



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

**Continuous Ambient Air Quality Monitoring Program
Annual Report
2012**

Operations and Reporting



Peace Airshed Zone Association 2012 Annual Ambient Air Monitoring Report

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January 28th, 2013

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

RE: Peace Airshed Zone Association (PAZA) – 2012 Annual Ambient Air Monitoring Report

Please find enclosed for your review the Peace Airshed Zone Association (PAZA) 2012 Ambient Air Monitoring Network Annual Report.

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

Company	Facility	LSD	AENV Approval Number
Advantage Oil & Gas Ltd.	Glacier	05-02-076-13-W6	262479-00-00
AltaGas Ltd.	Pouce Coupe	03-03-081-13-W6	247673-00-00
	Ante Creek	02-26-068-25-W5	266694-00-00
	Gordondale	16-31-78-11-W6M	287474-00-00
	Sturgeon/Valleyview	02-02-069-22-W5	1633-02-00
Barrick Energy Inc.	Pouce Coupe	03-22-078-12-W6	252529-00-00
Canadian Natural Resources Limited	Bonanza	11-25-081-11-W6	29-01-01
	Progress/Gordondale	01-01-077-10-W6	10036-02-00
	Gold Creek	13-26-067-05-W6	10446-02-00
	Teepee Creek	SE-2-074-04-W6	1635-02-02
Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	212-01-00
Devon Canada	Tangent	16-20-080-24-W5	11346-02-00

	NW Belloy (Dunvegan)	16-36-079-03-W6	9810-02-00
	Eaglesham (South)	02-14-077-25-W5	47669-01-00
	Puskwaskau	03-26-074-01-W6	17524-01-00
	North Normanville	03-36-079-23-W5	47455-01-00
	West Culp	05-34-078-25-W6	136284-00-00
	Cecil	08-15-084-08-W6	10032-02-00
EnCana Corporation	Sexsmith	04-08-075-07-W6	10002-01-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	238762-00-02
Long Run Exploration	Eaglesham	01-25-076-01-W6	241532-00-00
	Kakut	14-12-075-03-W6	248469-00-01
	Donnelly	06-01-077-21-W5	87-02-00
Longview Oil Corp.	Sunset House	06-22-70-20-W5	138884-01-00
Penn West Petroleum Ltd.	Tangent	13-29-080-23-W5	1746-02-01
	Pouce Coupe	16-07-078-11-W6	614-01-00
Petrus Resources	Rycroft	08-25-077-06-W6	11351-02-00
	Spirit River	08-34-077-06-W6	11096-02-00
Spectra Energy Midstream Corporation	Fourth Creek	16-11-082-09-W6	263-01-00
Suncor Energy Inc.	Progress	07-22-078-09-W6	11428-02-00
Taqa North Ltd.	Valhalla	13-21-076-09-W6	17620-01-01
Veresen Energy Infrastructure Inc.	Hythe Brainard	11-18-074-12-W6	10910-02-02
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	113-02-00

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

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

The PAZA network consists of six continuous air monitoring stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Valleyview and a portable station. In 2012, the portable station was located in Sunset House and will be referred to as the Sunset House-Portable in this report. This station was commissioned on January 1st, 2012.

There were no 1-hour, 24-hour or annual averages of sulphur dioxide, nitrogen dioxide, ozone, or carbon monoxide above the Alberta Ambient Air Quality Objectives (AAAQO).

There was one (1) 1-hr average of hydrogen sulphide above the AAAQO of 10 pbb and one (1) 24-hr average above the AAAQO of 3 ppb.

There were forty-four (44) 1-hr averages of PM_{2.5} above the Alberta Ambient Air Quality Guideline (AAQG) of 80 µg/m³ and eleven (11) 24-hr average above the AAAQO of 30 µg/m³.

	Date	Time (Hour Ending)	Location	Recorded Concentration (µg/m ³)
One (1) 1-hr average PM _{2.5}	22-Jan	5:00	Beaverlodge	84.9
One (1) 1-hr average PM _{2.5}	22-Jan	6:00	Beaverlodge	80.1
One (1) 1-hr average PM _{2.5}	17-Feb	20:00	Smoky Heights	113
One (1) 1-hr average PM _{2.5}	25-May	23:00	Evergreen Park	94.1
One (1) 1-hr average PM _{2.5}	12-Jul	22:00	Smoky Heights	90.3
One (1) 1-hr average PM _{2.5}	13-Jul	4:00	Smoky Heights	81
One (1) 1-hr average PM _{2.5}	13-Jul	5:00	Smoky Heights	80.8
One (1) 1-hr average PM _{2.5}	13-Jul	6:00	Smoky Heights	80.3
One (1) 1-hr average PM _{2.5}	13-Jul	7:00	Smoky Heights	153.4
One (1) 1-hr average PM _{2.5}	13-Jul	8:00	Smoky Heights	92.4
One (1) 1-hr average PM _{2.5}	14-Jul	0:00	Smoky Heights	65
One (1) 1-hr average PM _{2.5}	14-Jul	7:00	Sunset House	81.3
One (1) 1-hr average PM _{2.5}	14-Jul	8:00	Sunset House	85
One (1) 1-hr average PM _{2.5}	14-Jul	9:00	Sunset House	87.3
One (1) 1-hr average PM _{2.5}	14-Jul	10:00	Sunset House	86.5
One (1) 1-hr average PM _{2.5}	11-Aug	22:00	Smoky Heights	100.7

	Date	Time (Hour Ending)	Location	Recorded Concentration ($\mu\text{g}/\text{m}^3$)
One (1) 1-hr average $\text{PM}_{2.5}$	16-Sep	21:00	Smoky Heights	114.2
One (1) 1-hr average $\text{PM}_{2.5}$	20-Sep	20:00	Smoky Heights	88.8
One (1) 1-hr average $\text{PM}_{2.5}$	21-Sep	20:00	Smoky Heights	123.5
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	16:00	Beaverlodge	84.3
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	17:00	Henry Pirker	102.7
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	19:00	Henry Pirker	125.7
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	20:00	Henry Pirker	125.6
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	21:00	Henry Pirker	81.3
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	19:00	Evergreen Park	87.1
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	20:00	Evergreen Park	98.3
One (1) 1-hr average $\text{PM}_{2.5}$	7-Oct	23:00	Smoky Heights	102.8
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	2:00	Henry Pirker	82.8
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	3:00	Henry Pirker	94.8
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	4:00	Henry Pirker	92.6
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	5:00	Henry Pirker	90.9
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	6:00	Henry Pirker	95.2
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	7:00	Henry Pirker	99.2
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	8:00	Henry Pirker	93.6
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	9:00	Henry Pirker	86
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	2:00	Evergreen Park	85.5
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	3:00	Evergreen Park	86.2
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	0:00	Smoky Heights	113.7
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	1:00	Smoky Heights	108.4
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	2:00	Smoky Heights	109
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	3:00	Smoky Heights	103.9
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	4:00	Smoky Heights	98.6
One (1) 1-hr average $\text{PM}_{2.5}$	8-Oct	5:00	Smoky Heights	86
One (1) 1-hr average $\text{PM}_{2.5}$	16-Nov	16:00	Evergreen Park	103
One (1) 1-hr average $\text{PM}_{2.5}$	4-Dec	2:00	Smoky Heights	99.3
One (1) 1-hr average H_2S	21-Oct	6:00	Valleyview	11.1 ppb

	Date	Location	Recorded Concentration ($\mu\text{g}/\text{m}^3$)
One (1) 24-hr average $\text{PM}_{2.5}$	13-Jul	Beaverlodge	33.2
One (1) 24-hr average $\text{PM}_{2.5}$	13-Jul	Smoky Heights	51.7
One (1) 24-hr average $\text{PM}_{2.5}$	13-Jul	Sunset House	40.3
One (1) 24-hr average $\text{PM}_{2.5}$	14-Jul	Smoky Heights	37.5
One (1) 24-hr average $\text{PM}_{2.5}$	14-Jul	Sunset House	42.8
One (1) 24-hr average $\text{PM}_{2.5}$	15-Jul	Beaverlodge	35.8
One (1) 24-hr average $\text{PM}_{2.5}$	7-Oct	Henry Pirker	42.6
One (1) 24-hr average $\text{PM}_{2.5}$	7-Oct	Evergreen Park	33.9
One (1) 24-hr average $\text{PM}_{2.5}$	8-Oct	Henry Pirker	65.7
One (1) 24-hr average $\text{PM}_{2.5}$	8-Oct	Evergreen Park	58
One (1) 24-hr average $\text{PM}_{2.5}$	8-Oct	Smoky Heights	46.8
One (1) 24-hr average H_2S	21-Oct	Valleyview	4.1 ppb

The passive monitoring network consists of forty-six (46) sampling locations. The parameters measured at each site are sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3) and/or hydrogen sulphide (H_2S). There were no exceedences of the AAAQO for sulphur dioxide, nitrogen dioxide, ozone, or hydrogen sulphide.

Figure 1 shows the location of the continuous monitoring sites, and Figure 2 shows the location of the passive monitoring sites.

Additional information about PAZA, including its membership, objectives and details on the monitoring network are included on the web at <http://www.PAZA.ca/>.

We trust that the report satisfies your requirements and if you have any questions or concerns please contact Shelly Pruden, PAZA Executive Director at 780.833.4343 or 780.882.4071

Sincerely,

On Behalf of the Peace Airshed Zone Association,



Shelly Pruden
Executive Director



Patrick Andersen, B.Sc.
FOCUS AQM Data Specialist



Jeff Cooper, C.Tech.
AQM Operations Manager

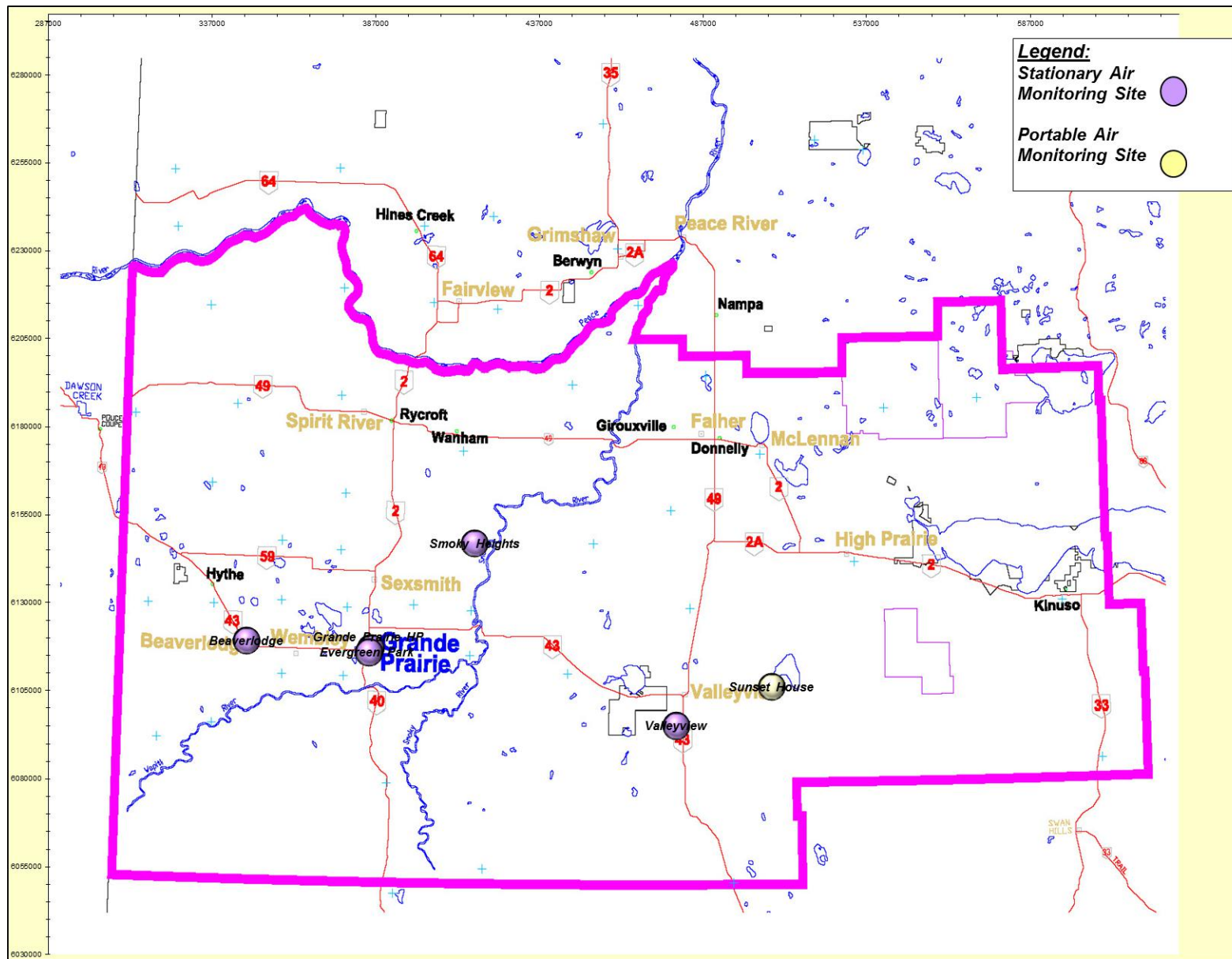


Figure 1. Peace Airshed Zone Association – Continuous Air Monitoring Network

Figure 2. Peace Airshed Zone Association – Passive Air Monitoring Network

PAZA

HENRY PIRKER

CONTINUOUS AMBIENT AIR MONITORING STATION

2012

ANNUAL SUMMARY TABLES

Table 1. Henry Pirker - Key Parameters – Continuous Monitoring Data – 2012 Summary

Parameter	Monitoring Station	Annual Average	Maximum Values				Operational Time (%)	Readings above AAAQO	
			24-hr	Date	1-hr	Date		24-hr	1-hr
Sulphur Dioxide SO₂ measured in ppb	Henry Pirker	0.30	1.68	Dec 28	16.32	Sep 24 10:00	100.0	0	0
Nitrogen Dioxide NO₂ measured in ppb	Henry Pirker	9.54	34.24	Dec 15	59.08	Dec 28 19:00	99.9	0	0
Ozone O₃ measured in ppb	Henry Pirker	22.8	50.97	May 28	61.18	Aug 18 15:00	99.9	0	0
Carbon Monoxide CO measured in ppm	Henry Pirker	0.22	0.53	Jan 22	1.93	Jan 26 09:00	99.9	-	0
Total Hydrocarbons THC measured in ppm	Henry Pirker	2.22	3.18	Nov 27	8.15	Sep 05 22:00	92.8	-	-
Total Reduced Sulphur TRS measured in ppb	Henry Pirker	0.35	1.06	Dec 27	3.90	Sep 26 01:00	100.0	-	-
Particulate Matter PM_{2.5} measured in µg/m³	Henry Pirker	6.43	64.95	Oct 08	125.74	Oct 07 18:00	95.9	2	12

Table 2. Sulphur Dioxide (SO₂) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker SO ₂ (ppb)										2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	708	0.31	1.11	Jan 22	2.73	Jan 22 09:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	662	0.46	1.37	Feb 26	4.59	Feb 16 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	0.43	1.57	Mar 13	9.30	Mar 13 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	684	0.26	0.94	Apr 11	3.37	Apr 12 00:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	708	0.14	0.37	May 26	2.93	May 26 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.11	0.32	Jun 19	1.62	Jun 19 17:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	707	0.11	0.88	Jul 29	3.56	Jul 30 09:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	708	0.13	0.58	Aug 21	4.81	Aug 21 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	682	0.20	0.85	Sep 24	16.32	Sep 24 10:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.18	0.77	Oct 07	5.17	Oct 07 15:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	684	0.56	1.33	Nov 21	3.77	Nov 21 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	706	0.72	1.68	Dec 28	3.73	Dec 07 16:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8349	0.30	1.68	Dec 28	16.32	Sep 24 10:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00

