



Parkland AirShed Management Zone

Air Quality Monitoring Program 2008 Annual Summary

Prepared by
FOCUS
AIR QUALITY MONITORING



PARKLAND AIRSHED MANAGEMENT ZONE

Box 1020, SUNDRE, ALBERTA, CANADA, T0M 1X0 pamz@pamz.org

March 10, 2009

Enforcement and Monitoring Division
Alberta Environment
11th floor, Oxbridge Place
9820-106 Street
Edmonton, Alberta
T5K 2J6

Attn: Shahin Manji

Re: Parkland Airshed Management Zone - Annual Summary Report - 2008

Enclosed is the Parkland Airshed Management Zone's (PAMZ) Annual Summary Report for 2008. This report summarizes the data collected by the PAMZ Continuous and Passive Air Quality Monitoring (AQM) Networks during 2008 in the formats required in the Air Monitoring Directive (AMD), specifically Section III C 2a, 2b, 2c, 2d, and 2e.

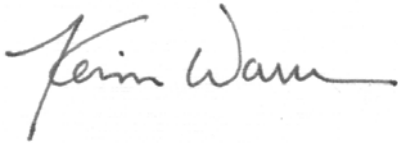
This summary report is submitted by PAMZ on behalf of the following Member Companies' Facilities to help satisfy their annual reporting requirements as outlined in the AMD:

Company	Facility	Approval No.
BP Canada Energy Company	North Caroline	10158-01-00
BP Canada Energy Company	South Caroline	1071-01-00
Bonavista Petroleum Limited	Carstairs-Crossfield	351-02-00
Bonavista Petroleum Limited	South Elkton	1774-01-00
Canetic Resources Trust	West Gilby	11437-01-00
Conoco Phillips Canada Limited	Medicine River	381-01-00
Harmattan Gas Processing L.P.	Harmattan	10154-02-01
Husky Oil Operations Limited	Ram River	57-01-00
Imperial Oil Resources Limited	Wilson Creek	10264-01-00
Keyera Energy Limited	Gilby	1333-02-00
Keyera Energy Limited	Crossfield-Carstairs	865-01-00
Keyera Energy Limited	Strachan	1351-01-00
ExxonMobil Oil Canada Limited	Lone Pine	11341-01-00
NAL Resources	Sylvan Lake	249-01-00
Penn West Petroleum Limited	Wimborne	359-01-00
PetroCanada	East Gilby	1717-02-00
Shell Canada Limited	Burnt Timber	295-01-00
Shell Canada Limited	Shantz	11379-01-00
Shell Canada Limited	Caroline	11323-01-00
Spectra Energy Corporation	Nevis	261-01-00

This summary report pertains specifically to the PAMZ AQM Program. Member companies will also be submitting, under separate cover, Annual Summary Information to AENV as per AMD Section III C 2f, 2g, 3(all), 4(all) and 5(all) where applicable.

Should you have any questions concerning this report please contact the undersigned at your convenience (403) 238-6640.

Sincerely,

A handwritten signature in black ink that reads "Kevin Warren". The signature is written in a cursive style with a long horizontal stroke at the end.

Kevin Warren
Executive Director, PAMZ

**Parkland AirShed Management Zone
Air Quality Monitoring Program
2008 Annual Summary**

Table of Contents

	Page
1. SO₂ Frequency & Exceedence Summary Tables	
1.1 Bechton	2
1.2 Bighorn Reserve	3
1.3 Caroline	4
1.4 Crossfield – Carstairs	5
1.5 James River – Kelley	6
1.6 Morningside	7
1.7 Niobe	8
1.8 Olds College	9
1.9 Red Deer – Edgar Industrial Park	10
1.10 Red Deer Riverside	11
1.11 Rocky Mountain House – Bruns	12
2. TRS & H₂S Frequency & Exceedence Summary Tables	
2.1 Bechton	14
2.2 Bighorn Reserve	15
2.3 Caroline	16
2.4 Crossfield – Carstairs	17
2.5 James River – Kelley	18
2.6 Morningside	19
2.7 Niobe	20
2.8 Olds College	21
2.9 Red Deer – Edgar Industrial Park	22
2.10 Red Deer Riverside	23
2.11 Rocky Mountain House – Bruns	24
3. NO₂ Frequency & Exceedence Summary Tables	
3.1 Bechton	26
3.2 Bighorn Reserve	27
3.3 Caroline	28
3.4 Crossfield – Carstairs	29
3.5 James River – Kelley	30
3.6 Morningside	31
3.7 Niobe	32
3.8 Olds College	33
3.9 Red Deer – Edgar Industrial Park	34
3.10 Red Deer Riverside	35
3.11 Rocky Mountain House – Bruns	36

4.	PM_{2.5} Frequency & Exceedence Tables	
4.1	Behton	38
4.2	Bighorn Reserve	39
4.3	Caroline	40
4.4	Crossfield – Carstairs	41
4.5	James River – Kelley	42
4.6	Morningside	43
4.7	Niobe	44
4.8	Olds College	45
4.9	Red Deer – Edgar Industrial Park	46
4.10	Red Deer Riverside	47
4.11	Rocky Mountain House – Bruns	48
5.	Wind Data Summary Tables & Wind Roses	
5.1	Behton	50
5.2	Bighorn Reserve	52
5.3	Caroline	54
5.4	Crossfield – Carstairs	56
5.5	James River – Kelley	58
5.6	Morningside	60
5.7	Niobe	62
5.8	Olds College	64
5.9	Red Deer – Edgar Industrial Park	66
5.10	Red Deer Riverside	68
5.11	Rocky Mountain House – Bruns	70
6.	Passive Monitoring Program	
6.1	SO ₂ Results	73
6.2	SO ₂ Post Map	74
6.3	SO ₂ Isopleth Map	75
6.4	SO ₂ Contour Map	76
6.5	NO ₂ Results	77
6.6	NO ₂ Post Map	78
6.7	NO ₂ Isopleth Map	79
6.8	NO ₂ Contour Map	80
6.9	O ₃ Results	81
6.10	O ₃ Post Map	82
6.11	O ₃ Isopleth Map	83
6.12	O ₃ Contour Map	84

1.

SO₂ Frequency & Exceedence Summary Tables

1.1 Parkland Airshed Management Zone – Bechton SO₂ Sulphur Dioxide (ppb)

Bechton SO ₂ (ppb) 2008															
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															
February	614	0.5	2.0	Feb 20	8.0	Feb 20 10:00	100.0	0	0	100	0	0	0	0	0
March															
April															
May															
June															
July															
August															
September															
October	637	0.4	0.9	Oct 27	6.6	Oct 29 16:00	89.4	0	0	100	0	0	0	0	0
November															
December															
Annual	1251	0.5	2.0	Feb 20	8.0	Feb 20 10:00	94.7	0	0	100.00	0.00	0	0	0	0

1.2 Parkland Airshed Management Zone – Bighorn Reserve SO₂ Sulphur Dioxide (ppb)

Bighorn Reserve															SO ₂ (ppb)	2008
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																
February																
March																
April																
May	660	0.1	0.8	May 03	1.0	May 03 06:00	97.9	0	0	100	0	0	0	0	0	
June	727	0.1	0.6	Jun 23	3.0	Jun 30 12:00	100.0	0	0	100	0	0	0	0	0	
July																
August																
September	782	0.3	0.8	Aug 30	3.6	Sep 19 18:00	96.8	0	0	100	0	0	0	0	0	
October																
November																
December																
Annual	2169	0.2	0.8	May 03	3.6	Sep 19 18:00	98.2	0	0	100.00	0.00	0	0	0	0	

1.3 Parkland Airshed Management Zone – Caroline SO₂ Sulphur Dioxide (ppb)

Caroline															2008
SO ₂ (ppb)															
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	705	0.6	3.7	Jan 31	13.0	Jan 04 19:00	100.0	0	0	100	0	0	0	0	0
February	664	1.1	4.2	Feb 23	19.0	Feb 23 18:00	100.0	0	0	100	0	0	0	0	0
March	709	0.9	6.3	Mar 13	114.0	Mar 13 04:00	100.0	0	0	99.86	0	0	0.14	0	0
April	688	0.7	1.5	Apr 21	15.0	Apr 22 02:00	100.0	0	0	100	0	0	0	0	0
May	707	0.8	5.4	May 13	47.0	May 13 13:00	100.0	0	0	99.86	0.14	0	0	0	0
June	684	1.2	3.8	Jun 07	9.0	Jun 09 10:00	100.0	0	0	100	0	0	0	0	0
July	703	0.8	2.0	Jul 23	13.0	Jul 23 10:00	98.5	0	0	100	0	0	0	0	0
August	674	0.5	1.5	Aug 07	5.0	Aug 18 15:00	94.4	0	0	100	0	0	0	0	0
September	480	1.0	1.7	Sep 23	15.9	Sep 23 20:00	69.9	0	0	100	0	0	0	0	0
October	708	0.8	2.1	Oct 07	13.6	Oct 30 17:00	100.0	0	0	100	0	0	0	0	0
November	684	0.5	2.7	Nov 03	13.8	Nov 03 17:00	99.7	0	0	100	0	0	0	0	0
December	709	0.8	4.8	Dec 10	52.7	Dec 10 02:00	100.0	0	0	99.72	0.28	0	0	0	0
Annual	8104	0.8	6.3	Mar 13	114.0	Mar 13 04:00	96.9	0	0	99.95	0.04	0	0	0	0

1.4 Parkland Airshed Management Zone – Crossfield - Carstairs SO₂ Sulphur Dioxide (ppb)

Crossfield - Carstairs															2008
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	618	1.0	4.0	Jan 1	11.0	Jan 1 15:00	99.7	0	0	100	0	0	0	0	0
February	663	1.4	5.7	Feb 4	22.0	Feb 23 18:00	100.0	0	0	99.85	0.15	0	0	0	0
March	708	0.5	2.4	Mar 23	8.0	Mar 23 13:00	100.0	0	0	100	0	0	0	0	0
April	167	0.3	0.9	Apr 5	3.0	Apr 5 16:00	100.0	0	0	100	0	0	0	0	0
May															
June															
July															
August															
September															
October															
November															
December															
Annual	2156	0.8	4.0	Feb 01	11.0	Feb 1 15:00	99.9	0	0	99.96	0.04	0	0	0	0

1.5 Parkland Airshed Management Zone – James River – Kelley SO₂ Sulphur Dioxide (ppb)

James River															SO ₂ (ppb)	2008
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	618	1.0	4.0	Feb 01	11.0	Feb 1 15:00	99.7	0	0	100	0	0	0	0	0	
February																
March																
April																
May																
June																
July																
August	289	0.0	0.0	Aug 13	0.0	Aug 13 22:00	100.0	0	0	100	0	0	0	0	0	
September																
October																
November																
December																
Annual	907	0.5	4.0	Feb 01	11.0	Feb 1 15:00	99.8	0	0	100.00	0.00	0	0	0	0	

1.6 Parkland Airshed Management Zone – Morningside SO₂ Sulphur Dioxide (ppb)

Morningside															SO ₂ (ppb)	2008
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																
February																
March																
April																
May																
June																
July																
August																
September																
October	444	0.5	1.3	Oct 29	3.6	Oct 29 23:00	100.0	0	0	100	0	0	0	0	0	
November	686	0.5	2.9	Nov 4	36.7	Nov 4 14:00	100.0	0	0	99.85	0.15	0	0	0	0	
December	708	0.8	2.5	Dec 31	5.2	Dec 29 17:00	100.0	0	0	100	0	0	0	0	0	
Annual	1838	0.6	2.9	Nov 4	36.7	Nov 4 14:00	100.0	0	0	99.95	0.05	0	0	0	0	

1.7 Parkland Airshed Management Zone – Niobe SO₂ Sulphur Dioxide (ppb)

Niobe															2008
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															
February															
March	563	0.5	1.1	Mar 20	4.0	Mar 20 10:00	100.0	0	0	100	0	0	0	0	0
April	692	0.3	1.0	Apr 17	4.0	Apr 13 05:00	99.2	0	0	100	0	0	0	0	0
May															
June															
July															
August															
September															
October															
November	592	0.7	1.5	Nov 30	3.6	Nov 7 13:00	96.3	0	0	100	0	0	0	0	0
December															
Annual	1847	0.5	1.5	Nov 30	4.0	Mar 20 10:00	98.5	0	0	100.00	0.00	0	0	0	0

1.8 Parkland Airshed Management Zone – Olds College SO₂ Sulphur Dioxide (ppb)

Olds College											SO ₂ (ppb)					2008
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																
February																
March																
April	494	0.5	1.9	Apr 13	6.0	Apr 13 7:00	100.0	0	0	100	0	0	0	0	0	
May	449	0.3	1.2	May 5	7.0	May 7 10:00	64.0	0	0	100	0	0	0	0	0	
June	690	0.2	1.0	Jun 28	8.0	Jun 28 9:00	100.0	0	0	100	0	0	0	0	0	
July	649	0.5	1.8	Jul 29	9.0	Jul 3 10:00	100.0	0	0	100	0	0	0	0	0	
August																
September																
October																
November																
December																
Annual	8344	0.3	1.9	Apr 13	9.0	Jul 3 10:00	91.0	0	0	100	0	0	0	0	0	

1.9 Parkland Airshed Management Zone – Red Deer – Edgar Industrial Park SO₂ Sulphur Dioxide (ppb)

Red Deer - Edgar Industrial Park											SO ₂ (ppb)					2008
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																
February																
March																
April																
May																
June																
July	797	0.0	0.0	Jul 8	0.0	Jul 8 01:00	86.7	0	0	100	0	0	0	0	0	
August																
September																
October																
November																
December	728	1.3	2.7	Dec 30	18.4	Dec 30 13:00	100.0	0	0	100	0	0	0	0	0	
Annual	1525	0.7	2.7	Dec 30	18.4	Dec 30 13:00	93.3	0	0	100.00	0.00	0	0	0	0	

1.10 Parkland Airshed Management Zone – Red Deer Riverside SO₂ Sulphur Dioxide (ppb)

Red Deer Riverside															SO ₂ (ppb)					2008
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	707	0.9	2.4	Jan 28	12.0	Jan 28 13:00	99.6	0	0	100	0	0	0	0	0					
February	661	0.9	2.7	Feb 07	9.0	Feb 07 17:00	100.0	0	0	100	0	0	0	0	0					
March	709	0.3	1.0	Mar 16	2.0	Mar 02 06:00	100.0	0	0	100	0	0	0	0	0					
April	687	0.3	1.0	Apr 02	6.0	Apr 25 12:00	100.0	0	0	100	0	0	0	0	0					
May	707	0.2	1.0	May 14	2.0	May 07 11:00	100.0	0	0	100	0	0	0	0	0					
June	685	0.1	0.9	Jun 25	2.0	Jun 30 09:00	100.0	0	0	100	0	0	0	0	0					
July	704	0.1	0.4	Jul 12	3.0	Jul 08 09:00	99.9	0	0	100	0	0	0	0	0					
August	705	0.3	1.1	Aug 23	9.0	Aug 23 13:00	99.6	0	0	100	0	0	0	0	0					
September	686	0.2	0.5	Sep 26	2.4	Sep 26 13:00	100.0	0	0	100	0	0	0	0	0					
October	710	0.4	1.0	Oct 28	2.9	Oct 18 08:00	100.0	0	0	100	0	0	0	0	0					
November	688	0.6	1.2	Nov 21	2.1	Nov 04 12:00	100.0	0	0	100	0	0	0	0	0					
December	712	0.6	5.8	Dec 11	113.6	Dec 11 11:00	100.0	0	0	99.86	0	0	0.14	0	0					
Annual	8350	0.4	5.8	Dec 11	113.6	Dec 11 11:00	99.9	0	0	99.99	0.00	0	0	0	0					

1.11 Parkland Airshed Management Zone – Rocky Mountain House - Bruns SO₂ Sulphur Dioxide (ppb)

Rocky Mountain House - Bruns											SO ₂ (ppb)					2008
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																
February																
March																
April																
May																
June																
July																
August	637	1.0	4.0	Aug 09	14.0	Aug 09 20:00	90.5	0	0	100	0	0	0	0	0	
September	853	0.9	1.9	Sep 17	5.0	Sep 17 19:00	98.5	0	0	100	0	0	0	0	0	
October																
November																
December																
Annual	1490	1.0	4.0	Aug 09	14.0	Aug 09 20:00	94.5	0	0	100.00	0.00	0	0	0	0	

2.

