



*WOOD BUFFALO  
ENVIRONMENTAL  
ASSOCIATION*

**FEBRUARY 2014  
MONTHLY REPORT**



CONTINUOUS MONITORING  
INTEGRATED MONITORING  
April 14, 2014  
Revision 1.0

Operations and Data Collection by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

QA/QC, Data Validation and Reporting by:  
Aurora Atmospheric Inc  
Calgary, Alberta

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**WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AMBIENT AIR QUALITY MONITORING REPORT  
February 2014  
REPORT HISTORY**

Original report release date: March 28, 2014

**Revision 1 - report release date: April 14, 2014**

**Update— AMS7, Athabasca Valley, Carbon Monoxide data flagged as invalid**

The carbon monoxide (CO) analyzer at AMS 7 (Athabasca Valley) operated less than 90% of the time in March 2014. During a routine visit of the station on March 20, it was discovered that the CO analyzer sample line was not connected to the sample inlet manifold. Upon review of the operations at the station, the data for the CO analyzer was flagged from the previous calibration date, February 28 to March 24 (28Feb15:00h to 24Mar12:00h, 2014 MST). This resulted in 574 hours of data being invalidated.

Report modifications include:

- Revision of the network summary.
- Revision of the monthly site summary tables.
- Replacement of the hourly data table.
- Update of the operational notes table.

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WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY  
for AMD SECTION III.B.1(c)

FEBRUARY 2014

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prepared 14Apr14:16:14

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	2	2014					
254465-00-00							
149968-00-01							
48522-01-00							
240008-00-03	CONTINUOUS AMBIENT MONITORING						
48263-00-00							
224816-00-03							
189942-00-02				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
206355-00-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
46586-00-00	SO2(ppb)	1	99.55	0.025	0	0.005	0
216466-00-04	SO2(ppb)	2	100.00	0.029	0	0.005	0
137467-00-00	SO2(ppb)	4*	100.00	0.055	0	0.011	0
20809-01-00	SO2(ppb)	5	100.00	0.033	0	0.014	0
241311-00-00	SO2(ppb)	6	100.00	0.014	0	0.003	0
094-02-00	SO2(ppb)	7	100.00	0.009	0	0.002	0
305529-00-00	SO2(ppb)	8	100.00	0.005	0	0.001	0
026-02-00	SO2(ppb)	11	99.85	0.042	0	0.008	0
228044-00-00	SO2(ppb)	12	99.85	0.031	0	0.006	0
73203-01-00	SO2(ppb)	13	100.00	0.013	0	0.003	0
	SO2(ppb)	14	100.00	0.010	0	0.002	0
	SO2(ppb)	15	99.85	0.025	0	0.006	0
	SO2(ppb)	16	100.00	0.028	0	0.005	0
	SO2(ppb)	17	100.00	0.027	0	0.007	0
	SO2(ppb)	500	99.85	0.008	0	0.003	0
	SO2(ppb)	MAMS*	97.01	0.006	0	0.002	0
	H2S(ppb)	2	99.85	0.007	0	0.001	0
	H2S(ppb)	4*	100.00	0.005	0	0.002	0
	H2S(ppb)	5	100.00	0.024	2	0.003	0
	H2S(ppb)	11	100.00	0.005	0	0.002	0
	H2S(ppb)	17	100.00	0.002	0	0.001	0
	H2S(ppb)	500	99.85	0.003	0	0.001	0
	H2S(ppb)	MAMS*	96.82	0.005	0	0.002	0
	TRS(ppb)	1	98.96	0.002	0	0.001	0
	TRS(ppb)	6	100.00	0.002	0	0.001	0
	TRS(ppb)	7	100.00	0.003	0	0.001	0
	TRS(ppb)	9	99.70	0.001	0	0.001	0
	TRS(ppb)	12	99.85	0.003	0	0.001	0
	TRS(ppb)	13	100.00	0.002	0	0.001	0
	TRS(ppb)	14	100.00	0.001	0	0.000	0
	TRS(ppb)	15	100.00	0.002	0	0.001	0
	THC(ppm)	1	96.43	3.3	-	2.4	-
	THC(ppm)	2	100.00	5.3	-	3.1	-
	THC(ppm)	4*	100.00	6.2	-	3.6	-
	THC(ppm)	5	100.00	6.8	-	3.5	-
	THC(ppm)	6	95.24	3.3	-	2.5	-
	THC(ppm)	7	99.85	2.7	-	2.4	-
	THC(ppm)	9	99.40	4.7	-	2.9	-
	THC(ppm)	11	100.00	5.2	-	3.5	-
	THC(ppm)	12	99.85	5.5	-	3.1	-
	THC(ppm)	13	100.00	4.1	-	2.9	-
	THC(ppm)	14	99.70	2.4	-	2.1	-
	THC(ppm)	15	99.85	11.3	-	4.3	-
	THC(ppm)	16	100.00	5.2	-	3.4	-
	THC(ppm)	17	100.00	2.7	-	2.4	-
	THC(ppm)	MAMS*	92.02	6.3	-	3.4	-
	O3(ppb)	1	99.55	0.0	0	0.0	-
	O3(ppb)	6	99.70	0.041	0	0.034	-
	O3(ppb)	7	100.00	0.041	0	0.034	-
	O3(ppb)	8	100.00	0.041	0	0.039	-
	O3(ppb)	13	100.00	0.041	0	0.035	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY  
for AMD SECTION III.B.1(c)

FEBRUARY 2014

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prepared 14Apr14:16:14

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	2	2014					
254465-00-00							
149968-00-01							
48522-01-00							
240008-00-03	CONTINUOUS AMBIENT MONITORING						
48263-00-00							
224816-00-03							
189942-00-02			ONE-HOUR AVERAGE		24-HOUR AVERAGE		
206355-00-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
46586-00-00							
216466-00-04	O3(ppb)	14	100.00	0.040	0	0.037	-
137467-00-00	O3(ppb)	17	100.00	0.044	0	0.037	-
20809-01-00	NO2(ppb)	1	99.55	0.039	0	0.024	-
241311-00-02	NO2(ppb)	6	100.00	0.041	0	0.027	-
094-02-00	NO2(ppb)	7	100.00	0.165	1	0.039	-
305529-00-00	NO2(ppb)	8	100.00	0.013	0	0.005	-
026-02-00	NO2(ppb)	12	100.00	0.068	0	0.037	-
228044-00-00	NO2(ppb)	13	100.00	0.039	0	0.021	-
73203-01-00	NO2(ppb)	14	100.00	0.033	0	0.013	-
	NO2(ppb)	15	99.70	0.059	0	0.022	-
	NO2(ppb)	16	100.00	0.064	0	0.037	-
	NO2(ppb)	17	100.00	0.037	0	0.016	-
	NO2(ppb)	500	99.85	0.035	0	0.013	-
	CO(ppm)	7	98.51	1.200	0	0.300	-
	NH3(ppb)	1	95.54	0.000	0	0.000	-
	NH3(ppb)	6	95.83	0.000	0	0.000	-
	PM2.5(ug/m3)	1	99.85	52.2	-	14	0
	PM2.5(ug/m3)	6	100.00	47.1	-	16.3	0
	PM2.5(ug/m3)	7	100.00	69.7	-	21.7	0
	PM2.5(ug/m3)	8	99.85	18	-	6.4	0
	PM2.5(ug/m3)	12	99.85	47.4	-	15.6	0
	PM2.5(ug/m3)	13	99.85	22.4	-	10.5	0
	PM2.5(ug/m3)	14	99.85	21.5	-	7.9	0
	PM2.5(ug/m3)	15	99.85	74.6	-	23.4	0
	PM2.5(ug/m3)	16	99.70	75.5	-	15.4	0
	PM2.5(ug/m3)	17	99.40	15.7	-	6.8	0
	WIND	1	98.21	-	-	-	-
	WIND	2	99.70	-	-	-	-
	WIND	4*	99.24	-	-	-	-
	WIND	5	99.40	-	-	-	-
	WIND	6	100.00	-	-	-	-
	WIND	7	100.00	-	-	-	-
	WIND	8	100.00	-	-	-	-
	WIND	9	99.40	-	-	-	-
	WIND	11	100.00	-	-	-	-
	WIND	12	100.00	-	-	-	-
	WIND	13	98.96	-	-	-	-
	WIND	14	98.96	-	-	-	-
	WIND	15	100.00	-	-	-	-
	WIND	16	99.85	-	-	-	-
	WIND	17	98.96	-	-	-	-
	WIND	500	99.70	-	-	-	-
	WIND	MAMS*	98.76	-	-	-	-
SIGNATURE OF ASSOCIATION REPRESENTATIVE			FOR ALBERTA ENVIRONMENT USE ONLY				
Note: * AMS 4 and MAMS combined hours of monitoring at Buffalo Viewpoint exceeds the minimum 90% operational time for this reporting period.							

# **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS 7**  
**ATHABASCA VALLEY**  
**FEBRUARY 2014**

Operations and Data Collection by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

QA/QC, Data Validation and Reporting by:  
Aurora Atmospheric Inc.  
Calgary, Alberta

April 14, 2014  
Revision 1.0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS 7)  
 FEBRUARY 2014

MONTHLY SUMMARY for  
 AMD SECTION III.B.1(c)

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	640	32	32	100.00	9	0	2	0
TRS (ppb) Average	641	31	31	100.00	3	0	1	0
THC (ppm) Average	639	32	33	99.85	2.7	-	2.4	-
NMHC (ppm) Average	639	32	33	99.85	0.322	-	0.096	-
CH4(ppm) Average	639	32	33	99.85	2.6	-	2.3	-
O3 (ppb) Average	641	31	31	100.00	41	0	34	-
NO2 (ppb) Average	640	32	32	100.00	165	1	39	-
NO (ppb) Average	640	32	32	100.00	490	-	80	-
NOX (ppb) Average	640	32	32	100.00	654	-	119	-
PM2.5 (ug/m3) Average	672	0	0	100.00	69.7	-	21.7	0
CO(ppm) Average	640	32	42	98.61	1.2	0	0.3	-
Temperature 2 m (C) Average	672	0	0	100.00	-1.7	-	-8.7	-
Barometric Pressure (inHg) Average	672	0	0	100.00	30	-	-	-
Relative Humidity (%) Average	672	0	0	100.00	91	-	-	-
Wind Speed 10 m (km/h) Average	672	0	0	100.00	26	-	-	-
Wind Direction 10 m (deg) Average	672	0	0	100.00	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS 7)  
FEBRUARY 2014

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NMHC, CH4, THC	10 Feb 2014 13:00	10 Feb 2014 13:00	1	Maintenance - replaced fuel cylinder
CO	28 Feb 2014 15:00	28 Feb 2014 24:00	10	Sample line disconnected from manifold



Wood Buffalo Environmental Association

Summary of Hour Averages

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

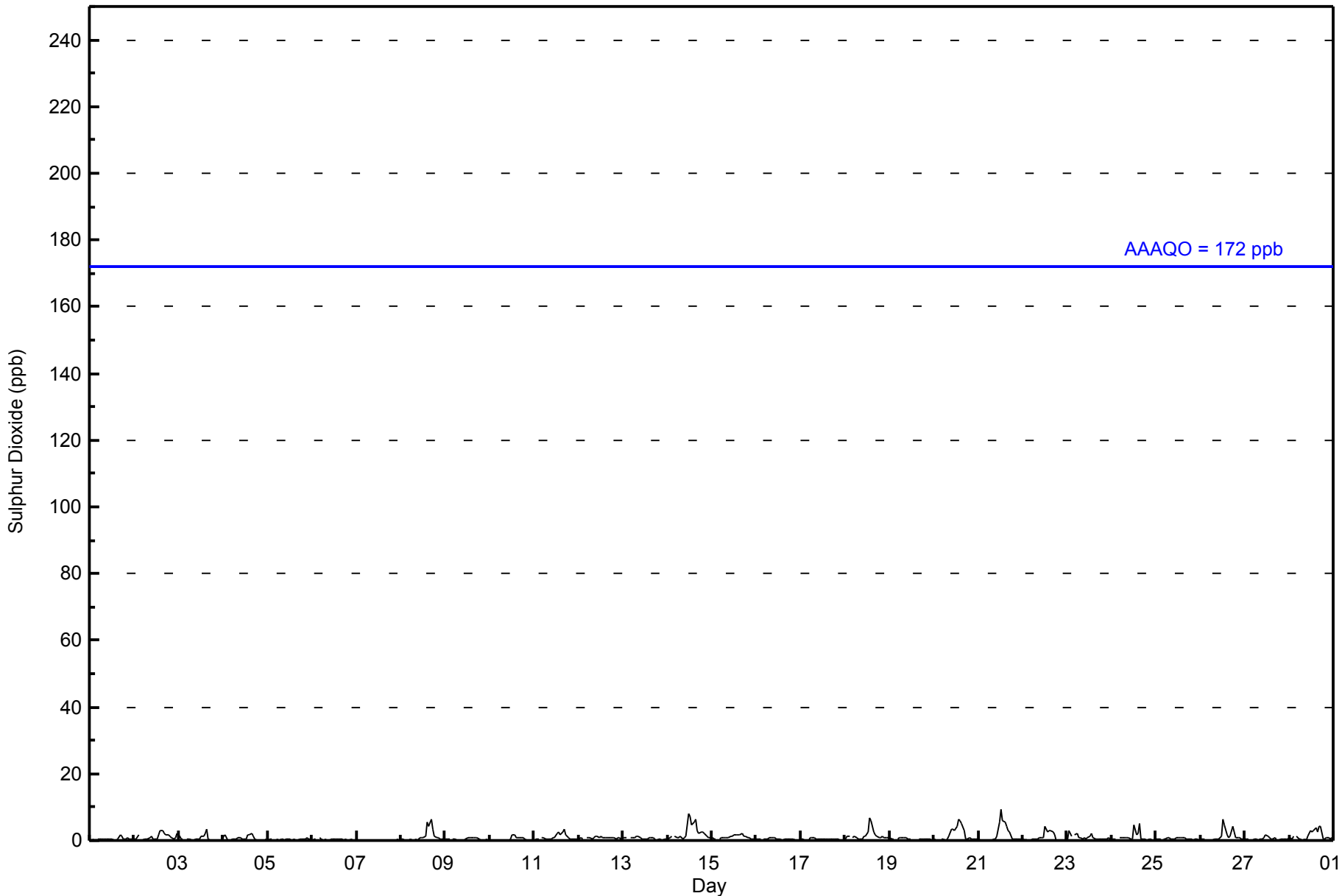
Athabasca Valley - February 2014

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0										Hours in Service: 672																
Maximum Value: 9 ppb on Feb 21 13:00										Maximum Daily Average: 2.5 ppb on Feb 14										Hours of Data: 640						
Minimum Value: 0 ppb on Feb 9 21:00										Minimum Daily Average: 0.1 ppb on Feb 7										Hours of Missing Data: 32						
Maximum Diurnal Average: 2.1 ppb at hour 13										Minimum Diurnal Average: 0.4 ppb at hour 24										Hours of Calibration: 32						
Monthly Average: 0.9 ppb										Percentiles: P <sub>1</sub> =0 P <sub>10</sub> =0 Q <sub>1</sub> =0 Median=0 Q <sub>3</sub> =1 P <sub>90</sub> =2 P <sub>99</sub> =6										Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Feb	0	0	0	Z	0	0	0	0	0	1	0	1	0	0	0	0	2	1	0	0	1	0	0	0	0.4	2
2-Feb	0	0	2	Z	0	0	0	0	1	1	0	0	2	3	3	2	2	2	1	1	0	1	2	1.1	3	
3-Feb	1	0	0	Z	0	0	0	0	0	1	0	0	1	1	2	3	1	0	0	0	0	0	0	0.6	3	
4-Feb	1	2	0	Z	0	0	0	0	1	1	1	0	1	2	2	2	1	0	0	0	0	0	0	0.7	2	
5-Feb	0	0	0	Z	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.3	1	
6-Feb	0	0	1	Z	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1	
7-Feb	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	
8-Feb	0	0	0	Z	0	0	0	0	0	1	1	1	1	5	4	6	3	1	1	1	1	1	0	1.3	6	
9-Feb	0	0	0	Z	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0.4	1	
10-Feb	0	0	0	Z	0	0	0	0	0	0	0	0	2	2	1	1	1	1	1	0	0	0	0	0.4	2	
11-Feb	0	0	0	Z	1	1	0	0	0	0	1	1	2	2	2	2	3	2	1	0	0	0	1	0.9	3	
12-Feb	0	1	0	Z	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	1	
13-Feb	1	1	1	Z	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0.7	1	
14-Feb	0	1	1	Z	1	1	1	1	1	1	1	8	7	5	6	6	3	2	2	3	2	1	1	2.5	8	
15-Feb	1	0	0	Z	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	0	0	1.0	2	
16-Feb	0	0	0	Z	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1	
17-Feb	0	0	0	Z	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1	
18-Feb	0	1	1	Z	1	1	1	0	0	1	1	1	3	7	6	3	2	1	1	1	1	1	1	1.6	7	
19-Feb	1	1	0	Z	1	1	1	1	1	1	0	0	C	C	C	C	1	0	0	0	0	0	0	0.6	1	
20-Feb	0	0	0	Z	0	0	0	1	1	4	3	3	4	6	6	5	3	0	0	1	1	1	0	1.8	6	
21-Feb	0	0	0	Z	0	0	0	0	0	0	1	5	9	6	6	4	3	3	1	0	0	0	0	1.8	9	
22-Feb	0	0	0	Z	0	1	1	1	0	1	1	1	4	3	3	3	3	2	0	0	0	0	0	1.0	4	
23-Feb	0	3	1	Z	2	2	1	1	1	1	1	1	2	1	0	0	1	0	0	1	0	1	1	0.9	3	
24-Feb	0	0	0	Z	1	1	1	1	1	1	0	1	5	1	2	5	0	0	0	0	0	0	0	1.0	5	
25-Feb	0	0	0	Z	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0.5	1	
26-Feb	0	0	0	Z	0	0	0	0	1	0	0	1	6	5	2	1	1	4	3	1	1	1	0	1.3	6	
27-Feb	0	0	0	Z	0	0	0	0	0	0	1	2	1	1	0	1	1	0	0	0	0	0	0	0.5	2	
28-Feb	1	1	1	Z	1	0	0	0	0	0	1	3	3	3	4	3	4	4	0	1	1	1	1	1.5	4	
	0.4	0.5	0.5	--	0.5	0.5	0.5	0.5	0.5	0.7	0.7	1.3	2.1	2.0	2.0	2.0	1.5	1.2	0.7	0.5	0.5	0.4	0.4	0.4	Diurnal Average	
	1	3	2	--	2	2	1	1	1	4	3	8	9	7	6	6	6	6	4	3	3	2	1	1	2	Diurnal Maximum
Z - zerospan	C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):	1-hr 172 ppb										24-hr 48 ppb															



WBEA NETWORK  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	640	100.00	100.00
11 - 20	0	0.00	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 640

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - February 2014**

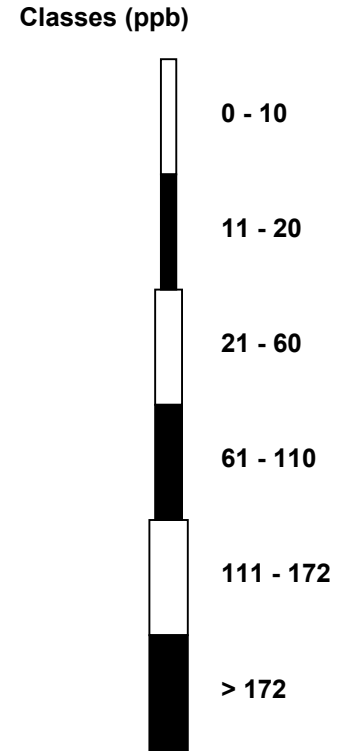
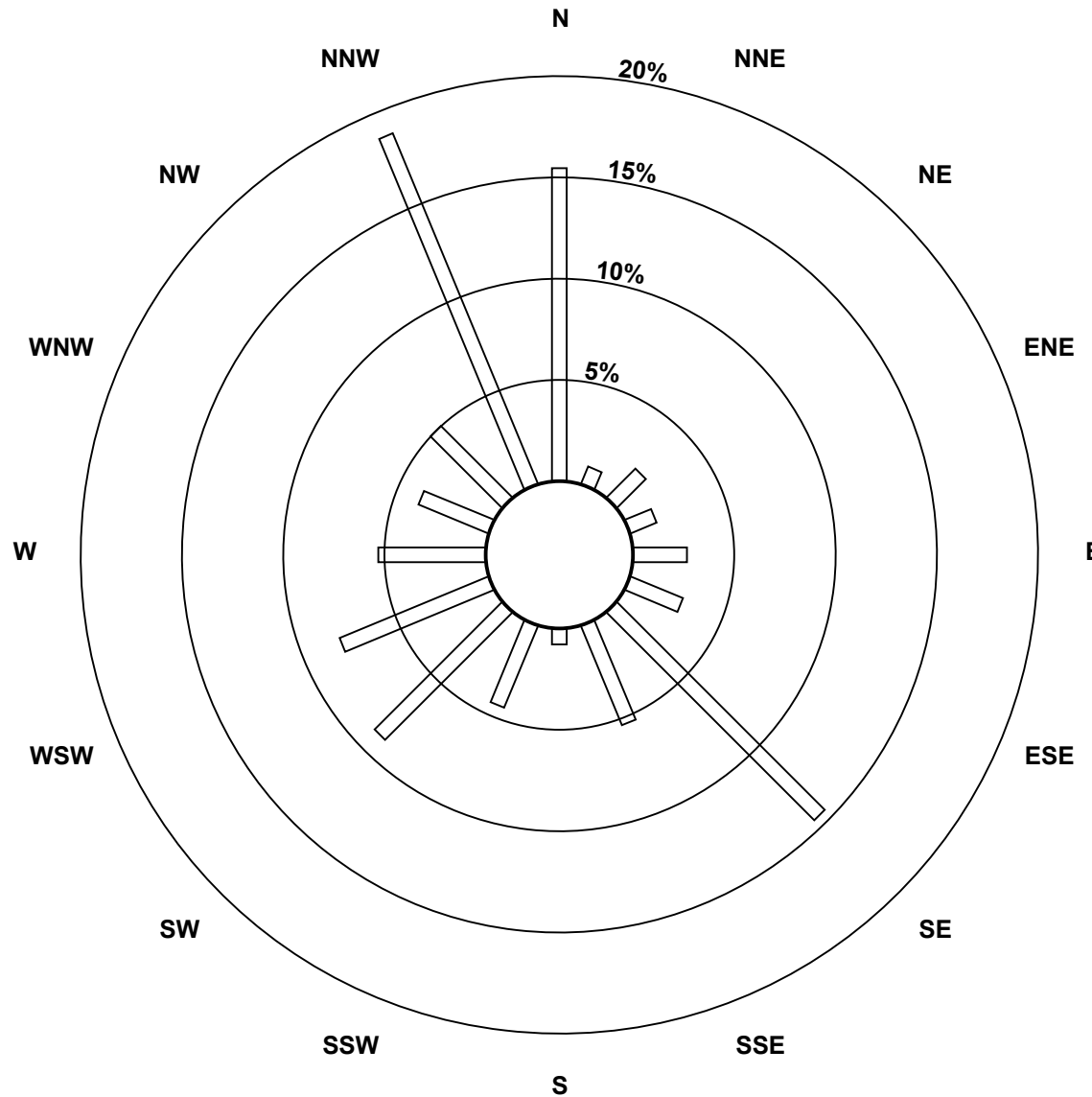
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	99	6	13	9	17	18	93	34	5	28	57	51	34	24	32	120	640
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	99	6	13	9	17	18	93	34	5	28	57	51	34	24	32	120	640

Total Number of Valid Hours: 640

Total Number of Hours: 672

Wood Buffalo Environmental Association  
Wind Rose Feb 2014

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley (AMS 7)



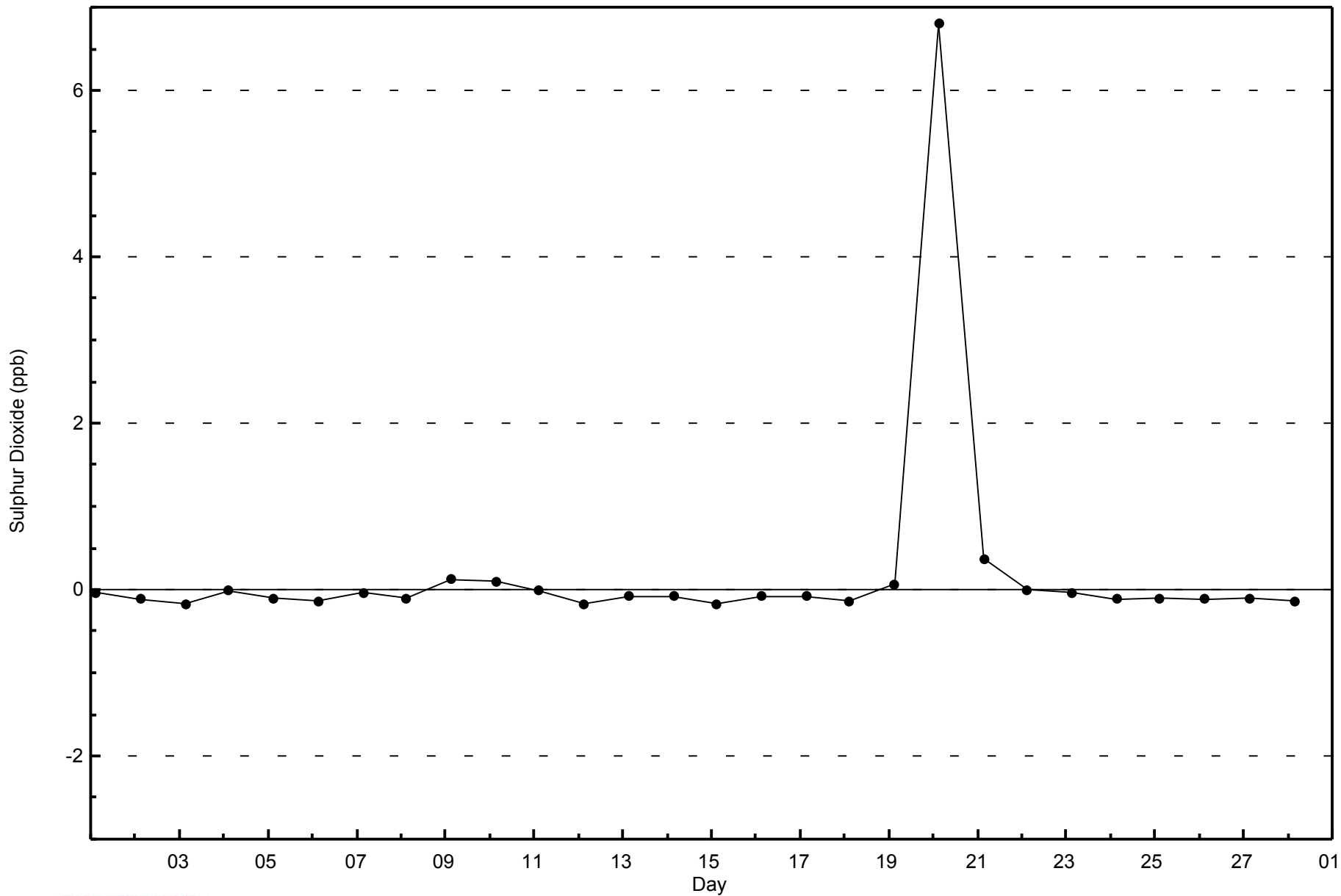
Total Number of Valid Hours: 640



WBEA NETWORK

Zero Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - February 2014

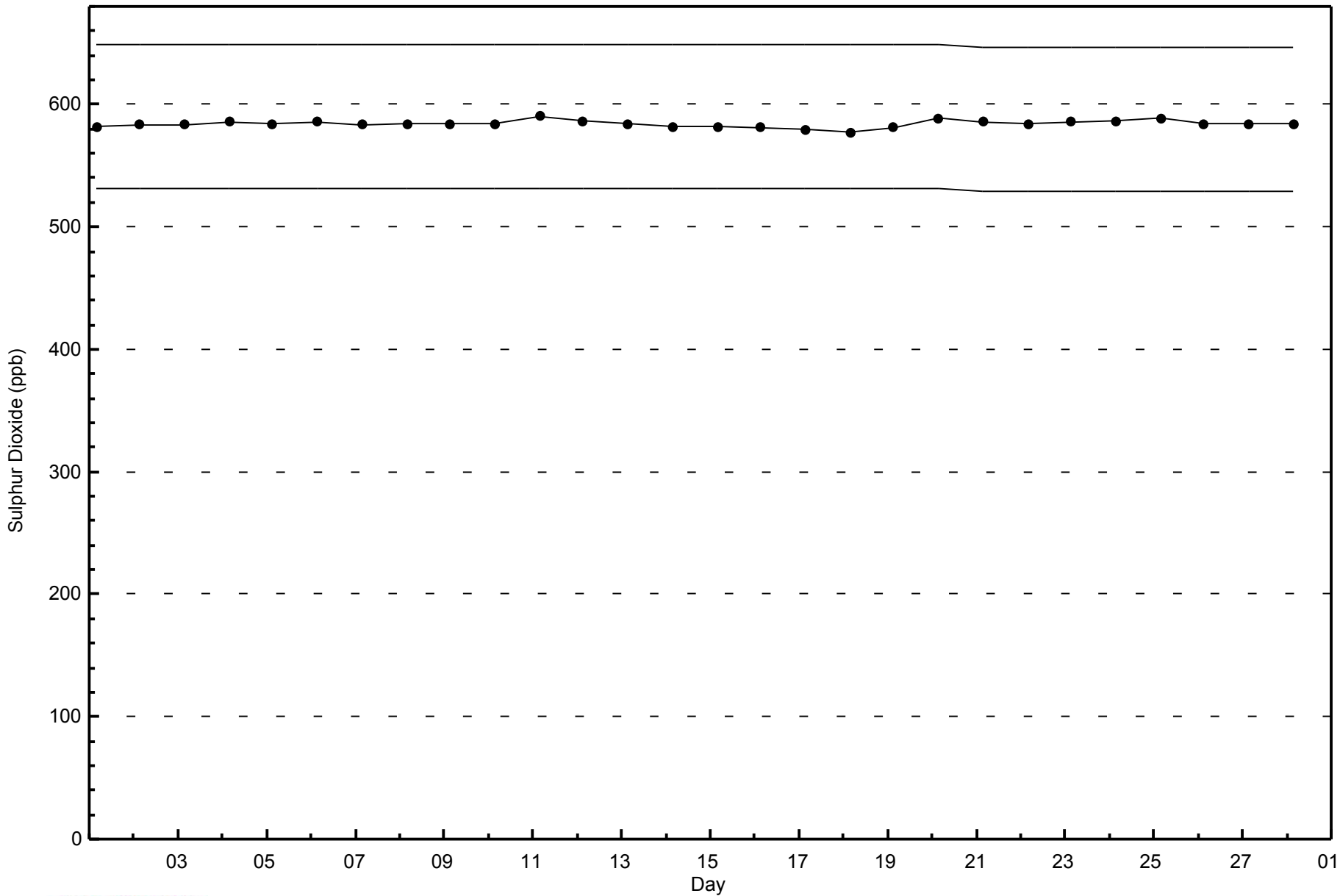






WBEA NETWORK  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - February 2014



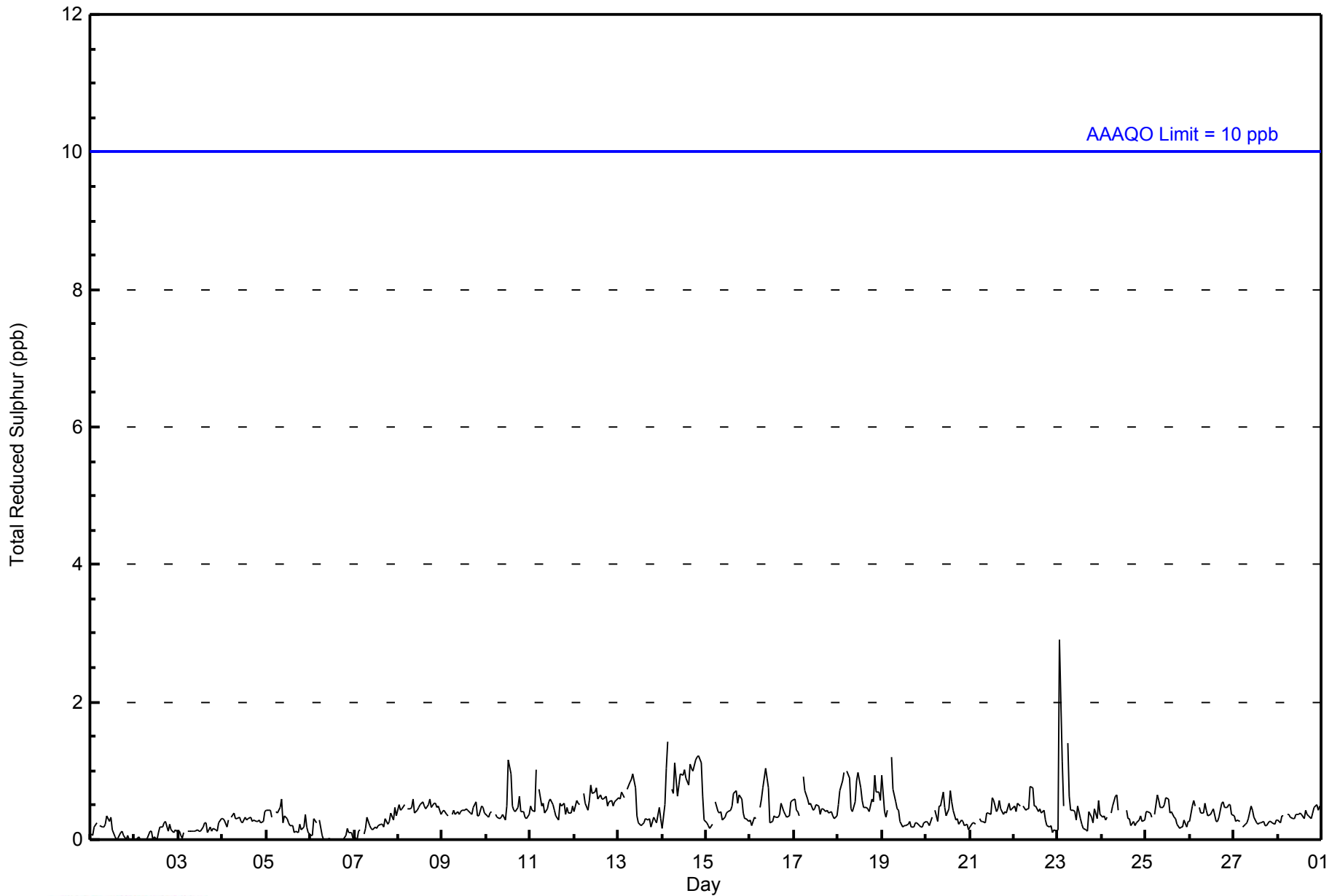


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0										Hours in Service: 672																
Maximum Value: 3 ppb on Feb 23 02:00										Maximum Daily Average: 0.9 ppb on Feb 14										Hours of Data: 641						
Minimum Value: 0 ppb on Feb 1 15:00										Minimum Daily Average: 0.1 ppb on Feb 6										Hours of Missing Data: 31						
Maximum Diurnal Average: 0.5 ppb at hour 6										Minimum Diurnal Average: 0.3 ppb at hour 24										Hours of Calibration: 31						
Monthly Average: 0.4 ppb										Percentiles: P <sub>1</sub> =0 P <sub>10</sub> =0 Q <sub>1</sub> =0 Median=0 Q <sub>3</sub> =0 P <sub>90</sub> =1 P <sub>99</sub> =1										Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
2-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
3-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
4-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0
5-Feb	0	0	0	0	Z	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	1
6-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
7-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0
8-Feb	1	0	0	1	Z	0	0	0	1	0	0	0	1	1	0	0	1	1	0	1	1	0	0	0	0.5	1
9-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.4	1
10-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0.4	1
11-Feb	0	0	0	1	Z	1	0	1	0	0	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0.5	1
12-Feb	0	1	1	1	Z	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0.6	1
13-Feb	1	1	1	1	Z	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1
14-Feb	0	1	1	1	Z	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0.9	1
15-Feb	0	0	0	0	Z	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0.4	1
16-Feb	0	0	0	0	Z	0	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0.5	1
17-Feb	1	0	0	0	Z	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.5	1
18-Feb	1	1	1	1	Z	1	1	0	0	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0.7	1
19-Feb	1	0	0	0	Z	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1
20-Feb	0	0	0	0	Z	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0.4	1
21-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	0	0.4	1
22-Feb	0	0	1	0	Z	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	1
23-Feb	0	3	1	0	Z	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.5	3
24-Feb	0	0	0	0	Z	0	0	1	1	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0.4	1
25-Feb	0	0	0	0	Z	0	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0.4	1
26-Feb	0	0	1	0	Z	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0.4	1
27-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0
28-Feb	0	0	0	0	Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.4	1
	0.3	0.4	0.4	0.4	--	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.3	Diurnal Average	
	1	3	1	1	--	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Diurnal Maximum	
Z - zerospan	C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb	24-hr 3 ppb																									