Table 3. Nitrogen Dioxide (NO₂) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker NO ₂ (ppb)										2012				
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range				
								24-Hr	1-Hr	0 - 25	25 - 50	50 - 110	110 - 210	>210
January	706	16.37	31.85	Jan 31	55.41	Jan 26 09:00	100.0	0	0	74.79	24.79	0.42	0.00	0.00
February	660	16.68	32.13	Feb 02	45.80	Feb 28 12:00	100.0	0	0	76.36	23.64	0.00	0.00	0.00
March	705	11.93	21.84	Mar 15	44.68	Mar 12 08:00	100.0	0	0	87.09	12.91	0.00	0.00	0.00
April	682	5.35	9.05	Apr 03	36.83	Apr 02 07:00	100.0	0	0	99.41	0.59	0.00	0.00	0.00
May	703	4.55	8.00	May 07	30.33	May 07 23:00	100.0	0	0	99.15	0.85	0.00	0.00	0.00
June	681	3.12	6.56	Jun 04	18.26	Jun 04 08:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00
July	701	3.67	6.98	Jul 09	20.14	Jul 13 00:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00
August	696	4.14	8.25	Aug 16	24.97	Aug 16 22:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00
September	680	7.76	16.07	Sep 27	37.28	Sep 21 21:00	99.7	0	0	96.47	3.53	0.00	0.00	0.00
October	706	7.86	23.82	Oct 31	42.01	Oct 30 20:00	100.0	0	0	94.76	5.24	0.00	0.00	0.00
November	682	14.28	29.12	Nov 06	49.28	Nov 15 18:00	100.0	0	0	86.22	13.78	0.00	0.00	0.00
December	704	18.91	34.24	Dec 15	59.08	Dec 28 19:00	99.7	0	0	64.63	34.80	0.57	0.00	0.00
Annual	8306	9.54	34.24	Dec 15	59.08	Dec 28 19:00	99.9	0	0	90.04	9.88	0.08	0.00	0.00

Table 4. Ozone (O₃) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker O ₃ (ppb)										2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 10	10 - 20	20 - 40	40 - 82	>82
January	709	17.95	31.06	Jan 05	37.96	Jan 13 00:00	100.0	0	0	9.73	22.99	20.17	47.11	0.00	0.00
February	663	17.69	30.37	Feb 25	39.82	Feb 21 18:00	100.0	0	0	16.89	16.74	20.36	46.00	0.00	0.00
March	706	26.46	35.11	Mar 30	48.63	Mar 30 15:00	99.7	0	0	2.83	9.63	12.46	65.16	9.92	0.00
April	680	33.60	42.27	Apr 03	54.19	Apr 03 16:00	99.3	0	0	0.00	2.50	13.38	50.44	33.68	0.00
May	709	36.62	50.97	May 28	60.47	May 28 13:00	100.0	0	0	0.28	1.13	7.90	47.67	43.02	0.00
June	684	25.73	39.25	Jun 03	51.15	Jun 01 15:00	100.0	0	0	0.00	4.68	23.10	63.60	8.63	0.00
July	709	22.46	30.84	Jul 15	50.04	Jul 09 17:00	100.0	0	0	0.00	10.86	30.47	56.42	2.26	0.00
August	707	24.14	31.97	Aug 21	61.18	Aug 18 15:00	100.0	0	0	0.85	12.45	23.90	53.47	9.34	0.00
September	682	22.29	35.64	Sep 17	51.95	Sep 17 16:00	99.7	0	0	7.04	16.13	17.01	50.73	9.09	0.00
October	709	18.30	28.91	Oct 17	37.82	Oct 08 14:00	100.0	0	0	3.10	16.08	36.67	44.15	0.00	0.00
November	686	14.95	36.22	Nov 05	41.57	Nov 05 07:00	100.0	0	0	9.62	26.68	29.01	33.82	0.87	0.00
December	705	13.58	27.87	Dec 21	37.50	Dec 31 23:00	99.7	0	0	14.18	31.35	23.40	31.06	0.00	0.00
Annual	8349	22.82	50.97	May 28	61.18	Aug 18 15:00	99.9	0	0	5.10	14.18	21.54	49.40	9.79	0.00

Table 5. Carbon Monoxide (CO) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker CO (ppm)										2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 0.1	0.1 - 1.0	1.0 - 2.5	2.5 - 5.0	5.0 - 13.0	> 13.0
January	709	0.27	0.53	Jan 22	1.93	Jan 26 09:00	100.0	0	0	0.14	98.73	1.13	0.00	0.00	0.00
February	663	0.28	0.51	Feb 02	1.20	Feb 03 09:00	100.0	0	0	0.00	99.40	0.60	0.00	0.00	0.00
March	704	0.25	0.36	Mar 15	1.19	Mar 15 22:00	100.0	0	0	0.00	99.57	0.43	0.00	0.00	0.00
April	686	0.19	0.23	Apr 23	0.68	Apr 02 07:00	100.0	0	0	0.00	100.00	0.00	0.00	0.00	0.00
May	708	0.17	0.23	May 07	0.56	May 07 23:00	99.9	0	0	1.69	98.31	0.00	0.00	0.00	0.00
June	685	0.17	0.24	Jun 05	0.39	Jun 30 04:00	100.0	0	0	1.90	98.10	0.00	0.00	0.00	0.00
July	710	0.23	0.39	Jul 13	0.71	Jul 12 22:00	100.0	0	0	0.00	100.00	0.00	0.00	0.00	0.00
August	709	0.19	0.28	Aug 19	0.66	Aug 16 21:00	100.0	0	0	0.00	100.00	0.00	0.00	0.00	0.00
September	683	0.19	0.33	Sep 21	0.89	Sep 21 22:00	99.7	0	0	6.44	93.56	0.00	0.00	0.00	0.00
October	709	0.19	0.53	Oct 08	1.16	Oct 10 00:00	100.0	0	0	12.69	87.02	0.28	0.00	0.00	0.00
November	681	0.23	0.44	Nov 06	1.15	Nov 06 09:00	100.0	0	0	2.06	97.50	0.44	0.00	0.00	0.00
December	705	0.27	0.48	Dec 28	1.72	Dec 10 20:00	99.7	0	0	0.43	98.72	0.85	0.00	0.00	0.00
Annual	8352	0.22	0.53	Jan 22	1.93	Jan 26 09:00	99.9	0	0	2.13	97.56	0.31	0.00	0.00	0.00

Table 6. Total Hydrocarbons (THC) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker THC (ppm)										2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	*AAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0
January	709	2.22	2.68	Jan 22	4.09	Jan 31 04:00	100.0	0	0	0.00	25.81	58.11	16.08	0.00	0.00
February	662	2.30	2.84	Feb 01	8.02	Feb 01 02:00	99.9	0	0	0.00	14.50	64.20	21.15	0.15	0.00
March	706	2.17	2.40	Mar 25	2.96	Mar 26 07:00	100.0	0	0	0.00	11.61	81.44	6.94	0.00	0.00
April	686	2.06	2.20	Apr 22	2.70	Apr 22 03:00	100.0	0	0	0.00	26.68	72.59	0.73	0.00	0.00
May	708	2.13	2.37	May 24	4.94	May 02 07:00	99.9	0	0	0.00	33.05	64.97	1.98	0.00	0.00
June	681	2.08	2.25	Jun 30	3.48	Jun 30 05:00	100.0	0	0	0.00	9.40	89.72	0.88	0.00	0.00
July	707	2.15	2.39	Jul 09	3.22	Jul 14 06:00	100.0	0	0	0.00	4.95	89.82	5.23	0.00	0.00
August	709	2.22	2.45	Aug 19	3.15	Aug 19 07:00	100.0	0	0	0.00	6.06	83.64	10.30	0.00	0.00
September	640	2.32	2.64	Sep 19	8.15	Sep 05 22:00	96.4	0	0	0.00	0.16	80.78	18.91	0.16	0.00
October	706	2.25	2.83	Oct 31	3.72	Oct 05 07:00	100.0	0	0	0.00	0.14	90.51	9.35	0.00	0.00
November	582	2.49	3.18	Nov 27	3.99	Nov 12 10:00	84.9	0	0	0.00	0.00	63.23	36.77	0.00	0.00
December	229	2.54	3.03	Dec 09	3.64	Dec 09 05:00	32.8	0	0	0.00	0.00	58.52	41.48	0.00	0.00
Annual	7725	2.22	3.18	Nov 27	8.15	Sep 05 22:00	92.8	0	0	0.00	12.01	76.18	11.79	0.03	0.00

*No Alberta Environment Objectives or Guidelines for THC

Table 7. Total Reduced Sulphur (TRS) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker TRS (ppb)										2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	*AAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10
January	709	0.37	0.73	Jan 24	1.65	Jan 24 05:00	100.0	0	0	97.74	2.26	0.00	0.00	0.00	0.00
February	662	0.42	0.78	Feb 02	1.72	Feb 02 23:00	100.0	0	0	98.64	1.36	0.00	0.00	0.00	0.00
March	707	0.32	0.54	Mar 14	1.23	Mar 29 16:00	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
April	685	0.30	0.43	Apr 29	1.97	Apr 29 03:00	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
May	708	0.26	0.36	May 01	0.96	May 07 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.28	0.38	Jun 30	1.07	Jun 21 06:00	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
July	708	0.35	0.53	Jul 17	2.01	Jul 17 05:00	100.0	0	0	99.29	0.71	0.00	0.00	0.00	0.00
August	708	0.32	0.46	Aug 19	1.77	Aug 12 07:00	100.0	0	0	99.58	0.42	0.00	0.00	0.00	0.00
September	683	0.39	1.00	Sep 28	3.90	Sep 26 01:00	99.7	0	0	96.49	2.93	0.59	0.00	0.00	0.00
October	709	0.29	0.52	Oct 01	1.02	Oct 01 01:00	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
November	684	0.38	0.71	Nov 27	1.19	Nov 12 09:00	100.0	0	0	99.42	0.58	0.00	0.00	0.00	0.00
December	706	0.57	1.06	Dec 27	1.87	Dec 09 04:00	99.7	0	0	92.21	7.79	0.00	0.00	0.00	0.00
Annual	8353	0.35	1.06	Dec 27	3.90	Sep 26 01:00	100.0	0	0	98.56	1.40	0.05	0.00	0.00	0.00

*No Alberta Environment Objectives or Guidelines for TRS

Table 8. Particulate Matter (PM_{2.5}) – Henry Pirker 2012 Summary and Frequency Distribution

Henry Pirker		PM _{2.5} (µg/m ³)								2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	518	4.10	9.86	Jan 14	38.17	Jan 13 15:00	69.6	0	0	50.77	24.52	15.25	5.21	3.86	0.39
February	564	4.98	12.55	Feb 17	35.40	Feb 17 14:00	90.2	0	0	37.94	29.43	19.33	9.93	2.66	0.71
March	708	6.68	14.80	Mar 25	35.58	Mar 15 22:00	95.2	0	0	23.73	30.23	25.42	14.83	5.37	0.42
April	693	4.65	7.99	Apr 12	24.25	Apr 07 21:00	97.2	0	0	22.80	49.78	20.35	6.49	0.58	0.00
May	744	5.14	10.07	May 14	36.83	May 14 05:00	100.0	0	0	11.16	59.41	24.60	4.17	0.54	0.13
June	720	3.54	6.16	Jun 04	9.83	Jun 07 05:00	100.0	0	0	24.58	64.31	11.11	0.00	0.00	0.00
July	744	8.24	28.93	Jul 13	53.24	Jul 13 06:00	100.0	0	0	7.53	41.26	29.84	12.50	6.05	2.82
August	742	6.07	17.37	Aug 20	27.38	Aug 20 05:00	99.7	0	0	11.86	49.60	27.49	8.22	2.83	0.00
September	716	7.70	21.81	Sep 22	39.68	Sep 22 00:00	99.7	0	0	10.20	46.93	17.74	12.57	11.59	0.98
October	744	8.14	64.95	Oct 08	125.74	Oct 07 18:00	100.0	2	12	29.70	45.03	13.17	4.44	1.88	5.78
November	720	9.05	17.18	Nov 17	45.94	Nov 12 01:00	100.0	0	0	2.92	36.53	27.64	24.03	8.61	0.28
December	733	7.80	14.74	Dec 16	46.00	Dec 03 19:00	98.5	0	0	9.96	34.38	31.92	17.87	5.59	0.27
Annual	8346	6.43	64.95	Oct 08	125.74	Oct 07 18:00	95.9	2	12	18.97	43.39	22.28	10.16	4.17	1.02

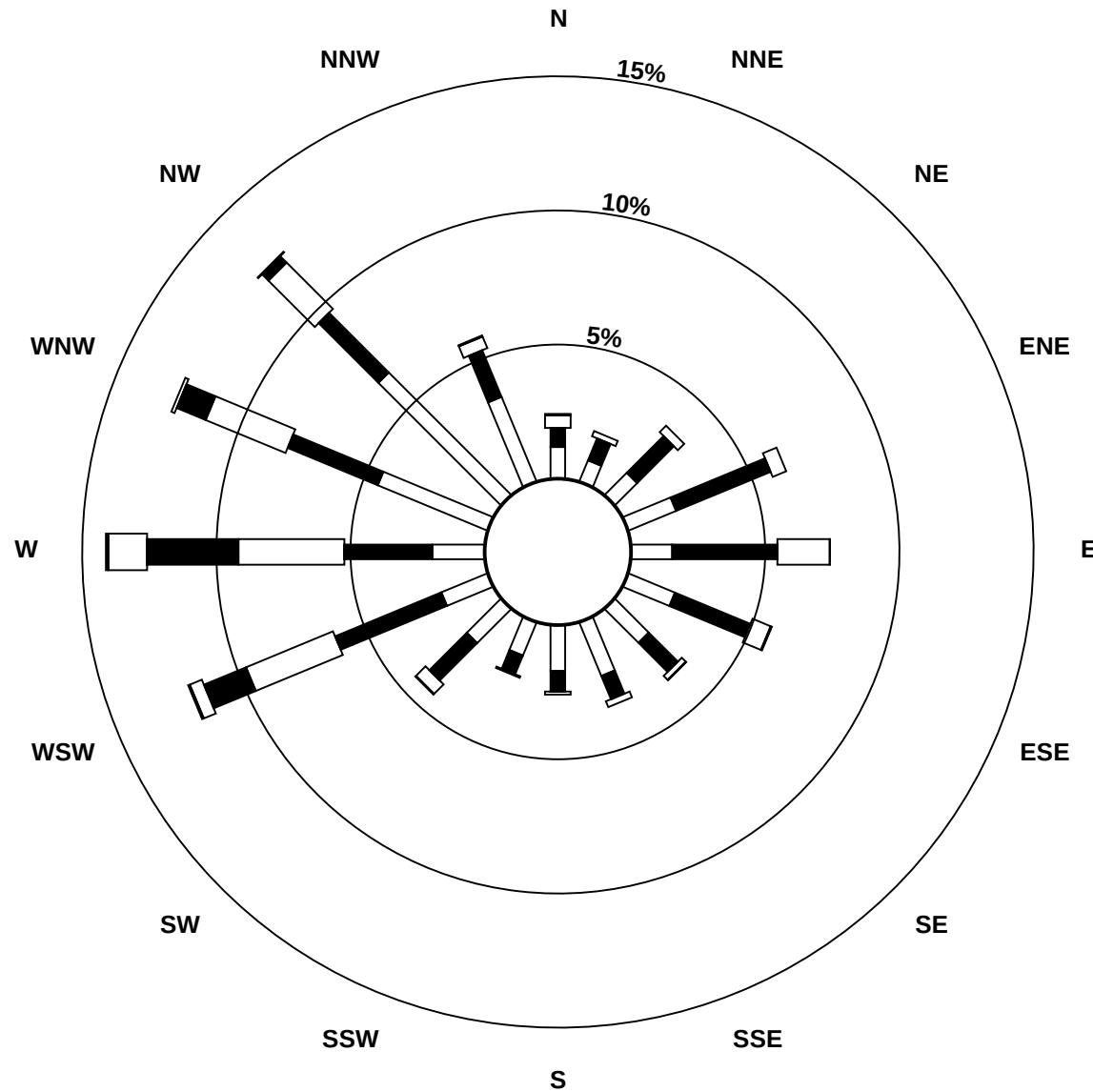
Table 9. Wind Speed and Wind Direction Frequency Distribution – Henry Pirker 2012 Summary

