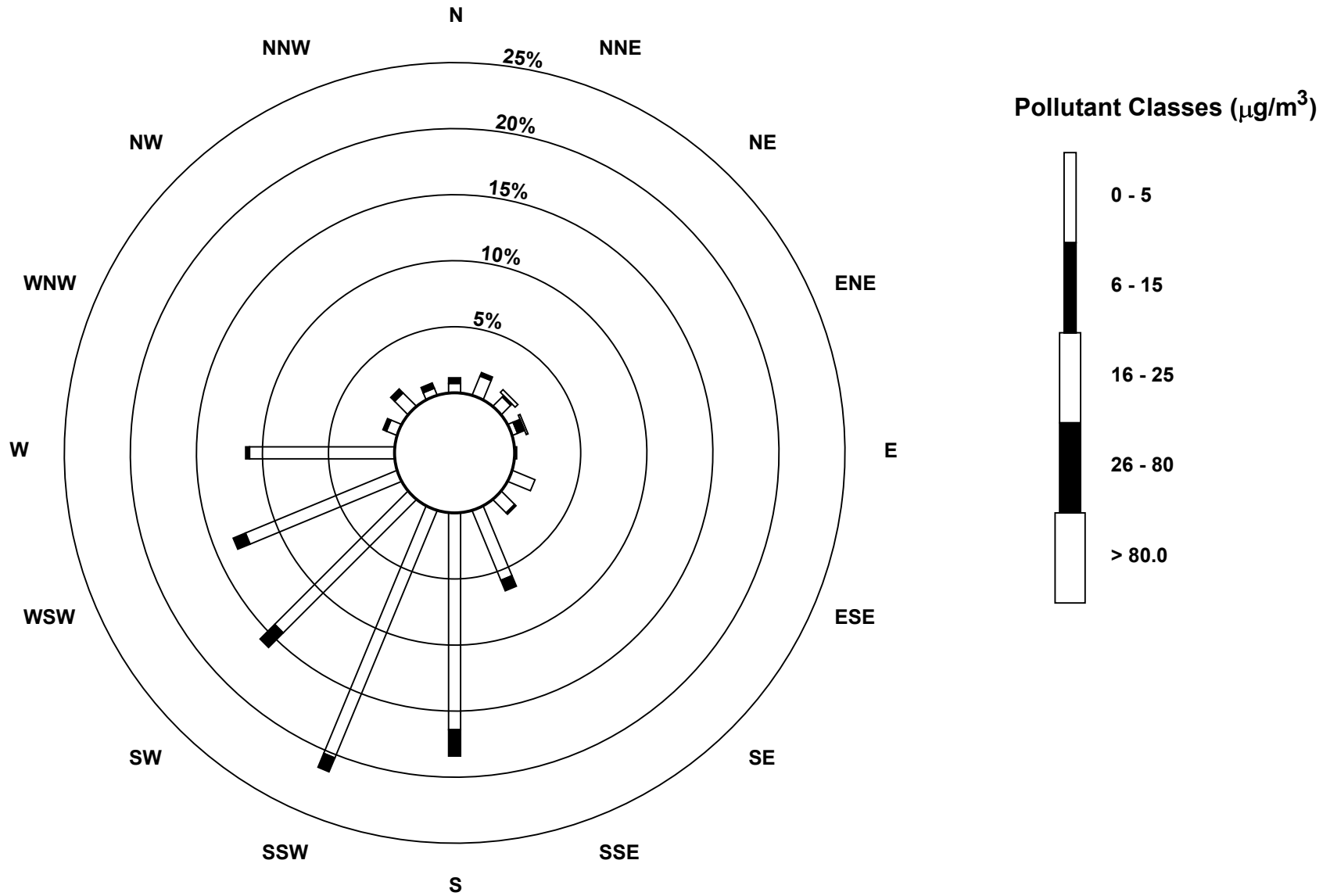
Hourly Maximums

PM2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Portable Rycroft - December 2016



Pollutant Rose

PM_{2.5} (PM_{2.5}) - μg/m³
Portable Rycroft - December 2016



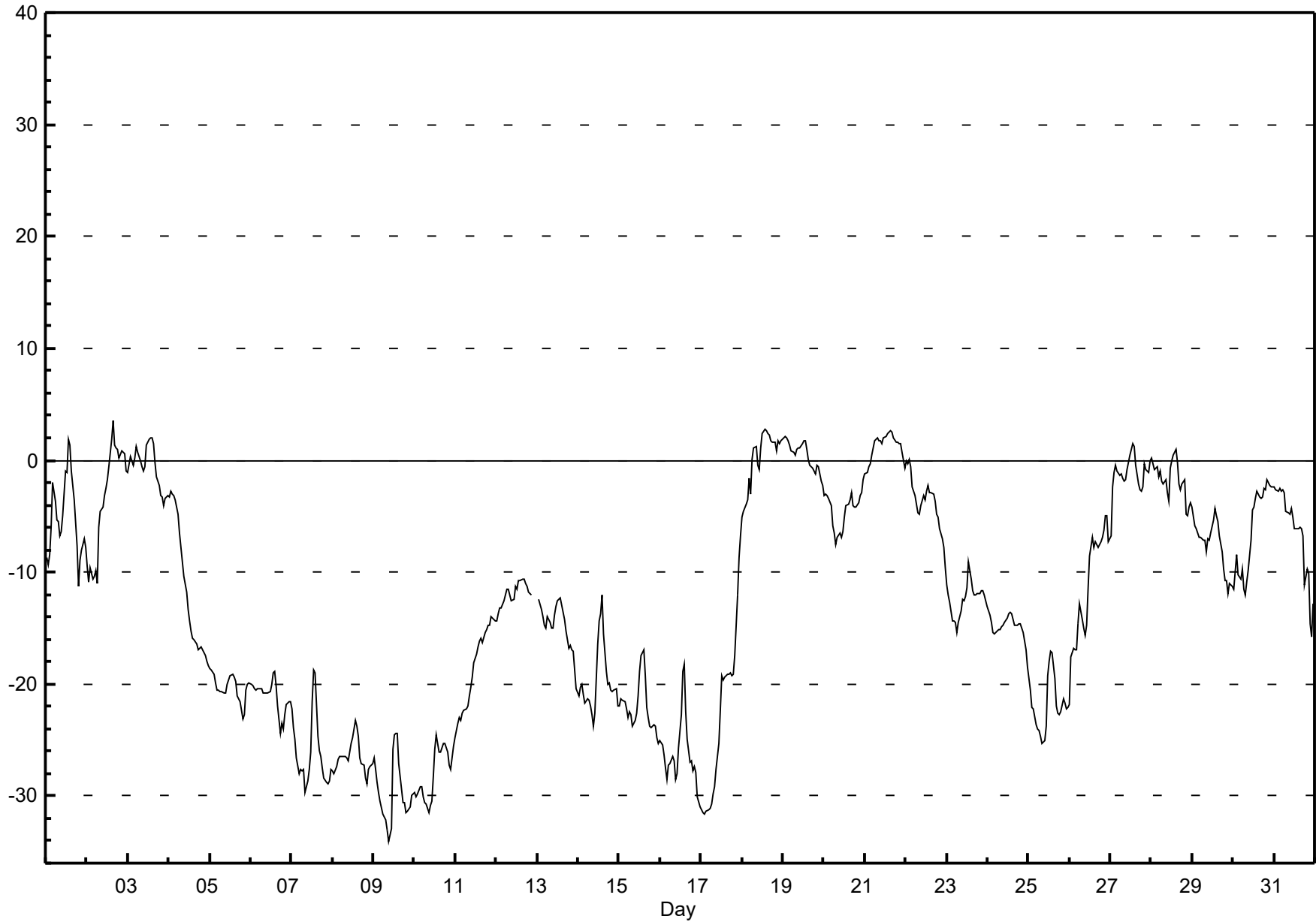
Hourly Averages

External Temperature (ET) - °C
Portable Rycroft - December 2016

Maximum Value: 3.6 °C on Dec 2 16:00		Maximum Daily Average: 1.2 °C on Dec 21		Hours in Service: 744																																												
Minimum Value: -34 °C on Dec 9 10:00		Minimum Daily Average: -29.6 °C on Dec 9		Hours of Data: 740																																												
Maximum Diurnal Average: -10.0 °C at hour 14		Minimum Diurnal Average: -14.1 °C at hour 9		Hours of Missing Data: 4																																												
Monthly Average: -12.86 °C		Percentiles: P ₁ = -31.5 P ₁₀ = -27.2 Q ₁ = -21.6 Median = -12.6 Q ₃ = -3.2 P ₉₀ = 0.2 P ₉₉ = 2.4		Hours of Calibration: 0																																												
				Percent Operational Time: 99.5																																												
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	-9	-9	-8	-6	-2	-4	-5	-5	-7	-6	-5	-1	-1	2	1	-1	-4	-6	-8	-11	-9	-8	-7	-8	-5.3	1.9																						
2-Dec	-9	-11	-10	-11	-10	-10	-11	-6	-5	-4	-3	-3	-2	-1	2	4	1	1	1	0	1	1	1	-1	-3.5	3.6																						
3-Dec	-1	0	0	0	0	1	1	0	-1	-1	-1	1	2	2	2	2	0	-1	-2	-3	-3	-4	-3	-3	-0.6	2.0																						
4-Dec	-3	-3	-3	-3	-4	-5	-7	-8	-9	-10	-12	-13	-14	-15	-16	-16	-16	-17	-17	-17	-17	-17	-18	-18	-11.6	-2.8																						
5-Dec	-19	-19	-19	-20	-21	-21	-21	-21	-21	-21	-20	-20	-19	-19	-19	-20	-21	-21	-22	-23	-23	-21	-20	-20	-20.3	-18.6																						
6-Dec	-20	-20	-20	-21	-20	-20	-20	-21	-21	-21	-21	-21	-20	-19	-19	-20	-22	-24	-23	-24	-23	-22	-22	-22	-21.1	-18.9																						
7-Dec	-22	-24	-25	-27	-28	-28	-28	-28	-30	-29	-28	-26	-22	-19	-19	-25	-26	-26	-28	-28	-29	-29	-29	-28	-26.1	-18.7																						
8-Dec	-28	-28	-27	-27	-26	-26	-26	-26	-27	-27	-26	-25	-25	-23	-24	-25	-27	-27	-27	-28	-29	-28	-27	-27	-26.6	-23.3																						
9-Dec	-27	-28	-29	-30	-30	-32	-32	-32	-33	-34	-33	-26	-24	-24	-24	-27	-29	-31	-31	-31	-31	-31	-30	-30	-29.6	-24.4																						
10-Dec	-30	-30	-30	-29	-29	-30	-31	-31	-31	-31	-31	-30	-28	-26	-25	-26	-26	-26	-25	-25	-26	-27	-28	-27	-26	-28.0	-24.6																					
11-Dec	-25	-24	-23	-23	-23	-22	-22	-22	-21	-20	-19	-18	-17	-17	-16	-16	-16	-15	-15	-15	-15	-14	-14	-14	-18.6	-13.9																						
12-Dec	-14	-14	-13	-13	-13	-12	-12	-12	-12	-13	-12	-11	-11	-11	-11	-11	-11	-11	-11	-12	-12	P	P	P	-11.9	-10.6																						
13-Dec	P	-12	-13	-14	-15	-15	-14	-14	-15	-15	-14	-13	-13	-12	-13	-14	-14	-15	-17	-16	-17	-17	-19	-20	-14.9	-12.4																						
14-Dec	-21	-20	-20	-21	-22	-21	-21	-22	-23	-24	-23	-16	-14	-14	-12	-16	-19	-20	-20	-21	-21	-21	-20	-22	-19.7	-12.0																						
15-Dec	-22	-21	-21	-22	-22	-23	-22	-23	-24	-23	-23	-21	-19	-17	-19	-22	-23	-24	-24	-24	-24	-24	-25	-25	-22.1	-17.0																						
16-Dec	-25	-25	-26	-28	-28	-27	-27	-26	-27	-28	-28	-26	-23	-19	-18	-23	-25	-27	-27	-28	-27	-28	-30	-31	-26.2	-18.3																						
17-Dec	-31	-31	-32	-31	-31	-31	-31	-30	-29	-28	-25	-22	-19	-20	-19	-19	-19	-19	-19	-19	-18	-12	-9	-7	-23.0	-6.8																						
18-Dec	-5	-5	-4	-4	-2	-3	0	1	1	0	-1	1	2	3	3	2	2	2	2	2	1	2	2	2	0.2	2.8																						
19-Dec	2	2	2	2	1	1	1	0	1	1	1	1	2	2	1	0	-1	-1	-1	-1	0	-1	-2	-2	0.5	2.2																						
20-Dec	-3	-3	-3	-3	-4	-6	-6	-7	-7	-7	-7	-6	-5	-4	-4	-4	-3	-4	-4	-4	-4	-3	-3	-2	-4.4	-1.8																						
21-Dec	-1	-1	-1	0	0	1	2	2	2	2	2	2	2	2	2	3	2	2	2	2	1	1	1	-1	1.2	2.6																						
22-Dec	0	0	0	-1	-2	-3	-4	-5	-5	-4	-3	-4	-3	-2	-3	-3	-3	-4	-5	-5	-6	-7	-8	-10	-3.7	0.1																						
23-Dec	-11	-12	-13	-14	-14	-15	-15	-14	-13	-12	-13	-12	-11	-9	-11	-12	-12	-12	-12	-12	-12	-12	-12	-13	-12.4	-9.1																						
24-Dec	-13	-14	-14	-15	-16	-15	-15	-15	-15	-15	-15	-14	-14	-14	-14	-14	-15	-15	-15	-15	-15	-15	-17	-18	-14.8	-13.1																						
25-Dec	-19	-21	-22	-22	-24	-24	-24	-25	-25	-25	-24	-19	-18	-17	-17	-19	-22	-23	-23	-22	-21	-22	-22	-22	-21.8	-17.0																						
26-Dec	-22	-18	-17	-17	-17	-15	-13	-14	-15	-16	-15	-12	-9	-7	-8	-7	-8	-8	-7	-7	-6	-5	-5	-7	-11.3	-4.9																						
27-Dec	-7	-2	-1	0	-1	-1	-1	-2	-2	-2	-1	0	1	1	1	0	-2	-3	-3	-2	0	-1	-1	0	-1.2	1.4																						
28-Dec	0	0	-1	-1	-1	-1	-2	-2	-2	-3	-4	-1	0	0	1	0	-2	-3	-2	-2	-5	-5	-4	-4	-1.7	1.0																						
29-Dec	-4	-6	-6	-7	-7	-7	-7	-7	-7	-7	-7	-7	-5	-4	-5	-5	-7	-8	-10	-11	-11	-12	-11	-11	-7.5	-4.2																						
30-Dec	-11	-10	-8	-10	-11	-10	-11	-12	-11	-10	-7	-4	-4	-3	-3	-3	-3	-3	-3	-3	-2	-2	-2	-2	-6.3	-1.8																						
31-Dec	-2	-3	-3	-3	-3	-3	-3	-5	-5	-5	-4	-5	-6	-6	-6	-6	-6	-7	-11	-10	-10	-15	-16	-13	-6.4	-2.4																						
																								-13.4	-13.3	-13.3	-13.6	-13.7	-13.7	-13.9	-13.9	-14.1	-14.1	-13.5	-11.9	-10.8	-10.0	-10.0	-11.0	-12.1	-12.7	-13.1	-13.5	-13.3	-13.3	-13.3	-13.5	Diurnal Average
																								2.0	2.2	2.0	1.7	1.4	1.2	1.7	2.0	1.8	1.7	1.5	2.0	2.4	2.8	2.6	3.6	2.5	2.0	1.6	1.6	1.5	1.7	1.5	1.7	Diurnal Maximum
P - Power Failure																																																

Hourly Averages

External Temperature (ET) - °C
Portable Rycroft - December 2016



Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Portable Rycroft - December 2016

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	2	3	6	12	11	2	5	7	6	3	7	6	4	3	4	5	7	4	5	8	10	11	7	4.9	12.2
Dir	247	218	221	225	242	247	202	161	167	169	184	160	166	173	195	155	135	142	154	188	168	160	159	182.1	241.8	
2 Spd	6	7	6	6	4	3	3	8	11	4	5	7	5	5	6	6	13	14	16	13	14	15	12	7	7.2	15.7
Dir	175	188	164	181	156	206	272	141	145	117	116	78	120	145	147	171	177	192	187	187	185	180	191	205	171.9	187.2
3 Spd	9	15	12	8	10	13	13	13	13	12	13	12	12	10	9	14	13	11	11	10	10	10	10	12	11.2	15.5
Dir	180	186	182	195	208	206	206	207	204	202	203	205	197	198	207	221	223	217	214	207	210	207	214	219	204.9	186.1
4 Spd	10	12	19	19	24	24	31	29	28	24	34	38	36	38	38	35	33	30	29	31	33	36	39	40	29.0	40.1
Dir	212	228	248	239	248	268	272	277	278	283	275	274	273	271	268	267	266	264	266	266	265	265	266	267	266.3	266.7
5 Spd	34	28	31	26	21	19	19	20	19	20	25	30	29	30	27	23	19	17	16	12	12	20	23	23	22.5	34.4
Dir	270	265	266	265	259	257	258	257	256	258	264	267	268	271	273	270	270	267	264	255	256	264	269	270	265.1	269.5
6 Spd	22	21	22	22	22	22	24	23	22	22	20	19	16	14	12	14	15	14	8	5	7	7	6	6	16.4	23.5
Dir	270	264	266	266	266	266	270	270	264	265	259	259	260	262	262	259	263	259	253	244	213	228	233	229	261.3	269.9
7 Spd	6	3	3	2	3	6	5	4	4	3	3	3	2	4	3	4	1	2	1	1	3	2	4	4	2.3	5.7
Dir	229	208	160	159	198	189	187	177	233	196	208	189	231	265	280	318	35	55	230	222	197	189	188	190	206.3	189.1
8 Spd	2	2	4	4	3	3	4	3	4	3	3	2	3	4	3	1	3	4	4	0	1	1	0	0	1.4	4.4
Dir	190	212	191	185	186	213	195	185	198	191	211	215	237	271	269	228	40	61	61	338	161	196	112	221	199.6	60.8
9 Spd	1	1	3	3	4	5	4	5	0	3	3	1	2	5	4	4	2	3	3	4	5	4	4	4	2.4	5.2
Dir	240	199	161	158	163	181	158	180	102	188	188	275	305	328	272	251	223	194	191	182	177	180	184	182	193.3	177.1
10 Spd	3	3	3	2	2	3	2	3	2	2	2	3	3	3	3	4	4	4	8	10	5	6	12	6	3.8	12.1
Dir	185	186	186	186	178	192	184	189	244	243	205	210	229	253	193	184	183	211	235	228	218	216	229	222	212.7	229.3
11 Spd	9	10	12	15	21	16	18	14	15	16	17	20	20	17	14	22	19	27	28	31	23	30	30	27	19.4	30.7
Dir	229	234	239	241	249	239	236	232	228	229	229	233	234	237	235	236	236	241	240	247	245	252	251	255	240.5	246.9
12 Spd	27	29	26	28	24	29	27	31	32	38	36	26	17	24	29	30	29	28	29	25	24	P	P	P	27.5	37.9
Dir	252	252	251	256	274	275	273	271	269	270	270	255	239	255	257	255	248	245	252	251	242	P	P	P	258.7	270.0
13 Spd	P	26	27	29	21	22	29	24	23	23	27	24	23	21	14	17	16	5	5	6	4	5	5	5	16.7	29.1
Dir	P	246	253	256	249	244	255	248	242	239	244	249	253	249	261	262	253	218	223	218	191	164	168	184	245.8	256.5
14 Spd	8	8	8	8	8	8	7	5	5	4	3	1	4	2	2	4	9	6	4	3	5	3	3	3	4.0	9.4
Dir	180	189	171	182	182	177	185	178	193	214	198	168	288	238	259	347	267	245	207	217	253	218	197	199	204.7	266.9
15 Spd	4	5	3	4	7	6	4	4	4	5	6	5	4	3	3	6	4	7	5	8	7	7	7	7	4.7	7.7
Dir	231	189	213	233	240	230	231	187	205	178	182	198	205	204	221	233	208	212	197	173	173	178	175	180	200.8	173.0
16 Spd	8	4	6	7	8	8	8	8	7	1	4	6	4	2	4	3	1	4	4	6	6	4	2	2	4.2	8.4
Dir	167	197	184	178	185	179	178	176	187	60	178	195	187	180	342	40	162	169	143	170	152	149	241	211	176.8	179.1
17 Spd	3	2	2	3	3	1	2	1	3	4	3	2	1	6	1	1	2	1	3	1	2	5	5	10	1.9	9.6
Dir	237	218	206	188	201	207	217	220	233	248	228	260	33	3	343	331	248	231	314	195	222	219	223	198	228.9	198.3
18 Spd	10	12	14	11	14	11	25	30	32	16	10	24	37	38	35	30	23	16	14	16	15	15	15	20	19.6	37.6
Dir	217	208	199	205	219	202	230	230	225	207	204	225	231	232	230	227	222	211	213	211	206	192	196	188	218.1	232.0
19 Spd	25	23	21	24	26	20	19	18	29	32	36	33	29	29	22	18	14	15	14	13	22	16	12	17	20.8	36.0
Dir	187	185	185	187	192	205	208	213	225	230	235	236	236	239	236	231	224	223	221	218	228	222	200	190	216.5	235.1
20 Spd	14	13	13	9	8	10	9	8	8	8	6	9	7	8	9	10	11	10	12	12	13	12	16	14	10.2	15.7
Dir	196	199	197	204	205	189	185	181	163	151	160	172	179	187	185	190	180	181	185	192	197	201	194	204	188.8	193.7
21 Spd	15	11	8	5	10	16	20	22	22	23	18	21	20	18	14	18	20	19	21	25	24	24	14	13	17.4	25.4
Dir	210	199	192	207	194	201	210	210	209	204	200	190	188	187	200	204	198	198	191	187	187	191	201	192	197.7	187.2
22 Spd	16	18	17	7	9	8	7	7	7	6	4	5	4	3	4	4	4	2	3	4	3	2	1	1	4.9	17.9
Dir	186	180	209	210	192	184	188	200	218	244	268	272	257	275	244	176	187	78	344	298	197	229	153	212	207.5	180.4

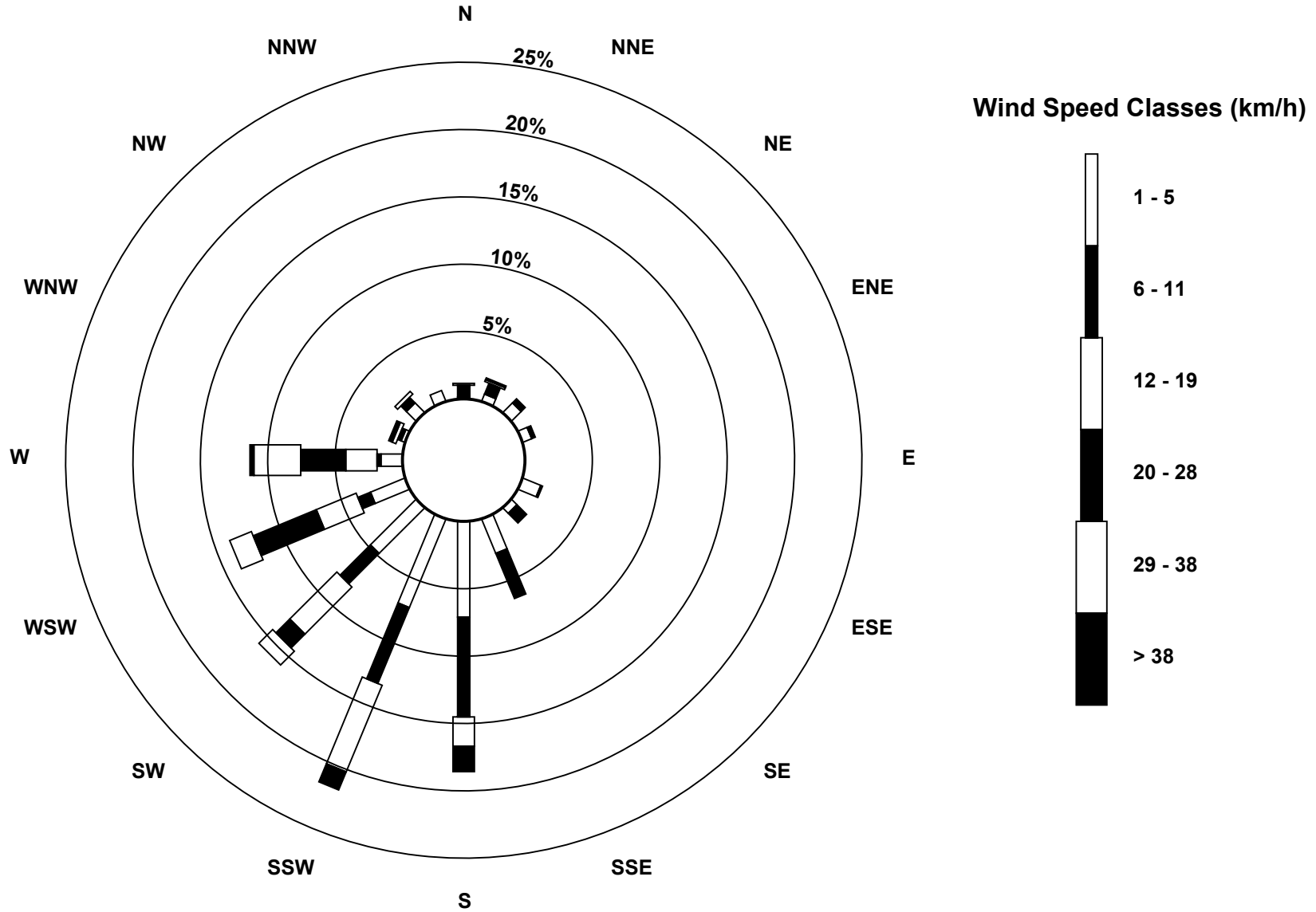
Hourly Averages

Wind Speed (km/h)
Wind Direction (deg)
Portable Rycroft - December 2016

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	2	2	3	2	2	3	2	4	6	8	7	5	4	2	1	2	1	2	2	2	3	6	9	7	2.3	8.5
Dir	227	104	103	157	103	166	66	61	68	46	43	27	19	10	155	142	91	309	308	305	322	28	23	11	41.1	23.1
24 Spd	9	9	9	10	7	6	1	8	12	N	N	N	7	10	10	N	N	N	N	N	N	N	N	N	--	12.1
Dir	17	15	4	8	15	356	241	205	313	N	N	N	300	325	297	N	N	N	N	N	N	N	N	N	--	313.3
25 Spd	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	--	--
Dir	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 Spd	N	8	11	14	25	22	13	10	5	9	9	7	6	4	5	6	4	0	1	2	7	12	9	4	3.5	24.9
Dir	N	154	153	220	252	296	302	306	153	144	145	140	133	123	108	112	110	177	54	113	161	170	163	193	191.3	252.3
27 Spd	9	18	20	27	25	23	21	17	13	13	15	17	15	12	14	12	9	9	11	10	16	12	10	16	14.5	27.3
Dir	157	177	172	185	183	191	195	199	198	207	210	207	208	211	195	198	200	198	191	201	222	220	217	228	197.6	184.9
28 Spd	17	15	13	17	17	20	12	12	15	10	9	16	21	18	20	12	9	9	11	16	10	8	11	11	13.5	21.2
Dir	228	228	226	233	228	228	219	218	224	210	203	223	230	229	231	222	217	210	219	228	192	203	200	203	221.6	230.0
29 Spd	10	9	9	7	8	7	9	6	7	8	8	6	6	3	5	6	5	2	5	3	1	5	4	7	4.3	9.8
Dir	203	191	197	202	196	170	156	154	163	156	176	184	184	194	39	9	39	238	235	260	254	215	186	164	183.0	203.2
30 Spd	9	6	5	7	5	5	6	7	8	9	11	10	12	8	5	4	5	4	5	6	13	16	17	18	7.3	18.3
Dir	175	200	202	183	218	182	188	191	178	178	198	210	192	189	201	210	215	211	237	239	241	253	259	258	214.8	257.7
31 Spd	24	23	17	20	19	20	17	5	7	5	7	24	18	13	7	9	15	14	11	11	12	15	14	14	9.5	24.5
Dir	253	258	244	248	254	259	262	12	37	33	7	30	25	357	318	311	306	299	265	256	272	267	268	258	283.6	29.5
Spd	8.7	9.1	8.9	9.4	10.1	9.6	9.7	8.8	9.0	8.3	8.9	8.9	9.1	8.9	8.6	8.4	8.0	7.8	8.1	8.6	8.8	8.7	8.4	8.6	Diurnal Average	
Dir	221.9	219.6	219.5	225.6	229.3	232.4	234.4	229.0	229.3	227.7	232.9	234.4	235.9	244.9	243.8	239.4	234.5	230.1	229.2	226.2	221.1	221.3	225.3	225.9	Diurnal Maximum	
Spd	34.4	28.8	30.5	29.1	26.4	29.2	31.0	30.6	31.9	37.9	36.0	38.0	37.3	38.5	37.8	35.1	33.4	30.0	28.8	30.7	33.1	35.7	39.1	40.1	Diurnal Maximum	
Dir	269.5	252.2	265.9	256.5	192.0	274.6	272.2	271.4	224.9	270.0	235.1	274.3	230.9	270.9	267.9	267.1	266.5	263.8	266.2	266.3	264.5	265.1	265.7	266.7	Diurnal Maximum	
Maximum Speed Value: 40 km/h on Dec 5 00:00																		Minimum Speed Value: 0 km/h on Dec 8 23:00						Hours in Service: 744		
Maximum Daily Speed Average: 29.0 km/h on Dec 4																		Minimum Daily Speed Average: 1.4 km/h on Dec 8						Hours of Data: 703		
Maximum Diurnal Speed Average: 10.1 km/h at hour 5																		Minimum Diurnal Speed Average: 7.8 km/h at hour 18						Hours of Missing Data: 41		
Monthly Average Velocity: 8.76 km/h 229.77 deg																		Speed Percentiles: P ₁ = 0.7 P ₁₀ = 2.5 Q ₁ = 4.2 Median = 8.6 Q ₃ = 16.7 P ₉₀ = 24.7 P ₉₉ = 37.4						Percent Operational Time: 94.5		
All monthly, daily, and diurnal averages have been calculated using vector methods																										
P - Power Failure 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	8	10	1	0	0	0	19																			
NorthEast	13	7	1	1	0	0	22																			
East	8	4	0	0	0	0	12																			
SouthEast	14	18	1	0	0	0	33																			
South	79	95	43	18	0	0	235																			
SouthWest	66	52	68	25	15	0	226																			
West	20	2	27	49	34	3	135																			
NorthWest	10	6	4	1	0	0	21																			
Total	218	194	145	94	49	3	703																			

Wind Rose

Wind Speed (WS) (km/h)
Portable Rycroft - December 2016





Peace Airshed Zone Association

Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Portable Rycroft - December 2016

Maximum Speed: 40 km/h on Dec 5 00:00	Maximum Daily Speed Average: 29.7 km/h on Dec 4	Hours in Service: 744
Minimum Speed: 1 km/h on Dec 8 23:00	Minimum Daily Speed Average: 2.8 km/h on Dec 8	Hours of Data: 703
Maximum Diurnal Speed Average: 13.4 km/h at hour 12	Minimum Diurnal Speed Average: 10.2 km/h at hour 18	Hours of Missing Data: 41
Monthly Average Speed: 11.70 km/h	Percentiles: P ₁ = 1.3 P ₁₀ = 2.8 Q ₁ = 4.5 Median = 8.9 Q ₃ = 16.8 P ₉₀ = 24.8 P ₉₉ = 37.5	Percent Operational Time: 94.5

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	4	3	3	6	12	11	4	5	7	6	4	7	6	4	3	4	5	7	4	5	8	10	12	7	6.2	12.2																							
2-Dec	6	8	7	6	5	3	4	9	11	4	5	8	5	6	6	7	13	14	16	13	14	16	12	8	8.6	15.7																							
3-Dec	10	16	12	8	10	13	13	13	13	12	13	12	12	10	9	14	13	11	11	10	10	10	10	12	11.5	15.5																							
4-Dec	10	12	19	19	24	25	31	29	29	24	34	38	36	39	38	35	33	30	29	31	33	36	39	40	29.7	40.1																							
5-Dec	34	28	31	26	21	19	19	20	19	20	25	30	29	30	27	23	19	17	16	12	12	20	23	23	22.6	34.4																							
6-Dec	22	21	22	22	22	22	24	23	22	22	22	21	19	16	14	12	14	15	14	8	5	7	7	6	16.7	23.5																							
7-Dec	6	3	7	3	3	6	5	4	4	3	4	4	2	4	3	4	1	2	1	2	3	2	4	4	3.5	6.9																							
8-Dec	2	2	4	4	3	3	4	3	4	3	3	2	3	4	3	2	4	4	5	1	2	2	1	1	2.8	4.6																							
9-Dec	2	1	3	4	5	5	4	5	1	3	3	1	2	5	4	4	2	3	3	4	5	4	4	4	3.5	5.2																							
10-Dec	3	3	3	3	2	3	2	3	2	2	2	3	3	3	3	4	4	4	8	10	5	6	12	6	4.2	12.1																							
11-Dec	9	11	12	15	21	17	18	14	15	16	17	20	20	17	14	22	19	27	28	31	23	30	30	27	19.7	30.8																							
12-Dec	27	29	26	28	25	29	27	31	32	38	36	26	17	24	29	30	29	28	29	25	25	P	P	P	17.5	29.1																							
14-Dec	P	26	27	29	21	22	29	24	23	23	27	24	23	21	14	17	16	6	5	6	4	5	5	5	5.4	9.5																							
15-Dec	8	8	8	8	8	9	7	5	5	4	4	2	6	3	3	4	10	6	4	4	5	4	3	3	5.2	7.7																							
16-Dec	5	5	3	4	7	6	5	4	4	5	6	5	4	3	3	6	4	7	5	8	7	7	7	7	5.3	8.5																							
17-Dec	8	7	6	8	8	8	8	8	7	1	4	6	4	2	5	3	2	4	4	6	6	4	3	3	3.5	9.7																							
18-Dec	3	2	3	4	3	1	2	1	3	4	3	2	2	7	2	3	3	3	6	2	3	6	6	10	20.2	37.6																							
19-Dec	10	12	14	11	14	11	25	31	32	16	11	24	37	38	35	30	23	16	14	16	15	15	15	20	22.0	36.1																							
20-Dec	25	23	21	24	27	20	19	18	29	32	36	33	29	29	22	18	14	15	14	13	22	16	13	17	10.5	15.8																							
21-Dec	14	13	13	9	8	10	9	8	8	8	6	9	7	8	9	10	11	10	12	12	13	12	16	15	17.7	25.5																							
22-Dec	15	12	8	5	10	16	20	22	22	23	18	21	20	18	14	18	20	19	21	25	24	24	14	13	6.7	20.2																							
23-Dec	16	18	20	8	9	8	7	7	7	6	5	5	4	4	4	5	4	4	3	5	3	3	2	2	3.9	8.5																							
24-Dec	3	3	4	3	3	3	3	4	6	8	7	5	4	3	1	2	1	2	2	2	3	6	9	7	--	12.3																							
25-Dec	9	9	9	10	7	6	6	10	12	N	N	N	10	11	11	N	N	N	N	N	N	N	N	N	--	--																							
26-Dec	N	9	12	23	25	24	13	10	8	10	9	7	6	4	5	6	4	2	3	3	7	12	9	4	9.3	25.0																							
27-Dec	9	18	21	27	25	23	21	17	13	13	15	17	15	12	14	12	9	9	11	10	16	12	10	16	15.2	27.3																							
28-Dec	17	15	13	17	17	20	12	12	15	10	10	16	21	18	21	12	9	9	11	17	10	8	11	11	13.8	21.3																							
29-Dec	10	9	9	7	8	7	9	6	7	8	8	6	6	3	6	7	6	5	5	5	3	5	4	7	6.5	9.8																							
30-Dec	9	6	5	7	5	5	6	7	8	10	11	10	13	8	5	5	6	5	5	7	13	16	17	18	8.5	18.4																							
31-Dec	24	23	17	20	19	20	17	5	7	5	7	25	18	13	7	10	15	14	11	12	13	15	14	14	14.5	24.5																							
																								11.4	11.9	12.1	12.2	12.6	12.5	12.4	11.9	12.5	11.8	12.2	13.4	12.8	12.1	11.2	11.3	10.9	10.2	10.5	10.4	10.7	11.3	11.1	11.1	Diurnal Average	
																								34.4	28.8	30.6	29.1	26.5	29.2	31.1	30.6	32.1	37.9	36.1	38.0	37.3	38.5	37.8	35.1	33.5	30.0	28.8	30.8	33.2	35.8	39.1	40.1	Diurnal Maximum	

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

Hourly Standard Deviations

Wind Direction (WD) - deg
Portable Rycroft - December 2016

Maximum Value: 94.6 deg on Dec 8 23:00	Hours in Service: 744
Minimum Value: 1.2 deg on Dec 13 04:00	Hours of Data: 703
Percentiles: P ₁ = 1.9 P ₁₀ = 2.9 Q ₁ = 4.0 Median = 7.3 Q ₃ = 15.7 P ₉₀ = 33.6 P ₉₉ = 80.2	Hours of Missing Data: 41
	Hours of Calibration: 0
	Percent Operational Time: 94.5