TRS & H₂S Frequency & Exceedence Summary Tables

2.1 Parkland Airshed Management Zone – Bechton TRS Total Reduced Sulphide (ppb)

Bechton TRS (ppb) 2008															
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															
February	614	0.3	1.0	Feb 21	2.0	Feb 8 15:00	100.0	0	0	99.83	0.17	0	0	0	0
March															
April															
May															
June															
July															
August															
September															
October	633	0.4	2.4	Oct 4	8.1	Oct 4 02:00	90.7	0	0	96.04	1.58	2.22	0	0.16	0
November															
December															
Annual	1247	0.4	2.4	Oct 4	8.1	Oct 4 02:00	95.4	0	0	97.94	0.88	1.11	0	0	0

2.3 Parkland Airshed Management Zone – Caroline TRS Total Reduced Sulphide (ppb)

Caroline															2008
TRS (ppb)															
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	698	0.4	1.0	Jan 02	2.0	Jan 24 01:00	100.0	0	0	55.3	44.7	0	0	0	0
February	664	0.0	0.6	Feb 10	1.0	Feb 10 11:00	100.0	0	0	96.69	3.31	0	0	0	0
March	709	0.6	1.0	Mar 11	2.0	Mar 11 18:00	100.0	0	0	38.79	61.21	0	0	0	0
April	688	0.5	1.1	Apr 13	2.0	Apr 13 16:00	100.0	0	0	46.37	53.63	0	0	0	0
May	707	0.5	1.0	May 12	3.0	May 15 12:00	100.0	0	0	49.79	50.07	0.14	0	0	0
June	682	0.5	1.2	Jun 06	4.0	Jun 07 02:00	100.0	0	0	54.25	45.6	0.15	0	0	0
July	625	0.7	1.0	Jul 13	4.0	Jul 07 13:00	88.1	0	0	34.4	65.12	0.48	0	0	0
August	551	0.7	1.1	Aug 18	2.0	Aug 07 18:00	77.3	0	0	33.39	66.61	0	0	0	0
September	463	0.6	0.7	Sep 13	3.3	Sep 12 20:00	69.6	0	0	87.47	11.88	0.65	0	0	0
October	710	0.5	0.8	Oct 01	3.0	Oct 07 16:00	100.0	0	0	94.93	4.79	0.28	0	0	0
November	671	0.5	1.0	Nov 03	3.1	Nov 03 04:00	99.6	0	0	95.38	4.32	0.3	0	0	0
December	711	0.6	1.1	Dec 10	7.5	Dec 10 01:00	100.0	0	0	97.05	2.67	0	0.28	0	0
Annual	7879	0.5	1.2	Jun 06	7.5	Dec 10 01:00	94.5	0	0	65.3	34.5	0.2	0.0	0.0	0.0

2.4 Parkland Airshed Management Zone – Crossfield - Carstairs TRS Total Reduced Sulphide (ppb)

Crossfield - Carstairs															2008
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	618	0.4	1.4	Jan 21	3.0	Jan 30 13:00	99.7	0	0	97.41	2.43	0.16	0	0	0
February	663	0.7	2.0	Feb 2	3.0	Feb 2 22:00	100.0	0	0	93.07	6.63	0.3	0	0	0
March	708	0.4	1.0	Mar 3	2.0	Mar 3 21:00	100.0	0	0	99.86	0.14	0	0	0	0
April	167	0.3	0.7	Apr 8	1.0	Apr 1 01:00	100.0	0	0	100	0	0	0	0	0
May															
June															
July															
August															
September															
October															
November															
December															
Annual	2156	0.5	1.4	Jan 21	3.0	Jan 30 13:00	99.9	0	0	97.59	2.30	0.12	0.00	0.00	0

2.5 Parkland Airshed Management Zone – James River – Kelley TRS Total Reduced Sulphide (ppb)

James River - Kelley															2008
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	618	0.4	1.4	Jan 21	3.0	Jan 30 13:00	99.7	0	0	97.41	2.43	0.16	0	0	0
February															
March															
April															
May															
June															
July															
August	289	0.7	1.3	Aug 19	2.0	Aug 19 16:00	100.0	0	0	96.88	3.12	0	0	0	0
September															
October															
November															
December															
Annual	907	0.6	1.4	Jan 21	3.0	Jan 30 13:00	99.9	0	0	97.15	2.78	0.08	0	0	0

2.6 Parkland Airshed Management Zone – Morningside TRS Total Reduced Sulphide (ppb)

Morningside TRS (ppb) 2008															
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															
February															
March															
April															
May															
June															
July															
August															
September															
October	443	0.4	0.7	Oct 29	1.8	Oct 31 12:00	90.7	0	0	99.77	0.23	0	0	0	0
November	687	0.5	0.9	Nov 24	1.3	Nov 24 17:00	100.0	0	0	100	0	0	0	0	0
December	708	0.5	1.3	Dec 31	1.9	Dec 31 10:00	100.0	0	0	98.73	1.27	0	0	0	0
Annual	1838	0.5	1.3	Dec 31	1.9	Dec 31 10:00	96.9	0	0	99.50	0.50	0	0	0	0

2.7 Parkland Airshed Management Zone – Niobe TRS Total Reduced Sulphide (ppb)

Niobe TRS (ppb) 2008															
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															
February															
March	563	0.3	0.9	Mar 17	1.0	Mar 09 08:00	100.0	0	0	100	0	0	0	0	0
April	694	0.4	1.0	Apr 20	1.0	Apr 1 05:00	99.5	0	0	100	0	0	0	0	0
May															
June															
July															
August															
September															
October															
November	592	0.4	1.2	Dec 01	2.2	Nov 27 20:00	96.3	0	0	98.31	1.69	0	0	0	0
December															
Annual	1849	0.4	1.2	Dec 01	2.2	Nov 27 20:00	98.6	0	0	99.44	0.56	0	0	0	0

2.8 Parkland Airshed Management Zone – Olds College TRS Total Reduced Sulphide (ppb)

Olds College															2008
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							
February															
March															
April	494	0.4	1.0	Apr 17	1.0	Apr 1 14:00	100.0	0	0	100	0	0	0	0	
May	449	0.4	1.0	May 5	1.0	May 1 03:00	64.0	0	0	100	0	0	0	0	
June	690	0.4	1.0	Jun 18	1.0	Jun 1 03:00	100.0	0	0	100	0	0	0	0	
July	649	0.4	1.0	Jul 26	1.0	Jul 1 01:00	100.0	0	0	100	0	0	0	0	
August															
September															
October															
November															
December															
Annual	2282	0.4	1.0	Apr 17	1.0	Apr 1 14:00	91.0	0	0	100.00	0.00	0	0	0	

2.9 Parkland Airshed Management Zone – Red Deer – Edgar Industrial Park TRS Total Reduced Sulphide (ppb)

Red Deer - Edgar Industrial Park														TRS (ppb)		2008	
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																	
February																	
March																	
April																	
May																	
June																	
July	797	1.2	2.2	Jul 21	6.0	Jul 20 22:00	86.7	0	0	77.55	17.81	4.51	0.13	0	0		
August																	
September																	
October																	
November																	
December	748	1.4	3.2	Dec 30	22.3	Dec 30 13:00	100.0	0	3	64.84	26.34	8.02	0.4	0	0.4		
Annual	1545	1.3	3.2	Dec 30	22.3	Dec 30 13:00	93.3	0	3	71.20	22.08	6.27	0	0	0		

2.10 Parkland Airshed Management Zone – Red Deer Riverside H₂S Hydrogen Sulphide (ppb)

Red Deer Riverside															H ₂ S (ppb)		2008	
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	707	0.6	1.5	Jan 09	2.0	Jan 02 11:00	99.6	0	0	46.25	53.75	0	0	0	0			
February	661	0.7	1.2	Feb 03	3.0	Feb 07 10:00	100.0	0	0	39.18	60.67	0.15	0	0	0			
March	709	0.4	1.1	Mar 09	4.0	Mar 09 01:00	100.0	0	0	66.85	32.58	0.56	0	0	0			
April	687	0.3	1.0	Apr 09	2.0	Apr 08 01:00	100.0	0	0	68.12	31.88	0	0	0	0			
May	707	0.3	1.0	May 12	6.0	May 26 03:00	100.0	0	0	72.7	27.16	0	0.14	0	0			
June	685	0.3	1.1	Jun 28	4.0	Jun 29 06:00	100.0	0	0	75.91	23.5	0.58	0	0	0			
July	705	0.5	1.2	Jul 29	5.0	Jul 31 07:00	99.9	0	0	57.59	41.42	0.85	0.14	0	0			
August	705	0.5	1.2	Aug 01	4.0	Aug 11 07:00	99.6	0	0	61.13	37.3	1.56	0	0	0			
September	687	0.5	1.2	Sep 19	6.1	Sep 19 06:00	100.0	0	0	90.39	8.88	0.58	0.15	0	0			
October	711	0.5	1.2	Oct 28	3.4	Nov 01 00:00	100.0	0	0	90.86	8.72	0.42	0	0	0			
November	689	0.6	1.1	Nov 09	2.6	Nov 04 11:00	100.0	0	0	91.15	8.56	0.29	0	0	0			
December	711	0.8	1.8	Dec 27	3.7	Dec 27 19:00	100.0	0	0	78.62	20.96	0.42	0	0	0			
Annual	8353	0.5	1.8	Dec 27	6.1	Sep 19 06:00	99.9	0	0	70.01	29.50	0	0	0	0			

2.11 Parkland Airshed Management Zone – Rocky Mountain House - Bruns TRS Total Reduced Sulphide (ppb)

Rocky Mountain House - Bruns															2008
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															
February															
March															
April															
May															
June															
July															
August	706	0.3	1.0	Aug 15	2.0	Aug 24 19:00	100.0	0	0	99.85	0.15	0	0	0	0
September	859	0.5	0.9	Oct 7	3.3	Sep 24 09:00	100.0	0	0	99.64	0.24	0.12	0	0	0
October															
November															
December															
Annual	1565	0.4	1.0	Aug 15	3.3	Sep 24 09:00	100.0	0	0	99.75	0.20	0.06	0.00	0	0

3.

NO₂ Frequency & Exceedence Summary Tables

3.1 Parkland Airshed Management Zone – Bechtou NO₂ Nitrogen Dioxide (ppb)

Bechtou NO ₂ (ppb) 2008														
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	612	2.7	6.8	Feb 27	14.0	Feb 29 01:00	100.0	0	0	100	0	0	0	0
March														
April														
May														
June														
July														
August														
September														
October	634	4.5	10.1	Oct 27	25.8	Oct 27 22:00	89.4	0	0	99.84	0.16	0	0	0
November														
December														
Annual	1246	3.6	10.1	Oct 27	25.8	Oct 27 22:00	94.7	0	0	99.92	0.08	0	0	0

3.2 Parkland Airshed Management Zone – Bighorn Reserve NO₂ Nitrogen Dioxide (ppb)

Bighorn Reserve											NO ₂ (ppb)					2008
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																
March																
April																
May	656	0.1	0.6	May 09	2.0	May 06 09:00	97.9	0	0	100	0	0	0	0		
June	758	0.2	0.9	Jul 02	4.0	Jul 01 05:00	99.9	0	0	100	0	0	0	0		
July																
August																
September	786	0.7	1.4	Sep 19	9.4	Sep 03 11:00	97.6	0	0	100	0	0	0	0		
October																
November																
December																
Annual	2200	0.3	1.4	Sep 19	9.4	Sep 03 11:00	98.5	0	0	100.00	0.00	0	0	0		

3.3 Parkland Airshed Management Zone – Caroline NO₂ Nitrogen Dioxide (ppb)

Caroline														
NO ₂ (ppb)														2008
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	707	5.3	13.9	Jan 24	31.0	Jan 25 02:00	100.0	0	0	99.15	0.85	0	0	0
February	661	4.3	14.5	Feb 01	26.0	Feb 02 02:00	100.0	0	0	99.7	0.3	0	0	0
March	707	2.2	4.0	Mar 14	10.0	Mar 06 20:00	100.0	0	0	100	0	0	0	0
April	685	1.5	2.9	Apr 07	7.0	Apr 03 04:00	100.0	0	0	100	0	0	0	0
May	703	2.0	3.1	May 24	11.0	May 04 05:00	100.0	0	0	100	0	0	0	0
June	682	2.0	3.2	Jun 28	6.0	Jun 01 04:00	100.0	0	0	100	0	0	0	0
July	700	2.0	3.0	Jul 03	6.0	Jul 03 20:00	99.5	0	0	100	0	0	0	0
August	551	2.5	4.0	Aug 09	13.0	Aug 09 02:00	77.3	0	0	100	0	0	0	0
September	463	3.2	5.7	Sep 20	12.1	Sep 20 02:00	69.8	0	0	100	0	0	0	0
October	703	3.2	9.5	Oct 31	20.8	Oct 27 21:00	100.0	0	0	100	0	0	0	0
November	680	3.5	7.0	Nov 10	17.4	Nov 06 18:00	99.7	0	0	100	0	0	0	0
December	708	4.1	11.0	Dec 08	19.5	Dec 29 18:00	100.0	0	0	100	0	0	0	0
Annual	7940	3.0	14.5	Feb 01	31.0	Jan 25 02:00	95.6	0	0	99.90	0.10	0	0	0

3.4 Parkland Airshed Management Zone – Crossfield - Carstairs NO₂ Nitrogen Dioxide (ppb)

Crossfield - Carstairs														NO ₂ (ppb)		2008	
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	618	5.1	14.3	Jan 01	29.0	Jan 25 03:00	99.4	0	0	99.67	0.33	0	0	0			
February	661	9.8	22.5	Feb 04	45.0	Feb 14 21:00	100.0	0	0	93.95	6.05	0	0	0			
March	628	3.6	8.1	Mar 31	26.0	Mar 10 09:00	88.8	0	0	99.84	0.16	0	0	0			
April	167	4.7	5.5	Apr 04	26.0	Apr 1 21:00	100.0	0	0	98.80	1.20	0	0	0			
May																	
June																	
July																	
August																	
September																	
October																	
November																	
December																	
Annual	2074	5.8	14.3	Feb 01	29.0	Jan 25 03:00	97.1	0	0	98.07	1.94	0	0	0			

3.5 Parkland Airshed Management Zone – James River – Kelley NO₂ Nitrogen Dioxide (ppb)

James River - Kelley														NO ₂ (ppb)		2008
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	618	5.1	14.3	Feb 01	29.0	Jan 25 03:00	99.4	0	0	99.67	0.33	0	0	0		
February																
March																
April																
May																
June																
July																
August	134	2.0	3.7	Aug 23	9.0	Aug 23 23:00	47.5	0	0	100	0	0	0	0		
September																
October																
November																
December																
Annual	752	3.6	14.3	Feb 01	29.0	Jan 25 03:00	73.4	0	0	99.84	0.17	0	0	0		