Henry Pirker								2012
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	208	1.19	0.71	0.46	0.06	0.00	0.00	2.42
NNE	168	0.86	0.88	0.21	0.00	0.00	0.00	1.95
NE	297	1.17	1.94	0.34	0.00	0.00	0.00	3.45
ENE	541	1.93	3.81	0.55	0.00	0.00	0.00	6.29
E	638	1.53	3.92	1.95	0.01	0.00	0.00	7.41
ESE	491	1.88	3.04	0.73	0.05	0.00	0.00	5.70
SE	306	1.79	1.53	0.21	0.02	0.00	0.00	3.56
SSE	287	2.16	0.94	0.23	0.00	0.00	0.00	3.33
S	223	1.71	0.77	0.12	0.00	0.00	0.00	2.59
SSW	185	1.34	0.76	0.06	0.00	0.00	0.00	2.15
SW	371	1.80	1.98	0.50	0.03	0.00	0.00	4.31
WSW	1025	1.86	4.29	3.51	1.70	0.49	0.07	11.91
WSW	1215	1.95	3.28	3.95	3.40	1.44	0.09	14.12
WNW	1083	4.43	3.64	3.22	1.17	0.13	0.00	12.58
NW	1069	6.46	3.15	2.44	0.34	0.03	0.00	12.42
NNW	500	3.42	1.88	0.46	0.05	0.00	0.00	5.81
Totals	8607	35.47	36.51	18.94	6.83	2.09	0.16	100

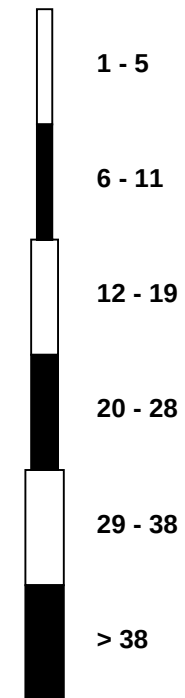
Wind Rose

Wind Speed (WS) (km/h)

Henry Pirker - 2012



Wind Speed Classes (km/h)



PAZA
EVERGREEN PARK
CONTINUOUS AMBIENT AIR MONITORING STATION

2012
ANNUAL SUMMARY TABLES

Table 10. Evergreen Park - Key Parameters – Continuous Monitoring Data – 2012 Summary

Parameter	Monitoring Station	Annual Average	Maximum Values				Operational Time (%)	Readings above AAAQO	
			24-hr	Date	1-hr	Date		24-hr	1-hr
Sulphur Dioxide SO₂ measured in ppb	Evergreen Park	0.21	1.38	Sep 11	9.11	Sep 11 06:00	100.0	0	0
Total Reduced Sulphur TRS measured in ppb	Evergreen Park	0.49	1.26	Feb 02	2.16	Sep 27 23:00	100.0	-	-
Particulate Matter PM_{2.5} measured in µg/m³	Evergreen Park	5.23	57.98	Oct 08	103.02	Nov 16 15:00	98.8	2	6

Table 11. Sulphur Dioxide (SO₂) – Evergreen Park 2012 Summary and Frequency Distribution

Evergreen Park		SO ₂ (ppb)												2012	
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	710	0.14	0.55	Jan 15	1.68	Jan 15 23:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	662	0.24	0.88	Feb 26	2.39	Feb 26 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	702	0.24	0.79	Mar 01	4.29	Mar 12 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.21	0.73	Apr 10	4.64	Apr 04 07:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	708	0.10	0.28	May 02	1.81	May 26 10:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	685	0.08	0.20	Jun 19	1.08	Jun 19 17:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	706	0.19	0.95	Jul 29	5.60	Jul 29 10:00	99.9	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	707	0.15	0.42	Aug 23	2.72	Aug 21 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	686	0.26	1.38	Sep 11	9.11	Sep 11 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	706	0.15	0.55	Oct 07	2.50	Oct 07 20:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	686	0.29	0.73	Nov 30	5.53	Nov 14 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	707	0.41	0.97	Dec 07	2.99	Dec 07 16:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8351	0.21	1.38	Sep 11	9.11	Sep 11 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00

Table 12. Total Reduced Sulphur (TRS) – Evergreen Park 2012 Summary and Frequency Distribution

Evergreen Park		TRS (ppb)										2012			
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	*AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10
January	709	0.64	0.90	Jan 22	1.50	Jan 12 17:00	100.0	0	0	95.35	4.65	0.00	0.00	0.00	0.00
February	662	0.76	1.26	Feb 02	2.06	Feb 02 11:00	100.0	0	0	85.20	14.80	0.00	0.00	0.00	0.00
March	707	0.60	0.86	Mar 14	1.47	Mar 02 09:00	100.0	0	0	96.18	3.82	0.00	0.00	0.00	0.00
April	681	0.59	0.97	Apr 22	1.75	Apr 24 10:00	100.0	0	0	89.57	10.43	0.00	0.00	0.00	0.00
May	700	0.52	0.67	May 18	1.71	May 18 05:00	99.7	0	0	98.00	2.00	0.00	0.00	0.00	0.00
June	684	0.50	0.65	Jun 07	1.05	Jun 16 09:00	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
July	688	0.49	0.77	Jul 21	1.90	Jul 03 07:00	100.0	0	0	97.53	2.47	0.00	0.00	0.00	0.00
August	705	0.27	0.45	Aug 04	1.32	Aug 07 03:00	100.0	0	0	99.72	0.28	0.00	0.00	0.00	0.00
September	684	0.33	0.65	Sep 28	2.16	Sep 27 23:00	100.0	0	0	98.39	1.61	0.00	0.00	0.00	0.00
October	706	0.27	0.54	Oct 31	0.91	Oct 25 07:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	685	0.35	0.77	Nov 27	2.05	Nov 12 10:00	100.0	0	0	98.54	1.46	0.00	0.00	0.00	0.00
December	707	0.57	0.98	Dec 16	1.89	Dec 28 21:00	100.0	0	0	87.13	12.87	0.00	0.00	0.00	0.00
Annual	8318	0.49	1.26	Feb 02	2.16	Sep 27 23:00	100.0	0	0	95.49	4.51	0.00	0.00	0.00	0.00

*No Alberta Environment Objectives or Guidelines for TRS

Table 13. Particulate Matter (PM_{2.5}) – Evergreen Park 2012 Summary and Frequency Distribution

Evergreen Park		PM _{2.5} (µg/m ³)							2012						
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	733	2.76	8.62	Jan 22	30.21	Jan 16 11:00	98.7	0	0	53.48	34.52	9.00	2.46	0.41	0.14
February	693	4.96	12.36	Feb 11	23.00	Feb 11 17:00	99.6	0	0	36.51	31.60	19.05	9.24	3.61	0.00
March	737	3.80	11.30	Mar 25	20.75	Mar 26 09:00	99.1	0	0	40.03	35.69	19.13	4.48	0.68	0.00
April	718	2.14	6.75	Apr 12	17.85	Apr 03 23:00	99.9	0	0	57.52	37.19	4.60	0.56	0.14	0.00
May	743	5.08	11.88	May 13	94.07	May 25 23:00	99.9	0	1	27.99	43.07	19.38	5.92	3.36	0.27
June	718	4.61	19.72	Jun 27	61.64	Jun 27 13:00	99.7	0	0	36.49	38.44	16.02	5.85	2.23	0.97
July	735	9.08	27.92	Jul 13	68.43	Jul 21 20:00	99.1	0	0	20.82	28.98	20.68	14.29	10.34	4.90
August	742	6.44	17.16	Aug 19	55.06	Aug 29 15:00	99.7	0	0	29.11	33.42	19.27	9.43	7.55	1.21
September	716	7.40	19.39	Sep 14	71.05	Sep 14 16:00	99.4	0	0	31.84	25.56	17.04	13.69	10.34	1.54
October	717	6.38	57.98	Oct 08	98.33	Oct 07 19:00	96.4	2	4	51.88	29.01	8.37	2.93	1.53	6.28
November	699	5.95	14.87	Nov 16	103.02	Nov 16 15:00	97.1	0	1	22.75	35.19	29.76	9.87	2.15	0.29
December	718	4.12	11.87	Dec 19	24.45	Dec 19 15:00	96.6	0	0	37.33	38.16	18.52	4.60	1.39	0.00
Annual	8669	5.23	57.98	Oct 08	103.02	Nov 16 15:00	98.8	2	6	37.18	34.20	16.70	6.94	3.66	1.31

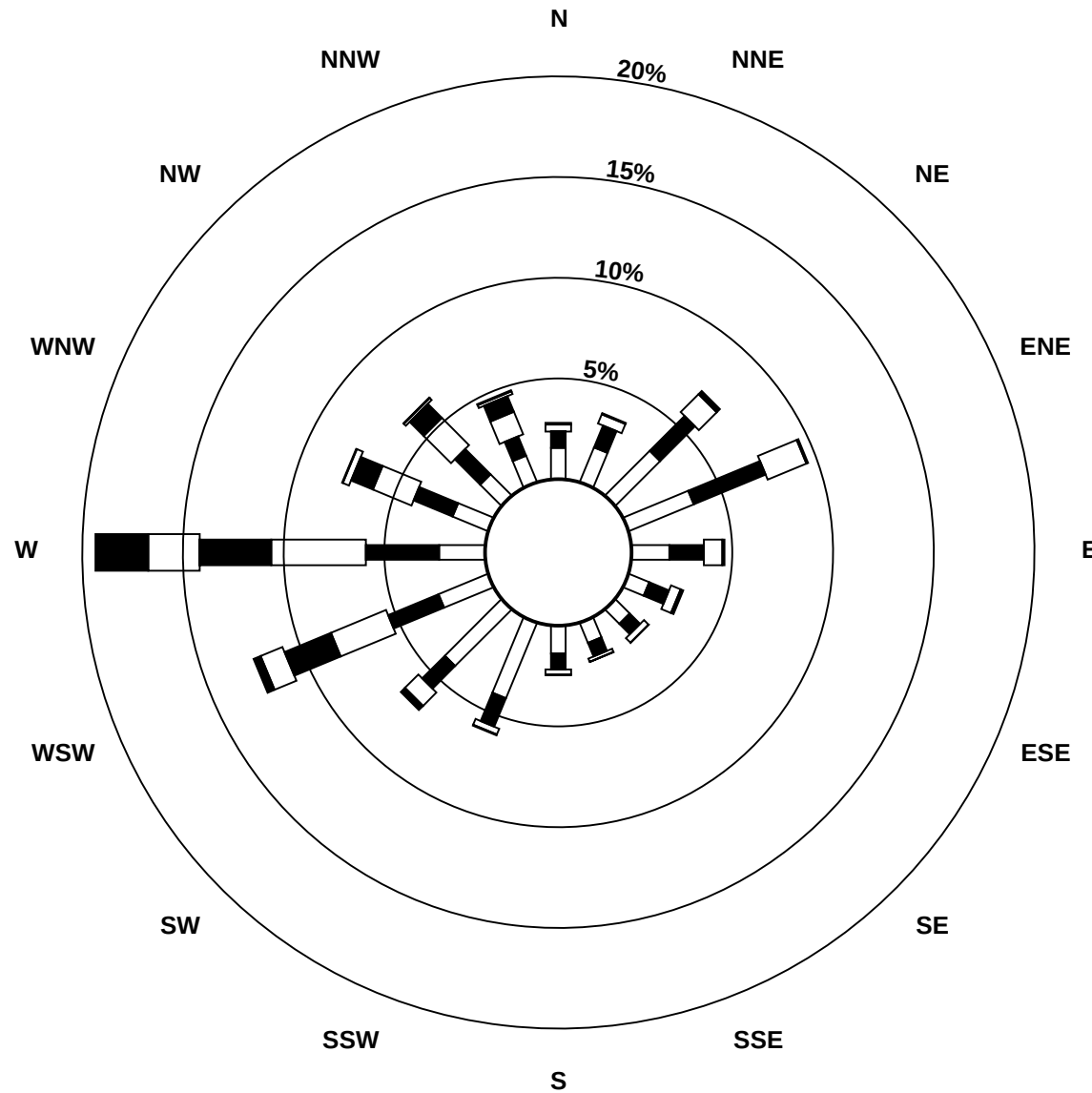
Table 14. Wind Speed and Wind Direction Frequency Distribution – Evergreen Park 2012 Summary

Evergreen Park								2012
Direction	# of Readings	% of wind speed (km/hr)						Totals
1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38			
N	208	1.19	0.71	0.46	0.06	0.00	0.00	2.42
NNE	168	0.86	0.88	0.21	0.00	0.00	0.00	1.95
NE	297	1.17	1.94	0.34	0.00	0.00	0.00	3.45
ENE	541	1.93	3.81	0.55	0.00	0.00	0.00	6.29
E	638	1.53	3.92	1.95	0.01	0.00	0.00	7.41
ESE	491	1.88	3.04	0.73	0.05	0.00	0.00	5.70
SE	306	1.79	1.53	0.21	0.02	0.00	0.00	3.56
SSE	287	2.16	0.94	0.23	0.00	0.00	0.00	3.33
S	223	1.71	0.77	0.12	0.00	0.00	0.00	2.59
SSW	185	1.34	0.76	0.06	0.00	0.00	0.00	2.15
SW	371	1.80	1.98	0.50	0.03	0.00	0.00	4.31
WSW	1025	1.86	4.29	3.51	1.70	0.49	0.07	11.91
WSW	1215	1.95	3.28	3.95	3.40	1.44	0.09	14.12
WNW	1083	4.43	3.64	3.22	1.17	0.13	0.00	12.58
NW	1069	6.46	3.15	2.44	0.34	0.03	0.00	12.42
NNW	500	3.42	1.88	0.46	0.05	0.00	0.00	5.81
Totals	8607	35.47	36.51	18.94	6.83	2.09	0.16	100

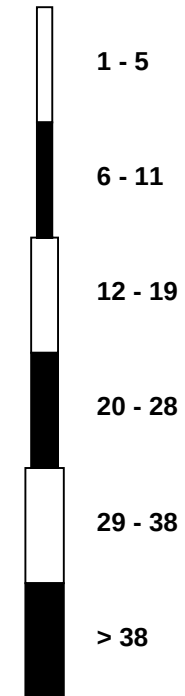
Wind Rose

Wind Speed (WS) (km/h)

Evergreen Park - 2012



Wind Speed Classes (km/h)



PAZA

SMOKY HEIGHTS

CONTINUOUS AMBIENT AIR MONITORING STATION

2012

ANNUAL SUMMARY TABLES

Table 15. Smoky Heights - Key Parameters – Continuous Monitoring Data – 2012 Summary

Parameter	Monitoring Station	Annual Average	Maximum Values				Operational Time (%)	Readings above AAAQO	
			24-hr	Date	1-hr	Date		24-hr	1-hr
Sulphur Dioxide SO₂ measured in ppb	Smoky Heights	0.48	2.28	Dec 05	13.26	Oct 30 01:00	99.8	0	0
Total Reduced Sulphur TRS measured in ppb	Smoky Heights	0.23	0.51	Jul 09	1.28	Jun 05 09:00	99.9	-	-
Particulate Matter PM_{2.5} measured in µg/m³	Smoky Heights	5.00	51.74	Jul 13	153.38	Jul 13 07:00	97.5	3	19

