



**WOOD BUFFALO  
ENVIRONMENTAL ASSOCIATION**

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**Wood Buffalo Environmental Association**

**APRIL 2024  
MONTHLY REPORT**

CONTINUOUS MONITORING

May 31, 2024

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association





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# Table of Contents

## *Continuous Monitoring Summaries*

<b>Summary Letter</b> .....	<b>1</b>
<b>Network Summary</b> .....	<b>15</b>
<b>Bertha Ganter – Fort McKay</b> .....	<b>1-1</b>
Station Summaries .....	1-2
Station Percentiles.....	1-3
Station Downtime.....	1-4
Data Summaries .....	1-5
<b>Mildred Lake</b> .....	<b>2-1</b>
Station Summaries .....	2-2
Station Percentiles.....	2-3
Station Downtime.....	2-4
Data Summaries .....	2-5
<b>Lower Camp Meteorology</b> .....	<b>3-1</b>
Station Summaries .....	3-2
Station Percentiles.....	3-3
Station Downtime.....	3-4
Data Summaries .....	3-5
<b>Buffalo Viewpoint</b> .....	<b>4-1</b>
Station Summaries .....	4-2
Station Percentiles.....	4-3
Station Downtime.....	4-4
Data Summaries .....	4-5
<b>Mannix</b> .....	<b>5-1</b>
Station Summaries .....	5-2
Station Percentiles.....	5-3
Station Downtime.....	5-4
Data Summaries .....	5-5
<b>Patricia McInnes</b> .....	<b>6-1</b>
Station Summaries .....	6-2
Station Percentiles.....	6-3
Station Downtime.....	6-4
Data Summaries .....	6-5



---

<b>Athabasca Valley</b> .....	<b>7-1</b>
Station Summaries .....	7-2
Station Percentiles.....	7-3
Station Downtime.....	7-4
Data Summaries .....	7-5
<b>Fort Chipewyan</b> .....	<b>8-1</b>
Station Summaries .....	8-2
Station Percentiles.....	8-3
Station Downtime.....	8-4
Data Summaries .....	8-5
<b>Barge Landing</b> .....	<b>9-1</b>
Station Summaries .....	9-2
Station Percentiles.....	9-3
Station Downtime.....	9-4
Data Summaries .....	9-5
<b>Lower Camp</b> .....	<b>11-1</b>
Station Summaries .....	11-2
Station Percentiles.....	11-3
Station Downtime.....	11-4
Data Summaries .....	11-5
<b>Fort McKay South</b> .....	<b>13-1</b>
Station Summaries .....	13-2
Station Percentiles.....	13-3
Station Downtime.....	13-4
Data Summaries .....	13-5
<b>Anzac</b> .....	<b>14-1</b>
Station Summaries .....	14-2
Station Percentiles.....	14-3
Station Downtime.....	14-4
Data Summaries .....	14-5
<b>Wapasu</b> .....	<b>17-1</b>
Station Summaries .....	17-2
Station Percentiles.....	17-3
Station Downtime.....	17-4
Data Summaries .....	17-5
<b>Stony Mountain</b> .....	<b>18-1</b>
Station Summaries .....	18-2
Station Percentiles.....	18-3
Station Downtime.....	18-4
Data Summaries .....	18-5



---

<b>Firebag</b> .....	<b>19-1</b>
Station Summaries .....	19-2
Station Percentiles.....	19-3
Station Downtime.....	19-4
Data Summaries .....	19-5
<b>MacKay River</b> .....	<b>20-1</b>
Station Summaries .....	20-2
Station Percentiles.....	20-3
Station Downtime.....	20-4
Data Summaries .....	20-5
<b>Conklin</b> .....	<b>21-1</b>
Station Summaries .....	21-2
Station Percentiles.....	21-3
Station Downtime.....	21-4
Data Summaries .....	21-5
<b>Janvier</b> .....	<b>22-1</b>
Station Summaries .....	22-2
Station Percentiles.....	22-3
Station Downtime.....	22-4
Data Summaries .....	22-5
<b>Fort Hills</b> .....	<b>23-1</b>
Station Summaries .....	23-2
Station Percentiles.....	23-3
Station Downtime.....	23-4
Data Summaries .....	23-5
<b>Waskōw ohci Pimâtisiwin</b> .....	<b>25-1</b>
Station Summaries .....	25-2
Station Percentiles.....	25-3
Station Downtime.....	25-4
Data Summaries .....	25-5
<b>Christina Lake</b> .....	<b>26-1</b>
Station Summaries .....	26-2
Station Percentiles.....	26-3
Station Downtime.....	26-4
Data Summaries .....	26-5
<b>Jackfish 2/3</b> .....	<b>27-1</b>
Station Summaries .....	27-2
Station Percentiles.....	27-3
Station Downtime.....	27-4
Data Summaries .....	27-5





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<b>Surmont 2</b> .....	<b>29-1</b>
Station Summaries .....	29-2
Station Percentiles.....	29-3
Station Downtime.....	29-4
Data Summaries .....	29-5
<b>Ells River</b> .....	<b>30-1</b>
Station Summaries .....	30-2
Station Percentiles.....	30-3
Station Downtime.....	30-4
Data Summaries .....	30-5
<b>Sawbones Bay</b> .....	<b>505-1</b>
Station Summaries .....	505-2
Station Percentiles.....	505-3
Station Downtime.....	505-4
Data Summaries .....	505-5
<b>Kirby South</b> .....	<b>507-1</b>
Station Summaries .....	507-2
Station Percentiles.....	507-3
Station Downtime.....	507-4
Data Summaries .....	507-5



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May 31, 2024

Director, Environmental Monitoring and Evaluation Branch  
Alberta Environment and Protected Areas  
11<sup>th</sup> Floor, Oxbridge Place  
9820 106 Street  
Edmonton, Alberta T5K 2J6

**RE: Monthly Ambient Air Quality Monitoring Report April 2024  
Wood Buffalo Environmental Association**

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Enclosed is the April 2024 Ambient Air Quality Monitoring Report for the continuous ambient air quality monitoring stations of the Wood Buffalo Environmental Association (WBEA) regional air quality monitoring network. The WBEA works closely with Alberta Environment and Protected Areas (AEPA) and funding for this work was provided by the Oil Sands Monitoring Program (OSM). It is independent of any position of the OSM Program.

The continuous ambient air quality monitoring network stations are:

AMS 01 – Bertha Ganter – Fort McKay	AMS 18 – Stony Mountain
AMS 02 – Mildred Lake	AMS 19 – Firebag
AMS 03 – Lower Camp (Meteorology)	AMS 20 – MacKay River
AMS 04 – Buffalo Viewpoint	AMS 21 – Conklin
AMS 05 – Mannix	AMS 22 – Janvier
AMS 06 – Patricia McInnes	AMS 23 – Fort Hills
AMS 07 – Athabasca Valley	AMS 25 – Waskōw ohci Pimâtisiwin
AMS 08 – Fort Chipewyan	AMS 26 – Christina Lake
AMS 09 – Barge Landing	AMS 27 – Jackfish 2/3
AMS 11 – Lower Camp (Air Quality)	AMS 29 – Surmont 2
AMS 13 – Fort McKay South	AMS 30 – Ells River
AMS 14 – Anzac	AMS 505 – Sawbones Bay
AMS 17 - Wapasu	AMS 507 – Kirby South



The WBEA submits this report on behalf of its members and for some members to satisfy the requirements contained in their EPEA Approvals (as amended):

<b>Industry Operators</b>	<b>EPEA Approval No.</b>
Athabasca Oil Corporation	289664-00-00; 241311-00-00
Canadian Natural	149968-01-00; 153125-01-00; 20809-02-00; 224816-01-00; 228044-00-00; 237382-00-00
Cenovus Energy Inc.	48522-01-00
ChemTrade Logistics	404827-00-00
CNOOC International	137467-01-00; 236394-00-00
Connacher Oil and Gas Ltd.	240008-00-00
ConocoPhillips	48263-01-00
Fort Hills Energy Corporation	151469-01-00
Hammerstone Corporation	189942-00-00
Harvest Operations Corp.	246984-01-00
H.J. Baker Sulphur Canada ULC	426549-00-00
Husky Oil Operations Ltd.	206355-01-00
Imperial Oil Ltd.	00046586-00-00
Inter Pipeline Ltd.	73203-02-00
Keyera Energy Ltd.	187-03-00
MEG Energy Corp.	00216466-01-00
Parsons Creek Aggregates	231302-00
PetroChina Canada Ltd.	254465-00-00
Suncor Energy Inc.	094-02-00; 80105-01-00
Sunshine Oilsands Ltd.	305529-00-00
Surmont Energy	318401-00-00
Syncrude Canada Ltd.	026-02-00
Titan Tire Reclamation Corporation	364232-00-00

**Government and Non-Government Organizations**

Alberta Energy Regulator	Health Canada
Alberta Environment and Protected Areas	Keyano College
Alberta Health	Parks Canada
Alberta Health Services	Regional Municipality of Wood Buffalo
Environment and Climate Change Canada	

**Indigenous Communities**

Athabasca Chipewyan First Nation	Fort McKay First Nation
Chard Métis Nation	Fort McMurray 468 First Nation
Chipewyan Prairie Dene First Nation	Fort McKay Métis
Christina River Dene Nation Council	Lakeland Métis
Conklin Resource Development Advisory Council	McMurray Métis
	Mikisew Cree First Nation

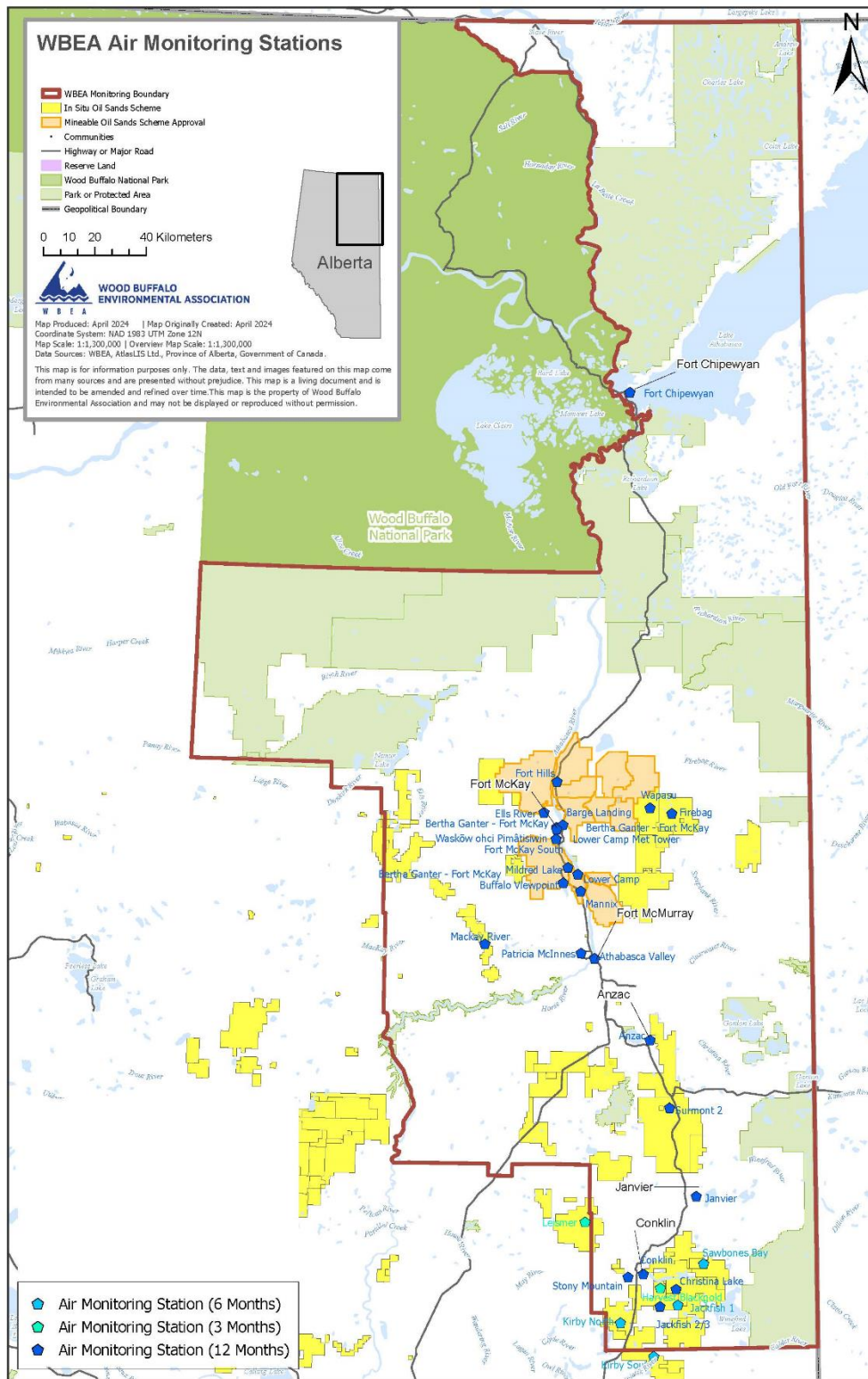


Figure 1. Map of WBEA Continuous Monitoring Network

The following operational notes are provided as per the Air Monitoring Directive requirements.

### 1.0 Concentrations in Excess of Alberta Ambient Air Quality Guidelines and Objectives

There were no ambient concentrations in excess of the Alberta Ambient Air Quality Objectives or Guidelines (AAAQO/AAAQG) as indicated in the Air Monitoring Directive Section RC 15-F for CO, NH<sub>3</sub>, NO<sub>2</sub>, O<sub>3</sub>, TRS, TSP and Dustfall.

There were nine ground-level concentrations in excess of the 1-hour H<sub>2</sub>S objective reported to AEPA; following data validation and processing, seven exceedances were confirmed.

There was one ground-level concentration in excess of the 24-hour H<sub>2</sub>S objective reported to AEPA; following data validation and processing, the exceedance was confirmed.

There were five ambient ground-level concentrations in excess of the 1-hour PM<sub>2.5</sub> guideline reported to AEPA; following data validation and processing, all exceedances were confirmed.

There were three ambient ground-level concentrations in excess of the 24-hour PM<sub>2.5</sub> objective reported to AEPA; following data validation and processing, one exceedance was confirmed.

There was one ambient ground-level concentration in excess of the 1-hour SO<sub>2</sub> objective reported to AEPA; following data validation and processing, the exceedance was confirmed.

Site	Parameter	Date / Time	Reference	Period	Reported	Final	Status*
Lower Camp	H <sub>2</sub> S	8Apr24, 20:00	426665	1-hr	15	15.6	exc
Mildred Lake	H <sub>2</sub> S	11Apr24, 07:00	426755	1-hr	16	16.3	exc
Ft. McKay S	PM <sub>2.5</sub>	18Apr24, 24:00		24-hr	0	0	nae
Lower Camp	H <sub>2</sub> S	19Apr24, 20:00	427106	1-hr	23	23.5	exc
Lower Camp	H <sub>2</sub> S	19Apr24, 21:00	427106	1-hr	11	11.7	exc
Ft. McKay S	PM <sub>2.5</sub>	19Apr24, 24:00	427564	24-hr	33	-	ret
Lower Camp	H <sub>2</sub> S	20Apr24, 20:00	427120	1-hr	58	58.7	exc
Lower Camp	SO <sub>2</sub>	20Apr24, 20:00	427121	1-hr	328	327.3	exc
Lower Camp	H <sub>2</sub> S	20Apr24, 21:00	427120	1-hr	15	15.5	exc
Lower Camp	H <sub>2</sub> S	20Apr24, 24:00	427120	24-hr	3	3.7	exc
Fort Hills	PM <sub>2.5</sub>	21Apr24, 21:00	427150	1-hr	158	157.6	exc
Fort Hills	PM <sub>2.5</sub>	21Apr24, 22:00	427150	1-hr	118	118.3	exc
Fort Hills	PM <sub>2.5</sub>	23Apr24, 03:00	427228	1-hr	113	113.4	exc
Fort Hills	PM <sub>2.5</sub>	23Apr24, 05:00	427228	1-hr	325	325.4	exc
Fort Hills	PM <sub>2.5</sub>	23Apr24, 06:00	427228	1-hr	108	108.2	exc
Fort Hills	PM <sub>2.5</sub>	23Apr24, 24:00	427228	24-hr	39	39.3	exc
Lower Camp	H <sub>2</sub> S	27Apr24, 17:00	427396	1-hr	10	9.6	nae



<b>Lower Camp</b>	H <sub>2</sub> S	27Apr24, 18:00	427396	1-hr	13	12.4	exc
<b>Christina Lake</b>	H <sub>2</sub> S	29Apr24, 21:00	427462	1-hr	10	10.0	nae

\*status legend:

- late    exceedance, raw values were not found to be in exceedance in real time, and/or were not reported, but final values were found to be an exceedance after data processing.
- exc    exceedance, raw values reported in real time were confirmed to be in exceedance after data processing.
- nae    not an exceedance, raw values reported in real time were found not in exceedance after data processing.
- ret    retracted, reported exceedance was found to be not an exceedance after investigation of measurement system status and/or validation of raw data in conjunction with all associated measurement parameters.

## 2.0 Data Processing and Validation

Concentrations reported in near real-time are raw values. The final values are determined after processing data for reporting. For all parameters, except PM<sub>2.5</sub>, the final 5-minute data values are determined by subtracting the daily zero responses, interpolated to the time of each raw 5-minute value, from the raw 5-minute data values. The PM<sub>2.5</sub> analyzers do not have the capability of performing zero's, therefore, the raw 5-minute values are validated through a comparison with associated parameters at the same, or a nearby, AMS. The final 5-minute data values are then rounded to one decimal place greater than the reporting precision indicated in the Air Monitoring Directive (AMD). The final 1-hour data values are calculated from final 5-minute data values and then rounded to reporting precision. The final 24-hour data values are calculated from final 1-hour values.

After data processing and validation, NO<sub>2</sub> concentrations are re-calculated from baseline-corrected NO<sub>x</sub> and NO concentrations. Specifically, the NO concentration is subtracted from the NO<sub>x</sub> concentration to determine the NO<sub>2</sub> concentration.

### 2.1 Revisions to ETS Electronic Transfer System – Data and Monthly Reports

There were no revisions to historical data stored at the Electronic Transfer System with this monthly report.

## 3.0 Operational Status

### 3.1 Continuous Monitoring

In April 2024, there were six instances that resulted in monitoring instruments operating less than 90% of the time.

Station	Parameter	Details
Anzac	WS/WD at 10m	The WS/WD sensor at the Anzac AMS operated less than 90% of April 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on April 18, 2024 (reference number 427024).



		<p>On April 8, during the data validation process, the WBEA noted that the WS/WD sensor was not accurately reading, and an on-site investigation determined a wire within the sensor had broken. The sensor was replaced that day, and the issue was resolved. A total of 121 hours of data were invalidated due to this incident.</p>
Firebag	WS/WD at 10m	<p>The WS/WD sensor at the Firebag AMS operated less than 90% of April 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on May 8, 2024 (reference number 427717).</p> <p>Throughout April, the WS/WD sensor froze due to weather conditions which resulted in intermittent flat-line periods in the output signal. The sensor operation returned to normal when weather conditions changed. Following data validation, a total of 81 hours of data were invalidated due to this issue, resulting in 89% operational time for April.</p>
Lower Camp Meteorological (Met) Tower	WS/WD/VWS at 45m	<p>The WS/WD/VWS sensor at the 45-meter elevation at the Lower Camp Met Tower operated less than 90% of April and May 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on May 9, 2024 (reference number 427764).</p> <p>Throughout April, the WS/WD/VWS sensor at the 45-meter elevation experienced communication issues. The WBEA continued to troubleshoot and ultimately determined the sensor was defective as it was unable to maintain stable communication. On May 6, the sensor was replaced, its performance was verified, and the issue was resolved. During the data validation process, a total of 378 hours of data were invalidated; 249 hours for April and 129 hours for May.</p>
Conklin	NO <sub>x</sub> /NO/NO <sub>2</sub>	<p>The NO/NO<sub>2</sub>/NO<sub>x</sub> analyzer at the Conklin AMS operated for less than 90% of April 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on May 23, 2024 (reference number 428314).</p> <p>On April 16, during the daily system check, the daily zero span was outside of acceptable criteria. That day, a site investigation determined the sample pump was damaged, the pump was replaced, and the instrument was left to stabilize overnight. On April 17, a follow-up calibration was completed, the analyzer performance was verified, and the issue was resolved. During the data validation process, a total of 89 hours were invalidated due to this incident.</p>
Conklin	THC/NMHC/CH <sub>4</sub>	<p>The THC/NMHC/CH<sub>4</sub> analyzer at Conklin AMS operated less than 90% of April 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on May 28, 2024 (reference number 428500).</p> <p>There were two issues associated with the operation of the THC/NMHC/CH<sub>4</sub> analyzer that resulted in 86 hours of analyzer downtime.</p>



- On April 17 through 19, the instrument’s baseline data appeared noisy. A WBEA technician visited the site on April 19 and replaced the actuator component of the analyzer. Unstable baseline and subsequent maintenance conducted to resolve the issue, resulted in 54 hours of invalid data.
- On April 21 and 22, the baseline noise issue persisted, prompting the replacement of the analyzer on April 22. Unstable baseline and subsequent maintenance to replace the analyzer resulted in an additional 32 hours of invalid data.

The relative humidity (RH) sensor at the Sawbones Bay air monitoring station (AMS) operated less than 90% of April 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on May 26, 2024 (reference number 428412).

Sawbones Bay

RH/AT

During routine daily system checks, it was identified that the RH measurements were over-ranging periodically, with the output signal of the sensor displaying values beyond 100%. On April 17, the RH sensor was replaced, and normal operations resumed. Data was invalidated during periods when RH measurements were inconsistent with comparable data in the WBEA ambient network, resulting in a total of 87 hours of invalid data.

### 3.2 Intermittent Monitoring

The results for time-integrated sampling of precipitation, PAH, VOC, PM<sub>2.5</sub> ECOC, PM<sub>2.5</sub>, and PM<sub>10</sub> will be submitted in the 2024 Annual Report.

### 3.3 General Network Notes

The Ammonia (NH<sub>3</sub>) analyzer currently operates on a 0 to 2500 ppb operating range with a detection level of 5 ppb in the WBEA network. In data processing, values less than five ppb have been considered below detection levels and are reported as zero.

Total hydrocarbon (THC), non-methane hydrocarbon (NMHC), and methane (CH<sub>4</sub>) measurements are collected at some air monitoring stations in the WBEA network using the Thermo Environmental model 55i direct THC/CH<sub>4</sub>/NMHC analyzer. This analyzer uses a Gas Chromatography (GC) based system, which resets the baseline value at the start of every run. This may cause the ambient background to indicate a response below the expected 1.8 ppm background level. When all measurable criteria indicate valid data during the QAQC and validation process, the data is reported without any additional flags. However, a response below the expected 1.8 ppm triggers an investigation of the analyzer to determine if there is an issue.

Monitoring notes, including changes to monitoring locations, methods, or equipment, and any reporting or monitoring irregularities, for the continuous monitoring stations, are provided on a station-by-station basis. Notes of each interrupted event are provided in chronological order, and meteorological parameters are mentioned last.





### ***Station 1, Bertha Ganter – Fort McKay***

The NH<sub>3</sub> analyzer required additional time to stabilize to levels below ambient concentrations following the automated daily spans and routine monthly multipoint calibrations. Additional time is required for stabilization after exposure to high concentrations of NH<sub>3</sub> gas, and this is an inherent behavior in the NH<sub>3</sub> analyzer operations due to the properties of the NH<sub>3</sub> gas. Data for 1 hour following the daily spans have been reported as invalid for a total of 30 hours this month.

Cleaning of the manifold on April 11 interrupted the normal operations of all gaseous analyzers, except NH<sub>3</sub> analyzer, for 1 hour.

Unstable operation due to excessive baseline noise of the PM<sub>2.5</sub> analyzer on April 30 resulted in 1 hour of invalid data.

The surface leaf wetness sensor operated out of range on April 5 and 6 resulting in 10 hours of invalid data.

Maintenance to conduct a field operation check of the precipitation collector sensor on April 29 resulted in a 1 hour of downtime.

Intermittent flatlines in the output signal of the wind speed and wind direction all throughout the month resulted in 19 hours of invalid data.

### ***Station 2, Mildred Lake***

Unstable operations due to excessive baseline drift of THC/NMHC/CH<sub>4</sub> analyzer on April 2, 4, and 10 resulted in 40 hours of invalid data. Operator maintenance to address the issues resulted in an additional 5 hours of downtime on April 11.

Cleaning of the manifold on April 23 interrupted the normal operations of the SO<sub>2</sub> and THC/NMHC/CH<sub>4</sub> analyzers for 1 hour.

Flatline in the output signal of the wind sensor on April 4 resulted in 4 hours of invalid data.

### ***Station 3, Lower Camp – Meteorology***

Failure to record data for the temperature and relative humidity sensor at 20-meter elevation on April 2 resulted in 1 hour of invalid data.

Failure to record data for the temperature and relative humidity sensor at 45-meter elevation on April 6 resulted in 2 hours of invalid data.

Periodic failure to record data for all meteorological sensors throughout the month resulted in 29 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 20-meter elevation on April 5 and April 16 resulted in 6 hours of invalid data.



Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 45-meter elevation throughout the month resulted in 395 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 100-meter elevation on April 30 resulted in 1 hour of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 163-meter elevation throughout the month resulted in 9 hours of invalid data.

#### ***Station 4, Buffalo Viewpoint***

An internal audit interrupted the normal operations of all air quality analyzers on April 3 resulted in 2 to 4 hours of downtime.

Cleaning of the manifold on April 24 interrupted the normal operations of all gaseous analyzers except for THC/NMHC/CH<sub>4</sub> analyzer for 1 hour.

#### ***Station 5, Mannix***

The station power failure on April 5 interrupted the normal operations of all parameters for 1 hour.

Cleaning of the manifold on April 24 interrupted the normal operations of all gaseous analyzers for 1 hour.

The relative humidity sensor at 90-meter elevation operated out of range on April 15 and 16 resulting in 9 hours of invalid data.

The relative humidity sensor at 75-meter elevation operated out of range throughout the month resulting in 69 hours of invalid data.

Flatline in the output signal of the wind speed, wind direction and vertical wind speed at 20-meter elevation on April 5 resulted in 1 hour of invalid data.

Flatline in the output signal of the wind speed, wind direction and vertical wind speed at 75-meter elevation on April 6 resulted in 9 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 90-meter elevation throughout the month resulted in 10 hours of invalid data.

#### ***Station 6, Patricia McInnes***

The NH<sub>3</sub> analyzer required additional time to stabilize to levels below ambient concentrations following the automated daily spans and routine monthly multipoint calibrations. NH<sub>3</sub> analyzers require additional time for stabilization after being exposed to high concentrations, this is due to the physical properties of the NH<sub>3</sub> gas. Data for 1 hour following each daily span has been reported as invalid for a total of 31 hours this month.

Unstable operation of the TRS analyzer due to flatline in output signal on April 1 and 27 resulted in 23 hours



of invalid data. Subsequent maintenance to reboot the TRS analyzer on April 1 and 28 resulted in additional 2 hours of downtime.

Unstable operation of the O<sub>3</sub> analyzer due to flatline in output signal on April 4 and 5 resulted in 26 hours of invalid data. Subsequent maintenance to reboot the O<sub>3</sub> analyzer on April 5 resulted in additional 1 hour of downtime.

Maintenance to perform column conditioning for THC/NMHC/CH<sub>4</sub> analyzer on April 22 and 23 resulted in 20 hours of downtime.

Cleaning of the manifold on April 23 interrupted the normal operations of all gaseous analyzers for 1 hour.

### ***Station 7, Athabasca Valley***

Unstable operation due to flatline in analyzer output signal of CO analyzer on April 6 resulted in 3 hours of invalid data. Subsequent maintenance to reboot the analyzer on April 6 resulted in additional 1 hour of downtime.

Flatline in the output signal of the wind sensors on April 6 resulted in 2 hours of invalid data.

Note: Automated daily zero-response checks of the O<sub>3</sub> analyzer did not meet WBEA's QC acceptance criteria for the month of April. Therefore, the calibrator zeros from the March, April and May multi-point calibrations were used to validate the analyzer baseline response.

### ***Station 8, Fort Chipewyan***

Maintenance to verify the linearity of CO<sub>2</sub> analyzer on April 22 resulted in 2 hours of downtime.

### ***Station 9, Barge Landing***

Intermittent flatlines in the output signal of the wind sensor at 10-meter elevation throughout the month resulted in 10 hours of invalid data.

### ***Station 11, Lower Camp***

Unstable operations due to flatline in analyzer output signal for H<sub>2</sub>S analyzer on April 7 resulted in 4 hours of invalid data.

Cleaning of the manifold on April 24 interrupted the normal operation of H<sub>2</sub>S analyzer for 2 hours.

Intermittent flatlines in the output signal of the wind sensor at 10-meter elevation throughout the month resulted in 7 hours of invalid data.



### ***Station 13, Fort McKay South***

Unstable operation due to inconsistent response of the PM<sub>2.5</sub> analyzer on April 18 and 19 resulted in 30 hours of invalid data. Subsequent maintenance to clean the optical chamber on April 19 resulted in additional 1 hour of downtime.

Flatlines in the output signal of the wind sensor throughout the month resulted in 19 hours of invalid data.

### ***Station 14, Anzac***

Station operator activities on April 2 and 3 interrupted the normal operations of the NO<sub>x</sub>/NO/NO<sub>2</sub> and O<sub>3</sub> analyzers for 20 hours.

Maintenance to replace the UV lamp of the SO<sub>2</sub> analyzer on April 16 resulted in 9 hours of downtime.

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on April 30 resulted in 3 hours of downtime.

Unstable operations of the wind sensor due to ruptured sensor wiring on April 3 through 8 resulted in 121 hours of invalid data.

The surface leaf wetness sensor operated out of range on April 10 resulting in 1 hour of invalid data.

### ***Station 17, Wapasu***

Unstable operations due to flatline in analyzer output signal for NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on April 14 resulted in 7 hours of invalid data. Subsequent maintenance to reset the analyzer on April 14 resulted in additional 2 hours of downtime.

Maintenance to replace sample pump and analyzer for NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on April 16 to 18 resulted in 44 hours of invalid data.

The relative humidity sensor operated out of range on April 16 resulting in 3 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 43 hours of invalid data.

### ***Station 18, Stony Mountain***

Station power failure on April 5 interrupted the normal operations of all air quality analyzers for 1 hour.

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on April 26 resulted in 2 hours of downtime.

Unstable operations of the surface leaf wetness sensor on April 5 resulting in 16 hours of invalid data.



Flatline in the output signal of the wind sensor at 20-meter elevation on April 16 resulted in 1 hour of invalid data.

Failure to record data of the precipitation sensor on April 24 resulted in 7 hours of invalid data.

### ***Station 19, Firebag***

Maintenance to replace the sample pump for NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on April 3 to 4 resulted in 18 hours of downtime.

Cleaning of the manifold on April 22 interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub> and H<sub>2</sub>S analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 81 hours of invalid data.

### ***Station 20, MacKay River***

Flatline in the output signal of the wind sensor on April 22 resulted in 1 hour of invalid data.

### ***Station 21, Conklin***

Station power failure on April 5 interrupted the normal operations of all air quality analyzers for 1 hour.

Analyzer failure due to sample pump failure of the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on April 14 through 16 resulted in 56 hours of invalid data. Subsequent maintenance to replace the sample pump and stabilization following the maintenance of NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on April 16 and 17 resulted in additional 29 hour of downtime.

Unstable operations due to excessive baseline noise of THC/NMHC/CH<sub>4</sub> analyzer on April 17 through 22 resulted in 79 hours of invalid data. Maintenance to replace analyzer's actuator on April 19 and to replace the analyzer on April 22 resulted in additional 7 hours of downtime.

An internal audit interrupted the normal operations of all air quality analyzers on April 25 resulted in 1 to 3 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 3 hours of invalid data.

Note: Automated daily zero-response checks of the O<sub>3</sub> analyzer did not meet WBEA's QC acceptance criteria for April. Therefore, the calibrator zeros from the March, April, and May multi-point calibrations were used to validate the analyzer baseline response.

### ***Station 22, Janvier***

Preventative maintenance to replace THC/NMHC/CH<sub>4</sub> analyzer's actuator on April 19 resulted in 4 hours of downtime.



A flatline in the output signal of the wind sensor at 20-meter elevation on April 10 resulted in 2 hours of invalid data.

Note: Automated daily zero-response checks of the O<sub>3</sub> analyzer did not meet WBEA's QC acceptance criteria for April. Therefore, the calibrator zeros from the April and May multi-point calibrations were used to validate the analyzer baseline response.

### ***Station 23, Fort Hills***

Cleaning of the manifold on April 11 interrupted the normal operations of all gaseous analyzers for 1 hour.

### ***Station 25, Waskōw ohci Pimâtisiwin***

Cleaning of the manifold on April 22 interrupted the normal operations of all gaseous analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 22 hours of invalid data.

### ***Station 26, Christina Lake***

Maintenance to reset the data logger and modem on April 11 interrupted the normal operations of the SO<sub>2</sub> analyzer for 1 hour.

Maintenance to replace the H<sub>2</sub>S analyzer and subsequent stabilization on April 10 and 11 resulted in 21 hours of downtime.

### ***Station 27, Jackfish 2/3***

Unstable operations due to excessive baseline drift in the output signal of the H<sub>2</sub>S analyzer on April 1 and 2 resulted in 2 hours of invalid data.

Maintenance to reset the data logger and modem on April 2 interrupted the normal operations of all parameters for 1 hour.

Failure to record data for all parameters on April 5 resulted in 1 hour of invalid data.

Cleaning of the manifold on April 19 interrupted the normal operations of all gaseous analyzers for 2 hours.

### ***Station 29, Surmont 2***

Cleaning of the manifold on April 15 interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub>, SO<sub>2</sub>, and THC analyzers for 1 hour.

Station power failure on April 17 interrupted the normal operations of all air quality analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 29 hours of invalid data.



### ***Station 30, Ells River***

Unstable operation of the THC/NMHC/CH<sub>4</sub> analyzer due to flatline in the output signal on April 3 and 5 resulted in 13 hours of invalid data. Subsequent maintenance to troubleshoot and replace the support gas source on April 3 and 5, respectively, resulted in additional 2 hours of downtime.

An internal audit interrupted the normal operations of all air quality analyzers on April 23 resulted in 2 to 4 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 19 hours of invalid data.

### ***Station 505, Sawbones Bay***

The relative humidity sensor operated out of range throughout the month resulting in 87 hours of invalid data.

Maintenance to replace the relative humidity and temperature sensor on April 17 resulted in 1 hour of downtime.

Note: Automated daily zero-response checks of the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer did not meet WBEA's QC acceptance criteria for April. Therefore, the calibrator zeros from the March, and April multi-point calibrations were used to validate the analyzer baseline response.

### ***Station 507, Kirby South***

Failure to record data for all parameters on April 5 resulted in 8 hours of invalid data.

A flatline in the output signal of the wind sensor on April 7 resulted in 1 hour of invalid data.



If additional information is required, please contact the Wood Buffalo Environmental Association at (780) 799-4420.

Yours sincerely,

### Wood Buffalo Environmental Association

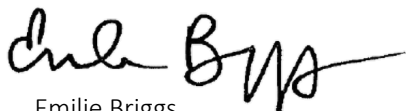
The representative of the Person Responsible for this monitoring program is Emilie Briggs, Operations Manager, WBEA.

Level one (L1) data review was completed by the Field Technicians responsible for each respective air monitoring station. Level two (L2) data validation, report preparation, and submission were completed by Asad Hidayat and Denny Estador of WBEA. The WBEA has retained the services of Whiteley Enterprises to conduct Level three (L3) review on its behalf. Contact information for WBEA staff is included below.

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Wood Buffalo Environmental Association  
T: (780) 215-6000  
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E: [destador@wbea.org](mailto:destador@wbea.org)

I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe, and the specified analysis, summarization, and reporting requirements.



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Operations Manager  
Wood Buffalo Environmental Association  
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Fort McMurray AB T9K 0K4  
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WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

April 2024

Page 1 of 3

Created: May 30 2024 9:00:00 MST

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	4	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00							
149968-01-00			ONE-HOUR AVERAGE		24-HOUR AVERAGE		
237382-00-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
48522-01-00	SO2(ppb)	1	100	34	0	5.1	0
240008-00-00	SO2(ppb)	2	100	41.1	0	9.8	0
48263-01-00	SO2(ppb)	4	100	58.1	0	8.8	0
224816-00-00	SO2(ppb)	5	100	76.1	0	22.4	0
151469-01-00	SO2(ppb)	6	100	14.3	0	2.8	0
189942-00-00	SO2(ppb)	7	100	13.3	0	2.6	0
206355-00-00	SO2(ppb)	8	100	1.9	0	0.2	0
46586-00-00	SO2(ppb)	9	100	27.9	0	4.3	0
73203-02-00	SO2(ppb)	11	100	327.3	1	20.0	0
216466-01-00	SO2(ppb)	13	100	26.2	0	5.9	0
137467-01-00	SO2(ppb)	14	99	9.4	0	2.2	0
236394-00-00	SO2(ppb)	17	100	16.3	0	2.7	0
254465-00-00	SO2(ppb)	18	100	5.2	0	1.0	0
094-03-00	SO2(ppb)	19	100	15.1	0	2.4	0
80105-01-00	SO2(ppb)	20	100	13.6	0	2.9	0
305529-00-00	SO2(ppb)	21	100	3.1	0	0.7	0
318401-00-00	SO2(ppb)	22	100	2.9	0	1.0	0
026-03-00	SO2(ppb)	23	100	23.9	0	4.1	0
364232-00-00	SO2(ppb)	25	100	33.9	0	4.9	0
228044-00-00	SO2(ppb)	26	100	17.2	0	5.3	0
247548-00-00	SO2(ppb)	27	99	10.5	0	2.2	0
231302-00-00	SO2(ppb)	29	100	5.7	0	1.3	0
246984-01-00	SO2(ppb)	30	100	21.4	0	4.5	0
153125-01-00	SO2(ppb)	505	100	15.9	0	2.6	0
	SO2(ppb)	507	99	5.8	0	0.9	0
	H2S(ppb)	1	100	2.1	0	0.7	0
	H2S(ppb)	2	100	16.3	1	2.0	0
	H2S(ppb)	4	99	5.9	0	0.7	0
	H2S(ppb)	5	100	4.8	0	1.3	0
	H2S(ppb)	11	99	58.7	6	3.7	1
	H2S(ppb)	17	100	0.6	0	0.2	0
	H2S(ppb)	19	100	2.9	0	0.4	0
	H2S(ppb)	20	100	4.8	0	0.6	0
	H2S(ppb)	25	100	2.3	0	0.7	0
	H2S(ppb)	26	97	10.0	0	1.2	0
	H2S(ppb)	27	99	2.2	0	0.5	0
	H2S(ppb)	29	100	0.7	0	0.1	0
	H2S(ppb)	505	100	1.6	0	0.3	0
	H2S(ppb)	507	99	1.8	0	1.0	0
	TRS(ppb)	1	100	3.2	0	1.3	0
	TRS(ppb)	6	96	1.6	0	0.7	0
	TRS(ppb)	7	100	1.0	0	0.4	0
	TRS(ppb)	8	100	0.4	0	0.2	0
	TRS(ppb)	9	100	2.2	0	0.8	0
	TRS(ppb)	13	100	2.9	0	1.3	0
	TRS(ppb)	14	100	0.7	0	0.2	0
	TRS(ppb)	18	100	4.2	0	0.4	0
	TRS(ppb)	21	99	1.3	0	0.5	0
	TRS(ppb)	22	100	0.3	0	0.2	0
	TRS(ppb)	23	100	1.4	0	0.6	0
	TRS(ppb)	30	100	2.6	0	1.0	0
	THC(ppm)	1	100	3.6	-	2.2	-
	THC(ppm)	2	94	6.4	-	2.4	-
	THC(ppm)	4	99	4.2	-	2.5	-
	THC(ppm)	5	100	4.2	-	2.4	-
	THC(ppm)	6	97	2.4	-	2.1	-
	THC(ppm)	7	100	2.7	-	2.1	-
	THC(ppm)	9	100	3.2	-	2.2	-
	THC(ppm)	11	100	4.0	-	2.4	-
	THC(ppm)	13	100	3.2	-	2.3	-
	THC(ppm)	14	100	2.4	-	2.0	-
	THC(ppm)	17	100	2.7	-	2.3	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

April 2024  
Page 2 of 3  
Created: May 30 2024 9:00:00 MST

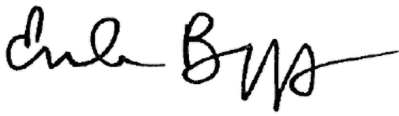
APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	4	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
149968-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
237382-00-00	THC(ppm)	18	100	2.3	-	2.1	-
48522-01-00	THC(ppm)	19	100	2.8	-	2.4	-
240008-00-00	THC(ppm)	20	100	3.1	-	2.4	-
48263-01-00	THC(ppm)	21	88	2.7	-	2.2	-
224816-00-00	THC(ppm)	22	99	2.2	-	2.1	-
151469-01-00	THC(ppm)	23	100	6.1	-	3.0	-
189942-00-00	THC(ppm)	29	100	3.0	-	2.5	-
206355-00-00	THC(ppm)	30	98	3.7	-	2.3	-
46586-00-00	THC(ppm)	507	99	3.0	-	2.5	-
73203-02-00	O3(ppb)	1	100	47.2	0	36.5	-
216466-01-00	O3(ppb)	4	100	57.2	0	48.1	-
137467-01-00	O3(ppb)	6	96	57.6	0	47.2	-
236394-00-00	O3(ppb)	7	100	58.0	0	42.8	-
254465-00-00	O3(ppb)	8	100	54.1	0	44.1	-
094-03-00	O3(ppb)	13	100	50.0	0	37.5	-
80105-01-00	O3(ppb)	14	97	55.7	0	47.6	-
305529-00-00	O3(ppb)	17	100	56.3	0	48.4	-
318401-00-00	O3(ppb)	18	100	56.3	0	49.8	-
026-03-00	O3(ppb)	21	100	59.3	0	43.3	-
364232-00-00	O3(ppb)	22	100	61.4	0	53.3	-
228044-00-00	NO2(ppb)	1	100	40.7	0	16.1	-
247548-00-00	NO2(ppb)	4	99	44.3	0	13.5	-
231302-00-00	NO2(ppb)	6	100	29.8	0	8.2	-
246984-01-00	NO2(ppb)	7	100	31.0	0	12.0	-
153125-01-00	NO2(ppb)	8	100	8.9	0	2.3	-
	NO2(ppb)	9	100	43.4	0	16.8	-
	NO2(ppb)	13	100	37.3	0	13.2	-
	NO2(ppb)	14	97	28.4	0	4.3	-
	NO2(ppb)	17	93	18.7	0	4.4	-
	NO2(ppb)	18	100	7.9	0	1.8	-
	NO2(ppb)	19	97	38.4	0	7.2	-
	NO2(ppb)	20	100	29.9	0	7.1	-
	NO2(ppb)	21	88	16.9	0	2.6	-
	NO2(ppb)	22	100	5.9	0	1.3	-
	NO2(ppb)	23	100	59.9	0	23.9	-
	NO2(ppb)	26	100	20.2	0	5.6	-
	NO2(ppb)	27	99	19.8	0	3.8	-
	NO2(ppb)	29	100	9.7	0	2.5	-
	NO2(ppb)	30	99	32.6	0	11.8	-
	NO2(ppb)	505	100	24.5	0	6.2	-
	NO2(ppb)	507	99	47.3	0	21.6	-
	CO(ppm)	1	100	0.5	0	0.3	-
	CO(ppm)	7	99	0.3	0	0.2	-
	CO(ppm)	8	100	0.2	0	0.1	-
	CO(ppm)	18	100	0.2	0	0.2	-
	CO2(ppm)	1	100	461.3	-	437.6	-
	CO2(ppm)	8	100	452.3	-	449.3	-
	CO2(ppm)	18	100	448.7	-	440.6	-
	NH3(ppb)	1	96	0.0	0	0.0	-
	NH3(ppb)	6	96	0.0	0	0.0	-
	PM2.5(ug/m3)	1	100	45.9	0	13.6	0
	PM2.5(ug/m3)	4	100	65.9	0	17.9	0
	PM2.5(ug/m3)	6	100	61.4	0	18.2	0
	PM2.5(ug/m3)	7	100	53.0	0	15.9	0
	PM2.5(ug/m3)	8	100	11.7	0	4.7	0
	PM2.5(ug/m3)	9	100	46.3	0	15.3	0
	PM2.5(ug/m3)	13	96	73.6	0	14.3	0
	PM2.5(ug/m3)	14	100	30.8	0	8.0	0
	PM2.5(ug/m3)	17	100	38.5	0	6.1	0
	PM2.5(ug/m3)	18	100	12.8	0	5.5	0
	PM2.5(ug/m3)	21	100	55.7	0	10.2	0
	PM2.5(ug/m3)	22	100	81.0	0	17.7	0
	PM2.5(ug/m3)	23	100	325.4	5	39.3	1
	PM2.5(ug/m3)	29	100	31.5	0	7.0	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

April 2024

Page 3 of 3

Created: May 30 2024 9:00:00 MST

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	4	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
149968-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
237382-00-00	PM2.5(ug/m3)	30	100	40.2	0	8	0
48522-01-00	WS(km/h)	1	97	-	-	-	-
240008-00-00	WS(km/h)	2	99	-	-	-	-
48263-01-00	WS(km/h)	4	100	-	-	-	-
224816-00-00	WS(km/h)	5	100	-	-	-	-
151469-01-00	WS(km/h)	6	100	-	-	-	-
189942-00-00	WS(km/h)	7	100	-	-	-	-
206355-00-00	WS(km/h)	8	100	-	-	-	-
46586-00-00	WS(km/h)	9	100	-	-	-	-
73203-02-00	WS(km/h)	11	99	-	-	-	-
216466-01-00	WS(km/h)	13	97	-	-	-	-
137467-01-00	WS(km/h)	14	83	-	-	-	-
236394-00-00	WS(km/h)	17	94	-	-	-	-
254465-00-00	WS(km/h)	18	100	-	-	-	-
094-03-00	WS(km/h)	19	89	-	-	-	-
80105-01-00	WS(km/h)	20	100	-	-	-	-
305529-00-00	WS(km/h)	21	100	-	-	-	-
318401-00-00	WS(km/h)	22	100	-	-	-	-
026-03-00	WS(km/h)	23	100	-	-	-	-
364232-00-00	WS(km/h)	25	97	-	-	-	-
228044-00-00	WS(km/h)	26	100	-	-	-	-
247548-00-00	WS(km/h)	27	100	-	-	-	-
231302-00-00	WS(km/h)	29	96	-	-	-	-
246984-01-00	WS(km/h)	30	97	-	-	-	-
153125-01-00	WS(km/h)	505	100	-	-	-	-
	WS(km/h)	507	99	-	-	-	-
							
SIGNATURE OF ASSOCIATION REPRESENTATIVE				FOR ALBERTA ENVIRONMENT USE ONLY			



## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS01 BERTHA GANTER - FORT MCKAY APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY - BERTHA GANTER (AMS01)  
 APRIL 2024

MONTHLY SUMMARY

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	684	35	36	99.86	33.6	0	5.1	0
H2S(ppb) Average	684	35	36	99.86	2.1	0	0.7	0
TRS(ppb) Average	684	35	36	99.86	3.2	0	1.3	0
THC(ppm) Average	684	35	36	99.86	3.6	-	2.2	-
NMHC(ppm) Average	684	35	36	99.86	0.894	-	0.141	-
CH4(ppm) Average	684	35	36	99.86	2.8	-	2.2	-
O3 (ppb) Average	685	34	35	99.86	47.2	0	36.5	-
NO2 (ppb) Average	684	35	36	99.86	40.7	0	16.1	-
NO (ppb) Average	684	35	36	99.86	51	-	6.3	-
NOX (ppb) Average	684	35	36	99.86	90.2	-	19.4	-
NH3 (ppb) Average	649	41	71	95.83	0	0	0	-
PM2.5 (ug/m3) Average	716	3	4	99.86	45.9	0	13.6	0
CO(ppm) Average	685	34	35	99.86	0.5	0	0.3	0
CO2(ppm) Average	686	33	34	99.86	461.3	0	437.6	0
Temperature 2 m (C) Average	720	0	0	100	19.2	-	10.3	-
Temperature 10 m (C) Average	720	0	0	100	18.4	-	10.3	-
Relative Humidity (%) Average	720	0	0	100	97.6	-	88.7	-
Wind Speed 10 m (km/h) Average	701	0	19	97.36	28	-	22	-
Wind Direction 10 m (deg) Average	701	0	19	97.36	-	-	-	-
Precipitation (mm) Total	719	0	1	99.86	3.1	-	6.5	-
Leaf Wetness (% of range) Average	710	0	10	98.61	72.5	-	19.3	-
Global Solar Radiation (W/m2) Average	720	0	0	100	808.5	-	292	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT McKAY (AMS01)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	684	0.78	2.6	-	0	0	0	0.1	0.2	1.6	33.6
H2S (ppb) Average	684	0.19	0.3	-	0	0	0	0.1	0.2	0.5	2.1
TRS (ppb) Average	684	0.56	0.3	-	0.3	0.4	0.4	0.5	0.6	0.8	3.2
THC (ppm) Average	684	2.08	0.2	-	1.9	2	2	2	2.1	2.4	3.6
NMHC(ppm) Average	684	0.045	0.102	-	0	0	0	0	0	0.2	0.894
CH4(ppm) Average	684	2.04	0.1	-	1.9	2	2	2	2.1	2.2	
O3 (ppb) Average	685	26.6	11.3	-	0.7	10.7	18.4	27.4	36.3	40.4	47.2
NO2 (ppb) Average	684	7.45	7.8	-	0	0.4	1.8	4.5	10.6	18.8	40.7
NO (ppb) Average	684	1.63	4.8	-	0	0	0	0.1	1	4.2	51
NOX (ppb) Average	684	9.09	11	-	0	0.4	2	5.5	12.6	22.8	90.2
NH3 (ppb) Average	649	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	716	5.6	5	-	0.2	1.5	2.8	4.2	6.6	11.5	45.9
CO(ppm) Average	685	0.24	0	-	0.1	0.2	0.2	0.2	0.3	0.3	0.5
CO2(ppm) Average	686	430.15	6.9	-	418.8	424	425.7	428	432.9	439.8	461.3
Temperature 2 m (C) Average	720	5.29	6.1	-	-9.7	-1.8	0.5	4.5	9.7	14.5	19.2
Temperature 10 m (C) Average	720	5.3	5.8	-	-9.1	-1.6	0.6	4.6	9.6	13.9	18.4
Relative Humidity (%) Average	720	54.76	24.7	-	8.4	22.3	32.6	55.3	75.1	90.1	97.6
Wind Speed 10 m (km/h) Average	701	9.8	6	-	0	3	5	9	14	18	28
Wind Direction 10 m (deg) Average	701	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	719	-	-	26.01	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	710	4.5	9.9	-	0	0.6	1.1	1.7	2.3	9.2	72.5
Global Solar Radiation (W/m2) Average	720	185.32	244	-	0	0	0	48.5	322.4	622.6	808.5

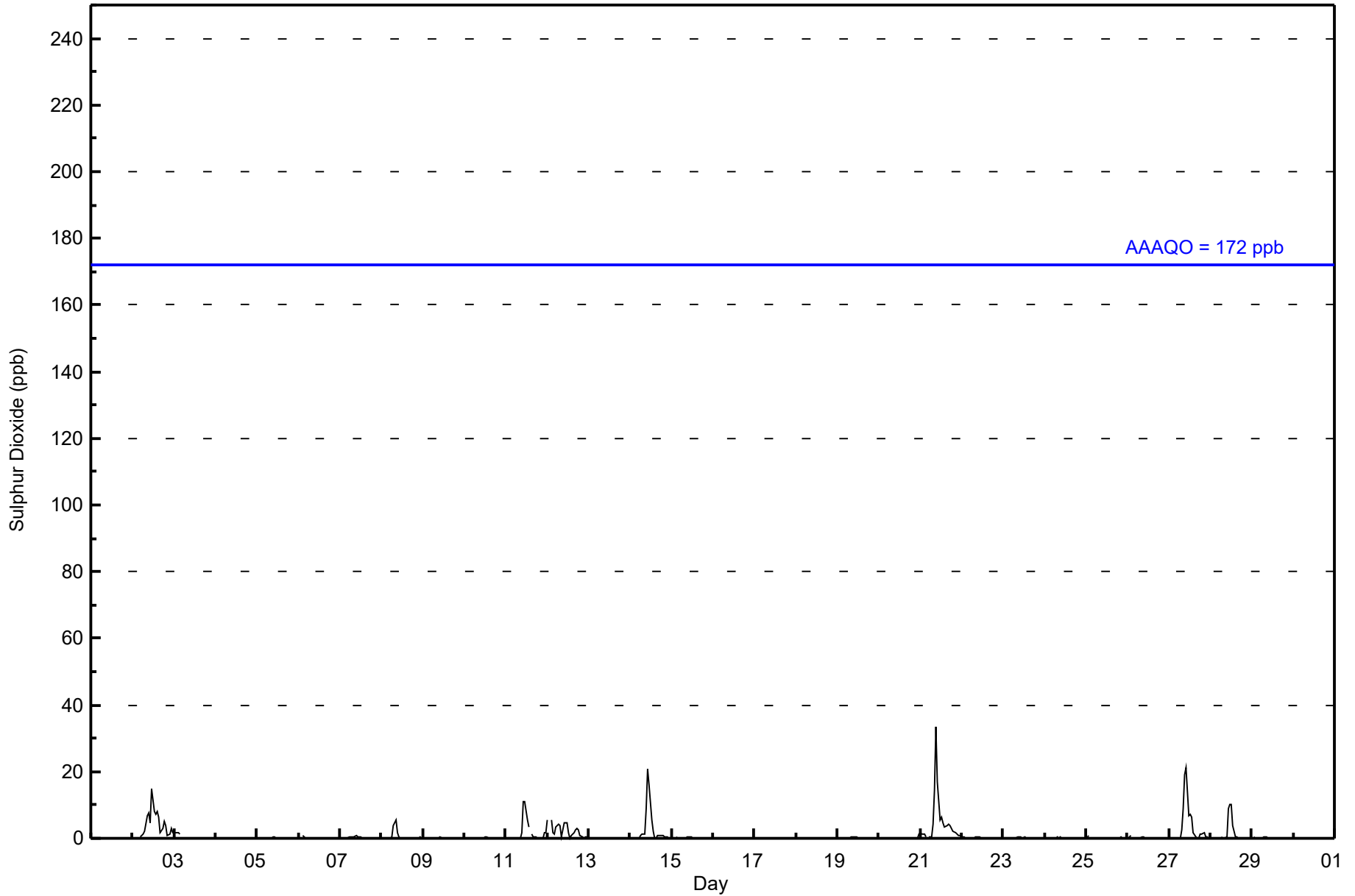
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT MCKAY (AMS01)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS (Except NH3)	11 Apr 2024 15:00	11 Apr 2024 15:00	1	Maintenance - sample manifold cleaned
NH3	01 Apr 2024 07:00	30 Apr 2024 06:00	30	Stabilization after daily QA check
PM2.5	30 Apr 2024 21:00	30 Apr 2024 21:00	1	Unstable Operation - excessive baseline noise
Wind Speed, Wind Direction	04 Apr 2024 02:00	04 Apr 2024 10:00	9	Flat line in sensor output signal
Wind Speed, Wind Direction	05 Apr 2024 23:00	06 Apr 2024 08:00	10	Flat line in sensor output signal
Precipitation Collector	29 Apr 2024 16:00	29 Apr 2024 16:00	1	Maintenance - field testing
Surface Leaf Wetness	05 Apr 2024 14:00	05 Apr 2024 21:00	8	Sensor operated out of range
Surface Leaf Wetness	06 Apr 2024 09:00	06 Apr 2024 10:00	2	Sensor operated out of range









**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	674	98.54	98.54
11 - 20	7	1.02	99.56
21 - 60	3	0.44	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	84	96	54	13	8	12	28	51	82	34	24	32	23	40	36	40	657
11 - 20	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	3
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>	84	96	54	13	8	12	28	55	88	34	24	32	23	40	36	40	667

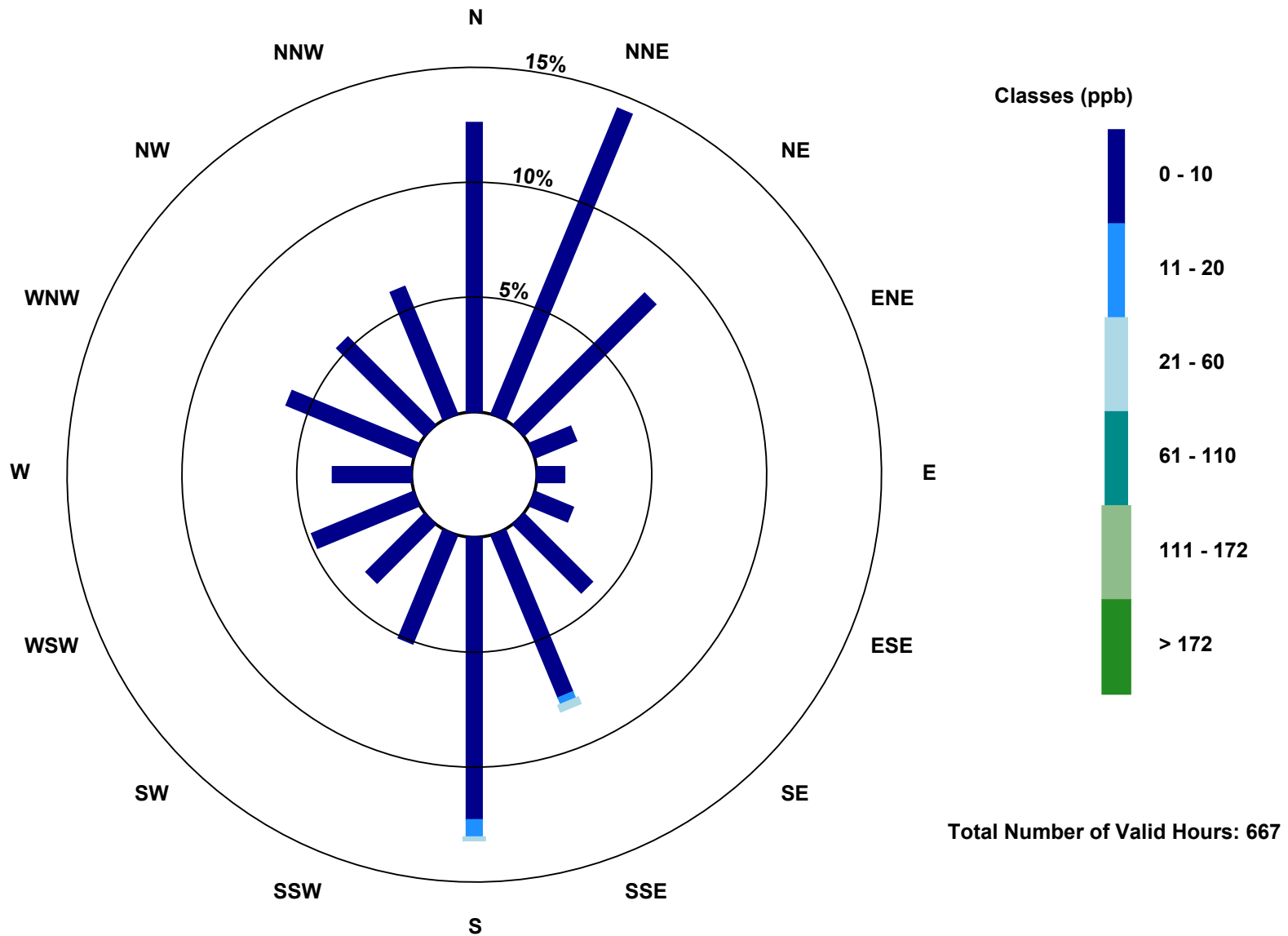
Total Number of Valid Hours: 667

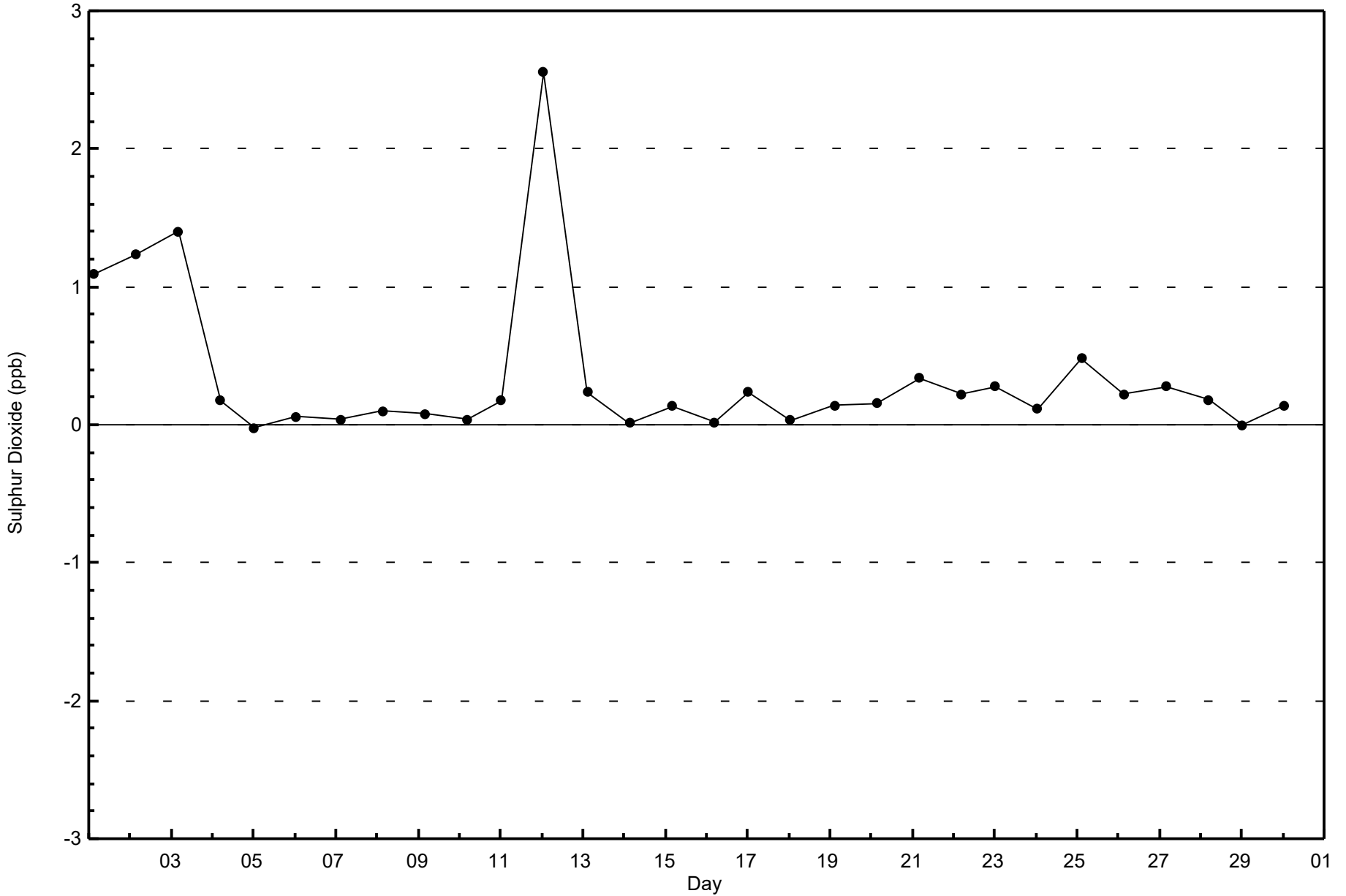
Total Number of Hours: 720

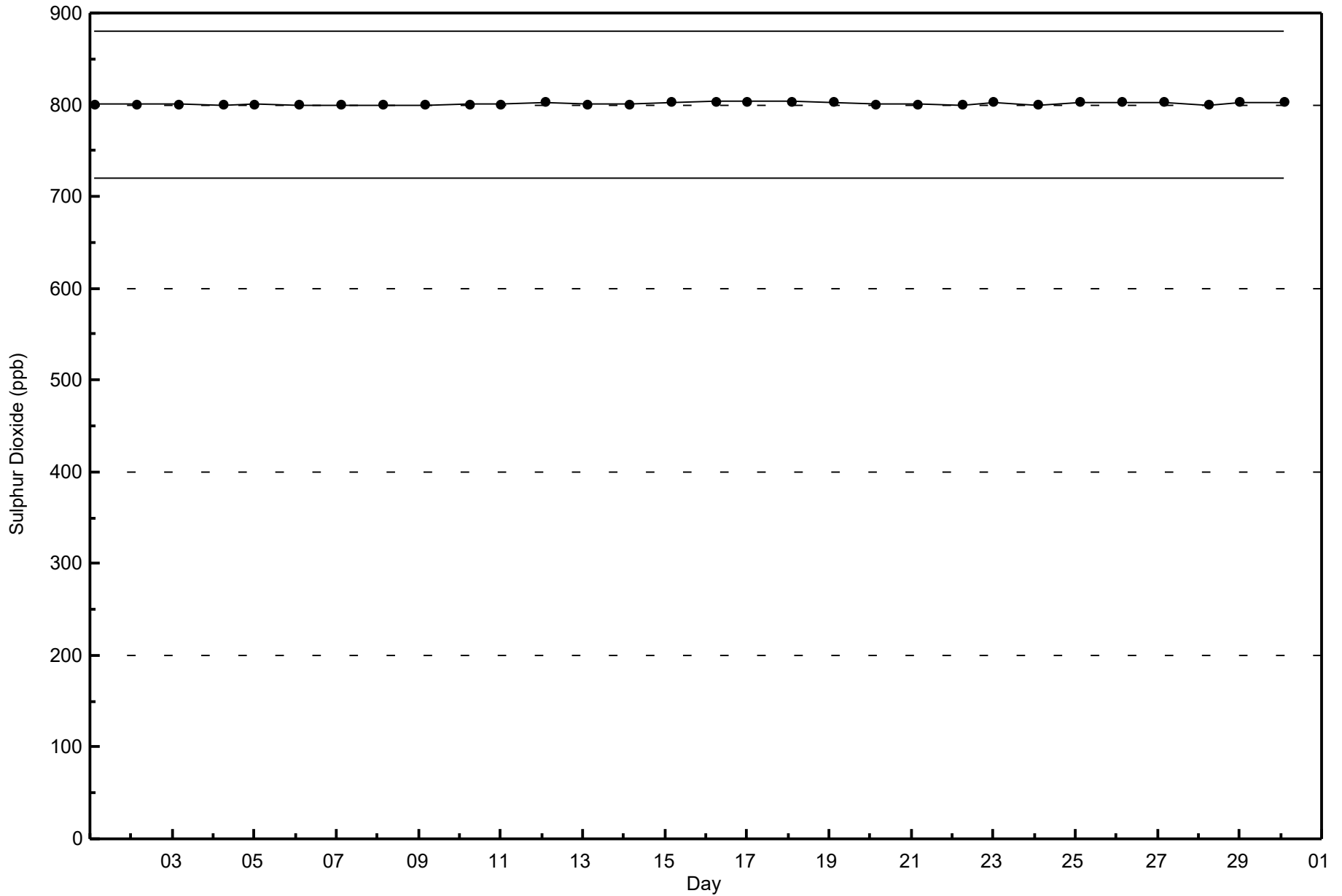


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort McKay - Bertha Ganter









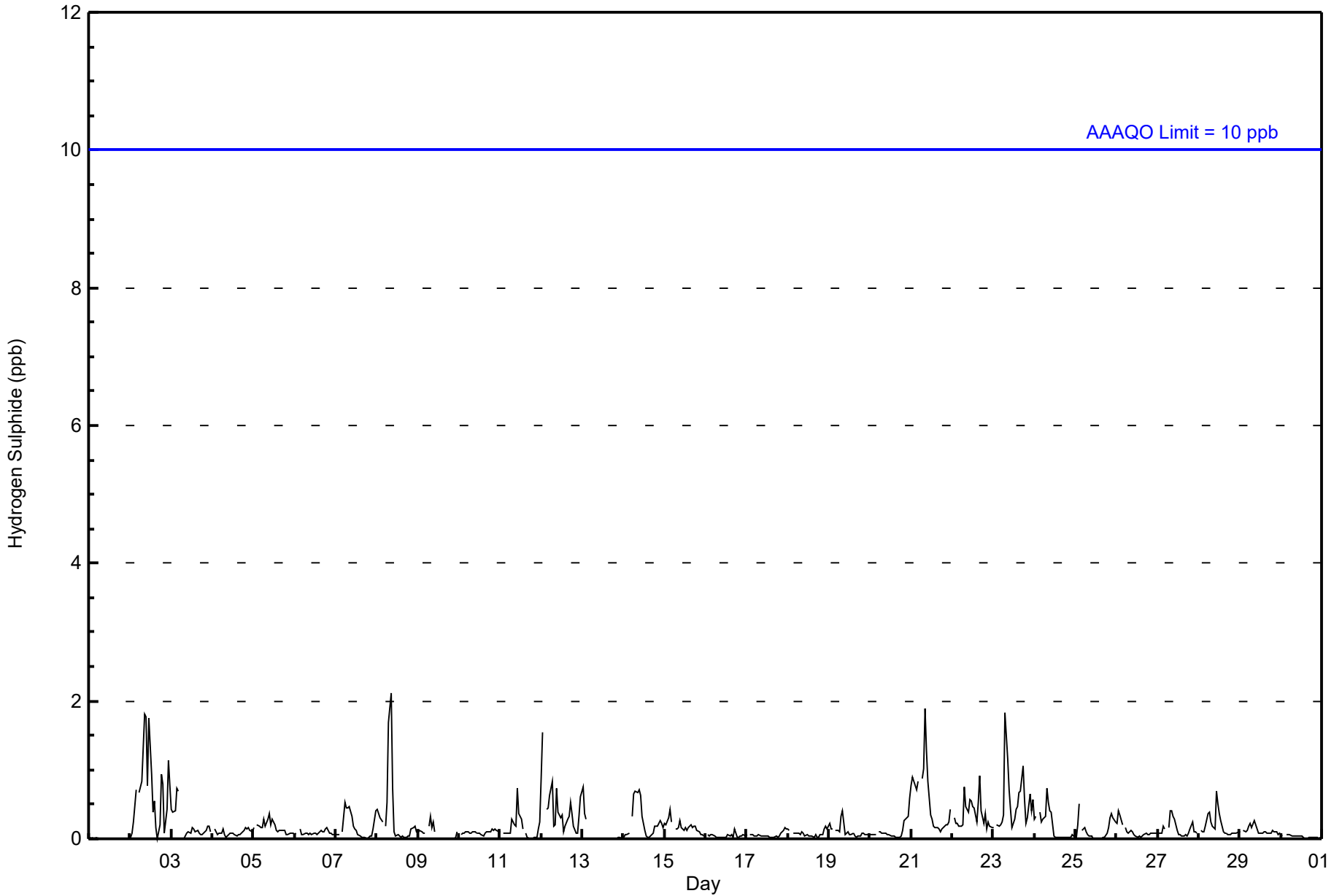
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort McKay - Bertha Ganter - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0														Hours in Service: 720																																			
Maximum Value: 2.1 ppb on Apr 8 09:00														Maximum Daily Average: 0.7 ppb on Apr 2				Hours of Data: 684																															
Minimum Value: 0.0 ppb on Apr 1 06:00														Minimum Daily Average: 0.0 ppb on Apr 1				Hours of Missing Data: 36																															
Maximum Diurnal Average: 0.4 ppb at hour 9														Minimum Diurnal Average: 0.1 ppb at hour 15				Hours of Calibration: 35																															
Monthly Average: 0.19 ppb														Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 1.6				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-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
2-Apr	0.0	0.1	0.2	0.7	Z	0.7	0.8	0.8	1.8	1.8	0.8	1.7	0.9	0.4	0.5	0.2	0.0	0.2	0.9	0.8	0.1	0.4	1.1	0.8	0.7	1.8																							
3-Apr	0.4	0.4	0.4	0.7	0.7	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.7																							
4-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2																							
5-Apr	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4																							
6-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2																							
7-Apr	0.1	0.1	0.1	Z	0.1	0.5	0.5	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.5																							
8-Apr	0.4	0.4	0.3	0.2	Z	0.2	0.5	1.7	2.1	0.7	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.3	2.1																							
9-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.2	0.2	0.1	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3																							
10-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
11-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.7	0.4	0.3	0.1	M	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.7																							
12-Apr	0.9	1.5	Z	0.4	0.4	0.6	0.8	0.2	0.2	0.7	0.4	0.3	0.3	0.1	0.2	0.3	0.3	0.5	0.4	0.2	0.1	0.1	0.3	0.6	0.4	1.5																							
13-Apr	0.8	0.4	0.3	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																							
14-Apr	0.0	0.1	0.1	0.1	Z	0.3	0.6	0.7	0.7	0.7	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.7																							
15-Apr	0.2	0.2	0.3	0.4	0.2	Z	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4																							
16-Apr	Z	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1																							
17-Apr	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2																							
18-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.2																							
19-Apr	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4																							
20-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.6	0.1	0.6																							
21-Apr	0.8	0.9	0.8	0.7	0.8	Z	0.9	1.0	1.9	1.3	0.8	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.5	1.9																							
22-Apr	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.8	0.5	0.4	0.6	0.5	0.5	0.4	0.2	0.5	0.9	0.4	0.2	0.4	0.1	0.3	0.2	0.2	0.4	0.9																							
23-Apr	0.2	Z	0.2	0.2	0.2	0.3	0.3	1.8	1.2	0.7	0.4	0.2	0.3	0.4	0.5	0.7	0.7	1.1	0.6	0.2	0.3	0.6	0.4	0.6	0.5	1.8																							
24-Apr	0.3	0.3	Z	0.4	0.2	0.3	0.3	0.7	0.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.7																							
25-Apr	0.0	0.2	0.5	Z	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.3	0.2	0.1	0.5																							
26-Apr	0.2	0.4	0.4	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																							
27-Apr	0.1	0.1	0.1	0.2	0.2	Z	0.2	0.4	0.4	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.4																							
28-Apr	Z	0.1	0.1	0.1	0.2	0.4	0.4	0.2	0.2	0.1	0.7	0.5	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7																							
29-Apr	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
30-Apr	0.1	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
																								0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	Diurnal Average		
																								0.9	1.5	0.8	0.7	0.8	0.7	0.9	1.8	2.1	1.8	0.8	1.7	0.9	0.4	0.5	0.7	0.9	1.1	0.9	0.8	0.3	0.6	1.1	0.8	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb																																																	







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	684	100.00	100.00
3 - 4	0	0.00	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

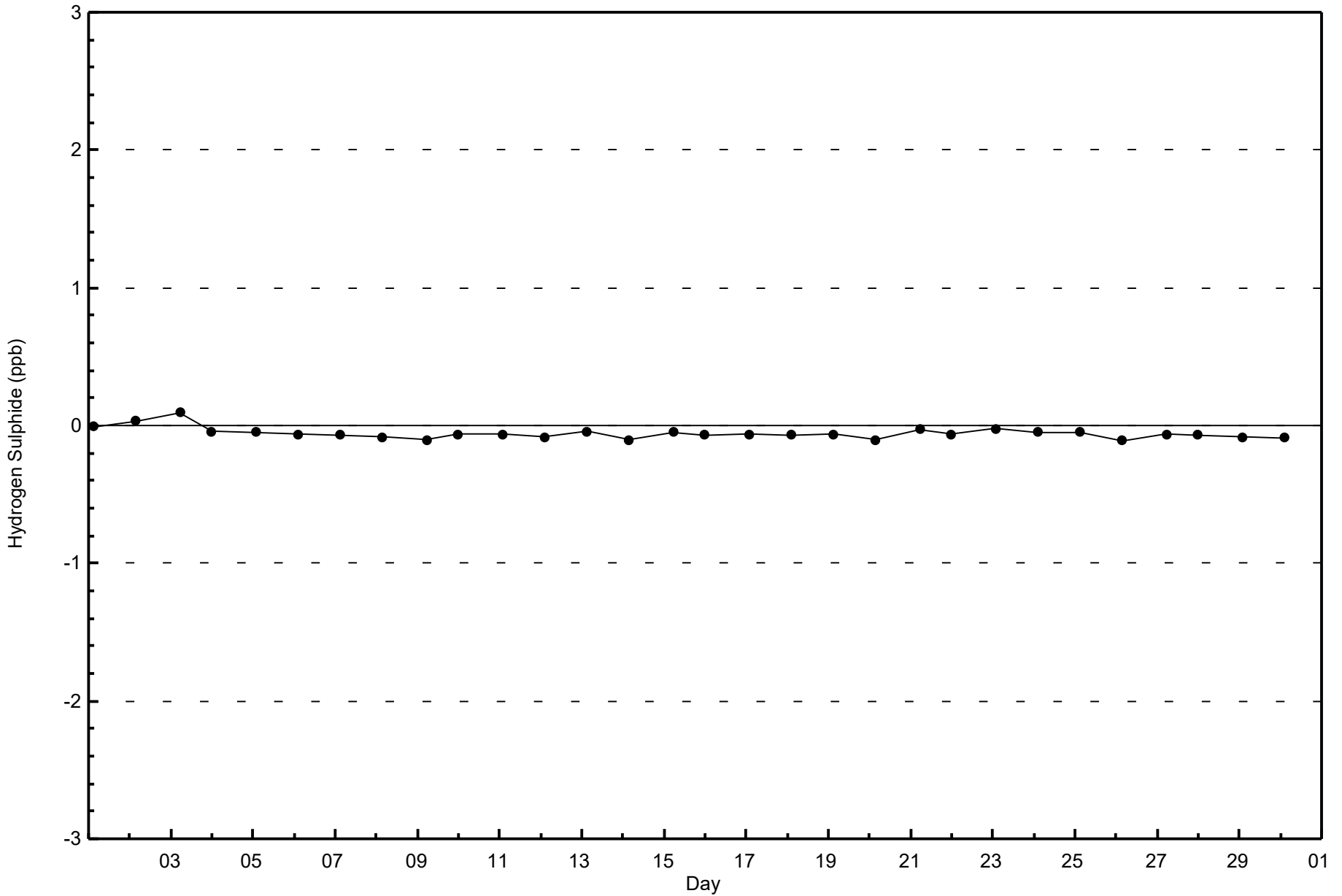
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Fort McKay - Bertha Ganter - April 2024**

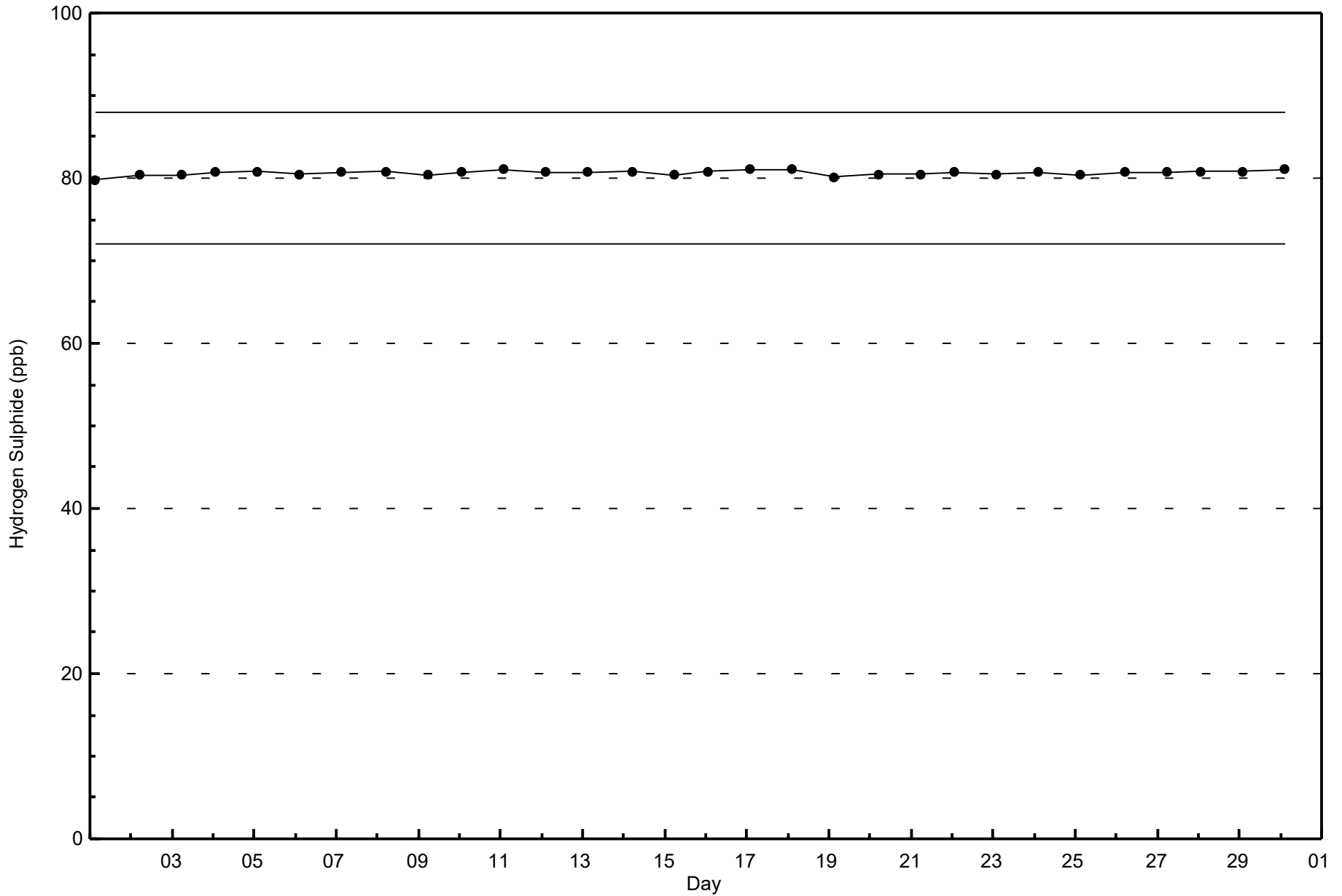
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	88	95	54	13	8	13	28	55	87	33	25	27	23	39	41	37	666
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	88	95	54	13	8	13	28	55	87	33	25	27	23	39	41	37	666

Total Number of Valid Hours: 666

Total Number of Hours: 720





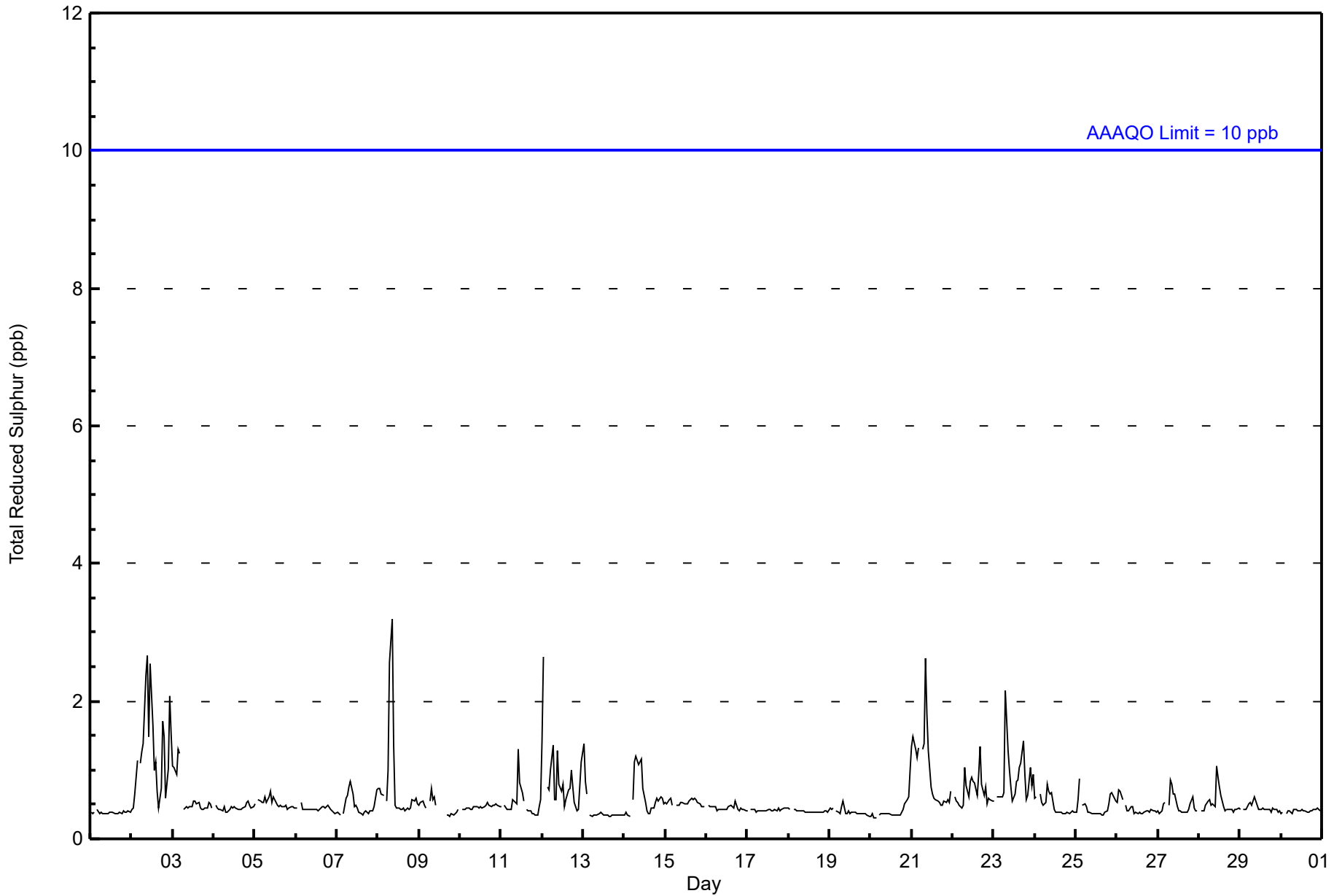




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0 24-hr: 0																	Hours in Service:			720					
Maximum Value: 3.2 ppb on Apr 8 09:00		Maximum Daily Average: 1.3 ppb on Apr 2																	Hours of Data:			684					
Minimum Value: 0.3 ppb on Apr 20 03:00		Minimum Daily Average: 0.4 ppb on Apr 1																	Hours of Missing Data:			36					
Maximum Diurnal Average: 0.8 ppb at hour 9		Minimum Diurnal Average: 0.5 ppb at hour 21																	Hours of Calibration:			35					
Monthly Average: 0.56 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.4 Median = 0.5 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.2																	Percent Operational Time:			99.9					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
2-Apr	0.4	0.5	0.6	1.1	Z	1.1	1.3	1.4	2.4	2.7	1.5	2.5	1.6	1.0	1.1	0.7	0.4	0.7	1.7	1.5	0.6	1.0	2.1	1.5	1.3	2.7	
3-Apr	1.1	1.0	0.9	1.3	1.2	Z	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.6	1.3	
4-Apr	Z	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	
5-Apr	0.5	Z	0.6	0.5	0.5	0.5	0.6	0.5	0.6	0.7	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.7	
6-Apr	0.4	0.5	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	
7-Apr	0.4	0.4	0.4	Z	0.4	0.6	0.6	0.7	0.8	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.5	0.8	
8-Apr	0.7	0.7	0.7	0.6	Z	0.5	1.0	2.6	3.2	1.4	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.6	0.5	0.6	0.5	0.8	3.2	
9-Apr	0.5	0.5	0.5	0.5	0.4	Z	0.5	0.7	0.6	0.6	0.5	C	C	C	C	C	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.7	
10-Apr	Z	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
11-Apr	0.5	Z	0.5	0.4	0.4	0.4	0.4	0.6	0.5	0.5	1.3	0.8	0.7	0.5	M	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.6	0.5	1.3	
12-Apr	1.4	2.6	Z	0.8	0.7	1.0	1.4	0.6	0.6	1.3	0.8	0.7	0.8	0.5	0.6	0.7	0.7	1.0	0.8	0.5	0.4	0.4	0.8	1.1	0.9	2.6	
13-Apr	1.4	0.8	0.7	Z	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	1.4	
14-Apr	0.3	0.4	0.4	0.3	Z	0.6	1.1	1.2	1.1	1.1	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.6	0.6	0.5	0.6	1.2	
15-Apr	0.5	0.5	0.6	0.6	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	
16-Apr	Z	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.6	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.6	
17-Apr	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	
18-Apr	0.5	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	
19-Apr	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.6	
20-Apr	0.3	0.4	0.3	0.3	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.6	0.6	1.0	0.4	1.0	
21-Apr	1.3	1.5	1.3	1.2	1.3	Z	1.3	1.4	2.6	1.8	1.3	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.7	1.0	2.6	
22-Apr	Z	0.6	0.6	0.5	0.5	0.4	0.5	1.0	0.8	0.6	0.8	0.9	0.8	0.8	0.6	0.9	1.3	0.8	0.6	0.8	0.5	0.6	0.6	0.6	0.7	1.3	
23-Apr	0.5	Z	0.6	0.6	0.6	0.6	0.7	2.2	1.3	1.0	0.8	0.6	0.6	0.8	0.9	1.0	1.1	1.4	0.9	0.6	0.6	1.0	0.8	0.9	0.9	2.2	
24-Apr	0.6	0.6	Z	0.7	0.5	0.5	0.5	0.8	0.7	0.7	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.8	
25-Apr	0.4	0.6	0.9	Z	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.6	0.5	0.5	0.9	
26-Apr	0.5	0.7	0.7	0.6	Z	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	
27-Apr	0.4	0.4	0.4	0.5	0.5	Z	0.5	0.8	0.8	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.4	0.4	0.4	0.5	0.8	
28-Apr	Z	0.4	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.5	1.1	0.9	0.8	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	1.1	
29-Apr	0.4	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	
30-Apr	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerspan C - Calibration M - Maintenance																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	678	99.12	99.12
3 - 4	6	0.88	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: 684

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2	88	95	54	13	8	13	28	54	82	33	25	27	23	39	41	37	660
3 - 4	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	6
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>	88	95	54	13	8	13	28	55	87	33	25	27	23	39	41	37	666

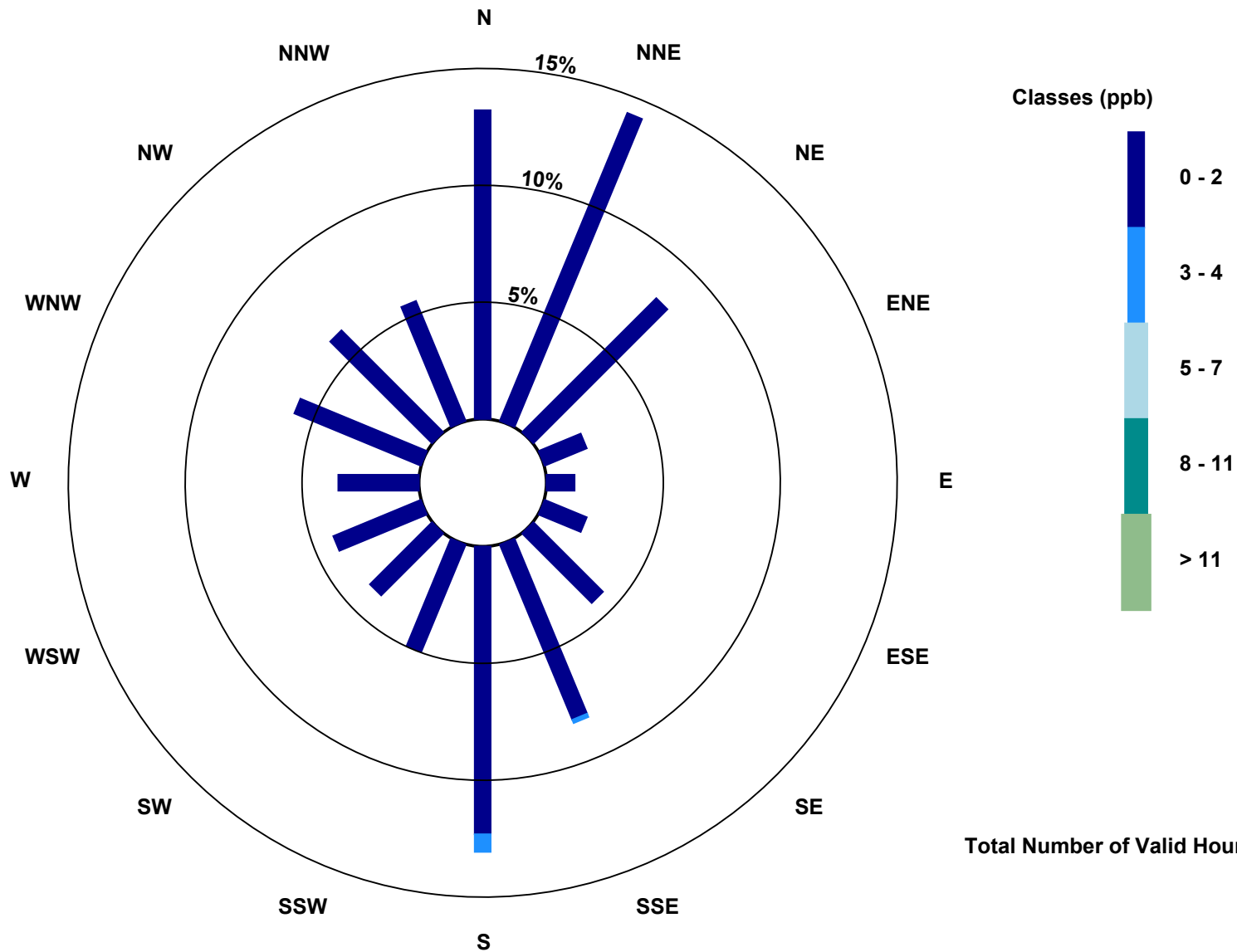
Total Number of Valid Hours: 666

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

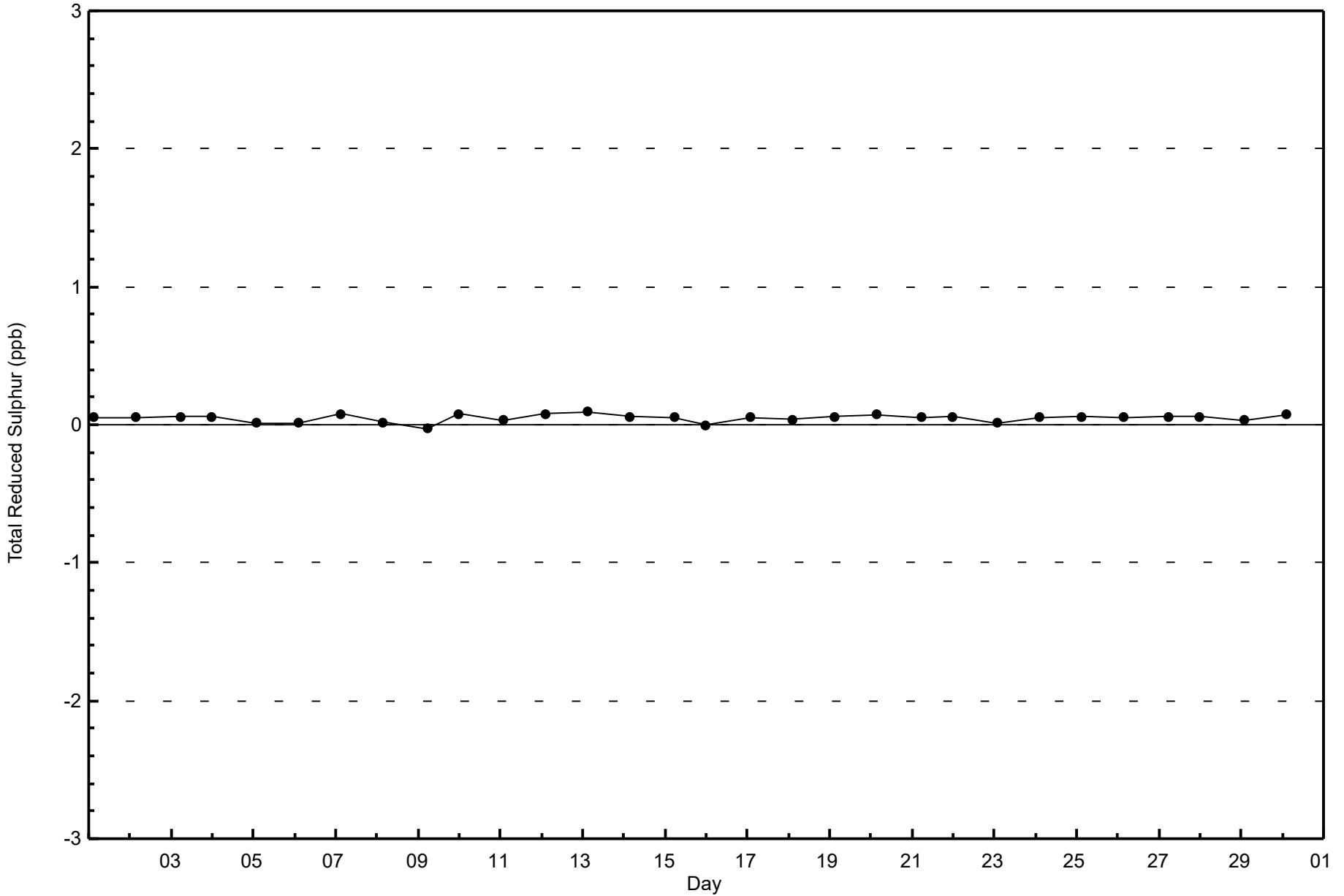
Total Reduced Sulphur (TRS) - ppb  
Fort McKay - Bertha Ganter

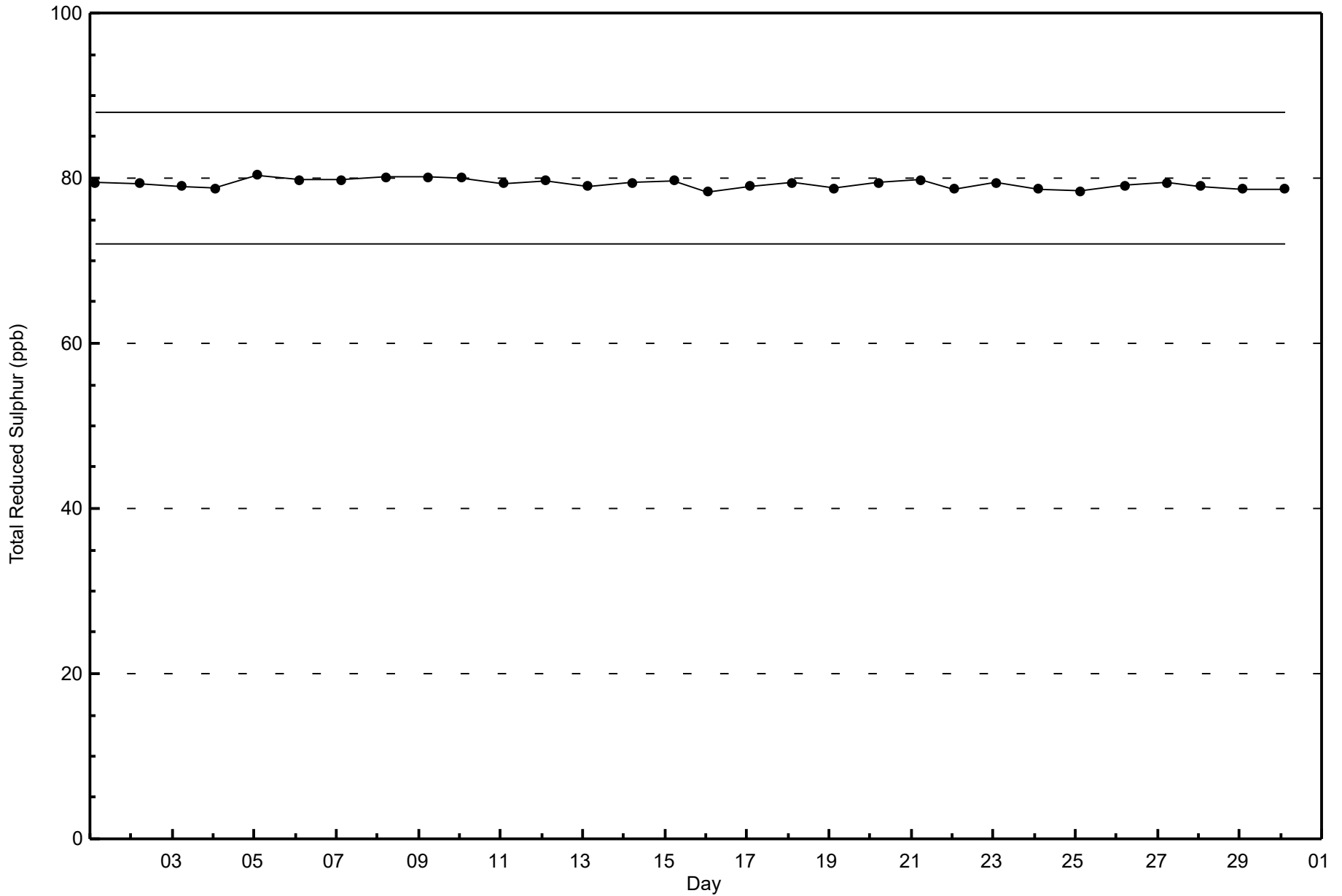




Wood Buffalo Environmental Association  
Zero Responses

Total Reduced Sulphur (TRS) - ppb  
Fort McKay - Bertha Ganter - April 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

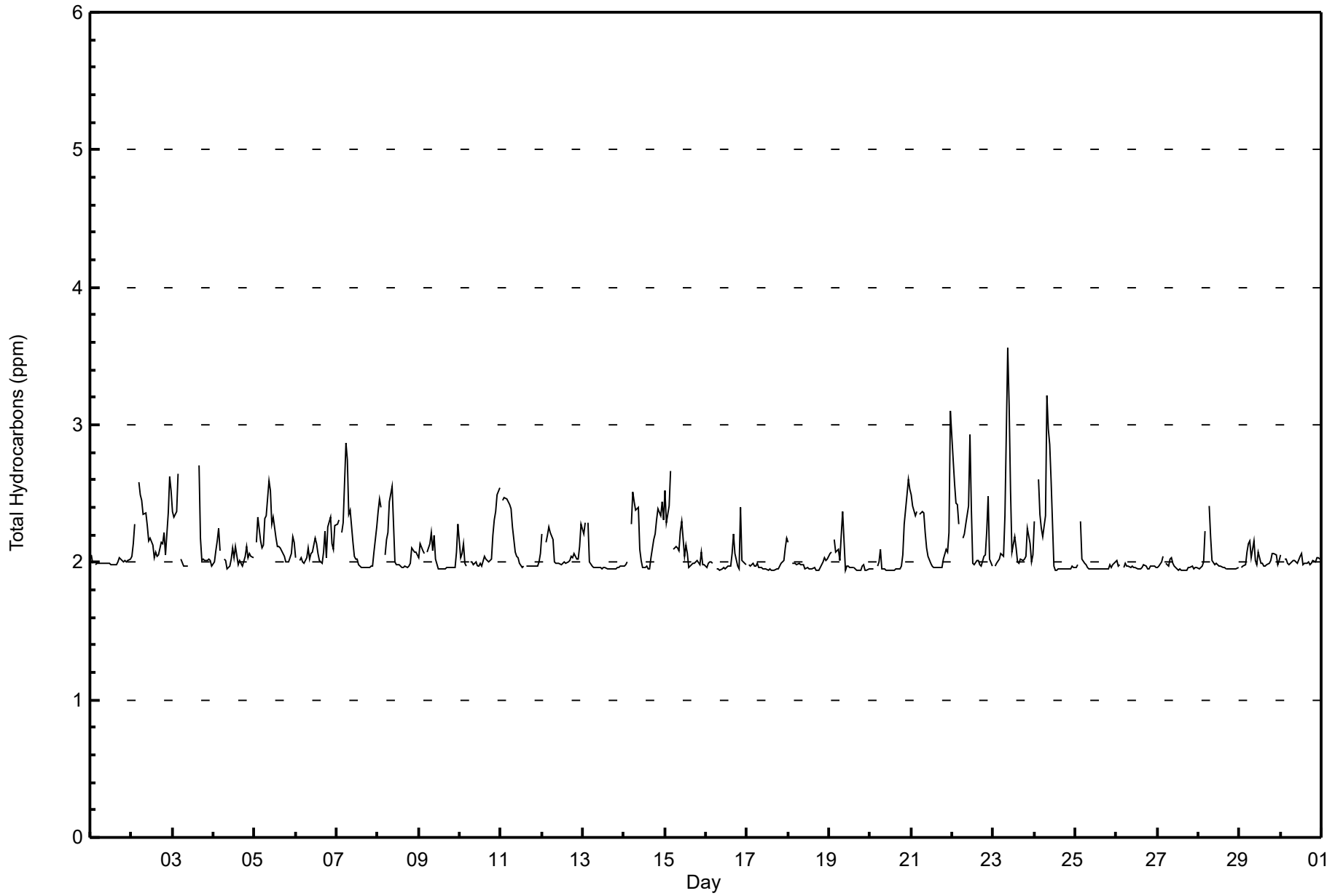
Total Hydrocarbons (THC) - ppm  
Fort McKay - Bertha Ganter - April 2024

Maximum Value: 3.6 ppm on Apr 23 09:00																				Maximum Daily Average: 2.2 ppm on Apr 2					Hours in Service: 720		
Minimum Value: 1.9 ppm on Apr 17 15:00																				Minimum Daily Average: 2.0 ppm on Apr 26					Hours of Data: 684		
Maximum Diurnal Average: 2.2 ppm at hour 9																				Minimum Diurnal Average: 2.0 ppm at hour 15					Hours of Missing Data: 36		
Monthly Average: 2.08 ppm																				Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.9					Hours of Calibration: 35		
																									Percent Operational Time: 99.9		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	2.1	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	2.1
2-Apr	2.0	2.1	2.3	Z	2.6	2.5	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.0	2.4	2.6	2.5	2.2	2.2	2.6
3-Apr	2.4	2.3	2.4	2.6	Z	2.0	2.0	2.0	2.0	2.0	C	C	C	C	C	2.7	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.7	
4-Apr	2.0	2.1	2.2	2.3	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.3	
5-Apr	Z	2.1	2.3	2.2	2.1	2.1	2.3	2.3	2.6	2.5	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.2	2.6	
6-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.1	2.2	2.0	2.3	2.3	2.1	2.1	2.3	2.1	2.3	
7-Apr	2.3	2.3	Z	2.2	2.3	2.9	2.7	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.2	2.9	
8-Apr	2.4	2.5	2.4	Z	2.1	2.2	2.2	2.4	2.6	2.3	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	2.1	2.6	
9-Apr	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.1	2.2	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.0	2.3	
10-Apr	2.0	2.1	2.1	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	2.2	2.3	2.4	2.5	2.5	2.1	2.5	
11-Apr	Z	2.4	2.5	2.5	2.4	2.4	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.5	
12-Apr	2.2	Z	2.1	2.2	2.3	2.2	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	2.1	2.0	2.0	2.1	2.3	2.1	2.3	
13-Apr	2.2	2.3	Z	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	
14-Apr	2.0	2.0	2.0	Z	2.3	2.5	2.4	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.3	2.4	2.3	2.4	2.3	2.2	2.5	
15-Apr	2.5	2.3	2.4	2.7	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.7	
16-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.4	2.0	2.0	2.0	2.0	2.4	
17-Apr	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.2	
18-Apr	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
19-Apr	2.1	2.1	Z	2.2	2.1	2.1	2.0	2.2	2.4	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.4	
20-Apr	1.9	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.3	2.5	2.6	2.5	2.1	2.6	
21-Apr	2.5	2.4	2.3	2.4	Z	2.3	2.4	2.4	2.2	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	2.2	3.1	2.2	3.1	
22-Apr	2.8	2.6	2.4	2.4	2.3	Z	2.2	2.2	2.3	2.4	2.9	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.5	2.0	2.0	2.2	2.9	
23-Apr	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.3	3.6	3.1	2.5	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.1	2.0	2.1	2.2	3.6	
24-Apr	2.3	Z	2.6	2.4	2.2	2.2	2.3	3.2	3.0	2.9	2.6	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.2	3.2	
25-Apr	2.0	2.0	Z	2.3	2.0	2.0	2.0	2.0	2.0	2.0	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	2.3	
26-Apr	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	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
27-Apr	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	
28-Apr	2.0	2.0	2.0	2.0	2.2	Z	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	2.0	2.0	2.4	
29-Apr	Z	2.0	2.0	2.0	2.1	2.1	2.2	2.0	2.2	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.2	
30-Apr	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	447	65.35	65.35
2.1 - 3.0	233	34.06	99.42
3.1 - 10.0	4	0.58	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	58	53	42	8	5	10	22	39	36	21	15	28	21	31	23	25	437
2.1 - 3.0	25	42	12	5	2	2	6	16	52	13	9	4	2	9	12	15	226
3.1 - 10.0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	84	96	54	13	8	12	28	55	88	34	24	32	23	40	36	40	667

Total Number of Valid Hours: 667

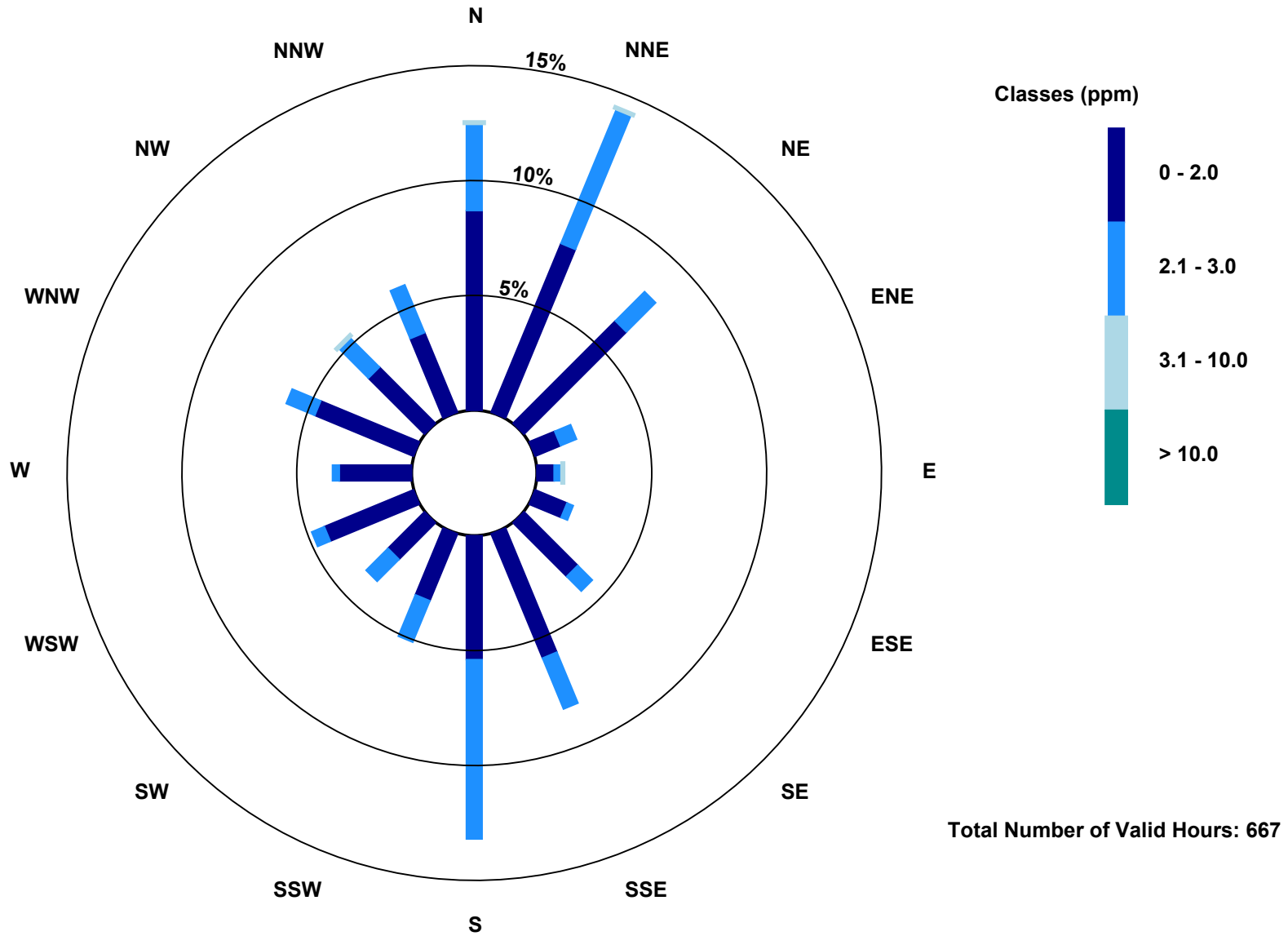
Total Number of Hours: 720

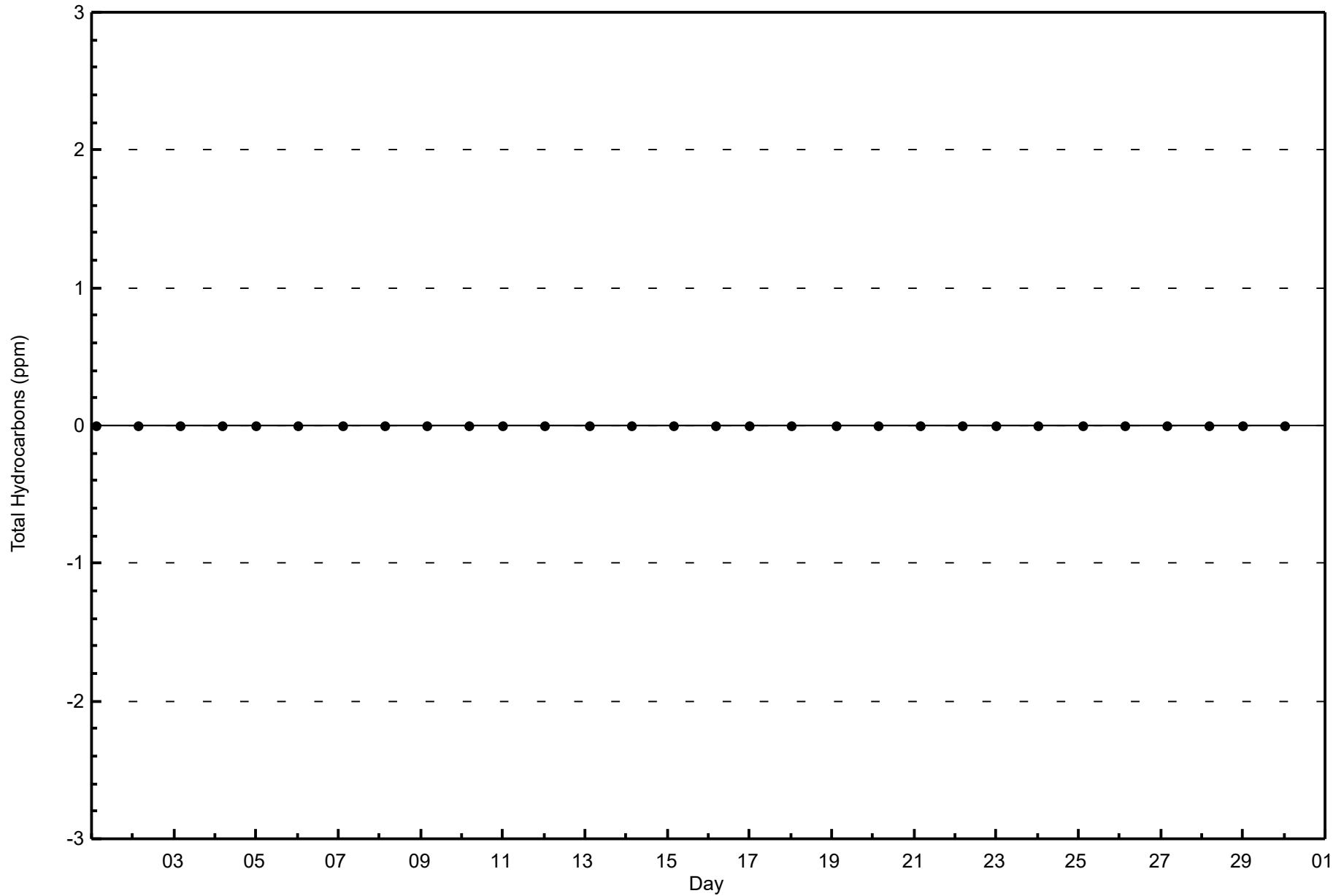


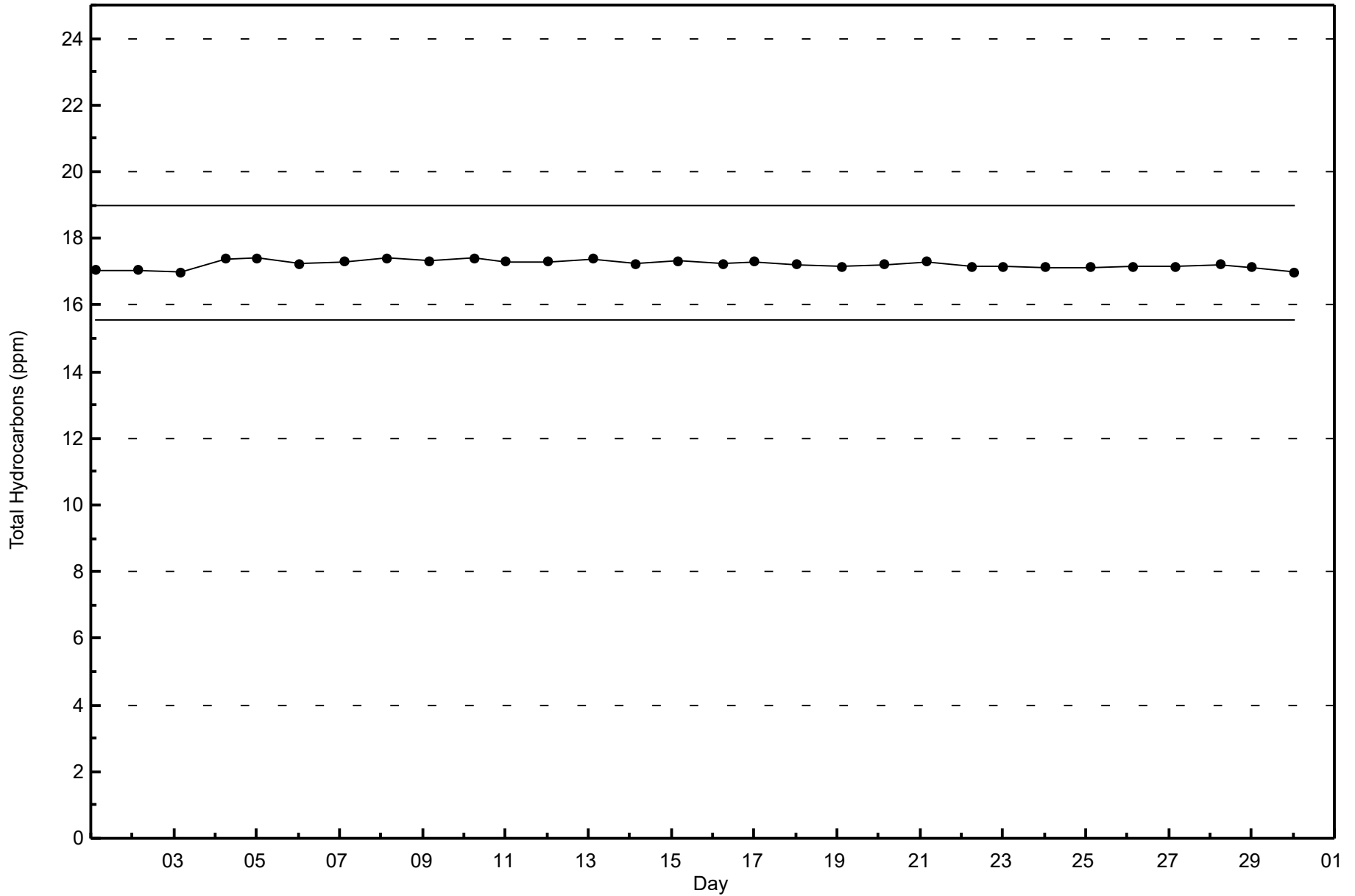


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Fort McKay - Bertha Ganter







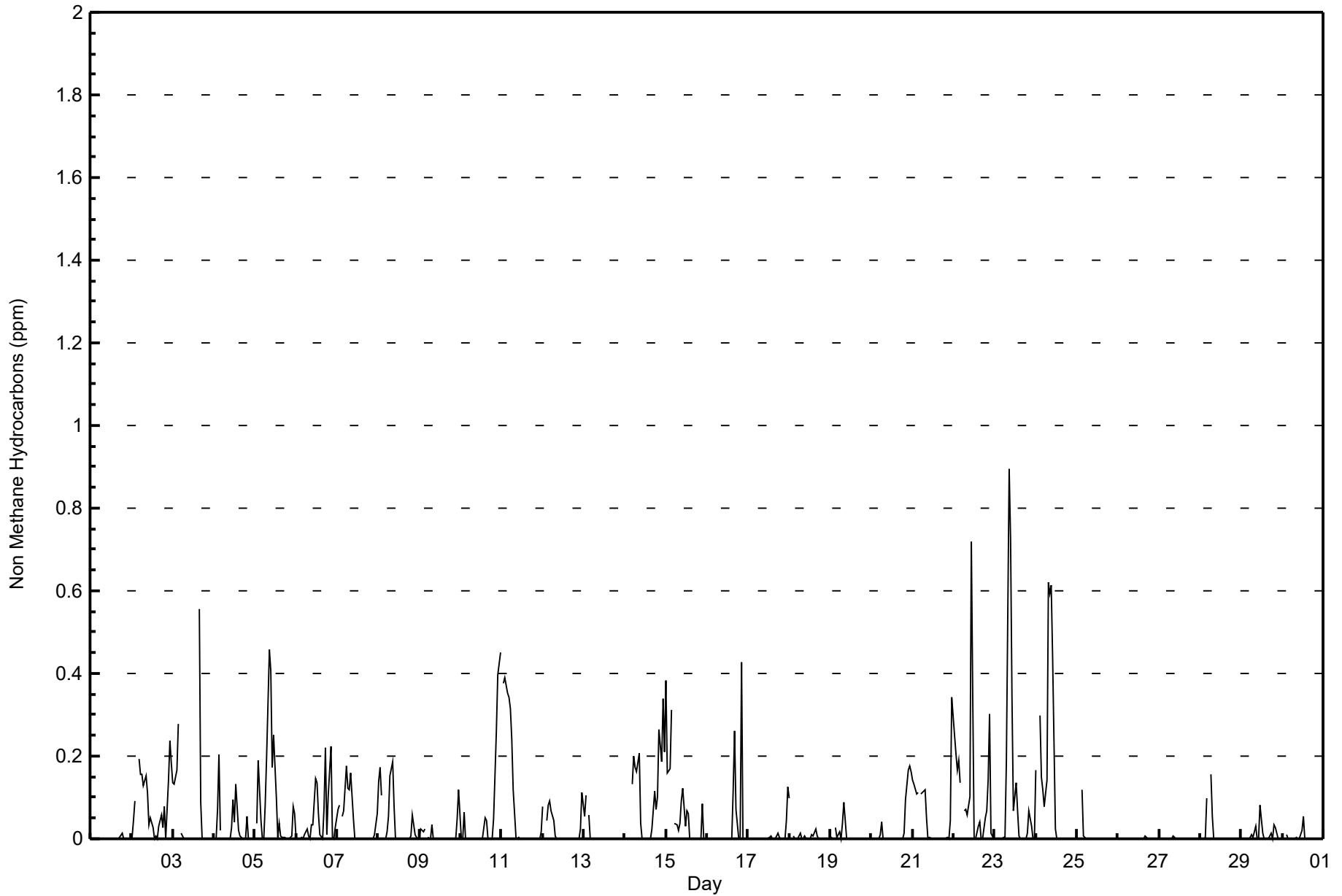


Maximum Value: 0.894 ppm on Apr 23 09:00																					Maximum Daily Average: 0.141 ppm on Apr 24					Hours in Service: 720																						
Minimum Value: 0.000 ppm on Apr 1 01:00																					Minimum Daily Average: 0.000 ppm on Apr 26					Hours of Data: 684																						
Maximum Diurnal Average: 0.097 ppm at hour 9																					Minimum Diurnal Average: 0.006 ppm at hour 15					Hours of Missing Data: 36																						
Monthly Average: 0.045 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> = 0.2 P <sub>99</sub> = 0.5					Hours of Calibration: 35																						
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> = 0.2 P <sub>99</sub> = 0.5																					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-Apr	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	0.003	0.014	0.000	0.000	0.000	0.000	0.000	0.001	0.014																						
2-Apr	0.003	0.044	0.091	Z	0.192	0.157	0.156	0.129	0.151	0.111	0.032	0.050	0.026	0.000	0.006	0.000	0.029	0.059	0.028	0.078	0.000	0.142	0.238	0.185	0.083	0.238																						
3-Apr	0.136	0.132	0.166	0.278	Z	0.015	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	0.557	0.089	0.000	0.000	0.000	0.000	0.000	0.076	0.557																							
4-Apr	0.000	0.000	0.071	0.204	0.021	Z	0.000	0.000	0.000	0.000	0.027	0.095	0.041	0.131	0.019	0.006	0.003	0.000	0.000	0.055	0.000	0.000	0.000	0.029	0.204																							
5-Apr	Z	0.037	0.190	0.044	0.002	0.000	0.082	0.198	0.456	0.407	0.173	0.250	0.097	0.003	0.038	0.008	0.004	0.003	0.000	0.000	0.000	0.008	0.078	0.061	0.093	0.456																						
6-Apr	0.004	Z	0.000	0.005	0.000	0.009	0.025	0.008	0.000	0.034	0.033	0.146	0.135	0.060	0.009	0.000	0.073	0.221	0.012	0.106	0.225	0.002	0.002	0.026	0.049	0.225																						
7-Apr	0.070	0.083	Z	0.056	0.068	0.175	0.122	0.118	0.159	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.063	0.042	0.175																							
8-Apr	0.139	0.172	0.104	Z	0.000	0.018	0.054	0.152	0.186	0.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.059	0.011	0.004	0.000	0.043	0.186																						
9-Apr	0.007	0.022	0.017	0.022	Z	0.003	0.000	0.035	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	0.048	0.119	0.012	0.119																							
10-Apr	0.000	0.001	0.064	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.052	0.044	0.000	0.000	0.002	0.049	0.153	0.262	0.396	0.451	0.064	0.451																						
11-Apr	Z	0.376	0.390	0.352	0.344	0.317	0.241	0.117	0.003	0.000	0.003	0.000	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.098	0.390																							
12-Apr	0.078	Z	0.044	0.081	0.090	0.068	0.043	0.006	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	0.022	0.111	0.024	0.111																							
13-Apr	0.056	0.105	Z	0.058	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	0.010	0.105																							
14-Apr	0.000	0.000	0.001	Z	0.131	0.200	0.173	0.162	0.206	0.038	0.000	0.000	0.000	0.000	0.000	0.025	0.116	0.071	0.100	0.100	0.264	0.187	0.339	0.209	0.097	0.339																						
15-Apr	0.383	0.161	0.171	0.312	Z	0.037	0.034	0.019	0.037	0.091	0.123	0.030	0.069	0.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.000	0.070	0.383																							
16-Apr	0.000	0.000	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	0.115	0.259	0.072	0.000	0.000	0.428	0.000	0.000	0.038	0.428																							
17-Apr	Z	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.007	0.000	0.000	0.013	0.005	0.000	0.000	0.001	0.045	0.126	0.009	0.126																							
18-Apr	0.100	Z	0.006	0.000	0.000	0.000	0.014	0.000	0.000	0.005	0.000	0.000	0.001	0.010	0.006	0.024	0.006	0.000	0.000	0.000	0.000	0.001	0.000	0.007	0.100																							
19-Apr	0.003	0.000	Z	0.028	0.005	0.017	0.002	0.037	0.089	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	0.089																							
20-Apr	0.000	0.000	0.000	Z	0.000	0.009	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.097	0.167	0.175	0.163	0.029	0.175																						
21-Apr	0.142	0.133	0.107	0.111	Z	0.107	0.116	0.119	0.050	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.045	0.341	0.056	0.341																						
22-Apr	0.252	0.205	0.167	0.189	0.136	Z	0.068	0.070	0.056	0.102	0.717	0.342	0.000	0.000	0.032	0.041	0.001	0.000	0.052	0.067	0.142	0.301	0.013	0.000	0.128	0.717																						
23-Apr	Z	0.000	0.000	0.000	0.000	0.002	0.003	0.186	0.894	0.726	0.344	0.067	0.134	0.069	0.006	0.000	0.000	0.000	0.000	0.014	0.067	0.029	0.000	0.000	0.110	0.894																						
24-Apr	0.166	Z	0.298	0.151	0.119	0.078	0.142	0.619	0.592	0.612	0.441	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.141	0.619																							
25-Apr	0.000	0.000	Z	0.118	0.007	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	0.005	0.118																							
26-Apr	0.001	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	0.001	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006																						
27-Apr	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.006	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	0.006																						
28-Apr	0.000	0.000	0.000	0.002	0.098	Z	0.158	0.054	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	0.014	0.158																							
29-Apr	Z	0.000	0.000	0.000	0.000	0.003	0.012	0.002	0.031	0.000	0.000	0.082	0.014	0.000	0.000	0.000	0.000	0.014	0.000	0.034	0.027	0.000	0.000	0.009	0.082																							
30-Apr	0.000	Z	0.011	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.021	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.055																							
																								0.062	0.059	0.076	0.080	0.049	0.049	0.049	0.068	0.097	0.075	0.065	0.038	0.020	0.012	0.006	0.026	0.017	0.017	0.006	0.017	0.049	0.040	0.047	0.062	Diurnal Average
																								0.383	0.376	0.390	0.352	0.344	0.317	0.241	0.619	0.894	0.726	0.717	0.342	0.135	0.131	0.052	0.557	0.259	0.221	0.071	0.106	0.428	0.301	0.396	0.451	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance																				



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	439	64.18	64.18
0.006 - 0.05	92	13.45	77.63
0.06 - 0.1	83	12.13	89.77
> 0.1	70	10.23	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 0.005	54	46	33	9	4	10	21	40	40	20	17	28	21	32	28	27	430
0.006 - 0.05	8	19	15	1	1	0	4	3	17	6	1	1	1	4	3	4	88
0.06 - 0.1	6	20	3	2	1	2	2	6	21	6	1	1	0	2	2	5	80
> 0.1	16	11	3	1	2	0	1	6	10	2	5	2	1	2	3	4	69
<b>Totals</b>	84	96	54	13	8	12	28	55	88	34	24	32	23	40	36	40	667

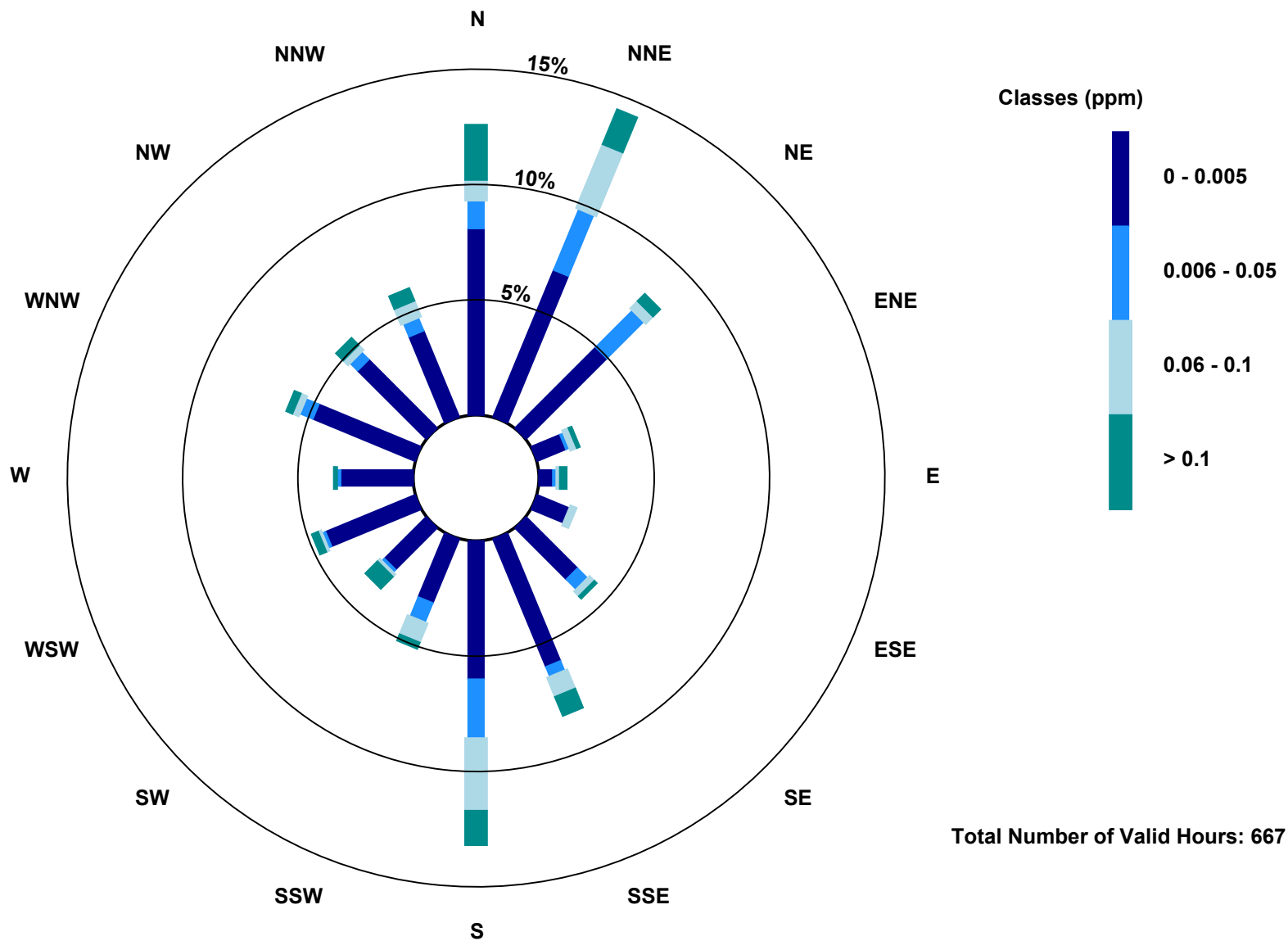
Total Number of Valid Hours: 667

Total Number of Hours: 720

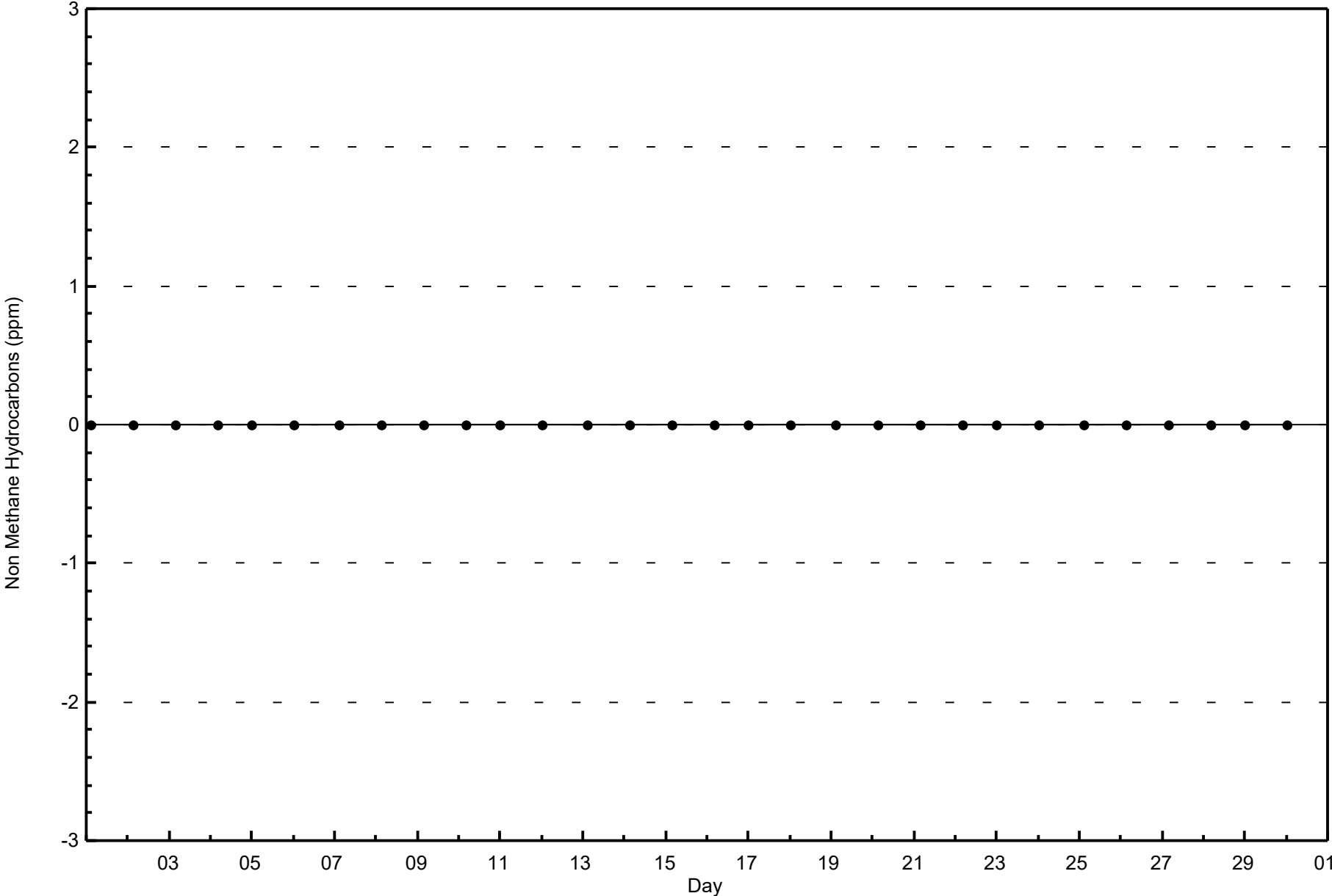


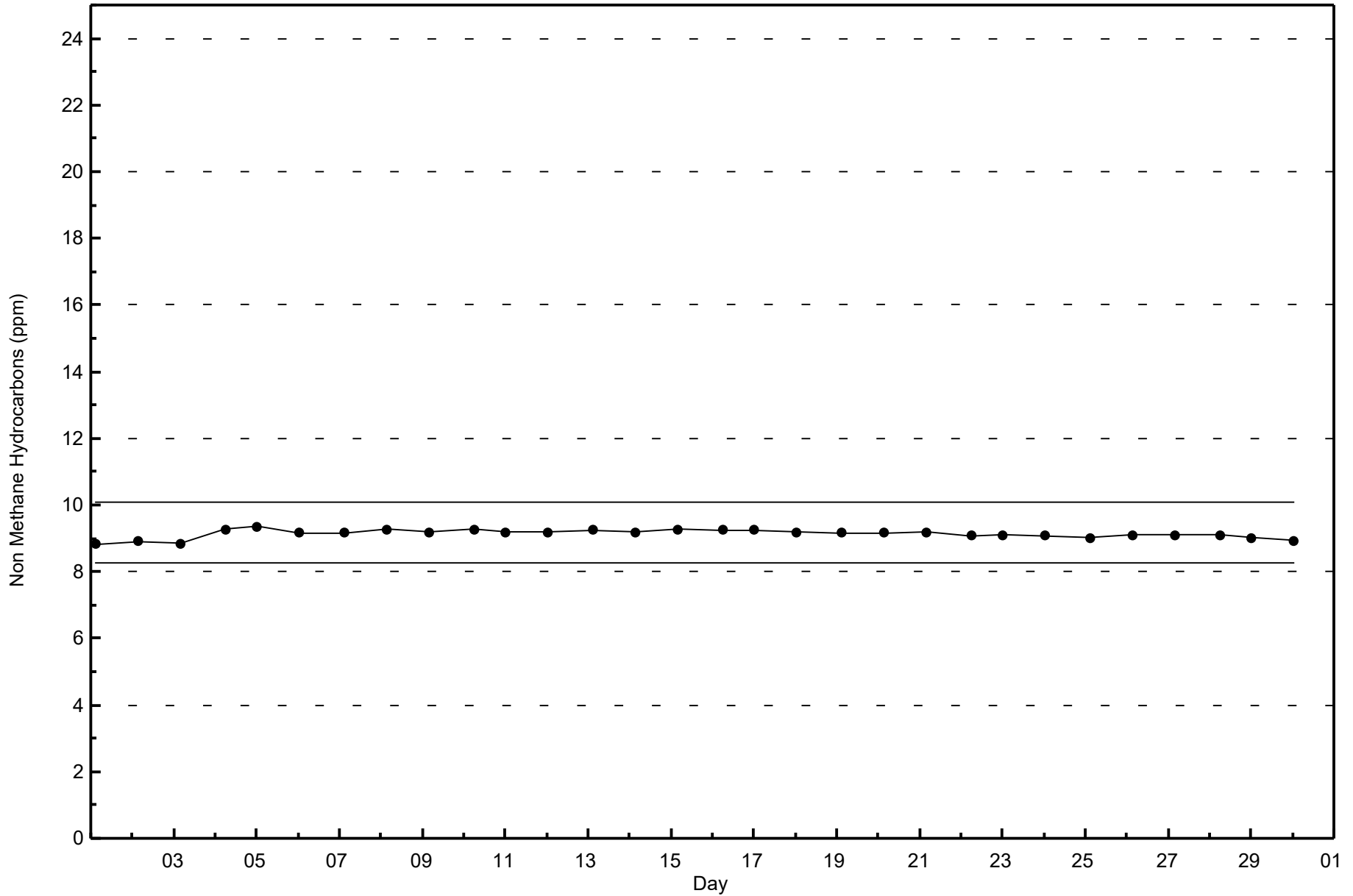
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay - Bertha Ganter











Wood Buffalo Environmental Association

Summary of Hour Averages

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

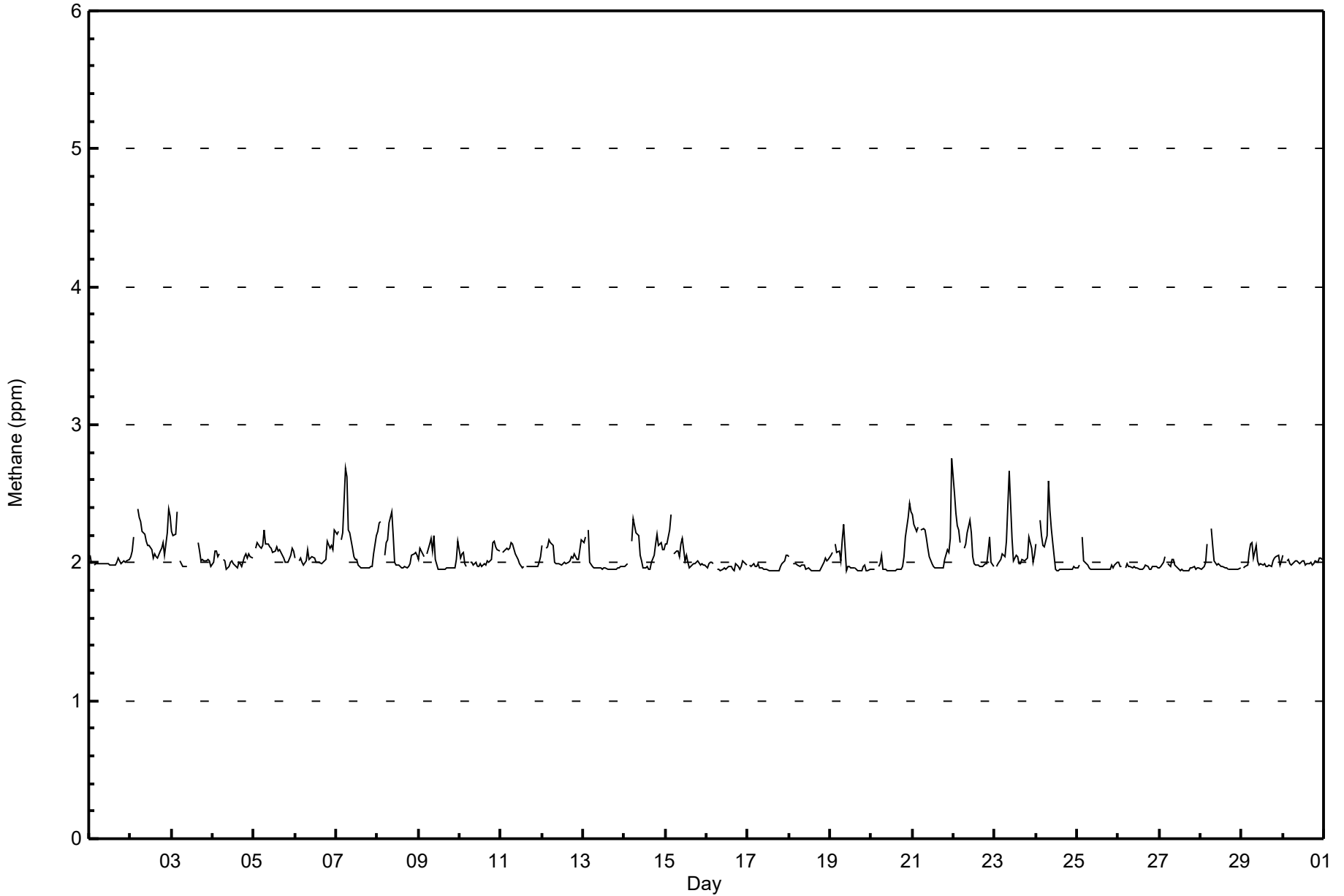
Fort McKay - Bertha Ganter - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 2.8 ppm on Apr 22 00:00	Maximum Daily Average: 2.2 ppm on Apr 2		Hours of Data:	684
Minimum Value: 1.9 ppm on Apr 18 16:00	Minimum Daily Average: 2.0 ppm on Apr 26		Hours of Missing Data:	36
Maximum Diurnal Average: 2.1 ppm at hour 4	Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Calibration:	35
Monthly Average: 2.04 ppm	Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.4		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-Apr	2.1	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	2.1		
2-Apr	2.0	2.1	2.2	Z	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.2	2.4	2.3	2.2	2.2	2.4	2.4		
3-Apr	2.2	2.2	2.2	2.4	Z	2.0	2.0	2.0	2.0	2.0	C	C	C	C	C	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.1		
4-Apr	2.0	2.1	2.1	2.0	2.1	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	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1		
5-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2		
6-Apr	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	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.1	2.1	2.2	2.0	2.0	2.2	2.2		
7-Apr	2.2	2.2	Z	2.2	2.2	2.7	2.6	2.2	2.2	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	2.1	2.2	2.1	2.1	2.7	2.7		
8-Apr	2.2	2.3	2.3	Z	2.1	2.1	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.4		
9-Apr	2.0	2.1	2.1	2.0	Z	2.1	2.1	2.2	2.1	2.2	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.2	2.2		
10-Apr	2.0	2.1	2.1	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	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.2	2.2		
11-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1		
12-Apr	2.1	Z	2.1	2.1	2.2	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	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.2	2.2		
13-Apr	2.1	2.2	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	
14-Apr	2.0	2.0	2.0	Z	2.2	2.3	2.3	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	
15-Apr	2.1	2.1	2.2	2.4	Z	2.1	2.1	2.1	2.0	2.1	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	
16-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	
17-Apr	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1		
18-Apr	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	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		
19-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.2	2.3	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.3	2.3		
20-Apr	1.9	2.0	2.0	Z	2.0	2.0	2.1	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	2.2	2.3	2.4	2.4	2.0	2.0	2.4	2.4		
21-Apr	2.3	2.3	2.2	2.3	Z	2.2	2.3	2.2	2.2	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	2.2	2.8	2.1	2.1	2.8	2.8		
22-Apr	2.5	2.4	2.3	2.2	2.1	Z	2.1	2.1	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0	2.1	2.1	2.5	2.5		
23-Apr	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.2	2.7	2.4	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.0	2.1	2.1	2.1	2.7	2.7		
24-Apr	2.1	Z	2.3	2.2	2.1	2.1	2.2	2.6	2.4	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.6	2.6		
25-Apr	2.0	2.0	Z	2.2	2.0	2.0	2.0	2.0	2.0	2.0	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	2.2	2.2	
26-Apr	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	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	
27-Apr	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	
28-Apr	2.0	2.0	2.0	2.0	2.1	Z	2.2	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	2.2	2.2
29-Apr	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	
30-Apr	2.1	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	2.0	2.0	2.1	2.1

2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	2.1	2.1	Diurnal Average	
2.5	2.4	2.3	2.4	2.4	2.7	2.6	2.6	2.7	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.8	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	478	69.88	69.88
2.1 - 3.0	206	30.12	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	59	68	45	11	6	11	22	39	38	22	15	28	21	31	23	28	467
2.1 - 3.0	25	28	9	2	2	1	6	16	50	12	9	4	2	9	13	12	200
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>	84	96	54	13	8	12	28	55	88	34	24	32	23	40	36	40	667

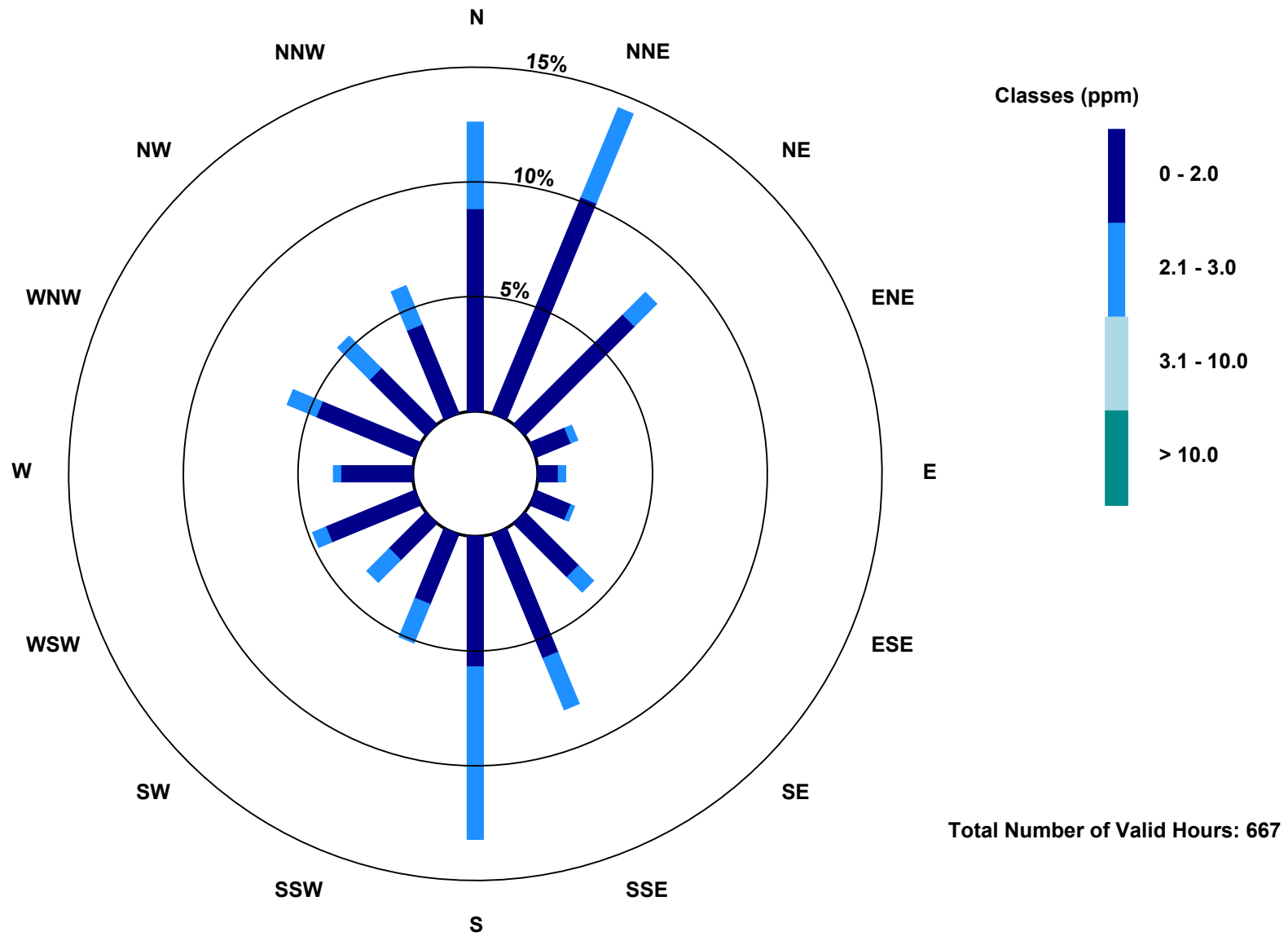
Total Number of Valid Hours: 667

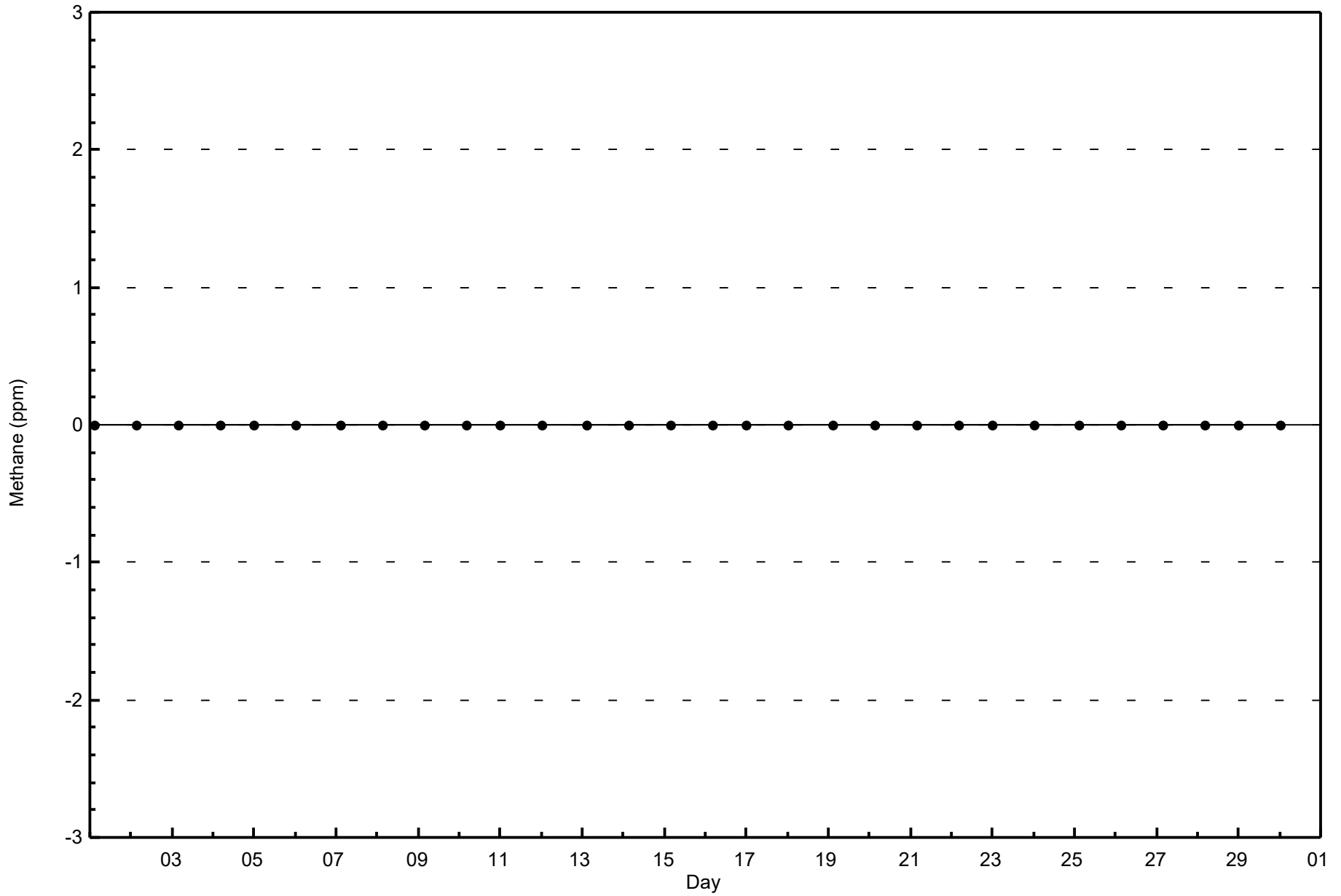
Total Number of Hours: 720



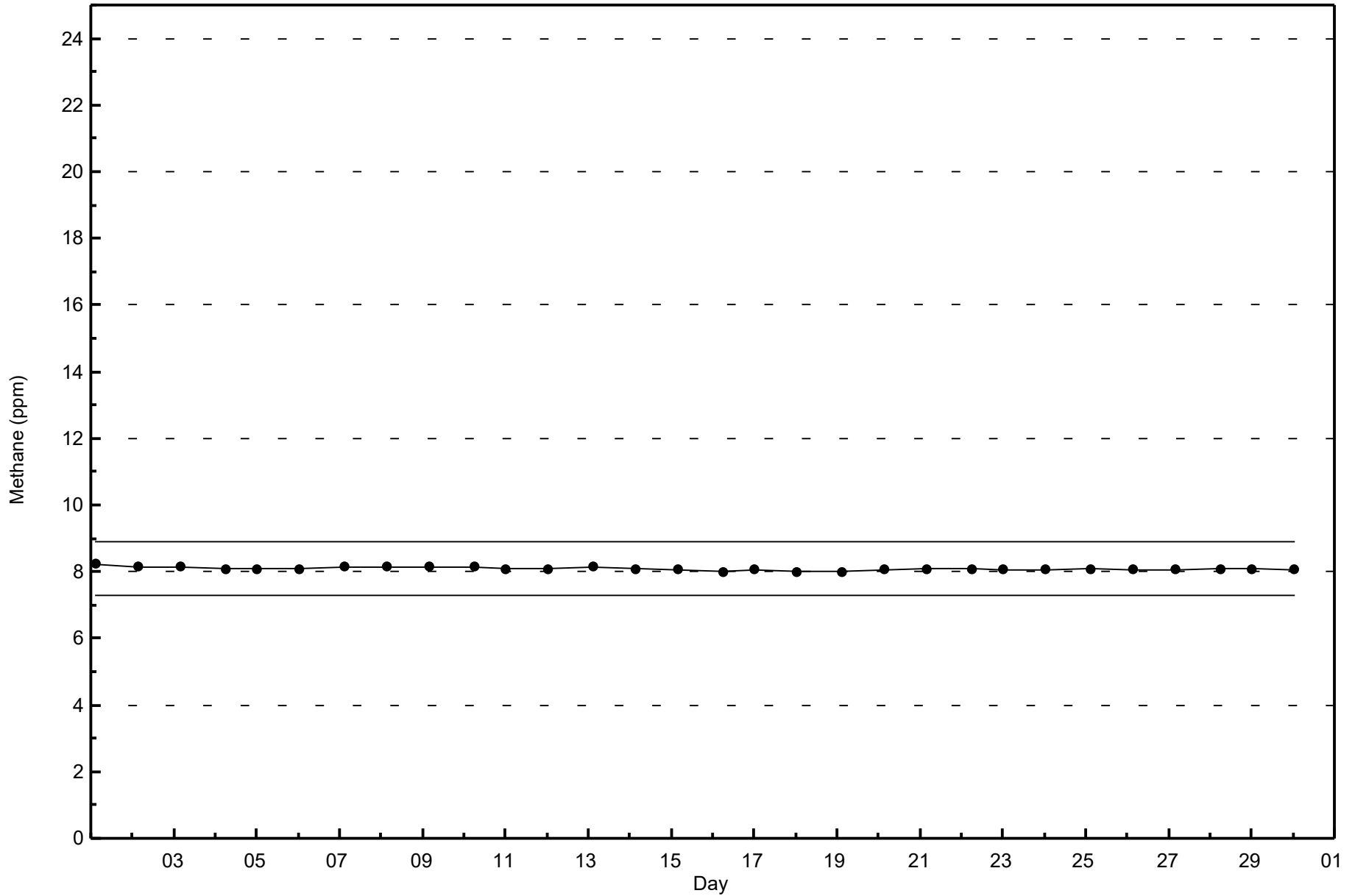
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Methane (CH<sub>4</sub>) - ppm  
Fort McKay - Bertha Ganter











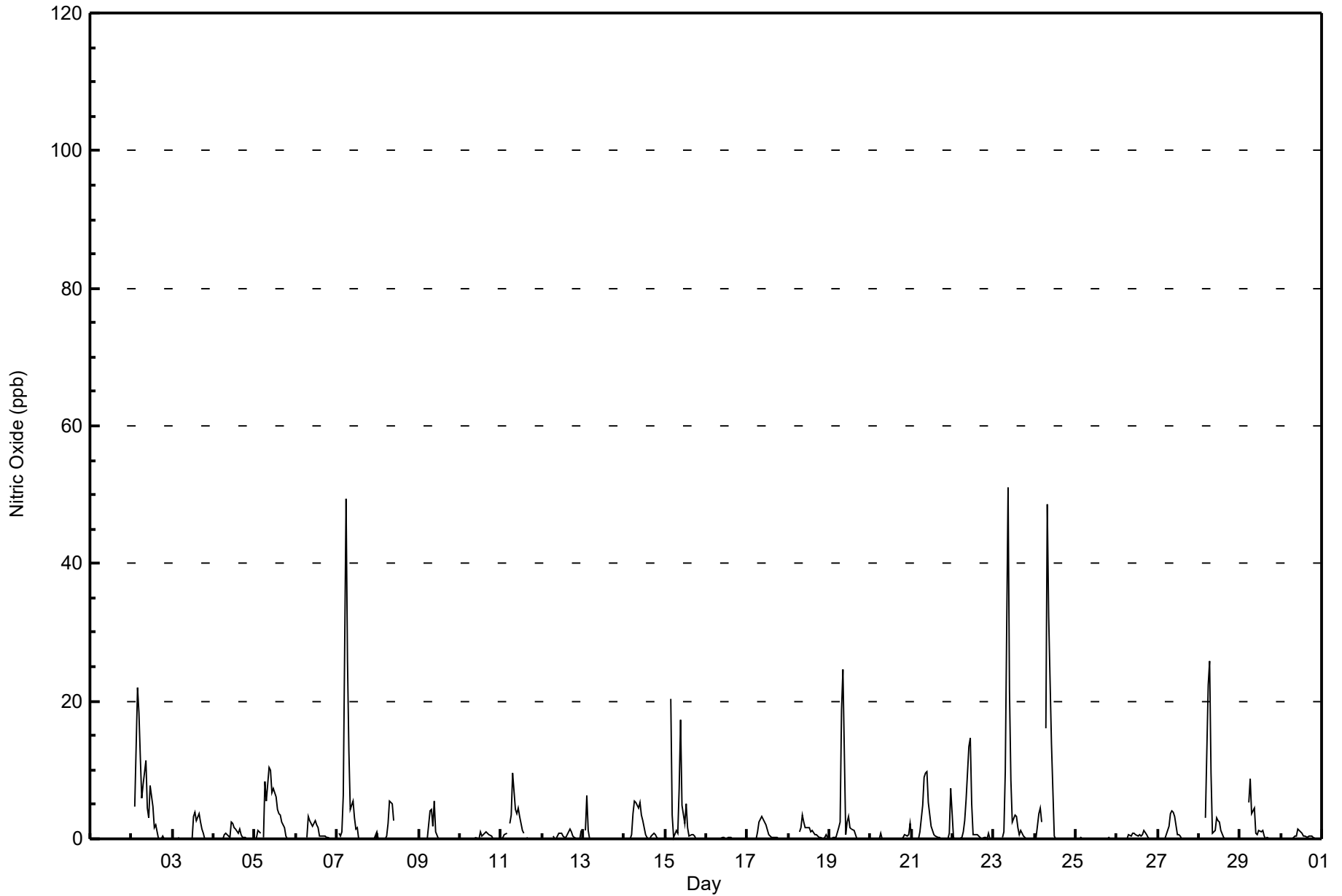
# Wood Buffalo Environmental Association

## Summary of Hour Averages

### Nitric Oxide (NO) - ppb

### Fort McKay - Bertha Ganter - April 2024

Maximum Value: 51.0 ppb on Apr 23 09:00      Maximum Daily Average: 6.3 ppb on Apr 24																Hours in Service: 720																		
Minimum Value: 0.0 ppb on Apr 1 03:00      Minimum Daily Average: 0.0 ppb on Apr 1																Hours of Data: 684																		
Maximum Diurnal Average: 6.4 ppb at hour 9      Minimum Diurnal Average: 0.0 ppb at hour 1																Hours of Missing Data: 36																		
Monthly Average: 1.63 ppb      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 4.2 P <sub>99</sub> = 23.3																Hours of Calibration: 35																		
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 4.2 P <sub>99</sub> = 23.3																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-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
2-Apr	0.0	Z	4.7	21.9	18.3	11.7	5.9	7.9	11.3	4.4	3.0	7.7	4.7	1.7	2.1	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	21.9	
3-Apr	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.9	2.6	3.8	2.3	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.9		
4-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.5	0.7	0.6	0.2	2.4	2.2	1.6	1.5	0.8	1.3	0.5	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.4			
5-Apr	0.0	0.1	1.3	0.9	Z	0.3	8.4	5.4	10.3	10.1	6.6	7.3	6.2	4.4	3.7	3.5	2.3	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	10.3				
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.3	3.2	2.6	2.3	1.9	2.7	1.9	1.7	0.4	0.5	0.4	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.8	3.2				
7-Apr	Z	0.7	0.4	0.9	6.2	49.3	26.1	12.8	4.3	5.6	3.2	1.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	4.9	49.3	0.0	0.0			
8-Apr	0.0	Z	0.0	0.0	0.0	0.3	2.3	5.6	5.0	2.7	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.6	0.0	0.0			
9-Apr	0.0	0.0	Z	0.0	0.0	0.1	4.1	4.3	1.7	5.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	5.4	0.0	0.0				
10-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	1.0	0.4	0.9	1.0	0.7	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.0	0.0				
11-Apr	0.0	0.2	0.6	0.8	Z	2.3	3.4	9.5	4.3	3.7	4.4	3.3	1.3	0.8	M	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	9.5	0.0	0.0				
12-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.5	0.0	0.0	0.3	0.9	0.8	0.4	0.2	0.1	1.1	1.4	1.1	0.5	0.2	0.0	0.0	0.0	0.0	1.3	0.4	1.4	0.0	0.0					
13-Apr	Z	1.2	6.3	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	6.3	0.0	0.0					
14-Apr	0.0	Z	0.1	0.1	0.7	3.6	5.6	5.3	4.5	5.3	3.5	2.7	0.7	0.2	0.0	0.0	0.5	0.8	0.6	0.2	0.1	0.0	0.0	0.0	0.0	1.5	5.6	0.0	0.0					
15-Apr	0.0	0.2	Z	20.3	3.4	0.2	1.2	0.9	7.4	17.4	4.8	2.3	5.1	1.6	0.4	0.6	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	20.3	0.0	0.0					
16-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0					
17-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.9	2.4	3.2	2.9	2.5	2.0	0.7	0.4	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.2	0.0	0.0					
18-Apr	0.0	0.0	0.0	0.0	0.0	Z	1.0	1.6	3.5	2.5	1.5	1.6	1.6	1.1	1.1	0.7	0.7	0.4	0.3	0.1	0.1	0.1	0.1	0.6	0.1	0.8	3.5	0.0	0.0					
19-Apr	Z	0.1	0.1	0.2	0.3	1.6	2.5	18.8	24.7	0.6	2.5	3.2	1.6	1.4	1.3	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	24.7	0.0	0.0						
20-Apr	0.0	Z	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.4	0.6	2.2	0.2	2.2	0.0	0.0						
21-Apr	0.3	0.0	Z	0.0	0.0	1.0	4.9	8.8	9.7	9.7	5.4	1.8	1.3	0.7	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.9	7.4	2.3	9.7	0.0	0.0						
22-Apr	0.1	0.0	0.0	Z	0.0	0.3	1.0	2.7	5.8	13.5	14.6	5.2	0.7	0.6	0.6	0.3	0.1	0.1	0.1	0.1	0.0	0.8	0.0	0.0	2.0	14.6	0.0	0.0						
23-Apr	0.0	0.0	0.0	0.0	Z	0.2	1.1	9.8	51.0	21.6	8.5	2.4	3.4	3.3	1.6	0.5	1.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	4.6	51.0	0.0	0.0						
24-Apr	0.0	0.2	3.7	4.5	2.5	Z	16.1	48.6	32.3	23.0	13.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	48.6	0.0	0.0						
25-Apr	Z	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0					
26-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.7	0.5	0.8	0.8	0.6	0.5	0.6	0.3	0.5	1.2	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.3	1.2	0.0	0.0						
27-Apr	0.0	0.0	Z	0.0	0.0	0.5	1.9	3.7	4.1	3.8	3.2	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.1	0.0	0.0						
28-Apr	0.0	0.0	0.0	Z	3.0	22.4	25.8	9.6	0.8	1.2	3.1	2.7	2.5	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	25.8	0.0	0.0						
29-Apr	0.0	0.0	0.0	0.0	Z	5.2	8.7	3.7	4.5	0.9	0.7	1.2	1.1	1.2	0.4	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.2	8.7	0.0	0.0						
30-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.5	0.4	1.3	1.0	0.9	0.4	0.4	0.2	0.5	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.3	1.3	0.0	0.0						
																								Diurnal Average										
																								Diurnal Maximum										
Z - zerospan      C - Calibration      M - Maintenance																																		





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	673	98.39	98.39
21 - 40	8	1.17	99.56
41 - 80	3	0.44	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	84	95	54	13	8	13	27	54	80	33	24	31	22	41	40	37	656
21 - 40	1	2	0	0	1	0	1	0	2	0	0	0	0	0	1	0	8
41 - 80	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>86</b>	<b>98</b>	<b>54</b>	<b>13</b>	<b>9</b>	<b>13</b>	<b>28</b>	<b>54</b>	<b>82</b>	<b>33</b>	<b>25</b>	<b>31</b>	<b>22</b>	<b>41</b>	<b>41</b>	<b>37</b>	<b>667</b>

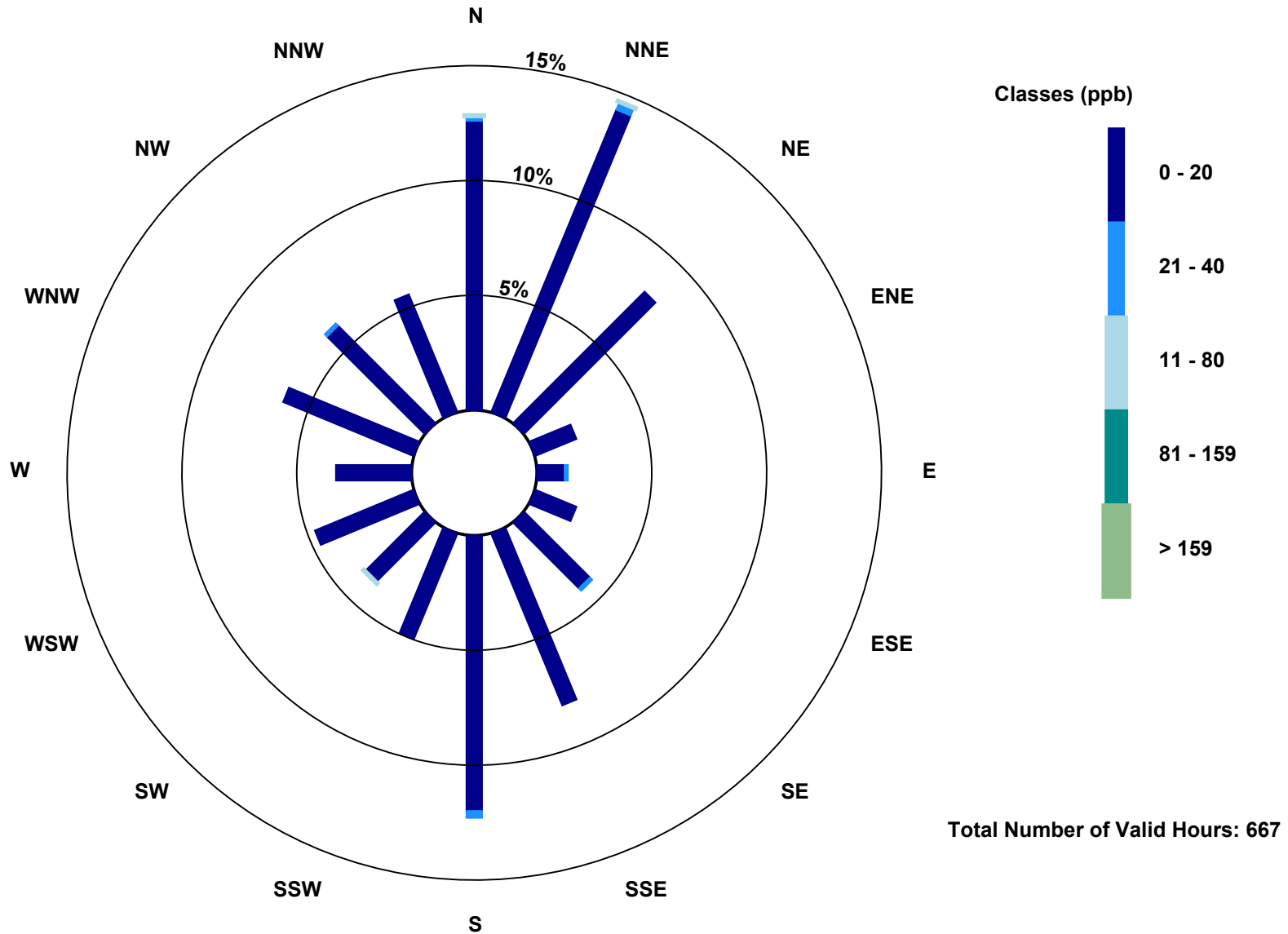
Total Number of Valid Hours: 667

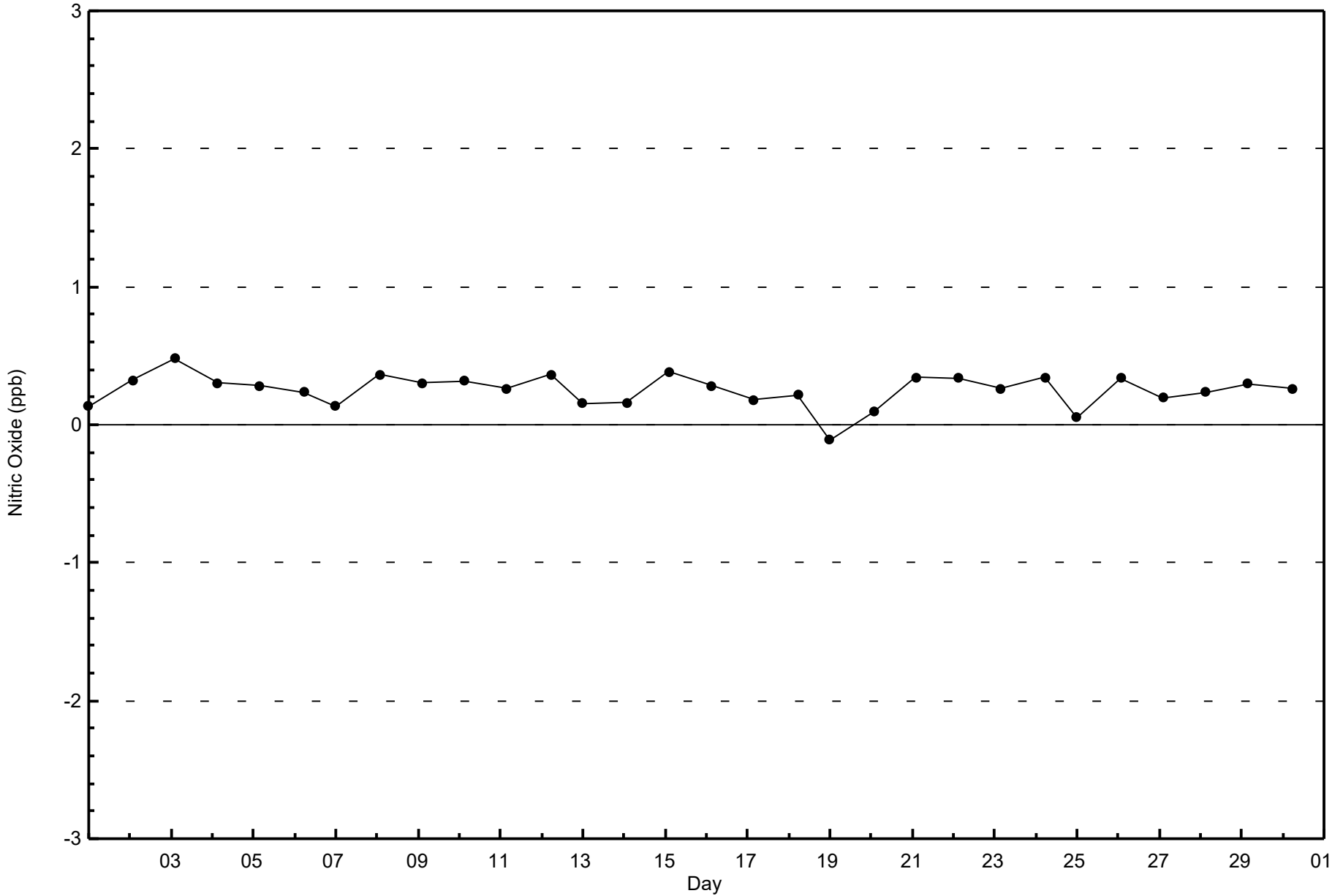
Total Number of Hours: 720

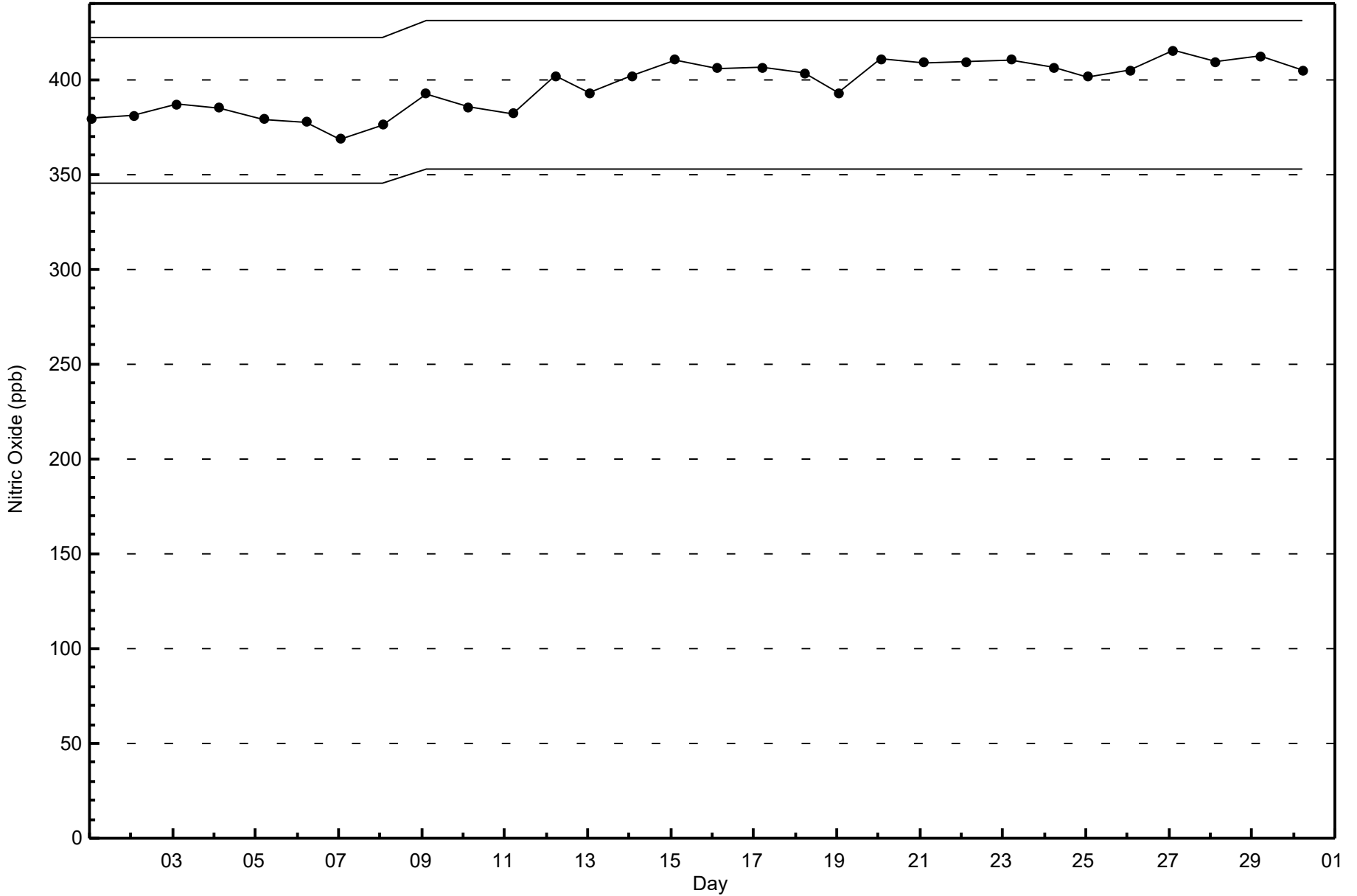


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Fort McKay - Bertha Ganter











Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort McKay - Bertha Ganter - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 40.7 ppb on Apr 22 00:00	Maximum Daily Average: 16.1 ppb on Apr 5		Hours of Data:	684
Minimum Value: 0.0 ppb on Apr 1 08:00	Minimum Daily Average: 0.9 ppb on Apr 1		Hours of Missing Data:	36
Maximum Diurnal Average: 12.8 ppb at hour 4	Minimum Diurnal Average: 2.7 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 7.45 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.8 Median = 4.5 Q <sub>3</sub> = 10.6 P <sub>90</sub> = 18.8 P <sub>99</sub> = 34.9		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-Apr	Z	0.8	0.7	1.1	0.6	0.4	0.3	0.0	0.0	0.3	0.4	0.0	0.0	0.2	0.0	0.0	0.8	2.4	0.1	0.6	1.2	3.2	3.2	4.2	0.9	4.2
2-Apr	4.8	Z	22.5	29.8	25.8	22.7	20.0	17.6	20.7	13.4	10.7	17.6	14.0	5.7	7.0	5.0	0.7	2.2	14.1	19.4	7.8	17.2	20.1	20.5	14.8	29.8
3-Apr	17.6	15.1	Z	25.2	19.8	1.9	0.3	0.2	1.3	1.3	1.5	1.6	9.6	12.4	10.2	12.0	7.3	6.6	9.5	7.1	5.9	7.5	5.7	2.6	7.9	25.2
4-Apr	2.4	7.5	8.4	Z	11.0	8.4	9.1	3.9	1.5	1.6	6.2	5.5	4.1	4.4	2.6	4.4	3.4	4.3	9.7	9.6	12.5	20.5	14.6	10.1	7.2	20.5
5-Apr	16.5	23.8	25.8	23.8	Z	19.4	23.9	17.2	20.7	18.0	17.1	17.0	15.8	12.1	11.0	14.2	12.6	10.6	8.5	6.8	8.3	15.6	18.4	13.0	16.1	25.8
6-Apr	8.9	12.3	7.2	6.1	3.7	Z	3.8	10.4	6.7	7.8	4.5	7.2	5.9	5.0	3.2	5.5	5.7	6.0	8.2	12.6	12.3	13.3	9.8	12.5	7.8	13.3
7-Apr	Z	13.5	11.0	11.7	13.0	18.8	14.6	10.6	6.6	5.8	3.9	2.7	3.2	0.8	0.4	0.4	0.2	0.1	0.1	0.5	1.4	2.5	12.7	31.3	7.2	31.3
8-Apr	22.9	Z	20.3	15.0	7.2	10.2	11.1	12.2	10.3	6.7	C	C	C	C	C	0.2	0.9	0.4	0.8	2.3	10.4	7.6	7.5	4.1	8.3	22.9
9-Apr	2.3	7.4	Z	3.8	4.8	6.9	10.3	8.9	5.4	10.7	3.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	6.0	16.3	3.7	16.3
10-Apr	9.0	3.9	6.0	Z	0.3	3.1	2.7	2.6	1.6	3.2	1.0	1.2	2.3	1.8	3.6	4.0	3.6	3.9	6.9	14.0	14.1	12.4	10.7	10.5	5.3	14.1
11-Apr	10.1	9.8	9.8	9.6	Z	8.3	5.6	9.2	6.2	6.1	9.6	9.3	4.2	3.0	M	2.3	1.5	0.7	0.4	0.4	0.2	0.2	3.7	7.0	5.3	10.1
12-Apr	16.6	10.8	12.7	14.9	25.0	Z	12.0	3.5	2.2	4.8	6.1	5.8	3.3	1.6	1.9	4.5	4.7	5.5	7.2	8.1	4.3	2.9	6.7	10.2	7.6	25.0
13-Apr	Z	9.0	15.8	17.5	2.8	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.4	0.9	0.7	2.1	17.5
14-Apr	0.9	Z	5.2	5.4	14.6	20.2	13.6	10.6	8.9	9.9	8.4	5.5	2.5	1.5	0.2	0.1	4.7	8.0	12.3	14.0	26.2	18.0	16.1	22.6	10.0	26.2
15-Apr	25.9	29.6	Z	39.5	36.5	25.3	19.5	12.6	14.2	24.1	14.4	11.3	18.4	6.8	3.4	8.1	5.4	4.7	4.8	5.0	2.9	2.2	3.0	1.7	13.9	39.5
16-Apr	1.2	1.5	1.9	Z	3.0	3.2	3.0	3.1	2.9	2.8	1.9	1.6	1.3	1.8	2.0	2.1	2.4	3.3	1.4	1.6	8.9	9.5	10.0	8.0	3.4	10.0
17-Apr	11.6	12.1	10.2	9.8	Z	5.3	7.2	5.4	5.7	4.8	4.2	3.6	1.8	1.6	1.0	1.2	1.2	1.7	2.2	4.0	11.6	18.9	26.6	23.8	7.6	26.6
18-Apr	19.0	18.4	12.7	10.4	11.4	Z	8.8	6.3	7.8	6.5	3.9	4.2	4.3	3.1	3.2	2.4	2.8	2.6	3.4	6.1	10.6	22.9	29.7	23.5	9.7	29.7
19-Apr	Z	14.3	17.4	16.9	11.7	14.1	7.5	16.6	20.6	1.5	5.8	7.1	4.5	4.4	4.5	2.7	0.7	0.5	0.5	3.6	3.8	0.7	0.8	0.3	7.0	20.6
20-Apr	0.4	Z	0.5	0.7	2.0	3.3	4.8	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.4	1.4	3.9	16.9	40.3	35.6	28.1	28.1	7.3	40.3
21-Apr	19.4	13.5	Z	14.7	16.9	14.2	12.4	19.3	19.2	18.7	12.6	6.3	5.1	3.6	2.9	2.9	3.1	3.0	2.4	4.4	6.3	6.1	15.3	40.7	11.4	40.7
22-Apr	26.0	16.9	12.9	Z	7.8	6.8	5.3	6.3	14.8	22.7	26.7	14.4	3.2	3.4	3.6	2.9	2.1	2.0	4.7	12.4	13.2	29.9	9.4	1.8	10.8	29.9
23-Apr	0.6	2.4	4.2	3.4	Z	6.3	4.2	11.2	39.2	31.6	18.6	7.1	10.1	9.9	7.1	5.0	5.6	3.6	4.5	9.4	18.7	14.9	8.4	13.3	10.4	39.2
24-Apr	21.1	28.5	34.9	35.0	32.7	Z	24.7	33.0	30.1	25.9	18.8	1.4	0.5	0.3	0.6	1.1	0.7	0.5	0.5	0.7	0.6	0.9	2.4	0.8	12.9	35.0
25-Apr	Z	3.8	10.7	12.8	3.4	1.8	1.3	0.9	0.7	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.3	0.5	0.8	0.9	1.4	0.1	2.1	4.0	2.0	12.8
26-Apr	6.4	Z	2.9	2.7	0.4	2.1	2.3	2.5	1.8	2.7	2.6	2.1	1.9	2.3	1.5	2.4	4.7	3.6	3.5	2.9	2.4	3.4	3.4	3.0	2.8	6.4
27-Apr	3.3	4.7	Z	2.2	3.1	7.0	7.9	9.0	8.6	7.8	7.1	2.1	2.3	2.1	1.0	1.6	1.5	1.2	1.4	2.0	4.1	2.8	2.3	3.4	3.8	9.0
28-Apr	2.1	1.2	1.7	Z	19.8	24.7	22.5	17.0	9.4	4.4	6.9	6.3	5.6	3.2	1.5	1.0	0.5	0.4	0.5	0.4	0.6	0.6	0.7	0.6	5.7	24.7
29-Apr	0.8	0.9	0.9	2.5	Z	19.3	20.5	10.4	13.8	5.8	3.3	5.0	2.6	3.1	1.9	1.4	2.0	2.2	3.9	8.2	9.8	8.4	4.6	5.8	6.0	20.5
30-Apr	10.0	8.4	8.1	6.6	5.6	Z	3.7	4.4	4.8	3.7	3.7	6.0	4.0	2.0	2.0	2.1	3.4	2.8	4.1	6.2	4.5	3.6	2.9	4.3	4.6	10.0

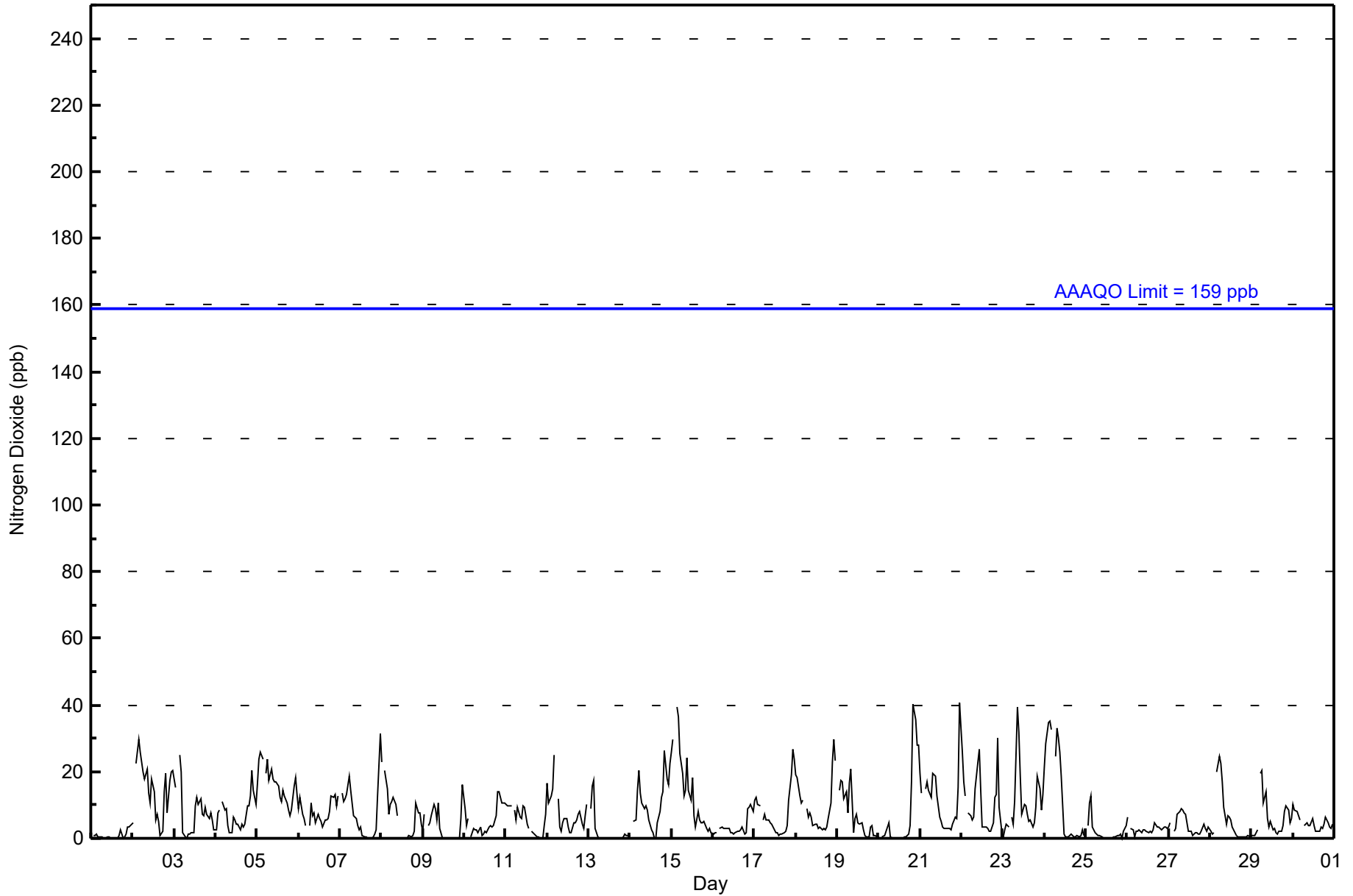
10.4	10.8	10.6	12.8	11.3	10.2	9.4	8.8	9.5	8.4	7.0	5.2	4.5	3.3	2.7	3.0	2.8	2.8	4.0	6.0	8.2	9.4	9.5	11.0	Diurnal Average	
26.0	29.6	34.9	39.5	36.5	25.3	24.7	33.0	39.2	31.6	26.7	17.6	18.4	12.4	11.0	14.2	12.6	10.6	14.1	19.4	40.3	35.6	29.7	40.7	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	631	92.25	92.25
21 - 40	52	7.60	99.85
41 - 80	1	0.15	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	72	89	52	12	8	13	27	53	72	31	24	31	22	41	37	30	614
21 - 40	14	9	2	1	1	0	1	1	10	2	1	0	0	0	3	7	52
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	86	98	54	13	9	13	28	54	82	33	25	31	22	41	41	37	667

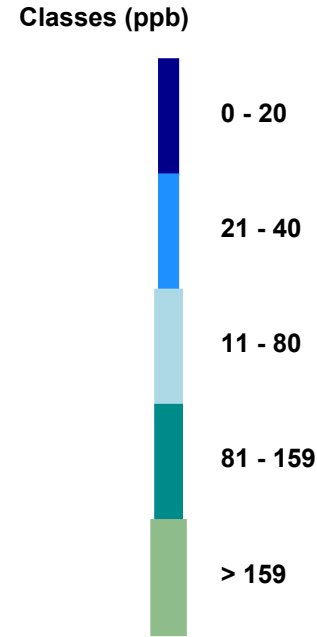
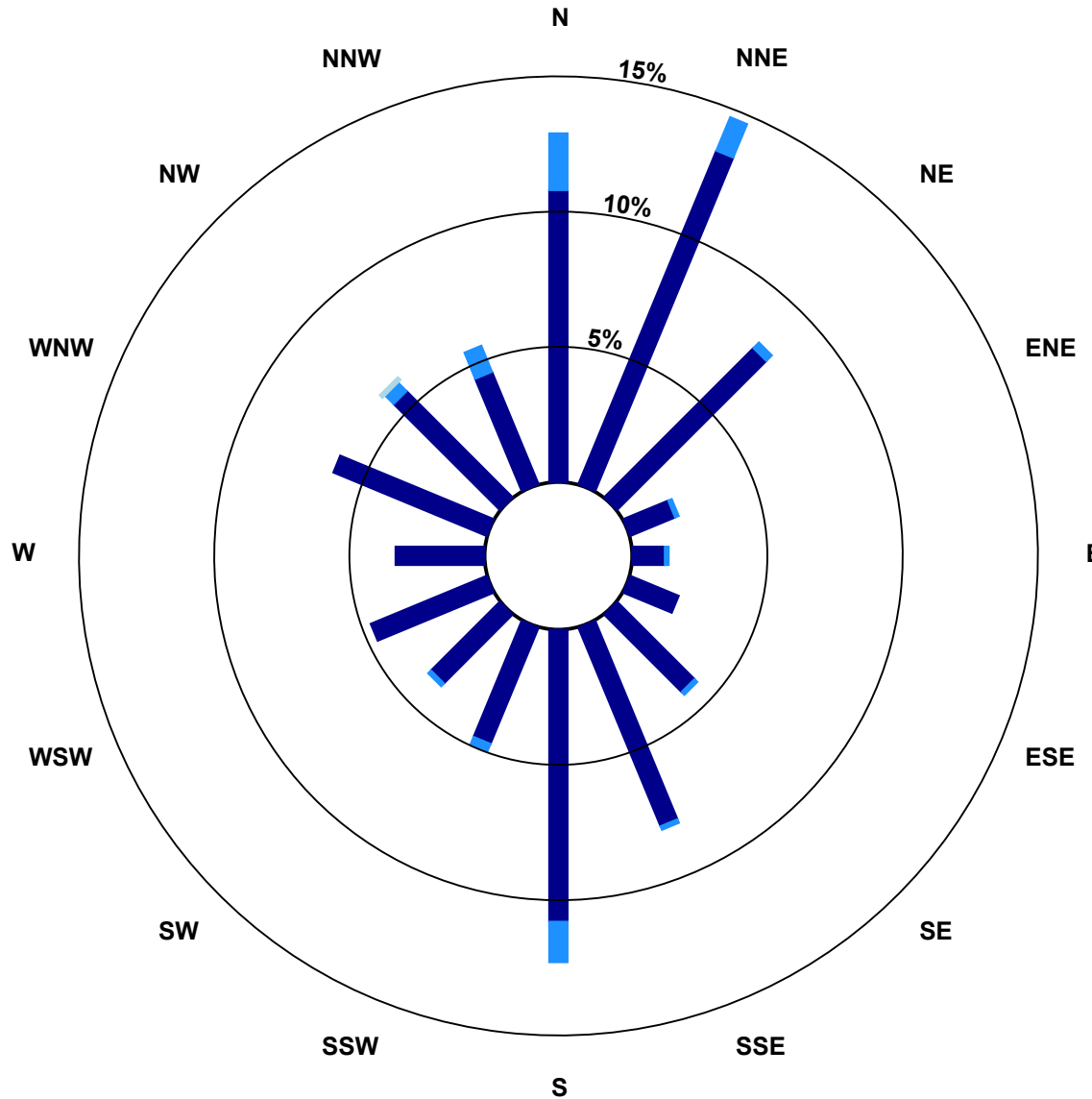
Total Number of Valid Hours: 667

Total Number of Hours: 720

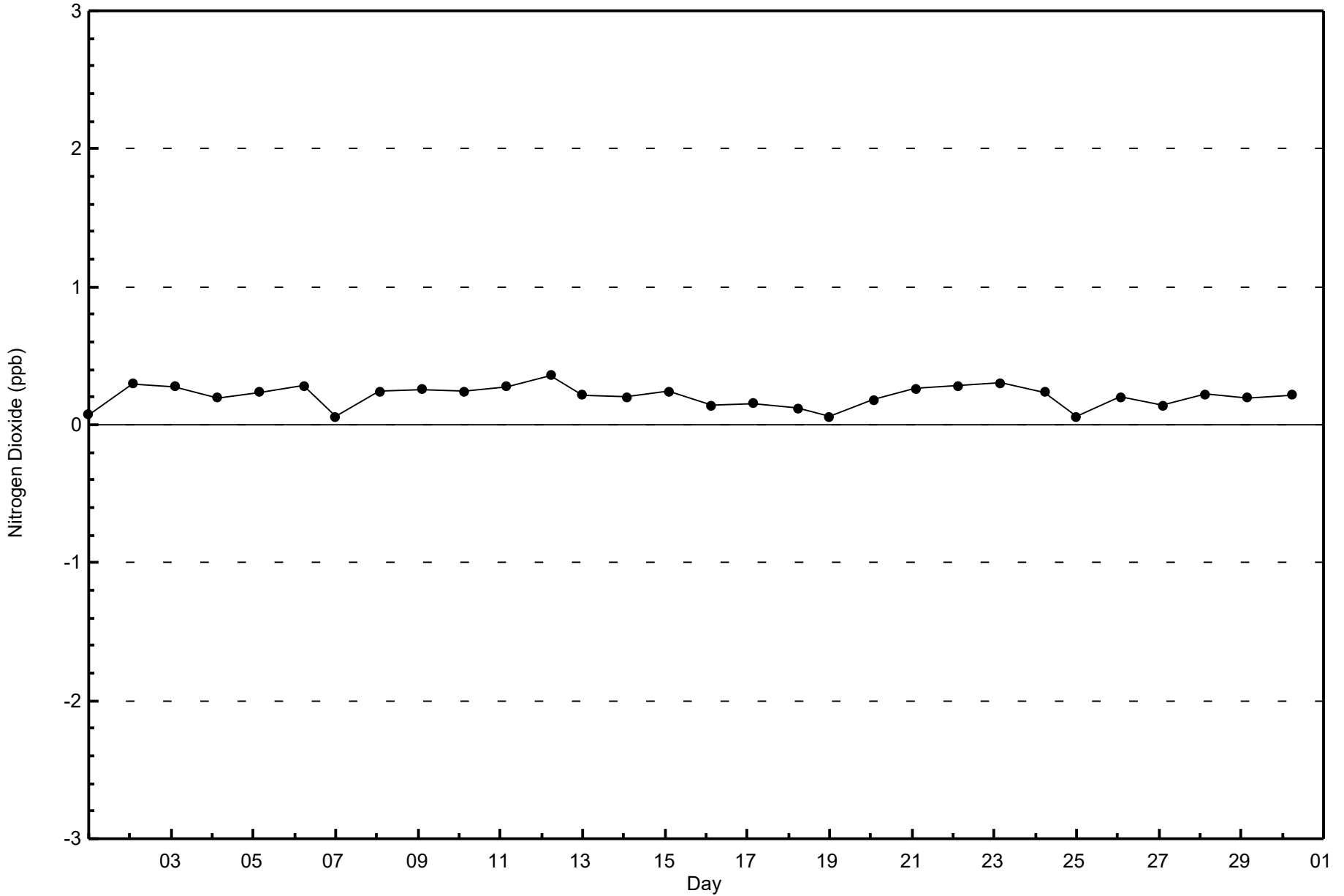


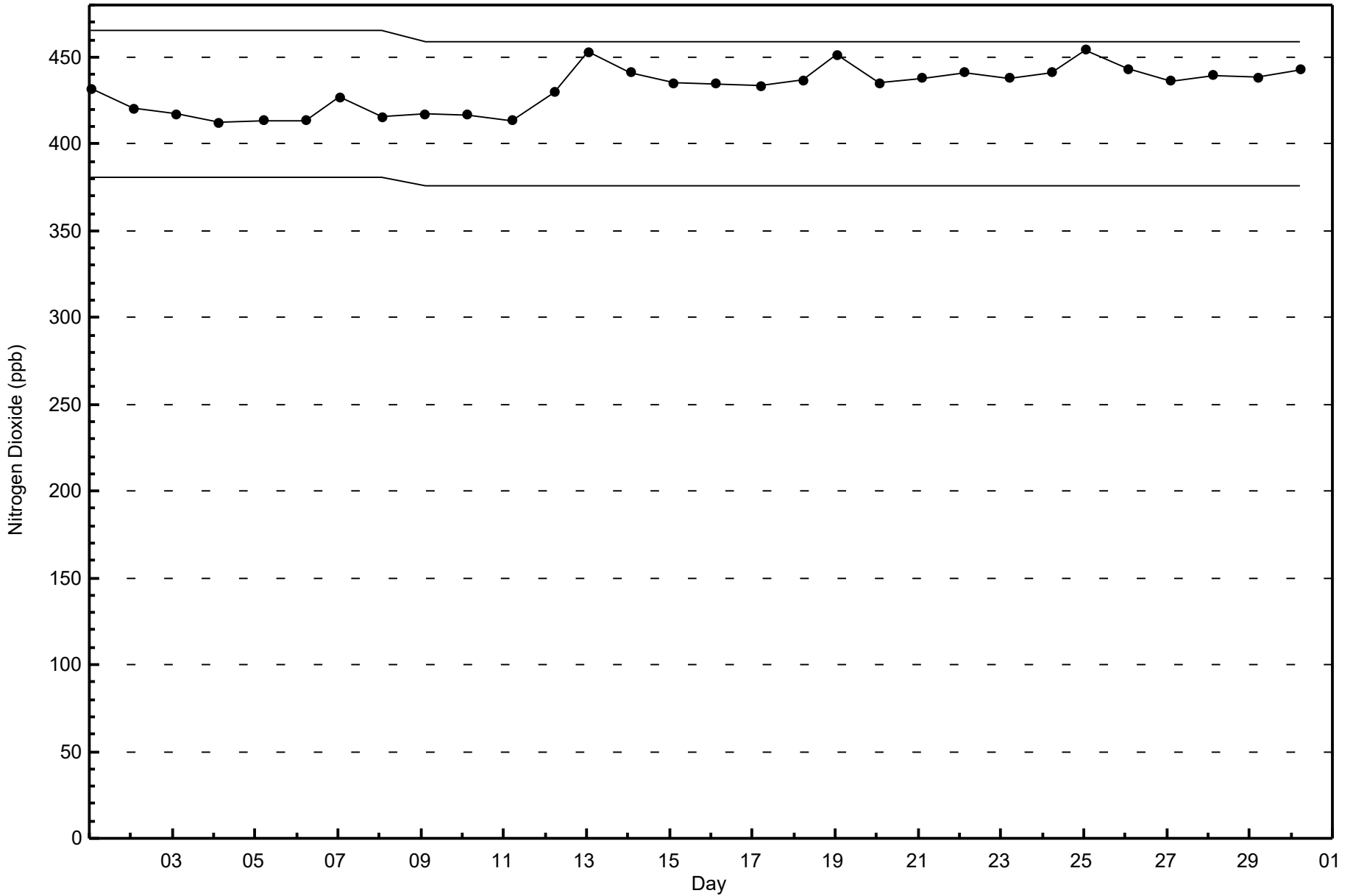
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay - Bertha Ganter



Total Number of Valid Hours: 667







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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

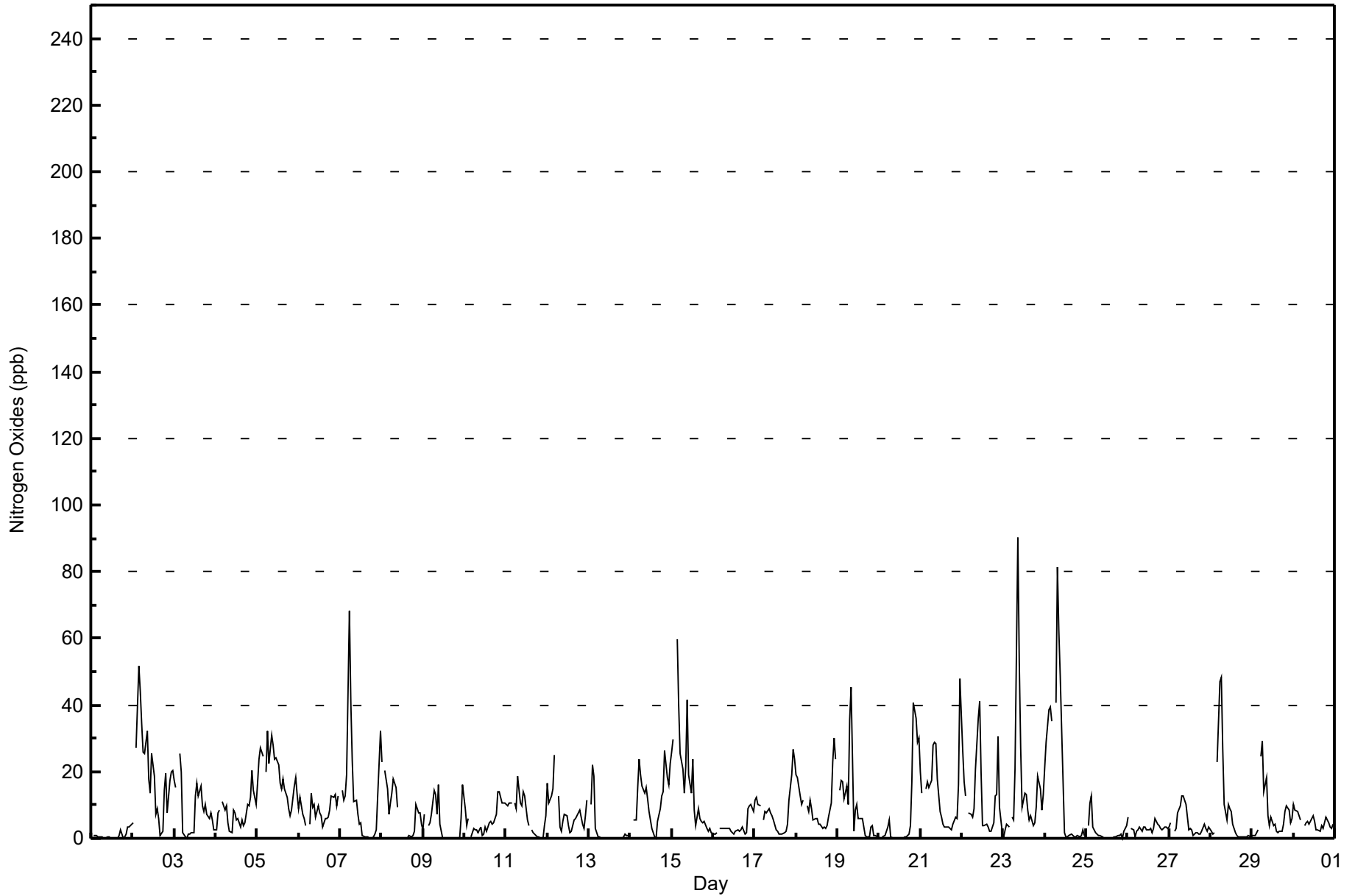
Maximum Value: 90.2 ppb on Apr 23 09:00		Maximum Daily Average: 19.4 ppb on Apr 2		Hours in Service: 720																																													
Minimum Value: 0.0 ppb on Apr 1 12:00		Minimum Daily Average: 0.9 ppb on Apr 1		Hours of Data: 684																																													
Maximum Diurnal Average: 15.9 ppb at hour 9		Minimum Diurnal Average: 3.1 ppb at hour 18		Hours of Missing Data: 36																																													
Monthly Average: 9.09 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 2.0 Median = 5.5 Q <sub>3</sub> = 12.6 P <sub>90</sub> = 22.8 P <sub>99</sub> = 49.4		Hours of Calibration: 35																																													
				Percent Operational Time: 99.9																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	Z	0.8	0.7	1.1	0.6	0.4	0.3	0.0	0.0	0.3	0.4	0.0	0.0	0.2	0.0	0.0	0.8	2.5	0.1	0.6	1.2	3.2	3.2	4.2	0.9	4.2																							
2-Apr	4.8	Z	27.2	51.7	44.1	34.4	25.9	25.5	32.0	17.8	13.7	25.3	18.7	7.4	9.1	5.9	0.7	2.2	14.5	19.4	7.8	17.2	20.1	20.5	19.4	51.7																							
3-Apr	17.6	15.1	Z	25.3	19.8	1.9	0.3	0.2	1.3	1.3	1.5	1.6	12.8	16.3	12.8	15.8	9.6	7.9	10.2	7.1	5.9	7.5	5.7	2.6	8.7	25.3																							
4-Apr	2.4	7.5	8.4	Z	11.0	8.4	9.6	4.6	2.1	1.8	8.6	7.7	5.7	5.9	3.4	5.7	3.9	4.5	10.0	9.6	12.5	20.5	14.6	10.1	7.8	20.5																							
5-Apr	16.5	23.9	27.1	24.7	Z	19.7	32.3	22.6	31.0	28.1	23.7	24.3	22.0	16.5	14.7	17.7	14.9	12.2	8.8	6.8	8.3	15.6	18.4	13.0	19.2	32.3																							
6-Apr	8.9	12.3	7.2	6.1	3.7	Z	4.1	13.6	9.3	10.1	6.4	9.9	7.8	6.7	3.6	6.0	6.1	6.5	8.4	12.8	12.3	13.3	9.8	12.6	8.6	13.6																							
7-Apr	Z	14.2	11.4	12.6	19.2	68.1	40.7	23.4	10.9	11.4	7.1	4.1	4.8	0.8	0.4	0.4	0.2	0.1	0.1	0.5	1.4	2.5	12.7	32.3	12.1	68.1																							
8-Apr	22.9	Z	20.3	15.0	7.2	10.5	13.4	17.8	15.3	9.4	C	C	C	C	C	0.2	0.9	0.4	0.8	2.3	10.4	7.6	7.5	4.1	9.2	22.9																							
9-Apr	2.3	7.4	Z	3.8	4.8	7.0	14.4	13.2	7.1	16.1	4.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	6.0	16.3	4.5	16.3																							
10-Apr	9.0	3.9	6.0	Z	0.3	3.1	2.7	2.6	1.6	3.3	1.0	1.3	3.3	2.2	4.5	5.0	4.3	4.5	7.3	14.1	14.1	12.4	10.7	10.5	5.6	14.1																							
11-Apr	10.1	10.0	10.4	10.4	Z	10.6	9.0	18.7	10.5	9.8	14.0	12.6	5.5	3.8	M	2.6	1.5	0.7	0.4	0.4	0.2	0.2	3.7	7.0	6.9	18.7																							
12-Apr	16.6	10.8	12.7	14.9	25.0	Z	12.5	3.5	2.2	5.1	7.0	6.6	3.7	1.8	2.0	5.6	6.1	6.6	7.7	8.3	4.3	2.9	6.7	11.5	8.0	25.0																							
13-Apr	Z	10.2	22.1	18.8	2.9	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.4	0.9	0.7	2.5	22.1																							
14-Apr	0.9	Z	5.3	5.5	15.3	23.8	19.2	15.9	13.4	15.2	11.9	8.2	3.2	1.7	0.2	0.1	5.2	8.8	12.9	14.2	26.3	18.0	16.1	22.6	11.5	26.3																							
15-Apr	25.9	29.8	Z	59.8	39.9	25.5	20.7	13.5	21.6	41.5	19.2	13.6	23.5	8.4	3.8	8.7	6.1	5.1	4.8	5.0	2.9	2.2	3.0	1.7	16.8	59.8																							
16-Apr	1.2	1.5	1.9	Z	3.0	3.2	3.0	3.1	2.9	3.0	2.1	1.7	1.4	2.0	2.3	2.1	2.4	3.4	1.4	1.6	8.9	9.5	10.0	8.0	3.5	10.0																							
17-Apr	11.6	12.1	10.2	9.8	Z	5.3	8.1	7.8	8.9	7.7	6.7	5.6	2.5	2.0	1.2	1.4	1.4	1.8	2.2	4.0	11.6	18.9	26.6	23.8	8.3	26.6																							
18-Apr	19.0	18.4	12.7	10.4	11.4	Z	9.8	7.9	11.3	9.0	5.4	5.8	5.9	4.2	4.3	3.1	3.5	3.0	3.7	6.2	10.7	23.0	30.3	23.6	10.5	30.3																							
19-Apr	Z	14.4	17.5	17.1	12.0	15.7	10.0	35.4	45.3	2.1	8.3	10.3	6.1	5.8	5.8	3.4	0.8	0.5	0.5	3.6	3.8	0.7	0.8	0.3	9.6	45.3																							
20-Apr	0.4	Z	0.5	0.7	2.0	3.4	5.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.4	1.4	3.9	17.0	40.9	36.0	28.7	30.3	7.5	40.9																							
21-Apr	19.7	13.5	Z	14.7	16.9	15.2	17.3	28.1	28.9	28.4	18.0	8.1	6.4	4.3	3.3	3.2	3.4	3.1	2.4	4.4	6.3	6.1	16.2	48.1	13.7	48.1																							
22-Apr	26.1	16.9	12.9	Z	7.8	7.1	6.3	9.0	20.6	36.2	41.3	19.6	3.9	4.0	4.2	3.2	2.2	2.1	4.8	12.5	13.2	30.7	9.4	1.8	12.9	41.3																							
23-Apr	0.6	2.4	4.2	3.4	Z	6.5	5.3	21.0	90.2	53.2	27.1	9.5	13.5	13.2	8.7	5.5	6.8	4.0	4.6	9.4	18.7	14.9	8.4	13.3	15.0	90.2																							
24-Apr	21.1	28.7	38.6	39.5	35.2	Z	40.8	81.6	62.4	48.9	32.6	1.8	0.5	0.3	0.6	1.1	0.7	0.5	0.5	0.7	0.6	0.9	2.4	0.8	19.2	81.6																							
25-Apr	Z	3.8	10.8	12.9	3.5	1.8	1.4	1.0	0.8	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.3	0.5	0.8	1.0	1.4	0.1	2.1	4.0	2.1	12.9																							
26-Apr	6.4	Z	2.9	2.7	0.4	2.1	2.4	3.2	2.3	3.5	3.4	2.7	2.4	2.9	1.8	2.9	5.9	4.2	3.7	2.9	2.4	3.4	3.4	3.0	3.1	6.4																							
27-Apr	3.3	4.7	Z	2.2	3.1	7.5	9.8	12.7	12.7	11.6	10.3	2.7	2.9	2.6	1.0	1.6	1.5	1.2	1.4	2.0	4.1	2.8	2.3	3.4	4.7	12.7																							
28-Apr	2.1	1.2	1.7	Z	22.8	47.1	48.3	26.6	10.2	5.6	10.0	9.0	8.1	4.4	1.6	1.0	0.5	0.4	0.5	0.4	0.6	0.6	0.7	0.6	8.9	48.3																							
29-Apr	0.8	0.9	0.9	2.5	Z	24.5	29.2	14.1	18.3	6.7	4.0	6.2	3.7	4.3	2.3	1.5	2.1	2.2	4.0	8.2	9.8	8.4	4.6	5.8	7.2	29.2																							
30-Apr	10.0	8.4	8.1	6.6	5.6	Z	3.8	4.6	5.3	4.1	5.0	7.0	4.9	2.4	2.4	2.3	3.9	3.1	4.5	6.4	4.5	3.6	2.9	4.3	4.9	10.0																							
																								10.4	10.9	11.3	14.9	12.7	14.1	13.5	14.4	15.9	13.1	10.1	7.1	6.0	4.3	3.4	3.6	3.2	3.1	4.2	6.1	8.2	9.5	9.6	11.4	Diurnal Average	
																								26.1	29.8	38.6	59.8	44.1	68.1	48.3	81.6	90.2	53.2	41.3	25.3	23.5	16.5	14.7	17.7	14.9	12.2	14.5	19.4	40.9	36.0	30.3	48.1	Diurnal Maximum	
Z - zerspan																								C - Calibration			M - Maintenance																						





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	605	88.45	88.45
21 - 40	61	8.92	97.37
41 - 80	16	2.34	99.71
81 - 159	2	0.29	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	70	83	52	11	7	13	26	51	65	28	23	31	22	41	37	28	588
21 - 40	14	10	1	2	1	0	1	3	14	4	1	0	0	0	2	8	61
11 - 80	1	4	1	0	1	0	1	0	3	1	1	0	0	0	2	1	16
81 - 159	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	86	98	54	13	9	13	28	54	82	33	25	31	22	41	41	37	667

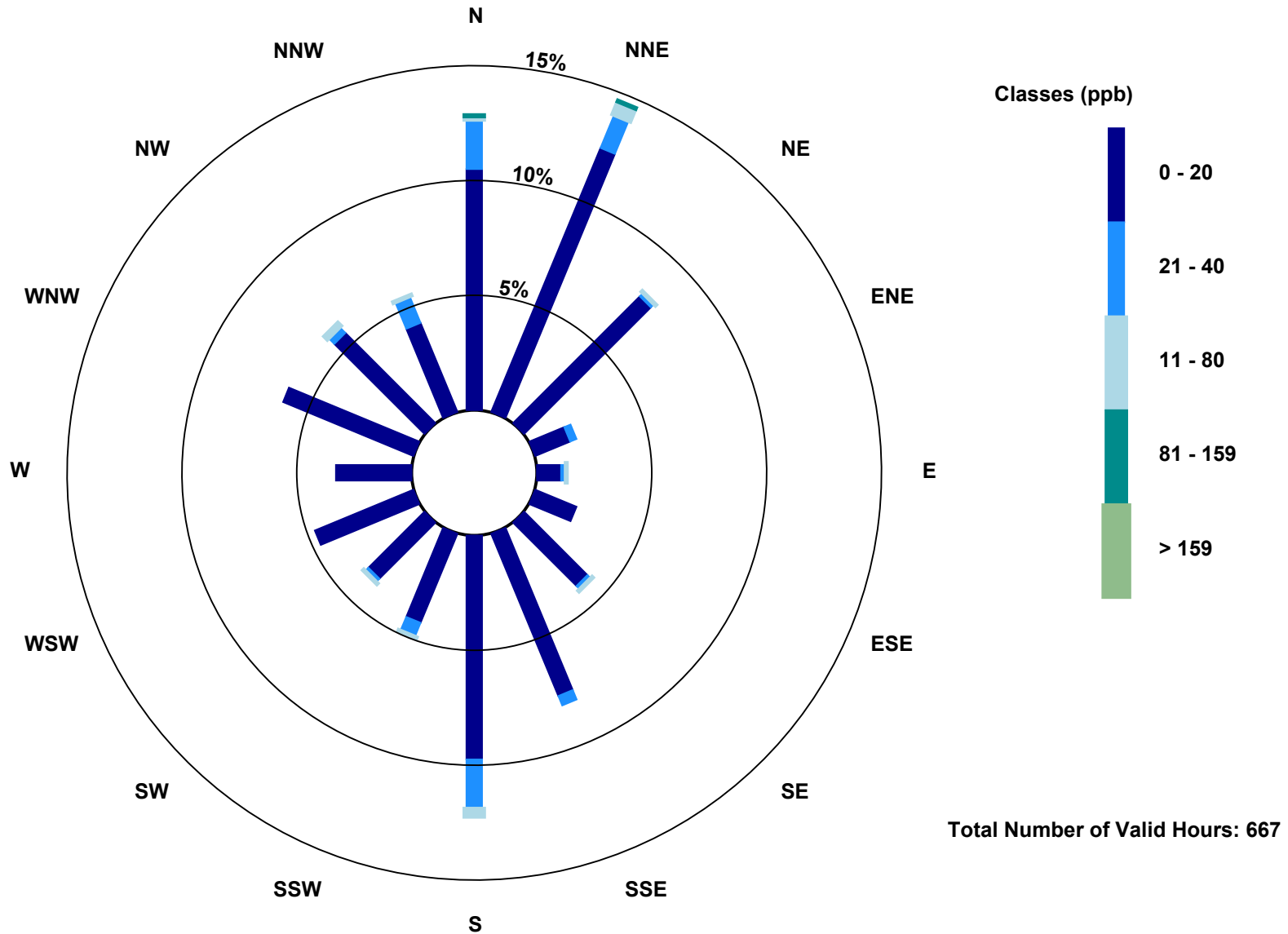
Total Number of Valid Hours: 667

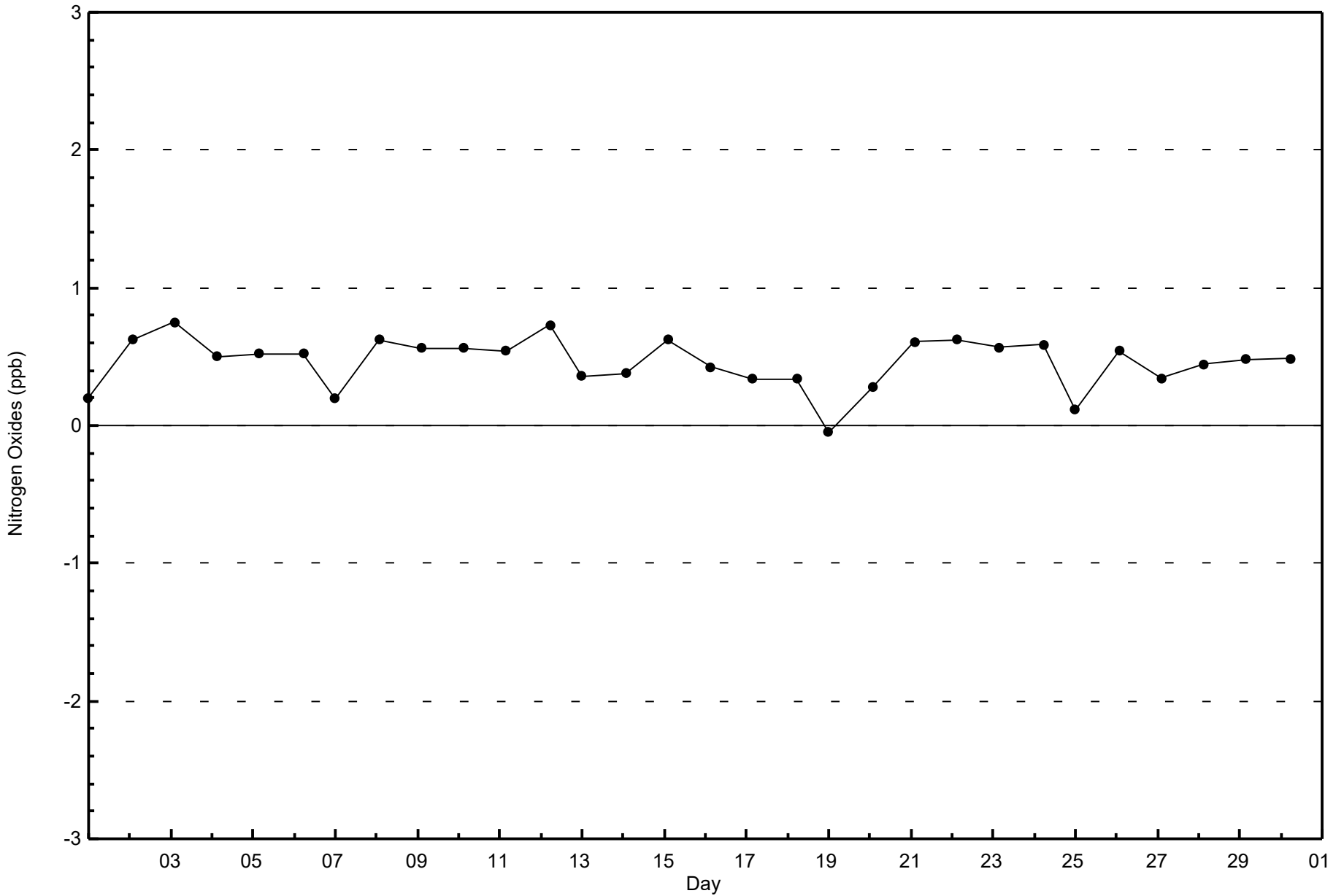
Total Number of Hours: 720

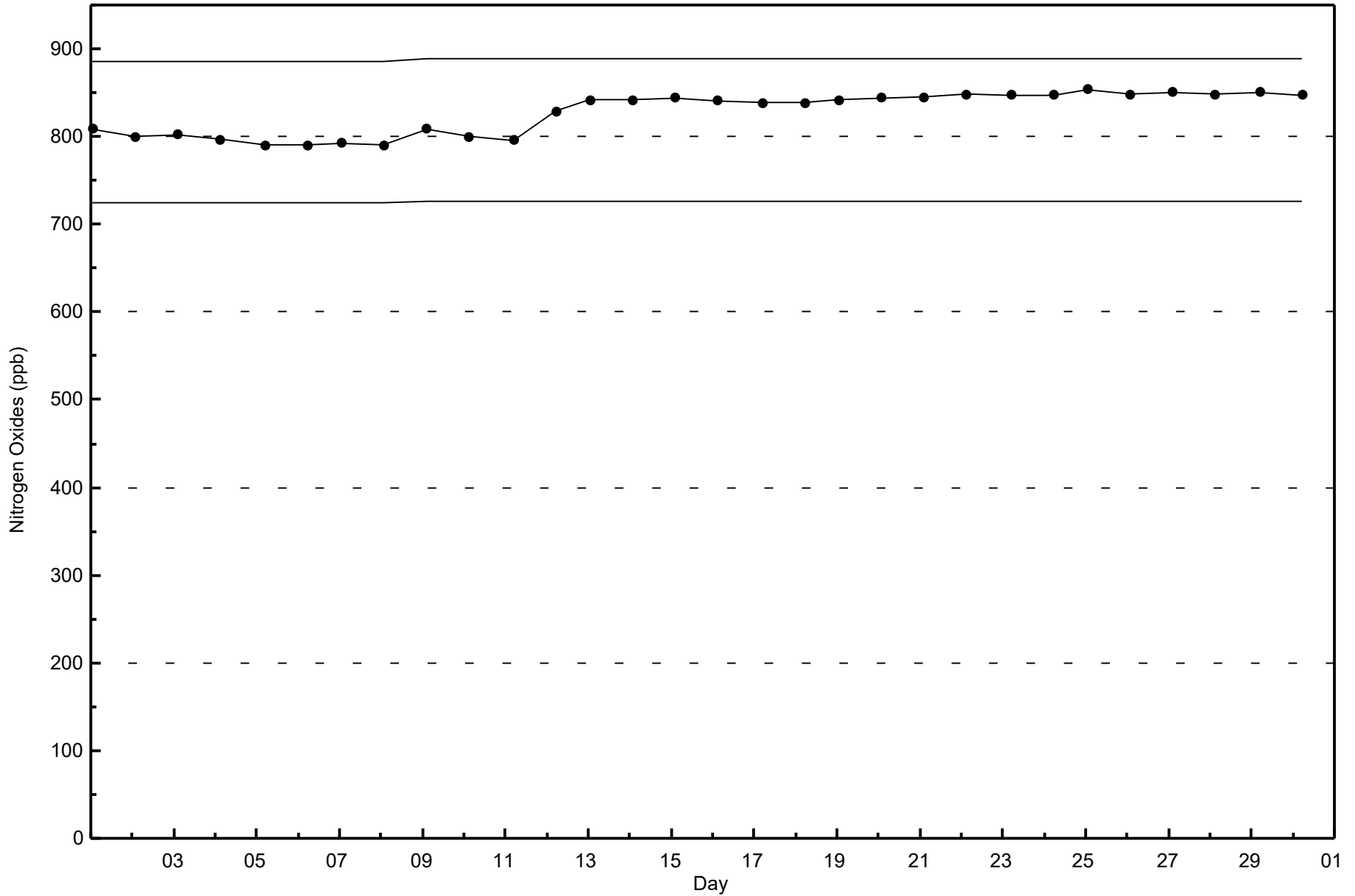


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay - Bertha Ganter









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

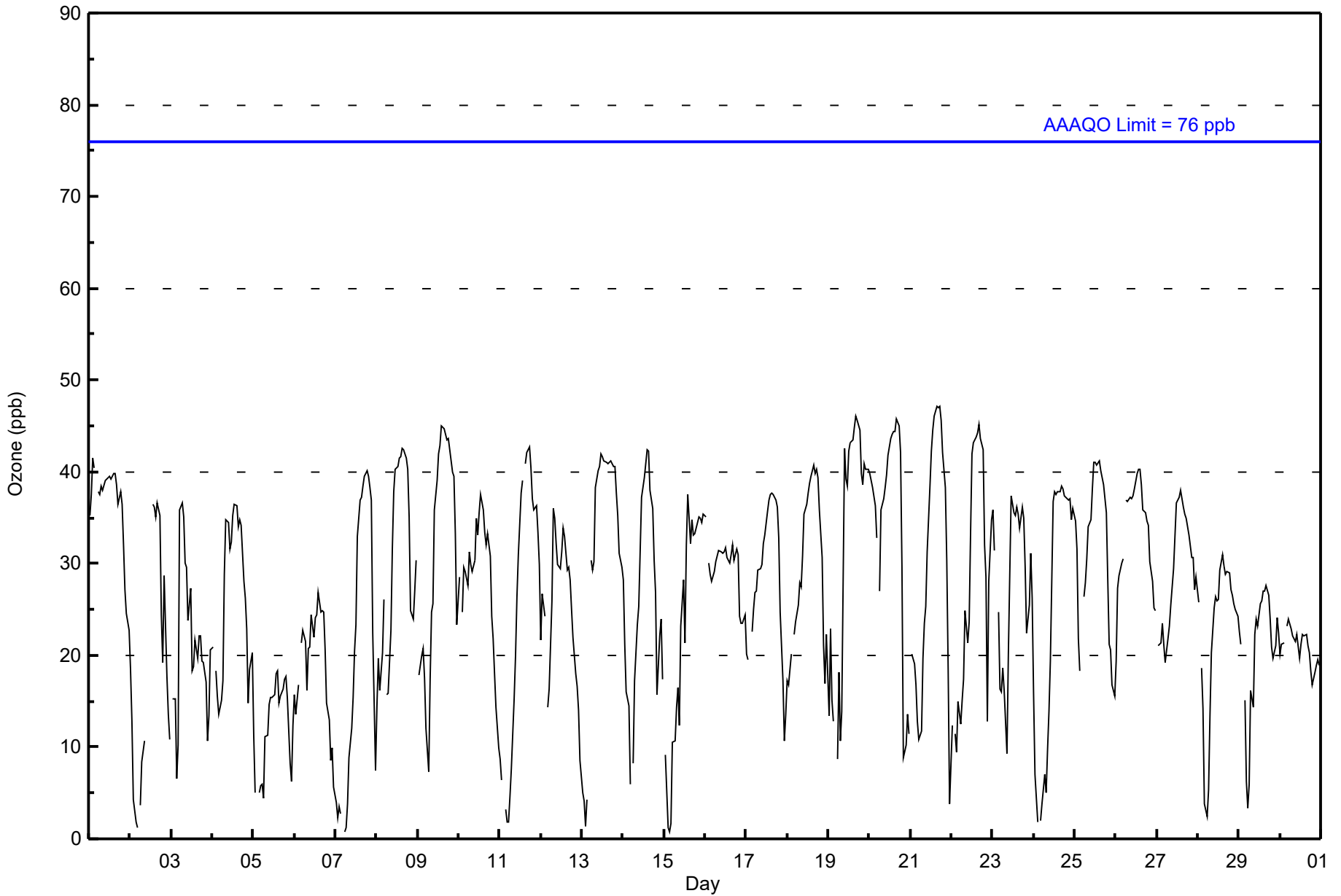
Fort McKay - Bertha Ganter - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 47.2 ppb on Apr 21 18:00	Maximum Daily Average: 36.5 ppb on Apr 1		Hours of Data:	685
Minimum Value: 0.7 ppb on Apr 7 06:00	Minimum Daily Average: 12.3 ppb on Apr 5		Hours of Missing Data:	35
Maximum Diurnal Average: 36.2 ppb at hour 15	Minimum Diurnal Average: 15.5 ppb at hour 5		Hours of Calibration:	34
Monthly Average: 26.60 ppb	Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 10.7 Q <sub>1</sub> = 18.4 Median = 27.4 Q <sub>3</sub> = 36.3 P <sub>90</sub> = 40.4 P <sub>99</sub> = 45.6		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-Apr	35.3	37.5	41.5	40.4	Z	37.9	37.6	38.5	38.0	39.0	39.2	39.4	39.4	39.2	39.8	39.7	38.6	36.4	37.9	36.5	32.1	27.1	24.6	22.8	36.5	41.5
2-Apr	18.5	12.8	4.3	1.8	1.2	Z	3.7	8.4	10.7	C	C	C	C	36.5	36.1	35.1	36.6	35.2	24.4	19.1	28.6	17.8	13.6	10.9	18.7	36.6
3-Apr	Z	15.2	15.3	6.5	10.2	35.9	36.6	35.1	30.0	29.6	23.8	27.4	18.3	18.8	21.7	19.6	22.1	22.2	19.3	19.3	17.1	10.7	13.4	20.5	21.2	36.6
4-Apr	20.9	Z	18.3	15.6	13.6	15.1	17.2	28.8	34.8	34.4	31.6	32.4	35.2	36.4	36.3	34.0	34.8	34.1	28.1	26.3	22.9	14.8	18.4	20.3	26.3	36.4
5-Apr	11.3	5.1	Z	5.0	5.8	5.9	4.4	11.2	11.3	14.6	15.5	15.5	15.7	18.1	18.4	14.9	15.5	16.4	17.3	17.7	15.4	8.3	6.3	12.4	12.3	18.4
6-Apr	15.7	13.5	16.9	Z	21.4	22.7	21.5	16.1	20.7	20.9	24.3	22.0	24.1	24.5	26.8	24.7	24.9	24.8	20.5	14.8	12.9	8.6	9.9	5.7	19.0	26.8
7-Apr	3.9	2.3	3.5	2.7	Z	0.7	1.2	3.8	8.8	12.0	15.4	20.4	23.3	33.0	37.0	37.2	38.4	39.4	40.2	39.4	38.3	36.9	22.5	7.5	20.3	40.2
8-Apr	14.5	19.7	16.1	20.3	26.0	Z	15.6	15.9	22.7	31.6	37.8	40.3	40.5	41.6	41.7	42.5	42.4	41.4	40.3	35.1	24.8	24.0	27.0	30.4	30.1	42.5
9-Apr	Z	17.8	19.9	20.7	17.5	12.0	7.4	17.4	24.7	25.7	35.8	39.1	41.9	42.9	45.0	44.7	44.0	43.5	43.6	42.4	40.0	39.6	33.3	23.4	31.4	45.0
10-Apr	28.5	Z	24.8	29.7	29.2	27.7	31.3	29.9	29.2	30.4	34.9	33.2	35.5	37.5	35.9	33.5	32.0	33.3	30.8	24.3	21.7	18.0	14.3	9.9	28.5	37.5
11-Apr	8.8	6.5	Z	3.2	1.8	1.8	4.5	7.7	15.2	20.0	26.4	31.0	37.6	39.1	M	40.9	42.2	42.7	40.5	37.1	35.8	36.3	33.4	29.9	24.6	42.7
12-Apr	21.7	26.7	24.3	Z	14.3	16.3	25.9	36.0	34.9	32.2	29.9	29.5	31.3	33.8	32.9	29.3	29.6	28.3	25.0	22.0	18.0	16.7	14.0	8.5	25.3	36.0
13-Apr	5.1	4.1	1.3	4.2	Z	30.4	29.3	30.2	38.2	40.1	40.6	42.0	41.7	41.1	41.0	40.9	41.1	41.2	40.5	40.6	37.6	35.2	31.2	29.6	31.6	42.0
14-Apr	28.2	21.2	16.0	14.4	5.9	Z	8.3	17.2	23.4	25.4	31.3	37.2	39.4	40.9	42.4	42.3	38.0	36.0	30.3	26.8	15.7	22.2	24.0	17.4	26.3	42.4
15-Apr	Z	9.1	1.3	0.8	1.7	10.5	10.7	14.4	16.6	12.3	23.2	28.2	21.3	32.0	37.5	32.1	34.8	33.2	33.3	33.9	35.1	34.9	34.5	35.4	22.9	37.5
16-Apr	35.1	Z	30.1	28.9	28.0	29.1	30.2	30.9	31.4	31.3	31.1	31.3	31.7	30.7	30.0	30.9	32.0	30.4	31.5	31.0	24.3	23.5	23.6	24.3	29.6	35.1
17-Apr	20.1	19.6	Z	22.6	25.0	26.8	27.0	29.2	29.5	29.9	32.2	33.0	35.7	37.0	37.5	37.7	37.5	36.9	36.1	32.9	24.7	17.3	10.6	13.6	28.4	37.7
18-Apr	17.3	16.8	20.1	Z	22.3	23.6	25.4	27.8	27.4	30.8	35.4	36.5	37.6	38.8	39.5	40.8	39.7	40.3	39.4	35.9	30.6	21.0	16.9	22.3	29.8	40.8
19-Apr	13.4	22.9	15.1	12.9	Z	8.7	18.2	10.6	13.9	42.6	39.2	38.4	42.3	43.2	43.4	44.8	46.1	45.7	44.5	39.8	38.6	40.9	40.2	40.2	32.4	46.1
20-Apr	39.8	39.1	38.3	36.3	32.8	Z	27.0	35.8	37.0	38.3	39.6	41.7	43.7	44.0	44.4	44.4	45.7	45.0	42.0	29.6	8.9	10.2	13.5	11.5	34.3	45.7
21-Apr	Z	20.2	19.1	16.8	12.8	10.8	11.7	19.7	23.5	25.4	31.2	38.5	42.3	44.6	46.1	47.1	46.9	47.2	45.6	42.1	38.3	30.3	18.5	3.8	29.7	47.2
22-Apr	12.3	Z	11.4	9.4	15.0	12.6	15.1	17.5	24.9	21.4	23.6	33.3	42.0	43.2	43.8	44.3	45.2	43.6	42.5	32.1	28.5	12.9	28.1	34.8	27.7	45.2
23-Apr	35.9	31.5	Z	24.7	16.3	16.0	18.7	16.2	9.3	20.1	28.8	37.4	35.5	35.2	36.1	35.4	33.9	36.1	34.9	29.6	22.5	25.5	31.1	26.3	27.7	37.4
24-Apr	15.8	7.1	1.8	Z	1.9	3.8	7.0	5.0	9.7	13.8	19.4	36.8	37.8	37.8	37.8	37.9	38.4	38.2	37.4	37.3	36.9	37.1	34.8	36.0	24.7	38.4
25-Apr	34.7	31.6	21.7	18.4	Z	26.4	27.9	30.4	34.0	34.9	38.1	41.0	41.1	40.8	41.2	40.1	39.4	38.5	35.6	28.3	21.2	20.6	16.7	15.6	31.2	41.2
26-Apr	19.4	27.3	28.8	30.1	30.5	Z	36.9	36.8	37.2	37.1	37.4	38.1	39.9	40.3	40.3	38.7	35.8	35.6	34.7	34.2	30.1	28.1	25.2	24.8	33.4	40.3
27-Apr	Z	21.0	21.3	23.4	21.3	19.3	21.8	23.2	25.4	27.5	29.4	36.6	36.9	37.3	37.9	36.2	35.3	34.9	34.1	33.2	30.6	30.6	27.2	28.5	29.3	37.9
28-Apr	25.9	Z	18.6	14.2	3.9	2.4	5.3	13.4	20.3	25.2	26.4	25.9	26.1	29.2	31.0	29.7	28.8	29.2	29.0	27.2	26.5	25.6	25.0	24.3	22.3	31.0
29-Apr	22.5	21.2	Z	15.1	6.3	3.4	5.9	16.2	14.3	22.2	24.0	23.1	25.6	25.9	26.9	27.1	27.6	26.6	23.9	20.8	19.6	21.1	24.1	22.5	20.3	27.6
30-Apr	20.1	21.3	21.4	Z	23.1	23.9	22.9	22.1	21.7	21.5	22.2	19.7	21.2	22.2	22.1	22.3	21.0	20.2	18.2	16.8	18.1	18.9	19.5	18.9	20.9	23.9

21.0	18.8	18.0	16.7	15.5	17.0	18.5	21.5	24.0	27.2	29.9	32.7	34.0	35.5	36.2	35.6	35.6	35.2	33.4	30.2	26.5	23.8	22.5	21.1	Diurnal Average	
39.8	39.1	41.5	40.4	32.8	37.9	37.6	38.5	38.2	42.6	40.6	42.0	43.7	44.6	46.1	47.1	46.9	47.2	45.6	42.4	40.0	40.9	40.2	40.2	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	207	30.22	30.22
21 - 50	478	69.78	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	32	29	8	4	3	1	7	9	38	14	7	4	3	9	14	14	196
21 - 50	53	68	47	8	6	12	21	44	45	19	19	27	20	32	27	24	472
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>	85	97	55	12	9	13	28	53	83	33	26	31	23	41	41	38	668

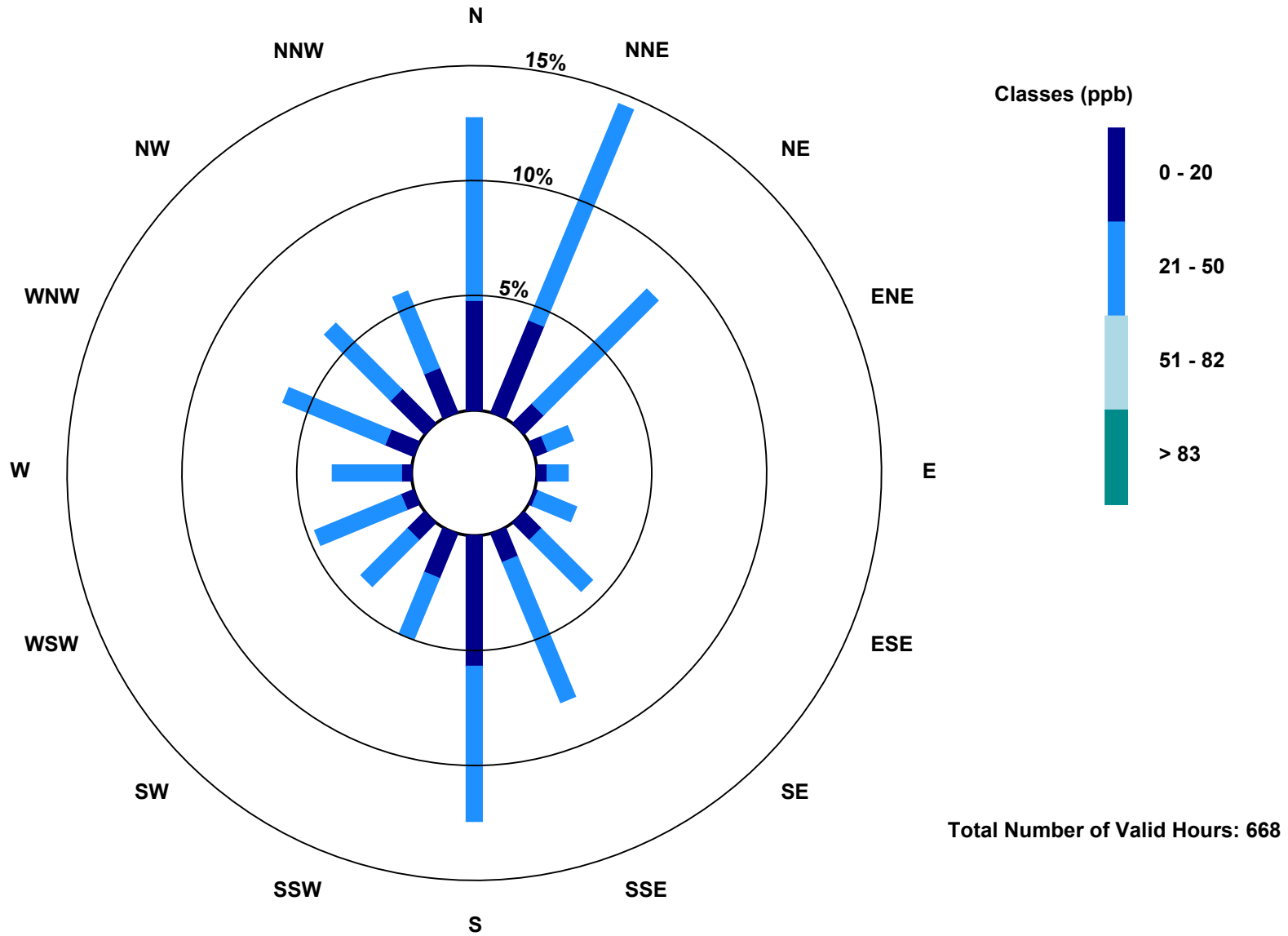
Total Number of Valid Hours: 668

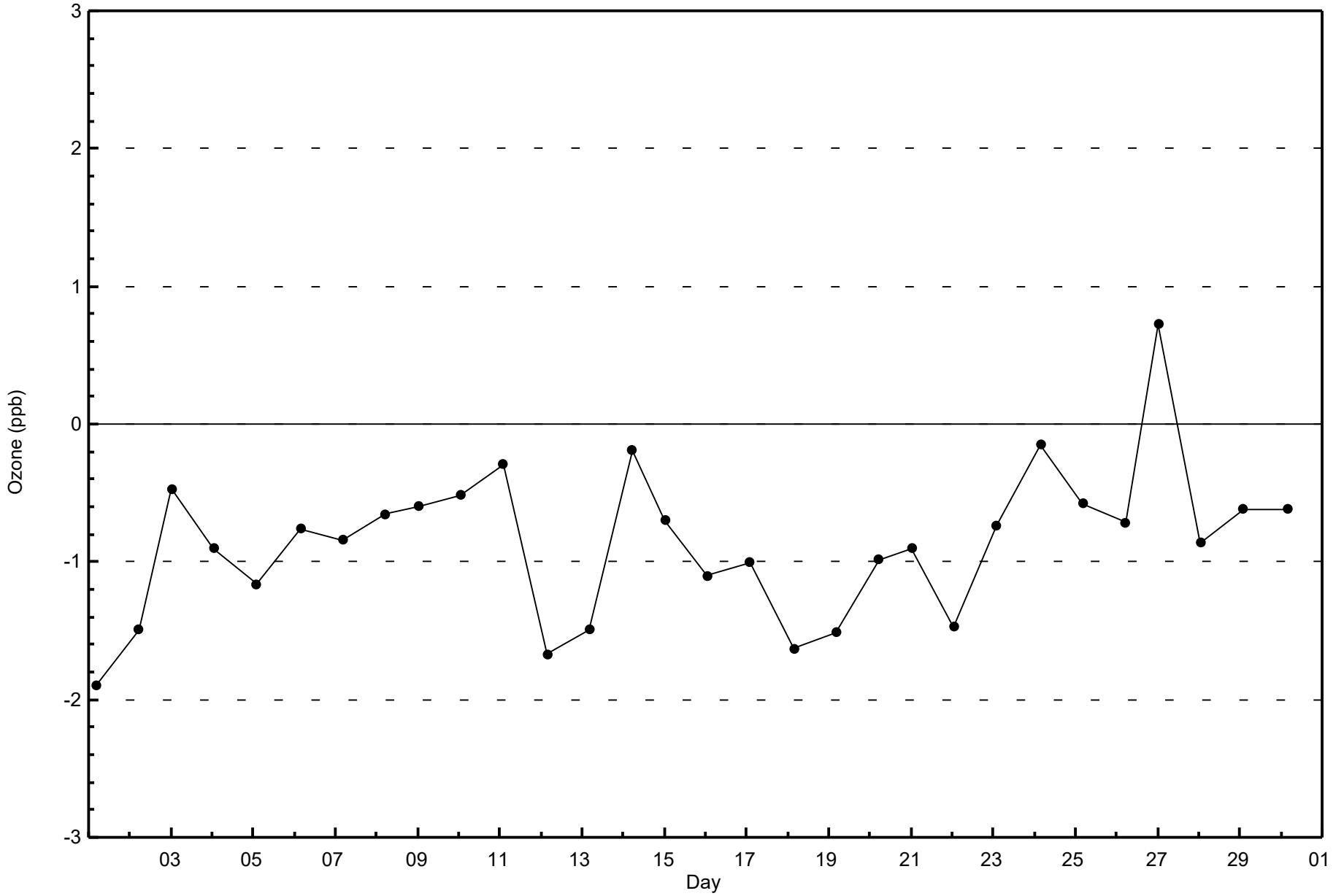
Total Number of Hours: 720

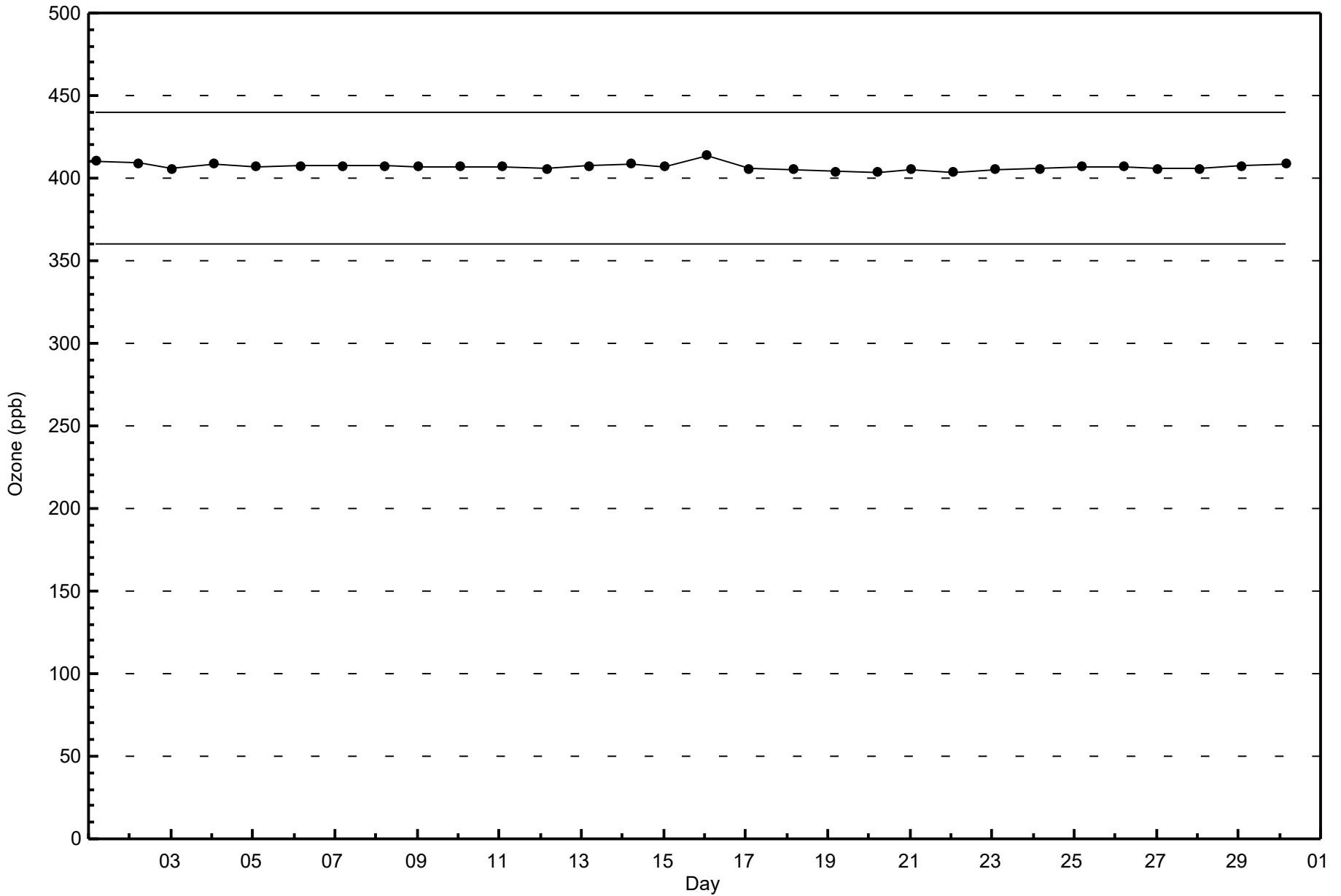


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Ozone (O<sub>3</sub>) - ppb  
Fort McKay - Bertha Ganter









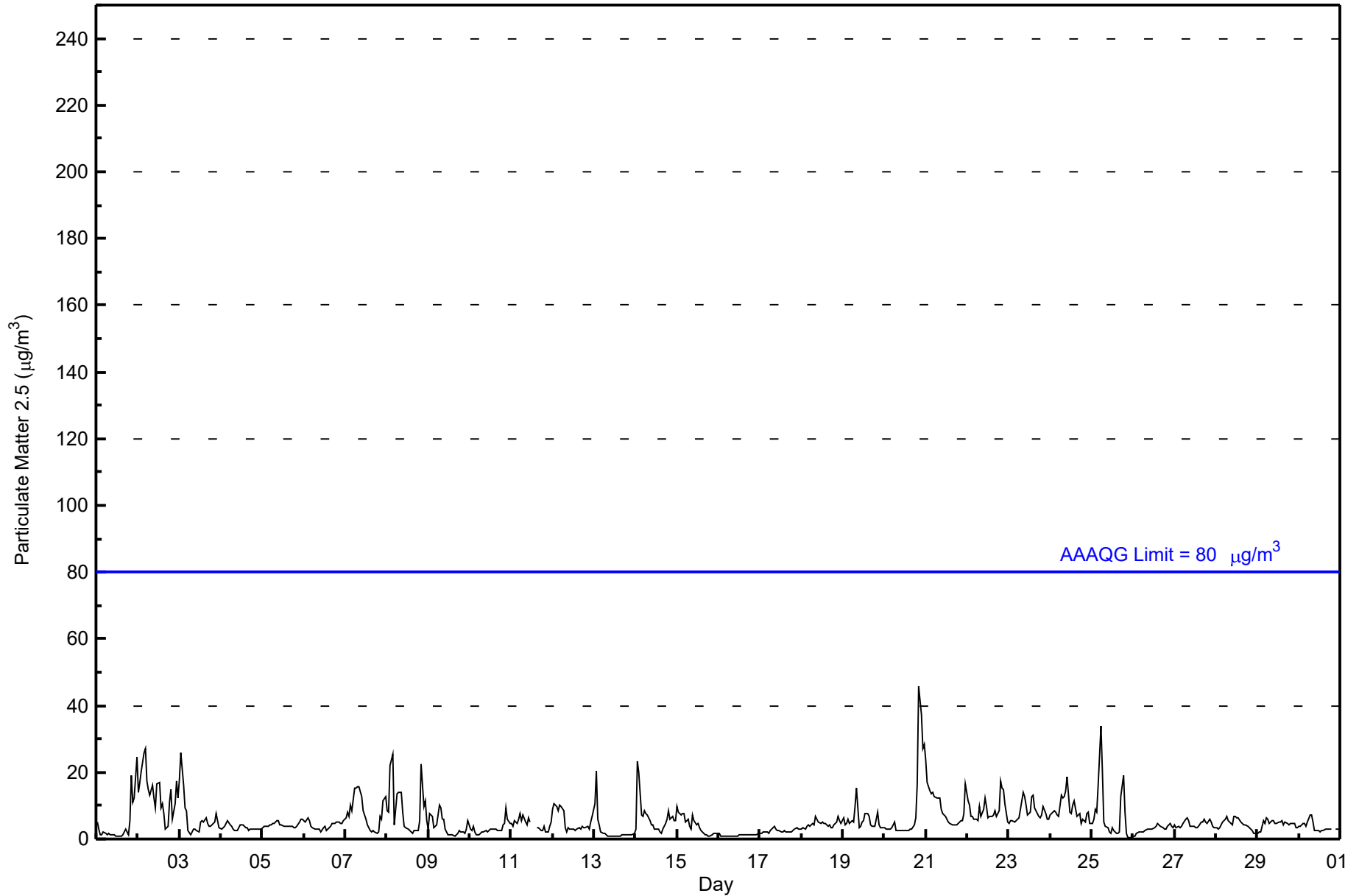
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort McKay - Bertha Ganter - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		720																		
Maximum Value: 45.9 µg/m <sup>3</sup> on Apr 20 21:00		Maximum Daily Average: 13.6 µg/m <sup>3</sup> on Apr 2				Hours of Data:		716																		
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 25 22:00		Minimum Daily Average: 1.1 µg/m <sup>3</sup> on Apr 16				Hours of Missing Data:		4																		
Maximum Diurnal Average: 7.4 µg/m <sup>3</sup> at hour 2		Minimum Diurnal Average: 3.6 µg/m <sup>3</sup> at hour 17				Hours of Calibration:		3																		
Monthly Average: 5.60 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.8 Median = 4.2 Q <sub>3</sub> = 6.6 P <sub>90</sub> = 11.5 P <sub>99</sub> = 25.6				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-Apr	5.0	2.8	1.1	1.1	1.9	1.6	1.4	1.8	1.3	1.3	1.4	0.9	0.8	0.8	1.0	1.3	2.2	2.9	1.5	5.6	18.9	10.9	12.1	24.5	4.3	24.5
2-Apr	13.9	17.0	20.4	25.8	27.2	17.3	14.6	13.2	16.0	12.1	9.3	16.4	17.1	9.3	10.5	7.4	3.2	3.6	11.0	14.7	6.1	10.4	17.5	12.2	13.6	27.2
3-Apr	18.0	25.7	16.1	9.3	8.5	2.7	1.5	2.0	3.0	2.8	2.3	2.1	5.0	5.4	4.9	6.2	4.6	3.7	4.0	4.1	5.0	7.4	5.6	3.2	6.4	25.7
4-Apr	3.0	3.2	3.8	4.5	5.4	4.4	3.9	2.9	2.5	2.7	3.5	4.2	4.4	4.1	3.3	3.2	2.7	2.8	2.9	2.8	2.8	3.1	3.1	3.1	3.4	5.4
5-Apr	3.5	3.8	3.8	4.0	4.0	4.2	4.6	4.6	5.3	5.4	4.4	4.4	3.9	3.9	3.7	3.8	3.9	4.0	3.5	3.4	4.0	5.0	5.8	6.1	4.3	6.1
6-Apr	5.6	5.2	6.5	5.5	3.9	3.4	2.9	3.0	2.8	3.0	2.2	3.5	3.7	2.5	2.8	4.0	4.7	4.6	4.7	4.9	4.9	4.5	4.7	5.4	4.1	6.5
7-Apr	6.2	8.2	6.9	10.1	8.3	15.1	15.2	15.7	15.7	12.8	8.5	7.2	6.1	4.2	2.6	2.2	2.4	2.1	1.6	2.2	6.6	5.8	11.5	12.7	7.9	15.7
8-Apr	8.7	8.0	21.8	25.4	4.3	9.1	13.5	14.0	13.8	8.1	3.8	3.2	2.9	2.7	2.0	1.6	2.4	2.5	2.7	5.6	22.5	10.0	11.3	5.3	8.5	25.4
9-Apr	3.0	7.8	6.7	3.5	3.8	4.4	10.0	9.3	6.0	6.1	2.9	1.4	1.5	1.2	1.1	0.9	1.4	1.8	2.7	2.0	1.9	1.6	2.8	5.5	3.7	10.0
10-Apr	3.0	2.5	3.7	2.3	1.4	1.4	1.8	2.2	2.1	2.7	2.0	2.4	2.9	2.8	3.0	2.8	2.7	2.6	2.6	4.4	4.5	9.2	6.0	4.8	3.2	9.2
11-Apr	4.5	4.0	5.4	4.5	5.9	7.7	5.3	7.0	5.3	4.4	6.2	5.0	C	C	C	3.2	3.5	2.7	2.6	3.6	2.1	2.3	4.0	5.1	4.5	7.7
12-Apr	9.1	10.4	9.8	8.4	10.0	9.6	8.6	3.5	2.1	3.2	2.8	2.8	3.0	2.6	2.9	3.3	2.9	4.0	3.3	3.4	3.9	3.2	5.1	6.7	5.2	10.4
13-Apr	10.5	20.5	5.9	4.4	2.2	1.8	1.7	1.2	0.7	0.6	0.7	0.9	0.9	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.2	1.4	1.7	2.7	20.5	
14-Apr	3.2	23.5	19.8	7.3	6.6	8.3	7.6	7.0	5.5	4.3	4.3	2.8	2.8	3.0	2.0	1.5	3.2	4.7	5.8	8.7	6.1	6.8	5.5	5.7	6.5	23.5
15-Apr	9.6	8.0	7.0	7.6	7.4	4.9	5.8	3.8	3.1	7.2	5.5	4.2	4.6	3.4	2.4	1.8	1.3	1.1	0.8	0.9	1.4	1.6	1.5	1.6	4.0	9.6
16-Apr	1.7	1.0	0.9	0.8	0.7	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.4	1.2	1.1	1.6	1.1	1.7
17-Apr	1.6	1.5	2.0	2.2	2.0	1.8	2.5	3.1	3.6	3.1	2.5	2.6	2.3	2.2	2.4	2.1	2.1	2.0	2.0	2.6	2.9	3.2	3.1	3.1	2.4	3.6
18-Apr	3.2	3.2	2.8	4.0	4.2	3.8	4.7	4.2	6.6	6.1	5.0	4.7	5.0	4.5	4.7	4.0	4.1	3.2	3.6	4.2	5.3	6.8	5.7	4.6	4.5	6.8
19-Apr	6.5	4.4	4.6	5.9	4.8	5.7	5.1	9.9	15.1	3.3	4.0	5.2	5.7	7.6	7.5	6.6	4.2	4.0	3.8	5.9	8.1	4.2	3.6	3.4	5.8	15.1
20-Apr	3.3	3.1	2.9	3.0	3.5	4.1	4.9	2.6	2.5	2.5	2.5	2.7	2.6	2.6	2.7	3.0	3.1	4.3	6.5	16.4	45.9	37.1	27.2	28.2	9.1	45.9
21-Apr	23.9	16.8	14.3	13.4	14.1	12.7	12.4	12.2	12.5	9.0	7.4	6.6	6.0	4.9	4.6	4.2	4.1	4.3	4.4	4.6	5.4	5.5	7.6	16.7	9.5	23.9
22-Apr	11.4	10.0	6.6	6.6	6.0	5.7	5.6	9.8	6.7	9.0	12.3	9.6	6.5	6.6	7.0	7.3	8.3	6.8	8.6	17.6	15.4	15.0	10.5	5.1	8.9	17.6
23-Apr	4.6	5.6	5.3	5.2	5.6	5.9	6.4	8.7	14.1	12.7	10.4	7.2	8.0	12.5	13.3	9.3	8.4	6.9	6.4	7.3	9.7	7.8	5.9	6.0	8.1	14.1
24-Apr	7.1	7.6	8.5	7.9	7.2	6.9	13.1	12.5	12.9	14.3	18.6	8.1	7.6	10.3	11.5	6.7	7.2	7.6	4.7	6.1	5.3	7.4	8.2	4.6	8.8	18.6
25-Apr	4.8	6.1	9.0	8.2	16.2	34.0	20.3	5.0	3.8	3.2	2.2	1.6	3.4	2.8	1.7	1.6	2.2	12.6	19.2	7.9	1.7	0.2	0.3	0.4	7.0	34.0
26-Apr	0.9	1.0	1.5	2.0	2.0	2.3	2.3	2.7	2.8	2.9	3.0	2.9	3.5	3.9	4.5	4.1	4.0	3.6	2.9	3.2	3.7	4.5	4.0	3.5	3.0	4.5
27-Apr	4.2	3.4	3.8	3.3	3.6	4.6	5.9	6.5	5.7	4.0	3.7	3.7	3.4	3.5	4.0	5.2	5.1	5.9	5.3	4.6	6.1	4.9	3.8	3.5	4.5	6.5
28-Apr	3.2	2.9	3.3	4.1	5.1	6.0	6.6	5.4	5.3	4.4	7.0	6.6	6.2	6.5	5.0	4.8	4.1	4.4	3.9	3.2	3.1	2.5	1.8	1.5	4.5	7.0
29-Apr	1.7	2.0	2.3	5.5	4.8	6.3	6.1	4.5	5.3	5.4	4.8	4.5	5.0	5.2	5.3	4.4	5.1	4.5	4.4	4.8	4.8	4.6	3.3	3.6	4.5	6.3
30-Apr	3.9	4.0	4.7	4.5	4.0	4.9	7.3	7.3	4.9	2.7	2.6	2.6	2.2	2.4	2.6	2.9	3.0	2.9	3.0	3.1	UO	2.9	2.8	2.8	3.6	7.3
																								Diurnal Average		
6.3 7.4 7.0 6.7 6.2 6.7 6.8 6.2 6.3 5.3 4.9 4.4 4.4 4.3 4.2 3.7 3.6 3.9 4.3 5.3 7.3 6.4 6.2 6.4																								Diurnal Maximum		
23.9 25.7 21.8 25.8 27.2 34.0 20.3 15.7 16.0 14.3 18.6 16.4 17.1 12.5 13.3 9.3 8.4 12.6 19.2 17.6 45.9 37.1 27.2 28.2																										
C - Calibration UO - Unstable Operation																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	480	67.04	67.04
6 - 15	200	27.93	94.97
16 - 25	28	3.91	98.88
26 - 80	8	1.12	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 716

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Fort McKay - Bertha Ganter - April 2024**

Concentration Ranges ( $\mu\text{g}/\text{m}^3$ )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	75	77	41	8	6	6	14	35	24	19	16	26	21	31	33	33	465
6 - 15	15	19	14	5	3	7	13	15	51	12	9	5	2	11	7	8	196
16 - 25	0	2	0	0	0	0	1	4	10	4	2	1	2	0	2	0	28
26 - 80	0	0	0	0	0	0	0	0	6	1	0	0	0	1	0	0	8
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	90	98	55	13	9	13	28	54	91	36	27	32	25	43	42	41	697

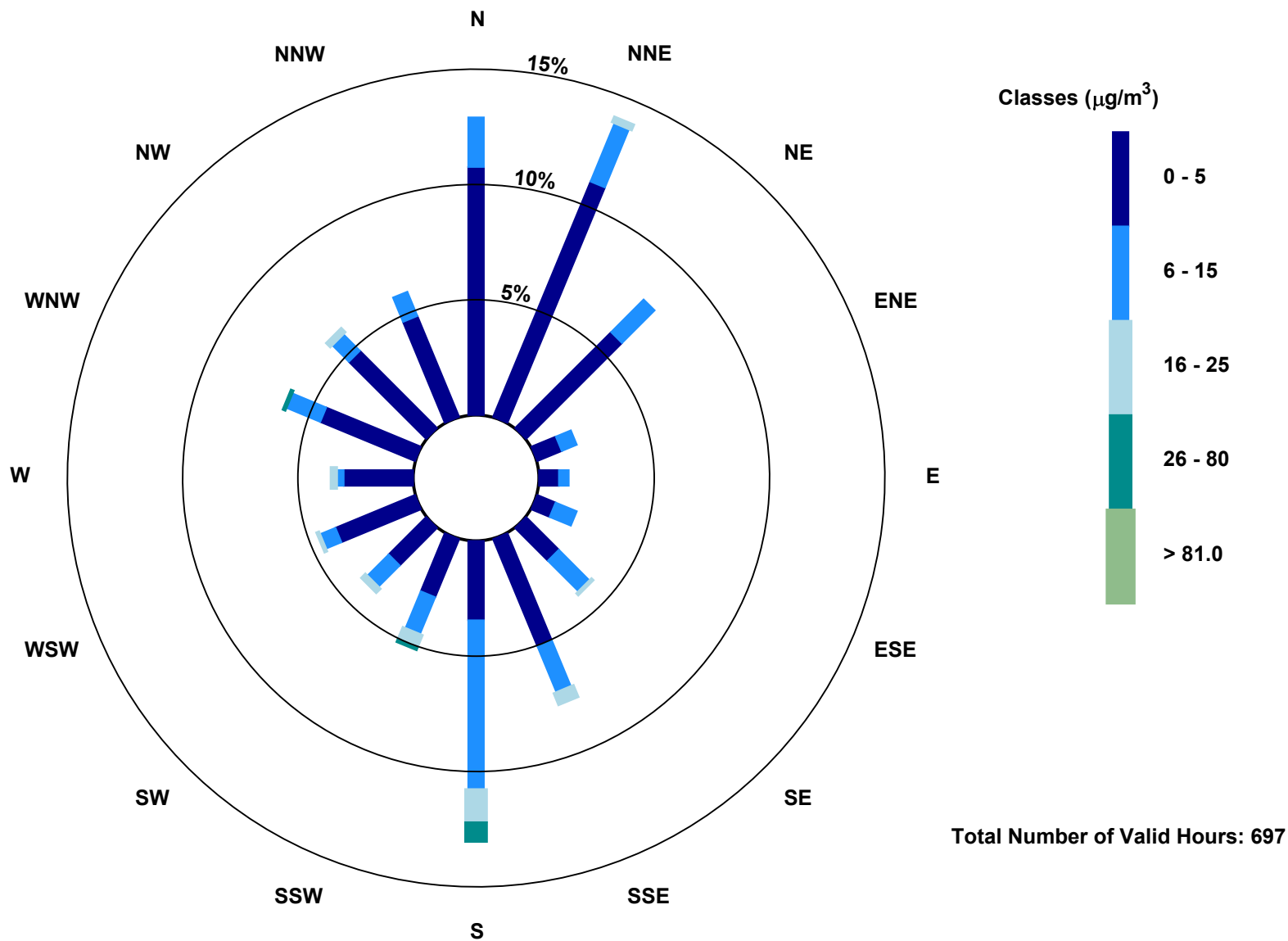
Total Number of Valid Hours: 697

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort McKay - Bertha Ganter





Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 0.5 ppm on Apr 25 06:00	Maximum Daily Average: 0.3 ppm on Apr 25		Hours of Data:	685
Minimum Value: 0.1 ppm on Apr 19 18:00	Minimum Daily Average: 0.2 ppm on Apr 19		Hours of Missing Data:	35
Maximum Diurnal Average: 0.3 ppm at hour 6	Minimum Diurnal Average: 0.2 ppm at hour 15		Hours of Calibration:	34
Monthly Average: 0.24 ppm	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.2 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.3		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-Apr	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	
2-Apr	0.2	0.3	Z	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
3-Apr	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
4-Apr	0.3	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
5-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
6-Apr	Z	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
7-Apr	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8-Apr	0.3	0.2	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.3	0.4	0.3
9-Apr	0.2	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10-Apr	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	C	C	C	C	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
11-Apr	0.3	0.2	0.3	0.2	0.2	Z	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	M	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4
13-Apr	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14-Apr	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16-Apr	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3
17-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19-Apr	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20-Apr	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.2	0.2	0.4	0.4
21-Apr	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
25-Apr	0.3	Z	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
26-Apr	0.3	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
27-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
29-Apr	0.2	0.2	0.2	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30-Apr	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

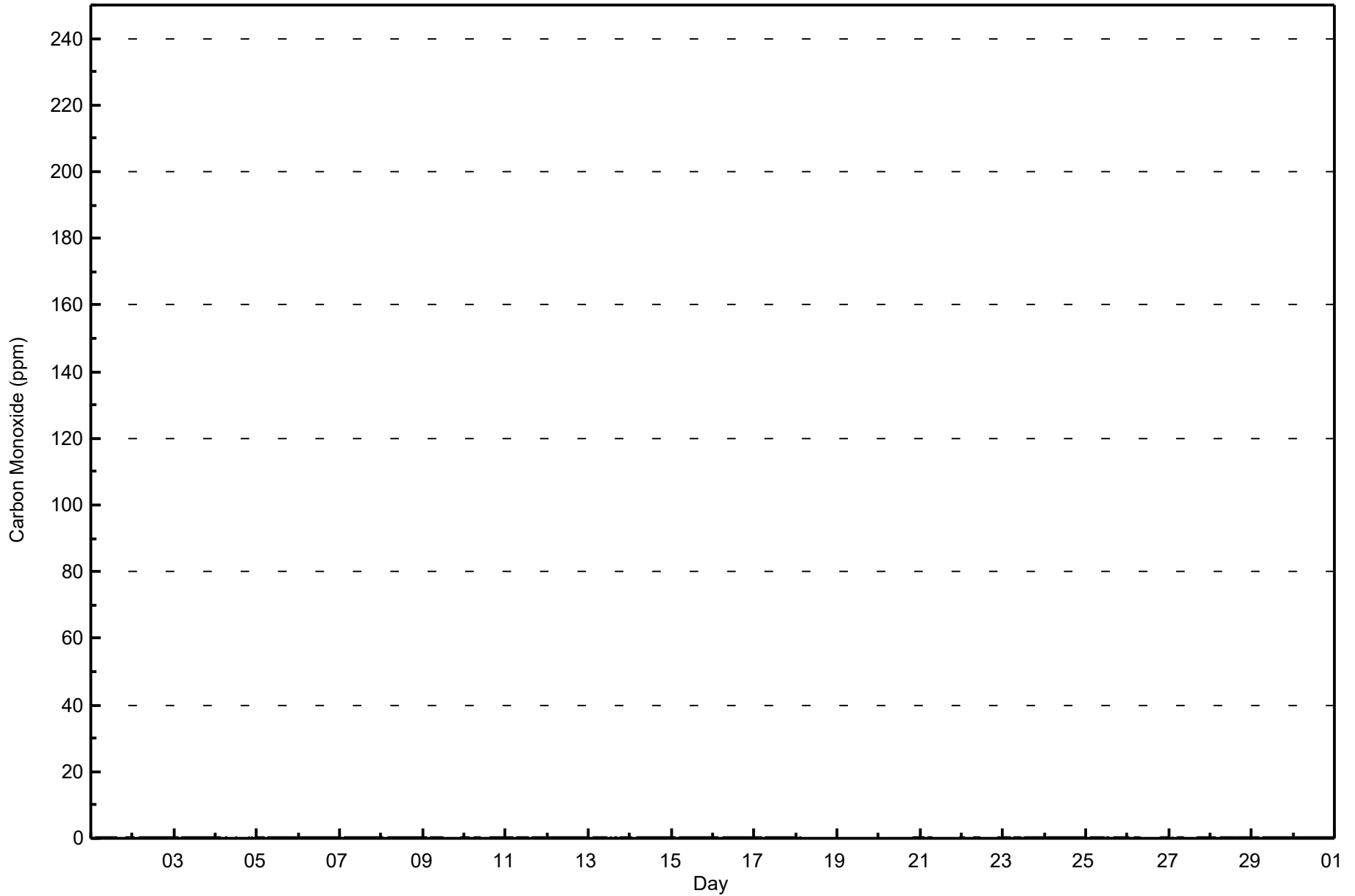
0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Diurnal Average
0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4	Diurnal Maximum

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	679	99.12	99.12
0.4 - 0.5	6	0.88	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**

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	84	97	55	12	9	12	28	52	86	35	25	29	24	38	40	36	662
0.4 - 0.5	0	0	0	0	0	0	0	1	1	0	0	2	1	1	0	0	6
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	84	97	55	12	9	12	28	53	87	35	25	31	25	39	40	36	668

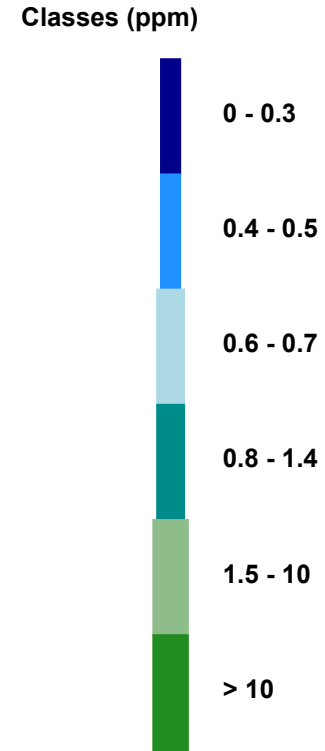
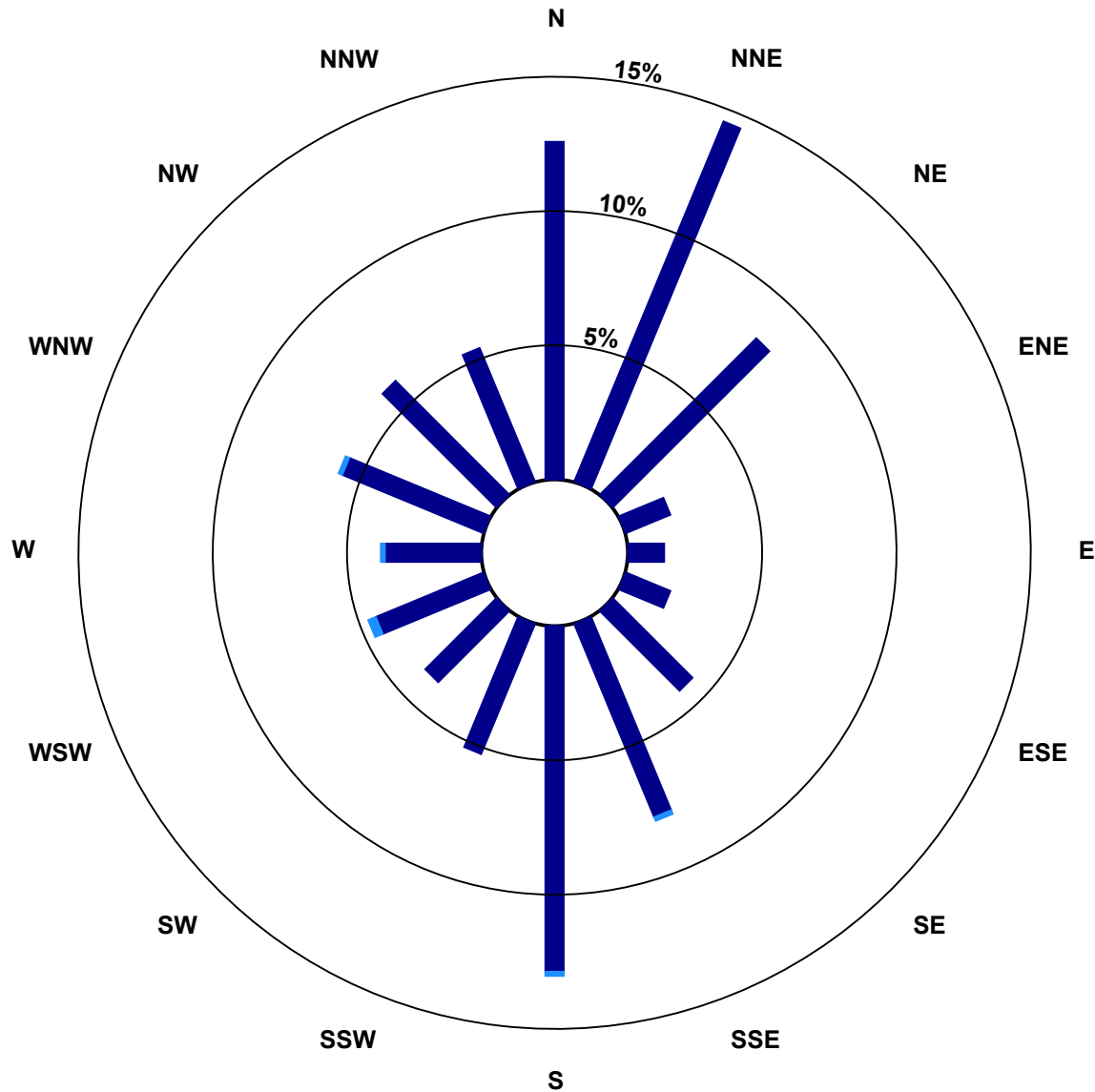
Total Number of Valid Hours: 668

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Monoxide (CO) - ppm  
Fort McKay - Bertha Ganter



Total Number of Valid Hours: 668

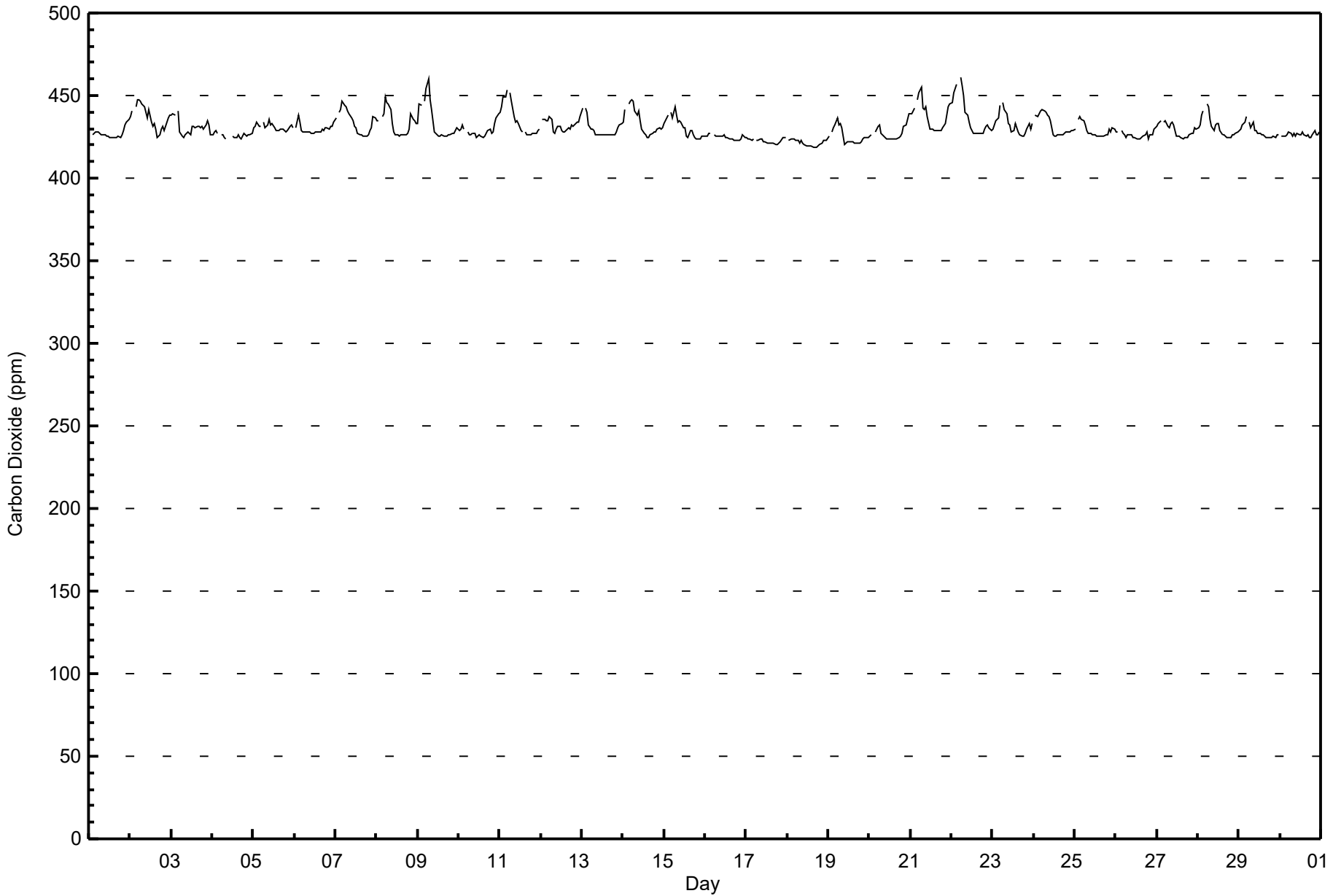






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	10	1.46	1.46
420 - 440	614	89.50	90.96
440 - 460	60	8.75	99.71
460 - 480	2	0.29	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort McKay - Bertha Ganter - April 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
400 - 420	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
420 - 440	81	87	54	12	7	12	26	46	66	27	20	29	24	36	37	34	598
440 - 460	2	3	0	0	1	0	2	7	20	8	5	2	1	2	4	3	60
460 - 480	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
480 - 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	86	97	54	12	8	12	28	53	87	35	25	31	25	39	41	37	670

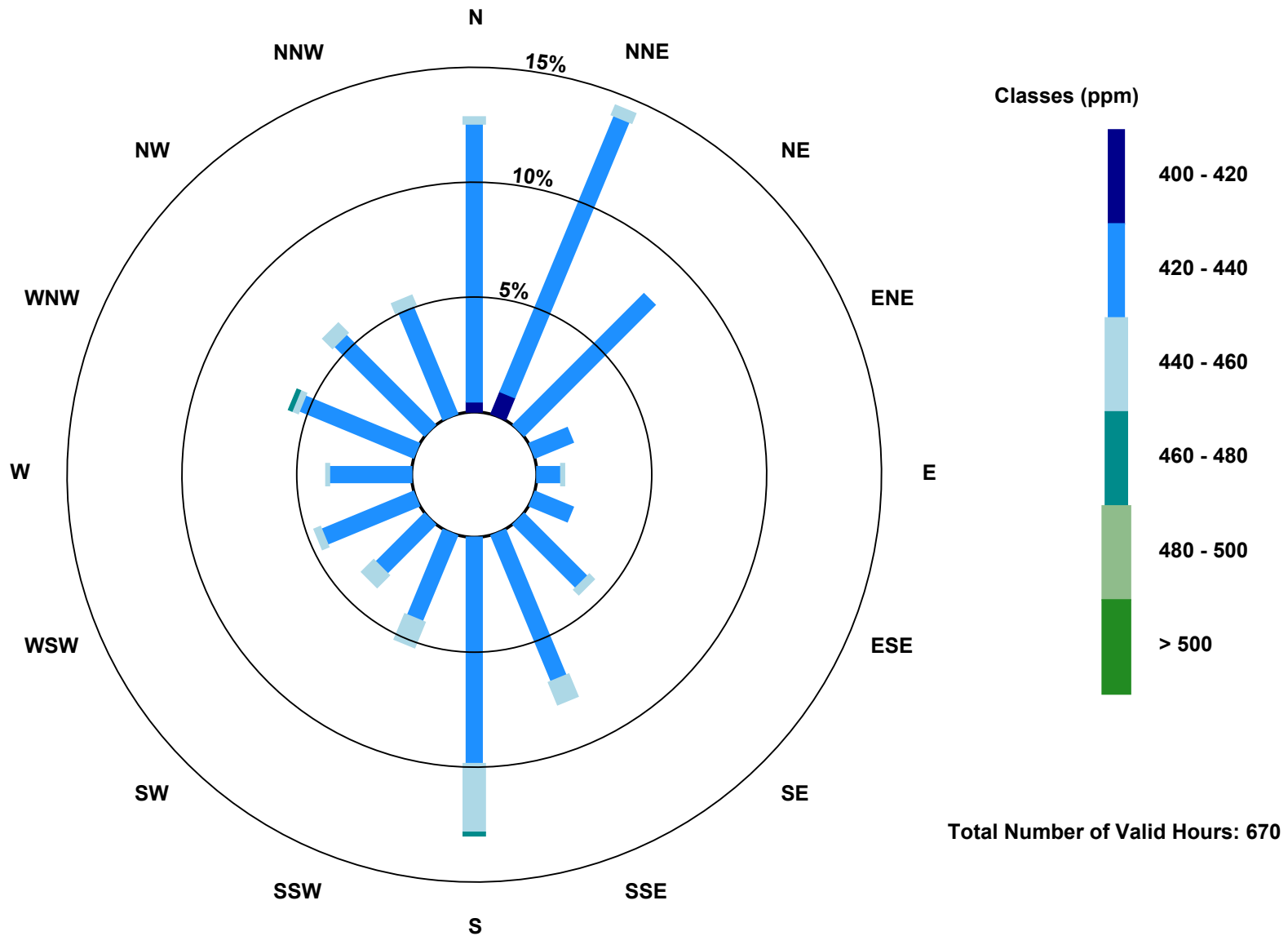
Total Number of Valid Hours: 670

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort McKay - Bertha Ganter





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Ammonia (NH<sub>3</sub>) - ppb

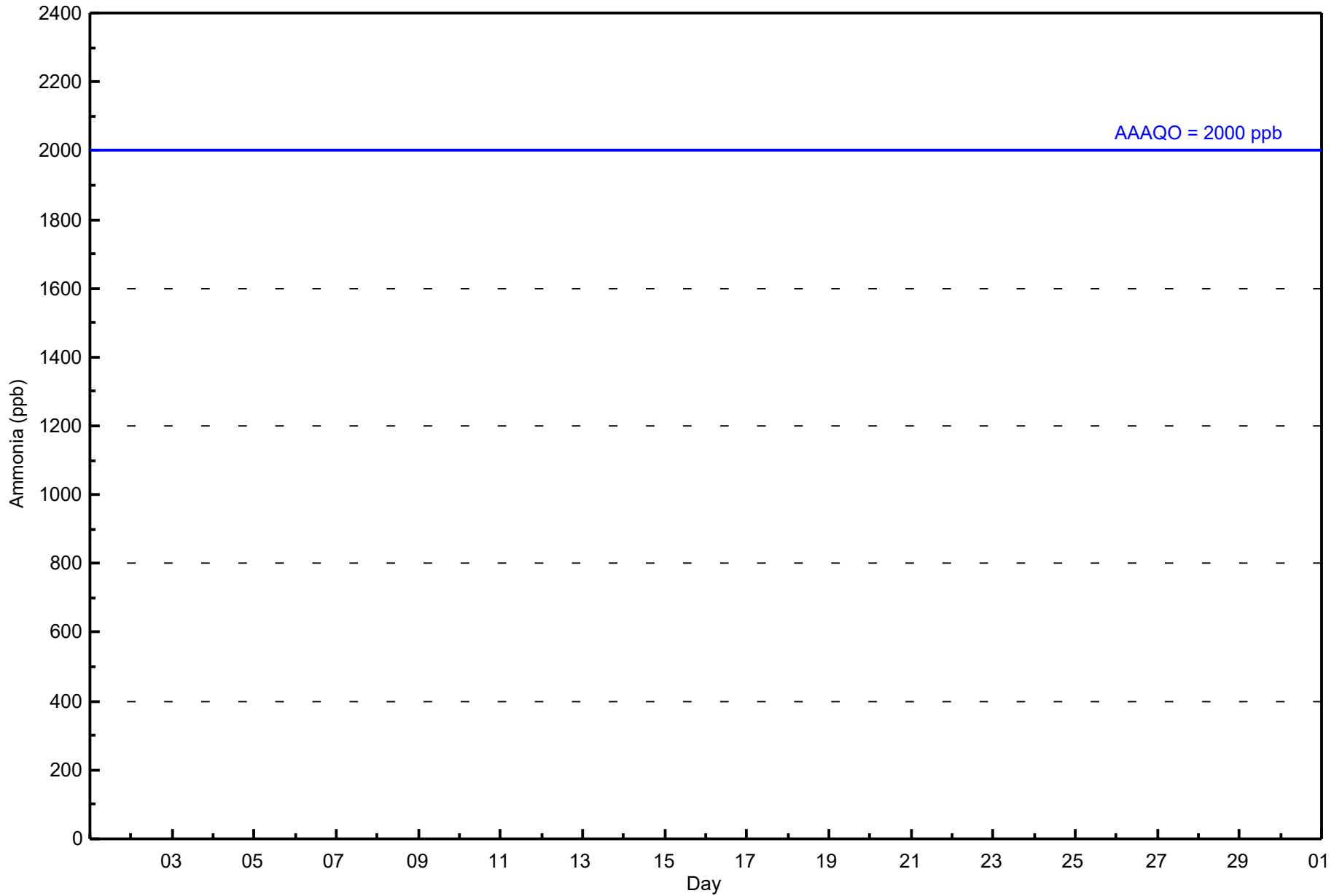
## Fort McKay - Bertha Ganter - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 Maximum Value: 0.0 ppb on Apr 1 01:00 Maximum Daily Average: 0.0 ppb on Apr 1 Minimum Value: 0.0 ppb on Apr 1 01:00 Minimum Daily Average: 0.0 ppb on Apr 1 Maximum Diurnal Average: 0.0 ppb at hour 1 Minimum Diurnal Average: 0.0 ppb at hour 1 Monthly Average: 0.00 ppb Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.0		Hours in Service: 720 Hours of Data: 649 Hours of Missing Data: 71 Hours of Calibration: 41 Percent Operational Time: 95.8																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	C	C	C	C	0.0	0.0	0.0	--	0.0	
12-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																								Diurnal Average			
0.0																								Diurnal Maximum			
Z - zerospan    C - Calibration    RE - Recovery																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 2000 ppb																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ammonia (NH<sub>3</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ammonia (NH<sub>3</sub>) - ppb  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	649	100.00	100.00
6 - 10	0	0.00	100.00
11 - 15	0	0.00	100.00
16 - 20	0	0.00	100.00
21 - 25	0	0.00	100.00
> 26	0	0.00	100.00

Total Number of Valid Hours: 649

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ammonia (NH<sub>3</sub>) - ppb**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	81	97	53	13	9	13	27	48	79	31	24	28	19	38	39	35	634
6 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	81	97	53	13	9	13	27	48	79	31	24	28	19	38	39	35	634

Total Number of Valid Hours: 634

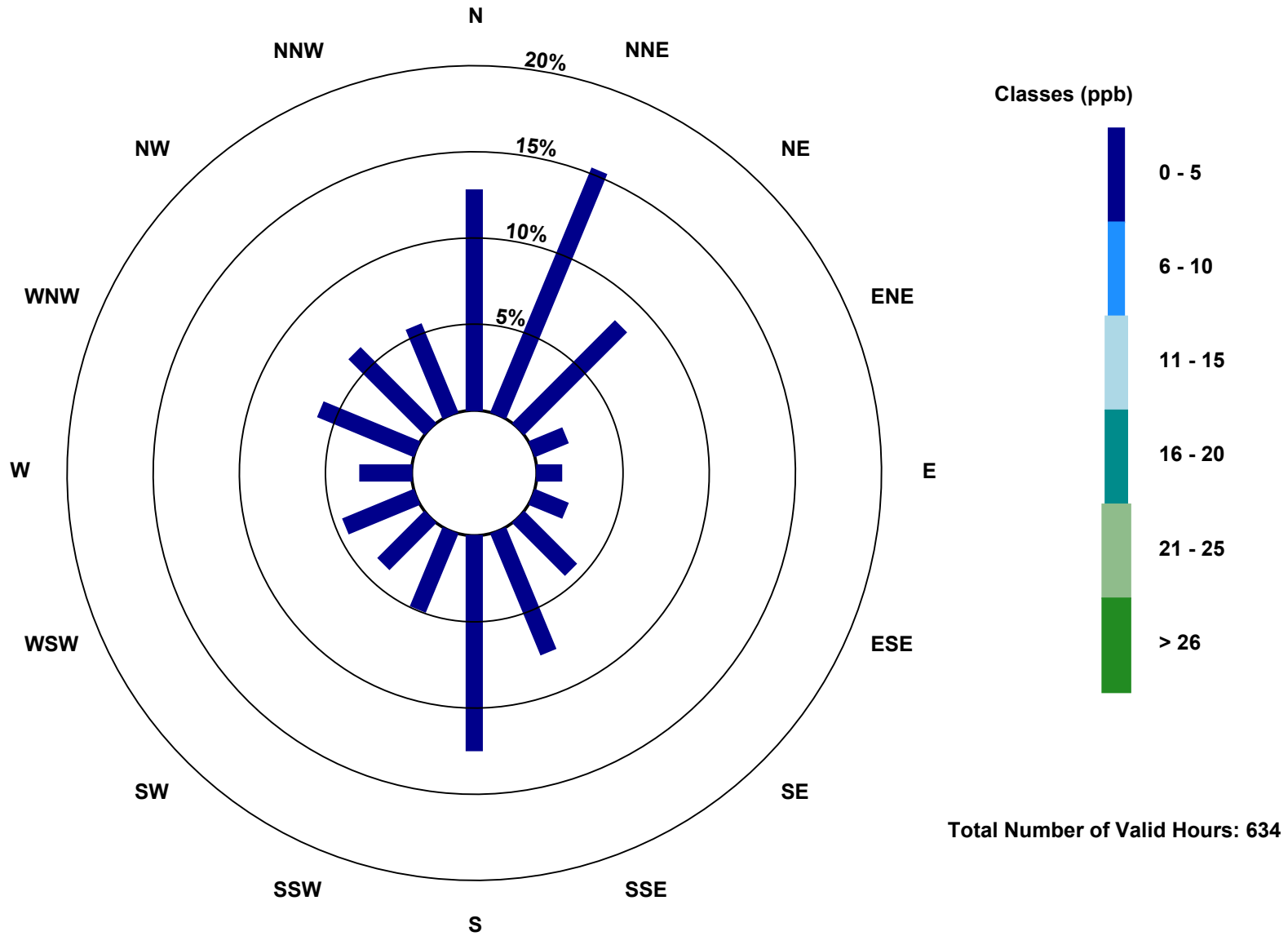
Total Number of Hours: 720

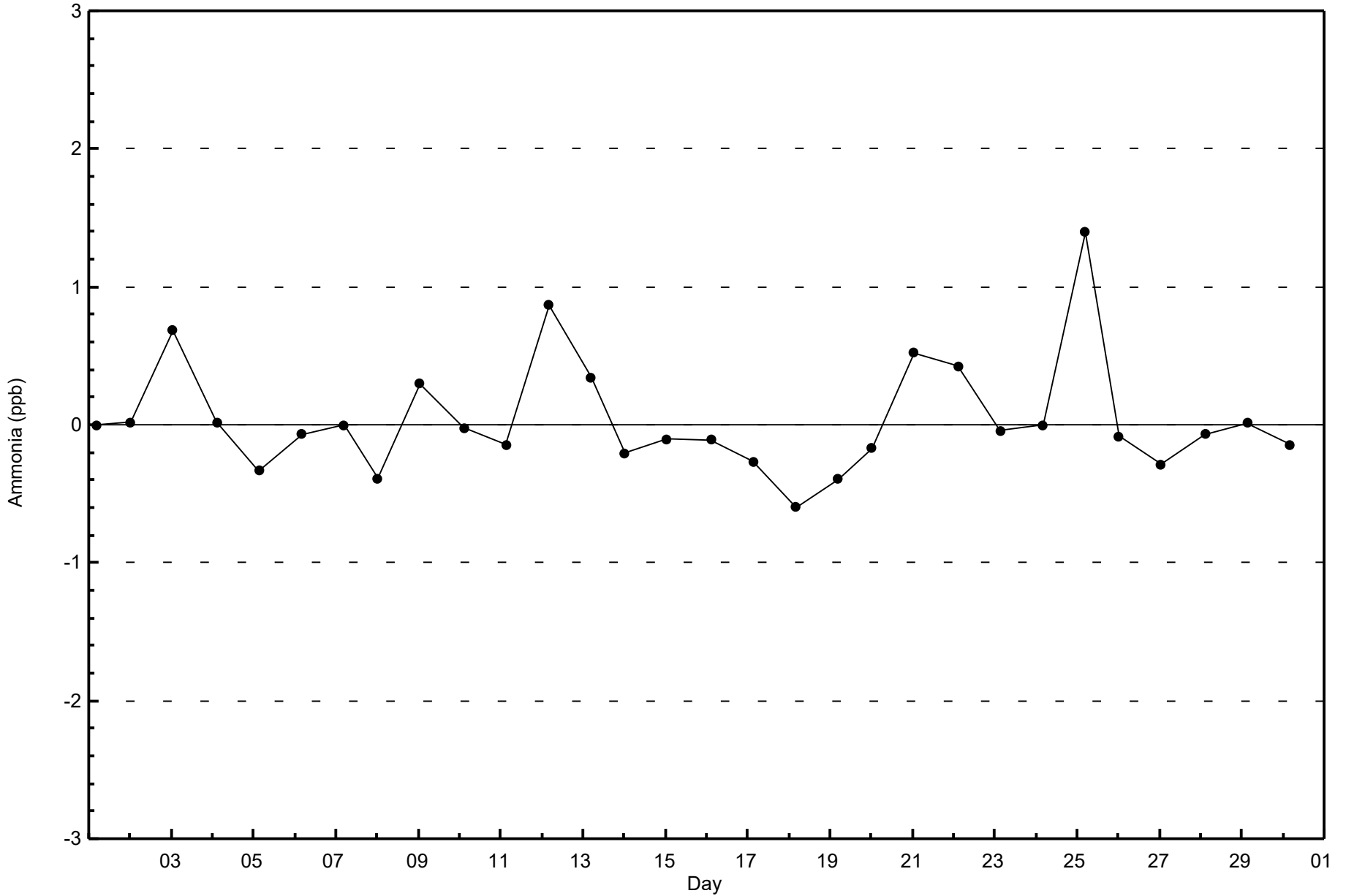


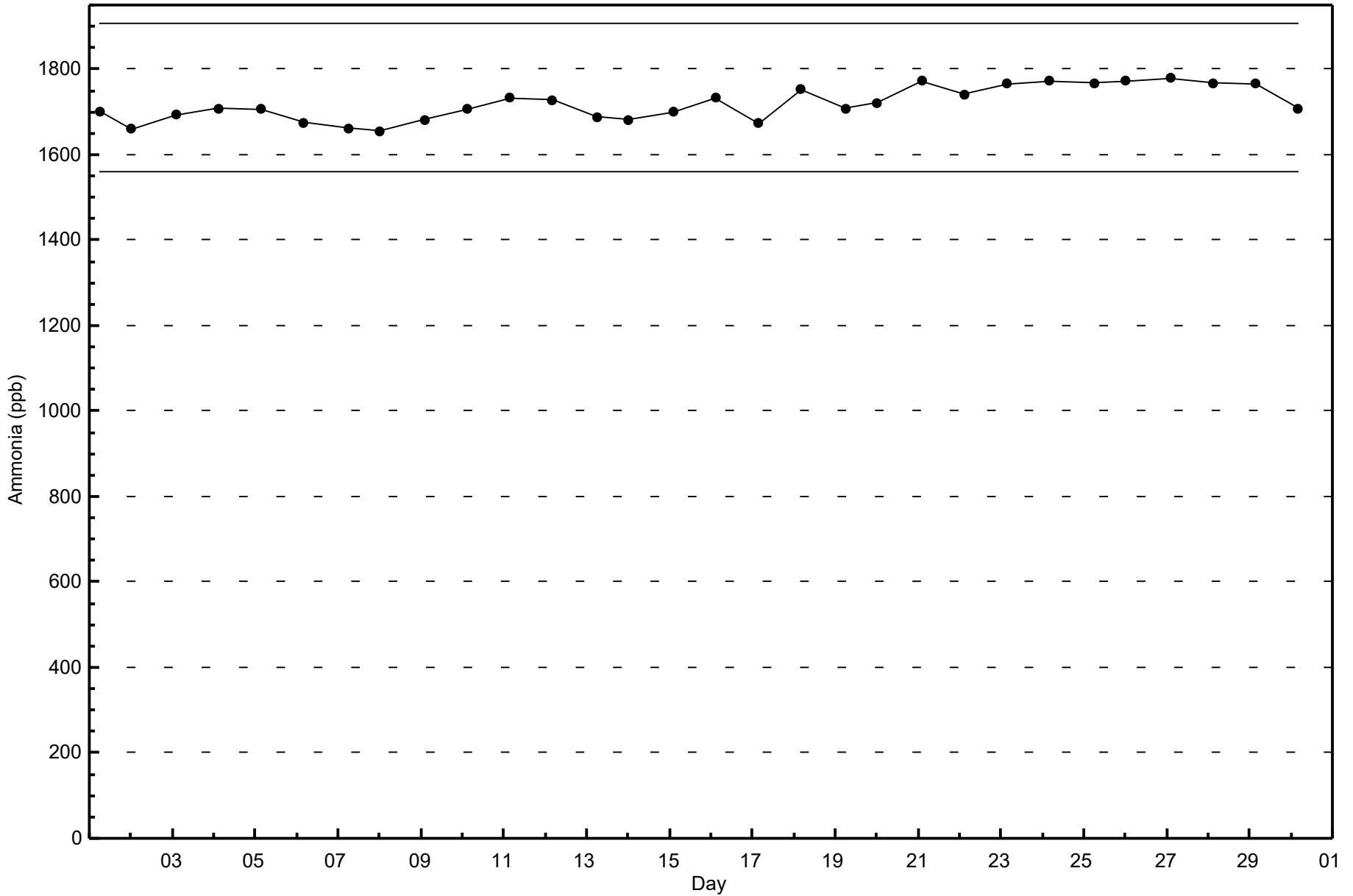


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Ammonia (NH<sub>3</sub>) - ppb  
Fort McKay - Bertha Ganter