3.6 Parkland Airshed Management Zone – Morningside NO₂ Nitrogen Dioxide (ppb)

Morningside															NO ₂ (ppb)					2008
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																				
March																				
April																				
May																				
June																				
July																				
August																				
September																				
October	486	3.2	9.4	Oct 28	15.0	Oct 28 18:00	99.2	0	0	100	0	0	0	0						
November	685	6.3	13.5	Nov 27	24.2	Nov 28 227:00	100.0	0	0	100	0	0	0	0						
December	702	7.8	19.4	Dec 24	32.1	Dec 17 01:00	99.6	0	0	95.73	4.27	0.3	0	0						
Annual	1873	5.7	19.4	Dec 24	32.1	Dec 17 01:00	99.6	0	0	98.58	1.42	0	0	0						

3.7 Parkland Airshed Management Zone – Niobe NO₂ Nitrogen Dioxide (ppb)

Niobe NO ₂ (ppb) 2008														
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														
March	559	5.6	9.5	Mar 07	34.0	Mar 18 08:00	100.0	0	0	99.28	0.72	0	0	0
April	694	4.1	7.7	Apr 9	23.0	Apr 11 21:00	99.5	0	0	100	0	0	0	0
May														
June														
July														
August														
September														
October														
November	590	7.3	11.7	Nov 27	23.7	Nov 7 18:00	96.3	0	0	100	0	0	0	0
December														
Annual	1843	5.7	11.7	Nov 27	34.0	Mar 18 08:00	98.6	0	0	99.76	0.24	0	0	0

3.8 Parkland Airshed Management Zone – Olds College NO₂ Nitrogen Dioxide (ppb)

Olds College															NO ₂ (ppb)					2008
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																				
March																				
April	493	5.6	10.2	Apr 11	31.0	Apr 17 04:00	100.0	0	0	98.79	1.21	0	0	0						
May	451	5.3	8.6	May 3	22.0	May 3 23:00	64.4	0	0	100	0	0	0	0						
June	690	4.2	9.1	Jun 03	22.0	Jun 14 23:00	100.0	0	0	100	0	0	0	0						
July	648	4.2	6.7	Jul 29	15.0	Jul 11 22:00	98.8	0	0	100	0	0	0	0						
August																				
September																				
October																				
November																				
December																				
Annual	2282	4.8	10.2	Apr 11	31.0	Apr 17 04:00	90.8	0	0	99.70	0.30	0	0	0						

3.9 Parkland Airshed Management Zone – Red Deer – Edgar Industrial Park NO₂ Nitrogen Dioxide (ppb)

Red Deer - Edgar Industrial Park											NO ₂ (ppb)					2008
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																
March																
April																
May																
June																
July	792	8.7	15.1	Jul 30	55.0	Jul 30 08:00	86.0	0	0	97.98	1.89	0.13	0	0		
August																
September																
October																
November																
December	727	22.7	52.4	Dec 30	334.4	Dec 30 13:00	100.0	0	2	65.76	31.36	2.60	0	0.28		
Annual	1519	15.7	52.4	Dec 30	334.4	Dec 30 13:00	93.0	0	2	81.87	16.63	1	0	0		

3.10 Parkland Airshed Management Zone – Red Deer Riverside NO₂ Nitrogen Dioxide (ppb)

Red Deer Riverside														NO ₂ (ppb)		2008
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	705	20.5	35.7	Jan 26	56.0	Jan 02 12:00	99.6	0	0	58.01	41.84	0.14	0	0		
February	662	23.8	35.6	Feb 11	50.0	Feb 15 18:00	100.0	0	0	51.21	48.64	0.15	0	0		
March	706	11.4	21.9	Mar 10	40.0	Mar 03 12:00	99.6	0	0	86.69	13.31	0	0	0		
April	685	8.6	13.3	Apr 11	47.0	Apr 23 08:00	100.0	0	0	96.93	3.07	0	0	0		
May	704	7.1	13.3	May 05	32.0	May 05 08:00	100.0	0	0	99.15	0.85	0	0	0		
June	676	5.0	9.6	Jun 04	23.0	Jun 04 09:00	99.6	0	0	100	0	0	0	0		
July	700	5.3	8.0	Jul 18	17.0	Jul 04 08:00	99.6	0	0	100	0	0	0	0		
August	704	6.3	10.3	Aug 28	26.0	Aug 08 09:00	99.6	0	0	99.72	0.28	0	0	0		
September	686	8.5	17.7	Sep 18	28.1	Sep 18 11:00	100.0	0	0	99.42	0.58	0	0	0		
October	709	11.5	24.9	Oct 28	34.3	Oct 21 08:00	100.0	0	0	95.35	4.65	0	0	0		
November	687	12.7	26.5	Nov 25	38.3	Nov 25 17:00	100.0	0	0	89.96	10.04	0	0	0		
December	705	14.7	35.1	Dec 27	41.2	Dec 27 15:00	100.0	0	0	78.16	21.84	0	0	0		
Annual	8318	11.3	35.7	Jan 26	56.0	Jan 02 12:00	99.8	0	0	87.97	12.01	0	0	0		

3.11 Parkland Airshed Management Zone – Rocky Mountain House - Bruns NO₂ Nitrogen Dioxide (ppb)

Rocky Mountain House Bruns											NO ₂ (ppb)					2008
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																
March																
April																
May																
June																
July																
August	703	7.9	13.1	Aug 18	27.0	Aug 24 21:00	100.0	0	0	99.71	0.29	0	0	0		
September	839	8.3	15.1	Oct 3	29.4	Sep 17 23:00	98.7	0	0	99.40	0.60	0	0	0		
October																
November																
December																
Annual	1542	8.1	15.1	Oct 3	29.4	Sep 17 23:00	99.4	0	0	99.56	0.45	0	0	0		

4.

PM_{2.5} Frequency & Exceedence Summary Tables

4.1 Parkland Airshed Management Zone – Bechton PM_{2.5} Particulate Matter 2.5 (µg/m³)

Bechton PM _{2.5} (µg/m ³)															2008
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															
February	603	4.4	12.5	Feb 22	18.0	Feb 18 15:00	92.6	0	0	34.83	39.14	16.75	5.47	0.17	0
March															
April															
May															
June															
July															
August															
September															
October	692	3.1	7.1	Oct 3	53.2	Oct 30 20:00	90.1	0	0	52.46	39.65	6.89	0.43	0.14	0.43
November															
December															
Annual	1295	3.7	12.5	Feb 22	53.2	Oct 30 20:00	91.3	0	0	43.65	39.40	11.82	2.95	0.16	0.22

4.2 Parkland Airshed Management Zone – Bighorn Reserve PM_{2.5} Particulate Matter 2.5 (µg/m³)

Bighorn Reserve											PM _{2.5} (µg/m ³)					2008	
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																	
February																	
March																	
April																	
May	584	3.6	9.4	May 17	25.0	May 17 23:00	81.9	0	0	58.73	26.54	7.7	2.57	1.2	0		
June	683	3.8	6.9	Jun 02	25.0	Jun 16 21:00	90.0	0	0	37.1	51.3	10.79	1.69	0.15	0		
July																	
August																	
September	785	2.9	8.4	Sep 20	20.0	Aug 27 12:00	90.9	0	0	56.05	33.9	8.41	1.5	0.14	0		
October																	
November																	
December																	
Annual	2052	3.4	9.4	May 17	25.0	May 17 23:00	87.6	0	0	50.63	37.25	8.97	1.92	0.50	0.00		

4.3 Parkland Airshed Management Zone – Caroline PM_{2.5} Particulate Matter 2.5 (µg/m³)

Caroline															PM _{2.5} (µg/m ³)		2008	
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	Guideline		Number of Readings in Concentration Range								
								AAAQO 24-Hr	Guideline 1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30			
January	742	2.9	10.1	Jan 24	81.0	Jan 26 03:00	99.6	0	1	53.1	27.36	15.09	3.23	0.67	0.54			
February	693	2.4	11.3	Feb 04	65.0	Feb 07 04:00	99.4	0	0	63.92	22.8	9.96	1.15	1.44	0.72			
March	745	1.2	7.8	Mar 15	12.0	Mar 15 10:00	100.0	0	0	74.09	20.27	5.1	0.54	0	0			
April	720	1.9	5.9	Apr 25	13.0	Apr 14 15:00	99.9	0	0	51.39	42.36	6.11	0.14	0	0			
May	745	2.6	6.5	May 24	66.0	May 09 00:00	100.0	0	0	37.45	51.54	10.47	0.4	0	0.13			
June	720	2.2	4.5	Jun 02	8.0	Jun 01 07:00	99.9	0	0	39.44	55.56	5	0	0	0			
July	730	4.4	7.0	Jul 02	13.0	Jul 29 22:00	98.0	0	0	7.4	58.49	33.7	0.41	0	0			
August	703	5.7	8.8	Aug 17	17.0	Aug 29 22:00	94.4	0	0	0.14	53.34	42.82	3.56	0.14	0			
September	286	5.9	9.1	Sep 20	16.8	Sep 20 12:00	39.7	0	0	0.35	61.54	32.87	5.24	0	0			
October	646	3.8	6.8	Oct 02	10.8	Oct 02 12:00	86.7	0	0	10.37	78.95	10.68	0	0	0			
November	703	3.4	5.9	Nov 27	14.5	Nov 27 02:00	97.6	0	0	18.07	76.1	5.69	0.14	0	0			
December	745	2.3	14.5	Dec 08	29.5	Dec 08 15:00	100.0	0	0	61.11	38.89	0	0	0	0			
Annual	8167	3.2	14.5	Dec 08	81.0	Jan 26 03:00	92.9	0	1	34.66	48.74	15.12	1.13	0.22	0.13			

4.4 Parkland Airshed Management Zone – Crossfield - Carstairs PM_{2.5} Particulate Matter 2.5 (µg/m³)

Crossfield - Carstairs															PM _{2.5} (µg/m ³)		2008	
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	633	21.0	51.9	Jan 31	244.0	Jan 4 24:00	96.2	7	10	1.35	16.69	41.99	26.65	11.17	2.15			
February	690	12.3	36.6	Feb 22	149.0	Feb 22 19:00	99.1	2	3	1.74	23.73	36.32	17.22	13.02	7.96			
March	744	4.8	9.7	Mar 31	15.0	Mar 15 20:00	100.0	0	0	4.16	64.83	27.92	3.09	0	0			
April	180	4.6	6.6	Apr 6	11.0	Apr 1 02:00	100.0	0	0	4.47	60.89	33.52	1.12	0	0			
May																		
June																		
July																		
August																		
September																		
October																		
November																		
December																		
Annual	2247	10.7	51.9	Jan 31	244.0	Jan 4 24:00	98.8	9	13	2.6	37.3	35.3	14.5	7.3	3.0			

4.5 Parkland Airshed Management Zone – James River – Kelley PM_{2.5} Particulate Matter 2.5 (µg/m³)

James River - Kelley											PM _{2.5} (µg/m ³)					2008	
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	Guideline		Number of Readings in Concentration Range							
								AAAQO 24-Hr	Guideline 1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30		
January	633	21.0	51.9	Jan 31	244.0	Feb 04 24:00	96.2	7	10	9.16	10.11	13.59	19.43	26.38	19.11		
February																	
March																	
April																	
May																	
June																	
July																	
August	307	6.6	9.3	Aug 17	25.0	Aug 20 20:00	100.0	0	0	3.91	31.92	51.79	11.4	0.98	0		
September																	
October																	
November																	
December																	
Annual	940	13.8	51.9	Jan 31	244.0	Feb 04 24:00	98.1	7	10	6.54	21.02	32.69	15.42	13.68	9.56		

4.6 Parkland Airshed Management Zone – Morningside PM_{2.5} Particulate Matter 2.5 (µg/m³)

Morningside PM _{2.5} (µg/m ³)															2008
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															
February															
March															
April															
May															
June															
July															
August															
September															
October	467	3.9	8.6	Oct 28	11.9	Oct 28 20:00	90.9	0	0	8.55	82.69	8.33	0.43	0	0
November	720	4.1	7.0	Nov 11	10.7	Nov 11 04:00	100.0	0	0	7.07	80.72	12.21	0	0	0
December	702	8.0	15.4	Dec 24	46.5	Dec 24 11:00	94.4	0	0	17.99	24.83	30.47	19.06	7.38	0.27
Annual	1889	5.3	15.4	Dec 24	46.5	Dec 24 11:00	95.1	0	0	11.59	59.68	18.32	7.45	2.85	0.1

4.7 Parkland Airshed Management Zone – Niobe PM_{2.5} Particulate Matter 2.5 (µg/m³)

Niobe															PM _{2.5} (µg/m ³)		2008	
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																		
February																		
March	592	4.7	9.6	Mar 15	17.0	Mar 15 15:00	100.0	0	0	21.11	55.91	18.41	3.38	0	0			
April	441	4.6	8.1	Apr 26	17.0	Apr 25 14:00	60.3	0	0	22.22	58.05	14.74	4.3	0	0			
May																		
June																		
July																		
August																		
September																		
October																		
November	608	2.0	4.5	Nov 11	15.5	Nov 28 22:00	93.1	0	0	69.00	28.98	1.15	0.33	0	0			
December																		
Annual	1641	3.8	9.6	Mar 15	17.0	Mar 15 15:00	84.5	0	0	37.44	47.65	11.43	2.67	0.00	0.00			

4.8 Parkland Airshed Management Zone – Olds College PM_{2.5} Particulate Matter 2.5 (µg/m³)

Olds College											PM _{2.5} (µg/m ³)					2008	
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																	
February																	
March																	
April	517	5.4	10.3	Apr 25	25.0	Apr 25 13:00	99.8	0	0	0.77	56.45	38.34	3.85	0.58	0		
May	477	6.5	10.4	May 06	22.0	May 4 02:00	64.4	0	0	1.26	37.87	52.93	7.32	0.63	0		
June	696	5.9	9.5	Jun 30	15.0	Jun 17 13:00	96.7	0	0	0.14	44.19	52.65	3.01	0	0		
July	628	6.0	8.8	Jul 03	15.0	Jul 1 06:00	91.6	0	0	0	40.15	57.08	2.77	0	0		
August																	
September																	
October																	
November																	
December																	
Annual	2247	10.7	10.4	May 06	25.0	Apr 25 13:00	98.8	9	13	0.46	44.44	50.84	4	0.25	0		

4.9 Parkland Airshed Management Zone – Red Deer – Edgar Industrial Park PM_{2.5} Particulate Matter 2.5 (µg/m³)

Red Deer - Edgar Industrial Park PM _{2.5} (µg/m ³)														2008	
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															
February															
March															
April															
May															
June															
July	846	7.4	10.7	Jul 23	22.0	Aug 10 10:00	86.7	0	0	4.72	39.24	40.78	11.32	2.83	0
August															
September															
October															
November															
December	774	5.1	12.4	Dec 20	77.5	Dec 20 09:00	100.0	0	0	30.36	20.44	26.28	13.28	8.32	1.31
Annual	1620	6.3	12.4	Dec 20	77.5	Dec 20 09:00	93.3	0	0	17.54	29.84	33.53	12.30	5.58	0.66