Table 16. Sulphur Dioxide (SO₂) – Smoky Heights 2012 Summary and Frequency Distribution

Smoky Heights		SO ₂ (ppb)						2012							
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	710	0.48	1.67	Jan 12	10.75	Jan 12 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	663	0.92	1.89	Feb 13	8.03	Feb 28 16:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	707	0.64	1.75	Mar 04	10.56	Mar 04 10:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	676	0.37	0.97	Apr 21	4.60	Apr 16 10:00	98.3	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	708	0.20	1.05	May 11	6.12	May 15 07:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.28	1.58	Jun 28	10.81	Jun 28 03:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	704	0.18	0.71	Jul 31	4.71	Jul 31 07:00	99.3	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	709	0.26	1.57	Aug 24	4.19	Aug 25 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	560	0.31	0.69	Sep 17	3.58	Sep 17 07:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	653	0.45	1.61	Oct 28	13.26	Oct 30 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	686	0.67	1.94	Nov 18	7.90	Nov 01 20:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.94	2.28	Dec 05	6.35	Dec 29 15:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8168	0.48	2.28	Dec 05	13.26	Oct 30 01:00	99.8	0	0	100.00	0.00	0.00	0.00	0.00	0.00

Table 17. Total Reduced Sulphur (TRS) – Smoky Heights 2012 Summary and Frequency Distribution

Smoky Heights		TRS (ppb)						2012							
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	*AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10
January	709	0.25	0.46	Jan 20	0.90	Jan 20 10:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	662	0.31	0.46	Feb 12	1.23	Feb 02 16:00	100.0	0	0	99.70	0.30	0.00	0.00	0.00	0.00
March	708	0.26	0.36	Mar 17	0.47	Mar 28 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.21	0.33	Apr 26	0.50	Apr 02 02:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	706	0.23	0.34	May 02	0.59	May 17 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.26	0.35	Jun 20	1.28	Jun 05 09:00	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
July	703	0.39	0.51	Jul 09	1.17	Jul 22 05:00	99.3	0	0	99.29	0.71	0.00	0.00	0.00	0.00
August	709	0.29	0.42	Aug 21	0.95	Aug 06 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	558	0.28	0.38	Sep 09	0.98	Sep 21 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	652	0.05	0.26	Oct 08	0.47	Oct 08 02:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	686	0.10	0.29	Nov 27	0.58	Nov 27 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	707	0.17	0.46	Dec 28	0.81	Dec 28 05:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8170	0.23	0.51	Jul 09	1.28	Jun 05 09:00	99.9	0	0	99.90	0.10	0.00	0.00	0.00	0.00

*No Alberta Environment Objectives or Guidelines for TRS

Table 18. Particulate Matter (PM_{2.5}) – Smoky Heights 2012 Summary and Frequency Distribution

Smoky Heights		PM _{2.5} (µg/m ³)								2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	739	2.44	10.38	Jan 22	43.22	Jan 22 19:00	99.6	0	0	61.84	29.91	4.74	2.30	0.68	0.54
February	692	4.82	16.40	Feb 08	113.05	Feb 17 20:00	99.6	0	1	47.98	29.05	12.14	7.23	1.73	1.88
March	736	4.06	12.92	Mar 17	63.86	Mar 17 12:00	98.9	0	0	46.20	34.92	11.01	3.94	2.58	1.36
April	719	2.48	7.13	Apr 12	33.94	Apr 23 18:00	99.9	0	0	52.43	41.03	4.87	1.39	0.14	0.14
May	743	4.01	7.86	May 15	35.26	May 14 07:00	100.0	0	0	25.30	55.72	16.15	2.42	0.27	0.13
June	717	3.21	9.13	Jun 28	36.45	Jun 28 19:00	99.6	0	0	44.63	41.14	11.02	1.67	1.26	0.28
July	725	10.80	51.74	Jul 13	153.38	Jul 13 07:00	97.5	2	6	17.93	30.34	23.31	12.69	8.55	7.17
August	738	6.25	18.16	Aug 19	100.65	Aug 11 21:00	99.5	0	1	22.36	43.22	21.00	7.18	4.88	1.36
September	588	7.69	20.61	Sep 21	123.46	Sep 21 20:00	100.0	0	3	26.19	32.14	20.92	12.07	6.63	2.04
October	576	4.86	46.82	Oct 08	113.70	Oct 07 23:00	84.7	1	7	69.27	18.23	4.17	1.74	1.74	4.86
November	655	5.73	18.24	Nov 17	53.90	Nov 22 10:00	91.0	0	0	35.88	34.96	16.34	6.56	3.82	2.44
December	742	4.23	14.23	Dec 04	99.28	Dec 04 01:00	99.7	0	1	44.74	35.04	12.53	3.91	2.56	1.21
Annual	8370	5.00	51.74	Jul 13	153.38	Jul 13 07:00	97.5	3	19	40.70	36.05	13.27	5.21	2.87	1.90

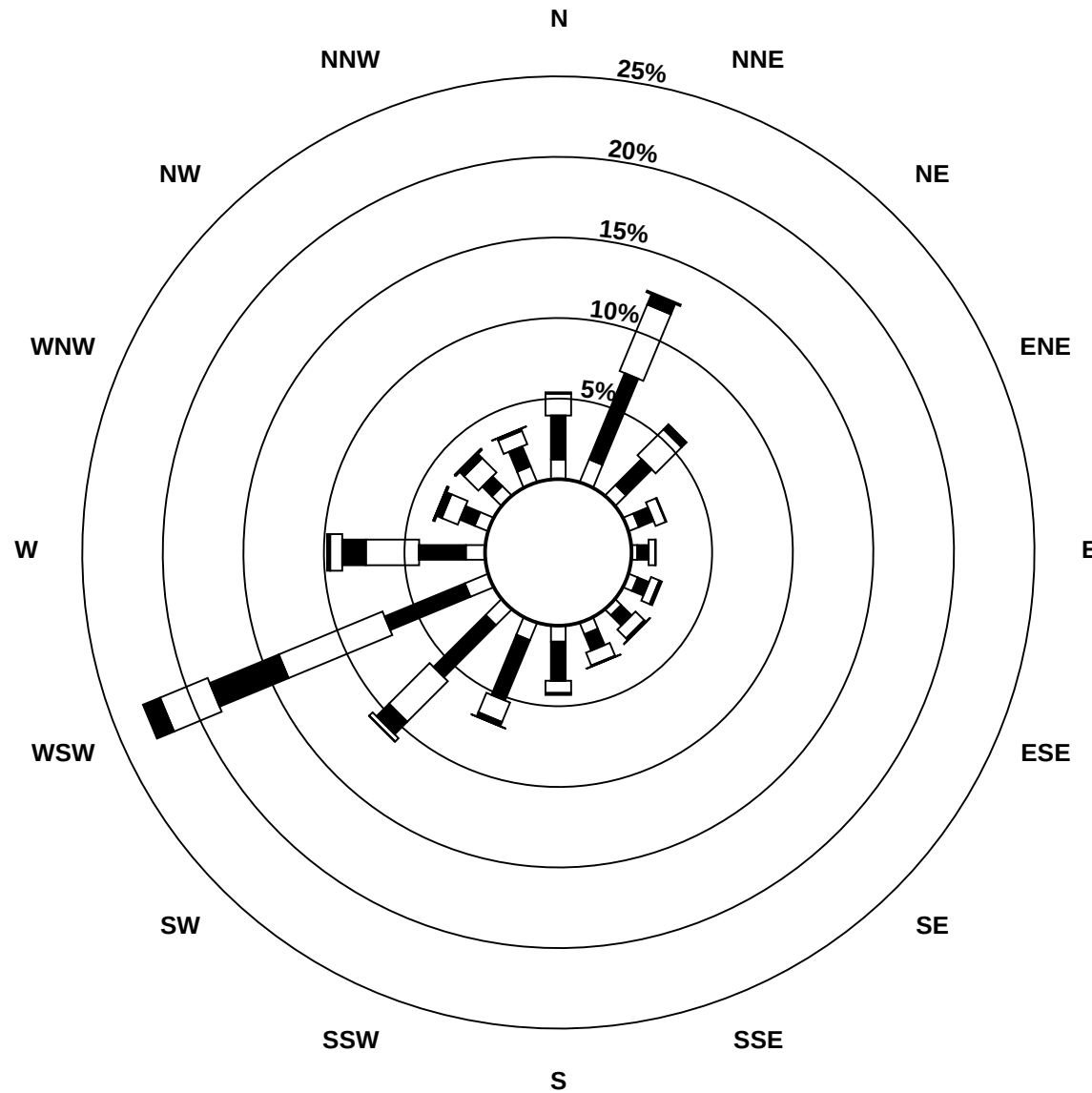
Table 19. Wind Speed and Wind Direction Frequency Distribution – Smoky Heights 2012 Summary

Smoky Heights								2012
Direction	# of Readings	% of wind speed (km/hr)						Totals
1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38			
N	459	1.22	2.73	1.35	0.09	0.00	0.00	5.40
NNE	1070	1.53	5.78	4.47	0.69	0.11	0.00	12.58
NE	503	0.93	2.27	2.28	0.44	0.00	0.00	5.91
ENE	203	0.68	0.98	0.68	0.05	0.00	0.00	2.39
E	127	0.35	0.71	0.41	0.02	0.00	0.00	1.49
ESE	177	0.60	0.75	0.55	0.18	0.00	0.00	2.08
SE	201	0.52	0.91	0.76	0.15	0.02	0.00	2.36
SSE	237	0.76	1.09	0.86	0.06	0.01	0.00	2.79
S	365	0.99	2.42	0.76	0.12	0.00	0.00	4.29
SSW	579	1.16	4.04	1.31	0.28	0.01	0.00	6.81
SW	930	1.39	4.56	3.56	1.11	0.29	0.02	10.93
WSW	1947	1.55	5.39	6.97	4.63	3.20	1.15	22.89
WSW	834	1.20	2.89	3.30	1.47	0.75	0.19	9.81
WNW	289	0.89	0.99	1.08	0.33	0.09	0.01	3.40
NW	290	0.83	0.85	1.26	0.36	0.09	0.01	3.41
NNW	294	1.06	1.34	0.91	0.13	0.02	0.00	3.46
Totals	8505	15.67	37.70	30.52	10.11	4.61	1.39	100

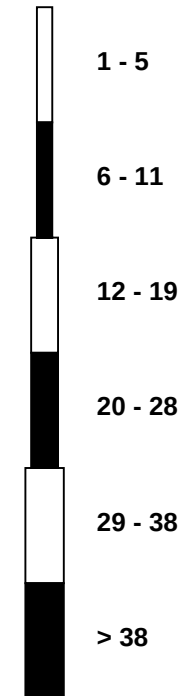
Wind Rose

Wind Speed (WS) (km/h)

Smoky Heights - 2012



Wind Speed Classes (km/h)



PAZA
BEAVERLODGE
CONTINUOUS AMBIENT AIR MONITORING STATION

2012
ANNUAL SUMMARY TABLES

Table 20. Beaverlodge - Key Parameters – Continuous Monitoring Data – 2012 Summary

Parameter	Monitoring Station	Annual Average	Maximum Values				Operational Time (%)	Readings above AAAQO	
			24-hr	Date	1-hr	Date		24-hr	1-hr
Sulphur Dioxide SO₂ measured in ppb	Beaverlodge	0.32	2.53	Feb 26	7.18	Feb 22 11:00	99.9	0	0
Nitrogen Dioxide NO₂ measured in ppb	Beaverlodge	3.57	21.44	Dec 19	40.24	Dec 15 21:00	99.9	0	0
Ozone O₃ measured in ppb	Beaverlodge	29.88	52.80	May 28	69.06	Jul 09 23:00	99.9	0	0
Particulate Matter PM_{2.5} measured in µg/m³	Beaverlodge	8.26	35.79	Jul 15	84.90	Jan 22 05:00	99.6	2	3

Table 21. Sulphur Dioxide (SO₂) – Beaverlodge 2012 Summary and Frequency Distribution

Beaverlodge SO ₂ (ppb)															2012
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	710	0.21	1.03	Jan 21	3.16	Jan 28 21:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	664	0.50	2.53	Feb 26	7.18	Feb 22 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	710	0.40	0.98	Mar 01	3.93	Mar 23 03:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.31	1.39	Apr 12	2.89	Apr 12 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	709	0.12	0.26	May 24	1.47	May 14 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	687	0.11	0.48	Jun 23	1.31	Jun 16 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	707	0.20	0.53	Jul 20	5.32	Jul 30 13:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	707	0.16	0.50	Aug 19	2.02	Aug 11 08:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.17	0.76	Sep 23	2.54	Sep 23 22:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	710	0.28	0.87	Oct 23	5.87	Oct 23 15:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	687	0.66	1.38	Nov 26	4.84	Nov 11 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.77	1.73	Dec 02	5.09	Dec 07 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8371	0.32	2.53	Feb 26	7.18	Feb 22 11:00	99.9	0	0	100.00	0.00	0.00	0.00	0.00	0.00

Table 22. Nitrogen Dioxide (NO₂) – Beaverlodge 2012 Summary and Frequency Distribution

Beaverlodge NO ₂ (ppb) 2012														
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range				
								24-Hr	1-Hr	0 - 25	25 - 50	50 - 110	110 - 210	>210
January	708	4.87	20.55	Jan 20	30.52	Jan 20 19:00	100.0	0	0	99.15	0.85	0.00	0.00	0.00
February	662	4.48	12.11	Feb 07	22.80	Feb 07 10:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
March	706	3.51	7.13	Mar 24	19.67	Mar 22 07:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
April	684	1.91	3.12	Apr 10	11.65	Apr 05 07:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
May	706	1.62	2.90	May 22	11.99	May 02 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
June	684	1.56	2.86	Jun 22	9.70	Jun 04 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
July	704	2.22	3.79	Jul 09	13.77	Jul 08 01:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00
August	704	2.29	3.46	Aug 07	10.95	Aug 27 09:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00
September	683	2.25	4.59	Sep 23	17.48	Sep 24 11:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00
October	707	2.99	13.31	Oct 31	22.67	Oct 31 09:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
November	683	6.56	14.11	Nov 16	37.33	Nov 16 19:00	100.0	0	0	98.10	1.90	0.00	0.00	0.00
December	707	8.60	21.44	Dec 19	40.24	Dec 15 21:00	100.0	0	0	94.91	5.09	0.00	0.00	0.00
Annual	8338	3.57	21.44	Dec 19	40.24	Dec 15 21:00	99.9	0	0	99.34	0.66	0.00	0.00	0.00

Table 23. Ozone (O₃) – Beaverlodge 2012 Summary and Frequency Distribution

Beaverlodge O ₃ (ppb) 2012															
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 10	10 - 20	20 - 40	40 - 82	>82
January	707	28.50	36.69	Jan 12	39.26	Jan 12 21:00	99.7	0	0	0.57	3.25	11.60	84.58	0.00	0.00
February	664	29.19	37.57	Feb 29	42.19	Feb 21 17:00	100.0	0	0	0.00	2.56	12.05	82.53	2.86	0.00
March	710	34.65	43.66	Mar 31	52.15	Mar 26 18:00	100.0	0	0	0.00	0.14	2.68	72.82	24.37	0.00
April	687	38.89	48.46	Apr 15	55.78	Apr 15 16:00	100.0	0	0	0.00	0.15	7.13	40.03	52.69	0.00
May	708	40.09	52.80	May 28	63.31	May 28 15:00	100.0	0	0	0.00	0.00	1.84	44.92	53.25	0.00
June	687	31.02	42.82	Jun 01	55.69	Jun 22 14:00	100.0	0	0	0.00	0.44	13.83	66.81	18.92	0.00
July	706	30.96	45.67	Jul 09	69.06	Jul 09 23:00	99.6	0	0	0.00	2.12	13.60	65.58	18.70	0.00
August	706	27.21	34.71	Aug 21	54.02	Aug 06 15:00	99.6	0	0	0.00	4.25	21.95	62.75	11.05	0.00
September	685	29.53	41.51	Sep 17	52.85	Sep 17 15:00	99.7	0	0	0.00	1.31	11.68	73.87	13.14	0.00
October	710	23.11	31.23	Oct 17	39.33	Oct 13 15:00	100.0	0	0	0.14	3.66	27.75	68.45	0.00	0.00
November	687	22.89	40.43	Nov 05	41.88	Nov 05 23:00	100.0	0	0	0.00	9.75	25.76	62.15	2.33	0.00
December	709	22.56	40.80	Dec 31	43.39	Dec 10 14:00	100.0	0	0	1.69	14.53	26.66	49.37	7.76	0.00
Annual	8366	29.88	52.80	May 28	69.06	Jul 09 23:00	99.9	0	0	0.19	3.53	14.72	64.44	17.12	0.00