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

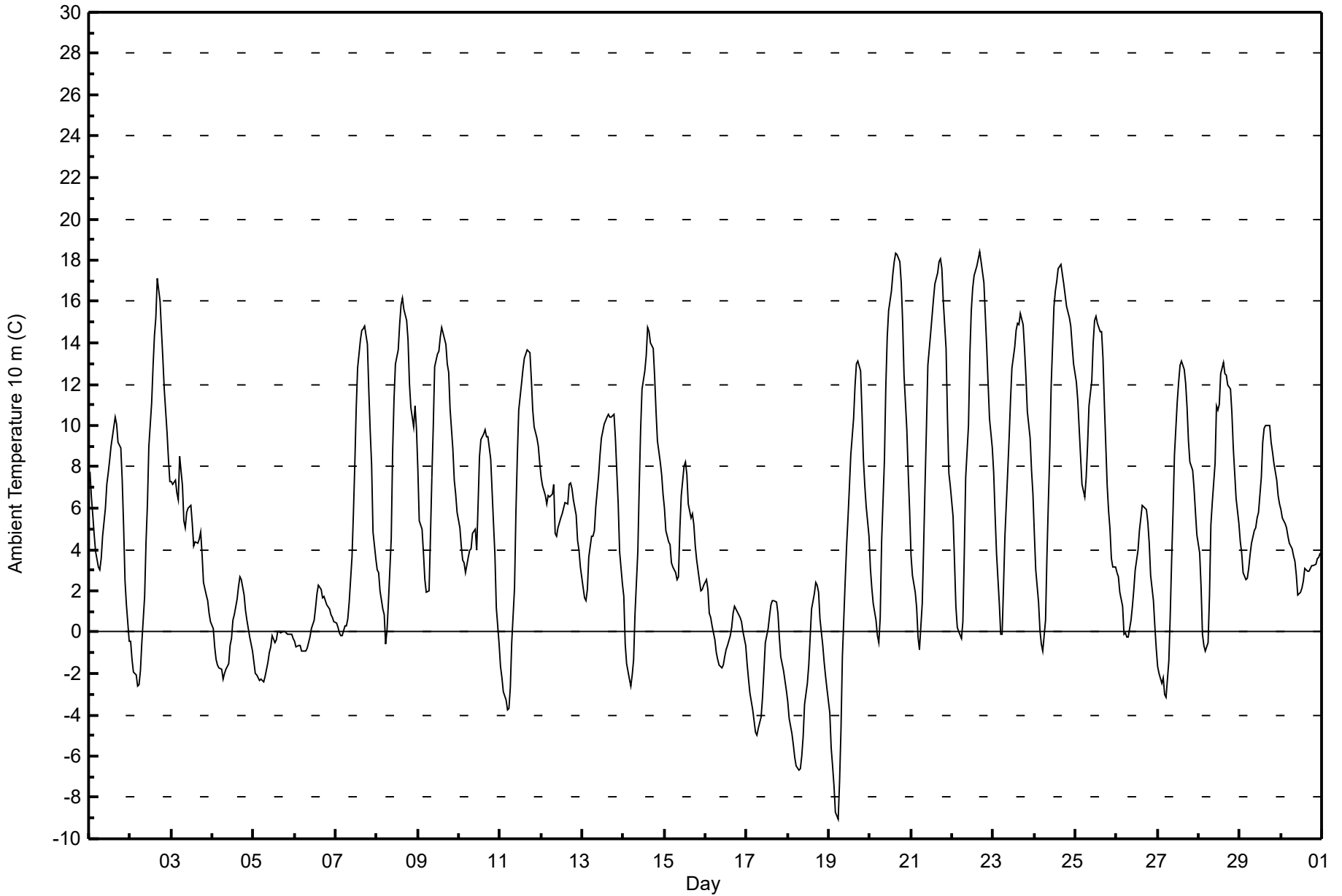
**Ambient Temperature 10 m (AT 10m) - C**  
**Fort McKay - Bertha Ganter - April 2024**

Maximum Value: 18.4 C on Apr 22 17:00		Maximum Daily Average: 10.3 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -9.1 C on Apr 19 06:00		Minimum Daily Average: -2.5 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 10.1 C at hour 17		Minimum Diurnal Average: 0.2 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 5.30 C		Percentiles: P <sub>1</sub> = -6.4 P <sub>10</sub> = -1.6 Q <sub>1</sub> = 0.6 Median = 4.6 Q <sub>3</sub> = 9.6 P <sub>90</sub> = 13.9 P <sub>99</sub> = 17.9		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-Apr	7.8	6.5	5.6	4.7	3.9	3.2	3.0	3.6	4.7	6.0	7.1	7.7	8.3	9.0	9.9	10.4	10.0	9.2	8.9	7.3	5.1	2.5	1.3	-0.5	6.1	10.4																						
2-Apr	-0.4	-1.3	-2.0	-2.1	-2.6	-2.6	-1.9	-0.5	1.7	4.4	6.2	9.0	11.1	12.8	14.3	15.2	17.1	16.0	14.6	13.2	11.8	9.6	8.3	7.3	6.6	17.1																						
3-Apr	7.3	7.1	7.4	6.7	6.4	8.5	7.1	5.4	5.1	5.8	6.0	6.1	5.3	4.1	4.4	4.3	4.5	4.9	3.8	2.4	1.8	1.5	0.9	0.5	4.9	8.5																						
4-Apr	0.1	-0.7	-1.3	-1.6	-1.7	-1.8	-2.3	-2.0	-1.8	-1.5	-0.7	-0.3	0.6	0.9	1.6	2.2	2.7	2.6	1.8	1.0	0.6	0.2	-0.3	-0.9	-0.1	2.7																						
5-Apr	-1.5	-2.0	-2.1	-2.3	-2.3	-2.3	-2.4	-2.1	-1.5	-1.0	-0.7	-0.2	-0.5	-0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.3	-0.9	0.1																						
6-Apr	-0.5	-0.7	-0.6	-0.6	-0.9	-0.9	-0.9	-0.8	-0.5	-0.2	0.1	0.6	1.2	1.9	2.2	2.1	1.7	1.8	1.5	1.3	1.1	0.9	0.7	0.5	0.5	2.2																						
7-Apr	0.4	0.2	0.0	-0.2	-0.1	0.3	0.3	0.6	1.4	3.7	5.7	8.1	10.8	12.8	14.2	14.6	14.7	14.8	13.9	11.7	9.7	8.1	4.8	3.5	6.4	14.8																						
8-Apr	3.0	2.9	2.0	1.1	0.9	-0.6	0.1	1.5	4.5	8.7	11.3	13.0	13.7	14.8	15.8	16.2	15.6	15.1	14.1	12.1	10.9	9.9	10.9	9.8	8.6	16.2																						
9-Apr	7.9	5.4	5.0	3.8	2.5	1.9	2.0	4.7	7.5	9.9	12.9	13.5	13.6	14.3	14.7	14.2	14.0	13.0	12.6	10.8	8.8	7.3	6.7	5.8	8.9	14.7																						
10-Apr	5.0	4.2	3.5	3.3	2.8	3.7	4.0	4.0	4.8	5.0	4.0	6.2	8.5	9.3	9.6	9.8	9.5	9.5	8.3	6.8	5.3	3.8	1.2	-0.6	5.5	9.8																						
11-Apr	-1.7	-2.2	-2.9	-3.3	-3.7	-3.7	-2.7	-0.5	2.2	5.8	8.5	10.7	12.0	12.7	13.3	13.5	13.7	13.5	12.2	10.8	9.9	9.4	9.0	8.2	6.0	13.7																						
12-Apr	7.5	7.1	6.6	6.2	6.6	6.5	6.7	7.2	4.8	4.6	5.0	5.5	5.7	6.0	6.3	6.2	7.2	7.2	6.9	6.4	5.6	4.4	4.0	3.2	6.0	7.5																						
13-Apr	2.2	1.7	1.5	2.1	3.6	4.7	4.6	4.9	6.1	7.6	8.6	9.4	9.7	10.0	10.4	10.5	10.4	10.4	10.6	9.4	7.7	6.2	3.9	2.3	6.6	10.6																						
14-Apr	1.7	-0.5	-1.5	-2.3	-2.6	-2.1	-1.3	0.9	3.9	7.0	9.8	11.7	12.7	13.4	14.8	14.5	14.0	13.7	12.4	10.7	9.2	8.3	7.6	6.7	6.8	14.8																						
15-Apr	6.0	4.9	4.4	4.3	3.3	3.2	2.9	2.6	2.7	5.0	6.6	8.0	8.2	7.6	6.2	5.5	5.8	5.2	4.2	3.5	2.5	2.0	2.1	2.2	4.5	8.2																						
16-Apr	2.5	2.1	0.9	0.7	0.3	-0.4	-1.0	-1.3	-1.6	-1.7	-1.6	-1.2	-0.8	-0.7	-0.2	0.3	0.9	1.2	1.0	0.9	0.7	0.5	0.1	-0.7	0.0	2.5																						
17-Apr	-1.5	-2.3	-2.9	-3.7	-4.3	-4.9	-5.0	-4.7	-4.1	-3.1	-1.8	-0.5	0.2	0.8	1.3	1.5	1.5	1.5	0.9	-0.2	-1.2	-1.9	-2.3	-2.8	-1.7	1.5																						
18-Apr	-3.4	-4.2	-4.9	-5.5	-6.1	-6.5	-6.7	-6.6	-6.0	-5.0	-3.5	-2.5	-1.6	-0.3	1.1	1.8	2.4	2.2	1.9	0.7	-0.6	-1.5	-2.1	-2.8	-2.5	2.4																						
19-Apr	-3.9	-5.6	-6.5	-7.4	-8.7	-9.1	-7.2	-4.7	-1.2	2.5	4.2	5.5	7.0	8.6	10.4	11.9	13.0	13.1	12.6	10.6	8.4	7.1	6.0	4.7	3.0	13.1																						
20-Apr	3.1	2.2	1.4	0.6	-0.2	-0.5	0.7	4.4	8.3	11.9	14.3	15.6	16.5	17.3	17.9	18.3	18.3	17.9	16.9	15.0	12.4	9.8	7.7	5.9	9.8	18.3																						
21-Apr	3.7	2.7	1.9	1.2	-0.3	-0.9	1.4	4.1	7.2	9.9	12.9	14.5	15.3	16.1	16.8	17.4	17.9	18.1	17.6	16.0	13.7	10.4	7.7	7.1	9.7	18.1																						
22-Apr	5.6	3.5	1.3	0.3	0.0	-0.3	0.5	3.7	7.5	10.0	13.5	15.6	16.6	17.2	17.8	18.1	18.4	17.9	16.9	15.4	13.8	12.0	10.4	8.9	10.2	18.4																						
23-Apr	7.7	5.6	3.9	1.4	-0.1	-0.1	2.2	4.6	7.8	9.4	11.3	12.8	13.8	14.6	15.0	14.9	15.4	14.9	13.8	12.4	10.7	9.4	7.8	6.7	9.0	15.4																						
24-Apr	4.8	3.1	1.5	0.1	-0.6	-0.9	0.6	3.7	6.3	8.6	11.9	15.7	16.5	17.0	17.6	17.8	17.3	16.9	16.3	15.7	15.2	14.8	13.9	13.0	10.3	17.8																						
25-Apr	12.1	11.2	9.9	8.5	7.2	6.5	7.5	9.1	10.9	12.2	14.0	15.1	15.3	14.9	14.6	14.5	13.3	11.0	7.1	5.8	5.0	3.6	3.1	3.1	9.8	15.3																						
26-Apr	2.9	2.6	1.9	1.3	-0.1	0.0	-0.2	-0.2	0.6	1.2	2.1	3.0	3.9	4.9	5.5	6.1	6.1	5.9	5.3	4.3	2.7	1.5	0.3	-0.8	2.5	6.1																						
27-Apr	-1.7	-2.0	-2.4	-2.2	-3.0	-3.2	-1.4	0.9	3.5	5.9	8.5	11.1	12.1	12.9	13.1	12.7	12.0	10.9	9.2	8.2	7.8	6.9	5.8	4.7	5.4	13.1																						
28-Apr	3.8	2.2	-0.1	-0.6	-0.9	-0.5	1.7	5.2	6.3	8.2	10.9	10.7	11.0	12.5	13.1	12.5	12.4	12.0	11.8	10.6	8.9	7.7	6.5	5.3	7.1	13.1																						
29-Apr	4.4	3.8	2.9	2.5	2.6	3.1	3.8	4.3	4.9	5.1	5.5	5.8	7.5	9.2	9.9	10.0	10.0	10.0	9.2	8.7	8.2	7.4	6.6	6.2	6.3	10.0																						
30-Apr	5.9	5.5	5.2	5.1	4.7	4.3	4.0	3.7	3.4	2.7	1.8	1.9	2.2	2.5	3.1	2.9	3.0	3.1	3.2	3.2	3.3	3.6	3.6	3.8	3.6	5.9																						
																								3.0	2.1	1.3	0.7	0.2	0.2	0.7	1.8	3.3	4.9	6.5	7.7	8.5	9.2	9.8	10.0	10.1	9.8	9.0	7.8	6.6	5.5	4.5	3.7	Diurnal Average
																								12.1	11.2	9.9	8.5	7.2	8.5	7.5	9.1	10.9	12.2	14.3	15.7	16.6	17.3	17.9	18.3	18.4	18.1	17.6	16.0	15.2	14.8	13.9	13.0	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature 10 m (AT 10m) - C**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 10 m (AT 10m) - C  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	151	20.97	20.97
0 - 10	405	56.25	77.22
10 - 20	164	22.78	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

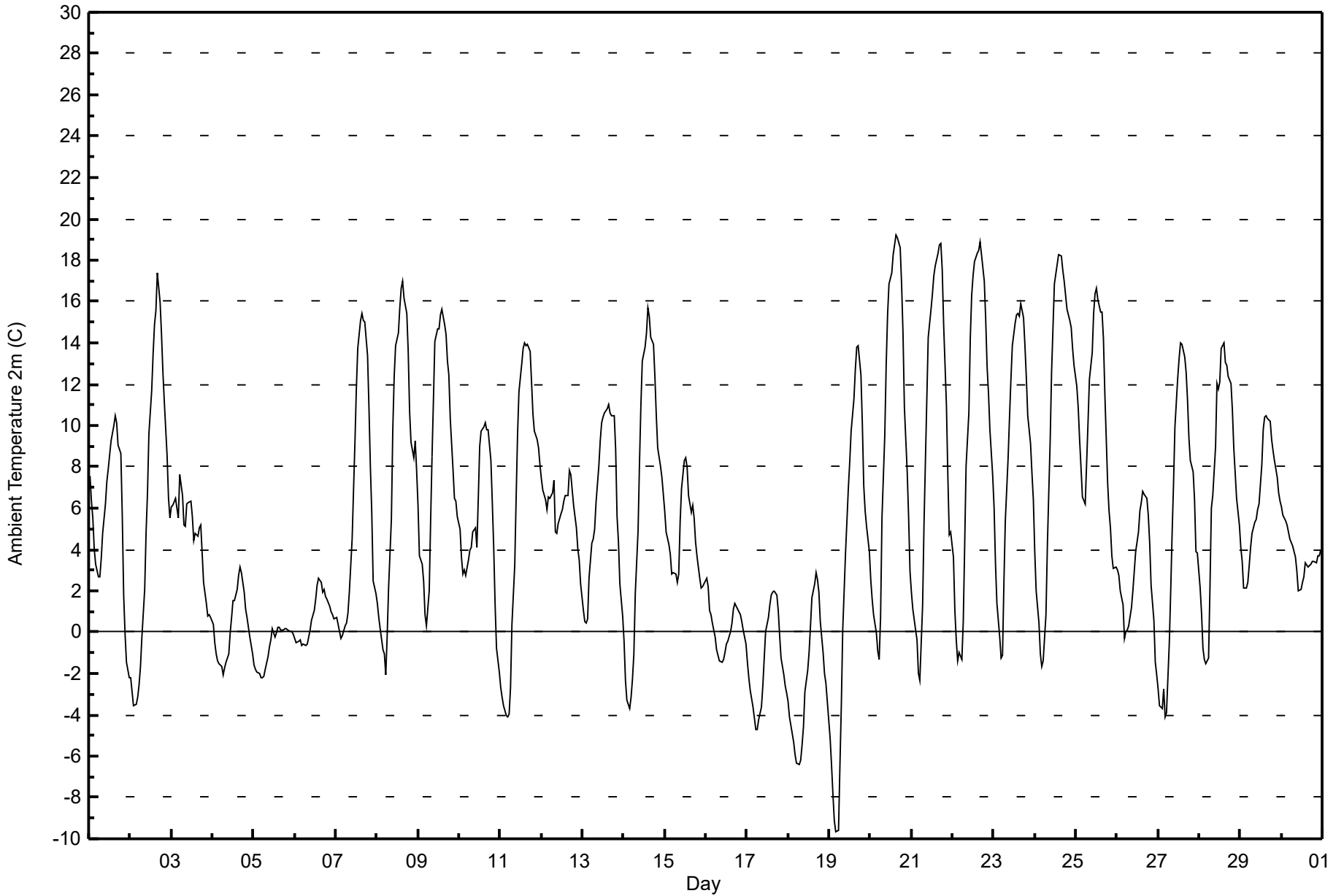
Total Number of Hours: 720



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

**Ambient Temperature 2m (AT 2m) - C**  
**Fort McKay - Bertha Ganter - April 2024**

Maximum Value: 19.2 C on Apr 20 16:00		Maximum Daily Average: 10.3 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -9.7 C on Apr 19 05:00		Minimum Daily Average: -2.3 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 10.5 C at hour 17		Minimum Diurnal Average: -0.3 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 5.29 C		Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -1.8 Q <sub>1</sub> = 0.5 Median = 4.5 Q <sub>3</sub> = 9.7 P <sub>90</sub> = 14.5 P <sub>99</sub> = 18.5		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	7.6	6.4	5.5	4.0	3.3	2.7	2.7	3.5	4.8	6.2	7.3	7.9	8.6	9.2	10.0	10.5	10.1	9.0	8.6	5.6	1.8	-0.1	-1.5	-2.2	5.5	10.5																						
2-Apr	-2.2	-2.9	-3.6	-3.5	-3.2	-2.5	-1.7	-0.2	2.1	4.9	6.7	9.6	11.7	13.5	14.9	15.6	17.4	16.0	14.4	12.6	11.2	8.5	6.5	5.6	6.3	17.4																						
3-Apr	6.1	6.1	6.5	6.0	5.6	7.6	6.6	5.2	5.1	6.2	6.3	6.3	5.6	4.5	4.8	4.7	5.0	5.2	3.9	2.4	1.4	0.7	0.8	0.7	4.7	7.6																						
4-Apr	0.3	-0.5	-1.1	-1.4	-1.5	-1.6	-2.0	-1.7	-1.5	-1.1	0.0	0.7	1.5	1.5	2.1	2.7	3.1	2.9	2.0	1.1	0.7	0.3	-0.2	-1.1	0.2	3.1																						
5-Apr	-1.6	-1.8	-2.0	-2.0	-2.2	-2.2	-2.1	-1.8	-1.2	-0.7	-0.4	0.2	-0.2	0.0	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.0	-0.1	-0.7	0.3																						
6-Apr	-0.3	-0.5	-0.5	-0.4	-0.7	-0.6	-0.7	-0.6	-0.2	0.1	0.6	1.1	1.6	2.3	2.6	2.4	1.9	2.1	1.8	1.6	1.2	1.0	0.9	0.6	0.7	2.6																						
7-Apr	0.7	0.3	0.0	-0.3	-0.2	0.3	0.4	0.9	1.9	4.5	6.9	9.2	11.8	13.8	15.1	15.4	15.1	15.0	13.4	10.9	8.0	5.8	2.5	1.9	6.4	15.4																						
8-Apr	1.4	0.7	0.1	-0.8	-1.1	-2.0	-0.1	2.2	5.5	9.8	12.4	13.9	14.5	15.7	16.6	17.0	16.2	15.4	13.6	10.7	9.2	8.4	9.3	7.8	8.2	17.0																						
9-Apr	6.2	3.7	3.3	2.5	0.8	0.3	2.0	5.4	8.5	11.2	14.1	14.7	14.7	15.3	15.6	14.9	14.4	13.1	12.4	10.3	7.8	6.4	6.4	5.6	8.7	15.6																						
10-Apr	5.0	3.6	2.8	3.0	2.7	3.5	4.0	4.1	4.9	5.1	4.1	6.5	9.0	9.7	10.0	10.1	9.8	9.8	8.3	6.3	4.1	1.3	-0.8	-1.9	5.2	10.1																						
11-Apr	-2.7	-3.2	-3.6	-4.0	-4.1	-4.0	-2.7	0.4	3.2	6.5	9.6	11.6	13.0	13.7	14.0	13.9	13.9	13.6	12.1	10.5	9.7	9.3	8.9	8.1	6.2	14.0																						
12-Apr	7.4	6.9	6.4	6.0	6.5	6.5	6.8	7.3	4.8	4.8	5.2	5.7	5.9	6.3	6.6	6.6	7.8	7.6	6.9	6.1	5.0	4.0	3.5	2.3	6.0	7.8																						
13-Apr	1.1	0.5	0.5	0.7	2.6	4.3	4.5	5.0	6.3	8.1	9.2	10.1	10.4	10.6	10.8	11.0	10.6	10.5	10.5	8.8	5.6	4.4	2.3	0.8	6.2	11.0																						
14-Apr	-0.4	-2.4	-3.3	-3.7	-3.2	-2.3	-1.0	1.8	4.9	8.2	10.9	13.1	13.8	14.5	15.7	15.3	14.3	13.9	12.4	10.4	8.9	8.0	7.5	6.7	6.8	15.7																						
15-Apr	5.8	4.8	4.3	3.8	2.8	2.9	2.8	2.4	2.8	5.3	7.0	8.3	8.5	8.0	6.6	5.8	6.1	5.5	4.4	3.7	2.6	2.1	2.2	2.4	4.6	8.5																						
16-Apr	2.6	2.2	1.1	0.9	0.5	-0.2	-0.8	-1.1	-1.4	-1.5	-1.3	-1.0	-0.6	-0.5	0.1	0.4	1.1	1.4	1.1	1.0	0.8	0.5	0.1	-0.6	0.2	2.6																						
17-Apr	-1.4	-2.2	-2.8	-3.6	-4.2	-4.7	-4.7	-4.2	-3.6	-2.6	-1.3	0.1	0.7	1.3	1.8	2.0	2.0	1.8	1.0	-0.2	-1.2	-2.1	-2.6	-2.9	-1.4	2.0																						
18-Apr	-3.4	-4.1	-4.9	-5.3	-6.0	-6.3	-6.4	-6.2	-5.5	-4.6	-2.9	-1.9	-1.0	0.3	1.7	2.3	2.9	2.5	2.0	0.5	-1.0	-2.0	-2.5	-3.3	-2.3	2.9																						
19-Apr	-5.1	-6.4	-7.9	-9.1	-9.7	-9.6	-6.5	-3.6	0.1	3.8	5.4	7.0	8.2	9.7	11.3	12.7	13.8	13.8	12.5	10.1	7.1	5.9	5.1	3.9	3.0	13.8																						
20-Apr	2.5	1.6	0.8	0.0	-0.9	-1.3	0.7	5.5	9.5	12.9	15.3	16.8	17.4	18.3	18.8	19.2	19.1	18.6	16.9	14.5	10.9	7.8	5.6	3.0	9.7	19.2																						
21-Apr	1.9	1.1	0.1	-0.3	-2.0	-2.4	1.3	5.2	8.3	11.3	14.3	15.6	16.4	17.3	17.7	18.3	18.8	18.8	17.5	14.9	11.0	7.5	4.7	4.8	9.3	18.8																						
22-Apr	3.6	1.1	-0.4	-1.4	-1.0	-1.3	0.5	4.2	8.0	10.6	14.2	16.3	17.2	18.0	18.4	18.5	18.9	18.2	17.0	15.1	12.8	11.5	9.8	7.6	9.9	18.9																						
23-Apr	6.0	3.3	1.4	-0.2	-1.3	-1.1	2.4	5.4	8.4	10.4	12.2	13.9	14.9	15.4	15.5	15.3	15.9	15.2	13.9	12.3	10.5	9.2	7.7	6.4	8.9	15.9																						
24-Apr	3.9	2.0	0.4	-1.0	-1.6	-1.4	0.8	4.2	6.8	9.2	12.6	16.8	17.3	17.8	18.3	18.2	17.6	17.0	16.3	15.6	15.1	14.7	13.8	12.9	10.3	18.3																						
25-Apr	11.9	10.9	9.3	8.0	6.6	6.2	8.1	10.1	12.2	13.5	15.4	16.4	16.6	16.1	15.5	15.5	14.2	11.5	7.2	5.9	5.1	3.7	3.1	3.1	10.3	16.6																						
26-Apr	3.0	2.8	2.0	1.3	-0.3	0.1	0.1	0.3	1.2	2.0	2.9	3.9	4.9	5.9	6.2	6.8	6.7	6.4	5.7	4.3	2.3	0.6	-1.4	-2.1	2.7	6.8																						
27-Apr	-2.7	-3.6	-3.7	-2.8	-4.1	-3.9	-0.5	2.0	4.8	7.2	9.9	12.3	13.2	14.0	13.9	13.3	12.6	11.2	9.4	8.3	7.8	6.4	3.9	3.8	5.5	14.0																						
28-Apr	2.2	0.9	-0.7	-1.3	-1.5	-1.2	2.2	6.0	6.6	9.0	12.1	11.8	12.1	13.7	14.0	13.0	12.9	12.4	12.0	10.8	8.9	7.7	6.5	5.2	7.3	14.0																						
29-Apr	4.1	3.4	2.1	2.1	2.4	3.2	4.1	4.7	5.3	5.4	6.0	6.2	8.1	9.8	10.4	10.5	10.3	10.2	9.3	8.8	8.3	7.5	6.7	6.3	6.5	10.5																						
30-Apr	6.1	5.7	5.4	5.2	4.8	4.5	4.2	3.9	3.6	2.9	2.0	2.1	2.4	2.7	3.3	3.1	3.2	3.3	3.4	3.4	3.4	3.7	3.7	3.9	3.7	6.1																						
																								2.3	1.4	0.6	0.1	-0.3	-0.2	0.8	2.3	3.9	5.6	7.2	8.5	9.3	9.9	10.4	10.5	10.5	10.1	9.0	7.5	6.0	4.8	3.7	3.0	Diurnal Average
																								11.9	10.9	9.3	8.0	6.6	7.6	8.1	10.1	12.2	13.5	15.4	16.8	17.4	18.3	18.8	19.2	19.1	18.8	17.5	15.6	15.1	14.7	13.8	12.9	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	149	20.69	20.69
0 - 10	399	55.42	76.11
10 - 20	172	23.89	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



Summary of Hour Averages

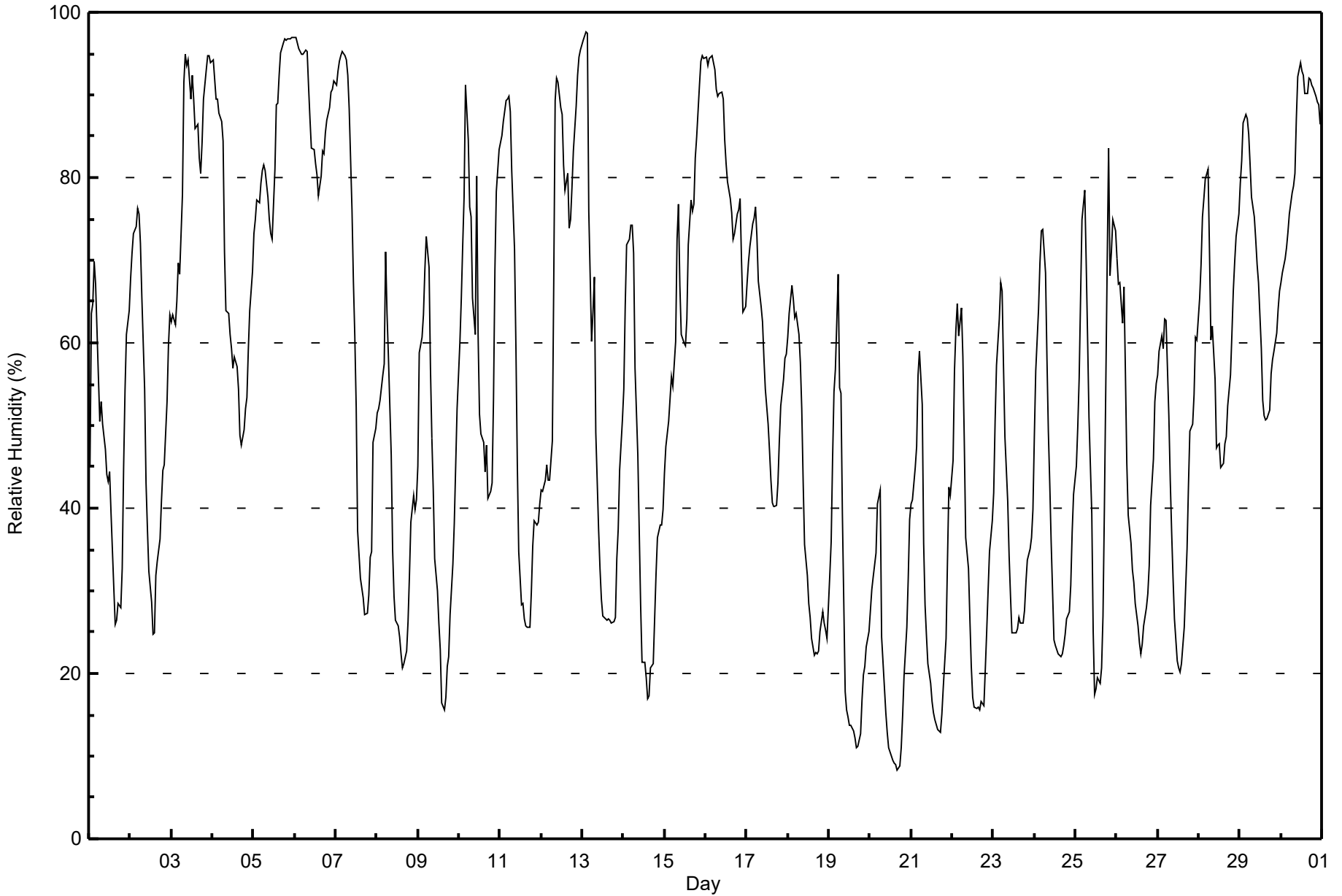
Fort McKay - Bertha Ganter - April 2024

Maximum Value: 97.6 % on Apr 13 03:00		Maximum Daily Average: 88.7 % on Apr 6		Hours in Service: 720																						
Minimum Value: 8.4 % on Apr 20 17:00		Minimum Daily Average: 21.9 % on Apr 20		Hours of Data: 720																						
Maximum Diurnal Average: 72.0 % at hour 5		Minimum Diurnal Average: 40.0 % at hour 15		Hours of Missing Data: 0																						
Monthly Average: 54.76 %		Percentiles: P <sub>1</sub> = 11.0 P <sub>10</sub> = 22.3 Q <sub>1</sub> = 32.6 Median = 55.3 Q <sub>3</sub> = 75.1 P <sub>90</sub> = 90.1 P <sub>99</sub> = 96.8		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-Apr	45.0	63.5	64.8	69.7	67.1	56.0	50.5	52.9	50.2	47.2	44.0	43.3	44.4	39.6	30.4	25.9	26.4	28.4	28.0	32.6	44.9	54.3	61.0	63.9	47.3	69.7
2-Apr	67.9	70.8	73.2	74.1	76.2	75.6	72.1	65.6	54.5	43.0	37.5	32.4	28.7	24.7	24.8	31.8	33.6	36.3	40.8	44.6	45.2	52.9	59.7	63.3	51.2	76.2
3-Apr	62.5	63.4	62.2	65.2	69.6	68.4	78.0	91.5	94.9	93.6	94.3	89.5	92.4	89.5	85.9	86.4	82.3	80.5	84.3	89.5	93.1	94.7	94.8	93.9	83.3	94.9
4-Apr	94.3	91.9	89.5	89.6	87.7	86.8	84.5	71.0	63.9	63.5	61.1	59.3	57.0	58.3	57.2	54.4	48.9	47.7	49.6	52.0	53.5	59.1	63.9	68.6	67.2	94.3
5-Apr	73.2	74.9	77.3	76.9	79.4	80.9	81.5	80.8	77.7	75.0	73.2	72.6	81.0	88.8	89.1	92.3	95.2	96.3	96.7	96.6	96.7	96.9	96.9	96.9	85.3	96.9
6-Apr	96.9	96.9	95.6	95.3	94.9	94.9	95.5	95.2	91.0	87.1	83.6	83.4	81.6	80.3	77.8	80.1	83.2	82.9	85.5	87.0	88.5	90.3	90.6	91.8	88.7	96.9
7-Apr	91.2	92.8	94.0	94.7	95.3	94.7	94.3	92.4	88.3	76.0	67.5	60.8	52.2	37.3	31.6	30.3	29.2	27.2	27.2	29.5	34.1	34.7	47.9	49.6	61.4	95.3
8-Apr	51.5	52.0	53.0	56.1	57.4	71.0	63.6	58.2	46.4	34.8	29.3	26.4	25.7	24.3	22.4	20.6	21.1	22.7	26.2	31.8	38.3	41.6	39.8	41.0	39.8	71.0
9-Apr	45.1	58.8	60.7	63.4	68.8	72.9	69.2	57.0	48.5	42.2	33.9	30.0	26.2	22.9	16.5	15.5	17.1	20.8	22.1	27.2	33.2	38.1	45.1	52.1	41.1	72.9
10-Apr	60.0	65.3	71.7	77.7	91.2	84.6	76.4	75.3	65.4	61.0	80.2	60.9	51.4	49.0	48.0	44.3	47.6	41.1	42.0	43.1	53.3	68.8	78.3	83.4	63.3	91.2
11-Apr	84.2	85.2	86.8	89.3	89.6	89.9	88.1	80.9	71.4	59.5	45.2	34.7	28.4	28.5	26.6	25.8	25.6	25.6	29.8	35.4	38.4	37.9	38.2	40.5	53.6	89.9
12-Apr	42.2	42.0	43.4	45.3	43.4	43.3	48.2	67.5	89.3	92.0	91.5	88.5	87.7	81.6	78.5	80.5	73.9	74.9	78.8	83.1	88.6	92.3	94.6	95.4	72.8	95.4
13-Apr	96.7	97.1	97.6	97.5	76.0	60.2	63.7	67.9	49.2	37.5	32.6	28.9	27.0	26.7	26.4	26.5	26.5	26.1	26.2	26.7	33.8	37.4	44.6	50.7	49.3	97.6
14-Apr	54.4	64.5	71.8	72.5	74.2	74.2	70.8	57.0	46.4	37.4	28.3	21.4	21.4	19.6	17.0	17.3	20.8	21.2	26.6	32.1	36.5	37.9	37.9	39.8	41.7	74.2
15-Apr	44.2	47.4	50.6	53.1	55.9	54.7	60.3	72.6	76.8	66.9	60.9	60.1	59.7	63.0	71.9	77.2	75.9	76.7	82.4	84.9	91.1	94.1	94.8	94.5	69.6	94.8
16-Apr	94.6	93.6	94.4	94.6	94.7	93.0	90.8	89.9	90.1	90.3	89.4	84.6	81.7	79.4	77.4	75.7	72.6	73.2	75.6	76.1	77.4	70.0	63.8	64.3	82.8	94.7
17-Apr	67.3	69.8	71.7	74.3	75.0	76.4	72.9	67.5	64.3	62.5	58.2	54.4	50.2	46.9	43.4	40.7	40.1	40.3	43.0	48.2	52.3	55.6	58.1	58.7	58.0	76.4
18-Apr	60.7	63.6	66.9	65.3	63.1	63.5	61.1	57.6	52.1	43.2	35.6	31.9	28.5	26.8	24.2	22.2	22.5	22.4	22.7	25.0	27.4	26.2	25.2	24.2	40.1	66.9
19-Apr	31.9	35.8	46.0	54.1	56.7	68.2	54.6	53.9	39.3	17.7	15.5	14.8	13.7	13.7	13.1	12.2	11.0	11.2	12.7	16.8	19.8	20.8	23.2	25.2	28.4	68.2
20-Apr	27.7	30.2	31.7	34.6	40.5	41.3	42.2	24.4	18.3	15.2	13.0	11.1	10.0	9.4	9.2	9.0	8.4	8.8	11.0	14.9	19.7	25.6	31.5	38.6	21.9	42.2
21-Apr	40.5	41.0	44.9	47.4	56.1	59.0	52.5	35.8	28.4	24.6	21.2	18.8	16.6	15.3	14.5	13.2	13.0	12.9	15.0	18.4	24.3	33.5	42.6	41.5	30.5	59.0
22-Apr	45.8	56.7	61.5	64.8	60.8	64.3	58.3	48.1	36.5	32.8	26.7	20.9	17.2	15.9	15.8	16.0	15.6	16.5	16.1	20.4	25.0	30.1	34.7	38.6	35.0	64.8
23-Apr	41.8	50.5	57.2	62.9	67.2	66.2	57.1	48.7	40.9	34.3	29.3	25.0	24.8	24.8	25.5	26.8	26.2	26.1	27.6	31.1	33.7	35.1	36.4	39.9	39.1	67.2
24-Apr	48.6	56.6	64.0	69.6	73.6	73.7	68.4	58.2	49.3	43.1	35.9	24.1	23.3	22.9	22.3	22.1	22.4	23.4	24.7	26.6	27.5	30.7	37.1	41.6	41.2	73.7
25-Apr	45.1	49.9	55.7	65.4	74.9	78.4	69.8	60.7	51.1	39.3	25.1	17.5	18.1	19.5	18.8	20.6	27.0	40.0	69.6	83.6	68.1	71.1	75.0	73.6	50.7	83.6
26-Apr	70.2	67.1	67.2	62.4	66.8	56.5	45.4	39.1	35.7	32.5	30.9	28.5	25.7	23.8	22.3	23.6	25.7	27.9	29.6	33.0	40.4	45.9	52.9	55.1	42.0	70.2
27-Apr	56.0	59.0	60.8	59.3	62.9	62.8	51.2	43.4	37.1	31.6	26.7	21.6	20.7	20.2	21.2	25.5	30.3	35.1	42.7	49.4	50.2	53.8	60.7	60.3	43.4	62.9
28-Apr	65.4	69.4	75.2	77.5	79.8	81.1	71.1	60.4	62.0	55.7	47.3	47.6	47.8	44.9	45.4	47.9	48.6	52.3	56.1	61.0	66.2	69.9	72.8	75.7	61.7	81.1
29-Apr	79.3	82.0	86.5	87.7	87.0	85.2	81.4	77.7	75.3	72.6	69.5	67.2	59.3	53.1	51.2	50.7	50.9	51.9	56.3	57.9	59.0	61.2	64.0	66.3	68.1	87.7
30-Apr	67.2	68.5	70.2	71.5	73.4	75.6	78.1	79.0	80.4	87.1	92.3	93.9	92.8	92.4	90.1	90.1	92.1	91.9	91.1	90.9	89.8	89.1	88.8	86.4	84.3	93.9
	61.7	65.3	68.2	70.4	72.0	71.8	68.4	64.3	59.1	53.3	49.3	45.1	43.2	41.4	40.0	40.2	40.4	41.4	44.7	48.3	51.7	55.0	58.5	60.5	Diurnal Average	
	96.9	97.1	97.6	97.5	95.3	94.9	95.5	95.2	94.9	93.6	94.3	93.9	92.8	92.4	90.1	92.3	95.2	96.3	96.7	96.6	96.7	96.9	96.9	96.9	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Fort McKay - Bertha Ganter - April 2024**





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

**Precipitation (PC) - mm**

**Fort McKay - Bertha Ganter - April 2024**

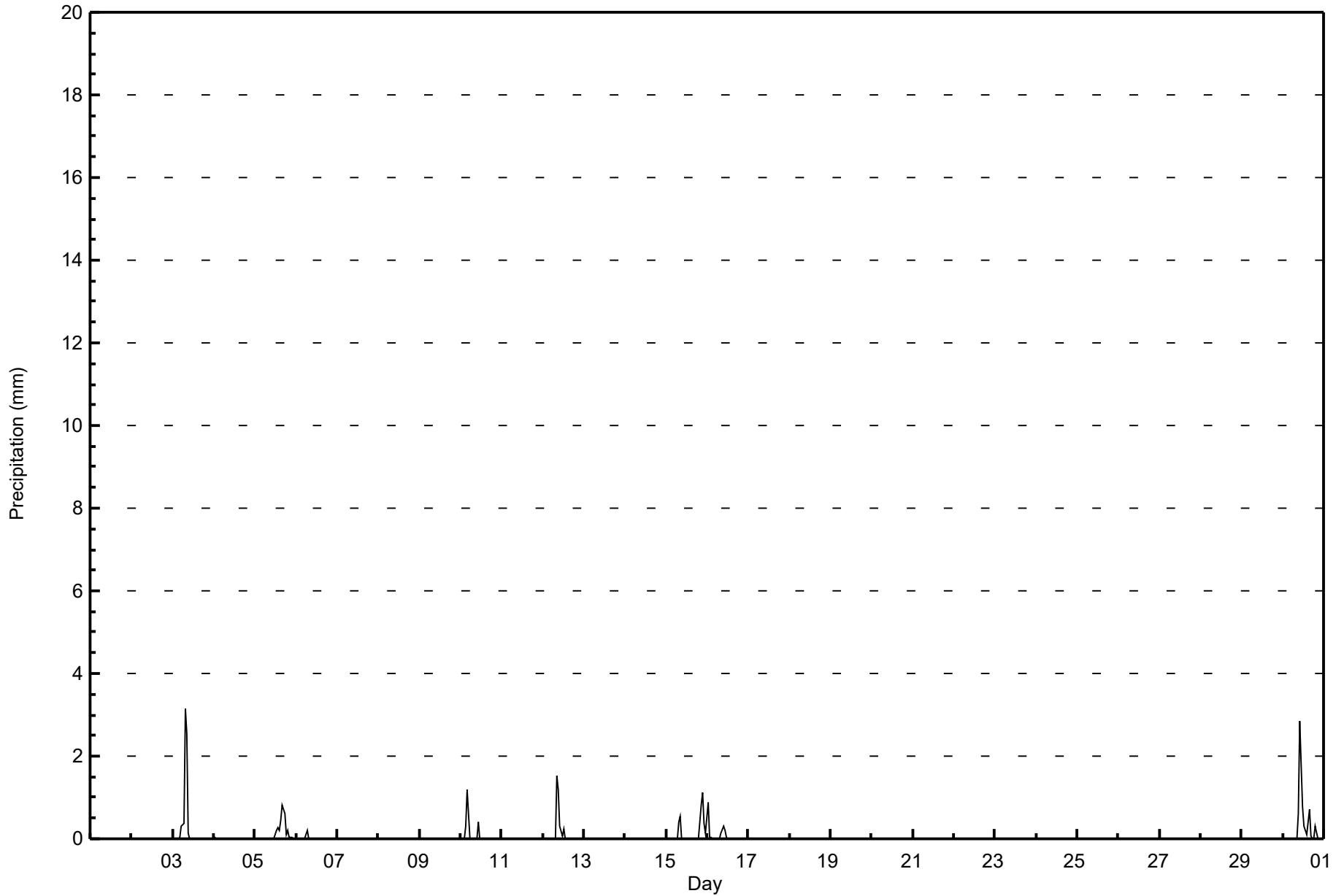
Maximum Value: 3.1 mm on Apr 3 08:00		Maximum Daily Total: 6.5 mm on Apr 3																			Hours in Service: 720									
Minimum Value: 0.0 mm on Apr 1 01:00		Minimum Daily Total: 0.0 mm on Apr 1																			Hours of Data: 719									
Maximum Diurnal Total: 4.7 mm at hour 9		Minimum Diurnal Total: 0.1 mm at hour 2																			Hours of Missing Data: 1									
Monthly Total: 26.01 mm		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> = 0.9																			Hours of Calibration: 0									
Day	Hourly Period Ending At (MST)																								Daily Total	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-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3-Apr	0.0	0.0	0.0	0.0	0.1	0.3	0.4	3.1	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	3.1
4-Apr	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
5-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.4	0.8	0.6	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	3.0	0.8	
6-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
7-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	0.0	0.0	0.3	1.2	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.2	
11-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.2	0.3	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	1.5	
13-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.1	0.4	0.1	0.0	3.4	1.1		
16-Apr	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.9		
17-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.9	0.8	0.3	0.2	0.1	0.7	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	5.9	2.9		
	0.9	0.1	0.1	0.3	1.3	0.3	0.6	3.6	4.7	2.2	3.8	0.9	0.8	0.5	0.3	1.2	0.9	0.6	0.1	0.5	0.9	1.2	0.4	0.1	Diurnal Average					
	0.9	0.1	0.1	0.3	1.2	0.3	0.4	3.1	2.5	1.2	2.9	0.8	0.3	0.3	0.2	0.7	0.8	0.6	0.1	0.3	0.8	1.1	0.4	0.1	Diurnal Maximum					

M - Maintenance



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Fort McKay - Bertha Ganter - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Precipitation (PC) - mm**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	699	97.22	97.22
0.4 - 0.5	6	0.83	98.05
0.6 - 0.7	3	0.42	98.47
0.8 - 1.4	7	0.97	99.44
1.5 - 10	4	0.56	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



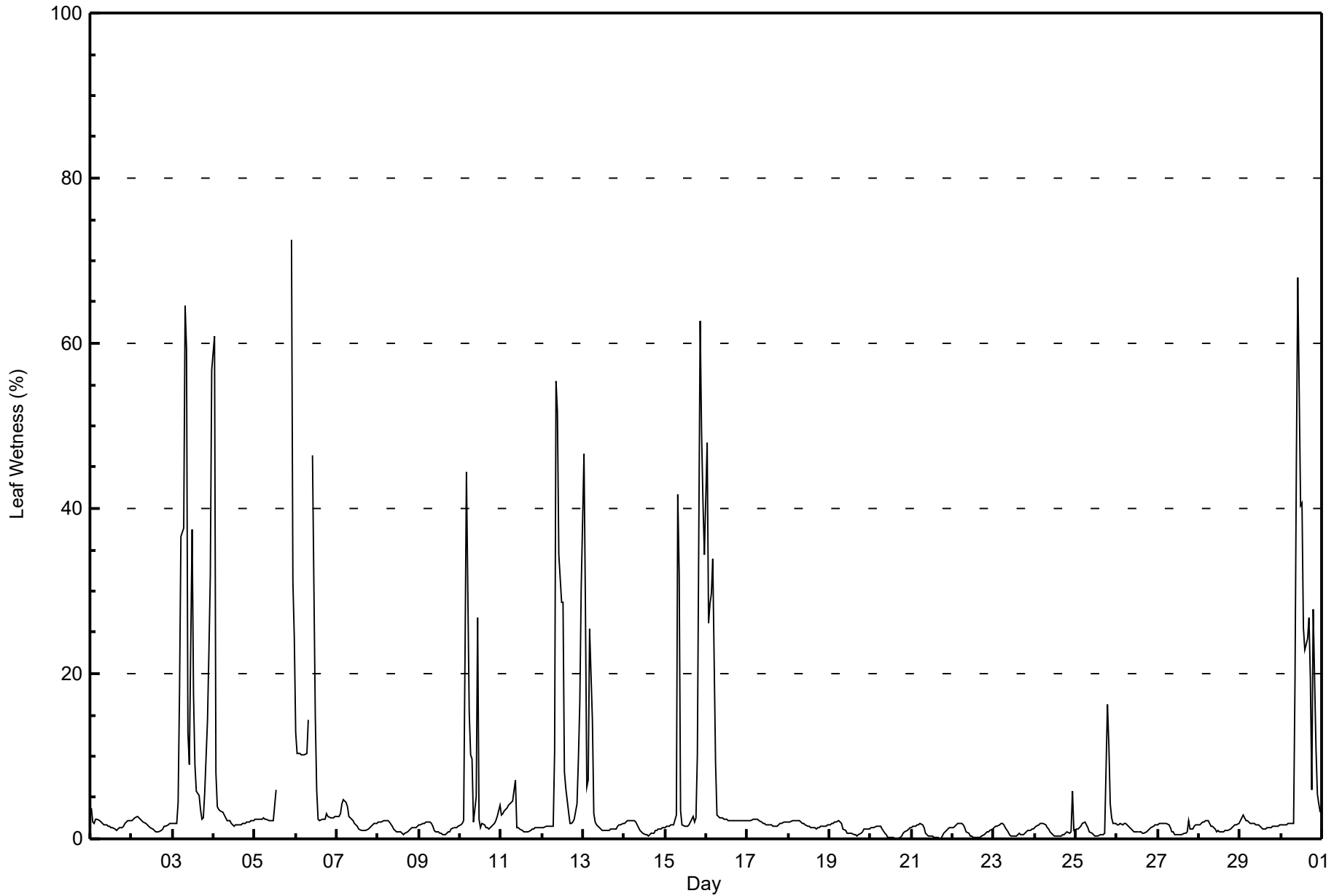
# Wood Buffalo Environmental Association

## Summary of Hour Averages

Leaf Wetness (LW) - %

Fort McKay - Bertha Ganter - April 2024

Maximum Value: 72.5 % on Apr 5 22:00		Maximum Daily Average: 19.3 % on Apr 3		Hours in Service: 720																						
Minimum Value: 0.0 % on Apr 21 17:00		Minimum Daily Average: 0.8 % on Apr 20		Hours of Data: 710																						
Maximum Diurnal Average: 7.2 % at hour 9		Minimum Diurnal Average: 1.7 % at hour 18		Hours of Missing Data: 10																						
Monthly Average: 4.50 %		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.1 Median = 1.7 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 9.2 P <sub>99</sub> = 55.1		Hours of Calibration: 0																						
				Percent Operational Time: 98.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	3.7	2.1	1.9	2.3	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.3	1.3	1.2	1.1	1.1	1.3	1.4	1.6	1.8	2.0	2.1	2.2	1.8	3.7
2-Apr	2.3	2.4	2.6	2.7	2.5	2.4	2.3	2.1	1.9	1.7	1.5	1.3	1.2	1.0	0.9	0.9	0.9	1.1	1.3	1.4	1.5	1.7	1.9	1.9	1.7	2.7
3-Apr	1.9	1.9	1.9	4.4	17.8	36.6	37.6	64.5	59.4	12.9	8.9	37.4	17.4	8.9	5.7	5.2	3.5	2.3	2.5	5.7	14.5	22.7	31.9	56.8	19.3	64.5
4-Apr	60.8	7.9	4.0	3.6	3.3	3.1	2.8	2.6	2.3	2.1	1.9	1.7	1.6	1.7	1.7	1.7	1.8	1.9	2.0	2.0	2.1	2.2	2.3	5.0	60.8	
5-Apr	2.3	2.3	2.4	2.4	2.4	2.5	2.4	2.4	2.3	2.2	2.2	2.2	5.9	OR	OR	OR	OR	OR	OR	OR	OR	72.5	31.2	24.4	--	72.5
6-Apr	13.0	10.4	10.3	10.2	10.2	10.1	10.4	14.4	OR	OR	46.5	14.9	5.9	2.4	2.3	2.3	2.4	2.4	3.0	2.7	2.5	2.6	2.6	2.6	8.4	46.5
7-Apr	2.7	2.7	3.0	4.3	4.7	4.4	3.8	2.7	2.5	2.2	1.9	1.7	1.5	1.3	1.0	1.0	1.1	1.0	1.2	1.4	1.6	1.7	1.9	1.9	2.2	4.7
8-Apr	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.0	1.5	1.2	0.9	0.9	0.9	0.8	0.7	0.6	0.7	0.9	1.0	1.2	1.4	1.4	1.4	1.5	1.4	2.2
9-Apr	1.6	1.7	1.8	1.9	2.0	2.1	2.0	1.8	1.4	1.0	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.8	0.9	1.1	1.3	1.4	1.4	1.5	1.3	2.1
10-Apr	1.6	1.8	2.1	22.5	44.5	15.2	10.2	9.7	2.0	5.2	26.8	2.3	1.4	1.8	1.7	1.3	1.3	1.3	1.5	1.6	1.9	2.1	2.8	4.0	6.9	44.5
11-Apr	2.8	3.1	3.4	3.8	4.0	4.2	4.4	4.6	7.1	1.4	1.3	1.1	1.0	0.8	0.8	0.9	0.9	0.9	1.1	1.2	1.3	1.3	1.3	1.4	2.3	7.1
12-Apr	1.4	1.4	1.5	1.5	1.5	1.5	1.5	10.4	55.5	51.7	34.5	28.6	28.7	8.2	6.1	3.3	1.8	1.9	2.1	2.3	4.3	9.7	16.4	30.4	12.8	55.5
13-Apr	46.6	28.4	6.3	7.1	25.5	14.3	3.1	2.1	1.8	1.4	1.2	1.1	1.0	1.1	1.1	1.0	1.1	1.2	1.2	1.3	1.5	1.6	1.7	1.8	6.4	46.6
14-Apr	1.9	2.1	2.2	2.2	2.2	2.2	2.2	2.0	1.4	1.1	0.9	0.6	0.6	0.5	0.4	0.6	0.7	0.7	0.9	1.1	1.2	1.3	1.3	1.3	1.3	2.2
15-Apr	1.4	1.5	1.6	1.6	1.7	1.7	2.9	41.7	32.0	3.4	1.6	1.6	1.6	1.6	1.7	2.3	2.8	2.0	2.5	10.2	62.7	49.1	40.8	34.3	12.7	62.7
16-Apr	48.0	26.0	28.5	29.6	33.9	9.2	2.9	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	9.0	48.0
17-Apr	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.1	2.0	2.4
18-Apr	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.3	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.7	1.7	2.2
19-Apr	1.8	1.8	1.9	2.0	2.1	2.2	2.1	1.8	1.2	1.0	0.7	0.7	0.7	0.6	0.6	0.5	0.4	0.5	0.8	0.9	1.1	1.2	1.2	1.2	1.2	2.2
20-Apr	1.3	1.4	1.4	1.5	1.6	1.6	1.6	1.2	0.6	0.4	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.4	0.6	0.9	1.1	1.2	1.3	0.8	1.6
21-Apr	1.4	1.5	1.6	1.6	1.7	1.8	1.7	1.3	0.7	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.4	0.7	0.9	1.1	1.3	1.4	0.9	1.8
22-Apr	1.4	1.6	1.7	1.8	1.8	1.8	1.7	1.4	0.9	0.7	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.8	0.9	1.0	1.2	0.9	1.8
23-Apr	1.3	1.4	1.6	1.7	1.8	1.8	1.7	1.3	0.8	0.6	0.4	0.3	0.3	0.3	0.5	0.6	0.4	0.5	0.7	0.9	1.0	1.1	1.1	1.2	1.0	1.8
24-Apr	1.4	1.5	1.7	1.8	1.9	1.9	1.7	1.4	1.1	0.9	0.7	0.3	0.4	0.3	0.3	0.4	0.5	0.6	0.6	0.9	0.8	0.8	5.7	1.1	1.2	5.7
25-Apr	1.1	1.2	1.4	1.6	1.9	2.1	1.8	1.4	0.9	0.7	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.7	16.3	11.3	4.2	2.5	1.8	1.8	2.3	16.3
26-Apr	1.8	1.7	1.8	1.8	1.9	1.8	1.7	1.5	1.2	1.1	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.8	1.0	1.2	1.4	1.5	1.6	1.7	1.3	1.9
27-Apr	1.7	1.8	1.8	1.8	1.9	1.9	1.7	1.4	0.9	0.8	0.5	0.5	0.5	0.4	0.5	0.6	0.7	0.9	2.2	1.2	1.3	1.5	1.7	1.7	1.2	2.2
28-Apr	1.8	1.8	2.0	2.1	2.2	2.2	1.9	1.6	1.6	1.2	0.9	0.9	0.9	0.8	0.8	1.0	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	1.4	2.2
29-Apr	2.2	2.5	2.9	2.2	2.2	2.1	1.9	1.8	1.8	1.8	1.7	1.6	1.3	1.1	1.2	1.2	1.3	1.3	1.4	1.5	1.5	1.5	1.6	1.6	1.7	2.9
30-Apr	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.9	18.9	45.9	68.0	40.3	40.7	25.6	23.0	24.3	26.8	19.4	6.0	27.7	11.0	5.4	4.2	3.3	16.9	68.0
																									Diurnal Average	
																									Diurnal Maximum	
OR - Out of Range																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Leaf Wetness (LW) - %**  
**Fort McKay - Bertha Ganter - April 2024**

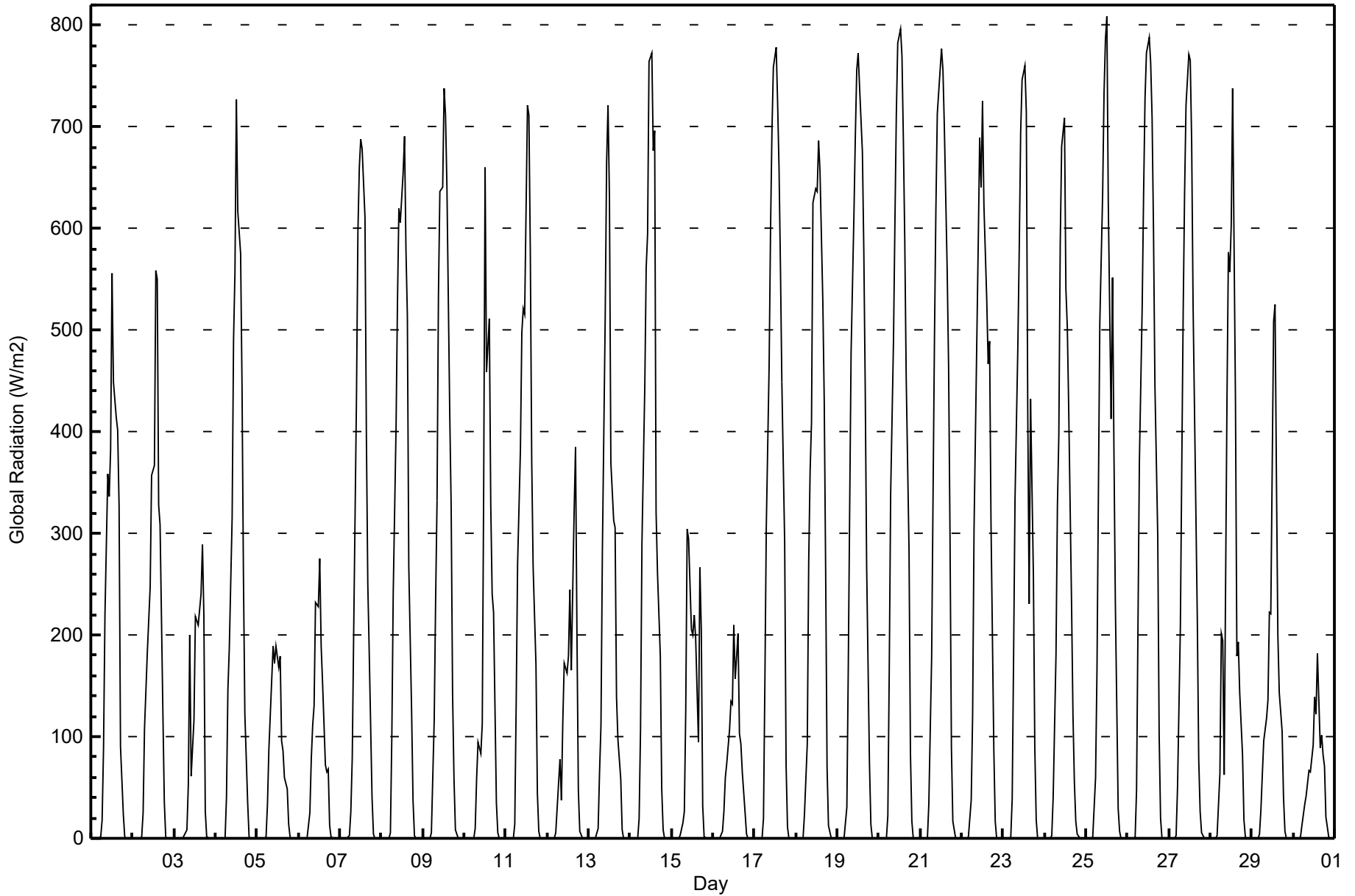
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	31	4.37	4.37
0.4 - 0.5	28	3.94	8.31
0.6 - 0.7	36	5.07	13.38
0.8 - 1.4	178	25.07	38.45
1.5 - 10	354	49.86	88.31
> 10	69	9.72	98.03

Total Number of Valid Hours: 710

Total Number of Hours: 720



Maximum Value: 808.5 W/m2 on Apr 25 13:00																						Maximum Daily Average: 292.0 W/m2 on Apr 26																						Hours in Service: 720	
Minimum Value: 0.0 W/m2 on Apr 1 01:00																						Minimum Daily Average: 48.9 W/m2 on Apr 30																						Hours of Data: 720	
Maximum Diurnal Average: 572.2 W/m2 at hour 13																						Minimum Diurnal Average: 0.0 W/m2 at hour 1																						Hours of Missing Data: 0	
Monthly Average: 185.32 W/m2																						Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 48.5 Q <sub>3</sub> = 322.4 P <sub>90</sub> = 622.6 P <sub>99</sub> = 772.7																						Hours of Calibration: 0	
																																												Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Apr	0.0	0.0	0.0	0.0	0.0	0.9	17.8	88.8	219.6	359.2	335.8	382.2	555.6	449.1	414.3	401.0	326.9	89.7	23.9	1.2	0.0	0.0	0.0	0.0	152.8	555.6																			
2-Apr	0.0	0.0	0.0	0.0	0.0	1.4	25.5	108.7	184.0	215.6	247.8	356.7	366.9	558.6	550.4	328.7	308.2	123.7	36.4	1.8	0.0	0.0	0.0	0.0	142.3	558.6																			
3-Apr	0.0	0.0	0.0	0.0	0.0	0.0	5.3	8.3	52.5	199.8	61.7	116.3	218.3	213.4	209.5	240.8	289.7	220.0	26.6	1.9	0.0	0.0	0.0	0.0	77.7	289.7																			
4-Apr	0.0	0.0	0.0	0.0	0.0	0.6	40.6	146.4	187.3	315.3	490.9	557.3	726.8	617.1	574.8	445.3	258.0	122.6	34.8	1.4	0.0	0.0	0.0	0.0	188.3	726.8																			
5-Apr	0.0	0.0	0.0	0.0	0.0	1.7	33.4	88.2	156.0	189.0	172.1	188.8	168.2	179.9	95.9	86.4	60.1	48.4	14.5	0.8	0.0	0.0	0.0	0.0	61.8	189.0																			
6-Apr	0.0	0.0	0.0	0.0	0.0	0.5	24.9	77.4	110.6	131.2	231.8	228.3	275.1	189.2	152.4	71.7	65.2	67.7	12.6	1.1	0.0	0.0	0.0	0.0	68.3	275.1																			
7-Apr	0.0	0.0	0.0	0.0	0.0	2.3	26.4	79.3	202.1	434.8	596.5	659.7	688.4	677.9	611.6	396.6	249.9	183.6	40.2	4.1	0.0	0.2	0.0	0.0	202.2	688.4																			
8-Apr	0.0	0.0	0.0	0.0	0.0	5.6	100.7	242.2	404.6	528.2	620.3	606.3	654.8	690.2	579.3	513.8	267.6	125.1	37.4	2.3	0.0	0.0	0.0	0.0	224.1	690.2																			
9-Apr	0.0	0.0	0.0	0.0	0.0	6.2	116.1	234.6	332.3	535.1	637.1	641.0	738.2	711.0	640.8	417.2	324.7	142.2	59.0	7.7	0.0	0.0	0.0	0.0	231.0	738.2																			
10-Apr	0.0	0.0	0.0	0.0	0.0	0.6	10.3	57.9	94.7	83.8	111.9	344.0	660.7	458.0	511.2	329.1	240.3	223.1	34.1	5.2	0.0	0.0	0.0	0.0	131.9	660.7																			
11-Apr	0.0	0.0	0.0	0.0	0.0	13.4	132.1	269.1	382.0	497.2	521.6	516.0	721.4	711.3	578.1	371.6	267.1	170.9	44.6	6.3	0.0	0.0	0.0	0.0	216.8	721.4																			
12-Apr	0.0	0.0	0.1	0.0	0.0	5.6	54.6	77.8	37.2	115.8	171.9	162.6	179.1	244.5	165.9	321.1	384.4	203.0	47.1	6.9	0.0	0.0	0.0	0.0	90.7	384.4																			
13-Apr	0.0	0.0	0.0	0.0	0.0	9.1	65.1	111.1	282.1	513.1	665.4	721.8	630.1	370.3	313.2	305.8	139.0	97.6	58.4	8.2	0.0	0.0	0.0	0.0	178.8	721.8																			
14-Apr	0.0	0.0	0.0	0.0	0.1	19.9	107.3	290.5	443.3	561.2	595.4	764.7	772.8	677.0	696.1	321.7	260.6	179.0	48.6	8.4	0.0	0.0	0.0	0.0	239.4	772.8																			
15-Apr	0.0	0.0	0.0	0.0	0.0	3.2	14.6	26.8	126.1	304.0	295.2	205.9	200.0	218.9	196.8	94.4	266.3	204.5	31.6	1.4	0.0	0.0	0.0	0.0	91.2	304.0																			
16-Apr	0.0	0.0	0.0	0.0	0.0	6.3	26.7	59.4	73.2	107.6	134.2	131.8	210.4	157.2	200.9	103.0	93.0	65.0	25.2	4.8	0.0	0.0	0.0	0.0	58.3	210.4																			
17-Apr	0.0	0.0	0.0	0.0	0.0	19.9	154.5	306.8	466.2	598.8	696.4	759.3	778.2	724.3	660.8	562.8	449.2	289.8	72.7	10.9	0.0	0.0	0.0	0.0	272.9	778.2																			
18-Apr	0.0	0.0	0.0	0.0	0.0	23.2	93.5	271.6	361.9	410.1	625.5	638.9	637.2	686.5	656.0	528.0	430.0	262.1	69.5	12.1	0.0	0.0	0.0	0.0	237.8	686.5																			
19-Apr	0.0	0.0	0.0	0.0	0.5	31.0	166.5	325.6	478.4	613.2	691.1	756.1	772.3	739.6	675.9	577.7	443.4	267.6	73.1	14.6	0.2	0.0	0.0	0.0	276.1	772.3																			
20-Apr	0.0	0.0	0.0	0.0	0.7	22.6	165.2	338.9	489.1	604.8	712.2	782.2	797.0	770.6	687.1	586.0	453.5	283.5	83.9	17.0	0.5	0.0	0.0	0.0	283.1	797.0																			
21-Apr	0.0	0.0	0.0	0.0	0.3	34.0	177.3	337.4	492.0	619.1	713.2	755.6	777.2	756.7	698.6	559.2	464.8	297.0	89.3	17.1	0.0	0.0	0.0	0.0	282.9	777.2																			
22-Apr	0.0	0.0	0.0	0.0	1.4	38.1	120.8	304.8	399.0	587.4	688.8	640.6	725.0	622.4	530.2	466.9	489.3	312.0	87.0	16.5	0.0	0.0	0.0	0.0	251.3	725.0																			
23-Apr	0.0	0.0	0.0	0.0	1.0	38.4	181.0	334.0	483.4	581.0	694.2	746.8	760.1	713.7	423.6	230.4	432.4	258.2	89.3	18.1	0.0	0.0	0.0	0.0	249.4	760.1																			
24-Apr	0.0	0.0	0.0	0.0	2.2	40.0	181.1	326.9	396.6	585.7	680.9	708.9	540.9	503.1	422.2	232.1	122.1	55.4	17.0	3.7	0.1	0.0	0.0	0.0	200.8	708.9																			
25-Apr	0.0	0.0	0.0	0.0	1.0	59.2	165.6	337.4	506.9	634.2	734.0	787.2	808.5	624.8	412.7	551.5	381.9	232.4	28.8	6.4	0.0	0.0	0.0	0.0	261.3	808.5																			
26-Apr	0.0	0.0	0.0	0.0	1.9	46.7	207.5	369.3	523.6	634.5	728.9	772.6	787.6	763.4	708.6	598.0	446.8	297.1	101.2	20.0	0.6	0.0	0.0	0.0	292.0	787.6																			
27-Apr	0.0	0.0	0.0	0.0	2.6	49.7	207.3	365.8	518.5	635.0	720.6	771.8	766.3	685.3	524.8	320.2	215.0	78.4	26.1	5.1	0.5	0.2	0.0	0.0	245.5	771.8																			
28-Apr	0.0	0.0	0.0	0.0	2.1	64.2	201.8	194.9	62.3	432.4	577.3	557.9	602.8	738.5	430.2	178.9	193.3	143.1	82.1	17.7	0.9	0.0	0.0	0.0	186.7	738.5																			
29-Apr	0.0	0.0	0.0	0.0	4.1	27.8	62.9	95.8	118.5	136.6	222.1	221.4	508.0	526.0	353.6	200.3	142.7	105.4	39.8	7.6	0.1	0.0	0.0	0.0	115.5	526.0																			
30-Apr	0.0	0.0	0.0	0.0	0.9	12.2	33.0	42.2	53.9	66.8	65.5	91.6	138.8	122.4	181.5	88.5	101.9	81.4	71.1	20.9	1.1	0.0	0.0	0.0	48.9	181.5																			
																								Diurnal Average																					
																								Diurnal Maximum																					





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Global Radiation (GR) - W/m2**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	325	45.14	45.14
21 - 100	87	12.08	57.22
101 - 300	117	16.25	73.47
301 - 600	110	15.28	88.75
601 - 900	81	11.25	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

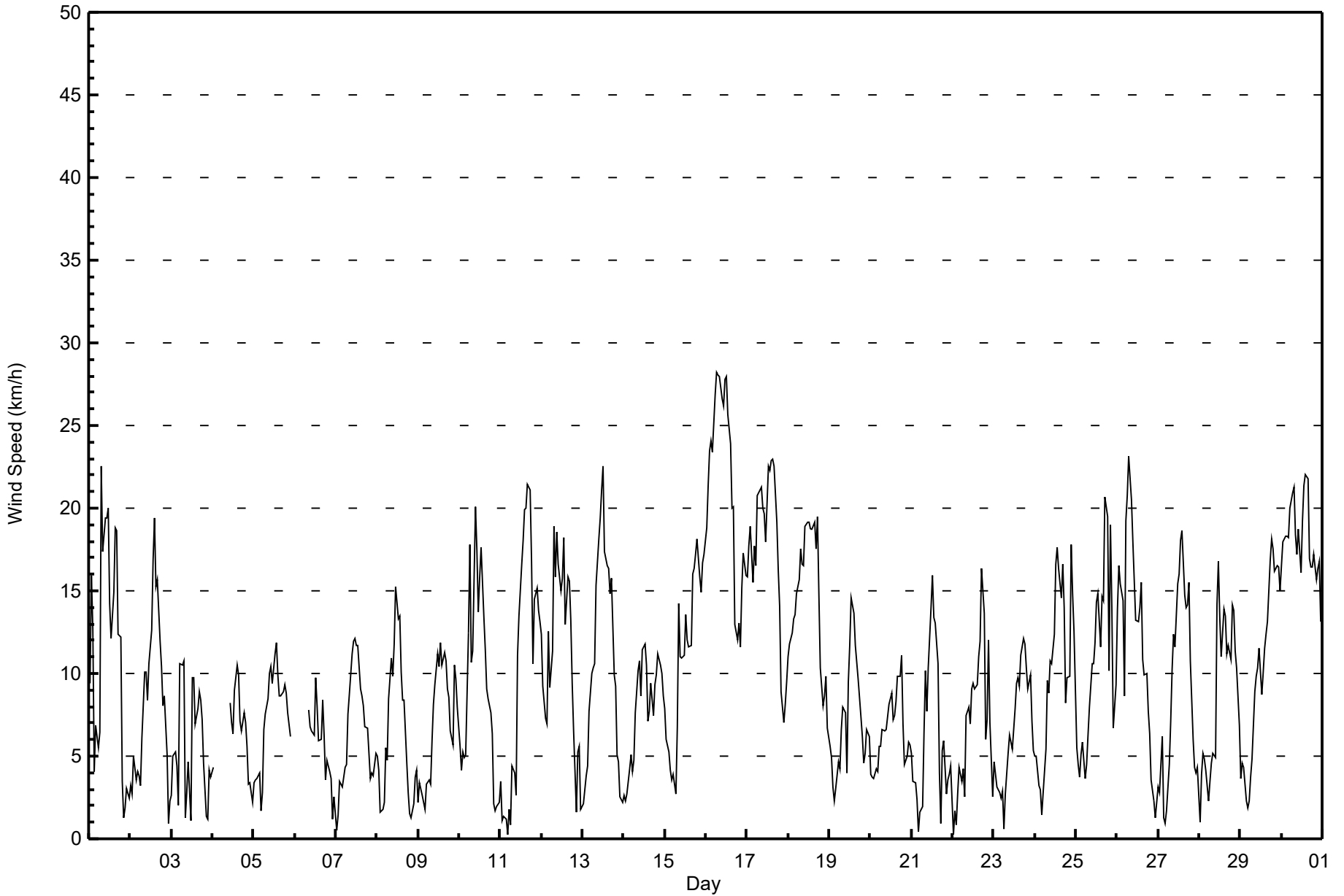
## Fort McKay - Bertha Ganter - April 2024

Maximum Speed: 28 km/h on Apr 16 07:00	Maximum Daily Speed Average: 21.4 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 22 01:00	Minimum Daily Speed Average: 1.5 km/h on Apr 14	Hours of Data: 701
Maximum Diurnal Speed Average: 3.7 km/h at hour 19	Minimum Diurnal Speed Average: 0.3 km/h at hour 12	Hours of Missing Data: 19
Monthly Average Velocity: 2.4 km/h 5.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 9 Q <sub>3</sub> = 14 P <sub>90</sub> = 18 P <sub>99</sub> = 26	Percent Operational Time: 97.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	W9	NW16	NW13	W4	W7	WSW5	W6WNW23WNW17	NW19	NW19	NW20WNW14WNW12WNW15	NW19	NNW19	NNW12	NW12	NW3	W1	SW2	SW3	S2							NW10.6	WNW23
2-Apr	SSW3	SSW3	S5	S4	S4	SSE4	SSW3	S6	S10	S10	S8	S11	S13	SSE17	S19	S15	S16	S12	S10	S8	S9	S5	SE1	N2	S8.0	S19	
3-Apr	SSE3	S5	S5	S4	W2WNW11WNW11WNW11	WSW1	SSE3	SW5	NW1	NNE10	NNE10	N7	NE8	NE9	NE8	NE7	NE5	ENE1	SE1	ESE4	ESE4				NNE1.7	WNW11	
4-Apr	NE4	UO	UO	UO	UO	UO	UO	UO	UO	UO	NE8	E7	E6	ENE9	NE10	NE10	ENE7	ENE7	NNE8	NNE7	NNE6	NE3	NE3	NNE2	---	NE10	
5-Apr	NNW3	NNE4	N4	NNE4	NNW2	NNE3	N7	NNE8	N8	N10	N10	NNE9	NNE11	NNE12	NNE10	N9	N9	N9	N9	N9	N8	N6	UO	UO	N7.3	NNE12	
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	NNE8	NNE7	NE7	NNE6	NNE10	NNE8	NE6	NE6	NNE8	NE6	NE4	NNE5	NNW4	NW4	NW1	WNW3	---	NNE10	
7-Apr	S0	S1	S3	S3	SSW3	SW4	S4	S8	SSE9	S11	S12	SSW12	SSW12	SW12	WSW9	WSW9	SW8	WSW7	WSW7	SW5	WSW4	SSW4	S4	S5	SSW5.9	SSW12	
8-Apr	SSW5	S4	SW2	SW2	SW2	S5	S5	S8	SSE11	SSE10	S12	S15	SSW13	SSW13	SW10	SW8	SSW8	SW5	SSW3	SE2	SSE1	WNW2	SW4	NNW4	SSW5.6	S15	
9-Apr	WNW2	SSW3	SW3	NNW2	SSW2	S3	S4	SE3	SSE6	SE8	SSW9WSW11WSW10WSW12WSW11	W11	W11	W9	W9	W7	WNW6	NW10	NNW10	NNW8				WSW4.6	WSW12		
10-Apr	NNW6	NW4	NW5	WNW5	WNW5	NW12	NNW18	NW11	NW11	NNW20	NNW17	NW14	N16	N18	NE13	NE11	ENE9	NE8	NE8	NNE6	NNE2	WNW2	NW2	NW2	NNW7.7	NNW20	
11-Apr	WNW3	WNW1	SW1	WSW1	WSW0	SW2	N1	SSE4	S4	E3	S11	S14	S17	SSE18	SSE20	SSE20	SE21	SSE21	SSE17	SSE11	SSE14	SSE15	S14	S13	SSE9.5	SE21	
12-Apr	S12	S9	S7	S7	S13	S9	S11	S19	S16	SSE19	SSE17	SSE15	SSE16	S18	SSE13	SSE16	S16	SSE13	SSE9	SSE7	S2	SE5	S6	WSW2	SSE11.3	S19	
13-Apr	S2	SSW3	SSW4	SSW4	WSW8	W10	W10WNW11	NW15	NW18	NW19WNW21WNW23WNW17WNW16WNW16WNW15	NW16WNW10	WNW9	WNW5	WNW5	W3	NW2									WNW10.0	WNW23	
14-Apr	NW3	S2	S3	S4	S5	S4	SSE5	SSE8	SSE10	SSE11	SSE9	SSE11	SSE12	SSE11	WSW7	WSW8	N9	NE7	NNE9	NNE10	N11	N11	N10	NNE9	SE1.5	SSE12	
15-Apr	N8	N6	N5	NNW4	NW4	NW4	SSW3	NNW7	NNW14	N11	N11	N11	N14	NE12	ENE12	NE12	NE16	NE16	NE17	NE18	NNE16	NNE15	N17	N17	NNE10.0	NE18	
16-Apr	N19	N21	N24	N24	N23	N27	N28	N28	N28	N27	N26	N28	NNE28	NNE26	NNE24	NNE20	NNE20	NNE13	NNE12	NNE13	NNE12	N15	N17	N16	NNE21.4	N28	
17-Apr	N16	NNE18	NNE19	N16	N18	N17	NNE21	N21	NNE21	N20	NNE20	NNE18	NNE23	NNE22	NNE23	NNE23	NNE23	NNE19	NNE16	N14	N9	N7	N8	N9	NNE17.3	NNE23	
18-Apr	N11	N12	N12	N13	N14	N15	N16	N18	N17	NNE17	NNE19	NNE19	NNE19	NNE19	NNE19	NNE19	NNE18	N20	N15	N10	N8	NNW9	NNW10	NNW7	N14.4	N20	
19-Apr	NW6	WNW5	W3	WSW2	S3	S5	SSE4	SE7	SE8	SSW8	SSW4	SSE9	SSE12	SSE15	S14	S12	SSW11	SW10	SSW7	SW6	WSW5	WSW5	W7	W6	SSW5.2	SSE15	
20-Apr	W4	W4	WSW4	SW4	SSW4	SSW6	SSW6	SW7	SW7	WSW7	WSW7	SW8	WNW9	W7	W7	SW8	SSW10	SSW10	S11	SSW7	SSW4	S5	S6	S6	SW5.6	S11	
21-Apr	S5	SSW3	S3	SSE2	E0	NNW2	SE2	SSE6	S10	S8	S10	S14	S16	S13	S13	S11	S4	W1	N5	NNW6	NW3	NW4	NW4	NW4	S4.1	S16	
22-Apr	SW0	SSW2	SW1	W3	WNW4	WNW4	NW4	NNE3	NNE7	NNE8	NE7	ENE9	NE9	ENE9	NE9	NE11	NE12	NNE16	NNE14	NNE6	N7	N12	N7	N3	NNE5.6	NNE16	
23-Apr	NW5	WNW4	WNW3	WNW3	WNW2	WNW3	N1	NNE3	NNE5	E6	E6	ESE5	ESE8	NE9	NE10	NE9	NE11	NE12	NE12	NNE10	NNE9	NE10	NE7	NE5	NE5.0	NE12	
24-Apr	N5	N5	NNW3	NNW3	NNW1	NNW3	NNE5	N10	NNE9	N11	N11	SE12	SE17	SE17	SE16	ESE15	ESE17	ESE14	ESE8	ESE10	SE10	SE18	SE15	SE13	ESE6.4	SE18	
25-Apr	SSE5	SSE4	WNW4	WNW5	W6	WNW4	WSW5	WSW6	SW8WSW11WSW11WSW12WSW14WSW15WSW12WSW15	W14WNW21	NW19WNW10	NNW19	N14	NW7	NW9										W7.9	WNW21	
26-Apr	NW14	NNW17	NNW15	N14	NNW9	NNW19	NNW21	NNW23	NNW21	NNW18	NW16	NNW13	NW13	NNW14	NNW15	N11	NE10	NE10	NE8	E6	NE4	N2	E1	SE2	NNW10.7	NNW23	
27-Apr	NNW3	WNW3	S6	ESE1	NE1	SSW2	SSE4	S7	SSE10	SSE12	SSE12	SSE15	S16	S18	S19	SSW15	SSW14	SSW14	S16	SSE11	SSE6	SE4	ESE4	SE4	S8.0	S19	
28-Apr	NNE1	N4	NNW5	NNW5	NNW4	NW2	NNE3	SSE5	SSE5	SE5	S14	S17	S13	S11	SSE14	SSE13	ESE11	SE12	SE11	SE14	SE14	SE11	SE10	SE7	SSE6.5	S17	
29-Apr	ESE4	E5	ENE4	NE2	NE2	ENE2	ENE4	ENE5	NE9	NE10	NE10	NNE12	NE9	NE10	NE11	NE12	NE13	NNE17	NNE18	NNE18	NNE16	NNE16	NNE16	NNE15	NNE9.4	NNE18	
30-Apr	NNE17	NNE18	NNE18	NNE18	N18	NNE20	NNE21	NNE21	NNE18	NNE17	N19	NNE16	NNE19	N21	NNE22	N22	N17	N16	N16	N17	NNE16	NNE16	NNE17	NNE13	NNE18.1	NNE22	

NNW2.6NNW2.9NNW2.9NNW2.6NNW2.5NNW3.4NNW3.4NNW3.1	N2.7	N2.9	N2.3NNW0.3	NE1.2	ENE1.6	NE1.8	NNE1.9	NE3.3	NNE3.7	NNE3.7	NNE3.6	NNE3.1	NNE2.9	NNE2.5	N2.5	Diurnal Average									
N19	N21	N24	N24	N23	N27	N28	N28	N28	N27	N26	N28	NNE28	NNE26	NNE24	NNE23	NNE23	SSE21	NW19	NE18	NNW19	SE18	N17	N17	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Fort McKay - Bertha Ganter - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	216	30.81	30.81
6 - 11	236	33.67	64.48
12 - 19	203	28.96	93.44
20 - 28	46	6.56	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort McKay - Bertha Ganter - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	11	12	10	5	4	6	10	13	34	19	16	11	9	22	19	15	216
6 - 11	32	27	33	7	5	4	8	18	28	10	10	15	15	9	6	9	236
12 - 19	32	42	12	1	0	3	9	22	30	7	1	6	1	8	16	13	203
20 - 28	15	18	0	0	0	0	1	3	0	0	0	0	0	4	1	4	46
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>	90	99	55	13	9	13	28	56	92	36	27	32	25	43	42	41	701

Total Number of Valid Hours: 701

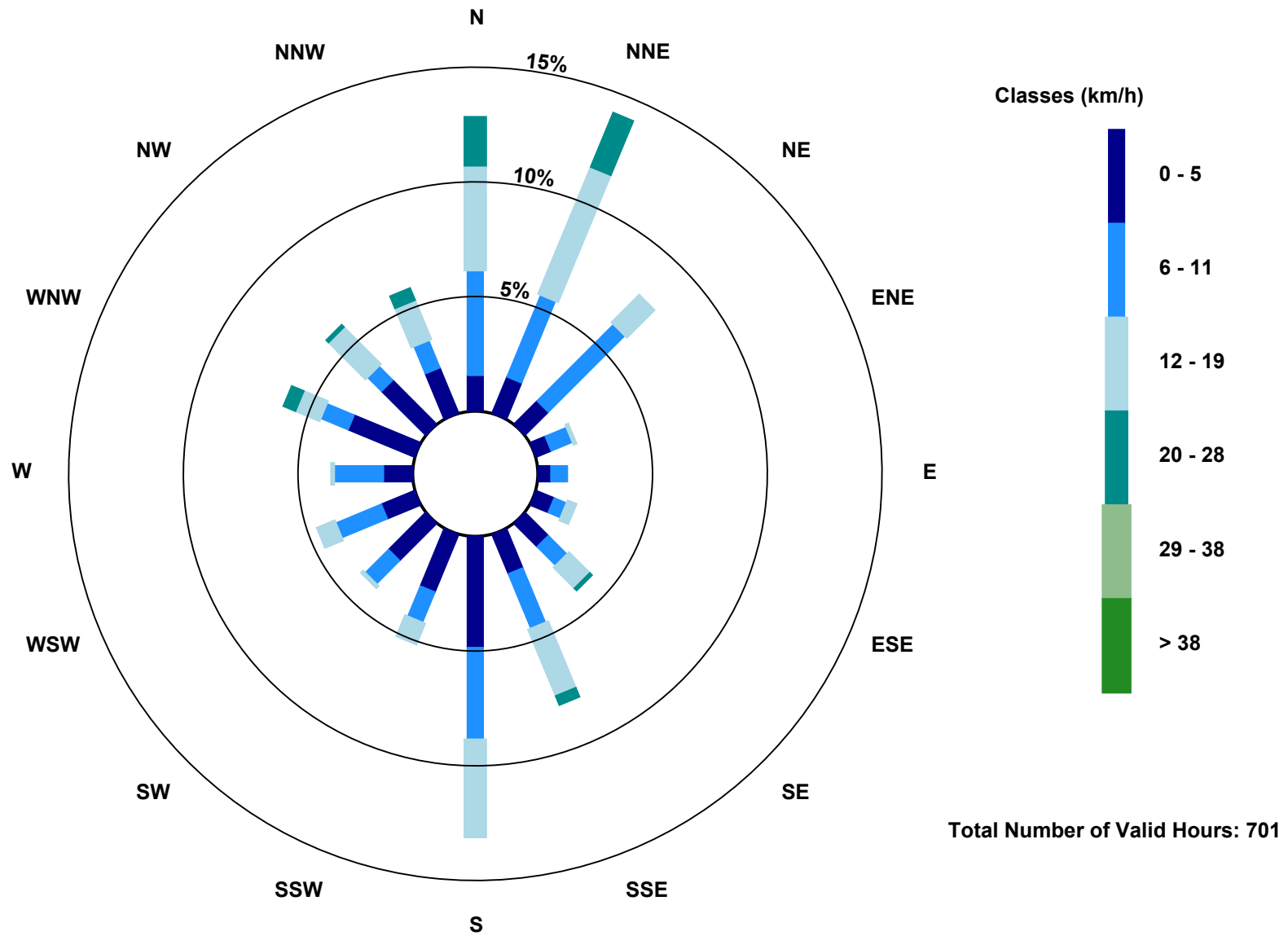
Total Number of Hours: 720





Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Fort McKay - Bertha Ganter





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Fort McKay - Bertha Ganter - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Apr 25 18:00	Hours in Service: 720 Hours of Data: 701 Hours of Missing Data: 19 Hours of Calibration: 0 Percent Operational Time: 97.4
Minimum Value: 1 km/h on Apr 7 04:00	
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	6	5	6	1	3	2	4	8	6	5	5	5	5	5	5	6	4	3	3	1	2	2	1	2	8
2-Apr	2	1	1	1	1	2	1	2	2	2	2	2	3	3	4	3	4	3	2	2	1	2	3	2	4
3-Apr	1	1	2	3	3	4	4	5	2	2	2	5	5	2	2	3	3	2	2	1	1	2	2	5	
4-Apr	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	3	3	3	3	2	2	2	1	1	2	3	
5-Apr	1	1	1	1	2	1	2	1	2	2	2	3	2	3	2	2	1	1	2	1	1	2	UO	UO	3
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	2	2	2	2	2	3	2	2	2	2	1	1	1	2	1	1	3
7-Apr	2	1	1	1	1	1	1	1	2	3	4	4	4	4	4	4	4	3	3	2	1	1	2	2	4
8-Apr	1	1	1	1	1	3	2	2	3	2	3	5	4	5	5	4	4	2	2	2	1	2	2	1	5
9-Apr	2	1	2	1	1	1	1	2	2	2	4	5	5	5	4	5	5	4	4	3	2	2	2	2	5
10-Apr	1	2	1	2	2	4	3	2	3	6	7	4	4	6	5	4	3	3	3	2	1	2	1	2	7
11-Apr	1	1	1	1	1	1	1	1	2	2	3	4	4	5	4	4	5	5	4	3	3	3	3	3	5
12-Apr	2	2	2	2	2	3	3	6	4	4	4	4	4	4	3	3	3	3	2	1	2	3	2	2	6
13-Apr	1	1	1	1	3	4	4	4	5	7	8	9	8	7	7	7	6	4	4	1	1	1	1	2	9
14-Apr	2	2	1	1	1	2	1	1	2	2	3	3	4	4	5	4	3	2	3	2	2	2	2	2	5
15-Apr	2	2	1	1	2	1	1	3	4	4	2	3	3	4	5	5	5	6	5	5	5	3	4	3	6
16-Apr	4	5	5	5	5	7	6	6	7	6	6	7	7	7	7	5	5	4	4	3	2	4	4	3	7
17-Apr	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	5	4	4	2	1	1	2	6
18-Apr	2	2	2	2	2	3	4	3	4	4	5	5	5	5	5	6	5	4	4	2	1	1	2	1	6
19-Apr	1	1	1	1	1	1	1	1	1	2	4	4	3	4	4	4	4	3	3	2	1	2	2	2	4
20-Apr	2	2	1	2	1	1	1	2	2	2	3	4	4	4	4	4	4	3	2	2	1	1	1	1	4
21-Apr	1	1	1	1	1	1	2	2	2	2	4	4	4	3	3	3	3	2	1	2	1	1	1	2	4
22-Apr	1	1	1	1	1	2	2	1	2	3	3	3	3	3	4	4	4	4	5	2	2	2	2	1	5
23-Apr	1	1	1	2	1	2	1	1	2	2	2	3	2	4	3	3	3	4	3	3	2	3	2	2	4
24-Apr	1	2	2	2	2	1	2	2	2	3	4	4	4	5	5	4	5	5	3	5	3	5	4	3	5
25-Apr	3	2	2	3	2	2	2	3	3	4	4	6	6	7	5	6	6	10	9	3	5	6	2	3	10
26-Apr	3	3	4	6	2	6	5	5	5	4	5	6	5	6	6	4	4	4	3	2	1	1	1	2	6
27-Apr	1	1	3	3	1	1	2	2	3	2	3	6	6	6	6	5	5	5	5	2	1	1	1	1	6
28-Apr	1	1	1	1	1	2	1	2	2	2	5	3	3	3	3	3	3	3	3	4	3	3	3	3	5
29-Apr	1	1	1	1	1	1	1	2	3	3	3	3	4	3	4	4	4	5	4	4	4	4	4	4	5
30-Apr	4	4	4	5	5	6	5	5	5	4	4	4	5	5	5	5	4	4	4	4	3	4	4	3	6
Diurnal Maximum																									
6 5 6 6 5 7 6 8 7 7 8 9 8 7 7 7 7 6 10 9 5 5 6 4 4																									

UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Fort McKay - Bertha Ganter - April 2024**

Direction of Maximum Speed: 6 deg on Apr 16 07:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 12.3 deg on Apr 16	Hours of Data: 701
Direction of Minimum Speed: 235 deg on Apr 22 01:00	Hours of Missing Data: 19
Direction of Minimum Daily Speed Average: 1.5 deg on Apr 14	Percent Operational Time: 97.4
Monthly Average Direction: 5.6 deg	

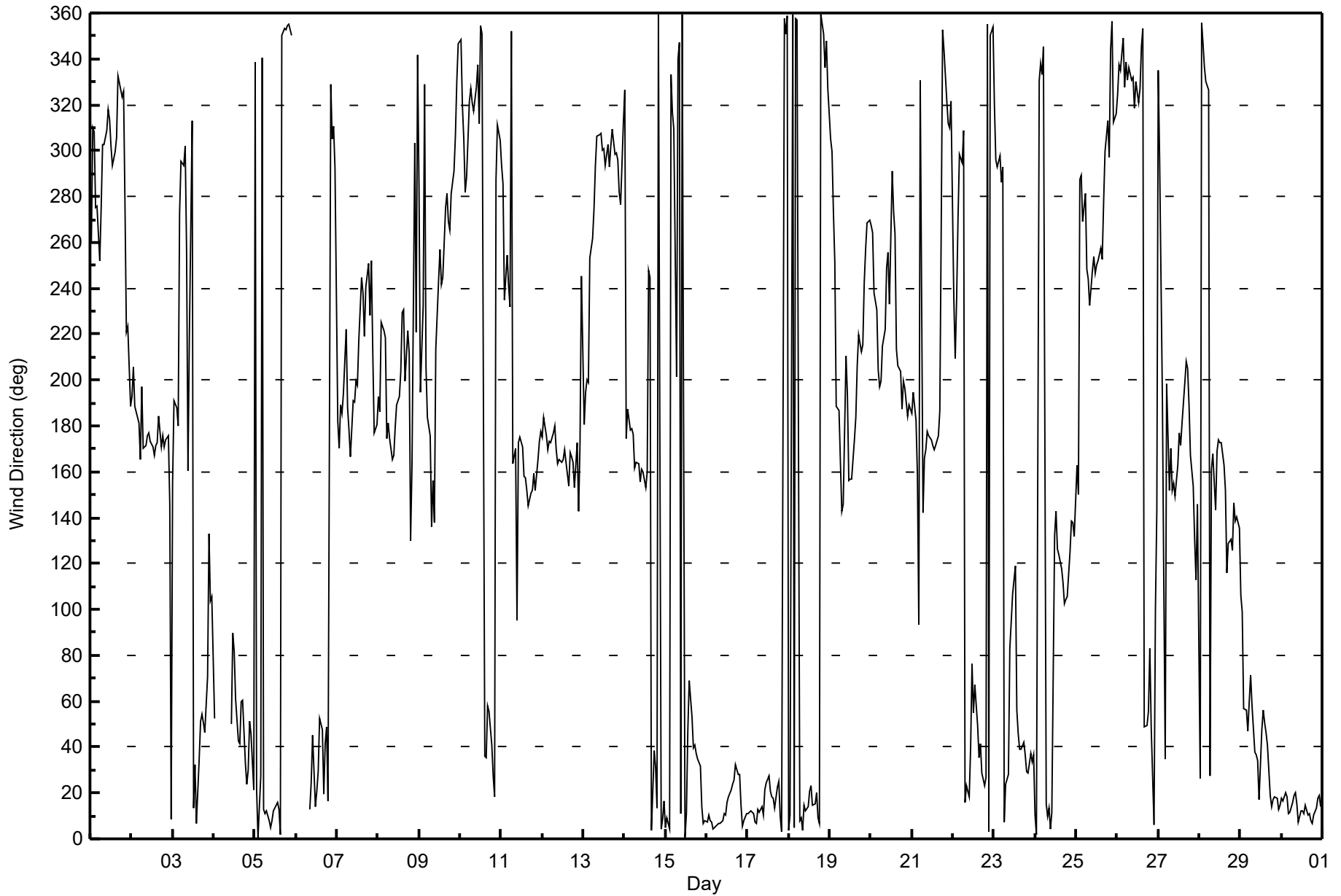
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	260	310	308	275	276	252	275	303	303	309	318	314	302	294	299	306	333	330	323	326	276	221	223	188	304.2
2-Apr	193	206	188	184	181	165	197	170	171	175	177	173	171	167	172	173	184	171	176	171	174	176	146	9	174.7
3-Apr	155	191	188	180	273	295	293	302	256	160	220	313	13	32	7	35	51	54	51	46	71	133	103	105	14.8
4-Apr	52	UO	UO	UO	UO	UO	UO	UO	UO	UO	50	89	82	61	43	42	60	61	33	24	30	51	46	21	--
5-Apr	338	22	1	28	341	13	11	12	8	5	8	12	14	16	13	2	350	353	353	354	355	350	UO	UO	4.5
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	13	24	45	14	21	30	53	48	19	42	49	16	329	305	311	292	--
7-Apr	182	170	189	185	194	222	188	178	167	191	190	200	198	217	244	238	219	241	251	228	252	212	177	180	206.7
8-Apr	193	186	225	221	218	175	181	175	166	167	179	189	193	204	229	230	200	221	212	130	163	303	221	342	195.2
9-Apr	284	195	232	329	206	184	175	136	156	138	213	243	257	242	245	275	281	269	265	281	291	306	330	346	258.4
10-Apr	348	320	305	282	288	322	327	321	317	328	337	312	355	351	36	36	58	56	41	27	18	287	311	304	344.7
11-Apr	294	285	235	254	241	232	352	164	170	95	172	175	171	158	157	152	145	151	152	160	152	165	173	178	161.6
12-Apr	175	184	176	170	173	172	177	180	170	164	165	164	165	170	164	154	169	166	164	153	173	143	172	245	168.5
13-Apr	180	195	200	199	253	262	274	293	307	307	307	300	301	294	303	293	302	310	299	299	296	282	276	313	293.7
14-Apr	326	175	187	178	179	176	161	164	163	156	161	160	153	160	247	245	4	39	31	13	359	4	9	16	124.8
15-Apr	5	9	4	333	317	309	202	340	347	11	360	1	11	47	69	53	40	41	37	35	32	14	7	8	19.5
16-Apr	7	10	8	7	4	6	6	6	7	8	11	10	16	18	21	24	25	32	28	28	15	5	8	11	12.3
17-Apr	11	12	13	11	7	7	13	11	14	11	21	24	27	21	18	18	13	22	25	10	3	358	351	359	14.3
18-Apr	4	11	359	5	358	357	8	9	4	15	12	14	20	23	14	15	20	9	7	359	351	336	348	327	7.5
19-Apr	305	299	273	251	189	186	164	143	146	211	194	156	157	157	174	184	206	220	212	215	242	257	268	269	196.7
20-Apr	267	264	238	231	204	197	199	215	222	249	256	233	291	274	264	214	206	204	187	199	197	185	189	187	222.3
21-Apr	186	195	183	159	93	331	142	166	170	178	176	174	171	170	171	176	187	267	353	344	322	312	310	322	180.1
22-Apr	235	209	235	271	299	294	309	16	23	18	40	76	55	67	49	36	42	29	23	27	355	3	350	354	24.9
23-Apr	320	296	293	298	286	293	7	24	28	83	94	107	119	56	46	39	39	42	36	29	29	37	34	37	39.0
24-Apr	10	2	331	338	333	346	15	10	13	4	11	132	143	126	124	118	112	103	104	105	125	139	138	132	103.6
25-Apr	163	150	287	289	269	282	249	244	233	248	254	247	250	252	257	253	278	300	313	297	344	356	312	316	279.3
26-Apr	325	337	335	349	328	339	331	336	331	332	318	330	321	327	345	353	49	49	56	83	48	6	100	143	342.3
27-Apr	335	296	190	110	35	198	152	170	152	155	150	163	177	171	181	199	208	205	189	167	154	130	113	146	174.7
28-Apr	26	356	346	336	330	326	27	161	168	143	169	174	173	173	163	152	116	129	131	126	146	138	140	136	147.3
29-Apr	106	99	57	56	47	60	72	58	38	37	34	17	47	56	51	46	41	19	14	17	18	17	13	15	31.7
30-Apr	18	16	20	18	11	12	16	19	20	15	7	12	12	11	15	10	11	8	7	10	14	18	19	14	13.9

346.0 346.6 339.5 346.3 327.1 329.1 343.1 344.0 359.4 357.7 354.5 334.6 37.3 65.4 42.7 28.4 35.5 29.0 22.8 26.9 16.8 13.2 12.5 7.7

Diurnal Average

UO - Unstable Operation

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**  
**Fort McKay - Bertha Ganter - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 102 deg on Apr 21 18:00	Hours of Data: 701
Minimum Value: 7 deg on Apr 19 06:00	Hours of Missing Data: 19
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 14 Q <sub>1</sub> = 17 Median = 24 Q <sub>3</sub> = 33 P <sub>90</sub> = 51 P <sub>99</sub> = 85	Hours of Calibration: 0
	Percent Operational Time: 97.4

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-Apr	49	22	19	20	29	39	47	16	17	16	16	17	30	27	25	19	16	14	11	35	65	83	35	55	83
2-Apr	69	31	15	18	14	22	25	14	15	17	25	16	16	13	13	14	18	13	12	12	11	22	73	62	73
3-Apr	77	18	23	60	86	21	18	19	85	76	25	87	18	27	26	24	28	31	27	24	71	57	25	39	87
4-Apr	42	UO	UO	UO	UO	UO	UO	UO	UO	UO	30	36	49	34	28	26	34	30	16	15	22	27	23	28	49
5-Apr	25	25	24	18	49	25	14	15	16	19	18	20	16	18	16	14	12	14	15	15	14	12	UO	UO	49
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	24	16	31	30	23	34	32	29	16	21	43	13	34	24	70	28	70
7-Apr	80	69	32	18	26	22	29	13	14	26	24	31	33	38	53	41	39	42	39	26	28	29	26	24	80
8-Apr	11	20	58	75	31	17	26	15	14	18	25	27	28	34	50	53	39	35	57	58	66	82	60	30	82
9-Apr	65	40	68	51	71	21	26	65	29	12	49	44	48	45	46	38	39	36	40	26	22	10	19	18	71
10-Apr	33	28	16	21	24	15	13	11	15	17	23	20	28	32	25	26	33	33	25	19	31	42	19	26	42
11-Apr	47	56	65	50	89	49	63	26	56	62	19	17	16	22	17	15	13	13	14	17	14	14	15	14	89
12-Apr	12	13	11	16	12	13	13	16	14	13	13	14	13	13	14	14	13	13	13	12	84	35	39	73	84
13-Apr	46	25	20	28	38	36	32	26	18	25	26	27	22	26	23	29	26	19	25	15	17	14	70	66	70
14-Apr	60	64	59	8	14	51	29	16	13	15	18	20	27	35	66	47	33	21	17	22	28	23	21	15	66
15-Apr	23	22	25	24	60	38	54	42	24	31	26	27	21	38	34	30	23	23	19	17	18	16	15	16	60
16-Apr	16	16	15	16	17	16	17	17	17	16	17	16	17	18	16	17	17	21	18	16	16	14	16	15	21
17-Apr	17	16	16	17	16	16	17	18	20	24	21	24	21	20	22	21	23	22	20	20	22	22	22	23	24
18-Apr	23	17	24	22	23	24	22	21	24	21	24	23	24	23	24	26	24	20	23	24	24	7	20	10	26
19-Apr	13	15	21	43	28	7	21	11	21	42	95	29	28	21	24	32	32	31	26	21	27	30	26	32	95
20-Apr	62	70	39	48	34	17	23	32	38	48	49	60	49	60	54	59	44	31	15	17	29	9	10	11	70
21-Apr	17	13	16	32	60	32	64	18	17	26	34	20	17	20	20	22	86	102	61	19	30	28	15	28	102
22-Apr	97	54	77	18	21	23	33	43	20	34	48	33	33	33	38	33	28	22	19	21	26	24	23	28	97
23-Apr	23	40	17	16	23	32	73	32	41	41	47	61	43	37	28	23	25	21	18	18	17	21	21	27	73
24-Apr	28	25	39	33	46	33	20	21	21	27	34	34	23	21	22	19	21	25	24	22	19	15	19	14	46
25-Apr	48	30	47	32	29	54	55	46	39	42	43	45	44	41	42	41	37	27	15	17	22	25	18	17	55
26-Apr	13	19	16	25	22	17	17	23	23	25	31	41	41	39	33	46	39	28	31	26	27	49	58	44	58
27-Apr	27	46	23	80	82	79	22	21	20	17	18	27	30	25	28	26	27	27	21	14	13	13	14	16	82
28-Apr	39	28	24	20	18	35	30	33	23	34	23	15	18	27	21	18	26	18	16	14	14	14	17	17	39
29-Apr	16	36	14	15	32	37	28	31	25	22	26	26	36	32	31	28	25	22	20	19	19	20	20	20	37
30-Apr	18	20	17	18	20	19	17	16	17	17	18	15	17	16	16	16	15	18	16	15	15	14	14	16	20

97	70	77	80	89	79	73	65	85	76	95	87	49	60	66	59	86	102	61	58	84	83	73	73	
Diurnal Maximum																								

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS02  
MILDRED LAKE  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
APRIL 2024

MONTHLY SUMMARY

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	683	36	37	99.86	41.1	0	9.8	0
H2S (ppb) Average	684	36	36	100	16.3	1	2	0
THC (ppm) Average	640	34	80	93.61	6.4	-	2.4	-
NMHC(ppm) Average	640	34	80	93.61	3.974	-	0.329	-
CH4(ppm) Average	640	34	80	93.61	4.9	-	2.3	-
Temperature (C) Average	720	0	0	100	18.3	-	10.5	-
Relative Humidity (%) Average	720	0	0	100	100	-	92.3	-
Wind Speed 10 m (km/h) Average	716	0	4	99.44	27	-	21	-
Wind Direction 10 m (deg) Average	716	0	4	99.44	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)

APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	683	2.31	5.2	-	0	0	0.1	0.2	1.3	8.1	41.1
H2S (ppb) Average	684	0.44	1.1	-	0	0	0.1	0.2	0.3	1	16.3
THC (ppm) Average	640	2.08	0.3	-	1.8	1.9	2	2	2.1	2.3	6.4
NMHC(ppm) Average	640	0.038	0.226	-	0	0	0	0	0	0.1	3.974
CH4(ppm) Average	640	2.04	0.2	-	1.8	1.9	2	2	2.1	2.2	4.9
Temperature 2 m (C) Average	720	5.29	5.7	-	-9.2	-1.3	0.7	4.6	9.4	13.8	18.3
Relative Humidity (%) Average	720	55.49	25	-	10.5	23.4	33.7	53.1	76.3	92.8	100
Wind Speed 10 m (km/h) Average	716	10.9	5	-	1	4	6	10	15	18	27
Wind Direction 10 m (deg) Average	716	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
 APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2/THC/NMHC/CH4	23 Apr 2024 16:00	23 Apr 2024 16:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	02 Apr 2024 16:00	02 Apr 2024 17:00	2	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	04 Apr 2024 03:00	05 Apr 2024 11:00	33	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	10 Apr 2024 16:00	10 Apr 2024 20:00	5	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	11 Apr 2024 10:00	11 Apr 2024 14:00	5	Maintenance - station operator activities
WS/WD	04 Apr 2024 05:00	04 Apr 2024 08:00	4	Unstable Operation - flatline in analyzer output signal



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

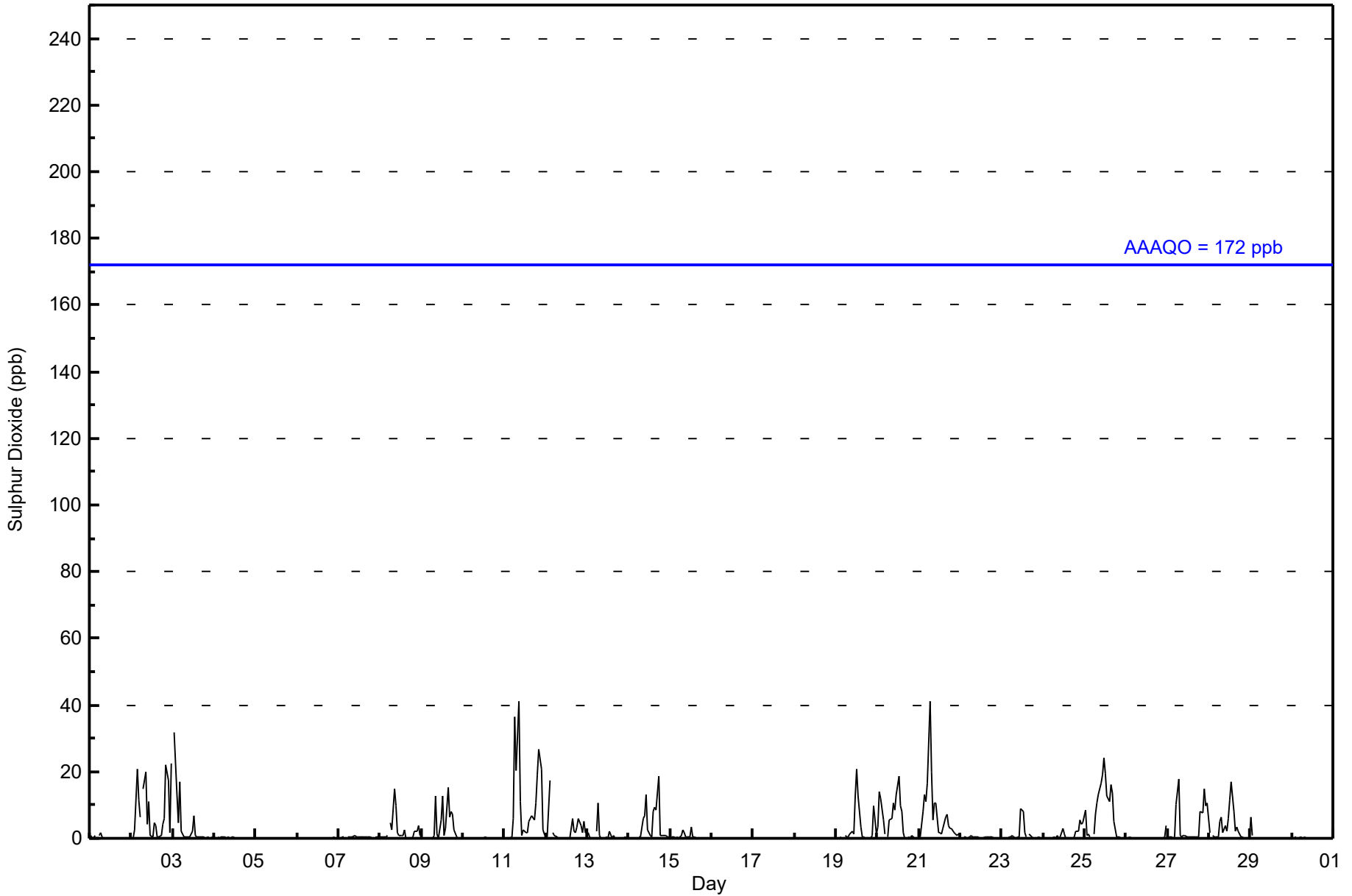
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mildred Lake - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 41.1 ppb on Apr 21 07:00 Maximum Daily Average: 9.8 ppb on Apr 11		Hours in Service: 720 Hours of Data: 683 Hours of Missing Data: 37 Hours of Calibration: 36 Percent Operational Time: 99.9																									
Minimum Value: 0.0 ppb on Apr 1 16:00 Maximum Diurnal Average: 4.5 ppb at hour 7 Monthly Average: 2.31 ppb		Minimum Daily Average: 0.0 ppb on Apr 16 Minimum Diurnal Average: 1.0 ppb at hour 1 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 8.1 P <sub>99</sub> = 22.1																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.7	0.2	0.1	0.8	Z	0.8	1.8	0.4	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	1.8		
2-Apr	0.0	0.2	2.7	20.8	11.5	6.2	Z	14.7	19.8	4.3	11.0	0.8	0.5	4.6	3.9	0.3	0.3	1.0	4.2	6.1	22.0	17.3	1.6	22.5	7.7	22.5	
3-Apr	Z	31.6	13.1	4.7	17.0	2.3	0.6	0.4	0.4	0.5	0.5	2.1	6.7	0.7	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	3.6	31.6	
4-Apr	0.3	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
5-Apr	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.1	
6-Apr	0.0	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2
7-Apr	0.2	0.2	0.3	0.4	Z	0.3	0.4	0.5	0.6	0.7	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.4	0.3	0.7	
8-Apr	0.4	0.5	0.5	0.4	0.8	Z	4.8	2.4	14.8	9.8	1.7	0.8	1.0	0.7	2.6	0.1	0.1	0.1	0.1	0.4	2.0	2.1	3.9	1.0	2.2	14.8	
9-Apr	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.8	12.8	1.2	0.1	5.4	12.8	0.9	3.1	15.3	6.2	7.9	7.1	2.4	0.5	0.1	0.1	0.2	3.4	15.3	
10-Apr	0.2	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.4	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
11-Apr	0.0	0.1	Z	0.2	0.2	5.8	36.6	20.3	41.0	10.9	0.8	2.4	1.8	1.7	5.1	5.8	6.9	5.6	10.5	19.2	26.8	20.8	2.4	1.3	9.8	41.0	
12-Apr	0.3	0.3	17.5	Z	1.5	0.7	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.2	5.8	1.9	1.5	3.4	5.8	3.9	1.7	5.0	1.6	2.2	17.5		
13-Apr	1.6	0.5	0.2	0.1	Z	2.3	10.5	0.9	0.1	0.0	0.0	0.5	0.2	2.3	0.0	0.7	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.9	10.5	
14-Apr	0.2	0.2	0.1	0.0	0.0	Z	0.3	0.3	6.0	6.8	13.0	2.5	0.8	0.4	8.1	9.3	8.6	18.5	1.0	0.9	0.9	0.7	0.5	0.4	3.5	18.5	
15-Apr	Z	0.3	0.3	0.2	0.2	0.2	0.8	2.5	1.5	0.6	0.6	0.3	3.5	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.5	
16-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	
18-Apr	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.0	0.1	0.0	0.2	0.1	0.2	
19-Apr	0.1	0.2	0.2	0.2	Z	0.6	0.3	0.3	1.3	2.3	1.5	12.6	20.8	12.6	3.3	0.3	0.3	0.2	0.1	0.1	0.2	0.8	9.6	1.4	3.0	20.8	
20-Apr	3.5	13.8	11.8	5.3	1.1	Z	0.5	5.7	6.1	10.6	8.3	13.1	18.6	9.7	8.2	1.9	0.2	0.1	0.2	0.2	0.7	0.2	0.1	0.2	5.2	18.6	
21-Apr	Z	0.3	8.1	12.9	10.9	16.6	41.1	19.7	5.6	10.6	10.5	1.7	1.7	1.1	3.1	6.3	7.2	3.8	2.9	2.8	1.8	1.1	0.7	1.1	7.5	41.1	
22-Apr	0.9	Z	0.3	0.2	0.1	0.3	0.7	0.6	0.5	0.5	0.3	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.9	
23-Apr	0.1	0.0	Z	0.2	0.4	0.4	0.7	0.3	0.2	0.3	0.4	8.9	8.0	1.6	0.3	M	1.2	0.6	0.1	0.1	0.2	0.2	0.2	0.1	1.1	8.9	
24-Apr	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.1	0.9	0.1	0.2	2.9	1.4	0.1	0.1	0.1	0.1	0.1	0.3	2.0	2.1	5.4	4.1	4.9	1.1	5.4	
25-Apr	8.6	0.8	1.4	0.5	Z	1.1	7.1	10.7	13.0	16.5	18.9	24.3	19.6	12.7	10.8	16.3	13.5	5.2	0.3	0.3	0.3	0.2	0.0	0.0	7.9	24.3	
26-Apr	0.0	0.0	0.2	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.5	3.8	0.2	3.8	
27-Apr	Z	0.3	0.3	0.2	0.3	10.0	17.7	0.9	0.6	0.8	1.0	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.3	7.9	7.6	14.7	9.9	10.5	3.7	17.7	
28-Apr	1.7	Z	0.7	0.5	0.3	0.3	5.1	6.5	1.7	3.6	2.0	5.8	11.6	16.8	8.0	2.2	3.2	2.1	0.3	0.3	0.1	0.1	0.0	0.0	3.2	16.8	
29-Apr	6.4	0.9	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	6.4	
30-Apr	0.2	0.2	0.2	Z	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.3	
1.0 2.0 2.3 1.9 1.8 1.9 4.5 3.0 4.3 2.7 2.5 3.0 3.8 2.4 2.0 2.4 1.7 1.6 1.1 1.6 2.3 2.2 1.3 1.7																								Diurnal Average			
8.6 31.6 17.5 20.8 17.0 16.6 41.1 20.3 41.0 16.5 18.9 24.3 20.8 16.8 10.8 16.3 13.5 18.5 10.5 19.2 26.8 20.8 9.9 22.5																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																											



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Mildred Lake - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mildred Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	628	91.95	91.95
11 - 20	44	6.44	98.39
21 - 60	11	1.61	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: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mildred Lake - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	150	55	21	13	13	27	55	41	29	32	35	21	14	40	25	53	624
11 - 20	0	0	0	0	3	5	10	3	3	2	4	8	6	0	0	0	44
21 - 60	0	0	0	0	0	3	6	0	0	0	1	1	0	0	0	0	11
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>	150	55	21	13	16	35	71	44	32	34	40	30	20	40	25	53	679

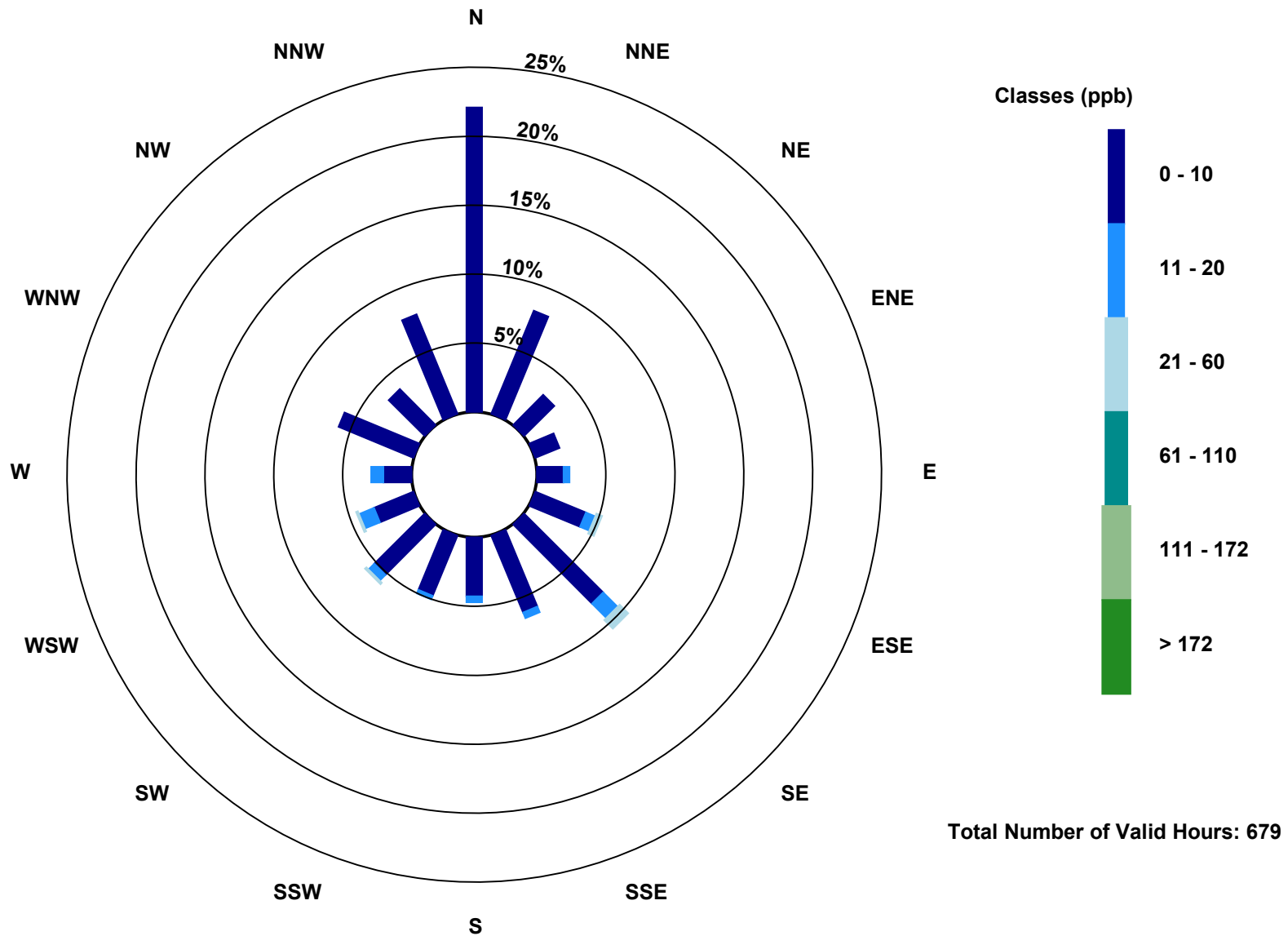
Total Number of Valid Hours: 679

Total Number of Hours: 720

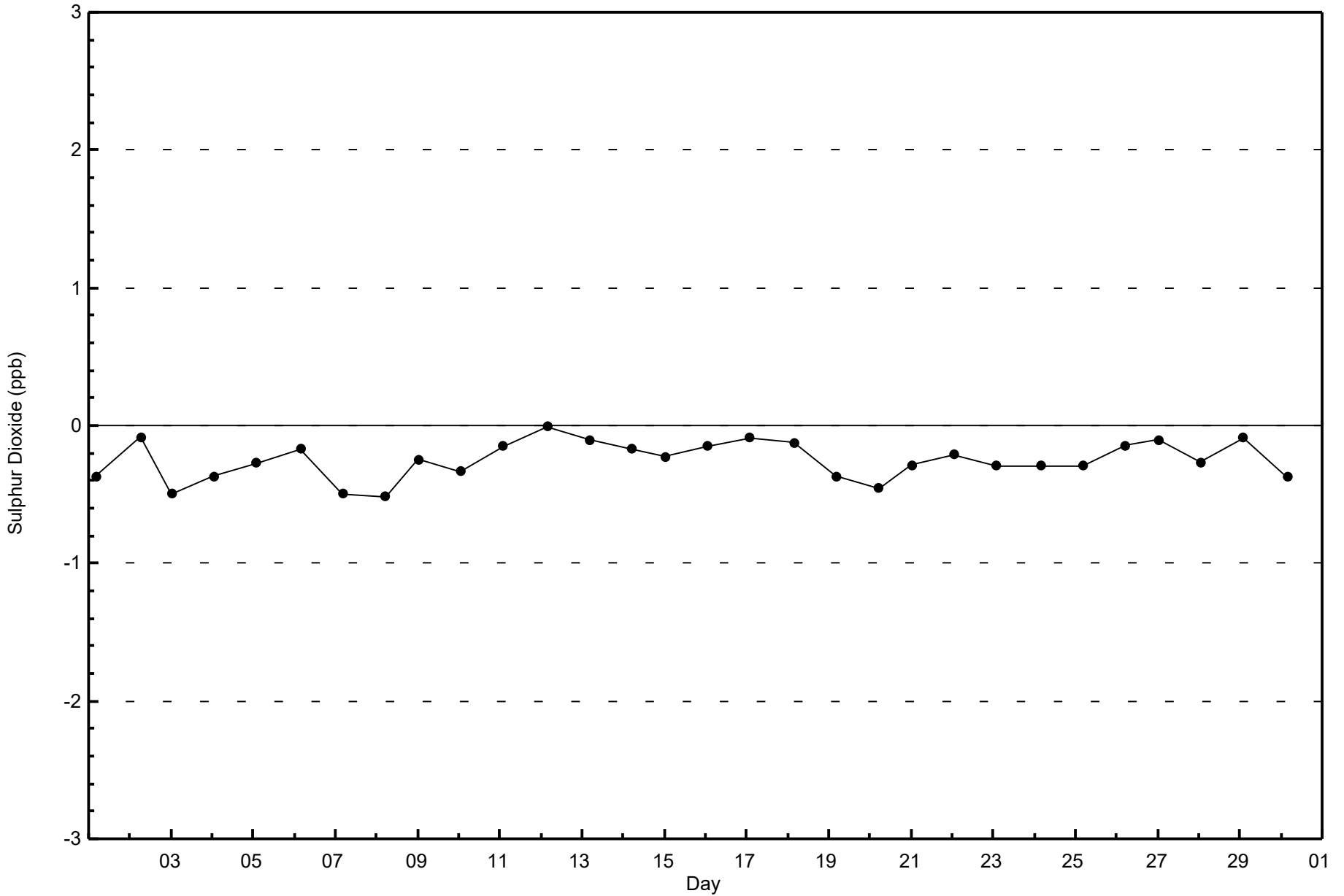


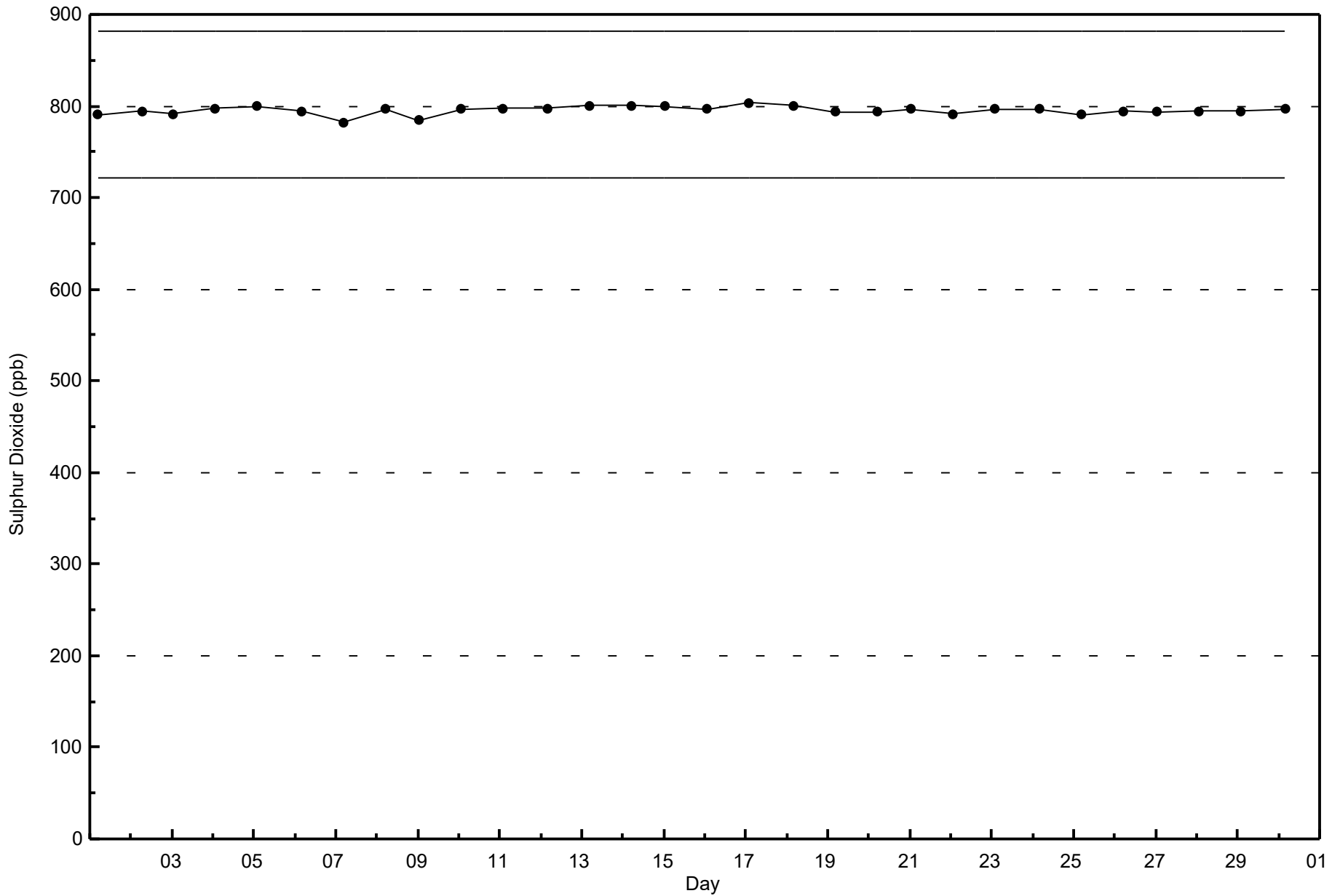
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 679









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

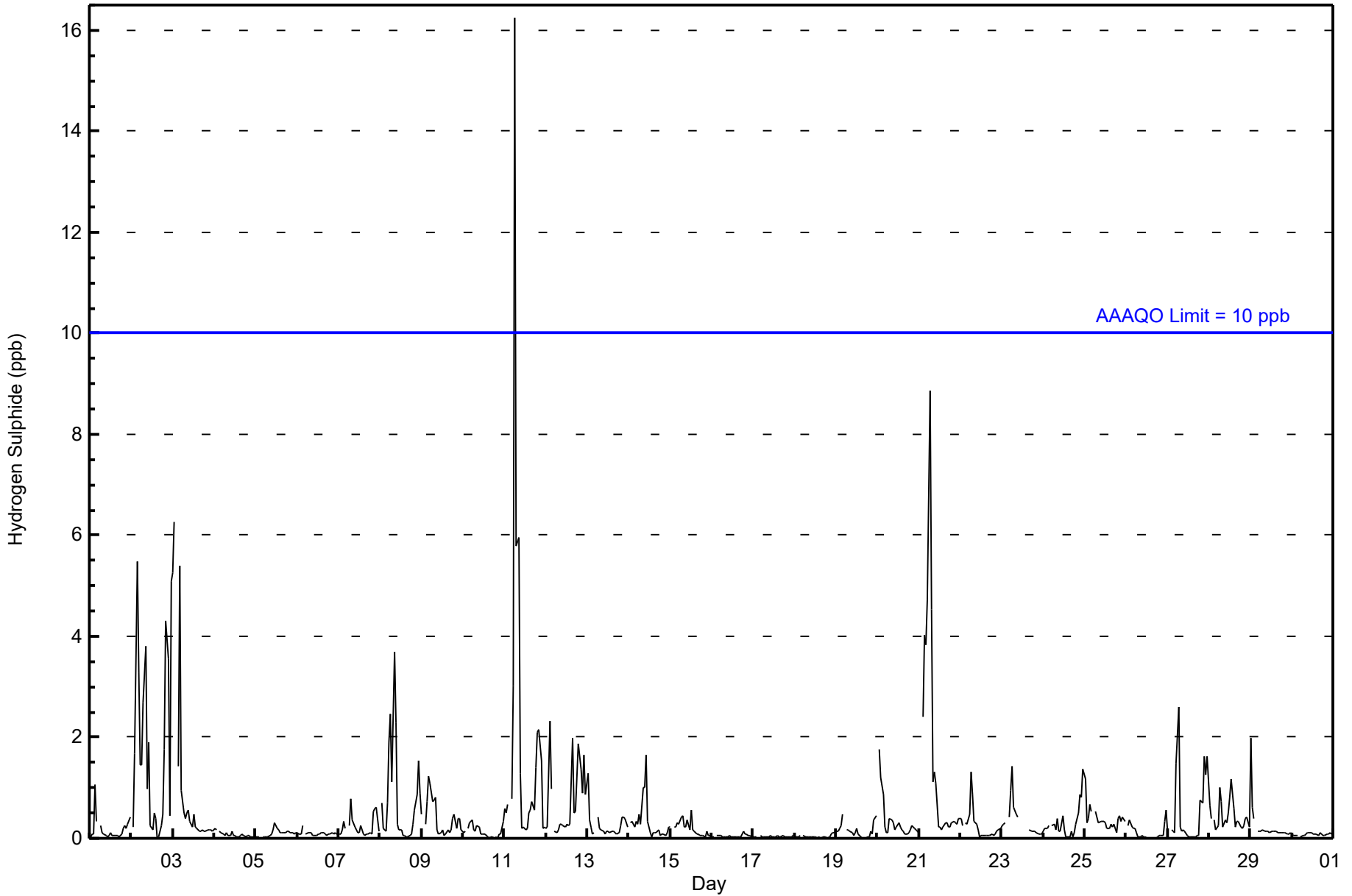
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mildred Lake - April 2024**

Number of Exceedences (AAAQO):	1-hr: 1	24-hr: 0	Hours in Service:	720
Maximum Value: 16.3 ppb on Apr 11 07:00	Maximum Daily Average: 2.0 ppb on Apr 11		Hours of Data:	684
Minimum Value: 0.0 ppb on Apr 2 16:00	Minimum Daily Average: 0.0 ppb on Apr 17		Hours of Missing Data:	36
Maximum Diurnal Average: 1.3 ppb at hour 7	Minimum Diurnal Average: 0.1 ppb at hour 18		Hours of Calibration:	36
Monthly Average: 0.44 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 1.0 P <sub>99</sub> = 5.3		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.0	0.1	0.1	1.1	0.3	Z	0.3	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.3	0.2	0.3	0.4	0.2	1.1
2-Apr	Z	0.2	1.7	5.5	3.3	1.4	1.5	2.7	3.8	1.0	1.9	0.3	0.2	0.5	0.4	0.0	0.0	0.2	0.5	1.8	4.3	3.5	0.4	5.1	1.7	5.5
3-Apr	5.3	6.3	Z	1.4	5.4	0.9	0.5	0.4	0.5	0.6	0.3	0.2	0.5	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	1.0	6.3
4-Apr	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2
5-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
6-Apr	0.1	0.1	0.1	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
7-Apr	0.1	0.1	0.2	0.3	0.2	Z	0.2	0.8	0.4	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6	0.6	0.2	0.2	0.8
8-Apr	Z	0.7	0.2	0.1	0.7	1.9	2.4	1.1	3.7	2.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.3	0.5	0.9	1.5	0.9	0.8	3.7
9-Apr	0.5	Z	0.3	0.7	1.2	1.1	0.7	0.8	0.8	0.2	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.2	0.4	0.5	0.2	0.4	0.4	0.2	0.4	1.2
10-Apr	0.1	0.2	Z	0.2	0.3	0.4	0.2	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.4
11-Apr	0.6	0.5	0.7	Z	0.8	3.0	16.3	5.8	6.0	1.3	0.2	0.2	0.2	0.2	0.5	0.6	0.7	0.6	1.4	2.1	2.2	1.5	0.2	0.2	2.0	16.3
12-Apr	0.2	0.2	2.3	1.0	Z	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.3	2.0	0.5	0.5	1.2	1.9	1.4	0.9	1.7	0.9	0.7	2.3
13-Apr	1.3	0.4	0.2	0.1	0.1	Z	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.4	0.2	0.2	1.3
14-Apr	Z	0.3	0.3	0.2	0.3	0.3	0.5	0.3	1.0	1.0	1.7	0.3	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.3	1.7
15-Apr	0.2	Z	0.2	0.2	0.3	0.3	0.4	0.5	0.2	0.2	0.4	0.2	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.6
16-Apr	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
17-Apr	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18-Apr	0.1	0.0	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
19-Apr	0.1	0.1	0.2	0.3	0.5	Z	0.2	0.2	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.5	0.1	0.5
20-Apr	Z	1.8	1.2	0.9	0.2	0.1	0.1	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.3	1.8
21-Apr	0.1	Z	2.4	4.0	3.8	4.7	8.9	4.5	1.1	1.3	1.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	1.5	8.9
22-Apr	0.4	0.3	Z	0.3	0.3	0.5	1.3	0.9	0.3	0.3	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	1.3
23-Apr	0.2	0.3	0.3	Z	0.4	0.9	1.4	0.6	0.5	0.4	C	C	C	C	C	C	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	--	1.4
24-Apr	0.1	0.2	0.2	0.2	Z	0.3	0.3	0.2	0.4	0.2	0.1	0.4	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.5	0.9	0.8	1.4	0.3	1.4
25-Apr	1.2	0.3	0.4	0.7	0.5	Z	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.1	0.4	0.4	0.3	0.4	0.3	0.4	1.2
26-Apr	Z	0.3	0.4	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.6	0.1	0.6
27-Apr	0.2	Z	0.2	0.1	0.1	1.5	2.6	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.8	0.7	1.6	1.2	1.6	0.5	2.6
28-Apr	0.6	0.4	Z	0.4	0.2	0.3	1.0	0.7	0.2	0.4	0.3	0.5	0.8	1.2	0.6	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.2	0.4	1.2
29-Apr	2.0	0.6	0.4	Z	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	2.0
30-Apr	0.1	0.0	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

0.6	0.5	0.5	0.7	0.8	0.7	1.3	0.7	0.7	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.5	0.4	0.5	Diurnal Average	
5.3	6.3	2.4	5.5	5.4	4.7	16.3	5.8	6.0	2.3	1.9	0.5	0.8	1.2	0.6	2.0	0.7	0.6	1.4	2.1	4.3	3.5	1.7	5.1	Diurnal Maximum		

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mildred Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	663	96.93	96.93
3 - 4	10	1.46	98.39
5 - 7	9	1.32	99.71
8 - 11	1	0.15	99.85
> 11	1	0.15	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mildred Lake - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	155	55	20	12	14	31	59	46	31	34	35	28	21	39	23	56	659
3 - 4	0	0	0	0	1	1	4	3	0	1	0	0	0	0	0	0	10
5 - 7	0	0	0	0	0	4	4	0	0	0	1	0	0	0	0	0	9
8 - 11	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
> 11	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	155	55	20	12	15	37	68	49	31	35	36	28	21	39	23	56	680

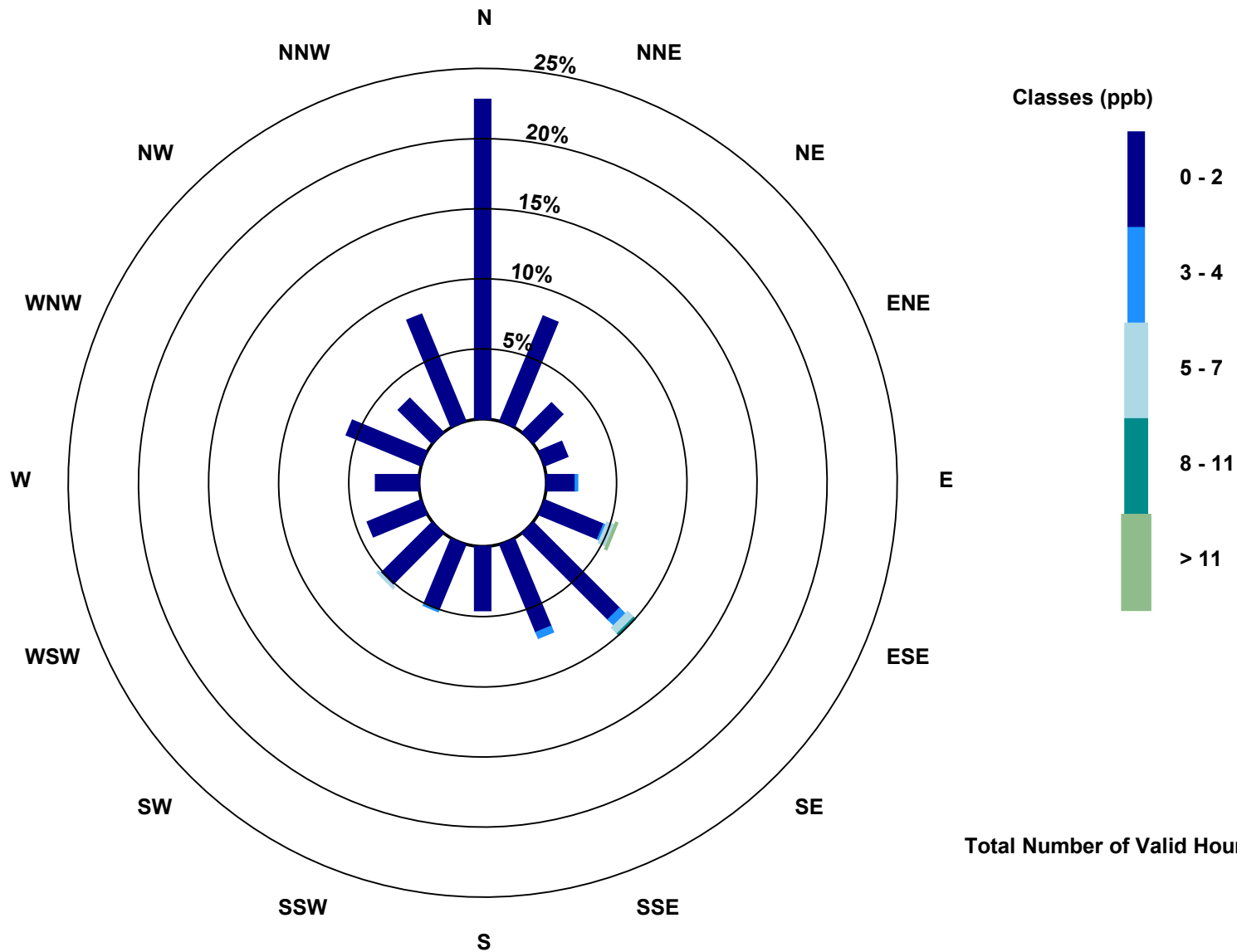
Total Number of Valid Hours: 680

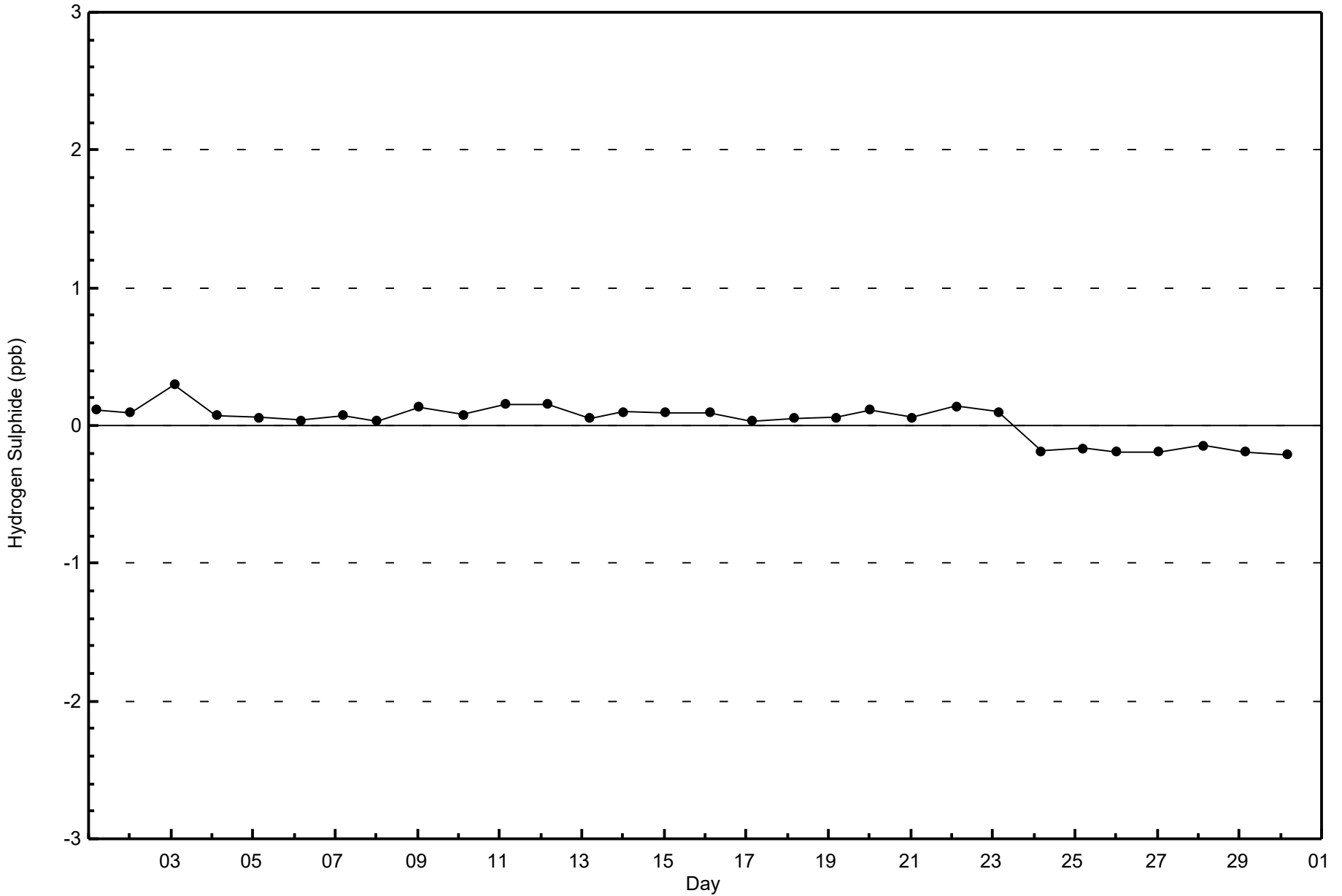
Total Number of Hours: 720

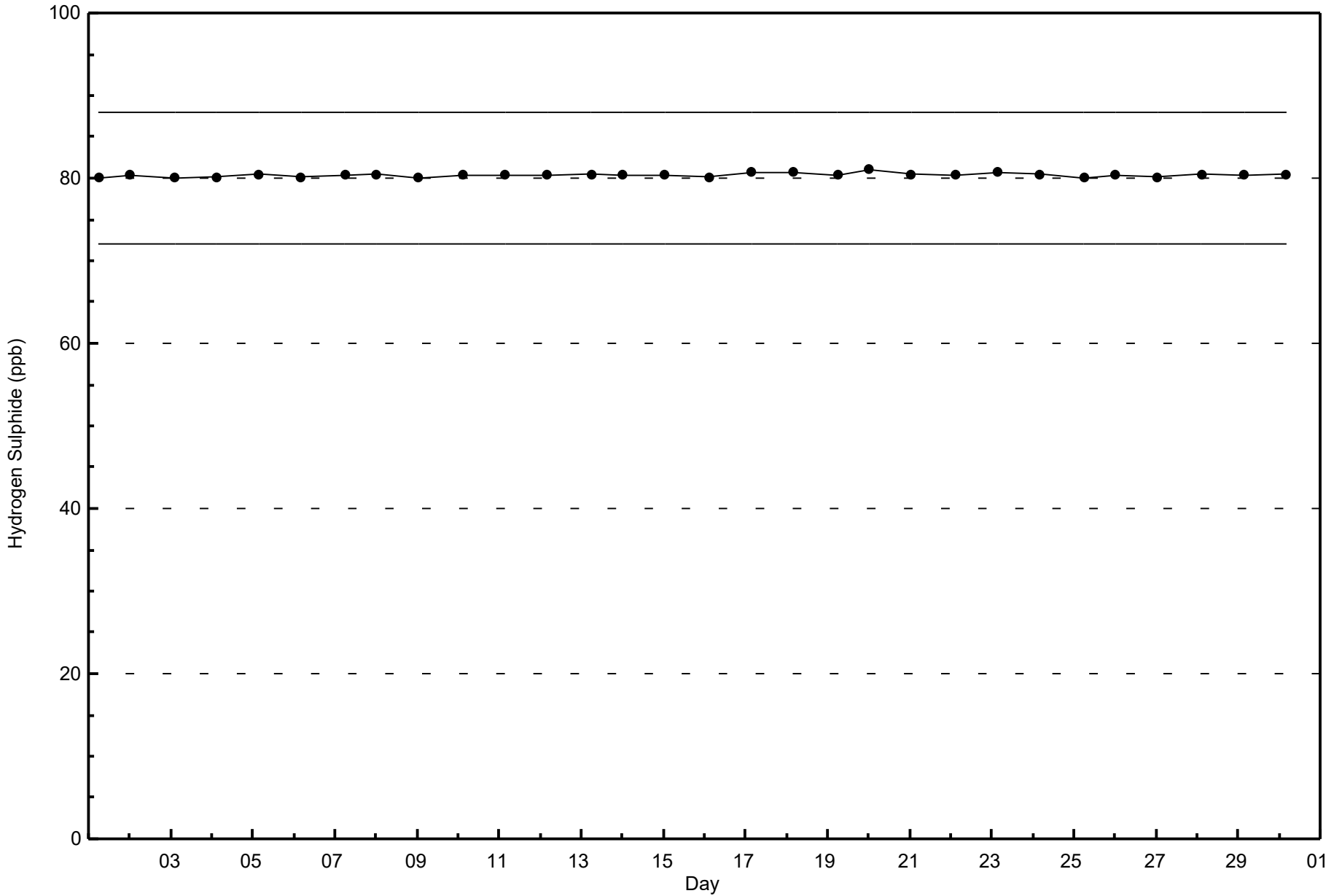


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



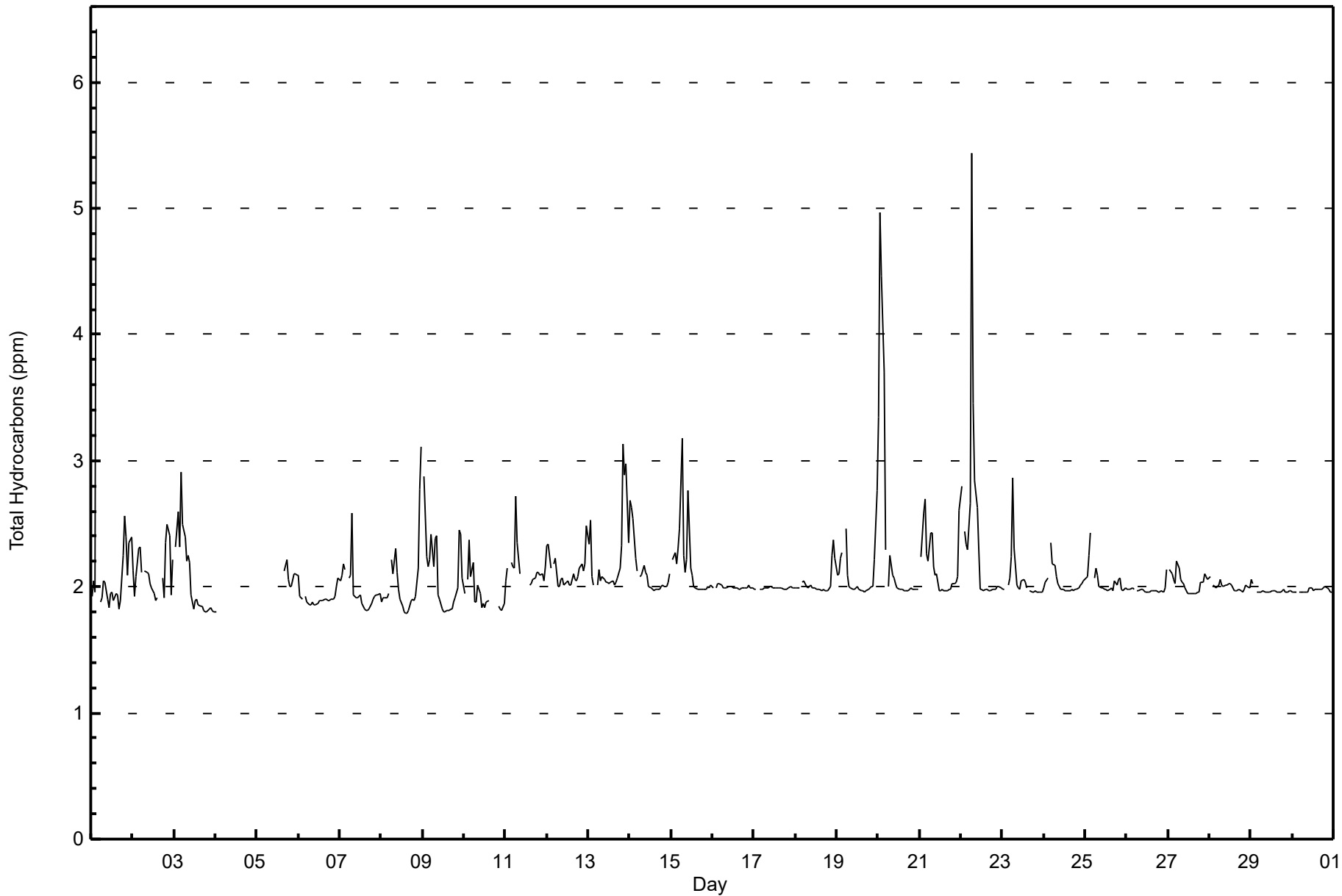






Maximum Value: 6.4 ppm on Apr 1 04:00		Maximum Daily Average: 2.4 ppm on Apr 22		Hours in Service: 720																																													
Minimum Value: 1.8 ppm on Apr 8 15:00		Minimum Daily Average: 1.9 ppm on Apr 6		Hours of Data: 640																																													
Maximum Diurnal Average: 2.4 ppm at hour 4		Minimum Diurnal Average: 1.9 ppm at hour 15		Hours of Missing Data: 80																																													
Monthly Average: 2.08 ppm		Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.3 P <sub>99</sub> = 3.3		Hours of Calibration: 34																																													
				Percent Operational Time: 93.6																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	1.9	2.0	2.0	6.4	Z	1.9	1.9	2.0	2.0	1.9	1.8	1.9	2.0	1.9	1.9	1.9	1.8	1.9	2.3	2.6	2.4	2.1	2.3	2.4	2.2	6.4																							
2-Apr	2.1	1.9	2.1	2.3	2.3	2.1	Z	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	UO	UO	2.1	1.9	2.4	2.5	2.4	1.9	2.2	2.1	2.5																							
3-Apr	Z	2.3	2.6	2.3	2.9	2.5	2.4	2.2	2.2	2.2	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.9																							
4-Apr	1.8	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	1.8																							
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	C	2.1	2.2	2.1	2.0	2.0	2.1	2.1	2.1	--	2.2																							
6-Apr	2.1	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	2.0	2.1	1.9	2.1																							
7-Apr	2.0	2.1	2.2	2.1	Z	2.1	2.1	2.6	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.6																							
8-Apr	1.9	1.9	1.9	1.9	1.9	Z	2.2	2.1	2.3	2.1	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.1	2.8	3.1	2.0	3.1																							
9-Apr	Z	2.9	2.2	2.2	2.2	2.4	2.2	2.4	2.4	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.5	2.4	2.1	2.1	2.1	2.9																							
10-Apr	1.9	Z	2.1	2.4	2.1	2.2	1.9	1.9	2.0	2.0	1.8	1.9	1.8	1.9	1.9	UO	UO	UO	UO	UO	1.8	1.8	1.8	1.9	1.9	2.4																							
11-Apr	2.1	2.1	Z	2.2	2.2	2.1	2.7	2.3	2.1	M	M	M	M	M	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.2	2.1	2.7																							
12-Apr	2.3	2.3	2.1	Z	2.2	2.2	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.2	2.5	2.1	2.5																							
13-Apr	2.3	2.5	2.1	2.0	Z	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	3.1	2.9	3.0	2.3	2.2	3.1																							
14-Apr	2.7	2.6	2.5	2.2	2.1	Z	2.1	2.1	2.2	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	2.1	2.1	2.7																							
15-Apr	Z	2.2	2.3	2.2	2.3	2.5	3.2	2.3	2.1	2.2	2.8	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	3.2																							
16-Apr	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																							
17-Apr	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																							
18-Apr	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	2.3	2.4	2.2	2.0	2.4																							
19-Apr	2.1	2.1	2.2	2.3	Z	2.5	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	2.2	2.8	2.1	2.8																							
20-Apr	3.3	5.0	4.5	3.7	2.3	Z	2.0	2.2	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	2.4	5.0																							
21-Apr	Z	2.2	2.6	2.7	2.3	2.2	2.4	2.4	2.2	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	2.1	2.6	2.2	2.7																							
22-Apr	2.8	Z	2.4	2.3	2.3	2.7	5.4	3.5	2.8	2.6	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	5.4																							
23-Apr	2.0	2.0	Z	2.0	2.1	2.2	2.9	2.3	2.0	2.0	2.0	2.0	2.1	2.0	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.9																							
24-Apr	2.0	2.0	2.1	Z	2.4	2.2	2.2	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	2.1	2.0	2.4																							
25-Apr	2.1	2.1	2.3	2.4	Z	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.4																							
26-Apr	2.0	2.0	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	2.1	2.0	2.1																							
27-Apr	Z	2.1	2.1	2.1	2.0	2.2	2.1	2.1	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	2.1	2.1	2.0	2.2																							
28-Apr	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
29-Apr	2.1	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	2.1																							
30-Apr	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																							
																								2.1	2.3	2.2	2.4	2.1	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	Diurnal Average		
																								3.3	5.0	4.5	6.4	2.9	2.7	5.4	3.5	2.8	2.6	2.8	2.2	2.1	2.0	2.0	2.1	2.1	2.2	2.3	2.6	3.1	2.9	3.0	3.1	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Mildred Lake - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	435	67.97	67.97
2.1 - 3.0	195	30.47	98.44
3.1 - 10.0	10	1.56	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 640

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Mildred Lake - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	124	42	12	6	11	18	30	19	19	29	19	24	12	19	18	33	435
2.1 - 3.0	20	1	2	2	3	17	37	23	12	5	18	5	8	18	7	17	195
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	3	1	0	3	0	2	10
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	145	43	14	8	14	35	67	42	31	34	40	30	20	40	25	52	640

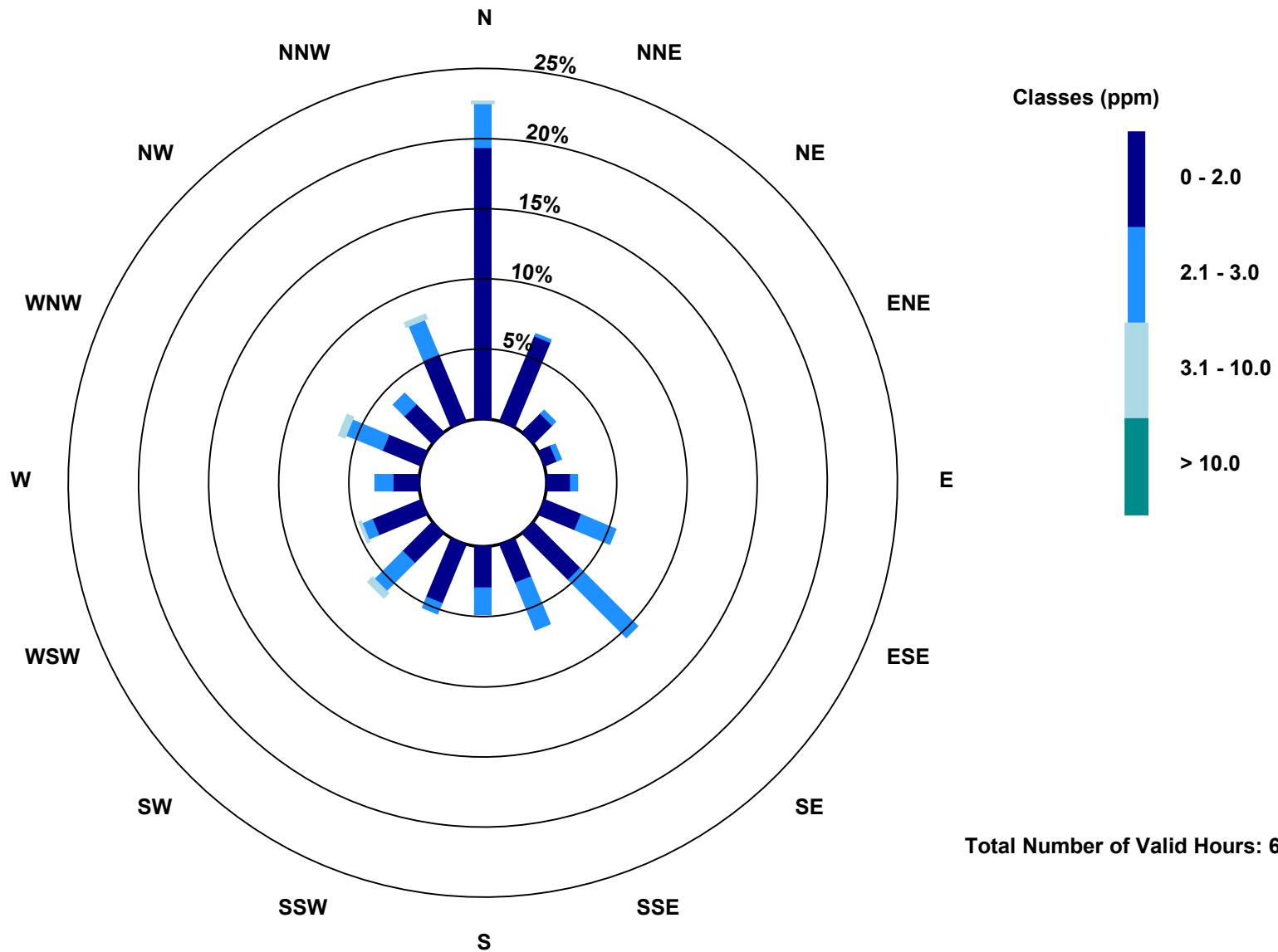
Total Number of Valid Hours: 640

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Wind Rose Apr 2024**

**Total Hydrocarbons (THC) - ppm**  
**Mildred Lake**



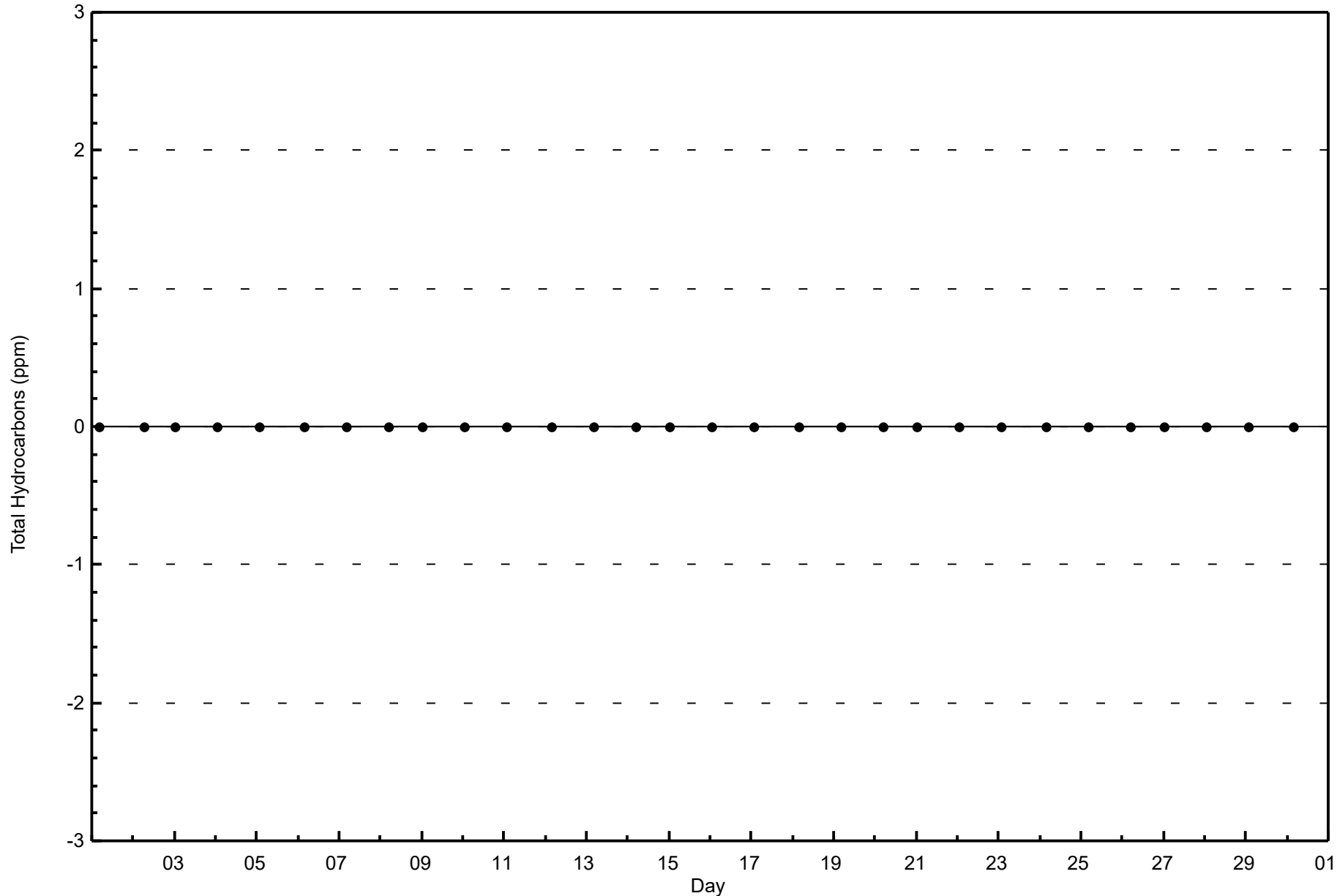


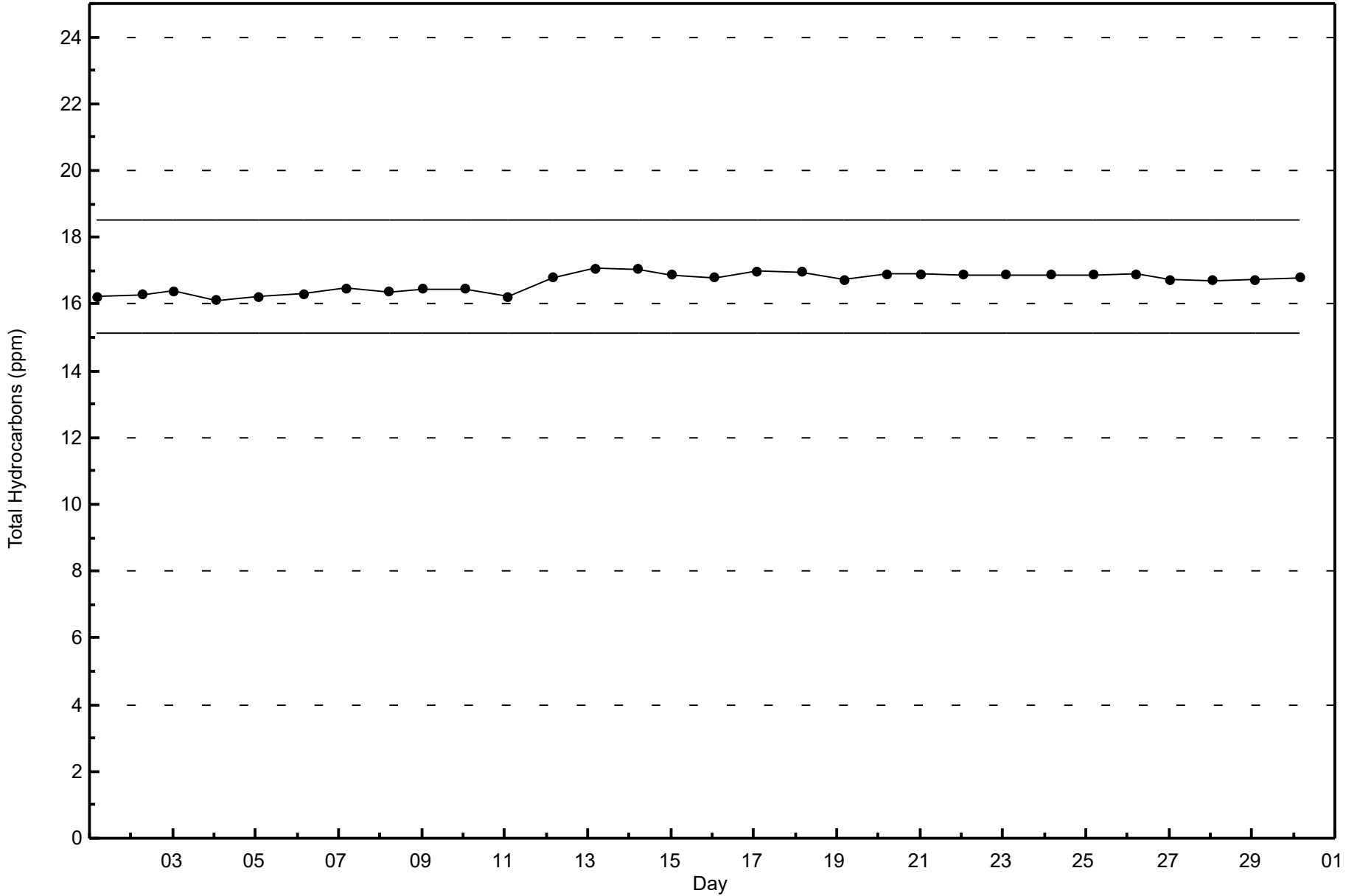
Wood Buffalo Environmental Association

Zero Responses

Total Hydrocarbons (THC) - ppm

Mildred Lake - April 2024







Summary of Hour Averages

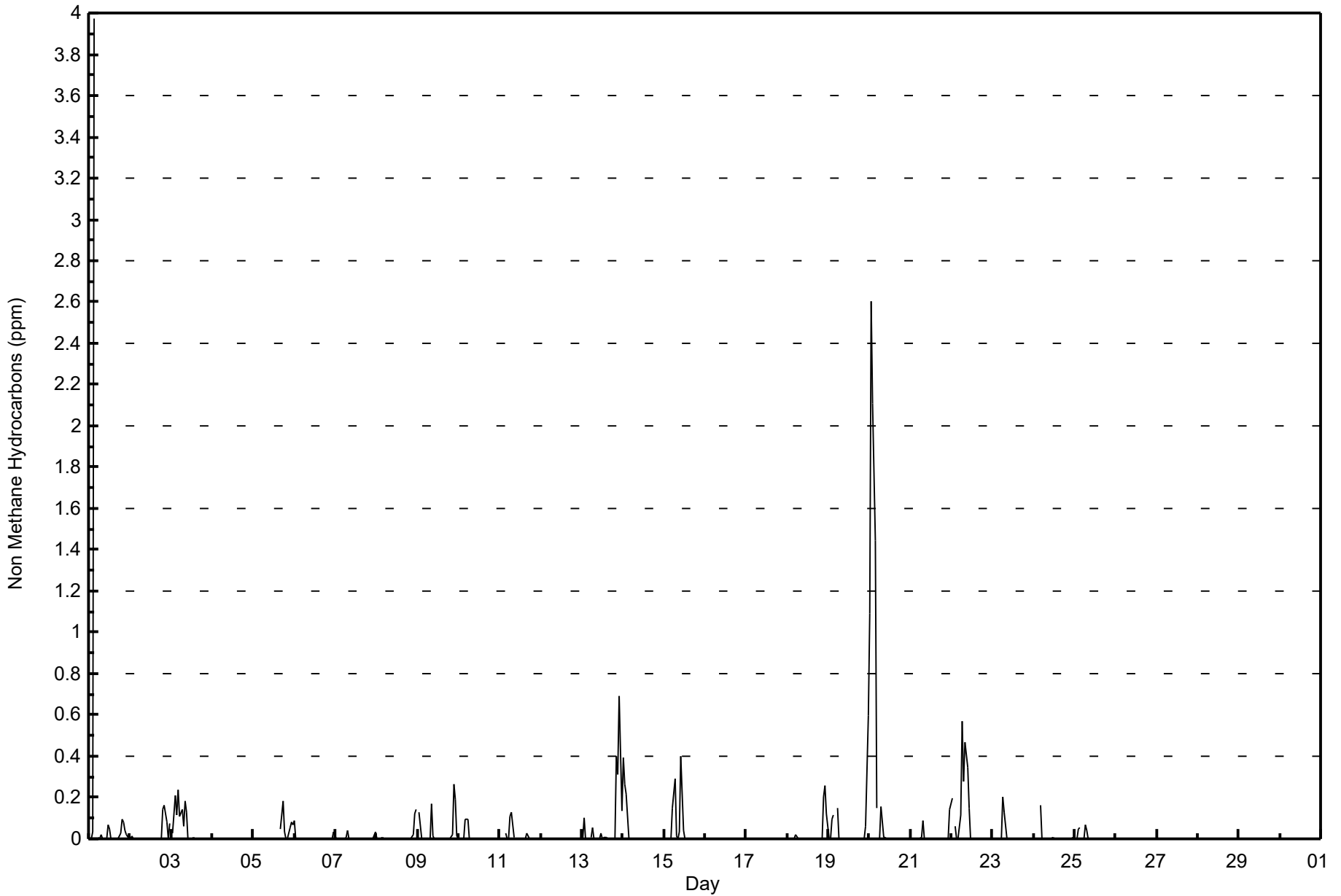
Mildred Lake - April 2024

Maximum Value: 3.974 ppm on Apr 1 04:00	Maximum Daily Average: 0.329 ppm on Apr 20	Hours in Service: 720
Minimum Value: 0.000 ppm on Apr 1 01:00	Minimum Daily Average: 0.000 ppm on Apr 12	Hours of Data: 640
Maximum Diurnal Average: 0.249 ppm at hour 4	Minimum Diurnal Average: 0.000 ppm at hour 16	Hours of Missing Data: 80
Monthly Average: 0.038 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> = 0.1 P <sub>99</sub> = 0.6	Hours of Calibration: 34
		Percent Operational Time: 93.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.000	0.000	0.034	3.974	Z	0.004	0.000	0.018	0.000	0.000	0.000	0.065	0.050	0.002	0.002	0.000	0.000	0.000	0.026	0.098	0.083	0.042	0.020	0.000	0.192	3.974	
2-Apr	0.002	0.014	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	UO	UO	0.000	0.000	0.141	0.161	0.084	0.000	0.073	0.023	0.161	
3-Apr	Z	0.027	0.212	0.112	0.239	0.108	0.143	0.058	0.182	0.131	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	0.239	
4-Apr	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	C	0.048	0.181	0.033	0.000	0.000	0.055	0.083	0.066	--	0.181
6-Apr	0.088	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	0.002	0.031	0.005	0.088	
7-Apr	0.000	0.000	0.000	0.000	Z	0.000	0.005	0.043	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	0.003	0.000	0.037	0.004	0.043	
8-Apr	0.000	0.000	0.000	0.004	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.123	0.141	0.013	0.141	
9-Apr	Z	0.126	0.003	0.000	0.000	0.000	0.000	0.000	0.169	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.266	0.190	0.013	0.035	0.266	
10-Apr	0.000	Z	0.000	0.000	0.095	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	UO	UO	UO	UO	UO	0.000	0.000	0.000	0.000	0.011	0.097	
11-Apr	0.002	0.000	Z	0.025	0.000	0.000	0.109	0.132	0.010	M	M	M	M	M	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.132	
12-Apr	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	
13-Apr	0.000	0.100	0.000	0.000	Z	0.009	0.053	0.000	0.000	0.000	0.000	0.028	0.000	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.398	0.313	0.691	0.133	0.076	0.691	
14-Apr	0.396	0.263	0.216	0.000	0.000	Z	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	0.000	0.000	0.000	0.000	0.000	0.038	0.396	
15-Apr	Z	0.000	0.000	0.000	0.000	0.149	0.290	0.016	0.000	0.032	0.403	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.403	
16-Apr	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	0.000	
17-Apr	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	
18-Apr	0.000	0.000	0.000	Z	0.000	0.023	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	0.203	0.258	0.120	0.026	0.258	
19-Apr	0.000	0.000	0.096	0.118	Z	0.152	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	0.063	0.599	0.045	0.599	
20-Apr	1.090	2.603	2.112	1.443	0.151	Z	0.000	0.153	0.008	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	0.329	2.603	
21-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.009	0.089	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	0.003	0.144	0.011	0.144	
22-Apr	0.199	Z	0.059	0.000	0.000	0.116	0.568	0.278	0.467	0.345	0.149	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	0.095	0.568	
23-Apr	0.000	0.000	Z	0.000	0.000	0.000	0.206	0.128	0.000	0.000	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	0.015	0.206	
24-Apr	0.000	0.000	0.000	Z	0.162	0.003	0.000	0.000	0.000	0.000	0.002	0.006	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	0.162	
25-Apr	0.000	0.000	0.048	0.051	Z	0.003	0.069	0.039	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	0.009	0.069	
26-Apr	0.000	0.000	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
27-Apr	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	0.000	0.000	0.000
28-Apr	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	0.000	0.000
29-Apr	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	0.000
30-Apr	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

0.074	0.130	0.116	0.249	0.028	0.028	0.054	0.034	0.030	0.019	0.020	0.005	0.002	0.001	0.000	0.000	0.003	0.006	0.002	0.009	0.023	0.034	0.049	0.047	Diurnal Average	
1.090	2.603	2.112	3.974	0.239	0.152	0.568	0.278	0.467	0.345	0.403	0.065	0.050	0.006	0.009	0.000	0.048	0.181	0.033	0.141	0.398	0.313	0.691	0.599	Diurnal Maximum	

Z - zerospan                      C - Calibration                      M - Maintenance                      UO - Unstable Operation







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Mildred Lake - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	534	83.44	83.44
0.006 - 0.05	36	5.63	89.06
0.06 - 0.1	36	5.63	94.69
> 0.1	34	5.31	100.00

Total Number of Valid Hours: 640

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Mildred Lake - April 2024**

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	130	43	12	8	13	29	58	41	28	29	26	23	14	20	20	40	534
0.006 - 0.05	5	0	0	0	0	3	5	1	1	2	3	2	4	5	4	1	36
0.06 - 0.1	6	0	1	0	0	3	3	0	1	1	3	2	2	8	1	5	36
> 0.1	4	0	1	0	1	0	1	0	1	2	8	3	0	7	0	6	34
<b>Totals</b>	145	43	14	8	14	35	67	42	31	34	40	30	20	40	25	52	640

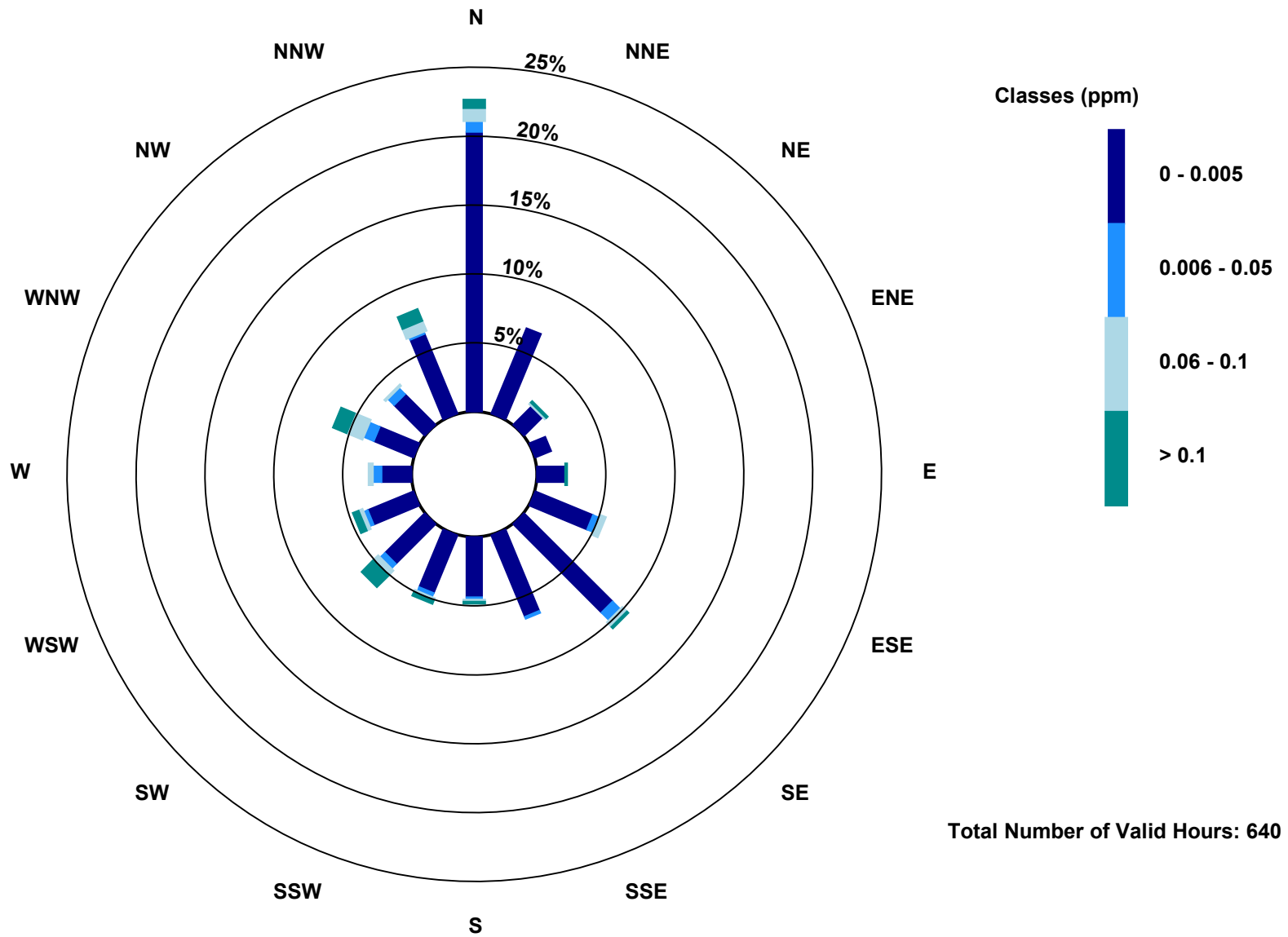
Total Number of Valid Hours: 640

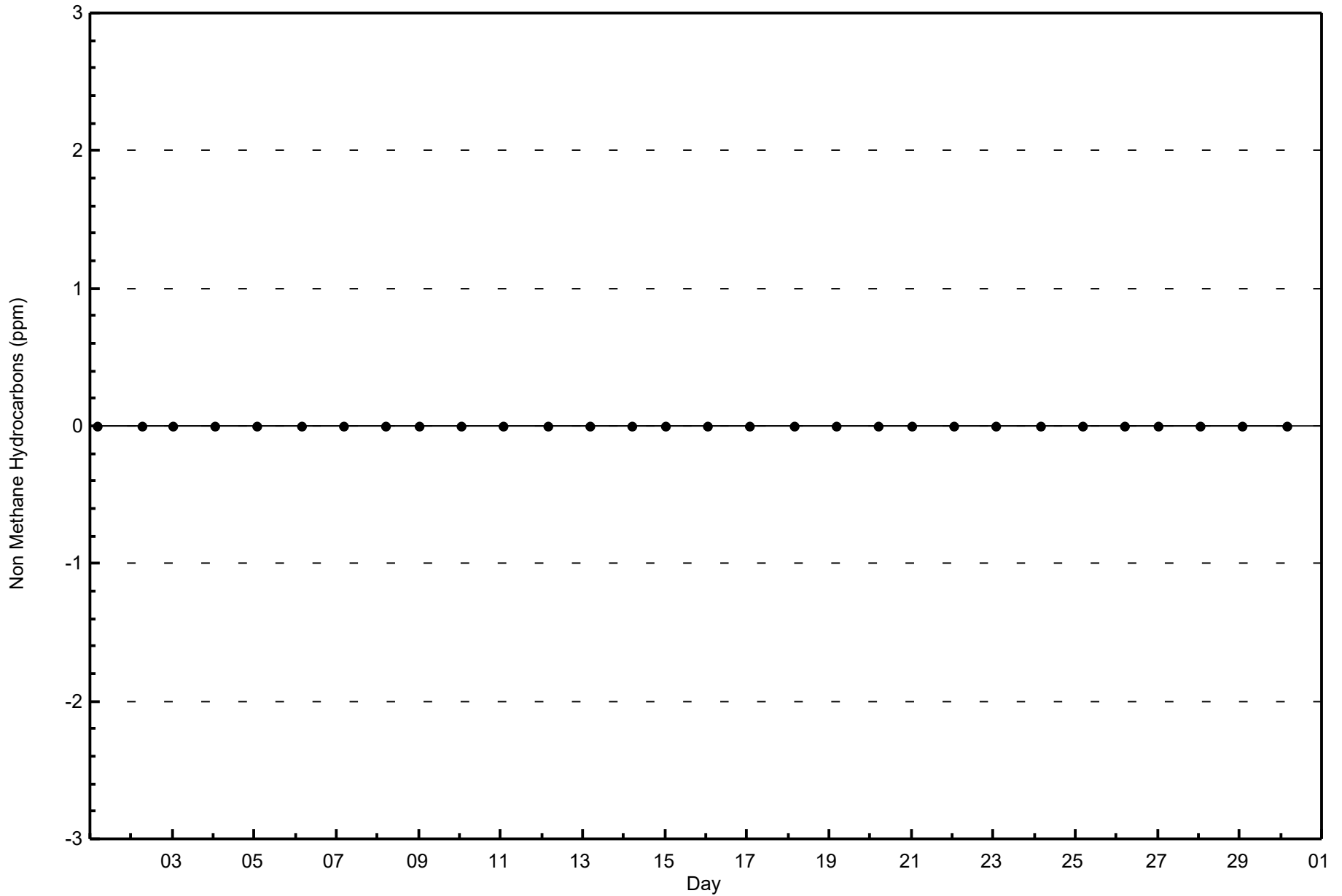
Total Number of Hours: 720

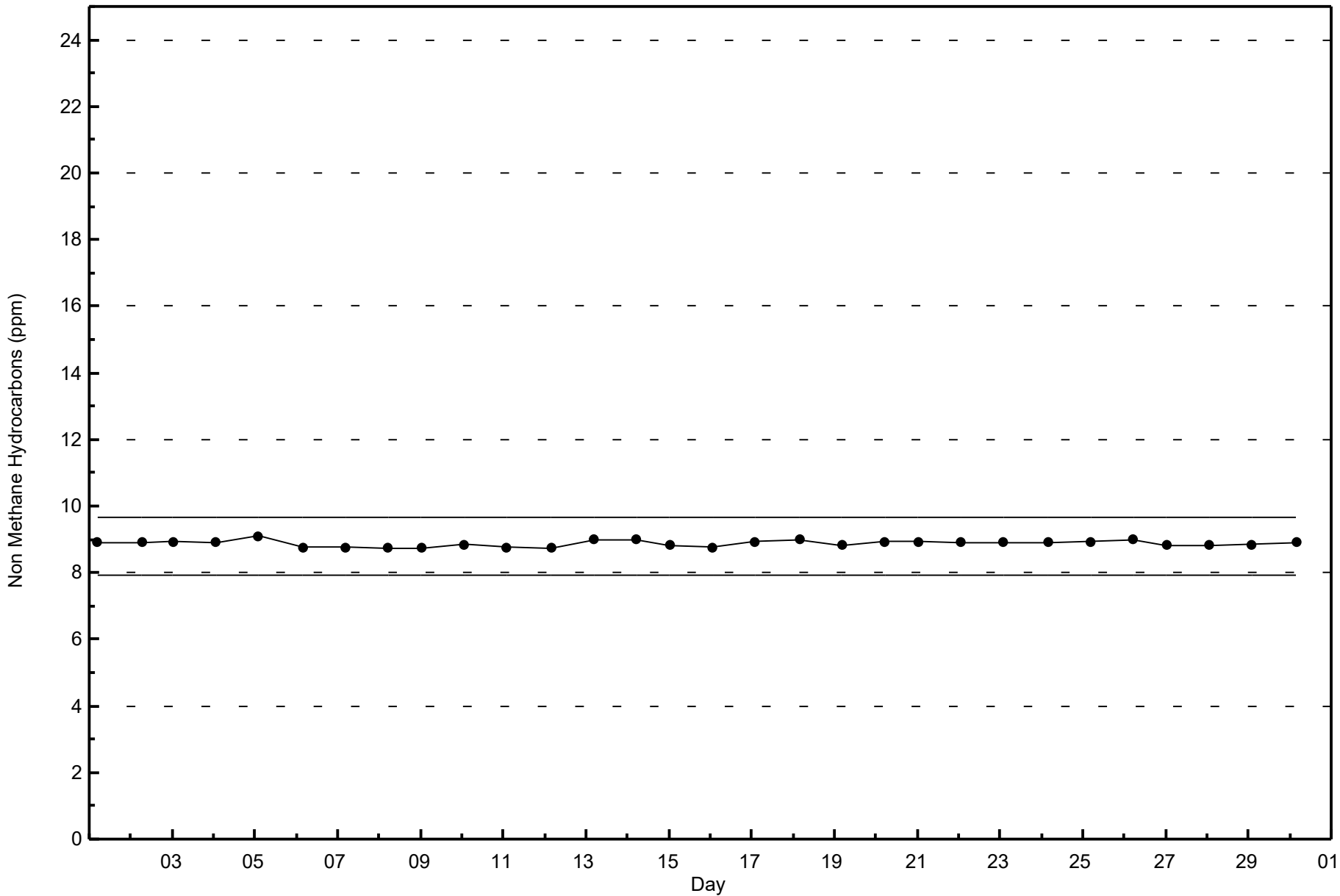


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mildred Lake









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Mildred Lake - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 4.9 ppm on Apr 22 07:00	Maximum Daily Average: 2.3 ppm on Apr 22		Hours of Data:	640
Minimum Value: 1.8 ppm on Apr 8 15:00	Minimum Daily Average: 1.9 ppm on Apr 6		Hours of Missing Data:	80
Maximum Diurnal Average: 2.2 ppm at hour 7	Minimum Diurnal Average: 1.9 ppm at hour 15		Hours of Calibration:	34
Monthly Average: 2.04 ppm	Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.7		Percent Operational Time:	93.6

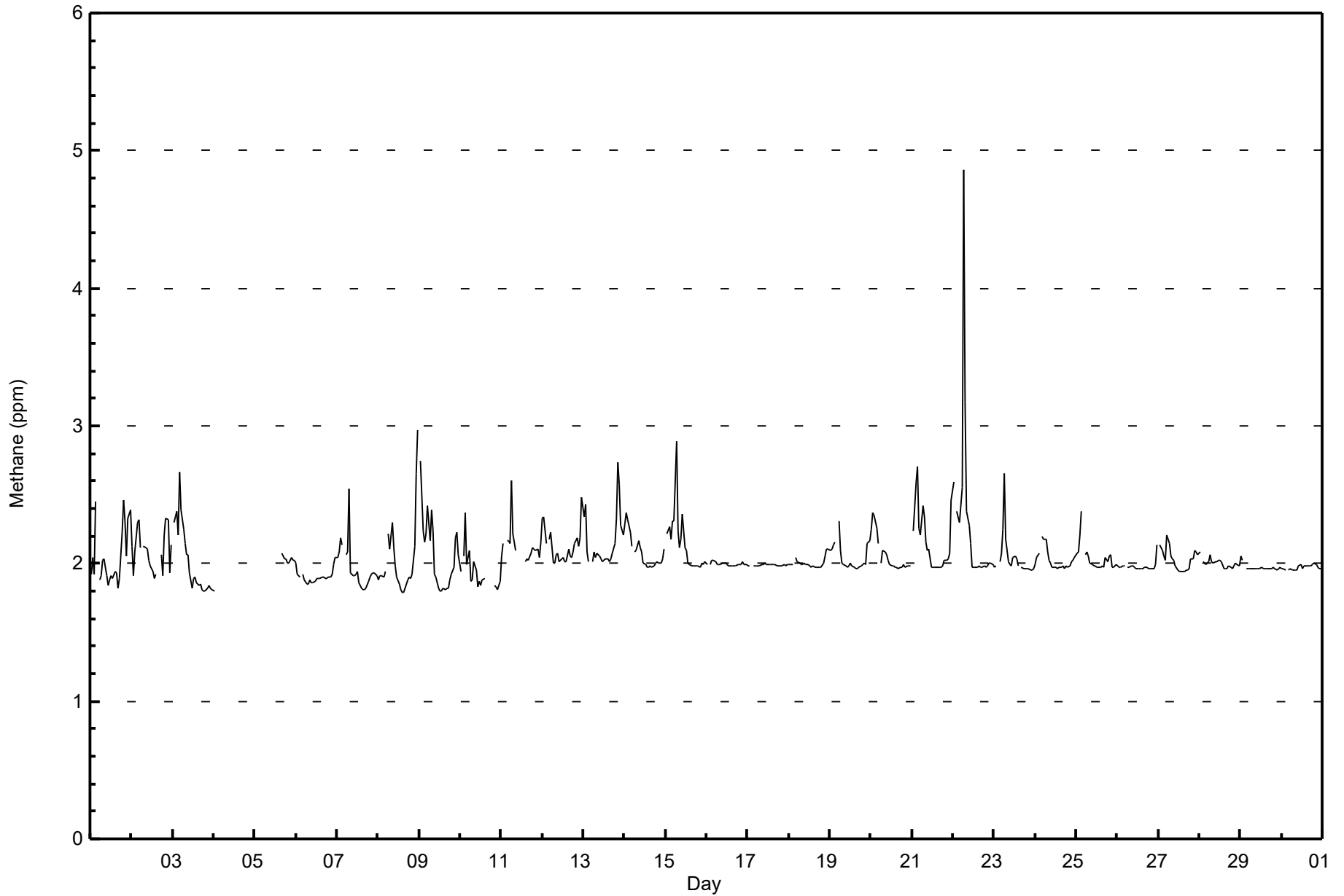
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	1.9	2.0	1.9	2.4	Z	1.9	1.9	2.0	2.0	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.9	2.2	2.5	2.3	2.1	2.3	2.4	2.0	2.5																								
2-Apr	2.1	1.9	2.1	2.3	2.3	2.1	Z	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	UO	UO	2.1	1.9	2.2	2.3	2.3	1.9	2.1	2.1	2.3																							
3-Apr	Z	2.3	2.4	2.2	2.7	2.4	2.3	2.1	2.1	2.1	1.9	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.0	2.7																								
4-Apr	1.8	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	1.8																								
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	C	2.1	2.0	2.0	2.0	2.0	2.0	2.0	--	2.1																								
6-Apr	2.0	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	2.0	2.0	1.9	2.0																							
7-Apr	2.0	2.1	2.2	2.1	Z	2.1	2.1	2.5	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.5																								
8-Apr	1.9	1.9	1.9	1.9	1.9	Z	2.2	2.1	2.3	2.1	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.1	2.7	2.0	3.0																								
9-Apr	Z	2.7	2.2	2.2	2.2	2.4	2.2	2.4	2.2	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.2	2.2	2.1	2.1	2.7																							
10-Apr	1.9	Z	2.1	2.4	2.0	2.1	1.9	1.9	2.0	2.0	1.8	1.9	1.8	1.9	1.9	UO	UO	UO	UO	UO	1.8	1.8	1.8	1.9	1.9	2.4																							
11-Apr	2.0	2.1	Z	2.2	2.2	2.1	2.6	2.2	2.1	M	M	M	M	M	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.2	2.1	2.6																							
12-Apr	2.3	2.3	2.1	Z	2.2	2.2	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.2	2.5	2.1	2.5																							
13-Apr	2.3	2.4	2.1	2.0	Z	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.7	2.6	2.3	2.2	2.2	2.7																							
14-Apr	2.3	2.4	2.3	2.2	2.1	Z	2.1	2.1	2.2	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	2.1	2.1	2.4																							
15-Apr	Z	2.2	2.3	2.2	2.3	2.3	2.9	2.2	2.1	2.2	2.4	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	2.1	2.9																							
16-Apr	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																							
17-Apr	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																							
18-Apr	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	2.1	2.1	2.0	2.1																							
19-Apr	2.1	2.1	2.1	2.2	Z	2.3	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	2.1	2.2	2.0	2.3																							
20-Apr	2.3	2.4	2.3	2.3	2.1	Z	2.0	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	2.0	2.0	2.0	2.0	2.1	2.4																							
21-Apr	Z	2.2	2.6	2.7	2.3	2.2	2.4	2.3	2.2	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	2.1	2.5	2.2	2.7																							
22-Apr	2.6	Z	2.4	2.3	2.3	2.5	4.9	3.2	2.4	2.3	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	2.3	4.9																							
23-Apr	2.0	2.0	Z	2.0	2.1	2.2	2.7	2.2	2.0	2.0	2.0	2.0	2.1	2.0	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7																							
24-Apr	2.0	2.0	2.1	Z	2.2	2.2	2.2	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	2.2																							
25-Apr	2.1	2.1	2.2	2.4	Z	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	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.4																							
26-Apr	2.0	2.0	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	2.1	2.0	2.1																							
27-Apr	Z	2.1	2.1	2.1	2.0	2.2	2.1	2.1	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	2.1	2.1	2.0	2.2																							
28-Apr	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
29-Apr	2.1	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	2.1																							
30-Apr	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																							
																								2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	Diurnal Average		
																								2.6	2.7	2.6	2.7	2.7	2.5	4.9	3.2	2.4	2.3	2.4	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.5	2.7	2.6	2.7	3.0	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Mildred Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Mildred Lake - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	447	69.84	69.84
2.1 - 3.0	191	29.84	99.69
3.1 - 10.0	2	0.31	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 640

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mildred Lake - April 2024**

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	127	42	12	6	11	19	32	19	19	29	19	24	12	20	19	37	447
2.1 - 3.0	18	1	2	2	3	16	35	23	12	5	21	6	8	19	6	14	191
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	145	43	14	8	14	35	67	42	31	34	40	30	20	40	25	52	640

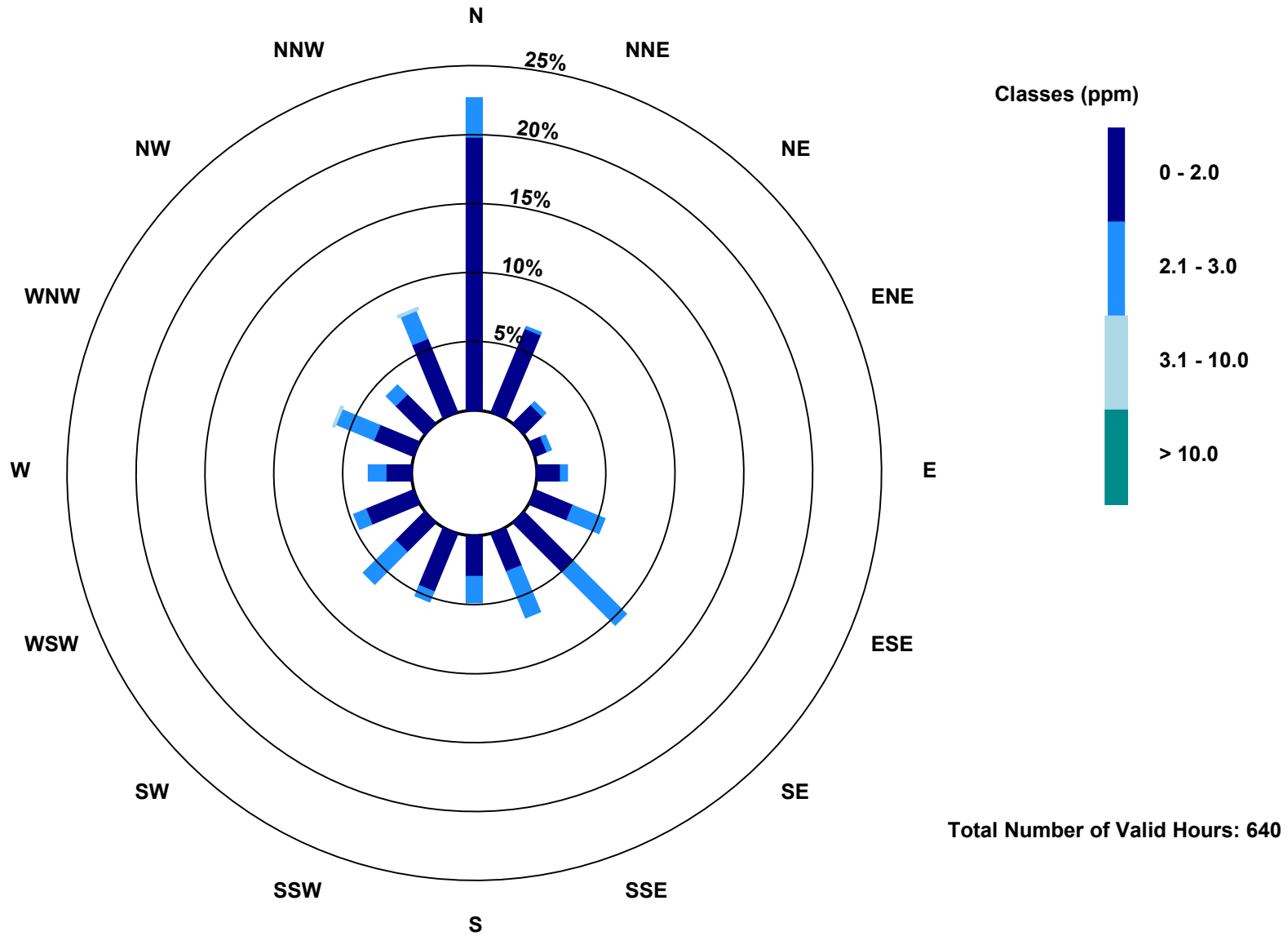
Total Number of Valid Hours: 640

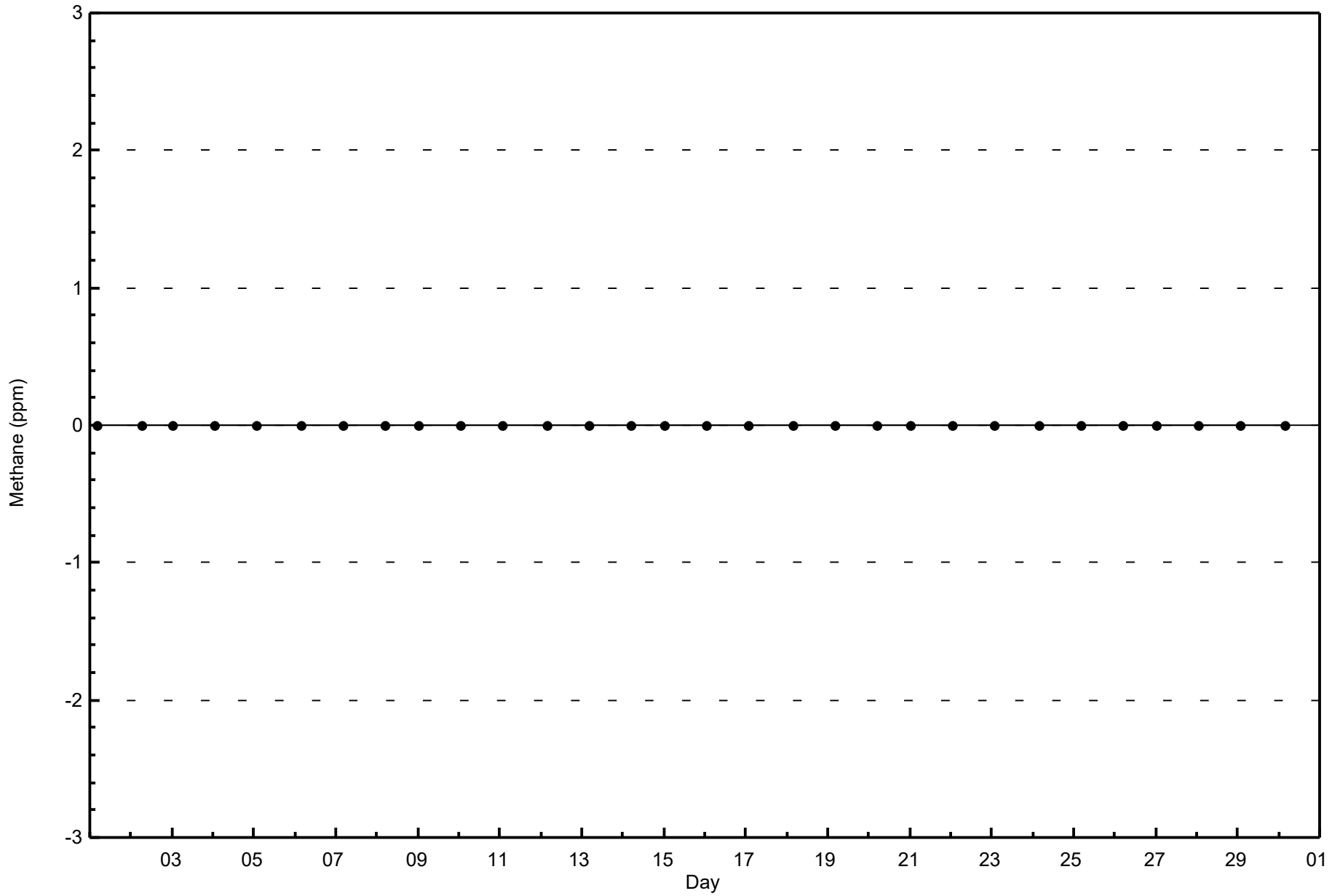
Total Number of Hours: 720

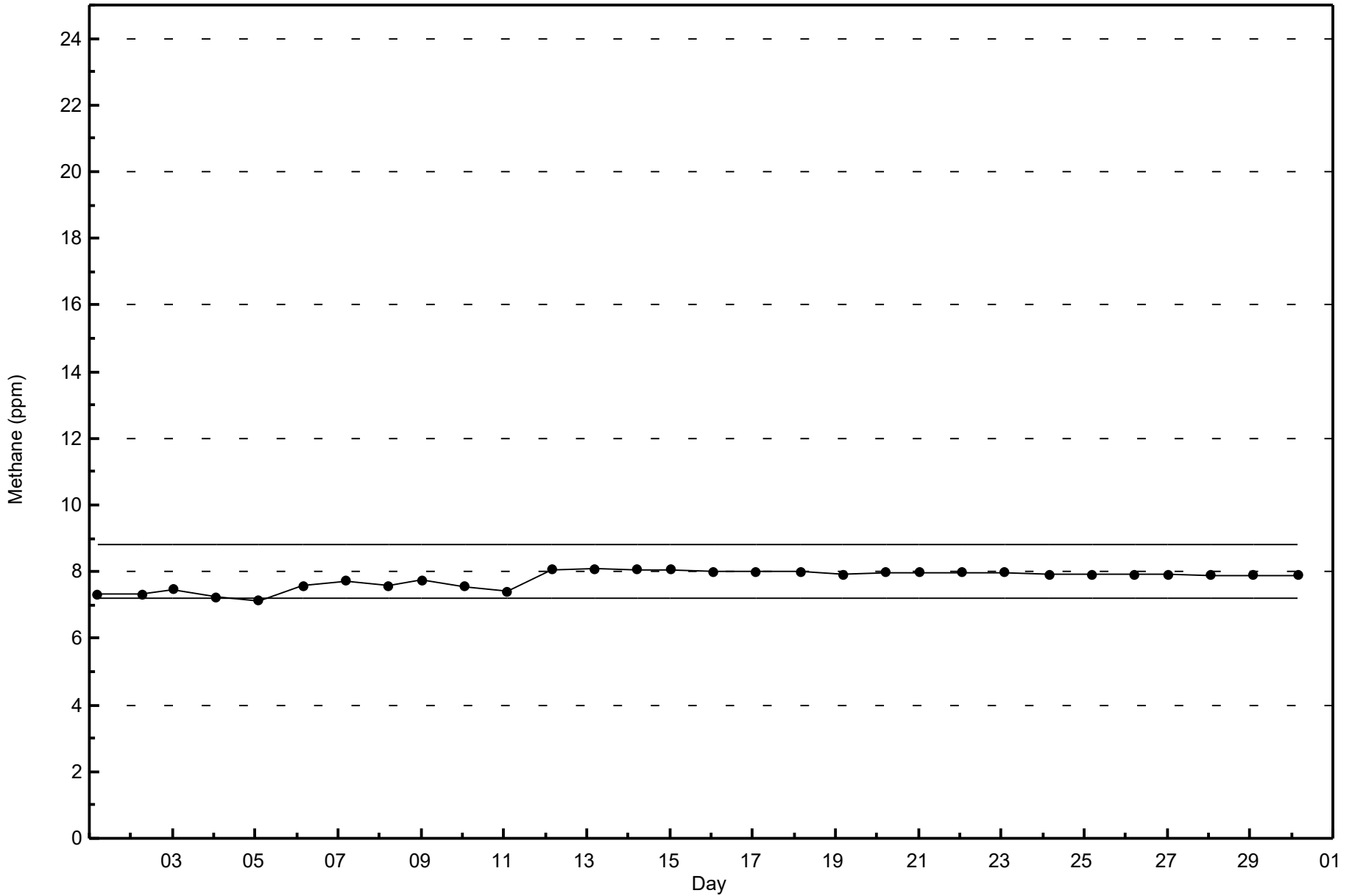


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

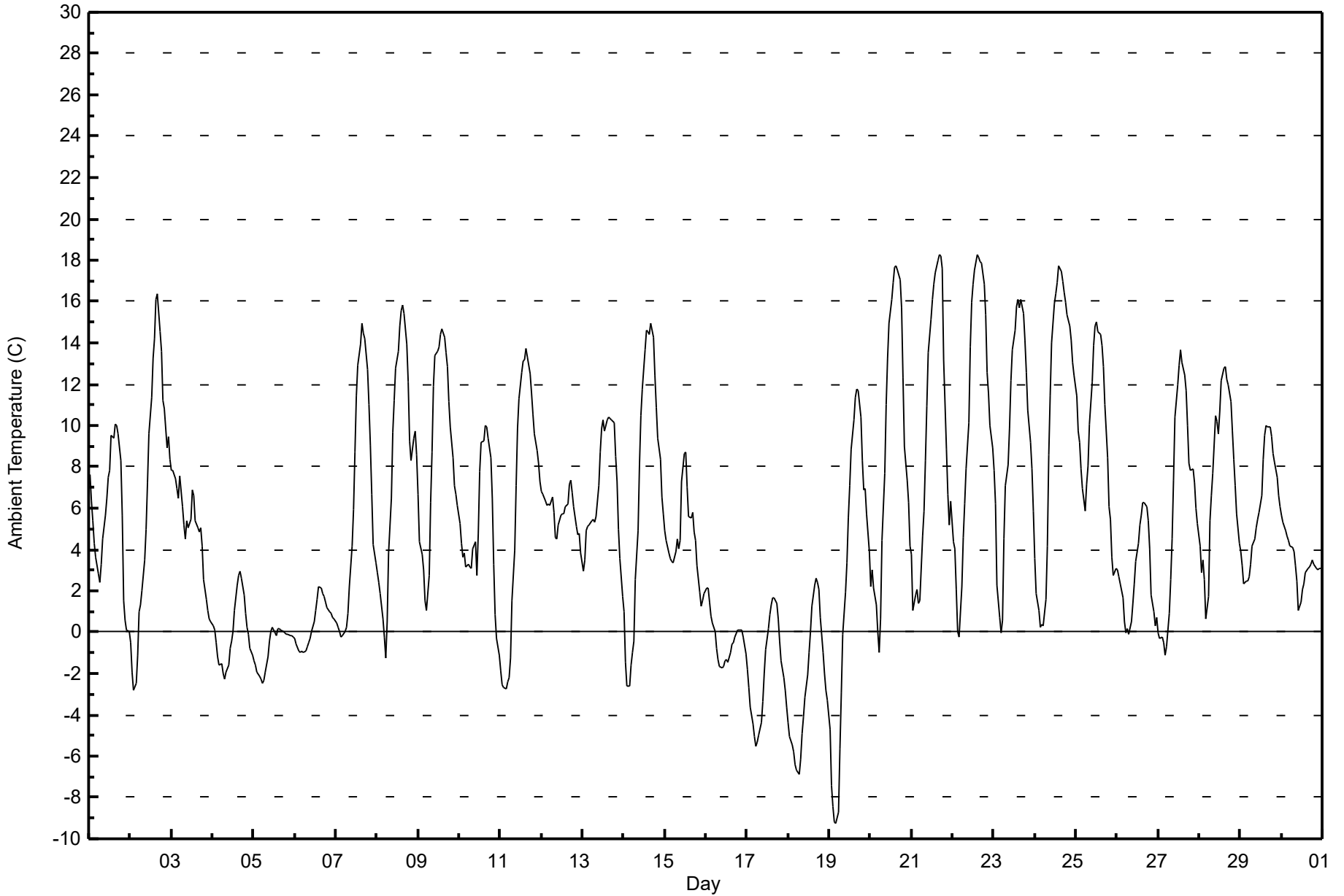
**Ambient Temperature (AT) - C**  
**Mildred Lake - April 2024**

Maximum Value: 18.3 C on Apr 22 15:00		Maximum Daily Average: 10.5 C on Apr 22		Hours in Service: 720																																												
Minimum Value: -9.2 C on Apr 19 05:00		Minimum Daily Average: -2.5 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 10.1 C at hour 16		Minimum Diurnal Average: 0.5 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 5.29 C		Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -1.3 Q <sub>1</sub> = 0.7 Median = 4.6 Q <sub>3</sub> = 9.4 P <sub>90</sub> = 13.8 P <sub>99</sub> = 17.7		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	7.6	6.4	5.4	4.3	3.6	2.8	2.4	3.3	4.5	5.7	6.5	7.5	7.8	9.5	9.4	10.1	10.0	9.6	8.3	5.6	1.5	0.6	0.1	0.0	5.5	10.1																						
2-Apr	-0.5	-1.9	-2.8	-2.5	-1.1	1.0	1.3	2.0	3.5	5.0	7.2	9.6	11.4	13.3	14.2	16.1	16.3	14.5	13.6	11.2	10.8	8.9	9.5	8.4	7.0	16.3																						
3-Apr	7.9	7.8	7.4	7.0	6.4	7.6	6.1	5.2	4.5	5.4	5.0	5.5	6.9	6.6	5.4	5.0	4.9	5.0	4.1	2.5	1.6	1.0	0.6	0.5	5.0	7.9																						
4-Apr	0.3	0.1	-0.5	-1.2	-1.6	-1.5	-2.0	-2.3	-1.9	-1.6	-0.7	-0.5	0.0	1.1	2.2	2.7	2.9	2.6	1.8	0.9	0.2	-0.1	-0.8	-1.1	0.0	2.9																						
5-Apr	-1.4	-1.6	-1.9	-2.2	-2.3	-2.5	-2.3	-1.9	-1.2	-0.4	0.0	0.2	0.0	-0.2	0.2	0.2	0.1	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.8	0.2																						
6-Apr	-0.3	-0.6	-0.9	-1.0	-0.9	-1.0	-0.9	-0.7	-0.5	-0.3	0.1	0.5	1.0	1.6	2.2	2.2	1.9	1.7	1.5	1.2	1.0	0.9	0.7	0.7	0.4	2.2																						
7-Apr	0.5	0.2	0.0	-0.2	-0.2	0.0	0.2	0.9	2.2	4.2	6.0	8.7	11.4	12.9	14.0	15.0	14.5	14.2	12.7	11.0	9.1	6.7	4.2	3.3	6.3	15.0																						
8-Apr	2.9	2.4	1.8	0.7	-0.2	-1.2	0.5	3.8	6.4	9.6	11.2	12.8	13.6	14.8	15.5	15.9	15.4	13.9	12.1	9.2	8.3	9.4	9.8	8.6	8.2	15.9																						
9-Apr	6.7	4.4	3.8	3.0	1.5	1.1	2.7	6.3	8.7	11.9	13.4	13.6	13.8	14.4	14.7	14.3	13.6	12.9	11.2	9.9	8.5	7.1	6.7	6.2	8.8	14.7																						
10-Apr	5.3	4.3	3.6	3.8	3.2	3.3	3.1	3.1	4.0	4.4	2.8	4.8	7.8	9.2	9.2	10.0	9.9	9.4	8.5	6.5	3.3	0.8	-0.3	-1.1	5.0	10.0																						
11-Apr	-1.9	-2.6	-2.6	-2.8	-2.4	-2.2	-1.3	1.5	4.0	7.1	9.9	11.3	12.6	13.1	13.2	13.7	13.3	12.5	11.5	10.6	9.6	8.8	8.1	7.3	6.3	13.7																						
12-Apr	6.8	6.6	6.4	6.1	6.2	6.1	6.6	5.8	4.6	4.5	5.2	5.7	5.7	6.1	6.2	7.2	7.4	6.7	6.0	5.1	4.7	4.8	3.8	5.8	7.4																							
13-Apr	3.0	3.5	4.9	5.1	5.2	5.4	5.4	5.4	5.6	7.1	8.7	9.8	10.2	9.7	10.2	10.4	10.3	10.3	10.1	8.5	7.3	5.0	3.5	1.7	6.9	10.4																						
14-Apr	1.0	-1.4	-2.6	-2.6	-1.6	-1.0	-0.5	2.5	4.9	8.1	10.5	11.8	13.7	14.6	14.5	14.4	14.9	14.3	12.4	10.9	9.4	8.4	6.6	5.7	7.0	14.9																						
15-Apr	4.9	4.4	3.8	3.6	3.5	3.4	3.9	4.5	4.1	4.4	7.3	8.6	8.7	7.0	5.6	5.5	5.8	4.9	4.4	3.3	1.9	1.3	1.5	1.9	4.5	8.7																						
16-Apr	2.1	2.2	1.5	0.8	0.5	0.0	-0.8	-1.3	-1.7	-1.7	-1.7	-1.4	-1.3	-1.4	-1.0	-0.6	-0.5	-0.2	0.1	0.1	0.1	0.1	-0.2	-1.0	-0.3	2.2																						
17-Apr	-1.8	-2.7	-3.6	-4.4	-5.1	-5.5	-5.3	-5.0	-4.4	-3.4	-2.0	-0.9	0.2	0.8	1.3	1.6	1.7	1.4	0.6	-0.4	-1.4	-2.2	-2.8	-3.6	-2.0	1.7																						
18-Apr	-4.4	-5.0	-5.5	-5.8	-6.4	-6.7	-6.9	-6.1	-4.9	-4.1	-3.1	-2.1	-1.0	0.0	1.2	2.3	2.6	2.4	2.0	0.7	-1.0	-2.0	-2.8	-3.3	-2.5	2.6																						
19-Apr	-4.7	-7.4	-8.4	-9.2	-9.2	-8.7	-5.7	-3.0	-0.1	1.9	3.4	5.5	7.1	8.8	10.3	11.4	11.7	11.7	10.4	8.3	6.9	6.9	5.7	3.9	2.4	11.7																						
20-Apr	2.2	3.0	2.1	1.3	0.1	-1.0	0.6	4.4	7.7	11.0	13.2	14.9	16.1	16.9	17.7	17.7	17.5	17.0	15.7	12.3	9.0	7.3	6.3	4.2	9.1	17.7																						
21-Apr	3.8	1.0	1.8	2.1	1.4	1.6	4.7	5.9	8.3	11.0	13.5	15.2	16.1	16.9	17.4	18.0	18.3	18.2	17.6	13.2	8.8	6.7	5.2	6.3	9.7	18.3																						
22-Apr	4.4	4.0	2.1	0.0	-0.3	2.2	4.6	6.2	7.9	10.1	13.8	16.0	16.8	17.5	18.3	18.2	17.9	17.9	16.9	15.3	12.5	11.6	10.0	8.9	10.5	18.3																						
23-Apr	7.8	6.2	2.3	0.7	0.0	0.6	4.5	7.1	8.1	9.8	12.1	13.7	14.6	15.7	16.1	15.7	16.1	15.4	14.1	12.6	10.7	9.2	7.9	5.9	9.5	16.1																						
24-Apr	3.6	1.8	1.1	0.2	0.4	0.3	1.6	4.1	8.6	11.4	14.0	15.9	16.3	16.9	17.7	17.4	17.0	16.5	16.0	15.4	14.8	14.1	13.0	12.5	10.4	17.7																						
25-Apr	11.5	9.7	9.2	7.9	7.0	5.9	7.1	8.0	10.1	12.1	13.9	14.8	15.0	14.5	14.4	13.9	12.8	11.0	8.5	6.1	5.5	3.6	2.8	3.1	9.5	15.0																						
26-Apr	3.0	2.7	2.4	1.7	0.5	0.0	0.2	-0.1	0.5	1.4	2.3	3.4	4.3	5.2	5.7	6.3	6.3	6.0	5.4	4.1	1.8	1.0	0.3	0.7	2.7	6.3																						
27-Apr	0.0	-0.3	-0.2	-0.5	-1.1	-0.7	0.9	2.5	4.5	7.4	10.4	12.0	12.9	13.6	13.0	12.5	11.7	10.0	8.2	7.8	7.9	7.2	6.0	5.3	6.3	13.6																						
28-Apr	4.1	2.9	3.5	2.6	0.6	1.8	5.4	6.6	7.7	10.5	10.2	9.6	10.7	12.1	12.8	12.9	12.2	12.0	11.1	9.8	8.3	7.1	5.7	4.3	7.7	12.9																						
29-Apr	3.9	3.2	2.4	2.5	2.4	2.7	3.3	4.2	4.5	5.1	5.4	5.8	6.6	8.4	9.6	10.0	10.0	9.9	9.5	8.7	8.2	7.5	6.6	6.1	6.1	10.0																						
30-Apr	5.7	5.3	4.9	4.7	4.5	4.2	4.1	3.9	3.2	2.4	1.1	1.5	2.1	2.3	2.9	3.1	3.2	3.3	3.5	3.3	3.1	3.0	3.1	3.1	3.4	5.7																						
																								2.8	2.0	1.4	0.9	0.5	0.6	1.5	2.6	3.8	5.3	6.7	7.8	8.7	9.4	9.8	10.1	10.0	9.5	8.6	7.1	5.8	4.8	4.1	3.4	Diurnal Average
																								11.5	9.7	9.2	7.9	7.0	7.6	7.1	8.0	10.1	12.1	14.0	16.0	16.8	17.5	18.3	18.2	18.3	18.2	17.6	15.4	14.8	14.1	13.0	12.5	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Mildred Lake - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Mildred Lake - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	133	18.47	18.47
0 - 10	431	59.86	78.33
10 - 20	156	21.67	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

**Relative Humidity (RH) - %**  
**Mildred Lake - April 2024**

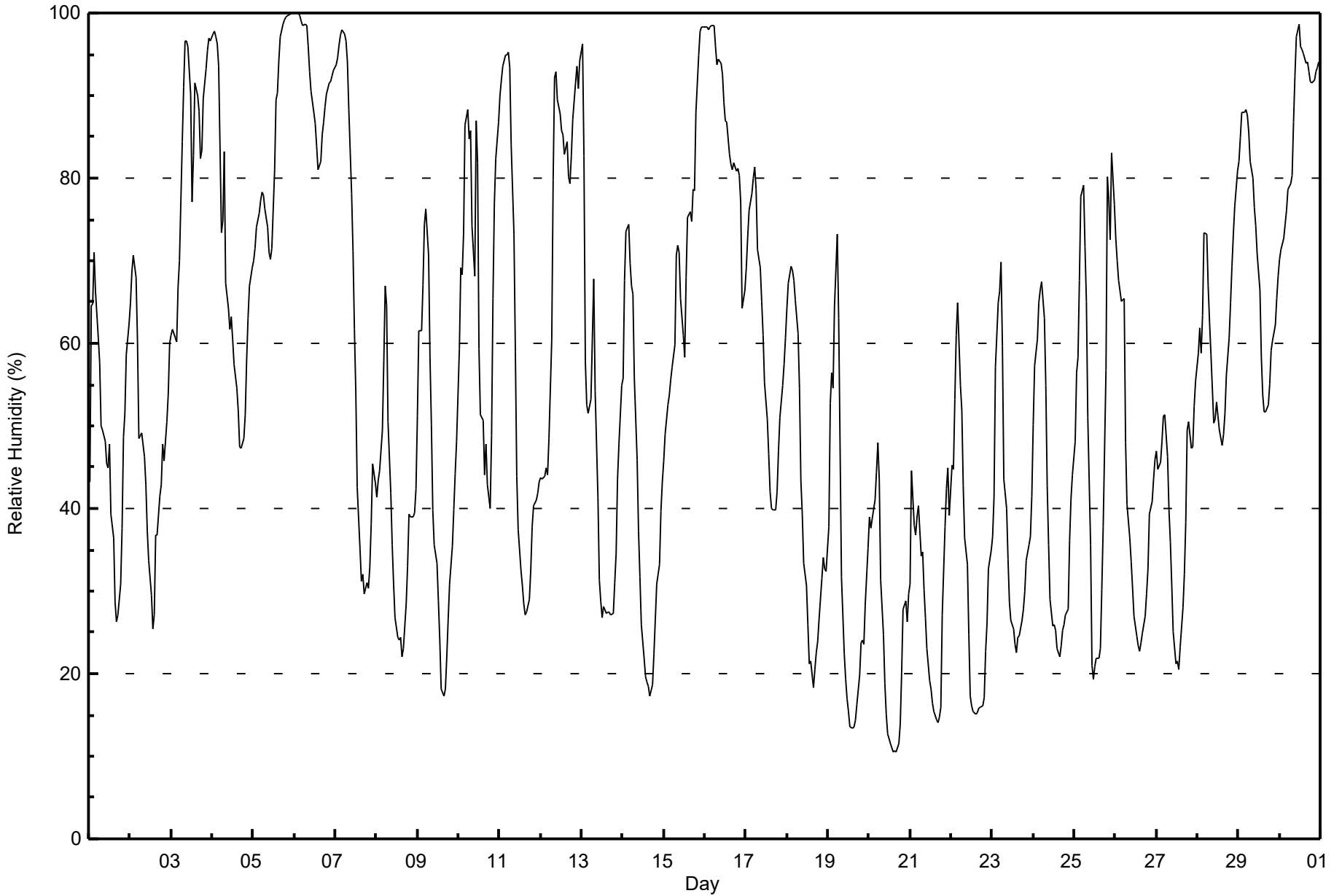
Maximum Value: 100.0 % on Apr 5 23:00      Maximum Daily Average: 92.3 % on Apr 6																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: 10.5 % on Apr 20 15:00      Minimum Daily Average: 25.3 % on Apr 20 Maximum Diurnal Average: 70.6 % at hour 5      Minimum Diurnal Average: 41.4 % at hour 16 Monthly Average: 55.49 %      Percentiles: P <sub>1</sub> = 13.4 P <sub>10</sub> = 23.4 Q <sub>1</sub> = 33.7 Median = 53.1 Q <sub>3</sub> = 76.3 P <sub>90</sub> = 92.8 P <sub>99</sub> = 99.7																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	43.2	64.6	64.7	71.0	66.2	60.7	57.7	50.1	49.5	48.1	45.5	45.0	47.8	39.3	36.4	28.6	26.2	27.1	30.8	37.6	48.6	51.6	58.7	62.4	48.4	71.0																							
2-Apr	65.0	68.6	70.7	68.0	60.3	48.5	48.9	49.2	46.3	42.9	37.4	33.7	29.5	25.4	27.1	36.8	36.8	41.6	42.9	47.8	45.7	50.5	54.0	60.0	47.4	70.7																							
3-Apr	61.1	61.7	60.6	60.1	66.7	70.0	84.4	91.0	96.5	96.6	95.9	90.2	77.2	82.8	91.5	90.0	88.2	82.4	83.3	89.6	93.2	95.4	97.0	96.6	83.4	97.0																							
4-Apr	97.4	97.8	97.1	96.3	93.5	73.5	75.0	83.2	67.4	64.2	61.7	63.2	60.5	57.4	54.6	51.8	47.4	47.4	48.5	51.3	58.0	63.0	66.9	69.2	68.6	97.8																							
5-Apr	70.0	71.5	74.0	75.8	77.3	78.3	77.9	76.3	74.1	71.0	70.2	71.6	81.0	89.4	90.3	94.2	97.1	98.6	99.2	99.5	99.7	99.9	100.0	100.0	84.9	100.0																							
6-Apr	100.0	100.0	100.0	99.7	99.0	98.4	98.6	98.5	95.9	92.8	90.5	88.0	86.6	83.9	80.9	82.1	85.2	86.8	88.6	90.1	91.5	91.8	92.4	93.0	92.3	100.0																							
7-Apr	93.7	94.5	96.1	97.2	97.9	97.4	96.7	94.2	88.3	78.2	71.2	61.7	54.1	42.5	35.1	31.2	32.1	29.6	30.9	30.3	32.9	38.1	45.5	43.0	63.0	97.9																							
8-Apr	41.3	43.4	44.5	49.5	57.7	66.9	64.6	50.6	41.9	35.5	30.9	26.8	24.4	24.1	24.4	22.1	23.1	28.5	33.0	39.3	39.0	39.0	39.5	42.3	38.9	66.9																							
9-Apr	51.2	61.6	61.6	67.2	74.5	76.2	70.7	58.2	50.2	39.9	35.6	33.3	28.9	24.0	18.2	17.3	18.1	22.1	26.7	30.8	35.4	39.8	44.3	48.1	43.1	76.2																							
10-Apr	59.2	69.1	68.4	73.3	86.4	88.4	84.7	85.7	74.2	68.1	87.0	81.9	59.3	51.4	50.7	44.1	47.7	42.9	39.9	48.8	65.5	77.0	82.3	86.9	67.6	88.4																							
11-Apr	90.1	91.9	93.6	94.9	94.9	95.2	93.4	84.1	73.3	59.1	43.9	37.5	32.5	30.6	28.5	27.1	27.5	29.0	32.6	37.7	40.4	41.1	41.8	43.2	56.8	95.2																							
12-Apr	43.7	43.5	43.9	44.9	44.1	48.5	60.5	79.8	92.2	92.9	89.5	87.8	85.8	85.3	82.9	84.5	80.1	79.3	82.7	87.2	91.5	93.6	90.9	94.2	75.4	94.2																							
13-Apr	96.3	82.6	57.8	52.5	51.5	53.3	60.5	67.8	54.3	41.4	31.4	28.8	26.8	28.1	27.3	27.5	27.4	27.1	27.3	31.0	34.6	43.5	47.9	55.0	45.1	96.3																							
14-Apr	55.7	67.6	73.5	74.4	69.7	66.9	66.0	55.7	46.0	37.2	31.8	26.0	21.9	19.6	19.0	18.4	17.3	18.6	22.4	26.6	30.8	33.2	39.7	43.3	40.9	74.4																							
15-Apr	45.8	49.0	52.6	53.8	55.7	57.1	59.8	70.7	71.8	70.9	65.5	61.0	58.3	67.9	75.2	75.9	74.7	78.7	78.5	88.0	95.0	97.7	98.4	98.3	70.8	98.4																							
16-Apr	98.3	98.3	97.9	98.3	98.5	98.4	95.9	93.8	94.3	93.9	92.5	89.2	86.9	86.7	82.9	81.6	81.0	81.9	80.9	81.2	80.3	77.1	64.2	66.4	87.5	98.5																							
17-Apr	69.2	72.9	76.2	78.2	79.9	81.3	78.7	71.3	69.1	65.1	61.1	55.2	50.8	46.5	42.0	40.1	39.9	39.8	42.0	46.9	51.0	54.8	57.5	60.7	59.6	81.3																							
18-Apr	64.2	67.3	69.2	68.9	67.6	65.2	61.2	54.6	43.3	39.4	33.4	30.7	25.9	21.1	21.6	18.2	20.6	22.6	23.9	26.6	31.6	34.1	32.7	32.3	40.7	69.2																							
19-Apr	37.9	52.7	56.4	54.6	64.4	73.2	63.1	47.7	31.7	22.3	19.4	16.9	15.5	13.6	13.4	13.5	14.4	16.3	19.9	23.7	24.1	23.6	28.5	35.3	32.6	73.2																							
20-Apr	39.0	37.6	38.8	41.1	44.3	47.9	43.6	31.4	24.7	18.8	15.1	12.8	11.5	10.9	10.5	10.7	10.5	11.5	14.0	20.2	27.8	28.8	26.3	29.6	25.3	47.9																							
21-Apr	30.9	44.5	38.0	36.7	39.0	40.3	34.2	34.7	30.2	26.9	23.1	19.2	18.2	16.5	15.5	14.3	14.1	14.8	15.9	27.2	37.7	42.3	44.9	39.2	29.1	44.9																							
22-Apr	45.3	44.7	53.2	61.1	65.0	55.0	51.9	42.7	36.5	33.1	24.8	17.2	16.2	15.3	15.1	15.2	15.8	16.0	16.0	17.1	22.7	26.1	32.8	34.9	32.2	65.0																							
23-Apr	36.6	41.3	57.2	64.9	66.3	69.8	59.6	43.5	40.1	33.9	28.6	26.4	25.5	23.6	22.6	24.3	24.6	26.5	27.7	30.0	33.7	35.6	36.6	41.5	38.3	69.8																							
24-Apr	50.1	57.3	60.6	65.0	66.4	67.5	63.1	54.9	42.7	35.5	29.0	25.7	25.9	25.2	23.0	22.1	23.5	25.2	25.9	27.1	27.8	36.1	41.3	44.1	40.2	67.5																							
25-Apr	48.1	56.4	58.4	67.6	77.7	79.1	71.7	65.0	51.0	35.5	21.0	19.4	20.8	21.9	21.8	23.1	30.1	37.9	56.8	80.1	77.4	72.5	83.1	76.7	52.2	83.1																							
26-Apr	72.7	70.0	67.7	65.1	65.3	65.4	48.0	40.4	36.5	33.6	30.4	27.0	24.5	23.4	22.7	23.8	25.0	27.0	29.7	32.7	39.3	40.9	43.5	45.9	41.7	72.7																							
27-Apr	46.9	44.8	45.6	48.1	51.3	51.4	46.3	39.8	36.0	30.7	25.1	21.1	21.5	20.4	23.2	28.0	32.0	38.3	49.5	50.5	47.3	47.5	52.4	55.4	39.7	55.4																							
28-Apr	58.8	61.9	58.8	63.3	73.3	73.3	66.9	62.5	58.6	50.4	50.8	52.9	51.2	49.5	47.7	49.0	51.6	56.1	60.7	64.9	69.3	73.2	76.6	80.9	60.9	80.9																							
29-Apr	82.1	84.8	88.0	87.9	88.3	87.6	85.5	82.1	80.0	76.5	74.2	70.8	66.5	58.4	53.7	51.7	51.7	52.5	55.0	59.1	60.3	62.2	65.4	68.2	70.5	88.3																							
30-Apr	70.1	71.3	72.7	74.4	76.1	78.7	79.3	80.4	86.7	92.4	97.1	98.6	96.0	95.6	95.0	94.0	94.1	92.8	91.7	91.6	91.8	92.9	93.5	94.0	87.5	98.6																							
																								62.1	65.8	66.6	68.4	70.6	70.5	68.3	64.7	59.4	54.2	50.4	47.3	44.4	42.7	41.8	41.4	41.9	43.3	45.9	50.5	54.1	56.8	59.3	61.3	Diurnal Average	
																								100.0	100.0	100.0	99.7	99.0	98.4	98.6	98.5	96.5	96.6	97.1	98.6	96.0	95.6	95.0	94.2	97.1	98.6	99.2	99.5	99.7	99.9	100.0	100.0	Diurnal Maximum	





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Mildred Lake - April 2024**





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Mildred Lake - April 2024

Maximum Speed: 27 km/h on Apr 16 11:00	Maximum Daily Speed Average: 20.9 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 23 05:00	Minimum Daily Speed Average: 1.6 km/h on Apr 14	Hours of Data: 716
Maximum Diurnal Speed Average: 4.0 km/h at hour 19	Minimum Diurnal Speed Average: 1.4 km/h at hour 12	Hours of Missing Data: 4
Monthly Average Velocity: 2.5 km/h 356.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 10 Q <sub>3</sub> = 15 P <sub>90</sub> = 18 P <sub>99</sub> = 25	Percent Operational Time: 99.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	WSW13	WNW17	NW16	WNW10	W14	WSW11	WSW10	WNW13	WNW19	NW21	NW20	WNW18	WNW16	WNW15	WNW13	NW17	NW20	NW15	NW10	NW7	N5	WSW2	SW5	SW6	WNW11.7	NW21
2-Apr	S5	S4	SE4	SE5	SE7	SSE15	SSE13	SSE11	SSE13	SSE11	SE11	SSE15	SSE15	SE15	SE17	S18	SSE16	SSE14	SE7	SE4	SE6	SSW4	WSW6	SE6	SSW9.5	S18
3-Apr	ESE5	ESE6	E6	ESE6	SW3	WNW14	WNW13	WNW15	WNW6	W3	SW7	W7	W11	NNW11	N10	N9	NE10	NE10	NNE9	NNE7	NNE5	ESE1	N5	NE4	NNW3.3	WNW15
4-Apr	NNE5	N4	N8	NNW9	UO	UO	UO	UO	N11	NNE11	NNE11	E10	NNE5	NNE9	NE10	NNE9	N10	N10	N9	NNE8	NE6	ENE8	ENE9	E6	NNE7.5	NNE11
5-Apr	ENE6	NNE6	NNE4	ENE6	ENE4	NE4	NNE5	NNE8	NNE8	NNE7	N10	NNW12	N14	N12	N13	N11	N10	N9	NNW9	NNW9	NNW9	N7	N6	NNW5	N7.4	NNW14
6-Apr	NNW8	NW9	NW9	N6	NNE6	NNE4	NNW5	NNW8	N7	N8	N10	N8	NNE9	NNE9	N7	NNW9	N10	NNE7	N5	N5	NNW6	NW4	NW3	NW3	N6.5	N10
7-Apr	N2	SE3	SSE2	S4	SSW5	S5	SSE5	SSE8	SSE10	S10	SSE9	S9	SSW11	SSW13	SSW11	SSW10	SW10	SW12	SW11	SW12	SW9	SW5	SW4	SSW5	SSW6.8	SSW13
8-Apr	SW4	SSW5	SSW3	SSW4	SSW4	SSE2	SE2	SSE6	S8	S8	SSE8	SSE8	SSE7	WSW4	SW10	SW11	SW8	SSW5	S3	SE4	E5	ESE4	W4	N5	S3.8	SW11
9-Apr	WSW4	SW3	SW4	SW4	SW3	S3	SSW4	ESE2	S2	SSW8	SSW14	SW15	WSW12	SW16	WSW15	WSW14	WSW13	WSW15	W13	WSW12	W9	WNW9	WNW6	NW8	WSW7.5	SW16
10-Apr	N8	NNW5	NW7	WNW10	WNW11	WNW12	NW15	NW15	WNW14	NW15	NNW18	NW11	NNW12	NNW14	N15	NNE14	NE12	NE11	NE9	NE6	ENE6	E5	SE3	SSW2	NNW7.7	NNW18
11-Apr	SE2	ENE2	ESE4	SE3	ESE3	SE4	ESE5	SE7	SE11	SE12	SSE13	SE15	SE17	SE17	SE17	SE18	SE19	ESE18	ESE17	ESE17	ESE16	SE19	SE18	SE15	SE11.7	SE19
12-Apr	SSE15	SE14	SE11	SE11	SE13	SE11	SSE13	SSE16	SE20	SSE19	SE19	SE18	SSE18	SSE16	SE12	SE13	SE14	SE12	SE11	SE12	SE7	SSE9	SSE11	SSE9	SE13.3	SE20
13-Apr	SSE4	SW7	SW13	WSW12	WSW14	WSW17	W17	W17	WNW18	WNW17	WNW20	WNW22	WNW23	WNW19	WNW20	WNW19	WNW15	WNW16	WNW13	WNW10	WNW8	WSW6	SW6	SW7	W12.7	WNW23
14-Apr	WNW3	SW2	S3	S4	S5	SSE5	S5	S7	SE8	SE9	SE10	SE12	S9	SW11	WSW9	WNW9	W9	W5	NNE4	NNE7	N8	NNE6	NNW9	N8	SSW1.6	SE12
15-Apr	NNW9	NNW9	NNW9	NNW8	NNW7	WNW5	NNW9	N8	N13	N9	NNW10	N14	NNE8	ENE15	NE14	NNE13	NNE14	NNE14	NNE14	NNE14	N14	N16	N15	N14	N10.4	N16
16-Apr	N15	N17	N20	N19	N21	N23	N25	N26	N25	N25	N27	N27	N27	N26	N26	NNE22	N20	NNE16	N15	N15	N15	N17	N19	N17	N20.9	N27
17-Apr	N18	N19	N18	N17	N16	N15	N17	N20	NNE16	N18	N19	N21	N23	N22	N22	N22	N20	NNE16	N15	N13	N10	N8	N8	NNW9	N16.7	N23
18-Apr	NNW10	NNW11	NNW12	N13	N12	N12	N16	N18	N18	N18	N19	N20	N20	N18	N18	N16	N16	N16	N14	N10	N7	NNW8	N8	N7	N13.9	N20
19-Apr	N7	NNW5	NNW4	S3	S3	SSW4	SSW6	S6	S6	SSW8	SSW9	S7	SW4	S8	S11	SSW11	SSW13	SSW13	SSW10	SSW9	SW9	SW13	WSW8	WSW6	SSW6.0	SW13
20-Apr	SW5	WSW7	SW6	SW7	SW8	SSW6	S6	SW6	W8	W9	W11	W11	W11	WSW11	WSW9	SSW13	SSW13	SSW11	SSW8	SSW6	S6	S6	S5	S5	SW7.1	SSW13
21-Apr	SSE7	SE5	ESE6	ESE7	E7	ESE7	SE6	ESE6	SE10	SE10	S11	SE14	SSE12	SSE9	SSE9	SSW5	SSW4	SSW3	WNW4	NNW6	N6	N3	NNW7	NNW6	SE4.1	SE14
22-Apr	NNW6	NW6	NNW5	N3	NW4	WNW6	WNW5	NNW6	N9	NNW11	N10	NNE13	NE11	N7	N9	N12	NNE13	NNE14	N15	NNE9	N6	N9	NNE9	NNE9	N8.0	N15
23-Apr	N8	N6	NNW5	NNW5	W1	SW2	NE2	NE4	NNE8	N6	WSW3	WSW7	W8	NNW2	ENE8	NE8	NE8	NNE10	NNE12	NNE11	NNE9	NE8	ENE8	NE5	NNE4.4	NNE12
24-Apr	N7	NNW7	NNW6	N7	N10	N11	N10	N8	E6	E12	ESE15	SE17	ESE18	E20	E19	ESE18	ESE18	E16	ESE16	ESE16	ESE17	SE21	SE18	ESE15	E9.6	SE21
25-Apr	SE16	SSE10	W11	SW6	W8	SW6	WSW8	SW8	SW11	WSW15	W17	WSW19	W20	WSW20	WSW18	WSW18	WSW19	WNW18	NW24	WNW15	NW17	NNW16	NW6	NW13	W10.7	NW24
26-Apr	NW17	NNW19	NNW18	NNW17	NNW11	NNW14	NNW24	NNW24	NNW20	NNW18	NNW17	NNW15	NW15	NNW16	NNW16	NNW14	N11	NNE10	NE9	NE8	ENE6	E9	ESE7	SSE9	NNW11.4	NNW24
27-Apr	SSE9	SE12	SSE15	SSE13	SSE7	SSE6	SE10	SSE12	SE12	SE12	SSE13	SSE17	SSE18	SSE18	S18	S18	SSW15	S20	S16	SE10	SE11	SE10	SE7	E6	SSE11.8	S20
28-Apr	ENE5	E6	E6	ENE3	N5	E4	ESE8	SE15	SE15	SE15	SE17	SE14	SE14	ESE13	SE15	ESE14	ESE14	SE13	ESE12	ESE14	ESE13	ESE10	ESE9	E6	ESE10.0	SE17
29-Apr	ESE6	ESE5	ENE5	NE5	NNE5	NNE4	N4	NE6	NNE7	NNE8	N10	N11	N11	NNE13	NNE14	NNE15	NNE15	NNE14	N15	N16	N16	N14	N15	N14	NNE9.5	N16
30-Apr	N14	N14	N15	N18	N17	N19	N18	N19	N19	N19	N18	N17	N20	N21	N19	N15	N15	N18	N21	N20	N18	N17	N18	N15	N17.6	N21

N2.1	NNW2.6	NNW3.2	NNW2.4	NNW2.4	NNW2.7	NNW3.0	N2.6	NNW2.5	NNW2.5	NW1.4	NNW2.2	N2.2	N2.3	NNW2.5	N2.4	NNW2.7	NNE4.0	NNE3.8	NNE3.7	NNE2.4	NNE2.4	NNE2.5	Diurnal Average		
N18	NNW19	N20	N19	N21	N23	N25	N26	N25	N25	N27	N27	N27	N26	N26	N22	N20	S20	NW24	N20	N18	SE21	N19	N17	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Mildred Lake - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 8 km/h on Apr 16 15:00	Hours of Data: 716
Minimum Value: 0 km/h on Apr 21 05:00	Hours of Missing Data: 4
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 99.4

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-Apr	6	5	6	2	3	3	4	4	6	5	5	5	5	4	4	6	5	5	2	2	1	2	1	1	6
2-Apr	1	1	2	1	3	3	3	2	3	2	3	4	3	4	4	5	4	3	2	3	2	1	1	2	5
3-Apr	2	2	2	2	2	4	3	4	2	1	2	3	4	3	2	2	3	3	2	2	2	1	2	2	4
4-Apr	3	2	2	2	UO	UO	UO	UO	3	3	3	4	3	3	3	3	2	2	2	2	1	2	2	1	4
5-Apr	1	2	1	1	1	1	1	2	2	2	2	2	3	3	3	2	2	2	2	1	1	2	1	1	3
6-Apr	1	2	2	1	2	2	1	2	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1	2	3
7-Apr	1	2	2	1	1	1	1	2	2	2	2	2	3	4	3	3	3	4	4	3	3	2	2	1	4
8-Apr	1	1	1	1	1	2	1	2	2	2	2	2	3	3	4	4	3	2	1	1	1	2	5	2	5
9-Apr	1	1	1	1	1	1	1	2	2	2	4	4	5	5	5	5	4	6	4	4	3	2	2	2	6
10-Apr	2	1	1	3	3	3	5	7	4	4	5	3	3	4	4	4	4	3	3	1	1	1	1	1	7
11-Apr	1	1	1	1	1	1	2	2	3	3	3	4	4	4	4	4	5	6	5	5	5	5	4	3	6
12-Apr	3	3	3	3	4	2	3	4	4	4	4	4	4	4	3	4	3	3	3	3	3	5	3	2	5
13-Apr	3	3	4	4	4	5	5	5	5	5	6	6	6	5	6	5	5	4	3	2	1	2	1	1	6
14-Apr	2	2	2	1	1	2	1	2	2	2	3	3	4	4	3	3	3	2	2	2	2	3	3	3	4
15-Apr	1	1	1	3	1	3	4	4	3	3	2	4	4	4	4	4	4	4	3	3	3	3	3	3	4
16-Apr	4	5	5	5	5	6	6	7	6	6	7	7	7	7	8	6	5	4	4	4	4	4	5	4	8
17-Apr	5	5	4	5	4	4	5	5	5	5	5	5	6	6	6	7	6	5	4	4	3	2	1	2	7
18-Apr	2	2	2	3	2	3	5	4	4	5	5	5	5	5	5	5	5	5	4	3	1	1	1	1	5
19-Apr	1	1	2	1	1	1	1	1	1	3	2	2	2	3	3	3	3	3	2	2	3	4	2	2	4
20-Apr	2	2	2	2	1	1	1	2	2	3	3	3	3	3	4	4	3	3	2	1	1	1	1	1	4
21-Apr	1	1	1	1	0	1	1	1	2	3	3	3	4	3	3	2	2	2	1	1	1	1	2	3	4
22-Apr	2	2	1	1	1	1	1	2	2	2	3	4	4	4	4	3	4	4	5	3	1	3	2	2	5
23-Apr	2	1	1	1	1	1	1	2	2	3	2	2	3	3	3	3	3	3	3	3	2	2	2	2	3
24-Apr	1	2	2	2	1	1	2	3	3	4	4	4	5	5	5	4	5	5	4	5	5	5	4	5	5
25-Apr	4	3	3	2	2	2	3	3	4	5	6	6	6	7	6	7	7	7	6	5	6	6	2	3	7
26-Apr	3	4	4	5	3	6	5	5	4	5	5	5	6	6	5	5	4	3	2	2	1	2	2	2	6
27-Apr	2	2	2	3	4	2	3	3	3	3	4	5	5	5	5	5	5	5	5	2	3	2	3	1	5
28-Apr	1	2	2	2	1	1	4	4	3	4	4	4	4	3	4	4	3	3	3	3	3	3	3	1	4
29-Apr	2	1	1	1	1	1	1	2	2	2	3	3	3	3	4	4	4	4	4	4	4	4	4	3	4
30-Apr	3	4	4	5	5	5	5	5	5	5	4	5	5	5	4	5	4	4	5	5	4	4	4	4	5
	6	5	6	5	5	6	6	7	6	6	7	7	7	7	8	7	7	7	6	5	6	6	5	4	

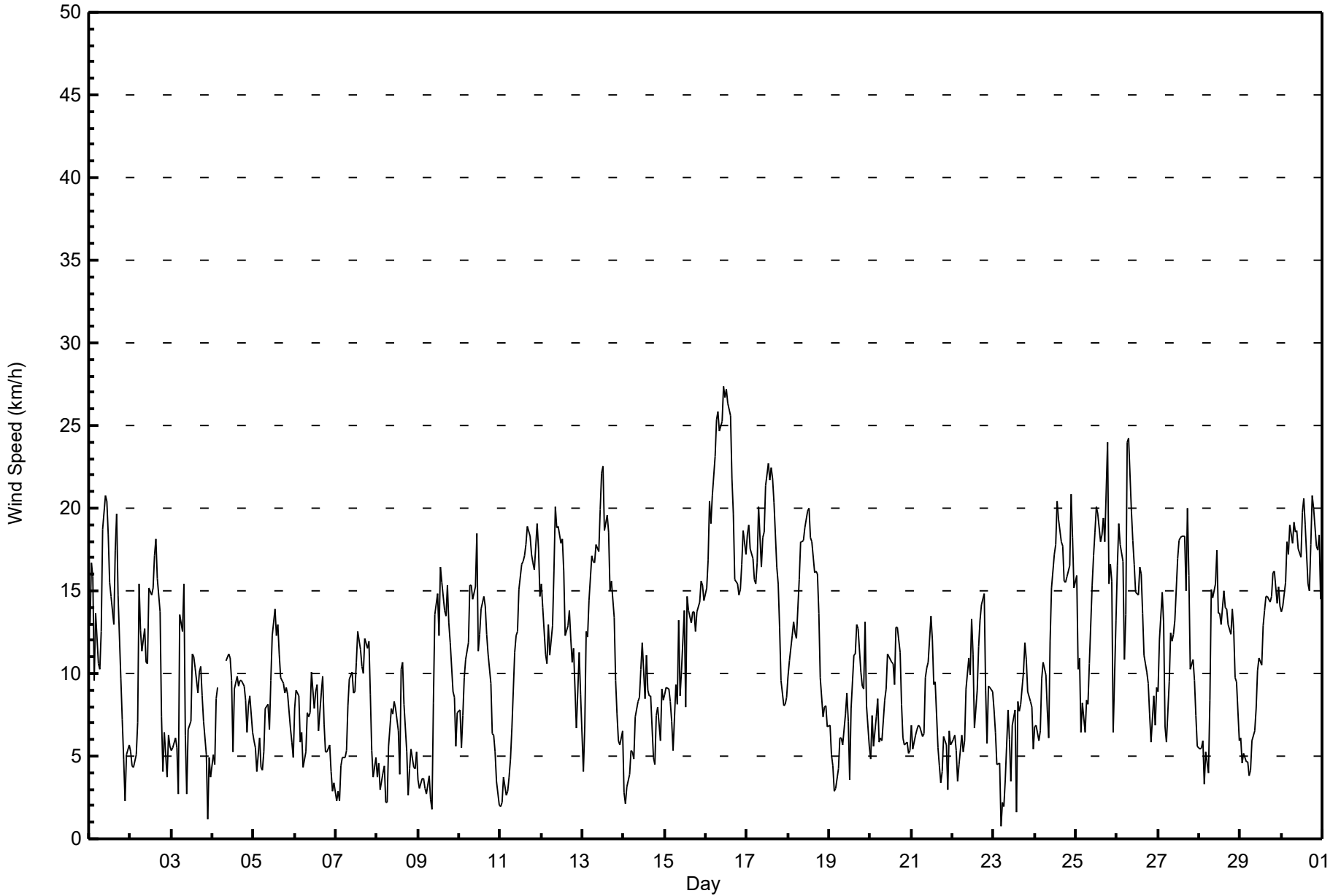
Diurnal Maximum

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Mildred Lake - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Mildred Lake - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	125	17.46	17.46
6 - 11	290	40.50	57.96
12 - 19	257	35.89	93.85
20 - 28	44	6.15	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 716

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Mildred Lake - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	11	9	6	5	3	8	11	5	14	15	13	4	4	4	4	9	125
6 - 11	53	28	14	8	10	11	22	22	14	14	21	12	12	10	8	31	290
12 - 19	71	18	2	1	3	18	37	22	4	7	6	15	5	22	9	17	257
20 - 28	26	1	0	0	1	0	2	0	1	0	0	1	1	4	4	3	44
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>	161	56	22	14	17	37	72	49	33	36	40	32	22	40	25	60	716

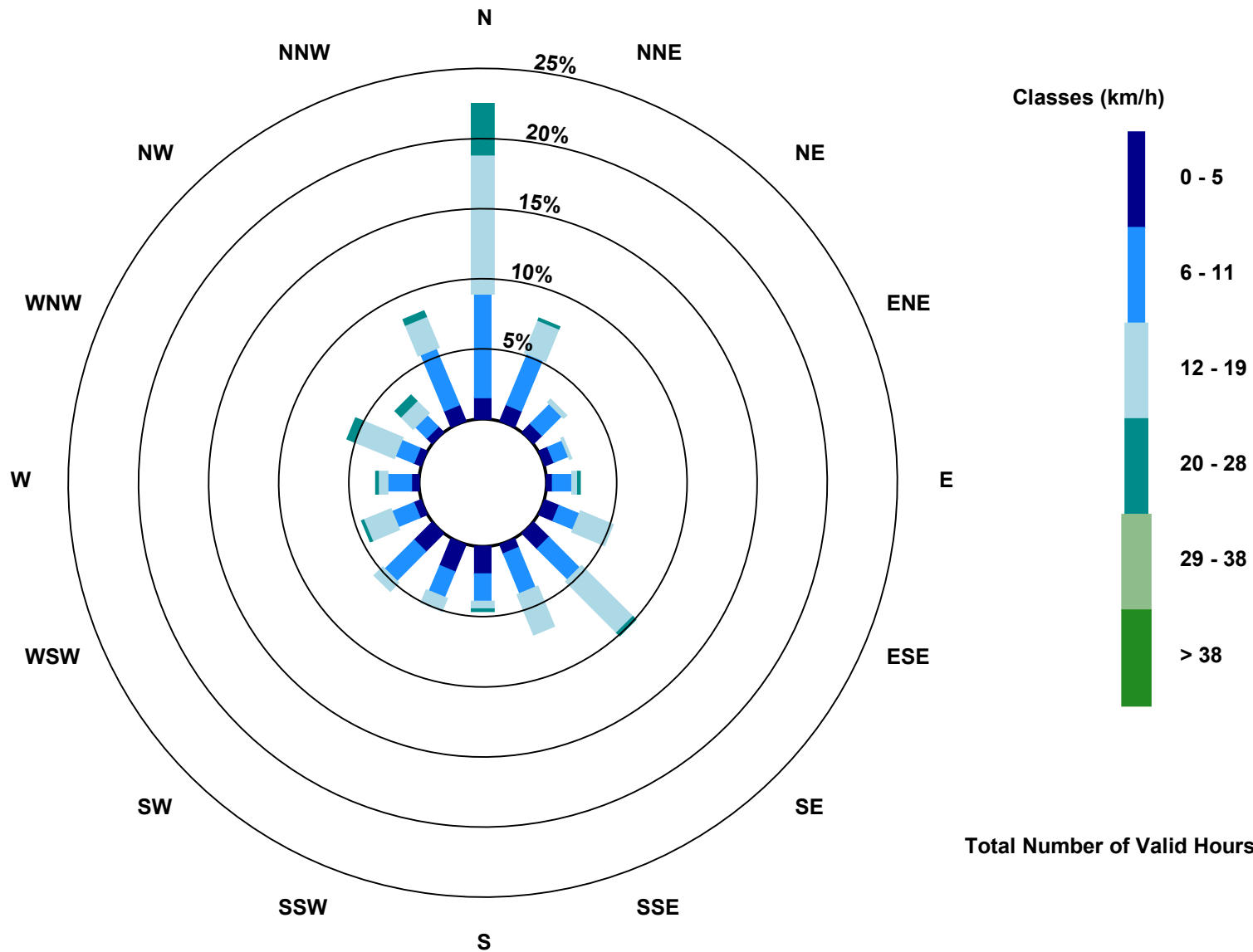
Total Number of Valid Hours: 716

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Mildred Lake



Total Number of Valid Hours: 716



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

**Wind Direction (WD) - deg**  
**Mildred Lake - April 2024**

Direction of Maximum Speed: 1 deg on Apr 16 11:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 1.8 deg on Apr 16	Hours of Data: 716
Direction of Minimum Speed: 268 deg on Apr 23 05:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 1.6 deg on Apr 14	Percent Operational Time: 99.4
Monthly Average Direction: 356.9 deg	

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-Apr	242	293	305	286	276	249	248	293	296	307	315	301	290	285	302	311	309	315	304	311	350	237	220	216	293.3
2-Apr	191	184	142	132	143	152	157	148	154	152	141	149	148	135	140	179	166	148	129	134	128	211	237	142	152.9
3-Apr	108	122	99	123	230	300	287	298	295	263	215	265	272	330	0	358	40	40	29	21	13	117	10	53	338.5
4-Apr	29	3	352	347	UO	UO	UO	UO	5	12	23	89	20	21	40	27	11	1	4	12	53	70	68	80	25.2
5-Apr	57	32	26	64	65	37	20	24	14	15	349	342	349	350	352	351	352	350	347	345	346	353	352	332	0.9
6-Apr	328	323	322	358	14	29	348	343	3	358	356	8	22	14	359	346	2	14	359	4	336	322	317	326	353.8
7-Apr	4	125	159	185	204	178	157	159	164	188	168	174	206	201	203	209	216	228	223	229	228	231	233	205	200.0
8-Apr	221	213	196	203	196	157	144	151	169	178	151	160	156	248	225	233	217	210	179	132	100	111	275	351	187.5
9-Apr	246	229	220	219	222	181	195	119	191	193	206	230	245	229	237	242	257	257	262	254	273	289	286	322	242.8
10-Apr	351	333	309	296	291	296	316	317	298	304	336	313	334	344	2	14	38	45	42	40	72	93	126	194	338.6
11-Apr	130	69	104	130	105	139	115	132	134	144	148	136	132	133	129	131	133	123	118	120	119	138	141	143	130.9
12-Apr	148	143	135	133	138	146	166	165	146	147	145	146	151	153	146	128	140	135	136	134	145	151	152	149	145.5
13-Apr	162	231	228	240	241	242	263	278	293	297	301	282	289	285	282	284	287	287	293	291	287	256	232	229	274.5
14-Apr	283	217	176	170	183	164	176	173	138	141	140	144	188	216	243	283	270	270	16	19	9	20	348	357	193.3
15-Apr	345	347	348	347	347	301	334	349	352	3	348	351	23	65	45	22	27	29	31	19	7	357	359	357	6.8
16-Apr	356	5	360	357	358	356	357	356	357	358	1	1	3	4	8	13	10	17	9	6	3	353	1	2	1.8
17-Apr	1	1	0	3	4	4	11	7	13	1	359	4	360	8	9	3	7	24	8	5	359	359	353	347	4.4
18-Apr	341	345	348	353	350	355	1	358	356	350	352	351	353	3	356	9	7	4	0	0	354	347	349	3	355.8
19-Apr	351	346	348	182	184	198	201	184	179	194	202	186	218	184	191	197	201	201	208	211	230	233	250	257	209.3
20-Apr	230	239	230	233	222	198	184	233	259	266	270	260	269	251	238	209	200	203	206	198	184	189	179	170	226.0
21-Apr	163	134	123	118	99	110	136	118	140	145	171	144	153	159	157	197	204	212	298	342	359	358	344	333	142.7
22-Apr	335	326	341	352	312	297	300	327	350	340	3	18	42	10	356	357	15	24	7	14	10	6	15	16	0.6
23-Apr	9	2	344	329	268	223	54	39	14	9	258	237	262	336	78	40	38	20	27	20	27	36	62	46	19.3
24-Apr	350	341	346	5	352	350	352	3	101	99	103	136	116	93	99	110	103	97	113	106	112	135	129	115	97.2
25-Apr	135	167	270	236	262	231	249	235	234	258	262	257	259	248	247	250	244	289	312	291	323	344	319	315	266.3
26-Apr	317	327	331	331	336	328	327	333	337	338	332	328	325	335	348	346	4	32	46	53	67	92	116	151	342.3
27-Apr	152	145	147	151	158	150	141	149	145	139	156	167	160	167	181	191	196	191	172	132	135	129	125	97	158.9
28-Apr	76	90	94	58	359	82	118	135	143	141	144	135	127	123	128	119	118	141	113	105	110	117	106	101	120.6
29-Apr	109	105	63	46	22	31	11	48	22	15	6	9	10	32	32	31	24	19	8	3	5	4	1	360	18.8
30-Apr	358	0	359	3	6	6	10	8	6	4	358	4	7	3	3	5	1	358	0	2	4	5	7	8	3.6

0.6	346.9	344.8	346.5	327.7	320.4	328.6	344.8	355.3	345.6	340.4	325.0	331.0	355.7	7.8	346.1	4.6	13.6	11.3	18.8	24.7	32.4	23.9	19.1
Diurnal Average																							

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

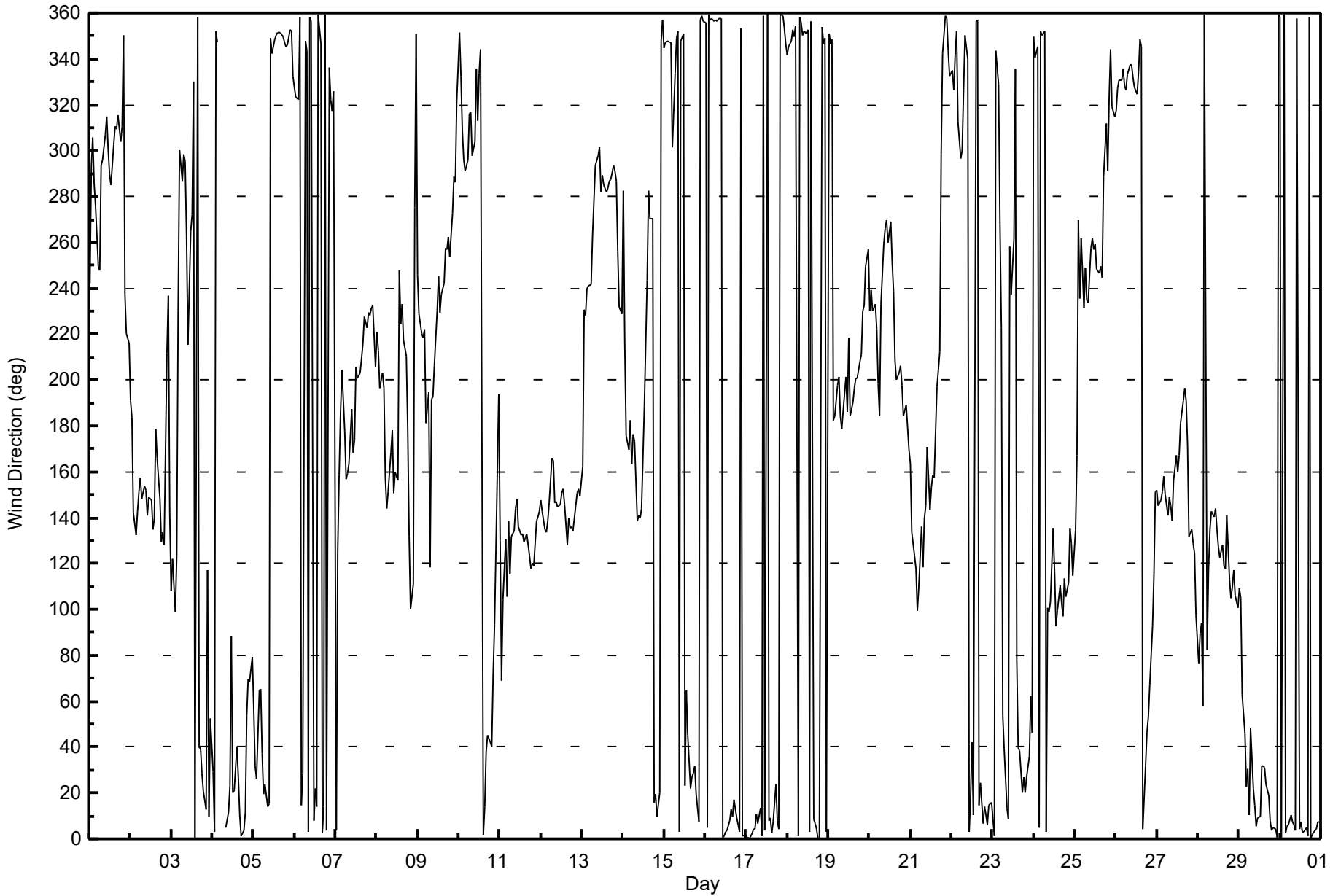
**Wind Direction (WD) - deg**  
**Mildred Lake - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Apr 23 14:00 Minimum Value: 7 deg on Apr 23 04:00 Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 13 Q <sub>1</sub> = 16 Median = 19 Q <sub>3</sub> = 25 P <sub>90</sub> = 35 P <sub>99</sub> = 77		Hours in Service: 720 Hours of Data: 716 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.4																								
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-Apr	44	18	15	15	17	26	29	21	17	15	14	20	20	22	21	19	15	13	14	10	30	73	12	9	73	
2-Apr	12	20	18	9	18	11	14	13	13	21	20	13	16	16	15	17	17	12	19	62	19	34	23	23	62	
3-Apr	25	27	23	39	70	15	16	16	24	57	25	34	24	35	18	17	23	21	18	18	31	84	23	29	84	
4-Apr	29	30	14	11	UO	UO	UO	UO	31	22	34	35	59	36	37	30	26	18	17	20	19	12	12	12	59	
5-Apr	18	21	19	15	40	22	24	18	21	27	21	18	16	16	14	14	12	12	13	12	12	13	16	19	40	
6-Apr	10	12	20	19	21	30	19	15	24	21	20	24	24	23	26	16	18	22	17	15	18	25	32	16	32	
7-Apr	43	26	43	17	18	16	19	15	16	17	22	31	26	22	25	24	24	22	22	22	24	25	32	14	43	
8-Apr	36	19	27	21	17	60	69	33	18	23	24	29	59	85	30	25	26	19	25	11	10	78	83	24	85	
9-Apr	39	44	19	14	16	26	34	80	91	27	24	26	31	26	29	27	27	26	20	24	19	19	22	26	91	
10-Apr	18	16	14	15	18	18	13	18	16	21	15	20	21	25	21	24	26	23	19	16	9	7	38	53	53	
11-Apr	58	35	16	38	38	27	19	18	17	17	18	19	21	19	18	19	17	19	18	18	19	15	13	12	58	
12-Apr	11	12	15	16	14	14	15	17	14	13	13	12	13	13	18	18	15	17	15	17	47	44	13	15	47	
13-Apr	52	29	22	23	21	22	23	20	18	19	22	20	19	19	21	20	19	18	16	14	11	22	12	13	52	
14-Apr	67	76	15	26	12	36	26	16	19	21	23	21	56	31	44	37	31	34	30	20	17	24	15	22	76	
15-Apr	9	7	10	15	18	47	46	45	13	25	21	19	48	20	22	23	22	22	21	19	18	15	15	15	48	
16-Apr	17	18	19	16	17	17	16	18	17	17	18	18	19	19	20	20	19	21	18	19	18	16	18	18	21	
17-Apr	17	18	18	18	17	17	20	18	21	20	21	21	24	23	22	25	25	25	22	19	15	15	14	12	25	
18-Apr	11	11	12	13	12	16	17	19	21	19	18	19	20	23	22	27	25	23	19	16	13	11	11	15	27	
19-Apr	10	10	12	10	11	11	15	16	23	27	30	39	76	31	21	22	19	17	18	18	22	22	22	24	76	
20-Apr	32	22	23	20	13	21	14	31	23	26	24	27	31	34	38	28	18	16	18	14	9	9	11	17	38	
21-Apr	15	14	14	16	7	15	19	23	20	21	20	23	27	33	32	62	52	60	32	7	13	26	13	50	62	
22-Apr	19	15	13	15	14	13	13	26	20	20	31	30	37	62	58	26	24	25	21	19	16	18	18	17	62	
23-Apr	18	14	13	7	75	59	52	59	30	52	81	39	43	98	41	44	36	23	18	17	18	19	22	35	98	
24-Apr	16	12	26	12	10	8	11	30	51	22	22	18	22	16	21	18	19	17	18	17	18	18	21	17	51	
25-Apr	17	33	28	42	25	24	25	27	27	28	23	24	24	26	28	26	25	23	16	20	28	16	17	11	42	
26-Apr	11	11	11	16	14	12	12	14	18	19	21	28	30	25	27	32	34	27	21	17	15	12	18	14	34	
27-Apr	18	10	9	12	32	15	16	15	17	19	29	22	20	22	22	21	23	17	20	18	16	17	20	18	32	
28-Apr	18	19	26	43	11	47	21	17	15	18	16	20	20	26	22	22	18	19	17	16	16	18	20	14	47	
29-Apr	16	14	17	22	23	21	26	25	28	27	25	24	26	27	26	24	23	21	20	19	18	19	18	16	28	
30-Apr	17	18	18	18	19	20	20	19	19	18	17	18	18	18	18	19	18	17	18	18	17	18	18	18	20	
		67	76	43	43	75	60	69	80	91	57	81	39	76	98	58	62	52	60	32	62	47	84	83	53	
		Diurnal Maximum																								
UO - Unstable Operation																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Mildred Lake - April 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS03 LOWER CAMP METEOROLOGY APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
APRIL 2024

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
Temperature 20 m (C) Average	690	0	30	95.83	18.9	-	10.1	-
Temperature 45 m (C) Average	689	0	31	95.69	18.6	-	10.7	-
Temperature 100 m (C) Average	691	0	29	95.97	17.9	-	11.3	-
Temperature 163 m (C) Average	691	0	29	95.97	17.2	-	11.6	-
Relative Humidity 20 m (%) Average	690	0	30	95.83	98.9	-	88.8	-
Relative Humidity 45 m (%) Average	689	0	31	95.69	100	-	90.4	-
Relative Humidity 100 m (%) Average	691	0	29	95.97	96.6	-	88.9	-
Relative Humidity 163 m (%) Average	691	0	29	95.97	98.7	-	92.9	-
Wind Speed 20 m (km/h) Average	685	0	35	95.14	30	-	19.0	-
Wind Speed 45 m (km/h) Average	296	0	424	41.11	34	-	21.0	-
Wind Speed 100 m (km/h) Average	690	0	30	95.83	47	-	36.0	-
Wind Speed 163 m (km/h) Average	682	0	38	94.72	51	-	40.0	-
Wind Direction 20 m (deg) Average	685	0	35	95.14	-	-	-	-
Wind Direction 45 m (deg) Average	296	0	424	41.11	-	-	-	-
Wind Direction 100 m (deg) Average	690	0	30	95.83	-	-	-	-
Wind Direction 163 m (deg) Average	682	0	38	94.72	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	685	0	35	95.14	0.7	-	0.1	-
Vertical Wind Speed 45 m (km/h) Average	296	0	424	41.11	1.5	-	0.4	-
Vertical Wind Speed 100 m (km/h) Average	690	0	30	95.83	2.5	-	0.7	-
Vertical Wind Speed 163 m (km/h) Average	682	0	38	94.72	4.6	-	1.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
Temperature 20 m (C) Average	690	5.44	5.7	-	-9	-1	0.9	4.8	9.7	13.9	18.9
Temperature 45 m (C) Average	689	5.57	5.6	-	-7.3	-0.9	1.2	4.9	9.6	13.7	18.6
Temperature 100 m (C) Average	691	5.58	5.5	-	-7.4	-1	1.2	5.2	9.6	13.5	17.9
Temperature 163 m (C) Average	691	5.42	5.5	-	-8.1	-1.5	1	5.3	9.3	13.2	17.2
Relative Humidity 20 m (%) Average	690	55.54	24.7	-	10.2	22.7	33.4	55.3	76.8	90	98.9
Relative Humidity 45 m (%) Average	689	54.28	24.9	-	9.7	22.8	32.1	53.4	75.7	90	100
Relative Humidity 100 m (%) Average	691	50.85	25.1	-	8.6	20.7	28	46.9	73.1	87.9	96.6
Relative Humidity 163 m (%) Average	691	52.06	26.3	-	9.4	21	28.5	46.9	76.2	91.4	98.7
Wind Speed 20 m (km/h) Average	685	10.3	6	-	0	3	5	9	15	19	30
Wind Speed 45 m (km/h) Average	296	12.6	7	-	1	4	7	11	17	24	34
Wind Speed 100 m (km/h) Average	690	19	9	-	0	7	11	18	26	31	47
Wind Speed 163 m (km/h) Average	682	21.7	10	-	0	9	14	22	29	35	51
Wind Direction 20 m (deg) Average	685	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	296	-	-	-	-	-	-	-	-	-	-
Wind Direction 100 m (deg) Average	690	-	-	-	-	-	-	-	-	-	-
Wind Direction 163 m (deg) Average	682	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	685	-0.26	0.4	-	-1.8	-0.8	-0.5	-0.1	0	0.1	0.7
Vertical Wind Speed 45 m (km/h) Average	296	-0.04	0.5	-	-1.8	-0.6	-0.2	0	0.2	0.5	1.5
Vertical Wind Speed 100 m (km/h) Average	690	0.1	0.7	-	-2.6	-0.8	-0.2	0.1	0.5	0.9	2.5
Vertical Wind Speed 163 m (km/h) Average	682	0.43	0.8	-	-3.6	-0.2	0.1	0.3	0.7	1.2	4.6

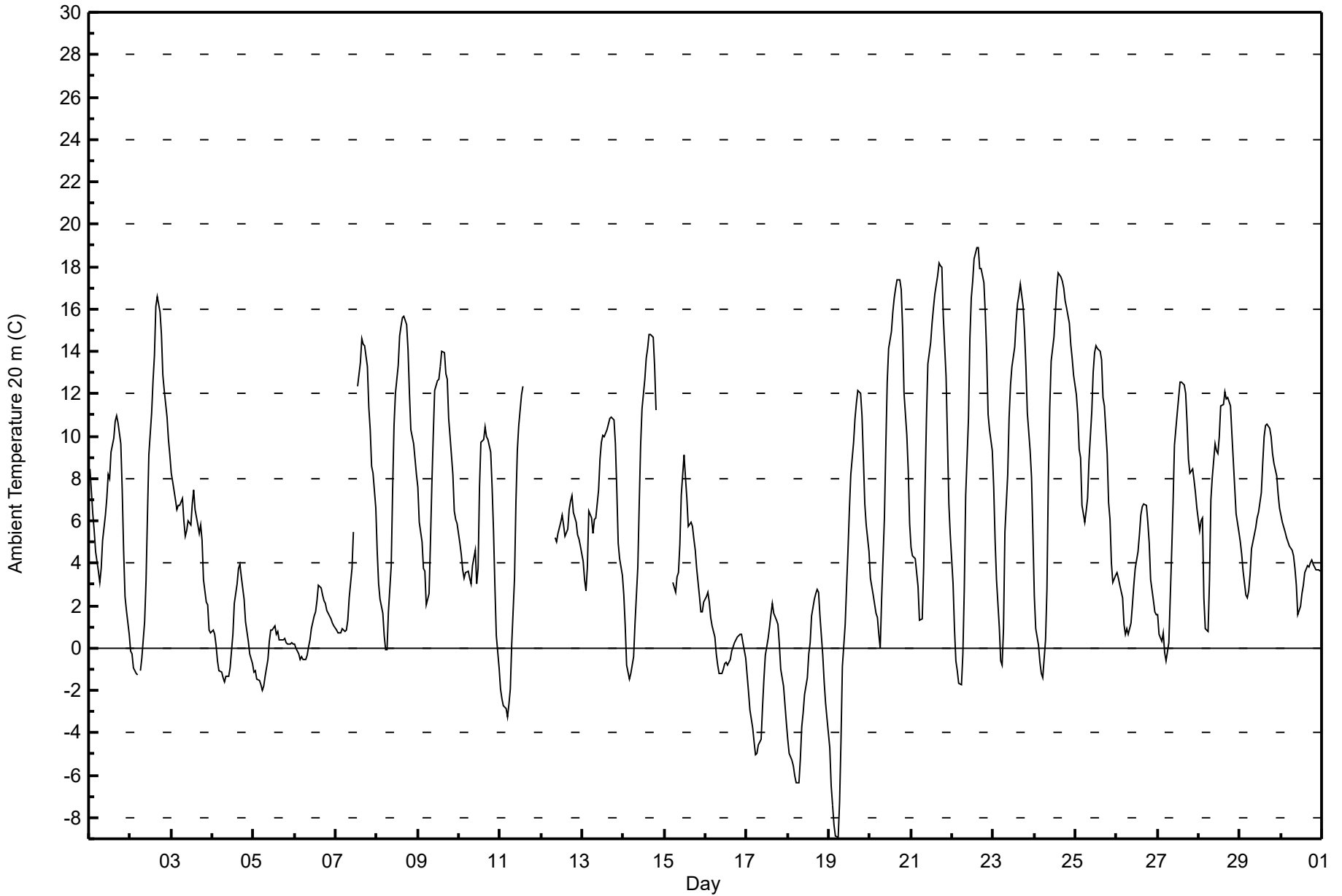
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Relative Humidity, Temperature 20m	02 Apr 2024 06:00	02 Apr 2024 06:00	1	DAS Failure - data not recorded
Relative Humidity, Temperature 45m	06 Apr 2024 10:00	06 Apr 2024 10:00	1	DAS Failure - data not recorded
Relative Humidity, Temperature 45m	06 Apr 2024 13:00	06 Apr 2024 13:00	1	DAS Failure - data not recorded
ALL METEOROLOGICAL SENSORS	07 Apr 2024 12:00	07 Apr 2024 13:00	2	DAS Failure - data not recorded
ALL METEOROLOGICAL SENSORS	11 Apr 2024 15:00	12 Apr 2024 08:00	18	DAS Failure - data not recorded
ALL METEOROLOGICAL SENSORS	14 Apr 2024 21:00	15 Apr 2024 05:00	9	DAS Failure - data not recorded
Wind Speed, Wind Direction, Vertical Wind Speed 20m	05 Apr 2024 17:00	05 Apr 2024 18:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 20m	16 Apr 2024 06:00	16 Apr 2024 09:00	4	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	05 Apr 2024 17:00	05 Apr 2024 18:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	06 Apr 2024 09:00	06 Apr 2024 09:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	11 Apr 2024 14:00	11 Apr 2024 15:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	12 Apr 2024 09:00	12 Apr 2024 10:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	14 Apr 2024 12:00	14 Apr 2024 21:00	10	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	15 Apr 2024 07:00	01 May 2024 00:00	378	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 100m	30 Apr 2024 11:00	30 Apr 2024 11:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 163m	06 Apr 2024 07:00	06 Apr 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 163m	06 Apr 2024 09:00	06 Apr 2024 12:00	4	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 163m	16 Apr 2024 06:00	16 Apr 2024 07:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 163m	30 Apr 2024 11:00	30 Apr 2024 12:00	2	Flat line in sensor output signal



Maximum Value: 18.9 C on Apr 22 16:00																				Maximum Daily Average: 10.1 C on Apr 21					Hours in Service: 720			
Minimum Value: -9.0 C on Apr 19 06:00																				Minimum Daily Average: -2.0 C on Apr 18					Hours of Data: 690			
Maximum Diurnal Average: 10.1 C at hour 16																				Minimum Diurnal Average: 0.4 C at hour 6					Hours of Missing Data: 30			
Monthly Average: 5.44 C																				Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -1.0 Q <sub>1</sub> = 0.9 Median = 4.8 Q <sub>3</sub> = 9.7 P <sub>90</sub> = 13.9 P <sub>99</sub> = 17.9					Hours of Calibration: 0			
																									Percent Operational Time: 95.8			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Apr	8.4	7.4	6.4	5.5	4.6	3.6	3.1	3.7	5.1	6.3	7.0	8.2	8.0	9.3	10.7	11.0	10.7	9.6	7.5	4.6	2.4	1.8	0.7	6.5	11.0			
2-Apr	-0.1	-0.3	-1.0	-1.2	-1.3	DF	-1.0	-0.5	1.3	3.2	6.2	9.1	11.1	12.6	13.8	16.1	16.6	15.9	14.8	12.9	12.2	10.9	9.9	9.1	7.4	16.6		
3-Apr	8.2	7.8	7.0	6.6	6.7	6.7	7.1	6.0	5.3	5.5	6.0	5.8	6.8	7.5	6.5	5.8	5.4	5.8	5.1	3.2	2.2	2.1	0.8	0.7	5.5	8.2		
4-Apr	0.9	0.7	0.1	-0.6	-1.1	-1.1	-1.4	-1.6	-1.4	-1.3	-0.9	-0.1	0.6	2.1	3.1	3.8	4.0	3.4	2.3	1.3	0.8	0.3	-0.3	-0.7	0.5	4.0		
5-Apr	-1.1	-1.1	-1.5	-1.6	-1.8	-2.0	-1.8	-1.3	-0.5	0.3	0.9	0.8	1.1	0.6	0.8	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	-0.2	1.1		
6-Apr	0.2	0.0	-0.3	-0.5	-0.4	-0.5	-0.6	-0.3	0.0	0.4	0.9	1.5	1.7	2.3	2.9	2.8	2.5	2.3	2.1	1.8	1.5	1.4	1.2	1.1	1.0	2.9		
7-Apr	0.8	0.7	0.7	0.7	0.9	0.8	0.9	1.3	2.4	3.7	5.5	DF	DF	12.3	13.5	14.6	14.3	14.3	13.3	11.4	10.3	8.6	8.2	6.6	6.6	14.6		
8-Apr	4.5	3.0	2.3	1.7	0.6	-0.1	-0.1	1.7	3.9	7.4	10.5	12.0	13.4	14.8	15.2	15.6	15.7	15.3	14.0	12.0	10.3	9.6	8.9	8.2	8.4	15.7		
9-Apr	7.6	6.0	5.0	3.7	3.6	2.0	2.5	5.0	7.7	10.0	12.2	12.6	12.7	13.3	14.0	14.0	13.0	12.7	10.8	10.0	8.2	6.5	6.1	5.9	8.5	14.0		
10-Apr	4.9	4.4	3.7	3.3	3.5	3.7	3.3	3.0	3.9	4.6	3.0	3.8	7.6	9.7	9.9	10.4	10.0	9.8	9.2	7.6	5.5	2.9	0.6	-0.9	5.3	10.4		
11-Apr	-1.9	-2.4	-2.7	-2.9	-3.3	-2.6	-2.0	0.2	3.3	6.8	9.3	10.5	11.9	12.4	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	12.4		
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	5.2	5.0	5.4	6.0	6.2	5.8	5.3	5.6	6.5	6.9	7.2	6.4	5.9	5.4	5.1	4.8	--	7.2		
13-Apr	4.1	3.2	2.7	3.8	6.5	6.1	5.4	6.1	6.1	7.4	8.9	9.7	10.0	10.0	10.3	10.6	10.8	10.9	10.7	9.6	7.4	4.9	4.2	3.4	7.2	10.9		
14-Apr	2.5	1.0	-0.8	-1.4	-1.2	-0.8	-0.4	1.2	3.9	6.8	9.6	11.3	12.7	13.7	14.2	14.8	14.8	14.7	13.3	11.3	DF	DF	DF	DF	7.0	14.8		
15-Apr	DF	DF	DF	DF	DF	3.1	2.7	3.4	3.6	4.9	7.2	9.1	8.1	7.0	5.8	5.9	5.7	5.1	4.6	3.8	2.4	1.7	1.7	2.2	4.6	9.1		
16-Apr	2.4	2.7	2.2	1.4	1.1	0.5	-0.3	-0.8	-1.2	-1.2	-1.0	-0.7	-0.7	-0.8	-0.6	-0.1	0.0	0.2	0.5	0.6	0.6	0.7	0.2	-0.5	0.2	2.7		
17-Apr	-1.2	-2.1	-2.9	-3.8	-4.4	-5.0	-5.0	-4.6	-4.3	-2.8	-1.5	-0.3	0.5	1.0	1.5	2.1	1.7	1.3	1.1	0.2	-1.0	-1.8	-2.7	-3.5	-1.6	2.1		
18-Apr	-4.3	-5.0	-5.3	-5.6	-6.0	-6.3	-6.4	-5.3	-3.7	-3.1	-2.2	-1.4	-0.3	0.3	1.5	2.3	2.6	2.7	2.6	1.5	-0.3	-1.6	-2.6	-3.3	-2.0	2.7		
19-Apr	-4.7	-6.5	-7.4	-8.3	-8.8	-9.0	-7.3	-4.4	-0.9	1.1	2.9	4.6	6.5	8.2	9.7	10.8	11.5	12.1	12.0	11.0	8.9	6.8	5.8	4.6	2.5	12.1		
20-Apr	3.3	2.9	2.5	1.7	1.4	0.6	0.0	2.3	6.1	9.5	12.5	14.1	14.9	15.8	16.5	17.0	17.4	17.4	16.9	15.0	12.0	10.0	8.4	5.9	9.3	17.4		
21-Apr	4.8	4.3	4.2	3.6	2.9	1.3	1.4	3.7	7.5	10.8	13.4	14.4	15.3	16.1	16.7	17.6	18.2	18.1	17.9	15.7	12.8	9.8	6.8	5.3	10.1	18.2		
22-Apr	3.0	0.9	-0.6	-1.1	-1.7	-1.7	-0.3	2.8	7.2	10.8	14.6	16.5	17.3	18.4	18.9	18.9	17.9	17.9	17.2	15.8	13.9	11.1	10.3	9.3	9.9	18.9		
23-Apr	7.6	5.0	3.2	0.9	-0.6	-0.8	0.9	5.5	8.2	10.9	12.4	13.3	14.2	15.4	16.3	16.6	17.2	16.1	14.9	13.3	11.1	9.3	8.0	5.4	9.3	17.2		
24-Apr	2.5	0.9	0.1	-0.7	-1.2	-1.4	0.4	2.8	7.9	11.3	13.5	14.7	15.8	16.9	17.7	17.5	17.3	17.0	16.4	16.1	15.4	14.3	13.7	12.9	10.1	17.7		
25-Apr	12.0	11.0	9.3	9.0	6.7	5.9	6.5	7.1	8.8	11.2	13.0	13.9	14.3	14.1	14.0	13.6	11.8	11.5	9.2	6.9	6.1	4.0	3.1	3.5	9.4	14.3		
26-Apr	3.6	3.3	3.0	2.4	1.1	0.7	0.9	0.7	1.2	2.0	2.9	3.8	4.5	5.3	6.3	6.7	6.8	6.8	6.0	4.9	3.2	2.3	1.7	1.6	3.4	6.8		
27-Apr	1.6	0.7	0.3	0.7	-0.2	-0.6	0.3	2.4	4.5	6.8	9.6	11.1	11.8	12.5	12.6	12.4	12.0	10.6	8.9	8.3	8.5	7.9	7.3	6.6	6.5	12.6		
28-Apr	5.6	6.0	6.1	2.4	0.9	0.8	3.2	7.0	8.0	9.7	9.3	9.2	9.9	11.4	11.5	12.1	11.7	11.9	11.4	10.1	8.8	7.6	6.3	5.5	7.8	12.1		
29-Apr	5.0	4.4	3.6	2.5	2.4	2.7	3.5	4.7	5.3	5.7	6.1	6.4	7.3	8.7	10.0	10.5	10.6	10.4	10.0	9.2	8.7	8.1	7.2	6.6	6.7	10.6		
30-Apr	6.3	5.9	5.5	5.2	5.0	4.8	4.6	4.4	3.7	3.0	1.6	2.0	2.6	3.0	3.6	3.9	3.8	4.0	4.2	3.9	3.7	3.7	3.7	3.6	4.0	6.3		
																								3.1 2.3 1.6 1.0 0.6 0.4 0.7 1.9 3.6 5.2 6.6 7.7 8.5 9.3 9.7 10.1 10.0 9.9 9.2 8.0 6.6 5.3 4.5 3.7			Diurnal Average	
																								12.0 11.0 9.3 9.0 6.7 6.7 7.1 7.1 8.8 11.3 14.6 16.5 17.3 18.4 18.9 18.9 18.2 18.1 17.9 16.1 15.4 14.3 13.7 12.9			Diurnal Maximum	
DF - DAS Failure																												







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 20 m (AT20m) - C  
Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	115	16.67	16.67
0 - 10	416	60.29	76.96
10 - 20	159	23.04	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 690

Total Number of Hours: 720

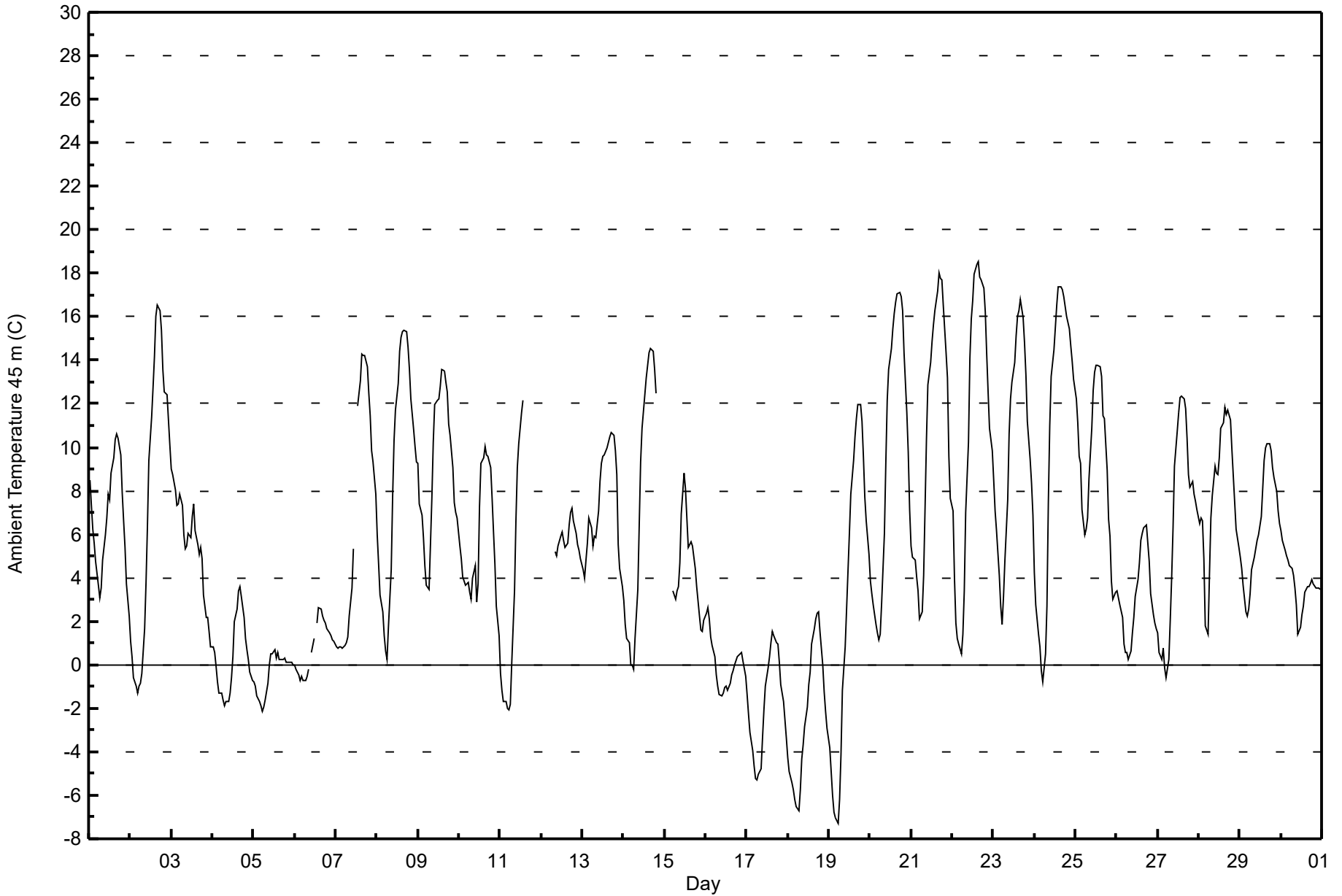


Maximum Value: 18.6 C on Apr 22 16:00																				Maximum Daily Average: 10.7 C on Apr 22					Hours in Service: 720	
Minimum Value: -7.3 C on Apr 19 06:00																				Minimum Daily Average: -2.3 C on Apr 18					Hours of Data: 689	
Maximum Diurnal Average: 9.8 C at hour 17																				Minimum Diurnal Average: 0.8 C at hour 6					Hours of Missing Data: 31	
Monthly Average: 5.57 C																				Percentiles: P <sub>1</sub> = -6.0 P <sub>10</sub> = -0.9 Q <sub>1</sub> = 1.2 Median = 4.9 Q <sub>3</sub> = 9.6 P <sub>90</sub> = 13.7 P <sub>99</sub> = 17.7					Hours of Calibration: 0	
																									Percent Operational Time: 95.7	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	8.5	7.3	6.3	5.6	4.7	3.7	3.1	3.6	4.8	6.0	6.8	7.8	7.6	8.8	9.5	10.3	10.6	10.4	9.6	7.9	6.6	5.4	3.7	2.3	6.7	10.6
2-Apr	1.1	0.3	-0.6	-1.0	-1.3	-1.0	-0.9	-0.4	1.6	3.8	6.4	9.4	11.4	12.7	14.2	16.0	16.6	16.3	15.4	13.6	12.5	12.4	11.2	10.1	7.5	16.6
3-Apr	9.0	8.8	8.1	7.3	7.4	7.9	7.3	6.0	5.4	5.5	6.0	5.9	6.8	7.4	6.2	5.5	5.0	5.4	4.9	3.2	2.2	2.2	1.5	0.9	5.7	9.0
4-Apr	0.8	0.6	-0.1	-0.8	-1.3	-1.3	-1.6	-1.9	-1.7	-1.7	-1.3	-0.6	0.4	2.0	2.6	3.4	3.6	3.1	2.2	1.2	0.7	0.2	-0.3	-0.7	0.3	3.6
5-Apr	-0.8	-1.0	-1.5	-1.7	-1.9	-2.1	-2.0	-1.6	-0.8	0.0	0.5	0.5	0.7	0.3	0.6	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.0	-0.4	0.7
6-Apr	0.0	-0.2	-0.5	-0.7	-0.6	-0.7	-0.7	-0.5	-0.2	DF	0.6	1.2	DF	1.9	2.7	2.6	2.3	2.1	1.9	1.7	1.5	1.3	1.1	1.1	0.8	2.7
7-Apr	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.2	2.2	3.6	5.3	DF	DF	11.9	13.0	14.3	14.2	14.2	13.7	12.5	11.5	9.9	9.3	7.9	6.8	14.3
8-Apr	6.0	4.7	3.2	2.4	1.3	0.6	0.3	1.7	4.4	7.7	10.3	11.7	13.0	14.4	15.0	15.3	15.4	15.3	14.6	13.6	12.2	10.8	10.0	9.3	8.9	15.4
9-Apr	9.3	7.4	6.9	5.8	4.6	3.7	3.5	5.5	7.7	10.2	12.0	12.2	12.2	12.8	13.6	13.5	13.0	12.6	11.1	10.5	9.1	7.4	7.0	6.8	9.1	13.6
10-Apr	5.5	4.9	4.1	3.9	3.7	3.8	3.3	3.0	4.0	4.5	2.9	3.7	7.2	9.3	9.5	10.1	9.6	9.6	9.1	7.6	6.1	4.6	2.7	1.3	5.6	10.1
11-Apr	-0.4	-1.2	-1.7	-1.7	-2.0	-2.1	-1.8	0.1	3.4	6.6	9.0	10.2	11.6	12.2	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	12.2
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	5.2	5.0	5.5	5.9	6.1	5.7	5.4	5.6	6.5	7.0	7.2	6.6	6.0	5.5	5.3	4.9	--	7.2
13-Apr	4.3	4.0	4.8	5.6	6.8	6.3	5.4	5.9	5.9	7.1	8.4	9.3	9.6	9.6	10.0	10.2	10.5	10.7	10.5	9.9	8.8	5.5	4.4	3.6	7.4	10.7
14-Apr	3.0	1.8	1.2	1.0	0.0	0.0	-0.2	1.2	3.5	6.5	9.3	10.9	12.4	13.2	13.7	14.4	14.5	14.4	13.6	12.5	DF	DF	DF	DF	7.3	14.5
15-Apr	DF	DF	DF	DF	DF	3.4	3.0	3.4	3.6	4.7	6.9	8.8	8.1	6.8	5.4	5.6	5.4	4.9	4.4	3.6	2.3	1.6	1.6	2.0	4.5	8.8
16-Apr	2.3	2.6	2.1	1.3	0.9	0.4	-0.4	-1.0	-1.4	-1.4	-1.3	-1.0	-1.0	-1.1	-0.9	-0.4	-0.2	0.0	0.4	0.4	0.5	0.5	0.2	-0.6	0.0	2.6
17-Apr	-1.4	-2.2	-3.1	-4.0	-4.6	-5.3	-5.3	-5.0	-4.8	-3.4	-2.1	-1.0	-0.2	0.4	1.0	1.5	1.3	1.0	0.9	0.1	-0.9	-1.7	-2.5	-3.4	-1.9	1.5
18-Apr	-4.3	-4.9	-5.4	-5.8	-6.2	-6.5	-6.7	-5.7	-4.3	-3.7	-2.9	-2.0	-0.9	-0.3	1.0	1.7	2.1	2.4	2.4	1.5	0.0	-1.2	-2.2	-2.9	-2.3	2.4
19-Apr	-3.8	-4.9	-6.0	-6.8	-7.0	-7.3	-6.2	-4.2	-1.2	0.8	2.5	4.3	6.1	7.9	9.4	10.5	11.3	11.9	12.0	11.2	9.6	7.7	6.6	5.1	2.9	12.0
20-Apr	3.9	3.3	2.7	1.8	1.5	1.1	1.4	2.8	6.0	9.3	12.1	13.6	14.6	15.4	16.2	16.7	17.0	17.1	16.9	16.3	14.4	11.6	9.8	7.1	9.7	17.1
21-Apr	5.4	4.9	4.8	4.1	3.4	2.1	2.4	4.1	7.2	10.4	12.9	13.9	14.8	15.6	16.3	17.2	18.0	17.8	17.7	16.5	14.3	13.2	9.6	7.7	10.6	18.0
22-Apr	7.0	4.0	1.9	1.2	0.9	0.5	1.4	3.4	7.0	10.2	14.1	15.9	16.8	17.9	18.4	18.6	17.8	17.7	17.3	16.2	14.3	12.5	10.9	9.8	10.7	18.6
23-Apr	8.5	7.1	6.2	4.1	2.7	1.8	3.1	4.8	7.6	10.6	12.2	13.0	13.9	15.2	16.0	16.3	16.8	15.9	14.8	13.3	11.2	9.4	8.4	6.9	10.0	16.8
24-Apr	4.3	2.7	1.4	0.8	-0.3	-0.8	0.5	2.7	7.4	11.0	13.2	14.5	15.5	16.5	17.4	17.4	17.3	16.9	16.5	16.0	15.4	14.7	14.0	13.1	10.3	17.4
25-Apr	12.2	11.1	9.6	9.3	7.2	6.0	6.2	6.7	8.5	10.9	12.6	13.4	13.8	13.7	13.7	13.3	11.5	11.3	8.9	6.7	5.9	3.8	3.0	3.3	9.3	13.8
26-Apr	3.4	3.1	2.8	2.2	1.0	0.5	0.6	0.3	0.6	1.4	2.2	3.1	3.9	4.7	5.7	6.1	6.3	6.4	5.6	4.8	3.3	2.3	1.9	1.7	3.1	6.4
27-Apr	1.5	0.6	0.2	0.7	-0.2	-0.6	0.3	2.0	4.0	6.3	9.1	10.8	11.6	12.3	12.4	12.3	11.8	10.4	8.8	8.2	8.5	7.9	7.5	7.1	6.4	12.4
28-Apr	6.5	6.7	6.6	4.9	1.8	1.4	4.2	6.8	7.8	9.1	8.8	8.8	9.5	10.9	11.2	11.8	11.5	11.7	11.3	9.9	8.7	7.5	6.2	5.4	7.9	11.8
29-Apr	4.9	4.4	3.7	2.4	2.2	2.6	3.3	4.3	5.0	5.3	5.7	6.0	6.8	8.1	9.4	10.0	10.1	10.1	9.8	9.1	8.6	8.0	7.1	6.5	6.4	10.1
30-Apr	6.1	5.7	5.3	5.0	4.8	4.6	4.4	4.1	3.5	2.8	1.4	1.7	2.3	2.7	3.3	3.6	3.6	3.7	3.9	3.7	3.5	3.5	3.5	3.5	3.8	6.1
																								Diurnal Average		
																								Diurnal Maximum		
3.7 2.9 2.3 1.7 1.1 0.8 1.0 1.8 3.4 5.1 6.3 7.3 8.4 9.0 9.4 9.8 9.8 9.7 9.2 8.2 7.0 6.0 5.1 4.3																										
12.2 11.1 9.6 9.3 7.4 7.9 7.3 6.8 8.5 11.0 14.1 15.9 16.8 17.9 18.4 18.6 18.0 17.8 17.7 16.5 15.4 14.7 14.0 13.1																										
DF - DAS Failure																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature 45 m (AT45m) - C**  
**Lower Camp Met Tower - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 45 m (AT45m) - C  
Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	105	15.24	15.24
0 - 10	423	61.39	76.63
10 - 20	161	23.37	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 689