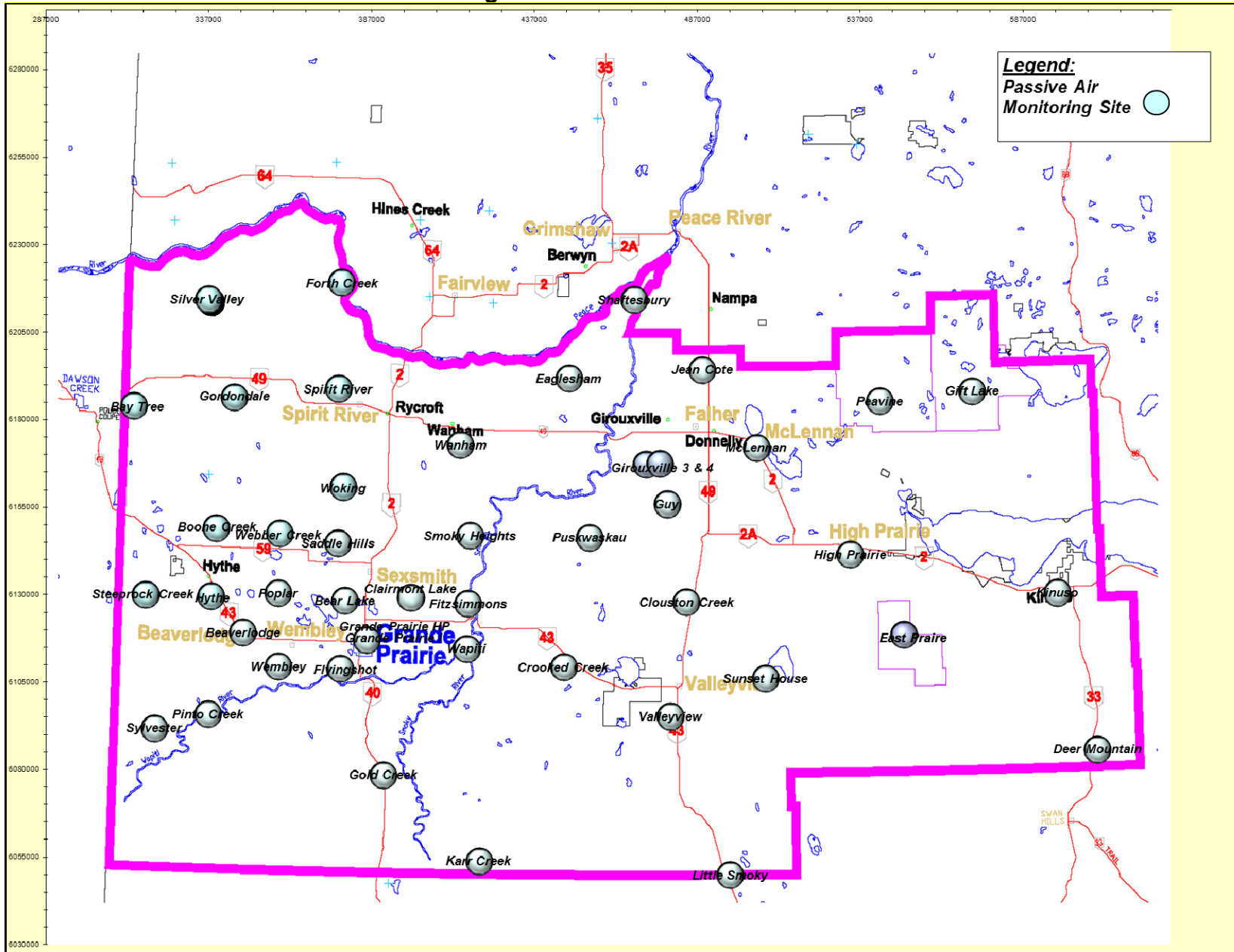
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	29	38	17	10	3	12	57	13	12	8	53	5	8	23	8	24	5	6	26	16	14	8	7	13	57.3
2-Dec	17	13	20	12	30	43	32	34	5	26	16	16	20	50	55	20	4	4	3	4	4	5	19	23	54.7
3-Dec	11	3	4	9	3	3	4	4	4	3	4	4	5	5	7	5	8	5	3	4	2	3	4	4	11.4
4-Dec	6	10	3	3	5	12	4	3	8	8	3	3	4	3	2	2	2	2	2	3	2	3	2	2	11.8
5-Dec	3	4	3	3	2	2	3	2	2	2	3	2	3	3	3	3	1	3	1	4	7	2	2	3	7.1
6-Dec	5	2	2	2	2	3	2	3	2	3	3	3	2	2	3	3	4	5	3	26	13	7	8	6	26.1
7-Dec	9	19	35	40	17	5	15	24	14	17	11	10	21	9	14	16	18	24	67	49	7	15	8	27	67.2
8-Dec	38	16	12	14	19	9	11	15	9	14	13	13	11	12	55	46	20	14	91	66	46	95	77	94.6	
9-Dec	27	23	11	15	14	10	12	9	76	14	10	51	25	13	15	13	12	11	5	8	5	5	12	8	76.2
10-Dec	5	7	6	13	60	11	19	20	53	34	7	16	24	18	11	9	11	10	13	3	5	8	4	7	60.1
11-Dec	4	7	6	3	6	8	3	4	3	4	3	5	3	4	4	5	7	5	4	6	5	4	2	3	8.0
12-Dec	3	2	2	2	6	2	3	3	3	2	2	4	8	7	3	4	2	2	2	4	7	P	P	P	8.0
13-Dec	P	4	4	1	6	5	2	6	3	2	3	4	3	3	3	4	4	33	7	14	12	9	14	10	32.8
14-Dec	8	5	6	8	7	5	8	16	6	14	8	48	49	59	48	33	8	13	26	19	18	38	15	20	59.4
15-Dec	19	7	18	11	7	5	22	9	14	20	7	6	4	6	15	11	15	19	13	4	6	7	6	12	21.8
16-Dec	7	55	28	8	8	4	4	5	15	56	28	7	11	56	35	34	55	26	13	16	7	24	49	29	56.3
17-Dec	19	20	10	13	22	69	29	53	31	28	19	49	80	18	81	83	58	73	80	58	60	16	22	9	83.1
18-Dec	5	4	3	4	9	6	5	4	7	3	5	14	3	3	3	3	4	3	5	5	4	7	6	5	14.2
19-Dec	3	4	4	3	5	4	5	3	4	3	4	3	3	3	8	4	4	4	4	4	3	4	11	3	11.2
20-Dec	4	4	4	3	4	11	4	6	15	15	18	5	7	5	4	8	5	4	5	4	4	7	8	17	18.1
21-Dec	3	9	7	21	11	5	3	4	3	3	3	3	3	4	5	4	4	3	4	2	4	4	5	4	21.1
22-Dec	8	7	35	8	4	7	6	10	7	20	41	28	11	23	24	16	5	59	21	54	13	60	64	57	63.6
23-Dec	44	63	42	44	25	25	57	20	12	14	12	10	8	21	87	13	51	23	18	46	22	14	4	11	87.3
24-Dec	8	10	6	10	9	13	80	41	9	N	N	N	52	28	19	N	N	N	N	N	N	N	N	N	79.5
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	35	26	56	4	25	5	6	54	10	16	10	8	14	12	8	21	79	68	56	21	3	17	17	78.9
27-Dec	29	5	7	2	3	4	4	7	5	7	3	2	3	3	6	5	4	7	5	9	5	4	5	5	29.3
28-Dec	4	3	5	7	5	3	4	4	4	9	8	5	4	4	7	5	3	8	7	5	4	4	4	3	8.6
29-Dec	4	6	4	4	4	11	8	9	10	10	9	7	10	51	60	24	31	74	15	62	74	18	19	9	74.0
30-Dec	7	8	6	12	25	11	6	6	12	10	6	10	6	10	14	9	10	12	14	21	6	3	6	6	24.7
31-Dec	3	4	4	2	3	4	9	21	7	18	14	5	6	7	17	14	7	6	11	16	13	3	3	5	21.2
	43.8	63.4	42.0	55.5	60.1	69.5	79.5	53.4	76.2	56.3	52.9	51.1	80.2	59.4	87.3	83.1	57.7	78.9	80.3	91.0	74.0	60.2	94.6	77.4	

P - Power Failure N - Not Valid

PAZA

Monthly Passive Data Summary

Location of PAZA Passive Monitoring Stations



PAZA Passive Results for December 2016

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	Site Legal
Duplicates						
12a	Hythe	0.3	29.8	1.8		
12b	Hythe	0.4	30.9	1.4		
30a	Fitzsimmons	0.3	28.0	1.6		
30b	Fitzsimmons	0.3	38.3	1.6		
37a	Crooked Creek	0.2	38.4	2.1		
37b	Crooked Creek	N/S	29.5	2.2		
43a	High Prairie	0.1	35.7	1.3		
43b	High Prairie	0.1	41.4	1.0		
63a	Girouxville 3				0.4	
63b	Girouxville 3				N/S	
1	Silver Valley	0.3	35.3	1.6		08-27-081-11 W6M
2	Bay Tree	0.2	25.8	1.5		13-16-078-13 W6M
3	Fourth Creek	0.3	41.9	0.9		04-13-082-07 W6M
4	Gordondale	0.2	29.9	2.0		04-34-078-10 W6M
5	Boone Creek	0.3	33.7	1.3		16-36-074-11 W6M
7	Steeprock Creek	0.3	33.2	1.6		09-35-072-13 W6M
9	Spirit River	0.3	33.1	1.9		08-12-079-07 W6M
10	Woking	0.6	37.7	1.5		01-13-076-07 W6M
11	Webber Creek	0.4	28.5	3.1		09-36-074-09 W6M
12	Hythe	0.3	30.3	1.6		14-36-072-11 W6M
14	Sylvester	0.1	37.5	0.8		08-06-069-12 W6M
16	Beaverlodge	0.3	31.5	3.4		15-36-071-10 W6M
17	Poplar	0.3	31.9	2.0		13-06-073-08 W6M
18	Saddle Hills	0.3	29.2	1.1		04-25-074-07 W6M
19	Wanham	1.2	39.3	1.4		16-22-077-03 W6M
20	Shaftesbury	0.2	34.5	1.5		04-03-082-23 W5M
21	Eaglesham	0.1	34.0	1.6		16-21-079-25 W5M
23	Bear Lake	0.3	32.9	2.5		15-31-072-06 W6M
24	Wembley	0.2	32.3	2.2		12-31-070-08 W6M
25	Pinto Creek	0.2	36.0	1.3		04-24-069-11 W6M
26	Flyingshot	0.2	29.7	2.8		15-36-070-07 W6M
27	Grande Prairie I	0.3	27.3	10.8		08-15-071-06 W6M
28	Clairmont Lake	0.4	34.7	1.9		09-06-073-04 W6M

PAZA Passive Results for December 2016 (Continued)

29	Smoky Heights	0.5	30.4	1.8		04-06-075-02 W6M
30	Fitzsimmons	0.3	33.2	1.6		15-36-072-03 W6M
32	Gold Creek	0.1	23.6	4.7		06-33-067-05 W6M
33	Wapiti	0.2	34.4	2.4		02-25-071-03 W6M
34	Puskwaskau	0.1	26.4	1.0		15-35-074-25 W5M
35	Jean Cote	0.2	37.4	1.2		12-35-079-21 W5M
36	Guy	0.2	34.3	0.9		03-04-076-22 W5M
37	Crooked Creek	0.2	33.9	2.1		16-01-071-26 W5M
38	Karr Creek	0.1	25.3	1.2		10-16-065-02 W6M
39	Clouston Creek	0.2	33.8	1.2		12-01-073-22 W5M
40	McLennan	0.2	26.9	1.2		03-29-077-19 W5M
41	Valleyview	0.5	33.1	1.3		09-30-069-22 W5M
42	Sunset House	0.2	37.0	1.2		05-32-070-19 W5M
43	High Prairie	0.1	38.5	1.1		16-13-074-17 W5M
44	Peavine	0.1	33.0	0.7		03-05-079-15 W5M
45	Gift Lake	0.1	24.1	0.9	0.1	10-07-079-12 W5M
46	Little Smoky	0.2	25.9	3.9		12-01-065-21 W5M
47	Kinuso	0.1	35.6	0.8		12-10-073-10 W5M
65	Deer Mountain 2	0.1	32.6	0.5		15-22-068-09 W5M
49	Grande Prairie HP	0.3	22.0	11.3		17-26-071-06 W6M
50	East Prairie	0.1	34.2	0.4		13-02-072-15 W5M
63	Girouxville 3				0.4	14-02-077-23 W5M
64	Girouxville 4				0.3	4-08-077-22 W5M

*BDL = Below Detection Level

*NS - No sample

Passive Summary for December 2016

Stats	Sulphur Dioxide SO ₂	Ozone O ₃	Nitrogen Dioxide NO ₂	Hydrogen Sulphide H ₂ S
	ppb	ppb	ppb	ppb

Passive Summary for December 2016 (PAZA Zone)				
Mean	0.3	32.2	2.1	0.3
Standard Deviation	0.2	4.5	2.2	0.2
Minimum	0.1	22.0	0.4	0.1
Minimum At	Karr Creek (#38)	Grande Prairie HP	East Prairie (#50)	Gift Lake (#45)
Maximum	1.2	41.9	11.3	0.4
Maximum At	Wanham (#19)	Fourth Creek (#3)	Grande Prairie HP	Girouxville 3 (#63)

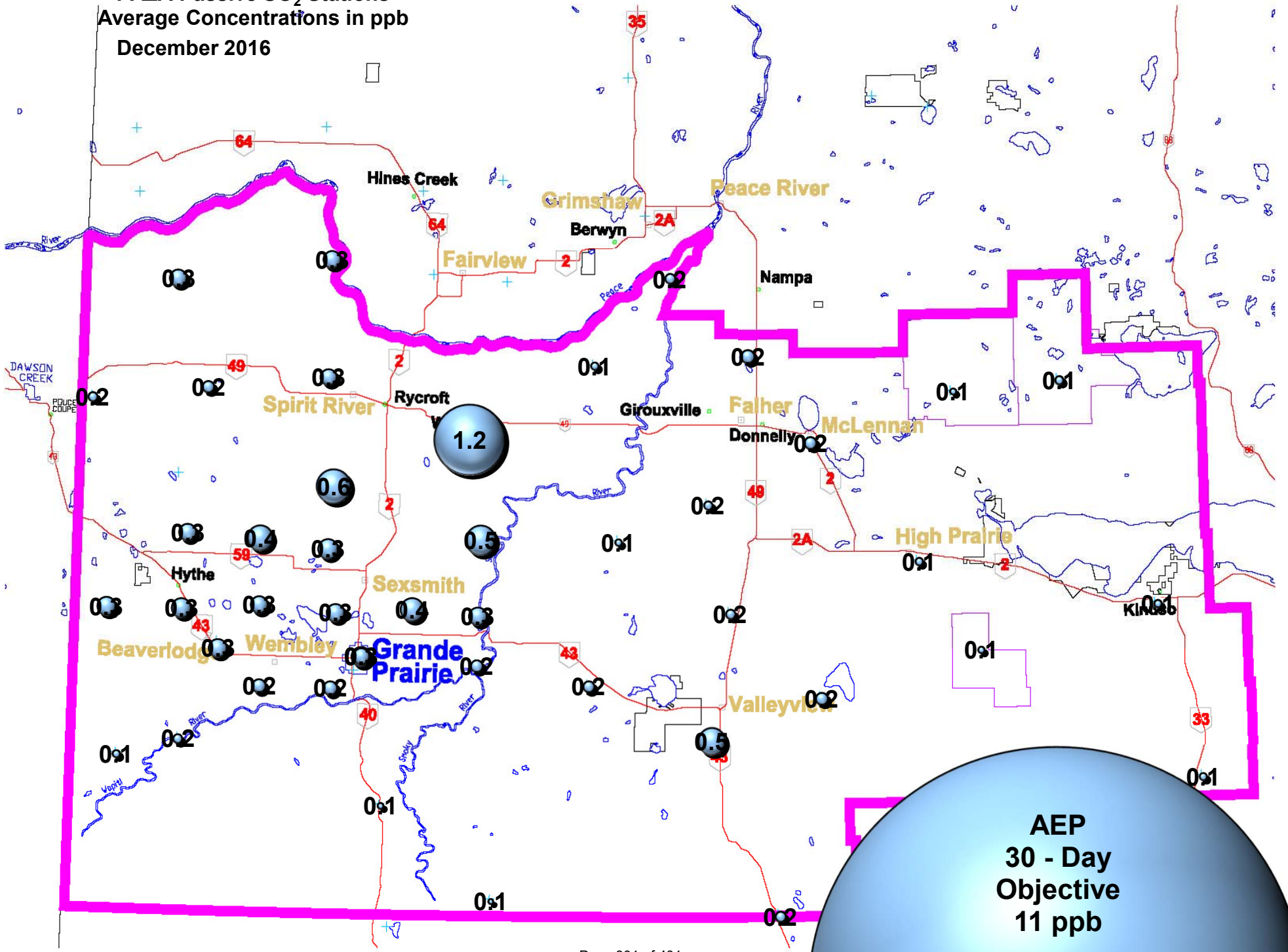
Comparison between Continuous and Passive monitoring at Beaverlodge (passive #16 Beaverlodge)

	SO ₂	O ₃	NO ₂
PAZA Beaverlodge station	0.3	29.0	5.5
PAZA Beaverlodge passive	0.3	31.5	3.4

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

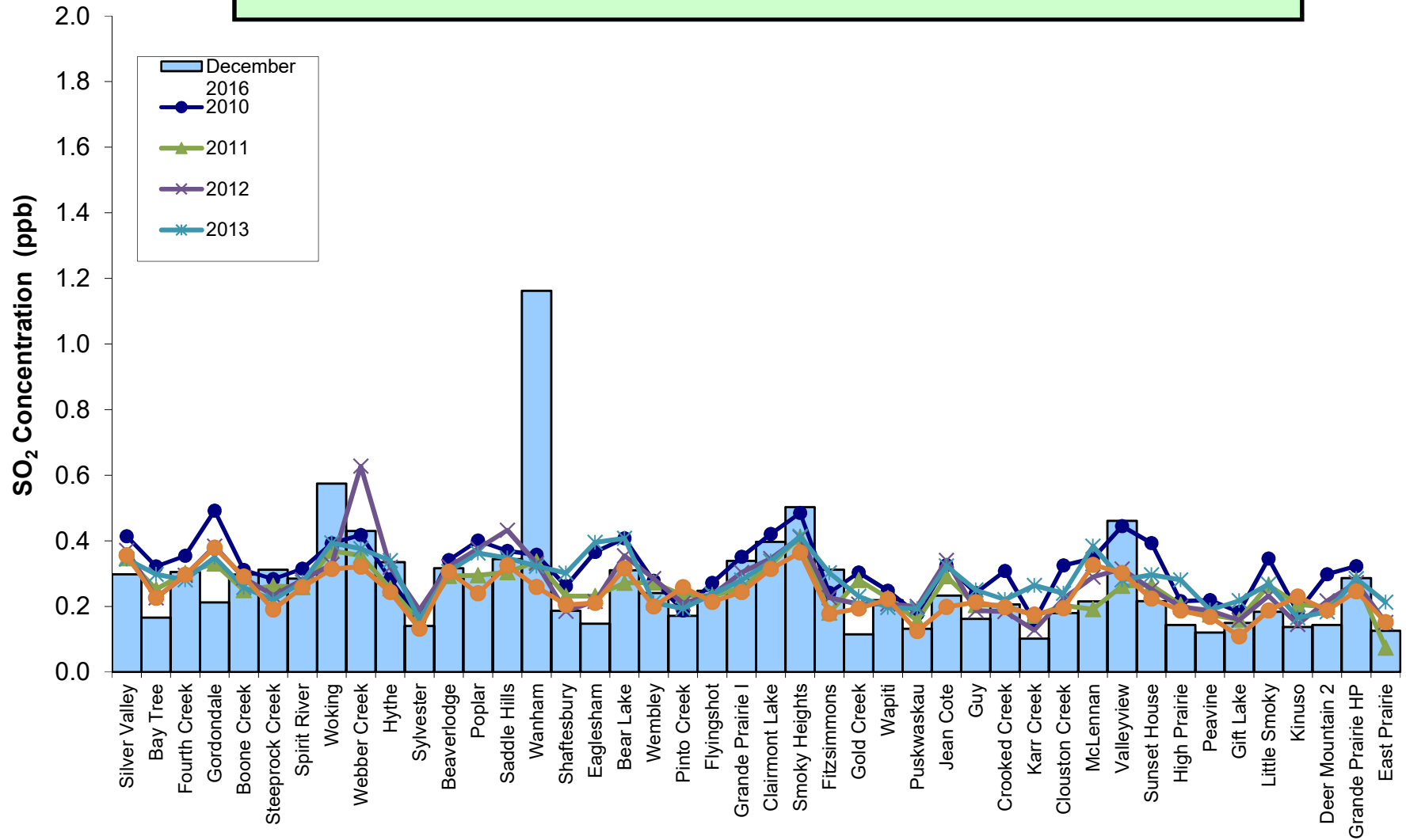
	SO ₂	O ₃	NO ₂
PAZA Henry Pirker station	0.3	20.3	14.5
PAZA Grande Prairie passive	0.3	22.0	11.3

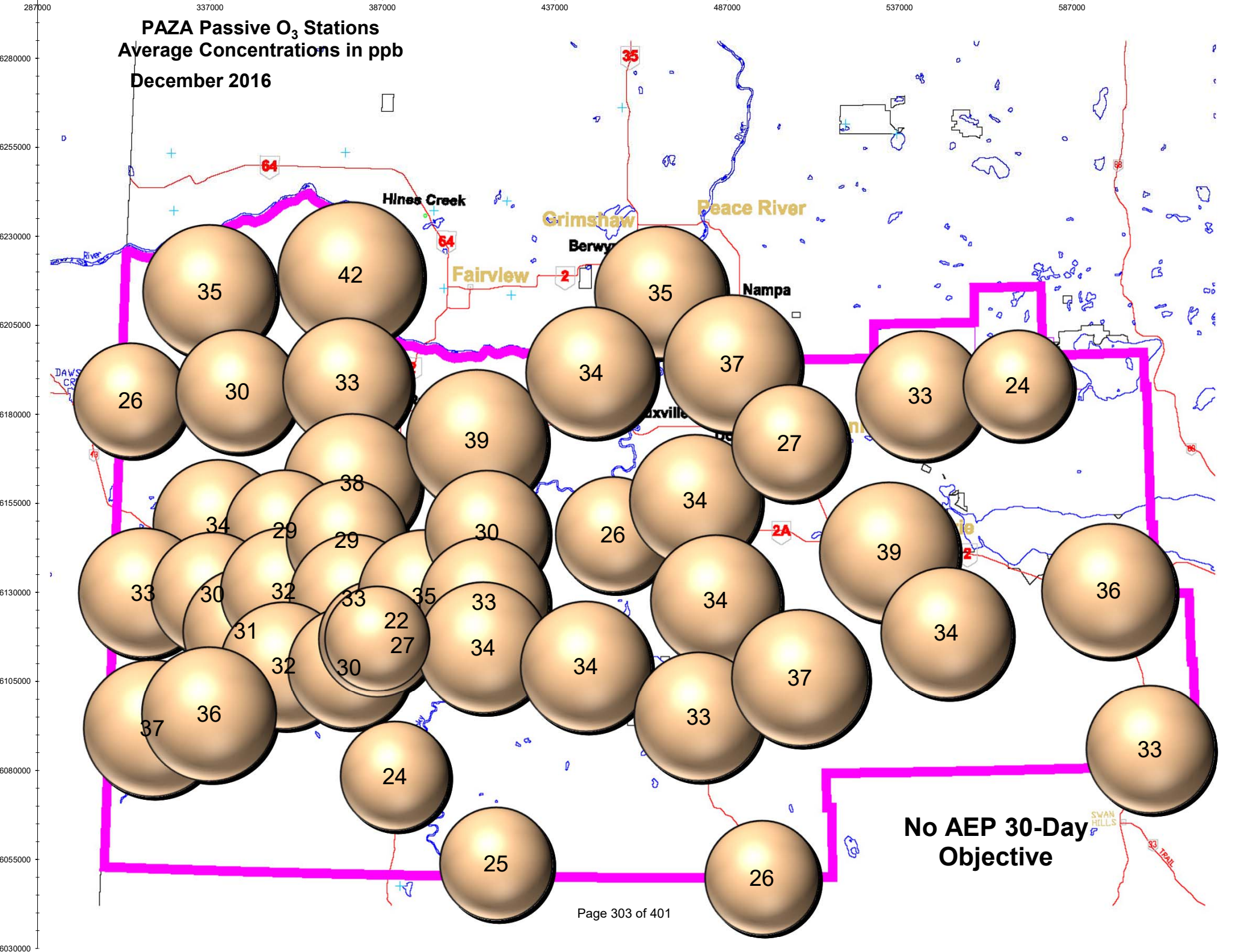
PAZA Passive SO₂ Stations
Average Concentrations in ppb
December 2016



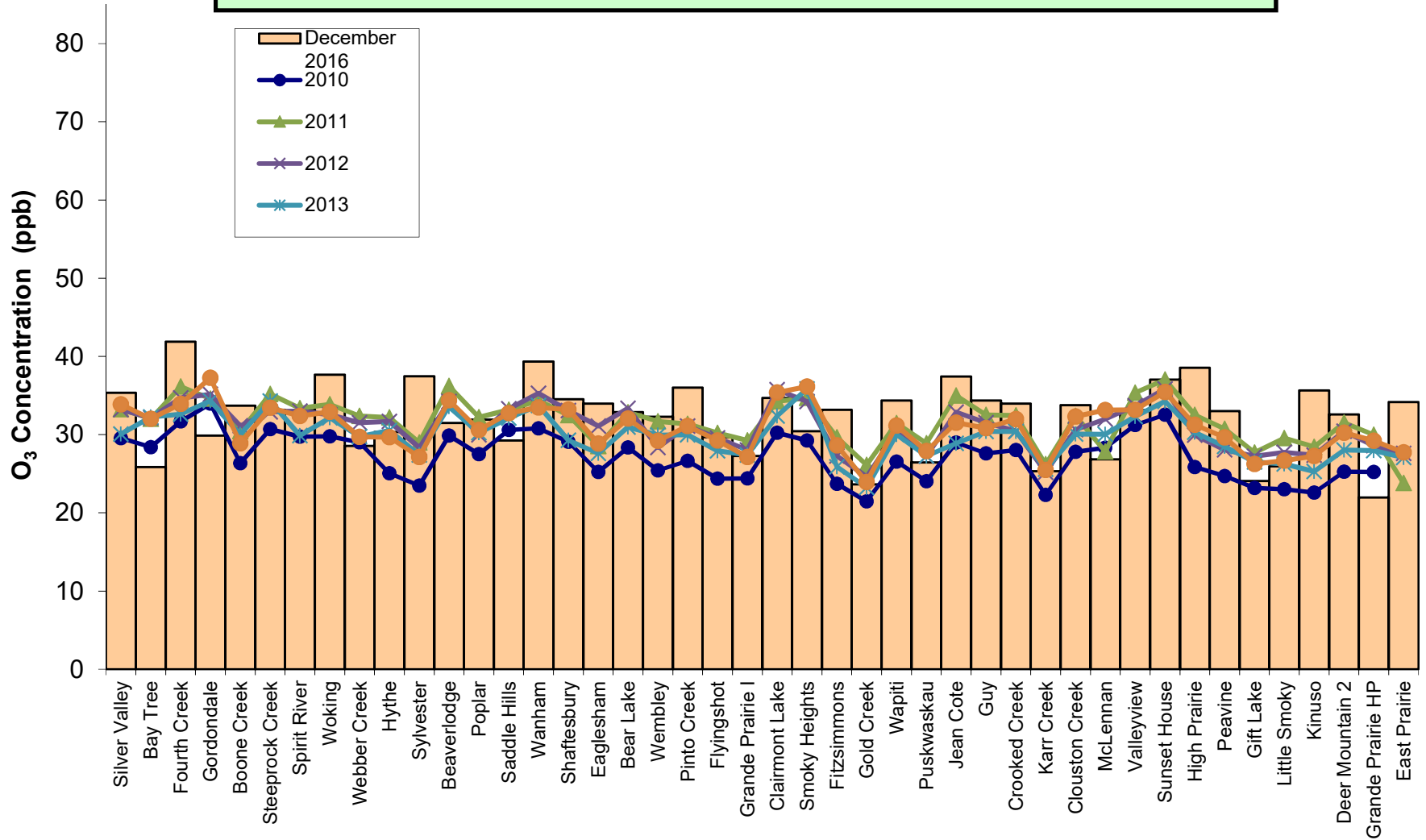
**AEP
30 - Day
Objective
11 ppb**

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

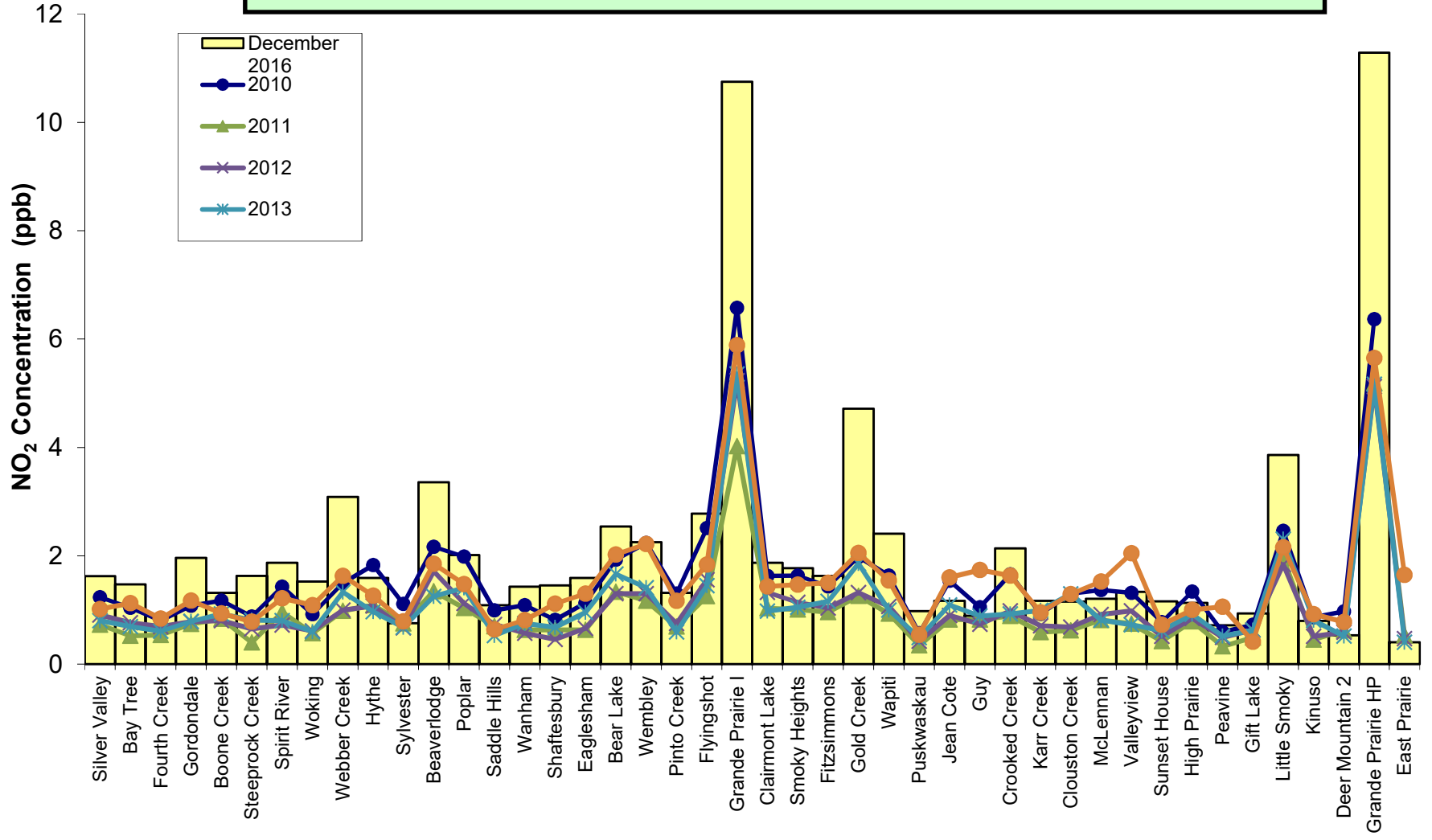




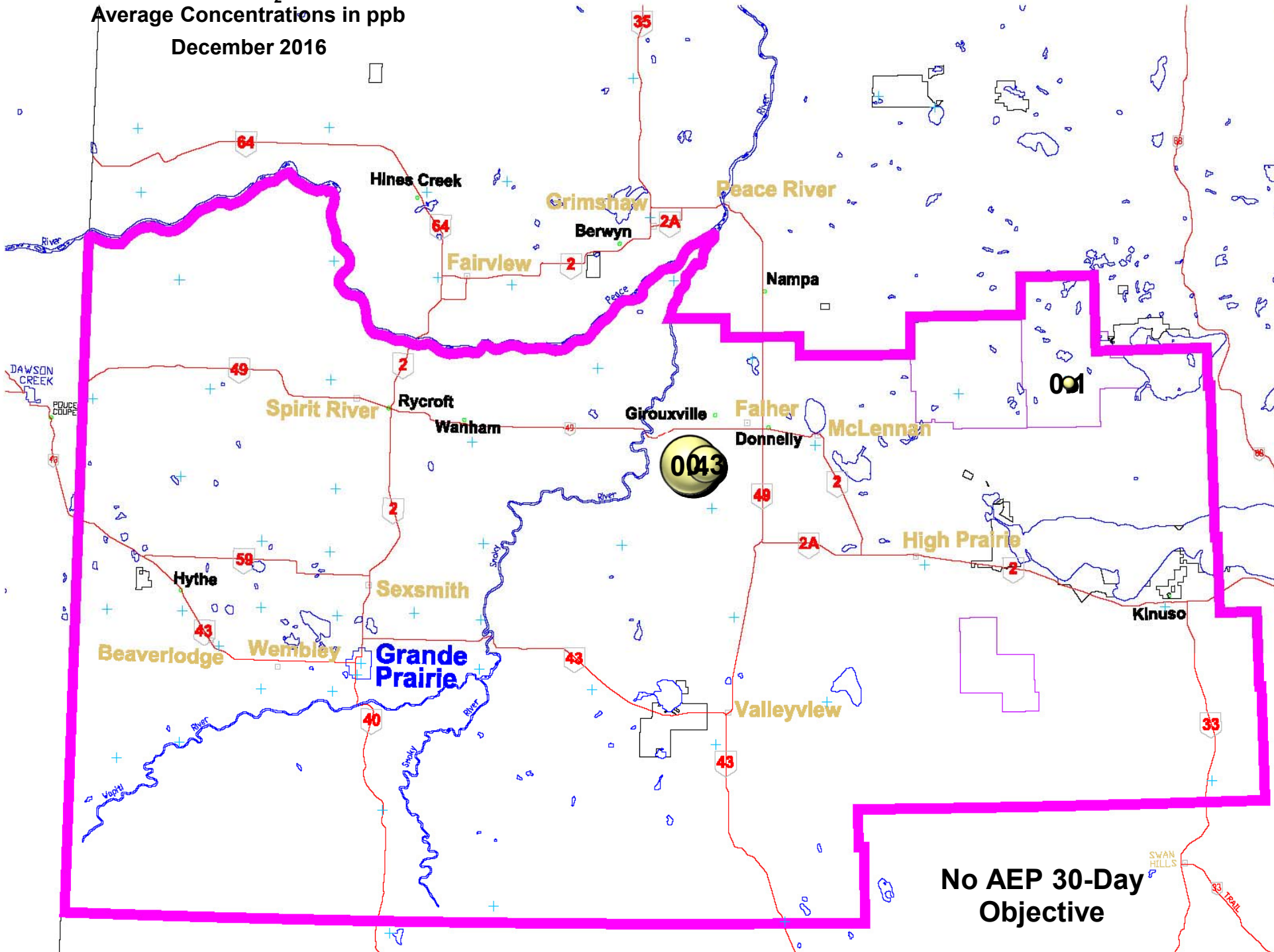
Alberta Ambient Air Quality Objective - No Annual O₃ Objective