Table 24. Particulate Matter (PM_{2.5}) – Beaverlodge 2012 Summary and Frequency Distribution

Beaverlodge PM _{2.5} (µg/m ³) 2012															
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	742	5.75	26.54	Jan 22	84.90	Jan 22 05:00	99.7	0	2	7.41	66.44	20.75	2.83	0.81	1.75
February	695	7.29	19.11	Feb 11	28.34	Feb 10 13:00	100.0	0	0	0.58	53.24	30.65	10.36	5.18	0.00
March	742	7.62	17.47	Mar 28	28.49	Mar 28 05:00	99.7	0	0	1.35	35.71	48.52	11.19	3.23	0.00
April	718	6.45	11.76	Apr 12	20.55	Apr 12 18:00	99.7	0	0	1.25	45.82	48.19	4.60	0.14	0.00
May	740	7.27	11.89	May 25	20.23	May 25 22:00	99.7	0	0	1.08	35.95	50.95	11.76	0.27	0.00
June	719	6.85	12.17	Jun 05	21.19	Jun 26 23:00	99.9	0	0	1.25	46.04	42.84	9.32	0.56	0.00
July	735	13.83	35.79	Jul 15	70.80	Jul 15 19:00	98.8	2	0	1.22	13.20	40.27	17.28	22.04	5.99
August	738	8.53	20.72	Aug 19	35.46	Aug 19 22:00	99.5	0	0	0.00	26.83	55.56	14.23	2.57	0.81
September	713	10.23	20.84	Sep 23	40.08	Sep 19 11:00	99.0	0	0	1.40	27.77	38.29	15.99	15.99	0.56
October	738	7.51	29.23	Oct 07	84.26	Oct 07 15:00	99.2	0	1	3.12	53.93	31.03	6.64	2.30	2.98
November	718	10.65	27.25	Nov 16	48.29	Nov 16 19:00	99.7	0	0	1.39	23.82	38.30	21.59	13.09	1.81
December	742	7.21	27.09	Dec 07	72.54	Dec 07 09:00	100.0	0	0	5.93	52.16	25.07	11.46	4.31	1.08
Annual	8740	8.26	35.79	Jul 15	84.90	Jan 22 05:00	99.6	2	3	2.17	40.08	39.22	11.42	5.85	1.26

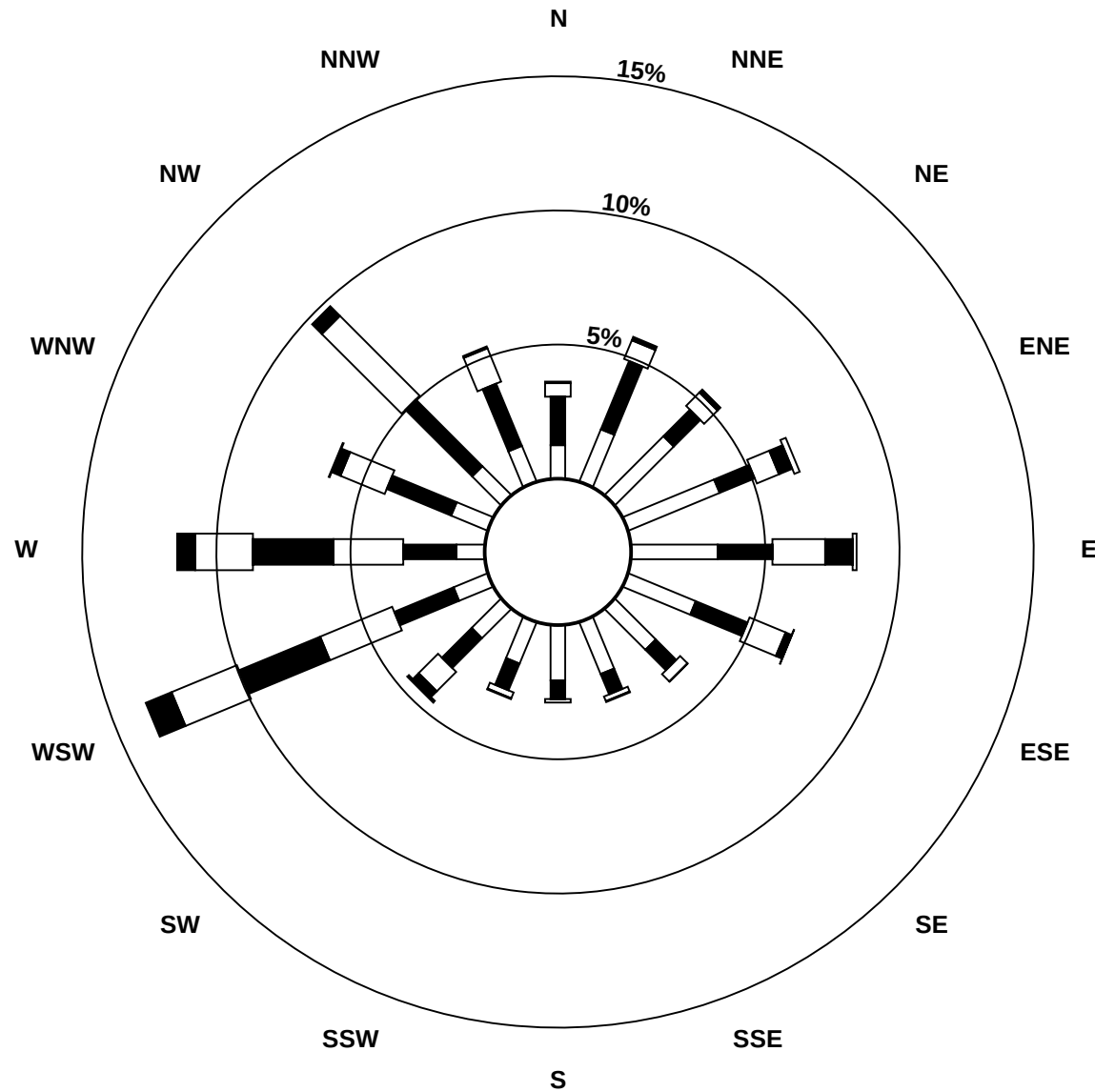
Table 25. Wind Speed and Wind Direction Frequency Distribution – Beaverlodge 2012 Summary

Beaverlodge								2012
Direction	# of Readings	% of wind speed (km/hr)						Totals
1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38			
N	309	1.25	1.80	0.50	0.06	0.00	0.00	3.62
NNE	491	2.11	2.75	0.75	0.14	0.00	0.00	5.75
NE	457	3.11	1.39	0.70	0.15	0.00	0.00	5.36
ENE	575	3.68	1.42	0.89	0.54	0.21	0.00	6.74
E	717	3.22	2.04	1.97	1.02	0.15	0.00	8.40
ESE	556	2.72	2.09	1.45	0.25	0.01	0.00	6.52
SE	310	2.16	1.08	0.39	0.01	0.00	0.00	3.63
SSE	267	2.09	0.82	0.19	0.04	0.00	0.00	3.13
S	246	2.06	0.69	0.13	0.00	0.00	0.00	2.88
SSW	257	1.66	1.08	0.23	0.04	0.00	0.00	3.01
SW	386	1.55	1.57	1.02	0.30	0.07	0.01	4.52
WSW	1162	1.37	2.39	2.91	3.27	2.64	1.04	13.62
WSW	978	1.05	1.98	2.60	3.00	2.16	0.67	11.46
WNW	532	1.46	2.60	1.78	0.35	0.04	0.00	6.23
NW	832	1.52	3.52	4.20	0.52	0.00	0.00	9.75
NNW	458	1.44	2.51	1.35	0.07	0.00	0.00	5.37
Totals	8533	32.46	29.73	21.06	9.75	5.27	1.72	100

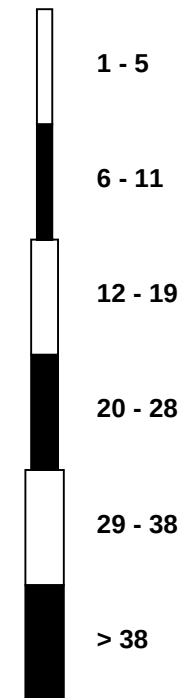
Wind Rose

Wind Speed (WS) (km/h)

Beaverlodge - 2012



Wind Speed Classes (km/h)



PAZA
Valleyview
CONTINUOUS AMBIENT AIR MONITORING STATION

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Table 26. Valleyview - Key Parameters – Continuous Monitoring Data – 2012 Summary

Parameter	Monitoring Station	Annual Average	Maximum Values				Operational Time (%)	Readings above AAAQO	
			24-hr	Date	1-hr	Date		24-hr	1-hr
Sulphur Dioxide SO₂ measured in ppb	Valleyview	0.62	11.81	Sep 29	92.70	Sep 29 17:00	99.9	0	0
Hydrogen Sulphide H₂S measured in ppb	Valleyview	0.07	4.21	Oct 21	11.01	Oct 21 05:00	99.9	1	1

Table 27. Sulphur Dioxide (SO₂) – Valleyview 2012 Summary and Frequency Distribution

Valleyview		SO ₂ (ppb)								2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	709	0.94	3.95	Jan 05	13.40	Jan 26 22:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	663	0.55	2.19	Feb 22	20.12	Feb 22 09:00	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
March	703	0.46	2.35	Mar 04	18.60	Mar 04 03:00	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.45	1.88	Apr 21	10.31	Apr 20 23:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	709	0.75	3.39	May 10	12.87	May 11 04:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.64	3.24	Jun 18	11.99	Jun 03 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	709	0.38	2.21	Jul 04	6.75	Jul 05 00:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	709	0.40	1.85	Aug 09	5.50	Aug 29 20:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	684	1.08	11.81	Sep 29	92.70	Sep 29 17:00	100.0	0	0	99.27	0.58	0.15	0.00	0.00	0.00
October	709	0.66	4.04	Oct 21	11.43	Oct 21 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	683	0.42	4.25	Nov 05	13.15	Nov 05 21:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	707	0.71	4.14	Dec 21	18.02	Dec 29 20:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8355	0.62	11.81	Sep 29	92.70	Sep 29 17:00	99.9	0	0	99.93	0.06	0.01	0.00	0.00	0.00

Table 28. Hydrogen Sulphide (H₂S) – Valleyview 2012 Summary and Frequency Distribution

Valleyview		H ₂ S (ppb)								2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10
January	710	0.20	0.84	Jan 09	6.22	Jan 18 20:00	100.0	0	0	95.07	3.24	1.27	0.42	0.00	0.00
February	661	0.26	1.09	Feb 05	5.23	Feb 11 03:00	100.0	0	0	91.98	7.11	0.61	0.30	0.00	0.00
March	706	0.12	0.77	Mar 21	8.45	Mar 21 13:00	99.7	0	0	97.45	2.12	0.14	0.00	0.28	0.00
April	684	0.02	0.16	Apr 04	0.91	Apr 04 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	708	0.01	0.04	May 12	0.94	May 12 23:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.04	0.66	Jun 13	7.95	Jun 13 05:00	100.0	0	0	99.56	0.15	0.00	0.15	0.15	0.00
July	707	0.00	0.05	Jul 24	0.70	Jul 24 21:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	706	0.01	0.04	Aug 13	0.76	Aug 10 22:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	684	0.01	0.12	Sep 29	2.79	Sep 29 17:00	100.0	0	0	99.85	0.00	0.15	0.00	0.00	0.00
October	708	0.21	4.21	Oct 21	11.01	Oct 21 05:00	100.0	1	1	94.49	1.41	2.97	0.56	0.42	0.14
November	683	0.01	0.09	Nov 04	1.61	Nov 05 22:00	99.6	0	0	99.56	0.44	0.00	0.00	0.00	0.00
December	705	0.01	0.16	Dec 31	3.67	Jan 01 00:00	99.6	0	0	99.57	0.28	0.14	0.00	0.00	0.00
Annual	8346	0.07	4.21	Oct 21	11.01	Oct 21 05:00	99.9	1	1	98.13	1.22	0.45	0.12	0.07	0.01

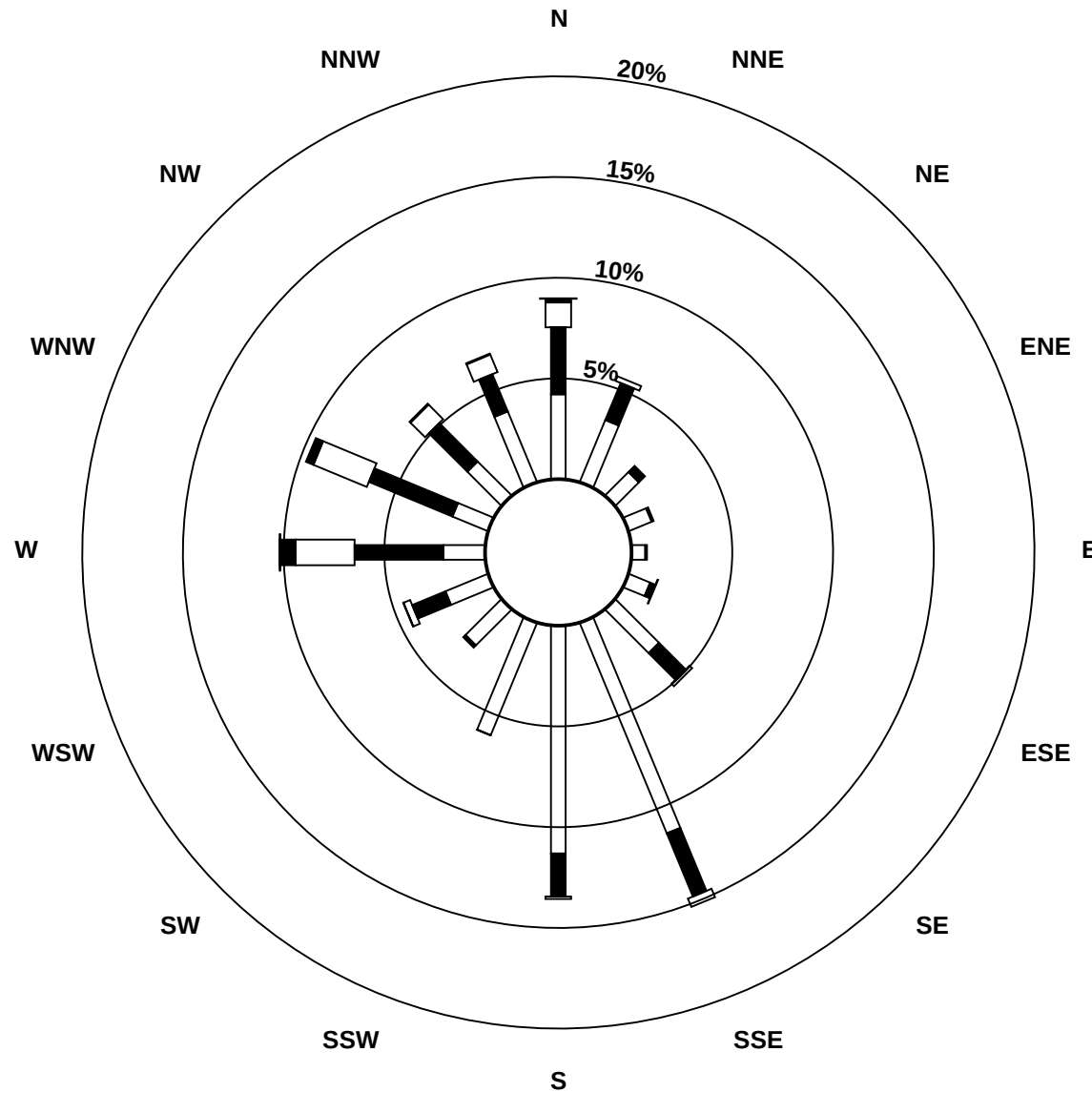
Table 29. Wind Speed and Wind Direction Frequency Distribution – Valleyview 2012 Summary