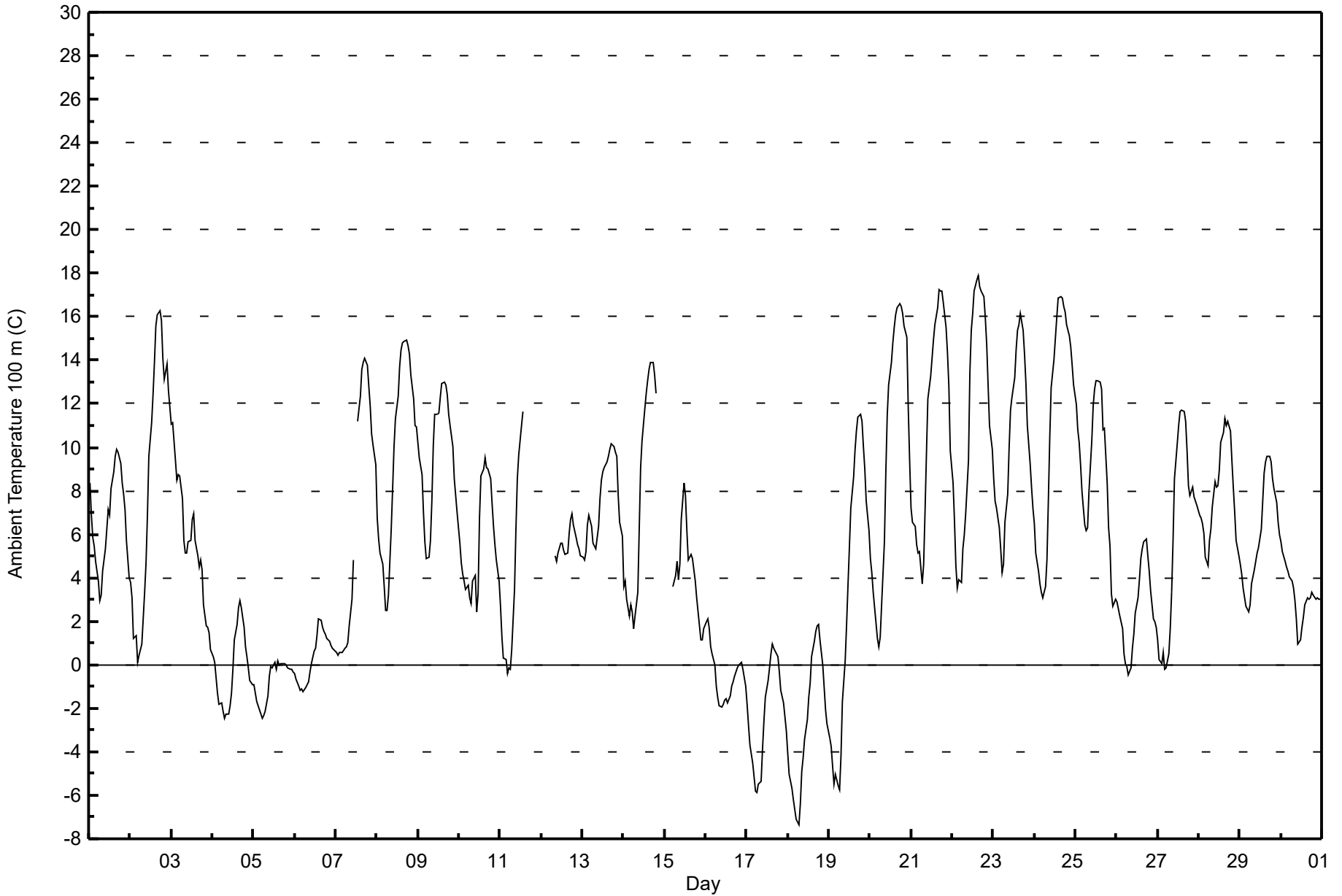
Total Number of Hours: 720



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

**Ambient Temperature 100 m (AT100m) - C**  
**Lower Camp Met Tower - April 2024**

Maximum Value: 17.9 C on Apr 22 16:00		Maximum Daily Average: 11.3 C on Apr 22		Hours in Service: 720																																												
Minimum Value: -7.4 C on Apr 18 07:00		Minimum Daily Average: -2.7 C on Apr 18		Hours of Data: 691																																												
Maximum Diurnal Average: 9.2 C at hour 17		Minimum Diurnal Average: 1.6 C at hour 7		Hours of Missing Data: 29																																												
Monthly Average: 5.58 C		Percentiles: P <sub>1</sub> = -5.8 P <sub>10</sub> = -1.0 Q <sub>1</sub> = 1.2 Median = 5.2 Q <sub>3</sub> = 9.6 P <sub>90</sub> = 13.5 P <sub>99</sub> = 17.2		Hours of Calibration: 0																																												
				Percent Operational Time: 96.0																																												
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-Apr	8.4	6.9	5.9	5.4	4.8	3.8	3.0	3.2	4.3	5.3	6.2	7.2	6.9	8.1	8.9	9.6	9.9	9.8	9.3	8.3	7.9	7.1	5.7	4.0	6.7	9.9																						
2-Apr	3.8	3.1	1.2	1.3	0.1	0.4	0.7	1.0	3.3	4.7	6.9	9.6	11.2	12.4	13.9	15.6	16.1	16.3	15.8	14.1	13.2	13.9	12.6	11.8	8.4	16.3																						
3-Apr	11.0	11.1	9.4	8.5	8.8	8.7	7.6	5.7	5.2	5.1	5.6	5.7	6.7	6.9	5.7	5.0	4.5	4.8	4.4	2.7	1.8	1.7	1.5	0.7	5.8	11.1																						
4-Apr	0.4	0.1	-0.6	-1.3	-1.8	-1.8	-2.2	-2.5	-2.3	-2.3	-1.9	-1.3	-0.2	1.2	1.9	2.6	2.9	2.6	1.7	0.8	0.3	-0.1	-0.7	-0.9	-0.2	2.9																						
5-Apr	-0.9	-1.3	-1.7	-2.1	-2.3	-2.5	-2.3	-2.2	-1.4	-0.5	-0.1	-0.1	-0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.0	-0.1	-0.2	-0.2	-0.3	-0.8	0.2																						
6-Apr	-0.4	-0.6	-1.0	-1.2	-1.1	-1.2	-1.1	-0.9	-0.8	-0.4	0.1	0.7	0.8	1.3	2.1	2.0	1.7	1.6	1.4	1.2	1.1	0.9	0.8	0.7	0.3	2.1																						
7-Apr	0.5	0.4	0.5	0.6	0.6	0.7	0.8	1.0	1.8	3.0	4.8	DF	DF	11.2	12.3	13.6	13.9	14.1	13.8	12.8	11.9	10.6	10.1	9.2	6.7	14.1																						
8-Apr	6.8	5.8	5.2	4.6	3.6	2.5	2.5	3.2	6.2	8.1	10.0	11.3	12.3	13.7	14.5	14.8	14.9	14.9	14.7	14.3	13.3	12.2	11.0	10.9	9.6	14.9																						
9-Apr	10.2	9.5	8.7	7.0	5.6	4.9	4.9	5.7	7.6	10.1	11.5	11.5	11.6	12.3	12.9	13.0	12.9	12.4	11.5	11.0	10.0	8.5	7.8	7.0	9.5	13.0																						
10-Apr	5.6	4.7	4.2	3.9	3.5	3.7	3.1	2.8	3.8	4.1	2.4	3.3	6.8	8.7	9.0	9.5	9.1	9.0	8.5	7.4	6.3	5.5	4.8	3.8	5.6	9.5																						
11-Apr	2.7	1.3	0.3	0.3	-0.4	-0.1	-0.2	0.7	3.4	6.2	8.5	9.7	11.0	11.6	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	11.6																					
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	5.0	4.7	5.2	5.6	5.6	5.3	5.1	5.2	6.0	6.7	6.9	6.4	5.8	5.5	5.3	5.0	--	6.9																						
13-Apr	4.9	4.8	5.2	6.4	6.9	6.4	5.6	5.4	5.3	6.4	7.7	8.5	8.9	9.0	9.3	9.6	9.9	10.1	10.1	9.8	9.6	7.8	6.5	5.9	7.5	10.1																						
14-Apr	3.6	3.9	3.0	2.2	2.7	2.4	1.7	2.2	3.3	6.2	9.1	10.3	11.8	12.5	13.1	13.6	13.9	13.9	13.3	12.5	DF	DF	DF	DF	7.8	13.9																						
15-Apr	DF	DF	DF	DF	DF	3.6	4.1	4.7	3.9	4.7	6.7	8.4	7.8	6.2	4.8	5.1	4.9	4.4	3.9	3.1	1.8	1.1	1.2	1.7	4.3	8.4																						
16-Apr	2.0	2.1	1.6	0.8	0.5	0.0	-1.0	-1.5	-1.9	-1.9	-1.8	-1.6	-1.5	-1.7	-1.5	-1.0	-0.8	-0.5	-0.1	0.0	0.1	0.1	-0.2	-1.0	-0.4	2.1																						
17-Apr	-1.8	-2.8	-3.7	-4.5	-5.2	-5.8	-5.9	-5.5	-5.4	-3.9	-2.6	-1.5	-0.7	-0.2	0.5	0.9	0.8	0.5	0.4	-0.4	-1.2	-1.8	-2.4	-3.0	-2.3	0.9																						
18-Apr	-4.1	-5.0	-5.7	-6.2	-6.7	-7.1	-7.4	-6.4	-4.9	-4.3	-3.4	-2.5	-1.5	-0.9	0.4	1.1	1.6	1.8	1.8	1.1	0.0	-1.0	-2.1	-2.7	-2.7	1.8																						
19-Apr	-3.3	-3.7	-4.6	-5.5	-5.0	-5.6	-5.8	-4.2	-1.7	0.2	1.9	3.7	5.4	7.2	8.6	9.8	10.8	11.4	11.5	11.2	10.1	9.0	7.5	6.2	3.1	11.5																						
20-Apr	4.9	4.2	3.3	1.9	1.2	0.8	1.3	2.7	5.7	8.8	11.5	12.9	13.9	14.8	15.5	16.1	16.4	16.6	16.5	16.1	15.6	15.1	11.8	9.4	9.9	16.6																						
21-Apr	7.2	6.6	6.4	5.5	5.1	5.2	3.7	4.6	7.0	9.7	12.2	13.3	14.1	14.9	15.6	16.4	17.2	17.2	17.2	16.6	15.5	14.3	12.8	9.9	11.2	17.2																						
22-Apr	8.3	6.7	4.5	3.6	3.9	3.8	5.3	6.0	6.9	9.4	13.5	15.4	16.2	17.2	17.7	17.9	17.4	17.2	16.9	15.9	14.8	12.9	11.0	9.9	11.3	17.9																						
23-Apr	8.6	7.5	7.2	6.3	5.3	4.2	4.6	6.5	7.8	10.0	11.7	12.3	13.2	14.5	15.4	15.6	16.1	15.4	14.3	12.9	11.0	9.3	8.2	7.2	10.2	16.1																						
24-Apr	6.5	5.2	4.3	3.7	3.3	3.1	3.6	4.8	7.5	10.4	12.8	14.0	15.0	15.9	16.8	16.9	16.8	16.5	16.2	15.7	15.1	14.6	13.7	12.9	11.1	16.9																						
25-Apr	11.9	10.8	10.2	9.2	7.9	6.4	6.2	6.3	8.0	10.3	11.9	12.7	13.0	13.1	13.0	12.7	10.8	10.9	8.3	6.3	5.5	3.3	2.7	3.0	8.9	13.1																						
26-Apr	2.9	2.6	2.2	1.6	0.5	0.1	-0.1	-0.5	-0.1	0.7	1.4	2.4	3.1	3.9	4.9	5.4	5.6	5.8	5.0	4.3	3.4	2.1	2.0	1.8	2.5	5.8																						
27-Apr	1.1	0.3	0.0	0.6	-0.2	-0.1	0.5	1.6	3.4	5.7	8.6	10.2	11.0	11.7	11.7	11.6	11.2	9.8	8.2	7.8	8.1	7.7	7.5	7.3	6.1	11.7																						
28-Apr	6.9	6.7	6.5	6.1	5.0	4.5	5.7	6.3	7.2	8.4	8.2	8.2	8.9	10.2	10.7	11.3	11.0	11.2	10.8	9.4	8.2	7.0	5.7	5.0	7.9	11.3																						
29-Apr	4.6	4.1	3.5	2.7	2.6	2.4	2.8	3.7	4.4	4.8	5.1	5.4	6.2	7.5	8.8	9.3	9.6	9.6	9.3	8.6	8.1	7.5	6.6	6.0	6.0	9.6																						
30-Apr	5.6	5.2	4.7	4.5	4.3	4.0	3.8	3.6	3.0	2.1	0.9	1.2	1.7	2.1	2.7	3.1	3.0	3.1	3.4	3.2	3.0	3.1	3.0	3.0	3.2	5.6																						
																								4.2	3.6	2.9	2.4	1.9	1.6	1.6	2.0	3.2	4.5	5.8	6.8	7.6	8.3	8.8	9.2	9.2	9.2	8.8	8.0	7.2	6.3	5.5	4.8	Diurnal Average
																								11.9	11.1	10.2	9.2	8.8	8.7	7.6	6.5	8.0	10.4	13.5	15.4	16.2	17.2	17.7	17.9	17.4	17.2	17.2	16.6	15.6	15.1	13.7	12.9	Diurnal Maximum
DF - DAS Failure																																																





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 100 m (AT100m) - C  
Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	112	16.21	16.21
0 - 10	421	60.93	77.13
10 - 20	158	22.87	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 691

Total Number of Hours: 720

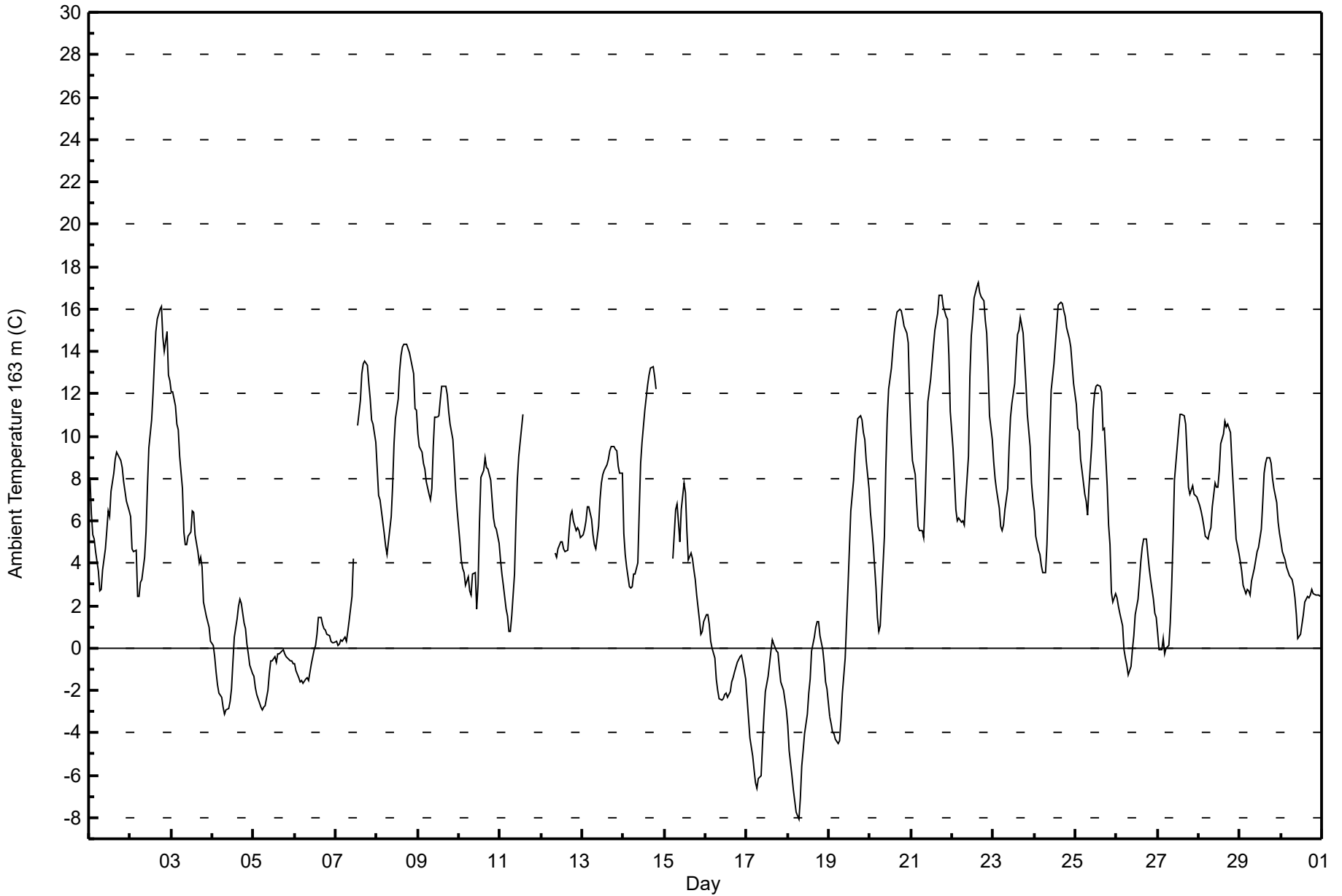


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 163 m (AT163m) - C**  
**Lower Camp Met Tower - April 2024**

Maximum Value: 17.2 C on Apr 22 16:00		Maximum Daily Average: 11.6 C on Apr 22		Hours in Service: 720																						
Minimum Value: -8.1 C on Apr 18 07:00		Minimum Daily Average: -3.0 C on Apr 18		Hours of Data: 691																						
Maximum Diurnal Average: 8.7 C at hour 17		Minimum Diurnal Average: 1.9 C at hour 7		Hours of Missing Data: 29																						
Monthly Average: 5.42 C		Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -1.5 Q <sub>1</sub> = 1.0 Median = 5.3 Q <sub>3</sub> = 9.3 P <sub>90</sub> = 13.2 P <sub>99</sub> = 16.5		Hours of Calibration: 0																						
				Percent Operational Time: 96.0																						
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-Apr	8.0	6.3	5.3	5.1	4.6	3.6	2.7	2.8	3.7	4.7	5.6	6.5	6.2	7.4	8.3	8.9	9.3	9.1	8.8	8.5	7.9	7.4	6.9	6.5	6.4	9.3
2-Apr	6.2	4.7	4.6	4.6	2.4	2.5	3.1	3.3	4.3	5.4	7.6	9.4	10.7	12.0	13.5	15.0	15.5	16.0	16.1	14.7	14.0	14.9	12.9	12.6	9.4	16.1
3-Apr	12.1	12.1	11.4	10.6	10.3	9.1	7.5	5.5	4.9	4.9	5.3	5.5	6.5	6.4	5.3	4.5	4.0	4.3	3.8	2.2	1.5	1.2	1.0	0.3	5.8	12.1
4-Apr	0.1	-0.4	-1.1	-1.7	-2.1	-2.3	-2.8	-3.1	-2.9	-2.9	-2.5	-1.9	-0.7	0.5	1.3	2.0	2.3	2.1	1.2	0.9	0.2	-0.3	-0.8	-1.2	-0.7	2.3
5-Apr	-1.3	-1.9	-2.2	-2.6	-2.8	-2.9	-2.8	-2.7	-2.0	-1.2	-0.6	-0.6	-0.4	-0.7	-0.3	-0.3	-0.2	-0.1	-0.3	-0.4	-0.5	-0.6	-0.6	-0.7	-1.2	-0.1
6-Apr	-0.8	-1.1	-1.4	-1.6	-1.5	-1.7	-1.5	-1.4	-1.5	-1.2	-0.7	-0.1	0.1	0.7	1.4	1.4	1.1	0.9	0.8	0.7	0.6	0.4	0.3	0.3	-0.2	1.4
7-Apr	0.3	0.1	0.2	0.4	0.3	0.5	0.3	0.8	1.3	2.5	4.2	DF	DF	10.5	11.7	12.9	13.4	13.6	13.3	12.5	11.7	10.8	10.6	9.7	6.4	13.6
8-Apr	8.4	7.2	7.0	6.0	5.4	4.8	4.4	5.0	6.2	7.7	9.6	10.9	11.7	13.1	13.8	14.2	14.3	14.3	14.1	13.9	13.6	12.9	11.3	11.2	10.0	14.3
9-Apr	10.1	9.5	9.3	8.7	8.5	7.9	7.2	7.0	7.5	9.5	10.9	10.9	11.0	11.7	12.3	12.4	12.3	11.9	11.2	10.6	9.8	8.7	7.5	6.6	9.7	12.4
10-Apr	5.0	4.1	3.8	3.5	3.0	3.3	2.7	2.5	3.5	3.6	1.8	3.0	5.9	8.0	8.4	9.0	8.5	8.4	7.9	7.0	6.1	5.7	5.6	5.0	5.2	9.0
11-Apr	4.2	3.5	3.0	1.8	1.5	0.8	0.8	1.5	3.5	6.0	7.9	9.1	10.4	11.0	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	11.0
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	4.5	4.3	4.7	5.0	5.0	4.7	4.6	4.6	5.5	6.2	6.5	6.0	5.6	5.7	5.5	5.2	--	6.5
13-Apr	5.3	5.6	6.0	6.6	6.7	6.1	5.4	4.9	4.7	5.7	7.0	7.8	8.2	8.4	8.7	8.9	9.3	9.5	9.5	9.4	9.3	8.6	8.3	8.3	7.4	9.5
14-Apr	5.4	4.4	3.8	2.9	2.8	2.9	3.5	3.5	4.0	6.5	8.7	9.7	11.2	11.8	12.4	12.9	13.2	13.3	12.8	12.2	DF	DF	DF	DF	7.9	13.3
15-Apr	DF	DF	DF	DF	DF	4.2	6.5	6.8	5.9	5.0	6.6	7.8	7.3	5.6	4.2	4.5	4.2	3.7	3.3	2.5	1.3	0.7	0.8	1.2	4.3	7.8
16-Apr	1.6	1.6	1.1	0.3	0.0	-0.5	-1.5	-2.0	-2.4	-2.5	-2.4	-2.2	-2.2	-2.3	-2.1	-1.6	-1.4	-1.1	-0.7	-0.6	-0.4	-0.3	-0.7	-1.5	-1.0	1.6
17-Apr	-2.4	-3.3	-4.2	-5.1	-5.7	-6.4	-6.6	-6.2	-6.0	-4.5	-3.2	-2.1	-1.3	-0.7	-0.1	0.4	0.2	-0.1	-0.2	-0.9	-1.6	-2.0	-2.4	-2.9	-2.8	0.4
18-Apr	-3.6	-4.9	-6.0	-6.7	-7.2	-7.7	-8.1	-7.1	-5.5	-4.9	-4.0	-3.1	-2.1	-1.4	-0.1	0.5	1.0	1.3	1.3	0.6	-0.1	-0.7	-1.6	-1.9	-3.0	1.3
19-Apr	-3.3	-3.6	-4.0	-4.0	-4.3	-4.5	-4.4	-3.4	-2.2	-0.5	1.2	2.9	4.7	6.5	7.9	9.2	10.1	10.8	11.0	10.8	10.2	9.8	8.8	7.5	3.2	11.0
20-Apr	6.4	5.7	4.9	2.8	1.4	0.8	1.1	2.5	5.3	8.5	10.8	12.2	13.2	14.1	14.9	15.4	15.8	16.0	15.9	15.6	15.2	14.9	14.4	11.9	10.0	16.0
21-Apr	10.1	8.8	8.2	6.8	5.8	5.6	5.6	5.2	6.9	9.2	11.6	12.6	13.5	14.3	15.0	15.8	16.7	16.6	16.6	16.1	15.6	15.5	13.8	11.2	11.6	16.7
22-Apr	9.4	8.0	6.5	6.0	6.1	6.0	6.0	5.8	7.0	9.0	12.8	14.7	15.5	16.5	17.1	17.2	16.8	16.6	16.4	15.5	14.9	13.2	11.0	9.8	11.6	17.2
23-Apr	8.8	8.0	7.4	6.6	5.8	5.5	5.8	6.5	7.6	9.5	10.9	11.5	12.5	13.7	14.8	15.0	15.6	14.9	13.7	12.5	11.1	9.5	7.8	7.0	10.1	15.6
24-Apr	6.5	5.3	4.6	4.4	3.9	3.6	3.6	4.8	7.2	9.9	12.2	13.4	14.4	15.3	16.2	16.3	16.3	15.9	15.6	15.1	14.6	14.2	13.3	12.5	10.8	16.3
25-Apr	11.5	10.4	10.2	8.9	8.4	7.3	6.9	6.3	7.6	9.6	11.2	12.0	12.4	12.4	12.4	12.1	10.3	10.3	7.7	5.8	4.9	2.7	2.2	2.5	8.6	12.4
26-Apr	2.3	2.0	1.6	1.0	-0.1	-0.5	-0.8	-1.3	-0.9	-0.1	0.6	1.6	2.3	3.2	4.1	4.8	5.1	5.1	4.4	3.8	3.2	2.3	1.6	1.4	2.0	5.1
27-Apr	0.7	-0.1	-0.1	0.5	-0.3	0.0	0.1	1.2	2.9	5.2	7.9	9.5	10.3	11.0	11.0	11.0	10.6	9.2	7.6	7.2	7.6	7.3	7.2	7.2	5.6	11.0
28-Apr	6.7	6.5	6.2	5.8	5.3	5.2	5.5	5.7	6.7	7.8	7.6	7.6	8.4	9.7	10.1	10.7	10.4	10.6	10.1	8.8	7.6	6.4	5.2	4.5	7.4	10.7
29-Apr	4.1	3.6	3.0	2.6	2.8	2.7	2.5	3.1	3.8	4.1	4.5	4.8	5.6	6.9	8.2	8.7	8.9	9.0	8.7	8.0	7.5	6.8	5.9	5.4	5.5	9.0
30-Apr	5.0	4.6	4.1	3.8	3.7	3.4	3.2	2.9	2.4	1.6	0.5	0.7	1.1	1.5	2.1	2.5	2.4	2.5	2.8	2.6	2.5	2.5	2.5	2.5	2.6	5.0
																								Diurnal Average		
																								Diurnal Maximum		
																								DF - DAS Failure		







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 163 m (AT163m) - C  
Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	132	19.10	19.10
0 - 10	405	58.61	77.71
10 - 20	154	22.29	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 691

Total Number of Hours: 720



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

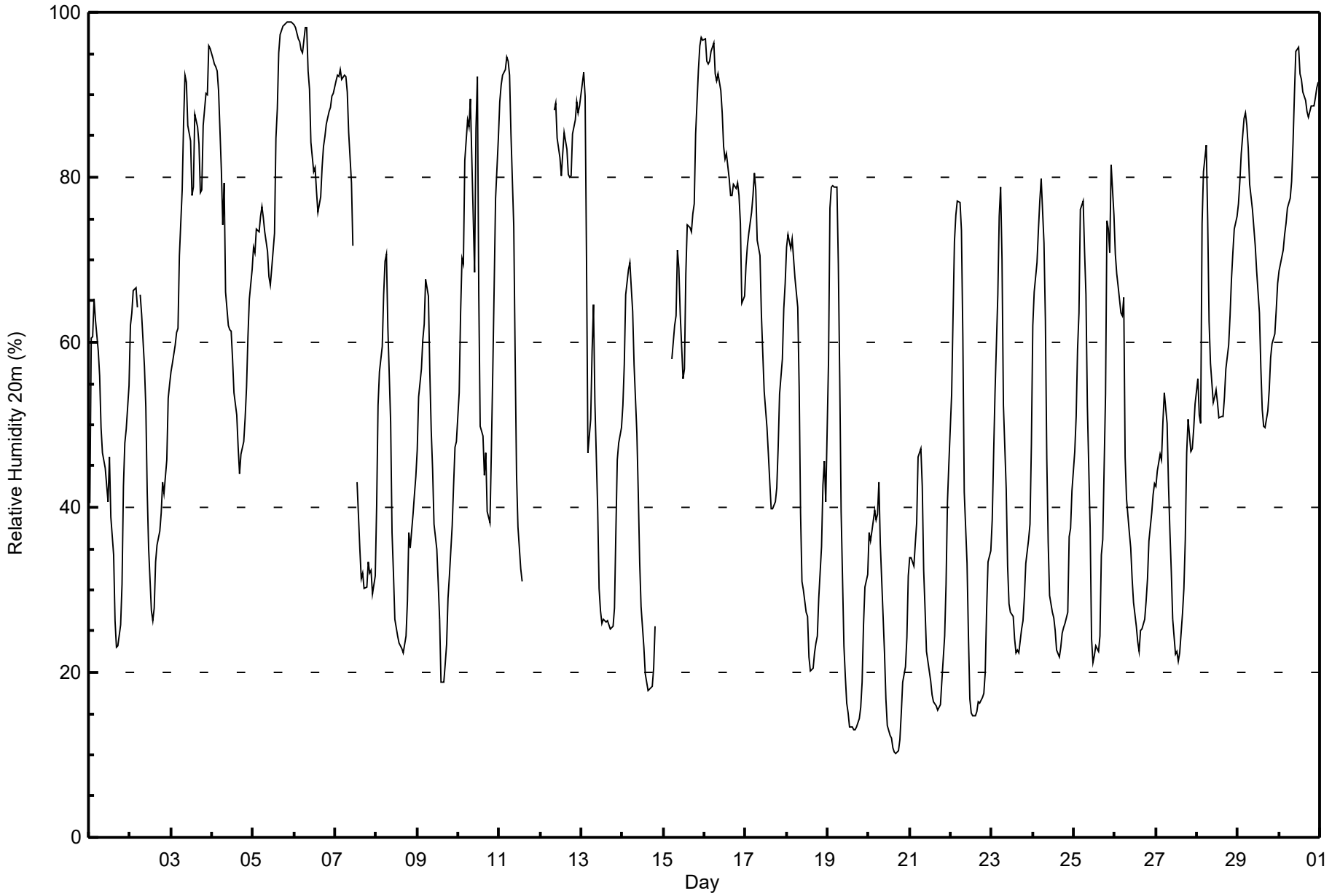
**Relative Humidity 20m (RH20m) - %**  
**Lower Camp Met Tower - April 2024**

Maximum Value: 98.9 % on Apr 5 22:00      Maximum Daily Average: 88.8 % on Apr 6																						Hours in Service:	720																								
Minimum Value: 10.2 % on Apr 20 17:00      Minimum Daily Average: 23.9 % on Apr 20																						Hours of Data:	690																								
Maximum Diurnal Average: 73.4 % at hour 6      Minimum Diurnal Average: 41.0 % at hour 16																						Hours of Missing Data:	30																								
Monthly Average: 55.54 %      Percentiles: P <sub>1</sub> = 12.9 P <sub>10</sub> = 22.7 Q <sub>1</sub> = 33.4 Median = 55.3 Q <sub>3</sub> = 76.8 P <sub>90</sub> = 90.0 P <sub>99</sub> = 98.3																						Hours of Calibration:	0																								
																						Percent Operational Time:	95.8																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Apr	40.5	60.5	60.6	65.2	62.7	59.0	56.0	49.6	46.7	44.8	42.7	40.7	46.1	38.7	34.3	26.2	23.1	23.2	25.8	30.7	42.6	47.8	49.5	54.7	44.7	65.2																					
2-Apr	62.0	63.5	66.3	66.6	64.2	DF	65.7	63.4	57.2	52.2	41.8	35.1	27.5	26.3	27.9	33.4	35.5	37.1	39.4	43.0	41.7	45.8	53.2	55.0	48.0	66.6																					
3-Apr	56.5	57.4	59.6	61.1	61.7	70.5	78.5	86.6	92.4	91.5	86.3	84.3	77.8	78.7	87.6	86.2	84.1	78.2	78.5	86.2	90.3	90.0	95.9	95.6	79.8	95.9																					
4-Apr	94.4	93.8	93.4	92.9	90.6	80.9	74.2	79.3	66.0	62.0	61.6	61.3	57.9	54.0	51.1	47.3	44.0	46.4	47.9	50.8	54.6	60.7	65.3	68.8	66.6	94.4																					
5-Apr	71.5	70.9	73.7	73.4	75.3	76.4	75.1	73.3	71.0	67.9	67.0	69.0	73.3	84.8	88.2	95.1	97.2	98.3	98.4	98.6	98.8	98.9	98.9	98.7	83.1	98.9																					
6-Apr	98.5	98.1	96.7	96.4	95.4	95.1	98.2	98.2	92.8	90.7	84.2	80.8	81.1	78.2	75.8	77.6	81.2	83.8	84.8	86.5	88.0	88.6	89.8	90.2	88.8	98.5																					
7-Apr	91.7	92.4	92.1	93.1	91.9	92.4	92.2	90.4	85.5	79.4	71.8	DF	DF	43.0	34.9	31.3	32.1	30.2	30.4	33.5	32.1	32.3	29.4	31.6	60.6	93.1																					
8-Apr	40.2	52.4	56.4	59.5	65.8	69.8	70.7	61.8	50.3	36.9	32.0	26.5	24.4	23.5	23.2	22.9	22.4	24.4	28.7	37.0	35.2	39.1	41.6	43.8	41.2	70.7																					
9-Apr	47.0	53.5	56.8	60.3	62.2	67.6	65.6	56.5	49.3	44.6	38.0	34.9	30.9	26.5	18.8	18.8	21.0	23.4	29.0	31.6	37.9	42.7	47.3	47.9	42.2	67.6																					
10-Apr	53.9	63.5	70.1	69.4	82.1	86.9	86.1	89.6	82.4	68.4	85.9	92.2	65.7	49.8	48.7	43.9	46.6	39.5	38.1	46.9	56.4	66.8	77.4	84.7	66.5	92.2																					
11-Apr	89.1	91.2	92.3	93.0	94.6	94.1	92.3	85.2	74.1	58.1	43.9	37.7	32.6	31.0	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	94.6																					
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	88.1	89.0	84.7	82.4	80.2	82.9	85.4	83.4	80.4	79.9	80.1	85.2	87.0	89.2	87.8	88.6	--	89.2																					
13-Apr	91.3	92.7	89.9	70.2	46.6	50.6	59.1	64.6	52.8	39.7	30.1	27.5	26.0	26.5	26.1	26.2	25.8	25.2	25.6	27.8	37.1	45.7	47.7	49.6	46.0	92.7																					
14-Apr	52.4	57.2	65.8	68.8	69.6	66.6	63.8	57.2	49.0	41.6	33.5	28.0	23.0	19.8	18.9	17.8	18.0	18.2	20.5	25.6	DF	DF	DF	DF	40.8	69.6																					
15-Apr	DF	DF	DF	DF	DF	57.9	62.1	63.2	71.3	69.0	63.3	55.7	56.8	68.2	74.2	73.9	73.4	75.6	76.7	85.3	93.0	96.0	96.9	96.6	74.2	96.9																					
16-Apr	96.7	94.1	93.7	94.1	95.2	96.2	92.6	91.6	92.6	90.5	87.9	83.8	82.2	82.9	79.9	77.9	77.8	79.1	78.7	79.3	77.7	74.5	64.8	65.7	84.6	96.7																					
17-Apr	69.4	71.7	73.3	75.7	77.7	80.5	78.5	72.3	70.5	63.4	58.7	54.1	49.6	46.5	43.0	39.9	39.8	40.7	42.4	47.2	53.7	58.0	64.0	67.2	59.9	80.5																					
18-Apr	71.5	73.0	71.3	72.5	70.1	67.7	64.2	54.6	39.4	31.1	30.1	27.3	26.8	21.9	20.2	20.6	22.3	23.6	24.4	28.9	35.2	42.7	45.5	40.7	42.7	73.0																					
19-Apr	57.8	76.3	78.7	78.9	78.7	78.8	69.4	55.8	39.6	23.3	19.4	16.2	15.0	13.4	13.4	13.0	13.0	13.5	14.5	15.8	18.9	25.8	30.3	31.9	37.1	78.9																					
20-Apr	37.0	36.0	37.2	39.7	38.4	39.2	43.0	35.6	26.7	22.4	16.8	13.6	12.4	12.0	10.9	10.4	10.2	10.5	11.8	15.0	18.7	20.6	24.2	31.7	23.9	43.0																					
21-Apr	33.9	33.9	33.0	35.5	38.2	46.1	47.1	42.5	32.4	27.7	22.5	20.2	19.0	17.4	16.5	16.0	15.4	15.8	16.0	19.0	24.4	30.7	40.7	45.2	28.7	47.1																					
22-Apr	53.7	63.2	72.3	75.4	77.2	77.0	73.6	60.7	41.9	33.2	24.3	16.8	15.2	14.8	14.8	15.3	16.5	16.3	17.0	17.5	20.0	27.6	33.4	34.7	38.0	77.2																					
23-Apr	38.5	46.4	53.9	65.7	75.3	78.9	70.0	52.4	42.2	32.8	28.2	27.2	26.8	24.1	22.4	22.7	22.4	25.2	26.3	29.1	33.3	36.2	38.0	47.7	40.2	78.9																					
24-Apr	62.0	66.1	69.7	73.6	77.1	79.8	72.0	62.7	45.9	35.8	29.4	27.2	26.7	25.0	22.7	21.9	23.1	24.7	25.4	25.9	27.3	36.4	37.5	42.1	43.3	79.8																					
25-Apr	46.7	51.1	59.2	63.6	76.1	77.1	71.1	65.8	52.4	37.4	24.0	21.3	22.0	23.2	22.6	24.4	34.2	36.1	53.7	74.8	73.8	70.9	81.5	75.5	51.6	81.5																					
26-Apr	70.6	68.4	66.8	63.6	63.1	65.3	46.1	41.0	37.0	35.0	31.4	28.5	25.6	23.7	22.5	25.2	25.3	26.4	28.7	31.4	36.0	39.3	41.6	42.8	41.1	70.6																					
27-Apr	42.5	44.4	46.4	45.7	50.4	53.8	50.2	42.8	37.1	32.2	26.4	22.3	22.5	21.4	22.3	27.1	30.2	36.2	46.6	50.8	46.7	47.1	49.5	52.6	39.5	53.8																					
28-Apr	55.6	51.2	50.1	74.4	80.6	83.8	74.8	62.6	57.4	52.7	53.3	54.2	52.8	50.9	51.0	51.1	53.4	56.8	59.7	63.3	67.6	70.9	73.8	75.2	61.6	83.8																					
29-Apr	76.8	79.5	82.9	87.1	87.7	86.2	83.6	79.2	76.0	73.8	71.6	68.6	63.5	56.9	51.8	49.9	49.7	51.7	54.3	58.2	59.8	60.9	63.8	67.1	68.4	87.7																					
30-Apr	68.6	69.5	71.2	73.1	74.5	76.4	77.4	79.5	84.1	90.0	95.3	95.7	92.5	91.8	90.4	89.3	87.9	87.3	87.9	88.6	88.7	89.6	90.8	91.5	84.6	95.7																					
																						63.2	66.9	69.1	71.0	72.2	73.4	70.8	66.1	60.1	53.9	49.5	46.0	43.3	41.9	41.4	41.0	41.6	42.3	44.5	48.7	52.7	56.2	59.3	61.3	Diurnal Average	
																						98.5	98.1	96.7	96.4	95.4	96.2	98.2	98.2	92.8	91.5	95.3	95.7	92.5	91.8	90.4	95.1	97.2	98.3	98.4	98.6	98.8	98.9	98.9	98.7	Diurnal Maximum	
DF - DAS Failure																																															



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity 20m (RH20m) - %**  
**Lower Camp Met Tower - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 20m (RH20m) - %**  
**Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	46	6.67	6.67
20 - 40	180	26.09	32.75
40 - 60	150	21.74	54.49
60 - 80	176	25.51	80.00
80 - 100	138	20.00	100.00

Total Number of Valid Hours: 690

Total Number of Hours: 720



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

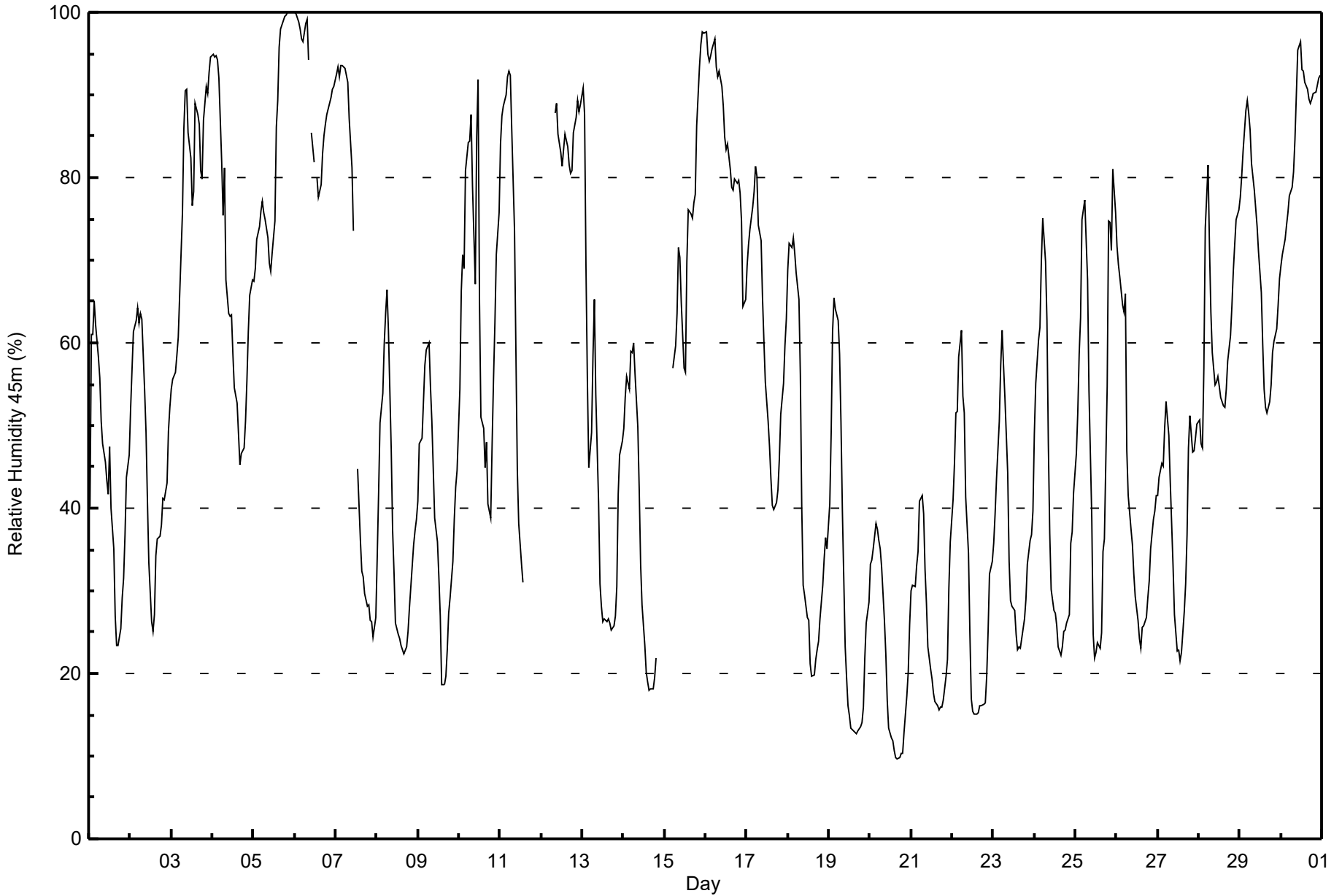
**Relative Humidity 45m (RH45m) - %**  
**Lower Camp Met Tower - April 2024**

Maximum Value: 100.0 % on Apr 5 23:00      Maximum Daily Average: 90.4 % on Apr 6																					Hours in Service: 720 Hours of Data: 689																												
Minimum Value: 9.7 % on Apr 20 17:00      Minimum Daily Average: 21.7 % on Apr 20 Maximum Diurnal Average: 69.9 % at hour 6      Minimum Diurnal Average: 41.6 % at hour 16 Monthly Average: 54.28 %      Percentiles: P <sub>1</sub> = 12.1 P <sub>10</sub> = 22.8 Q <sub>1</sub> = 32.1 Median = 53.4 Q <sub>3</sub> = 75.7 P <sub>90</sub> = 90.0 P <sub>99</sub> = 99.5																					Hours of Missing Data: 31 Hours of Calibration: 0 Percent Operational Time: 95.7																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	40.2	61.0	61.0	65.1	62.2	58.4	55.7	50.6	47.8	45.7	43.5	41.7	47.5	40.1	35.1	26.9	23.4	23.4	25.4	29.1	31.5	36.8	43.7	46.5	43.4	65.1																							
2-Apr	52.1	56.8	61.4	62.8	64.3	62.3	63.5	62.9	54.2	49.1	40.9	33.4	26.2	25.2	27.1	34.3	36.2	36.6	38.0	41.3	41.0	43.0	49.3	52.3	46.4	64.3																							
3-Apr	54.4	55.6	56.5	58.5	60.7	65.8	75.8	85.9	90.4	90.8	85.5	82.5	76.7	78.3	89.0	87.7	86.5	80.8	79.9	86.9	91.0	90.1	92.8	94.6	79.0	94.6																							
4-Apr	95.0	94.5	94.8	94.3	92.0	81.8	75.3	81.2	67.6	63.5	63.2	63.3	58.7	54.6	52.8	48.9	45.2	46.6	47.3	50.4	55.5	61.4	65.8	67.6	67.6	95.0																							
5-Apr	67.5	68.9	72.5	74.1	75.9	77.1	75.8	74.9	72.7	69.7	68.6	70.8	74.8	86.1	89.2	95.8	98.0	99.0	99.5	99.7	99.9	100.0	100.0	100.0	83.8	100.0																							
6-Apr	100.0	99.8	98.8	98.0	96.8	96.5	98.7	99.2	94.3	DF	85.4	81.9	UO	80.1	77.7	79.2	82.8	85.2	86.5	87.7	88.9	89.6	90.6	91.1	90.4	100.0																							
7-Apr	92.5	93.3	92.3	93.5	93.5	93.3	92.3	91.6	87.2	81.2	73.6	DF	DF	44.7	36.1	32.3	31.7	29.7	28.2	28.2	26.4	26.3	24.5	26.8	60.0	93.5																							
8-Apr	34.1	41.9	50.3	53.8	59.8	63.5	66.4	61.5	47.1	37.3	32.2	26.1	24.7	24.2	23.5	22.9	22.3	23.3	25.1	28.0	30.5	35.7	37.4	38.7	37.9	66.4																							
9-Apr	40.8	47.9	48.6	52.9	57.2	59.1	60.0	54.7	50.5	44.8	38.8	35.9	31.7	27.0	18.7	18.7	19.6	22.9	27.2	29.2	33.6	38.7	42.5	44.6	39.4	60.0																							
10-Apr	54.3	66.3	70.7	69.1	80.9	84.2	84.4	87.6	78.9	67.2	85.0	91.8	65.0	51.0	49.7	45.0	47.9	40.5	38.8	47.6	55.6	62.3	70.6	75.7	65.4	91.8																							
11-Apr	84.1	87.4	88.7	90.0	92.2	92.9	92.4	86.0	73.5	58.8	44.6	38.2	33.2	31.1	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	92.9																						
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	87.7	89.0	85.2	83.0	81.3	83.4	85.3	83.8	81.5	80.6	80.9	85.4	87.4	89.2	87.9	88.9	--	89.2																							
13-Apr	90.9	87.6	69.1	55.4	45.0	49.2	58.4	65.3	53.7	40.8	30.8	28.2	26.4	26.6	26.3	26.5	26.0	25.3	25.7	27.0	30.5	41.7	46.4	48.2	43.8	90.9																							
14-Apr	49.6	53.4	55.9	54.4	59.0	58.9	60.0	56.2	49.8	42.2	33.2	28.2	23.4	20.2	19.1	18.0	18.2	18.1	19.5	21.9	DF	DF	DF	DF	38.0	60.0																							
15-Apr	DF	DF	DF	DF	DF	57.0	59.6	63.5	71.5	70.4	65.0	56.9	56.4	69.7	76.2	75.6	75.1	77.0	78.0	86.2	93.4	96.2	97.7	97.5	74.9	97.7																							
16-Apr	97.6	94.9	94.1	94.7	95.7	96.7	93.4	92.2	92.8	91.1	88.6	85.0	83.3	84.2	81.1	78.8	78.5	79.9	79.4	79.7	78.2	74.8	64.4	65.3	85.2	97.6																							
17-Apr	69.3	71.9	73.7	76.4	78.4	81.3	80.1	74.3	72.5	65.5	60.2	55.3	50.5	47.4	43.5	40.3	39.9	40.6	42.1	46.0	51.4	55.1	59.7	62.9	59.9	81.3																							
18-Apr	68.7	72.1	71.5	72.6	70.8	68.6	65.2	56.1	40.1	30.7	29.6	26.8	26.5	21.3	19.6	19.9	21.6	22.8	23.9	26.6	30.6	33.9	36.5	35.1	41.3	72.6																							
19-Apr	40.6	49.2	61.3	65.4	64.1	62.7	58.7	50.4	39.6	23.3	19.6	16.2	15.0	13.3	13.1	12.8	12.7	13.0	13.5	14.0	16.0	21.8	26.1	28.6	31.3	65.4																							
20-Apr	33.3	33.7	35.1	38.1	37.4	36.2	35.0	33.0	26.5	22.4	16.8	13.4	12.1	11.8	10.6	9.9	9.7	9.8	10.3	10.3	12.9	17.2	20.2	25.9	21.7	38.1																							
21-Apr	30.0	30.7	30.6	33.1	34.8	40.8	41.5	39.3	32.6	28.5	23.2	20.5	19.4	17.6	16.7	16.1	15.5	15.9	16.0	16.8	19.7	21.7	30.4	36.0	26.1	41.5																							
22-Apr	41.0	45.4	51.4	51.8	58.3	61.5	53.5	51.4	41.3	34.5	24.9	16.9	15.4	15.0	15.1	15.3	16.0	16.1	16.2	16.4	19.7	25.1	32.1	33.5	32.0	61.5																							
23-Apr	35.8	39.3	43.5	50.5	57.3	61.5	57.3	53.4	44.3	33.6	28.9	28.1	27.7	24.8	22.9	23.3	23.0	25.5	26.7	29.0	33.2	36.1	36.7	39.7	36.7	61.5																							
24-Apr	49.0	55.0	60.3	61.9	69.9	75.1	69.9	62.8	47.8	36.9	30.1	27.6	27.3	25.8	23.2	22.1	23.3	25.0	25.3	26.2	27.2	35.8	37.1	41.8	41.1	75.1																							
25-Apr	46.6	51.5	58.6	63.0	74.9	77.3	72.4	67.7	54.2	38.8	24.7	21.9	22.6	23.7	23.0	24.9	34.7	36.2	54.7	74.7	74.6	71.3	81.0	75.8	52.0	81.0																							
26-Apr	71.6	69.5	67.9	64.6	63.7	65.9	47.0	41.5	37.5	35.6	32.1	29.4	26.4	24.2	23.1	25.7	25.8	26.8	29.2	31.2	35.1	38.6	39.6	41.6	41.4	71.6																							
27-Apr	41.5	43.7	45.4	45.1	49.6	52.9	48.8	43.2	38.1	33.1	27.1	22.8	22.9	21.6	22.6	27.5	30.8	36.8	47.3	51.2	46.8	46.9	48.4	50.1	39.4	52.9																							
28-Apr	50.7	47.9	47.3	56.9	73.9	81.4	71.7	63.8	58.7	54.9	55.2	56.0	54.8	53.4	52.4	52.3	54.4	57.8	60.8	64.5	68.7	71.9	74.9	76.1	60.9	81.4																							
29-Apr	77.6	80.1	83.3	88.1	89.3	87.8	85.7	81.8	78.5	76.2	74.0	71.0	66.1	59.9	54.3	52.1	51.5	52.9	54.9	58.8	60.2	61.7	64.6	67.8	69.9	89.3																							
30-Apr	69.3	70.6	72.5	74.3	75.7	77.7	78.9	80.6	84.6	89.9	95.5	96.5	93.1	92.9	91.6	90.6	89.4	89.1	89.4	90.2	90.3	91.1	92.0	92.3	85.8	96.5																							
																								59.9	63.2	64.9	66.4	69.0	69.9	68.2	66.0	60.5	53.3	50.2	46.5	42.5	42.6	42.0	41.6	42.1	42.7	44.5	47.7	51.1	54.1	56.9	58.7	Diurnal Average	
																								100.0	99.8	98.8	98.0	96.8	96.7	98.7	99.2	94.3	91.1	95.5	96.5	93.1	92.9	91.6	95.8	98.0	99.0	99.5	99.7	99.9	100.0	100.0	100.0	Diurnal Maximum	
DF - DAS Failure      UO - Unstable Operation																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity 45m (RH45m) - %**  
**Lower Camp Met Tower - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 45m (RH45m) - %  
Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	52	7.55	7.55
20 - 40	185	26.85	34.40
40 - 60	166	24.09	58.49
60 - 80	144	20.90	79.39
80 - 100	139	20.17	99.56

Total Number of Valid Hours: 689

Total Number of Hours: 720

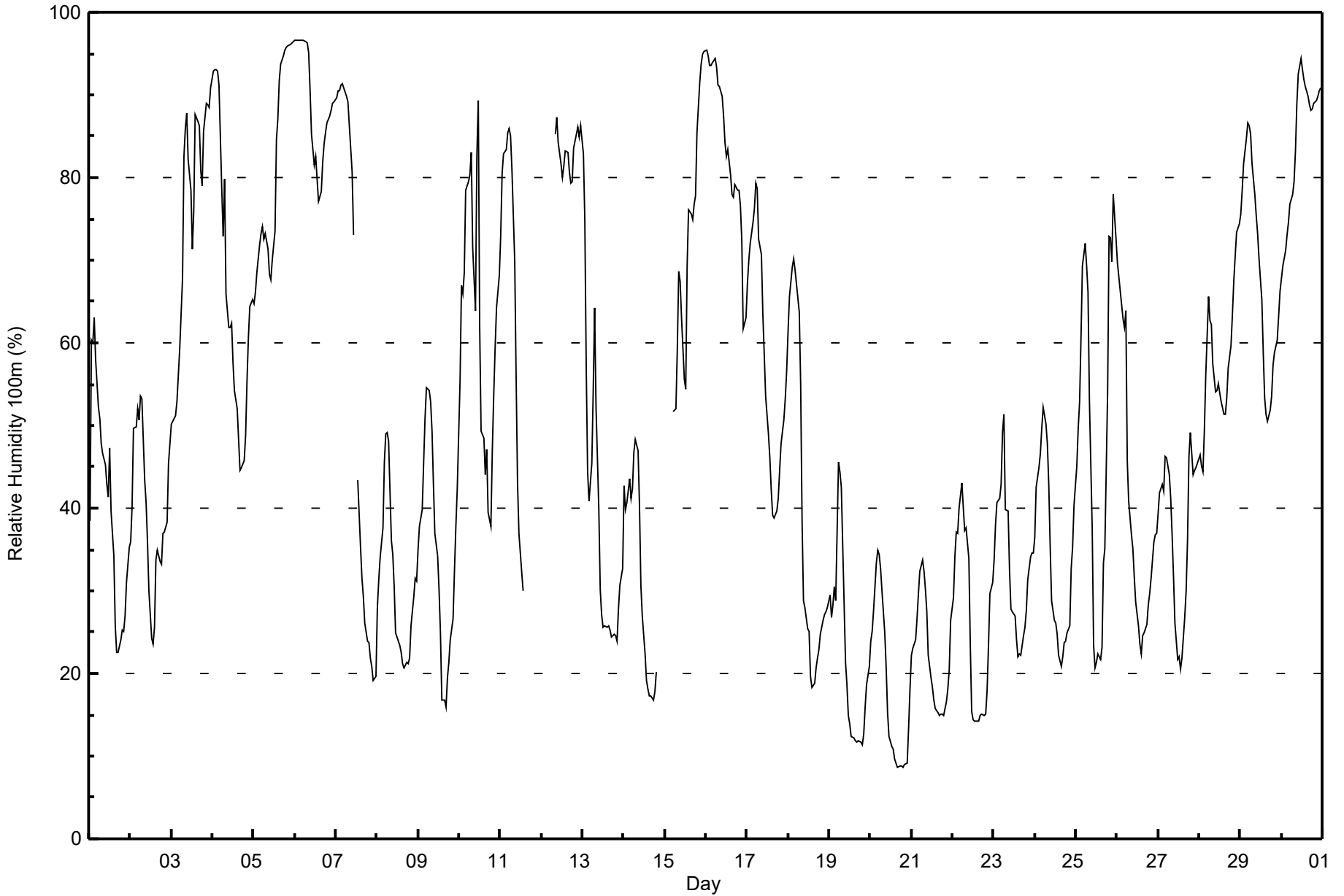




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 100m (RH100m) - %**  
**Lower Camp Met Tower - April 2024**

Maximum Value: 96.6 % on Apr 6 03:00																				Maximum Daily Average: 88.9 % on Apr 6					Hours in Service: 720																								
Minimum Value: 8.6 % on Apr 20 20:00																				Minimum Daily Average: 18.4 % on Apr 20					Hours of Data: 691																								
Maximum Diurnal Average: 62.7 % at hour 6																				Minimum Diurnal Average: 40.6 % at hour 16					Hours of Missing Data: 29																								
Monthly Average: 50.85 %																				Percentiles: P <sub>1</sub> = 9.7 P <sub>10</sub> = 20.7 Q <sub>1</sub> = 28.0 Median = 46.9 Q <sub>3</sub> = 73.1 P <sub>90</sub> = 87.9 P <sub>99</sub> = 96.4					Hours of Calibration: 0																								
																									Percent Operational Time: 96.0																								
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-Apr	38.4	60.3	60.0	63.1	57.9	52.2	50.9	47.8	46.7	45.2	42.9	41.4	47.2	39.7	34.3	25.8	22.6	22.6	24.0	25.2	25.1	27.0	31.0	35.2	40.3	63.1																							
2-Apr	36.0	40.2	49.6	49.8	52.0	50.7	53.5	53.2	43.4	40.7	36.0	30.1	24.3	23.6	25.6	33.8	35.0	33.5	33.2	37.0	37.0	38.3	45.4	47.9	39.6	53.5																							
3-Apr	50.2	50.5	51.2	52.8	56.2	59.3	67.8	82.5	85.9	87.9	82.2	78.5	71.3	76.0	87.6	86.8	86.2	80.8	78.9	85.6	89.0	88.8	88.5	90.9	75.6	90.9																							
4-Apr	92.9	93.1	93.1	93.0	91.3	78.5	72.9	79.9	65.9	61.9	61.9	62.3	57.6	54.2	52.0	48.3	44.5	44.9	45.7	48.8	55.4	60.7	64.3	65.3	66.2	93.1																							
5-Apr	64.8	66.1	68.5	71.9	73.3	74.0	72.5	73.2	71.4	68.4	67.6	70.0	73.6	84.5	87.1	91.8	93.7	94.7	95.4	95.7	96.0	96.1	96.2	96.4	80.9	96.4																							
6-Apr	96.5	96.6	96.6	96.6	96.6	96.6	96.5	96.2	95.2	90.5	85.2	81.6	82.6	79.8	77.1	78.3	81.8	84.0	85.4	86.6	87.5	88.2	89.0	89.1	88.9	96.6																							
7-Apr	89.7	90.5	90.5	91.2	91.4	90.4	89.8	89.1	86.2	80.7	73.0	DF	DF	43.4	35.3	31.6	29.2	26.0	23.9	23.8	21.8	20.9	19.1	19.6	57.1	91.4																							
8-Apr	28.0	31.4	34.0	37.6	45.5	49.0	49.1	48.1	36.1	34.5	30.5	24.9	23.9	23.4	22.6	21.3	20.6	21.3	21.2	21.9	25.8	29.2	31.6	31.3	31.0	49.1																							
9-Apr	35.0	37.7	39.8	45.5	50.8	54.5	54.2	52.9	49.3	42.8	37.0	34.2	30.1	24.9	16.9	16.8	15.9	19.6	21.4	24.0	26.7	32.3	37.8	42.4	35.1	54.5																							
10-Apr	55.5	66.9	66.0	68.5	78.5	79.5	80.3	83.1	71.6	63.9	82.6	89.2	61.9	49.3	48.4	44.1	47.1	39.4	37.9	46.9	53.5	59.3	64.3	68.2	62.7	89.2																							
11-Apr	73.0	80.5	83.0	83.4	85.4	85.9	85.1	81.1	69.8	55.8	43.1	36.9	32.2	30.1	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	85.9																						
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	85.2	87.3	84.2	81.8	80.0	81.3	83.2	83.0	80.7	79.3	79.4	83.5	85.3	86.1	84.9	86.3	--	87.3																							
13-Apr	82.9	75.0	57.1	44.4	40.8	45.4	54.2	64.3	52.2	39.8	30.1	27.2	25.5	25.8	25.6	25.8	25.2	24.3	24.7	24.5	23.8	27.8	30.8	32.7	38.7	82.9																							
14-Apr	42.7	39.8	40.7	43.6	41.1	42.4	46.8	48.4	47.0	40.3	30.7	27.0	22.4	19.1	18.1	17.3	17.2	16.8	17.8	20.1	DF	DF	DF	DF	32.0	48.4																							
15-Apr	DF	DF	DF	DF	DF	51.7	52.0	59.3	68.6	67.5	63.1	55.6	54.4	69.4	76.2	75.5	75.0	76.8	77.7	85.4	91.6	93.7	94.9	95.3	72.8	95.3																							
16-Apr	95.4	94.7	93.5	93.5	93.8	94.5	93.4	91.2	89.8	87.5	84.2	82.5	83.3	80.4	77.9	77.6	79.1	78.5	78.5	76.7	72.3	61.7	63.1	83.9	95.4																								
17-Apr	67.2	70.1	72.0	74.6	76.3	79.3	78.7	72.5	70.7	63.5	58.6	53.6	49.0	46.2	42.2	39.1	38.9	39.7	41.2	44.6	47.9	50.6	53.3	56.7	57.8	79.3																							
18-Apr	61.4	65.6	69.2	70.2	68.8	67.2	63.8	54.9	38.4	28.9	28.0	25.4	25.1	19.7	18.3	18.9	20.7	21.8	22.9	24.7	26.4	27.2	27.4	28.0	38.5	70.2																							
19-Apr	29.5	26.7	28.3	30.5	28.9	45.6	44.4	42.6	35.4	21.4	18.7	15.0	13.9	12.4	12.1	11.9	11.7	11.9	11.7	11.4	12.8	15.9	18.6	20.9	22.2	45.6																							
20-Apr	23.8	25.1	27.6	33.4	35.0	34.4	32.7	30.0	25.0	20.6	15.2	12.3	11.2	10.8	9.7	9.1	8.7	8.8	8.9	8.6	9.0	9.2	13.4	18.1	18.4	35.0																							
21-Apr	22.3	23.0	24.0	26.6	29.7	32.4	33.7	32.3	30.1	27.4	22.2	19.5	18.3	16.7	15.7	15.2	14.9	15.1	15.1	14.9	16.6	18.1	20.6	26.4	22.1	33.7																							
22-Apr	29.2	34.1	37.0	37.0	40.0	43.0	40.2	37.3	37.6	33.9	23.5	15.5	14.3	14.2	14.3	14.3	14.9	15.2	14.9	15.1	17.9	23.4	29.7	31.0	26.2	43.0																							
23-Apr	33.7	38.0	40.7	41.2	42.8	49.1	51.4	39.8	39.7	32.6	27.8	27.5	27.0	24.0	22.1	22.5	22.2	24.5	25.6	27.7	31.4	34.1	34.5	34.6	33.1	51.4																							
24-Apr	36.4	42.5	44.9	46.7	49.7	52.3	50.1	47.8	42.9	35.3	28.9	26.5	26.2	24.8	22.2	20.9	22.1	23.8	23.9	24.9	25.8	32.8	35.3	40.3	34.5	52.3																							
25-Apr	45.1	49.7	52.9	60.6	69.4	72.1	69.4	66.0	53.0	37.5	23.4	20.6	21.4	22.4	21.7	23.3	33.4	35.1	54.3	72.9	72.6	69.9	77.9	72.5	49.9	77.9																							
26-Apr	69.7	67.9	66.3	63.0	61.9	63.8	45.8	40.8	36.8	35.1	31.7	28.7	25.8	23.5	22.4	24.7	24.9	25.9	28.3	29.6	31.5	35.9	36.7	37.0	39.9	69.7																							
27-Apr	39.3	41.8	42.8	42.1	46.2	46.1	44.0	41.1	36.8	31.7	26.0	21.7	22.0	20.6	21.8	26.7	30.0	36.1	46.4	49.2	44.0	44.6	44.9	45.4	37.1	49.2																							
28-Apr	46.4	45.1	44.5	49.4	56.2	65.6	62.7	62.3	57.4	54.1	54.3	55.1	54.0	52.8	51.3	51.3	53.3	56.9	59.7	63.4	67.4	70.4	73.4	74.3	57.6	74.3																							
29-Apr	75.7	78.4	81.6	84.8	86.6	86.3	85.2	81.7	78.0	75.4	73.2	70.1	65.2	59.0	53.4	51.3	50.6	51.8	53.6	57.3	58.7	60.4	63.2	66.3	68.7	86.6																							
30-Apr	67.8	69.3	71.3	73.1	74.6	76.7	77.9	79.6	83.2	88.9	92.6	94.5	93.0	91.9	91.0	89.8	88.9	88.2	88.4	89.1	89.3	89.9	90.5	90.8	84.6	94.5																							
																								54.6	57.2	58.1	59.6	61.5	62.7	62.0	61.3	57.7	52.8	48.7	45.2	42.6	41.6	41.0	40.6	40.9	41.3	42.8	45.5	48.1	50.1	52.1	53.8	Diurnal Average	
																								96.5	96.6	96.6	96.6	96.6	96.6	96.5	96.2	95.2	90.5	92.6	94.5	93.0	91.9	91.0	91.8	93.7	94.7	95.4	95.7	96.0	96.1	96.2	96.4	Diurnal Maximum	
DF - DAS Failure																																																	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 100m (RH100m) - %  
Lower Camp Met Tower - April 2024**

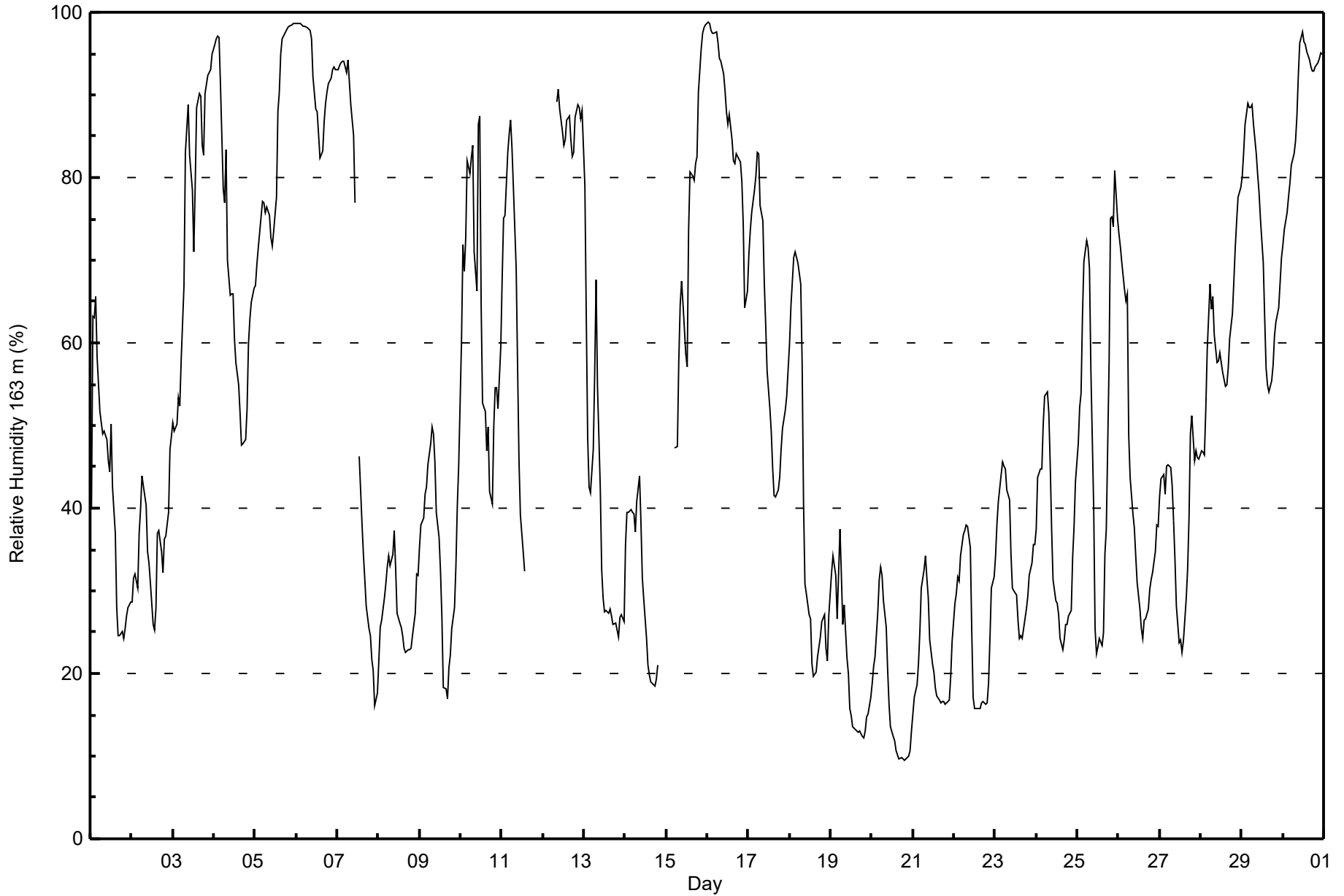
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	63	9.12	9.12
20 - 40	218	31.55	40.67
40 - 60	155	22.43	63.10
60 - 80	128	18.52	81.62
80 - 100	127	18.38	100.00

Total Number of Valid Hours: 691

Total Number of Hours: 720



Maximum Value: 98.7 % on Apr 16 01:00      Maximum Daily Average: 92.9 % on Apr 6																						Hours in Service: 720 Hours of Data: 691																										
Minimum Value: 9.4 % on Apr 20 20:00      Minimum Daily Average: 17.4 % on Apr 20																						Hours of Missing Data: 29 Hours of Calibration: 0																										
Maximum Diurnal Average: 61.5 % at hour 6      Minimum Diurnal Average: 43.2 % at hour 16																						Percent Operational Time: 96.0																										
Monthly Average: 52.06 %      Percentiles: P <sub>1</sub> = 10.5 P <sub>10</sub> = 21.0 Q <sub>1</sub> = 28.5 Median = 46.9 Q <sub>3</sub> = 76.2 P <sub>90</sub> = 91.4 P <sub>99</sub> = 98.5																																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	40.0	63.3	63.0	65.5	58.4	51.6	50.4	48.9	49.2	48.3	44.3	50.2	42.6	36.9	28.0	24.6	24.5	25.1	24.3	25.4	26.9	27.9	28.7	41.4	65.5																							
2-Apr	28.7	31.6	32.0	30.4	36.9	39.8	44.0	42.7	40.4	34.8	33.4	30.9	26.0	25.2	27.9	37.0	37.3	34.7	32.3	36.3	36.7	39.4	47.2	48.6	35.6	48.6																						
3-Apr	50.3	49.3	50.1	53.4	52.3	57.9	66.9	83.0	86.0	88.7	82.8	78.4	71.0	79.2	88.4	90.1	89.8	83.9	82.7	90.1	92.4	92.7	93.0	94.9	77.0	94.9																						
4-Apr	96.2	96.8	97.1	96.9	91.4	78.7	76.9	83.4	69.9	65.8	65.9	66.0	60.6	57.6	54.9	51.5	47.6	47.7	48.2	52.1	59.9	62.8	64.9	66.6	69.1	97.1																						
5-Apr	67.0	69.5	71.5	75.3	77.1	76.9	75.8	76.5	75.4	72.8	71.7	73.5	77.6	87.9	90.4	94.9	96.7	97.5	97.8	98.2	98.4	98.5	98.6	98.6	84.1	98.6																						
6-Apr	98.7	98.7	98.7	98.5	98.4	98.2	98.1	98.0	97.7	96.8	92.2	88.3	88.0	85.2	82.4	83.2	86.7	89.0	90.3	91.4	92.1	93.1	93.4	93.1	92.9	98.7																						
7-Apr	93.1	93.6	93.9	94.1	94.1	92.7	94.2	91.5	88.9	85.1	77.0	DF	DF	46.4	38.2	34.4	31.4	28.2	25.5	24.5	21.7	20.3	16.2	17.6	59.2	94.2																						
8-Apr	21.6	25.5	26.5	29.1	30.8	32.9	34.3	33.0	34.4	37.3	32.7	27.2	26.0	25.6	24.6	23.0	22.5	22.9	22.9	23.1	24.6	27.3	32.1	31.9	28.0	37.3																						
9-Apr	35.2	38.0	38.8	41.6	42.6	45.3	47.8	49.9	49.1	45.6	39.5	36.5	32.3	26.8	18.4	18.2	17.0	20.6	22.2	25.5	27.9	33.0	40.4	45.2	34.9	49.9																						
10-Apr	60.4	71.8	68.6	72.8	82.1	80.5	82.4	84.0	71.1	66.2	86.4	87.5	64.6	52.7	51.8	47.0	49.9	42.1	40.5	49.8	54.5	54.5	52.0	59.5	63.9	87.5																						
11-Apr	67.7	75.1	75.4	83.1	85.2	87.0	83.6	78.8	68.9	57.1	45.8	39.1	34.8	32.5	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	87.0																						
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	89.1	90.7	88.4	85.6	83.8	84.7	87.0	87.5	84.5	82.6	83.1	87.2	88.8	88.4	87.1	88.1	--	90.7																						
13-Apr	79.0	63.2	48.4	42.5	41.8	47.1	56.3	67.6	54.8	42.4	32.5	29.2	27.5	27.6	27.3	27.7	27.0	25.9	26.1	25.2	24.4	26.8	27.2	26.3	38.5	79.0																						
14-Apr	35.5	39.5	39.4	39.8	39.6	39.3	37.2	40.8	43.9	38.3	31.6	29.0	24.3	21.1	19.8	19.0	18.9	18.5	19.4	21.0	DF	DF	DF	DF	30.8	43.9																						
15-Apr	DF	DF	DF	DF	DF	47.3	47.5	57.8	64.6	67.5	64.7	58.7	57.2	73.5	80.7	80.1	79.7	81.7	82.5	90.3	95.7	97.4	98.1	98.5	74.9	98.5																						
16-Apr	98.7	98.6	97.7	97.5	97.5	97.7	96.2	94.4	94.1	92.6	90.6	87.9	86.5	87.7	84.6	82.0	81.6	82.9	82.1	81.9	79.6	74.2	64.2	66.2	87.4	98.7																						
17-Apr	70.6	73.6	75.8	78.5	80.1	83.0	82.8	76.6	74.7	67.2	62.2	56.6	52.0	49.1	44.8	41.6	41.4	42.2	43.7	47.1	49.7	51.8	53.5	56.7	60.6	83.0																						
18-Apr	59.9	64.4	70.3	71.0	70.4	69.7	67.1	57.6	40.7	30.9	29.7	27.2	26.5	21.1	19.7	20.1	22.0	23.2	24.4	26.3	27.1	23.1	21.6	26.9	39.2	71.0																						
19-Apr	32.1	34.2	33.1	31.8	26.6	37.5	31.8	25.9	28.4	21.8	20.0	15.8	15.0	13.6	13.2	13.1	12.9	13.1	12.4	12.2	13.1	14.8	15.1	17.1	21.0	37.5																						
20-Apr	18.9	20.8	22.1	27.4	31.4	32.9	31.9	28.7	25.7	20.4	16.3	13.5	12.4	11.9	10.7	10.1	9.7	9.8	9.7	9.4	9.6	10.1	10.6	13.1	17.4	32.9																						
21-Apr	15.1	17.1	18.6	21.2	25.1	30.4	32.5	34.3	31.5	29.1	24.1	21.3	20.1	18.4	17.3	16.8	16.4	16.7	16.7	16.2	16.5	16.8	19.6	23.9	21.5	34.3																						
22-Apr	28.6	29.7	31.8	31.2	34.2	36.7	37.3	38.0	37.8	35.3	25.2	17.2	15.8	15.7	15.8	15.8	16.4	16.7	16.3	16.5	18.9	24.3	30.4	31.7	25.7	38.0																						
23-Apr	34.2	38.2	40.9	44.1	45.7	45.1	44.8	42.2	40.9	34.4	30.4	30.0	29.5	26.4	24.2	24.6	24.3	26.6	27.8	29.4	31.8	33.5	35.7	35.5	34.2	45.7																						
24-Apr	37.5	43.6	44.7	44.8	50.1	53.6	54.0	51.6	45.2	37.5	31.4	28.8	28.5	27.1	24.3	22.9	24.1	25.9	27.0	27.7	34.1	37.8	43.2	36.3	54.0																							
25-Apr	47.7	52.2	53.9	63.2	69.8	72.3	71.6	69.1	56.7	40.2	25.5	22.4	23.2	24.2	23.4	24.8	34.5	37.4	57.6	75.1	75.3	74.1	80.8	75.1	52.1	80.8																						
26-Apr	73.3	71.6	69.8	66.4	65.0	65.9	48.8	43.7	39.4	37.6	34.2	30.9	27.9	25.5	24.3	26.4	26.6	27.7	30.2	31.4	32.2	34.8	38.0	37.9	42.1	73.3																						
27-Apr	41.3	43.6	44.1	41.6	45.0	45.3	45.0	42.8	38.5	33.8	28.2	23.8	24.1	22.6	23.9	29.0	32.5	38.7	49.0	51.3	45.7	46.9	46.1	45.9	38.7	51.3																						
28-Apr	46.9	46.8	46.4	52.1	59.1	67.2	64.1	65.7	61.0	57.7	57.9	58.8	57.6	56.5	54.7	54.9	57.0	60.6	63.6	67.5	71.6	74.7	77.7	78.7	60.8	78.7																						
29-Apr	80.1	83.1	86.5	89.0	88.5	88.5	88.8	86.5	82.8	80.3	78.1	74.9	69.7	63.1	57.0	54.8	54.1	55.4	57.2	60.9	62.5	64.3	67.3	70.4	72.7	89.0																						
30-Apr	71.9	73.7	75.7	77.7	79.2	81.5	82.8	84.4	87.4	92.4	96.3	97.7	96.5	96.1	95.3	94.3	93.4	92.9	92.9	93.5	93.8	94.4	95.0	94.9	88.9	97.7																						
																								54.6	57.4	57.7	59.3	60.7	61.5	61.2	61.3	58.9	55.0	51.3	47.6	45.1	44.2	43.5	43.2	43.5	43.8	45.1	47.7	49.9	51.2	52.5	54.1	Diurnal Average
																								98.7	98.7	98.7	98.5	98.4	98.2	98.1	98.0	97.7	96.8	96.3	97.7	96.5	96.1	95.3	94.9	96.7	97.5	97.8	98.2	98.4	98.5	98.6	98.6	Diurnal Maximum
DF - DAS Failure																																																





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 163 m (RH163m) - %  
Lower Camp Met Tower - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	63	9.12	9.12
20 - 40	227	32.85	41.97
40 - 60	139	20.12	62.08
60 - 80	109	15.77	77.86
80 - 100	153	22.14	100.00

Total Number of Valid Hours: 691

Total Number of Hours: 720



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

**Wind Speed 20 m (WS20m) - km/h**  
**Lower Camp Met Tower - April 2024**

Maximum Speed: 30 km/h on Apr 25 17:00	Maximum Daily Speed Average: 19.1 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 23 06:00	Minimum Daily Speed Average: 2.3 km/h on Apr 3	Hours of Data: 685
Maximum Diurnal Speed Average: 3.6 km/h at hour 19	Minimum Diurnal Speed Average: 0.6 km/h at hour 1	Hours of Missing Data: 35
Monthly Average Velocity: 1.9 km/h 337.5 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 9 Q <sub>3</sub> = 15 P <sub>90</sub> = 19 P <sub>99</sub> = 25	Percent Operational Time: 95.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW13	WNW19	WNW16	WNW9	W13	WSW18	WSW14	WNW12	WNW15	NW20	NW14	NW17	WNW19	WNW17	WNW12	NW14	NW16	NW12	NW9	NW4	SW2	SSE2	SSE3	SSE5	WNW10.5	NW20
2-Apr	SE10	SE7	SE5	SE7	ESE5	SE8	SE11	SE8	SSE10	SE10	SE11	SE15	SE22	SE19	SE20	SSE21	SSE21	SSE21	SE9	SSE6	ESE4	SW3	WSW3	SE11	SE10.7	SE22
3-Apr	SE9	SE13	SE7	ESE4	SSE3	NW9	WNW14	WNW17	NW6	S2	SW7	W5	WSW9	NNW7	NNW7	NNW6	NNE8	NNE7	NNE8	N6	NW4	SW1	NNW4	NW3	NW2.3	WNW17
4-Apr	N3	NW3	NNW6	NNW7	NNW8	NW8	NNW11	N7	N11	NNW14	N10	ENE5	SW2	N7	N9	NNE6	N7	N10	N9	N4	NNW1	ENE3	NE3	NE3	N5.9	NNW14
5-Apr	NNE3	NE3	N2	NE3	NE2	N3	NNE4	NNE6	N7	NNW6	NNW7	NNW10	NNW11	NNW9	NNW8	NNW6	UO	UO	NNW7	NNW7	NNW6	NNW3	NW4	NW6	NNW5.2	NNW11
6-Apr	NNW6	NNW7	NNW9	NNW6	NNE4	NNE4	NNW5	NNW5	N7	NNW6	NNW9	N7	N9	NNW10	NNW6	NNW7	N9	N6	NNW4	NNW3	NW4	NW2	NW2	NW2	NNW5.6	NNW10
7-Apr	NW1	ESE3	S1	SW2	S4	SE3	SE8	SE8	SSE10	S12	S12	DF	DF	WSW11	WSW10	SW7	WSW10	WSW13	WSW14	WSW11	SW10	SW12	SW12	SW4	SW6.1	WSW14
8-Apr	SSE1	SE9	SE9	SE9	SE8	SE7	SE6	SE7	SE14	SE12	SE9	SE11	SE9	W5	SSW18	WSW13	W10	SW9	SW1	S1	ESE3	ENE1	NW3	WNW1	SSE4.7	SSW18
9-Apr	SSE3	S2	SSW2	SE4	SSE4	SE5	SSE4	ESE3	SE5	SE7	SW10	WSW20	WSW16	WSW17	WSW19	WSW15	WSW15	W18	WSW17	WSW17	WSW11	W7	WSW9	NW4	WSW7.7	WSW20
10-Apr	NW5	NNW4	NNW3	NNW4	WNW10	WNW9	WNW9	NNW6	NW8	WNW15	NNW13	NNE2	N8	N12	NNW13	NNE14	NNE12	NE11	NE9	NE3	NE2	NW0	NNW2	NW1	NNW6.1	WNW15
11-Apr	NW1	NNW1	NW1	NW1	NNW2	SE4	SE7	SE3	SE8	SE11	SE13	SE16	ESE16	SE20	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	---	SE20
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	SSE22	SSE21	SE23	SSE21	SSE26	SSE21	SE16	SE15	SE20	SE15	SSE14	SE9	SSE7	SE7	SE8	SE7	---	SSE26
13-Apr	SE8	SE11	SE9	SSE5	WSW19	WSW24	WSW19	W17	WNW17	WNW16	NW17	WNW23	WNW24	WNW22	WNW21	WNW22	WNW15	WNW17	WNW12	WNW10	W7	WNW4	W5	W7	W11.4	WSW24
14-Apr	WSW5	WNW2	SE3	SE4	SE9	SE8	SE8	SE11	SE8	SE9	SE11	SE9	SSW6	WSW13	WSW12	W9	WSW8	W7	NW3	N5	DF	DF	DF	DF	S3.3	WSW13
15-Apr	DF	DF	DF	DF	DF	NE3	N9	NNW6	NNW8	NNW4	NNW4	N9	SE12	NE12	NE12	NE11	NE10	NE13	NE10	N12	NNW10	NNW10	NNW10	NNW11	NNE7.2	NE13
16-Apr	NNW11	N16	N19	N17	NNW17	UO	UO	UO	UO	N25	N25	N26	N26	N23	N25	N25	N21	NNE16	NNE16	N14	N15	N16	N16	N16	N19.1	N26
17-Apr	N18	N19	N18	N16	N15	N13	N16	NNE19	N17	N17	N19	N19	N23	N23	N21	N21	N23	NNE20	NNE18	N14	N9	N7	N7	N8	N16.6	N23
18-Apr	NNW7	NNW5	NNW6	NNW11	NNW11	NNW10	N14	N15	N16	N20	N18	N19	N18	N20	NNE18	NNE17	NNE18	NNE15	NNE14	N9	NNW7	NNW6	NNW5	NW2	N12.2	N20
19-Apr	NNW1	N2	N2	SE0	E0	ESE1	SE4	ESE4	SE3	SSW4	WSW7	WSW9	WSW7	WSW6	WSW9	WSW11	SW14	SW14	SW13	SW12	SW11	WSW10	W16	WSW12	SW6.0	W16
20-Apr	WSW9	WSW7	SW8	SSE4	SE4	SSE7	SE11	SE8	SSW8	SW12	WSW13	WSW13	WSW13	WSW15	WSW15	WSW15	WSW13	WSW12	WSW10	SSW4	S4	SE4	SE5	SE7	SW6.8	WSW15
21-Apr	SE7	SE8	SE11	SE9	SE9	SE8	SE8	ESE4	SE8	SE9	SE11	SE14	SE12	SE11	SE11	SE6	SSE3	SSW4	WNW5	NNW3	WSW2	WNW2	NW4	NW3	SE5.5	SE14
22-Apr	NNW3	NNW2	N3	WNW1	NNW3	NNW2	NNW1	NW2	NNW5	NNW6	N10	N14	NNE9	NNW7	NNW8	NNW12	N15	NNE14	N16	N8	NNW2	N8	N8	NNW6	N6.6	N16
23-Apr	NW4	NNW3	NW3	NW3	NNW1	NW0	NNW1	NNW1	NNW4	NNW5	NNW3	WSW4	SSE3	SW4	NE2	NNW7	N5	NNE9	NNE12	NNE9	N5	NNW3	N3	N5	N3.2	NNE12
24-Apr	NNW3	NNW6	NNW3	NW4	NNW4	NNW5	NNW7	N7	N4	SE7	SE17	SE22	ESE16	ESE17	ESE19	ESE19	ESE17	ESE15	ESE15	SE16	SE22	SE19	SE17	SE17	ESE8.9	SE22
25-Apr	SE22	S16	WSW13	SSW10	WSW16	W8	WSW12	WSW13	WSW20	WSW21	WSW22	WSW22	WSW24	WSW26	WSW25	WSW22	WSW30	W17	NW21	WNW16	NNW17	NNW17	NW5	NW9	WSW13.5	WSW30
26-Apr	NW13	NW14	NNW12	NNW14	NNW10	NNW9	NNW18	NNW16	NNW17	NNW14	NNW14	N14	NNW13	NNW16	NNW14	N11	N11	NNE8	NE9	NE7	E3	ESE4	ESE7	SE6	NNW9.4	NNW18
27-Apr	SE13	SE10	SE10	SE12	SE4	SE5	SE10	SE12	SE11	SE13	SSE16	SSE20	SSE21	SSE24	S26	S25	SSW23	SSW28	S24	SSE9	SE7	SE6	SE9	ESE5	SSE13.2	SSW28
28-Apr	ENE2	E5	ESE6	NNW5	NW4	NNW1	E2	SE15	ESE13	SE15	SE16	SE15	SE16	SE15	SSE21	SE18	SE20	SE19	SE13	ESE13	ESE10	ESE11	ESE8	ESE7	SE10.2	SSE21
29-Apr	ESE7	E4	ENE5	N3	N4	NNW2	NNW2	N4	N7	N8	N8	N11	N12	NNE13	N15	NNE14	NNE14	NNE14	N15	N15	N14	N15	N14	N13	N9.0	N15
30-Apr	N13	N13	N15	N16	N17	N17	N18	N19	N19	N17	N16	N14	N17	N17	N17	N12	N17	N18	NNW17	NNW14	NNW12	N13	N13	N11	N15.4	N19

NNE0.6	NNE1.3	N2.1	N1.9	NW2.4	NNW1.8	NNW1.9	N2.3	N1.4	N1.7	NNW1.3	NNW1.4	NNW0.9	NW2.5	NNW2.5	NW2.8	NW2.6	NNW2.4	N3.6	N3.1	NNW1.9	N1.8	NNW1.7	N1.7	Diurnal Average	
SE22	N19	N19	N17	WSW19	WSW24	WSW19	NNE19	SSE22	N25	N25	N26	N26	WSW26	S26	S25	WSW30	SSW28	S24	WSW17	NW17	SE22	SE19	SE17	Diurnal Maximum	

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 20 m (WS20m) - km/h**  
**Lower Camp Met Tower - April 2024**

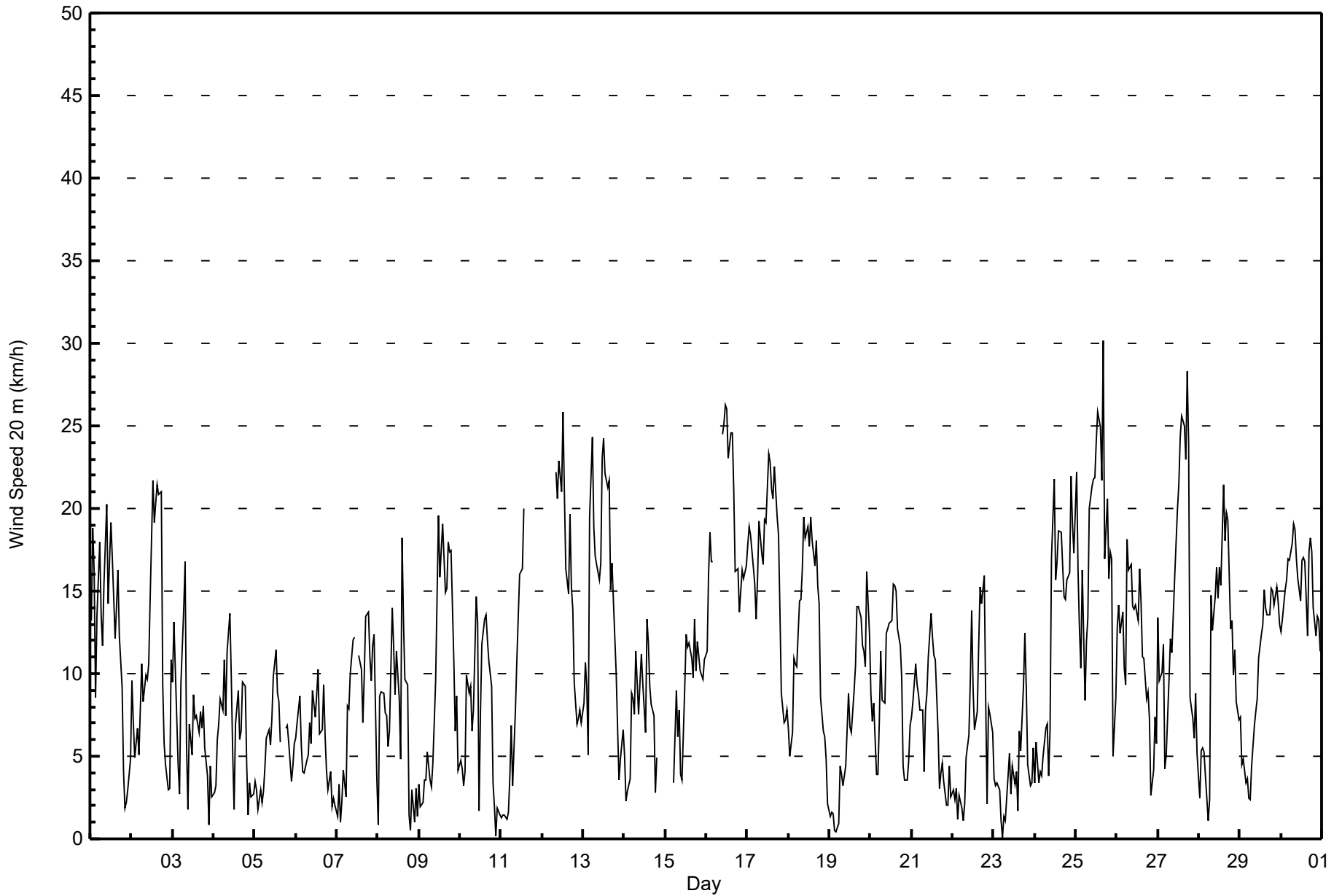
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0										Hours in Service: 720																
Maximum Value: 10 km/h on Apr 25 17:00										Hours of Data: 685																
Minimum Value: 0 km/h on Apr 19 04:00										Hours of Missing Data: 35																
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 8										Hours of Calibration: 0																
										Percent Operational Time: 95.1																
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-Apr	7	6	6	3	5	4	4	4	7	8	5	7	7	7	5	6	6	5	3	3	1	2	1	2	8	
2-Apr	2	2	2	2	3	3	4	3	3	4	5	4	4	5	4	5	4	4	4	4	3	2	2	3	5	
3-Apr	3	3	4	2	3	6	4	6	5	1	5	3	4	4	3	3	3	3	3	2	2	2	2	3	6	
4-Apr	3	2	2	2	4	3	5	3	4	5	3	3	2	3	4	3	3	3	3	3	1	1	2	1	5	
5-Apr	1	1	2	2	1	1	2	2	2	2	3	3	4	3	3	2	UO	UO	2	2	2	2	1	1	4	
6-Apr	2	2	3	2	2	2	2	2	3	2	3	3	3	3	2	3	3	3	1	1	2	1	1	1	3	
7-Apr	1	2	1	1	2	1	1	2	2	2	2	DF	DF	4	3	4	4	4	4	4	3	1	2	3	4	
8-Apr	2	2	2	1	2	2	2	4	3	3	2	3	3	4	5	4	4	4	1	1	2	2	3	2	5	
9-Apr	2	2	1	2	1	2	2	2	2	2	6	6	5	6	6	5	4	5	4	4	3	5	4	2	6	
10-Apr	1	2	2	1	4	4	4	3	4	6	5	2	3	5	5	6	5	4	4	1	1	1	1	1	6	
11-Apr	1	1	1	1	1	3	2	2	5	3	4	5	5	6	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	6	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	6	4	5	4	4	5	3	4	4	4	4	3	6	5	4	3	6
13-Apr	3	2	4	3	5	6	6	6	6	6	8	8	9	8	7	8	6	5	5	3	2	2	3	3	9	
14-Apr	3	1	2	2	2	3	3	3	3	2	3	4	5	4	5	4	3	2	3	3	DF	DF	DF	DF	5	
15-Apr	DF	DF	DF	DF	DF	2	6	4	3	2	2	4	4	5	5	4	5	4	5	4	3	4	3	4	6	
16-Apr	4	5	6	5	5	UO	UO	UO	UO	7	8	8	9	8	8	8	8	6	6	5	5	5	5	5	9	
17-Apr	5	6	6	5	5	4	5	7	6	6	7	7	8	7	8	8	8	7	7	5	3	2	2	2	8	
18-Apr	2	2	3	4	4	4	5	5	6	6	6	6	6	7	7	6	7	6	6	4	2	2	2	2	7	
19-Apr	1	1	1	0	0	1	2	1	1	2	3	3	2	2	3	4	3	3	3	2	2	3	4	5	5	
20-Apr	3	3	3	2	2	3	2	2	3	3	3	4	4	4	4	4	4	3	2	2	2	2	2	2	4	
21-Apr	2	3	2	2	2	2	2	2	3	3	4	5	4	4	4	4	2	2	2	1	1	2	1	1	5	
22-Apr	1	1	1	1	1	1	1	1	2	2	4	5	5	4	4	5	5	5	5	3	1	3	3	2	5	
23-Apr	1	2	1	1	1	1	1	1	2	3	2	3	3	3	3	3	3	4	4	4	2	2	3	3	4	
24-Apr	2	3	2	2	2	3	3	3	2	5	6	5	6	6	7	6	7	6	6	6	6	8	6	5	8	
25-Apr	5	4	6	6	5	5	5	5	4	5	6	7	7	7	7	8	10	8	8	7	6	8	2	3	10	
26-Apr	4	5	5	7	4	5	7	7	6	5	5	5	6	6	6	5	4	4	4	3	2	3	4	4	7	
27-Apr	4	3	3	8	2	3	2	3	4	4	4	6	7	7	5	5	7	5	6	3	3	2	3	3	8	
28-Apr	2	2	3	2	1	2	5	5	5	5	6	5	4	5	4	6	5	4	4	5	4	5	5	4	6	
29-Apr	4	2	2	2	1	2	1	2	3	3	3	3	4	5	5	6	6	5	5	5	5	6	5	4	6	
30-Apr	4	5	5	5	5	6	6	7	7	5	5	5	6	5	6	5	6	6	6	5	4	5	6	4	7	
Diurnal Maximum																										
7 6 6 8 5 6 7 7 7 8 8 8 9 8 8 8 8 10 8 8 7 6 8 6 5																										
DF - DAS Failure UO - Unstable Operation																										





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed 20 m (WS20m) - km/h**  
**Lower Camp Met Tower - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h  
Lower Camp Met Tower - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	183	26.72	26.72
6 - 11	229	33.43	60.15
12 - 19	214	31.24	91.39
20 - 28	58	8.47	99.85
29 - 38	1	0.15	100.00
> 38	0	0.00	100.00

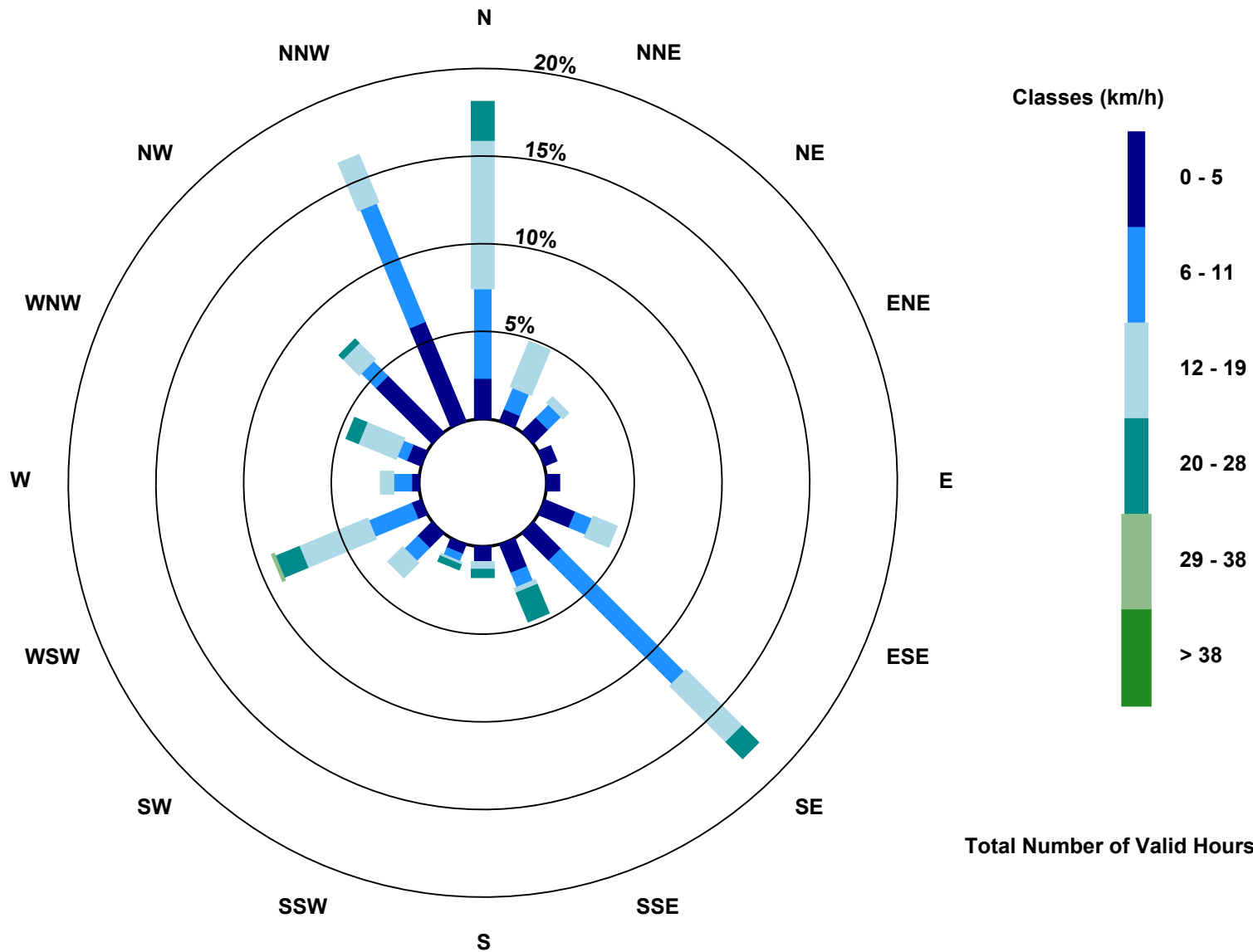
Total Number of Valid Hours: 685

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 20 m (WS20m) - km/h  
Lower Camp Met Tower



Total Number of Valid Hours: 685



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 45 m (WS45m) - km/h

Lower Camp Met Tower - April 2024

Maximum Speed: 34 km/h on Apr 13 06:00	Maximum Daily Speed Average: 16.5 km/h on Apr 13	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 3 22:00	Minimum Daily Speed Average: 3.5 km/h on Apr 3	Hours of Data: 296
Maximum Diurnal Speed Average: 7.0 km/h at hour 14	Minimum Diurnal Speed Average: 0.3 km/h at hour 2	Hours of Missing Data: 424
Monthly Average Velocity: 2.4 km/h 269.2 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 7 Median = 11 Q <sub>3</sub> = 17 P <sub>90</sub> = 24 P <sub>99</sub> = 30	Percent Operational Time: 41.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW18WNW27	NW23WNW13	W20WSW25	WSW20WNW15	WNW21	NW27	NW20	NW23WNW26	WNW22	WNW16	NW19	NW22	NW18	NW14	NW9	NNW3	SSW3	SSE5	SE9	WNW14.7	NW27					
2-Apr	SE14	SE11	SE10	SE11	SE10	SE14	SE15	SE12	SE13	SE12	SE14	SE21	SE29	SE26	SE26	SSE24	SSE23	SSE25	SE13	SE10	ESE9	SSW8	SE4	SE15		
3-Apr	SE13	SE18	SE12	SE10	SSE3WNW16	WNW23WNW24	NW9	SW2	SW11	W8WSW12	NNW11	NNW11	N10	NNE12	NNE9	NNE12	N8	NNW6	W1	NNW6	N5	NW3.5	WNW24			
4-Apr	NNE5	NNW5	NNW10	NNW12	NNW13	NW12	NNW16	N10	N16	N20	N13	NE7	SSW1	N9	N11	NNE8	N8	N14	N15	NNE8	NNE2	ENE5	ENE4	ENE5		
5-Apr	ENE6	E5	ENE4	ENE5	ENE6	NNE4	NNE8	NNE9	N9	N7	NNW10	NNW14	NNW16	NNW13	NNW12	NNW9	UO	UO	NNW11	NNW12	NNW10	NNW6	NNW7	NW9		
6-Apr	NNW10	NNW11	NNW12	NNW9	NNE7	NNE6	NNW8	NNW8	UO	NNW8	N12	N9	N12	N14	NNW8	NNW10	N15	N10	NNW7	NNW6	NW6	NW4	NW4	NW4		
7-Apr	NW3	SE3	SE3	SSW5	S5	SSE4	SE10	SE11	SSE12	S13	S13	DF	DF	WSW13	WSW12	SW8	WSW14	WSW20	WSW20	WSW17	SW16	SW19	SW19	SSW11		
8-Apr	SSE4	SE10	SE13	SE12	SE11	SE10	SE9	SE7	SE15	SE11	SE9	SE14	SE11	W6	SSW20	WSW17	WSW13	SW12	SW4	ESE2	ESE7	SE7	WNW4	NW4		
9-Apr	SW5	SW2	SSW3	SE5	SSE5	SE9	SE7	SE3	SSE4	SE6	SW11	WSW24	WSW20	WSW24	WSW24	WSW20	WSW22	WSW26	WSW26	WSW28	WSW19	W12	WSW14	NW9		
10-Apr	NNW9	NNW9	NNW7	NW7WNW16	WNW16	NW14	NNW12	NW13	WNW21	NNW19	N3	N11	N17	N19	NNE20	NNE18	NNE17	NE14	NE7	E4	ESE5	WNW1	NW2			
11-Apr	N2	NNW3	NNW1	SE2	SE3	SE8	SE9	SE5	SE15	SE16	SE19	SE24	DF	UO	UO	DF	DF	DF	DF	DF	DF	DF	DF	DF		
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	SE27	SSE24	SSE28	SSE24	SE20	SE23	SE24	SE22	SE17	SE17	SE11	SE12	SE13	SE11		
13-Apr	SE13	SE12	SE9	SSW8	WSW28	WSW34	WSW28	WNW24	WNW23	WNW21	NW23	WNW31	WNW33	WNW30	WNW29	WNW29	WNW20	WNW23	WNW18	WNW16	W13	WSW9	WSW10	WSW12		
14-Apr	WSW8	WSW7	SSW5	SE7	SE14	SE12	SE11	SE13	SE10	SE11	SE15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	DF	DF		
15-Apr	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
16-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
20-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
21-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
23-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
24-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
25-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
27-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
28-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
29-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		
30-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO		

S1.2	S0.3	NE0.6	SE1.4	SW2.5	WSW4.3	WSW3.2	NW2.9	NW1.4	NW2.4	SSW0.5	SW2.5	W4.9	WNW7.0	W5.8	WNW5.3	WNW4.2	WNW3.8	NW4.4	WNW3.5	WSW2.6	SW3.0	SW3.0	SSW0.9	Diurnal Average
SW18WNW27	NW23WNW13	WSW28	WSW34	WSW28	WNW24	WNW23	WNW21	NW27	SE27	WNW31	WNW33	WNW30	WNW29	WNW29	WNW20	WNW23	WNW18	WNW16	W13	WSW9	WSW10	WSW12	SE15	Diurnal Maximum

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

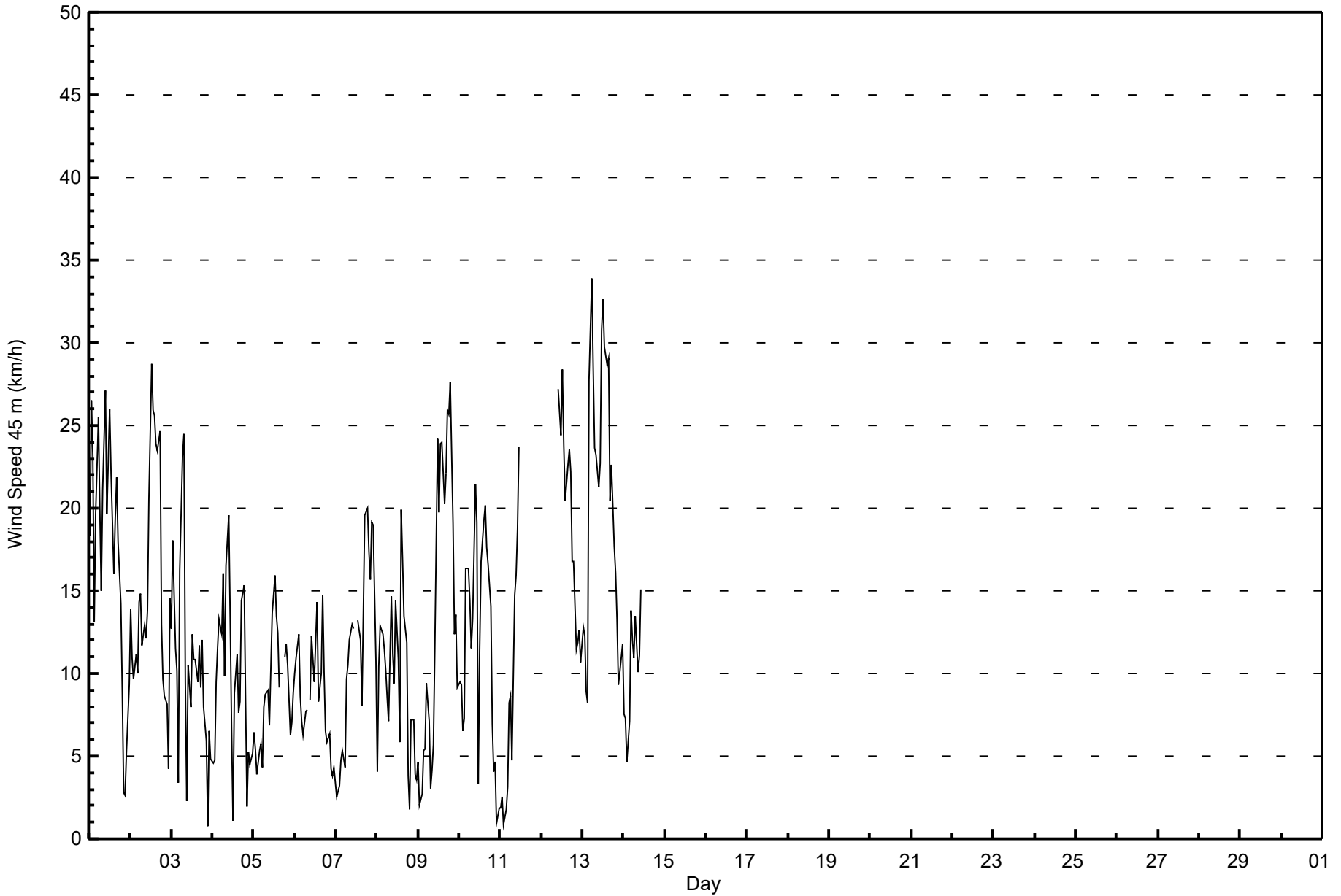
**Wind Speed 45 m (WS45m) - km/h**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 3 06:00 Minimum Value: 1 km/h on Apr 10 23:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 6 P <sub>99</sub> = 8											Hours in Service: 720 Hours of Data: 296 Hours of Missing Data: 424 Hours of Calibration: 0 Percent Operational Time: 41.1														
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-Apr	9	6	7	3	5	4	3	5	8	8	6	8	7	7	5	6	6	5	4	5	1	3	3	2	9
2-Apr	1	2	1	2	3	3	3	3	2	4	6	3	4	3	4	5	4	4	4	5	3	4	2	3	6
3-Apr	3	4	3	3	4	9	4	5	7	1	6	4	3	4	3	3	3	3	2	2	2	4	5	9	
4-Apr	4	3	3	3	4	4	5	3	5	4	3	4	2	3	4	4	4	3	4	2	2	2	2	5	
5-Apr	1	2	3	2	2	2	2	2	2	2	2	3	3	3	2	2	UO	UO	2	2	2	3	1	1	3
6-Apr	2	2	2	2	3	3	2	2	UO	2	2	3	3	3	2	3	3	3	2	2	2	1	1	2	3
7-Apr	2	2	1	1	2	1	1	2	3	2	3	DF	DF	4	4	4	4	4	4	3	2	2	2	5	5
8-Apr	2	2	2	1	1	1	3	3	2	2	1	2	3	4	6	4	4	4	2	1	3	3	4	3	6
9-Apr	2	3	1	3	2	2	1	2	2	1	7	5	5	6	5	4	4	5	4	4	2	8	6	3	8
10-Apr	2	2	2	2	4	5	4	3	4	6	6	4	3	6	7	6	5	4	4	2	1	2	1	1	7
11-Apr	1	1	1	1	2	3	2	2	6	4	4	5	DF	UO	UO	DF	DF	DF	DF	DF	DF	DF	DF	DF	6
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	8	5	4	5	2	3	3	3	4	3	7	7	7	3	8
13-Apr	2	2	2	5	5	4	5	6	5	6	8	8	8	7	7	7	6	5	5	3	3	5	3	3	8
14-Apr	3	2	2	3	2	2	2	2	3	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	DF	DF	3
15-Apr	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
20-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
23-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
24-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
25-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
27-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
28-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
29-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
30-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
											Diurnal Maximum														
											9 6 7 5 5 9 5 6 8 8 8 8 8 7 7 7 6 5 5 5 7 8 7 5														
DF - DAS Failure UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed 45 m (WS45m) - km/h**  
**Lower Camp Met Tower - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 45 m (WS45m) - km/h  
Lower Camp Met Tower - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	52	17.57	17.57
6 - 11	96	32.43	50.00
12 - 19	89	30.07	80.07
20 - 28	52	17.57	97.64
29 - 38	7	2.36	100.00
> 38	0	0.00	100.00

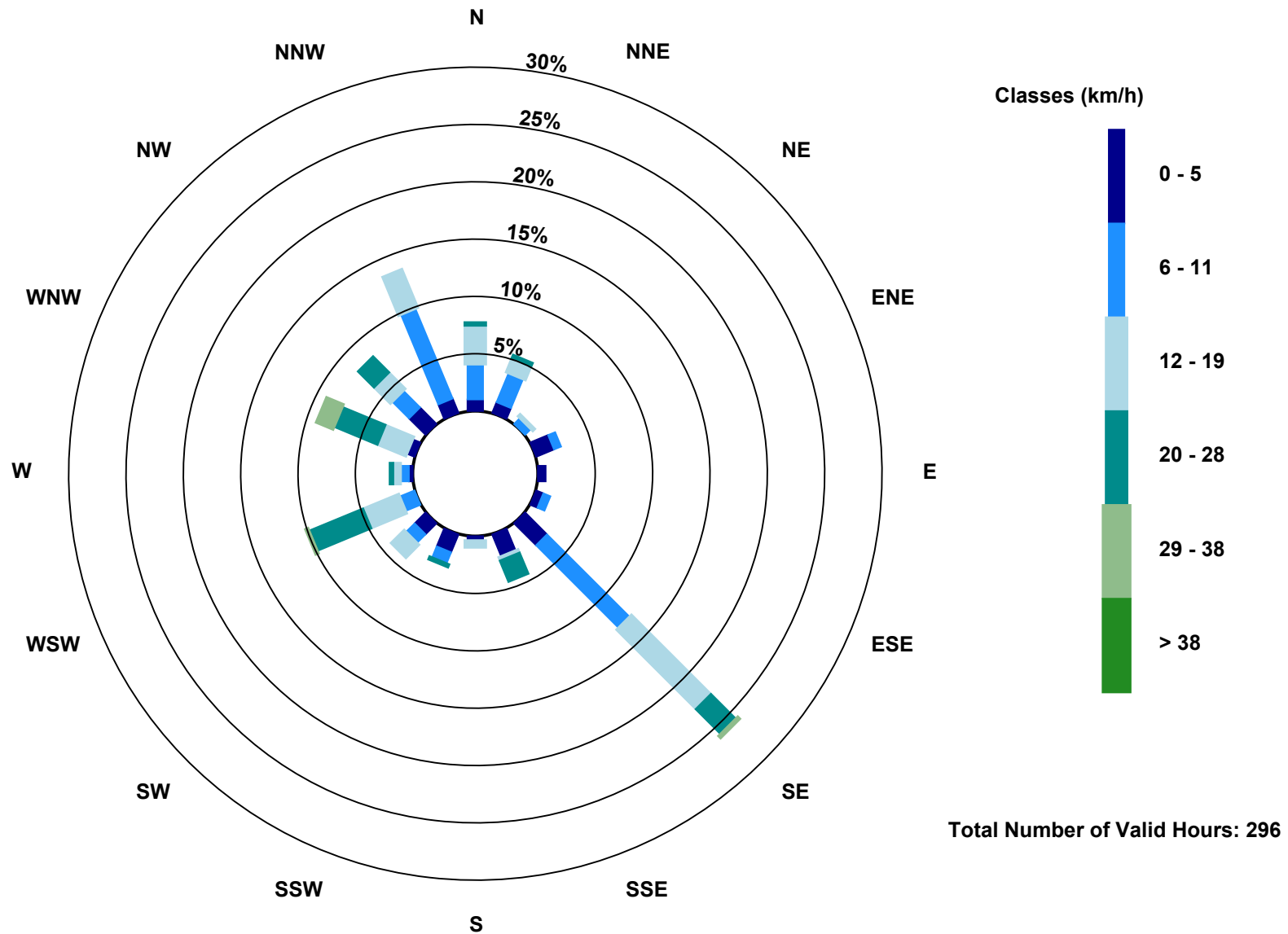
Total Number of Valid Hours: 296

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 45 m (WS45m) - km/h  
Lower Camp Met Tower







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

**Wind Speed 100 m (WS100m) - km/h**  
**Lower Camp Met Tower - April 2024**

Maximum Speed: 47 km/h on Apr 16 12:00	Maximum Daily Speed Average: 35.9 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 4 13:00	Minimum Daily Speed Average: 5.0 km/h on Apr 3	Hours of Data: 690
Maximum Diurnal Speed Average: 7.0 km/h at hour 20	Minimum Diurnal Speed Average: 1.6 km/h at hour 1	Hours of Missing Data: 30
Monthly Average Velocity: 4.0 km/h 343.7 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 18 Q <sub>3</sub> = 26 P <sub>90</sub> = 31 P <sub>99</sub> = 43	Percent Operational Time: 95.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW25WNW33	NW30WNW20	W26WSW33	WSW28WNW20	WNW27	NW33	NW25	NW27WNW29	WNW25WNW20	NW25	NW28	NNW24	NW20	NW18	NNW10	NW3	SW6	SW6	WNW20.3	WSW33						
2-Apr	S6	SSE9	SE12	SSE15	SE20	SE19	SE19	SE17	SE20	SSE18	SE19	SE27	SE31	SE29	SE29	S27	SSE27	SSE30	SE19	SE18	SE17	SW17	S8	SE18	SSE18.7	SE31
3-Apr	SSE16	SE17	SE15	SE15	S7WNW25	WNW33	WNW34	WNW16	WSW4	SW15	WSW11	W18	NNW14	N13	N10	NNE12	NNE10	NNE13	NNE11	NNE9	NNE1	N7	NNE9	NW5.0	WNW34	
4-Apr	NNE8	N7	NNW11	NNW16	NNW18	NW18	NNW22	N13	N18	N22	N15	NE7	SSW0	N10	NNE12	NNE9	N9	N15	NNE18	NNE14	ENE5	E9	ENE9	E9	N10.4	N22
5-Apr	ESE11	ESE8	E8	E9	E9	NE7	NNE11	NNE10	N10	N7	NNW12	NNW17	NNW18	NNW16	NNW16	NNW14	N16	N15	NNW15	NNW16	NNW15	N10	NNW9	NNW10	N9.5	NNW18
6-Apr	NNW15	NNW16	NNW15	NNW11	NNE10	NNE8	N10	NNW12	N14	N9	N13	N10	N13	N16	NNW9	NNW13	N16	N11	NNW9	N9	NNW7	NNW7	NNW7	NNW7	N10.7	N16
7-Apr	NNW6	ESE1	SE4	SSW7	SSW10	SSW9	SSE10	SSE12	SSE14	S14	S13	DF	DF	WSW15	WSW14	SW10	WSW18	WSW24	WSW27	WSW25	WSW25	WSW27	WSW25	SW20	SW12.6	WSW27
8-Apr	SSW11	SSW11	S10	S8	SSE8	S7	SSE8	SSE5	SE8	SSE7	SE9	SE14	SE12	W7	SSW21	SW20	WSW16	SW14	SW8	SSE5	ESE12	SE16	W5	NNW10	S7.1	SSW21
9-Apr	W8	W8	W6	SW6	WSW8	SSW3	SSW4	SSW5	SW8	S4	SW15	WSW28	WSW23	WSW28	WSW27	WSW24	WSW27	WSW33	WSW34	WSW34	W27	W19	W14	NW15	WSW16.0	WSW34
10-Apr	NNW13	NNW14	NW9	WNW15	WNW24	WNW25	NW22	NNW19	WNW20	NW27	NNW25	NNW8	NNW13	NNW20	N22	NNE22	NNE19	NNE19	NE17	NE13	E11	ESE12	SE10	S5	NNW11.6	NW27
11-Apr	SE7	SE6	SE12	SE13	SE12	SE12	ESE16	SE15	SE22	SE21	SE21	SE26	ESE28	SE32	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	---	SE32
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	SSE36	SE33	SE33	SSE28	SSE32	SSE27	SE23	SE25	SE24	SE23	SE21	SE23	SE18	SE19	SE21	SE19	---	SSE36
13-Apr	SSE12	SW6	SW7	SW20	WSW38	WSW44	WSW39	WNW28	WNW29	WNW26	NW26	WNW36	WNW37	WNW34	WNW33	WNW33	WNW26	WNW28	WNW23	WNW24	WNW20	WSW21	WSW22	WSW21	W23.4	WSW44
14-Apr	W12	WSW9	WSW11	SW8	SSW8	S11	SSE10	SSE11	SE13	SE11	SE16	SE13	SW6	WSW18	WSW16	W13	WSW11	W13	NNW8	NNE11	DF	DF	DF	DF	SW5.7	WSW18
15-Apr	DF	DF	DF	DF	DF	NW9	NNW19	NNW16	NNW17	N10	NNW10	N13	ESE12	NE21	NE21	NE18	NE17	NE24	NNE20	NNE19	N18	N21	N21	N22	NNE14.5	NE24
16-Apr	N24	N30	N34	N30	N31	N34	N45	N40	N40	N43	N44	N47	N46	N43	N45	N42	N39	NNE28	NNE29	NNE27	NNE29	N31	N32	N33	N35.9	N47
17-Apr	N34	N36	N34	N29	N29	N25	N27	N30	N30	N27	N31	N31	N38	N37	N36	N35	N35	NNE32	NNE31	N26	N23	N21	N22	NNE22	N29.9	N38
18-Apr	N20	N18	N16	N23	N22	N19	N24	N23	N25	N30	N29	N29	N27	N31	NNE29	NNE27	NNE30	NNE26	NNE23	N18	N20	N21	N17	N12	N23.0	N31
19-Apr	NNW10	NNW9	NNW8	NNW3	SW1	SW4	SW7	SSW5	S4	SW6	WSW7	WSW10	WSW8	WSW8	WSW11	SW13	SW16	SW17	SW20	SW24	SW27	WSW33	WSW36	WSW30	WSW11.3	WSW36
20-Apr	WSW29	WSW29	WSW25	WSW15	SW12	SW14	SW13	SW11	SW10	WSW14	WSW17	WSW18	WSW16	WSW19	WSW18	SW18	WSW17	SW15	SW14	SW13	SSW21	SSW27	S17	S16	SW16.2	WSW29
21-Apr	SSE14	SE16	SE16	SE18	SE18	SE19	SE14	ESE12	SE16	SE13	SE18	SE20	SE19	SE17	SE16	SE10	SSE3	SSW4	WNW7	NNW14	N12	NNE8	NNW10	NNW9	SE8.7	SE20
22-Apr	NNW16	NNW14	NNW10	NNE5	NNW8	WNW7	NW11	NNW16	NW11	NW9	N14	N22	NNE14	NNW10	NNW11	NNW18	N24	NNE24	N28	NNE21	NNE17	NNE24	NNE25	N21	N14.7	N28
23-Apr	N18	N16	N11	NNW9	NNW4	WSW2	NE1	N6	NNW6	NNW7	NNW4	WSW4	SE1	WSW4	NE5	NNW9	N7	NNE15	NNE22	NNE21	NE15	NE10	ENE7	ENE6	NNE7.2	NNE22
24-Apr	E6	ENE6	ENE6	NE6	NE7	NNE10	NNE11	N8	ESE5	ESE13	SE23	SE29	ESE26	ESE28	ESE32	ESE34	ESE30	ESE28	ESE27	ESE30	ESE31	SE42	SE37	SE33	ESE19.1	SE42
25-Apr	SE34	S24	W26	WSW18	W29	WSW26	WSW28	WSW24	WSW25	WSW27	WSW29	WSW33	WSW34	WSW37	WSW36	WSW35	WSW44	W29	NW37	WNW29	NW31	NNW32	NNW13	NW20	W22.2	WSW44
26-Apr	NW24	NW28	NNW27	NNW28	NNW23	NNW21	NNW34	NNW30	NNW26	NNW22	NNW20	NNW21	NNW21	NNW24	NNW21	N18	N17	NNE12	NE15	NE16	ENE14	ESE14	SE21	SE21	NNW15.6	NNW34
27-Apr	SE25	SE19	SE22	SSE26	SE11	SE16	SE16	SE16	SE17	SE18	SSE20	SSE24	SSE25	SSE30	S30	S29	SSW27	SSW36	S30	SE15	SE20	SE18	SE26	SE24	SSE20.7	SSW36
28-Apr	SE20	SE20	SE20	ESE16	ESE10	ESE13	SE24	SE27	SE23	SE25	SE28	SE22	SE21	SE20	SE25	SE25	SE26	SE24	SE23	ESE24	ESE19	SE22	ESE17	ESE16	SE21.1	SE28
29-Apr	SE19	SE14	ESE13	E6	ENE6	ENE5	NNE4	NE6	NNE10	N12	N13	N17	N18	NNE20	NNE24	NNE24	NNE23	NNE23	N27	N28	N27	N28	N27	N25	NNE14.4	NNE28
30-Apr	N25	N26	N27	N28	N30	N30	N34	N35	N33	N30	UO	N27	N30	N30	N31	N22	N31	N32	N31	N29	N25	N27	N28	N23	N28.7	N35

NNE1.6	NNW3.5	NNW3.9	NNW2.4	NW4.0	NNW4.7	NW6.0	NNW6.4	N4.2	N4.0	N2.7	NNW3.1	NNW2.9	NNW4.5	NNW4.7	NNW5.3	NNW5.4	NNW5.1	N7.0	N7.0	NNE5.0	N2.9	N2.7	NNE3.1	Diurnal Average
SE34	N36	N34	N30	WSW38	WSW44	N45	N40	N40	N43	N44	N47	N46	N43	N45	N42	WSW44	SSW36	NW37	WSW34	NW31	SE42	SE37	SE33	Diurnal Maximum

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

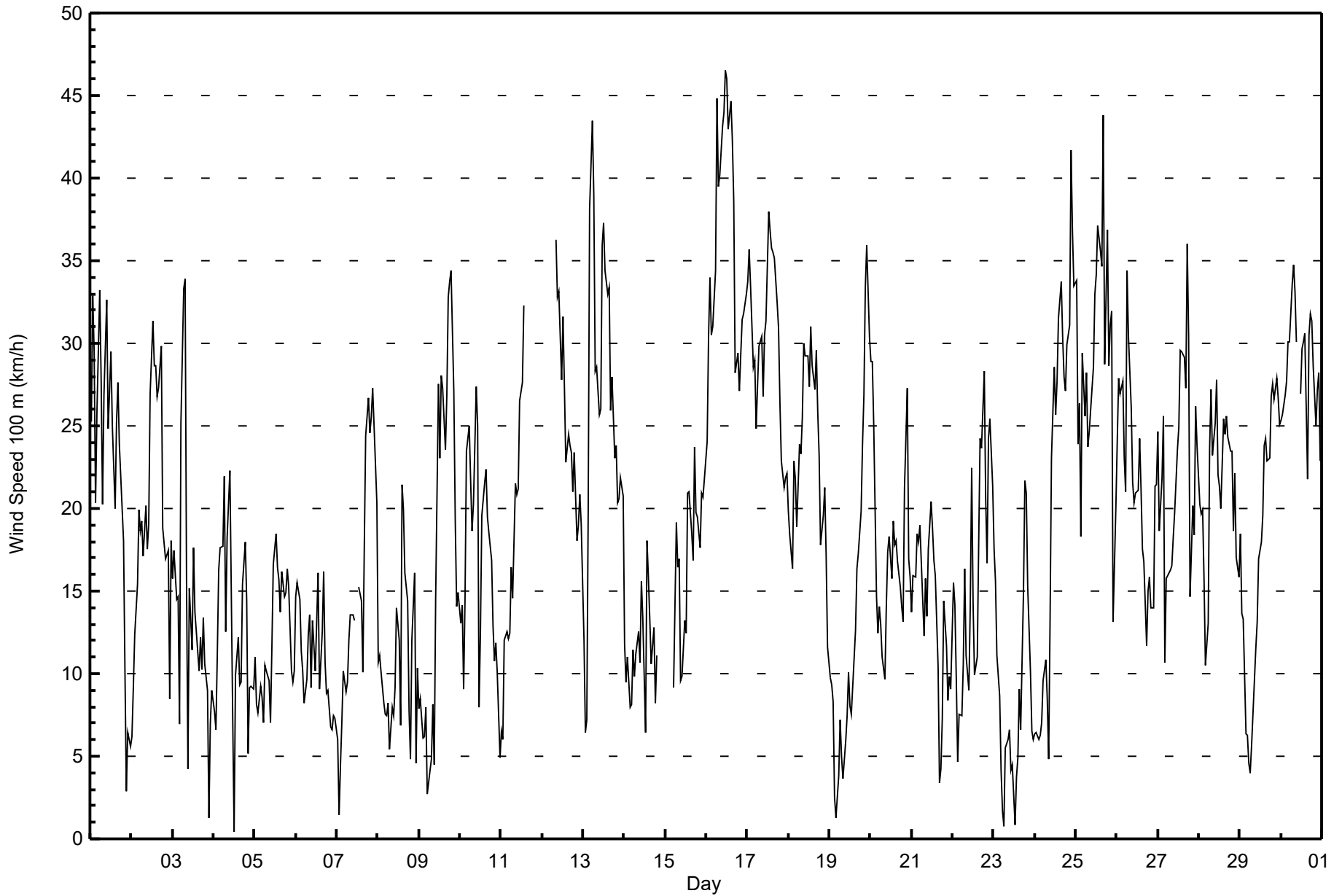
**Wind Speed 100 m (WS100m) - km/h**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 12 km/h on Apr 22 22:00	Hours of Data: 690
Minimum Value: 1 km/h on Apr 6 23:00	Hours of Missing Data: 30
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 9	Hours of Calibration: 0
	Percent Operational Time: 95.8

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-Apr	9	7	7	4	5	2	3	4	9	6	6	8	7	7	5	6	5	4	4	5	2	2	2	1	9
2-Apr	2	2	4	1	3	3	2	4	2	4	7	4	4	3	4	6	5	4	5	6	3	5	4	4	7
3-Apr	3	3	2	3	4	9	3	5	8	2	7	6	4	4	2	3	3	4	3	3	3	2	4	4	9
4-Apr	4	3	3	1	3	3	6	3	5	3	4	3	2	4	4	4	4	3	3	5	2	2	2	3	6
5-Apr	3	4	1	3	2	2	1	2	2	2	2	2	3	2	2	2	1	1	1	1	2	1	1	4	
6-Apr	2	2	2	2	3	3	2	3	3	2	2	3	3	3	2	4	2	2	2	1	1	1	1	4	
7-Apr	2	1	2	2	1	2	2	2	2	2	3	DF	DF	4	4	5	4	5	5	2	2	2	3	5	
8-Apr	4	2	2	2	1	2	2	3	2	2	2	2	3	4	7	4	4	5	1	1	3	2	3	7	
9-Apr	2	4	2	2	3	2	2	3	3	2	9	4	4	5	4	4	4	4	3	4	3	5	4	9	
10-Apr	3	3	2	3	4	5	5	4	5	6	7	5	3	6	7	4	5	4	4	3	2	2	2	7	
11-Apr	1	2	2	1	2	2	1	2	4	4	4	3	4	4	DF	DF	DF	DF	DF	DF	DF	DF	DF	4	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	6	6	5	5	4	5	3	2	3	3	3	3	6	6	8	8	
13-Apr	5	2	3	8	4	3	5	6	5	6	9	9	8	8	7	7	5	5	5	2	2	2	2	9	
14-Apr	7	2	1	3	2	3	3	3	2	2	2	3	7	4	4	4	2	4	5	DF	DF	DF	DF	7	
15-Apr	DF	DF	DF	DF	DF	2	7	7	3	2	3	3	3	5	5	4	4	5	4	4	3	3	2	7	
16-Apr	4	5	5	5	4	4	6	5	4	5	6	7	7	7	8	7	7	6	6	6	5	4	5	8	
17-Apr	4	5	5	4	4	4	5	5	5	5	5	5	6	6	8	7	8	7	6	4	2	2	2	8	
18-Apr	2	2	3	4	4	5	3	3	4	4	4	6	6	6	5	5	6	4	5	3	3	2	3	6	
19-Apr	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	4	3	3	2	3	2	4	1	4	
20-Apr	2	2	2	7	5	4	3	4	2	2	3	4	3	3	3	4	3	2	2	1	3	1	5	7	
21-Apr	2	1	1	2	2	2	2	1	2	2	4	5	4	4	5	5	2	2	1	2	1	2	2	5	
22-Apr	2	1	3	1	2	2	2	2	3	2	5	4	7	4	4	7	5	5	5	3	5	12	4	12	
23-Apr	3	2	2	1	2	2	1	1	2	3	3	3	3	3	5	4	3	5	4	4	4	5	3	5	
24-Apr	3	3	3	2	2	2	1	3	4	5	6	3	5	6	6	7	7	6	7	6	5	6	4	7	
25-Apr	4	4	7	8	4	3	3	3	2	4	4	5	5	5	9	11	9	8	7	6	8	2	3	11	
26-Apr	5	5	5	7	5	6	7	8	6	5	5	4	6	6	6	5	5	4	3	2	4	4	4	8	
27-Apr	4	3	4	11	3	2	2	3	3	3	5	7	6	7	5	6	7	6	6	5	4	4	3	11	
28-Apr	2	3	3	3	3	7	6	4	3	3	3	4	3	3	5	3	2	3	4	4	6	6	5	7	
29-Apr	4	3	3	2	2	3	2	2	3	2	3	3	3	4	5	5	5	4	6	4	4	5	4	6	
30-Apr	4	4	4	4	5	5	5	6	6	4	UO	4	4	4	5	4	5	4	4	4	3	4	7	7	
	9	7	7	11	5	9	7	8	9	6	9	9	8	8	8	9	11	9	8	7	6	12	8	5	

Diurnal Maximum

DF - DAS Failure      UO - Unstable Operation





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 100 m (WS100m) - km/h  
Lower Camp Met Tower - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	34	4.93	4.93
6 - 11	148	21.45	26.38
12 - 19	192	27.83	54.20
20 - 28	197	28.55	82.75
29 - 38	104	15.07	97.83
> 38	15	2.17	100.00

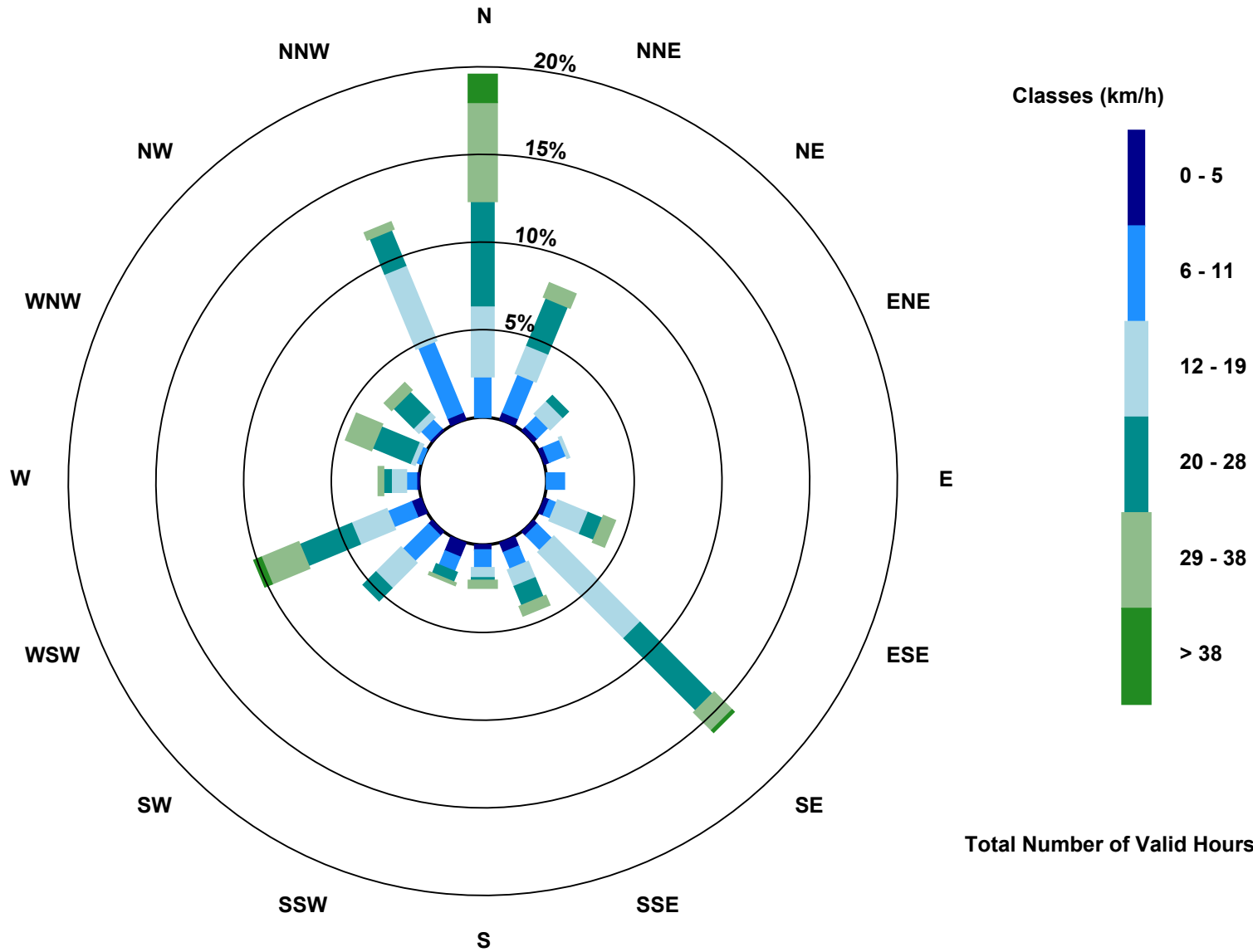
Total Number of Valid Hours: 690

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 100 m (WS100m) - km/h  
Lower Camp Met Tower



Total Number of Valid Hours: 690



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

**Wind Speed 163 m (WS163m) - km/h**  
**Lower Camp Met Tower - April 2024**

Maximum Speed: 51 km/h on Apr 13 06:00	Maximum Daily Speed Average: 40.2 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 23 13:00	Minimum Daily Speed Average: 5.9 km/h on Apr 14	Hours of Data: 682
Maximum Diurnal Speed Average: 8.2 km/h at hour 20	Minimum Diurnal Speed Average: 1.9 km/h at hour 1	Hours of Missing Data: 38
Monthly Average Velocity: 4.2 km/h 348.7 deg	Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 9 Q <sub>1</sub> = 14 Median = 22 Q <sub>3</sub> = 29 P <sub>90</sub> = 35 P <sub>99</sub> = 47	Percent Operational Time: 94.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	WSW31WNW39	NW35WNW26WNW32	W36	W33WNW26WNW33	NW35	NW27	NW28WNW31WNW27WNW22	NW28	NW31	NNW26	NW24	NW24	NNW16	NNW9	W4	SW10	WNW24.0	WNW39									
2-Apr	SW10	S11	S14	S21	SSE28	SSE28	SSE24	SE25	SSE23	SSE27	SE24	SE29	SSE31	SE29	SSE30	S31	S30	SSE33	SSE24	SE22	SSE20	SW30	SW16	S15	SSE22.1	SSE33	
3-Apr	S12	S12	S8	SSE14	SSW9WNW31	NW37	NW43WNW22	WNW9WSW19WSW16	W23	NW15	N13	N10	NNE12	NE11	NNE16	NNE16	NE17	ENE5	NNE7	NE8	NNW7.4	NNW43					
4-Apr	NE7	NNE8	N11	NNW17	NNW20	NNW21	NNW24	N14	N18	N22	N15	NE7	NE1	N10	NNE12	NNE10	NNE15	NNE22	NE21	ENE10	E11	E12	ESE16	NNE10.9	NNW24		
5-Apr	ESE15	ESE10	ESE12	E7	ENE7	NE10	NNE13	NNE10	NNE8	N11	NNW16	N18	N16	N16	N13	N16	NNE17	N15	N16	N15	N12	N9	NNW9	NNE9.6	N18		
6-Apr	NNW15	NNW15	NNW12	N9	NNE11	NE9	UO	N14	UO	UO	UO	UO	NNE12	N16	N9	N13	N16	NNE11	N9	NNE9	NNE7	NNW7	NNW7	NNW6	N10.4	N16	
7-Apr	NNW5	NE2	SSE4	SSW7	SSW12	SW11	S9	S15	S15	S13	S13	DF	DF	WSW17	WSW16	SW12	WSW20	WSW26	WSW30	WSW31	WSW32	WSW28	W29	WSW23	SW14.4	WSW32	
8-Apr	SW24	SW21	SW21	SSW17	SSW11	SSW14	SSW13	WSW11	SSW8	S7	SSE8	SSE13	SE13	WSW7	SW23	SW21	WSW17	SW16	SW10	S6	SE12	SE19	WSW6	NW16	SSW10.5	SW24	
9-Apr	NW9	NNW10	N5	W4	W8	W7	WSW9	WSW11	WSW15	SSW6	SW17	WSW28	WSW24	WSW30	WSW28	WSW25	WSW28	W35	W37	W36	W29	NNW24	NNW15	NW17	W17.5	W37	
10-Apr	N14	N16	NNW12	NW22	NNW27	NW31	NNW27	NNW24	NW27	NW32	NNW28	NW15	NNW14	NNW20	N22	NNE23	NNE20	NE20	NE19	ENE15	ENE11	ESE13	ESE11	SSE9	NNW14.0	NW32	
11-Apr	SSE12	SSE9	SSE14	SSE13	SE13	SE14	SE21	SE24	SE27	SE24	SE23	SE28	SE30	SE34	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	---	SE34
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	SSE40	SSE35	SSE33	SSE29	SSE33	SSE29	SSE24	SE25	SSE23	SSE22	SE25	SE28	SE22	SE24	SE25	SSE23	---	SSE40	
13-Apr	SSW14	WSW20	WSW24	SW32	WSW47	WSW51	W45	NNW33	NNW33	NW28	NW27	NNW39	NNW40	NNW37	NNW36	NNW36	NNW29	NNW32	NNW27	NNW27	NNW24	NNW21	NNW22	NNW21	W28.3	WSW51	
14-Apr	WNW15	NW6	W7	WSW7	SSW7	SSW12	S9	S12	SSE14	SSE13	SSE16	SE14	SW7	WSW19	WSW17	W14	WSW12	W13	NNW8	NE12	DF	DF	DF	DF	SW5.9	WSW19	
15-Apr	DF	DF	DF	DF	DF	N4	NNW18	NNW25	N22	NNE13	N15	NNE13	ESE11	ESE21	NE21	NE19	NE18	NE25	NE22	NNE22	NNE20	N24	N24	N26	NNE17.0	N26	
16-Apr	N28	NNE35	N38	N34	N34	UO	UO	N47	N50	N48	N46	N48	N47	N44	N47	NNE46	NNE42	NNE34	NNE35	NNE34	NNE37	N38	N39	NNE39	N40.2	N50	
17-Apr	N39	N40	N37	N32	N33	N29	N30	N32	N31	N28	N30	N32	N39	N37	NNE37	NNE36	NNE36	NNE35	NNE33	N30	NNE32	NNE29	NNE30	NNE33	NNE33.1	N40	
18-Apr	NNE31	NNE28	N22	N26	N26	N22	N25	N24	N26	N29	N29	NNE29	N28	NNE31	NNE29	NNE28	NNE30	NNE27	NNE25	NNE21	NNE25	NNE30	NNE29	NNE21	NNE26.4	NNE31	
19-Apr	NNE11	NNE9	N10	N5	NNW3	W5	SW7	SW10	SW8	SW7	WSW8	WSW11	WSW9	WSW9	WSW12	SW13	SW17	SW18	SW22	SW27	WSW36	WSW46	W45	W35	WSW13.1	WSW46	
20-Apr	W32	W30	W27	WSW24	WSW26	WSW25	SW23	SW19	SW10	W14	W18	W19	WSW16	WSW20	WSW18	SW19	WSW17	SW15	SW15	SW14	SSW22	SSW28	SSW29	SSW31	WSW19.6	W32	
21-Apr	SSW30	S24	S23	S25	SSE23	SSE21	SSE19	SSE16	SSE17	SE16	SE19	SE22	SE20	SE17	SE16	SE11	S3	SSW4	WNW7	NNW15	N17	NNE17	NNE14	NNW18	SSE9.3	SSW30	
22-Apr	N17	NNE15	NNE14	NNE12	N14	NNW19	NNW19	N22	N15	NNW10	N16	N22	NNE14	NNW9	NNW11	N19	NNE25	NNE25	N30	NNE27	NE26	NNE34	NNE38	NNE33	N19.4	NNE38	
23-Apr	NNE28	NNE25	NNE18	NNE14	NNE7	NNW1	N3	NNE6	NNE9	N7	NNW5	W4	SSW0	WSW4	NE5	NNW9	NNW6	NNE15	NE24	NE29	NE26	ENE19	ENE11	E10	NNE10.3	NE29	
24-Apr	ESE17	ESE17	ESE16	ESE13	ESE15	E12	E9	E6	ESE13	ESE15	SE23	SE29	ESE27	ESE28	ESE33	ESE37	ESE35	ESE33	ESE32	ESE35	ESE37	SE44	SE42	SE41	ESE24.9	SE44	
25-Apr	SE36	SSW25	W31	WSW21	W30	W27	W26	WSW25	WSW23	WSW30	WSW31	WSW35	WSW37	WSW40	WSW38	WSW37	WSW47	W32	NW40	NNW32	NNW36	NNW35	NNW16	NW25	W24.1	WSW47	
26-Apr	NW28	NNW32	NNW31	NNW31	NNW27	NNW26	NNW38	NNW33	NNW27	NNW22	NNW21	NNW22	NNW22	NNW25	NNW22	N18	N16	NNE11	NE15	ENE15	E15	ESE26	SE25	SE25	N16.5	NNW38	
27-Apr	SE25	SE20	SE25	SSE33	SSE17	SSE19	SSE19	SSE16	SSE16	SSE18	SSE20	SSE25	SSE25	SSE30	S30	SSW30	SSW28	SSW38	S32	SE19	SE25	SE24	SE32	SE30	SSE23.3	SSW38	
28-Apr	SE27	SE27	SE27	SE22	SE20	SE24	SE30	SE30	SE25	SE26	SE29	SE23	SE21	SE20	SE25	SE25	SE25	SE24	SE24	ESE25	ESE21	SE23	ESE20	SE18	SE24.0	SE30	
29-Apr	SE21	SE17	ESE17	ESE9	ESE11	ESE12	E6	ENE5	NNE10	NNE11	N13	N17	N18	NNE20	NNE24	NNE24	NNE24	NNE25	NNE28	NNE31	NNE30	NNE32	NNE30	NNE28	NNE14.8	NNE32	
30-Apr	NNE29	NNE29	N29	N30	N32	N33	NNE35	NNE37	NNE37	N32	UO	UO	N32	N31	N33	N23	N32	N33	N34	N32	N29	N32	N33	N27	N31.5	NNE37	

N1.9	N4.4	NNW4.3	NW2.4	NW4.3	NNW5.2	NNW5.9	NNW7.0	NNW4.3	N3.9	N2.5	NNW2.1	NNW3.1	NNW4.2	NNW4.6	NNW5.1	NNW5.3	N5.3	N7.3	NNE8.2	NNE7.1	NNE5.6	NNE5.0	NNE4.6	Diurnal Average	
N39	N40	N38	N34	WSW47	WSW51	W45	N47	N50	N48	N46	N48	N47	N44	N47	NNE46	WSW47	SSW38	NW40	W36	NNE37	WSW46	W45	SE41	Diurnal Maximum	

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



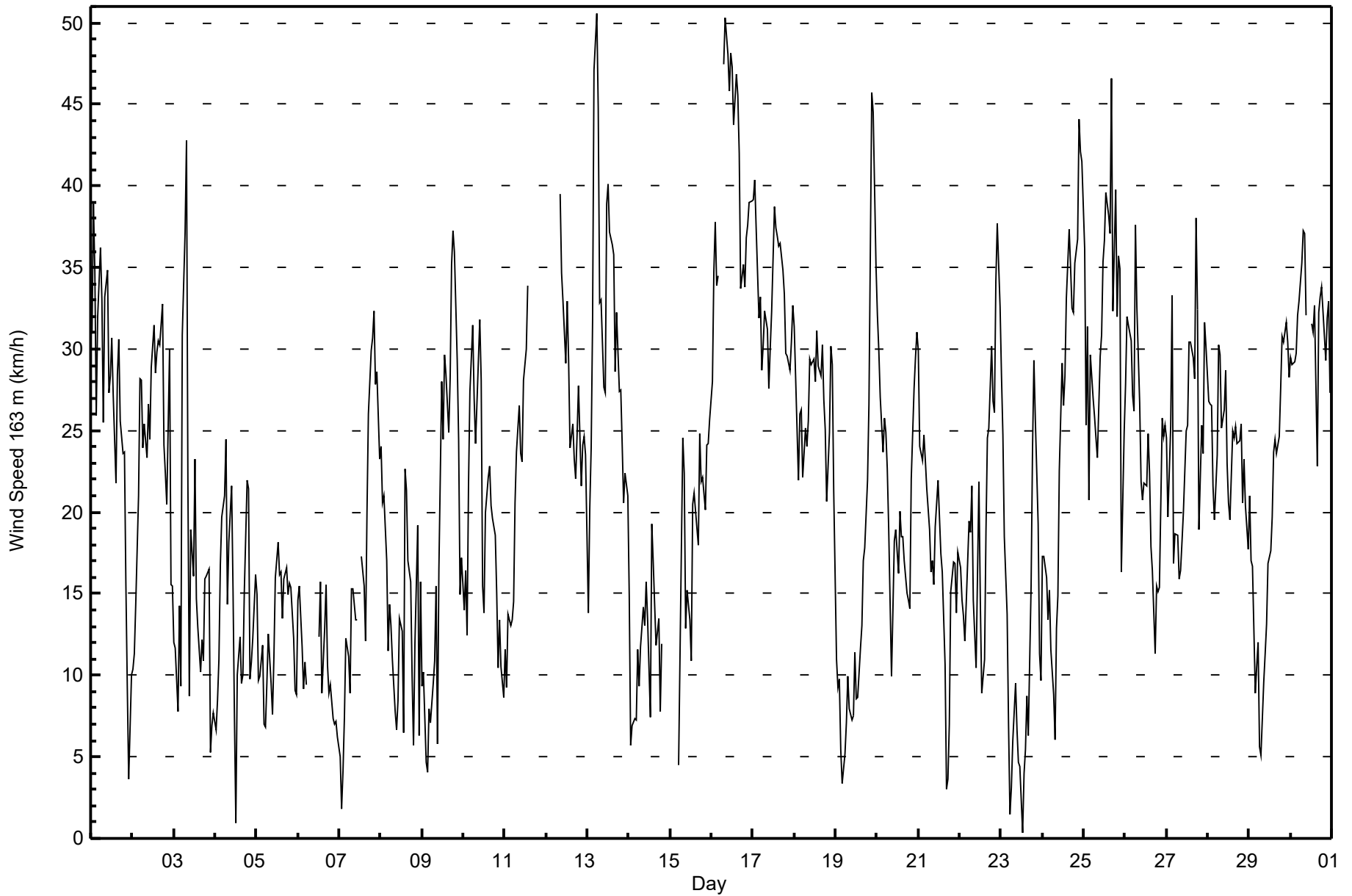
**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 163 m (WS163m) - km/h**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 13 km/h on Apr 22 22:00	Hours in Service: 720 Hours of Data: 682 Hours of Missing Data: 38 Hours of Calibration: 0 Percent Operational Time: 94.7
Minimum Value: 0 km/h on Apr 19 05:00	
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 8	

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-Apr	7	7	8	4	5	2	3	6	9	6	6	7	8	7	5	5	4	4	5	3	2	4	2	1	9	
2-Apr	1	2	2	3	3	4	2	2	3	4	6	5	4	3	4	6	4	3	5	5	2	4	6	4	6	
3-Apr	2	3	2	3	3	8	2	6	7	2	8	6	4	4	2	2	2	4	3	4	4	2	3	2	8	
4-Apr	5	2	3	2	3	4	5	3	4	2	3	3	2	4	4	4	3	4	4	4	3	2	2	3	5	
5-Apr	3	4	2	2	3	1	2	2	2	2	3	2	2	3	2	2	2	1	2	1	1	2	1	1	4	
6-Apr	2	2	5	4	3	2	UO	3	UO	UO	UO	UO	3	2	2	4	2	2	1	1	2	1	1	1	5	
7-Apr	1	1	2	2	1	3	2	2	2	2	3	DF	DF	3	4	5	4	5	6	2	2	3	2	1	6	
8-Apr	3	3	3	2	1	1	1	2	2	2	2	2	3	4	7	4	4	4	1	2	4	2	4	2	7	
9-Apr	3	3	3	2	1	1	4	6	3	3	8	4	4	4	4	4	4	4	4	4	3	2	3	3	8	
10-Apr	3	3	2	3	3	4	5	3	4	5	5	4	3	6	7	4	4	3	3	2	3	2	1	2	7	
11-Apr	1	3	1	2	2	2	1	2	2	3	3	3	4	4	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	4	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	6	6	5	5	3	4	3	2	3	3	3	7	5	5	3	7	
13-Apr	6	5	4	5	4	3	5	6	5	7	9	8	7	8	7	6	6	6	5	2	1	2	2	1	9	
14-Apr	6	1	2	2	2	2	2	1	2	3	2	3	3	8	4	3	4	3	2	3	5	DF	DF	DF	DF	8
15-Apr	DF	DF	DF	DF	DF	2	8	4	3	2	3	3	4	4	5	4	4	4	4	5	4	3	2	2	8	
16-Apr	4	5	5	6	4	UO	UO	7	6	8	6	7	8	7	8	7	8	7	7	6	5	5	5	5	8	
17-Apr	5	6	6	5	5	4	5	5	5	5	5	6	6	6	8	7	8	7	6	4	2	2	1	1	8	
18-Apr	2	2	2	3	4	4	3	3	4	4	4	4	5	5	5	6	5	4	4	3	3	2	2	4	6	
19-Apr	2	1	2	1	0	1	2	1	1	2	2	2	2	3	3	3	3	3	2	4	3	2	3	2	4	
20-Apr	2	2	2	3	3	2	3	5	2	1	2	4	3	3	3	4	3	2	2	1	3	1	2	4	5	
21-Apr	3	2	1	1	2	2	3	1	2	2	4	5	4	4	4	5	2	2	1	2	2	2	2	3	5	
22-Apr	2	2	1	2	3	1	1	2	2	2	4	4	7	4	4	6	4	5	5	3	3	13	4	2	13	
23-Apr	2	2	1	3	2	1	1	2	2	3	3	3	3	3	5	4	3	6	4	3	3	5	4	3	6	
24-Apr	4	4	4	3	3	4	2	2	3	5	7	3	5	6	8	5	7	8	7	7	6	5	5	4	8	
25-Apr	5	4	7	9	4	2	5	3	3	3	3	4	4	5	5	8	11	9	8	6	5	8	3	4	11	
26-Apr	4	4	4	7	5	5	5	8	5	4	4	4	6	4	5	5	4	4	3	2	2	3	3	3	8	
27-Apr	4	3	3	9	4	3	3	3	3	3	4	7	6	7	5	6	7	5	6	5	4	4	3	2	9	
28-Apr	2	3	4	3	2	3	5	4	2	3	3	4	4	3	3	5	3	2	2	4	4	6	6	4	6	
29-Apr	3	3	3	3	2	2	3	2	3	2	3	2	3	4	5	5	5	4	6	4	4	5	4	3	6	
30-Apr	4	4	5	4	5	5	6	6	6	5	UO	UO	5	5	6	5	5	5	4	4	3	5	7	4	7	
Diurnal Maximum																										

DF - DAS Failure      UO - Unstable Operation







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 163 m (WS163m) - km/h  
Lower Camp Met Tower - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	22	3.23	3.23
6 - 11	105	15.40	18.62
12 - 19	170	24.93	43.55
20 - 28	198	29.03	72.58
29 - 38	156	22.87	95.45
> 38	31	4.55	100.00

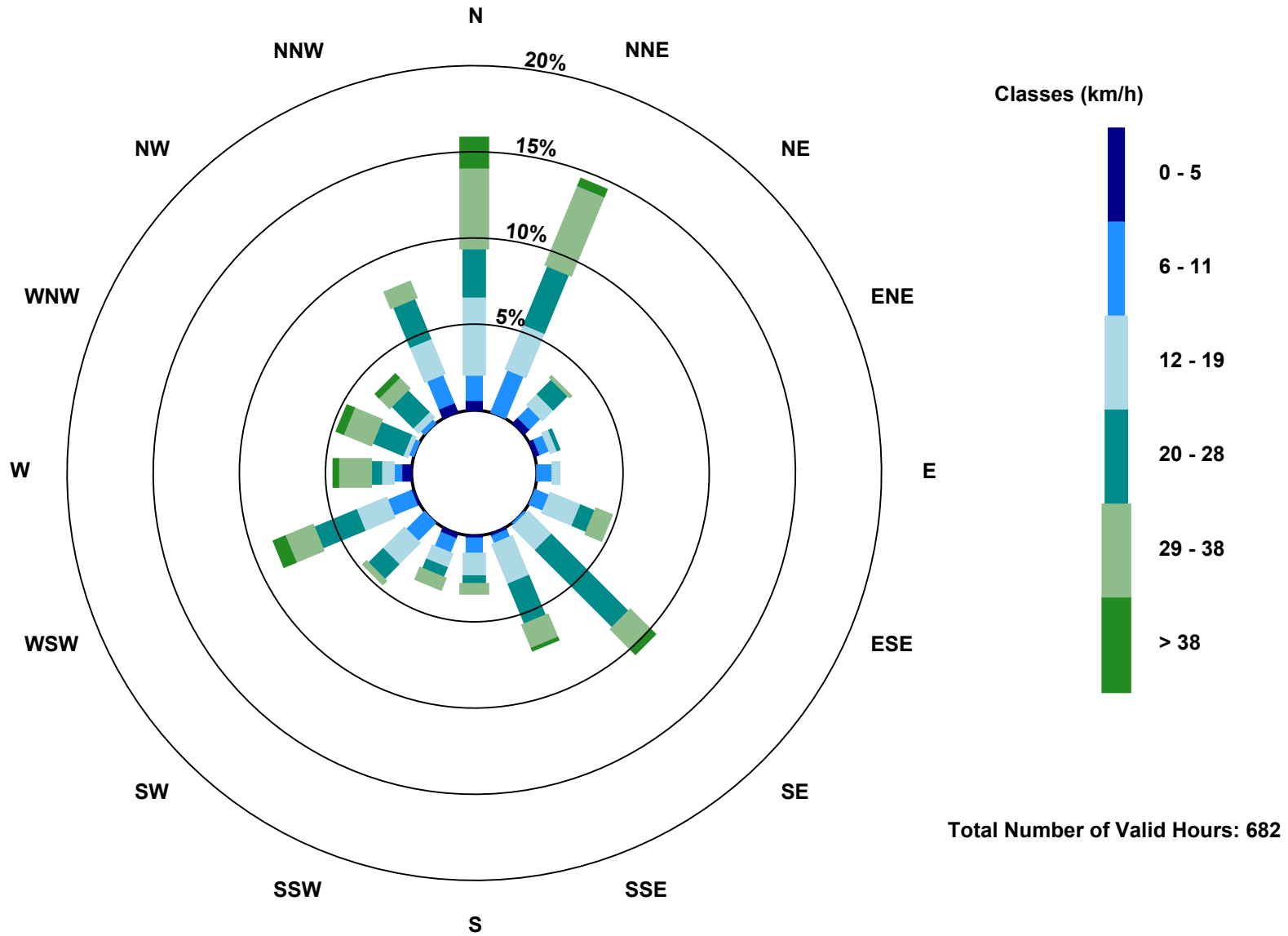
Total Number of Valid Hours: 682

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 163 m (WS163m) - km/h  
Lower Camp Met Tower





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

**Wind Direction 20 m (WD20m) - deg**  
**Lower Camp Met Tower - April 2024**

Direction of Maximum Speed: 247 deg on Apr 25 17:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 0.2 deg on Apr 16	Hours of Data: 685
Direction of Minimum Speed: 323 deg on Apr 23 06:00	Hours of Missing Data: 35
Direction of Minimum Daily Speed Average: 2.3 deg on Apr 3	Percent Operational Time: 95.1
Monthly Average Direction: 337.5 deg	

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-Apr	233	294	303	283	271	251	249	294	296	311	319	309	290	286	296	314	311	326	315	323	234	152	159	151	291.5	
2-Apr	138	141	143	133	113	132	136	141	150	138	139	141	143	137	143	162	157	149	137	153	120	217	238	127	144.0	
3-Apr	130	131	126	123	149	305	291	299	304	190	226	268	248	336	338	346	28	32	15	357	315	232	338	323	320.0	
4-Apr	4	318	338	332	339	323	330	357	352	347	350	58	227	355	11	19	2	354	3	358	346	72	55	53	354.2	
5-Apr	21	38	10	46	50	359	30	12	359	347	338	327	345	335	329	327	UO	UO	334	329	332	330	320	317	344.3	
6-Apr	327	328	330	345	19	12	329	330	353	343	348	355	2	348	342	336	350	359	333	339	304	321	319	325	343.1	
7-Apr	314	108	176	216	172	146	137	136	152	174	177	DF	DF	250	248	224	244	252	247	243	228	236	229	220	215.3	
8-Apr	162	133	132	139	145	140	135	132	137	136	134	133	130	262	211	240	259	226	233	186	119	76	326	298	163.1	
9-Apr	159	175	212	145	161	144	155	123	138	134	223	248	248	255	246	254	255	260	254	255	257	268	255	318	242.4	
10-Apr	312	331	331	341	299	301	321	328	310	303	332	15	3	353	348	12	30	34	37	50	45	321	327	324	344.4	
11-Apr	326	330	323	325	336	143	145	141	132	138	136	128	119	130	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	153	150	146	153	161	160	142	133	142	136	148	133	152	141	141	128	--
13-Apr	136	137	133	162	243	249	256	281	292	303	307	288	289	288	289	291	297	295	303	297	269	290	263	260	278.9	
14-Apr	258	290	135	124	140	130	134	134	128	134	135	130	213	250	253	264	247	265	325	359	DF	DF	DF	DF	181.4	
15-Apr	DF	DF	DF	DF	DF	316	349	347	342	338	345	351	132	55	44	35	41	40	35	10	346	339	342	345	13.7	
16-Apr	347	4	359	349	347	UO	UO	UO	UO	353	357	358	1	358	3	5	4	16	13	11	9	350	359	2	0.2	
17-Apr	357	359	358	358	356	351	357	13	3	8	0	7	6	5	8	6	8	15	12	4	355	349	353	351	3.2	
18-Apr	347	343	335	344	341	343	353	349	354	359	0	6	359	8	15	18	14	13	20	5	347	346	340	311	359.9	
19-Apr	333	356	4	138	98	117	125	118	125	199	245	246	257	241	242	238	227	233	224	216	232	252	262	256	235.8	
20-Apr	249	250	233	149	136	147	127	138	213	232	249	256	242	241	240	237	247	242	239	202	180	133	140	135	222.1	
21-Apr	131	135	137	135	133	134	135	119	144	140	126	134	130	131	134	126	166	206	284	336	254	296	323	315	136.6	
22-Apr	331	330	351	301	341	340	334	321	331	347	349	357	16	345	345	345	5	28	357	10	336	7	358	347	356.0	
23-Apr	326	330	319	319	347	323	319	330	337	340	341	248	159	230	56	347	1	15	25	12	356	344	4	356	351.4	
24-Apr	347	345	334	324	330	342	348	352	4	125	138	145	115	103	112	117	112	105	124	109	125	135	132	133	115.4	
25-Apr	142	173	254	213	250	259	257	248	239	241	246	254	252	250	247	257	247	275	321	300	320	340	315	316	256.7	
26-Apr	313	322	331	334	332	329	329	332	343	346	345	351	333	340	342	4	1	24	51	48	81	118	112	136	346.4	
27-Apr	140	144	144	141	124	131	143	138	135	138	152	162	165	166	185	190	194	197	178	156	134	144	131	112	162.6	
28-Apr	65	92	110	347	326	341	93	126	121	126	131	128	135	133	147	141	142	141	128	110	118	123	109	111	127.3	
29-Apr	112	94	68	10	354	340	332	11	10	6	356	357	352	12	11	17	19	13	8	2	6	11	8	2	10.8	
30-Apr	4	1	353	357	359	5	6	5	10	3	349	359	357	354	359	356	356	352	348	345	343	350	349	352	356.8	

32.2	12.0	349.3	358.0	319.5	300.9	328.6	354.2	358.6	351.7	342.2	327.5	302.1	312.4	303.2	318.7	322.9	338.5	351.2	352.7	335.9	352.7	340.6	4.7
Diurnal Average																							

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 20 m (WD20m) - deg**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 107 deg on Apr 28 06:00	Hours of Data: 685
Minimum Value: 6 deg on Apr 7 07:00	Hours of Missing Data: 35
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 12 Q <sub>1</sub> = 16 Median = 19 Q <sub>3</sub> = 30 P <sub>90</sub> = 52 P <sub>99</sub> = 91	Hours of Calibration: 0
	Percent Operational Time: 95.1

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-Apr	42	17	16	19	15	14	13	25	18	17	20	20	19	21	29	25	19	17	14	39	45	61	20	11	61	
2-Apr	7	9	12	13	33	28	20	21	15	38	29	11	9	11	10	16	12	10	13	66	50	76	56	8	76	
3-Apr	17	10	17	37	90	61	16	17	40	41	41	45	42	29	16	19	24	25	20	20	30	98	29	64	98	
4-Apr	44	63	17	17	17	30	17	17	15	22	47	81	35	30	39	39	16	17	33	65	25	49	52	81		
5-Apr	32	44	49	36	54	37	21	18	19	18	16	17	18	17	17	UO	UO	17	16	17	22	17	12	54		
6-Apr	14	14	15	23	37	38	19	18	22	24	18	25	24	16	19	19	16	25	18	19	22	34	33	34	38	
7-Apr	73	58	82	55	20	23	6	12	17	15	16	DF	DF	22	20	40	21	13	11	10	7	6	6	53	82	
8-Apr	101	13	9	6	8	10	20	34	8	9	12	14	27	60	22	23	18	17	59	63	36	92	74	85	101	
9-Apr	42	56	38	22	18	17	33	60	34	14	54	13	14	16	16	16	13	17	14	14	13	63	24	35	63	
10-Apr	31	21	42	18	19	23	16	19	21	20	17	76	22	25	18	22	22	23	17	25	27	107	27	49	107	
11-Apr	45	70	34	59	40	69	11	42	68	16	16	17	20	16	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	70	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	15	12	11	10	7	14	9	14	9	13	8	21	52	69	33	21	69
13-Apr	24	9	20	41	12	11	15	18	18	22	26	21	19	18	18	19	22	17	18	12	24	56	38	27	56	
14-Apr	56	64	58	22	8	14	15	9	24	12	14	24	55	23	22	31	34	17	65	38	DF	DF	DF	DF	65	
15-Apr	DF	DF	DF	DF	DF	58	29	61	21	24	35	51	25	23	24	24	22	21	21	18	16	16	15	14	61	
16-Apr	16	16	15	16	15	UO	UO	UO	UO	14	15	16	16	17	17	17	18	17	17	18	17	15	15	15	18	
17-Apr	14	15	16	16	16	16	16	17	17	19	18	20	20	18	22	20	19	18	17	15	12	12	12	11	22	
18-Apr	13	18	14	15	16	18	15	16	18	17	17	20	20	20	24	20	22	22	21	19	9	11	17	44	44	
19-Apr	40	36	44	68	79	59	15	18	33	38	37	23	33	33	25	20	12	15	9	8	12	12	13	20	79	
20-Apr	23	28	15	45	41	31	11	17	37	12	16	21	20	14	17	15	14	13	10	16	33	32	20	12	45	
21-Apr	8	9	6	9	8	10	9	24	15	18	20	19	20	26	25	49	61	54	21	21	27	52	16	52	61	
22-Apr	32	36	17	48	11	20	60	36	28	22	17	19	52	47	38	20	19	20	17	14	62	24	20	13	62	
23-Apr	17	29	32	13	86	92	30	90	31	32	71	57	72	70	95	27	46	22	18	21	28	42	67	29	95	
24-Apr	57	24	54	24	44	42	13	19	41	44	18	10	24	19	20	18	22	22	20	18	22	14	18	14	57	
25-Apr	11	30	24	42	14	40	23	20	9	12	16	18	16	16	14	16	11	31	16	26	27	16	19	15	42	
26-Apr	15	17	18	18	17	16	18	19	21	24	25	20	28	23	22	25	32	25	23	18	58	37	33	75	75	
27-Apr	14	15	15	40	41	30	10	14	18	16	16	20	17	17	15	16	11	9	15	14	26	26	19	26	41	
28-Apr	56	32	33	25	24	107	79	18	18	19	17	18	15	17	8	14	11	10	16	18	20	19	19	20	107	
29-Apr	31	37	27	33	30	38	39	31	20	24	19	18	18	24	23	25	26	18	17	15	16	16	16	15	39	
30-Apr	16	19	17	16	17	18	18	18	18	17	17	18	17	15	18	18	15	16	15	17	17	17	19	18	19	

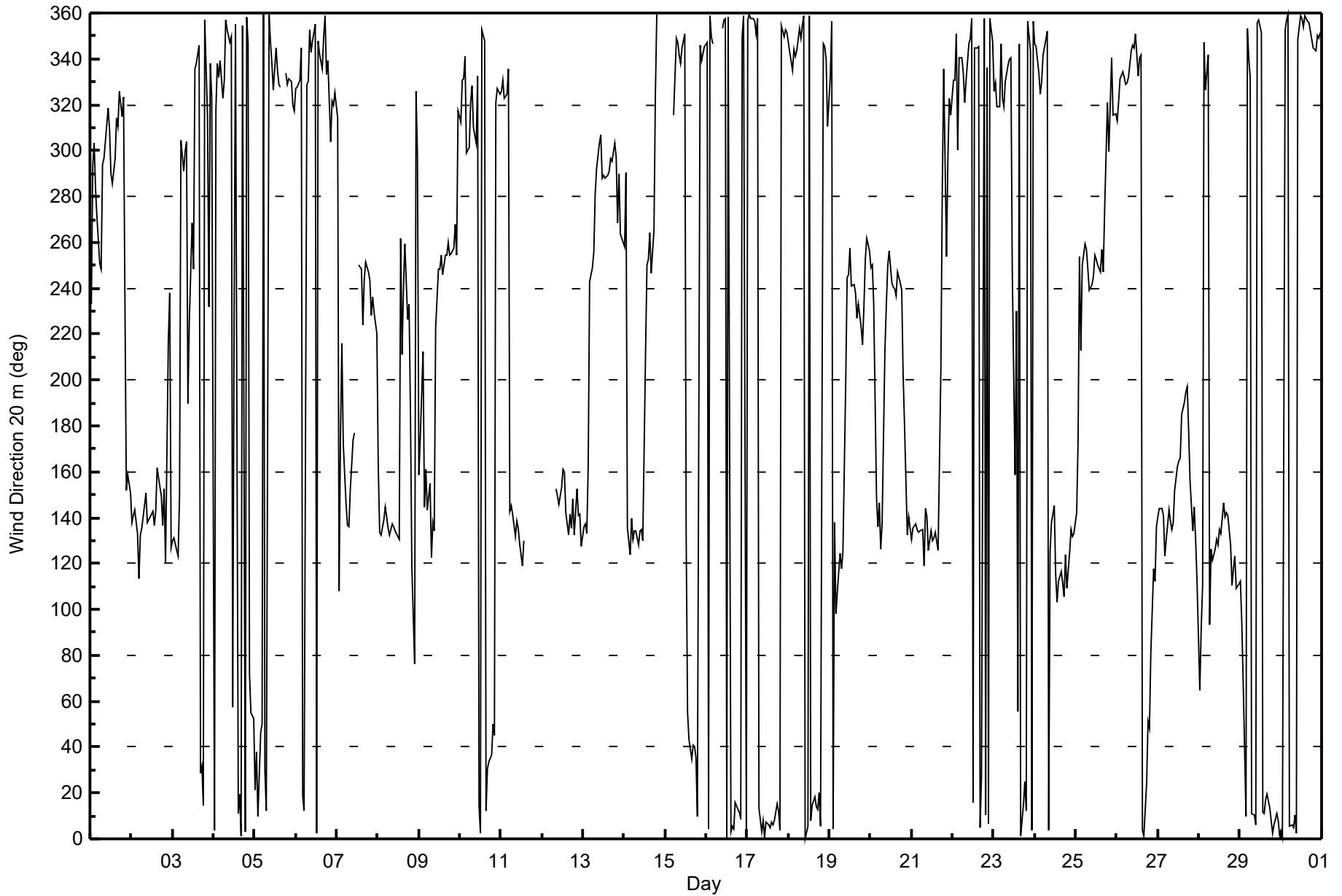
101	70	82	68	90	107	79	90	68	44	71	76	81	70	95	49	61	54	65	66	65	107	74	85	
Diurnal Maximum																								

DF - DAS Failure      UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction 20 m (WD20m) - deg**  
**Lower Camp Met Tower - April 2024**





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

**Wind Direction 45 m (WD45m) - deg**  
**Lower Camp Met Tower - April 2024**

Direction of Maximum Speed: 245 deg on Apr 13 06:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 275.7 deg on Apr 13	Hours of Data: 296
Direction of Minimum Speed: 267 deg on Apr 3 22:00	Direction of Minimum Daily Speed Average: 3.5 deg on Apr 3
Direction of Minimum Speed: 267 deg on Apr 3 22:00	Hours of Missing Data: 424
Monthly Average Direction: 269.2 deg	Percent Operational Time: 41.1

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-Apr	234	294	304	288	273	249	245	291	296	309	319	307	289	286	298	314	311	325	314	317	340	192	150	133	292.0
2-Apr	128	128	132	130	128	132	130	135	138	131	135	134	139	134	141	164	159	152	135	137	123	206	142	124	139.6
3-Apr	126	132	124	126	148	302	292	299	305	214	230	259	251	333	339	349	29	32	18	6	339	267	341	4	323.7
4-Apr	16	337	342	335	339	321	329	356	353	349	350	53	212	355	11	18	3	357	7	14	31	76	68	73	356.9
5-Apr	59	80	66	71	71	20	28	12	2	349	340	327	346	339	333	330	UO	UO	334	331	334	335	329	322	350.8
6-Apr	330	328	330	348	17	19	335	334	UO	347	349	358	4	350	345	338	353	2	336	341	318	320	318	319	344.5
7-Apr	325	125	136	204	184	163	140	137	154	174	177	DF	DF	249	250	229	242	247	240	239	231	233	226	212	216.4
8-Apr	147	133	125	128	133	135	131	124	127	131	131	130	127	264	211	239	254	221	230	112	119	124	286	320	156.4
9-Apr	230	225	201	145	149	138	143	129	163	131	226	248	249	253	245	253	253	257	252	254	252	263	254	308	243.9
10-Apr	329	333	345	319	297	297	322	330	308	303	334	352	354	350	350	12	30	33	38	55	91	108	283	323	344.1
11-Apr	350	336	342	141	146	136	131	128	126	129	129	126	DF	UO	UO	DF	DF	DF	DF	DF	DF	DF	DF	DF	--
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	143	150	160	160	142	131	139	134	140	126	140	129	131	131	--
13-Apr	134	137	138	195	240	245	253	282	293	301	307	286	288	287	290	290	296	295	302	297	274	253	242	241	275.7
14-Apr	257	251	213	138	133	131	128	131	126	132	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	DF	DF	--
15-Apr	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
20-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
23-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
24-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
25-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
27-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
28-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
29-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
30-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--

172.6	173.6	43.4	138.6	224.8	237.8	256.3	309.6	305.5	318.3	213.2	231.4	260.0	286.3	277.4	287.7	288.6	285.2	305.1	291.9	255.3	217.8	236.1	193.3
Diurnal Average																							

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 45 m (WD45m) - deg**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 100 deg on Apr 3 22:00	Hours of Data: 296
Minimum Value: 3 deg on Apr 8 05:00	Hours of Missing Data: 424
Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 7 Q <sub>1</sub> = 10 Median = 14 Q <sub>3</sub> = 24 P <sub>90</sub> = 41 P <sub>99</sub> = 92	Hours of Calibration: 0
	Percent Operational Time: 41.1

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-Apr	40	11	11	14	10	12	7	24	14	12	16	16	13	16	26	19	13	12	12	18	34	46	26	7	46
2-Apr	4	4	5	7	17	10	8	10	8	19	21	6	7	7	9	16	11	8	12	50	11	38	32	4	50
3-Apr	8	5	8	11	87	27	10	12	23	49	19	38	31	23	10	12	16	21	15	16	27	100	21	60	100
4-Apr	30	45	12	10	11	14	27	12	12	9	16	37	94	24	27	33	47	11	10	19	78	19	28	33	94
5-Apr	19	31	54	29	17	28	11	13	13	16	13	12	10	12	11	11	UO	UO	10	9	9	12	11	7	54
6-Apr	9	9	11	17	29	31	13	11	UO	16	12	18	19	11	18	13	10	13	12	10	13	11	24	19	31
7-Apr	56	55	31	20	17	28	7	8	14	12	14	DF	DF	18	16	40	19	8	7	6	4	4	7	25	56
8-Apr	28	13	7	4	3	7	9	23	4	7	8	8	19	57	22	21	12	9	32	38	12	43	79	50	79
9-Apr	29	92	49	32	30	7	23	49	44	18	53	9	11	10	14	10	8	12	9	9	6	63	30	26	92
10-Apr	16	11	14	10	12	15	12	12	16	15	13	64	13	20	13	15	15	18	12	15	17	27	73	31	73
11-Apr	30	21	92	45	45	9	7	45	45	11	11	10	DF	UO	UO	DF	DF	DF	DF	DF	DF	DF	DF	DF	92
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	8	11	6	13	9	5	7	6	8	10	35	39	19	39
13-Apr	16	7	15	37	8	6	11	13	12	16	19	16	13	14	14	14	16	12	13	7	20	34	16	14	37
14-Apr	33	12	33	18	4	11	8	6	15	7	7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	DF	DF	33
15-Apr	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
20-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
23-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
24-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
25-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
27-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
28-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
29-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
30-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--

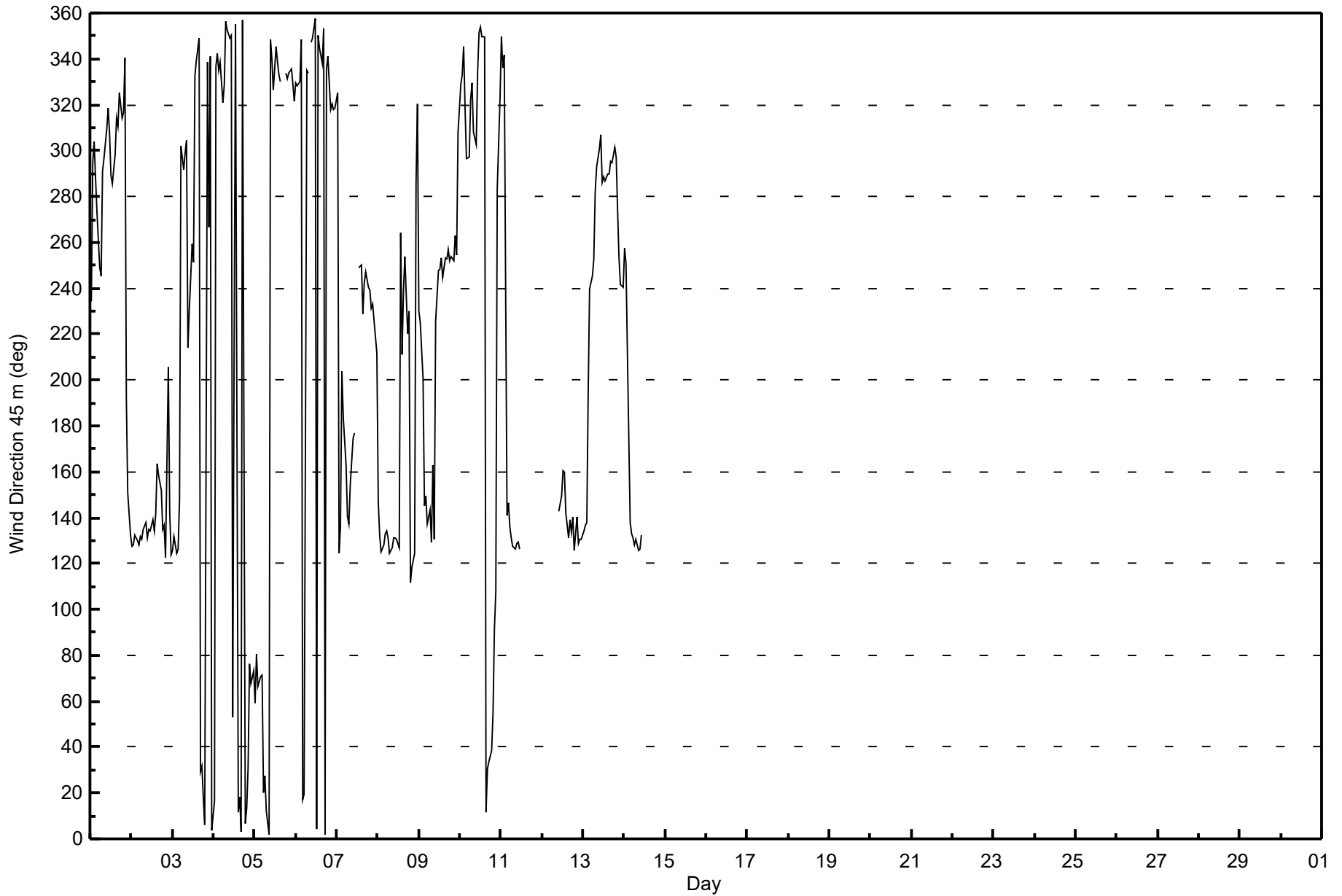
56	92	92	45	87	31	27	49	45	49	53	64	94	57	27	40	47	21	32	50	78	100	79	60	
Diurnal Maximum																								

DF - DAS Failure      UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction 45 m (WD45m) - deg**  
**Lower Camp Met Tower - April 2024**







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

**Wind Direction 100 m (WD100m) - deg**  
**Lower Camp Met Tower - April 2024**

Direction of Maximum Speed: 0 deg on Apr 16 12:00																						Hours in Service: 720				
Direction of Maximum Daily Speed Average: 2.1 deg on Apr 16																						Hours of Data: 690				
Direction of Minimum Speed: 202 deg on Apr 4 13:00											Direction of Minimum Daily Speed Average: 5.0 deg on Apr 3											Hours of Missing Data: 30				
Monthly Average Direction: 343.7 deg																						Percent Operational Time: 95.8				
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-Apr	234	295	307	290	280	254	249	290	299	308	320	308	293	287	300	313	311	328	312	314	335	310	223	221	293.9	
2-Apr	189	161	145	151	145	143	138	133	131	152	136	139	144	138	145	169	164	157	146	131	131	220	172	145	148.4	
3-Apr	147	145	128	131	188	300	296	302	300	257	236	245	265	329	349	356	30	31	21	16	12	31	359	23	315.5	
4-Apr	33	1	345	340	337	317	329	354	353	349	351	47	202	357	14	21	11	3	14	30	58	81	76	99	2.9	
5-Apr	102	102	90	95	89	52	25	17	10	357	342	332	348	345	345	343	349	353	348	347	348	354	344	330	1.8	
6-Apr	332	331	331	348	12	28	353	345	356	356	350	1	6	352	348	343	358	9	348	354	342	327	328	327	349.4	
7-Apr	335	119	146	202	204	197	163	156	165	178	177	DF	DF	246	248	234	239	245	240	244	240	241	242	226	225.0	
8-Apr	205	196	191	177	167	169	164	153	145	151	145	137	126	262	213	234	248	216	225	158	120	131	270	339	185.3	
9-Apr	280	279	262	236	241	198	210	203	229	169	231	246	248	251	242	252	253	258	254	255	262	277	274	315	253.8	
10-Apr	345	345	324	303	298	303	323	327	303	306	337	329	340	346	351	13	30	32	37	56	82	119	132	171	343.2	
11-Apr	136	124	127	128	125	130	120	126	125	129	131	128	123	129	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	147	145	144	150	160	163	146	132	141	139	137	127	138	131	131	139	--
13-Apr	157	218	228	226	239	245	255	284	295	303	308	287	289	289	291	290	294	296	300	297	296	254	253	258	276.2	
14-Apr	260	255	241	221	195	184	164	160	132	134	138	126	220	248	253	266	251	269	335	30	DF	DF	DF	DF	214.3	
15-Apr	DF	DF	DF	DF	DF	322	330	333	345	350	346	1	122	55	42	36	41	40	33	18	4	354	352	356	12.4	
16-Apr	359	7	4	357	355	356	356	354	354	358	360	0	2	0	4	6	6	16	15	15	12	358	4	5	2.1	
17-Apr	2	2	2	1	2	357	360	8	4	5	360	5	6	5	7	7	11	14	13	4	2	6	9	16	5.4	
18-Apr	9	3	352	350	349	349	355	351	356	0	1	7	360	8	14	18	14	12	19	10	2	360	359	5	3.2	
19-Apr	344	343	347	341	223	229	229	208	185	230	251	252	257	254	248	235	227	228	224	224	233	240	250	258	244.5	
20-Apr	252	252	246	238	228	222	217	223	222	246	256	257	245	240	240	233	242	234	230	217	203	203	185	171	231.1	
21-Apr	160	144	145	139	141	144	129	122	137	125	125	130	128	128	131	126	167	211	290	338	4	18	345	333	129.1	
22-Apr	332	339	348	23	330	299	313	341	324	320	352	4	18	342	340	344	8	26	3	16	33	17	15	8	358.6	
23-Apr	6	7	8	341	330	249	34	351	341	346	342	254	137	242	39	342	349	19	30	29	40	40	61	72	13.1	
24-Apr	89	77	76	56	41	27	33	11	114	121	130	139	114	104	112	116	111	107	120	108	120	138	130	126	113.4	
25-Apr	140	185	267	238	260	249	253	245	240	243	246	252	252	247	244	255	246	276	318	299	322	343	330	313	261.1	
26-Apr	317	326	333	337	338	334	330	331	340	343	339	345	334	335	337	357	358	23	47	53	73	114	130	134	348.3	
27-Apr	139	139	138	150	137	139	145	141	141	141	151	163	166	163	183	190	194	196	175	133	130	124	133	133	155.8	
28-Apr	130	129	128	121	113	120	130	128	125	127	129	125	130	131	141	137	138	137	125	110	119	125	118	122	127.6	
29-Apr	129	127	111	79	72	65	27	37	16	11	1	1	358	12	12	17	20	14	8	5	9	11	8	7	19.6	
30-Apr	7	7	360	2	3	5	6	5	11	5	UO	2	2	359	2	1	358	356	354	353	353	360	1	360	1.4	
11.5	344.6	344.4	340.2	311.0	296.9	319.9	339.2	351.8	350.2	350.6	343.9	338.1	329.5	330.4	334.0	336.1	346.8	356.2	5.1	11.6	8.0	10.3	14.6			
Diurnal Average																										
DF - DAS Failure      UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 100 m (WD100m) - deg**  
**Lower Camp Met Tower - April 2024**

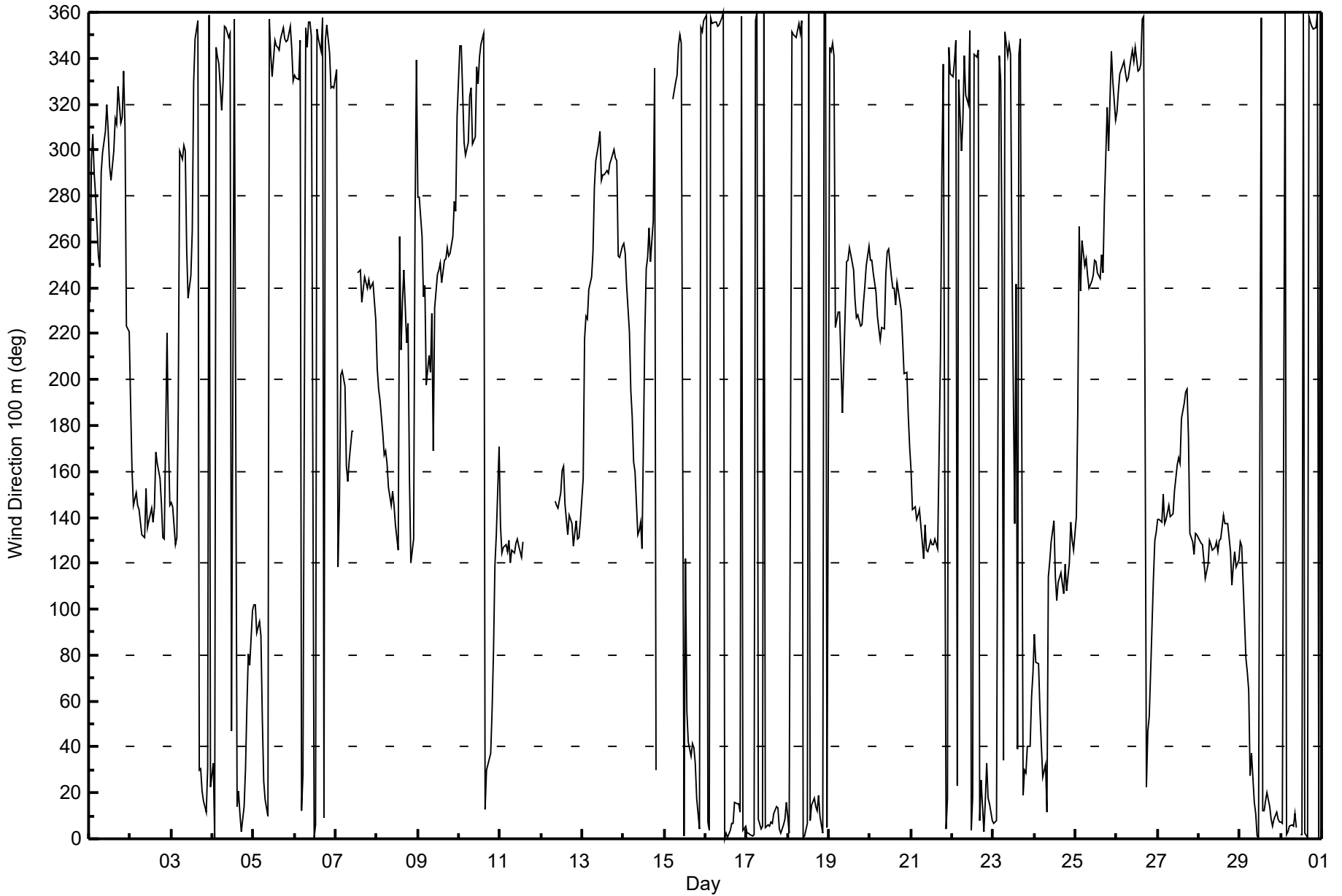
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 101 deg on Apr 23 13:00	Hours of Data: 690
Minimum Value: 2 deg on Apr 19 02:00	Hours of Missing Data: 30
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 14 P <sub>90</sub> = 25 P <sub>99</sub> = 69	Hours of Calibration: 0
	Percent Operational Time: 95.8

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-Apr	37	9	8	11	9	7	4	23	11	9	13	14	9	14	21	16	10	9	9	5	8	55	19	18	55
2-Apr	33	13	13	6	8	10	8	7	7	14	11	5	8	7	10	14	11	5	18	29	8	20	28	11	33
3-Apr	8	8	8	10	56	15	6	9	13	36	11	34	22	23	9	10	13	18	12	14	24	78	28	15	78
4-Apr	21	31	8	5	7	10	22	9	8	5	14	32	92	24	21	29	37	10	9	11	29	12	13	11	92
5-Apr	8	11	8	10	11	15	9	10	12	16	10	7	8	8	9	6	4	4	4	4	4	6	9	3	16
6-Apr	4	6	7	13	23	20	10	8	14	13	9	15	15	8	13	10	9	11	8	5	18	8	13	7	23
7-Apr	12	79	31	10	9	12	12	9	12	10	11	DF	DF	14	12	38	17	5	6	4	4	2	4	10	79
8-Apr	19	12	10	9	9	11	15	46	13	15	11	11	15	52	22	20	11	7	11	40	8	5	56	11	56
9-Apr	22	13	10	14	18	34	32	49	25	31	42	5	8	7	12	7	7	9	4	6	5	18	24	18	49
10-Apr	11	7	11	9	9	11	8	9	8	13	9	45	14	18	12	13	12	14	8	11	12	11	4	22	45
11-Apr	10	11	4	5	3	5	7	9	4	8	8	7	8	7	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	11
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	11	9	8	10	5	10	11	5	8	7	9	5	22	14	9	8	22
13-Apr	23	26	30	11	4	4	9	11	10	14	15	14	11	13	11	11	12	9	10	4	4	10	6	10	30
14-Apr	29	8	9	10	12	15	6	8	7	14	8	14	68	13	12	21	25	8	34	22	DF	DF	DF	DF	68
15-Apr	DF	DF	DF	DF	DF	10	8	47	7	10	15	44	23	12	13	13	13	12	12	10	11	7	5	5	47
16-Apr	7	7	7	7	7	6	5	6	5	6	6	6	7	7	7	7	7	10	9	9	9	6	6	6	10
17-Apr	6	7	7	7	7	8	7	7	7	10	9	12	10	10	12	13	12	8	8	6	5	4	4	4	13
18-Apr	4	6	7	5	7	9	6	8	9	8	8	12	13	11	14	11	13	13	11	8	4	4	5	9	14
19-Apr	7	2	3	27	49	9	6	15	30	32	20	16	20	21	19	13	10	11	5	3	4	3	4	2	49
20-Apr	2	4	3	24	25	16	13	18	13	11	9	12	14	8	10	11	8	8	6	6	3	2	11	14	25
21-Apr	18	6	5	5	4	4	11	4	7	9	11	9	11	16	15	25	58	58	16	6	9	10	11	57	58
22-Apr	4	5	10	16	11	12	11	7	11	14	14	12	30	38	25	14	13	13	9	7	11	15	8	6	38
23-Apr	4	7	10	6	52	61	87	9	20	28	55	63	101	77	80	22	38	14	9	8	12	23	33	20	101
24-Apr	22	34	35	25	24	19	9	9	66	16	14	5	15	9	11	9	12	12	11	9	11	6	9	7	66
25-Apr	8	31	19	30	5	6	5	7	5	7	10	10	9	10	8	11	5	26	11	20	23	7	13	6	31
26-Apr	8	9	8	11	8	8	9	10	16	14	17	13	19	13	15	17	21	24	14	7	13	15	7	6	24
27-Apr	6	5	5	11	15	8	9	11	13	11	13	17	17	16	14	14	10	6	15	11	8	6	4	4	17
28-Apr	3	7	7	7	12	22	7	6	6	7	5	7	7	7	5	5	5	5	7	8	9	7	8	7	22
29-Apr	7	9	10	21	14	34	26	21	12	15	11	9	11	14	14	15	17	12	9	6	7	7	7	7	34
30-Apr	7	8	7	8	7	8	7	8	8	7	UO	7	7	7	7	8	6	6	6	6	7	8	8	8	8
	37	79	35	30	56	61	87	49	66	36	55	63	101	77	80	38	58	58	34	40	29	78	56	57	

Diurnal Maximum

DF - DAS Failure

UO - Unstable Operation





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 163 m (WD163m) - deg

Lower Camp Met Tower - April 2024

Direction of Maximum Speed: 252 deg on Apr 13 06:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 10.1 deg on Apr 16	Hours of Data: 682
Direction of Minimum Speed: 192 deg on Apr 23 13:00	Hours of Missing Data: 38
Direction of Minimum Daily Speed Average: 5.9 deg on Apr 14	Percent Operational Time: 94.7
Monthly Average Direction: 348.7 deg	

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-Apr	238	299	312	294	287	266	261	295	303	310	321	309	299	290	303	314	313	331	312	319	334	343	261	225	298.6	
2-Apr	230	190	178	181	165	155	152	146	147	159	144	146	150	145	153	175	169	164	160	144	148	233	222	174	163.6	
3-Apr	181	175	170	157	204	302	304	308	298	290	248	248	276	326	359	8	31	36	27	32	39	57	17	38	314.3	
4-Apr	51	25	351	344	334	315	333	356	357	354	357	49	40	3	22	31	17	14	24	52	77	88	84	104	13.1	
5-Apr	114	110	104	105	101	75	34	25	20	19	353	344	358	0	3	4	6	16	4	0	1	9	359	340	19.1	
6-Apr	342	339	331	353	17	38	UO	356	UO	UO	UO	UO	15	1	360	354	6	21	4	17	18	339	342	331	358.9	
7-Apr	338	42	149	205	209	216	188	172	173	187	182	DF	DF	246	248	234	239	246	245	249	248	255	262	247	233.9	
8-Apr	235	227	216	209	206	194	197	240	198	188	160	147	130	247	218	234	245	219	229	190	125	136	241	326	209.3	
9-Apr	313	330	5	275	275	264	256	257	248	212	235	248	250	252	244	255	256	261	260	259	273	295	298	326	264.1	
10-Apr	358	356	327	308	302	312	328	327	304	311	341	326	332	346	355	19	33	37	43	62	78	102	113	167	345.3	
11-Apr	168	158	161	157	142	144	135	139	132	137	134	131	127	132	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	152	152	150	153	161	167	150	137	147	149	140	131	143	139	138	147	--
13-Apr	196	251	242	236	246	252	265	287	298	305	309	289	292	292	293	292	296	298	302	300	302	283	288	294	280.7	
14-Apr	293	304	277	240	212	206	187	174	157	158	147	131	222	249	256	269	256	270	341	48	DF	DF	DF	DF	225.4	
15-Apr	DF	DF	DF	DF	DF	353	334	339	1	28	7	13	118	60	47	40	46	45	37	27	19	9	7	8	21.8	
16-Apr	10	14	11	6	4	UO	UO	3	3	4	6	6	9	7	9	12	13	22	22	23	19	7	11	12	10.1	
17-Apr	9	9	8	8	10	5	7	11	9	11	4	10	10	9	12	12	16	18	17	10	12	20	24	32	12.2	
18-Apr	30	23	11	2	357	356	0	358	2	5	6	12	5	14	19	22	18	16	25	17	14	12	15	32	12.3	
19-Apr	22	17	4	352	328	260	235	219	221	232	245	251	256	256	246	236	231	230	229	234	243	251	262	273	252.1	
20-Apr	272	273	271	256	245	239	233	233	231	264	262	260	247	243	243	236	241	235	229	223	208	208	203	204	240.1	
21-Apr	203	190	184	169	157	152	159	149	147	128	130	134	130	130	132	130	173	213	302	341	9	30	14	346	147.8	
22-Apr	357	12	20	26	2	345	346	358	349	338	2	10	26	345	345	350	13	31	9	22	40	24	18	14	10.0	
23-Apr	18	19	20	19	16	340	4	24	16	356	343	263	192	252	39	345	346	24	37	39	53	63	74	95	29.2	
24-Apr	106	109	112	118	108	97	86	100	123	114	127	137	115	106	113	118	113	109	120	110	121	141	134	128	118.6	
25-Apr	143	197	279	255	280	272	273	258	248	248	250	256	255	250	247	257	251	281	318	302	327	346	337	321	269.9	
26-Apr	322	332	337	341	344	340	333	334	341	343	340	345	338	338	339	358	2	27	49	61	79	109	135	140	352.5	
27-Apr	145	143	146	155	156	156	160	157	152	151	159	167	168	166	185	192	196	197	175	135	133	130	136	137	160.0	
28-Apr	134	132	130	129	127	131	135	134	130	130	131	127	129	132	140	136	137	138	125	112	122	127	122	127	130.2	
29-Apr	133	134	120	111	106	112	88	65	25	20	9	8	4	20	19	24	27	20	15	12	14	17	14	15	31.1	
30-Apr	15	14	8	9	10	11	12	12	17	11	UO	UO	9	7	9	9	5	2	360	1	4	10	10	9	8.8	

8.6	351.1	341.9	315.1	306.3	283.5	301.8	333.4	347.5	351.6	353.0	330.6	343.1	331.1	336.3	340.3	341.7	355.1	4.1	17.0	23.7	24.6	20.8	23.2
Diurnal Average																							

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 163 m (WD163m) - deg**  
**Lower Camp Met Tower - April 2024**

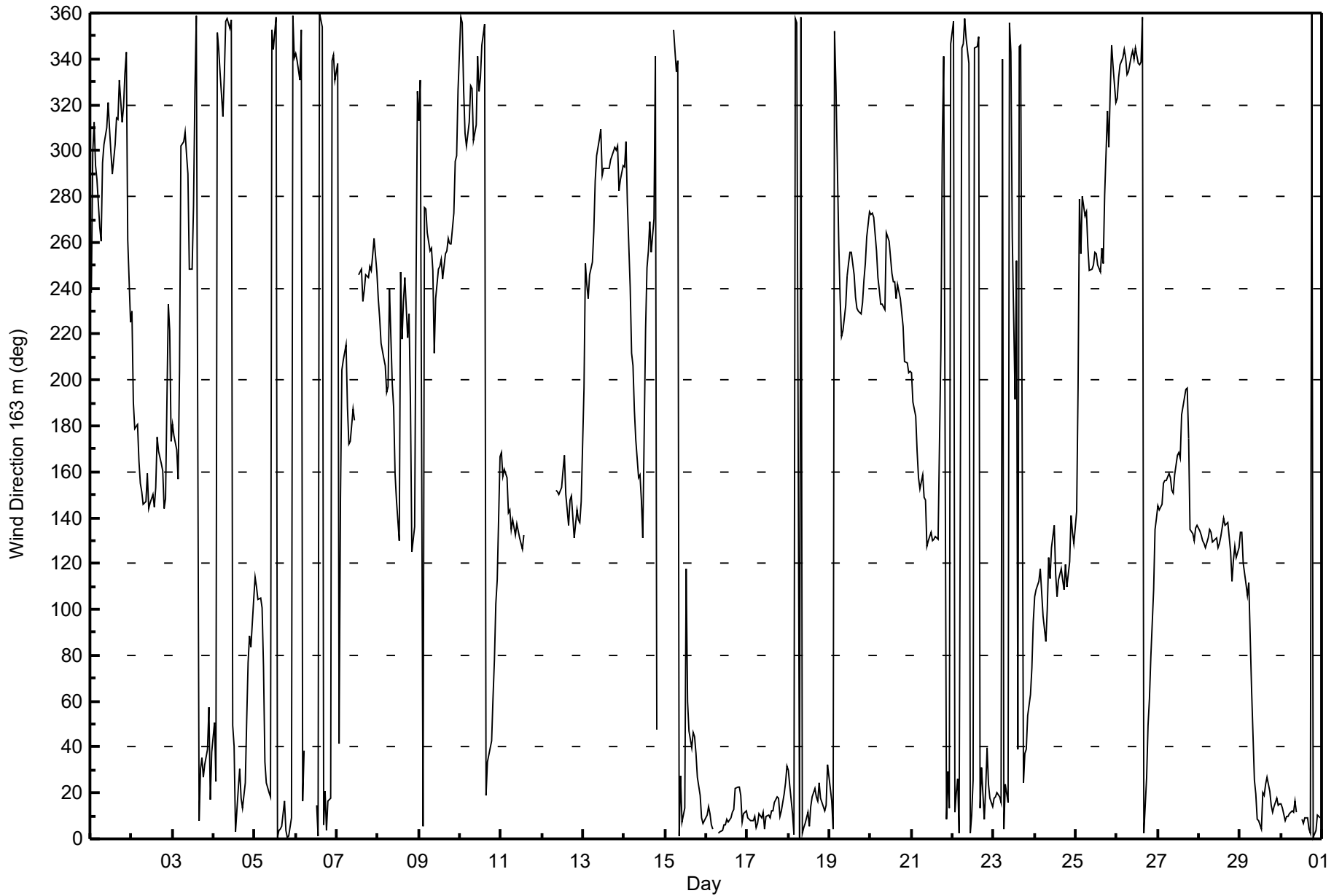
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 104 deg on Apr 23 13:00	Hours of Data: 682
Minimum Value: 1 deg on Apr 20 00:00	Hours of Missing Data: 38
Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 12 P <sub>90</sub> = 19 P <sub>99</sub> = 58	Hours of Calibration: 0
	Percent Operational Time: 94.7

Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	35	7	7	9	6	6	3	19	8	9	11	13	9	11	18	15	8	8	7	4	7	10	34	5	35	
2-Apr	15	12	9	8	7	5	4	5	5	9	8	7	7	7	11	13	11	6	14	11	15	11	18	14	18	
3-Apr	17	15	17	6	53	11	6	8	7	17	12	24	17	31	7	11	13	17	10	11	13	31	25	20	53	
4-Apr	26	25	7	9	11	8	20	9	9	5	14	28	101	23	19	30	28	10	8	11	11	5	4	6	101	
5-Apr	7	9	5	5	12	9	16	8	12	17	14	7	7	9	8	6	5	6	4	4	4	6	9	6	17	
6-Apr	4	8	11	20	24	14	UO	9	UO	UO	UO	UO	14	8	15	9	9	10	8	6	17	8	7	12	24	
7-Apr	19	46	35	6	8	4	14	6	8	10	11	DF	DF	11	11	31	15	6	7	4	4	4	3	6	46	
8-Apr	6	7	7	4	15	11	11	12	15	20	15	13	16	50	20	17	12	6	8	32	5	7	49	15	50	
9-Apr	19	26	44	19	7	5	7	16	10	34	30	4	6	5	11	6	6	8	4	6	6	14	21	19	44	
10-Apr	11	8	8	7	8	10	7	11	6	12	9	20	14	17	13	12	11	11	7	7	9	7	10	13	20	
11-Apr	5	14	8	9	11	7	4	3	4	7	7	5	7	8	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	14	
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	9	8	9	9	5	8	11	6	10	8	8	4	15	7	6	8	15
13-Apr	34	8	8	5	4	4	9	9	8	11	16	12	10	12	10	9	11	7	7	4	3	8	6	8	34	
14-Apr	21	17	13	7	19	12	15	6	8	14	8	15	66	12	12	18	21	7	31	21	DF	DF	DF	DF	66	
15-Apr	DF	DF	DF	DF	DF	38	16	8	12	7	10	40	23	10	12	12	10	9	9	9	11	7	5	5	40	
16-Apr	6	6	7	7	7	UO	UO	9	5	7	7	6	7	7	7	7	8	9	8	8	7	6	6	5	9	
17-Apr	6	7	7	7	7	7	7	7	7	9	9	12	9	10	11	13	11	8	7	6	5	3	3	2	13	
18-Apr	3	4	6	5	6	8	7	7	8	8	9	11	13	10	12	11	12	12	9	6	3	3	4	8	13	
19-Apr	8	6	7	8	22	7	12	5	11	22	20	11	18	17	14	12	10	9	4	4	3	2	6	1	22	
20-Apr	2	2	2	11	4	5	6	8	14	9	8	11	12	6	8	10	9	8	7	6	3	2	3	10	14	
21-Apr	4	6	5	7	5	5	5	9	6	9	11	9	10	15	14	24	72	60	15	5	10	8	10	5	72	
22-Apr	11	7	2	14	11	5	6	5	9	13	14	14	26	35	25	12	13	11	8	6	6	7	5	3	35	
23-Apr	2	2	1	4	6	55	25	22	20	18	44	57	104	72	80	24	33	15	6	4	7	7	18	11	104	
24-Apr	7	8	11	8	9	10	11	9	10	11	14	6	12	8	10	7	11	10	10	8	8	7	8	5	14	
25-Apr	9	33	13	26	5	6	6	8	8	6	9	9	7	9	7	9	4	23	11	17	21	5	13	5	33	
26-Apr	6	7	6	10	6	7	7	8	14	13	14	12	15	11	12	17	19	28	14	6	10	8	6	4	28	
27-Apr	6	6	8	6	12	9	9	12	13	12	15	16	15	16	14	13	10	6	14	9	5	5	3	3	16	
28-Apr	3	4	5	4	5	6	5	5	5	6	5	7	5	6	6	6	5	5	6	6	8	5	6	6	8	
29-Apr	6	6	7	12	7	8	18	16	13	14	13	9	13	15	14	14	15	11	9	6	6	6	6	6	18	
30-Apr	6	7	8	7	7	7	8	7	7	7	UO	UO	7	8	7	9	6	6	6	6	7	7	7	7	9	
	35	46	44	26	53	55	25	22	20	34	44	57	104	72	80	31	72	60	31	32	21	31	49	20		

Diurnal Maximum

DF - DAS Failure

UO - Unstable Operation





Maximum Value: 0.7 km/h on Apr 8 03:00																				Maximum Daily Average: 0.1 km/h on Apr 16					Hours in Service: 720								
Minimum Value: -1.8 km/h on Apr 27 15:00																				Minimum Daily Average: -0.8 km/h on Apr 25					Hours of Data: 685								
Maximum Diurnal Average: -0.1 km/h at hour 3																				Minimum Diurnal Average: -0.5 km/h at hour 13					Hours of Missing Data: 35								
Monthly Average: -0.26 km/h																				Percentiles: P <sub>1</sub> = -1.5 P <sub>10</sub> = -0.8 Q <sub>1</sub> = -0.5 Median = -0.1 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.3					Hours of Calibration: 0								
																				Percent Operational Time: 95.1													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Apr	-0.8	-0.7	-0.7	-0.4	-0.6	-0.8	-0.6	-0.8	-0.5	-0.7	-0.3	-0.5	-0.7	-1.0	-0.6	-0.5	-0.3	-0.1	-0.2	-0.1	0.0	0.0	0.0	0.0	-0.5	0.0							
2-Apr	0.1	0.0	-0.1	-0.1	-0.3	-0.1	-0.5	-0.2	-0.3	-0.3	-0.5	-0.9	-1.2	-0.9	-1.0	-1.1	-1.0	-0.8	-0.2	-0.2	-0.2	-0.1	0.0	-0.2	-0.4	0.1							
3-Apr	-0.2	-0.6	-0.1	0.0	0.0	-0.3	-0.5	-0.5	-0.1	-0.2	-0.2	-0.1	-0.3	0.1	0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1							
4-Apr	0.0	0.0	-0.1	0.1	0.1	0.0	0.0	-0.2	-0.1	-0.3	-0.1	0.3	-0.2	0.3	-0.1	0.0	0.1	0.0	0.2	0.1	-0.1	-0.1	0.1	0.1	0.0	0.3							
5-Apr	0.0	-0.1	0.0	0.0	0.1	0.0	0.2	0.1	-0.2	-0.1	0.0	-0.1	-0.2	0.1	0.1	0.1	UO	UO	0.0	0.0	0.1	0.0	0.0	-0.2	0.0	0.2							
6-Apr	0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	-0.2	-0.1	-0.2	-0.2	-0.1	0.2	0.0	0.1	0.0	0.1	-0.1	0.0	0.0	0.0	0.0	0.2							
7-Apr	-0.1	0.0	0.0	0.0	-0.3	0.0	-0.2	-0.5	-0.5	-0.9	-0.8	DF	DF	-0.5	-0.5	-0.2	-0.5	-0.9	-0.8	-0.5	-0.2	-0.2	-0.3	0.0	-0.4	0.0							
8-Apr	0.0	0.3	0.7	0.3	0.0	-0.1	0.0	-0.2	-0.7	-0.5	-0.3	-0.5	-0.3	-0.3	-1.3	-0.6	-0.5	-0.4	0.0	0.0	0.1	0.1	-0.1	0.0	-0.2	0.7							
9-Apr	0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.8	-1.4	-1.1	-1.1	-0.9	-0.9	-1.0	-1.0	-0.9	-1.0	-0.5	-0.3	-0.5	-0.1	-0.5	0.1							
10-Apr	-0.1	-0.1	0.0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.4	-0.3	-0.1	0.4	0.0	-0.2	0.1	0.1	0.1	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.4							
11-Apr	0.0	0.0	0.0	0.0	0.0	-0.1	-0.3	-0.1	-0.2	-0.3	-0.6	-0.5	-0.5	-0.8	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.0	0.0						
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	DF	-1.2	-0.9	-1.3	-1.3	-1.5	-1.1	-0.7	-0.5	-1.1	-0.6	-0.7	-0.3	-0.3	-0.6	-0.5	-0.3	--	-0.3						
13-Apr	-0.4	-0.1	0.2	0.0	-0.7	-1.4	-0.8	-0.7	-0.6	-0.5	-0.5	-1.2	-1.1	-1.0	-1.0	-1.1	-0.4	-1.0	-0.4	-0.5	-0.3	-0.3	-0.5	-0.9	-0.6	0.2							
14-Apr	-0.5	0.0	0.1	0.1	0.1	-0.1	-0.2	-0.5	0.0	-0.7	-0.4	-0.3	-0.4	-1.1	-0.8	-0.3	-0.6	-0.4	-0.1	0.1	DF	DF	DF	DF	-0.3	0.1							
15-Apr	DF	DF	DF	DF	DF	-0.2	0.0	-0.3	-0.1	0.2	0.3	-0.2	-0.6	0.1	0.3	-0.1	0.1	0.0	0.1	-0.1	-0.1	0.1	-0.1	-0.1	0.0	0.3							
16-Apr	0.0	0.2	-0.1	-0.2	-0.2	UO	UO	UO	UO	-0.2	-0.4	-0.1	-0.1	0.2	0.5	0.3	0.2	0.2	0.3	0.5	0.1	-0.2	0.1	0.3	0.1	0.5							
17-Apr	-0.1	0.2	-0.2	-0.3	-0.1	-0.2	-0.2	-0.1	0.1	0.0	-0.2	0.2	0.1	-0.3	0.1	0.1	-0.3	0.1	0.0	0.1	0.1	0.0	-0.1	0.0	0.0	0.2							
18-Apr	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.2	-0.1	-0.2	-0.4	-0.2	-0.3	-0.3	-0.1	0.1	0.3	0.2	0.0	0.1	0.0	0.0	-0.1	-0.1	0.0	-0.1	0.3							
19-Apr	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.4	-0.3	-0.6	-0.1	-0.7	-0.3	-0.8	-0.9	-0.7	-0.5	-0.3	-0.2	-0.4	-0.8	-0.3	-0.3	0.1							
20-Apr	-0.1	-0.1	0.1	0.2	-0.1	-0.2	0.0	-0.1	-0.5	-0.8	-1.0	-0.8	-1.0	-0.7	-1.0	-1.0	-0.8	-0.7	-0.5	-0.1	-0.2	0.0	-0.2	-0.1	-0.4	0.2							
21-Apr	0.0	-0.2	-0.7	-0.9	-0.6	-0.4	-0.4	-0.2	-0.2	-0.1	-0.6	-0.4	-0.3	-0.4	-0.5	0.1	-0.2	-0.5	-0.1	0.0	0.0	0.0	0.0	0.0	-0.3	0.1							
22-Apr	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.2	-0.5	-0.1	0.0	0.3	-0.1	-0.2	-0.1	0.0	-0.1	0.1	0.0	0.2	0.0	-0.2	0.0	0.3							
23-Apr	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	-0.2	0.1	-0.1	-0.7	-0.1	-0.2	0.1	0.1	0.0	0.0	0.0	-0.1	0.1	0.1	0.0	0.1							
24-Apr	0.1	0.1	0.1	0.0	0.0	0.0	0.0	-0.1	0.4	0.0	-1.0	-1.3	-0.5	-0.7	-0.7	-0.7	-0.5	-0.5	-0.5	-0.8	-0.6	-1.2	-0.9	-0.8	-0.4	0.4							
25-Apr	-1.2	-0.8	-0.5	-0.4	-0.7	-0.1	-0.4	-0.8	-1.0	-1.2	-1.3	-1.2	-1.6	-1.5	-1.4	-1.3	-1.6	-0.9	-0.3	-0.6	-0.5	-0.2	-0.1	-0.5	-0.8	-0.1							
26-Apr	-0.6	-0.2	0.1	0.1	-0.2	0.0	0.1	0.1	-0.3	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.2	-0.1	0.0	-0.1	0.0	0.1	-0.1	-0.2	-0.1	-0.1	0.1							
27-Apr	-0.6	-0.4	-0.5	-0.3	-0.2	-0.2	-0.5	-0.8	-0.2	-0.6	-0.7	-0.8	-1.3	-1.4	-1.8	-1.5	-1.4	-1.7	-1.5	-0.4	-0.1	-0.3	-0.2	0.0	-0.7	0.0							
28-Apr	0.1	0.2	0.0	0.1	0.0	0.0	0.1	-0.5	-0.5	-0.2	-0.4	-0.7	-0.9	-0.6	-1.4	-1.0	-1.1	-1.2	-0.3	-0.4	-0.2	-0.4	-0.2	-0.2	-0.4	0.2							
29-Apr	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.0	0.0	0.0	-0.1	-0.3	-0.1	-0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.3	0.1	0.1	0.0	0.3							
30-Apr	0.2	0.2	-0.2	-0.3	0.0	0.1	0.2	0.0	0.1	0.0	-0.3	-0.1	0.0	-0.2	0.1	-0.1	-0.2	-0.4	-0.4	0.0	-0.2	-0.2	-0.1	0.0	-0.1	0.2							
																								Diurnal Average									
																								Diurnal Maximum									
DF - DAS Failure      UO - Unstable Operation																																	



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Vertical Wind Speed 20 m (VW20m) - km/h**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.7 km/h on Apr 16 16:00 Minimum Value: 0.1 km/h on Apr 19 04:00 Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.9 Median = 1.7 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 3.1 P <sub>99</sub> = 4.3																				Hours in Service: 720 Hours of Data: 685 Hours of Missing Data: 35 Hours of Calibration: 0 Percent Operational Time: 95.1					
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-Apr	2.7	3.5	2.8	1.4	2.2	2.3	1.8	2.1	3.0	3.5	2.7	3.2	3.6	3.1	2.5	2.9	3.1	2.4	1.4	0.8	0.2	0.2	0.3	0.2	3.6
2-Apr	0.6	0.5	0.5	0.9	1.3	1.9	1.9	1.6	1.3	1.5	1.5	1.7	2.4	2.6	2.0	2.3	1.9	1.5	0.7	1.2	0.9	0.8	0.5	0.8	2.6
3-Apr	0.8	1.2	0.9	0.5	0.9	1.7	2.4	2.9	1.3	0.4	1.1	1.1	1.2	1.5	1.5	1.4	1.7	1.7	1.5	1.0	0.7	0.4	0.5	0.5	2.9
4-Apr	0.7	0.7	1.1	1.5	1.6	1.5	2.4	1.4	2.0	2.2	2.0	1.8	1.7	2.1	2.3	1.9	1.7	1.6	1.7	1.1	0.6	0.7	0.8	0.6	2.4
5-Apr	0.7	0.7	0.5	0.7	0.7	0.6	0.9	1.3	1.3	1.2	1.6	2.0	2.0	1.9	1.7	1.3	UO	UO	1.3	1.3	1.2	0.6	0.6	0.8	2.0
6-Apr	1.1	1.3	1.5	1.1	1.0	0.9	0.8	1.1	1.5	1.2	1.8	1.6	1.8	1.9	1.3	1.3	1.7	1.3	0.8	0.5	0.5	0.3	0.2	0.3	1.9
7-Apr	0.2	0.2	0.2	0.4	0.6	0.4	0.5	1.1	1.4	1.3	1.5	DF	DF	2.3	2.1	1.8	1.6	1.9	1.5	1.0	0.5	0.7	0.7	0.9	2.3
8-Apr	0.5	0.8	0.7	0.5	0.5	0.6	0.8	0.9	1.5	1.5	1.6	2.1	1.9	2.1	2.1	2.3	1.9	1.1	0.3	0.1	0.2	0.7	0.6	0.4	2.3
9-Apr	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.5	1.0	1.2	2.0	2.8	2.4	2.9	2.8	2.5	2.2	2.8	2.4	2.5	1.5	1.2	1.3	0.7	2.9
10-Apr	0.7	0.5	0.3	0.4	1.8	1.9	1.7	1.2	1.5	2.8	2.6	1.0	1.9	2.5	2.4	3.0	2.4	2.1	1.7	0.6	0.3	0.2	0.2	0.1	3.0
11-Apr	0.1	0.1	0.2	0.2	0.2	0.4	0.8	0.7	1.9	2.1	2.3	3.1	3.2	3.7	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	3.7
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	2.9	2.7	2.9	2.2	2.1	2.1	1.8	2.4	2.1	2.2	1.3	1.8	1.4	1.3	1.5	1.1	2.9
13-Apr	1.0	0.9	1.3	1.1	2.5	3.0	3.1	3.2	3.1	3.0	3.4	4.3	4.4	4.0	3.8	4.0	2.9	2.8	2.3	1.3	0.9	1.3	1.4	1.6	4.4
14-Apr	1.3	0.5	0.5	0.4	0.5	0.7	0.8	1.2	1.8	1.7	1.9	2.0	1.8	2.3	2.1	2.2	1.6	1.4	0.6	0.7	DF	DF	DF	DF	2.3
15-Apr	DF	DF	DF	DF	DF	0.3	1.5	1.7	1.3	1.0	1.2	1.8	1.7	2.6	2.7	2.3	2.2	2.7	2.2	2.3	1.8	2.1	1.9	1.8	2.7
16-Apr	2.0	2.9	3.2	2.8	3.0	UO	UO	UO	UO	4.1	4.3	4.5	4.6	4.3	4.6	4.7	4.1	3.0	3.0	2.8	2.8	2.8	2.8	3.1	4.7
17-Apr	3.1	3.4	3.3	2.8	2.8	2.4	2.7	3.3	3.2	3.2	3.4	3.8	4.3	4.0	4.0	4.0	4.0	3.6	3.1	2.4	1.4	1.0	0.9	1.0	4.3
18-Apr	1.0	0.9	1.1	1.9	2.0	2.0	2.6	2.7	3.0	3.4	3.3	3.4	3.2	3.6	3.5	3.3	3.7	2.9	2.7	1.5	0.7	0.8	0.7	0.5	3.7
19-Apr	0.2	0.1	0.1	0.1	0.1	0.1	0.7	0.9	1.2	1.5	2.0	2.1	2.1	1.8	2.0	1.7	1.5	1.5	1.2	1.2	1.0	1.4	2.4	2.3	2.4
20-Apr	1.6	1.7	1.2	1.0	1.2	1.2	1.3	1.3	1.4	1.4	2.2	2.5	2.0	2.1	1.9	1.9	1.8	1.4	0.8	0.4	0.6	0.8	0.5	0.7	2.5
21-Apr	0.8	0.9	0.8	1.0	0.9	0.7	0.8	0.8	1.6	1.9	2.3	2.8	2.6	2.4	2.3	1.9	1.3	1.1	1.0	0.4	0.2	0.2	0.2	0.2	2.8
22-Apr	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.6	1.2	1.5	1.9	2.7	2.5	2.4	2.0	2.2	2.4	2.6	2.6	1.2	0.4	1.4	1.4	0.9	2.7
23-Apr	0.4	0.3	0.3	0.2	0.1	0.1	0.2	0.7	1.3	1.7	2.0	1.9	1.8	2.1	1.6	1.5	1.7	1.8	2.1	1.6	1.0	0.7	1.1	0.6	2.1
24-Apr	0.5	1.0	0.7	0.6	0.7	0.9	1.0	1.1	1.3	1.9	2.7	2.4	3.3	3.5	3.9	3.8	3.4	3.0	3.0	3.1	3.0	3.6	3.2	2.6	3.9
25-Apr	2.6	1.9	1.9	1.3	2.1	2.0	2.4	2.4	1.9	2.5	2.8	3.6	3.5	3.5	3.2	3.4	4.0	2.9	3.8	2.9	3.1	3.2	0.8	1.5	4.0
26-Apr	2.2	2.8	2.7	2.9	1.9	1.9	3.8	3.4	3.3	2.9	3.0	3.0	3.0	3.2	2.9	2.5	2.3	1.9	1.9	1.4	0.9	1.0	1.6	1.6	3.8
27-Apr	2.3	1.6	1.7	2.3	0.9	1.0	1.1	2.0	2.5	2.5	2.5	2.7	2.7	2.8	2.5	2.7	2.4	2.8	2.4	1.2	1.6	1.3	1.7	1.2	2.8
28-Apr	0.7	1.2	1.1	0.8	0.5	0.3	1.6	3.0	2.7	3.1	3.4	2.9	2.7	2.8	2.1	2.3	2.4	2.2	2.6	2.7	2.1	2.4	1.8	1.6	3.4
29-Apr	1.6	1.0	1.0	0.7	0.7	0.6	0.8	1.2	1.5	1.7	1.7	2.0	2.2	2.5	3.0	3.0	2.9	2.5	2.8	2.7	2.6	2.9	2.6	2.4	3.0
30-Apr	2.4	2.7	2.6	2.8	3.1	3.2	3.5	3.7	3.6	3.1	2.7	2.8	3.1	2.9	3.3	2.4	3.0	3.1	3.1	2.7	2.2	2.6	2.7	2.2	3.7
Diurnal Maximum																									
DF - DAS Failure                      UO - Unstable Operation																									





Maximum Value: 1.5 km/h on Apr 8 03:00		Maximum Daily Average: 0.4 km/h on Apr 2		Hours in Service: 720																						
Minimum Value: -1.8 km/h on Apr 13 13:00		Minimum Daily Average: -0.6 km/h on Apr 13		Hours of Data: 296																						
Maximum Diurnal Average: 0.1 km/h at hour 4		Minimum Diurnal Average: -0.3 km/h at hour 13		Hours of Missing Data: 424																						
Monthly Average: -0.04 km/h		Percentiles: P <sub>1</sub> = -1.4 P <sub>10</sub> = -0.6 Q <sub>1</sub> = -0.2 Median = 0.0 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 0.9		Hours of Calibration: 0																						
				Percent Operational Time: 41.1																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	-0.2	-1.3	-1.1	-0.3	-0.5	-0.3	-0.1	-0.9	-0.7	-1.1	-0.7	-0.7	-1.1	-0.9	-0.8	-0.7	-0.7	-0.5	-0.4	-0.3	0.0	0.2	0.2	0.5	-0.5	0.5
2-Apr	0.8	0.5	0.3	0.2	0.2	0.5	0.2	0.7	0.7	0.5	0.0	0.3	0.9	0.4	0.4	0.2	0.1	0.4	0.5	0.2	0.0	0.4	0.2	0.4	0.4	0.9
3-Apr	0.2	0.0	0.3	0.3	0.3	-0.5	-0.8	-1.0	-0.3	0.0	0.3	0.0	0.0	-0.1	-0.1	-0.1	0.2	0.2	0.1	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.3
4-Apr	0.1	0.0	-0.2	-0.2	-0.1	-0.3	-0.3	-0.1	-0.1	-0.4	-0.3	0.5	-0.1	0.1	0.0	0.4	0.2	0.0	0.2	0.3	0.0	-0.2	-0.1	0.0	0.0	0.5
5-Apr	0.0	0.0	0.2	0.0	0.2	0.3	0.3	0.2	0.0	-0.2	-0.2	-0.4	-0.3	-0.2	-0.1	-0.1	UO	UO	0.0	0.0	0.0	0.0	-0.1	-0.3	0.0	0.3
6-Apr	-0.2	-0.4	-0.6	-0.1	0.0	0.0	0.0	0.4	UO	-0.1	-0.2	0.0	-0.2	-0.3	-0.3	0.1	-0.1	0.1	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.1	0.4
7-Apr	0.0	0.1	0.1	0.2	-0.2	0.2	0.3	0.1	0.2	-0.2	-0.3	DF	DF	-0.2	-0.2	0.2	-0.1	-0.4	-0.1	0.0	0.1	0.4	0.3	0.4	0.0	0.4
8-Apr	0.3	0.8	1.5	0.8	0.6	0.5	0.4	0.2	-0.1	-0.1	0.0	0.1	0.2	0.0	-0.2	0.0	-0.1	0.2	0.1	0.1	0.3	0.5	-0.1	0.0	0.3	1.5
9-Apr	0.1	0.1	0.1	0.2	0.3	0.5	0.3	0.0	0.0	0.1	-0.2	-0.6	-0.5	-0.5	-0.2	-0.5	-0.4	-0.4	-0.3	-0.3	0.0	0.2	0.1	-0.2	-0.1	0.5
10-Apr	-0.2	-0.2	0.0	-0.2	-0.4	-0.3	-0.5	-0.1	-0.2	-0.8	-0.6	0.0	0.0	0.1	-0.5	0.0	0.1	-0.1	-0.2	0.0	0.1	0.3	0.0	0.0	-0.2	0.3
11-Apr	0.1	0.1	0.1	0.1	0.2	0.3	0.2	-0.1	0.5	0.4	0.5	0.7	DF	UO	UO	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	0.7
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	1.0	0.6	-0.5	0.1	0.6	0.5	0.5	0.5	0.3	0.8	0.3	0.2	0.0	-0.2	--	1.0
13-Apr	0.4	0.8	0.6	0.5	0.3	-0.3	-0.3	-0.6	-1.1	-0.5	-1.2	-1.4	-1.8	-1.2	-1.2	-1.6	-0.6	-1.3	-0.6	-0.7	0.0	-0.5	-0.7	-1.7	-0.6	0.8
14-Apr	-0.8	0.0	0.1	0.3	0.9	0.5	0.3	0.1	0.4	0.0	0.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	DF	DF	--	0.9
15-Apr	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
16-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
20-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
21-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
23-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
24-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
25-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
27-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
28-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
29-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
30-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
																								Diurnal Average		
																								Diurnal Maximum		
0.0 0.0 0.1 0.1 0.1 0.1 0.0 -0.1 -0.1 -0.2 -0.1 -0.1 -0.3 -0.2 -0.2 -0.1 -0.1 -0.1 -0.1 0.0 0.0 0.0 0.1 0.0 -0.1																										
0.8 0.8 1.5 0.8 0.9 0.5 0.4 0.7 0.7 0.5 1.0 0.7 0.9 0.4 0.6 0.5 0.5 0.5 0.5 0.5 0.8 0.3 0.5 0.3 0.5																										
DF - DAS Failure																								UO - Unstable Operation		



Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Vertical Wind Speed 45 m (VW45m) - km/h

Lower Camp Met Tower - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 4.4 km/h on Apr 13 12:00			Hours of Data:	296
Minimum Value: 0.1 km/h on Apr 11 01:00			Hours of Missing Data:	424
Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.7 Median = 1.3 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.8			Hours of Calibration:	0
			Percent Operational Time:	41.1

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-Apr	2.7	3.3	2.8	1.5	2.3	2.0	1.6	2.2	3.3	3.6	3.0	3.4	3.4	3.3	2.7	3.2	3.2	2.7	1.3	0.8	0.2	0.3	0.4	0.4	3.6
2-Apr	0.5	0.4	0.5	0.9	1.6	1.6	1.4	1.3	1.1	1.1	1.1	1.3	1.7	1.6	1.7	2.2	1.7	0.9	1.6	1.0	0.9	0.8	0.7	2.7	
3-Apr	0.7	0.8	0.7	0.6	1.2	1.7	1.8	2.8	1.4	0.4	1.3	1.1	1.3	1.5	1.3	1.1	1.5	1.7	1.4	1.3	1.0	0.6	0.4	0.4	2.8
4-Apr	0.8	0.7	0.9	1.4	1.4	1.6	2.5	1.3	1.7	1.8	1.8	1.9	1.6	2.3	2.4	2.0	1.6	1.2	1.6	1.2	0.8	1.0	1.0	0.7	2.5
5-Apr	0.8	0.7	0.7	0.9	0.8	0.7	0.8	1.1	1.2	1.2	1.5	2.1	1.9	1.9	1.6	1.2	UO	UO	1.2	1.4	1.2	0.7	0.7	0.6	2.1
6-Apr	1.0	1.3	1.4	1.0	1.0	0.8	0.8	1.2	UO	1.2	1.6	1.6	1.6	1.6	1.3	1.4	1.3	1.1	0.7	0.6	0.5	0.3	0.2	0.2	1.6
7-Apr	0.1	0.2	0.3	0.7	0.7	0.6	0.5	0.8	1.4	1.7	1.8	DF	DF	2.6	2.1	2.2	1.5	1.5	1.3	0.6	0.6	0.5	0.7	1.2	2.6
8-Apr	1.0	1.3	1.0	0.5	0.4	0.6	0.7	0.4	0.6	0.6	1.0	1.3	1.8	2.7	2.7	2.4	1.8	1.1	0.3	0.2	0.4	0.9	0.6	0.4	2.7
9-Apr	0.5	0.4	0.4	0.4	0.6	0.4	0.4	0.5	1.0	1.0	1.9	2.4	2.3	2.5	2.6	2.2	1.8	2.4	2.0	1.7	0.9	1.0	1.2	0.7	2.6
10-Apr	0.7	0.6	0.3	0.6	1.8	2.1	1.9	1.5	1.6	2.8	2.7	1.1	1.5	2.6	2.1	2.7	2.2	2.1	1.7	0.8	0.6	0.4	0.3	0.1	2.8
11-Apr	0.1	0.1	0.4	0.4	0.4	0.5	0.5	0.7	1.4	1.9	2.0	2.5	DF	UO	UO	DF	DF	DF	DF	DF	DF	DF	DF	DF	2.5
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	2.5	2.4	2.4	2.4	1.5	1.4	1.4	1.5	1.4	1.6	1.3	1.5	1.5	1.3	2.5
13-Apr	1.1	0.9	1.4	1.6	2.2	2.4	2.6	3.4	3.2	3.5	3.6	4.4	4.3	3.8	3.9	3.8	3.2	2.8	2.5	1.2	0.8	1.8	1.6	1.6	4.4
14-Apr	1.6	0.7	0.6	0.6	0.6	0.7	0.5	0.7	1.5	1.2	1.3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	DF	DF	1.6
15-Apr	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
20-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
23-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
24-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
25-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
27-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
28-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
29-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
30-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
	2.7	3.3	2.8	1.6	2.3	2.4	2.6	3.4	3.3	3.6	3.6	4.4	4.3	3.8	3.9	3.8	3.2	2.8	2.5	1.7	1.3	1.8	1.6	1.6	
	Diurnal Maximum																								

DF - DAS Failure      UO - Unstable Operation



Maximum Value: 2.5 km/h on Apr 25 06:00																				Maximum Daily Average: 0.7 km/h on Apr 24					Hours in Service:	720	
Minimum Value: -2.6 km/h on Apr 14 00:00																				Minimum Daily Average: -0.9 km/h on Apr 13					Hours of Data:	690	
Maximum Diurnal Average: 0.3 km/h at hour 21																				Minimum Diurnal Average: -0.2 km/h at hour 15					Hours of Missing Data:	30	
Monthly Average: 0.10 km/h																				Percentiles: P <sub>1</sub> = -1.5 P <sub>10</sub> = -0.8 Q <sub>1</sub> = -0.2 Median = 0.1 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.9 P <sub>99</sub> = 1.8					Hours of Calibration:	0	
																									Percent Operational Time:	95.8	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	-0.3	-1.6	-1.2	-0.7	-0.6	-1.0	-0.7	-1.2	-1.0	-1.2	-0.7	-0.8	-1.2	-1.6	-1.1	-1.0	-0.7	-0.7	-0.7	-0.4	-0.1	0.0	-0.1	-0.1	-0.8	0.0	
2-Apr	0.1	0.1	0.3	0.3	1.1	1.9	1.6	1.1	1.0	0.8	0.0	0.9	1.8	0.5	0.4	-0.1	-0.5	0.3	0.6	0.8	0.1	0.2	0.3	0.8	0.6	1.9	
3-Apr	0.6	0.3	0.3	0.4	-0.1	-0.7	-0.9	-1.4	-0.4	-0.1	0.1	-0.2	-0.3	-0.1	-0.1	0.1	0.9	1.1	0.2	0.2	0.2	0.0	0.0	0.2	0.0	1.1	
4-Apr	0.1	0.0	0.1	0.0	-0.2	-0.3	-0.3	0.0	0.2	-0.4	-0.5	0.3	-0.4	0.5	0.2	1.4	0.4	0.5	1.0	1.1	0.2	-0.2	-0.2	0.3	0.2	1.4	
5-Apr	0.7	0.2	0.8	0.3	0.8	0.9	0.7	0.5	0.4	-0.1	-0.2	-0.2	-0.3	-0.2	0.0	-0.1	0.0	0.1	0.1	0.2	0.2	0.1	-0.1	-0.2	0.2	0.9	
6-Apr	-0.2	-0.3	-0.9	0.0	0.3	0.0	0.1	-0.1	0.1	0.2	-0.1	0.1	0.0	0.1	-0.1	0.0	0.3	0.5	0.2	0.1	0.0	0.0	-0.1	0.0	0.0	0.5	
7-Apr	0.0	0.1	0.1	0.0	-0.4	-0.2	-0.1	0.1	0.2	-0.2	-0.6	DF	DF	-0.7	-0.8	0.2	-0.4	-0.7	-0.7	-0.7	-0.7	-0.3	-0.5	0.3	-0.3	0.3	
8-Apr	-0.3	0.0	-0.1	-0.1	0.0	-0.2	0.1	0.2	-0.1	-0.2	-0.3	0.0	0.3	-0.4	-0.4	0.0	-0.5	-0.1	0.1	0.2	0.5	0.9	-0.2	-0.1	0.0	0.9	
9-Apr	-0.1	-0.1	0.0	-0.2	0.1	0.0	0.0	-0.1	-0.1	-0.3	-0.4	-1.1	-0.9	-0.9	-0.8	-0.9	-0.6	-1.0	-0.6	-0.8	-0.2	-0.1	0.1	-0.3	-0.4	0.1	
10-Apr	0.0	-0.1	-0.2	-0.3	-0.7	-0.7	-0.7	-0.4	-0.4	-0.8	-0.4	-0.2	-0.3	0.3	-0.2	0.4	0.5	0.4	0.0	0.4	0.2	0.5	0.3	0.0	-0.1	0.5	
11-Apr	0.2	0.2	0.3	0.4	0.3	0.1	0.3	0.3	1.2	0.7	0.9	0.4	0.6	0.8	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	1.2
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	1.3	2.4	2.5	1.6	-1.3	-0.8	0.5	-0.1	0.2	0.9	0.9	1.5	0.6	1.0	0.7	-0.6	--	2.5	
13-Apr	0.0	0.0	0.0	0.1	-0.5	-1.2	-0.9	-0.4	-1.1	-0.8	-0.6	-1.5	-2.3	-1.2	-1.3	-1.4	-0.9	-1.3	-1.0	-0.9	-0.3	-1.6	-1.1	-2.6	-0.9	0.1	
14-Apr	-2.4	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.4	0.2	-0.2	0.2	0.5	-0.8	-1.0	-1.2	-0.7	-0.7	-0.3	0.1	0.4	DF	DF	DF	DF	-0.3	0.5	
15-Apr	DF	DF	DF	DF	DF	-0.2	-0.3	-0.5	-0.3	-0.1	0.0	0.3	0.1	0.4	0.5	0.6	0.5	0.1	0.4	0.5	0.5	0.0	-0.1	0.2	0.1	0.6	
16-Apr	0.4	0.5	0.2	0.4	0.3	0.1	0.0	0.3	0.3	0.2	0.1	0.6	0.9	1.3	0.9	0.5	0.9	0.7	0.8	0.7	0.7	0.2	0.6	0.5	0.5	1.3	
17-Apr	0.7	0.5	0.6	0.5	0.5	0.1	0.5	0.7	0.4	0.6	-0.4	1.1	0.2	0.1	0.9	0.9	-0.1	0.6	0.6	0.4	0.3	0.3	0.5	1.1	0.5	1.1	
18-Apr	0.7	0.6	0.2	0.1	0.3	0.4	0.1	0.4	0.1	-0.1	0.1	0.4	0.6	0.3	0.3	1.0	0.7	0.7	0.7	0.5	0.1	0.1	0.1	0.1	0.4	1.0	
19-Apr	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.2	0.0	-0.5	-0.6	-0.8	-0.3	-0.7	-1.1	0.4	0.0	0.2	0.1	-0.1	-0.6	1.5	-0.1	1.5	
20-Apr	1.6	1.2	1.3	1.5	0.8	0.1	-0.1	0.0	0.0	-0.6	-0.8	-0.8	-1.1	-0.9	-1.2	-0.6	-0.7	-0.5	-0.1	0.1	0.3	0.2	0.2	0.2	0.0	1.6	
21-Apr	0.7	0.4	-0.9	-1.3	-0.9	0.0	0.0	-0.3	0.8	0.5	0.6	0.5	0.9	0.8	0.5	0.4	-0.5	-0.1	-0.2	0.0	0.4	0.3	0.1	-0.1	0.1	0.9	
22-Apr	-0.1	0.0	0.0	0.1	-0.1	-0.2	-0.2	-0.2	-0.4	-0.1	-0.3	0.0	0.6	0.1	-0.5	-0.1	0.2	0.1	0.3	0.8	0.6	1.1	1.4	0.2	0.1	1.4	
23-Apr	0.1	0.2	0.3	0.0	0.0	0.0	0.1	0.1	-0.3	-0.8	0.0	2.0	1.7	-0.5	0.0	0.5	-0.1	0.8	0.7	1.0	0.6	0.4	0.1	0.0	0.3	2.0	
24-Apr	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.5	0.2	1.0	1.2	0.5	1.0	0.5	1.0	1.5	1.3	0.7	1.0	1.0	1.1	0.8	0.8	0.7	0.7	1.5	
25-Apr	1.1	0.5	-0.3	0.1	0.2	2.5	1.0	0.0	-0.9	-0.7	-0.5	-0.9	-1.1	-1.0	-0.9	-1.1	-1.3	-1.0	-1.4	-1.0	-0.6	-0.5	-0.2	-0.4	-0.3	2.5	
26-Apr	-0.7	-0.4	-0.7	-0.6	-0.4	-0.2	-1.1	0.2	0.5	0.4	-0.3	-0.9	-0.4	-0.8	-0.6	0.3	-0.5	0.5	0.3	0.2	0.8	0.4	0.7	1.7	-0.1	1.7	
27-Apr	1.3	0.6	0.6	1.9	0.2	0.5	0.2	0.2	0.8	0.2	0.6	0.5	-0.3	0.4	-1.8	-0.3	-0.7	-0.8	-0.4	1.5	1.6	2.4	1.0	1.2	0.5	2.4	
28-Apr	0.7	-0.1	0.0	0.4	0.6	0.5	0.8	0.1	0.8	0.9	0.4	-0.1	-0.2	-0.2	0.0	0.2	0.1	-0.1	0.3	0.9	1.6	0.6	0.7	0.5	0.4	1.6	
29-Apr	0.5	0.3	0.4	0.0	0.4	0.3	0.7	0.2	0.2	0.1	0.2	-0.3	-0.1	-0.1	0.4	0.6	0.9	0.7	1.1	0.5	0.7	0.7	0.9	0.7	0.4	1.1	
30-Apr	0.7	0.7	0.5	0.7	0.7	0.4	0.6	0.8	0.5	0.3	UO	0.7	0.9	0.8	0.8	0.7	0.1	0.1	0.2	0.1	0.2	0.6	0.9	0.1	0.5	0.9	
																								Diurnal Average			
																								Diurnal Maximum			
DF - DAS Failure																								UO - Unstable Operation			



Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Vertical Wind Speed 100 m (VW100m) - km/h

Lower Camp Met Tower - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.6 km/h on Apr 16 13:00  Minimum Value: 0.1 km/h on Apr 19 05:00  Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.0 Median = 1.7 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 3.3 P <sub>99</sub> = 4.2																				Hours in Service: 720 Hours of Data: 690 Hours of Missing Data: 30 Hours of Calibration: 0 Percent Operational Time: 95.8					
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-Apr	2.9	3.2	2.7	1.4	2.2	1.1	1.1	2.3	3.7	3.5	3.2	3.4	3.4	3.0	2.6	3.0	3.1	2.3	1.2	0.6	0.4	0.3	0.5	0.5	3.7
2-Apr	0.7	0.6	0.7	0.8	1.6	1.5	1.2	1.4	1.2	1.3	1.4	1.6	2.4	2.0	2.3	3.2	2.3	1.6	1.4	2.0	1.5	1.0	1.5	1.3	3.2
3-Apr	0.9	1.0	0.9	0.7	1.3	2.0	1.1	2.3	1.4	0.6	1.3	1.4	1.6	1.6	1.0	0.8	2.0	2.3	1.8	1.9	1.4	0.9	0.6	0.5	2.3
4-Apr	0.9	1.1	0.5	0.8	1.1	1.6	2.2	1.3	1.8	1.6	1.9	2.2	1.7	2.7	2.5	1.8	1.4	1.7	1.5	1.3	1.2	1.3	1.2	1.2	2.7
5-Apr	1.0	0.8	1.0	1.0	0.7	1.0	0.8	1.3	1.2	1.4	1.2	1.8	1.6	1.3	1.4	0.7	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.2	1.8
6-Apr	0.5	1.0	1.3	1.1	1.1	0.8	0.5	0.9	1.4	1.2	1.6	1.8	1.6	1.5	1.4	1.1	1.1	1.1	0.6	0.4	0.4	0.2	0.2	0.3	1.8
7-Apr	0.2	0.2	0.3	0.7	0.6	0.7	0.7	1.0	1.6	1.8	2.2	DF	DF	2.4	2.0	2.4	1.6	1.0	1.1	0.8	0.7	0.4	0.5	1.4	2.4
8-Apr	2.0	1.6	1.2	0.6	0.6	0.4	0.6	0.6	0.7	1.1	1.0	1.5	2.3	3.1	3.2	2.4	1.3	1.2	0.4	0.4	0.5	0.8	0.7	0.6	3.2
9-Apr	0.5	0.5	0.4	0.7	0.8	0.4	0.5	0.6	1.4	1.0	1.9	1.8	1.9	2.0	2.4	1.8	1.3	1.8	0.9	0.8	0.7	1.4	1.2	0.9	2.4
10-Apr	1.0	0.7	0.6	1.1	1.7	2.0	1.8	1.4	1.6	2.6	2.5	1.4	1.7	3.0	2.3	3.4	2.8	2.7	1.6	0.9	0.6	0.3	0.3	0.2	3.4
11-Apr	0.2	0.3	0.5	0.5	0.5	0.4	0.8	1.1	1.5	1.9	2.2	2.4	2.9	3.3	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	3.3
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	3.4	3.2	3.0	3.1	2.4	2.2	2.0	1.6	2.2	1.9	1.7	1.5	1.4	1.6	1.9	1.7	3.4
13-Apr	1.3	1.2	1.6	1.8	1.8	1.8	1.7	3.5	3.5	3.8	4.0	4.2	3.9	3.7	4.1	3.9	3.3	2.8	2.4	1.2	0.4	2.0	0.8	1.4	4.2
14-Apr	2.8	0.8	0.4	0.6	0.4	0.7	0.4	0.7	1.2	0.9	1.6	2.2	2.3	2.4	2.3	2.4	1.8	1.1	0.9	1.1	DF	DF	DF	DF	2.8
15-Apr	DF	DF	DF	DF	DF	0.7	1.1	1.7	1.0	0.8	1.2	1.7	1.6	2.8	3.2	2.8	2.5	2.6	2.5	2.5	2.0	1.7	1.1	1.1	3.2
16-Apr	1.9	2.9	2.8	2.8	2.2	2.4	3.0	3.1	2.8	3.5	3.6	4.2	4.6	4.0	4.2	4.3	4.0	3.7	3.7	3.4	3.1	2.3	2.7	2.8	4.6
17-Apr	2.7	3.3	3.2	2.8	2.7	2.3	2.7	3.2	2.8	3.3	3.0	3.8	3.8	3.8	4.4	4.3	3.7	3.3	3.4	2.1	1.2	0.9	0.9	0.9	4.4
18-Apr	0.8	1.1	1.0	1.4	1.8	2.5	2.3	2.4	2.6	2.7	3.1	3.4	3.5	3.6	3.8	4.0	3.6	3.1	2.9	1.4	0.5	0.4	0.5	1.0	4.0
19-Apr	0.4	0.1	0.2	0.1	0.1	0.2	0.4	0.4	1.0	1.6	2.3	2.5	2.6	2.5	2.7	2.1	2.0	2.1	1.1	0.6	0.7	0.9	0.7	0.7	2.7
20-Apr	0.7	1.1	1.0	1.8	2.5	2.2	1.9	2.1	2.1	1.3	1.9	2.2	2.2	2.3	2.2	2.6	1.6	1.3	0.6	0.3	0.5	0.6	1.2	1.1	2.6
21-Apr	1.1	1.2	1.0	1.0	1.0	0.9	0.8	0.5	1.3	1.5	2.4	2.9	2.7	2.6	2.8	2.2	1.8	1.2	0.9	0.4	0.5	0.6	0.3	0.5	2.9
22-Apr	0.3	0.3	0.2	0.3	0.2	0.4	0.6	0.6	1.3	1.8	1.9	2.8	3.1	3.1	2.7	2.5	2.2	2.6	2.4	1.6	0.7	1.8	2.1	1.5	3.1
23-Apr	0.8	0.7	0.7	0.3	0.2	0.2	0.2	0.2	0.9	1.5	2.5	2.6	2.1	2.6	2.5	2.2	1.8	2.1	2.2	2.2	1.7	1.7	2.0	0.8	2.6
24-Apr	1.3	1.5	1.4	0.8	1.3	1.1	0.6	0.5	1.0	2.3	3.0	2.0	3.4	3.2	3.7	3.4	3.5	3.7	3.5	3.5	3.2	3.0	2.9	2.6	3.7
25-Apr	2.6	2.0	1.4	1.2	1.1	1.4	1.4	1.4	1.5	2.2	2.6	2.9	2.9	2.6	2.6	2.7	2.4	2.9	3.9	2.2	2.7	2.7	0.7	1.3	3.9
26-Apr	1.9	2.7	2.6	2.7	1.9	2.0	3.5	4.1	3.3	3.6	3.1	3.3	4.1	3.6	3.6	2.8	2.5	2.6	2.2	0.9	0.9	1.7	1.4	1.4	4.1
27-Apr	2.1	1.5	1.6	2.5	1.6	1.4	1.5	1.9	2.0	2.5	3.4	4.0	4.2	4.1	3.1	3.8	3.3	2.9	2.7	1.9	1.9	1.4	1.4	1.2	4.2
28-Apr	0.9	1.6	1.6	1.1	1.1	0.9	2.0	2.1	2.0	2.6	2.6	2.5	1.9	2.2	1.8	1.9	1.9	1.8	1.6	2.1	2.0	1.7	1.6	1.2	2.6
29-Apr	1.5	1.2	0.9	0.9	1.0	0.7	0.9	1.1	1.6	1.5	1.6	1.8	2.1	3.3	3.3	3.1	3.3	2.7	2.8	2.5	2.4	2.7	2.6	2.2	3.3
30-Apr	2.1	2.8	2.7	2.6	3.1	3.3	3.6	3.5	3.2	2.6	UO	2.4	2.8	2.7	3.2	2.4	2.3	2.5	2.5	2.2	2.0	2.2	2.6	2.0	3.6
	Diurnal Maximum																								
	2.9 3.3 3.2 2.8 3.1 3.3 3.6 4.1 3.7 3.8 4.0 4.2 4.6 4.1 4.4 4.3 4.0 3.7 3.9 3.5 3.2 3.0 2.9 2.8																								
DF - DAS Failure	UO - Unstable Operation																								



Maximum Value: 4.6 km/h on Apr 25 06:00		Maximum Daily Average: 1.1 km/h on Apr 20		Hours in Service: 720																							
Minimum Value: -3.6 km/h on Apr 16 09:00		Minimum Daily Average: -0.2 km/h on Apr 28		Hours of Data: 682																							
Maximum Diurnal Average: 0.7 km/h at hour 22		Minimum Diurnal Average: 0.0 km/h at hour 15		Hours of Missing Data: 38																							
Monthly Average: 0.43 km/h		Percentiles: P <sub>1</sub> = -1.1 P <sub>10</sub> = -0.2 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.2 P <sub>99</sub> = 3.3		Hours of Calibration: 0																							
				Percent Operational Time: 94.7																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	1.5	-0.3	-0.1	0.2	0.5	0.7	0.8	-0.5	-0.2	0.2	0.1	0.4	0.0	-1.1	-0.2	-0.5	-0.1	0.1	-0.1	0.4	0.3	0.2	0.1	0.3	0.1	1.5	
2-Apr	0.4	0.0	-0.1	-0.7	0.9	2.9	2.4	1.9	2.1	1.7	0.4	1.3	2.6	1.0	0.2	-0.2	-0.5	0.0	0.7	1.3	-0.1	1.4	0.9	0.1	0.9	2.9	
3-Apr	0.1	-0.3	0.1	0.4	0.1	0.7	0.2	0.3	0.4	0.2	1.2	0.6	0.6	0.6	0.1	0.4	0.9	1.0	0.3	0.2	0.2	-0.1	0.2	0.1	0.3	1.2	
4-Apr	0.1	0.1	0.5	0.4	0.5	0.4	0.4	0.2	0.3	-0.2	-0.5	-0.3	-0.6	0.8	0.0	1.8	0.6	0.6	1.5	1.4	-0.1	-0.1	-0.4	0.1	0.3	1.8	
5-Apr	0.5	0.0	0.5	0.2	0.7	0.8	0.4	0.6	0.3	-0.1	0.1	0.4	0.0	0.2	0.3	0.1	0.2	0.7	0.3	0.6	0.4	0.2	0.2	0.3	0.3	0.8	
6-Apr	0.7	0.6	1.1	2.1	0.7	0.2	UO	0.7	UO	UO	UO	UO	0.0	0.4	0.0	0.3	0.5	0.7	0.3	0.4	0.3	0.2	0.2	0.2	0.5	2.1	
7-Apr	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.4	0.2	-0.6	DF	DF	0.1	-0.2	0.4	0.3	0.4	0.5	0.6	0.5	1.2	1.0	1.3	0.3	1.3	
8-Apr	0.8	0.5	0.5	0.1	0.0	-0.3	0.0	0.2	-0.1	0.0	-0.5	-0.2	-0.3	-0.2	0.6	1.2	0.3	0.3	0.5	0.2	0.1	0.6	0.3	0.2	0.2	1.2	
9-Apr	0.3	0.3	0.3	0.1	0.3	0.2	0.4	0.2	0.8	-0.4	0.1	0.0	0.2	0.4	0.8	0.2	0.9	0.7	1.3	0.8	1.2	0.8	0.8	0.3	0.5	1.3	
10-Apr	0.3	0.2	0.2	0.3	0.3	0.5	0.2	0.4	0.4	0.3	0.3	0.1	0.1	0.7	0.1	0.5	0.6	0.0	-0.4	0.0	0.0	0.1	0.2	0.0	0.2	0.7	
11-Apr	0.1	0.1	0.3	0.3	0.2	0.1	0.1	0.9	1.1	0.6	0.7	-0.4	-0.2	0.2	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	1.1
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	2.3	3.4	3.5	2.5	-1.2	-0.8	0.2	-0.1	0.3	1.6	1.4	1.5	0.3	0.7	0.2	-0.8	--	3.5	
13-Apr	0.1	0.4	0.6	1.5	1.4	1.0	1.4	1.3	-0.1	0.6	1.3	0.1	-0.6	0.6	0.0	0.1	0.3	-0.1	-0.2	-0.1	0.5	0.4	0.4	-0.8	0.4	1.5	
14-Apr	-1.0	0.1	0.3	0.2	0.1	0.0	0.0	0.2	0.1	-0.2	-0.3	-0.1	-1.1	-0.3	-0.6	-0.7	-0.5	0.2	0.6	0.3	DF	DF	DF	DF	-0.1	0.6	
15-Apr	DF	DF	DF	DF	DF	0.2	0.5	0.5	0.5	0.3	0.4	0.8	0.0	-0.3	0.0	0.5	0.2	-0.1	0.2	0.5	1.0	0.3	0.1	0.4	0.3	1.0	
16-Apr	0.7	0.9	0.9	0.9	0.9	UO	UO	-2.4	-3.6	-0.2	0.9	1.1	1.2	1.8	1.2	0.5	1.0	1.2	1.0	1.2	1.0	0.4	0.4	0.8	0.5	1.8	
17-Apr	0.8	0.7	1.0	0.8	0.7	0.3	0.5	0.5	0.2	0.9	0.0	1.7	0.3	-0.1	0.9	1.4	0.1	0.2	0.3	0.4	0.5	0.9	1.1	1.5	0.6	1.7	
18-Apr	1.7	1.6	0.6	0.4	0.8	0.7	0.1	0.7	0.5	-0.3	0.4	0.2	1.0	0.2	-0.1	0.9	0.6	0.3	0.3	0.7	0.5	0.5	0.5	0.5	0.6	1.7	
19-Apr	0.4	0.4	0.3	0.2	0.1	0.2	0.3	0.1	0.2	0.2	0.2	-0.2	-0.8	-0.9	-0.1	-0.3	-0.4	1.5	0.9	1.3	1.6	2.4	2.0	3.3	0.5	3.3	
20-Apr	3.6	3.1	3.3	4.3	3.3	1.9	1.0	1.0	0.5	0.3	0.1	0.0	-0.1	-0.4	-0.8	0.2	0.0	0.0	0.6	0.6	0.7	0.7	1.5	1.4	1.1	4.3	
21-Apr	1.3	-0.5	-1.6	-2.5	-1.4	-0.1	-0.1	0.1	1.2	0.4	0.3	0.0	0.6	0.5	0.1	-0.1	-0.9	-0.1	-0.1	0.5	0.6	0.6	0.6	0.5	0.0	1.3	
22-Apr	0.5	0.4	0.6	0.4	0.4	0.5	0.4	0.2	0.1	0.4	0.1	0.1	0.6	0.4	-1.0	0.5	0.1	0.1	0.4	1.1	0.8	1.7	2.3	0.4	0.5	2.3	
23-Apr	0.9	0.9	0.9	0.5	0.2	0.1	0.1	0.1	0.1	-0.8	0.0	2.6	2.1	-0.6	0.0	0.8	0.1	0.9	0.7	1.0	0.2	-0.1	-0.1	0.0	0.4	2.6	
24-Apr	0.0	0.1	0.1	0.1	-0.1	0.0	0.0	0.1	0.2	0.7	1.0	-0.1	0.4	-0.4	0.2	0.6	0.5	0.1	0.5	0.1	0.5	0.5	0.4	0.5	0.3	1.0	
25-Apr	1.1	1.4	0.9	1.2	1.2	4.6	2.5	1.8	0.2	0.7	0.9	1.1	0.7	0.7	0.9	0.8	0.7	0.6	0.1	0.4	0.4	0.4	0.4	0.5	1.0	4.6	
26-Apr	0.4	0.7	0.4	0.3	0.5	0.6	0.1	1.2	1.9	0.8	0.1	-0.5	-0.3	0.0	0.0	0.6	-0.6	0.5	-0.1	-0.3	0.5	0.0	0.4	2.0	0.4	2.0	
27-Apr	1.3	0.5	1.0	2.7	-0.1	0.5	0.3	0.2	0.6	-0.2	0.5	0.6	0.2	0.5	-2.0	0.6	0.0	-0.5	-0.1	2.3	2.0	2.5	1.0	1.1	0.6	2.7	
28-Apr	0.3	-0.9	-0.7	-0.2	-0.1	0.6	0.2	-0.3	0.2	0.3	-0.6	-0.7	-0.9	-1.0	-0.8	-0.3	-0.6	-0.8	-0.4	0.2	1.2	0.1	0.1	0.0	-0.2	1.2	
29-Apr	0.1	0.1	0.1	0.0	0.2	0.3	0.8	0.2	0.2	0.2	0.4	-0.3	0.0	-0.6	0.2	0.4	1.3	0.8	1.3	0.5	0.7	1.0	0.8	0.9	0.4	1.3	
30-Apr	1.0	0.8	0.6	1.0	1.0	0.7	0.7	0.6	0.3	0.6	UO	UO	1.3	1.1	1.1	1.0	0.3	0.4	0.6	0.4	0.4	0.9	1.5	0.2	0.8	1.5	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.6 0.4 0.4 0.5 0.5 0.7 0.5 0.4 0.4 0.4 0.4 0.4 0.2 0.1 0.0 0.4 0.2 0.4 0.4 0.6 0.6 0.7 0.6 0.5			
																								3.6 3.1 3.3 4.3 3.3 4.6 2.5 1.9 2.3 3.4 3.5 2.6 2.6 1.8 1.2 1.8 1.3 1.6 1.5 2.3 2.0 2.5 2.3 3.3			
DF - DAS Failure																								UO - Unstable Operation			



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Vertical Wind Speed 163 m (VW163m) - km/h**  
**Lower Camp Met Tower - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1 Maximum Value: 5.0 km/h on Apr 16 13:00 Minimum Value: 0.1 km/h on Apr 19 05:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.0 Median = 1.8 Q <sub>3</sub> = 2.7 P <sub>90</sub> = 3.6 P <sub>99</sub> = 4.8		Hours in Service: 720 Hours of Data: 682 Hours of Missing Data: 38 Hours of Calibration: 0 Percent Operational Time: 94.7																							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	2.8	2.9	2.4	1.1	2.1	1.2	1.2	2.6	3.7	3.7	3.3	3.6	3.6	3.0	2.8	2.8	3.1	2.1	1.1	0.5	0.6	0.4	0.3	0.3	3.7
2-Apr	0.4	0.5	0.5	0.8	2.2	1.6	1.3	1.4	1.6	1.3	1.9	2.1	2.7	2.1	2.7	3.2	2.1	1.4	1.4	2.3	1.9	1.0	1.6	1.7	3.2
3-Apr	0.9	1.4	1.0	0.7	1.9	2.2	0.9	3.7	1.2	0.8	1.3	1.7	2.0	1.6	0.7	0.9	2.3	2.7	1.8	2.1	1.4	1.1	0.9	0.5	3.7
4-Apr	0.8	1.4	0.6	0.5	0.9	1.8	2.0	1.4	2.0	1.6	2.4	2.7	1.9	3.3	3.4	3.8	2.5	1.5	1.6	0.9	1.2	0.8	0.8	1.0	3.8
5-Apr	0.9	0.8	1.0	0.8	0.9	0.9	0.6	1.2	1.3	1.5	1.3	1.3	1.4	1.3	1.3	0.6	0.4	0.6	0.7	0.6	0.5	0.5	0.6	0.3	1.5
6-Apr	0.5	1.2	2.2	1.8	1.0	1.1	UO	0.8	UO	UO	UO	UO	1.7	1.5	1.5	0.9	1.1	1.4	0.6	0.5	0.6	0.3	0.2	0.4	2.2
7-Apr	0.2	0.3	0.3	0.5	0.6	0.4	0.6	1.0	1.6	1.8	2.2	DF	DF	2.2	1.8	2.5	1.9	1.3	1.2	1.1	0.8	0.5	0.8	0.7	2.5
8-Apr	1.5	1.6	1.5	0.7	0.4	0.4	0.5	0.7	0.8	1.4	1.1	1.7	2.7	3.7	3.9	2.9	1.6	1.1	0.6	0.4	0.5	1.0	1.2	0.8	3.9
9-Apr	0.6	0.5	0.3	0.4	0.4	0.3	0.5	0.6	1.3	1.2	2.1	1.5	1.7	2.0	2.7	1.9	1.4	1.9	1.0	1.1	0.9	1.2	1.4	1.3	2.7
10-Apr	1.3	1.0	0.7	1.0	1.6	2.0	1.9	1.5	1.7	2.6	2.3	1.6	2.2	3.4	2.6	4.0	3.0	2.7	1.3	0.8	0.5	0.4	0.4	0.4	4.0
11-Apr	0.4	0.5	0.5	0.8	0.5	0.7	0.9	0.8	1.6	2.2	2.1	2.0	3.2	3.7	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	3.7
12-Apr	DF	DF	DF	DF	DF	DF	DF	DF	4.1	4.0	3.9	3.6	2.5	1.9	2.1	1.8	2.3	2.2	1.6	1.7	1.7	2.0	2.2	1.9	4.1
13-Apr	1.5	1.6	1.8	1.8	1.9	1.8	1.8	3.5	3.2	4.1	4.9	4.5	4.1	4.0	4.2	4.0	3.3	2.7	2.3	0.8	0.4	1.1	0.6	0.7	4.9
14-Apr	1.6	0.4	0.4	0.5	0.4	0.7	0.5	0.7	1.2	1.3	2.0	2.2	2.6	2.9	2.3	2.5	2.0	1.1	1.2	DF	DF	DF	DF	DF	2.9
15-Apr	DF	DF	DF	DF	DF	1.0	1.3	2.0	0.7	0.7	1.0	2.1	1.9	2.7	3.3	2.9	2.5	2.5	2.1	2.6	2.3	2.1	1.3	1.5	3.3
16-Apr	2.3	3.2	3.1	3.1	2.7	UO	UO	3.6	3.3	4.5	4.1	4.4	5.0	4.8	4.8	4.4	4.4	4.0	3.9	3.6	3.2	2.6	3.0	3.0	5.0
17-Apr	3.4	3.7	3.6	2.9	3.0	2.6	3.0	3.3	3.0	3.5	3.8	4.4	4.3	4.5	4.9	4.8	4.0	3.3	3.4	2.1	1.2	1.0	0.7	0.8	4.9
18-Apr	0.8	1.1	1.2	1.1	1.8	2.4	2.4	2.4	2.9	3.1	3.7	3.9	3.9	4.1	4.6	4.5	4.2	3.2	2.8	1.5	0.6	0.7	0.8	1.1	4.6
19-Apr	0.6	0.2	0.2	0.1	0.1	0.2	0.2	0.4	0.9	2.0	2.1	2.2	2.4	2.5	2.5	2.4	2.3	2.5	1.0	0.7	0.6	0.7	0.7	0.8	2.5
20-Apr	0.7	0.8	0.7	1.4	1.5	1.5	1.8	2.0	1.8	1.1	1.8	2.5	2.4	2.4	2.3	3.1	1.9	1.5	0.9	0.4	0.5	0.4	0.8	1.3	3.1
21-Apr	1.2	1.2	0.9	0.8	1.6	1.4	1.3	0.8	1.2	1.7	2.9	3.5	3.2	3.0	3.4	2.7	2.2	1.6	1.1	0.4	0.3	0.5	0.5	0.5	3.5
22-Apr	0.5	0.3	0.3	0.4	0.3	0.3	0.4	0.6	1.1	1.9	2.1	3.7	3.8	3.9	3.3	2.7	2.5	2.9	2.7	1.6	0.7	1.6	2.0	1.3	3.9
23-Apr	0.5	0.4	0.4	0.6	0.2	0.1	0.1	0.3	0.9	1.3	3.3	2.9	2.3	3.5	3.5	2.8	2.3	2.2	2.1	1.4	1.4	1.7	2.5	0.9	3.5
24-Apr	1.5	1.9	1.3	1.2	1.4	1.1	0.7	0.5	1.1	2.6	3.0	2.3	3.5	3.4	3.5	3.3	3.3	3.7	3.9	3.7	3.1	3.4	2.9	2.0	3.9
25-Apr	3.1	1.9	1.6	1.1	1.0	1.6	1.1	1.0	1.3	1.8	2.3	3.0	3.1	2.3	2.5	3.0	1.7	2.8	3.8	2.0	2.5	2.3	0.8	1.2	3.8
26-Apr	1.9	2.3	2.1	2.6	1.8	1.9	3.4	3.9	3.6	3.9	3.7	3.7	4.8	3.9	4.0	3.8	3.3	3.1	2.5	0.8	0.5	1.3	1.5	1.7	4.8
27-Apr	2.4	1.9	2.3	2.3	2.4	2.0	2.0	2.2	2.4	2.8	3.8	4.7	4.8	4.8	3.5	4.5	3.6	2.5	2.6	2.1	1.8	1.5	1.5	1.4	4.8
28-Apr	1.0	1.6	1.5	1.1	0.9	1.2	2.2	1.9	1.8	2.6	2.4	2.5	2.0	2.2	2.1	2.1	2.1	1.8	1.4	1.7	2.0	1.6	1.5	1.3	2.6
29-Apr	1.5	1.5	0.9	0.9	0.6	0.5	1.0	1.1	1.6	1.9	1.9	2.0	2.6	3.9	4.1	3.4	3.8	2.8	2.8	2.5	2.5	2.6	2.6	2.2	4.1
30-Apr	2.3	2.9	2.9	3.1	3.5	3.3	3.6	3.5	3.3	2.8	UO	UO	3.1	3.2	3.5	3.0	2.4	2.5	2.6	2.4	2.2	2.6	2.7	2.4	3.6
Diurnal Maximum																									
DF - DAS Failure      UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS04 BUFFALO VIEWPOINT APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)

APRIL 2024

## MONTHLY SUMMARY

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	684	33	36	99.58	58.1	0	8.8	0
H2S (ppb) Average	681	35	39	99.44	5.9	0	0.7	0
THC (ppm) Average	683	33	37	99.44	4.2	-	2.5	-
NMHC(ppm) Average	683	33	37	99.44	0.01	-	0.001	-
CH4(ppm) Average	683	33	37	99.44	4.2	-	2.5	-
O3(ppb) Average	684	33	36	99.58	57.2	0	48.1	-
NO2(ppb) Average	679	36	41	99.31	44.3	0	13.5	-
NO(ppb) Average	679	36	41	99.31	109.7	-	16	-
NOX(ppb) Average	679	36	41	99.31	149.7	-	29.2	-
PM2.5(ug/m3) Average	718	2	2	100	65.9	0	17.9	0
Temperature (C) Average	720	0	0	100	18.7	-	10.6	-
Relative Humidity (%) Average	720	0	0	100	98.2	-	91.5	-
Wind Speed 10 m (km/h) Average	720	0	0	100	32	-	25	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	684	0.95	4	-	0	0	0	0.1	0.3	0.9	58.1
H2S (ppb) Average	681	0.19	0.4	-	0	0	0.1	0.1	0.2	0.4	5.9
THC (ppm) Average	683	2.13	0.2	-	2	2	2.1	2.1	2.1	2.3	4.2
NMHC(ppm) Average	683	0	0	-	0	0	0	0	0	0	0.01
CH4(ppm) Average	683	2.13	0.2	-	2	2	2.1	2.1	2.1	2.3	4.2
O3(ppb) Average	684	35.18	11.7	-	2	17.9	28.2	37.3	43.8	48.6	57.2
NO2(ppb) Average	679	4.74	6.9	-	0.1	0.4	0.9	2.3	5.1	12.4	44.3
NO(ppb) Average	679	1.34	7.5	-	0	0	0	0	0.3	1.1	109.7
NOX(ppb) Average	679	6.07	13	-	0.1	0.4	0.9	2.5	5.7	13.2	149.7
PM2.5(ug/m3) Average	718	5.03	6.3	-	0.5	1.4	2.1	3.3	5.7	9.2	65.9
Temperature 2 m (C) Average	720	5.39	5.7	-	-9.6	-1.4	0.9	4.7	9.5	14.1	18.7
Relative Humidity (%) Average	720	54.83	25	-	9.4	22.9	32.8	53.3	75.9	92	98.2
Wind Speed 10 m (km/h) Average	720	11.5	6	-	0	5	7	10	16	19	32
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	03 Apr 2024 10:00	03 Apr 2024 14:00	2-4	Maintenance - WBEA internal audit
ALL GASEOUS ANALYZERS	24 Apr 2024 08:00	24 Apr 2024 08:00	1	Maintenance - sample manifold cleaned

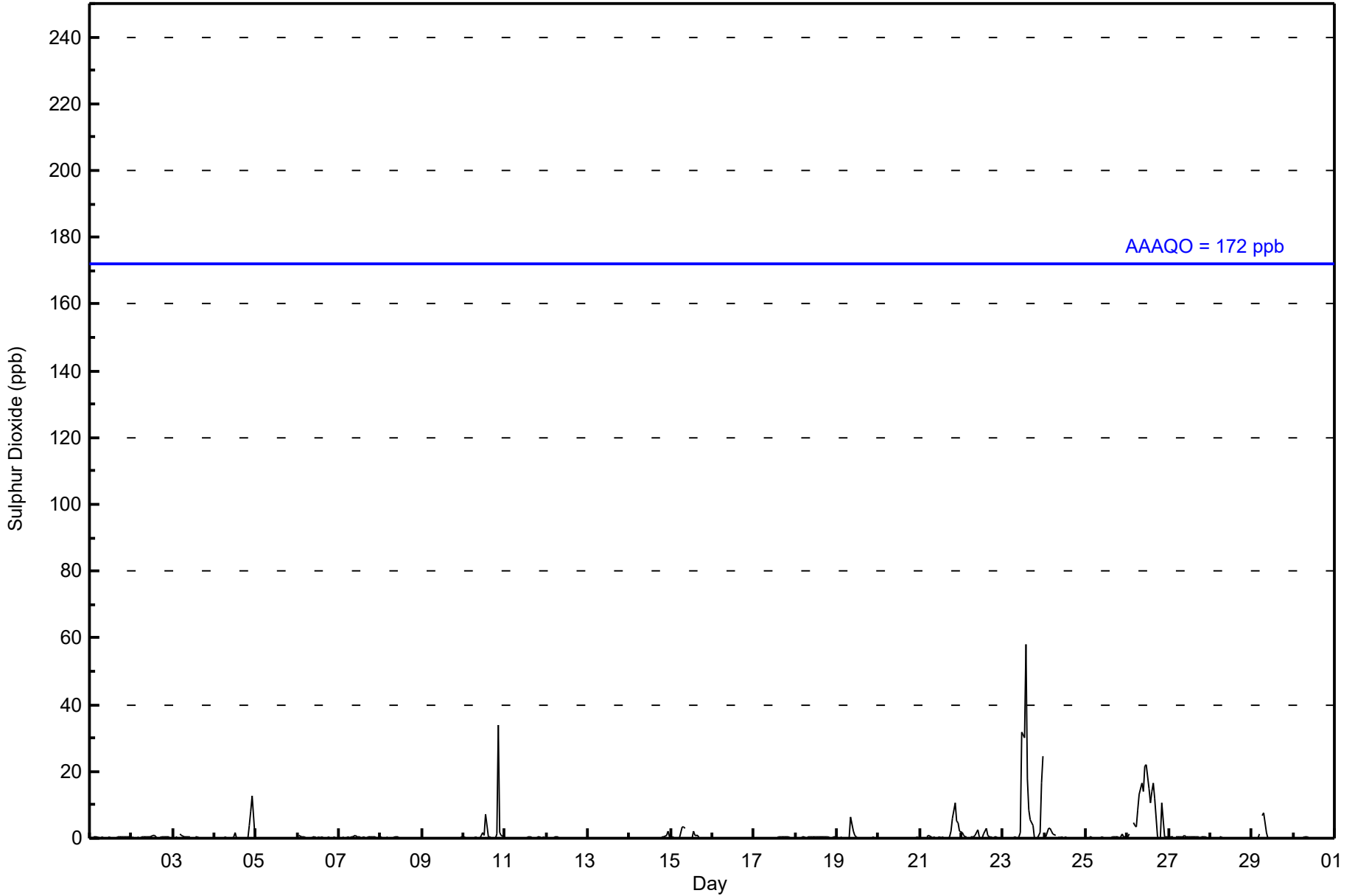


# Wood Buffalo Environmental Association

## Summary of Hour Averages

## Sulphur Dioxide (SO<sub>2</sub>) - ppb Buffalo Viewpoint - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum																									
Maximum Value: 58.1 ppb on Apr 23 14:00		Maximum Daily Average: 8.8 ppb on Apr 23		Hours of Data: 684																	Hours of Missing Data: 36		Hours of Calibration: 33																									
Minimum Value: 0.0 ppb on Apr 3 01:00		Minimum Daily Average: 0.0 ppb on Apr 13		Hours of Calibration: 33																	Percent Operational Time: 99.6																											
Maximum Diurnal Average: 2.7 ppb at hour 14		Minimum Diurnal Average: 0.2 ppb at hour 19		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.9 P <sub>99</sub> = 18.4																																												
Monthly Average: 0.95 ppb																																																
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-Apr	0.1	Z	0.3	0.3	0.3	0.1	0.0	0.3	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.1	0.3	0.4	0.3	0.2	0.4	0.3	0.3	0.4	0.2	0.4																						
2-Apr	0.1	0.2	Z	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.5	0.4	0.7	0.8	0.6	0.0	0.0	0.2	0.3	0.4	0.2	0.2	0.1	0.1	0.3	0.3																						
3-Apr	0.0	0.1	0.4	Z	1.3	1.0	0.5	0.6	0.4	0.3	0.4	M	M	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3																							
4-Apr	0.0	0.1	0.0	0.0	Z	0.0	0.3	0.0	0.0	0.0	0.1	0.3	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.7	8.0	12.9	0.5	1.2																							
5-Apr	0.2	0.1	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
6-Apr	Z	1.0	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.2																							
7-Apr	0.2	Z	0.3	0.2	0.1	0.3	0.2	0.4	0.6	0.7	0.3	0.2	0.4	0.1	0.2	0.1	0.2	0.5	0.3	0.3	0.3	0.2	0.2	0.3	0.3																							
8-Apr	0.3	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.3																							
9-Apr	0.0	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	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.1																							
10-Apr	0.4	0.1	0.2	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.8	1.9	0.9	7.1	0.4	0.2	0.2	0.1	0.0	1.1	34.0	1.8	0.9	0.3	2.2																							
11-Apr	0.1	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.1																							
12-Apr	Z	0.1	0.1	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
13-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
14-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.7	2.3	0.3	0.2																							
15-Apr	0.3	0.2	0.2	Z	0.1	0.0	3.5	3.6	3.0	C	C	C	0.0	1.9	1.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7																							
16-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
17-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.3	0.3	0.4	0.4	0.0	0.1	0.2	0.1																							
18-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.3	0.5	0.4	0.4	0.5	0.2	0.1	0.1	0.3	0.3	0.3																							
19-Apr	0.2	Z	0.5	0.0	0.0	0.1	0.1	0.2	6.2	1.9	0.7	0.4	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.5	0.2	0.0	0.5																							
20-Apr	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0																							
21-Apr	0.0	0.0	0.0	Z	0.5	0.9	0.5	0.1	0.3	0.1	0.0	0.3	0.2	0.3	0.2	0.2	0.2	0.6	2.0	5.9	10.5	4.9	4.6	2.3	1.5																							
22-Apr	1.9	1.0	0.5	0.6	Z	0.5	0.3	0.4	0.6	2.7	0.6	0.2	0.0	1.2	2.8	0.8	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.7																							
23-Apr	0.1	0.0	0.0	0.2	0.2	Z	0.2	0.3	0.2	0.3	1.8	31.9	30.1	58.1	17.7	8.6	5.7	4.0	0.1	0.1	0.1	1.8	16.7	24.6	8.8																							
24-Apr	Z	0.4	3.0	2.8	2.0	1.3	0.7	M	0.4	0.1	0.2	0.2	0.3	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.6																							
25-Apr	0.1	Z	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.2	0.5	1.3	0.5	0.3	0.3																							
26-Apr	0.3	1.4	Z	4.8	3.9	3.2	8.6	13.0	16.6	14.0	21.7	22.2	15.0	10.4	14.1	16.6	11.7	0.3	0.2	0.2	10.6	0.6	0.3	0.3	8.3																							
27-Apr	0.2	0.2	0.3	Z	0.3	0.3	0.4	0.5	0.6	0.8	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.1	0.3	0.3	0.2	0.2	0.2	0.3																							
28-Apr	0.1	0.0	0.0	0.1	Z	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1																							
29-Apr	0.0	0.0	0.0	0.0	1.5	Z	6.9	7.5	1.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8																							
30-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1																							
																								0.2	0.2	0.3	0.4	0.5	0.4	0.8	1.0	1.1	0.8	1.0	2.1	1.8	2.7	1.3	1.0	0.7	0.3	0.2	0.4	2.1	0.7	1.4	1.0	Diurnal Average
																								1.9	1.4	3.0	4.8	3.9	3.2	8.6	13.0	16.6	14.0	21.7	31.9	30.1	58.1	17.7	16.6	11.7	4.0	2.0	5.9	34.0	8.0	16.7	24.6	Diurnal Maximum
Z - zerospan      C - Calibration      M - Maintenance																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																																





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	665	97.22	97.22
11 - 20	12	1.75	98.98
21 - 60	7	1.02	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

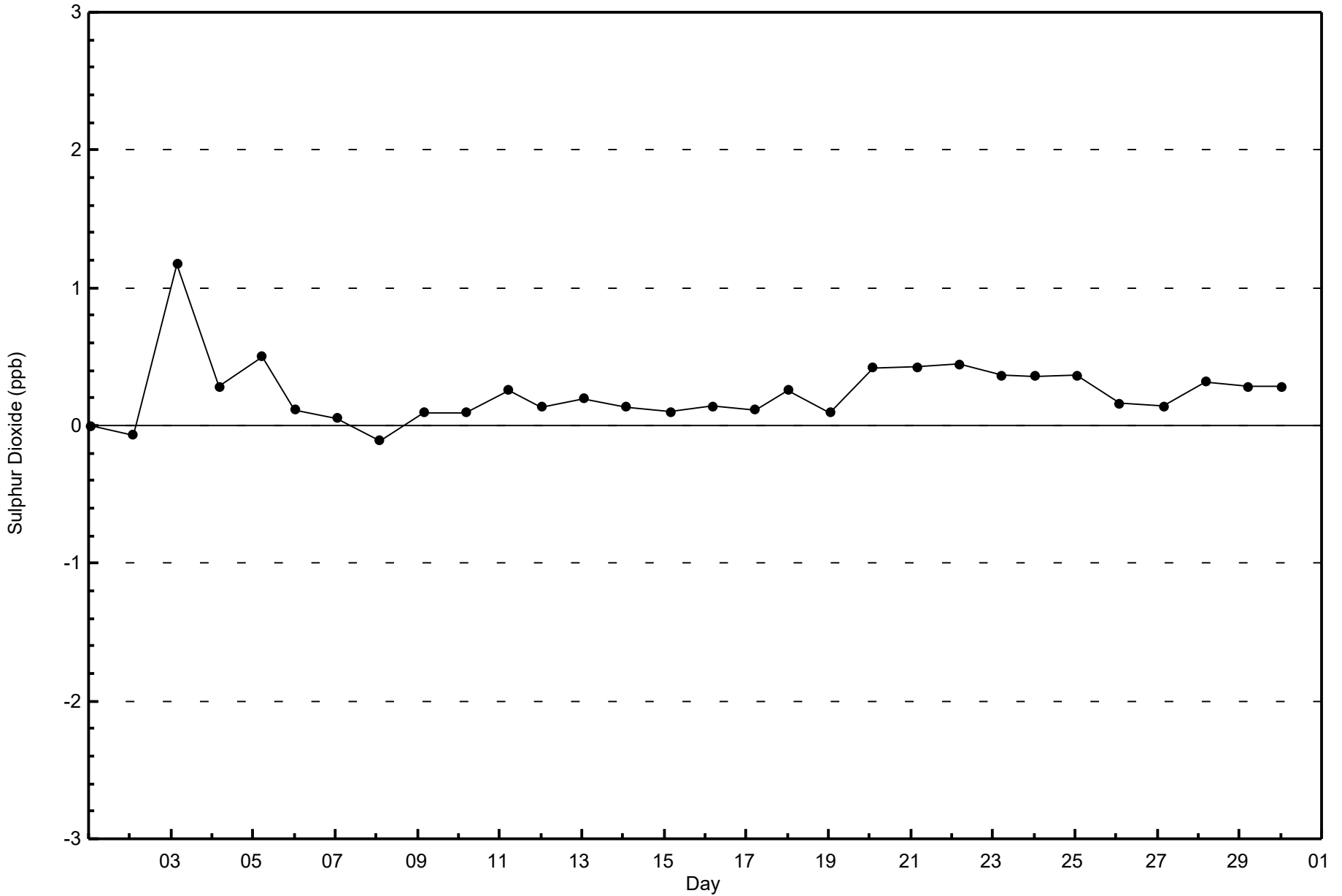
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Buffalo Viewpoint - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	143	55	20	6	8	45	73	59	26	14	25	40	40	33	39	39	665
11 - 20	3	0	0	3	0	0	0	0	0	0	0	0	0	0	1	5	12
21 - 60	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3	7
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>	147	56	20	11	8	45	73	59	26	14	25	40	40	33	40	47	684

Total Number of Valid Hours: 684

Total Number of Hours: 720



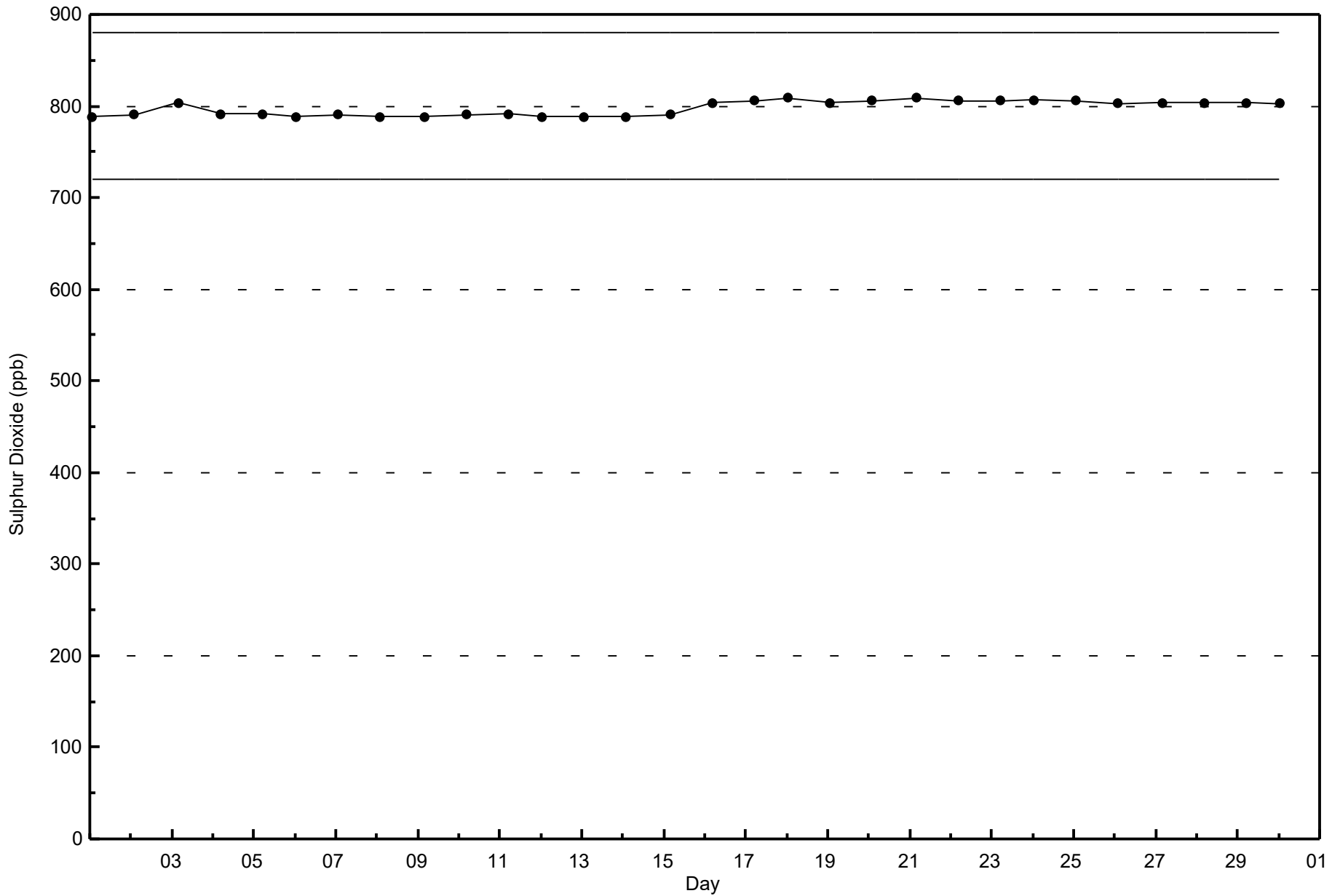




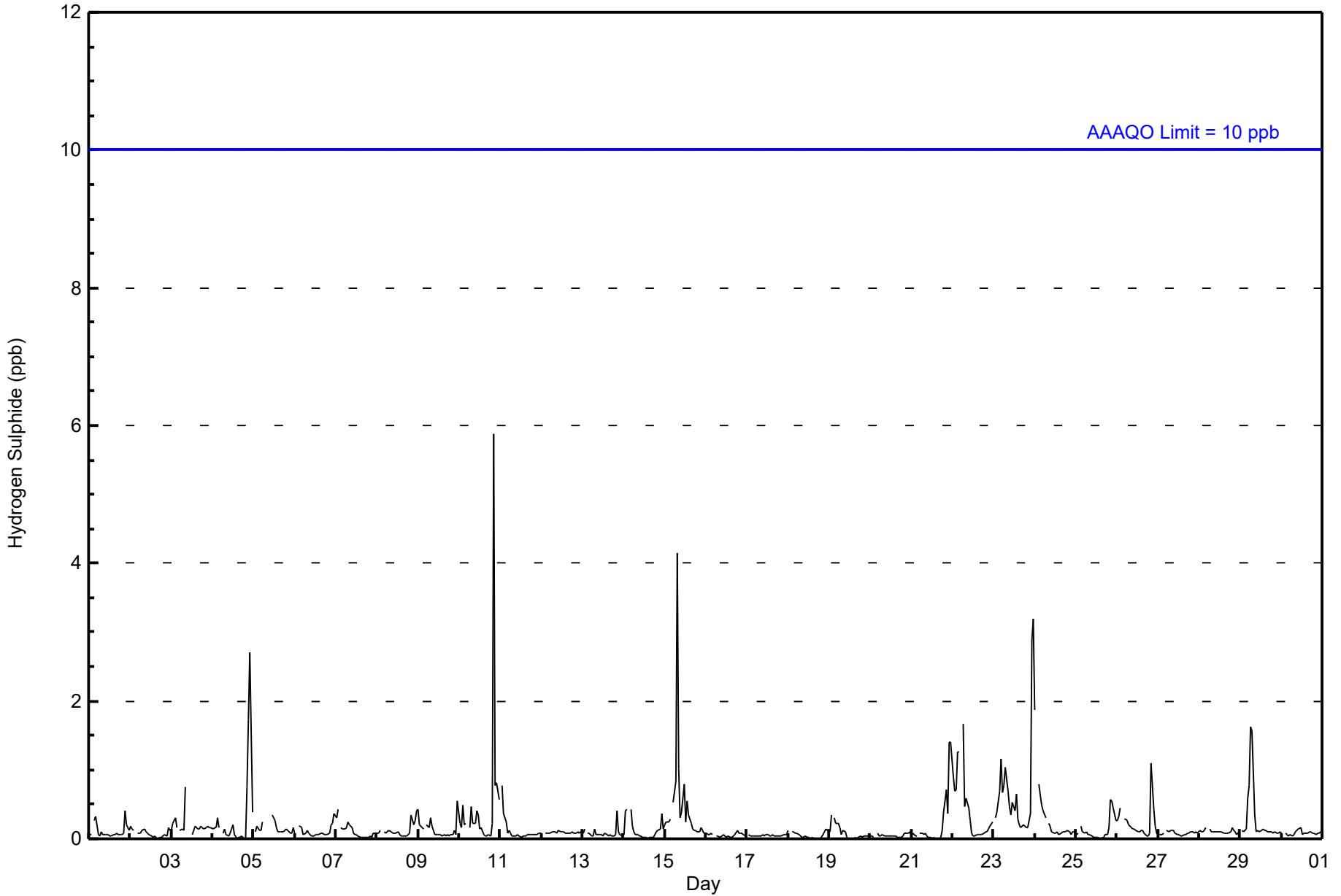


Wood Buffalo Environmental Association  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Buffalo Viewpoint - April 2024









**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	676	99.27	99.27
3 - 4	4	0.59	99.85
5 - 7	1	0.15	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Buffalo Viewpoint - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	147	54	20	7	9	43	72	60	26	15	24	40	40	33	38	48	676
3 - 4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	4
5 - 7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
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>	147	54	20	11	9	43	72	60	26	15	24	40	40	33	38	49	681