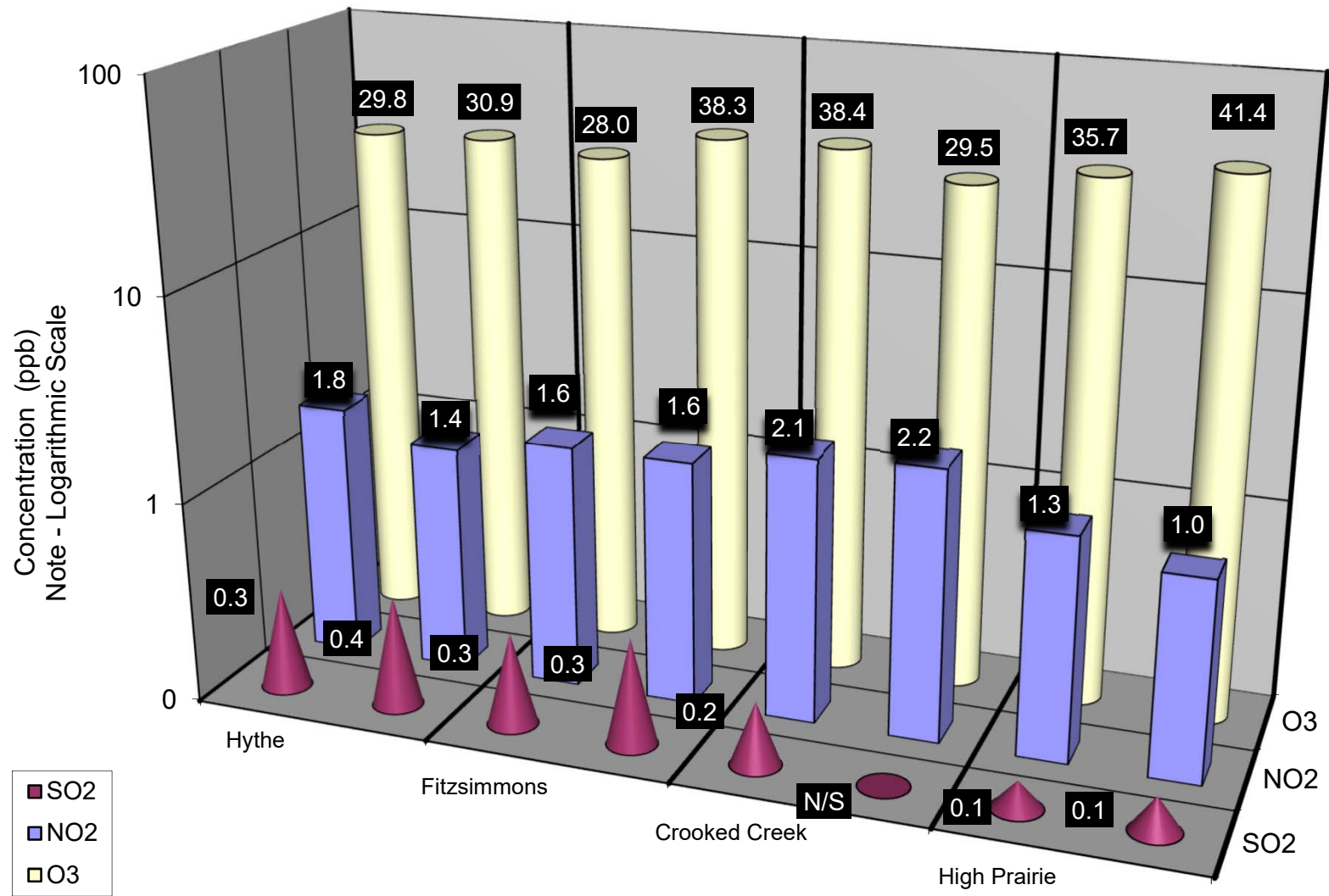


Alberta Ambient Air Quality Objective - Annual NO₂ Objective is 24 ppb



**PAZA Passive H₂S Stations
Average Concentrations in ppb
December 2016**





Duplicate Summary Chart

December 2016 Calibration Reports

**PAZA - Henry Pirker Station with the following calibrations:
SO₂, NO, NO₂, NO_x, O₃, CO, THC, TRS and PM_{2.5}**

**PAZA – Evergreen Park Station with the following calibrations:
SO₂, TRS and PM_{2.5}**

**PAZA – Smoky Heights Station with the following calibrations:
SO₂, TRS and PM_{2.5}**

**PAZA – Beaverlodge Station with the following calibrations:
SO₂, NO, NO₂, NO_x, O₃ and PM_{2.5}**

**PAZA – Valleyview Station with the following calibrations:
SO₂ and H₂S**

**PAZA – Donnelly Station with the following calibrations:
SO₂ and H₂S**

**PAZA – Rycroft Station with the following calibrations:
SO₂, NO, NO₂, NO_x, O₃, THC and TRS**

Calibration Report



AIR QUALITY MONITORING

Parameter SO2

Air Monitoring Network PAZA

Station Information

Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
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)	10:00	End Time (MST)	12:00
Barometric Pressure	721.000 mm	Station Temperature	15.5 Deg C
Calibrator	EnviroNics	Serial Number	6586
Cal Gas Conc	49.7 ppm	Cal Gas Cert Date	October 5, 2018
		Cal Gas Cylinder #	LL103793
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 1 volt	DACS channel #	10
	Before		After
Calculated slope	0.998782	Calculated slope	0.987360
Calculated intercept	1.075131	Calculated intercept	1.516513
Analyzer make	TEI 43I-TLE	Analyzer serial #	1507864682 (AMU 2006)

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	1.43		1.43	
Coefficient	0.920		0.920	
Pressure	678.9	mm Hg	679.5	mm Hg
Flow	0.441	lpm	0.448	lpm
Lamp intensity	82	Hz	82	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)
4996	0.00	0.0	0.1	N/A
4998	39.94	394.0	398.9	0.9878
4997	19.99	198.0	196.6	1.0075
4999	9.89	98.1	97.3	1.0086
4996	0.00	0.0	0.1	As Found Zero
4996	39.93	394.1	398.9	As Found Span
Average Correction Factor				1.0013

Calculated value of As Found Response: 399.3 ppb Percent Change of As Found: -1.3%

	before calibration		after calibration	
Auto zero	0.1	ppb	0.1	ppb
Auto span	281.7	ppb	276.8	ppb

Notes: No adjustment made

Calibration Performed By: Dmytro Dolotii

Calibration Summary



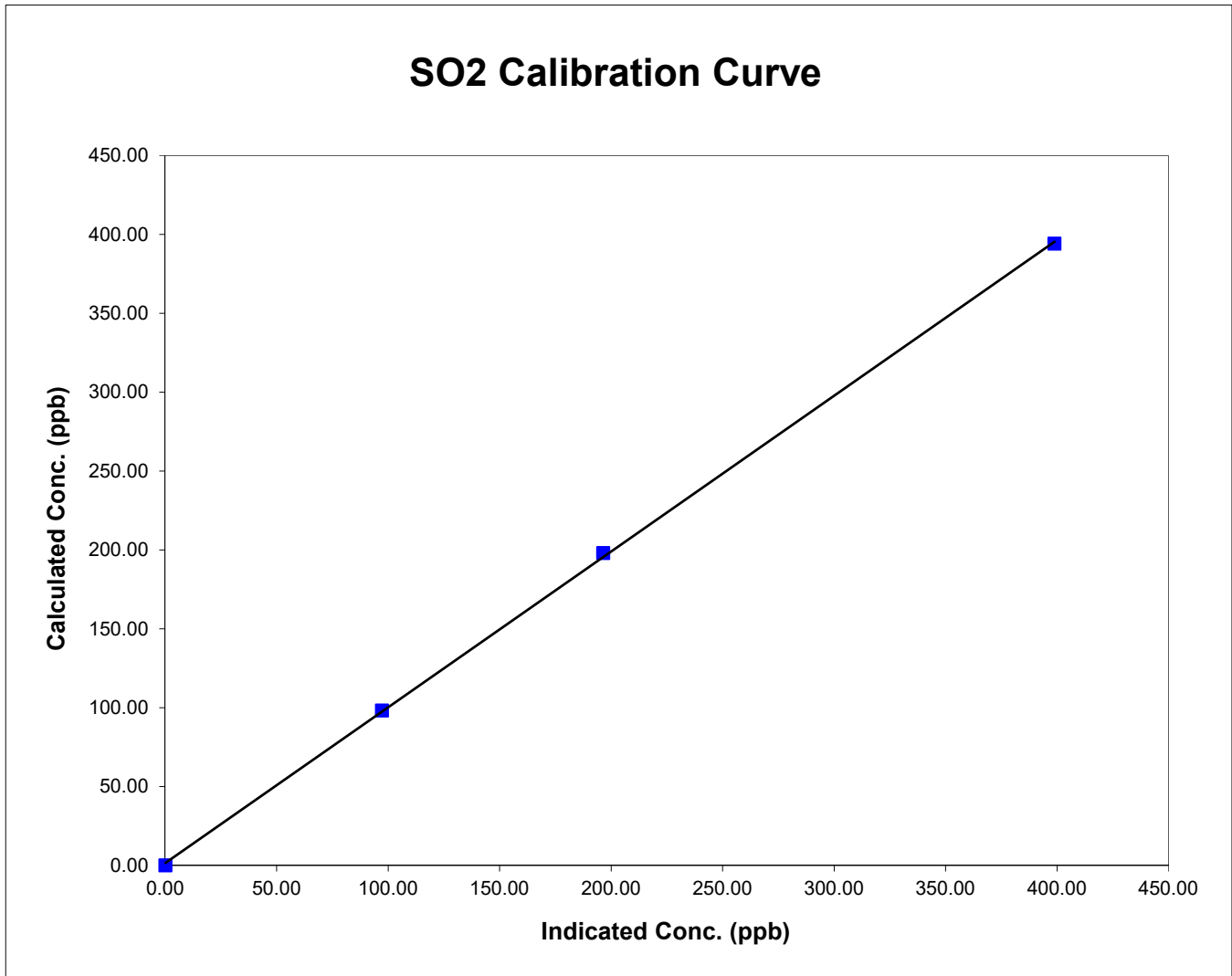
Parameter SO2
 Air Monitoring Network PAZA

Station Information

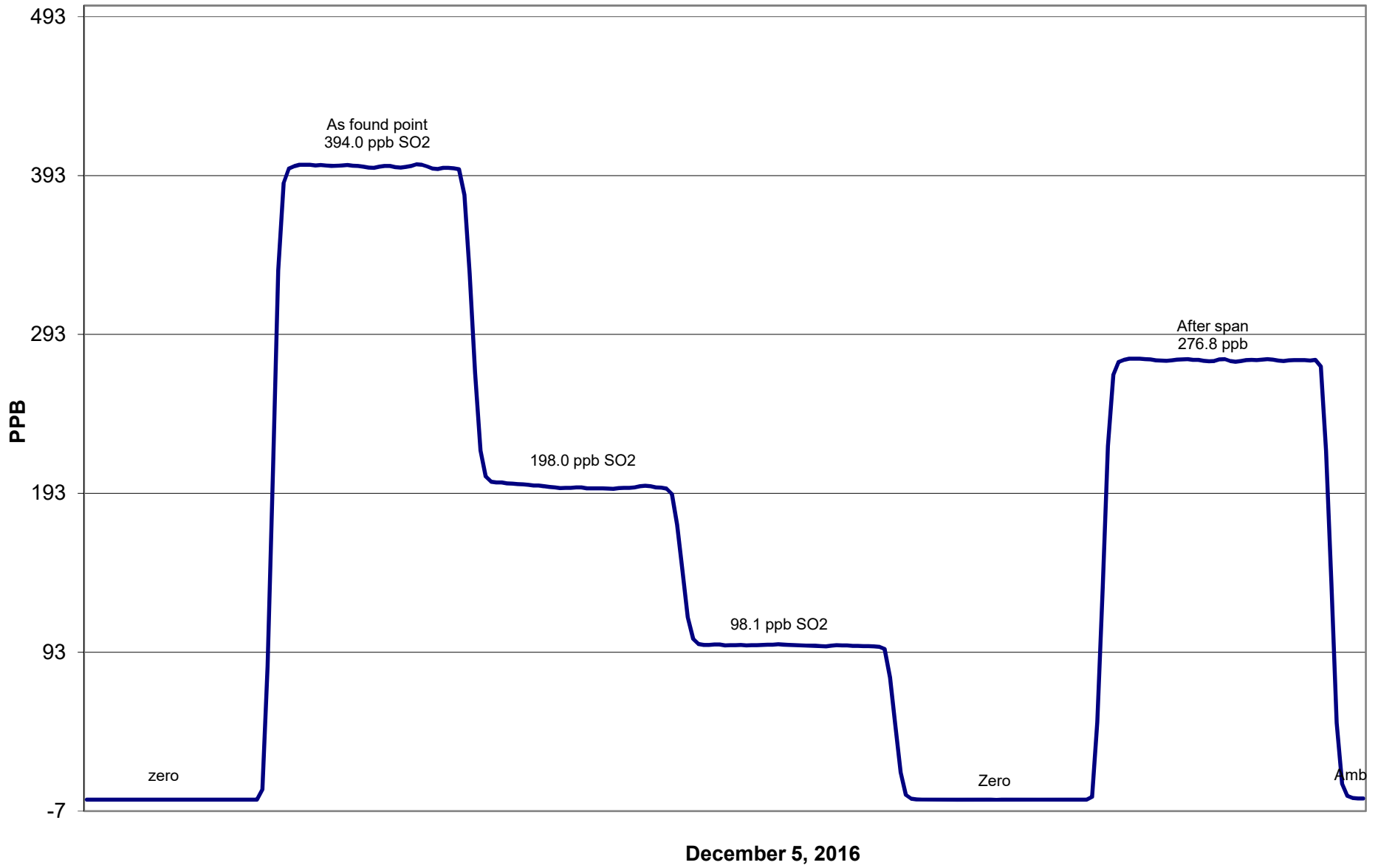
Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	10:00	End Time (MST)	12:00
Analyzer make/model	TEI 43I-TLE	Analyzer serial #	1507864682 (AMU 2006)

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	N/A	Correlation Coefficient	0.999873
394.0	398.9	0.9878		
198.0	196.6	1.0075	Slope	0.987360
98.1	97.3	1.0086		
			Intercept	1.516513



SO2 Calibration



Calibration Report

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



Station Information

Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
Station Number	1	Station Location	Henry Pirker
Reason:	Routine	Installation	Removal
Start Time (MST)	10:00	End Time (MST)	13:25:00 PM
Barometric Pressure	721.000 mm	Station Temperature	15.5 Deg C
Calibrator	Envionics	Serial Number	906535067(AMU 197)
NO Cal Gas Conc	50.9 ppm	Cal Gas Expiry Date	October 5, 2018
NO _x Cal Gas Conc	51.2 ppm	Cal Gas Serial #	LL103793

DACS Information

DACS make	CR3000	DACS serial No.	5408
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Parameter	NO2	NO _x	NO
Before	Data Slope	1.001421	1.005243
	Data Offset	-0.226681	0.586529
After	Data Slope	0.999991	0.999402
	Data Offset	-0.023323	0.886663
Channel #	8	6	7
Voltage Range	0 - 5 VDC	0 - 5 VDC	0 - 5 VDC

Analyzer Information

Analyzer make/model	42i	Analyzer serial #	906535087
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Test Point	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
NO offset	5.9	mV	5.9	mV
NO _x bkgnd	6.3	mV	6.3	mV
NO coefficient	0.928		0.928	
NO _x coefficient	1.000		1.000	
NO2 conv temp	323.4	Deg C	323.2	Deg C
Cooler Temp	-2.9	Deg C	-2.9	Deg C
PMT Volt	-845.1	mV	-845.0	mV
R Cell Press	171.9	in Hg	171.9	in Hg
Sample Flow	0.634	LPM	0.640	LPM

Notes: No adjustment made.

Calibration Report



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

Station Information

Calibration Date: December 5, 2016 Station Location: Henry Pirker

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor
zero	4996	0.00	0.0	0.0	0.0	0.6	0.5	0.1	N/A	N/A
1	4995	39.91	405.8	403.5	2.4	406.0	406.3	0.0	0.9997	0.9930
2	4998	19.95	203.6	202.4	1.2	201.8	201.2	0.3	1.0085	1.0057
3	4997	9.94	101.6	101.0	0.6	99.5	99.7	0.1	1.0211	1.0139
AFZ	4996	0.00	0.0	0.0	0.0	0.6	0.5	0.1	0.0000	0.0000
AFS	4996	39.92	405.9	403.5	0.8	406.0	406.3	0.0	0.9997	0.9931
Average Correction Factor									1.0098	1.0042

As Found Concentrations: NO_x= 408.1 NO= 405.8 As Found Percent Change NO_x= 0.6% NO= 0.6%

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	0.5	0.5	0.0	0.6	0.5	0.1	N/A	N/A	N/A	N/A
NO point	403.7	403.7	0.0	403.7	403.7	0.0	1.0000	1.0000	N/A	N/A
300	403.7	65.7	338.0	404.2	65.7	338.1	0.9987	1.0000	0.9996	100.0%
200	403.7	177.5	226.2	404.6	177.5	226.2	0.9978	1.0000	1.0002	100.0%
100	403.7	294.2	109.5	404.6	294.2	109.4	0.9978	1.0000	1.0011	99.9%
Average Correction Factor							0.9981	1.0000	1.0003	100.0%

AIC Data

Parameter	Previous calibration				Current calibration			
	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	0.4	0.0	0.8	ppb	0.6	0.0	0.8	ppb
Auto span	315.8	312.6	3.0	ppb	310.6	307.6	2.8	ppb

Calibration Performed By: Dmytro Dolotii

Calibration Summary



Parameter NO₂

Air Monitoring Network PAZA

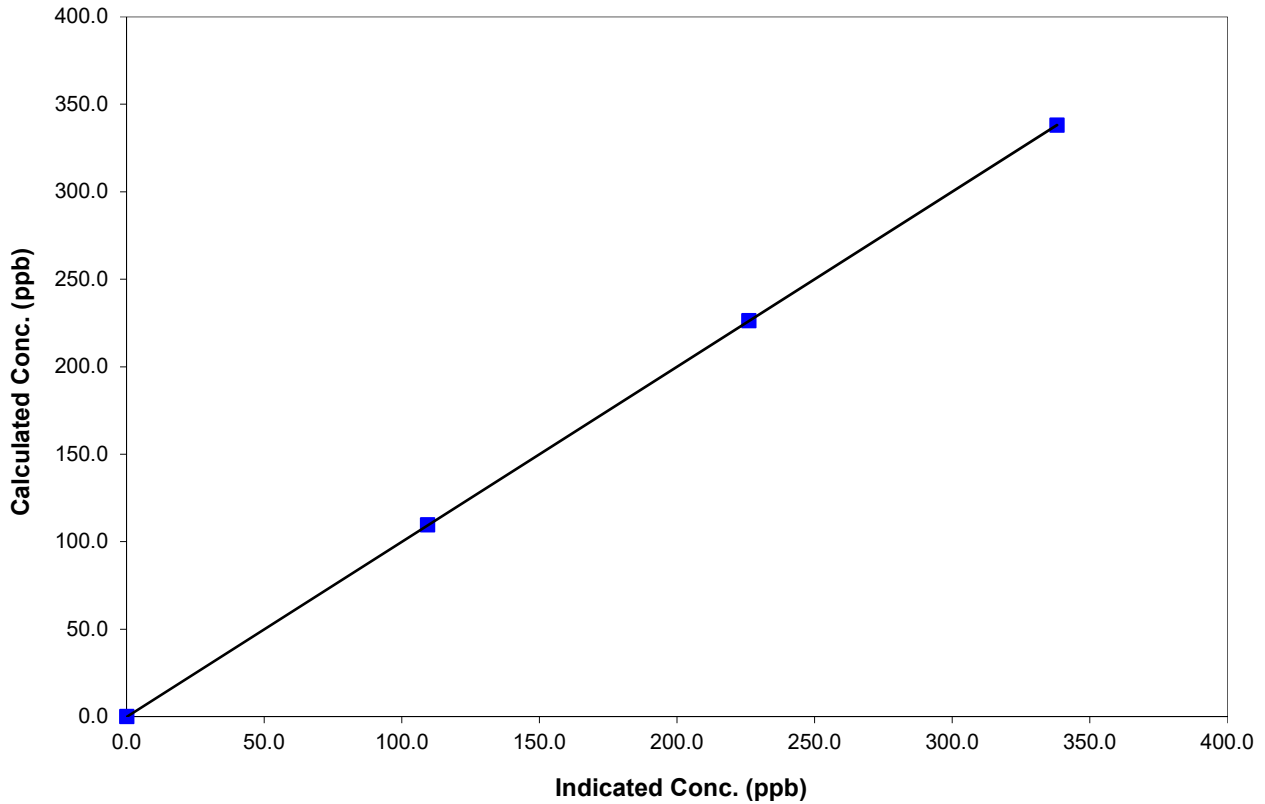
Station Information

Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	10:00	End Time (MST)	13:25:00 PM
Analyzer make	42i	Analyzer serial #	906535087

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	N/A	Correlation Coefficient	0.999999
338.0	338.1	0.9996		
226.2	226.2	1.0002	Slope	0.999991
109.5	109.4	1.0011		
			Intercept	-0.023323

NO₂ Calibration Curve



Calibration Summary



Parameter NO_x

Air Monitoring Network PAZA

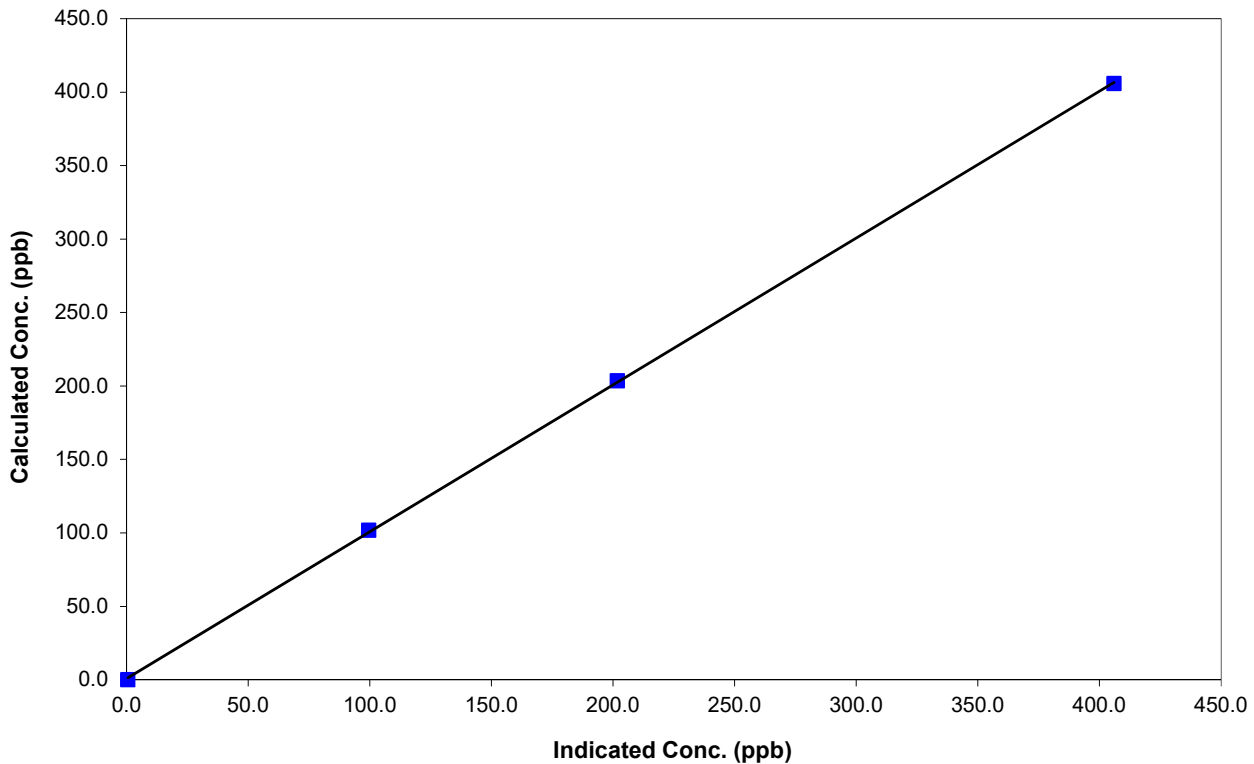
Station Information

Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	10:00	End Time (MST)	13:25:00 PM
Analyzer make	42i	Analyzer serial #	906535087

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.6	N/A	Correlation Coefficient	0.999942
405.8	406.0	0.9997		
203.6	201.8	1.0085		
101.6	99.5	1.0211	Slope	0.999402
			Intercept	0.886663

NO_x Calibration Curve



Calibration Summary

Parameter NO

Air Monitoring Network PAZA



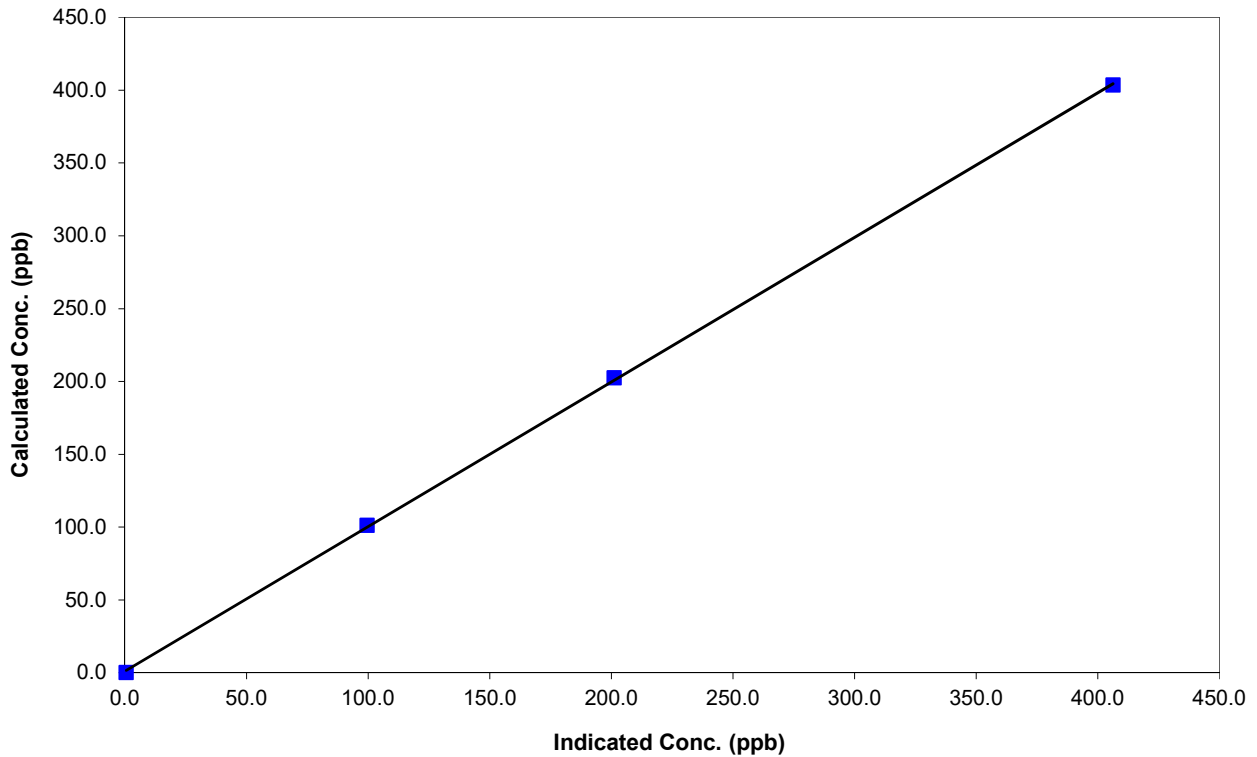
Station Information

Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	10:00	End Time (MST)	13:25:00 PM
Analyzer make	42i	Analyzer serial #	906535087

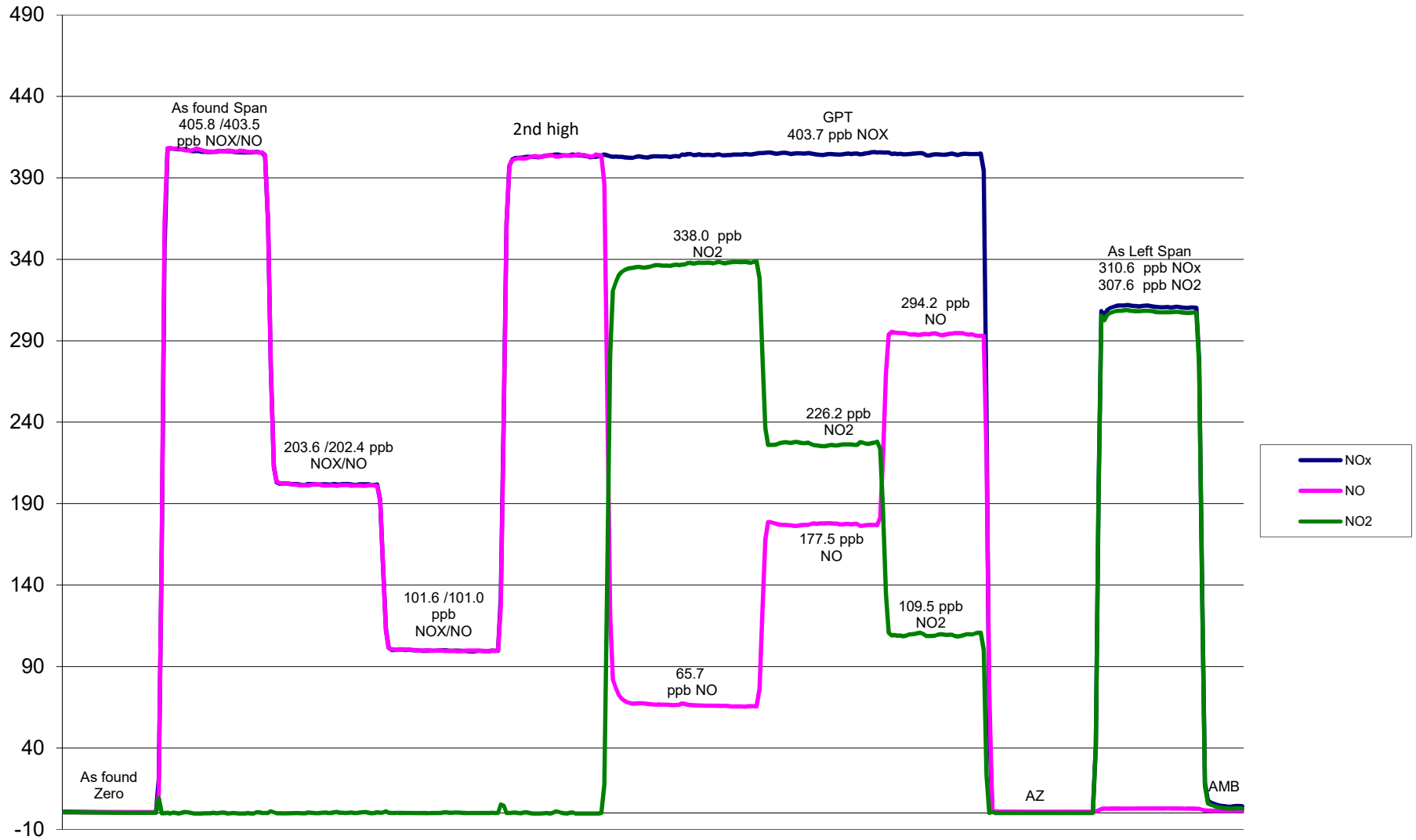
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.5	N/A	Correlation Coefficient	0.999922
403.5	406.3	0.9930		
202.4	201.2	1.0057	Slope	0.993016
101.0	99.7	1.0139		
			Intercept	1.025477

NO Calibration Curve



NO_x Calibration



December 5, 2016

Calibration Report



AIR QUALITY MONITORING

Parameter 03

Air Monitoring Network PAZA

Station Information

Calibration Date	December 5, 2016	Previous Calibration	November 7, 2016
Station Number	1	Station Location	Henry Pirker
Reason:	Routine	Install	Removal
		Other:	
Start Time (MST)	12:40	End Time (MST)	14:50:00 PM
Barometric Pressure	721.000 mm	Station Temperature	15.5 Deg C
Calibrator	Envionics	Serial Number	6586
Cal Gas Concentration	NA	Cal Gas Expiry Date	NA
DACS make	CR3000	DACS serial No.	5237
DACS voltage range	0 - 5 volt	DACS channel #	9
	Before		After
Calculated slope	1.009525	Calculated slope	1.013428
Calculated intercept	-0.617986	Calculated intercept	-1.525955
Analyzer make	Teco 491	Analyzer serial #	1507964699 (AMU:2015)

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
offset	-1.10	ppb	-1.10	ppb
slope	1.017		1.017	
Lamp temp	53.5	mV	53.6	mV
Lamp Intensity A/B	73055/80179	mV	73106/80236	mV
Pressure	697.3	mm Hg	697.1	mm Hg
Flow A	0.731	ccm	0.732	ccm
Flow B	0.733	ccm	0.733	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)
4997	0.0	0.0	0.7	N/A
4999	0.3	338.0	334.3	1.0110
4999	0.2	226.2	225.3	1.0040
4998	0.1	109.5	110.5	0.9912
4997	0.0	0.0	0.7	As found zero
4997	0.3	338.0	334.3	As found span
Average Correction Factor				1.0021

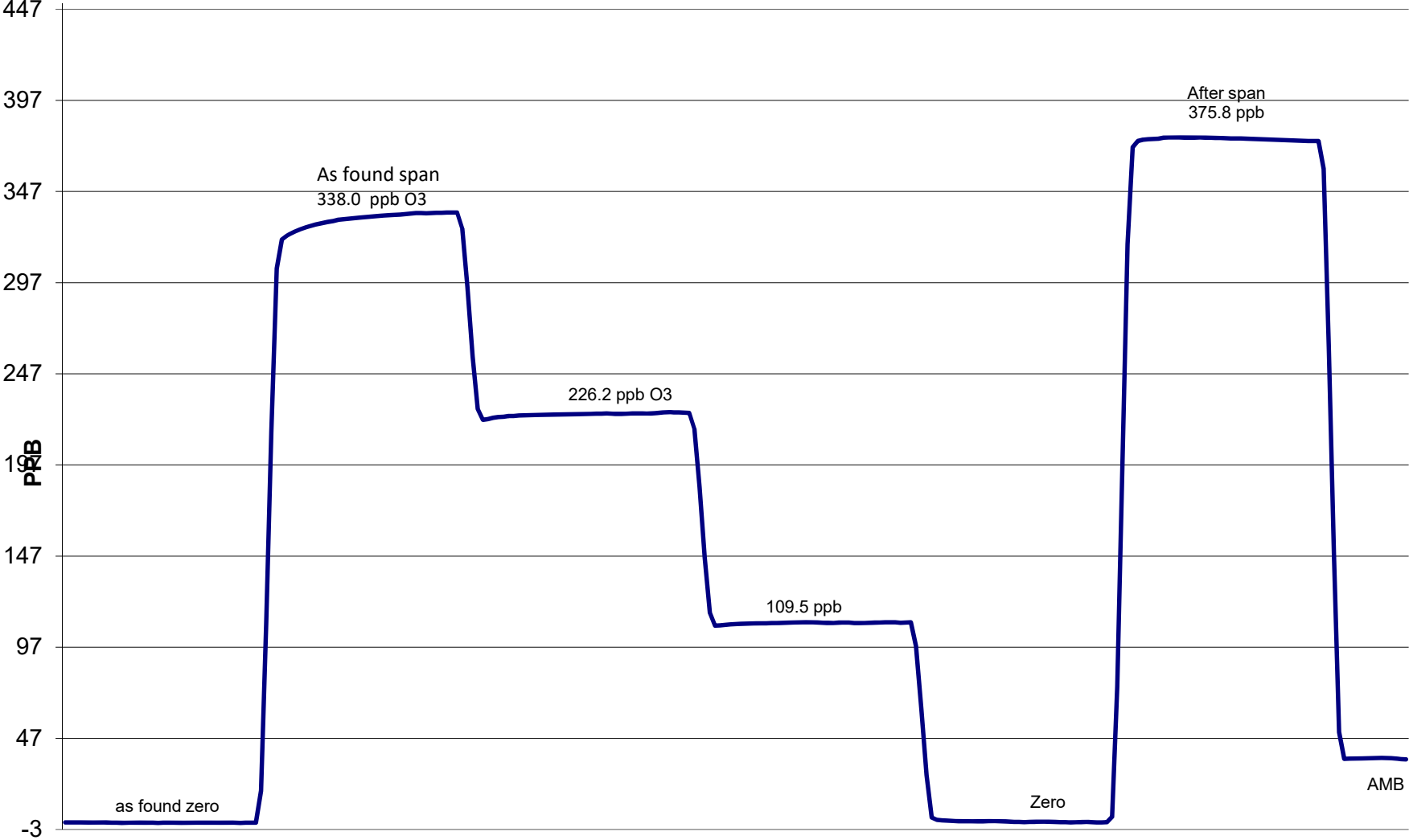
Calculated value of As Found Response: 336.2 ppm Percent Change of As Found: -0.5%

	before calibration		after calibration	
Auto zero	0.2	ppb	1.1	ppb
Auto span	372.7	ppb	375.8	ppb

Notes: No adjustment made

Calibration Performed By: Dmytro Dolotii

O3 Calibration



December 5, 2016

Calibration Report



Parameter CO

Air Monitoring Network PAZA

Station Information

Calibration Date	December 6, 2016	Previous Calibration	November 3, 2016
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)	11:05	End Time (MST)	14:05:00 PM
Barometric Pressure	724.0 mm/hg	Station Temperature	20.0 Deg C
Calibrator	Enviroics 6100	Serial Number	6586
Cal Gas Conc	2906 ppm	Cal Gas Expiry Date	7/7/2023
		Cal Gas Cylinder #	LL109096
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 5 volt	DACS channel #	9
	<u>Before</u>		<u>After</u>
Calculated slope	1.001023	Calculated slope	1.000146
Calculated intercept	-0.244924	Calculated intercept	-0.168927
Analyzer make	Model 48I-TLE	Analyzer serial #	1408761378

	before		after	
Concentration range	0 - 50	ppm	0 - 50	ppm
CO zero setting	6.472		6.828	
CO span setting	1.058		1.058	
Sample pressure	709.1	mm Hg	710.6	mm Hg
Sample Flow	0.455	LPM	0.456	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	0.01	N/A
4997	69.91	40.10	40.16	0.9983
4998	34.96	20.19	20.46	0.9866
4996	17.93	10.39	10.71	0.9704
4995	0.00	0.00	0.36	As Found Zero
4995	69.91	40.11	41.12	As Found Span
Average Correction Factor				0.9851

Calculated value of As Found Response: 40.561 ppm Percent Change of As Found: -1.1%

	before calibration		after calibration	
Auto zero	0.00	ppm	0.00	ppm
Auto span	20.58	ppm	20.51	ppm