4.10 Parkland Airshed Management Zone – Red Deer Riverside PM_{2.5} Particulate Matter 2.5 (µg/m³)

Red Deer Riverside											PM _{2.5} (µg/m ³)					2008	
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	Guideline		Number of Readings in Concentration Range							
								AAAQO 24-Hr	Guideline 1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30		
January	736	4.1	10.1	Jan 09	20.0	Jan 07 17:00	98.8	0	0	24.73	48.23	19.29	7.2	0.54	0		
February	691	5.2	15.0	Feb 03	35.0	Feb 04 10:00	99.1	0	0	31.55	29.09	25.18	9.41	4.63	0.14		
March	743	3.9	8.7	Mar 15	16.0	Mar 03 12:00	99.7	0	0	24.5	50.74	20.86	3.9	0	0		
April	721	4.2	8.1	Apr 17	27.0	Apr 17 17:00	100.0	0	0	18.31	54.37	23.44	3.19	0.69	0		
May	740	6.1	15.7	May 06	28.0	May 17 01:00	100.0	0	0	10.14	45.27	29.86	11.22	3.51	0		
June	715	3.9	13.3	Jun 30	27.0	Jun 17 16:00	100.0	0	0	22.24	54.27	19.72	2.38	1.4	0		
July	738	4.0	9.1	Jul 03	26.0	Jul 21 21:00	99.5	0	0	23.58	51.36	20.46	3.93	0.68	0		
August	742	4.4	10.2	Aug 19	26.0	Aug 25 19:00	99.6	0	0	25.61	44.34	21.43	6.74	1.89	0		
September	721	4.3	11.1	Sep 18	24.1	Sep 18 19:00	100.0	0	0	30.37	46.46	16.23	5.83	1.11	0		
October	738	4.5	21.1	Oct 28	35.0	Oct 28 15:00	99.1	0	0	42.41	32.79	13.55	7.18	3.52	0.54		
November	710	3.2	6.3	Nov 18	19.7	Nov 21 16:00	99.0	0	0	41.97	44.51	11.69	1.41	0.42	0		
December	745	4.3	8.4	Dec 20	16.9	Dec 08 01:00	100.0	0	0	58.82	23.53	17.65	0	0	0		
Annual	8729	4.3	21.1	Oct 28	35.0	Oct 28 15:00	99.6	0	0	26.87	45.61	20.13	5.67	1.66	0.06		

4.11 Parkland Airshed Management Zone – Rocky Mountain House - Bruns PM_{2.5} Particulate Matter 2.5 (µg/m³)

Rocky Mountain House Bruns PM _{2.5} (µg/m ³)											2008				
Month	# of Readings	Average	24-hr Maximum	Date	1-hr Maximum	Date	Operational Time (%)	AAAQO	Guideline	Number of Readings in Concentration Range					
								24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January															
February															
March															
April															
May															
June															
July															
August	744	6.5	11.5	Aug 04	27.0	Aug 04 17:00	100.0	0	0	0.67	40.46	50.4	7.26	1.21	0
September	256	4.8	5.4	Sep 26	15.0	Sep 25 18:00	28.1	0	0	3.57	75.79	18.65	1.98	0	0
October															
November															
December															
Annual	1000	5.7	11.5	Aug 04	27.0	Aug 04 17:00	64.1	0	0	1.39	49.55	42.3	5.86	0.89	0

5.

Wind Data Summary Tables & Wind Roses

5.1 Parkland Airshed Management Zone – Bechtou Wind speed and Wind Direction Frequency Table

Bechtou								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	76	0.22	2.17	2.17	0.82	0.3	0	5.69
NNE	32	0.37	0.97	0.75	0.3	0	0	2.4
NE	12	0.37	0.45	0.07	0	0	0	0.9
ENE	20	1.2	0.3	0	0	0	0	1.5
E	41	2.55	0.52	0	0	0	0	3.07
ESE	64	2.47	2.17	0.15	0	0	0	4.79
SE	148	2.77	2.62	4.87	0.82	0	0	11.09
SSE	118	1.12	4.57	2.02	0.6	0.52	0	8.84
S	105	1.12	3	2.92	0.75	0.07	0	7.87
SSW	70	0.97	2.47	1.5	0.3	0	0	5.24
SW	88	0.67	4.57	1.12	0.15	0.07	0	6.59
WSW	76	0.75	3	1.42	0.3	0.15	0.07	5.69
W	102	0.52	4.72	2.17	0.22	0	0	7.64
WNW	159	0.82	3.6	5.39	1.65	0.37	0.07	11.91
NW	102	0.6	2.32	2.32	1.65	0.75	0	7.64
NNW	122	0.3	3.07	3.3	1.8	0.67	0	9.14
Totals	1335	16.85	40.52	30.19	9.36	2.92	0.15	100

5.2 Parkland Airshed Management Zone – Bighorn Reserve Wind speed and Wind Direction Frequency Table

Bighorn Reserve								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	40	1.26	0.63	0.05	0	0	0	1.93
NNE	79	2.13	1.26	0.39	0.05	0	0	3.82
NE	144	3	3.43	0.53	0	0	0	6.96
ENE	143	4.16	2.71	0.05	0	0	0	6.91
E	92	3.33	1.06	0.05	0	0	0	4.45
ESE	46	1.55	0.63	0.05	0	0	0	2.22
SE	69	2.03	1.11	0.14	0.05	0	0	3.33
SSE	71	1.26	1.45	0.58	0.14	0	0	3.43
S	106	1.84	2.9	0.1	0.29	0	0	5.12
SSW	290	5.22	8.07	0.48	0.24	0	0	14.02
SW	279	4.3	7.39	1.79	0	0	0	13.48
WSW	322	7.44	7.88	0.24	0	0	0	15.56
W	298	10.1	4.11	0.19	0	0	0	14.4
WNW	50	2.27	0.1	0.05	0	0	0	2.42
NW	15	0.63	0.1	0	0	0	0	0.72
NNW	25	0.87	0.34	0	0	0	0	1.21
Totals	2069	51.38	43.16	4.69	0.77	0	0	100

5.3 Parkland Airshed Management Zone – Caroline Wind speed and Wind Direction Frequency Table

Caroline								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	450	1.04	1.69	2.11	0.62	0.02	0	5.48
NNE	212	0.61	1.18	0.74	0.05	0	0	2.58
NE	164	0.58	0.97	0.41	0.02	0	0	2
ENE	140	0.55	0.88	0.24	0.04	0	0	1.71
E	245	0.67	1.34	0.96	0.01	0	0	2.99
ESE	516	1.23	2.79	1.82	0.44	0.01	0	6.29
SE	803	2.55	3.58	2.07	1.34	0.23	0.01	9.78
SSE	360	1.57	1.77	0.63	0.22	0.19	0	4.39
S	217	1.05	1.04	0.34	0.19	0.02	0	2.64
SSW	154	0.67	0.88	0.22	0.11	0	0	1.88
SW	251	1.27	1.29	0.38	0.1	0.02	0	3.06
WSW	1155	3.09	7.98	2.6	0.28	0.07	0.05	14.07
W	1441	3.3	8.21	5.73	0.29	0.02	0	17.56
WNW	548	1.19	2.46	2.02	0.87	0.13	0	6.68
NW	756	1.18	2.89	3.12	1.52	0.4	0.1	9.21
NNW	795	1.24	2.75	3.59	1.73	0.32	0.05	9.69
Totals	8207	21.8	41.71	26.99	7.83	1.46	0.21	100

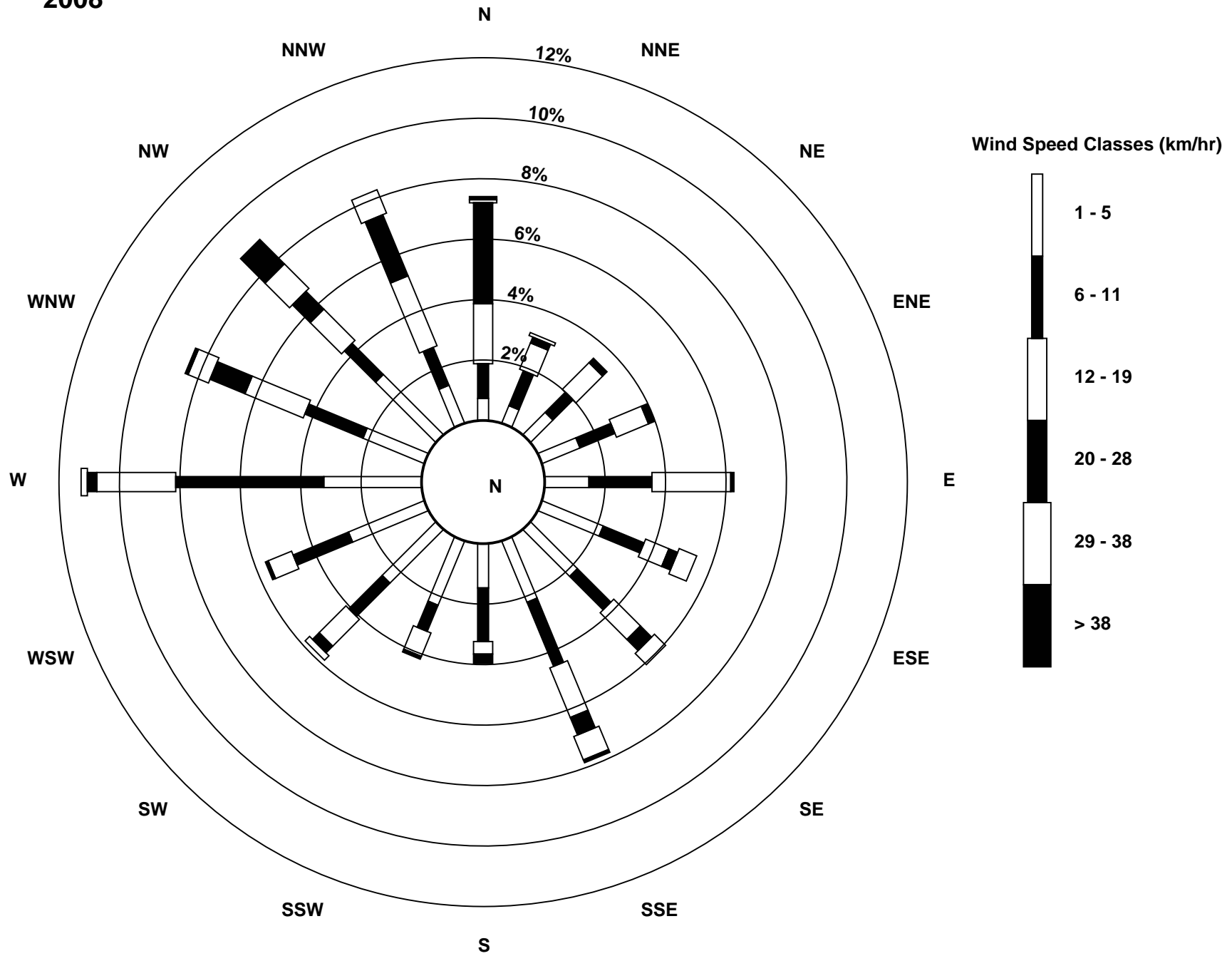
5.4 Parkland Airshed Management Zone – Crossfield - Carstairs Wind speed and Wind Direction Frequency Table

Crossfield - Carstairs								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	211	0.73	1.85	3.1	1.68	1.51	0.22	9.08
NNE	68	0.26	1.16	1.33	0.17	0	0	2.93
NE	39	0.3	0.86	0.52	0	0	0	1.68
ENE	38	0.47	0.77	0.39	0	0	0	1.64
E	30	0.26	0.77	0.26	0	0	0	1.29
ESE	52	0.56	1.42	0.26	0	0	0	2.24
SE	111	0.34	3.14	1.16	0.13	0	0	4.78
SSE	147	0.86	1.98	2.58	0.9	0	0	6.33
S	164	0.69	2.2	2.28	1.25	0.56	0.09	7.06
SSW	147	1.38	2.24	1.89	0.6	0.22	0	6.33
SW	437	1.94	6.76	7.96	1.89	0.26	0	18.81
WSW	213	1.72	1.38	3.44	2.24	0.34	0.04	9.17
W	224	1.16	1.16	4.65	2.28	0.13	0.26	9.64
WNW	150	0.69	0.99	3.83	0.77	0.13	0.04	6.46
NW	149	1.16	1.12	2.93	0.99	0.22	0	6.41
NNW	143	1.25	1.68	1.21	1.16	0.47	0.39	6.16
Totals	2323	13.78	29.49	37.8	14.08	3.83	1.03	100

5.5 Parkland Airshed Management Zone – James River – Kelley Wind speed and Wind Direction Frequency Table

James River - Kelley								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	71	0.73	1.15	1.98	3.34	0.1	0.1	7.41
NNE	30	0.63	1.25	0.94	0.21	0.1	0	3.13
NE	33	1.04	0.94	1.25	0.21	0	0	3.44
ENE	38	1.36	1.25	1.15	0.21	0	0	3.97
E	60	1.46	2.09	2.61	0.1	0	0	6.26
ESE	52	2.19	1.46	0.84	0.31	0.63	0	5.43
SE	58	2.19	1.57	1.25	0.52	0.52	0	6.05
SSE	75	2.19	2.3	1.77	0.63	0.84	0.1	7.83
S	38	1.46	1.77	0.42	0.31	0	0	3.97
SSW	40	2.3	0.94	0.84	0.1	0	0	4.18
SW	56	2.51	1.57	1.25	0.31	0.21	0	5.85
WSW	54	2.71	1.98	0.84	0.1	0	0	5.64
W	108	3.24	4.91	2.61	0.31	0.21	0	11.27
WNW	81	2.19	2.09	2.09	1.25	0.73	0.1	8.46
NW	85	2.82	1.46	1.46	0.84	1.15	1.15	8.87
NNW	79	1.36	1.36	2.51	2.19	0.84	0	8.25
Totals	958	30.38	28.08	23.8	10.96	5.32	1.46	100

Wind Rose for WS at James River 2008



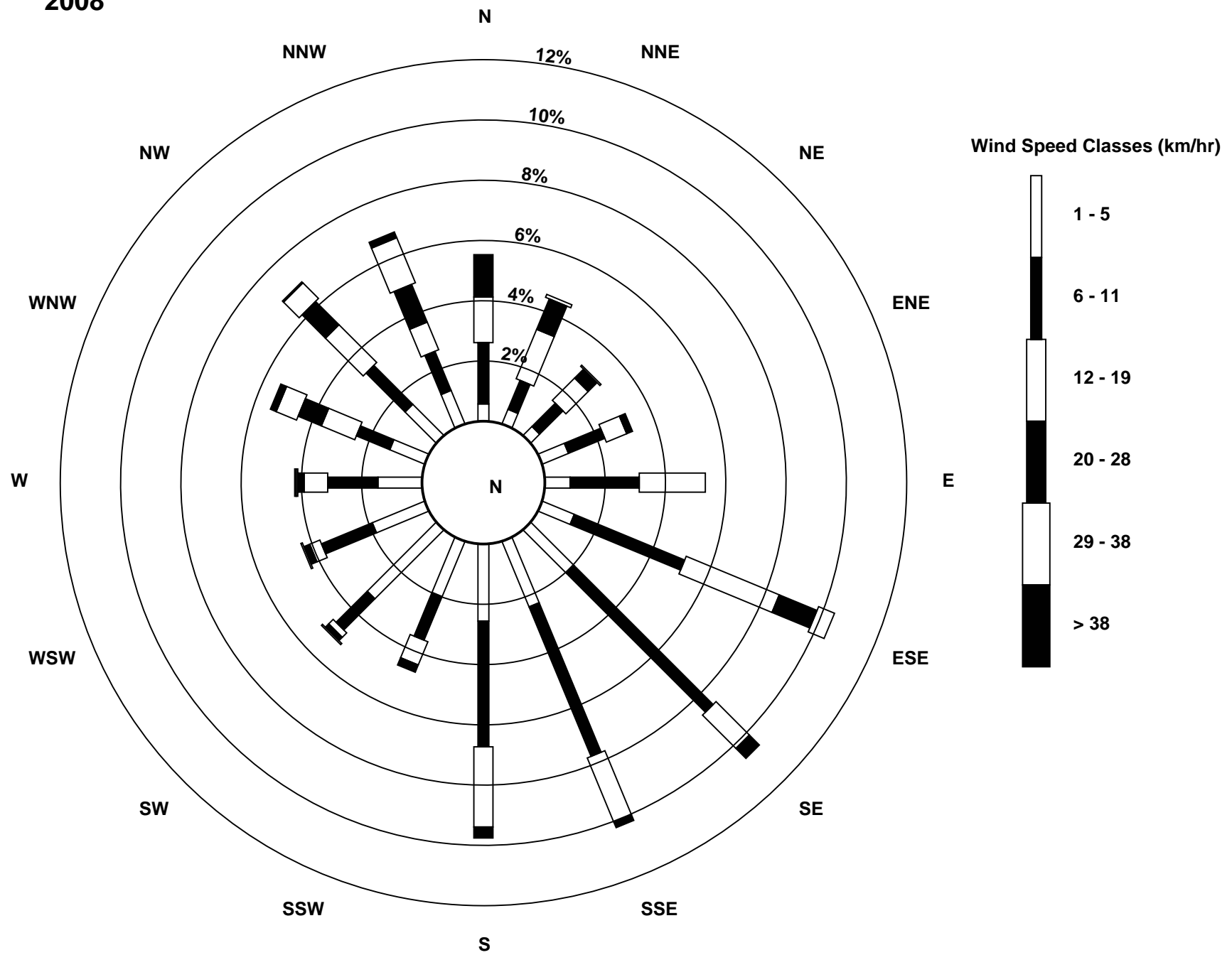
5.6 Parkland Airshed Management Zone – Morningside Wind speed and Wind Direction Frequency Table