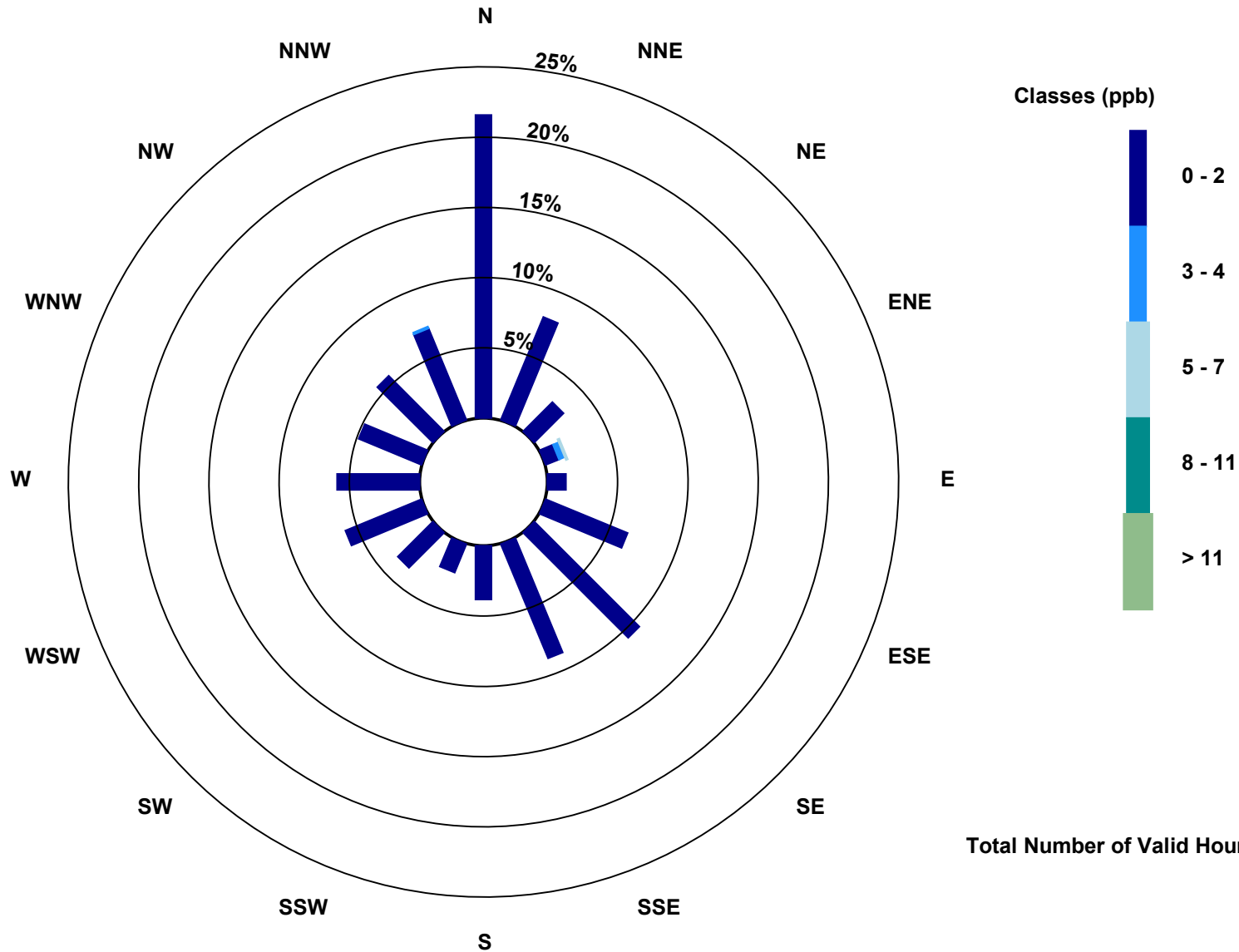
Total Number of Valid Hours: 681

Total Number of Hours: 720

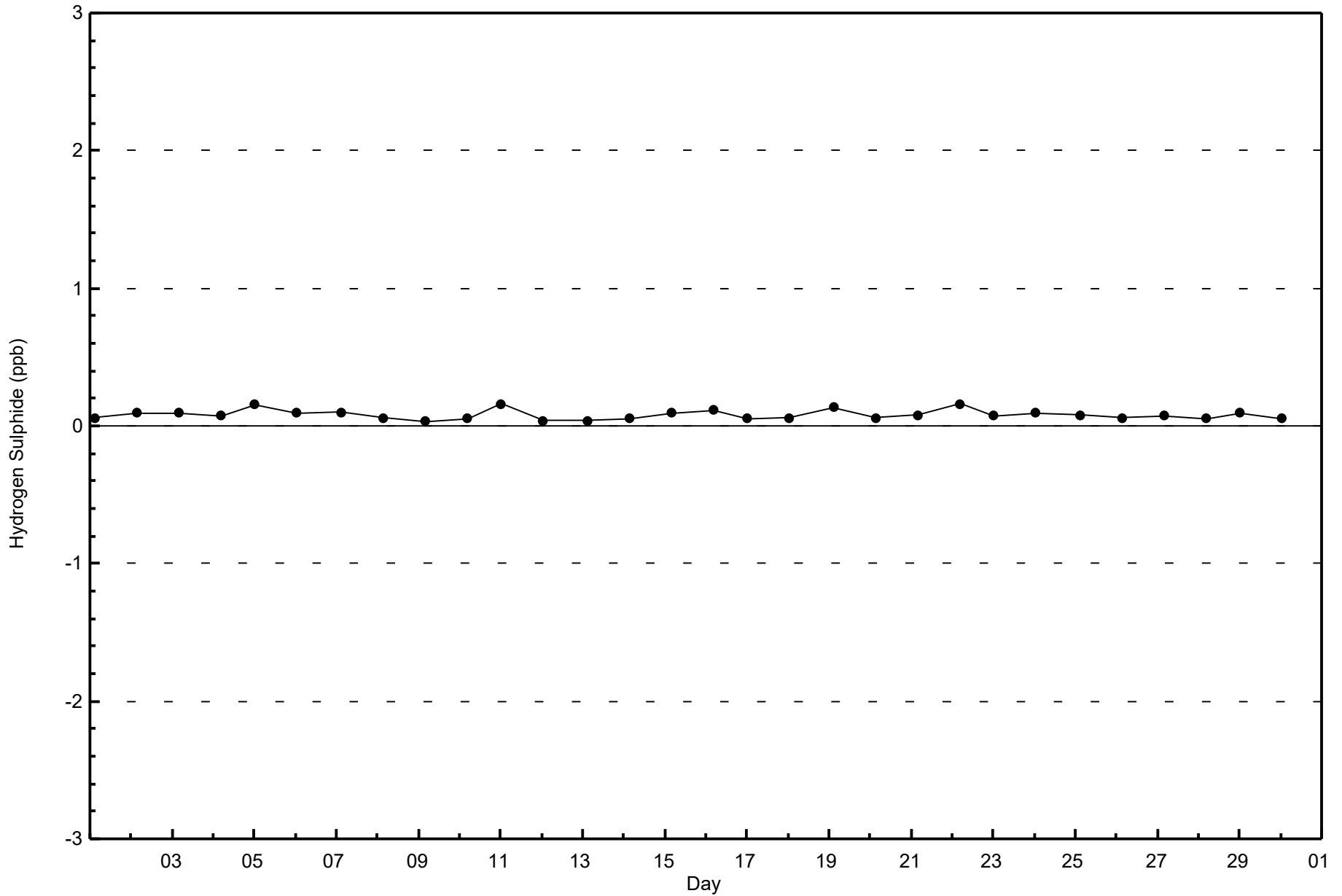


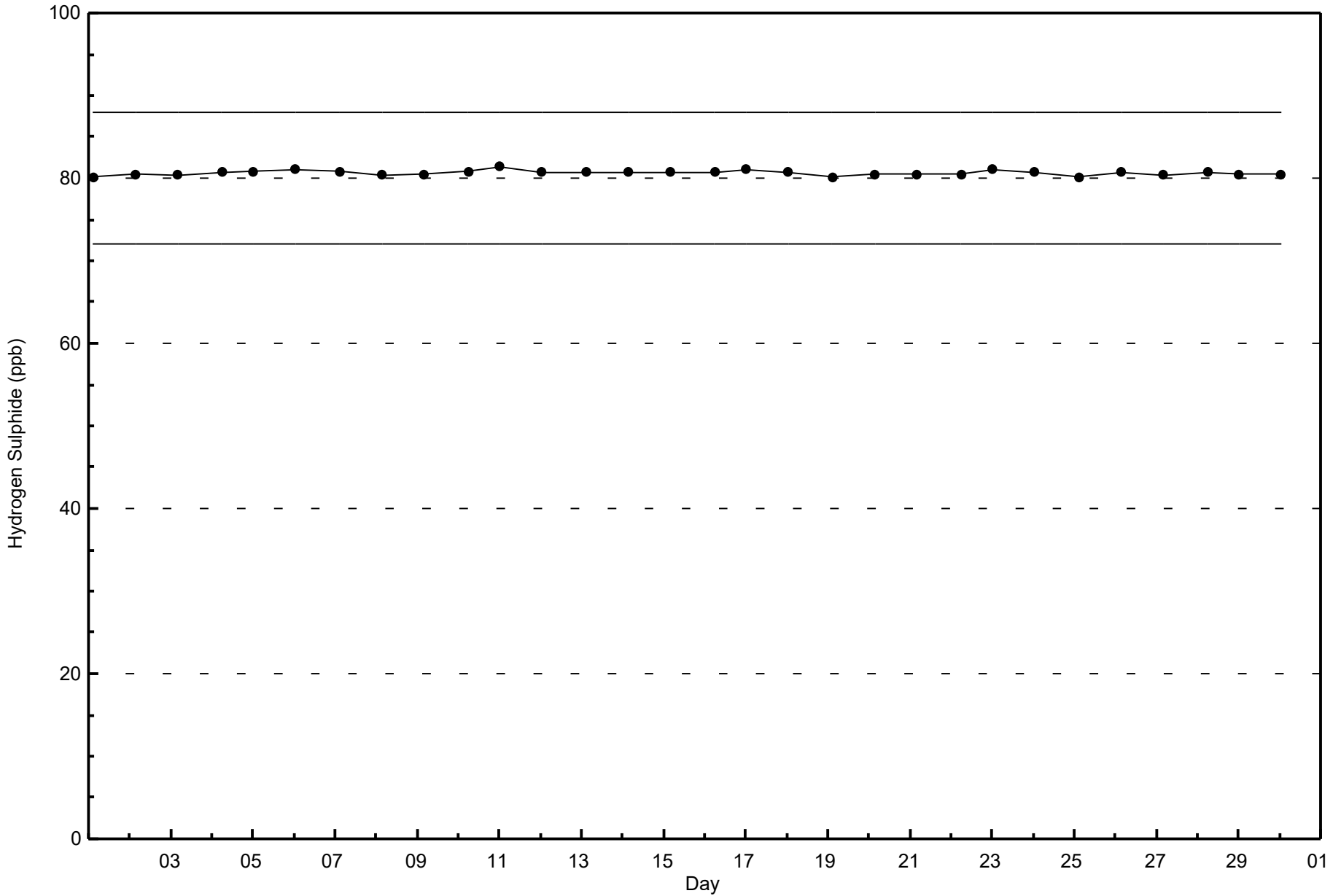
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



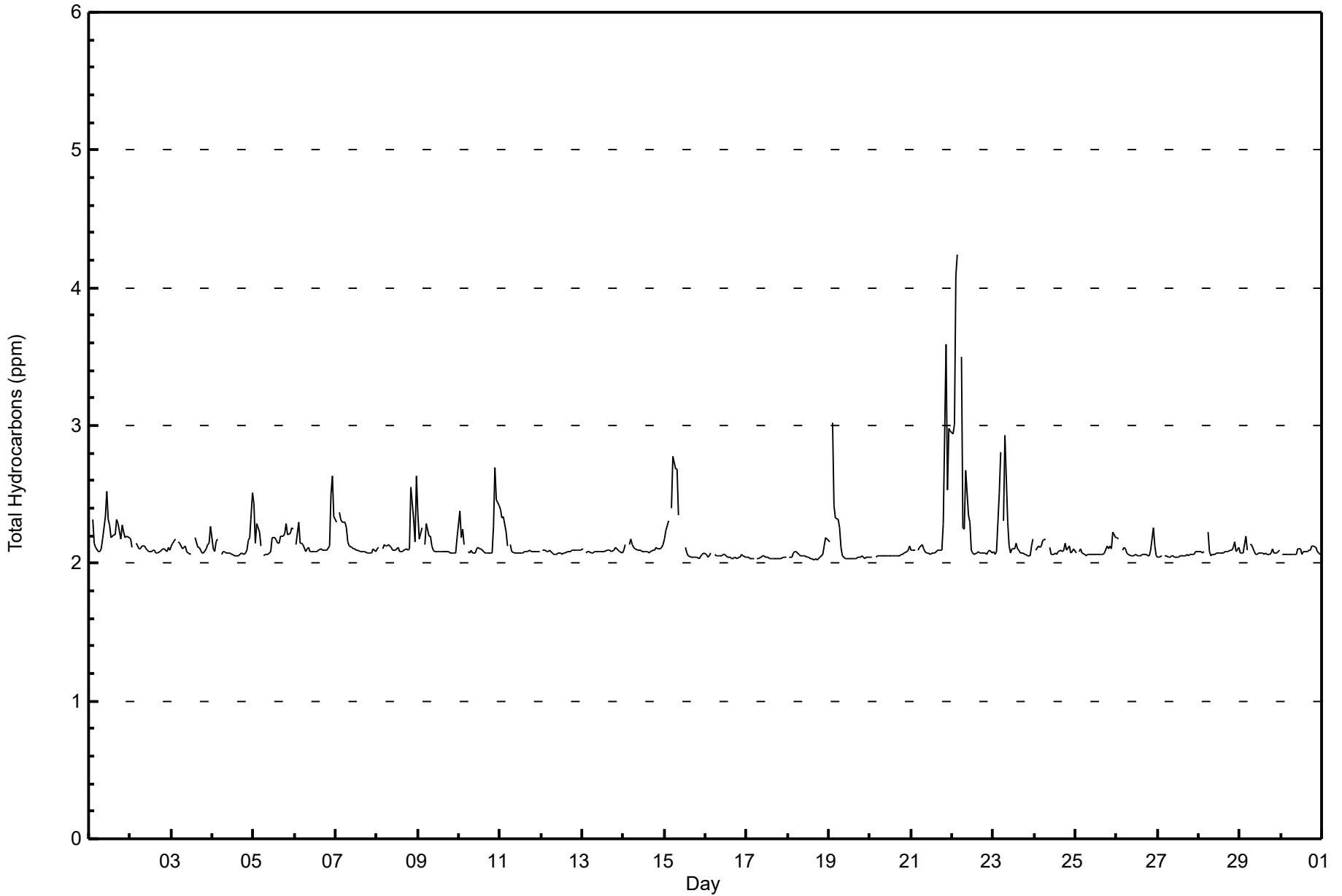
Total Number of Valid Hours: 681













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	77	11.27	11.27
2.1 - 3.0	602	88.14	99.41
3.1 - 10.0	4	0.59	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Buffalo Viewpoint - April 2024**

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	39	10	0	0	0	0	2	4	3	0	6	6	5	1	0	1	77
2.1 - 3.0	107	46	20	11	8	44	71	55	23	14	19	35	35	31	38	45	602
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	147	56	20	11	8	44	73	59	26	14	25	41	40	32	40	47	683

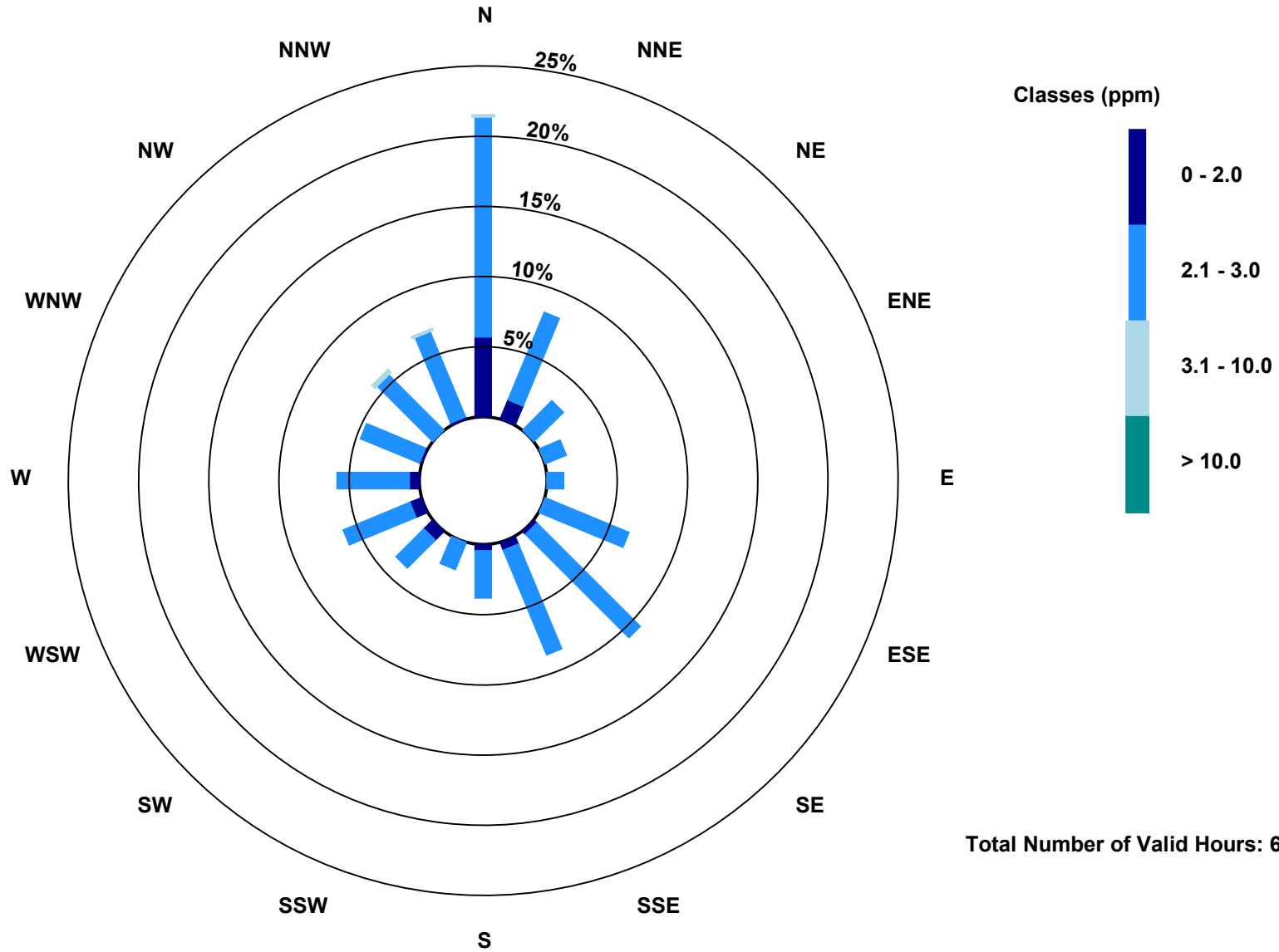
Total Number of Valid Hours: 683

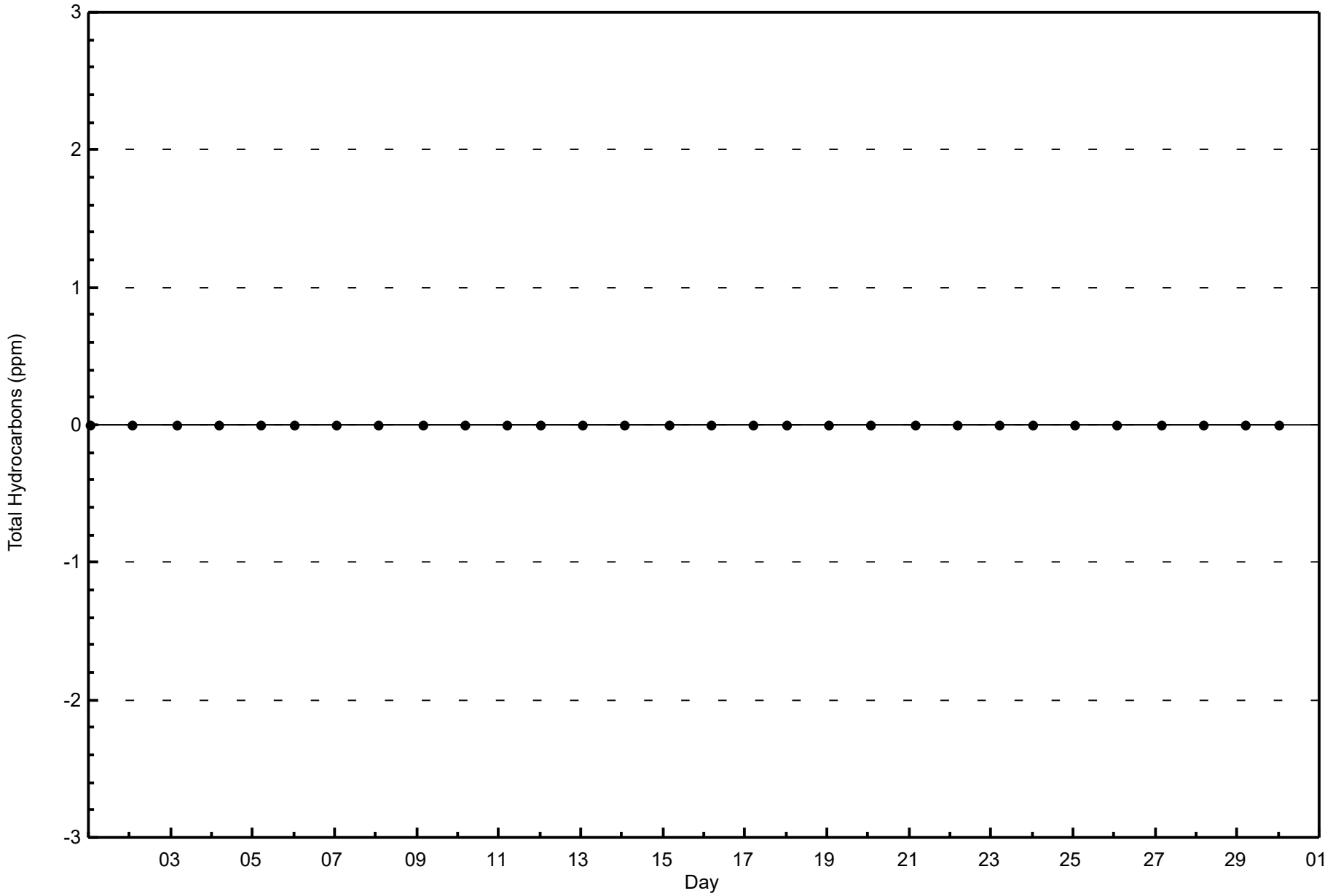
Total Number of Hours: 720

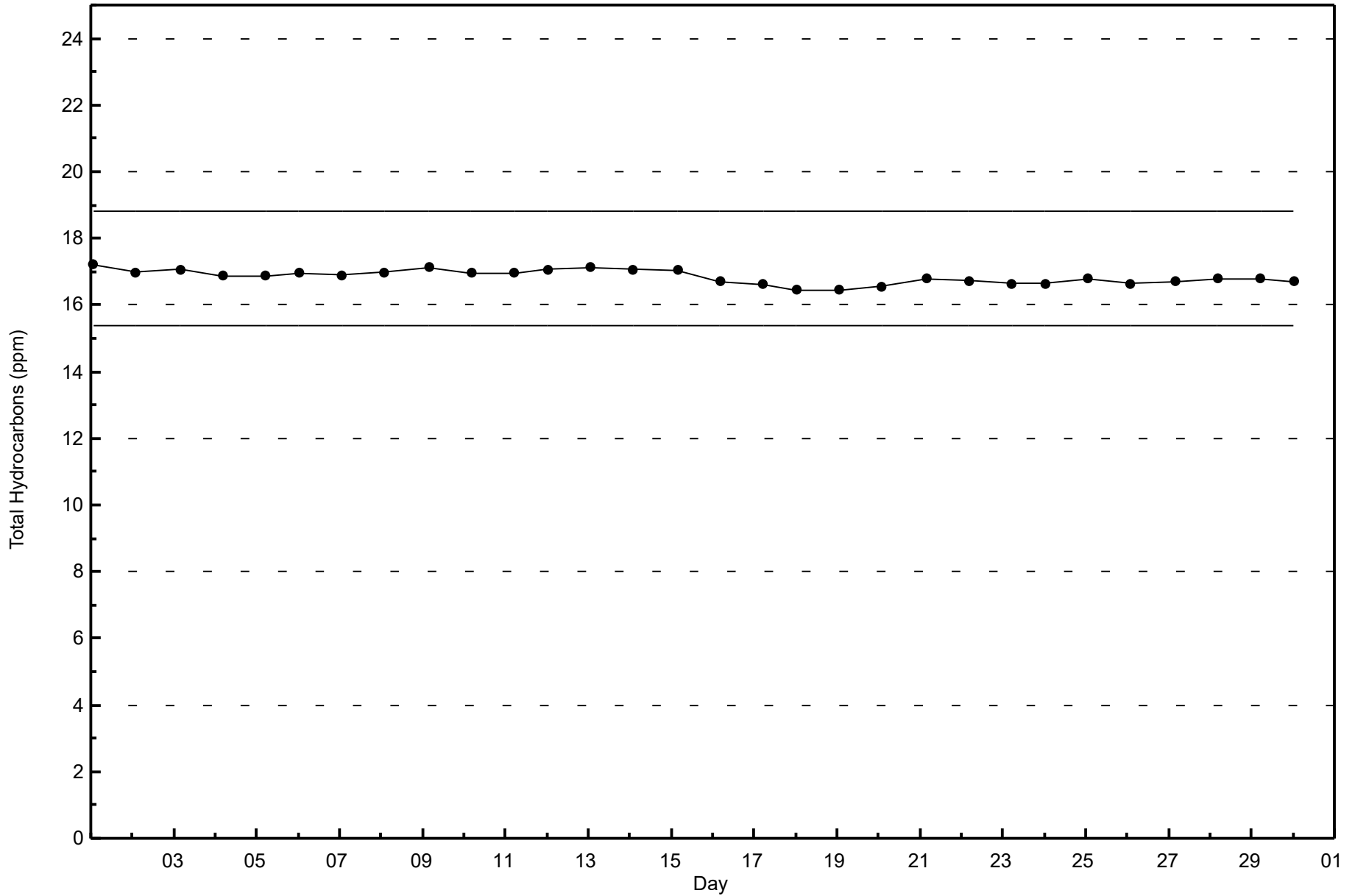


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Buffalo Viewpoint

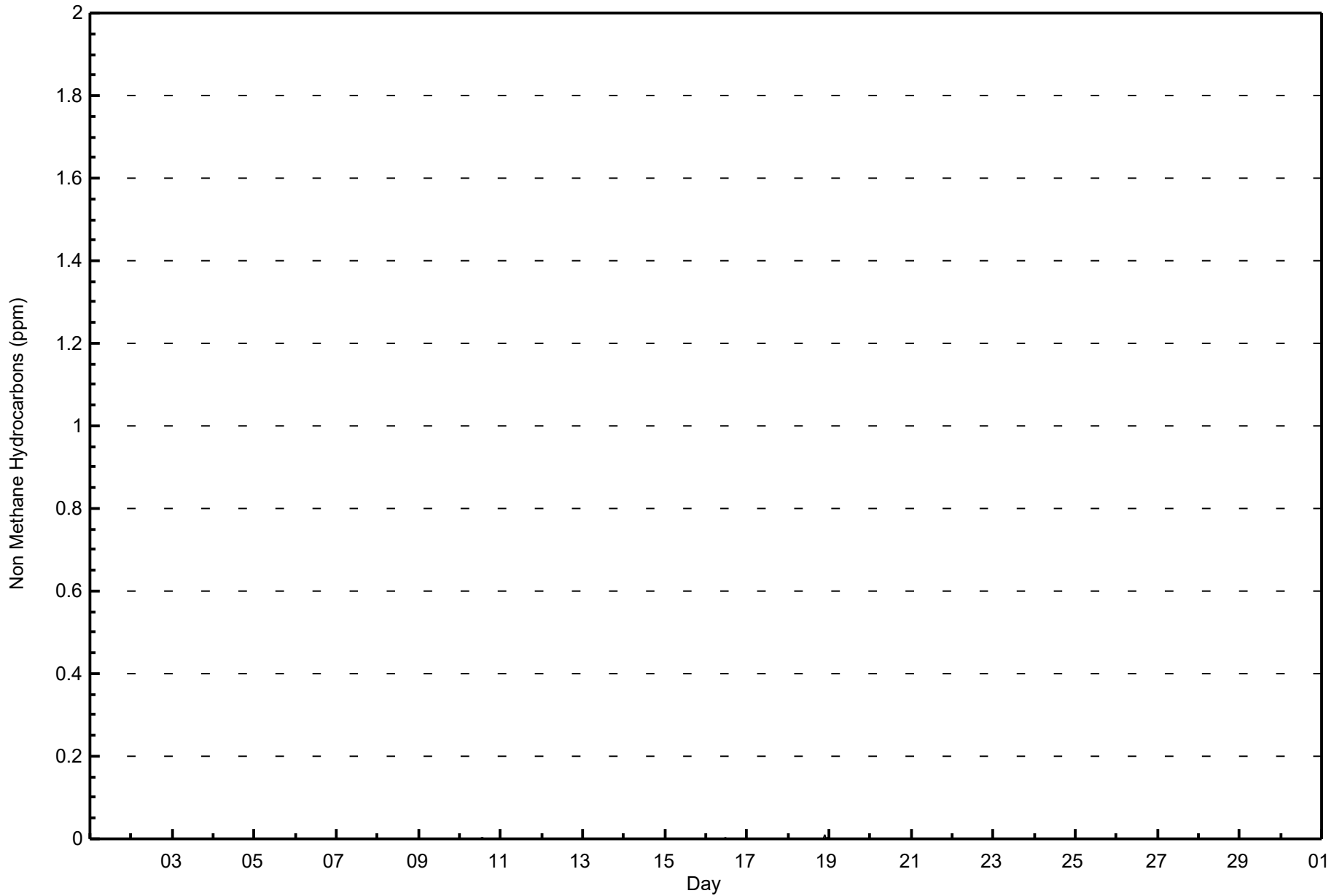














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	682	99.85	99.85
0.006 - 0.05	1	0.15	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	146	56	20	11	8	44	73	59	26	14	25	41	40	32	40	47	682
0.006 - 0.05	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	147	56	20	11	8	44	73	59	26	14	25	41	40	32	40	47	683

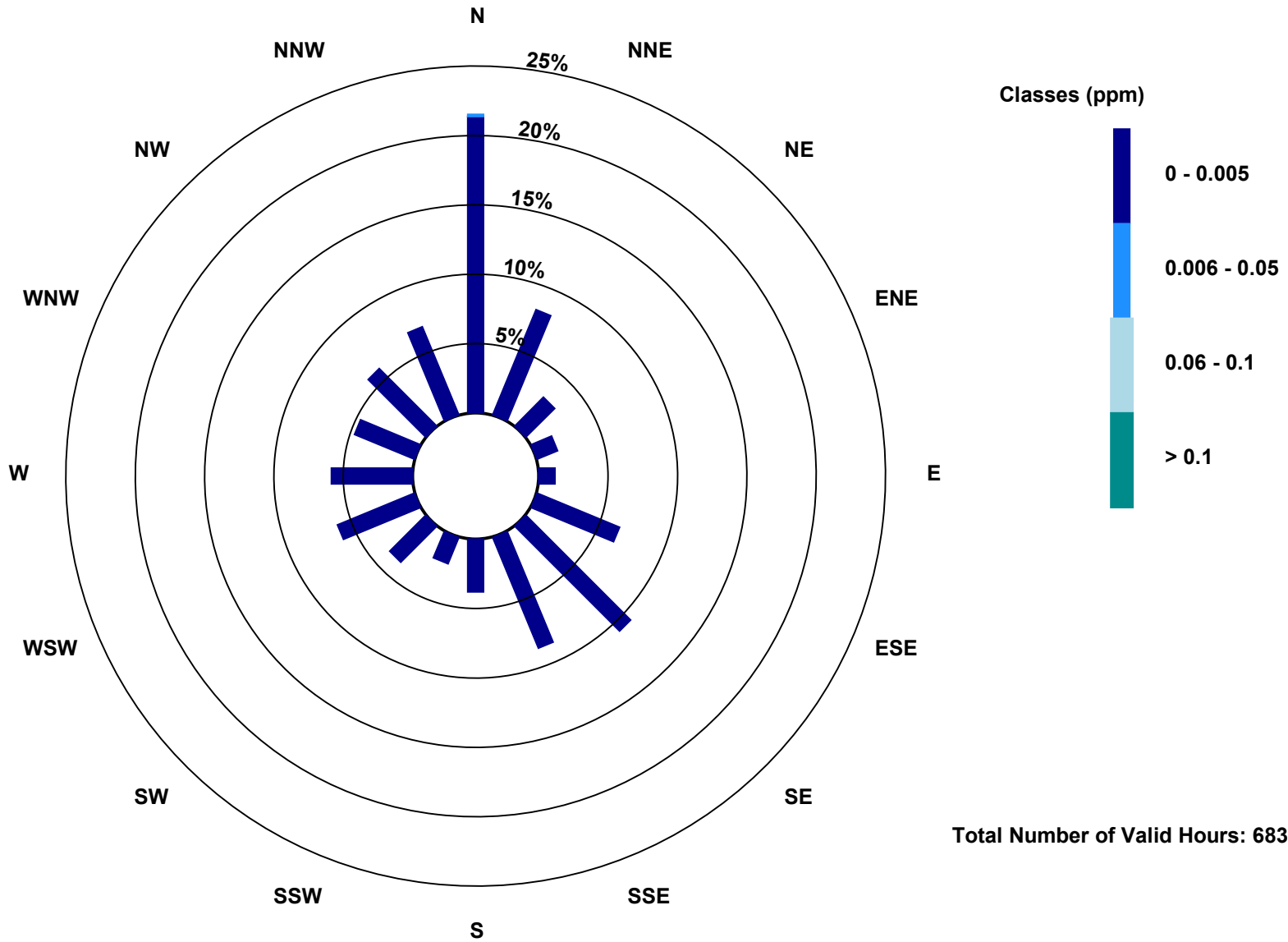
Total Number of Valid Hours: 683

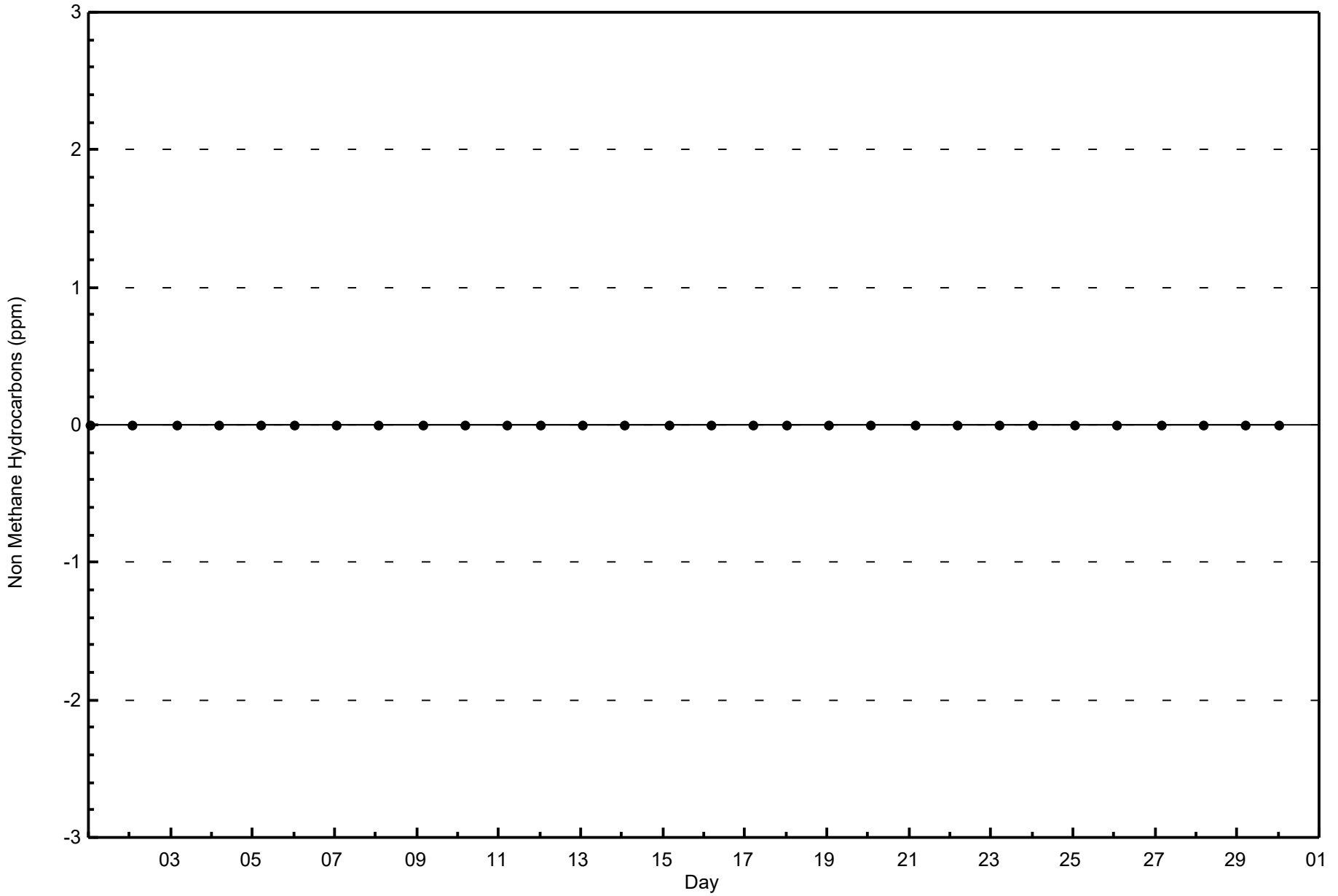
Total Number of Hours: 720

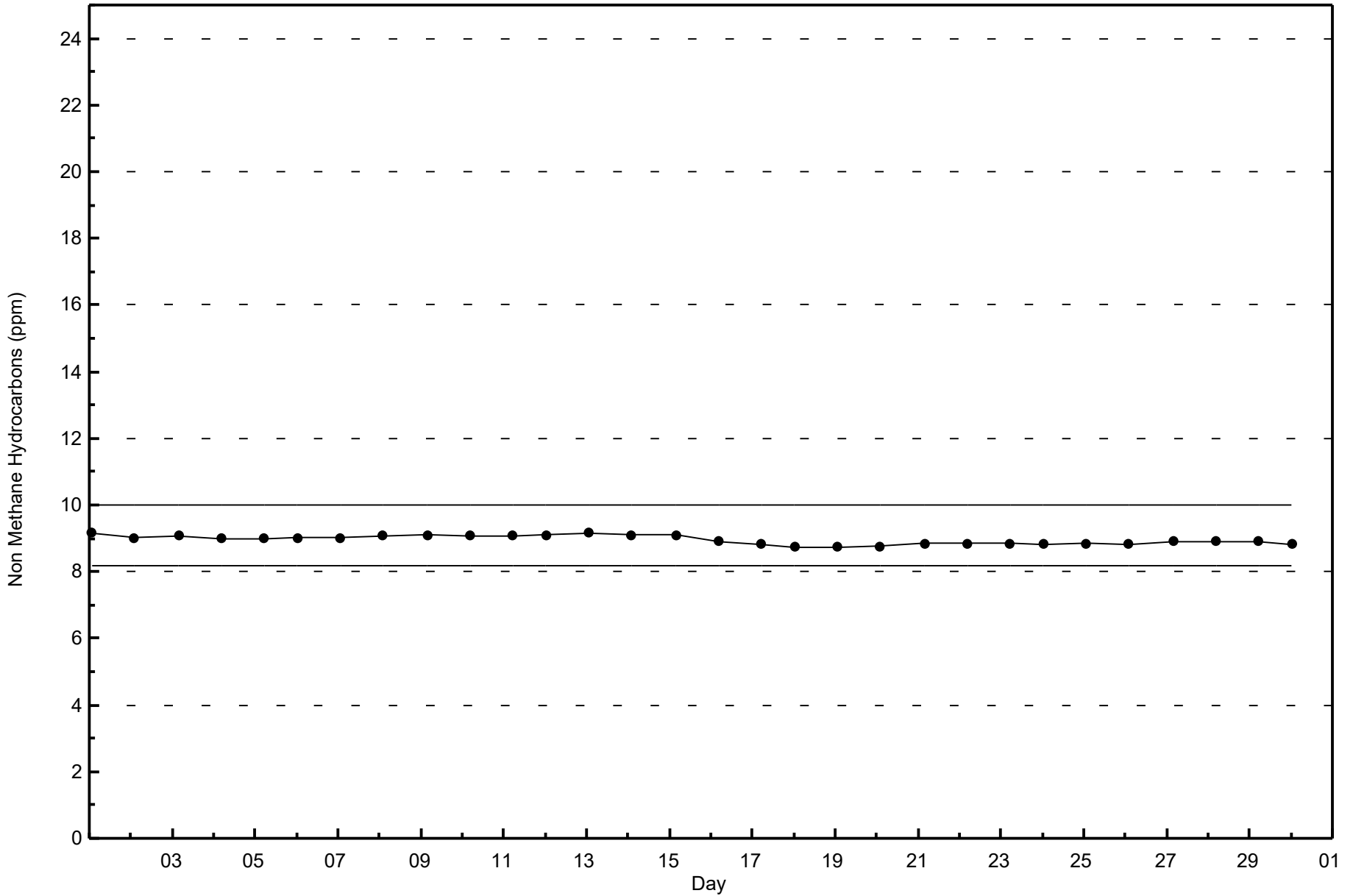


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

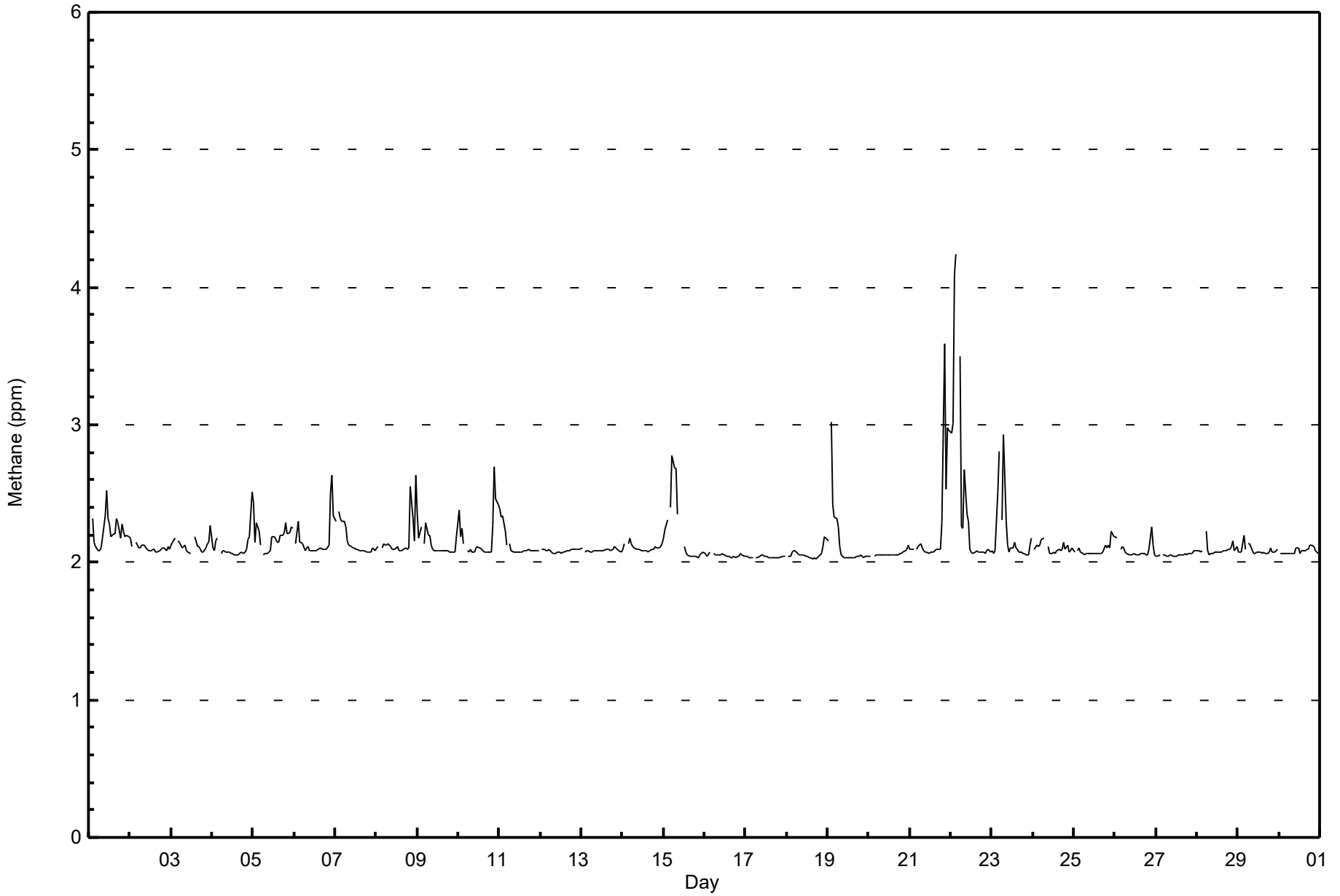
Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint















**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	77	11.27	11.27
2.1 - 3.0	602	88.14	99.41
3.1 - 10.0	4	0.59	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

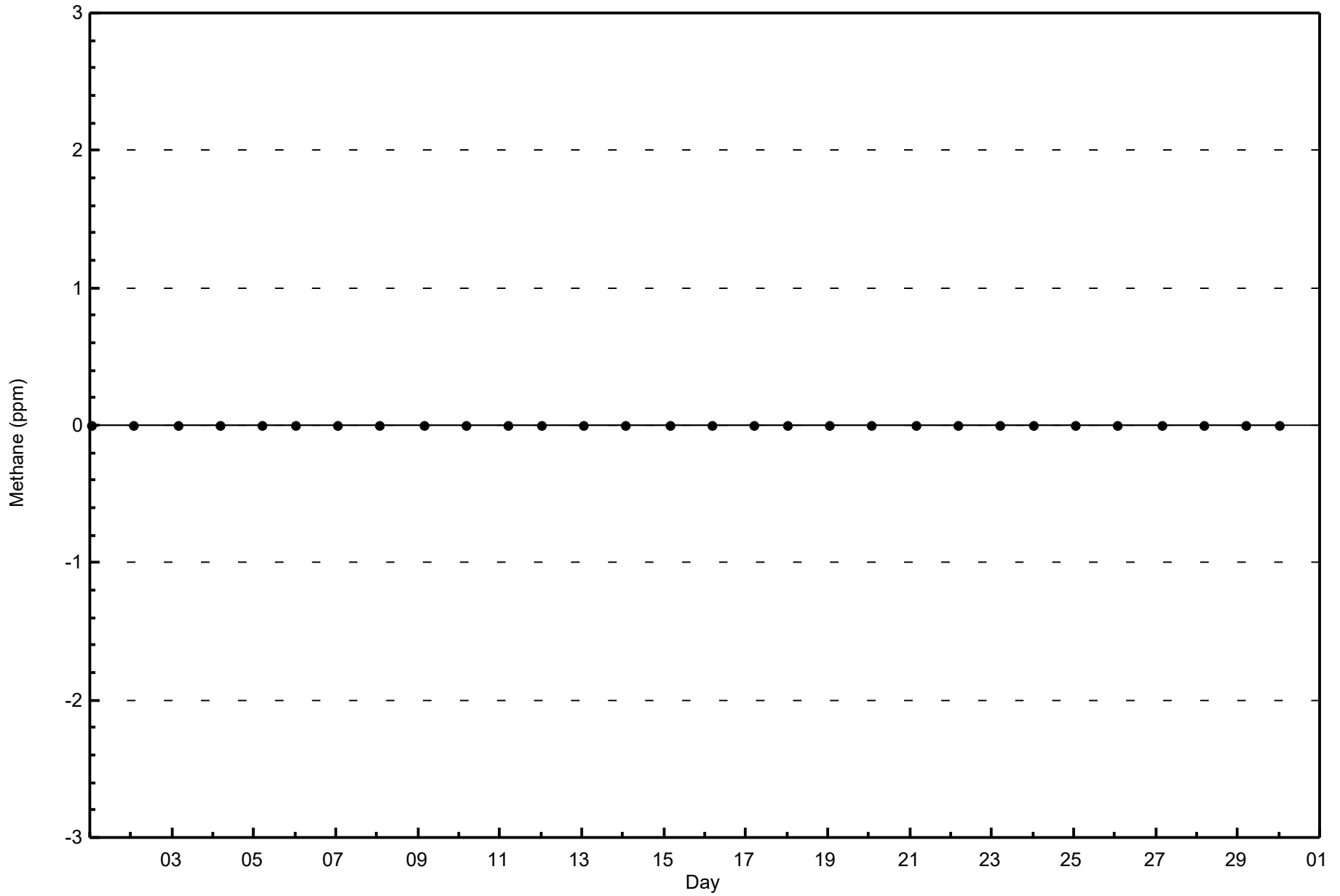
**Methane (CH<sub>4</sub>) - ppm**  
**Buffalo Viewpoint - April 2024**

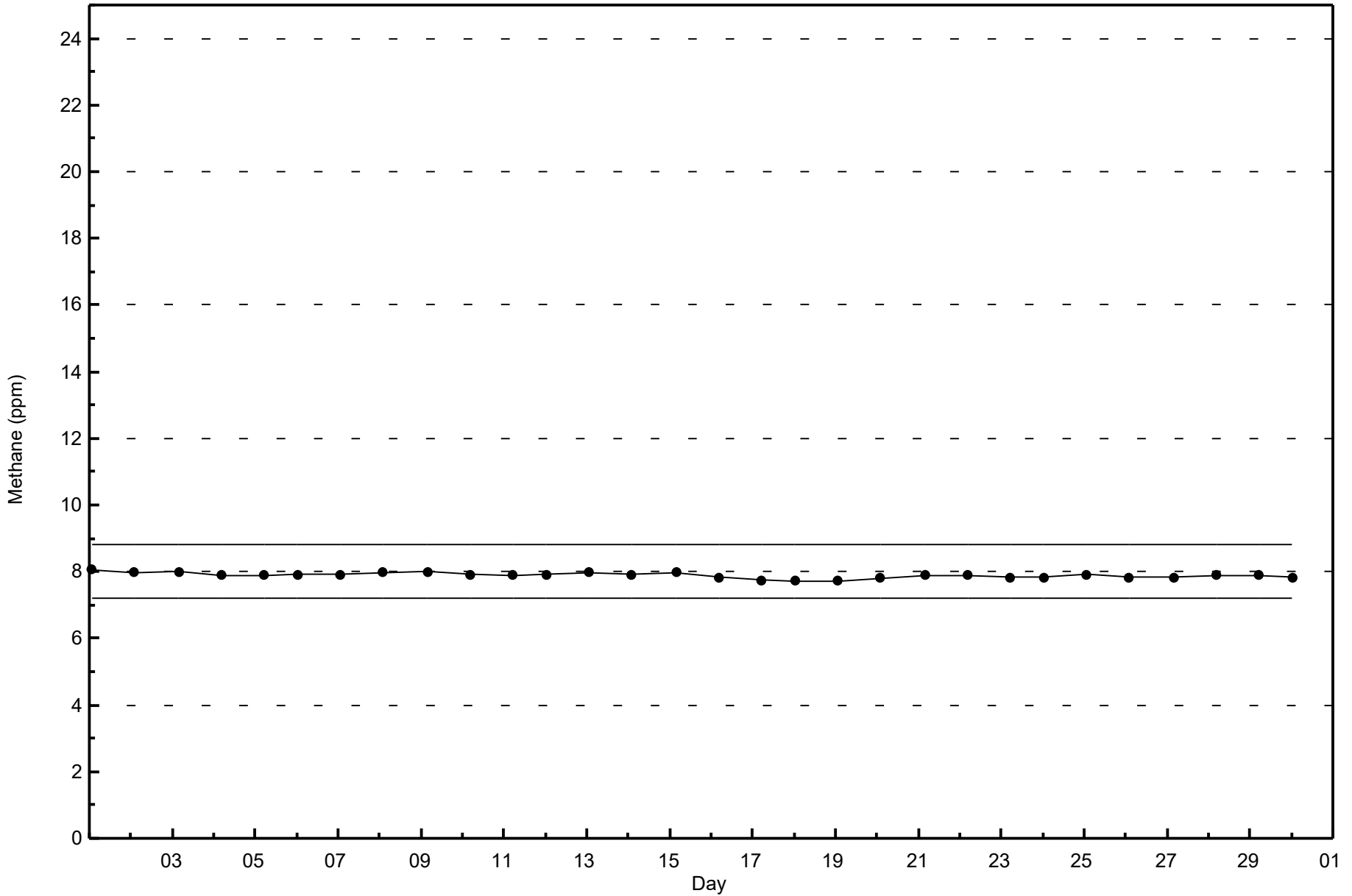
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	39	10	0	0	0	0	2	4	3	0	6	6	5	1	0	1	77
2.1 - 3.0	107	46	20	11	8	44	71	55	23	14	19	35	35	31	38	45	602
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	147	56	20	11	8	44	73	59	26	14	25	41	40	32	40	47	683

Total Number of Valid Hours: 683

Total Number of Hours: 720





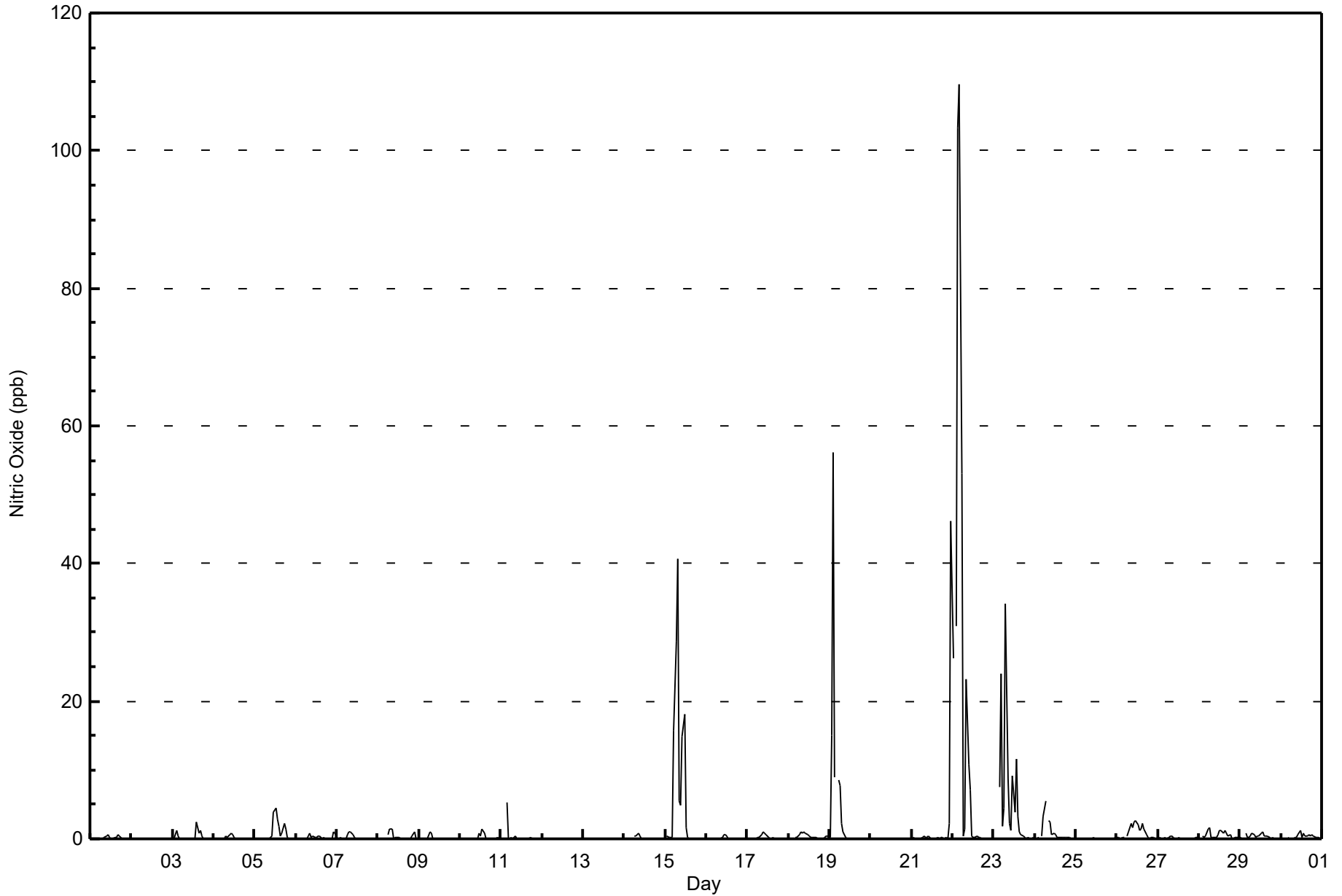






Wood Buffalo Environmental Association  
Hourly Averages

Nitric Oxide (NO) - ppb  
Buffalo Viewpoint - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	667	98.23	98.23
21 - 40	6	0.88	99.12
41 - 80	4	0.59	99.71
81 - 159	2	0.29	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 679

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Buffalo Viewpoint - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	147	55	20	12	8	43	72	53	25	16	23	38	40	35	38	42	667
21 - 40	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	6
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	148	55	20	12	8	43	72	53	25	16	24	38	40	35	42	48	679

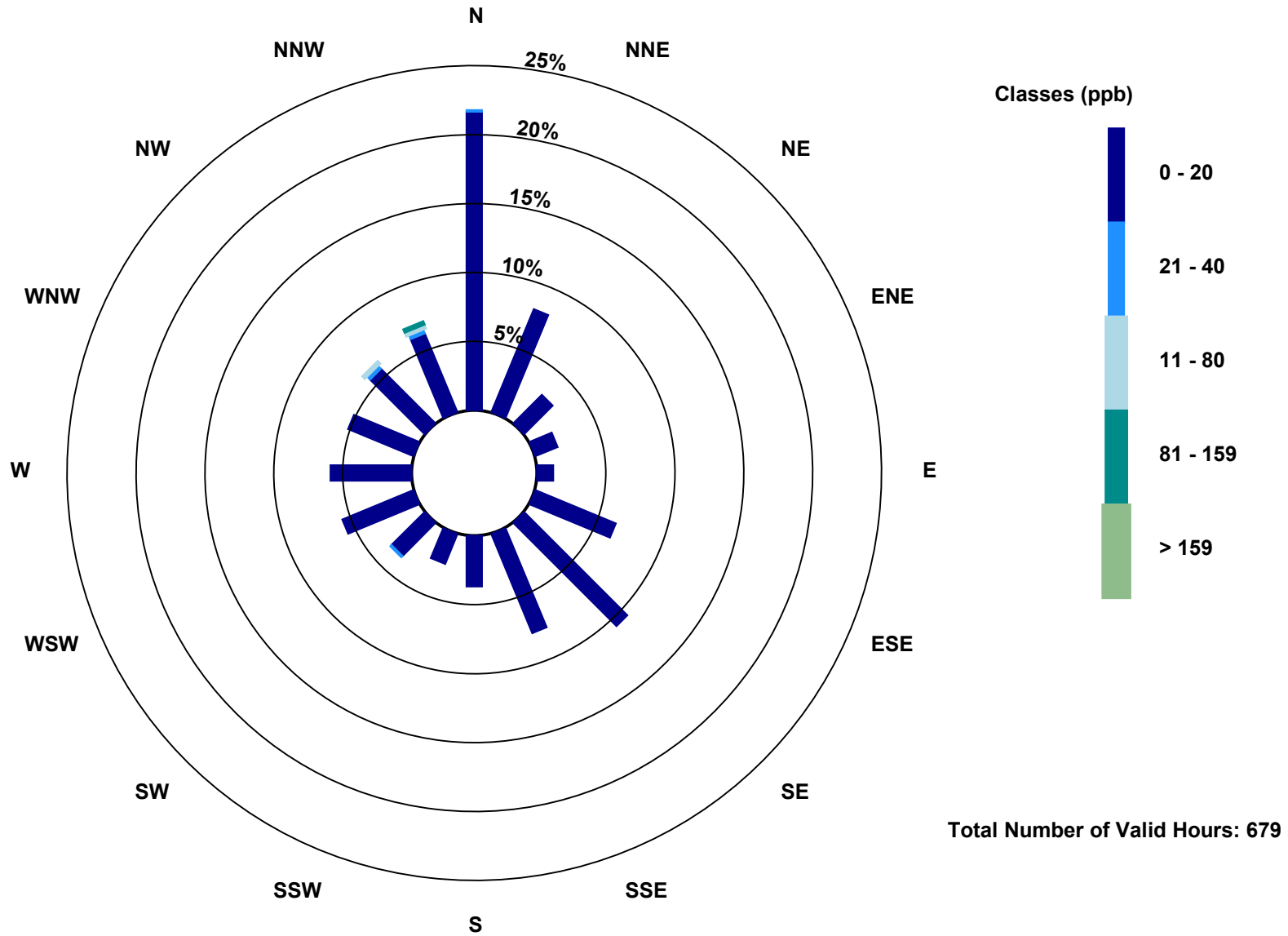
Total Number of Valid Hours: 679

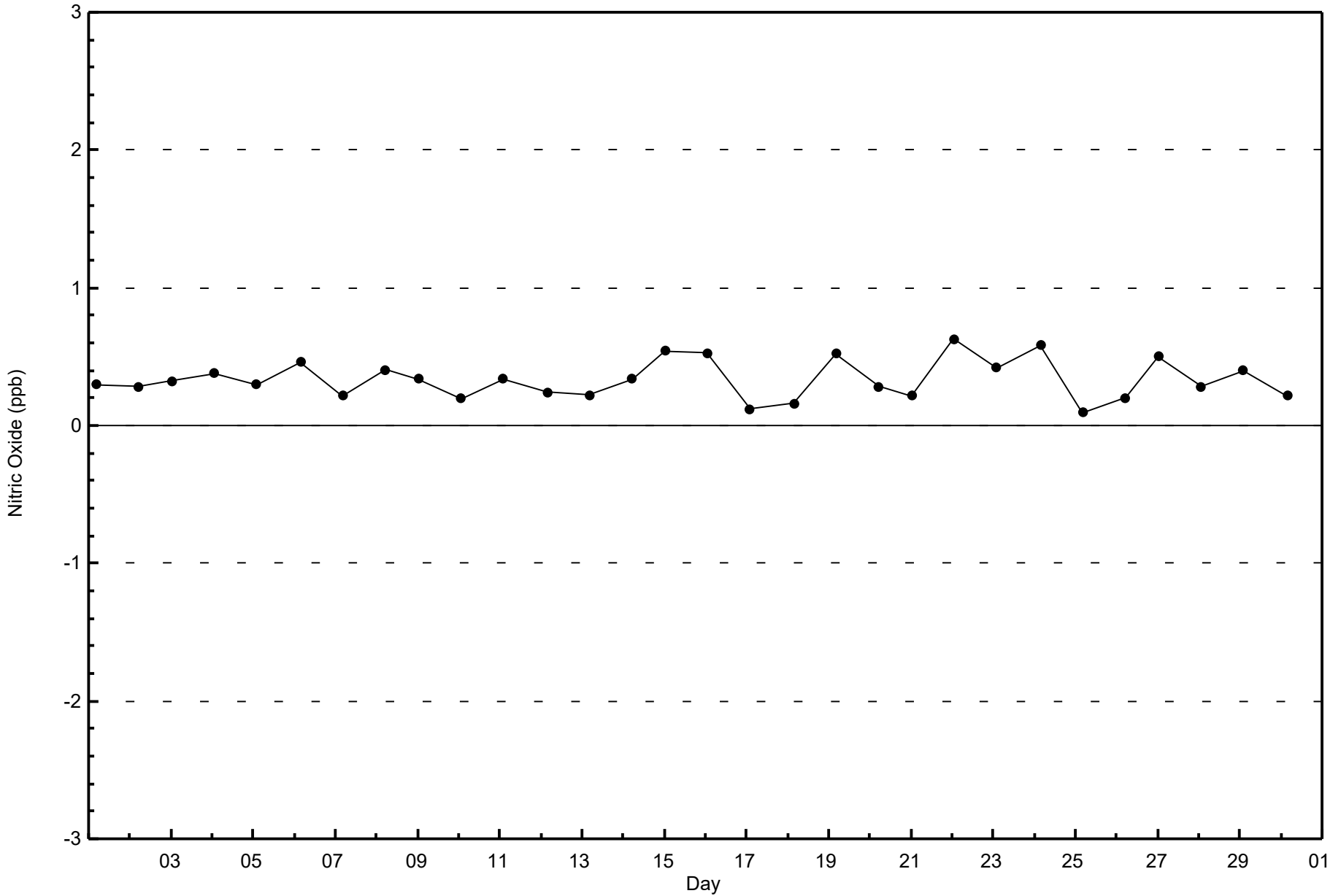
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Buffalo Viewpoint

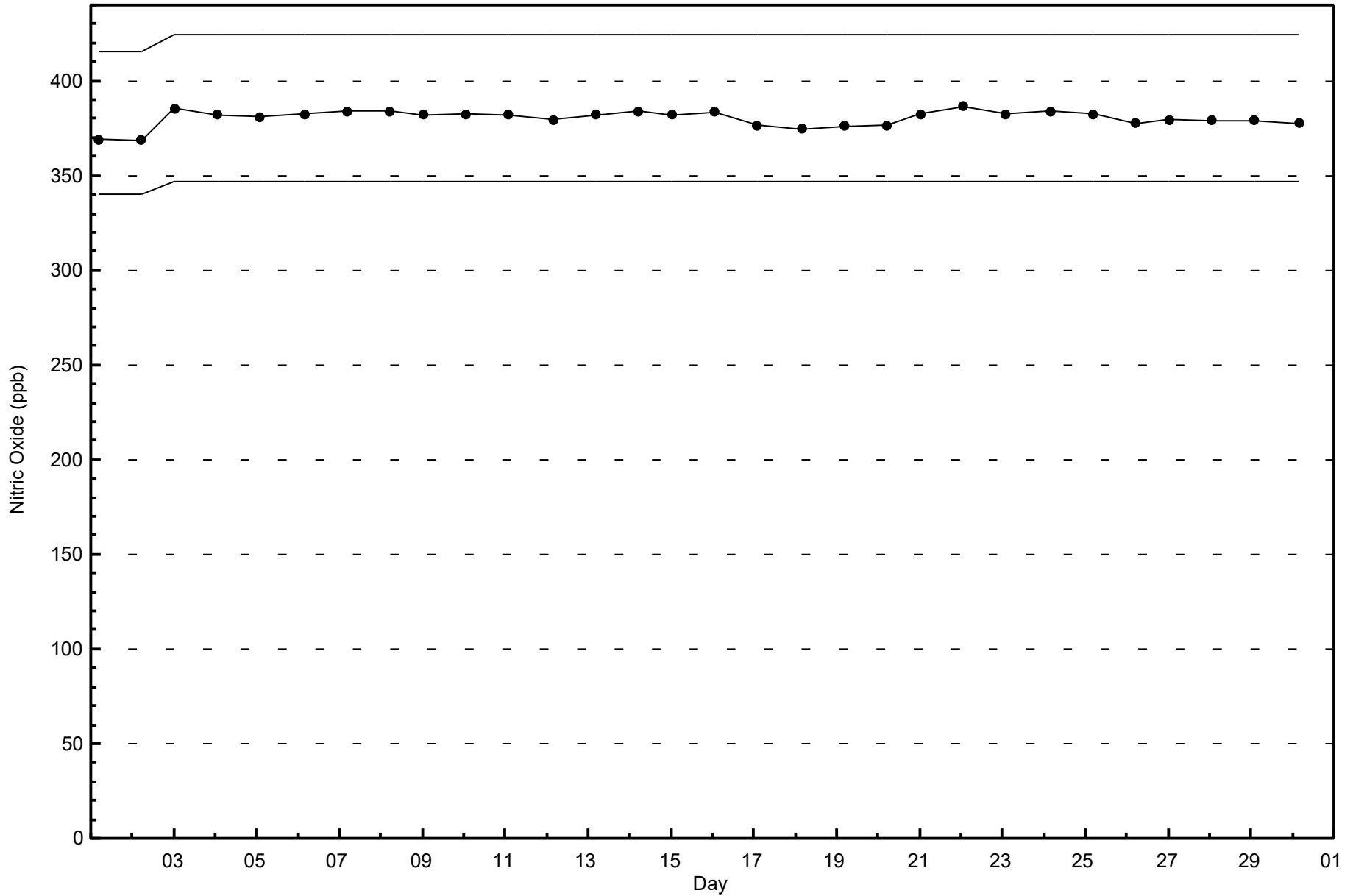






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Buffalo Viewpoint - April 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Buffalo Viewpoint - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 44.3 ppb on Apr 22 00:00	Maximum Daily Average: 13.5 ppb on Apr 15		Hours of Data:	679
Minimum Value: 0.1 ppb on Apr 2 16:00	Minimum Daily Average: 0.5 ppb on Apr 13		Hours of Missing Data:	41
Maximum Diurnal Average: 9.8 ppb at hour 4	Minimum Diurnal Average: 1.9 ppb at hour 16		Hours of Calibration:	36
Monthly Average: 4.74 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.9 Median = 2.3 Q <sub>3</sub> = 5.1 P <sub>90</sub> = 12.4 P <sub>99</sub> = 35.2		Percent Operational Time:	99.3

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.6	0.3	2.5	0.3	Z	0.4	0.5	0.2	1.1	1.4	3.1	1.1	0.4	0.4	0.5	0.9	3.3	2.6	0.6	1.7	2.9	3.2	2.9	4.6	1.5	4.6
2-Apr	4.7	1.7	4.0	2.9	2.2	Z	C	C	C	C	C	C	1.6	1.4	2.7	0.1	0.1	0.8	1.7	2.2	7.1	2.8	7.1	4.7	--	7.1
3-Apr	Z	12.9	29.9	25.4	8.6	1.7	0.8	0.9	1.4	M	M	M	M	1.2	7.3	5.5	4.8	3.6	2.0	3.2	4.5	4.9	6.0	3.4	6.7	29.9
4-Apr	1.7	Z	2.2	4.7	5.2	0.4	4.7	4.5	3.4	4.6	4.6	3.0	2.4	1.3	1.0	0.9	2.2	3.3	3.7	4.6	5.6	8.5	6.1	4.5	3.6	8.5
5-Apr	4.9	10.0	Z	12.6	5.9	4.0	1.7	1.6	2.2	3.1	4.1	13.4	13.8	9.8	7.4	6.0	9.2	12.2	15.7	16.8	13.0	14.7	14.9	15.1	9.2	16.8
6-Apr	13.4	7.3	14.6	Z	9.3	7.5	3.7	4.2	5.1	2.8	2.3	1.9	2.6	3.1	3.5	4.5	6.1	4.7	4.8	5.3	4.1	8.9	19.0	20.5	6.9	20.5
7-Apr	12.2	13.2	15.9	10.7	Z	8.2	6.1	4.9	3.8	1.9	1.6	1.2	0.9	0.7	0.5	0.2	0.1	0.3	0.7	1.7	0.9	1.7	3.4	2.7	4.1	15.9
8-Apr	2.8	1.9	2.5	4.3	4.7	Z	6.2	6.1	5.0	1.4	2.0	2.0	1.7	0.2	0.1	0.3	0.2	0.1	0.2	9.3	26.2	20.6	4.5	8.9	4.8	26.2
9-Apr	Z	3.4	6.3	4.3	3.0	5.0	6.5	4.3	1.5	0.5	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.3	0.1	0.2	0.6	0.4	1.3	1.7	6.5
10-Apr	13.2	Z	7.1	1.5	0.3	0.3	0.4	2.9	0.3	0.2	4.8	6.6	2.2	5.5	3.8	1.8	1.2	1.6	2.0	5.1	5.2	7.3	10.1	10.6	4.1	13.2
11-Apr	9.2	10.8	Z	8.2	4.2	4.0	2.9	1.6	2.0	1.7	1.0	1.0	0.7	0.9	0.9	0.7	0.7	6.0	5.7	1.6	1.0	1.0	0.6	0.7	2.9	10.8
12-Apr	0.9	0.8	0.7	Z	1.0	1.1	1.6	0.7	0.9	0.7	1.1	0.9	0.7	0.9	0.7	1.1	0.9	0.8	0.8	1.1	1.2	1.2	2.6	1.0	1.0	2.6
13-Apr	1.2	1.2	0.8	0.4	Z	0.6	0.3	0.2	0.4	0.4	0.2	0.2	0.2	0.2	0.5	0.2	0.3	0.2	0.4	0.5	0.9	0.9	0.4	0.3	0.5	1.2
14-Apr	0.7	1.2	1.8	4.6	7.5	Z	3.3	2.3	2.7	2.0	1.1	0.7	0.3	0.2	0.2	0.1	0.5	0.4	6.0	6.3	4.2	4.5	9.2	2.6	9.2	
15-Apr	Z	18.4	20.1	23.7	22.0	31.3	35.1	38.6	21.5	15.2	23.7	27.4	9.7	4.2	1.4	2.4	1.4	1.6	2.2	0.9	0.9	2.7	3.3	3.6	13.5	38.6
16-Apr	3.6	Z	1.8	4.2	3.9	2.8	2.2	2.5	2.6	2.6	3.0	2.3	1.8	1.0	0.7	0.4	0.5	1.7	2.4	2.6	2.5	2.6	2.6	2.0	2.3	4.2
17-Apr	0.5	0.9	Z	0.5	0.5	0.6	1.8	1.5	2.0	2.6	2.5	1.8	1.5	1.0	0.9	1.2	1.0	0.8	0.6	0.8	1.0	3.7	2.2	3.1	1.4	3.7
18-Apr	2.4	2.3	2.2	Z	7.2	10.5	6.6	3.9	3.2	3.7	3.3	2.6	2.3	1.3	1.4	1.1	1.4	0.9	1.6	2.5	6.3	18.1	24.6	27.9	6.0	27.9
19-Apr	22.7	36.1	41.4	29.9	Z	23.9	15.9	6.5	4.2	1.4	0.8	0.6	0.4	0.4	0.4	0.2	0.4	0.3	0.3	0.3	0.3	0.5	0.5	0.6	8.2	41.4
20-Apr	0.4	0.4	0.4	0.4	0.6	Z	0.5	0.7	0.5	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.4	0.4	3.5	3.2	2.2	1.6	0.8	3.5
21-Apr	Z	2.7	1.9	1.5	2.1	2.8	2.9	2.5	1.7	1.2	1.1	0.7	0.9	0.8	0.6	1.0	1.2	1.4	2.4	5.7	12.0	8.1	27.8	44.3	5.5	44.3
22-Apr	42.0	Z	34.9	35.7	40.0	33.7	4.5	6.7	29.4	22.5	17.3	2.6	1.3	1.2	2.9	2.4	1.8	1.4	1.8	2.9	3.5	4.5	6.7	3.6	13.2	42.0
23-Apr	2.8	2.4	Z	24.5	34.9	12.8	13.6	26.4	15.6	7.3	5.0	17.6	10.1	23.9	12.4	7.4	3.9	4.4	2.6	4.2	2.4	2.3	5.8	10.8	11.0	34.9
24-Apr	11.5	5.4	13.5	Z	16.8	21.8	17.9	M	7.3	6.7	2.8	3.1	2.5	1.4	1.9	2.4	3.4	2.3	7.4	3.6	7.5	1.6	1.6	8.7	6.9	21.8
25-Apr	2.2	0.8	0.9	1.2	Z	0.7	0.5	0.6	0.6	0.4	0.3	0.2	0.2	0.4	0.3	0.2	0.3	0.4	2.2	1.1	2.3	1.7	5.8	8.6	1.4	8.6
26-Apr	10.0	7.3	4.3	5.1	6.4	Z	3.5	4.5	5.9	4.2	5.8	6.5	5.2	3.7	4.5	6.4	5.3	2.9	2.2	2.3	5.1	5.7	10.3	3.9	5.3	10.3
27-Apr	Z	0.6	0.8	1.2	1.1	1.5	1.9	2.1	1.2	1.0	0.4	0.4	0.3	0.3	0.5	0.4	0.6	0.5	0.7	0.9	0.9	1.0	10.9	8.4	1.6	10.9
28-Apr	14.9	Z	11.5	16.4	16.6	18.9	9.7	0.9	0.8	0.8	1.2	2.3	3.3	2.6	3.0	4.0	4.4	3.5	6.2	2.3	6.0	9.4	6.2	7.1	6.6	18.9
29-Apr	6.4	1.0	Z	20.3	4.6	3.3	5.4	5.0	3.9	1.4	1.8	2.0	3.1	2.8	1.9	2.0	1.7	1.6	1.9	3.8	1.7	0.8	1.8	3.6	3.6	20.3
30-Apr	1.5	0.8	0.6	Z	0.9	1.3	1.0	1.1	1.1	1.0	3.7	5.2	1.0	2.8	1.9	2.3	3.0	3.0	5.2	5.0	4.2	3.1	1.4	1.2	2.3	5.2

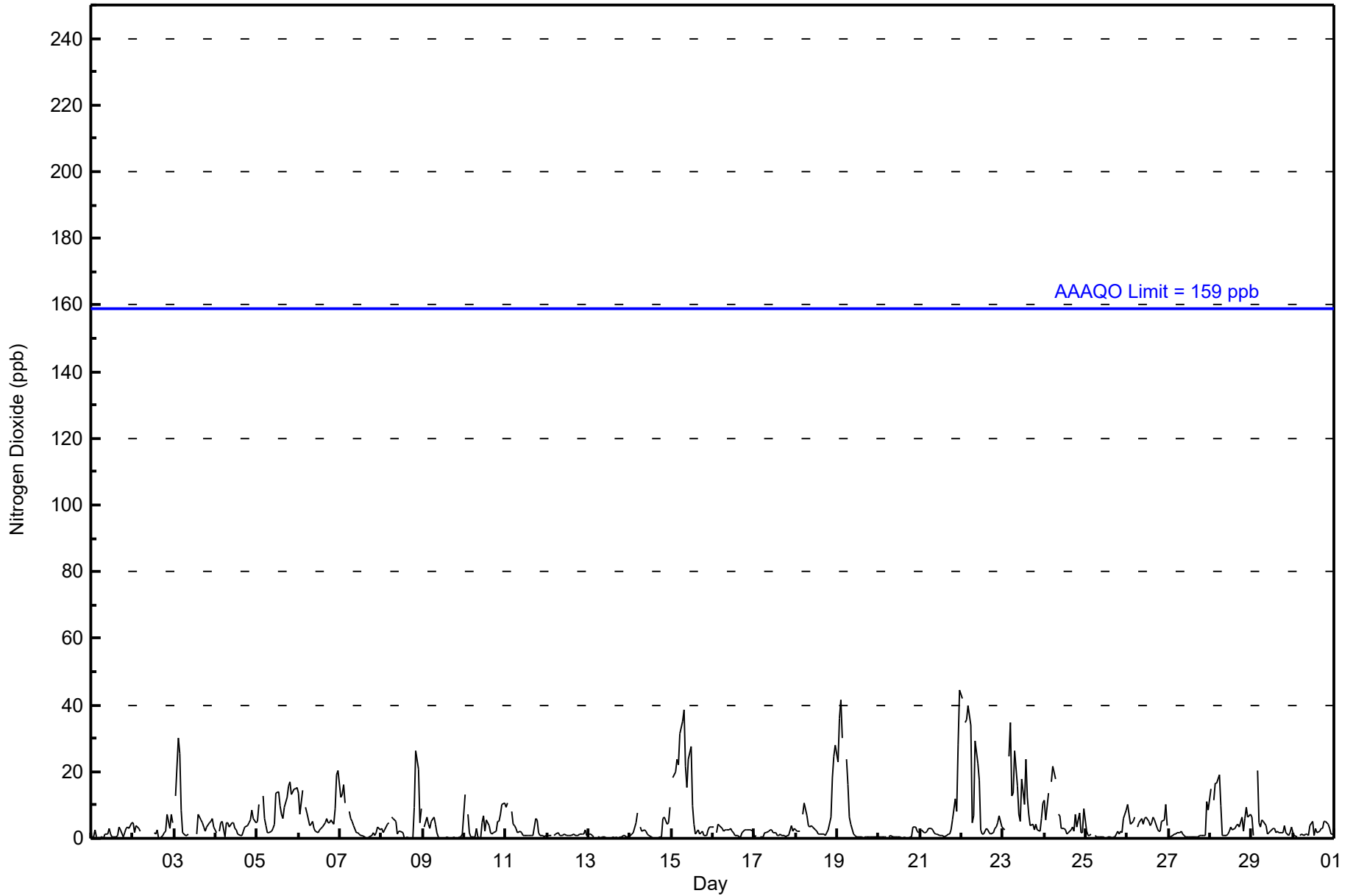
7.5	5.8	8.9	9.8	8.4	8.0	5.6	4.9	4.5	3.3	3.5	3.9	2.5	2.5	2.1	1.9	2.0	2.1	2.6	3.3	4.6	5.0	6.5	7.6	Diurnal Average	
42.0	36.1	41.4	35.7	40.0	33.7	35.1	38.6	29.4	22.5	23.7	27.4	13.8	23.9	12.4	7.4	9.2	12.2	15.7	16.8	26.2	20.6	27.8	44.3	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Buffalo Viewpoint - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	645	94.99	94.99
21 - 40	31	4.57	99.56
41 - 80	3	0.44	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 679

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Buffalo Viewpoint - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	143	53	20	12	8	43	70	51	23	16	23	38	40	34	34	37	645
21 - 40	5	2	0	0	0	0	2	2	2	0	1	0	0	1	6	10	31
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	148	55	20	12	8	43	72	53	25	16	24	38	40	35	42	48	679

Total Number of Valid Hours: 679

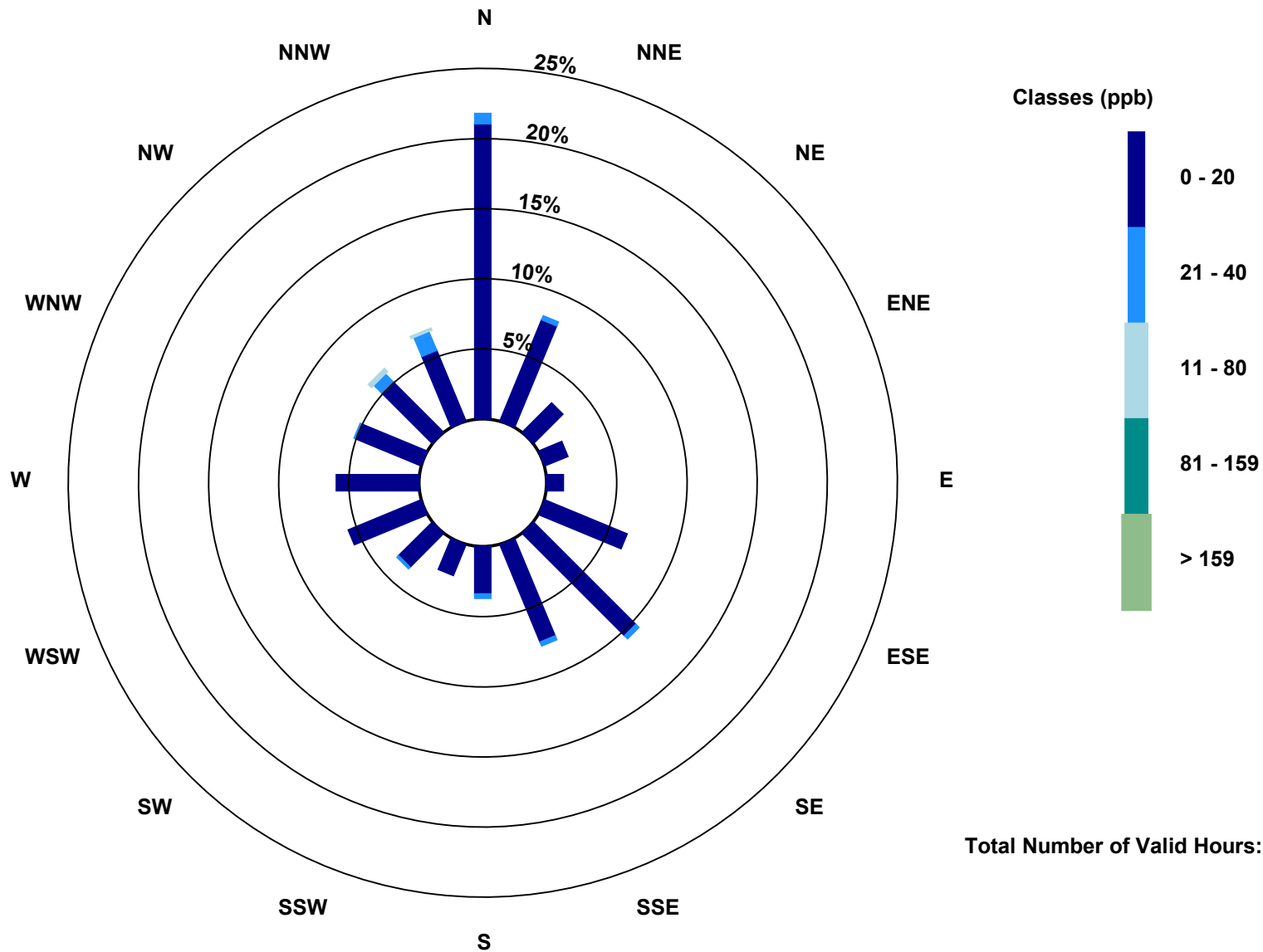
Total Number of Hours: 720



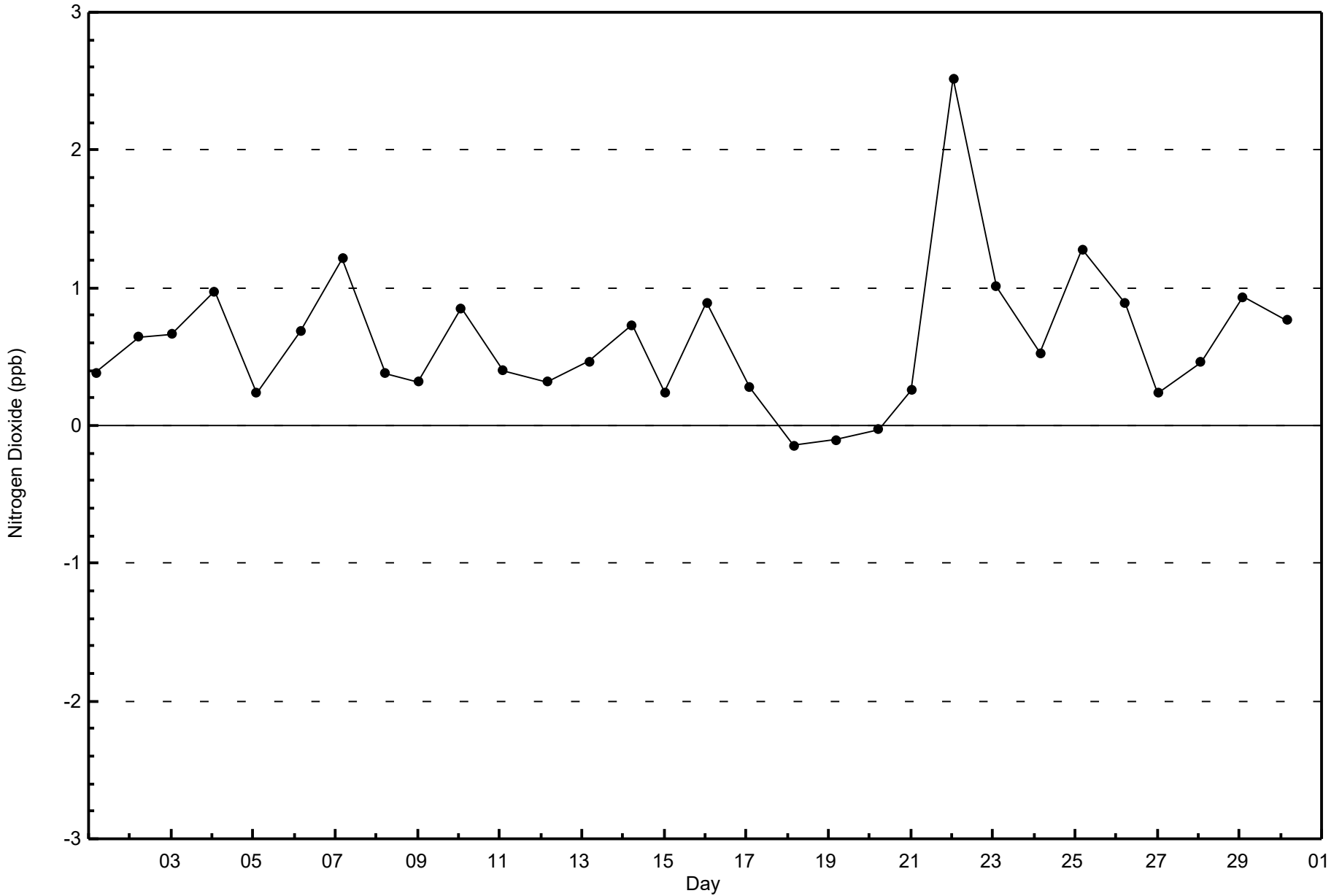


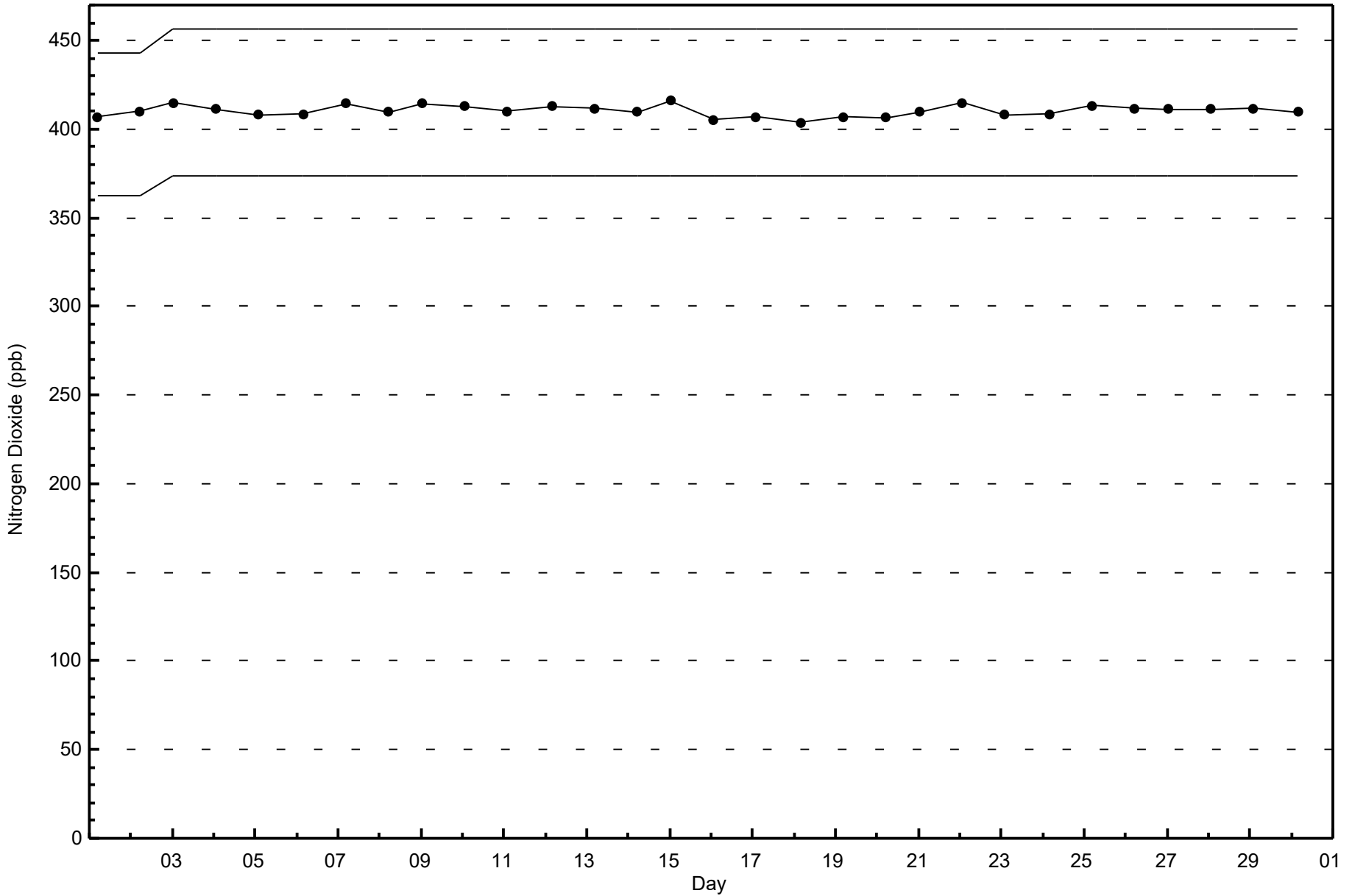
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 679







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Buffalo Viewpoint - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 149.7 ppb on Apr 22 05:00	Maximum Daily Average: 29.2 ppb on Apr 22		Hours of Data:	679
Minimum Value: 0.1 ppb on Apr 8 15:00	Minimum Daily Average: 0.5 ppb on Apr 13		Hours of Missing Data:	41
Maximum Diurnal Average: 14.9 ppb at hour 4	Minimum Diurnal Average: 2.1 ppb at hour 16		Hours of Calibration:	36
Monthly Average: 6.07 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.9 Median = 2.5 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 13.2 P <sub>99</sub> = 66.3		Percent Operational Time:	99.3

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.6	0.3	2.5	0.3	Z	0.5	0.5	0.3	1.2	1.7	3.8	1.3	0.5	0.4	0.6	1.0	3.9	3.0	0.6	1.7	2.9	3.2	3.0	4.7	1.7	4.7
2-Apr	4.7	1.7	4.0	2.9	2.2	Z	C	C	C	C	C	C	1.6	1.4	2.7	0.1	0.1	0.8	1.7	2.2	7.1	2.8	7.1	4.7	--	7.1
3-Apr	Z	13.0	31.0	25.8	8.6	1.7	0.8	0.9	1.4	M	M	M	M	1.3	9.7	6.4	6.1	4.1	2.0	3.2	4.5	4.9	6.0	3.4	7.1	31.0
4-Apr	1.7	Z	2.2	4.7	5.2	0.4	4.7	5.0	3.5	5.2	5.5	3.6	2.6	1.3	1.0	0.9	2.2	3.3	3.7	4.6	5.6	8.5	6.1	4.5	3.7	8.5
5-Apr	4.9	10.0	Z	12.6	5.9	4.0	1.7	1.6	2.2	3.3	4.6	17.2	18.4	12.6	9.3	6.5	10.0	14.4	17.1	17.1	13.0	14.7	14.9	15.1	10.0	18.4
6-Apr	13.4	7.3	14.6	Z	9.4	7.5	3.7	4.6	5.8	3.1	2.7	2.2	2.9	3.5	3.8	4.5	6.4	4.7	4.8	5.3	4.1	8.9	20.0	21.3	7.2	21.3
7-Apr	12.2	13.2	16.1	10.7	Z	8.3	6.7	5.9	4.7	2.5	1.7	1.2	0.9	0.7	0.5	0.2	0.1	0.3	0.7	1.7	0.9	1.7	3.4	2.7	4.2	16.1
8-Apr	2.8	1.9	2.5	4.3	4.7	Z	6.7	7.6	6.4	1.4	2.2	2.2	1.8	0.2	0.1	0.3	0.2	0.1	0.2	9.3	26.6	21.6	4.5	8.9	5.1	26.6
9-Apr	Z	3.4	6.3	4.3	3.0	5.0	7.4	5.1	1.5	0.5	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.3	0.1	0.2	0.6	0.4	1.3	1.8	7.4
10-Apr	13.2	Z	7.1	1.5	0.3	0.3	0.4	2.9	0.3	0.2	4.8	7.5	2.6	6.8	4.6	1.8	1.2	1.6	2.0	5.1	5.2	7.3	10.4	10.6	4.2	13.2
11-Apr	9.2	10.9	Z	13.5	4.2	4.0	3.2	1.7	2.4	1.7	1.0	1.0	0.7	0.9	0.9	0.7	0.7	6.1	5.7	1.6	1.0	1.0	0.6	0.7	3.2	13.5
12-Apr	0.9	0.8	0.7	Z	1.0	1.1	1.6	0.7	0.9	0.7	1.1	0.9	0.7	0.9	0.7	1.1	0.9	0.8	0.8	1.1	1.2	1.2	2.6	1.0	1.0	2.6
13-Apr	1.2	1.2	0.8	0.4	Z	0.7	0.3	0.2	0.4	0.4	0.2	0.2	0.2	0.2	0.5	0.2	0.3	0.2	0.4	0.5	0.9	0.9	0.4	0.3	0.5	1.2
14-Apr	0.7	1.2	1.8	4.6	7.5	Z	3.6	2.7	3.6	2.5	1.2	0.7	0.3	0.2	0.2	0.1	0.5	0.4	6.0	6.3	4.2	4.5	9.2	9.2	2.7	9.2
15-Apr	Z	18.7	20.4	24.0	22.2	47.0	63.7	79.3	27.0	20.1	38.5	45.6	11.4	4.4	1.4	2.4	1.4	1.6	2.2	0.9	0.9	2.7	3.3	3.6	19.3	79.3
16-Apr	3.6	Z	1.8	4.2	3.9	2.8	2.2	2.5	2.6	2.9	3.6	2.9	2.1	1.0	0.7	0.4	0.5	1.8	2.4	2.6	2.5	2.6	2.6	2.0	2.3	4.2
17-Apr	0.5	0.9	Z	0.5	0.5	0.6	2.0	1.7	2.7	3.6	3.4	2.5	1.8	1.1	0.9	1.4	1.0	0.8	0.6	0.8	1.0	3.7	2.2	3.1	1.6	3.7
18-Apr	2.4	2.3	2.2	Z	7.3	10.7	7.1	4.9	4.1	4.8	4.2	3.1	2.8	1.5	1.7	1.2	1.5	0.9	1.6	2.5	6.3	18.3	25.0	28.3	6.3	28.3
19-Apr	23.0	51.1	97.6	38.9	Z	32.4	23.6	8.7	5.3	1.6	0.9	0.6	0.4	0.4	0.4	0.2	0.4	0.4	0.3	0.3	0.3	0.5	0.5	0.6	12.5	97.6
20-Apr	0.4	0.4	0.4	0.4	0.6	Z	0.6	0.7	0.5	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.5	0.4	3.5	3.2	2.2	1.7	0.8	3.5
21-Apr	Z	2.9	1.9	1.5	2.1	2.8	3.1	2.9	2.0	1.4	1.4	0.7	0.9	0.8	0.6	1.1	1.3	1.5	2.5	5.7	12.1	8.1	30.0	90.5	7.7	90.5
22-Apr	68.3	Z	65.7	139.1	149.7	86.9	4.9	8.1	52.6	33.3	24.4	3.0	1.5	1.4	3.3	2.7	1.9	1.4	1.8	3.0	3.5	4.5	6.7	3.6	29.2	149.7
23-Apr	2.8	2.4	Z	32.0	59.0	14.5	18.0	60.6	24.4	9.5	6.2	26.7	13.9	35.6	15.7	8.4	4.5	4.8	2.7	4.2	2.5	2.3	5.9	10.9	16.0	60.6
24-Apr	11.5	5.4	13.7	Z	17.1	25.0	23.5	M	9.8	9.1	3.5	3.9	3.1	1.6	2.2	2.6	3.6	2.4	7.6	3.7	7.7	1.6	1.7	8.8	7.7	25.0
25-Apr	2.2	0.8	0.9	1.2	Z	0.8	0.5	0.6	0.6	0.4	0.4	0.2	0.2	0.4	0.3	0.2	0.4	0.4	2.2	1.1	2.3	1.8	5.9	8.8	1.4	8.8
26-Apr	10.2	7.4	4.4	5.3	6.6	Z	4.0	5.6	8.2	5.7	8.3	9.2	7.2	4.9	5.9	8.6	6.7	3.5	2.4	2.3	5.2	5.8	10.4	3.9	6.2	10.4
27-Apr	Z	0.7	0.9	1.3	1.3	1.6	2.1	2.6	1.6	1.3	0.4	0.5	0.5	0.3	0.5	0.4	0.6	0.5	0.7	0.9	0.9	1.0	11.1	8.6	1.8	11.1
28-Apr	15.1	Z	11.9	16.7	17.0	20.2	11.4	1.0	0.9	1.0	1.4	3.0	4.5	3.7	3.9	5.2	5.1	3.9	6.8	2.4	6.1	9.6	6.3	7.3	7.2	20.2
29-Apr	6.6	1.0	Z	21.0	4.7	3.6	5.9	5.9	4.5	1.6	2.2	2.3	4.0	3.7	2.4	2.4	2.0	1.9	1.9	4.0	1.8	0.8	1.8	3.7	3.9	21.0
30-Apr	1.6	0.8	0.6	Z	1.1	1.3	1.1	1.2	1.3	1.2	4.2	6.3	1.1	3.5	2.3	2.7	3.6	3.5	5.8	5.4	4.3	3.2	1.5	1.2	2.6	6.3

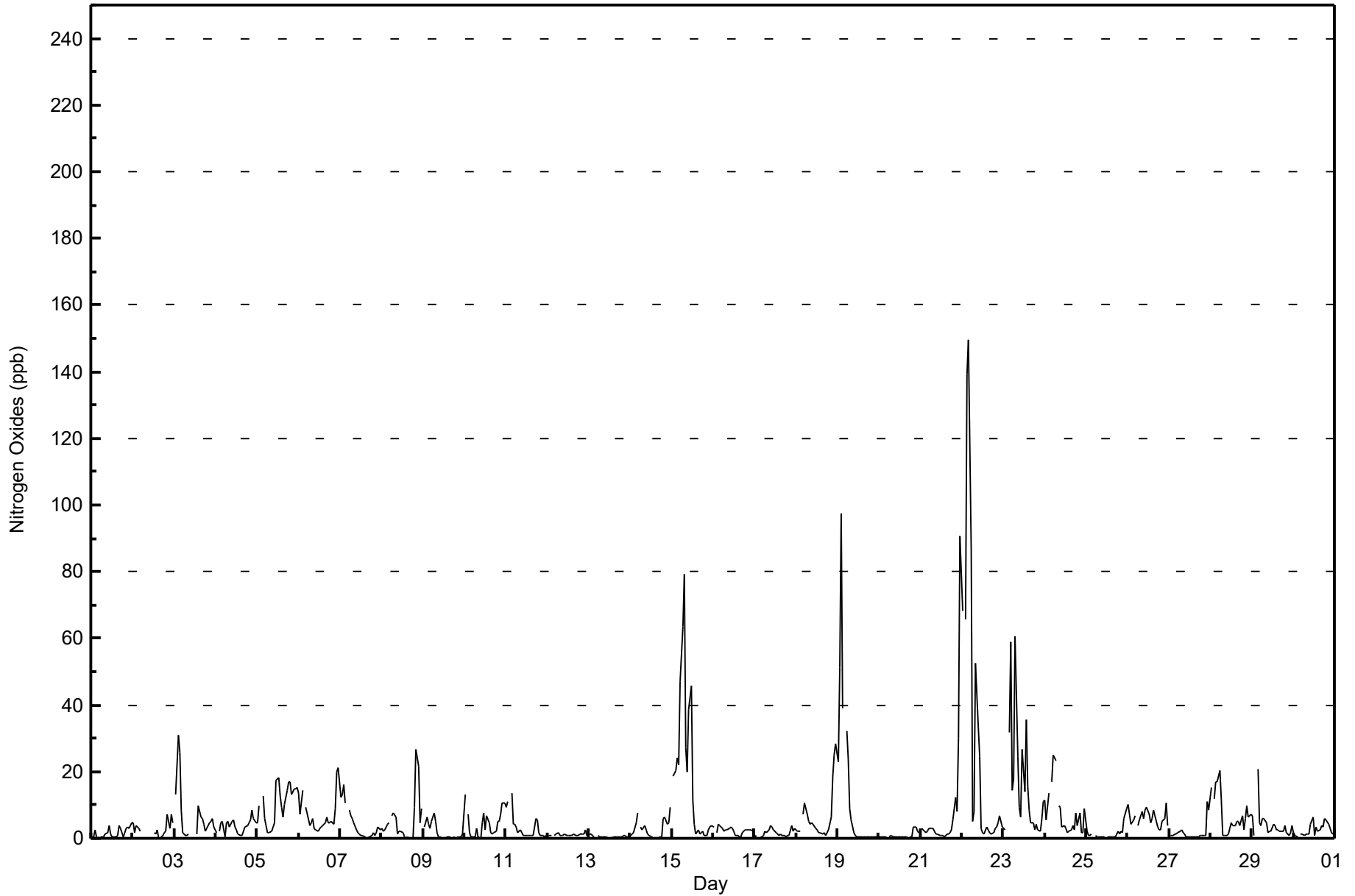
8.6	6.4	12.5	14.9	13.8	11.4	7.4	8.0	6.3	4.3	4.7	5.3	3.1	3.2	2.6	2.1	2.2	2.3	2.7	3.3	4.7	5.0	6.7	9.2	Diurnal Average	
68.3	51.1	97.6	139.1	149.7	86.9	63.7	79.3	52.6	33.3	38.5	45.6	18.4	35.6	15.7	8.6	10.0	14.4	17.1	17.1	26.6	21.6	30.0	90.5	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Buffalo Viewpoint - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	639	94.11	94.11
21 - 40	25	3.68	97.79
41 - 80	10	1.47	99.26
81 - 159	5	0.74	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 679

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	142	51	20	12	8	42	70	51	23	15	23	38	40	34	34	36	639
21 - 40	5	4	0	0	0	1	2	2	2	1	0	0	0	1	2	5	25
41 - 80	1	0	0	0	0	0	0	0	0	0	1	0	0	0	4	4	10
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	148	55	20	12	8	43	72	53	25	16	24	38	40	35	42	48	679

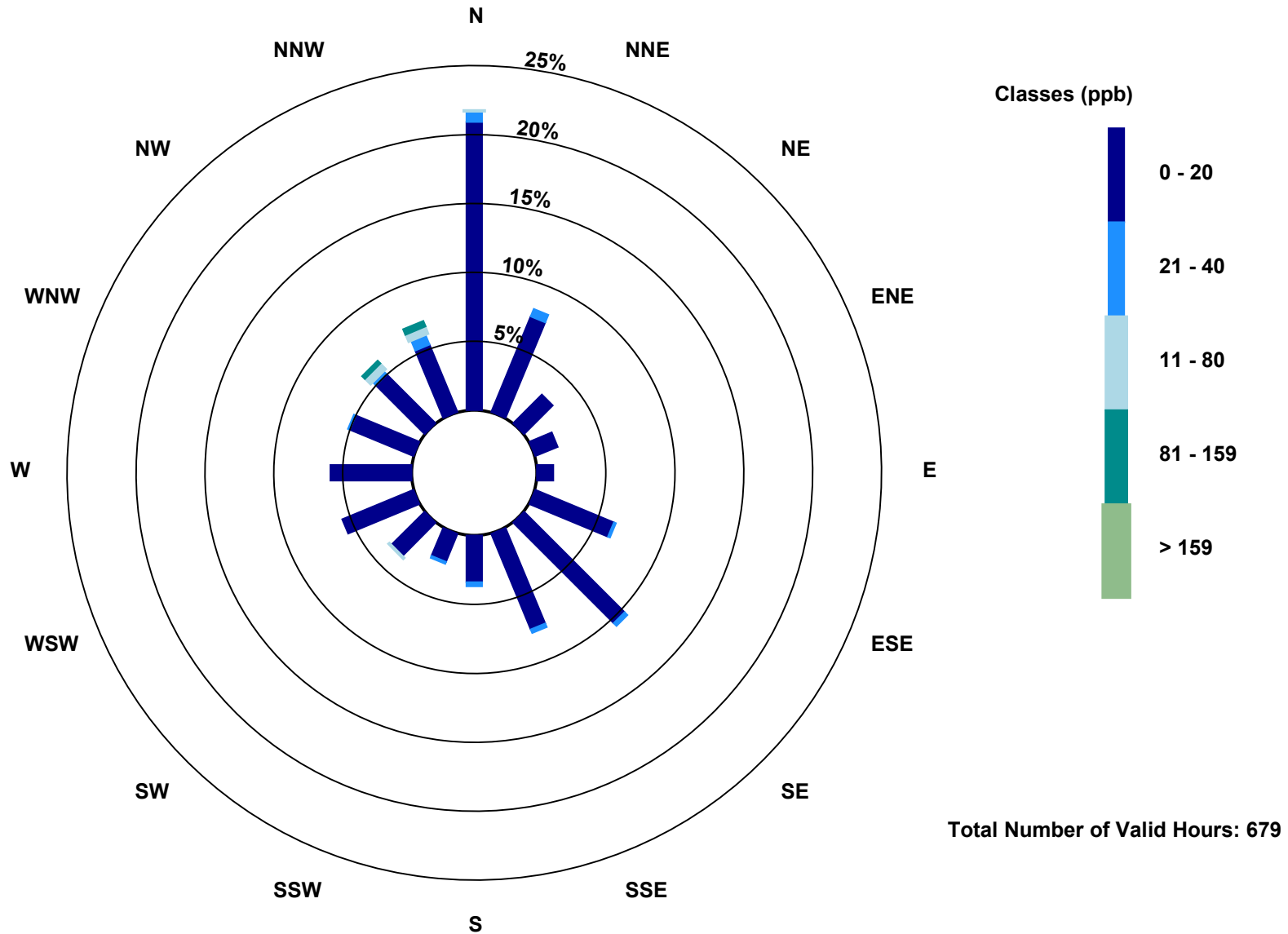
Total Number of Valid Hours: 679

Total Number of Hours: 720

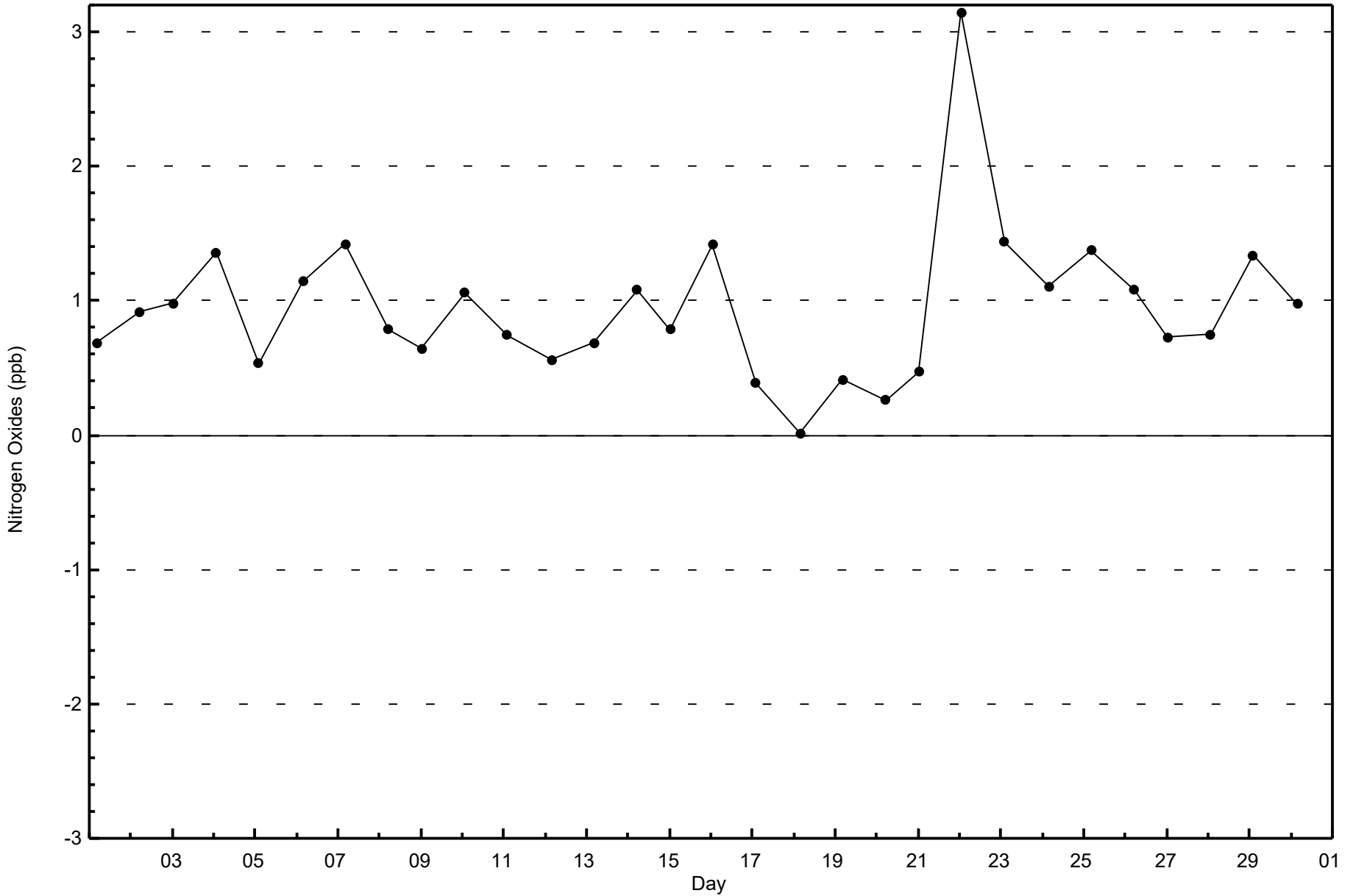


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



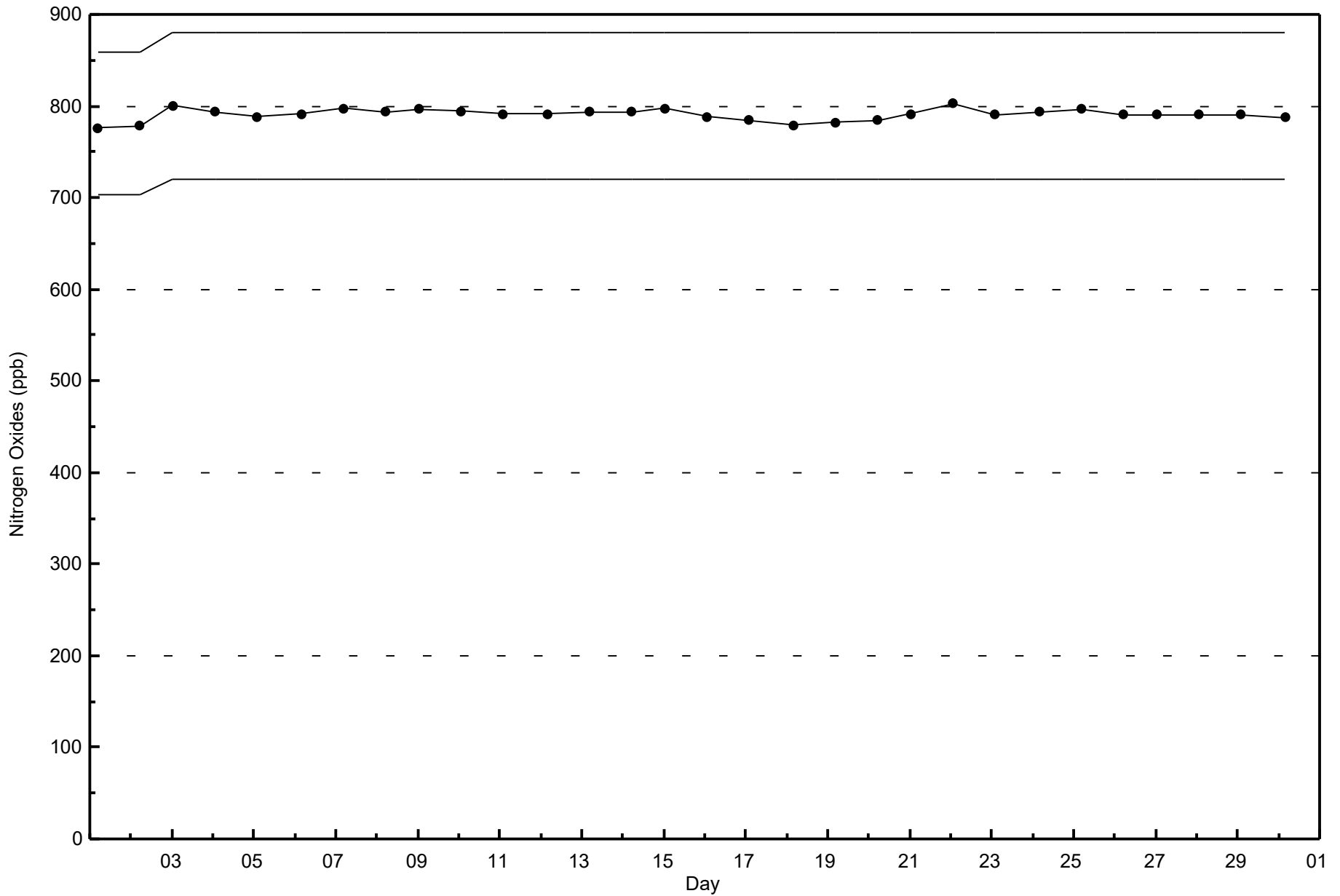






**Wood Buffalo Environmental Association**  
**Span Responses**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Buffalo Viewpoint - April 2024**





Wood Buffalo Environmental Association

Summary of Hour Averages

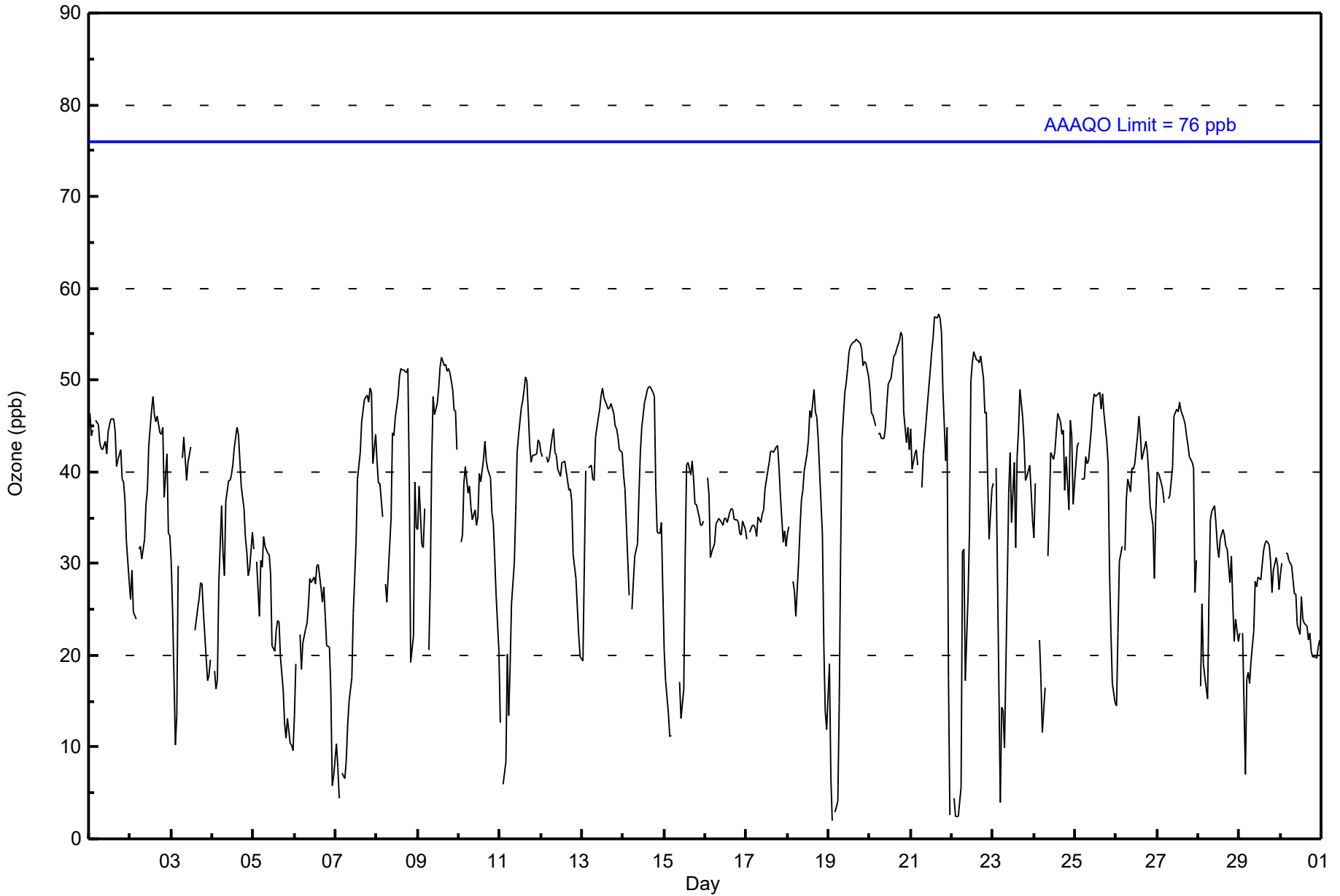
Ozone (O<sub>3</sub>) - ppb

Buffalo Viewpoint - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 57.2 ppb on Apr 21 17:00	Maximum Daily Average: 48.1 ppb on Apr 20		Hours of Data:	684
Minimum Value: 2.0 ppb on Apr 19 03:00	Minimum Daily Average: 22.3 ppb on Apr 6		Hours of Missing Data:	36
Maximum Diurnal Average: 42.8 ppb at hour 15	Minimum Diurnal Average: 25.7 ppb at hour 4		Hours of Calibration:	33
Monthly Average: 35.18 ppb	Percentiles: P <sub>1</sub> = 4.1 P <sub>10</sub> = 17.9 Q <sub>1</sub> = 28.2 Median = 37.3 Q <sub>3</sub> = 43.8 P <sub>90</sub> = 48.6 P <sub>99</sub> = 54.7		Percent Operational Time:	99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	46.4	43.9	44.6	Z	45.6	45.2	43.1	42.6	42.4	43.4	42.0	44.4	45.1	45.7	45.8	44.4	40.6	41.3	42.4	39.1	39.0	37.0	32.4	28.1	41.9	46.4																						
2-Apr	26.1	29.2	24.7	24.0	Z	31.6	31.9	30.5	32.7	36.4	38.1	42.9	46.7	48.2	46.3	45.5	46.1	44.3	44.0	44.8	37.2	41.9	33.2	33.1	37.4	48.2																						
3-Apr	30.1	24.9	10.2	13.4	29.7	Z	41.5	43.8	41.5	39.0	41.1	42.7	M	M	22.7	25.2	26.2	27.9	27.8	24.8	19.7	17.3	17.8	19.5	28.0	43.8																						
4-Apr	Z	18.4	16.4	17.4	27.9	36.3	31.1	28.6	36.7	39.0	39.0	39.7	40.7	42.5	44.8	44.0	41.3	38.4	36.0	32.9	31.3	28.6	29.4	33.3	33.6	44.8																						
5-Apr	31.6	Z	30.3	24.3	30.3	29.6	33.0	31.9	31.2	30.9	28.9	21.1	20.4	22.7	23.9	23.7	19.9	16.2	12.5	11.0	13.1	10.4	10.2	9.7	22.5	33.0																						
6-Apr	13.4	19.1	Z	22.3	18.4	21.3	22.9	23.4	25.4	28.4	27.8	28.5	27.8	29.7	29.8	27.3	25.7	27.5	24.3	21.0	20.9	16.0	5.8	6.8	22.3	29.8																						
7-Apr	10.4	7.7	4.5	Z	7.1	6.6	8.6	12.3	15.0	17.6	24.6	28.3	32.3	39.2	42.2	45.5	46.6	47.9	48.4	47.6	49.0	48.7	40.9	44.1	29.4	49.0																						
8-Apr	41.1	38.8	38.7	35.0	Z	27.7	25.8	29.0	34.9	44.2	44.0	46.0	48.2	50.3	51.3	51.1	51.1	50.8	51.3	39.1	19.3	22.1	38.8	33.9	39.7	51.3																						
9-Apr	33.7	38.4	32.0	31.7	36.0	Z	20.7	27.9	41.1	48.3	46.2	47.4	49.1	51.5	52.5	51.5	51.7	51.0	51.2	50.7	48.9	46.6	46.7	42.4	43.4	52.5																						
10-Apr	Z	32.4	33.2	38.8	40.6	37.6	38.5	36.1	34.8	35.8	34.2	35.0	39.8	39.0	41.3	43.3	41.1	40.2	39.4	35.6	34.4	30.7	26.6	20.4	36.0	43.3																						
11-Apr	12.7	Z	5.9	8.3	20.2	13.4	18.7	25.7	30.1	35.7	42.1	44.0	47.1	47.7	49.0	50.4	49.8	42.9	41.1	41.8	41.8	42.0	43.5	43.1	34.6	50.4																						
12-Apr	42.1	41.6	Z	41.7	41.1	41.6	43.8	44.6	42.1	41.9	40.3	39.5	41.1	41.1	41.2	39.0	38.0	38.2	36.7	31.0	28.3	25.1	22.2	19.9	37.5	44.6																						
13-Apr	19.4	29.9	40.1	Z	40.4	40.7	39.2	39.0	43.8	45.9	46.8	48.4	49.1	48.1	47.2	46.9	47.0	47.5	46.4	45.0	44.7	43.8	42.4	42.0	42.8	49.1																						
14-Apr	39.6	38.1	34.3	26.5	Z	25.0	28.1	30.8	32.2	37.5	42.1	44.8	47.5	48.2	48.9	49.3	49.3	48.6	48.3	38.3	33.4	33.2	34.4	27.3	38.5	49.3																						
15-Apr	20.6	17.2	13.7	11.1	11.3	Z	C	C	C	17.1	13.1	16.4	30.7	40.8	41.1	39.6	41.2	39.2	36.4	36.5	35.1	34.2	34.2	34.6	28.2	41.2																						
16-Apr	Z	39.3	37.6	30.7	31.3	32.1	34.3	34.6	34.9	34.5	34.2	34.9	34.9	34.5	35.6	36.0	35.9	34.8	34.8	34.5	33.2	33.1	34.6	33.7	34.5	39.3																						
17-Apr	32.7	Z	33.4	34.2	34.1	33.8	33.0	35.1	34.5	35.3	35.9	38.2	40.1	41.1	42.3	42.3	42.1	42.7	42.8	40.4	37.3	32.3	33.5	31.9	36.9	42.8																						
18-Apr	33.3	34.0	Z	28.1	26.9	24.3	30.3	33.9	37.0	38.1	40.2	41.9	43.5	46.7	45.9	48.9	46.5	45.9	43.5	39.9	33.1	21.0	13.9	11.9	35.2	48.9																						
19-Apr	19.1	6.9	2.0	Z	2.8	4.1	14.8	31.3	43.6	48.7	49.8	51.2	53.0	53.7	54.2	54.2	54.4	54.3	54.1	53.4	51.6	52.0	51.9	50.4	39.6	54.4																						
20-Apr	48.8	46.4	46.3	45.0	Z	44.1	44.2	43.6	43.6	44.8	47.4	49.6	50.2	51.4	52.6	52.8	53.5	54.4	55.3	54.7	46.6	43.1	44.8	42.5	48.1	55.3																						
21-Apr	44.8	40.3	42.0	42.4	40.8	Z	38.3	41.8	43.6	45.5	47.5	51.0	53.0	54.7	56.8	56.7	57.2	56.7	55.2	48.9	41.1	44.9	17.4	2.7	44.5	57.2																						
22-Apr	Z	4.5	2.5	2.5	2.5	5.6	31.2	31.5	17.2	26.5	33.6	49.9	51.9	53.1	52.2	52.2	51.8	52.6	50.2	46.4	46.5	39.2	32.6	38.1	33.7	53.1																						
23-Apr	38.8	Z	40.4	16.4	4.0	14.3	14.0	9.9	28.1	37.7	42.1	34.4	41.1	31.8	41.6	44.6	49.0	45.8	43.1	39.1	39.5	40.7	38.0	34.7	33.4	49.0																						
24-Apr	32.8	38.8	Z	21.7	17.5	11.6	16.5	M	30.9	35.9	42.1	41.3	42.2	44.4	46.3	45.4	44.1	44.5	38.0	41.7	35.8	45.6	44.0	36.5	36.3	46.3																						
25-Apr	40.9	42.8	43.2	Z	39.2	39.1	41.7	40.9	41.2	44.6	47.1	48.5	48.3	48.4	48.7	46.8	48.5	46.4	43.3	40.8	28.9	22.4	17.0	14.8	40.2	48.7																						
26-Apr	14.5	22.4	30.3	31.8	Z	31.4	37.1	39.2	37.8	40.4	40.2	40.9	43.9	46.1	44.1	41.4	42.0	43.3	42.0	39.6	36.2	34.1	28.3	35.4	36.6	46.1																						
27-Apr	39.9	39.8	38.8	38.0	36.6	Z	37.0	37.3	39.0	40.6	46.1	46.8	46.5	47.5	46.7	45.8	45.2	44.0	42.9	41.6	41.1	40.4	26.8	30.3	40.8	47.5																						
28-Apr	Z	16.7	25.6	19.0	17.7	15.2	26.7	34.8	35.8	36.4	34.3	31.8	30.6	32.6	33.6	33.1	32.0	31.6	28.0	30.8	25.6	21.4	23.9	21.5	27.8	36.4																						
29-Apr	22.4	Z	22.4	7.1	17.4	18.1	17.0	19.3	22.7	28.1	27.4	28.5	28.3	29.9	31.4	32.2	32.4	32.0	30.3	26.8	29.3	30.7	29.8	27.2	25.7	32.4																						
30-Apr	28.8	30.1	Z	31.1	31.1	30.3	29.8	28.2	26.7	26.8	23.3	22.3	26.4	23.9	23.5	23.1	21.7	22.4	20.4	19.8	19.8	19.7	21.0	21.7	24.9	31.1																						
																								30.6	29.7	27.7	25.7	26.0	26.4	30.1	32.4	34.5	36.8	38.0	39.3	41.4	42.6	42.8	42.7	42.4	41.8	40.3	37.9	34.7	33.3	30.5	29.1	Diurnal Average
																								48.8	46.4	46.3	45.0	45.6	45.2	44.2	44.6	43.8	48.7	49.8	51.2	53.0	54.7	56.8	56.7	57.2	56.7	55.3	54.7	51.6	52.0	51.9	50.4	Diurnal Maximum

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	90	13.16	13.16
21 - 50	549	80.26	93.42
51 - 82	45	6.58	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Buffalo Viewpoint - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	15	6	3	0	1	2	8	11	7	1	1	0	1	3	12	19	90
21 - 50	129	48	15	12	6	41	60	50	17	11	11	35	30	30	27	27	549
51 - 82	2	1	3	0	1	2	2	0	0	4	12	7	8	0	1	2	45
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	146	55	21	12	8	45	70	61	24	16	24	42	39	33	40	48	684

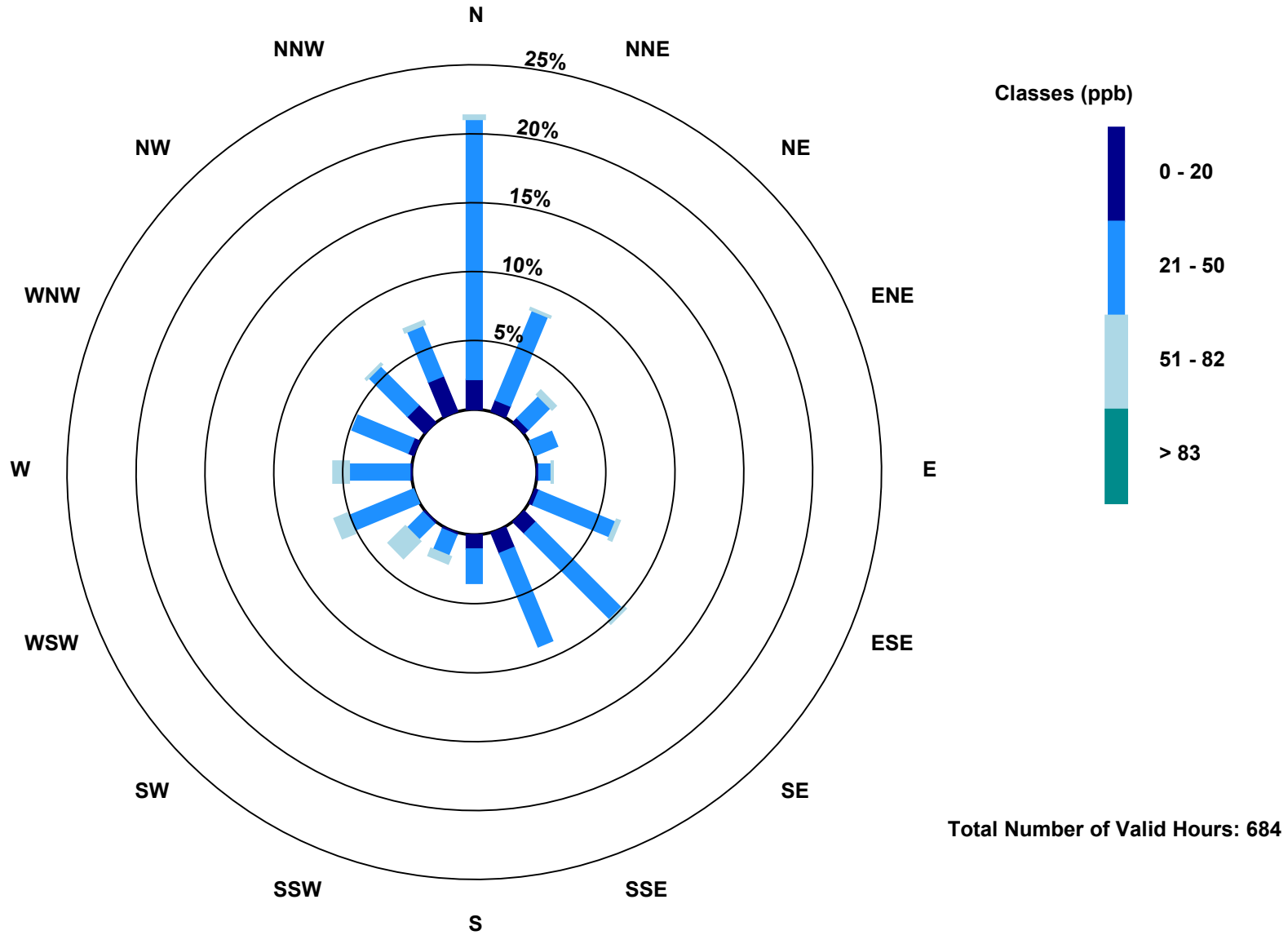
Total Number of Valid Hours: 684

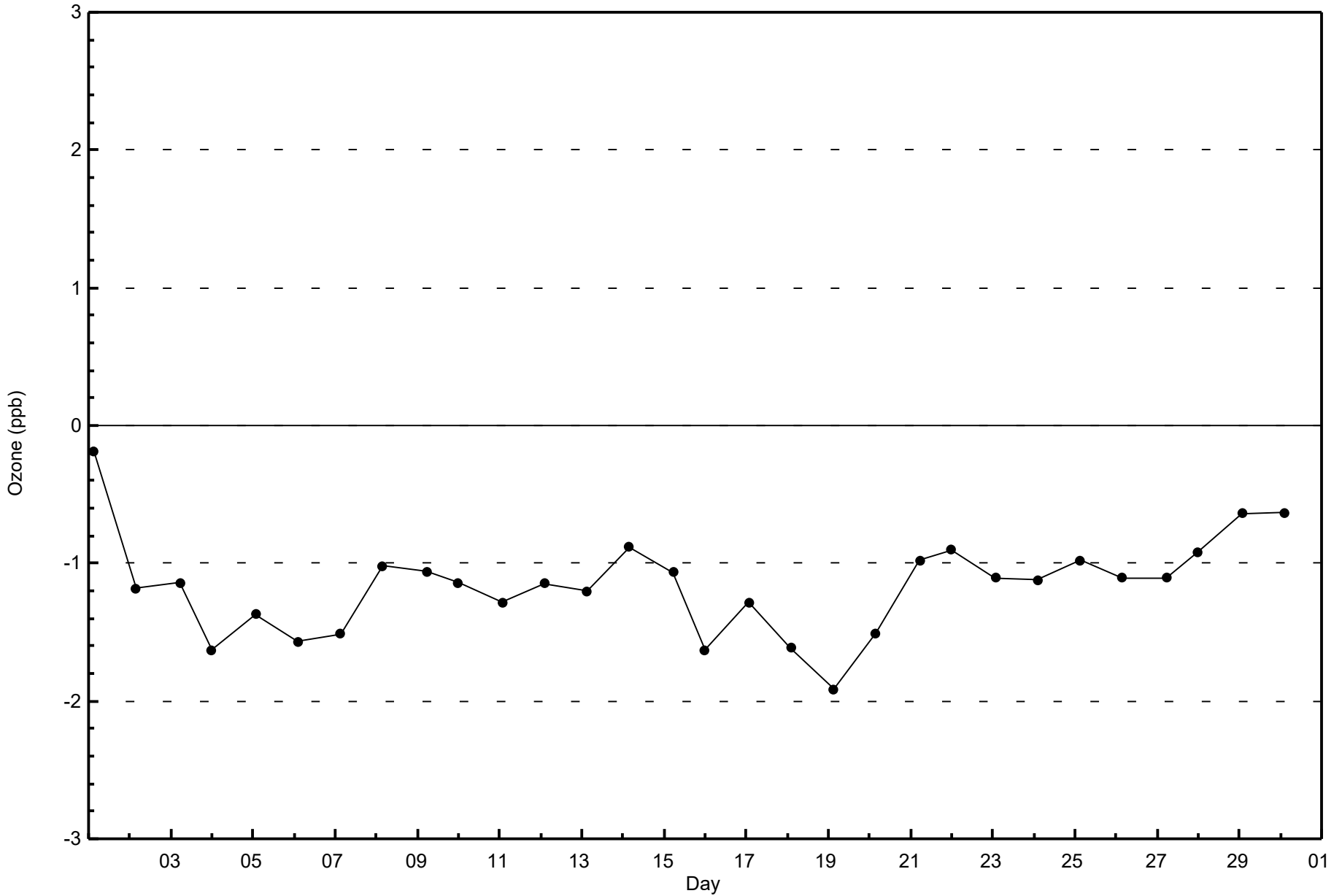
Total Number of Hours: 720



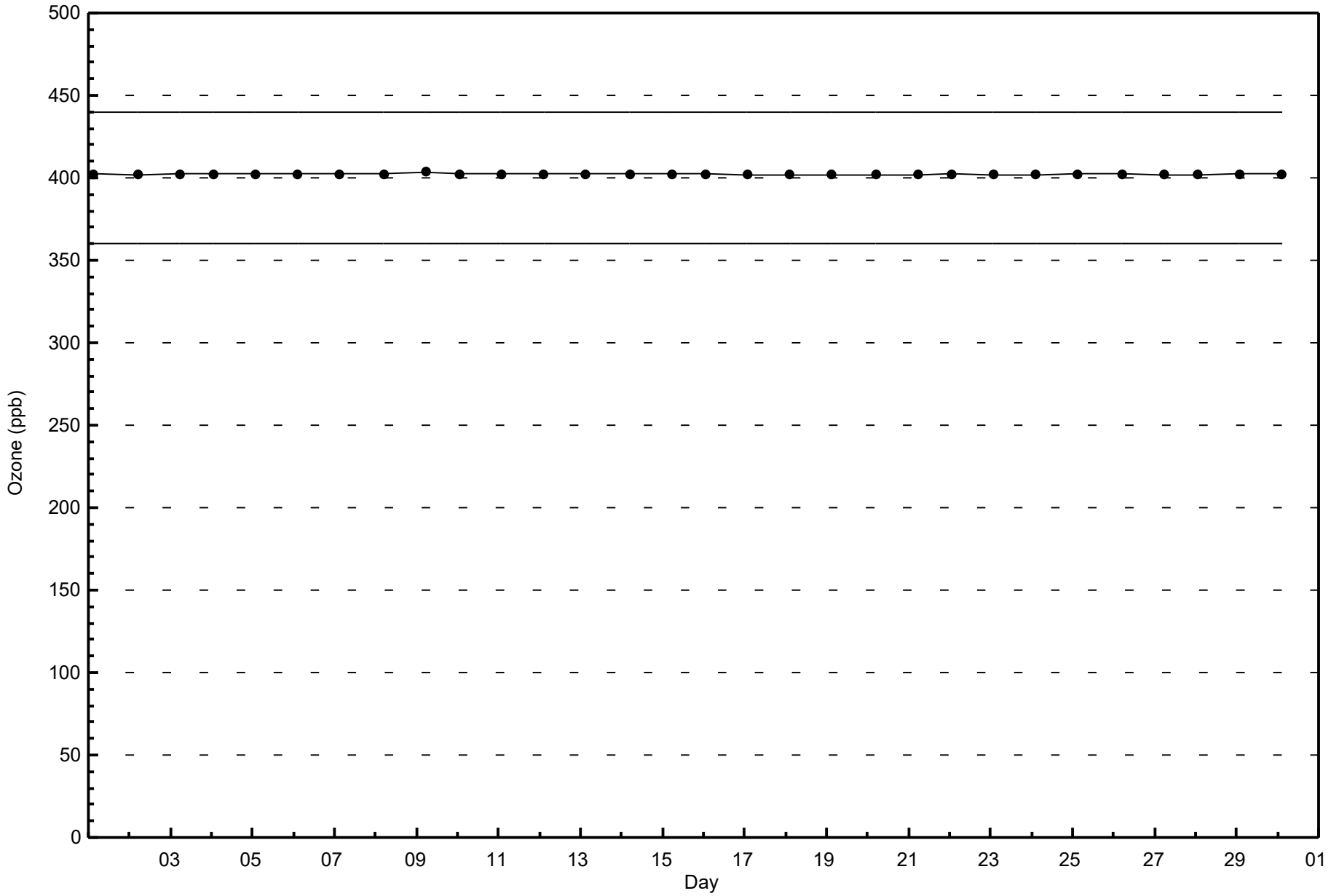
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











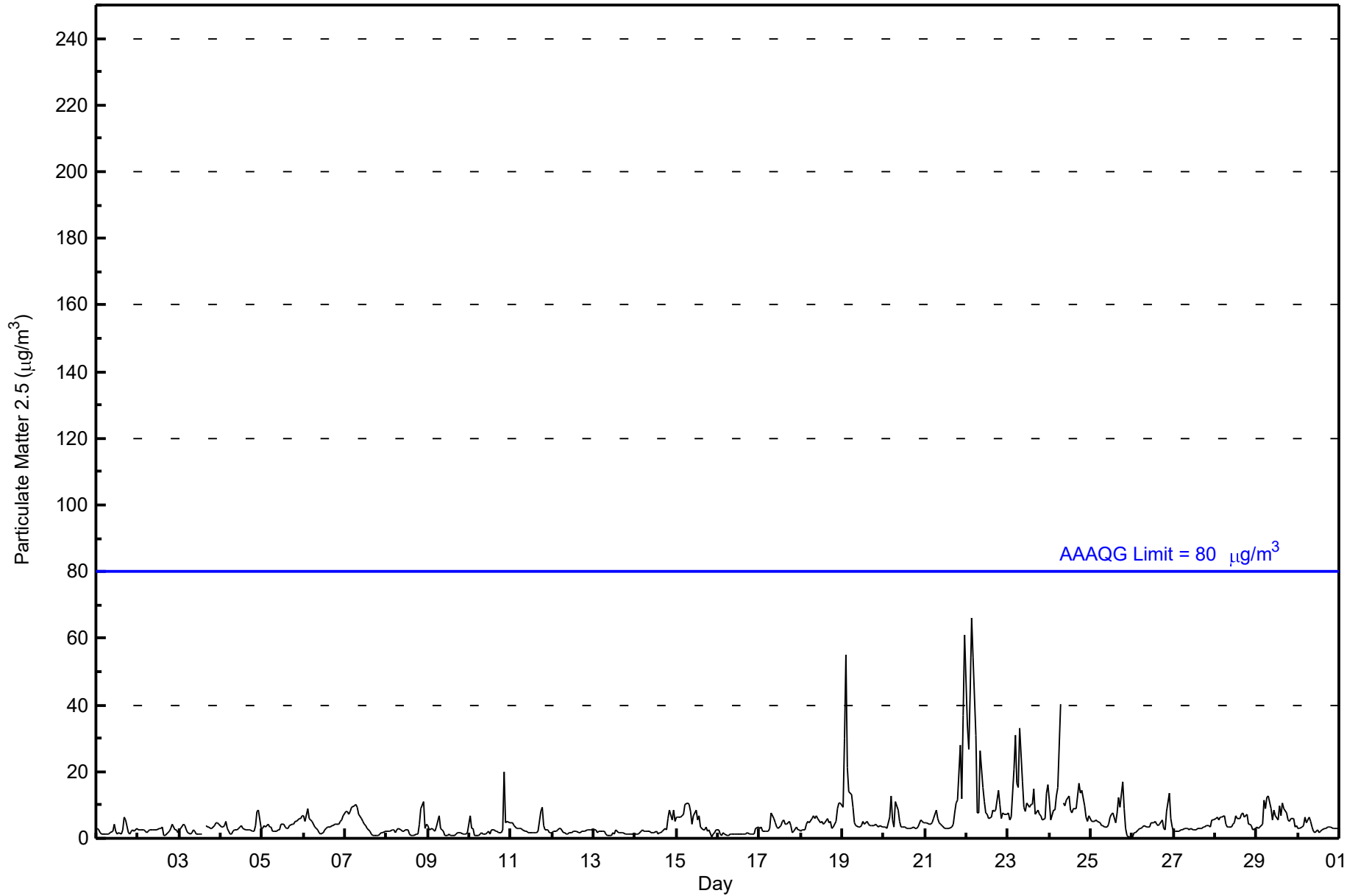
Summary of Hour Averages

Buffalo Viewpoint - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 65.9 µg/m <sup>3</sup> on Apr 22 04:00	Maximum Daily Average: 17.9 µg/m <sup>3</sup> on Apr 22		Hours of Data:	718
Minimum Value: 0.5 µg/m <sup>3</sup> on Apr 15 21:00	Minimum Daily Average: 1.5 µg/m <sup>3</sup> on Apr 16		Hours of Missing Data:	2
Maximum Diurnal Average: 7.4 µg/m <sup>3</sup> at hour 5	Minimum Diurnal Average: 3.7 µg/m <sup>3</sup> at hour 15		Hours of Calibration:	2
Monthly Average: 5.03 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 2.1 Median = 3.3 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 9.2 P <sub>99</sub> = 33.8		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-Apr	2.8	2.4	1.9	1.4	1.3	1.3	1.2	1.4	1.6	2.0	4.3	2.2	1.4	1.9	1.5	2.6	6.5	5.4	1.6	1.3	2.0	2.4	2.0	3.0	2.3	6.5																						
2-Apr	2.7	2.4	2.7	2.5	1.9	1.9	2.3	2.5	2.5	2.4	2.6	2.7	2.9	2.8	3.5	0.8	1.0	1.9	2.2	2.8	4.1	2.4	2.7	1.9	2.4	4.1																						
3-Apr	2.6	3.1	4.2	3.7	2.7	1.8	1.3	1.7	2.6	2.1	1.4	1.2	1.2	1.2	C	4.0	3.6	3.2	2.8	3.1	3.8	4.5	4.9	4.4	2.8	4.9																						
4-Apr	3.3	3.4	3.9	5.0	2.9	1.3	1.1	2.2	2.4	2.6	3.0	3.2	3.7	3.0	2.7	2.6	2.4	2.5	2.2	2.0	3.9	8.1	8.4	3.0	3.3	8.4																						
5-Apr	3.1	3.6	3.5	4.0	3.5	3.5	2.2	2.3	2.2	2.5	2.7	4.2	4.1	3.5	3.2	3.2	3.7	4.1	4.1	4.9	5.2	5.7	6.0	6.6	3.8	6.6																						
6-Apr	6.6	5.2	9.0	6.1	5.5	4.9	3.3	2.8	2.6	1.6	1.5	1.6	2.5	3.0	3.2	3.4	3.7	3.9	4.3	4.3	4.1	4.9	5.4	7.0	4.2	9.0																						
7-Apr	8.1	8.2	7.0	8.3	9.2	9.7	10.1	9.2	7.2	5.9	5.0	4.3	3.7	2.9	2.1	1.3	0.8	0.8	0.8	0.8	1.1	1.6	1.8	1.9	4.7	10.1																						
8-Apr	2.2	2.1	2.2	2.6	2.4	1.7	2.7	2.8	2.7	1.9	2.1	2.6	2.5	1.4	1.0	1.0	1.0	1.1	1.2	4.0	9.1	11.0	2.9	4.3	2.9	11.0																						
9-Apr	3.8	2.6	2.8	2.6	2.1	3.3	6.8	3.0	2.4	2.2	1.0	0.9	1.2	1.0	1.0	1.0	1.4	1.6	1.5	1.9	1.1	1.3	1.3	1.8	2.1	6.8																						
10-Apr	6.6	2.9	3.2	1.0	0.8	0.8	1.1	1.9	1.1	1.1	1.6	2.0	1.4	2.5	2.6	2.0	1.9	1.8	1.6	2.6	20.1	4.6	5.2	4.8	3.1	20.1																						
11-Apr	4.6	4.8	3.8	3.2	3.0	2.9	2.8	2.3	2.2	1.9	1.8	1.8	1.6	1.7	1.6	1.6	2.2	8.1	9.3	3.7	2.7	2.6	1.8	1.8	3.1	9.3																						
12-Apr	1.9	2.2	2.3	2.5	2.8	3.1	1.9	1.8	1.4	1.4	1.7	1.8	2.1	2.3	2.3	1.9	1.6	2.1	2.2	2.1	2.4	2.4	2.7	2.7	2.1	3.1																						
13-Apr	2.7	2.4	1.8	2.0	2.2	2.1	1.9	1.4	0.7	0.7	1.0	1.5	1.5	2.5	1.8	1.6	1.6	1.7	1.2	1.2	1.3	1.3	1.3	1.3	1.6	2.7																						
14-Apr	1.1	1.3	1.4	1.9	2.4	2.0	2.1	2.1	2.0	1.9	1.6	1.6	2.1	1.4	1.5	1.8	2.3	3.1	2.5	5.7	8.4	5.6	8.5	4.9	2.9	8.5																						
15-Apr	6.2	6.2	6.5	6.9	7.3	10.1	10.4	10.3	8.0	4.2	6.7	8.5	5.5	6.6	3.5	2.6	2.5	3.3	2.0	2.7	0.5	1.4	1.9	2.4	5.3	10.4																						
16-Apr	2.5	1.3	1.0	1.6	1.2	1.1	1.1	1.1	1.1	1.2	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.6	1.3	1.2	1.3	1.3	2.9	3.4	1.5	3.4																						
17-Apr	3.0	3.6	2.3	1.9	2.2	2.2	3.0	7.8	5.9	4.5	3.3	2.9	4.0	5.1	5.7	4.2	4.2	4.9	3.6	1.9	2.0	3.6	2.6	2.6	3.6	7.8																						
18-Apr	2.0	2.4	2.4	4.1	5.1	4.7	6.0	6.8	6.0	6.8	5.9	4.8	5.1	4.4	4.7	6.1	4.7	5.2	3.0	3.5	4.9	8.9	10.8	10.7	5.4	10.8																						
19-Apr	9.3	29.9	55.0	21.4	13.8	13.0	9.2	4.7	3.7	3.3	3.5	3.6	4.9	4.4	5.3	4.2	3.8	3.9	3.9	4.2	4.0	3.5	3.6	3.4	9.2	55.0																						
20-Apr	3.3	3.5	3.2	6.2	12.7	5.4	3.5	11.2	8.5	4.9	3.2	3.3	3.2	3.0	2.9	3.0	3.0	3.4	3.0	3.1	3.5	5.6	5.0	4.6	4.7	12.7																						
21-Apr	4.7	4.8	4.4	4.4	4.6	6.0	8.6	5.9	4.5	4.1	4.0	3.0	2.9	3.0	2.9	3.4	4.1	7.8	10.7	11.6	28.1	11.8	36.7	60.9	10.1	60.9																						
22-Apr	33.9	26.6	44.6	65.9	54.3	30.9	7.5	7.8	26.4	15.1	10.9	7.6	7.4	5.9	6.2	8.6	8.1	8.7	14.5	10.2	6.1	7.5	7.0	7.1	17.9	65.9																						
23-Apr	7.7	5.6	6.4	20.7	30.7	16.5	15.4	33.2	17.1	9.5	8.0	10.7	9.3	10.3	10.1	14.6	7.2	8.3	7.2	6.8	5.5	6.1	13.5	16.2	12.4	33.2																						
24-Apr	11.5	5.7	8.5	8.5	12.6	15.4	40.4	C	10.5	9.9	11.6	12.6	8.5	7.7	8.9	8.8	12.9	16.5	13.7	14.5	9.8	6.3	5.1	6.6	11.6	40.4																						
25-Apr	5.3	5.0	5.3	5.6	5.2	4.7	3.8	3.7	3.3	3.5	4.4	6.5	7.2	7.5	4.8	7.7	12.5	9.4	16.8	9.0	2.8	0.7	0.6	0.5	5.7	16.8																						
26-Apr	0.6	1.5	1.8	2.5	2.8	3.0	3.2	4.0	3.4	3.2	3.2	4.8	4.7	5.0	4.3	3.7	4.2	5.5	3.0	2.7	8.1	13.7	5.8	3.5	4.1	13.7																						
27-Apr	2.2	2.0	2.1	2.2	2.5	2.7	2.8	2.9	2.9	2.7	2.8	2.6	2.7	2.9	3.1	3.1	3.5	3.6	3.7	3.7	3.7	3.2	5.7	5.3	3.1	5.7																						
28-Apr	5.7	6.2	5.5	6.3	6.3	6.9	4.2	3.3	3.4	3.6	4.2	4.9	6.8	6.1	6.1	7.4	7.8	6.4	7.2	4.3	4.3	3.8	2.7	3.1	5.3	7.8																						
29-Apr	3.5	3.0	3.3	4.2	11.6	8.8	12.3	12.6	8.7	5.5	8.3	6.7	5.6	10.0	6.7	10.5	8.9	7.8	5.6	5.3	5.9	6.0	3.5	3.7	7.0	12.6																						
30-Apr	3.1	3.0	3.3	3.8	6.1	4.7	6.2	5.1	3.4	2.3	1.9	2.7	1.6	2.0	2.7	3.0	3.1	3.3	3.5	3.3	3.1	3.0	2.9	2.9	3.3	6.2																						
																								5.2	5.2	6.8	7.1	7.4	5.9	6.0	5.4	5.0	3.8	3.8	3.9	3.7	3.9	3.7	4.0	4.2	4.7	4.7	4.3	5.4	4.8	5.5	6.2	Dial Average
																								33.9	29.9	55.0	65.9	54.3	30.9	40.4	33.2	26.4	15.1	11.6	12.6	9.3	10.3	10.1	14.6	12.9	16.5	16.8	14.5	28.1	13.7	36.7	60.9	Dial Maximum

C - Calibration  
 Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m<sup>3</sup> 24-hr 29 µg/m<sup>3</sup>





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	528	73.54	73.54
6 - 15	167	23.26	96.80
16 - 25	8	1.11	97.91
26 - 80	15	2.09	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Buffalo Viewpoint - April 2024**

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	
0 - 5	115	29	12	3	7	22	67	55	18	15	24	40	34	30	29	28	528
6 - 15	35	26	9	7	2	22	10	8	7	1	1	2	8	5	6	18	167
16 - 25	0	1	0	2	0	1	0	0	2	0	0	0	0	0	2	0	8
26 - 80	2	1	0	0	0	0	0	0	0	0	1	0	0	0	5	6	15
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	152	57	21	12	9	45	77	63	27	16	26	42	42	35	42	52	718

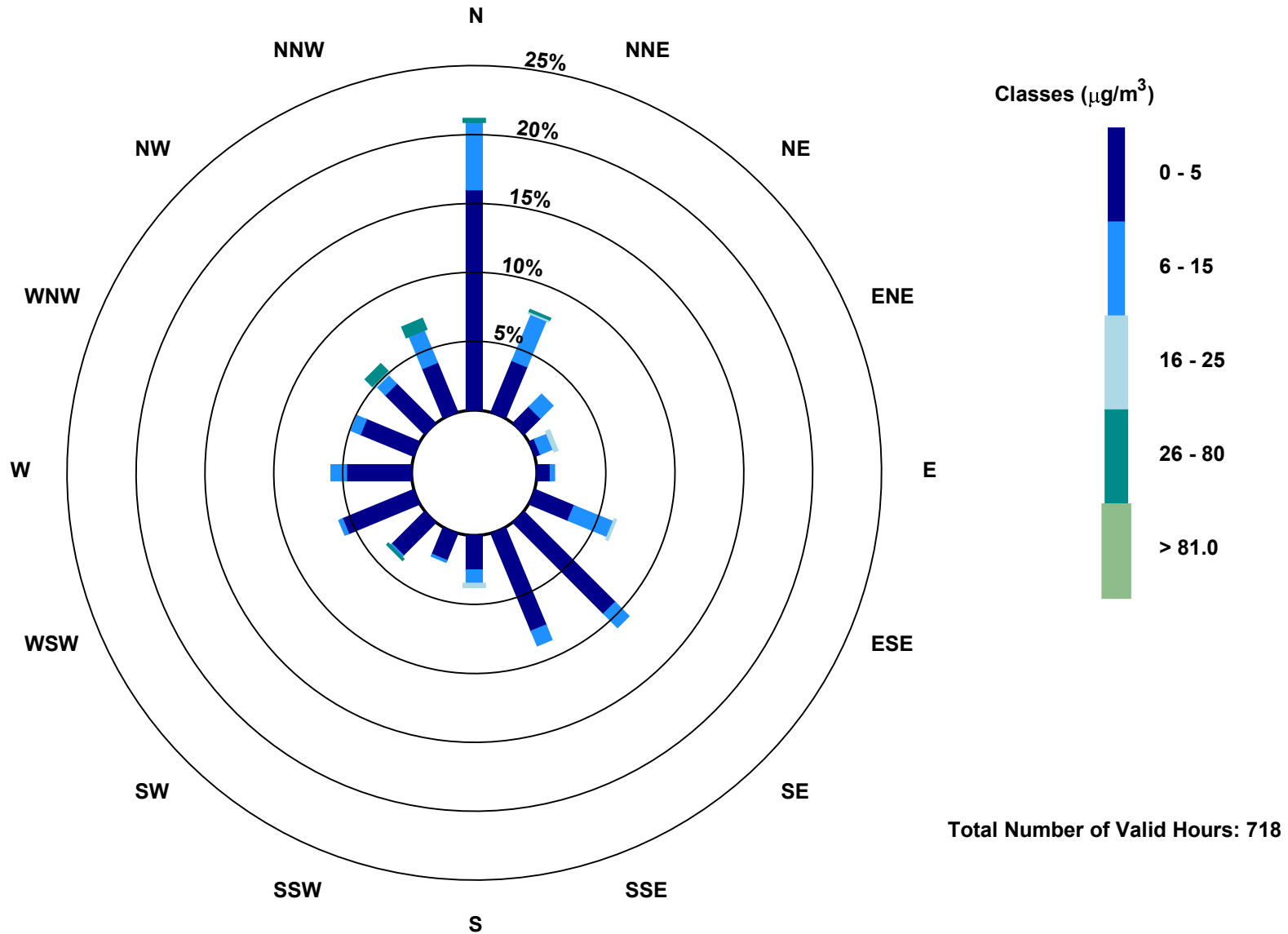
Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Buffalo Viewpoint





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

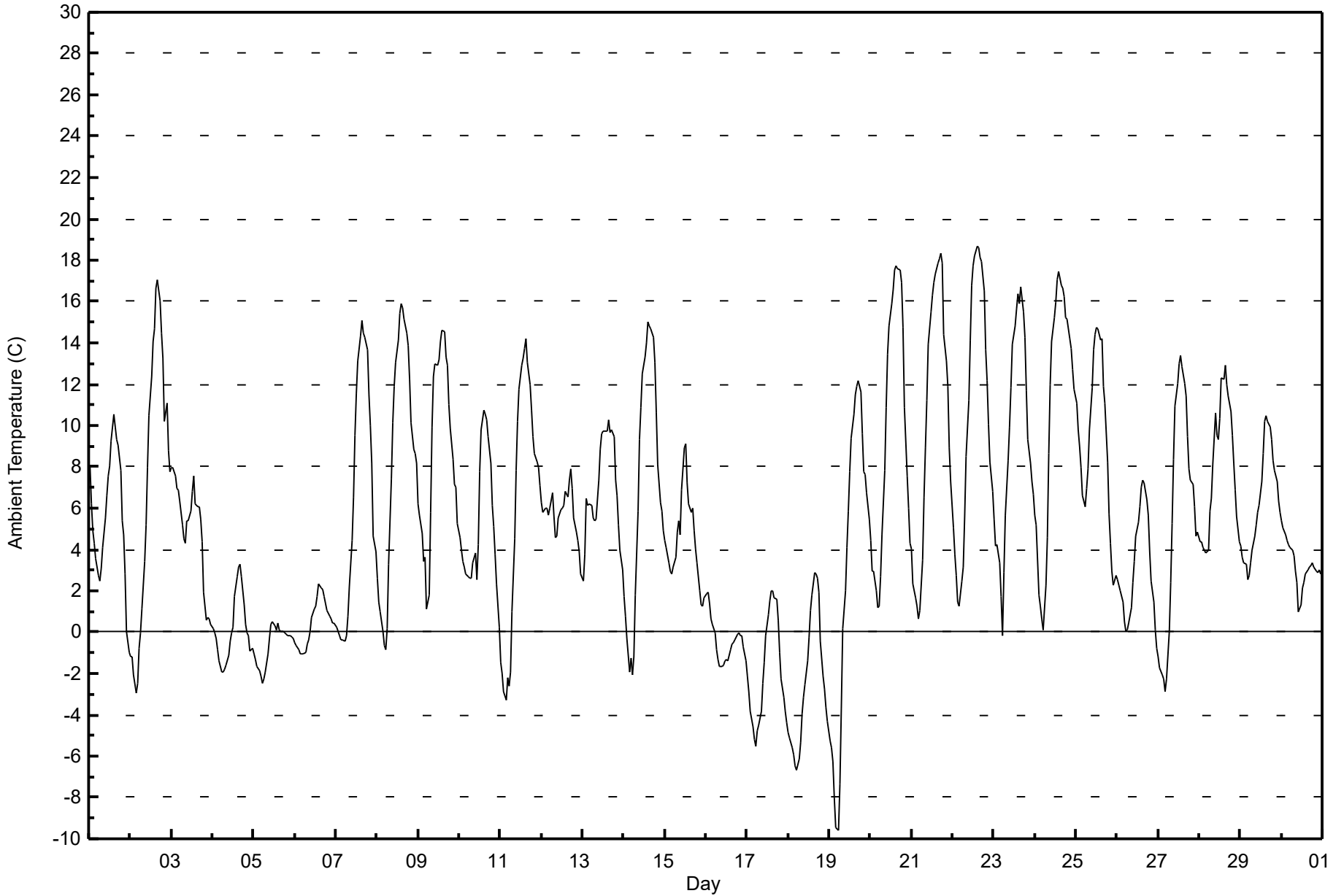
**Ambient Temperature (AT) - C**  
**Buffalo Viewpoint - April 2024**

Maximum Value: 18.7 C on Apr 22 15:00																				Maximum Daily Average: 10.6 C on Apr 24					Hours in Service: 720																								
Minimum Value: -9.6 C on Apr 19 06:00																				Minimum Daily Average: -2.4 C on Apr 18					Hours of Data: 720																								
Maximum Diurnal Average: 10.3 C at hour 16																				Minimum Diurnal Average: 0.5 C at hour 6					Hours of Missing Data: 0																								
Monthly Average: 5.39 C																				Percentiles: P <sub>1</sub> = -6.1 P <sub>10</sub> = -1.4 Q <sub>1</sub> = 0.9 Median = 4.7 Q <sub>3</sub> = 9.5 P <sub>90</sub> = 14.1 P <sub>99</sub> = 17.9					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-Apr	8.0	6.2	4.9	4.3	3.6	2.7	2.5	3.1	4.1	5.6	6.6	7.5	8.0	9.3	10.6	10.0	9.3	9.0	7.8	5.4	4.7	2.8	0.0	-1.0	5.6	10.6																							
2-Apr	-1.2	-1.2	-2.1	-2.9	-2.5	-0.8	0.0	1.1	3.4	5.2	7.9	10.5	12.4	14.0	14.7	16.6	17.0	16.1	14.5	13.3	10.2	11.1	8.8	7.8	7.2	17.0																							
3-Apr	8.0	8.0	7.6	6.9	6.9	6.3	5.2	4.5	4.3	5.4	5.4	5.9	6.8	7.5	6.2	6.1	6.1	5.5	4.4	1.9	0.6	0.7	0.7	0.4	5.0	8.0																							
4-Apr	0.2	-0.1	-0.3	-0.8	-1.4	-1.9	-1.9	-1.8	-1.6	-1.1	-1.1	-0.4	0.0	0.3	1.8	2.7	3.2	3.3	2.7	1.3	0.4	0.0	-0.1	-0.9	-0.8	0.1	3.3																						
5-Apr	-1.1	-1.3	-1.7	-1.9	-2.1	-2.5	-2.2	-1.9	-1.1	-0.3	0.4	0.5	0.3	0.1	0.4	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.6	0.5																							
6-Apr	-0.5	-0.7	-0.8	-1.0	-1.0	-1.1	-1.0	-0.6	-0.4	0.0	0.7	1.1	1.3	1.7	2.4	2.1	2.1	1.7	1.4	1.0	0.8	0.7	0.5	0.4	0.5	2.4																							
7-Apr	0.3	0.0	-0.2	-0.4	-0.4	-0.4	-0.2	0.8	2.2	4.4	6.6	9.5	11.5	13.1	14.3	15.1	14.5	14.3	13.6	11.5	10.0	8.2	4.7	3.9	6.5	15.1																							
8-Apr	2.6	1.4	1.0	0.1	-0.6	-0.8	0.2	3.3	7.4	10.2	11.9	13.1	14.1	15.4	15.9	15.7	15.2	14.5	13.8	12.3	10.1	8.9	8.6	8.2	8.4	15.9																							
9-Apr	6.2	5.7	4.8	3.4	3.6	1.1	1.8	5.8	9.9	12.4	13.0	12.9	13.2	14.1	14.6	14.5	13.3	12.9	11.0	9.9	8.4	7.2	7.0	5.2	8.8	14.6																							
10-Apr	4.6	4.0	3.4	3.1	2.8	2.7	2.6	2.6	3.3	3.8	2.5	4.2	7.7	9.8	10.7	10.5	10.3	9.5	8.2	6.2	5.1	3.7	2.3	0.3	5.2	10.7																							
11-Apr	-1.4	-2.0	-2.9	-3.3	-2.2	-2.6	-1.9	1.0	4.5	7.8	10.2	11.8	12.9	13.2	13.8	14.2	13.0	12.0	10.7	9.5	8.6	8.2	8.0	7.1	6.3	14.2																							
12-Apr	6.3	5.8	6.0	6.0	5.7	6.0	6.7	5.6	4.6	4.7	5.5	5.9	6.0	6.1	6.8	6.5	7.4	7.9	7.0	5.5	4.8	4.4	3.9	2.8	5.7	7.9																							
13-Apr	2.5	3.8	6.5	6.2	6.2	6.2	5.5	5.4	5.4	7.3	8.9	9.6	9.8	9.7	10.3	9.7	9.8	9.4	7.4	6.6	5.2	4.0	3.0	7.0	10.3																								
14-Apr	1.7	0.8	-0.3	-1.9	-1.2	-2.1	-1.2	1.8	5.9	9.3	10.9	12.5	13.3	14.0	15.0	14.8	14.7	14.2	13.1	10.6	8.1	6.3	5.9	4.9	7.1	15.0																							
15-Apr	4.5	4.1	3.4	3.0	2.8	3.1	3.7	4.8	5.4	4.7	6.9	8.9	9.1	7.2	6.2	5.8	6.0	4.9	4.0	3.4	2.0	1.3	1.3	1.7	4.5	9.1																							
16-Apr	1.9	1.9	1.4	0.6	0.4	0.0	-0.8	-1.3	-1.6	-1.7	-1.6	-1.4	-1.3	-1.4	-0.9	-0.6	-0.5	-0.4	-0.1	-0.1	-0.2	-0.1	-0.7	-1.4	-0.4	1.9																							
17-Apr	-2.1	-2.9	-3.8	-4.5	-5.2	-5.5	-4.8	-4.5	-3.8	-2.5	-1.4	-0.2	0.9	1.5	2.0	2.0	1.6	1.6	0.6	-1.0	-2.3	-3.2	-3.8	-4.3	-1.9	2.0																							
18-Apr	-4.8	-5.1	-5.6	-5.9	-6.5	-6.6	-6.1	-5.3	-4.0	-3.1	-2.6	-1.4	-0.3	1.1	1.8	2.9	2.8	2.6	2.0	-0.5	-2.1	-2.8	-3.7	-4.3	-2.4	2.9																							
19-Apr	-5.3	-5.6	-6.3	-8.1	-9.5	-9.6	-7.4	-3.7	0.2	2.0	4.1	5.9	7.7	9.4	10.5	11.5	11.9	12.1	11.6	9.6	7.8	7.7	6.7	5.5	2.9	12.1																							
20-Apr	4.4	3.0	2.9	2.0	1.2	1.3	2.7	4.7	7.9	10.9	13.5	14.8	15.9	16.6	17.5	17.7	17.6	17.5	16.9	14.8	10.9	7.6	6.0	4.3	9.7	17.7																							
21-Apr	4.0	2.3	1.6	1.3	0.6	1.0	3.5	6.5	8.9	11.2	13.9	15.5	16.3	16.9	17.3	17.9	18.0	18.3	17.8	14.4	13.1	11.9	8.9	7.3	10.4	18.3																							
22-Apr	5.0	3.8	2.7	1.5	1.3	2.5	3.1	5.6	8.5	11.2	14.2	16.8	17.8	18.2	18.7	18.6	18.2	17.9	16.5	13.7	12.2	10.1	8.2	6.8	10.5	18.7																							
23-Apr	5.5	4.2	4.2	3.4	1.7	-0.2	2.9	5.6	8.3	10.0	11.8	13.9	14.8	15.6	16.4	15.9	16.7	15.5	14.3	11.7	9.3	8.2	7.3	6.7	9.3	16.7																							
24-Apr	5.7	5.2	1.8	1.3	0.6	0.1	2.3	4.5	8.6	12.0	14.1	15.2	15.9	17.0	17.5	16.8	16.6	16.3	15.2	14.2	13.7	12.7	11.8	11.8	10.6	17.5																							
25-Apr	11.1	9.8	9.0	7.9	6.6	6.1	7.0	7.9	9.8	11.8	13.6	14.4	14.8	14.7	14.2	14.2	11.9	11.1	8.2	5.7	4.3	2.9	2.3	2.7	9.3	14.8																							
26-Apr	2.5	2.3	2.0	1.5	0.5	0.0	0.1	0.5	1.2	2.4	3.4	4.7	5.3	6.1	7.0	7.4	7.2	6.4	5.7	3.9	2.5	1.5	0.1	-0.8	3.1	7.4																							
27-Apr	-1.2	-1.7	-2.0	-2.3	-2.9	-2.2	0.0	2.4	5.2	8.4	11.0	12.1	13.0	13.4	12.8	12.0	11.4	9.5	7.9	7.4	7.2	6.1	4.6	4.8	5.7	13.4																							
28-Apr	4.4	4.4	4.1	4.0	3.8	4.0	5.9	6.5	8.1	10.6	9.5	9.3	10.4	12.3	12.3	12.9	12.0	11.4	10.7	9.6	8.2	6.9	5.6	4.3	8.0	12.9																							
29-Apr	4.2	3.6	3.4	3.3	2.5	2.7	3.4	3.9	4.6	5.2	5.8	6.1	7.3	8.6	10.2	10.5	10.2	9.9	9.3	8.3	7.9	7.3	6.4	5.8	6.3	10.5																							
30-Apr	5.4	5.1	4.7	4.5	4.3	4.1	4.0	3.7	3.0	2.4	1.0	1.3	2.2	2.4	2.8	3.0	3.2	3.2	3.4	3.2	3.0	2.9	3.0	2.8	3.3	5.4																							
																								2.7	2.2	1.7	1.0	0.7	0.5	1.2	2.4	4.1	5.7	6.9	8.0	8.9	9.7	10.1	10.3	10.0	9.6	8.7	7.1	5.9	5.0	3.9	3.2	Diurnal Average	
																								11.1	9.8	9.0	7.9	6.9	6.3	7.0	7.9	9.9	12.4	14.2	16.8	17.8	18.2	18.7	18.6	18.2	18.3	17.8	15.2	14.2	13.7	12.7	11.8	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Buffalo Viewpoint - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Buffalo Viewpoint - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	137	19.03	19.03
0 - 10	422	58.61	77.64
10 - 20	161	22.36	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

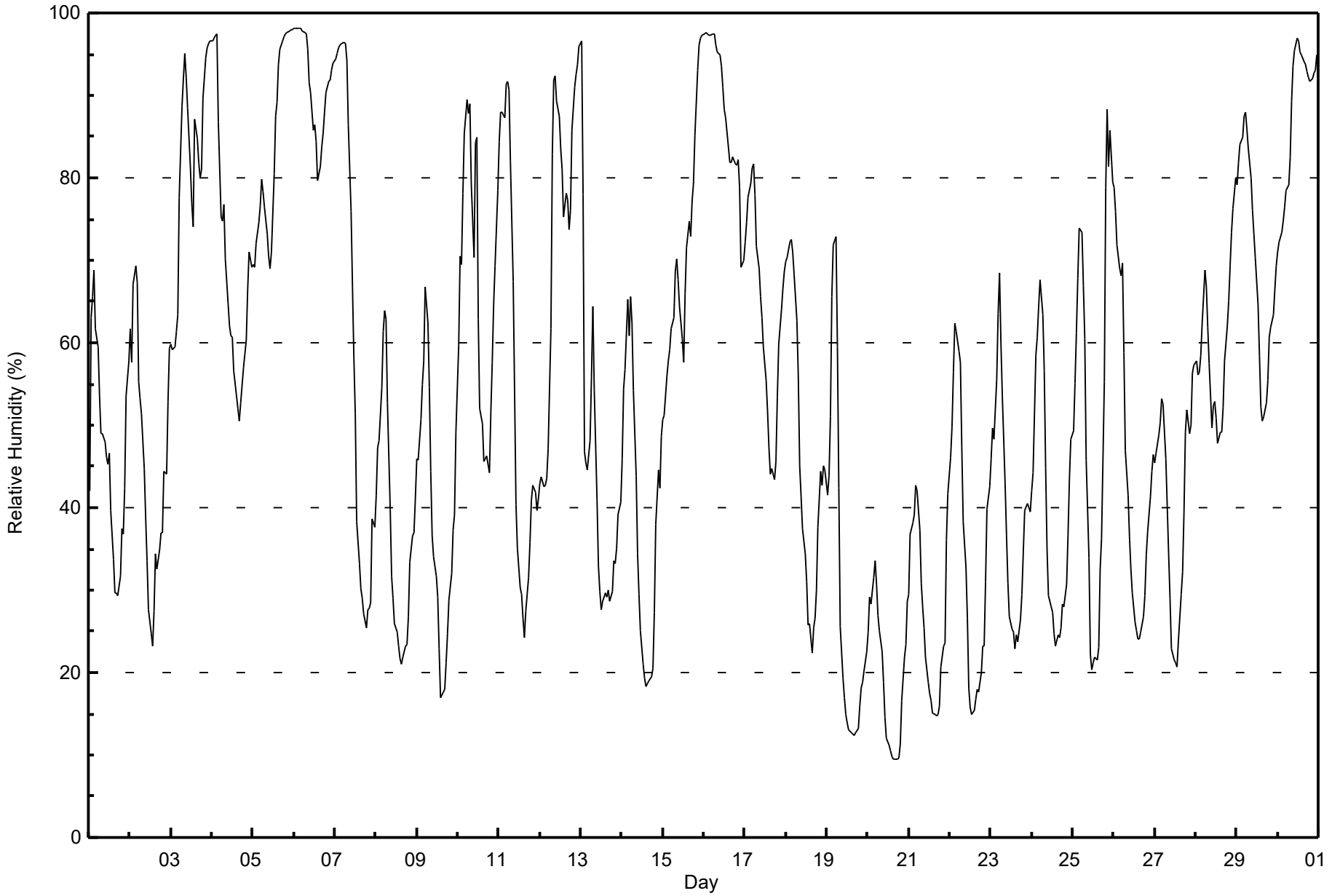
**Relative Humidity (RH) - %  
Buffalo Viewpoint - April 2024**

<b>Maximum Value: 98.2 % on Apr 6 03:00</b> <b>Maximum Daily Average: 91.5 % on Apr 6</b>																						<b>Hours in Service: 720</b>				
<b>Minimum Value: 9.4 % on Apr 20 17:00</b> <b>Minimum Daily Average: 19.6 % on Apr 20</b>																						<b>Hours of Data: 720</b>				
<b>Maximum Diurnal Average: 69.8 % at hour 6</b> <b>Minimum Diurnal Average: 41.2 % at hour 15</b>																						<b>Hours of Missing Data: 0</b>				
<b>Monthly Average: 54.83 %</b> <b>Percentiles: P<sub>1</sub> = 11.4 P<sub>10</sub> = 22.9 Q<sub>1</sub> = 32.8 Median = 53.3 Q<sub>3</sub> = 75.9 P<sub>90</sub> = 92.0 P<sub>99</sub> = 97.8</b>																						<b>Hours of Calibration: 0</b>				
																						<b>Percent Operational Time: 100.0</b>				
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-Apr	42.0	63.0	65.5	68.8	61.7	59.4	53.6	49.0	48.9	48.0	46.1	45.3	46.7	39.7	33.7	29.6	29.6	29.3	31.7	37.4	36.7	42.3	53.6	57.7	46.6	68.8
2-Apr	61.6	57.6	67.2	69.3	67.3	55.2	53.3	51.3	44.7	38.7	33.6	27.7	24.8	23.3	27.4	34.4	32.5	35.0	36.9	36.9	44.5	44.1	52.9	59.3	45.0	69.3
3-Apr	59.9	59.2	59.5	61.4	63.4	77.7	88.6	92.0	95.1	92.2	88.5	81.3	76.9	74.0	87.1	84.7	81.8	80.0	81.0	89.7	94.5	95.8	96.3	96.5	81.6	96.5
4-Apr	96.6	96.9	97.3	97.4	86.7	75.3	74.7	76.8	70.2	64.7	62.0	60.9	60.6	56.5	53.5	52.0	50.6	52.7	57.0	58.7	60.3	66.5	71.0	69.1	69.5	97.4
5-Apr	69.5	69.1	72.0	74.6	76.7	79.8	78.2	76.4	73.2	70.6	68.9	71.0	80.6	87.4	89.2	93.7	95.7	96.6	97.1	97.4	97.6	97.8	97.9	98.0	83.7	98.0
6-Apr	98.1	98.2	98.2	98.2	98.1	97.8	97.6	97.4	95.6	91.6	90.4	85.7	86.4	84.4	79.7	81.3	83.7	85.4	88.0	90.4	91.6	91.9	93.0	93.9	91.5	98.2
7-Apr	94.4	95.0	95.7	96.1	96.3	96.4	96.3	94.2	86.4	75.9	66.8	58.2	51.4	38.3	33.3	30.1	28.9	27.1	25.5	27.7	27.8	28.5	38.6	37.6	60.3	96.4
8-Apr	41.5	47.2	48.2	54.7	61.4	63.9	62.9	52.8	39.8	31.7	28.9	26.0	25.0	23.2	21.7	21.0	21.9	23.2	23.4	26.8	33.4	36.6	36.9	41.2	37.2	63.9
9-Apr	45.9	45.8	50.6	55.0	57.7	66.8	62.3	54.6	44.4	36.5	34.1	31.8	29.1	22.9	16.9	17.7	18.0	21.2	24.7	28.9	32.1	37.2	39.1	49.2	38.4	66.8
10-Apr	59.7	70.5	69.5	78.1	85.5	89.6	87.8	89.0	79.3	70.3	84.2	84.9	63.0	52.0	50.1	45.6	45.9	46.2	44.2	51.5	57.6	64.7	69.4	78.4	67.4	89.6
11-Apr	84.4	87.9	88.0	87.4	91.4	91.8	90.7	82.0	67.5	53.9	40.3	35.1	30.4	29.6	26.7	24.3	27.5	31.5	35.7	40.8	42.8	41.9	39.7	41.1	54.7	91.8
12-Apr	42.9	43.8	42.6	42.6	43.5	47.1	61.7	82.8	91.9	92.4	89.3	87.4	83.6	81.0	75.2	78.2	77.3	73.7	76.0	85.7	91.1	92.6	93.8	95.9	73.8	95.9
13-Apr	96.6	77.9	46.8	45.4	44.7	48.2	55.8	64.3	54.2	40.8	32.9	29.9	27.6	28.7	29.6	29.2	30.0	28.6	29.9	33.6	33.3	35.1	39.1	40.7	42.6	96.6
14-Apr	46.0	54.4	56.9	65.3	60.9	65.6	62.4	54.2	43.9	34.3	29.6	25.0	21.0	19.4	18.4	18.7	18.9	19.5	20.6	27.2	38.0	44.5	42.4	48.6	39.0	65.6
15-Apr	50.7	51.2	55.9	57.7	59.2	61.8	63.1	68.7	70.2	67.6	64.4	60.6	57.6	66.0	71.6	74.7	72.9	77.1	79.3	85.0	93.0	96.1	97.0	97.4	70.8	97.4
16-Apr	97.5	97.6	97.4	97.3	97.3	97.5	97.4	96.1	95.3	94.9	93.6	91.0	88.2	87.4	83.7	81.9	81.9	82.5	81.7	81.6	82.2	78.8	69.2	70.0	88.4	97.6
17-Apr	72.3	74.6	77.6	79.4	81.2	81.7	77.9	71.6	69.0	65.5	63.0	59.5	55.4	51.7	47.2	44.1	44.7	43.4	45.7	53.3	59.8	64.1	66.5	68.6	63.2	81.7
18-Apr	69.9	70.4	72.2	72.6	71.1	68.3	62.7	56.0	45.1	41.3	37.5	34.5	31.0	25.7	26.0	22.4	25.4	26.6	30.0	37.6	44.3	42.7	45.1	44.6	46.0	72.6
19-Apr	41.5	44.0	51.0	65.5	71.9	72.8	59.5	42.3	25.6	19.4	17.0	14.8	13.8	13.0	12.7	12.6	12.4	12.7	13.3	15.9	18.2	18.8	20.1	22.5	29.6	72.8
20-Apr	24.9	29.2	28.3	31.5	33.6	30.6	27.0	25.2	22.6	18.8	14.6	12.0	11.2	10.5	9.8	9.5	9.4	9.4	9.6	11.3	16.6	21.9	23.4	28.7	19.6	33.6
21-Apr	29.5	36.8	38.2	39.2	42.6	42.1	37.3	30.8	27.9	25.5	21.9	18.8	17.5	16.7	15.1	15.0	14.8	14.9	16.0	20.7	23.3	23.5	36.1	41.8	26.9	42.6
22-Apr	46.0	49.8	56.4	62.4	61.3	59.0	57.6	47.3	38.3	32.7	26.6	18.2	15.8	15.0	15.4	16.9	17.9	17.6	20.0	23.3	23.3	31.0	39.8	42.6	34.8	62.4
23-Apr	46.0	49.6	48.3	55.5	63.6	68.4	60.0	53.5	42.8	36.5	30.8	26.8	25.3	24.9	22.9	24.6	23.7	26.4	29.5	34.6	39.6	40.4	40.0	39.4	39.7	68.4
24-Apr	42.0	44.3	58.5	60.7	64.5	67.7	63.3	56.6	44.7	34.9	29.3	27.9	27.3	24.7	23.2	24.5	24.2	25.4	28.3	28.0	30.6	36.6	43.4	48.3	40.0	67.7
25-Apr	49.3	55.1	61.1	67.7	73.9	73.4	66.9	60.4	45.8	33.8	22.1	20.4	21.2	21.8	21.5	23.0	32.5	36.2	55.3	78.9	88.3	81.4	85.7	79.5	52.3	88.3
26-Apr	78.8	75.9	71.8	69.0	68.1	69.6	58.8	47.0	41.4	36.4	32.6	29.6	26.2	25.1	24.0	24.1	25.0	26.7	29.3	34.2	37.1	41.4	44.4	46.4	44.3	78.8
27-Apr	45.4	46.6	48.7	50.4	53.2	52.5	46.0	40.1	34.4	28.9	22.9	21.5	21.2	20.7	23.8	29.5	32.2	39.4	49.1	51.9	49.0	49.9	56.4	57.3	40.5	57.3
28-Apr	57.7	56.1	56.4	58.4	62.3	68.8	66.8	61.9	57.4	49.7	52.4	52.9	50.9	47.8	49.2	49.2	52.2	57.7	62.0	65.0	69.4	73.4	76.4	80.0	59.8	80.0
29-Apr	79.1	81.8	84.1	85.0	87.4	88.0	85.9	83.5	80.1	76.2	73.3	70.4	64.6	58.5	52.3	50.5	51.0	52.6	55.5	60.7	61.9	63.4	66.4	69.3	70.0	88.0
30-Apr	71.1	72.3	73.4	74.8	76.4	78.4	79.2	82.6	89.4	93.5	95.5	96.9	96.6	95.3	94.9	94.0	93.7	92.8	92.3	91.7	92.0	92.8	93.1	94.9	87.8	96.9
																								Diurnal Average		
																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Buffalo Viewpoint - April 2024**





Maximum Speed: 32 km/h on Apr 16 15:00	Maximum Daily Speed Average: 24.9 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 21 17:00	Minimum Daily Speed Average: 0.4 km/h on Apr 14	Hours of Data: 720
Maximum Diurnal Speed Average: 4.9 km/h at hour 19	Minimum Diurnal Speed Average: 1.2 km/h at hour 1	Hours of Missing Data: 0
Monthly Average Velocity: 3.2 km/h 343.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 16 P <sub>90</sub> = 19 P <sub>99</sub> = 27	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-Apr	WSW17WNW20	NW14	W11	W15WSW16WSW17	W16WNW16	NW19	NW17	NW18	NW16	NW13WNW13	NW17	NW16	NW17	NW13	NW9	W4	S4	S6	S6	WNW11.7	WNW20					
2-Apr	SE8	SSE9	SE9	SSE7	SE7	SE9	SSE9	SSE9	SSE10	SSE11	SE10	SE13	SSE12	SE12	SSE11	SSW15	S14	SSE9	SSE6	S7	SE8	SSW7	SSE8	SE9		
3-Apr	ESE8	ESE9	SE8	SSE7	SSW2WNW16WNW14	NW15	WNW7	WSW5	SW7WSW12	W13WNW10	N9	N9	NNE9	NE9	NNE7	N6	NNW5	SSE1	WNW2	NE4	NW2.8	WNW16				
4-Apr	NNE5	NNW3	NNW4	NNW7	NW15	NW15	NNW16	N10	N14	NNE12	NNE10	NE9	NE7	NE9	NE10	NNE9	N9	N9	N10	NNE9	NE8	ENE6	ENE8	E6		
5-Apr	ESE5	E4	E4	E5	E3	NE5	NE7	NNE9	NNE8	NNE7	N8	N12	NNW13	N13	N11	N10	N9	N10	N9	NNW7	NNW8	N6	NNW5	NNW5		
6-Apr	NNW8	NW8	NNW8	NNE9	N8	NNE6	N5	N7	N10	N8	N10	N9	NNE10	N11	N6	NNW7	N9	NNE7	N6	N7	NNW5	NW4	NW4	WNW4		
7-Apr	W2	SE4	S4	S4	SSE4	SE5	SSE5	S8	S8	S8	SSW9	SW11WSW12	W9	SW11	SW12WSW13WSW11	SW9	SW10	SW9	SSE9	SSE9	SSW6.4	WSW13				
8-Apr	SSE9	SE10	SE11	SE10	SSE7	SSE7	SE4	SE4	SSE4	SSW4	ESE8	E4	N7	SW7	SW16	SW14	SW9	SSW7	SSW4	ESE7	SE7	SSE5	W4	W2		
9-Apr	S5	S4	WSW4	SSW5	W5	S5	S6	ESE2	WNW4	WSW9	W17WSW18	W18WSW20WSW17	W16	W18	W20WSW17	W17WSW13	W11	W9	NW8	WSW10.1	W20					
10-Apr	N7	N6	WNW8WNW10WNW12WNW13	NW17	NW16WNW16WNW18	NNW19	NW12	NW12	NNW15	N17	N15	NNE13	NE11	NE10	ENE8	ENE7	SE5	SSE5	SSE6	NNW7.7	NNW19					
11-Apr	SE7	SE4	SSE5	S6	SE5	SSE6	SSE6	SSE7	SE9	SE10	SE11	ESE15	SE14	SE15	SE15	ESE16	ESE14	ESE16	SE13	SE14	SE13	SSE11	SSE11			
12-Apr	SSE11	SSE11	SE10	SSE10	SE10	SSE9	S12	SSE15	SSE14	SSE14	SSE13	SSE13	SSE14	SSE12	S10	SE11	SE11	SE11	SE9	SE8	S6	SE5	SSE9	SSE8		
13-Apr	SSE4	WSW7	SW15	SW16	SW18WSW21WSW22	W17WNW19WNW19WNW18WNW23WNW25WNW22WNW17WNW17WNW15WNW16WNW13	WNW8	WSW6	WSW6	W7	W7	W13.3	WNW25													
14-Apr	W5	NNW4	SW2	SE7	SE6	SSE7	SE7	SSE7	SE7	SE7	ESE11	ESE11	W12WSW11	W10WNW10	WNW9	NW7	WNW3	NE6	NNE9	NNE8	NNE6	NNE7	SSW0.4			
15-Apr	NNE6	NNE7	N6	N5	NNW5	NW7	NNW13	NNW6	N7	N9	NNW6	NW7	NE5	ENE12	NE14	NNE13	NNE14	NNE15	NNE12	NNE16	NNE16	N16	N13	N14		
16-Apr	N18	N20	N24	N24	N25	N25	N24	N24	N27	N29	N29	N30	N30	N32	N32	NNE29	N25	NNE20	N21	N22	N19	N23	N25	N23		
17-Apr	N24	N23	N22	N21	N18	N19	N18	N23	N19	N19	N21	N23	N24	N24	N25	N26	N24	NNE19	NNE19	N17	N13	N11	N11	N12		
18-Apr	N11	N12	N13	N15	N17	N15	N16	N18	N18	NNW18	NNW19	NNW20	N19	N19	N20	N18	N18	N18	N14	N12	N11	N9	N7	N4		
19-Apr	NNW5	NW6	NNW4	S4	SSE5	S4	SSW5	SSW5	WSW5	WSW6	WSW7	W9	W9	W8	WSW9	SW10	SW11	SW12	SW9	SSW9	SW10	SW14WSW16WSW17	WSW6.8			
20-Apr	WSW18	W11	W15	WNW9	W10WSW12	WSW8	W9	W11	W15	W13WSW13WSW13	W14WSW11WSW12	SW10	SW9	SW6	SSW6	SSE6	SSE8	SSE8	SSE10	WSW9.0	WSW18					
21-Apr	SE10	SE11	SE9	SE8	SE9	SE8	SSE5	SSE7	SE9	ESE10	ESE11	SE11	SE10	ESE10	ESE10	E6	NNW0	NNW6	NW5	NNW6	N4	N3	NW6	NW6		
22-Apr	NW7	NNW7	NW8	NNW7	NNW8	NW10	NW8	WNW5	NNW7	NNW9	NNW9	NNE11	NE11	NE6	N5	N11	N15	NE15	N18	NNE10	NE8	N11	NNE10	N8		
23-Apr	N10	N8	NNW6	NW6	SW3	S2	WNW1	N3	NNE7	NNE5	NNE4	N6	NNW7	NNE6	N7	NNW7	NW4	NNE7	NNE14	NNE13	NE11	NE8	ENE8	ENE9		
24-Apr	ENE9	ENE8	NNE7	NE6	NE6	NNE7	NNE6	NNE5	ESE8	ESE11	ESE16	ESE17	ESE19	ESE19	ESE18	ESE19	ESE16	ESE13	E16	ESE13	SE16	ESE14	SE13	ESE11.0		
25-Apr	SE11	SSW10	W14	SW11WSW14WSW11WSW17WSW13WSW19	W20	W21	W24	W24	W24	WSW24WSW24	W22WSW27	W20	NNW21WNW18	NW16	NNW18	NW9	NW14	W15.0	WSW27							
26-Apr	NW14	NW16	NNW17	NNW17	NNW15	NNW14	NNW21	NNW20	NNW19	NNW17	NNW16	NNW14	NW11	NW10	NNW11	NNW10	N9	NNE11	NE10	NE9	ENE8	ESE6	SSE6	SSE7		
27-Apr	SSE8	SSE8	SSE9	SSE9	SSE8	SE6	SE8	SE8	SSE9	SE11	S14	S14	S15	S16	S16	SSW17	SSW14	SSW18	SSE11	SE8	SE8	SE7	SE6	SE7		
28-Apr	SE6	SE6	SE4	SE4	E3	SE5	SE11	SE10	SE10	SE12	ESE15	ESE13	ESE14	ESE14	ESE13	ESE13	ESE13	ESE12	ESE13	ESE14	ESE13	SE10	ESE11	SE7		
29-Apr	SE9	SE7	ESE8	ESE5	NE6	NNE5	NE6	NNE7	N7	N10	N10	N12	N12	NNE12	NNE14	NNE16	NNE17	NNE17	N19	N19	N20	N19	N19	N18		
30-Apr	N17	N19	N19	N21	N21	N23	N22	N22	N21	N21	N20	N18	N23	N23	N21	N18	N20	N22	N20	N20	N19	N18	N16	N17		

NNE1.2	N2.3NNW2.5NNW1.9	NW3.0	NW3.3	NW3.7NNW3.9NNW4.2NNW3.9NNW3.7NNW3.8	NW4.6NNW3.9NNW4.0NNW4.4NNW4.2	N4.3	N4.9	N4.7NNE3.3NNE2.4NNE1.8NNE1.8															Diurnal Average		
N24	N23	N24	N24	N25	N25	N24	N24	N27	N29	N29	N30	N30	N32	N32	NNE29	WSW27	N22	NW21	N22	N20	N23	N25	N23	Diurnal Maximum	

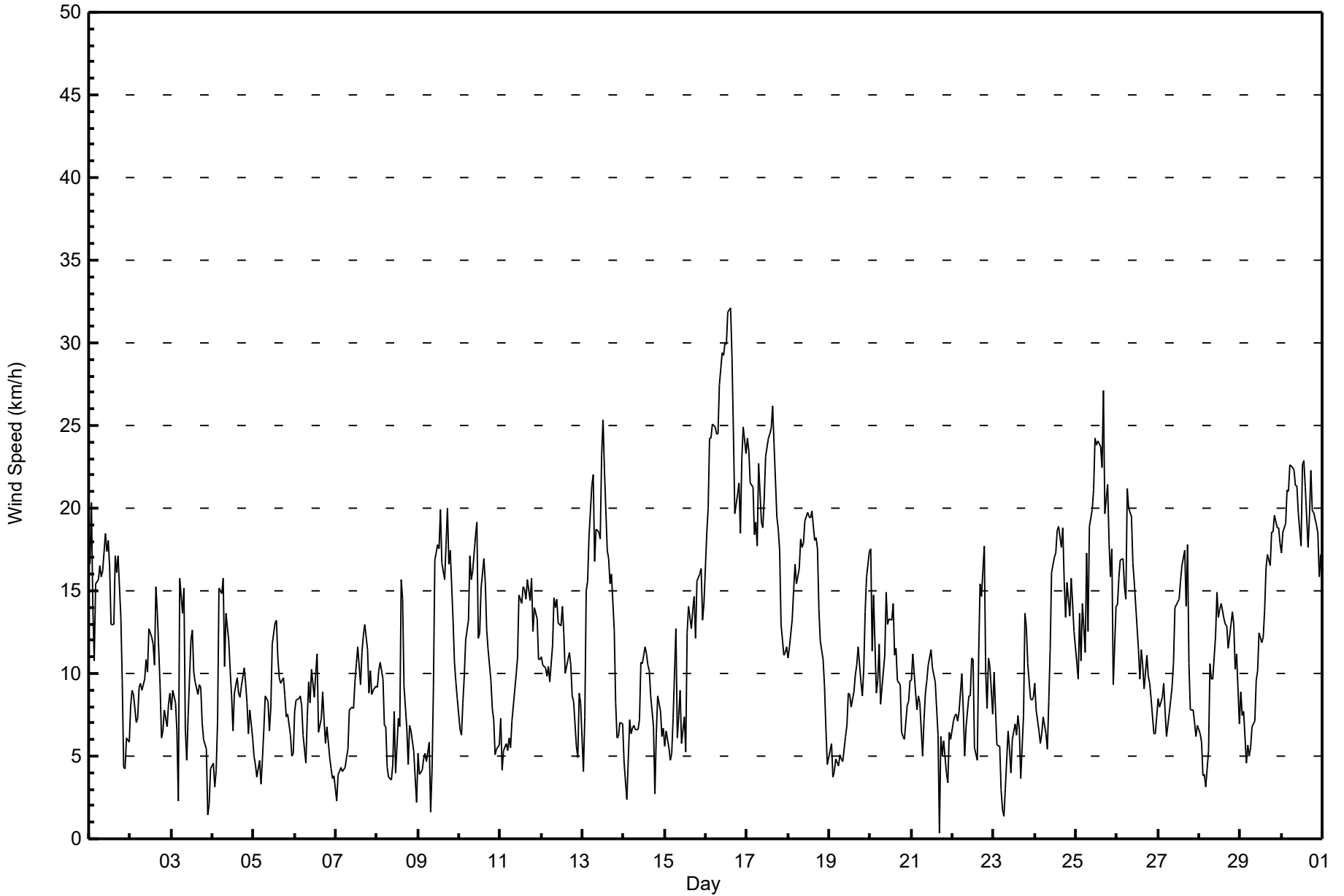
All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Buffalo Viewpoint - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 25 17:00 Minimum Value: 1 km/h on Apr 19 02:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	5	6	2	4	3	4	5	6	5	5	5	5	4	4	5	4	4	3	2	2	2	1	1	6
2-Apr	2	1	1	1	2	3	3	3	3	3	3	4	4	3	4	4	4	3	2	2	2	1	2	2	4
3-Apr	3	2	2	2	2	4	4	4	3	1	2	3	3	4	3	2	3	2	2	2	1	1	1	1	4
4-Apr	2	1	1	2	6	4	4	3	5	4	3	3	3	3	3	2	2	3	2	1	1	2	1	6	
5-Apr	2	2	1	1	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	1	1	3	
6-Apr	2	2	2	2	2	2	1	3	3	2	3	3	3	3	2	2	2	2	1	1	1	1	1	3	
7-Apr	1	2	1	1	1	1	1	2	3	2	2	3	3	4	3	4	4	4	4	2	2	2	2	4	
8-Apr	1	1	1	1	2	2	2	2	2	2	2	3	2	6	5	4	3	2	1	1	1	1	2	6	
9-Apr	1	1	1	1	1	2	2	2	1	5	4	5	5	6	6	6	4	4	5	5	2	3	3	6	
10-Apr	2	2	2	2	3	3	5	7	4	5	6	4	4	5	5	5	4	3	2	1	1	1	1	7	
11-Apr	1	1	1	1	1	2	1	2	3	4	4	4	5	5	5	5	5	4	4	3	4	4	3	5	
12-Apr	3	3	3	3	3	3	4	5	5	5	4	4	5	4	3	4	3	3	3	2	2	3	2	5	
13-Apr	3	4	4	4	5	5	5	5	6	5	5	6	7	7	5	5	5	5	4	2	1	1	2	7	
14-Apr	2	2	1	1	1	2	2	2	2	2	3	4	4	4	4	4	3	2	1	2	1	2	2	4	
15-Apr	1	1	1	2	1	3	5	4	4	3	2	3	3	4	4	4	4	4	3	5	4	4	3	5	
16-Apr	4	5	6	6	6	6	7	7	8	7	7	7	8	8	8	7	6	5	5	5	4	6	6	8	
17-Apr	5	6	5	5	4	5	5	6	5	5	5	5	6	6	6	7	6	6	5	4	3	2	2	7	
18-Apr	2	3	3	3	3	3	4	4	4	5	5	5	5	5	5	5	5	5	4	2	2	2	1	5	
19-Apr	1	1	2	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	2	1	3	3	4	4	
20-Apr	4	4	4	4	2	2	3	3	3	4	4	4	4	5	4	4	3	2	2	1	1	1	1	5	
21-Apr	2	2	2	1	2	2	1	3	2	2	3	4	4	4	4	4	2	2	1	1	1	1	1	4	
22-Apr	1	1	1	1	2	2	3	1	2	3	3	4	4	3	2	4	4	4	5	2	1	4	3	5	
23-Apr	2	2	1	1	1	2	1	1	2	2	2	2	3	2	2	2	3	5	4	3	2	2	2	5	
24-Apr	2	2	1	2	1	1	2	1	3	4	5	5	5	5	6	5	6	5	4	5	4	5	4	6	
25-Apr	3	3	5	5	4	3	3	3	4	6	6	7	6	6	6	6	9	6	6	5	6	5	3	9	
26-Apr	3	4	4	5	5	6	6	6	5	5	5	5	4	4	4	4	4	3	3	2	2	2	2	6	
27-Apr	2	2	2	2	2	2	2	3	3	3	3	5	5	6	5	5	6	6	4	2	2	2	2	6	
28-Apr	2	2	2	1	1	1	3	3	3	4	4	4	3	4	3	4	4	3	4	4	4	3	5	5	
29-Apr	3	3	3	2	1	1	1	2	3	2	3	3	3	4	5	4	5	4	5	4	5	5	4	5	
30-Apr	4	4	5	5	5	5	5	6	5	5	5	4	5	6	5	5	5	5	5	5	4	4	4	6	
																	Diurnal Maximum								





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Buffalo Viewpoint - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	93	12.92	12.92
6 - 11	328	45.56	58.47
12 - 19	227	31.53	90.00
20 - 28	65	9.03	99.03
29 - 38	7	0.97	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Buffalo Viewpoint - April 2024**

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	7	5	2	1	6	4	10	10	10	6	2	3	6	6	4	11	93
6 - 11	48	31	18	10	2	15	55	45	10	6	16	12	14	8	16	22	328
12 - 19	49	20	1	1	1	26	12	8	7	4	8	21	15	17	21	16	227
20 - 28	43	1	0	0	0	0	0	0	0	0	0	6	7	4	1	3	65
29 - 38	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	153	58	21	12	9	45	77	63	27	16	26	42	42	35	42	52	720

Total Number of Valid Hours: 720

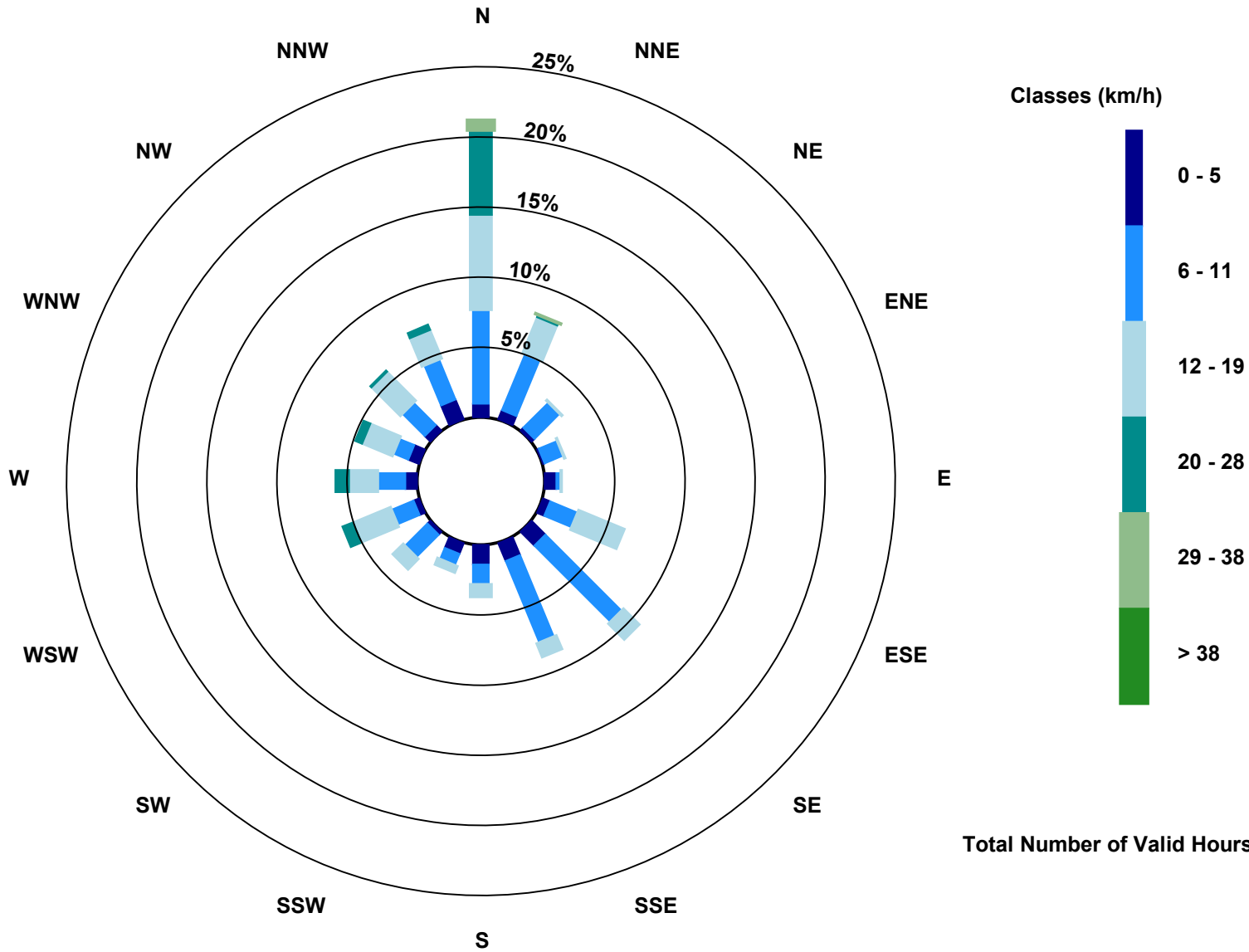
Total Number of Hours: 720





Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Buffalo Viewpoint



Total Number of Valid Hours: 720



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

**Wind Direction (WD) - deg**  
**Buffalo Viewpoint - April 2024**

Direction of Maximum Speed: 7 deg on Apr 16 15:00 Direction of Maximum Daily Speed Average: 1.9 deg on Apr 16	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0
Direction of Minimum Speed: 331 deg on Apr 21 17:00 Direction of Minimum Daily Speed Average: 0.4 deg on Apr 14	Percent Operational Time: 100.0
Monthly Average Direction: 343.9 deg	

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-Apr	242	300	308	276	273	248	247	275	303	308	314	307	306	304	300	307	321	315	308	311	279	189	171	175	291.3
2-Apr	145	153	138	156	146	143	156	153	156	153	145	146	153	130	152	192	183	149	152	171	146	194	159	143	155.1
3-Apr	116	123	131	158	195	301	297	307	291	248	232	245	264	283	359	4	30	41	25	9	343	149	286	50	313.0
4-Apr	30	340	329	327	314	304	327	350	358	18	21	43	42	34	46	15	358	351	8	25	56	71	65	83	7.4
5-Apr	111	96	92	99	94	40	35	28	24	24	359	349	344	353	349	350	351	357	352	347	348	354	346	332	6.1
6-Apr	327	323	331	15	9	24	350	355	3	1	354	359	14	4	351	348	358	19	358	3	331	323	307	293	353.9
7-Apr	276	128	171	190	186	152	132	166	173	184	179	192	230	242	261	227	232	244	246	236	228	235	167	151	210.4
8-Apr	155	143	141	136	149	149	138	129	168	208	110	89	11	215	220	235	219	213	211	123	132	165	273	280	171.7
9-Apr	179	190	243	212	274	176	172	121	284	247	259	256	263	254	250	272	261	261	255	259	251	267	263	306	254.7
10-Apr	6	355	289	303	294	300	308	314	299	299	327	312	312	346	8	11	27	42	41	60	78	128	163	149	335.0
11-Apr	138	144	155	169	131	154	161	147	127	139	142	115	129	127	128	136	121	118	121	124	127	135	149	155	133.2
12-Apr	155	150	144	149	144	151	171	164	148	149	148	150	164	160	171	136	140	140	142	133	173	141	160	159	152.0
13-Apr	159	256	232	226	236	249	256	279	298	298	296	301	295	282	297	299	300	295	301	303	254	238	272	263	277.8
14-Apr	261	344	236	128	145	152	142	167	127	128	114	119	267	240	261	282	293	307	296	37	29	24	13	18	193.1
15-Apr	18	32	9	356	341	304	337	339	8	357	337	318	56	70	34	24	27	25	32	16	13	4	359	2	10.9
16-Apr	1	5	1	0	0	355	356	356	356	357	359	2	3	3	7	12	8	13	11	9	3	354	359	359	1.9
17-Apr	356	357	357	357	359	1	5	7	7	355	351	352	357	4	1	360	1	14	12	360	358	358	359	357	0.1
18-Apr	353	350	350	353	355	352	0	354	351	344	344	348	351	352	349	6	2	6	359	357	357	356	11	9	354.3
19-Apr	336	326	327	176	157	182	193	195	247	240	254	278	274	271	249	224	223	225	225	212	220	236	248	249	239.5
20-Apr	256	277	259	288	276	257	248	273	266	263	267	256	255	259	244	239	234	235	231	208	168	166	163	151	247.9
21-Apr	142	131	134	135	142	136	154	148	127	115	117	141	132	122	111	101	331	331	314	332	355	349	315	319	123.8
22-Apr	324	333	323	342	328	316	306	299	340	339	346	23	37	39	9	4	11	34	6	14	41	9	17	351	359.1
23-Apr	357	355	339	324	234	186	291	357	21	14	28	351	331	26	1	331	323	24	26	23	34	53	60	69	13.2
24-Apr	69	73	30	45	34	33	24	14	109	104	121	119	112	104	115	113	103	104	115	101	117	133	121	126	102.7
25-Apr	141	205	266	235	257	255	257	254	256	259	259	262	257	255	263	255	274	309	296	317	341	321	314	314	268.2
26-Apr	314	326	328	329	338	335	334	338	335	328	334	335	323	322	331	345	355	32	37	49	74	107	154	157	341.4
27-Apr	153	150	151	163	154	144	141	145	147	140	179	176	172	188	187	199	198	196	161	126	133	137	138	137	166.1
28-Apr	140	132	140	133	88	124	128	137	130	129	116	114	112	112	116	115	116	116	106	104	116	124	122	124	119.1
29-Apr	133	132	115	106	39	29	35	31	8	7	3	358	1	16	16	16	18	18	6	1	5	4	360	0	15.4
30-Apr	357	2	1	4	359	2	3	5	3	3	354	358	2	360	359	1	355	354	351	352	352	356	2	360	359.1

12.9	0.5	331.7	339.1	325.1	314.9	318.3	334.5	341.7	333.8	335.9	331.0	326.1	333.5	337.7	335.6	342.9	355.6	0.3	10.7	22.5	16.4	17.0	16.0
Diurnal Average																							

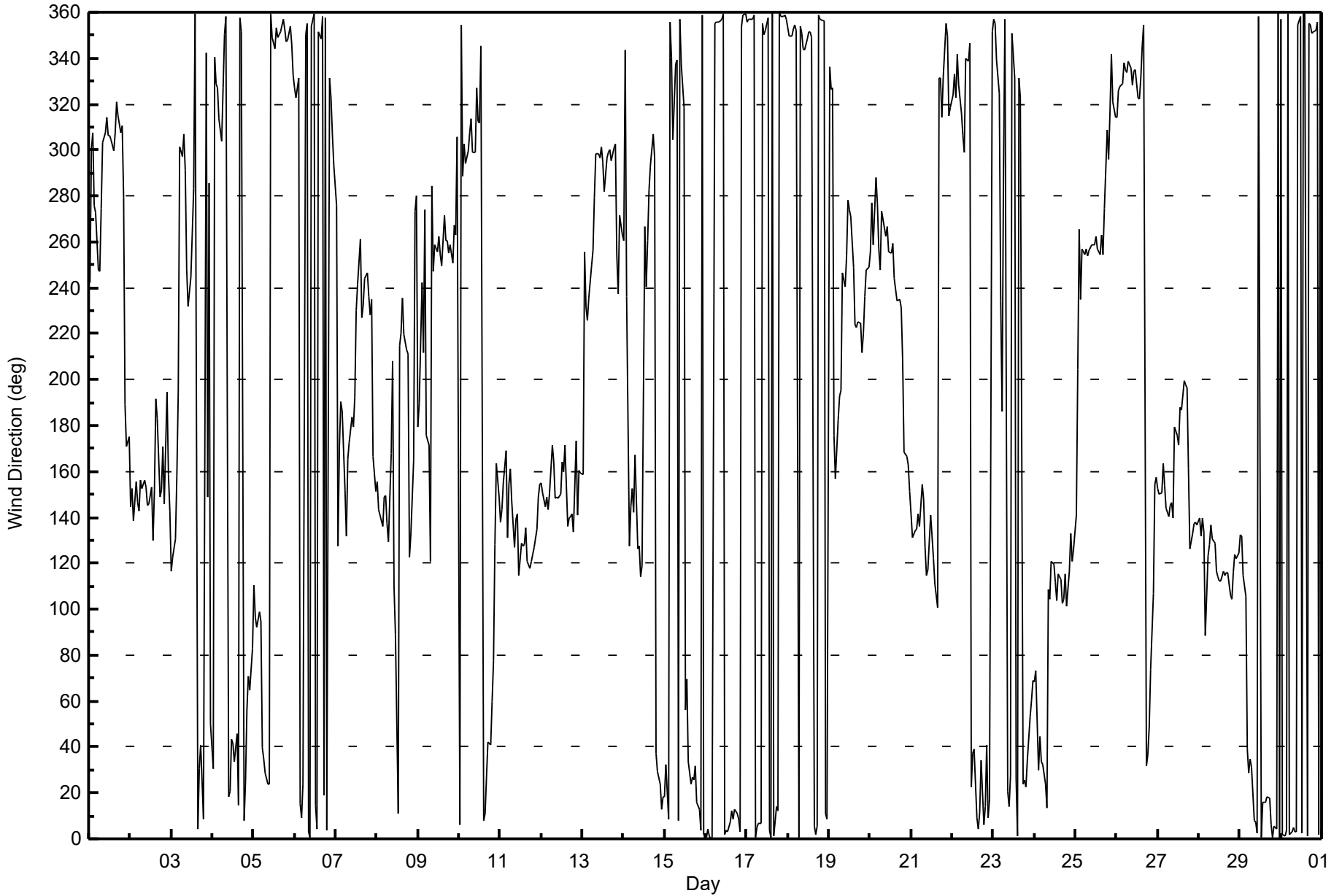
All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Buffalo Viewpoint - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 107 deg on Apr 21 17:00																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 6 deg on Apr 8 02:00																									
Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 15 Q <sub>1</sub> = 19 Median = 22 Q <sub>3</sub> = 27 P <sub>90</sub> = 36 P <sub>99</sub> = 77																									
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-Apr	38	20	20	19	17	14	15	21	20	20	20	21	20	23	24	20	18	18	17	14	38	27	23	17	38
2-Apr	14	6	9	11	21	27	28	26	30	28	30	28	30	27	38	23	24	28	23	44	19	16	24	19	44
3-Apr	21	26	19	26	90	18	20	19	20	23	20	24	16	40	21	19	30	21	20	27	27	73	72	37	90
4-Apr	42	43	29	21	20	21	18	23	21	22	30	30	40	33	30	30	23	19	19	17	11	13	20	17	43
5-Apr	18	20	20	19	42	21	22	20	21	27	23	19	19	18	20	18	18	17	17	17	17	19	19	18	42
6-Apr	14	16	18	19	23	29	19	20	22	23	21	26	24	23	24	18	21	24	18	16	30	19	23	24	30
7-Apr	72	35	33	24	19	14	13	27	27	30	32	33	28	30	35	33	21	20	17	15	13	22	25	9	72
8-Apr	11	6	7	6	22	30	70	70	59	46	27	90	29	93	22	22	23	15	15	19	18	35	65	81	93
9-Apr	16	33	35	22	19	28	22	78	43	47	17	21	19	24	26	22	13	11	12	12	11	15	24	17	78
10-Apr	29	20	19	18	21	19	20	23	19	20	22	24	22	25	22	24	30	19	18	10	30	17	17	11	30
11-Apr	7	22	17	18	15	16	22	30	25	33	35	21	30	27	26	30	26	21	22	25	24	27	27	26	35
12-Apr	25	24	24	25	23	25	26	29	28	29	29	30	29	31	31	35	29	29	28	23	48	72	25	22	72
13-Apr	78	20	16	16	17	14	13	19	21	21	22	22	21	23	24	23	21	22	20	14	27	22	16	11	78
14-Apr	47	51	57	10	22	17	18	24	25	30	21	35	31	33	42	25	30	19	41	37	16	21	24	9	57
15-Apr	13	12	15	43	19	18	36	65	26	22	36	36	73	27	22	21	22	21	20	21	18	20	19	19	73
16-Apr	20	20	22	21	20	22	23	22	23	23	23	23	23	22	23	20	21	21	21	21	19	20	21	20	23
17-Apr	21	22	20	20	20	20	20	20	21	22	19	21	23	23	23	22	23	25	23	19	16	14	14	15	25
18-Apr	17	18	16	18	18	18	19	21	21	20	19	21	22	23	21	26	25	23	20	15	13	12	14	18	26
19-Apr	18	11	41	14	15	17	15	18	47	46	49	38	39	45	40	30	21	18	16	10	15	16	14	15	49
20-Apr	15	22	19	31	17	12	20	23	19	16	22	22	26	24	34	31	33	22	20	17	17	8	9	17	34
21-Apr	14	10	13	12	15	17	20	32	25	23	33	38	44	41	42	68	107	35	19	15	35	27	11	26	107
22-Apr	10	10	9	22	16	15	19	23	27	28	29	33	30	67	71	27	24	20	21	19	13	16	16	14	71
23-Apr	13	11	7	10	36	75	46	46	26	38	61	48	44	49	40	33	77	29	20	17	17	17	19	17	77
24-Apr	16	15	17	20	7	9	25	25	38	28	25	23	21	20	22	22	20	21	23	18	24	27	25	25	38
25-Apr	26	38	21	28	13	17	12	18	16	16	19	19	18	19	17	19	14	22	23	25	24	21	19	17	38
26-Apr	17	18	17	20	18	18	18	22	21	23	25	27	39	40	32	35	40	24	22	17	16	26	27	26	40
27-Apr	25	25	25	23	25	26	28	30	32	33	32	33	34	31	29	20	22	21	32	23	25	24	21	23	34
28-Apr	20	21	30	26	43	20	23	30	30	29	22	20	20	21	21	23	22	22	19	18	22	24	23	25	43
29-Apr	27	27	24	26	14	15	20	18	24	23	21	21	22	26	27	24	22	22	22	20	21	20	20	19	27
30-Apr	21	20	20	19	21	20	21	21	21	20	21	21	21	21	21	21	20	22	20	20	21	20	20	18	22
																	Diurnal Maximum								
																	78 51 57 43 90 75 70 78 59 47 61 90 73 93 71 68 107 35 41 44 48 73 72 81								





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS05  
MANNIX  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
 APRIL 2024

MONTHLY SUMMARY

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	684	34	36	99.72	76.1	0	22.4	0
H2S (ppb) Average	684	34	36	99.72	5	0	1.3	0
THC (ppm) Average	684	34	36	99.72	4.2	-	2.4	-
NMHC(ppm) Average	684	34	36	99.72	0.305	-	0.035	-
CH4(ppm) Average	684	34	36	99.72	4.2	-	2.3	-
Temperature 2 m (C) Average	719	0	1	99.86	19.7	-	11.7	-
Temperature 20 m (C) Average	719	0	1	99.86	17.9	-	11.4	-
Temperature 45 m (C) Average	719	0	1	99.86	17.4	-	11.4	-
Temperature 75 m (C) Average	719	0	1	99.86	17.1	-	11.6	-
Temperature 90 m (C) Average	719	0	1	99.86	17.1	-	11.7	-
Relative Humidity 2 m (%) Average	719	0	1	99.86	98	-	90	-
Relative Humidity 20 m (%) Average	719	0	1	99.86	99	-	92	-
Relative Humidity 45 m (%) Average	719	0	1	99.86	99	-	92	-
Relative Humidity 75 m (%) Average	650	0	70	90.28	100	-	79	-
Relative Humidity 90 m (%) Average	713	0	7	99.03	100	-	97	-
Wind Speed 20 m (km/h) Average	718	0	2	99.72	37	-	28	-
Wind Speed 45 m (km/h) Average	719	0	1	99.86	47	-	37	-
Wind Speed 75 m (km/h) Average	710	0	10	98.61	52	-	41	-
Wind Speed 90 m (km/h) Average	709	0	11	98.47	53	-	42	-
Wind Direction 20 m (deg) Average	718	0	2	99.72	-	-	-	-
Wind Direction 45 m (deg) Average	719	0	1	99.86	-	-	-	-
Wind Direction 75 m (deg) Average	710	0	10	98.61	-	-	-	-
Wind Direction 90 m (deg) Average	709	0	11	98.47	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	718	0	2	99.72	1.3	-	0.9	-
Vertical Wind Speed 45 m (km/h) Average	719	0	1	99.86	2.1	-	0.9	-
Vertical Wind Speed 75 m (km/h) Average	710	0	10	98.61	2.4	-	0.4	-
Vertical Wind Speed 90 m (km/h) Average	709	0	11	98.47	3.1	-	1.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	684	3.15	7.7	-	0	0	0	0.2	1.7	10.3	76.1
H2S (ppb) Average	684	0.43	0.7	-	0	0	0.1	0.2	0.4	1.1	4.8
THC (ppm) Average	684	2.09	0.2	-	2	2	2	2	2.1	2.2	4.2
NMHC(ppm) Average	684	0.008	0.029	-	0	0	0	0	0	0	0.305
CH4(ppm) Average	684	2.08	0.2	-	2	2	2	2	2.1	2.2	4.2
Temperature 2 m (C) Average	719	5.63	5.8	-	-8.2	-1.2	1.1	5	9.7	14.7	19.7
Temperature 20 m (C) Average	719	5.65	5.4	-	-7.2	-1	1.3	5.3	9.4	13.4	17.9
Temperature 45 m (C) Average	719	5.56	5.4	-	-7.6	-1.3	1.3	5.4	9.2	13.2	17.4
Temperature 75 m (C) Average	719	5.51	5.4	-	-7.9	-1.5	1.2	5.5	9.2	13	17.1
Temperature 90 m (C) Average	719	5.59	5.4	-	-8	-1.5	1.3	5.7	9.3	13	17.1
Relative Humidity 2 m (%) Average	719	54.5	25	-	9	22	33	53	76	92	98
Relative Humidity 20 m (%) Average	719	52.5	25	-	10	22	30	48	75	91	99
Relative Humidity 45 m (%) Average	719	51.8	26	-	9	22	29	47	75	91	99
Relative Humidity 75 m (%) Average	650	47.6	24	-	9	21	28	42	67	84	100
Relative Humidity 90 m (%) Average	713	51.3	27	-	9	21	28	45	74	94	100
Wind Speed 20 m (km/h) Average	718	13.6	7	-	1	5	8	12	18	23	37
Wind Speed 45 m (km/h) Average	719	17.9	9	-	0	7	11	17	24	30	47
Wind Speed 75 m (km/h) Average	710	19.8	10	-	1	8	12	18	27	34	52
Wind Speed 90 m (km/h) Average	709	20.8	10	-	1	8	13	19	28	35	53
Wind Direction 20 m (deg) Average	718	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	719	-	-	-	-	-	-	-	-	-	-
Wind Direction 75 m (deg) Average	710	-	-	-	-	-	-	-	-	-	-
Wind Direction 90 m (deg) Average	709	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	718	0	0.6	-	-1.6	-0.8	-0.4	0	0.5	0.8	1.3
Vertical Wind Speed 45 m (km/h) Average	719	-0.03	0.6	-	-1.3	-0.7	-0.4	-0.1	0.4	0.8	2.1
Vertical Wind Speed 75 m (km/h) Average	710	0.15	0.4	-	-1	-0.3	-0.1	0.1	0.4	0.7	2.4
Vertical Wind Speed 90 m (km/h) Average	709	0.2	0.7	-	-1.5	-0.6	-0.2	0.2	0.6	1.1	3.1

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
 APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	05 Apr 2024 09:00	05 Apr 2024 09:00	1	Station power failure
ALL GASEOUS ANALYZERS	24 Apr 2024 12:00	24 Apr 2024 12:00	1	Maintenance - sample manifold cleaned
Relative Humidity 75m	04 Apr 2024 00:00	04 Apr 2024 05:00	6	Sensor operated out of range
Relative Humidity 75m	05 Apr 2024 16:00	06 Apr 2024 12:00	21	Sensor operated out of range
Relative Humidity 75m	07 Apr 2024 00:00	07 Apr 2024 05:00	6	Sensor operated out of range
Relative Humidity 75m	07 Apr 2024 07:00	07 Apr 2024 08:00	2	Sensor operated out of range
Relative Humidity 75m	10 Apr 2024 12:00	10 Apr 2024 12:00	1	Sensor operated out of range
Relative Humidity 75m	12 Apr 2024 21:00	12 Apr 2024 21:00	1	Sensor operated out of range
Relative Humidity 75m	12 Apr 2024 23:00	13 Apr 2024 00:00	2	Sensor operated out of range
Relative Humidity 75m	15 Apr 2024 21:00	16 Apr 2024 11:00	15	Sensor operated out of range
Relative Humidity 75m	30 Apr 2024 10:00	01 May 2024 00:00	15	Sensor operated out of range
Relative Humidity 90m	15 Apr 2024 22:00	16 Apr 2024 00:00	3	Sensor operated out of range
Relative Humidity 90m	16 Apr 2024 02:00	16 Apr 2024 04:00	3	Sensor operated out of range
Wind Speed, Wind Direction, Vertical Wind Speed 20m	05 Apr 2024 18:00	05 Apr 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 75m	06 Apr 2024 04:00	06 Apr 2024 12:00	9	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	03 Apr 2024 08:00	03 Apr 2024 09:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	05 Apr 2024 18:00	05 Apr 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	06 Apr 2024 09:00	06 Apr 2024 14:00	6	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	10 Apr 2024 11:00	10 Apr 2024 11:00	1	Flat line in sensor output signal





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Mannix - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 76.1 ppb on Apr 30 22:00	Maximum Daily Average: 22.4 ppb on Apr 30		Hours of Data:	684
Minimum Value: 0.0 ppb on Apr 4 20:00	Minimum Daily Average: 0.0 ppb on Apr 13		Hours of Missing Data:	36
Maximum Diurnal Average: 5.1 ppb at hour 22	Minimum Diurnal Average: 0.8 ppb at hour 19		Hours of Calibration:	34
Monthly Average: 3.15 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 10.3 P <sub>99</sub> = 36.1		Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Apr	Z	0.2	7.3	0.9	0.2	0.2	0.1	0.2	0.1	3.4	7.8	3.9	0.4	0.3	0.2	1.5	3.4	2.6	0.1	0.2	0.2	0.2	0.1	0.1	1.5	7.8		
2-Apr	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.4	0.4	0.5	0.7	0.7	0.3	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.7	
3-Apr	0.3	0.3	Z	0.5	0.3	0.5	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.0	4.6	6.5	3.4	0.6	0.4	0.1	0.0	0.1	0.1	0.1	0.8	6.5		
4-Apr	0.0	0.3	1.0	Z	0.1	0.1	0.2	1.1	C	C	C	C	0.3	4.5	1.1	0.2	0.2	1.5	0.2	0.0	0.0	0.0	0.0	0.0	0.6	4.5		
5-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	PF	0.1	3.2	2.6	5.5	7.9	6.6	2.9	1.7	0.4	1.2	1.1	3.6	5.9	4.5	0.5	2.2	7.9	
6-Apr	0.2	0.1	0.1	0.9	0.7	Z	1.0	2.1	3.9	0.4	2.2	2.6	0.8	2.2	4.7	1.6	3.9	0.6	3.9	6.6	1.8	0.9	0.4	0.2	1.8	6.6		
7-Apr	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.4	
8-Apr	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.1	0.4	0.4	
9-Apr	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.3	
10-Apr	10.6	9.3	5.8	Z	0.2	0.1	1.1	0.5	0.2	0.8	0.5	0.2	1.7	1.6	1.5	3.4	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	1.7	10.6	10.6	
11-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.3	0.3	
12-Apr	0.2	0.1	0.1	0.2	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
13-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.7	0.1	0.7	0.7	
15-Apr	0.0	0.0	Z	10.9	1.2	0.4	1.2	11.3	10.4	16.5	3.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	10.7	12.2	11.1	3.9	16.5	16.5	
16-Apr	15.0	3.3	2.2	Z	34.6	23.9	4.9	3.0	3.4	9.4	23.8	27.4	23.8	22.4	18.8	10.7	18.0	1.2	0.3	0.2	0.6	34.8	23.0	22.6	14.2	34.8	34.8	
17-Apr	48.1	35.8	32.7	18.1	21.1	15.1	21.0	12.7	8.6	16.5	5.5	4.5	10.1	7.4	8.3	4.4	Z	5.0	3.3	2.2	3.2	0.3	0.2	0.1	12.4	48.1	48.1	
18-Apr	0.1	0.5	23.9	25.6	17.4	13.6	11.7	9.0	25.4	23.0	22.4	23.4	Z	19.0	11.3	9.1	3.9	3.1	0.0	0.0	0.0	1.2	4.7	1.8	10.9	25.6	25.6	
19-Apr	Z	7.8	12.4	7.0	0.5	0.3	0.3	0.3	0.6	0.9	3.7	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	1.6	12.4	12.4	
20-Apr	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	
21-Apr	0.1	0.3	Z	1.3	1.3	0.8	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.8	3.3	21.2	9.2	5.8	6.2	2.3	21.2	21.2	
22-Apr	2.3	1.7	1.3	Z	23.7	2.4	3.6	18.3	13.4	10.4	10.0	3.1	0.6	3.6	2.8	2.7	2.7	0.4	3.8	4.1	0.2	2.5	0.3	10.4	5.4	23.7	23.7	
23-Apr	0.4	0.4	1.0	28.1	Z	2.9	1.8	2.0	7.7	30.5	30.5	4.9	28.0	23.6	9.3	3.6	3.0	4.4	0.4	0.2	0.2	0.2	0.2	0.1	8.0	30.5	30.5	
24-Apr	0.2	0.1	0.2	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.0	M	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	
25-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.9	1.0	10.1	1.4	3.0	0.9	10.1	10.1	
26-Apr	1.7	0.2	Z	1.6	10.8	1.9	0.3	0.7	0.3	0.7	0.7	0.3	0.8	2.6	2.2	1.3	1.7	1.0	0.1	0.2	0.1	0.2	0.1	0.1	1.3	10.8	10.8	
27-Apr	0.1	0.1	Z	0.5	0.4	0.3	0.3	0.4	0.6	0.7	0.6	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.1	0.3	0.7	0.7	
28-Apr	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
29-Apr	0.0	0.1	0.0	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.5	0.5	0.1	0.1	0.1	1.2	8.8	0.6	0.5	2.3	1.5	0.7	8.8	
30-Apr	0.3	4.8	26.1	22.5	17.7	15.0	Z	4.3	3.6	4.8	13.7	44.8	41.6	33.9	20.5	3.5	44.3	27.6	2.3	6.4	24.7	76.1	37.9	38.1	22.4	76.1	76.1	

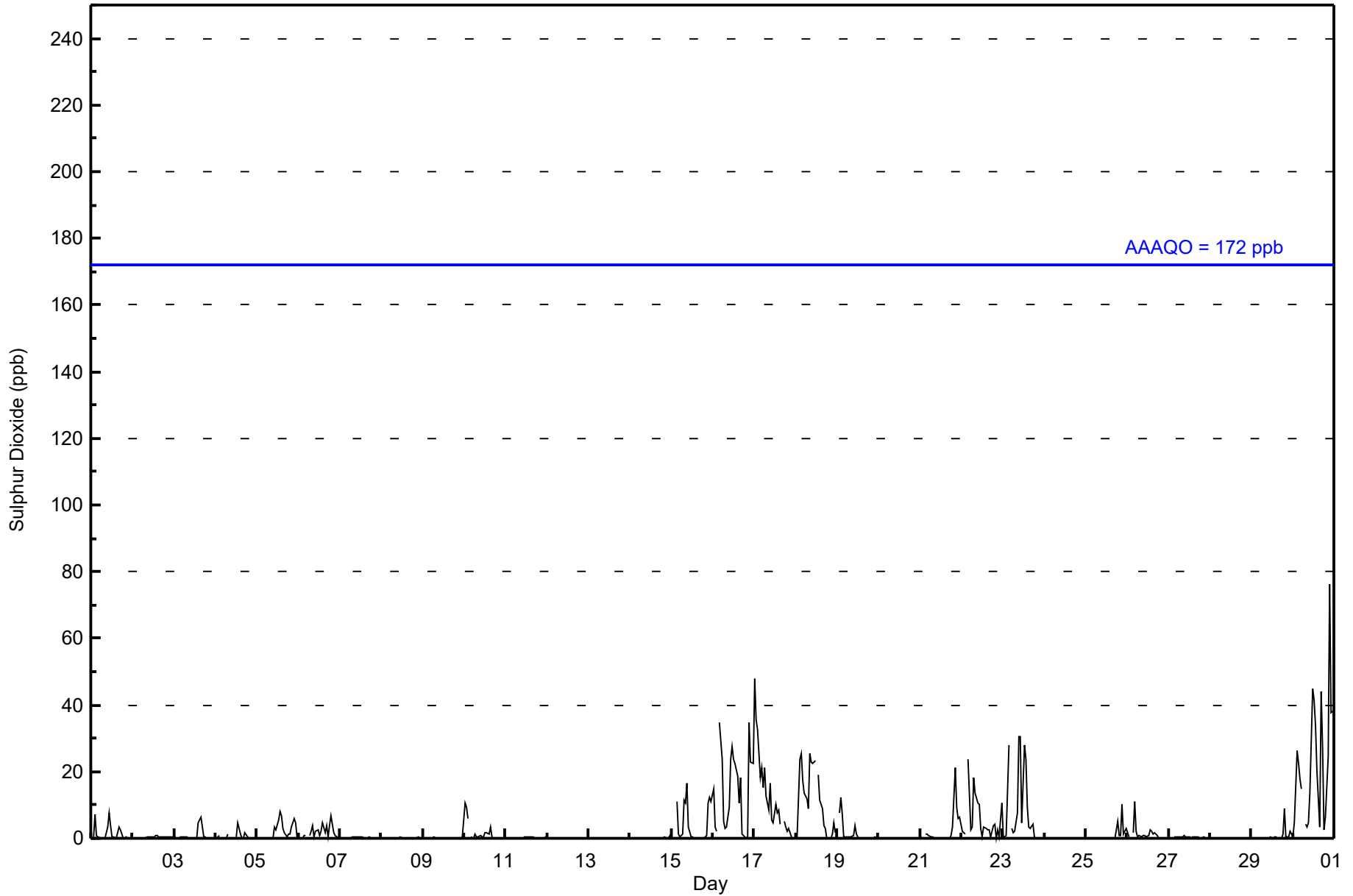
3.2	2.5	4.8	4.7	5.0	2.9	1.7	2.3	2.9	4.1	4.5	4.3	4.0	4.4	3.1	1.8	3.0	1.6	0.8	1.2	2.0	5.1	3.1	3.3	Diurnal Average	
48.1	35.8	32.7	28.1	34.6	23.9	21.0	18.3	25.4	30.5	30.5	44.8	41.6	33.9	20.5	10.7	44.3	27.6	5.0	8.8	24.7	76.1	37.9	38.1	Diurnal Maximum	

Z - zeronspan      C - Calibration      M - Maintenance      PF - Power Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Mannix - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mannix - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	618	90.35	90.35
11 - 20	27	3.95	94.30
21 - 60	38	5.56	99.85
61 - 110	1	0.15	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mannix - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	40	75	20	18	5	34	101	58	15	18	30	53	33	47	31	39	617
11 - 20	19	2	0	0	0	0	0	0	0	0	0	0	0	0	1	5	27
21 - 60	31	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1	38
61 - 110	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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>	91	80	20	18	5	34	101	58	15	18	30	53	33	47	35	45	683

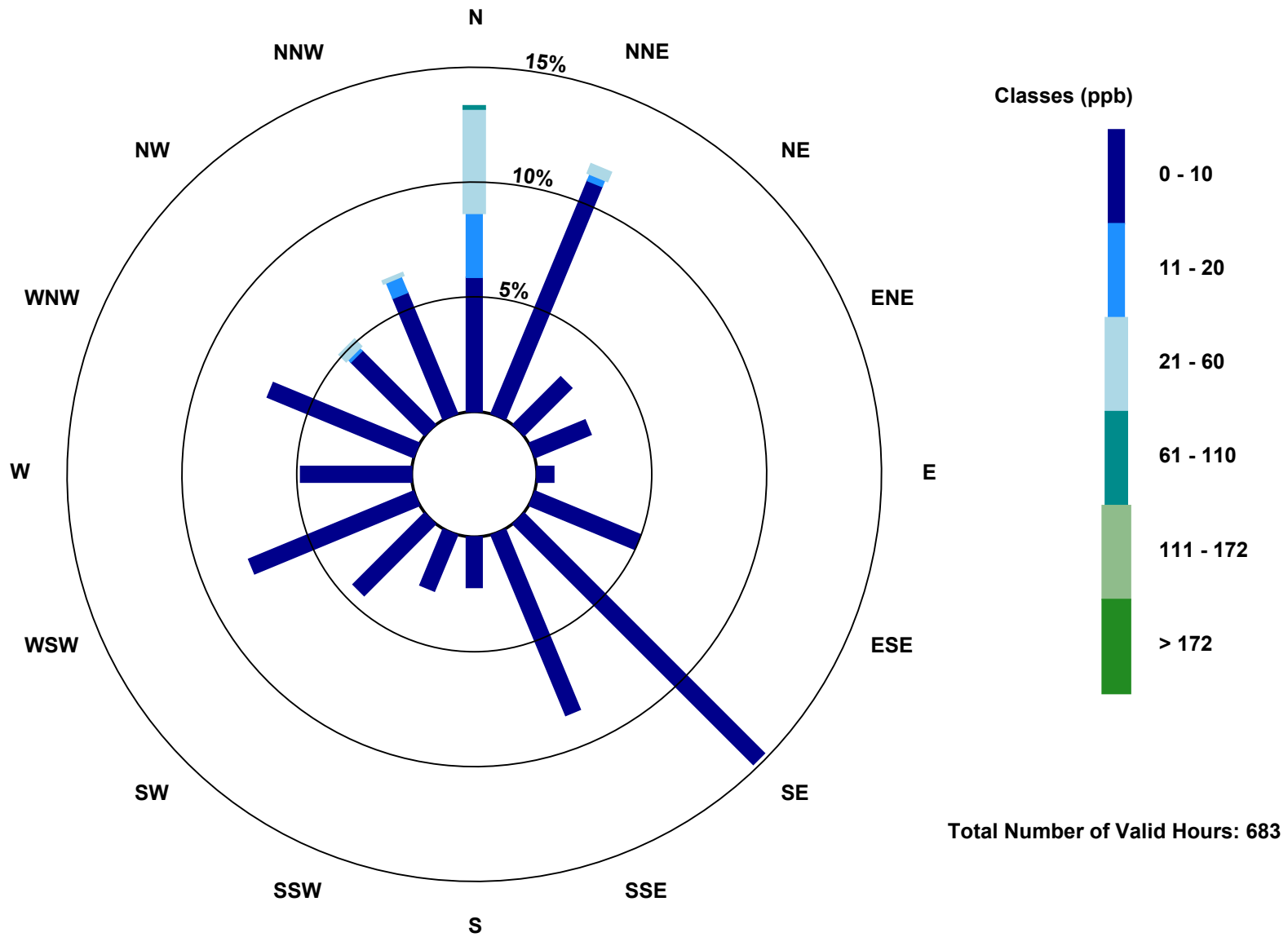
Total Number of Valid Hours: 683

Total Number of Hours: 720

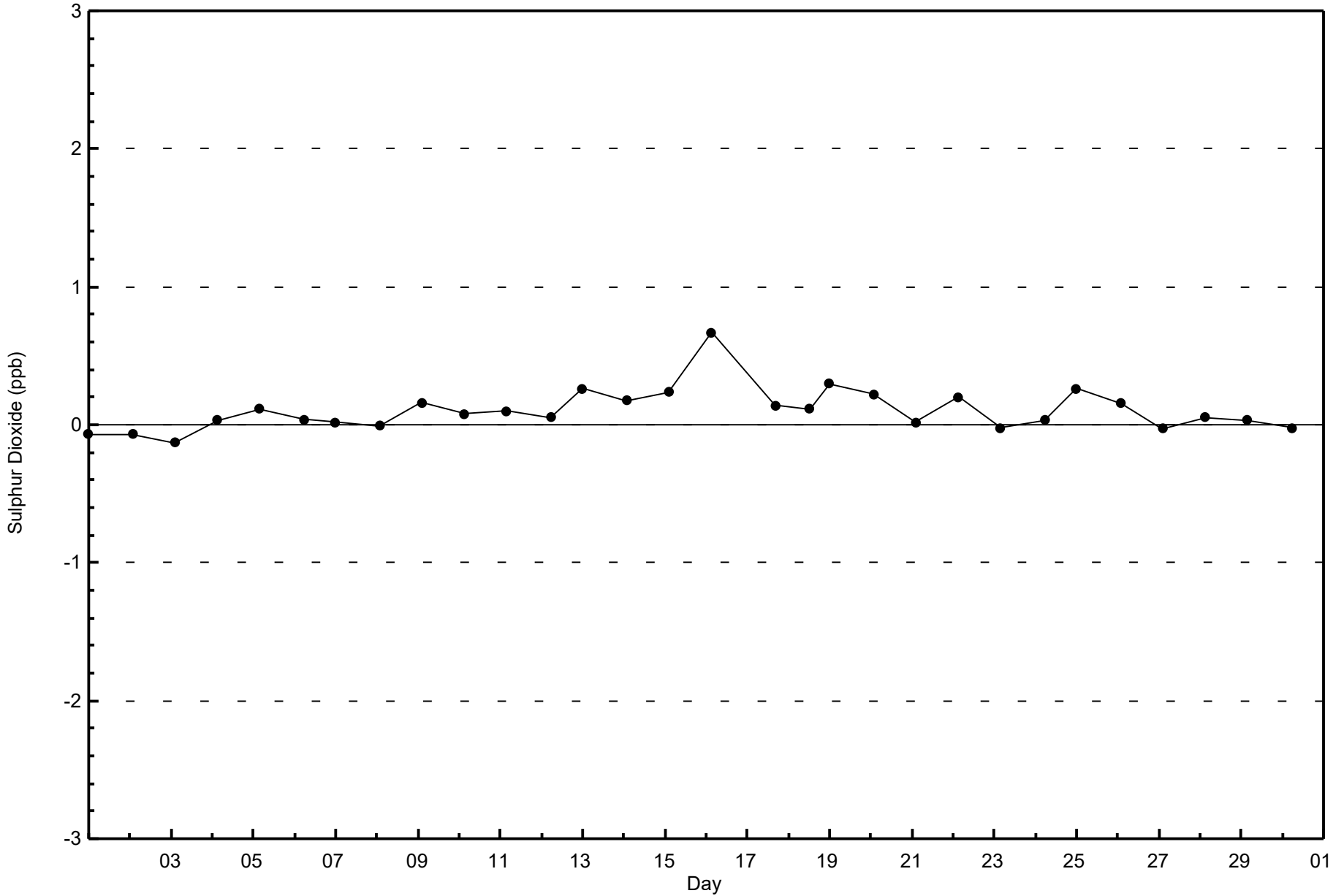


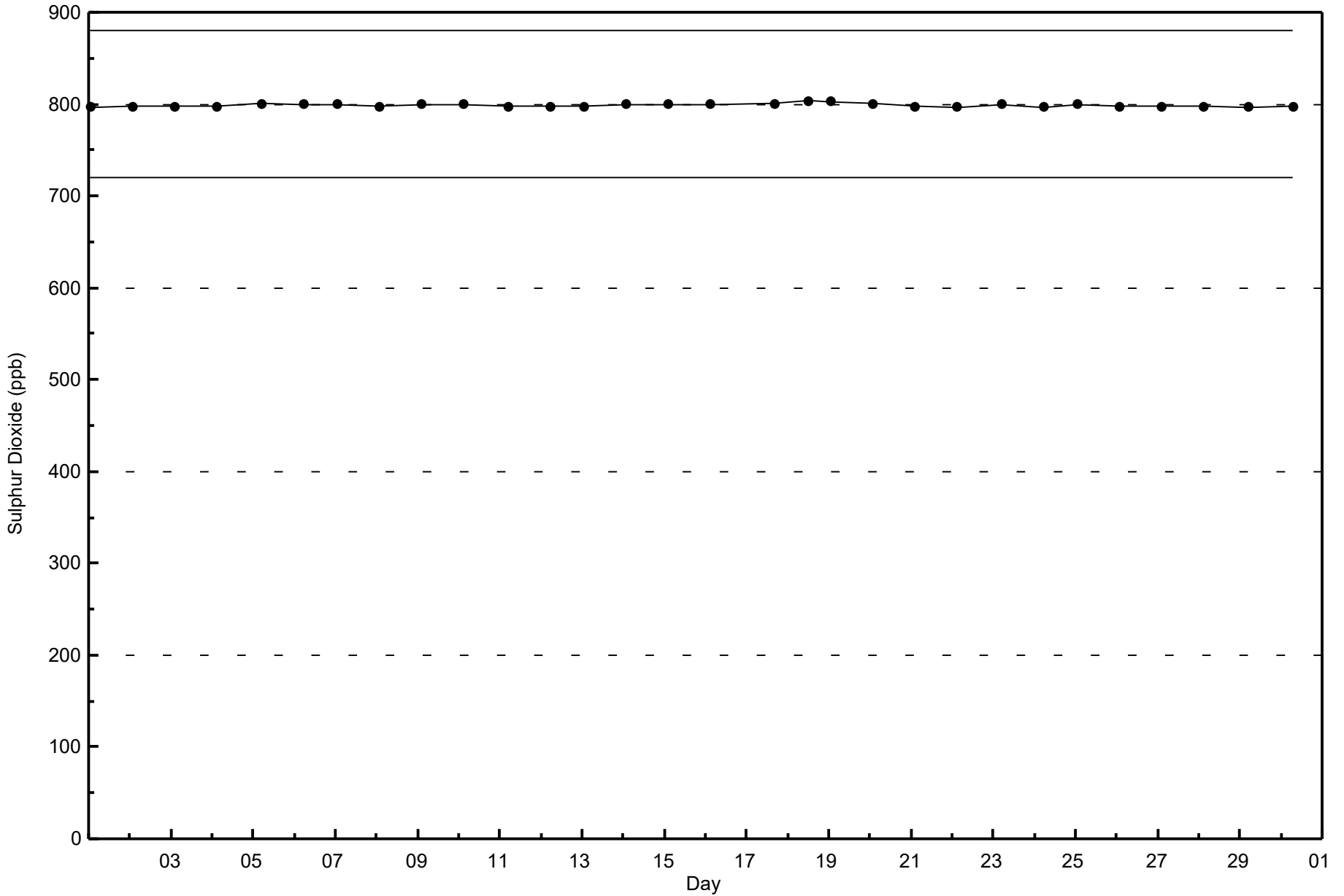
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 683







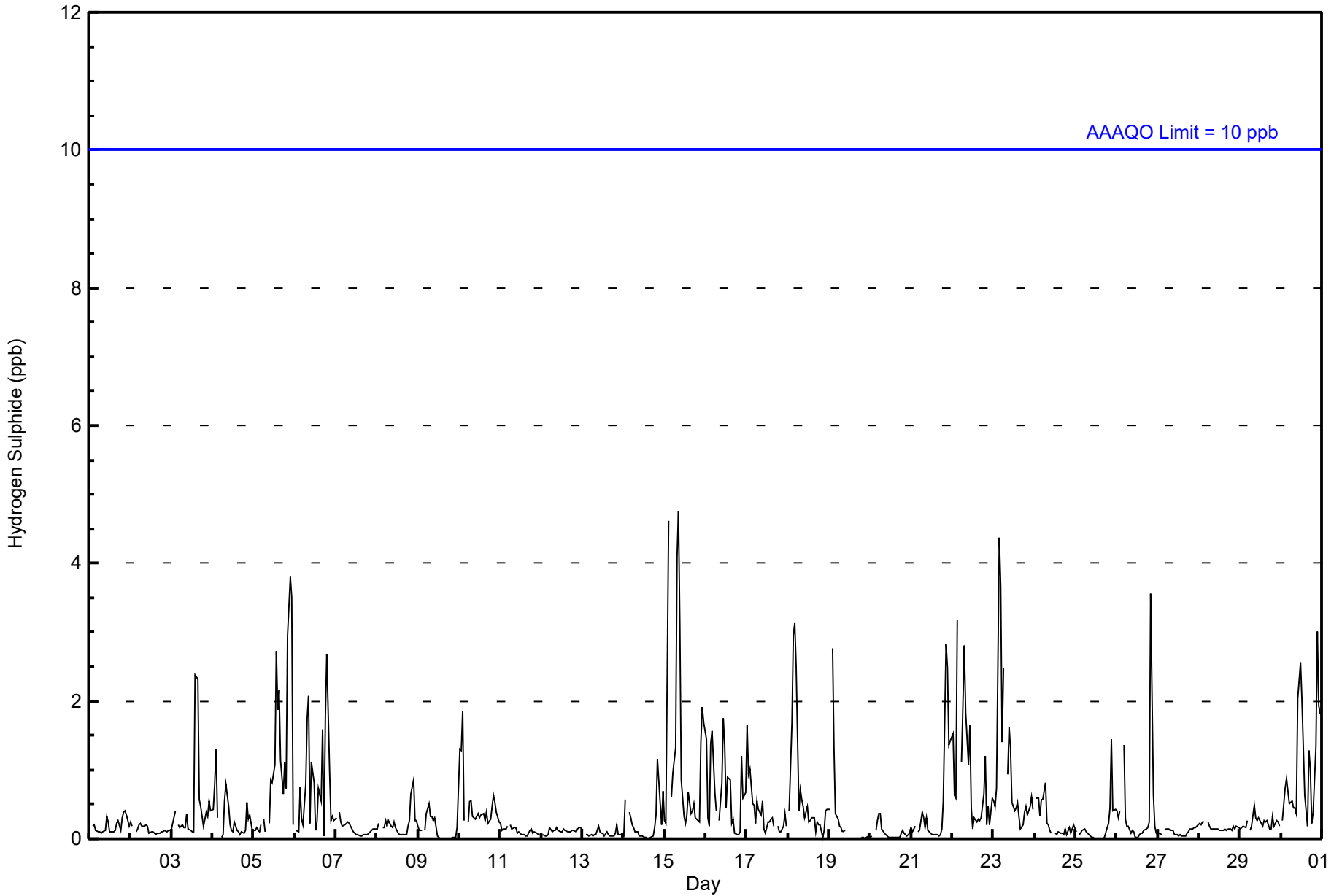
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 4.8 ppb on Apr 15 09:00	Maximum Daily Average: 1.3 ppb on Apr 15		Hours of Data:	684
Minimum Value: 0.0 ppb on Apr 9 15:00	Minimum Daily Average: 0.1 ppb on Apr 13		Hours of Missing Data:	36
Maximum Diurnal Average: 0.8 ppb at hour 4	Minimum Diurnal Average: 0.2 ppb at hour 18		Hours of Calibration:	34
Monthly Average: 0.43 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 1.1 P <sub>99</sub> = 3.5		Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24						
1-Apr	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.4	0.4	0.3	0.2	0.2	0.4				
2-Apr	0.2	0.2	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			
3-Apr	0.1	0.2	0.4	Z	0.2	0.2	0.2	0.2	0.2	0.4	0.1	0.1	0.1	0.1	2.4	2.3	0.6	0.5	0.3	0.2	0.4	0.3	0.5	0.4	0.5	0.4	0.5			
4-Apr	0.4	0.8	1.3	0.3	Z	0.0	0.1	0.5	0.8	0.5	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.3	0.3	0.1	0.3	0.1	0.3			
5-Apr	0.1	0.1	0.2	0.1	0.2	Z	0.3	0.1	PF	0.2	0.9	0.8	1.1	2.7	1.9	2.2	1.1	0.7	1.1	0.7	2.9	3.8	3.5	0.2	1.1	0.2	3.8			
6-Apr	Z	0.1	0.1	0.8	0.3	0.2	0.8	1.7	2.1	0.2	1.1	0.8	0.1	0.3	0.7	0.5	1.6	0.0	1.8	2.7	1.0	0.3	0.3	0.3	0.8	0.2	2.7			
7-Apr	0.3	Z	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4		
8-Apr	0.1	0.2	Z	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.9	0.3	0.3	0.2	0.9	0.2		
9-Apr	0.2	0.1	0.1	Z	0.1	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.5	0.1		
10-Apr	1.3	1.3	1.9	0.3	Z	0.3	0.6	0.5	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.4	0.2	0.3	0.5	0.6	0.5	0.4	0.2	0.5	0.5	1.9	0.5		
11-Apr	0.2	0.1	0.1	0.1	0.2	Z	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	
12-Apr	Z	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	
13-Apr	0.1	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
14-Apr	0.0	0.6	Z	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.2	0.5	0.2	0.7	0.2	0.2	0.7	0.2	
15-Apr	0.3	0.2	4.6	Z	0.6	0.9	1.3	4.1	4.8	3.1	0.9	0.3	0.2	0.3	0.7	0.4	0.4	0.5	0.3	0.3	0.3	1.4	1.9	1.7	1.3	1.3	1.3	4.8	1.3	
16-Apr	1.4	0.3	0.2	1.4	1.6	0.7	0.4	Z	0.3	0.8	1.7	1.4	0.5	0.9	0.8	0.2	0.3	0.1	0.1	0.1	0.1	1.2	0.6	0.7	0.7	0.7	0.7	1.7	0.7	
17-Apr	1.6	0.9	1.0	0.5	0.5	0.2	0.6	0.4	0.3	0.5	0.2	0.1	0.2	0.3	0.3	0.3	0.2	Z	0.2	0.1	0.1	0.2	0.4	0.2	0.4	0.4	0.4	1.6	0.4	
18-Apr	Z	0.4	1.7	3.0	3.1	2.5	0.4	0.7	0.6	0.5	0.3	0.5	0.2	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.0	0.1	0.4	0.4	0.7	0.7	3.1	0.7	3.1	
19-Apr	0.4	Z	2.8	1.3	0.4	0.3	0.2	0.2	0.1	0.1	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	2.8	0.3	
20-Apr	0.0	0.0	Z	0.1	0.3	0.4	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.4	0.1	
21-Apr	0.2	0.1	0.2	Z	0.1	0.1	0.4	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.6	2.8	2.5	1.4	1.4	0.5	0.5	2.8	0.5	2.8	
22-Apr	1.5	0.6	0.6	3.2	Z	1.1	1.9	2.8	1.8	1.1	1.6	0.5	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.7	1.2	0.2	0.5	0.2	0.6	0.9	0.9	3.2	0.9	
23-Apr	0.6	0.5	0.7	4.4	3.7	1.4	2.5	Z	0.9	1.6	1.3	0.5	0.4	0.4	0.5	0.3	0.1	0.2	0.4	0.5	0.3	0.5	0.6	0.4	1.0	1.0	4.4	1.0	4.4	
24-Apr	Z	0.6	0.6	0.3	0.6	0.6	0.8	0.2	0.2	0.1	0.1	M	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.8	0.2	0.8	
25-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4	1.4	0.4	0.4	0.2	0.2	1.4	0.2	1.4
26-Apr	0.4	0.3	0.4	Z	1.4	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	3.6	0.6	0.2	0.1	0.4	0.4	3.6	0.4	3.6
27-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2
28-Apr	0.2	0.2	0.3	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3
29-Apr	0.2	0.2	0.2	0.2	0.3	Z	0.1	0.2	0.5	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.5
30-Apr	Z	0.3	0.7	0.9	0.7	0.5	0.5	0.4	0.4	0.4	2.0	2.6	2.0	1.3	0.6	0.2	1.3	1.0	0.2	0.4	1.3	3.0	1.9	1.8	1.1	1.1	1.8	1.1	3.0	1.1

0.4	0.3	0.7	0.8	0.6	0.4	0.5	0.5	0.5	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.6	0.7	0.5	0.4	Diurnal Average	
1.6	1.3	4.6	4.4	3.7	2.5	2.5	4.1	4.8	3.1	2.0	2.6	2.0	2.7	2.4	2.3	1.6	1.0	1.8	2.7	3.6	3.8	3.5	1.8	Diurnal Maximum		

Z - zerospan      C - Calibration      M - Maintenance      PF - Power Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mannix - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	664	97.08	97.08
3 - 4	18	2.63	99.71
5 - 7	2	0.29	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mannix - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	84	77	20	17	7	34	102	57	14	18	30	51	33	45	32	42	663
3 - 4	11	1	0	1	0	0	0	0	0	0	0	0	0	0	2	3	18
5 - 7	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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>	96	79	20	18	7	34	102	57	14	18	30	51	33	45	34	45	683

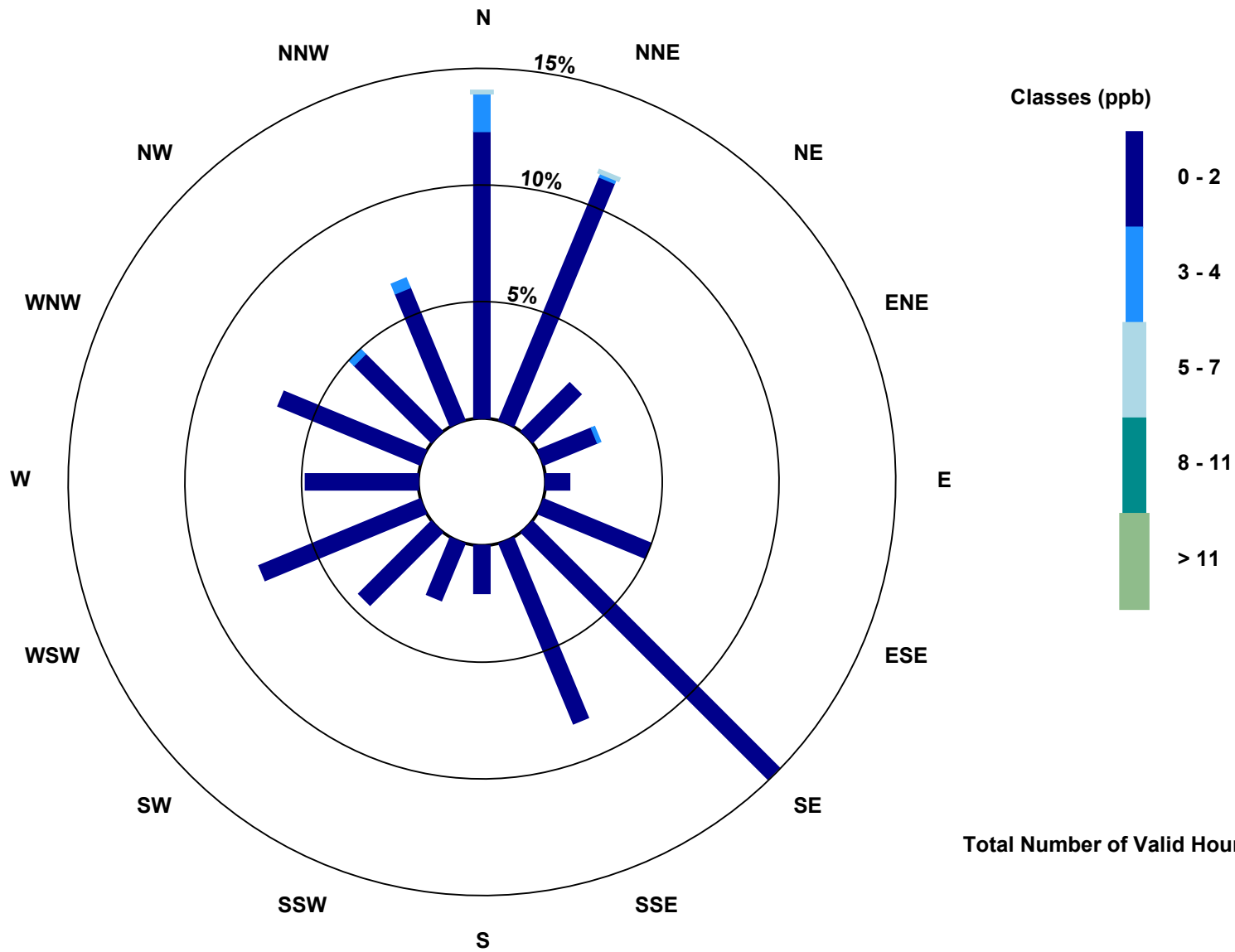
Total Number of Valid Hours: 683

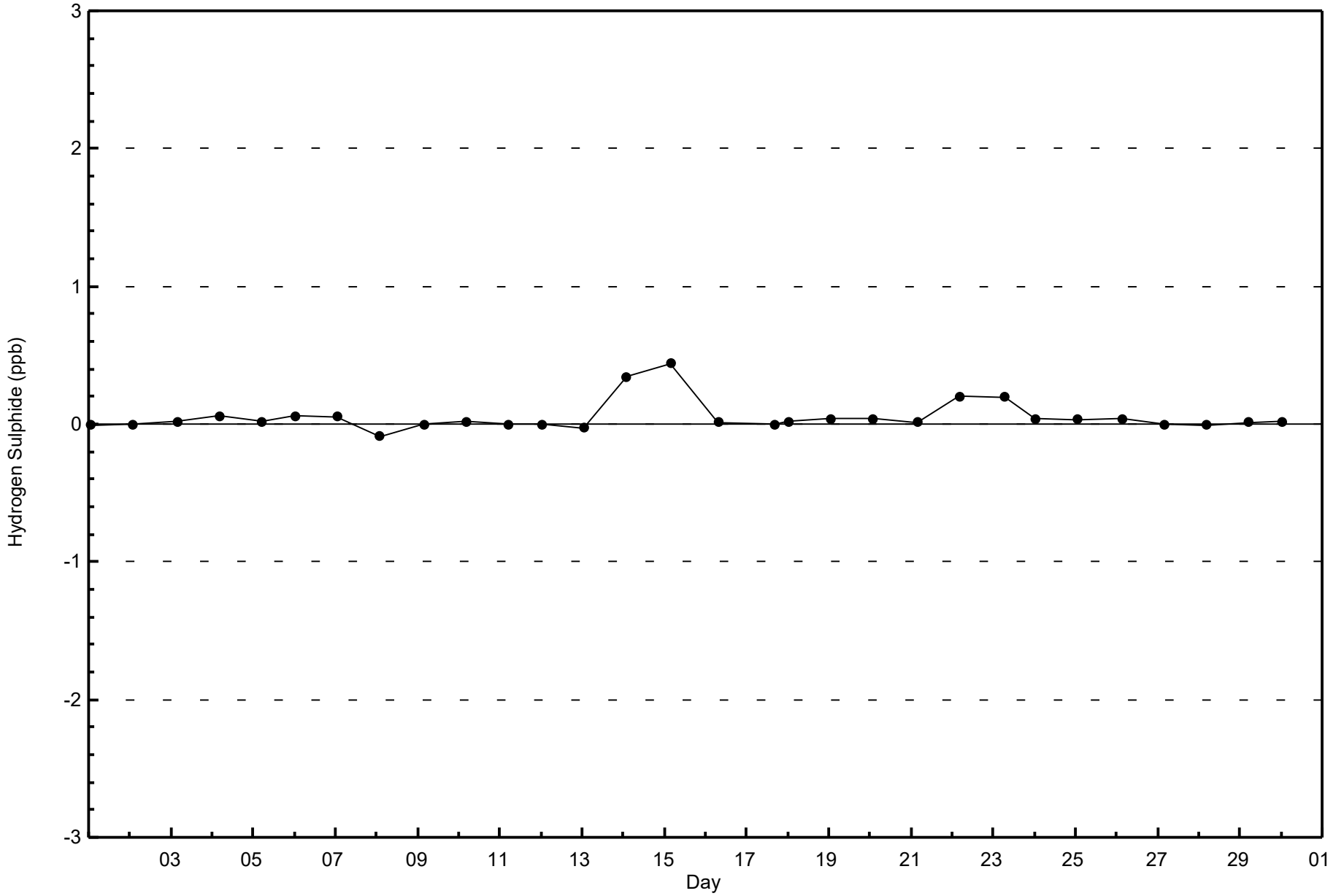
Total Number of Hours: 720

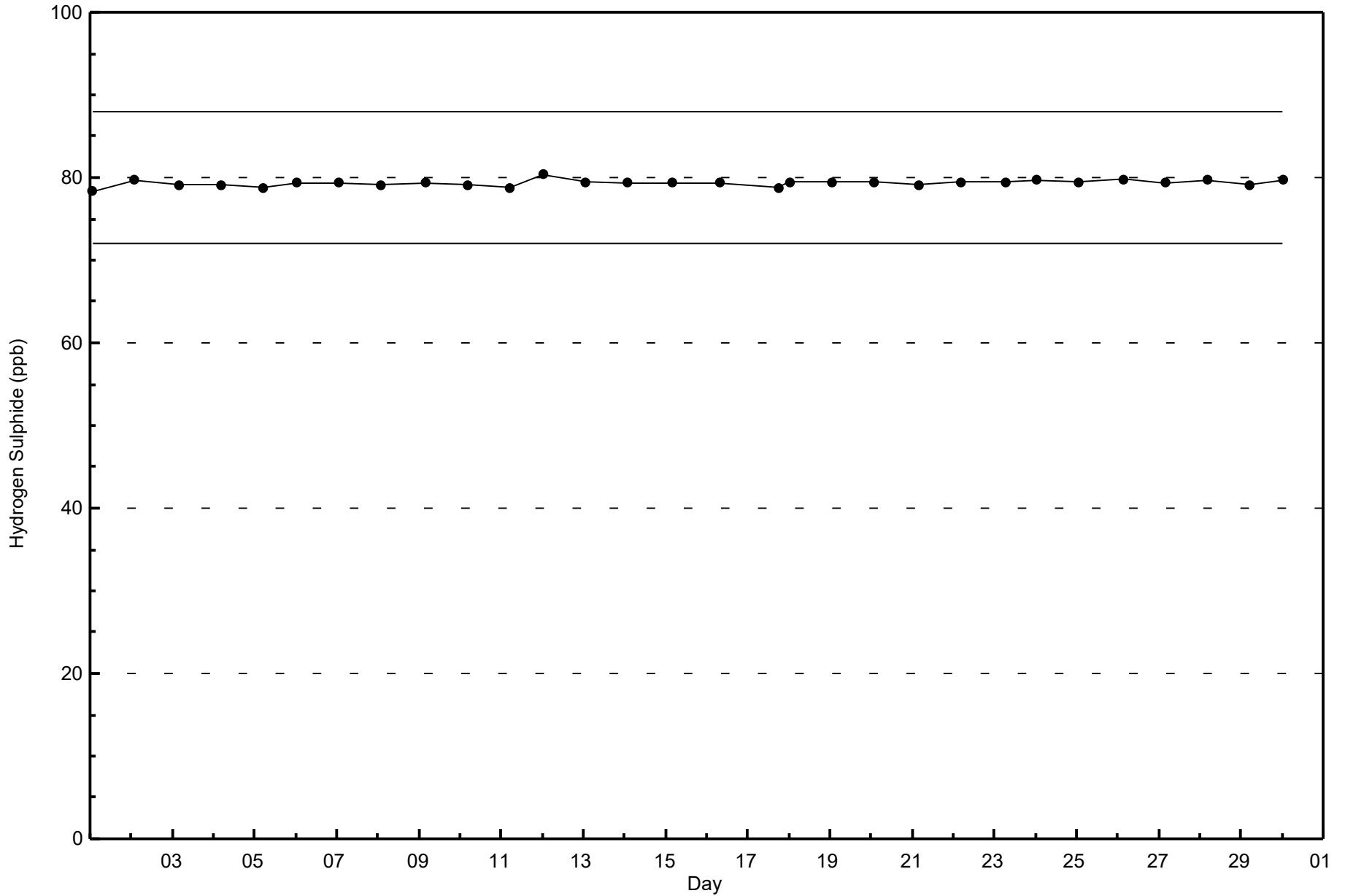


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









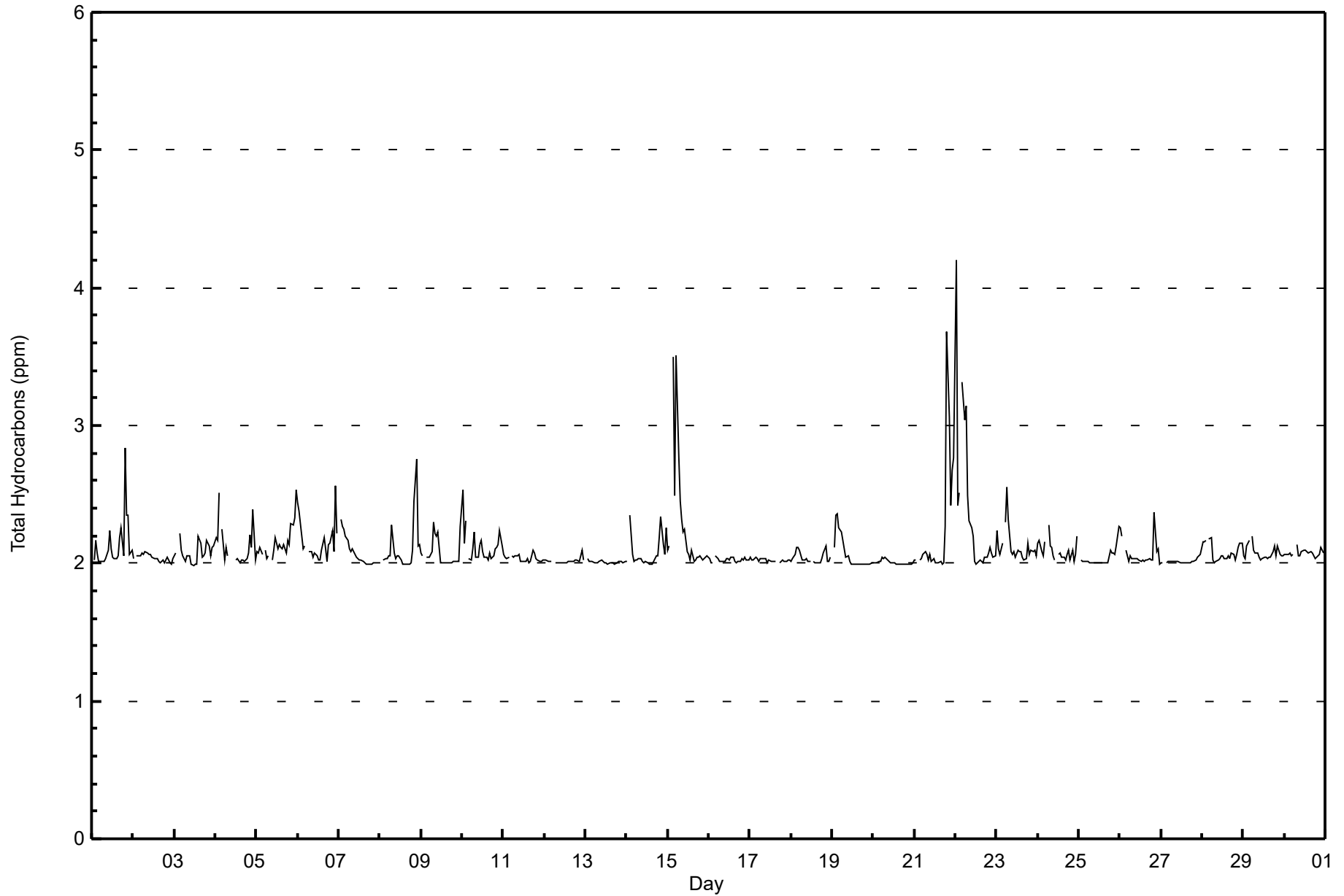
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Mannix - April 2024

Maximum Value: 4.2 ppm on Apr 22 01:00		Maximum Daily Average: 2.4 ppm on Apr 22		Hours in Service: 720																									
Minimum Value: 2.0 ppm on Apr 3 12:00		Minimum Daily Average: 2.0 ppm on Apr 20		Hours of Data: 684																									
Maximum Diurnal Average: 2.2 ppm at hour 1		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Missing Data: 36																									
Monthly Average: 2.09 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 3.0		Hours of Calibration: 34																									
				Percent Operational Time: 99.7																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Apr	Z	2.0	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.2	2.3	2.1	2.8	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.8	
2-Apr	2.0	Z	2.1	2.1	2.1	2.1	2.1	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	2.0	2.0	2.0	2.0	2.0	2.1	2.1
3-Apr	2.1	2.1	Z	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.2	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
4-Apr	2.2	2.2	2.5	Z	2.2	2.0	2.1	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.4	2.0	2.1	2.1	2.1	2.5	
5-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.0	2.1	PF	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.3	2.3	2.5	2.1	2.1	2.1	2.5	
6-Apr	2.4	2.4	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.1	2.2	2.1	2.0	2.1	2.1	2.2	2.1	2.6	2.2	2.2	2.2	2.2	2.6	
7-Apr	Z	2.3	2.3	2.2	2.2	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3
8-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.3	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.8	2.1	2.1	2.1	2.1	2.1	2.8	
9-Apr	2.1	2.1	Z	2.0	2.0	2.0	2.1	2.3	2.2	2.2	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	2.3	2.1	2.1	2.1	2.3	
10-Apr	2.5	2.1	2.3	Z	2.0	2.0	2.1	2.2	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.5	
11-Apr	2.1	2.0	2.0	2.0	Z	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
12-Apr	2.0	2.0	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	2.1	2.1	2.0	2.0	2.0	2.0	2.1	
13-Apr	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	2.0	2.0	2.0	2.0
14-Apr	2.0	Z	2.3	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	2.1	2.1	2.2	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.3	
15-Apr	2.1	2.1	Z	3.5	2.5	3.5	2.8	2.5	2.3	2.2	2.2	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.3	2.1	2.1	3.5	
16-Apr	2.0	2.0	2.0	Z	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	2.0	2.1	
17-Apr	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	
18-Apr	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
19-Apr	Z	2.1	2.3	2.4	2.3	2.2	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
20-Apr	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	2.0	2.0	
21-Apr	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	3.7	3.1	2.4	2.7	2.8	2.2	2.2	2.2	3.7	
22-Apr	4.2	2.4	2.5	Z	3.3	3.0	3.1	2.5	2.3	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.4	2.4	4.2		
23-Apr	2.2	2.1	2.1	2.1	Z	2.3	2.6	2.3	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6	
24-Apr	2.1	2.2	2.1	2.1	2.2	Z	2.3	2.1	2.1	2.1	2.0	M	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.1	2.2	2.1	2.1	2.3		
25-Apr	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	2.1	2.1	2.1	2.1	2.1	2.3	2.0	2.0	2.3		
26-Apr	2.3	2.2	Z	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.1	2.1	2.0	2.1	2.1	2.1	2.4		
27-Apr	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	2.1	2.1	2.0	2.0	2.1		
28-Apr	2.2	2.2	2.2	Z	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
29-Apr	2.1	2.0	2.1	2.2	Z	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
30-Apr	2.1	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerspan C - Calibration M - Maintenance PF - Power Failure																													







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Mannix - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	385	56.29	56.29
2.1 - 3.0	292	42.69	98.98
3.1 - 10.0	7	1.02	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Mannix - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	48	49	9	4	1	9	61	39	11	14	22	46	29	26	4	13	385
2.1 - 3.0	42	31	11	14	4	25	40	19	4	4	8	7	4	20	28	30	291
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	7
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	91	80	20	18	5	34	101	58	15	18	30	53	33	47	35	45	683

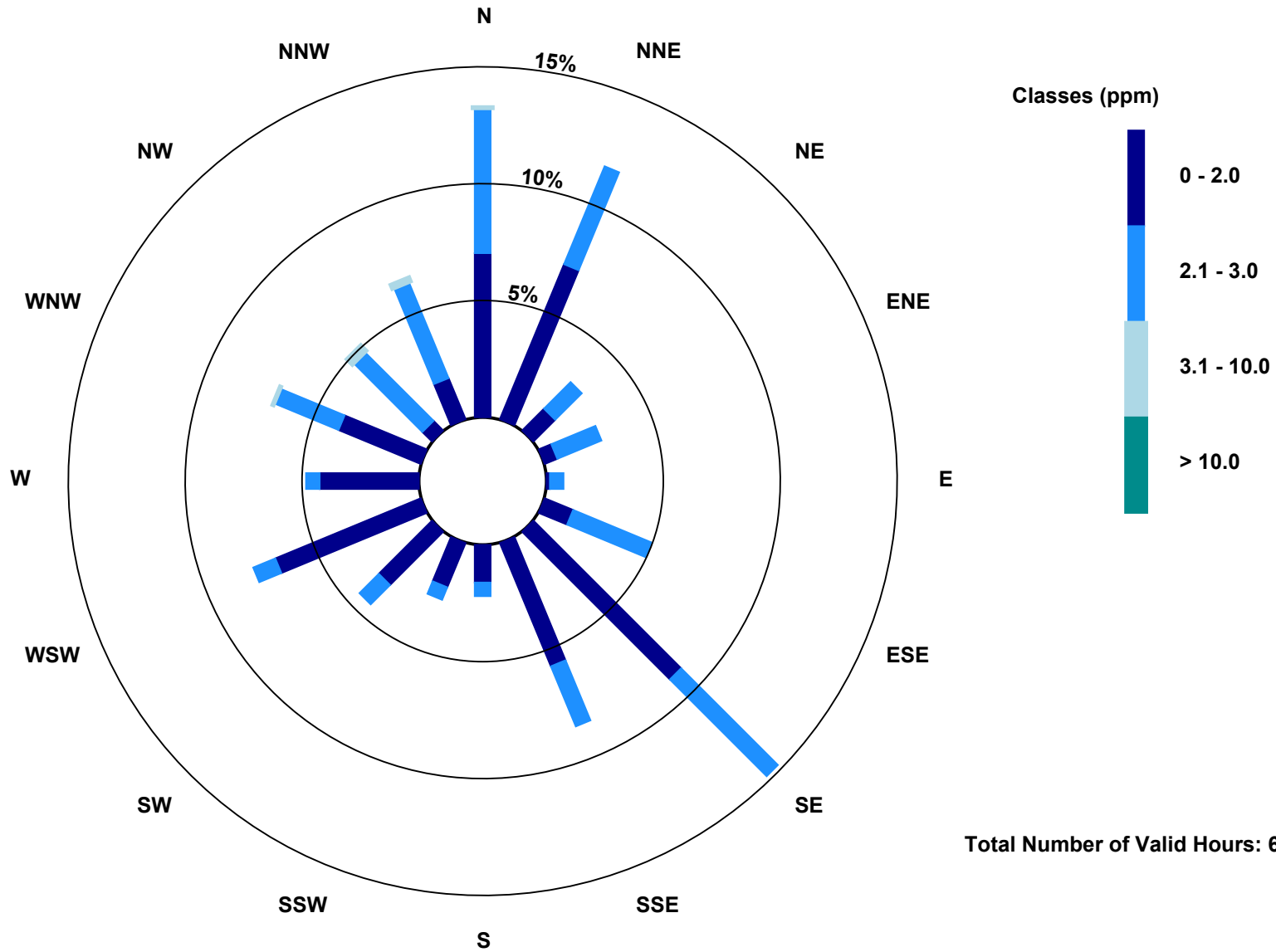
Total Number of Valid Hours: 683

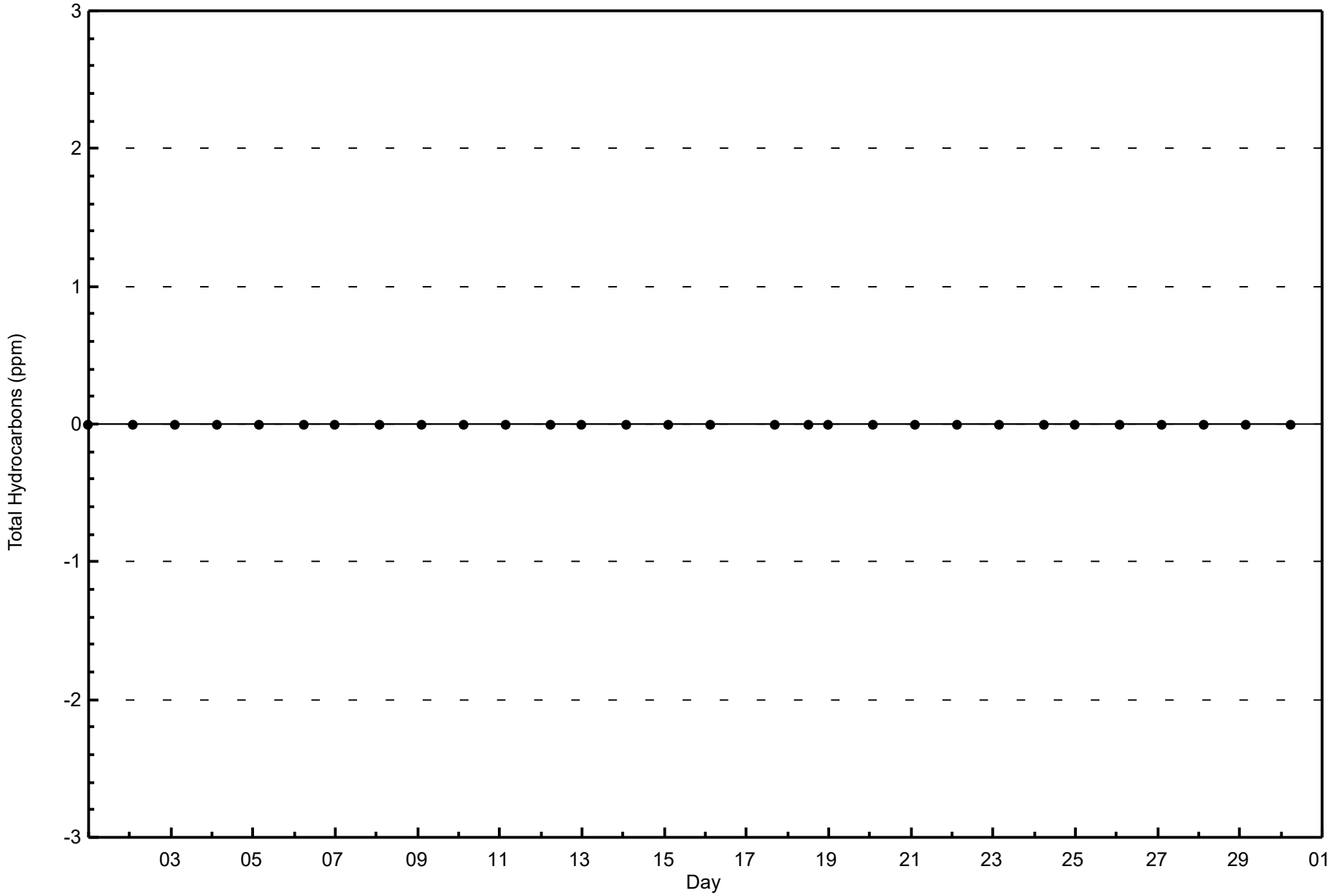
Total Number of Hours: 720

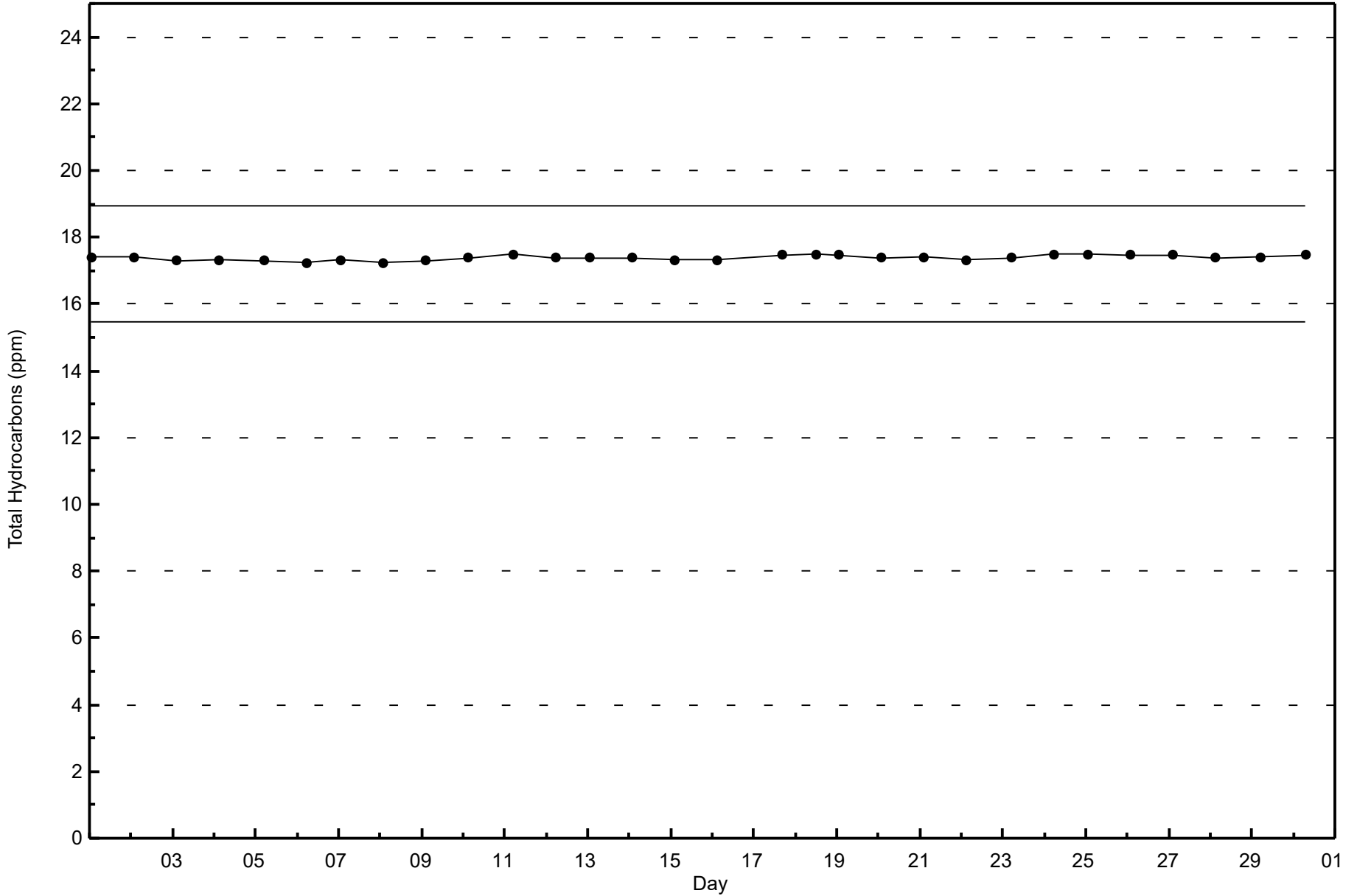


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

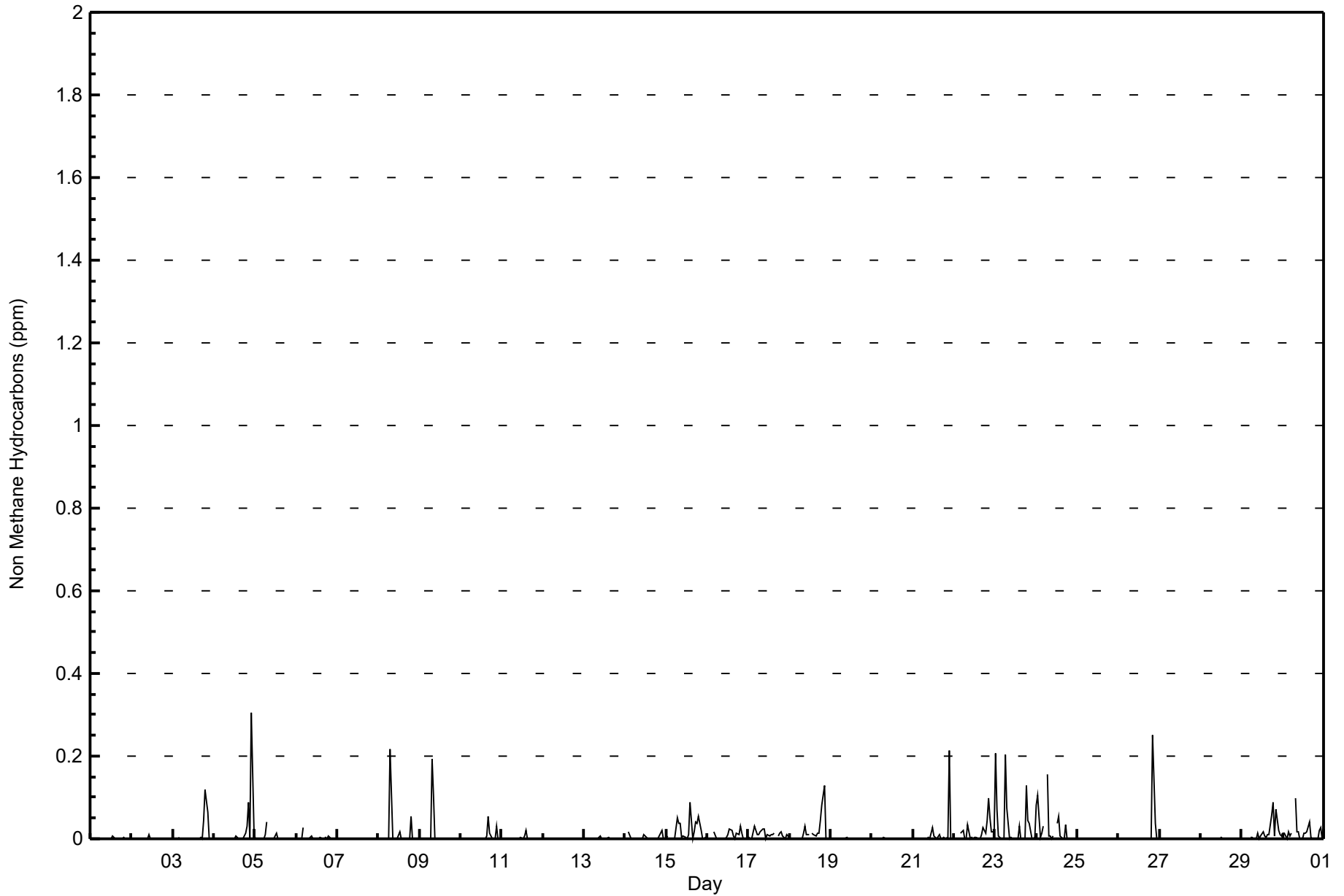
Total Hydrocarbons (THC) - ppm  
Mannix













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Mannix - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	540	78.95	78.95
0.006 - 0.05	118	17.25	96.20
0.06 - 0.1	18	2.63	98.83
> 0.1	8	1.17	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Mannix - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	55	17	12	8	1	25	95	57	14	18	30	53	33	45	33	43	539
0.006 - 0.05	36	48	5	5	4	7	5	1	1	0	0	0	0	2	2	2	118
0.06 - 0.1	0	13	2	2	0	1	0	0	0	0	0	0	0	0	0	0	18
> 0.1	0	2	1	3	0	1	1	0	0	0	0	0	0	0	0	0	8
<b>Totals</b>	91	80	20	18	5	34	101	58	15	18	30	53	33	47	35	45	683

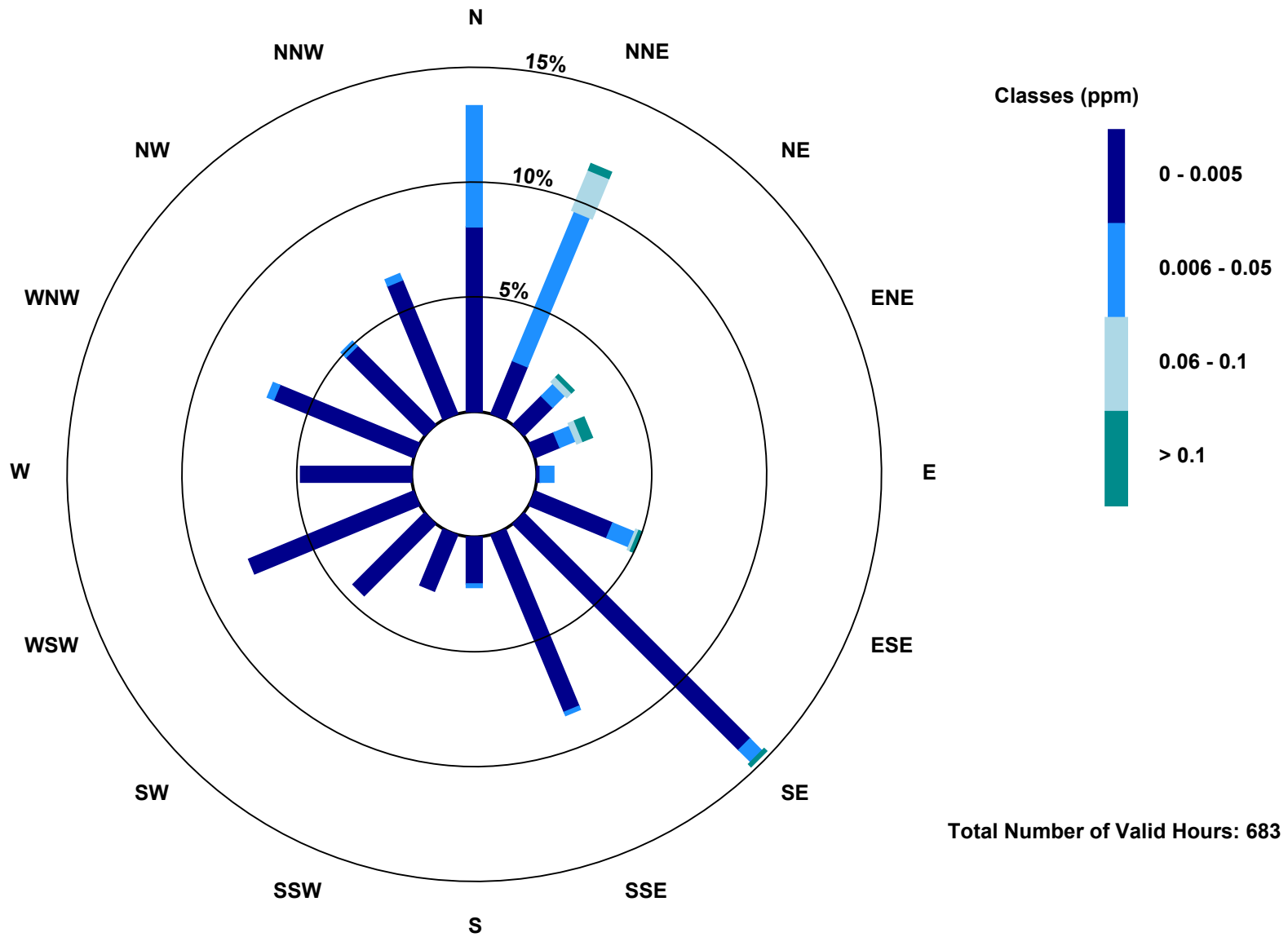
Total Number of Valid Hours: 683

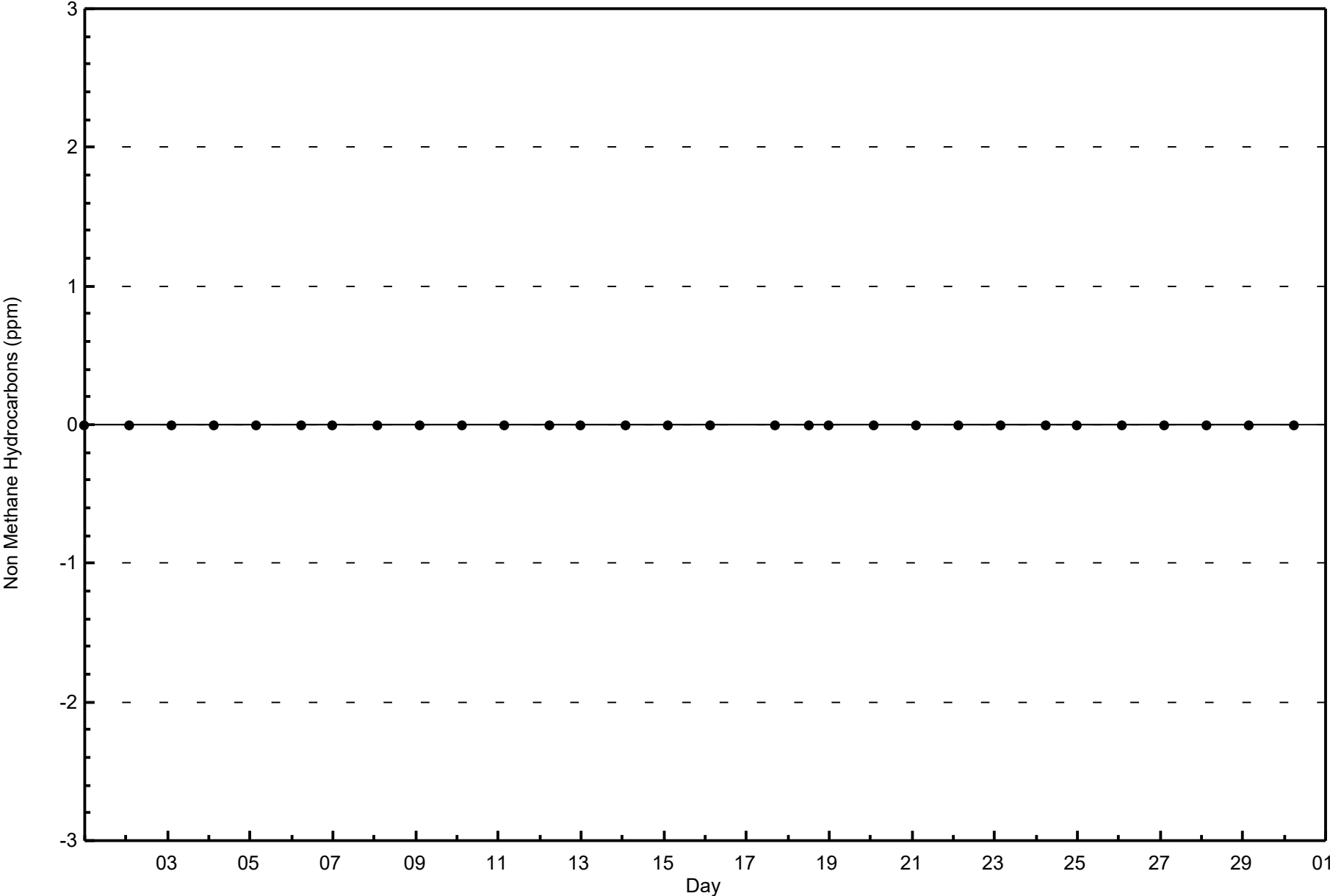
Total Number of Hours: 720

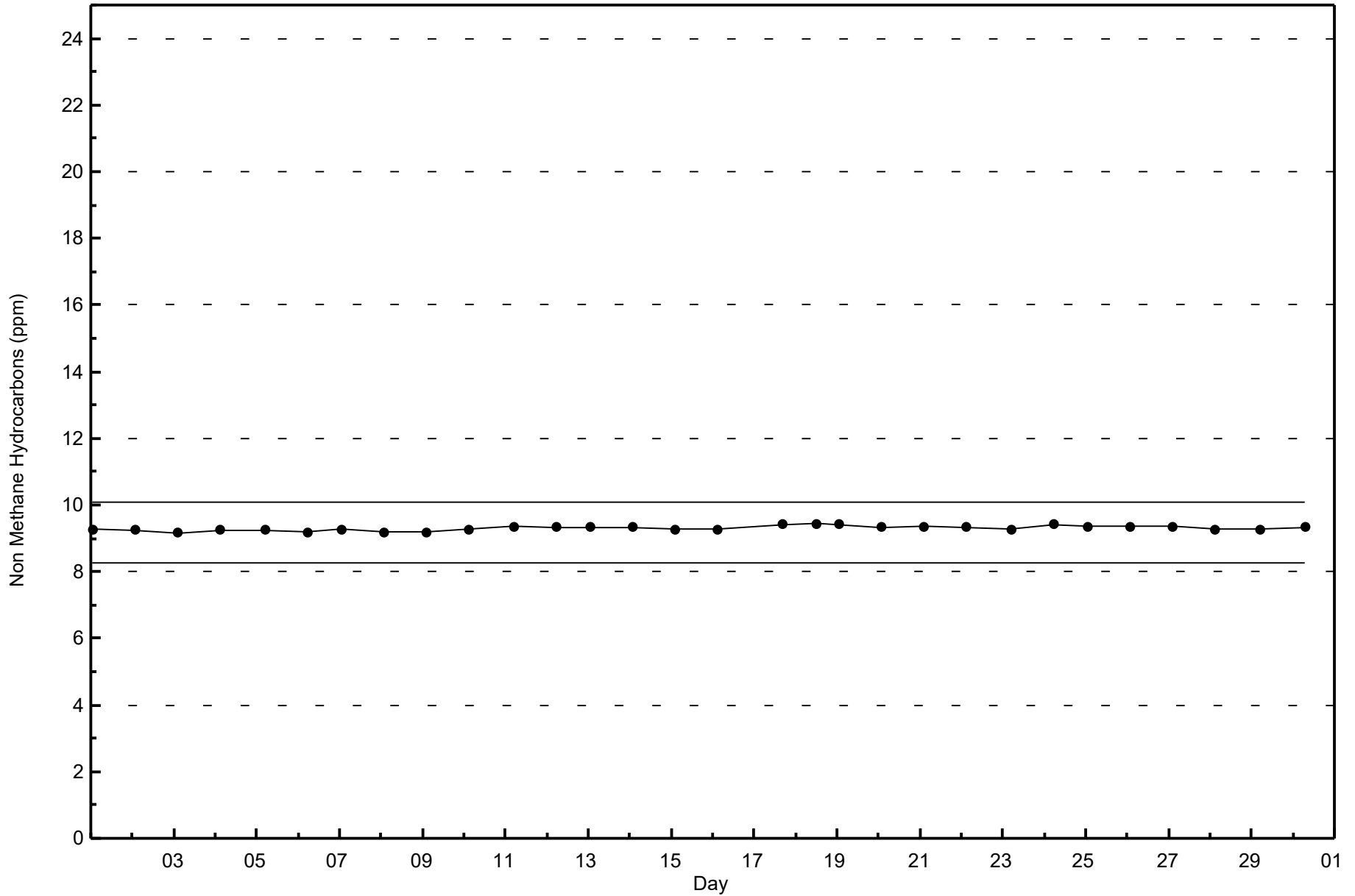


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mannix





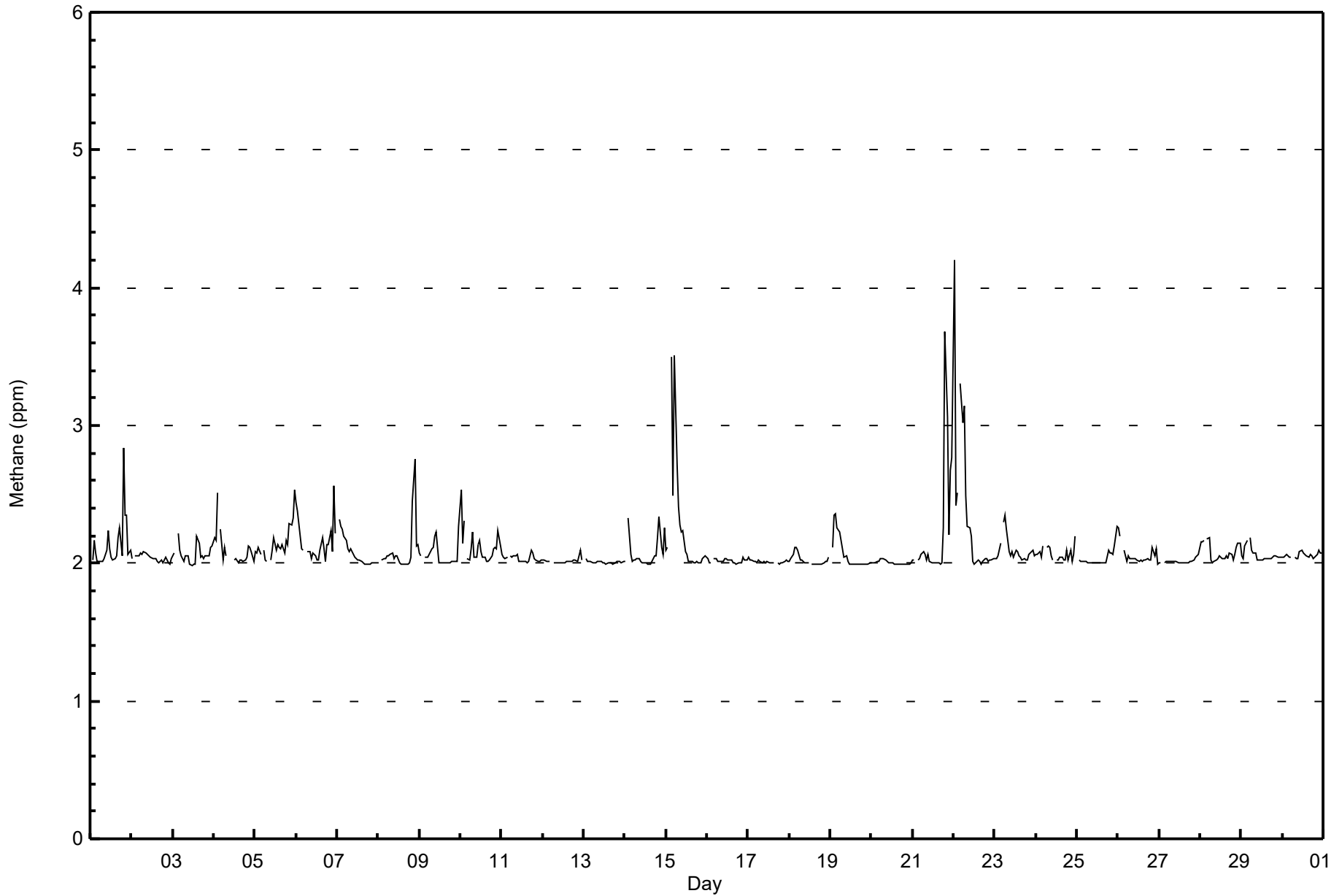






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Mannix - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Mannix - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	421	61.55	61.55
2.1 - 3.0	256	37.43	98.98
3.1 - 10.0	7	1.02	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mannix - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2.0	58	67	10	4	2	13	63	39	11	14	22	46	29	26	4	13	421
2.1 - 3.0	32	13	10	14	3	21	38	19	4	4	8	7	4	20	28	30	255
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	7
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	91	80	20	18	5	34	101	58	15	18	30	53	33	47	35	45	683