Notes: Zero adjustment made

Calibration Performed By: Dmytro Dolotii

Calibration Summary

Parameter CO
 Air Monitoring Network PAZA

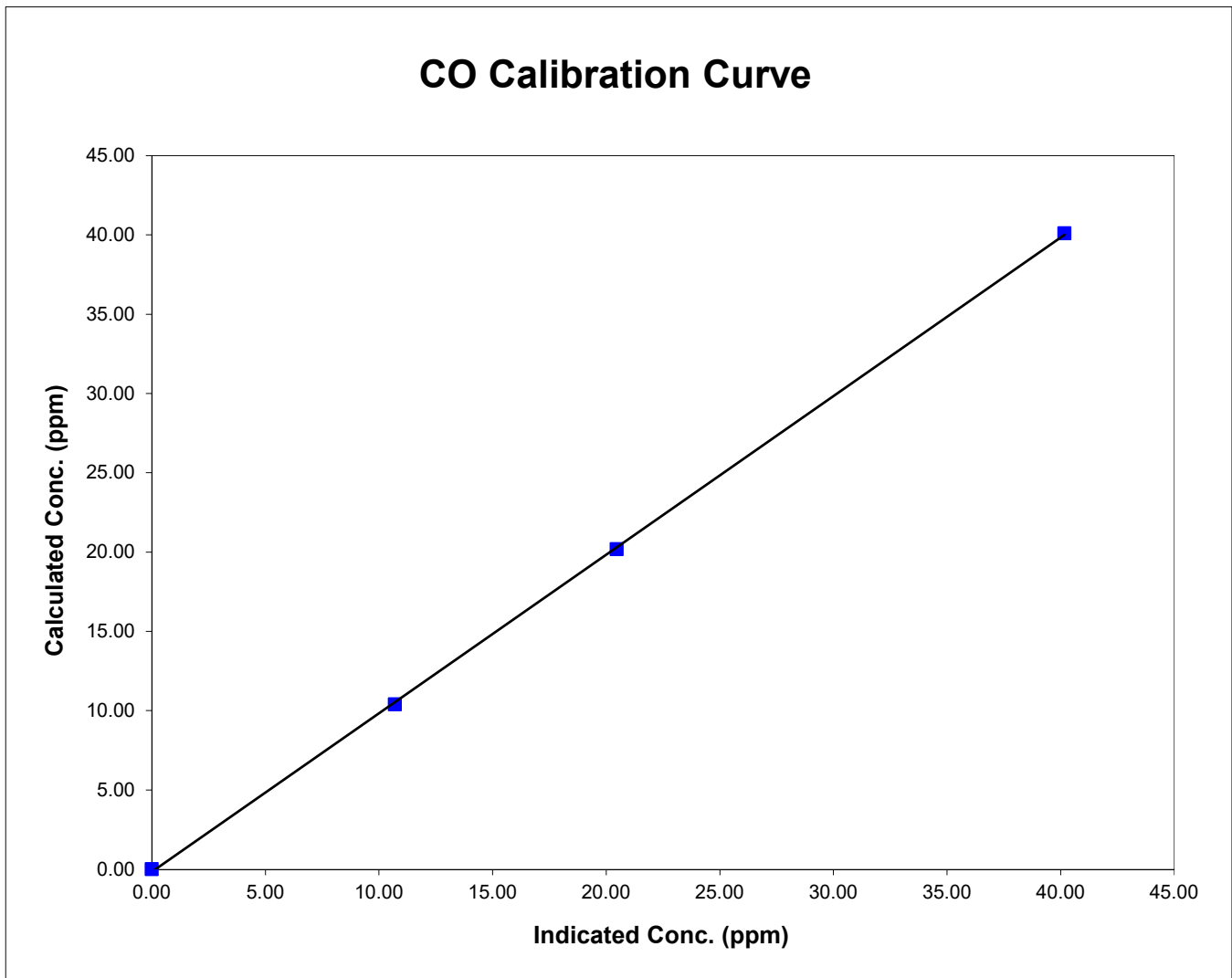


Station Information

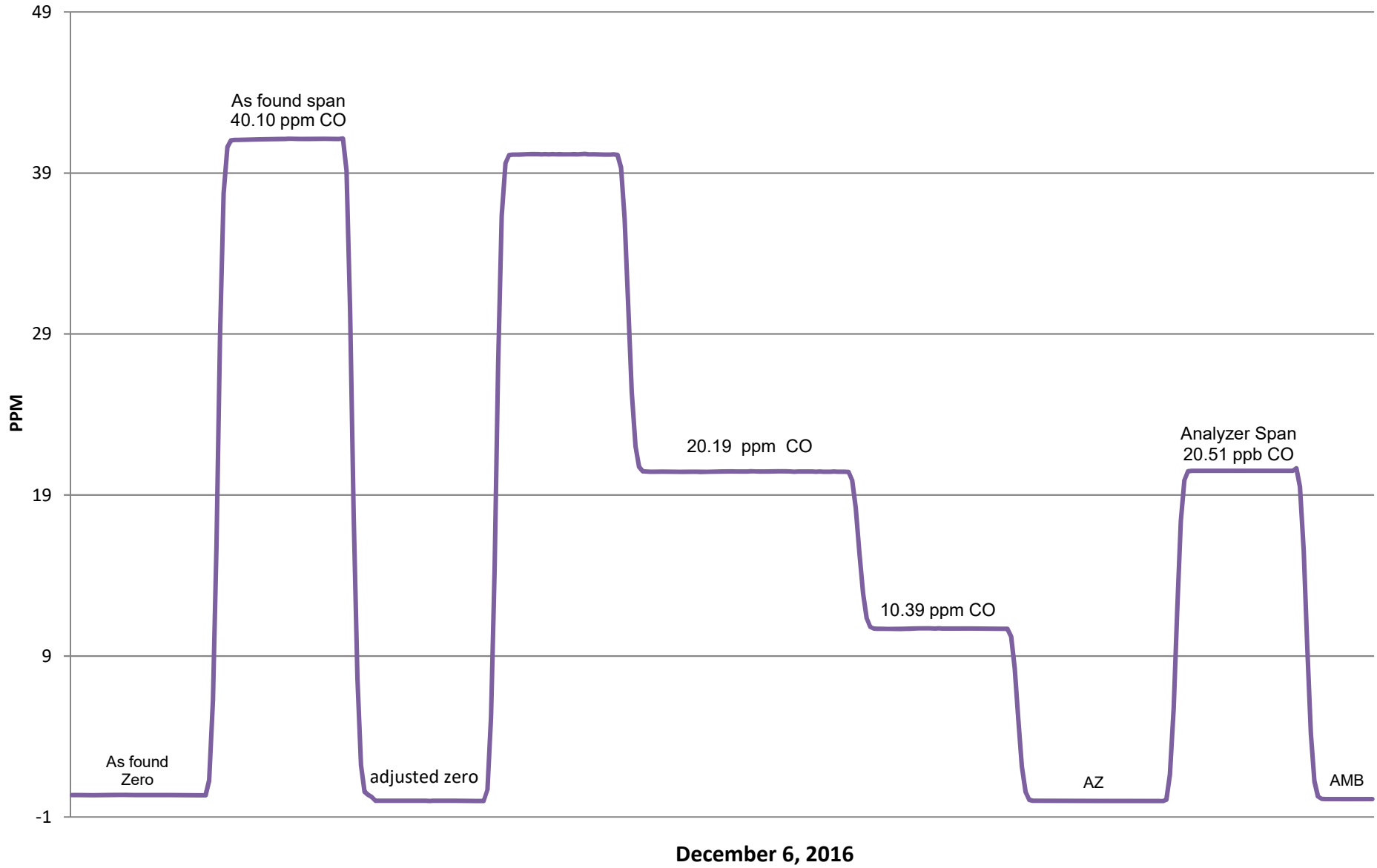
Calibration Date	December 6, 2016	Previous Calibration	November 3, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	11:05	End Time (MST)	14:05:00 PM
Analyzer make/model	Model 48I-TLE	Analyzer serial #	1408761378

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.007	N/A	Correlation Coefficient	0.999921
40.095	40.164	0.9983		
20.186	20.459	0.9866	Slope	1.000146
10.392	10.709	0.9704		
			Intercept	-0.168927



CO Calibration



Calibration Report



Parameter CH4 / NMHC / THC

Air Monitoring Network PAZA

Station Information

Calibration Date	December 6, 2016	Previous Calibration	November 3, 2016
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)	13:05:00 PM	End Time (MST)	15:45:00 PM
Barometric Pressure	726.00 mm/hg	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6103	Serial Number	6586
Cal Gas CH4 Conc	386 ppm CH4	Cal Gas Expiry Date	3/28/2014
Cal Gas C3H8 Conc	207 569.25 ppm CH4	Cal Gas Cylinder #	LL34318
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 5 volt	DACS channel #	SE 11,12,13

Analyzer make TEI 551 Analyzer serial # 1134650658

	before		after	
Concentration range	0-20 (CH4, NMHC); 0-40 (THC)	ppm	0-20 (CH4, NMHC); 0-40 (THC)	ppm
Air pressure	27.8	PSI	27.8	PSI
Fuel pressure	42.1	PSI	42.1	PSI
Carrier pressure	30.3	PSI	30.3	PSI
CH4 cal factor	6.01		6.01	E ⁻⁴
NMHC cal factor	2.45		2.45	E ⁻⁴
Rt	12.31	Sec	12.31	Sec
Pk Index	23.43		23.43	

CH4 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)
1995	0.00	0.00	0.02	N/A
1997	68.96	12.88	12.92	0.9975
1998	40.99	7.76	7.77	0.9985
1999	15.97	3.06	3.05	1.0040
1995	0.00	0.00	0.02	As Found Zero
1995	68.93	12.89	13.30	As Found Span
Average Correction Factor				1.0000

Calculated value of As Found Response: 13.289 ppm Percent Change of As Found: -3.1%

	Before		After
Calculated slope	1.000164	Calculated slope	0.998226
Calculated intercept	0.002212	Calculated intercept	-0.002254

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.03	ppm	0.03	ppm
Auto span	8.89	ppm	8.41	ppm

NMHC 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)
1995	0.00	0.00	0.02	N/A
1997	68.96	19.00	19.03	0.9984
1998	40.99	11.44	11.85	0.9654
1999	15.97	4.51	4.86	0.9280
1995	0.00	0.00	0.02	As Found Zero
1995	68.93	19.01	19.97	As Found Span
Average Correction Factor				0.9639

Calculated value of As Found Response: 20.333 ppm Percent Change of As Found: -7.0%

	<u>Before</u>		<u>After</u>
Calculated slope	1.028623	Calculated slope	1.000443
Calculated intercept	-0.189187	Calculated intercept	-0.206455

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.02	ppm	0.02	ppm
Auto span	12.27	ppm	11.81	ppm

THC 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)
1995	0.00	0.00	0.03	N/A
1997	68.96	31.89	31.92	0.9988
1998	40.99	19.20	19.61	0.9792
1999	15.97	7.57	7.89	0.9600
1995	0.00	0.00	0.03	As Found Zero
1995	68.93	31.90	33.29	As Found Span
Average Correction Factor				0.9793

Calculated value of As Found Response: 33.666 ppm Percent Change of As Found: -5.5%

	<u>Before</u>		<u>After</u>
Calculated slope	1.017866	Calculated slope	1.000170
Calculated intercept	-0.180586	Calculated intercept	-0.201140

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.02	ppm	0.02	ppm
Auto span	21.15	ppm	20.20	ppm

Notes: Span adjustment made

Calibration Performed By: Dmytro Doloti

Calibration Summary



Parameter CH4
 Air Monitoring Network PAZA

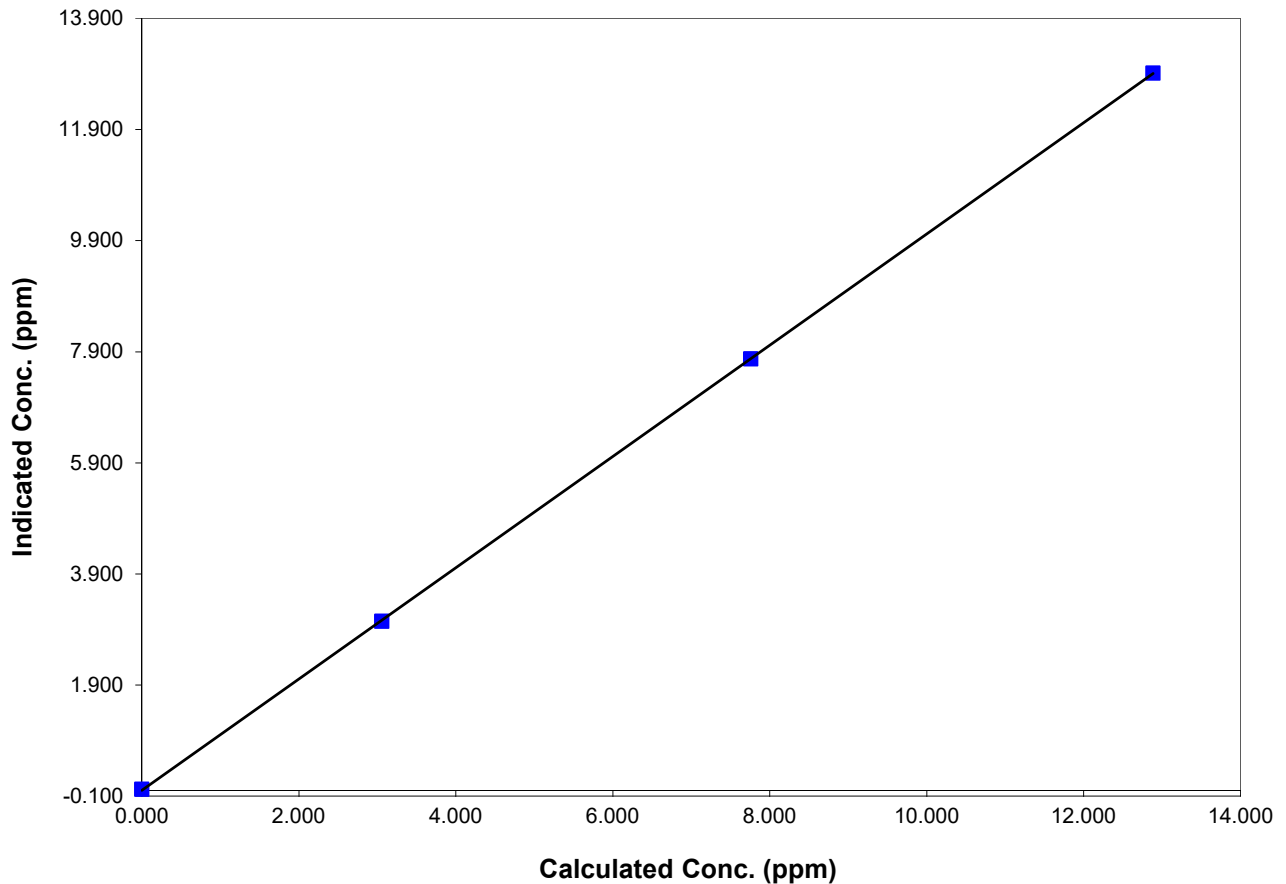
Station Information

Calibration Date	December 6, 2016	Previous Calibration	November 3, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	13:05:00 PM	End Time (MST)	15:45:00 PM
Analyzer make/model	TEI 55I	Analyzer serial #	1134650658

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.019	N/A	Correlation Coefficient	0.999992
12.884	12.917	0.9975		
7.760	7.772	0.9985	Slope	0.998226
3.059	3.047	1.0040		
			Intercept	-0.002254

CH4 Calibration Data



Calibration Summary



Parameter THC
 Air Monitoring Network PAZA

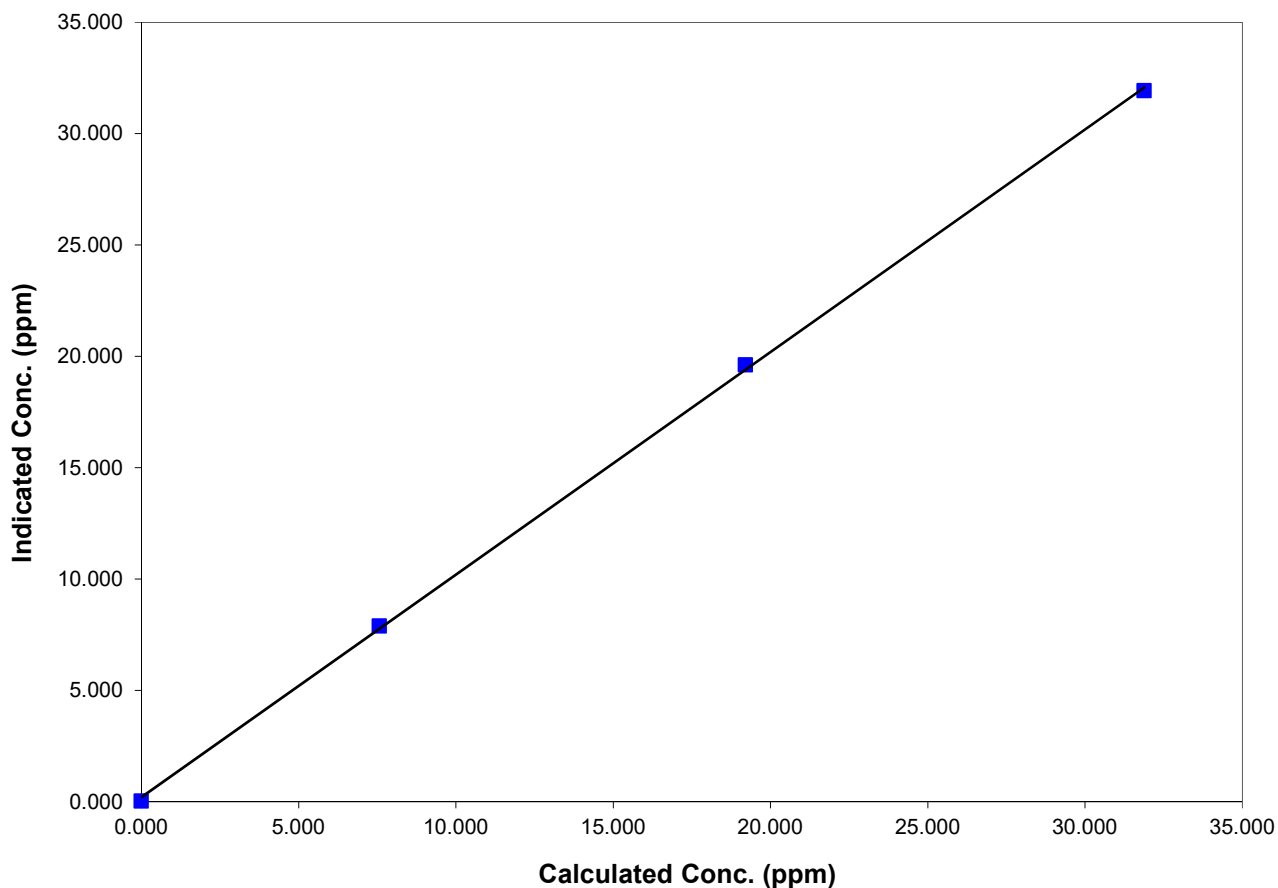
Station Information

Calibration Date	December 6, 2016	Previous Calibration	November 3, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	13:05:00 PM	End Time (MST)	15:45:00 PM
Analyzer make/model	TEI 55I	Analyzer serial #	1134650658

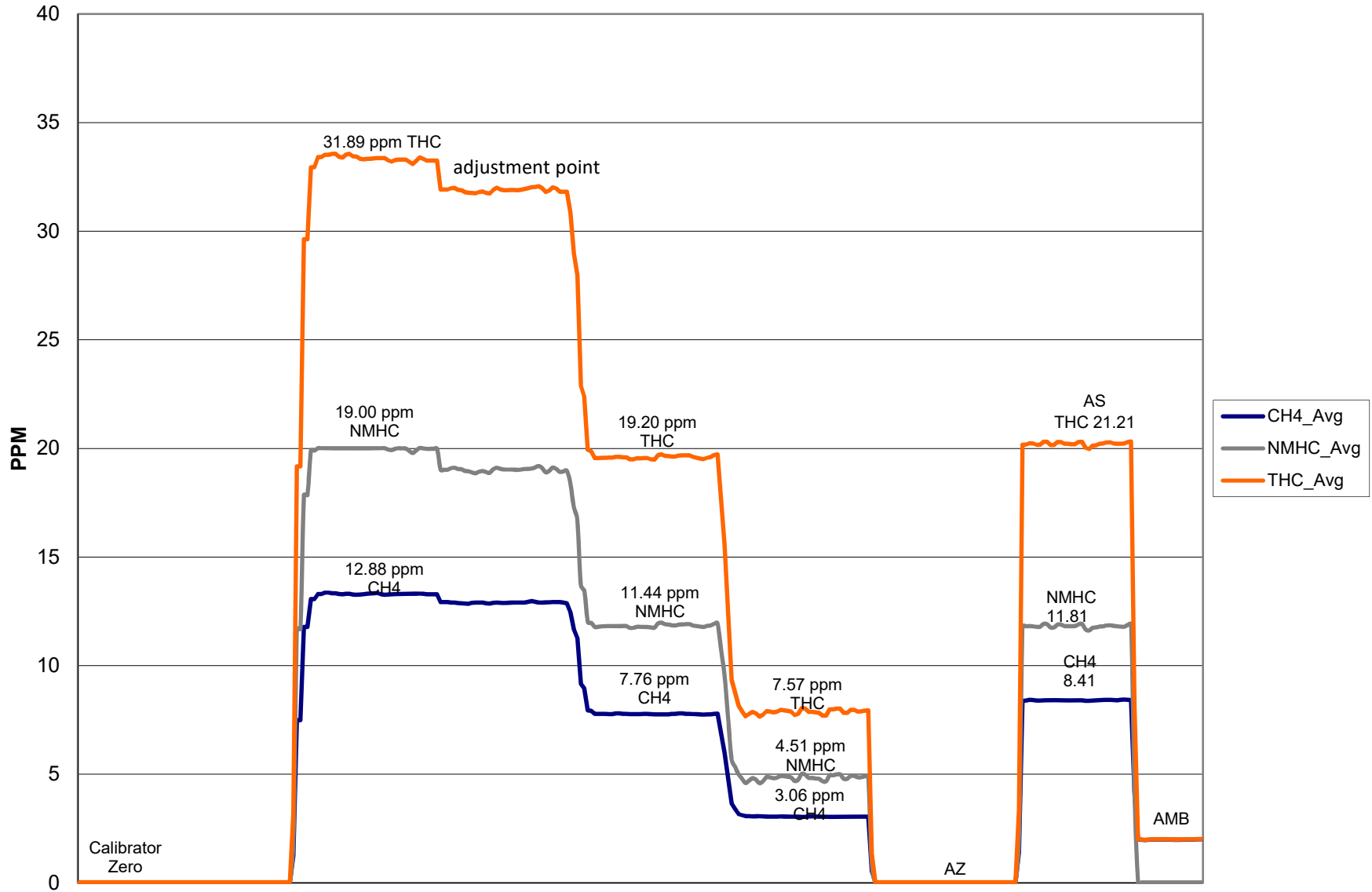
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.033	N/A	Correlation Coefficient	0.999811
31.885	31.924	0.9988		
19.203	19.611	0.9792	Slope	1.000170
7.571	7.886	0.9600		
			Intercept	-0.201140

THC Calibration Data



THC/CH₄/NMHC Calibration



Calibration Report



Parameter CH4 / NMHC / THC

Air Monitoring Network PAZA

Station Information

Calibration Date	December 20, 2016	Previous Calibration	December 6, 2016
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)	9:40	End Time (MST)	13:30:00 PM
Barometric Pressure	713.00 mm/hg	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6103	Serial Number	6586
Cal Gas CH4 Conc	386 ppm CH4	Cal Gas Expiry Date	3/28/2014
Cal Gas C3H8 Conc	207 569.25 ppm CH4	Cal Gas Cylinder #	LL34318
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 5 volt	DACS channel #	SE 11,12,13

Analyzer make TEI 551 Analyzer serial # 1134650658

	before		after	
Concentration range	0-20 (CH4, NMHC); 0-40 (THC)	ppm	0-20 (CH4, NMHC); 0-40 (THC)	ppm
Air pressure	27.8	PSI	27.8	PSI
Fuel pressure	42.1	PSI	42.1	PSI
Carrier pressure	30.3	PSI	30.3	PSI
CH4 cal factor	6.01		6.01	E ⁻⁴
NMHC cal factor	2.45		2.45	E ⁻⁴
Rt	12.31	Sec	12.31	Sec
Pk Index	23.43		23.43	

CH4 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)
1995	0.00	0.00	0.02	N/A
1997	68.96	12.88	12.95	0.9952
1998	40.99	7.76	7.78	0.9978
1999	15.97	3.06	3.05	1.0022
1995	0.00	0.00	0.02	As Found Zero
1995	68.93	12.89	12.82	As Found Span
Average Correction Factor				0.9984

Calculated value of As Found Response: 12.772 ppm Percent Change of As Found: 0.9%

	Before		After
Calculated slope	0.998226	Calculated slope	0.996110
Calculated intercept	-0.002254	Calculated intercept	0.000518

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.03	ppm	0.03	ppm
Auto span	8.41	ppm	8.58	ppm

NMHC 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)
1995	0.00	0.00	0.02	N/A
1997	68.96	19.00	19.03	0.9985
1998	40.99	11.44	11.81	0.9694
1999	15.97	4.51	4.78	0.9436
1995	0.00	0.00	0.02	As Found Zero
1995	68.93	19.01	19.87	As Found Span
Average Correction Factor				0.9705

Calculated value of As Found Response: 19.657 ppm Percent Change of As Found: -3.4%

	Before		After
Calculated slope	1.000443	Calculated slope	0.999716
Calculated intercept	-0.206455	Calculated intercept	-0.167136

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.02	ppm	0.02	ppm
Auto span	11.81	ppm	12.03	ppm

THC 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)
1995	0.00	0.00	0.03	N/A
1997	68.96	31.89	31.95	0.9980
1998	40.99	19.20	19.56	0.9817
1999	15.97	7.57	7.82	0.9684
1995	0.00	0.00	0.03	As Found Zero
1995	68.93	31.90	32.68	As Found Span
Average Correction Factor				0.9827

Calculated value of As Found Response: 32.448 ppm Percent Change of As Found: -1.7%

	Before		After
Calculated slope	1.000170	Calculated slope	0.998997
Calculated intercept	-0.201140	Calculated intercept	-0.160066

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.02	ppm	0.02	ppm
Auto span	20.20	ppm	20.59	ppm

Notes: Span adjustment made
Hydrogen cylinder replaced

Calibration Performed By: Dmytro Doloti

Calibration Summary



Parameter CH4
 Air Monitoring Network PAZA

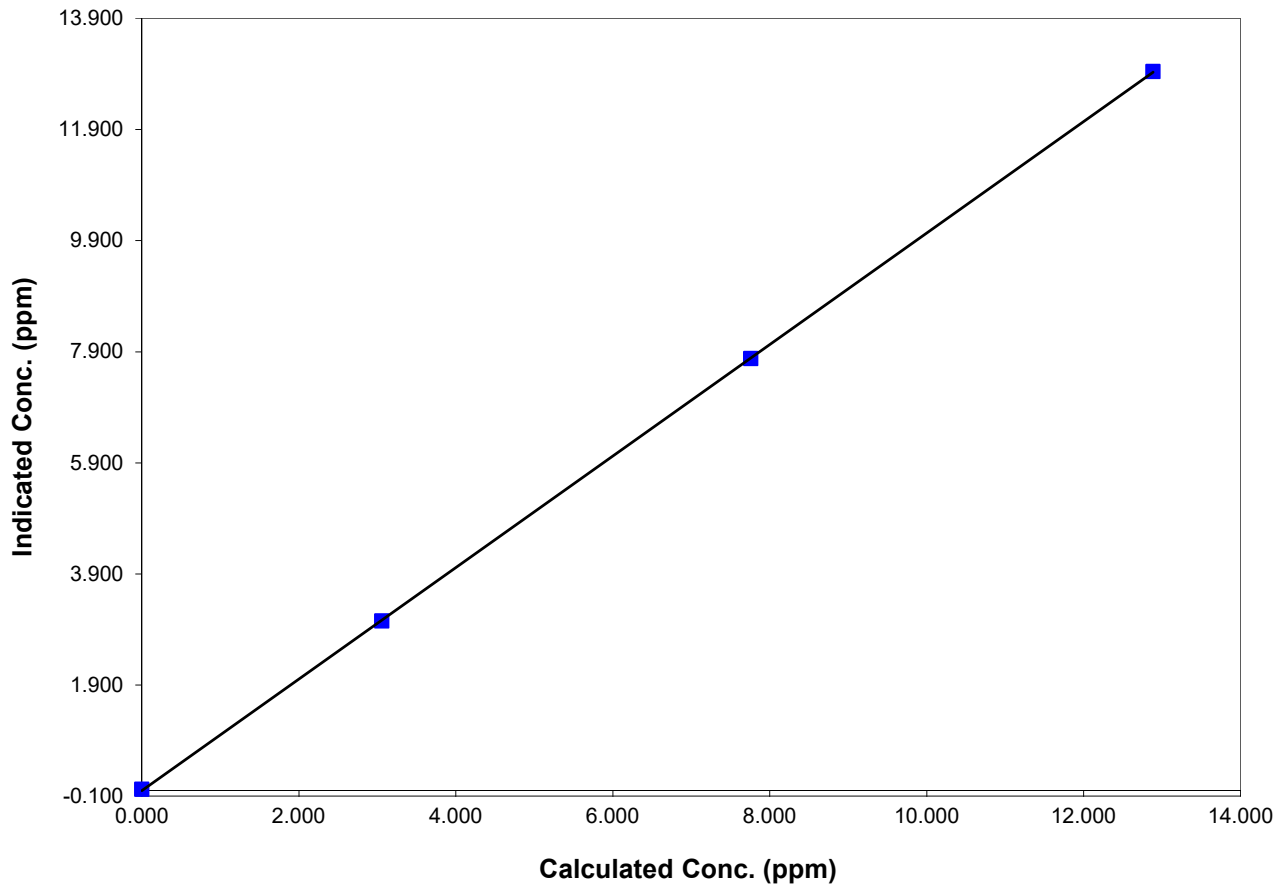
Station Information

Calibration Date	December 20, 2016	Previous Calibration	December 6, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:40	End Time (MST)	13:30:00 PM
Analyzer make/model	TEI 55I	Analyzer serial #	1134650658

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.019	N/A	Correlation Coefficient	0.999990
12.884	12.946	0.9952		
7.760	7.777	0.9978	Slope	0.996110
3.059	3.053	1.0022		
			Intercept	0.000518

CH4 Calibration Data



Calibration Summary

Parameter THC
 Air Monitoring Network PAZA



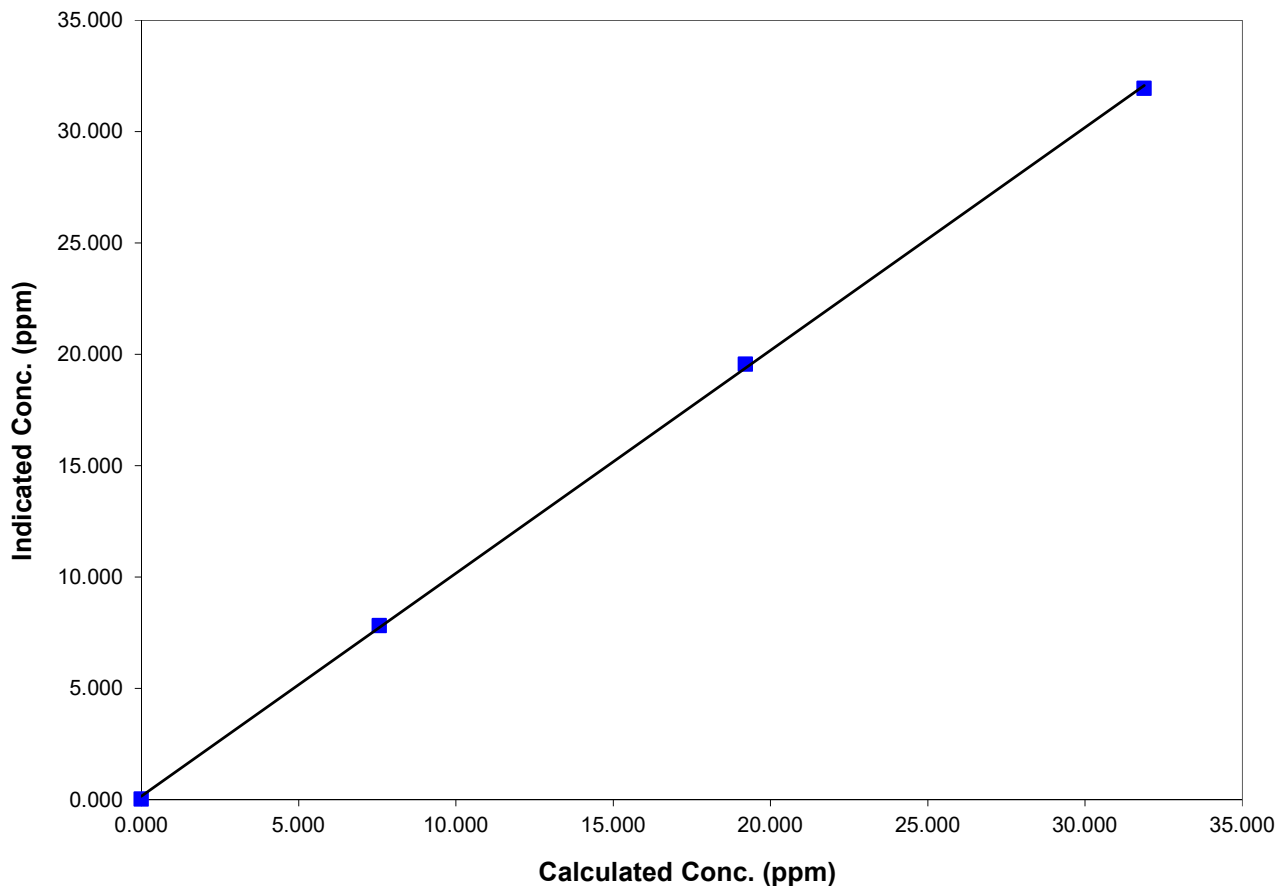
Station Information

Calibration Date	December 20, 2016	Previous Calibration	December 6, 2016
Station Number	1	Station Location	Henry Pirker
Start Time (MST)	9:40	End Time (MST)	13:30:00 PM
Analyzer make/model	TEI 55I	Analyzer serial #	1134650658

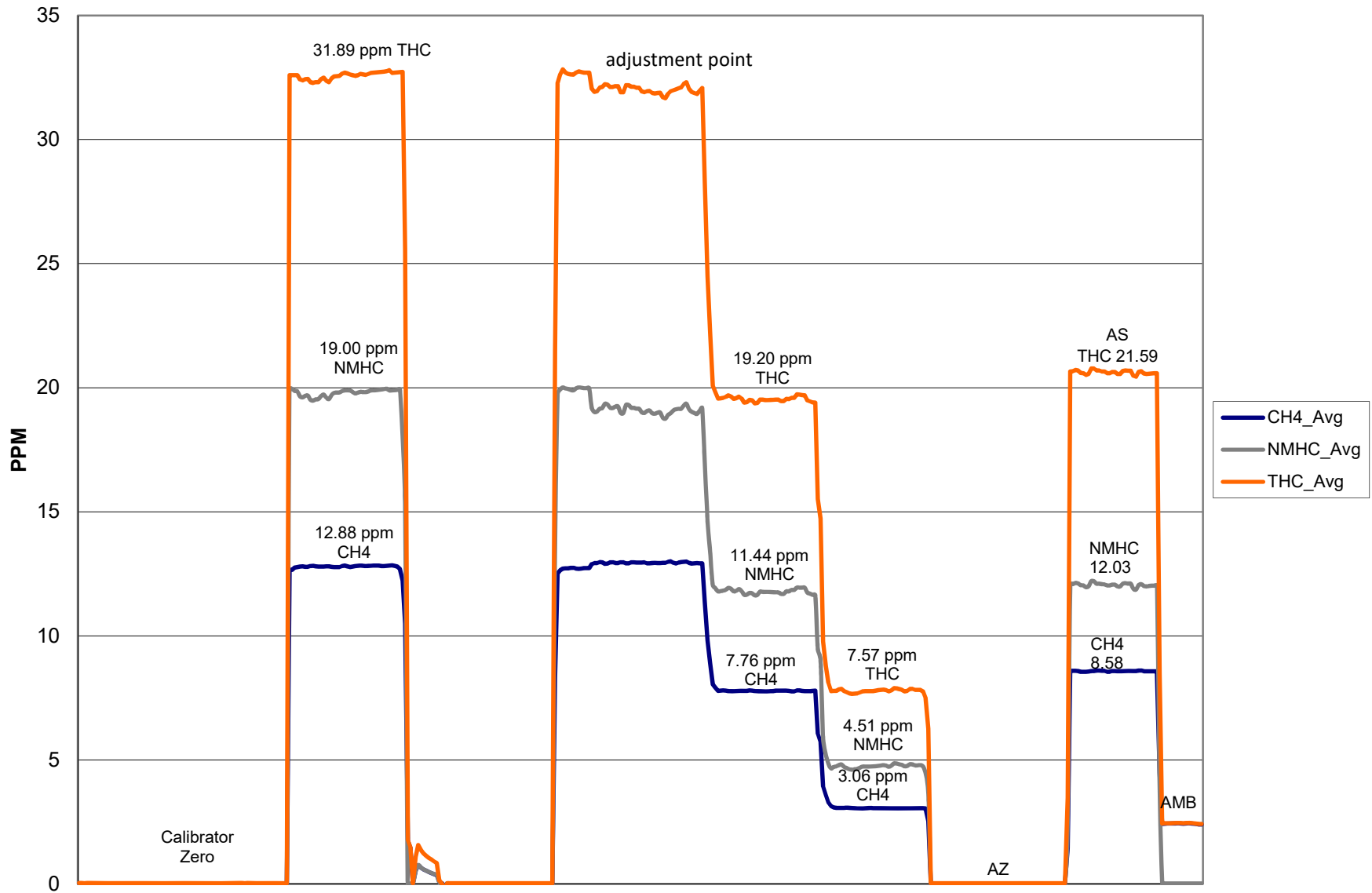
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.031	N/A	Correlation Coefficient	0.999878
31.885	31.949	0.9980		
19.203	19.561	0.9817	Slope	0.998997
7.571	7.818	0.9684		
			Intercept	-0.160066