WBEA NETWORK  
Hourly Averages

Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	640	99.84	99.84
3 - 4	1	0.16	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 641

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Athabasca Valley - February 2014**

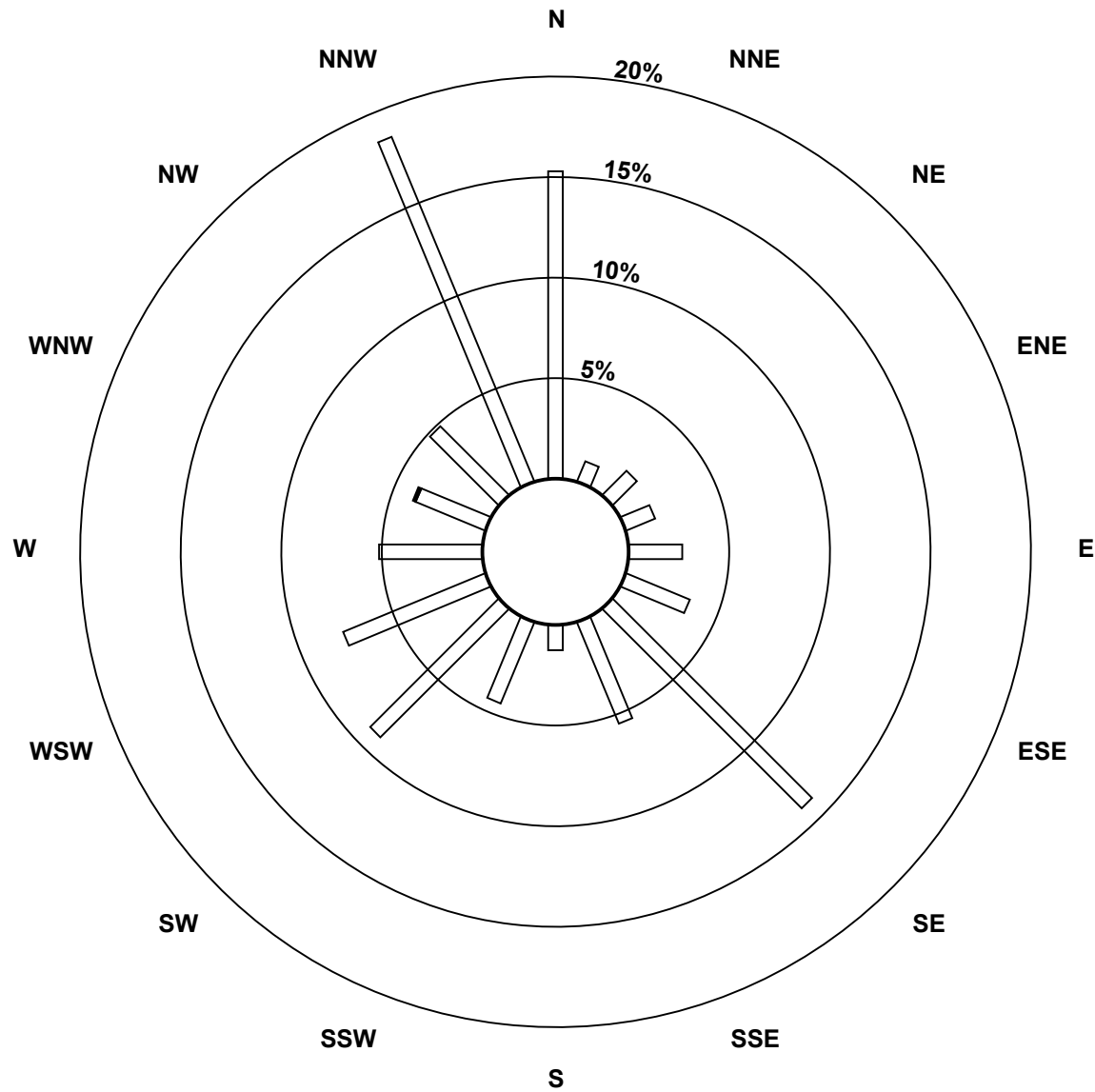
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	98	7	11	10	17	22	90	35	8	28	58	49	33	24	31	119	640
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	98	7	11	10	17	22	90	35	8	28	58	49	33	25	31	119	641

Total Number of Valid Hours: 641

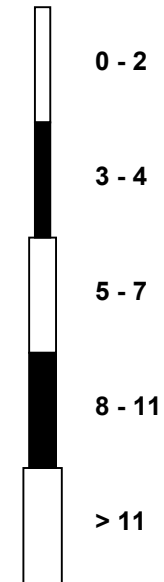
Total Number of Hours: 672

**Wood Buffalo Environmental Association  
Wind Rose Feb 2014**

**Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley (AMS 7)**



Classes (ppb)



Total Number of Valid Hours: 641

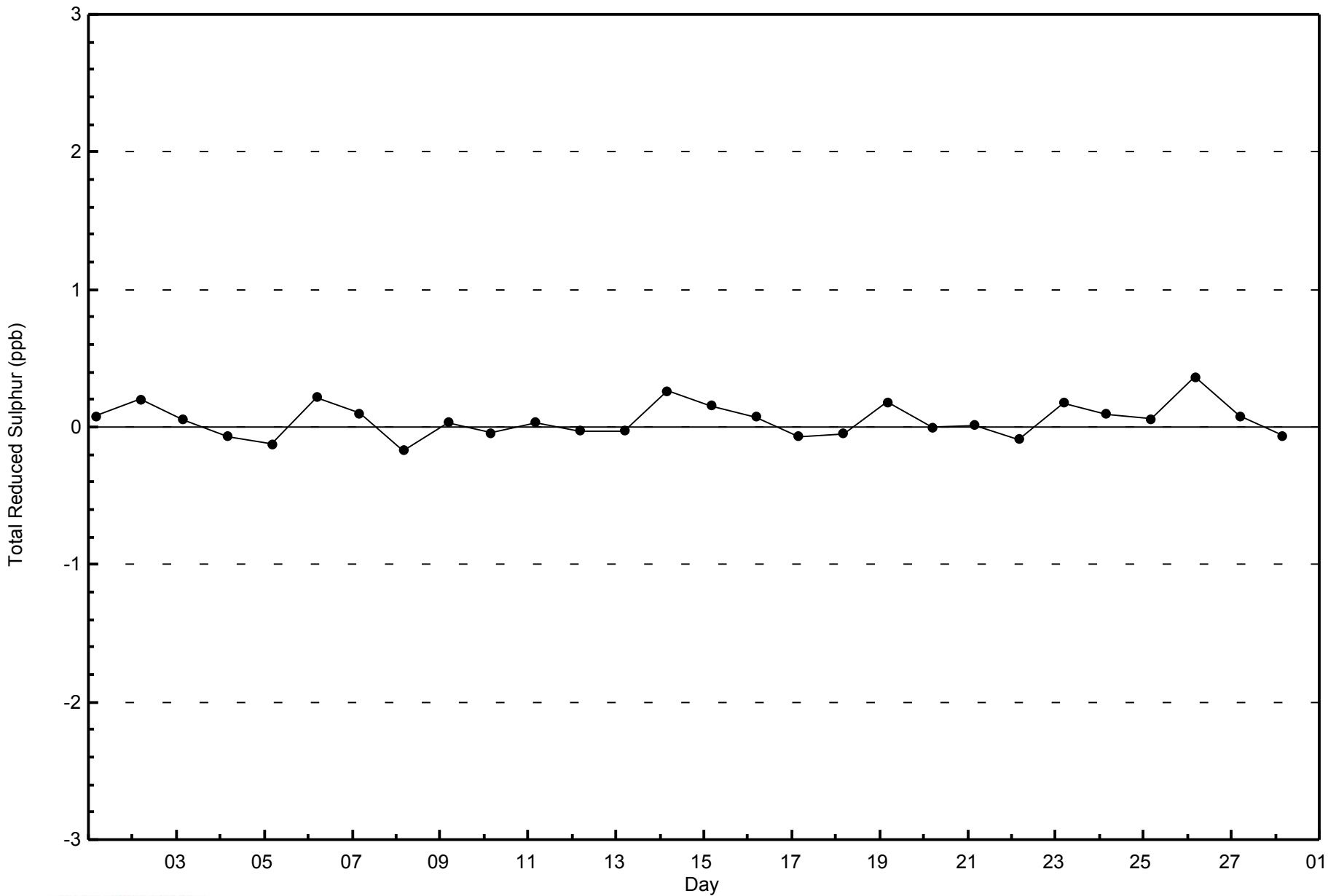


WBEA NETWORK

Zero Responses

Total Reduced Sulphur (TRS) - ppb

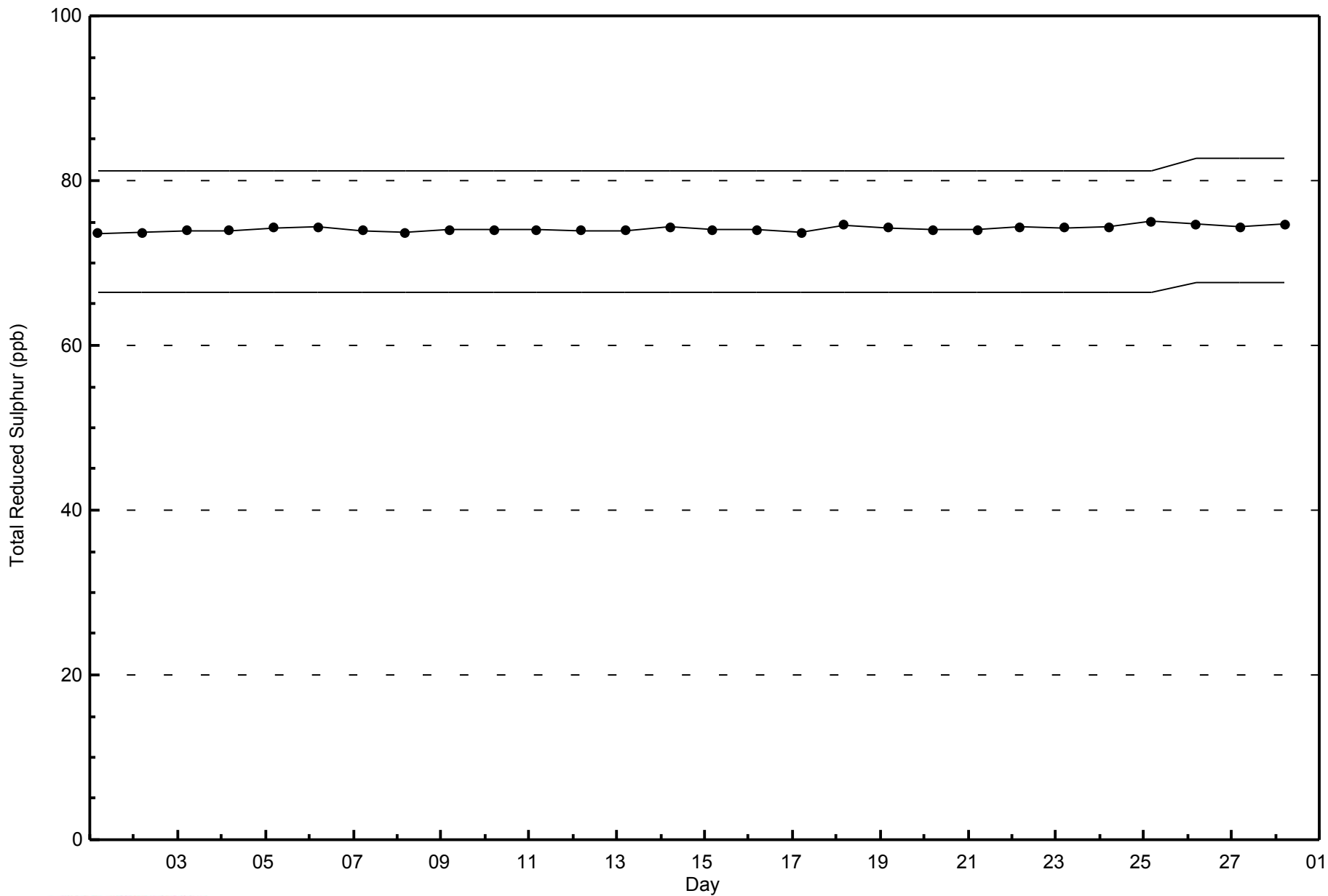
Athabasca Valley - February 2014





WBEA NETWORK  
Span Responses

Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley - February 2014







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

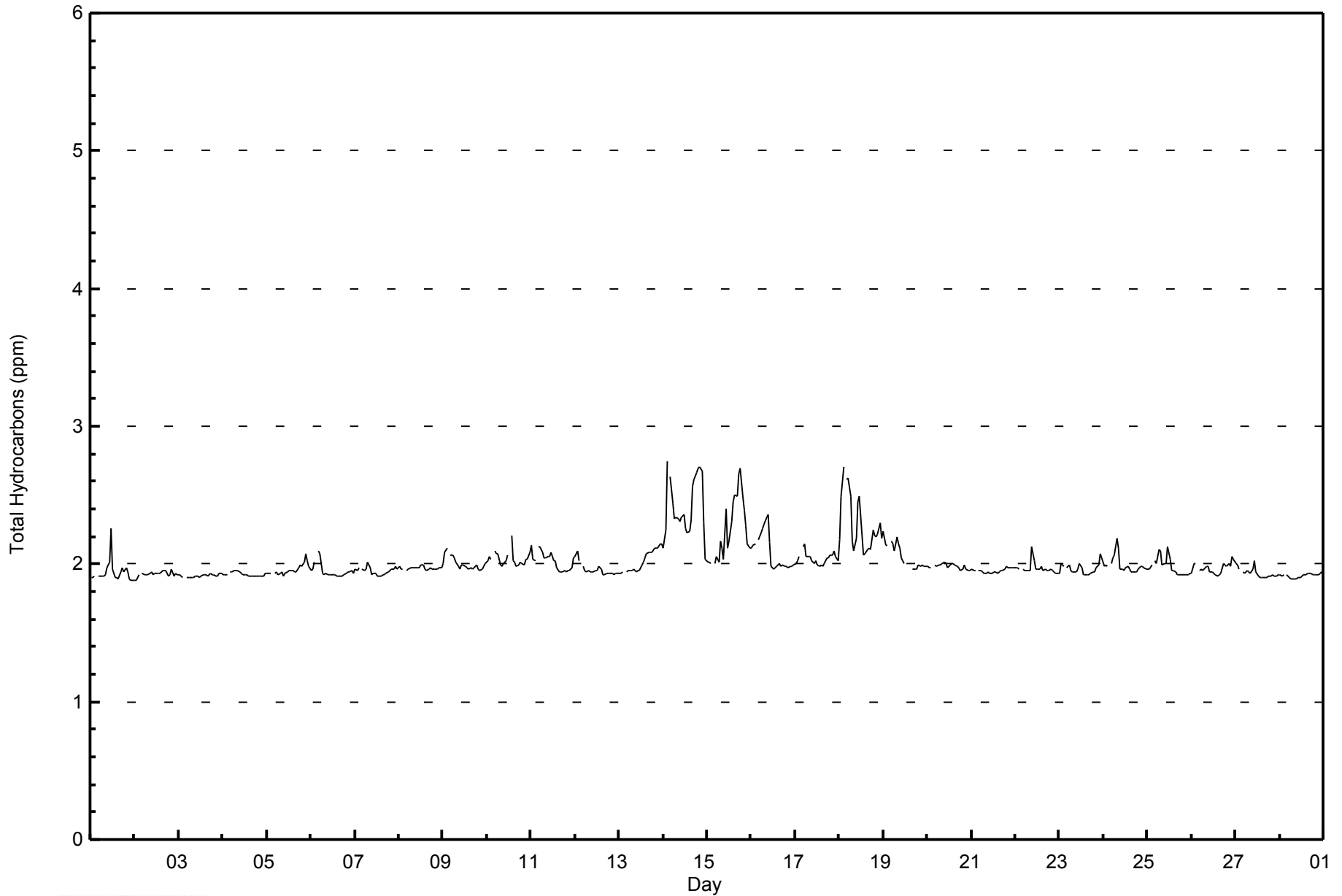
Athabasca Valley - February 2014

Maximum Value: 2.7 ppm on Feb 14 03:00																						Maximum Daily Average: 2.4 ppm on Feb 14																						Hours in Service: 672					
Minimum Value: 1.9 ppm on Feb 2 02:00																						Minimum Daily Average: 1.9 ppm on Feb 3																						Hours of Data: 639					
Maximum Diurnal Average: 2.0 ppm at hour 5																						Minimum Diurnal Average: 2.0 ppm at hour 15																						Hours of Missing Data: 33					
Monthly Average: 2.01 ppm																						Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.7																						Hours of Calibration: 32					
																						Percent Operational Time: 99.9																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Feb	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.3	2.0	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.3	2.0																					
2-Feb	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0																					
3-Feb	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9																					
4-Feb	1.9	1.9	1.9	Z	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																					
5-Feb	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1																					
6-Feb	1.9	2.0	2.0	Z	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1																					
7-Feb	2.0	2.0	2.0	Z	2.0	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																					
8-Feb	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																					
9-Feb	2.0	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																					
10-Feb	2.0	2.1	2.0	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	M	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																					
11-Feb	2.1	2.0	2.0	Z	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1																					
12-Feb	2.1	2.1	2.0	Z	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1																					
13-Feb	1.9	1.9	1.9	Z	1.9	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.2																						
14-Feb	2.1	2.2	2.7	Z	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.3	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.3	2.0	2.4																						
15-Feb	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.2	2.1	2.0	2.4	2.1	2.2	2.3	2.5	2.5	2.5	2.7	2.7	2.7	2.5	2.4	2.3	2.1	2.1	2.2	2.7																						
16-Feb	2.1	2.1	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4																					
17-Feb	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1																					
18-Feb	2.2	2.5	2.7	Z	2.6	2.6	2.5	2.2	2.1	2.2	2.5	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.7																						
19-Feb	2.2	2.1	2.1	Z	2.2	2.1	2.1	2.2	2.1	2.1	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
20-Feb	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																					
21-Feb	2.0	2.0	2.0	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																					
22-Feb	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1																					
23-Feb	1.9	2.0	2.0	Z	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1																					
24-Feb	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																					
25-Feb	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1																					
26-Feb	1.9	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1																					
27-Feb	2.0	2.0	2.0	Z	1.9	1.9	2.0	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																					
28-Feb	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																					
																						2.0	2.0	2.0	--	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	Diurnal Average
																						2.2	2.5	2.7	--	2.6	2.6	2.5	2.3	2.3	2.4	2.5	2.5	2.3	2.3	2.5	2.5	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.3	2.2	Diurnal Maximum
Z - zerospan																						C - Calibration						M - Maintenance																					



**WBEA NETWORK**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - February 2014**





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	507	79.34	79.34
2.1 - 3.0	132	20.66	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 639

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - February 2014**

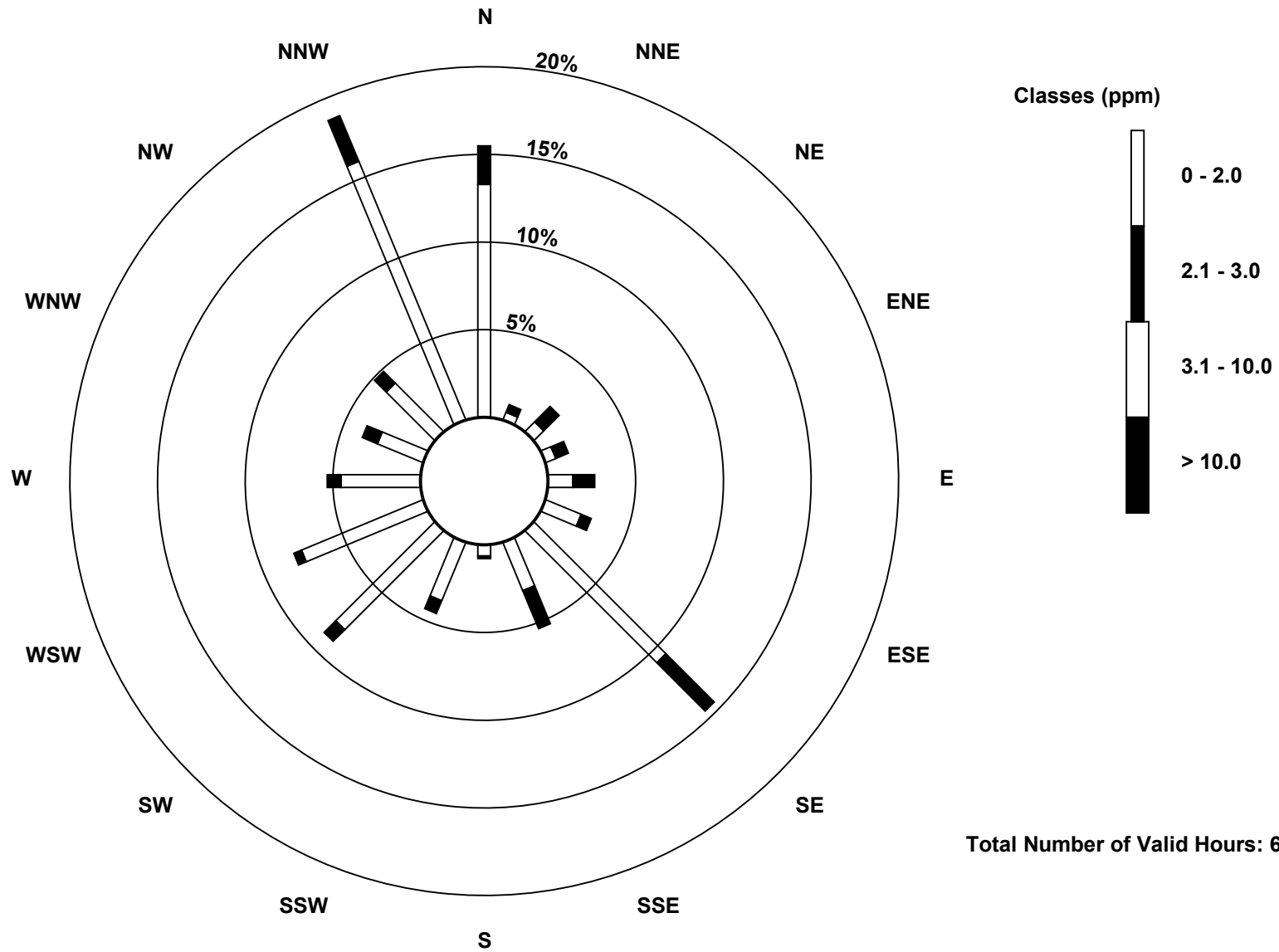
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	85	3	5	4	9	14	68	19	4	23	51	48	29	18	25	102	507
2.1 - 3.0	14	3	8	5	8	4	25	15	1	5	6	3	5	6	6	18	132
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	99	6	13	9	17	18	93	34	5	28	57	51	34	24	31	120	639