Total Number of Valid Hours: 683

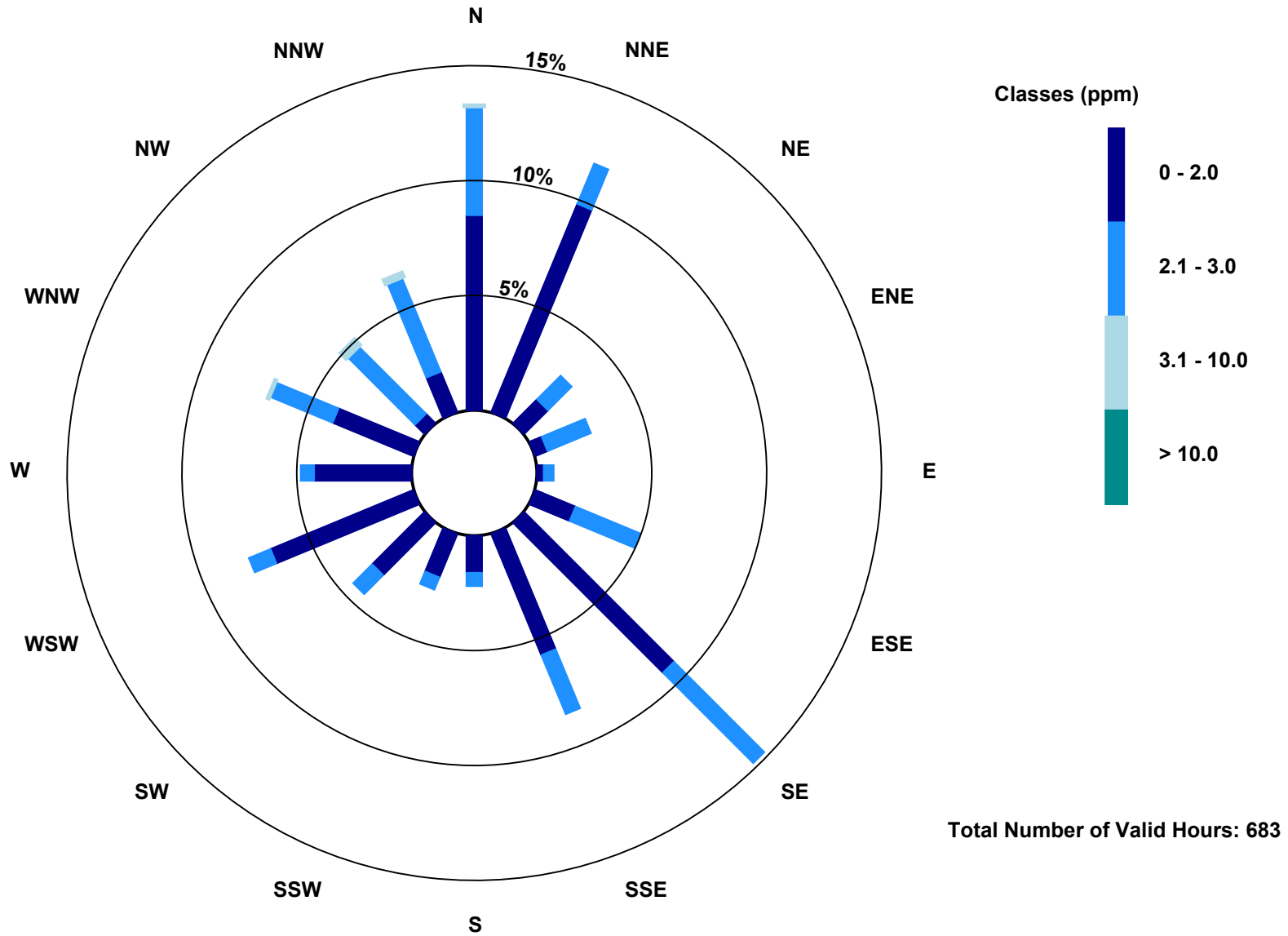
Total Number of Hours: 720

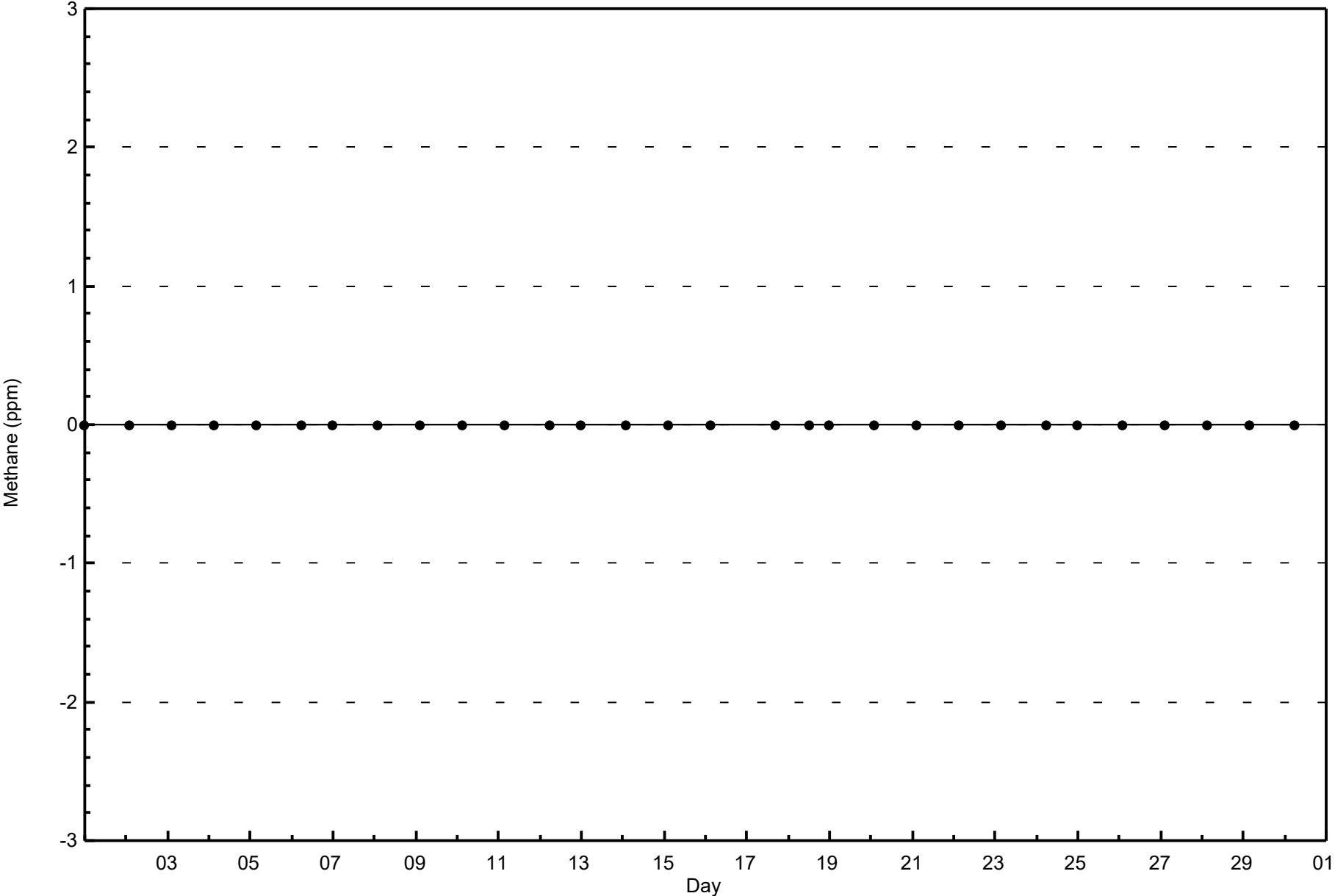


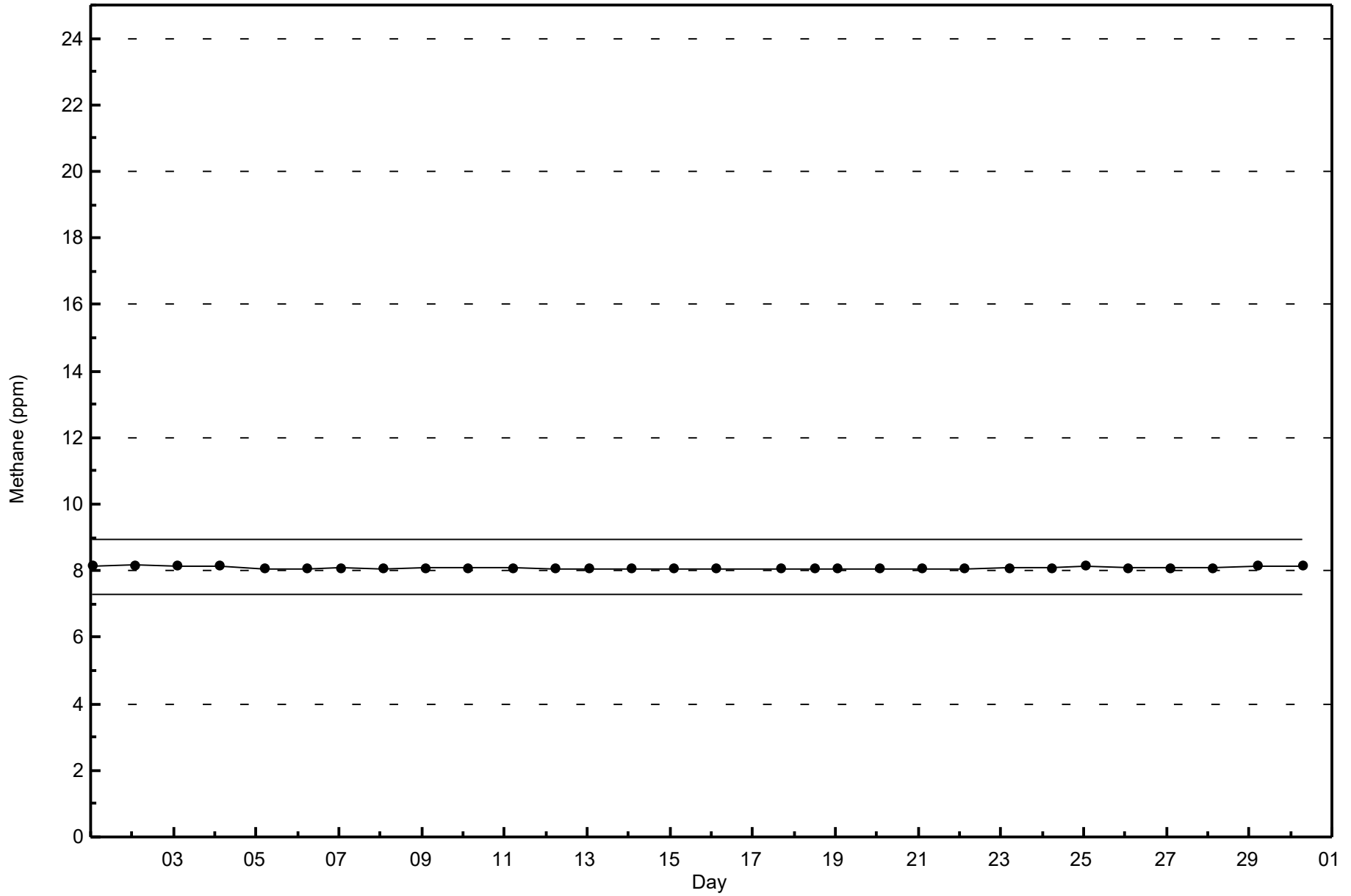


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

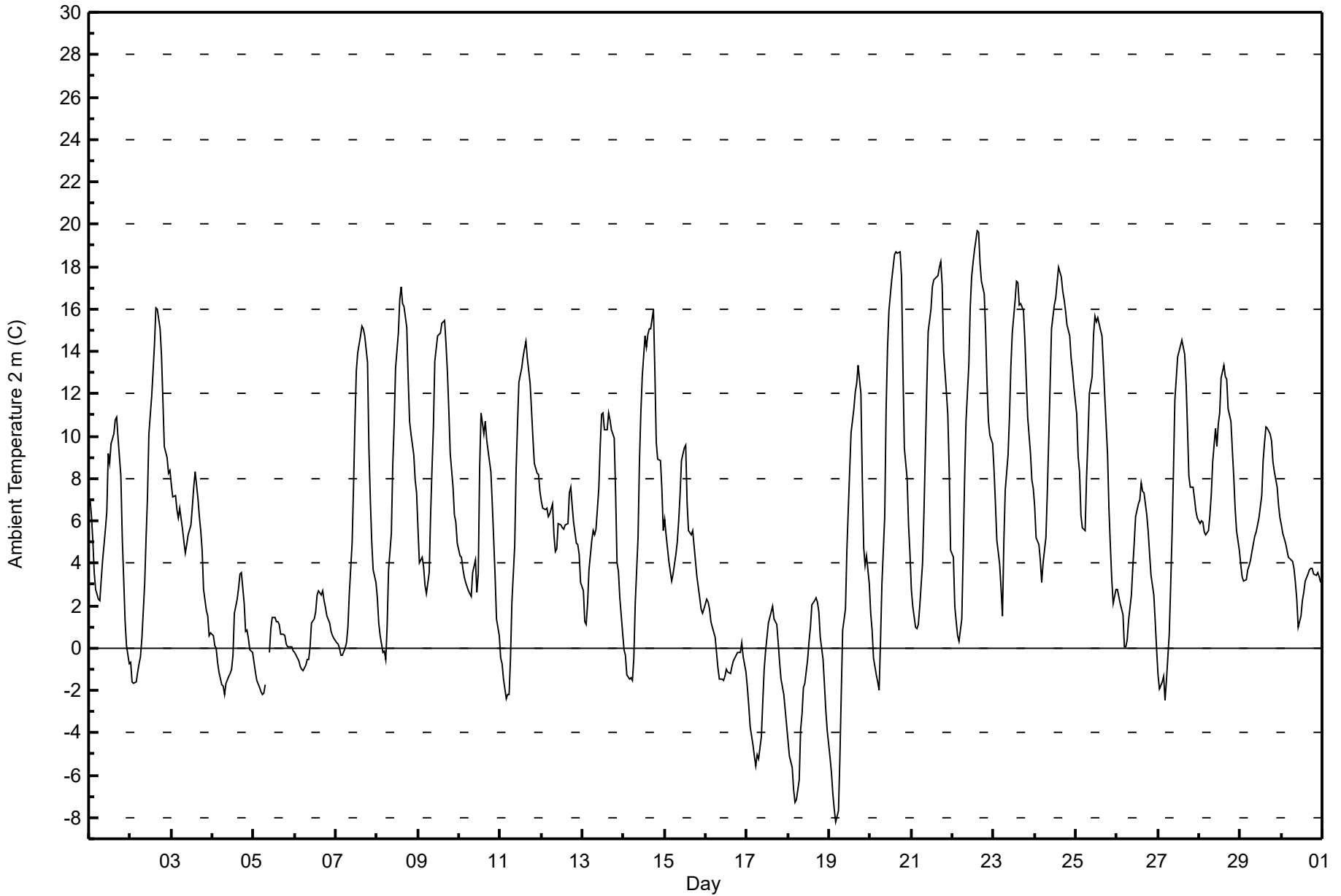








Maximum Value: 19.7 C on Apr 22 15:00		Maximum Daily Average: 11.7 C on Apr 24		Hours in Service: 720																							
Minimum Value: -8.2 C on Apr 19 05:00		Minimum Daily Average: -2.1 C on Apr 18		Hours of Data: 719																							
Maximum Diurnal Average: 10.6 C at hour 16		Minimum Diurnal Average: 0.7 C at hour 5		Hours of Missing Data: 1																							
Monthly Average: 5.63 C		Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -1.2 Q <sub>1</sub> = 1.1 Median = 5.0 Q <sub>3</sub> = 9.7 P <sub>90</sub> = 14.7 P <sub>99</sub> = 18.2		Hours of Calibration: 0																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	7.1	6.3	5.1	3.5	2.8	2.3	2.2	3.2	4.1	5.6	6.5	9.2	8.7	9.7	10.1	10.7	10.9	9.9	8.1	5.2	3.3	1.3	0.1	-0.7	5.6	10.9	
2-Apr	-0.7	-1.6	-1.6	-1.6	-1.1	-0.7	-0.4	0.4	3.0	5.2	7.1	10.1	11.9	13.1	14.3	16.1	16.0	15.1	13.8	11.7	9.5	9.0	8.2	8.4	6.9	16.1	
3-Apr	7.7	7.1	7.2	6.5	6.1	6.6	5.6	5.0	4.5	4.9	5.4	5.8	6.7	7.6	8.3	7.0	6.2	5.5	4.6	2.8	1.8	1.5	0.6	0.7	5.2	8.3	
4-Apr	0.6	0.1	0.0	-0.6	-1.1	-1.7	-1.8	-2.2	-1.7	-1.3	-1.2	-1.0	-0.4	1.7	2.3	2.8	3.5	3.6	2.1	0.8	0.9	0.5	-0.1	-0.2	0.2	3.6	
5-Apr	-0.7	-1.1	-1.5	-1.8	-2.1	-2.2	-2.1	-1.7	PF	-0.2	0.9	1.4	1.5	1.2	1.2	1.1	0.7	0.6	0.6	0.2	0.1	0.1	0.0	-0.1	-0.2	1.5	
6-Apr	-0.2	-0.3	-0.6	-0.9	-1.0	-1.0	-0.8	-0.5	0.1	1.2	1.4	1.7	2.5	2.7	2.5	2.7	2.2	1.9	1.5	1.2	0.8	0.6	0.4	0.7	2.7		
7-Apr	0.2	0.2	0.0	-0.4	-0.4	0.0	0.3	1.0	2.6	5.0	7.6	10.5	13.1	14.0	14.7	15.2	15.1	14.7	13.4	9.4	7.0	5.0	3.7	3.1	6.5	15.2	
8-Apr	2.4	1.2	0.6	-0.2	-0.2	-0.6	1.0	3.7	5.4	8.6	10.6	13.2	14.9	16.5	17.0	16.3	16.1	15.1	12.8	10.7	10.1	9.1	7.9	7.3	8.3	17.0	
9-Apr	5.6	4.0	4.3	3.8	3.0	2.6	3.5	6.3	8.4	10.4	13.5	14.7	14.8	14.8	15.3	15.4	14.3	13.0	11.2	9.2	7.6	6.3	5.9	5.0	8.9	15.4	
10-Apr	4.4	4.3	3.7	3.4	3.1	2.7	2.6	2.4	3.6	4.1	2.7	3.5	8.5	11.1	10.1	10.7	9.8	9.3	8.3	6.8	5.2	3.4	1.4	0.6	5.2	11.1	
11-Apr	-0.5	-0.7	-1.5	-2.4	-2.2	-2.2	-0.5	2.2	4.8	8.4	10.6	12.5	13.2	13.7	14.1	14.5	13.7	12.5	11.2	9.9	8.7	8.2	8.2	7.4	6.8	14.5	
12-Apr	7.0	6.6	6.5	6.6	6.2	6.3	6.8	5.4	4.6	4.7	5.9	5.8	5.7	5.6	5.8	5.9	7.3	7.6	6.8	5.9	5.0	4.9	4.4	3.1	5.8	7.6	
13-Apr	2.7	1.3	1.1	2.1	3.7	5.1	5.5	5.4	5.6	7.5	9.5	11.0	11.1	10.3	10.3	11.1	10.8	10.3	9.9	7.3	4.0	3.6	2.3	0.7	6.3	11.1	
14-Apr	-0.1	-0.3	-1.3	-1.5	-1.4	-1.5	-0.5	2.1	5.2	8.8	11.1	12.8	14.7	14.2	14.8	15.0	15.0	16.0	13.1	9.7	8.9	8.8	7.5	5.5	7.4	16.0	
15-Apr	6.0	5.4	4.1	3.6	3.1	3.5	4.4	5.0	6.0	7.3	8.9	9.5	9.5	6.8	5.6	5.3	5.5	4.8	4.1	3.4	2.4	1.8	1.6	1.9	5.0	9.5	
16-Apr	2.3	2.2	1.8	1.3	1.0	0.5	-0.2	-0.9	-1.4	-1.5	-1.6	-1.3	-1.0	-1.2	-1.2	-0.9	-0.6	-0.4	-0.2	-0.2	-0.2	0.2	-0.4	-1.2	-0.2	2.3	
17-Apr	-1.8	-2.7	-3.7	-4.6	-5.1	-5.5	-5.0	-5.2	-4.2	-2.5	-1.0	-0.2	1.2	1.5	1.7	2.0	1.4	1.1	0.2	-0.7	-1.4	-2.2	-2.9	-3.6	-1.8	2.0	
18-Apr	-4.4	-5.1	-5.6	-6.7	-7.3	-7.1	-6.2	-3.8	-3.1	-1.9	-1.6	-0.6	0.3	1.0	2.0	2.2	2.4	2.2	1.7	0.5	-0.5	-1.7	-3.0	-3.9	-2.1	2.4	
19-Apr	-5.1	-5.9	-6.9	-7.6	-8.2	-7.6	-5.2	-2.1	0.8	1.9	4.6	6.6	8.4	10.2	11.3	12.1	12.5	13.3	12.0	8.0	4.8	3.9	4.4	3.0	2.9	13.3	
20-Apr	1.6	0.9	-0.5	-1.3	-1.6	-2.0	0.3	3.0	6.2	11.3	14.2	15.9	17.4	18.0	18.6	18.7	18.6	18.7	17.5	13.2	9.4	8.0	5.8	4.5	9.0	18.7	
21-Apr	2.8	2.0	1.0	0.9	1.1	1.9	4.0	6.4	9.3	12.2	14.9	16.0	17.0	17.4	17.4	17.6	18.0	18.3	17.1	14.0	12.1	11.0	8.4	4.6	10.2	18.3	
22-Apr	4.3	2.0	1.2	0.6	0.3	1.4	4.6	8.0	10.7	13.4	16.1	17.5	18.2	18.8	19.7	19.6	18.1	17.3	16.7	15.0	12.5	10.7	10.0	9.6	11.1	19.7	
23-Apr	8.4	6.8	5.1	4.0	2.8	1.5	5.0	7.5	9.1	10.9	13.3	14.9	16.4	17.3	17.3	16.2	16.3	15.9	14.6	12.7	10.9	9.2	8.0	7.5	10.5	17.3	
24-Apr	6.7	5.2	4.9	4.2	3.1	4.0	5.2	7.4	9.8	12.4	15.1	16.2	16.5	17.2	18.0	17.5	16.8	16.5	15.9	15.3	14.7	13.7	13.1	12.3	11.7	18.0	
25-Apr	11.0	9.1	8.3	6.3	5.6	5.5	8.1	9.8	12.0	12.8	14.8	15.7	15.4	15.6	15.0	14.7	13.4	11.9	9.1	6.5	4.8	3.2	2.1	2.8	9.7	15.7	
26-Apr	2.8	2.5	2.1	1.6	0.1	0.0	0.4	1.3	2.5	3.8	4.9	6.2	6.8	7.0	7.8	7.4	7.3	6.3	5.5	4.4	3.5	2.5	1.3	-0.1	3.7	7.8	
27-Apr	-1.2	-1.9	-1.6	-1.3	-2.5	-1.5	0.7	2.9	5.3	8.3	11.7	13.8	14.0	14.3	14.6	13.9	12.6	10.4	8.1	7.6	7.6	7.1	6.5	6.2	6.5	14.6	
28-Apr	5.9	6.0	6.0	5.5	5.3	5.5	6.3	7.2	8.8	10.4	9.5	10.5	11.1	12.8	13.3	12.8	12.7	11.3	10.7	9.4	8.1	6.6	5.5	4.6	8.6	13.3	
29-Apr	4.0	3.3	3.2	3.3	3.7	3.9	4.2	4.6	5.2	5.5	5.8	6.2	7.2	8.9	9.7	10.4	10.4	10.1	9.8	8.8	8.3	7.6	6.7	6.1	6.5	10.4	
30-Apr	5.8	5.4	5.0	4.6	4.3	4.2	4.1	3.7	3.1	2.3	1.0	1.5	2.3	2.7	3.1	3.5	3.7	3.8	3.7	3.5	3.4	3.6	3.4	3.1	3.5	5.8	
		2.8	2.1	1.5	1.0	0.7	0.8	1.7	2.9	4.5	5.9	7.4	8.6	9.6	10.1	10.5	10.6	10.4	9.9	8.8	7.1	5.8	4.9	4.0	3.3	Diurnal Average	
		11.0	9.1	8.3	6.6	6.2	6.6	8.1	9.8	12.0	13.4	16.1	17.5	18.2	18.8	19.7	19.6	18.6	18.7	17.5	15.3	14.7	13.7	13.1	12.3	Diurnal Maximum	
PF - Power Failure																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2 m (AT2m) - C  
Mannix - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	130	18.08	18.08
0 - 10	417	58.00	76.08
10 - 20	172	23.92	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

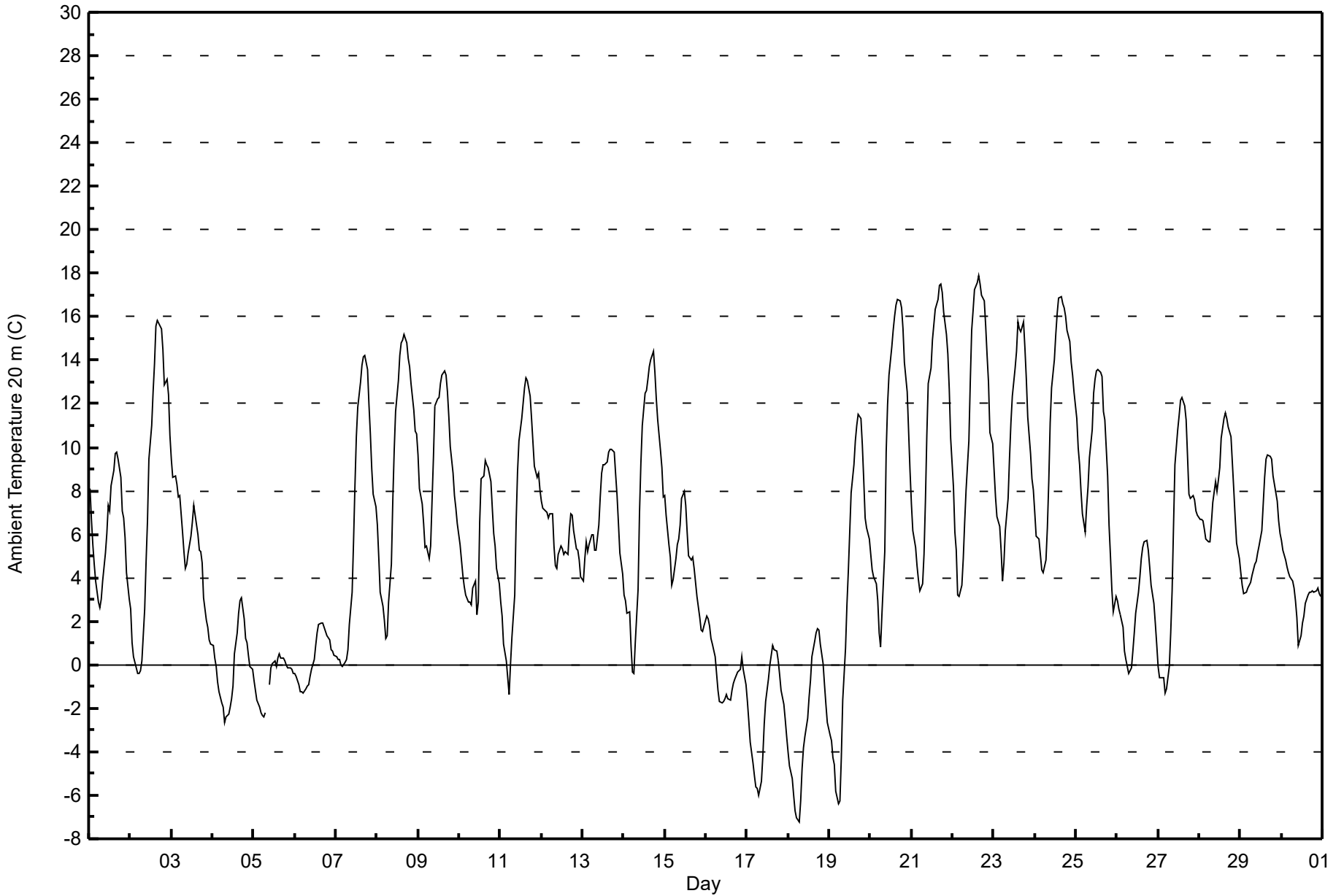
Total Number of Hours: 720



Summary of Hour Averages

Mannix - April 2024

Maximum Value: 17.9 C on Apr 22 16:00		Maximum Daily Average: 11.4 C on Apr 24		Hours in Service: 720																						
Minimum Value: -7.2 C on Apr 18 07:00		Minimum Daily Average: -2.6 C on Apr 18		Hours of Data: 719																						
Maximum Diurnal Average: 9.5 C at hour 17		Minimum Diurnal Average: 1.5 C at hour 6		Hours of Missing Data: 1																						
Monthly Average: 5.65 C		Percentiles: P <sub>1</sub> = -5.9 P <sub>10</sub> = -1.0 Q <sub>1</sub> = 1.3 Median = 5.3 Q <sub>3</sub> = 9.4 P <sub>90</sub> = 13.4 P <sub>99</sub> = 17.0		Hours of Calibration: 0																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	8.1	6.7	5.5	4.6	3.9	2.9	2.6	3.0	3.8	5.1	6.0	7.3	7.1	8.3	8.9	9.7	9.7	9.5	8.6	7.1	6.8	5.8	4.2	3.0	6.2	9.7
2-Apr	2.5	1.0	0.3	-0.2	-0.4	-0.4	-0.2	0.2	2.6	4.7	6.6	9.4	11.0	12.5	13.9	15.6	15.8	15.6	15.4	14.5	12.9	13.1	12.4	10.5	7.9	15.8
3-Apr	9.5	8.6	8.7	8.3	7.7	7.8	6.1	5.2	4.4	4.7	5.2	5.9	6.6	7.3	6.9	6.0	5.3	5.2	4.7	3.1	2.0	1.7	1.2	1.0	5.5	9.5
4-Apr	0.9	0.3	-0.1	-0.8	-1.2	-1.7	-1.9	-2.6	-2.4	-2.2	-2.0	-1.6	-1.0	0.5	1.4	2.4	3.0	3.0	2.1	1.2	1.0	0.5	-0.1	-0.2	-0.1	3.0
5-Apr	-0.7	-1.2	-1.7	-1.9	-2.2	-2.3	-2.4	-2.2	PF	-0.9	-0.1	0.1	0.2	-0.1	0.3	0.5	0.3	0.3	0.2	0.0	-0.1	-0.1	-0.2	-0.4	-0.6	0.5
6-Apr	-0.4	-0.6	-0.9	-1.2	-1.2	-1.3	-1.1	-1.0	-0.9	-0.6	-0.2	0.2	0.9	1.4	1.8	1.9	1.9	1.7	1.5	1.3	1.2	0.7	0.7	0.4	0.3	1.9
7-Apr	0.4	0.3	0.2	0.0	0.0	0.1	0.2	0.7	1.8	3.4	5.6	8.3	10.5	11.9	13.0	13.8	14.2	14.2	13.6	12.0	10.6	9.0	7.8	7.3	6.6	14.2
8-Apr	6.4	5.0	3.4	2.7	2.0	1.2	1.4	2.9	4.6	7.5	9.8	11.6	13.1	14.2	14.8	14.9	15.2	14.8	14.1	13.7	13.0	11.7	10.7	10.6	9.1	15.2
9-Apr	9.6	8.1	7.4	6.5	5.4	5.5	4.9	5.5	7.5	9.5	11.9	12.2	12.3	12.9	13.3	13.5	13.3	12.5	11.4	10.0	8.8	7.8	7.2	6.5	9.3	13.5
10-Apr	5.5	4.8	4.1	3.6	3.2	2.9	2.9	2.7	3.5	3.8	2.3	2.9	6.6	8.6	8.7	9.4	9.2	9.0	8.4	7.2	6.1	5.4	4.4	3.7	5.4	9.4
11-Apr	2.9	2.3	1.0	0.2	-0.6	-1.4	0.0	1.3	3.2	6.5	8.9	10.3	11.3	12.1	12.7	13.2	13.1	12.4	11.3	10.3	9.2	8.6	8.8	8.0	6.9	13.2
12-Apr	7.5	7.2	7.0	7.0	6.8	6.9	6.9	5.5	4.5	4.5	5.1	5.5	5.3	5.1	5.2	5.1	6.2	7.0	6.9	6.2	5.4	5.3	4.8	4.1	5.9	7.5
13-Apr	3.8	4.9	5.7	5.2	5.5	6.0	6.0	5.3	5.3	6.4	7.7	8.8	9.2	9.2	9.3	9.8	9.9	9.9	9.8	8.7	7.8	6.5	5.1	4.2	7.1	9.9
14-Apr	3.2	2.9	2.4	2.5	0.8	-0.4	-0.4	1.0	3.5	7.0	9.3	11.0	12.5	12.6	13.2	13.7	14.0	14.4	13.4	12.2	11.2	9.8	9.1	7.7	7.8	14.4
15-Apr	7.8	6.9	5.5	4.9	3.7	3.9	4.9	5.5	5.8	6.4	7.6	8.0	7.4	6.1	5.0	4.8	5.0	4.4	3.8	3.1	2.2	1.6	1.5	1.8	4.9	8.0
16-Apr	2.3	2.1	1.8	1.2	1.0	0.4	-0.4	-1.2	-1.7	-1.7	-1.7	-1.5	-1.4	-1.6	-1.6	-1.2	-0.8	-0.7	-0.3	-0.3	-0.2	0.4	-0.2	-0.9	-0.3	2.3
17-Apr	-1.7	-2.6	-3.6	-4.5	-5.1	-5.6	-5.7	-6.0	-5.4	-4.2	-2.7	-1.7	-0.7	0.0	0.4	0.9	0.7	0.6	0.2	-0.5	-1.2	-1.8	-2.5	-3.3	-2.3	0.9
18-Apr	-4.0	-4.7	-5.2	-6.0	-6.7	-7.0	-7.2	-6.3	-4.8	-3.8	-3.3	-2.5	-1.5	-0.7	0.4	1.1	1.5	1.7	1.6	0.9	0.0	-0.9	-1.8	-2.6	-2.6	1.7
19-Apr	-3.2	-3.5	-4.3	-4.6	-5.8	-6.4	-6.3	-4.3	-1.6	0.8	2.7	4.3	6.1	7.9	9.2	10.3	11.0	11.5	11.3	10.1	8.5	6.8	6.3	5.8	3.0	11.5
20-Apr	5.1	4.3	4.1	3.7	2.9	1.5	0.8	2.4	5.2	9.8	11.9	13.3	14.6	15.4	16.0	16.6	16.8	16.7	16.4	15.4	13.9	12.5	10.7	8.9	10.0	16.8
21-Apr	7.4	6.2	5.4	4.6	3.9	3.4	3.7	5.1	7.5	10.5	12.9	13.6	14.9	15.6	16.3	16.8	17.5	17.5	17.1	16.2	15.2	14.3	12.7	10.5	11.2	17.5
22-Apr	8.2	6.1	5.3	3.2	3.2	3.7	4.9	6.6	8.0	10.3	13.0	15.4	16.3	17.3	17.6	17.9	17.5	17.0	16.7	15.6	14.2	13.0	10.7	10.2	11.3	17.9
23-Apr	8.9	7.7	6.8	6.3	5.3	3.9	4.7	6.2	7.7	9.5	11.2	12.4	13.6	14.4	15.8	15.5	15.3	15.7	14.5	13.1	11.4	9.7	8.6	8.0	10.3	15.8
24-Apr	7.0	5.9	5.8	5.1	4.4	4.2	4.8	6.3	8.5	11.1	12.8	14.0	15.2	16.2	16.9	16.9	16.6	16.4	16.0	15.4	14.9	13.9	13.3	12.6	11.4	16.9
25-Apr	11.3	10.0	9.2	8.0	6.9	6.1	7.2	8.2	9.5	10.8	12.5	13.1	13.5	13.6	13.4	13.3	11.7	11.3	8.7	6.4	5.0	3.5	2.4	3.1	9.1	13.6
26-Apr	3.0	2.6	2.3	1.8	0.6	0.2	-0.1	-0.4	-0.1	0.7	1.5	2.3	3.3	4.0	4.9	5.4	5.7	5.7	5.2	4.5	3.7	2.8	1.9	1.0	2.6	5.7
27-Apr	-0.1	-0.6	-0.6	-0.6	-1.3	-1.1	-0.1	1.5	3.4	6.4	9.2	10.8	11.5	12.2	12.3	11.9	11.3	9.6	7.9	7.6	7.8	7.6	7.1	6.9	5.8	12.3
28-Apr	6.7	6.7	6.6	6.2	5.8	5.7	5.7	6.5	7.5	8.4	7.9	8.5	9.1	10.4	11.3	11.6	11.3	11.0	10.5	9.2	8.0	6.8	5.6	4.9	8.0	11.6
29-Apr	4.2	3.7	3.3	3.3	3.6	3.6	3.8	4.1	4.6	4.8	5.1	5.5	6.2	7.4	8.6	9.4	9.6	9.6	9.5	8.7	8.3	7.5	6.6	6.1	6.1	9.6
30-Apr	5.7	5.3	4.8	4.5	4.2	4.0	3.9	3.5	2.9	2.2	0.9	1.3	1.9	2.3	2.8	3.2	3.3	3.3	3.4	3.3	3.4	3.5	3.3	3.1	3.3	5.7
																								Diurnal Average		
																								Diurnal Maximum		
PF - Power Failure																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature 20 m (AT20m) - C**  
**Mannix - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	121	16.83	16.83
0 - 10	439	61.06	77.89
10 - 20	159	22.11	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

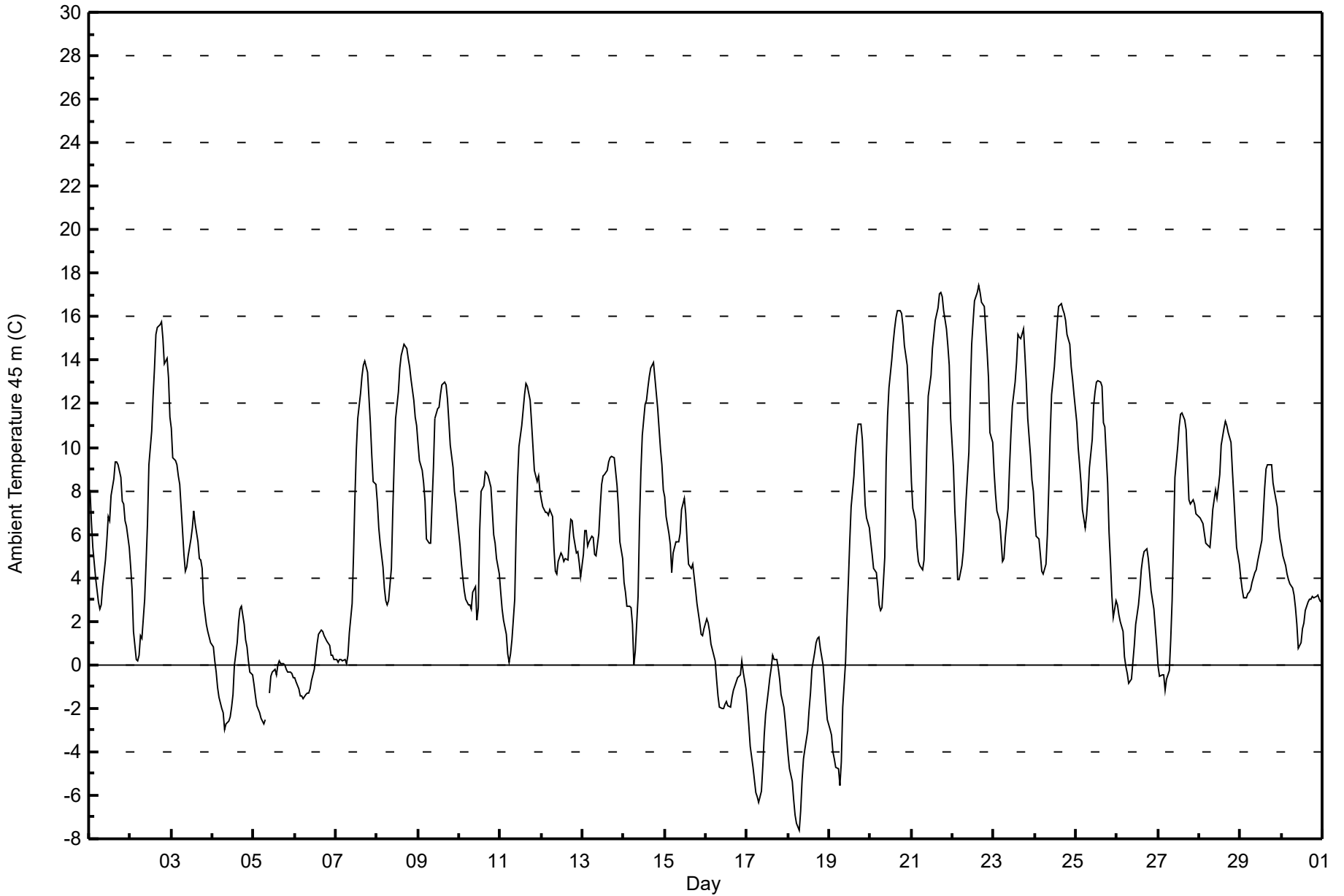
Total Number of Hours: 720



Summary of Hour Averages

Mannix - April 2024

Maximum Value: 17.4 C on Apr 22 16:00		Maximum Daily Average: 11.4 C on Apr 21		Hours in Service: 720																						
Minimum Value: -7.6 C on Apr 18 07:00		Minimum Daily Average: -2.9 C on Apr 18		Hours of Data: 719																						
Maximum Diurnal Average: 9.1 C at hour 17		Minimum Diurnal Average: 1.8 C at hour 7		Hours of Missing Data: 1																						
Monthly Average: 5.56 C		Percentiles: P <sub>1</sub> = -5.9 P <sub>10</sub> = -1.3 Q <sub>1</sub> = 1.3 Median = 5.4 Q <sub>3</sub> = 9.2 P <sub>90</sub> = 13.2 P <sub>99</sub> = 16.7		Hours of Calibration: 0																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	8.0	6.6	5.4	4.7	4.0	2.9	2.6	2.8	3.6	4.8	5.7	6.8	6.6	7.8	8.5	9.3	9.3	9.2	8.6	7.6	7.4	6.6	6.3	5.4	6.3	9.3
2-Apr	4.5	3.5	1.6	0.3	0.2	0.4	1.4	1.2	3.0	4.7	6.5	9.2	10.7	12.3	13.6	15.2	15.5	15.6	15.8	15.0	13.8	14.1	13.2	11.4	8.4	15.8
3-Apr	10.9	9.5	9.4	9.2	8.7	8.3	6.2	5.0	4.3	4.5	5.0	5.8	6.3	7.1	6.5	5.6	4.9	4.8	4.5	2.9	1.9	1.5	1.3	1.0	5.6	10.9
4-Apr	0.8	0.2	-0.3	-1.1	-1.5	-2.0	-2.2	-2.9	-2.7	-2.6	-2.4	-2.0	-1.4	0.0	1.0	2.0	2.6	2.7	1.9	1.2	0.8	0.2	-0.3	-0.5	-0.4	2.7
5-Apr	-0.9	-1.4	-1.9	-2.2	-2.5	-2.6	-2.7	-2.6	PF	-1.3	-0.5	-0.3	-0.2	-0.5	0.0	0.2	0.1	0.1	0.0	-0.2	-0.3	-0.3	-0.4	-0.6	-0.9	0.2
6-Apr	-0.6	-0.8	-1.1	-1.4	-1.4	-1.5	-1.4	-1.3	-1.3	-1.1	-0.7	-0.2	0.4	0.9	1.4	1.6	1.5	1.4	1.2	1.1	0.9	0.5	0.5	0.3	-0.1	1.6
7-Apr	0.2	0.1	0.3	0.3	0.2	0.3	0.1	0.4	1.5	2.8	5.1	7.7	9.9	11.4	12.5	13.3	13.8	14.0	13.5	12.3	11.1	9.7	8.4	8.3	6.5	14.0
8-Apr	7.5	6.3	5.6	4.5	3.5	2.9	2.8	3.0	4.4	7.1	9.3	11.3	12.6	13.6	14.2	14.5	14.8	14.5	14.1	13.7	13.2	12.1	11.4	11.0	9.5	14.8
9-Apr	10.1	9.4	8.9	8.4	7.5	5.8	5.6	5.6	7.4	9.1	11.3	11.7	11.8	12.4	12.8	13.0	12.9	12.2	11.2	10.1	9.1	8.0	7.4	6.7	9.5	13.0
10-Apr	5.4	4.6	4.0	3.4	3.0	2.8	2.7	2.5	3.3	3.6	2.0	2.6	6.2	8.0	8.3	8.9	8.8	8.7	8.2	7.1	6.0	5.6	4.9	4.2	5.2	8.9
11-Apr	3.4	2.6	2.0	1.4	0.5	0.1	0.5	1.1	3.0	6.1	8.5	10.0	11.0	11.7	12.4	12.9	12.8	12.2	11.1	10.1	9.0	8.5	8.7	8.0	7.0	12.9
12-Apr	7.6	7.2	7.0	7.0	6.9	7.2	6.8	5.3	4.3	4.2	4.8	5.2	5.0	4.7	4.9	4.8	5.9	6.7	6.6	5.9	5.2	5.2	4.7	4.1	5.7	7.6
13-Apr	5.1	6.2	6.2	5.4	5.6	5.9	5.8	5.1	5.0	6.0	7.3	8.3	8.7	8.8	8.9	9.3	9.5	9.6	9.5	8.9	8.2	7.2	5.7	4.9	7.1	9.6
14-Apr	3.8	3.3	2.7	2.7	2.6	1.9	0.0	0.6	3.1	6.5	8.9	10.5	12.0	12.1	12.7	13.2	13.6	13.9	13.2	12.5	11.8	9.9	9.2	8.0	7.9	13.9
15-Apr	7.7	6.8	6.1	5.5	4.3	5.1	5.6	5.7	5.7	6.1	7.2	7.7	7.0	5.7	4.6	4.4	4.6	4.0	3.5	2.8	1.9	1.4	1.3	1.6	4.8	7.7
16-Apr	2.1	1.9	1.5	0.9	0.7	0.2	-0.7	-1.4	-1.9	-2.0	-2.0	-1.8	-1.7	-1.9	-1.9	-1.5	-1.1	-1.0	-0.6	-0.5	-0.4	0.2	-0.3	-1.1	-0.6	2.1
17-Apr	-1.9	-2.8	-3.8	-4.7	-5.3	-5.9	-6.0	-6.4	-5.8	-4.7	-3.2	-2.2	-1.2	-0.6	-0.1	0.4	0.3	0.2	-0.1	-0.7	-1.3	-2.0	-2.6	-3.4	-2.7	0.4
18-Apr	-4.1	-4.8	-5.4	-6.2	-6.9	-7.3	-7.6	-6.7	-5.3	-4.4	-3.9	-3.0	-2.1	-1.3	-0.2	0.6	1.0	1.2	1.3	0.8	0.0	-0.9	-1.8	-2.5	-2.9	1.3
19-Apr	-3.0	-3.2	-4.0	-4.4	-4.7	-4.8	-5.6	-4.5	-1.9	0.1	2.1	3.8	5.7	7.3	8.7	9.8	10.6	11.0	11.1	10.4	8.9	7.4	6.8	6.3	3.1	11.1
20-Apr	5.6	5.0	4.4	4.3	3.6	2.8	2.5	2.6	4.9	9.3	11.4	12.8	14.0	14.8	15.5	16.0	16.3	16.3	16.1	15.6	14.7	13.8	12.3	10.4	10.2	16.3
21-Apr	8.4	7.2	6.6	5.4	4.8	4.5	4.4	4.8	7.1	10.0	12.4	13.3	14.5	15.2	15.8	16.4	17.0	17.1	16.9	16.3	15.5	14.7	13.8	11.3	11.4	17.1
22-Apr	9.0	7.1	5.8	3.9	3.9	4.6	5.2	6.3	7.6	9.8	12.5	14.7	15.8	16.7	17.1	17.4	17.1	16.7	16.5	15.5	14.4	13.2	10.7	10.2	11.3	17.4
23-Apr	8.9	7.8	7.0	6.7	5.7	4.7	4.9	5.9	7.2	9.0	10.6	11.9	13.0	13.9	15.2	15.1	15.0	15.4	14.2	12.9	11.4	9.6	8.5	8.0	10.1	15.4
24-Apr	6.8	5.9	5.8	5.1	4.3	4.2	4.6	5.9	8.1	10.6	12.4	13.7	14.7	15.7	16.5	16.6	16.3	16.1	15.8	15.2	14.7	13.7	13.1	12.4	11.2	16.6
25-Apr	11.1	9.9	9.2	8.4	7.2	6.3	6.9	7.8	9.1	10.4	11.9	12.6	13.0	13.0	13.0	12.8	11.1	10.9	8.4	6.1	4.8	3.2	2.2	2.9	8.8	13.0
26-Apr	2.7	2.3	2.0	1.5	0.4	0.0	-0.4	-0.8	-0.6	0.1	0.9	1.8	2.7	3.5	4.4	4.9	5.2	5.3	4.9	4.2	3.4	2.6	1.7	0.9	2.2	5.3
27-Apr	-0.1	-0.5	-0.5	-0.5	-1.2	-0.7	-0.3	1.1	3.0	5.8	8.6	10.0	11.0	11.5	11.6	11.2	10.8	9.2	7.6	7.4	7.6	7.4	6.9	6.9	5.6	11.6
28-Apr	6.7	6.6	6.5	6.1	5.6	5.5	5.4	6.2	7.2	8.1	7.6	8.1	8.7	10.1	10.9	11.2	11.0	10.7	10.2	8.9	7.8	6.5	5.4	4.6	7.7	11.2
29-Apr	4.0	3.4	3.1	3.1	3.3	3.3	3.5	3.8	4.3	4.4	4.8	5.1	5.7	6.8	8.1	9.0	9.2	9.2	9.2	8.4	8.0	7.3	6.4	5.8	5.8	9.2
30-Apr	5.4	5.0	4.5	4.2	3.9	3.7	3.5	3.2	2.6	1.9	0.7	1.0	1.6	1.9	2.5	2.9	3.0	3.0	3.1	3.1	3.1	3.2	3.0	2.9	3.1	5.4
																								Diurnal Average		
																								Diurnal Maximum		
PF - Power Failure																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 45 m (AT45m) - C  
Mannix - April 2024**

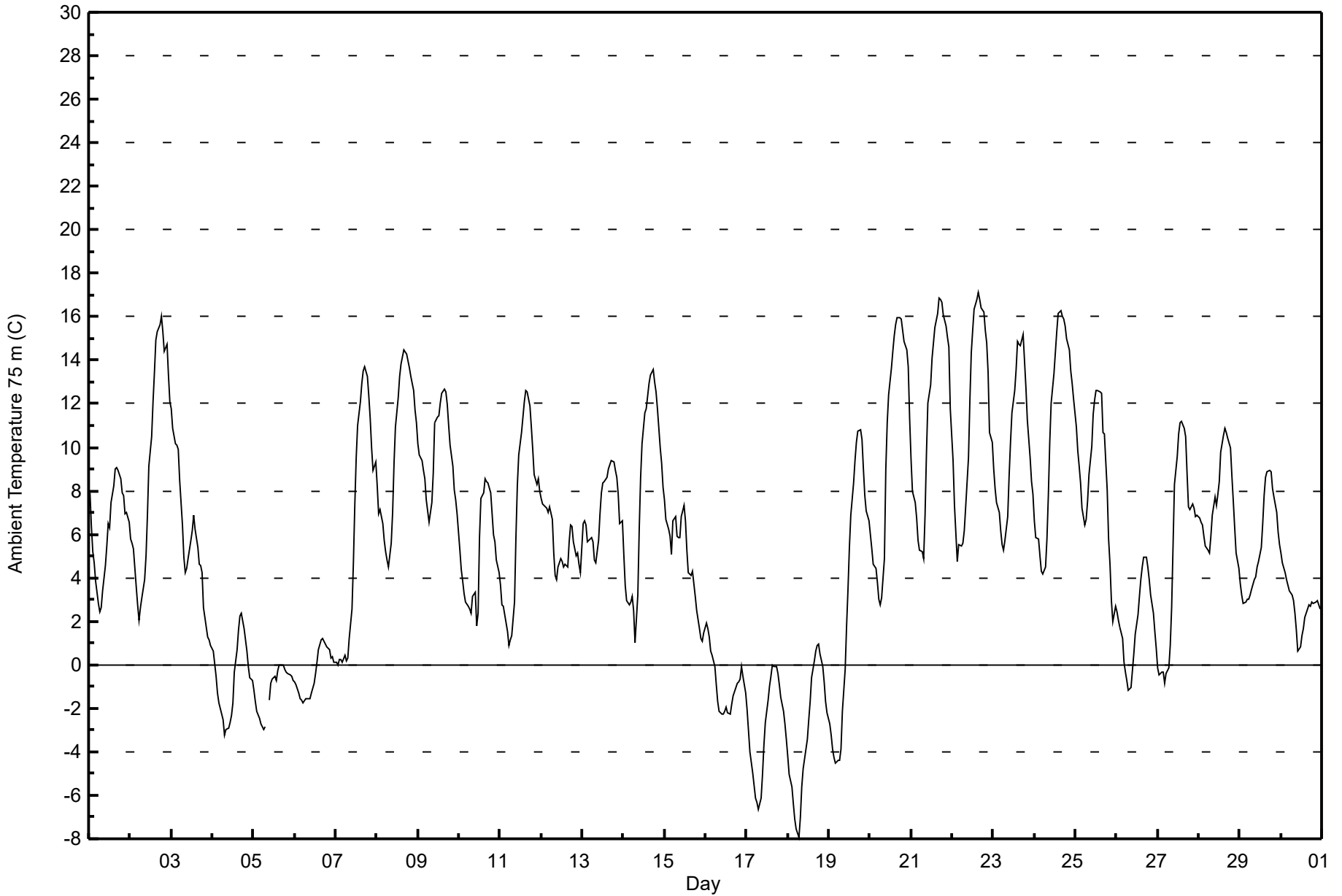
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	123	17.11	17.11
0 - 10	437	60.78	77.89
10 - 20	159	22.11	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



Maximum Value: 17.1 C on Apr 22 16:00		Maximum Daily Average: 11.6 C on Apr 21		Hours in Service: 720																						
Minimum Value: -7.9 C on Apr 18 07:00		Minimum Daily Average: -3.1 C on Apr 18		Hours of Data: 719																						
Maximum Diurnal Average: 8.8 C at hour 17		Minimum Diurnal Average: 2.0 C at hour 8		Hours of Missing Data: 1																						
Monthly Average: 5.51 C		Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -1.5 Q <sub>1</sub> = 1.2 Median = 5.5 Q <sub>3</sub> = 9.2 P <sub>90</sub> = 13.0 P <sub>99</sub> = 16.4		Hours of Calibration: 0																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	7.9	6.4	5.2	4.7	3.9	2.8	2.4	2.6	3.4	4.5	5.4	6.5	6.3	7.5	8.2	9.0	9.1	9.0	8.5	7.9	7.8	7.0	7.0	6.5	6.2	9.1
2-Apr	5.8	5.6	5.3	3.6	2.8	2.1	2.6	3.1	3.9	5.0	6.9	9.1	10.5	12.1	13.5	14.9	15.3	15.6	16.0	15.3	14.4	14.7	13.3	12.1	9.3	16.0
3-Apr	11.7	10.9	10.2	10.1	9.9	8.5	6.4	4.9	4.2	4.5	4.9	5.7	6.2	6.9	6.2	5.4	4.6	4.5	4.2	2.7	1.7	1.3	1.2	0.9	5.7	11.7
4-Apr	0.7	0.1	-0.5	-1.3	-1.8	-2.3	-2.5	-3.2	-3.0	-2.9	-2.7	-2.3	-1.7	-0.3	0.7	1.6	2.2	2.4	1.7	1.2	0.6	0.0	-0.6	-0.7	-0.6	2.4
5-Apr	-1.2	-1.7	-2.1	-2.5	-2.7	-2.9	-3.0	-2.9	PF	-1.6	-0.8	-0.6	-0.5	-0.7	-0.3	0.0	0.0	0.0	-0.2	-0.3	-0.4	-0.5	-0.5	-0.7	-1.1	0.0
6-Apr	-0.8	-0.9	-1.3	-1.6	-1.6	-1.7	-1.6	-1.6	-1.5	-1.5	-1.3	-0.8	-0.4	0.1	0.7	1.2	1.2	1.1	1.0	0.8	0.7	0.3	0.4	0.1	-0.4	1.2
7-Apr	0.1	0.0	0.2	0.2	0.1	0.4	0.2	0.3	1.2	2.5	4.7	7.3	9.5	11.0	12.1	12.9	13.5	13.7	13.3	12.4	11.3	10.0	8.9	9.3	6.5	13.7
8-Apr	8.3	7.0	7.1	6.5	5.7	5.2	4.8	4.5	5.6	7.0	9.2	10.9	12.3	13.3	13.8	14.2	14.5	14.3	14.0	13.6	13.3	12.6	11.7	11.1	10.0	14.5
9-Apr	10.2	9.6	9.4	9.0	8.5	7.6	6.6	7.0	7.5	8.8	11.1	11.4	11.4	12.0	12.5	12.6	12.6	12.0	11.0	10.1	9.1	8.0	7.6	6.9	9.7	12.6
10-Apr	5.3	4.4	3.8	3.3	2.9	2.7	2.6	2.4	3.1	3.3	1.8	2.4	5.9	7.6	7.9	8.5	8.5	8.3	7.9	7.0	6.0	5.6	4.8	4.3	5.0	8.5
11-Apr	3.7	2.8	2.7	1.9	1.5	0.9	1.2	1.3	2.9	5.9	8.2	9.7	10.7	11.4	12.1	12.6	12.5	11.9	10.9	9.9	8.8	8.3	8.6	8.0	7.0	12.6
12-Apr	7.7	7.4	7.2	7.2	7.0	7.3	6.7	5.1	4.1	3.9	4.5	4.9	4.7	4.5	4.6	4.5	5.6	6.4	6.4	5.7	5.0	5.1	4.6	4.2	5.6	7.7
13-Apr	6.5	6.6	6.4	5.6	5.7	5.9	5.6	4.8	4.7	5.7	6.9	7.9	8.3	8.4	8.6	9.0	9.2	9.4	9.3	8.9	8.6	7.8	6.5	6.6	7.2	9.4
14-Apr	5.1	3.7	3.0	2.8	2.9	3.1	2.5	1.0	3.2	6.2	8.6	10.2	11.6	11.8	12.4	12.9	13.3	13.6	13.0	12.5	11.8	10.0	9.3	8.2	8.0	13.6
15-Apr	7.6	6.7	6.2	5.9	5.1	6.6	6.8	5.9	5.8	5.8	6.8	7.4	6.6	5.3	4.3	4.1	4.3	3.7	3.2	2.5	1.6	1.2	1.1	1.5	4.8	7.6
16-Apr	1.9	1.6	1.3	0.7	0.5	-0.1	-0.9	-1.7	-2.2	-2.3	-2.2	-2.1	-2.0	-2.2	-2.2	-1.8	-1.4	-1.3	-0.9	-0.8	-0.7	0.0	-0.6	-1.3	-0.9	1.9
17-Apr	-2.1	-3.0	-4.0	-5.0	-5.5	-6.1	-6.3	-6.7	-6.2	-5.0	-3.7	-2.6	-1.6	-1.0	-0.5	0.0	-0.1	-0.1	-0.4	-0.9	-1.5	-2.1	-2.7	-3.4	-2.9	0.0
18-Apr	-4.2	-5.0	-5.6	-6.4	-7.1	-7.6	-7.9	-7.1	-5.6	-4.8	-4.3	-3.5	-2.5	-1.7	-0.6	0.2	0.6	0.9	1.0	0.5	-0.1	-0.8	-1.7	-2.2	-3.1	1.0
19-Apr	-2.7	-3.2	-3.9	-4.3	-4.5	-4.4	-4.4	-3.9	-2.2	-0.2	1.8	3.5	5.4	6.9	8.4	9.4	10.2	10.7	10.8	10.3	9.0	7.8	7.1	6.6	3.1	10.8
20-Apr	6.0	5.4	4.6	4.5	3.8	3.0	2.8	3.1	4.9	9.0	11.1	12.4	13.6	14.4	15.1	15.6	15.9	16.0	15.9	15.4	14.9	14.5	13.7	11.3	10.3	16.0
21-Apr	9.4	7.9	7.4	6.8	5.7	5.3	5.2	4.9	6.9	9.7	12.0	12.9	14.1	14.8	15.5	16.1	16.9	16.8	16.7	16.1	15.6	15.1	14.6	11.8	11.6	16.9
22-Apr	9.4	7.4	6.1	4.8	5.5	5.5	5.6	6.2	7.3	9.5	12.1	14.3	15.4	16.4	16.8	17.1	16.8	16.4	16.2	15.4	14.8	13.4	10.7	10.2	11.4	17.1
23-Apr	9.0	8.1	7.5	7.0	6.2	5.5	5.3	5.7	6.8	8.7	10.3	11.6	12.6	13.6	14.8	14.8	14.7	15.2	13.9	12.7	11.3	9.5	8.4	7.8	10.0	15.2
24-Apr	6.6	5.8	5.8	5.0	4.3	4.2	4.5	5.8	7.8	10.2	12.1	13.4	14.4	15.3	16.1	16.3	16.0	15.9	15.6	15.0	14.5	13.5	12.9	12.2	11.0	16.3
25-Apr	11.0	9.9	9.2	8.3	7.2	6.4	6.7	7.5	8.7	10.0	11.5	12.2	12.6	12.6	12.6	12.5	10.7	10.6	8.0	5.8	4.6	3.0	2.0	2.7	8.6	12.6
26-Apr	2.5	2.0	1.7	1.2	0.1	-0.3	-0.7	-1.2	-1.0	-0.3	0.5	1.4	2.3	3.1	3.9	4.5	4.9	5.0	4.5	3.9	3.2	2.4	1.5	0.8	1.9	5.0
27-Apr	-0.1	-0.5	-0.3	-0.3	-0.8	-0.4	-0.2	0.9	2.7	5.5	8.3	9.6	10.6	11.1	11.2	10.8	10.5	8.8	7.3	7.1	7.4	7.2	6.8	6.9	5.4	11.2
28-Apr	6.8	6.6	6.4	5.9	5.5	5.3	5.1	5.9	6.9	7.7	7.3	7.8	8.4	9.8	10.5	10.9	10.7	10.4	9.9	8.7	7.5	6.3	5.1	4.4	7.5	10.9
29-Apr	3.7	3.2	2.8	2.9	3.0	3.0	3.2	3.5	3.9	4.1	4.5	4.8	5.4	6.5	7.8	8.6	8.9	8.9	8.9	8.1	7.7	7.0	6.1	5.5	5.5	8.9
30-Apr	5.2	4.7	4.3	3.9	3.7	3.4	3.2	2.9	2.3	1.6	0.6	0.8	1.4	1.7	2.2	2.6	2.7	2.7	2.9	2.8	2.9	2.9	2.8	2.6	2.8	5.2
																								Diurnal Average		
																								Diurnal Maximum		
4.7 4.0 3.5 3.0 2.6 2.3 2.1 2.0 3.0 4.0 5.2 6.2 7.1 7.7 8.3 8.7 8.8 8.8 8.3 7.7 7.0 6.4 5.7 5.1 11.7 10.9 10.2 10.1 9.9 8.5 6.8 7.5 8.7 10.2 12.1 14.3 15.4 16.4 16.8 17.1 16.9 16.8 16.7 16.1 15.6 15.1 14.6 12.2																										
PF - Power Failure																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature 75 m (AT75m) - C**  
**Mannix - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	134	18.64	18.64
0 - 10	429	59.67	78.30
10 - 20	156	21.70	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720

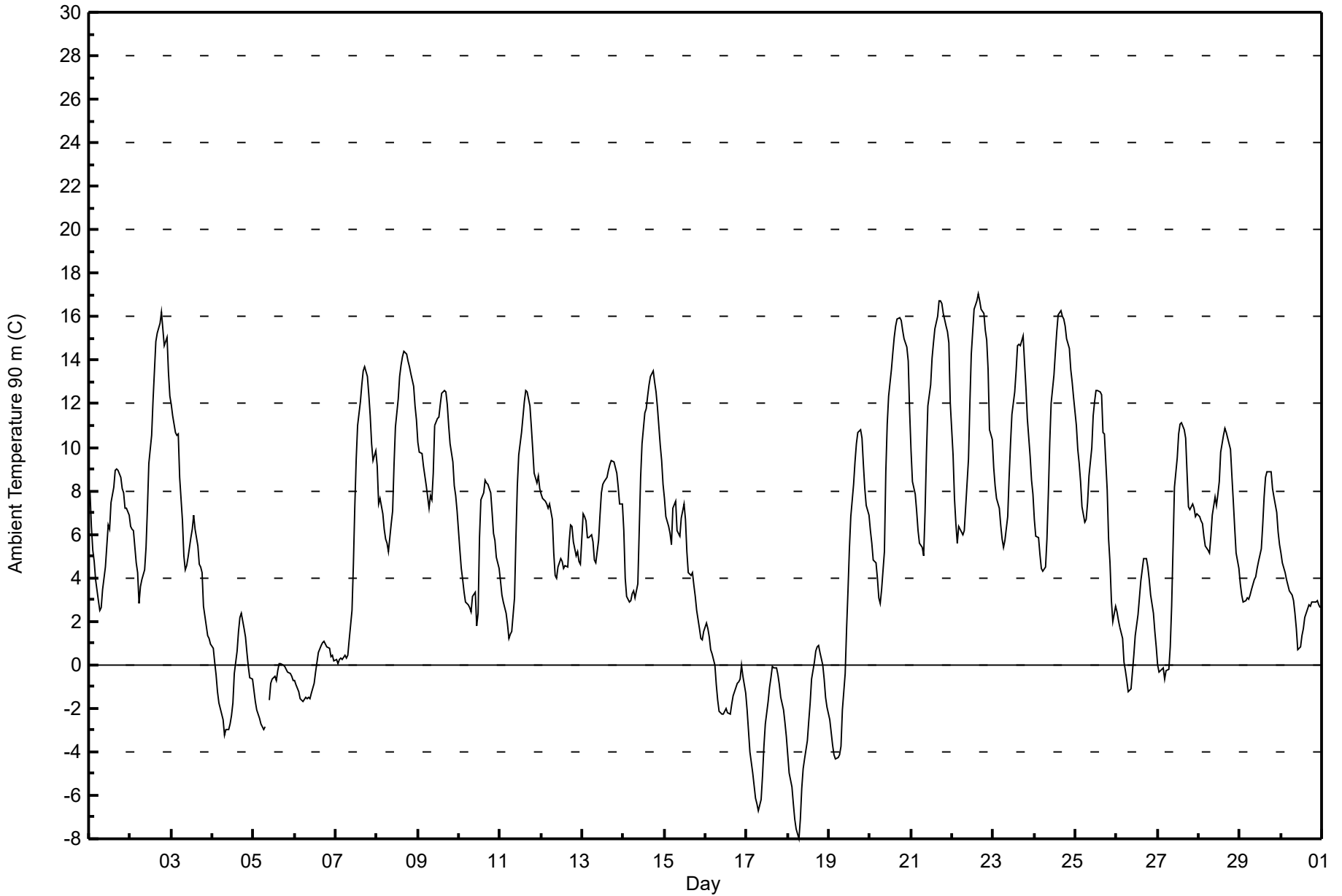


Summary of Hour Averages

Mannix - April 2024

Maximum Value: 17.1 C on Apr 22 16:00		Maximum Daily Average: 11.7 C on Apr 21		Hours in Service: 720																						
Minimum Value: -8.0 C on Apr 18 07:00		Minimum Daily Average: -3.1 C on Apr 18		Hours of Data: 719																						
Maximum Diurnal Average: 8.8 C at hour 17		Minimum Diurnal Average: 2.2 C at hour 8		Hours of Missing Data: 1																						
Monthly Average: 5.59 C		Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -1.5 Q <sub>1</sub> = 1.3 Median = 5.7 Q <sub>3</sub> = 9.3 P <sub>90</sub> = 13.0 P <sub>99</sub> = 16.3		Hours of Calibration: 0																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	8.0	6.4	5.3	4.8	3.9	2.9	2.5	2.6	3.4	4.5	5.4	6.5	6.2	7.4	8.2	9.0	9.0	8.9	8.6	8.1	7.9	7.2	7.2	6.9	6.3	9.0
2-Apr	6.3	6.2	6.2	4.7	4.2	2.8	3.6	3.9	4.4	5.4	7.2	9.2	10.5	12.2	13.5	14.9	15.3	15.7	16.2	15.5	14.7	15.1	13.4	12.4	9.7	16.2
3-Apr	12.0	11.4	10.6	10.6	10.6	8.6	6.6	5.0	4.3	4.5	5.0	5.8	6.2	6.9	6.3	5.5	4.6	4.5	4.2	2.7	1.8	1.3	1.2	0.9	5.9	12.0
4-Apr	0.7	0.1	-0.5	-1.2	-1.8	-2.3	-2.5	-3.2	-3.0	-3.0	-2.7	-2.3	-1.7	-0.4	0.6	1.5	2.2	2.4	1.7	1.3	0.6	-0.1	-0.6	-0.7	-0.6	2.4
5-Apr	-1.2	-1.7	-2.1	-2.5	-2.7	-2.9	-3.0	-2.9	PF	-1.7	-0.9	-0.7	-0.6	-0.7	-0.3	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.4	-0.5	-0.7	-1.1	0.0
6-Apr	-0.7	-0.9	-1.2	-1.5	-1.6	-1.7	-1.5	-1.5	-1.5	-1.5	-1.3	-0.8	-0.4	0.1	0.6	0.9	1.0	1.1	0.9	0.8	0.8	0.4	0.4	0.2	-0.4	1.1
7-Apr	0.2	0.1	0.3	0.3	0.2	0.5	0.3	0.4	1.2	2.5	4.6	7.3	9.5	11.0	12.1	12.9	13.5	13.7	13.3	12.4	11.4	10.2	9.4	9.8	6.5	13.7
8-Apr	9.1	7.4	7.7	6.9	6.2	5.8	5.6	5.2	6.5	7.1	9.2	10.9	12.3	13.2	13.8	14.2	14.4	14.3	14.0	13.7	13.4	12.8	11.9	11.2	10.3	14.4
9-Apr	10.2	9.8	9.7	9.1	8.7	8.2	7.2	7.8	7.6	8.8	11.0	11.3	11.4	12.0	12.5	12.6	12.5	11.9	11.0	10.2	9.3	8.2	7.8	7.1	9.8	12.6
10-Apr	5.3	4.4	3.9	3.3	2.9	2.8	2.6	2.4	3.2	3.3	1.8	2.4	5.8	7.6	7.9	8.5	8.4	8.3	7.9	7.0	6.1	5.7	4.9	4.5	5.0	8.5
11-Apr	3.9	3.2	2.9	2.4	1.9	1.2	1.4	1.5	3.1	5.9	8.2	9.7	10.7	11.4	12.1	12.6	12.5	11.9	10.9	9.9	8.8	8.4	8.7	8.1	7.1	12.6
12-Apr	7.9	7.7	7.5	7.4	7.2	7.4	6.7	5.2	4.1	4.0	4.5	4.9	4.7	4.5	4.6	4.5	5.6	6.4	6.4	5.7	5.0	5.2	4.7	4.6	5.7	7.9
13-Apr	7.0	6.8	6.6	5.8	5.8	6.0	5.7	4.8	4.7	5.7	6.9	7.9	8.3	8.4	8.6	9.0	9.2	9.4	9.3	9.1	8.8	8.2	7.4	7.4	7.4	9.4
14-Apr	6.2	4.0	3.2	2.9	2.9	3.3	3.4	3.1	3.7	6.2	8.6	10.2	11.6	11.8	12.3	12.9	13.2	13.5	13.0	12.5	11.9	10.1	9.4	8.3	8.3	13.5
15-Apr	7.6	6.8	6.4	6.0	5.5	7.2	7.6	6.2	6.0	5.9	6.8	7.4	6.7	5.2	4.2	4.1	4.2	3.7	3.1	2.5	1.7	1.2	1.1	1.5	4.9	7.6
16-Apr	1.9	1.7	1.3	0.7	0.5	0.0	-0.9	-1.6	-2.1	-2.3	-2.3	-2.1	-2.0	-2.2	-2.2	-1.8	-1.4	-1.3	-0.9	-0.8	-0.7	0.0	-0.5	-1.3	-0.9	1.9
17-Apr	-2.1	-3.0	-4.0	-5.0	-5.5	-6.1	-6.4	-6.7	-6.2	-5.1	-3.7	-2.7	-1.7	-1.1	-0.6	-0.1	-0.1	-0.2	-0.5	-0.9	-1.5	-2.1	-2.6	-3.3	-3.0	-0.1
18-Apr	-4.1	-5.0	-5.6	-6.4	-7.1	-7.5	-8.0	-7.1	-5.7	-4.8	-4.4	-3.5	-2.6	-1.8	-0.7	0.1	0.6	0.8	0.9	0.5	0.0	-0.7	-1.5	-1.9	-3.1	0.9
19-Apr	-2.5	-3.1	-3.7	-4.1	-4.3	-4.3	-4.1	-3.8	-2.1	-0.4	1.7	3.4	5.4	6.8	8.3	9.4	10.2	10.7	10.8	10.4	9.2	8.1	7.3	6.9	3.2	10.8
20-Apr	6.2	5.6	4.8	4.7	4.0	3.1	2.8	3.4	5.2	8.9	11.0	12.4	13.6	14.4	15.1	15.6	15.9	15.9	15.8	15.4	15.0	14.6	14.0	11.6	10.4	15.9
21-Apr	9.8	8.4	7.9	7.1	6.2	5.6	5.4	5.0	7.0	9.7	11.9	12.9	14.1	14.8	15.5	16.0	16.7	16.7	16.6	16.1	15.6	15.3	14.8	12.1	11.7	16.7
22-Apr	9.7	7.7	6.5	5.6	6.4	6.1	6.0	6.2	7.3	9.5	12.1	14.3	15.3	16.3	16.7	17.1	16.8	16.3	16.2	15.4	14.9	13.6	10.8	10.3	11.5	17.1
23-Apr	9.1	8.2	7.6	7.2	6.4	5.8	5.4	5.7	6.8	8.6	10.2	11.5	12.5	13.5	14.7	14.7	14.7	15.1	13.9	12.7	11.3	9.6	8.5	7.9	10.1	15.1
24-Apr	6.7	5.9	5.9	5.1	4.4	4.3	4.5	5.8	7.8	10.2	12.0	13.3	14.3	15.3	16.1	16.3	16.0	15.9	15.6	15.0	14.5	13.6	13.0	12.3	11.0	16.3
25-Apr	11.0	9.9	9.2	8.4	7.3	6.5	6.7	7.5	8.7	10.0	11.5	12.1	12.6	12.6	12.5	12.4	10.7	10.6	8.0	5.8	4.7	2.9	2.0	2.7	8.6	12.6
26-Apr	2.4	2.0	1.7	1.2	0.1	-0.3	-0.7	-1.3	-1.1	-0.3	0.4	1.4	2.3	3.1	3.9	4.4	4.9	4.9	4.5	3.9	3.2	2.4	1.5	0.8	1.9	4.9
27-Apr	0.0	-0.3	-0.2	-0.1	-0.7	-0.3	-0.2	0.8	2.7	5.4	8.2	9.5	10.6	11.1	11.1	10.8	10.4	8.8	7.3	7.2	7.4	7.2	6.8	7.0	5.4	11.1
28-Apr	6.8	6.6	6.5	5.9	5.5	5.3	5.1	5.9	6.9	7.7	7.3	7.8	8.4	9.8	10.5	10.9	10.7	10.4	9.9	8.7	7.5	6.3	5.1	4.4	7.5	10.9
29-Apr	3.8	3.2	2.9	2.9	3.1	3.0	3.2	3.5	3.9	4.0	4.5	4.7	5.4	6.4	7.7	8.6	8.8	8.9	8.9	8.1	7.7	7.0	6.1	5.5	5.5	8.9
30-Apr	5.2	4.7	4.3	3.9	3.7	3.4	3.2	2.9	2.3	1.6	0.7	0.9	1.4	1.7	2.2	2.6	2.7	2.7	2.9	2.9	2.9	3.0	2.8	2.6	2.8	5.2
																								Diurnal Average		
																								Diurnal Maximum		
4.9 4.1 3.7 3.2 2.8 2.5 2.3 2.2 3.1 4.0 5.2 6.2 7.0 7.7 8.3 8.7 8.8 8.7 8.3 7.7 7.1 6.5 5.8 5.3 12.0 11.4 10.6 10.6 10.6 8.6 7.6 7.8 8.7 10.2 12.1 14.3 15.3 16.3 16.7 17.1 16.8 16.7 16.6 16.1 15.6 15.3 14.8 12.4																										
PF - Power Failure																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature 90 m (AT90m) - C**  
**Mannix - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	133	18.50	18.50
0 - 10	428	59.53	78.03
10 - 20	158	21.97	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



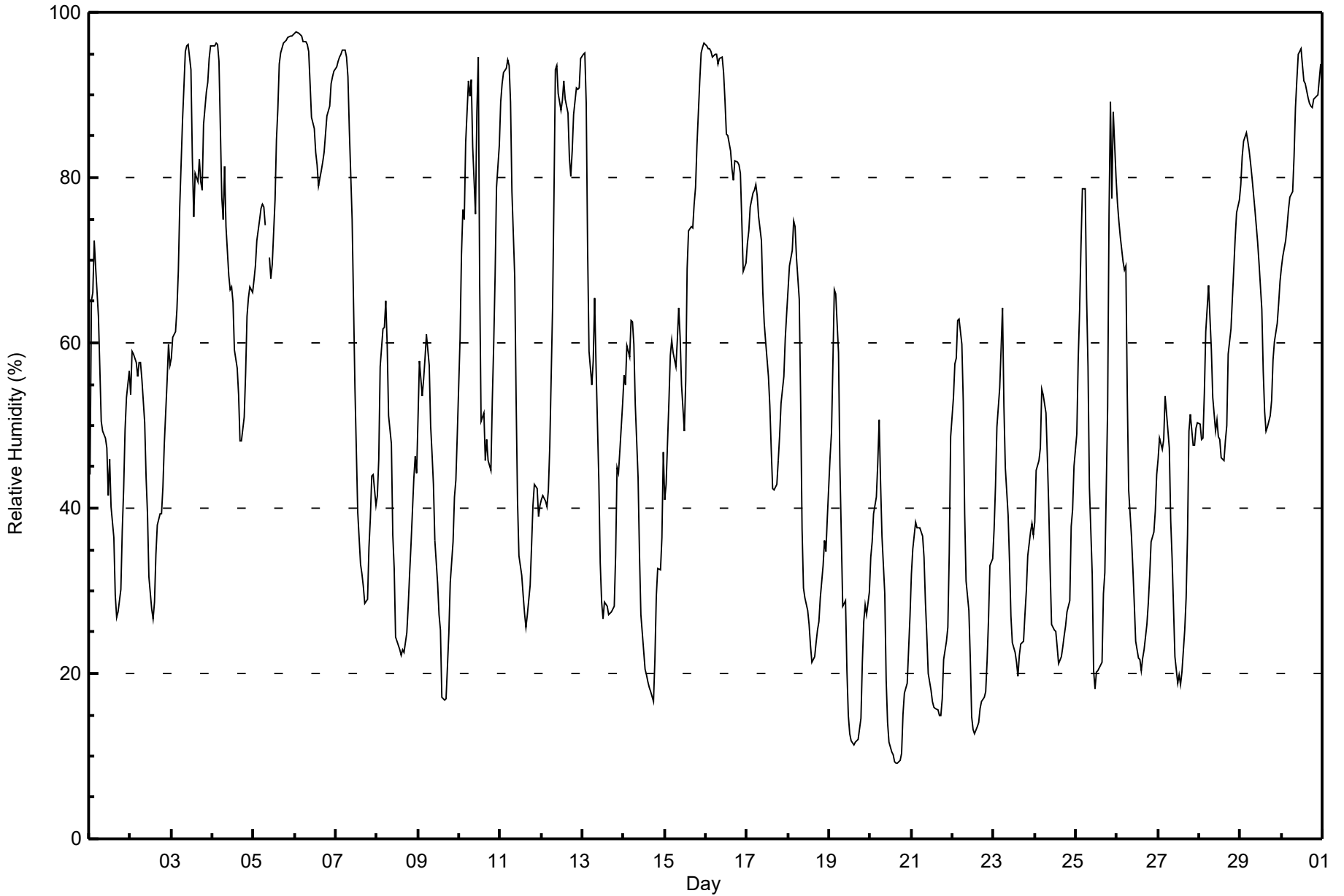
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

Mannix - April 2024

Maximum Value: 98 % on Apr 6 02:00																		Maximum Daily Average: 90.1 % on Apr 6						Hours in Service: 720		
Minimum Value: 9 % on Apr 20 16:00																		Minimum Daily Average: 23.8 % on Apr 20						Hours of Data: 719		
Maximum Diurnal Average: 69.2 % at hour 6																		Minimum Diurnal Average: 40.6 % at hour 16						Hours of Missing Data: 1		
Monthly Average: 54.5 %																		Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 22 Q <sub>1</sub> = 33 Median = 53 Q <sub>3</sub> = 76 P <sub>90</sub> = 92 P <sub>99</sub> = 97						Hours of Calibration: 0		
																								Percent Operational Time: 99.9		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	44	65	66	72	69	63	57	50	49	48	47	42	46	40	36	30	27	28	30	37	42	50	53	57	47.9	72
2-Apr	54	59	59	58	56	58	58	56	50	44	39	32	28	27	29	34	38	39	39	43	48	55	60	57	46.6	60
3-Apr	58	61	61	64	69	76	87	91	95	96	96	93	82	75	80	79	82	79	78	86	90	91	94	96	81.8	96
4-Apr	96	96	96	96	94	78	75	81	74	68	66	67	65	59	57	54	48	48	51	56	63	65	67	66	70.3	96
5-Apr	68	69	72	75	76	77	76	74	PF	70	68	70	77	85	88	94	95	96	96	97	97	97	97	97	83.1	97
6-Apr	97	98	97	97	97	96	96	96	95	91	87	86	83	81	79	81	82	83	85	88	89	91	92	93	90.1	98
7-Apr	93	94	95	95	95	96	95	92	86	75	65	55	47	39	33	32	31	28	29	35	39	44	44	40	61.5	96
8-Apr	42	46	57	62	62	65	60	51	48	37	33	24	23	23	22	23	23	25	28	32	36	43	46	44	39.8	65
9-Apr	51	58	54	56	58	61	57	50	47	43	36	31	27	25	17	17	17	21	25	31	36	41	43	49	39.6	61
10-Apr	61	71	76	75	84	92	90	92	84	76	88	95	67	50	51	46	48	46	45	53	60	68	79	84	70.0	95
11-Apr	89	91	93	93	94	94	89	78	68	53	41	34	32	30	27	26	27	31	35	40	43	42	39	40	55.4	94
12-Apr	41	41	41	40	42	47	64	78	93	94	90	88	89	92	90	88	82	80	83	88	91	91	91	94	75.8	94
13-Apr	95	95	89	71	59	55	58	65	57	43	33	29	27	29	28	27	28	28	34	45	44	47	53	48.6	95	
14-Apr	56	55	60	58	63	63	60	53	44	34	27	25	21	20	19	18	18	17	22	29	33	33	36	47	37.8	63
15-Apr	41	43	53	58	60	59	57	60	64	61	55	49	55	69	74	74	74	77	79	84	92	95	96	96	67.7	96
16-Apr	96	96	96	95	95	95	95	94	94	95	93	89	85	85	83	81	80	82	82	81	80	75	69	70	86.9	96
17-Apr	72	74	76	78	78	79	78	75	72	66	62	60	56	52	47	42	42	43	46	49	53	56	61	63	61.7	79
18-Apr	66	69	71	75	74	70	65	53	38	30	29	28	26	23	21	22	24	25	26	29	33	36	35	39	42.0	75
19-Apr	46	49	58	66	66	59	45	37	28	29	20	15	13	12	11	12	12	12	15	21	26	28	27	30	30.7	66
20-Apr	34	36	39	41	45	51	43	37	30	19	14	12	11	10	9	9	9	10	10	15	18	19	23	27	23.8	51
21-Apr	32	35	38	38	38	38	37	34	29	25	20	18	17	16	16	16	15	15	17	22	24	26	35	49	26.9	49
22-Apr	53	57	58	63	63	60	53	39	31	28	22	15	13	13	14	14	16	17	17	18	22	26	33	34	32.4	63
23-Apr	37	43	50	55	59	64	52	45	39	34	27	24	23	21	20	22	24	24	27	30	34	37	38	37	36.1	64
24-Apr	38	45	46	47	54	54	52	46	40	32	26	25	25	23	21	22	23	25	26	27	29	38	40	45	35.4	54
25-Apr	49	58	64	72	79	79	65	57	43	32	20	18	20	20	21	21	30	32	52	76	89	77	88	80	51.8	89
26-Apr	77	75	73	70	69	69	54	42	37	33	29	24	22	22	20	22	23	26	29	32	36	37	40	44	41.7	77
27-Apr	46	48	47	48	54	51	47	39	34	28	22	19	20	19	20	25	29	37	49	51	48	48	50	50	38.7	54
28-Apr	50	48	48	54	61	67	63	59	53	49	51	49	48	46	46	48	50	59	62	65	69	73	76	77	57.2	77
29-Apr	79	82	84	86	84	83	82	80	76	74	72	70	64	57	52	49	50	51	53	58	60	62	65	68	68.4	86
30-Apr	69	71	72	74	76	78	78	83	88	92	95	96	94	92	91	90	89	89	89	89	90	90	92	94	85.8	96
																								Diurnal Average		
																								Diurnal Maximum		
61.1 64.3 66.3 67.8 69.2 69.2 66.3 62.9 58.2 53.3 49.1 45.9 43.5 41.8 40.8 40.6 41.1 42.4 45.1 49.9 53.8 56.0 58.5 60.7																										
97 98 97 97 97 96 96 96 95 96 96 96 94 92 91 94 95 96 96 97 97 97 97 97																										
PF - Power Failure																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Mannix - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	52	7.23	7.23
20 - 40	188	26.15	33.38
40 - 60	191	26.56	59.94
60 - 80	140	19.47	79.42
80 - 100	148	20.58	100.00

Total Number of Valid Hours: 719

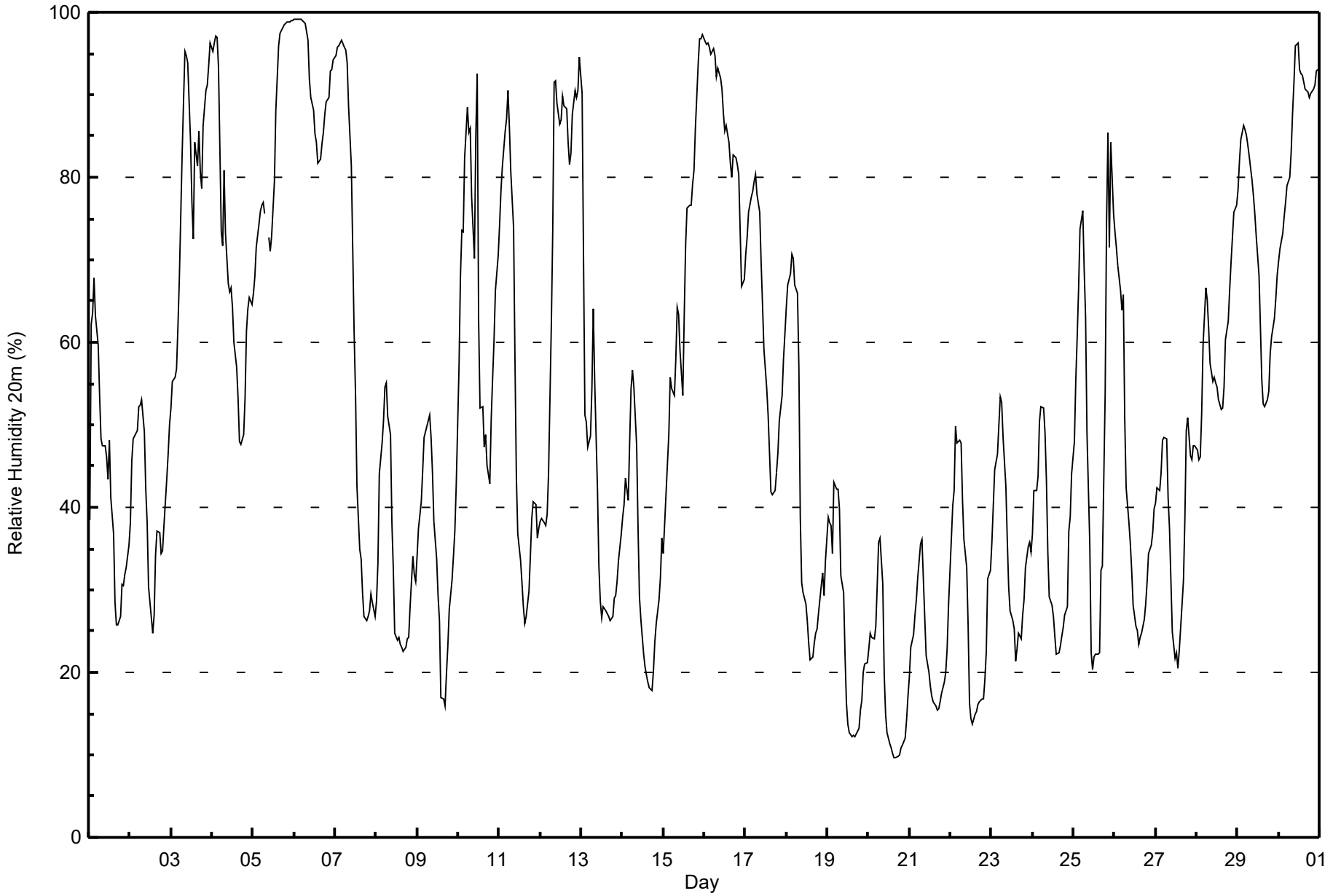
Total Number of Hours: 720



Summary of Hour Averages

Mannix - April 2024

Maximum Value: 99 % on Apr 6 02:00														Maximum Daily Average: 91.9 % on Apr 6														Hours in Service: 720	
Minimum Value: 10 % on Apr 20 17:00														Minimum Daily Average: 18.3 % on Apr 20														Hours of Data: 719	
Maximum Diurnal Average: 64.6 % at hour 7														Minimum Diurnal Average: 41.6 % at hour 16														Hours of Missing Data: 1	
Monthly Average: 52.5 %														Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 22 Q <sub>1</sub> = 30 Median = 48 Q <sub>3</sub> = 75 P <sub>90</sub> = 91 P <sub>99</sub> = 99														Hours of Calibration: 0	
																												Percent Operational Time: 99.9	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Apr	38	62	64	68	63	60	54	48	48	47	46	43	48	41	37	28	26	26	27	31	31	32	33	35	43.1	68			
2-Apr	38	46	48	49	49	52	52	53	49	42	38	30	27	25	27	34	37	37	34	35	38	43	46	50	40.9	53			
3-Apr	52	55	56	57	62	68	83	89	95	95	94	84	77	73	84	81	86	81	79	86	90	91	94	96	79.5	96			
4-Apr	95	96	97	97	93	73	72	81	73	67	66	67	64	60	57	53	48	48	49	53	61	64	65	65	69.4	97			
5-Apr	66	68	72	74	76	77	77	76	PF	73	71	73	80	88	92	96	97	98	98	99	99	99	99	99	84.6	99			
6-Apr	99	99	99	99	99	99	99	98	97	92	90	88	85	84	82	82	84	85	88	89	90	93	93	94	91.9	99			
7-Apr	95	96	96	96	97	96	95	94	89	81	71	61	53	43	35	34	30	27	26	27	27	30	28	27	60.5	97			
8-Apr	29	33	44	48	50	55	55	51	49	38	33	25	24	24	23	23	23	23	24	24	28	34	32	31	34.3	55			
9-Apr	34	38	41	44	48	49	51	51	48	44	38	34	29	26	17	17	16	20	23	28	31	34	37	43	35.1	51			
10-Apr	57	68	73	73	82	88	85	86	78	70	85	92	63	52	52	47	49	45	43	51	56	60	66	71	66.4	92			
11-Apr	74	79	81	86	87	91	86	81	74	58	44	37	34	31	28	26	27	30	34	39	41	40	36	37	53.3	91			
12-Apr	38	39	38	38	39	44	62	74	92	92	89	86	87	90	89	88	84	82	83	88	91	90	90	95	74.4	95			
13-Apr	90	70	51	50	47	49	54	64	55	42	33	29	27	28	27	27	26	27	29	29	31	34	37	41.0	90				
14-Apr	39	40	44	41	48	54	57	55	48	37	29	26	22	21	20	19	18	18	20	24	26	29	32	36	33.4	57			
15-Apr	34	38	45	49	56	54	54	58	64	63	59	54	63	72	76	77	77	79	81	86	94	97	97	97	67.6	97			
16-Apr	96	96	96	96	95	96	95	92	93	92	91	88	86	86	84	82	80	83	82	82	80	74	67	68	86.6	96			
17-Apr	71	73	76	78	78	80	80	78	76	70	65	59	54	51	47	42	42	42	44	47	51	54	58	61	61.4	80			
18-Apr	64	67	68	71	70	67	66	57	39	31	30	28	26	24	22	22	24	25	25	27	30	32	29	34	40.7	71			
19-Apr	39	38	38	34	43	42	42	40	32	30	22	16	14	13	12	12	12	13	13	15	17	20	21	21	25.0	43			
20-Apr	23	25	24	24	26	30	36	36	31	20	15	13	11	11	10	10	10	10	10	11	11	12	14	17	18.3	36			
21-Apr	20	23	25	27	29	31	36	36	31	27	22	20	18	17	16	16	15	16	16	18	19	20	23	28	22.9	36			
22-Apr	36	40	42	50	48	48	48	41	36	33	26	16	14	14	15	15	16	17	17	17	19	22	31	32	28.9	50			
23-Apr	36	40	45	46	50	53	53	48	43	36	30	28	26	25	21	23	25	24	27	29	33	35	36	35	35.3	53			
24-Apr	37	42	42	44	50	52	52	49	43	35	29	28	27	24	22	22	23	24	25	27	28	37	39	44	35.3	52			
25-Apr	48	55	61	66	74	76	69	63	49	36	22	20	22	22	22	22	32	33	54	75	85	72	84	76	51.6	85			
26-Apr	73	72	69	66	64	66	51	42	38	36	32	28	26	25	23	24	25	26	28	31	34	35	37	40	41.4	73			
27-Apr	41	42	42	44	48	49	48	41	37	31	25	22	22	21	23	28	31	39	49	51	46	46	47	48	38.4	51			
28-Apr	47	46	46	51	60	67	65	62	57	55	56	55	55	53	52	52	55	60	63	66	70	73	76	77	59.0	77			
29-Apr	79	82	85	86	86	85	84	83	80	78	76	73	68	62	55	52	52	53	54	59	61	63	65	68	70.3	86			
30-Apr	70	71	73	75	77	79	80	83	88	92	96	96	93	93	92	91	91	90	90	90	91	91	93	93	86.6	96			
55.3 58.0 59.4 61.0 63.2 64.3 64.6 63.6 59.7 54.7 50.7 47.3 44.8 43.2 42.1 41.6 42.0 42.6 44.5 47.7 50.2 51.7 53.4 55.1																								Diurnal Average					
99 99 99 99 99 99 99 98 97 95 96 96 93 93 92 96 97 98 98 99 99 99 99 99																								Diurnal Maximum					
PF - Power Failure																													





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 20m (RH20m) - %**  
**Mannix - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	55	7.65	7.65
20 - 40	226	31.43	39.08
40 - 60	167	23.23	62.31
60 - 80	121	16.83	79.14
80 - 100	150	20.86	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720





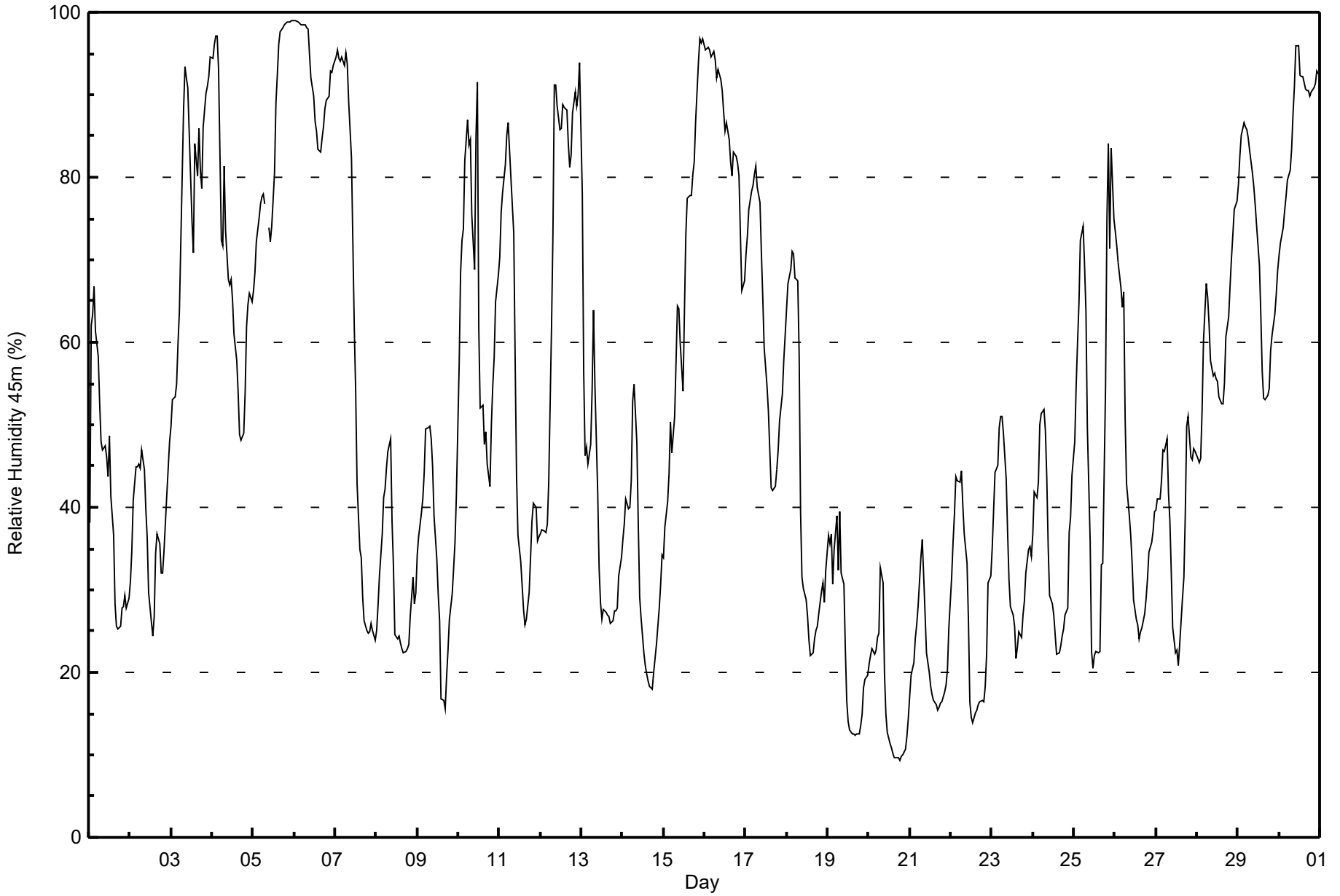
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 45m (RH45m) - %

Mannix - April 2024

Maximum Value: 99 % on Apr 6 00:00															Maximum Daily Average: 92.5 % on Apr 6										Hours in Service: 720																									
Minimum Value: 9 % on Apr 20 19:00															Minimum Daily Average: 16.6 % on Apr 20										Hours of Data: 719																									
Maximum Diurnal Average: 63.2 % at hour 8															Minimum Diurnal Average: 41.8 % at hour 16										Hours of Missing Data: 1																									
Monthly Average: 51.8 %															Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 22 Q <sub>1</sub> = 29 Median = 47 Q <sub>3</sub> = 75 P <sub>90</sub> = 91 P <sub>99</sub> = 99										Hours of Calibration: 0																									
																									Percent Operational Time: 99.9																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Apr	38	62	63	67	61	58	53	48	47	48	46	44	49	41	37	28	26	25	26	28	28	29	28	29	42.0	67																								
2-Apr	31	35	41	45	45	45	45	47	45	40	36	30	26	24	27	34	37	36	32	32	35	42	45	48	37.5	48																								
3-Apr	50	53	53	55	60	64	80	88	93	92	91	80	75	71	84	80	86	81	79	86	90	91	92	95	77.9	95																								
4-Apr	94	96	97	97	93	72	72	81	74	68	67	68	65	61	58	54	49	48	49	54	62	65	66	65	69.7	97																								
5-Apr	66	68	72	75	77	78	78	77	PF	74	72	74	81	89	92	96	98	98	98	99	99	99	99	99	85.1	99																								
6-Apr	99	99	99	99	99	98	98	98	98	95	92	90	87	86	83	83	85	86	88	89	90	93	93	94	92.5	99																								
7-Apr	95	96	94	94	95	94	95	94	89	82	72	62	54	43	35	34	29	26	25	25	25	26	25	24	59.7	96																								
8-Apr	25	28	32	37	41	42	45	47	48	38	33	24	24	24	23	23	22	22	23	23	27	31	28	30	30.9	48																								
9-Apr	34	36	39	41	44	50	50	50	48	45	39	34	29	26	17	17	16	19	23	26	29	33	36	42	34.3	50																								
10-Apr	57	69	72	74	82	87	84	85	75	69	85	92	62	52	52	48	49	45	43	50	55	58	65	68	65.7	92																								
11-Apr	70	76	78	82	85	87	83	80	73	58	44	37	33	31	28	26	27	30	34	38	41	40	36	36	52.1	87																								
12-Apr	37	37	37	37	38	43	62	73	91	91	89	86	86	89	88	88	84	81	83	88	90	89	90	94	73.8	94																								
13-Apr	78	56	46	47	45	48	54	64	55	42	33	28	27	28	27	27	26	26	27	27	28	32	34	34	38.8	78																								
14-Apr	36	38	41	40	40	43	53	55	48	38	29	27	22	21	20	19	18	18	20	22	23	28	31	34	31.8	55																								
15-Apr	34	38	41	44	50	47	51	58	64	64	60	54	64	73	77	78	78	80	82	87	94	97	96	97	67.0	97																								
16-Apr	95	96	96	95	94	95	94	92	93	92	91	88	86	87	85	82	80	83	82	82	80	73	66	68	86.4	96																								
17-Apr	71	73	76	78	79	80	81	79	77	71	65	59	55	52	47	42	42	43	45	47	50	54	58	61	61.8	81																								
18-Apr	64	67	69	71	71	68	67	58	39	32	30	29	27	24	22	22	24	25	26	27	30	31	28	32	41.0	71																								
19-Apr	37	36	37	31	35	39	32	39	32	31	23	17	14	13	13	13	12	13	13	14	15	18	19	20	23.5	39																								
20-Apr	21	22	23	22	23	24	25	33	31	20	15	13	11	11	10	10	10	10	9	10	10	11	12	14	16.6	33																								
21-Apr	17	20	21	24	26	28	34	36	32	27	22	20	18	17	17	16	15	16	16	16	18	18	20	25	21.7	36																								
22-Apr	31	36	39	44	43	43	44	40	37	33	26	16	15	14	15	15	16	16	17	16	18	22	31	32	27.6	44																								
23-Apr	35	40	44	45	50	51	51	49	43	37	31	28	27	26	22	23	25	24	27	29	32	35	35	34	35.1	51																								
24-Apr	37	42	41	43	50	51	52	49	44	35	29	28	27	25	22	22	23	24	25	27	28	37	39	44	35.2	52																								
25-Apr	48	55	60	65	72	74	69	64	50	36	23	21	22	22	22	23	33	33	55	75	84	71	84	75	51.5	84																								
26-Apr	73	72	70	67	64	66	51	43	39	37	33	29	26	26	24	25	25	27	29	31	35	36	37	40	41.8	73																								
27-Apr	40	41	41	43	47	47	48	42	38	32	25	22	23	21	23	29	32	39	50	51	46	46	47	47	38.3	51																								
28-Apr	46	45	46	52	60	67	65	62	58	56	56	56	55	53	53	53	55	61	63	67	70	73	76	77	59.4	77																								
29-Apr	79	82	85	87	86	86	85	83	81	79	77	74	69	63	56	53	53	54	54	59	61	63	66	69	71.0	87																								
30-Apr	70	72	74	76	78	80	81	83	88	91	96	96	92	92	92	91	91	91	90	90	91	91	93	92	86.7	96																								
																								53.7	56.2	57.6	59.2	61.1	61.8	62.8	63.2	59.6	55.0	51.0	47.4	45.0	43.5	42.4	41.8	42.2	42.7	44.3	47.2	49.4	50.9	52.4	53.9	Diurnal Average		
																								99	99	99	99	99	98	98	98	98	95	96	96	96	92	92	92	96	98	98	98	99	99	99	99	99	Diurnal Maximum	
PF - Power Failure																																																		





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 45m (RH45m) - %**  
**Mannix - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	59	8.21	8.21
20 - 40	237	32.96	41.17
40 - 60	153	21.28	62.45
60 - 80	119	16.55	79.00
80 - 100	151	21.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



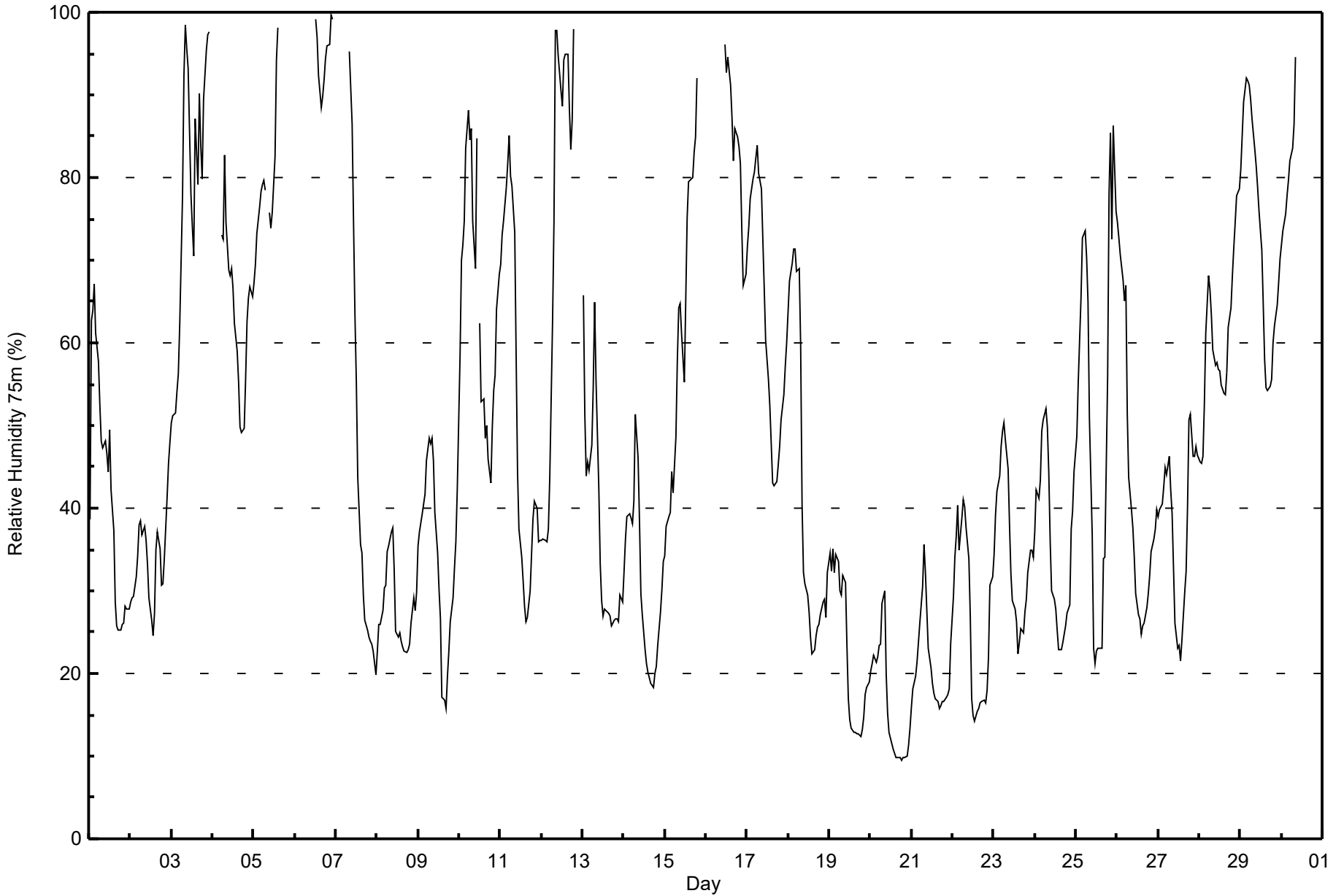
# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Relative Humidity 75m (RH75m) - %

## Mannix - April 2024

Maximum Value: 100 % on Apr 6 22:00		Maximum Daily Average: 78.5 % on Apr 3		Hours in Service: 720																																													
Minimum Value: 9 % on Apr 20 19:00		Minimum Daily Average: 16.1 % on Apr 20		Hours of Data: 650																																													
Maximum Diurnal Average: 59.1 % at hour 8		Minimum Diurnal Average: 39.3 % at hour 16		Hours of Missing Data: 70																																													
Monthly Average: 47.6 %		Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 21 Q <sub>1</sub> = 28 Median = 42 Q <sub>3</sub> = 67 P <sub>90</sub> = 84 P <sub>99</sub> = 98		Hours of Calibration: 0																																													
				Percent Operational Time: 90.3																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	39	63	64	67	61	58	52	48	47	48	47	44	50	42	37	29	26	25	25	26	26	28	28	28	42.0	67																							
2-Apr	29	29	29	32	34	38	38	37	38	36	33	29	26	25	27	35	37	35	31	31	34	41	45	48	34.1	48																							
3-Apr	50	51	52	54	56	62	78	92	98	96	93	78	74	71	87	79	90	84	80	89	95	97	98	OR	78.5	98																							
4-Apr	OR	OR	OR	OR	OR	73	72	83	75	69	68	69	67	62	59	55	50	49	50	56	63	65	67	66	64.0	83																							
5-Apr	67	69	73	76	78	79	80	79	PF	76	74	76	83	94	98	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	98																							
6-Apr	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	99	97	92	88	90	92	94	96	96	100	99	OR	--	100																							
7-Apr	OR	OR	OR	OR	OR	98	OR	OR	OR	95	86	75	63	55	44	36	35	30	26	25	24	24	23	20	--	98																							
8-Apr	23	26	26	28	30	31	35	35	37	38	32	25	24	25	24	23	23	23	23	23	26	29	28	30	27.8	38																							
9-Apr	35	37	39	40	42	46	48	48	48	46	39	35	30	27	17	17	16	20	23	26	29	33	36	42	34.1	48																							
10-Apr	58	70	72	75	83	88	84	86	75	69	85	OR	62	53	53	48	50	46	43	50	54	56	64	68	65.0	88																							
11-Apr	70	73	75	79	82	85	80	79	73	58	44	38	34	31	28	26	27	30	34	39	41	40	36	36	51.6	85																							
12-Apr	36	36	36	36	37	44	63	75	98	98	95	91	89	94	95	95	88	83	87	98	OR	98	OR	OR	74.8	98																							
13-Apr	66	51	44	46	45	48	55	65	55	42	33	29	27	28	27	27	26	26	27	27	26	29	29	29	37.7	66																							
14-Apr	32	36	39	39	39	38	41	51	46	38	30	27	23	21	20	19	19	18	20	21	23	27	30	34	30.6	51																							
15-Apr	34	38	39	40	44	42	49	58	64	65	61	55	65	75	80	80	80	83	85	92	OR	OR	OR	OR	61.4	92																							
16-Apr	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	96	93	95	91	87	82	86	85	84	82	74	67	68	--	96																							
17-Apr	72	74	77	80	81	82	84	81	79	72	67	60	56	52	48	43	43	43	45	47	51	54	57	60	62.8	84																							
18-Apr	64	67	70	71	71	69	69	60	40	32	31	30	27	24	22	23	25	26	26	27	29	29	27	32	41.3	71																							
19-Apr	35	32	35	32	34	33	30	29	32	31	23	17	14	13	13	13	13	13	12	13	15	17	18	19	22.5	35																							
20-Apr	20	21	22	21	22	23	24	28	30	20	15	13	12	11	10	10	10	10	9	10	10	10	11	13	16.1	30																							
21-Apr	16	18	20	21	24	26	30	36	32	28	23	21	19	18	17	17	16	16	17	17	17	18	18	24	21.1	36																							
22-Apr	29	34	37	40	35	39	41	40	38	34	27	17	15	14	15	16	16	17	17	16	18	22	31	32	26.7	41																							
23-Apr	34	39	42	44	48	49	50	48	45	38	32	29	28	26	22	24	25	25	27	29	32	35	35	34	35.1	50																							
24-Apr	37	42	41	43	49	51	52	50	44	36	30	29	28	25	23	23	24	25	26	27	28	37	40	44	35.7	52																							
25-Apr	49	55	60	65	73	74	70	65	51	37	23	21	23	23	23	23	34	34	56	78	85	73	86	76	52.4	86																							
26-Apr	75	73	71	68	65	67	51	44	40	38	34	30	27	27	25	26	26	28	30	32	35	36	37	40	42.6	75																							
27-Apr	39	40	40	43	45	44	46	42	39	33	26	23	23	21	24	30	32	40	51	51	46	46	48	47	38.4	51																							
28-Apr	46	45	46	53	61	68	66	63	59	57	58	57	57	55	54	54	56	62	64	68	72	75	78	79	60.5	79																							
29-Apr	81	85	89	92	92	91	89	87	83	81	79	76	71	65	58	55	54	55	56	60	62	65	67	70	73.5	92																							
30-Apr	72	74	76	78	80	82	84	87	95	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	95																							
																								46.4	49.3	50.6	52.4	54.3	58.1	57.9	59.1	57.7	51.9	47.3	43.6	44.8	43.4	42.3	39.3	39.6	40.0	41.7	44.9	43.1	46.5	46.2	43.2	Diurnal Average	
																								81	85	89	92	92	98	89	92	98	98	95	96	99	97	98	95	90	92	94	98	96	100	99	79	Diurnal Maximum	
PF - Power Failure																								OR - Out of Range																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 75m (RH75m) - %**  
**Mannix - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	60	9.23	9.23
20 - 40	253	38.92	48.15
40 - 60	133	20.46	68.62
60 - 80	120	18.46	87.08
80 - 100	84	12.92	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 720



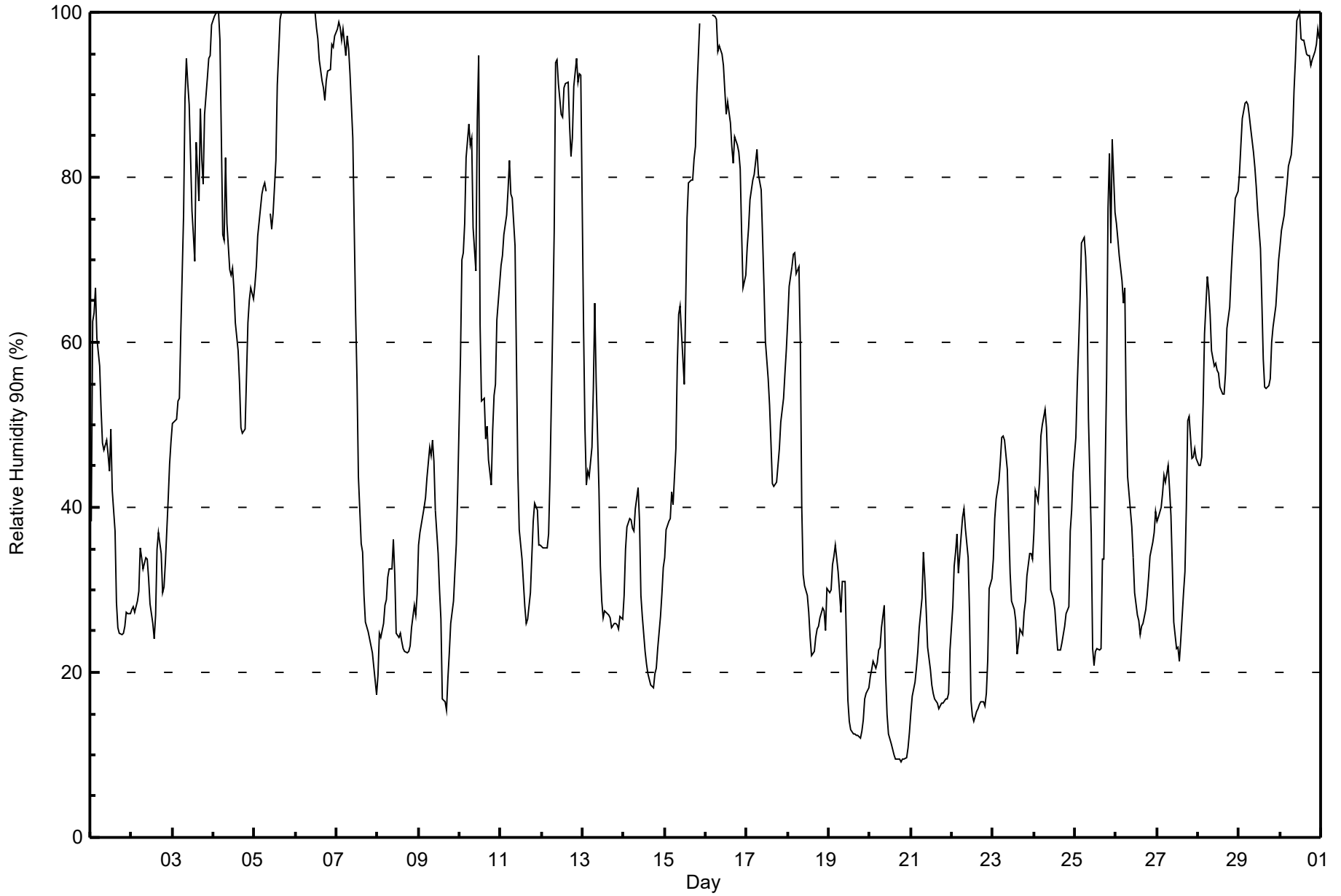
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 90m (RH90m) - %

Mannix - April 2024

Maximum Value: 100 % on Apr 4 03:00      Maximum Daily Average: 97.0 % on Apr 6																		Hours in Service: 720								
Minimum Value: 9 % on Apr 20 19:00      Minimum Daily Average: 15.5 % on Apr 20																		Hours of Data: 713								
Maximum Diurnal Average: 61.6 % at hour 8      Minimum Diurnal Average: 42.8 % at hour 16																		Hours of Missing Data: 7								
Monthly Average: 51.3 %      Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 21 Q <sub>1</sub> = 28 Median = 45 Q <sub>3</sub> = 74 P <sub>90</sub> = 94 P <sub>99</sub> = 100																		Hours of Calibration: 0								
																		Percent Operational Time: 99.0								
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-Apr	38	63	64	67	60	57	52	48	47	48	46	44	49	42	37	28	25	25	25	25	26	27	27	27	41.6	67
2-Apr	28	28	27	29	30	35	34	33	34	34	31	28	26	24	27	35	37	34	30	30	33	41	45	48	32.6	48
3-Apr	50	50	51	53	53	61	75	89	94	91	89	76	73	70	84	77	88	82	79	88	92	94	95	98	77.3	98
4-Apr	99	100	100	100	97	73	72	82	74	69	68	69	66	62	59	55	50	49	50	56	62	65	67	65	71.3	100
5-Apr	67	69	73	76	78	79	79	78	PF	76	74	76	82	91	95	99	100	100	100	100	100	100	100	100	86.6	100
6-Apr	100	100	100	100	100	100	100	100	100	100	100	98	97	94	92	91	89	92	93	93	96	96	97	97.0	100	
7-Apr	98	99	98	97	98	95	97	96	92	85	74	64	55	44	36	35	29	26	25	24	23	22	21	17	60.4	99
8-Apr	20	25	24	26	28	29	32	33	33	36	32	25	24	25	24	23	23	22	22	23	25	28	27	30	26.5	36
9-Apr	35	37	39	40	41	44	47	46	48	46	40	34	30	26	17	16	15	19	22	26	29	32	36	42	33.7	48
10-Apr	58	70	71	74	82	86	84	85	74	69	87	95	62	53	53	48	50	46	43	49	54	55	63	67	65.7	95
11-Apr	69	71	73	75	79	82	78	78	72	58	44	37	34	31	28	26	27	30	34	38	41	40	35	35	50.6	82
12-Apr	35	35	35	35	37	44	63	73	94	94	91	88	87	91	91	92	86	83	85	91	94	92	93	92	75.0	94
13-Apr	62	49	43	44	44	47	54	65	55	42	33	29	27	27	27	27	25	26	26	26	25	27	26	26	36.8	65
14-Apr	29	35	38	39	38	37	37	40	42	38	29	27	23	21	20	19	19	18	20	21	23	27	30	33	29.2	42
15-Apr	34	37	38	39	42	40	47	57	63	64	61	55	65	75	79	80	80	82	84	90	99	OR	OR	OR	62.4	99
16-Apr	100	OR	OR	OR	100	100	99	95	96	95	94	90	88	89	87	84	82	85	84	83	81	73	67	68	87.6	100
17-Apr	72	74	77	80	80	82	83	80	78	73	67	60	56	52	48	43	43	43	45	47	50	53	56	59	62.6	83
18-Apr	63	67	69	71	71	68	69	60	40	32	31	29	27	24	22	23	24	25	26	27	28	28	25	30	40.7	71
19-Apr	30	30	33	34	35	32	30	27	31	31	23	17	14	13	13	13	12	12	12	13	14	17	17	18	21.7	35
20-Apr	20	20	21	21	21	23	23	25	28	20	15	13	11	11	10	10	10	10	9	10	9	10	11	13	15.5	28
21-Apr	15	17	19	21	23	25	29	35	31	27	23	20	19	17	17	16	16	16	16	16	17	17	17	23	20.5	35
22-Apr	28	33	35	37	32	37	39	40	37	34	27	17	15	14	15	16	16	16	16	16	18	22	30	31	25.8	40
23-Apr	34	39	41	43	46	48	49	48	45	38	32	29	28	26	22	24	25	25	27	29	32	34	34	34	34.6	49
24-Apr	37	42	41	43	49	50	52	50	44	36	30	29	28	25	23	23	24	25	26	27	28	37	40	44	35.4	52
25-Apr	48	55	60	65	72	73	70	65	51	37	23	21	22	23	23	23	34	34	56	76	83	72	85	76	51.9	85
26-Apr	74	73	71	67	65	67	51	44	40	38	34	30	27	26	25	26	26	28	29	32	34	36	37	40	42.4	74
27-Apr	38	39	40	42	44	43	45	42	39	33	26	23	23	21	24	30	32	40	51	51	46	46	47	46	37.9	51
28-Apr	45	45	46	53	61	68	66	63	59	57	58	57	56	55	54	54	56	62	64	68	71	74	77	78	60.3	78
29-Apr	80	84	87	89	89	89	88	86	83	81	79	76	71	65	58	55	54	55	56	60	62	64	67	70	72.8	89
30-Apr	72	73	75	77	79	81	83	85	91	94	99	100	97	97	97	95	95	95	94	94	95	96	98	97	90.0	100
																								Diurnal Average		
																								Diurnal Maximum		
PF - Power Failure      OR - Out of Range																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 90m (RH90m) - %**  
**Mannix - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	64	8.98	8.98
20 - 40	257	36.04	45.02
40 - 60	128	17.95	62.97
60 - 80	120	16.83	79.80
80 - 100	121	16.97	96.77

Total Number of Valid Hours: 713

Total Number of Hours: 720



Maximum Speed: 37 km/h on Apr 16 15:00	Maximum Daily Speed Average: 27.7 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 4 00:00	Minimum Daily Speed Average: 2.7 km/h on Apr 14	Hours of Data: 718
Maximum Diurnal Speed Average: 4.7 km/h at hour 20	Minimum Diurnal Speed Average: 0.9 km/h at hour 4	Hours of Missing Data: 2
Monthly Average Velocity: 2.3 km/h 359.0 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 18 P <sub>90</sub> = 23 P <sub>99</sub> = 31	Percent Operational Time: 99.7

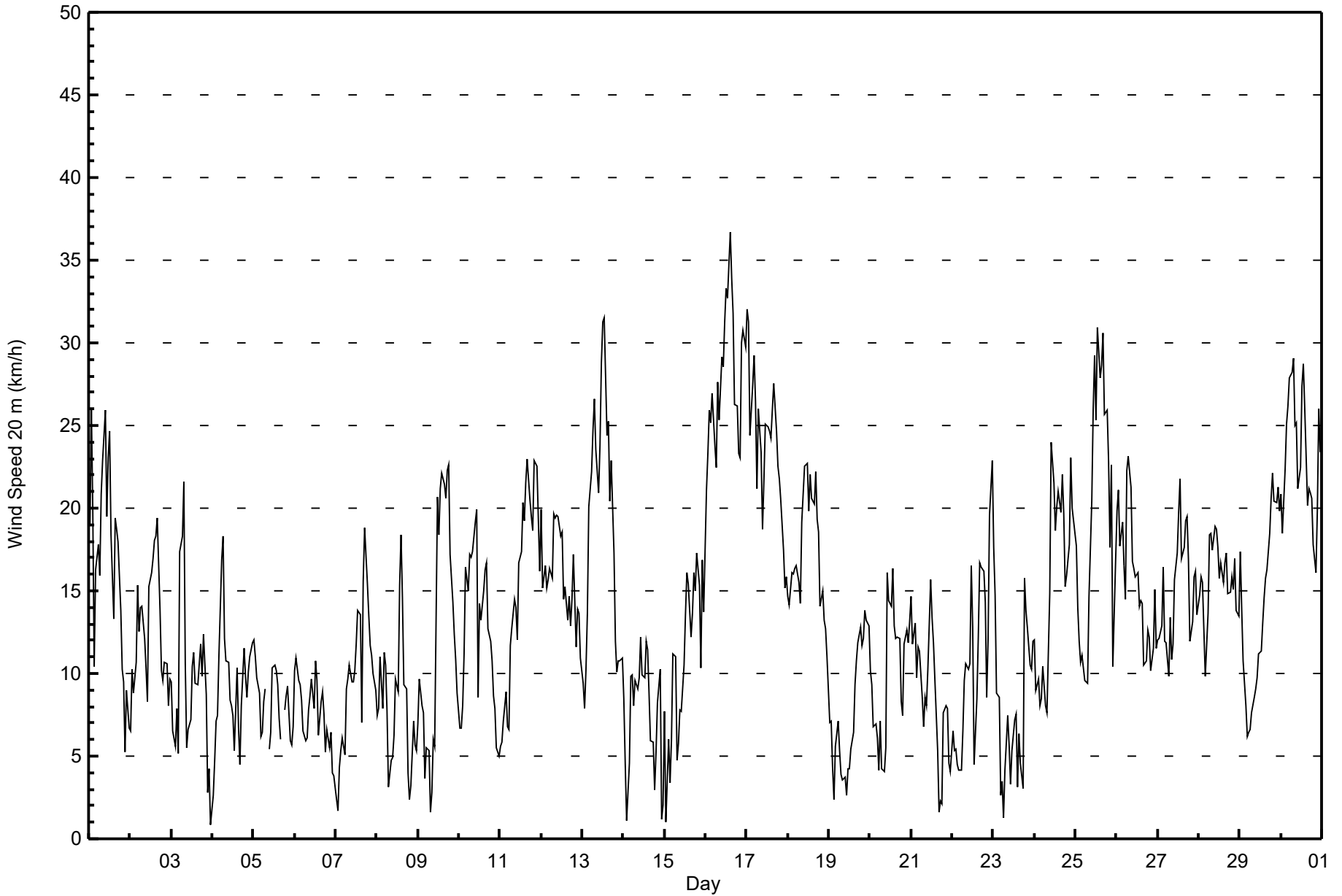
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW19	WNW26	WNW20	W10	W16	WSW18	WSW16	W21	W23	WNW26	NW19	WNW23	WNW25	WNW18	WNW13	WNW19	NW19	NW18	WNW14	WNW10	WNW10	WSW5	SW9	SW7	WNW15.5	WNW26
2-Apr	SSE7	SSE10	SE9	SSE11	SSE15	SSE13	SSE14	SSE14	SSE12	SSE10	SSE8	SE15	SE16	SE17	SE18	SSE18	SSE19	SSE14	SSE10	SE10	SSE11	SW11	SSE8	SE10	SSE12.0	SSE19
3-Apr	SE10	SE6	ESE6	SSE8	SSW5	WNW17	WNW18	WNW22	WNW11	WSW6	SSW7	WSW7	W10	W11	NNW9	NNW9	NNE11	NE12	NNE10	NNE12	NNE9	NNE3	W4	W1	NW3.6	WNW22
4-Apr	NE3	NNW5	NW7	NW7	NW11	WNW17	NW18	NNW12	NNW11	N11	N8	ENE8	ENE7	NNE5	NE10	ENE7	NNE4	N8	N12	NNE10	ENE9	ENE10	ENE11	E12	N6.2	NW18
5-Apr	ESE12	ESE11	ESE10	ESE9	E6	NNE6	NE8	NNE9	PF	NNE5	NNW6	NW10	N11	NNW10	N9	N7	N6	UO	NNW8	NNW9	NNW9	N6	NW6	NW7	NNE5.1	ESE12
6-Apr	NW10	NW11	NW10	NNW9	NE8	NNE7	NNW6	N6	N8	NNE9	NNW10	NNW8	N11	N10	NNW6	NNW8	NNW9	N8	NNW5	N7	NNW6	WNW6	WNW4	W4	NNW6.9	NW11
7-Apr	WNW2	S2	SSW4	SW5	SSW6	S5	SSE9	SSE10	SSE10	SSW9	S10	S10	SW12	WSW14	WSW14	SW7	SW16	SW19	SW15	WSW13	SW12	SW11	SW10	SSW9	SW8.6	SW19
8-Apr	SSW7	S8	SSE11	SE8	SSE11	SSE10	SSE8	SE3	ESE5	ESE5	ESE6	ESE10	S9	SSW15	SSW18	SW15	SSW9	SW9	SSW4	SE2	ESE3	SSE7	WSW6	SW5	S6.5	SSW18
9-Apr	WSW7	WSW10	WSW8	WSW8	WSW4	S6	S5	ESE2	ESE3	ESE6	SW6	WSW21	WSW18	WSW21	WSW22	WSW21	WSW21	W22	W23	W17	W14	W12	W11	WNW9	WSW11.0	W23
10-Apr	N7	NNW7	NW8	WNW11	WNW16	WNW15	NW17	NW17	WNW17	WNW19	NW20	NW9	NW14	NNW13	NNW15	NNE16	NNE17	NE13	NE12	NE11	ENE9	E8	SSE5	SSE5	NNW8.3	NW20
11-Apr	SE6	SE6	SSE7	SSE9	SSE7	SSE7	SE12	SE13	SE15	SE14	SE12	SE17	SE17	SE20	SE19	SE22	SE23	SE20	SE19	SE19	SE23	SE23	SE19	SSE16	SE15.1	SE23
12-Apr	SSE20	SSE15	SE17	SE15	SSE16	SSE16	S16	SSE20	SE19	SE20	SE20	SSE18	SSE19	SSE15	SE15	SE13	SE15	SE13	SE14	SE17	SE12	SE14	SE14	SSE11	SSE15.7	SSE20
13-Apr	SSE9	SW8	SW10	SW14	WSW20	WSW22	WSW25	W27	WNW24	WNW21	WNW24	WNW29	WNW31	W32	WNW24	WNW25	WNW20	WNW23	WNW17	WNW12	W10	WSW11	WSW11	WSW11	W17.2	W32
14-Apr	WSW9	NW5	ENE1	S5	SSE10	SSE10	SSE8	SSE10	SE9	SE10	SE12	ESE10	WSW10	W12	W11	WSW9	WNW6	NW6	SE3	SE5	NE8	ENE10	SE1	W2	S2.7	SE12
15-Apr	SE8	E1	N6	NNW3	WNW6	NW11	NNW11	N5	NNE6	N8	NNE8	SE11	SE14	ENE16	NE15	NE12	NNE14	NNE16	NNE15	NNE17	NNE15	N10	N17	N14	NNE7.8	NNE17
16-Apr	N21	N23	N26	N25	N27	N24	N22	N28	N25	N29	N29	N31	N33	N33	N37	N34	N32	NNE26	NNE26	NNE23	N23	N30	N31	N30	N27.7	N37
17-Apr	N32	N31	N24	N27	NNE29	N26	N21	N26	NNE23	N19	N22	NNE25	N25	NNE25	N24	NNE26	NNE28	NNE25	NNE23	NNE22	NNE21	NNE17	NNE15	NNE16	N23.8	N32
18-Apr	NNE15	N14	N16	N16	N16	NNW17	N16	NNW14	N19	NNE21	N23	N23	N20	NNE22	N21	NNE20	NNE22	NNE19	NNE19	NNE14	NNE15	N13	N13	N11	N17.1	N23
19-Apr	N7	NNE7	NW4	NNW2	WSW6	WSW7	SW5	SW4	SW4	ESE4	WSW3	WNW4	W4	WNW5	WSW6	WSW9	WSW11	SW12	SW13	SW12	SW12	WSW14	WSW13	WSW13	WSW5.8	WSW14
20-Apr	WSW10	W9	WSW7	SW7	SW6	S4	SSE7	SE4	ESE4	W6	W16	W14	W14	W16	W13	W12	WSW12	SW12	WSW8	SSW7	SSW12	S13	S12	S13	SW7.5	W16
21-Apr	SSE15	SSE12	SSE13	SSE10	SE12	SE11	SE9	SSE7	SE9	SE8	SE10	SE16	SE13	SE12	ESE10	ENE5	SE2	W2	WNW2	NNW8	N8	NNE8	N5	NW4	SE5.7	SE16
22-Apr	WNW6	WNW5	WNW5	N4	NW4	NW4	NW7	NNW10	NNW11	NNW10	NNW11	NNE17	NNE13	N4	NNW9	N12	NNE17	NNE16	NNE16	NNE14	NNE9	NNE12	NNE20	NNE23	N9.7	NNE23
23-Apr	NNE18	NNE15	N9	N9	NNE3	SW3	NE1	NNE4	NNE7	NNE6	NW3	WSW5	NNW7	NW8	NNE3	NE6	WNW5	NNE3	NNE16	NNE14	NE13	NE10	ENE10	ENE12	NNE6.3	NNE18
24-Apr	ENE12	N9	ENE10	E8	ENE8	ENE10	ENE8	SE8	ESE11	ESE15	SE24	SE21	ESE19	ESE20	ESE21	ESE20	ESE22	ESE20	ESE15	ESE16	ESE18	SE23	SE20	SE19	ESE14.5	SE24
25-Apr	SE18	S14	WSW12	SSW11	WSW11	WSW10	WSW9	WSW9	WSW15	WSW20	W26	W29	W25	WSW31	WSW28	WSW29	WSW31	W26	NW26	WNW23	WNW18	NNW23	NW10	NW17	W15.6	WSW31
26-Apr	NW20	NW21	NNW18	NNW19	NNW16	NNW14	NNW22	NNW23	NNW21	NNW17	NW16	NW16	NW16	NW14	NNW14	N14	NNW10	NE11	NE13	NE12	ENE10	ESE12	SE15	SSE11	NNW11.2	NNW23
27-Apr	SSE12	SSE12	SSE13	SSE16	SSE12	SE12	SE10	SSE13	SE11	SE12	SSE16	S17	SSE20	SSE22	S17	SSW18	SSW19	SSW20	SSE17	SE12	SE13	SE16	SE16	SE14	SSE14.0	SSE22
28-Apr	SE15	SE16	SE16	SE13	SE10	SE14	SE18	SE18	SE17	SE19	SE19	SE18	SE16	SE17	SE16	ESE17	SE17	SE15	ESE15	ESE16	ESE15	SE17	ESE14	SE14	SE15.6	SE19
29-Apr	SE17	SE14	SE11	SE8	E6	ESE6	E7	ENE8	NE9	NNE9	NNE10	NNE11	NNE11	NNE13	NE15	NE16	NNE16	NNE18	NNE21	N22	NNE20	N20	N21	N20	NE10.1	N22
30-Apr	N21	N18	N22	N25	N26	N28	NNE28	NNE29	N25	N25	N21	N22	N27	N29	N26	NNE20	N21	N21	NNW21	NNW18	N16	N20	N26	N23	N23.2	NNE29

E1.4	N1.7	N1.7	NNE0.9	NNW1.1	NW1.8	NW2.2	NNW2.8	N2.7	N3.2	NNW2.7	NNW1.8	NNW2.8	NW3.4	NNW3.1	NNW3.2	NNW3.2	N3.3	N4.5	NNE4.7	NE3.8	NE2.9	NE2.3	NE1.9	Diurnal Average	
N32	N31	N26	N27	NNE29	N28	NNE28	NNE29	N25	N29	N29	N31	N33	N33	N37	N34	N32	NNE26	NNE26	NNE23	N23	N30	N31	N30	Diurnal Maximum	

UO - Unstable Operation PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Apr 25 17:00														Hours in Service: 720 Hours of Data: 718 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7											
Minimum Value: 1 km/h on Apr 14 03:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 7 P <sub>99</sub> = 9																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-Apr	8	7	8	2	4	3	4	5	5	7	5	7	7	5	4	6	6	6	3	2	1	2	1	3	8
2-Apr	2	1	2	3	3	2	2	2	2	4	4	4	5	5	5	5	5	4	2	3	3	4	2	3	5
3-Apr	3	3	2	3	4	6	4	4	4	2	2	3	3	2	3	3	3	3	3	3	3	2	3	2	6
4-Apr	1	2	2	2	5	4	5	4	4	3	3	3	3	4	4	3	3	3	3	2	2	2	3	3	5
5-Apr	4	4	3	3	3	2	2	3	PF	2	3	3	3	3	4	3	2	UO	3	2	2	2	2	2	4
6-Apr	3	3	3	2	3	3	2	2	3	3	3	3	3	2	2	3	3	3	1	2	2	1	1	2	3
7-Apr	1	1	2	1	2	2	2	3	3	4	4	4	5	5	5	5	5	5	4	2	1	2	2	2	5
8-Apr	2	1	2	2	1	2	5	2	2	2	2	3	4	6	6	5	5	3	1	1	2	3	2	2	6
9-Apr	2	2	2	1	2	1	2	2	2	2	6	5	5	6	7	6	5	6	5	3	2	1	2	3	7
10-Apr	4	4	2	2	4	3	4	6	5	6	6	5	4	5	5	5	5	4	4	2	2	2	2	1	6
11-Apr	1	2	2	1	2	3	3	4	4	4	4	5	6	6	7	6	6	6	6	5	6	6	6	4	7
12-Apr	4	4	4	4	3	3	4	6	5	6	5	5	4	4	4	4	4	4	4	4	6	4	3	3	6
13-Apr	4	2	2	3	4	5	6	5	6	6	7	7	8	7	6	6	6	6	4	2	1	1	1	1	8
14-Apr	4	3	1	2	2	3	3	3	3	3	4	4	7	4	4	4	5	3	2	3	1	3	3	1	7
15-Apr	3	1	3	2	2	7	5	4	3	2	3	5	4	4	3	3	4	5	3	4	4	4	5	5	7
16-Apr	6	6	6	8	8	8	7	8	8	9	9	9	10	10	9	8	9	7	7	6	6	8	8	7	10
17-Apr	8	7	8	8	7	7	6	6	7	6	6	7	8	7	7	8	8	7	6	5	5	4	3	3	8
18-Apr	3	3	4	4	4	4	4	4	5	5	7	6	6	6	7	6	5	6	5	4	3	4	3	2	7
19-Apr	1	1	1	1	1	1	1	1	2	2	3	3	3	3	4	4	5	4	3	2	2	2	2	2	5
20-Apr	2	2	1	2	2	2	2	2	2	5	4	5	5	5	5	4	5	4	2	2	2	2	2	2	5
21-Apr	2	2	1	3	3	2	3	2	3	3	6	5	5	5	4	4	3	2	3	3	2	2	2	2	6
22-Apr	1	2	1	1	1	1	3	4	3	3	4	5	5	4	4	4	5	5	5	5	2	6	4	5	6
23-Apr	4	3	2	2	2	1	1	2	2	3	3	3	4	4	3	3	4	3	4	3	3	3	3	3	4
24-Apr	3	2	2	4	2	2	3	3	5	5	7	7	6	6	7	6	6	6	6	6	6	7	7	5	7
25-Apr	5	4	3	3	2	2	3	3	5	6	6	6	7	8	7	8	10	7	7	5	5	7	3	5	10
26-Apr	5	6	6	6	4	4	7	7	6	6	6	6	6	6	5	5	4	3	3	3	4	5	2	7	
27-Apr	3	3	3	3	3	3	3	3	3	4	7	7	7	7	8	7	7	7	6	3	3	4	4	3	8
28-Apr	3	4	4	4	4	5	5	5	4	5	6	5	5	5	5	6	5	5	5	5	5	5	5	5	6
29-Apr	5	4	5	3	3	2	2	2	3	3	3	3	3	4	4	4	5	5	5	5	5	5	5	5	5
30-Apr	5	5	6	6	6	7	7	7	6	6	6	7	7	7	7	5	7	7	6	6	6	8	6	7	8
Diurnal Maximum																									
UO - Unstable Operation												PF - Power Failure													





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Mannix - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	75	10.45	10.45
6 - 11	246	34.26	44.71
12 - 19	247	34.40	79.11
20 - 28	127	17.69	96.80
29 - 38	23	3.20	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Mannix - April 2024**

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	4	8	2	2	1	7	7	2	5	3	6	4	5	9	6	4	75
6 - 11	23	19	10	15	5	11	22	32	5	8	12	25	8	9	16	26	246
12 - 19	16	32	8	3	1	12	63	26	6	6	13	12	11	15	11	12	247
20 - 28	41	23	0	0	0	5	12	4	0	1	0	10	8	14	4	5	127
29 - 38	14	2	0	0	0	0	0	0	0	0	0	3	2	2	0	0	23
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	98	84	20	20	7	35	104	64	16	18	31	54	34	49	37	47	718

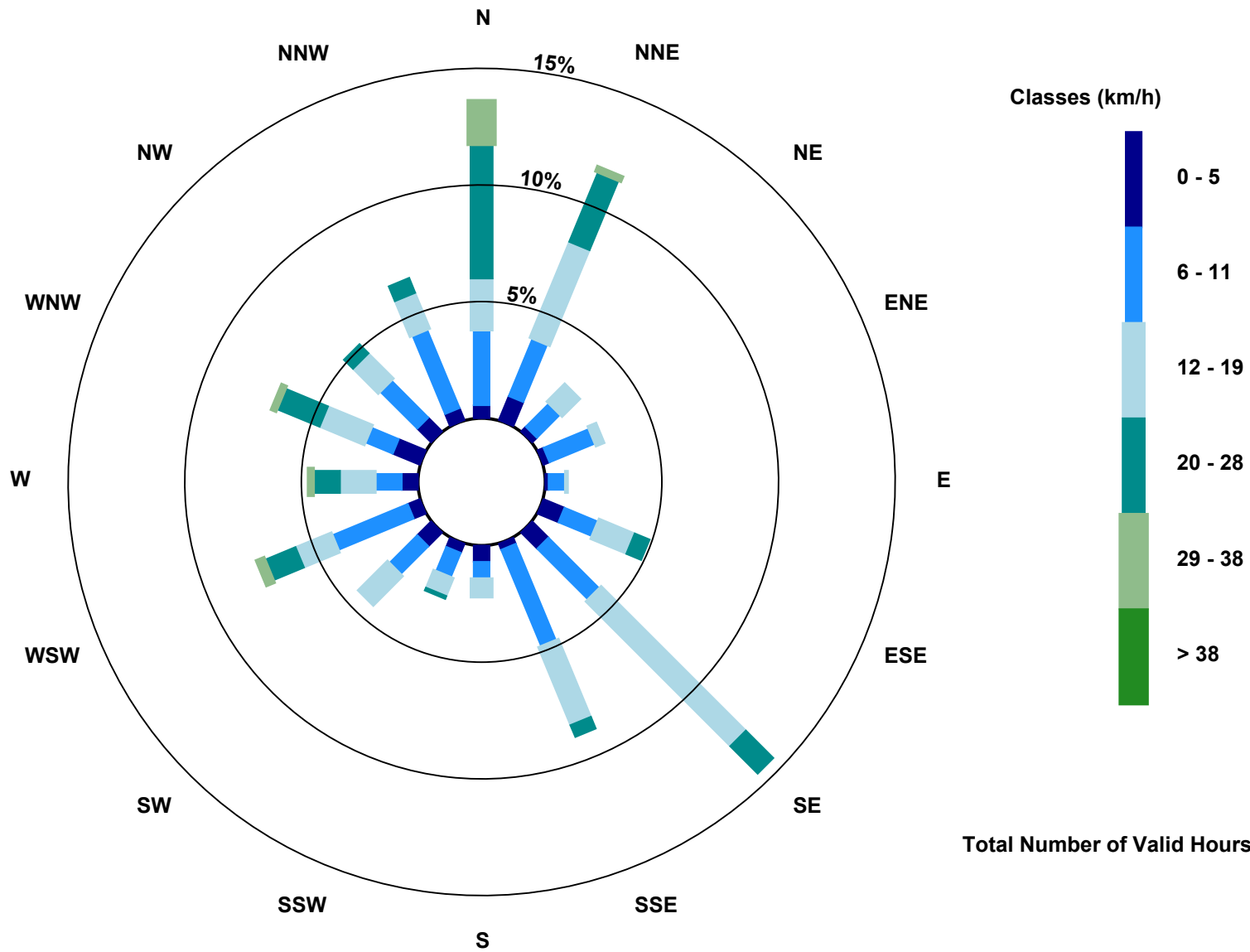
Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 20 m (WS20m) - km/h  
Mannix





Maximum Speed: 47 km/h on Apr 16 15:00	Maximum Daily Speed Average: 36.7 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 7 02:00	Minimum Daily Speed Average: 3.3 km/h on Apr 14	Hours of Data: 719
Maximum Diurnal Speed Average: 6.5 km/h at hour 20	Minimum Diurnal Speed Average: 1.2 km/h at hour 4	Hours of Missing Data: 1
Monthly Average Velocity: 3.2 km/h 353.0 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 17 Q <sub>3</sub> = 24 P <sub>90</sub> = 30 P <sub>99</sub> = 41	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-Apr	SW27WNW33WNW26	W16	W22WSW25WSW22	W25	W28WNW33	NW26WNW29WNW30WNW22WNW16WNW24	NW24WNW24WNW20WNW17	NW14	WNW6WSW10WSW13	WNW20.6	WNW33															
2-Apr	S9 SSE17 SSE18 SSE19 SSE23 SSE21 SE20 SE22 SE19 SSE15 SE12 SE20 SE20 SE19 SE22 SSE23 SSE25 SE19 SSE17 SE16 SSE18 SW20 S12 SE16	SSE17.3	SSE25																							
3-Apr	SE15 SE11 ESE9 SE13 S8WNW25WNW27WNW29WNW16 W8 SSW10WSW11 W14 W14 NNW11 NNW13 NNE12 NNE14 NNE14 NNE17 NNE13 NNE5 W4 WSW1	NW4.8	WNW29																							
4-Apr	ENE3 NNW6 NW9 NW10 NW15WNW23 NW24 NNW16 NNW13 N14 N11 NE9 ENE8 NNE6 NE12 NE8 NNE6 N10 N15 NNE13 ENE11 ENE12 ENE13 E13	N8.0	NW24																							
5-Apr	ESE14 E13 E12 E11 E7 NNE7 NNE10 NNE11 PF NNE6 NNW8 NW13 N13 NNW13 N12 N10 N8 N11 NNW11 NNW11 NNW13 N9 NW7 NW9	N7.1	ESE14																							
6-Apr	NW13 NW14 NW13 NNW12 NNE11 NNE9 NNW9 N8 N10 NNE11 NNW11 NNW9 N13 N12 NNW8 NNW11 NNW12 N10 NNW7 N9 NNW8 WNW8 NW6 WNW6	NNW9.0	NW14																							
7-Apr	WNW4 W0 S6 SSW8 SSW11 S8 SSE13 SSE14 SSE13 S13 S12 S14 SW15 SW16 SW16 SW10 SW20 SW25 SW21 SW20 SW19 SW19 SW17 SSW19	SSW12.3	SW25																							
8-Apr	SSW16 S13 S14 SSE16 SSE19 SSE18 SSE15 SSE4 SE6 ESE5 E6 ESE10 S11 SSW20 SSW25 SSW19 SSW13 SW13 SW6 SE3 ESE5 SE11 SW9 WSW6	S9.9	SSW25																							
9-Apr	W5 W11 WNW8 W9 W10 SW2 S5 ESE2 SSE2 ESE6 SW7WSW24 SW21WSW25WSW26 SW26WSW24WSW27WSW28WSW23WSW21 W17 W16WNW14	WSW13.6	WSW28																							
10-Apr	N10 NNW10 NW12WNW16WNW23WNW21WNW24 NW23WNW23WNW25 NW27 NW11 NW17 NNW17 NNW20 N20 NNE20 NNE16 NE16 NE15 ENE12 E11 SSE9 SSE10	NNW11.0	NW27																							
11-Apr	SE8 SE11 SE12 SE13 SE13 SE13 SE17 SE18 SE18 SE16 SE13 ESE18 ESE20 SE24 SE22 SE25 SE28 SE24 SE25 SE23 SE27 SE29 SE26 SE23	SE19.3	SE29																							
12-Apr	SSE29 SE23 SE24 SE23 SSE23 SSE24 SSE23 SSE26 SE26 SE25 SE24 SE23 SSE24 SSE18 SE18 SE16 SE18 SE16 SE19 SE22 SE16 SE17 SE19 SSE17	SE21.0	SSE29																							
13-Apr	S15 SW16 SW19 SW22 SW28WSW29WSW31 W31WNW30WNW27WNW28WNW36WNW39 W38WNW30 W30WNW26 W28WNW23WNW18 W14WSW18WSW18WSW16	W23.1	WNW39																							
14-Apr	WSW14 WNW8 WNW2 S4 SSE9 SSE12 SSE14 SSE12 SE11 SE11 SE14 ESE11WSW11 W13 W13WSW11 WNW7 NW7 SE4 ESE9 NE11 ENE13 ESE4 SE1	S3.3	SE14																							
15-Apr	SE10 ESE1 NNE8 N7 NW8 NW14 NNW18 NNW9 N10 N10 NNE10 SE11 SE16 ENE19 NE18 NE15 NNE16 NNE21 NNE19 NNE22 N20 N15 N24 N20	NNE10.8	N24																							
16-Apr	N30 N32 N35 N33 N35 N32 N30 N38 N34 N39 N38 N40 N43 N43 N47 N44 N41 N34 N34 N31 N30 N40 N41 N40	N36.7	N47																							
17-Apr	N43 N41 N34 N36 N37 N35 N27 N34 N30 N24 N27 N31 N31 N31 N31 N33 N35 N32 N30 N29 N29 N24 N22 N22	N31.2	N43																							
18-Apr	N21 N19 N22 N21 NNW22 NNW22 N20 NNW18 N24 N26 N28 N29 N25 N27 N26 N25 N28 NNE24 NNE24 NNE20 N22 N21 N20 N17	N22.7	N29																							
19-Apr	N12 N10 NNW6 NNW5 WNW3 W6 WSW7 SSW4 SW4 SE3 WSW3 WNW5 W5 WNW7 WSW8 SW11 SW12 SW15 SW17 SW19 SW20WSW22WSW22WSW20	WSW7.6	WSW22																							
20-Apr	WSW16WSW15WSW11WSW11WSW12 SW10 SSW9 SSE5 SE4 W7 W18 W17 W17 W19WSW15 W15WSW14 SW15WSW11 SSW11 SSW20 SSW22 S20 S22	SW11.7	S22																							
21-Apr	SSE20 SSE20 SSE22 SSE19 SE21 SE20 SE15 SE9 SE10 ESE9 SE12 ESE17 SE16 SE14 ESE11 ENE6 SSE1 W3 NW3 NNW11 N12 NNE13 NNE10 NNW5	SE7.9	SSE22																							
22-Apr	NW9 NNW8 NW10 NNW8 NNW8 NNW12 NW13 NNW14 NNW13 NNW12 NNW13 N21 N15 NNW6 NNW10 N16 N21 NNE21 NNE22 NNE20 NNE15 NNE17 N28 N33	N14.3	N33																							
23-Apr	NNE26 N23 N15 N15 N7 SSW1 NNE4 N5 NNE9 NNE7 NW4 WSW6 NNW9 NW9 NNE3 NNE7 W6 N4 NNE20 NNE19 NNE19 NE15 ENE14 ENE15	NNE9.2	NNE26																							
24-Apr	ENE16 NE11 E12 E11 ENE11 ENE14 ENE10 SE9 ESE12 ESE17 SE28 SE25 ESE21 E23 ESE24 ESE23 E26 ESE23 ESE18 E20 ESE21 SE30 SE24 SE22	ESE17.7	SE30																							
25-Apr	SE23 S21WSW17 SSW17WSW18WSW15WSW12WSW11 SW17WSW23WSW30WSW34 W30WSW36WSW33WSW34WSW36 W30WNW34WNW29WNW23 NNW30 NW15 NW22	W19.3	WSW36																							
26-Apr	NW26 NW28 NNW24 NW26 NNW22 NNW20 NW30 NW30 NW27 NW21 NW20 NW19 NW20 NW17 NNW18 NNW17 NNW13 NNE12 NE15 NE15 ENE13 E14 SE19 SE17	NNW14.4	NW30																							
27-Apr	SE18 SE19 SE21 SSE24 SSE18 SE19 SE14 SE16 SE13 SE14 SSE19 S24 SSE24 SSE27 S24 S27 S28 S31 SSE22 SE16 SE17 SE19 SE21 SE19	SSE19.3	S31																							
28-Apr	SE19 SE19 SE19 SE15 ESE12 ESE15 SE22 SE22 SE20 SE22 SE21 SE20 SE18 SE19 SE18 ESE19 SE20 ESE17 ESE17 E19 ESE17 SE19 ESE16 SE16	ESE18.2	SE22																							
29-Apr	SE21 SE17 ESE13 SE11 E7 E8 E7 ENE9 NNE10 NNE11 NNE12 NNE13 NNE14 NNE16 NNE18 NNE19 NNE20 NNE22 N27 N30 N27 N27 N28 N26	NNE13.0	N30																							
30-Apr	N27 N25 N30 N33 N35 N37 N37 N37 N33 N34 NNW30 N30 N36 N38 N35 N26 N29 N28 NNW28 NNW24 N23 N27 N34 N32	N31.0	N38																							
Diurnal Average											Diurnal Maximum															
ENE1.7 N2.2 N2.4 NNE1.2 NW1.6 NW2.6 NW3.0 NNW3.9 N3.8 N4.3 NNW3.8 NNW2.7 NNW3.8 NW4.4 NNW4.0 NNW3.9 NNW4.1 N4.2 N6.0 NNE6.5 NNE5.3 NE3.9 NNE3.1 NNE2.5											N43 N41 N35 N36 N37 N37 N37 N38 N34 N39 N38 N40 N43 N43 N47 N44 N41 N34 N34 N31 N30 N40 N41 N40															

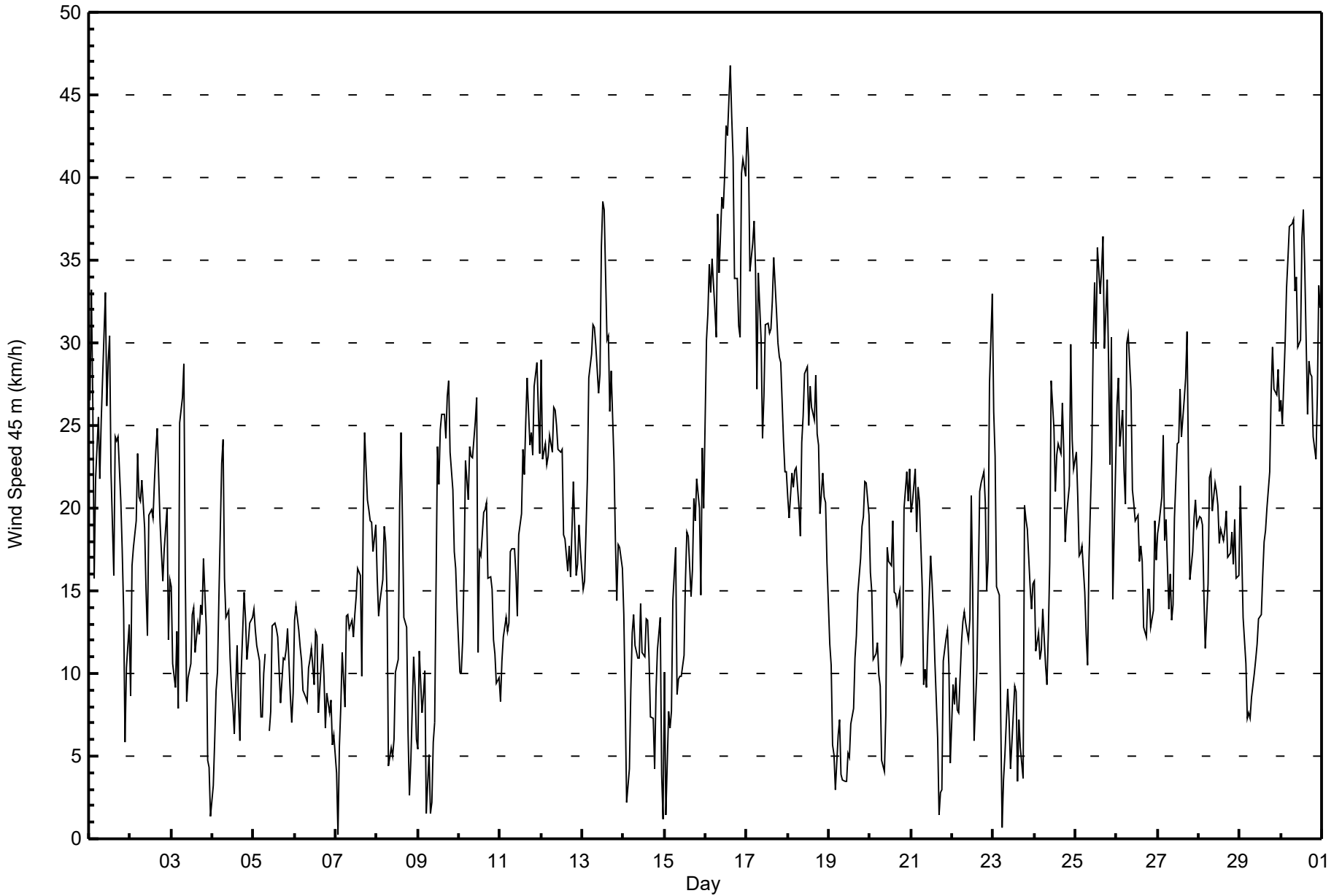
PF - Power Failure

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





Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on Apr 25 17:00 Minimum Value: 1 km/h on Apr 21 01:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 8																	Hours in Service: 720 Hours of Data: 719 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	7	6	9	2	4	3	4	4	5	6	5	6	8	5	4	5	5	5	3	3	2	5	1	2	9
2-Apr	2	3	1	2	2	2	1	2	3	4	4	4	5	4	4	5	4	4	2	2	3	6	3	3	6
3-Apr	3	4	3	3	3	7	3	4	5	2	3	3	3	2	3	3	3	3	3	3	4	2	3	2	7
4-Apr	2	4	2	2	6	4	5	4	4	3	3	3	3	4	4	4	2	3	3	2	2	2	3	3	6
5-Apr	4	4	3	3	3	2	2	2	PF	2	3	2	3	2	3	3	2	2	3	2	2	3	2	2	4
6-Apr	2	2	2	2	3	3	2	3	3	3	3	2	3	3	2	2	3	2	1	2	2	1	1	2	3
7-Apr	1	2	2	1	1	2	2	2	2	3	3	4	4	4	5	6	6	5	4	2	2	3	2	1	6
8-Apr	3	1	1	1	2	2	8	2	2	2	2	3	4	5	5	5	5	3	2	1	3	3	3	3	8
9-Apr	3	2	3	1	3	1	4	2	2	2	7	5	6	6	8	6	5	6	5	3	2	1	2	4	8
10-Apr	4	5	3	2	3	3	4	7	5	5	6	6	4	5	5	5	5	4	3	1	2	1	3	1	7
11-Apr	1	1	2	1	1	2	4	4	4	4	4	5	5	6	7	6	7	6	6	5	6	6	6	4	7
12-Apr	3	3	3	3	3	3	4	6	5	5	5	4	4	4	4	3	4	3	3	4	6	4	3	3	6
13-Apr	5	2	3	3	4	5	6	5	5	6	6	7	7	6	6	6	5	4	4	2	2	1	1	1	7
14-Apr	6	3	1	2	3	2	3	2	3	3	3	3	7	4	4	4	5	4	3	3	1	4	4	2	7
15-Apr	4	1	3	3	2	8	6	6	5	2	3	5	4	4	3	3	4	5	3	4	3	5	5	5	8
16-Apr	5	5	6	8	8	9	7	7	7	8	8	9	9	9	8	8	8	7	6	6	6	7	7	7	9
17-Apr	7	7	8	7	6	6	6	6	8	7	6	6	7	7	8	8	7	7	6	5	5	3	3	3	8
18-Apr	3	3	4	3	4	4	4	4	5	5	6	5	6	6	6	6	5	6	5	4	3	4	3	2	6
19-Apr	1	1	3	1	1	1	2	1	2	2	3	2	3	3	4	4	5	4	3	3	2	2	2	2	5
20-Apr	2	2	2	2	2	2	1	2	1	5	4	5	4	5	4	4	5	3	2	3	3	1	3	4	5
21-Apr	1	1	1	3	3	2	3	3	3	3	6	5	5	5	5	4	2	2	4	3	2	1	4	4	6
22-Apr	2	2	1	2	3	1	2	4	3	2	4	4	5	5	4	4	5	5	6	5	3	8	4	5	8
23-Apr	5	3	3	2	3	1	1	2	2	3	3	4	3	3	3	3	5	4	4	4	3	4	4	4	5
24-Apr	3	3	2	3	3	2	4	3	5	5	7	7	6	6	7	7	7	7	6	6	7	8	8	6	8
25-Apr	5	3	4	4	2	1	3	3	5	6	6	6	6	8	7	8	11	7	6	5	6	7	3	5	11
26-Apr	4	5	5	6	4	4	7	6	5	5	5	6	6	6	6	5	5	4	3	3	3	5	4	3	7
27-Apr	3	2	3	3	4	3	3	3	3	4	7	7	7	7	7	6	6	6	6	2	2	3	3	3	7
28-Apr	3	5	5	4	4	6	5	5	4	5	5	5	5	4	5	5	5	5	5	5	5	5	4	5	6
29-Apr	5	4	5	3	3	3	2	2	3	2	2	3	3	4	4	5	5	4	5	4	5	5	5	4	5
30-Apr	4	5	5	5	5	5	6	6	6	5	6	6	6	6	7	6	7	7	6	5	6	8	6	6	8
Diurnal Maximum																									
PF - Power Failure																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 45 m (WS45m) - km/h**  
**Mannix - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	41	5.70	5.70
6 - 11	149	20.72	26.43
12 - 19	240	33.38	59.81
20 - 28	197	27.40	87.20
29 - 38	79	10.99	98.19
> 38	13	1.81	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 45 m (WS45m) - km/h**  
**Mannix - April 2024**

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	2	3	0	1	0	5	5	4	2	2	2	2	5	4	2	2	41
6 - 11	16	17	4	6	7	8	13	3	5	5	6	12	7	7	11	22	149
12 - 19	15	21	8	10	6	16	52	21	5	7	15	14	13	6	13	18	240
20 - 28	39	14	0	0	3	7	38	17	7	4	11	14	4	18	12	9	197
29 - 38	48	0	0	0	0	0	2	1	1	0	0	8	5	10	2	2	79
> 38	12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	13
<b>Totals</b>	132	55	12	17	16	36	110	46	20	18	34	50	34	46	40	53	719

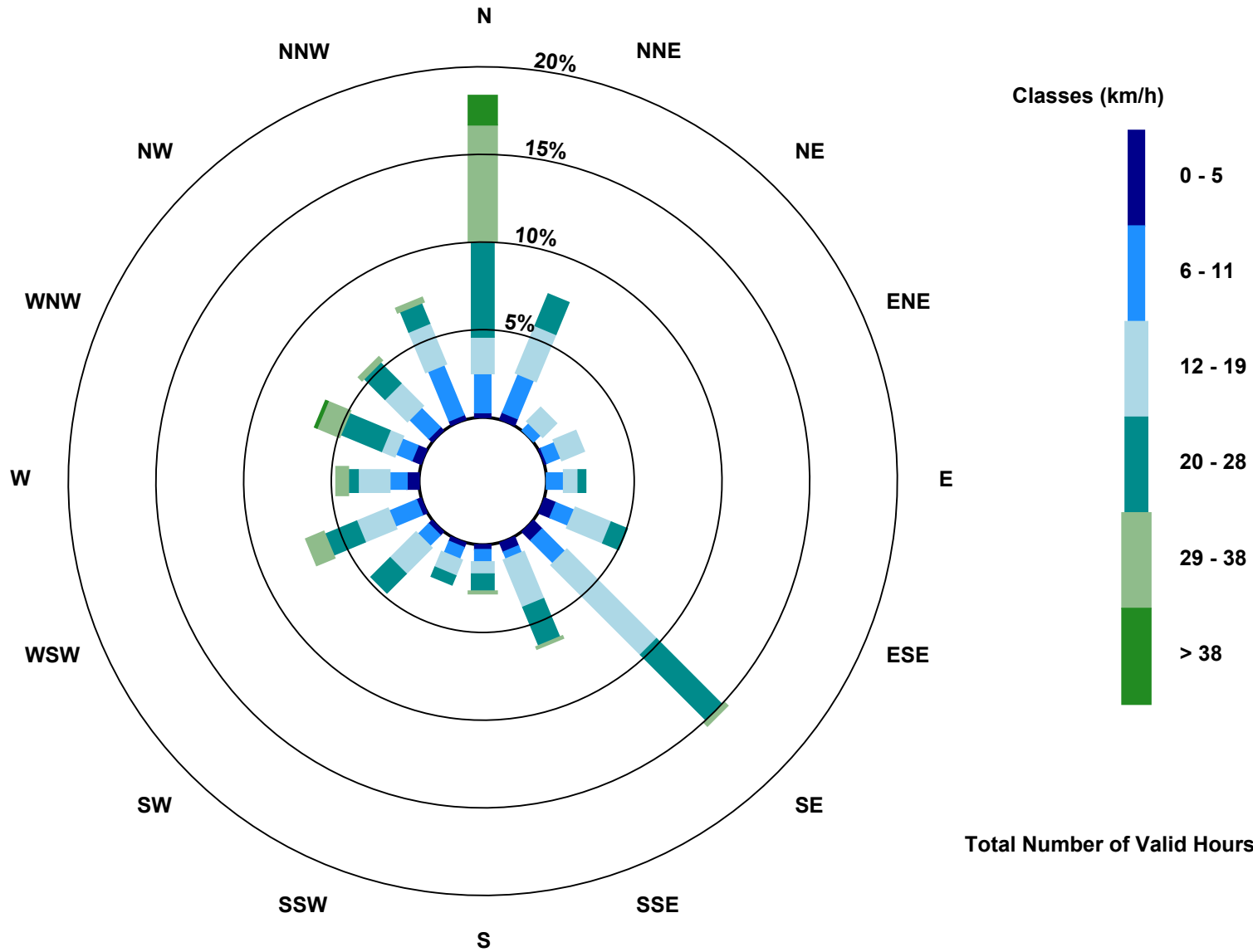
Total Number of Valid Hours: 719

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 45 m (WS45m) - km/h  
Mannix



Total Number of Valid Hours: 719



Maximum Speed: 52 km/h on Apr 16 15:00	Maximum Daily Speed Average: 41.2 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 7 02:00	Minimum Daily Speed Average: 3.7 km/h on Apr 14	Hours of Data: 710
Maximum Diurnal Speed Average: 7.6 km/h at hour 20	Minimum Diurnal Speed Average: 0.6 km/h at hour 4	Hours of Missing Data: 10
Monthly Average Velocity: 3.9 km/h 347.3 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 8 Q <sub>1</sub> = 12 Median = 18 Q <sub>3</sub> = 27 P <sub>90</sub> = 34 P <sub>99</sub> = 45	Percent Operational Time: 98.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW31WNW36WNW30	W20	W25WSW31WSW27	W28	W30WNW35	NW29WNW30WNW31WNW23WNW17WNW25	NW26	NW27WNW25	NW23	NW18	NNW8	W6	WSW9	WNW22.6	WNW36											
2-Apr	SW10	S12	S17	S24	SSE31	SSE29	SE26	SE28	SE24	SSE21	SE15	SE22	SE20	SE16	SE22	SSE26	SSE28	SSE23	SSE24	SE20	S23	SW28	SSW14	SSE17	SSE19.8	SSE31
3-Apr	SSE13	SE14	SE10	SSE16	SSE10WNW30WNW33WNW33WNW20	W11	SW12WSW14	W16	W16	NNW11	NNW15	NNE13	NNE15	NNE17	NNE20	NNE17	NNE7	WNW3	WSW1	NNW6.0	WNW33					
4-Apr	E3	NNW6	NW10	NW11	NW16WNW25	NW27	NNW18	N15	N15	N12	NE9	ENE8	NNE7	NE12	NE9	NNE7	N11	NNE16	NE15	ENE13	ENE14	E12	N8.5	NW27		
5-Apr	ESE11	ESE10	ESE10	E10	E7	NE7	NE11	NNE12	PF	NNE7	NNW8	NNW13	N14	NNW13	N14	N13	N10	NNE14	NNW12	N13	N14	N10	NNW7	NW9	NNE8.1	N14
6-Apr	NW14	NW15	NW14	UO	UO	UO	UO	UO	UO	UO	UO	UO	N13	N14	NNW8	NNW12	NNW13	N10	NNW7	NNE10	N8	WNW8	NW5	NW7	---	NW15
7-Apr	NW4	NE1	SSE6	SSW8	SSW12	SSW10	SSE15	SSE17	SSE14	S14	S13	S15	SW16	SW17	SW17	SW11	SW21	SW27	SW23	WSW24	WSW25	SW25	WSW23	SW24	SW13.9	SW27
8-Apr	SW23	SW18	SSW17	SSW13	S13	SSW13	S16	SW7	SSE7	SE4	ESE5	ESE8	S12	SSW21	SSW27	SSW21	SSW15	SW14	SW8	SSE2	ESE5	SE10	SSW12	W7	SSW10.7	SSW27
9-Apr	WNW7WNW10	NNW7	WNW4	W9	W9	SW5	SW3	SW3	SE4	SW8WSW25	SW23WSW27WSW27WSW27WSW26WSW29WSW31	W28	W27	W22	W21	NW17	WSW15.1	WSW31								
10-Apr	N11	NNW13	NW14	WNW20	WNW26	WNW24	NW27	NW27	WNW27	WNW28	NW30	NW13	NW18	NNW18	NNW22	N21	NNE22	NE18	NE18	NE18	ENE15	E11	SSE9	SSE12	NNW12.6	NW30
11-Apr	SSE11	SE13	SE14	SE17	SE10	SE11	SE14	SE19	SE15	SE15	SE12	SE15	SE15	SE20	SE19	SE22	SE25	SE19	SE21	SE21	SE22	SE29	SE30	SSE29	SE18.2	SE30
12-Apr	SSE35	SSE30	SE31	SE30	SSE29	SSE30	SSE28	SSE31	SE30	SE28	SE26	SSE26	SSE26	SSE21	SE18	SE15	SE18	SE16	SE20	SE22	SE17	SE13	SE21	SSE23	SSE24.0	SSE35
13-Apr	SSW19	WSW22	SW25	SW29	SW34	WSW35	WSW35	W33	WNW32	WNW28	WNW29	WNW37	WNW40	W40	WNW32	WNW32	WNW27	W31	WNW25	WNW22	W17	WSW23	W25	W24	W26.7	W40
14-Apr	W21	W13	WSW4	SSW4	S5	S8	SSE12	SSE14	SSE13	SE11	SE14	SE10	WSW12	W14	W14	WSW12	WNW8	NW8	SE5	ESE8	NE10	E13	E5	ESE4	SSW3.7	W21
15-Apr	SE8	ESE2	NE8	NE8	NNW6	NW13	NNW23	NNW12	N14	N12	NNE11	SE9	SE13	ENE20	NE19	NE16	NNE17	NNE23	NNE21	NNE25	NNE22	N18	N27	N25	NNE12.5	N27
16-Apr	N34	N35	N39	N36	N40	N36	N35	N44	N39	N44	N43	N44	N48	N47	N48	N45	NNE38	NNE38	NNE35	N35	N45	N46	N45	N41.2	N52	
17-Apr	N48	N45	N38	N40	N42	N38	N30	N38	N33	N27	N29	N34	N34	N34	N34	NNE36	NNE38	NNE36	N34	NNE33	N33	NNE28	NNE27	NNE29	N34.9	N48
18-Apr	NNE26	N23	N25	N24	N26	NNW26	N22	N20	N26	N28	N30	N31	N27	N29	N28	NNE27	N30	NNE27	NNE27	NNE24	NNE28	N27	N27	NNE21	N25.8	N31
19-Apr	NNE14	NNE11	N7	N5	NW3	WNW4	WSW6	SW7	SW4	SE4	SW3	WNW5	W5	WNW7	WSW8	SW11	SW13	SW16	SW19	SW23	SW25	WSW29	WSW29	WSW26	WSW8.6	WSW29
20-Apr	WSW23	WSW21	WSW16	WSW16	WSW17	WSW14	SW11	SSW7	S4	W9	W18	W17	W17	W20	W16	W15	SW15	SW16	WSW12	SSW12	SSW24	SSW27	SSW27	SSW28	WSW14.8	SSW28
21-Apr	S23	S23	S24	S24	SSE27	SSE26	SE19	SE12	SE11	SE8	SE12	SE14	SE14	SE12	ESE10	E6	S2	W2	NW3	NNW11	N15	NNE17	NNE15	NNW8	SE7.9	SSE27
22-Apr	NNW12	NNW10	NNW10	N11	N12	NNW18	NNW17	N16	NNW13	NNW12	NNW14	NNE22	NNE16	N6	NNW11	N16	NNE23	NNE24	NNE25	NNE25	NNE21	NNE22	NNE34	N39	N17.2	N39
23-Apr	NNE32	NNE30	NNE22	NNE19	NNE11	NNE4	NNE6	N6	NNE10	NNE7	NW4	WSW5	NNW10	NW9	NNE4	NNE8	W6	NNE4	NNE23	NNE24	NE23	NE19	ENE17	E17	NNE11.4	NNE32
24-Apr	ENE18	ENE12	E13	E10	ENE12	E15	E11	SE9	ESE10	ESE14	SE23	SE20	ESE16	ESE19	ESE18	ESE18	ESE21	ESE19	ESE15	ESE17	ESE18	SE34	SE21	SE18	ESE15.8	SE34
25-Apr	SE27	SSW24	WSW21	SW18	WSW22	WSW16	WSW16	WSW17	WSW25	WSW32	WSW36	W31	WSW38	WSW35	WSW37	WSW39	W31	NW36	WNW31	NW26	NNW34	NNW17	NW25	W21.3	WSW39	
26-Apr	NW29	NW31	NNW27	NNW29	NNW26	NNW23	NNW34	NNW34	NNW29	NNW22	NW21	NW20	NW20	NW17	NNW19	NNW18	NNW13	NE13	NE16	NE17	ENE15	E12	SE18	SE21	NNW15.8	NNW34
27-Apr	SSE24	SSE26	SE27	SSE31	SSE23	SE23	SE18	SSE17	SE13	SE15	SSE21	S26	SSE25	SSE29	S27	S29	S31	S35	SSE25	SE17	SE18	SE16	SE17	SE15	SSE21.4	S35
28-Apr	SE15	SE14	SE13	SE11	ESE10	SE12	SE17	SE18	SE17	SE17	SE16	SE16	SE15	SE16	SE16	ESE15	SE17	SE14	ESE14	ESE15	ESE13	SE15	ESE12	SE13	SE14.4	SE18
29-Apr	SE19	SE17	ESE11	SE10	E7	ESE7	E7	ENE9	NNE10	NNE12	NNE12	NNE14	NNE14	NNE17	NNE19	NNE20	NNE21	NNE24	NNE30	N33	NNE31	N30	N31	N29	NNE14.3	N33
30-Apr	N30	N28	N33	N37	N38	N41	N41	N41	N36	N38	N34	N35	N41	N42	N39	N29	N32	N31	N32	N28	N26	N32	N36	N37	N34.7	N42

NNE0.9	NNW2.7	N2.9	N0.6	NW2.2	NNW4.1	NW4.0	NNW4.4	NNW4.2	NNW4.7	NNW4.3	NNW3.4	NNW4.7	NW5.1	NNW4.7	NNW4.6	NNW4.6	N5.0	N6.9	NNE7.6	NNE6.3	NNE4.7	NNE3.8	N3.4	Diurnal Average
N48	N45	N39	N40	N42	N41	N41	N44	N39	N44	N43	N44	N48	N47	N52	N48	N45	NNE38	NNE38	NNE35	N35	N45	N46	N45	Diurnal Maximum

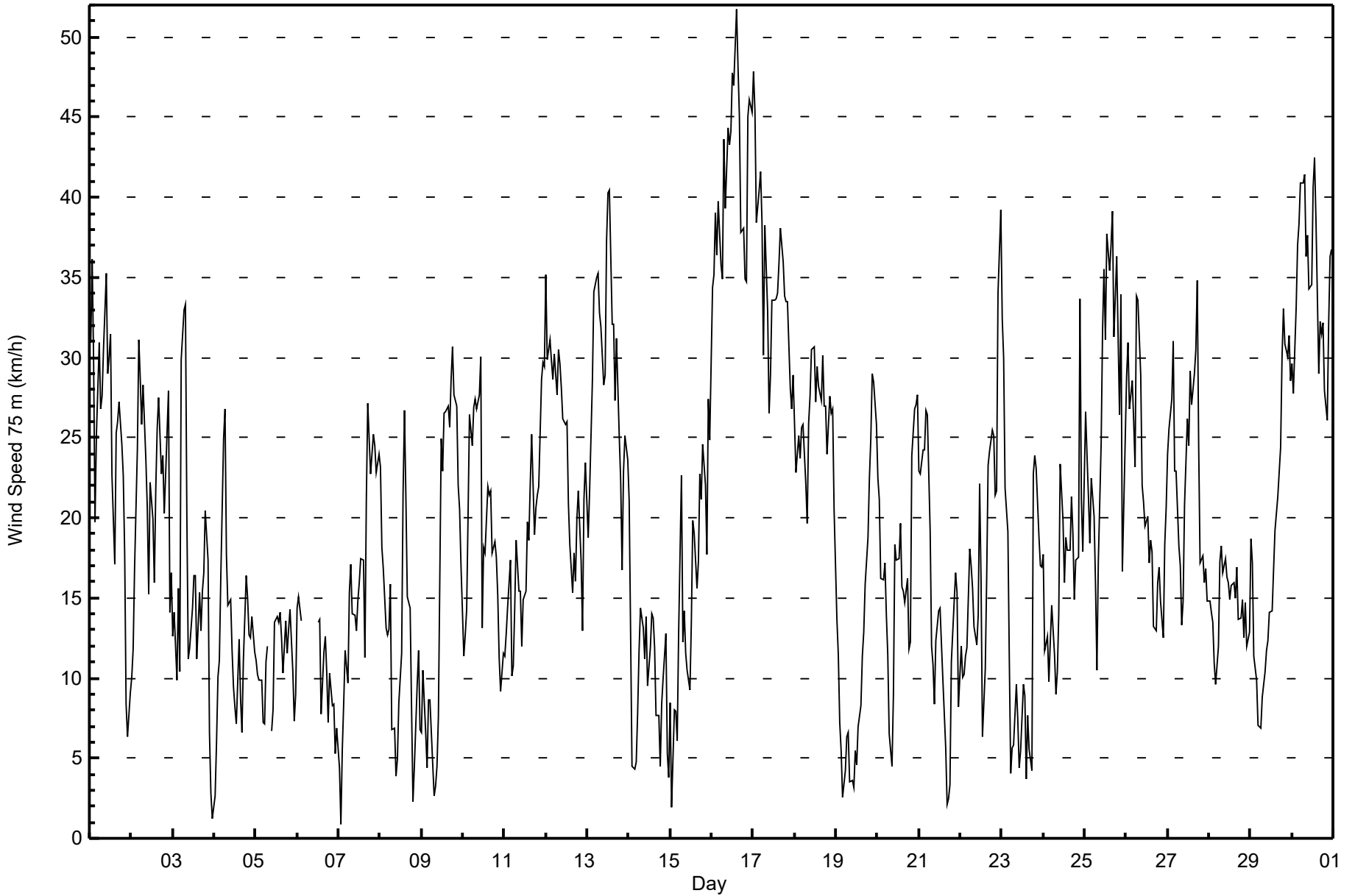
UO - Unstable Operation PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 75 m (WS75m) - km/h**  
**Mannix - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 12 km/h on Apr 25 17:00 Minimum Value: 1 km/h on Apr 19 07:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 7 P <sub>99</sub> = 9														Hours in Service: 720 Hours of Data: 710 Hours of Missing Data: 10 Hours of Calibration: 0 Percent Operational Time: 98.6											
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-Apr	7	6	9	2	4	3	5	4	5	6	5	6	7	5	4	5	5	5	3	3	3	7	1	2	9
2-Apr	1	3	2	2	3	3	2	2	3	4	5	4	5	5	6	5	4	4	2	2	4	8	3	3	8
3-Apr	3	4	4	3	3	9	3	4	5	1	3	4	3	3	3	4	3	3	4	2	4	3	2	2	9
4-Apr	2	4	3	2	6	4	5	4	4	3	3	3	3	4	3	4	2	3	3	2	2	2	2	3	6
5-Apr	4	3	3	2	3	2	2	2	PF	2	2	2	3	2	3	3	3	2	3	2	2	3	2	2	4
6-Apr	2	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	2	3	3	2	2	2	2	1	1	2	3
7-Apr	1	2	2	1	1	1	3	2	3	2	3	4	4	4	4	7	6	4	4	2	2	3	2	2	7
8-Apr	3	2	2	2	3	3	7	3	3	2	2	3	5	6	5	5	6	3	2	1	2	4	3	3	7
9-Apr	2	1	3	2	2	1	4	4	2	2	8	5	6	6	7	6	5	6	4	3	3	2	2	5	8
10-Apr	4	6	3	2	3	3	5	7	5	5	5	6	4	5	5	5	5	4	3	1	2	2	3	1	7
11-Apr	1	1	2	2	4	3	4	5	5	5	4	6	6	8	8	8	9	8	8	8	9	9	6	4	9
12-Apr	3	3	2	3	4	3	5	6	6	5	6	4	3	4	5	5	4	4	4	6	6	5	4	4	6
13-Apr	5	3	3	3	4	5	5	5	5	6	6	7	6	6	6	6	5	4	4	2	2	1	1	1	7
14-Apr	7	3	2	2	2	2	5	2	3	3	4	4	7	4	4	4	5	4	4	3	1	5	4	3	7
15-Apr	4	2	2	2	2	6	5	6	5	2	4	5	4	4	2	3	4	4	3	4	2	5	4	5	6
16-Apr	4	4	5	8	8	8	7	7	7	8	8	9	8	8	7	7	8	7	6	6	5	6	7	5	9
17-Apr	6	6	8	7	6	6	7	5	8	7	5	6	7	6	8	8	7	6	6	5	4	3	2	3	8
18-Apr	3	3	3	3	3	4	4	4	5	4	5	5	6	5	6	5	5	5	5	3	2	3	3	2	6
19-Apr	2	1	3	1	1	1	1	2	2	2	3	2	3	3	4	4	5	4	2	3	2	3	3	2	5
20-Apr	3	3	2	3	2	2	1	2	2	6	4	5	4	5	4	4	5	3	2	3	4	2	3	4	6
21-Apr	1	1	1	1	2	3	4	4	3	4	6	5	6	5	4	4	2	2	4	3	1	2	3	5	6
22-Apr	2	2	3	2	3	1	2	4	3	2	4	4	5	5	3	4	5	4	6	4	3	9	4	4	9
23-Apr	4	2	2	1	3	2	1	2	2	3	3	4	3	3	3	3	4	4	4	3	3	4	4	4	4
24-Apr	3	3	3	3	4	3	4	4	4	5	9	8	5	6	6	6	6	6	6	6	8	8	11	8	11
25-Apr	5	3	5	5	2	2	4	3	5	6	6	5	6	8	7	8	12	7	6	4	6	7	4	4	12
26-Apr	4	5	6	6	4	4	7	6	5	5	5	5	6	6	6	6	5	4	2	2	3	5	6	3	7
27-Apr	3	2	3	2	4	2	3	3	3	4	7	6	7	7	7	6	7	6	7	3	4	5	6	6	7
28-Apr	6	6	6	5	4	6	7	6	6	7	6	6	6	5	6	5	6	5	4	5	5	6	4	5	7
29-Apr	7	6	5	4	3	3	2	2	3	2	2	3	3	4	4	5	5	4	4	4	5	4	4	4	7
30-Apr	4	4	4	4	4	4	5	5	5	4	6	7	6	5	7	5	7	6	5	5	6	8	5	6	8
Diurnal Maximum																									
UO - Unstable Operation      PF - Power Failure																									







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 75 m (WS75m) - km/h**  
**Mannix - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	39	5.49	5.49
6 - 11	117	16.48	21.97
12 - 19	227	31.97	53.94
20 - 28	181	25.49	79.44
29 - 38	117	16.48	95.92
> 38	29	4.08	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 75 m (WS75m) - km/h  
Mannix - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	1	3	1	0	2	4	4	1	3	1	5	3	2	4	5	0	39
6 - 11	10	13	7	2	8	10	13	5	1	3	8	4	7	5	6	15	117
12 - 19	17	20	10	9	6	15	57	11	8	10	10	11	11	1	11	20	227
20 - 28	19	28	1	1	0	1	25	18	8	8	11	18	11	14	11	7	181
29 - 38	39	15	0	0	0	0	6	10	3	0	3	12	5	14	5	5	117
> 38	25	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	29
<b>Totals</b>	<b>111</b>	<b>80</b>	<b>19</b>	<b>12</b>	<b>16</b>	<b>30</b>	<b>105</b>	<b>45</b>	<b>23</b>	<b>22</b>	<b>37</b>	<b>49</b>	<b>37</b>	<b>39</b>	<b>38</b>	<b>47</b>	<b>710</b>

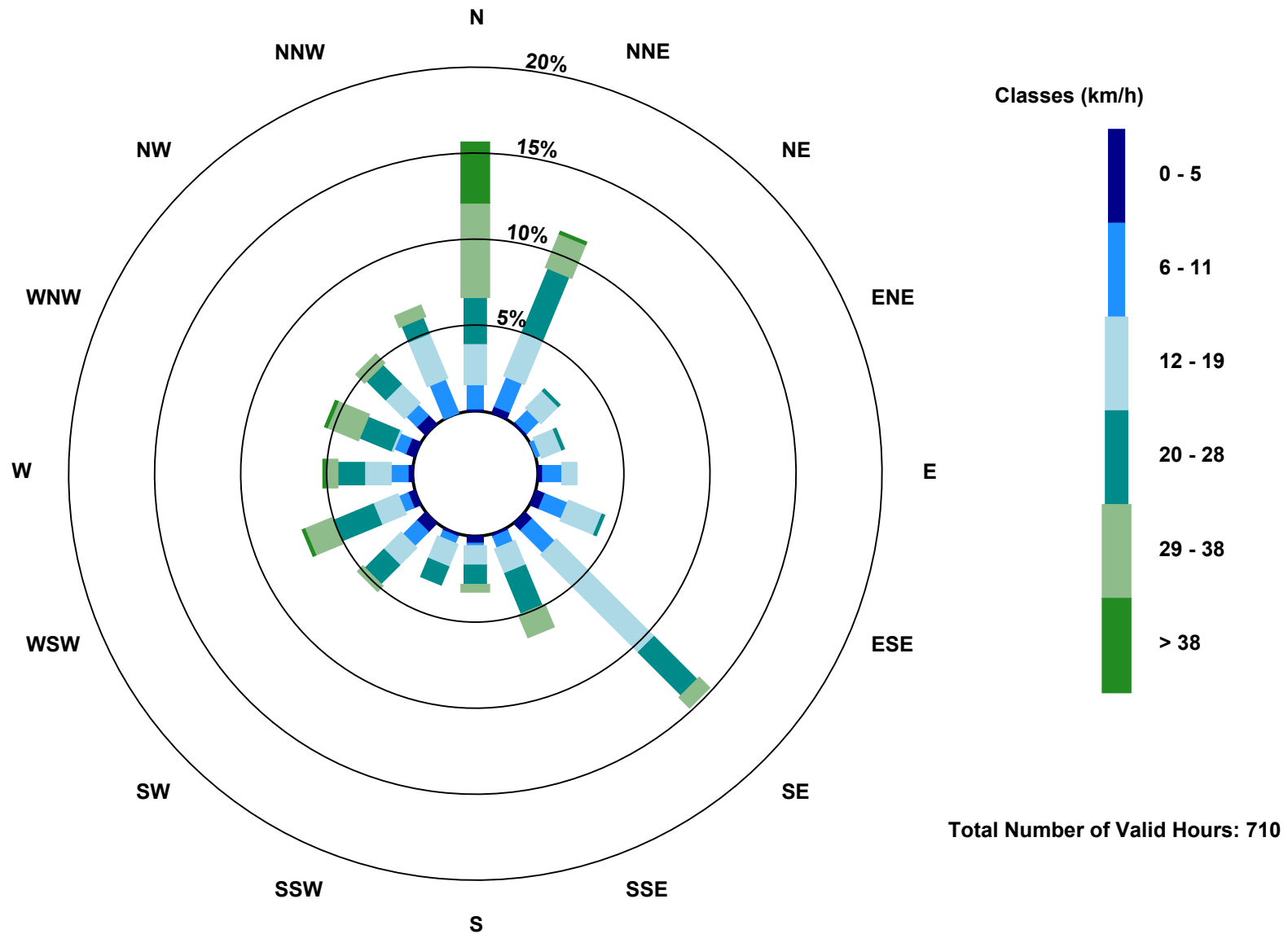
Total Number of Valid Hours: 710

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 75 m (WS75m) - km/h  
Mannix





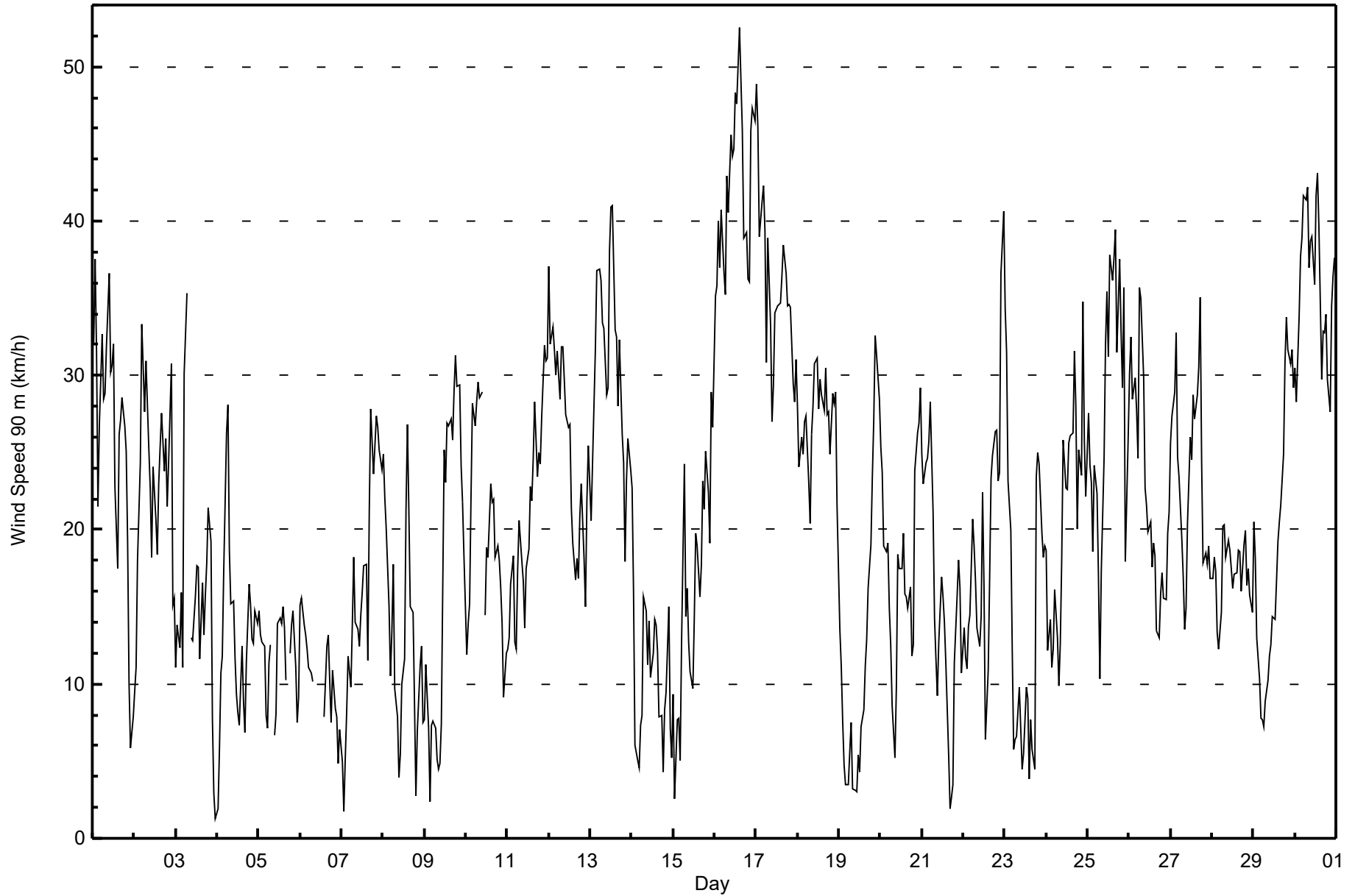
Maximum Speed: 53 km/h on Apr 16 15:00	Maximum Daily Speed Average: 42.0 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 4 00:00	Minimum Daily Speed Average: 3.7 km/h on Apr 14	Hours of Data: 709
Maximum Diurnal Speed Average: 8.0 km/h at hour 20	Minimum Diurnal Speed Average: 1.2 km/h at hour 1	Hours of Missing Data: 11
Monthly Average Velocity: 4.0 km/h 346.7 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 8 Q <sub>1</sub> = 13 Median = 19 Q <sub>3</sub> = 28 P <sub>90</sub> = 35 P <sub>99</sub> = 46	Percent Operational Time: 98.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	SW32WNW38WNW32	W21	W27WSW33WSW29	W29	W32WNW37	NW30WNW31WNW32WNW23WNW17WNW26	NW27	NW29WNW27	NW25	NW19NNW10	WNW6	WSW8													WNW23.7	WNW38	
2-Apr	SW10 SSW11 SSW18	S24	S33 SSE31 SE28 SE31 SE25 SSE23 SE18 SE24 SE21 SE18 SE23 SSE25 SSE28 SSE24 SSE26 SE22 S24 SW31 SSW15 S16																						SSE20.6	S33	
3-Apr	S11 SSE14 SE12 SSE16 S11WNW30WNW35	UO	UO	W13	SW13WSW16	W18	W18 NNW12 NNW17 NNE13 NNE16 NNE18 NNE21 NNE19 NNE8 NW3 WSW1																		NW5.0	WNW35	
4-Apr	E2 NNW6 NW11 NW12 NW17WNW26 NW28 NNW19 NNW15 N15 N12 NE9 ENE8 NNE7 NE12 NE9 N7 N11 NNE17 NE15 ENE13 ENE15 E14																								N8.7	NW28	
5-Apr	ESE15 ESE13 ESE13 E12 E8 E7 NNE11 NNE13	PF	NNE7	NNW8 NNW14	N14 NNW14	N15	N14	N10	UO	NN12	N14	N15	N11	NNW8	NW9										NNE8.2	N15	
6-Apr	NW15 NW16 NW14 NNW13 NNE12 NNE11 N11 N10	UO	UO	UO	UO	UO	UO	NNW8 NNW12 NNW13	N10	NNW7	NNE11	N8	NW8	NW5	NW7										NNW9.8	NW16	
7-Apr	NW5 ENE2 SSE5 SSW8 SSW12 SSW10 SSE14 SSE18 SSE14 S14 S12 S14 SW16 SW18 SW18 SW12 SW21 SW28 SW24WSW25WSW27WSW27WSW25WSW24																								SW14.2	SW28	
8-Apr	SW25 SW22 SW20 SW15 S11 SSW13 SSW18WSW10 S8 SE4 ESE5 ESE10 S12 SSW21 SSW27 SW21 SSW15 SW15 SW9 SSE3 ESE7 SE11 SSW12 WNW8																								SSW11.3	SSW27	
9-Apr	WNW8 NW11 N7 WNW2 W7 W8 WSW7 WSW5 SW4 SE5 SW7WSW25 SW23WSW27WSW27WSW27WSW26WSW29WSW31 W29 W29 W24 W22 NW18																								W15.6	WSW31	
10-Apr	N12 NNW14 NW15WNW22WNW28WNW27 NW28 NW30WNW29WNW29	UO	NW14	NW19 NNW18 NNW23	N22	NNE22	NNE18	NE19	NE18	ENE16	E14	SE9	SSE12												NNW12.8	NW30	
11-Apr	SSE12 SSE13 SE16 SE18 SE13 SE12 SE17 SE21 SE18 SE17 SE14 ESE18 ESE19 SE23 SE22 SE25 SE28 ESE23 ESE25 SE24 ESE27 SE32 SE31 SSE31																								SE20.5	SE32	
12-Apr	SSE37 SSE32 SE33 SE32 SSE30 SSE32 S28 SSE32 SE32 SE30 SE27 SSE27 SSE27 SSE21 SE19 SE17 SE18 SE17 SE21 SE23 SE18 SE15 SE22 SSE25																								SSE25.1	SSE37	
13-Apr	SSW21WSW24WSW28 SW32WSW37WSW37WSW36 W33WNW33WNW29WNW29WNW38WNW41 W41WNW33WNW33WNW28 W32WNW26WNW24WNW18 W23 W26 W24																								W28.0	W41	
14-Apr	W23 W16 WSW6 SW5 SSW5 S7 SSE8 SSE16 SSE15 SE11 SE14 SE10WSW12 W14 W14WSW12 WNW8 NW8 SE4 ESE8 ENE9 E15 E7 ESE5																								SSW3.7	W23	
15-Apr	ESE9 ESE3 NE8 NE8 N5 NW13 NNW24 NNW14 N16 N13 NNE11 ESE10 ESE14 ENE20 NE19 NE16 NNE18 NNE23 NNE21 NNE25 NNE22 N19 N29 N27																								NNE13.1	N29	
16-Apr	N35 N36 N40 N37 N41 N37 N35 N43 N41 N46 N44 N45 N48 N48 N53 N49 N46 N39 NNE39 NNE36 N36 N46 N47 N46																									N42.0	N53
17-Apr	N49 N46 N39 N41 N42 N39 N31 N39 N33 N27 N29 N34 N34 N35 N36 N38 N37 N35 N35 N34 N29 NNE28 NNE31																									N35.7	N49
18-Apr	NNE28 N24 N26 N25 NNW27 NNW27 N23 N20 N26 N28 N31 N31 N28 N30 N29 N28 N30 NNE27 NNE28 NNE25 NNE29 N28 N29 NNE22																									N26.7	N31
19-Apr	NNE14 NNE11 N8 NNW5 NW3 WNW3 WSW6 SW8 SW3 SSE3 SW3 WNW5 W4 WNW7 WSW8 SW11WSW13 SW16 SW19 SW23 SW27WSW33WSW31WSW28																									WSW9.2	WSW33
20-Apr	WSW25WSW24WSW19WSW19WSW19WSW15WSW13 SW9 SW5 W10 W18 W18 W18 W18 W20 W16 W16 SW15 SW16WSW12 SW13 SSW24 SSW26 SSW27 SSW29																									WSW15.8	SSW29
21-Apr	SSW25 S23 S24 S25 SSE26 SSE28 SE21 SE14 SE12 ESE9 SE13 ESE17 SE16 ESE14 ESE11 E5 S2 W3 NW3 NNW11 N16 NNE18 NNE16 NNW11																									SE7.8	SSE28
22-Apr	NNW14 NNW12 NNW11 N14 N14 NNW21 NNW19 N17 NNW14 NNW12 NNW14 N22 NNE16 NNW6 NNW11 N17 NNE23 NNE25 NNE26 NNE26 NNE23 NNE24 N37 N41																									N18.4	N41
23-Apr	N34 N31 N23 N20 NNE12 NNE6 NNE6 N7 N10 NNE7 NW5 WSW6 NNW10 NW9 N4 NNE8 W6 NNE4 NNE23 NNE25 NE24 NE20 ENE18 E19																									NNE12.0	N34
24-Apr	ENE19 ENE12 E14 E11 E12 E16 E13 ESE10 ESE13 ESE18 SE26 ESE23 ESE23 ESE26 ESE26 ESE26 ESE32 ESE28 ESE20 ESE25 ESE23 SE35 SE26 ESE22																									ESE20.0	SE35
25-Apr	SE28 SSW24 W23 SW19WSW24WSW22WSW17WSW10WSW17WSW25WSW32WSW35 W31WSW38WSW36WSW38WSW39 W31 NW38WNW33 NNW29 NNW36 NNW18 NW26																									W22.1	WSW39
26-Apr	NW30 NW33 NNW28 NNW30 NNW28 NNW25 NW36 NNW35 NNW30 NNW23 NW22 NW20 NW21 NW18 NNW19 NNW18 NNW13 NNE13 NE16 NE17 ENE16 E15 SE20 SE21																									NNW16.4	NW36
27-Apr	SE26 SE27 SE29 SSE33 SSE25 SE23 SE19 SSE17 SSE14 SSE15 SSE20 S26 SSE25 SSE29 S27 SSW29 S31 S35 SSE24 SE18 SE18 SE18 SE19 ESE17																									SSE21.9	S35
28-Apr	ESE17 ESE18 ESE17 ESE13 ESE12 ESE15 ESE20 SE20 SE18 SE19 ESE19 SE17 SE16 SE17 SE17 ESE19 ESE19 ESE16 ESE19 ESE20 ESE16 ESE17 ESE16 ESE15																									ESE17.1	SE20
29-Apr	SE21 SE18 ESE13 SE10 E8 ESE8 E7 ENE9 NNE10 NNE12 NNE13 NNE14 NNE14 NNE17 NNE19 NNE20 NNE22 NNE25 NNE31 N34 N32 N31 N32 N29																									NNE14.6	N34
30-Apr	N30 N28 N34 N38 N39 N42 N41 N42 N37 N39 N39 N36 N42 N43 N40 N30 N33 N33 N34 N30 N28 N34 N36 N38																									N35.9	N43
N1.2NNW3.0NNW2.9 NW1.4 NW2.8NNW4.5 NW4.7NNW4.1NNW4.0NNW4.8NNW3.6NNW3.5NNW4.5 NW5.0NNW4.8NNW4.8NNW4.7NNW4.9 N7.2 NNE8.0 NNE6.7 NNE5.2 NNE4.4 N4.0																								Diurnal Average			
N49 N46 N40 N41 N42 N42 N41 N43 N41 N46 N44 N45 N48 N48 N53 N49 N46 N39 NNE39 NNE36 N36 N46 N47 N46																								Diurnal Maximum			

UO - Unstable Operation PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on Apr 25 17:00 Minimum Value: 1 km/h on Apr 19 05:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 8																	Hours in Service: 720 Hours of Data: 709 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	7	6	10	3	4	3	5	4	5	5	5	6	7	5	4	5	5	5	3	3	3	8	1	2	10
2-Apr	1	2	2	2	3	3	1	2	3	4	4	3	4	4	4	5	4	4	2	2	5	8	3	3	8
3-Apr	4	3	3	3	3	10	3	UO	UO	2	3	4	3	3	3	3	3	3	3	2	4	3	2	2	10
4-Apr	1	4	3	2	6	4	5	4	4	4	3	3	4	4	3	2	3	3	2	2	2	3	3	3	6
5-Apr	4	3	2	3	3	2	1	2	PF	2	2	2	3	2	3	3	2	UO	3	2	1	3	2	2	4
6-Apr	1	2	2	2	2	2	3	2	UO	UO	UO	UO	UO	UO	2	3	3	2	2	1	2	1	1	1	3
7-Apr	1	2	3	1	1	1	3	2	3	2	3	3	4	4	4	7	6	4	4	2	2	3	2	2	7
8-Apr	2	2	2	3	1	3	8	3	4	2	2	3	5	6	5	5	5	3	3	1	2	3	3	3	8
9-Apr	2	1	4	1	2	1	4	5	3	2	8	4	6	5	7	5	4	6	4	3	3	2	2	5	8
10-Apr	4	6	3	3	3	3	5	7	4	5	UO	6	4	5	5	5	5	4	3	1	2	1	3	1	7
11-Apr	1	1	2	1	4	3	4	4	4	4	3	5	5	6	7	6	7	6	6	6	6	7	6	4	7
12-Apr	3	2	2	2	3	3	5	6	5	5	5	4	3	4	4	3	4	3	3	4	5	4	3	4	6
13-Apr	5	3	3	3	4	4	5	5	5	6	6	6	6	6	6	6	5	4	4	2	2	2	1	2	6
14-Apr	5	3	3	2	2	2	3	2	3	2	3	3	7	4	4	4	5	4	4	2	1	4	5	2	7
15-Apr	3	1	2	2	2	6	4	6	4	2	4	4	4	3	2	3	3	4	3	4	2	5	4	5	6
16-Apr	3	4	5	7	8	8	6	5	7	7	8	8	8	8	7	7	7	7	6	5	5	6	6	5	8
17-Apr	6	6	8	7	5	6	7	5	8	7	5	6	7	6	8	8	7	6	5	4	4	3	2	2	8
18-Apr	3	3	3	3	3	4	4	4	5	4	5	5	6	5	6	5	4	5	4	3	1	2	2	2	6
19-Apr	2	1	2	1	1	1	1	1	2	2	3	2	3	3	3	4	5	4	2	3	2	3	3	2	5
20-Apr	3	3	3	3	2	2	1	3	2	6	4	5	4	4	4	4	5	3	2	4	3	2	3	3	6
21-Apr	1	1	2	2	2	2	3	3	3	4	5	4	5	4	5	4	2	2	4	3	2	2	2	5	5
22-Apr	3	2	2	1	3	2	2	4	4	2	4	4	5	5	3	4	4	4	5	4	3	10	4	4	10
23-Apr	4	2	2	2	2	2	1	2	2	3	3	4	3	3	3	3	5	5	4	3	3	5	4	4	5
24-Apr	4	3	3	3	4	2	4	4	5	5	7	6	5	7	7	7	7	7	7	7	7	8	9	5	9
25-Apr	4	3	5	5	2	2	4	3	5	6	5	5	6	7	7	7	11	7	6	4	6	7	4	4	11
26-Apr	4	5	5	5	4	4	7	6	5	5	5	5	6	6	6	5	5	4	2	2	3	4	4	2	7
27-Apr	2	2	3	2	4	2	3	3	3	3	6	6	6	6	7	6	6	5	7	2	3	3	4	4	7
28-Apr	4	5	4	4	4	5	4	5	4	5	4	4	4	4	4	5	4	4	5	5	5	4	4	4	5
29-Apr	5	4	5	4	2	2	2	2	3	2	2	2	3	4	4	5	5	4	4	3	4	5	4	4	5
30-Apr	4	4	4	4	4	4	5	5	5	3	8	6	6	5	6	5	7	6	5	5	6	7	5	5	8
Diurnal Maximum																									
UO - Unstable Operation    PF - Power Failure																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 90 m (WS90m) - km/h**  
**Mannix - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	36	5.08	5.08
6 - 11	103	14.53	19.61
12 - 19	222	31.31	50.92
20 - 28	182	25.67	76.59
29 - 38	129	18.19	94.78
> 38	37	5.22	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 90 m (WS90m) - km/h**  
**Mannix - April 2024**

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	2	1	0	1	2	3	3	3	1	1	5	2	1	4	6	1	36
6 - 11	12	13	5	3	5	9	5	1	5	3	6	8	4	5	7	12	103
12 - 19	17	21	8	8	10	27	34	13	5	8	12	12	11	2	12	22	222
20 - 28	16	24	2	1	0	15	27	15	8	8	10	18	10	10	8	10	182
29 - 38	47	5	0	0	0	1	9	9	3	2	3	14	8	16	8	4	129
> 38	33	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	37
<b>Totals</b>	127	65	15	13	17	55	78	41	22	22	36	55	35	38	41	49	709

Total Number of Valid Hours: 709

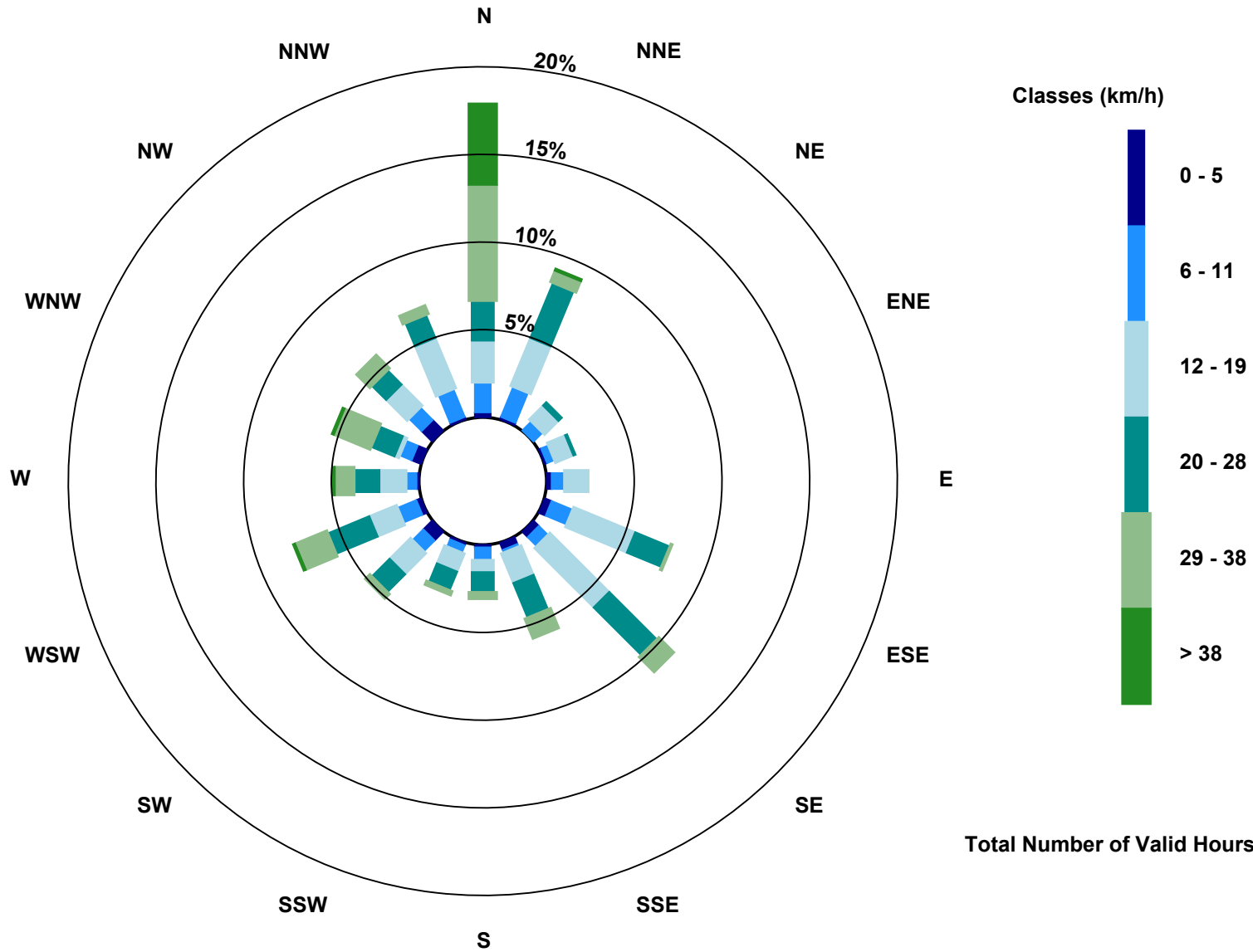
Total Number of Hours: 720





Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 90 m (WS90m) - km/h  
Mannix





Direction of Maximum Speed: 11 deg on Apr 16 15:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 6.3 deg on Apr 16	Hours of Data: 718
Direction of Minimum Speed: 266 deg on Apr 4 00:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 2.7 deg on Apr 14	Percent Operational Time: 99.7
Monthly Average Direction: 359.0 deg	

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-Apr	228	288	296	271	262	255	254	275	279	295	311	302	296	289	286	303	310	307	297	302	298	245	232	235	284.4
2-Apr	159	154	146	147	157	154	161	151	154	156	148	142	136	130	137	167	160	148	149	137	153	217	168	141	151.7
3-Apr	141	133	123	148	192	289	290	291	299	258	208	251	270	269	339	343	20	40	23	24	25	33	272	266	309.8
4-Apr	40	331	312	315	309	296	318	344	346	352	9	65	77	26	47	64	23	5	10	21	65	72	78	91	9.8
5-Apr	106	105	108	108	92	32	34	18	PF	19	336	326	356	341	351	355	351	UO	334	337	344	0	321	314	12.9
6-Apr	312	311	326	343	34	23	342	353	7	20	340	343	5	1	333	332	340	3	338	6	339	284	299	281	343.8
7-Apr	287	179	194	221	211	171	150	159	166	198	183	183	221	241	238	226	231	232	234	237	235	235	227	207	215.3
8-Apr	207	174	160	145	150	155	150	142	119	122	102	123	171	208	208	219	205	220	198	125	108	151	237	231	176.7
9-Apr	242	255	257	252	246	174	183	116	120	110	219	250	237	256	255	241	256	261	259	261	261	267	264	299	251.2
10-Apr	350	341	319	290	287	283	304	325	290	303	326	318	326	338	344	13	31	38	46	54	65	81	161	167	335.2
11-Apr	136	135	147	156	153	159	142	138	133	139	132	129	130	132	131	135	134	134	135	138	131	134	136	148	136.3
12-Apr	158	147	142	143	157	163	169	158	146	144	141	149	156	158	141	134	142	136	137	137	142	133	139	150	147.2
13-Apr	157	219	224	222	237	246	256	276	292	298	287	292	291	278	287	286	292	284	291	289	259	250	257	249	273.0
14-Apr	255	304	68	172	161	161	154	157	142	140	142	123	252	271	266	250	297	317	139	132	37	72	130	281	179.6
15-Apr	138	91	7	341	290	323	343	357	19	7	23	132	134	73	48	46	28	29	20	20	13	2	4	0	25.2
16-Apr	5	6	8	7	9	1	353	352	354	357	4	7	9	9	11	11	9	13	14	14	11	7	8	6	6.3
17-Apr	7	9	6	11	12	11	9	11	12	5	8	13	4	12	10	16	16	14	13	16	12	12	12	13	11.0
18-Apr	12	8	359	352	352	347	352	346	8	12	11	9	9	12	11	16	12	22	24	23	18	7	4	10	7.9
19-Apr	8	15	326	336	248	255	235	222	222	120	256	297	263	293	254	238	238	230	231	217	222	242	254	252	247.8
20-Apr	252	261	244	225	223	179	162	125	116	276	272	263	268	281	264	276	245	232	244	208	192	191	176	171	235.7
21-Apr	160	152	157	152	144	142	142	147	142	128	140	130	136	130	115	74	130	276	298	329	2	14	3	307	134.2
22-Apr	290	293	294	355	319	314	315	346	336	333	345	16	16	350	333	353	17	23	19	20	28	12	12	12	359.5
23-Apr	19	14	3	358	22	235	44	28	22	30	309	253	338	321	27	37	285	18	24	28	37	46	62	73	19.7
24-Apr	66	51	75	88	71	71	73	137	120	109	133	131	113	106	120	115	105	107	123	106	122	144	130	136	112.8
25-Apr	140	188	247	199	253	244	252	244	238	255	263	259	265	256	250	249	251	269	307	299	300	343	324	314	263.7
26-Apr	314	323	332	330	344	340	329	330	330	330	323	320	312	323	342	349	345	37	45	50	69	106	139	148	341.4
27-Apr	153	153	147	157	152	146	144	148	141	143	160	178	151	164	190	198	195	192	160	138	137	135	137	141	159.0
28-Apr	141	137	136	135	125	131	134	133	134	134	133	135	134	135	134	122	131	128	111	105	117	133	116	132	129.7
29-Apr	136	139	131	146	87	110	88	76	39	25	25	24	27	17	34	34	23	17	15	9	13	11	8	8	34.7
30-Apr	10	4	5	10	9	10	13	15	10	10	350	7	9	10	10	12	6	356	348	348	357	8	9	7	6.5

83.1	4.6	5.1	21.9	331.8	307.0	321.5	344.1	358.3	0.2	342.4	338.9	331.8	321.5	338.4	345.1	347.1	353.5	5.7	20.9	33.9	47.2	41.4	34.9	
Diurnal Average																								

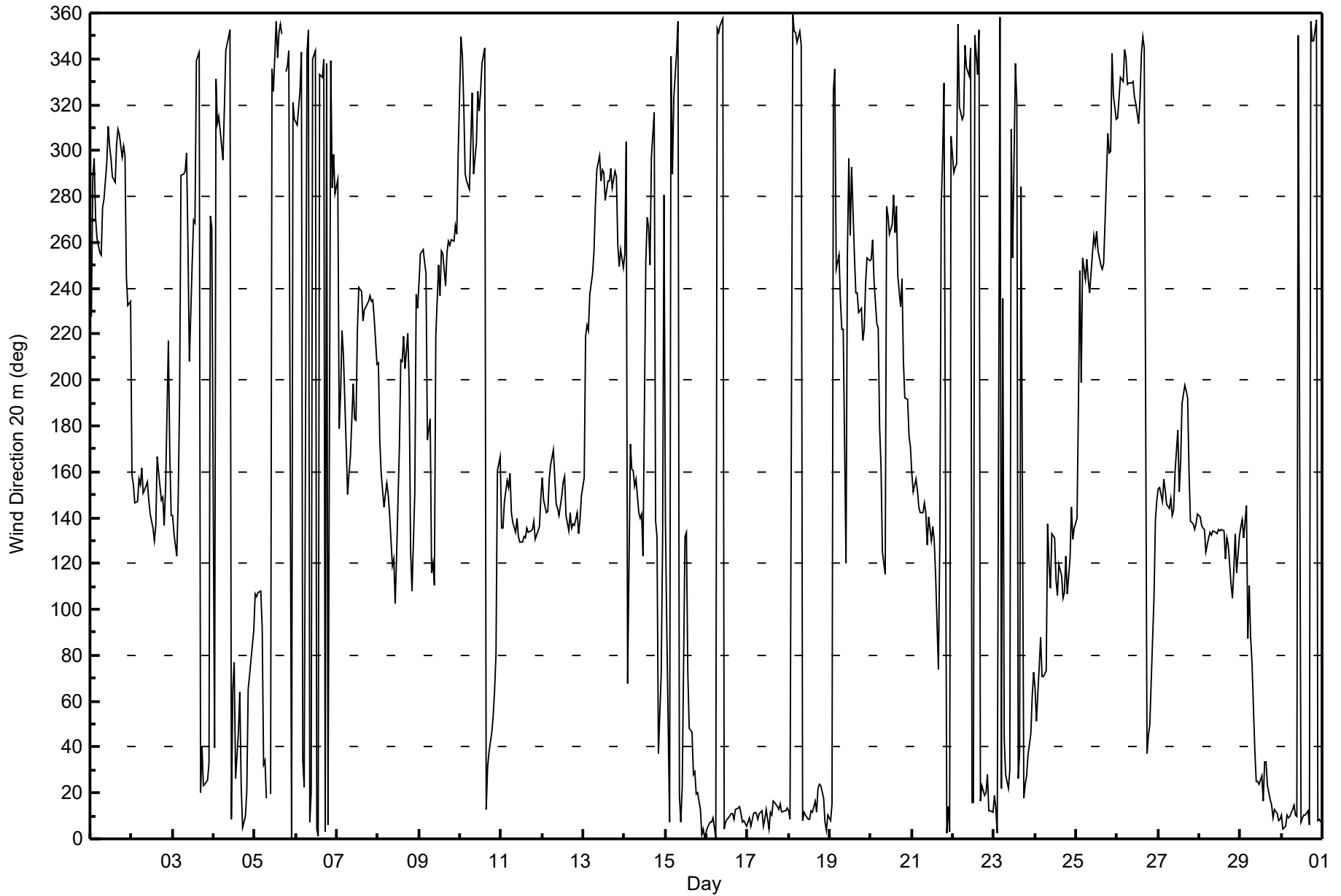
UO - Unstable Operation    PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 20 m (WD20m) - deg**  
**Mannix - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 97 deg on Apr 14 23:00 Minimum Value: 4 deg on Apr 21 03:00 Percentiles: P <sub>1</sub> = 5 P <sub>10</sub> = 9 Q <sub>1</sub> = 11 Median = 14 Q <sub>3</sub> = 21 P <sub>90</sub> = 35 P <sub>99</sub> = 79																	Hours in Service: 720 Hours of Data: 718 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	31	10	13	17	10	9	10	12	8	12	12	14	13	17	20	15	12	11	10	11	17	39	7	23	39
2-Apr	28	5	9	8	9	8	6	7	8	19	36	10	10	7	11	15	11	11	8	10	26	17	20	9	36
3-Apr	10	20	17	15	52	14	10	10	15	22	24	33	14	18	15	16	27	15	14	11	37	64	64	93	93
4-Apr	51	37	20	17	18	11	15	16	20	18	30	30	28	61	26	32	46	17	11	13	16	9	16	9	61
5-Apr	12	13	12	12	26	26	14	13	PF	30	32	15	22	17	22	21	25	UO	18	12	12	18	17	15	32
6-Apr	11	11	16	15	21	30	21	19	21	23	22	26	14	20	32	14	16	20	15	17	36	13	22	26	36
7-Apr	55	50	15	13	17	26	9	16	15	21	25	25	27	27	27	51	15	16	11	7	9	21	16	9	55
8-Apr	12	10	5	7	6	9	71	46	25	28	23	18	50	26	19	21	32	18	19	43	20	18	60	43	71
9-Apr	23	7	16	6	49	18	24	81	56	18	65	20	18	18	20	20	18	14	9	8	8	5	12	25	81
10-Apr	32	53	28	11	9	11	11	17	11	15	14	27	17	22	18	21	18	18	12	9	10	9	27	13	53
11-Apr	7	10	12	5	12	16	9	10	9	12	13	14	15	10	12	13	9	10	10	11	9	9	8	9	16
12-Apr	8	9	8	9	8	8	14	9	11	11	10	11	9	14	11	8	12	11	9	8	25	8	9	10	25
13-Apr	19	28	13	10	8	10	11	9	10	13	17	14	12	13	14	13	12	11	10	11	11	4	6	6	28
14-Apr	51	49	49	36	9	12	14	13	11	13	14	26	62	24	28	45	55	44	57	54	10	23	97	60	97
15-Apr	18	74	38	64	24	25	24	61	60	20	44	17	16	13	16	14	14	14	13	12	10	18	14	15	74
16-Apr	12	10	11	11	11	15	14	12	12	12	13	12	12	12	12	11	11	11	10	12	12	11	11	10	15
17-Apr	11	10	12	12	10	11	13	11	13	17	13	11	16	16	17	16	14	15	13	11	10	10	9	9	17
18-Apr	10	10	13	11	12	12	13	14	16	14	13	14	19	14	16	15	13	15	13	11	9	11	11	8	19
19-Apr	7	6	31	36	8	7	15	16	43	56	80	59	61	55	52	29	32	19	11	8	9	6	8	6	80
20-Apr	8	8	15	11	14	35	15	29	22	91	13	23	20	15	26	28	23	21	12	19	5	8	12	14	91
21-Apr	4	6	4	7	7	8	11	17	15	23	29	19	22	21	31	63	88	80	89	13	13	15	54	22	89
22-Apr	14	14	13	24	21	18	17	25	20	17	32	15	25	78	33	24	15	14	17	12	10	15	9	10	78
23-Apr	10	10	11	7	67	30	63	41	24	51	73	58	40	44	76	35	65	62	13	11	13	11	20	22	76
24-Apr	17	14	12	21	16	11	24	27	19	15	10	13	16	13	15	15	11	12	17	12	16	11	14	10	27
25-Apr	10	26	22	20	10	11	15	20	15	15	17	14	16	15	16	17	14	12	16	21	27	13	17	10	27
26-Apr	11	13	15	16	12	13	13	16	16	21	25	22	28	34	26	25	30	23	16	11	13	21	10	9	34
27-Apr	10	11	8	9	9	8	12	12	15	14	24	23	20	19	24	18	19	16	21	8	8	7	8	10	24
28-Apr	8	10	9	9	14	12	9	9	10	10	10	10	15	11	17	19	15	16	14	13	15	11	14	13	19
29-Apr	9	10	16	13	32	22	17	19	28	20	20	20	19	18	21	19	16	11	11	10	11	11	11	11	32
30-Apr	11	12	11	11	11	11	11	11	10	11	13	14	11	11	11	12	14	16	13	15	17	19	10	12	19
55 74 49 64 67 35 71 81 60 91 80 59 62 78 76 63 88 80 89 54 37 64 97 93																									
Diurnal Maximum																									
UO - Unstable Operation    PF - Power Failure																									





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 45 m (WD45m) - deg

Mannix - April 2024

Direction of Maximum Speed: 5 deg on Apr 16 15:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 1.9 deg on Apr 16	Hours of Data: 719
Direction of Minimum Speed: 264 deg on Apr 7 02:00	Hours of Missing Data: 1
Direction of Minimum Daily Speed Average: 3.3 deg on Apr 14	Percent Operational Time: 99.9
Monthly Average Direction: 353.0 deg	

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-Apr	221	284	294	270	261	253	251	270	276	291	306	297	291	284	283	297	305	302	293	301	314	303	241	244	281.7
2-Apr	186	159	153	149	153	151	140	134	137	154	140	135	130	125	133	163	155	146	149	135	159	217	181	142	149.4
3-Apr	141	124	119	133	169	289	288	289	295	264	213	247	266	264	337	342	15	32	19	19	21	26	268	249	307.4
4-Apr	59	339	311	310	306	291	315	340	343	349	2	56	68	20	40	56	12	2	8	24	64	67	72	86	3.5
5-Apr	102	100	101	99	82	30	30	14	PF	16	333	321	354	339	352	358	354	4	337	339	345	357	321	313	9.1
6-Apr	312	310	323	342	28	18	348	355	5	16	336	340	1	358	328	329	336	2	338	6	344	289	306	293	342.1
7-Apr	299	264	171	206	205	184	148	156	162	191	180	180	214	232	229	217	225	226	230	235	235	230	227	212	211.5
8-Apr	212	191	176	159	150	160	158	155	130	123	101	116	169	202	202	213	197	215	214	138	112	135	218	252	178.8
9-Apr	263	269	292	268	267	227	186	110	153	110	216	245	233	248	248	235	251	255	254	257	258	266	261	298	252.2
10-Apr	350	339	318	289	285	282	301	319	285	296	322	314	321	333	341	8	25	31	38	48	61	85	152	159	330.4
11-Apr	136	132	132	133	135	134	129	131	126	133	126	123	123	125	124	128	128	125	128	130	124	128	132	145	129.0
12-Apr	152	144	140	139	152	161	166	153	142	140	136	145	151	155	137	128	137	133	132	130	136	125	133	147	143.3
13-Apr	170	234	228	222	234	243	252	271	287	291	282	286	286	272	282	281	286	278	286	288	265	248	257	255	267.3
14-Apr	257	285	288	182	153	157	149	155	141	135	136	120	245	266	260	245	293	310	128	120	41	73	104	141	173.5
15-Apr	128	116	30	11	311	326	336	342	8	3	14	124	126	64	41	39	24	24	16	18	9	360	0	358	19.0
16-Apr	1	2	4	3	4	357	350	350	351	353	360	2	4	4	5	6	5	8	10	10	7	3	3	2	1.9
17-Apr	3	4	2	6	7	7	4	6	6	1	4	8	359	6	5	11	11	10	8	11	7	9	9	11	6.3
18-Apr	10	5	357	351	346	342	349	343	3	5	5	4	2	7	6	11	7	17	18	17	11	5	4	9	3.5
19-Apr	5	4	346	346	291	271	245	211	221	125	243	289	259	285	249	232	234	226	227	216	223	238	248	253	247.3
20-Apr	254	255	250	242	245	229	201	164	134	263	267	261	264	273	258	269	237	224	238	209	194	193	187	179	232.5
21-Apr	167	157	159	153	146	138	131	136	135	123	138	122	131	124	110	74	158	276	305	328	351	12	12	348	132.0
22-Apr	322	330	320	341	335	329	323	345	334	333	339	9	10	348	330	350	11	19	14	15	26	15	9	6	356.9
23-Apr	12	9	5	360	10	197	25	7	13	18	306	252	332	316	14	29	279	9	20	23	33	42	62	72	15.6
24-Apr	65	56	79	82	68	72	75	130	114	103	127	124	108	100	112	108	100	103	116	100	116	139	124	125	106.9
25-Apr	136	189	249	203	253	249	249	239	235	250	257	255	259	251	245	242	247	263	302	294	300	339	321	310	259.8
26-Apr	311	318	327	326	339	335	324	325	326	326	320	316	309	320	337	344	343	32	37	43	63	100	132	140	336.8
27-Apr	146	146	140	150	147	137	137	145	139	141	157	173	148	160	185	190	189	186	156	131	130	127	128	129	153.7
28-Apr	129	126	125	124	115	122	125	126	127	127	125	128	126	128	127	116	125	121	105	99	112	124	110	124	122.0
29-Apr	128	131	122	133	83	101	83	69	29	21	21	18	20	12	24	27	19	13	11	4	9	7	4	5	28.8
30-Apr	6	2	2	5	5	6	8	9	6	4	348	3	4	5	5	7	3	353	346	346	355	2	4	3	2.0

71.0	354.6	5.8	22.5	325.7	305.7	321.0	343.0	350.8	350.2	337.8	334.4	328.6	319.9	334.6	339.7	343.8	349.3	359.7	13.7	23.7	34.3	27.8	24.0
Diurnal Average																							

PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods

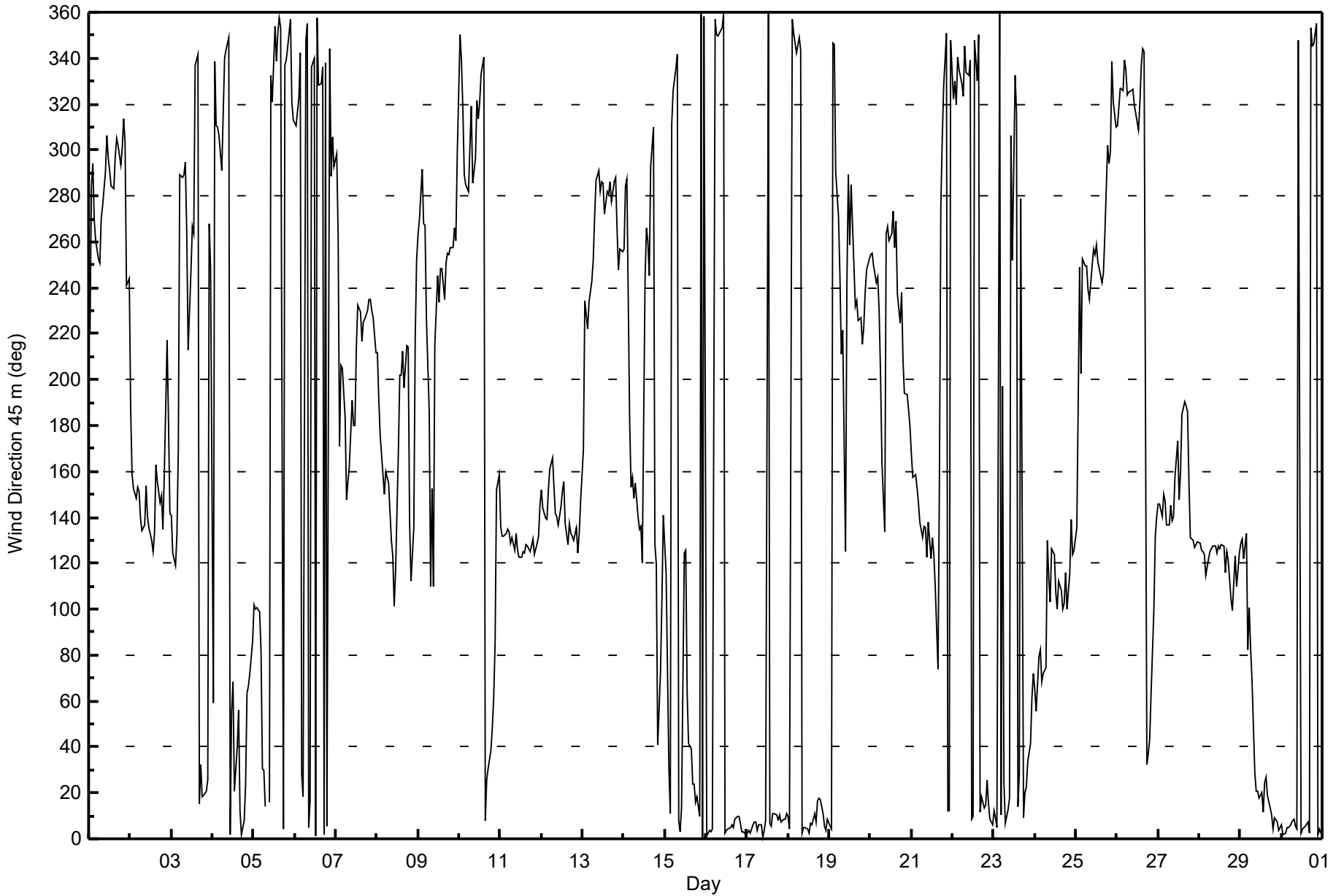


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 101 deg on Apr 15 00:00	Hours of Data: 719
Minimum Value: 3 deg on Apr 20 21:00	Hours of Missing Data: 1
Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 6 Q <sub>1</sub> = 8 Median = 11 Q <sub>3</sub> = 17 P <sub>90</sub> = 29 P <sub>99</sub> = 79	Hours of Calibration: 0
	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	30	8	11	15	7	6	7	10	6	9	10	12	10	14	18	12	9	8	7	6	17	41	4	6	41
2-Apr	29	5	4	4	4	4	6	6	7	16	27	8	7	5	12	13	9	9	5	7	27	8	20	10	29
3-Apr	12	8	10	9	54	13	7	8	8	18	22	27	11	18	11	10	23	12	10	7	27	51	71	97	97
4-Apr	50	34	16	13	16	8	13	12	17	15	25	26	26	57	23	30	35	12	8	13	12	10	14	9	57
5-Apr	10	11	8	9	25	19	10	9	PF	22	27	11	17	12	16	11	19	9	14	8	9	12	13	11	27
6-Apr	9	9	12	10	15	22	18	17	17	16	17	22	10	15	26	12	11	14	10	13	34	9	15	14	34
7-Apr	33	87	21	5	10	24	5	12	11	13	18	19	24	22	24	44	11	13	8	5	6	8	10	4	87
8-Apr	7	11	8	5	5	5	41	41	20	22	21	15	46	22	16	17	29	15	10	43	13	12	48	41	48
9-Apr	31	24	28	8	13	80	30	85	62	25	62	17	16	16	18	19	17	12	7	6	5	5	7	26	85
10-Apr	18	30	29	8	6	9	8	15	8	13	10	23	14	18	15	18	14	15	8	6	9	8	23	8	30
11-Apr	8	4	7	5	5	7	5	7	7	11	12	12	13	8	12	12	8	9	9	9	7	7	6	7	13
12-Apr	5	6	6	6	5	6	10	7	9	9	8	8	7	11	10	6	9	9	6	6	16	6	7	7	16
13-Apr	22	14	7	7	6	8	9	7	7	10	14	12	9	11	12	11	9	8	8	7	11	6	3	3	22
14-Apr	31	12	67	29	8	10	7	9	9	10	12	24	58	21	23	38	46	38	54	48	14	21	67	101	101
15-Apr	13	73	22	38	16	17	14	51	39	17	29	19	15	10	14	12	11	10	10	8	7	12	9	10	73
16-Apr	7	6	7	8	7	12	10	8	9	9	10	9	9	9	8	8	7	9	8	8	8	7	7	6	12
17-Apr	7	7	8	9	7	7	10	7	10	14	10	8	13	13	15	13	11	12	9	8	5	6	5	6	15
18-Apr	6	6	9	8	8	9	10	13	13	12	10	10	15	11	12	12	10	12	10	8	6	6	7	4	15
19-Apr	4	5	24	5	35	7	19	18	41	60	66	41	52	43	39	24	26	15	8	3	7	4	4	4	66
20-Apr	5	5	8	10	6	10	11	32	22	74	11	19	17	12	23	23	21	19	9	18	3	8	13	11	74
21-Apr	5	3	3	4	3	6	6	12	12	19	29	16	19	19	29	61	93	75	97	11	12	13	12	40	97
22-Apr	8	10	5	18	16	8	7	16	16	13	27	11	19	68	28	20	12	11	14	8	8	16	6	6	68
23-Apr	6	5	6	4	20	84	26	21	18	37	58	51	35	37	72	30	61	62	9	7	9	8	17	18	84
24-Apr	14	13	9	13	13	9	20	22	16	13	8	11	13	11	12	13	10	11	15	10	13	9	12	9	22
25-Apr	8	28	18	19	7	9	10	16	13	12	15	12	13	12	14	14	11	11	14	19	26	9	15	7	28
26-Apr	8	11	11	13	9	9	11	12	13	18	22	19	24	31	22	23	21	21	13	10	10	19	8	7	31
27-Apr	7	8	4	7	6	4	9	11	12	12	19	16	18	17	17	11	15	9	18	5	4	4	6	6	19
28-Apr	5	8	7	9	12	10	7	6	7	8	9	8	13	9	15	16	14	14	12	11	13	9	12	11	16
29-Apr	7	9	15	11	29	20	15	16	20	14	16	16	16	13	17	15	12	9	8	6	7	8	7	8	29
30-Apr	8	8	7	7	6	7	7	7	6	6	10	9	7	7	8	9	9	12	9	11	11	13	7	7	13

50	87	67	38	54	84	41	85	62	74	66	51	58	68	72	61	93	75	97	48	34	51	71	101	
Diurnal Maximum																								

PF - Power Failure





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 75 m (WD75m) - deg

Mannix - April 2024

Direction of Maximum Speed: 8 deg on Apr 16 15:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 5.3 deg on Apr 16	Hours of Data: 710
Direction of Minimum Speed: 48 deg on Apr 7 02:00	Hours of Missing Data: 10
Direction of Minimum Daily Speed Average: 3.7 deg on Apr 14	Percent Operational Time: 98.6
Monthly Average Direction: 347.3 deg	

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-Apr	222	287	299	274	265	255	253	273	280	294	309	298	293	286	286	299	308	305	296	305	325	333	262	248	285.7
2-Apr	221	182	184	171	165	153	138	138	140	153	140	138	135	130	140	166	159	152	155	144	174	222	200	160	158.3
3-Apr	159	142	129	148	167	294	293	294	296	274	224	251	268	266	342	347	17	33	21	24	26	30	299	248	307.7
4-Apr	85	346	316	309	308	295	319	343	349	353	7	54	68	23	41	54	14	6	13	40	72	74	76	92	6.3
5-Apr	108	103	102	98	83	39	35	19	PF	23	342	328	358	347	1	6	10	14	348	350	353	2	329	317	12.9
6-Apr	317	317	324	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	3	335	334	343	9	347	13	359	302	318	310	--
7-Apr	310	48	160	194	202	197	154	160	166	190	183	180	216	233	228	214	226	228	231	238	239	236	237	229	215.1
8-Apr	222	214	210	200	171	192	183	223	162	133	117	120	175	203	203	213	198	215	223	158	117	132	208	281	197.2
9-Apr	292	297	344	286	275	268	231	235	219	126	220	246	235	248	249	237	252	257	256	260	259	271	264	307	257.1
10-Apr	358	346	321	295	289	287	305	322	289	299	326	319	325	336	344	11	28	34	41	53	67	89	150	157	334.0
11-Apr	155	144	137	138	131	130	129	132	130	137	131	126	125	129	130	132	131	126	128	131	127	132	138	149	133.4
12-Apr	155	148	144	144	158	165	168	155	145	144	141	148	155	160	142	132	140	139	136	133	139	128	137	153	147.7
13-Apr	196	243	234	227	236	245	254	273	289	292	284	289	288	274	283	283	289	281	290	294	281	258	263	272	269.4
14-Apr	265	270	251	204	180	171	152	160	147	142	139	126	244	267	260	246	296	308	139	121	55	83	97	116	192.9
15-Apr	127	116	48	45	344	324	339	344	10	7	20	127	126	65	44	41	27	27	20	22	14	5	5	4	22.0
16-Apr	5	7	8	5	7	1	356	354	356	357	2	5	6	7	8	8	8	12	13	14	10	6	6	5	5.3
17-Apr	6	6	5	9	9	9	6	8	8	3	6	11	3	9	8	14	14	13	11	13	10	13	13	18	9.2
18-Apr	16	10	3	356	349	347	354	350	5	7	7	7	5	9	9	13	10	19	21	19	14	9	9	19	7.1
19-Apr	19	13	4	350	316	290	241	224	218	143	227	285	262	287	251	231	236	227	228	220	228	240	249	255	247.7
20-Apr	256	255	253	253	250	240	228	209	180	264	269	263	265	274	259	268	236	225	238	212	200	198	197	194	236.6
21-Apr	191	175	176	170	156	149	139	136	140	125	142	126	134	125	113	80	174	278	310	333	354	21	16	346	143.1
22-Apr	339	345	339	2	357	339	334	351	343	342	345	12	15	349	332	353	15	22	16	17	33	25	12	8	3.4
23-Apr	13	12	12	12	20	18	26	8	14	18	309	256	335	321	14	32	278	17	24	27	42	51	69	79	21.4
24-Apr	73	72	89	91	78	85	87	129	114	104	129	127	110	102	113	111	102	104	117	104	119	142	128	126	109.8
25-Apr	140	196	256	217	256	254	251	239	237	251	258	256	261	252	246	243	248	265	305	297	305	342	327	315	262.3
26-Apr	315	323	330	330	342	339	327	329	330	331	325	320	313	323	341	347	348	35	40	46	68	100	132	140	340.9
27-Apr	147	147	143	150	148	142	143	148	145	146	159	174	150	162	186	190	190	187	158	135	133	131	130	128	156.4
28-Apr	127	124	124	124	116	124	128	130	131	130	128	129	129	131	129	119	127	124	106	102	114	125	114	125	123.8
29-Apr	131	133	122	130	87	104	87	71	30	24	26	22	23	16	27	28	23	18	14	8	12	11	7	9	29.8
30-Apr	10	6	6	9	8	9	11	11	9	8	354	6	7	8	9	11	6	357	351	352	0	5	8	6	5.7

19.9	338.6	349.0	354.1	308.7	297.4	316.1	338.5	344.9	346.3	339.2	330.7	328.0	320.9	334.5	339.3	345.0	349.5	0.7	13.0	19.1	22.1	15.4	10.3
Diurnal Average																							

UO - Unstable Operation    PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods





Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

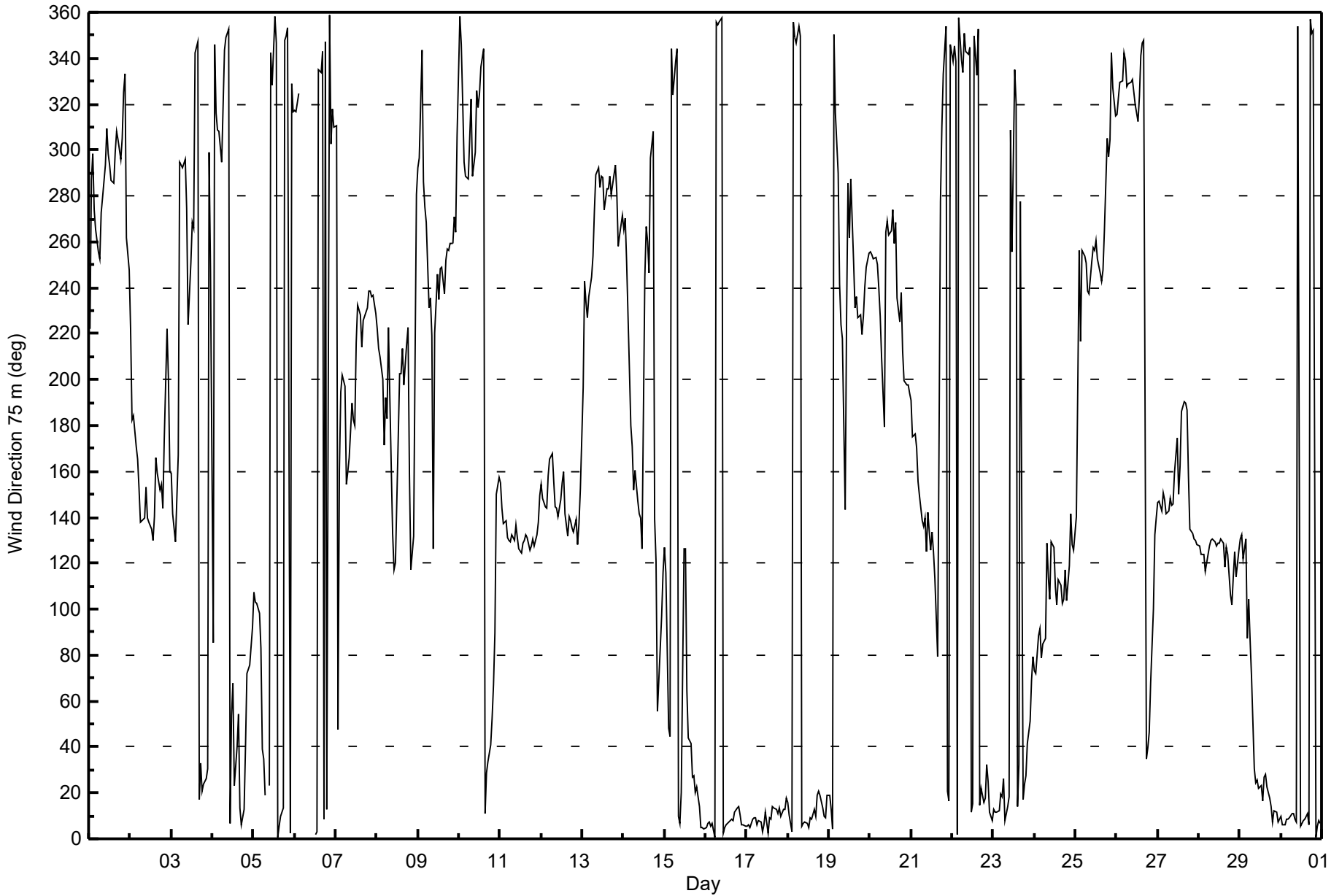
Wind Direction 75 m (WD75m) - deg

Mannix - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 93 deg on Apr 21 19:00			Hours of Data:	710
Minimum Value: 2 deg on Apr 23 03:00			Hours of Missing Data:	10
			Hours of Calibration:	0
			Percent Operational Time:	98.6
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 16 P <sub>90</sub> = 26 P <sub>99</sub> = 71				

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-Apr	30	8	10	13	7	5	6	10	6	9	10	12	10	13	16	12	9	7	6	7	12	47	9	6	47
2-Apr	22	8	8	4	5	4	3	3	4	12	19	6	7	8	12	12	8	8	4	5	25	5	17	12	25
3-Apr	19	11	11	12	56	14	7	7	6	16	20	23	12	17	10	7	19	12	8	5	8	36	66	90	90
4-Apr	43	32	16	12	16	8	12	11	16	14	23	24	24	51	21	26	26	11	8	16	9	10	12	11	51
5-Apr	13	14	11	11	22	18	9	7	PF	19	27	10	15	10	12	7	14	6	14	7	7	10	15	10	27
6-Apr	8	8	10	UO	UO	UO	UO	UO	UO	UO	UO	UO	9	12	26	9	11	12	10	11	33	8	20	10	33
7-Apr	27	71	16	4	10	17	4	9	9	11	14	16	21	19	23	37	11	11	8	5	6	5	5	4	71
8-Apr	5	4	5	6	16	10	24	25	29	18	20	16	43	19	15	17	26	13	10	42	15	12	46	43	46
9-Apr	26	31	26	19	9	10	43	90	55	32	61	15	15	15	17	19	16	11	6	6	4	9	7	27	90
10-Apr	14	26	28	6	5	8	8	15	7	12	9	24	14	17	14	16	13	14	7	5	7	9	21	6	28
11-Apr	8	6	7	5	8	7	7	6	8	10	14	13	14	10	12	13	8	11	11	10	9	8	5	5	14
12-Apr	4	4	4	4	5	5	9	6	8	7	7	7	6	10	10	7	8	9	5	6	12	11	6	5	12
13-Apr	20	6	5	5	6	7	8	7	7	9	13	11	9	10	12	10	8	8	7	5	13	6	4	5	20
14-Apr	8	6	42	32	21	13	12	7	9	10	23	56	17	24	36	48	37	59	45	21	22	44	50	50	59
15-Apr	13	41	21	26	27	20	11	30	22	15	24	19	17	8	12	11	8	8	7	7	9	7	8	8	41
16-Apr	4	5	5	7	6	10	9	6	8	7	8	8	7	8	7	7	7	7	6	7	7	6	5	5	10
17-Apr	6	6	7	7	6	6	9	6	9	12	9	7	12	11	14	12	10	11	8	6	4	5	4	4	14
18-Apr	5	6	7	7	7	7	9	12	11	12	8	9	13	10	11	11	8	11	8	5	3	3	4	6	13
19-Apr	7	7	19	5	19	11	20	15	46	58	79	36	56	48	34	21	24	15	7	3	7	3	4	4	79
20-Apr	5	5	7	8	5	5	6	30	34	53	11	18	16	11	21	23	21	17	8	17	3	8	11	10	53
21-Apr	5	4	3	4	4	4	7	10	11	19	22	16	17	19	27	57	84	74	93	11	10	11	6	17	93
22-Apr	9	8	7	15	19	5	5	11	14	12	23	9	16	56	26	19	12	9	13	6	7	18	5	4	56
23-Apr	4	2	2	4	4	22	7	19	14	29	56	56	30	32	78	27	61	54	8	6	8	8	14	13	78
24-Apr	11	15	9	13	11	8	16	18	17	14	10	12	14	12	13	14	11	12	16	12	14	7	12	12	18
25-Apr	6	29	15	20	5	7	8	14	10	11	14	11	12	12	13	13	10	12	14	20	26	7	13	7	29
26-Apr	8	9	10	12	7	8	9	10	12	17	20	18	22	28	21	21	19	20	11	10	10	19	10	5	28
27-Apr	5	5	3	5	5	4	7	10	12	11	17	14	17	15	15	11	13	7	17	5	5	7	7	10	17
28-Apr	9	12	12	12	14	12	9	8	9	10	10	10	12	11	16	16	15	14	13	13	14	11	14	13	16
29-Apr	9	9	16	12	24	20	12	15	17	12	14	14	13	12	16	14	10	8	7	4	6	6	6	6	24
30-Apr	6	6	5	6	5	5	6	6	5	5	8	8	6	5	6	8	7	10	8	9	10	11	6	6	11
43	71	42	32	56	22	43	90	55	58	79	56	56	56	78	57	84	74	93	45	33	47	66	90		
Diurnal Maximum																									

UO - Unstable Operation      PF - Power Failure





Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction 90 m (WD90m) - deg

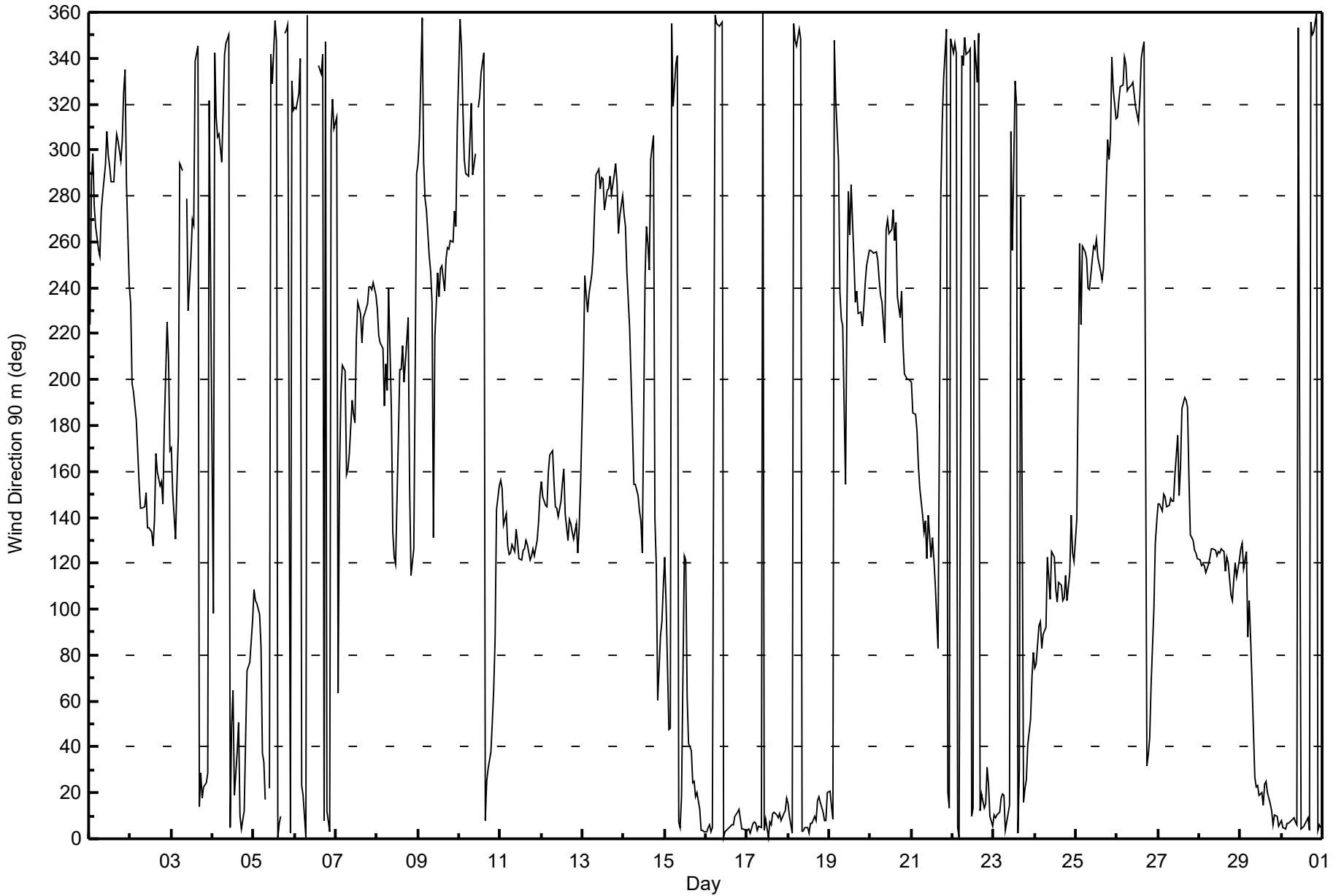
Mannix - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 87 deg on Apr 4 00:00	Hours of Data: 709
Minimum Value: 1 deg on Apr 23 03:00	Hours of Missing Data: 11
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 6 Median = 10 Q <sub>3</sub> = 15 P <sub>90</sub> = 24 P <sub>99</sub> = 68	Hours of Calibration: 0
	Percent Operational Time: 98.5

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	30	7	9	12	7	5	6	10	5	8	9	11	9	12	14	12	8	6	6	6	11	35	10	8	35
2-Apr	14	6	5	5	6	4	4	3	4	11	16	6	7	7	14	12	8	8	4	5	25	5	14	12	25
3-Apr	24	14	10	16	53	15	6	UO	UO	14	18	20	12	16	9	6	18	11	8	5	6	30	57	87	87
4-Apr	61	35	16	12	15	7	11	10	16	14	22	23	24	47	20	25	23	11	8	17	9	10	12	10	61
5-Apr	10	11	9	8	21	18	10	6	PF	19	26	10	14	9	10	7	14	UO	12	6	7	8	14	9	26
6-Apr	7	7	10	10	13	15	13	16	UO	UO	UO	UO	UO	UO	25	9	10	11	11	9	32	8	24	8	32
7-Apr	25	63	18	7	10	14	5	9	9	11	15	17	20	18	21	34	10	10	8	5	5	5	3	3	63
8-Apr	6	4	4	4	20	7	18	17	34	18	17	13	42	19	14	16	26	13	10	42	11	11	45	41	45
9-Apr	21	30	22	41	12	7	19	73	49	39	62	14	14	15	16	18	15	11	6	5	3	10	7	25	73
10-Apr	13	23	27	5	5	7	7	14	6	11	UO	21	13	15	13	15	12	14	6	5	7	6	23	6	27
11-Apr	6	7	6	4	7	4	4	4	6	11	14	10	11	9	10	12	8	9	8	9	7	7	5	5	14
12-Apr	4	4	3	3	5	5	9	6	8	7	7	7	6	10	11	5	8	9	5	5	11	8	7	6	11
13-Apr	19	5	4	5	5	7	8	7	7	9	13	11	8	10	11	9	8	7	7	4	12	6	4	5	19
14-Apr	7	4	33	30	21	18	20	7	8	10	9	22	56	16	23	33	41	37	70	42	24	20	35	37	70
15-Apr	11	33	20	20	31	19	10	24	18	14	24	20	16	8	11	11	8	7	8	6	7	7	6	7	33
16-Apr	4	4	5	7	6	9	9	6	7	7	7	7	8	6	6	6	7	7	6	6	6	6	5	5	9
17-Apr	5	5	7	7	6	6	8	5	8	12	9	7	11	11	13	12	9	10	7	6	3	4	3	3	13
18-Apr	5	5	7	7	6	6	9	12	10	11	8	8	12	10	11	10	8	10	7	5	3	3	3	6	12
19-Apr	7	6	15	7	10	22	23	10	55	68	70	32	53	39	28	19	25	14	7	3	6	3	4	3	70
20-Apr	5	5	6	7	5	4	6	18	27	42	10	17	16	10	19	21	19	16	8	16	3	8	9	9	42
21-Apr	3	5	4	5	5	3	9	7	11	16	21	15	17	18	24	59	76	68	84	10	10	9	6	11	84
22-Apr	7	6	5	15	11	5	5	10	13	12	22	9	16	57	25	18	11	9	12	5	7	17	5	4	57
23-Apr	3	2	1	3	3	15	11	18	13	26	52	42	25	29	68	26	58	50	7	5	7	8	15	13	68
24-Apr	11	15	9	10	12	9	14	15	14	11	8	10	10	10	10	10	8	9	12	9	11	8	10	9	15
25-Apr	7	30	14	20	5	6	7	12	9	11	13	10	11	11	13	12	10	12	13	19	24	6	13	6	30
26-Apr	7	8	9	11	6	8	8	10	10	16	19	17	20	26	20	21	20	20	10	10	11	16	9	5	26
27-Apr	5	4	2	6	4	5	7	11	13	13	17	14	17	16	15	10	12	7	18	4	5	6	6	8	18
28-Apr	7	8	9	10	11	10	7	7	8	9	8	8	10	9	14	13	12	11	10	10	11	9	10	11	14
29-Apr	8	9	13	12	22	19	11	15	16	11	13	13	12	11	16	14	10	7	6	4	5	6	5	6	22
30-Apr	6	6	5	5	4	5	5	5	5	4	9	7	5	5	6	7	7	9	7	9	10	9	6	6	10

61	63	33	41	53	22	23	73	55	68	70	42	56	57	68	59	76	68	84	42	32	35	57	87	
Diurnal Maximum																								

UO - Unstable Operation      PF - Power Failure





Maximum Value: 1.3 km/h on Apr 24 15:00      Maximum Daily Average: 0.9 km/h on Apr 12																						Hours in Service: 720 Hours of Data: 718					
Minimum Value: -1.6 km/h on Apr 17 02:00      Minimum Daily Average: -1.1 km/h on Apr 16 Maximum Diurnal Average: 0.1 km/h at hour 1      Minimum Diurnal Average: -0.1 km/h at hour 17 Monthly Average: 0.00 km/h      Percentiles: $P_1 = -1.4$ $P_{10} = -0.8$ $Q_1 = -0.4$ Median = 0.0 $Q_3 = 0.5$ $P_{90} = 0.8$ $P_{99} = 1.2$																						Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.0	-0.6	-0.5	-0.1	-0.3	-0.3	-0.3	-0.3	-0.4	-0.5	-0.5	-0.2	-0.6	-0.2	-0.3	-0.5	-0.5	-0.5	-0.3	-0.3	-0.3	-0.1	0.1	0.0	-0.3	0.1	
2-Apr	0.3	0.5	0.3	0.6	1.0	0.7	0.6	0.7	0.6	0.5	0.5	0.6	0.7	0.6	0.8	0.8	1.0	0.8	0.6	0.7	0.6	0.0	0.3	0.6	0.6	1.0	
3-Apr	0.6	0.5	0.3	0.6	0.2	-0.4	-0.5	-0.7	-0.3	-0.1	0.0	-0.1	0.1	0.0	-0.3	-0.1	-0.5	-0.2	-0.2	-0.3	-0.1	0.1	0.1	0.0	0.0	0.6	
4-Apr	0.1	-0.1	-0.2	-0.1	-0.2	-0.3	-0.7	-0.6	-0.5	-0.2	0.3	0.4	0.3	0.1	-0.2	0.1	0.1	-0.1	-0.5	-0.3	0.1	0.3	0.5	0.4	-0.1	0.5	
5-Apr	1.1	0.8	1.0	0.7	0.5	0.1	-0.1	-0.1	PF	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	UO	-0.2	-0.4	-0.4	-0.1	-0.1	-0.1	0.1	1.1	
6-Apr	-0.2	-0.2	-0.4	-0.4	0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.5	-0.2	-0.5	0.0	-0.1	-0.3	-0.3	-0.1	-0.2	-0.2	-0.1	0.0	0.0	0.0	-0.2	0.1	
7-Apr	0.0	0.1	0.0	0.1	0.0	0.2	0.5	0.6	0.4	0.1	0.5	0.4	-0.1	-0.2	0.1	0.0	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.6	
8-Apr	0.0	0.2	0.4	0.3	0.5	0.4	0.6	0.4	0.5	0.4	0.3	1.0	0.4	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.7	0.2	0.1	0.3	1.0	
9-Apr	0.0	0.0	0.0	-0.2	0.0	0.1	0.1	0.2	0.4	0.5	0.3	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.3	-0.1	-0.1	0.0	-0.2	-0.2	0.0	0.5	
10-Apr	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.6	-0.7	-0.4	-0.6	-0.9	-0.4	-0.5	-0.4	-0.4	-0.4	-0.3	0.1	0.0	0.0	0.1	0.3	0.3	0.2	-0.3	0.3	
11-Apr	0.3	0.4	0.6	0.6	0.7	0.6	0.6	0.5	0.7	0.7	0.6	1.0	1.0	0.9	1.0	1.0	0.9	1.1	1.0	0.8	1.0	1.2	1.1	1.0	0.8	1.2	
12-Apr	1.3	0.9	0.9	1.0	1.0	0.9	0.7	1.2	1.3	1.2	1.1	1.1	1.2	0.9	0.9	0.8	1.0	0.8	0.7	0.9	0.5	0.8	0.6	0.8	0.9	1.3	
13-Apr	0.4	0.0	0.0	0.0	-0.1	-0.3	-0.3	-0.3	-0.6	-0.3	-0.5	-0.5	-0.6	0.0	-0.1	-0.4	-0.3	-0.3	-0.3	-0.2	0.0	-0.1	-0.2	-0.1	-0.2	0.4	
14-Apr	-0.1	-0.1	0.0	0.2	0.4	0.4	0.5	0.5	0.5	0.4	0.6	0.9	0.1	-0.2	0.0	0.1	0.1	0.1	0.3	0.6	-0.2	0.3	0.3	0.0	0.2	0.9	
15-Apr	0.7	0.1	-0.2	-0.1	-0.1	-0.4	-0.2	0.0	-0.1	-0.2	0.2	0.4	0.9	0.7	0.0	0.2	0.1	0.1	0.1	-0.4	-0.3	-0.6	-0.4	-0.8	-0.5	0.0	0.9
16-Apr	-0.9	-1.0	-1.1	-0.8	-1.0	-1.0	-0.9	-1.2	-1.0	-1.1	-0.5	-1.2	-1.3	-1.2	-1.6	-1.5	-1.4	-0.8	-1.0	-0.7	-0.9	-1.4	-1.4	-1.5	-1.1	-0.5	
17-Apr	-1.3	-1.6	-0.6	-1.1	-1.4	-1.1	-0.6	-0.8	-0.5	-0.2	-0.9	-1.0	-0.9	-0.8	-0.9	-0.8	-1.2	-0.8	-0.7	-0.8	-0.8	-0.7	-0.6	-0.6	-0.9	-0.2	
18-Apr	-0.5	-0.6	-0.8	-0.8	-0.9	-0.6	-0.8	-0.3	-0.7	-0.8	-0.8	-0.9	-0.5	-0.8	-0.5	-0.5	-1.0	-0.4	-0.5	-0.3	-0.4	-0.5	-0.5	-0.5	-0.6	-0.3	
19-Apr	-0.3	-0.1	-0.1	0.0	-0.2	-0.3	-0.2	-0.3	-0.1	0.6	0.6	0.1	0.0	0.2	-0.1	0.1	-0.2	0.0	0.0	0.0	-0.1	-0.1	-0.3	-0.3	0.0	0.6	
20-Apr	-0.2	0.0	0.0	0.1	0.0	0.1	0.1	0.4	0.3	0.3	-0.3	-0.1	0.1	0.0	-0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.5	0.1	0.5	
21-Apr	0.9	0.6	0.8	0.4	0.5	0.6	0.4	0.4	0.5	0.5	0.6	0.6	1.1	0.8	0.6	0.3	0.1	0.3	0.0	-0.3	-0.3	-0.3	-0.1	-0.1	0.4	1.1	
22-Apr	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.0	-0.3	-0.2	-0.3	-0.3	-0.7	-0.4	0.0	-0.2	-0.3	-0.5	-0.3	-0.3	-0.5	-0.3	-0.5	-0.8	-0.9	-0.3	0.0	
23-Apr	-0.6	-0.6	-0.4	-0.4	-0.1	0.0	0.0	0.1	0.1	0.3	0.1	0.0	0.2	-0.2	0.5	0.3	-0.2	0.0	-0.3	-0.3	-0.2	-0.1	0.1	0.2	-0.1	0.5	
24-Apr	0.2	-0.1	0.5	0.5	0.4	0.3	0.3	0.7	1.2	1.1	0.9	1.1	1.2	1.1	1.3	1.3	0.9	0.9	1.1	1.1	1.0	1.1	1.0	0.9	0.8	1.3	
25-Apr	0.8	0.3	-0.1	0.1	-0.2	-0.2	0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.1	-0.5	-0.3	-0.2	-0.3	-0.3	-1.0	-0.8	-0.5	-1.0	-0.4	-0.5	-0.2	0.8	
26-Apr	-0.7	-0.8	-0.6	-0.7	-0.7	-0.5	-0.8	-0.8	-0.9	-0.7	-0.6	-0.7	-0.4	-0.6	-0.6	-0.6	-0.6	0.0	0.0	-0.1	0.2	0.7	0.7	0.6	-0.4	0.7	
27-Apr	0.7	0.6	0.6	0.8	0.8	0.6	0.5	0.6	0.7	0.6	0.8	0.8	1.1	0.9	0.6	0.5	0.1	0.5	0.7	0.6	0.5	0.5	0.5	0.6	0.6	1.1	
28-Apr	0.5	0.7	0.8	1.1	1.1	0.9	0.7	0.7	0.6	0.9	0.9	0.8	0.8	0.7	0.9	1.0	0.9	1.0	1.1	0.7	1.1	1.1	1.0	1.1	0.9	1.1	
29-Apr	0.9	0.5	0.9	0.7	0.4	0.6	0.4	0.3	0.3	0.0	-0.1	-0.3	-0.1	-0.4	0.0	-0.2	0.1	-0.8	-0.7	-1.0	-0.7	-0.9	-0.9	-0.8	-0.1	0.9	
30-Apr	-1.1	-0.8	-1.1	-1.2	-1.2	-1.3	-1.3	-1.5	-1.0	-1.1	-1.0	-1.0	-0.8	-1.2	-1.1	-0.9	-0.7	-1.0	-0.9	-0.6	-0.7	-0.6	-1.3	-1.1	-1.0	-0.6	-0.6
																								Diurnal Average			
																								Diurnal Maximum			
UO - Unstable Operation      PF - Power Failure																											



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Vertical Wind Speed 20 m (VW20m) - km/h**  
**Mannix - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1 Maximum Value: 4.6 km/h on Apr 16 15:00		Hours in Service: 720 Hours of Data: 718																								
Minimum Value: 0.1 km/h on Apr 19 04:00		Hours of Missing Data: 2 Hours of Calibration: 0																								
Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.1 Median = 1.8 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 3.1 P <sub>99</sub> = 4.2		Percent Operational Time: 99.7																								
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	2.8	2.6	2.1	0.8	1.4	2.0	2.1	1.9	2.0	2.9	2.4	2.8	2.8	2.2	1.9	2.3	2.2	2.1	1.5	0.8	0.5	0.5	0.4	0.3	2.9	
2-Apr	0.4	0.5	0.9	1.1	1.1	1.0	0.8	1.1	1.1	1.3	1.4	1.8	1.8	1.6	2.0	2.2	2.0	1.3	0.9	0.9	1.1	0.9	0.7	1.0	2.2	
3-Apr	1.1	0.9	0.8	0.7	0.8	1.9	1.8	2.3	1.3	0.7	0.8	1.1	1.2	1.1	1.5	1.6	1.6	1.8	1.4	1.5	1.3	0.8	0.4	0.4	2.3	
4-Apr	0.5	0.6	0.8	0.9	1.5	2.1	2.2	1.7	1.6	1.7	1.7	1.6	1.7	2.0	1.9	1.8	1.5	1.4	1.3	1.0	1.1	1.1	1.4	1.3	2.2	
5-Apr	1.8	1.4	1.4	1.3	1.0	0.8	1.2	1.3	PF	1.3	1.3	1.6	1.8	1.5	1.6	1.5	1.1	UO	1.0	1.1	1.2	1.0	0.6	0.8	1.8	
6-Apr	1.2	1.1	1.2	1.1	1.3	1.0	0.9	1.0	1.3	1.4	1.5	1.4	1.6	1.8	1.2	1.1	1.4	1.2	0.8	0.9	0.7	0.5	0.3	0.3	1.8	
7-Apr	0.3	0.3	0.3	0.4	0.6	0.5	0.9	1.1	1.4	1.7	2.0	2.1	2.0	2.0	2.1	1.8	1.9	2.3	1.5	1.0	0.7	0.8	0.6	0.6	2.3	
8-Apr	0.4	0.4	0.5	0.6	0.7	0.7	1.0	0.7	1.0	1.3	1.4	1.8	2.1	2.5	2.7	2.1	1.8	1.3	0.4	0.3	0.5	0.7	0.6	0.6	2.7	
9-Apr	0.3	0.3	0.3	0.3	0.5	0.2	0.4	0.8	0.9	1.3	1.9	2.5	2.2	2.6	2.5	2.5	2.2	2.2	2.4	1.5	1.2	0.6	0.8	0.9	2.6	
10-Apr	1.2	1.3	1.1	1.2	1.8	1.5	2.0	2.4	1.9	2.3	2.7	1.5	2.2	2.4	2.4	2.5	2.4	2.1	1.6	1.0	0.7	0.7	0.5	0.3	2.7	
11-Apr	0.4	0.5	0.5	0.4	0.6	0.7	1.3	1.7	1.8	1.8	1.7	2.3	2.4	2.5	2.5	2.5	2.8	2.7	2.6	2.4	2.6	2.7	2.1	1.8	2.8	
12-Apr	1.9	1.7	1.8	1.8	1.5	1.4	1.9	2.0	2.5	2.4	2.3	2.1	1.8	1.7	1.6	1.5	1.9	1.5	1.6	1.9	1.4	1.5	1.5	1.2	2.5	
13-Apr	1.0	0.5	1.1	1.5	2.0	2.6	2.8	2.1	2.5	2.5	3.3	3.4	3.2	2.6	2.7	2.5	2.4	1.9	1.0	0.3	0.5	0.5	0.3	3.4		
14-Apr	0.4	0.3	0.2	0.2	0.4	0.6	0.9	1.1	1.4	1.5	1.6	1.9	2.3	1.7	1.8	1.6	1.4	0.7	0.9	0.4	1.3	1.0	0.5	2.3		
15-Apr	1.1	0.4	0.4	0.4	0.7	1.2	1.8	1.1	1.4	1.4	2.0	1.5	2.0	2.2	2.1	1.8	2.0	2.4	1.9	2.3	1.9	1.8	2.6	2.3	2.6	
16-Apr	3.0	3.1	3.4	3.3	3.4	3.6	3.6	4.2	3.9	4.2	4.1	4.2	4.3	4.3	4.6	4.3	4.1	3.5	3.3	3.3	3.0	3.9	3.7	3.9	4.6	
17-Apr	4.2	4.1	3.6	3.4	3.6	3.3	3.1	3.4	3.2	3.0	2.9	3.2	3.8	3.6	3.5	3.6	3.4	3.4	3.0	2.8	2.5	2.0	1.8	1.8	4.2	
18-Apr	1.8	1.7	2.3	2.0	2.1	2.3	2.4	2.3	2.8	3.0	3.1	3.2	3.1	3.1	3.1	3.0	2.9	2.9	2.5	1.8	1.8	1.6	1.8	1.0	3.2	
19-Apr	0.4	0.3	0.3	0.1	0.3	0.4	0.7	0.8	1.4	1.7	1.8	1.9	1.9	2.1	2.0	1.9	1.6	1.5	1.4	1.0	0.8	0.9	1.2	0.9	2.1	
20-Apr	0.8	0.7	0.7	0.7	0.6	0.5	0.7	0.8	1.2	1.6	1.7	2.0	2.2	2.2	2.0	1.9	1.8	1.6	1.0	0.6	0.7	0.8	0.8	1.0	2.2	
21-Apr	0.5	0.7	0.6	0.7	1.1	1.1	1.2	1.4	1.5	1.6	2.0	2.3	2.4	2.2	2.0	2.0	1.5	1.1	0.7	0.5	0.7	0.6	0.4	0.3	2.4	
22-Apr	0.4	0.4	0.5	0.4	0.4	0.8	1.1	1.9	2.0	1.8	2.2	2.6	2.4	2.1	1.9	2.2	2.3	2.3	2.3	1.9	0.9	1.5	2.4	2.8	2.8	
23-Apr	2.2	1.8	0.9	0.7	0.4	0.4	0.5	1.3	1.9	1.8	1.9	2.0	2.1	2.1	2.0	1.5	1.3	1.2	2.0	1.8	1.5	1.3	1.4	1.5	2.2	
24-Apr	1.7	1.0	1.0	1.0	1.0	1.3	1.4	1.3	1.9	2.4	2.9	2.8	2.7	2.8	3.2	3.1	3.1	3.0	2.5	2.6	2.7	2.9	2.6	2.4	3.2	
25-Apr	2.0	1.8	1.4	1.2	1.0	0.8	1.4	1.4	1.9	2.3	2.9	3.2	2.9	3.3	3.2	3.1	3.6	2.3	2.9	2.5	2.3	3.1	1.4	1.9	3.6	
26-Apr	2.2	2.7	2.7	2.6	2.4	2.2	3.3	3.3	2.9	2.5	2.8	2.5	2.6	2.6	2.7	2.5	2.1	1.9	1.8	1.4	1.3	1.5	1.8	1.3	3.3	
27-Apr	1.4	1.3	1.3	1.4	1.1	1.2	1.4	1.7	1.7	2.1	2.4	2.9	2.7	3.1	2.9	3.0	2.8	3.1	2.1	1.3	1.4	1.6	1.6	1.6	3.1	
28-Apr	1.5	1.9	2.0	1.8	1.7	1.9	2.2	2.1	1.9	2.2	2.3	2.2	2.2	2.0	2.2	2.3	2.2	1.9	2.2	2.3	2.2	2.2	2.0	1.8	2.3	
29-Apr	2.1	1.7	1.6	1.1	1.0	1.1	1.0	1.3	1.6	1.4	1.6	1.8	1.9	2.2	2.3	2.3	2.4	2.3	2.6	2.8	2.7	2.6	2.8	2.5	2.8	
30-Apr	2.6	2.7	3.0	3.2	3.3	3.5	3.4	3.5	3.2	3.2	3.0	3.4	3.7	3.7	3.6	2.6	3.0	3.3	3.3	2.9	2.9	3.6	3.2	3.4	3.7	
		4.2	4.1	3.6	3.4	3.6	3.6	3.6	4.2	3.9	4.2	4.1	4.2	4.3	4.3	4.6	4.3	4.1	3.5	3.3	3.3	3.0	3.9	3.7	3.9	
		Diurnal Maximum																								
UO - Unstable Operation		PF - Power Failure																								



Summary of Hour Averages

Mannix - April 2024

Maximum Value: 2.1 km/h on Apr 24 09:00      Maximum Daily Average: 0.9 km/h on Apr 24																						Hours in Service: 720 Hours of Data: 719					
Minimum Value: -1.3 km/h on Apr 25 14:00      Minimum Daily Average: -0.6 km/h on Apr 30 Maximum Diurnal Average: 0.1 km/h at hour 13      Minimum Diurnal Average: -0.1 km/h at hour 17 Monthly Average: -0.03 km/h      Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.7 Q <sub>1</sub> = -0.4 Median = -0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.4																						Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	-0.4	-0.9	-0.7	-0.5	-0.5	-0.8	-0.8	-0.6	-0.8	-0.6	-0.4	-0.2	-0.8	-0.1	-0.4	-0.5	-0.7	-0.8	-0.6	-0.5	-0.5	-0.3	-0.2	-0.3	-0.5	-0.1	
2-Apr	0.0	0.4	0.4	0.8	1.0	0.8	0.7	1.0	0.6	0.4	0.3	0.4	0.4	0.0	0.4	0.8	0.9	0.7	0.5	0.7	0.4	-0.5	0.0	0.4	0.5	1.0	
3-Apr	0.7	0.6	0.4	0.6	0.2	-0.9	-0.9	-0.9	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	-0.5	-0.3	0.1	0.2	-0.2	0.0	0.0	-0.1	0.0	-0.1	0.7	0.7	
4-Apr	0.2	-0.2	-0.2	-0.3	-0.4	-0.5	-0.7	-0.5	-0.4	-0.1	0.6	0.8	0.5	0.4	0.1	0.2	0.1	-0.1	-0.2	0.0	0.2	0.4	0.6	0.4	0.0	0.8	
5-Apr	1.3	1.0	1.2	0.8	0.8	0.2	0.1	0.0	PF	-0.1	0.0	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.4	-0.3	-0.3	0.0	0.0	-0.1	0.1	1.3	
6-Apr	-0.3	0.0	-0.5	-0.1	0.5	0.1	0.0	0.0	0.4	0.0	-0.3	0.0	-0.1	0.0	-0.1	-0.3	-0.4	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	0.5	
7-Apr	-0.2	0.0	0.0	-0.1	-0.2	-0.1	0.5	0.6	0.5	-0.1	0.6	0.3	-0.5	-0.7	0.0	-0.4	-0.6	-0.6	-0.7	-0.6	-0.7	-0.6	-0.6	-0.6	-0.2	0.6	
8-Apr	-0.4	-0.2	-0.1	0.2	0.5	0.1	0.5	0.1	0.4	0.4	0.1	1.3	0.4	-0.4	-0.5	-0.5	0.0	-0.3	-0.3	-0.1	0.0	0.8	0.0	-0.2	0.1	1.3	
9-Apr	-0.2	-0.3	-0.3	-0.3	-0.4	-0.1	0.0	0.0	0.3	0.4	0.2	-0.7	-0.3	-0.6	-0.5	-0.7	-0.7	-0.7	-1.0	-0.7	-0.6	-0.5	-0.6	-0.4	-0.4	0.4	
10-Apr	-0.2	0.0	-0.5	-0.4	-0.7	-0.5	-0.8	-0.5	-0.6	-0.8	-1.0	-0.4	-0.6	-0.8	-0.4	-0.3	0.1	0.6	0.2	0.2	0.2	0.2	0.4	0.2	-0.3	0.6	
11-Apr	0.3	0.5	0.7	0.6	1.3	1.2	0.7	0.4	0.2	0.2	0.2	0.9	0.7	0.4	1.1	0.6	0.4	0.6	0.4	0.3	0.4	0.8	0.9	0.9	0.6	1.3	
12-Apr	1.0	0.9	0.9	0.8	1.0	0.7	0.4	1.0	1.0	1.0	1.1	1.1	0.9	0.8	0.6	0.3	0.6	0.6	0.6	0.4	0.3	0.5	0.4	0.7	0.7	1.1	
13-Apr	0.2	-0.6	-0.6	-0.5	-0.9	-1.1	-1.0	-0.8	-0.8	-0.4	-0.6	-1.0	-0.9	-0.3	-0.3	-0.4	-0.6	-0.7	-0.8	-0.6	-0.4	-0.7	-0.7	-0.5	-0.6	0.2	
14-Apr	-0.4	-0.3	-0.1	-0.1	0.2	0.2	0.6	0.3	0.3	0.1	0.1	1.1	0.3	-0.3	-0.3	-0.3	0.2	0.2	0.3	0.8	0.0	0.5	0.5	0.1	0.2	1.1	
15-Apr	0.8	0.1	-0.1	-0.1	-0.3	-0.4	-0.1	-0.4	-0.4	-0.3	0.3	0.2	0.7	0.9	0.2	0.4	0.8	0.3	-0.2	0.1	-0.5	-0.2	-0.6	-0.1	0.1	0.9	
16-Apr	-0.8	-0.9	-0.8	-0.3	-0.4	-0.4	0.1	-1.1	-0.7	-0.3	0.4	-0.3	-0.5	-0.4	-0.7	-0.9	-1.1	-0.4	-0.7	-0.2	-0.6	-1.0	-0.9	-1.0	-0.6	0.4	
17-Apr	-1.0	-1.1	0.2	-0.7	-0.7	-0.4	0.3	-0.3	-0.3	0.3	-0.3	-0.6	-0.3	-0.1	-0.3	0.0	-0.7	-0.3	-0.2	-0.5	-0.7	-0.5	-0.4	-0.2	-0.4	0.3	
18-Apr	-0.3	-0.4	-0.6	-0.7	-0.8	-0.7	-0.5	0.0	-0.2	-0.2	-0.2	-0.6	-0.3	-0.2	-0.3	0.0	-0.4	0.4	-0.1	-0.1	-0.4	-0.3	-0.1	-0.2	-0.3	0.4	
19-Apr	-0.3	-0.2	-0.1	-0.2	-0.2	-0.4	-0.4	-0.3	-0.2	1.0	1.0	-0.2	-0.7	0.0	-0.6	0.0	-0.4	-0.3	-0.4	-0.5	-0.6	-0.8	-0.9	-0.9	-0.3	1.0	
20-Apr	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	0.1	0.3	0.3	-0.7	-0.5	0.0	-0.3	-0.6	-0.1	-0.4	-0.3	-0.3	-0.3	-0.3	-0.4	-0.1	0.0	-0.2	0.3	
21-Apr	0.3	0.6	0.7	0.5	0.8	0.8	0.6	0.2	0.3	0.4	0.4	0.7	1.4	0.9	0.7	0.4	0.1	0.5	-0.3	-0.4	-0.5	-0.3	-0.1	-0.1	0.4	1.4	
22-Apr	-0.4	-0.3	-0.4	-0.2	-0.4	-0.4	-0.2	-0.5	0.0	0.0	-0.1	-0.7	0.1	-0.2	0.2	-0.4	-0.4	0.1	-0.2	-0.3	-0.2	-0.1	-0.5	-0.6	-0.3	0.2	
23-Apr	-0.3	-0.3	-0.4	-0.4	-0.1	0.0	-0.2	0.0	0.1	0.4	0.1	-0.2	0.3	-0.2	0.5	0.4	-0.6	0.0	0.1	-0.1	0.0	0.0	0.2	0.3	0.0	0.5	
24-Apr	0.3	0.0	0.8	0.8	0.6	0.5	0.3	0.9	2.1	1.3	0.4	0.7	1.1	1.1	1.5	1.5	0.6	0.7	1.4	1.2	0.9	0.9	0.6	0.7	0.9	2.1	
25-Apr	0.8	0.0	-0.5	-0.3	-0.6	-0.5	-0.2	-0.2	-0.4	-0.6	-0.5	-1.3	-0.5	-1.3	-0.8	-0.7	-0.9	-0.7	-0.9	-0.9	-0.6	-1.2	-0.4	-0.5	-0.6	0.8	
26-Apr	-0.6	-0.9	-0.4	-0.9	-0.8	-0.9	-0.6	-0.8	-0.9	-0.8	-0.7	-0.9	-0.2	-0.9	-0.7	-0.3	-0.7	0.4	0.3	0.2	0.3	0.6	0.6	0.5	-0.4	0.6	
27-Apr	0.7	0.5	0.5	0.8	0.9	0.6	0.4	0.5	0.5	0.4	0.8	0.5	1.2	0.8	0.5	0.3	0.0	0.3	0.6	0.2	0.2	0.1	-0.1	0.2	0.5	1.2	
28-Apr	0.2	0.4	0.4	1.2	1.9	1.2	0.1	0.0	-0.1	0.4	0.5	0.3	0.4	0.2	0.8	0.9	0.6	1.2	1.2	0.7	1.3	0.8	1.4	1.4	0.7	1.9	
29-Apr	0.6	0.3	1.4	1.1	0.7	0.9	0.4	0.2	0.7	0.3	0.1	-0.1	0.3	-0.1	0.3	0.3	0.6	-0.4	-0.4	-0.8	-0.3	-0.5	-0.6	-0.4	0.2	1.4	
30-Apr	-0.6	-0.4	-0.9	-0.8	-0.9	-0.8	-0.6	-0.8	-0.8	-0.9	-1.0	-0.6	-0.7	-0.9	-0.8	-0.4	-0.2	-0.6	-0.7	-0.3	-0.3	-0.1	-0.8	-0.5	-0.6	-0.1	0.6
																								Diurnal Average			
																								Diurnal Maximum			
0.0 -0.1 0.0 0.0 0.1 -0.1 -0.1 -0.1 0.0 0.1 0.0 0.0 0.1 -0.1 0.0 0.0 -0.1 0.0 -0.1 -0.1 -0.1 -0.1 -0.1 -0.1 0.0 1.3 1.0 1.4 1.2 1.9 1.2 0.7 1.0 2.1 1.3 1.1 1.3 1.4 1.1 1.5 1.5 0.9 1.2 1.4 1.2 1.3 0.9 1.4 1.4																											
PF - Power Failure																											



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Vertical Wind Speed 45 m (VW45m) - km/h**  
**Mannix - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1 Maximum Value: 4.6 km/h on Apr 16 11:00 Minimum Value: 0.1 km/h on Apr 7 04:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.1 Median = 1.9 Q <sub>3</sub> = 2.7 P <sub>90</sub> = 3.2 P <sub>99</sub> = 4.1																						Hours in Service: 720 Hours of Data: 719 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9			
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	3.0	2.8	2.2	0.8	1.6	1.9	2.3	2.1	1.9	3.1	2.7	3.2	3.1	2.7	2.2	2.7	2.3	2.2	1.6	0.9	0.4	0.5	0.2	0.2	3.2
2-Apr	0.3	0.3	0.5	0.9	0.8	0.8	0.5	0.9	1.0	1.4	1.4	2.1	1.9	1.7	2.2	2.4	2.1	1.5	0.9	1.0	1.1	0.7	0.9	0.9	2.4
3-Apr	1.1	1.0	1.0	0.8	1.0	1.9	1.5	2.2	1.1	0.6	0.6	1.4	1.5	1.2	1.6	1.5	1.6	1.9	1.6	1.6	1.5	1.0	0.5	0.5	2.2
4-Apr	0.5	0.6	0.9	1.0	1.7	2.1	2.5	1.9	1.9	2.1	2.1	1.9	2.1	2.3	2.4	2.2	1.8	1.5	1.4	1.0	1.3	1.2	1.6	1.5	2.5
5-Apr	2.3	1.8	1.5	1.4	1.3	1.0	1.2	1.4	PF	1.5	1.6	1.9	2.1	1.7	1.7	1.2	0.9	1.0	1.0	1.1	1.1	0.9	0.5	0.8	2.3
6-Apr	1.2	1.2	0.8	0.9	1.3	1.1	0.9	1.1	1.6	1.4	1.6	1.7	1.8	1.8	1.3	1.2	1.6	1.1	0.8	0.7	0.5	0.3	0.3	0.2	1.8
7-Apr	0.3	0.2	0.2	0.1	0.3	0.3	0.7	1.2	1.6	1.9	2.3	2.5	2.4	2.5	2.8	2.1	2.0	2.4	1.6	1.2	0.8	0.7	0.3	0.4	2.8
8-Apr	0.4	0.3	0.5	0.4	0.4	0.5	1.1	0.6	1.1	1.3	1.4	2.3	2.5	2.8	2.9	2.4	2.0	1.2	0.4	0.4	0.8	1.0	1.0	1.1	2.9
9-Apr	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.5	0.9	1.4	2.3	3.1	2.9	3.0	3.2	2.8	2.4	2.6	2.5	1.6	1.2	0.8	0.7	1.0	3.2
10-Apr	1.1	1.8	1.1	1.2	1.6	1.5	2.0	2.7	2.0	2.5	2.9	1.7	2.7	2.7	2.6	2.7	2.6	2.3	1.5	0.7	0.8	0.7	0.4	0.3	2.9
11-Apr	0.2	0.4	0.6	0.3	0.6	0.7	1.1	1.8	1.8	2.2	2.3	2.8	2.9	2.9	3.2	2.9	3.1	3.3	3.1	3.2	2.9	2.9	2.3	2.1	3.3
12-Apr	1.8	1.8	1.9	1.9	1.4	1.4	1.8	2.2	2.9	3.0	2.9	2.6	2.0	1.9	1.9	1.6	2.4	1.9	1.7	2.0	1.6	1.6	1.4	1.2	3.0
13-Apr	1.4	0.7	1.1	1.6	2.1	2.7	3.2	2.4	2.8	2.8	3.0	3.5	3.9	3.4	3.1	3.0	2.6	2.5	2.0	0.9	0.2	0.3	0.4	0.3	3.9
14-Apr	0.5	0.3	0.2	0.3	0.3	0.6	0.8	1.0	1.4	1.7	1.9	2.4	2.8	2.0	2.3	2.3	2.2	1.7	1.0	1.0	0.4	1.5	1.4	0.9	2.8
15-Apr	1.5	0.4	0.4	0.5	0.7	1.0	1.9	1.3	1.6	1.6	2.4	1.9	2.4	2.4	1.9	2.0	2.2	2.3	1.7	2.4	1.8	1.9	2.4	2.4	2.4
16-Apr	2.5	2.5	3.0	3.2	3.6	3.7	4.0	4.3	4.1	4.6	4.6	4.1	4.4	4.2	4.3	4.2	3.9	3.7	3.3	3.1	3.1	3.9	3.6	3.3	4.6
17-Apr	4.0	3.6	3.6	3.4	3.6	3.3	3.2	3.2	3.2	3.2	3.1	3.1	3.8	3.8	3.7	3.9	3.4	3.3	3.0	2.6	2.0	1.8	1.5	1.8	4.0
18-Apr	1.7	1.6	2.3	1.9	2.2	2.5	2.6	2.7	2.8	3.4	3.2	3.1	3.3	3.4	3.2	3.1	2.8	3.0	2.5	1.9	1.6	1.3	1.6	0.7	3.4
19-Apr	0.3	0.3	0.4	0.2	0.2	0.2	0.5	0.7	1.6	1.9	2.4	2.4	2.3	2.5	2.6	2.5	2.1	1.8	1.4	0.6	0.8	0.9	1.0	1.0	2.6
20-Apr	1.0	0.8	1.1	1.2	0.7	0.5	0.5	0.7	1.2	1.8	2.1	2.7	2.9	2.5	2.5	2.2	2.2	1.7	1.0	0.4	0.3	0.5	0.6	0.7	2.9
21-Apr	0.4	0.6	0.6	0.6	0.6	0.8	1.2	1.5	1.8	2.1	2.7	2.9	3.0	2.8	2.8	2.6	2.1	1.6	0.9	0.4	0.9	0.7	0.4	0.4	3.0
22-Apr	0.4	0.3	0.5	0.4	0.3	0.7	1.1	2.1	2.3	2.3	2.7	2.7	2.9	2.5	2.7	2.7	2.3	2.3	2.3	1.8	1.0	1.6	2.2	2.5	2.9
23-Apr	2.1	1.6	0.9	0.5	0.3	0.2	0.3	1.7	2.3	2.2	2.4	2.5	2.9	2.8	2.4	1.9	1.6	1.6	2.1	1.9	1.5	1.2	1.6	1.7	2.9
24-Apr	2.2	1.2	1.3	1.1	1.0	1.3	1.7	1.7	2.5	2.9	3.1	3.0	3.1	3.3	3.8	3.8	3.5	3.5	3.4	3.1	3.3	3.3	3.0	3.0	3.8
25-Apr	2.1	1.8	1.7	1.0	0.8	0.7	1.6	1.8	2.3	2.8	3.3	3.5	3.5	3.4	3.4	3.5	4.1	2.8	3.2	2.5	2.5	3.2	1.6	2.0	4.1
26-Apr	2.4	2.9	3.1	3.0	2.5	2.3	3.7	3.8	3.5	3.3	3.5	3.2	3.2	3.3	3.3	3.1	2.7	2.5	1.8	1.4	1.4	2.0	2.0	1.5	3.8
27-Apr	1.5	1.4	1.3	1.4	1.0	0.9	1.6	2.1	2.2	2.5	3.2	3.3	3.5	3.4	3.4	3.1	3.0	3.1	2.1	1.2	1.3	1.3	1.6	1.7	3.5
28-Apr	1.6	2.3	2.2	2.2	2.1	2.4	2.3	2.2	2.1	2.8	2.7	2.6	2.6	2.6	2.7	2.9	2.7	2.5	2.7	2.7	2.6	2.6	2.5	2.3	2.9
29-Apr	2.2	2.1	1.9	1.5	1.2	1.3	1.2	1.7	2.0	1.6	1.7	1.9	2.3	2.5	2.6	2.7	2.7	2.2	2.4	2.3	2.5	2.5	2.5	2.5	2.7
30-Apr	2.4	2.6	2.5	2.8	2.7	3.1	3.1	3.0	2.7	2.5	3.2	3.3	3.3	3.3	3.2	2.7	3.0	3.4	3.4	3.3	3.3	3.9	2.9	3.0	3.9
Diurnal Maximum																									
PF - Power Failure																									





Maximum Value: 2.4 km/h on Apr 24 09:00      Maximum Daily Average: 0.4 km/h on Apr 14																						Hours in Service: 720 Hours of Data: 710				
Minimum Value: -1.0 km/h on Apr 16 17:00      Minimum Daily Average: -0.3 km/h on Apr 30																						Hours of Missing Data: 10 Hours of Calibration: 0				
Maximum Diurnal Average: 0.3 km/h at hour 13      Minimum Diurnal Average: 0.0 km/h at hour 22																						Percent Operational Time: 98.6				
Monthly Average: 0.15 km/h      Percentiles: P <sub>1</sub> = -0.8 P <sub>10</sub> = -0.3 Q <sub>1</sub> = -0.1 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.7 P <sub>99</sub> = 1.2																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	-0.2	0.5	0.4	0.1	0.3	0.0	0.1	0.4	0.0	0.8	0.8	1.1	0.7	1.1	0.2	0.7	0.1	0.2	0.4	0.3	0.0	0.1	0.2	0.2	0.4	1.1
2-Apr	0.2	0.2	0.1	0.6	1.0	0.9	0.0	0.1	0.0	0.4	0.1	0.0	-0.6	-0.8	-0.3	0.8	1.0	0.6	0.7	0.2	0.3	-0.2	0.1	0.4	1.0	
3-Apr	0.5	0.5	0.3	0.4	0.5	0.0	0.2	0.4	0.3	0.1	0.0	0.2	0.2	0.3	0.0	-0.2	-0.1	0.1	0.3	-0.1	0.1	0.0	0.3	0.2	0.5	
4-Apr	0.3	0.2	0.2	0.2	0.4	0.5	0.0	0.1	0.1	0.4	1.0	1.0	0.6	1.0	0.2	0.2	0.5	0.0	0.3	0.1	0.4	0.4	0.0	0.0	1.0	
5-Apr	1.1	0.7	1.5	0.8	0.9	0.4	0.1	0.1	PF	-0.1	0.3	0.2	0.2	0.1	0.3	0.1	0.4	0.1	-0.1	0.2	0.1	0.2	0.3	0.4	1.5	
6-Apr	0.1	0.2	-0.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.4	0.3	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.4	
7-Apr	0.2	0.1	0.2	0.1	0.0	0.1	0.6	0.6	0.7	0.1	1.0	0.5	-0.3	-0.4	0.4	-0.4	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	1.0	
8-Apr	-0.2	-0.2	-0.2	-0.2	0.4	0.0	0.4	0.1	0.4	0.5	0.2	1.1	0.6	0.0	-0.3	-0.3	0.1	0.0	0.0	0.1	0.0	0.3	0.3	0.3	1.1	
9-Apr	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.4	0.0	0.5	0.2	0.2	0.0	0.0	0.3	-0.2	0.1	0.1	0.1	0.0	0.3	0.5	
10-Apr	0.2	0.5	0.0	0.4	0.1	0.3	0.1	0.0	0.2	0.3	-0.4	0.1	-0.1	-0.5	-0.1	0.1	0.2	0.7	0.2	0.3	0.3	-0.1	0.5	0.4	0.7	
11-Apr	0.4	0.3	0.2	0.1	0.2	0.1	0.0	-0.1	-0.4	-0.3	-0.1	0.4	0.2	-0.3	0.6	-0.2	-0.7	-0.1	-0.9	-0.6	-0.6	-0.4	-0.2	0.5	0.6	
12-Apr	1.0	0.4	0.2	0.1	1.0	0.8	0.6	0.8	0.4	0.5	0.1	0.4	0.7	0.8	0.1	-0.5	0.1	-0.1	-0.2	-0.5	-0.2	-0.2	-0.2	0.5	1.0	
13-Apr	0.1	-0.1	-0.2	0.0	-0.2	-0.2	-0.1	0.2	0.5	0.8	0.5	0.5	0.7	0.9	0.8	0.6	0.6	0.4	0.3	0.3	0.2	0.0	-0.1	0.0	0.9	
14-Apr	0.1	0.2	0.1	0.1	0.2	0.3	0.6	0.5	0.3	0.0	-0.3	1.2	1.1	0.3	0.3	0.2	0.8	0.8	0.5	0.3	0.1	0.6	0.7	0.4	1.2	
15-Apr	0.6	0.2	0.2	0.2	0.1	0.2	0.3	0.0	-0.2	0.0	0.6	0.1	0.0	0.5	0.1	0.3	1.2	0.5	0.0	0.2	-0.2	0.4	-0.3	0.3	1.2	
16-Apr	-0.6	-0.6	-0.7	0.0	-0.4	0.0	0.8	-0.7	0.2	0.3	1.2	0.6	-0.1	0.3	-0.5	-0.8	-1.0	-0.2	-0.4	0.0	-0.3	-0.7	-0.5	-0.8	1.2	
17-Apr	-0.9	-0.8	0.9	-0.3	-0.6	-0.2	1.6	0.5	0.0	0.9	0.3	-0.1	0.5	0.6	0.0	0.2	-0.3	0.1	0.1	-0.3	-0.4	-0.1	-0.1	0.1	1.6	
18-Apr	0.0	0.0	-0.2	-0.3	-0.1	0.0	0.2	0.8	0.2	-0.2	0.2	-0.3	0.0	0.0	0.0	0.2	-0.1	0.4	0.0	0.1	-0.1	0.4	0.5	0.1	0.8	
19-Apr	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	1.1	1.3	0.0	-0.4	0.2	-0.3	0.3	-0.1	0.1	0.0	-0.2	-0.3	-0.3	-0.3	-0.3	1.3	
20-Apr	0.0	0.1	0.0	0.2	0.3	0.1	0.0	0.1	0.3	0.6	-0.3	-0.4	0.7	0.4	-0.2	0.5	0.0	0.1	0.1	-0.1	-0.3	-0.3	-0.2	-0.1	0.7	
21-Apr	-0.1	0.4	0.5	0.5	1.0	0.6	0.2	0.1	0.1	0.2	0.3	0.0	1.3	0.6	0.9	0.5	0.3	1.0	0.0	0.0	-0.1	0.0	0.2	0.1	1.3	
22-Apr	0.1	0.1	0.0	0.1	0.0	0.0	0.2	-0.2	0.6	0.4	0.2	-0.9	0.4	-0.1	0.7	0.0	-0.3	0.2	0.1	-0.1	0.0	0.0	-0.3	0.1	0.7	
23-Apr	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.0	0.4	0.3	-0.2	0.4	-0.1	0.7	0.4	-0.4	0.1	0.2	-0.1	0.0	0.1	0.0	0.2	0.7	
24-Apr	0.0	-0.3	0.4	0.8	0.5	0.1	0.2	1.1	2.4	0.9	-0.7	0.0	0.0	0.2	0.4	0.8	-0.6	-0.2	0.8	0.6	0.2	-0.2	-0.4	-0.3	2.4	
25-Apr	-0.3	0.2	0.1	-0.1	0.0	0.1	0.2	0.3	0.2	0.3	0.8	-0.3	0.5	-0.5	0.3	0.2	0.2	0.5	0.6	0.1	0.2	-0.6	0.0	0.2	0.8	
26-Apr	0.2	0.0	0.2	-0.2	-0.4	-0.3	0.2	0.0	-0.2	-0.3	-0.1	-0.3	0.4	-0.2	-0.3	0.1	-0.3	0.6	0.3	0.3	0.3	0.3	-0.3	-0.2	0.6	
27-Apr	0.3	0.1	-0.1	0.5	0.5	0.0	0.0	0.4	0.2	0.0	0.7	0.5	1.2	0.9	0.8	0.8	0.3	0.2	0.1	-0.5	-0.8	-0.8	-1.0	-0.4	1.2	
28-Apr	-0.6	-0.2	-0.3	0.8	2.1	1.0	-0.7	-0.9	-1.0	-0.5	-0.2	-0.5	-0.2	-0.6	0.2	0.3	0.0	0.9	0.7	-0.1	1.3	0.2	1.2	1.1	2.1	
29-Apr	-0.3	-0.6	1.4	0.9	0.8	1.1	0.4	0.0	0.8	0.4	0.2	-0.1	0.6	0.1	0.6	0.5	1.0	-0.3	-0.1	-0.5	-0.1	0.2	-0.1	0.2	1.4	
30-Apr	-0.3	0.0	-0.7	-0.5	-0.7	-0.5	-0.4	-0.5	-0.5	-0.8	-0.3	-0.3	-0.6	-0.4	-0.6	-0.2	0.1	0.4	0.1	0.4	0.3	0.4	-0.5	-0.4	0.4	
																								Diurnal Average		
																								Diurnal Maximum		
UO - Unstable Operation      PF - Power Failure																										