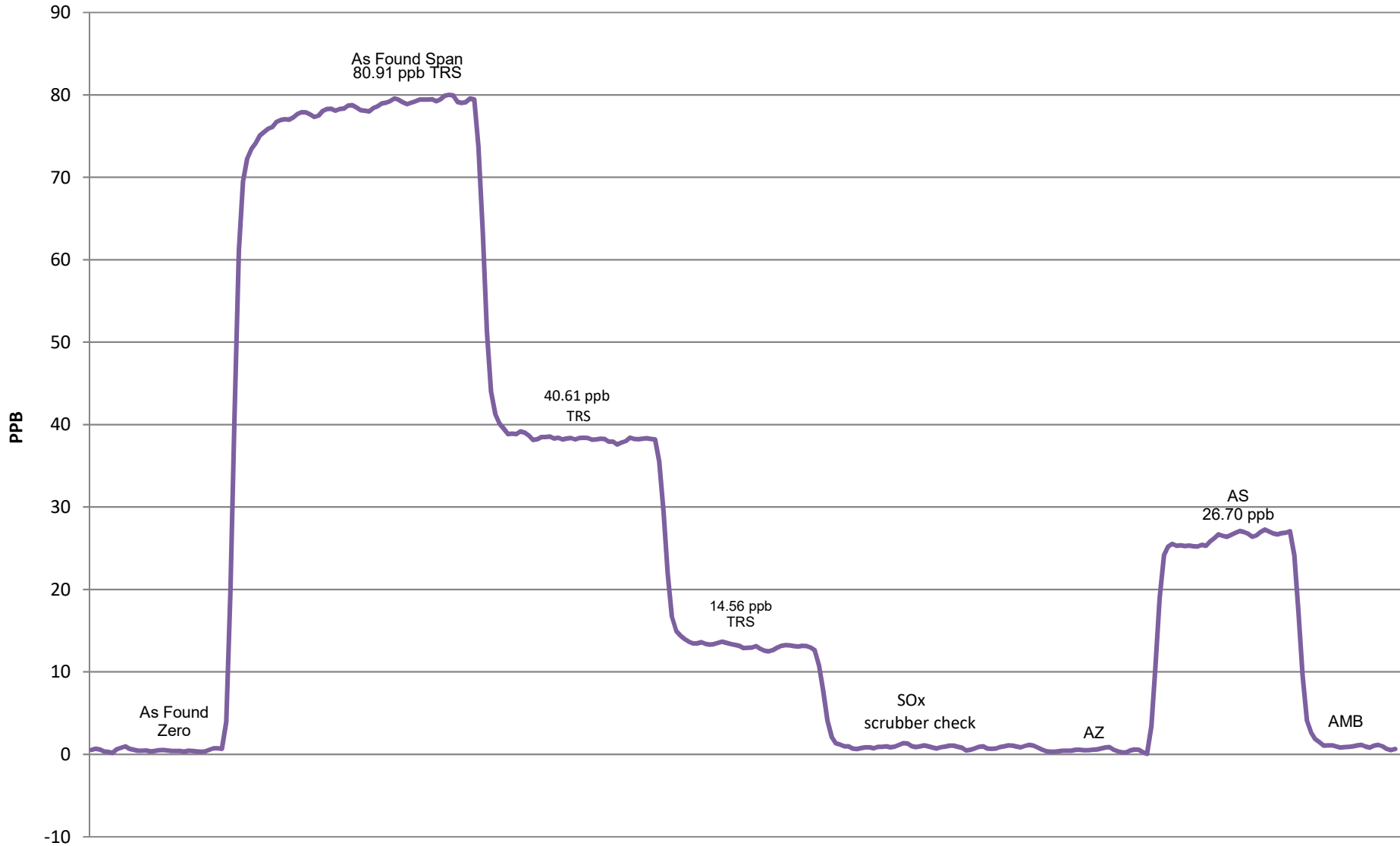
THC Calibration Data



THC/CH₄/NMHC Calibration



TRS Calibration



December 6, 2016

SHARP 5030 PM2.5 Calibration



STATION: Henry Pirker
 LOCATION: Muskoseepi park
 START TIME (MST): 10:55

OPERATOR: Dmytro Dolotii
 DATE: December 20 2016
 END TIME (MST): 15:45:00 PM

MONITOR INFO / PARAMETER VALUES:

Make/Model	SHARP 5030	Audit Device Model	Delta cal
Configuration	PM 2.5	Audit Device S/N	AMU 1789
Serial Number	AMU 1860	Certification Date	01-Oct-15

AUDIT / CALIBRATION RESULTS:

	Ambient Temp. (°C)	Ambient Pres. (mbar)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
<i>As Found Data</i>					
Audit values (I)	-3.1	912	16.70	16.67	16:25 PM
MEASURED (AF)	-3.9	914	16.70	16.80	16:24 PM
AF Difference (AF-I)	-0.8	2	0.00	0.13	0:01
<i>Adjusted Data</i>					
MEASURED (M)	-3.9	914	16.70	16.80	16:24 PM
Adj Difference (M-I)	-0.8	2	0.00	0.13	0:01
LIMITS	± 4.0 °C	6.7 mbar	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned sample head

Status of sampling tape: 65% full

Nozzle Inspection / cleanliness: _____

COMMENTS: _____

Foil calibration Old value 6904 New value 7017

Nephelometer zero. Analog as found = 1.7 Aduusted value: 0.1

Calibration Report



Parameter SO₂
 Air Monitoring Network PAZA

Station Information

Calibration Date	December 7 2016	Previous Calibration	November 9 2016
Station Number	2	Station Location	Evergreen Park
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input type="checkbox"/> Other:	
Start Time (MST)	12:36	End Time (MST)	14:15:00 PM
Barometric Pressure	0.926 ATM	Station Temperature	18.0 Deg C
Calibrator	EnviroNics	Serial Number	6586
Cal Gas Concentration	49.7 ppm	Cal Gas Expiry Date	10/5/2018
Correction factor	0.031694	Cal Gas Cylinder #	LL103793
DACS make	CR3000	DACS serial No.	5236
DACS voltage range	0 - 5 volt	DACS channel #	6
	<u>Before</u>		<u>After</u>
Calculated slope	0.992389	Calculated slope	1.006556
Calculated intercept	0.687464	Calculated intercept	0.489541
Analyzer make	Teco 43i	Analyzer serial #	701120008

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	11.4		11.4	
coefficient	1.224		1.224	
Lamp Voltage	834	volts	834	volts
Chamber Temp	45	Deg C	45	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	686.8	mm Hg	685.2	mm Hg
Sample Flow	0.453	ccm	0.465	ccm
Lamp Intensity	89	%	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)
4996	0.0	0.00	0.8	N/A
4998	39.95	394.1	391.5	1.0066
4998	19.96	197.7	195.7	1.0101
4997	9.99	99.2	96.5	1.0273
4996	0.0	0.0	0.8	As Found Zero
4996	39.93	394.1	391.5	As Found Span
Average Correction Factor				1.0147

Calculated value of As Found Response: 388.493 ppm Percent Change of As Found: 1.4%

	before calibration		after calibration	
Auto zero	0.6	ppm	0.8	ppm
Auto span	257.7	ppm	247.9	ppm

Notes: No adjustments made

Calibration Performed By: Dmytro Dolotii

Calibration Summary

Parameter SO2
 Air Monitoring Network PAZA

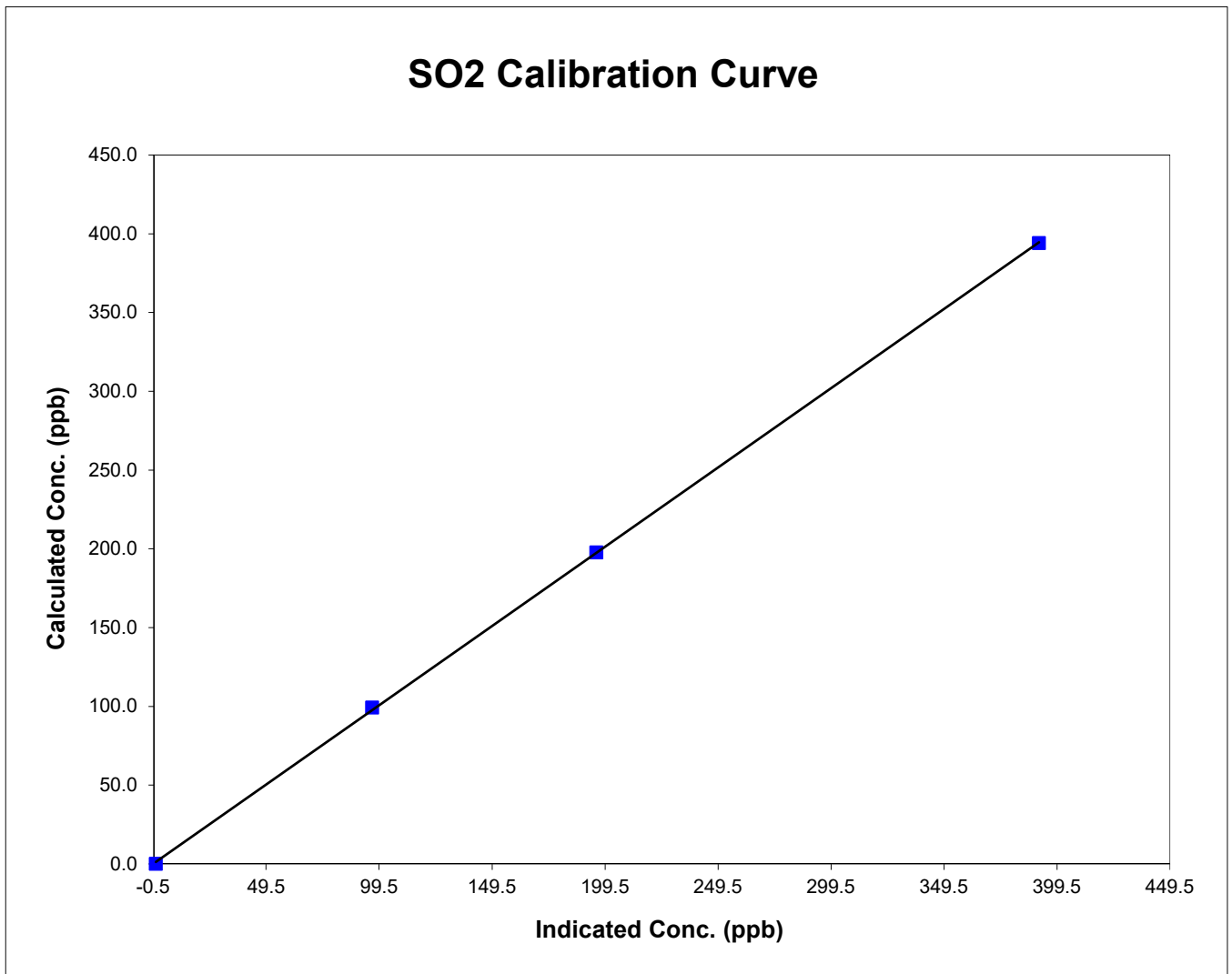


Station Information

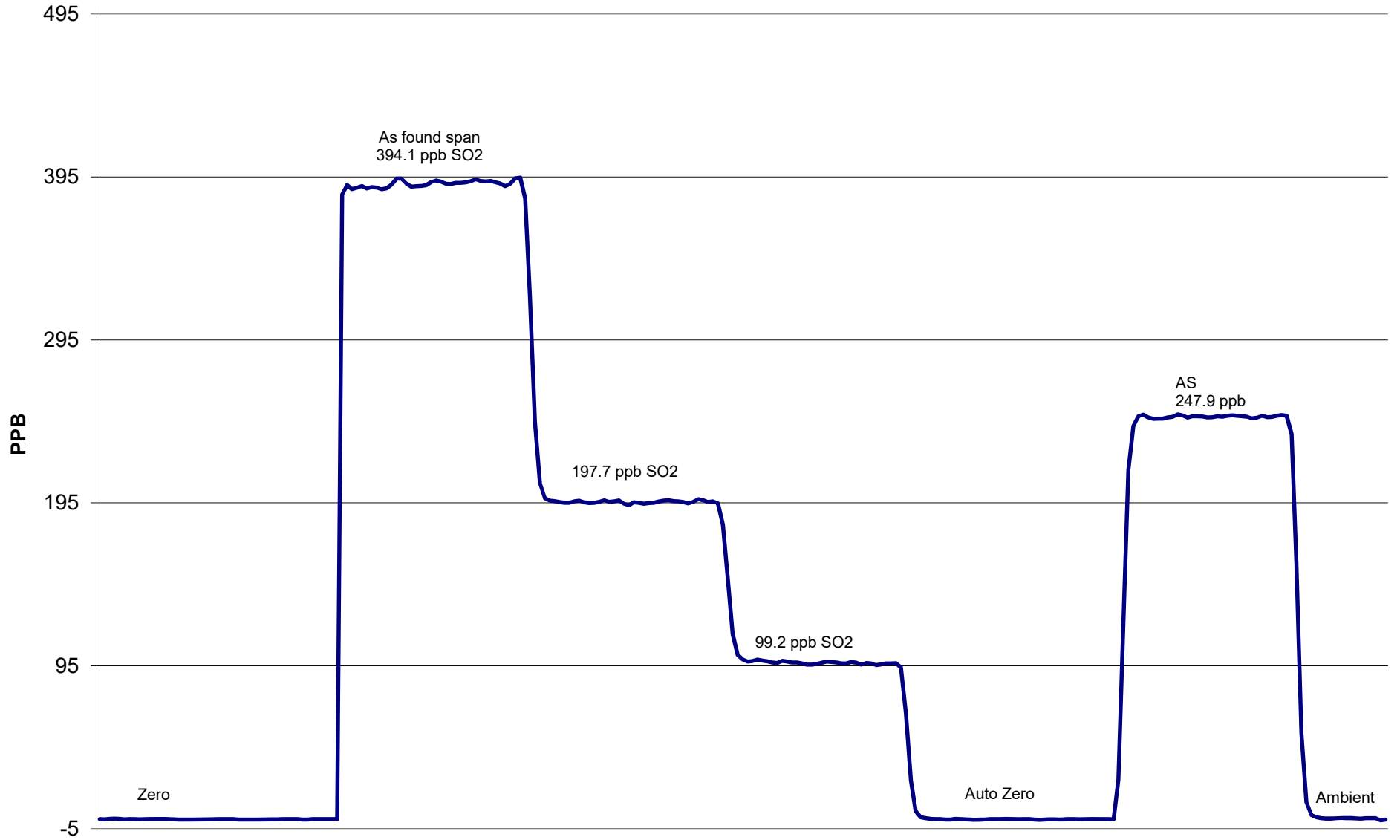
Calibration Date	December 7 2016	Previous Calibration	November 9 2016
Station Number	2	Station Location	Evergreen Park
Start Time (MST)	12:36	End Time (MST)	14:15:00 PM
Analyzer make/model	Teco 43i	Analyzer serial #	701120008

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.8	N/A	Correlation Coefficient	0.999952
394.1	391.5	1.0066		
197.7	195.7	1.0101		
99.2	96.5	1.0273	Slope	1.006556
			Intercept	0.489541

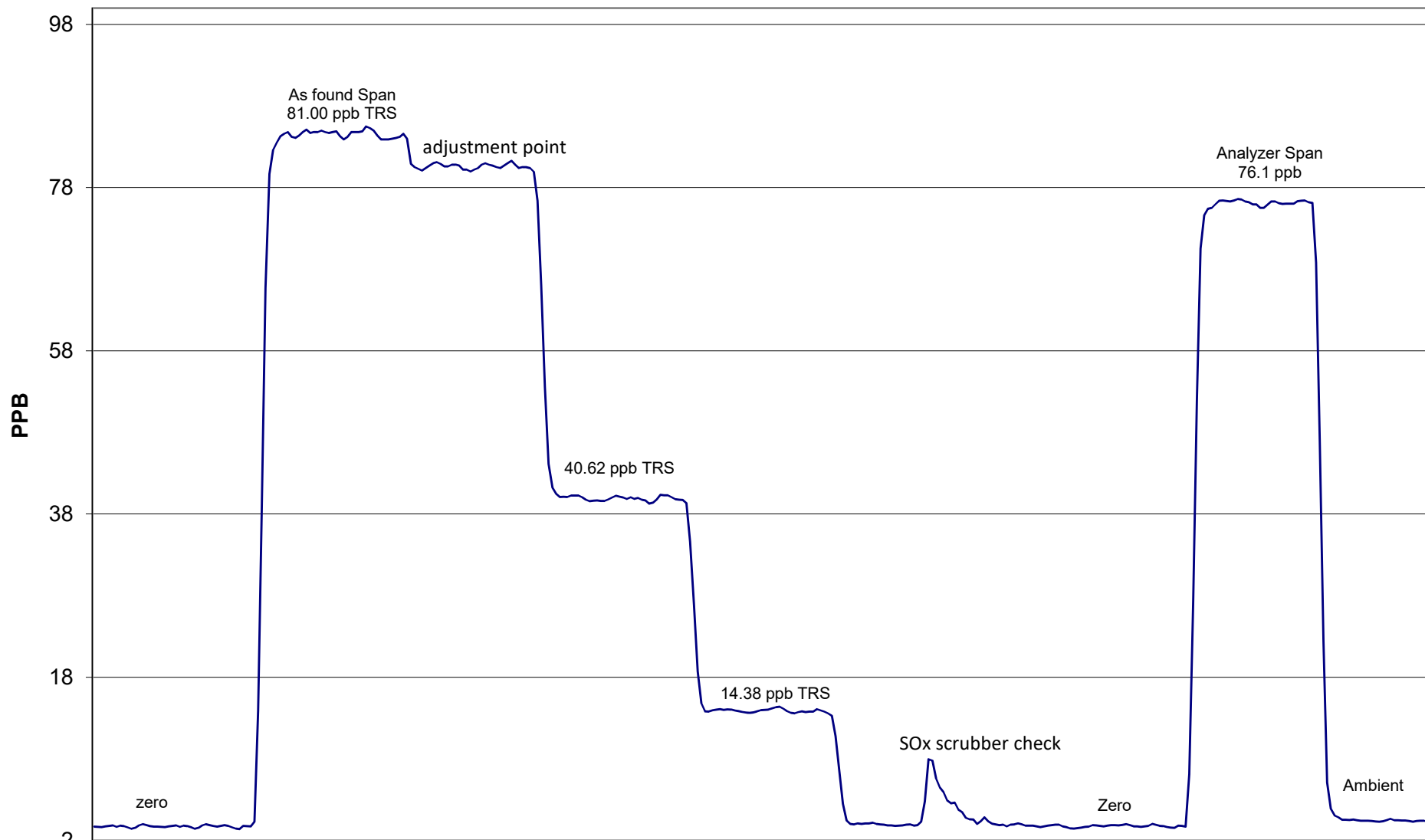


SO2 Calibration



December 7 2016

TRS Calibration



December 7 2016

AB TEOM PM2.5 Calibration



STATION: Evergreen Park
 LOCATION: PAZA - Grande Prairie

OPERATOR: Grover Christiansen/Dmytro
 DATE: 7-Dec-16

MONITOR INFO / PARAMETER VALUES:

Make/Model	TEOM AB
Configuration	PM2.5
Serial Number	24634
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	
Previous Calibration	N/A

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	0.003	0.050
PUMP OFF	0.000	0.010
NET	0.003	0.040
LIMITS	<0.15	<0.60

	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)	18.5	0.929	16147	13.69	3.000
MEASURED (AF)	19.2	0.927	16147	13.66	2.970
MEASURED (M)	19.2	0.927	16250	13.66	2.970
DIFFERENCE (M-I)	0.7	-0.002	0.6%	-0.01	-0.03
LIMITS	± 2 ° C	± 0.005 atm	± 2.5 %	± 1.0 L/min	± 0.2 L/min

As Found Data
 Adjusted Data

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

COMMENTS: Pass.

Control unit replaced

Sample Head Inspection/Cleaning:

Large In Line Filter Inspection & Or Cleaning:

Calibration Report



Parameter SO₂

Air Monitoring Network PAZA

Station Information

Calibration Date	December 15, 2016	Previous Calibration	November 18, 2016
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)	11:00	End Time (MST)	13:45:00 PM
Barometric Pressure	0.930 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Concentration	49.7 ppm	Cal Gas Cert Date	11/5/2018
Correction factor	0.031613	Cal Gas Cylinder #	LL103793
DACS make	CR3000	DACS serial No.	5238
DACS voltage range	0 - 5 volt	DACS channel #	6
	<u>Before</u>		<u>After</u>
Calculated slope	0.986998	Calculated slope	1.016099
Calculated intercept	-0.095355	Calculated intercept	-0.030757
Analyzer make	Teco 43i	Analyzer serial #	701120009

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	12.7		12.7	
coefficient	0.939		0.939	
Lamp Voltage	950	volts	949	volts
Chamber Temp	45	Deg C	45	Deg C
Perm Gas Temp	44.9	Deg C	45	Deg C
Pressure	66.2	mm Hg	679.5	mm Hg
Sample Flow	0.447	lpm	0.451	lpm
Lamp Intensity	87	%	88	%

Dilution air flow rate (cc/min)	Corrected gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4996	0.0	0.00	1.2	N/A
4998	39.92	393.82	388.1	1.0147
4996	19.95	197.67	194.2	1.0180
4991	9.98	99.18	96.3	1.0298
4996	0.0	0.00	1.2	As Found Zero
4998	39.92	393.82	388.1	As Found Span
Average Correction Factor				1.0208

Calculated value of As Found Response: 381.777 ppm Percent Change of As Found: 3.1%

	before calibration		after calibration	
Auto zero	1.0	ppb	1.2	ppb
Auto span	207.7	ppb	202.9	ppb

Notes: No adjustment made

Calibration Performed By: Dmytro Dolotii

Calibration Summary

Parameter SO2
 Air Monitoring Network PAZA

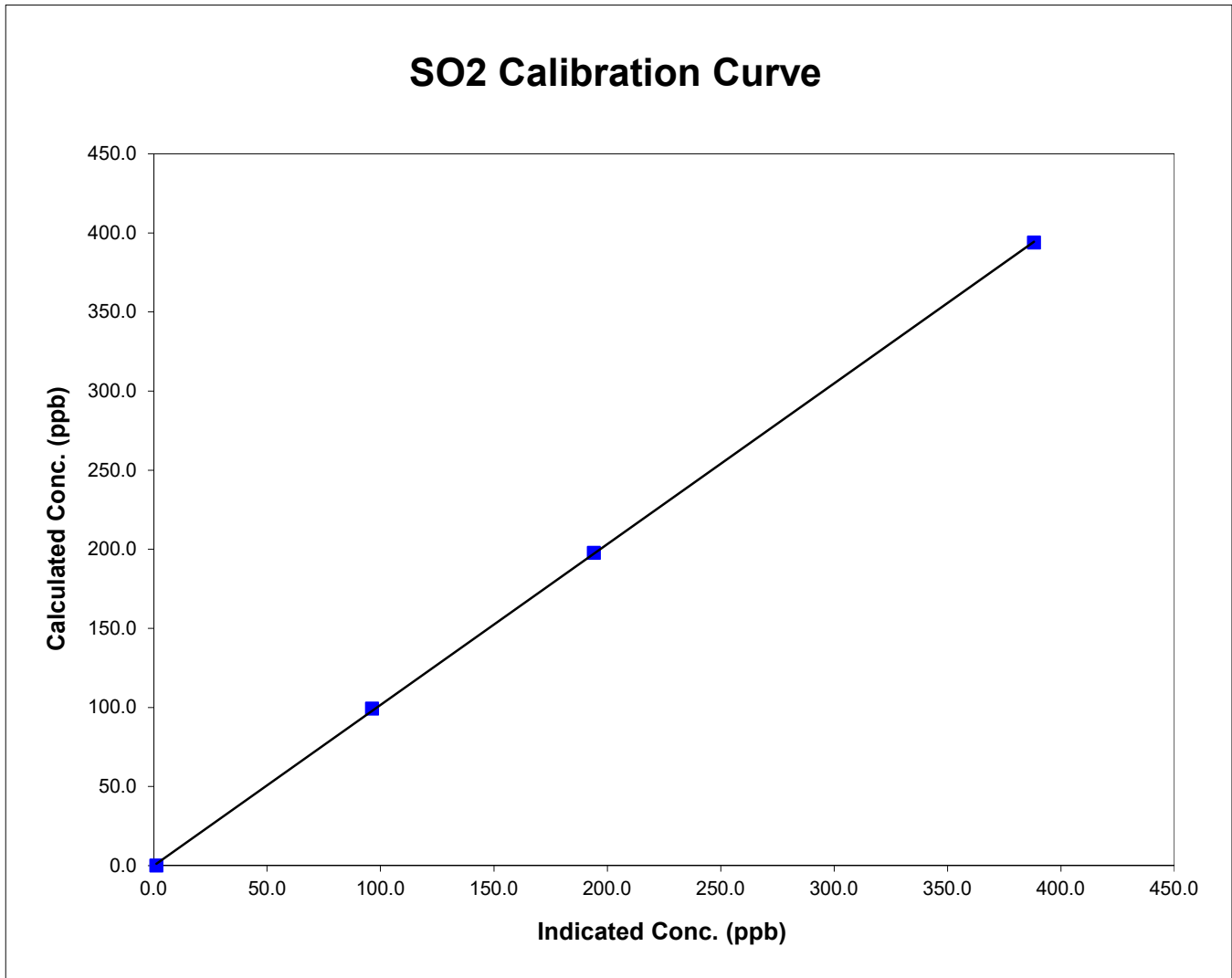


Station Information

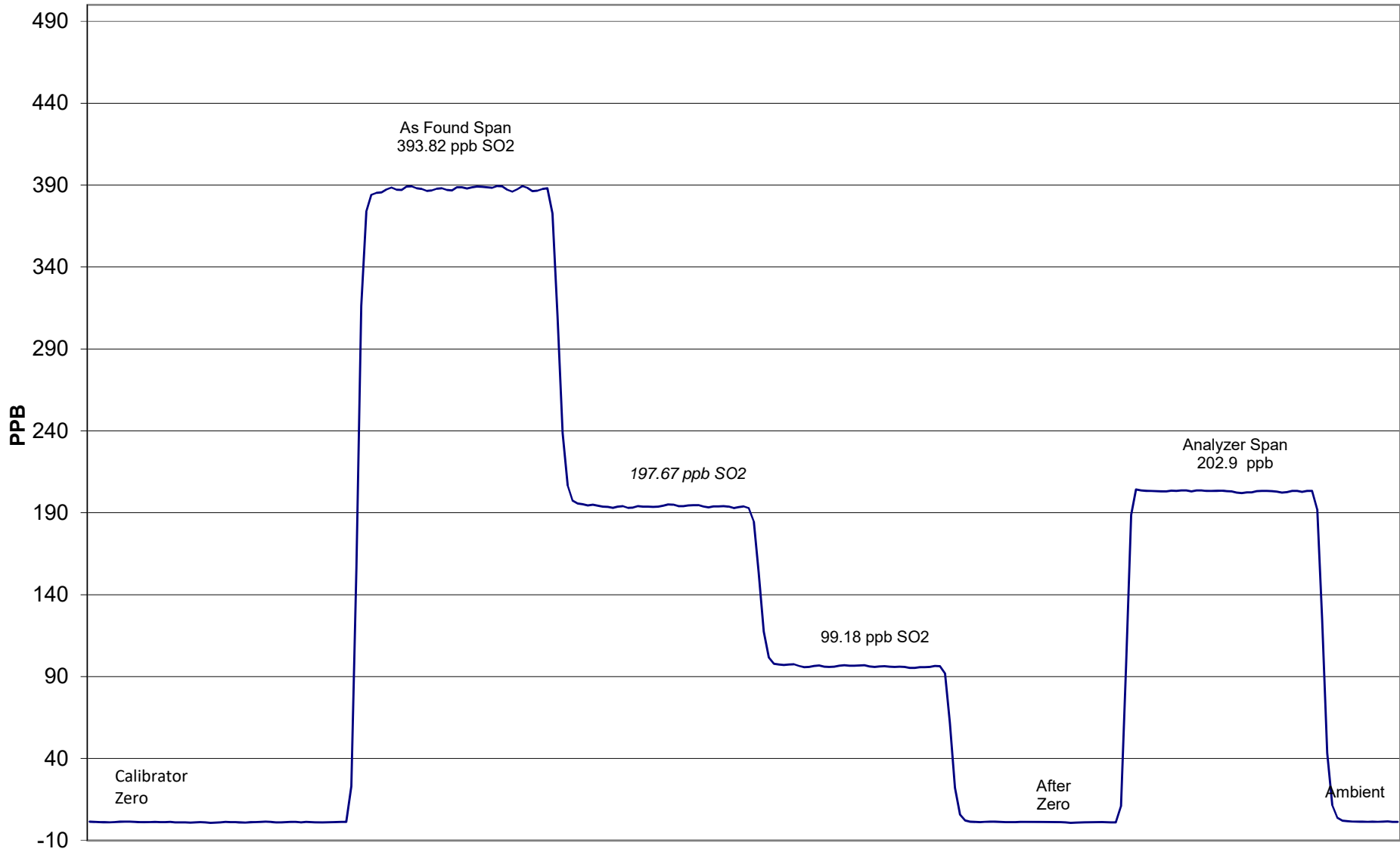
Calibration Date	December 15, 2016	Previous Calibration	November 18, 2016
Station Number	3	Station Location	Smokey Heights
Start Time (MST)	11:00	End Time (MST)	13:45:00 PM
Analyzer make/model	Teco 43i	Analyzer serial #	701120009

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	1.2	N/A	Correlation Coefficient	0.999956
393.8	388.1	1.0147		
197.7	194.2	1.0180	Slope	1.016099
99.2	96.3	1.0298		
			Intercept	-0.030757



Smokey Heights SO₂ Calibration



December 15, 2016

Calibration Report



Parameter TRS

Air Monitoring Network PAZA

Station Information

Calibration Date	December 15, 2016	Previous Calibration	November 18, 2016
Station Number	3	Station Location	Smokey Heights
Reason:	Routine	Install	Removal
			Other:
Start Time (MST)	10:20	End Time (MST)	12:50
Barometric Pressure	0.921 ATM	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Conc	10.2 ppm	Cal Gas Expiry Date	7/8/2016
Correction factor	0.031307	Cal Gas Cylinder #	BLM00586
DACS make	CR3000	DACS serial No.	5238
DACS voltage range	0 - 5 volt	DACS channel #	5
	<u>Before</u>		<u>After</u>
Calculated slope	0.976317	Calculated slope	0.993791
Calculated intercept	0.601467	Calculated intercept	-0.108640

Analyzer make TEI Model 43I APSAA Analyzer serial # 1153630151

	before		after	
Concentration range	100	ppb	100	ppb
Background	14.3	ppb	14.4	ppb
coefficient	0.949		0.949	
Lamp Voltage	807	volts	809	volts
Chamber Temp	45.3	Deg C	45	Deg C
Perm Gas Temp	44.9	Deg C	45	Deg C
Pressure	681.1	mm Hg	681.1	mm Hg
Sample Flow	0.427	lpm	0.427	lpm
Lamp Intensity	91	mv	90	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)
4990	0.0	0.00	0.4	N/A
4987	39.85	80.86	81.7	0.9900
4988	19.91	40.55	40.6	0.9993
6991	9.92	14.45	14.5	0.9997
4990	9.92		2.6	Sox test
4990	0.0	0.00	0.4	As Found Zero
4987	39.85	80.86	81.7	As Found Span
Average Correction Factor				0.9963

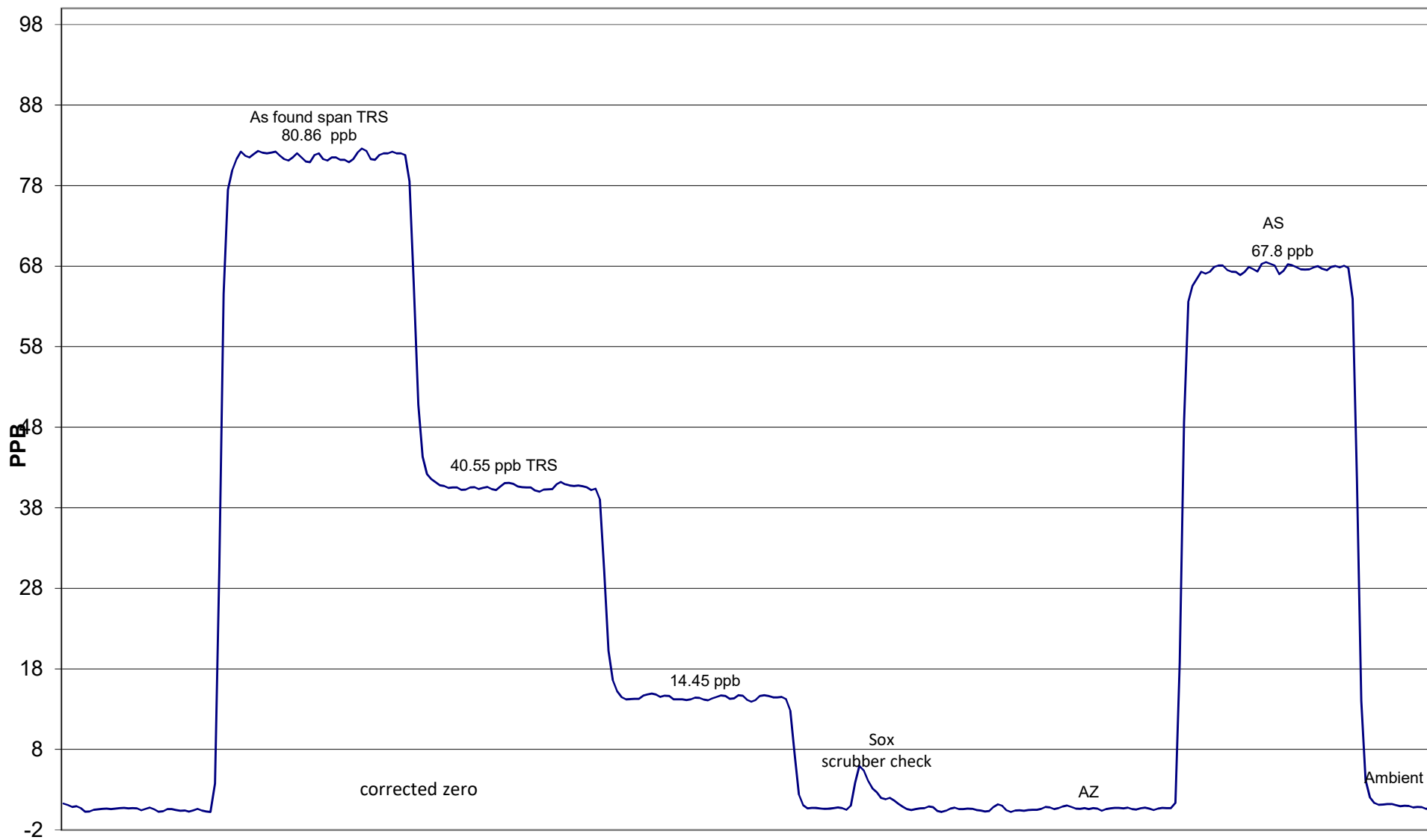
Calculated value of As Found Response: 79.91 ppm Percent Change of As Found: 1.2%

	before calibration		after calibration	
Auto zero	-0.1	ppm	0.7	ppm
Auto span	67.3	ppm	67.8	ppm

Notes: No adjustment made

Calibration Performed By: Dmytro Dolotii

Smokey Heights TRS Calibration



December 15, 2016

SHARP 5030 PM2.5 Calibration



STATION: Smokey Heights
 LOCATION: Smokey Heights
 START TIME (MST): 10:20

OPERATOR: Grover Christiansen
 DATE: December 15 2016
 END TIME (MST): 15:25:PM

MONITOR INFO / PARAMETER VALUES:

Make/Model	SHARP 5030	Audit Device Model	Delta cal
Configuration	PM 2.5	Audit Device S/N	AMU 2024
Serial Number	CM-0271	Certification Date	16-May-15

AUDIT / CALIBRATION RESULTS:

	Ambient Temp. (^o C)	Ambient Pres. (mm/HG)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
<i>As Found Data</i>					
Audit values (I)	-16.6	914	16.67	16.67	13:01:00 PM
MEASURED (AF)	-15.9	912	16.66	16.80	13:00:00 PM
AF Difference (AF-I)	0.7	-2	0.01	0.13	
<i>Adjusted Data</i>					
MEASURED (M)	-16.6	912	16.66	16.80	13:00:00 PM
Adj Difference (M-I)	0.0	-2	-0.01	0.13	0:01
LIMITS	± 4.0 ^oC	6.7 mbar	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned sample head

Status of sampling tape: 90% full

Nozzle Inspection / cleanliness: Good

COMMENTS:

Foil calibration Old value 7079 New value 7006

Nephelometer zero. Analog as found = 1.2 After adjustment=-0.1

Calibration Report



Parameter SO2

Air Monitoring Network PAZA

Station Information

Calibration Date	December 14, 2016	Previous Calibration	November 16, 2016
Station Number	4	Station Location	Beaverlodge
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
			<input type="checkbox"/> Other:
Start Time (MST)	14:11:00 PM	End Time (MST)	16:10:00 PM
Barometric Pressure	0.928 atm	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Concentration	10.5 ppm	Cal Gas Expiry Date	1/12/2019
Gas Cert Reference	FF16108		
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	0.993732	Calculated slope	1.008263
Calculated intercept	-0.439349	Calculated intercept	-0.320337
Analyzer make	TEI Model 43i-TLE	Analyzer serial #	713021137

	before		after	
Concentration range	0 - 100	ppb	0 - 100	ppb
Background	2.54		2.54	
Coefficient	0.969		0.969	
PMT	-767.8	V	-767.6	V
UV Lamp Voltage	1126	V	1127	V
Chamber Temp	45.1	Deg C	45.2	Deg C
Pressure	667.9	mm Hg	668.2	mm Hg
Sample Flow	0.454	LPM	0.462	LPM
Lamp Intensity	96	%	96	%

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
4989	0.00	0.0	0.3	N/A
4989	39.84	83.2	82.9	1.0040
4989	19.92	41.8	41.7	1.0025
4989	9.91	20.8	21.0	0.9916
4989	0.00	0.0	0.3	As found zero
4989	39.84	83.2	82.9	As found span
Average Correction Factor				0.9994

Calculated value of As Found Response: 81.561 ppm Percent Change of As Found: 2.0%

	before calibration		after calibration	
Auto zero	-0.2	ppb	0.0	ppb
Auto span	58.9	ppb	58.5	ppb

Notes: No adjustment made

Calibration Summary

Parameter SO2
 Air Monitoring Network PAZA



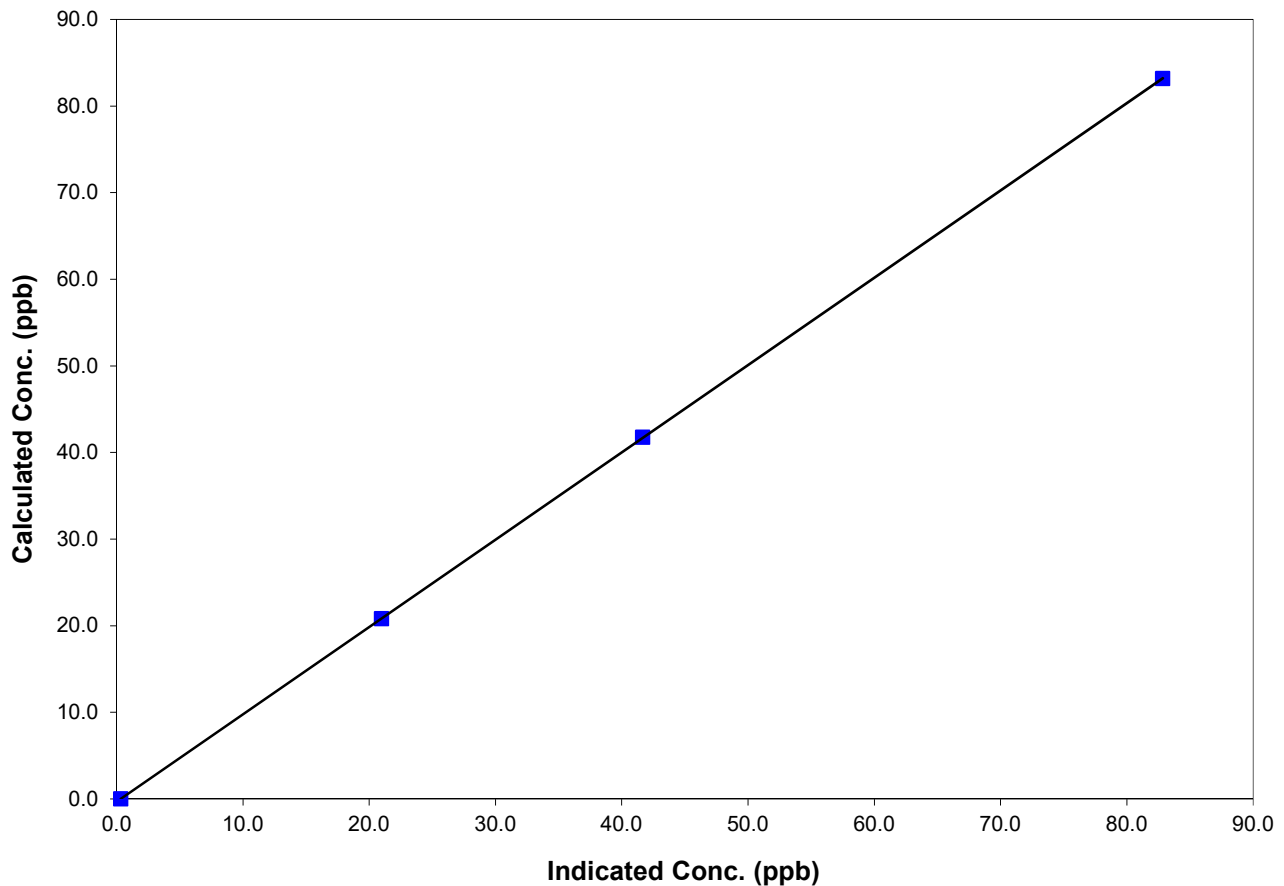
Station Information

Calibration Date	December 14, 2016	Previous Calibration	November 16, 2016
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	14:11:00 PM	End Time (MST)	16:10:00 PM
Analyzer make/model	TEI Model 43i-TLE	Analyzer serial #	713021137

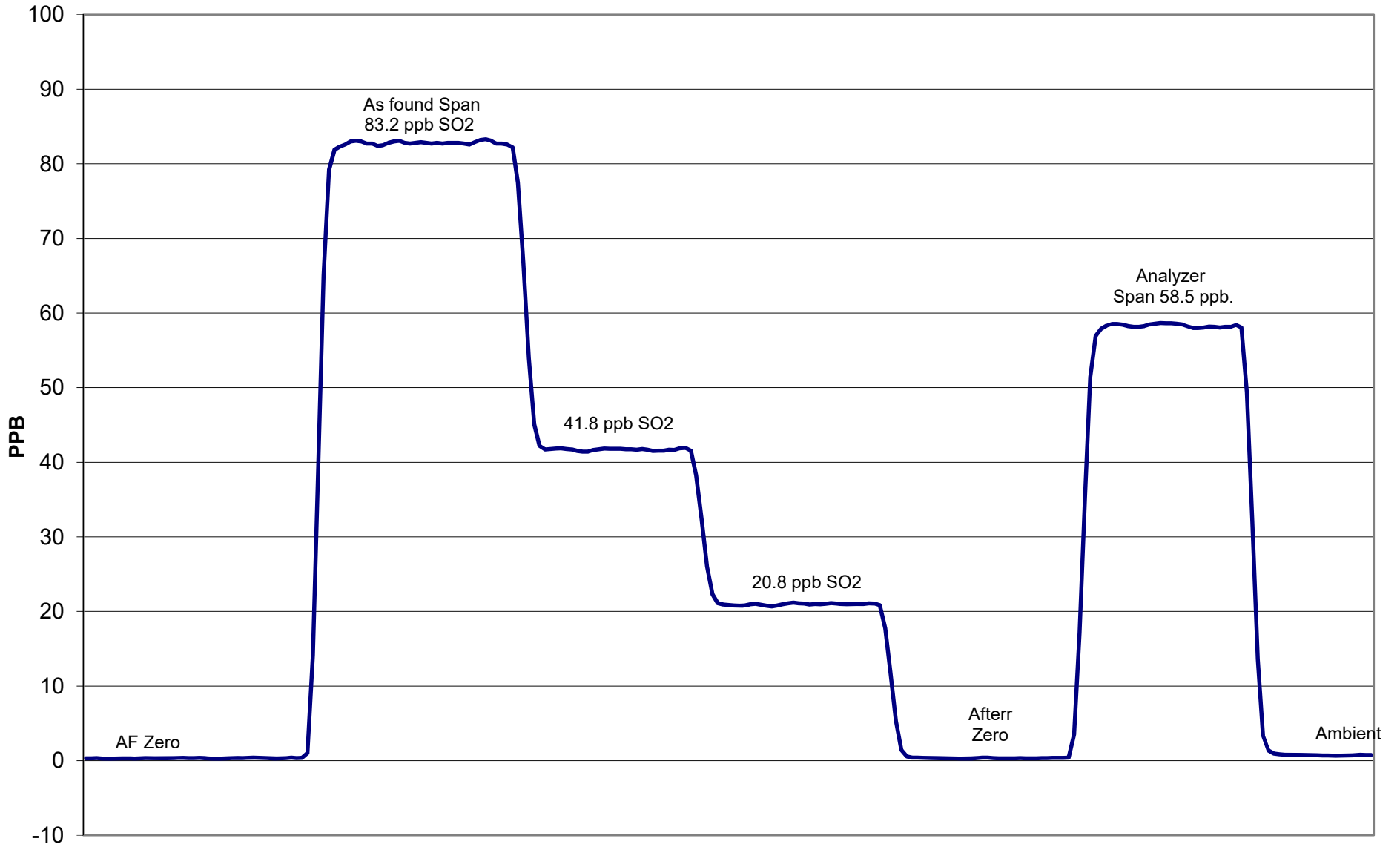
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	N/A	Correlation Coefficient	0.999998
83.2	82.9	1.0040		
41.8	41.7	1.0025	Slope	1.008263
20.8	21.0	0.9916		
			Intercept	-0.320337

SO2 Calibration Curve



SO2 Calibration



December 14, 2016

Calibration Report



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

Station Information

Calibration Date: December 14, 2016 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	4990	0.00	0.0	0.0	0.0	0.0	-0.2	0.0	N/A	N/A	
1	4990	39.87	405.8	403.5	2.4	402.8	402.3	-0.3	1.0077	1.0030	
2	4990	19.92	203.6	202.4	1.2	201.6	200.0	0.7	1.0098	1.0117	
3	4990	9.92	101.6	101.0	0.6	99.6	98.9	0.6	1.0201	1.0214	
AFZ	4990	0.00	0.0	0.0	0.0	0.0	-0.2	0.0	0.0000	0.0000	
AFS	4990	39.92	406.3	404.0	0.8	399.3	398.5	0.1	1.0177	1.0138	
									Average Correction Factor	1.0125	1.0120

As Found Concentrations: NO_x= 403.4 NO= 401.5 As Found Percent Change NO_x= -0.7% NO= -0.6%

GPT Calibration Data

Dilution Flow 4995 ccm Source Gas Flow 39.93 ccm

O3 Setpoint (ppb)	Indicated NOx 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	401.8	401.8	0.0	401.9	401.8	-0.6	0.9998	1.0000	N/A	N/A	
300	401.8	62.5	339.4	402.4	62.5	339.0	0.9985	1.0000	1.0012	99.9%	
200	401.8	173.0	228.8	402.6	173.0	228.7	0.9980	1.0000	1.0003	100.0%	
100	401.8	290.7	111.1	402.4	290.7	111.0	0.9987	1.0000	1.0010	99.9%	
							Average Correction Factor	0.9984	1.0000	1.0009	99.9%

AIC Data

Parameter	Previous calibration				Current calibration			
	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	-0.1	-0.1	-0.2	ppb	0.1	0.1	-0.1	ppb
Auto span	292.0	288.9	2.1	ppb	312.9	310.3	1.9	ppb

Calibration Performed By: Dmytro Dolotii

Calibration Summary



Parameter NO₂

Air Monitoring Network PAZA

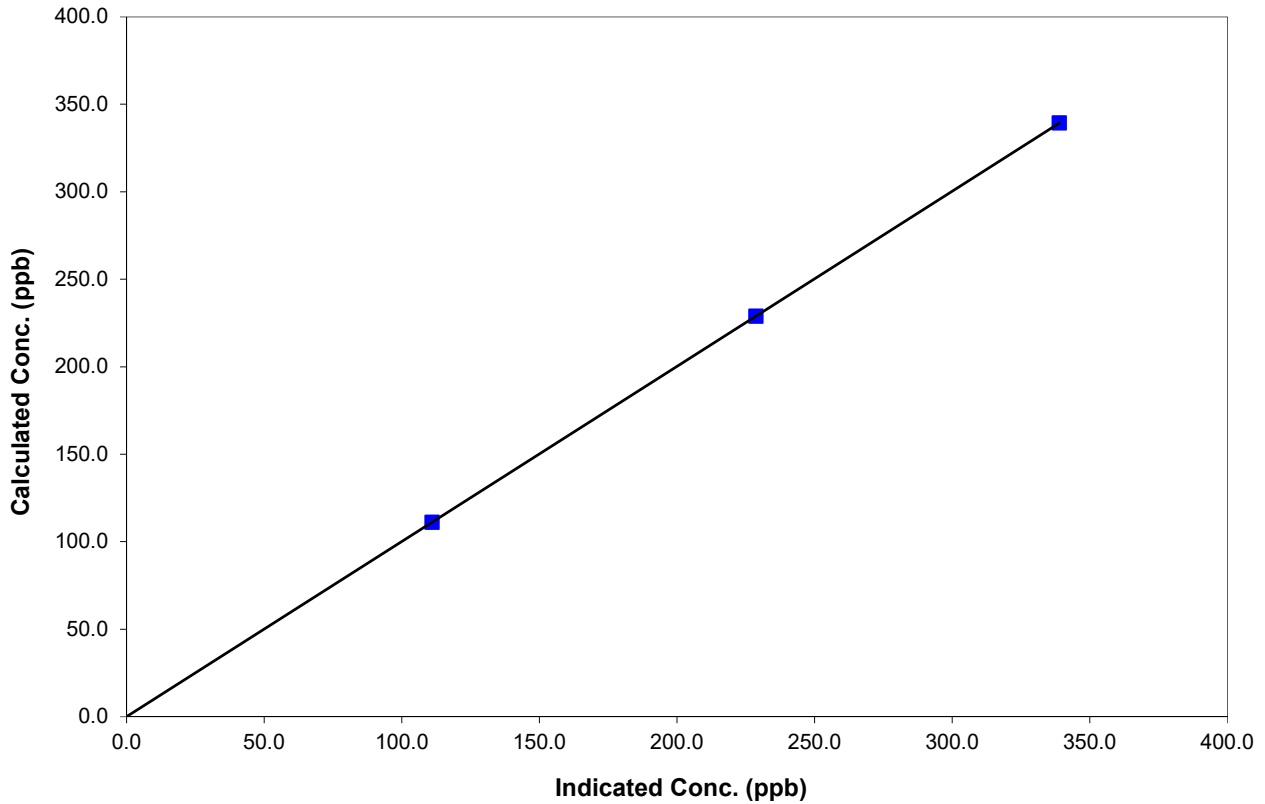
Station Information

Calibration Date	December 14, 2016	Previous Calibration	November 16, 2016
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	10:00	End Time (MST)	13:43:00 PM
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		
339.4	339.0	1.0012	Correlation Coefficient	1.000000
228.8	228.7	1.0003		
111.1	111.0	1.0010	Slope	1.000980
			Intercept	-0.012409

NO₂ Calibration Curve



Calibration Summary



Parameter NO_x

Air Monitoring Network PAZA

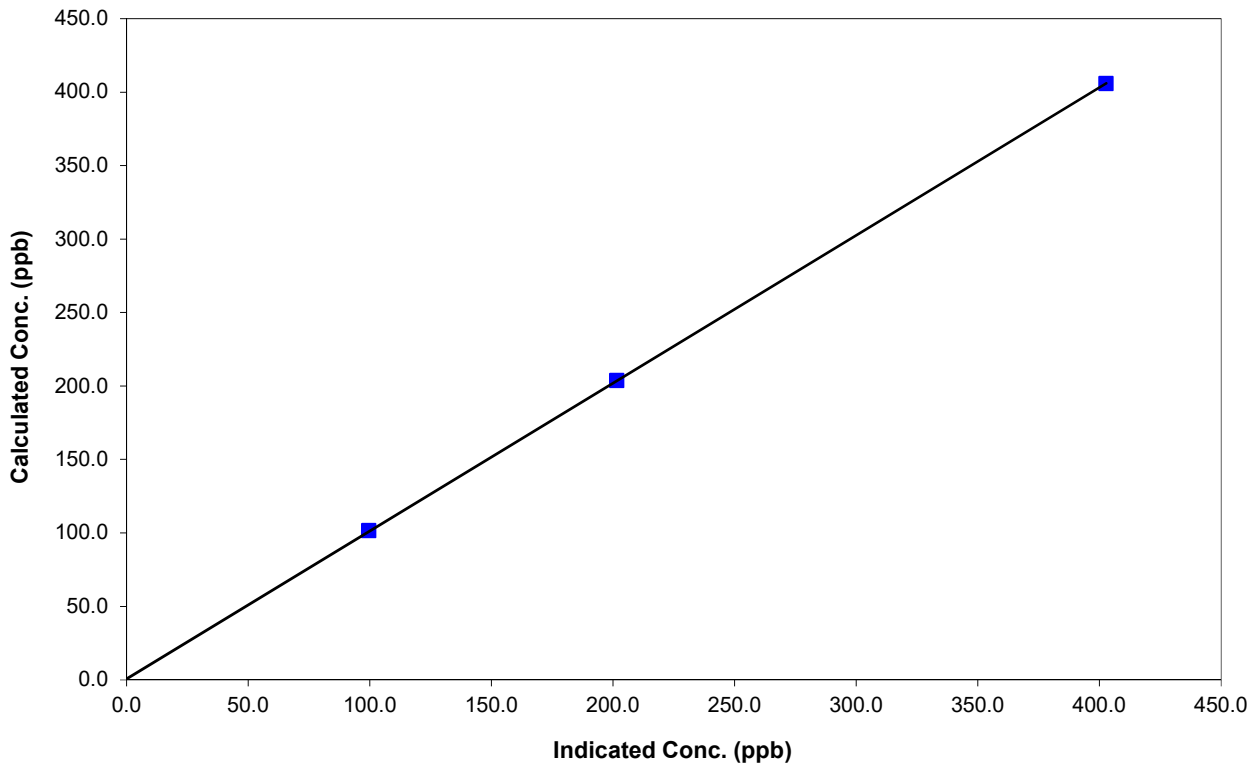
Station Information

Calibration Date	December 14, 2016	Previous Calibration	November 16, 2016
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	10:00	End Time (MST)	13:43:00 PM
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	0.999990
405.8	402.8	1.0077		
203.6	201.6	1.0098		
101.6	99.6	1.0201	Slope	1.006672
			Intercept	0.597120

NO_x Calibration Curve



Calibration Summary

Parameter NO

Air Monitoring Network PAZA



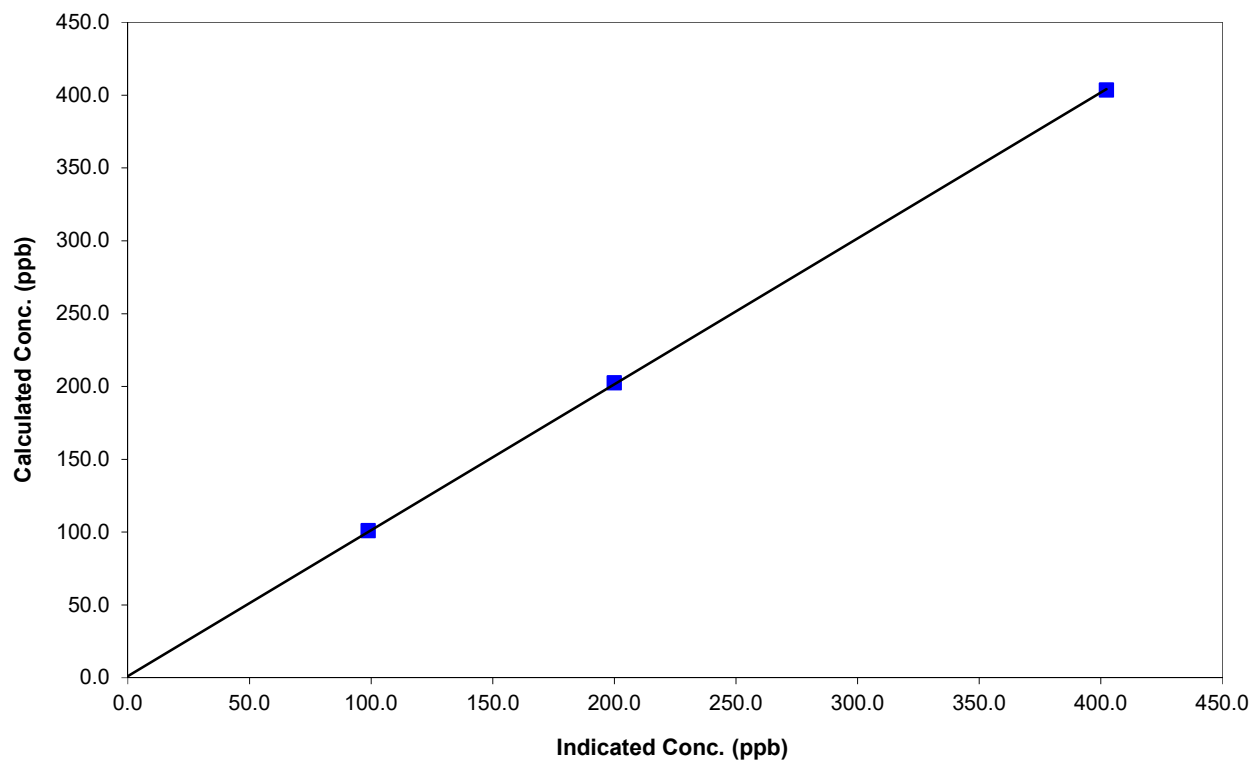
Station Information

Calibration Date	December 14, 2016	Previous Calibration	November 16, 2016
Station Number	4	Station Location	Beaverlodge
Start Time (MST)	10:00	End Time (MST)	13:43:00 PM
Analyzer make	TEI 42i	Analyzer serial #	906535068

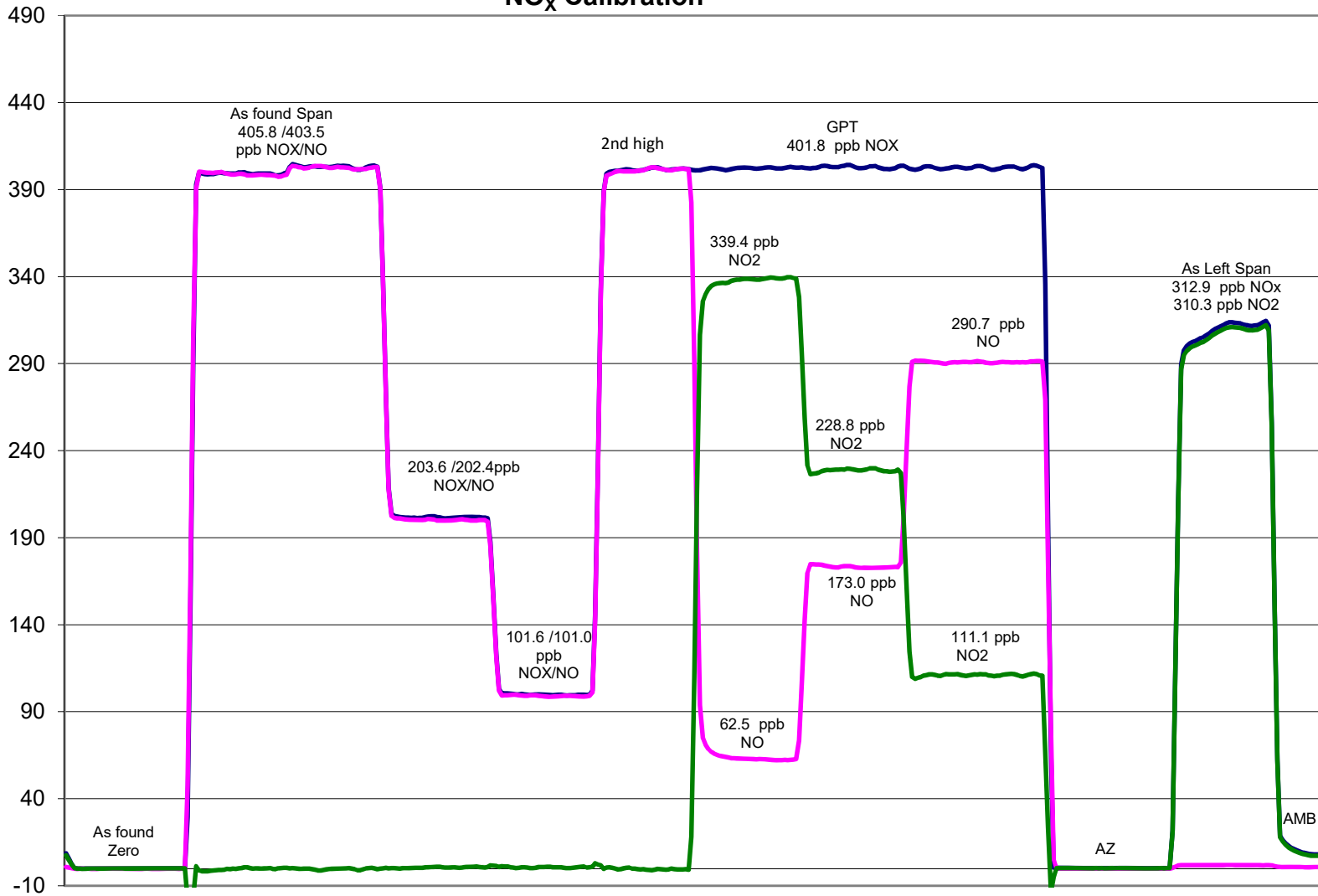
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.2	N/A	Correlation Coefficient	0.999970
403.5	402.3	1.0030		
202.4	200.0	1.0117		
101.0	98.9	1.0214		
			Slope	1.001463
			Intercept	1.206290

NO Calibration Curve



NO_x Calibration



December 14, 2016

Calibration Report



Parameter 03
Air Monitoring Network PAZA

Station Information

Calibration Date	December 14, 2016	Previous Calibration	November 16, 2016
Station Number	4	Station Location	Beaverlodge
Reason:	Routine	Install	Removal
		Other:	
Start Time (MST)	12:45	End Time (MST)	15:15:00 PM
Barometric Pressure	0.928 atm	Station Temperature	20.0 Deg C
Calibrator	EnviroNics	Serial Number	3474
Cal Gas Concentration	NA	Cal Gas Expiry Date	NA
DACS make	CR3000	DACS serial No.	5237
DACS voltage range	0 - 5 volt	DACS channel #	9
	Before		After
Calculated slope	1.015308	Calculated slope	1.010175
Calculated intercept	-0.337858	Calculated intercept	-0.567631
Analyzer make	Teco 49i	Analyzer serial #	1136451236,AMU 1879

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
offset	-0.20	ppb	-0.30	ppb
slope	1.016		1.080	
Lamp temp	53.8	mV	53.9	mV
Lamp Intensity A/B	44635/50384	mV	60002/67651	mV
Pressure	683.9	mm Hg	686.3	mm Hg
Flow A	0.787	LPM	0.797	LPM
Flow B	0.745	LPM	0.749	LPM

Calibration Data

Dilution air flow rate (cc/min)	Calibrator Setting	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
5028	0.00	0.0	0.5	N/A
5028	0.30	339.4	337.2	1.0065
5028	0.20	228.8	225.7	1.0139
5028	0.10	111.1	111.4	0.9975
5028	0.00	0.0	0.5	As found zero
5028	0.30	339.4	319.1	As found span
Average Correction Factor				1.0060

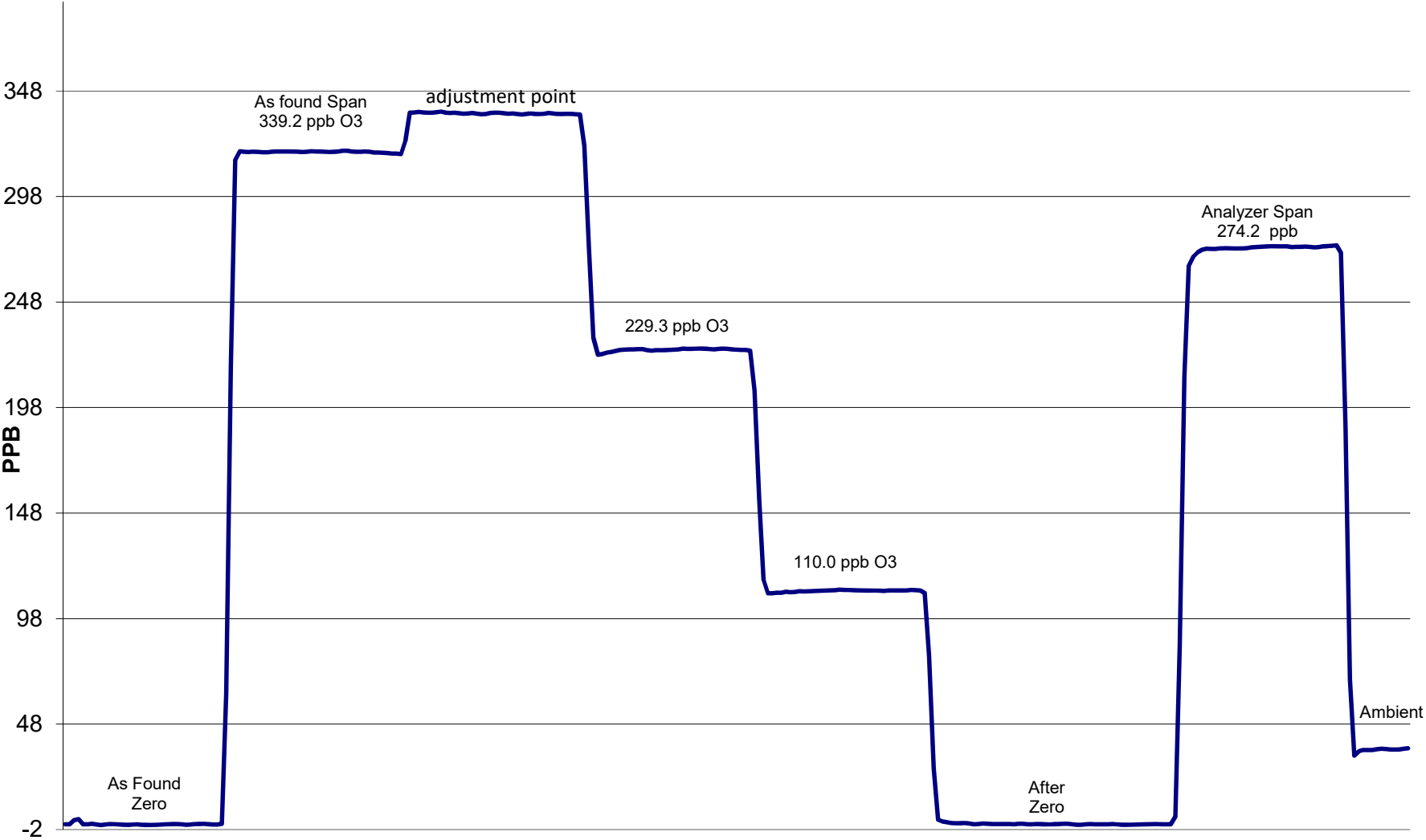
Calculated value of As Found Response: 323.2 ppm Percent Change of As Found: -4.8%

	before calibration		after calibration	
Auto zero	0.4	ppb	0.5	ppb
Auto span	261.1	ppb	274.2	ppb

Notes: Span adjustment made

Calibration Performed By: Dmytro Dolotii

O3 Calibration



December 14, 2016

SHARP 5030 PM2.5 Calibration



STATION: Beaverlodge
 LOCATION: Beaverlodge agriculture centre
 START TIME (MST): 8:20

OPERATOR: Grover Christiansen/Dmytro Dc
 DATE: December 21 2016
 END TIME (MST): 15:10:00 PM

MONITOR INFO / PARAMETER VALUES:

Make/Model	SHARP 5030	Audit Device Model	Delta cal
Configuration	PM 2.5	Audit Device S/N	AMU 1789
Serial Number	AMU 1969	Certification Date	01-Oct-15

AUDIT / CALIBRATION RESULTS:

	Ambient Temp. (°C)	Ambient Pres. (mbar)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
<i>As Found Data</i>					
Audit values (I)	5.0	914	16.67	16.67	14:55:00 PM
MEASURED (AF)	2.7	901	16.40	16.10	15:02:00 PM
AF Difference (AF-I)	-2.3	-13	0.27	-0.57	0:01
<i>Adjusted Data</i>					
MEASURED (M)	3.0	901	16.40	16.10	14:55:00 PM
Adj Difference (M-I)	-2.0	-13	-0.27	-0.57	0:01
LIMITS	± 4.0 °C	6.7 mbar	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned sample head

Status of sampling tape: 70% full

Nozzle Inspection / cleanliness: _____

COMMENTS: _____

Foil calibration Old value 7056 New value 7181

Nephelometer zero. Analog as found = 1.2 adsuted conc = -0.0

Calibration Report



AIR QUALITY MONITORING

Parameter SO2

Air Monitoring Network PAZA

Station Information

Calibration Date	December 16 2016	Previous Calibration	November 25 2016
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)	13:10:00 PM	End Time (MST)	15:10:00 PM
Barometric Pressure	0.921 atm	Station Temperature	20.0 Deg C
Calibrator	Envionics	Serial Number	3016
Cal Gas Concentration	49.7 ppm	Cal Gas Exp Date	November 5, 2018
Gas Cylinder Num.	LL103793		
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	0.999462	Calculated slope	1.004772
Calculated intercept	1.356958	Calculated intercept	1.398353
Analyzer make	TEI 43C	Analyzer serial #	609716239

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Background	16.4		16.4	
Coefficient	1.011		1.011	
UV Lamp Voltage	738	LPM	738	LPM
Chamber Temp	43	V	43	V
Perm Gas Temp	45	C	45	C
Pressure	677.3	in Hg	678.1	in Hg
Sample Flow	0.490	LPM	0.490	LPM
Lamp Intensity	47578	Hz	48967	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	0.1	N/A
4997	39.93	394.0	391.6	1.0062
4999	19.99	197.9	194.5	1.0177
4995	9.95	98.8	95.8	1.0319
4995	0.00	0.0	0.1	As found zero
4995	39.93	394.2	391.6	As found span
Average Correction Factor				1.0186

Calculated value of As Found Response: 392.7 ppm Percent Change of As Found: 0.4%

	before calibration		after calibration	
Auto zero	0.2	ppm	-0.1	ppm
Auto span	281.4	ppm	275.0	ppm

Notes: No adjustments made

Calibration Summary



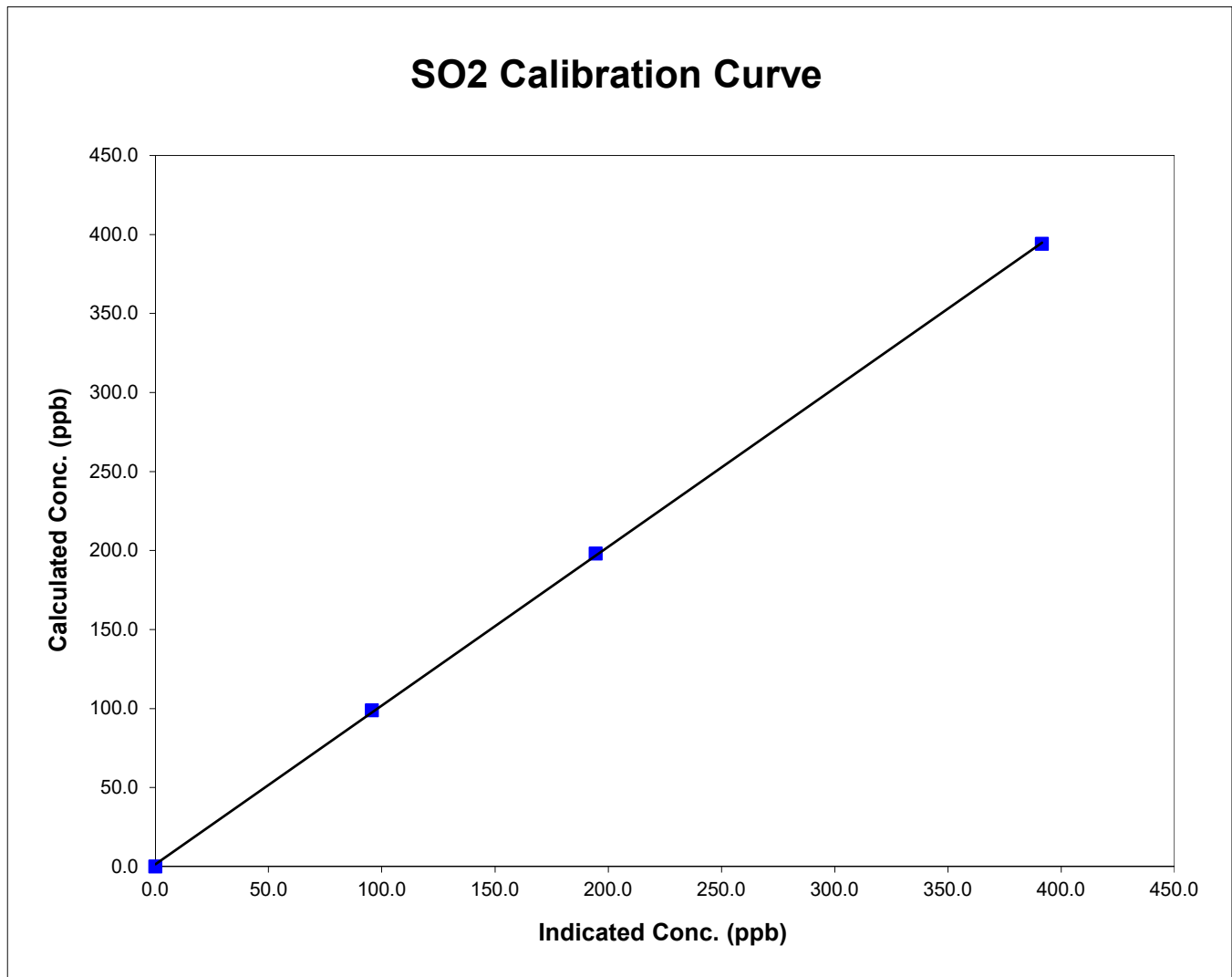
Parameter SO2
 Air Monitoring Network PAZA