Morningside								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	30	1.35	0.49	0	0	0	0	1.84
NNE	61	1.9	1.84	0	0	0	0	3.74
NE	46	1.29	0.98	0.55	0	0	0	2.82
ENE	70	2.94	1.04	0.31	0	0	0	4.29
E	135	5.64	2.64	0	0	0	0	8.28
ESE	175	8.28	2.45	0	0	0	0	10.74
SE	193	7.98	3.87	0	0	0	0	11.84
SSE	105	4.05	2.39	0	0	0	0	6.44
S	100	4.36	1.72	0.06	0	0	0	6.13
SSW	197	9.02	3.07	0	0	0	0	12.09
SW	169	7.48	2.82	0.06	0	0	0	10.37
WSW	106	5.77	0.74	0	0	0	0	6.5
W	52	3.13	0.06	0	0	0	0	3.19
WNW	63	3.37	0.43	0.06	0	0	0	3.87
NW	86	2.39	2.21	0.67	0	0	0	5.28
NNW	42	1.66	0.86	0.06	0	0	0	2.58
Totals	1630	70.61	27.61	1.78	0	0	0	100

5.7 Parkland Airshed Management Zone – Niobe Wind speed and Wind Direction Frequency Table

Niobe								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	106	0.57	2.03	1.51	1.41	0	0	5.53
NNE	87	0.52	1.04	1.77	1.1	0.1	0	4.54
NE	58	0.42	1.1	1.04	0.42	0.05	0	3.03
ENE	61	0.94	1.3	0.73	0.21	0	0	3.18
E	102	0.83	2.3	2.19	0	0	0	5.32
ESE	199	1.15	3.96	3.34	1.36	0.57	0	10.38
SE	203	2.03	6.52	1.56	0.47	0	0	10.59
SSE	196	2.35	5.37	2.3	0.21	0	0	10.22
S	187	2.56	4.17	2.66	0.37	0	0	9.75
SSW	89	1.98	1.56	0.83	0.26	0	0	4.64
SW	98	3.23	1.46	0.21	0.16	0.05	0	5.11
WSW	83	1.88	1.83	0.37	0.21	0.05	0	4.33
W	81	1.46	1.67	0.78	0.21	0.05	0.05	4.23
WNW	104	1.25	1.2	1.2	0.83	0.73	0.21	5.43
NW	133	1.46	1.83	1.77	1.1	0.73	0.05	6.94
NNW	130	1.2	1.41	0.99	1.36	1.62	0.21	6.78
Totals	1917	23.84	38.76	23.27	9.65	3.96	0.52	100

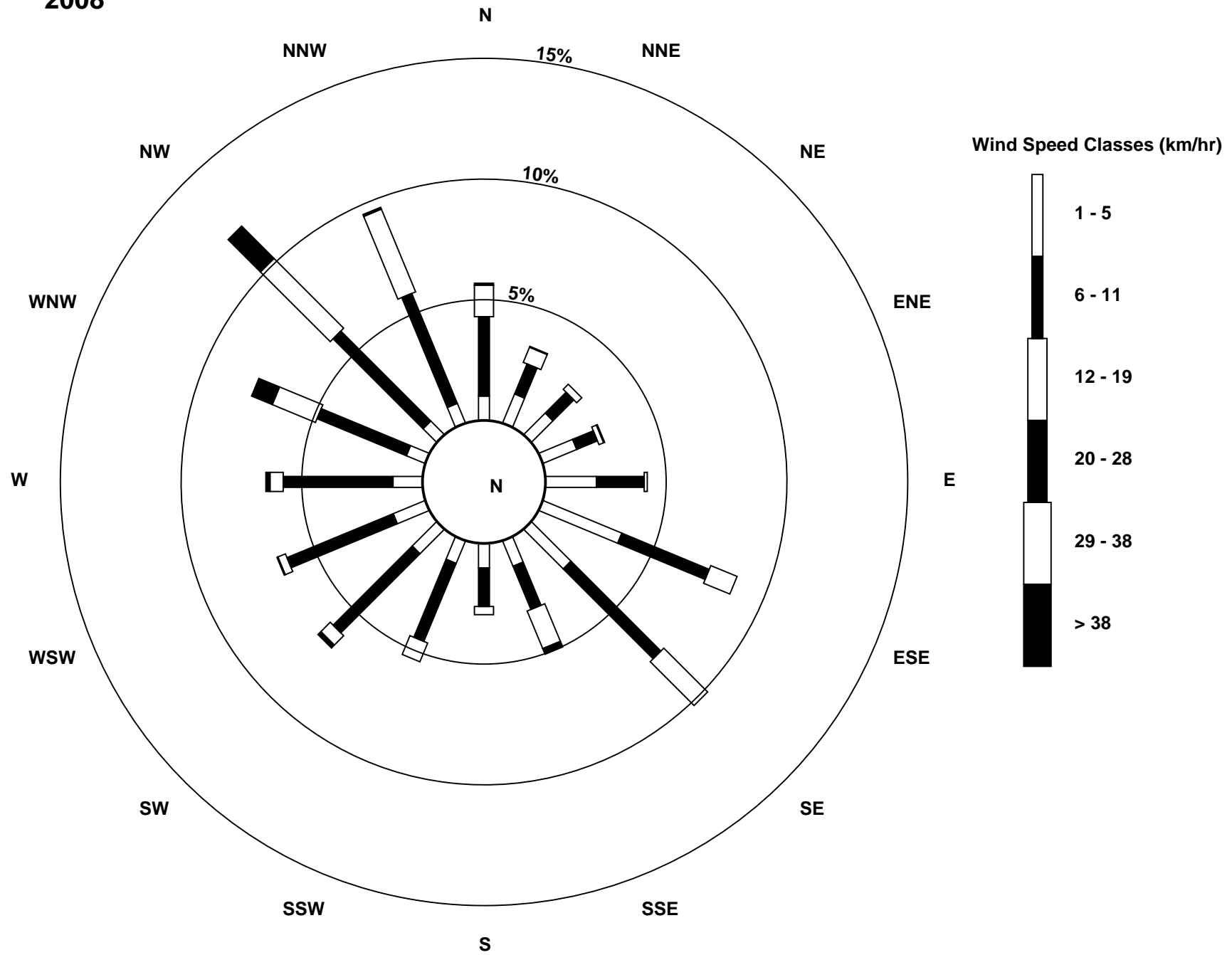
Wind Rose for WS at Niobe 2008



5.8 Parkland Airshed Management Zone – Olds College Wind speed and Wind Direction Frequency Table

Olds College								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	135	1.01	3.28	1.31	0.08	0	0	5.68
NNE	80	1.31	1.35	0.67	0.04	0	0	3.37
NE	66	1.26	1.22	0.29	0	0	0	2.78
ENE	64	1.52	0.93	0.21	0.04	0	0	2.69
E	100	2.11	1.98	0.13	0	0	0	4.21
ESE	205	3.54	3.92	1.18	0	0	0	8.63
SE	241	2.32	5.26	2.57	0	0	0	10.15
SSE	119	1.14	1.94	1.68	0.25	0	0	5.01
S	70	1.01	1.6	0.34	0	0	0	2.95
SSW	127	1.01	3.49	0.84	0	0	0	5.35
SW	161	1.43	4.63	0.55	0.17	0	0	6.78
WSW	156	1.43	4.76	0.34	0.04	0	0	6.57
W	154	1.22	4.55	0.55	0.17	0	0	6.48
WNW	183	0.84	4	1.94	0.93	0	0	7.71
NW	286	0.8	5.26	4.08	1.89	0	0	12.04
NNW	228	0.88	4.93	3.71	0.08	0	0	9.6
Totals	2375	22.82	53.09	20.38	3.71	0	0	100

Wind Rose for WS at Olds College 2008



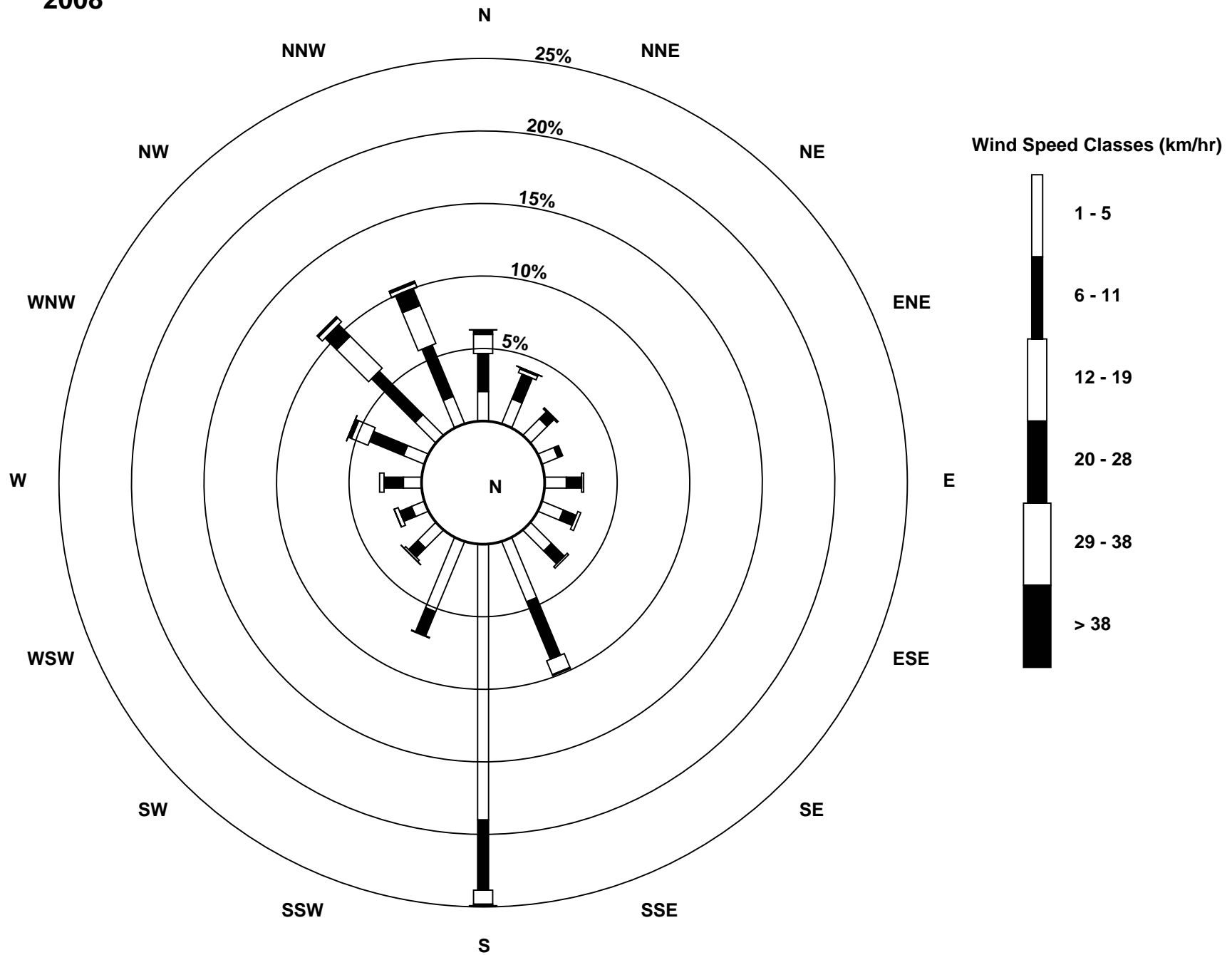
5.9 Parkland Airshed Management Zone – Red Deer – Edgar Industrial Park Wind speed and Wind Direction Frequency Table

Red Deer - Edgar Industrial Park								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	123	1.51	3.7	2.88	0.34	0	0	8.43
NNE	46	0.69	1.71	0.75	0	0	0	3.15
NE	19	0.34	0.82	0.14	0	0	0	1.3
ENE	11	0.27	0.41	0.07	0	0	0	0.75
E	13	0.21	0.55	0.14	0	0	0	0.89
ESE	23	0.48	0.82	0.27	0	0	0	1.58
SE	61	0.96	2.4	0.82	0	0	0	4.18
SSE	113	1.23	4.87	1.64	0	0	0	7.75
S	174	2.74	8.5	0.69	0	0	0	11.93
SSW	113	2.26	5.14	0.34	0	0	0	7.75
SW	98	2.6	3.84	0.21	0.07	0	0	6.72
WSW	95	2.6	2.67	1.1	0.07	0.07	0	6.51
W	125	2.06	4.52	1.92	0	0.07	0	8.57
WNW	160	1.85	5.69	3.15	0.27	0	0	10.97
NW	179	1.92	5.41	4.04	0.89	0	0	12.27
NNW	106	1.64	3.5	1.99	0.14	0	0	7.27
Totals	1459	23.37	54.56	20.15	1.78	0.14	0	100

5.10 Parkland Airshed Management Zone – Red Deer Riverside Wind speed and Wind Direction Frequency Table

Red Deer Riverside								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	448	2.04	2.62	1.32	0.31	0.01	0	6.3
NNE	290	1.86	1.84	0.27	0.1	0.01	0	4.08
NE	170	1.62	0.66	0.08	0.03	0	0	2.39
ENE	109	1.18	0.35	0	0	0	0	1.53
E	191	1.49	1.06	0.14	0	0	0	2.69
ESE	197	1.59	0.96	0.23	0	0	0	2.77
SE	244	2.04	1.25	0.14	0	0	0	3.43
SSE	703	4.49	4.29	1.03	0.08	0	0	9.89
S	1775	19.01	4.84	0.97	0.1	0.06	0	24.97
SSW	503	5.23	1.79	0.06	0	0	0	7.08
SW	200	1.76	0.89	0.15	0	0.01	0	2.81
WSW	152	0.96	0.87	0.3	0.01	0	0	2.14
W	206	1.25	1.34	0.31	0	0	0	2.9
WNW	396	1.55	2.53	1.24	0.24	0.01	0	5.57
NW	783	2.01	4.25	3.12	1.13	0.37	0.14	11.02
NNW	741	2.04	3.83	2.84	1.22	0.34	0.15	10.42
Totals	7108	50.11	33.36	12.2	3.22	0.82	0.3	100