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Vertical Wind Speed 75 m (VW75m) - km/h**

**Mannix - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1 Maximum Value: 4.7 km/h on Apr 24 17:00		Hours in Service: 720 Hours of Data: 710 Hours of Missing Data: 10 Hours of Calibration: 0 Percent Operational Time: 98.6																							
Minimum Value: 0.1 km/h on Apr 19 06:00																									
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.1 Median = 2.0 Q <sub>3</sub> = 2.8 P <sub>90</sub> = 3.4 P <sub>99</sub> = 4.4																									
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-Apr	3.0	3.1	2.2	0.9	1.7	1.7	2.3	2.3	1.9	3.1	2.8	3.3	3.4	3.0	2.4	3.0	2.3	2.1	1.6	0.9	0.4	0.4	0.2	0.2	3.4
2-Apr	0.4	0.3	0.3	0.5	0.6	0.7	0.6	0.7	0.7	1.4	1.8	2.0	1.9	1.9	2.3	2.5	1.9	1.3	0.8	0.9	1.2	0.6	1.1	0.8	2.5
3-Apr	1.1	1.1	1.2	0.8	1.1	2.0	1.3	2.1	1.0	0.6	0.6	1.6	1.6	1.2	1.5	1.2	1.7	1.7	1.6	1.3	1.3	1.0	0.6	0.6	2.1
4-Apr	0.6	0.7	1.0	0.9	1.7	2.0	2.3	1.9	2.0	2.2	2.2	2.2	2.3	2.8	2.8	2.4	2.0	1.5	1.3	1.1	1.4	1.5	1.8	2.0	2.8
5-Apr	3.1	2.7	2.6	2.4	1.8	1.1	1.0	1.2	PF	1.5	1.6	1.9	2.2	1.8	1.7	1.0	0.9	0.6	0.9	0.9	0.7	0.8	0.8	3.1	
6-Apr	1.2	1.1	1.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.4	1.7	1.4	1.2	1.4	1.1	0.7	0.7	0.5	0.3	0.3	0.2	2.4
7-Apr	0.3	0.4	0.3	0.1	0.2	0.3	0.5	1.0	1.6	2.2	2.7	2.9	2.6	2.6	3.0	2.3	2.2	2.3	1.7	1.2	0.9	0.7	0.2	0.2	3.0
8-Apr	0.3	0.6	0.7	0.5	0.5	0.6	1.4	0.6	0.8	1.2	1.4	2.6	2.9	3.1	3.0	2.5	2.1	1.2	0.4	0.6	1.1	1.2	1.5	1.7	3.1
9-Apr	0.3	0.5	0.3	0.2	0.2	0.3	0.3	0.6	1.0	1.3	2.5	3.3	3.3	3.3	3.3	3.4	2.6	2.8	2.4	1.4	1.1	0.8	0.7	1.3	3.4
10-Apr	1.3	1.9	0.9	1.2	1.5	1.5	2.1	2.5	2.0	2.8	2.5	1.7	2.7	2.7	2.6	2.8	2.7	2.2	1.1	0.6	0.8	1.1	0.7	0.3	2.8
11-Apr	0.2	0.3	0.7	0.5	0.9	1.1	1.4	1.6	1.7	2.1	2.6	3.2	3.3	3.1	3.3	3.1	2.8	3.3	2.9	3.0	3.0	2.8	2.1	1.8	3.3
12-Apr	1.6	1.3	1.3	1.3	1.2	1.3	1.7	2.2	2.7	3.0	2.7	2.4	1.8	1.8	1.5	2.5	1.8	1.5	1.8	1.5	1.9	1.1	0.8	3.0	
13-Apr	1.7	0.9	1.3	1.7	2.2	2.8	3.2	2.5	2.9	3.1	3.3	3.6	4.0	3.8	3.2	2.8	2.6	2.0	0.9	0.3	0.2	0.3	0.3	4.0	
14-Apr	0.5	0.5	0.3	0.5	0.5	0.4	0.5	0.8	1.1	1.4	1.9	2.6	3.4	2.4	2.6	2.4	2.5	2.1	0.9	1.1	0.7	2.1	1.9	1.4	3.4
15-Apr	1.7	0.5	0.4	0.7	0.7	1.4	2.1	1.5	1.4	1.5	2.6	2.1	2.7	2.3	2.0	1.9	2.3	2.2	1.5	2.2	1.5	1.8	2.3	2.2	2.7
16-Apr	2.0	2.4	2.7	3.4	3.6	3.8	4.1	3.9	4.1	4.5	4.5	4.4	4.4	4.2	4.4	4.1	3.8	3.8	3.3	3.1	2.9	3.8	3.4	3.2	4.5
17-Apr	3.7	3.6	3.7	3.5	3.7	3.3	3.4	3.1	3.0	3.5	3.1	3.1	4.1	3.9	3.9	3.9	3.4	3.1	2.9	2.2	1.5	1.6	1.2	1.4	4.1
18-Apr	1.6	1.7	2.4	2.1	2.1	2.4	2.5	2.9	2.9	3.3	3.2	3.1	3.3	3.7	3.2	3.3	2.9	2.9	2.3	1.5	1.0	0.9	1.1	0.5	3.7
19-Apr	0.2	0.3	0.4	0.2	0.2	0.1	0.2	0.6	1.8	2.0	2.6	2.7	2.4	2.7	2.9	2.7	2.4	2.0	1.3	0.5	0.8	1.1	1.0	1.2	2.9
20-Apr	1.4	1.2	1.4	1.7	0.9	0.6	0.5	0.6	1.1	1.8	2.3	2.7	3.2	2.7	2.9	2.5	2.7	1.9	0.9	0.5	0.2	0.6	0.6	0.7	3.2
21-Apr	0.5	0.5	0.5	0.6	0.5	0.8	1.0	1.5	1.8	2.3	3.1	3.3	3.5	3.3	3.3	3.0	2.5	1.8	1.0	0.5	1.1	0.8	0.4	0.4	3.5
22-Apr	0.5	0.4	0.4	0.4	0.4	0.7	1.1	2.2	2.4	2.2	2.8	2.6	3.2	2.7	3.2	3.0	2.1	2.0	2.0	1.4	0.5	1.5	2.0	2.3	3.2
23-Apr	1.3	0.8	0.6	0.4	0.3	0.2	0.2	1.7	2.4	2.6	2.6	2.7	3.3	3.0	2.9	2.2	1.8	1.8	1.9	1.7	1.3	1.1	1.9	2.2	3.3
24-Apr	2.3	1.6	1.7	1.6	1.2	1.6	2.1	2.0	3.1	3.9	3.1	3.4	4.0	4.5	4.7	4.6	4.7	4.7	3.8	4.4	3.8	3.1	3.3	3.1	4.7
25-Apr	2.0	1.6	1.6	1.0	0.8	0.8	1.3	1.8	2.3	3.1	3.5	3.6	3.8	3.6	3.6	3.5	4.0	3.0	3.2	2.5	2.5	3.0	1.6	1.9	4.0
26-Apr	2.3	2.7	3.0	2.9	2.3	2.3	3.5	3.8	3.6	3.5	4.0	3.7	3.7	3.9	3.5	3.5	3.1	2.6	1.8	1.1	1.3	2.7	2.1	1.4	4.0
27-Apr	1.2	1.0	0.8	1.2	1.1	0.8	1.5	2.2	2.2	2.5	3.5	3.7	4.1	3.9	3.6	3.6	3.2	2.9	2.0	1.1	1.4	1.5	1.7	1.8	4.1
28-Apr	1.8	2.5	2.5	2.5	2.7	2.8	2.3	2.2	2.3	2.9	2.8	2.7	3.0	2.7	3.0	3.7	3.1	2.9	3.8	3.6	3.4	2.9	3.2	2.7	3.8
29-Apr	2.2	2.1	2.4	1.7	1.5	1.7	1.5	1.7	2.1	1.7	1.8	1.7	2.6	2.6	2.9	3.0	2.8	2.0	2.1	2.0	2.3	2.5	2.4	2.3	3.0
30-Apr	2.4	2.5	2.4	2.6	2.4	2.8	2.7	2.6	2.3	2.1	2.6	3.2	3.1	3.3	2.9	2.8	2.8	3.6	3.3	3.5	3.3	3.7	2.7	2.7	3.7
Diurnal Maximum																									
UO - Unstable Operation      PF - Power Failure																									



Maximum Value: 3.1 km/h on Apr 16 11:00      Maximum Daily Average: 1.2 km/h on Apr 17																						Hours in Service: 720 Hours of Data: 709				
Minimum Value: -1.5 km/h on Apr 27 23:00      Minimum Daily Average: -0.4 km/h on Apr 20 Maximum Diurnal Average: 0.4 km/h at hour 11      Minimum Diurnal Average: 0.0 km/h at hour 1 Monthly Average: 0.20 km/h      Percentiles: P <sub>1</sub> = -1.2 P <sub>10</sub> = -0.6 Q <sub>1</sub> = -0.2 Median = 0.2 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.1 P <sub>99</sub> = 1.8																						Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	-1.2	-0.2	0.1	-0.3	-0.2	-0.7	-0.6	-0.3	-0.5	0.1	0.7	0.9	0.3	0.8	-0.1	0.3	-0.1	-0.1	0.0	0.2	0.0	0.1	-0.1	-0.1	0.0	0.9
2-Apr	-0.1	-0.3	-0.4	-0.1	0.1	0.3	0.5	0.6	0.3	0.2	0.2	0.1	-0.4	-1.2	-0.4	0.2	0.2	0.2	0.1	0.3	-0.2	-1.0	-0.5	0.0	-0.1	0.6
3-Apr	0.2	0.6	0.4	0.3	0.1	-0.5	-0.4	UO	UO	-0.2	-0.4	-0.2	-0.2	-0.2	0.0	-0.1	0.2	0.6	0.7	0.5	0.6	0.1	0.2	0.0	0.1	0.7
4-Apr	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.3	0.4	0.7	1.3	1.3	0.6	1.3	0.7	0.4	0.6	0.2	0.4	0.7	0.4	0.8	0.8	0.3	0.5	1.3
5-Apr	1.2	0.8	1.6	1.0	1.2	0.6	0.3	0.3	PF	-0.1	0.3	0.1	0.4	0.3	0.6	0.4	0.5	UO	0.1	0.3	0.2	0.3	0.2	0.4	0.5	1.6
6-Apr	0.0	0.1	-0.1	0.0	0.5	0.0	0.5	0.2	UO	UO	UO	UO	UO	UO	0.5	0.0	0.2	0.3	0.0	0.3	0.2	0.1	0.1	0.1	0.2	0.5
7-Apr	0.1	0.0	0.0	-0.2	-0.4	-0.3	0.1	0.2	0.2	-0.4	0.8	0.1	-0.9	-1.1	-0.2	-0.9	-0.8	-1.0	-0.8	-0.9	-0.9	-0.9	-0.9	-0.8	-0.4	0.8
8-Apr	-0.8	-0.7	-0.7	-0.6	-0.1	-0.5	-0.2	-0.2	0.1	0.4	0.1	1.1	0.4	-0.5	-1.0	-1.0	-0.4	-0.4	-0.3	0.0	-0.1	0.3	-0.1	0.1	-0.2	1.1
9-Apr	-0.1	-0.1	0.2	0.0	0.0	0.0	-0.1	0.0	-0.1	0.1	0.0	-0.7	0.1	-0.6	-0.6	-0.7	-0.6	-0.5	-0.9	-0.6	-0.5	-0.3	-0.4	0.2	-0.3	0.2
10-Apr	0.5	0.7	0.0	0.1	-0.2	-0.2	0.0	0.0	-0.3	0.0	UO	0.1	-0.1	-0.5	0.1	0.6	0.8	1.1	0.7	0.7	0.6	0.3	0.2	0.1	0.2	1.1
11-Apr	0.1	0.2	0.4	0.6	0.0	-0.4	-0.7	-0.2	-0.8	-0.4	-0.2	0.1	0.0	-0.5	0.5	-0.2	-0.8	-0.4	-1.2	-0.9	-1.3	-0.3	0.5	0.2	-0.2	0.6
12-Apr	0.3	0.3	0.4	0.4	0.2	-0.2	-0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.1	-0.1	-0.7	-0.1	-0.1	0.1	-0.4	-0.1	-0.3	0.0	0.1	0.0	0.4
13-Apr	-0.6	-0.7	-0.9	-0.9	-1.2	-1.2	-1.0	-0.5	-0.2	0.4	-0.2	-0.2	0.0	0.3	0.2	0.0	0.1	-0.2	-0.1	0.0	-0.2	-0.5	-0.5	-0.4	-0.3	0.4
14-Apr	-0.2	-0.2	-0.1	-0.2	-0.1	0.0	0.3	0.3	0.3	-0.1	-0.4	1.2	0.9	0.0	-0.3	-0.2	0.6	0.7	0.5	0.2	0.2	0.8	0.7	0.6	0.2	1.2
15-Apr	0.6	0.1	0.3	0.3	0.1	0.1	0.7	0.2	0.2	0.3	0.6	0.0	-0.1	0.8	0.7	0.8	1.7	1.2	0.7	1.1	0.5	1.1	0.5	1.2	0.6	1.7
16-Apr	0.3	0.4	0.8	1.4	1.0	1.3	1.6	0.2	1.2	1.8	3.1	2.3	1.5	1.8	1.1	0.6	0.2	1.1	0.9	1.1	0.8	0.5	0.9	0.4	1.1	3.1
17-Apr	0.4	0.5	2.3	0.8	0.7	1.0	2.9	1.7	1.1	1.8	1.3	0.9	1.5	1.8	1.0	1.5	1.0	1.2	1.2	0.6	0.5	0.7	0.8	1.1	1.2	2.9
18-Apr	0.8	0.6	0.6	0.3	0.5	0.5	0.8	1.3	0.9	0.6	1.1	0.6	0.8	0.8	0.9	1.1	0.8	1.3	0.7	0.9	0.8	1.3	1.5	0.9	0.9	1.5
19-Apr	0.3	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.1	-0.1	1.0	1.2	-0.4	-0.8	-0.1	-0.7	-0.1	-0.5	-0.3	-0.5	-0.8	-1.0	-1.3	-1.0	-0.9	-0.2	1.2
20-Apr	-0.7	-0.4	-0.4	-0.2	-0.1	-0.3	-0.4	-0.3	0.0	0.4	-0.9	-0.8	0.1	-0.2	-0.7	0.2	-0.6	-0.3	-0.3	-0.5	-0.9	-0.9	-0.9	-1.0	-0.4	0.4
21-Apr	-1.0	-0.4	-0.5	-0.2	0.1	0.4	0.4	0.2	0.1	0.0	0.1	-0.2	1.3	0.6	1.0	0.4	0.0	0.9	-0.2	0.0	0.1	0.6	0.6	0.2	0.2	1.3
22-Apr	0.2	0.2	0.1	0.5	0.2	0.3	0.4	-0.1	0.8	0.4	0.4	-0.4	0.8	-0.2	0.7	0.1	0.3	0.9	0.9	0.7	0.8	0.7	0.9	1.2	0.4	1.2
23-Apr	1.1	1.1	0.8	0.8	0.5	0.1	0.0	0.1	0.2	0.3	0.0	-0.6	0.3	-0.4	0.7	0.5	-0.7	-0.1	0.8	0.7	0.7	0.7	0.4	0.6	0.4	1.1
24-Apr	0.4	-0.2	0.7	0.9	0.7	0.6	0.4	1.2	2.6	1.2	-1.0	-0.3	0.4	1.1	0.9	1.2	0.6	0.5	1.0	0.9	0.1	0.1	-0.4	-0.6	0.5	2.6
25-Apr	-0.2	-0.5	-0.4	-0.6	-0.5	-0.4	-0.1	0.0	-0.2	-0.2	0.1	-1.1	-0.2	-1.4	-0.7	-0.8	-0.8	-0.1	0.5	-0.3	0.0	0.0	-0.1	0.2	-0.3	0.5
26-Apr	0.2	0.1	0.3	0.1	0.0	0.0	0.4	0.2	-0.1	-0.2	-0.2	-0.4	0.3	-0.4	-0.2	0.5	-0.3	0.9	0.7	0.7	0.6	0.4	-0.4	0.2	0.1	0.9
27-Apr	0.4	0.1	0.2	0.1	0.5	0.3	0.2	0.3	0.0	-0.2	0.3	-0.2	1.0	0.2	0.2	0.0	-0.5	-0.8	-0.4	-0.3	-0.8	-1.2	-1.5	-0.8	-0.1	1.0
28-Apr	-1.2	-0.5	-0.6	0.6	2.2	0.8	-1.3	-1.2	-1.3	-0.8	-0.6	-0.6	-0.3	-0.8	0.2	0.4	0.0	1.0	1.2	0.3	1.4	0.0	1.1	1.1	0.1	2.2
29-Apr	-0.6	-0.7	1.4	1.3	1.0	1.3	0.4	0.2	1.1	0.7	0.5	0.2	1.2	0.6	1.2	1.3	1.6	0.5	0.7	0.4	0.9	1.2	1.0	1.2	0.8	1.6
30-Apr	0.6	0.8	0.1	0.4	0.4	0.6	0.8	0.7	0.5	0.2	2.7	0.8	0.7	0.9	0.5	0.7	1.0	1.5	1.0	1.1	1.2	1.7	0.8	0.8	0.9	2.7
																								Diurnal Average		
																								Diurnal Maximum		
UO - Unstable Operation      PF - Power Failure																										



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Vertical Wind Speed 90 m (VW90m) - km/h**  
**Mannix - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1 Maximum Value: 4.9 km/h on Apr 16 08:00		Hours in Service: 720 Hours of Data: 709																							
Minimum Value: 0.1 km/h on Apr 19 05:00		Hours of Missing Data: 11 Hours of Calibration: 0																							
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.1 Median = 2.0 Q <sub>3</sub> = 3.0 P <sub>90</sub> = 3.6 P <sub>99</sub> = 4.4		Percent Operational Time: 98.5																							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	3.0	3.1	2.2	0.8	1.7	1.7	2.4	2.2	1.9	3.2	2.8	3.5	3.6	3.2	2.4	3.1	2.2	2.0	1.6	0.8	0.5	0.5	0.2	0.2	3.6
2-Apr	0.3	0.3	0.2	0.5	0.3	0.5	0.6	0.6	0.7	1.4	1.7	1.7	1.9	2.0	2.4	2.5	1.9	1.2	0.7	0.9	1.3	0.6	1.2	0.8	2.5
3-Apr	1.3	1.1	1.2	0.8	1.2	2.1	1.1	UO	UO	0.6	0.6	1.7	1.6	1.2	1.4	1.1	1.7	1.8	1.6	1.2	1.1	1.1	0.7	0.6	2.1
4-Apr	0.5	0.8	1.1	1.0	1.8	2.1	2.2	1.9	2.2	2.2	2.4	2.2	2.5	3.1	3.2	2.7	2.2	1.6	1.4	1.2	1.4	1.6	1.7	1.6	3.2
5-Apr	2.7	2.4	2.4	2.0	1.8	1.2	0.9	1.1	PF	1.6	1.6	1.8	2.3	1.7	1.6	0.9	1.0	UO	0.9	0.9	0.8	0.7	0.8	0.8	2.7
6-Apr	1.1	1.1	1.1	1.1	1.3	1.0	1.1	1.3	UO	UO	UO	UO	UO	UO	1.6	1.1	1.4	1.1	0.6	0.6	0.5	0.2	0.3	0.2	1.6
7-Apr	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.8	1.6	2.2	3.0	3.2	2.9	2.7	3.2	2.5	2.3	2.4	1.7	1.3	0.9	0.7	0.2	0.2	3.2
8-Apr	0.3	0.7	0.8	0.6	0.5	0.6	1.4	0.7	0.9	1.2	1.5	2.8	3.1	3.4	3.1	2.7	2.2	1.2	0.4	0.5	1.0	1.3	1.7	2.0	3.4
9-Apr	0.4	0.5	0.4	0.2	0.2	0.1	0.4	0.6	1.1	1.4	2.8	3.4	3.7	3.3	3.5	3.6	2.8	2.8	2.3	1.3	1.0	0.8	0.7	1.4	3.7
10-Apr	1.4	2.1	0.8	1.0	1.4	1.5	2.2	2.4	1.8	3.0	UO	1.7	2.7	2.9	2.6	2.8	2.8	2.2	1.1	0.6	0.7	0.6	0.6	0.3	3.0
11-Apr	0.2	0.2	0.4	0.4	0.7	0.8	1.0	1.2	1.4	2.2	2.8	3.4	3.5	3.1	3.6	3.4	2.9	3.4	3.1	3.2	3.1	3.0	2.0	1.7	3.6
12-Apr	1.4	1.1	1.0	1.0	1.0	1.2	1.7	2.2	2.8	3.0	2.8	2.5	1.9	1.9	1.9	1.4	2.6	1.9	1.4	1.7	1.4	1.7	0.9	0.8	3.0
13-Apr	1.7	0.9	1.3	1.7	2.2	2.8	3.1	2.5	2.9	3.2	3.6	3.7	4.2	3.8	3.4	3.3	3.0	2.6	2.0	0.8	0.4	0.2	0.2	0.3	4.2
14-Apr	0.5	0.5	0.4	0.7	0.6	0.4	0.4	0.7	0.9	1.4	2.1	2.7	3.8	2.6	2.9	2.7	2.9	2.4	1.1	1.2	0.8	1.8	1.9	1.5	3.8
15-Apr	1.8	0.5	0.4	0.7	0.9	1.6	2.1	1.7	1.5	1.4	2.7	2.4	2.7	2.2	1.9	2.0	2.5	2.1	1.4	2.1	1.5	1.9	2.2	2.3	2.7
16-Apr	2.0	2.5	2.8	3.7	4.0	4.1	4.4	4.9	4.4	4.6	4.6	4.5	4.7	4.5	4.6	4.1	4.1	4.0	3.3	3.3	3.0	4.0	3.5	3.2	4.9
17-Apr	3.9	4.0	4.0	3.7	3.9	3.5	3.5	3.1	3.0	3.6	3.0	3.1	4.1	4.0	4.1	3.8	3.4	3.1	3.0	2.1	1.4	1.6	1.1	1.2	4.1
18-Apr	1.6	1.7	2.3	2.2	2.2	2.3	2.6	3.0	3.0	3.4	3.2	3.2	3.4	3.8	3.3	3.3	3.1	3.0	1.9	1.4	0.8	0.8	1.0	0.5	3.8
19-Apr	0.2	0.3	0.4	0.2	0.1	0.1	0.2	0.5	2.0	2.5	2.9	3.0	2.7	3.0	3.3	2.8	2.6	2.3	1.3	0.5	0.7	1.0	1.0	1.3	3.3
20-Apr	1.5	1.3	1.5	1.8	1.0	0.7	0.5	0.7	1.2	1.9	2.4	3.0	3.3	2.9	3.0	2.7	2.9	2.1	1.0	0.5	0.2	0.5	0.4	0.6	3.3
21-Apr	0.4	0.5	0.6	0.7	0.4	0.7	0.6	1.3	1.8	2.5	3.4	3.2	3.8	3.6	3.6	3.4	2.9	2.1	1.2	0.6	1.3	0.8	0.5	0.5	3.8
22-Apr	0.5	0.4	0.4	0.4	0.4	0.8	1.1	2.2	2.5	2.2	2.9	2.7	3.4	3.1	3.5	3.3	2.1	2.0	2.0	1.4	0.5	1.6	2.0	2.5	3.5
23-Apr	1.0	0.7	0.4	0.3	0.3	0.2	0.2	1.8	2.5	2.8	2.8	3.2	3.7	3.3	3.2	2.5	2.0	1.9	1.7	1.6	1.3	1.2	1.9	2.0	3.7
24-Apr	2.1	1.9	1.4	1.5	1.2	1.4	2.0	2.2	3.0	3.6	3.1	3.6	3.4	3.6	3.9	3.8	3.5	3.6	3.6	3.4	3.6	3.1	3.2	3.3	3.9
25-Apr	1.9	1.6	1.7	1.1	0.8	0.8	1.1	1.9	2.6	3.2	3.6	3.8	3.9	3.9	3.7	3.5	4.1	3.1	3.1	2.3	2.4	2.8	1.6	1.9	4.1
26-Apr	2.2	2.6	2.9	2.8	2.1	2.2	3.4	3.7	3.5	3.7	4.3	4.1	4.1	4.4	3.8	3.9	3.7	2.9	2.0	1.0	1.3	2.4	2.2	1.3	4.4
27-Apr	1.0	0.9	0.9	0.8	1.0	1.0	1.4	2.3	2.4	2.6	3.9	4.0	4.4	4.2	3.9	3.8	3.4	2.8	1.9	1.0	1.1	1.4	1.6	1.9	4.4
28-Apr	1.8	2.6	2.6	2.7	2.8	3.0	2.3	2.2	2.4	3.0	3.0	2.8	3.2	2.7	3.0	3.6	3.1	3.1	3.0	2.9	3.3	3.0	3.1	3.0	3.6
29-Apr	2.1	2.1	2.7	1.9	1.6	1.7	1.5	1.8	2.3	1.7	1.8	1.7	2.8	2.8	3.1	3.1	3.0	2.0	1.9	2.1	2.3	2.5	2.4	2.3	3.1
30-Apr	2.3	2.6	2.5	2.7	2.4	2.9	2.6	2.7	2.6	2.2	3.3	3.4	3.2	3.3	2.9	2.7	3.0	3.8	3.5	3.6	3.6	3.8	3.1	3.0	3.8
	3.9	4.0	4.0	3.7	4.0	4.1	4.4	4.9	4.4	4.6	4.6	4.5	4.7	4.5	4.6	4.1	4.1	4.0	3.6	3.6	3.6	4.0	3.5	3.3	
	Diurnal Maximum																								
UO - Unstable Operation		PF - Power Failure																							



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS06**  
**PATRICIA MCINNES**  
**APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
 APRIL 2024

MONTHLY SUMMARY

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	685	34	35	99.86	14.3	0	2.8	0
TRS (ppb) Average	661	33	59	96.39	1.6	0	0.7	0
THC (ppm) Average	663	36	57	97.08	2.4	-	2.1	-
NMHC(ppm) Average	663	36	57	97.08	0.073	-	0.042	-
CH4(ppm) Average	663	36	57	97.08	2.4	-	2.1	-
O3 (ppb) Average	660	32	60	96.11	57.6	0	47.2	-
NO2 (ppb) Average	683	36	37	99.86	29.8	0	8.2	-
NO (ppb) Average	683	36	37	99.86	20.1	-	2.3	-
NOX (ppb) Average	683	36	37	99.86	46.3	-	10.1	-
NH3 (ppb) Average	650	39	70	95.69	0	0	0	-
PM2.5 (ug/m3) Average	719	1	1	100	61.4	0	18.2	0
Temperature 2 m (C) Average	720	0	0	100	19.3	-	11.2	-
Relative Humidity (%) Average	720	0	0	100	97.6	-	89.8	-
Wind Speed 10 m (km/h) Average	720	0	0	100	36	-	25	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	685	0.69	1.5	-	0	0	0.1	0.2	0.4	2	14.3
TRS (ppb) Average	661	0.41	0.2	-	0.3	0.3	0.3	0.4	0.4	0.6	1.6
THC (ppm) Average	663	2.04	0.1	-	2	2	2	2	2	2.1	2.4
NMHC(ppm) Average	663	0.021	0.014	-	0	0	0	0	0	0	0.073
CH4(ppm) Average	663	2.02	0.1	-	2	2	2	2	2	2.1	2.4
O3 (ppb) Average	660	36.77	11.2	-	4.5	21.7	29.4	38	45.6	49.8	57.6
NO2 (ppb) Average	683	3.59	4.6	-	0	0.1	0.8	2.2	4.5	8.8	29.8
NO (ppb) Average	683	0.77	1.7	-	0	0	0.1	0.3	0.8	1.6	20.1
NOX (ppb) Average	683	4.37	6	-	0	0.2	1	2.6	5	9.9	46.3
NH3 (ppb) Average	650	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	719	4.32	5.9	-	0.2	1.2	2.2	3.2	4.5	7	61.4
Temperature 2 m (C) Average	720	5.18	5.9	-	-11	-1.6	0.6	4.6	9.2	13.8	19.3
Relative Humidity (%) Average	720	54.97	24.6	-	10.3	23.4	33.1	54.4	76	90.5	97.6
Wind Speed 10 m (km/h) Average	720	13.1	7	-	0	5	8	12	17	23	36
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA MCINNES (AMS06)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	23 Apr 2024 13:00	23 Apr 2024 13:00	1	Maintenance - sample manifold cleaned
TRS	01 Apr 2024 01:00	01 Apr 2024 10:00	10	Unstable Operation - flatline in analyzer output signal
TRS	01 Apr 2024 11:00	01 Apr 2024 11:00	1	Maintenance - analyzer rebooted
TRS	27 Apr 2024 21:00	28 Apr 2024 09:00	13	Unstable Operation - flatline in analyzer output signal
TRS	28 Apr 2024 10:00	28 Apr 2024 10:00	1	Maintenance - analyzer rebooted
O3	04 Apr 2024 08:00	05 Apr 2024 09:00	26	Unstable Operation - flatline in analyzer output signal
O3	05 Apr 2024 10:00	05 Apr 2024 10:00	1	Maintenance - analyzer rebooted
THC/NMHC/CH4	22 Apr 2024 14:00	23 Apr 2024 09:00	20	Maintenance - column conditioning
NH3	01 Apr 2024 07:00	30 Apr 2024 06:00	31	Stabilization after daily QA check

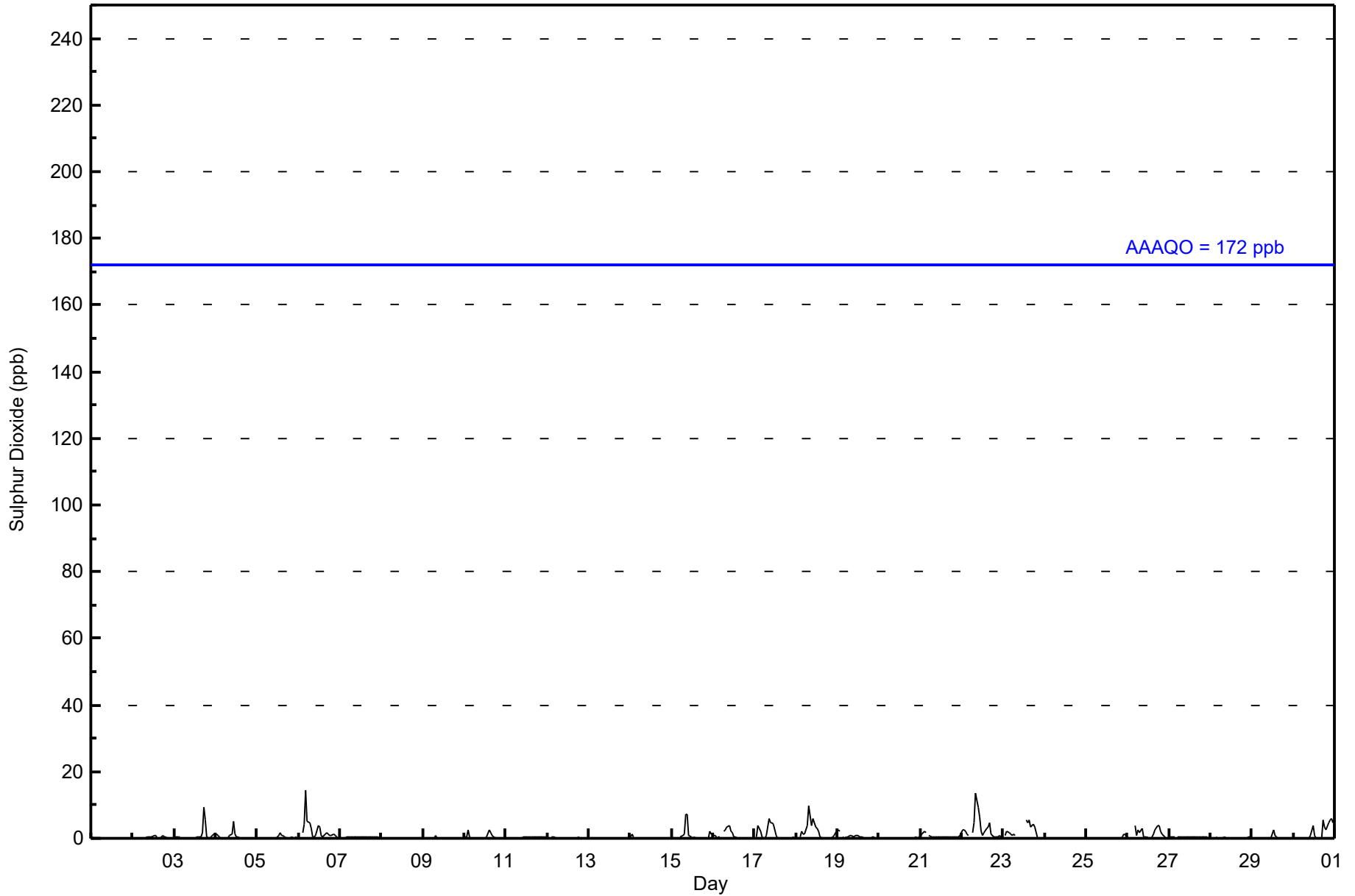






Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Patricia McInnes - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	683	99.71	99.71
11 - 20	2	0.29	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: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Patricia McInnes - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	108	49	18	19	18	76	48	17	32	22	43	50	53	36	40	54	683
11 - 20	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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>	110	49	18	19	18	76	48	17	32	22	43	50	53	36	40	54	685

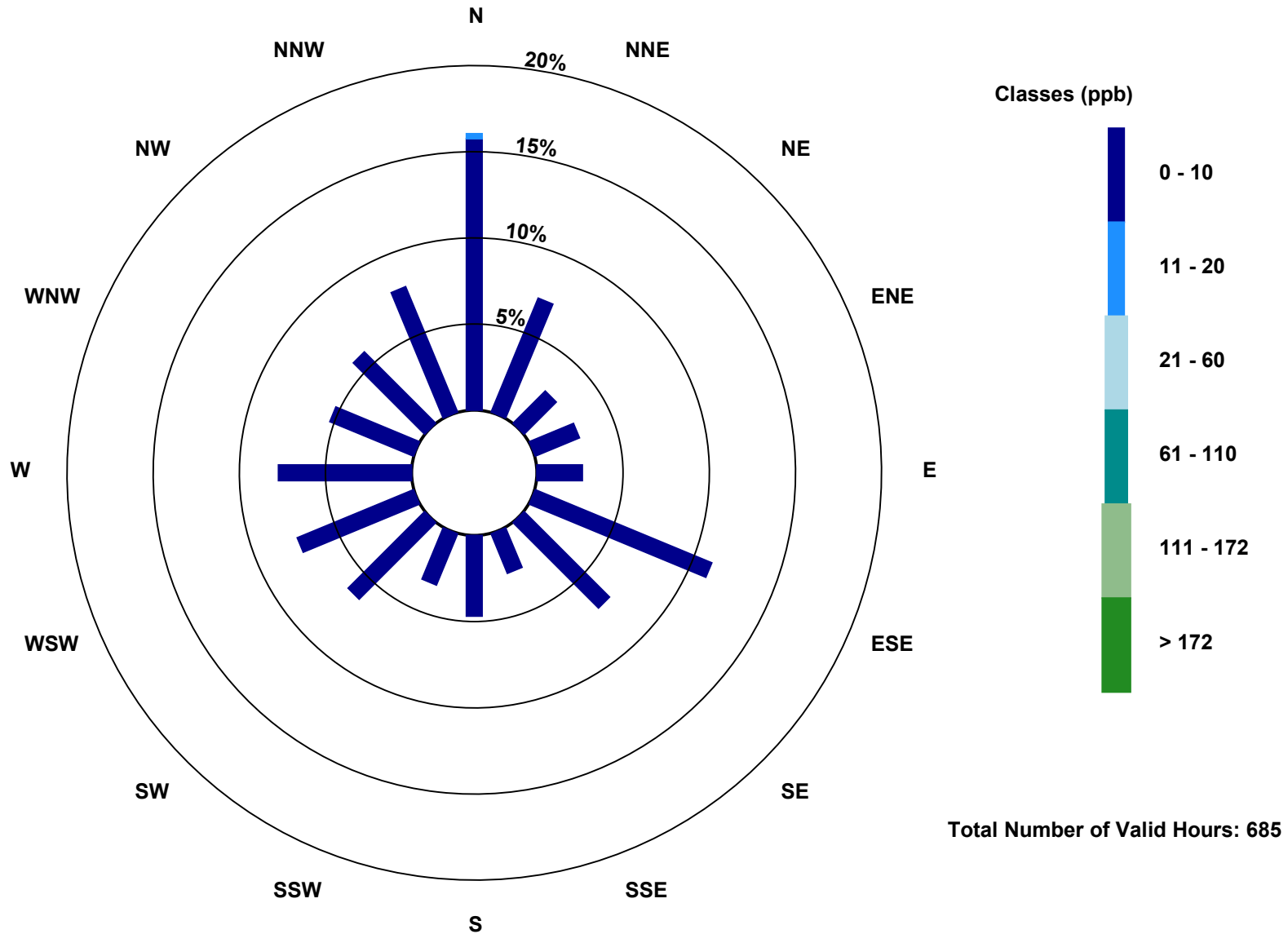
Total Number of Valid Hours: 685

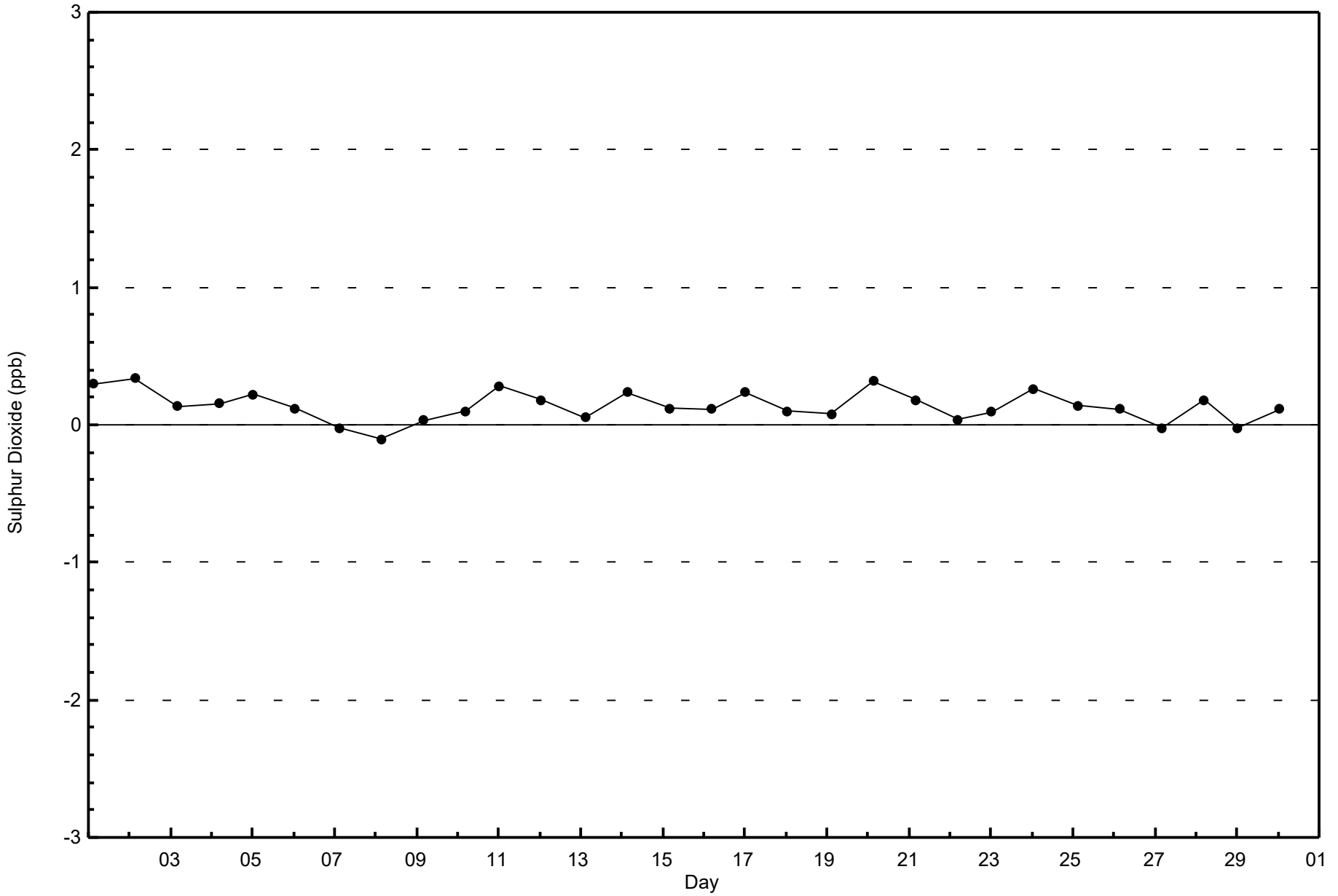
Total Number of Hours: 720

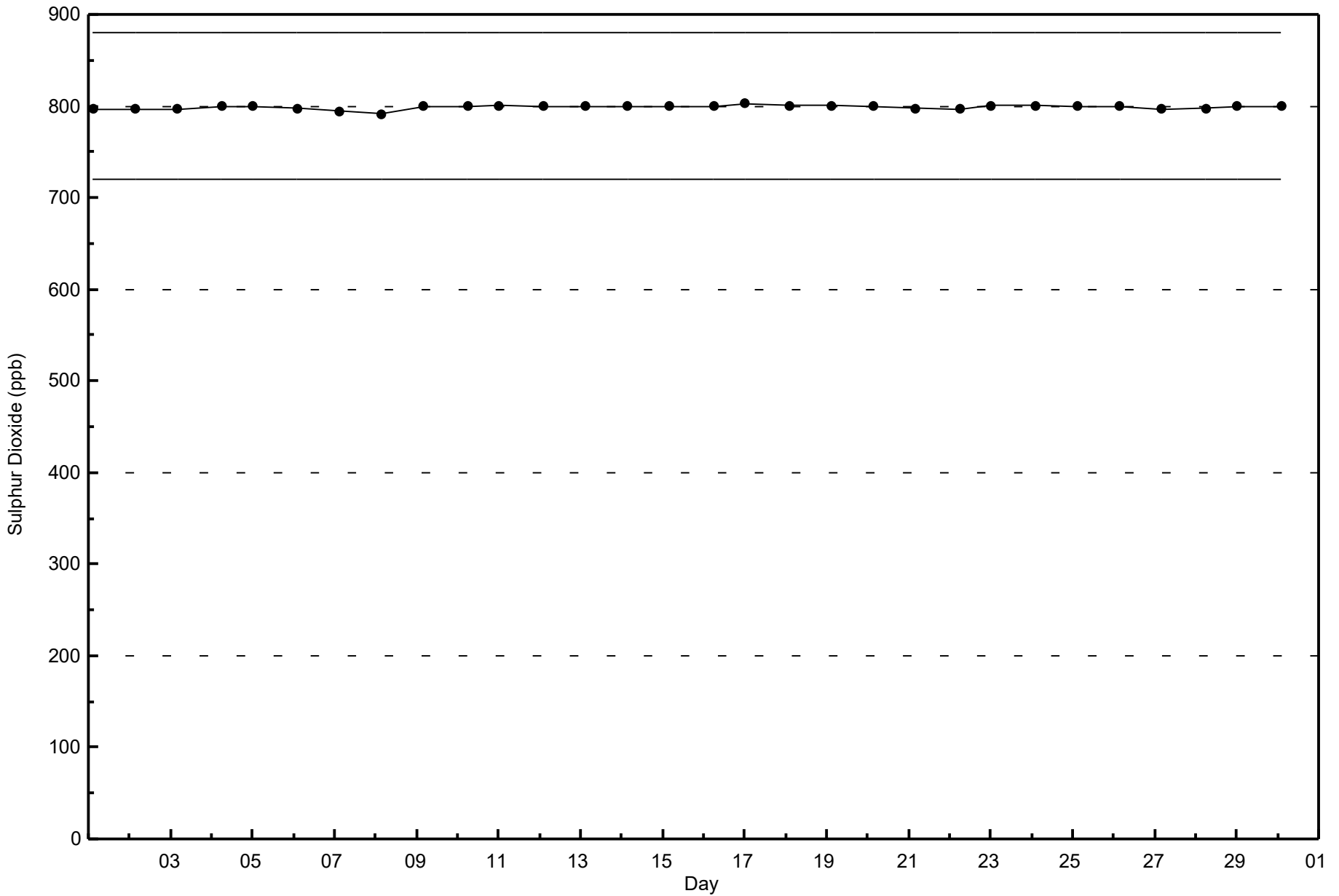


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

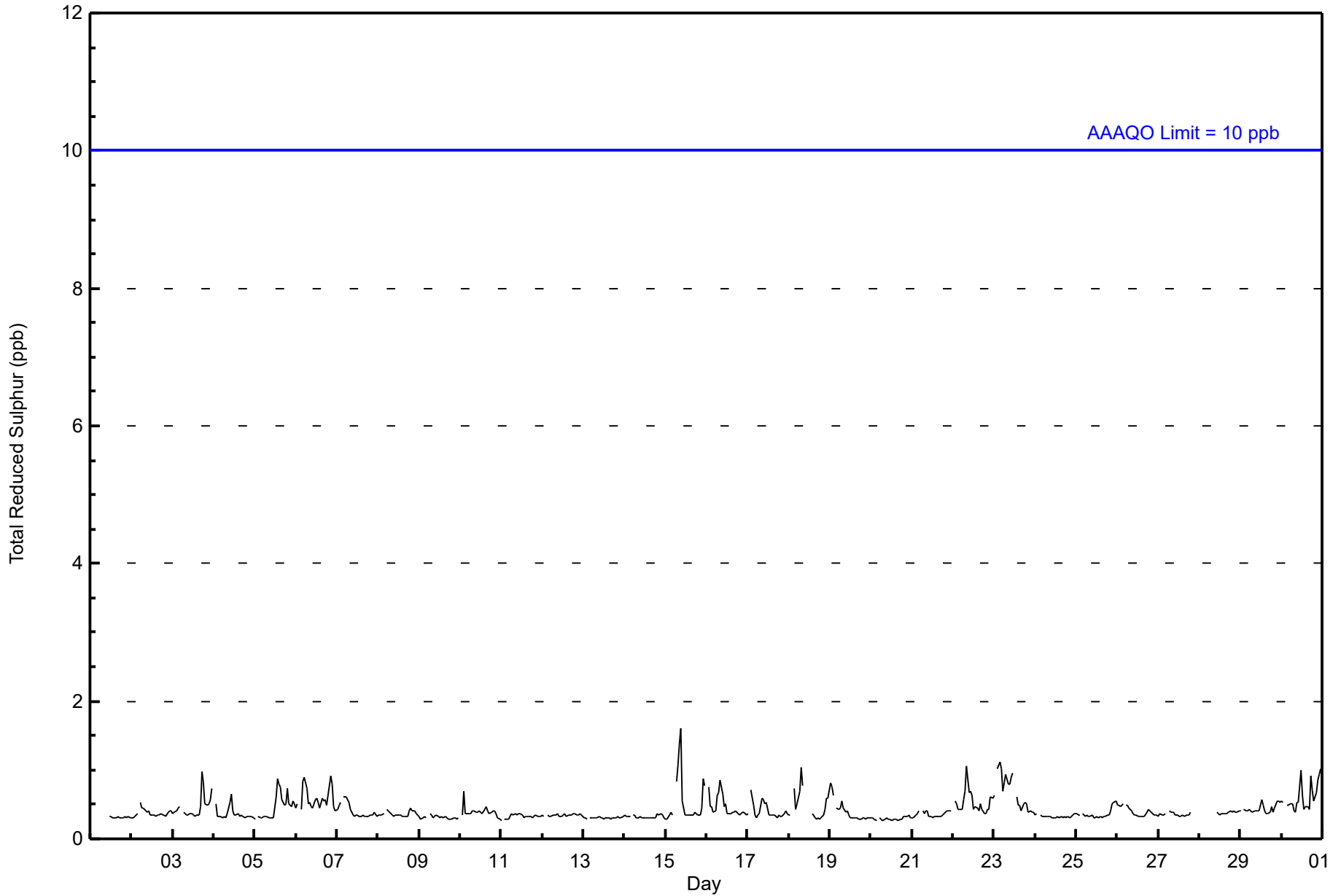














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	661	100.00	100.00
3 - 4	0	0.00	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: 661

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	108	52	19	19	18	64	47	16	32	23	41	48	51	34	37	52	661
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	108	52	19	19	18	64	47	16	32	23	41	48	51	34	37	52	661

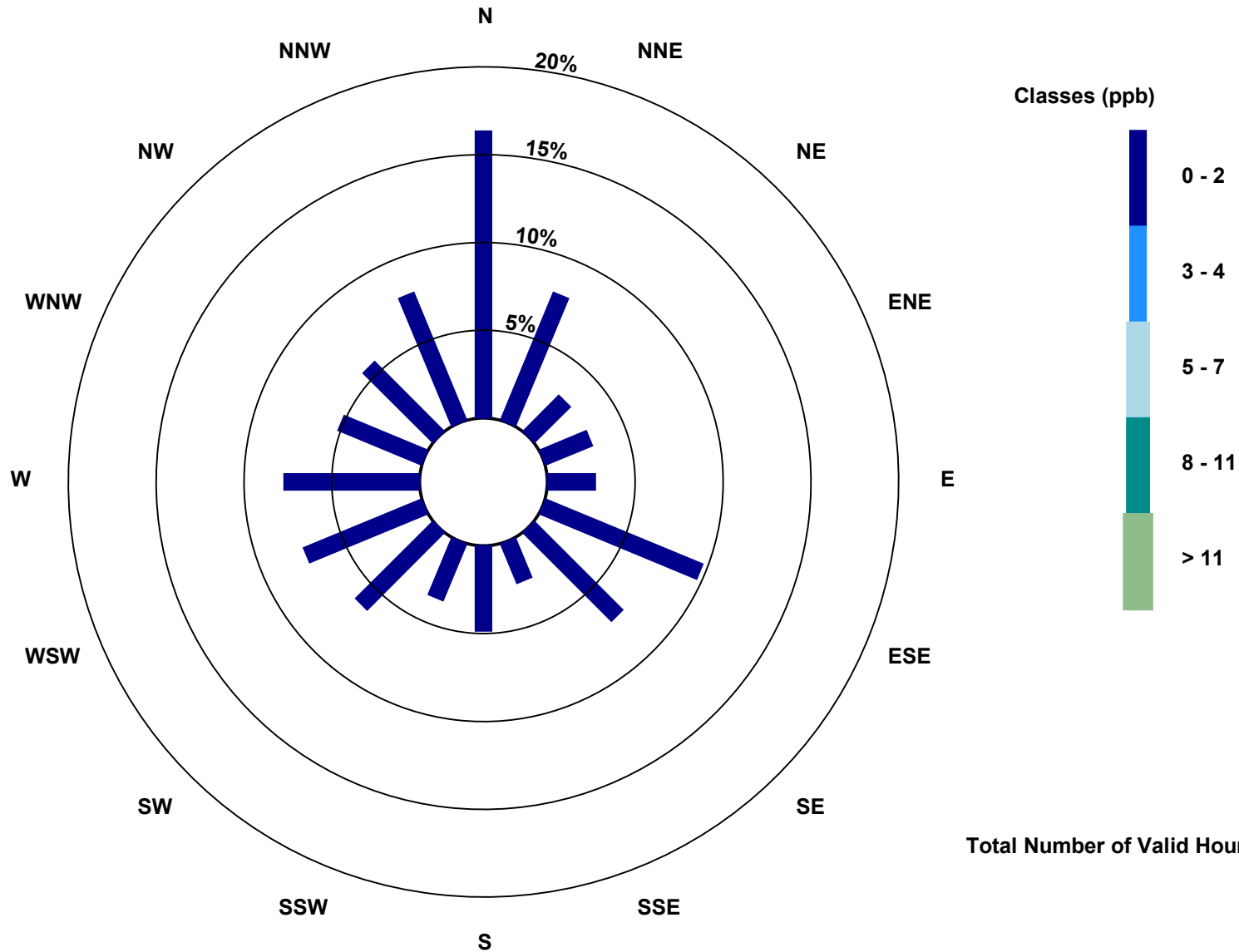
Total Number of Valid Hours: 661

Total Number of Hours: 720

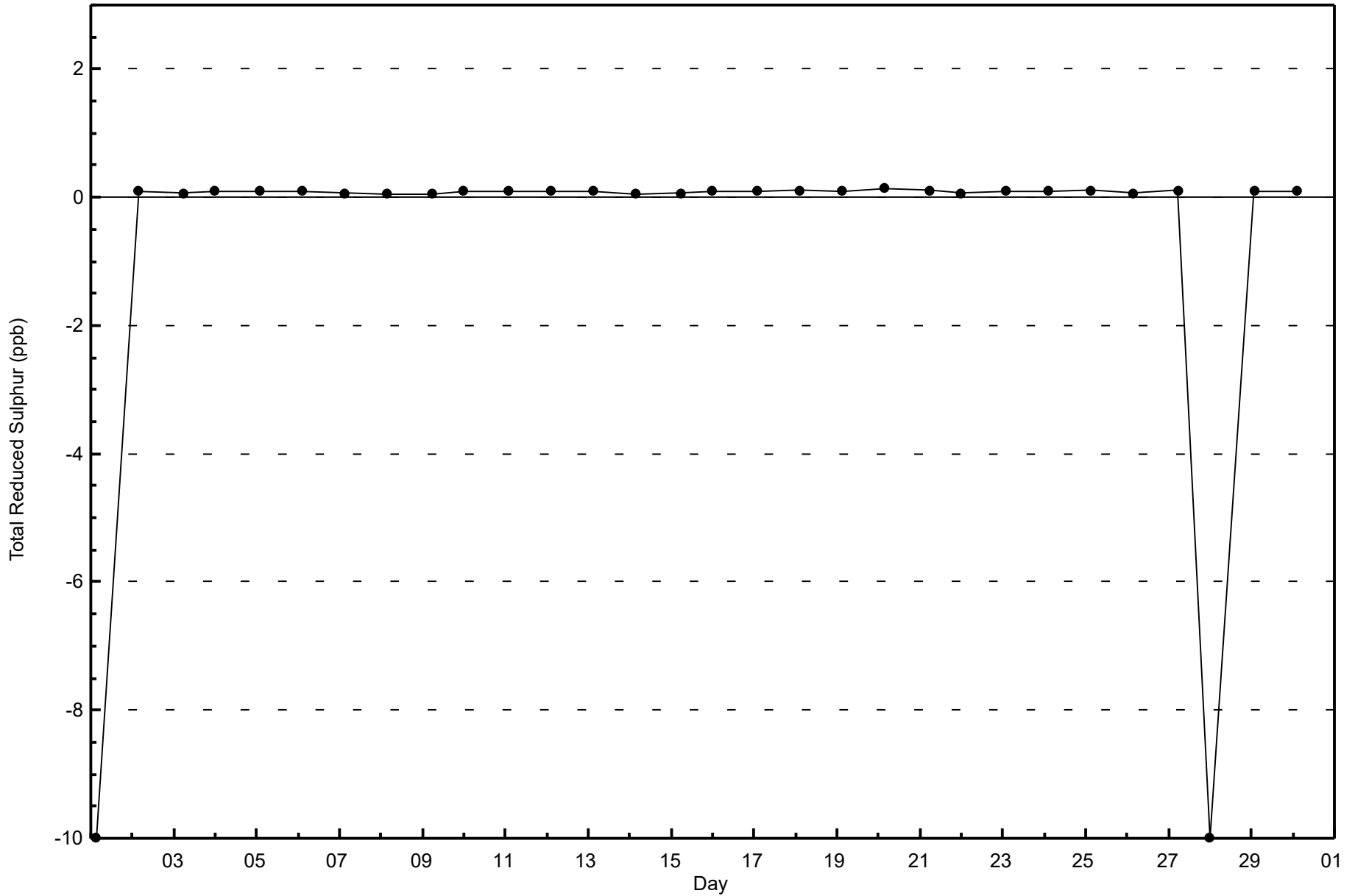


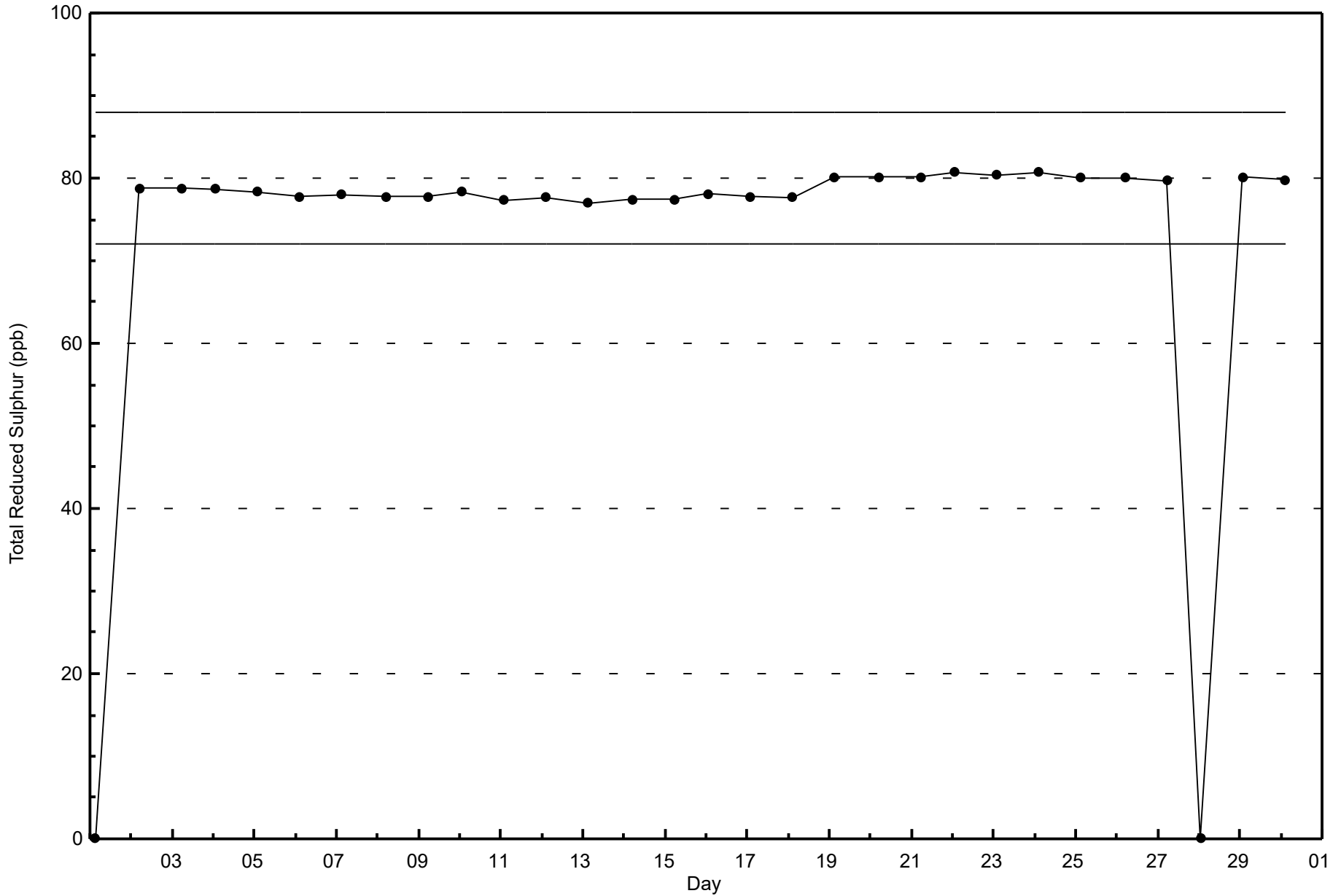
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes



Total Number of Valid Hours: 661







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

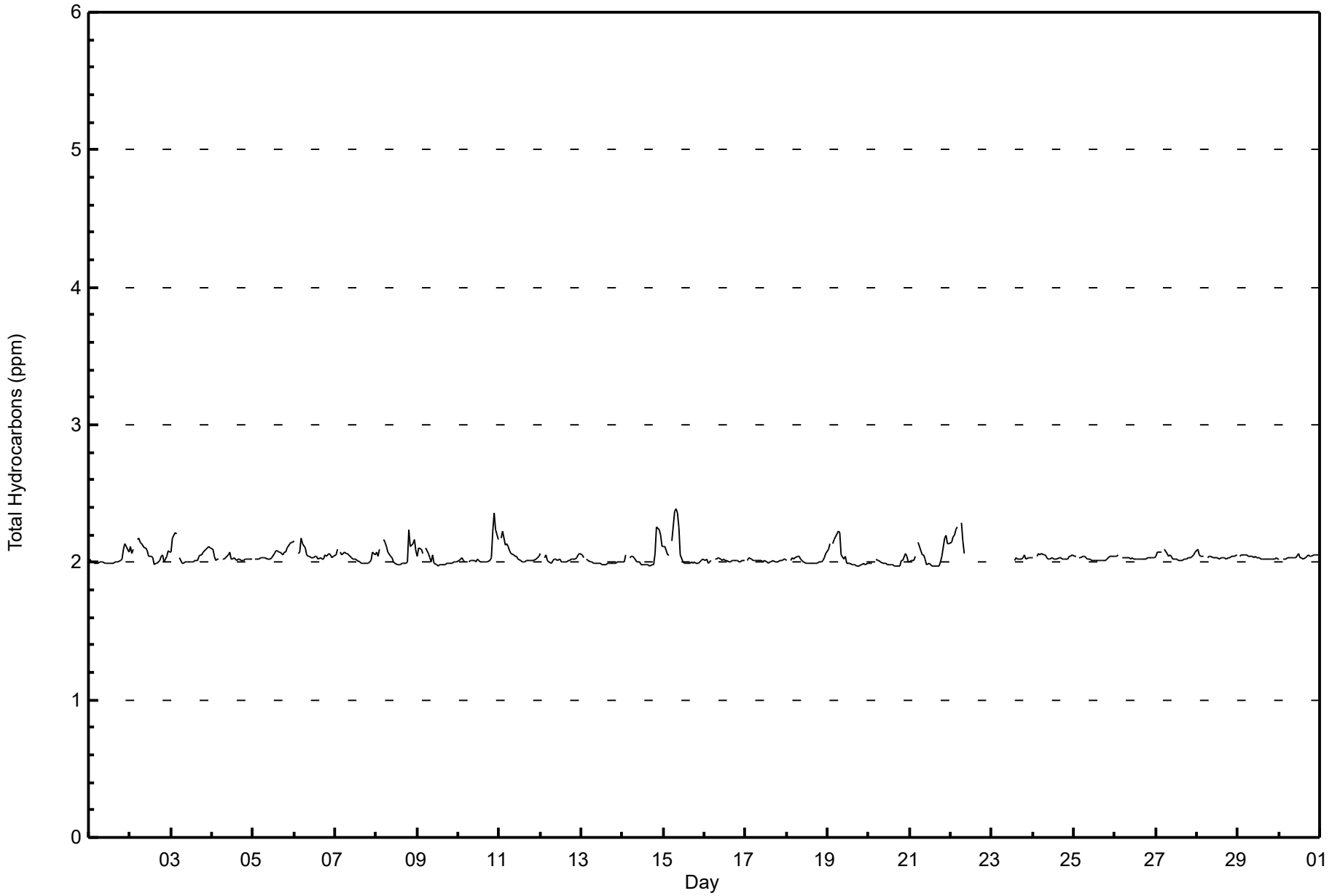
Patricia McInnes - April 2024

Maximum Value: 2.4 ppm on Apr 15 08:00		Maximum Daily Average: 2.1 ppm on Apr 15		Hours in Service: 720																						
Minimum Value: 2.0 ppm on Apr 20 18:00		Minimum Daily Average: 2.0 ppm on Apr 20		Hours of Data: 663																						
Maximum Diurnal Average: 2.1 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 57																						
Monthly Average: 2.04 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.3		Hours of Calibration: 36																						
				Percent Operational Time: 97.1																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	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	2.1	2.1	2.1	2.1	2.0	2.1	
2-Apr	2.1	2.1	Z	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.2
3-Apr	2.1	2.2	2.2	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
4-Apr	2.1	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
5-Apr	Z	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
6-Apr	2.2	Z	2.1	2.1	2.2	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	2.0	2.0	2.1	2.2	
7-Apr	2.1	2.1	Z	2.1	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	2.0	2.0	2.1	2.1	2.0	2.1	
8-Apr	2.1	2.0	2.1	Z	2.2	2.2	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	2.2	2.1	2.1	2.2	2.1	2.2	
9-Apr	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
10-Apr	2.0	2.0	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	2.2	2.4	2.2	2.2	2.1	2.4	
11-Apr	Z	2.2	2.2	2.1	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	2.0	2.0	2.0	2.0	2.0	2.1	
12-Apr	2.1	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	
13-Apr	2.1	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	2.1	
14-Apr	2.0	2.0	2.1	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	2.1	2.3	2.2	2.2	2.1	2.0	2.3	
15-Apr	2.1	2.1	2.1	2.1	Z	2.2	2.4	2.4	2.4	2.3	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	2.1	2.4	
16-Apr	2.0	2.0	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	
17-Apr	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	
18-Apr	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	2.1	2.1	
19-Apr	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	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	2.2	
20-Apr	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	2.1	2.0	2.0	2.0	2.1	
21-Apr	2.0	2.0	2.0	2.0	Z	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	2.2	2.2	2.1	2.1	2.0	2.2	
22-Apr	2.1	2.2	2.2	2.2	2.3	Z	2.3	2.2	2.1	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	
23-Apr	M	M	M	M	M	M	M	M	M	C	C	C	M	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1		
24-Apr	2.0	Z	2.0	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	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
25-Apr	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	
26-Apr	2.0	2.0	2.1	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	2.1	
27-Apr	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	
28-Apr	2.1	2.1	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	2.1	2.0	2.1	
29-Apr	Z	2.0	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
30-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.1	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	499	75.26	75.26
2.1 - 3.0	164	24.74	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 663  
Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Patricia McInnes - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	87	37	15	12	11	65	25	11	17	15	28	44	46	29	29	28	499
2.1 - 3.0	15	5	3	7	7	11	23	6	15	7	15	6	6	5	11	22	164
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>	102	42	18	19	18	76	48	17	32	22	43	50	52	34	40	50	663

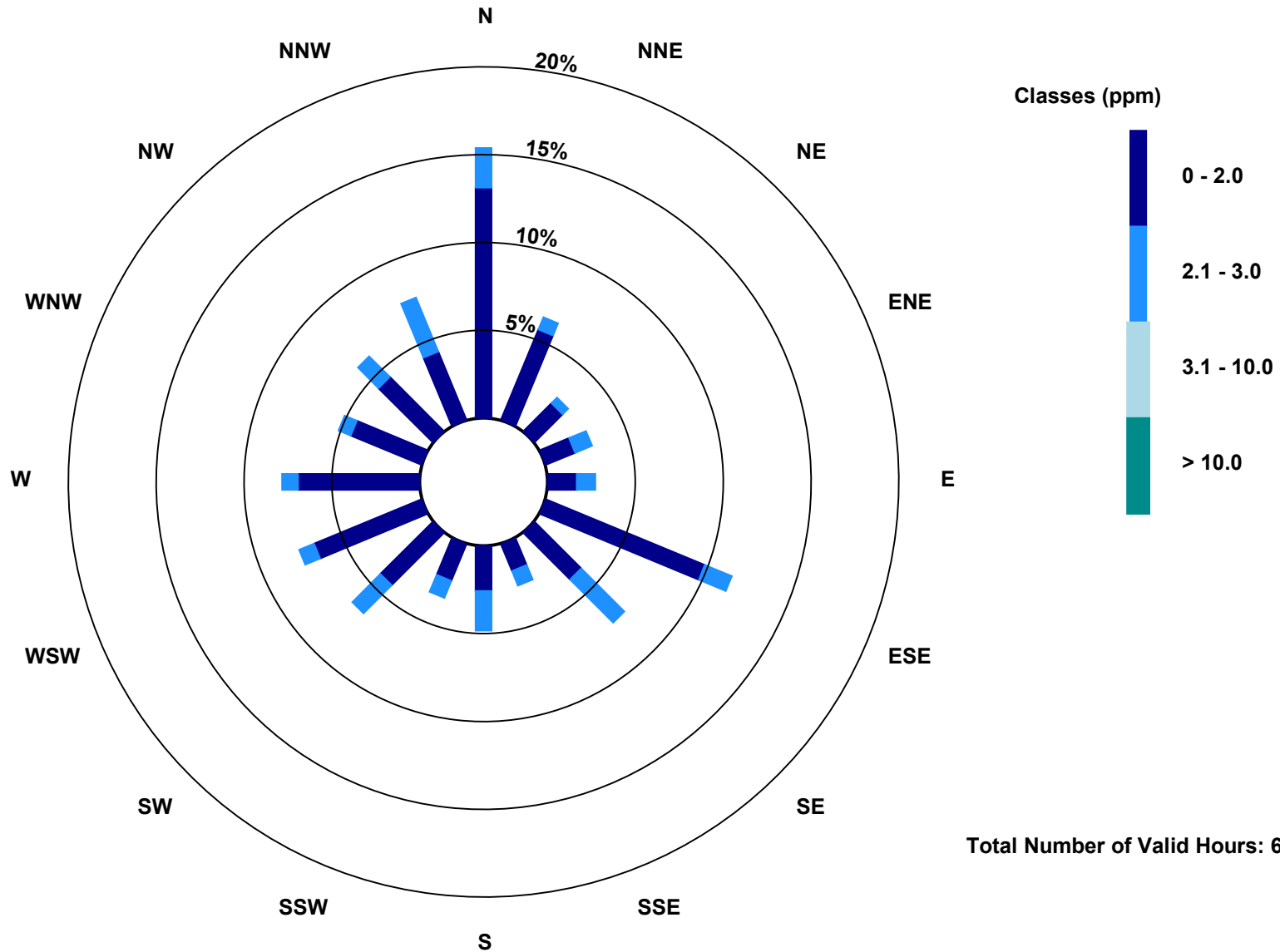
Total Number of Valid Hours: 663

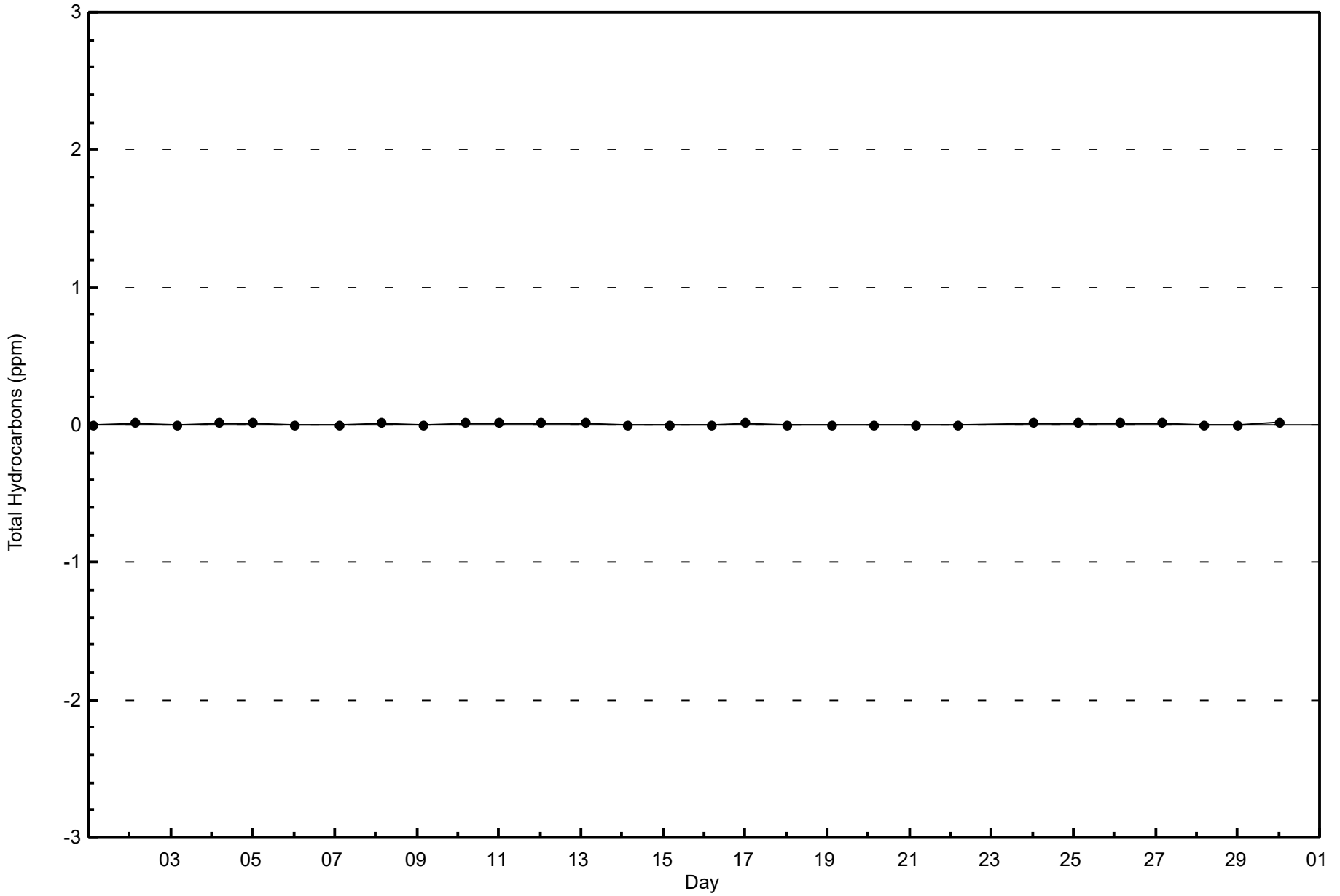
Total Number of Hours: 720

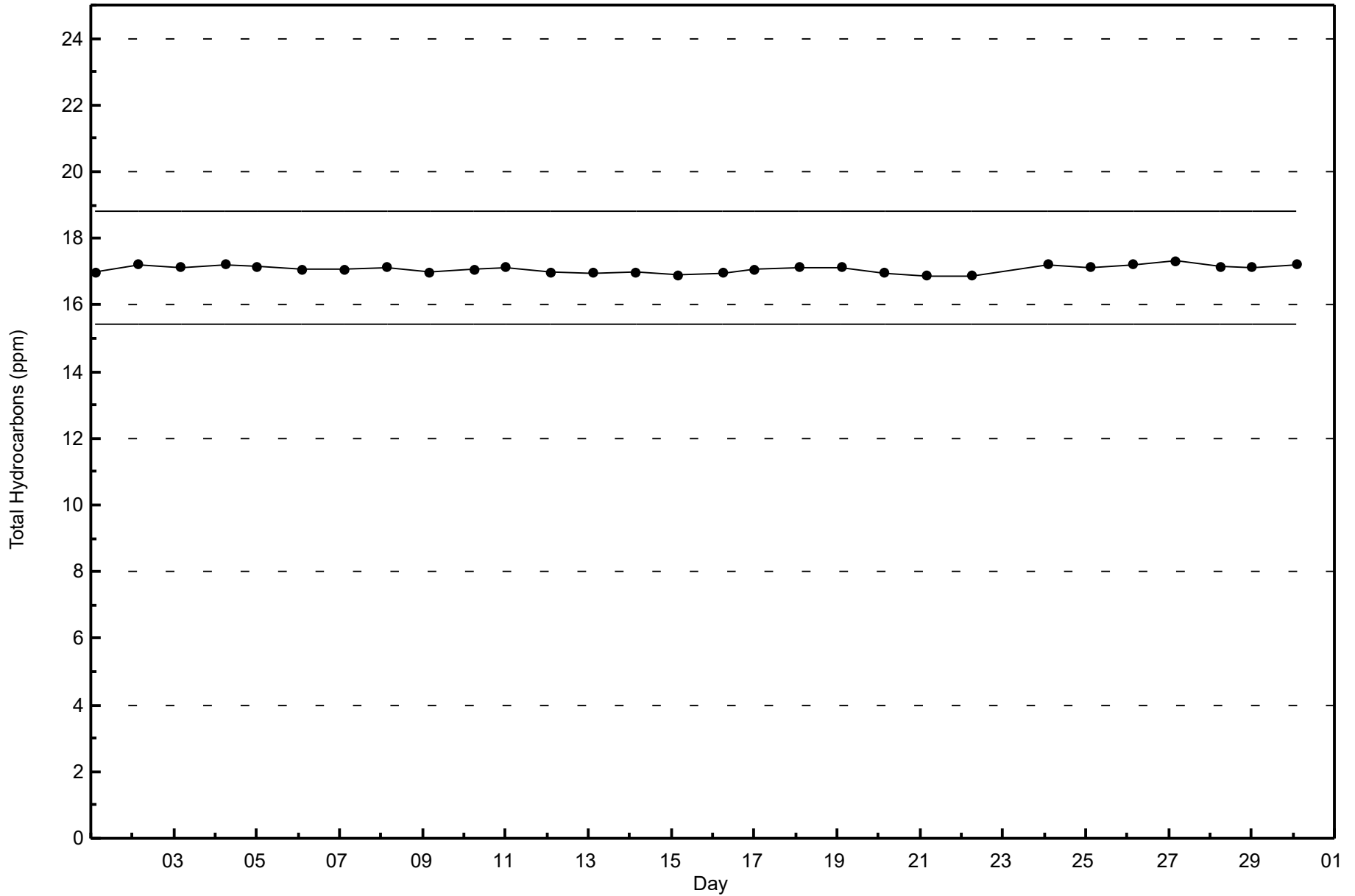


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Patricia McInnes

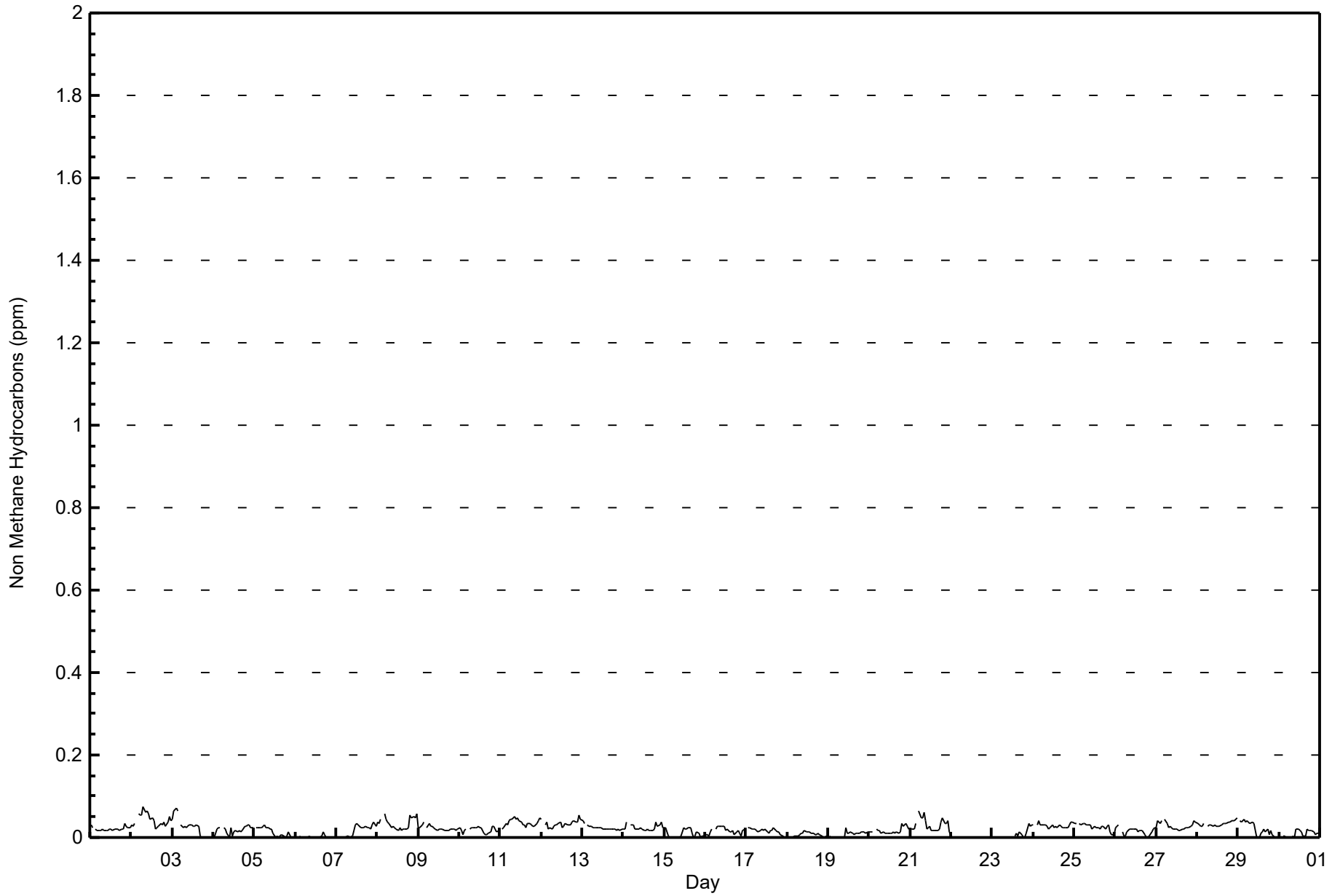








Maximum Value: 0.073 ppm on Apr 2 08:00		Maximum Daily Average: 0.042 ppm on Apr 2		Hours in Service:	720																						
Minimum Value: 0.000 ppm on Apr 3 19:00		Minimum Daily Average: 0.002 ppm on Apr 6		Hours of Data:	663																						
Maximum Diurnal Average: 0.024 ppm at hour 6		Minimum Diurnal Average: 0.017 ppm at hour 18		Hours of Missing Data:	57																						
Monthly Average: 0.021 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> = 0.1		Hours of Calibration:	36																						
				Percent Operational Time:	97.1																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.032	0.023	Z	0.019	0.016	0.019	0.018	0.019	0.018	0.017	0.017	0.019	0.020	0.018	0.019	0.020	0.019	0.016	0.019	0.019	0.035	0.026	0.024	0.023	0.021	0.035	
2-Apr	0.029	0.028	0.034	Z	0.059	0.056	0.055	0.073	0.061	0.064	0.058	0.045	0.048	0.040	0.021	0.024	0.026	0.033	0.031	0.037	0.028	0.037	0.050	0.040	0.042	0.073	
3-Apr	0.046	0.066	0.070	0.065	Z	0.031	0.023	0.026	0.025	0.027	0.031	0.030	0.026	0.028	0.030	0.028	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.070	
4-Apr	0.000	0.011	0.020	0.024	0.024	Z	0.023	0.021	0.010	0.002	0.023	0.003	0.012	0.017	0.014	0.018	0.014	0.018	0.026	0.028	0.029	0.030	0.023	0.024	0.018	0.030	
5-Apr	Z	0.023	0.024	0.023	0.024	0.026	0.030	0.023	0.023	0.022	0.020	0.011	0.000	0.002	0.001	0.003	0.008	0.004	0.001	0.004	0.000	0.000	0.000	0.000	0.012	0.030	
6-Apr	0.000	Z	0.003	0.001	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.001	0.001	0.000	0.001	0.004	0.014	0.008	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.014	
7-Apr	0.001	0.000	Z	0.000	0.000	0.001	0.002	0.003	0.001	0.004	0.017	0.030	0.034	0.029	0.024	0.023	0.024	0.026	0.023	0.023	0.021	0.029	0.037	0.026	0.016	0.037	
8-Apr	0.037	0.033	0.043	Z	0.058	0.044	0.036	0.032	0.025	0.027	0.024	0.022	0.017	0.022	0.018	0.021	0.020	0.021	0.024	0.055	0.046	0.050	0.046	0.057	0.034	0.058	
9-Apr	0.025	0.024	0.029	0.039	Z	0.025	0.033	0.026	0.026	0.025	0.021	0.019	0.021	0.021	0.020	0.018	0.015	0.018	0.018	0.020	0.019	0.019	0.018	0.019	0.022	0.039	
10-Apr	0.023	0.018	0.007	0.018	0.020	Z	0.021	0.022	0.024	0.024	0.023	0.029	0.024	0.025	0.009	0.005	0.006	0.010	0.015	0.028	0.028	0.020	0.014	0.019	0.019	0.029	
11-Apr	Z	0.020	0.024	0.035	0.029	0.039	0.045	0.046	0.050	0.045	0.047	0.042	0.036	0.029	0.031	0.025	0.033	0.034	0.030	0.028	0.027	0.034	0.039	0.046	0.035	0.050	
12-Apr	0.045	Z	0.029	0.038	0.022	0.022	0.019	0.027	0.030	0.030	0.033	0.038	0.025	0.026	0.032	0.032	0.031	0.032	0.038	0.040	0.037	0.038	0.053	0.045	0.033	0.053	
13-Apr	0.040	0.035	Z	0.030	0.027	0.026	0.025	0.025	0.024	0.025	0.023	0.024	0.020	0.022	0.020	0.021	0.020	0.019	0.019	0.020	0.018	0.020	0.017	0.020	0.023	0.040	
14-Apr	0.021	0.020	0.036	Z	0.029	0.032	0.029	0.021	0.020	0.020	0.024	0.019	0.019	0.017	0.019	0.019	0.016	0.017	0.020	0.037	0.026	0.030	0.037	0.024	0.024	0.037	
15-Apr	0.023	0.023	0.004	0.000	Z	0.001	0.000	0.000	0.000	0.000	0.005	0.023	0.019	0.020	0.025	0.023	0.011	0.001	0.003	0.015	0.009	0.000	0.004	0.003	0.009	0.025	
16-Apr	0.007	0.006	0.004	0.014	0.022	Z	0.020	0.026	0.028	0.027	0.026	0.028	0.017	0.022	0.013	0.014	0.018	0.006	0.012	0.017	0.010	0.004	0.018	0.022	0.017	0.028	
17-Apr	Z	0.023	0.025	0.022	0.022	0.021	0.019	0.014	0.018	0.020	0.017	0.021	0.014	0.012	0.018	0.016	0.024	0.016	0.015	0.015	0.006	0.002	0.000	0.000	0.016	0.025	
18-Apr	0.000	Z	0.000	0.001	0.004	0.004	0.003	0.008	0.011	0.011	0.016	0.014	0.014	0.013	0.010	0.010	0.006	0.007	0.011	0.006	0.003	0.000	0.000	0.003	0.007	0.016	
19-Apr	0.001	0.002	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.022	0.010	0.010	0.012	0.010	0.008	0.011	0.009	0.010	0.015	0.014	0.015	0.010	0.013	0.008	0.022	
20-Apr	0.013	0.013	0.012	Z	0.021	0.016	0.016	0.011	0.015	0.011	0.009	0.009	0.012	0.012	0.014	0.011	0.013	0.010	0.012	0.032	0.026	0.035	0.027	0.020	0.016	0.035	
21-Apr	0.019	0.022	0.020	0.035	Z	0.064	0.049	0.049	0.060	0.042	0.020	0.027	0.018	0.016	0.018	0.015	0.018	0.021	0.037	0.047	0.033	0.035	0.040	0.014	0.031	0.064	
22-Apr	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.000	
23-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	M	0.005	0.011	0.004	0.015	0.007	0.001	0.000	0.009	0.033	0.028	0.030	--	0.033
24-Apr	0.029	Z	0.032	0.041	0.029	0.032	0.030	0.031	0.027	0.022	0.025	0.030	0.024	0.026	0.025	0.029	0.026	0.025	0.025	0.025	0.025	0.031	0.037	0.039	0.029	0.041	
25-Apr	0.033	0.033	Z	0.034	0.031	0.033	0.033	0.031	0.031	0.030	0.021	0.025	0.026	0.025	0.023	0.022	0.027	0.026	0.020	0.027	0.031	0.015	0.006	0.006	0.026	0.034	
26-Apr	0.024	0.026	0.030	Z	0.013	0.002	0.002	0.013	0.019	0.019	0.019	0.021	0.020	0.015	0.018	0.019	0.018	0.007	0.001	0.000	0.004	0.015	0.021	0.024	0.015	0.030	
27-Apr	0.024	0.041	0.035	0.041	Z	0.044	0.033	0.024	0.027	0.024	0.020	0.020	0.019	0.018	0.017	0.019	0.019	0.023	0.024	0.025	0.029	0.031	0.039	0.037	0.027	0.044	
28-Apr	0.033	0.030	0.028	0.026	0.032	Z	0.026	0.032	0.031	0.027	0.032	0.028	0.028	0.026	0.029	0.033	0.034	0.033	0.038	0.038	0.041	0.042	0.039	0.046	0.033	0.046	
29-Apr	Z	0.040	0.038	0.044	0.039	0.040	0.037	0.034	0.037	0.035	0.018	0.000	0.001	0.009	0.015	0.020	0.013	0.020	0.008	0.017	0.007	0.000	0.000	0.000	0.020	0.044	
30-Apr	0.001	Z	0.003	0.003	0.001	0.001	0.000	0.001	0.003	0.000	0.019	0.019	0.016	0.015	0.005	0.005	0.020	0.016	0.017	0.018	0.014	0.008	0.010	0.009	0.009	0.020	
		0.020	0.023	0.023	0.023	0.022	0.024	0.022	0.022	0.022	0.021	0.022	0.022	0.019	0.019	0.018	0.017	0.018	0.017	0.017	0.022	0.020	0.021	0.022	0.021	Diurnal Average	
		0.046	0.066	0.070	0.065	0.059	0.064	0.055	0.073	0.061	0.064	0.058	0.045	0.048	0.040	0.032	0.033	0.034	0.034	0.038	0.055	0.046	0.050	0.053	0.057	Diurnal Maximum	
Z - zerspan		C - Calibration				M - Maintenance																					





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	122	18.40	18.40
0.006 - 0.05	527	79.49	97.89
0.06 - 0.1	14	2.11	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 663

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	40	13	5	2	1	2	3	0	5	2	3	2	3	4	13	24	122
0.006 - 0.05	62	29	13	16	16	72	40	15	25	20	39	48	49	30	27	26	527
0.06 - 0.1	0	0	0	1	1	2	5	2	2	0	1	0	0	0	0	0	14
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	102	42	18	19	18	76	48	17	32	22	43	50	52	34	40	50	663

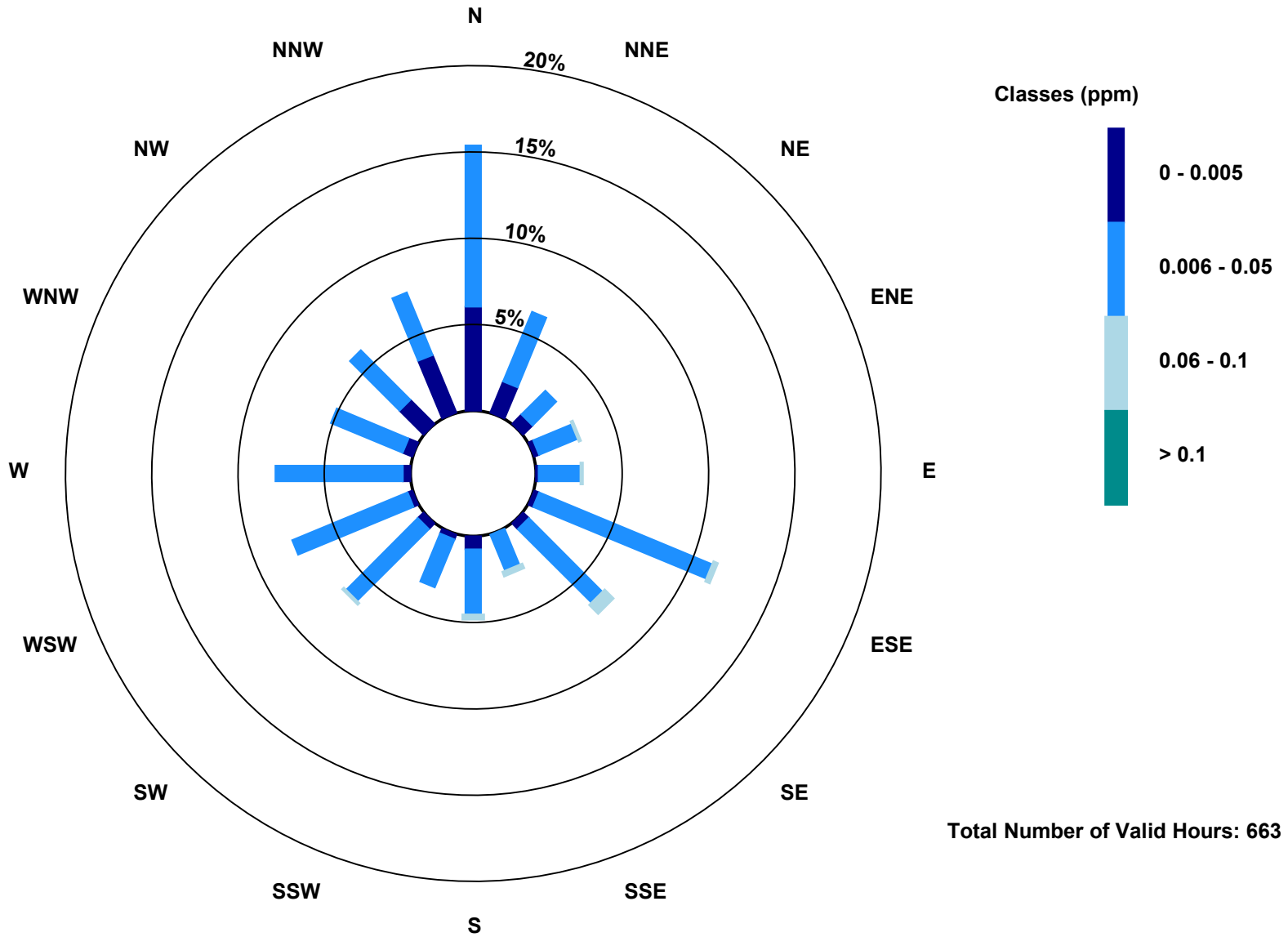
Total Number of Valid Hours: 663

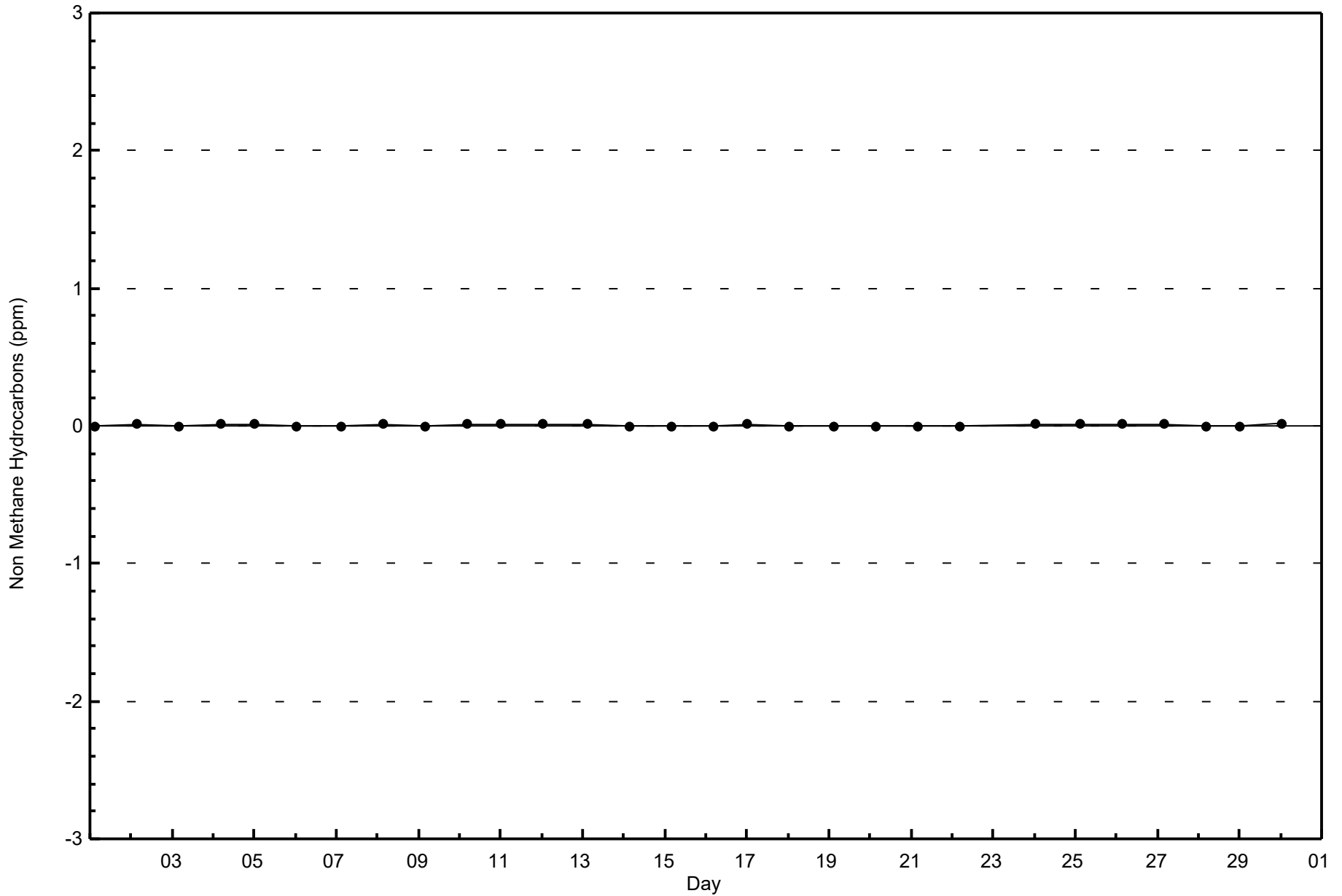
Total Number of Hours: 720

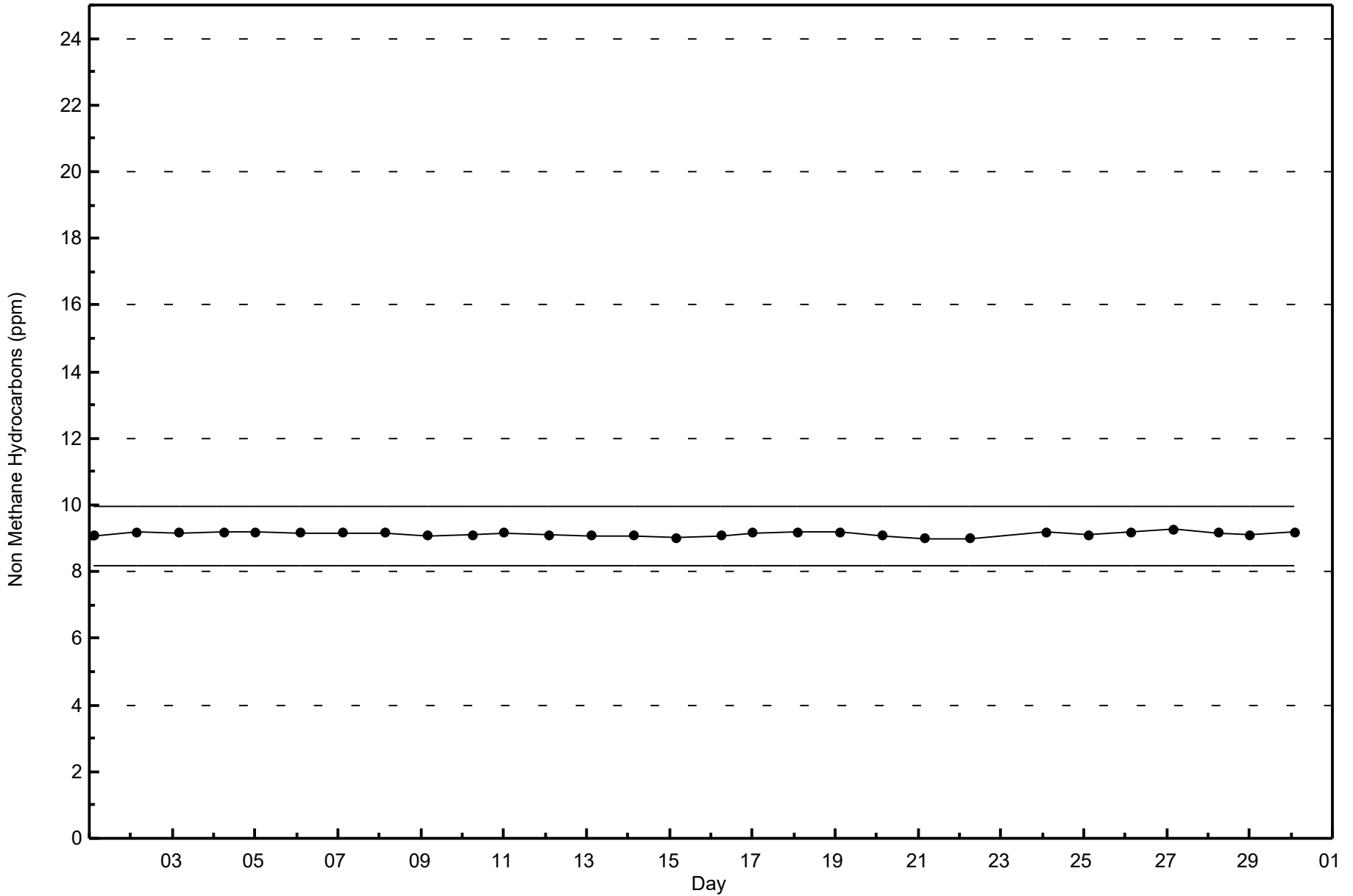


**Wood Buffalo Environmental Association**  
**Wind Rose Apr 2024**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Patricia McInnes**









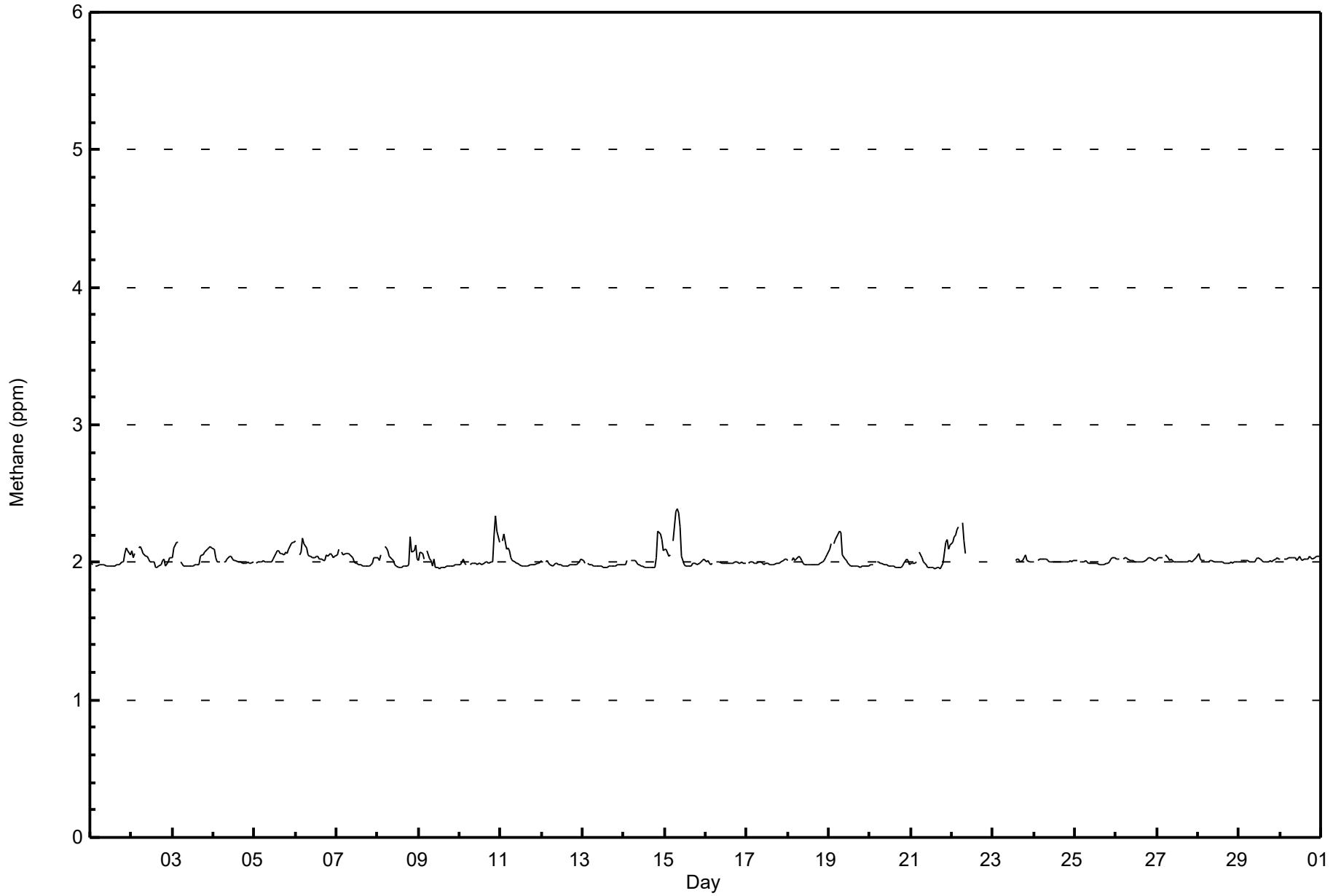
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Patricia McInnes - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														720							
Maximum Value: 2.4 ppm on Apr 15 08:00		Maximum Daily Average: 2.1 ppm on Apr 15		Hours of Data: 663														663									
Minimum Value: 2.0 ppm on Apr 21 15:00		Minimum Daily Average: 2.0 ppm on Apr 13		Hours of Missing Data: 57														57									
Maximum Diurnal Average: 2.0 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Calibration: 36														36									
Monthly Average: 2.02 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2		Percent Operational Time: 97.1														97.1									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	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	2.1	2.1	2.1	2.1	2.0	2.1	
2-Apr	2.1	2.0	2.1	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
3-Apr	2.0	2.1	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	
4-Apr	2.1	2.0	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	2.1
5-Apr	Z	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	
6-Apr	2.2	Z	2.1	2.1	2.2	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	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.2	
7-Apr	2.1	2.1	Z	2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
8-Apr	2.0	2.0	2.1	Z	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	2.0	2.0	2.2	2.1	2.1	2.1	2.0	2.0	2.2	
9-Apr	2.0	2.1	2.1	2.0	Z	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	2.1	
10-Apr	2.0	2.0	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	2.2	2.3	2.2	2.1	2.0	2.3	
11-Apr	Z	2.2	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
12-Apr	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	2.0
13-Apr	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
14-Apr	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	2.2	2.2	2.2	2.1	2.0	2.2	
15-Apr	2.1	2.1	2.0	2.1	Z	2.2	2.4	2.4	2.4	2.3	2.0	2.0	2.0	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	
16-Apr	2.0	2.0	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
17-Apr	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	2.0	2.0
18-Apr	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	2.1	2.0	2.1	
19-Apr	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	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	2.2
20-Apr	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
21-Apr	2.0	2.0	2.0	2.0	Z	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	2.1	2.2	2.1	2.1	2.0	2.2	
22-Apr	2.1	2.2	2.2	2.2	2.3	Z	2.3	2.2	2.1	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	2.3
23-Apr	M	M	M	M	M	M	M	M	M	C	C	C	M	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	--	2.1	
24-Apr	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	2.0
25-Apr	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
26-Apr	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
27-Apr	2.0	2.0	2.0	2.0	Z	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	2.1
28-Apr	2.1	2.0	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	2.1
29-Apr	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	2.0	2.0
30-Apr	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	2.0
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	556	83.86	83.86
2.1 - 3.0	107	16.14	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 663

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Patricia McInnes - April 2024**

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	93	37	15	15	15	74	39	12	22	18	36	44	47	29	31	29	556
2.1 - 3.0	9	5	3	4	3	2	9	5	10	4	7	6	5	5	9	21	107
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>	102	42	18	19	18	76	48	17	32	22	43	50	52	34	40	50	663

Total Number of Valid Hours: 663

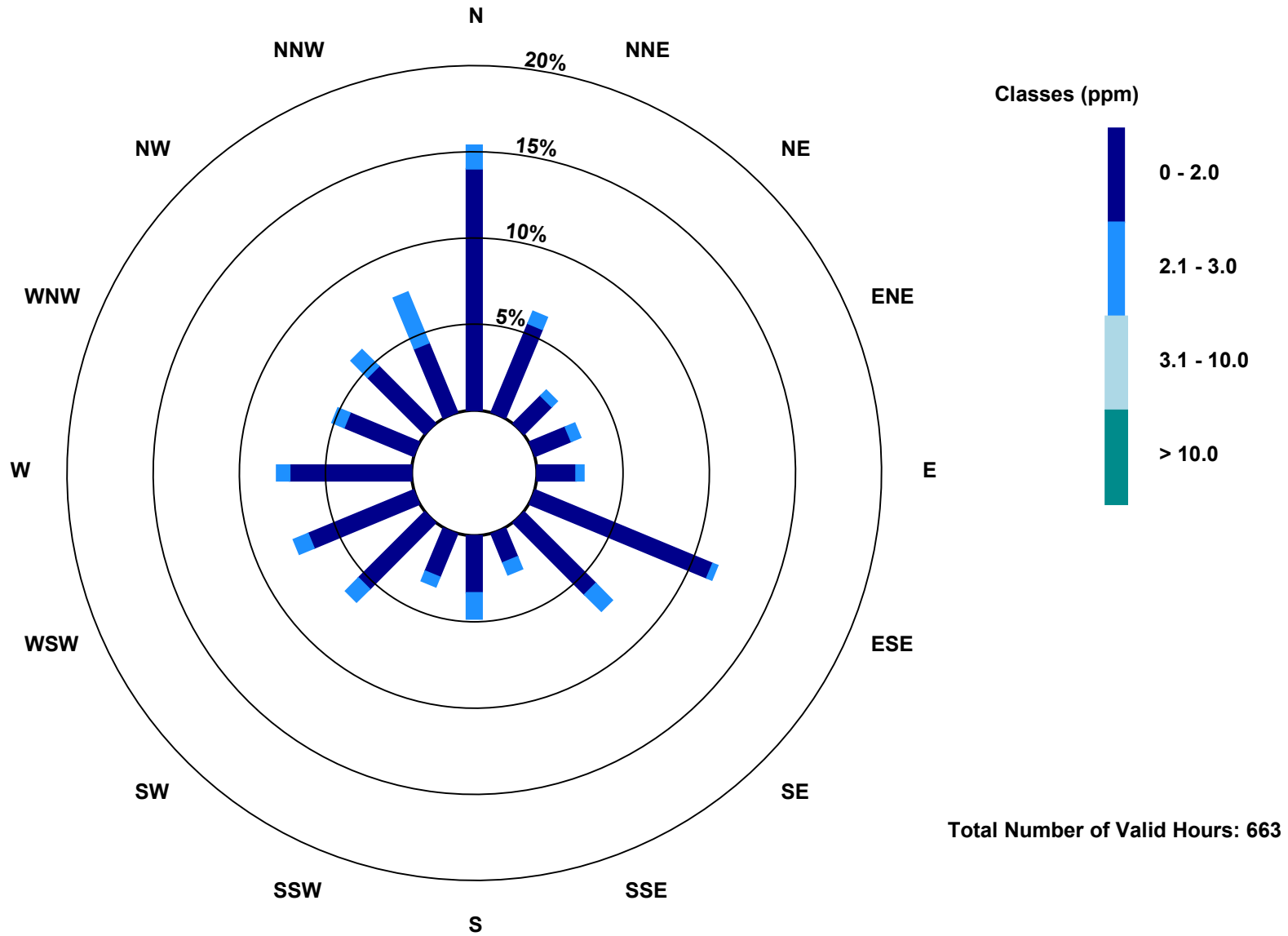
Total Number of Hours: 720



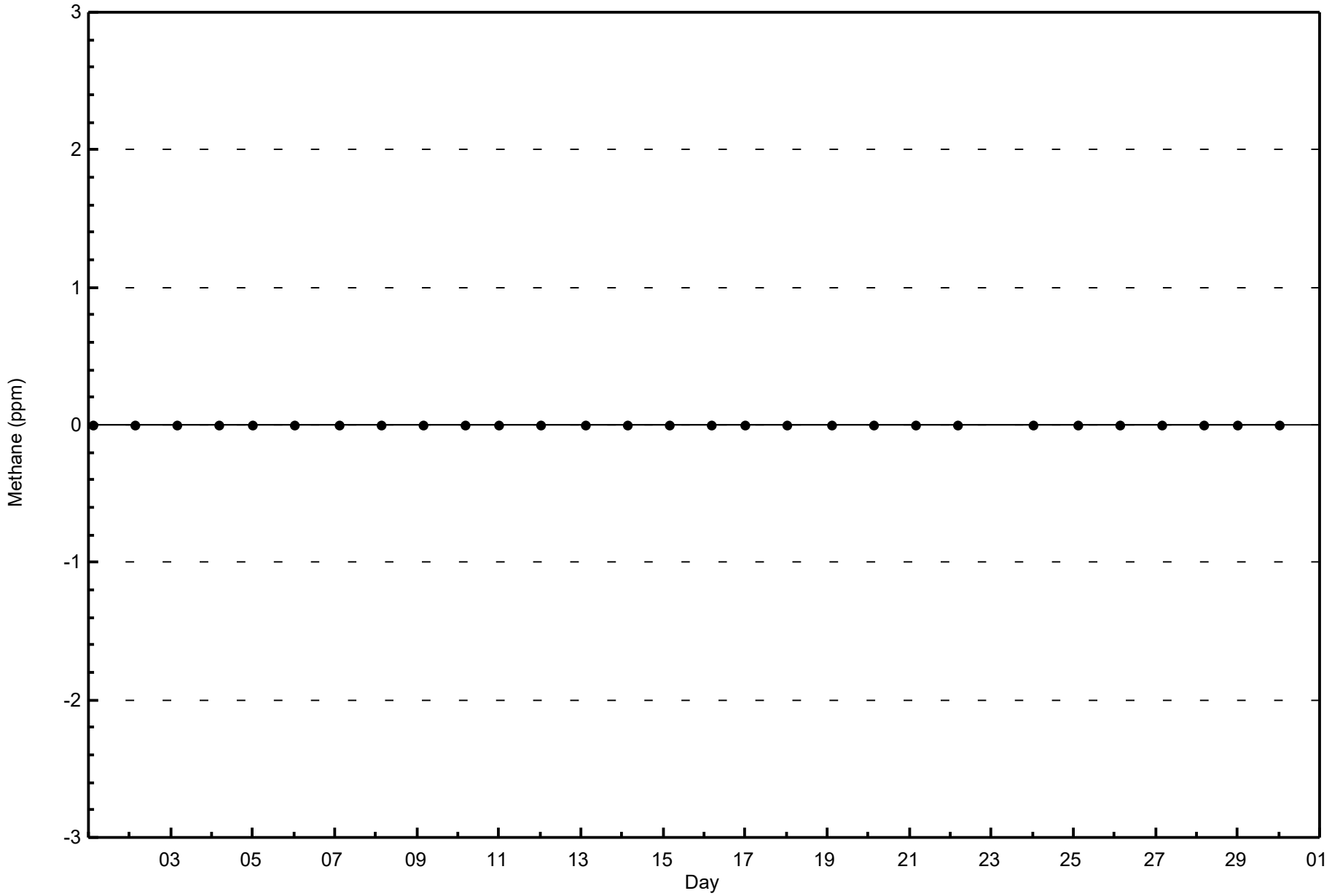


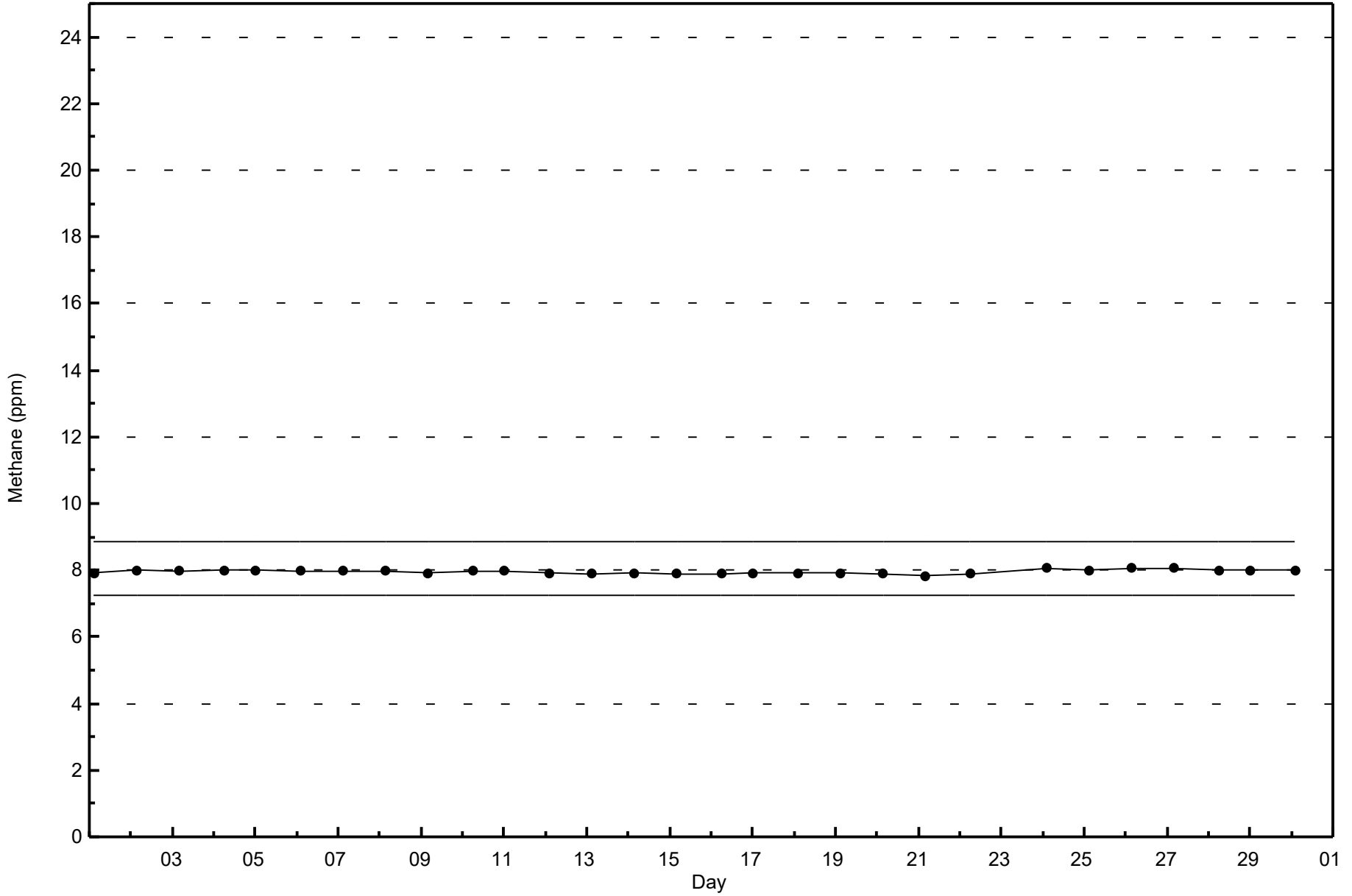
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 663







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

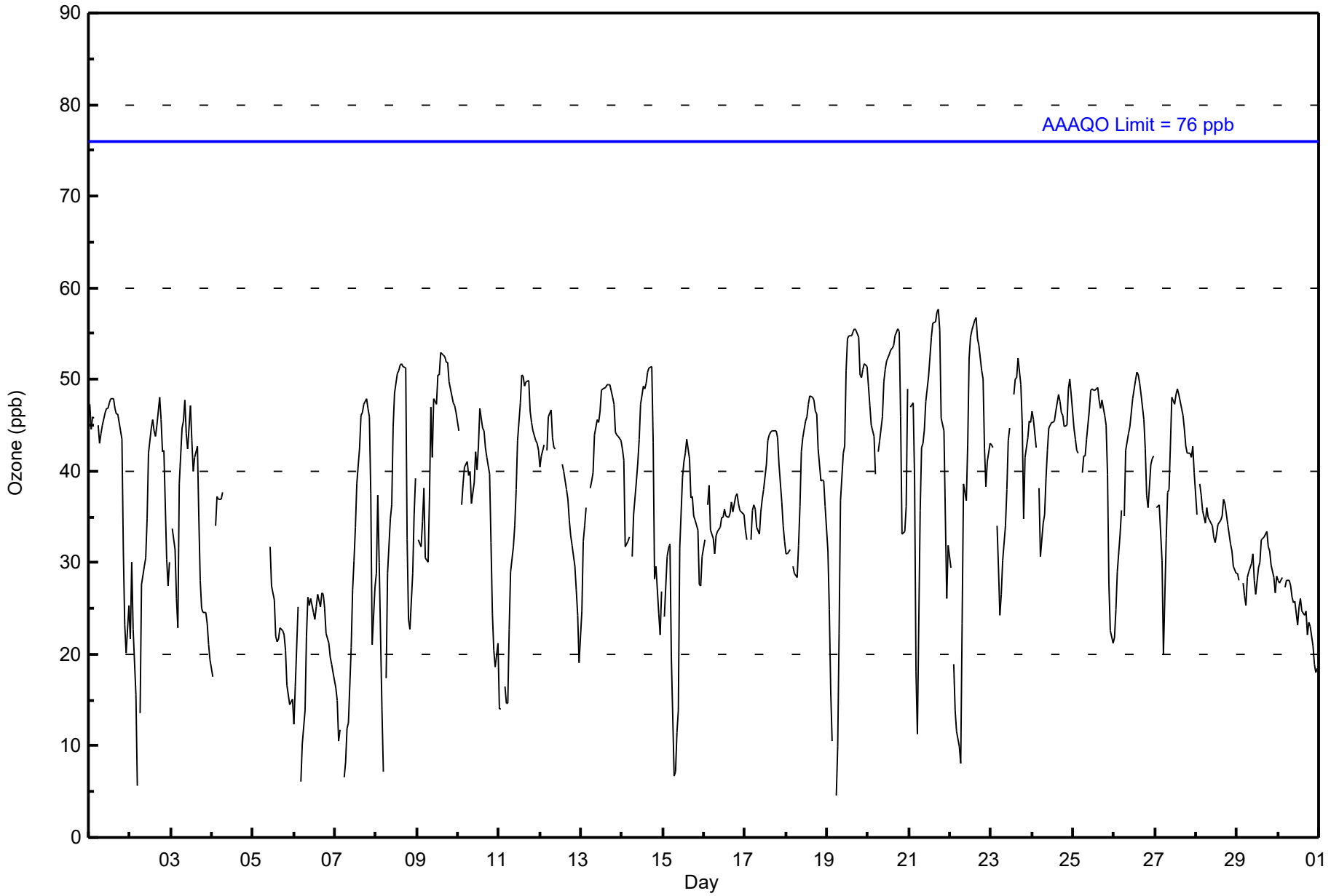
Patricia McInnes - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 57.6 ppb on Apr 21 18:00	Maximum Daily Average: 47.2 ppb on Apr 20		Hours of Data:	660
Minimum Value: 4.5 ppb on Apr 19 06:00	Minimum Daily Average: 21.2 ppb on Apr 6		Hours of Missing Data:	60
Maximum Diurnal Average: 44.5 ppb at hour 15	Minimum Diurnal Average: 27.2 ppb at hour 6		Hours of Calibration:	32
Monthly Average: 36.77 ppb	Percentiles: P <sub>1</sub> = 7.7 P <sub>10</sub> = 21.7 Q <sub>1</sub> = 29.4 Median = 38.0 Q <sub>3</sub> = 45.6 P <sub>90</sub> = 49.8 P <sub>99</sub> = 55.5		Percent Operational Time:	96.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	47.3	44.5	45.9	45.8	Z	45.0	43.0	44.1	44.9	46.3	46.9	46.8	47.5	47.8	47.9	46.8	46.2	46.2	44.4	43.5	31.2	23.1	20.1	25.3	42.2	47.9
2-Apr	21.7	30.0	22.8	15.6	5.7	Z	13.6	27.6	29.6	30.6	34.7	42.0	44.6	45.5	44.4	43.8	45.0	48.0	45.6	42.2	42.2	30.3	27.4	30.0	33.2	48.0
3-Apr	Z	33.7	31.4	26.1	22.8	38.6	44.7	45.4	47.7	44.1	42.5	47.2	43.4	40.0	41.5	42.7	34.9	28.0	25.1	24.6	24.5	23.3	21.1	19.4	34.5	47.7
4-Apr	17.5	Z	34.0	37.2	36.9	36.9	37.6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	37.6
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	31.8	27.5	25.9	21.9	21.3	21.7	22.8	22.6	22.1	20.5	16.6	14.6	14.7	15.1	--	31.8
6-Apr	12.4	16.5	25.2	Z	6.1	10.3	13.9	21.9	26.3	25.4	26.1	24.6	23.7	25.2	26.6	25.2	26.6	26.6	25.0	22.3	21.2	19.7	18.9	18.0	21.2	26.6
7-Apr	16.3	15.0	10.5	11.8	Z	6.6	8.3	11.8	12.5	20.8	26.9	30.2	33.9	38.6	42.5	46.0	46.4	47.3	47.9	46.8	46.0	37.5	21.1	27.3	28.3	47.9
8-Apr	28.8	37.3	30.1	14.0	7.2	Z	17.3	28.9	34.7	36.2	44.8	48.5	50.6	51.0	51.6	51.7	51.4	51.2	32.5	23.8	22.7	28.9	35.2	39.1	35.6	51.7
9-Apr	Z	32.5	31.8	34.5	38.1	30.6	30.0	37.3	47.0	41.5	47.8	47.3	50.5	50.5	52.9	52.7	52.5	51.9	51.8	49.7	48.2	47.5	47.2	46.4	44.3	52.9
10-Apr	44.3	Z	36.3	38.7	40.5	41.0	39.5	40.0	36.5	38.7	42.1	40.2	42.7	46.8	44.7	44.4	42.6	41.4	39.7	32.1	24.4	20.4	18.6	21.2	37.3	46.8
11-Apr	14.0	14.1	Z	16.5	14.6	14.6	22.8	28.9	31.7	34.1	37.9	43.3	47.5	50.5	50.4	49.2	49.8	49.8	46.5	45.3	44.4	43.3	43.0	42.2	36.3	50.5
12-Apr	40.5	41.7	42.8	Z	42.2	45.9	46.7	43.6	42.6	42.5	C	C	C	40.8	40.0	37.9	36.8	34.7	32.9	31.8	29.5	27.0	24.2	19.0	37.2	46.7
13-Apr	24.7	32.3	34.0	35.9	Z	38.1	38.8	39.8	44.0	45.6	45.3	46.5	48.8	48.9	49.1	49.4	49.4	48.0	47.3	44.3	44.0	43.8	43.3	43.1	43.1	49.4
14-Apr	42.5	41.2	31.8	32.4	32.8	Z	30.7	35.2	38.9	40.8	43.5	47.2	49.2	49.0	49.6	50.9	51.3	51.4	43.2	28.2	29.6	24.4	22.1	26.9	38.8	51.4
15-Apr	Z	42.1	30.6	31.6	32.1	19.7	6.8	7.2	11.5	13.9	31.6	39.3	41.1	41.9	43.5	41.4	37.1	37.2	35.1	34.6	33.6	27.7	27.5	30.7	29.5	43.5
16-Apr	32.5	Z	36.3	38.5	33.6	32.6	30.9	32.9	33.4	33.9	34.9	34.9	35.9	35.1	35.0	35.3	36.7	35.6	37.2	37.5	36.4	35.8	35.6	35.2	35.0	38.5
17-Apr	33.6	32.5	Z	32.5	35.7	36.3	35.8	33.9	33.1	35.5	36.9	38.0	40.8	43.3	44.0	44.3	44.4	44.4	44.4	43.7	40.8	36.7	34.0	32.4	38.1	44.4
18-Apr	31.0	31.0	31.5	Z	29.6	28.8	28.3	31.9	36.2	42.1	43.7	45.4	45.8	47.3	48.2	48.1	47.8	46.6	46.2	42.4	39.0	39.1	38.9	36.2	39.4	48.2
19-Apr	31.2	24.8	16.1	10.6	Z	4.5	9.9	22.3	36.8	41.9	42.8	51.0	54.5	54.8	54.7	55.2	55.5	55.4	54.6	50.5	50.2	51.1	51.8	51.3	40.5	55.5
20-Apr	49.3	47.2	45.0	43.8	39.7	Z	42.1	43.4	46.0	49.8	51.0	52.0	52.8	53.2	53.4	53.7	54.8	55.5	55.2	45.9	33.2	33.4	36.1	49.0	47.2	55.5
21-Apr	Z	47.0	47.4	39.0	18.1	11.2	35.7	42.5	43.0	44.5	47.6	50.3	52.5	54.6	56.2	56.3	57.3	57.6	55.4	45.8	44.4	35.1	26.1	31.9	43.4	57.6
22-Apr	29.5	Z	19.0	13.9	11.5	9.9	8.0	23.3	38.6	36.7	42.9	52.4	54.6	55.4	56.4	56.8	54.4	53.8	51.0	50.1	42.5	38.2	41.1	42.9	38.4	56.8
23-Apr	42.8	42.5	Z	34.1	29.5	24.3	26.5	30.3	34.0	38.0	43.3	44.8	M	48.3	50.1	50.2	52.3	49.5	45.1	34.8	41.4	43.7	45.5	45.4	40.7	52.3
24-Apr	46.5	45.6	42.6	Z	38.2	30.6	34.4	35.2	39.3	42.2	44.7	45.4	45.4	45.4	46.5	48.4	47.6	46.4	46.0	44.9	45.1	49.0	50.1	48.4	43.8	50.1
25-Apr	44.7	43.5	42.2	42.0	Z	39.8	41.7	41.6	43.5	46.6	48.8	49.0	48.9	48.8	49.1	47.7	46.8	47.7	46.1	45.0	39.7	27.7	22.6	21.2	42.4	49.1
26-Apr	21.9	24.8	28.9	33.0	35.7	Z	35.1	42.3	44.1	44.9	46.3	47.9	49.9	50.9	50.5	49.6	48.4	45.6	42.5	37.4	36.0	40.7	41.4	41.6	40.8	50.9
27-Apr	Z	35.9	36.4	33.3	30.3	19.9	32.6	37.6	38.0	42.9	48.0	47.3	48.4	48.9	48.4	46.8	46.0	44.6	42.8	42.0	41.9	41.4	42.7	39.8	40.7	48.9
28-Apr	35.2	Z	38.6	37.4	35.6	34.3	35.9	34.9	34.6	33.9	32.8	32.2	33.1	34.2	34.6	35.1	36.9	36.5	34.1	33.2	32.1	31.3	29.5	28.8	34.1	38.6
29-Apr	28.9	28.0	Z	27.8	26.4	25.3	28.3	29.0	29.9	31.0	28.0	26.5	29.5	30.0	32.5	32.6	32.9	33.5	31.8	31.3	29.8	28.4	26.7	28.5	29.4	33.5
30-Apr	28.1	27.7	28.4	Z	27.4	28.0	28.0	27.4	26.2	25.6	25.8	23.1	25.1	26.0	24.8	24.2	24.7	22.2	23.5	23.0	20.9	19.0	18.0	18.5	24.6	28.4

31.9	33.1	32.8	30.2	27.9	27.2	29.2	32.9	35.9	37.5	40.0	41.8	43.2	44.0	44.5	44.4	44.1	43.5	41.2	37.9	35.6	33.2	31.9	32.9	Diurnal Average	
49.3	47.2	47.4	45.8	42.2	45.9	46.7	45.4	47.7	49.8	51.0	52.4	54.6	55.4	56.4	56.8	57.3	57.6	55.4	50.5	50.2	51.1	51.8	51.3	Diurnal Maximum	

Z - zerospan                      C - Calibration                      M - Maintenance                      UO - Unstable Operation  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	58	8.79	8.79
21 - 50	550	83.33	92.12
51 - 82	52	7.88	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 660

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Patricia McInnes - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	5	2	1	2	1	1	6	4	7	4	3	3	4	2	5	8	58
21 - 50	102	40	10	14	10	70	39	11	24	16	36	36	34	32	36	40	550
51 - 82	3	7	0	1	0	3	1	1	0	2	7	8	14	3	0	2	52
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	110	49	11	17	11	74	46	16	31	22	46	47	52	37	41	50	660

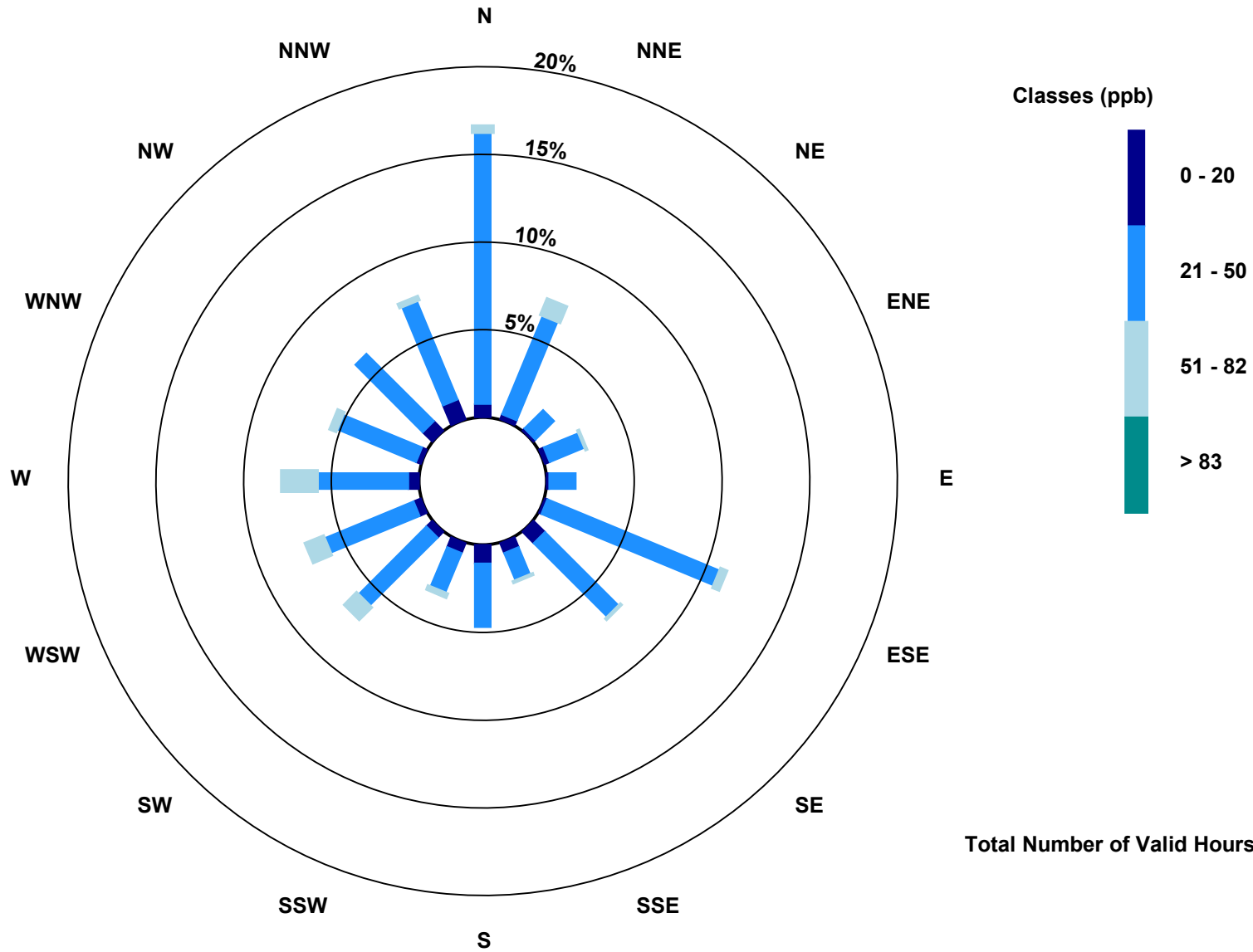
Total Number of Valid Hours: 660

Total Number of Hours: 720



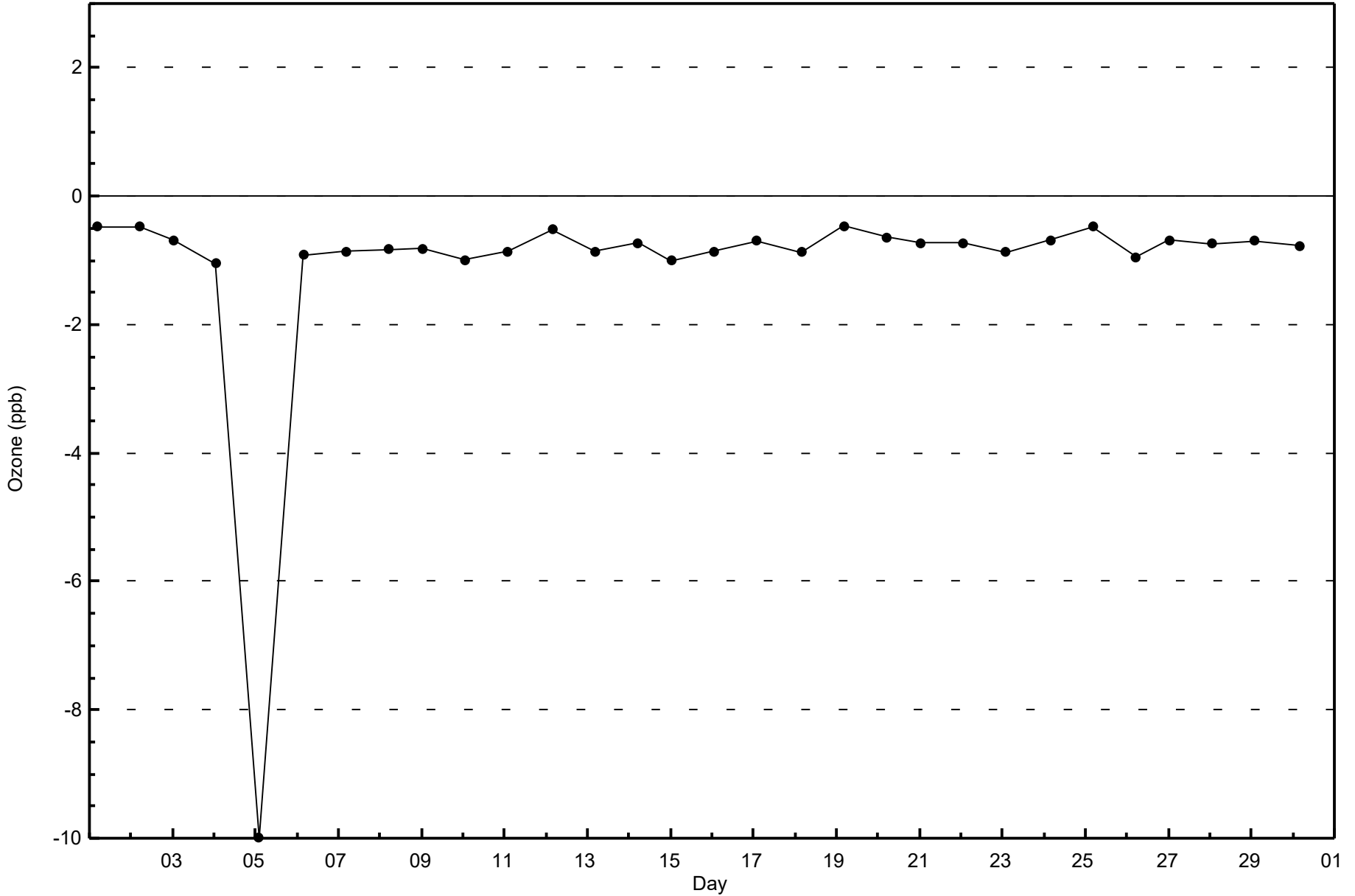
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

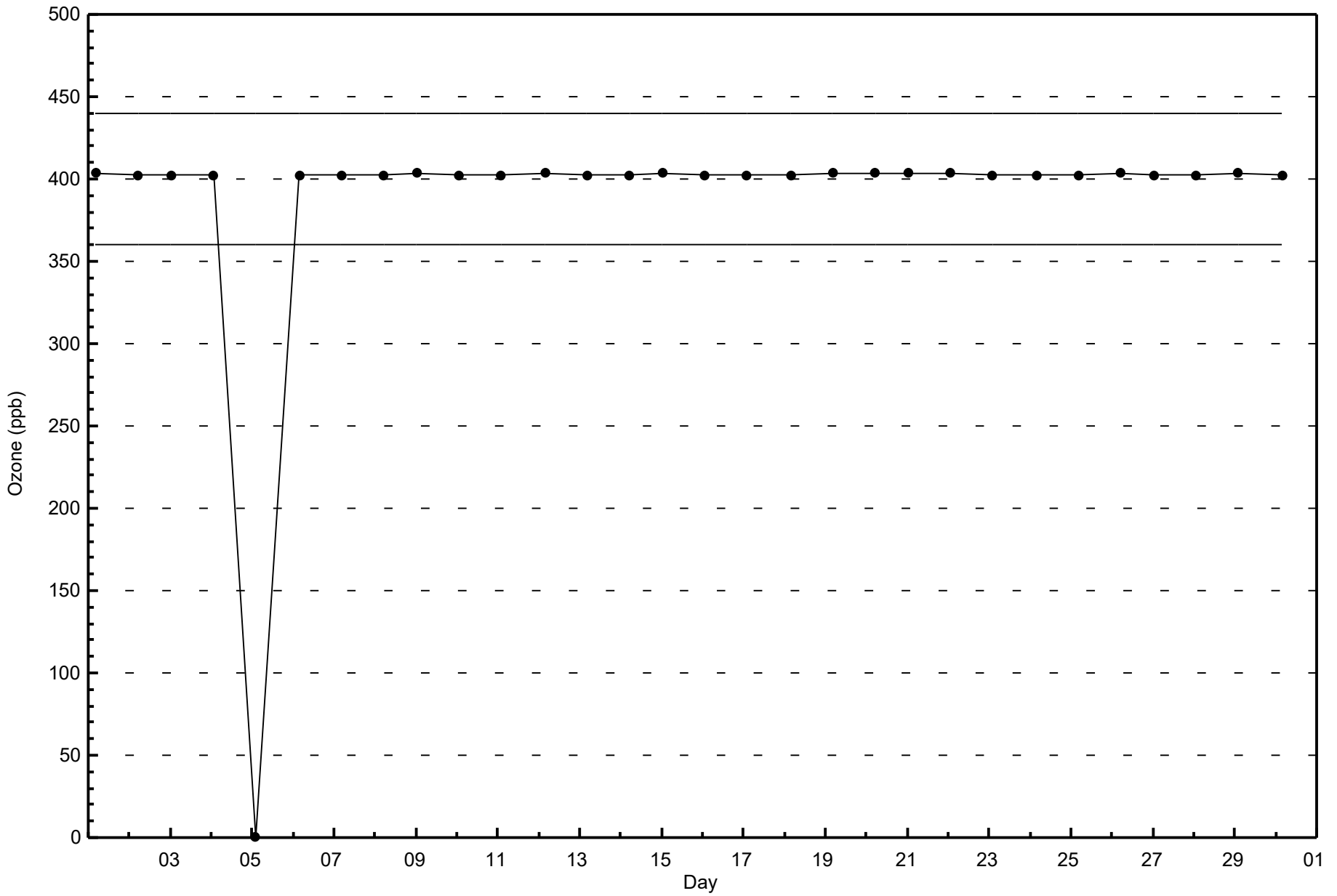
Ozone (O<sub>3</sub>) - ppb  
Patricia McInnes



Total Number of Valid Hours: 660









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

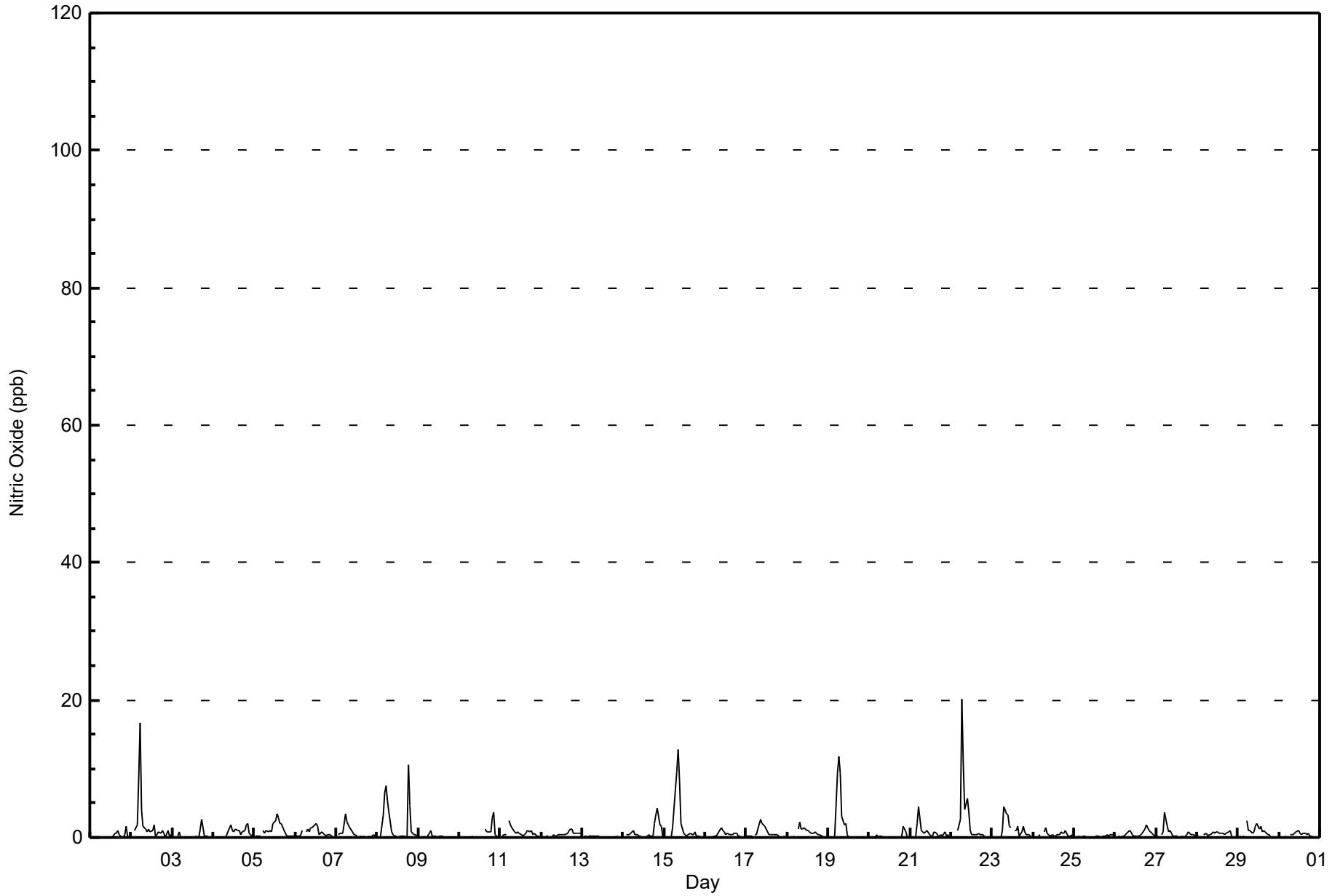
Patricia McInnes - April 2024

Maximum Value: 20.1 ppb on Apr 22 07:00																				Maximum Daily Average: 2.3 ppb on Apr 22					Hours in Service: 720								
Minimum Value: 0.0 ppb on Apr 1 02:00																				Minimum Daily Average: 0.1 ppb on Apr 13					Hours of Data: 683								
Maximum Diurnal Average: 2.3 ppb at hour 6																				Minimum Diurnal Average: 0.1 ppb at hour 2					Hours of Missing Data: 37								
Monthly Average: 0.77 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 1.6 P <sub>99</sub> = 9.4					Hours of Calibration: 36								
																				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-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.6	1.0	0.3	0.0	0.0	0.4	1.6	0.2	0.0	0.2	1.6								
2-Apr	0.2	Z	1.1	1.9	8.7	16.7	4.2	1.6	1.3	0.9	1.3	0.8	1.1	1.8	0.2	0.4	0.8	0.6	1.0	0.6	0.0	1.0	0.2	0.4	2.0	16.7							
3-Apr	0.0	0.1	Z	0.2	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.2	2.6	1.4	0.2	0.3	0.0	0.0	0.0	0.3	2.6								
4-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	1.4	1.9	0.9	0.8	1.2	1.1	0.9	0.5	0.8	1.1	1.9	2.0	0.6	0.4	0.1	0.7	2.0							
5-Apr	0.0	0.1	0.1	0.3	Z	0.9	0.7	1.1	0.8	1.1	0.7	2.0	2.5	3.4	2.9	2.0	2.0	1.1	0.5	0.2	0.2	0.2	0.2	1.0	3.4								
6-Apr	0.3	0.3	0.2	0.4	1.0	Z	0.8	1.2	0.8	1.4	1.4	1.8	2.0	1.6	0.5	0.8	0.7	0.4	0.2	0.5	0.4	0.2	0.0	0.1	0.7	2.0							
7-Apr	Z	0.3	0.6	0.6	0.5	3.5	2.3	1.8	1.5	0.8	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.4	0.1	0.6	3.5							
8-Apr	0.0	Z	0.2	3.3	6.5	7.5	5.3	3.7	0.9	0.5	0.2	0.2	0.0	0.2	0.2	0.1	0.2	0.1	10.6	4.6	0.8	0.5	0.4	0.1	2.0	10.6							
9-Apr	0.1	0.0	Z	0.1	0.1	0.1	0.5	1.0	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0							
10-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.1	C	C	C	C	C	C	1.3	0.8	0.8	0.9	2.8	3.7	0.3	0.2	0.0	--	3.7							
11-Apr	0.0	0.0	0.5	0.3	Z	2.4	1.9	1.3	0.8	0.6	0.7	0.6	0.4	0.2	0.3	0.6	1.0	0.8	1.1	0.5	0.6	0.2	0.3	0.0	0.7	2.4							
12-Apr	0.2	0.1	0.0	0.2	0.2	Z	0.3	0.5	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.7	1.1	1.3	1.2	0.6	0.6	0.6	0.6	0.6	0.5	1.3							
13-Apr	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.3							
14-Apr	0.0	Z	0.4	0.5	0.5	0.8	1.1	0.4	0.3	0.3	0.2	0.0	0.1	0.0	0.1	0.4	0.2	0.2	2.1	3.3	4.2	1.9	1.7	0.0	0.8	4.2							
15-Apr	0.0	0.0	Z	0.0	0.1	1.4	6.8	9.6	12.8	8.2	2.0	0.6	0.4	0.3	0.4	0.6	0.5	0.4	0.9	0.1	0.1	0.0	0.0	0.0	2.0	12.8							
16-Apr	0.0	0.0	0.0	Z	0.1	0.2	0.2	0.3	0.8	1.5	1.0	0.8	0.4	0.6	0.3	0.5	0.4	0.7	0.5	0.3	0.2	0.1	0.1	0.1	0.4	1.5							
17-Apr	0.2	0.1	0.1	0.1	Z	0.3	0.4	1.2	2.6	2.0	1.9	1.6	0.8	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.1	0.1	0.1	0.0	0.6	2.6							
18-Apr	0.1	0.0	0.0	0.1	0.1	Z	1.3	2.2	1.3	1.2	1.3	1.1	1.0	0.7	0.5	0.6	0.7	0.7	0.3	0.4	0.2	0.0	0.0	0.0	0.6	2.2							
19-Apr	Z	0.0	0.0	0.0	0.2	9.3	11.7	9.3	3.1	1.9	1.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.7	11.7							
20-Apr	0.0	Z	0.0	0.0	0.3	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.2	1.6	0.9	0.0	0.0	0.2	1.6							
21-Apr	0.0	0.0	Z	0.2	2.0	4.5	1.1	0.8	0.7	0.7	0.9	0.3	0.3	0.2	0.7	0.7	0.2	0.2	0.4	0.2	0.8	0.1	0.3	0.1	0.7	4.5							
22-Apr	0.0	0.0	0.1	Z	1.1	2.6	20.1	11.0	4.1	5.6	3.6	1.0	0.4	0.4	0.4	0.6	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	2.3	20.1							
23-Apr	0.0	0.0	0.0	0.0	Z	0.0	1.1	4.4	3.5	3.3	1.6	1.5	M	1.0	1.1	1.6	0.3	0.8	1.7	0.8	0.5	0.3	0.1	0.1	1.1	4.4							
24-Apr	0.0	0.0	0.0	0.1	0.4	Z	0.9	1.3	0.6	0.5	0.3	0.4	0.2	0.2	0.5	0.4	0.8	0.6	0.6	1.0	0.3	0.1	0.2	0.3	0.4	1.3							
25-Apr	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.4	0.2	0.4	0.5	0.3	0.1	0.5							
26-Apr	0.3	Z	0.1	0.0	0.3	0.2	0.4	0.6	1.0	0.7	0.5	0.3	0.1	0.3	0.2	0.4	0.7	1.3	1.9	1.5	1.0	0.7	0.4	0.3	0.6	1.9							
27-Apr	0.3	0.3	Z	0.4	0.8	3.6	1.6	0.7	1.1	0.6	0.3	0.3	0.1	0.1	0.0	0.2	0.1	0.3	0.5	0.8	0.4	0.4	0.4	0.3	0.6	3.6							
28-Apr	0.1	0.0	0.1	Z	0.4	0.6	0.2	0.5	0.5	0.8	0.7	0.7	0.7	0.6	0.7	0.6	0.4	0.5	0.8	1.0	0.3	0.1	0.1	0.0	0.4	1.0							
29-Apr	0.1	0.1	0.0	0.2	Z	2.4	0.9	1.0	0.7	0.8	1.6	2.0	1.3	1.6	0.9	1.1	0.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.7	2.4							
30-Apr	0.0	0.0	0.0	0.0	0.2	Z	0.4	0.5	0.5	0.6	0.9	1.1	0.6	0.4	0.5	0.6	0.4	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.3	1.1							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerspan C - Calibration M - Maintenance																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Patricia McInnes - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	683	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Patricia McInnes - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	111	51	19	19	17	77	48	17	32	23	41	51	51	36	36	54	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	51	19	19	17	77	48	17	32	23	41	51	51	36	36	54	683

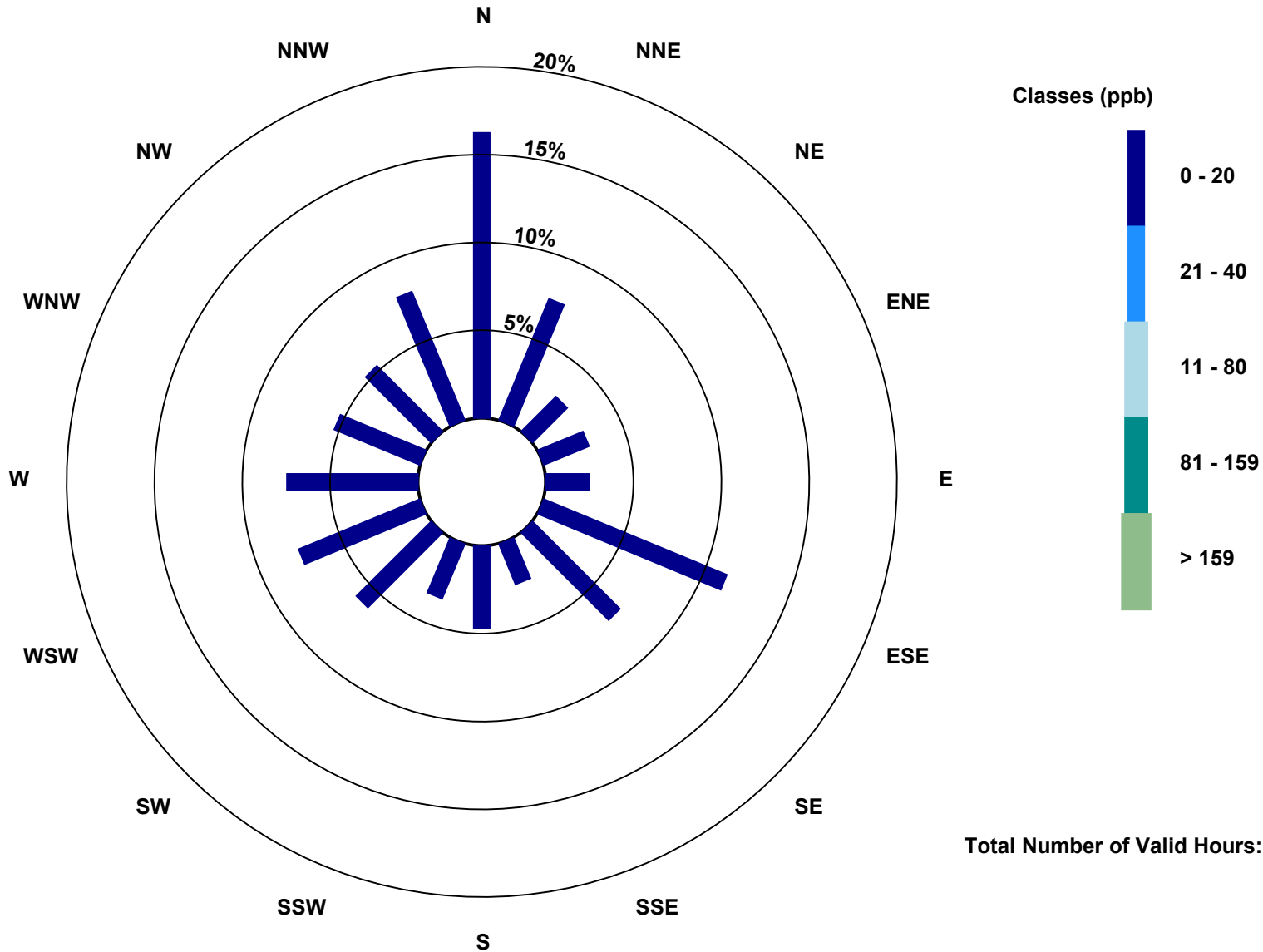
Total Number of Valid Hours: 683

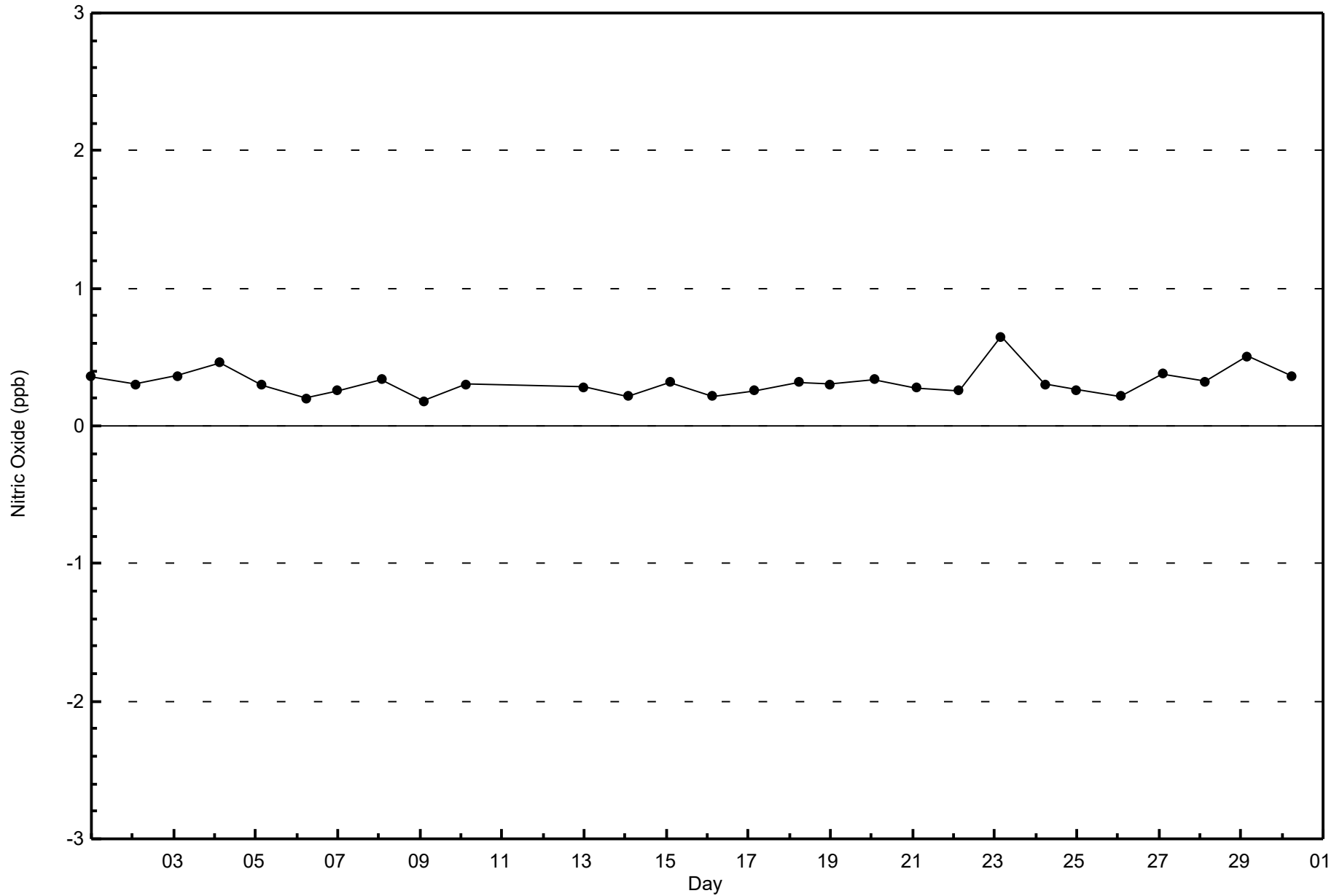
Total Number of Hours: 720



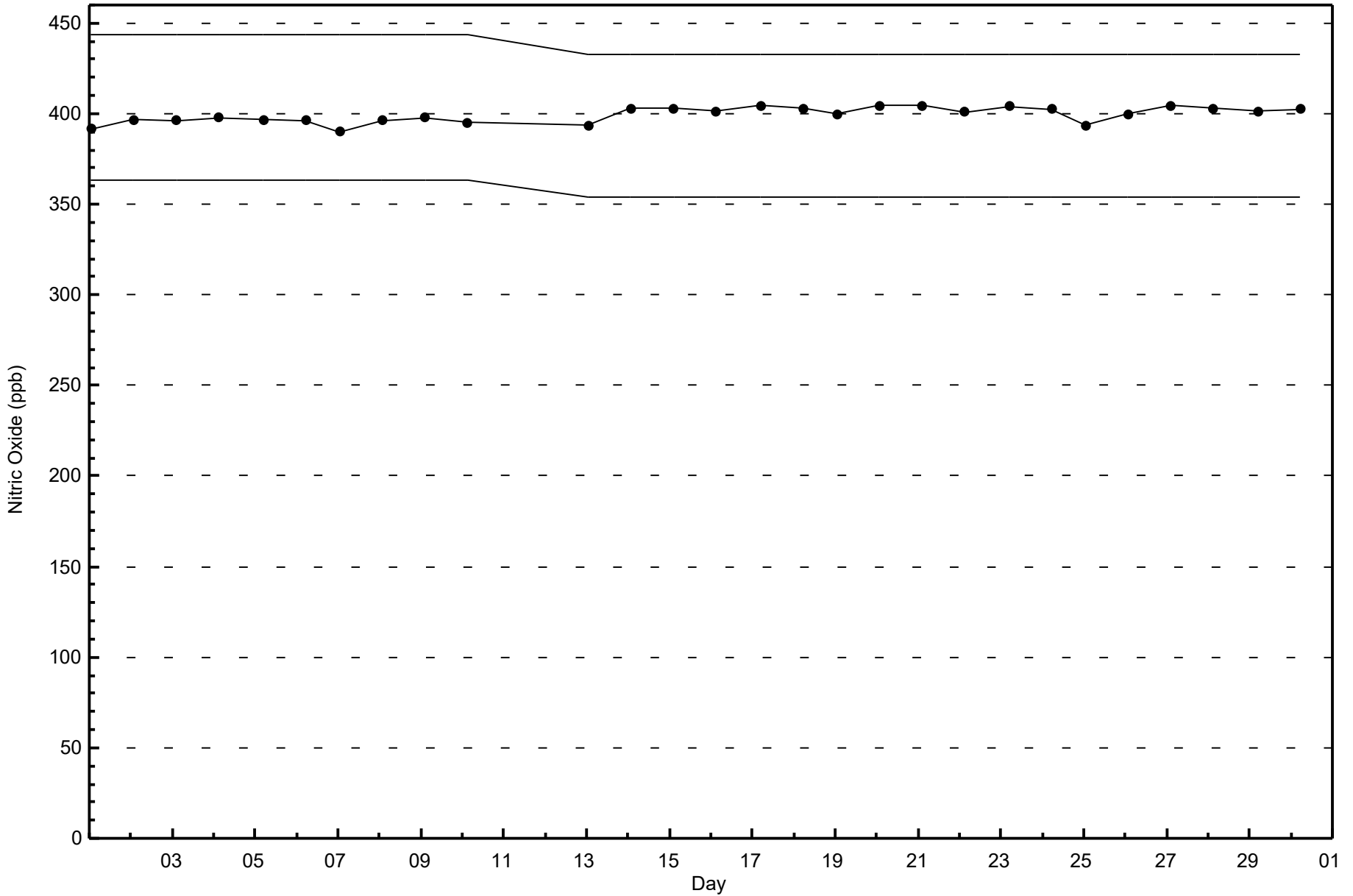
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Patricia McInnes











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

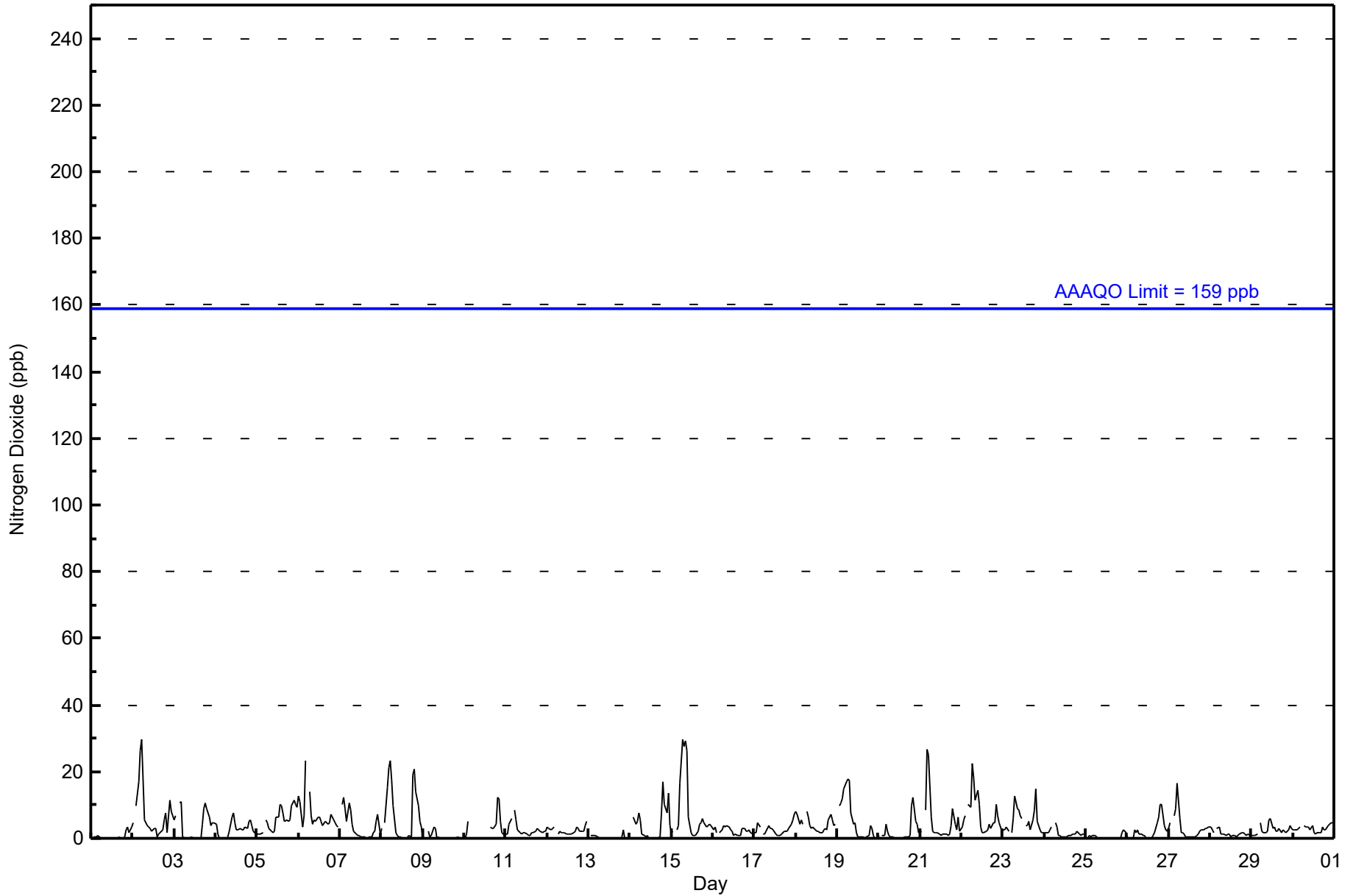
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Patricia McInnes - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum																										
Maximum Value: 29.8 ppb on Apr 15 07:00		Maximum Daily Average: 8.2 ppb on Apr 15																	Hours of Data: 683		Hours of Missing Data: 37																												
Minimum Value: 0.0 ppb on Apr 1 07:00		Minimum Daily Average: 0.3 ppb on Apr 13																	Hours of Calibration: 36		Percent Operational Time: 99.9																												
Maximum Diurnal Average: 7.6 ppb at hour 6		Minimum Diurnal Average: 1.3 ppb at hour 13																																															
Monthly Average: 3.59 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.8 Median = 2.2 Q <sub>3</sub> = 4.5 P <sub>90</sub> = 8.8 P <sub>99</sub> = 25.3																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	Z	0.6	0.4	0.3	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.4	2.7	3.2	1.8	3.2	0.6	3.2																								
2-Apr	4.5	Z	9.6	17.0	26.4	29.6	17.7	5.4	3.8	3.2	2.9	2.2	2.8	2.9	0.3	1.1	1.6	2.4	5.4	7.6	1.9	11.5	8.2	6.7	7.6	29.6																							
3-Apr	5.3	6.7	Z	10.6	11.0	0.5	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.2	0.2	4.1	9.1	10.4	8.8	6.5	3.9	4.6	4.7	3.8	11.0																							
4-Apr	4.1	1.4	0.0	Z	0.1	0.0	0.0	0.3	2.3	6.3	7.6	4.5	2.6	2.7	2.8	2.6	2.5	3.4	3.1	4.9	5.4	3.7	2.0	1.4	2.8	7.6																							
5-Apr	1.1	1.3	1.1	1.6	Z	5.4	4.8	3.1	2.0	1.9	2.3	6.2	6.5	10.2	9.6	7.6	5.2	5.3	5.1	5.7	9.6	11.5	10.2	9.2	5.5	11.5																							
6-Apr	12.8	11.0	3.6	6.9	23.1	Z	13.9	6.7	4.4	5.7	4.9	6.2	6.4	4.9	3.8	4.9	4.6	4.2	4.7	7.4	5.6	4.8	3.9	3.3	6.9	23.1																							
7-Apr	Z	10.3	12.4	8.7	5.0	10.4	8.4	4.3	2.3	1.3	1.0	0.8	0.6	0.4	0.3	0.2	0.2	0.3	0.6	1.7	2.2	4.9	7.4	1.2	3.7	12.4																							
8-Apr	2.8	Z	4.8	15.4	21.3	23.3	17.3	9.9	1.9	0.9	0.5	0.4	0.0	0.1	0.2	0.2	0.8	0.4	18.9	20.6	14.1	9.7	4.9	3.3	7.5	23.3																							
9-Apr	0.3	0.1	Z	2.2	0.4	0.7	3.5	3.1	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.1	0.0	0.0	0.5	3.5																							
10-Apr	0.1	1.1	5.2	Z	0.2	0.0	0.0	0.0	0.2	C	C	C	C	C	C	3.2	2.9	2.9	4.1	12.3	12.0	5.1	1.6	1.0	--	12.3																							
11-Apr	1.2	1.1	4.1	6.0	Z	8.5	5.7	2.7	1.7	1.2	1.7	1.7	1.1	0.7	1.0	1.8	1.9	2.2	3.1	2.7	2.2	1.8	2.1	2.2	2.5	8.5																							
12-Apr	3.3	2.9	2.5	3.1	3.5	Z	1.2	2.0	1.6	1.5	1.8	1.3	1.3	1.2	1.2	1.9	2.2	3.4	2.9	2.3	2.1	2.3	3.9	5.2	2.4	5.2																							
13-Apr	Z	0.7	0.8	0.8	1.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.6	2.5	0.2	0.1	0.2	0.3	2.5																							
14-Apr	0.4	Z	6.4	4.4	4.9	7.8	5.3	1.1	0.7	0.6	0.7	0.2	0.2	0.1	0.1	0.0	0.1	0.6	7.8	17.0	10.1	7.6	13.6	3.8	4.1	17.0																							
15-Apr	1.7	2.0	Z	2.6	3.9	16.5	29.8	27.7	29.3	26.3	6.4	1.6	1.0	1.0	1.0	2.1	4.2	4.6	6.1	4.5	3.2	4.0	4.4	3.9	8.2	29.8																							
16-Apr	2.5	3.3	1.7	Z	1.9	2.5	3.9	3.6	3.9	3.6	2.5	2.2	1.0	1.1	0.8	1.0	0.9	2.8	2.8	2.0	2.3	2.4	1.8	1.3	2.3	3.9																							
17-Apr	1.6	1.6	4.8	3.2	Z	1.4	1.1	2.1	3.9	2.8	2.8	2.4	1.3	0.9	0.9	0.9	1.1	2.0	2.1	2.3	2.8	4.4	5.7	7.0	2.6	7.0																							
18-Apr	7.9	7.2	4.4	5.6	4.1	Z	8.0	6.5	3.8	3.0	3.5	2.4	2.1	2.0	1.5	1.9	2.4	2.8	2.7	5.4	7.0	5.4	3.9	4.4	4.3	8.0																							
19-Apr	Z	9.6	10.4	11.7	14.7	17.0	17.6	17.3	7.8	4.4	4.8	1.6	0.6	0.4	0.4	0.3	0.2	0.3	0.8	3.9	2.8	1.0	0.2	0.2	5.6	17.6																							
20-Apr	0.8	Z	0.8	1.0	4.1	2.0	0.8	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.1	0.3	0.3	0.6	1.0	9.6	12.3	5.2	4.2	1.5	2.0	12.3																							
21-Apr	1.9	2.2	Z	8.3	26.5	25.1	6.5	2.2	1.8	1.7	1.9	1.4	0.9	1.1	1.1	1.4	0.9	1.3	3.7	9.1	4.1	2.6	6.5	2.0	5.0	26.5																							
22-Apr	3.3	5.3	6.7	Z	10.2	9.4	22.4	18.4	11.4	14.4	10.1	3.4	1.7	1.8	2.2	2.7	4.4	2.9	4.5	4.5	10.2	6.6	4.6	2.3	7.1	22.4																							
23-Apr	2.6	2.5	3.2	2.1	Z	1.7	6.1	12.6	8.7	8.3	6.8	6.1	M	3.9	4.0	5.1	2.7	5.6	8.5	14.9	4.9	2.7	1.6	1.7	5.3	14.9																							
24-Apr	1.5	1.5	1.7	2.5	3.6	Z	4.7	3.2	0.7	0.7	0.4	0.3	0.3	0.4	0.8	1.0	1.4	1.3	1.3	2.1	1.2	0.8	1.3	1.2	1.5	4.7																							
25-Apr	Z	0.6	0.7	0.6	1.0	0.7	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.8	2.6	1.6	0.4	2.6																							
26-Apr	0.0	Z	0.2	0.2	2.5	1.9	2.7	1.4	1.4	0.9	0.7	0.2	0.1	0.2	0.2	0.8	1.7	4.7	6.4	10.2	10.0	3.7	2.5	2.0	2.4	10.2																							
27-Apr	2.9	4.8	Z	6.8	9.0	16.6	5.9	1.8	1.9	1.3	0.4	0.3	0.3	0.3	0.4	0.6	0.7	1.2	2.0	2.4	2.7	2.9	3.1	3.4	3.1	16.6																							
28-Apr	3.5	2.5	1.6	Z	2.8	3.2	1.4	1.3	1.2	1.0	1.2	1.2	0.6	0.8	1.0	0.6	0.9	1.3	1.6	1.5	1.3	1.0	1.1	0.7	1.4	3.5																							
29-Apr	0.7	0.9	1.0	1.1	Z	4.7	2.2	1.9	1.5	2.3	5.4	6.0	3.1	3.2	2.0	2.3	2.9	1.7	2.4	2.1	1.9	2.7	3.8	2.8	2.5	6.0																							
30-Apr	2.4	2.7	2.7	2.8	3.5	Z	4.0	3.6	3.4	3.3	2.7	3.8	1.7	1.1	1.8	1.7	1.6	3.6	2.5	2.7	3.8	4.4	4.7	4.7	3.0	4.7																							
																								2.8	3.4	3.6	5.0	7.4	7.6	6.5	4.8	3.4	3.4	2.5	1.9	1.3	1.4	1.3	1.5	1.8	2.4	3.8	5.6	4.9	4.1	3.9	2.9	Diurnal Average	
																								12.8	11.0	12.4	17.0	26.5	29.6	29.8	27.7	29.3	26.3	10.1	6.2	6.5	10.2	9.6	7.6	5.2	9.1	18.9	20.6	14.1	11.5	13.6	9.2	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Patricia McInnes - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	670	98.10	98.10
21 - 40	13	1.90	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	110	50	18	19	15	76	46	15	29	23	41	51	51	36	36	54	670
21 - 40	1	1	1	0	2	1	2	2	3	0	0	0	0	0	0	0	13
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	51	19	19	17	77	48	17	32	23	41	51	51	36	36	54	683

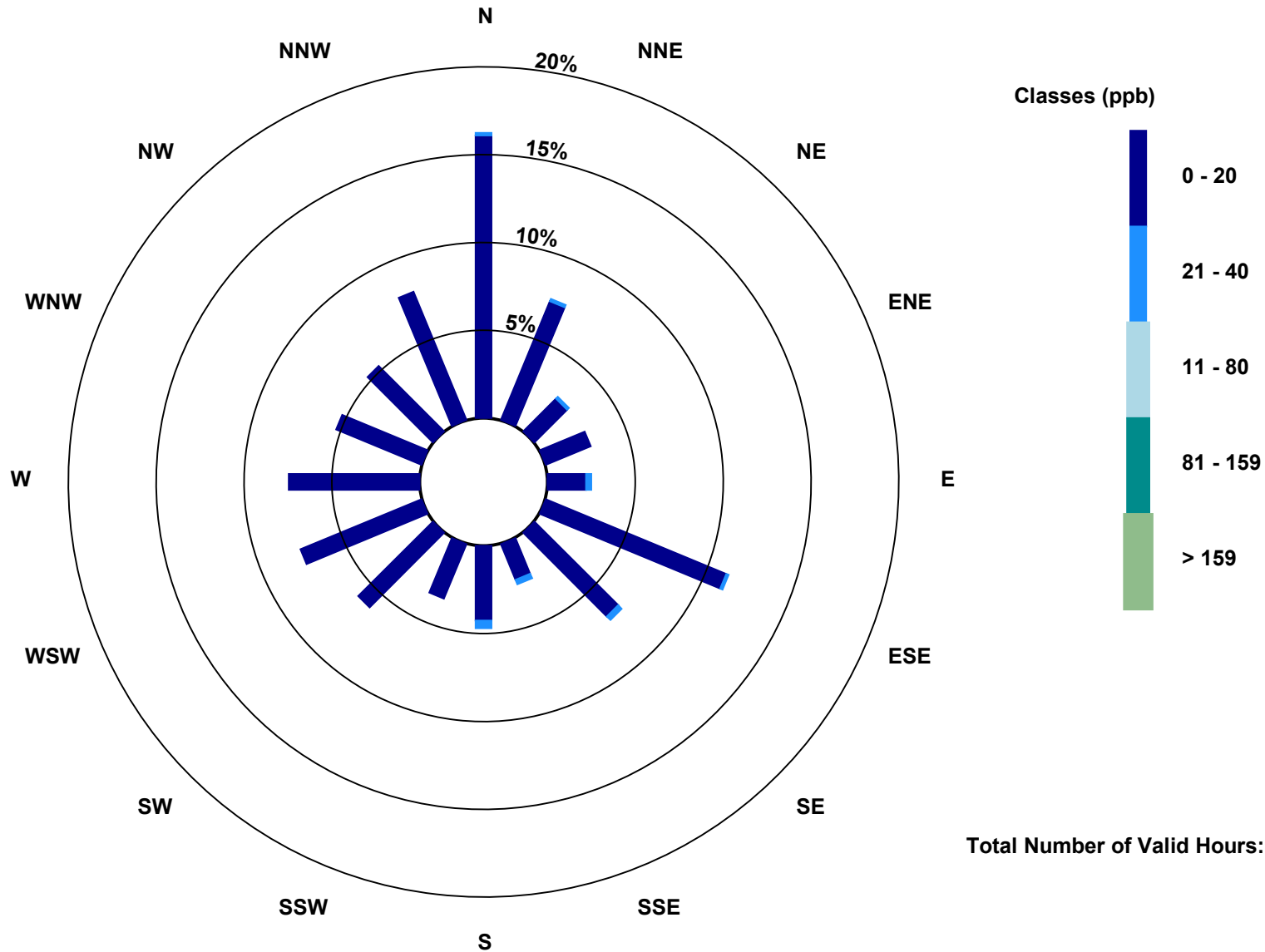
Total Number of Valid Hours: 683

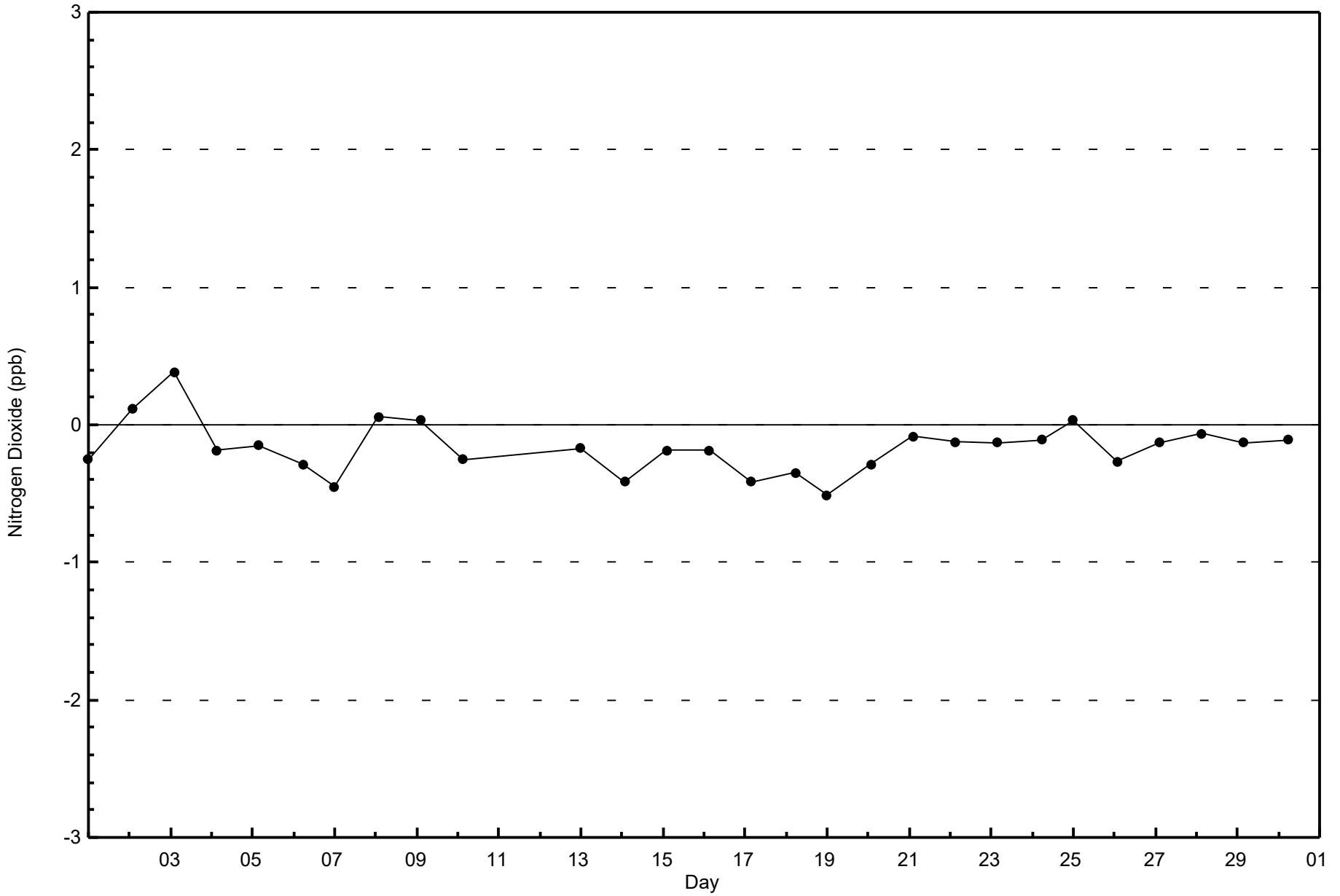
Total Number of Hours: 720

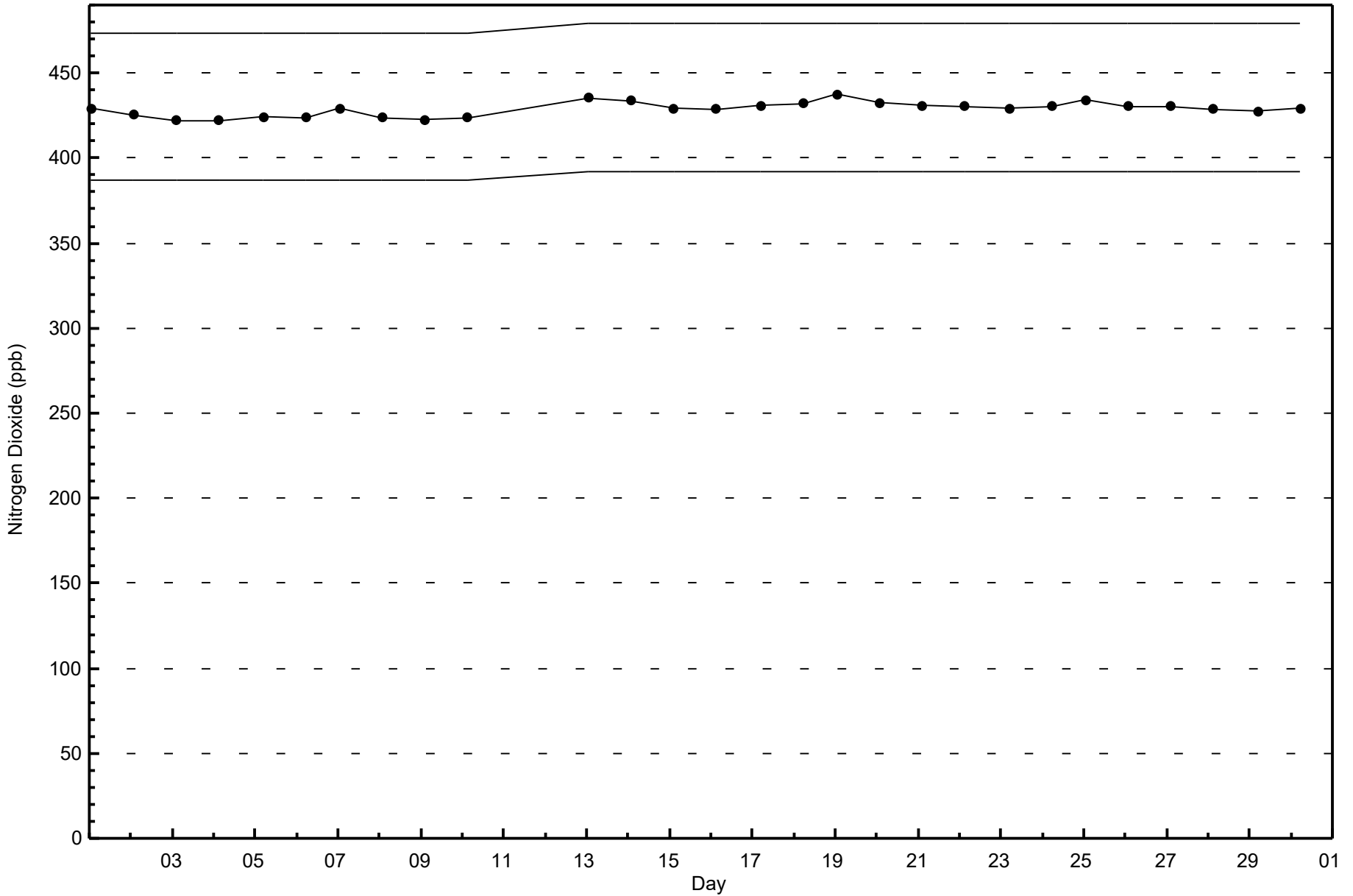


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











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

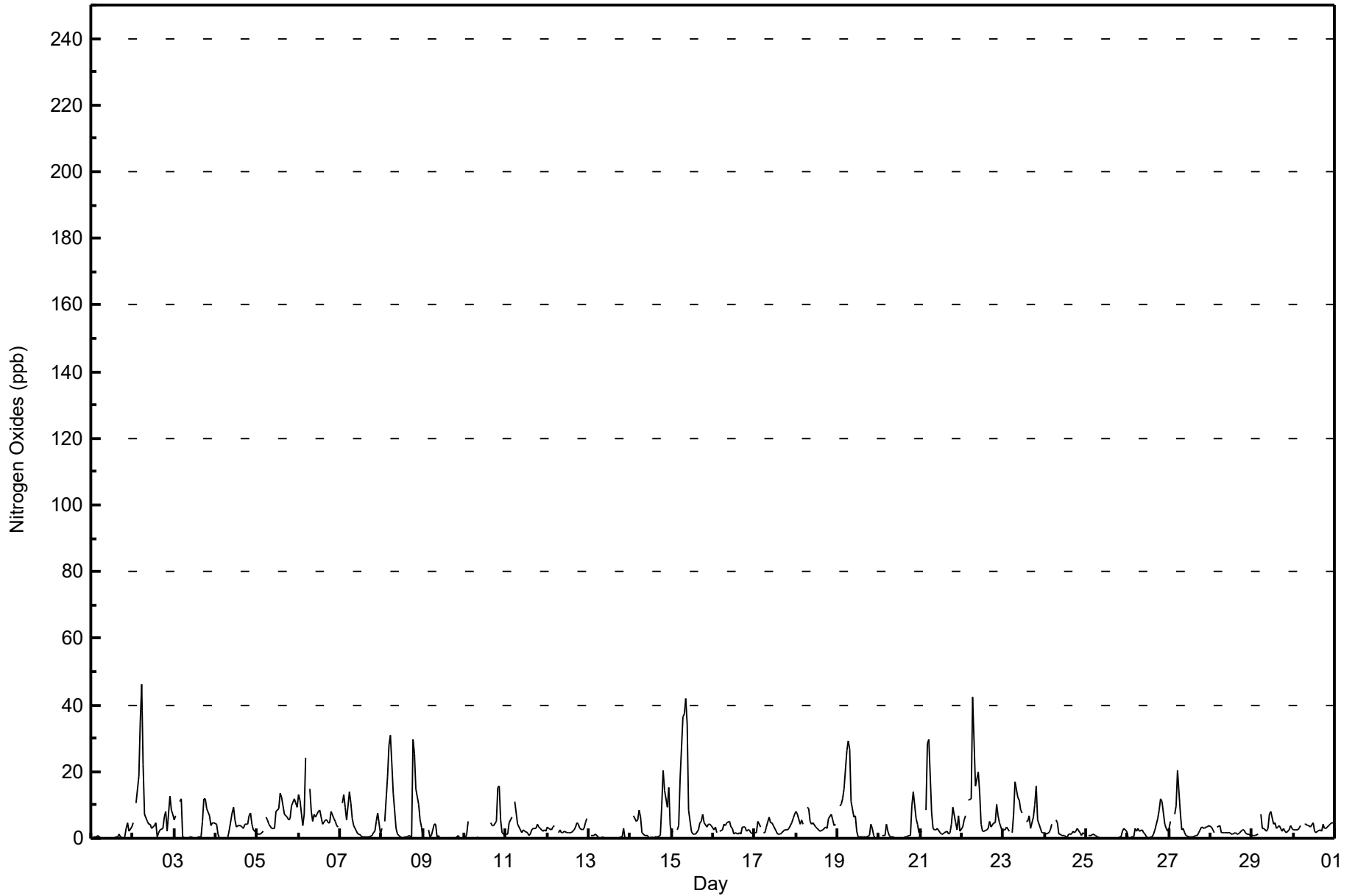
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - April 2024**

Maximum Value: 46.3 ppb on Apr 2 06:00																				Maximum Daily Average: 10.1 ppb on Apr 15					Hours in Service: 720								
Minimum Value: 0.0 ppb on Apr 1 08:00																				Minimum Daily Average: 0.4 ppb on Apr 13					Hours of Data: 683								
Maximum Diurnal Average: 9.9 ppb at hour 6																				Minimum Diurnal Average: 1.8 ppb at hour 15					Hours of Missing Data: 37								
Monthly Average: 4.37 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 1.0 Median = 2.6 Q <sub>3</sub> = 5.0 P <sub>90</sub> = 9.9 P <sub>99</sub> = 31.5					Hours of Calibration: 36								
																				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-Apr	Z	0.6	0.4	0.3	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.6	1.5	0.3	0.0	0.4	3.1	4.8	2.0	3.2	0.8	4.8								
2-Apr	4.7	Z	10.7	18.9	35.1	46.3	21.9	7.0	5.1	4.1	4.2	3.0	3.9	4.7	0.5	1.5	2.4	3.0	6.4	8.2	1.9	12.5	8.4	7.1	9.6	46.3							
3-Apr	5.3	6.8	Z	10.8	11.9	0.5	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.4	0.2	5.3	11.7	11.8	9.0	6.8	3.9	4.6	4.7	4.1	11.9							
4-Apr	4.1	1.4	0.0	Z	0.1	0.0	0.0	0.3	2.6	7.7	9.5	5.4	3.4	3.9	3.5	3.0	4.2	4.2	6.8	7.4	4.3	2.4	1.5	3.5	9.5	9.5							
5-Apr	1.1	1.4	1.2	1.9	Z	6.3	5.5	4.2	2.8	3.0	3.0	8.2	9.0	13.6	12.5	9.6	7.2	6.4	5.6	5.9	9.8	11.7	10.4	9.4	6.5	13.6							
6-Apr	13.1	11.3	3.8	7.3	24.1	Z	14.7	7.9	5.2	7.1	6.3	8.0	8.4	6.5	4.3	5.7	5.3	4.6	4.9	7.9	6.0	5.0	3.9	3.4	7.6	24.1							
7-Apr	Z	10.6	13.0	9.3	5.5	13.9	10.7	6.1	3.8	2.1	1.4	1.1	0.8	0.5	0.4	0.3	0.3	0.4	0.6	1.8	2.3	5.1	7.8	1.3	4.3	13.9							
8-Apr	2.8	Z	5.0	18.7	27.8	30.8	22.6	13.6	2.8	1.4	0.7	0.6	0.0	0.3	0.4	0.3	1.0	0.5	29.5	25.2	14.9	10.2	5.3	3.4	9.5	30.8							
9-Apr	0.4	0.1	Z	2.3	0.5	0.8	4.0	4.1	0.4	0.8	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.2	0.6	0.1	0.0	0.0	0.7	4.1							
10-Apr	0.1	1.1	5.2	Z	0.2	0.1	0.0	0.0	0.3	C	C	C	C	C	C	4.5	3.7	3.7	5.0	15.1	15.7	5.4	1.8	1.0	--	15.7							
11-Apr	1.2	1.1	4.6	6.3	Z	10.9	7.6	4.0	2.5	1.8	2.4	2.3	1.5	0.9	1.3	2.4	2.9	3.0	4.2	3.2	2.8	2.0	2.4	2.2	3.2	10.9							
12-Apr	3.5	3.0	2.5	3.3	3.7	Z	1.5	2.5	1.8	1.8	2.2	1.7	1.6	1.6	1.6	2.6	3.3	4.7	4.1	2.9	2.7	2.9	4.5	5.8	2.9	5.8							
13-Apr	Z	0.8	0.9	0.9	1.2	0.5	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.6	2.8	0.2	0.1	0.2	0.4	2.8							
14-Apr	0.4	Z	6.8	4.9	5.4	8.6	6.4	1.5	1.0	0.9	0.9	0.2	0.3	0.1	0.2	0.4	0.3	0.8	9.9	20.3	14.3	9.5	15.3	3.8	4.9	20.3							
15-Apr	1.7	2.0	Z	2.6	4.0	17.9	36.6	37.3	42.1	34.5	8.4	2.2	1.4	1.3	1.4	2.7	4.7	5.0	7.0	4.6	3.3	4.1	4.4	3.9	10.1	42.1							
16-Apr	2.5	3.3	1.7	Z	2.0	2.7	4.1	3.9	4.7	5.1	3.5	3.0	1.4	1.7	1.1	1.5	1.3	3.5	3.3	2.3	2.5	2.5	1.9	1.4	2.6	5.1							
17-Apr	1.8	1.7	4.9	3.3	Z	1.7	1.5	3.3	6.5	4.8	4.7	4.0	2.1	1.3	1.3	1.3	1.5	2.4	2.4	2.6	2.9	4.5	5.8	7.0	3.2	7.0							
18-Apr	8.0	7.2	4.4	5.7	4.2	Z	9.3	8.7	5.1	4.2	4.8	3.5	3.1	2.7	2.0	2.5	3.1	3.5	3.0	5.8	7.2	5.4	3.9	4.4	4.9	9.3							
19-Apr	Z	9.6	10.4	11.7	14.9	26.3	29.3	26.6	10.9	6.3	6.7	2.0	0.6	0.4	0.4	0.3	0.2	0.3	0.8	4.0	2.8	1.0	0.2	0.2	7.2	29.3							
20-Apr	0.8	Z	0.8	1.0	4.4	2.1	0.9	0.6	0.5	0.2	0.1	0.0	0.1	0.0	0.1	0.4	0.3	0.7	1.0	9.8	13.9	6.1	4.2	1.5	2.1	13.9							
21-Apr	1.9	2.2	Z	8.5	28.5	29.6	7.6	3.0	2.5	2.4	2.8	1.7	1.2	1.3	1.8	2.1	1.1	1.5	4.1	9.3	4.9	2.7	6.8	2.1	5.6	29.6							
22-Apr	3.3	5.3	6.8	Z	11.3	12.0	42.5	29.4	15.5	20.0	13.7	4.4	2.1	2.2	2.6	3.1	5.0	3.2	4.9	4.7	10.2	6.6	4.6	2.3	9.4	42.5							
23-Apr	2.6	2.5	3.2	2.1	Z	1.7	7.2	17.0	12.2	11.6	8.4	7.6	M	4.9	5.1	6.7	3.0	6.4	10.2	15.7	5.4	3.0	1.7	1.8	6.4	17.0							
24-Apr	1.5	1.5	1.7	2.6	4.0	Z	5.6	4.5	1.3	1.2	0.7	0.7	0.5	0.6	1.3	1.4	2.2	1.9	1.9	3.1	1.5	0.9	1.5	1.5	1.9	5.6							
25-Apr	Z	0.7	0.8	0.7	1.1	0.9	0.5	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.4	0.3	2.2	3.1	1.9	0.6	3.1							
26-Apr	0.3	Z	0.3	0.2	2.8	2.1	3.1	2.0	2.4	1.6	1.2	0.5	0.2	0.5	0.4	1.2	2.4	6.0	8.3	11.7	11.0	4.4	2.9	2.3	2.9	11.7							
27-Apr	3.2	5.1	Z	7.2	9.8	20.2	7.5	2.5	3.0	1.9	0.7	0.6	0.4	0.4	0.4	0.8	0.8	1.5	2.5	3.2	3.1	3.3	3.5	3.7	3.7	20.2							
28-Apr	3.6	2.5	1.7	Z	3.2	3.8	1.6	1.8	1.7	1.8	1.9	1.9	1.3	1.4	1.7	1.2	1.3	1.8	2.4	2.5	1.6	1.1	1.2	0.7	1.9	3.8							
29-Apr	0.8	1.0	1.0	1.3	Z	7.1	3.1	2.9	2.2	3.1	7.0	8.0	4.4	4.8	2.9	3.4	3.7	2.2	2.8	2.1	1.9	2.7	3.8	2.8	3.3	8.0							
30-Apr	2.4	2.7	2.7	2.8	3.7	Z	4.4	4.1	3.9	3.9	3.6	4.9	2.3	1.5	2.3	2.3	2.0	4.1	2.8	2.9	3.9	4.4	4.7	4.7	3.3	4.9							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerspan      C - Calibration      M - Maintenance																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	663	97.07	97.07
21 - 40	17	2.49	99.56
41 - 80	3	0.44	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	109	50	18	19	15	76	46	14	27	22	41	49	51	36	36	54	663
21 - 40	2	1	0	0	2	1	1	3	4	1	0	2	0	0	0	0	17
11 - 80	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	51	19	19	17	77	48	17	32	23	41	51	51	36	36	54	683

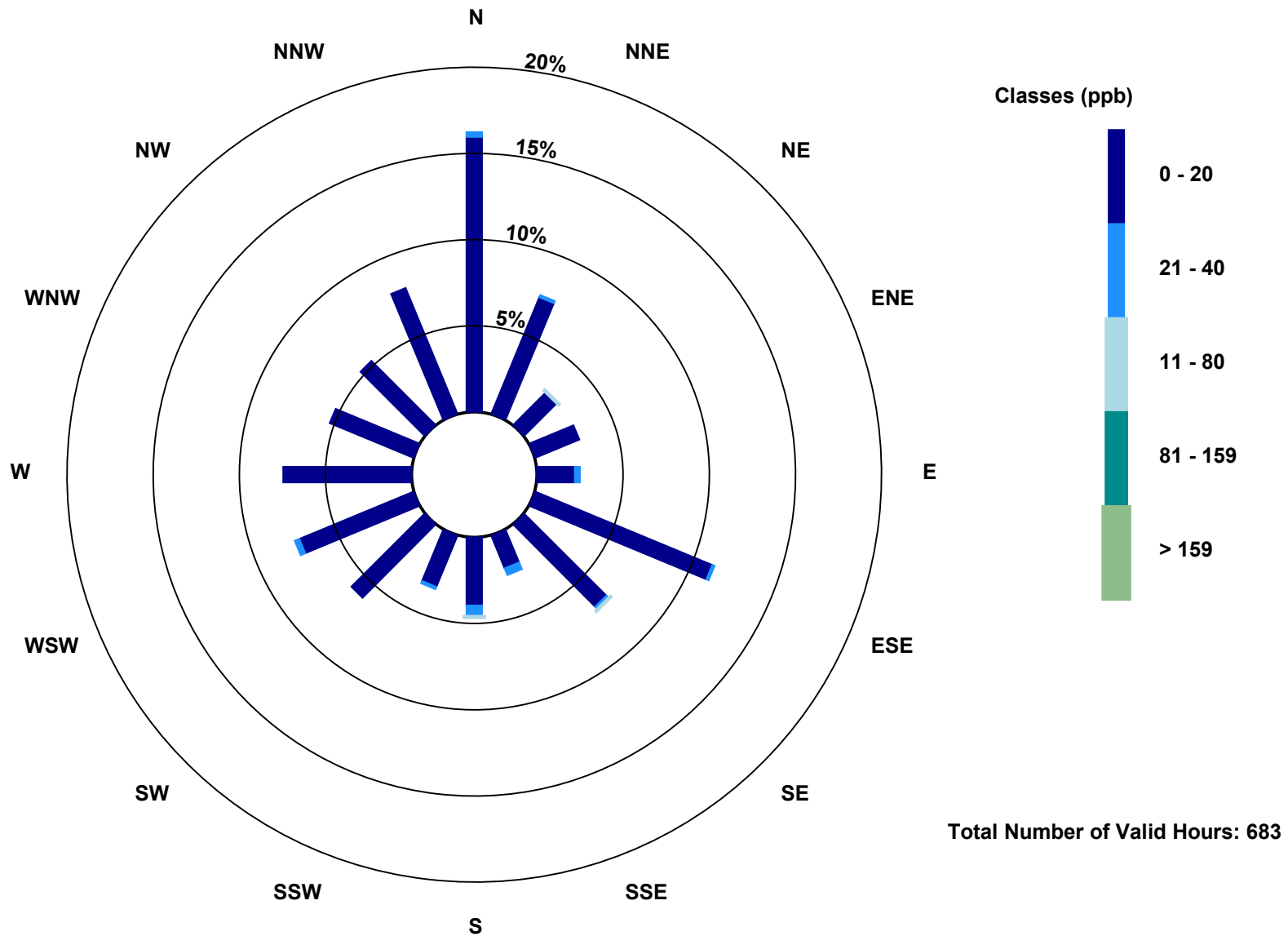
Total Number of Valid Hours: 683

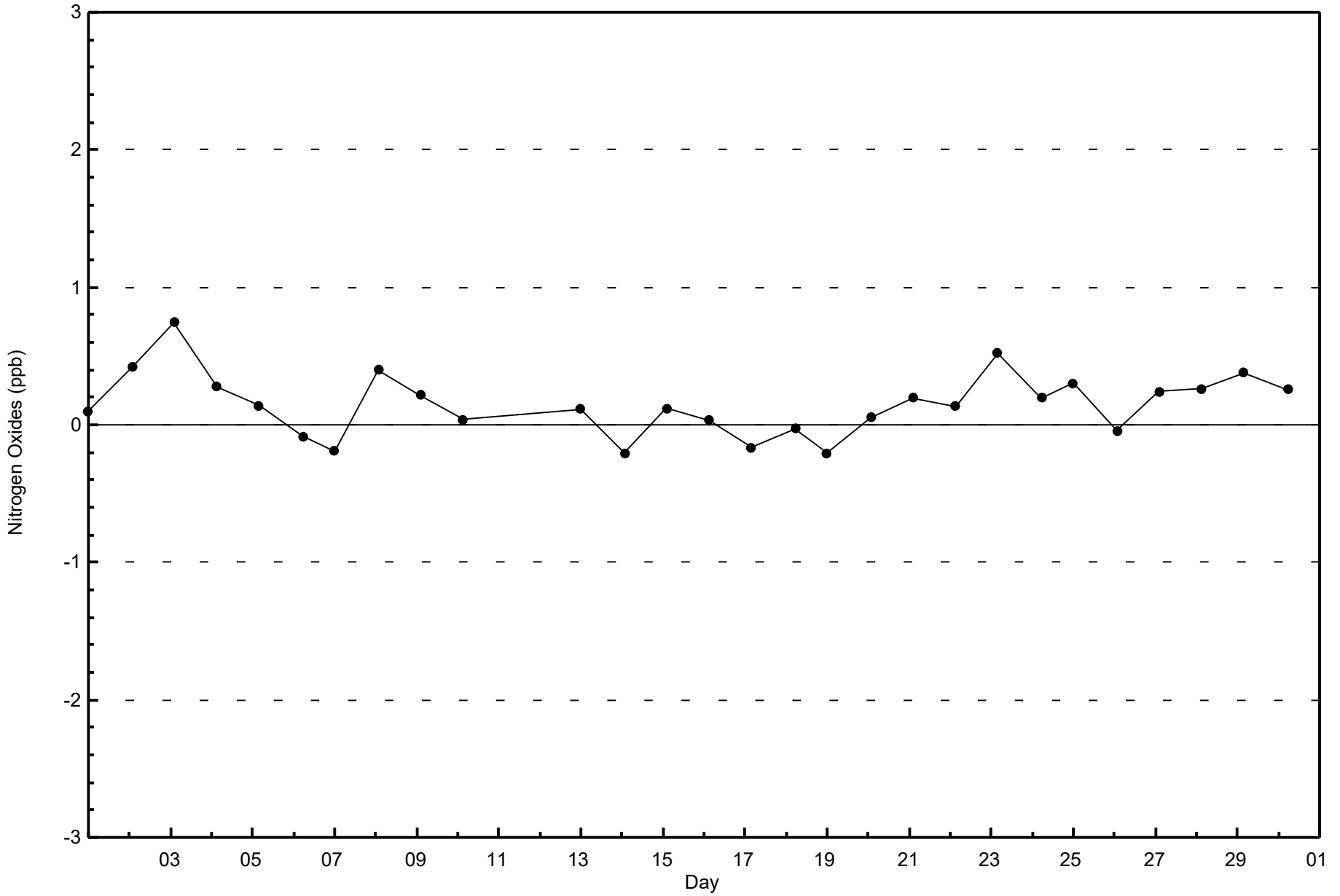
Total Number of Hours: 720

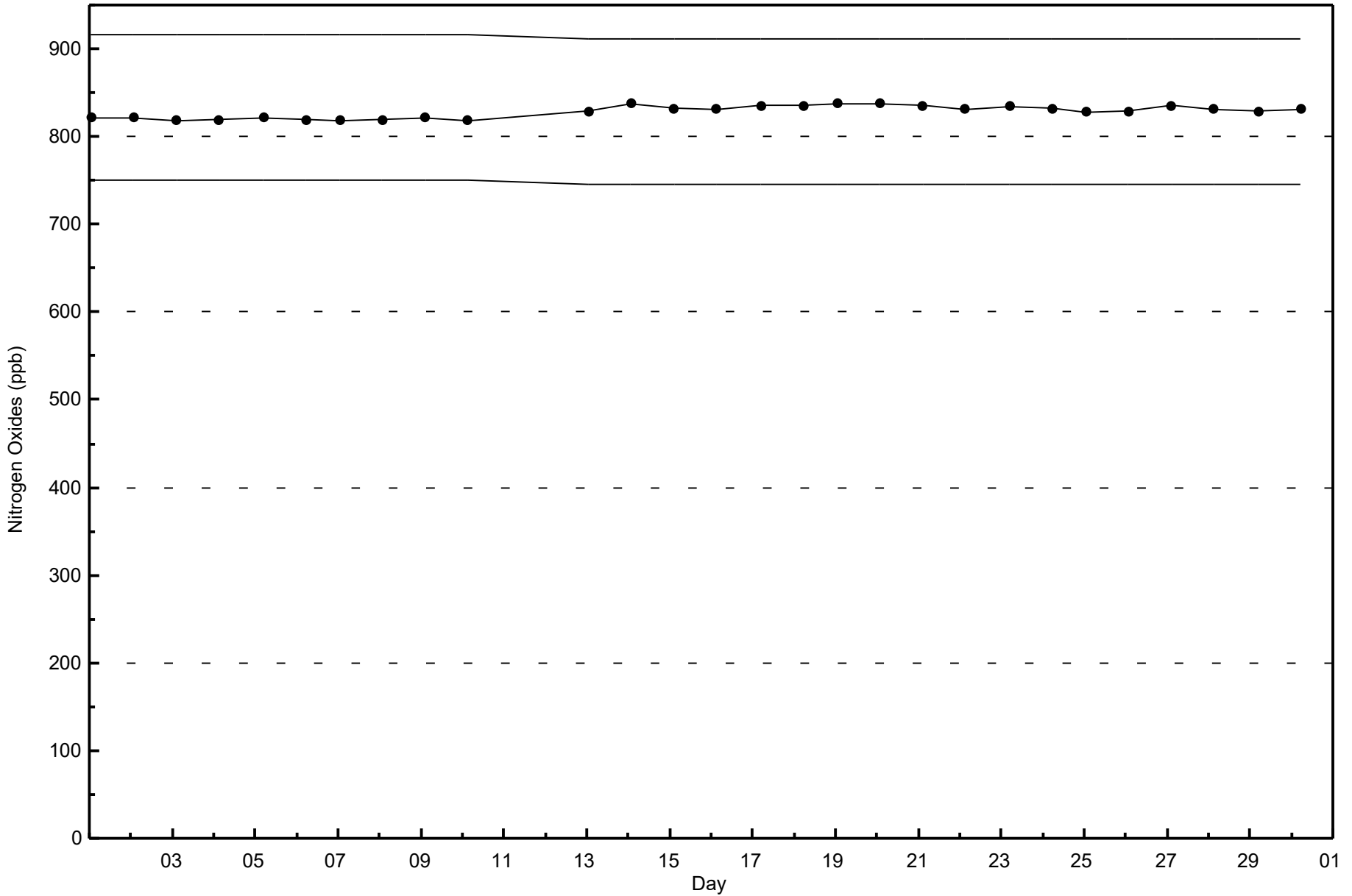


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Ammonia (NH<sub>3</sub>) - ppb

Patricia McInnes - April 2024

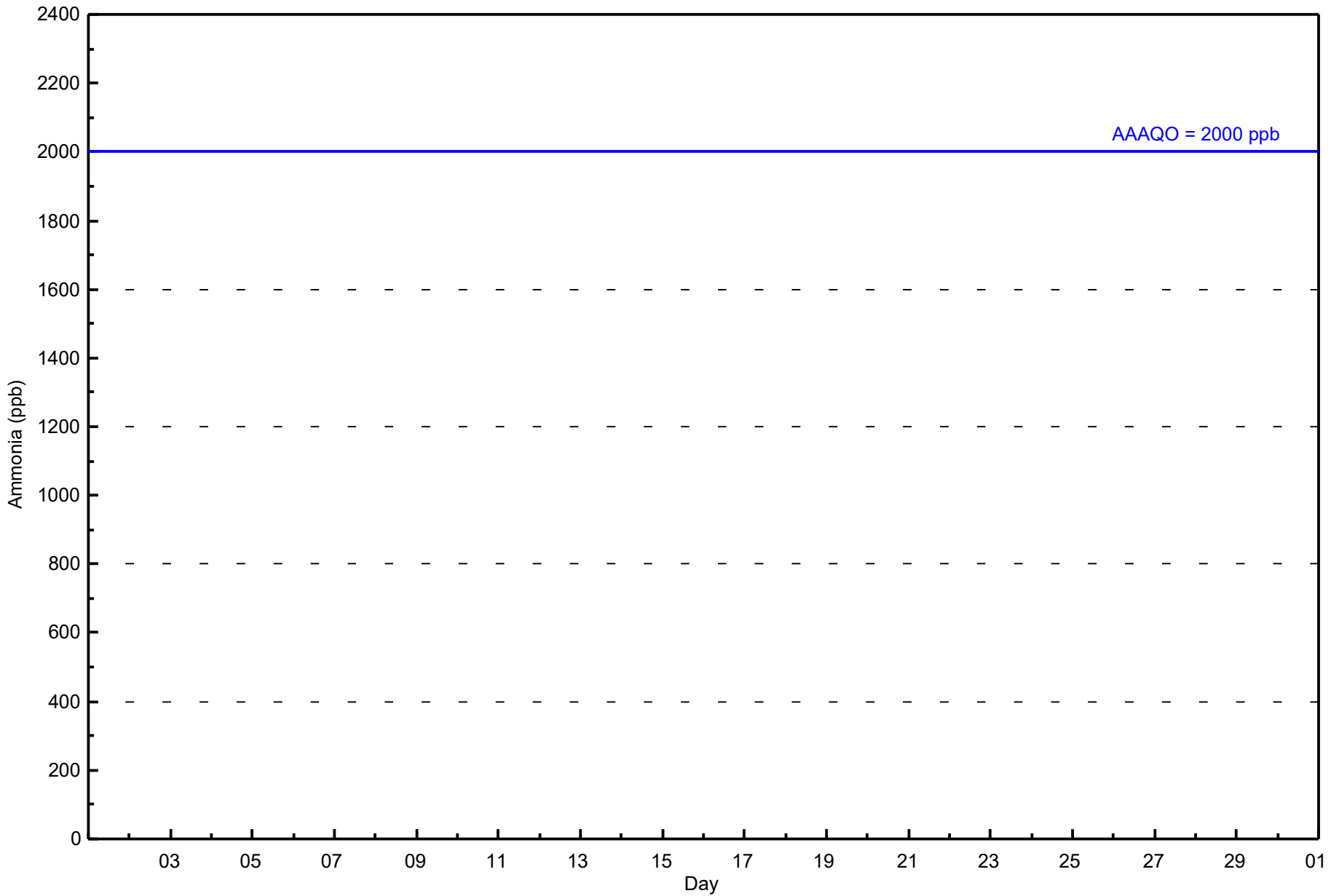
Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 720																										
Maximum Value: 0.0 ppb on Apr 1 01:00		Maximum Daily Average: 0.0 ppb on Apr 1																										
Minimum Value: 0.0 ppb on Apr 1 01:00		Hours of Data: 650																										
Maximum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 70																										
Monthly Average: 0.00 ppb		Hours of Calibration: 39																										
Minimum Daily Average: 0.0 ppb on Apr 1		Percent Operational Time: 95.7																										
Minimum Diurnal Average: 0.0 ppb at hour 1		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> = 0.0																										
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-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	C	C	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
12-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Apr	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Apr	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Apr	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Apr	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Apr	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Apr	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerospan      C - Calibration      M - Maintenance      RE - Recovery																												
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 2000 ppb																												





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ammonia (NH<sub>3</sub>) - ppb**  
**Patricia McInnes - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ammonia (NH<sub>3</sub>) - ppb**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	650	100.00	100.00
6 - 10	0	0.00	100.00
11 - 15	0	0.00	100.00
16 - 20	0	0.00	100.00
21 - 25	0	0.00	100.00
> 26	0	0.00	100.00

Total Number of Valid Hours: 650  
Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ammonia (NH<sub>3</sub>) - ppb  
Patricia McInnes - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	107	52	19	19	14	72	40	16	31	20	42	42	48	34	40	54	650
6 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	107	52	19	19	14	72	40	16	31	20	42	42	48	34	40	54	650

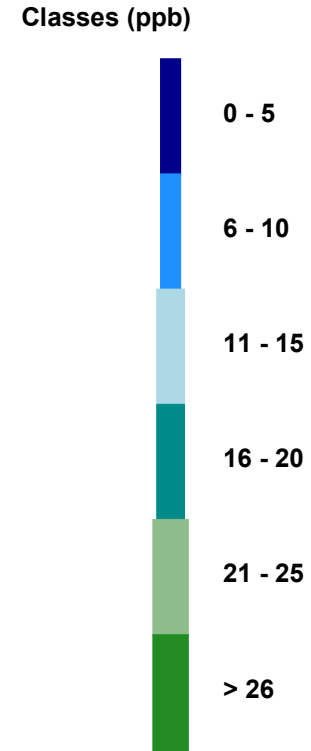
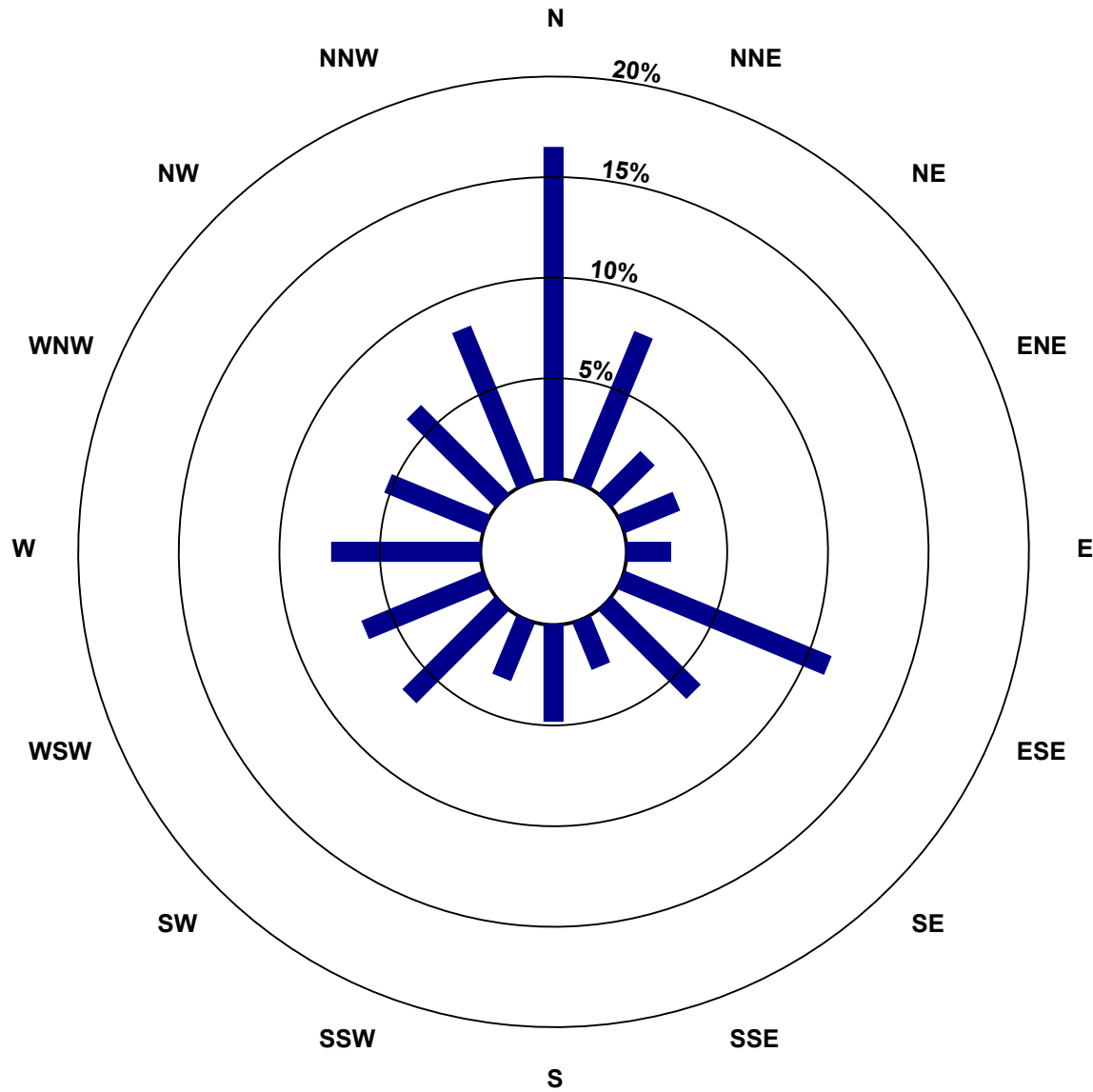
Total Number of Valid Hours: 650

Total Number of Hours: 720

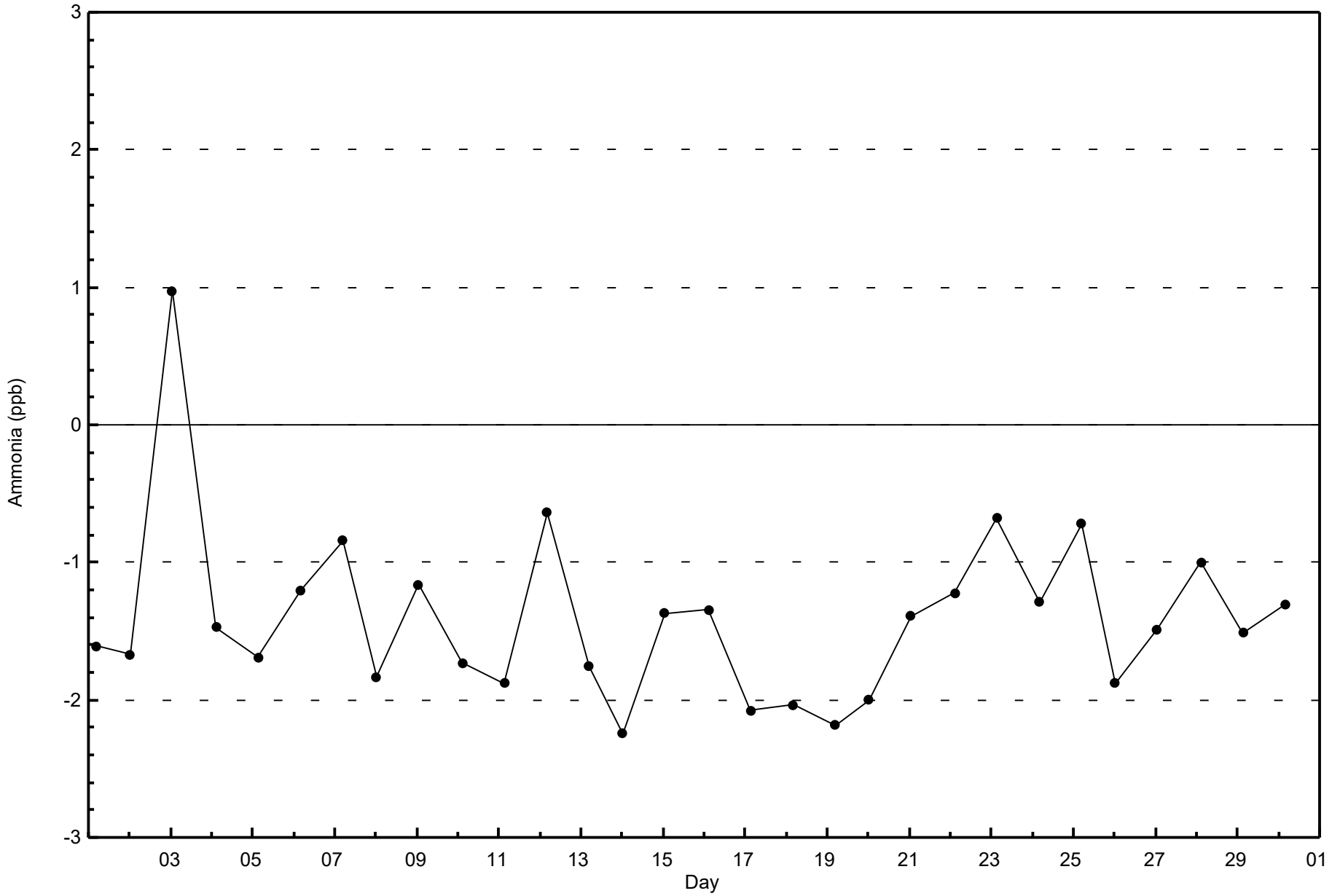


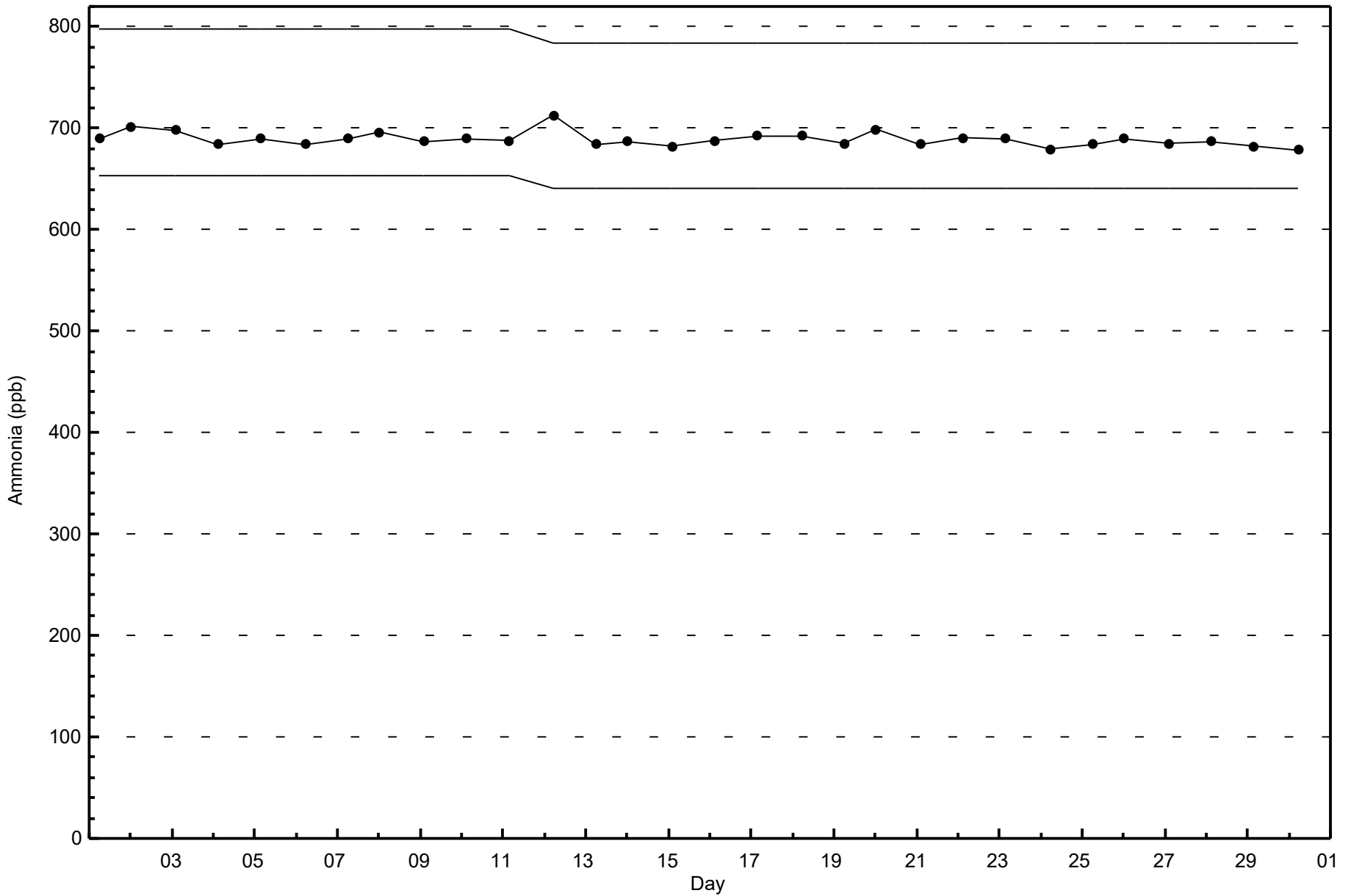
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Ammonia (NH<sub>3</sub>) - ppb  
Patricia McInnes



Total Number of Valid Hours: 650



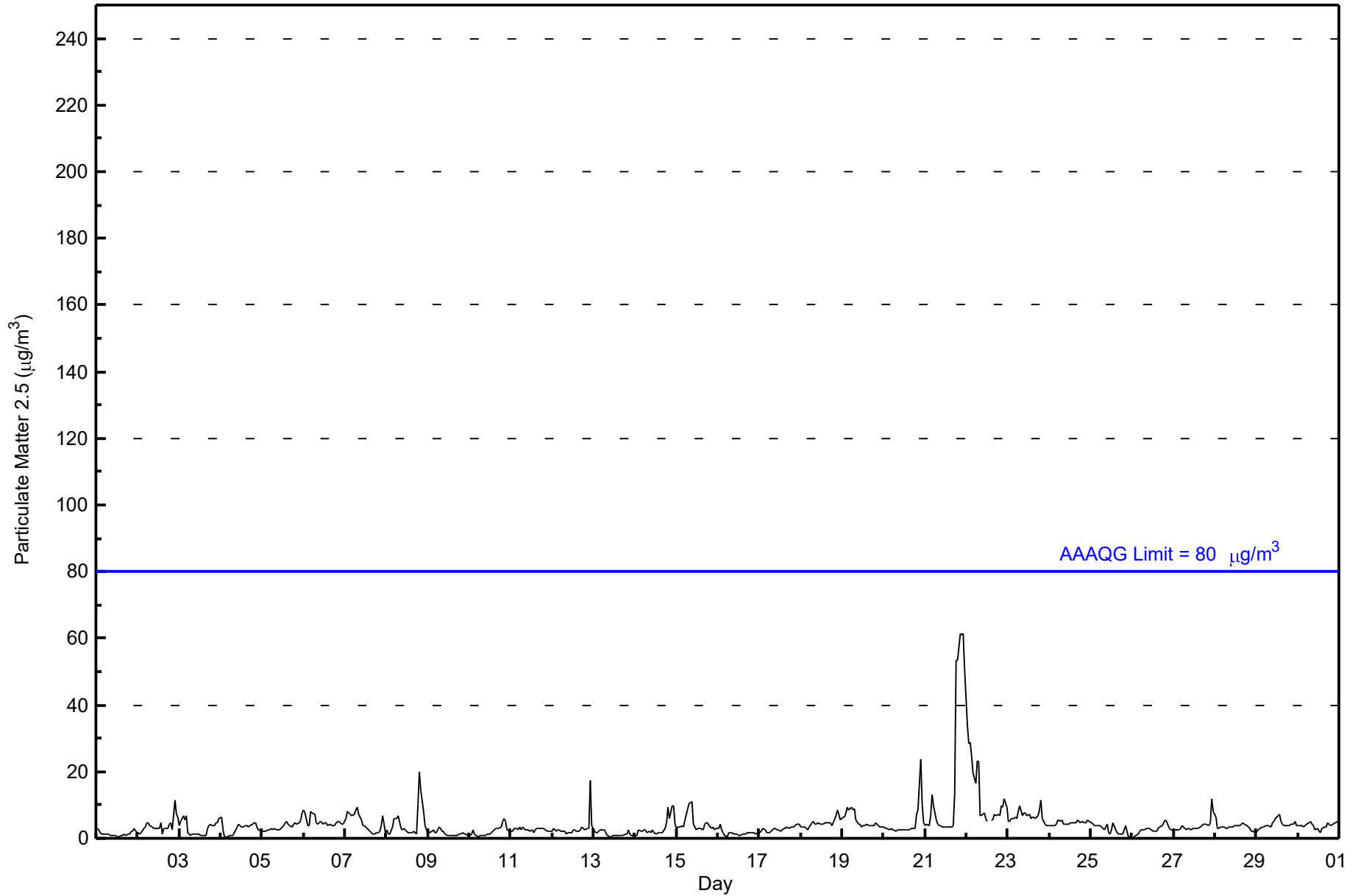




Summary of Hour Averages

Patricia McInnes - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720																Daily Average		Daily Maximum																									
Maximum Value: 61.4 µg/m <sup>3</sup> on Apr 21 23:00		Maximum Daily Average: 18.2 µg/m <sup>3</sup> on Apr 21		Hours of Data: 719																3.8		11.5																											
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 26 01:00		Minimum Daily Average: 1.3 µg/m <sup>3</sup> on Apr 1		Hours of Missing Data: 1																3.1		6.8																											
Maximum Diurnal Average: 7.0 µg/m <sup>3</sup> at hour 22		Minimum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 12		Hours of Calibration: 1																2.9		6.4																											
Monthly Average: 4.32 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 2.2 Median = 3.2 Q <sub>3</sub> = 4.5 P <sub>90</sub> = 7.0 P <sub>99</sub> = 28.8		Percent Operational Time: 100.0																3.6		7.8																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	2.9	2.4	1.5	1.2	1.2	1.1	1.1	1.1	1.0	0.9	0.9	0.7	0.5	0.6	0.7	0.8	1.1	1.1	1.2	1.3	2.1	2.1	3.1	1.9	1.3	3.1																							
2-Apr	1.6	1.3	1.7	3.1	3.5	4.7	4.6	4.0	3.4	2.9	3.2	3.1	3.1	4.7	1.4	2.8	3.0	3.1	4.3	4.7	2.5	11.5	7.3	6.6	3.8	11.5																							
3-Apr	3.9	5.1	6.8	5.6	6.7	1.7	1.0	1.1	1.1	1.2	1.4	1.2	1.0	0.9	0.9	1.0	3.0	4.0	4.1	4.0	4.0	4.7	4.6	6.1	3.1	6.8																							
4-Apr	6.4	2.3	0.3	0.3	0.5	0.9	0.9	0.8	1.7	3.6	4.3	3.8	3.4	3.3	3.7	4.0	3.5	3.8	4.1	4.6	4.7	3.4	2.5	2.2	2.9	6.4																							
5-Apr	2.2	2.1	2.3	2.5	2.6	2.8	2.7	3.1	2.7	2.5	2.6	2.9	4.0	4.7	5.0	4.3	3.7	3.3	4.3	4.8	4.3	4.7	5.5	7.8	3.6	7.8																							
6-Apr	8.7	7.8	3.8	3.9	7.9	7.8	7.0	4.8	4.1	4.7	5.1	4.3	4.8	4.7	4.0	4.2	3.9	3.7	3.7	4.6	5.1	4.7	4.2	4.4	5.1	8.7																							
7-Apr	6.0	8.0	7.8	7.4	6.6	7.3	8.3	9.4	7.0	5.3	4.0	3.7	3.6	2.8	2.1	1.6	1.3	1.4	1.5	1.8	2.3	3.9	6.9	1.6	4.6	9.4																							
8-Apr	2.5	1.3	1.4	3.3	5.8	5.9	5.8	6.6	3.1	2.5	2.9	2.4	1.6	1.7	1.7	1.6	2.3	1.4	10.2	20.0	14.3	8.2	4.0	2.7	4.7	20.0																							
9-Apr	1.7	1.8	1.9	2.3	1.8	1.7	3.2	3.1	2.0	2.3	1.2	0.8	0.9	0.9	0.7	0.9	0.7	0.9	1.2	1.2	1.8	1.2	1.3	0.9	1.5	3.2																							
10-Apr	0.8	1.2	2.6	1.2	0.7	0.6	0.8	1.0	1.1	1.0	1.1	1.1	1.4	1.5	2.4	2.8	2.8	3.0	3.4	5.0	6.1	5.2	2.6	2.1	2.2	6.1																							
11-Apr	2.3	2.3	2.9	3.0	2.7	3.6	2.6	3.2	2.7	2.6	2.5	2.2	2.3	1.6	2.4	2.8	3.0	2.9	3.0	2.9	2.6	2.2	2.2	2.2	2.6	3.6																							
12-Apr	2.3	2.8	2.2	2.4	2.6	2.3	2.1	1.9	1.4	1.7	1.8	1.9	2.5	2.5	2.1	2.0	2.6	3.4	2.9	2.6	2.8	2.9	17.3	3.9	3.0	17.3																							
13-Apr	2.2	1.9	1.9	2.0	2.5	2.5	2.4	1.9	0.8	0.6	0.6	0.8	1.1	0.9	0.9	1.0	1.0	1.0	1.2	1.3	2.7	1.3	0.9	0.9	1.4	2.7																							
14-Apr	0.9	1.0	2.7	2.1	2.0	2.6	2.6	1.8	2.0	1.5	2.6	1.6	1.5	1.5	1.6	1.5	1.9	2.9	4.5	9.3	5.9	9.9	9.6	4.1	3.2	9.9																							
15-Apr	3.1	3.2	3.3	3.6	3.5	5.7	8.8	10.8	10.7	10.9	4.3	2.6	2.9	3.0	2.9	2.7	4.4	4.5	4.5	4.0	3.2	3.2	2.7	3.0	4.6	10.9																							
16-Apr	2.8	4.1	2.6	1.5	1.0	0.6	1.5	1.5	1.8	1.4	1.1	1.1	0.9	1.0	1.2	1.4	1.4	1.7	1.5	1.5	1.6	1.5	1.3	1.6	1.6	4.1																							
17-Apr	1.9	2.2	2.9	2.6	1.8	1.6	1.8	2.0	3.0	2.9	2.4	2.4	2.0	2.6	2.8	2.8	3.3	2.8	3.4	3.6	3.6	4.1	4.2	4.1	2.8	4.2																							
18-Apr	3.5	3.3	3.4	3.0	2.6	3.4	4.8	5.1	4.1	4.3	4.6	4.1	4.3	4.4	4.4	4.5	4.8	4.5	3.9	4.5	6.9	8.4	7.2	5.4	4.6	8.4																							
19-Apr	6.4	6.4	7.4	9.5	8.6	9.5	8.5	9.0	5.3	4.1	4.2	3.6	3.8	3.9	4.0	4.0	3.6	3.6	3.7	4.6	4.1	4.0	3.5	3.3	5.4	9.5																							
20-Apr	3.3	3.1	2.8	2.6	2.8	2.7	2.5	2.3	2.4	2.6	2.7	2.6	2.4	2.4	2.6	2.6	2.8	3.1	3.0	7.1	8.6	23.9	10.0	4.5	4.4	23.9																							
21-Apr	3.7	4.1	3.7	7.0	13.1	9.7	5.5	4.4	4.0	3.9	3.5	3.3	3.2	3.3	3.3	3.2	3.7	13.6	53.5	53.3	61.3	60.8	61.4	50.9	18.2	61.4																							
22-Apr	33.8	28.3	28.9	24.6	19.7	16.6	23.3	22.7	6.9	7.1	7.6	5.8	5.2	C	5.6	5.7	7.2	7.0	7.1	6.7	9.8	9.5	12.0	9.2	13.5	33.8																							
23-Apr	4.9	5.0	5.9	6.1	6.2	6.0	8.0	9.7	6.6	7.6	7.8	6.7	7.0	5.9	6.3	6.4	5.8	6.6	8.6	11.4	5.9	4.4	3.8	3.8	6.5	11.4																							
24-Apr	3.6	3.6	3.7	3.9	4.3	5.5	5.1	5.7	4.4	4.3	4.4	4.3	4.7	4.5	4.6	4.8	5.5	4.9	4.8	5.0	4.7	4.9	5.4	5.2	4.7	5.7																							
25-Apr	4.5	4.2	3.8	3.7	3.7	3.6	3.2	3.1	2.4	4.1	1.8	1.2	2.6	4.7	2.4	1.5	1.4	1.1	1.4	2.6	3.6	1.9	0.4	0.4	2.6	4.7																							
26-Apr	0.2	0.3	0.7	1.1	2.2	2.6	2.7	2.6	2.9	2.8	3.0	2.5	2.2	2.2	2.3	2.9	3.4	3.8	4.7	5.7	5.0	3.2	2.6	2.6	2.7	5.7																							
27-Apr	2.3	2.5	2.4	2.7	3.0	3.7	3.1	2.8	2.8	2.8	2.6	2.8	2.9	2.9	3.1	3.4	3.9	4.1	4.4	4.1	3.6	4.5	12.1	8.2	3.8	12.1																							
28-Apr	6.3	3.1	3.1	3.3	3.4	3.5	3.1	3.1	3.3	3.4	3.5	3.7	4.0	4.0	3.9	4.0	4.6	4.2	3.9	3.4	3.0	2.3	2.1	1.9	3.5	6.3																							
29-Apr	2.2	2.6	2.9	3.3	3.6	3.8	3.7	3.7	3.6	4.6	5.1	5.9	6.6	7.4	5.2	4.3	4.0	3.9	4.0	3.9	4.2	4.2	5.0	3.8	4.2	7.4																							
30-Apr	3.6	4.0	3.9	3.5	3.8	4.1	4.7	5.2	4.3	3.7	2.4	3.1	2.3	1.6	2.8	3.5	3.5	4.5	4.0	3.7	4.4	4.6	4.7	4.9	3.8	5.2																							
																								4.3	4.0	4.0	4.1	4.3	4.3	4.5	4.6	3.4	3.5	3.2	2.9	3.0	2.9	3.0	3.2	3.7	5.5	6.4	6.5	7.0	7.0	5.3	Diurnal Average		
																								33.8	28.3	28.9	24.6	19.7	16.6	23.3	22.7	10.7	10.9	7.8	6.7	7.0	7.4	6.3	6.4	7.2	13.6	53.5	53.3	61.3	60.8	61.4	50.9	Diurnal Maximum	
C - Calibration																																																	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																	







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Patricia McInnes - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	601	83.59	83.59
6 - 15	101	14.05	97.64
16 - 25	8	1.11	98.75
26 - 80	9	1.25	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Patricia McInnes - April 2024**

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	
0 - 5	100	35	11	15	16	72	45	16	24	17	39	49	49	34	36	43	601
6 - 15	15	14	7	6	2	6	3	2	10	7	4	3	2	3	6	11	101
16 - 25	1	0	0	0	1	0	2	0	0	0	2	1	1	0	0	0	8
26 - 80	0	2	1	0	0	0	0	0	0	0	1	0	1	1	1	2	9
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	116	51	19	21	19	78	50	18	34	24	46	53	53	38	43	56	719

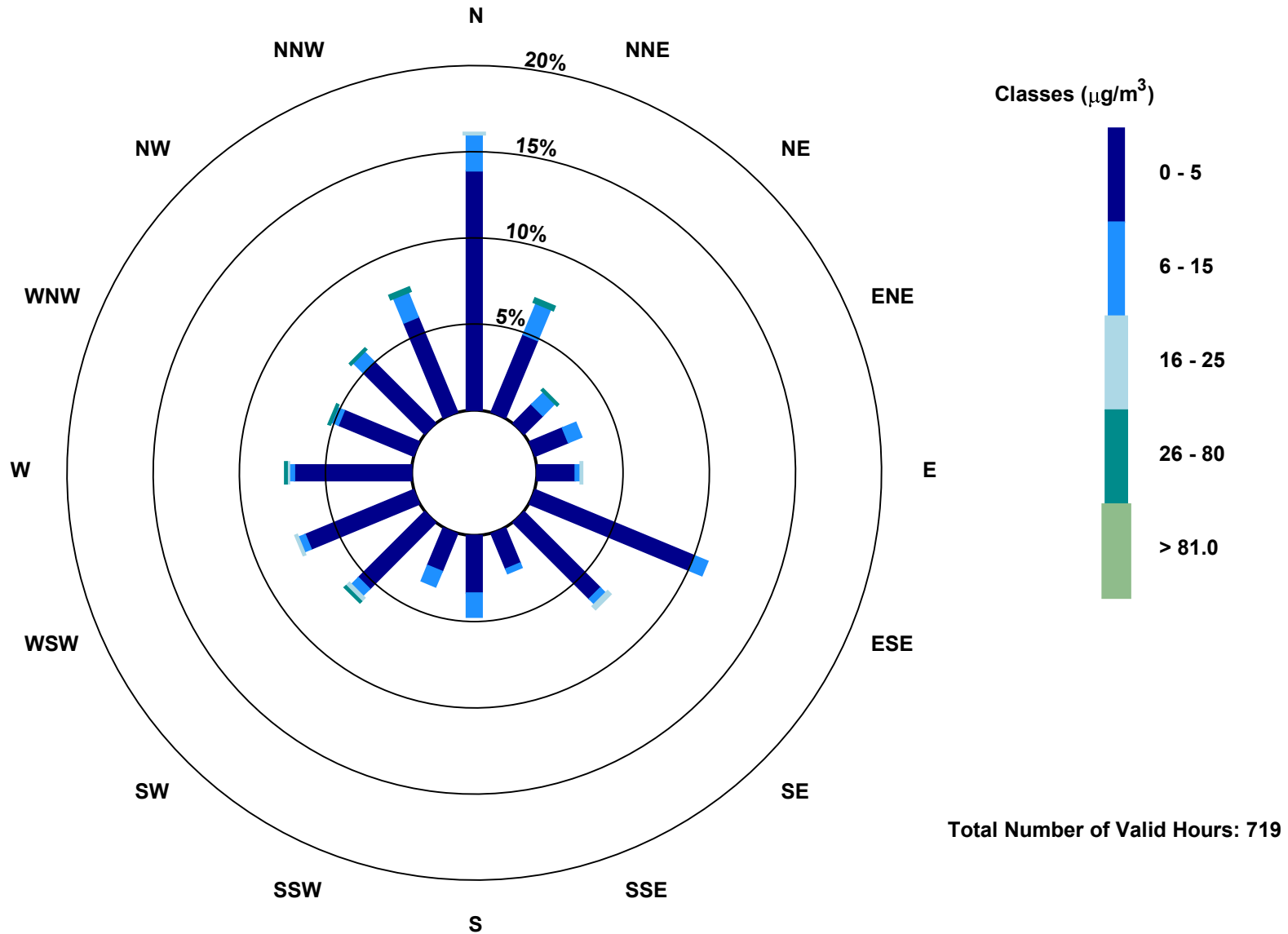
Total Number of Valid Hours: 719

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Patricia McInnes





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

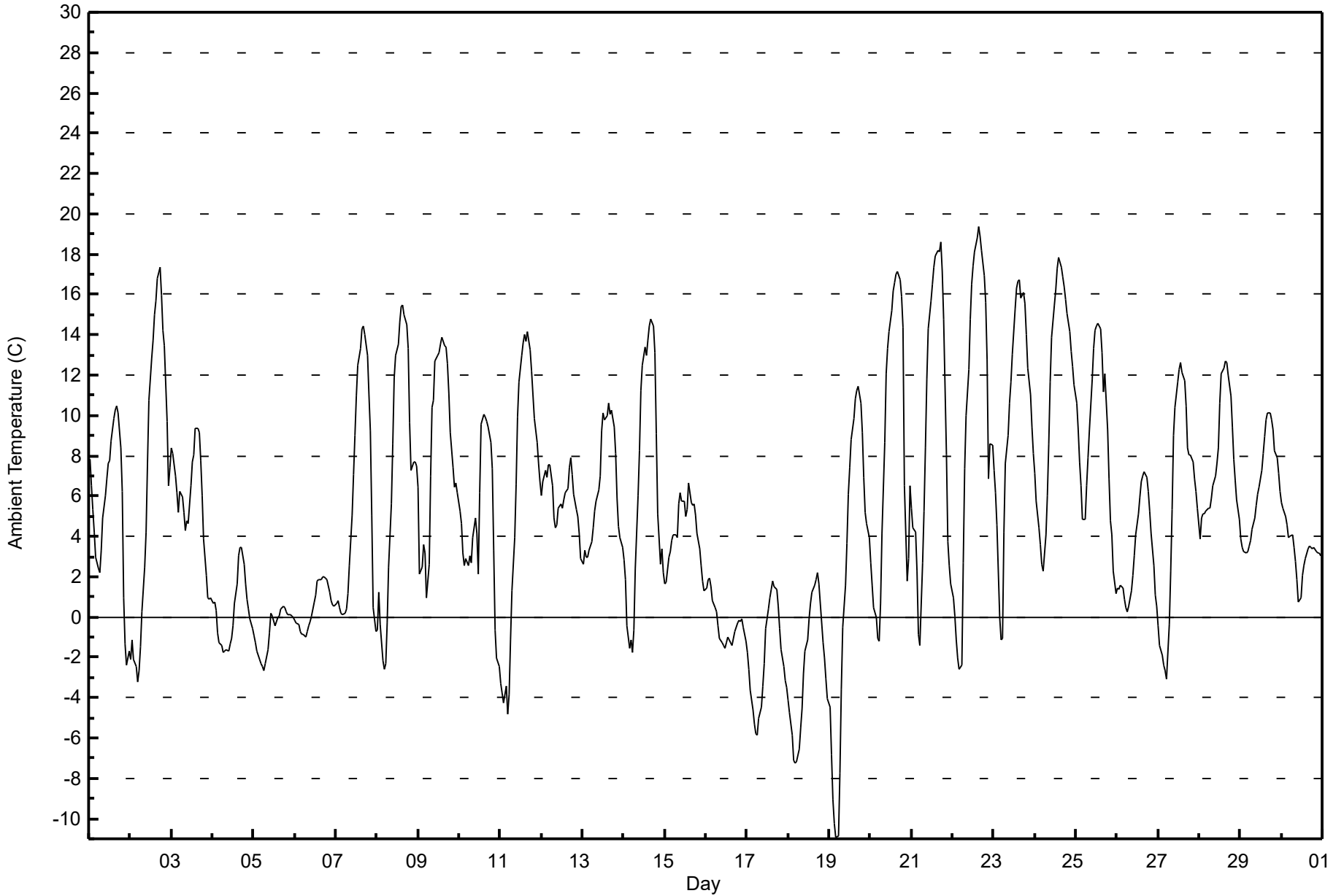
**Ambient Temperature (AT) - C**  
**Patricia McInnes - April 2024**

Maximum Value: 19.3 C on Apr 22 16:00		Maximum Daily Average: 11.2 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -11.0 C on Apr 19 05:00		Minimum Daily Average: -2.5 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 10.1 C at hour 16		Minimum Diurnal Average: 0.0 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 5.18 C		Percentiles: P <sub>1</sub> = -7.0 P <sub>10</sub> = -1.6 Q <sub>1</sub> = 0.6 Median = 4.6 Q <sub>3</sub> = 9.2 P <sub>90</sub> = 13.8 P <sub>99</sub> = 18.0		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-Apr	7.8	6.5	5.4	4.2	3.0	2.4	2.2	3.3	4.9	6.0	6.9	7.6	7.7	8.7	9.9	10.3	10.5	10.2	8.4	6.2	0.9	-1.4	-2.4	-1.7	5.3	10.5																						
2-Apr	-2.1	-1.1	-2.1	-2.5	-3.2	-2.7	-1.5	0.3	2.4	4.2	7.6	10.7	12.8	13.8	15.0	15.7	16.8	17.4	15.9	14.2	13.4	9.7	6.5	7.4	7.0	17.4																						
3-Apr	8.4	8.1	7.0	6.2	5.2	6.3	5.9	5.2	4.3	4.8	4.6	6.5	7.7	8.1	9.4	9.3	9.2	7.7	6.0	3.9	2.1	1.0	0.9	1.0	5.8	9.4																						
4-Apr	0.7	0.7	0.3	-0.8	-1.2	-1.4	-1.8	-1.7	-1.6	-1.7	-1.3	-1.1	-0.4	0.7	1.6	3.1	3.5	3.4	2.6	1.6	0.9	0.4	-0.1	-0.5	0.2	3.5																						
5-Apr	-0.9	-1.2	-1.7	-2.1	-2.3	-2.4	-2.6	-2.3	-1.6	-0.8	0.2	0.0	-0.5	-0.2	0.0	0.0	0.4	0.6	0.5	0.2	0.1	0.1	0.0	-0.1	-0.7	0.6																						
6-Apr	-0.2	-0.3	-0.4	-0.7	-0.9	-0.9	-1.0	-0.7	-0.4	-0.2	0.0	0.8	1.1	1.8	1.8	1.8	2.0	2.0	1.9	1.8	1.2	0.8	0.6	0.5	0.5	2.0																						
7-Apr	0.7	0.8	0.5	0.2	0.1	0.2	0.4	1.2	2.6	5.0	7.0	9.0	10.9	12.5	13.3	14.3	14.5	14.0	12.9	11.0	9.2	5.1	0.5	-0.7	6.1	14.5																						
8-Apr	-0.6	1.3	-0.4	-2.2	-2.6	-2.3	-0.3	2.5	5.6	8.6	11.9	13.0	13.6	14.6	15.4	15.5	15.0	14.5	13.3	9.6	7.3	7.7	7.7	7.5	7.3	15.5																						
9-Apr	6.4	2.1	2.5	3.6	3.2	1.0	2.6	7.0	10.4	10.8	12.7	13.0	13.1	13.5	13.9	13.5	13.4	12.6	11.1	9.2	7.4	6.4	6.6	6.1	8.4	13.9																						
10-Apr	5.3	4.6	3.2	2.6	2.9	2.5	3.1	2.7	3.9	4.9	4.1	2.1	6.1	9.6	10.1	9.9	9.7	9.4	8.7	7.3	3.3	-0.7	-2.0	-2.5	4.6	10.1																						
11-Apr	-3.3	-3.8	-4.3	-3.4	-4.8	-3.8	-1.2	1.3	3.9	6.6	9.9	11.6	13.0	13.6	14.0	13.7	14.1	13.2	12.2	11.0	9.8	8.7	7.6	6.7	6.1	14.1																						
12-Apr	6.0	6.7	7.3	6.9	7.6	7.5	6.5	4.9	4.4	4.6	5.4	5.6	5.4	5.8	6.2	6.4	7.4	7.9	7.1	6.1	5.3	5.0	4.2	2.9	6.0	7.9																						
13-Apr	2.6	3.3	2.9	2.9	3.3	3.7	4.4	5.2	5.7	6.3	7.0	9.2	10.1	9.8	10.0	10.6	10.1	10.3	9.4	8.1	5.9	4.5	3.9	3.5	6.4	10.6																						
14-Apr	2.8	1.9	-0.5	-1.5	-1.2	-1.8	-0.7	2.4	6.0	8.3	11.2	12.5	13.4	13.0	13.7	14.5	14.8	14.4	13.1	9.1	5.1	2.6	3.4	2.2	6.6	14.8																						
15-Apr	1.7	1.7	3.0	3.3	3.8	4.1	4.1	3.9	5.6	6.1	5.7	5.8	5.0	5.3	6.6	5.6	5.5	5.6	5.1	4.1	3.4	2.5	1.8	1.3	4.2	6.6																						
16-Apr	1.4	1.9	1.9	1.5	0.8	0.5	0.2	-0.4	-1.1	-1.3	-1.4	-1.6	-1.3	-1.0	-1.3	-1.4	-1.0	-0.7	-0.3	-0.2	-0.2	-0.1	-0.5	-1.2	-0.3	1.9																						
17-Apr	-1.8	-2.6	-3.6	-4.6	-5.3	-5.8	-5.8	-5.0	-4.5	-3.4	-2.3	-0.6	0.4	0.9	1.3	1.8	1.5	1.4	0.5	-0.6	-1.6	-2.4	-3.2	-3.5	-2.0	1.8																						
18-Apr	-4.1	-4.7	-5.9	-7.1	-7.3	-7.2	-6.5	-5.5	-4.5	-2.8	-1.7	-1.1	-0.1	0.6	1.2	1.6	1.9	2.2	1.7	0.6	-1.2	-2.0	-3.1	-4.0	-2.5	2.2																						
19-Apr	-4.5	-6.8	-9.1	-10.2	-11.0	-10.8	-7.7	-3.5	-0.5	1.5	3.7	6.1	7.4	8.8	9.8	10.8	11.2	11.4	10.6	9.2	6.9	5.2	4.6	4.0	2.0	11.4																						
20-Apr	2.7	1.6	0.5	0.0	-1.0	-1.2	0.6	4.1	8.7	12.0	13.3	14.1	15.2	16.2	16.6	17.0	17.1	16.7	15.9	14.3	6.5	1.8	2.9	6.5	8.4	17.1																						
21-Apr	5.4	4.4	4.2	2.3	-0.8	-1.4	2.7	5.2	8.4	11.8	14.3	15.7	16.5	17.4	17.9	18.2	18.1	18.6	17.1	14.8	8.0	3.7	2.6	1.6	9.4	18.6																						
22-Apr	0.9	0.0	-1.1	-2.0	-2.6	-2.4	2.7	7.3	10.0	12.3	14.8	16.5	17.4	18.1	18.8	19.3	18.9	18.2	16.9	15.6	12.7	6.8	8.6	8.5	9.9	19.3																						
23-Apr	7.3	6.2	4.6	-0.1	-1.1	-1.0	4.2	7.6	9.0	10.6	11.6	13.1	15.2	16.3	16.6	16.7	15.8	16.1	15.6	14.0	12.3	11.0	9.4	8.1	10.0	16.7																						
24-Apr	7.1	5.7	4.4	3.6	2.6	2.3	4.1	6.0	8.6	11.6	13.9	15.5	16.2	17.3	17.8	17.4	16.9	16.4	15.8	15.1	14.2	13.2	12.4	11.5	11.2	17.8																						
25-Apr	10.6	9.3	7.7	6.5	4.8	4.8	6.5	7.9	9.3	11.8	13.3	14.3	14.4	14.6	14.3	13.1	11.2	12.0	9.3	6.8	4.8	4.1	2.2	1.2	8.9	14.6																						
26-Apr	1.4	1.4	1.6	1.4	0.9	0.4	0.3	0.5	1.3	2.1	3.0	4.1	5.2	5.9	6.7	7.0	7.2	7.0	6.3	5.3	4.1	2.6	1.1	0.5	3.2	7.2																						
27-Apr	-0.5	-1.4	-1.9	-2.4	-2.6	-3.0	-0.4	2.3	5.4	9.0	10.4	11.6	12.3	12.6	12.2	11.8	10.5	8.4	8.0	8.1	7.7	6.9	6.2	5.4	5.7	12.6																						
28-Apr	3.9	4.9	5.1	5.1	5.3	5.4	5.4	5.9	6.5	7.0	7.6	8.4	10.6	12.1	12.4	12.7	12.6	12.0	11.0	9.4	7.8	6.8	5.8	4.9	7.9	12.7																						
29-Apr	3.8	3.5	3.2	3.2	3.2	3.5	3.8	4.4	4.9	5.5	6.1	6.4	7.3	8.1	8.9	9.8	10.1	10.1	9.8	9.3	8.3	7.9	7.2	6.3	6.4	10.1																						
30-Apr	5.7	5.4	5.0	4.6	3.9	4.0	4.1	3.5	2.8	1.9	0.8	1.0	2.1	2.6	2.9	3.4	3.5	3.5	3.4	3.5	3.2	3.2	3.2	3.0	3.3	5.7																						
																								2.5	2.0	1.3	0.6	0.1	0.0	1.1	2.5	4.0	5.4	6.7	7.7	8.6	9.4	9.9	10.1	10.1	9.9	9.0	7.6	5.6	4.0	3.3	2.9	Diurnal Average
																								10.6	9.3	7.7	6.9	7.6	7.5	6.5	7.9	10.4	12.3	14.8	16.5	17.4	18.1	18.8	19.3	18.9	18.6	17.1	15.6	14.2	13.2	12.4	11.5	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Patricia McInnes - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Patricia McInnes - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	147	20.42	20.42
0 - 10	416	57.78	78.19
10 - 20	157	21.81	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

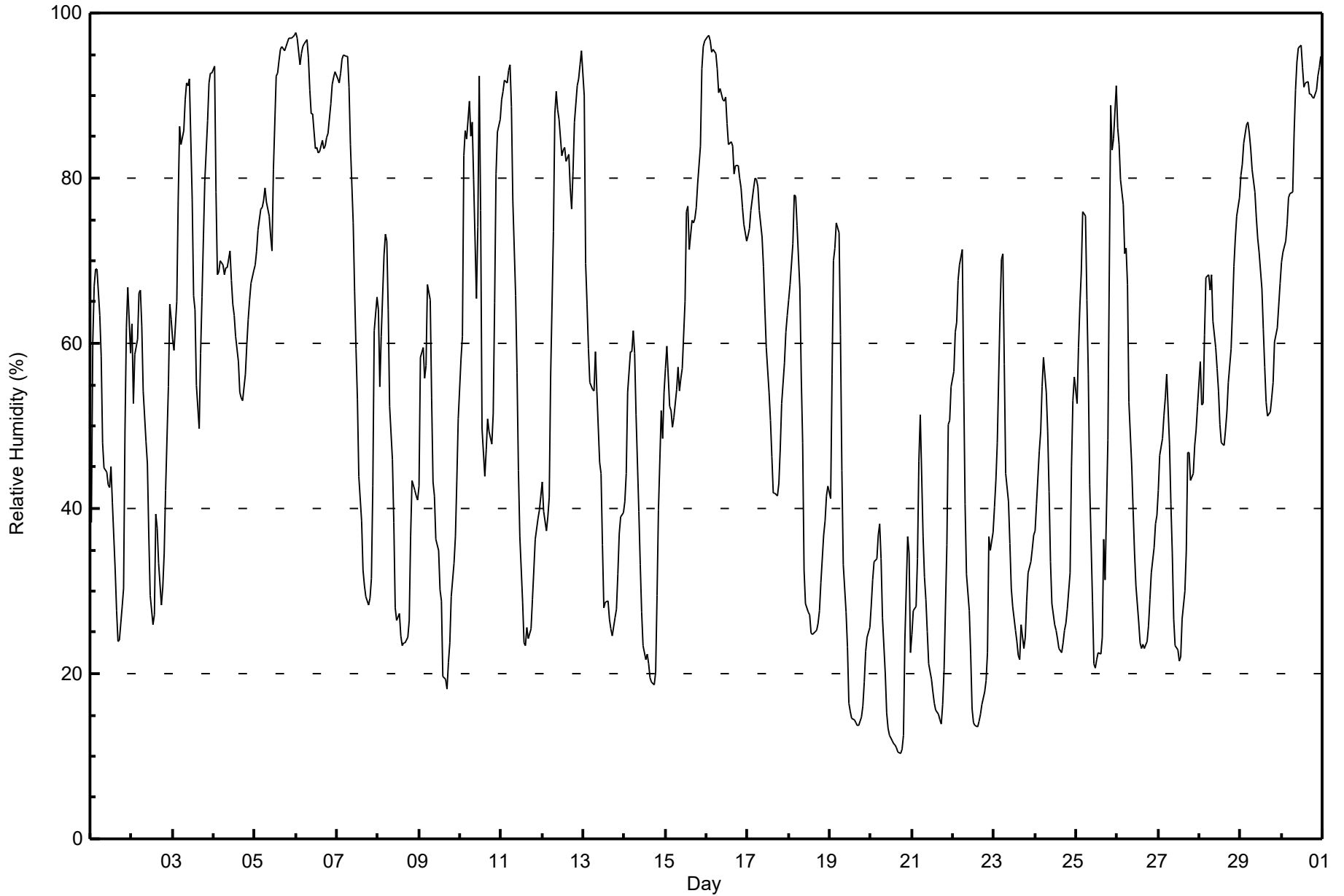
Total Number of Hours: 720



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

**Relative Humidity (RH) - %**  
**Patricia McInnes - April 2024**

Maximum Value: 97.6 % on Apr 6 01:00		Maximum Daily Average: 89.8 % on Apr 6		Hours in Service: 720																																												
Minimum Value: 10.3 % on Apr 20 18:00		Minimum Daily Average: 22.2 % on Apr 20		Hours of Data: 720																																												
Maximum Diurnal Average: 71.5 % at hour 6		Minimum Diurnal Average: 40.8 % at hour 16		Hours of Missing Data: 0																																												
Monthly Average: 54.97 %		Percentiles: P <sub>1</sub> = 12.5 P <sub>10</sub> = 23.4 Q <sub>1</sub> = 33.1 Median = 54.4 Q <sub>3</sub> = 76.0 P <sub>90</sub> = 90.5 P <sub>99</sub> = 96.9		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-Apr	38.4	60.2	67.0	68.9	69.0	63.4	58.6	48.0	44.9	44.5	42.8	42.5	45.0	40.6	32.5	27.7	24.0	24.0	28.2	30.3	49.5	61.9	66.8	58.9	47.4	69.0																						
2-Apr	62.4	52.6	58.7	60.6	66.1	66.4	62.0	54.2	48.2	45.4	36.7	29.5	25.9	27.2	39.3	37.6	33.4	28.3	30.5	34.6	42.3	54.7	64.8	62.8	46.8	66.4																						
3-Apr	60.6	59.2	65.1	77.4	86.3	84.0	85.7	89.6	91.5	91.3	92.1	77.4	65.7	64.1	54.8	49.6	58.8	65.5	72.7	79.6	86.9	91.6	92.8	92.8	76.5	92.8																						
4-Apr	93.6	78.3	68.4	68.6	70.0	69.6	68.3	69.1	71.2	67.6	64.8	63.4	60.9	57.9	54.0	53.4	53.0	56.3	59.9	62.9	65.2	67.3	68.9	68.9	65.9	93.6																						
5-Apr	69.4	71.1	73.7	76.2	76.4	77.3	78.9	77.2	75.4	73.1	71.3	81.1	92.4	92.7	94.2	95.5	95.9	95.5	95.9	96.5	96.9	97.0	97.1	97.3	85.3	97.3																						
6-Apr	97.6	97.0	93.8	95.2	95.9	96.3	96.7	94.6	90.8	87.7	87.8	83.6	83.7	83.0	83.3	84.6	83.6	83.8	84.9	85.4	89.0	91.3	92.1	92.8	89.8	97.6																						
7-Apr	92.1	91.5	92.8	94.3	95.0	94.8	94.7	91.0	84.1	74.7	66.4	59.3	53.2	43.9	38.5	32.6	30.6	29.3	28.2	29.1	31.5	42.6	61.5	65.6	63.2	95.0																						
8-Apr	64.0	54.8	60.8	70.7	73.2	72.4	64.0	52.3	45.9	38.2	27.9	26.5	27.3	24.6	23.4	23.8	23.8	24.4	26.4	36.6	43.5	42.1	41.6	41.0	42.9	73.2																						
9-Apr	42.7	58.3	59.5	55.7	57.2	67.2	65.3	53.4	43.2	41.5	36.3	35.0	30.1	28.8	19.6	19.3	18.1	21.4	23.7	29.2	33.4	36.6	43.3	50.8	40.4	67.2																						
10-Apr	58.2	60.9	82.7	85.7	84.8	89.3	85.0	86.7	79.9	65.5	74.0	92.3	76.1	49.7	43.8	47.2	50.9	49.3	47.8	51.5	64.9	80.6	85.5	87.1	70.0	92.3																						
11-Apr	89.5	90.4	91.9	91.6	93.1	93.8	88.7	77.3	65.8	56.4	44.6	36.7	28.7	23.7	23.4	25.6	24.3	25.5	29.1	32.6	36.2	38.8	39.9	41.6	53.7	93.8																						
12-Apr	43.2	39.6	37.3	39.0	41.4	55.9	73.6	87.8	90.5	88.3	87.2	82.8	83.4	83.7	82.0	82.9	78.9	76.3	80.9	86.8	91.2	92.1	93.7	95.4	74.7	95.4																						
13-Apr	89.9	69.7	64.7	59.3	55.3	54.5	54.2	59.0	54.3	45.7	44.3	35.6	28.0	28.6	28.8	26.7	25.5	24.6	26.7	27.8	32.0	37.0	38.9	39.4	43.8	89.9																						
14-Apr	40.8	44.2	54.0	58.9	59.1	61.5	58.8	51.3	39.7	33.3	27.5	23.4	21.6	22.4	21.2	19.5	18.9	18.6	20.2	29.4	39.9	51.9	48.5	54.1	38.3	61.5																						
15-Apr	56.9	59.6	52.4	51.9	49.9	51.0	54.4	57.2	54.3	55.8	57.0	65.2	76.0	76.6	71.3	74.9	74.6	75.0	76.5	79.3	83.9	93.3	95.9	96.7	68.3	96.7																						
16-Apr	97.1	97.4	96.5	95.3	95.6	95.1	93.2	90.4	90.9	89.5	89.3	89.8	86.7	84.1	84.4	83.9	80.5	81.6	81.5	79.9	78.9	76.4	74.4	72.3	86.9	97.4																						
17-Apr	73.1	73.9	76.2	78.8	80.0	79.9	79.0	76.0	72.9	69.2	64.3	59.4	54.1	50.7	46.2	41.9	41.9	41.6	43.0	47.2	52.8	57.7	61.3	63.4	61.8	80.0																						
18-Apr	65.3	67.2	72.0	77.9	77.9	74.2	66.6	55.9	47.9	32.5	28.5	27.4	27.1	24.9	24.8	25.0	25.2	26.0	27.6	31.0	36.8	38.5	41.5	42.7	44.3	77.9																						
19-Apr	41.2	56.3	69.9	71.6	74.6	73.4	61.1	44.6	33.3	27.5	23.3	16.4	15.3	14.6	14.4	14.0	13.8	13.8	14.8	16.0	18.9	22.8	24.4	25.6	33.4	74.6																						
20-Apr	28.2	31.4	33.6	33.9	36.8	38.2	33.9	26.8	20.1	15.3	13.4	12.6	11.9	11.5	11.3	11.1	10.4	10.3	10.9	12.5	24.0	36.6	34.6	22.5	22.2	38.2																						
21-Apr	24.7	27.7	28.1	33.9	45.8	51.3	36.6	31.7	29.0	25.0	21.1	19.4	17.8	16.4	15.5	15.1	14.4	13.9	16.3	20.5	35.7	50.1	50.7	54.7	29.0	54.7																						
22-Apr	56.7	61.4	62.6	67.7	69.6	71.4	55.2	40.5	32.1	27.7	22.4	15.8	14.2	13.7	13.6	14.2	15.1	16.2	17.8	19.2	22.5	36.6	35.0	37.2	34.9	71.4																						
23-Apr	40.2	43.3	48.0	63.8	70.1	70.8	57.5	44.3	40.8	35.8	30.4	28.2	25.3	23.8	22.3	21.7	25.9	23.1	24.5	28.8	32.3	33.6	35.1	36.8	37.8	70.8																						
24-Apr	37.3	40.6	46.9	49.4	54.8	58.4	54.1	49.3	42.0	33.5	28.5	26.0	25.3	24.2	23.0	22.6	23.8	25.3	26.1	27.8	32.1	45.1	53.0	55.9	37.7	58.4																						
25-Apr	52.7	59.5	64.6	68.7	75.9	75.4	65.3	56.3	42.9	28.8	21.1	20.7	21.8	22.6	22.3	24.4	36.4	31.4	48.3	68.6	88.8	83.3	84.7	91.2	52.3	91.2																						
26-Apr	86.2	84.0	79.9	76.8	70.9	71.5	67.1	52.9	45.3	39.9	34.8	30.7	26.3	23.0	23.0	23.6	23.0	23.9	25.8	29.0	32.2	35.3	38.2	39.2	45.1	86.2																						
27-Apr	42.2	46.4	48.5	51.1	53.3	56.3	47.8	40.6	34.5	26.5	23.4	23.0	21.5	22.0	26.7	30.1	34.9	46.8	46.7	43.4	44.3	47.7	49.4	52.3	40.0	56.3																						
28-Apr	57.8	52.5	52.8	61.0	67.9	68.4	66.4	68.3	62.8	59.5	56.9	54.3	50.2	48.0	47.7	49.5	51.8	55.3	59.3	64.1	69.4	72.7	75.4	77.7	60.4	77.7																						
29-Apr	80.4	81.7	84.3	86.5	86.7	85.5	83.6	81.0	78.2	75.3	72.7	71.1	66.7	61.6	57.1	53.0	51.2	51.6	53.4	55.3	60.2	61.8	64.5	67.2	69.6	86.7																						
30-Apr	69.9	71.1	72.4	74.4	77.6	78.1	78.2	85.4	90.8	94.0	95.8	96.1	93.4	91.0	91.5	91.6	90.2	90.2	89.9	89.7	90.6	92.3	93.4	94.7	86.8	96.1																						
																								61.7	62.7	65.3	68.2	70.3	71.5	67.8	63.1	58.0	53.1	49.6	47.5	45.3	42.8	41.3	40.8	41.1	41.5	43.8	47.4	53.4	58.9	61.5	62.6	Diurnal Average
																								97.6	97.4	96.5	95.3	95.9	96.3	96.7	94.6	91.5	94.0	95.8	96.1	93.4	92.7	94.2	95.5	95.9	95.5	95.9	96.5	96.9	97.0	97.1	97.3	Diurnal Maximum







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

**Wind Speed (WS) - km/h**  
**Patricia McInnes - April 2024**

Maximum Speed: 36 km/h on Apr 13 13:00	Maximum Daily Speed Average: 25.2 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 22 04:00	Minimum Daily Speed Average: 4.5 km/h on Apr 21	Hours of Data: 720
Maximum Diurnal Speed Average: 5.5 km/h at hour 17	Minimum Diurnal Speed Average: 2.0 km/h at hour 4	Hours of Missing Data: 0
Monthly Average Velocity: 3.3 km/h 339.2 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 17 P <sub>90</sub> = 23 P <sub>99</sub> = 31	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-Apr	SW20WNNW20WNNW14WSW11WSW13WSW16WSW18WNNW25WNNW32	NW32	NW29	NW25WNNW23WNNW18WNNW21	NW20	NW22	NW18	NNW13	NW8	WNNW5	W6	SW4	SW6	WNNW15.7	NW32											
2-Apr	SSW5	SW8	S8	S8	SSE6	S4	SSE6	SE10	SE8	SE7	ESE10	ESE14	ESE13	ESE8	SW13	S9	SSE11	SSE11	SE11	S8	SW10	SSW4	S4	S8	SSW7.2	ESE14
3-Apr	SSE8	SE6	SE1	ENE5	N2	NW18	NW18	NW20	NW14	WNNW8	SW13	W13	W16	W14WNNW18WNNW13	N14	NNE15	NNE12	N6	NNW5	NNW6	NW6	NW4	NW7.1	NW20		
4-Apr	W4	W13WNNW18	W15	W14	NW14	NW15	NW13	NNW12	N11	N12	NNE8	NNE10	NNE12	NE10	NE6	N5	NE6	ESE9	E8	ESE8	E10	ENE12	E12	N4.9	WNNW18	
5-Apr	E11	E10	E10	E10	E8	NE7	NE9	ENE10	NE9	NE9	NNE9	NNE10	N12	N12	N10	NNW8	NNW10	N10	NNW10	NNW10	NNW8	NW8	NW10	NNE7.1	N12	
6-Apr	NNW10	NW10	NW9	NNW10	N8	N7	NNW9	NNW10	NNE9	N10	N11	N8	NNE10	N10	NW6	NNW10	NNW10	NW7	NW5	N5	WNNW5	WNNW5	WNNW5	NW3	NNW7.4	N11
7-Apr	NNE2	ENE3	S3	SW4	WSW6	S4	SE5	S7	SSW10	SW14	SW14	SSW14	SW15WSW14WSW15	SW18	SW19WSW17WSW13WSW10	WSW9	WSW5	WS5	WS6	WSW6.8	SSW16					
8-Apr	SW7	SW8	SW6	SSW4	S6	S6	S5	S6	SSE6	SSE8	SSE9	SSW9	SW14	SSW14	SSW16	SW16	SW12	WSW9	WSW2	E2	SSE3	SSW5	SW6	SW8	SSW6.8	SSW16
9-Apr	WSW8	WSW6	WSW6	SW5	WSW7	WSW6	W7	SW6WSW10	SSW10	W19	W18	SW21WSW21WSW20	W20	W20	W21	W19	W13	W10	W10	W15	W16	WSW12.7	W21			
10-Apr	W12	NNW9	NW9WNNW13	NW16WNNW19WNNW22	NW23WNNW17	NW25	NW28	NW18	NW12	NNW21	N18	NNE17	NNE14	NE14	NE10	ENE7	ENE4	ENE3	W1	WSW3	NNW10.9	NW28				
11-Apr	WSW2	SE2	SE4	SE3	SSE1	SE6	SE8	SE11	SE11	SE12	ESE15	ESE17	SE17	SSE14	SE16	ESE18	ESE20	ESE20	ESE17	ESE16	ESE18	ESE17	ESE12	ESE12	SE11.6	ESE20
12-Apr	SE9	SE10	SE10	SE10	S10	S15	S16	SE12	SE14	SE18	SE17	SSE17	S13	SSE12	SSE12	SE8	SE9	ESE10	SE11	SE3	SE12	ESE8	SE8	SSW7	SE11.0	SE18
13-Apr	SW12WSW15	SW14	SW13WSW14WSW14WSW17	W20WNNW24WNNW21	W24	W28WNNW36WNNW32WNNW28WNNW26WNNW23WNNW20WNNW12	W11	W8	W12	W13	W11	W17.5	WNNW36													
14-Apr	W11	W10	S4	SSW7	SSW10	SSW6	S6	SSW8	S9	S11	SSE9	W11WSW14WNNW12	NW7	W8	WNNW9	WSW6	SW3	SSW1	NNW2	E4	NE2	NW3	SW4.6	WSW14		
15-Apr	NNW3	N3	NW6	NNW7	NNW7	NNW5	NNE5	E5	NE7	ESE4	SE8	ESE12	ESE12	ESE7	E9	NE10	N13	NNE13	N14	N14	N13	N12	NNW15	NNW15	NNE5.9	NNW15
16-Apr	NNW14	N14	N20	N20	N20	N24	N26	N28	N31	N32	N30	N29	N28	N30	N34	N32	N27	NNE26	N25	N24	N24	N22	N21	N25.2	N34	
17-Apr	N24	N25	N21	N25	N28	N25	N27	NNE25	N25	N23	N25	N24	NNE28	N30	NNE29	NNE29	NNE27	NNE24	NNE24	NNE23	N15	N12	N12	N14	N23.4	N30
18-Apr	N14	N14	NNW12	NNW11	NNW15	NNW13	N19	N20	N18	N20	N23	N24	N23	N24	N24	NNE23	NNE22	NNE22	NNE19	N14	N10	N10	NNW8	NNW9	N16.8	N24
19-Apr	NW8	NW6	NNW7	NW3	WNNW4	WSW3	SSW3	S4	S5	S7	E6	WNNW5	W10	W10	W9WNNW10	W11	W11WSW11	SW9	SW11WSW14WSW15WSW15	W6.1	WSW15					
20-Apr	WSW14WSW13WSW13	SW13	SW8WSW11WSW12	SW11WSW13	W18	W17	W18	W18	W14WSW14	SW14	SW12	SW13	SW10	SW6	SW5	SW5	SSW8	SSW11	WSW11.5	W18						
21-Apr	SW10	SSW10	SSW10	SSW6	SE5	SSE5	SE8	SE10	ESE10	ESE11	ESE16	SE14	SE13	ESE11	ESE12	ENE9	ESE5	NNE1	NNE10	NNE7	NNW6	NNW5	SW2	WNNW6	SE4.5	ESE16
22-Apr	NW5	NE2	W3	SW0	W1	WSW2	SE3	N7	N18	NNW16	N17	N18	NNE17	NNE13	N13	N13	NNE15	NNE20	NNE17	N14	NNE7	NNW6	N16	N13	N9.8	NNE20
23-Apr	N11	N9	NNW5	W5	WNNW5	W5	NNW3	NNE7	NE8	NE9	NE8	NNE1	ENE8	NE9	ENE11	ESE5	NNW15	NNE12	NE11	NNE9	NE11	ENE11	ENE12	ENE10	NNE6.2	NNW15
24-Apr	ENE10	ENE10	ENE8	ENE9	E11	ENE7	ENE4	ESE12	ESE21	ESE21	ESE24	ESE23	ESE25	ESE23	ESE23	ESE24	ESE26	ESE21	ESE18	ESE19	SE17	SE18	ESE15	SE15	ESE16.1	ESE26
25-Apr	S11	SW12	SW11	SW13WSW12WSW15WSW15WSW15WSW18	W24	W28WSW26WSW26WSW25WSW27	W29	W24	W28	W23	NNW25	NNW11	NNW20	NNW18	WNNW9	W16.6	W29									
26-Apr	WNNW14	NW16	NW14	NW16	NNW13	NW11	NNW16	NNW22	NNW21	NNW17	NNW15	NNW16	NNW16	NNW14	NNW15	N15	N13	NNE11	NNE12	NE9	ENE8	ESE11	ESE9	SE12	NNW10.4	NNW22
27-Apr	SE8	ESE6	SE7	SE6	SSE7	S4	ESE8	SE8	SE7	SSE10	S19	S19	S19	S21	SSW22	S20	S23	S16	SE12	SE12	SE11	SE10	ESE10	ESE6	SSW10.8	S23
28-Apr	ESE6	ESE11	ESE11	ESE10	ESE10	ESE13	ESE16	ESE15	ESE15	ESE16	ESE16	ESE16	ESE15	ESE16	ESE18	ESE19	ESE16	ESE17	ESE16	ESE17	E15	ESE15	ESE13	ESE15	ESE14.4	ESE19
29-Apr	ESE15	ESE15	ESE12	E11	E6	E8	E9	E9	ENE7	NE9	NNE10	N12	N14	NNE15	N16	NNE15	NNE15	N17	N17	N18	N18	N17	N17	N18	NNE9.9	N18
30-Apr	N15	N17	N18	N18	N18	N20	N22	NNE21	N23	N20	N20	N20	N24	N26	N23	N22	N24	NNW23	NNW25	N23	N21	N22	N20	N23	N21.0	N26

WNNW2.1	NW2.7	NW2.3	NW2.0	NW2.5	NW3.3	NW3.1	NNW3.5	N4.4	NNW3.8	NNW4.2	NW3.8	NW3.9	NNW5.1	NW4.0	NNW4.5	NNW5.5	N5.1	NNE5.3	NNE4.6	NNE3.1	NNE2.9	N2.8	NW2.1	Diurnal Average
N24	N25	N21	N25	N28	N25	N27	N28	WNNW32	NW32	N30	N29	WNNW36	WNNW32	N30	N34	N32	W28	NNE26	N25	N24	N24	N22	N23	Diurnal Maximum

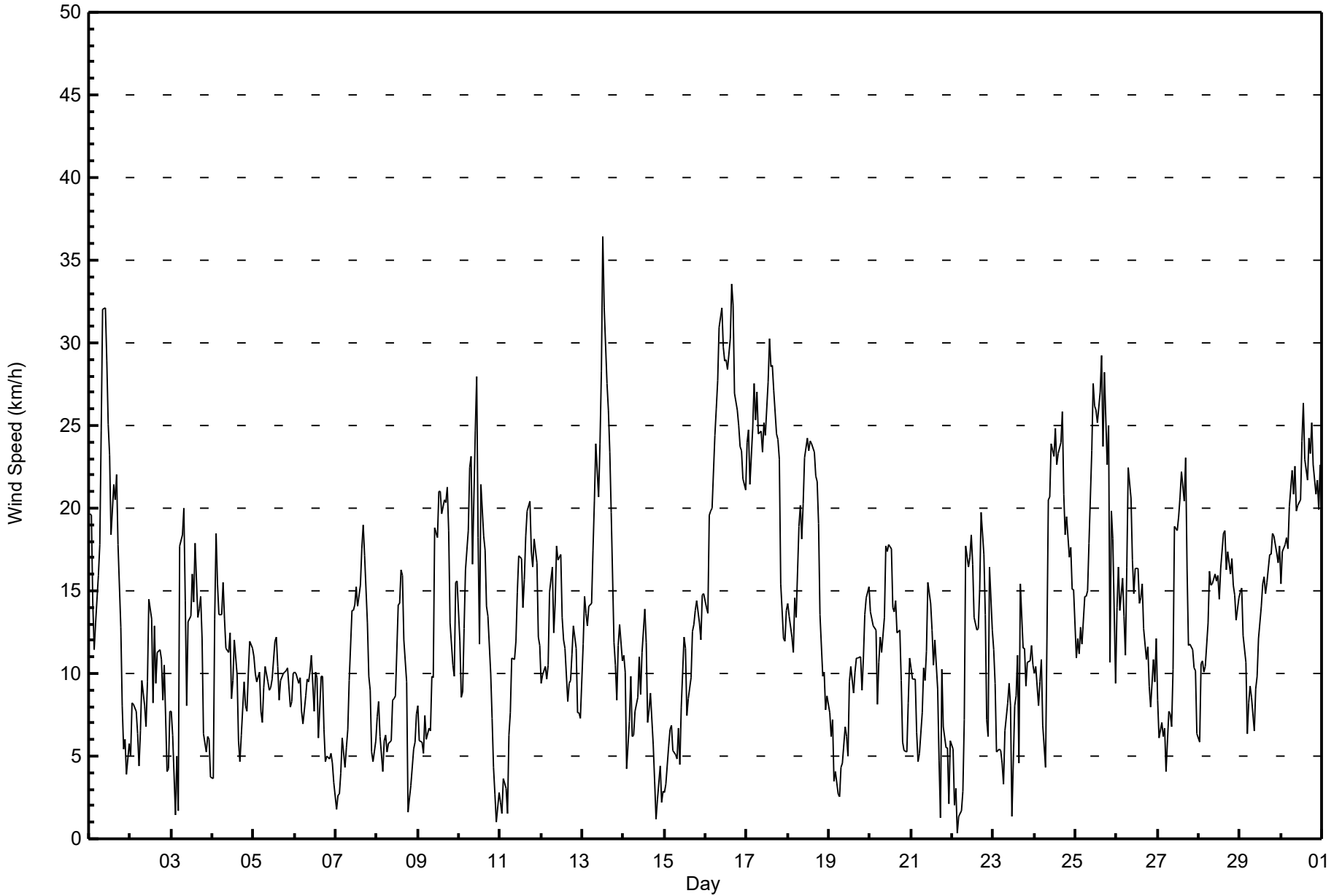
All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Patricia McInnes - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 23 17:00 Minimum Value: 0 km/h on Apr 22 06:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	6	5	2	4	2	4	7	6	7	7	5	5	5	5	5	5	4	3	1	1	1	1	1	7
2-Apr	1	2	1	1	1	1	2	2	2	3	4	3	3	5	5	2	3	3	2	1	3	2	1	2	5
3-Apr	2	2	2	3	3	7	4	4	5	2	3	4	3	3	5	4	3	3	3	1	2	2	1	7	
4-Apr	1	6	3	3	2	4	3	3	2	2	3	3	3	3	4	3	2	3	2	2	1	2	2	3	6
5-Apr	3	3	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	3	
6-Apr	2	2	2	2	2	1	2	2	2	2	3	3	2	3	2	3	3	2	1	1	1	1	1	3	
7-Apr	1	1	1	1	2	1	1	1	3	3	3	3	3	4	4	4	4	4	4	2	1	2	1	4	
8-Apr	1	2	2	1	2	2	2	2	1	2	2	3	4	5	4	4	4	4	2	0	2	1	2	5	
9-Apr	3	1	2	1	1	1	2	3	2	2	4	5	5	5	6	5	5	5	5	3	1	2	3	6	
10-Apr	3	2	3	4	4	4	4	7	7	6	6	6	4	5	5	4	3	3	3	2	1	1	1	7	
11-Apr	1	1	2	3	1	2	2	3	2	3	4	4	5	5	4	5	4	5	4	4	4	3	2	5	
12-Apr	2	2	2	2	3	4	4	3	4	4	4	5	4	3	3	2	2	2	2	3	3	2	2	5	
13-Apr	2	2	2	2	2	2	3	5	5	5	5	7	8	7	7	6	6	5	3	2	1	1	1	8	
14-Apr	1	1	1	2	2	2	1	2	2	2	3	5	6	4	4	4	4	3	2	2	1	2	2	6	
15-Apr	2	2	3	2	3	3	3	3	2	4	3	2	3	2	3	2	2	3	3	3	3	2	3	4	
16-Apr	2	3	4	4	5	5	6	7	6	7	6	6	6	6	7	7	8	6	5	6	5	5	4	8	
17-Apr	5	6	5	5	6	5	6	5	6	5	5	5	5	6	6	6	6	5	6	5	3	2	3	6	
18-Apr	3	3	2	2	2	2	4	4	4	4	5	5	5	5	5	5	5	4	4	3	1	2	1	5	
19-Apr	1	1	1	2	1	1	1	1	2	2	3	4	4	4	5	3	4	3	2	1	2	2	2	5	
20-Apr	2	2	2	2	3	2	2	2	3	3	5	5	5	5	5	4	4	3	2	1	1	1	2	5	
21-Apr	1	2	2	1	1	1	2	2	2	3	4	5	5	4	4	4	3	3	2	2	1	1	2	5	
22-Apr	2	1	1	1	1	0	1	6	4	3	3	4	4	4	5	4	4	4	4	3	1	1	5	6	
23-Apr	2	2	1	0	1	1	1	2	2	3	2	2	3	4	4	3	9	3	3	3	2	3	3	9	
24-Apr	3	3	2	2	2	1	2	5	5	5	5	6	5	6	6	6	6	5	4	5	6	4	4	6	
25-Apr	3	3	2	2	2	2	3	3	4	5	5	6	6	5	7	8	7	7	9	7	3	5	5	9	
26-Apr	2	3	3	4	5	3	6	5	4	4	5	5	6	6	5	4	4	4	2	2	2	3	2	6	
27-Apr	2	1	1	1	2	1	2	2	2	5	4	5	5	6	6	6	6	5	3	3	3	2	1	6	
28-Apr	1	2	2	2	2	3	4	3	3	3	4	3	3	3	4	4	4	4	4	4	4	3	4	4	
29-Apr	3	3	3	3	2	2	2	2	2	2	2	2	3	4	3	4	3	3	4	4	3	4	4	4	
30-Apr	3	4	4	4	3	4	5	4	5	4	4	4	5	5	5	4	5	4	5	4	5	4	3	5	
Diurnal Maximum																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Patricia McInnes - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	87	12.08	12.08
6 - 11	252	35.00	47.08
12 - 19	245	34.03	81.11
20 - 28	119	16.53	97.64
29 - 38	17	2.36	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Patricia McInnes - April 2024**

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	4	4	2	5	3	3	7	3	9	6	9	6	5	8	6	7	87
6 - 11	14	15	16	14	15	22	26	11	15	14	17	14	16	5	14	24	252
12 - 19	43	18	1	2	1	41	17	4	7	3	19	26	20	11	13	19	245
20 - 28	46	13	0	0	0	12	0	0	3	1	1	7	11	11	8	6	119
29 - 38	9	2	0	0	0	0	0	0	0	0	0	0	1	3	2	0	17
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	116	52	19	21	19	78	50	18	34	24	46	53	53	38	43	56	720

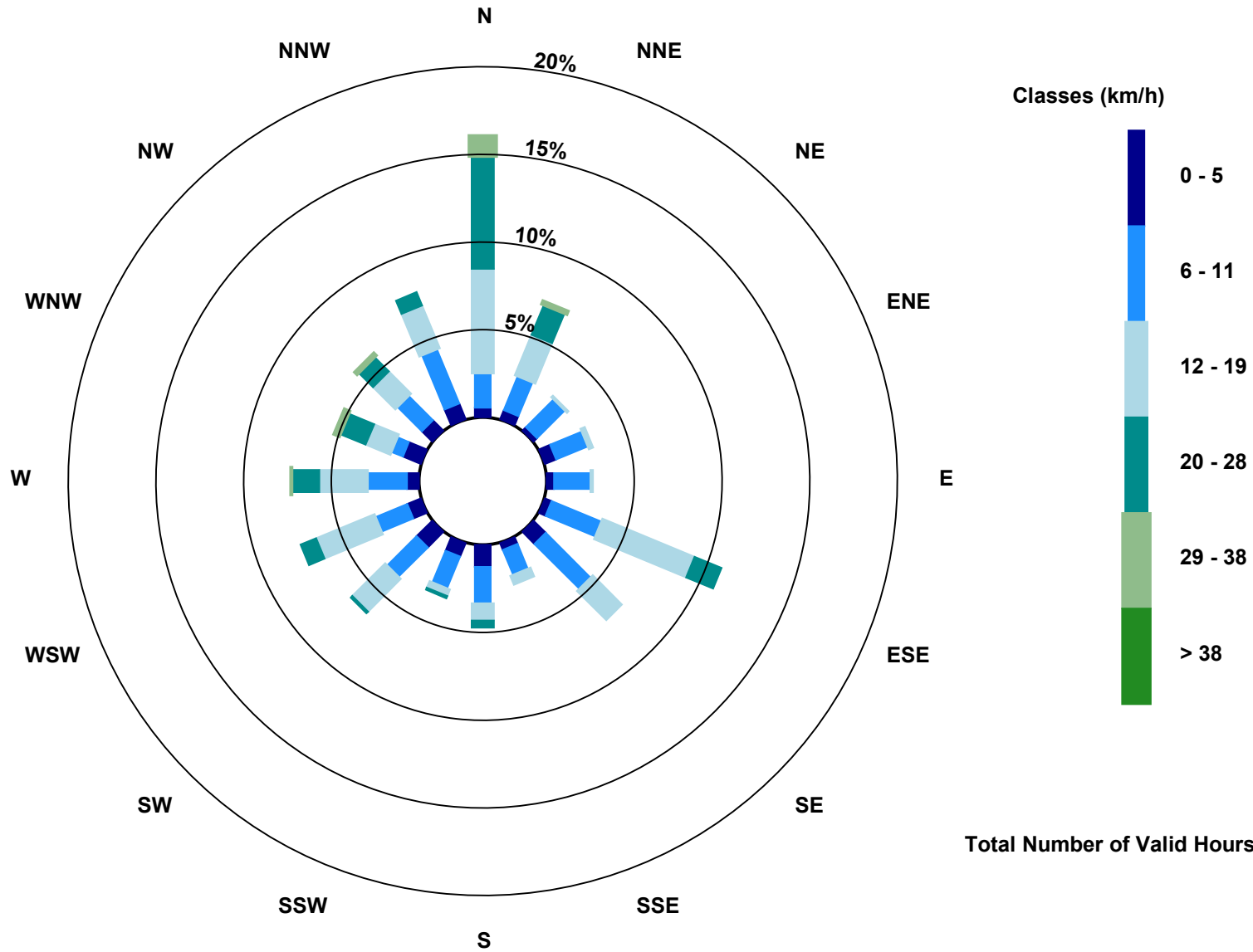
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Patricia McInnes





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

**Wind Direction (WD) - deg**  
**Patricia McInnes - April 2024**

Direction of Maximum Speed: 285 deg on Apr 13 13:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 1.8 deg on Apr 16	Hours of Data: 720
Direction of Minimum Speed: 214 deg on Apr 22 04:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 4.5 deg on Apr 21	Percent Operational Time: 100.0
Monthly Average Direction: 339.2 deg	