Station Information

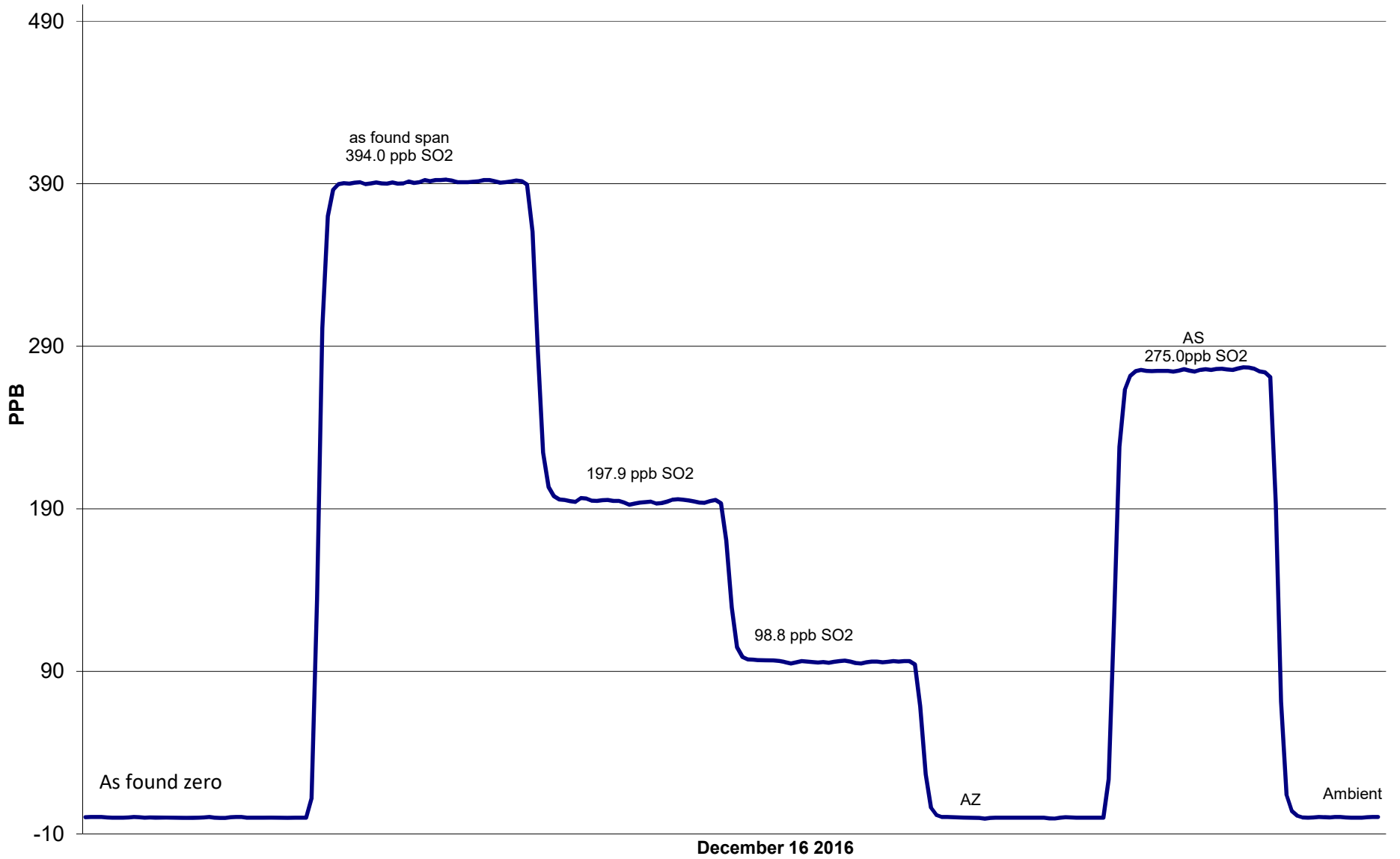
Calibration Date	December 16 2016	Previous Calibration	November 25 2016
Station Number	6	Station Location	Valleyview
Start Time (MST)	13:10:00 PM	End Time (MST)	15:10:00 PM
Analyzer make/model	TEI 43C	Analyzer serial #	609716239

Calibration Data

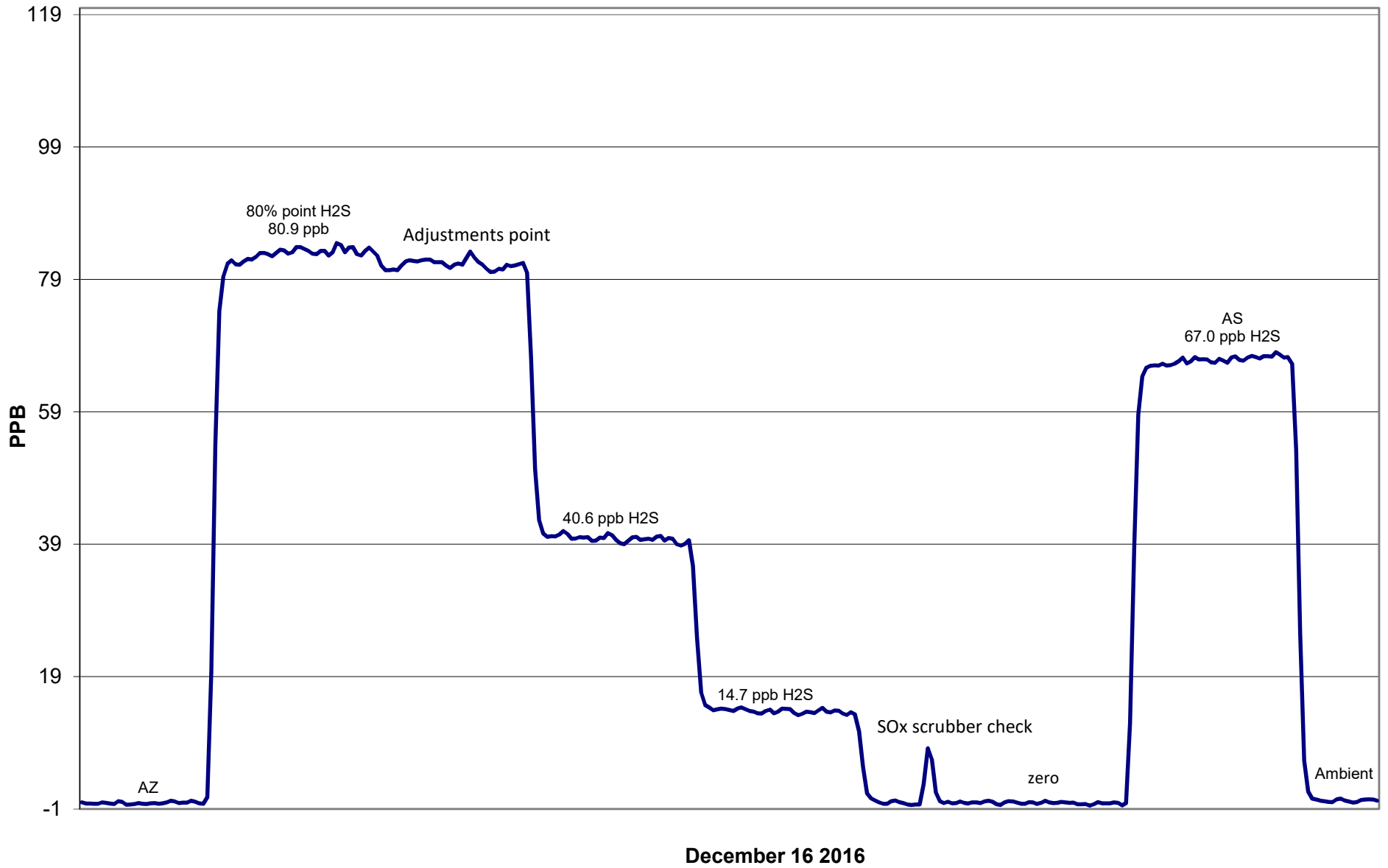
Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	N/A	Correlation Coefficient	0.999935
394.0	391.6	1.0062		
197.9	194.5	1.0177		
98.8	95.8	1.0319	Slope	1.004772
			Intercept	1.398353



SO2 Calibration



H2S Calibration



Calibration Report



AIR QUALITY MONITORING

Parameter SO₂

Air Monitoring Network PAZA

Station Information

Calibration Date	December 9, 2016	Previous Calibration	November 22, 2016
Station Number	1	Station Location	Donnelly
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
			<input type="checkbox"/> Other:
Start Time (MST)	13:24:00 PM	End Time (MST)	15:45:00 PM
Barometric Pressure	0.925 mm	Station Temperature	12.5 Deg C
Calibrator	Envionics	Serial Number	6586
Cal Gas Concentration	49.7 ppm	Cal Gas Expiry Date	11/5/2018
Correction factor	0.032269	Cal Gas Cylinder #	LL103793
DACS make	CR1000	DACS serial No.	3980
DACS voltage range	0 - 5 volt	DACS channel #	6
	<u>Before</u>		<u>After</u>
Calculated slope	0.981175	Calculated slope	1.004346
Calculated intercept	-0.149097	Calculated intercept	-0.468887
Analyzer make	Teco 43i	Analyzer serial #	1207452008

	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
Background	6.6		6.3	
coefficient	0.929		0.908	
Lamp Voltage	870	volts	868	volts
Chamber Temp	44.9	Deg C	44.9	Deg C
Perm Gas Temp	45	Deg C	45	Deg C
Pressure	689.5	mm Hg	691.6	mm Hg
Sample Flow	0.408	ccm	0.41	ccm
Lamp Intensity	97	%	97	%

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	1.2	N/A
4995	39.93	394.2	393.4	1.0020
4995	19.96	197.8	196.8	1.0052
4995	9.97	99.0	98.5	1.0055
4995	0.0	0.0	1.2	As Found Zero
4995	39.93	394.2	402.0	As Found Span
Average Correction Factor				1.0042

Calculated value of As Found Response: 393.064 ppm Percent Change of As Found: **0.3%**

	before calibration		after calibration	
Auto zero	1.1	ppm	1.4	ppm
Auto span	264.6	ppm	258.1	ppm

Notes: Span adjustment

Calibration Performed By: Dmytro Dolotii

Calibration Summary



Parameter SO2
 Air Monitoring Network PAZA

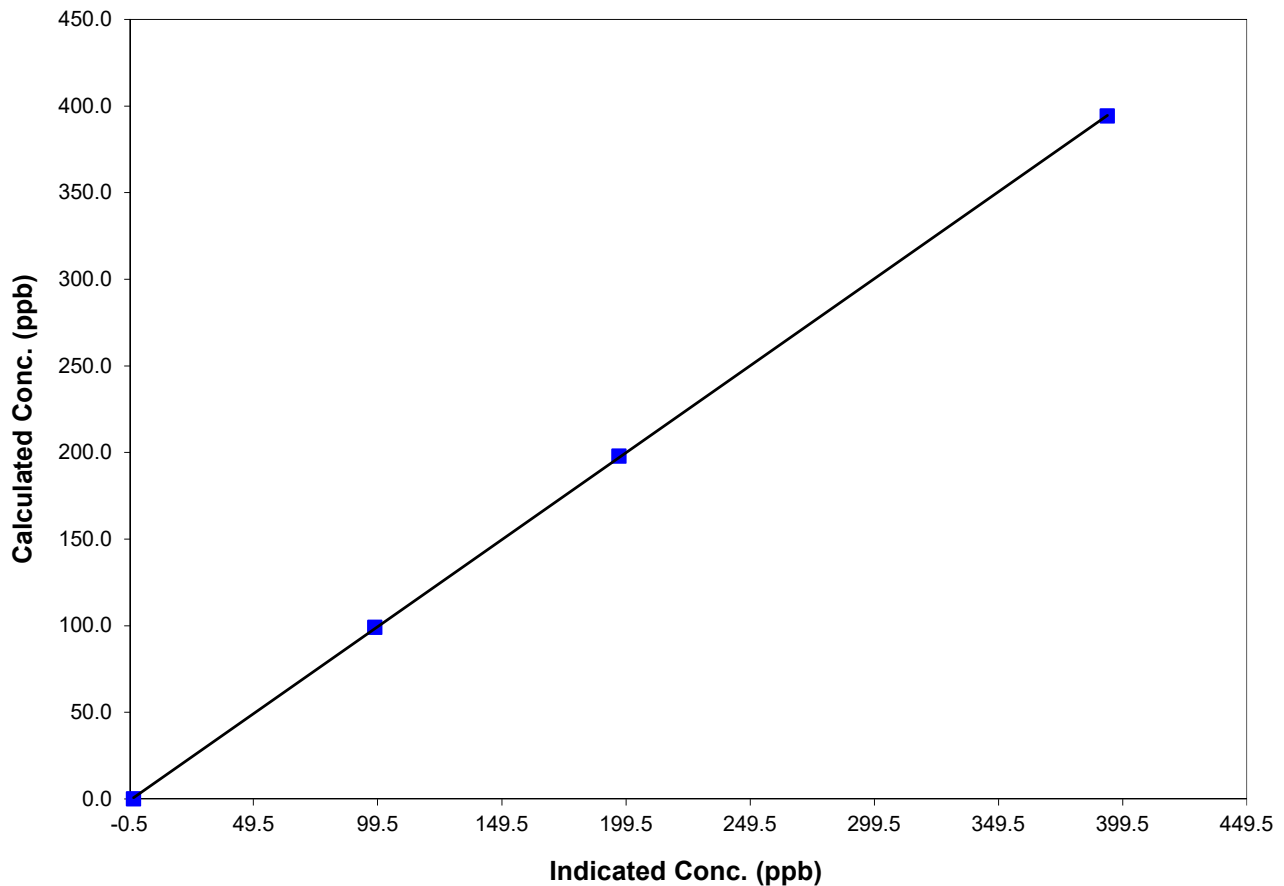
Station Information

Calibration Date	December 9, 2016	Previous Calibration	November 22, 2016
Station Number	1	Station Location	Donnelly
Start Time (MST)	13:24:00 PM	End Time (MST)	15:45:00 PM
Analyzer make/model	Teco 43i	Analyzer serial #	1207452008

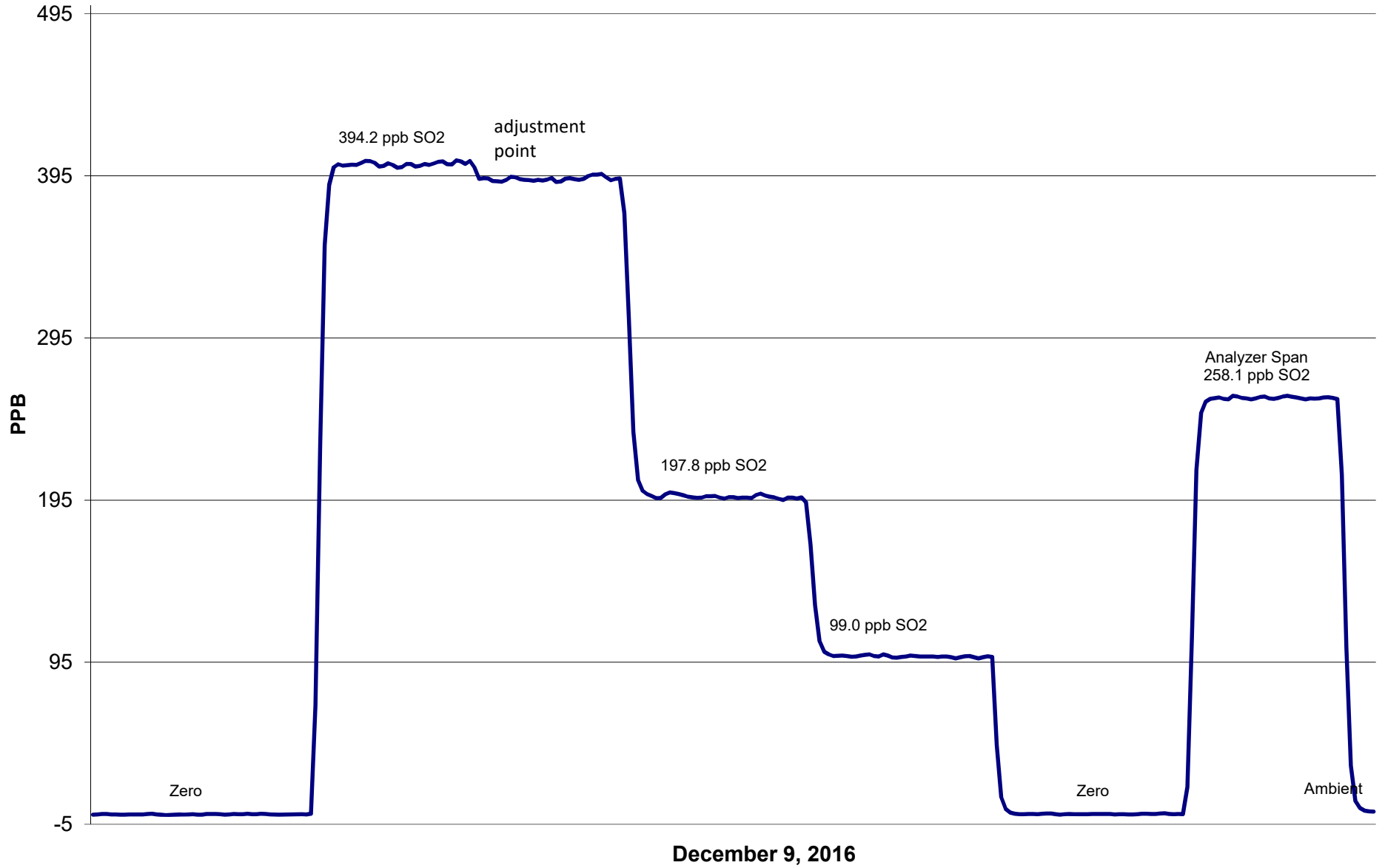
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	1.2	N/A	Correlation Coefficient	0.999982
394.2	393.4	1.0020		
197.8	196.8	1.0052	Slope	1.004346
99.0	98.5	1.0055		
			Intercept	-0.468887

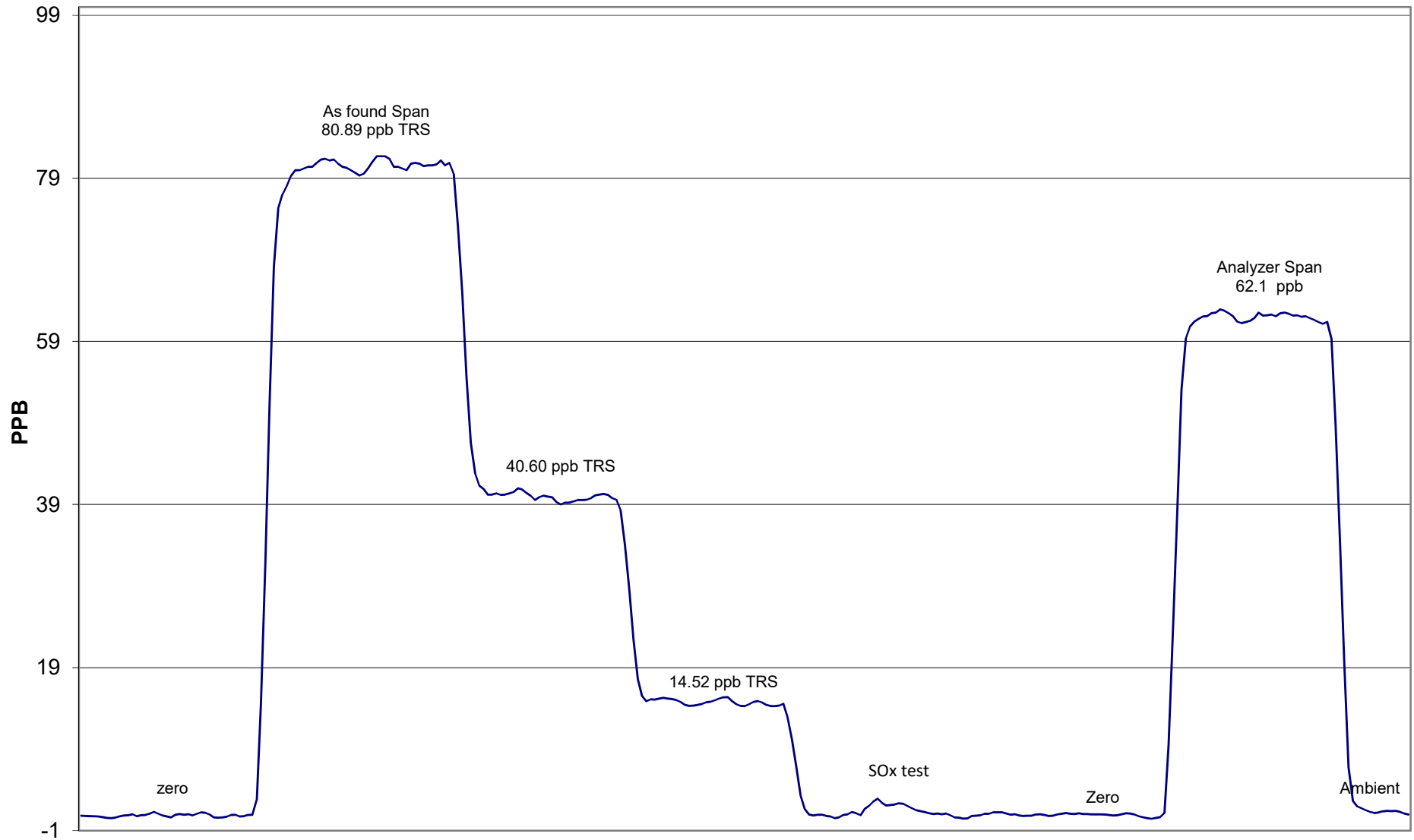
SO2 Calibration Curve



SO2 Calibration



H2S Calibration



December 9, 2016

Calibration Report



AIR QUALITY MONITORING

Parameter SO2
Air Monitoring Network _____

PAZA

Station Information

Calibration Date	December 13, 2016	Previous Calibration	November 1, 2016
Station Number	10	Station Location	Rycroft
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input type="checkbox"/> Other:	
Start Time (MST)	11:00	End Time (MST)	13:30:00 PM
Barometric Pressure	0.929 Atm	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6103	Serial Number	6586
Cal Gas Concentration	49.8 ppm	Cal Gas Expiry Date	3/10/2017
Gas Cert Reference	LL119493		
DACS make	CR3000	DACS serial No.	5407
DACS voltage range	0 - 5 Volt	DACS channel #	2
	<u>Before</u>		<u>After</u>
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	1.000552	Calculated slope	0.998748
Calculated intercept	0.887183	Calculated intercept	1.385964
Analyzer make	TEI 43C	Analyzer serial #	436610005

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Background	23.2		23.3	
Coefficient	1.056		1.056	
UV Lamp Voltage	896	V	896	V
Chamber Temp	44.7	C	44.8	C
Perm Gas Temp	45	C	45	C
Pressure	682.9	mm Hg	682.7	mm Hg
Sample Flow	0.469	LPM	0.47	LPM
Lamp Intesity	30308	Hz	30789	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)
4998	0.00	0.0	0.0	N/A
4996	39.95	395.1	395.0	1.0002
4997	19.98	198.3	196.1	1.0112
4999	9.94	98.8	96.4	1.0251
4998	0.00	0.0	0.0	As found zero
4999	39.93	394.6	395.0	As found span
Average Correction Factor				1.0122

Calculated value of As Found Response: 396.063 ppm Percent Change of As Found: -0.4%

	before calibration		after calibration	
Auto zero	0.3	ppm	0.3	ppm
Auto span	203.5	ppm	200.6	ppm

Notes: No adjustment made

Calibration Summary

Parameter SO2
 Air Monitoring Network PAZA

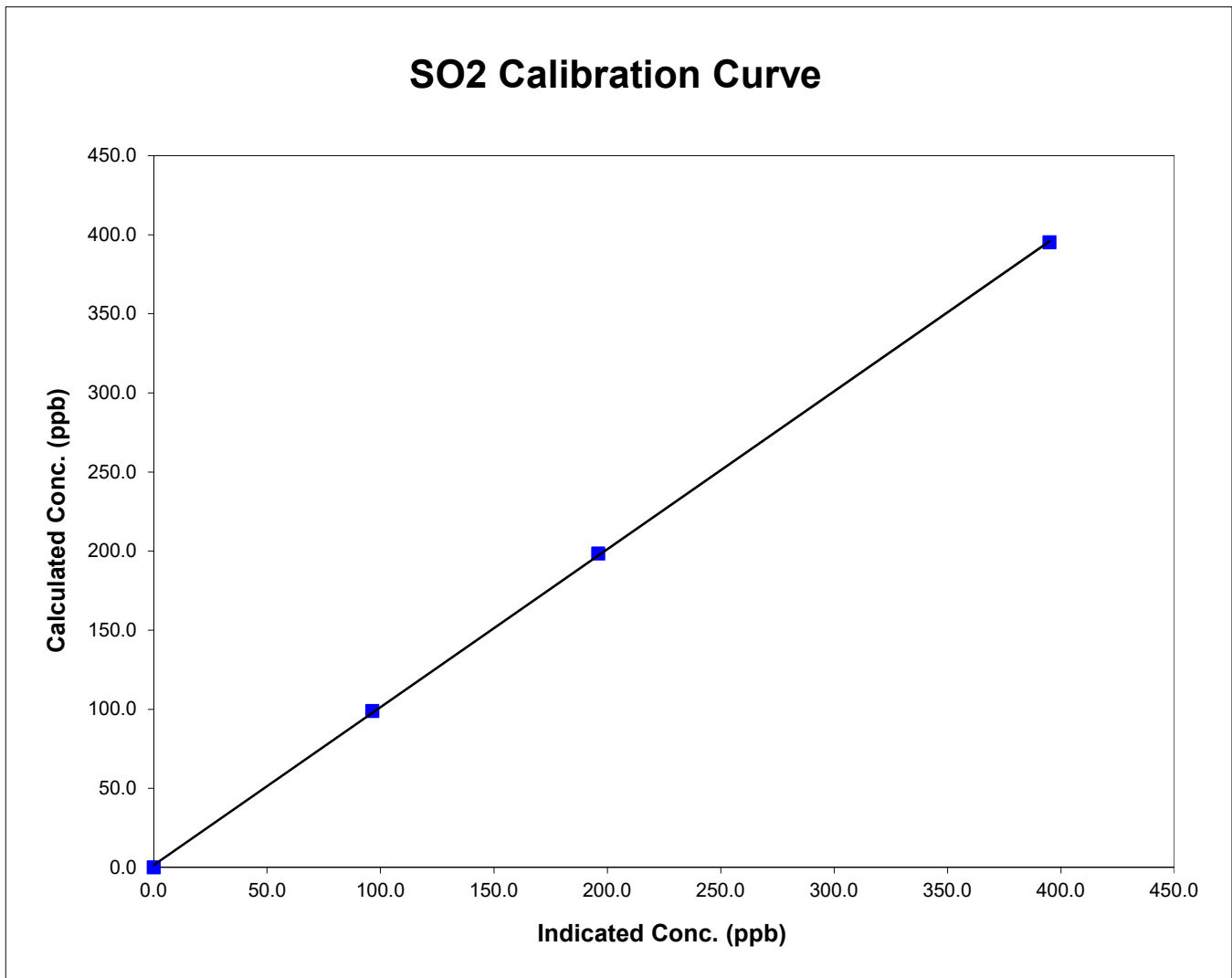


Station Information

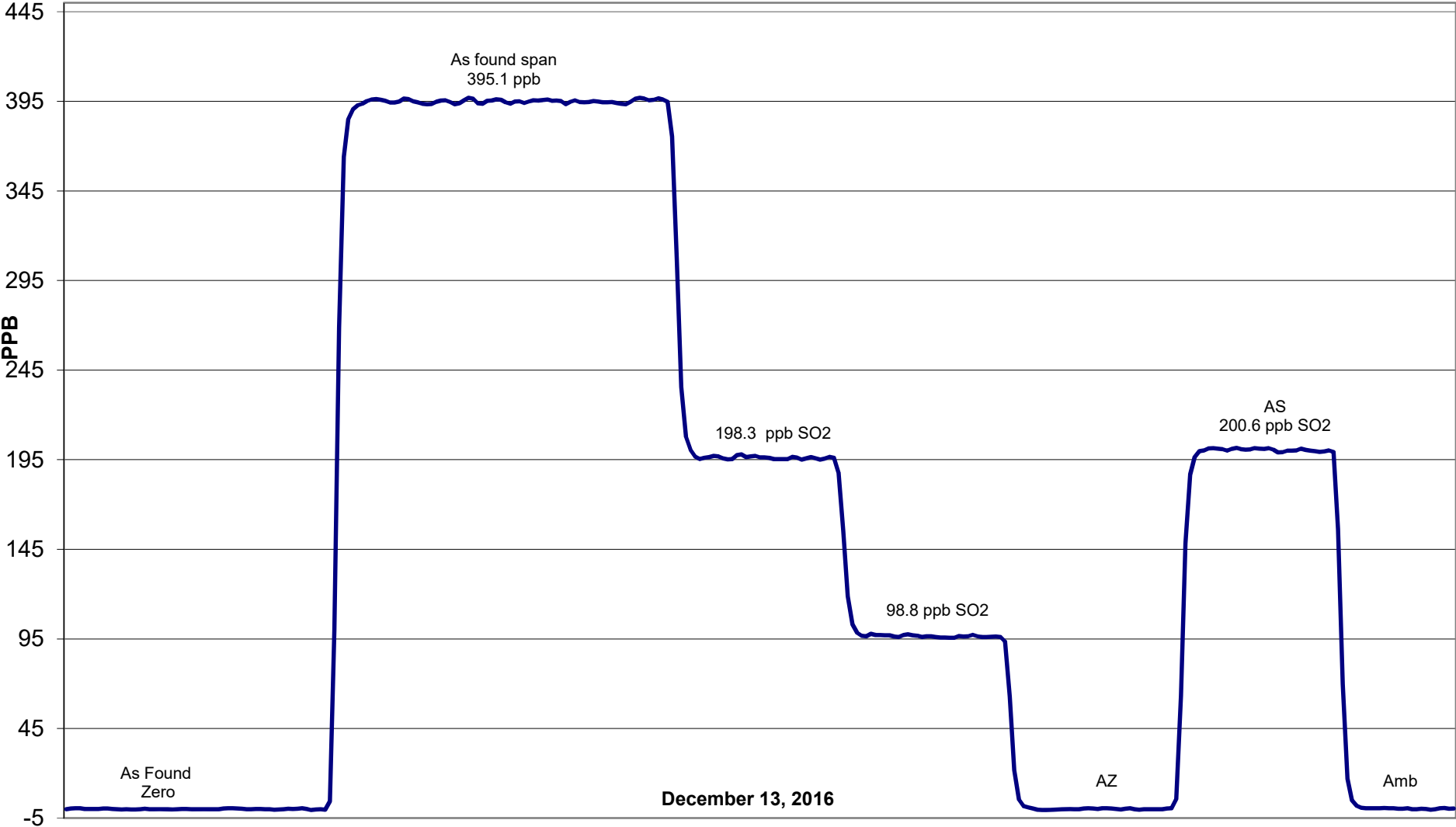
Calibration Date	December 13, 2016	Previous Calibration	November 1, 2016
Station Number	10	Station Location	Rycroft
Start Time (MST)	11:00	End Time (MST)	13:30:00 PM
Analyzer make/model	TEI 43C	Analyzer serial #	436610005

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A		
395.1	395.0	1.0002	Correlation Coefficient	0.999940
198.3	196.1	1.0112		
98.8	96.4	1.0251	Slope	0.998748
			Intercept	1.385964



SO2 Calibration



Calibration Report



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

Station Information

Calibration Date: December 13, 2016 Station Location: Rycroft

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	4994	0.00	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	
1	4995	39.92	405.9	403.6	2.4	404.6	405.3	-2.3	1.0032	0.9958	
2	4994	19.96	203.8	202.6	1.2	203.2	203.5	-1.1	1.0032	0.9960	
3	4998	9.98	102.0	101.4	0.6	101.0	101.2	-0.1	1.0105	1.0020	
AFZ	4994	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0000	0.0000	
AFS	4999	39.92	405.6	403.2	0.8	373.4	373.8	-1.9	1.0863	1.0789	
									Average Correction Factor	1.0057	0.9979

As Found Concentrations: NO_x= 374.5 NO= 374.0 As Found Percent Change NO_x= -7.7% NO= -7.2%

GPT Calibration Data

Dilution Flow 4995 ccm Source Gas Flow 39.93 ccm

O3 Setpoint (ppb)	Indicated NOx 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	0.0	N/A	N/A	N/A	N/A	
NO point	408.8	408.8	0.0	408.8	408.8	-1.8	1.0000	1.0000	N/A	N/A	
300	408.8	65.9	342.9	409.8	65.9	342.3	0.9976	1.0000	1.0018	99.8%	
200	408.8	178.6	230.2	411.9	178.6	231.1	0.9926	1.0000	0.9958	100.4%	
100	408.8	299.0	109.8	412.4	299.0	111.4	0.9912	1.0000	0.9861	101.4%	
							Average Correction Factor	0.9938	1.0000	0.9946	100.6%

AIC Data

Parameter	Previous calibration				Current calibration			
	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	0.0	0.1	0.0	ppb	0.1	0.0	0.2	ppb
Auto span	169.3	167.4	1.2	ppb	162.5	160.8	1.1	ppb

Calibration Performed By: Dmytro Dolotii

Calibration Summary



Parameter NO₂

Air Monitoring Network PAZA

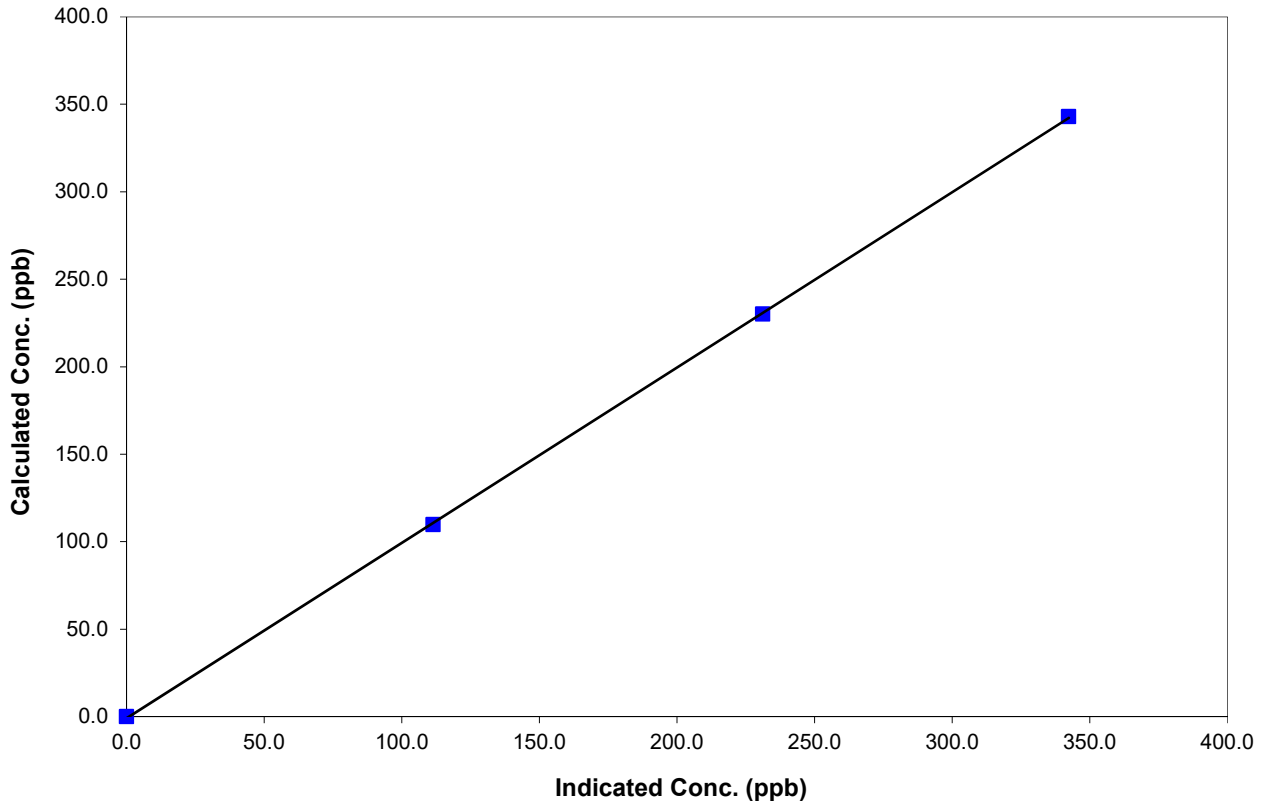
Station Information

Calibration Date	December 13, 2016	Previous Calibration	November 1, 2016
Station Number	10	Station Location	Rycroft
Start Time (MST)	11:10	End Time (MST)	14:45:00 PM
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		
342.9	342.3	1.0018	Correlation Coefficient	0.999963
230.2	231.1	0.9958		
109.8	111.4	0.9861	Slope	1.002167
			Intercept	-0.856063