Total Number of Valid Hours: 639

Total Number of Hours: 672

**Wood Buffalo Environmental Association  
Wind Rose Feb 2014**

**Total Hydrocarbons (THC) - ppm  
Athabasca Valley (AMS 7)**



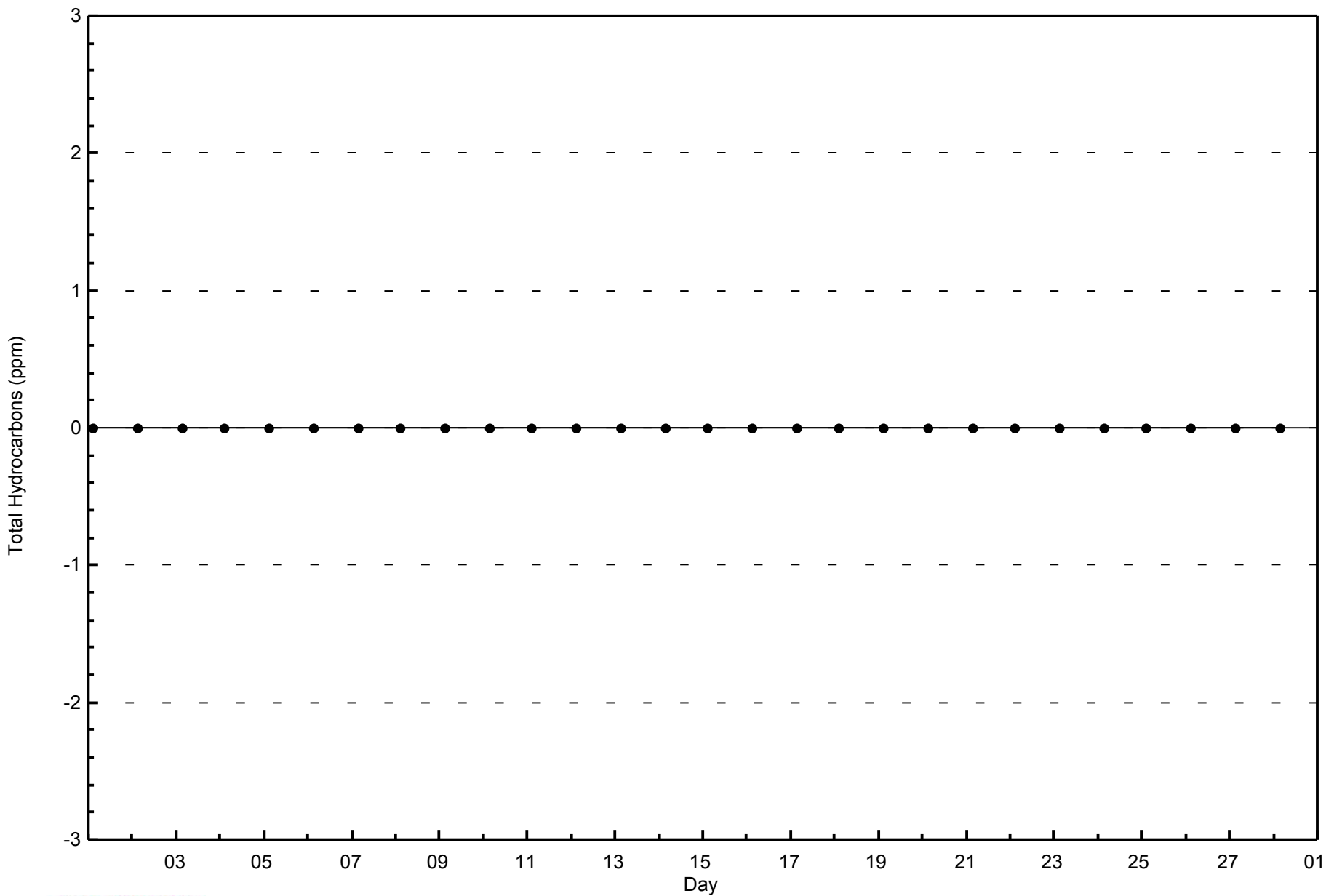


WBEA NETWORK

Zero Responses

Total Hydrocarbons (THC) - ppm

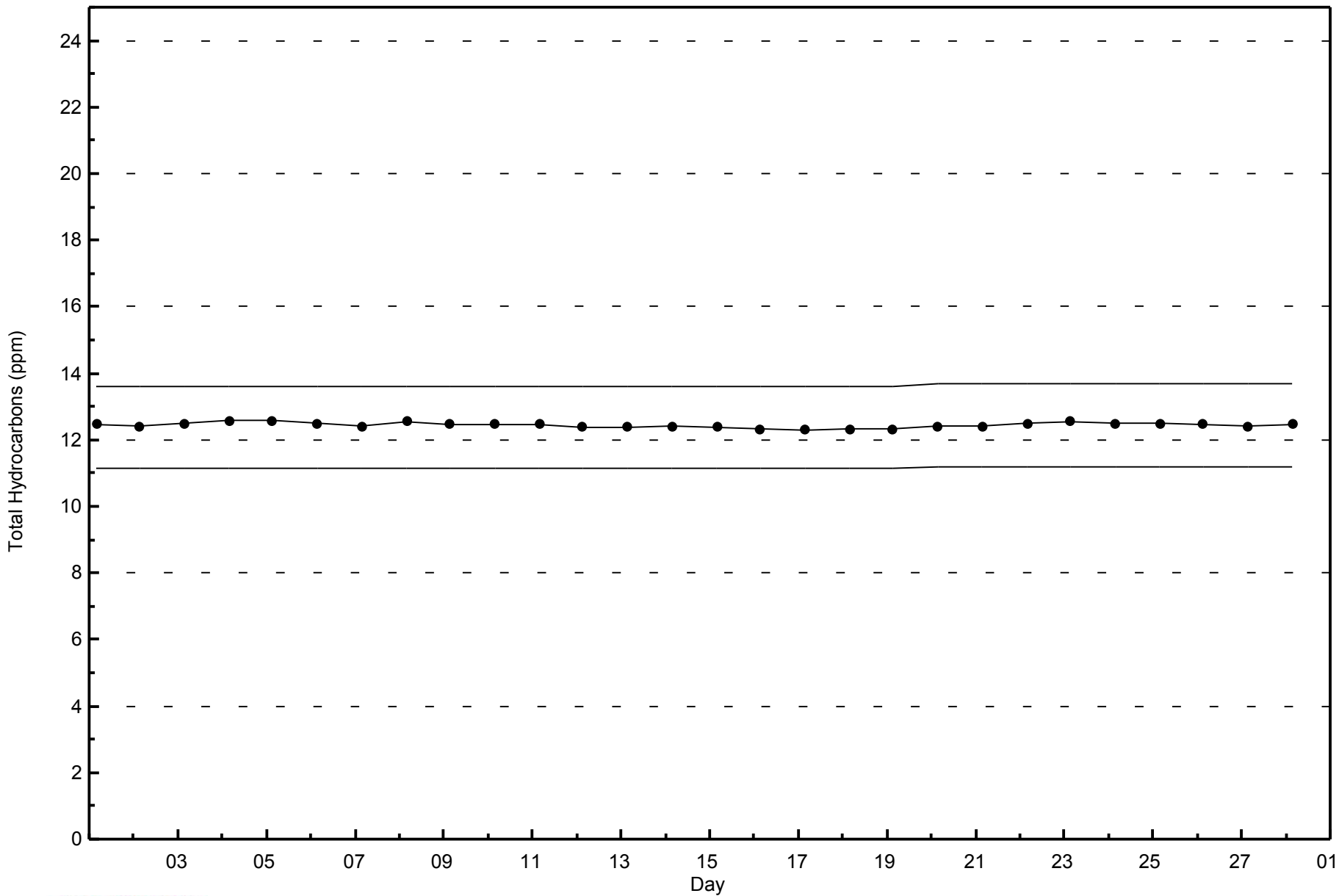
Athabasca Valley - February 2014





WBEA NETWORK  
Span Responses

Total Hydrocarbons (THC) - ppm  
Athabasca Valley - February 2014





Summary of Hour Averages

Athabasca Valley - February 2014

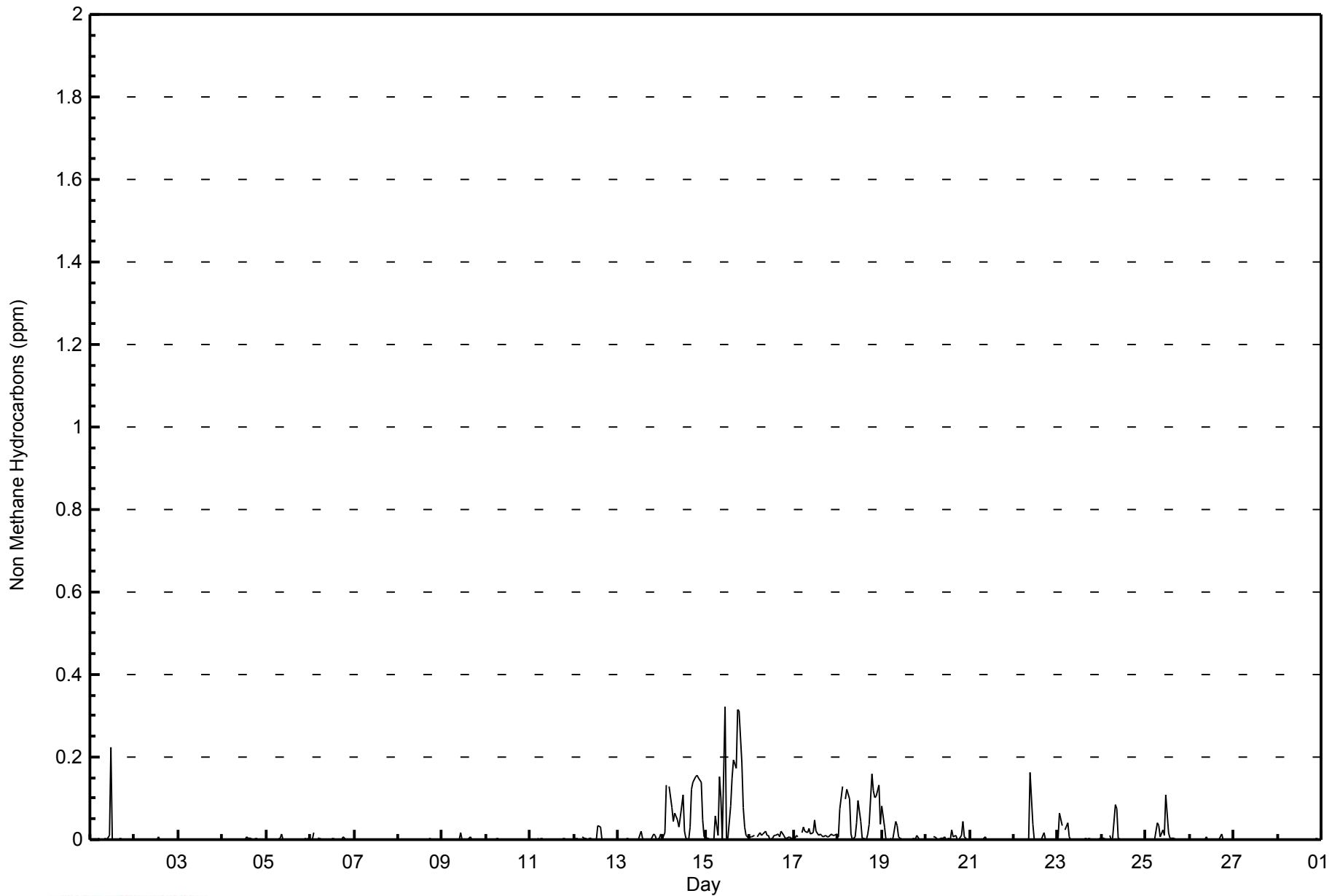
Maximum Value: 0.322 ppm on Feb 15 11:00		Maximum Daily Average: 0.096 ppm on Feb 15		Hours in Service:	672																						
Minimum Value: 0.000 ppm on Feb 1 01:00		Minimum Daily Average: 0.000 ppm on Feb 3		Hours of Data:	639																						
Maximum Diurnal Average: 0.023 ppm at hour 19		Minimum Diurnal Average: 0.003 ppm at hour 24		Hours of Missing Data:	33																						
Monthly Average: 0.012 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.2		Hours of Calibration:	32																						
				Percent Operational Time:	99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Feb	0.000	0.000	0.000	Z	0.002	0.000	0.000	0.000	0.003	0.000	0.009	0.223	0.001	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.223	
2-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
3-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.003	0.004	0.000	0.000	0.003	0.000	0.000	0.000	0.001	0.000	0.001	0.006	0.006
5-Feb	0.000	0.001	0.000	Z	0.000	0.001	0.000	0.005	0.014	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.002	0.001	0.014	0.014
6-Feb	0.000	0.001	0.018	Z	0.004	0.002	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.002	0.018	0.018
7-Feb	0.000	0.000	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8-Feb	0.001	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
9-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.018	0.001	0.000	0.000	0.000	0.005	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.018	0.018
10-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003
11-Feb	0.001	0.000	0.000	Z	0.004	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.004	0.004
12-Feb	0.000	0.003	0.001	Z	0.008	0.005	0.003	0.000	0.002	0.003	0.000	0.001	0.001	0.032	0.031	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.004	0.032	0.032
13-Feb	0.001	0.001	0.001	Z	0.001	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.022	0.002	0.000	0.000	0.000	0.000	0.000	0.015	0.010	0.001	0.003	0.013	0.003	0.022	0.022
14-Feb	0.001	0.018	0.132	Z	0.128	0.078	0.045	0.063	0.047	0.031	0.053	0.107	0.022	0.005	0.001	0.031	0.123	0.140	0.154	0.157	0.148	0.139	0.048	0.006	0.073	0.157	0.157
15-Feb	0.002	0.005	0.000	Z	0.000	0.058	0.011	0.153	0.103	0.000	0.322	0.005	0.004	0.082	0.149	0.194	0.173	0.315	0.313	0.188	0.078	0.030	0.009	0.004	0.096	0.322	0.322
16-Feb	0.008	0.007	0.009	Z	0.006	0.018	0.011	0.013	0.019	0.010	0.011	0.001	0.002	0.010	0.010	0.013	0.006	0.021	0.009	0.003	0.002	0.007	0.002	0.003	0.009	0.021	0.021
17-Feb	0.004	0.011	0.006	Z	0.016	0.030	0.019	0.017	0.028	0.013	0.017	0.048	0.020	0.012	0.015	0.009	0.008	0.011	0.007	0.007	0.013	0.010	0.010	0.014	0.015	0.048	0.048
18-Feb	0.008	0.074	0.129	Z	0.100	0.123	0.097	0.013	0.001	0.006	0.041	0.095	0.044	0.002	0.003	0.000	0.013	0.038	0.159	0.117	0.100	0.107	0.133	0.039	0.063	0.159	0.159
19-Feb	0.083	0.032	0.000	Z	0.004	0.001	0.004	0.043	0.035	0.007	0.005	0.000	C	C	C	C	0.000	0.003	0.000	0.010	0.000	0.000	0.001	0.000	0.012	0.083	0.083
20-Feb	0.000	0.001	0.000	Z	0.008	0.006	0.000	0.000	0.004	0.004	0.007	0.000	0.004	0.001	0.024	0.006	0.009	0.000	0.000	0.009	0.045	0.008	0.000	0.000	0.006	0.045	0.045
21-Feb	0.000	0.000	0.001	Z	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005
22-Feb	0.000	0.000	0.001	Z	0.000	0.001	0.000	0.000	0.002	0.162	0.037	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.162	0.162
23-Feb	0.000	0.065	0.034	Z	0.023	0.040	0.007	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.005	0.001	0.000	0.000	0.001	0.001	0.002	0.008	0.065	0.065
24-Feb	0.005	0.002	0.000	Z	0.009	0.000	0.005	0.086	0.076	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.086	0.086
25-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.040	0.033	0.006	0.023	0.009	0.107	0.019	0.004	0.004	0.002	0.001	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.011	0.107	0.107
26-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.007	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.014	0.014
27-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28-Feb	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.001	0.000	0.000	0.000
		0.004	0.008	0.012	--	0.011	0.013	0.009	0.015	0.012	0.010	0.019	0.021	0.005	0.006	0.009	0.010	0.013	0.020	0.023	0.018	0.014	0.011	0.007	0.003	Diurnal Average	
		0.083	0.074	0.132	--	0.128	0.123	0.097	0.153	0.103	0.162	0.322	0.223	0.044	0.082	0.149	0.194	0.173	0.315	0.313	0.188	0.148	0.139	0.133	0.039	Diurnal Maximum	
Z - zerospan		C - Calibration			M - Maintenance																						





WBEA NETWORK  
Hourly Averages

Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	498	77.93	77.93
0.006 - 0.05	100	15.65	93.58
0.06 - 0.1	29	4.54	98.12
> 0.1	12	1.88	100.00

Total Number of Valid Hours: 639

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Athabasca Valley - February 2014**

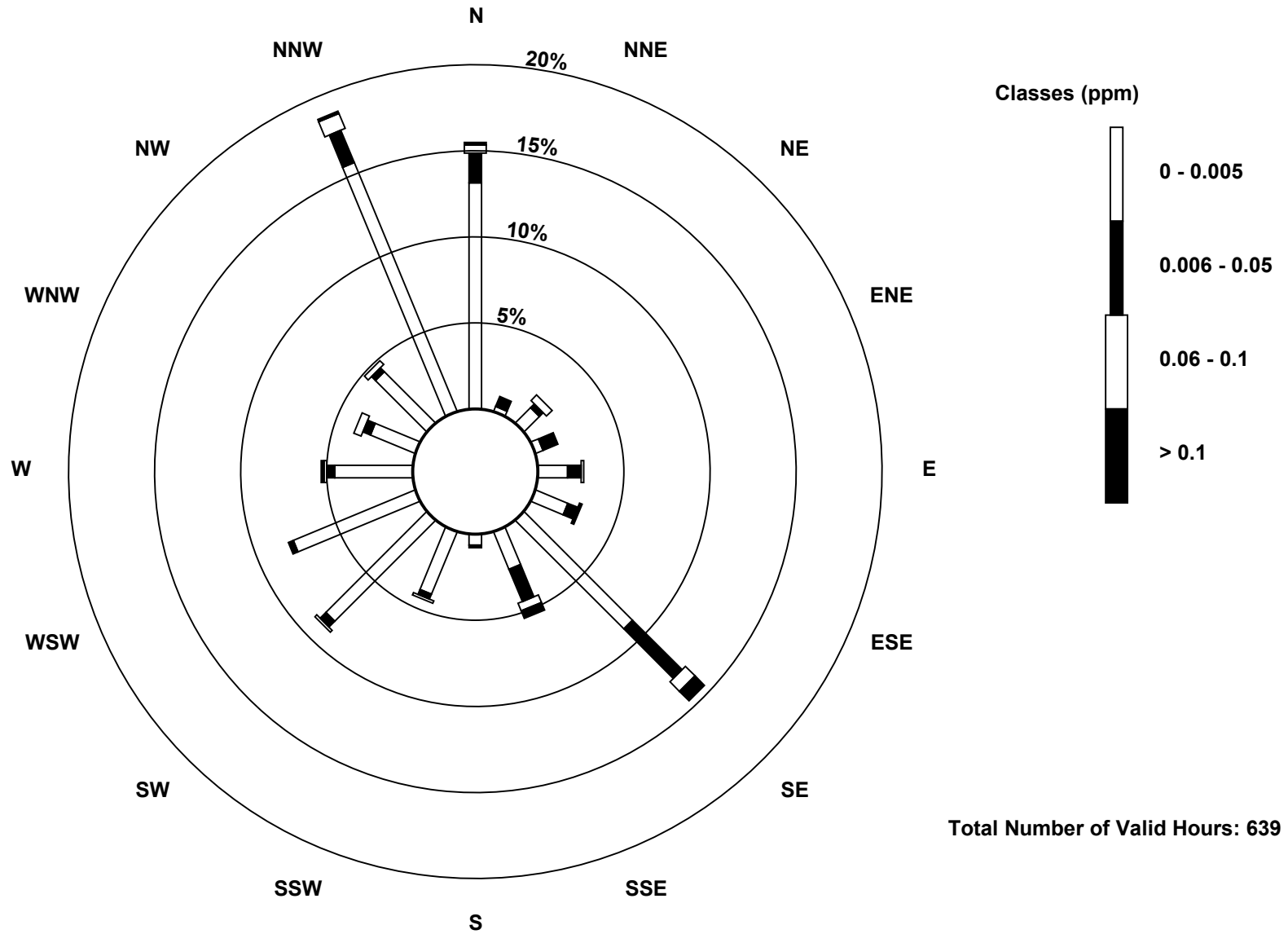
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	84	2	8	3	11	13	57	15	4	25	53	49	29	18	27	100	498
0.006 - 0.05	11	4	2	6	5	4	26	13	1	2	3	2	3	3	2	13	100
0.06 - 0.1	3	0	3	0	1	0	5	3	0	1	1	0	1	3	2	6	29
> 0.1	1	0	0	0	0	1	5	3	0	0	0	0	1	0	0	1	12
<b>Totals</b>	99	6	13	9	17	18	93	34	5	28	57	51	34	24	31	120	639

Total Number of Valid Hours: 639

Total Number of Hours: 672

**Wood Buffalo Environmental Association  
Wind Rose Feb 2014**

**Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley (AMS 7)**



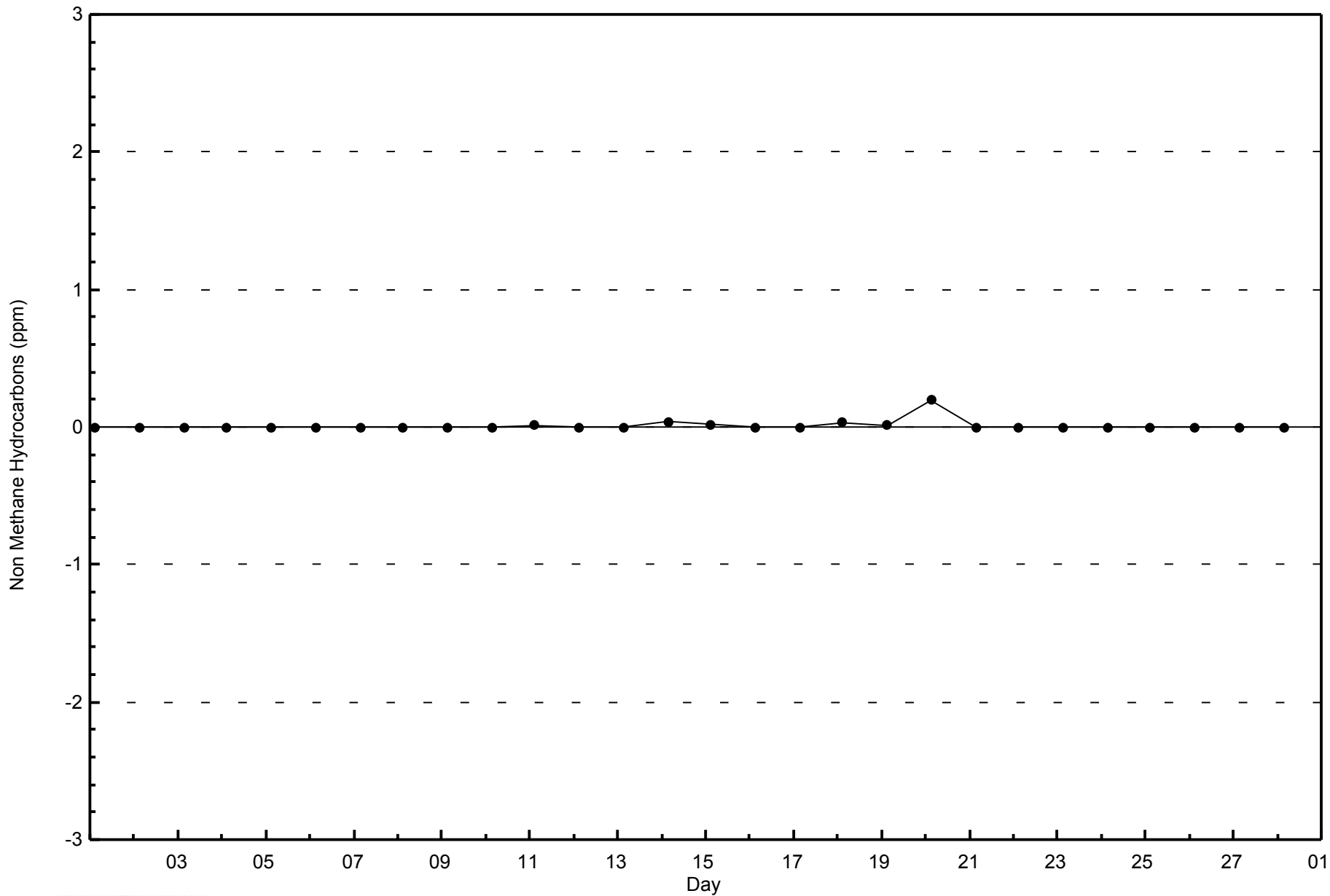


WBEA NETWORK

Zero Responses

Non Methane Hydrocarbons (NMHC) - ppm

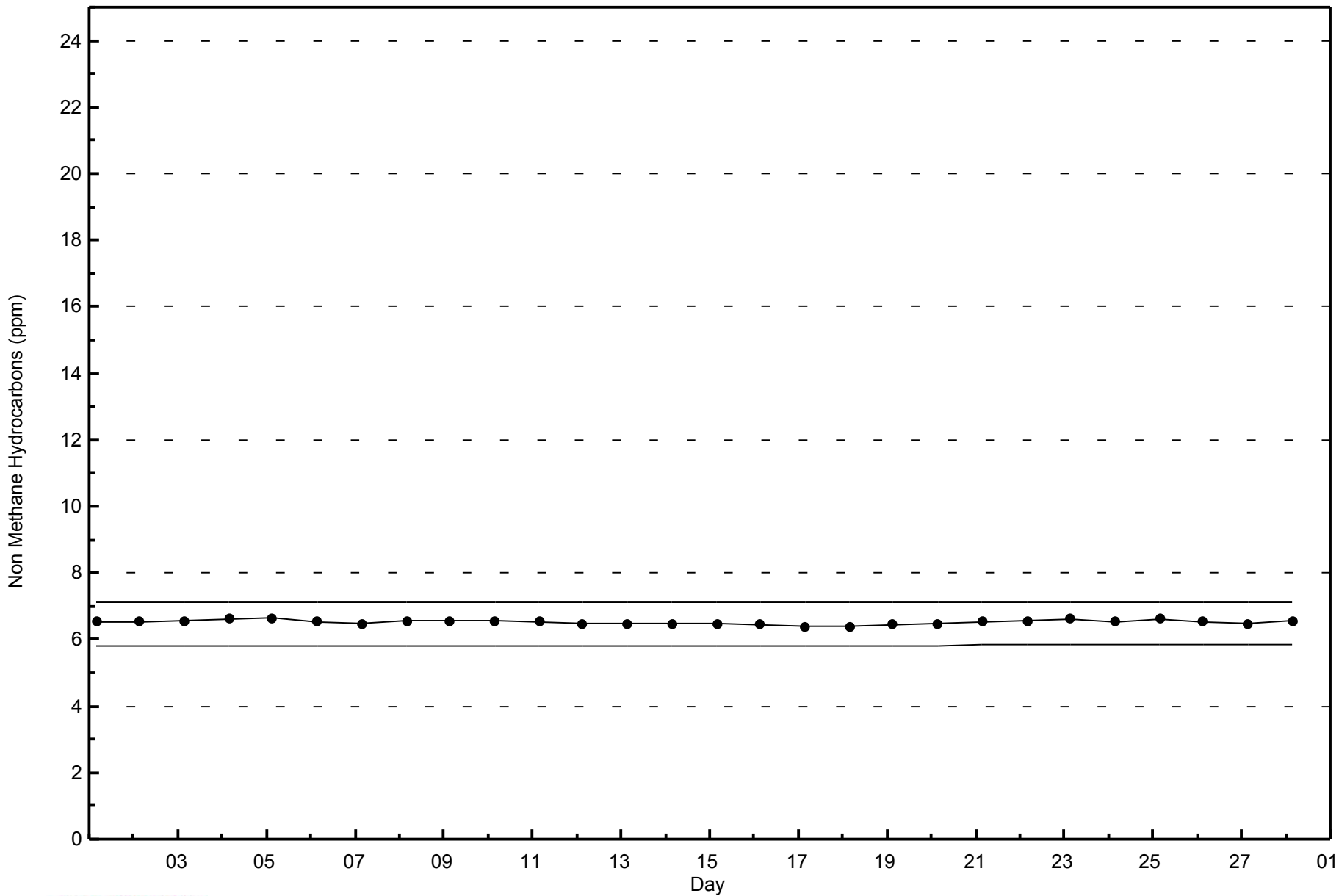
Athabasca Valley - February 2014





WBEA NETWORK  
Span Responses

Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - February 2014

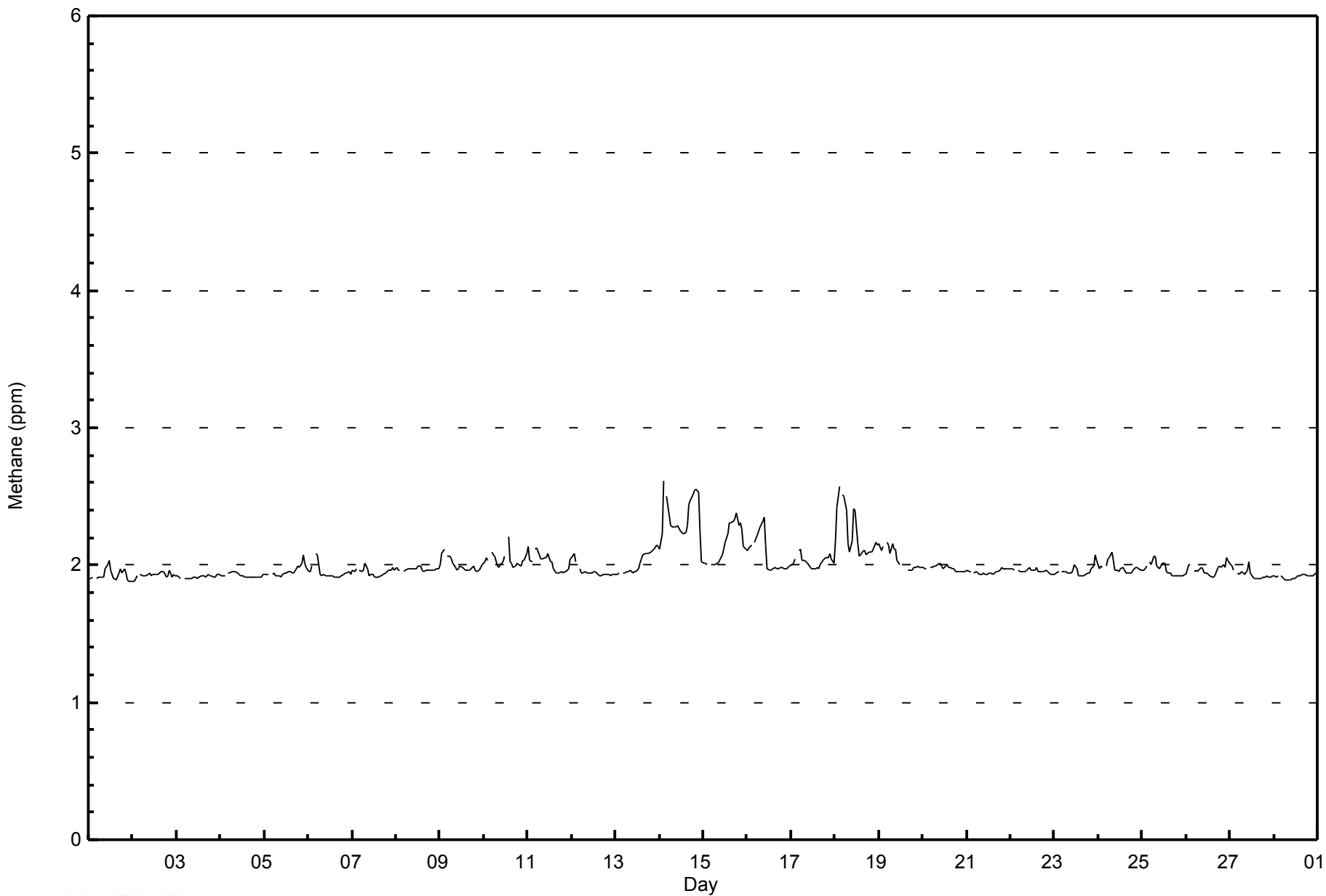






WBEA NETWORK  
Hourly Averages

Methane (CH<sub>4</sub>) - ppm  
Athabasca Valley - February 2014







**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	518	81.06	81.06
2.1 - 3.0	121	18.94	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 639

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - February 2014**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	85	3	5	5	9	14	74	21	4	24	51	48	30	18	25	102	518
2.1 - 3.0	14	3	8	4	8	4	19	13	1	4	6	3	4	6	6	18	121
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	99	6	13	9	17	18	93	34	5	28	57	51	34	24	31	120	639