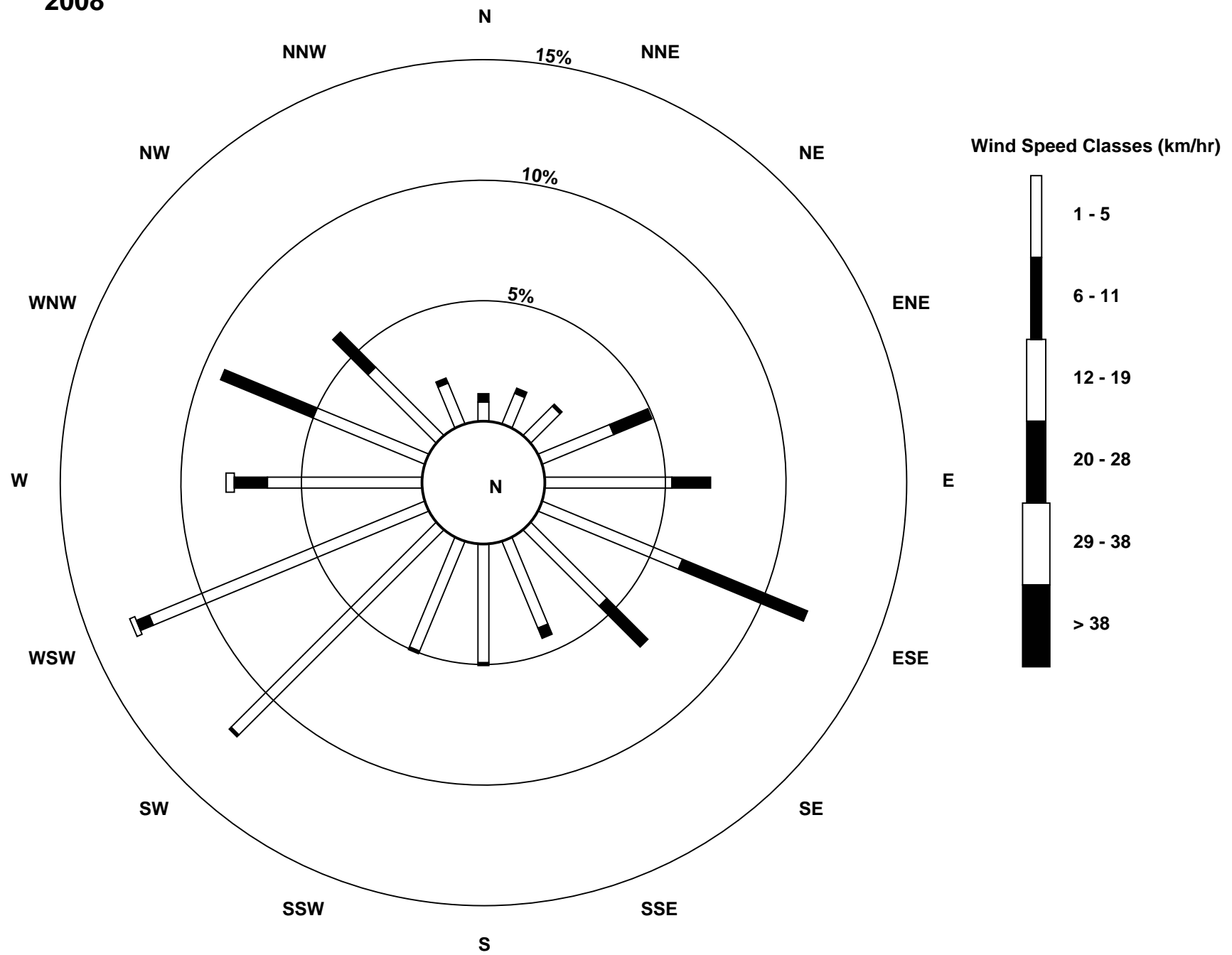
Wind Rose for WS at Red Deer Riverside 2008



5.11 Parkland Airshed Management Zone – Rocky Mountain House - Bruns Wind speed and Wind Direction Frequency Table

Rocky Mountain House Bruns								2008
Direction	# of Readings	% of wind speed (km/hr)						Totals
		1 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	10	0.8	0.34	0	0	0	0	1.14
NNE	14	1.37	0.23	0	0	0	0	1.6
NE	16	1.71	0.11	0	0	0	0	1.83
ENE	43	3.2	1.71	0	0	0	0	4.91
E	60	5.25	1.6	0	0	0	0	6.85
ESE	104	6.28	5.59	0	0	0	0	11.87
SE	60	4.45	2.4	0	0	0	0	6.85
SSE	38	3.88	0.46	0	0	0	0	4.34
S	44	4.91	0.11	0	0	0	0	5.02
SSW	44	4.91	0.11	0	0	0	0	5.02
SW	106	11.99	0.11	0	0	0	0	12.1
WSW	115	12.33	0.57	0.23	0	0	0	13.13
W	71	6.39	1.37	0.34	0	0	0	8.11
WNW	80	5.02	4.11	0	0	0	0	9.13
NW	53	4	2.05	0	0	0	0	6.05
NNW	18	1.83	0.23	0	0	0	0	2.05
Totals	876	78.31	21.12	0.57	0	0	0	100

Wind Rose for WS at Rocky Mountain House Bruns 2008



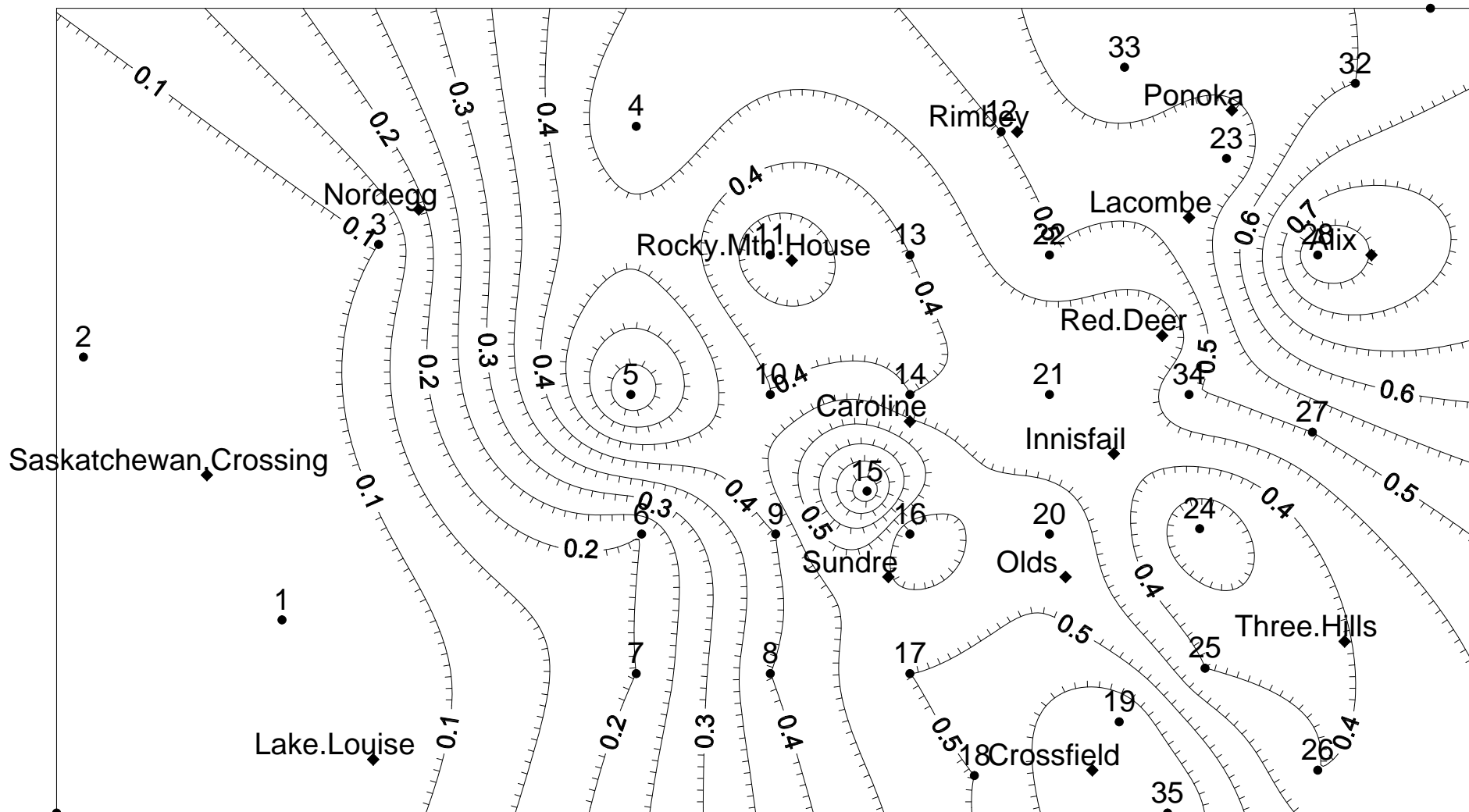
6.

Passive Monitoring Program

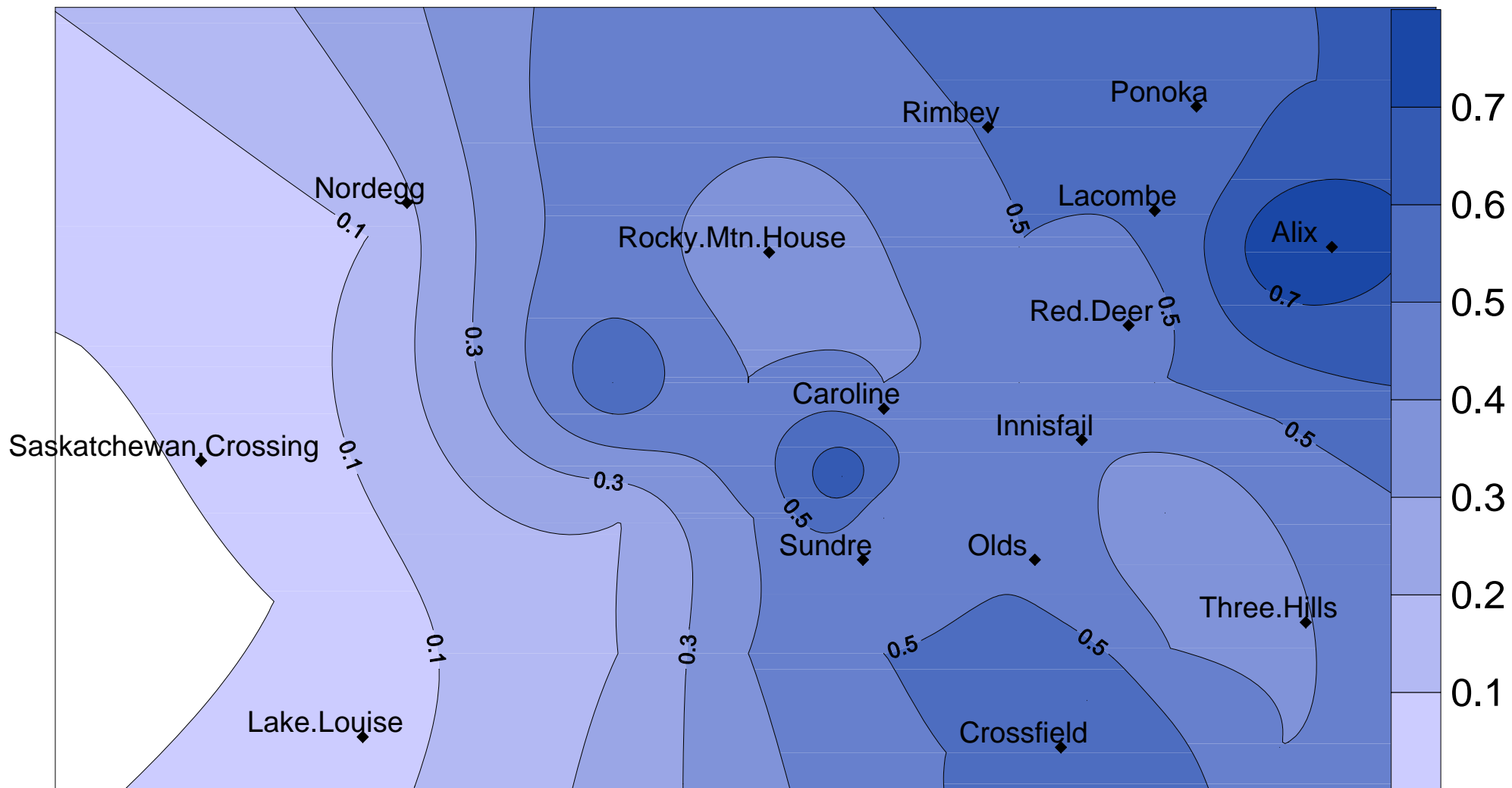
PAMZ Annual Air Quality Monitoring Summary - 2008
SO₂ Passive Monitoring Network

Station	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	Station Average
1 Bow Summit	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
2 Parker Ridge	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
3 Bighorn	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
4 Sunchild	0.7	1.1	0.4	0.4	0.4	0.2	0.4	0.4	0.5	0.3	0.3	0.5	0.5
5 Baseline Mountain	0.7	0.5	0.5	0.6	0.9	0.6	0.7	0.6	0.9	0.1	0.2	0.4	0.6
6 Limestone Mountain	0.3	0.5	0.2	0.3	0.4	0.1	NA	0.1	0.2	0.1	0.3	0.2	0.2
7 Panther River	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.1	0.2
8 Fallen Timber	0.4	0.5	0.6	0.4	0.5	0.3	0.3	0.3	NA	0.2	0.2	0.4	0.4
9 Bearberry	0.8	0.6	0.3	0.3	0.5	0.2	0.3	0.4	0.4	0.1	0.2	0.4	0.4
10 Ricinus	0.7	0.7	0.6	0.5	0.5	0.1	0.3	0.5	0.3	0.3	0.2	0.3	0.4
11 Twin Lakes	0.5	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3
12 Rimbey	0.9	1.1	0.4	0.5	0.3	0.1	0.3	0.4	0.3	0.3	0.2	0.6	0.5
13 Leslieville	0.8	0.8	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.4
14 Raven River	0.9	0.8	0.4	0.5	0.4	0.1	0.4	0.4	0.3	0.2	0.3	0.5	0.4
15 Caroline	0.8	1.1	1.0	0.8	0.9	0.5	0.7	0.5	0.6	0.6	0.5	0.8	0.7
16 Sundre	0.4	0.5	0.3	0.7	0.5	0.4	0.4	0.2	0.3	0.2	0.1	0.4	0.4
17 South Elkton	0.8	0.8	0.4	0.5	0.4	0.3	NA	NA	0.4	0.2	0.3	0.6	0.5
18 Bottrel	0.9	1.0	0.4	0.5	0.4	0.2	0.4	0.5	0.4	0.2	0.3	0.7	0.5
19 Crossfield-Carstairs	1.0	0.9	0.7	0.6	0.7	0.4	0.6	0.4	0.3	0.4	0.3	0.7	0.6
20 Netook-Olds	0.8	1.0	0.4	0.6	0.5	0.2	0.4	0.4	0.3	0.4	0.3	0.7	0.5
21 Markerville	0.7	0.6	0.4	0.3	0.4	0.2	0.4	0.5	0.3	0.2	0.2	0.5	0.4
22 Sylvan Lake	1.0	1.1	0.4	0.4	0.4	0.1	0.4	0.4	0.5	0.4	0.3	0.7	0.5
23 Morningside	0.9	0.9	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.5
24 Mayton	0.6	0.5	0.2	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.1	0.4	0.3
25 Sunnyslope	0.4	0.6	0.3	0.4	0.4	0.2	0.4	0.3	0.2	0.2	0.2	0.6	0.4
26 Grainger	0.8	0.7	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.5	0.4
27 Elnora	0.7	0.9	0.5	0.4	0.4	0.2	0.4	0.5	0.3	0.3	0.2	0.6	0.5
28 Alix	1.4	1.4	0.8	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.8
32 Samson	0.8	1.0	0.6	0.7	0.5	0.6	0.6	0.5	0.3	0.4	0.4	0.8	0.6
33 Ferrybank	1.3	1.5	0.6	0.4	0.4	0.3	0.5	0.4	0.5	0.4	0.3	0.7	0.6
34 Pakkwaw	0.9	0.8	0.4	0.5	0.5	0.2	0.3	0.4	0.4	0.3	0.3	0.5	0.5
35 Kersey	1.0	0.7	NA	0.5	0.7	0.4	0.7	0.6	0.4	0.4	0.3	0.6	0.6
Red Deer	0.7	0.5	0.4	0.4	0.4	0.3	0.4	0.5	0.3	0.2	0.2	0.4	0.4
Monthly Average	0.7	0.7	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.5	0.4
Monthly Maximum	1.4	1.5	1.0	0.8	0.9	0.6	0.7	0.6	0.9	0.7	0.7	0.8	
Monthly Minimum	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	