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-Apr	223	292	295	254	255	257	251	284	301	311	311	308	297	302	292	308	318	317	332	308	285	271	234	230	292.3
2-Apr	213	217	182	169	160	171	159	138	144	144	119	119	115	115	214	173	154	165	146	175	224	197	184	189	162.0
3-Apr	168	126	140	67	10	306	306	308	317	291	230	260	272	274	283	293	5	25	13	350	340	328	311	307	306.1
4-Apr	268	276	285	278	272	310	311	322	346	10	2	17	30	19	45	50	357	49	105	100	103	84	76	99	355.4
5-Apr	91	92	94	89	85	46	40	58	52	50	33	20	10	357	354	347	346	349	341	336	344	343	326	326	21.4
6-Apr	332	326	322	343	11	349	331	340	13	9	0	351	12	353	313	338	342	325	321	5	298	292	299	318	341.6
7-Apr	30	59	185	216	242	178	146	173	199	220	227	206	233	248	244	231	233	242	246	252	247	247	220	229	228.5
8-Apr	216	221	218	198	174	181	180	171	150	152	164	195	234	204	213	232	228	246	255	81	150	202	226	227	206.1
9-Apr	248	257	238	223	247	255	261	222	246	202	260	271	236	250	246	263	266	265	269	263	265	262	269	263	255.5
10-Apr	281	333	308	298	304	299	300	310	299	314	322	325	322	338	2	28	31	43	42	63	59	73	277	254	329.1
11-Apr	253	143	141	133	154	129	128	127	128	135	113	117	128	163	146	112	118	117	107	122	122	119	122	120	124.6
12-Apr	128	136	138	136	169	176	169	140	132	138	132	158	174	167	152	135	124	118	124	128	130	102	141	192	144.4
13-Apr	225	238	230	233	239	247	251	276	299	286	277	281	285	283	287	284	288	288	297	270	259	260	267	276	273.2
14-Apr	272	265	178	194	200	199	181	195	188	183	163	268	239	293	311	266	296	240	233	197	345	88	48	306	234.6
15-Apr	346	360	323	335	346	346	31	95	37	107	125	112	123	102	95	52	5	12	10	11	7	352	344	341	23.5
16-Apr	342	352	358	358	359	359	358	354	358	0	1	359	360	2	5	8	8	10	13	9	8	6	1	358	1.8
17-Apr	2	356	359	3	360	1	4	12	7	0	3	2	12	10	15	14	16	16	15	14	7	7	2	9	7.2
18-Apr	6	4	345	337	342	346	351	356	351	3	356	356	4	360	2	16	13	15	17	11	1	359	345	329	359.9
19-Apr	314	323	338	317	298	257	204	179	169	171	86	285	271	269	271	286	265	280	248	231	236	248	254	251	261.6
20-Apr	237	239	237	234	224	237	238	235	240	267	271	267	271	273	244	233	234	221	235	214	222	217	212	210	242.5
21-Apr	214	207	205	192	144	159	136	128	116	112	108	130	140	122	118	78	107	17	23	15	340	333	234	285	129.3
22-Apr	305	44	271	214	274	238	129	1	355	348	358	7	23	29	5	349	20	19	19	9	13	338	2	356	4.7
23-Apr	359	356	339	278	283	281	348	25	33	34	38	17	70	49	71	119	332	26	43	28	43	68	77	74	30.9
24-Apr	73	75	74	61	80	76	71	104	108	112	109	117	111	108	106	111	106	105	116	110	135	129	119	139	107.8
25-Apr	189	233	220	230	244	241	249	248	251	264	274	258	254	252	250	263	279	274	278	312	326	331	340	298	266.6
26-Apr	303	306	320	317	337	326	343	338	338	339	336	334	330	338	339	1	10	31	33	49	62	103	121	135	346.3
27-Apr	131	123	131	135	156	180	119	127	138	156	187	171	185	189	197	188	189	169	136	135	124	128	123	121	162.2
28-Apr	114	113	112	111	111	110	117	116	116	118	116	118	114	105	107	106	114	107	104	107	101	112	110	120	111.5
29-Apr	112	110	110	101	99	90	95	89	73	37	16	10	8	12	11	13	22	1	7	6	353	3	0	354	29.5
30-Apr	356	3	360	7	5	6	11	12	11	2	360	353	1	3	7	2	358	348	346	350	352	352	350	352	359.3

291.3 313.6 306.9 311.3 309.8 308.3 324.8 342.4 349.5 345.6 342.3 325.8 317.3 328.0 323.9 338.6 347.1 355.6 11.6 16.5 13.5 12.4 356.3 322.4

Diurnal Average

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

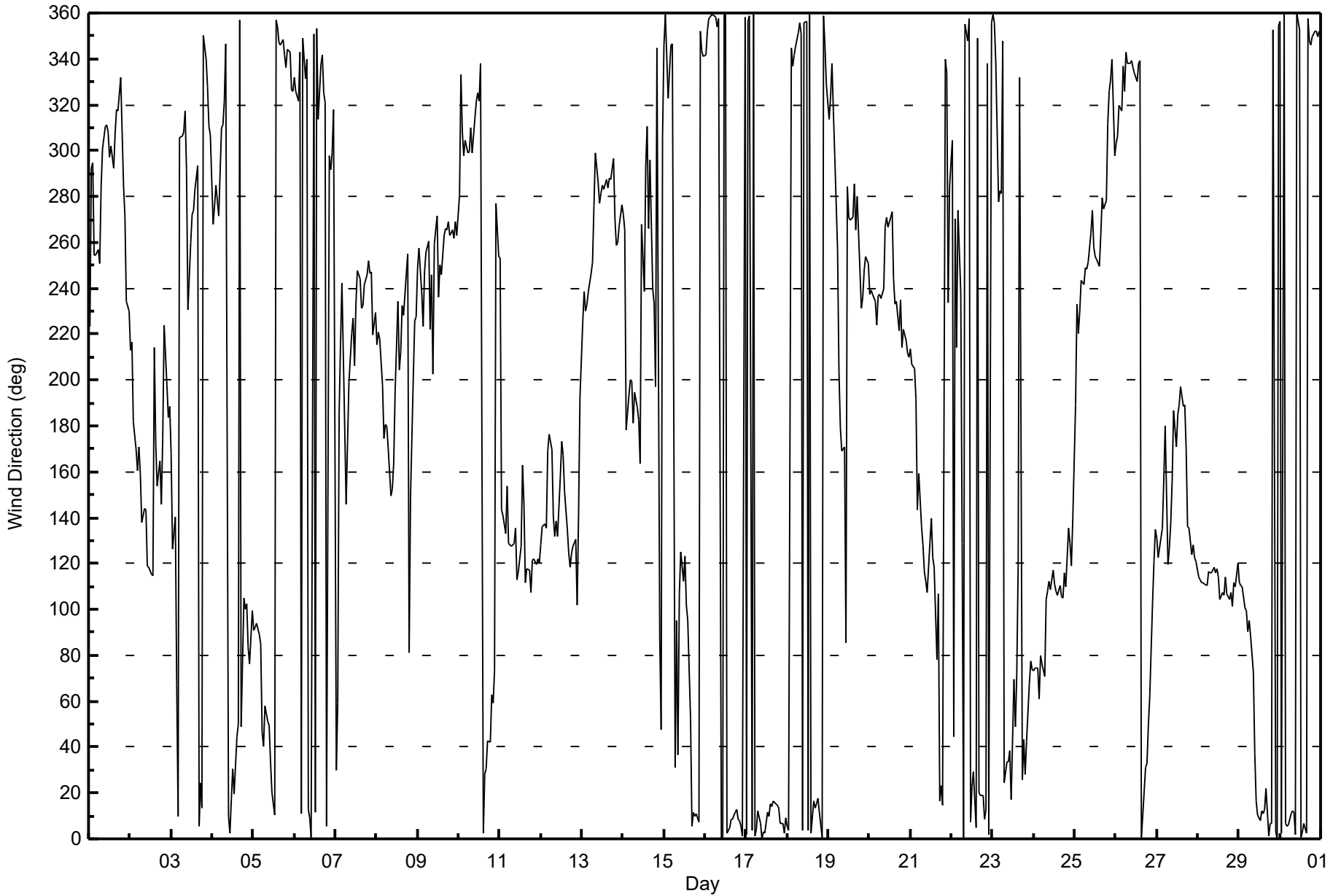


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Patricia McInnes - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 104 deg on Apr 21 18:00 Minimum Value: 5 deg on Apr 20 22:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 20 P <sub>90</sub> = 33 P <sub>99</sub> = 69																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Day	Hourly Period Ending At (MST)																								Daily Maximum																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																	
1-Apr	21	17	12	12	17	11	10	16	12	12	13	15	14	17	17	14	14	13	9	8	18	10	17	15	21																
2-Apr	19	10	13	5	7	10	15	13	15	46	30	13	14	51	20	17	27	14	12	20	13	48	26	13	51																
3-Apr	25	26	81	49	81	15	10	12	12	30	20	17	12	12	13	32	19	12	12	15	28	17	29	37	81																
4-Apr	40	31	10	12	15	16	12	16	19	20	18	29	26	20	32	47	63	34	13	12	11	11	12	13	63																
5-Apr	13	14	13	12	12	17	13	15	17	15	22	15	14	15	14	11	11	13	10	8	11	11	9	9	22																
6-Apr	10	13	16	20	23	19	12	13	21	16	17	26	18	25	27	16	14	15	15	16	33	12	10	22	33																
7-Apr	61	26	33	16	12	34	14	30	15	19	20	19	21	20	24	23	17	13	11	9	6	19	20	18	61																
8-Apr	7	7	9	13	19	12	20	28	25	18	27	40	25	25	19	24	20	13	70	13	28	24	28	19	70																
9-Apr	17	8	27	22	8	16	30	58	14	24	20	21	18	21	19	18	18	19	12	8	10	9	9	10	58																
10-Apr	13	18	38	17	9	9	10	11	14	13	11	11	29	18	23	16	16	14	12	12	17	30	90	23	90																
11-Apr	32	46	24	27	46	19	13	15	15	14	15	17	31	29	21	15	15	13	11	12	11	10	10	10	46																
12-Apr	12	12	12	14	16	17	16	16	14	13	14	16	15	16	16	31	21	18	12	11	12	33	18	17	33																
13-Apr	15	10	9	10	9	9	9	17	13	14	15	15	15	15	15	13	12	11	10	7	7	9	5	17																	
14-Apr	11	9	61	14	10	36	14	15	22	17	40	37	43	24	52	49	32	51	31	64	42	13	65	25	65																
15-Apr	36	34	58	22	41	64	65	55	35	58	18	14	19	30	24	30	16	14	14	13	13	14	11	10	65																
16-Apr	9	15	16	16	16	18	18	18	18	19	18	17	17	17	16	16	16	14	13	15	13	15	17	16	19																
17-Apr	17	17	18	17	17	18	16	13	16	19	17	19	16	18	16	18	15	18	14	13	13	12	14	12	19																
18-Apr	13	15	12	8	9	12	15	16	17	17	19	18	18	20	18	15	16	16	12	12	12	15	15	6	20																
19-Apr	7	10	8	35	14	48	22	20	49	34	53	81	35	32	49	37	25	19	15	9	9	8	8	8	81																
20-Apr	9	9	9	10	20	10	10	14	17	16	18	22	20	33	27	29	22	24	15	9	8	5	8	10	33																
21-Apr	8	11	11	15	27	20	18	14	19	20	22	31	35	34	34	36	65	104	15	12	11	22	60	12	104																
22-Apr	30	47	14	81	51	38	32	55	18	15	20	20	22	23	42	29	20	12	12	15	9	12	20	15	81																
23-Apr	14	14	17	13	10	13	43	14	20	26	34	103	37	43	26	66	28	24	14	17	13	15	12	15	103																
24-Apr	14	15	17	13	11	14	34	16	13	14	15	17	14	16	17	14	13	13	14	13	16	14	12	15	34																
25-Apr	25	11	15	13	9	9	11	14	13	14	16	20	19	18	21	14	18	14	19	14	18	12	12	13	25																
26-Apr	10	10	10	10	13	14	13	15	18	24	29	28	27	35	34	24	27	28	19	13	14	15	14	13	35																
27-Apr	17	22	9	10	20	29	15	22	23	35	21	20	22	23	19	20	17	20	16	14	13	11	9	12	35																
28-Apr	18	11	11	12	11	11	13	14	13	14	13	16	18	17	14	17	20	15	14	13	12	14	13	15	20																
29-Apr	13	12	13	14	17	15	14	16	29	24	20	19	18	17	18	19	20	16	15	16	14	14	16	15	29																
30-Apr	15	14	16	15	14	15	13	13	14	15	16	15	16	15	16	16	15	13	13	15	15	15	14	16	16																
																	61	47	81	81	81	64	65	58	49	58	53	103	43	51	52	66	65	104	70	64	42	48	90	37	
																	Diurnal Maximum																								







## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS07 ATHABASCA VALLEY APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
 APRIL 2024

MONTHLY SUMMARY

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	685	35	35	100	13.3	0	2.6	0
TRS (ppb) Average	684	36	36	100	1	0	0.4	0
THC (ppm) Average	685	35	35	100	2.7	-	2.1	-
NMHC (ppm) Average	685	35	35	100	0.54	-	0.024	-
CH4(ppm) Average	685	35	35	100	2.5	-	2.1	-
O3 (ppb) Average	685	35	35	100	58	0	42.8	-
NO2 (ppb) Average	684	36	36	100	31	0	12	-
NO (ppb) Average	684	36	36	100	16.6	-	3.1	-
NOX (ppb) Average	684	36	36	100	36.9	-	14.3	-
PM2.5 (ug/m3) Average	718	2	2	100	53	0	15.9	0
CO(ppm) Average	684	32	36	99.44	0.3	0	0.2	-
Temperature 2 m (C) Average	720	0	0	100	19.7	-	11.3	-
Relative Humidity (%) Average	720	0	0	100	96.7	-	86.1	-
Barometric Pressure (inHg) Average	720	0	0	100	29.7	-	29.7	-
Wind Speed 10 m (km/h) Average	718	0	2	99.72	38	-	21	-
Wind Direction 10 m (deg) Average	718	0	2	99.72	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	685	0.41	1.3	-	0	0	0	0.1	0.2	0.6	13.3
TRS (ppb) Average	684	0.17	0.1	-	0	0.1	0.1	0.1	0.2	0.3	1
THC (ppm) Average	685	2.03	0.1	-	2	2	2	2	2	2.1	2.7
NMHC (ppm) Average	685	0.002	0.022	-	0	0	0	0	0	0	0.54
CH4(ppm) Average	685	2.03	0.1	-	2	2	2	2	2	2.1	2.5
O3 (ppb) Average	685	34.48	11.9	-	4.3	17.1	25.6	35.3	44.3	49.1	58
NO2 (ppb) Average	684	5.38	5	-	0.5	1.2	1.9	3.7	6.9	12.3	31
NO (ppb) Average	684	1.02	1.8	-	0	0	0.1	0.5	1.1	2.4	16.6
NOX (ppb) Average	684	6.41	6.3	-	0.5	1.4	2.2	4.2	8.2	14.1	36.9
PM2.5 (ug/m3) Average	718	4.63	5.4	-	0.4	1.5	2.6	3.5	4.9	7.4	53
CO(ppm) Average	684	0.15	0	-	0.1	0.1	0.1	0.1	0.2	0.2	0.3
Temperature 2 m (C) Average	720	5.59	5.9	-	-9.4	-1.4	1	4.9	9.7	14.5	19.7
Relative Humidity (%) Average	720	55.13	23.6	-	9.2	22.1	34	57.1	73.6	87.1	96.7
Barometric Pressure (inHg) Average	720	28.99	0.3	-	28.4	28.7	28.8	28.9	29.1	29.4	29.7
Wind Speed 10 m (km/h) Average	718	10.9	7	-	0	3	5	10	15	22	38
Wind Direction 10 m (deg) Average	718	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
CO	06 Apr 2024 05:00	06 Apr 2024 07:00	3	Unstable Operations - flatline in analyzer output signal
CO	06 Apr 2024 08:00	06 Apr 2024 08:00	1	Maintenance - analyzer rebooted
Wind Speed, Wind Direction	06 Apr 2024 07:00	06 Apr 2024 08:00	2	Flat line in sensor output signal



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

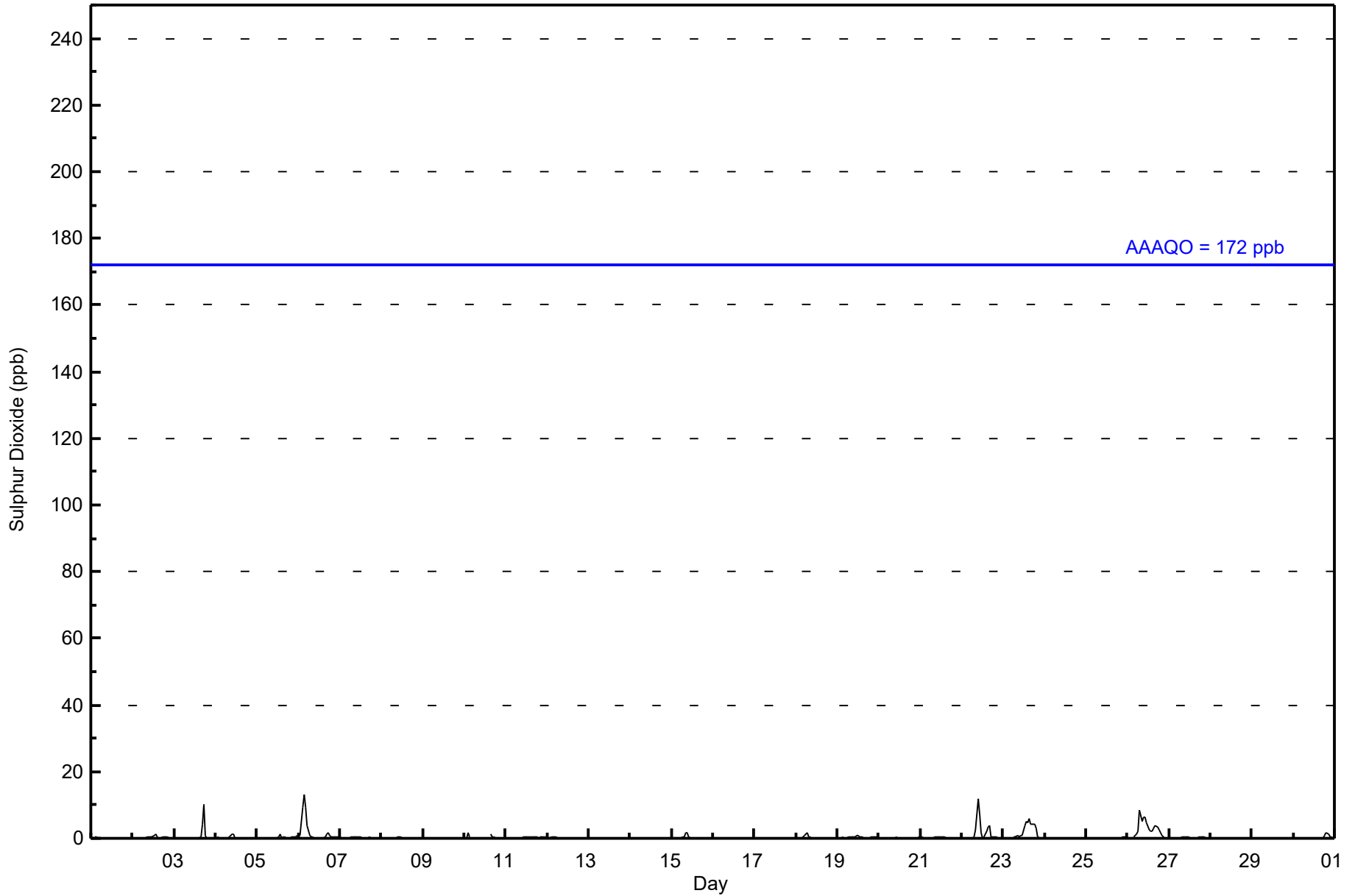
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 13.3 ppb on Apr 6 04:00      Maximum Daily Average: 2.6 ppb on Apr 26		Hours in Service: 720 Hours of Data: 685 Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0																										
Minimum Value: 0.0 ppb on Apr 3 08:00 Maximum Diurnal Average: 0.8 ppb at hour 10 Monthly Average: 0.41 ppb		Minimum Daily Average: 0.0 ppb on Apr 16 Minimum Diurnal Average: 0.1 ppb at hour 2 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.6 P <sub>99</sub> = 6.6																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Apr	0.6	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.6
2-Apr	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.6	1.0	1.1	0.4	0.1	0.2	0.6	0.3	0.3	0.3	0.1	0.2	0.1	0.3	0.3	1.1	
3-Apr	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	4.4	10.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.7	10.2		
4-Apr	0.1	0.3	0.0	0.0	Z	0.0	0.0	0.0	0.6	1.1	1.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1		
5-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	1.5	0.1	0.2	0.2	0.1	0.0	0.1	0.3	0.3	0.6	0.8	0.2	1.5			
6-Apr	Z	0.7	9.4	13.3	9.3	3.6	1.0	0.4	0.5	0.1	0.1	0.1	0.2	0.2	0.1	0.6	1.4	1.5	1.0	0.6	0.4	0.5	0.6	0.4	2.0	13.3		
7-Apr	0.3	Z	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.4		
8-Apr	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.3		
9-Apr	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
10-Apr	0.0	0.1	1.6	0.6	Z	0.1	0.1	0.0	0.0	0.1	C	C	C	C	C	1.3	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6		
11-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.2	0.5	0.6	0.5	0.5	0.3	0.4	0.5	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.6		
12-Apr	Z	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.3		
13-Apr	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
14-Apr	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2		
15-Apr	0.0	0.0	0.0	Z	0.1	0.1	0.4	0.5	1.5	1.6	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	1.6		
16-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
17-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
18-Apr	Z	0.1	0.1	0.1	0.5	1.0	1.8	0.5	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.8		
19-Apr	0.1	Z	0.2	0.2	0.1	0.1	0.3	0.3	0.5	0.5	0.4	0.9	0.8	0.5	0.3	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.2	0.2	0.3	0.9		
20-Apr	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2		
21-Apr	0.6	0.2	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.6		
22-Apr	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.5	2.4	11.8	7.0	1.6	0.2	0.4	2.0	3.3	3.8	0.6	0.2	0.2	0.2	0.2	0.2	0.1	1.5	11.8		
23-Apr	0.1	0.1	0.1	0.1	0.2	Z	0.3	0.6	0.9	0.3	0.7	1.0	3.7	5.1	4.6	5.9	4.1	4.1	4.1	2.9	0.2	0.1	0.1	0.1	1.7	5.9		
24-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1		
25-Apr	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.4	0.6	0.1	0.6		
26-Apr	0.1	0.1	Z	0.5	0.9	1.2	2.2	8.3	5.2	6.3	6.5	4.8	2.5	2.1	2.1	2.8	4.0	3.6	2.7	1.8	0.7	0.2	0.1	0.1	2.6	8.3		
27-Apr	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.4		
28-Apr	0.1	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1		
29-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1		
30-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.7	1.4	0.5	0.3	0.1	0.2	1.7		
																								Diurnal Average				
																								Diurnal Maximum				
0.1 0.1 0.5 0.6 0.5 0.3 0.3 0.4 0.5 0.8 0.7 0.4 0.4 0.5 0.4 0.5 0.7 0.8 0.4 0.3 0.2 0.1 0.1 0.1 0.6 0.7 9.4 13.3 9.3 3.6 2.2 8.3 5.2 11.8 7.0 4.8 3.7 5.1 4.6 5.9 4.4 10.2 4.1 2.9 1.4 0.5 0.6 0.8																												
Z - zerospan      C - Calibration Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb																												



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	683	99.71	99.71
11 - 20	2	0.29	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: 685

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	62	15	10	13	25	70	88	29	23	26	40	43	35	35	35	132	681
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
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>	62	15	10	13	25	70	88	29	23	26	40	43	35	35	35	134	683

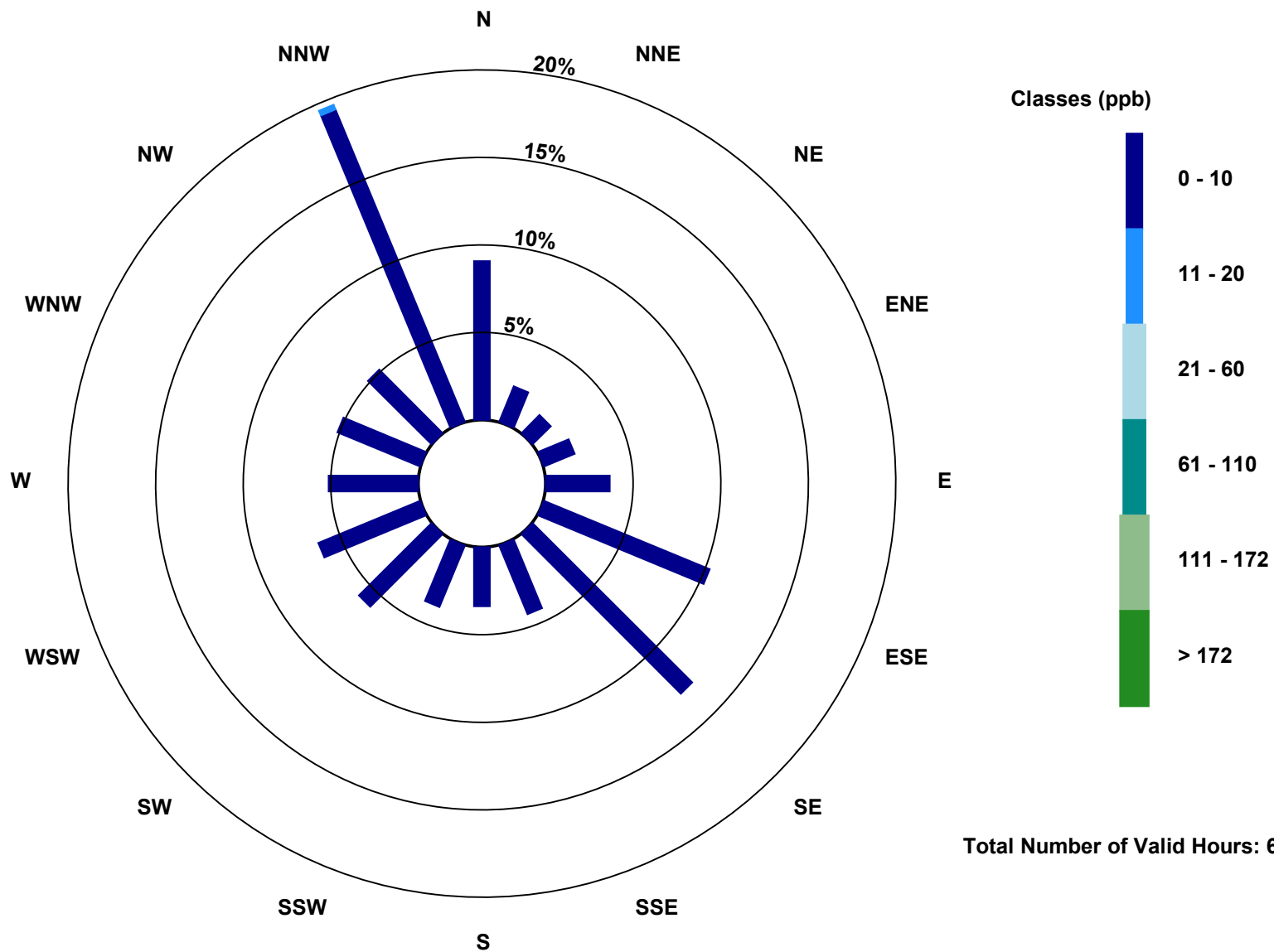
Total Number of Valid Hours: 683

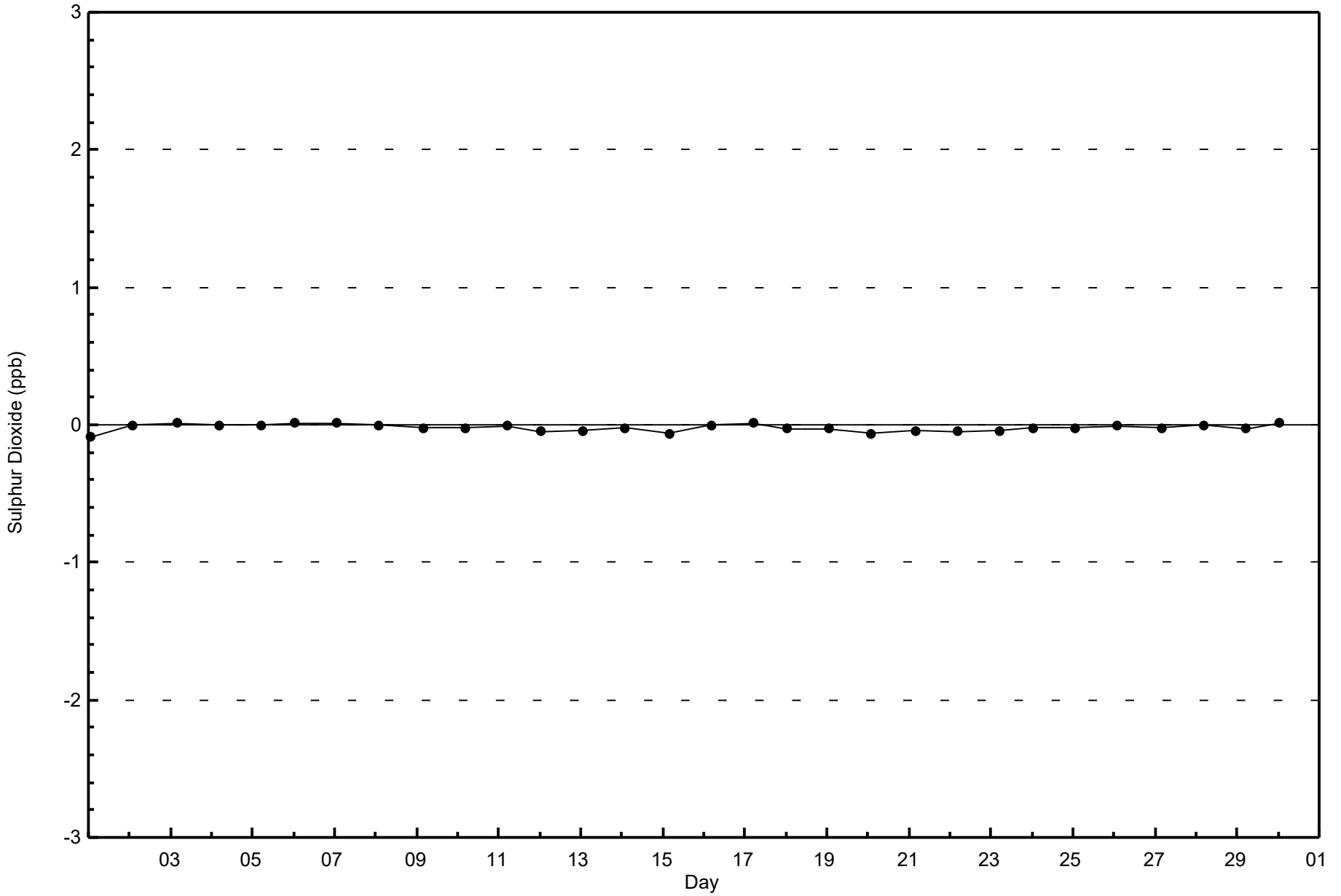
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

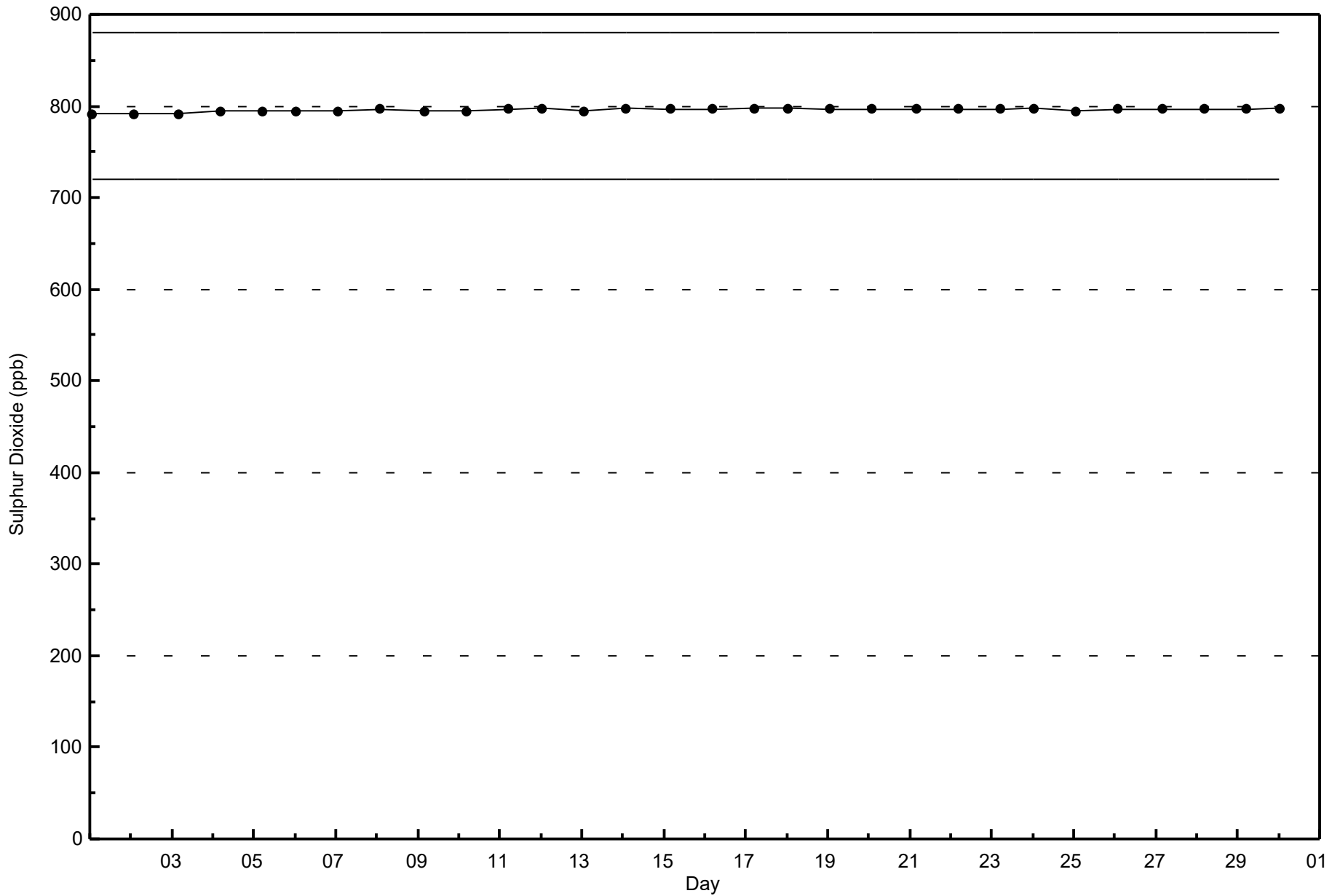






**Wood Buffalo Environmental Association**  
**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - April 2024**





# Wood Buffalo Environmental Association

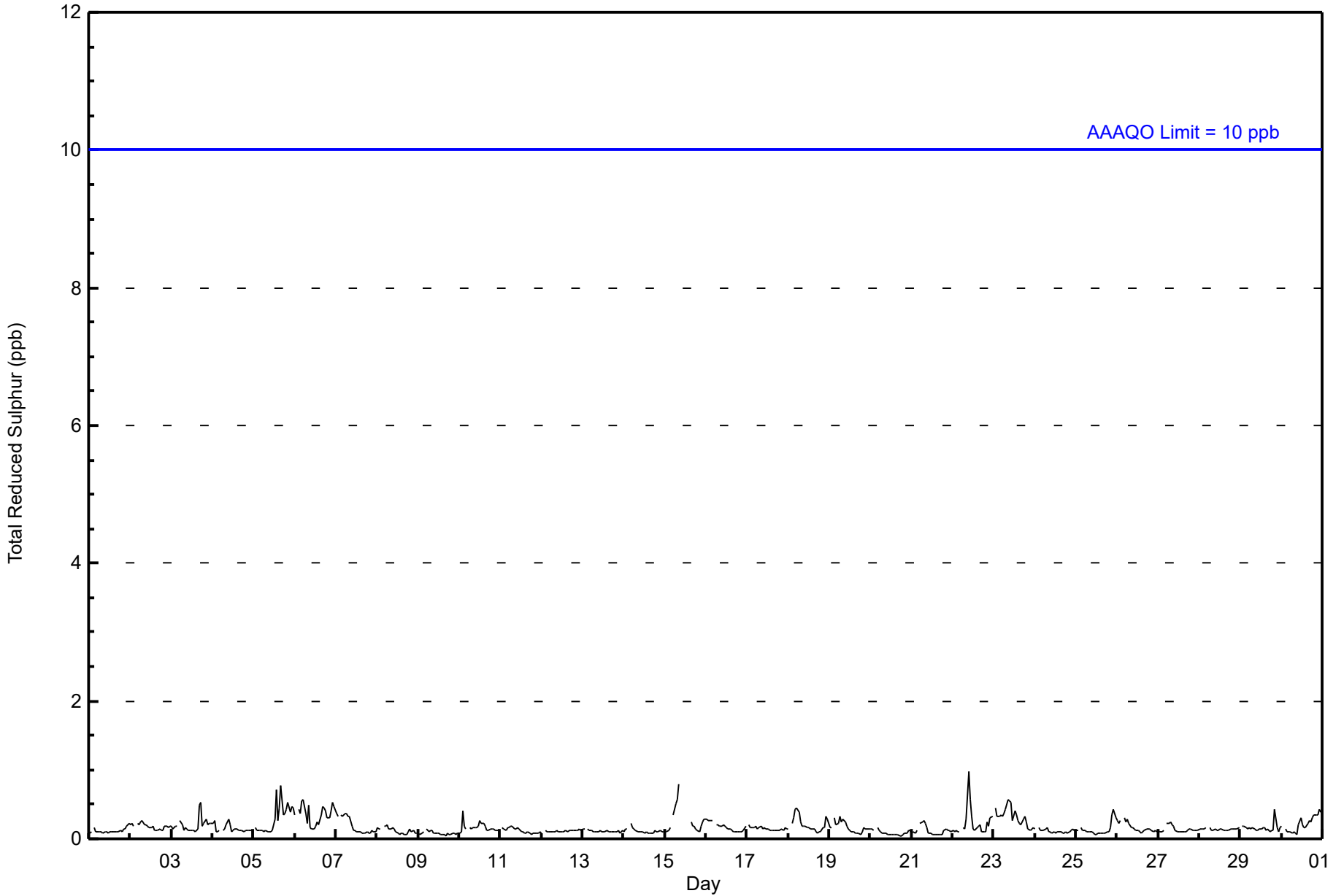
## Summary of Hour Averages

# Total Reduced Sulphur (TRS) - ppb

## Athabasca Valley - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Hours of Data: 684						
Maximum Value: 1.0 ppb on Apr 22 10:00		Maximum Daily Average: 0.4 ppb on Apr 6		Hours of Missing Data: 36																	Hours of Calibration: 36						
Minimum Value: 0.0 ppb on Apr 20 19:00		Minimum Daily Average: 0.1 ppb on Apr 9		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.6																	Percent Operational Time: 100.0						
Maximum Diurnal Average: 0.2 ppb at hour 6		Minimum Diurnal Average: 0.1 ppb at hour 15																									
Monthly Average: 0.17 ppb																											
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-Apr	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	
2-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
3-Apr	0.2	0.1	0.2	0.2	Z	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	
4-Apr	0.2	0.3	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5-Apr	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7	0.3	0.5	0.8	0.3	0.4	0.4	0.5	0.4	0.5	0.4	0.3	0.3	0.8
6-Apr	0.3	Z	0.4	0.4	0.5	0.6	0.4	0.2	0.5	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.5	0.5	0.4	0.3	0.3	0.4	0.5	0.5	0.4	0.6	
7-Apr	0.4	0.3	Z	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
8-Apr	0.2	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
9-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
10-Apr	0.1	0.1	0.4	0.2	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
11-Apr	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
12-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
13-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14-Apr	0.1	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
15-Apr	0.1	0.1	0.1	0.2	Z	0.3	0.5	0.6	0.8	C	C	C	C	C	C	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	--	0.8	
16-Apr	0.3	0.3	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
17-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	
18-Apr	0.1	Z	0.2	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.4	
19-Apr	0.2	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	
20-Apr	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
21-Apr	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
22-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.3	1.0	0.6	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	1.0	
23-Apr	Z	0.5	0.3	0.3	0.4	0.3	0.4	0.4	0.6	0.6	0.5	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.2	0.3	0.6	
24-Apr	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
25-Apr	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.1	0.4	
26-Apr	0.3	0.2	0.3	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
27-Apr	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
28-Apr	0.1	0.1	0.1	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
29-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.2	0.2	0.4	
30-Apr	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2			
																								0.4 0.5 0.4 0.4 0.5 0.6 0.5 0.6 0.8 1.0 0.6 0.3 0.4 0.7 0.3 0.5 0.8 0.5 0.4 0.4 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5			

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	684	100.00	100.00
3 - 4	0	0.00	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	66	15	10	13	27	67	85	28	22	25	40	43	37	34	36	134	682
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	66	15	10	13	27	67	85	28	22	25	40	43	37	34	36	134	682

Total Number of Valid Hours: 682

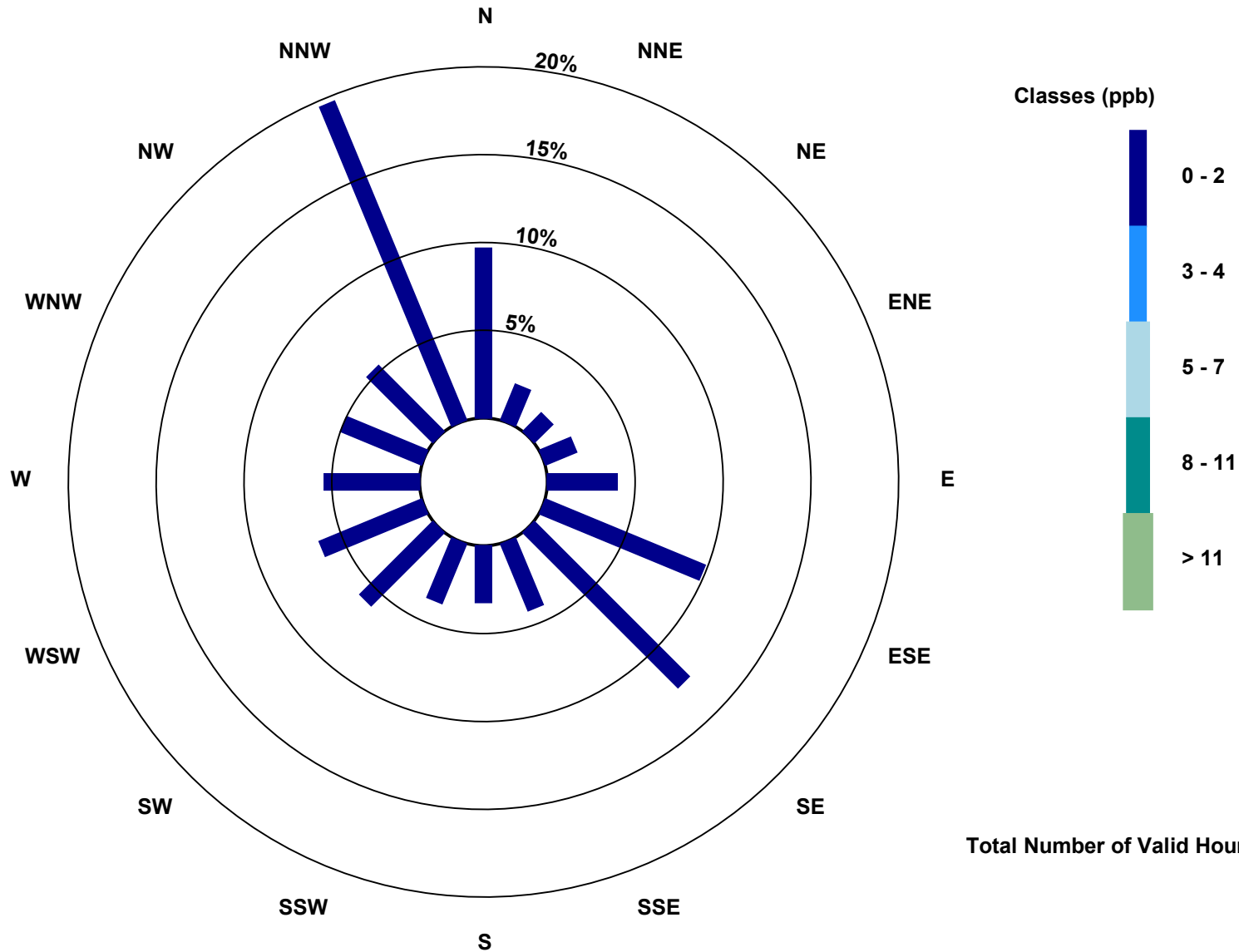
Total Number of Hours: 720

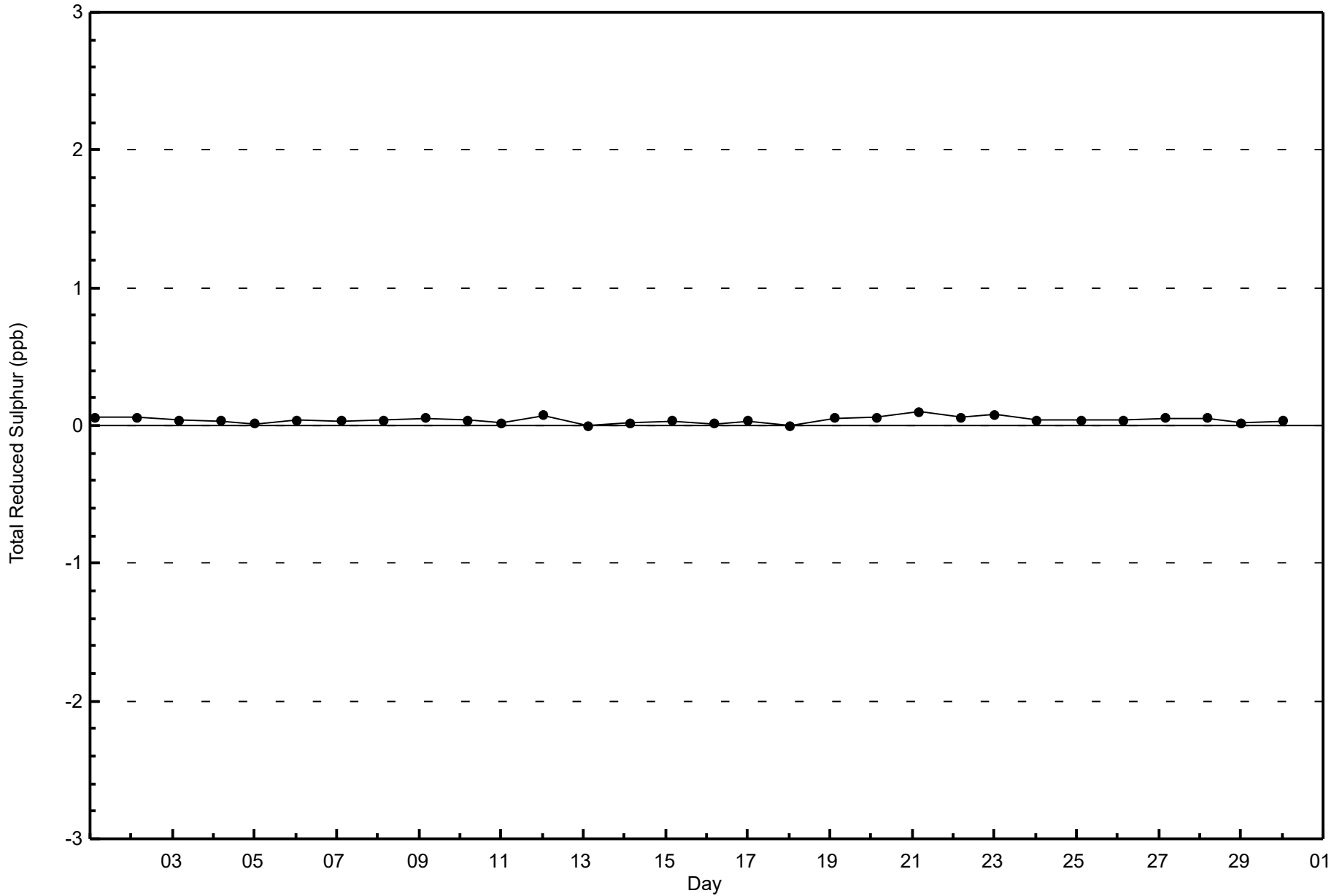


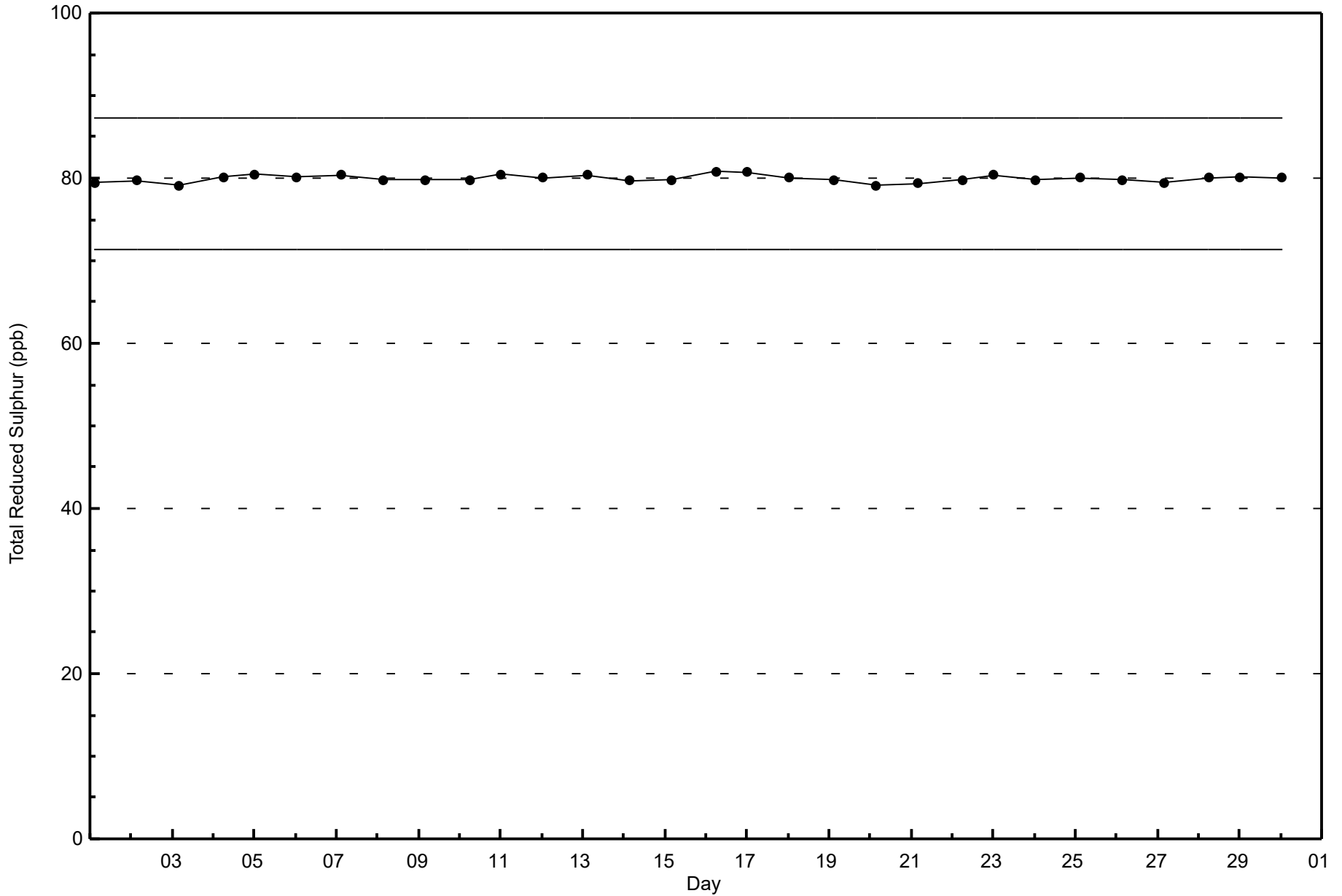


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley









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

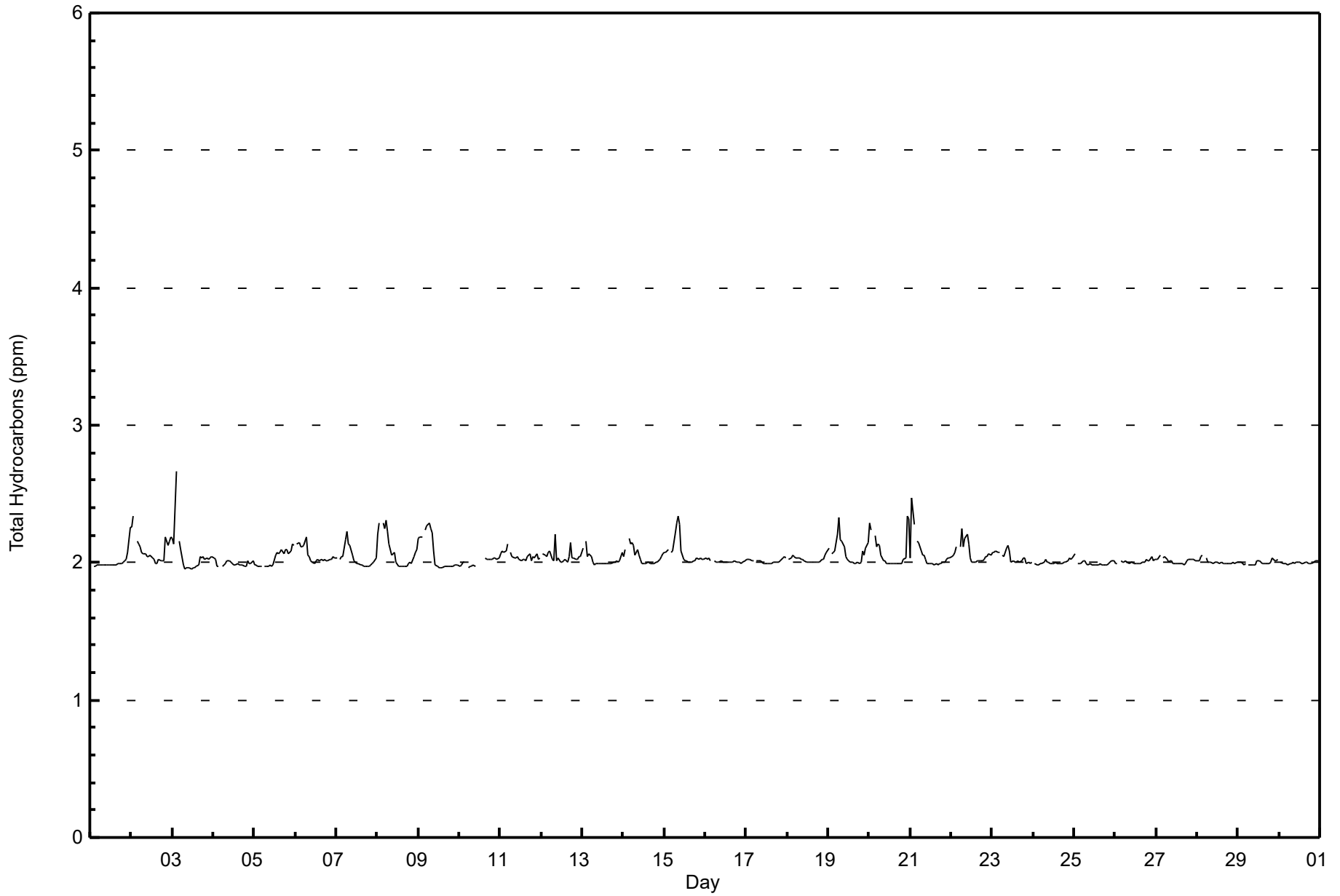
**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - April 2024**

Maximum Value: 2.7 ppm on Apr 3 03:00		Maximum Daily Average: 2.1 ppm on Apr 2		Hours in Service: 720																																													
Minimum Value: 2.0 ppm on Apr 3 08:00		Minimum Daily Average: 2.0 ppm on Apr 4		Hours of Data: 685																																													
Maximum Diurnal Average: 2.1 ppm at hour 2		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 35																																													
Monthly Average: 2.03 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.3		Hours of Calibration: 35																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	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	2.1	2.3	2.0	2.3																								
2-Apr	2.3	Z	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.2	2.2	2.1	2.3																							
3-Apr	2.2	2.1	2.7	Z	2.2	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	2.1	2.7																							
4-Apr	2.0	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																							
5-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1																							
6-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.2	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	2.1	2.2																							
7-Apr	2.0	Z	2.0	2.0	2.0	2.2	2.2	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	2.0	2.0	2.0	2.0	2.2																							
8-Apr	2.2	2.3	Z	2.3	2.3	2.3	2.2	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	2.0	2.1	2.1	2.1	2.3																							
9-Apr	2.2	2.2	2.2	Z	2.2	2.3	2.3	2.2	2.2	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	2.1	2.3																							
10-Apr	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
11-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1																							
12-Apr	Z	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																							
13-Apr	2.1	Z	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2																							
14-Apr	2.0	2.1	Z	2.2	2.1	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	2.0	2.0	2.0	2.1	2.0	2.2																							
15-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.3	2.3	2.3	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	2.1	2.3																							
16-Apr	2.0	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																							
17-Apr	2.0	2.0	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																							
18-Apr	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1																							
19-Apr	2.1	Z	2.1	2.1	2.1	2.2	2.3	2.2	2.2	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	2.2	2.1	2.3																							
20-Apr	2.3	2.2	Z	2.2	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	2.0	2.0	2.0	2.0	2.3	2.3	2.1	2.3																							
21-Apr	2.0	2.5	2.3	Z	2.2	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	2.0	2.0	2.0	2.0	2.0	2.1	2.5																							
22-Apr	2.0	2.0	2.1	2.1	Z	2.1	2.2	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2																							
23-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.0	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	2.0	2.0	2.0	2.0	2.1																							
24-Apr	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	2.0																							
25-Apr	2.1	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	2.1																							
26-Apr	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																							
27-Apr	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																							
28-Apr	2.0	2.0	2.0	2.1	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	2.1																							
29-Apr	2.0	2.0	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																							
30-Apr	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	2.0																							
																								2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	Diurnal Average		
																								2.3	2.5	2.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.3	Diurnal Maximum	
Z - zerospan      C - Calibration																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	531	77.52	77.52
2.1 - 3.0	154	22.48	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Athabasca Valley - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	60	13	10	10	20	52	49	10	10	19	34	39	33	31	29	112	531
2.1 - 3.0	2	2	0	3	5	18	39	19	13	7	6	4	2	4	6	22	152
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>	62	15	10	13	25	70	88	29	23	26	40	43	35	35	35	134	683

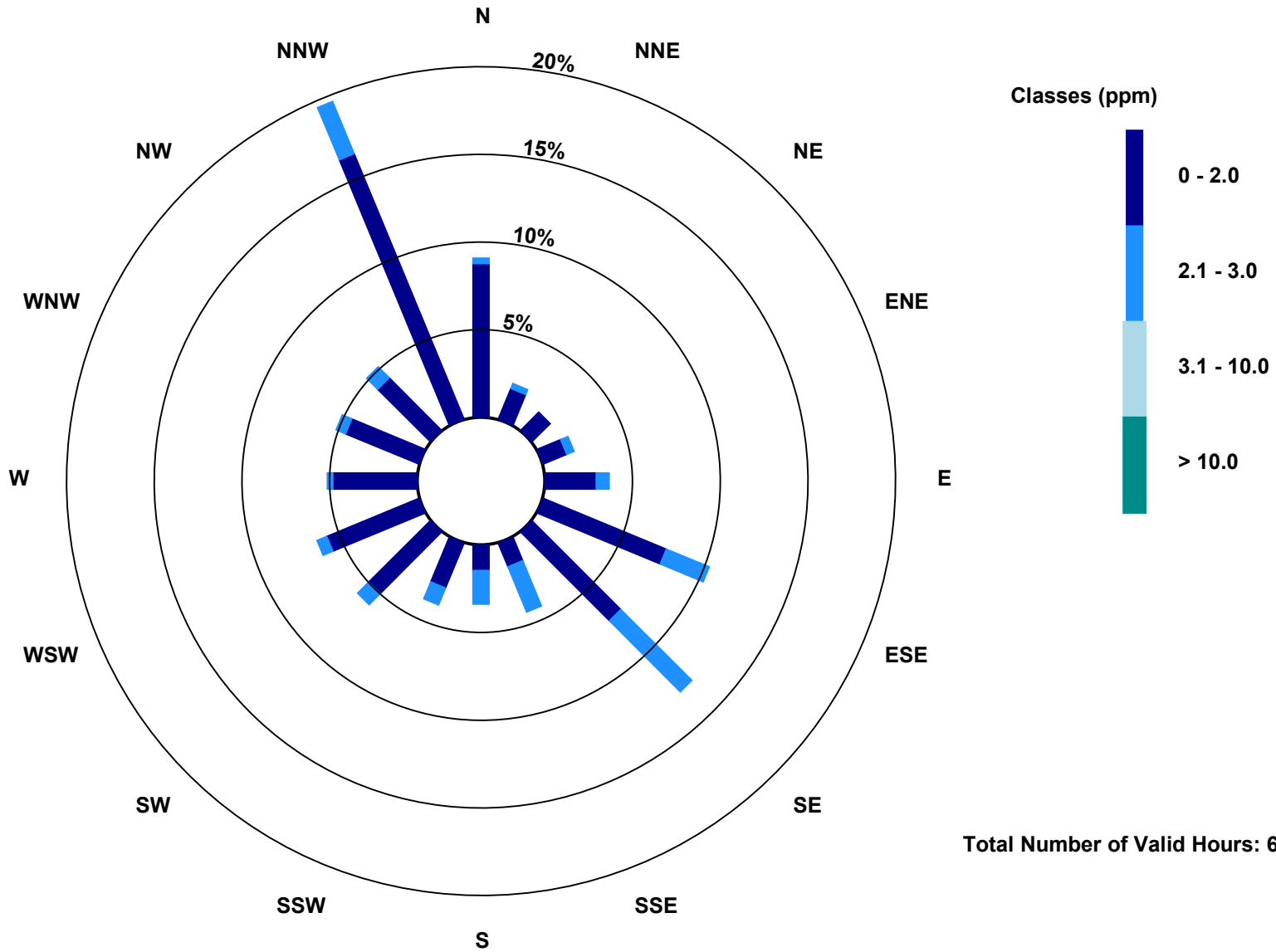
Total Number of Valid Hours: 683

Total Number of Hours: 720

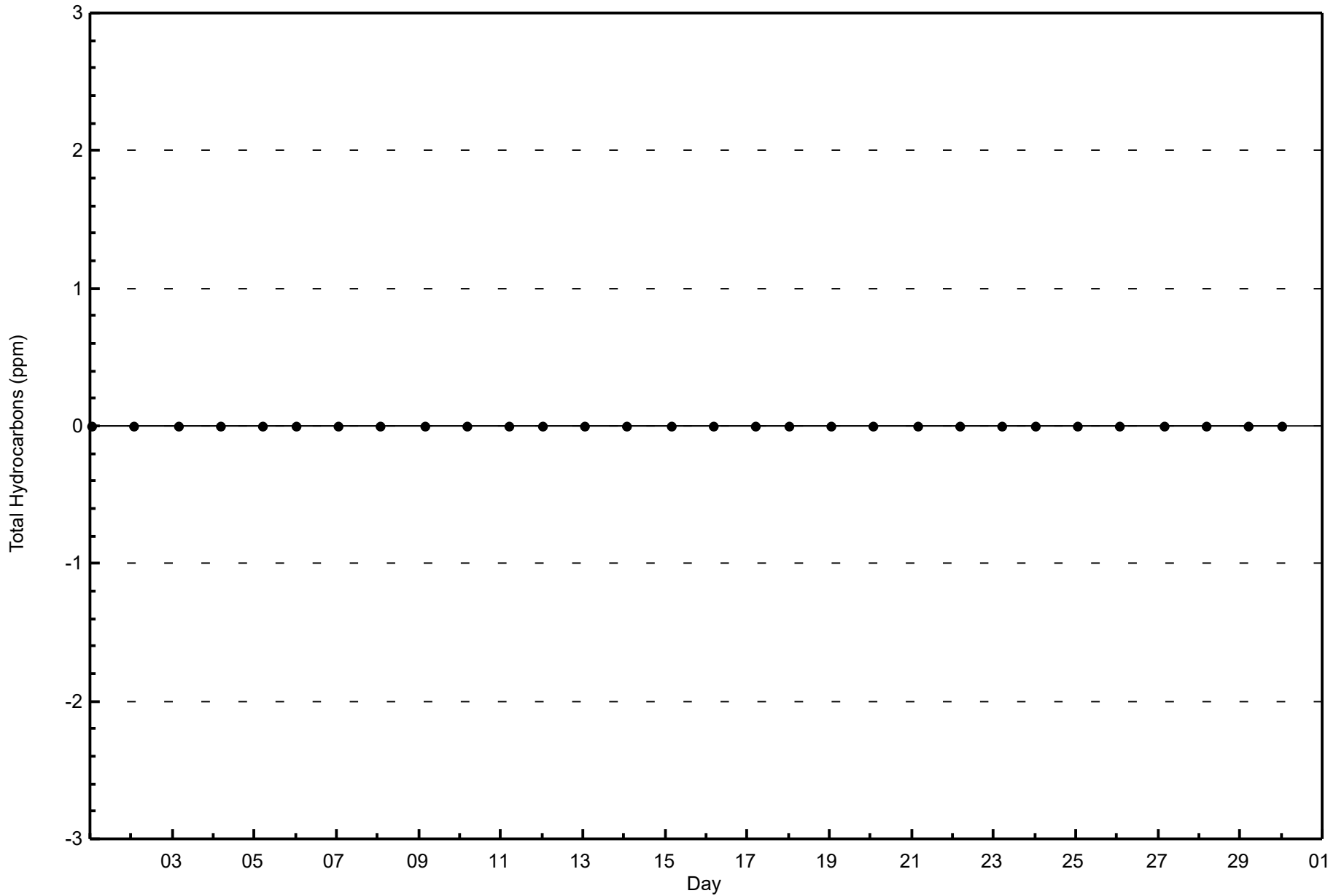


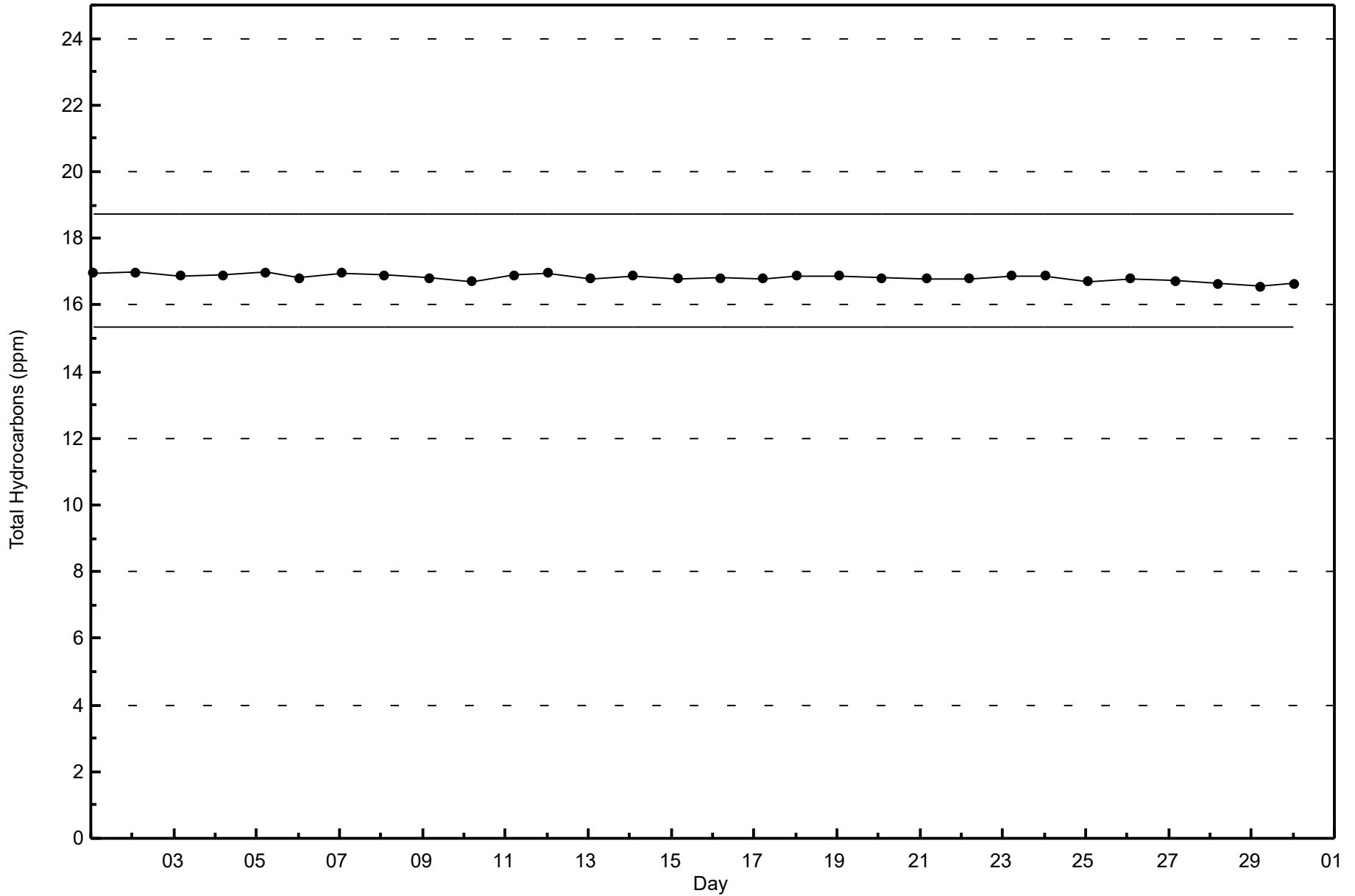
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Athabasca Valley



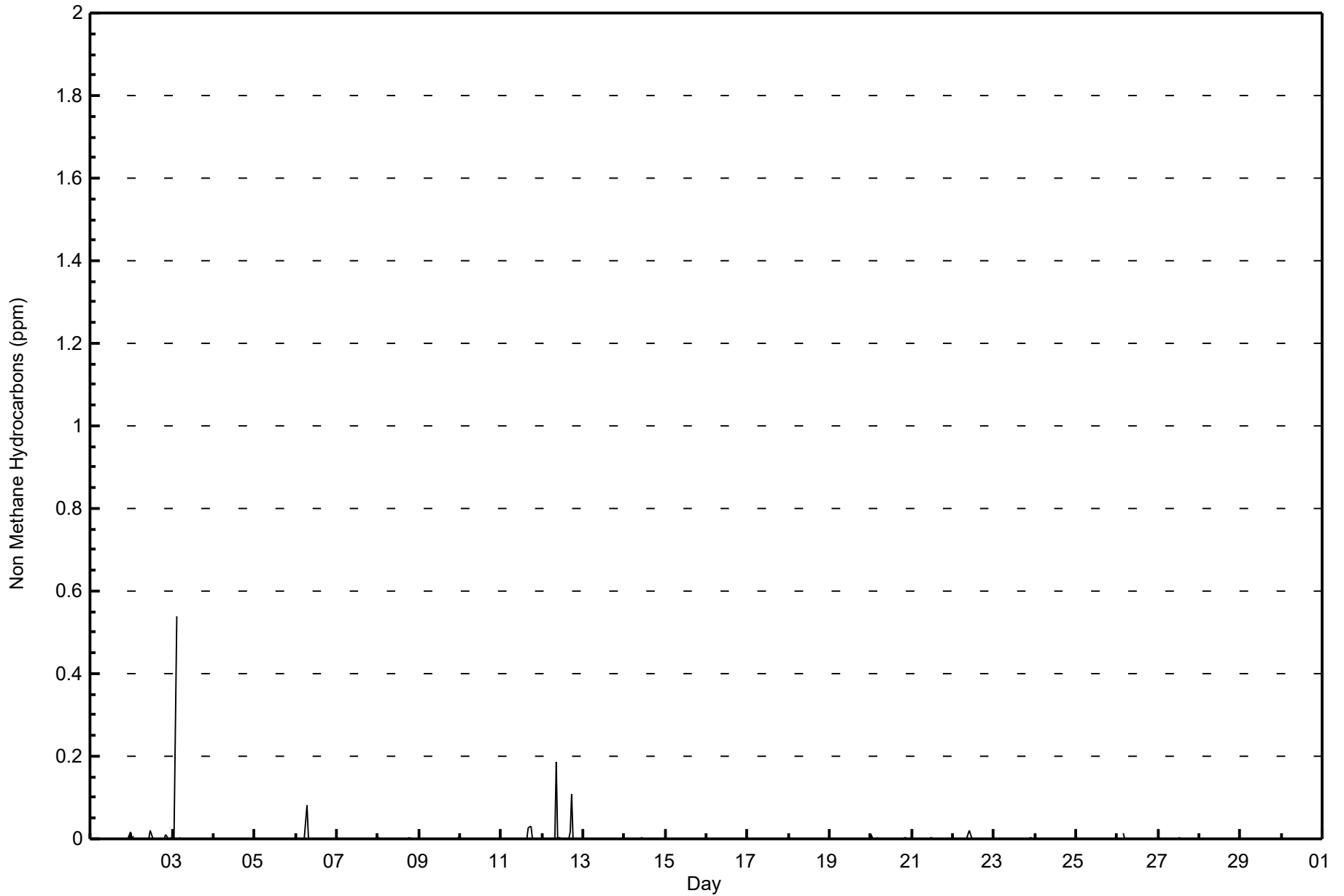








Maximum Value: 0.540 ppm on Apr 3 03:00																				Maximum Daily Average: 0.024 ppm on Apr 3					Hours in Service: 720	
Minimum Value: 0.000 ppm on Apr 1 01:00																				Minimum Daily Average: 0.000 ppm on Apr 4					Hours of Data: 685	
Maximum Diurnal Average: 0.022 ppm at hour 3																				Minimum Diurnal Average: 0.000 ppm at hour 6					Hours of Missing Data: 35	
Monthly Average: 0.002 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> = 0.0					Hours of Calibration: 35	
																									Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	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	0.017	0.001	0.017
2-Apr	0.000	0.005	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.003	0.002	0.019
3-Apr	0.002	0.000	0.540	Z	0.002	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	0.024	0.540
4-Apr	0.000	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
5-Apr	0.000	0.000	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
6-Apr	Z	0.000	0.001	0.000	0.000	0.000	0.082	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	0.000	0.000	0.004	0.082
7-Apr	0.000	Z	0.000	0.002	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	0.002	0.000	0.002
8-Apr	0.005	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	0.005	0.002	0.000	0.001	0.000	0.000	0.001	0.005
9-Apr	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	0.002	0.000	0.002
10-Apr	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11-Apr	0.000	0.000	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	0.026	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.031
12-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.187	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.016	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.187
13-Apr	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	0.000
14-Apr	0.000	0.000	Z	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
15-Apr	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
16-Apr	0.000	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
17-Apr	0.000	0.000	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
18-Apr	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	0.000	0.000
19-Apr	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	0.000
20-Apr	0.012	0.000	Z	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	0.000	0.000	0.000	0.003	0.001	0.012
21-Apr	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	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
22-Apr	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.019	0.009	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	0.001	0.019
23-Apr	0.000	0.000	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	0.003	0.000	0.000	0.000	0.003
24-Apr	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	0.000	0.000
25-Apr	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	0.000
26-Apr	0.000	0.000	Z	0.012	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	0.000	0.000	0.001	0.012
27-Apr	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	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
28-Apr	0.000	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
29-Apr	0.000	0.000	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
30-Apr	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	0.000	0.000
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	671	97.96	97.96
0.006 - 0.05	10	1.46	99.42
0.06 - 0.1	2	0.29	99.71
> 0.1	2	0.29	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Athabasca Valley - April 2024**

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	62	15	10	13	25	66	83	28	23	26	40	43	35	35	34	132	670
0.006 - 0.05	0	0	0	0	0	3	3	1	0	0	0	0	0	0	1	2	10
0.06 - 0.1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
> 0.1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
<b>Totals</b>	62	15	10	13	25	70	88	29	23	26	40	43	35	35	35	134	683

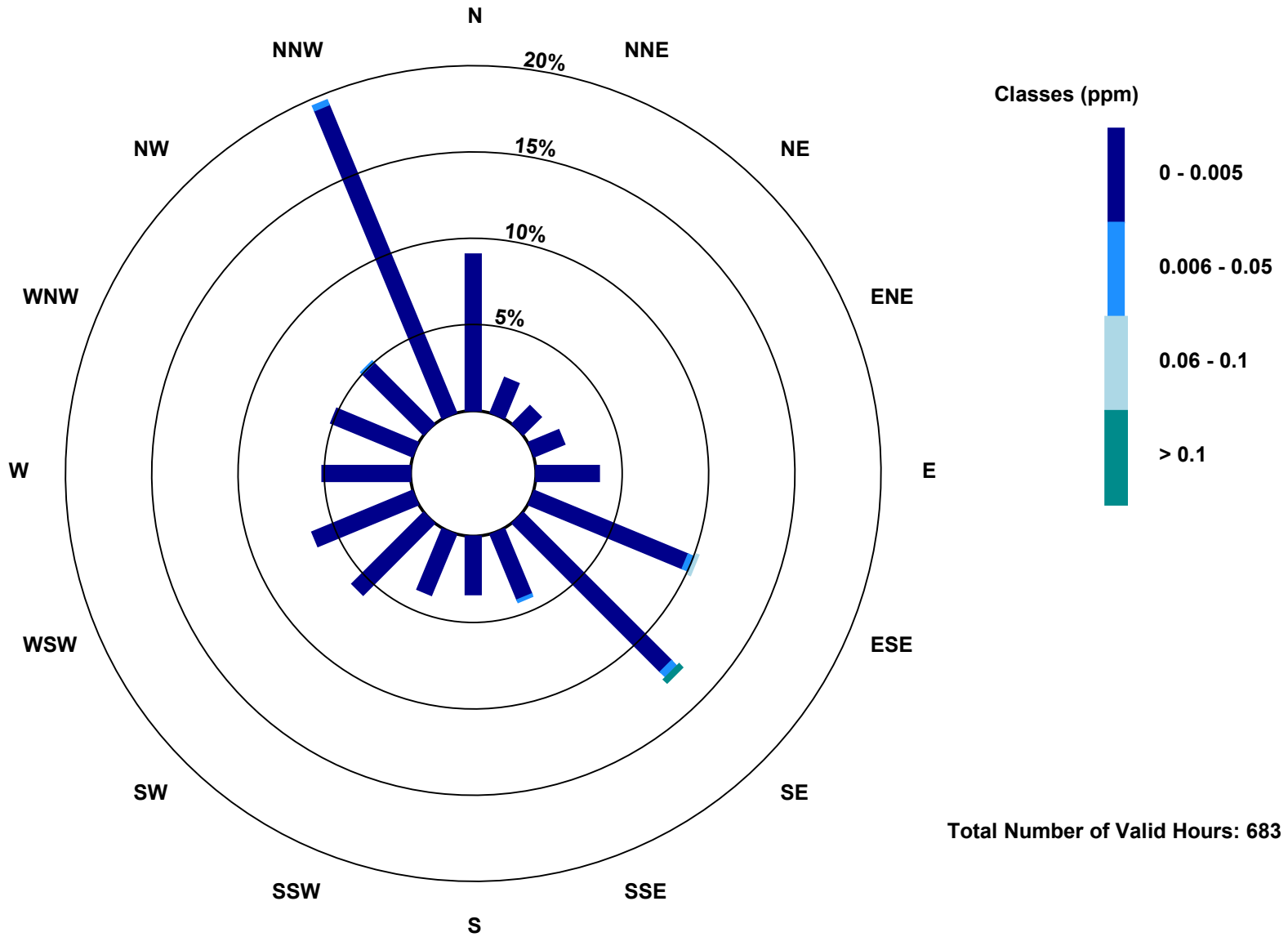
Total Number of Valid Hours: 683

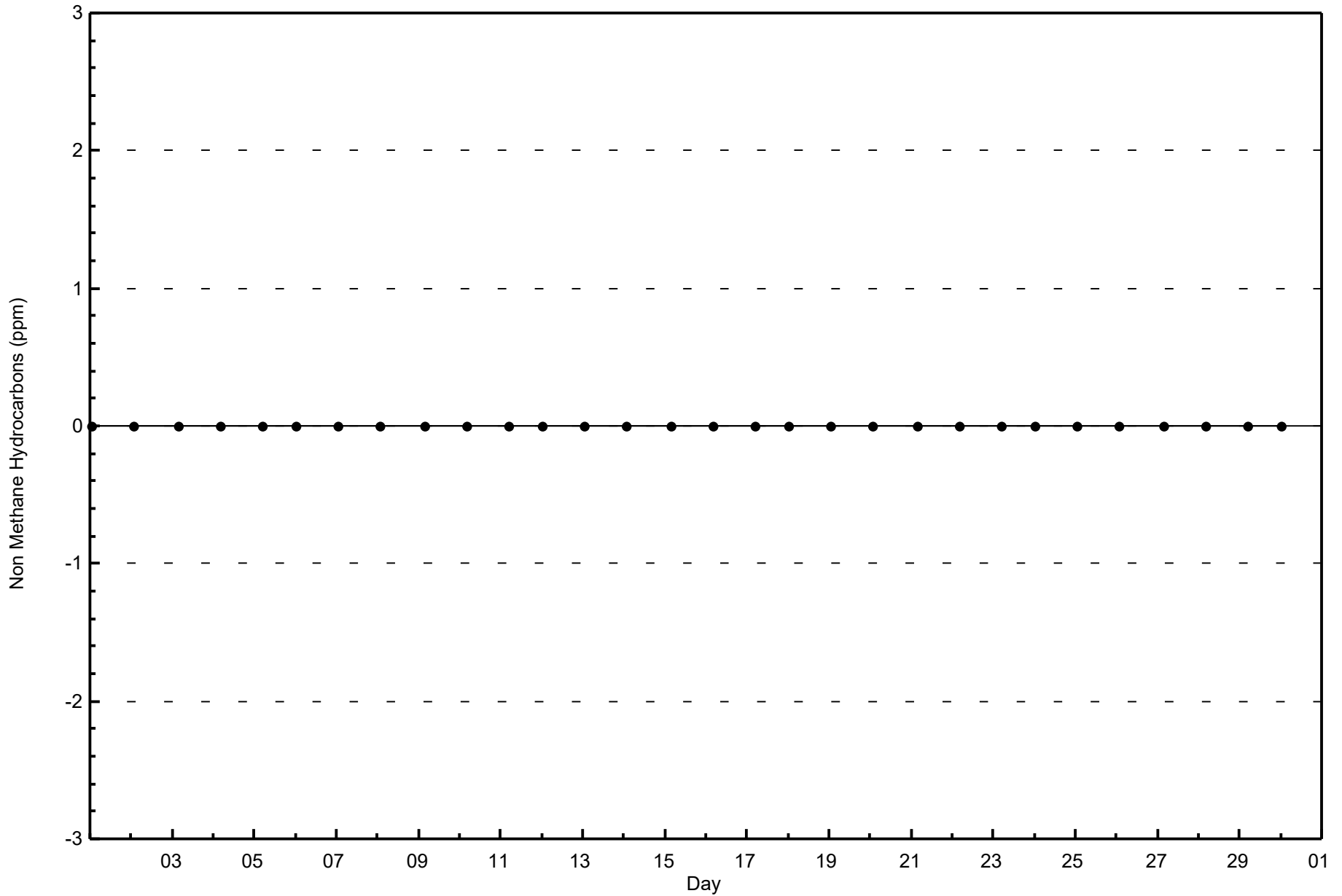
Total Number of Hours: 720



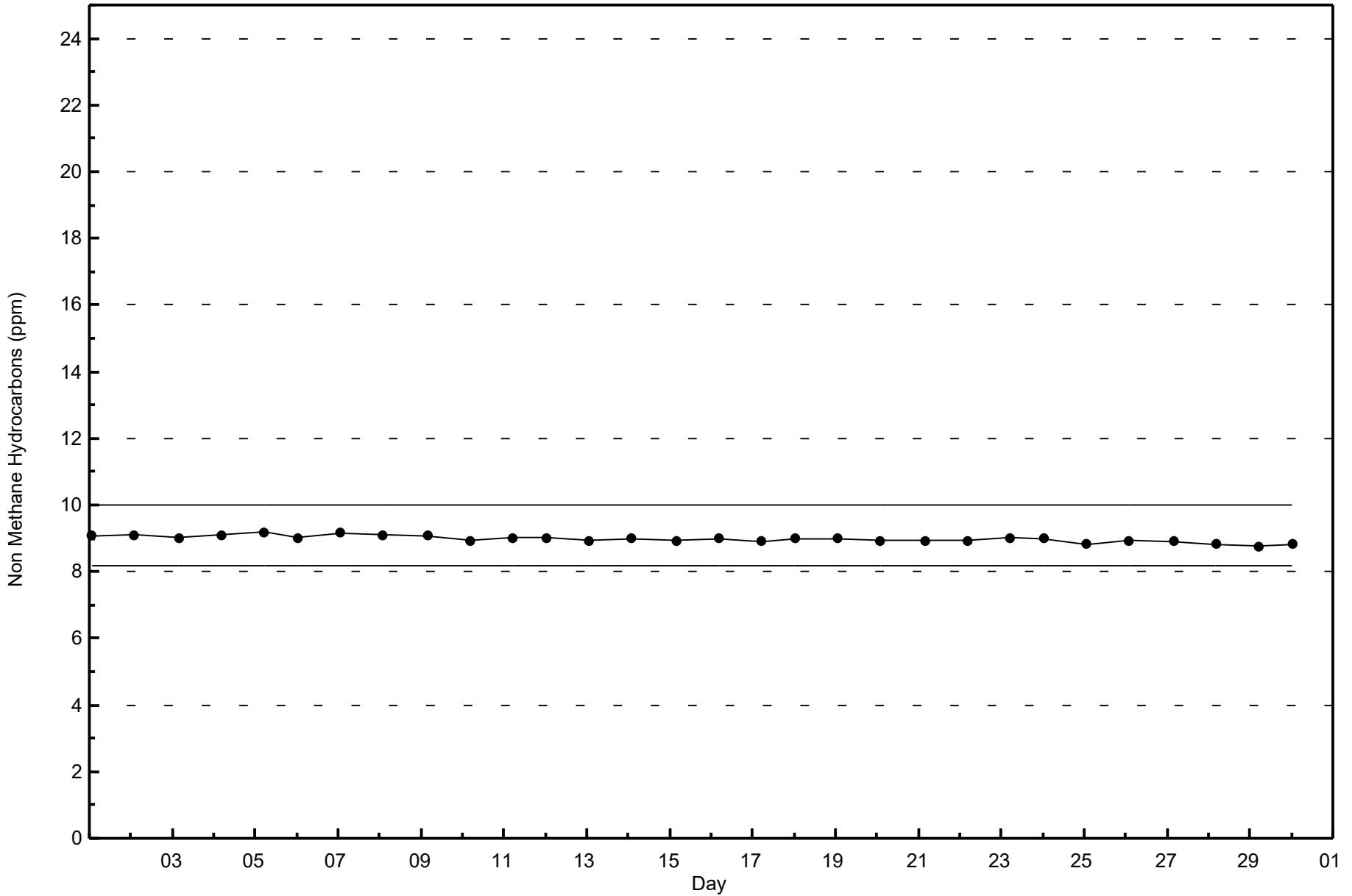
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley











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

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

**Athabasca Valley - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 2.5 ppm on Apr 21 02:00	Maximum Daily Average: 2.1 ppm on Apr 2
Minimum Value: 2.0 ppm on Apr 3 08:00	Hours of Data: 685
Maximum Diurnal Average: 2.1 ppm at hour 2	Hours of Missing Data: 35
Monthly Average: 2.03 ppm	Hours of Calibration: 35
Minimum Daily Average: 2.0 ppm on Apr 4	Percent Operational Time: 100.0
Minimum Diurnal Average: 2.0 ppm at hour 15	
Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.3	

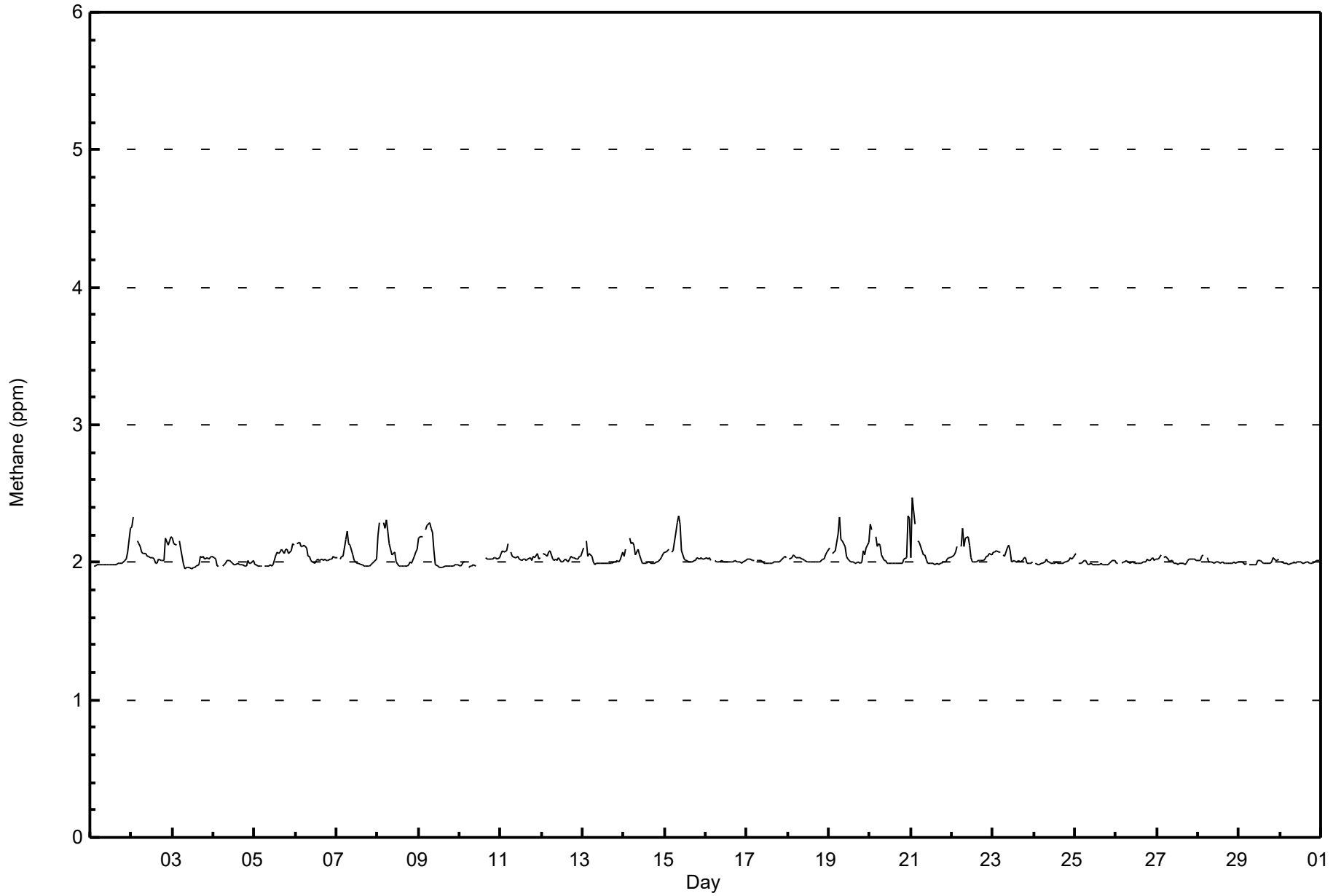
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.2																								
2-Apr	2.3	Z	Z	2.2	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	2.0	2.2	2.1	2.2	2.2	2.1	2.3																							
3-Apr	2.2	2.1	2.1	Z	2.2	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	2.2																							
4-Apr	2.0	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																							
5-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1																							
6-Apr	Z	2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
7-Apr	2.0	Z	2.0	2.0	2.0	2.2	2.2	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	2.0	2.0	2.0	2.0	2.2																							
8-Apr	2.2	Z	Z	2.3	2.3	2.3	2.2	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	2.0	2.1	2.1	2.1	2.3																							
9-Apr	2.2	2.2	2.2	Z	2.2	2.3	2.3	2.2	2.2	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	2.3																							
10-Apr	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
11-Apr	2.1	2.1	2.1	2.1	2.1	Z	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	2.1	2.0	2.0	2.0	2.1																							
12-Apr	Z	2.1	2.1	2.0	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	2.1																							
13-Apr	2.1	Z	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2																							
14-Apr	2.0	2.1	Z	2.2	2.1	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	2.0	2.0	2.0	2.1	2.0	2.2																							
15-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.3	2.3	2.3	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	2.3																							
16-Apr	2.0	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																							
17-Apr	2.0	2.0	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																							
18-Apr	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1																							
19-Apr	2.1	Z	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.3																							
20-Apr	2.3	2.2	Z	2.2	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	2.0	2.0	2.0	2.0	2.0	2.3	2.3	2.3																							
21-Apr	2.0	2.5	2.3	Z	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0	2.5																							
22-Apr	2.0	2.0	2.1	2.1	Z	2.1	2.2	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2																							
23-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.0	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	2.0	2.0	2.0	2.0	2.1																							
24-Apr	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	2.0																							
25-Apr	2.1	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	2.1																							
26-Apr	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																							
27-Apr	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																							
28-Apr	2.0	2.0	2.0	2.1	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	2.1																							
29-Apr	2.0	2.0	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																							
30-Apr	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	2.0																							
																								2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	Diu mal	Average	
																								2.3	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.3	Diu mal	Maximum

Z - zerospan      C - Calibration



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	536	78.25	78.25
2.1 - 3.0	149	21.75	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - April 2024**

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	60	13	10	10	20	55	50	10	10	19	34	39	33	31	29	112	535
2.1 - 3.0	2	2	0	3	5	15	38	19	13	7	6	4	2	4	6	22	148
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>	62	15	10	13	25	70	88	29	23	26	40	43	35	35	35	134	683

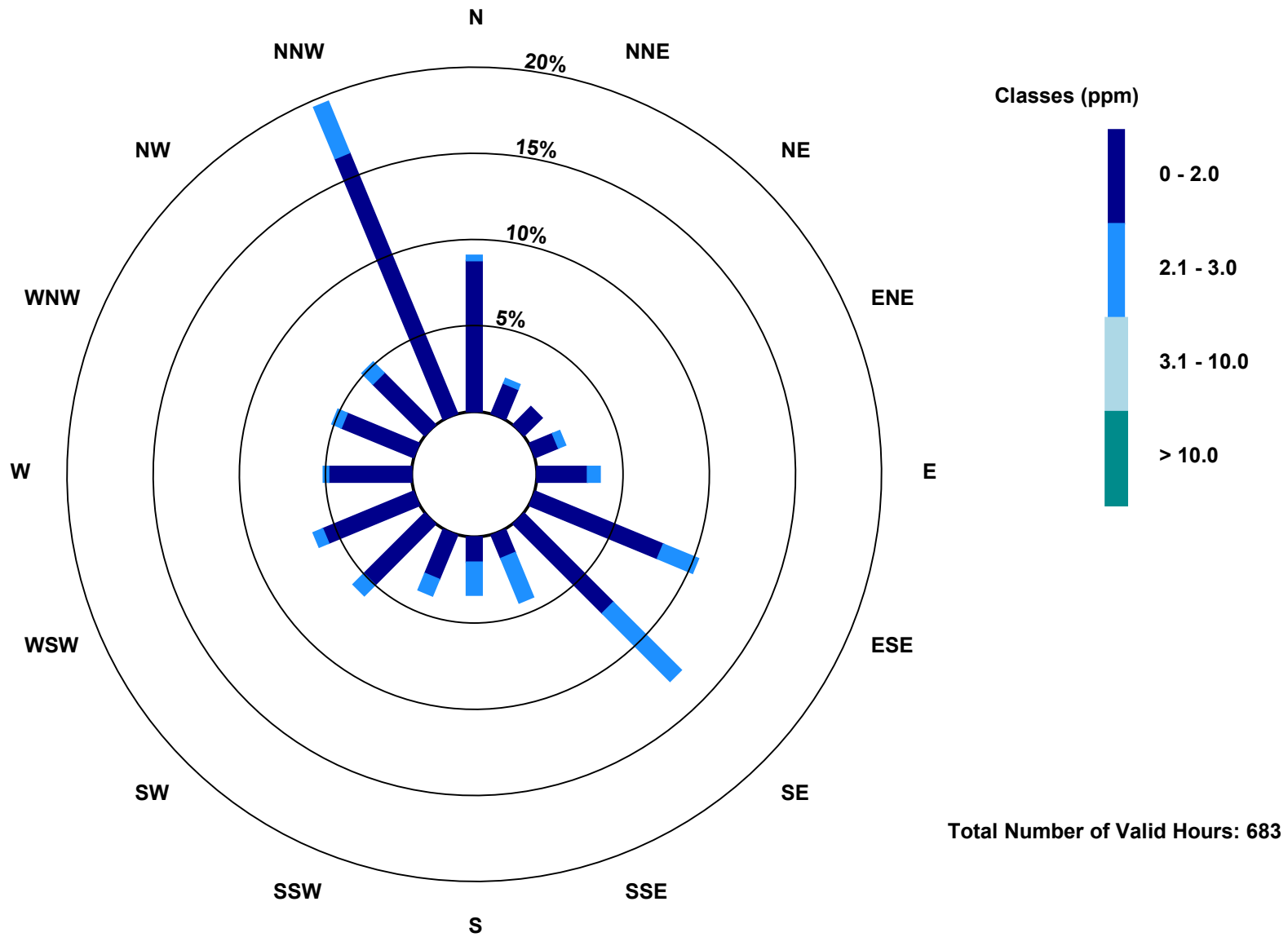
Total Number of Valid Hours: 683

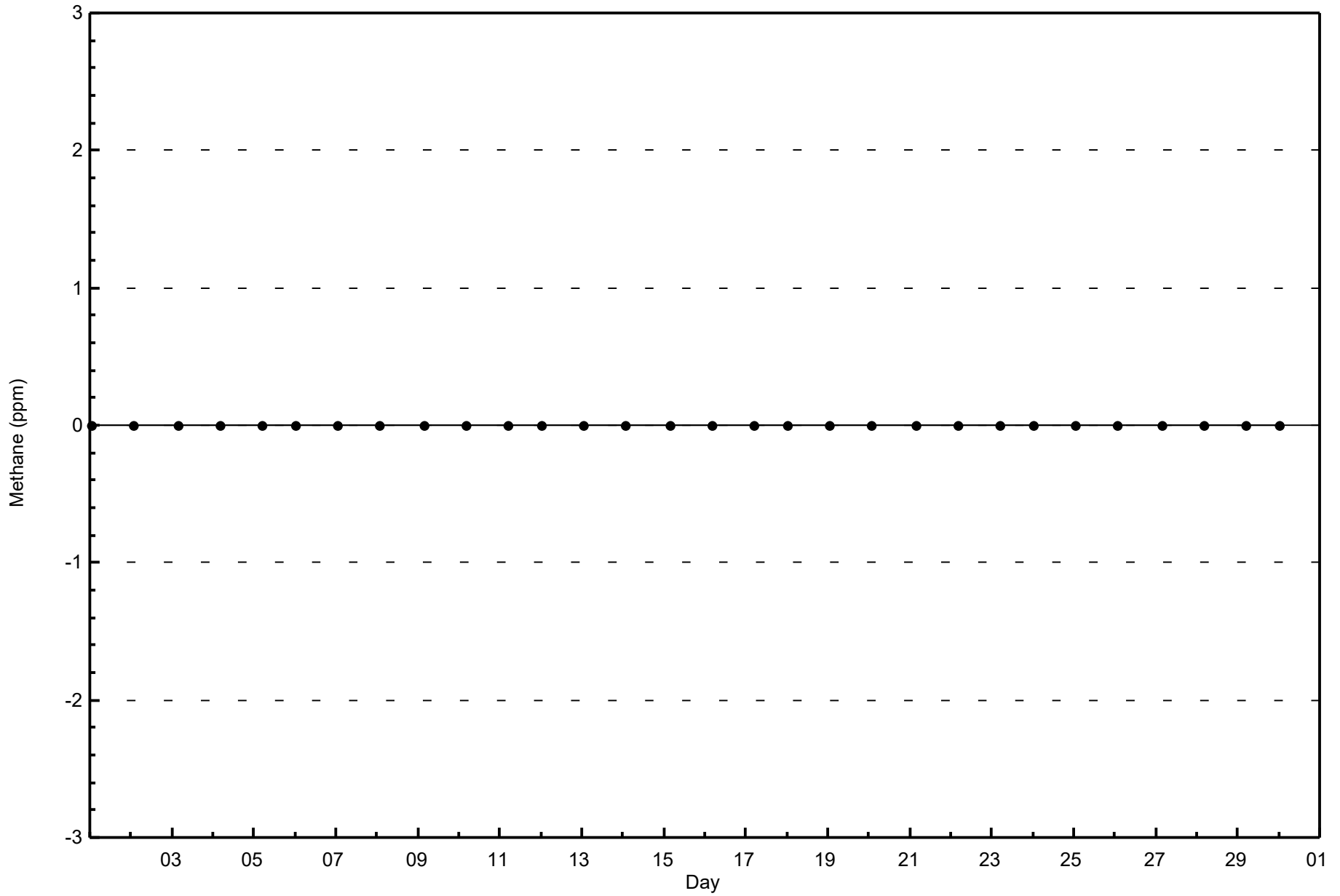
Total Number of Hours: 720

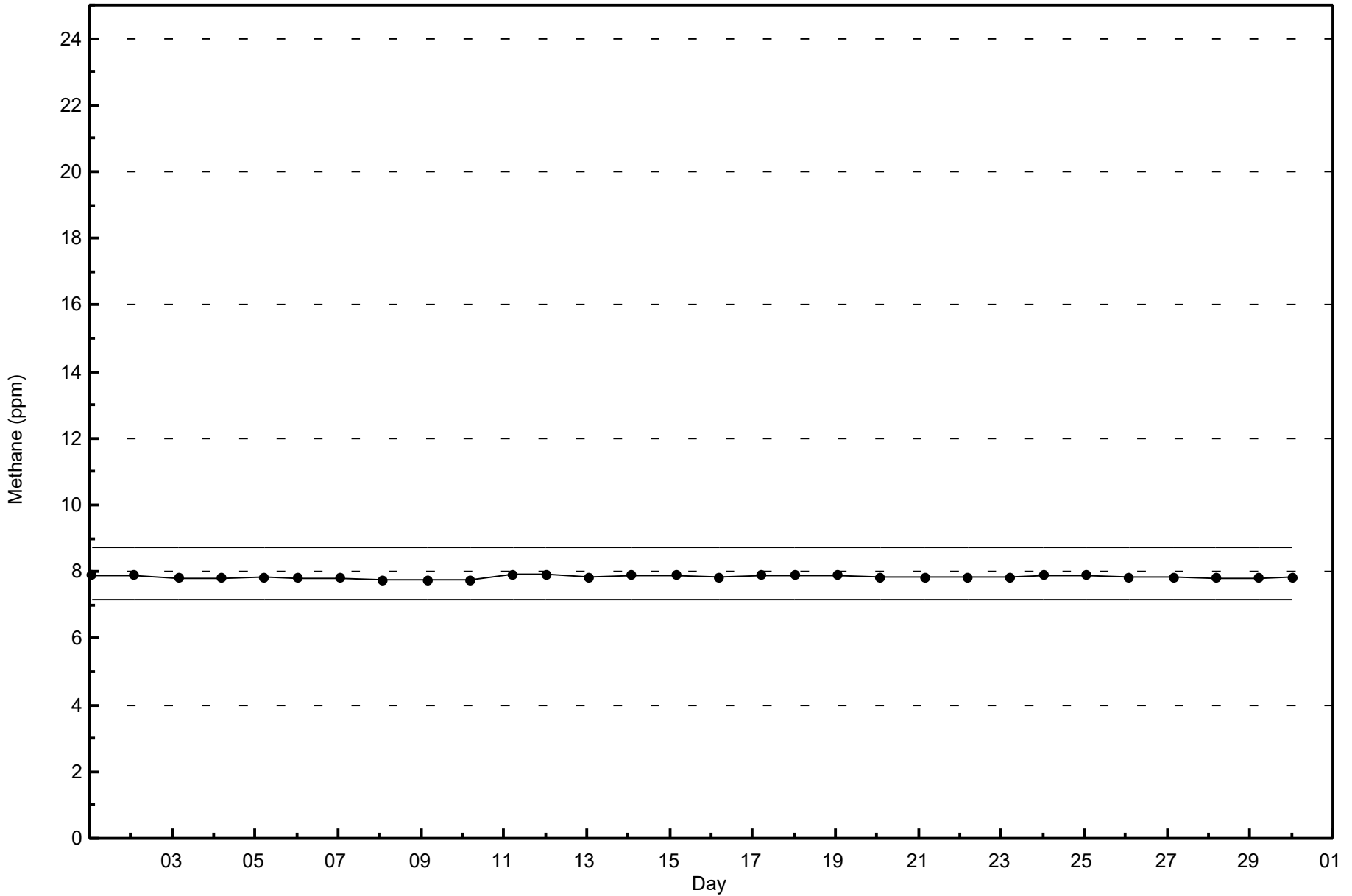


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

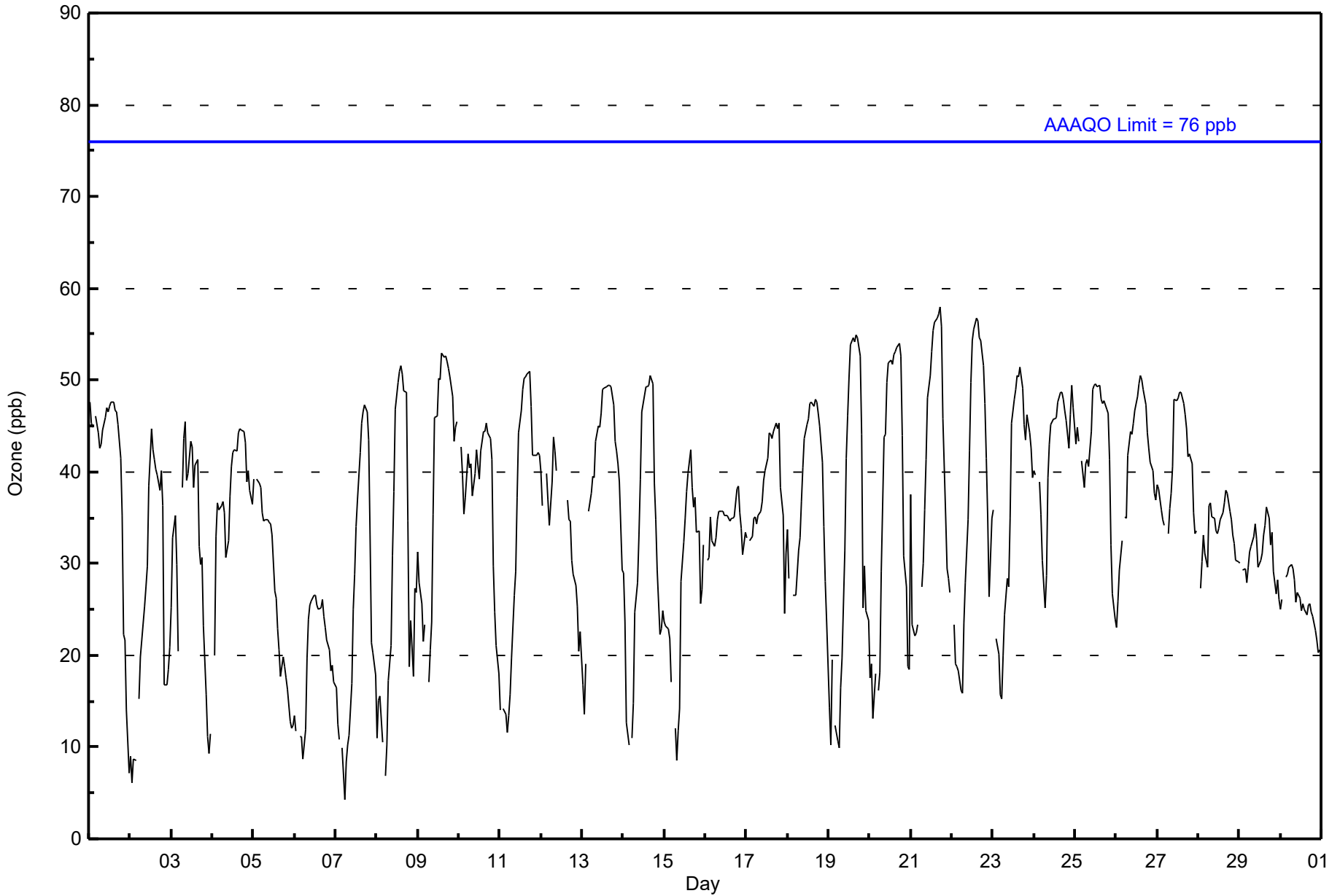
Ozone (O<sub>3</sub>) - ppb

Athabasca Valley - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 58.0 ppb on Apr 21 18:00	Maximum Daily Average: 42.8 ppb on Apr 25		Hours of Data:	685
Minimum Value: 4.3 ppb on Apr 7 06:00	Minimum Daily Average: 20.1 ppb on Apr 6		Hours of Missing Data:	35
Maximum Diurnal Average: 44.4 ppb at hour 15	Minimum Diurnal Average: 25.4 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 34.48 ppb	Percentiles: P <sub>1</sub> = 8.7 P <sub>10</sub> = 17.1 Q <sub>1</sub> = 25.6 Median = 35.3 Q <sub>3</sub> = 44.3 P <sub>90</sub> = 49.1 P <sub>99</sub> = 55.6		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-Apr	47.6	45.3	44.8	Z	46.1	44.2	42.6	43.0	44.5	46.0	47.0	46.5	47.1	47.6	47.6	46.7	46.5	45.1	41.6	35.3	22.3	21.7	14.1	7.2	40.0	47.6																							
2-Apr	9.0	6.1	8.8	8.5	Z	15.3	19.8	21.7	25.3	27.5	29.7	38.4	44.7	42.4	41.3	40.3	39.6	38.0	40.2	36.2	16.7	16.8	18.4	21.0	26.3	44.7																							
3-Apr	25.1	32.8	35.2	29.8	20.5	Z	38.2	43.6	45.5	39.1	39.8	43.4	42.7	38.3	40.7	41.4	31.8	30.0	30.7	23.1	15.8	11.1	9.2	11.4	31.3	45.5																							
4-Apr	Z	19.9	33.0	36.6	35.8	36.3	36.7	35.6	30.6	32.6	37.4	40.6	42.1	42.4	42.3	44.3	44.6	44.6	44.3	43.2	38.9	40.1	38.0	36.4	38.1	44.6																							
5-Apr	39.2	Z	39.2	38.7	38.3	35.5	34.6	34.8	34.7	34.5	34.4	33.1	27.1	26.2	22.9	20.6	17.7	19.9	18.7	17.5	16.3	12.9	12.1	12.3	27.0	39.2																							
6-Apr	13.4	11.8	Z	11.1	11.1	8.8	11.9	19.7	23.9	25.4	26.0	26.6	26.6	25.5	25.0	25.1	26.0	24.3	23.1	21.7	20.5	18.4	18.9	17.1	20.1	26.6																							
7-Apr	16.5	12.6	10.9	Z	9.9	4.3	8.4	10.2	11.3	16.9	25.0	28.8	33.9	36.9	42.1	45.3	46.5	47.2	46.6	43.5	33.1	21.4	20.3	17.9	25.6	47.2																							
8-Apr	11.0	15.2	15.5	10.5	Z	6.9	10.2	17.2	21.0	30.8	37.8	46.8	49.8	51.0	51.5	50.6	48.8	48.6	34.6	18.7	23.8	17.6	27.4	26.8	29.2	51.5																							
9-Apr	31.3	27.9	25.6	21.5	23.4	Z	17.1	20.7	23.6	35.4	45.9	46.1	50.2	50.1	52.9	52.5	52.6	52.0	51.3	50.3	48.2	43.4	44.9	45.5	39.7	52.9																							
10-Apr	Z	42.7	39.7	35.4	37.2	42.0	40.4	40.8	37.4	39.9	42.5	40.8	39.2	42.2	44.3	44.4	45.4	44.3	43.6	41.3	29.7	24.7	21.1	18.0	38.1	45.4																							
11-Apr	14.1	Z	14.2	13.5	11.5	13.4	15.7	19.7	26.5	29.2	37.2	44.2	46.7	49.0	50.3	50.4	50.6	50.9	47.1	41.7	41.8	41.8	42.2	41.7	34.5	50.9																							
12-Apr	39.9	36.4	Z	39.8	36.9	34.2	38.9	43.8	42.3	40.1	Z	Z	Z	Z	Z	36.9	34.8	34.7	30.4	28.8	27.6	25.3	20.4	22.6	34.1	43.8																							
13-Apr	16.8	13.6	19.0	Z	35.7	37.7	39.5	39.4	43.3	45.0	44.8	46.4	49.0	49.1	49.2	49.4	49.5	49.2	47.3	43.3	42.3	40.8	38.8	29.3	39.9	49.5																							
14-Apr	29.1	23.7	12.6	10.3	Z	11.0	14.7	24.6	27.8	33.1	39.1	46.5	48.4	49.3	49.3	49.5	50.4	49.5	38.8	34.8	29.3	22.3	22.9	24.8	32.3	50.4																							
15-Apr	23.6	23.2	22.9	21.9	17.1	Z	12.1	8.5	11.7	14.1	28.1	32.3	35.0	37.8	39.9	42.5	38.3	36.1	37.2	33.3	33.5	25.6	27.2	32.0	27.6	42.5																							
16-Apr	Z	30.3	30.7	35.2	32.5	31.9	32.7	34.8	35.7	35.6	35.7	35.2	35.2	34.7	34.9	35.0	35.1	38.1	38.4	35.6	33.9	31.0	33.4	34.4	38.4	38.4																							
17-Apr	32.7	Z	32.5	33.0	34.9	35.0	34.3	35.2	35.7	36.8	39.1	40.1	41.5	44.3	44.0	43.6	44.4	45.4	44.7	45.3	38.2	35.2	24.5	31.1	37.9	45.4																							
18-Apr	33.7	28.3	Z	26.5	26.6	26.5	31.5	32.8	36.7	40.4	43.6	45.1	45.8	47.4	47.6	47.2	47.9	47.6	46.4	45.0	41.0	34.0	28.1	23.7	38.0	47.9																							
19-Apr	14.3	10.3	19.6	Z	12.3	10.7	9.9	16.5	19.7	31.4	41.6	46.1	50.4	53.8	54.6	54.1	54.9	54.7	52.6	44.1	25.1	29.8	24.9	23.8	32.8	54.9																							
20-Apr	17.6	19.1	13.1	18.0	Z	16.2	18.2	29.1	43.8	44.1	49.7	51.8	52.2	51.6	52.8	53.1	53.6	54.0	52.6	43.9	30.8	27.4	18.8	18.5	36.1	54.0																							
21-Apr	37.5	23.4	22.1	22.4	23.3	Z	27.5	30.0	35.9	41.4	48.1	50.4	53.0	55.4	56.3	56.8	57.2	58.0	55.8	45.8	35.1	29.4	28.4	26.9	40.0	58.0																							
22-Apr	Z	23.3	19.1	18.7	18.3	16.2	15.9	23.5	27.8	34.8	42.3	49.7	54.3	55.6	56.7	56.5	54.6	54.3	51.5	47.4	41.5	35.1	26.4	34.9	37.3	56.7																							
23-Apr	35.8	Z	21.7	20.2	15.7	15.2	20.1	24.5	28.3	27.5	34.9	45.2	47.9	49.0	50.5	50.4	51.5	49.1	45.2	43.4	46.2	44.3	42.6	39.3	36.9	51.5																							
24-Apr	40.1	39.6	Z	38.9	35.3	30.4	25.2	28.6	39.4	43.1	45.1	45.8	45.7	45.9	47.6	48.7	48.7	47.8	46.7	45.6	42.6	46.2	49.5	46.9	42.3	49.5																							
25-Apr	43.0	44.9	43.3	Z	41.1	38.3	40.8	41.3	40.6	44.4	48.9	49.4	49.6	49.2	49.4	47.9	47.5	47.8	46.9	46.4	41.3	32.1	26.7	23.9	42.8	49.6																							
26-Apr	23.0	25.9	29.3	32.5	Z	35.1	34.9	41.8	44.4	44.1	45.3	46.7	48.3	49.6	50.6	50.0	48.9	47.2	44.2	42.5	41.1	40.0	37.7	37.0	40.9	50.6																							
27-Apr	38.6	38.1	35.8	34.8	34.2	Z	33.2	36.0	37.6	40.6	47.9	47.8	48.1	48.6	48.7	47.4	46.2	44.7	41.7	41.9	40.9	35.6	33.3	33.6	40.7	48.7																							
28-Apr	Z	27.3	30.2	33.1	31.1	29.6	36.3	36.7	35.1	34.9	33.5	33.2	33.8	34.8	35.6	36.7	38.0	37.7	35.6	34.8	33.1	32.2	30.4	30.2	33.6	38.0																							
29-Apr	30.0	Z	29.3	29.5	27.9	29.6	31.3	31.8	32.9	34.3	32.6	29.6	30.4	31.2	33.0	34.2	36.1	34.9	32.0	33.4	29.1	26.7	28.3	26.0	31.1	36.1																							
30-Apr	25.1	26.1	Z	28.5	28.8	29.5	30.0	29.5	28.2	25.9	26.9	26.2	24.8	25.6	25.1	24.4	25.5	25.6	24.8	24.2	22.7	21.7	20.2	20.7	25.6	30.0																							
																								27.5	25.9	25.9	25.9	27.4	25.4	26.8	29.8	32.4	35.0	39.0	41.5	42.9	43.6	44.4	44.2	43.8	43.3	41.1	37.8	32.8	29.6	27.6	27.1	Diurnal Average	
																								47.6	45.3	44.8	39.8	46.1	44.2	42.6	43.8	45.5	46.0	49.7	51.8	54.3	55.6	56.7	56.8	57.2	58.0	55.8	50.3	48.2	46.2	49.5	46.9	Diurnal Maximum	

Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	103	15.04	15.04
21 - 50	541	78.98	94.01
51 - 82	41	5.99	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	2	2	0	3	5	8	24	13	9	1	5	5	4	3	6	11	101
21 - 50	58	13	11	11	21	58	60	15	13	20	26	32	26	32	29	116	541
51 - 82	6	1	0	0	1	4	1	0	1	0	8	5	8	0	1	5	41
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	16	11	14	27	70	85	28	23	21	39	42	38	35	36	132	683

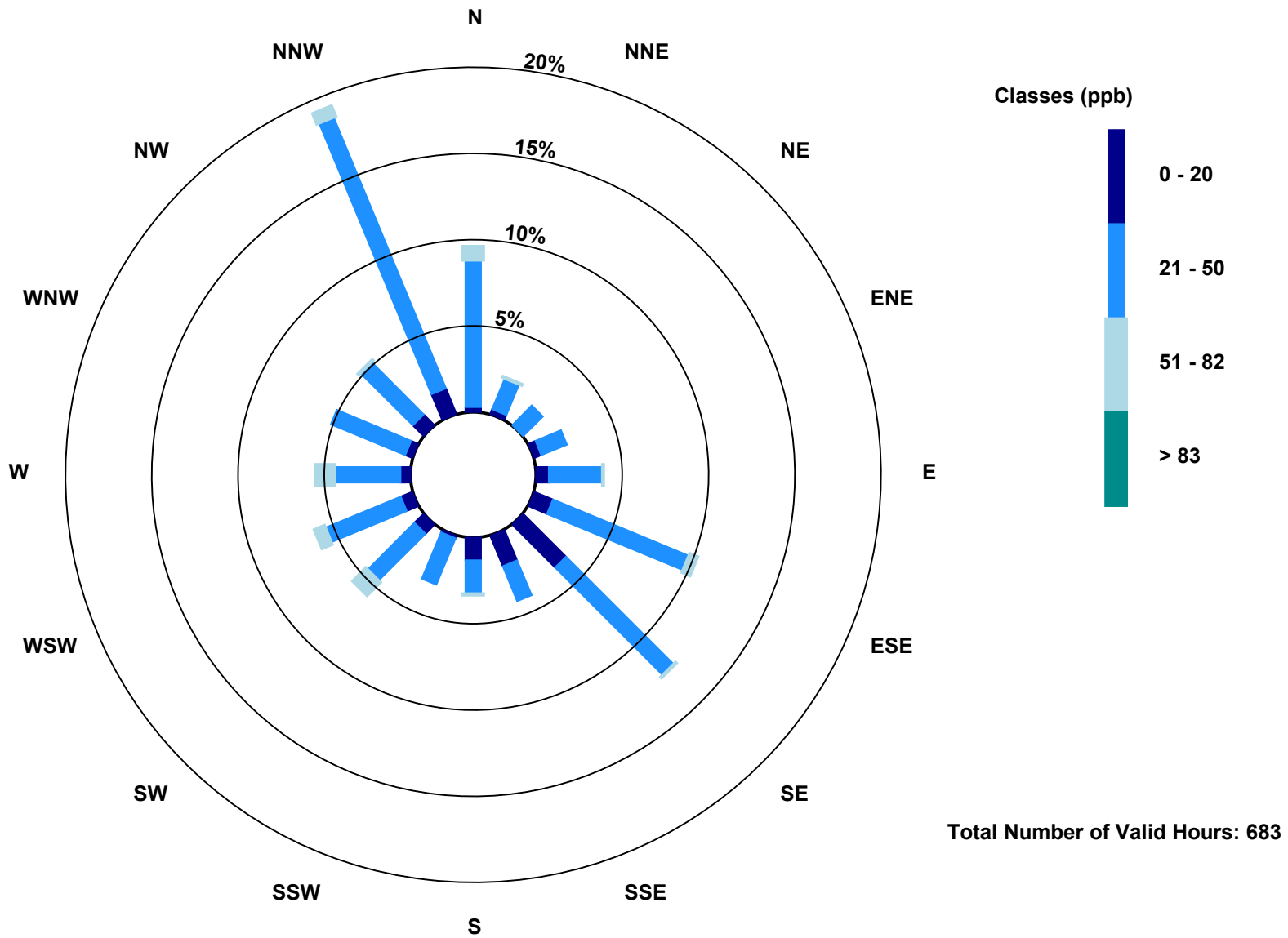
Total Number of Valid Hours: 683

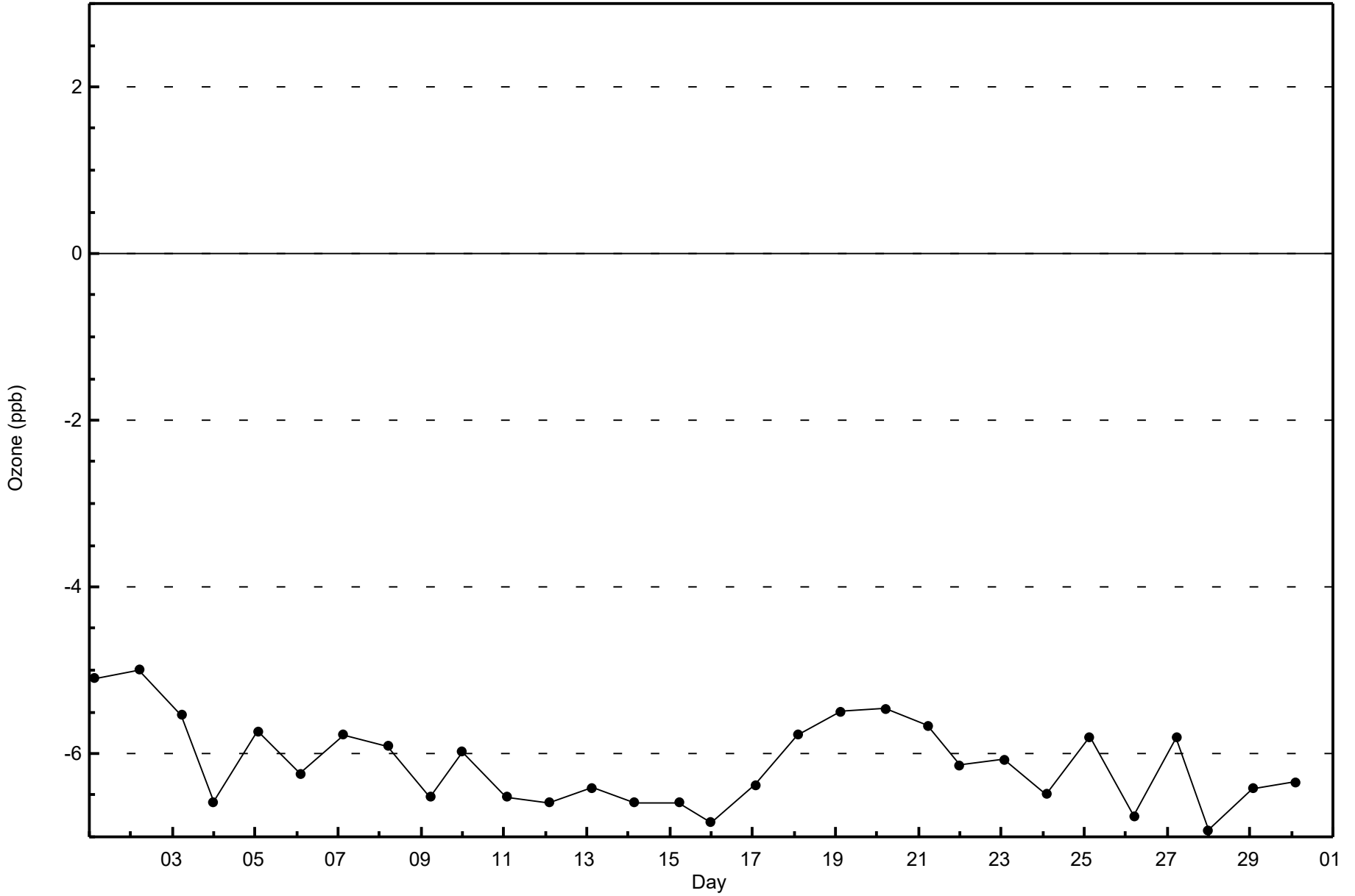
Total Number of Hours: 720

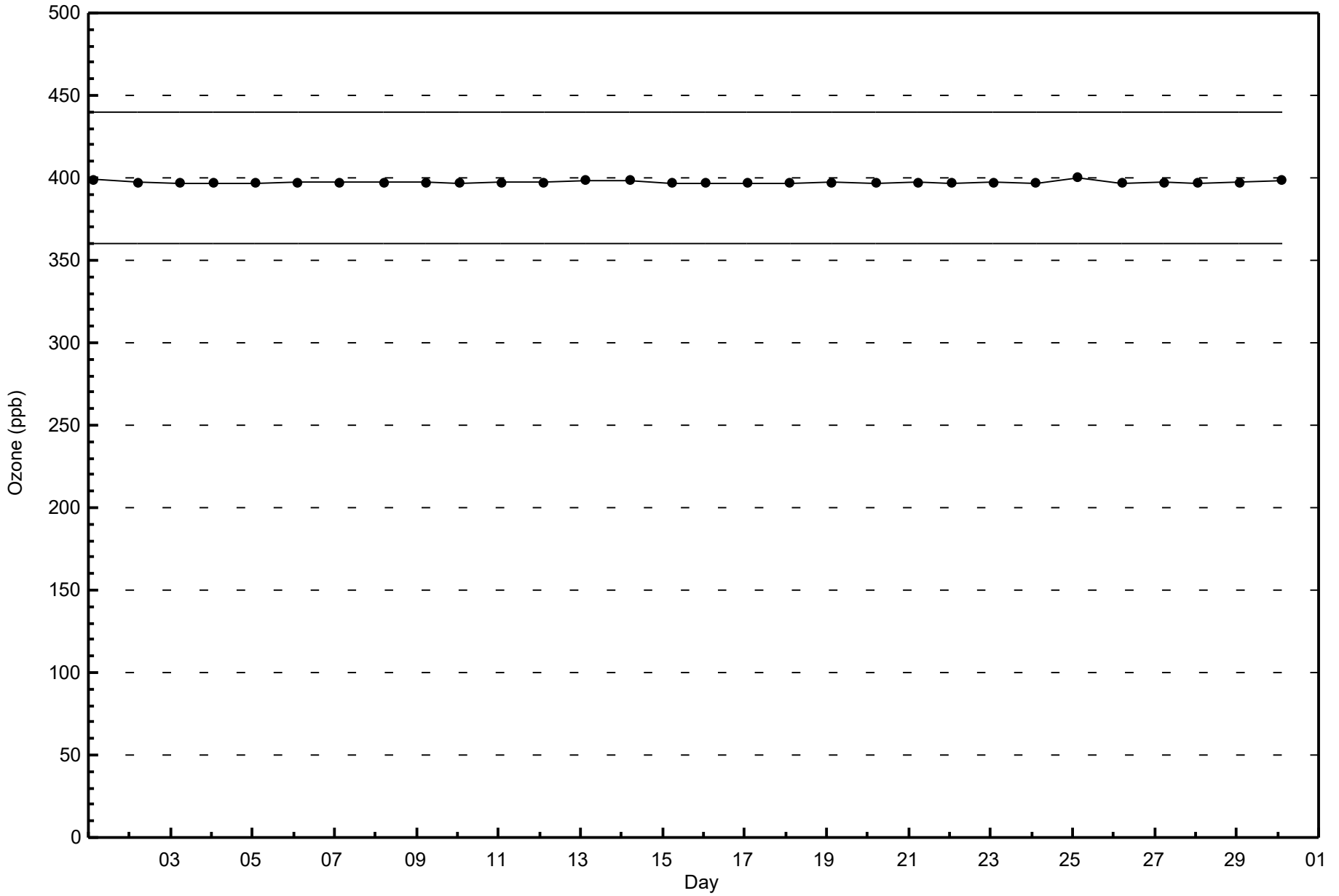


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - April 2024**

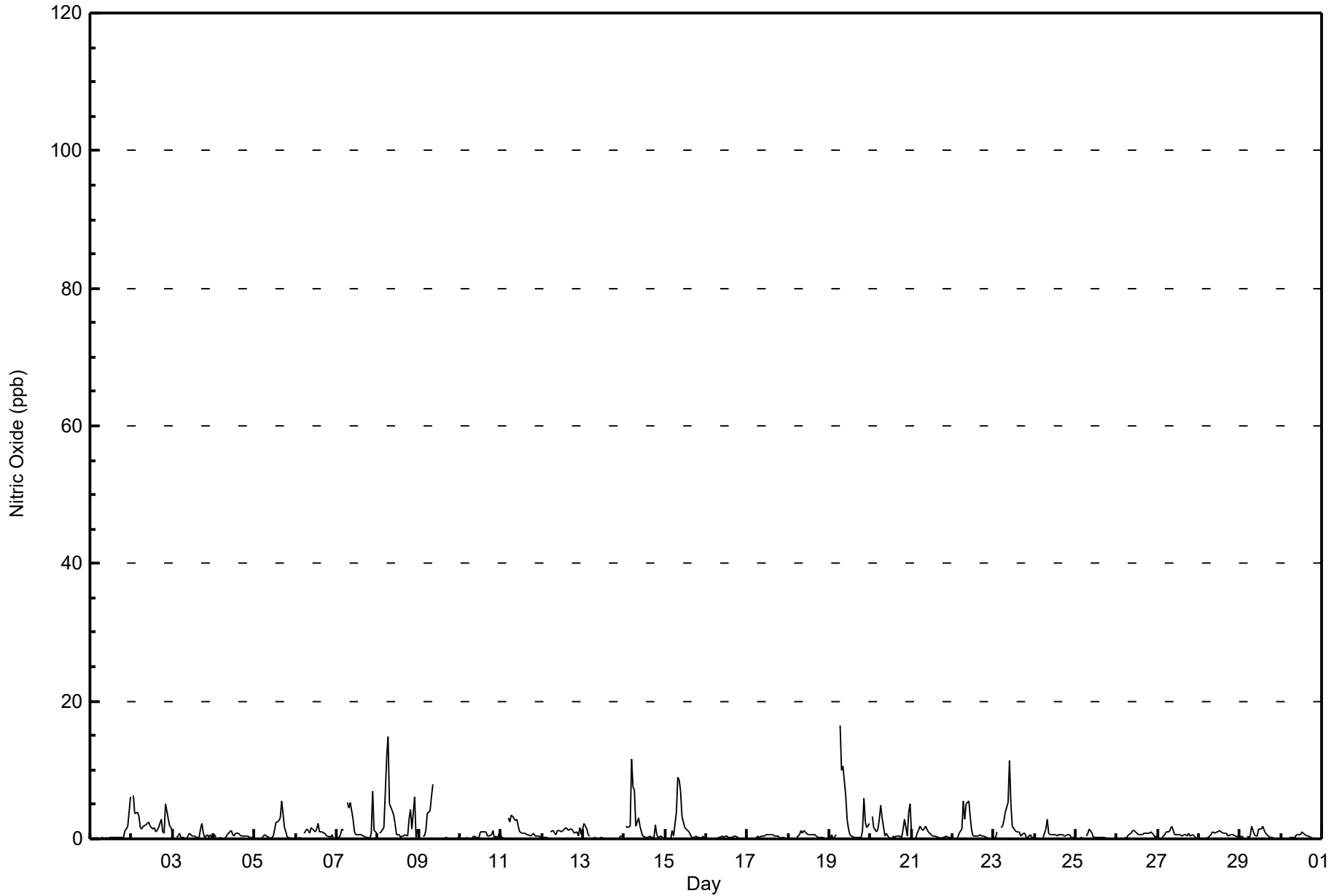
Maximum Value: 16.6 ppb on Apr 19 07:00																				Maximum Daily Average: 3.1 ppb on Apr 8					Hours in Service: 720				
Minimum Value: 0.0 ppb on Apr 6 01:00																				Minimum Daily Average: 0.2 ppb on Apr 16					Hours of Data: 684				
Maximum Diurnal Average: 2.7 ppb at hour 7																				Minimum Diurnal Average: 0.3 ppb at hour 1					Hours of Missing Data: 36				
Monthly Average: 1.02 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.5 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 2.4 P <sub>99</sub> = 9.1					Hours of Calibration: 36				
																				Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Apr	0.0	0.0	0.1	0.1	0.1	Z	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	1.3	1.5	1.8	6.1	0.6	6.1			
2-Apr	Z	6.4	3.7	3.8	3.3	1.7	1.4	1.9	2.0	2.2	2.5	1.9	1.4	1.5	1.0	1.2	1.6	2.9	1.0	0.9	5.0	2.9	1.9	1.7	2.3	6.4			
3-Apr	0.8	Z	0.2	0.4	0.8	0.2	0.1	0.1	0.1	0.5	0.8	0.4	0.3	0.4	0.3	0.2	1.4	2.2	0.8	0.3	0.7	0.2	0.6	0.3	0.5	2.2			
4-Apr	0.5	0.1	Z	0.0	0.1	0.0	0.0	0.1	0.6	0.9	1.2	0.7	0.5	0.8	0.8	0.5	0.4	0.5	0.4	0.5	0.2	0.2	0.2	0.2	0.4	1.2			
5-Apr	0.1	0.0	0.0	Z	0.2	0.3	0.5	0.3	0.2	0.1	0.2	0.5	2.4	2.3	2.6	3.1	5.6	1.7	1.1	0.2	0.2	0.1	0.1	0.0	0.9	5.6			
6-Apr	0.0	0.0	0.2	0.1	Z	0.7	1.3	1.3	0.8	1.6	1.4	1.1	1.4	2.1	1.0	1.1	0.9	0.8	0.3	0.3	0.1	0.6	0.0	0.0	0.7	2.1			
7-Apr	0.3	0.1	0.7	1.4	1.2	Z	5.4	4.4	5.2	2.9	1.1	0.7	0.7	0.5	0.6	0.5	0.3	0.3	0.3	0.1	0.9	6.8	1.2	0.8	1.6	6.8			
8-Apr	Z	0.9	1.1	1.6	6.6	11.8	14.8	5.2	4.0	3.4	2.2	0.6	0.5	0.3	0.4	0.5	0.7	0.4	2.8	4.3	1.5	6.0	0.2	1.3	3.1	14.8			
9-Apr	0.7	Z	0.4	0.5	1.2	3.7	4.0	6.1	7.9	C	C	C	C	C	C	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	--	7.9			
10-Apr	0.0	0.1	Z	0.1	0.2	0.0	0.1	0.1	0.4	0.1	0.2	0.3	1.1	1.0	1.0	1.0	0.4	0.4	0.6	1.3	0.1	0.4	0.0	1.1	0.4	1.3			
11-Apr	0.1	0.3	0.1	Z	3.1	2.4	3.5	3.3	2.7	2.9	1.9	1.1	0.9	0.9	0.8	0.6	0.7	0.4	0.7	0.7	0.5	0.4	0.3	0.3	1.2	3.5			
12-Apr	0.2	0.1	0.1	0.2	Z	1.0	1.2	0.8	0.6	1.3	1.2	1.0	1.2	1.4	1.6	1.1	1.5	1.3	1.2	0.9	0.9	0.5	1.7	0.6	0.9	1.7			
13-Apr	2.3	1.8	1.5	0.5	0.5	Z	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.4	2.3	2.3			
14-Apr	Z	1.7	1.6	1.8	11.7	7.6	7.1	1.8	3.1	1.8	1.0	0.4	0.2	0.2	0.2	0.4	0.1	0.3	2.0	0.6	0.2	0.4	0.2	0.1	1.9	11.7			
15-Apr	0.0	Z	0.1	0.0	1.2	0.3	3.9	8.9	8.6	7.0	3.2	1.6	1.5	1.3	0.9	0.3	0.2	0.3	0.4	0.1	0.2	0.1	0.3	0.0	1.8	8.9			
16-Apr	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.3	0.3		
17-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.4	0.3	0.5	0.4	0.3	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.1	0.3	0.1	0.1	0.0	0.3	0.5			
18-Apr	0.0	0.0	0.0	0.0	Z	0.3	0.6	1.2	0.9	1.3	0.9	0.7	0.7	0.6	0.6	0.6	0.4	0.3	0.3	0.1	0.3	0.0	0.0	0.0	0.4	1.3			
19-Apr	0.0	0.6	0.1	0.3	0.5	Z	16.6	10.0	10.7	6.4	2.8	1.4	0.6	0.3	0.2	0.2	0.1	0.3	0.2	1.2	6.0	2.4	1.7	2.2	2.8	16.6			
20-Apr	Z	3.2	1.6	1.1	1.4	2.9	4.9	3.1	0.4	0.9	0.3	0.1	0.1	0.5	0.3	0.3	0.4	0.3	0.3	1.3	2.9	0.5	3.8	5.2	1.6	5.2			
21-Apr	0.7	Z	0.1	0.9	1.2	1.9	1.3	1.5	1.9	1.5	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.7	1.9			
22-Apr	0.1	0.1	Z	0.1	0.8	1.4	5.5	2.9	5.1	5.5	3.1	1.2	0.4	0.3	0.4	0.5	0.6	0.4	0.4	0.2	0.2	0.0	0.0	0.1	1.3	5.5			
23-Apr	0.1	0.1	1.0	Z	1.6	1.8	2.7	3.9	5.4	11.5	5.2	1.8	1.3	1.1	1.0	0.9	0.4	0.8	0.8	0.3	0.2	0.6	0.1	0.1	1.9	11.5			
24-Apr	0.0	0.0	0.0	0.0	Z	0.3	1.4	2.9	0.8	0.6	0.5	0.6	0.5	0.5	0.5	0.7	0.7	0.3	0.5	0.5	0.5	0.1	0.1	0.1	0.5	2.9			
25-Apr	0.1	0.0	0.1	0.1	0.3	Z	0.5	0.9	1.4	0.8	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4			
26-Apr	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.7	0.9	1.1	1.2	0.9	0.6	0.5	0.5	0.6	0.8	0.7	0.8	0.9	1.0	0.6	0.2	0.5	0.6	1.2			
27-Apr	0.2	Z	0.2	0.4	0.5	1.0	1.0	1.5	1.8	1.3	0.7	0.6	0.7	0.6	0.4	0.7	0.5	0.5	0.9	0.5	0.5	0.5	0.2	0.0	0.7	1.8			
28-Apr	0.0	0.0	Z	0.1	0.0	0.3	0.4	0.6	1.0	0.8	1.0	1.1	1.3	1.1	0.8	0.7	0.7	0.5	0.5	0.6	0.6	0.3	0.4	0.3	0.6	1.3			
29-Apr	0.3	0.4	0.2	Z	0.4	0.2	0.4	1.8	0.6	0.4	0.5	1.4	1.5	1.7	1.2	0.9	0.6	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.6	1.8			
30-Apr	0.0	0.0	0.0	0.0	Z	0.2	0.2	0.3	0.3	0.6	0.6	0.6	1.0	0.8	0.6	0.5	0.4	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.3	1.0			
																								Diurnal Average					
																								Diurnal Maximum					
0.3 0.6 0.5 0.5 1.5 1.6 2.7 2.2 2.3 2.0 1.2 0.8 0.8 0.8 0.7 0.6 0.7 0.6 0.6 0.5 0.8 0.9 0.5 0.7																													
2.3 6.4 3.7 3.8 11.7 11.8 16.6 10.0 10.7 11.5 5.2 1.9 2.4 2.3 2.6 3.1 5.6 2.9 2.8 4.3 6.0 6.8 3.8 6.1																													
Z - zerospan C - Calibration																													





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	66	15	11	13	26	69	90	28	22	22	39	38	37	34	37	135	682
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	15	11	13	26	69	90	28	22	22	39	38	37	34	37	135	682

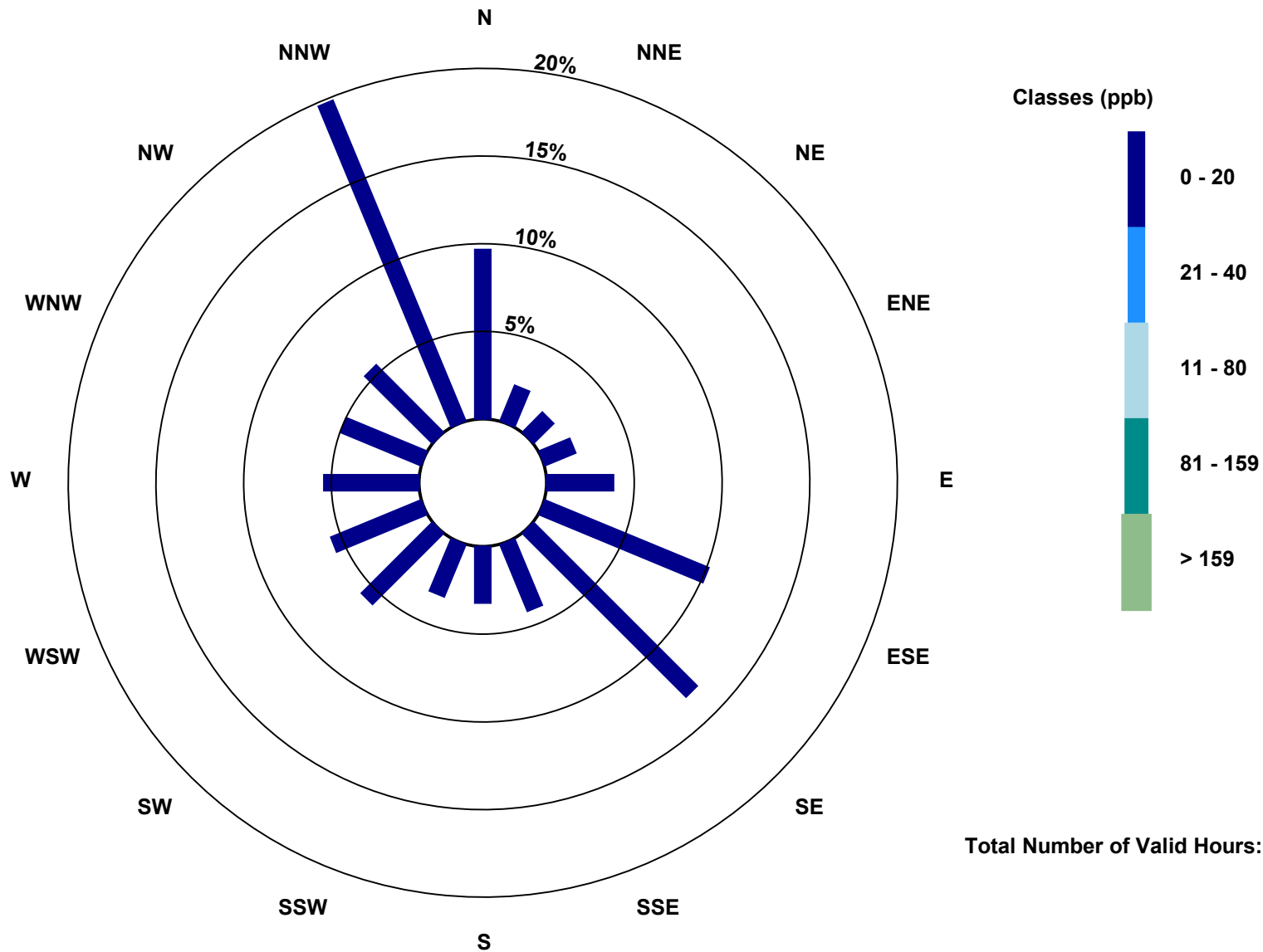
Total Number of Valid Hours: 682

Total Number of Hours: 720

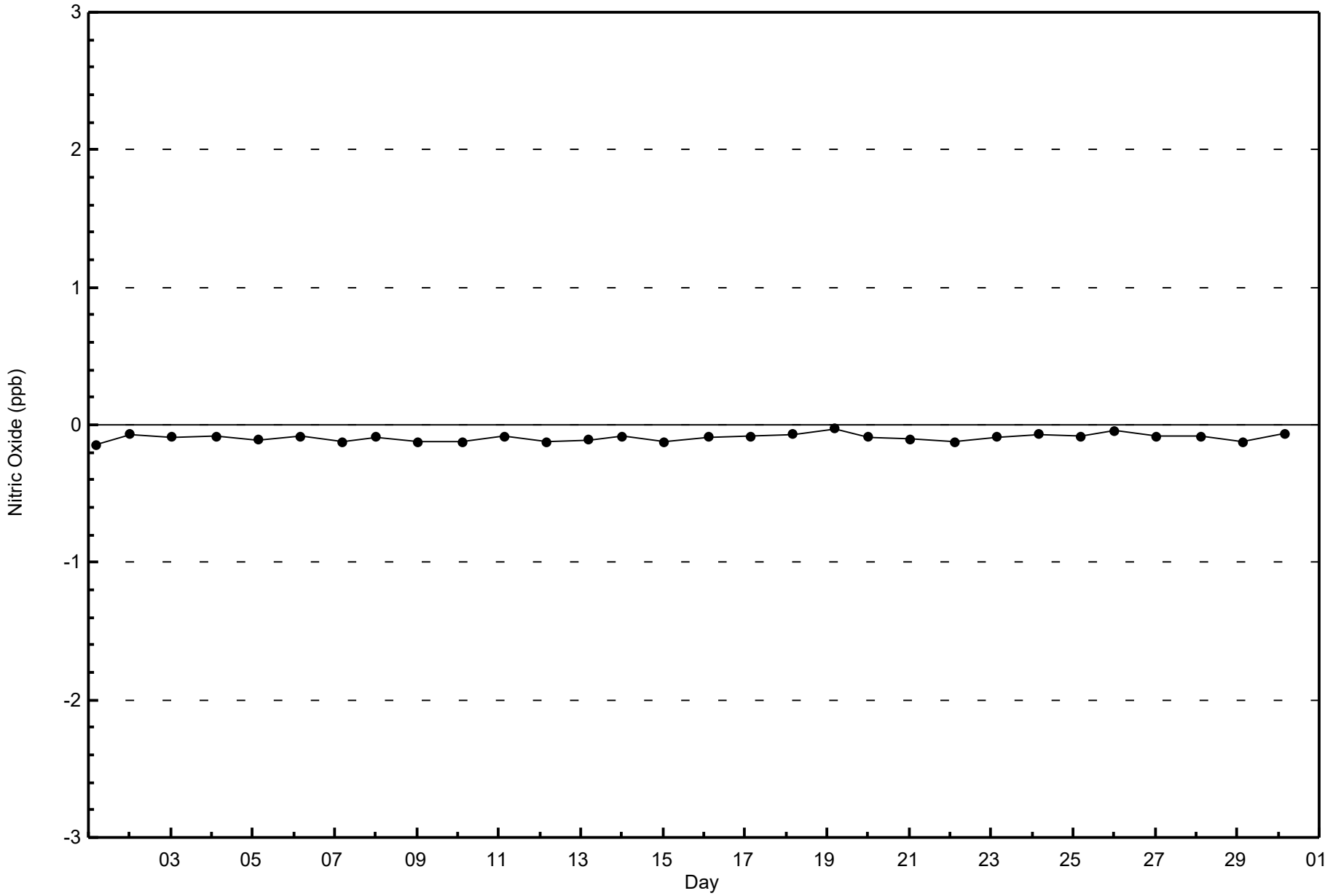


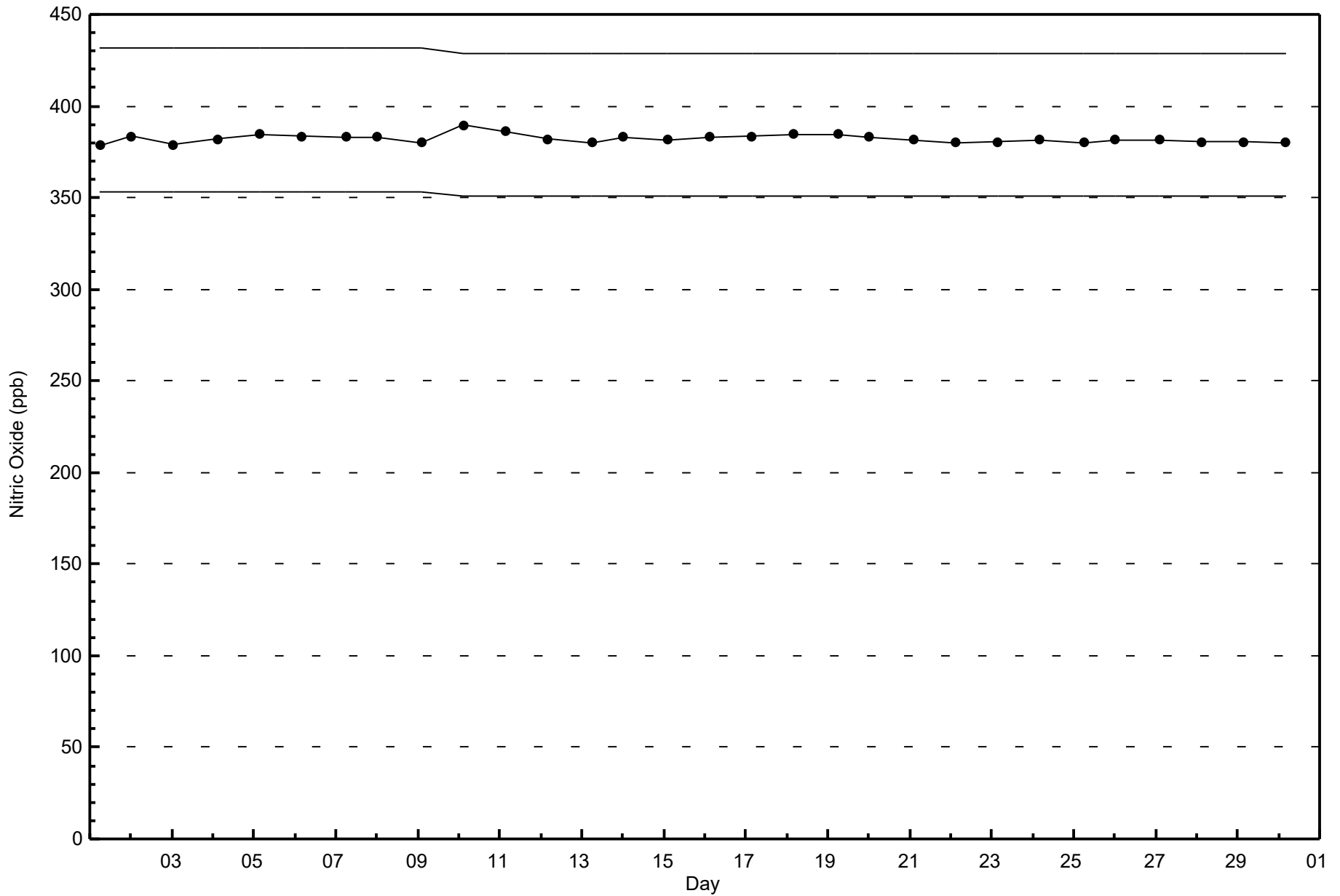
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Athabasca Valley



Total Number of Valid Hours: 682







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

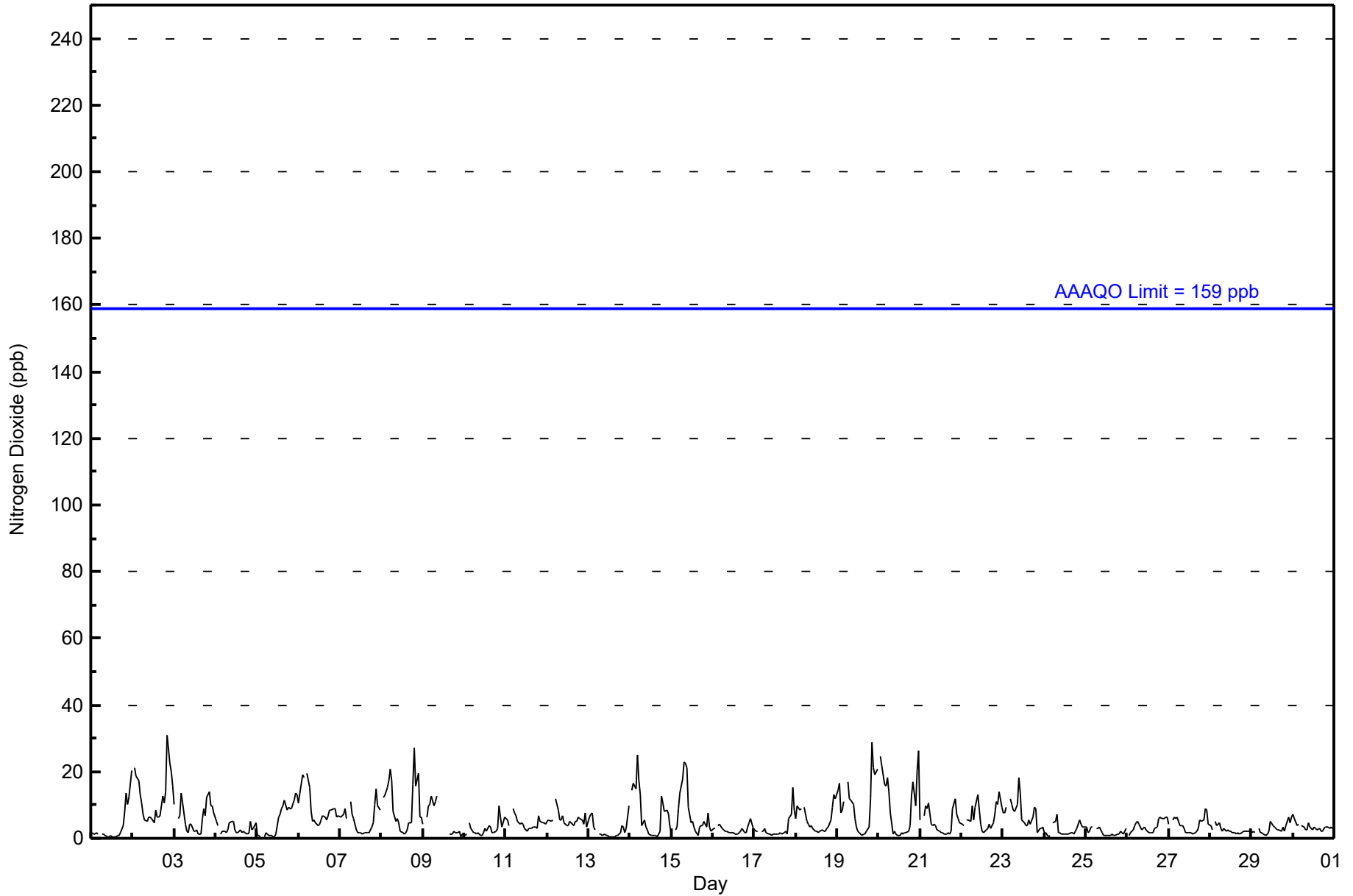
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - April 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 31.0 ppb on Apr 2 21:00	Maximum Daily Average: 12.0 ppb on Apr 2		Hours of Data:	684
Minimum Value: 0.5 ppb on Apr 1 10:00	Minimum Daily Average: 1.8 ppb on Apr 25		Hours of Missing Data:	36
Maximum Diurnal Average: 8.6 ppb at hour 21	Minimum Diurnal Average: 2.4 ppb at hour 13		Hours of Calibration:	36
Monthly Average: 5.38 ppb	Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 1.9 Median = 3.7 Q <sub>3</sub> = 6.9 P <sub>90</sub> = 12.3 P <sub>99</sub> = 22.4		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	1.6	1.3	1.1	1.5	1.2	Z	1.4	1.2	0.7	0.5	0.6	0.7	0.6	0.6	0.6	0.8	0.8	1.5	3.7	7.9	13.5	10.3	12.1	20.2	3.7	20.2
2-Apr	Z	21.1	18.6	17.2	13.0	10.8	7.2	5.5	5.2	6.4	6.5	5.8	4.7	8.5	6.3	6.2	6.8	12.7	10.7	14.0	31.0	22.3	19.9	15.7	12.0	31.0
3-Apr	10.1	Z	6.0	6.7	13.5	10.8	4.2	2.0	1.9	4.4	4.1	2.0	2.1	2.4	1.3	1.2	6.0	8.7	6.8	12.2	14.0	9.9	9.6	7.7	6.4	14.0
4-Apr	5.0	3.9	Z	1.1	2.2	2.0	1.6	2.5	4.5	5.0	5.1	2.6	1.5	1.9	2.4	1.9	2.0	1.5	1.3	1.5	5.0	2.7	2.8	4.5	2.8	5.1
5-Apr	0.9	1.0	0.6	Z	0.6	1.6	1.4	0.8	0.7	0.5	0.6	1.4	6.5	7.0	9.1	9.8	11.5	8.3	9.3	9.1	8.8	11.3	13.6	13.2	5.5	13.6
6-Apr	10.6	13.5	19.2	18.2	Z	19.3	15.2	8.0	5.2	5.4	4.8	4.0	4.1	5.7	6.6	6.4	5.7	6.9	8.4	8.6	9.0	8.9	6.5	6.6	9.0	19.3
7-Apr	6.3	6.9	7.4	9.1	6.1	Z	11.0	7.3	5.9	2.6	1.9	1.5	1.7	1.4	1.5	1.5	1.5	1.7	3.4	4.6	10.3	15.0	9.7	8.5	5.5	15.0
8-Apr	Z	12.3	12.9	15.1	17.2	20.6	17.2	8.1	5.2	5.9	4.5	2.1	1.5	1.2	1.7	2.7	4.7	4.6	16.2	27.3	15.8	19.3	6.4	6.5	10.0	27.3
9-Apr	4.1	Z	6.2	9.7	10.2	12.7	9.9	11.2	12.9	C	C	C	C	C	C	1.1	1.3	1.1	2.0	1.8	1.7	2.0	0.6	1.3	--	12.9
10-Apr	0.8	1.4	Z	4.5	2.8	1.6	1.5	1.3	1.9	0.8	0.8	1.6	2.9	2.3	3.9	3.4	1.8	1.9	2.2	2.9	9.8	6.3	3.6	6.3	2.9	9.8
11-Apr	5.9	5.7	3.7	Z	9.1	7.5	6.8	4.9	4.2	4.7	4.1	2.9	2.3	2.8	2.9	2.8	3.5	3.6	3.0	6.7	5.1	4.8	4.5	4.4	4.6	9.1
12-Apr	4.9	5.6	5.0	5.3	Z	11.9	8.3	5.4	5.7	6.9	4.5	3.7	4.0	5.2	4.5	4.0	4.9	5.0	6.5	6.1	5.3	4.4	7.8	3.6	5.6	11.9
13-Apr	6.4	7.4	7.5	3.2	2.6	Z	1.4	1.4	0.9	1.1	1.0	0.7	0.5	0.6	0.6	0.6	0.8	0.9	1.9	4.0	3.6	1.5	2.8	9.7	2.7	9.7
14-Apr	Z	14.2	16.7	14.7	25.2	17.5	13.3	4.0	5.6	3.5	2.5	1.1	0.8	0.8	1.0	0.9	0.6	2.2	12.9	10.8	8.1	8.6	7.3	3.4	7.6	25.2
15-Apr	1.5	Z	2.4	3.5	8.8	13.6	17.9	23.0	22.3	21.2	9.3	4.7	4.9	3.4	2.0	1.0	3.2	3.9	4.0	5.2	3.2	7.6	3.6	2.3	7.5	23.0
16-Apr	2.8	3.1	Z	4.0	4.2	2.8	2.4	2.1	2.0	1.8	1.8	1.9	1.7	1.2	1.3	1.5	2.2	3.1	1.7	1.5	3.5	4.8	5.8	3.1	2.6	5.8
17-Apr	2.7	2.3	2.1	Z	2.0	2.2	3.1	1.5	1.3	1.1	1.0	1.2	1.4	1.3	1.4	1.6	1.2	1.5	2.2	1.2	6.0	7.1	15.2	8.6	3.0	15.2
18-Apr	6.1	9.8	8.3	8.8	Z	9.3	5.2	4.3	3.3	3.9	3.0	2.2	2.0	1.9	2.0	2.5	2.0	2.3	2.8	3.5	5.7	9.4	13.3	12.0	5.4	13.3
19-Apr	14.2	16.7	7.8	8.3	11.1	Z	17.0	11.7	11.3	10.0	5.8	3.6	2.2	1.7	0.8	1.2	1.1	2.2	3.3	11.9	28.9	21.3	19.1	20.6	10.1	28.9
20-Apr	Z	24.7	21.7	16.0	15.7	18.2	13.8	7.5	1.3	2.0	1.2	0.8	0.7	1.6	1.2	1.5	1.8	2.1	3.9	12.6	16.9	9.8	20.3	26.1	9.6	26.1
21-Apr	5.6	Z	6.8	9.6	8.9	10.6	4.4	3.7	4.4	4.0	2.7	2.0	1.6	1.5	1.3	1.2	1.6	1.1	2.0	9.1	12.0	7.4	6.0	4.8	4.9	12.0
22-Apr	4.4	3.8	Z	5.7	5.4	5.0	9.7	5.5	9.4	13.3	8.6	4.2	2.0	1.9	2.4	2.9	4.1	2.9	4.5	7.1	11.2	10.3	13.8	9.4	6.4	13.8
23-Apr	7.7	7.7	9.2	Z	12.0	10.3	8.3	8.0	10.3	18.3	13.5	5.6	4.6	4.0	4.0	5.4	4.3	6.5	9.5	9.0	1.9	3.1	3.1	3.6	7.4	18.3
24-Apr	1.5	1.5	0.5	1.0	Z	4.7	4.9	7.1	1.8	1.7	1.4	1.3	1.1	1.4	1.3	1.9	1.6	1.4	2.0	3.0	5.5	4.1	3.3	3.3	2.5	7.1
25-Apr	3.2	1.5	2.3	3.2	3.3	Z	2.8	2.8	3.3	1.8	1.0	0.7	0.8	1.0	0.8	1.1	0.9	1.0	1.2	1.1	2.0	1.8	1.3	2.8	1.8	3.3
26-Apr	Z	0.9	1.9	2.4	4.0	4.5	4.9	4.2	2.7	3.1	3.2	2.5	1.8	1.7	1.7	1.9	2.8	3.5	5.8	6.5	5.8	6.0	6.3	6.4	3.7	6.5
27-Apr	4.4	Z	5.4	6.3	6.0	6.5	3.9	3.9	3.9	2.9	1.9	1.5	1.8	1.8	1.4	1.9	2.2	3.0	5.6	4.9	5.6	9.0	8.4	4.4	4.2	9.0
28-Apr	3.7	2.7	Z	5.2	4.0	4.7	3.0	2.2	2.9	2.3	2.4	2.2	2.0	1.9	1.8	1.3	1.8	1.4	1.7	2.2	2.1	2.0	2.0	2.0	2.5	5.2
29-Apr	1.8	2.2	1.8	Z	3.0	1.6	1.7	1.3	0.9	1.1	2.3	5.2	3.7	3.6	2.8	2.6	2.4	2.1	3.4	2.2	3.7	6.2	4.5	6.5	2.9	6.5
30-Apr	7.0	5.9	3.8	4.4	Z	3.8	3.5	2.4	2.6	4.7	3.6	2.6	3.3	3.0	2.6	3.0	2.3	2.1	3.1	3.5	3.6	3.1	3.4	2.9	3.5	7.0

4.9	7.1	7.2	7.4	7.7	8.6	6.9	5.2	4.8	4.9	3.6	2.5	2.4	2.5	2.5	2.5	2.9	3.4	4.8	6.7	8.6	8.0	7.9	7.7	Diurnal Average	
14.2	24.7	21.7	18.2	25.2	20.6	17.9	23.0	22.3	21.2	13.5	5.8	6.5	8.5	9.1	9.8	11.5	12.7	16.2	27.3	31.0	22.3	20.3	26.1	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	669	97.81	97.81
21 - 40	15	2.19	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	65	15	11	13	26	68	84	25	19	22	39	38	37	33	37	135	667
21 - 40	1	0	0	0	0	1	6	3	3	0	0	0	0	1	0	0	15
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	15	11	13	26	69	90	28	22	22	39	38	37	34	37	135	682

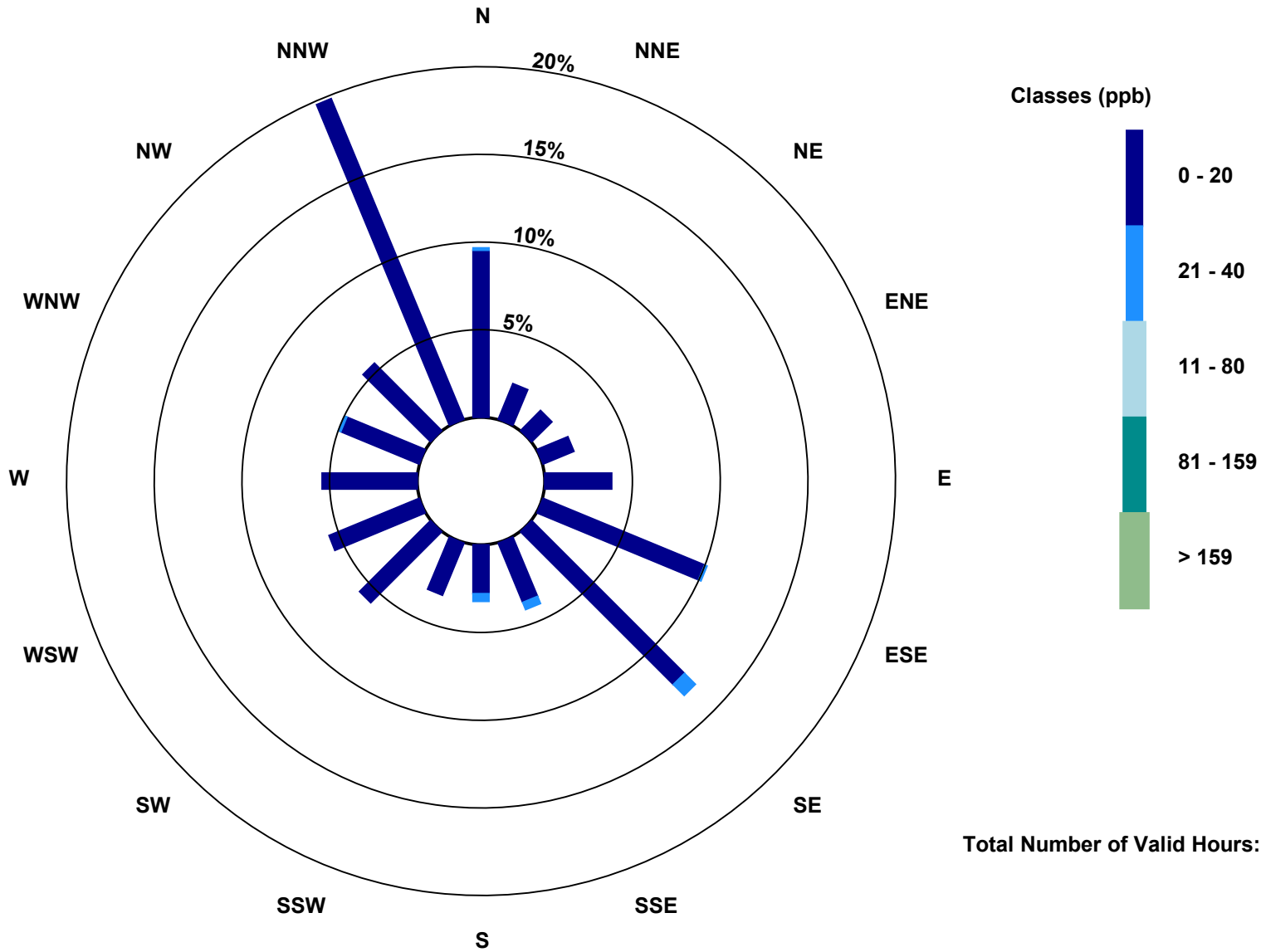
Total Number of Valid Hours: 682

Total Number of Hours: 720

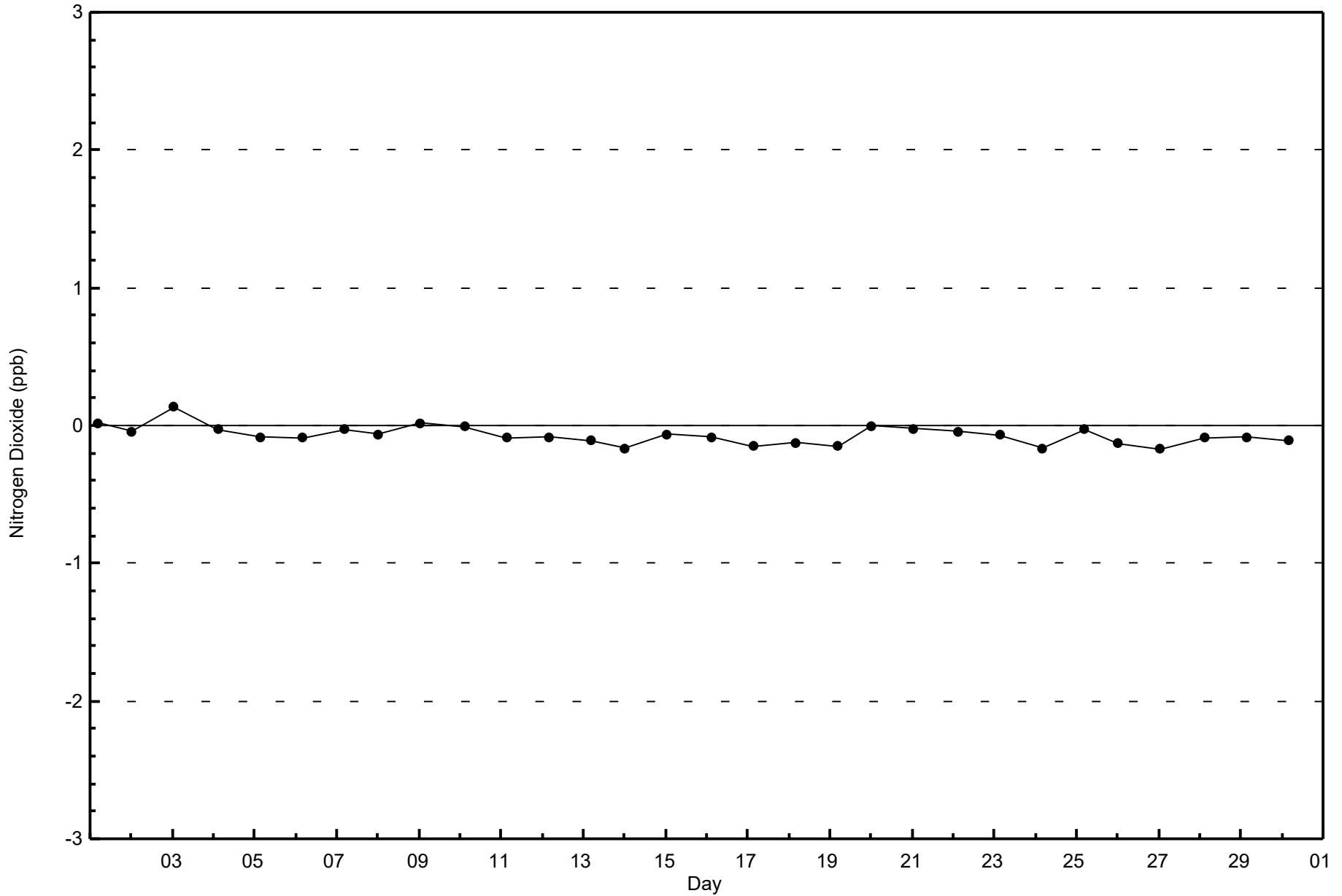


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



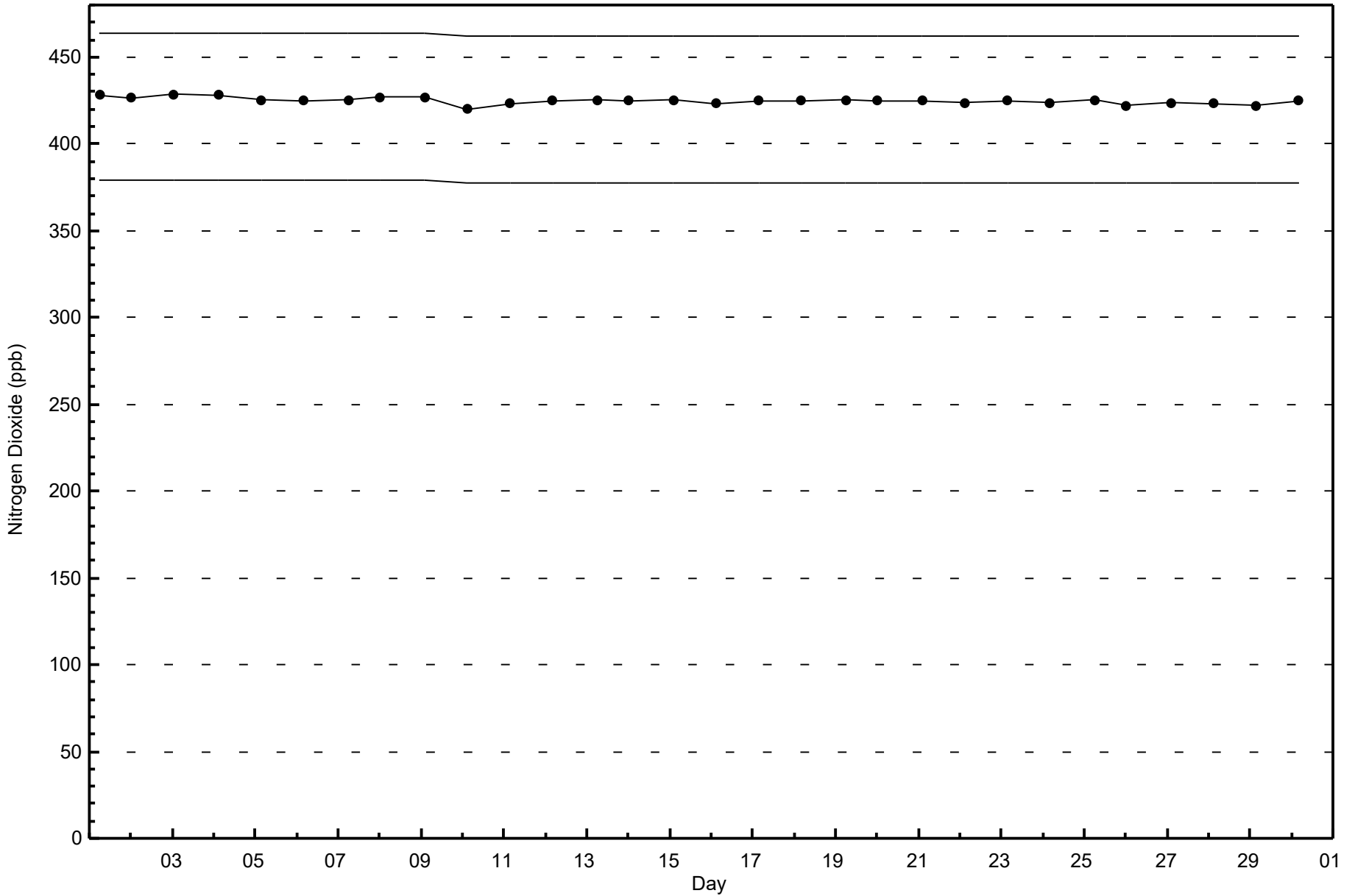
Total Number of Valid Hours: 682





**Wood Buffalo Environmental Association**  
**Span Responses**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - April 2024**





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

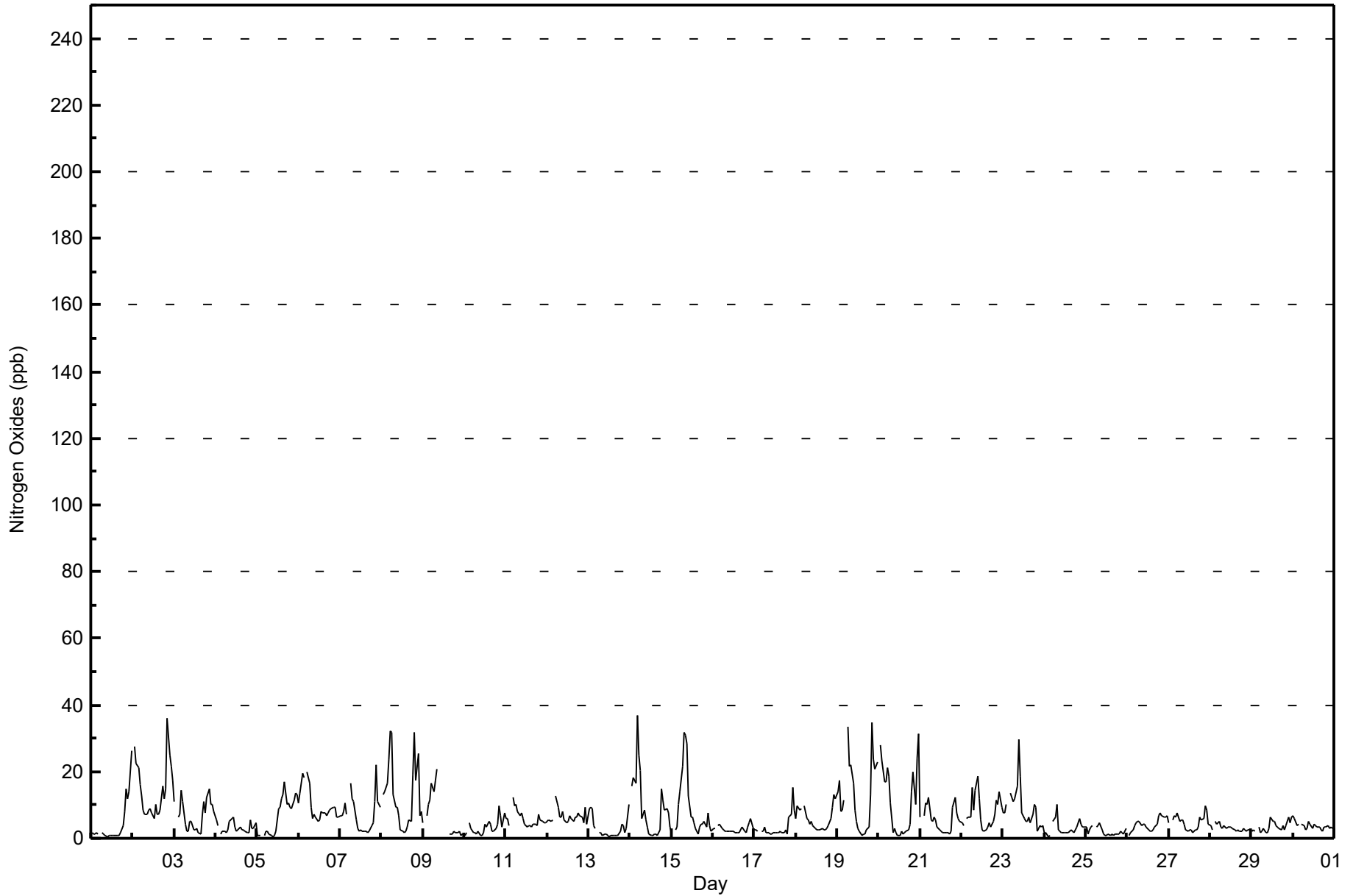
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - April 2024**

Maximum Value: 36.9 ppb on Apr 14 05:00																				Maximum Daily Average: 14.3 ppb on Apr 2					Hours in Service: 720				
Minimum Value: 0.5 ppb on Apr 24 03:00																				Minimum Daily Average: 2.0 ppb on Apr 25					Hours of Data: 684				
Maximum Diurnal Average: 10.2 ppb at hour 6																				Minimum Diurnal Average: 3.1 ppb at hour 15					Hours of Missing Data: 36				
Monthly Average: 6.41 ppb																				Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 2.2 Median = 4.2 Q <sub>3</sub> = 8.2 P <sub>90</sub> = 14.1 P <sub>99</sub> = 31.7					Hours of Calibration: 36				
																				Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Apr	1.6	1.3	1.2	1.6	1.3	Z	1.7	1.3	0.8	0.6	0.7	0.8	0.7	0.7	0.9	1.0	1.6	3.8	8.0	14.8	11.8	13.9	26.3	4.2	26.3				
2-Apr	Z	27.5	22.3	21.0	16.3	12.5	8.6	7.4	7.2	8.6	9.0	7.7	6.1	10.0	7.3	7.4	8.4	15.6	11.7	14.9	36.0	25.2	21.8	17.4	14.3	36.0			
3-Apr	10.9	Z	6.2	7.1	14.3	11.0	4.3	2.1	2.0	4.9	4.9	2.4	2.4	2.8	1.6	1.4	7.4	10.9	7.6	12.5	14.7	10.1	10.2	8.0	6.9	14.7			
4-Apr	5.5	4.0	Z	1.1	2.3	2.0	1.6	2.6	5.1	5.9	6.3	3.3	2.0	2.7	3.2	2.4	2.4	2.0	1.7	1.9	5.5	2.9	3.0	4.7	3.2	6.3			
5-Apr	1.0	1.0	0.6	Z	0.8	1.9	1.9	1.1	0.9	0.6	0.8	1.9	8.9	9.3	11.7	12.9	17.1	10.0	10.4	9.3	9.0	11.4	13.7	13.2	6.5	17.1			
6-Apr	10.6	13.5	19.4	18.3	Z	20.0	16.5	9.3	6.0	7.0	6.2	5.1	5.5	7.8	7.6	7.5	6.6	7.7	8.7	8.9	9.1	9.5	6.5	6.6	9.7	20.0			
7-Apr	6.6	7.0	8.1	10.5	7.3	Z	16.4	11.7	11.1	5.5	3.0	2.2	2.4	1.9	2.1	2.0	1.8	2.0	3.7	4.7	11.2	21.8	10.9	9.3	7.1	21.8			
8-Apr	Z	13.2	14.0	16.7	23.8	32.4	32.0	13.3	9.2	9.3	6.7	2.7	2.0	1.5	2.1	3.2	5.4	5.0	19.0	31.6	17.3	25.3	6.6	7.8	13.1	32.4			
9-Apr	4.8	Z	6.6	10.2	11.4	16.4	13.9	17.3	20.8	C	C	C	C	C	C	1.3	1.5	1.2	2.0	1.8	1.7	2.0	0.6	1.4	--	20.8			
10-Apr	0.8	1.5	Z	4.6	3.0	1.6	1.6	1.4	2.3	0.9	1.0	1.9	4.0	3.3	4.9	4.4	2.2	2.3	2.8	4.2	9.9	6.7	3.6	7.4	3.3	9.9			
11-Apr	6.0	6.0	3.8	Z	12.2	9.9	10.3	8.2	6.9	7.6	6.0	4.0	3.2	3.7	3.7	3.4	4.2	4.0	3.7	7.4	5.6	5.2	4.8	4.7	5.8	12.2			
12-Apr	5.1	5.7	5.1	5.5	Z	12.9	9.5	6.2	6.3	8.2	5.7	4.7	5.2	6.6	6.1	5.1	6.4	6.3	7.7	7.0	6.2	4.9	9.5	4.2	6.5	12.9			
13-Apr	8.7	9.2	9.0	3.7	3.1	Z	1.7	1.6	1.0	1.2	1.2	0.8	0.6	0.7	0.7	0.9	1.0	2.0	4.1	3.7	1.6	3.1	10.1	3.1	10.1				
14-Apr	Z	15.9	18.3	16.5	36.9	25.1	20.4	5.8	8.7	5.3	3.5	1.5	1.0	1.2	1.3	0.7	2.5	14.9	11.4	8.3	9.0	7.5	3.5	9.6	36.9				
15-Apr	1.5	Z	2.5	3.5	10.0	13.9	21.8	31.9	30.9	28.2	12.5	6.3	6.4	4.7	2.9	1.3	3.4	4.2	4.4	5.3	3.4	7.7	3.9	2.3	9.3	31.9			
16-Apr	2.8	3.1	Z	4.0	4.2	2.9	2.5	2.2	2.2	2.1	2.1	2.2	2.0	1.5	1.5	1.8	2.5	3.4	1.9	1.6	3.6	4.8	5.8	3.1	2.8	5.8			
17-Apr	2.7	2.3	2.1	Z	2.0	2.3	3.5	1.8	1.8	1.5	1.3	1.7	1.9	1.8	1.9	2.1	1.6	1.8	2.5	1.3	6.3	7.2	15.3	8.6	3.3	15.3			
18-Apr	6.1	9.8	8.3	8.8	Z	9.6	5.8	5.5	4.2	5.2	3.9	2.9	2.7	2.5	2.6	3.1	2.4	2.6	3.1	3.6	6.0	9.4	13.3	12.0	5.8	13.3			
19-Apr	14.2	17.3	7.9	8.6	11.6	Z	33.6	21.7	22.0	16.4	8.6	5.0	2.8	2.0	1.0	1.4	1.2	2.5	3.5	13.1	34.9	23.7	20.8	22.8	12.9	34.9			
20-Apr	Z	27.9	23.3	17.1	17.1	21.1	18.7	10.6	1.7	2.9	1.5	0.9	0.8	2.1	1.5	1.8	2.2	2.4	4.2	13.9	19.8	10.3	24.1	31.3	11.2	31.3			
21-Apr	6.3	Z	6.9	10.5	10.1	12.5	5.7	5.2	6.3	5.5	3.6	2.7	2.1	1.9	1.7	1.5	1.9	1.2	2.1	9.2	12.3	7.6	6.1	4.9	5.6	12.5			
22-Apr	4.5	3.9	Z	5.8	6.2	6.4	15.2	8.4	14.5	18.8	11.7	5.4	2.4	2.2	2.8	3.4	4.7	3.3	4.9	7.3	11.4	10.3	13.8	9.5	7.7	18.8			
23-Apr	7.8	7.8	10.2	Z	13.6	12.1	11.0	11.9	15.7	29.8	18.7	7.4	5.9	5.1	5.0	6.3	4.7	7.3	10.3	9.3	2.1	3.7	3.2	3.7	9.3	29.8			
24-Apr	1.5	1.5	0.5	1.0	Z	5.0	6.3	10.0	2.6	2.3	1.9	1.9	1.6	1.9	1.8	2.6	2.3	1.7	2.5	3.5	6.0	4.2	3.4	3.4	3.0	10.0			
25-Apr	3.3	1.5	2.4	3.3	3.6	Z	3.3	3.7	4.7	2.6	1.2	0.8	1.0	1.1	1.0	1.3	1.0	1.1	1.2	1.1	2.0	1.8	1.3	2.8	2.0	4.7			
26-Apr	Z	0.9	1.9	2.4	4.0	4.6	5.1	4.9	3.6	4.2	4.4	3.4	2.4	2.2	2.2	2.5	3.6	4.2	6.6	7.4	6.8	6.6	6.5	6.9	4.2	7.4			
27-Apr	4.6	Z	5.6	6.7	6.5	7.5	4.9	5.4	5.7	4.2	2.6	2.1	2.5	2.4	1.8	2.6	2.7	3.5	6.5	5.4	6.1	9.5	8.6	4.4	4.9	9.5			
28-Apr	3.7	2.7	Z	5.3	4.0	5.0	3.4	2.8	3.9	3.1	3.4	3.3	3.3	3.0	2.6	2.0	2.5	1.9	2.2	2.8	2.7	2.3	2.4	2.3	3.1	5.3			
29-Apr	2.1	2.6	2.0	Z	3.4	1.8	2.1	3.1	1.5	1.5	2.8	6.6	5.2	5.3	4.0	3.5	3.0	2.4	3.7	2.5	3.8	6.2	4.5	6.5	3.5	6.6			
30-Apr	7.0	5.9	3.8	4.4	Z	4.0	3.7	2.7	2.9	5.3	4.2	3.2	4.3	3.8	3.2	3.5	2.7	2.3	3.4	3.6	3.6	3.1	3.4	2.9	3.8	7.0			
																								Diurnal Average					
																								Diurnal Maximum					
5.2 7.7 7.7 7.9 9.2 10.2 9.6 7.4 7.1 6.9 4.8 3.3 3.2 3.3 3.1 3.1 3.6 3.9 5.4 7.3 9.5 8.9 8.4 8.4																													
14.2 27.9 23.3 21.0 36.9 32.4 33.6 31.9 30.9 29.8 18.7 7.7 8.9 10.0 11.7 12.9 17.1 15.6 19.0 31.6 36.0 25.3 24.1 31.3																													
Z - zerospan C - Calibration																													



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	651	95.18	95.18
21 - 40	33	4.82	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	65	15	11	12	24	67	82	16	18	21	39	38	37	33	37	134	649
21 - 40	1	0	0	1	2	2	8	12	4	1	0	0	0	1	0	1	33
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	15	11	13	26	69	90	28	22	22	39	38	37	34	37	135	682

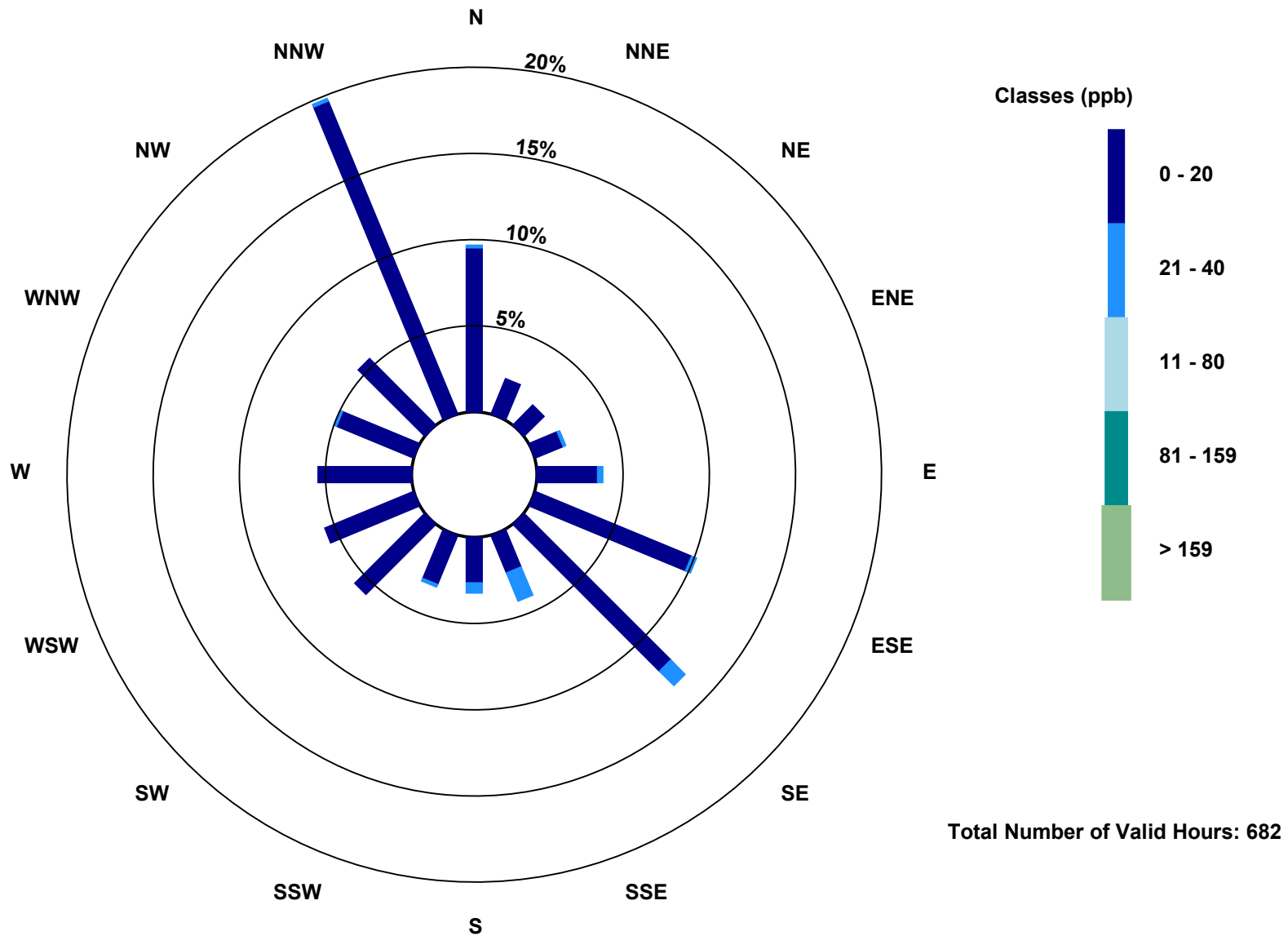
Total Number of Valid Hours: 682

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

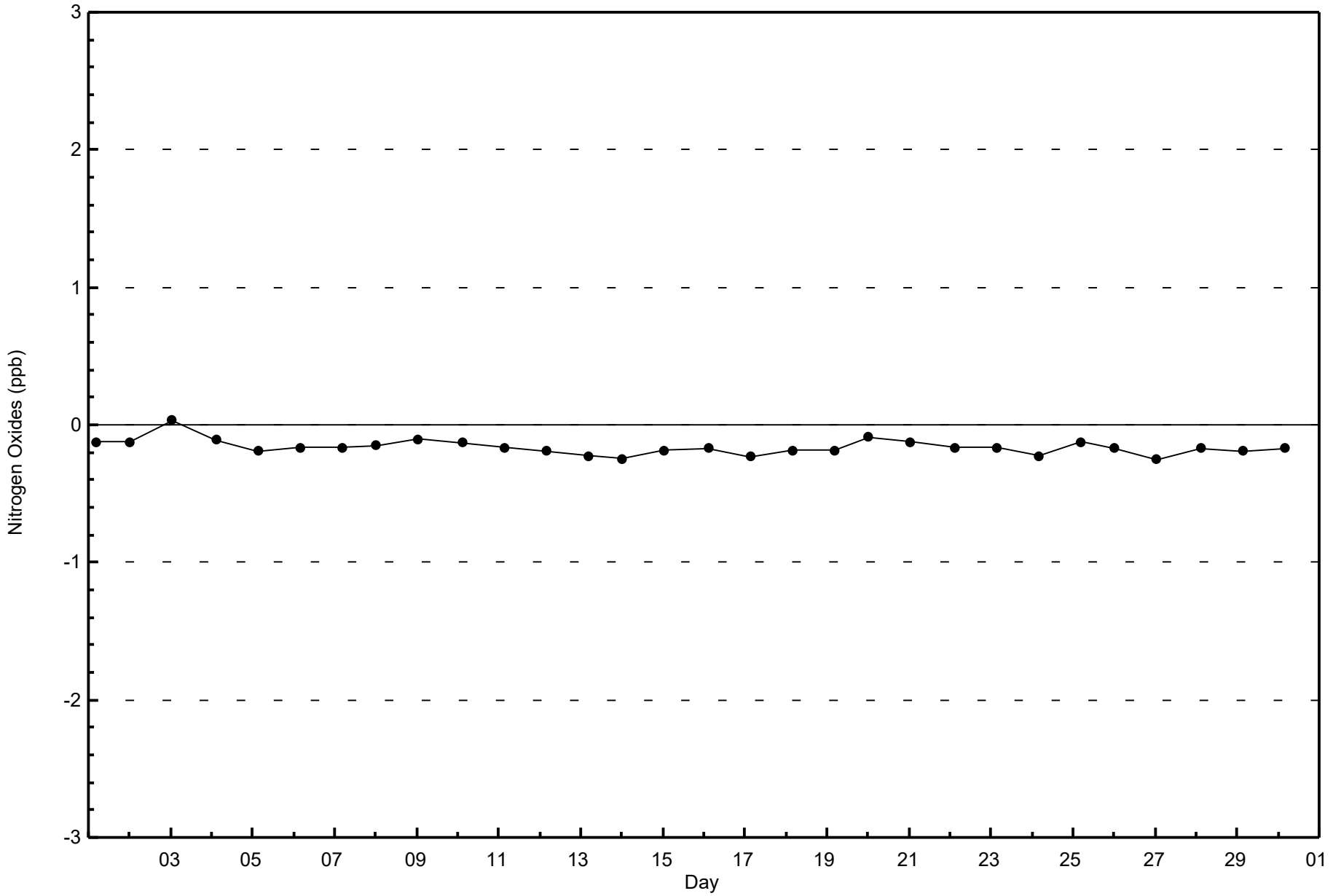
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley

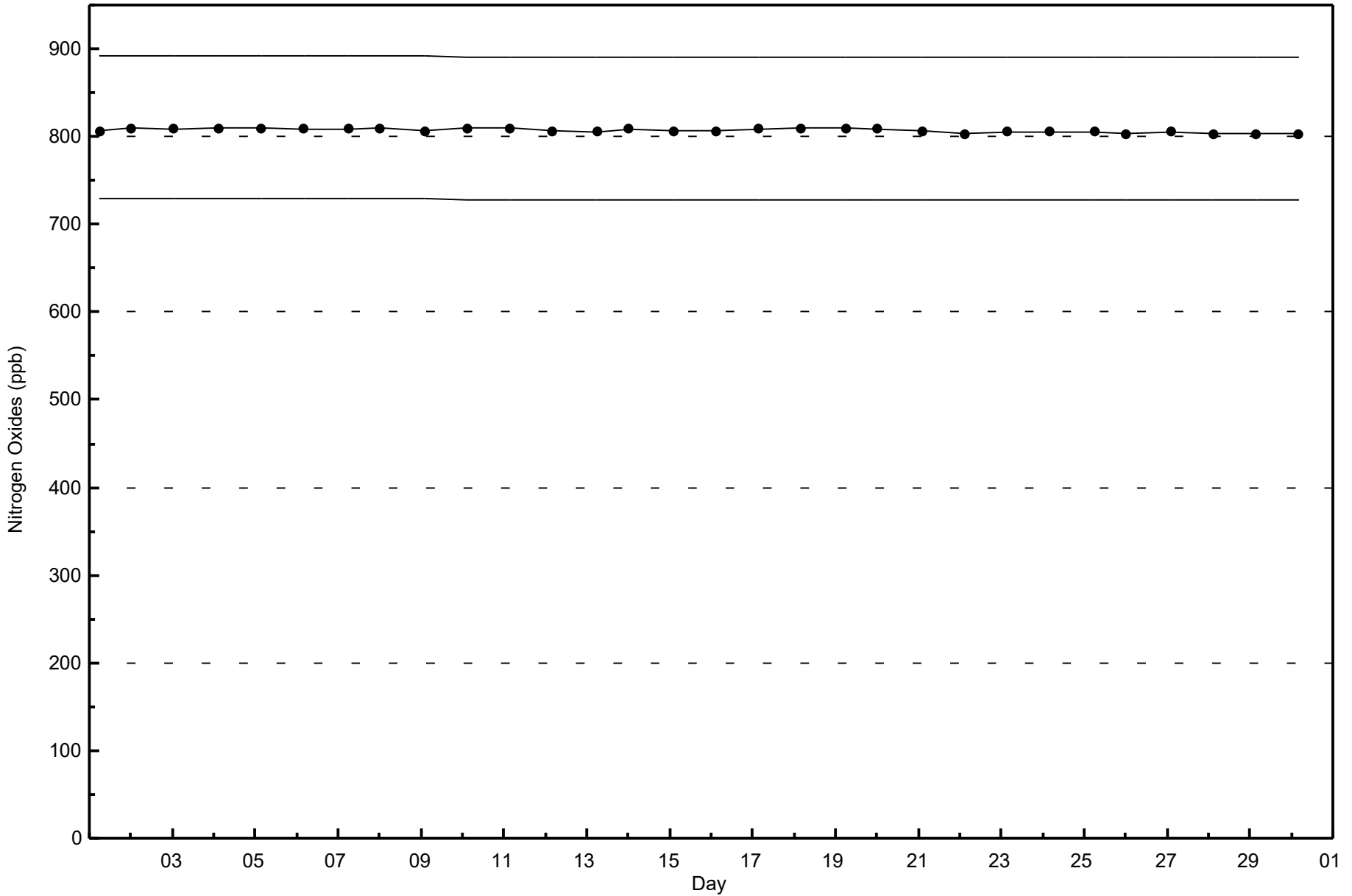




**Wood Buffalo Environmental Association**  
**Zero Responses**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - April 2024**



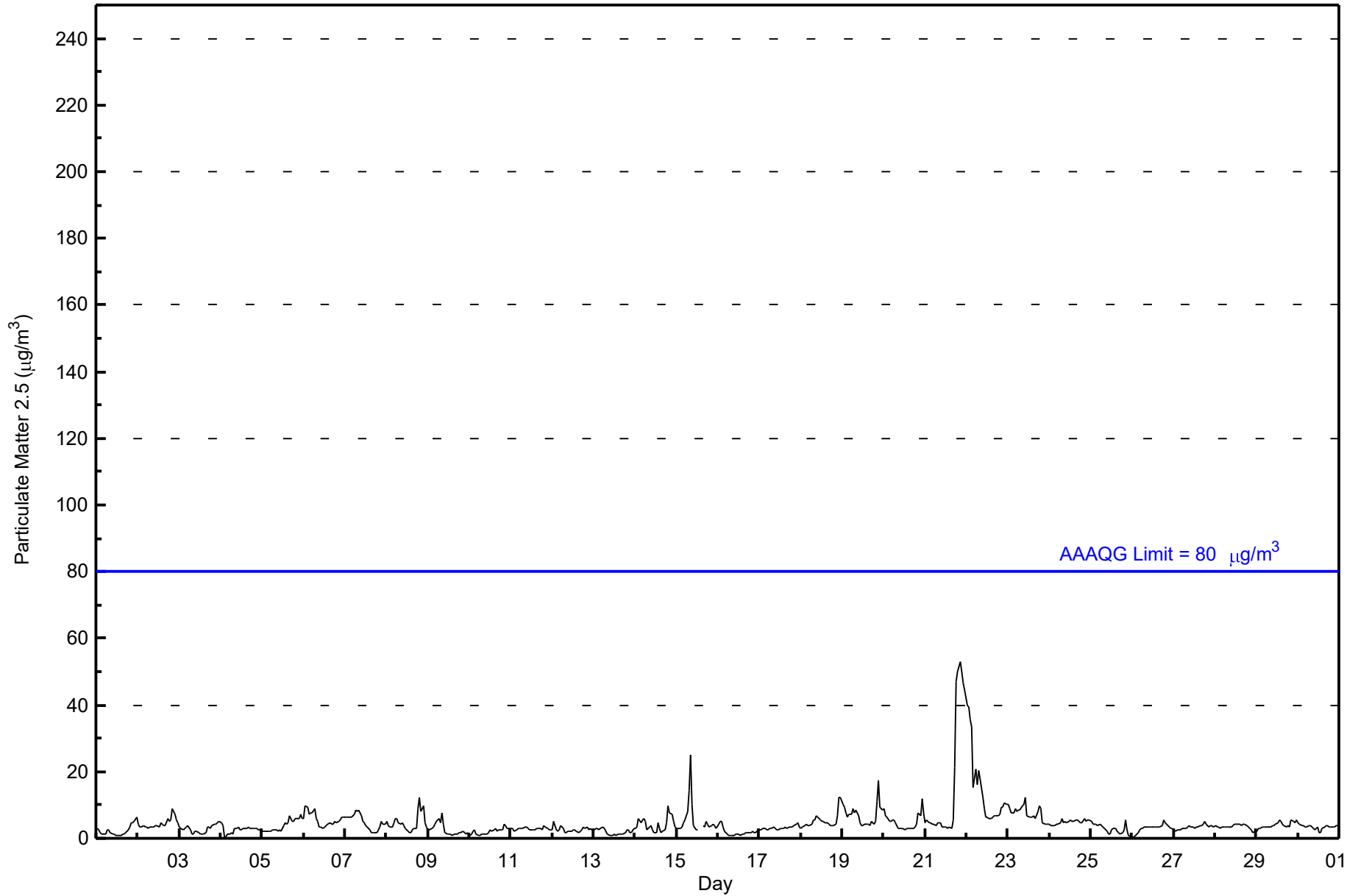




Summary of Hour Averages

Athabasca Valley - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720															720																											
Maximum Value: 53.0 µg/m <sup>3</sup> on Apr 21 21:00				Maximum Daily Average: 15.9 µg/m <sup>3</sup> on Apr 21		Hours of Data: 718															718																											
Minimum Value: 0.4 µg/m <sup>3</sup> on Apr 26 02:00				Minimum Daily Average: 1.9 µg/m <sup>3</sup> on Apr 16		Hours of Missing Data: 2															2																											
Maximum Diurnal Average: 6.5 µg/m <sup>3</sup> at hour 21				Minimum Diurnal Average: 3.1 µg/m <sup>3</sup> at hour 13		Hours of Calibration: 2															2																											
Monthly Average: 4.63 µg/m <sup>3</sup>				Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.6 Median = 3.5 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 7.4 P <sub>99</sub> = 38.6		Percent Operational Time: 100.0															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-Apr	2.9	2.7	1.7	1.4	1.3	1.3	2.4	2.5	1.6	1.2	1.2	1.0	0.9	0.7	1.0	1.1	1.3	1.6	2.6	3.5	4.6	4.5	5.1	6.3	2.3	6.3																						
2-Apr	4.4	3.6	3.2	3.6	3.5	3.4	2.8	3.4	3.2	3.5	3.9	3.8	3.3	4.5	4.4	3.8	4.0	6.1	5.2	5.5	8.9	7.0	5.5	4.5	4.4	8.9																						
3-Apr	3.4	2.8	2.7	2.9	3.5	3.8	2.3	1.4	1.4	2.2	2.0	1.7	1.3	1.3	1.5	1.5	3.3	3.6	2.9	3.6	4.3	4.1	4.6	4.9	2.8	4.9																						
4-Apr	4.8	3.9	0.4	0.5	1.2	1.4	1.5	1.4	2.8	3.1	3.5	2.8	2.7	2.9	3.0	3.1	3.3	3.0	3.0	2.9	3.1	3.0	2.4	2.5	2.6	4.8																						
5-Apr	1.9	2.0	2.0	2.2	2.1	2.2	2.4	2.4	2.5	2.1	2.4	2.1	3.9	4.8	4.2	4.7	6.6	5.2	5.2	6.0	6.0	6.0	7.1	5.8	3.8	7.1																						
6-Apr	6.1	9.8	9.4	7.4	7.7	7.5	9.0	6.0	5.2	3.5	3.4	3.1	3.5	4.0	4.3	4.6	4.1	4.2	5.0	4.6	5.1	5.5	6.3	6.3	5.7	9.8																						
7-Apr	6.4	6.3	6.2	6.5	6.4	7.3	8.4	8.0	8.4	6.9	5.2	4.5	3.8	3.5	2.7	1.8	1.7	1.5	1.8	2.7	3.2	5.2	4.2	4.4	4.9	8.4																						
8-Apr	5.2	3.8	3.2	3.5	4.6	6.0	5.8	4.6	4.3	4.5	3.8	2.9	2.0	1.7	1.8	2.4	2.8	2.9	8.8	12.4	8.0	9.9	4.5	3.4	4.7	12.4																						
9-Apr	2.7	2.4	2.8	3.3	4.2	5.3	5.8	4.8	7.6	4.1	1.9	1.2	1.2	1.2	1.0	1.3	1.1	1.4	1.9	1.7	2.1	1.8	1.4	1.5	2.7	7.6																						
10-Apr	0.9	1.1	2.3	2.3	1.5	0.8	0.9	1.1	1.4	1.2	1.3	1.5	2.6	2.2	2.7	2.8	2.3	2.4	2.5	2.6	4.0	3.9	3.1	2.9	2.1	4.0																						
11-Apr	3.0	2.9	2.3	2.5	3.1	2.9	2.9	3.2	3.2	3.6	3.1	2.6	2.6	2.5	2.7	2.8	3.0	2.9	2.7	3.8	3.5	2.9	2.5	2.3	2.9	3.8																						
12-Apr	2.6	5.0	2.7	2.3	2.6	3.6	3.1	1.8	1.7	2.0	2.2	2.0	2.5	2.6	2.2	1.7	2.3	2.5	3.5	3.1	3.2	2.6	3.1	2.6	2.6	5.0																						
13-Apr	2.7	2.9	3.2	2.6	3.1	3.3	2.8	2.3	1.1	0.9	1.0	1.0	1.1	1.0	1.1	1.1	1.2	1.2	1.8	2.6	2.6	1.7	1.6	3.0	2.0	3.3																						
14-Apr	2.8	3.4	6.0	4.5	5.4	6.0	5.0	2.7	3.5	3.9	2.5	1.8	1.7	4.8	2.9	1.8	1.9	2.6	4.5	9.8	7.5	7.2	5.1	3.5	4.2	9.8																						
15-Apr	3.1	3.1	3.1	3.4	4.6	5.5	8.1	14.6	25.0	10.2	4.0	2.3	2.5	C	C	3.9	3.6	5.0	4.3	3.4	3.6	4.0	3.8	3.0	5.7	25.0																						
16-Apr	4.3	5.0	5.0	3.5	2.2	1.2	0.9	0.9	1.0	1.0	1.1	1.3	1.1	1.0	1.1	1.3	1.5	1.7	1.6	1.7	2.0	1.8	1.9	2.5	1.9	5.0																						
17-Apr	2.5	2.6	3.0	2.9	2.5	2.4	2.8	3.1	3.5	2.8	2.5	2.7	2.9	3.0	3.0	3.4	3.1	3.4	3.4	3.5	3.7	4.1	4.7	3.4	3.1	4.7																						
18-Apr	3.0	3.2	3.7	4.4	3.6	3.8	4.2	5.3	5.5	6.6	6.5	5.7	5.3	5.0	4.6	4.8	4.2	3.7	3.6	3.9	4.2	6.9	12.3	12.3	5.3	12.3																						
19-Apr	10.1	9.3	7.5	6.4	7.1	7.3	9.0	7.8	8.7	6.8	4.7	3.8	3.8	4.1	4.2	4.3	4.0	4.9	4.4	5.1	11.1	17.3	9.3	8.6	7.1	17.3																						
20-Apr	8.7	6.7	6.5	5.2	5.2	5.6	5.6	4.5	2.9	2.9	3.0	2.8	2.7	2.8	2.8	2.9	2.9	3.0	3.4	4.4	7.6	6.8	11.7	7.7	4.9	11.7																						
21-Apr	4.5	5.3	4.8	4.5	4.0	4.3	4.0	4.5	4.6	4.6	3.4	3.3	3.2	3.1	3.4	3.1	5.6	21.3	47.1	49.8	53.0	49.8	46.6	44.4	15.9	53.0																						
22-Apr	39.8	39.3	35.6	33.4	15.4	20.7	16.3	20.5	17.8	12.5	8.9	6.4	6.2	5.8	5.9	6.2	6.7	6.7	6.8	7.3	9.3	9.5	10.5	10.4	14.9	39.8																						
23-Apr	10.3	8.8	7.5	7.6	9.0	7.9	8.4	8.3	9.6	10.0	12.3	7.0	6.2	6.4	6.4	6.7	5.9	8.2	9.9	9.0	4.7	4.4	4.1	4.3	7.6	12.3																						
24-Apr	4.4	4.0	3.6	3.7	4.2	4.3	4.8	5.9	4.7	5.2	4.7	5.3	5.5	5.2	4.9	5.7	5.6	5.0	4.8	4.8	5.9	5.3	5.3	5.3	4.9	5.9																						
25-Apr	5.0	4.2	4.2	4.0	3.9	4.2	3.8	3.5	3.0	2.3	1.4	1.4	2.4	3.0	2.9	2.3	1.9	1.2	1.8	2.7	5.5	2.6	0.9	0.6	2.9	5.5																						
26-Apr	0.6	0.4	0.9	1.6	2.6	2.9	2.8	3.2	3.2	3.2	3.3	3.4	3.5	3.3	3.2	3.4	3.5	3.7	5.3	4.8	4.1	3.6	2.9	2.9	3.0	5.3																						
27-Apr	2.4	2.2	2.5	2.6	2.7	2.8	2.9	2.9	3.2	3.6	3.3	3.3	3.1	3.4	3.4	3.8	4.0	4.3	5.2	4.2	3.5	3.7	3.9	3.5	3.4	5.2																						
28-Apr	3.7	3.4	3.2	3.1	3.2	3.5	3.2	3.2	3.4	3.6	3.9	4.3	4.3	4.1	4.1	4.0	4.2	4.2	3.8	3.5	2.9	2.6	1.8	2.1	3.5	4.3																						
29-Apr	2.3	2.8	3.1	3.3	3.4	3.3	3.5	3.4	3.5	3.9	3.6	4.4	4.8	5.4	5.1	4.1	3.6	3.3	3.6	3.4	5.4	4.9	4.6	5.5	3.9	5.5																						
30-Apr	4.8	4.4	3.9	3.9	3.5	3.4	3.9	3.9	3.6	3.1	2.4	3.5	1.8	1.5	2.9	3.6	3.6	3.7	3.5	3.5	3.5	3.5	3.7	3.8	3.5	4.8																						
																								5.3	5.2	4.9	4.6	4.2	4.6	4.6	4.7	5.0	4.2	3.5	3.1	3.1	3.3	3.2	3.3	3.4	4.1	5.5	6.0	6.5	6.5	6.1	5.8	Dial Average
																								39.8	39.3	35.6	33.4	15.4	20.7	16.3	20.5	25.0	12.5	12.3	7.0	6.2	6.4	6.4	6.7	6.7	21.3	47.1	49.8	53.0	49.8	46.6	44.4	Dial Maximum
C - Calibration																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	582	81.06	81.06
6 - 15	119	16.57	97.63
16 - 25	7	0.97	98.61
26 - 80	10	1.39	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - April 2024**

Concentration Ranges ( $\mu\text{g}/\text{m}^3$ )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	59	12	11	10	24	61	82	15	18	22	33	38	33	34	23	107	582
6 - 15	6	3	0	4	4	8	11	16	4	1	7	4	4	2	13	30	117
16 - 25	1	1	0	0	0	1	0	0	1	0	0	0	1	0	2	0	7
26 - 80	1	0	0	0	0	0	0	0	1	3	1	2	0	0	1	1	10
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	67	16	11	14	28	70	93	31	24	26	41	44	38	36	39	138	716

Total Number of Valid Hours: 716

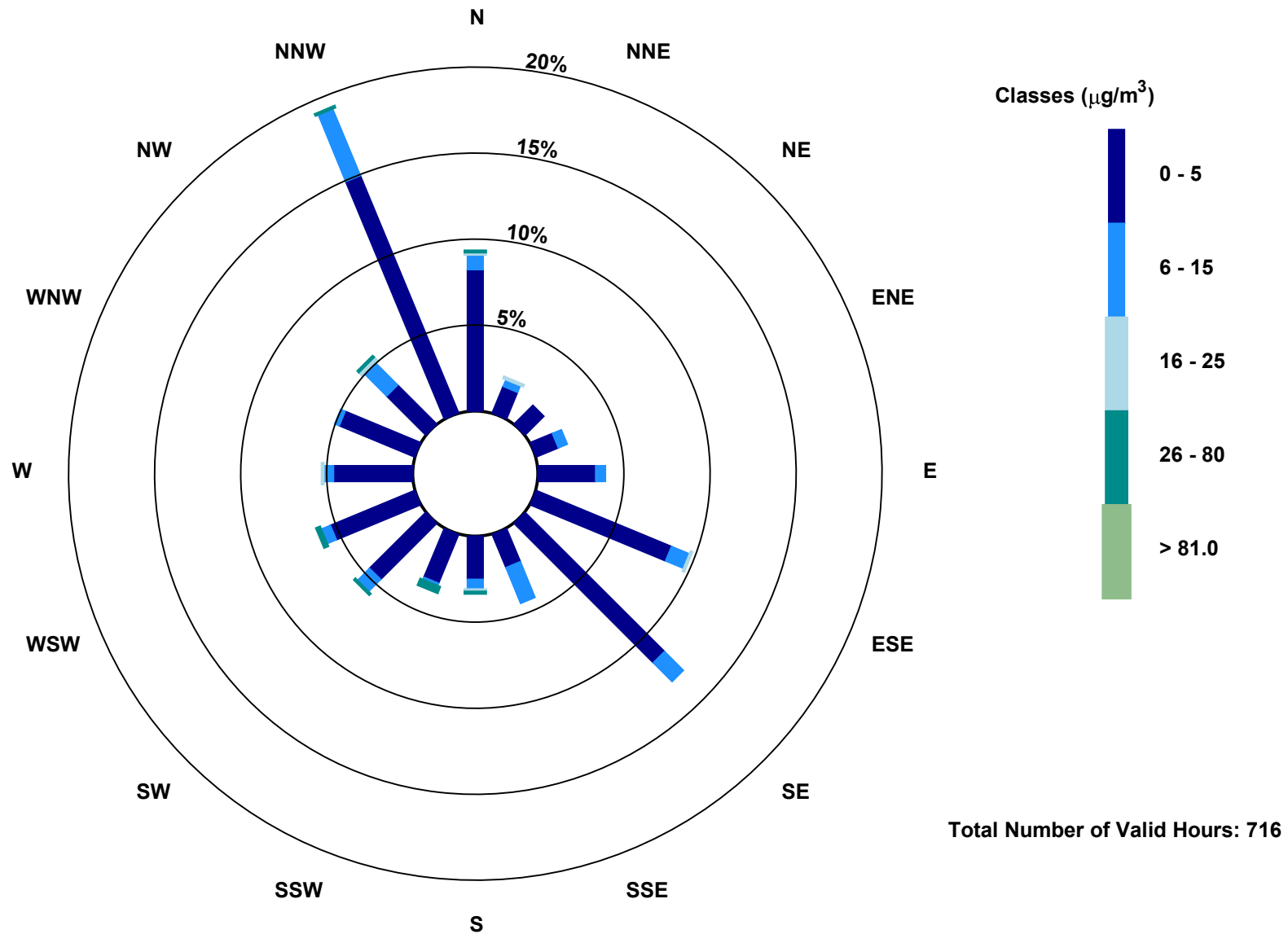
Total Number of Hours: 720





Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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





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

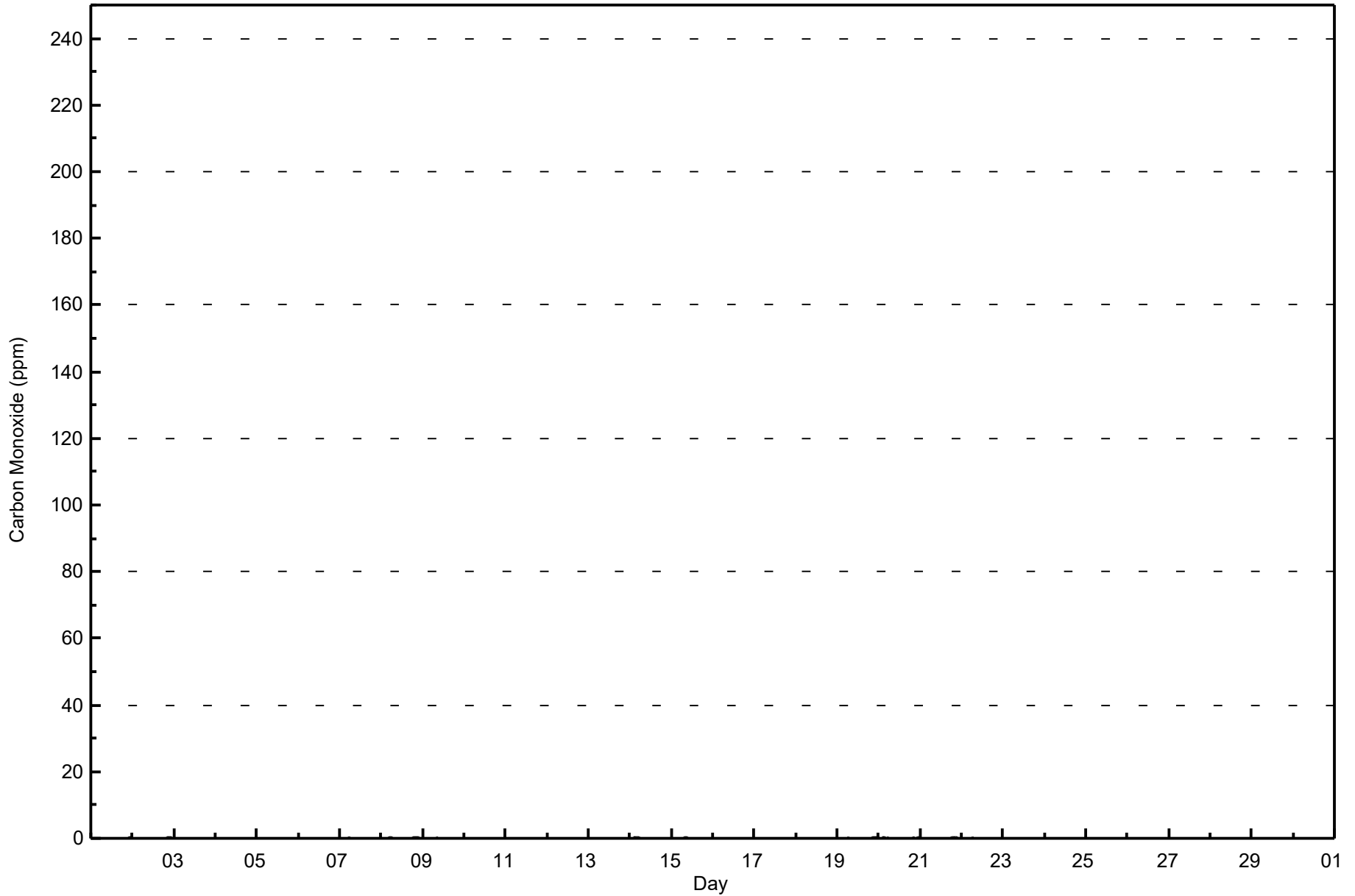
**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 720																																																
Maximum Value: 0.3 ppm on Apr 2 21:00		Maximum Daily Average: 0.2 ppm on Apr 2																																																
Minimum Value: 0.1 ppm on Apr 22 12:00		Hours of Data: 684																																																
Maximum Diurnal Average: 0.2 ppm at hour 21		Hours of Missing Data: 36																																																
Monthly Average: 0.15 ppm		Hours of Calibration: 32																																																
Minimum Daily Average: 0.1 ppm on Apr 29		Percent Operational Time: 99.4																																																
Minimum Diurnal Average: 0.1 ppm at hour 13		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.3																																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3																								
2-Apr	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3																							
3-Apr	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
4-Apr	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2																							
5-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
6-Apr	0.1	0.1	0.1	0.1	UO	UO	UO	M	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
7-Apr	Z	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
8-Apr	0.2	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3																							
9-Apr	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
10-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2																							
11-Apr	0.2	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2																							
12-Apr	0.1	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2																							
13-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2																							
14-Apr	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2																							
15-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
16-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
17-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
18-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2																							
19-Apr	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.3																							
20-Apr	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.3																							
21-Apr	0.1	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
22-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
23-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
24-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2																							
25-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
26-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2																							
27-Apr	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2																							
28-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
29-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
30-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
																								0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Dial Average
																								0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Dial Maximum
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																																																		
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																																																		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	684	100.00	100.00
0.4 - 0.5	0	0.00	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Athabasca Valley - April 2024**

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	64	16	11	13	28	69	87	29	21	25	39	42	35	35	38	132	684
0.4 - 0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	64	16	11	13	28	69	87	29	21	25	39	42	35	35	38	132	684

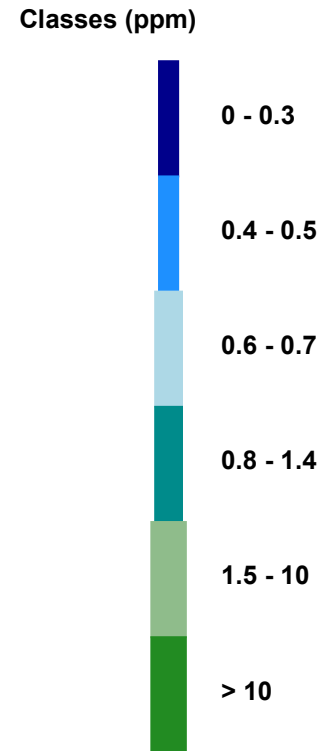
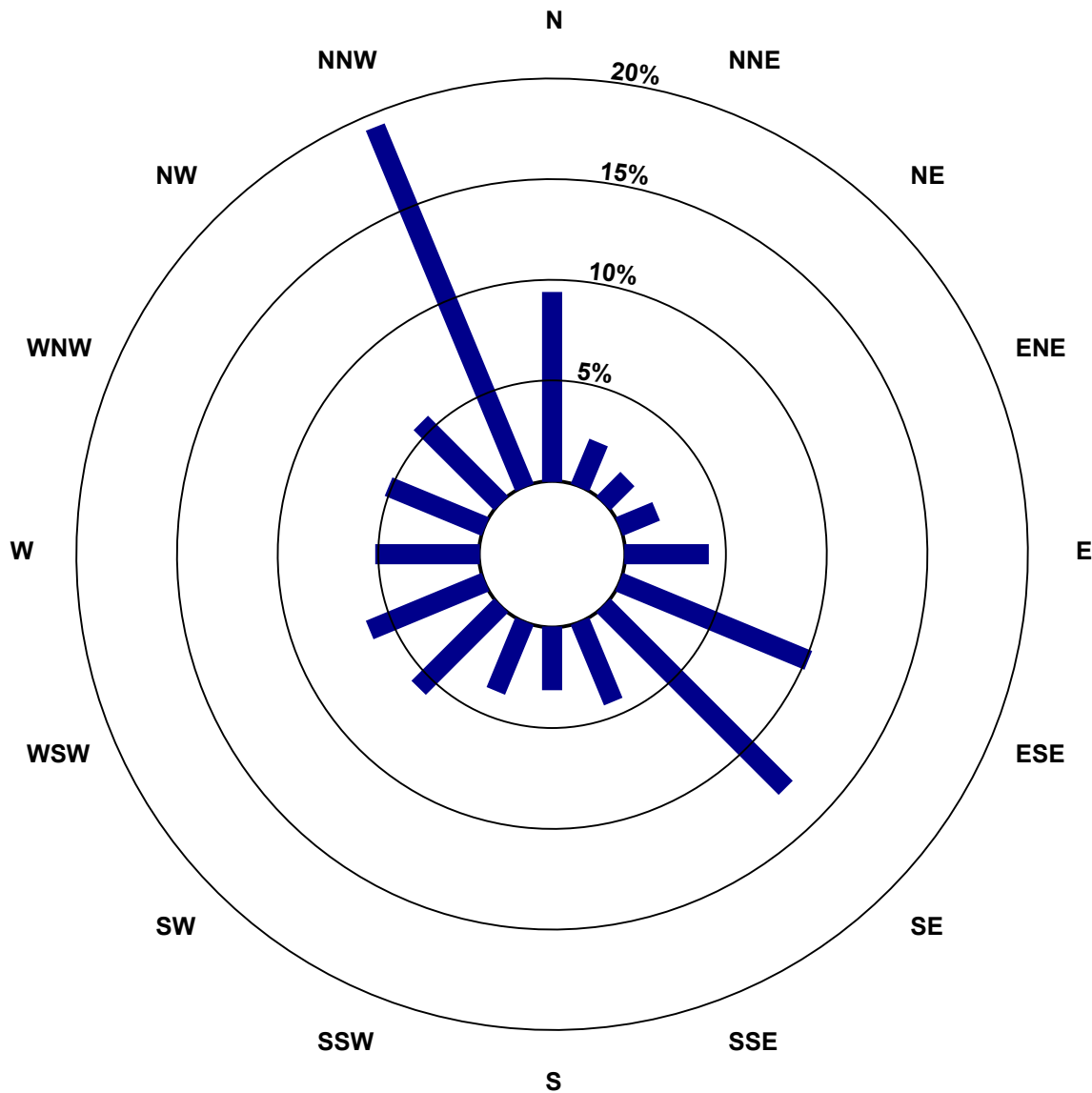
Total Number of Valid Hours: 684

Total Number of Hours: 720

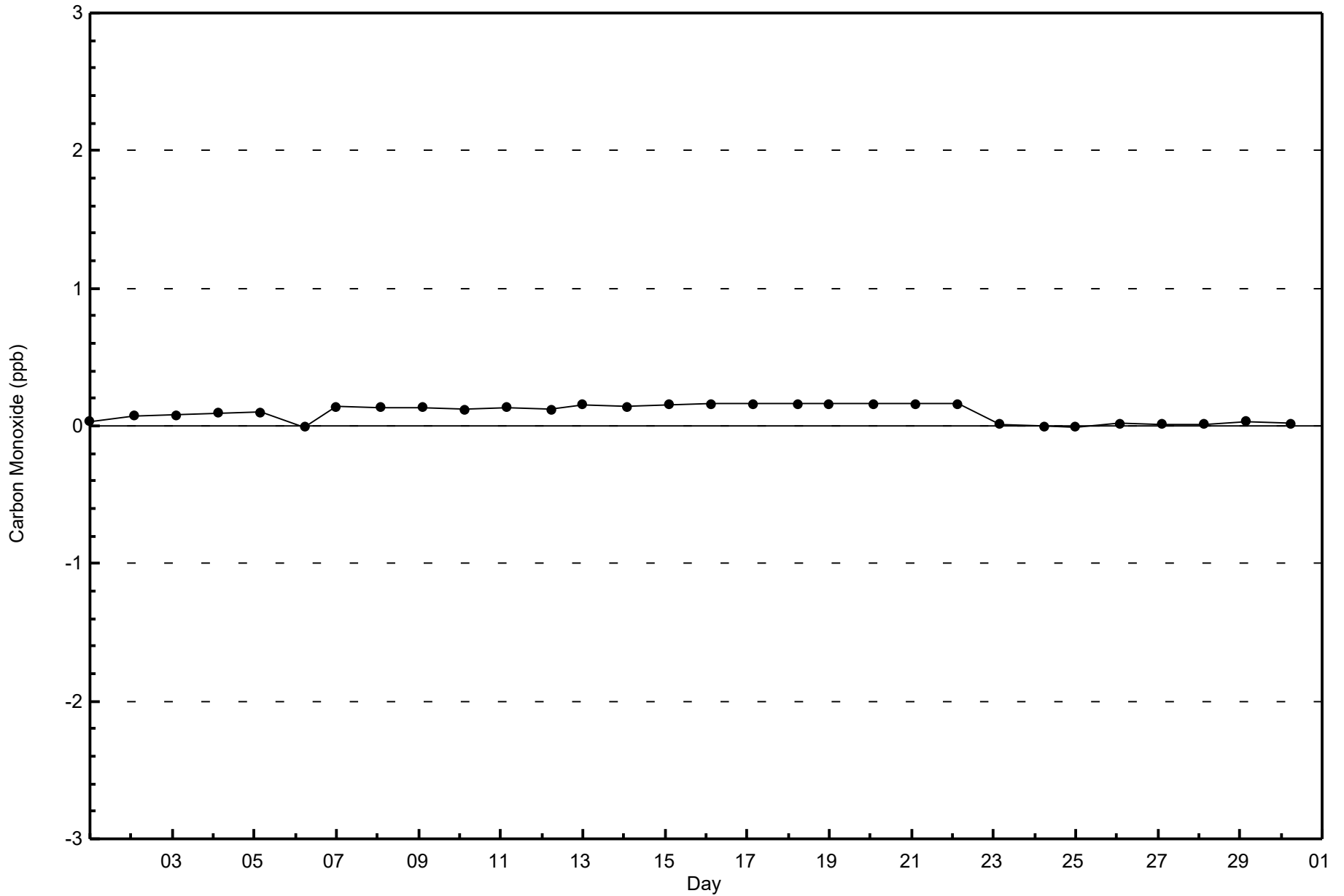


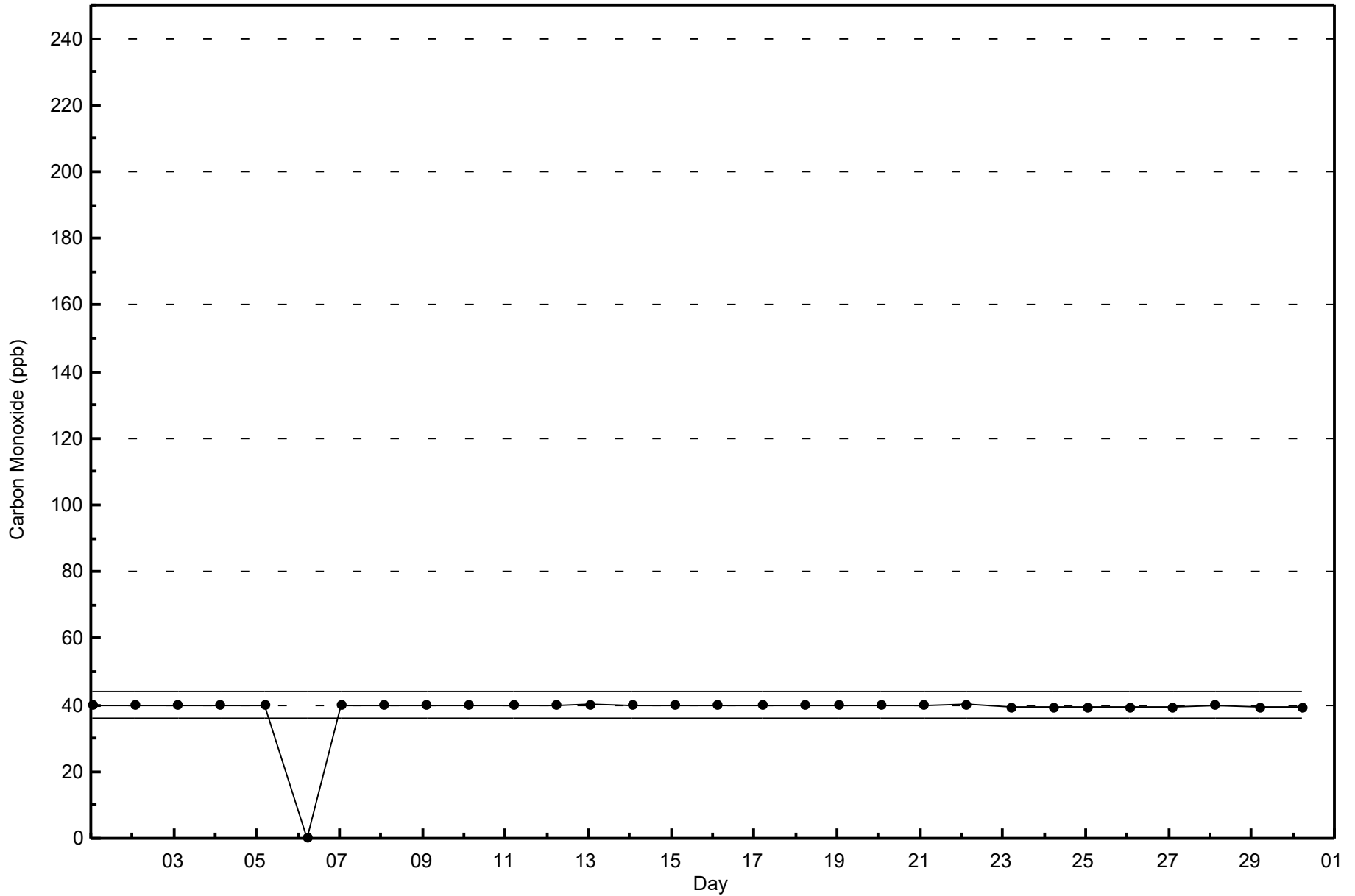
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Monoxide (CO) - ppm  
Athabasca Valley



Total Number of Valid Hours: 684









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

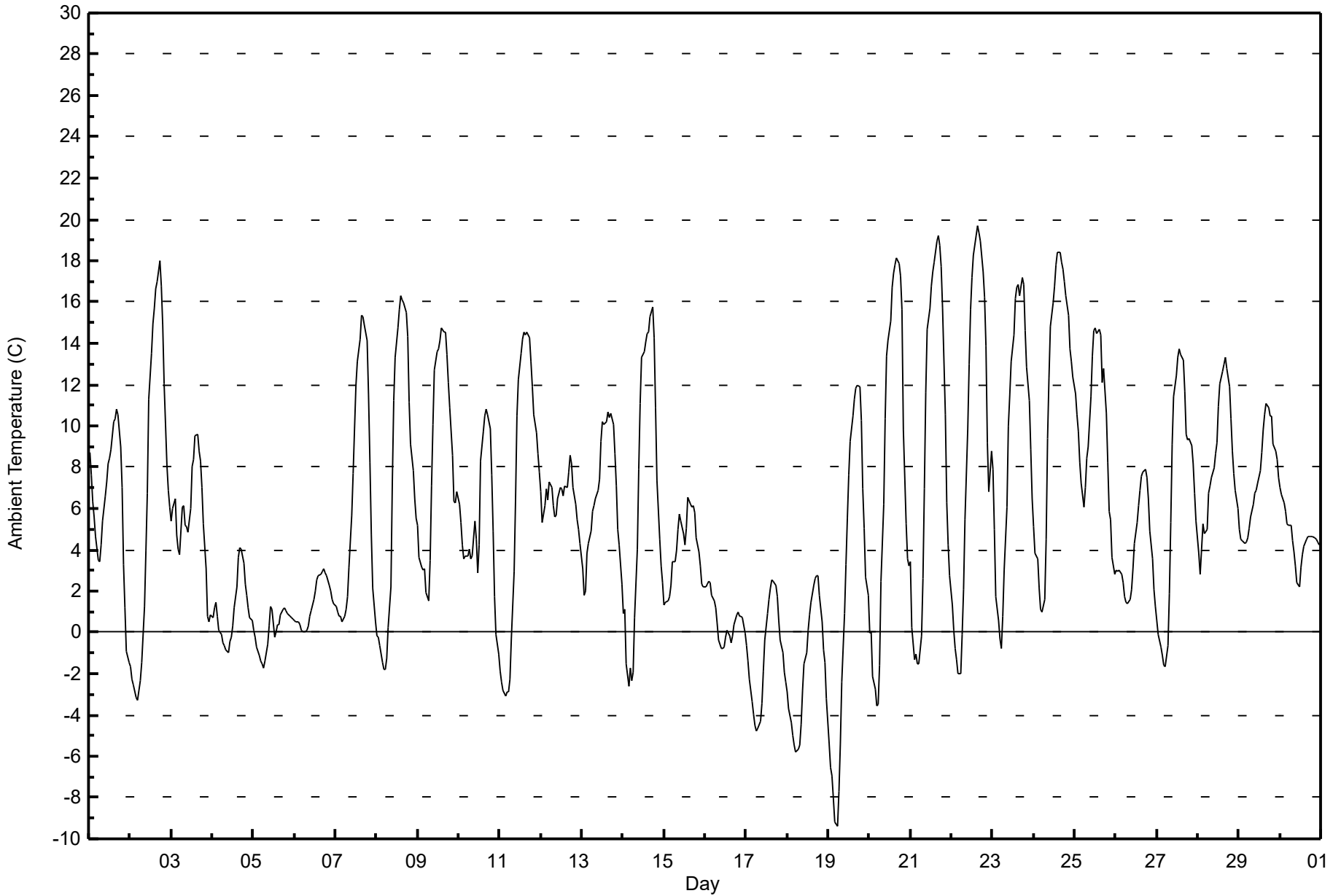
**Ambient Temperature (AT) - C**  
**Athabasca Valley - April 2024**

Maximum Value: 19.7 C on Apr 22 16:00		Maximum Daily Average: 11.3 C on Apr 24		Hours in Service: 720																							
Minimum Value: -9.4 C on Apr 19 06:00		Minimum Daily Average: -1.6 C on Apr 18		Hours of Data: 720																							
Maximum Diurnal Average: 10.8 C at hour 17		Minimum Diurnal Average: 0.5 C at hour 6		Hours of Missing Data: 0																							
Monthly Average: 5.59 C		Percentiles: P <sub>1</sub> = -5.6 P <sub>10</sub> = -1.4 Q <sub>1</sub> = 1.0 Median = 4.9 Q <sub>3</sub> = 9.7 P <sub>90</sub> = 14.5 P <sub>99</sub> = 18.4		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-Apr	8.7	7.6	6.4	5.6	4.7	3.5	3.4	4.2	5.4	6.6	7.3	8.2	8.4	8.9	10.2	10.4	10.8	10.5	9.0	7.0	3.3	1.2	-0.9	-1.5	6.2	10.8	
2-Apr	-1.7	-2.3	-2.5	-3.2	-3.3	-2.8	-2.3	-1.5	1.3	4.0	6.7	11.3	13.5	14.9	15.7	16.7	17.0	18.0	16.8	14.9	12.0	8.1	6.9	6.0	6.8	18.0	
3-Apr	5.4	6.0	6.5	4.7	4.1	3.7	6.1	6.1	5.2	5.1	4.8	6.0	8.0	8.4	9.6	9.6	8.8	8.3	7.0	5.3	3.1	0.8	0.5	0.8	5.6	9.6	
4-Apr	0.7	1.2	1.4	0.8	0.1	-0.1	-0.5	-0.7	-0.9	-1.0	-0.4	-0.3	0.3	1.2	2.2	3.6	4.1	4.0	3.3	2.3	1.8	1.2	0.7	0.6	1.1	4.1	
5-Apr	0.1	-0.3	-0.7	-1.1	-1.4	-1.5	-1.7	-1.4	-0.5	0.3	1.3	1.1	-0.2	0.0	0.3	0.3	0.9	1.2	1.2	1.0	0.9	0.8	0.7	0.6	0.1	1.3	
6-Apr	0.6	0.5	0.5	0.4	0.1	0.1	0.0	0.1	0.3	0.8	1.1	1.6	2.0	2.5	2.7	2.8	3.0	3.1	2.9	2.7	2.3	2.0	1.6	1.4	1.5	3.1	
7-Apr	1.3	1.0	0.7	0.8	0.5	0.8	1.1	1.7	3.1	5.6	7.7	9.9	12.0	13.1	14.2	15.3	15.3	14.9	14.2	11.5	8.2	4.7	2.1	0.5	6.7	15.3	
8-Apr	-0.2	-0.3	-0.6	-1.4	-1.8	-1.8	-1.2	0.2	2.2	7.3	11.2	13.3	14.8	15.6	16.3	16.1	16.0	15.5	14.3	11.1	9.1	7.8	6.5	5.5	7.3	16.3	
9-Apr	5.2	3.6	3.1	3.0	3.1	1.9	1.5	3.5	7.1	10.0	12.7	13.6	13.7	14.1	14.8	14.5	14.5	13.5	12.1	10.9	8.6	6.3	6.3	6.8	8.5	14.8	
10-Apr	6.2	5.3	4.2	3.5	3.7	3.7	4.0	3.6	3.7	5.4	4.5	2.8	4.2	8.3	9.7	10.5	10.8	10.6	9.9	7.6	4.9	1.7	-0.1	-1.0	5.3	10.8	
11-Apr	-1.9	-2.4	-2.8	-3.1	-2.9	-2.9	-2.2	-0.3	3.0	6.4	10.5	12.2	13.6	14.2	14.5	14.4	14.6	14.3	13.1	11.9	10.6	9.6	8.6	7.7	6.7	14.6	
12-Apr	6.8	5.3	6.2	6.9	6.4	7.3	7.0	6.1	5.6	5.7	6.5	7.0	6.9	6.6	7.1	7.0	7.7	8.5	8.1	7.0	6.2	5.5	5.0	4.3	6.5	8.5	
13-Apr	3.1	1.8	2.0	3.9	4.3	4.9	5.9	6.2	6.5	6.9	7.5	9.2	10.2	10.1	10.2	10.7	10.4	10.6	10.1	8.7	7.1	5.0	4.3	2.4	6.7	10.7	
14-Apr	0.9	1.1	-1.5	-2.6	-1.7	-2.4	-1.9	0.7	4.0	7.9	11.1	13.3	13.6	14.0	14.5	14.6	15.3	15.8	14.3	10.9	7.4	4.5	3.2	2.4	6.6	15.8	
15-Apr	1.3	1.4	1.5	1.7	2.2	3.4	3.4	4.0	5.0	5.7	5.4	4.8	4.3	5.1	6.5	6.2	6.1	6.1	5.8	4.6	3.9	3.2	2.3	2.2	4.0	6.5	
16-Apr	2.2	2.3	2.5	2.4	1.8	1.5	1.2	0.5	-0.3	-0.8	-0.8	-0.7	-0.2	0.1	-0.1	-0.5	-0.2	0.4	0.8	1.0	0.8	0.8	0.7	0.0	0.6	2.5	
17-Apr	-0.6	-1.4	-2.3	-3.3	-3.9	-4.5	-4.8	-4.6	-4.3	-3.4	-1.9	-0.4	0.9	1.6	2.1	2.5	2.5	2.3	1.7	0.6	-0.3	-1.0	-1.9	-2.4	-1.1	2.5	
18-Apr	-2.9	-3.7	-4.3	-5.0	-5.5	-5.8	-5.7	-5.4	-4.4	-2.8	-1.5	-1.0	0.1	0.9	1.4	2.3	2.6	2.7	2.7	1.8	0.5	-0.9	-1.5	-3.2	-1.6	2.7	
19-Apr	-5.4	-6.6	-7.0	-8.0	-9.2	-9.4	-7.7	-5.4	-2.4	0.9	3.3	5.5	7.6	9.3	10.5	11.3	11.9	11.9	11.9	10.3	7.0	5.1	2.7	1.8	2.1	11.9	
20-Apr	-0.1	0.0	-2.2	-2.8	-3.5	-3.5	-1.6	2.5	6.2	10.3	13.4	14.1	15.1	16.7	17.4	17.8	18.1	17.8	17.2	15.7	9.8	5.2	3.5	3.3	7.9	18.1	
21-Apr	3.5	0.2	-1.3	-1.1	-1.5	-1.5	-0.2	2.6	7.0	11.6	14.7	15.7	16.8	17.5	17.9	18.9	19.2	18.8	17.7	15.7	10.5	6.3	4.3	2.8	9.0	19.2	
22-Apr	1.4	0.1	-0.8	-1.3	-2.0	-2.0	-0.1	2.1	5.5	9.9	13.0	15.6	17.2	18.3	19.2	19.7	19.4	19.0	17.4	16.2	13.9	9.2	6.8	8.8	9.4	19.7	
23-Apr	7.9	5.0	1.7	0.6	-0.3	-0.8	0.8	3.0	6.1	10.0	11.5	13.1	14.4	16.2	16.7	16.8	16.3	17.2	16.8	14.6	12.8	11.2	8.9	6.5	9.5	17.2	
24-Apr	5.1	3.9	3.5	2.2	1.1	1.0	1.6	4.5	9.4	12.3	14.8	15.9	16.8	17.8	18.4	18.4	17.9	17.6	17.0	16.3	15.3	13.7	13.1	12.4	11.3	18.4	
25-Apr	11.6	10.5	9.7	8.2	7.2	6.1	7.0	8.5	9.0	11.5	13.4	14.6	14.7	14.5	14.7	14.4	12.1	12.8	10.6	8.2	5.9	5.4	3.6	2.8	9.9	14.7	
26-Apr	3.0	2.9	3.0	2.8	2.4	1.7	1.5	1.4	1.6	2.1	3.1	4.3	5.3	6.2	6.9	7.6	7.8	7.9	7.5	6.5	4.9	3.6	2.1	1.3	4.1	7.9	
27-Apr	0.6	-0.1	-0.7	-1.1	-1.6	-1.6	-0.6	1.8	5.4	9.1	11.4	12.4	13.3	13.7	13.5	13.2	11.7	9.6	9.3	9.4	9.0	8.2	6.8	5.4	6.6	13.7	
28-Apr	3.8	2.8	4.0	5.3	4.8	5.0	6.7	7.1	7.5	8.0	8.6	9.2	10.9	12.1	12.7	13.0	13.3	12.8	11.9	10.3	8.7	7.7	6.9	6.0	8.3	13.3	
29-Apr	5.0	4.5	4.4	4.3	4.4	4.6	5.1	5.6	6.2	6.7	6.9	7.2	7.8	8.7	9.8	10.6	11.1	10.9	10.5	10.5	9.1	8.8	8.3	7.5	7.4	11.1	
30-Apr	7.0	6.7	6.3	5.8	5.2	5.2	5.2	4.4	3.9	3.2	2.4	2.2	3.1	3.7	4.1	4.5	4.7	4.6	4.6	4.7	4.5	4.5	4.4	4.2	4.6	7.0	
		2.6	1.9	1.4	1.0	0.6	0.5	1.0	2.0	3.6	5.5	7.0	8.1	9.0	9.8	10.5	10.8	10.8	10.7	10.0	8.6	6.7	5.0	3.9	3.2	Diurnal Average	
		11.6	10.5	9.7	8.2	7.2	7.3	7.0	8.5	9.4	12.3	14.8	15.9	17.2	18.3	19.2	19.7	19.4	19.0	17.7	16.3	15.3	13.7	13.1	12.4	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Athabasca Valley - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Athabasca Valley - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	121	16.81	16.81
0 - 10	426	59.17	75.97
10 - 20	173	24.03	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - inHg**

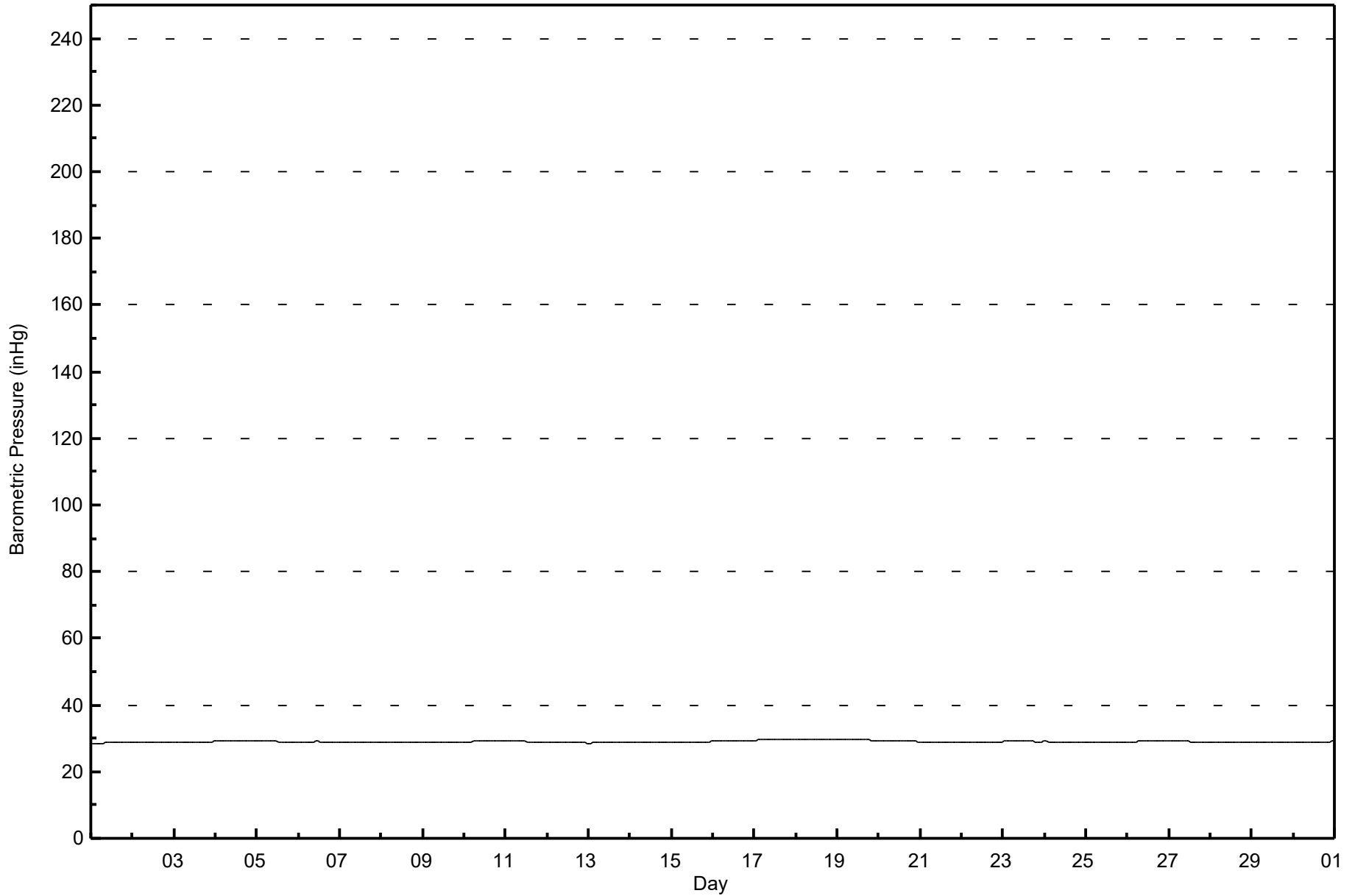
**Athabasca Valley - April 2024**

Maximum Value: 29.7 inHg on Apr 18 09:00      Maximum Daily Average: 29.7 inHg on Apr 18																						Hours in Service: 720 Hours of Data: 720					
Minimum Value: 28.4 inHg on Apr 1 01:00      Minimum Daily Average: 28.7 inHg on Apr 25 Maximum Diurnal Average: 29.0 inHg at hour 8      Minimum Diurnal Average: 29.0 inHg at hour 19 Monthly Average: 28.99 inHg      Percentiles: P <sub>1</sub> = 28.6 P <sub>10</sub> = 28.7 Q <sub>1</sub> = 28.8 Median = 28.9 Q <sub>3</sub> = 29.1 P <sub>90</sub> = 29.4 P <sub>99</sub> = 29.7																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	28.4	28.4	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0	28.7	29.0
2-Apr	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	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	28.8	29.0
3-Apr	28.7	28.7	28.7	28.7	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	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	28.8	29.0
4-Apr	29.0	29.1	29.1	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	29.2	29.2	29.2	29.3	29.3	29.3	29.2	29.2	29.2	29.3
5-Apr	29.2	29.2	29.2	29.2	29.2	29.2	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	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.2
6-Apr	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
7-Apr	29.0	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0
8-Apr	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.9
9-Apr	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.8	28.9
10-Apr	28.9	28.9	29.0	29.0	29.0	29.0	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	29.1	29.2	
11-Apr	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.2	
12-Apr	28.9	28.9	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	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.9	
13-Apr	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	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	28.9	28.8	28.9	
14-Apr	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	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	28.9	28.9	28.9	28.9	29.0	
15-Apr	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	29.0	29.0	28.9	29.0	
16-Apr	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.2	29.4	
17-Apr	29.4	29.4	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	
18-Apr	29.6	29.6	29.6	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	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	
19-Apr	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	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.6	
20-Apr	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.2	29.4	
21-Apr	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.7	28.6	28.7	28.7	28.7	28.7	28.8	29.0	
22-Apr	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	28.8	29.0	
23-Apr	29.0	29.0	29.1	29.1	29.1	29.1	29.1	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	29.0	29.1	29.1	
24-Apr	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.9	29.0	
25-Apr	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.8	28.8	28.7	28.8	
26-Apr	28.9	28.9	28.9	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	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.1	29.2	
27-Apr	29.2	29.2	29.2	29.1	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	29.0	28.9	28.9	28.9	29.0	29.2	
28-Apr	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.9	
29-Apr	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	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.8	28.9	
30-Apr	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	
																								Diurnal Average			
																								Diurnal Maximum			



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - April 2024**

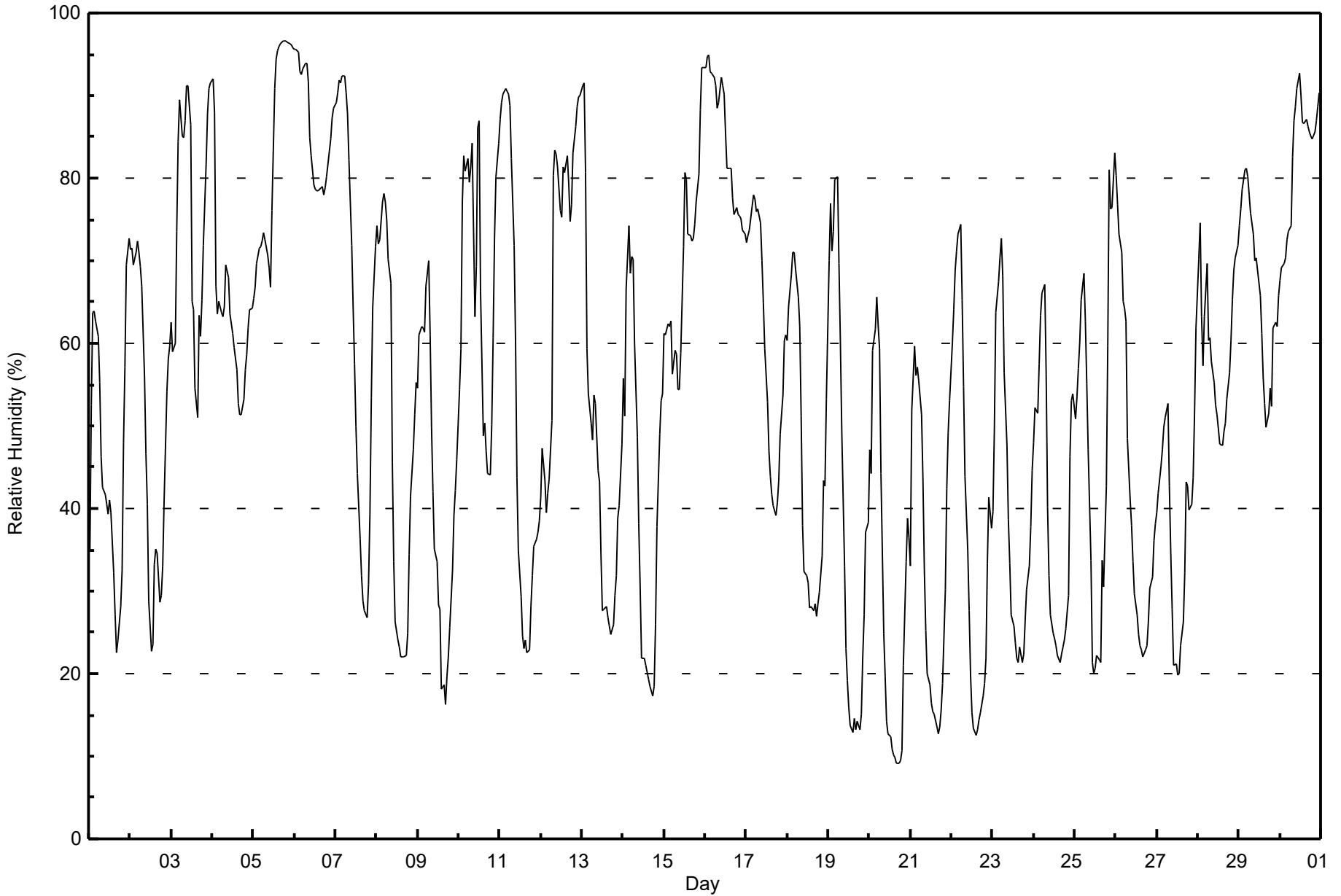




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Athabasca Valley - April 2024**

Maximum Value: 96.7 % on Apr 5 20:00      Maximum Daily Average: 86.1 % on Apr 6																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: 9.2 % on Apr 20 17:00      Minimum Daily Average: 30.3 % on Apr 20 Maximum Diurnal Average: 71.2 % at hour 6      Minimum Diurnal Average: 39.7 % at hour 18 Monthly Average: 55.13 %      Percentiles: P <sub>1</sub> = 12.4 P <sub>10</sub> = 22.1 Q <sub>1</sub> = 34.0 Median = 57.1 Q <sub>3</sub> = 73.6 P <sub>90</sub> = 87.1 P <sub>99</sub> = 95.9																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	34.9	52.6	63.8	63.9	62.7	60.9	55.2	46.3	42.5	41.7	40.6	39.3	41.0	39.5	32.3	27.1	22.5	24.1	28.2	32.5	48.0	57.2	69.5	72.7	45.8	72.7																							
2-Apr	71.3	71.5	69.5	71.1	72.3	71.0	69.3	67.0	55.9	46.6	40.6	28.7	22.7	23.5	33.2	35.1	34.6	28.7	29.6	33.1	41.0	54.3	58.1	59.7	49.5	72.3																							
3-Apr	62.6	59.0	60.0	73.6	84.5	89.5	85.2	84.9	87.0	91.2	91.1	86.5	65.1	64.1	54.7	51.0	63.3	60.8	65.2	71.8	81.7	87.9	90.9	91.6	75.1	91.6																							
4-Apr	92.1	87.9	66.9	63.6	65.1	63.7	63.3	64.3	69.4	68.0	63.5	62.3	61.2	59.4	56.7	52.8	51.4	51.3	53.3	56.8	58.6	61.9	64.1	64.3	63.4	92.1																							
5-Apr	65.4	66.7	69.7	71.5	71.7	72.3	73.3	72.5	70.7	69.1	66.8	76.2	90.9	94.3	95.4	95.9	96.3	96.6	96.7	96.7	96.5	96.3	96.1	95.8	83.1	96.7																							
6-Apr	95.6	95.7	95.2	92.9	92.6	93.3	93.8	93.9	91.7	85.0	82.7	79.2	78.7	78.5	78.7	78.9	78.0	78.8	80.2	83.2	84.7	87.2	88.4	86.1	95.7																								
7-Apr	89.1	90.3	91.9	91.6	92.4	92.5	90.4	87.8	82.2	71.9	64.3	57.5	50.0	44.3	36.2	31.9	28.7	27.7	26.7	30.9	39.3	53.3	64.4	71.6	62.8	92.5																							
8-Apr	74.3	72.1	72.5	77.1	78.1	77.2	74.9	70.1	67.3	45.6	33.5	26.3	24.1	23.1	22.0	22.0	22.0	22.2	24.9	34.5	41.5	47.0	51.3	55.3	48.3	78.1																							
9-Apr	54.6	61.0	62.0	61.9	61.3	66.9	70.0	61.1	49.8	42.1	35.1	33.6	28.4	27.8	18.1	18.6	16.3	19.6	22.0	25.6	32.5	39.1	42.2	45.9	41.5	70.0																							
10-Apr	54.4	59.4	77.2	82.7	80.8	82.3	79.5	81.4	84.2	63.3	69.4	86.1	86.9	66.2	48.8	50.3	46.9	44.2	44.1	50.2	60.7	72.9	80.1	84.2	68.2	86.9																							
11-Apr	87.1	89.2	90.2	90.9	90.5	90.1	88.8	82.3	71.9	60.3	43.7	34.9	29.4	24.5	23.1	24.0	22.5	23.0	28.1	31.9	35.3	36.3	37.1	38.5	53.1	90.9																							
12-Apr	41.4	47.3	43.4	39.5	41.8	43.6	50.7	80.3	83.3	82.9	81.3	76.2	75.2	81.4	80.7	82.8	79.3	74.8	76.7	83.1	86.3	88.6	89.8	89.9	70.9	89.9																							
13-Apr	91.2	91.5	80.7	59.4	53.9	50.4	48.2	53.7	52.8	44.7	43.2	34.5	27.6	27.7	28.1	26.7	25.7	24.8	26.0	29.5	31.9	38.7	40.4	47.8	45.0	91.5																							
14-Apr	55.8	51.2	66.7	74.3	68.4	70.5	70.1	59.9	48.7	38.2	30.5	21.8	21.9	21.0	20.1	19.3	18.4	17.3	18.4	26.0	37.9	48.9	53.0	54.0	42.2	74.3																							
15-Apr	61.2	61.0	62.3	62.0	62.7	56.3	59.1	58.6	54.5	54.4	58.9	71.7	80.6	79.8	73.2	73.0	72.4	72.7	74.4	77.1	80.5	88.3	93.4	93.4	70.1	93.4																							
16-Apr	93.4	94.8	95.0	92.8	92.7	92.2	91.2	88.4	89.1	92.2	91.2	90.2	85.4	81.2	81.1	81.2	77.6	75.6	76.4	75.6	75.4	75.1	73.7	73.2	84.8	95.0																							
17-Apr	72.1	73.0	73.7	76.6	78.0	77.5	75.9	76.3	74.5	70.1	65.0	59.3	52.9	46.9	43.9	41.6	40.3	39.1	40.6	43.4	49.0	53.7	60.3	61.0	60.2	78.0																							
18-Apr	60.4	64.4	68.3	71.0	71.0	68.9	65.6	62.1	51.2	38.0	32.4	31.8	31.0	27.9	28.1	27.6	28.4	26.9	28.5	29.8	34.2	43.4	42.6	53.3	45.3	71.0																							
19-Apr	70.0	76.9	71.2	73.5	79.7	80.1	69.7	60.3	49.5	33.0	23.1	19.1	16.0	13.8	12.9	14.5	13.2	14.3	13.2	15.1	22.1	27.2	37.2	38.3	39.3	80.1																							
20-Apr	47.1	44.3	59.1	61.6	65.6	62.2	59.4	44.2	24.8	19.7	14.3	12.7	12.4	10.9	10.2	9.8	9.2	9.2	9.5	10.7	21.0	33.6	38.9	36.5	30.3	65.6																							
21-Apr	33.0	51.9	59.6	56.0	57.2	55.4	51.4	43.3	32.5	25.2	20.0	18.6	16.5	15.5	15.1	13.5	12.8	13.5	15.7	18.9	30.2	42.3	49.2	53.0	33.4	59.6																							
22-Apr	59.9	64.1	68.8	71.2	73.2	74.4	65.2	54.8	43.8	35.0	27.7	19.8	15.3	13.3	12.6	13.2	14.5	15.2	17.3	18.8	21.8	33.3	41.4	37.6	38.0	74.4																							
23-Apr	39.6	49.4	63.7	67.4	70.3	72.7	68.2	56.4	47.6	38.6	33.4	27.1	25.8	23.7	21.8	21.4	23.2	21.4	22.3	26.4	30.1	33.1	37.8	44.6	40.3	72.7																							
24-Apr	47.9	52.3	51.5	57.5	63.3	66.1	67.1	56.2	40.2	31.9	27.1	24.9	24.3	23.4	22.2	21.3	22.3	23.2	24.1	25.5	29.5	46.2	53.0	53.8	39.8	67.1																							
25-Apr	50.8	53.5	56.9	60.1	65.3	68.4	62.7	55.0	47.2	33.6	21.4	20.0	20.7	22.1	21.8	21.4	33.7	30.4	42.7	59.6	81.0	76.2	76.4	83.0	48.5	83.0																							
26-Apr	80.3	76.8	73.2	71.0	65.1	64.3	62.8	48.5	40.9	38.0	33.6	29.7	27.2	24.7	23.4	22.8	22.1	22.9	23.4	26.3	30.3	31.7	36.2	38.1	42.2	80.3																							
27-Apr	39.4	41.8	45.1	47.2	49.8	51.0	52.7	42.8	34.6	27.8	21.0	21.2	19.8	20.0	23.4	26.2	32.2	43.2	42.7	39.8	40.6	43.7	51.7	61.9	38.3	61.9																							
28-Apr	70.2	74.6	63.2	57.3	63.2	69.6	60.4	60.6	57.8	55.2	52.5	51.4	49.6	47.8	47.6	49.4	50.3	53.3	56.4	60.3	65.3	68.8	70.3	71.8	59.5	74.6																							
29-Apr	74.3	76.3	78.6	81.1	81.1	80.1	77.9	75.7	73.2	70.0	70.3	68.8	65.8	61.2	56.0	52.8	49.8	51.6	54.6	52.4	61.9	62.5	62.0	65.7	66.8	81.1																							
30-Apr	67.7	69.2	69.7	70.3	72.6	73.5	74.2	82.5	86.9	88.6	90.9	92.8	90.0	86.7	86.6	87.1	86.3	85.7	85.1	84.8	85.5	87.0	88.6	90.4	82.6	92.8																							
																								64.6	67.3	69.0	69.7	70.9	71.2	69.2	65.7	60.2	53.4	49.0	46.7	44.5	42.5	40.3	39.8	39.8	39.7	41.5	44.9	51.1	57.1	61.2	63.8	Diurnal Average	
																								95.6	95.7	95.2	92.9	92.7	93.3	93.8	93.9	91.7	92.2	91.2	92.8	90.9	94.3	95.4	95.9	96.3	96.6	96.7	96.7	96.5	96.3	96.1	95.8	Diurnal Maximum	





Maximum Speed: 38 km/h on Apr 13 13:00	Maximum Daily Speed Average: 21.2 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 11 03:00	Minimum Daily Speed Average: 0.9 km/h on Apr 19	Hours of Data: 718
Maximum Diurnal Speed Average: 5.8 km/h at hour 17	Minimum Diurnal Speed Average: 0.4 km/h at hour 1	Hours of Missing Data: 2
Monthly Average Velocity: 3.1 km/h 324.9 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 10 Q <sub>3</sub> = 15 P <sub>90</sub> = 22 P <sub>99</sub> = 30	Percent Operational Time: 99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW14WNW21	W14WSW14	WSW19WSW19	WSW17	W17WNW30	WNW36	NW32WNW29	WNW24	WNW19	WNW22	NW22	NW24	NNW15	NW11	WNW5	WSW2	SSW3	SE2	SSE3	WNW14	9	WNW36				
2-Apr	SE2	SE3	SSE4	S2	SE4	SE6	SE9	SE8	SE11	SE8	SE8	ESE13	ESE17	ESE9	SSW6	SE7	SE11	SSE9	SE10	SE10	SE6	SE4	SE4	SSE4	SE7.1	ESE17
3-Apr	SE4	ESE6	SE8	E2	ESE3	WNW4	NW8WNW18	NW13	WSW5	SW14	SW11	W16	W11	W18WNW15	N11	N12	N9	NNW6	NNW3	NW3	W3	WSW2	WNW4	9	WNW18	
4-Apr	SW5	W5	W17	W19	W13	NW10WNW18	NW16	NNW12	NNW12	N11	NNW10	NNW10	NNW13	NW9	WNW6	WNW5	ENE9	E10	E9	ESE6	E6	ESE5	ESE6	NW5.1	W19	
5-Apr	E9	E9	E8	ENE8	ENE6	NE5	NNE7	NE6	NE5	NNE5	NNE7	NE7	NNW11	NNW11	NNW10	NNW8	NNW8	NNW8	N8	NNW9	NNW6	NNW6	NW8	NNW9	N5.6	NNW11
6-Apr	NNW7	NW8	NW8	NNW9	NW10	NNW6	UO	UO	NNW8	NNW11	NNW9	NNW7	NNW11	NNW10	NNW7	NNW9	NNW7	NNW2	NW2	NNW2	W4	WSW3	NW2	NW1	NNW6.2	NNW11
7-Apr	WSW1	W2	SW2	SSW2	S2	SSE4	SE7	SE6	ESE4	SW7	SW7	SW11	SSW15	SW16	SW15	SW14	SW14	SW10	WSW8	WSW4	SSW1	S2	S1	SW5.7	SW16	
8-Apr	SSE2	S3	SSE2	SSE1	SSE3	SSE3	SSE5	S3	SE6	ESE7	ESE4	E3	SW10	WSW10	WSW12	SW12	SW8	WSW6	SSE1	WNW1	SW1	SSE2	SSW3	SSW1	SSW3.1	WSW12
9-Apr	S4	SSW3	S4	S3	SSW4	SSW3	S3	S4	SSE3	SSE5	WSW13	WSW14	WSW20	WSW18	WSW18	WSW18	WSW21	W22	W19	WSW15	WSW10	WSW8	WSW10	SW11	WSW9.4	W22
10-Apr	WSW9	WSW6	NW11	W6	NW5	WNW19	WNW23	NW25	NW9	NW26	NW30	NW21	N3	N7	N13	NNE12	N12	NNE11	NE9	ENE7	WNW3	WNW3	WSW3	SW1	NW8.8	NW30
11-Apr	ENE1	SSE2	E0	WNW1	SSE4	SE5	SE8	SE8	SE10	SE8	ESE13	ESE17	ESE16	SE16	SE15	ESE17	ESE20	ESE19	ESE13	SE11	ESE14	SE13	SE13	SE11	SE10.4	ESE20
12-Apr	SE8	SE7	SE9	SE9	ESE9	SE9	SE12	SE12	SE11	SE12	SE15	SE18	SSE16	SE11	SE10	ESE9	SE9	SE11	SE9	SE10	SE11	E3	SE9	SE10	SE10.3	SE18
13-Apr	SE8	ESE2	SE4	SSW11	SW14	SW13	WSW15	W19	WNW24	W18	W25	W32	W38	WNW36	WNW31	WNW29	WNW25	W22	WNW15	W8	WSW11	WSW9	SW4	SE4	W15.0	W38
14-Apr	SSW6	S6	SE3	SSE4	S4	SSE3	SE5	SE5	SE7	E5	E6	SSW11	W13	WNW9	NNW6	NNW5	NNW6	WSW4	SW4	W1	NW2	ESE1	W1	WSW3	SSW1.5	W13
15-Apr	WSW4	SSW3	WSW3	W3	WNW3	NNW5	E1	ESE1	N2	SE6	SE10	SE11	SSE11	SE9	ESE7	NE5	NNW9	N8	N9	NNW11	N8	NNW11	NNW12	NNW12	N1.9	NNW12
16-Apr	NNW11	NNW11	NNW15	NNW16	NNW18	NNW21	NNW22	NNW29	NNW31	NNW29	NNW27	NNW28	NNW25	NNW25	NNW26	N27	N26	N21	N22	N17	N14	NNW17	N17	NNW20	NNW21.2	NNW31
17-Apr	NNW23	NNW20	N18	NNW24	NNW22	NNW23	N22	NNW24	NNW26	NNW24	NNW25	NNW24	N24	N25	N23	N22	N22	N22	N19	N18	NNE11	NNE9	N8	N10	N20.0	NNW26
18-Apr	N10	N8	NNW10	NNW10	NNW15	NNW16	NNW18	NNW19	NNW19	NNW20	NNW22	NNW25	NNW24	NNW23	NNW24	NNW19	NNW21	N17	N14	N10	N7	NNW6	NNW7	WNW4	NNW15.2	NNW25
19-Apr	W1	WSW1	WSW5	SW3	ESE1	E3	ESE2	E5	ENE7	ENE6	ENE7	E6	ENE5	NNE1	W4	W9	W8	W11	SW10	SSW7	SSE4	S4	SSE4	SSE5	SSW0.9	W11
20-Apr	SE5	SE5	SE6	SE6	SE6	SE5	ESE5	SE3	SSW13	SW15	WSW16	W20	W16	SW15	SW14	SW13	SW11	SW11	SW7	SSW5	SSE2	SSE1	SSE4	S5	SW6.0	W20
21-Apr	SSW6	S3	SE1	SE6	SE5	SE6	ESE7	ESE7	ESE5	SE8	ESE15	ESE16	SE12	ESE11	E11	ESE5	S4	NW7	N7	NNW7	NW3	WSW3	SW3	SSW1	ESE3.9	ESE16
22-Apr	SSW1	WSW1	S0	SSW1	ENE2	NNE0	ESE4	W3	NW5	NNW13	NNW17	NNW19	NNW16	NNW13	N12	NNW13	N13	N15	N13	N10	NNW8	NW5	NNW9	NNW10	NNW7.7	NNW19
23-Apr	NNW6	NW2	SW1	SW2	SW4	E1	NNE0	W2	NNW4	NNW10	NNW10	NW3	NW9	NNW9	NNW7	NW6	NNW12	N11	NNE9	NNE6	ENE7	E3	NNE4	N4	NNW4.1	NNW12
24-Apr	N5	NE4	N5	N5	NNE2	N4	NE3	ENE4	ESE15	ESE20	E19	ESE21	ESE21	ESE20	ESE19	ESE20	ESE20	ESE18	ESE14	ESE15	SE14	SE11	SE12	SE12	ESE11.0	ESE21
25-Apr	SSE10	SW9	S6	SSW7	SW10	SSW5	SSW6	SW11	SW14	WSW18	W26	W26	W26	WSW24	WSW26	WSW29	WNW29	W28	W28	NW28	NW14	NNW23	NNW19	NNW8	W14.5	WSW29
26-Apr	WNW10	WNW18	NW15	NW16	NNW16	NW14	NNW19	NNW23	N20	NNW20	NNW18	N15	N15	NNW14	N14	N14	N13	N11	NE8	NE8	ENE5	ESE9	ESE6	SE10	NNW10.5	NNW23
27-Apr	SE9	SE8	SE5	SE10	SE13	SE8	ESE5	SE10	ESE7	ESE5	SSE17	S16	S17	S17	SSW20	S18	SSW21	S15	SE10	SE12	SE9	SE5	SSE1	WNW2	SSE9.4	SSW21
28-Apr	NW3	ENE1	SE7	ESE5	NNE3	ESE3	SE13	SE16	SE12	ESE11	ESE12	ESE14	ESE13	ESE14	ESE15	E15	ESE14	E16	ESE14	ESE12	E9	E9	ESE9	ESE11	ESE9.9	E16
29-Apr	ESE10	ESE10	ESE9	E8	ESE4	E8	E9	E9	NE7	NNE7	NNW8	NNW13	NNW13	NNW16	NNW16	NNW17	N11	NNW14	N13	N14	NNW13	NNW12	N14	NNW15	N7.6	NNW17
30-Apr	NNW13	N13	NNW15	N13	N14	N16	N15	N13	N14	N17	NNW23	NNW22	NNW21	NNW22	NNW18	NNW21	NNW25	NNW27	NNW25	NNW23	NNW21	NNW19	NNW18	NNW20	NNW18.5	NNW27

W0.4	NW1.4	NW1.5	NNW1.8	NNW1.8	NW2.3	NNW1.8	NNW3.3	NNW3.7	NNW4.7	NW5.3	NW4.5	NW5.3	NW5.2	NW5.6	NW5.2	NW5.8	NNW4.9	N4.1	N3.3	N1.7	N1.8	N1.7	N0.9	Diurnal Average
NNW23	WNW21	N18	NNW24	NNW22	NNW23	WNW23	NNW29	NNW31	WNW36	NW32	W32	W38	WNW36	WNW31	WSW29	WNW29	W28	W28	NW28	NNW21	NNW23	NNW19	NNW20	Diurnal Maximum

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods

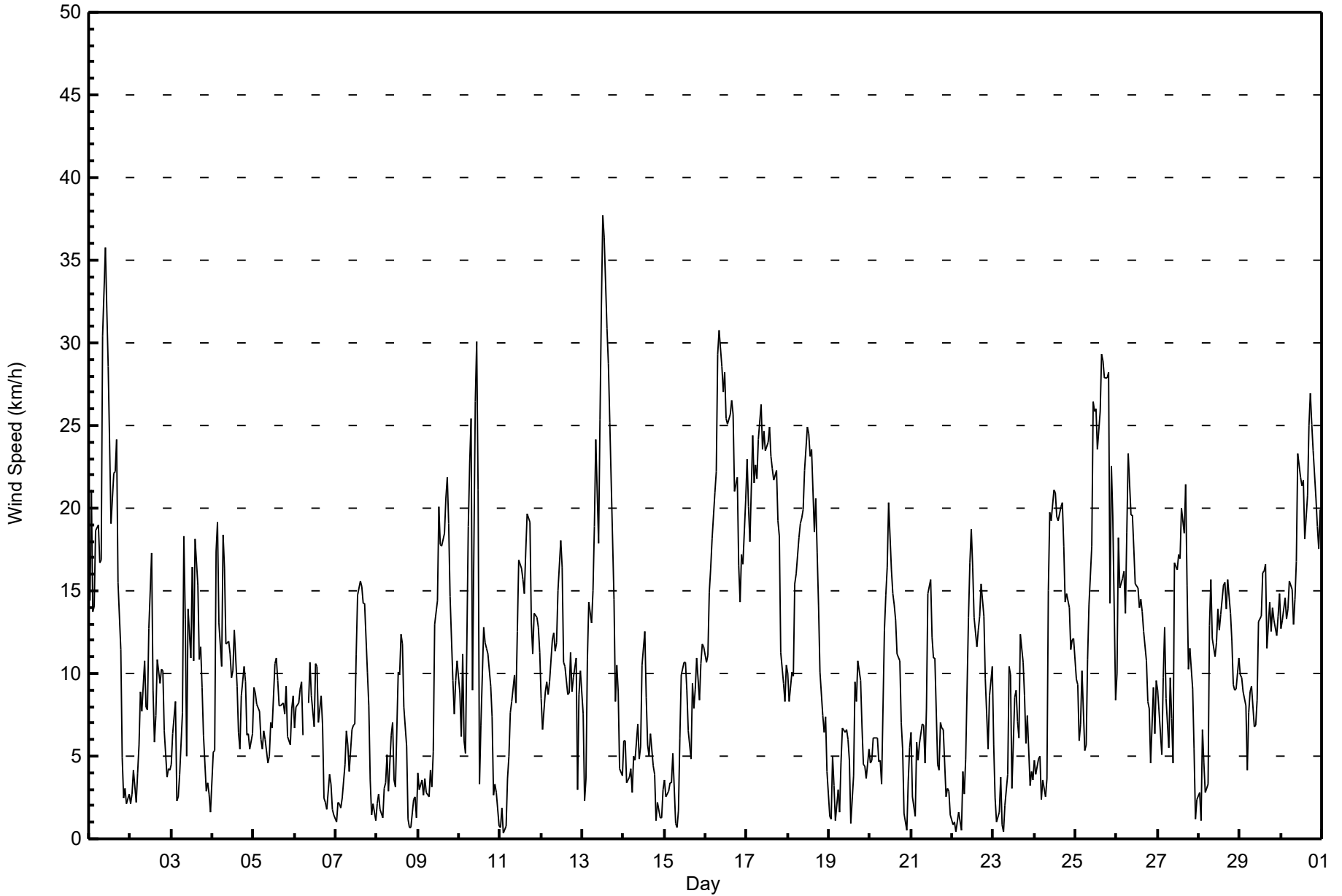




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Athabasca Valley - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 25 16:00 Minimum Value: 1 km/h on Apr 19 01:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 6 P <sub>99</sub> = 8																	Hours in Service: 720 Hours of Data: 718 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7									
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	4	9	5	2	3	3	4	6	7	6	7	5	4	5	6	5	6	4	2	3	2	2	1	1	9	
2-Apr	1	1	2	1	2	1	2	3	2	3	3	4	4	5	2	2	3	2	3	3	2	2	2	2	5	
3-Apr	2	3	3	2	2	3	5	4	6	3	7	2	4	3	5	5	3	3	3	1	1	2	2	3	7	
4-Apr	3	5	4	5	3	3	4	3	3	2	4	3	3	3	3	2	2	3	2	2	2	2	2	3	5	
5-Apr	2	2	2	2	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	
6-Apr	2	2	4	2	2	1	UO	UO	2	3	3	2	2	2	2	3	3	1	1	1	2	1	1	1	4	
7-Apr	1	1	1	1	1	1	2	2	1	3	2	2	4	3	4	4	5	4	4	2	1	1	1	1	5	
8-Apr	2	2	1	1	1	1	2	2	3	2	2	3	3	3	5	6	4	1	1	2	2	1	2	2	6	
9-Apr	2	2	3	2	2	1	3	2	2	3	7	5	7	6	7	5	5	5	4	3	1	2	3	4	7	
10-Apr	4	3	4	4	6	4	4	6	7	5	6	6	2	3	4	4	3	3	2	2	1	1	1	1	7	
11-Apr	1	1	2	1	2	2	2	2	2	3	5	4	4	5	5	5	5	5	3	3	3	3	3	2	5	
12-Apr	2	2	2	2	2	2	4	3	3	3	3	5	5	3	3	2	2	2	2	2	2	4	2	3	5	
13-Apr	2	2	2	3	3	2	3	4	6	5	5	8	8	7	6	6	7	5	5	2	1	2	3	1	8	
14-Apr	3	1	1	1	1	1	3	2	1	1	3	4	6	4	2	2	3	2	2	1	1	2	1	1	6	
15-Apr	1	1	2	1	2	3	2	1	2	2	2	3	2	2	2	2	2	2	3	3	2	2	3	3	3	
16-Apr	2	3	3	4	3	4	6	5	5	6	5	5	6	6	6	7	7	5	6	4	4	4	4	5	7	
17-Apr	5	5	5	7	7	5	6	6	5	5	6	5	6	6	6	6	6	6	5	5	3	2	2	2	7	
18-Apr	2	2	2	3	3	3	5	4	4	4	5	5	5	5	6	5	5	5	4	2	2	1	1	2	6	
19-Apr	1	1	2	2	1	2	2	2	1	2	2	2	3	2	3	4	4	4	2	1	1	1	2	1	4	
20-Apr	1	2	1	1	1	1	1	2	2	2	4	5	5	5	5	4	3	2	1	1	1	1	1	1	5	
21-Apr	1	3	1	2	2	2	3	2	2	4	4	4	4	5	4	2	2	2	2	1	1	1	2	2	5	
22-Apr	1	1	1	1	1	1	1	1	3	2	4	3	3	3	3	3	3	4	3	3	2	1	3	2	4	
23-Apr	2	1	1	2	2	1	1	1	2	2	2	2	3	2	2	7	3	3	4	4	2	2	2	2	7	
24-Apr	2	2	1	3	1	1	1	3	4	6	6	6	6	6	6	5	5	5	4	6	3	3	3	3	6	
25-Apr	3	3	2	3	5	3	3	3	3	9	6	6	6	6	8	9	9	6	9	7	4	7	5	4	9	
26-Apr	5	4	3	3	5	2	5	5	5	5	5	4	4	4	4	4	3	3	2	2	2	4	2	3	5	
27-Apr	2	3	2	2	2	2	3	2	2	4	5	5	5	6	7	6	6	6	2	3	3	2	1	1	7	
28-Apr	1	1	3	3	1	3	3	4	3	3	3	4	3	4	4	4	4	4	3	3	2	3	2	4	4	
29-Apr	3	2	3	2	2	2	2	2	2	2	1	2	2	3	3	3	3	4	3	3	3	4	3	4	4	
30-Apr	4	4	3	3	3	4	4	4	3	4	5	4	4	5	4	4	5	5	5	5	4	4	3	4	5	
																	Diurnal Maximum									
UO - Unstable Operation																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Athabasca Valley - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	195	27.16	27.16
6 - 11	242	33.70	60.86
12 - 19	181	25.21	86.07
20 - 28	85	11.84	97.91
29 - 38	15	2.09	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Athabasca Valley - April 2024**

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	7	7	5	6	10	18	21	25	17	14	11	15	11	10	12	6	195
6 - 11	18	8	6	8	15	22	56	3	2	8	16	10	6	4	13	47	242
12 - 19	30	1	0	0	3	24	17	3	5	2	14	14	11	8	6	43	181
20 - 28	12	0	0	0	0	7	0	0	0	2	0	4	8	7	6	39	85
29 - 38	0	0	0	0	0	0	0	0	0	0	0	1	2	7	2	3	15
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	67	16	11	14	28	71	94	31	24	26	41	44	38	36	39	138	718

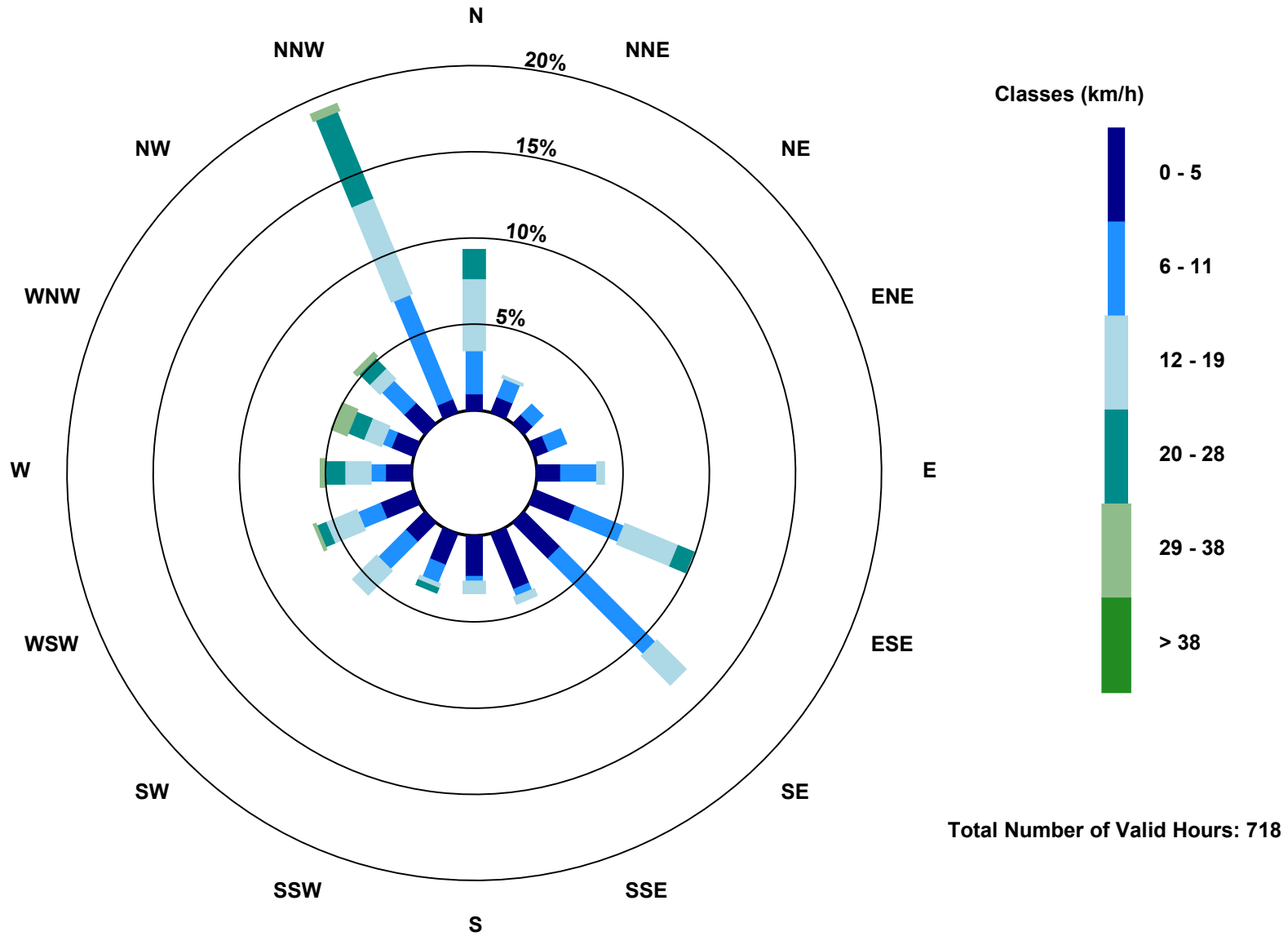
Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Athabasca Valley





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

**Wind Direction (WD) - deg**  
**Athabasca Valley - April 2024**

Direction of Maximum Speed: 281 deg on Apr 13 13:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 344.0 deg on Apr 16	Hours of Data: 718
Direction of Minimum Speed: 99 deg on Apr 11 03:00	Direction of Minimum Daily Speed Average: 0.9 deg on Apr 19
Direction of Minimum Speed: 99 deg on Apr 11 03:00	Hours of Missing Data: 2
Monthly Average Direction: 324.9 deg	Percent Operational Time: 99.7

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-Apr	221	288	277	241	246	243	237	274	293	301	309	302	299	303	294	308	314	327	318	286	245	206	127	151	287.7
2-Apr	146	141	157	181	139	127	134	132	139	136	128	123	117	121	193	146	124	147	132	131	137	127	138	152	134.6
3-Apr	142	115	135	101	118	303	318	299	320	248	224	231	271	275	278	295	352	355	358	338	330	313	270	256	292.9
4-Apr	226	262	270	270	261	307	303	318	341	340	353	344	344	337	325	302	303	77	86	86	113	92	120	120	320.6
5-Apr	88	85	81	76	72	41	26	48	37	15	15	53	343	343	342	337	347	347	352	336	347	328	317	330	11.2
6-Apr	339	323	324	335	324	328	UO	UO	344	336	334	335	340	332	331	345	345	343	309	340	261	247	305	305	330.5
7-Apr	250	272	224	202	176	147	136	140	106	224	216	231	223	211	218	217	231	232	233	253	246	207	177	178	215.7
8-Apr	164	184	165	162	164	147	162	170	131	117	108	92	225	240	239	231	236	247	157	293	218	162	205	203	199.9
9-Apr	191	201	176	172	193	204	185	177	152	167	250	250	249	247	252	244	248	265	267	257	254	244	248	224	243.3
10-Apr	246	246	311	265	308	290	288	306	307	308	321	324	11	349	355	25	8	12	42	71	287	295	247	222	318.9
11-Apr	73	158	99	302	154	126	125	131	136	146	121	116	120	133	130	116	121	121	113	128	122	125	131	133	125.2
12-Apr	132	124	124	136	123	134	139	131	128	133	124	137	147	144	129	118	124	124	125	127	137	100	138	142	131.7
13-Apr	143	109	146	211	222	229	242	265	298	281	268	280	281	282	283	286	285	281	295	259	252	237	224	142	270.4
14-Apr	201	177	131	147	169	147	146	133	126	80	83	209	264	290	331	345	331	241	220	277	317	122	260	241	208.8
15-Apr	252	210	246	278	289	335	86	117	353	127	134	145	149	140	120	51	345	349	353	346	350	347	347	344	8.6
16-Apr	345	343	340	339	333	339	341	336	336	338	337	337	341	344	344	350	356	358	5	353	353	348	353	340	344.0
17-Apr	339	341	352	344	343	342	349	343	340	340	340	347	353	358	355	355	6	358	3	9	12	14	6	6	351.0
18-Apr	5	352	342	337	334	334	342	339	335	338	339	336	338	339	339	348	341	353	353	4	4	332	330	297	341.4
19-Apr	270	246	246	220	120	84	115	82	72	69	65	82	57	19	275	271	276	265	235	205	160	175	148	147	197.7
20-Apr	138	140	124	125	130	131	121	127	206	215	254	272	274	227	231	231	226	224	230	207	166	156	161	174	217.8
21-Apr	209	169	133	128	126	130	114	105	119	125	113	107	127	102	88	104	188	320	0	337	315	251	216	206	115.2
22-Apr	206	238	190	207	71	12	110	275	319	338	341	339	339	340	354	346	358	7	3	2	345	317	333	337	345.8
23-Apr	343	309	229	215	216	87	17	266	329	338	342	312	326	345	328	312	328	6	30	28	70	83	22	10	347.8
24-Apr	7	37	7	356	15	351	43	75	116	119	100	115	111	106	105	113	111	112	118	119	157	124	125	138	110.3
25-Apr	150	221	191	203	234	193	195	220	222	250	266	259	260	254	254	256	285	271	277	308	322	327	334	286	266.3
26-Apr	292	292	319	311	329	316	330	337	352	330	337	354	355	347	353	358	357	357	34	54	78	121	121	137	342.0
27-Apr	135	144	128	132	132	132	113	133	118	118	164	178	183	189	201	186	204	171	134	129	130	142	167	297	161.5
28-Apr	312	68	138	120	15	115	127	124	126	112	111	117	110	104	112	97	111	101	102	109	97	95	103	121	110.3
29-Apr	110	113	103	95	110	89	93	82	53	31	336	338	338	338	338	336	358	343	349	2	344	344	351	343	6.8
30-Apr	344	349	345	354	353	352	356	4	359	352	341	336	338	343	345	340	338	336	337	339	337	338	337	338	343.2

272.3	304.5	324.1	301.7	298.5	320.6	333.8	329.5	340.5	327.8	323.9	314.3	305.8	310.9	306.1	313.2	323.0	332.3	350.9	0.5	4.9	354.2	356.7	351.9
Diurnal Average																							

UO - Unstable Operation  
 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 - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 103 deg on Apr 15 08:00	Hours of Data: 718
Minimum Value: 8 deg on Apr 16 05:00	Hours of Missing Data: 2
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 12 Q <sub>1</sub> = 16 Median = 20 Q <sub>3</sub> = 35 P <sub>90</sub> = 63 P <sub>99</sub> = 94	Hours of Calibration: 0
	Percent Operational Time: 99.7

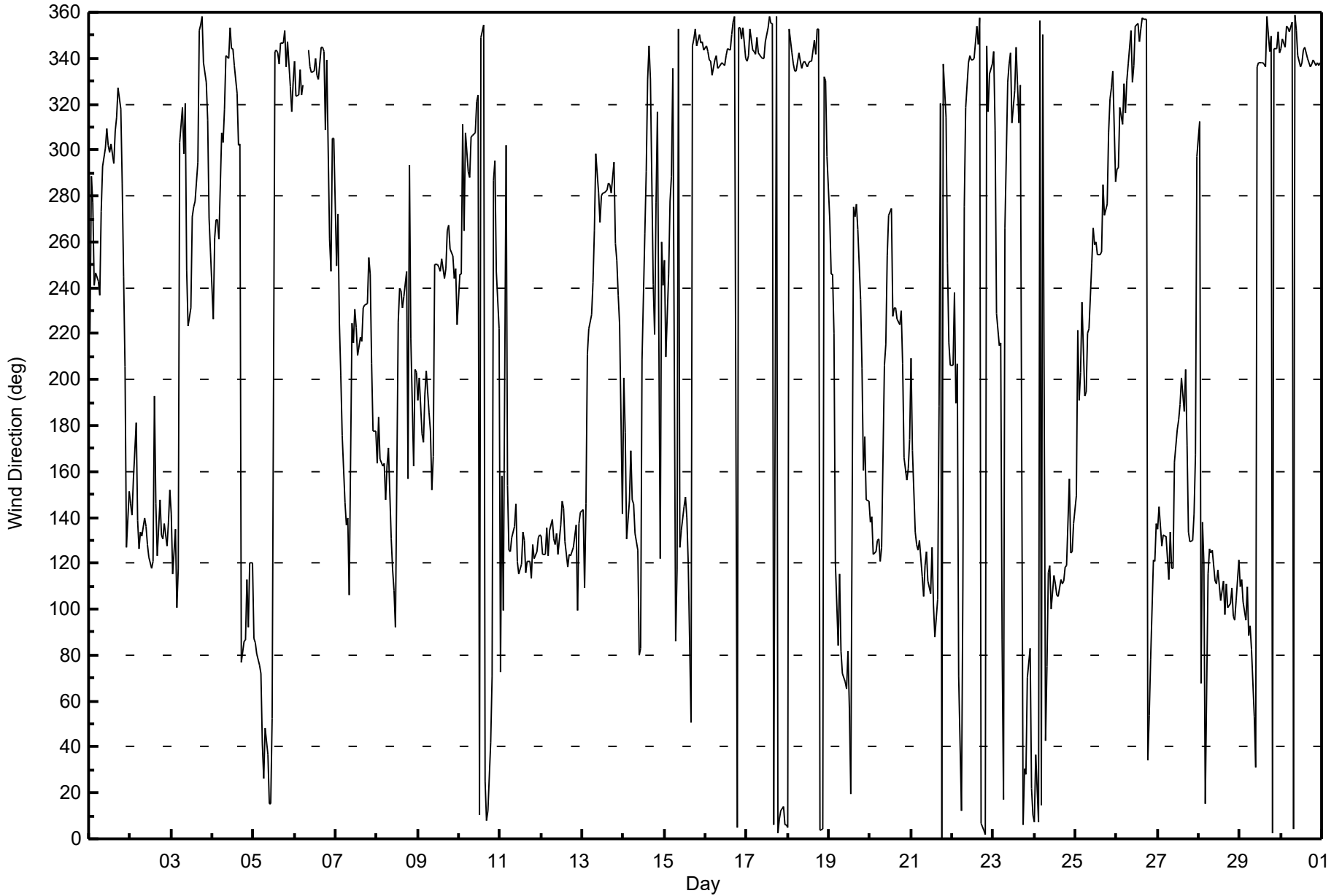
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	19	23	15	9	9	9	10	22	13	13	12	14	15	15	18	14	13	17	18	48	75	50	54	36	75
2-Apr	55	43	33	66	81	24	16	25	15	31	33	16	14	32	42	21	12	21	16	20	17	53	59	45	81
3-Apr	45	48	32	89	86	64	37	15	14	42	41	12	12	16	11	34	19	20	18	15	42	58	64	75	89
4-Apr	26	78	14	17	18	20	12	13	19	12	27	23	26	15	21	25	26	45	10	9	21	21	32	24	78
5-Apr	16	12	11	11	16	20	16	29	38	43	25	32	15	15	15	9	15	15	16	12	19	14	9	9	43
6-Apr	13	10	31	19	9	14	UO	UO	18	12	22	17	12	16	18	17	18	47	31	38	24	26	59	55	59
7-Apr	80	23	62	50	59	26	18	25	33	48	21	30	20	9	14	14	15	12	13	14	30	75	62	82	82
8-Apr	63	67	56	65	43	35	30	73	44	24	71	65	21	27	23	24	19	21	62	99	78	57	68	97	99
9-Apr	58	54	53	59	54	61	69	59	50	55	39	27	21	22	25	27	17	15	13	12	9	12	15	29	69
10-Apr	29	44	26	58	58	14	15	11	40	13	10	10	57	59	20	32	25	23	23	16	62	46	46	88	88
11-Apr	95	66	98	70	39	36	19	17	20	28	20	19	23	21	26	17	14	13	19	15	12	13	13	14	98
12-Apr	16	18	20	19	18	17	16	17	18	20	15	16	20	18	17	18	16	14	14	14	15	67	19	18	67
13-Apr	18	85	64	18	12	11	11	18	18	19	13	17	14	14	17	13	12	15	17	9	11	81	52	85	
14-Apr	42	17	44	28	23	51	42	61	17	29	72	31	32	48	48	49	39	51	38	81	39	77	76	20	81
15-Apr	17	59	72	47	78	42	101	103	89	34	18	16	16	18	37	48	16	24	18	16	19	17	16	16	103
16-Apr	16	15	13	12	8	13	16	9	9	12	11	10	14	17	16	19	20	18	18	19	20	19	19	13	20
17-Apr	12	16	19	17	17	16	18	16	15	13	13	18	20	20	20	22	19	19	18	17	14	13	14	14	22
18-Apr	14	17	15	15	9	10	16	13	10	12	14	11	12	14	13	18	16	19	19	15	16	23	9	46	46
19-Apr	70	90	23	78	75	40	90	68	11	19	23	41	65	99	81	41	40	18	12	21	16	31	44	27	99
20-Apr	19	25	15	13	18	21	20	48	10	12	20	16	27	28	25	19	19	13	12	16	83	94	47	20	94
21-Apr	19	57	94	22	26	24	28	29	64	52	22	22	35	41	34	62	62	25	22	11	58	63	77	92	94
22-Apr	86	61	83	60	75	80	34	53	35	11	13	12	13	17	25	18	23	17	16	17	14	18	25	13	86
23-Apr	21	48	78	76	37	83	79	28	27	12	21	75	13	27	28	36	21	17	20	32	72	91	46	46	91
24-Apr	38	49	28	22	70	23	40	60	19	18	20	22	20	22	21	20	19	19	18	17	22	21	18	19	70
25-Apr	33	17	30	28	37	52	65	18	15	33	13	16	17	16	19	19	16	14	21	11	12	15	13	30	65
26-Apr	31	12	14	12	14	10	11	17	19	17	18	26	25	27	23	21	22	27	24	15	48	18	32	19	48
27-Apr	19	19	30	12	11	23	35	17	30	79	28	32	28	34	25	24	20	31	16	16	17	26	93	54	93
28-Apr	23	84	15	55	43	90	18	16	19	21	20	20	23	23	22	21	23	20	19	20	19	22	23	20	90
29-Apr	21	21	21	18	42	25	18	14	33	30	13	12	12	12	13	12	24	17	19	18	17	18	19	16	42
30-Apr	16	18	17	18	18	18	19	18	19	19	15	10	14	16	18	13	11	11	11	13	12	12	11	12	19
	95	90	98	89	86	90	101	103	89	79	72	75	65	99	81	62	62	51	62	99	83	94	93	97	
	Diurnal Maximum																								