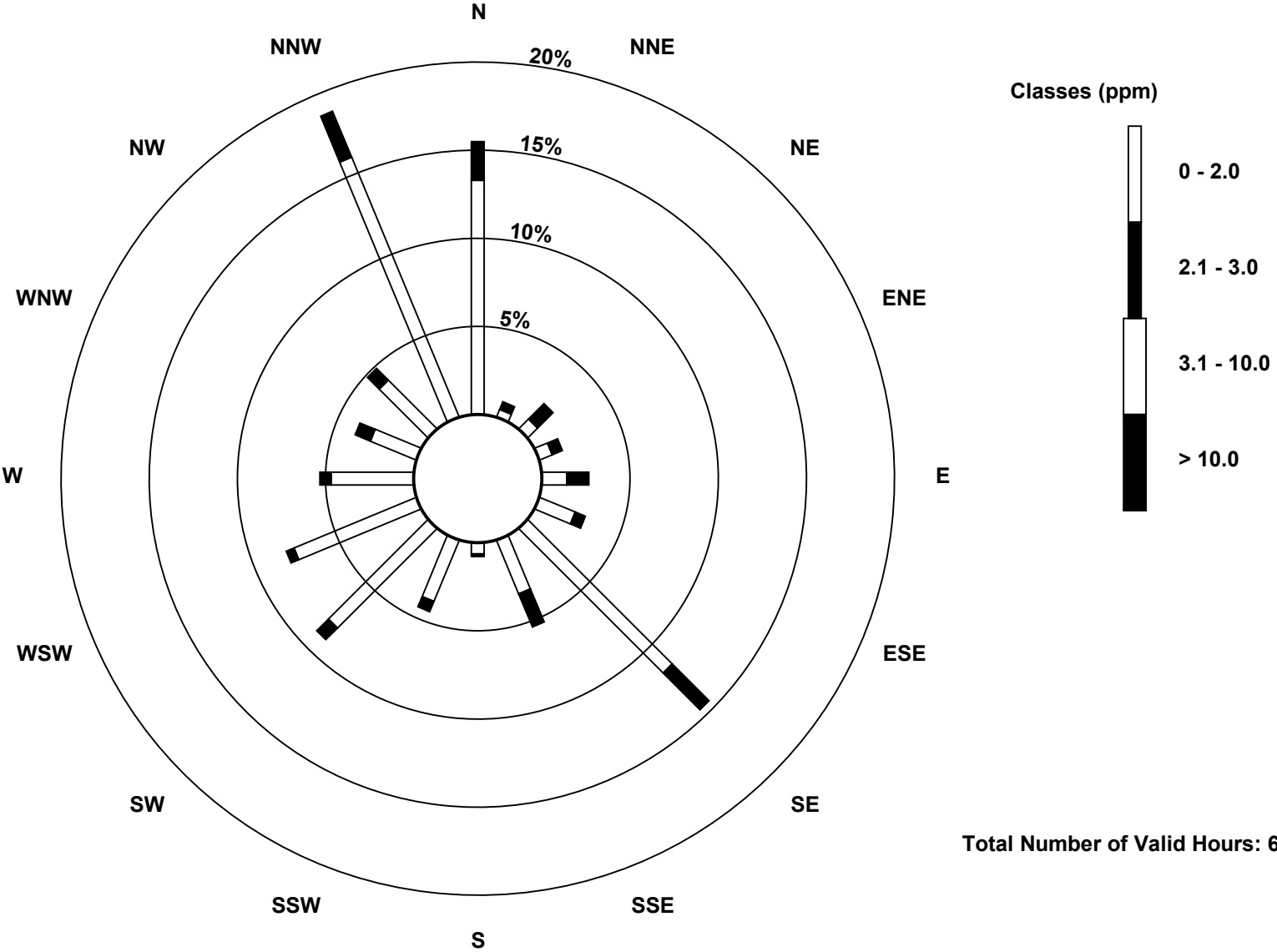
Total Number of Valid Hours: 639

Total Number of Hours: 672

**Wood Buffalo Environmental Association**

**Wind Rose Feb 2014**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley (AMS 7)**



**Total Number of Valid Hours: 639**

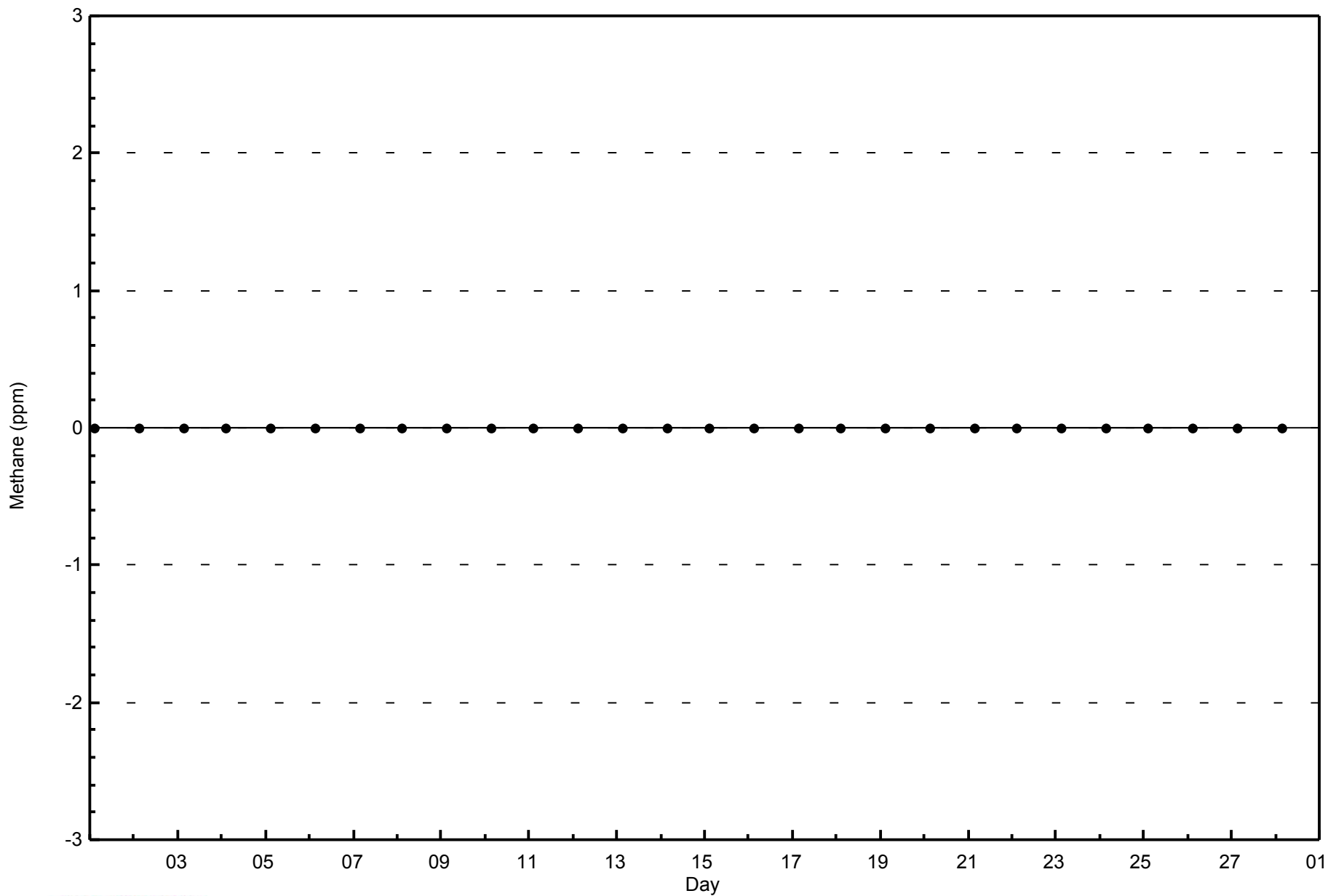


WBEA NETWORK

Zero Responses

Methane (CH<sub>4</sub>) - ppm

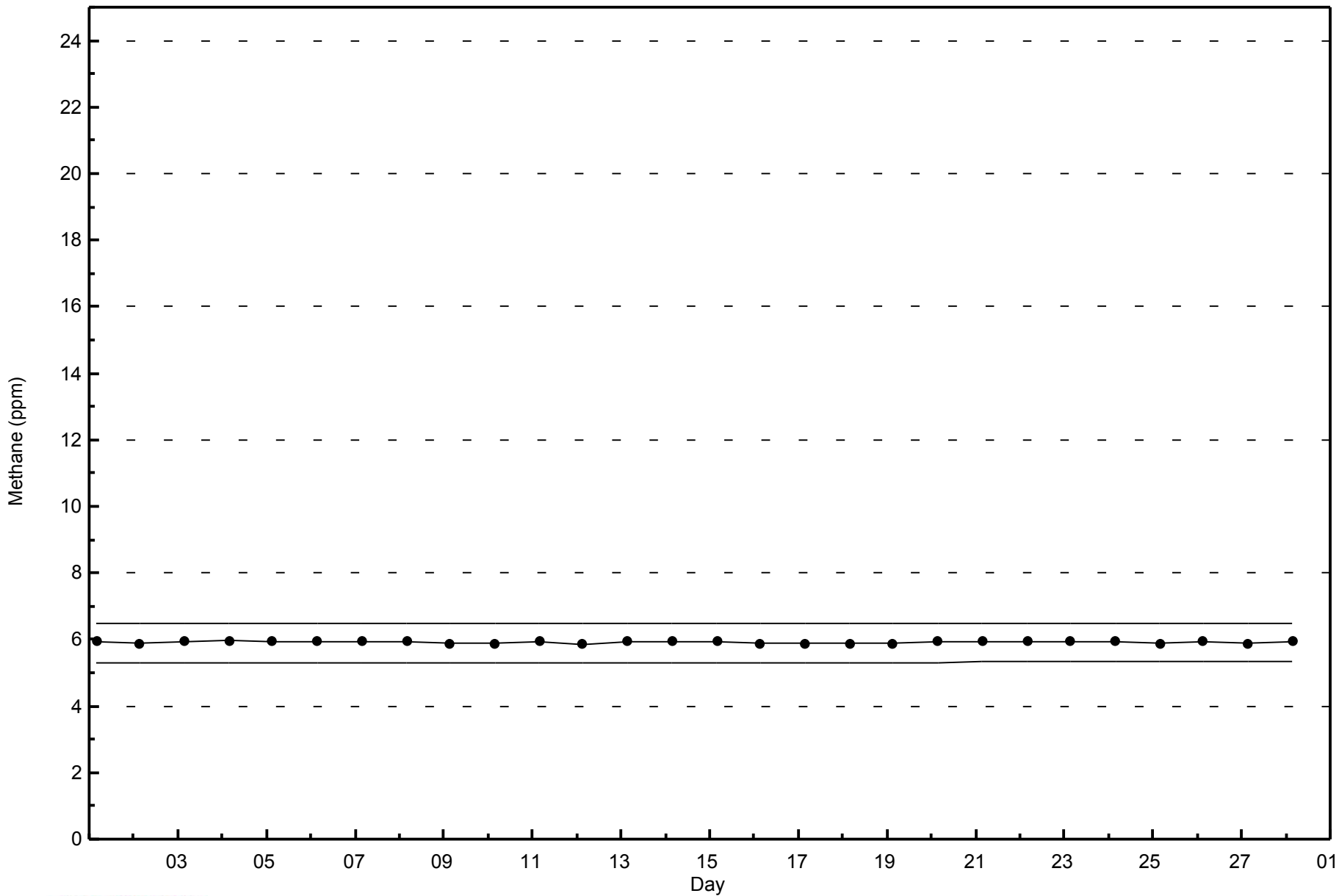
Athabasca Valley - February 2014





WBEA NETWORK  
Span Responses

Methane (CH<sub>4</sub>) - ppm  
Athabasca Valley - February 2014



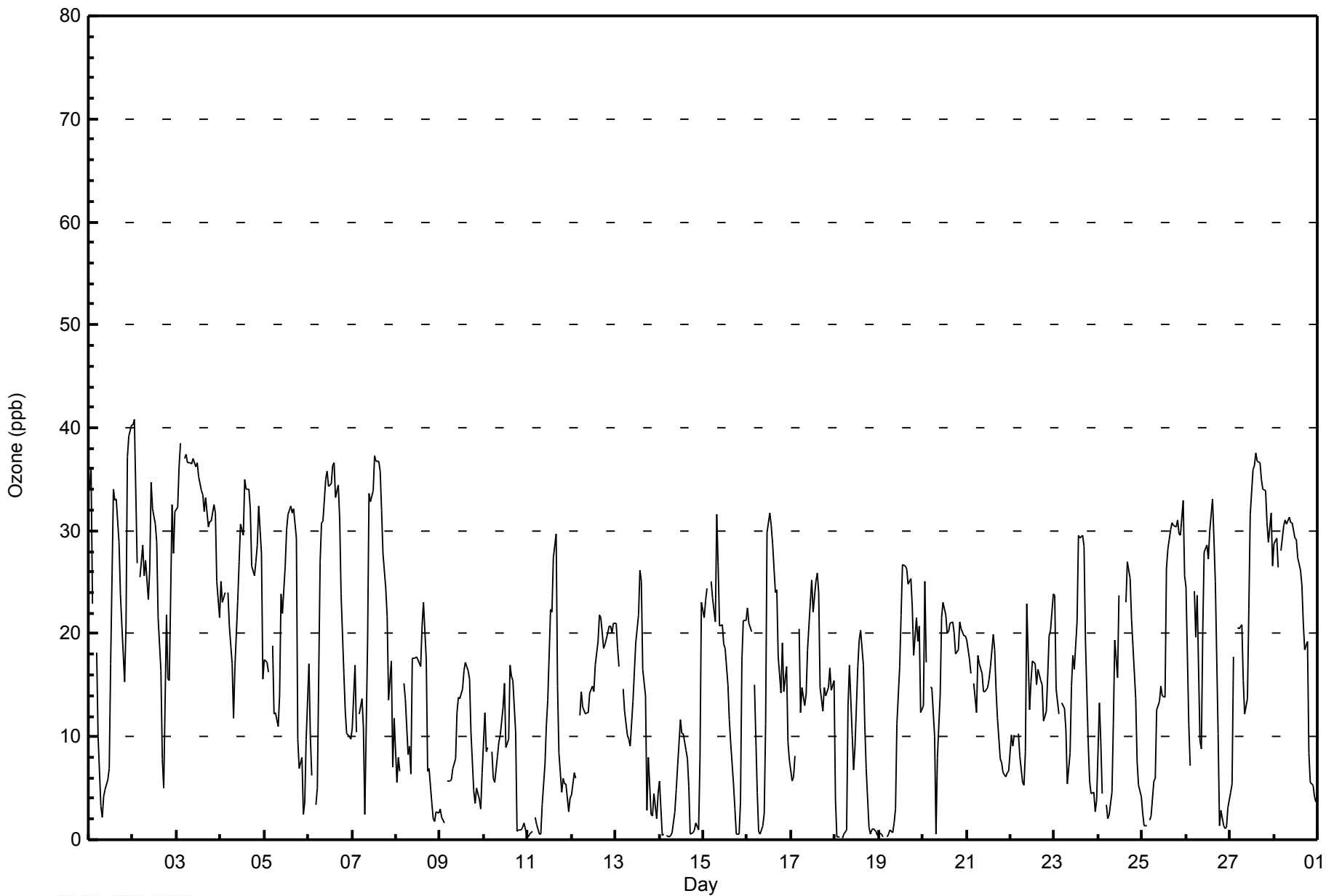


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0										Hours in Service: 672																																							
Maximum Value: 41 ppb on Feb 2 02:00										Maximum Daily Average: 33.5 ppb on Feb 3										Hours of Data: 641																													
Minimum Value: 0 ppb on Feb 18 05:00										Minimum Daily Average: 4.9 ppb on Feb 14										Hours of Missing Data: 31																													
Maximum Diurnal Average: 25.4 ppb at hour 15										Minimum Diurnal Average: 11.5 ppb at hour 8										Hours of Calibration: 31																													
Monthly Average: 16.5 ppb										Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 2 Q <sub>1</sub> = 7 Median = 16 Q <sub>3</sub> = 25 P <sub>90</sub> = 32 P <sub>99</sub> = 37										Percent Operational Time: 100.0																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Feb	34	36	23	Z	18	10	3	2	4	5	6	7	17	34	33	33	29	24	21	15	21	37	39	40	21.4	40																							
2-Feb	40	41	27	Z	26	29	26	27	23	26	35	32	31	29	22	16	8	5	22	16	16	32	28	32	25.5	41																							
3-Feb	32	36	38	Z	37	37	37	37	36	37	36	37	35	34	33	32	33	30	31	31	32	32	25	21	33.5	38																							
4-Feb	25	23	24	Z	24	21	17	12	17	23	27	31	30	35	34	34	32	27	26	27	29	32	28	16	25.7	35																							
5-Feb	17	17	16	Z	19	12	12	11	14	24	22	27	30	32	32	32	32	29	10	7	8	3	4	10	18.2	32																							
6-Feb	17	10	6	Z	3	5	27	31	31	35	36	34	35	36	37	33	34	31	24	16	12	10	10	10	22.8	37																							
7-Feb	11	17	10	Z	12	14	11	2	19	34	33	34	37	37	37	36	32	28	24	22	14	17	7	12	21.7	37																							
8-Feb	6	8	7	Z	15	14	8	9	6	18	18	18	17	17	21	23	18	7	7	4	2	2	3	3	10.8	23																							
9-Feb	3	2	2	Z	6	6	6	7	8	12	14	14	15	16	17	16	16	10	5	3	5	4	3	7	8.5	17																							
10-Feb	12	9	9	Z	9	6	6	8	10	10	13	15	9	10	17	16	15	10	1	1	1	1	2	0	8.2	17																							
11-Feb	0	1	1	Z	2	2	1	1	3	7	11	14	22	22	27	30	15	8	5	6	5	5	3	4	8.5	30																							
12-Feb	4	7	6	Z	12	14	13	12	12	12	14	15	14	17	19	22	22	19	19	20	21	21	20	21	15.5	22																							
13-Feb	21	19	17	Z	15	12	10	10	9	13	16	19	22	26	25	17	14	3	8	2	2	5	2	5	12.7	26																							
14-Feb	6	0	1	Z	0	0	0	1	3	5	7	12	10	10	9	8	5	1	1	1	2	1	8	23	4.9	23																							
15-Feb	22	23	24	Z	25	23	21	32	27	21	21	19	19	15	12	9	5	3	1	1	4	17	21	21	16.7	32																							
16-Feb	22	21	20	Z	15	5	1	1	1	3	11	30	32	31	29	24	24	18	14	19	14	17	10	8	16.0	32																							
17-Feb	6	6	8	Z	21	12	15	13	14	18	23	25	22	25	26	24	15	12	15	14	15	17	15	15	16.3	26																							
18-Feb	4	0	0	Z	0	0	1	13	17	10	7	9	17	19	20	17	11	7	1	1	1	1	0	0	6.9	20																							
19-Feb	1	1	0	Z	0	0	1	1	2	3	11	17	22	27	27	26	25	25	23	18	22	19	21	12	13.2	27																							
20-Feb	13	25	17	Z	15	15	10	1	8	14	22	23	22	20	20	21	21	20	18	18	21	20	20	20	17.6	25																							
21-Feb	19	17	16	Z	15	12	18	17	16	14	14	15	16	17	20	18	15	12	8	7	6	6	6	7	13.6	20																							
22-Feb	10	9	10	Z	10	8	6	5	8	23	13	15	17	17	15	17	15	15	11	12	16	20	20	24	13.8	24																							
23-Feb	24	15	12	Z	13	13	11	5	8	15	18	16	21	30	29	30	28	19	9	6	4	5	3	4	14.7	30																							
24-Feb	13	10	4	Z	3	2	2	5	11	19	16	24	21	30	23	27	25	21	19	14	8	5	4	4	12.8	27																							
25-Feb	3	1	1	Z	2	2	6	6	13	13	15	14	14	26	28	30	31	30	31	30	31	30	33	26	18.0	33																							
26-Feb	24	11	7	Z	24	20	24	10	9	20	28	29	27	30	33	29	25	10	1	3	1	1	1	3	16.2	33																							
27-Feb	5	5	18	Z	21	20	21	15	12	14	22	32	36	36	38	37	37	35	34	34	31	29	32	27	25.6	38																							
28-Feb	29	29	26	Z	28	31	31	31	31	31	31	29	29	27	26	25	21	18	19	8	6	5	4	4	22.6	31																							
																								15.1	14.3	12.6	--	14.0	12.4	12.3	11.5	13.4	17.2	19.2	21.6	22.9	25.0	25.4	24.2	21.6	17.2	14.6	12.9	12.6	14.2	13.3	13.5	Diurnal Average	
																								40	41	38	--	37	37	37	37	36	37	36	37	37	37	38	37	37	35	34	34	32	37	39	40	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb																																																	



WBEA NETWORK  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	410	63.96	63.96
21 - 50	231	36.04	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 641

Total Number of Hours: 672





**WBEA NETWORK**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - February 2014**

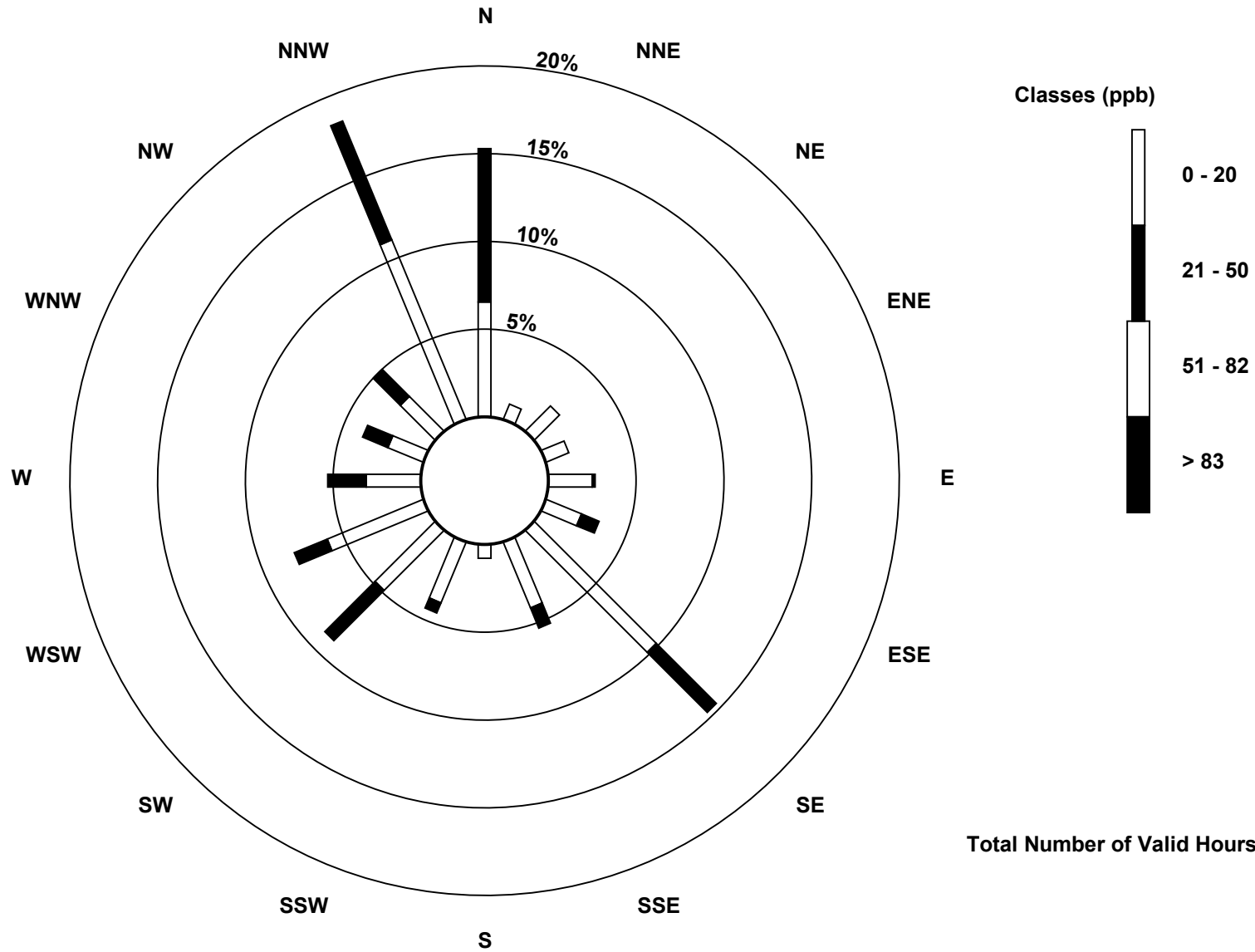
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	42	6	13	9	16	14	63	26	5	24	31	38	20	14	18	71	410
21 - 50	56	0	0	0	1	7	31	8	0	4	26	13	14	10	14	47	231
51 - 82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	98	6	13	9	17	21	94	34	5	28	57	51	34	24	32	118	641

Total Number of Valid Hours: 641

Total Number of Hours: 672

Wood Buffalo Environmental Association  
Wind Rose Feb 2014

Ozone (O<sub>3</sub>) - ppb  
Athabasca Valley (AMS 7)



Total Number of Valid Hours: 641

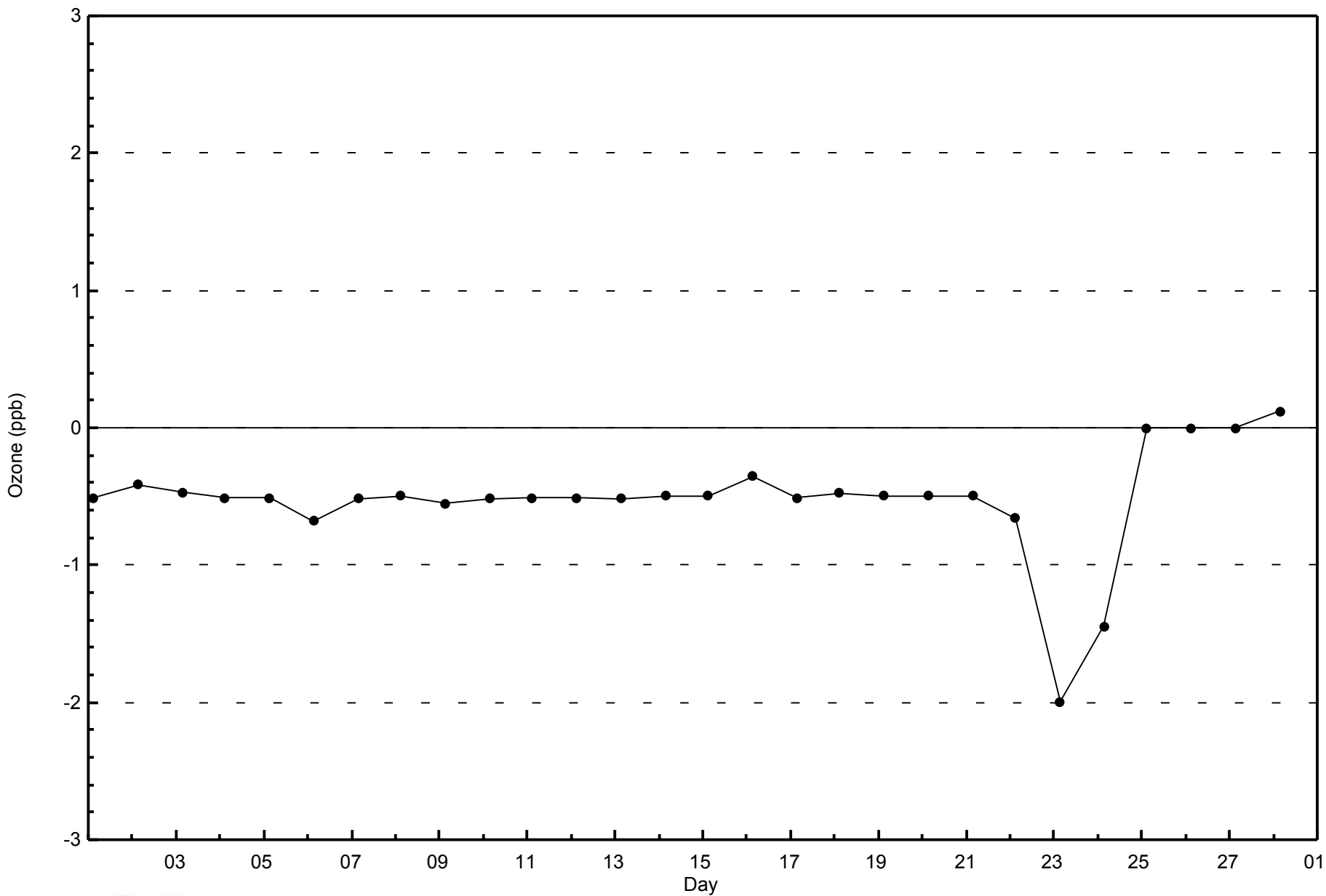


WBEA NETWORK

Zero Responses

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

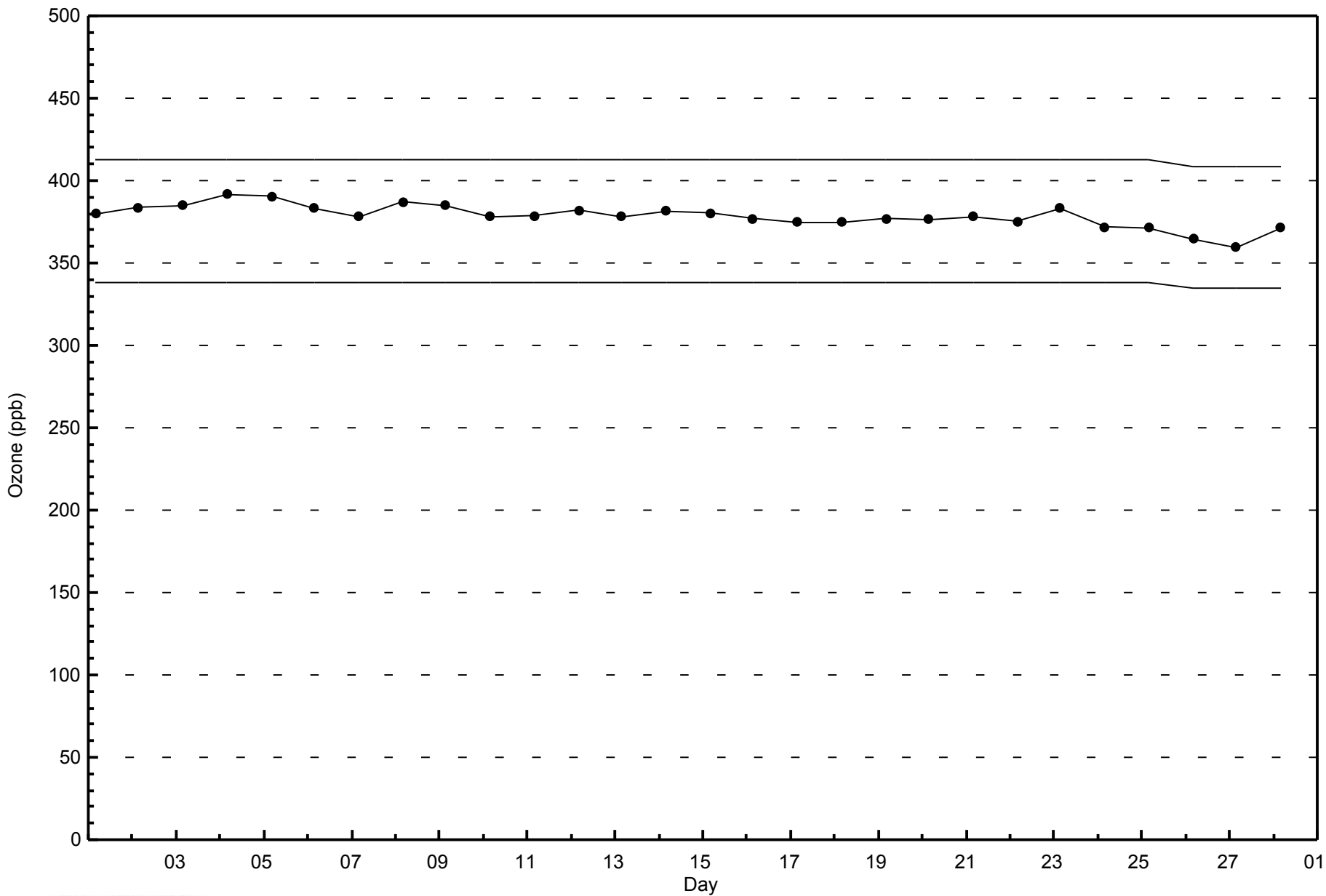
Athabasca Valley - February 2014





WBEA NETWORK  
Span Responses

Ozone (O<sub>3</sub>) - ppb  
Athabasca Valley - February 2014



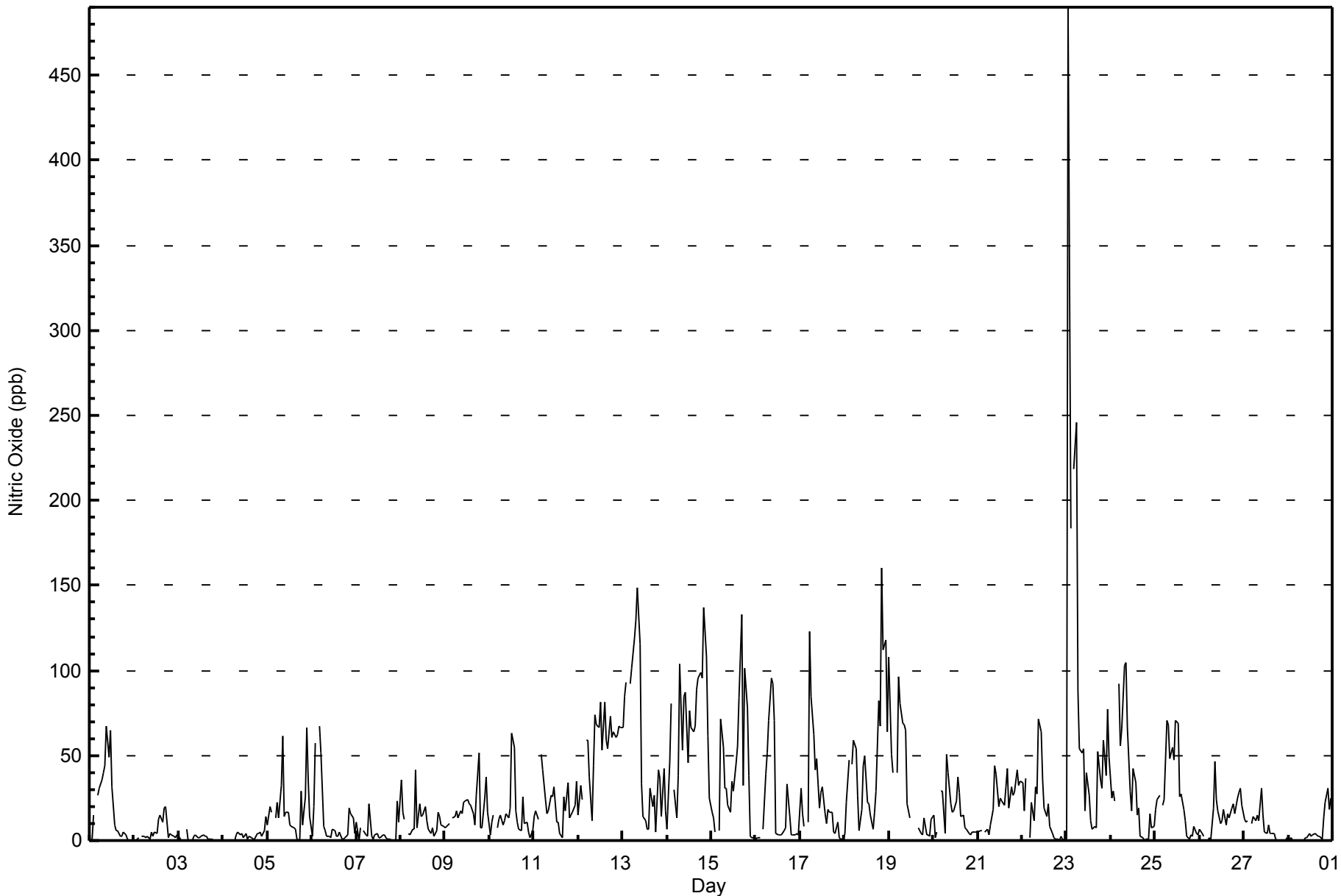


Maximum Value: 490 ppb on Feb 23 02:00		Maximum Daily Average: 80.4 ppb on Feb 23		Hours in Service: 672																						
Minimum Value: 0 ppb on Feb 2 00:00		Minimum Daily Average: 1.3 ppb on Feb 3		Hours of Data: 640																						
Maximum Diurnal Average: 40.9 ppb at hour 6		Minimum Diurnal Average: 16.0 ppb at hour 1		Hours of Missing Data: 32																						
Monthly Average: 25.4 ppb		Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 4 Median = 14 Q <sub>3</sub> = 33 P <sub>90</sub> = 67 P <sub>99</sub> = 138		Hours of Calibration: 32																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Feb	0	1	15	Z	27	31	35	40	44	68	49	65	31	9	6	6	3	3	5	3	1	0	0	0	19.1	68
2-Feb	0	0	2	Z	2	2	2	3	1	5	3	5	4	13	15	11	19	20	2	4	4	3	2	3	5.4	20
3-Feb	1	0	0	Z	6	0	0	0	3	3	2	2	3	3	2	2	1	1	1	0	0	0	0	0	1.3	6
4-Feb	0	0	0	Z	0	0	0	3	5	3	4	2	4	1	3	1	1	1	4	4	5	2	6	14	2.7	14
5-Feb	9	20	17	Z	14	22	14	32	61	14	17	17	9	8	7	7	1	0	29	9	26	66	36	14	19.5	66
6-Feb	2	20	57	Z	67	52	8	6	2	2	2	7	6	2	5	1	1	2	4	19	16	14	4	13.1	67	
7-Feb	11	0	8	Z	5	3	2	22	3	1	3	4	2	1	3	3	1	1	1	0	0	0	23	11	4.7	23
8-Feb	36	17	13	Z	4	4	7	7	41	7	21	14	15	20	12	6	4	7	3	5	17	14	9	8	12.7	41
9-Feb	7	8	10	Z	13	14	17	14	17	16	23	23	24	21	20	16	9	27	52	8	7	25	38	16	18.5	52
10-Feb	3	11	15	Z	8	12	15	9	12	16	13	19	63	55	17	11	7	6	25	10	11	5	2	6	15.2	63
11-Feb	14	18	12	Z	51	41	24	16	18	26	25	31	11	11	5	1	26	17	34	13	15	17	21	35	21.0	51
12-Feb	15	33	24	Z	59	59	37	12	44	74	68	67	82	53	82	59	54	73	60	64	61	62	67	67	55.5	82
13-Feb	66	85	93	Z	92	102	119	130	148	116	33	14	12	6	6	30	20	27	5	42	37	14	42	18	54.7	148
14-Feb	7	46	81	Z	30	13	38	104	53	85	87	46	76	67	64	67	88	95	99	96	137	108	62	25	68.4	137
15-Feb	16	13	5	Z	6	72	55	30	31	21	16	35	29	46	56	84	132	32	101	78	38	3	2	2	39.3	132
16-Feb	1	1	1	Z	6	39	52	70	96	92	70	4	4	3	3	6	8	33	14	4	4	3	4	3	22.8	96
17-Feb	31	16	9	Z	10	123	85	63	42	48	19	28	32	16	10	19	17	17	5	4	11	2	1	0	26.3	123
18-Feb	4	22	47	Z	45	59	54	27	6	18	44	50	22	22	15	7	17	29	82	67	160	112	118	64	47.5	160
19-Feb	108	50	40	Z	40	97	81	69	68	65	21	13	C	C	C	C	7	4	3	13	3	3	2	13	37.0	108
20-Feb	15	1	5	Z	29	29	4	51	40	21	17	17	23	37	28	14	15	7	7	4	3	5	5	5	16.7	51
21-Feb	5	5	6	Z	5	7	4	9	18	44	39	20	25	23	20	32	43	19	32	27	28	42	33	35	22.6	44
22-Feb	34	17	37	Z	2	23	12	31	27	71	64	36	19	14	22	8	4	1	1	0	0	2	1	0	18.6	71
23-Feb	1	490	184	Z	218	246	88	54	52	54	17	40	27	12	7	8	8	52	36	30	59	38	77	49	80.4	490
24-Feb	25	29	23	Z	92	56	65	103	104	66	29	18	42	34	15	19	2	2	0	0	1	15	7	8	33.0	104
25-Feb	18	24	26	Z	21	24	70	68	48	55	47	70	69	26	28	18	11	3	1	3	3	8	4	3	28.2	70
26-Feb	7	4	2	Z	0	2	0	19	46	24	18	10	12	18	9	16	13	19	22	16	25	28	30	21	15.7	46
27-Feb	12	11	11	Z	10	14	12	15	12	31	15	5	4	9	4	4	4	1	0	0	0	0	0	2	7.7	31
28-Feb	0	1	0	Z	0	0	0	0	0	1	1	4	2	3	4	3	3	2	1	13	23	31	19	25	6.0	31
		16.0	33.7	26.5	--	30.9	40.9	32.2	36.0	37.3	37.5	27.5	23.8	24.1	19.9	17.2	17.2	18.5	17.8	22.3	18.6	24.9	22.3	22.3	16.1	Diurnal Average
		108	490	184	--	218	246	119	130	148	116	87	70	82	67	82	84	132	95	101	96	160	112	118	67	Diurnal Maximum
Z - zerospan		C - Calibration																								



WBEA NETWORK  
Hourly Averages

Nitric Oxide (NO) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	399	62.34	62.34
21 - 40	109	17.03	79.38
41 - 80	90	14.06	93.44
81 - 159	35	5.47	98.91
> 159	5	0.78	99.69

Total Number of Valid Hours: 640

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - February 2014**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	76	3	5	6	2	10	35	12	2	12	39	40	27	18	25	87	399
21 - 40	13	1	3	1	9	3	16	9	1	9	11	8	2	2	3	18	109
41 - 80	5	2	1	2	4	4	30	9	2	6	6	2	3	2	3	9	90
81 - 159	5	0	3	0	2	1	12	4	0	1	1	0	0	1	0	5	35
> 159	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	5
<b>Totals</b>	99	6	12	9	17	18	93	34	5	28	57	51	34	24	32	119	638

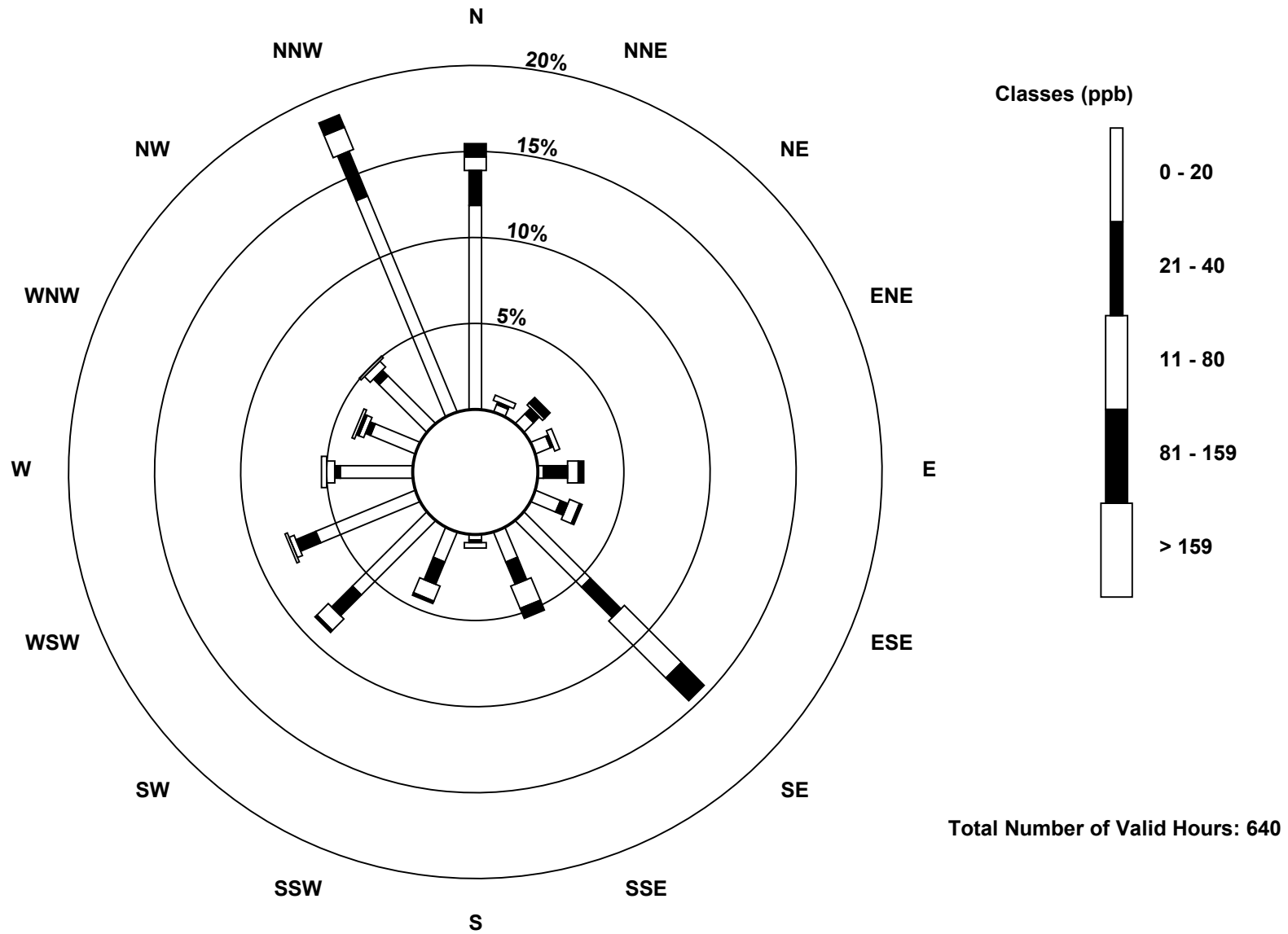
Total Number of Valid Hours: 640

Total Number of Hours: 672



Wood Buffalo Environmental Association  
Wind Rose Feb 2014

Nitric Oxide (NO) - ppb  
Athabasca Valley (AMS 7)