Valleyview								2012
Direction	# of Readings	% of wind speed (km/hr)						Totals
1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38			
N	713	3.97	3.43	1.78	0.09	0.00	0.00	9.27
NNE	317	2.31	1.37	0.44	0.00	0.00	0.00	4.12
NE	141	1.12	0.59	0.13	0.00	0.00	0.00	1.83
ENE	107	0.98	0.42	0.00	0.00	0.00	0.00	1.39
E	72	0.87	0.07	0.00	0.00	0.00	0.00	0.94
ESE	112	0.98	0.47	0.01	0.00	0.00	0.00	1.46
SE	369	2.35	2.02	0.38	0.05	0.00	0.00	4.80
SSE	1103	11.22	2.56	0.31	0.25	0.00	0.00	14.34
S	1221	13.04	2.68	0.16	0.00	0.00	0.00	15.88
SSW	503	6.45	0.09	0.00	0.00	0.00	0.00	6.54
SW	288	3.38	0.35	0.01	0.00	0.00	0.00	3.75
WSW	435	2.73	2.34	0.55	0.04	0.00	0.00	5.66
WSW	748	2.25	3.54	3.02	0.85	0.08	0.00	9.73
WNW	635	1.96	2.99	2.81	0.47	0.03	0.00	8.26
NW	431	1.96	2.56	0.96	0.10	0.01	0.00	5.60
NNW	495	3.39	2.05	0.94	0.04	0.01	0.00	6.44
Totals	7690	58.97	27.52	11.50	1.89	0.13	0.00	100

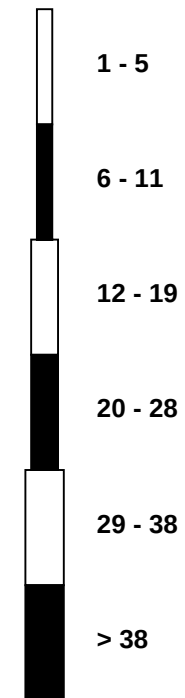
Wind Rose

Wind Speed (WS) (km/h)

Valleyview - 2012



Wind Speed Classes (km/h)



PAZA

Sunset House-Portable
CONTINUOUS AMBIENT AIR MONITORING STATION

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Table 30. Sunset House-Portable - Key Parameters – Continuous Monitoring Data – 2012 Summary

Parameter	Monitoring Station	Annual Average	Maximum Values				Operational Time (%)	Readings above AAAQO	
			24-hr	Date	1-hr	Date		24-hr	1-hr
Sulphur Dioxide SO₂ measured in ppb	Sunset House-Portable	0.22	2.07	Dec 26	8.18	Dec 08 22:00	100.0	0	0
Nitrogen Dioxide NO₂ measured in ppb	Sunset House-Portable	1.47	7.55	Dec 04	18.51	Dec 20 09:00	100.0	0	0
Ozone O₃ measured in ppb	Sunset House-Portable	30.88	56.63	May 12	70.29	May 12 12:00	99.9	0	0
Total Reduced Sulphur TRS measured in ppb	Sunset House-Portable	0.28	1.06	Nov 12	1.81	Dec 11 20:00	100.0	-	-
Particulate Matter PM_{2.5} measured in µg/m³	Sunset House-Portable	3.33	45.03	Jul 14	87.32	Jul 14 09:00	98.3	2	4

Table 31. Sulphur Dioxide (SO₂) – Sunset House-Portable 2012 Summary and Frequency Distribution

Sunset House Portable SO ₂ (ppb)															2012
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	579	0.33	1.09	Jan 21	3.46	Jan 17 18:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	661	0.42	1.39	Feb 10	3.88	Feb 28 02:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	704	0.17	0.76	Mar 26	2.42	Mar 26 04:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	685	0.14	1.16	Apr 11	2.51	Apr 11 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	708	0.10	0.49	May 21	2.18	May 26 10:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.03	0.35	Jun 22	3.14	Jun 22 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	708	0.11	0.57	Jul 20	2.67	Jul 20 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	708	0.11	0.62	Aug 29	1.63	Aug 18 03:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.14	0.45	Sep 28	1.48	Sep 28 03:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.16	1.03	Oct 31	3.31	Oct 31 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	684	0.43	0.93	Nov 23	2.66	Nov 17 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	707	0.60	2.07	Dec 26	8.18	Dec 08 22:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8221	0.22	2.07	Dec 26	8.18	Dec 08 22:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00

Table 32. Nitrogen Dioxide (NO₂) – Sunset House-Portable 2012 Summary and Frequency Distribution

Sunset House Portable NO ₂ (ppb)														2012
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range				
								24-Hr	1-Hr	0 - 25	25 - 50	50 - 110	110 - 210	>210
January	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February	330	1.96	2.99	Feb 18	8.22	Feb 16 19:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
March	702	1.38	2.37	Mar 28	4.41	Mar 15 21:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00
April	684	1.05	2.33	Apr 19	3.98	Apr 20 00:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
May	698	0.89	1.58	May 02	4.64	May 02 15:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
June	679	0.81	1.28	Jun 22	4.13	Jun 22 08:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
July	706	1.06	2.05	Jul 14	4.53	Jul 14 06:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
August	707	0.98	1.60	Aug 27	5.02	Aug 29 15:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
September	683	1.07	2.37	Sep 24	3.97	Sep 24 03:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
October	707	1.26	3.76	Oct 31	6.83	Oct 31 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
November	683	2.59	7.07	Nov 23	11.56	Nov 03 07:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
December	706	3.42	7.55	Dec 04	18.51	Dec 20 09:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00
Annual	7285	1.47	7.55	Dec 04	18.51	Dec 20 09:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00

Table 33. Ozone (O₃) – Sunset House-Portable 2012 Summary and Frequency Distribution

Sunset House Portable O ₃ (ppb)															2012
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 10	10 - 20	20 - 40	40 - 82	>82
January	650	27.77	33.60	Jan 31	35.29	Jan 31 17:00	100.0	0	0	0.00	0.00	4.15	95.85	0.00	0.00
February	656	27.08	32.57	Feb 28	42.40	Feb 21 20:00	99.7	0	0	0.00	0.00	7.62	91.62	0.76	0.00
March	705	36.44	52.56	Mar 27	57.86	Mar 27 19:00	99.6	0	0	0.00	0.00	3.40	64.54	32.06	0.00
April	686	42.20	55.70	Apr 03	62.74	Apr 03 17:00	100.0	0	0	0.29	0.73	3.79	26.82	68.37	0.00
May	697	42.83	56.63	May 12	70.29	May 12 12:00	100.0	0	0	0.00	0.29	3.01	28.69	68.01	0.00
June	683	30.37	42.54	Jun 04	54.92	Jun 04 20:00	100.0	0	0	0.00	0.29	13.62	71.16	14.93	0.00
July	708	30.44	50.09	Jul 14	67.00	Jul 23 23:00	100.0	0	0	0.00	1.55	15.11	66.24	17.09	0.00
August	709	26.74	38.77	Aug 18	53.25	Aug 18 23:00	100.0	0	0	0.00	1.83	20.17	70.10	7.90	0.00
September	685	29.41	39.60	Sep 28	48.38	Sep 21 17:00	100.0	0	0	0.00	0.88	9.20	78.69	11.24	0.00
October	709	24.57	35.19	Oct 15	40.53	Oct 15 22:00	100.0	0	0	0.00	0.71	22.57	76.59	0.14	0.00
November	686	25.53	39.50	Nov 16	44.91	Nov 16 10:00	100.0	0	0	0.00	0.73	21.87	74.20	3.21	0.00
December	708	26.97	38.62	Dec 15	42.20	Dec 11 01:00	100.0	0	0	0.00	2.12	25.42	69.63	2.82	0.00
Annual	8282	30.88	56.63	May 12	70.29	May 12 12:00	99.9	0	0	0.02	0.78	12.59	67.46	19.15	0.00

Table 34. Total Reduced Sulphur (TRS) – Sunset House-Portable 2012 Summary and Frequency Distribution

Sunset House Portable TRS (ppb)															2012
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	*AAAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10
January	583	0.28	0.41	Jan 21	0.74	Jan 21 01:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	662	0.32	0.47	Feb 09	0.61	Feb 03 04:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	704	0.27	0.36	Mar 02	0.63	Mar 02 03:00	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.30	0.44	Apr 26	0.60	Apr 27 02:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	709	0.25	0.38	May 30	0.56	May 31 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.26	0.67	Jun 16	0.91	Jun 16 11:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	708	0.28	0.38	Jul 23	0.68	Jul 23 20:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	709	0.25	0.33	Aug 15	0.58	Aug 10 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.25	0.44	Sep 25	0.84	Sep 25 12:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.22	0.46	Oct 07	0.88	Oct 08 13:00	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	680	0.31	1.06	Nov 12	1.59	Nov 12 18:00	100.0	0	0	96.91	3.09	0.00	0.00	0.00	0.00
December	708	0.33	0.86	Dec 17	1.81	Dec 11 20:00	99.9	0	0	97.74	2.26	0.00	0.00	0.00	0.00
Annual	8226	0.28	1.06	Nov 12	1.81	Dec 11 20:00	100.0	0	0	99.55	0.45	0.00	0.00	0.00	0.00

*No Alberta Environment Objectives or Guidelines for TRS

Table 35. Particulate Matter (PM_{2.5}) – Sunset House-Portable 2012 Summary and Frequency Distribution

Sunset House Portable PM _{2.5} (µg/m ³)										2012					
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAQO		Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	604	1.37	6.79	Jan 07	23.38	Jan 06 21:00	100.0	0	0	77.65	19.04	1.99	0.99	0.33	0.00
February	692	2.10	8.53	Feb 08	25.66	Feb 09 00:00	100.0	0	0	65.32	26.88	5.78	1.01	1.01	0.00
March	734	2.07	7.00	Mar 28	12.04	Mar 28 22:00	98.7	0	0	56.95	37.19	5.45	0.41	0.00	0.00
April	712	1.86	9.22	Apr 12	21.46	Apr 12 14:00	99.6	0	0	66.85	28.37	3.51	0.98	0.28	0.00
May	742	2.76	4.92	May 25	13.45	May 08 17:00	99.7	0	0	42.45	49.73	7.28	0.54	0.00	0.00
June	687	2.44	8.47	Jun 05	18.39	Jun 05 06:00	95.4	0	0	56.91	31.73	9.75	1.31	0.29	0.00
July	718	8.94	45.03	Jul 14	87.32	Jul 14 09:00	96.6	2	4	33.15	24.37	15.32	11.70	9.61	5.85
August	704	4.12	18.25	Aug 19	47.75	Aug 19 18:00	94.6	0	0	46.02	29.97	16.19	4.69	2.13	0.99
September	706	3.76	12.29	Sep 25	36.43	Sep 25 09:00	98.1	0	0	53.12	22.66	15.16	6.94	1.56	0.57
October	728	3.14	25.01	Oct 08	75.51	Oct 08 12:00	98.1	0	0	64.01	26.10	3.57	2.47	2.20	1.65
November	717	4.60	16.03	Nov 13	36.85	Nov 13 12:00	99.6	0	0	34.03	38.77	17.85	6.97	1.81	0.56
December	742	2.56	6.63	Dec 18	66.04	Dec 18 22:00	99.7	0	0	56.87	32.88	8.22	1.48	0.40	0.13
Annual	8486	3.33	45.03	Jul 14	87.32	Jul 14 09:00	98.3	2	4	53.72	31.13	9.31	3.34	1.66	0.83

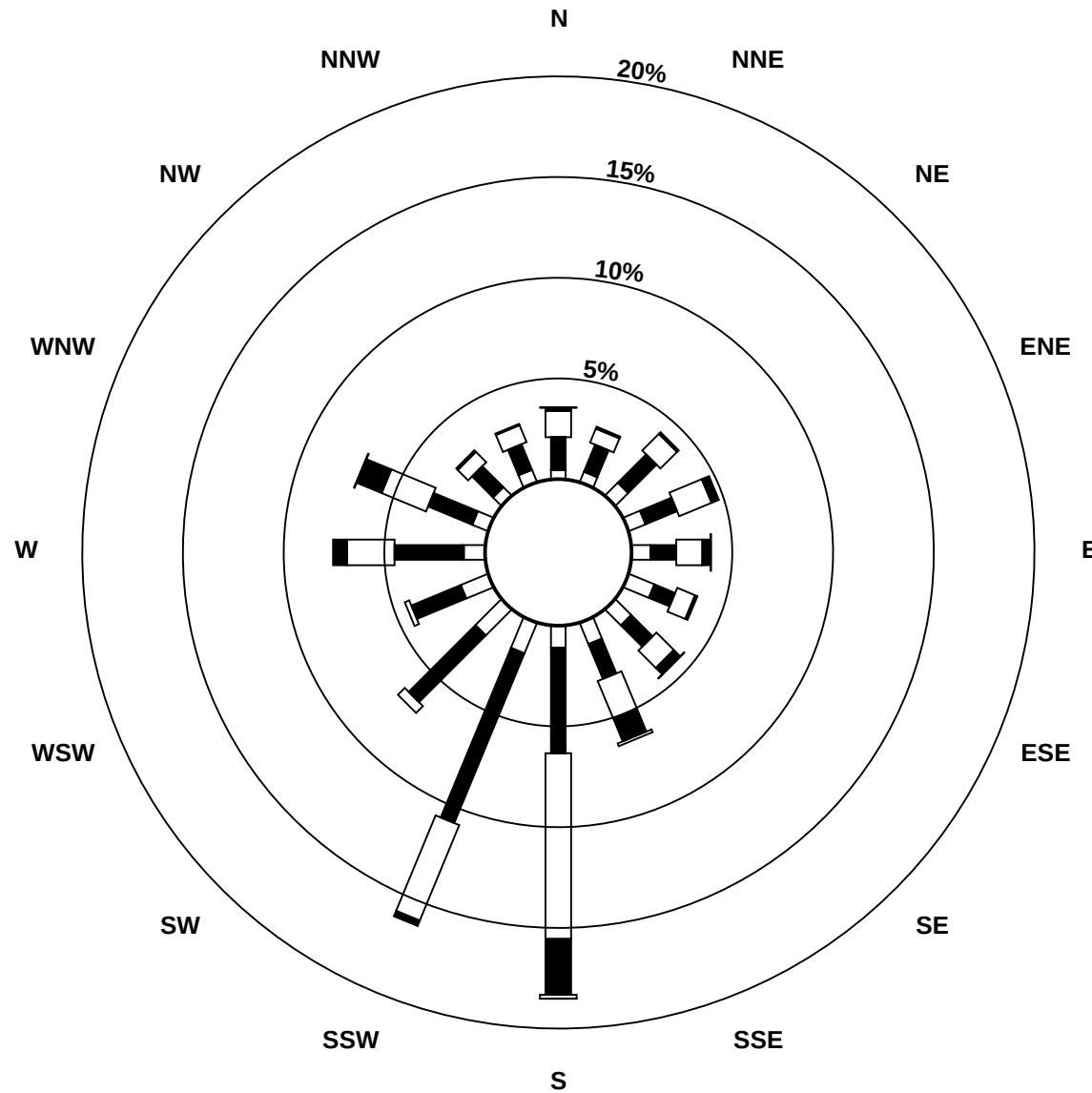
Table 36. Wind Speed and Wind Direction Frequency Distribution – Sunset House-Portable 2012 Summary