* All Values Expressed in PPB



PAMZ Passive SO₂ Monitoring Network - 2008 Station Averages (ppb)



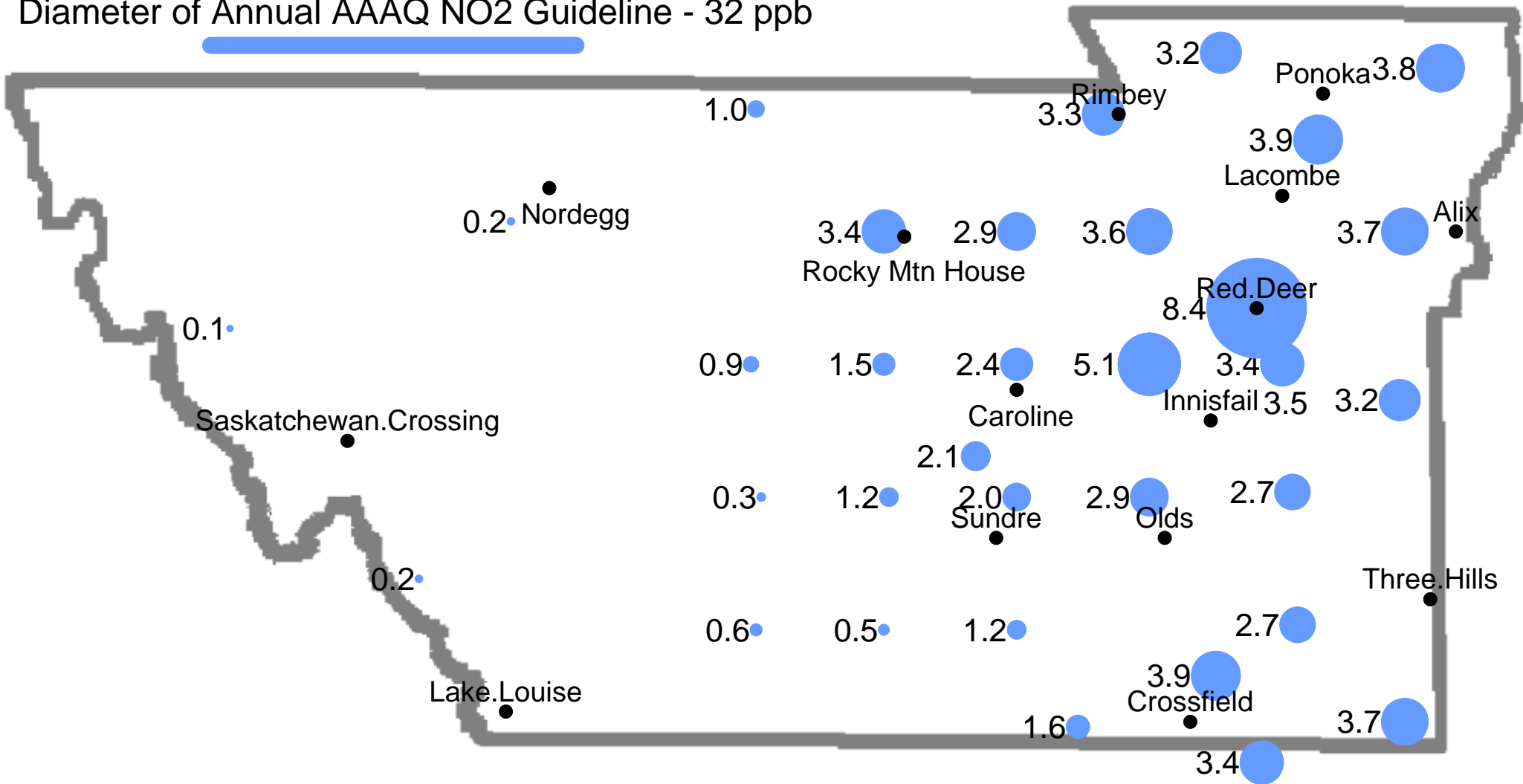
PAMZ Passive SO2 Monitoring Network - 2008 Station Averages (ppb)

PAMZ Annual Air Quality Monitoring Summary - 2008
NO₂ Passive Monitoring Network

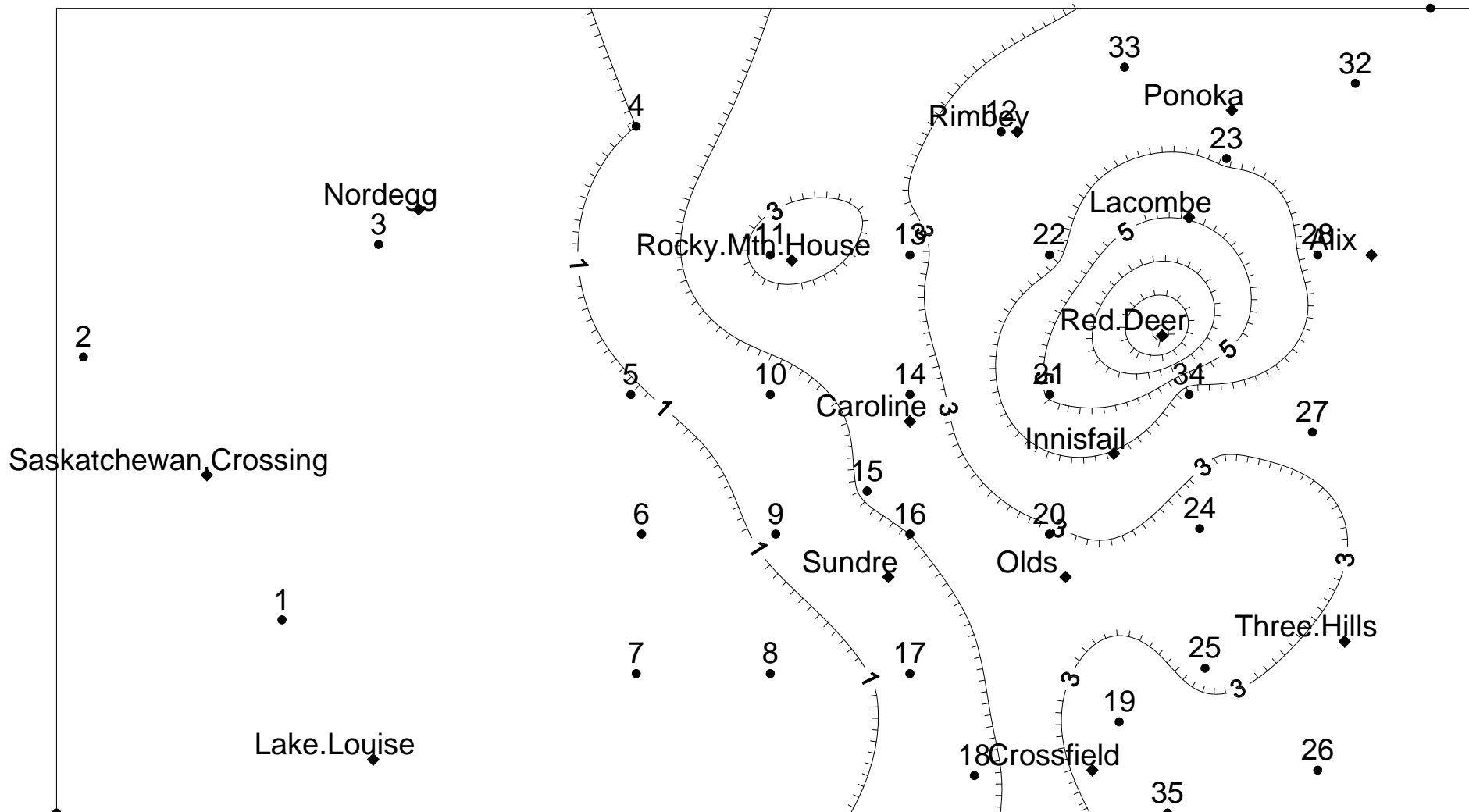
Station	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	Station Average
1 Bow Summit	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2
2 Parker Ridge	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.3	0.1
3 Bighorn	0.1	0.2	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.4	0.5	0.2
4 Sunchild	1.7	2.5	0.3	0.5	0.4	0.4	0.7	0.8	0.9	1.1	1.8	1.3	1.0
5 Baseline Mountain	1.1	0.8	1.2	0.5	0.8	0.9	0.8	1.2	0.9	1.1	0.7	0.8	0.9
6 Limestone Mountain	0.1	0.1	0.2	0.0	0.0	1.0	0.3	0.6	0.1	0.3	0.4	0.3	0.3
7 Panther River	1.9	0.5	0.2	0.6	0.2	0.3	0.2	0.6	0.8	0.4	0.5	0.6	0.6
8 Fallen Timber	0.4	0.5	0.6	0.2	0.1	0.3	0.9	0.4	NA	0.6	0.8	1.1	0.5
9 Bearberry	1.4	1.8	1.1	0.7	1.2	0.9	0.6	0.9	1.1	1.7	1.7	1.5	1.2
10 Ricinus	2.2	3.0	1.4	0.8	0.6	0.6	1.4	0.9	1.3	1.9	2.0	1.9	1.5
11 Twin Lakes	6.2	6.4	4.4	1.9	1.2	1.1	1.6	2.1	2.1	4.6	4.4	4.3	3.4
12 Rimbey	6.2	6.9	3.4	1.9	1.7	1.7	1.4	1.9	2.2	3.9	3.7	4.4	3.3
13 Leslieville	6.0	6.3	0.8	1.8	1.5	1.6	1.4	1.9	2.3	4.2	3.8	3.6	2.9
14 Raven River	4.1	4.9	2.6	1.7	1.1	0.1	1.5	1.7	1.6	3.0	3.4	3.6	2.4
15 Caroline	4.4	3.7	1.8	1.2	1.2	0.9	0.9	1.7	1.8	2.8	2.6	2.5	2.1
16 Sundre	3.5	4.1	2.2	1.0	0.9	0.9	0.8	0.8	1.2	2.3	2.4	3.5	2.0
17 South Elhton	1.4	1.9	1.3	0.5	0.7	0.8	NA	NA	0.9	1.3	1.5	1.7	1.2
18 Bottrel	2.3	2.6	1.5	0.9	1.1	0.9	0.9	1.1	1.3	2.7	2.0	1.8	1.6
19 Crossfield-Carstairs	6.3	6.4	4.2	2.9	2.3	2.1	1.9	2.4	3.6	5.2	4.9	5.1	3.9
20 Netook-Olds	4.0	5.4	2.5	3.3	1.8	1.6	1.6	1.7	2.3	3.8	3.1	3.7	2.9
21 Markerville	8.8	8.5	4.6	2.2	3.4	2.8	3.3	3.6	3.8	6.9	5.5	7.4	5.1
22 Sylvan Lake	6.7	7.3	3.3	2.2	2.0	1.8	1.8	2.3	3.2	4.1	3.8	4.5	3.6
23 Morningside	7.8	7.7	3.5	1.4	2.3	2.1	2.0	2.2	2.7	4.6	5.0	5.1	3.9
24 Mayton	4.7	4.3	2.2	2.1	1.9	1.5	1.1	1.5	1.7	3.4	3.2	4.5	2.7
25 Sunnyslope	5.0	5.6	2.6	2.2	2.3	1.6	1.5	1.5	2.0	0.3	3.2	4.3	2.7
26 Grainger	7.3	5.5	2.9	1.7	2.7	2.2	1.8	2.6	2.8	5.1	4.4	5.0	3.7
27 Elnora	6.2	5.5	2.5	1.7	1.7	1.8	1.9	2.2	2.3	4.7	3.5	4.5	3.2
28 Alix	7.7	6.1	2.8	1.9	2.2	2.2	1.7	2.3	3.2	4.9	4.1	4.8	3.7
32 Samson	7.6	7.0	3.4	2.3	2.6	2.4	2.1	2.5	2.3	4.8	3.9	4.5	3.8
33 Ferrybank	7.1	6.0	0.8	1.6	1.7	1.9	1.9	2.0	3.1	5.6	3.3	3.6	3.2
34 Pakkwaw	6.1	5.7	2.8	2.0	2.1	1.9	1.9	2.1	2.4	4.8	3.9	5.0	3.4
35 Kersey	7.0	6.6	2.7	2.0	1.8	1.7	1.6	2.0	2.6	4.9	3.7	4.2	3.4
Red Deer	17.8	16.1	8.6	6.1	4.4	3.6	3.6	4.3	5.4	11.3	8.7	11.3	8.4
Monthly Average	4.6	4.5	2.2	1.5	1.5	1.3	1.4	1.6	2.0	3.2	2.9	3.4	2.5
Monthly Maximum	17.8	16.1	8.6	6.1	4.4	3.6	3.6	4.3	5.4	11.3	8.7	11.3	
Monthly Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.3	