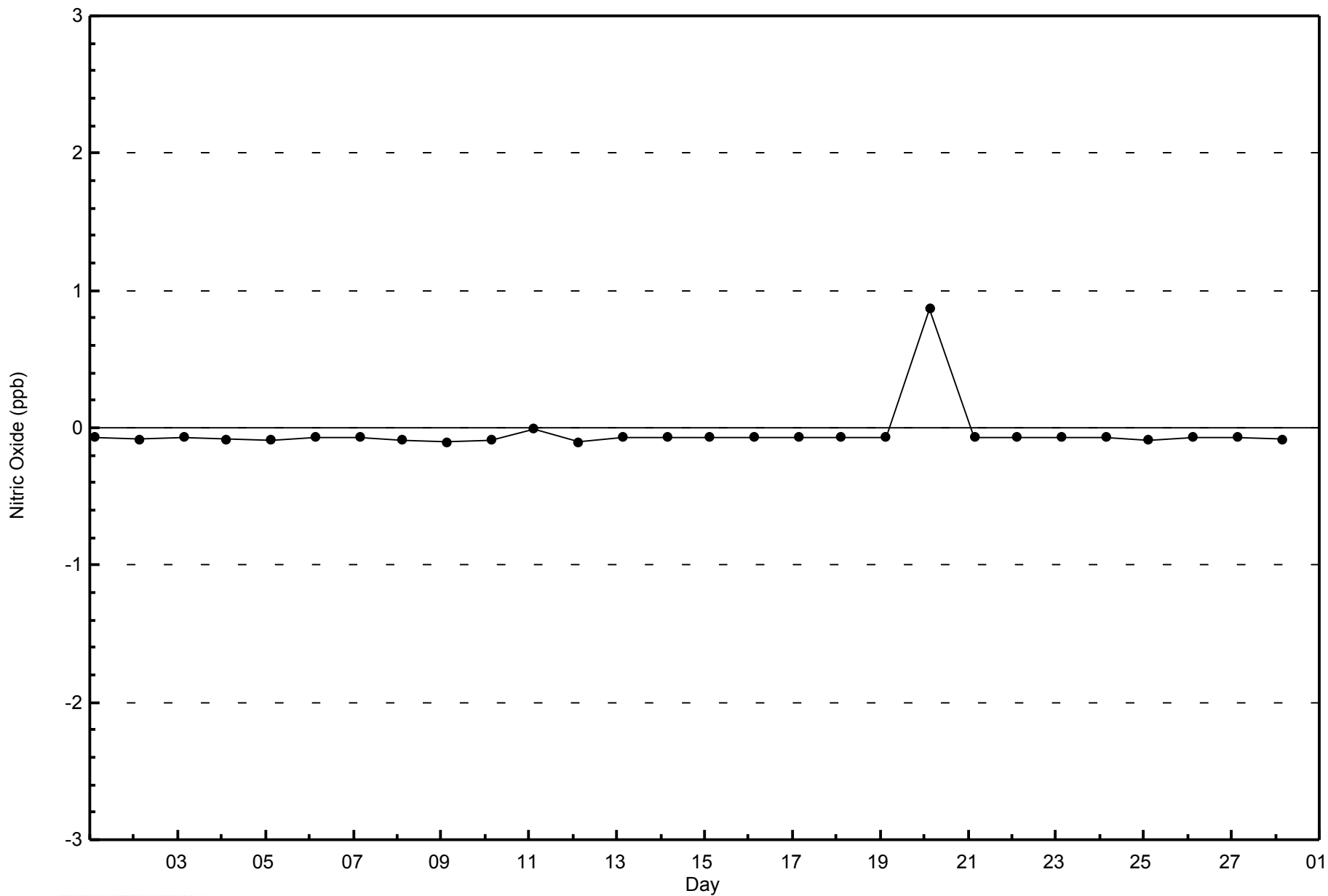


WBEA NETWORK

Zero Responses

Nitric Oxide (NO) - ppb

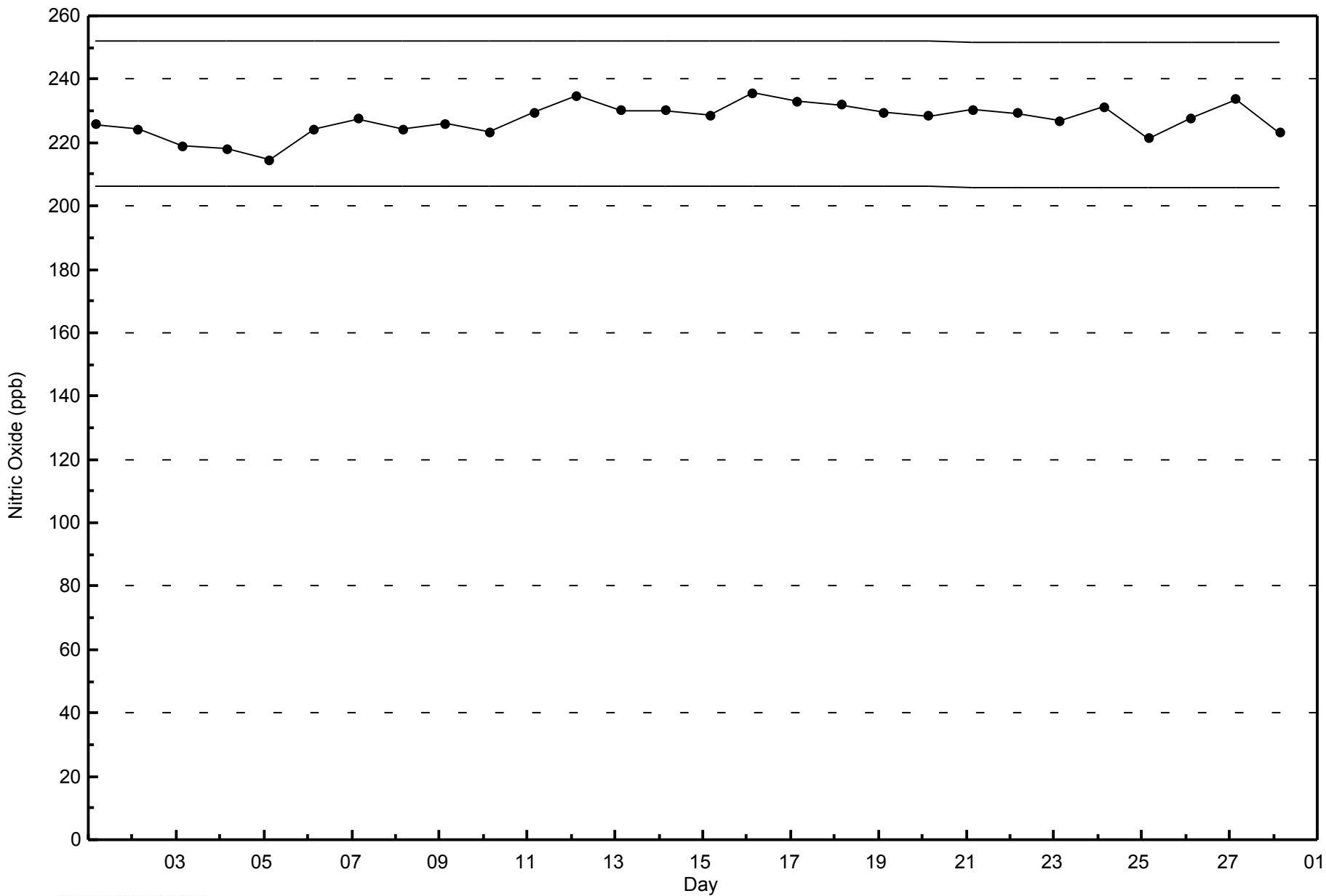
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Span Responses**

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - February 2014**





Wood Buffalo Environmental Association

Summary of Hour Averages

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

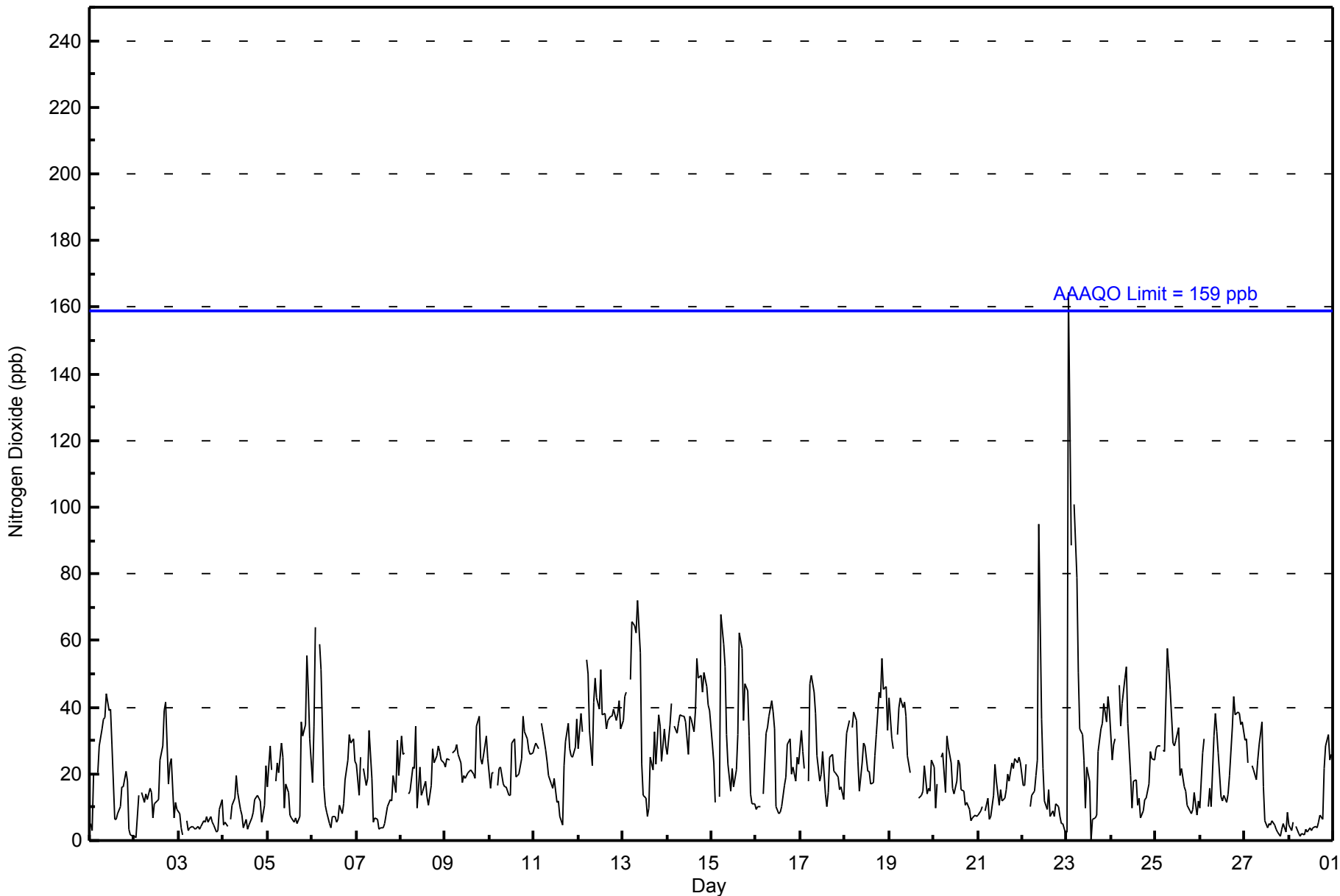
Athabasca Valley - February 2014

Number of Exceedences (AAAQO): 1-hr: 1 24-hr: 0										Hours in Service: 672																
Maximum Value: 165 ppb on Feb 23 02:00										Maximum Daily Average: 39.1 ppb on Feb 23																
Minimum Value: 0 ppb on Feb 23 14:00										Minimum Daily Average: 5.1 ppb on Feb 3																
Maximum Diurnal Average: 30.2 ppb at hour 6										Minimum Diurnal Average: 13.9 ppb at hour 14																
Monthly Average: 22.5 ppb										Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 11 Median = 21 Q <sub>3</sub> = 32 P <sub>90</sub> = 41 P <sub>99</sub> = 66																
Hours of Data: 640										Hours of Missing Data: 32																
Hours of Calibration: 32										Percent Operational Time: 100.0																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Feb	5	3	20	Z	21	28	33	36	37	44	39	39	29	6	7	8	10	16	16	21	18	3	2	1	19.2	44
2-Feb	1	1	14	Z	14	12	14	12	16	14	7	11	12	12	24	28	39	41	17	23	24	7	11	9	15.8	41
3-Feb	8	4	2	Z	6	3	4	4	4	3	4	3	4	6	6	7	5	7	5	5	3	3	9	12	5.1	12
4-Feb	5	6	4	Z	6	11	13	19	15	9	8	4	6	3	5	7	8	12	13	13	12	6	11	22	9.4	22
5-Feb	16	28	21	Z	18	24	20	29	25	10	17	15	8	7	6	7	5	7	36	32	35	56	45	31	21.5	56
6-Feb	17	34	64	Z	59	51	16	11	8	5	4	7	7	6	6	11	8	11	18	24	32	29	30	24	21.0	64
7-Feb	23	14	25	Z	22	17	19	33	19	5	7	6	3	4	4	5	8	10	12	12	20	15	30	20	14.3	33
8-Feb	31	26	26	Z	14	15	22	22	34	10	22	14	15	18	13	11	17	28	23	26	28	27	24	24	21.2	34
9-Feb	22	25	24	Z	26	27	29	26	23	17	20	19	20	21	21	20	19	34	37	24	23	28	32	25	24.4	37
10-Feb	16	20	20	Z	17	22	22	17	16	16	14	14	29	30	19	20	20	25	37	33	30	27	26	26	22.4	37
11-Feb	28	29	28	Z	35	33	27	24	20	17	16	19	11	12	7	5	22	30	35	28	25	25	28	37	23.4	37
12-Feb	27	38	33	Z	54	50	33	23	42	49	43	39	51	38	38	34	36	38	37	40	36	38	42	34	38.8	54
13-Feb	36	43	44	Z	48	66	64	62	72	56	23	14	13	7	10	25	21	33	23	38	34	24	33	29	35.5	72
14-Feb	26	35	41	Z	34	32	35	38	37	37	35	26	37	37	33	39	55	49	49	45	51	46	41	39	38.9	55
15-Feb	29	23	11	Z	13	68	59	52	32	23	15	21	16	21	32	62	58	36	47	45	31	14	11	11	31.8	68
16-Feb	9	10	10	Z	14	32	34	37	42	39	33	10	8	9	10	16	19	29	30	20	22	18	25	23	21.7	42
17-Feb	33	27	21	Z	18	47	50	44	38	25	18	20	27	14	10	14	25	26	21	20	19	15	16	12	24.4	50
18-Feb	24	32	36	Z	34	39	36	24	15	23	29	28	21	21	17	18	26	32	45	43	55	45	46	33	31.3	55
19-Feb	43	30	27	Z	32	40	43	40	42	38	26	20	C	C	C	C	13	14	15	23	14	16	15	24	27.0	43
20-Feb	22	10	17	Z	25	26	15	31	28	23	16	14	18	24	23	15	15	11	12	9	6	7	8	7	16.5	31
21-Feb	8	9	10	Z	9	13	6	7	14	23	18	10	15	12	13	15	20	18	23	22	25	23	25	23	15.7	25
22-Feb	17	17	23	Z	10	14	15	20	24	95	36	22	12	9	15	7	9	7	11	10	7	5	5	2	17.0	95
23-Feb	3	165	89	Z	101	79	51	33	32	24	10	22	18	0	7	7	8	27	33	35	41	36	43	39	39.1	165
24-Feb	24	29	31	Z	47	34	41	49	52	35	19	10	18	18	11	13	7	9	12	13	17	27	25	24	24.5	52
25-Feb	28	28	29	Z	27	27	58	52	46	29	28	30	34	19	22	16	15	10	9	8	9	14	8	12	24.2	58
26-Feb	10	26	30	Z	10	16	10	31	38	33	26	13	12	14	12	14	20	34	43	38	38	38	35	35	25.0	43
27-Feb	30	30	23	Z	22	21	18	24	29	36	16	6	4	5	5	6	5	3	3	1	4	5	2	9	13.3	36
28-Feb	5	3	5	Z	4	2	1	2	2	3	2	4	3	4	4	4	5	8	6	22	29	32	24	26	8.7	32
19.4 26.6 26.0 -- 26.4 30.2 28.1 28.7 28.5 26.5 19.6 16.4 16.7 13.9 14.0 16.0 18.4 21.5 24.0 23.9 24.6 22.4 23.3 21.9										Diurnal Average																
43 165 89 -- 101 79 64 62 72 95 43 39 51 38 38 62 58 49 49 45 55 56 46 39										Diurnal Maximum																
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



WBEA NETWORK  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	318	49.69	49.69
21 - 40	257	40.16	89.84
41 - 80	61	9.53	99.38
81 - 159	3	0.47	99.84
> 159	1	0.16	100.00

Total Number of Valid Hours: 640

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - February 2014**

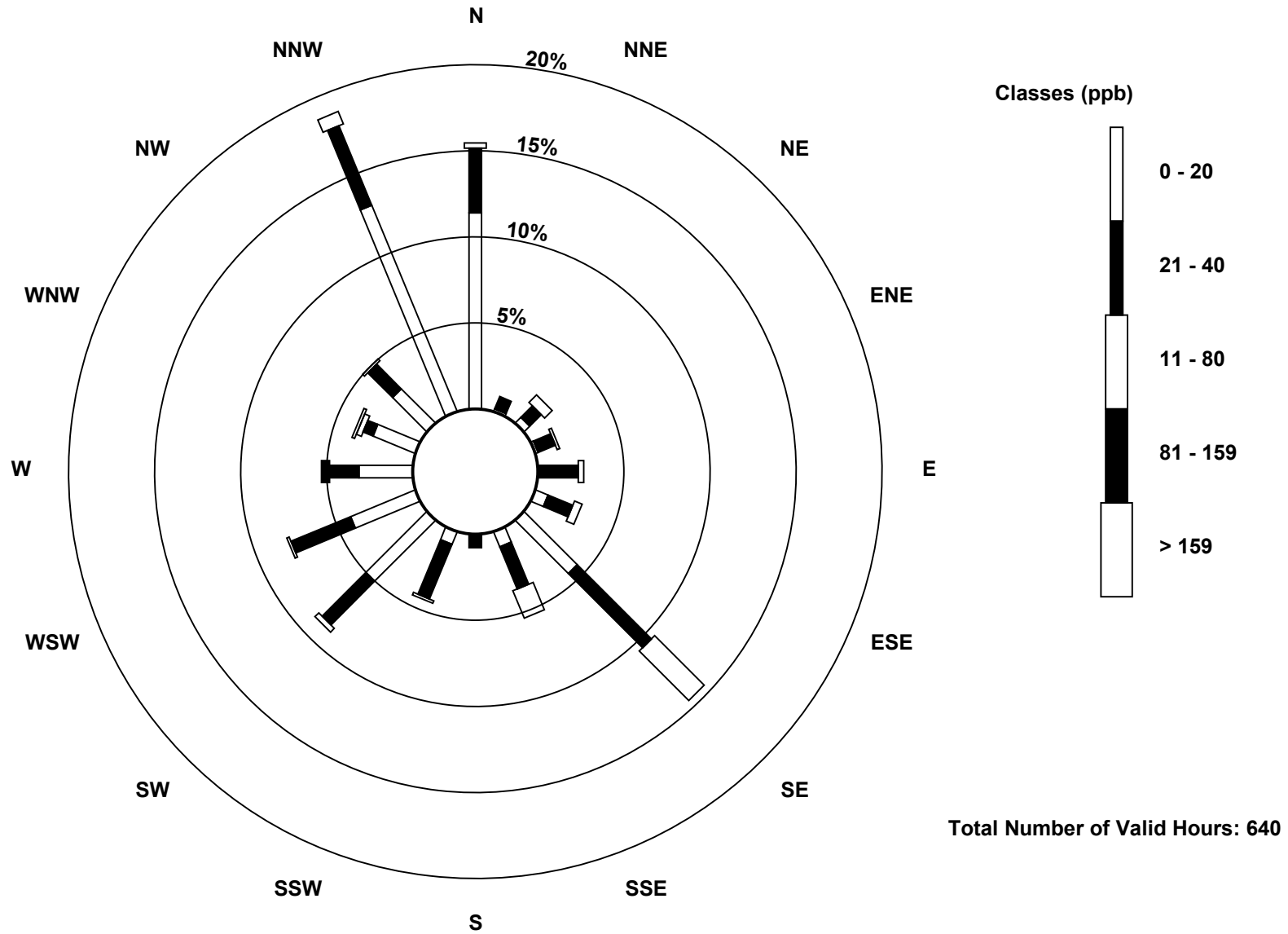
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	73	1	3	1	0	5	28	6	0	5	32	26	20	17	18	83	318
21 - 40	24	5	6	7	15	10	39	17	5	22	23	24	11	4	13	32	257
11 - 80	2	0	4	1	2	3	26	11	0	1	2	1	0	2	1	5	61
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<b>Totals</b>	99	6	13	9	17	18	93	34	5	28	57	51	34	24	32	120	640

Total Number of Valid Hours: 640

Total Number of Hours: 672

**Wood Buffalo Environmental Association  
Wind Rose Feb 2014**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley (AMS 7)**



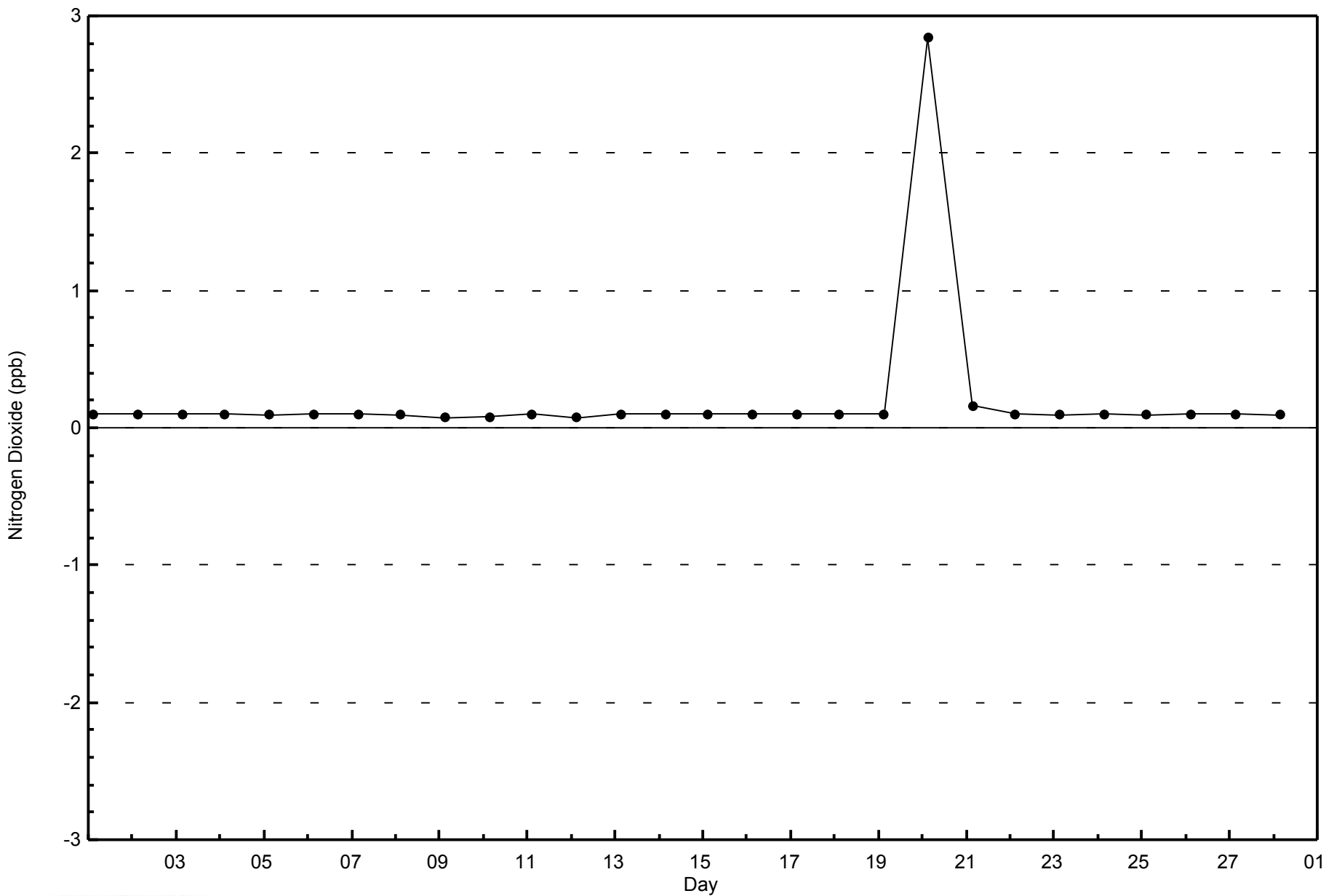




WBEA NETWORK

Zero Responses

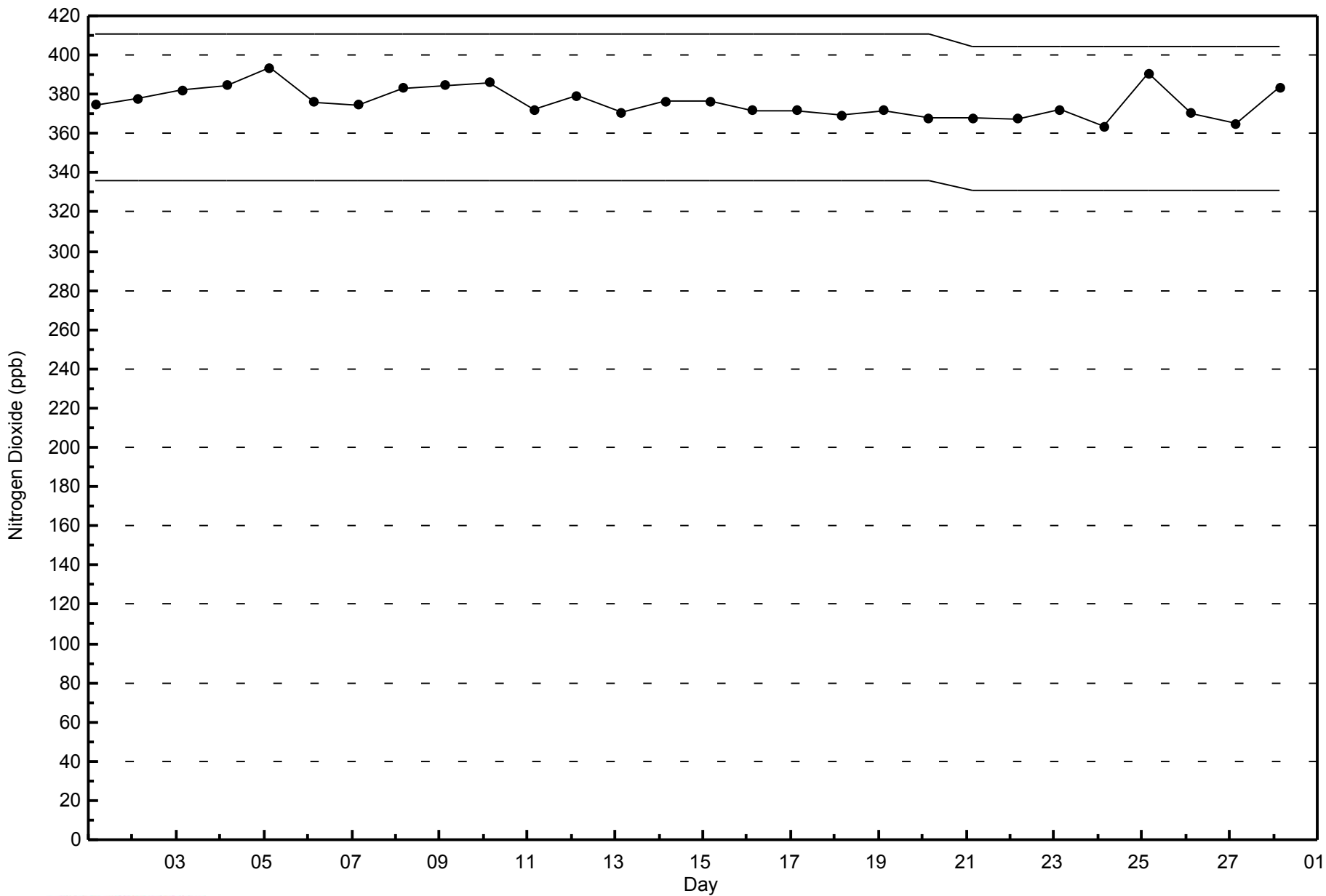
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Span Responses**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - February 2014**





Wood Buffalo Environmental Association

Summary of Hour Averages

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

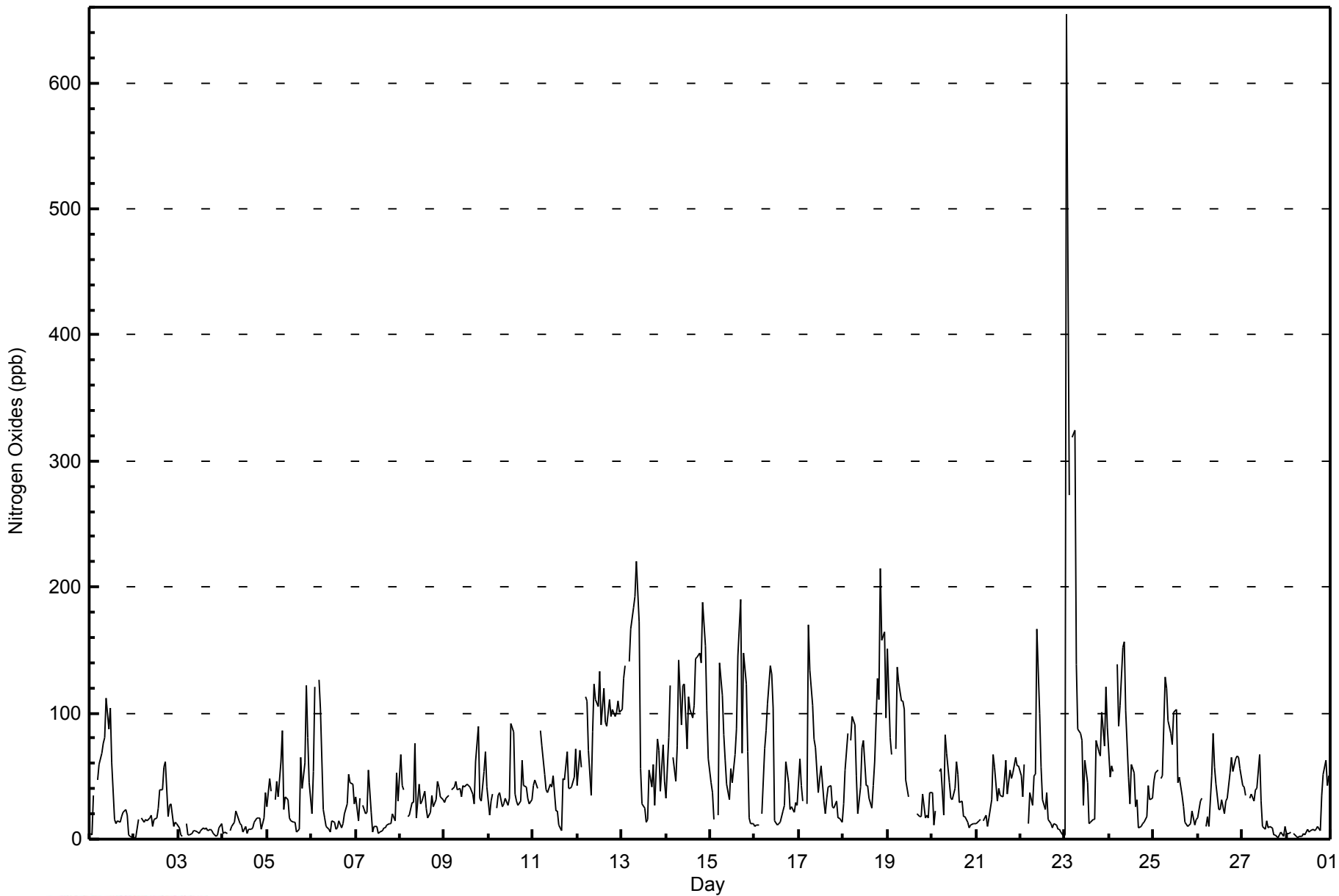
Athabasca Valley - February 2014

Maximum Value: 654 ppb on Feb 23 02:00		Maximum Daily Average: 119.5 ppb on Feb 23		Hours in Service: 672																							
Minimum Value: 1 ppb on Feb 2 02:00		Minimum Daily Average: 6.5 ppb on Feb 3		Hours of Data: 640																							
Maximum Diurnal Average: 71.1 ppb at hour 6		Minimum Diurnal Average: 31.1 ppb at hour 15		Hours of Missing Data: 32																							
Monthly Average: 47.9 ppb		Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 8 Q <sub>1</sub> = 15 Median = 34 Q <sub>3</sub> = 63 P <sub>90</sub> = 107 P <sub>99</sub> = 210		Hours of Calibration: 32																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Feb	5	4	35	Z	47	59	69	76	81	112	88	104	60	15	12	14	13	18	21	24	19	3	2	1	38.4	112	
2-Feb	1	1	16	Z	17	14	16	15	17	19	10	16	16	25	39	39	58	61	18	27	28	10	13	12	21.2	61	
3-Feb	9	4	2	Z	12	3	4	4	6	7	6	5	7	9	8	9	6	8	6	4	3	3	9	12	6.5	12	
4-Feb	5	6	4	Z	6	10	13	23	19	12	12	6	10	4	7	8	9	13	17	17	17	8	16	37	12.2	37	
5-Feb	25	48	38	Z	31	46	34	61	87	24	34	31	17	15	7	14	6	8	65	41	60	122	81	45	41.0	122	
6-Feb	20	54	121	Z	126	103	24	17	11	7	6	14	14	8	9	15	9	12	20	28	51	45	44	28	34.1	126	
7-Feb	34	14	32	Z	27	20	21	55	21	6	10	10	5	5	7	8	9	11	13	12	20	15	53	30	19.0	55	
8-Feb	67	43	39	Z	18	19	29	29	76	17	43	28	30	38	25	17	21	35	26	31	45	41	33	32	33.9	76	
9-Feb	29	33	34	Z	39	41	46	39	40	33	42	42	44	42	41	36	28	61	89	32	30	53	69	41	42.9	89	
10-Feb	19	31	35	Z	24	34	37	26	28	32	27	33	92	86	36	31	26	30	63	43	41	32	28	32	37.6	92	
11-Feb	42	47	40	Z	86	74	51	40	37	43	41	50	22	23	12	6	48	47	69	41	41	41	49	72	44.5	86	
12-Feb	42	71	57	Z	113	109	71	34	86	123	111	106	133	91	120	93	90	111	98	103	97	101	109	100	94.3	133	
13-Feb	102	128	137	Z	140	167	183	192	220	172	56	28	25	14	16	55	41	59	27	79	71	38	75	46	90.2	220	
14-Feb	32	81	122	Z	65	46	73	142	90	122	123	71	113	103	96	106	143	144	148	140	188	154	102	64	107.4	188	
15-Feb	45	37	16	Z	19	140	114	82	63	44	31	56	45	67	87	146	190	68	148	123	69	17	13	13	71.0	190	
16-Feb	10	12	12	Z	20	71	86	108	138	131	104	14	12	12	13	23	27	62	45	24	26	21	29	26	44.5	138	
17-Feb	64	42	30	Z	28	170	134	107	80	73	37	48	59	30	20	33	42	43	26	24	30	17	17	13	50.7	170	
18-Feb	28	54	83	Z	79	97	90	51	20	41	73	78	43	42	32	24	43	61	127	110	215	158	164	97	78.8	215	
19-Feb	151	81	67	Z	72	136	124	109	110	103	47	34	C	C	C	C	20	18	18	36	17	19	17	37	63.9	151	
20-Feb	37	11	22	Z	54	56	19	82	68	44	33	31	40	61	51	30	30	18	18	14	9	12	13	12	33.2	82	
21-Feb	12	14	16	Z	14	19	10	16	32	67	57	30	40	35	33	47	63	36	55	49	53	65	58	58	38.2	67	
22-Feb	51	34	59	Z	12	36	27	51	51	166	100	58	31	24	37	15	13	9	12	11	8	8	6	2	35.6	166	
23-Feb	3	654	272	Z	319	325	139	87	83	78	27	62	45	12	13	15	15	78	69	65	100	74	120	88	119.5	654	
24-Feb	49	58	54	Z	139	90	107	152	157	101	49	28	60	52	26	31	9	10	13	13	18	42	32	33	57.4	157	
25-Feb	46	52	55	Z	48	51	128	120	94	84	75	101	103	45	49	34	26	13	10	11	12	22	12	15	52.5	128	
26-Feb	17	30	33	Z	10	18	11	50	84	57	44	24	24	32	20	30	33	53	65	53	63	66	65	56	40.8	84	
27-Feb	42	42	34	Z	32	36	30	40	41	67	31	11	8	14	9	10	9	4	3	1	4	5	3	10	21.1	67	
28-Feb	4	5	6	Z	5	3	1	2	2	5	4	8	6	7	8	7	8	10	7	35	51	62	43	50	14.6	62	
		35.5	60.3	52.5	--	57.3	71.1	60.3	64.6	65.8	64.0	47.1	40.2	40.8	33.7	31.1	33.2	36.9	39.4	46.3	42.5	49.4	44.7	45.6	38.0	Diurnal Average	
		151	654	272	--	319	325	183	192	220	172	123	106	133	103	120	146	190	144	148	140	215	158	164	100	Diurnal Maximum	
Z - zerospan		C - Calibration																									