Sunset House Portable								2012
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	309	0.45	1.64	1.30	0.16	0.01	0.00	3.56
NNE	248	0.55	1.45	0.75	0.10	0.00	0.00	2.86
NE	362	0.90	1.99	1.16	0.12	0.00	0.00	4.17
ENE	410	0.90	1.69	1.74	0.39	0.00	0.00	4.73
E	342	0.93	1.28	1.30	0.40	0.02	0.00	3.94
ESE	310	1.37	1.12	0.96	0.13	0.00	0.00	3.57
SE	373	1.12	1.50	1.22	0.45	0.01	0.00	4.30
SSE	555	1.14	1.87	2.04	1.20	0.15	0.00	6.40
S	1607	1.09	5.23	9.22	2.78	0.18	0.01	18.52
SSW	1403	1.64	9.12	5.13	0.29	0.00	0.00	16.17
SW	607	1.82	4.69	0.48	0.00	0.00	0.00	7.00
WSW	378	1.46	2.65	0.24	0.00	0.00	0.00	4.36
WSW	655	1.06	3.43	2.36	0.69	0.00	0.00	7.55
WNW	605	0.84	2.37	2.39	1.34	0.03	0.00	6.97
NW	252	0.59	1.48	0.73	0.12	0.00	0.00	2.90
NNW	261	0.66	1.37	0.91	0.07	0.00	0.00	3.01
Totals	8677	16.53	42.88	31.94	8.23	0.41	0.01	100

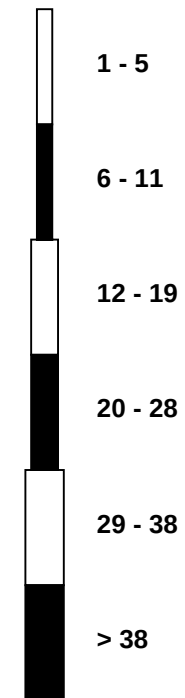
Wind Rose

Wind Speed (WS) (km/h)

Sunset House - 2012



Wind Speed Classes (km/h)



PAZA

PASSIVE MONITORING

2012

ANNUAL SUMMARY TABLES

Table 37. SO₂ Passive - 2012 Summary

MONITORING SITE		Sulphur Dioxide Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Silver Valley	0.5	0.6	0.3	Missing	0.2	0.2	0.2	0.2	0.3	0.2	0.6	0.8	0.8	0.4
2	Bay Tree	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.4	0.4	0.4	0.2
3	Forth Creek	0.4	0.7	0.2	0.2	0.1	0.1	0.2	0.1	0.5	0.1	0.3	0.5	0.7	0.3
4	Gordondale	0.3	0.7	0.4	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.5	1.0	1.0	0.4
5	Boone Creek	0.3	0.4	0.3	0.3	0.1	0.1	0.2	0.1	0.3	0.2	0.5	0.7	0.7	0.3
7	Steeprock Creek	0.2	0.3	0.3	0.2	0.1	0.1	0.1	BDL	0.2	0.1	0.4	0.5	0.5	0.2
9	Spirit River	0.4	0.5	0.1	0.2	0.2	0.1	0.2	0.2	0.5	0.1	0.3	0.6	0.6	0.3
10	Woking	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.5	0.7	0.7	0.3
11	Webber Creek	0.6	1.4	1.5	0.7	0.3	0.3	0.2	0.2	0.2	0.3	0.6	1.1	1.5	0.6
12	Hythe	0.3	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.2	0.6	1.0	1.0	0.3
14	Sylvester	0.1	0.1	0.1	0.1	BDL	BDL	BDL	BDL	0.2	0.1	0.3	0.5	0.5	0.2
16	Beaverlodge	0.2	0.5	0.3	0.4	0.1	0.1	0.2	0.1	0.6	0.2	0.5	0.7	0.7	0.3
17	Poplar	0.3	0.6	0.6	0.3	0.1	0.2	0.2	BDL	0.2	0.2	0.6	0.8	0.8	0.4
18	Saddle Hills	0.6	1.0	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.9	1.0	0.4
19	Wanham	0.3	0.7	0.3	0.2	0.2	0.1	0.2	0.1	0.5	0.2	0.4	0.7	0.7	0.3
20	Shaftesbury	0.3	0.5	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	-	0.5	0.2
21	Eaglesham	0.2	0.3	0.2	BDL	0.2	0.2	0.3	0.1	0.0	0.1	0.2	0.7	0.7	0.2
23	Bear Lake	0.2	1.0	0.3	0.3	0.2	0.2	0.2	0.1	0.3	0.2	0.5	0.7	1.0	0.4
24	Wembley	0.1	0.2	0.2	0.2	BDL	BDL	0.1	BDL	0.6	0.2	0.4	0.5	0.6	0.3
25	Pinto Creek	0.1	0.2	0.1	0.2	BDL	0.1	0.1	BDL	0.3	0.2	0.4	0.4	0.4	0.2
26	Flyingshot	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.5	0.4	0.5	0.2
27	Grande Prairie I	0.2	0.5	0.3	0.3	0.2	BDL	0.2	0.1	0.2	0.2	0.6	0.5	0.6	0.3
28	Clairmont Lake	0.3	0.7	0.5	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.6	0.8	0.8	0.3
29	Smoky Heights	0.5	0.7	0.5	0.4	0.3	0.3	0.3	0.2	0.5	0.3	0.4	0.6	0.7	0.4
30	Fitzsimmons	0.2	0.4	0.2	0.2	0.1	BDL	0.2	0.1	0.3	BDL	0.3	0.3	0.4	0.2
32	Gold Creek	0.3	0.3	0.1	0.3	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.3	0.2
33	Wapiti	0.3	0.3	0.2	0.1	0.2	BDL	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.2
34	Puskwaskau	0.1	0.2	0.1	0.1	BDL	BDL	BDL	BDL	0.1	0.1	0.1	0.7	0.7	0.2
35	Jean Cote	0.3	0.4	0.2	0.2	0.1	0.2	0.5	0.5	0.6	0.2	0.2	0.6	0.6	0.3
36	Guy	0.1	0.3	0.2	0.2	BDL	BDL	0.2	0.1	0.1	0.1	0.3	0.4	0.4	0.2
37	Crooked Creek	0.3	0.4	0.2	0.1	0.1	BDL	0.1	0.1	0.1	0.0	0.2	0.3	0.4	0.2
38	Karr Creek	0.1	0.2	BDL	0.1	BDL	0.1	0.1	BDL	0.1	0.0	0.1	0.3	0.3	0.1
39	Clouston Creek	0.1	0.5	0.1	0.3	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.5	0.5	0.2
40	McLennan	0.1	0.5	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.6	0.6	0.3
41	Valleyview	0.3	0.6	0.2	0.2	0.1	BDL	0.2	0.1	0.2	0.2	0.5	0.8	0.8	0.3
42	Sunset House	0.3	0.6	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.5	0.6	0.3
43	High Prairie	0.2	0.3	0.1	BDL	N/A	0.1	0.1	0.1	0.2	0.1	0.2	0.6	0.6	0.2
44	Peavine	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.5	0.5	0.2
45	Gift Lake	0.1	0.3	0.2	0.1	BDL	BDL	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2
46	Little Smoky	0.2	0.4	0.2	0.2	BDL	BDL	0.2	0.1	0.1	0.1	0.3	0.4	0.4	0.2
47	Kinuso	0.2	0.2	0.1	0.1	BDL	BDL	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.1
48	Deer Mountain	0.3	0.4	0.2	0.2	0.1	BDL	0.2	BDL	0.1	0.1	0.2	0.3	0.4	0.2
49	Grande Prairie HP	0.2	0.4	0.3	0.3	0.1	BDL	0.2	0.1	0.3	0.2	0.4	0.6	0.6	0.3
62	East Prairie	0.1	0.2	0.1	0.1	BDL	BDL	BDL	BDL	0.2	0.1	0.1	0.3	0.3	0.2
Average		0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.4	0.6		0.3
Peak		0.6	1.4	1.5	0.7	0.3	0.3	0.5	0.5	0.6	0.3	0.6	1.1	1.5	

BDL=Below Detection Limit (>0.02ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

Table 38. NO₂ Passive - 2012 Summary

MONITORING SITE		Nitrogen Dioxide Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Silver Valley	1.6	0.5	BDL	Damaged	0.3	0.8	0.5	0.3	0.8	0.5	2.0	1.8	2.0	0.9
2	Bay Tree	0.9	0.5	0.8	0.4	0.4	0.5	0.3	0.3	0.2	0.7	1.7	2.5	2.5	0.8
3	Forth Creek	1.3	0.5	BDL	0.3	0.2	BDL	0.3	0.1	0.4	0.4	1.4	2.0	2.0	0.7
4	Gordondale	1.3	0.8	0.4	0.4	0.2	0.4	0.4	0.4	0.5	0.7	1.7	2.1	2.1	0.8
5	Boone Creek	1.4	0.7	0.3	0.7	0.3	1.0	0.4	0.2	0.4	0.8	1.7	1.7	1.7	0.8
7	Steeprock Creek	0.8	0.5	BDL	0.3	0.2	0.3	0.1	0.3	BDL	0.6	1.9	1.7	1.9	0.7
9	Spirit River	1.3	0.5	0.2	0.3	0.5	0.4	0.6	0.5	0.9	0.4	1.4	1.7	1.7	0.7
10	Woking	0.8	0.3	BDL	0.3	0.4	0.5	0.3	0.2	0.5	0.5	1.4	1.6	1.6	0.6
11	Webber Creek	1.9	1.3	0.2	0.6	0.8	0.6	0.8	0.4	0.6	0.9	2.1	1.8	2.1	1.0
12	Hythe	1.2	1.1	0.7	0.6	0.9	0.9	0.6	0.6	0.5	0.8	2.2	2.9	2.9	1.1
14	Sylvester	0.7	0.1	BDL	0.7	0.2	0.2	0.5	0.3	0.3	0.6	1.9	1.7	1.9	0.7
16	Beaverlodge	3.6	1.6	1.2	0.9	0.5	0.6	0.6	0.5	0.6	1.5	3.5	5.5	5.5	1.7
17	Poplar	1.5	1.7	0.6	0.7	0.7	0.8	0.7	0.4	0.5	0.8	2.4	2.7	2.7	1.1
18	Saddle Hills	0.9	0.4	BDL	0.4	0.4	0.4	0.3	0.4	0.4	1.0	1.7	1.6	1.7	0.7
19	Wanham	0.8	0.3	0.1	0.2	0.2	0.7	0.4	0.3	0.7	0.5	0.9	1.7	1.7	0.6
20	Shaftesbury	0.9	N/S	0.2	0.2	0.3	0.4	0.3	0.1	0.4	0.5	1.2	-	1.2	0.5
21	Eaglesham	0.7	0.4	BDL	0.3	0.3	1.1	0.6	0.2	0.4	0.4	1.2	1.6	1.6	0.7
23	Bear Lake	1.9	1.1	0.3	0.9	1.3	0.6	0.5	0.5	0.9	1.4	2.6	3.7	3.7	1.3
24	Wembley	1.3	1.1	0.6	1.0	0.9	0.9	0.8	0.5	0.9	1.4	2.7	3.3	3.3	1.3
25	Pinto Creek	0.9	0.6	0.6	0.6	0.2	0.5	0.3	0.3	0.4	0.7	1.9	2.0	2.0	0.8
26	Flyingshot	2.1	1.9	1.0	0.9	0.4	0.5	0.5	0.3	0.5	1.4	3.7	5.4	5.4	1.6
27	Grande Prairie I	10.8	6.2	5.0	2.1	1.5	1.1	1.3	1.2	2.4	5.3	10.1	15.7	15.7	5.2
28	Clairmont Lake	2.8	1.2	BDL	0.5	0.4	0.8	0.3	0.4	1.1	1.1	2.2	3.6	3.6	1.3
29	Smoky Heights	2.7	1.4	0.5	0.3	0.3	0.3	0.4	0.4	1.0	1.0	3.0	2.4	3.0	1.1
30	Fitzsimmons	1.7	0.9	BDL	0.3	0.3	0.9	0.4	0.4	0.5	BDL	1.9	2.9	2.9	1.0
32	Gold Creek	1.0	1.8	0.7	0.9	0.3	0.3	0.4	0.5	0.8	1.5	3.5	4.1	4.1	1.3
33	Wapiti	0.9	1.2	BDL	0.2	0.4	0.4	0.5	0.6	0.6	0.7	2.1	4.1	4.1	1.1
34	Puskwaskau	0.7	0.4	BDL	BDL	0.2	0.1	0.1	0.2	0.3	0.3	1.0	0.9	1.0	0.4
35	Jean Cote	1.0	0.6	BDL	0.2	1.0	1.4	0.6	0.3	0.8	0.7	1.0	2.2	2.2	0.9
36	Guy	0.9	0.4	BDL	0.2	0.8	1.1	0.4	0.4	0.5	0.6	1.1	1.7	1.7	0.7
37	Crooked Creek	1.0	1.0	BDL	0.4	0.4	0.3	0.2	0.4	0.5	BDL	2.6	3.0	3.0	1.0
38	Karr Creek	0.9	0.6	BDL	0.5	0.4	0.2	0.2	BDL	0.3	0.8	1.1	2.1	2.1	0.7
39	Clouston Creek	0.9	0.5	0.2	0.2	0.5	0.3	0.3	0.2	0.4	0.6	1.1	2.8	2.8	0.7
40	McLennan	0.9	0.7	0.1	0.2	0.8	1.1	0.5	0.2	1.3	0.8	1.8	2.4	2.4	0.9
41	Valleyview	1.2	0.7	BDL	0.3	0.3	0.3	0.3	0.1	0.9	1.4	1.7	3.7	3.7	1.0
42	Sunset House	0.6	0.3	BDL	0.2	0.2	0.2	0.1	0.2	0.3	0.6	0.9	2.1	2.1	0.5
43	High Prairie	1.1	1.1	0.2	0.3	N/S	1.0	0.3	0.2	0.4	0.7	1.6	2.3	2.3	0.8
44	Peavine	0.8	0.2	BDL	0.2	BDL	0.1	0.3	BDL	0.1	0.5	1.0	1.3	1.3	0.5
45	Gift Lake	1.0	0.6	BDL	0.2	BDL	0.3	0.3	0.1	0.3	0.5	1.0	1.9	1.9	0.6
46	Little Smoky	3.8	2.9	0.7	0.9	0.8	0.4	0.4	1.1	1.3	1.3	3.5	5.0	5.0	1.8
47	Kinuso	0.9	0.3	0.2	0.2	0.1	0.2	0.1	BDL	0.3	0.5	0.8	2.0	2.0	0.5
48	Deer Mountain	0.8	0.4	BDL	0.4	0.3	0.2	0.3	0.3	0.3	0.4	1.1	1.9	1.9	0.6
49	Grande Prairie HP	9.9	8.0	4.8	2.8	1.2	1.0	1.0	1.5	3.1	3.7	8.6	15.9	15.9	5.1
62	East Prairie	0.9	0.3	0.3	0.2	0.1	0.2	0.3	0.4	0.3	0.3	0.8	1.5	1.5	0.5
Average		1.7	1.1	0.8	0.5	0.5	0.6	0.4	0.4	0.7	0.9	2.2	3.1		1.1
Peak		10.8	8.0	5.0	2.8	1.5	1.4	1.3	1.5	3.1	5.3	10.1	15.9	15.9	