* All Values Expressed in PPB

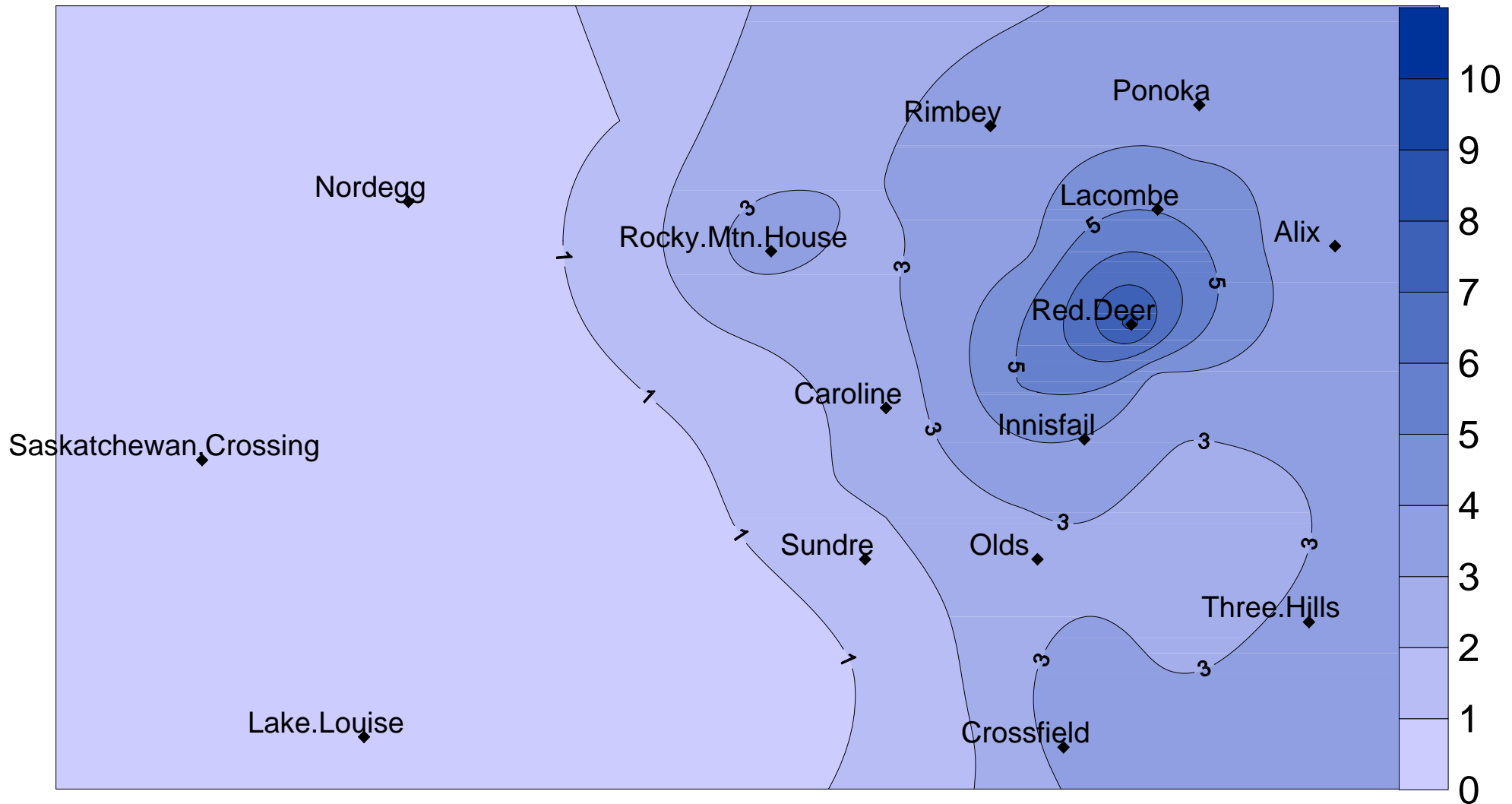
Diameter of Annual AAAQ NO2 Guideline - 32 ppb



PAMZ Passive NO2 (ppb) - Station Averages 2008



PAMZ Passive NO₂ Monitoring Network - 2007 Station Averages (ppb)

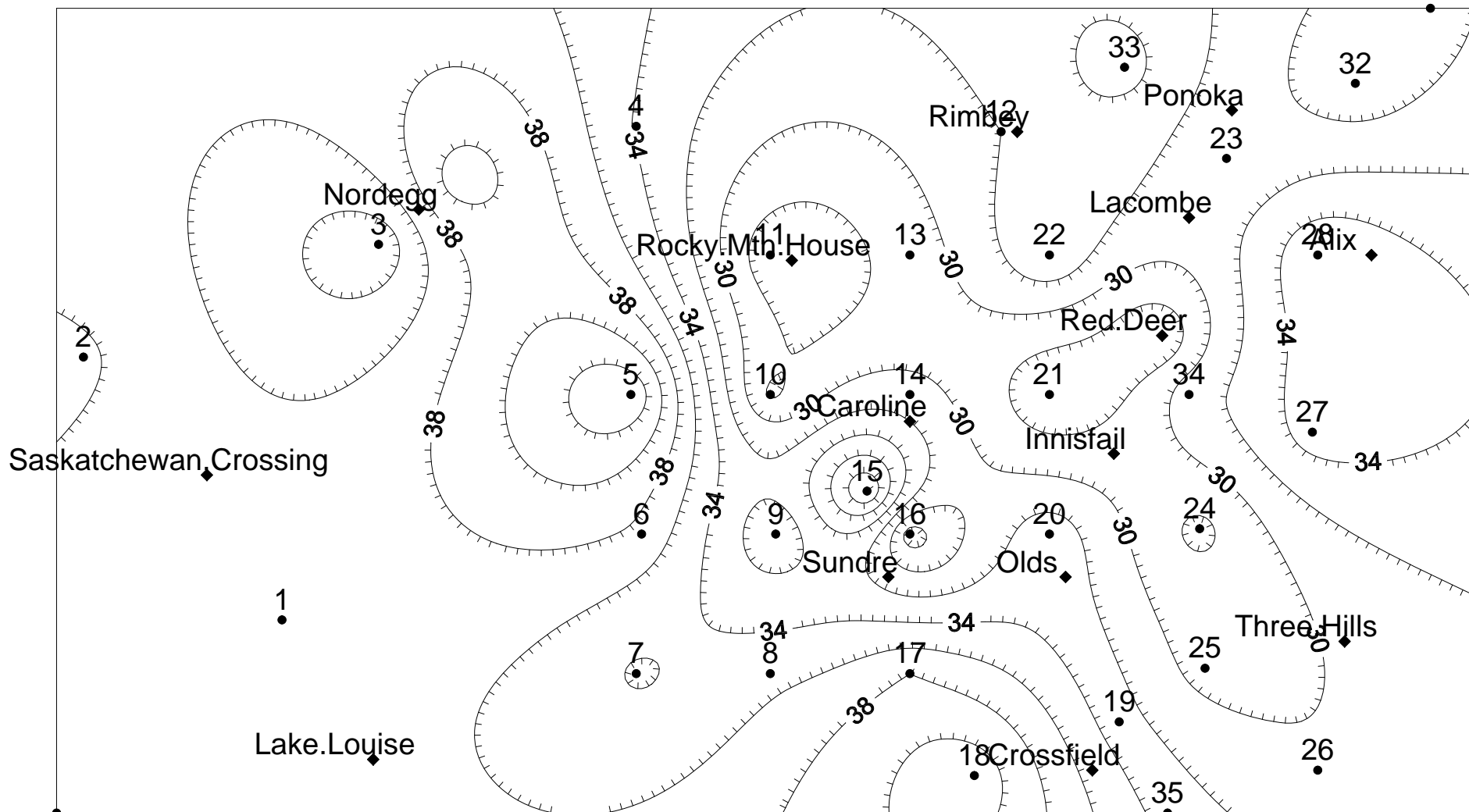


PAMZ Passive NO2 Monitoring Network 2008 Station Averages (ppb)

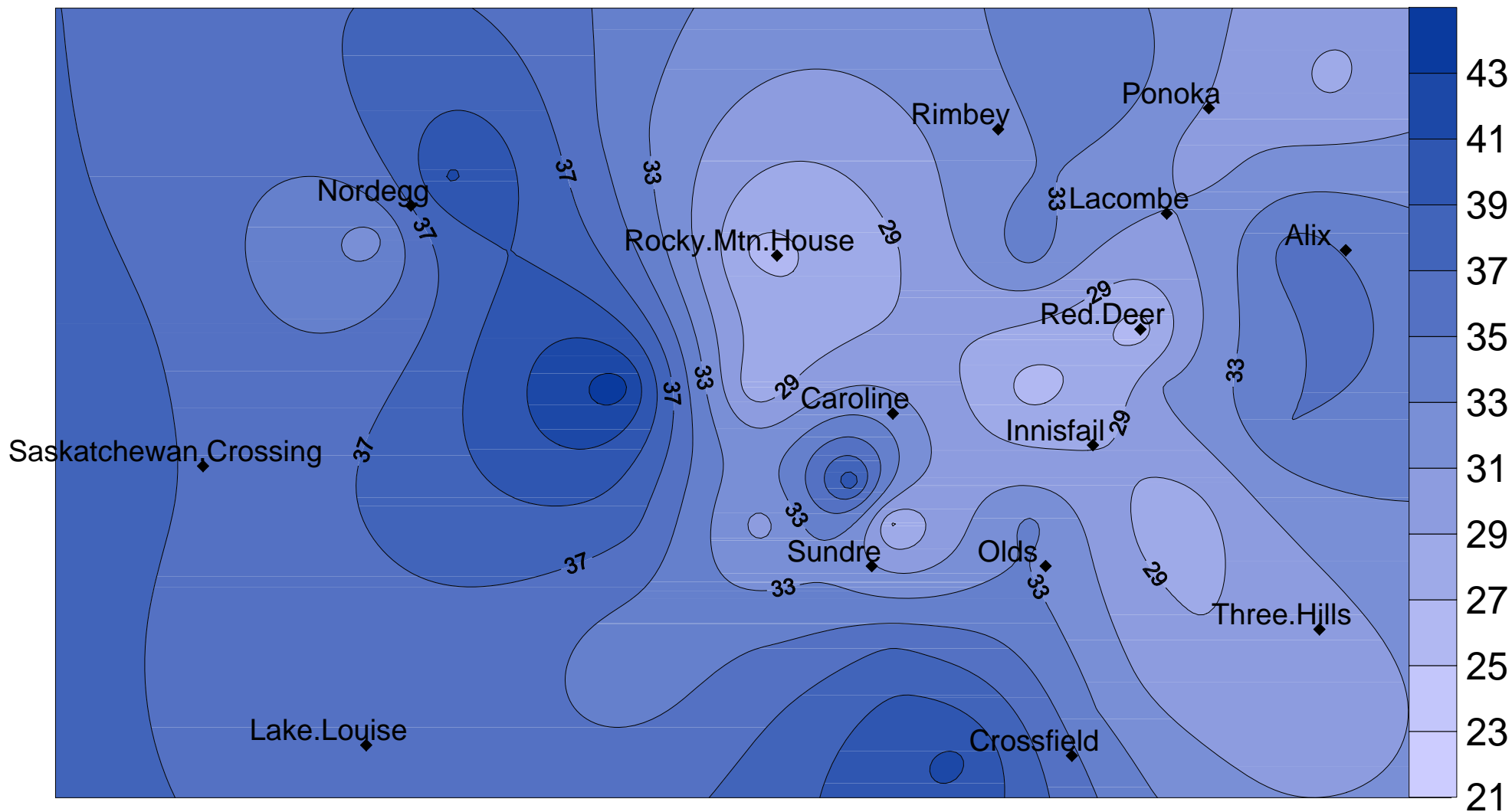
PAMZ Annual Air Quality Monitoring Summary - 2008
O₃ Passive Monitoring Network

Station	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	Station Average
1 Bow Summit	46.8	40.4	49.7	41.5	52.9	32.1	21.5	23.2	25.6	32.8	33.0	36.5	36.3
2 Parker Ridge	51.5	42.9	44.5	38.8	44.4	35.4	26.8	27.0	29.5	39.3	38.1	41.3	38.3
3 Bighorn	43.8	37.1	39.8	44.7	35.6	28.3	25.1	26.3	19.3	26.5	28.2	32.0	32.2
4 Sunchild	41.4	33.6	41.0	48.4	42.5	34.0	29.2	27.3	25.2	28.3	23.8	31.2	33.8
5 Baseline Mountain	46.2	48.4	52.5	47.4	49.3	51.2	38.9	37.1	37.1	39.1	39.7	40.7	44.0
6 Limestone Mountain	50.9	41.7	39.7	42.0	43.8	35.8	ND	28.7	19.9	34.8	34.1	41.3	37.5
7 Panther River	44.1	38.6	41.5	41.5	34.9	31.0	25.4	26.1	22.2	31.5	31.5	36.1	33.7
8 Fallen Timber	41.9	39.9	40.8	45.5	45.3	30.6	24.5	25.2	ND	27.8	30.2	37.3	35.4
9 Bearberry	41.6	32.4	38.1	40.1	39.5	27.6	23.7	21.4	16.9	26.8	25.7	29.9	30.3
10 Ricinus	35.4	27.4	35.4	41.5	39.2	27.9	20.4	22.9	16.6	21.1	18.0	25.3	27.6
11 Twin Lakes	29.8	24.4	31.2	45.6	38.2	29.9	22.9	22.4	17.5	19.0	16.9	20.7	26.5
12 Rimbey	37.1	33.3	42.6	48.6	45.0	37.4	24.6	26.7	20.6	22.6	18.0	27.5	32.0
13 Leslieville	32.8	28.0	34.9	40.1	38.8	31.5	22.4	23.5	32.5	20.0	16.4	24.3	28.8
14 Raven River	37.1	25.2	36.9	46.8	44.6	33.0	24.2	29.9	21.1	23.2	19.6	28.3	30.8
15 Caroline	40.7	37.0	48.3	53.5	51.4	46.7	37.2	37.2	31.4	33.5	29.9	37.4	40.4
16 Sundre	33.0	29.3	35.4	43.4	33.5	26.8	19.0	22.8	15.4	19.8	18.6	24.7	26.8
17 South Elkton	49.0	36.8	43.5	50.3	45.5	39.5	28.2	29.9	27.3	33.9	33.4	38.5	38.0
18 Bottrel	54.5	39.4	47.1	55.8	49.1	44.8	32.2	34.8	31.1	35.2	32.5	40.8	41.4
19 Crossfield-Carstairs	38.9	30.5	37.2	45.7	46.9	34.7	25.9	30.4	22.6	26.5	24.0	31.5	32.9
20 Netook-Olds	42.8	33.0	41.1	50.1	44.0	37.2	25.3	24.5	22.2	27.5	23.2	30.0	33.4
21 Markerville	27.4	27.4	32.3	41.3	37.4	30.9	26.8	23.6	16.6	19.1	13.3	18.8	26.2
22 Sylvan Lake	36.5	30.3	39.7	50.4	48.2	37.7	29.7	31.3	25.2	27.0	21.1	31.4	34.0
23 Morningside	32.7	31.9	37.2	46.4	40.7	32.4	28.1	27.8	19.0	26.2	17.7	22.4	30.2
24 Mayton	32.7	29.6	34.7	43.5	40.0	30.1	20.6	22.9	17.5	20.7	14.4	22.1	27.4
25 Sunnyslope	34.8	24.8	33.9	47.3	42.0	34.2	26.0	23.0	18.4	25.6	15.5	26.3	29.3
26 Grainger	35.6	31.0	36.7	45.9	39.3	32.8	24.6	29.1	19.0	23.6	19.4	26.6	30.3
27 Elnora	35.7	34.2	44.3	57.1	49.7	38.1	29.5	30.1	26.6	29.6	20.1	25.0	35.0
28 Alix	38.3	37.1	39.9	50.2	51.8	40.9	31.1	34.3	24.5	31.8	22.4	28.6	35.9
32 Samson	26.3	32.0	40.4	43.6	40.9	31.4	24.4	25.3	17.4	22.8	15.1	23.9	28.6
33 Ferrybank	37.5	33.9	45.6	49.4	46.2	31.7	31.8	34.9	27.3	27.6	20.3	31.1	34.8
34 Pakkwaw	34.8	33.9	35.6	46.0	43.6	36.7	26.8	28.3	19.9	26.0	16.6	27.2	31.3
35 Kersey	40.2	30.1	ND	50.0	44.3	42.2	26.8	26.8	23.1	27.0	22.8	33.3	33.3
44 Harlech	50.0	41.8	46.0	51.1	48.8	41.9	33.2	36.5	33.2	36.9	34.2	42.2	41.3
Red Deer	21.3	20.1	31.1	41.3	39.6	35.6	28.9	29.6	18.4	19.7	12.8	15.0	26.1
Monthly Average	38.7	33.2	39.7	46.5	43.2	35.1	27.0	28.1	23.0	27.3	23.3	30.1	33.0
Monthly Maximum	54.5	48.4	52.5	57.1	51.8	51.2	38.9	37.2	37.1	39.3	39.7	42.2	
Monthly Minimum	21.3	20.1	31.1	38.8	33.5	26.8	19.0	21.4	15.4	19.0	12.8	15.0	

* All Values Expressed in PPB



PAMZ Passive O₃ Monitoring Network - 2008 Station Averages (ppb)



PAMZ Passive O₃ Monitoring Network - 2008 Station Averages (PPB)