WBEA NETWORK  
Hourly Averages

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	216	33.75	33.75
21 - 40	143	22.34	56.09
41 - 80	165	25.78	81.88
81 - 159	97	15.16	97.03
> 159	15	2.34	99.38

Total Number of Valid Hours: 640

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - February 2014**

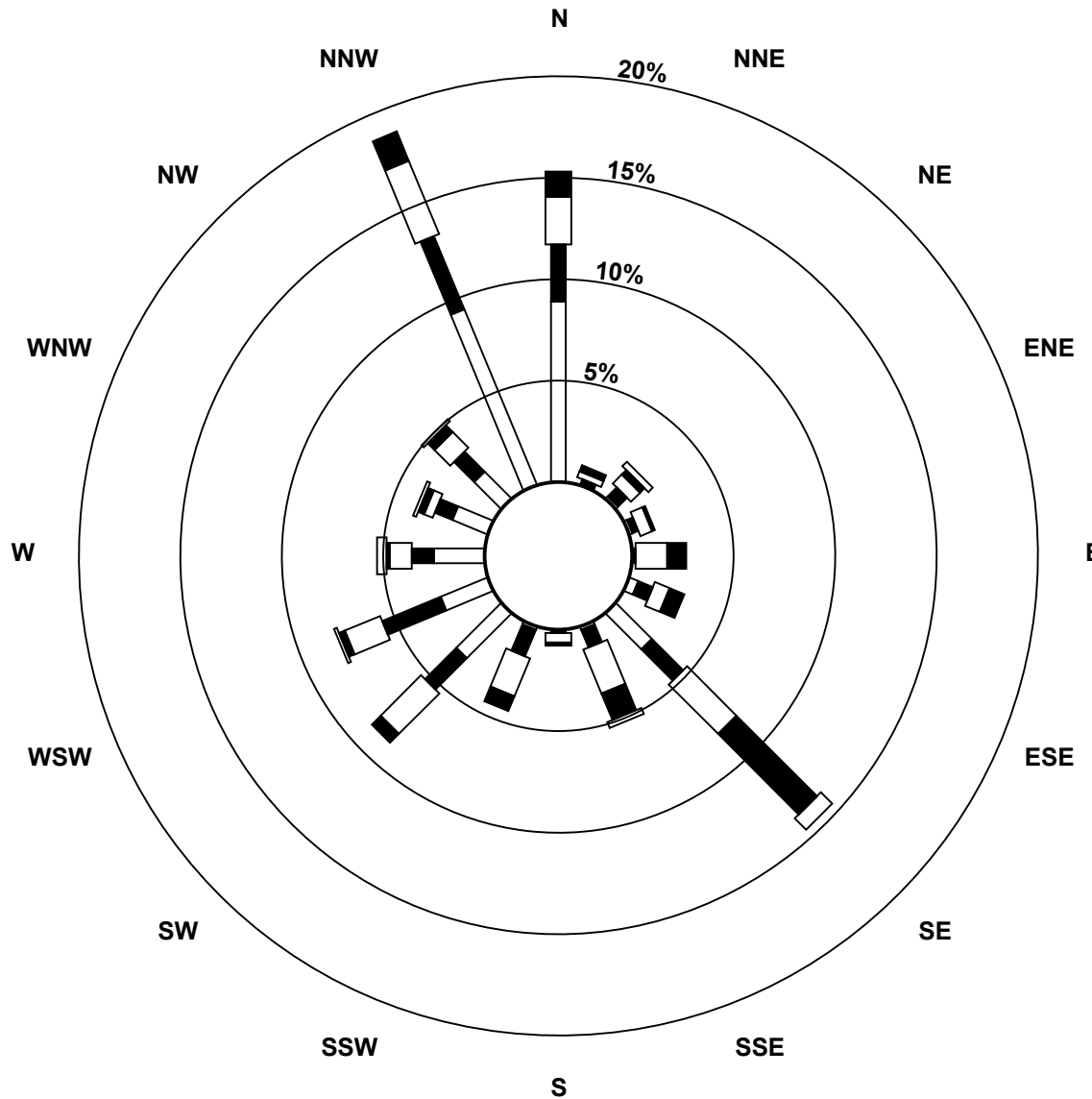
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	57	0	1	1	0	3	16	1	0	1	20	16	16	12	12	60	216
21 - 40	18	2	4	2	1	5	14	6	1	9	14	20	7	6	9	25	143
41 - 80	15	2	4	4	10	5	22	15	3	13	18	12	7	3	7	25	165
81 - 159	8	2	2	1	6	5	36	9	1	5	4	2	1	2	3	10	97
> 159	0	0	2	0	0	0	5	2	0	0	0	1	3	1	1	0	15
<b>Totals</b>	98	6	13	8	17	18	93	33	5	28	56	51	34	24	32	120	636

Total Number of Valid Hours: 640

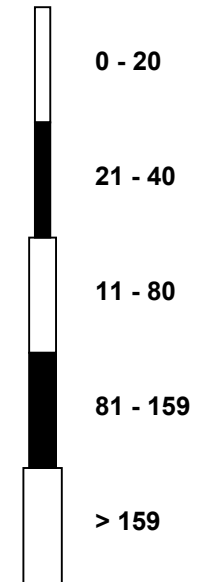
Total Number of Hours: 672

Wood Buffalo Environmental Association  
Wind Rose Feb 2014

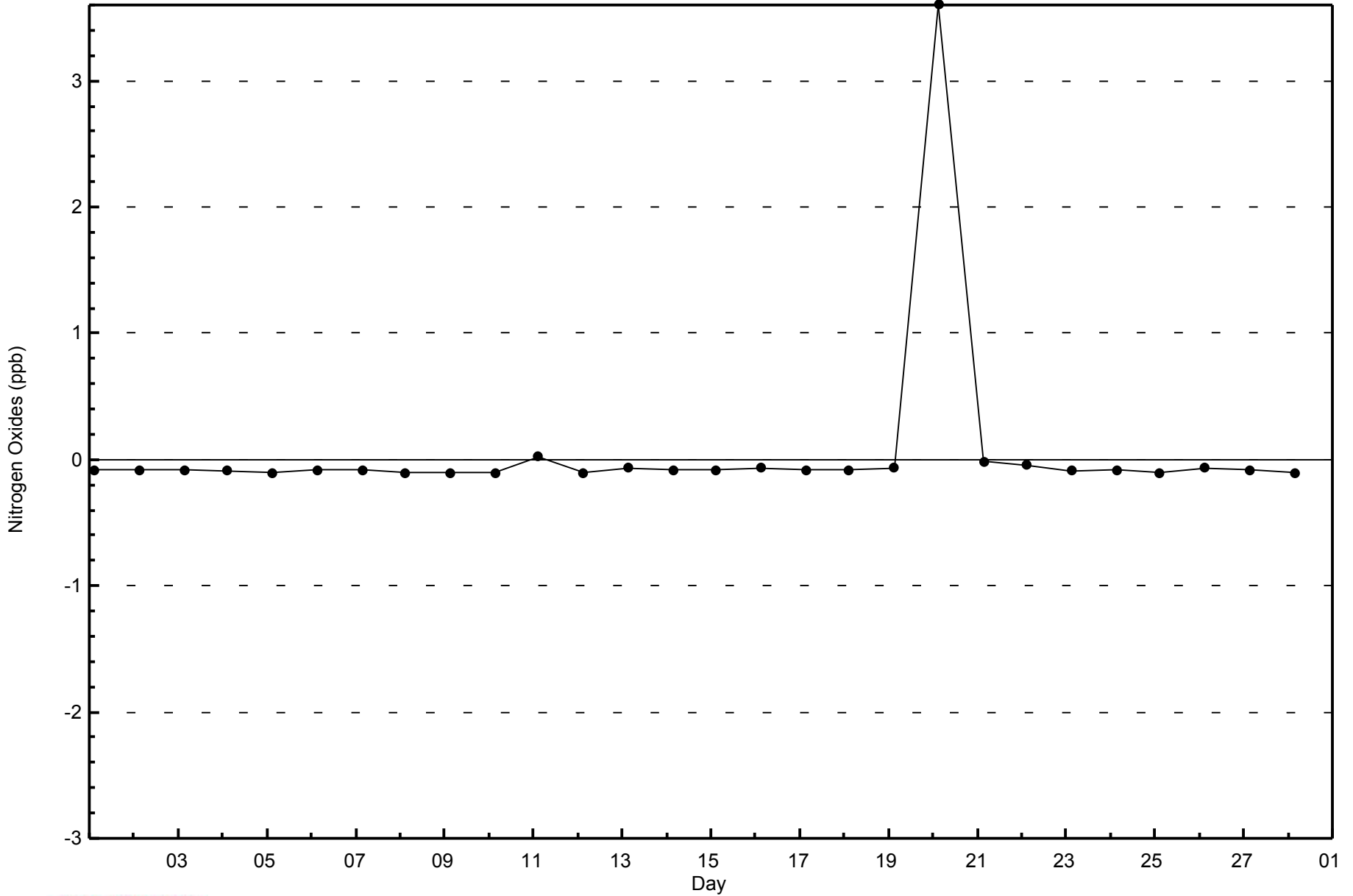
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley (AMS 7)



Classes (ppb)



Total Number of Valid Hours: 640

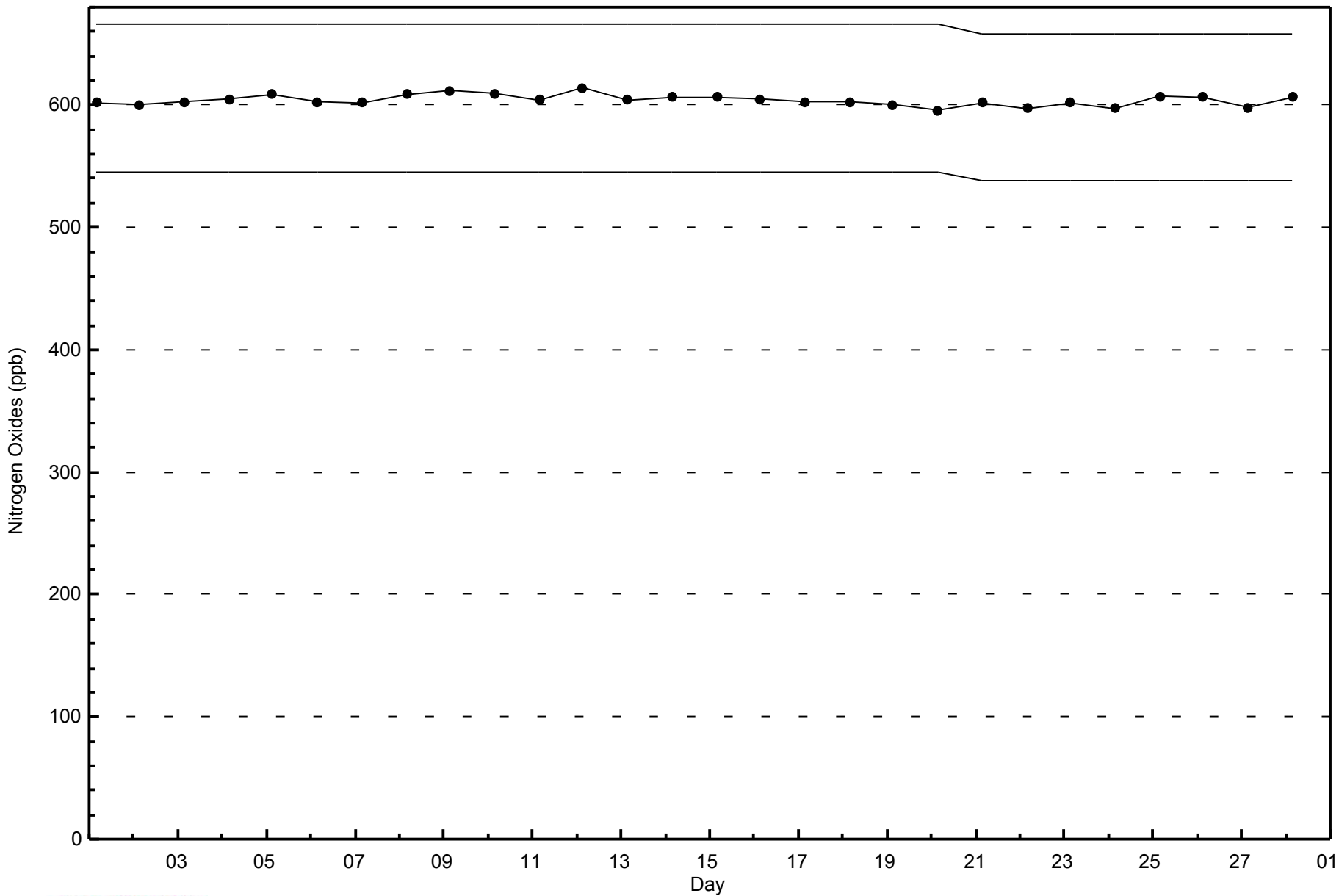






WBEA NETWORK  
Span Responses

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - February 2014



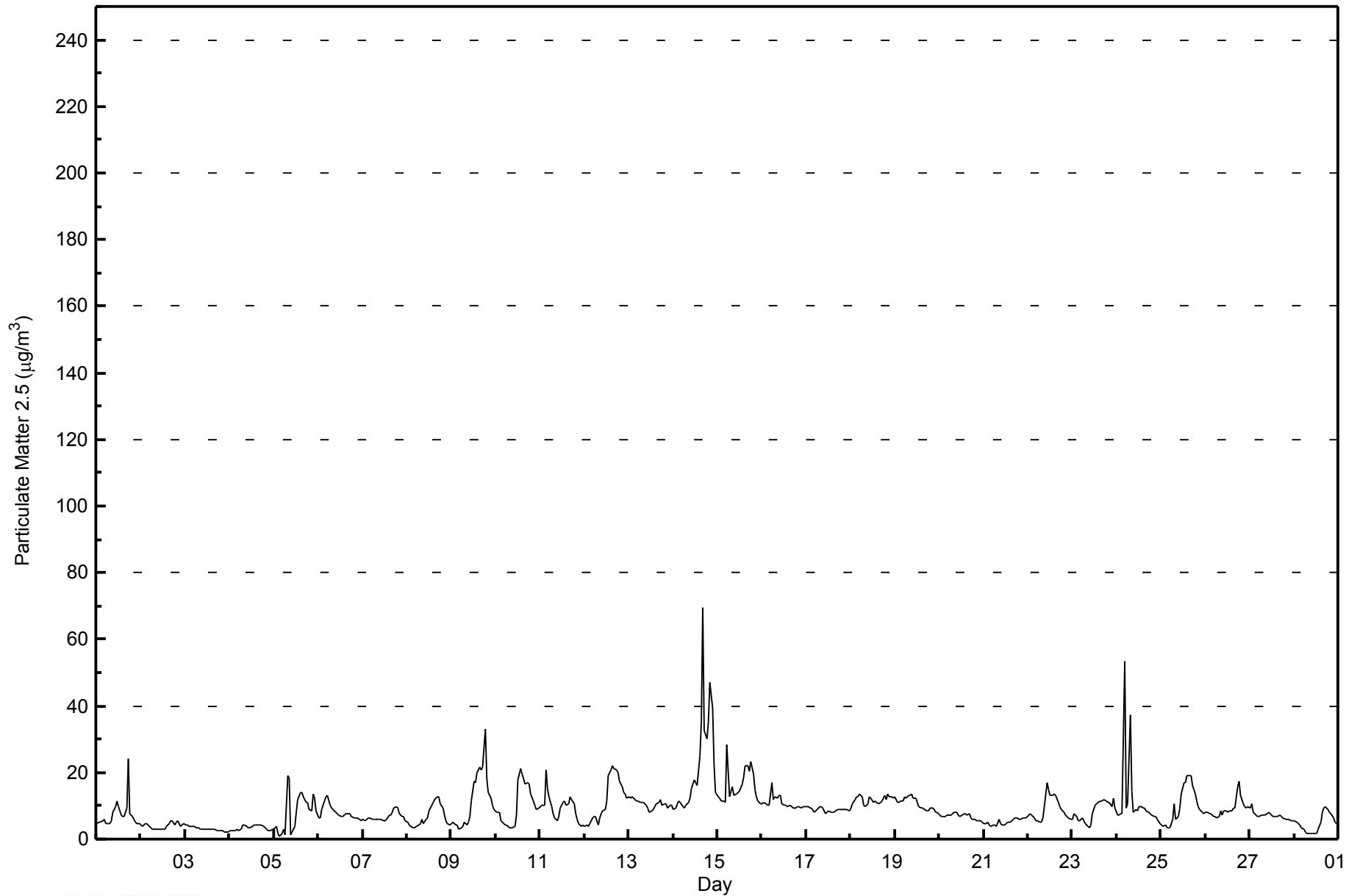


Number of Exceedences (AAAQO): 24-hr: 0		Hours in Service: 672																																														
Maximum Value: 69.7 µg/m <sup>3</sup> on Feb 14 17:00		Maximum Daily Average: 21.7 µg/m <sup>3</sup> on Feb 14																																														
Minimum Value: 0.9 µg/m <sup>3</sup> on Feb 5 04:00		Hours of Data: 672																																														
Maximum Diurnal Average: 13.0 µg/m <sup>3</sup> at hour 17		Hours of Missing Data: 0																																														
Monthly Average: 8.98 µg/m <sup>3</sup>		Hours of Calibration: 0																																														
Minimum Daily Average: 3.1 µg/m <sup>3</sup> on Feb 3		Percent Operational Time: 100.0																																														
Minimum Diurnal Average: 6.9 µg/m <sup>3</sup> at hour 7		Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 3.4 Q <sub>1</sub> = 5.3 Median = 8.0 Q <sub>3</sub> = 10.9 P <sub>90</sub> = 14.4 P <sub>99</sub> = 34.9																																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Feb	4.8	5.1	5.1	5.3	5.9	4.7	4.6	4.7	5.4	7.9	9.7	11.4	9.7	7.0	6.9	6.6	9.4	24.3	7.5	6.7	6.1	4.9	4.6	4.5	7.2	24.3																						
2-Feb	4.2	3.9	4.5	4.6	4.0	3.4	3.2	2.9	3.0	3.0	2.9	2.8	2.8	3.1	3.7	4.6	5.5	5.6	4.3	5.0	5.5	4.0	4.1	4.6	4.0	5.6																						
3-Feb	4.3	4.1	3.8	3.9	4.0	3.6	3.4	3.3	3.1	3.1	3.1	3.0	3.0	3.0	3.0	3.0	2.8	2.7	2.6	2.6	2.4	2.3	2.3	2.2	3.1	4.3																						
4-Feb	2.4	2.7	2.7	2.7	2.9	2.8	2.8	4.1	4.2	3.6	3.4	3.3	3.7	4.1	4.3	4.3	4.2	4.1	3.6	3.3	3.0	2.6	2.6	2.8	3.3	4.3																						
5-Feb	3.1	3.7	1.7	0.9	1.5	2.9	1.4	19.1	18.0	1.1	2.0	3.8	8.0	11.8	13.9	13.9	12.9	11.1	11.0	9.1	8.4	13.5	12.4	8.4	8.1	19.1																						
6-Feb	6.4	6.5	9.0	11.4	12.6	13.0	10.2	9.4	8.7	7.9	7.6	7.0	6.8	6.8	7.3	7.5	7.5	7.5	7.0	6.5	6.4	6.3	6.0	5.5	7.9	13.0																						
7-Feb	5.9	5.7	6.0	6.4	6.2	6.0	5.8	6.0	5.9	5.9	5.7	5.4	5.5	6.0	7.1	7.0	8.1	9.2	9.9	9.3	7.6	6.9	6.8	5.7	6.7	9.9																						
8-Feb	5.1	4.2	3.8	3.2	3.4	3.7	4.2	4.5	5.8	4.8	5.8	6.5	8.6	10.3	10.9	11.7	12.8	12.8	10.6	9.1	7.4	5.7	4.8	4.4	6.8	12.8																						
9-Feb	4.6	4.9	4.3	4.1	3.2	3.3	4.0	5.3	4.2	4.9	6.8	11.4	17.3	16.8	20.0	21.6	20.6	21.6	32.9	18.3	13.9	12.4	10.1	8.9	11.5	32.9																						
10-Feb	8.1	8.1	8.0	5.4	4.7	4.1	4.1	3.6	3.4	3.4	3.9	7.4	17.9	21.4	19.5	18.3	16.6	17.0	16.3	13.5	11.4	10.2	9.0	9.2	10.2	21.4																						
11-Feb	9.6	10.1	10.2	20.6	15.3	12.7	10.0	7.7	6.3	5.6	6.6	9.5	10.8	11.5	10.3	10.8	12.5	12.0	10.7	7.8	5.8	4.6	3.8	4.4	9.5	20.6																						
12-Feb	3.8	4.4	3.7	4.6	6.3	6.9	6.7	4.2	6.2	7.7	8.6	8.9	11.3	19.1	20.6	21.9	21.4	21.0	19.9	17.4	15.6	14.1	13.4	12.2	11.7	21.9																						
13-Feb	12.6	12.5	12.8	11.7	11.5	11.4	11.0	10.8	10.9	10.3	9.4	8.1	8.5	8.8	9.6	10.7	11.0	11.8	10.0	10.7	10.8	9.4	10.2	10.0	10.6	12.8																						
14-Feb	9.0	9.3	10.7	11.4	10.9	9.7	9.5	10.1	11.2	12.3	15.3	17.9	17.1	16.1	25.1	35.4	69.7	32.5	30.2	35.0	47.0	39.4	22.5	13.8	21.7	69.7																						
15-Feb	12.9	12.3	11.6	11.3	10.9	28.3	12.7	14.4	15.7	13.1	13.4	13.9	14.5	16.3	18.6	22.2	21.9	20.3	23.1	19.6	14.7	12.8	11.5	10.6	15.7	28.3																						
16-Feb	10.8	11.0	10.4	10.2	10.0	16.8	12.0	12.7	12.5	13.2	13.1	10.6	10.1	10.0	10.0	10.0	9.6	9.4	9.4	9.7	9.6	9.3	9.6	9.6	10.8	16.8																						
17-Feb	9.8	9.7	9.4	9.2	8.0	8.6	8.7	9.9	9.8	9.3	7.8	8.0	8.7	7.8	8.0	7.9	8.6	9.0	8.9	9.0	9.1	9.0	8.8	8.4	8.8	9.9																						
18-Feb	9.1	10.7	11.9	12.5	12.9	13.4	12.9	10.3	9.7	10.7	12.6	12.4	11.1	11.5	11.2	10.4	10.9	11.4	13.0	11.8	13.4	12.7	12.7	12.2	11.7	13.4																						
19-Feb	12.6	11.1	11.1	11.5	11.4	12.7	12.2	12.9	13.1	13.7	12.1	12.2	10.8	9.8	9.5	9.1	8.7	8.5	8.5	9.1	9.2	8.9	8.2	8.1	10.6	13.7																						
20-Feb	7.2	6.6	6.6	6.6	7.4	7.3	7.1	7.6	8.0	8.1	7.3	6.9	7.2	7.6	7.5	7.1	7.5	6.4	6.1	5.7	5.6	5.7	5.4	5.1	6.8	8.1																						
21-Feb	4.6	4.6	5.2	4.4	4.0	4.4	4.1	4.0	6.0	4.5	4.4	4.4	4.8	5.2	5.2	5.3	5.9	6.2	6.3	6.0	5.9	6.2	6.3	6.2	5.2	6.3																						
22-Feb	7.0	7.7	7.3	6.4	5.6	5.5	5.2	5.0	6.2	9.7	17.1	14.6	13.1	13.0	13.4	13.1	11.2	9.6	8.8	8.0	7.3	6.6	6.3	5.9	8.9	17.1																						
23-Feb	6.1	7.8	6.8	5.4	5.4	6.4	5.5	4.5	3.8	3.4	4.0	7.4	10.2	10.5	10.9	11.5	11.5	11.9	11.6	10.9	11.1	9.7	12.3	9.3	8.2	12.3																						
24-Feb	7.3	7.3	7.6	7.7	53.5	9.4	10.8	37.1	14.5	8.1	8.7	8.5	9.7	9.6	9.4	9.3	8.5	8.1	7.7	7.2	6.9	6.6	5.9	4.5	11.4	53.5																						
25-Feb	4.4	3.8	4.0	3.3	3.2	3.2	5.9	10.6	6.0	6.7	9.2	13.4	17.1	16.8	19.0	19.1	19.2	16.0	13.5	11.4	9.9	9.0	8.0	7.6	10.0	19.2																						
26-Feb	8.0	8.2	7.7	7.5	6.8	6.7	6.2	6.7	8.6	7.2	8.5	8.4	8.1	8.6	8.6	9.3	9.3	15.8	17.3	13.1	10.6	9.8	9.4	9.7	9.2	17.3																						
27-Feb	9.5	10.5	8.0	7.2	6.9	7.0	7.0	7.4	7.1	7.6	8.2	7.5	7.0	6.7	7.0	6.9	7.2	7.0	6.2	5.8	5.9	5.7	5.3	5.4	7.1	10.5																						
28-Feb	5.5	5.2	4.7	4.3	3.6	2.8	2.1	1.7	1.6	1.6	1.6	1.7	1.9	2.8	5.2	8.0	9.1	9.8	9.1	8.0	7.7	6.4	5.0	4.7	4.7	9.8																						
																								7.1	7.2	7.1	7.3	8.6	7.9	6.9	8.6	7.8	7.1	7.8	8.4	9.5	10.1	10.9	11.7	13.0	12.2	11.7	10.3	9.9	9.1	8.1	7.3	Diurnal Average
																								12.9	12.5	12.8	20.6	53.5	28.3	12.9	37.1	18.0	13.7	17.1	17.9	17.9	21.4	25.1	35.4	69.7	32.5	32.9	35.0	47.0	39.4	22.5	13.8	Diurnal Maximum
Alberta Ambient Air Quality Objectives (AAAQO): 24-hr 30 µg/m <sup>3</sup>																																																



**WBEA NETWORK**  
**Hourly Averages**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - February 2014**





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - February 2014**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
1 - 5	183	27.23	27.23
6 - 15	428	63.69	90.92
16 - 25	49	7.29	98.21
26 - 80	11	1.64	99.85
> 81.0	0	0.00	99.85

Total Number of Valid Hours: 672

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>**  
**Athabasca Valley - February 2014**

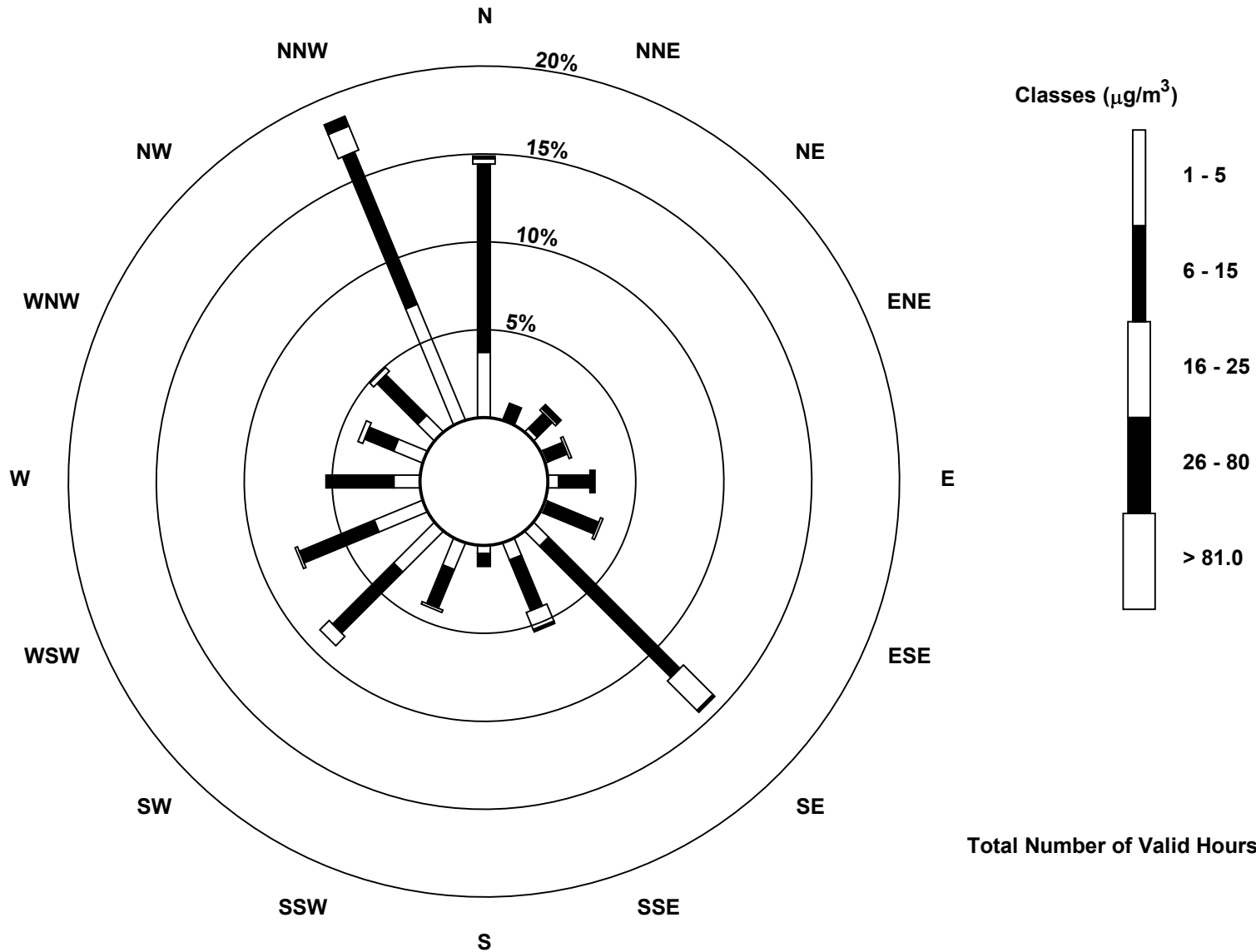
Concentration Ranges (µg/m <sup>3</sup> )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
1 - 5	25	0	2	1	4	1	8	7	3	11	22	20	10	12	9	48	183
6 - 15	72	7	8	8	12	21	71	21	5	16	33	31	26	12	22	63	428
16 - 25	2	0	1	1	0	1	16	7	0	1	5	1	0	2	2	10	49
26 - 80	1	0	2	0	2	0	1	1	0	0	0	0	0	0	0	4	11
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	100	7	13	10	18	23	96	36	8	28	60	52	36	26	33	125	671

Total Number of Valid Hours: 672

Total Number of Hours: 672

Wood Buffalo Environmental Association  
Wind Rose Feb 2014

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Athabasca Valley (AMS 7)



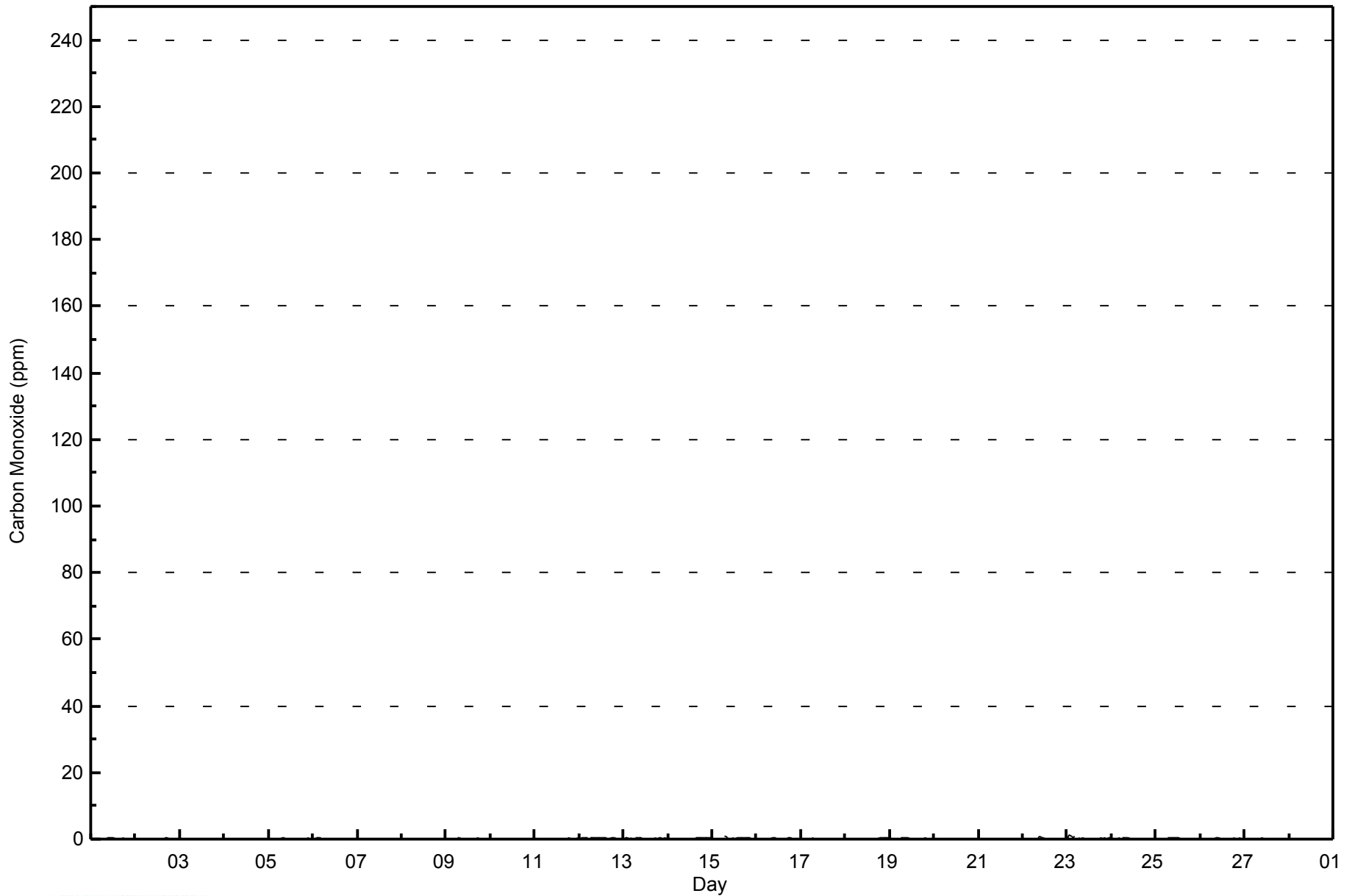
Total Number of Valid Hours: 672





WBEA NETWORK  
Hourly Averages

Carbon Monoxide (CO) - ppm  
Athabasca Valley - February 2014







**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	594	94.29	94.29
0.4 - 0.5	28	4.44	98.73
0.6 - 0.7	5	0.79	99.52
0.8 - 1.4	3	0.48	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 630