NO₂ Calibration Curve



Calibration Summary



Parameter NO_x

Air Monitoring Network PAZA

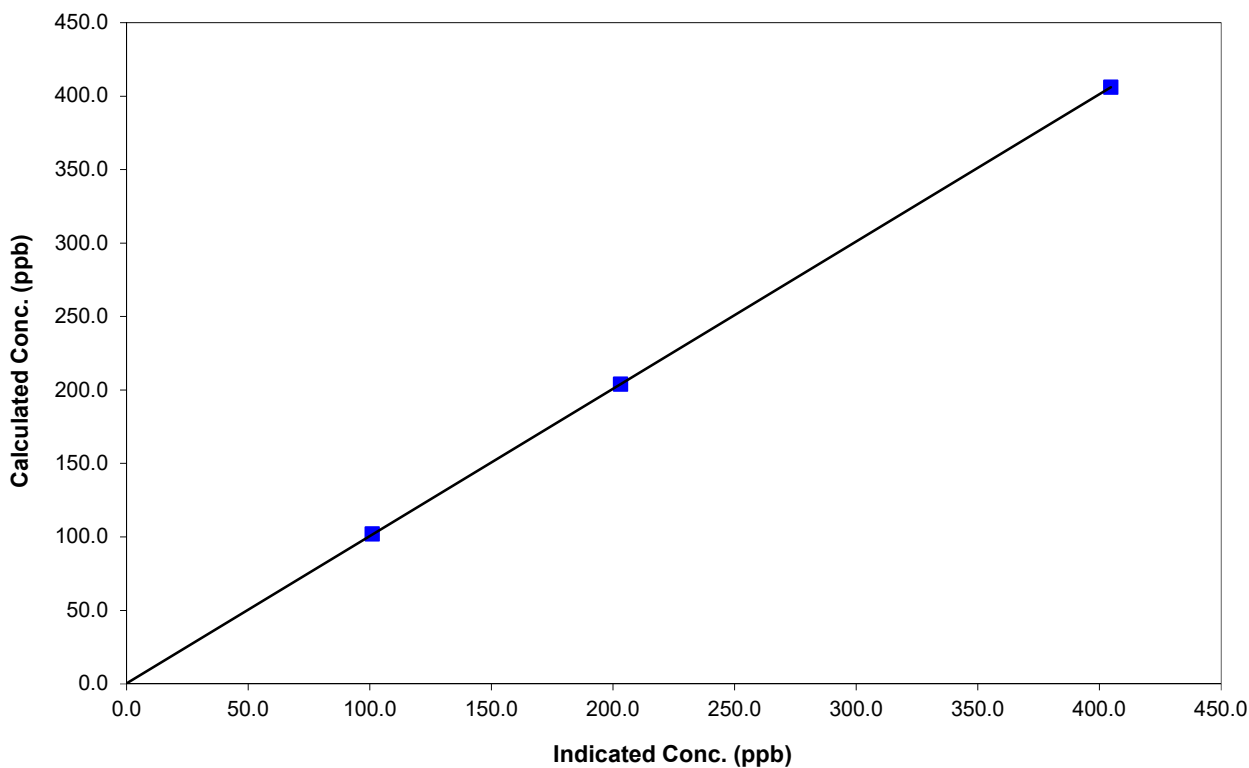
Station Information

Calibration Date	December 13, 2016	Previous Calibration	November 1, 2016
Station Number	10	Station Location	Rycroft
Start Time (MST)	11:10	End Time (MST)	14:45:00 PM
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	Correlation Coefficient	0.999996
405.9	404.6	1.0032		
203.8	203.2	1.0032	Slope	1.002506
102.0	101.0	1.0105		
			Intercept	0.322499

NO_x Calibration Curve



Calibration Summary



Parameter NO
 Air Monitoring Network PAZA

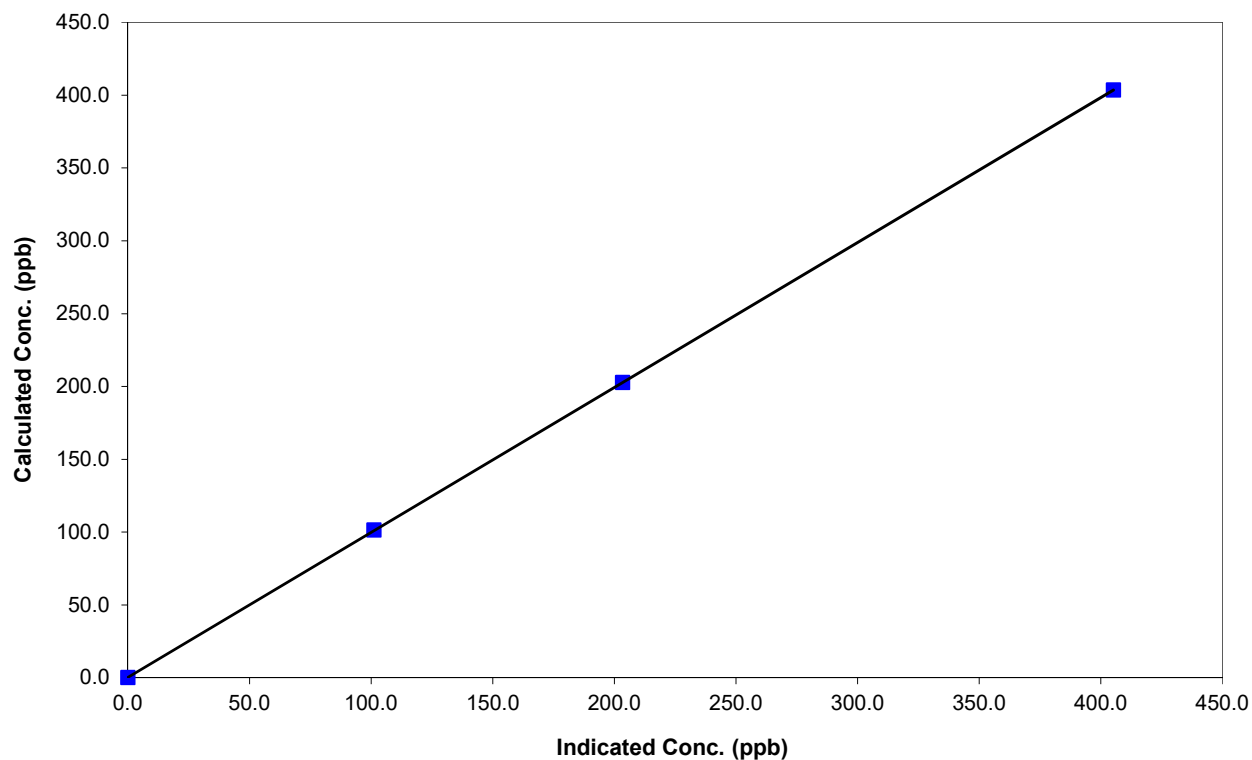
Station Information

Calibration Date	December 13, 2016	Previous Calibration	November 1, 2016
Station Number	10	Station Location	Rycroft
Start Time (MST)	11:10	End Time (MST)	14:45:00 PM
Analyzer make	TEI 42i	Analyzer serial #	0701120011

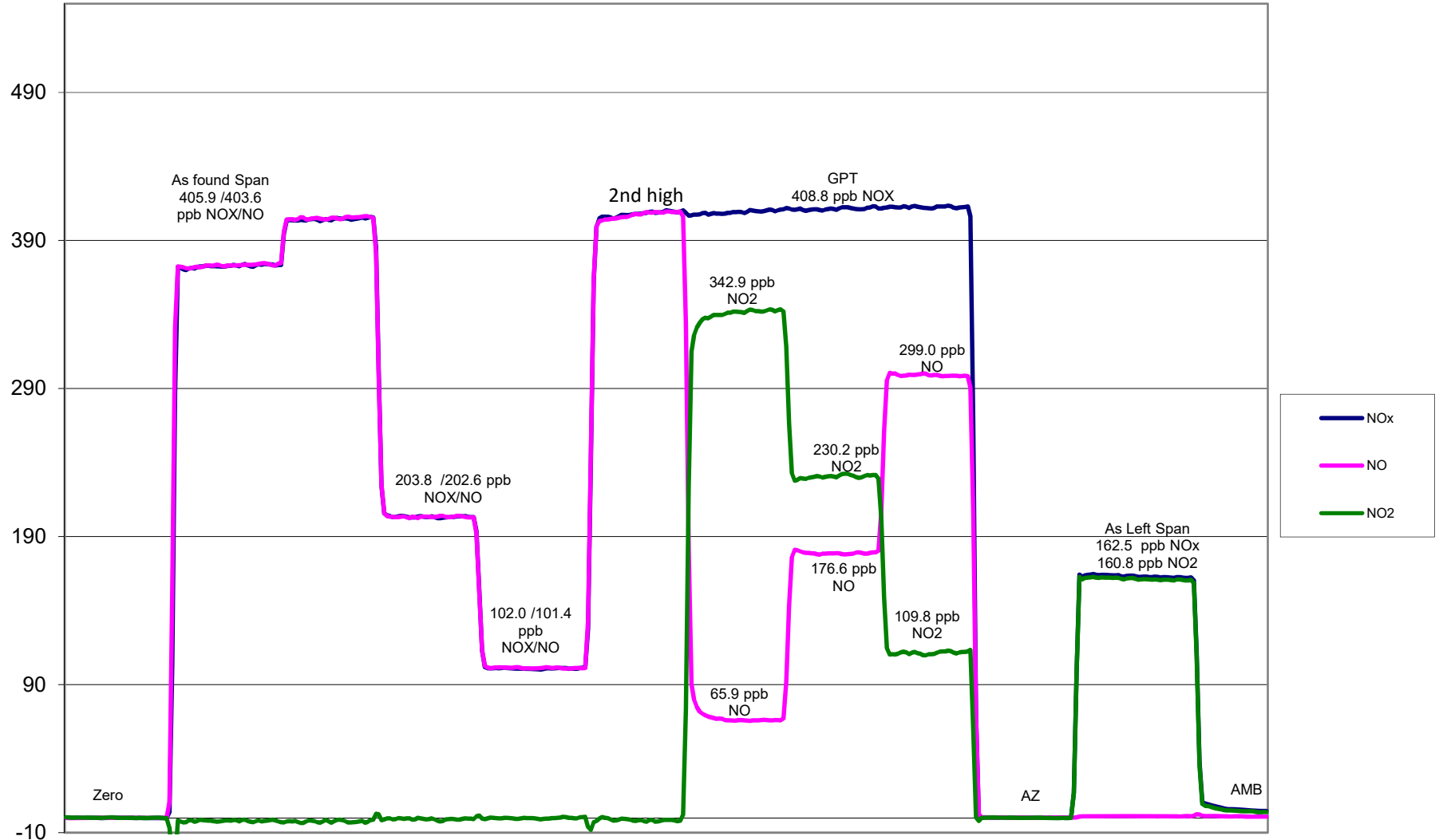
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.0	N/A	Correlation Coefficient	0.999997
403.6	405.3	0.9958		
202.6	203.5	0.9960		
101.4	101.2	1.0020	Slope	0.995367
			Intercept	0.236681

NO Calibration Curve



NO_x Calibration



December 13, 2016

Calibration Report



AIR QUALITY MONITORING

Parameter 03

Air Monitoring Network PAZA

Station Information

Calibration Date	November 1 2016	Previous Calibration	November 1 2016
Station Number	10	Station Location	Rycroft
Reason:	Routine	Install	Removal
		Other:	
Start Time (MST)	13:43:00 PM	End Time (MST)	16:00:00 PM
Barometric Pressure	0.929 atm	Station Temperature	20.0 Deg C
Calibrator	EnviroNics 6103	Serial Number	6586
DACS make	CR3000	DACS serial No.	5407
DACS voltage range	0 - 5 Volts	DACS channel #	6
	Before		After
Calculated slope	1.019209	Calculated slope	1.021685
Calculated intercept	-0.815905	Calculated intercept	-2.135616
Analyzer make	Model 49-I	Analyzer serial #	1153630156

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Offset	-0.5	ppb	-0.6	ppb
Span	1.012		1.088	
Cell A intensity	87800	Hz	87918	Hz
Cell B intensity	110374	Hz	110697	Hz
Pressure	710.50	in Hg	705.00	in Hg
CellA Flow	0.702	ccm	0.698	ccm
Cell B Flow	0.701	cmm	0.696	cmm

Calibration Data

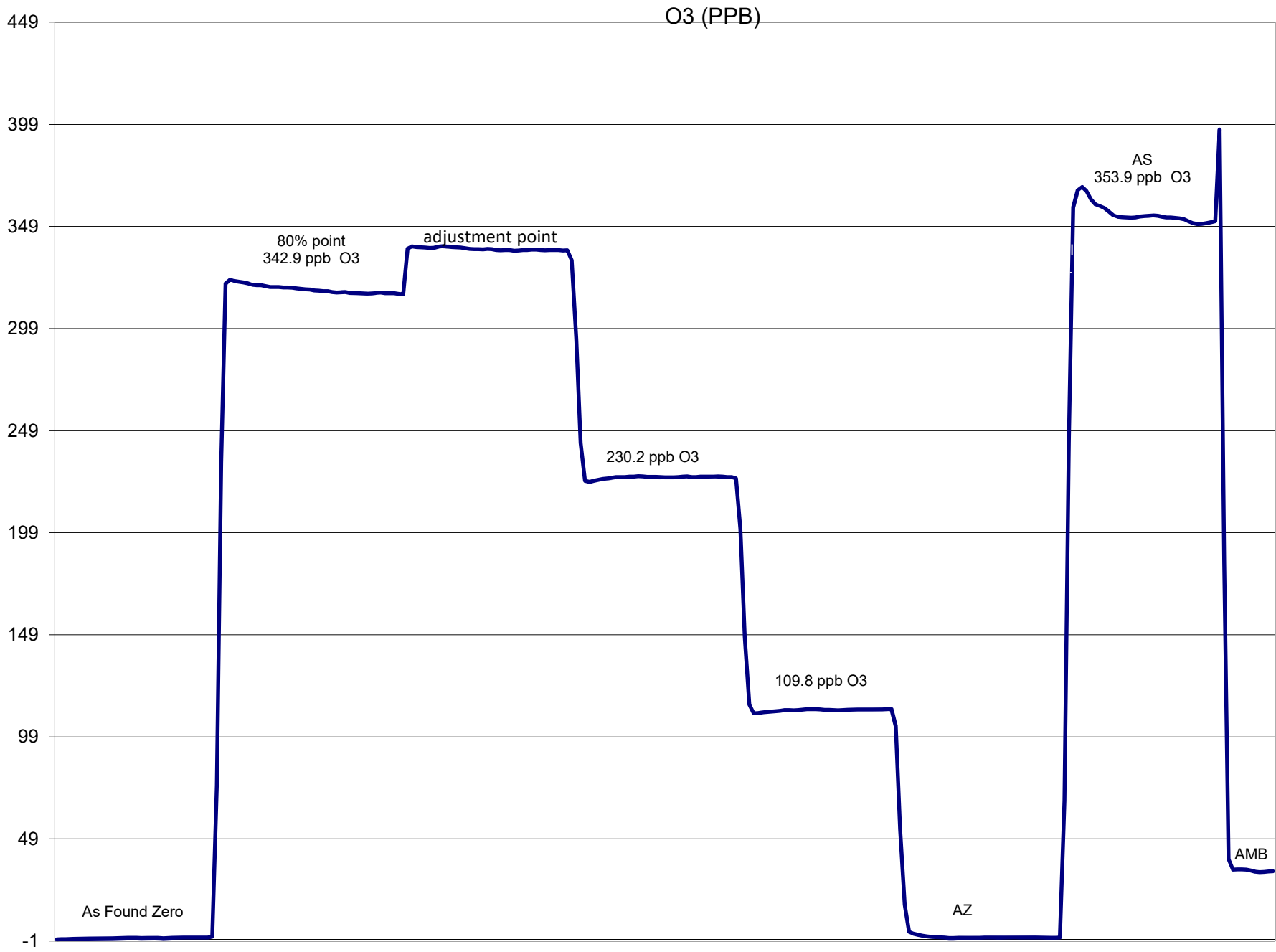
Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)
5015	0.00	0.0	0.6	N/A
5020	0.30	342.9	337.5	1.0160
5025	0.20	230.2	226.4	1.0170
5020	0.10	109.8	112.3	0.9775
5015	0.00	0.0	0.6	As found zero
5020	0.30	342.9	317.2	As found span
Average Correction Factor				1.0035

Calculated value of As Found Response: 321.8 ppm Percent Change of As Found: -6.1%

	before calibration		after calibration	
Auto zero	0.5	ppb	0.6	ppb
Auto span	358.8	ppb	353.9	ppb

Notes: Span adjustment made

Calibration Performed By: Dmytro Dolotii



November 1 2016

Calibration Report



Parameter CH4 / NMHC / THC

Air Monitoring Network PAZA

Station Information

Calibration Date	December 12, 2016	Previous Calibration	November 2, 2016
Station Number	1	Station Location	Rycroft
Reason:	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Install	<input type="checkbox"/> Removal
		<input type="checkbox"/> Other:	
Start Time (MST)	11:30	End Time (MST)	15:00:00 PM
Barometric Pressure	729.00 mm/hg	Station Temperature	18.0 Deg C
Calibrator	EnviroNics 6103	Serial Number	6586
Cal Gas CH4 Conc	386 ppm CH4	Cal Gas Expiry Date	3/28/2014
Cal Gas C3H8 Conc	207 569.25 ppm CH4	Cal Gas Cylinder #	LL34318
DACS make	CR3000	DACS serial No.	5408
DACS voltage range	0 - 5 volt	DACS channel #	SE 12,13,14

Analyzer make TEI 55I-A3PHAA Analyzer serial # 1151980005

	before		after	
Concentration range	0-20 (CH4, NMHC); 0-40 (THC)	ppm	0-20 (CH4, NMHC); 0-40 (THC)	ppm
Air pressure	34.7	PSI	34.7	PSI
Fuel pressure	49.4	PSI	49.4	PSI
Carrier pressure	40.1	PSI	40.1	PSI
CH4 cal factor				E ⁻⁴
NMHC cal factor				E ⁻⁴
Rt		Sec		Sec
Pk Index				

CH4 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)
1995	0.00	0.00	0.00	N/A
1997	68.96	12.88	12.65	1.0186
1998	40.99	7.76	7.61	1.0194
1999	15.97	3.06	2.99	1.0223
1995	0.00	0.00	0.00	As Found Zero
1995	68.93	12.89	12.36	As Found Span
Average Correction Factor				1.0201

Calculated value of As Found Response: 12.390 ppm Percent Change of As Found: 3.9%

	Before		After
Calculated slope	0.999392	Calculated slope	1.018425
Calculated intercept	0.045763	Calculated intercept	0.004996

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.00	ppm	0.00	ppm
Auto span	7.58	ppm	7.59	ppm

NMHC 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)
1995	0.00	0.00	0.00	N/A
1997	68.96	19.00	19.02	0.9990
1998	40.99	11.44	11.39	1.0052
1999	15.97	4.51	4.34	1.0387
1995	0.00	0.00	0.00	As Found Zero
1995	68.93	19.01	19.13	As Found Span
Average Correction Factor				1.0143

Calculated value of As Found Response: 19.170 ppm Percent Change of As Found: -0.8%

	Before		After
Calculated slope	0.997390	Calculated slope	0.996385
Calculated intercept	0.087304	Calculated intercept	0.083287

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.00	ppm	0.00	ppm
Auto span	11.07	ppm	11.17	ppm

THC 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)
1995	0.00	0.00	0.00	N/A
1997	68.96	31.89	31.70	1.0057
1998	40.99	19.20	19.00	1.0110
1999	15.97	7.57	7.36	1.0282
1995	0.00	0.00	0.00	As Found Zero
1995	68.93	31.90	31.53	As Found Span
Average Correction Factor				1.0150

Calculated value of As Found Response: 31.568 ppm Percent Change of As Found: 1.0%

	Before		After
Calculated slope	0.997211	Calculated slope	1.004430
Calculated intercept	0.131674	Calculated intercept	0.085042

Final Zero/Span Data

	before calibration		after calibration	
Auto zero	0.00	ppm	0.00	ppm
Auto span	18.61	ppm	18.76	ppm

Notes: Hydrogen & nitrogen cylinders replaced.
No adjustment made

Calibration Performed By: Dmytro Dolotii

Calibration Summary

Parameter CH4
 Air Monitoring Network PAZA



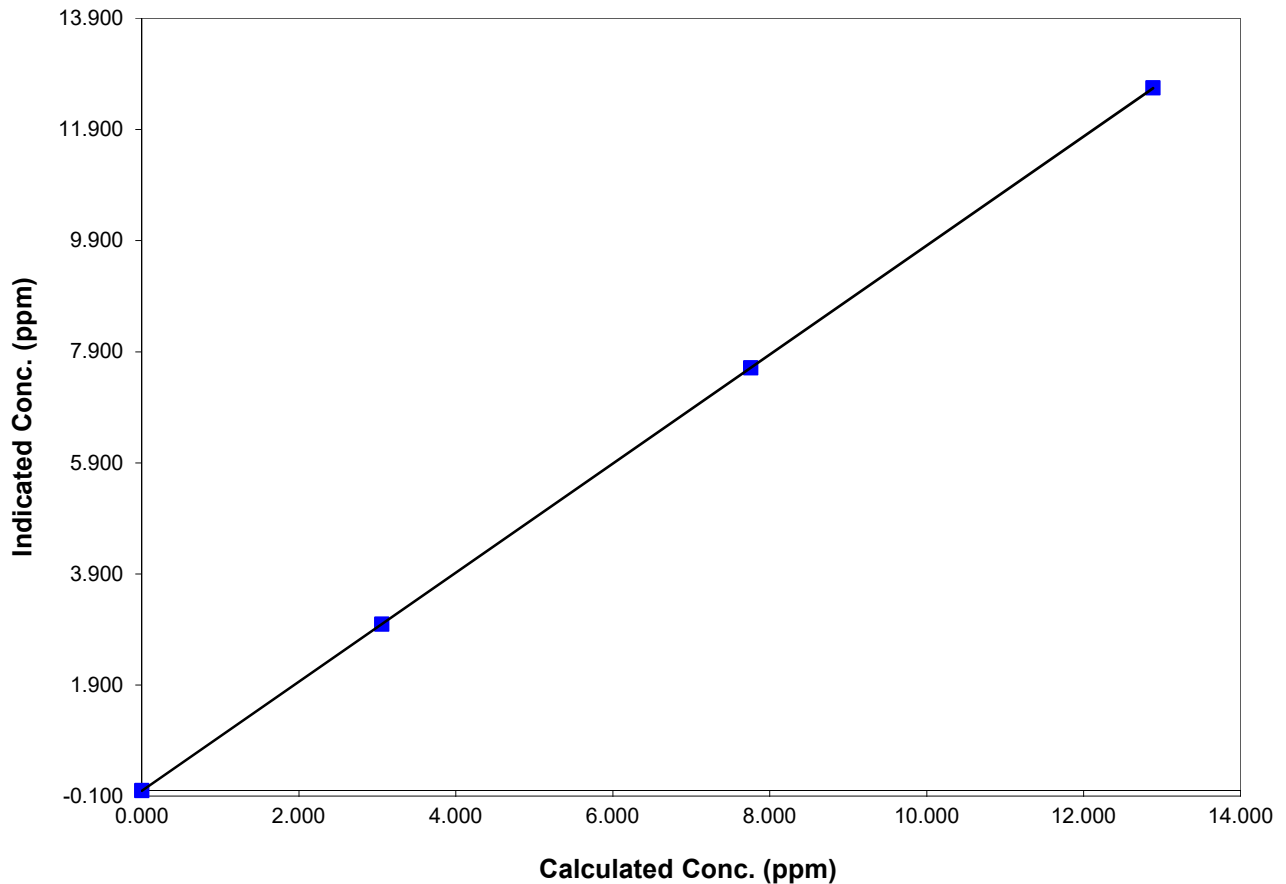
Station Information

Calibration Date	December 12, 2016	Previous Calibration	November 2, 2016
Station Number	1	Station Location	Rycroft
Start Time (MST)	11:30	End Time (MST)	15:00:00 PM
Analyzer make/model	TEI 55I-A3PHAA	Analyzer serial #	1151980005

Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.001	N/A	Correlation Coefficient	0.999999
12.884	12.649	1.0186		
7.760	7.612	1.0194	Slope	1.018425
3.059	2.993	1.0223		
			Intercept	0.004996

CH4 Calibration Data



Calibration Summary

Parameter THC
 Air Monitoring Network PAZA



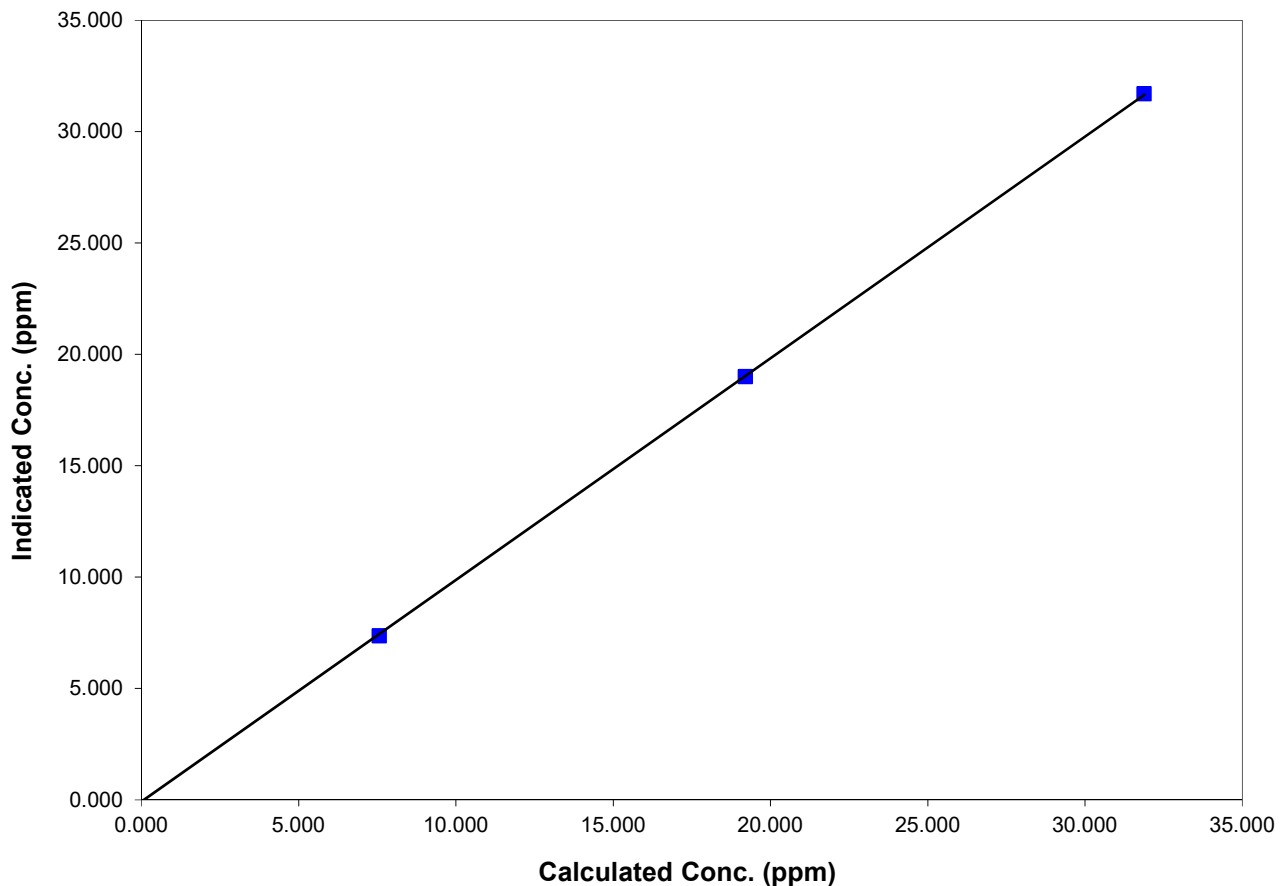
Station Information

Calibration Date	December 12, 2016	Previous Calibration	November 2, 2016
Station Number	1	Station Location	Rycroft
Start Time (MST)	11:30	End Time (MST)	15:00:00 PM
Analyzer make/model	TEI 55I-A3PHAA	Analyzer serial #	1151980005

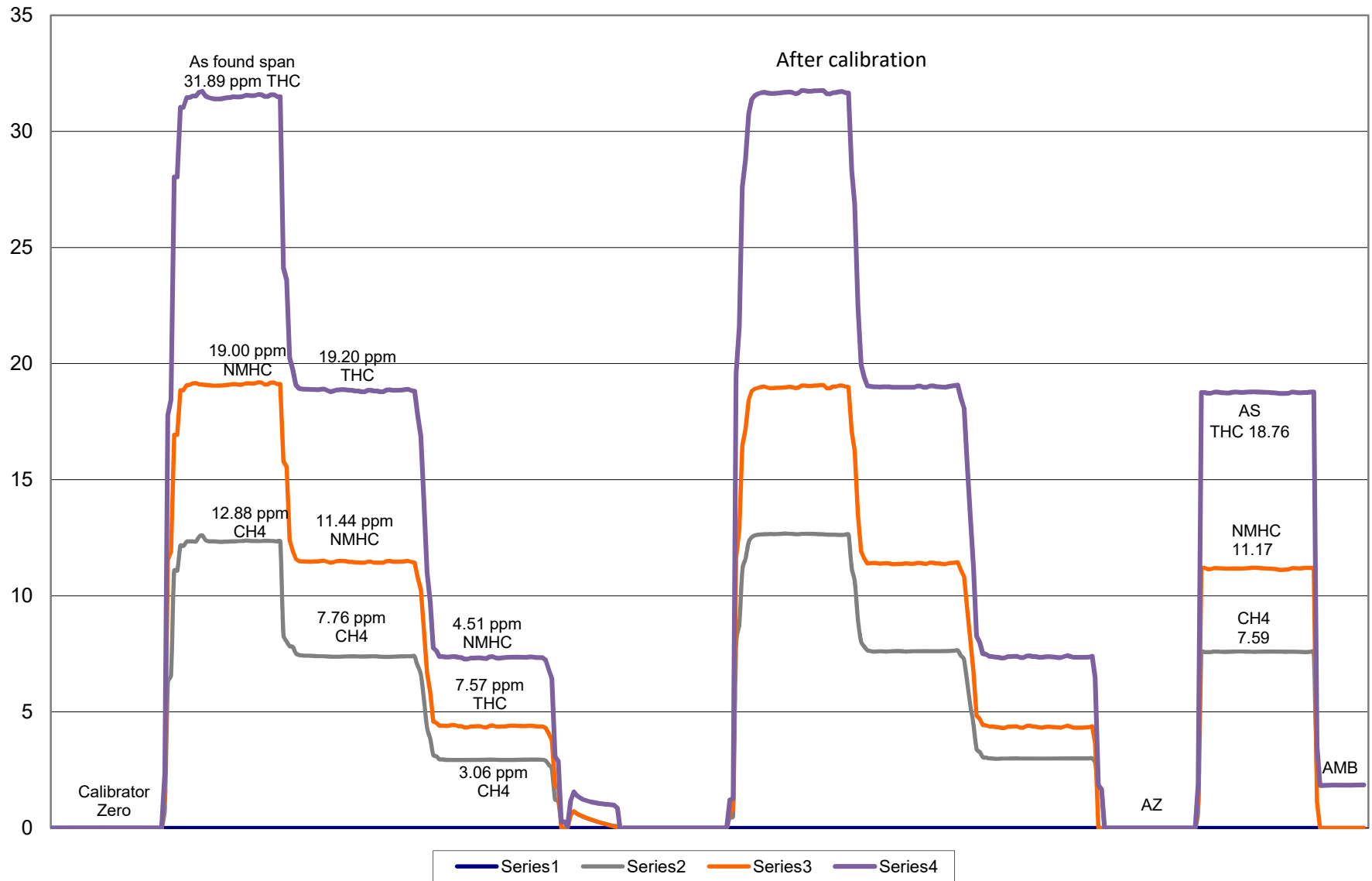
Calibration Data

Calculated concentration (ppm) (Cc)	Indicated concentration (ppm) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.000	0.000	N/A		
31.885	31.704	1.0057	Correlation Coefficient	0.999968
19.203	18.995	1.0110		
7.571	7.363	1.0282	Slope	1.004430
			Intercept	0.085042

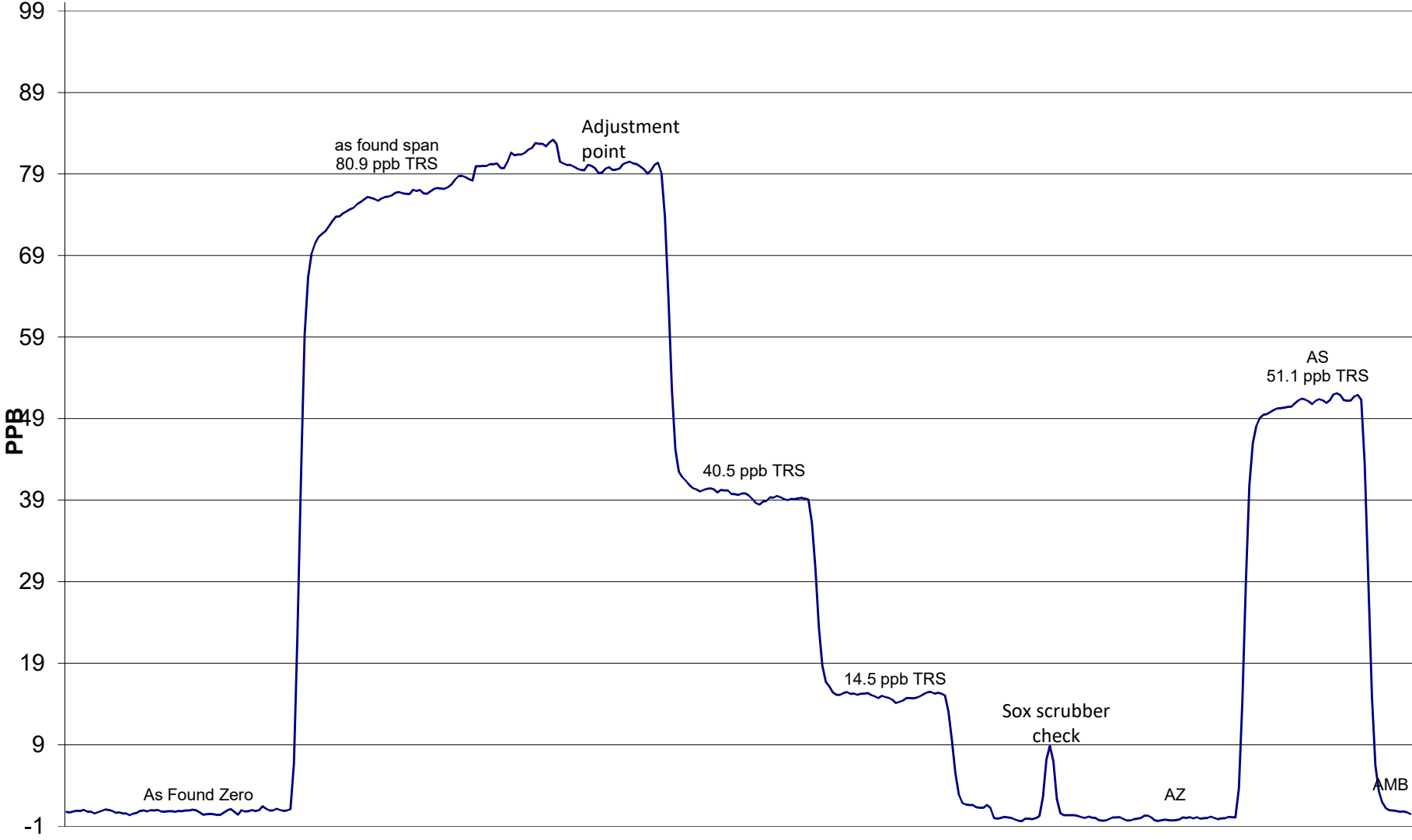
THC Calibration Data



THC/CH₄/NMHC Calibration



TRS Calibration



December 12, 2016

Air Monitoring Directive Exceedence Report

Alberta Environment and Parks
 Environmental Service Response Centre
 111 Twin Atria Building
 4999 – 98th Avenue
 Edmonton, Alberta T6B 2X3
 Phone: (780) 422-4505
 Fax: (780) 427-1044
erc.environment@gov.ab.ca

Reference Number:	319081	Reported To (AESRD Contact):	Raymond
Date & Time Incident Reported to AESRD:	December 9, 2016 17:40	Reported By:	Grover Christiansen
Reported on Behalf of:	PASA	Approval Number (if applicable):	
Location(s) of Incident:	Valley View		
Start Date & Time of Incident:	December 9, 2016 17:00	End Date & Time of Incident:	December 9, 2016 18:00
Reason or Nature of Incident:			
<p>The Valley View site located approximately 18 km southeast of Valley View has exceeded 1-hour AAAQ Objective of 10.0 ppb for H₂S, details as follows: 17:00 MST: H₂S 38.5 ppb WS: 1.0 km/hr WD: 19.4 degrees Temp: -20.6 Deg C. 18:00 MST: H₂S 20.2 ppb WS: 0.6 km/hr WD: 34.6 Degrees Temp: -22.1 Deg C.</p>			
Immediate Actions Taken:			
Confirm data and instrumentation. Call in Exceedence to AEP. Call CNRL control room.			
Investigation Details:			
Plant upset do to cold temperatures.			
Actions Taken to Prevent Reoccurrence (if any):			
N/A			
Additional Actions Required (if any):			
N/A			
Report Completed By:	Grover Christiansen	Date Report Submitted:	2016/12/9
7-Day Letter Due Date:	2016/12/16		

WSP AQM Group: Exceedence Report
 Revision #3
 January 01, 2015