BDL=Below Detection Limit (>0.03ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

Table 39. O₃ Passive - 2012 Summary

MONITORING SITE		Ozone Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Silver Valley	38.3	43.4	45.7	Missing	42.4	30.0	23.2	22.9	26.6	34.2	30.9	27.9	45.7	33.2
2	Bay Tree	35.1	37.9	39.3	37.2	39.8	33.9	21.2	24.8	28.7	31.4	29.1	27.3	39.8	32.1
3	Forth Creek	35.4	43.2	46.3	42.3	42.8	33.9	31.7	23.6	25.3	28.3	34.5	28.9	46.3	34.7
4	Gordondale	39.0	39.7	49.9	49.0	N/S	27.7	27.9	27.3	27.5	32.7	32.6	33.4	49.9	35.2
5	Boone Creek	33.2	39.4	50.5	35.0	34.2	27.1	25.4	21.1	23.1	28.2	28.1	28.1	50.5	31.1
7	Steeprock Creek	34.2	37.5	46.1	40.0	38.2	27.2	25.6	24.5	27.0	33.7	34.0	26.8	46.1	32.9
9	Spirit River	33.6	42.9	45.6	39.2	37.5	30.6	24.1	24.3	27.0	32.7	31.6	27.1	45.6	33.0
10	Woking	38.1	40.8	48.5	41.1	36.5	27.8	22.9	21.9	24.8	28.1	31.9	28.4	48.5	32.6
11	Webber Creek	34.6	41.0	53.3	35.0	32.5	29.9	23.6	20.5	24.2	25.9	31.2	26.4	53.3	31.5
12	Hythe	33.1	34.9	40.0	42.4	39.4	27.1	26.6	25.5	22.6	31.5	31.2	26.1	42.4	31.7
14	Sylvester	38.1	35.7	40.2	36.3	34.9	23.7	19.9	16.8	20.8	22.7	26.9	24.0	40.2	28.3
16	Beaverlodge	33.9	35.2	39.7	50.2	42.9	32.2	29.8	27.0	31.7	28.5	29.7	29.9	50.2	34.2
17	Poplar	36.0	37.0	43.9	34.3	35.5	24.5	24.2	20.5	23.9	27.1	28.6	24.1	43.9	30.0
18	Saddle Hills	36.3	43.5	52.5	40.3	38.8	27.4	24.0	20.4	23.0	29.6	31.6	32.2	52.5	33.3
19	Wanham	36.2	47.3	52.5	42.1	45.9	28.0	27.0	28.0	26.1	31.1	30.6	28.6	52.5	35.3
20	Shaftesbury	37.5	N/S	55.3	43.5	39.7	27.1	22.9	22.9	27.2	25.8	28.9	-	55.3	33.1
21	Eaglesham	31.7	40.5	48.5	44.8	32.2	31.1	22.5	17.7	22.2	25.0	32.2	24.8	48.5	31.1
23	Bear Lake	34.4	46.6	51.7	38.4	38.9	32.3	24.3	23.8	24.1	28.2	30.5	27.2	51.7	33.4
24	Wembley	32.6	34.5	36.5	36.4	32.4	24.7	20.4	20.4	21.3	27.8	29.1	24.1	36.5	28.4
25	Pinto Creek	32.2	36.7	47.1	39.9	33.9	27.9	23.3	19.7	N/S	30.6	26.6	24.2	47.1	31.1
26	Flyingshot	26.8	38.2	40.0	42.4	39.1	31.1	21.4	20.3	21.9	26.0	25.6	22.2	42.4	29.6
27	Grande Prairie I	25.6	28.2	39.5	40.4	39.4	29.3	26.4	23.2	23.1	23.4	20.3	17.4	40.4	28.0
28	Clairmont Lake	38.8	46.8	57.9	40.6	39.3	34.6	22.9	26.8	25.9	31.8	32.8	30.7	57.9	35.8
29	Smoky Heights	31.3	40.5	51.9	42.2	39.9	31.7	33.2	30.9	26.1	29.7	27.5	25.7	51.9	34.2
30	Fitzsimmons	27.1	38.9	57.2	37.8	36.3	23.3	19.2	19.8	17.2	-0.3	26.6	24.2	57.2	27.3
32	Gold Creek	34.2	30.9	34.4	30.0	28.1	25.2	19.0	15.7	20.1	22.0	17.2	18.5	34.4	24.6
33	Wapiti	35.1	N/S	50.1	40.5	36.9	27.5	20.4	21.1	22.9	29.4	27.0	22.8	50.1	30.3
34	Puskwaskau	27.8	36.6	48.1	38.6	36.6	20.9	16.1	15.6	15.7	21.9	26.5	22.5	48.1	27.2
35	Jean Cote	34.2	47.0	56.5	40.0	32.6	28.4	24.3	19.3	24.2	28.5	28.9	30.5	56.5	32.9
36	Guy	28.2	40.4	49.4	45.2	33.0	27.9	21.0	23.5	24.2	28.1	29.8	27.3	49.4	31.5
37	Crooked Creek	34.2	40.3	51.4	44.0	40.6	31.6	24.1	24.9	23.0	-0.3	26.6	24.7	51.4	30.4
38	Karr Creek	28.2	34.5	39.9	33.3	32.3	24.0	17.6	13.9	17.5	21.0	19.4	20.7	39.9	25.2
39	Clouston Creek	28.2	43.2	41.6	42.0	34.4	29.0	22.6	19.2	22.6	27.6	30.6	26.4	43.2	30.6
40	McLennan	28.2	39.9	51.7	44.0	36.7	26.0	24.3	19.3	20.5	30.8	35.9	26.5	51.7	32.0
41	Valleyview	36.7	40.2	51.1	38.7	42.9	26.9	28.5	24.2	26.1	27.8	32.5	28.9	51.1	33.7
42	Sunset House	39.0	44.7	51.1	45.2	41.6	34.8	27.6	28.3	27.4	27.6	30.2	32.6	51.1	35.8
43	High Prairie	30.2	32.5	45.5	46.4	N/S	27.3	19.9	21.3	21.0	27.7	31.3	26.1	46.4	29.9
44	Peavine	31.7	38.6	43.6	41.6	33.1	24.9	17.4	15.4	18.6	22.6	25.8	23.4	43.6	28.1
45	Gift Lake	30.1	32.6	44.0	35.4	33.1	23.8	18.4	21.2	14.6	21.4	28.9	23.2	44.0	27.2
46	Little Smoky	30.7	36.5	46.5	37.9	37.6	23.1	24.0	16.1	15.7	21.0	23.6	20.1	46.5	27.7
47	Kinuso	31.2	33.9	41.7	39.6	34.9	19.1	20.5	17.5	15.9	26.6	27.1	20.3	41.7	27.4
48	Deer Mountain	38.3	40.0	45.4	38.3	36.6	26.4	18.3	20.9	21.6	24.6	28.5	26.3	45.4	30.4
49	Grande Prairie HP	23.2	27.4	36.0	38.7	40.6	39.5	30.4	24.9	21.9	23.1	19.1	18.2	40.6	28.6
62	East Prairie	31.6	33.3	43.1	39.1	34.3	24.5	19.9	18.3	17.1	23.8	27.2	19.1	43.1	27.6
Average		33.0	38.6	46.6	40.2	37.1	28.1	23.4	21.7	22.8	26.1	28.6	25.5		31.0
Peak		39.0	47.3	57.9	50.2	45.9	39.5	33.2	30.9	31.7	34.2	35.9	33.4	57.9	

BDL=Below Detection Limit (>0.01ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

Table 40. H₂S Passive - 2012 Summary

MONITORING SITE		Ozone Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Gift Lake	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.1	0.1	0.1	0.2	0.2	0.1
2	Girouxville 3	0.2	0.3	0.3	0.2	0.1	0.2	0.3	0.0	0.2	0.1	0.2	BDL	0.3	0.2
3	Girouxville 4	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.4	0.4	0.2
Average		0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.0	0.2	0.1	0.2	0.3		0.2
Peak		0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.0	0.2	0.2	0.2	0.4	0.4	

BDL=Below Detection Limit (>0.01ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

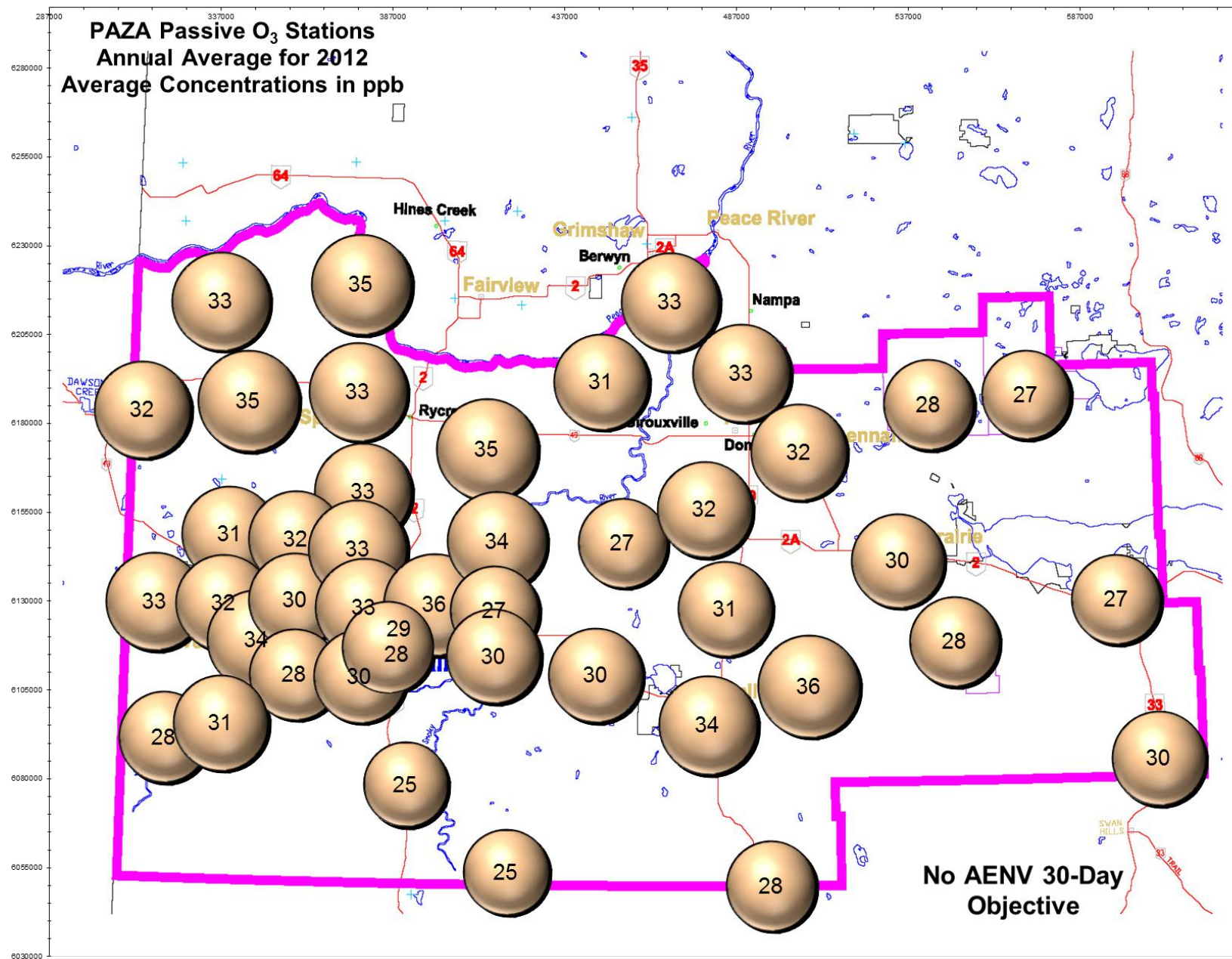


Figure 11. PAZA O₃ Bubble Chart – 2012 Annual Average

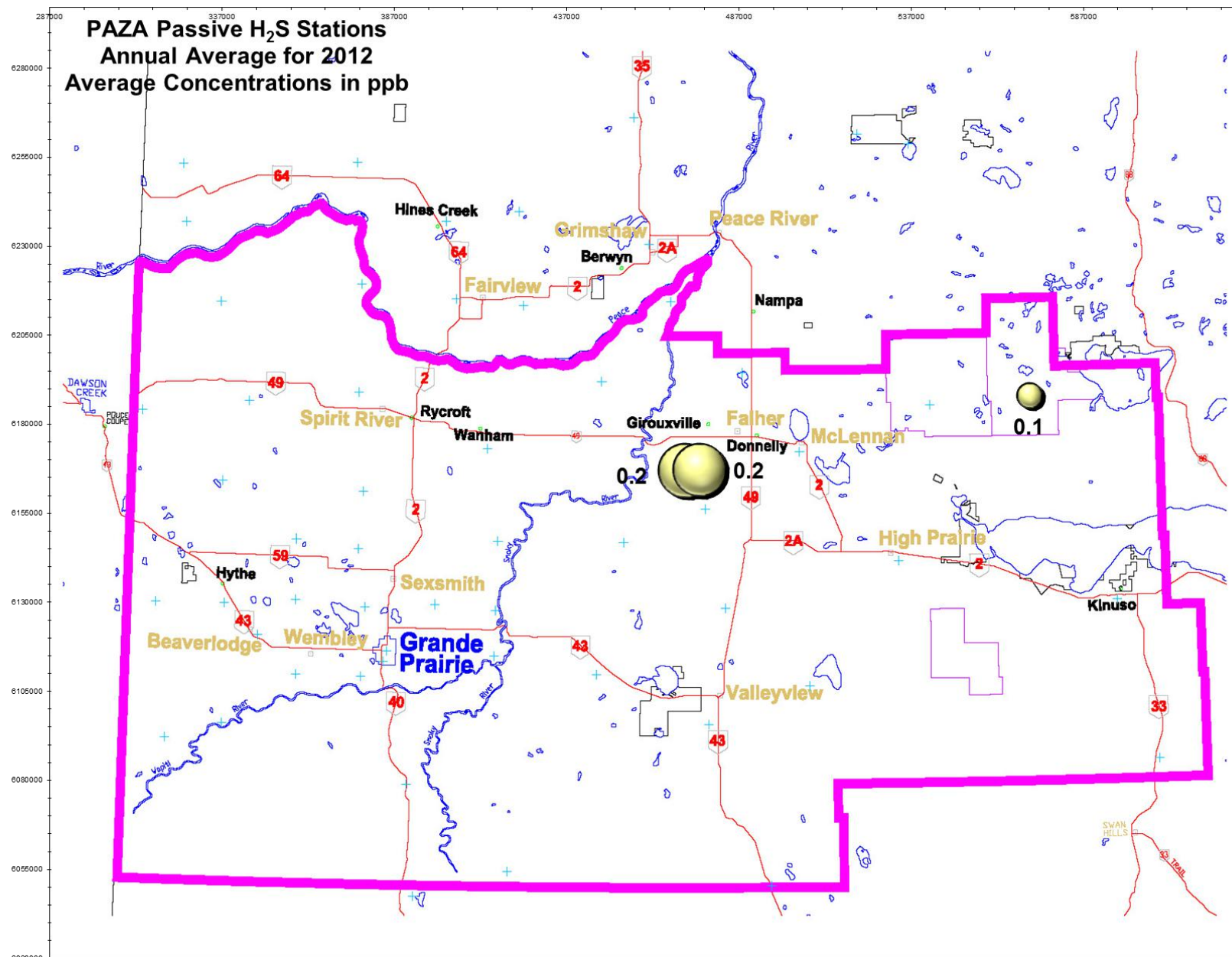


Figure 12. PAZA H₂S Bubble Chart – 2012 Annual Average