Total Number of Hours: 672



**WBEA NETWORK**  
**Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - February 2014**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.3	91	7	9	10	16	18	74	29	7	26	55	50	32	23	31	116	594
0.4 - 0.5	0	0	3	0	1	4	14	2	0	1	1	0	0	0	0	2	28
0.6 - 0.7	0	0	0	0	0	0	2	1	0	0	0	0	2	0	0	0	5
0.8 - 1.4	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	3
1.5 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	91	7	12	10	17	22	91	32	7	27	56	50	35	24	31	118	630

Total Number of Valid Hours: 630

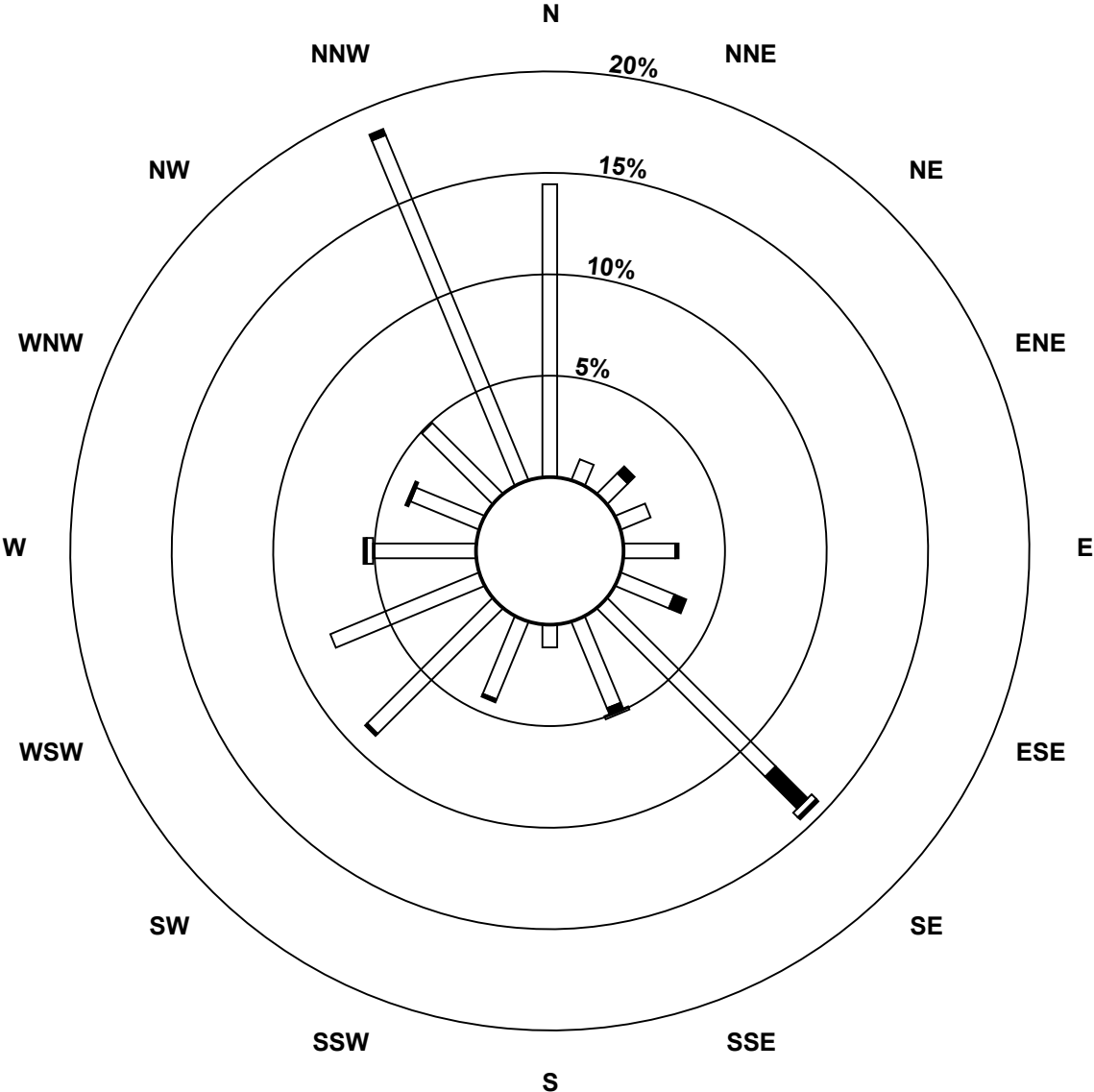
Total Number of Hours: 672

**Wood Buffalo Environmental Association**

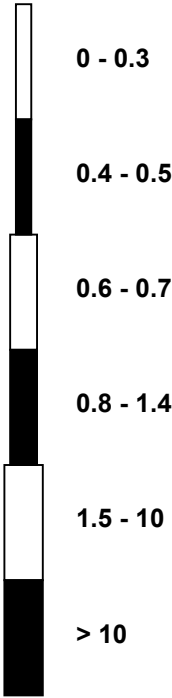
**Wind Rose Feb 2014**

**Carbon Monoxide (CO) - ppm**

**Athabasca Valley (AMS 7)**



**Classes (ppm)**



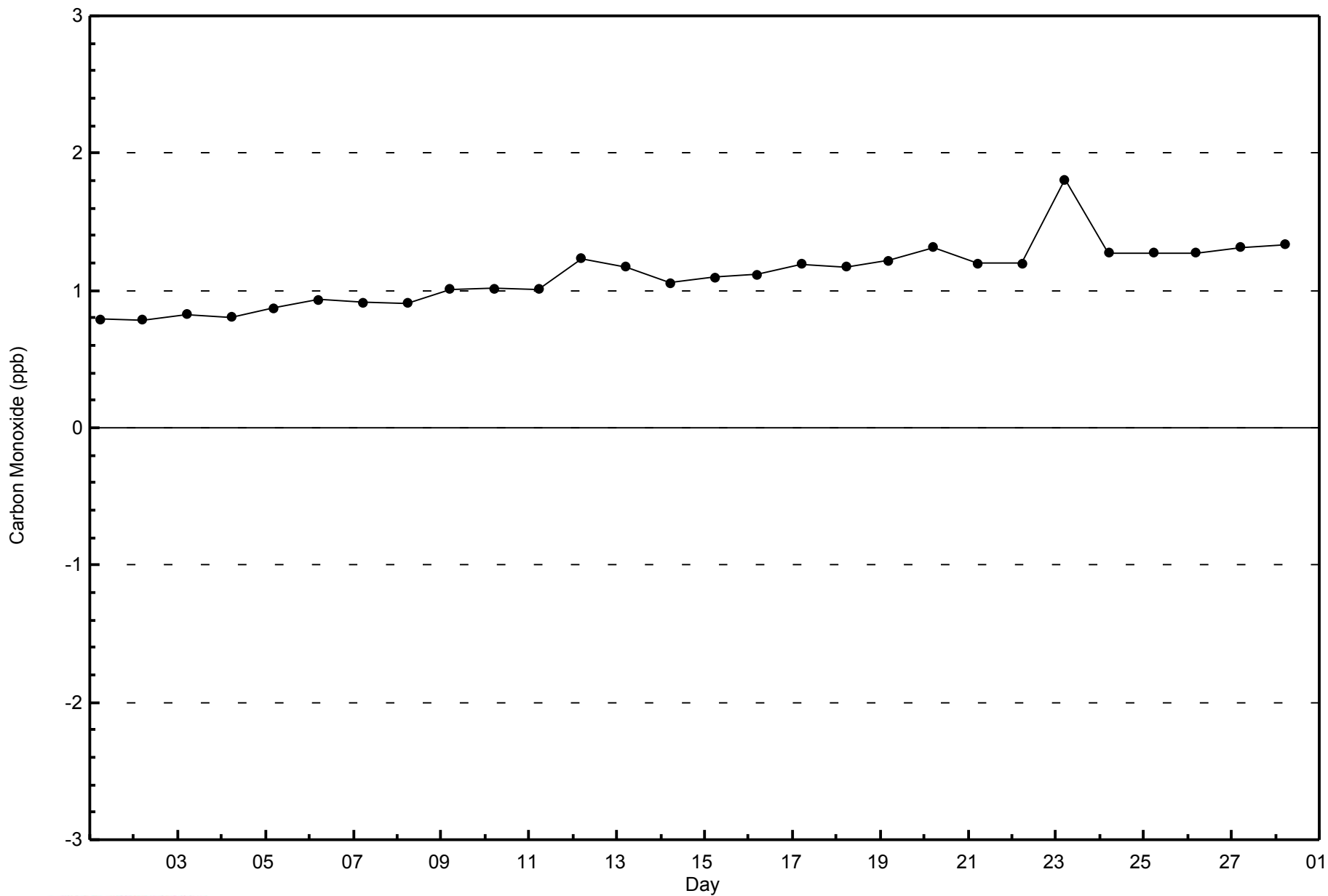
**Total Number of Valid Hours: 630**



WBEA NETWORK

Zero Responses

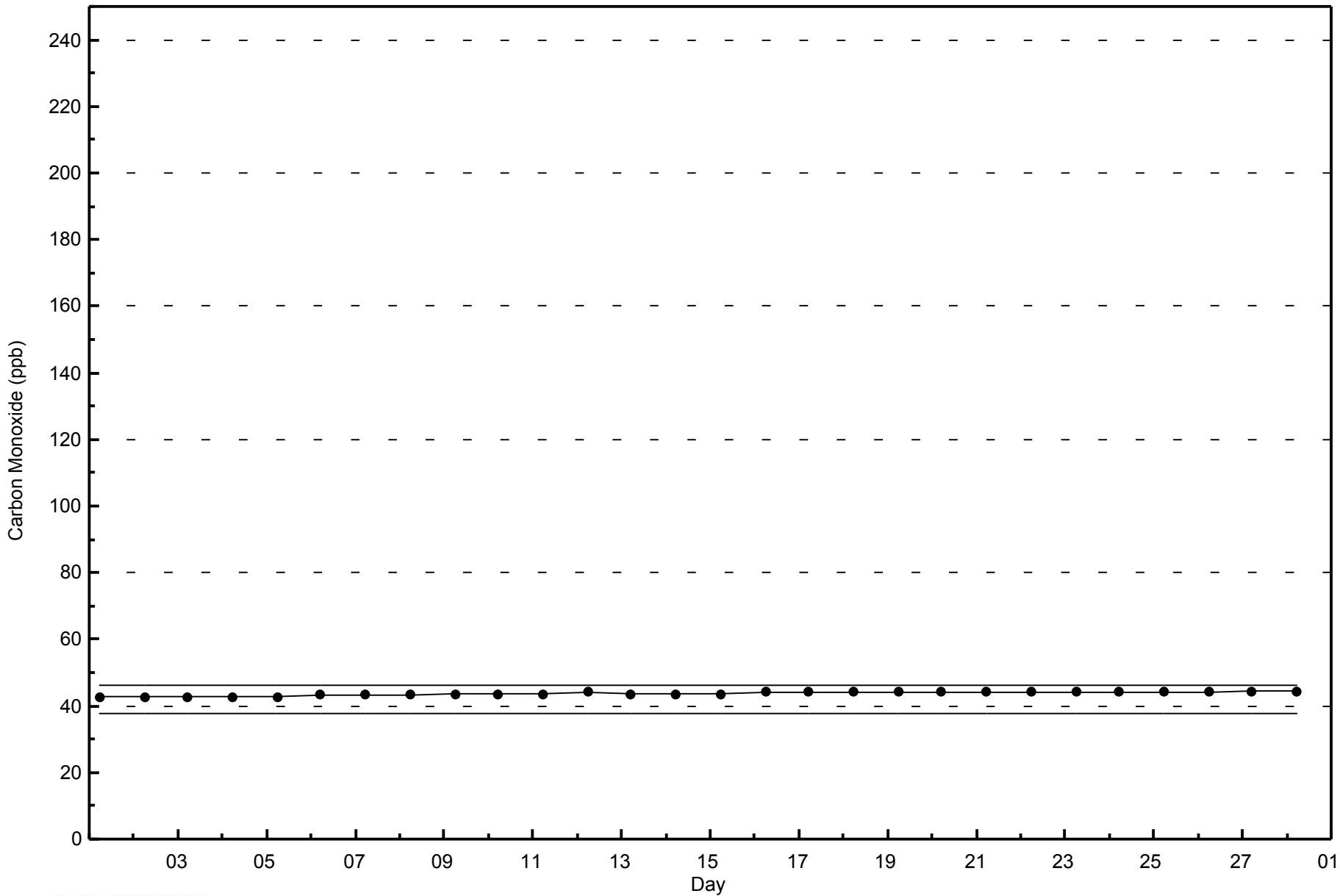
Carbon Monoxide (CO) - ppb  
Athabasca Valley - February 2014





**WBEA NETWORK**  
**Span Responses**

**Carbon Monoxide (CO) - ppb**  
**Athabasca Valley - February 2014**





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

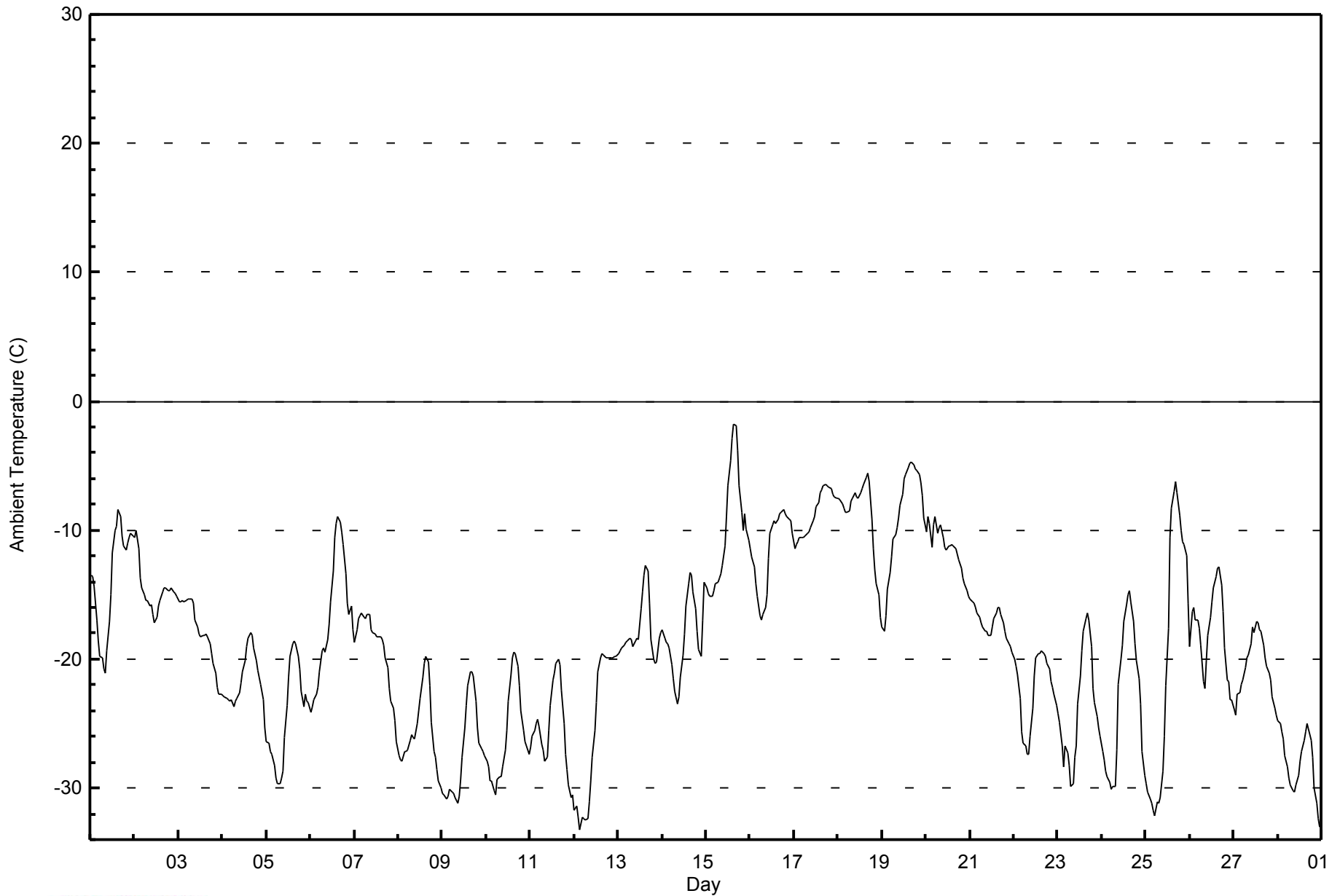
**Ambient Temperature (AT) - C**  
**Athabasca Valley - February 2014**

Maximum Value: -1.7 C on Feb 15 16:00		Maximum Daily Average: -8.7 C on Feb 17		Hours in Service: 672																							
Minimum Value: -33.2 C on Feb 12 04:00		Minimum Daily Average: -28.1 C on Feb 28		Hours of Data: 672																							
Maximum Diurnal Average: -14.3 C at hour 16		Minimum Diurnal Average: -21.5 C at hour 8		Hours of Missing Data: 0																							
Monthly Average: -18.82 C		Percentiles: P <sub>1</sub> = -32.3 P <sub>10</sub> = -28.6 Q <sub>1</sub> = -23.8 Median = -18.8 Q <sub>3</sub> = -14.2 P <sub>90</sub> = -9.0 P <sub>99</sub> = -4.9		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Feb	-13.5	-13.6	-14.4	-17.0	-18.6	-19.8	-19.8	-20.8	-21.1	-19.4	-17.0	-15.1	-11.8	-10.1	-9.7	-8.4	-9.0	-10.4	-11.2	-11.6	-11.0	-10.6	-10.3	-10.5	-13.9	-8.4	
2-Feb	-10.6	-10.0	-11.5	-13.7	-14.5	-15.0	-15.5	-15.5	-15.9	-15.8	-16.6	-17.2	-16.7	-15.9	-15.4	-14.8	-14.5	-14.4	-14.7	-14.7	-14.5	-14.8	-14.9	-15.1	-14.7	-10.0	
3-Feb	-15.6	-15.6	-15.5	-15.6	-15.4	-15.4	-15.3	-15.4	-15.7	-17.0	-17.5	-18.1	-18.3	-18.2	-18.2	-18.0	-18.3	-18.8	-19.6	-20.3	-21.1	-22.2	-22.7	-22.7	-17.9	-15.3	
4-Feb	-22.8	-22.9	-23.0	-23.1	-23.2	-23.2	-23.7	-23.3	-23.1	-22.6	-21.8	-20.9	-20.1	-19.1	-18.4	-18.0	-18.1	-19.2	-20.1	-20.8	-21.5	-22.0	-23.2	-25.3	-21.6	-18.0	
5-Feb	-26.4	-26.5	-27.2	-27.3	-28.2	-29.2	-29.6	-29.7	-29.3	-28.7	-26.1	-23.6	-21.4	-19.8	-18.8	-18.6	-18.8	-19.7	-20.8	-22.5	-23.7	-22.7	-23.3	-23.4	-24.4	-18.6	
6-Feb	-24.2	-23.7	-23.2	-22.8	-22.2	-21.0	-19.4	-19.2	-19.4	-18.5	-17.3	-15.6	-13.2	-10.6	-9.5	-9.0	-9.3	-10.2	-11.1	-13.4	-15.6	-16.5	-15.9	-17.7	-16.6	-9.0	
7-Feb	-18.7	-17.7	-16.9	-16.6	-16.4	-16.8	-16.9	-16.5	-16.5	-17.7	-17.9	-18.1	-18.3	-18.3	-18.3	-18.5	-18.9	-19.9	-20.7	-22.3	-23.3	-23.8	-24.8	-26.4	-19.2	-16.4	
8-Feb	-27.5	-27.8	-27.9	-27.2	-27.2	-27.1	-26.3	-25.8	-26.1	-26.2	-25.0	-24.0	-23.0	-21.4	-20.3	-19.8	-20.3	-22.0	-24.9	-27.1	-27.6	-28.6	-29.4	-30.0	-25.5	-19.8	
9-Feb	-30.4	-30.5	-30.8	-30.6	-30.1	-30.3	-30.5	-30.7	-31.2	-30.7	-29.3	-27.6	-25.3	-23.5	-22.1	-21.0	-20.9	-21.4	-23.2	-25.3	-26.5	-26.9	-27.2	-27.4	-27.2	-20.9	
10-Feb	-27.9	-28.4	-29.5	-29.5	-30.2	-30.5	-29.3	-29.1	-29.1	-28.3	-27.1	-25.5	-23.2	-21.2	-19.9	-19.5	-19.6	-20.5	-22.0	-24.1	-25.5	-26.5	-26.7	-27.4	-25.9	-19.5	
11-Feb	-26.8	-25.9	-25.6	-25.0	-24.6	-25.2	-26.6	-27.1	-27.9	-27.6	-25.5	-23.6	-21.6	-21.1	-20.4	-20.0	-20.5	-22.4	-25.0	-27.4	-28.6	-29.7	-30.7	-30.5	-25.4	-20.0	
12-Feb	-31.7	-31.4	-32.2	-33.2	-32.3	-32.4	-32.5	-32.4	-31.1	-29.4	-27.6	-25.5	-23.3	-21.0	-19.9	-19.5	-19.7	-19.9	-19.9	-19.9	-19.9	-19.8	-19.8	-19.8	-25.6	-19.5	
13-Feb	-19.6	-19.4	-19.1	-18.9	-18.7	-18.6	-18.4	-18.5	-19.1	-18.6	-18.4	-18.5	-16.2	-14.8	-13.5	-12.7	-13.2	-15.7	-18.5	-20.0	-20.4	-20.2	-18.4	-18.0	-17.8	-12.7	
14-Feb	-17.8	-18.4	-18.7	-18.8	-19.2	-20.5	-21.6	-22.5	-23.4	-22.9	-21.5	-19.7	-18.0	-15.9	-14.2	-13.2	-13.5	-14.8	-16.1	-17.9	-19.2	-19.8	-17.0	-14.1	-18.3	-13.2	
15-Feb	-14.4	-14.9	-15.2	-15.1	-14.7	-14.2	-14.0	-13.7	-13.4	-12.8	-11.2	-9.0	-6.6	-4.6	-2.8	-1.7	-1.9	-3.8	-6.5	-8.7	-10.0	-8.7	-10.0	-10.8	-9.9	-1.7	
16-Feb	-11.4	-12.0	-12.9	-14.1	-15.1	-16.7	-17.0	-16.5	-16.0	-15.1	-12.2	-10.3	-9.5	-9.2	-9.4	-9.2	-8.7	-8.6	-8.4	-8.8	-9.0	-9.1	-9.3	-10.3	-11.6	-8.4	
17-Feb	-11.4	-11.2	-10.9	-10.5	-10.6	-10.6	-10.4	-10.3	-10.1	-9.8	-9.3	-8.9	-8.2	-7.8	-7.1	-6.9	-6.6	-6.4	-6.6	-6.7	-6.8	-7.2	-7.4	-7.6	-8.7	-6.4	
18-Feb	-7.5	-7.7	-7.9	-8.3	-8.6	-8.6	-8.5	-7.8	-7.5	-7.1	-7.5	-7.5	-7.1	-6.8	-6.4	-5.9	-5.6	-6.3	-9.2	-11.4	-13.1	-14.2	-15.0	-16.7	-8.8	-5.6	
19-Feb	-17.5	-17.8	-16.7	-14.6	-13.2	-12.1	-10.6	-10.3	-9.8	-9.1	-8.0	-7.2	-6.0	-5.6	-5.1	-4.9	-4.7	-4.9	-5.2	-5.4	-5.7	-6.3	-7.3	-9.0	-9.1	-4.7	
20-Feb	-10.1	-8.9	-9.5	-11.3	-9.6	-8.9	-10.3	-9.8	-9.6	-10.6	-11.3	-11.5	-11.2	-11.2	-11.2	-11.2	-11.4	-11.9	-12.3	-13.0	-13.7	-14.2	-14.7	-15.1	-11.4	-8.9	
21-Feb	-15.4	-15.5	-15.6	-16.0	-16.4	-16.7	-17.2	-17.6	-17.8	-17.9	-18.2	-18.1	-17.5	-16.9	-16.4	-16.0	-16.0	-16.6	-17.2	-17.8	-18.4	-18.8	-19.1	-19.5	-17.2	-15.4	
22-Feb	-20.0	-20.6	-21.2	-23.0	-25.7	-26.5	-26.7	-27.4	-27.4	-26.0	-23.8	-21.3	-19.9	-19.6	-19.6	-19.4	-19.5	-19.8	-20.3	-20.8	-21.7	-22.2	-22.8	-23.6	-22.4	-19.4	
23-Feb	-24.3	-24.8	-26.7	-28.3	-26.8	-27.2	-28.2	-29.9	-29.6	-27.6	-26.7	-23.5	-21.3	-19.3	-17.8	-16.9	-16.5	-17.0	-19.0	-22.3	-23.3	-24.5	-25.3	-25.9	-23.9	-16.5	
24-Feb	-27.2	-27.8	-28.7	-29.1	-29.6	-30.1	-29.9	-29.9	-27.1	-21.9	-20.0	-18.9	-17.1	-15.8	-15.0	-14.7	-15.6	-17.1	-18.8	-20.1	-21.5	-23.4	-27.2	-29.0	-23.1	-14.7	
25-Feb	-29.7	-30.3	-30.9	-31.2	-31.7	-32.1	-31.0	-31.2	-30.7	-28.7	-25.9	-22.0	-17.6	-10.6	-8.3	-7.0	-6.2	-7.1	-8.8	-10.0	-10.9	-11.1	-11.9	-15.6	-20.0	-6.2	
26-Feb	-19.1	-16.3	-16.0	-17.0	-16.9	-17.7	-18.9	-21.7	-22.3	-20.1	-18.1	-16.8	-15.6	-14.5	-13.6	-13.0	-12.8	-14.3	-16.3	-19.1	-21.6	-21.8	-23.2	-23.1	-17.9	-12.8	
27-Feb	-24.0	-24.4	-22.7	-22.6	-22.0	-21.6	-20.7	-19.9	-19.6	-18.8	-17.5	-17.9	-17.1	-17.2	-17.7	-17.9	-18.9	-19.9	-20.6	-21.1	-21.6	-22.9	-23.8	-24.4	-20.6	-17.1	
28-Feb	-24.8	-25.0	-25.6	-26.2	-27.5	-28.3	-29.2	-29.8	-30.2	-30.3	-29.8	-29.0	-27.9	-27.1	-26.2	-25.6	-25.0	-25.4	-26.3	-27.6	-29.9	-31.2	-32.3	-33.1	-28.1	-24.8	
		-20.4	-20.3	-20.6	-21.0	-21.0	-21.3	-21.4	-21.5	-21.4	-20.7	-19.6	-18.4	-16.9	-15.6	-14.8	-14.3	-14.4	-15.3	-16.5	-17.9	-18.8	-19.3	-19.8	-20.4	Diurnal Average	
		-7.5	-7.7	-7.9	-8.3	-8.6	-8.6	-8.5	-7.8	-7.5	-7.1	-7.5	-7.2	-6.0	-4.6	-2.8	-1.7	-1.9	-3.8	-5.2	-5.4	-5.7	-6.3	-7.3	-7.6	Diurnal Maximum	



**WBEA NETWORK**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Athabasca Valley - February 2014**





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Athabasca Valley - February 2014**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	278	41.37	41.37
-20 - 0	394	58.63	100.00
0 - 10	0	0.00	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 672

Total Number of Hours: 672





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - %**

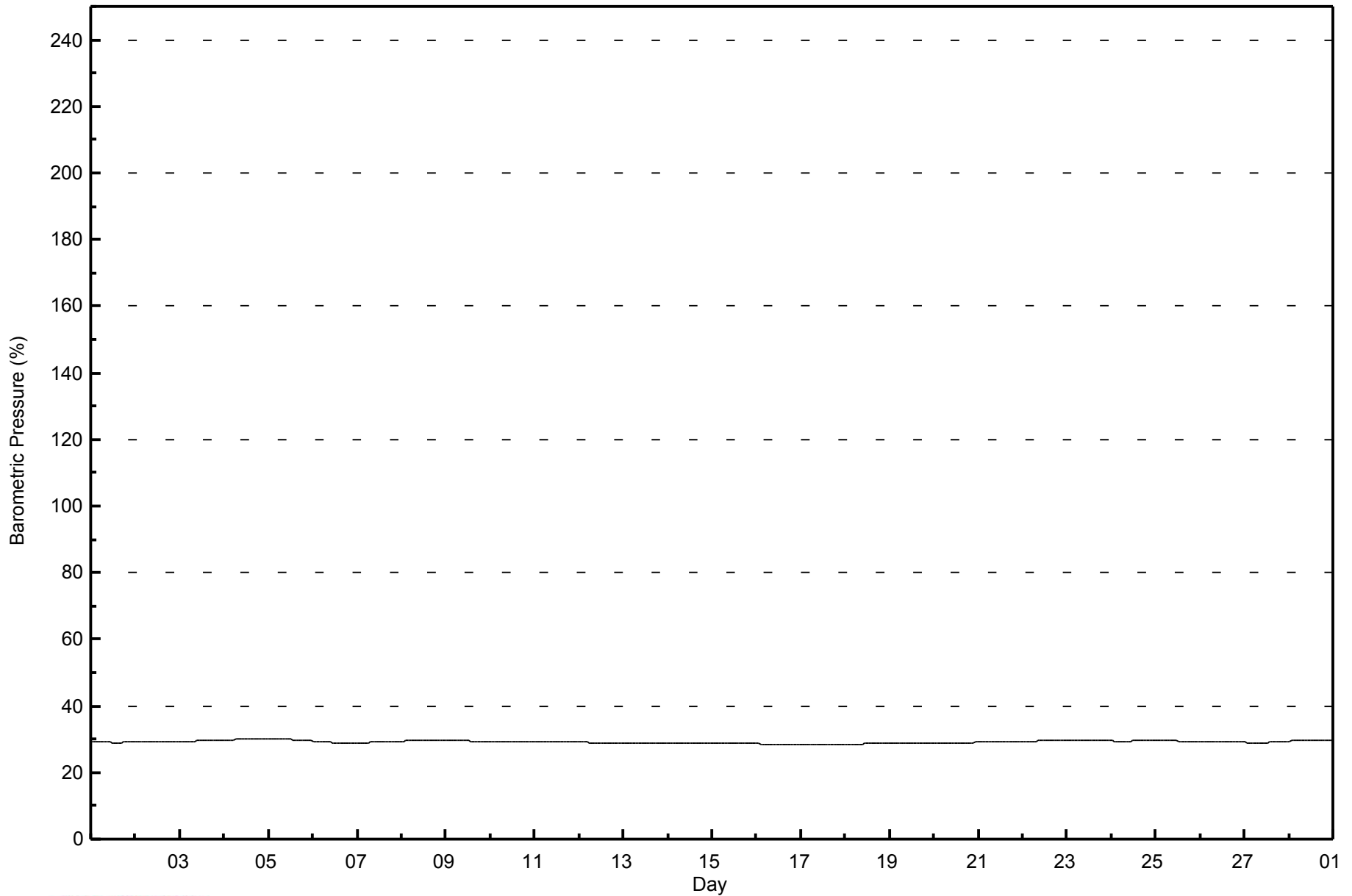
**Athabasca Valley - February 2014**

Maximum Value: 30.0 % on Feb 5 05:00		Maximum Daily Average: 29.9 % on Feb 4		Hours in Service: 672																									
Minimum Value: 28.3 % on Feb 17 15:00		Minimum Daily Average: 28.4 % on Feb 17		Hours of Data: 672																									
Maximum Diurnal Average: 29.2 % at hour 24		Minimum Diurnal Average: 29.2 % at hour 7		Hours of Missing Data: 0																									
Monthly Average: 29.18 %		Percentiles: P <sub>1</sub> = 28.4 P <sub>10</sub> = 28.6 Q <sub>1</sub> = 28.9 Median = 29.2 Q <sub>3</sub> = 29.5 P <sub>90</sub> = 29.7 P <sub>99</sub> = 30.0		Hours of Calibration: 0																									
				Percent Operational Time: 100.0																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Feb	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2
2-Feb	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.2	29.2	29.3
3-Feb	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.5	29.5	29.8
4-Feb	29.8	29.8	29.8	29.8	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	30.0	30.0	30.0	30.0	29.9	29.9	30.0	
5-Feb	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	29.9	29.9	29.8	29.8	29.8	29.7	29.7	29.7	29.6	29.6	29.6	29.5	29.5	29.8	29.8	30.0	
6-Feb	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.1	29.1	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.1	29.1	29.1	29.4	
7-Feb	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.2	29.2	29.4	29.4	
8-Feb	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
9-Feb	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.6	29.6	
10-Feb	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.3	29.3	29.4	29.4	
11-Feb	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
12-Feb	29.2	29.1	29.1	29.1	29.1	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
13-Feb	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.9
14-Feb	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
15-Feb	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8
16-Feb	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.4	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6
17-Feb	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.3	28.3	28.3	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
18-Feb	28.4	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7
19-Feb	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.8	28.8	28.9
20-Feb	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	29.0	29.0	
21-Feb	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.3	29.3	29.4	29.4	
22-Feb	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.7
23-Feb	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.7
24-Feb	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.7
25-Feb	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.4	29.3	29.3	29.3	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.4
26-Feb	29.1	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.3
27-Feb	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.1	29.1	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4
28-Feb	29.4	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
																								Diurnal Average					
																								Diurnal Maximum					



**WBEA NETWORK**  
**Hourly Averages**

**Barometric Pressure (BP) - %**  
**Athabasca Valley - February 2014**





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - inHg**

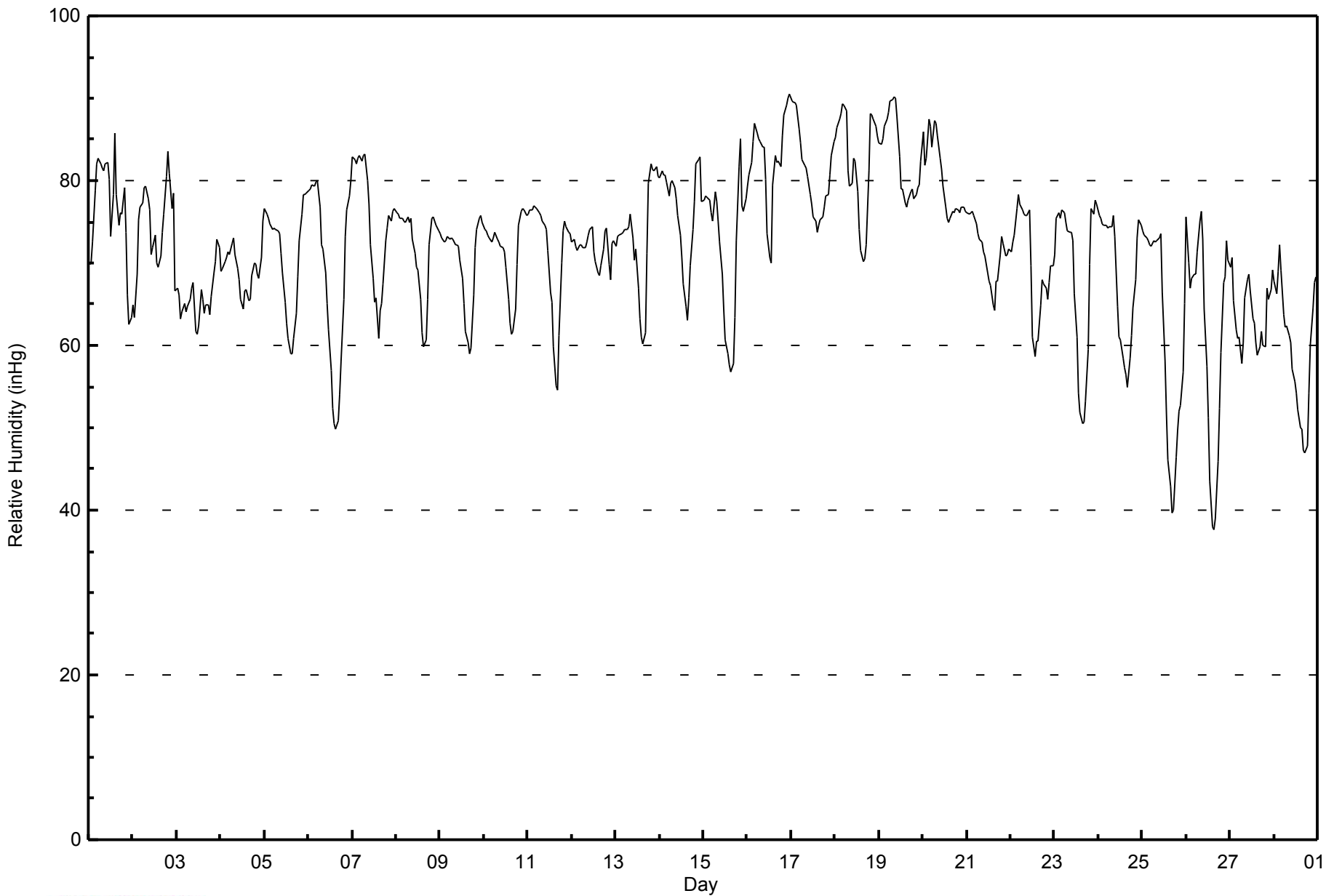
**Athabasca Valley - February 2014**

Maximum Value: 91 inHg on Feb 17 00:00																			Maximum Daily Average: 83.0 inHg on Feb 19						Hours in Service: 672																																											
Minimum Value: 38 inHg on Feb 26 16:00																			Minimum Daily Average: 59.6 inHg on Feb 28						Hours of Data: 672																																											
Maximum Diurnal Average: 76.6 inHg at hour 5																			Minimum Diurnal Average: 62.1 inHg at hour 16						Hours of Missing Data: 0																																											
Monthly Average: 71.8 inHg																			Percentiles: P <sub>1</sub> = 46 P <sub>10</sub> = 60 Q <sub>1</sub> = 67 Median = 73 Q <sub>3</sub> = 77 P <sub>90</sub> = 83 P <sub>99</sub> = 90						Hours of Calibration: 0																																											
																									Percent Operational Time: 100.0																																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																												
1-Feb	70	70	72	79	82	83	82	82	81	82	82	80	73	78	86	78	75	76	76	79	74	66	63	63	76.3	86																																										
2-Feb	65	63	69	75	77	77	79	79	78	76	71	72	73	70	69	71	74	76	81	84	81	77	78	67	74.2	84																																										
3-Feb	67	66	63	64	65	64	65	66	67	68	62	61	62	67	66	64	65	65	64	66	69	70	73	72	65.8	73																																										
4-Feb	69	69	70	71	71	71	72	73	71	69	68	66	64	67	67	65	66	68	70	70	69	68	71	75	69.2	75																																										
5-Feb	77	76	75	75	74	74	74	74	74	71	69	65	63	61	59	59	61	64	68	73	76	78	78	78	70.7	78																																										
6-Feb	79	79	79	79	80	80	77	72	72	69	65	62	57	52	51	50	51	54	58	66	73	77	78	80	68.3	80																																										
7-Feb	83	83	82	83	83	82	83	83	80	77	72	68	65	66	61	64	65	67	73	74	76	75	76	77	74.9	83																																										
8-Feb	76	76	75	75	75	75	76	75	75	73	71	70	69	66	61	60	61	66	72	75	76	75	75	74	71.7	76																																										
9-Feb	73	73	73	73	73	73	73	73	72	72	72	70	68	65	62	60	59	60	66	72	74	75	76	75	70.1	76																																										
10-Feb	74	74	73	73	73	73	74	73	72	72	72	71	69	66	63	61	62	64	70	75	76	77	76	76	71.2	77																																										
11-Feb	76	76	76	77	77	77	76	76	75	75	74	72	67	65	60	55	55	61	70	74	75	74	74	73	71.2	77																																										
12-Feb	73	73	72	72	72	72	72	72	73	73	74	74	71	70	69	68	70	72	74	74	70	68	72	73	71.8	74																																										
13-Feb	72	73	73	74	74	74	74	74	76	73	70	72	67	63	61	60	61	71	80	82	81	81	82	81	72.9	82																																										
14-Feb	80	81	81	81	80	78	80	80	79	78	76	73	71	68	65	63	66	70	74	78	82	83	83	77	76.0	83																																										
15-Feb	78	78	78	78	76	75	79	77	75	72	69	64	61	59	58	57	58	63	73	82	85	77	76	78	71.9	85																																										
16-Feb	79	81	82	85	87	86	85	85	84	84	80	74	71	70	80	83	82	82	82	85	88	89	90	91	82.7	91																																										
17-Feb	90	89	90	89	86	85	82	82	82	80	78	77	76	75	74	75	75	76	77	78	78	81	83	85	80.9	90																																										
18-Feb	85	86	87	88	89	89	88	81	79	80	83	82	79	74	71	70	70	72	81	88	88	87	87	85	82.2	89																																										
19-Feb	85	84	85	87	88	88	90	90	90	90	88	83	79	79	77	77	78	79	79	78	78	79	80	82	83.0	90																																										
20-Feb	86	82	83	87	87	84	87	87	85	83	81	79	77	75	75	75	76	76	77	76	76	77	77	76	80.2	87																																										
21-Feb	76	76	76	76	76	75	74	73	73	71	71	69	68	67	65	64	68	68	71	73	72	71	71	72	71.5	76																																										
22-Feb	71	72	73	77	78	77	76	76	76	76	76	70	61	59	60	61	65	68	67	67	66	68	70	70	70.0	78																																										
23-Feb	71	75	76	75	76	76	75	74	74	74	73	66	61	54	52	51	53	59	70	77	76	78	77	68.5	78																																											
24-Feb	76	75	75	75	74	74	74	76	73	65	61	61	59	57	56	55	59	61	65	68	73	75	75	75	68.2	76																																										
25-Feb	74	73	73	73	72	72	73	73	73	73	74	66	58	52	46	43	40	40	46	50	52	53	57	65	61.2	74																																										
26-Feb	76	70	67	68	69	69	71	75	76	73	64	58	51	43	38	38	39	46	52	59	68	68	73	70	61.7	76																																										
27-Feb	70	71	65	62	61	61	58	60	66	68	69	67	63	63	60	59	60	62	60	60	67	66	67	69	63.8	71																																										
28-Feb	68	66	69	72	69	64	62	62	61	60	57	56	54	52	50	50	47	47	48	54	60	65	68	68	59.6	72																																										
																			75.6		75.5		75.5		76.5		76.6		76.0		76.1		75.8		75.5		74.5		72.4		69.6		66.4		64.4		62.9		62.1		62.6		65.2		68.9		72.3		74.1		74.0		75.2		75.1		Diurnal Average	
																			90		89		90		89		89		90		90		90		90		88		83		79		79		86		83		82		82		82		82		88		88		89		90		91		Diurnal Maximum	



**WBEA NETWORK**  
**Hourly Averages**

**Relative Humidity (RH) - inHg**  
**Athabasca Valley - February 2014**





Maximum Speed: 26 km/h on Feb 27 13:00		Maximum Daily Speed Average: 12.8 km/h on Feb 21		Hours in Service: 672																						
Minimum Speed Value: 0 km/h on Feb 11 19:00		Minimum Daily Speed Average: 1.2 km/h on Feb 11		Hours of Data: 672																						
Maximum Diurnal Speed Average: 3.7 km/h at hour 16		Minimum Diurnal Speed Average: 0.6 km/h at hour 7		Hours of Missing Data: 0																						
Monthly Average Velocity: 1.9 km/h 333.2 deg		Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 5 Q <sub>3</sub> = 10 P <sub>90</sub> = 14 P <sub>99</sub> = 19		Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Feb	WSW7	SW7	SSW3	SW1	WSW2	SSW2	SW0	WSW1	SW1	SE3	ESE3	SE3	SSW3	WSW12	SW8	NW11	NNW13	NNW12	NNW8	NNW4	NW10	NW14	NW19	NNW19	WNW4.5	WNW19
2-Feb	W18	W18	NNW14	N12	NNW12	NNW9	NNW7	NNW11	NW8	NNW10	N13	NNW10	NW4	SW2	E4	SE1	SE3	SSE3	WSW2	NNW4	N10	NNW10	NNW7	NNW14	NNW6.8	W18
3-Feb	NW9	NNW12	NNW14	NNW14	NNW18	NNW17	NNW16	NNW17	NW15	N18	N18	N17	NNW16	NNW14	N12	N13	N10	N11	N13	NNW13	NNW10	NNW9	NNW9	NNW8	NNW11.8	N18
4-Feb	NNW16	NNW14	NNW11	NNW8	NNW6	NW7	NNW4	W6	WSW11	WSW10	WSW7	W9	WSW6	WNW9	WNW7	NNW8	NW6	WNW2	SW4	SW3	SW5	SW9	SW7	S1	WNW5.0	NNW16
5-Feb	SSW2	SSW5	SSW5	SSW4	SW5	SW3	SW3	SW4	SSW4	SW7	SSW4	SSW7	SSW8	SW11	SW13	SW13	W14	NW7	ENE1	NW1	ESE2	ESE2	SSE1	WSW1	SW4.3	W14
6-Feb	WSW4	SW2	SSE2	SE3	SE3	SSE2	SW5	SW8	WSW7	WSW16	WSW15	SW11	SW10	WSW10	W13	W11	W13	W11	W5	WSW4	SW2	SW1	S1	WSW3	WSW6.0	WSW16
7-Feb	WSW0	NW1	SSW1	E1	WSW2	W2	NNW3	NNW6	NNW14	N13	N14	N16	N15	N15	N13	N11	N10	N6	N4	N5	NNW4	NNW4	WSW1	WSW1	N6.2	N16
8-Feb	SW0	WSW3	SSW1	WSW6	WSW7	WSW7	WSW6	WSW4	S0	SW8	SW6	W2	NW2	W2	NW4	NNW6	NNW4	WNW2	WSW4	WSW3	SSW1	N0	NE1	NE1	W2.4	SW8
9-Feb	WSW1	SSW1	SW2	S3	SSE7	SE6	SE6	SSE7	SE3	SSE6	SSE6	SE4	SE7	SE9	SE9	SE9	SE8	SE8	E4	NNW1	SW2	SW2	SSW1	SW3	SSE4.2	SE9
10-Feb	SW7	SW3	SW3	SW5	SW3	SSW2	W1	WSW3	WSW3	WSW3	W2	WNW2	NW2	NNW4	NNW7	NNW7	NNW6	N4	NNW1	NW2	W3	W4	NW3	NNW1	WNW2.0	NNW7
11-Feb	WNW1	W2	WSW3	ENE1	S2	SW0	W2	WSW2	WSW5	WSW3	NW1	N3	N6	N5	NNW6	NNW5	W2	SW3	SSW0	WSW0	NNW0	ESE1	E2	SE2	NW1.2	NNW6
12-Feb	SSE2	SE4	SSE4	SSE5	SE7	SE8	ESE6	ENE3	ESE4	SE5	SE9	SE10	SE8	SSE7	SE10	ESE12	SE13	SE12	SE11	SE13	SE14	SE14	SE12	SE13	SE8.4	SE14
13-Feb	SE13	SE10	SE8	SE11	SE8	SE8	SE8	SE7	SE6	SE6	E1	WNW2	NW2	N4	N1	E3	NW2	WSW3	WSW4	SSW1	NNE1	N2	NE1	ENE2	SE3.0	SE13
14-Feb	NE4	N5	NNW10	NNW8	NNW9	N6	NNW3	N3	N3	WNW2	N3	NNW3	NW3	NNW3	N7	NNW7	NNW7	NNW4	N3	NNW1	NE2	NE2	SSE6	SSE10	N3.1	SSE10
15-Feb	SSE8	SSE10	SE14	SSE12	SE17	SSE15	SE17	SE20	SE19	SE19	SE16	SSE12	SSE9	SE7	SSE5	SSE6	SSE7	SE6	SSE2	SE1	SE5	SE13	SE12	SE9	SE11.0	SE20
16-Feb	SE9	SE8	SE7	ESE5	NE2	NE2	NNE1	NNE2	NNW2	NNW3	S3	SE10	ESE10	SE9	SE7	SSE6	SE6	SSE4	SSE3	NE2	NNE2	NNE1	N3	NW1	ESE3.2	SE10
17-Feb	WSW1	ENE1	ENE1	S2	SE6	SSE4	SE6	SE4	SSE4	SE5	SE6	SE7	SSE5	SE5	SSE3	WSW2	ESE4	SSE5	SE5	ESE3	SE3	ENE1	W1	NNW3	SE3.0	SE7
18-Feb	NNW5	NNW4	NW3	NNE2	W1	SW1	SE2	SW3	W4	NNW4	N8	NNW10	N8	NNW6	NW3	WNW1	E4	E3	ESE3	WNW1	NW1	E1	NE1	N3	NNW2.0	NNW10
19-Feb	N0	ENE1	E1	NNW1	NNW2	N2	NE1	E2	ENE1	E1	SE2	NNW2	ESE4	SE8	ESE7	ESE8	ESE7	SE10	SE6	SE6	SE9	SE8	SE9	ESE4	ESE3.5	SE10
20-Feb	SE4	SE8	ESE3	W1	SE4	SE3	WNW2	WSW2	NNW10	NNW13	N12	NNW12	N10	N11	N10	N12	NNW16	NNW15	NNW17	NNW16	NNW16	NNW17	NNW17	NNW15	NNW8.4	NNW17
21-Feb	NNW17	NNW17	NNW16	NNW17	NNW16	NNW17	NNW17	NNW16	NNW15	NNW15	NNW15	N13	NNW15	N12	NNW13	NNW12	NNW8	N7	N8	N9	N7	NNW9	NNW8	NNW7	NNW12.8	NNW17
22-Feb	N6	NNW4	N5	WNW2	W5	WNW2	WSW2	WSW4	WSW3	W3	NNW5	NNW11	NNW13	N14	N11	N11	N9	N8	N7	N8	N10	NNW11	NNW11	N8	NNW6.4	N14
23-Feb	N5	WNW2	W3	W1	W3	WSW5	SW6	SW2	SSW2	SW4	W1	E3	SE2	SW6	SW7	SW7	SW7	SSW6	SSW2	NE1	SW0	SSW2	SSE1	WSW1	SW2.4	SW7
24-Feb	SSW4	SSW3	SSW2	SW1	E1	E2	SE1	SE3	S4	SSW7	NE1	NW2	NNW11	NNW15	N12	N12	N13	NNW11	N8	N7	N6	NW2	SW1	W4	NNW3.2	NNW15
25-Feb	SW2	E1	E2	S1	NW0	NNW0	SE5	SE5	SE8	SE8	SE10	SE11	SE8	SW14	SW14	SW12	SW9	WSW6	W8	WSW7	W3	SW5	SW8	W5	SSW4.1	SW14
26-Feb	W6	NW6	NNW4	NW4	N8	N8	N7	W3	W1	N6	N7	N7	N6	NNW6	NNW5	NNW5	NNW6	NNW5	WNW2	W3	SW1	NW1	E2	ESE2	NNW3.7	N8
27-Feb	ENE2	N1	SE4	ESE4	ESE5	ESE5	SSE4	NNW4	N3	NNW8	N20	NNW24	N26	NNW26	N23	N23	N25	N16	N16	N15	N14	N12	NNW11	NNW9	N10.8	N26
28-Feb	N13	NNW15	NNW11	NNW14	N16	N17	N14	N14	N17	NNW16	N14	N15	NNW13	N12	N13	NNW13	NNW13	NNW11	N5	NW1	SW3	S2	SE1	SSE1	N10.4	N17
NW1.8WNW1.7NNW1.3 NW1.0 NW0.9 NW0.9NW0.6 W1.1 NW1.5WNW1.8NNW2.5NNW3.1 N3.2NNW3.4NNW3.2NNW3.7NNW3.7 N2.4NNW2.1NNW2.3 N2.0NNW1.7NNW1.4 NW1.6																								Diurnal Average		
W18 W18NNW16NNW17WNW18 N17 NNW17 SE20 SE19 SE19NNW20NNW24 N26 NNW26 N23 N23 N25 N16 NNW17 NNW16 NNW16 NNW17 NW19WNW19																								Diurnal Maximum		
All monthly, daily, and diurnal averages have been calculated using vector methods																										

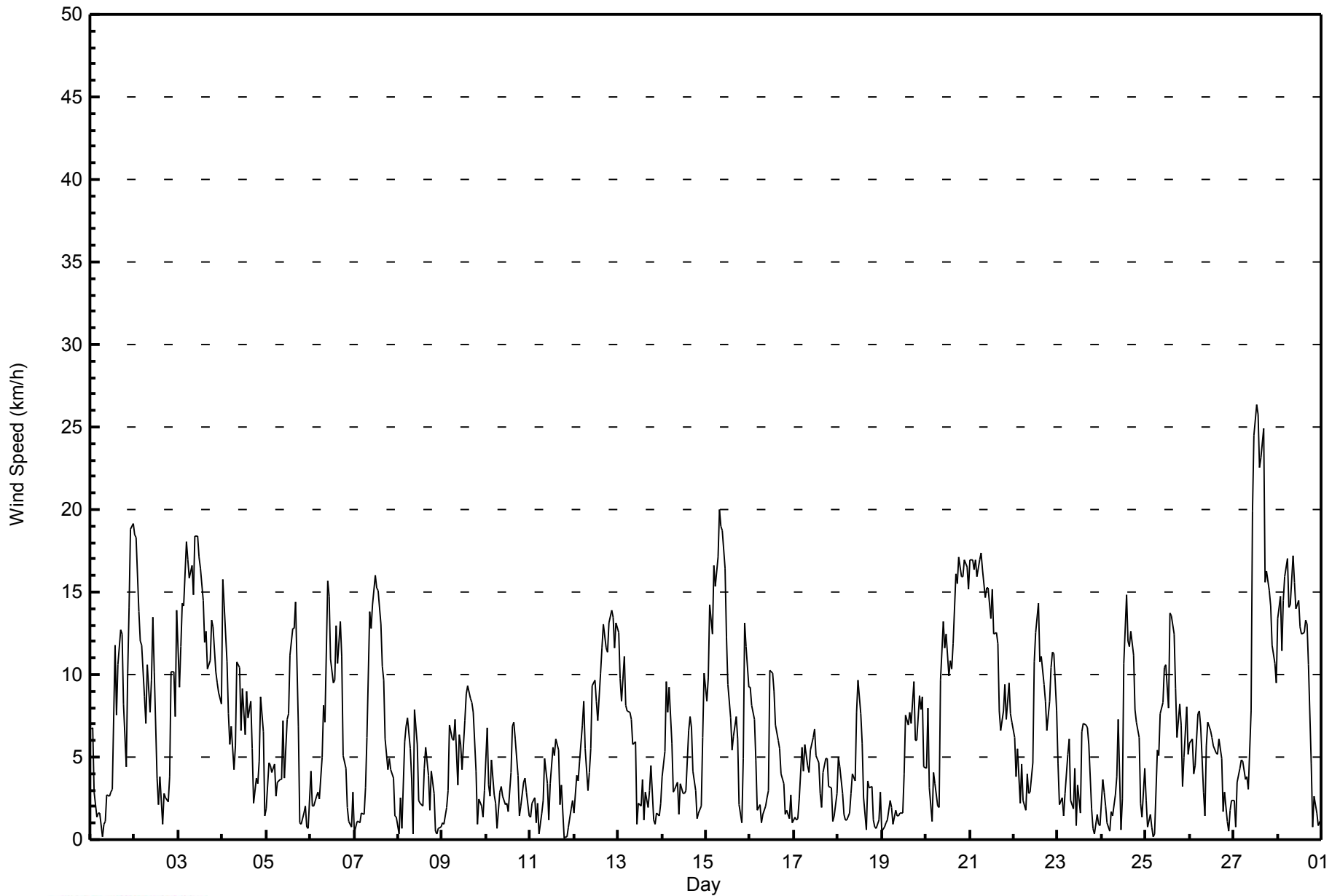


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Feb 27 11:00														Hours in Service: 672 Hours of Data: 672 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0											
Minimum Value: 0 km/h on Feb 8 18:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 3 P <sub>99</sub> = 6																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-Feb	2	1	2	1	2	1	1	1	1	2	1	1	3	2	3	4	3	3	2	1	3	3	5	4	5
2-Feb	3	3	4	3	3	2	3	2	2	4	5	3	2	1	1	1	1	2	2	2	3	2	3	3	5
3-Feb	3	3	3	3	3	3	3	3	4	5	4	5	4	4	3	3	3	3	4	3	3	2	2	3	5
4-Feb	3	3	3	2	2	2	2	2	3	3	2	3	2	2	2	2	2	1	2	1	1	2	2	1	3
5-Feb	2	3	3	2	2	2	2	3	2	2	2	3	2	3	3	3	3	3	1	1	1	1	1	1	3
6-Feb	2	2	1	1	1	1	3	3	3	6	5	2	2	3	3	3	3	2	2	1	2	2	2	1	6
7-Feb	2	1	3	1	2	2	1	3	3	4	4	4	4	4	4	3	3	2	1	1	2	2	1	1	4
8-Feb	1	1	1	2	1	1	2	1	1	2	2	1	1	1	2	1	1	0	1	2	1	1	1	1	2
9-Feb	1	1	1	2	3	2	2	2	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3
10-Feb	1	2	2	1	2	3	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	1	2	3
11-Feb	1	1	1	1	2	1	1	1	1	2	1	1	1	1	2	1	1	2	1	1	1	1	2	2	2
12-Feb	2	3	3	3	2	2	2	1	2	2	2	3	2	2	3	4	4	4	3	4	4	4	3	3	4
13-Feb	3	3	2	3	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
14-Feb	1	2	2	2	3	3	1	1	1	1	1	1	1	1	1	3	3	2	1	1	1	2	3	3	3
15-Feb	3	3	3	3	4	3	4	3	4	3	3	4	2	2	1	2	2	2	1	1	3	3	3	3	4
16-Feb	2	2	2	2	1	1	1	1	1	1	3	3	3	3	2	2	2	1	1	1	1	1	1	1	3
17-Feb	1	1	1	2	2	2	2	1	1	2	2	2	1	1	1	1	2	1	2	1	1	1	1	1	2
18-Feb	2	1	1	1	1	1	2	1	2	1	2	2	2	2	1	1	1	2	2	1	1	1	1	1	2
19-Feb	1	1	1	1	2	2	1	1	1	1	1	1	2	2	2	2	2	3	3	3	2	2	2	2	3
20-Feb	3	2	2	1	2	2	2	1	5	2	3	3	2	2	3	3	3	3	3	4	5	4	3	4	5
21-Feb	3	3	3	4	3	3	4	4	3	3	3	3	3	3	3	2	2	2	2	2	2	3	2	2	4
22-Feb	2	1	1	1	1	2	2	1	1	1	3	2	3	4	3	3	3	2	2	3	3	2	3	2	4
23-Feb	1	1	1	1	1	1	1	3	2	3	1	1	2	2	2	2	2	2	1	1	1	1	1	1	3
24-Feb	2	1	2	1	1	1	1	1	3	3	1	1	2	4	3	3	3	3	2	2	2	1	2	1	4
25-Feb	2	1	2	1	1	1	2	2	2	3	2	2	3	4	3	3	2	3	3	3	1	2	2	2	4
26-Feb	1	2	2	2	2	2	2	1	1	2	2	2	2	1	1	1	1	2	1	1	1	1	2	1	2
27-Feb	2	1	3	3	2	2	3	3	1	3	8	7	7	6	7	7	6	6	5	4	5	4	3	3	8
28-Feb	4	4	4	4	5	5	4	4	5	4	4	4	3	3	3	3	3	4	1	2	2	2	2	2	5
														Diurnal Maximum											



**WBEA NETWORK**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Athabasca Valley - February 2014**





**WBEA NETWORK**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Athabasca Valley - February 2014**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	336	50.00	50.00
6 - 11	204	30.36	80.36
12 - 19	124	18.45	98.81
20 - 28	8	1.19	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 672

Total Number of Hours: 672





**WBEA NETWORK**  
**Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Athabasca Valley - February 2014**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	22	7	13	10	18	16	30	19	8	25	36	36	25	16	22	33	336
6 - 11	37	0	0	0	0	6	49	14	0	4	19	13	6	2	8	46	204
12 - 19	37	0	0	0	0	1	16	3	0	0	5	3	5	8	3	43	124
20 - 28	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	8
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	100	7	13	10	18	23	96	36	8	29	60	52	36	26	33	125	672

Total Number of Valid Hours: 672

Total Number of Hours: 672





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Athabasca Valley - February 2014**

Direction of Maximum Speed: 351 deg on Feb 27 13:00																				Hours in Service: 672					
Direction of Maximum Daily Speed Average: 345.2 deg on Feb 21																				Hours of Data: 672					
Direction of Minimum Speed: 205 deg on Feb 11 19:00										Direction of Minimum Daily Speed Average: 1.2 deg on Feb 11										Hours of Missing Data: 0					
Monthly Average Direction: 311.0 deg																				Percent Operational Time: 100.0					
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Feb	251	234	205	225	238	212	231	237	221	135	122	129	193	237	233	307	341	346	340	328	314	306	305	284	291.6
2-Feb	278	281	336	349	346	347	348	333	315	348	5	346	312	232	85	142	127	158	237	347	349	344	332	337	331.6
3-Feb	326	285	294	286	283	292	287	287	314	349	351	352	348	348	356	352	357	2	357	348	348	344	338	331	327.7
4-Feb	342	340	343	343	346	310	327	270	246	255	237	267	249	283	294	332	307	284	224	220	218	222	219	183	289.4
5-Feb	212	201	205	211	225	224	224	221	199	225	207	209	212	220	221	223	273	309	58	308	110	111	165	242	225.2
6-Feb	241	217	150	146	140	152	226	228	245	239	241	222	228	253	266	264	261	260	262	257	225	218	177	247	241.6
7-Feb	243	311	204	88	240	266	282	342	346	352	350	351	356	353	358	360	4	3	4	354	328	341	254	249	349.5
8-Feb	231	238	209	242	244	246	256	257	183	224	228	262	322	259	325	343	345	291	258	243	193	11	40	38	260.3
9-Feb	241	206	232	170	150	144	143	154	144	168	158	144	146	130	132	131	131	131	99	335	230	227	200	218	148.0
10-Feb	225	216	216	215	224	197	267	248	243	240	270	284	325	345	337	341	348	356	342	321	265	281	320	335	287.0
11-Feb	297	272	255	75	191	215	265	254	253	246	323	353	354	355	347	341	267	230	205	252	329	110	82	138	304.8
12-Feb	152	139	164	148	133	129	118	75	108	127	134	136	138	151	128	121	124	127	136	132	131	129	129	130	130.6
13-Feb	133	133	137	141	141	136	139	137	136	136	93	299	322	353	2	82	322	255	256	209	31	353	46	76	134.3
14-Feb	51	352	345	344	344	349	348	353	2	284	350	298	323	329	351	347	343	334	354	339	49	54	154	159	350.3
15-Feb	152	150	139	148	143	147	143	139	137	140	140	147	147	146	151	150	150	140	166	142	145	139	136	130	142.8
16-Feb	130	131	124	116	37	37	23	14	347	329	183	131	123	126	130	150	130	149	158	51	12	13	4	326	121.7
17-Feb	240	75	77	184	124	151	136	144	154	141	139	146	157	133	150	256	103	147	136	122	135	69	281	334	140.4
18-Feb	337	344	310	31	280	235	131	215	264	340	350	345	353	348	318	289	98	93	114	293	326	85	50	1	346.8
19-Feb	3	65	79	344	348	349	51	86	69	87	134	331	118	127	123	120	122	135	124	137	139	144	137	123	123.5
20-Feb	128	138	109	262	144	141	298	257	338	339	350	348	355	349	352	350	345	341	341	346	348	344	343	343	347.4
21-Feb	344	341	342	346	341	340	344	346	344	344	348	351	344	351	347	345	340	9	350	350	355	340	336	346	345.2
22-Feb	351	340	352	287	262	288	256	255	257	261	329	341	347	352	355	359	356	357	10	6	4	342	345	352	344.5
23-Feb	354	302	278	277	260	249	232	225	208	227	280	87	142	219	221	222	222	213	194	41	227	208	148	247	229.9
24-Feb	213	209	211	217	94	100	125	135	191	212	35	314	339	344	351	350	9	348	358	1	359	314	225	263	341.0
25-Feb	236	83	86	188	310	339	142	139	139	138	139	141	131	220	222	222	231	245	260	253	275	232	236	271	201.4
26-Feb	271	316	336	321	0	353	355	269	280	351	350	4	352	336	338	334	340	334	298	259	225	319	92	121	336.9
27-Feb	60	352	131	121	118	116	156	334	7	345	349	348	351	348	356	354	350	9	359	352	8	4	345	340	356.7
28-Feb	350	346	348	347	351	352	351	360	352	343	351	349	348	356	350	345	344	347	2	315	217	189	142	168	349.3
309.8	300.6	332.9	317.0	316.7	318.7	290.0	281.2	306.8	302.6	348.2	348.2	349.9	328.7	335.4	337.6	343.3	348.9	348.0	344.3	353.4	339.3	330.3	322.2		
Diurnal Average																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction (WD) - deg

Athabasca Valley - February 2014

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Feb 10 07:00		Hours in Service: 672 Hours of Data: 672 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Value: 7 deg on Feb 4 22:00																										
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 13 Q <sub>1</sub> = 16 Median = 21 Q <sub>3</sub> = 45 P <sub>90</sub> = 70 P <sub>99</sub> = 94																										
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Feb	17	8	53	71	73	56	91	87	67	50	41	43	76	9	17	21	18	15	11	26	9	10	12	13	91	
2-Feb	10	10	24	15	13	16	19	11	13	16	21	14	33	46	33	86	53	45	43	25	17	16	16	10	86	
3-Feb	19	13	13	11	9	12	11	10	36	18	17	18	15	17	18	18	19	19	20	17	16	14	15	13	36	
4-Feb	11	11	13	13	22	16	32	21	14	15	16	22	29	16	30	18	31	49	24	21	14	7	20	68	68	
5-Feb	75	35	42	43	31	58	37	75	53	15	74	39	16	11	12	13	20	24	43	55	81	41	74	91	91	
6-Feb	31	52	50	38	30	41	46	20	21	11	10	12	14	17	12	13	10	8	48	25	67	88	92	32	92	
7-Feb	89	68	80	43	88	85	19	29	14	18	16	17	19	18	20	19	18	18	13	25	21	54	52	89	89	
8-Feb	83	34	95	24	12	14	14	19	88	9	8	27	17	26	31	13	8	44	13	74	89	70	72	61	95	
9-Feb	73	78	70	70	25	31	23	19	72	36	33	49	17	13	11	13	13	12	24	60	24	18	60	37	78	
10-Feb	9	27	48	19	71	75	99	22	14	23	19	35	33	21	10	10	13	17	41	24	18	19	20	51	99	
11-Feb	50	20	36	63	59	97	72	24	11	47	56	19	19	23	19	16	30	70	95	86	90	77	74	60	97	
12-Feb	86	51	74	54	21	18	32	40	45	29	16	17	15	19	17	18	16	17	17	16	17	17	16	15	86	
13-Feb	15	16	15	13	14	14	13	13	13	18	94	25	17	22	58	26	25	19	18	70	48	30	57	49	94	
14-Feb	35	18	12	14	14	27	38	25	33	70	22	20	22	21	19	23	23	33	45	58	40	40	51	18	70	
15-Feb	19	18	13	15	11	13	11	10	11	10	11	15	14	14	16	14	12	23	58	79	44	13	14	17	79	
16-Feb	15	16	18	27	35	48	81	35	59	37	50	19	18	20	17	19	21	36	36	53	32	40	22	40	81	
17-Feb	72	81	69	61	25	30	18	29	24	19	16	18	22	32	58	34	30	29	30	34	38	59	30	26	81	
18-Feb	14	18	28	46	33	86	66	49	25	36	15	16	18	15	35	65	42	46	50	59	24	68	74	27	86	
19-Feb	90	75	83	59	66	63	94	68	40	56	56	44	43	24	22	23	22	14	21	25	15	15	14	23	94	
20-Feb	53	16	46	60	46	70	48	49	23	12	16	15	18	16	19	18	13	12	11	15	17	13	12	14	70	
21-Feb	13	11	12	15	11	12	13	16	13	14	15	17	12	16	14	13	19	15	17	17	20	15	17	18	20	
22-Feb	15	14	13	41	14	61	67	21	34	20	21	11	13	17	18	18	19	18	18	18	20	14	15	18	67	
23-Feb	18	22	17	50	37	13	11	62	71	59	67	22	76	17	19	15	13	14	63	81	95	55	62	73	95	
24-Feb	24	20	39	79	91	60	61	29	65	37	82	36	11	14	20	18	19	15	18	15	17	48	67	17	91	
25-Feb	68	89	66	88	86	93	42	28	17	14	13	11	24	27	12	12	11	18	16	24	45	22	16	32	93	
26-Feb	23	36	20	28	22	20	19	32	37	13	15	18	21	16	15	10	15	20	29	22	70	77	63	56	77	
27-Feb	42	95	78	61	28	35	60	48	24	14	17	17	19	17	20	21	18	19	20	19	18	19	17	15	95	
28-Feb	17	16	16	15	18	18	19	19	19	12	18	17	16	18	17	13	15	17	19	57	72	74	76	82	82	
		90	95	95	88	91	97	99	87	88	70	94	49	76	46	58	86	53	70	95	86	95	88	92	91	
		Diurnal Maximum																								



**WBEA NETWORK**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Athabasca Valley - February 2014**