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Athabasca Valley - April 2024**







## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS08 FORT CHIPEWYAN APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
 APRIL 2024

MONTHLY SUMMARY

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	687	33	33	100	1.9	0	0.2	0
TRS (ppb) Average	686	34	34	100	0.4	0	0.2	0
O3(ppb) Average	687	33	33	100	54.1	0	44.1	-
NO2(ppb) Average	685	35	35	100	8.9	0	2.3	-
NO(ppb) Average	685	35	35	100	6.1	-	1.3	-
NOX(ppb) Average	685	35	35	100	11.9	-	3.6	-
PM2.5(ug/m3) Average	719	1	1	100	11.7	0	4.7	0
CO(ppm) Average	687	33	33	100	0.2	0	0.1	-
CO2(ppm) Average	684	34	36	99.72	452.3	-	449.3	-
Temperature 2 m (C) Average	720	0	0	100	14.3	-	6.9	-
Relative Humidity (%) Average	720	0	0	100	97.3	-	90	-
Wind Speed 10 m (km/h) Average	720	0	0	100	42	-	31	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-
PC(mm) Total	720	0	0	100	2.5	-	10.9	-
Leaf Wetness (% of range) Average	720	0	0	100	74.5	-	38.8	-
Global Solar Radiation (W/m2) Average	720	0	0	100	782.8	-	286.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2(ppb) Average	687	0.04	0.1	-	0	0	0	0	0	0.1	1.9
TRS (ppb) Average	686	0.13	0	-	0	0.1	0.1	0.1	0.1	0.2	0.4
O3(ppb) Average	687	37.46	5.9	-	21.4	29.8	33.2	37.9	41.6	44.9	54.1
NO2(ppb) Average	685	0.52	0.8	-	0	0.1	0.2	0.3	0.5	0.9	8.9
NO(ppb) Average	685	0.12	0.4	-	0	0	0	0	0.1	0.2	6.1
NOX(ppb) Average	685	0.64	1.1	-	0	0.2	0.3	0.4	0.6	1.1	11.9
PM2.5(ug/m3) Average	719	2.6	1.3	-	0.1	1.1	1.7	2.4	3.3	4.3	11.7
CO(ppm) Average	687	0.01	0	-	0	0	0	0	0	0	0.2
CO2(ppm) Average	684	443.02	4.5	-	431.1	436	440.5	443.6	446	448.2	452.3
Temperature 2 m (C) Average	720	1.98	4.4	-	-9	-3.9	-1.2	2.2	5.1	7.7	14.3
Relative Humidity (%) Average	720	64.97	18.8	-	18.3	40.1	51.8	64.8	80	91.2	97.3
Wind Speed 10 m (km/h) Average	720	16.9	8	-	1	7	11	17	21	28	42
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	720	-	-	70.05	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	720	5.89	13.8	-	0.4	1.1	1.2	1.5	1.9	11.2	74.5
Global Solar Radiation (W/m2) Average	720	203.85	249.2	-	0	0	0	67.7	394.9	619.3	782.8

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
CO2	22 Apr 2024 11:00	22 Apr 2024 12:00	2	Maintenance - verify linearity



Wood Buffalo Environmental Association  
 Summary of Hour Averages

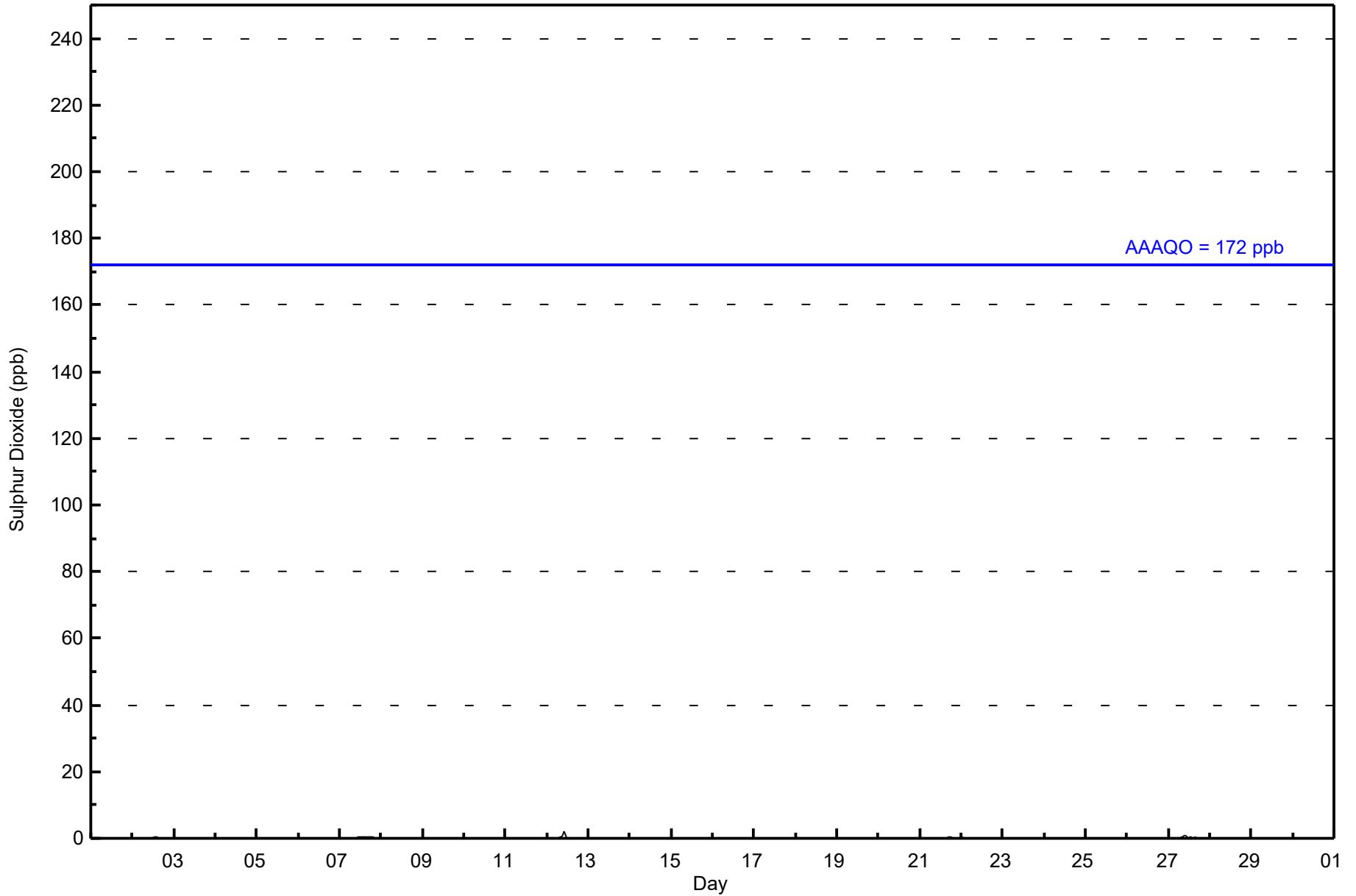
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
 Fort Chipewyan - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 1.9 ppb on Apr 12 11:00      Maximum Daily Average: 0.2 ppb on Apr 27																		Hours in Service: 720 Hours of Data: 687 Hours of Missing Data: 33 Hours of Calibration: 33 Percent Operational Time: 100.0															
Minimum Value: 0.0 ppb on Apr 3 07:00      Minimum Daily Average: 0.0 ppb on Apr 26 Maximum Diurnal Average: 0.1 ppb at hour 11      Minimum Diurnal Average: 0.0 ppb at hour 2 Monthly Average: 0.04 ppb      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.5																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Apr	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2-Apr	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.5	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5
3-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
5-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4
8-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	
9-Apr	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12-Apr	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.6	0.8	1.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
13-Apr	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
14-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
16-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0		
19-Apr	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0		
20-Apr	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
21-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
22-Apr	0.4	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
23-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
26-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.6	0.7	0.7	0.2	0.6	0.3	0.2	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
28-Apr	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
29-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
30-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average									
																								Diurnal Maximum									
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0																																	
0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.6 0.8 1.9 0.3 0.6 0.5 0.3 0.4 0.4 0.4 0.4 0.4 0.2 0.2 0.1 0.1																																	
Z - zerospan      C - Calibration Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	687	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: 687

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	11	24	80	171	146	19	13	10	7	3	9	19	57	36	56	26	687
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>	11	24	80	171	146	19	13	10	7	3	9	19	57	36	56	26	687

Total Number of Valid Hours: 687

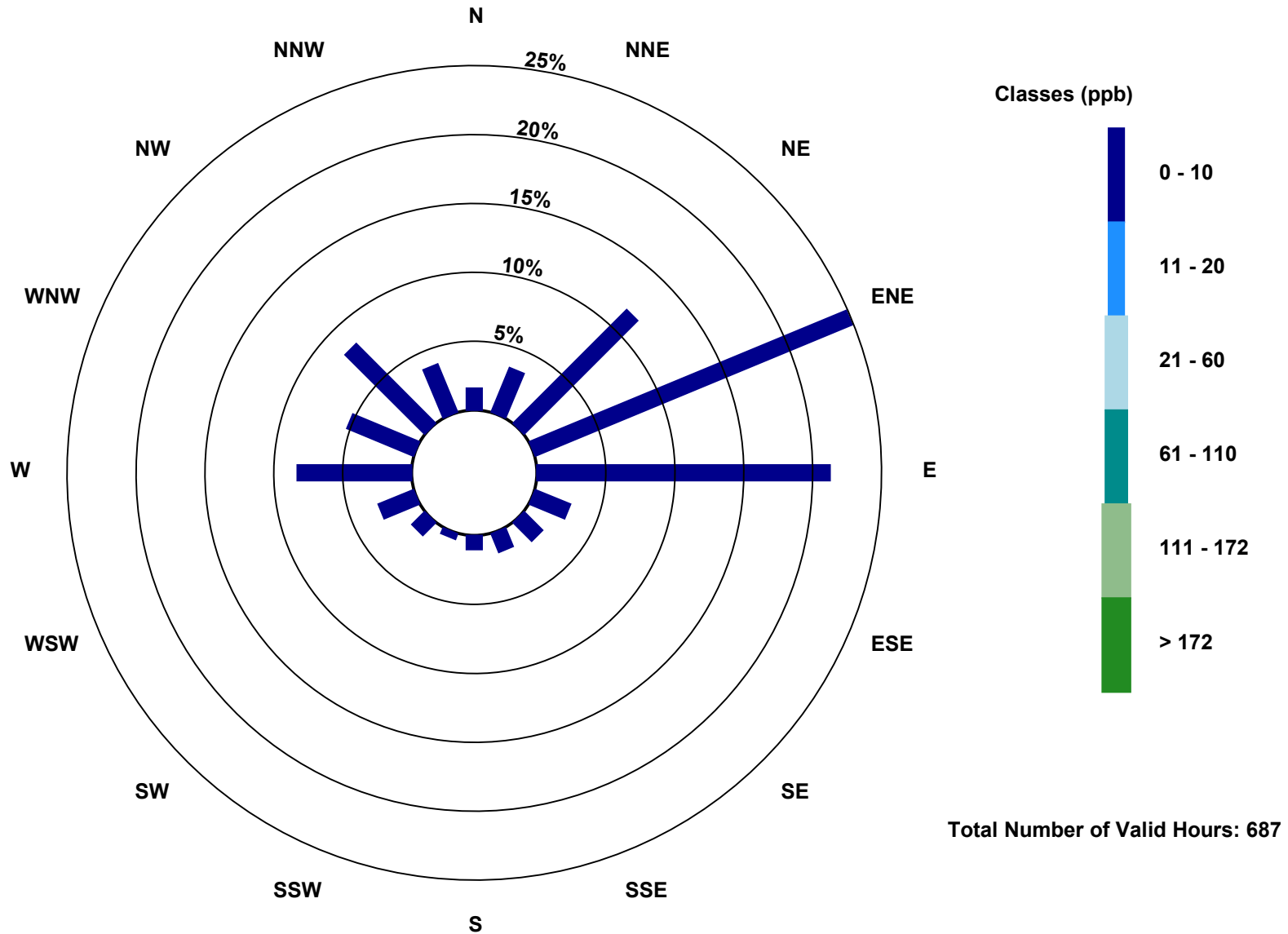
Total Number of Hours: 720

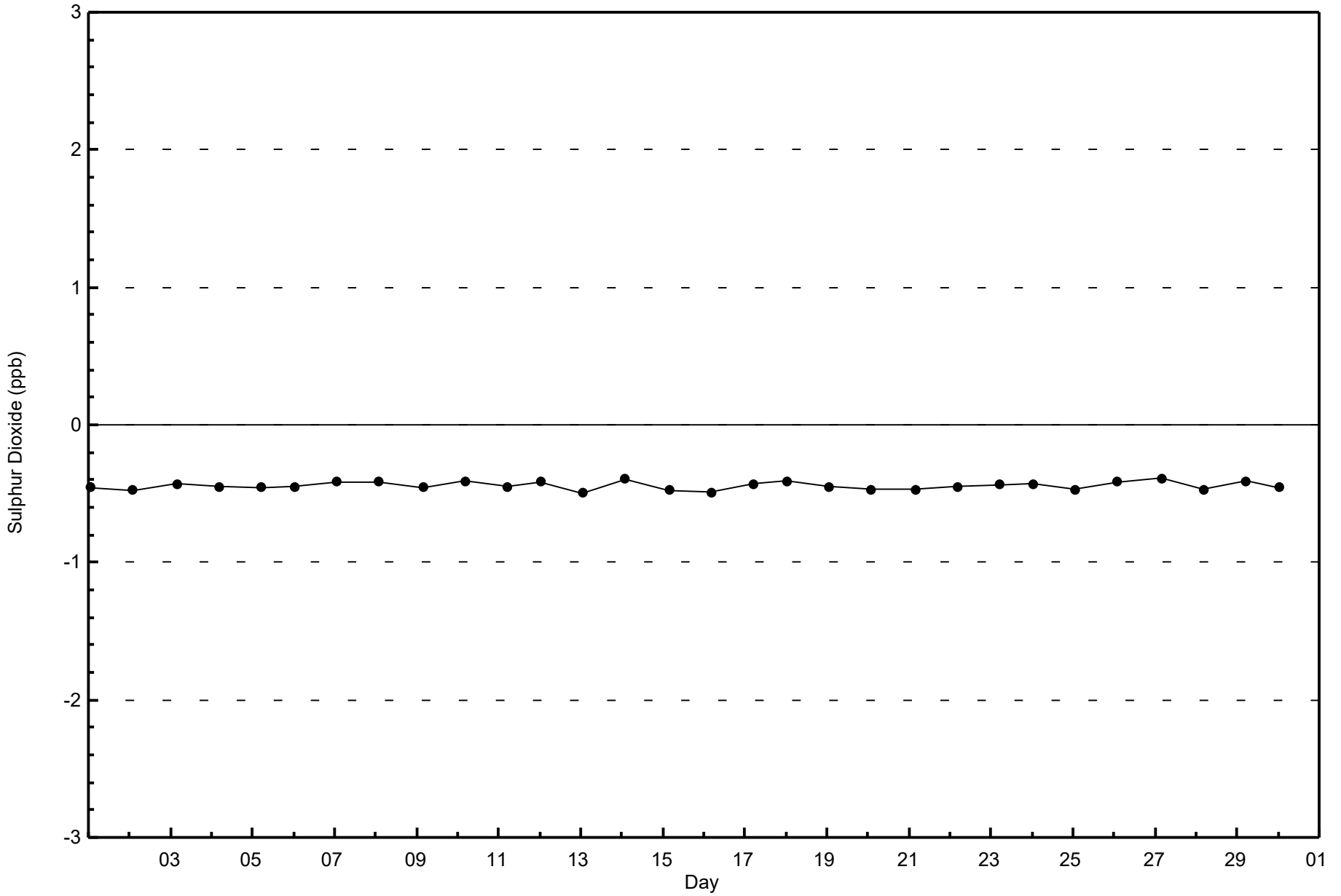




Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

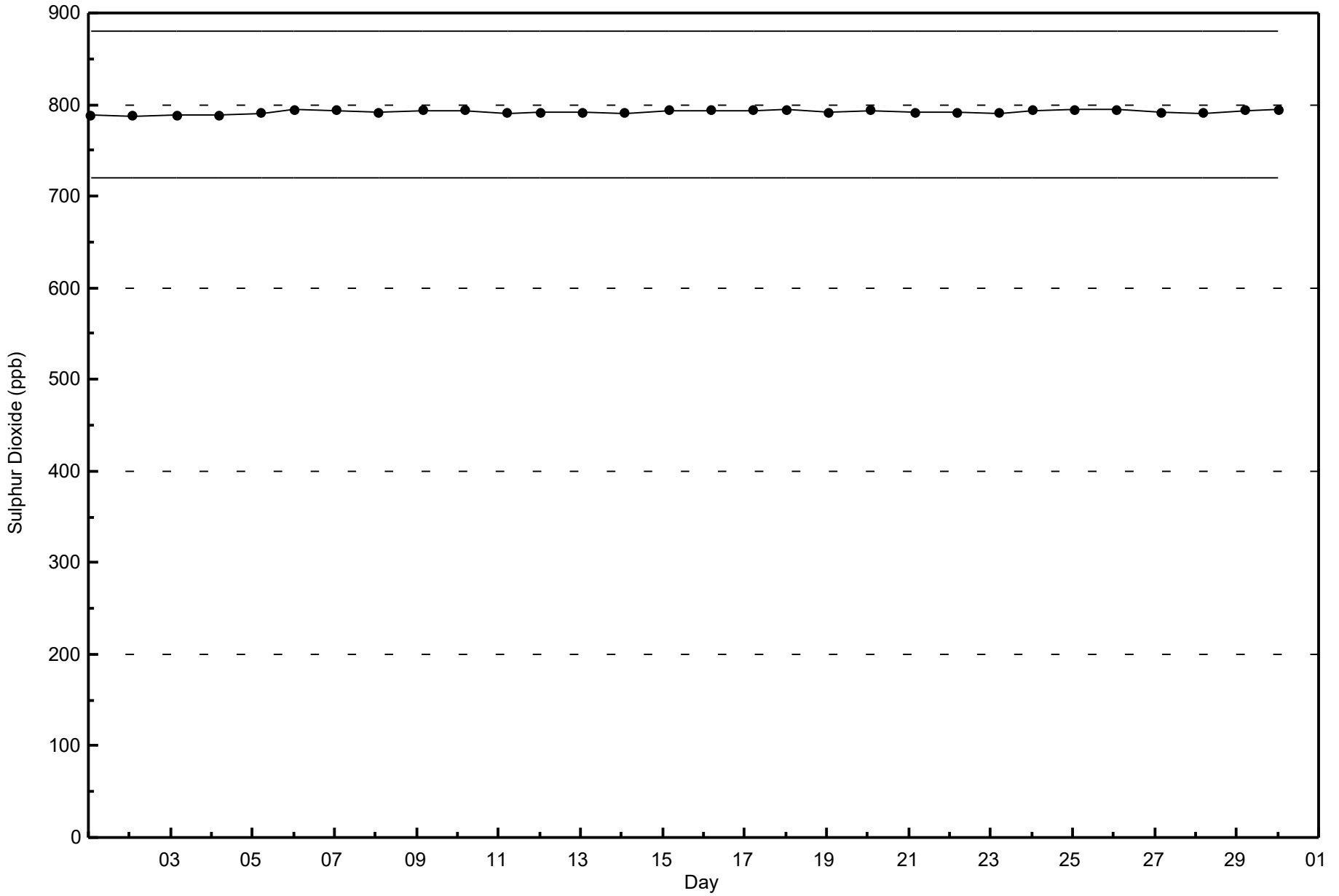




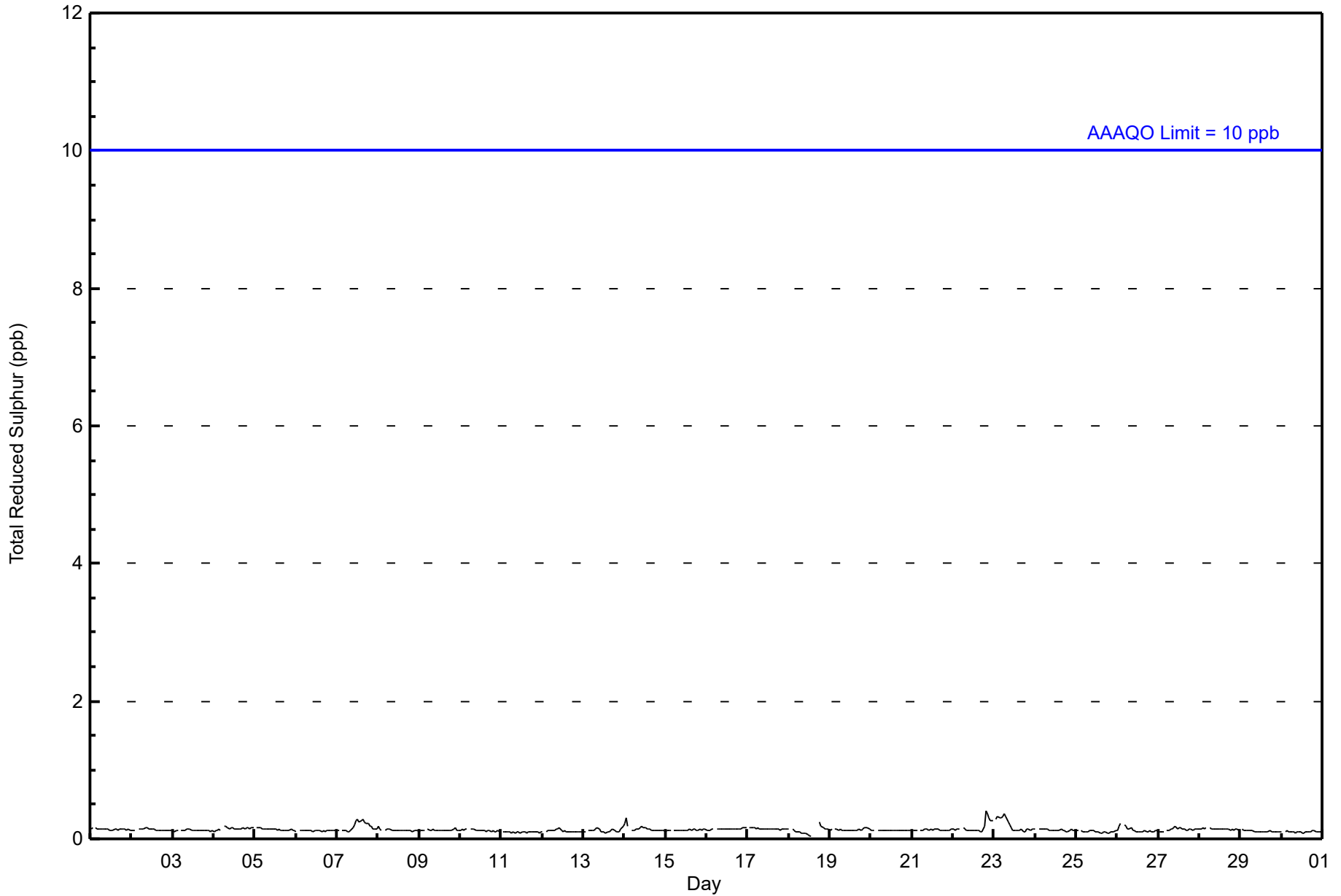


**Wood Buffalo Environmental Association**  
**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - April 2024**









**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	686	100.00	100.00
3 - 4	0	0.00	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	10	25	81	170	143	20	13	10	7	3	9	19	58	36	56	26	686
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	10	25	81	170	143	20	13	10	7	3	9	19	58	36	56	26	686

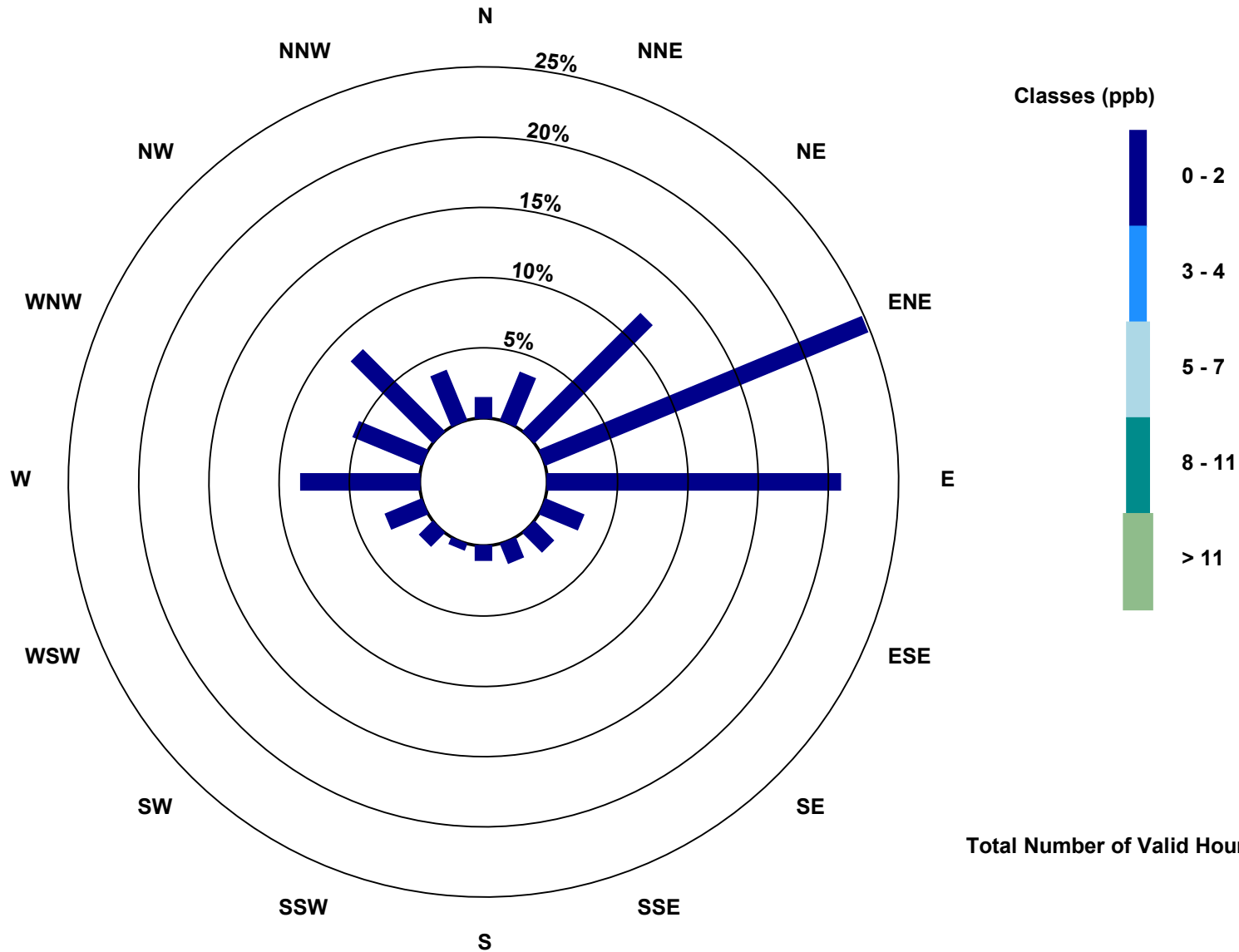
Total Number of Valid Hours: 686

Total Number of Hours: 720



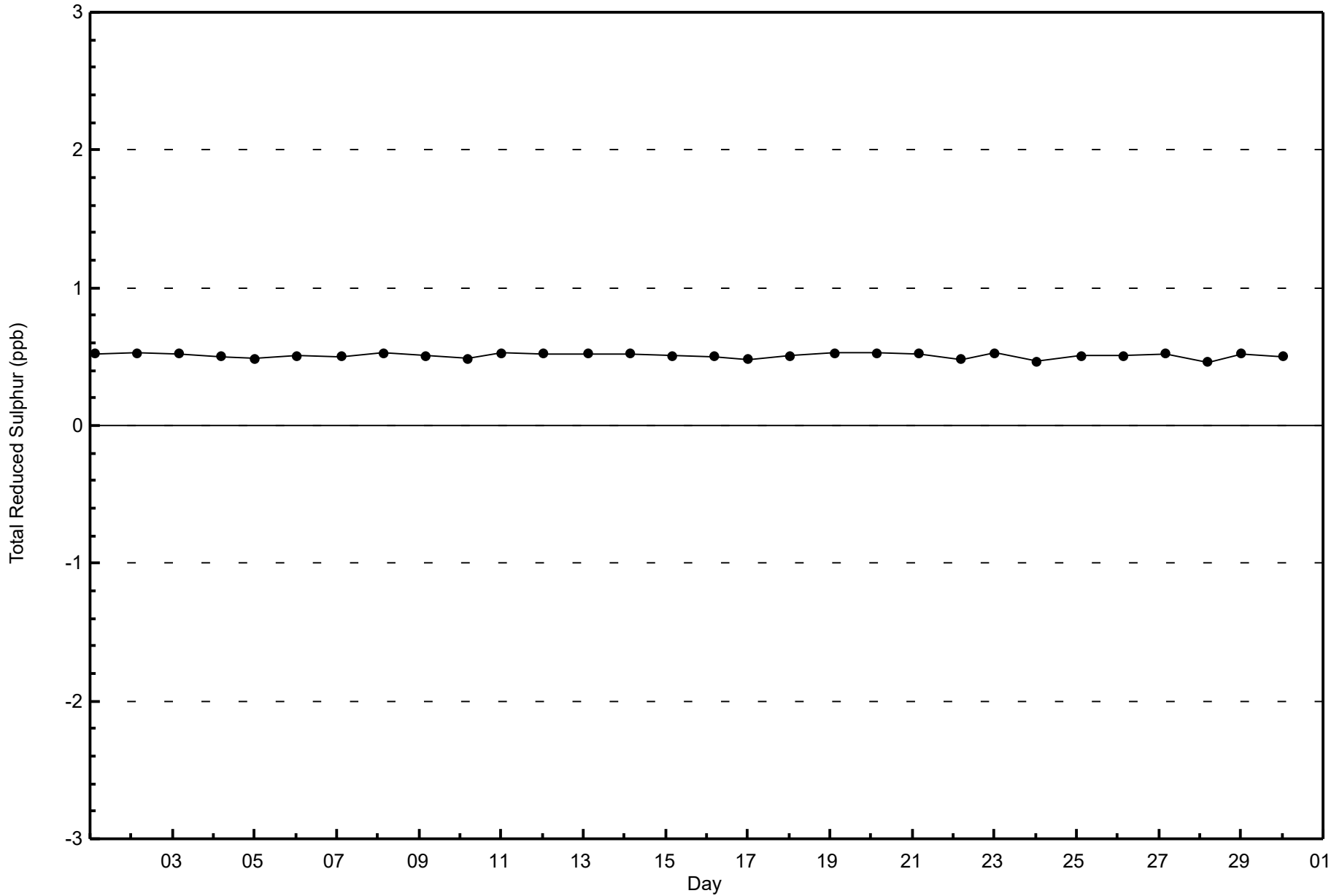
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

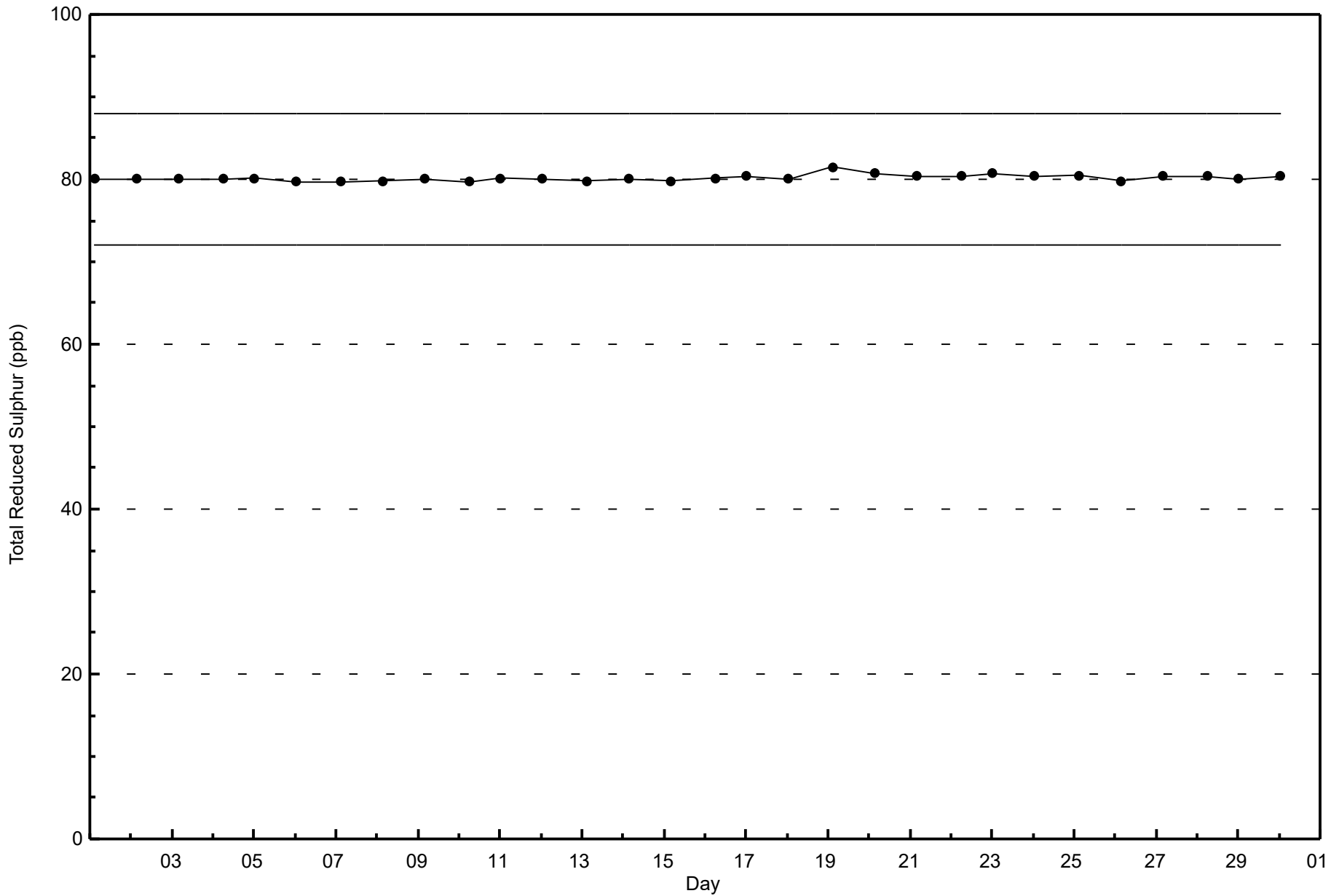
Total Reduced Sulphur (TRS) - ppb  
Fort Chipewyan



Total Number of Valid Hours: 686









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

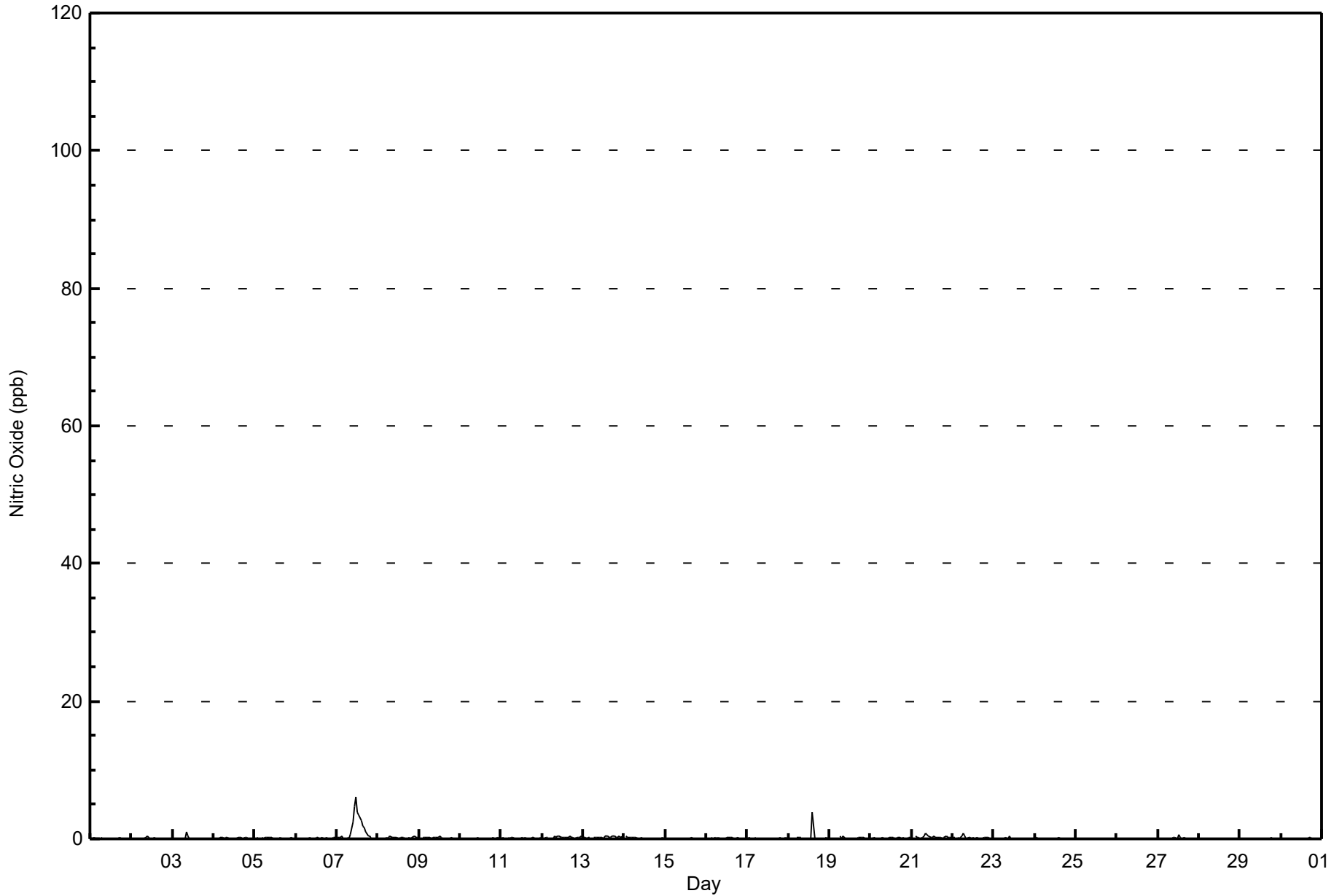
**Nitric Oxide (NO) - ppb  
Fort Chipewyan - April 2024**

Maximum Value: 6.1 ppb on Apr 7 12:00		Maximum Daily Average: 1.3 ppb on Apr 7														Hours in Service: 720		Hours of Data: 685		Hours of Missing Data: 35		Hours of Calibration: 35		Percent Operational Time: 100.0					
Minimum Value: 0.0 ppb on Apr 1 01:00		Minimum Daily Average: 0.0 ppb on Apr 25																											
Maximum Diurnal Average: 0.3 ppb at hour 15		Minimum Diurnal Average: 0.1 ppb at hour 22																											
Monthly Average: 0.12 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 1.9																											
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-Apr	0.0	0.0	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3			
2-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3			
3-Apr	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	1.0				
4-Apr	0.1	0.1	Z	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.3				
5-Apr	0.0	0.0	0.1	Z	0.3	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3				
6-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.1	0.2				
7-Apr	0.1	0.2	0.1	0.3	0.0	Z	0.2	0.1	0.6	2.4	4.7	6.1	3.9	3.4	2.6	1.8	1.7	1.0	0.5	0.3	0.1	0.0	0.0	1.3	6.1				
8-Apr	Z	0.0	0.0	0.1	0.0	0.2	0.1	0.4	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.4				
9-Apr	0.2	Z	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3				
10-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.2	0.0	0.2				
11-Apr	0.0	0.1	0.0	Z	0.2	0.0	0.2	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2				
12-Apr	0.1	0.1	0.1	0.2	Z	0.0	0.0	0.3	0.1	0.3	0.4	0.3	0.1	0.3	0.1	0.2	0.3	0.3	0.2	0.1	0.3	0.2	0.1	0.2	0.4				
13-Apr	0.1	0.2	0.1	0.1	0.2	Z	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.2	0.4	0.2	0.2	0.4				
14-Apr	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.4				
15-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2				
16-Apr	0.0	0.0	Z	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2				
17-Apr	0.0	0.1	0.1	Z	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.2				
18-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	C	C	C	C	C	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	3.9				
19-Apr	0.1	0.0	0.0	0.0	0.0	Z	0.4	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.0	0.1	0.4				
20-Apr	Z	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.3	0.1	0.3				
21-Apr	0.1	Z	0.4	0.2	0.1	0.1	0.2	0.5	0.8	0.5	0.4	0.2	0.2	0.4	0.3	0.1	0.2	0.1	0.0	0.2	0.3	0.3	0.2	0.3	0.8				
22-Apr	0.3	0.2	Z	0.2	0.1	0.4	0.8	0.4	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.1	0.2	0.8				
23-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3				
24-Apr	0.2	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2				
25-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
26-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
27-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5				
28-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
29-Apr	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1				
30-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2				
																								Diurnal Average					
																								Diurnal Maximum					
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
0.3	0.4	0.4	0.3	0.3	0.4	0.8	0.5	1.0	2.4	4.7	6.1	3.9	3.4	3.9	1.8	1.7	1.0	0.5	0.3	0.3	0.4	0.3	0.4	0.1					
Z - zerospan			C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	11	25	80	171	143	20	13	10	7	3	8	19	58	36	55	26	685
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	11	25	80	171	143	20	13	10	7	3	8	19	58	36	55	26	685

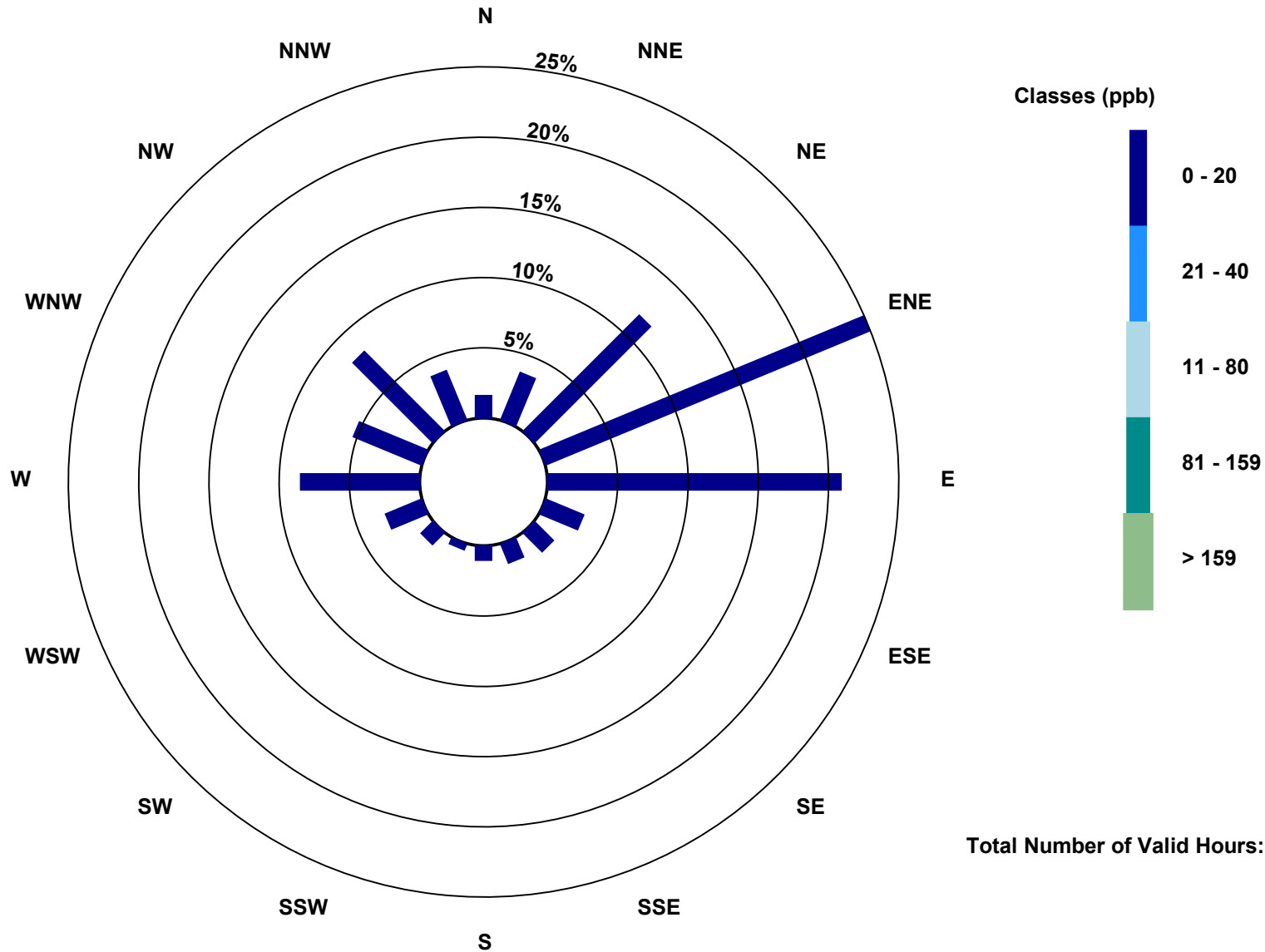
Total Number of Valid Hours: 685

Total Number of Hours: 720

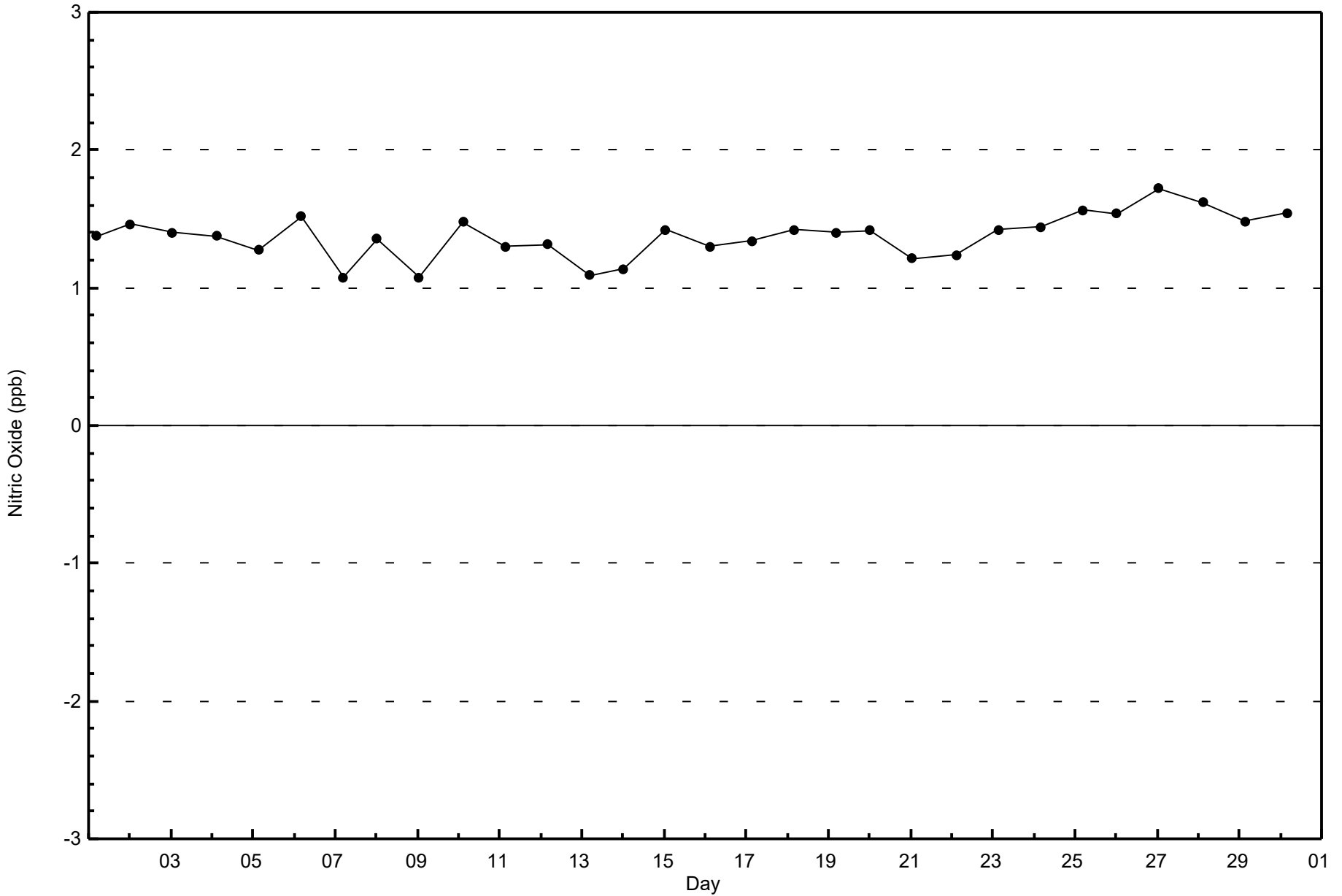


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Fort Chipewyan



Total Number of Valid Hours: 685

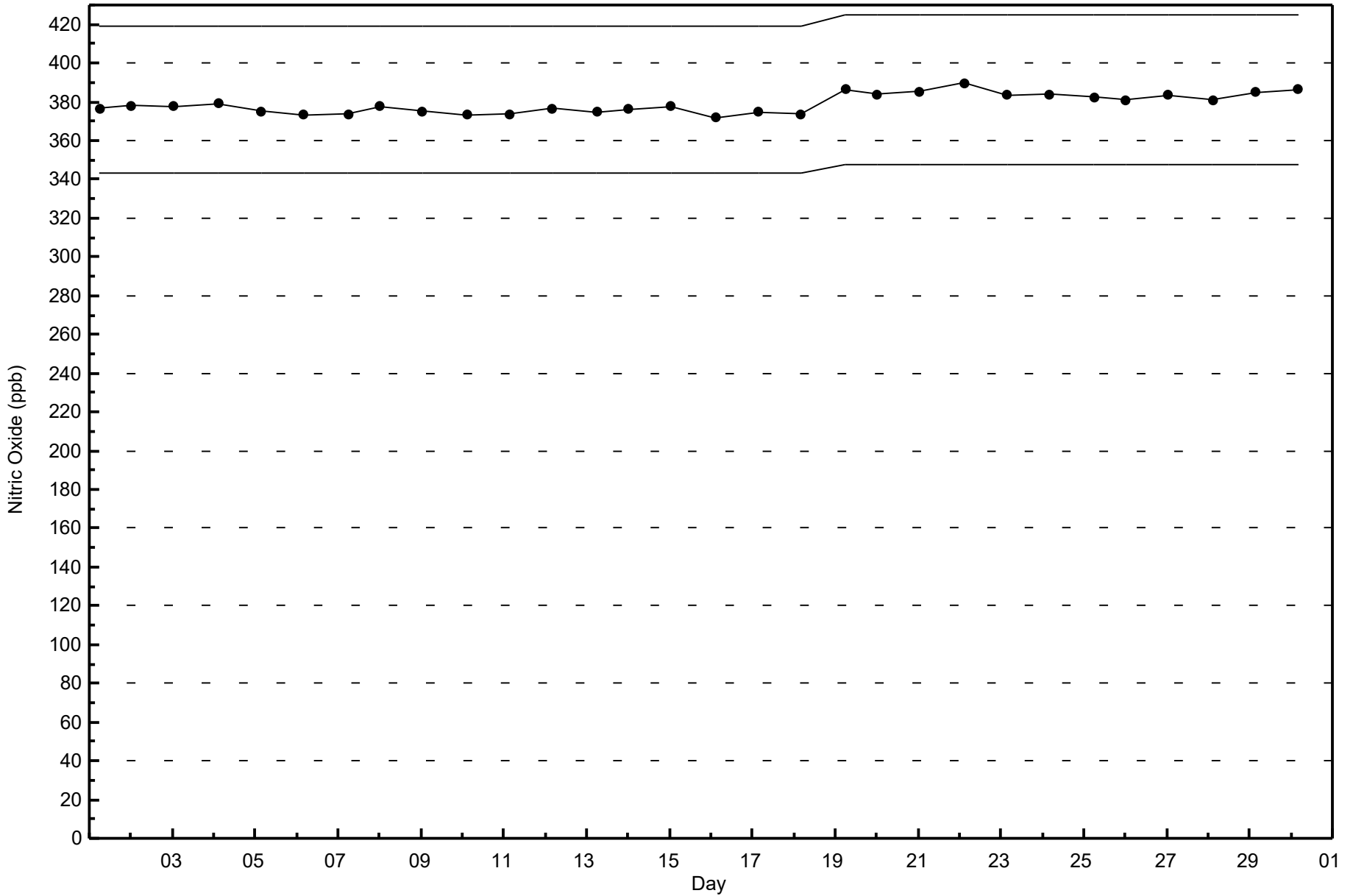






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Fort Chipewyan - April 2024





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Chipewyan - April 2024**

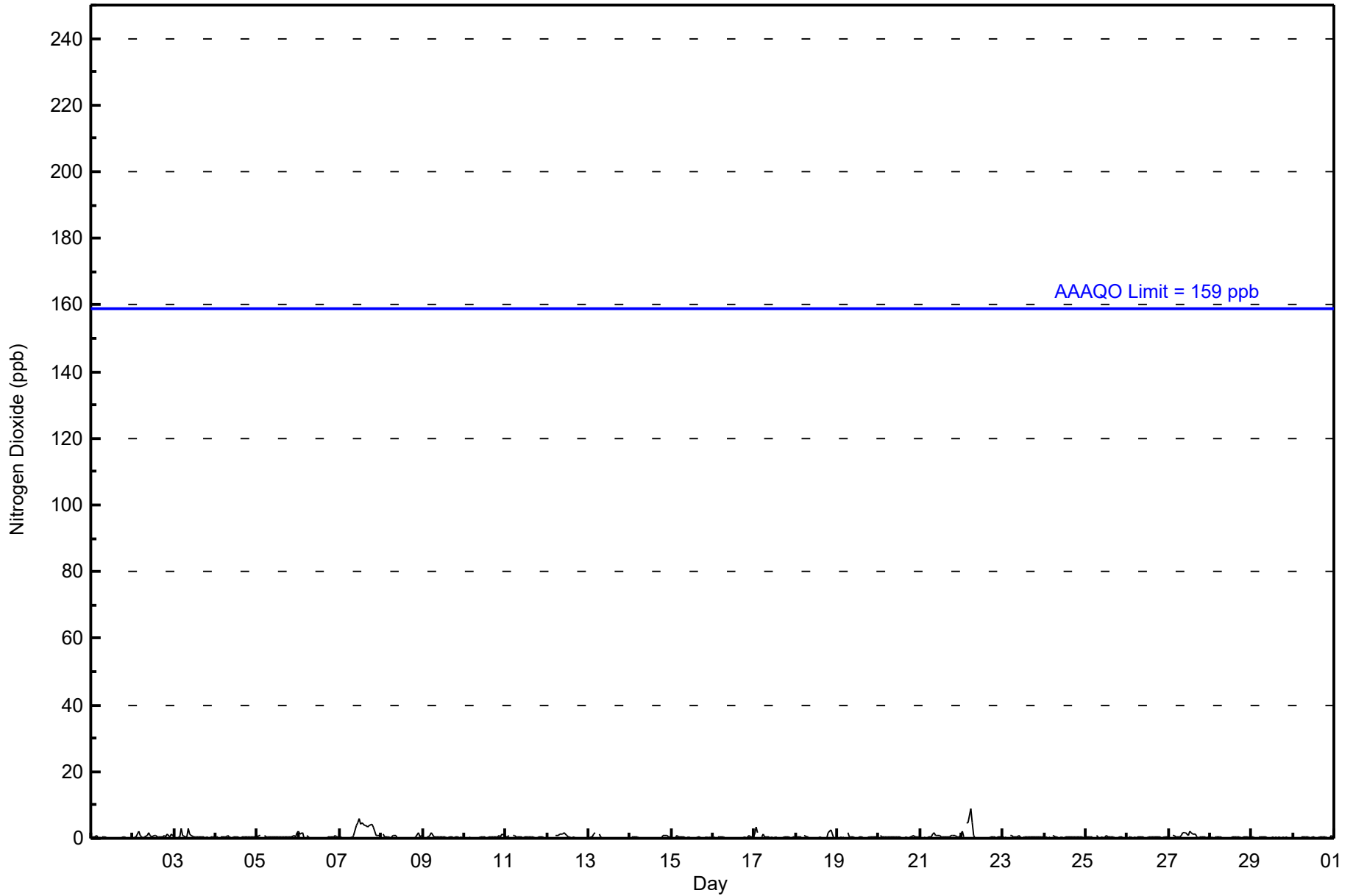
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum					
Maximum Value: 8.9 ppb on Apr 22 06:00		Maximum Daily Average: 2.3 ppb on Apr 7		Hours of Data: 685														Hours of Missing Data: 35		Hours of Calibration: 35							
Minimum Value: 0.0 ppb on Apr 1 11:00		Minimum Daily Average: 0.2 ppb on Apr 1		Hours of Calibration: 35														Percent Operational Time: 100.0									
Maximum Diurnal Average: 0.9 ppb at hour 6		Minimum Diurnal Average: 0.4 ppb at hour 18		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.9 P <sub>99</sub> = 4.4																							
Monthly Average: 0.52 ppb																											
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-Apr	0.3	0.4	0.6	0.7	0.4	Z	0.5	0.6	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.3	0.3	0.1	0.1	0.0	0.1	0.2	0.7	0.7
2-Apr	Z	0.4	0.4	2.1	0.7	0.5	0.1	0.5	1.0	1.5	1.0	0.3	0.7	1.0	0.4	0.4	0.3	0.4	0.7	0.6	1.2	0.5	1.4	0.9	0.7	2.1	2.1
3-Apr	0.5	Z	0.5	0.3	3.1	0.8	0.4	0.4	3.1	1.3	0.8	0.3	0.4	0.4	0.3	0.5	0.3	0.2	0.3	0.2	0.5	0.4	0.4	0.4	0.7	3.1	3.1
4-Apr	0.4	0.3	Z	0.5	0.5	0.6	0.4	0.9	0.6	0.2	0.3	0.4	0.3	0.2	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	0.3	0.4	0.4	0.9	0.9
5-Apr	0.6	0.7	0.7	Z	0.7	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.7	0.4	1.8	0.6	1.8	1.8
6-Apr	2.2	1.1	1.5	0.1	Z	0.9	0.2	0.1	0.2	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.6	0.5	0.4	0.8	0.4	0.3	0.4	2.2	2.2
7-Apr	0.3	0.1	0.1	0.2	0.1	Z	0.4	0.1	0.8	3.9	4.6	5.8	4.3	4.5	3.8	3.9	3.6	4.0	4.4	3.4	2.3	0.9	0.9	1.0	2.3	5.8	5.8
8-Apr	Z	1.1	0.5	0.4	0.4	0.2	0.6	0.8	0.7	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.4	1.7	0.3	0.8	0.4	1.7	1.7
9-Apr	0.5	Z	0.5	0.5	0.9	1.5	0.6	0.4	0.3	0.3	0.4	0.6	0.6	0.3	0.2	0.3	0.3	0.4	0.2	0.3	0.4	0.1	0.3	0.1	0.4	1.5	1.5
10-Apr	0.2	0.1	Z	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.4	0.3	0.5	0.2	0.3	0.3	0.3	0.4	0.3	0.4	0.7	0.5	1.2	1.0	0.4	1.2	1.2
11-Apr	0.4	0.5	0.7	Z	0.8	0.7	0.5	0.5	0.3	0.3	0.1	0.4	0.4	0.5	0.5	0.5	0.4	0.2	0.2	0.4	0.3	0.3	0.2	0.1	0.4	0.8	0.8
12-Apr	0.1	0.0	0.1	0.1	Z	0.8	0.7	1.2	1.3	1.4	1.8	1.0	0.3	0.3	0.2	0.4	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.5	1.8	1.8
13-Apr	0.2	0.3	0.5	1.1	1.5	Z	1.4	0.3	0.2	0.2	0.1	0.1	0.0	0.2	0.0	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.3	1.5	1.5
14-Apr	Z	0.4	0.4	0.3	0.4	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.2	0.2	0.2	0.1	0.1	0.2	0.8	0.7	0.7	0.6	0.4	0.3	0.8	0.8
15-Apr	0.6	Z	0.6	0.7	0.4	0.5	0.4	0.4	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.2	0.4	0.2	0.6	0.2	0.3	0.7	0.7
16-Apr	0.2	0.3	Z	0.5	0.3	0.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.3	1.0	0.6	0.4	0.3	1.0	1.0
17-Apr	1.3	3.2	1.5	Z	0.6	1.1	0.4	0.6	0.3	0.2	0.4	0.2	0.3	0.1	0.1	0.2	0.2	0.3	0.3	0.5	0.4	0.2	0.5	0.3	0.6	3.2	3.2
18-Apr	0.5	0.3	0.4	0.3	Z	0.8	0.4	0.4	C	C	C	C	C	0.2	0.5	0.2	0.1	0.0	0.0	1.5	2.4	1.2	0.2	0.2	0.5	2.4	2.4
19-Apr	0.2	0.2	0.3	0.1	0.5	Z	1.7	0.3	0.5	0.3	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.6	0.6	0.3	1.7	1.7
20-Apr	Z	0.7	0.4	0.4	0.4	0.5	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.5	0.6	0.7	0.3	0.3	0.3	0.4	0.7	0.7
21-Apr	0.3	Z	0.4	0.2	0.2	0.3	0.6	1.3	1.7	0.8	0.8	0.9	0.4	0.5	0.4	0.5	0.6	0.5	0.7	0.7	0.8	0.4	0.4	0.6	0.6	1.7	1.7
22-Apr	2.1	0.3	Z	4.7	4.8	8.9	4.8	1.0	0.2	0.1	0.2	0.1	0.0	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.4	0.3	0.4	1.3	8.9	8.9
23-Apr	0.5	0.2	0.4	Z	0.8	0.7	0.5	0.5	0.4	0.7	0.5	0.2	0.4	0.3	0.4	0.4	0.4	0.4	0.6	0.6	0.5	0.6	0.5	0.3	0.5	0.8	0.8
24-Apr	0.2	0.3	0.2	0.3	Z	0.7	0.3	0.4	0.2	0.2	0.3	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.3	0.5	0.1	0.3	0.7	0.7
25-Apr	0.3	0.3	0.3	0.4	0.5	Z	0.7	0.6	0.0	0.4	0.1	0.3	0.7	0.6	0.3	0.3	0.3	0.3	0.0	0.1	0.3	0.3	0.2	0.1	0.3	0.7	0.7
26-Apr	Z	0.4	0.3	0.2	0.3	0.1	0.4	0.4	0.4	0.5	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.3	0.4	0.4	0.2	0.4	0.4	0.3	0.3	0.5	0.5
27-Apr	0.3	Z	0.8	0.7	0.4	0.4	0.5	0.8	1.6	1.7	1.8	0.9	2.1	1.5	1.1	1.2	0.3	0.2	0.4	0.4	0.4	0.3	0.2	0.4	0.8	2.1	2.1
28-Apr	0.2	0.3	Z	0.6	0.4	0.4	0.5	0.2	0.0	0.2	0.1	0.0	0.1	0.3	0.3	0.3	0.3	0.4	0.2	0.3	0.5	0.3	0.4	0.2	0.3	0.6	0.6
29-Apr	0.3	0.5	0.1	Z	0.6	0.4	0.6	0.4	0.3	0.2	0.2	0.2	0.4	0.2	0.4	0.2	0.3	0.0	0.3	0.2	0.4	0.2	0.2	0.1	0.3	0.6	0.6
30-Apr	0.3	0.0	0.1	0.1	Z	0.5	0.3	0.3	0.3	0.5	0.2	0.3	0.3	0.2	0.1	0.3	0.4	0.4	0.5	0.3	0.2	0.2	0.9	0.5	0.3	0.9	0.9
																								Diurnal Average		Diurnal Maximum	
																								0.5		2.2	
																								0.5		3.2	
																								0.5		1.5	
																								0.6		4.7	
																								0.8		4.8	
																								0.9		8.9	
																								0.6		4.8	
																								0.5		1.3	
																								0.6		3.1	
																								0.6		3.9	
																								0.6		4.6	
																								0.5		5.8	
																								0.5		4.3	
																								0.5		4.5	
																								0.4		3.8	
																								0.4		3.9	
																								0.4		3.6	
																								0.4		4.0	
																								0.5		4.4	
																								0.5		3.4	
																								0.6		2.4	
																								0.5		1.7	
																								0.5		1.4	
																								0.4		1.8	

Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	11	25	80	171	143	20	13	10	7	3	8	19	58	36	55	26	685
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	11	25	80	171	143	20	13	10	7	3	8	19	58	36	55	26	685

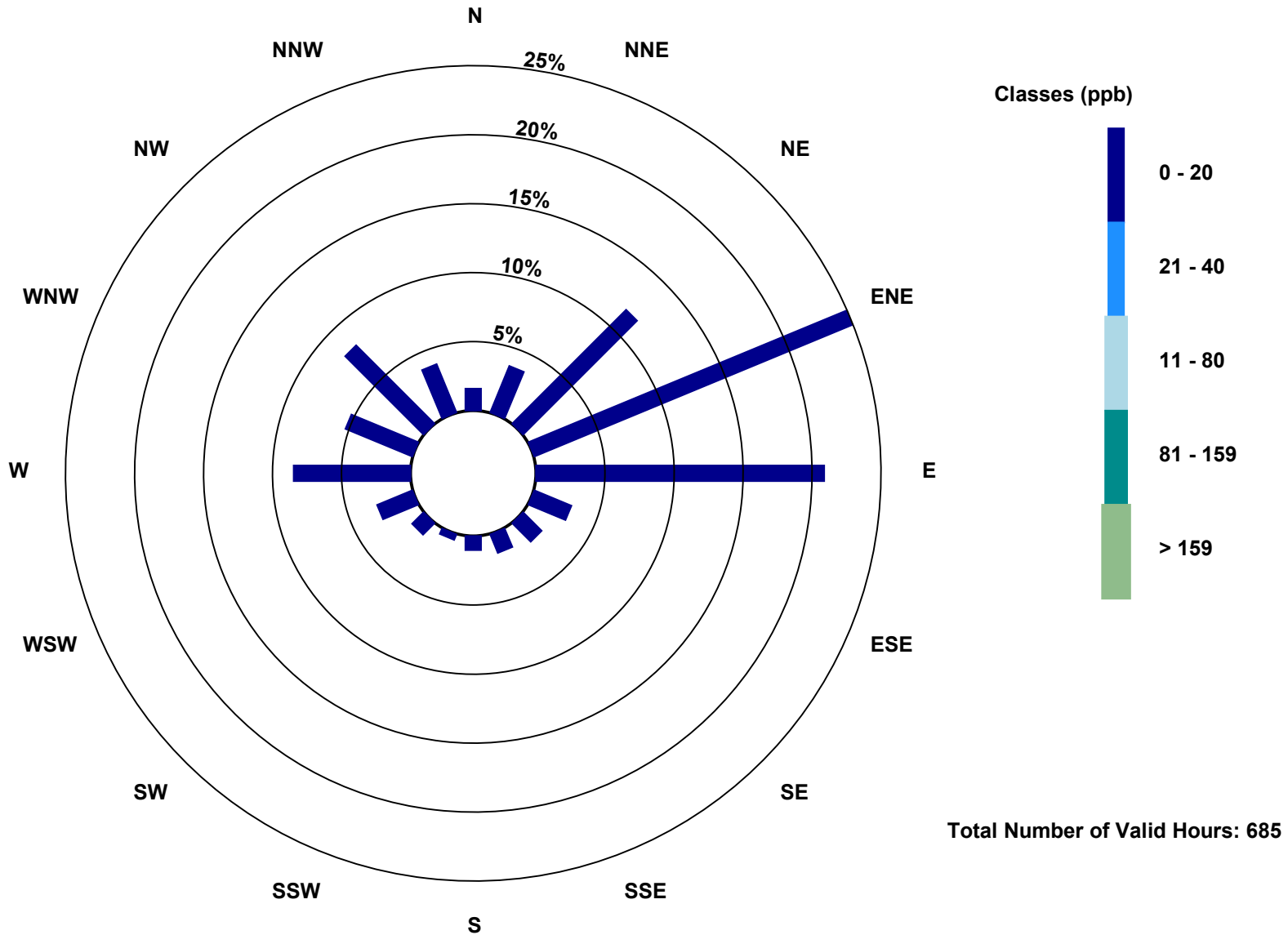
Total Number of Valid Hours: 685

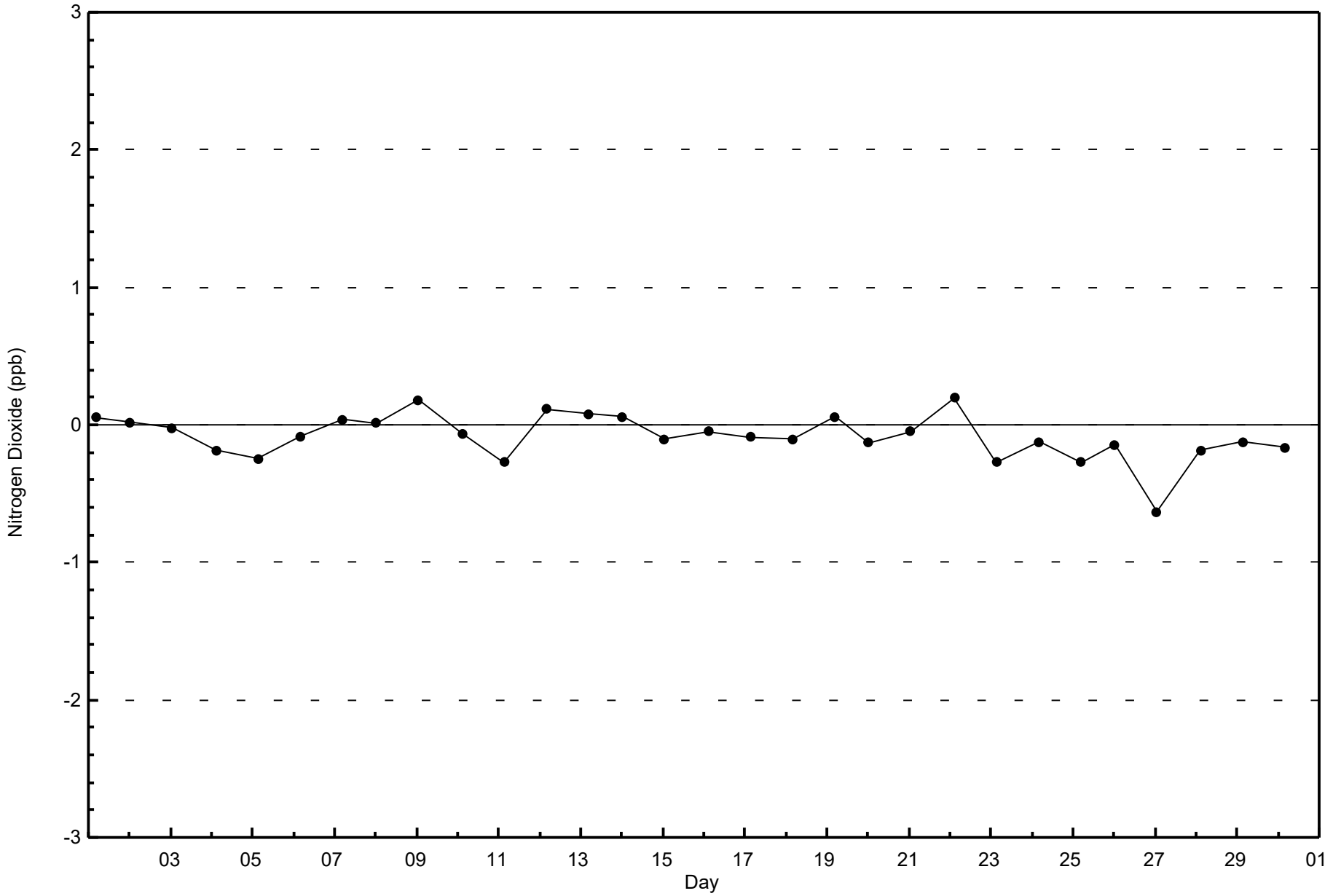
Total Number of Hours: 720

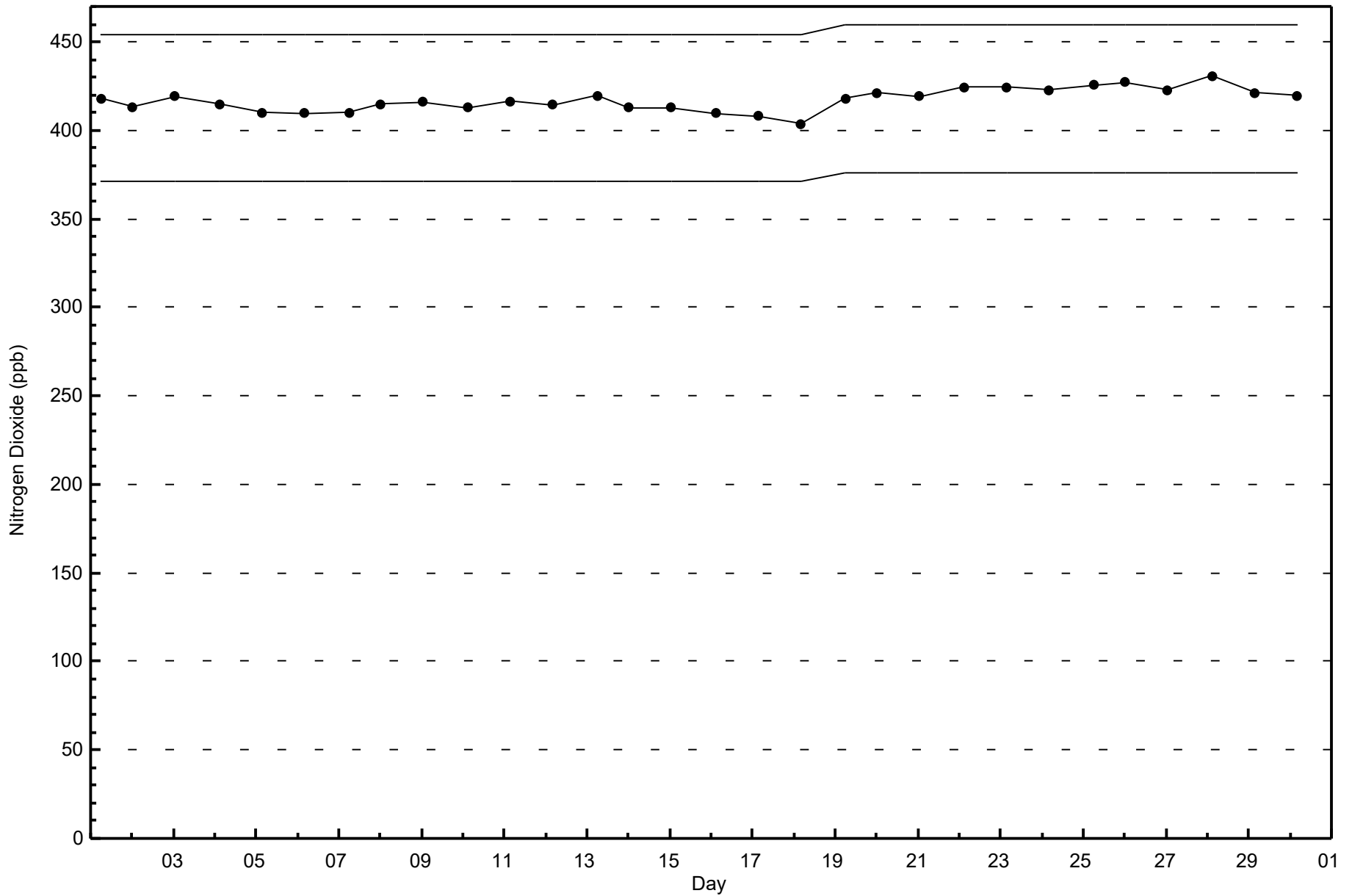


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - April 2024**

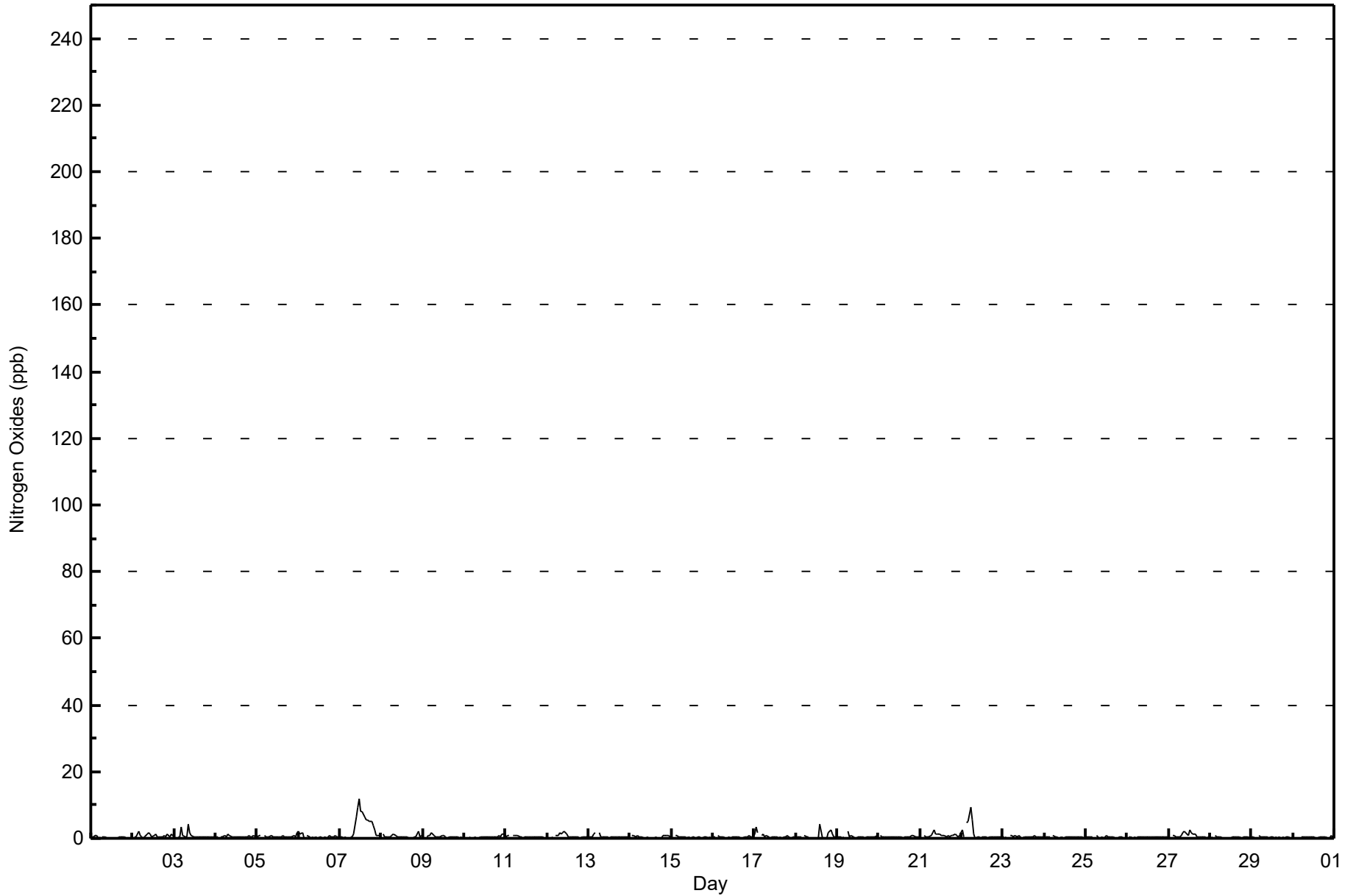
Maximum Value: 11.9 ppb on Apr 7 12:00		Maximum Daily Average: 3.6 ppb on Apr 7		Hours in Service: 720																							
Minimum Value: 0.0 ppb on Apr 1 11:00		Minimum Daily Average: 0.3 ppb on Apr 1		Hours of Data: 685																							
Maximum Diurnal Average: 1.0 ppb at hour 6		Minimum Diurnal Average: 0.5 ppb at hour 18		Hours of Missing Data: 35																							
Monthly Average: 0.64 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.4 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.1 P <sub>99</sub> = 5.8		Hours of Calibration: 35																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.3	0.4	0.7	0.7	0.4	Z	0.6	0.6	0.3	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.4	0.3	0.3	0.1	0.1	0.0	0.1	0.3	0.7	
2-Apr	Z	0.4	0.4	2.1	0.7	0.5	0.1	0.5	1.1	1.8	1.1	0.3	0.8	1.1	0.4	0.4	0.3	0.4	0.7	0.6	1.2	0.5	1.4	0.9	0.8	2.1	
3-Apr	0.5	Z	0.5	0.3	3.2	0.8	0.4	0.4	4.1	1.7	0.8	0.3	0.4	0.4	0.3	0.5	0.3	0.2	0.4	0.2	0.5	0.4	0.4	0.8	4.1		
4-Apr	0.5	0.4	Z	0.5	0.6	0.7	0.4	1.1	0.7	0.2	0.3	0.5	0.3	0.3	0.4	0.6	0.5	0.4	0.6	0.7	0.6	0.6	0.7	0.3	0.5	1.1	
5-Apr	0.6	0.7	0.8	Z	1.0	0.5	0.6	0.6	0.7	0.6	0.6	0.5	0.3	0.4	0.5	0.7	0.5	0.5	0.4	0.5	0.5	0.9	0.4	1.8	0.6	1.8	
6-Apr	2.2	1.1	1.5	0.1	Z	1.0	0.2	0.1	0.4	0.0	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.3	0.8	0.5	0.5	0.9	0.5	0.4	0.5	2.2	
7-Apr	0.4	0.3	0.2	0.5	0.1	Z	0.6	0.2	1.4	6.3	9.3	11.9	8.2	7.9	6.4	5.7	5.3	5.0	4.9	3.7	2.4	0.9	0.9	1.0	3.6	11.9	
8-Apr	Z	1.1	0.5	0.5	0.4	0.4	0.7	1.2	0.9	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.3	0.6	2.0	0.5	1.0	0.5	2.0	
9-Apr	0.7	Z	0.6	0.7	1.1	1.6	0.8	0.5	0.5	0.4	0.6	0.8	0.9	0.5	0.2	0.3	0.3	0.4	0.2	0.4	0.4	0.1	0.3	0.1	0.5	1.6	
10-Apr	0.2	0.1	Z	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.6	0.3	0.6	0.2	0.3	0.3	0.3	0.5	0.3	0.6	0.7	0.5	1.4	1.1	0.4	1.4	
11-Apr	0.4	0.6	0.7	Z	1.0	0.7	0.7	0.7	0.3	0.4	0.2	0.4	0.5	0.5	0.6	0.5	0.4	0.3	0.3	0.5	0.3	0.3	0.2	0.2	0.5	1.0	
12-Apr	0.2	0.1	0.2	0.3	Z	0.8	0.7	1.5	1.4	1.7	2.2	1.3	0.4	0.6	0.3	0.6	0.4	0.4	0.2	0.2	0.5	0.3	0.2	0.6	0.7	2.2	
13-Apr	0.3	0.5	0.6	1.2	1.7	Z	1.6	0.6	0.5	0.5	0.2	0.2	0.1	0.5	0.3	0.3	0.4	0.4	0.5	0.3	0.3	0.5	0.2	0.4	0.5	1.7	
14-Apr	Z	0.8	0.7	0.5	0.6	0.3	0.4	0.3	0.2	0.2	0.4	0.1	0.0	0.2	0.2	0.1	0.1	0.2	0.8	0.8	0.7	0.7	0.4	0.4	0.4	0.8	
15-Apr	0.6	Z	0.6	0.7	0.4	0.5	0.4	0.5	0.3	0.2	0.3	0.1	0.3	0.3	0.2	0.5	0.3	0.1	0.1	0.2	0.4	0.2	0.6	0.2	0.3	0.7	
16-Apr	0.2	0.3	Z	0.7	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.4	0.3	0.2	0.1	0.4	0.2	0.3	1.0	0.6	0.4	0.3	1.0	
17-Apr	1.3	3.3	1.6	Z	0.8	1.2	0.4	0.7	0.3	0.2	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.7	0.4	0.2	0.6	0.3	0.6	3.3	
18-Apr	0.5	0.3	0.4	0.3	Z	0.9	0.5	0.5	C	C	C	C	C	0.2	4.4	0.2	0.1	0.0	0.0	1.5	2.4	1.2	0.4	0.2	0.8	4.4	
19-Apr	0.3	0.2	0.3	0.1	0.5	Z	2.1	0.3	0.8	0.4	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.3	0.5	0.6	0.4	0.3	0.6	0.6	0.4	2.1	
20-Apr	Z	0.8	0.6	0.4	0.4	0.5	0.3	0.5	0.4	0.5	0.3	0.4	0.5	0.3	0.2	0.3	0.5	0.4	0.5	0.7	0.7	0.3	0.6	0.5	0.5	0.8	
21-Apr	0.4	Z	0.8	0.4	0.3	0.4	0.8	1.8	2.5	1.3	1.2	1.1	0.6	0.9	0.7	0.6	0.8	0.6	0.7	0.9	1.1	0.7	0.6	0.8	0.9	2.5	
22-Apr	2.4	0.5	Z	4.9	4.9	9.3	5.6	1.4	0.2	0.3	0.4	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.5	0.4	0.4	0.5	0.4	0.4	1.5	9.3	
23-Apr	0.5	0.2	0.4	Z	0.8	0.7	0.6	0.6	0.4	1.0	0.5	0.2	0.4	0.3	0.4	0.5	0.4	0.4	0.6	0.6	0.5	0.6	0.5	0.3	0.5	1.0	
24-Apr	0.4	0.4	0.2	0.3	Z	0.8	0.3	0.5	0.2	0.2	0.3	0.2	0.3	0.4	0.6	0.3	0.5	0.4	0.5	0.5	0.5	0.3	0.5	0.1	0.4	0.8	
25-Apr	0.3	0.3	0.3	0.4	0.5	Z	0.7	0.6	0.0	0.4	0.1	0.3	0.7	0.6	0.3	0.3	0.3	0.3	0.0	0.1	0.3	0.3	0.2	0.1	0.3	0.7	
26-Apr	Z	0.4	0.3	0.2	0.3	0.1	0.4	0.4	0.4	0.5	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.3	0.4	0.4	0.2	0.4	0.4	0.3	0.3	0.5	
27-Apr	0.3	Z	0.8	0.7	0.4	0.4	0.5	0.8	1.6	1.9	1.9	0.9	2.6	1.6	1.1	1.3	0.3	0.2	0.4	0.4	0.4	0.3	0.2	0.4	0.8	2.6	
28-Apr	0.2	0.3	Z	0.6	0.4	0.4	0.5	0.2	0.0	0.2	0.1	0.0	0.1	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.3	0.5	0.3	0.4	0.2	0.3	0.6
29-Apr	0.3	0.5	0.1	Z	0.7	0.4	0.6	0.4	0.4	0.2	0.2	0.2	0.4	0.2	0.4	0.2	0.3	0.0	0.4	0.2	0.5	0.2	0.2	0.1	0.3	0.7	
30-Apr	0.3	0.0	0.1	0.1	Z	0.5	0.3	0.4	0.3	0.5	0.3	0.3	0.3	0.2	0.1	0.3	0.6	0.5	0.5	0.3	0.2	0.2	0.9	0.6	0.3	0.9	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.6 2.4			
																								0.6 3.3			
																								0.5 1.6			
																								0.7 4.9			
																								0.9 4.9			
																								1.0 9.3			
																								0.7 5.6			
																								0.6 1.8			
																								0.7 4.1			
																								0.8 6.3			
																								0.8 9.3			
																								0.8 11.9			
																								0.7 8.2			
																								0.7 7.9			
																								0.7 6.4			
																								0.6 5.7			
																								0.5 5.3			
																								0.5 5.0			
																								0.5 4.9			
																								0.5 3.7			
																								0.6 2.4			
																								0.5 2.0			
																								0.5 1.4			
																								0.5 1.8			

Z - zerospan      C - Calibration



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	11	25	80	171	143	20	13	10	7	3	8	19	58	36	55	26	685
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	11	25	80	171	143	20	13	10	7	3	8	19	58	36	55	26	685

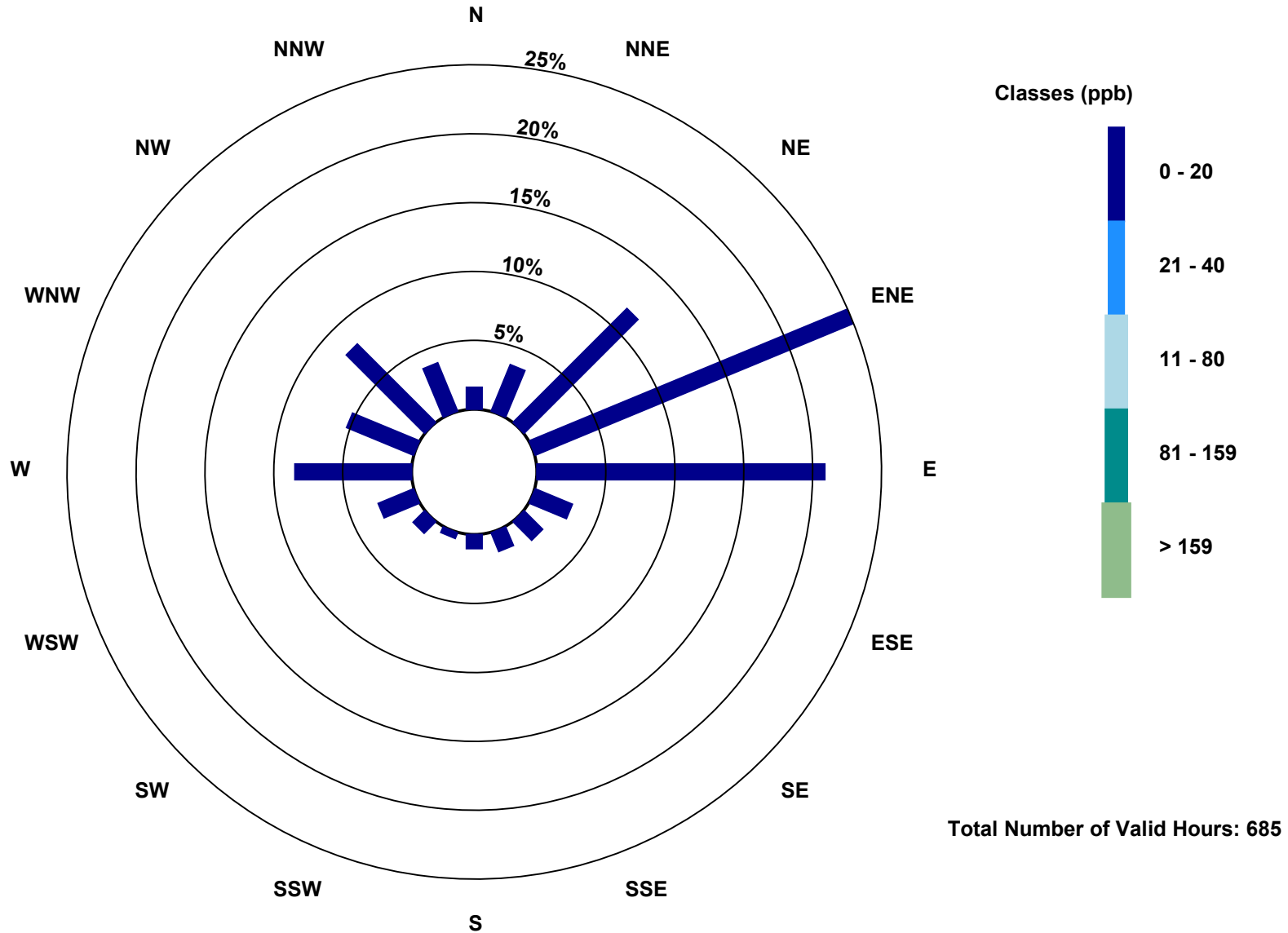
Total Number of Valid Hours: 685

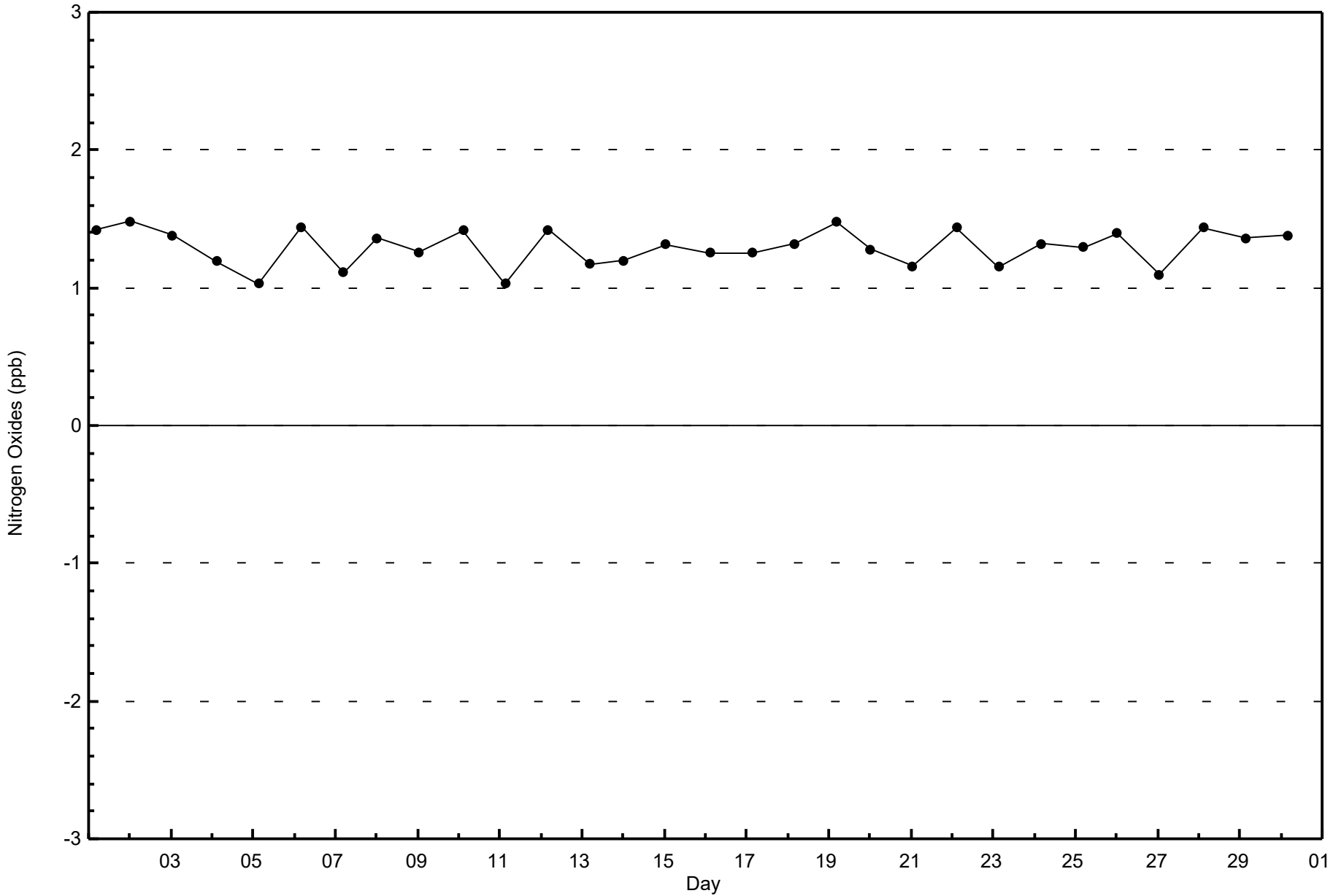
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

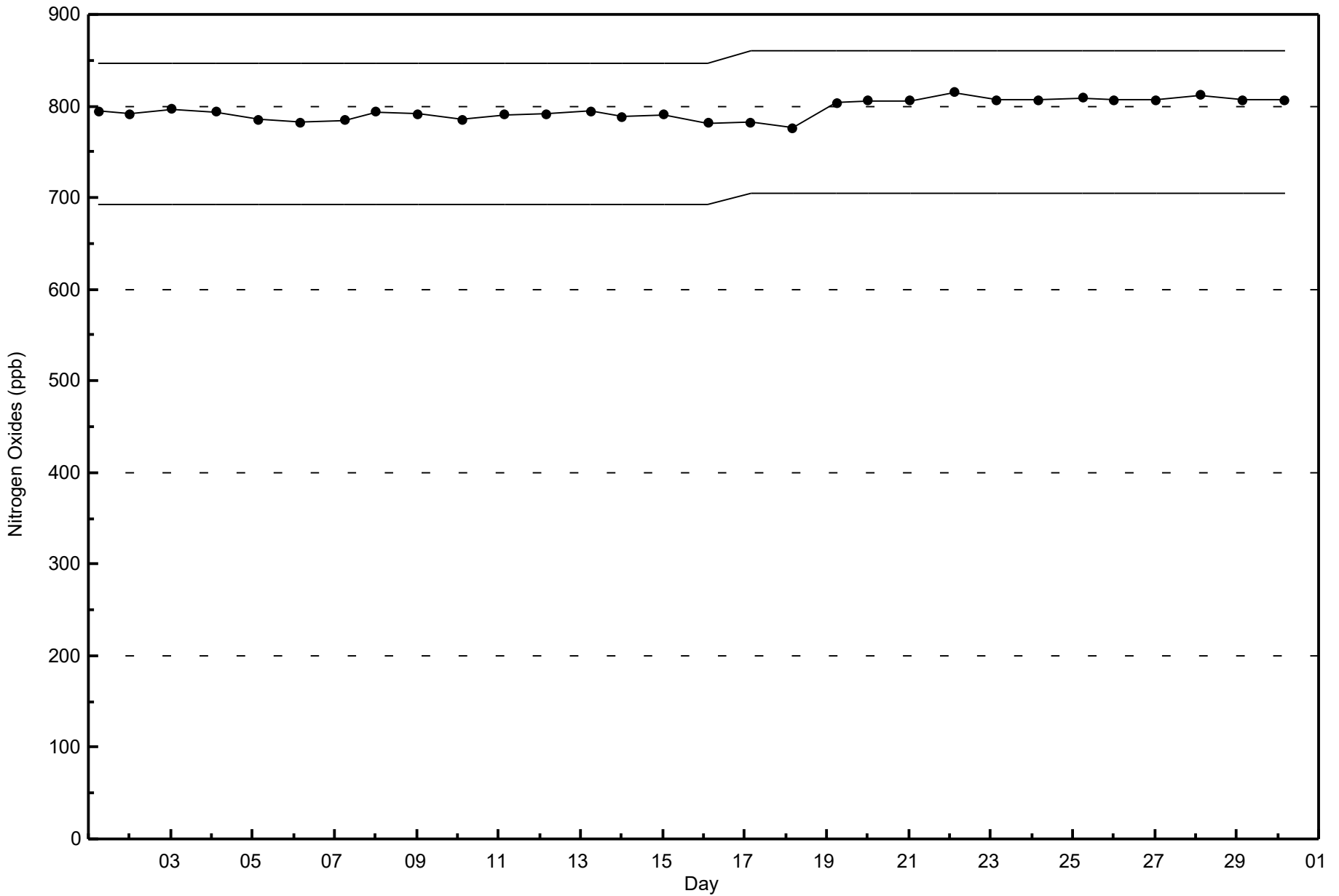






Wood Buffalo Environmental Association  
Span Responses

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - April 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

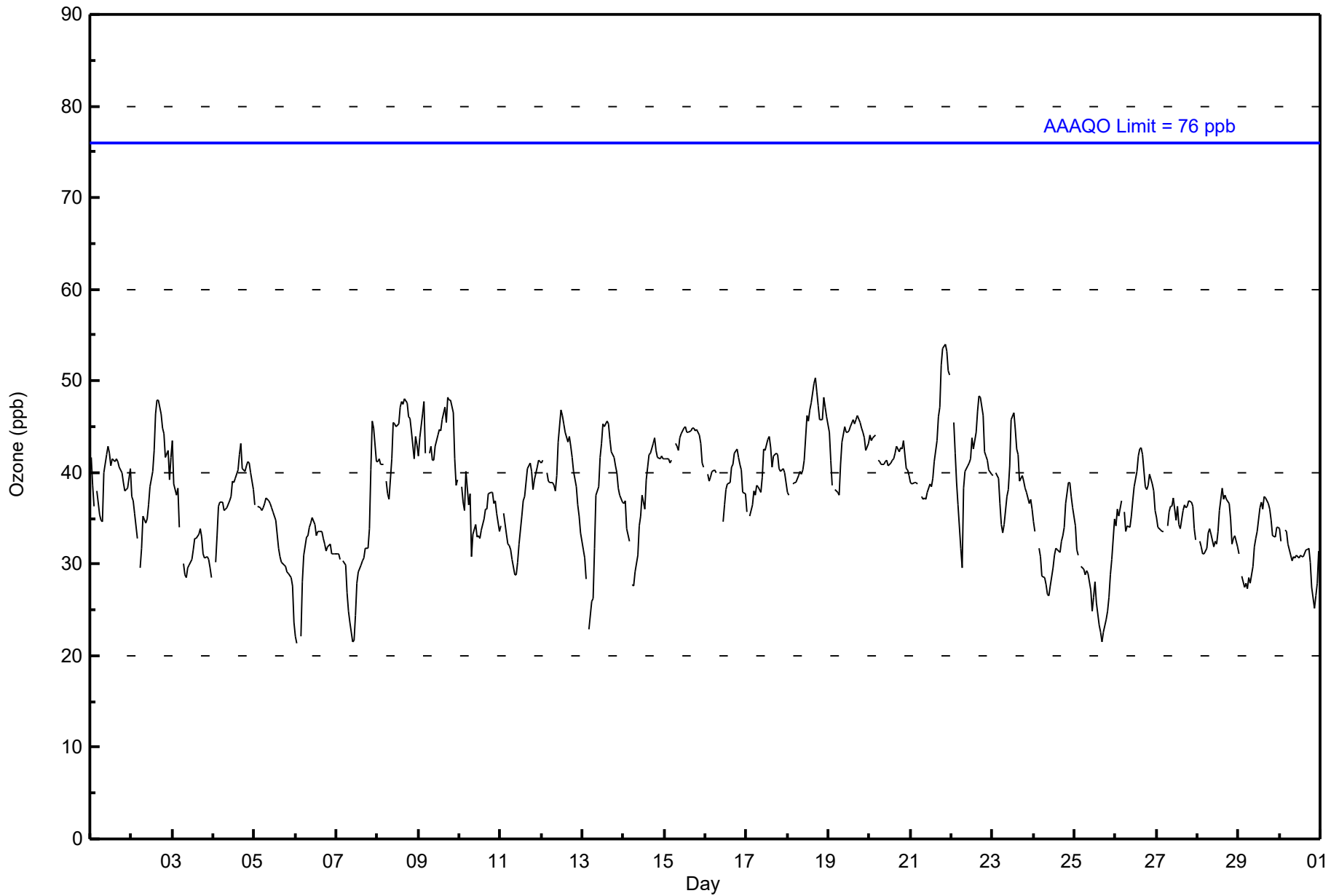
Fort Chipewyan - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 54.1 ppb on Apr 21 21:00	Maximum Daily Average: 44.1 ppb on Apr 9		Hours of Data:	687
Minimum Value: 21.4 ppb on Apr 6 02:00	Minimum Daily Average: 27.6 ppb on Apr 25		Hours of Missing Data:	33
Maximum Diurnal Average: 39.9 ppb at hour 17	Minimum Diurnal Average: 33.8 ppb at hour 6		Hours of Calibration:	33
Monthly Average: 37.46 ppb	Percentiles: P <sub>1</sub> = 22.5 P <sub>10</sub> = 29.8 Q <sub>1</sub> = 33.2 Median = 37.9 Q <sub>3</sub> = 41.6 P <sub>90</sub> = 44.9 P <sub>99</sub> = 49.9		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	41.6	38.7	36.4	Z	38.0	35.3	34.9	34.6	40.0	42.0	42.9	42.1	40.7	41.5	41.2	41.5	41.2	40.6	39.9	38.9	37.9	38.1	38.3	40.5	39.4	42.9																						
2-Apr	37.4	37.0	35.6	32.8	Z	29.6	31.7	35.3	34.5	35.0	36.5	38.5	40.2	42.4	46.4	47.9	48.0	46.4	44.8	44.3	41.6	42.4	39.2	41.6	39.5	48.0																						
3-Apr	43.5	38.8	37.6	38.2	34.1	Z	30.0	28.8	28.5	29.6	29.9	30.4	31.6	32.8	32.7	33.3	33.8	33.0	31.2	30.7	30.9	30.5	29.6	28.5	32.5	43.5																						
4-Apr	Z	30.2	33.1	36.3	36.8	36.7	35.8	36.0	36.1	36.9	37.3	39.0	38.9	39.4	40.3	41.9	43.1	40.4	40.1	40.7	41.2	41.0	40.0	38.1	38.2	43.1																						
5-Apr	36.4	Z	36.4	36.1	35.8	36.1	36.6	37.2	36.9	36.6	36.2	35.7	34.8	33.2	31.8	30.8	30.2	29.9	29.7	29.1	29.1	28.6	27.6	23.7	33.0	37.2																						
6-Apr	22.2	21.4	Z	22.1	28.0	31.0	32.9	33.1	34.1	34.5	35.0	34.3	33.1	33.6	33.6	33.5	32.8	32.1	31.4	31.9	32.2	31.1	31.1	31.2	31.1	35.0																						
7-Apr	31.2	31.2	30.6	Z	30.4	29.8	26.8	24.9	23.7	21.5	21.6	24.4	27.9	29.1	29.9	30.4	30.7	31.7	31.8	33.9	40.3	45.6	44.8	41.2	31.0	45.6																						
8-Apr	41.2	41.4	40.8	40.9	Z	39.1	37.7	37.1	41.5	45.5	45.4	45.0	45.4	47.2	47.8	47.5	48.1	47.6	46.0	46.0	44.5	41.4	43.9	43.0	43.7	48.1																						
9-Apr	41.7	43.8	46.4	47.7	42.2	Z	42.1	42.8	41.3	41.3	42.8	44.0	44.6	44.5	45.8	47.2	45.5	48.2	47.9	47.9	46.5	41.4	38.7	39.2	44.1	48.2																						
10-Apr	Z	38.4	36.8	35.8	40.1	36.5	37.7	30.8	33.3	34.3	32.9	33.0	32.8	33.7	35.0	36.0	35.9	37.7	37.9	37.8	36.6	36.9	35.5	33.6	35.6	40.1																						
11-Apr	34.2	Z	35.6	33.2	32.2	32.0	31.6	30.5	28.9	28.9	30.2	32.2	35.3	36.9	37.4	38.9	40.4	41.1	40.1	38.2	39.1	40.6	41.3	41.2	35.6	41.3																						
12-Apr	41.1	41.3	Z	40.0	39.0	38.9	39.0	38.7	38.0	39.7	43.4	46.9	46.3	45.3	44.4	43.3	43.9	42.9	41.6	40.2	38.4	36.5	35.3	33.5	40.8	46.9																						
13-Apr	31.6	30.7	28.4	Z	22.9	26.0	26.3	31.7	37.5	38.4	41.7	43.2	45.3	45.0	45.7	45.2	43.7	42.2	41.6	40.7	39.9	38.4	37.5	36.8	37.4	45.7																						
14-Apr	36.6	36.9	33.9	32.6	Z	27.7	27.6	29.2	31.0	34.2	35.3	37.5	35.9	39.2	40.6	42.0	42.1	43.2	43.8	42.3	41.7	41.4	41.7	41.4	37.3	43.8																						
15-Apr	41.5	41.5	41.5	41.1	41.4	Z	43.2	42.9	42.4	43.7	44.2	44.8	45.1	44.4	44.5	44.6	44.8	44.9	44.6	44.7	44.1	43.2	41.0	40.5	43.2	45.1																						
16-Apr	Z	39.8	39.1	39.6	40.1	40.3	40.0	C	C	C	34.6	36.5	38.2	38.7	39.0	40.5	40.9	42.1	42.6	41.6	40.8	40.3	37.9	37.6	39.5	42.6																						
17-Apr	35.7	Z	35.2	36.4	37.9	37.5	38.6	38.5	37.9	39.5	42.6	42.3	43.7	43.9	42.7	40.5	41.7	42.0	42.0	40.4	40.1	40.4	40.0	38.9	39.9	43.9																						
18-Apr	37.8	37.6	Z	38.8	38.9	38.9	39.7	40.1	39.9	40.3	41.4	46.3	45.6	46.8	47.7	49.8	50.3	48.8	47.3	45.8	45.7	48.1	47.2	46.1	43.9	50.3																						
19-Apr	44.5	41.3	38.7	Z	38.1	37.8	37.6	40.9	43.3	45.0	44.3	44.4	44.6	45.1	45.8	45.4	45.8	46.2	45.4	44.8	44.4	43.7	42.4	43.1	43.2	46.2																						
20-Apr	44.1	43.5	43.8	44.0	Z	41.3	41.2	40.8	40.8	41.2	41.4	40.7	41.0	41.3	41.6	42.1	42.8	42.3	42.6	42.6	43.5	40.4	40.2	39.6	41.9	44.1																						
21-Apr	39.0	38.7	38.9	38.8	38.7	Z	37.3	37.0	37.2	37.1	37.9	38.7	38.5	39.4	41.1	43.4	46.0	47.1	51.7	53.6	54.1	53.2	51.0	50.6	43.0	54.1																						
22-Apr	Z	45.5	42.1	38.9	36.5	31.7	29.6	38.3	40.1	40.8	41.1	41.5	43.8	42.6	44.3	46.7	48.4	48.2	46.3	42.3	41.8	41.3	40.3	39.8	41.4	48.4																						
23-Apr	39.7	Z	40.0	39.4	36.6	34.3	33.4	34.3	37.4	38.2	40.7	45.8	46.5	44.7	42.6	42.0	39.1	39.7	39.1	38.3	37.9	36.6	37.0	36.0	39.1	46.5																						
24-Apr	34.7	33.6	Z	31.8	30.8	28.7	28.5	27.8	26.7	26.5	27.6	29.6	30.9	31.8	31.6	31.3	32.4	33.0	34.1	36.6	38.9	38.9	37.3	36.1	32.2	38.9																						
25-Apr	34.1	31.5	31.0	Z	29.8	29.4	28.8	29.3	29.0	27.1	24.9	26.4	28.1	25.7	23.4	22.5	21.5	22.5	24.0	24.9	26.4	28.9	30.5	35.0	27.6	35.0																						
26-Apr	34.2	36.1	35.2	36.9	Z	35.6	33.5	34.2	34.0	35.2	36.9	38.4	40.1	41.8	42.6	42.8	41.9	38.4	38.1	38.5	39.8	38.7	38.0	35.8	37.7	42.8																						
27-Apr	35.1	34.0	33.7	33.5	33.5	Z	34.1	35.7	36.3	36.3	37.2	34.7	36.2	34.3	33.9	35.8	36.5	36.2	36.4	36.9	36.8	36.3	33.9	32.6	35.2	37.2																						
28-Apr	Z	32.6	31.8	31.2	31.1	31.7	33.4	33.8	33.3	31.9	32.5	32.2	33.6	35.8	38.3	37.1	37.6	37.0	36.7	34.9	32.2	32.8	33.1	31.8	33.8	38.3																						
29-Apr	31.2	Z	28.7	27.5	27.9	27.3	28.5	28.0	29.7	31.9	32.8	33.6	36.2	36.8	36.0	37.4	37.3	36.7	36.1	34.8	33.1	33.0	34.1	33.9	32.7	37.4																						
30-Apr	33.9	32.5	Z	33.7	33.6	32.2	31.0	30.3	30.8	30.7	30.9	30.6	31.0	30.8	30.8	31.6	31.5	31.7	30.3	27.5	25.2	26.6	27.9	31.4	30.7	33.9																						
																								37.0	36.7	36.4	36.3	35.0	33.8	34.3	34.6	35.3	36.0	36.7	37.8	38.5	38.9	39.3	39.8	39.9	39.8	39.5	39.0	38.8	38.5	37.9	37.4	Diurnal Average
																								44.5	45.5	46.4	47.7	42.2	41.3	43.2	42.9	43.3	45.5	45.4	46.9	46.5	47.2	47.8	49.8	50.3	48.8	51.7	53.6	54.1	53.2	51.0	50.6	Diurnal Maximum

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
21 - 50	681	99.13	99.13
51 - 82	6	0.87	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 687

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 50	11	21	80	167	147	19	13	10	7	3	9	19	58	37	55	25	681
51 - 82	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	6
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	11	21	82	171	147	19	13	10	7	3	9	19	58	37	55	25	687

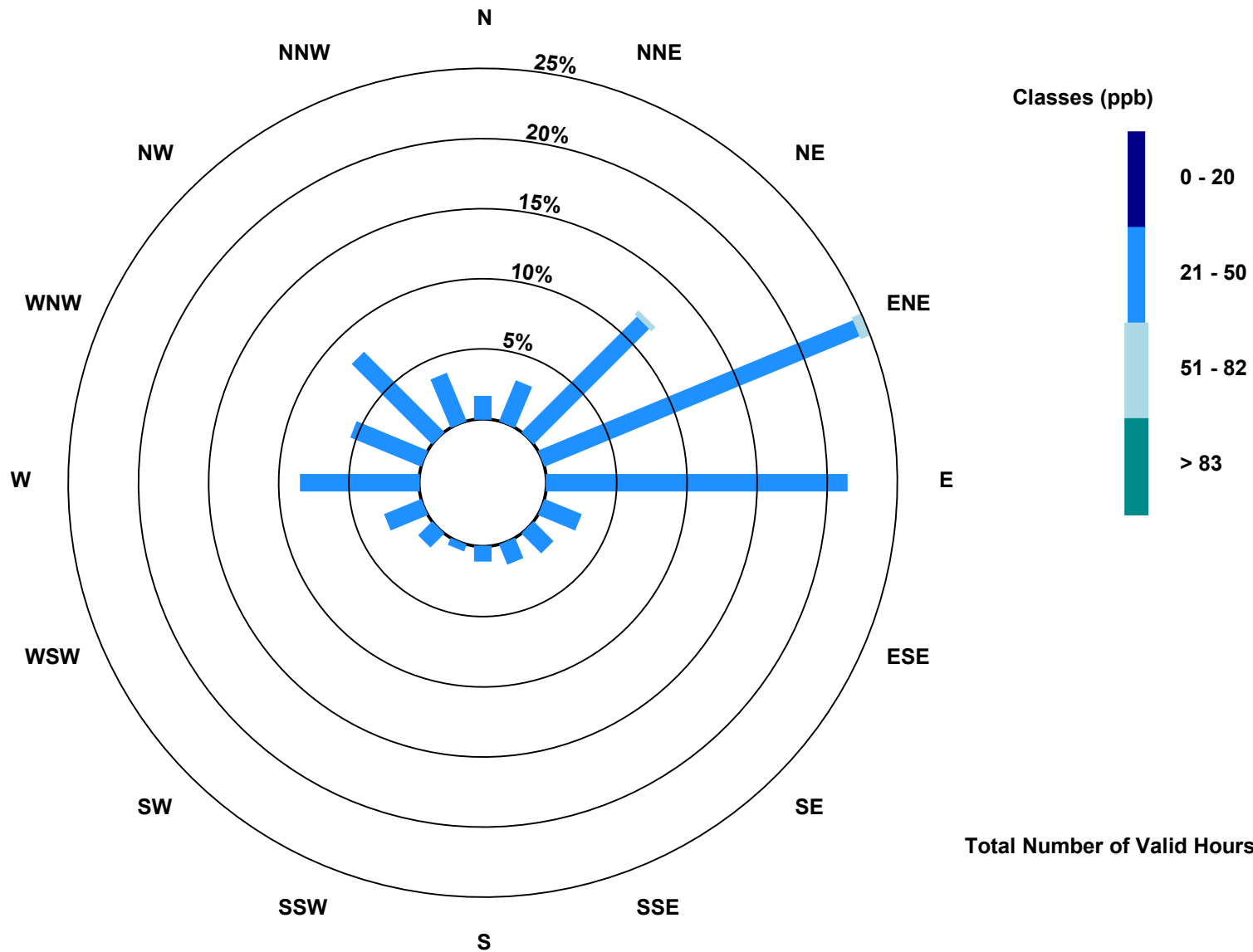
Total Number of Valid Hours: 687

Total Number of Hours: 720

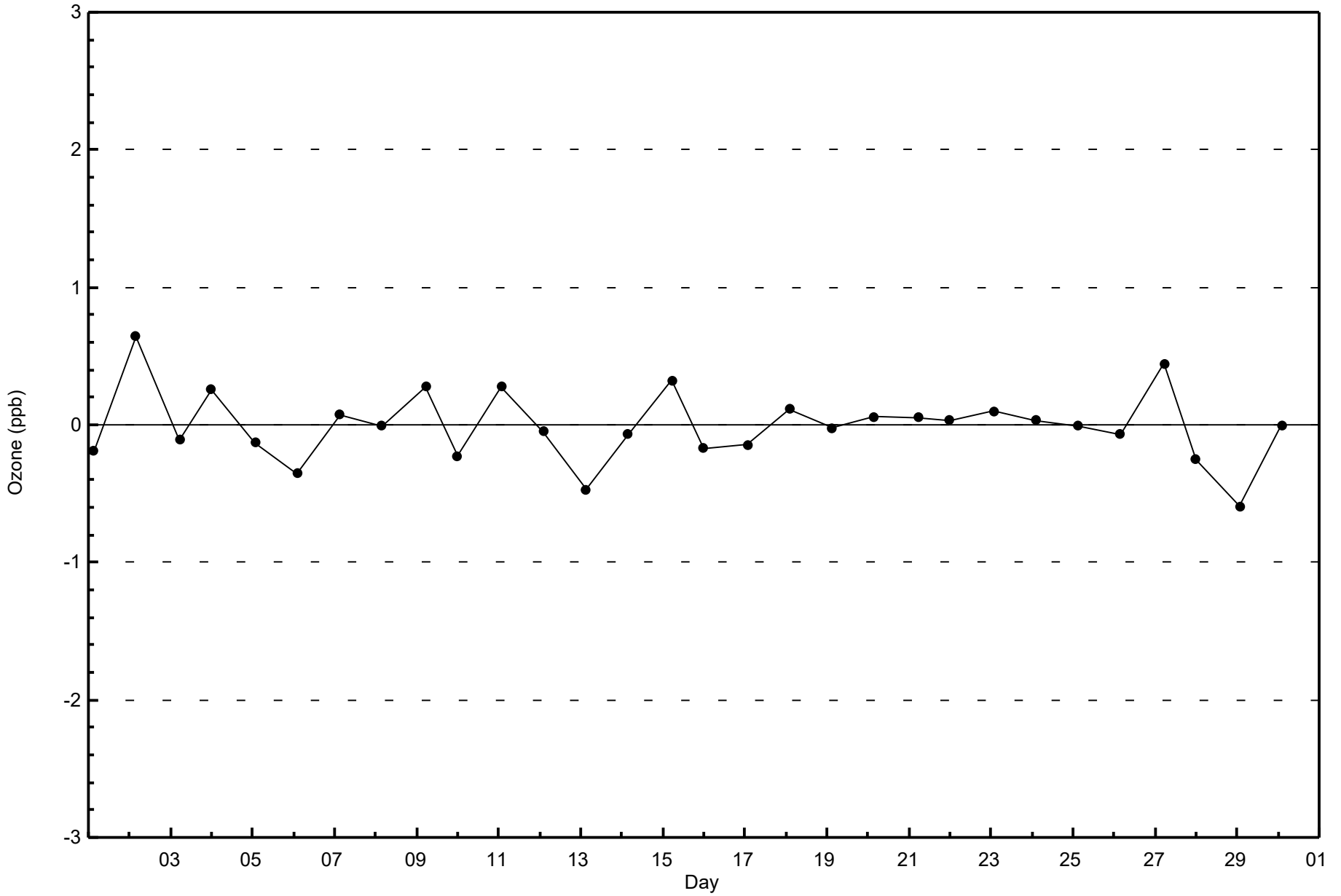


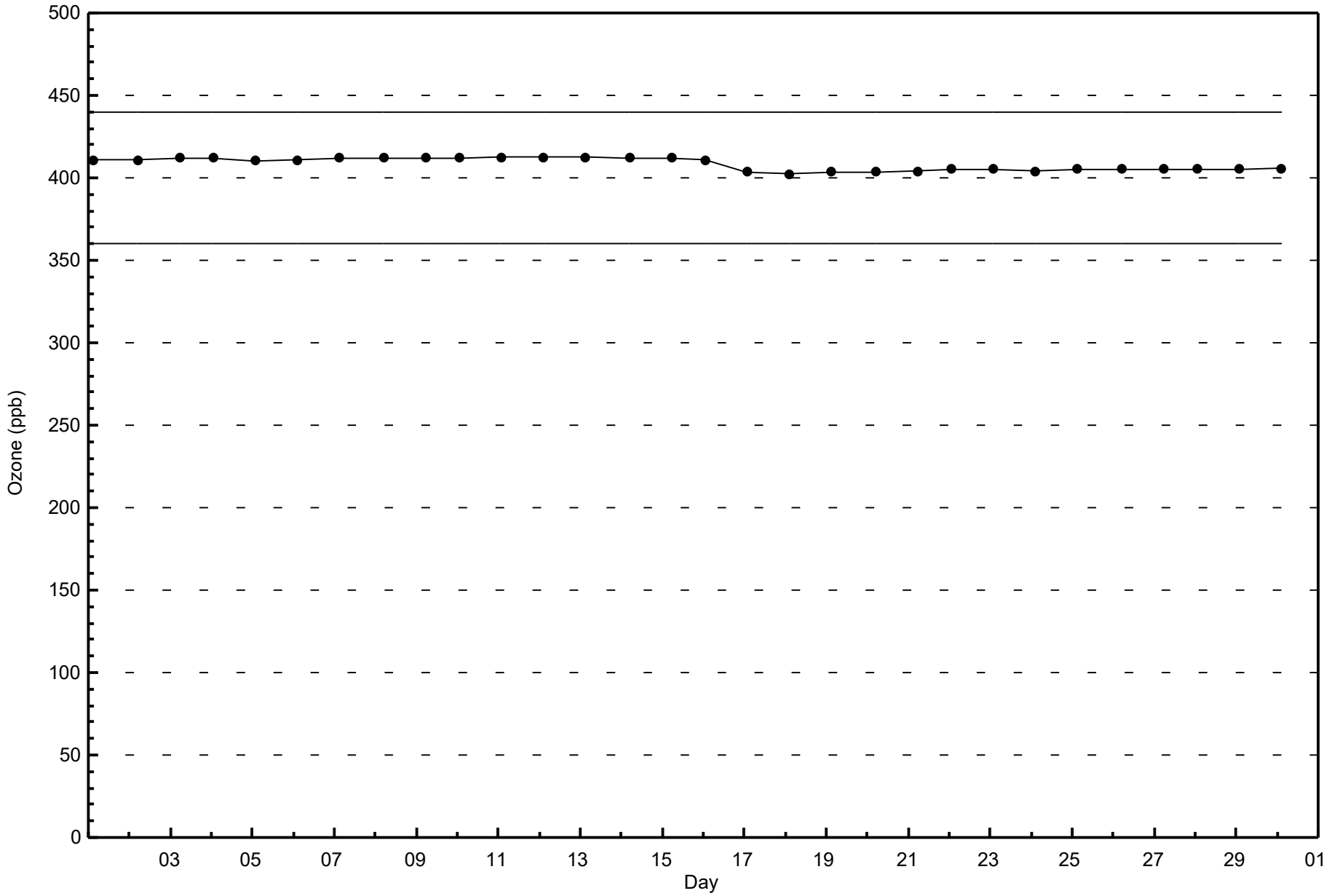
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



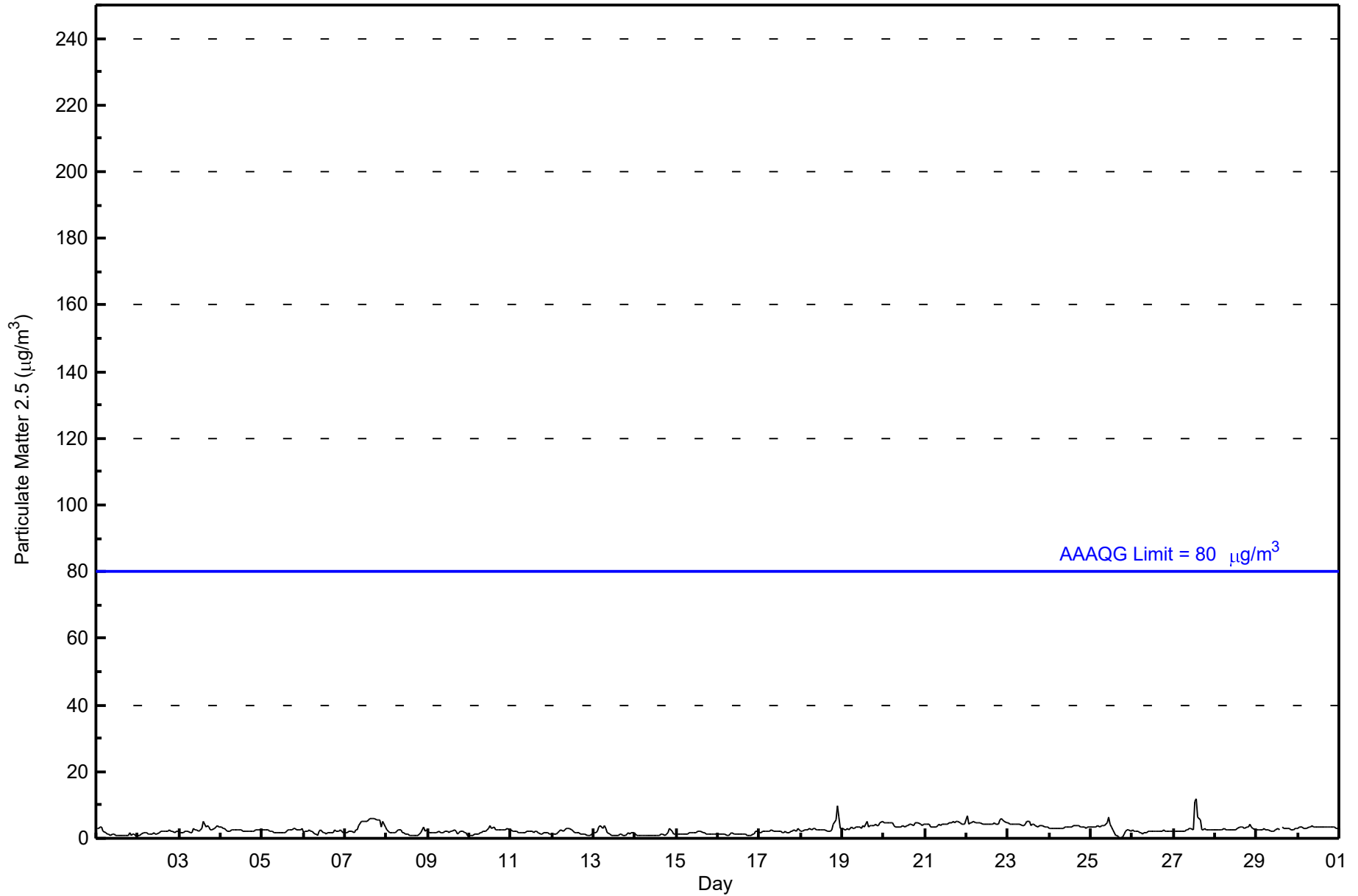
Total Number of Valid Hours: 687







Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum																											
Maximum Value: 11.7 µg/m <sup>3</sup> on Apr 27 14:00		Maximum Daily Average: 4.7 µg/m <sup>3</sup> on Apr 22		Hours of Data: 719														Hours of Missing Data: 1		Hours of Calibration: 1																													
Minimum Value: 0.1 µg/m <sup>3</sup> on Apr 25 18:00		Minimum Daily Average: 1.2 µg/m <sup>3</sup> on Apr 16		Hours of Calibration: 1														Percent Operational Time: 100.0																															
Maximum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 22		Minimum Diurnal Average: 2.4 µg/m <sup>3</sup> at hour 2																																															
Monthly Average: 2.60 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.7 Median = 2.4 Q <sub>3</sub> = 3.3 P <sub>90</sub> = 4.3 P <sub>99</sub> = 6.1																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	3.1	3.0	3.3	3.2	2.3	1.8	1.4	1.1	1.0	1.1	1.2	0.9	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1.5	0.8	1.4	1.1	0.6	1.5	3.3																							
2-Apr	0.7	1.0	1.4	1.6	1.7	1.6	1.1	1.3	1.4	1.6	1.4	1.2	1.6	2.1	2.3	2.0	2.1	2.2	2.4	2.3	2.3	1.9	2.3	2.0	1.7	2.4																							
3-Apr	1.8	1.8	1.7	2.1	1.9	2.1	1.6	1.7	2.8	2.4	2.5	2.1	2.6	2.9	4.9	3.4	3.8	3.3	2.7	2.4	3.2	3.5	3.7	3.4	2.7	4.9																							
4-Apr	3.3	3.1	2.8	2.4	2.1	2.3	2.6	2.3	2.5	2.5	2.7	2.4	2.3	2.3	2.2	2.3	2.1	2.2	2.2	2.4	2.4	2.5	2.5	2.5	2.5	3.3																							
5-Apr	2.6	2.6	2.6	2.5	2.3	2.1	1.9	1.7	1.7	1.6	1.6	1.9	1.8	1.9	2.3	2.2	2.4	2.6	2.6	2.9	3.1	2.7	2.6	2.5	2.9	3.1																							
6-Apr	1.9	2.0	2.3	2.5	2.1	1.9	1.5	1.1	1.0	1.9	2.4	1.8	1.6	1.4	1.8	1.9	1.7	1.8	2.3	1.9	2.1	2.6	2.1	1.9	1.9	2.6																							
7-Apr	1.8	1.8	2.0	1.9	2.0	1.9	2.3	2.6	3.9	5.1	4.9	5.1	5.1	5.0	5.8	6.1	5.9	5.7	5.6	5.3	5.5	3.4	5.2	3.3	4.1	6.1																							
8-Apr	2.6	2.1	1.7	1.6	1.5	1.5	2.2	2.5	2.5	1.7	1.5	1.3	1.2	0.9	1.0	1.0	0.9	0.9	1.0	1.3	1.8	3.5	2.2	2.7	1.7	3.5																							
9-Apr	2.3	1.6	1.7	1.8	1.8	1.9	1.9	1.8	1.8	1.8	2.0	2.0	1.8	2.2	2.1	2.7	2.2	1.4	1.8	2.2	2.3	1.8	1.7	1.1	1.9	2.7																							
10-Apr	0.8	0.8	1.0	1.3	1.3	1.5	1.7	1.6	2.0	2.2	2.4	3.1	3.9	2.9	3.3	2.7	2.6	2.5	2.5	2.5	2.6	2.7	2.9	2.6	2.2	3.9																							
11-Apr	2.4	2.2	2.1	2.0	1.8	1.6	1.5	1.6	1.9	2.0	2.0	2.0	2.0	1.8	2.1	2.1	1.8	1.5	1.4	1.6	1.7	1.6	1.4	1.3	1.8	2.4																							
12-Apr	1.2	1.3	1.4	1.8	2.3	2.3	2.3	2.5	2.8	2.9	2.9	2.6	1.9	1.8	1.8	1.6	1.1	1.3	1.4	1.2	1.0	0.9	1.0	1.2	1.8	2.9																							
13-Apr	1.5	1.6	2.2	3.2	3.7	3.0	3.6	2.8	1.7	1.3	1.0	0.8	0.8	1.0	0.9	1.1	1.3	1.0	0.9	1.2	1.9	1.2	1.6	1.9	1.7	3.7																							
14-Apr	1.1	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.0	1.0	1.0	1.0	0.9	0.9	1.1	1.1	1.0	1.4	1.9	3.2	2.1	1.5	1.4	1.2	3.2																							
15-Apr	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.5	1.6	1.6	1.7	1.9	2.0	2.3	2.0	1.8	1.7	1.4	1.3	1.2	1.2	1.4	1.3	1.4	1.5	2.3																							
16-Apr	1.2	1.2	1.2	1.1	1.2	0.9	0.9	1.1	1.6	1.1	1.1	1.3	1.2	1.2	1.2	1.1	0.8	1.0	1.0	1.2	1.3	2.0	2.1	1.2	2.1	2.1																							
17-Apr	1.7	1.6	2.1	2.1	2.0	2.0	2.3	2.4	2.3	2.0	2.0	2.1	1.9	1.8	1.7	1.9	1.8	1.8	1.9	2.1	2.5	2.2	2.9	2.7	2.1	2.9																							
18-Apr	2.1	2.3	2.5	2.5	2.6	2.8	2.7	2.8	2.8	2.7	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.3	2.6	4.0	5.5	9.9	6.3	2.9	3.2	9.9																							
19-Apr	2.8	2.7	2.6	2.8	2.7	3.2	3.1	2.8	3.2	3.4	3.5	2.9	3.9	3.4	5.1	3.6	3.9	3.8	3.9	4.3	3.7	3.8	4.5	5.0	3.5	5.1																							
20-Apr	4.7	4.7	4.7	4.6	4.6	4.5	3.8	3.3	3.4	3.3	3.5	4.0	3.6	3.6	3.7	4.0	4.1	3.9	4.5	4.5	4.7	4.2	4.0	4.2	4.1	4.7																							
21-Apr	4.1	4.1	4.1	3.6	3.5	3.5	3.6	3.9	4.2	3.9	4.3	4.3	4.2	4.2	4.5	4.7	4.9	4.9	5.0	5.0	4.8	4.4	4.2	4.2	4.3	5.0																							
22-Apr	6.6	4.4	4.5	4.6	4.9	4.8	4.8	4.6	4.5	4.4	4.3	4.4	4.3	4.2	4.2	4.2	4.5	4.1	4.3	5.3	5.8	5.5	4.9	4.6	4.7	6.6																							
23-Apr	4.7	4.4	4.3	4.3	4.1	4.3	4.2	4.2	3.9	3.8	4.4	5.1	5.0	3.8	4.2	4.1	3.9	3.6	3.9	3.7	3.6	3.6	3.4	3.2	4.1	5.1																							
24-Apr	3.1	3.1	3.0	2.9	2.9	3.0	3.0	2.9	3.1	3.3	3.5	3.4	3.3	3.6	3.7	3.8	3.9	3.7	3.6	3.5	3.3	3.1	3.2	3.2	3.3	3.9																							
25-Apr	3.3	3.3	3.4	3.5	3.6	3.5	3.7	3.7	4.0	4.7	6.3	4.3	3.5	2.7	0.9	0.6	0.4	0.1	0.3	1.1	2.3	2.7	2.6	2.1	2.8	6.3																							
26-Apr	2.5	2.2	2.2	2.1	1.8	1.5	1.2	1.7	1.8	2.0	2.1	1.9	2.3	2.2	2.0	2.1	2.1	2.1	2.4	2.3	2.2	2.3	2.2	2.2	2.1	2.5																							
27-Apr	2.2	2.1	2.0	2.0	2.1	2.3	2.2	2.4	2.6	2.9	3.0	2.7	11.0	11.7	6.5	5.5	2.7	2.7	2.8	2.7	2.7	2.7	2.4	2.3	3.5	11.7																							
28-Apr	2.3	2.4	2.6	2.7	2.7	2.9	2.7	2.4	2.5	2.4	2.5	2.4	2.7	3.0	3.5	3.3	3.2	3.0	3.2	3.6	4.0	3.2	2.8	2.7	2.9	4.0																							
29-Apr	2.7	2.6	2.5	2.5	2.8	2.7	2.7	2.7	2.3	2.0	2.3	2.5	2.8	2.8	C	3.5	3.1	2.9	2.9	2.9	2.7	2.4	2.8	2.8	2.7	3.5																							
30-Apr	2.9	3.2	3.3	3.0	2.9	2.8	3.2	3.5	3.6	3.3	3.4	3.4	3.5	3.5	3.3	3.3	3.2	3.3	3.2	3.3	3.4	3.3	3.1	2.9	3.3	3.6																							
																								2.5	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.7	2.6	2.9	2.8	2.8	2.7	2.6	2.4	2.5	2.7	2.9	2.9	2.8	2.6	Diurnal Average	
																								6.6	4.7	4.7	4.6	4.9	4.8	4.8	4.6	4.5	5.1	6.3	5.1	11.0	11.7	6.5	6.1	5.9	5.7	5.6	5.3	5.8	9.9	6.3	5.0	Diurnal Maximum	
C - Calibration																																																	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																	







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	704	97.91	97.91
6 - 15	15	2.09	100.00
16 - 25	0	0.00	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Fort Chipewyan - April 2024**

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	
0 - 5	12	26	84	177	146	20	13	10	7	2	9	18	59	38	58	25	704
6 - 15	0	0	0	1	6	1	1	0	0	1	0	1	1	1	0	2	15
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	12	26	84	178	152	21	14	10	7	3	9	19	60	39	58	27	719

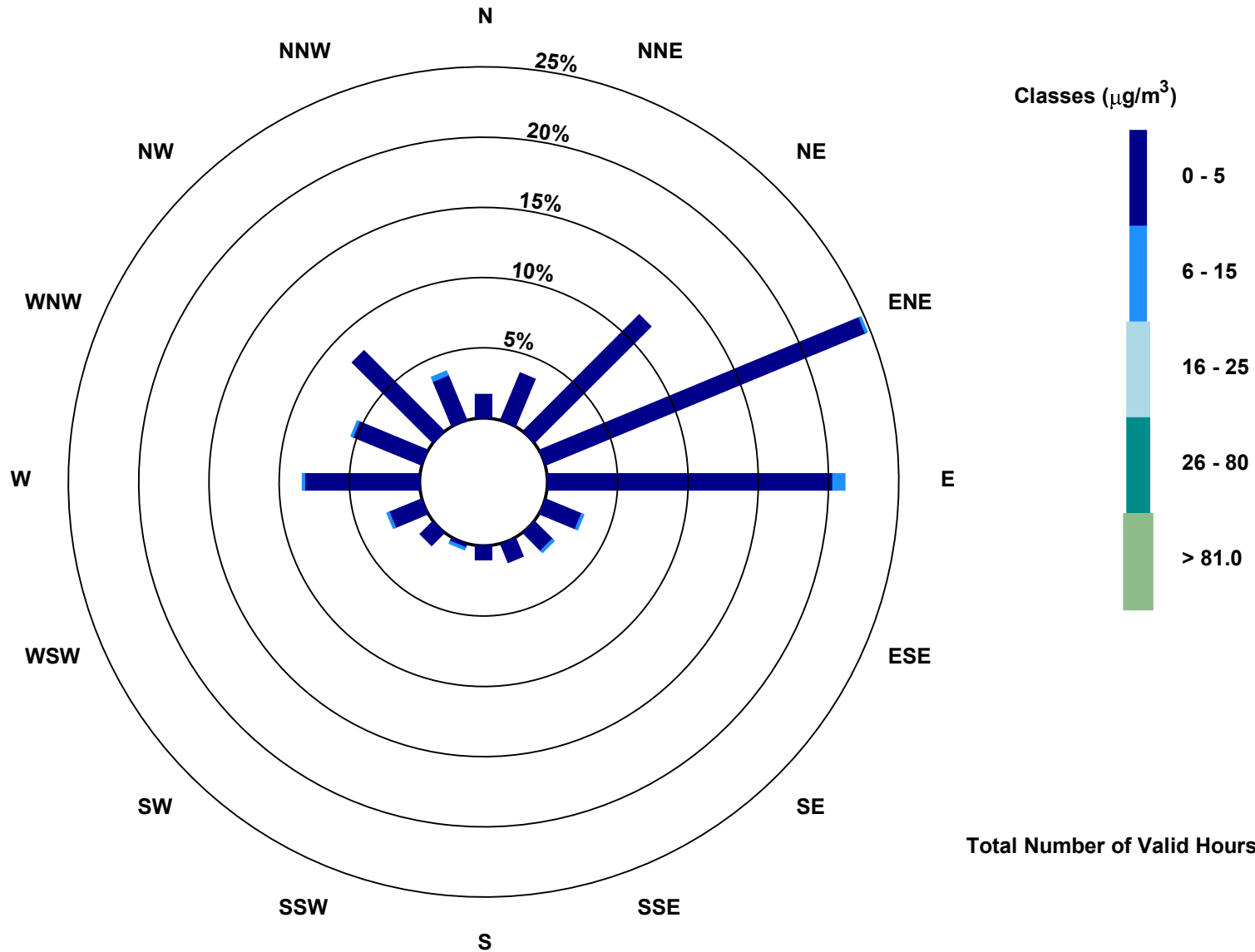
Total Number of Valid Hours: 719

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort Chipewyan





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Carbon Monoxide (CO) - ppm

## Fort Chipewyan - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 0.2 ppm on Apr 18 21:00	Maximum Daily Average: 0.1 ppm on Apr 18		Hours of Data:	687
Minimum Value: 0.0 ppm on Apr 1 02:00	Minimum Daily Average: 0.0 ppm on Apr 13		Hours of Missing Data:	33
Maximum Diurnal Average: 0.0 ppm at hour 5	Minimum Diurnal Average: 0.0 ppm at hour 12		Hours of Calibration:	33
Monthly Average: 0.01 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> = 0.1		Percent Operational Time:	100.0

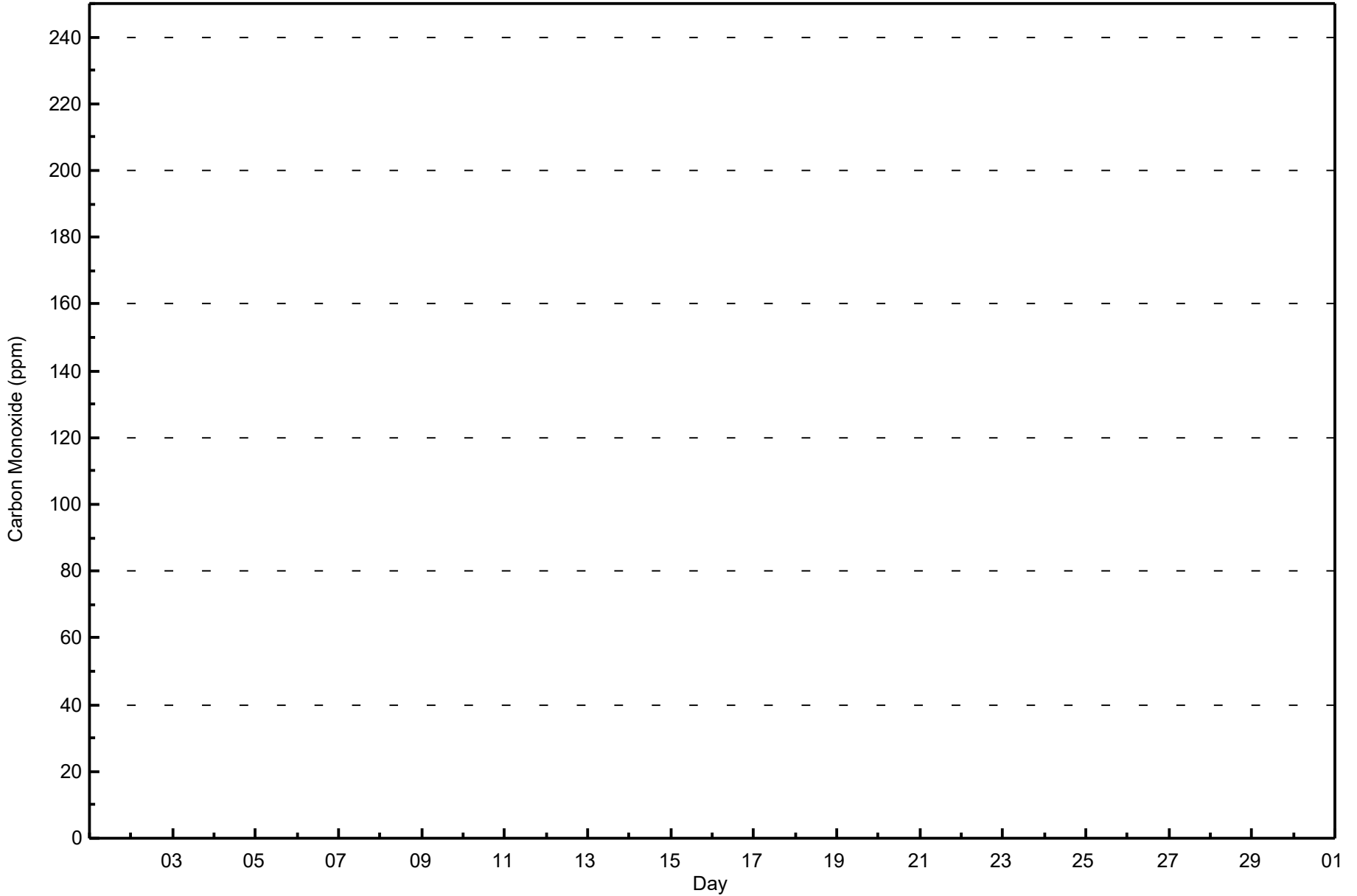
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1
8-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
9-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.2
19-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
20-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
27-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Apr	0.0	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
																								Diurnal Average				
																								Diurnal Maximum				

Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	687	100.00	100.00
0.4 - 0.5	0	0.00	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 687

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Fort Chipewyan - April 2024**

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	10	25	78	170	150	20	12	10	7	3	9	18	56	36	57	26	687
0.4 - 0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	10	25	78	170	150	20	12	10	7	3	9	18	56	36	57	26	687

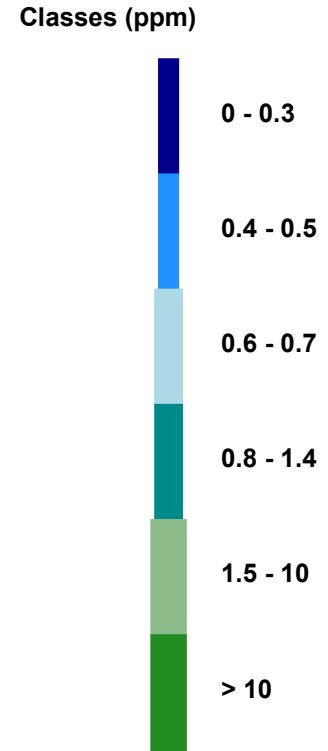
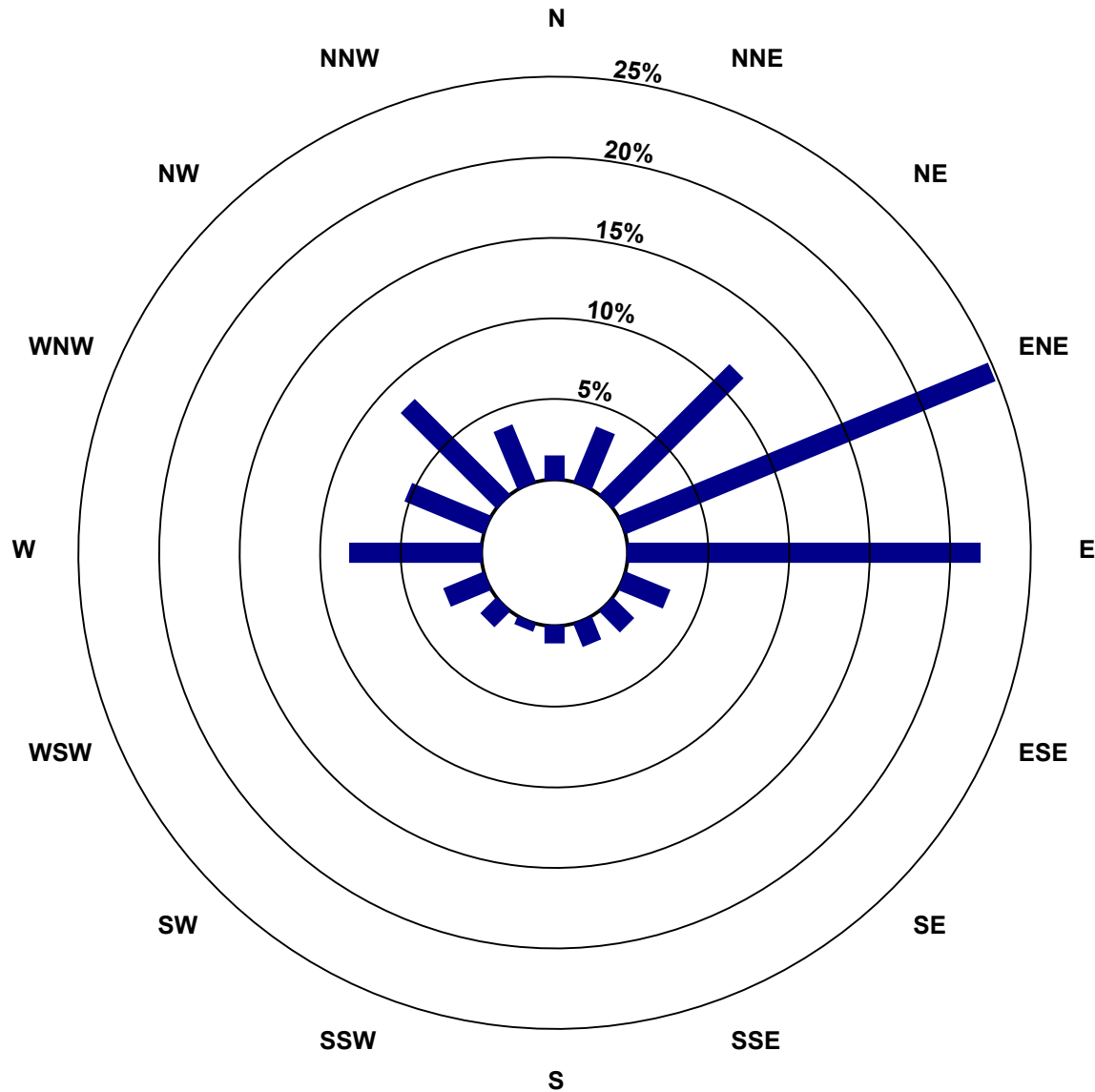
Total Number of Valid Hours: 687

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Monoxide (CO) - ppm  
Fort Chipewyan



Total Number of Valid Hours: 687





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Carbon Dioxide (CO<sub>2</sub>) - ppm

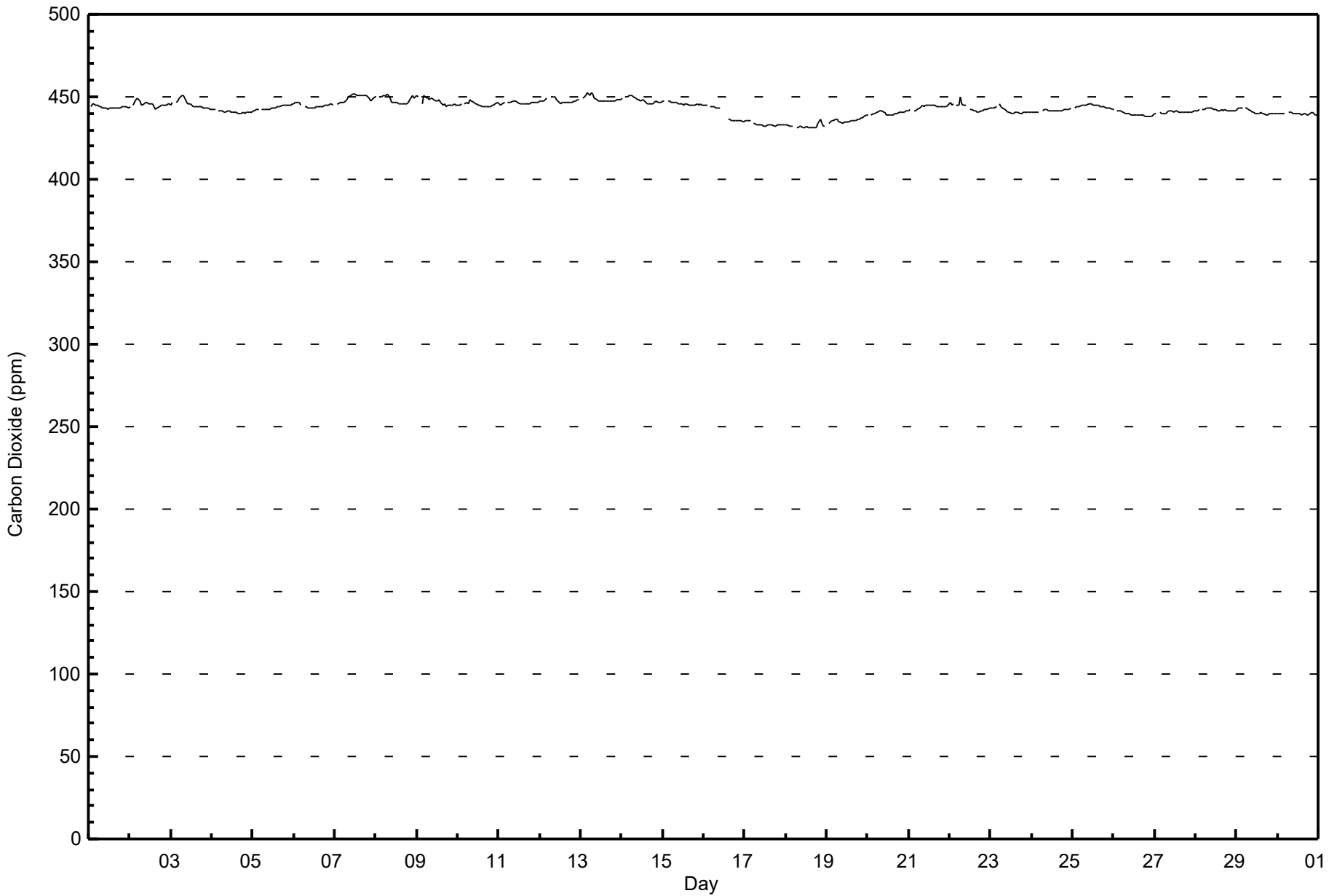
## Fort Chipewyan - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:															720						
Maximum Value: 452.3 ppm on Apr 13 05:00		Maximum Daily Average: 449.3 ppm on Apr 7															Hours of Data:		684								
Minimum Value: 431.1 ppm on Apr 18 16:00		Minimum Daily Average: 432.3 ppm on Apr 18															Hours of Missing Data:		36								
Maximum Diurnal Average: 444.6 ppm at hour 6		Minimum Diurnal Average: 442.1 ppm at hour 18															Hours of Calibration:		34								
Monthly Average: 443.02 ppm		Percentiles: P <sub>1</sub> = 431.7 P <sub>10</sub> = 436.0 Q <sub>1</sub> = 440.5 Median = 443.6 Q <sub>3</sub> = 446.0 P <sub>90</sub> = 448.2 P <sub>99</sub> = 451.3															Percent Operational Time:		99.7								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	Z	444.3	445.7	445.8	444.9	445.0	444.5	444.2	443.0	442.8	442.9	442.8	442.9	443.0	443.1	443.0	443.1	443.1	443.1	443.6	443.9	444.0	443.9	443.7	443.0	443.7	445.8
2-Apr	444.2	Z	445.1	448.0	449.0	448.5	447.2	445.3	446.2	446.9	446.2	445.6	445.8	445.8	443.7	442.7	442.9	443.9	444.9	445.1	445.2	444.7	445.8	445.5	445.6	449.0	
3-Apr	445.1	446.5	Z	446.5	447.7	449.3	450.4	450.4	448.9	447.3	446.1	445.4	444.7	444.4	444.5	444.2	444.1	443.9	443.7	443.6	443.4	443.2	442.9	442.6	445.6	450.4	
4-Apr	442.4	442.3	442.1	Z	441.7	441.5	441.2	440.9	440.9	441.6	441.1	440.6	440.5	440.5	440.3	440.1	440.0	440.1	440.3	440.2	440.4	440.5	440.6	441.0	440.9	442.4	
5-Apr	441.8	441.9	442.0	442.2	Z	442.1	442.1	442.1	442.2	442.4	442.8	443.1	443.4	443.5	443.8	444.1	444.3	444.6	444.6	444.9	445.1	445.3	445.2	445.6	443.4	445.6	
6-Apr	446.1	446.3	446.5	446.2	445.1	Z	444.2	443.9	443.6	443.5	443.5	443.4	443.5	443.7	443.8	443.8	443.9	444.3	445.2	444.9	444.6	445.8	445.4	445.2	444.6	446.5	
7-Apr	Z	445.7	445.9	446.3	446.2	446.4	447.7	448.6	449.7	451.0	452.0	451.9	451.4	451.1	450.8	451.3	451.2	450.9	450.7	449.9	448.8	447.3	448.3	449.8	449.3	452.0	
8-Apr	450.1	Z	450.1	450.0	450.6	450.5	451.1	451.3	449.0	446.9	446.7	446.9	446.9	446.0	445.6	445.7	445.7	445.9	446.0	446.7	448.0	450.9	449.3	449.8	448.3	451.3	
9-Apr	450.5	449.9	Z	446.0	450.6	450.3	449.3	448.2	449.5	449.0	448.3	447.6	447.6	448.0	446.8	444.8	445.7	444.3	444.9	445.0	444.9	445.2	445.4	445.2	447.3	450.6	
10-Apr	444.9	445.2	445.6	Z	445.6	446.7	446.2	448.2	447.3	446.5	445.8	445.5	445.1	444.5	444.1	444.0	444.2	444.3	444.3	444.1	444.8	444.6	445.8	446.3	445.4	448.2	
11-Apr	445.6	445.1	445.7	446.5	Z	446.5	446.3	446.9	447.6	447.8	447.3	446.7	446.1	445.9	446.0	445.9	445.8	445.8	446.0	446.2	446.2	446.2	446.4	446.7	446.3	447.8	
12-Apr	447.1	447.2	447.5	447.9	448.9	Z	449.8	450.1	450.3	450.3	448.6	446.4	446.1	446.4	446.4	446.6	446.4	446.6	446.6	446.8	447.2	447.7	448.1	448.5	447.7	450.3	
13-Apr	Z	449.2	450.0	451.1	452.3	451.1	452.2	451.7	448.9	448.0	447.2	447.3	447.4	447.5	447.3	447.3	447.5	447.5	447.2	447.2	447.6	448.2	448.6	448.7	448.7	452.3	
14-Apr	449.1	Z	450.0	450.0	450.6	450.6	450.5	450.0	449.5	448.6	448.1	447.6	448.1	447.3	446.5	445.8	445.7	445.5	445.6	446.6	447.4	447.0	446.8	446.9	448.0	450.6	
15-Apr	447.3	447.1	Z	447.3	447.2	446.7	446.6	446.6	446.4	445.9	445.6	445.4	445.3	445.4	445.4	445.3	445.2	445.3	445.3	445.3	445.4	445.3	445.5	445.3	445.9	447.3	
16-Apr	445.0	444.9	444.9	Z	444.2	444.0	443.8	443.6	443.6	443.4	C	C	C	C	436.0	436.0	436.0	435.9	435.7	435.6	435.5	435.3	435.8	435.1	439.7	445.0	
17-Apr	435.9	435.6	435.6	435.2	Z	434.2	433.6	433.4	433.4	433.2	432.8	432.5	432.5	432.6	432.8	432.8	432.7	432.4	432.5	432.8	433.3	432.9	433.1	432.8	433.4	435.9	
18-Apr	432.8	432.8	432.5	432.2	432.4	Z	431.7	431.7	431.9	431.8	431.6	431.5	431.9	431.7	431.3	431.1	431.2	431.5	431.7	433.9	436.2	433.7	432.3	432.4	432.3	436.2	
19-Apr	Z	433.9	434.9	435.3	435.8	436.3	436.7	434.9	434.4	434.2	434.5	434.9	434.9	435.1	435.4	435.7	435.7	435.8	436.2	436.6	436.9	437.3	438.4	438.9	435.8	438.9	
20-Apr	438.7	Z	439.0	439.5	440.2	440.9	441.0	441.2	441.2	440.8	440.4	439.3	439.0	439.0	439.0	439.3	439.5	439.6	440.3	440.8	441.0	440.8	441.1	441.4	440.1	441.4	
21-Apr	441.8	442.0	Z	441.7	441.9	442.4	442.9	443.9	444.5	444.5	444.7	444.6	444.5	444.7	444.6	444.6	444.4	444.2	444.4	444.4	444.3	444.2	444.2	444.8	443.8	444.8	
22-Apr	446.3	445.3	446.2	Z	445.2	445.2	450.0	446.0	445.3	444.8	M	M	442.1	442.2	441.9	441.1	440.9	440.9	441.5	441.9	442.0	442.0	442.4	442.8	443.6	450.0	
23-Apr	443.6	443.6	443.4	443.7	Z	445.5	444.4	443.1	442.0	441.5	440.9	440.3	440.1	440.0	440.5	440.7	440.7	440.0	440.0	440.3	440.5	440.9	440.7	440.5	441.6	445.5	
24-Apr	440.5	440.6	440.6	440.9	441.1	Z	441.7	442.1	442.3	442.2	441.8	441.4	441.2	441.1	441.2	441.3	441.6	441.7	441.8	442.1	442.2	442.3	442.5	442.8	441.6	442.8	
25-Apr	Z	443.5	443.8	443.9	444.3	444.6	444.8	445.0	445.0	445.2	445.4	445.7	445.4	445.0	445.1	445.0	444.5	444.3	444.0	443.7	443.5	443.4	443.1	442.9	442.4	445.7	
26-Apr	442.5	Z	441.8	441.6	441.2	440.8	440.5	440.2	439.9	439.6	439.3	439.0	438.9	438.6	438.7	438.6	438.6	438.6	438.6	438.5	438.4	438.4	438.3	439.4	439.6	442.5	
27-Apr	439.5	439.8	Z	440.3	440.0	440.0	440.2	440.9	441.7	441.8	441.9	440.7	441.6	441.2	441.0	441.0	440.7	440.9	441.0	441.1	441.1	441.0	440.9	441.2	440.8	441.9	
28-Apr	441.2	441.2	442.0	Z	442.2	442.6	443.0	443.1	443.3	443.1	442.3	442.1	442.0	441.9	441.8	442.0	441.9	442.0	441.7	441.6	441.1	441.3	441.5	441.9	442.0	443.3	
29-Apr	442.2	443.1	443.4	443.6	Z	443.2	442.8	442.7	441.7	440.9	440.4	440.2	440.2	440.1	440.4	440.1	439.4	439.2	439.2	439.5	440.0	440.0	439.6	439.8	441.0	443.6	
30-Apr	440.0	440.2	440.1	440.0	440.0	Z	440.5	440.6	440.5	440.1	439.8	439.6	439.6	439.5	439.3	439.5	439.5	439.5	439.1	439.0	439.7	440.4	440.0	439.4	439.0	440.6	
443.4 443.1 443.4 443.7 444.4 444.6 444.2 444.0 443.8 443.5 443.2 442.8 442.7 442.6 442.2 442.1 442.1 442.1 442.2 442.4 442.6 442.6 442.7 442.8																								Diurnal Average			
450.5 449.9 450.1 451.1 452.3 451.1 452.2 451.7 450.3 451.0 452.0 451.9 451.4 451.1 450.8 451.3 451.2 450.9 450.7 449.9 448.8 450.9 449.3 449.8																								Diurnal Maximum			
Z - zerspan		C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	0	0.00	0.00
420 - 440	170	24.85	24.85
440 - 460	514	75.15	100.00
460 - 480	0	0.00	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan - April 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
400 - 420	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
420 - 440	3	8	34	33	37	5	2	1	0	2	1	13	14	5	7	5	170
440 - 460	7	13	46	138	111	15	10	9	7	1	8	5	42	31	50	21	514
460 - 480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
480 - 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	10	21	80	171	148	20	12	10	7	3	9	18	56	36	57	26	684

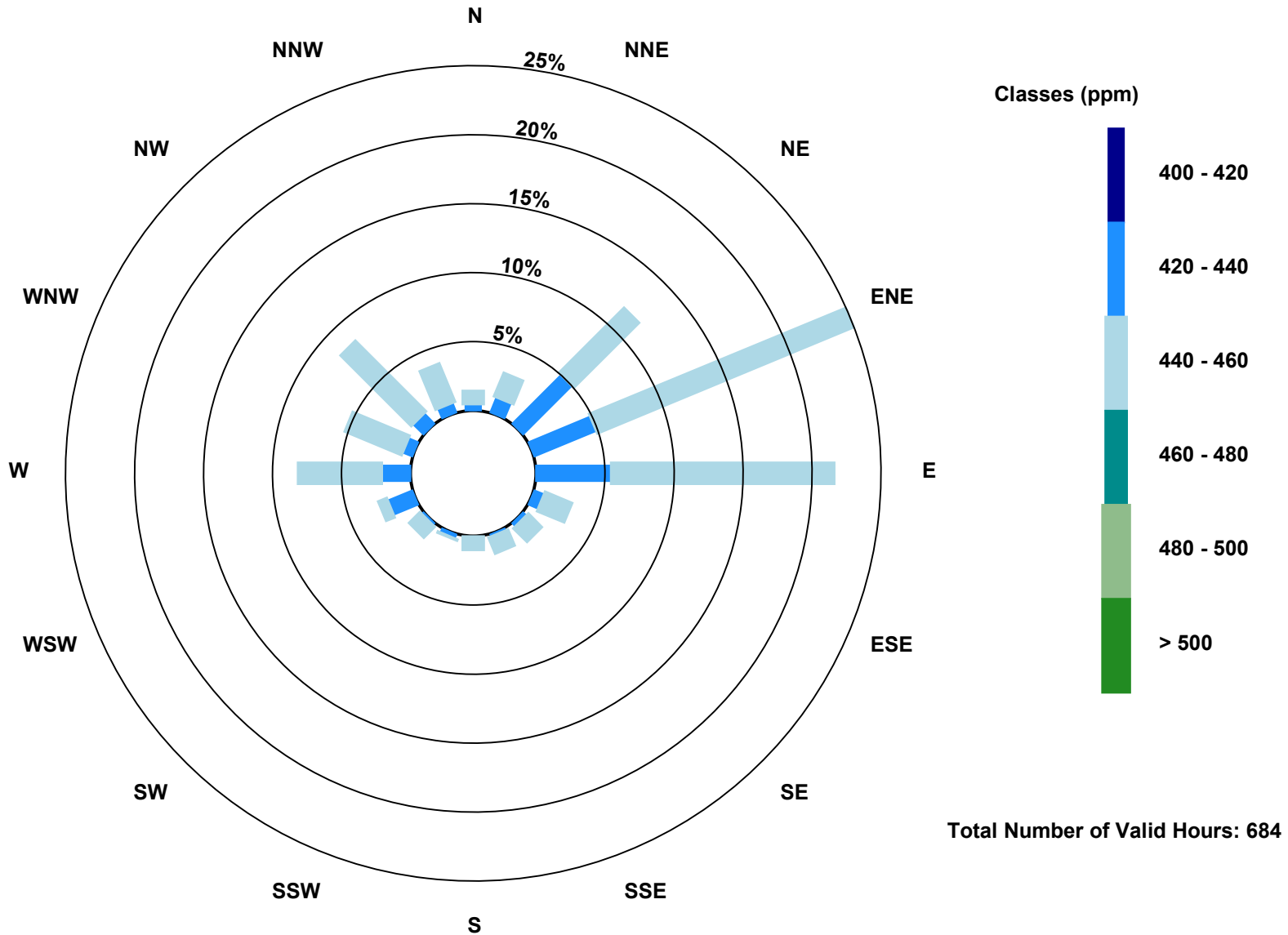
Total Number of Valid Hours: 684

Total Number of Hours: 720



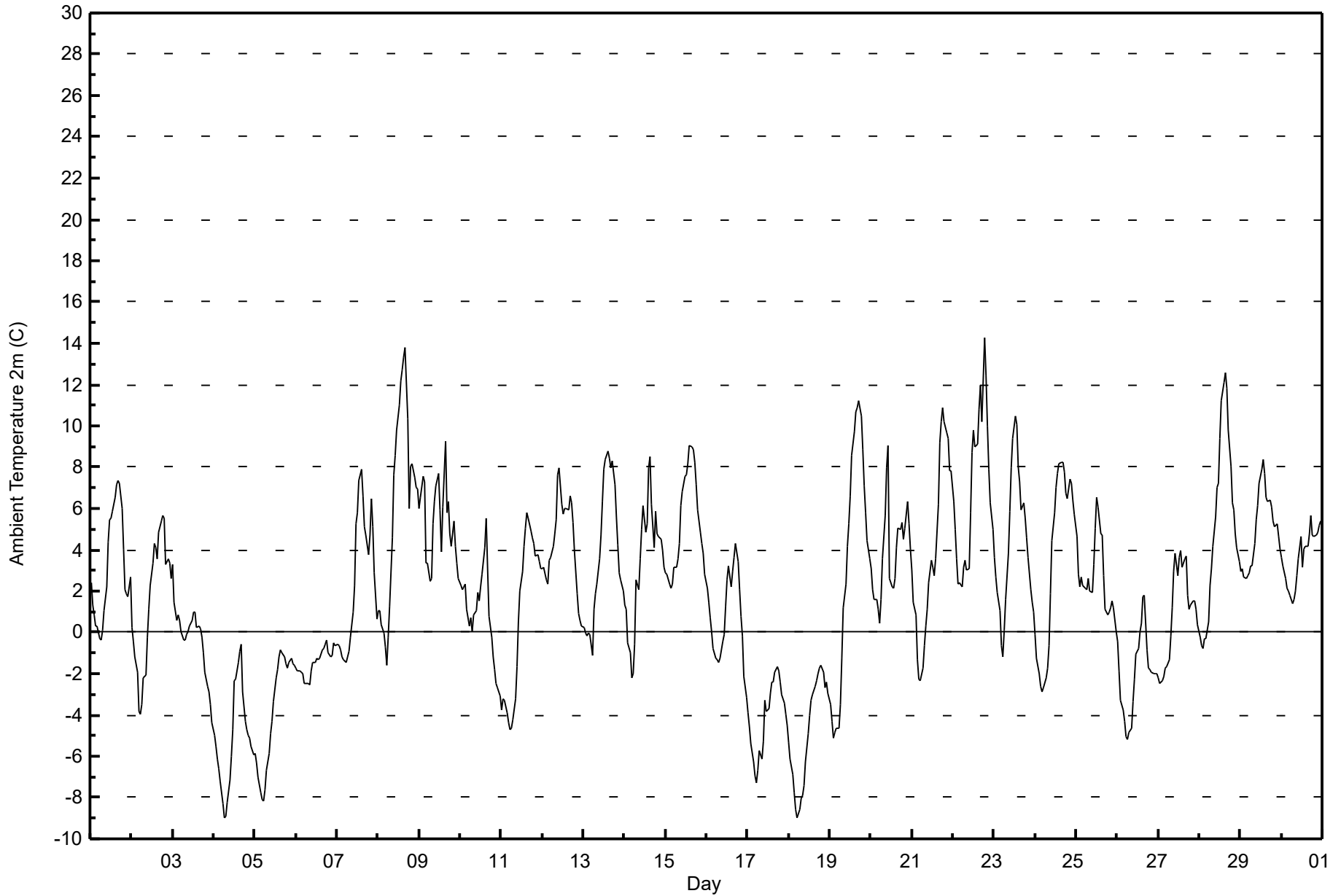
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan





Maximum Value: 14.3 C on Apr 22 19:00																				Maximum Daily Average: 6.9 C on Apr 22					Hours in Service: 720	
Minimum Value: -9.0 C on Apr 4 07:00																				Minimum Daily Average: -5.2 C on Apr 4					Hours of Data: 720	
Maximum Diurnal Average: 5.3 C at hour 16																				Minimum Diurnal Average: -1.6 C at hour 6					Hours of Missing Data: 0	
Monthly Average: 1.98 C																				Percentiles: P <sub>1</sub> = -8.2 P <sub>10</sub> = -3.9 Q <sub>1</sub> = -1.2 Median = 2.2 Q <sub>3</sub> = 5.1 P <sub>90</sub> = 7.7 P <sub>99</sub> = 12.1					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-Apr	2.4	1.4	0.8	0.3	0.3	-0.3	-0.4	0.1	1.0	2.2	4.4	5.5	5.5	5.8	6.5	7.1	7.4	7.2	6.0	4.0	2.1	1.8	1.7	2.7	3.2	7.4
2-Apr	0.2	-0.5	-1.2	-1.9	-3.9	-4.0	-3.5	-2.2	-2.0	-0.2	1.1	2.3	3.4	4.3	4.1	3.6	4.9	5.4	5.6	5.5	3.3	3.6	3.3	2.6	1.4	5.6
3-Apr	3.3	1.5	0.6	0.8	0.6	0.0	-0.4	-0.4	-0.1	0.0	0.3	0.6	1.0	1.0	0.2	0.3	0.2	-0.2	-1.0	-1.9	-2.6	-2.9	-3.5	-4.4	-0.3	3.3
4-Apr	-5.0	-5.5	-6.1	-6.6	-7.3	-8.3	-9.0	-8.9	-8.2	-7.2	-6.0	-4.7	-2.3	-2.3	-1.5	-0.9	-0.6	-2.9	-4.3	-4.7	-5.0	-5.1	-5.6	-5.9	-5.2	-0.6
5-Apr	-5.9	-6.4	-7.0	-7.7	-8.1	-8.2	-7.6	-6.7	-5.9	-4.9	-4.3	-3.4	-2.2	-1.8	-1.2	-0.9	-1.0	-1.2	-1.5	-1.7	-1.4	-1.3	-1.5	-1.6	-3.9	-0.9
6-Apr	-1.7	-1.9	-1.9	-1.9	-2.0	-2.5	-2.5	-2.5	-2.5	-1.8	-1.5	-1.4	-1.2	-1.3	-1.2	-0.8	-0.8	-0.6	-0.4	-1.0	-1.2	-1.1	-0.5	-0.6	-1.5	-0.4
7-Apr	-0.6	-0.6	-0.9	-1.2	-1.3	-1.5	-1.2	-0.9	-0.2	1.0	2.3	5.2	5.8	7.3	7.9	6.6	5.2	4.7	3.7	4.7	6.4	5.1	2.9	0.7	2.6	7.9
8-Apr	1.1	1.0	0.4	0.0	-0.7	-1.6	-0.3	1.2	4.6	7.6	8.6	9.8	11.0	12.2	12.7	13.3	13.8	10.4	6.0	8.0	8.1	7.5	7.0	6.9	6.2	13.8
9-Apr	6.0	6.5	7.5	7.3	3.3	3.3	2.4	2.6	5.2	6.3	7.1	7.7	6.0	3.9	6.1	9.2	5.8	6.4	4.8	4.2	5.4	4.1	3.3	2.6	5.3	9.2
10-Apr	2.3	2.1	2.2	2.3	1.1	0.3	0.7	0.1	0.9	1.1	1.9	1.5	2.2	2.8	4.1	5.5	3.1	0.8	-0.2	-1.2	-1.8	-2.5	-2.7	-3.1	1.0	5.5
11-Apr	-3.7	-3.2	-3.3	-3.9	-4.4	-4.7	-4.6	-4.2	-3.2	-1.7	0.5	2.0	3.0	4.2	5.1	5.8	5.6	4.9	4.6	4.3	3.7	3.8	3.4	3.1	0.7	5.8
12-Apr	3.1	3.1	2.6	2.3	3.5	3.6	4.2	4.8	5.4	7.6	8.0	6.2	5.8	6.0	6.0	5.9	6.6	6.3	5.3	3.9	1.9	0.9	0.6	0.3	4.3	8.0
13-Apr	0.2	-0.1	-0.1	-0.1	-0.1	-1.1	1.1	1.9	2.3	3.5	4.7	6.3	7.9	8.4	8.7	8.5	7.9	8.3	7.1	5.6	4.2	2.9	2.5	2.0	3.9	8.7
14-Apr	1.3	1.1	-0.5	-1.0	-2.2	-2.0	-0.6	2.6	2.1	3.6	5.0	6.1	4.8	5.3	8.0	8.5	6.2	4.1	5.9	4.8	4.7	4.5	4.0	3.2	3.3	8.5
15-Apr	2.9	2.8	2.4	2.1	2.3	3.2	3.1	3.5	4.3	6.1	6.8	7.5	7.7	8.1	9.1	9.0	8.9	8.3	7.1	5.9	4.9	4.3	3.8	2.8	5.3	9.1
16-Apr	2.1	1.5	0.7	0.0	-0.8	-1.2	-1.4	-1.5	-1.3	-0.5	-0.1	1.2	2.5	3.2	2.2	3.0	3.6	4.3	3.4	2.1	0.8	-0.2	-2.1	-3.2	0.8	4.3
17-Apr	-3.9	-4.6	-5.4	-6.3	-7.0	-7.3	-6.7	-5.7	-6.2	-5.2	-3.3	-3.9	-3.7	-3.0	-2.4	-2.4	-1.9	-1.7	-1.8	-2.4	-3.0	-3.4	-3.9	-4.5	-4.2	-1.7
18-Apr	-5.3	-6.1	-6.9	-7.8	-8.6	-9.0	-8.6	-8.0	-7.9	-7.4	-6.3	-4.9	-4.0	-3.3	-3.0	-2.6	-2.4	-2.0	-1.7	-1.6	-1.9	-2.7	-2.4	-3.0	-4.9	-1.6
19-Apr	-3.5	-4.3	-5.1	-4.9	-4.7	-4.6	-3.5	-1.3	1.2	2.4	4.2	5.2	6.6	8.6	9.8	10.7	10.9	11.2	10.5	8.9	7.1	5.8	4.4	3.6	3.3	11.2
20-Apr	3.1	2.1	1.6	1.6	1.1	0.4	1.6	3.6	5.7	8.0	9.0	2.6	2.2	2.1	2.6	4.1	5.1	5.0	5.3	4.5	5.1	6.3	5.3	4.0	3.8	9.0
21-Apr	3.0	1.5	0.8	-1.3	-2.3	-2.4	-1.7	-0.7	0.3	1.1	2.4	3.5	3.2	2.7	3.6	6.2	9.2	10.2	10.9	10.2	9.7	9.4	7.8	7.8	4.0	10.9
22-Apr	6.3	5.0	3.6	2.3	2.4	2.2	3.1	3.5	3.0	3.1	5.8	8.7	9.8	9.0	9.1	10.8	12.0	10.2	14.3	12.4	10.0	7.9	6.2	5.0	6.9	14.3
23-Apr	3.6	2.7	1.9	1.0	-0.7	-1.2	0.1	1.6	3.8	5.8	7.9	9.4	10.5	10.1	8.0	7.3	6.0	6.3	5.5	4.6	3.6	2.1	1.4	1.0	4.3	10.5
24-Apr	-0.1	-1.2	-2.0	-2.6	-2.9	-2.7	-2.2	-1.7	-0.6	1.9	4.4	5.8	7.0	7.7	8.2	8.3	8.2	7.8	6.8	6.5	7.4	7.3	6.4	5.7	3.5	8.3
25-Apr	4.6	2.8	2.2	2.7	2.3	2.1	2.1	2.6	2.0	1.9	3.3	5.1	6.5	6.1	4.7	4.7	2.7	1.1	0.8	1.0	1.2	1.5	1.2	0.0	2.7	6.5
26-Apr	-0.4	-1.9	-3.3	-3.8	-4.3	-5.0	-5.2	-4.8	-4.6	-3.4	-2.3	-1.0	-0.8	0.0	0.4	1.8	1.8	-0.8	-1.7	-1.8	-1.9	-2.0	-2.0	-2.0	-2.1	1.8
27-Apr	-2.2	-2.4	-2.4	-2.1	-1.7	-1.6	-1.3	-0.2	1.2	2.9	3.8	2.8	3.6	4.0	3.2	3.6	3.7	1.8	1.1	1.3	1.5	1.5	1.1	0.4	1.0	4.0
28-Apr	-0.3	-0.7	-0.8	-0.3	-0.3	0.5	2.3	3.1	4.2	5.6	7.0	7.2	9.4	11.2	12.1	12.6	11.8	9.8	8.0	6.3	5.9	4.8	4.1	3.4	5.3	12.6
29-Apr	2.9	3.1	2.7	2.6	2.8	2.9	3.2	3.2	4.3	5.5	6.1	7.2	7.9	8.4	7.7	6.5	6.4	6.4	6.0	5.4	5.1	5.3	4.6	4.0	5.0	8.4
30-Apr	3.6	3.2	2.6	2.1	2.0	1.8	1.4	1.6	2.0	2.7	3.6	4.6	3.2	4.0	4.2	4.2	4.8	5.7	4.7	4.7	4.7	4.9	5.2	5.4	3.6	5.7
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Fort Chipewyan - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	247	34.31	34.31
0 - 10	449	62.36	96.67
10 - 20	24	3.33	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720





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

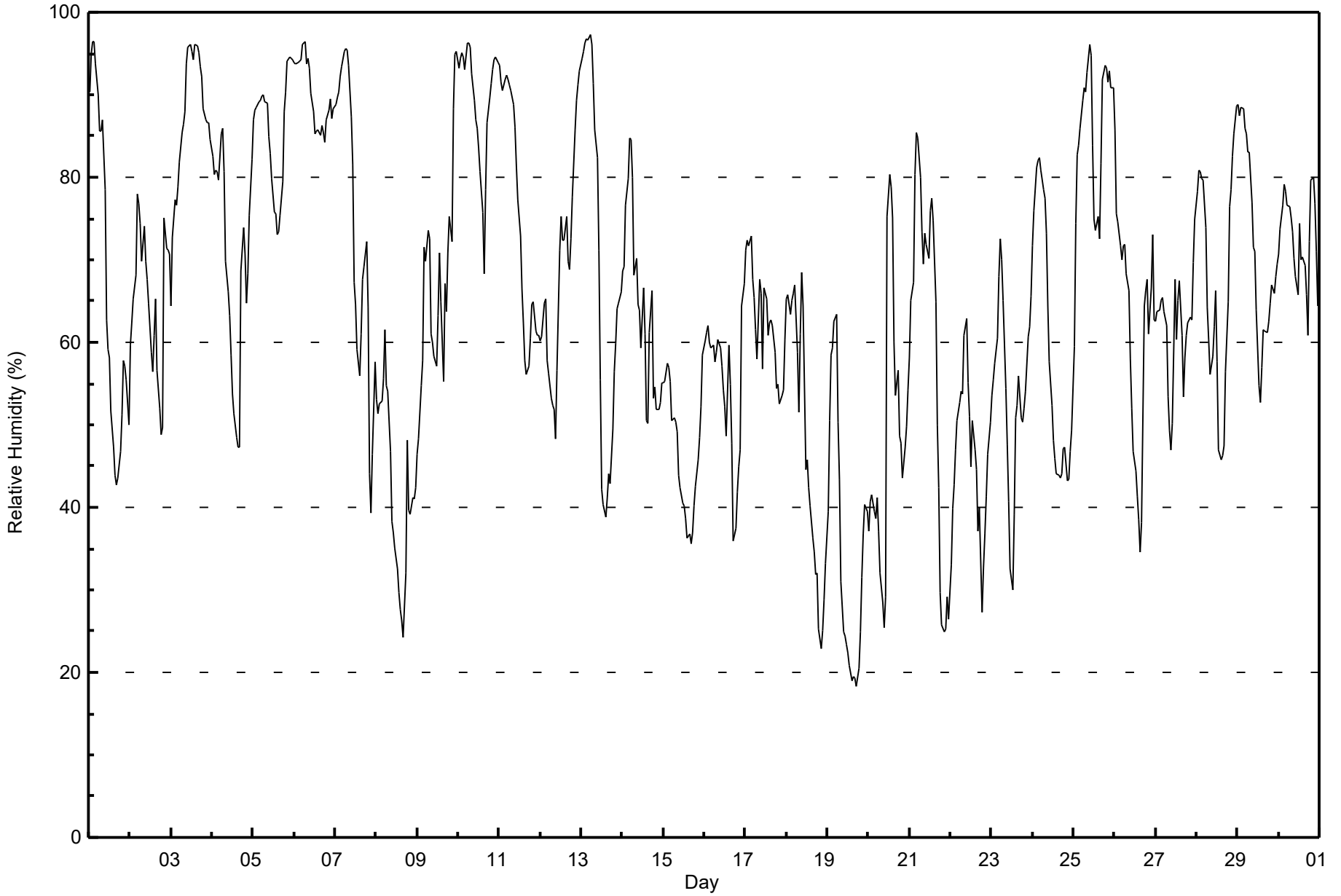
**Relative Humidity (RH) - %**  
**Fort Chipewyan - April 2024**

Maximum Value: 97.3 % on Apr 13 06:00      Maximum Daily Average: 90.0 % on Apr 6																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: 18.3 % on Apr 19 18:00      Minimum Daily Average: 35.2 % on Apr 19 Maximum Diurnal Average: 75.7 % at hour 6      Minimum Diurnal Average: 55.3 % at hour 17 Monthly Average: 64.97 %      Percentiles: P <sub>1</sub> = 23.0 P <sub>10</sub> = 40.1 Q <sub>1</sub> = 51.8 Median = 64.8 Q <sub>3</sub> = 80.0 P <sub>90</sub> = 91.2 P <sub>99</sub> = 96.3																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	90.4	95.0	96.4	96.4	93.8	89.9	85.6	85.6	87.0	78.4	62.7	59.1	58.1	51.7	47.2	43.9	42.8	43.6	46.8	51.2	57.8	57.1	55.4	49.9	67.7	96.4																							
2-Apr	59.6	62.5	65.3	68.1	78.0	76.8	74.3	69.9	74.2	69.9	67.6	64.8	58.9	56.5	60.8	65.3	56.6	52.0	48.9	49.7	75.0	71.4	71.3	70.6	65.3	78.0																							
3-Apr	64.4	72.7	77.2	76.7	78.8	81.9	85.4	86.5	87.9	93.8	95.8	96.1	95.3	94.2	96.1	95.9	95.1	93.3	92.2	88.4	86.9	86.6	86.7	84.6	87.2	96.1																							
4-Apr	82.6	80.3	80.8	80.7	79.7	85.3	85.9	80.7	69.9	66.2	63.3	58.4	53.7	51.4	48.5	47.2	47.3	68.6	73.9	70.7	64.8	68.2	75.4	82.3	69.4	85.9																							
5-Apr	87.0	88.1	88.6	89.1	89.3	89.9	90.0	89.2	89.0	85.0	82.9	79.8	75.8	75.5	73.0	73.5	75.5	79.5	88.0	90.4	94.1	94.6	94.3	94.2	85.7	94.6																							
6-Apr	93.9	93.8	94.0	94.0	94.2	96.0	96.4	93.7	94.4	93.3	90.1	88.1	85.3	85.5	85.8	85.0	86.2	85.4	84.2	86.9	88.2	89.5	87.0	88.4	90.0	96.4																							
7-Apr	88.9	89.7	90.3	92.2	93.4	95.3	95.6	95.5	93.6	87.3	81.5	67.4	64.6	59.2	55.9	61.1	67.6	69.1	72.2	64.2	44.1	39.4	46.5	57.7	73.8	95.6																							
8-Apr	53.0	51.4	52.5	52.9	55.6	61.6	54.7	54.1	46.9	38.3	37.0	35.1	32.6	29.7	27.6	26.3	24.2	32.1	48.2	39.7	39.2	41.2	41.1	42.3	42.4	61.6																							
9-Apr	46.4	48.3	54.7	57.8	71.5	69.8	73.6	72.5	61.0	60.0	58.4	57.0	63.2	70.8	65.0	55.3	67.2	63.7	70.9	75.2	72.2	88.4	95.0	95.3	67.2	95.3																							
10-Apr	93.2	94.4	95.1	94.5	93.1	96.3	96.3	95.7	92.5	89.4	86.9	85.9	83.5	80.7	75.8	68.3	78.4	86.6	89.7	91.4	93.1	94.2	94.6	93.9	89.3	96.3																							
11-Apr	93.6	91.6	90.4	91.8	92.3	91.9	91.2	90.5	88.8	86.2	81.4	77.3	72.8	66.4	62.3	57.8	56.0	57.1	60.6	64.5	64.9	61.3	60.8	60.8	75.5	93.6																							
12-Apr	60.2	60.7	64.7	65.3	57.8	56.2	53.3	52.3	51.9	48.2	56.6	71.1	75.3	72.4	72.4	75.3	69.8	68.7	72.6	77.6	85.8	89.3	91.1	92.9	68.4	92.9																							
13-Apr	94.4	95.2	96.3	96.7	96.6	97.3	96.1	91.4	85.8	82.4	71.2	55.5	42.2	40.3	38.8	41.3	44.1	42.8	49.6	56.4	59.9	64.1	64.8	66.2	69.6	97.3																							
14-Apr	68.7	69.2	76.6	79.9	84.8	84.6	80.1	68.2	70.1	64.6	64.0	59.3	66.6	61.0	50.5	50.2	61.3	66.2	53.2	54.6	51.8	51.9	52.7	55.0	64.4	84.8																							
15-Apr	55.0	55.3	57.4	57.0	55.3	50.4	50.9	50.4	49.1	43.9	42.3	40.6	40.2	38.7	36.3	36.7	35.5	36.9	40.1	42.5	45.8	48.5	52.2	58.4	46.6	58.4																							
16-Apr	60.2	61.1	62.1	60.0	59.3	59.6	57.7	58.7	60.4	59.4	57.2	54.2	52.2	48.6	59.6	54.9	47.8	35.9	37.5	41.8	44.9	47.0	64.4	67.2	54.7	67.2																							
17-Apr	71.1	72.3	71.6	72.9	67.7	65.5	61.5	58.0	67.6	65.9	56.9	66.6	65.3	60.9	62.3	62.7	62.1	58.8	54.3	54.9	52.6	53.6	54.2	60.4	62.5	72.9																							
18-Apr	65.3	65.7	63.3	65.0	65.9	66.9	58.8	51.5	61.0	68.5	64.3	44.7	45.7	42.5	40.1	36.2	34.7	31.9	32.0	25.3	22.9	25.2	28.9	33.1	47.5	68.5																							
19-Apr	39.6	50.6	58.5	59.4	62.5	63.4	50.3	43.3	31.1	25.0	24.4	23.4	22.4	20.8	19.0	19.5	19.3	18.3	20.5	24.9	31.6	36.8	40.4	39.4	35.2	63.4																							
20-Apr	37.1	40.6	41.6	39.5	38.6	41.3	37.1	32.0	28.5	25.4	29.2	75.2	80.3	78.8	75.0	60.0	53.6	56.6	48.6	47.7	43.5	47.2	49.8	54.3	48.4	80.3																							
21-Apr	58.2	65.2	67.3	80.4	85.5	84.7	80.0	73.4	69.4	73.2	71.9	70.1	75.9	77.4	74.7	64.8	50.0	42.4	29.7	25.8	24.9	25.3	29.2	26.4	59.4	85.5																							
22-Apr	33.1	39.9	42.7	46.9	50.5	52.7	54.1	53.7	60.8	62.8	55.1	51.0	44.9	50.5	46.9	44.5	37.1	40.0	27.3	32.7	36.7	41.3	46.5	50.3	45.9	62.8																							
23-Apr	53.5	55.4	57.4	60.5	68.0	72.6	70.0	65.0	54.4	47.6	40.6	32.5	30.0	39.1	50.9	52.4	55.9	50.8	50.3	52.1	54.0	60.6	61.9	65.6	54.2	72.6																							
24-Apr	71.7	75.9	81.1	82.0	82.3	80.8	78.5	77.4	73.3	64.5	57.7	52.3	48.1	45.9	44.0	43.9	43.6	44.1	47.1	47.2	43.3	43.3	46.8	49.4	59.3	82.3																							
25-Apr	59.5	74.5	82.6	83.9	86.0	89.2	90.9	90.3	92.7	96.1	94.8	83.9	75.0	73.5	75.2	72.5	81.7	91.9	93.5	93.2	91.5	93.0	90.8	90.9	85.3	96.1																							
26-Apr	85.7	75.5	74.6	71.7	70.0	71.6	71.8	68.4	66.3	58.0	52.1	46.8	44.4	41.3	38.4	34.5	38.2	64.5	66.3	67.7	60.9	66.6	73.0	62.8	61.3	85.7																							
27-Apr	62.6	63.7	63.9	65.0	65.5	63.7	62.0	53.5	49.3	47.0	50.1	67.6	60.3	65.0	67.5	60.9	53.4	58.2	60.9	62.4	63.0	62.6	69.7	74.9	61.4	74.9																							
28-Apr	78.4	80.9	80.8	79.8	79.6	73.8	64.3	60.3	56.2	58.3	61.9	66.3	57.6	47.0	45.7	46.3	47.4	56.4	64.8	76.4	78.4	82.5	85.3	88.7	67.4	88.7																							
29-Apr	88.8	87.4	88.5	88.3	85.9	85.3	83.1	83.0	77.0	71.5	71.1	63.8	54.7	52.6	57.0	61.6	61.3	61.3	62.6	64.8	67.0	65.9	67.9	69.5	71.7	88.8																							
30-Apr	70.6	73.7	76.6	79.2	78.4	76.6	76.4	75.0	73.4	70.2	67.9	65.7	74.3	70.1	70.3	69.3	65.8	60.8	72.2	79.7	80.0	76.8	71.0	64.4	72.4	80.0																							
																								68.9	71.0	73.1	74.3	75.3	75.7	73.5	70.7	68.8	66.0	63.2	62.0	60.0	58.3	57.4	55.6	55.3	57.2	58.6	60.0	60.6	62.4	65.0	66.3	Diurnal Average	
																								94.4	95.2	96.4	96.7	96.6	97.3	96.4	95.7	94.4	96.1	95.8	96.1	95.3	94.2	96.1	95.9	95.1	93.3	93.5	93.2	94.1	94.6	95.0	95.3	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	4	0.56	0.56
20 - 40	67	9.31	9.86
40 - 60	214	29.72	39.58
60 - 80	254	35.28	74.86
80 - 100	181	25.14	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Leaf Wetness (LW) - %**

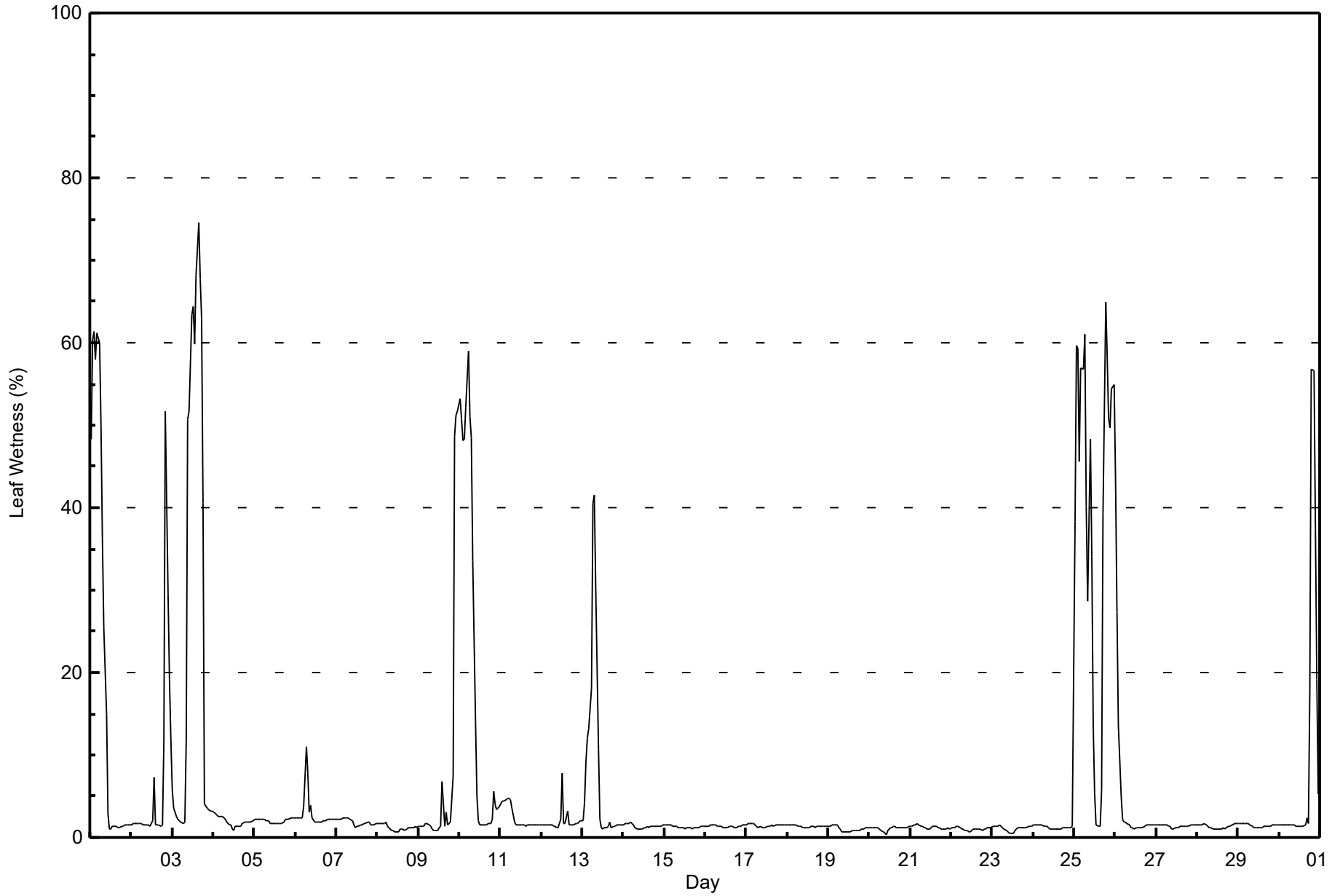
**Fort Chipewyan - April 2024**

Maximum Value: 74.5 % on Apr 3 16:00																				Maximum Daily Average: 38.8 % on Apr 25					Hours in Service: 720				
Minimum Value: 0.4 % on Apr 20 11:00																				Minimum Daily Average: 1.0 % on Apr 19					Hours of Data: 720				
Maximum Diurnal Average: 8.5 % at hour 7																				Minimum Diurnal Average: 3.4 % at hour 14					Hours of Missing Data: 0				
Monthly Average: 5.89 %																				Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.2 Median = 1.5 Q <sub>3</sub> = 1.9 P <sub>90</sub> = 11.2 P <sub>99</sub> = 61.3					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-Apr	48.4	60.3	61.3	58.0	61.2	60.1	50.0	36.3	25.4	14.9	2.9	1.0	1.1	1.3	1.3	1.3	1.3	1.2	1.3	1.4	1.5	1.5	1.5	1.5	20.7	61.3			
2-Apr	1.6	1.6	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.4	2.1	7.3	1.5	1.5	1.5	1.4	1.6	11.8	51.6	29.5	19.2	11.9	6.7	51.6			
3-Apr	5.8	3.6	2.6	2.2	2.0	1.9	1.8	1.8	11.8	50.7	51.6	63.3	64.4	59.9	68.1	74.5	67.8	63.0	40.6	4.1	3.6	3.5	3.3	3.2	27.3	74.5			
4-Apr	3.0	2.9	2.7	2.6	2.5	2.5	2.4	2.2	1.8	1.6	1.5	1.0	0.9	1.3	1.4	1.4	1.4	1.7	1.8	1.8	1.8	1.8	1.9	2.0	1.9	3.0			
5-Apr	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.8	1.9	2.2	2.2	2.3	2.4	2.3	2.3	2.0	2.4			
6-Apr	2.4	2.3	2.3	2.3	2.4	3.8	11.1	7.7	3.1	3.9	2.3	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.9	11.1			
7-Apr	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.1	2.0	1.6	1.3	1.3	1.4	1.5	1.5	1.6	1.7	1.8	1.9	1.6	1.5	1.6	1.8	1.9	2.4			
8-Apr	1.7	1.7	1.7	1.7	1.7	1.8	1.4	1.2	0.9	0.8	0.7	0.7	0.7	0.9	1.0	1.0	0.9	1.0	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.8			
9-Apr	1.3	1.3	1.3	1.4	1.6	1.7	1.6	1.4	1.0	0.9	0.9	0.9	1.2	1.4	6.8	1.3	3.1	1.5	1.7	1.8	7.5	48.6	51.2	51.7	8.0	51.7			
10-Apr	53.2	50.7	48.1	48.3	52.3	59.0	51.0	48.5	33.6	14.0	5.1	2.0	1.5	1.5	1.5	1.6	1.6	1.7	1.8	2.2	5.6	4.1	3.3	3.8	20.7	59.0			
11-Apr	4.1	4.4	4.5	4.6	4.7	4.8	4.5	3.6	1.9	1.6	1.5	1.5	1.6	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	4.8			
12-Apr	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.1	1.2	2.2	7.7	1.7	1.6	3.2	1.5	1.5	1.5	1.6	1.7	1.8	1.8	2.0	1.9	7.7			
13-Apr	2.1	4.2	9.2	12.1	13.2	18.1	40.5	41.5	30.4	10.6	2.2	1.2	1.0	1.1	1.2	1.3	1.9	1.2	1.3	1.4	1.5	1.5	1.5	1.5	8.4	41.5			
14-Apr	1.6	1.6	1.7	1.7	1.9	1.7	1.5	1.2	1.1	1.0	1.0	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.9			
15-Apr	1.5	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.5			
16-Apr	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.1	1.2	1.3	1.4	1.3	1.2	1.3	1.3	1.4	1.4	1.5	1.4	1.5			
17-Apr	1.6	1.6	1.6	1.7	1.7	1.6	1.4	1.2	1.3	1.2	1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.7			
18-Apr	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.6			
19-Apr	1.4	1.4	1.5	1.5	1.5	1.5	1.2	1.0	0.8	0.7	0.6	0.6	0.7	0.7	0.9	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.2	1.2	1.0	1.5			
20-Apr	1.2	1.2	1.2	1.2	1.2	1.2	1.0	0.9	0.6	0.5	0.4	0.9	1.1	1.2	1.3	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.1	1.3			
21-Apr	1.3	1.4	1.4	1.5	1.6	1.6	1.4	1.3	1.2	1.1	1.1	1.0	1.1	1.3	1.4	1.4	1.2	1.2	1.1	1.0	1.0	1.0	1.1	1.1	1.2	1.6			
22-Apr	1.1	1.2	1.3	1.3	1.3	1.2	1.1	1.0	0.9	0.9	0.7	0.7	0.8	1.0	1.1	1.0	1.0	1.0	1.0	0.9	1.0	1.1	1.1	1.2	1.1	1.3			
23-Apr	1.3	1.4	1.4	1.4	1.5	1.4	1.2	1.1	0.8	0.7	0.6	0.5	0.5	0.8	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.1	1.5			
24-Apr	1.4	1.5	1.5	1.6	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.6			
25-Apr	38.3	59.7	59.3	45.6	57.0	56.7	61.0	40.2	28.7	48.3	34.0	13.6	5.4	1.5	1.4	1.4	5.8	39.3	64.8	58.3	50.9	49.7	54.5	54.9	38.8	64.8			
26-Apr	43.1	27.3	13.6	5.0	2.2	1.9	1.9	1.7	1.6	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.1	1.4	1.5	1.5	1.5	1.5	1.6	1.5	4.9	43.1			
27-Apr	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.0	0.9	1.1	1.1	1.2	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.4	1.5			
28-Apr	1.6	1.6	1.6	1.6	1.6	1.5	1.3	1.3	1.2	1.1	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.6	1.3	1.7			
29-Apr	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.2	1.2	1.2	1.1	1.1	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.4	1.4	1.5	1.4	1.7			
30-Apr	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.4	1.3	1.4	1.4	1.6	2.3	1.7	18.0	56.7	56.6	37.5	19.1	5.3	9.2	56.7			
																								Diurnal Average					
																								Diurnal Maximum					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Leaf Wetness (LW) - %**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Leaf Wetness (LW) - %**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	0	0.00	0.00
0.4 - 0.5	4	0.56	0.56
0.6 - 0.7	13	1.81	2.36
0.8 - 1.4	327	45.42	47.78
1.5 - 10	263	36.53	84.31
> 10	74	10.28	94.58

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

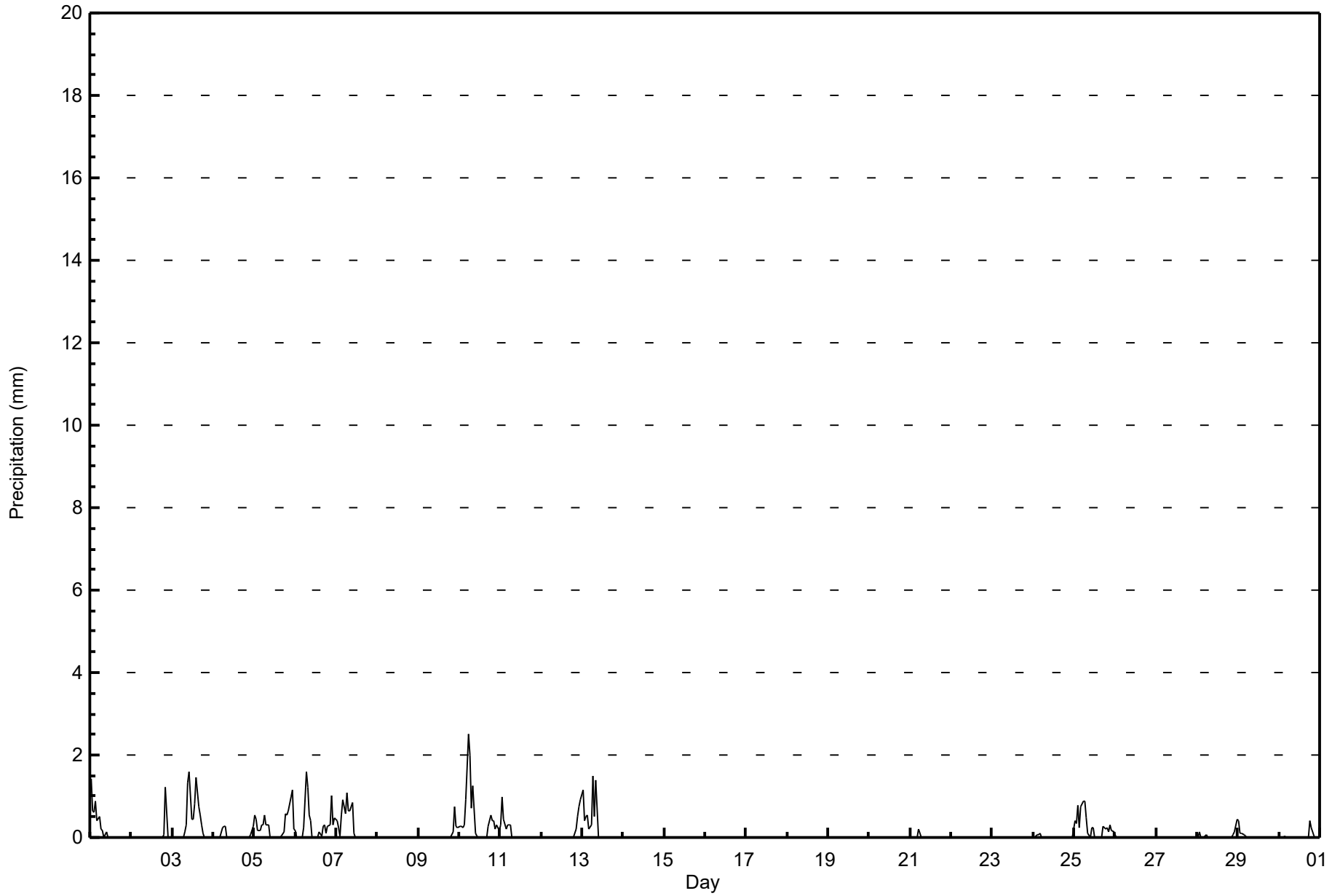
**Fort Chipewyan - April 2024**

Maximum Value: 2.5 mm on Apr 10 06:00		Maximum Daily Total: 10.9 mm on Apr 10		Hours in Service: 720																																												
Minimum Value: 0.0 mm on Apr 1 09:00		Minimum Daily Total: 0.0 mm on Apr 8		Hours of Data: 720																																												
Maximum Diurnal Total: 8.4 mm at hour 7		Minimum Diurnal Total: 0.4 mm at hour 13		Hours of Missing Data: 0																																												
Monthly Total: 70.05 mm		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> = 0.3 P <sub>99</sub> = 1.4		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-Apr	1.4	0.7	0.6	0.9	0.4	0.5	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	1.4																						
2-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	0.0	0.0	0.0	1.3	1.2																						
3-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.3	1.6	0.4	0.4	0.8	1.5	0.8	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	8.2	1.6																						
4-Apr	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	1.1	0.3																						
5-Apr	0.5	0.5	0.2	0.2	0.3	0.3	0.5	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.6	0.5	0.6	1.0	1.2	0.2	7.4	1.2																						
6-Apr	0.2	0.0	0.0	0.0	0.0	0.3	1.6	1.2	0.5	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.3	0.1	0.3	0.3	1.0	0.3	0.5	7.3	1.6																						
7-Apr	0.4	0.2	0.1	0.5	0.9	0.6	1.1	0.7	0.7	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	1.1																						
8-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
9-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.3	0.2	1.4	0.7																						
10-Apr	0.3	0.3	0.3	0.3	0.9	2.5	2.0	0.7	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.4	0.4	0.2	0.3	0.2	10.9	2.5																						
11-Apr	0.3	1.0	0.4	0.2	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	1.0																						
12-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.8	0.9	2.4	0.9																						
13-Apr	1.1	0.4	0.5	0.5	0.2	0.3	1.5	0.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	1.5																						
14-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
15-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
16-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
17-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
19-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
20-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
21-Apr	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2																						
22-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
23-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
24-Apr	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1																						
25-Apr	0.4	0.3	0.8	0.3	0.7	0.9	0.9	0.5	0.1	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.3	0.2	0.1	6.8	0.9																						
26-Apr	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
27-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
28-Apr	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.9	0.5																						
29-Apr	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4																						
30-Apr	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.8	0.4																						
																								5.1	3.5	3.0	3.1	3.9	6.2	8.4	4.4	4.5	2.9	2.0	0.7	0.4	0.8	1.6	0.8	0.9	1.3	1.9	1.7	3.1	3.8	3.2	2.8	Diumal Average
																								1.4	1.0	0.8	0.9	0.9	2.5	2.0	1.2	1.4	1.3	1.6	0.4	0.4	0.8	1.5	0.8	0.6	0.3	0.6	0.5	1.2	1.0	1.2	0.9	Diumal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Fort Chipewyan - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Precipitation (PC) - mm**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	653	90.69	90.69
0.4 - 0.5	27	3.75	94.44
0.6 - 0.7	11	1.53	95.97
0.8 - 1.4	23	3.19	99.17
1.5 - 10	5	0.69	99.86
> 10	0	0.00	99.86

Total Number of Valid Hours: 720

Total Number of Hours: 720



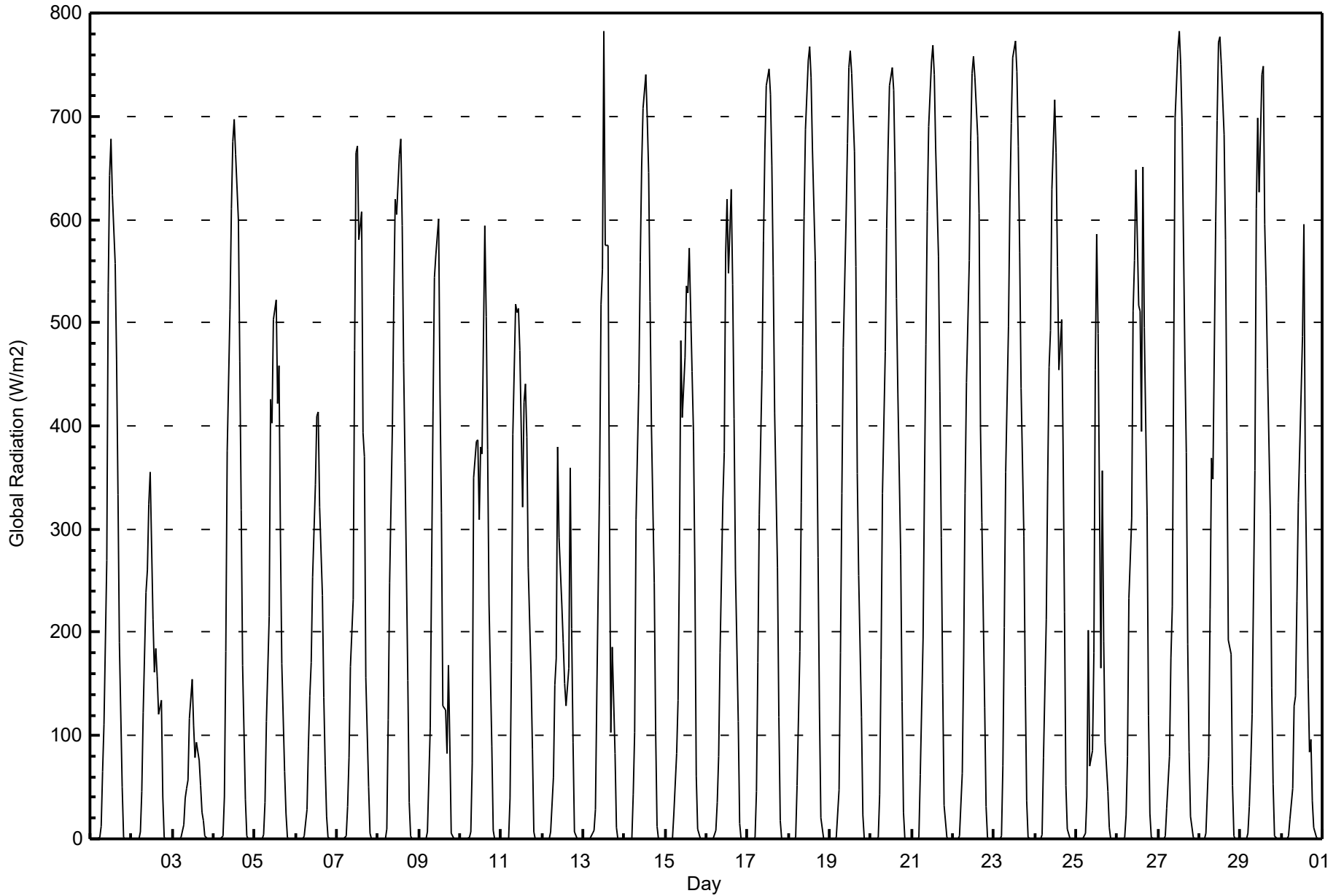
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Global Radiation (GR) - W/m2**

**Fort Chipewyan - April 2024**

Maximum Value: 782.8 W/m2 on Apr 13 13:00      Maximum Daily Average: 286.2 W/m2 on Apr 23																							Hours in Service:	720		
Minimum Value: 0.0 W/m2 on Apr 1 01:00      Minimum Daily Average: 36.8 W/m2 on Apr 3																							Hours of Data:	720		
Maximum Diurnal Average: 594.7 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 4																							Hours of Missing Data:	0		
Monthly Average: 203.85 W/m2      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 67.7 Q <sub>3</sub> = 394.9 P <sub>90</sub> = 619.3 P <sub>99</sub> = 765.1																							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-Apr	0.0	0.0	0.0	0.0	0.0	1.2	12.4	65.5	110.6	270.2	528.6	642.7	678.2	624.2	556.8	463.3	333.0	189.8	50.4	1.9	0.0	0.0	0.0	0.2	188.7	678.2
2-Apr	0.0	0.0	0.0	0.0	0.0	6.2	45.9	122.6	239.0	261.0	324.7	355.4	212.6	161.0	184.7	157.7	121.0	134.5	41.1	1.3	0.0	0.0	0.0	0.0	98.7	355.4
3-Apr	0.0	0.0	0.0	0.0	0.0	1.1	13.4	38.7	48.7	56.9	116.7	154.4	109.6	79.1	93.1	75.6	50.9	25.4	17.0	2.9	0.0	0.0	0.0	0.0	36.8	154.4
4-Apr	0.0	0.0	0.0	0.0	0.0	2.4	41.0	181.6	375.1	512.6	610.4	675.5	697.0	662.4	599.5	462.0	318.8	167.5	38.3	2.9	0.0	0.0	0.0	0.0	222.8	697.0
5-Apr	0.0	0.0	0.0	0.0	0.0	3.5	35.3	113.4	215.1	425.3	403.2	502.9	521.9	422.1	458.7	295.5	169.8	64.8	24.9	2.0	0.0	0.0	0.0	0.0	152.4	521.9
6-Apr	0.0	0.0	0.0	0.0	0.0	2.4	28.5	88.9	138.5	171.3	254.0	343.3	409.5	413.7	321.5	236.4	136.4	70.0	21.6	1.5	0.0	0.0	0.0	0.0	109.9	413.7
7-Apr	0.0	0.0	0.0	0.0	0.0	2.9	31.3	78.4	167.2	232.1	473.9	664.2	671.2	580.1	606.8	392.9	370.3	156.5	50.8	5.0	0.0	0.0	0.0	0.0	186.8	671.2
8-Apr	0.0	0.0	0.0	0.0	0.0	9.8	115.3	248.0	401.3	526.0	620.2	604.9	662.5	677.7	593.3	461.1	365.0	153.0	35.3	3.0	0.0	0.0	0.0	0.0	228.2	677.7
9-Apr	0.0	0.0	0.0	0.0	0.0	6.6	106.8	262.9	414.8	543.2	565.4	600.4	431.3	315.9	129.0	124.4	82.6	168.8	91.8	6.0	0.0	0.0	0.0	0.0	160.4	600.4
10-Apr	0.0	0.0	0.0	0.0	0.0	0.9	6.9	73.9	350.3	385.2	386.0	308.5	379.1	373.4	594.5	505.6	376.4	228.1	89.8	8.4	0.1	0.0	0.0	0.0	169.5	594.5
11-Apr	0.0	0.0	0.0	0.0	0.1	39.3	171.1	391.8	518.6	510.3	513.5	473.2	320.7	422.7	441.1	389.8	262.4	160.3	87.3	6.5	0.0	0.0	0.0	0.0	196.2	518.6
12-Apr	0.0	0.0	0.0	0.0	0.0	6.4	60.3	149.6	175.1	380.0	291.9	227.0	190.0	151.0	128.4	165.0	359.4	203.4	93.4	6.9	0.0	0.0	0.0	0.0	107.8	380.0
13-Apr	0.0	0.0	0.0	0.0	0.1	5.0	8.0	28.5	143.0	350.5	517.5	551.3	782.8	575.1	575.3	322.0	102.5	186.0	83.0	11.1	0.1	0.0	0.0	0.0	176.7	782.8
14-Apr	0.1	0.0	0.0	0.0	0.2	42.8	102.8	309.3	440.0	558.5	650.2	707.4	739.7	698.9	645.4	521.2	399.1	248.1	104.6	12.3	0.1	0.0	0.0	0.0	257.5	739.7
15-Apr	0.0	0.0	0.0	0.0	0.6	24.0	83.4	133.9	274.7	482.1	407.8	465.9	535.1	528.6	572.1	453.2	394.0	261.9	61.5	10.0	0.0	0.0	0.0	0.0	195.4	572.1
16-Apr	0.0	0.0	0.0	0.0	0.1	7.5	34.8	80.6	180.3	328.3	374.4	566.5	619.2	547.7	629.1	537.5	407.0	260.3	114.3	15.3	0.2	0.0	0.0	0.0	196.0	629.1
17-Apr	0.0	0.0	0.0	0.0	0.8	45.6	171.5	314.9	454.7	579.2	667.3	729.1	746.4	721.5	652.8	545.0	412.5	263.6	118.4	18.1	0.2	0.0	0.0	0.0	268.4	746.4
18-Apr	0.0	0.0	0.0	0.0	0.9	51.3	181.9	325.2	477.5	603.1	687.6	754.5	767.4	737.7	667.3	560.0	421.6	272.9	124.8	20.6	0.6	0.0	0.1	0.1	277.3	767.4
19-Apr	0.0	0.1	0.0	0.0	1.1	46.9	180.0	334.8	476.3	600.4	673.7	747.2	764.0	741.1	665.3	554.8	354.4	255.3	118.1	23.0	0.4	0.0	0.0	0.0	272.4	764.0
20-Apr	0.0	0.0	0.0	0.0	1.3	43.5	173.4	334.7	471.3	591.2	669.1	730.0	747.2	725.9	646.8	523.3	431.4	275.9	132.9	25.4	0.6	0.0	0.0	0.0	271.8	747.2
21-Apr	0.0	0.0	0.0	0.0	1.9	62.4	194.5	344.3	479.2	607.5	690.8	751.9	769.0	739.7	668.8	563.8	433.7	291.3	151.1	32.9	0.8	0.0	0.0	0.0	282.6	769.0
22-Apr	0.0	0.0	0.0	0.0	3.3	64.4	176.0	334.7	442.6	560.2	677.2	741.9	758.6	737.3	680.6	605.9	398.3	307.0	127.0	31.0	1.1	0.0	0.1	0.1	277.0	758.6
23-Apr	0.1	0.0	0.1	0.1	3.1	70.5	204.7	355.9	496.5	616.4	692.7	756.9	773.4	743.0	671.5	568.3	436.9	292.5	148.1	36.3	1.1	0.0	0.0	0.0	286.2	773.4
24-Apr	0.0	0.0	0.0	0.0	3.9	78.3	213.1	347.2	457.5	491.8	629.3	716.6	664.5	554.4	454.7	502.7	380.2	219.6	51.9	9.2	0.2	0.0	0.0	0.0	240.6	716.6
25-Apr	0.0	0.0	0.0	0.0	0.2	5.3	40.9	202.2	70.9	84.9	180.4	454.0	586.0	489.5	165.6	356.3	191.4	93.1	45.7	10.7	0.3	0.0	0.0	0.0	124.1	586.0
26-Apr	0.0	0.0	0.0	0.0	2.0	22.6	79.8	233.6	311.0	511.0	560.1	647.5	517.0	511.8	395.1	650.6	495.3	313.2	119.4	24.8	1.8	0.0	0.0	0.0	224.9	650.6
27-Apr	0.0	0.0	0.0	0.0	2.6	30.3	80.7	174.8	224.9	464.4	698.9	765.3	782.1	749.4	690.3	464.7	374.4	189.0	84.0	21.9	0.9	0.0	0.0	0.0	241.6	782.1
28-Apr	0.0	0.0	0.0	0.0	4.8	79.4	222.8	368.8	348.8	598.2	695.6	771.7	777.1	749.7	681.9	579.7	394.9	192.7	179.3	50.9	2.4	0.0	0.0	0.0	279.1	777.1
29-Apr	0.0	0.0	0.0	0.0	5.3	31.3	70.8	120.2	356.3	609.7	698.4	626.6	740.7	748.9	594.8	535.2	456.0	314.9	146.4	53.5	2.3	0.0	0.0	0.0	254.6	748.9
30-Apr	0.0	0.0	0.0	0.0	2.5	18.6	48.3	129.4	138.9	230.8	325.1	430.9	486.9	594.7	354.4	155.0	83.8	96.8	36.0	10.9	0.9	0.0	0.0	0.0	131.0	594.7
																							Diurnal Average			
																							Diurnal Maximum			





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Global Radiation (GR) - W/m2**  
**Fort Chipewyan - April 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	310	43.06	43.06
21 - 100	77	10.69	53.75
101 - 300	102	14.17	67.92
301 - 600	150	20.83	88.75
601 - 900	81	11.25	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

**Wind Speed (WS) - km/h**  
**Fort Chipewyan - April 2024**

Maximum Speed: 42 km/h on Apr 12 12:00	Maximum Daily Speed Average: 30.5 km/h on Apr 15	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 18 22:00	Minimum Daily Speed Average: 3.1 km/h on Apr 9	Hours of Data: 720
Maximum Diurnal Speed Average: 13.3 km/h at hour 18	Minimum Diurnal Speed Average: 6.4 km/h at hour 11	Hours of Missing Data: 0
Monthly Average Velocity: 9.0 km/h 58.8 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 17 Q <sub>3</sub> = 21 P <sub>90</sub> = 28 P <sub>99</sub> = 36	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	W11	W10	W12	W17	W17	W20	W19WNW15	NW17WNW20WNW17	W18	W23	W26	W22	W22	W16	W12	W10	W8	W10	W12WNW12	NW7	W15.1	W26				
2-Apr	SW7	WSW5	SE3	ENE6	E9	E9	E14	E20	E24	E27	E29	E23	E16	E17	E26	E27	ENE31	ENE25	ENE23	NE18	ENE16	NE12	NE12	ENE17	ENE16.0	ENE31
3-Apr	ENE12	N7	N8	NE3	N7	NNW6	NW7	W7	WNW9	NW11	NW12	NW15	NW15	NW14	NW13	NW14	NW16	NW17	NW16	NW17	NW12	NW12	NW14	NW14	NW10.4	NW17
4-Apr	NW14	NW14WNW15WNW16	NW14WNW13WNW14WNW19WNW16	NW13	NW11	WNW8	WSW6	WSW9	SW10	SSW10	SSE8	E12	E18	E18	E17	ENE14	E16	ENE18	E19	NW3.6	WNW19					
5-Apr	ENE18	ENE16	ENE16	ENE18	ENE22	ENE25	ENE23	ENE25	ENE24	ENE23	ENE23	ENE22	ENE20	ENE22	ENE21	ENE18	NE16	NE14	NE13	NE12	NE13	NE10	NNE5	ENE18.1	ENE25	
6-Apr	N4	N3	N3	NNW4	NE6	ENE11	NE11	ENE12	ENE13	ENE11	ENE13	E16	E17	E19	ENE17	E16	E14	ENE11	NE11	ENE12	ENE14	ENE11	ENE16	ENE20	ENE11.1	ENE20
7-Apr	ENE15	ENE16	ENE18	ENE15	E15	E11	ESE7	E7	E10	ESE10	ESE10	SSE13	SE17	SSE16	SE18	ESE11	E14	E17	E11	WSW1WNW10	WNW8	WSW3	ESE4	ESE8.5	ENE18	
8-Apr	ENE7	ESE6	ESE7	SE6	SE6	ESE7	SE4	ESE4	SW10	SW22WSW21	SW15	SW17	SW20	SW23WSW15	SW11	SE6	E11	E7	SE3	ENE4	WNW3	ENE4	SSW5.2	SW23		
9-Apr	W7	WNW9	W11	W1	E8	E9	E11	E11	E7	E10	E10	E10	E16	E11	WSW8	NW9	ESE13	E14	ESE7	E5	W11WNW13	NW13	NNW12	ENE3.1	E16	
10-Apr	NNW12	NW12	NNW10	NNW12	NNW14	NNW12	NNW17	NNW17	NNW19	NNW21	NNW17	NNW12	NNW9	NNW9	NNW9	N6	E10	E15	E14	E11	ENE9	E8	ENE7	E7	N8.2	NNW21
11-Apr	E9	ENE14	ENE16	ENE17	ENE18	ENE19	ENE22	ENE24	ENE22	ENE26	ENE27	ENE28	ENE31	ENE30	ENE28	ENE30	ENE33	ENE34	ENE32	ENE30	ENE26	ENE28	ENE27	E25	ENE24.7	ENE34
12-Apr	E26	E24	ESE15	ESE11	ESE10	SE14	SSE18	S17	S17	S25	S36	S42	SSE33	SSE31	S30	SSE29	SSE32	SSE26	SE24	SE19	ESE19	E17	E16	E17	SE19.0	S42
13-Apr	E14	E12	E14	E10	E5	E5	W16	W17WNW19WNW21	W22	W19	W24	W23	W25	W22WNW14WNW20	W17WNW15WNW10	W10WNW11WNW11	W10.7	W25								
14-Apr	NW9WNW10WNW10WNW11	W7	W7	W4	W2	E6	E9	E13	E14	E16	E16	ENE15	ENE20	E20	E17	ENE22	ENE16	NE14	ENE16	ENE16	ENE16	ENE16	ENE16	ENE8.0	ENE22	
15-Apr	ENE16	ENE18	ENE19	ENE24	ENE26	NE30	ENE32	NE33	NE32	ENE34	NE32	NE35	NE39	NE41	NE38	NE37	NE37	NE36	NE35	NE33	NE29	NNE24	NE27	ENE30.5	NE41	
16-Apr	NNE26	NE25	NNE19	NNE21	NNE16	NNE17	NNE18	NNE17	NNE17	NNE19	NNE15	NNE19	NNE22	NNE19	ENE25	ENE22	NE17	NNE19	NNE20	NNE15	NNE12	NNE14	NE12	NE12	NNE17.5	NNE26
17-Apr	NE5	NNE7	NE8	NE8	NE10	NE9	NE11	NE9	E24	E23	ENE17	E27	E31	E26	E23	E21	E21	E21	ENE21	ENE19	NE15	NE15	NE17	NE16	ENE15.8	E31
18-Apr	ENE18	ENE19	ENE20	ENE20	NE15	NE13	ENE16	ENE19	E21	E21	E20	E21	E21	E18	E18	E17	E15	E8	E6	ENE4	ENE3	SSW1	WSW4	W6	E12.9	E21
19-Apr	W8	WNW8	WNW9WNW10	W9	WNW8	W8	W11	W12	W16WSW19	W19WSW18WSW18WSW18WSW18WSW16WSW16WSW13WSW14WSW15	W12	W12	W15	W13.0	WSW19											
20-Apr	W13	W13	W15	W16WNW13WNW12	W18	W18	W16	W14	W6	E22	E25	E27	E27	ENE28	ENE28	E23	ENE17	ENE19	ENE23	ENE30	ENE27	ENE23	ENE7.3	ENE30		
21-Apr	E21	E20	E19	E16	E15	E17	E17	E17	E19	E19	E16	E14	E17	E19	E20	E22	E22	ENE20	ENE20	NE18	ENE20	ENE17	ENE11	NE8	E17.2	E22
22-Apr	ENE6	NNE5	NE4	N1	NNE5	NE2	E3	E4	E7	E8	E6	E8	E17	E19	E17	E15	E15	E10	N8	NNW15	NNW14	NNW11	NNW9	NNW8	ENE6.1	E19
23-Apr	NW9	NW9	NW10	NW9	WNW8WNW10WNW10	NW13	NW15	NW14	NW11	NNW12	NNW9	NE9	E22	E26	ENE26	ENE24	ENE22	ENE21	ENE20	ENE17	ENE18	ENE24	ENE24	ENE8.6	ENE26	
24-Apr	ENE28	ENE28	E25	ENE24	ENE21	ENE20	ENE26	ENE28	ENE30	ENE28	ENE28	NE31	ENE31	ENE30	NE28	NE30	NE34	NE33	NE31	NE28	ENE29	ENE33	ENE32	ENE29	ENE28.4	NE34
25-Apr	ENE24	ENE22	ENE25	ENE24	ENE25	ENE31	ENE31	ENE28	E14	SSW3	W17	W19	W22	W22WNW18	NW17	NW19	NW15	NW13	NW12	NW11	NW13	NW18	NW19	N8.4	ENE31	
26-Apr	NW19	NW21	NW21	NW21	NW21	NW19	NW19	NW15	NW17	NW16	NW15	NW15	NW14	NNW12	NNW11	NW9	NNW3	E22	E22	E20	E18	E16	E15	ESE17	NNW8.7	E22
27-Apr	SE15	SE14	SE8	ESE16	ESE21	ESE21	ESE19	SSE14	S12	ESE7	E15	E24	E26	E25	E32	ENE25	NE24	NE28	NE35	ENE34	ENE28	ENE30	ENE24	ENE19	E18.7	NE35
28-Apr	ENE17	ENE18	ENE13	ENE12	ENE13	ENE14	ENE19	ENE22	ENE20	E18	E18	E21	E22	ENE23	ENE24	ENE23	NE23	ENE24	ENE23	E20	E19	E17	E17	E19	ENE18.8	ENE24
29-Apr	ENE17	ENE16	E15	E11	NE13	NE15	ENE17	ENE18	ENE18	ENE22	E24	ENE20	NE24	NE24	ENE31	ENE36	ENE36	ENE30	ENE24	NE20	NE17	NE16	NE19	NE18	ENE20.3	ENE36
30-Apr	NE18	NE20	NE20	NE18	NE15	NE18	NE21	NE19	NE20	NNE15	NE17	NE18	E33	ENE33	ENE33	ENE26	NE16	NE13	NE4	N9	N10	N12	NNE15	NE17	NE17.0	ENE33

NE7.9	NE7.6	NE6.7	NE6.7	NE7.1	NE7.8	NE7.4	NE7.1	ENE7.3	NE6.8	ENE6.4	ENE8.0	ENE9.6	ENE9.4	ENE10.4	ENE11.1	ENE12.1	ENE13.1	ENE12.8	NE11.5	NE10.2	NE10.2	NE9.9	NE10.4	Diurnal Average
ENE28	ENE28	E25	ENE24	ENE26	ENE31	ENE32	NE33	NE32	ENE34	S36	S42	NE39	NE41	NE38	NE37	NE37	NE36	NE35	ENE34	NE31	ENE33	ENE32	ENE29	Diurnal Maximum

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



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

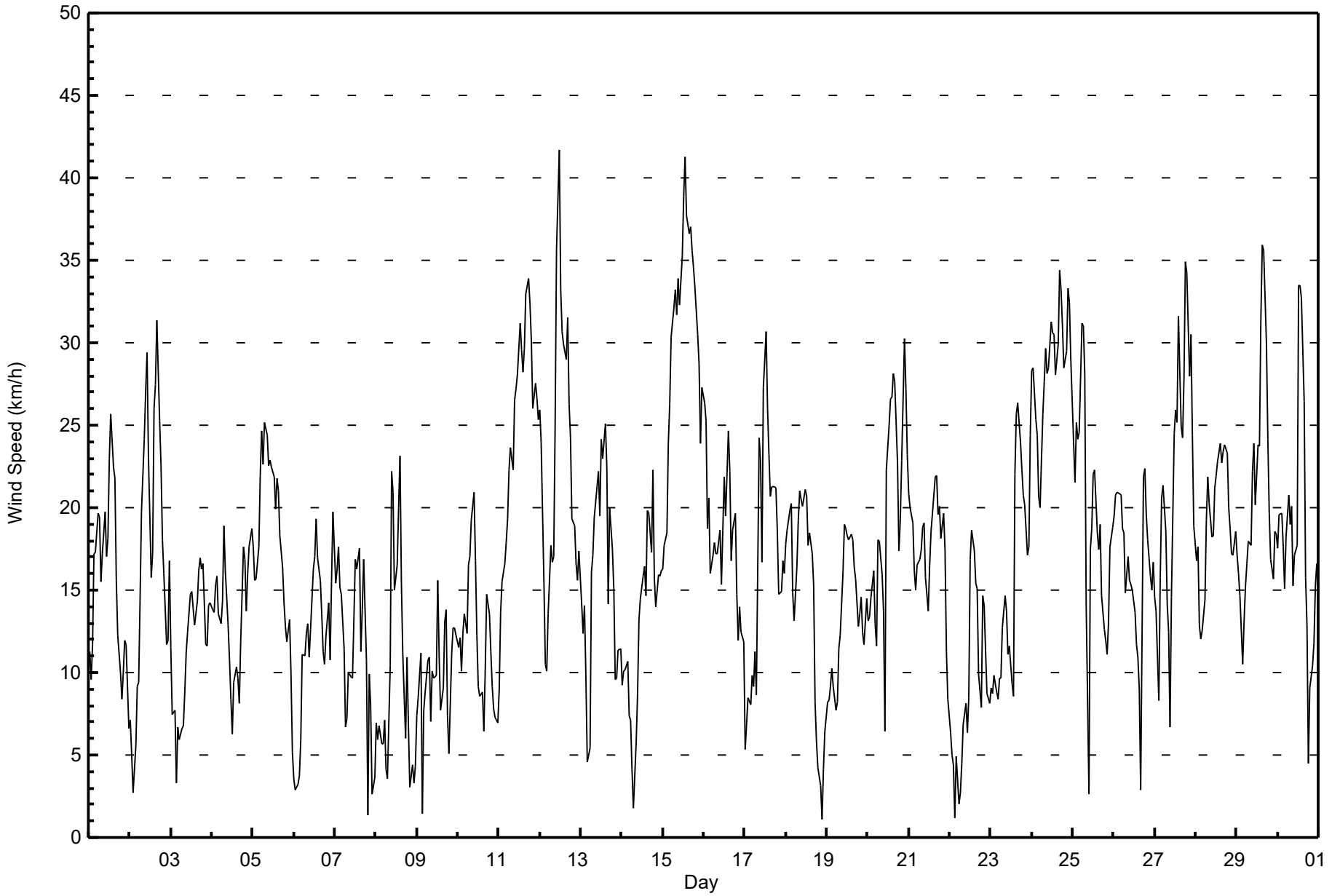
**Wind Speed (WS) - km/h**  
**Fort Chipewyan - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Apr 27 19:00 Minimum Value: 1 km/h on Apr 2 06:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 6 P <sub>99</sub> = 7																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	2	2	4	5	5	4	4	4	6	6	6	6	5	7	6	6	4	3	2	1	3	2	2	2	7
2-Apr	3	1	1	2	2	1	2	3	2	3	2	4	3	3	2	3	2	4	2	5	7	8	3	3	8
3-Apr	5	2	3	2	2	2	2	2	2	3	3	4	3	4	3	4	4	5	6	5	5	6	4	4	6
4-Apr	4	4	5	4	4	4	4	5	4	4	3	3	3	4	2	2	1	4	1	2	1	1	2	1	5
5-Apr	2	3	3	2	3	3	3	3	3	4	3	4	3	3	3	3	3	3	3	2	2	2	4	1	4
6-Apr	1	1	1	1	3	3	3	3	2	2	3	2	1	2	3	2	2	2	2	2	3	2	3	2	3
7-Apr	2	2	2	2	3	2	1	1	2	2	3	3	3	3	3	1	1	1	3	2	1	2	2	2	3
8-Apr	2	1	1	1	1	1	1	1	8	5	5	3	4	4	5	5	3	1	4	3	2	2	2	2	8
9-Apr	4	2	3	1	2	2	2	1	1	1	1	1	2	4	5	4	5	5	2	2	5	3	3	3	5
10-Apr	3	3	3	4	5	4	5	5	6	6	6	5	3	3	3	3	4	2	2	1	1	1	1	2	6
11-Apr	3	2	2	2	2	3	2	2	3	3	3	3	3	4	4	4	3	3	3	3	3	2	2	2	4
12-Apr	2	3	2	2	2	3	3	3	4	5	6	8	6	6	5	4	5	4	3	3	1	1	1	2	8
13-Apr	2	2	2	3	1	1	5	4	4	5	6	5	6	6	6	5	4	5	5	4	2	2	2	2	6
14-Apr	2	1	1	1	1	1	2	1	1	2	1	1	3	2	4	4	3	2	3	3	1	2	2	2	4
15-Apr	2	2	2	3	4	5	5	5	5	5	6	7	7	8	7	8	7	7	7	6	6	6	6	7	8
16-Apr	6	6	5	5	5	5	6	5	6	6	6	7	6	6	7	6	7	6	6	5	3	4	4	5	7
17-Apr	1	1	2	2	2	2	3	3	4	6	5	4	3	3	2	2	2	3	3	3	2	2	3	3	6
18-Apr	3	3	3	3	2	2	3	3	2	1	2	2	2	2	2	2	2	3	1	1	1	1	1	1	3
19-Apr	1	1	1	1	1	2	2	3	3	4	4	4	5	5	5	4	4	4	3	2	3	2	2	2	5
20-Apr	2	2	3	3	3	2	4	4	3	3	4	2	2	3	3	3	3	2	3	3	3	3	3	2	4
21-Apr	2	2	3	2	1	2	2	2	2	2	2	2	3	3	3	3	2	2	3	3	2	2	3	1	3
22-Apr	1	1	1	2	2	1	1	1	1	1	1	2	2	3	2	2	3	3	6	6	5	3	2	3	6
23-Apr	2	2	2	2	2	1	3	3	4	4	4	4	4	5	2	3	3	3	3	2	3	2	4	3	5
24-Apr	2	3	2	3	2	4	3	3	3	3	4	5	5	5	5	5	6	5	5	4	4	4	4	4	6
25-Apr	4	4	7	4	4	4	3	5	6	3	4	4	4	5	6	5	6	6	5	4	4	3	4	6	7
26-Apr	7	6	6	6	7	6	6	6	5	6	5	5	5	4	4	4	7	3	2	2	2	2	1	2	7
27-Apr	2	2	3	5	2	4	3	3	3	3	3	2	3	4	3	5	4	5	8	7	7	4	5	3	8
28-Apr	3	3	3	3	3	2	3	3	2	2	2	1	2	4	3	4	4	5	3	3	2	2	2	2	5
29-Apr	2	2	2	4	3	3	3	3	4	4	3	4	5	6	6	5	5	4	4	4	3	3	3	3	6
30-Apr	3	4	4	4	3	4	5	4	4	4	4	6	3	4	3	5	4	3	3	3	2	3	4	3	6
																	Diurnal Maximum								



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Fort Chipewyan - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Fort Chipewyan - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	38	5.28	5.28
6 - 11	146	20.28	25.56
12 - 19	305	42.36	67.92
20 - 28	171	23.75	91.67
29 - 38	57	7.92	99.58
> 38	3	0.42	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Chipewyan - April 2024**

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	4	3	5	4	5	2	3	0	0	2	0	4	3	1	0	2	38
6 - 11	7	1	12	10	33	11	4	1	0	1	4	3	18	18	13	10	146
12 - 19	1	16	34	59	64	6	6	4	3	0	2	11	27	17	41	14	305
20 - 28	0	6	13	77	46	2	1	1	1	0	3	1	12	3	4	1	171
29 - 38	0	0	18	29	4	0	0	4	2	0	0	0	0	0	0	0	57
> 38	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	3
<b>Totals</b>	12	26	84	179	152	21	14	10	7	3	9	19	60	39	58	27	720

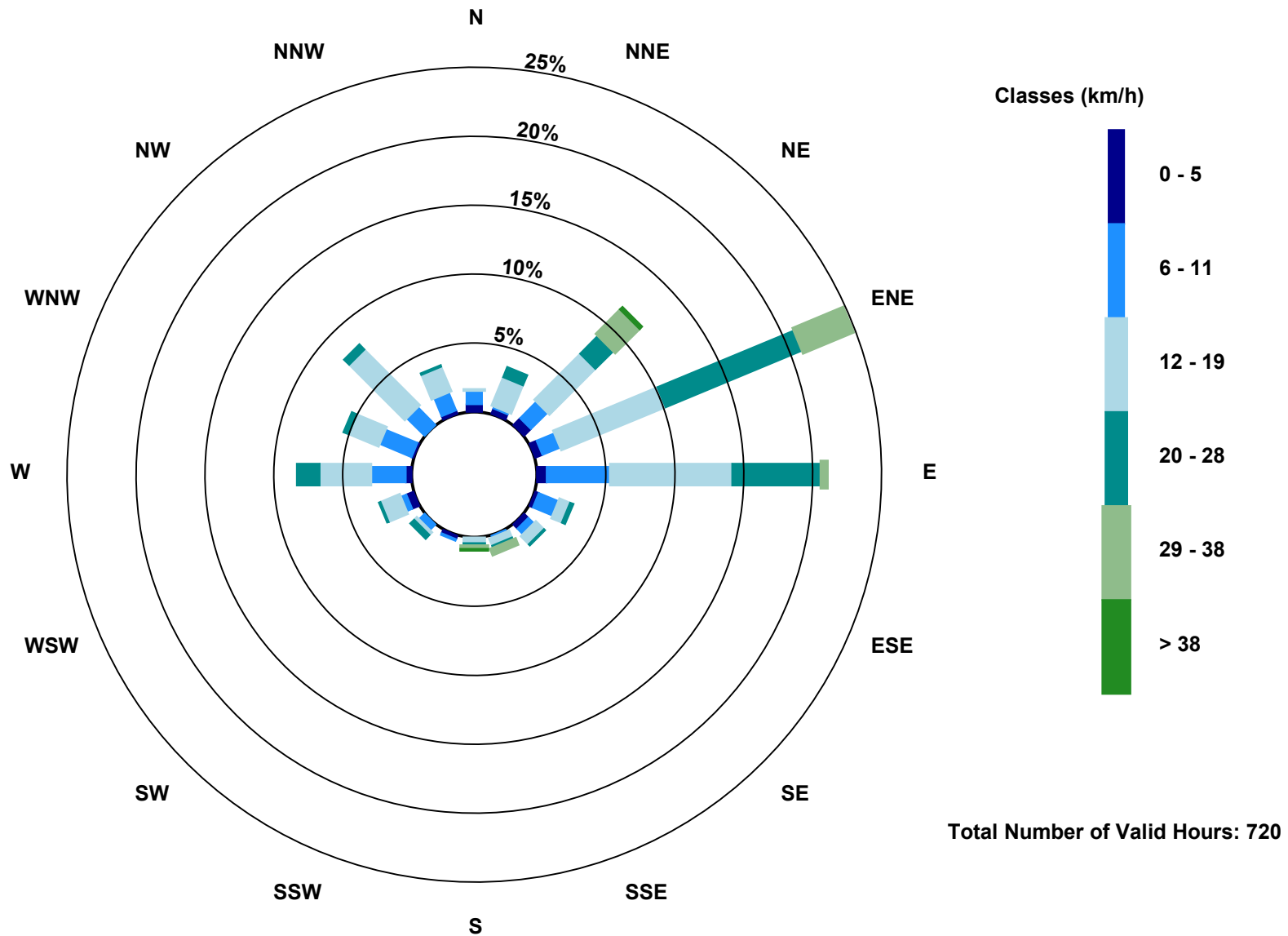
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Fort Chipewyan





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

**Wind Direction (WD) - deg**  
**Fort Chipewyan - April 2024**

Direction of Maximum Speed: 179 deg on Apr 12 12:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 52.7 deg on Apr 15	Hours of Data: 720
Direction of Minimum Speed: 197 deg on Apr 18 22:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 3.1 deg on Apr 9	Percent Operational Time: 100.0
Monthly Average Direction: 58.8 deg	

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-Apr	270	276	270	271	265	276	281	285	312	296	295	275	267	266	268	267	260	266	275	272	262	274	283	307	275.9
2-Apr	227	239	127	69	84	82	82	86	82	81	80	84	91	90	84	83	77	76	71	54	76	45	38	74	78.5
3-Apr	66	351	358	40	354	330	322	273	295	312	320	322	309	312	314	310	306	307	305	317	318	308	307	310	317.3
4-Apr	308	304	294	292	308	301	291	288	288	306	317	287	245	250	222	205	162	93	81	81	77	79	78	79	318.5
5-Apr	76	72	72	69	74	76	72	75	72	65	59	64	65	61	61	58	58	53	47	50	50	54	41	31	64.0
6-Apr	352	7	6	347	34	65	53	66	72	64	63	93	89	87	76	81	81	71	51	72	76	63	74	74	70.3
7-Apr	75	77	76	77	90	96	102	100	95	117	123	151	144	157	144	105	86	82	89	238	287	283	241	108	104.6
8-Apr	73	102	119	128	128	116	141	118	223	232	241	226	223	232	234	244	235	129	84	88	146	67	295	74	205.6
9-Apr	259	302	262	266	84	80	82	94	83	89	87	89	84	94	241	312	102	84	104	87	280	302	316	337	60.7
10-Apr	335	317	327	334	329	335	336	330	339	342	340	335	330	337	333	351	92	83	82	81	75	92	78	81	357.4
11-Apr	94	76	75	76	74	70	75	74	73	74	74	72	70	70	65	68	70	71	74	75	78	78	78	80	73.5
12-Apr	80	87	102	104	123	138	160	179	170	172	177	179	163	163	170	162	164	159	145	135	103	90	91	91	146.1
13-Apr	89	93	91	85	90	92	260	277	288	282	280	280	266	267	267	274	288	284	276	283	285	278	282	286	278.5
14-Apr	306	301	289	285	278	260	268	276	83	83	87	88	93	90	78	73	83	89	73	58	56	66	69	68	68.2
15-Apr	65	67	68	60	57	56	60	55	55	57	55	53	53	51	49	53	49	51	50	52	51	43	33	36	52.7
16-Apr	33	34	25	27	22	20	19	18	21	23	13	23	29	27	73	65	39	19	16	17	29	29	55	42	30.4
17-Apr	43	24	42	49	41	35	41	44	85	84	62	86	89	88	96	89	85	82	73	62	48	42	49	48	70.3
18-Apr	57	58	63	61	56	55	63	77	91	92	94	91	95	94	93	93	91	86	81	60	75	197	256	268	78.8
19-Apr	281	295	292	283	280	284	276	268	265	264	238	260	258	248	252	246	244	247	243	244	255	265	277	279	260.6
20-Apr	272	271	270	272	284	290	275	271	268	281	264	90	88	91	89	78	77	81	65	57	60	70	70	72	61.4
21-Apr	79	80	83	87	91	90	88	86	86	91	93	95	89	93	98	91	84	71	60	53	59	68	64	53	81.1
22-Apr	65	29	34	2	27	43	95	99	101	98	87	88	88	86	87	87	84	91	351	347	344	333	331	328	56.6
23-Apr	318	309	321	323	291	299	300	311	313	316	320	332	346	51	85	81	78	74	69	63	61	59	69	75	35.8
24-Apr	78	78	80	76	70	62	68	75	73	69	63	56	58	54	53	54	54	56	56	61	65	65	65	65	64.0
25-Apr	65	61	61	58	64	68	70	78	93	193	268	269	278	279	288	317	325	323	321	326	320	316	325	325	6.6
26-Apr	319	317	313	311	321	315	313	315	308	313	312	313	320	330	329	320	348	84	80	79	80	85	87	109	344.8
27-Apr	127	140	138	109	112	113	113	148	174	118	95	84	82	80	79	70	56	53	53	60	60	63	65	61	82.6
28-Apr	69	73	67	70	74	73	67	76	75	85	89	85	82	63	63	60	48	63	78	87	83	90	81	79	73.7
29-Apr	75	66	84	85	46	50	57	57	57	66	81	64	43	40	57	71	68	67	61	55	51	46	46	44	60.2
30-Apr	45	46	43	44	40	47	46	50	50	28	39	52	79	78	78	72	56	41	42	358	354	2	20	34	49.8

52.9 47.3 48.1 46.2 48.6 52.7 50.8 55.4 56.4 54.4 58.2 69.3 73.1 72.6 75.9 68.9 69.4 66.5 61.7 54.9 52.4 50.3 48.5 52.7

Diurnal Average

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



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

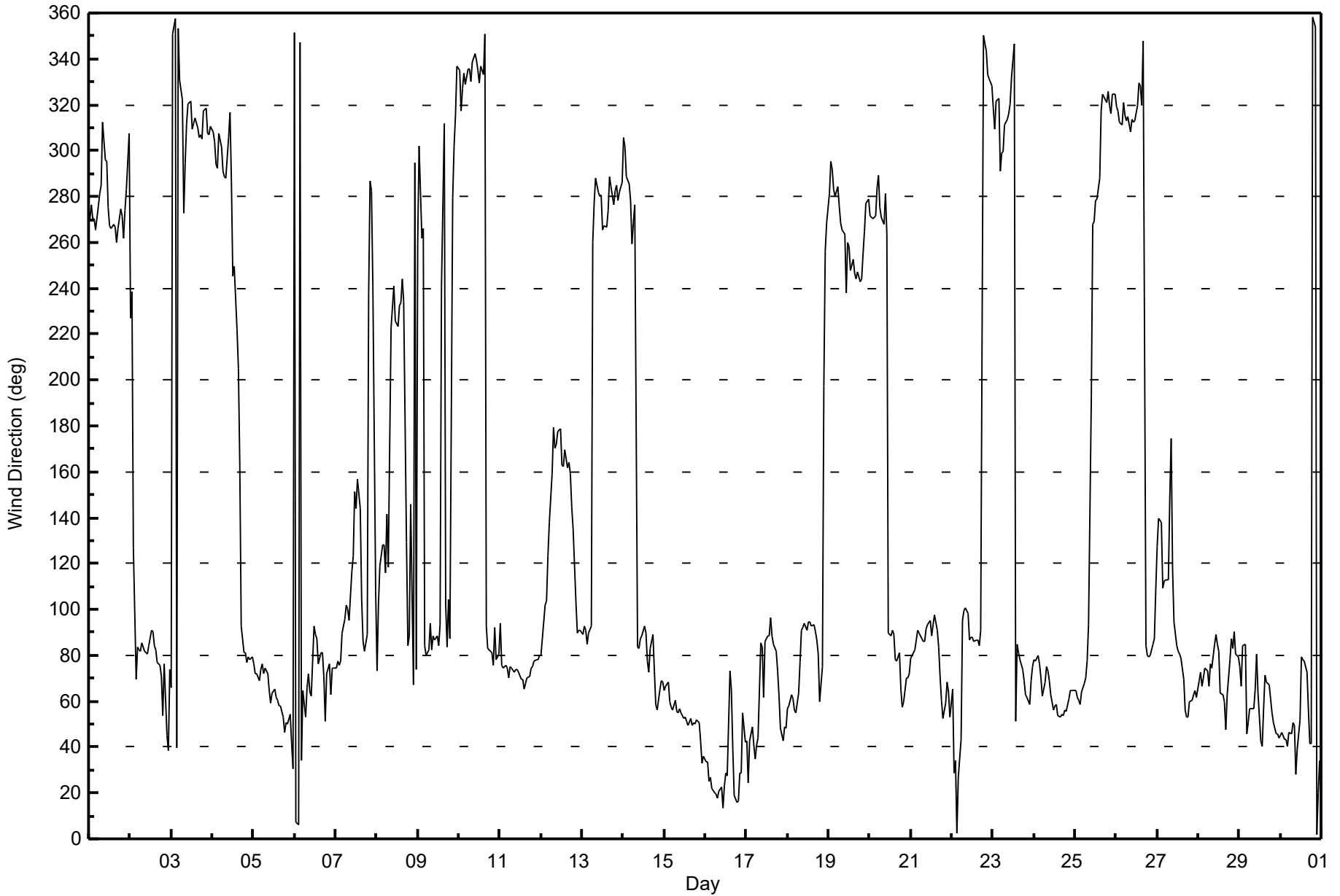
**Wind Direction (WD) - deg**  
**Fort Chipewyan - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Apr 9 04:00 Minimum Value: 4 deg on Apr 21 17:00 Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 6 Q <sub>1</sub> = 8 Median = 11 Q <sub>3</sub> = 18 P <sub>90</sub> = 24 P <sub>99</sub> = 72																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	14	15	16	15	15	13	14	14	19	16	21	24	15	15	16	16	16	17	15	14	14	12	11	26	26
2-Apr	14	18	54	21	7	6	5	6	5	5	4	6	11	10	4	4	4	5	6	31	42	52	28	7	54
3-Apr	34	27	41	43	26	36	27	28	18	14	16	16	14	16	15	18	16	15	16	19	20	18	17	17	43
4-Apr	17	17	19	17	18	18	15	14	19	20	24	30	47	41	20	12	23	14	4	4	5	5	5	5	47
5-Apr	5	8	7	6	6	6	7	7	7	11	10	9	9	10	8	9	9	9	12	9	9	9	17	16	17
6-Apr	19	34	29	18	22	22	12	15	14	13	14	8	5	6	11	9	8	12	15	14	9	8	7	6	34
7-Apr	6	6	6	9	10	9	10	10	5	23	28	12	12	11	13	10	4	4	18	83	9	10	59	56	83
8-Apr	18	33	17	22	33	21	38	49	65	14	15	15	12	15	13	16	17	51	12	26	53	51	79	22	79
9-Apr	73	18	21	94	13	6	9	9	12	6	6	8	4	19	67	47	38	23	14	18	55	17	18	17	94
10-Apr	21	16	20	20	21	21	21	19	21	19	21	25	31	34	28	54	51	5	5	5	7	13	9	15	54
11-Apr	16	10	6	6	5	7	6	6	7	6	6	6	7	7	8	8	7	6	5	5	5	5	4	4	16
12-Apr	4	11	8	10	16	12	12	8	10	8	12	12	10	10	9	11	11	11	7	9	9	5	6	5	16
13-Apr	12	9	6	10	19	28	18	15	14	14	16	20	19	18	16	19	15	16	15	13	13	11	11	12	28
14-Apr	12	9	10	6	12	14	34	69	11	9	5	6	9	8	23	15	8	10	8	8	6	8	6	8	69
15-Apr	6	7	8	7	8	8	8	8	9	9	10	10	10	10	12	12	11	11	9	9	10	12	14	13	14
16-Apr	14	14	15	15	18	18	19	19	20	21	24	23	18	19	28	25	38	23	19	19	13	14	11	14	38
17-Apr	18	17	12	8	10	14	16	28	10	16	26	10	4	5	7	7	6	7	7	9	9	8	9	8	28
18-Apr	9	9	9	8	10	11	10	10	5	6	7	6	7	7	7	7	7	11	10	8	9	68	15	8	68
19-Apr	9	5	5	4	7	9	14	14	18	17	18	18	18	20	19	19	17	16	14	12	14	11	11	9	20
20-Apr	10	12	13	14	14	13	14	15	16	18	73	5	4	5	7	6	5	4	10	8	8	6	7	6	73
21-Apr	6	6	7	6	6	5	6	5	5	6	8	7	7	7	8	7	4	12	8	8	7	5	12	9	12
22-Apr	12	24	14	85	17	21	18	19	12	12	11	13	5	8	6	6	8	20	54	22	19	20	17	18	85
23-Apr	14	13	16	16	16	11	17	16	18	22	28	34	39	62	5	5	6	8	7	7	7	6	9	6	62
24-Apr	5	5	5	5	7	9	7	7	7	8	8	8	8	9	10	8	8	8	8	8	8	9	8	10	10
25-Apr	12	8	10	10	8	7	6	8	14	76	16	16	16	16	21	22	21	23	21	24	21	19	22	22	76
26-Apr	20	19	18	19	21	19	20	24	20	27	24	28	27	37	33	59	78	7	6	6	6	7	8	10	78
27-Apr	10	10	13	12	5	8	9	21	12	36	11	5	7	11	6	12	11	11	10	10	10	8	9	9	36
28-Apr	8	7	8	9	6	8	8	7	6	8	5	4	9	12	8	12	11	15	9	6	6	7	5	5	15
29-Apr	6	8	8	13	13	9	9	9	12	13	14	17	20	18	16	9	8	9	11	8	9	10	10	10	20
30-Apr	10	11	11	12	13	12	11	12	12	18	19	21	8	6	6	10	14	14	41	19	17	19	17	12	41
																	73 34 54 94 33 36 38 69 65 76 73 34 47 62 67 59 78 51 54 83 55 68 79 56								
Diurnal Maximum																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Fort Chipewyan - April 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS09 BARGE LANDING APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)

APRIL 2024

MONTHLY SUMMARY

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	686	34	34	100	27.9	0	4.3	0
TRS(ppb) Average	685	35	35	100	2.2	0	0.8	0
THC(ppm) Average	686	34	34	100	3.2	-	2.2	-
NMHC(ppm) Average	686	34	34	100	0.306	-	0.032	-
CH4(ppm) Average	686	34	34	100	3	-	2.2	-
NO2 (ppb) Average	685	35	35	100	43.4	0	16.8	-
NO (ppb) Average	685	35	35	100	54.2	-	7.3	-
NOX (ppb) Average	685	35	35	100	91.5	-	23.8	-
PM2.5(ug/m3) Average	718	2	2	100	46.3	0	15.3	0
Temperature (C) Average	720	0	0	100	19.7	-	10.6	-
Relative Humidity (%) Average	720	0	0	100	98.1	-	90.3	-
Barometric Pressure (inHg) Average	720	0	0	100	29.6	-	29.6	-
Wind Speed 10 m (km/h) Average	710	0	10	98.61	19	-	11	-
Wind Direction 10 m (deg) Average	710	0	10	98.61	-	-	-	-
Wind Speed 20 m (km/h) Average	720	0	0	100	33	-	26	-
Wind Direction 20 m (deg) Average	720	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Min	P10	Percentile					Max
							Q1	Median	Q3	P90		
SO2 (ppb) Average	686	0.58	2.2	-	0	0	0	0.1	0.2	1	27.9	
TRS(ppb) Average	685	0.4	0.2	-	0.2	0.3	0.3	0.3	0.4	0.6	2.2	
THC(ppm) Average	686	2.05	0.2	-	1.9	1.9	2	2	2.1	2.2	3.2	
NMHC(ppm) Average	686	0.008	0.03	-	0	0	0	0	0	0	0.306	
CH4(ppm) Average	686	2.04	0.1	-	1.9	1.9	2	2	2.1	2.2	3	
NO2 (ppb) Average	685	8.59	8.8	-	0.1	0.6	1.9	5.3	12.7	21.6	43.4	
NO (ppb) Average	685	2.55	6.3	-	0	0	0	0.3	1.7	6.5	54.2	
NOX (ppb) Average	685	11.14	13.5	-	0.1	0.6	2.3	6	14.8	27.4	91.5	
PM2.5(ug/m3) Average	718	7.62	5.8	-	0.2	2.7	4.1	6.2	8.9	14.3	46.3	
Temperature (C) Average	720	5.42	6.1	-	-10.1	-1.6	0.6	4.5	10.1	14.7	19.7	
Relative Humidity (%) Average	720	55.82	25.1	-	9.3	23.2	33.7	55.4	76.7	92.6	98.1	
Barometric Pressure (inHg) Average	720	28.9	0.3	-	28.3	28.6	28.7	28.9	29	29.3	29.6	
Wind Speed 10 m (km/h) Average	710	7.1	4	-	0	2	4	7	10	12	19	
Wind Direction 10 m (deg) Average	710	45	-	-	-	-	-	-	-	-	-	
Wind Speed 20 m (km/h) Average	720	12.7	6	-	0	5	8	12	17	22	33	
Wind Direction 20 m (deg) Average	720	42.2	-	-	-	-	-	-	-	-	-	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction 10m	16 Apr 2024 06:00	16 Apr 2024 12:00	7	Flat line in sensor output signal
Wind Speed, Wind Direction 10m	21 Apr 2024 04:00	21 Apr 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction 10m	21 Apr 2024 06:00	21 Apr 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction 10m	23 Apr 2024 03:00	23 Apr 2024 03:00	1	Flat line in sensor output signal



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

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

**Barge Landing - April 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 27.9 ppb on Apr 21 10:00	Maximum Daily Average: 4.3 ppb on Apr 21		Hours of Data:	686
Minimum Value: 0.0 ppb on Apr 1 14:00	Minimum Daily Average: 0.0 ppb on Apr 18		Hours of Missing Data:	34
Maximum Diurnal Average: 2.3 ppb at hour 11	Minimum Diurnal Average: 0.1 ppb at hour 22		Hours of Calibration:	34
Monthly Average: 0.58 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 1.0 P <sub>99</sub> = 13.7		Percent Operational Time:	100.0

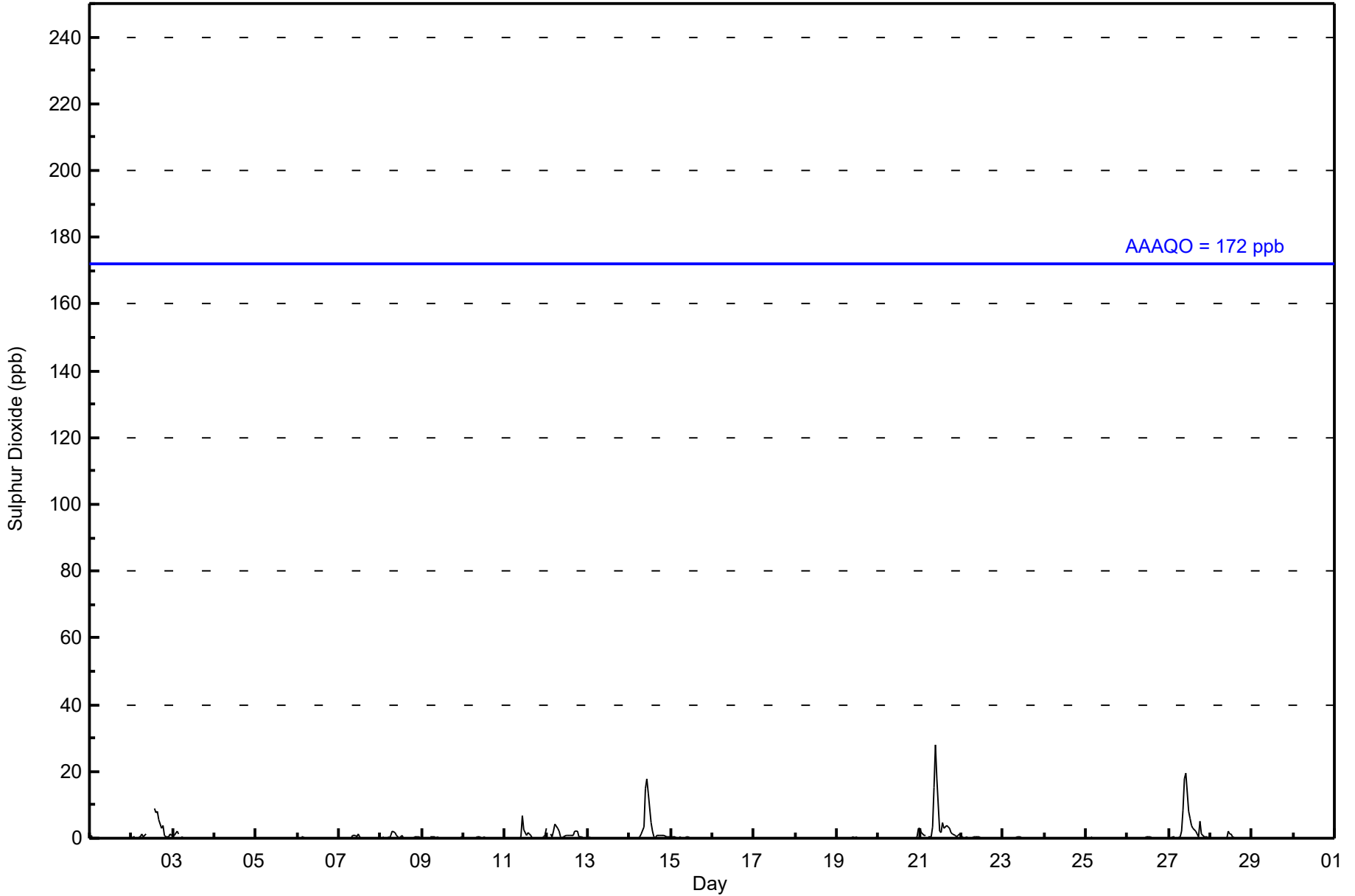
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.9	0.3	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.9	0.9																						
2-Apr	0.1	0.3	0.5	Z	0.3	0.6	1.3	0.5	1.2	C	C	C	C	8.8	7.5	8.2	5.6	2.9	3.6	0.9	0.5	0.6	1.4	1.0	2.4	8.8																							
3-Apr	0.9	1.0	1.9	1.2	Z	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.9																							
4-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
5-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2																						
6-Apr	0.0	Z	0.2	0.6	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																							
7-Apr	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	1.0	1.0	0.4	1.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2																							
8-Apr	0.0	0.1	0.3	Z	0.3	0.1	0.8	2.3	1.6	0.7	0.3	0.1	0.7	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.3	0.5	0.6	0.1	0.4	2.3																							
9-Apr	0.1	0.2	0.2	0.2	Z	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.2	0.4																							
10-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.3	0.3	0.1	0.2	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
11-Apr	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.3	6.6	2.7	0.9	1.7	1.3	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.9	0.7	6.6																							
12-Apr	3.1	Z	1.3	0.4	2.3	4.4	2.8	2.3	0.4	0.2	0.3	0.9	0.7	0.9	0.8	0.9	2.0	2.2	2.1	0.4	0.3	0.1	0.1	0.1	1.3	4.4																							
13-Apr	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2																							
14-Apr	0.1	0.0	0.1	Z	0.2	0.1	0.5	1.2	3.3	14.9	17.8	13.5	4.7	2.2	0.2	0.1	0.7	0.7	0.9	1.0	0.8	0.5	0.3	0.3	2.8	17.8																							
15-Apr	0.3	0.3	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.3																							
16-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
17-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
18-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
19-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.4	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.4																							
20-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.9	0.2	2.9																							
21-Apr	2.9	1.9	1.0	0.7	Z	0.6	0.6	3.2	15.1	27.9	17.9	2.2	1.9	4.5	3.0	3.7	3.2	2.9	1.8	1.5	0.9	0.6	0.7	1.4	4.3	27.9																							
22-Apr	0.4	0.2	0.2	0.3	0.1	Z	0.2	0.2	0.4	0.4	0.2	0.1	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.0	0.1	0.1	0.2	0.4																							
23-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.4	0.4	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
24-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1																							
25-Apr	0.0	0.1	Z	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
26-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4																							
27-Apr	0.1	0.1	0.5	0.3	Z	0.1	0.3	1.9	8.3	17.7	19.4	8.1	5.8	3.6	3.0	2.0	1.4	0.5	4.9	1.4	0.5	0.4	0.3	0.2	3.5	19.4																							
28-Apr	0.2	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.2	2.1	1.1	1.4	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.1																							
29-Apr	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.2	0.2	0.1	0.1	0.1	0.2																							
30-Apr	0.1	Z	0.2	0.1	0.2	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2																							
																								0.4	0.2	0.3	0.2	0.2	0.3	0.3	0.4	1.1	2.2	2.3	1.1	0.6	0.8	0.6	0.6	0.5	0.3	0.5	0.2	0.1	0.1	0.2	0.3	Diurnal Average	
																								3.1	1.9	1.9	1.2	2.3	4.4	2.8	3.2	15.1	27.9	19.4	13.5	5.8	8.8	7.5	8.2	5.6	2.9	4.9	1.5	0.9	0.6	1.4	2.9	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	678	98.83	98.83
11 - 20	7	1.02	99.85
21 - 60	1	0.15	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Barge Landing - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 10	106	84	40	21	14	27	44	51	42	37	37	30	23	27	35	60	678
11 - 20	0	0	0	0	0	0	0	2	3	1	0	1	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
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>	106	84	40	21	14	27	44	53	45	38	37	32	23	27	35	60	686

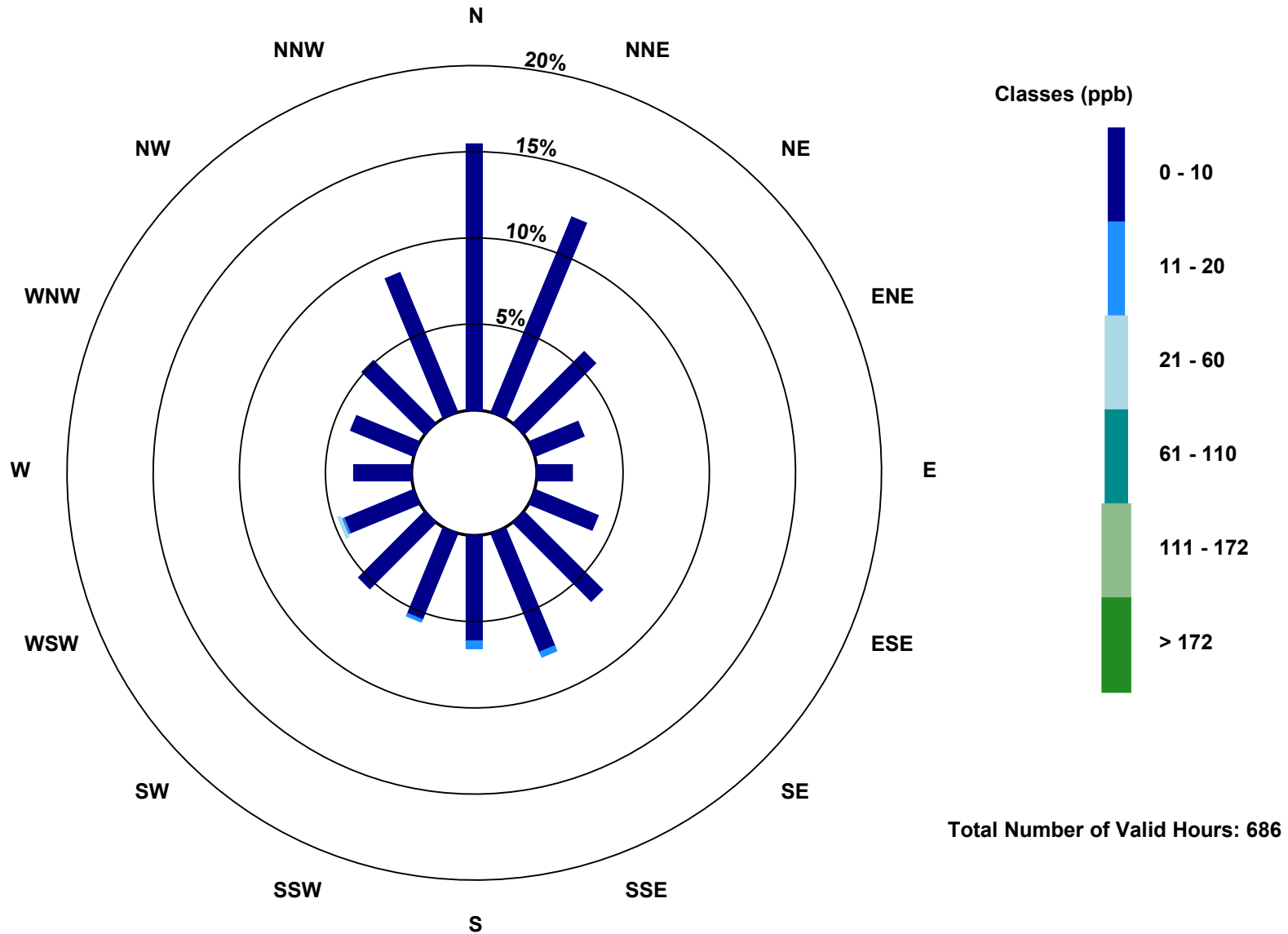
Total Number of Valid Hours: 686

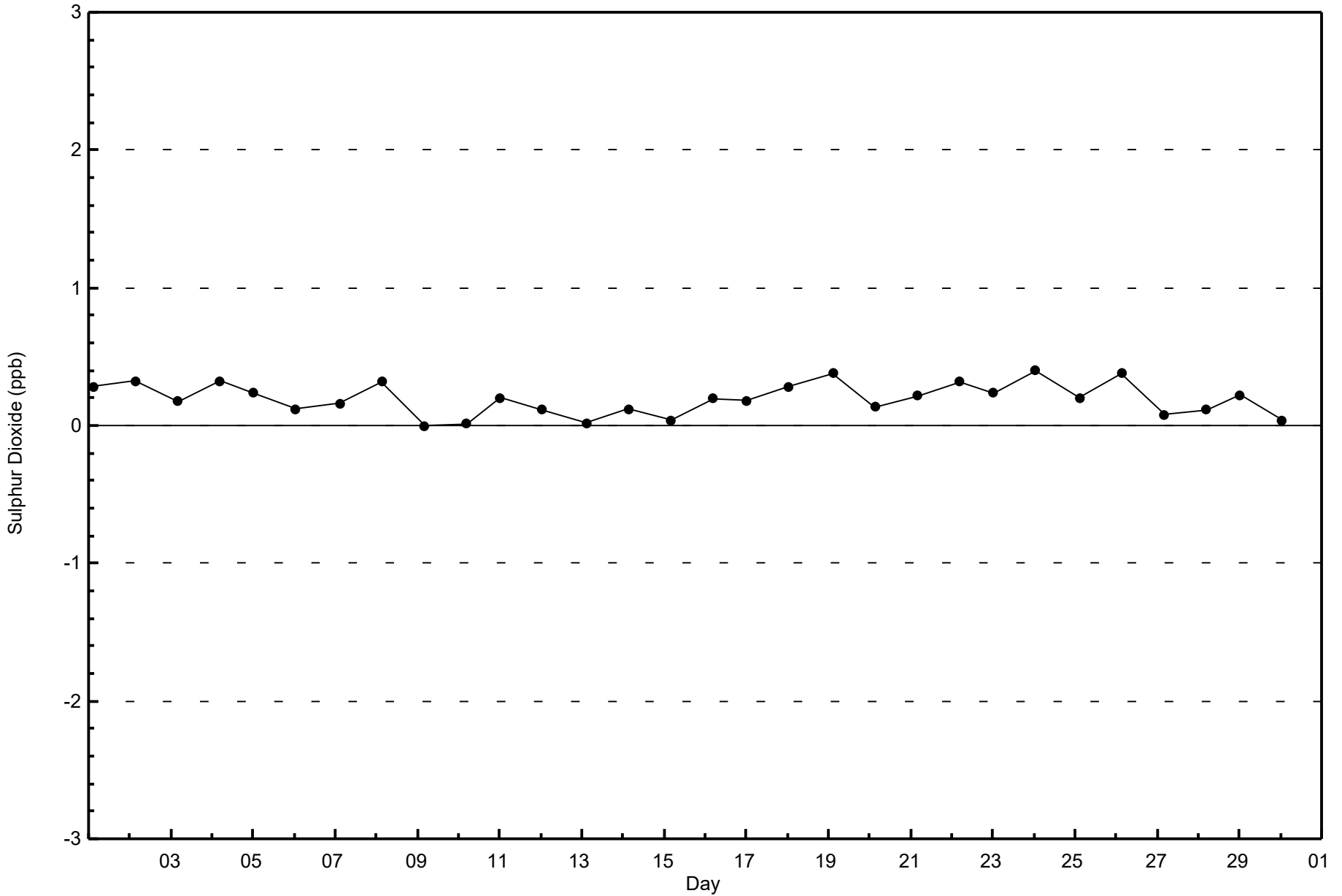
Total Number of Hours: 720

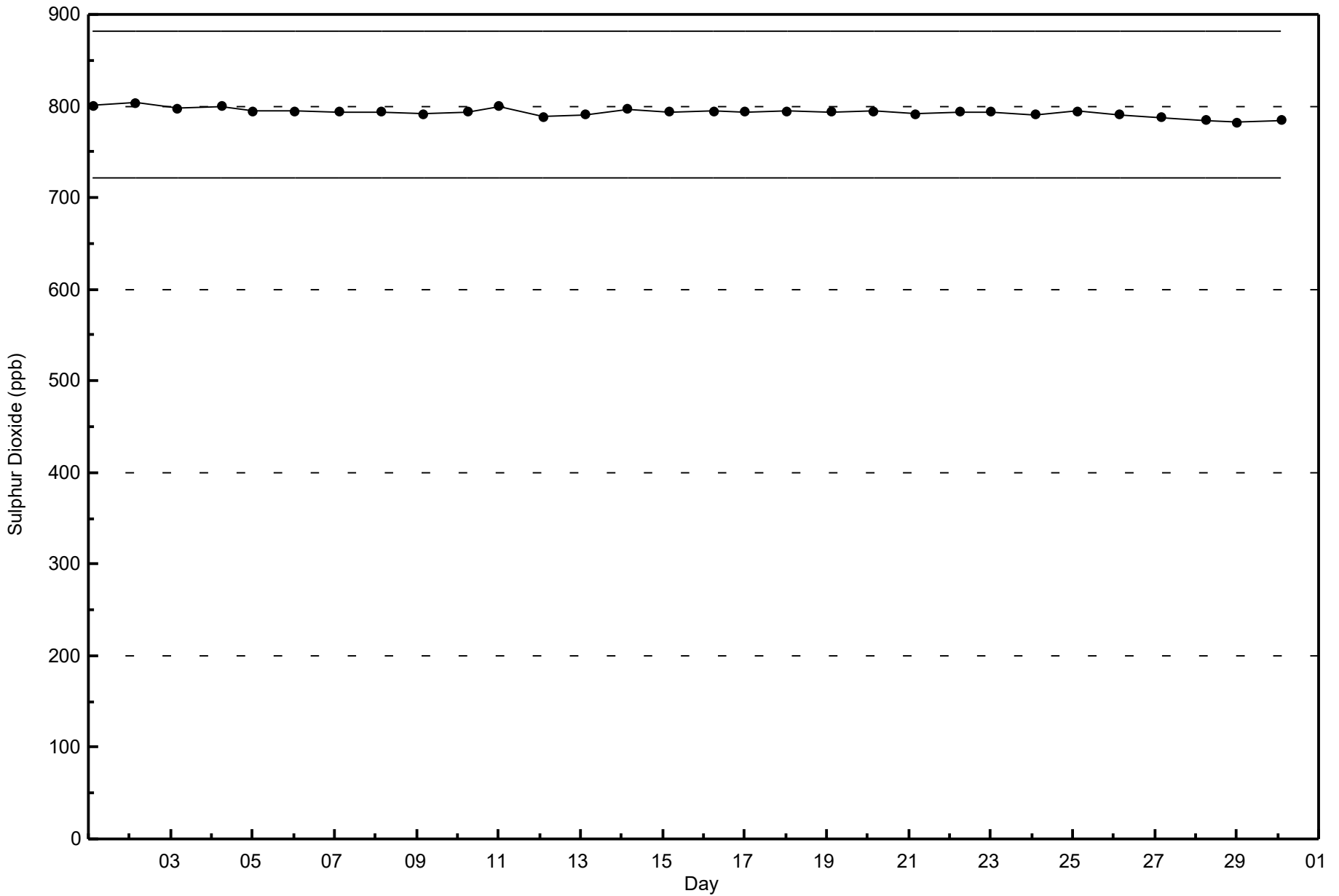


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











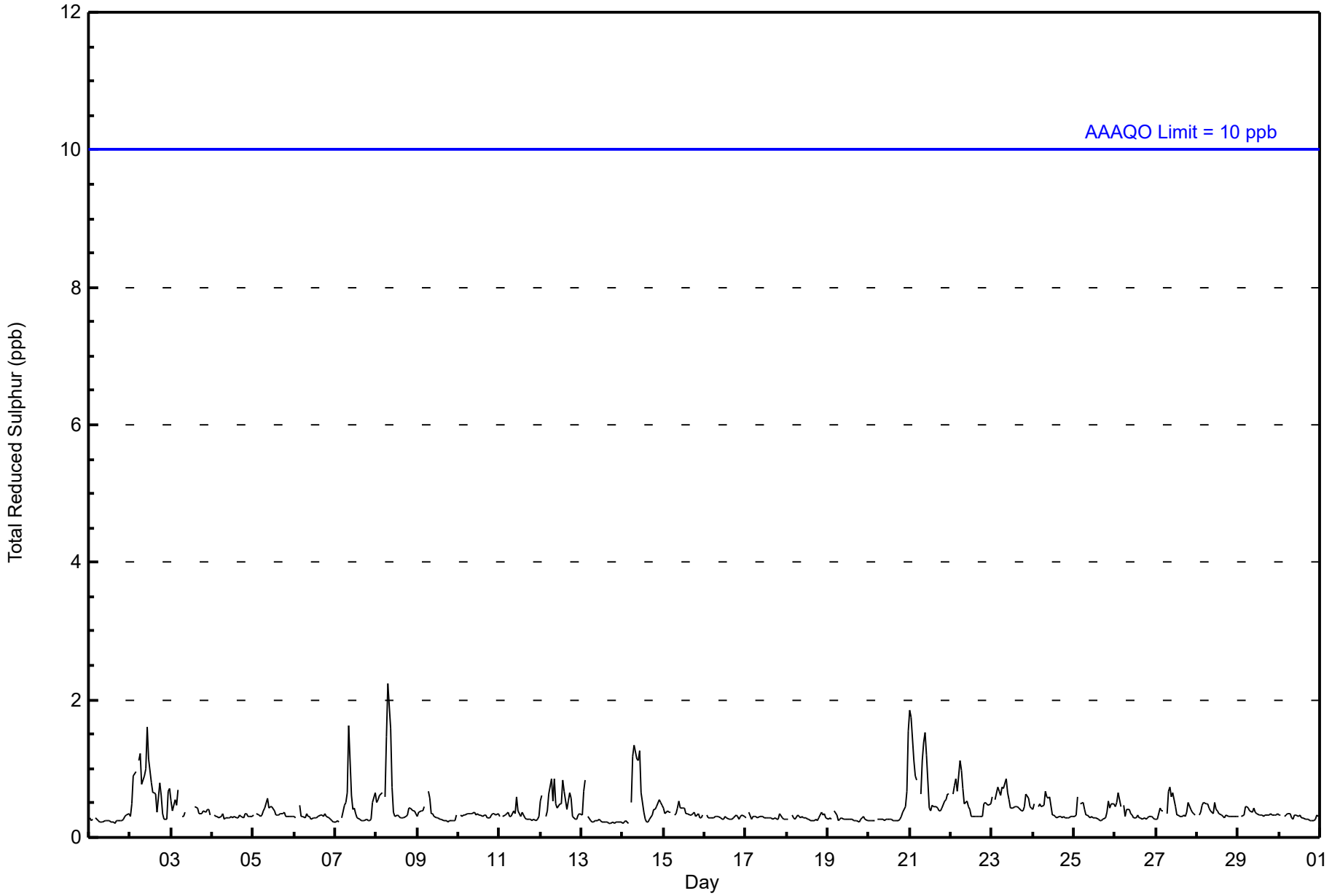
# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Total Reduced Sulphur (TRS) - ppb

## Barge Landing - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Maximum Value: 2.2 ppb on Apr 8 08:00		Maximum Daily Average: 0.8 ppb on Apr 21		Hours in Service: 720		Hours of Data: 685		Hours of Missing Data: 35		Hours of Calibration: 35		Percent Operational Time: 100.0																																			
Minimum Value: 0.2 ppb on Apr 14 01:00		Minimum Daily Average: 0.3 ppb on Apr 1		Minimum Diurnal Average: 0.6 ppb at hour 9		Minimum Diurnal Average: 0.3 ppb at hour 17		Monthly Average: 0.40 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.3 Median = 0.3 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.5																																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.3	0.2	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																					
2-Apr	0.3	0.5	0.9	1.0	Z	1.1	1.2	0.8	0.9	1.0	1.6	1.1	0.8	0.7	0.7	0.6	0.4	0.8	0.6	0.3	0.3	0.3	0.7	0.7	0.7	0.7	0.7	0.7																					
3-Apr	0.5	0.4	0.6	0.5	0.7	Z	0.3	0.3	0.4	C	C	C	C	C	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.4																					
4-Apr	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																					
5-Apr	0.3	Z	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3																					
6-Apr	0.3	0.3	Z	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.5																					
7-Apr	0.2	0.2	0.2	Z	0.3	0.5	0.5	0.7	1.6	0.6	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.5	0.7	0.4	0.4	0.4	0.7																					
8-Apr	0.5	0.5	0.6	0.7	Z	0.6	1.5	2.2	1.6	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.6	0.6	2.2																					
9-Apr	0.3	0.4	0.4	0.4	0.5	Z	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.7																					
10-Apr	Z	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4																					
11-Apr	0.3	Z	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.6	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6																					
12-Apr	0.5	0.6	Z	0.3	0.4	0.6	0.8	0.5	0.9	0.5	0.4	0.5	0.5	0.8	0.7	0.4	0.5	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9																					
13-Apr	0.3	0.7	0.8	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8																					
14-Apr	0.2	0.2	0.2	0.2	Z	0.5	1.2	1.3	1.1	1.1	1.3	0.7	0.4	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.5	1.3																					
15-Apr	0.4	0.4	0.4	0.4	0.4	Z	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5																					
16-Apr	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																					
17-Apr	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4																					
18-Apr	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4																					
19-Apr	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4																					
20-Apr	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.7	1.5	0.3	0.3	0.3	1.5																					
21-Apr	1.9	1.8	1.1	0.9	0.8	Z	0.6	1.1	1.4	1.5	1.2	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.8	0.8	0.8	1.9																					
22-Apr	Z	0.6	0.7	0.9	0.7	1.1	1.0	0.7	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1																					
23-Apr	0.6	Z	0.5	0.7	0.7	0.6	0.7	0.7	0.9	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.4	0.4	0.5	0.5	0.9	0.9																					
24-Apr	0.4	0.5	Z	0.4	0.5	0.5	0.5	0.7	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7																					
25-Apr	0.3	0.3	0.6	Z	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.6	0.6																					
26-Apr	0.5	0.5	0.7	0.4	Z	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7																					
27-Apr	0.3	0.3	0.4	0.4	0.4	Z	0.3	0.7	0.7	0.6	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.7	0.7																					
28-Apr	Z	0.3	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5																					
29-Apr	0.3	Z	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4																					
30-Apr	0.3	0.3	Z	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4																					
																								0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	Diurnal Average		
																								1.9	1.8	1.1	1.0	0.8	1.1	1.5	2.2	1.6	1.5	1.6	1.1	0.8	0.8	0.7	0.6	0.5	0.8	0.6	0.5	0.6	0.6	0.7	1.5	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	685	100.00	100.00
3 - 4	0	0.00	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: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Barge Landing - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	105	84	39	22	14	25	43	58	44	38	36	31	22	28	34	62	685
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	105	84	39	22	14	25	43	58	44	38	36	31	22	28	34	62	685

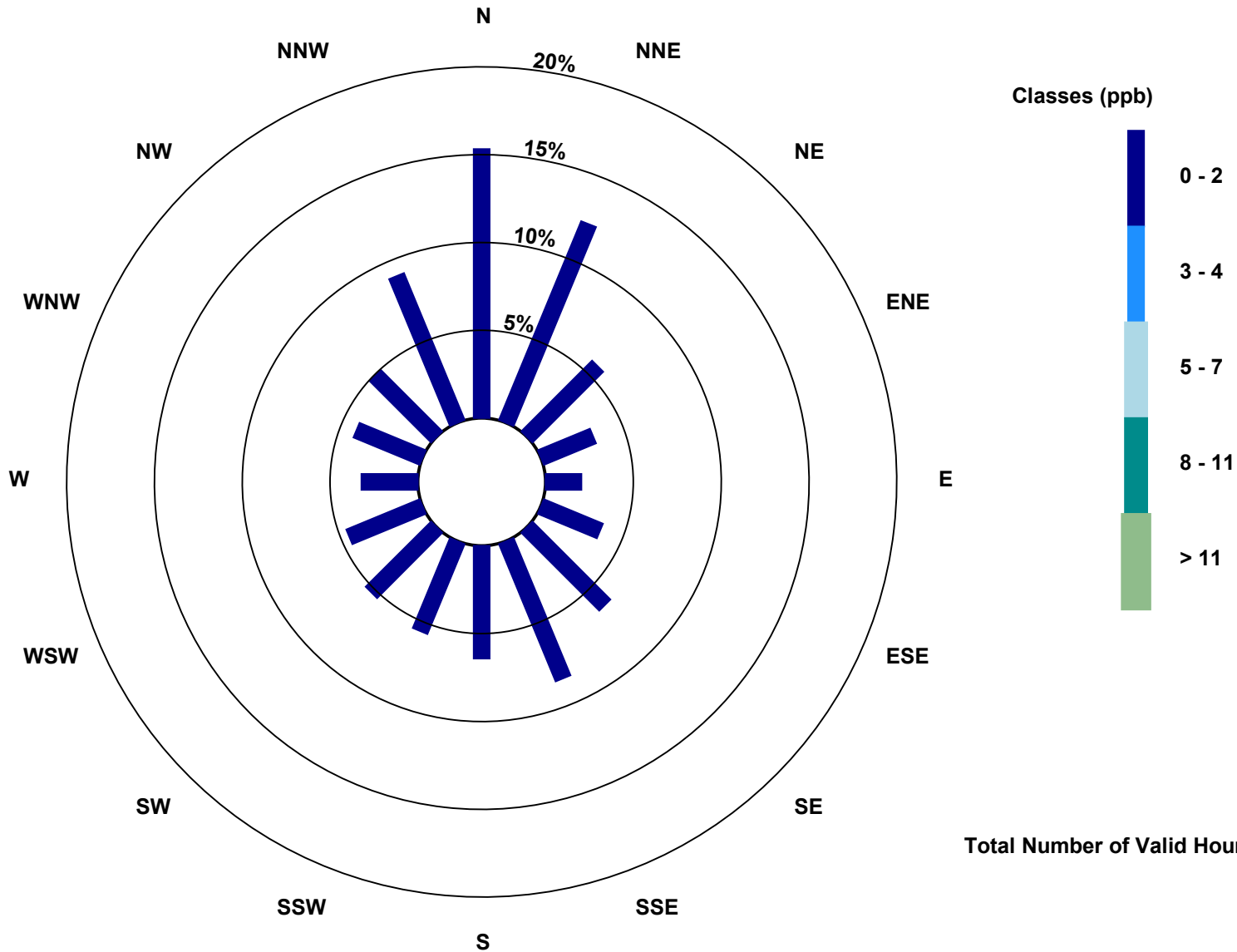
Total Number of Valid Hours: 685

Total Number of Hours: 720

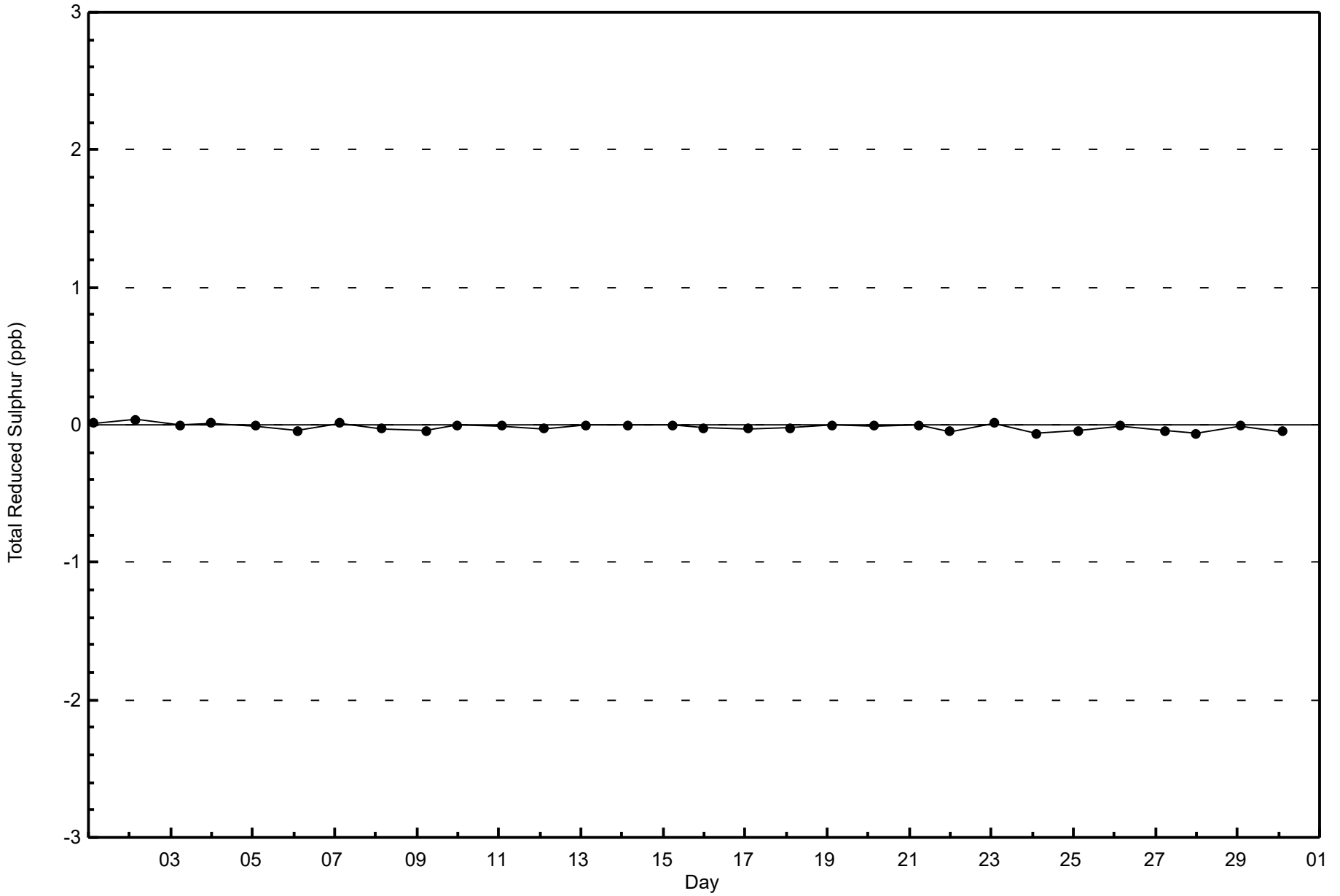


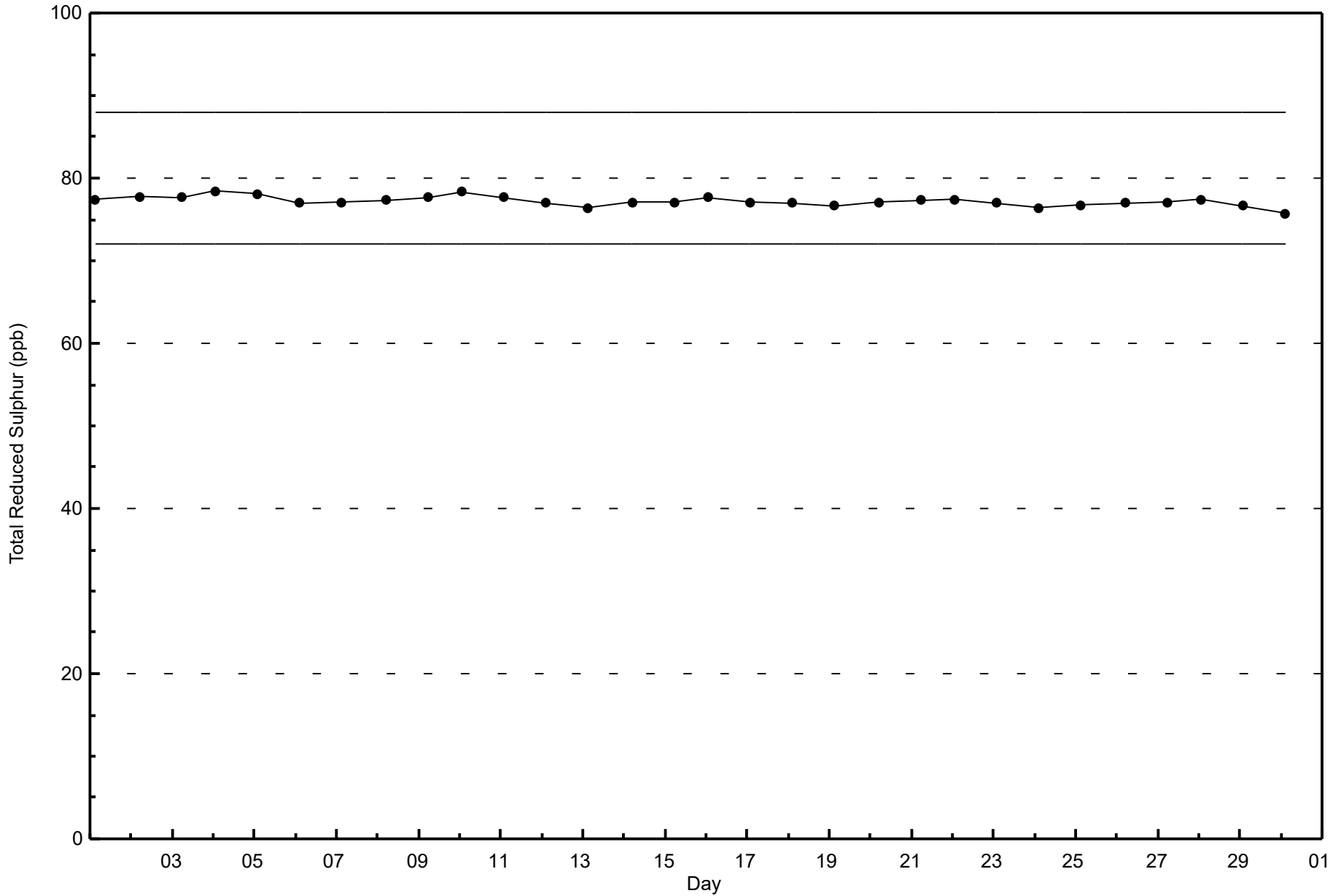
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Barge Landing



Total Number of Valid Hours: 685







# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Total Hydrocarbons (THC) - ppm

## Barge Landing - April 2024

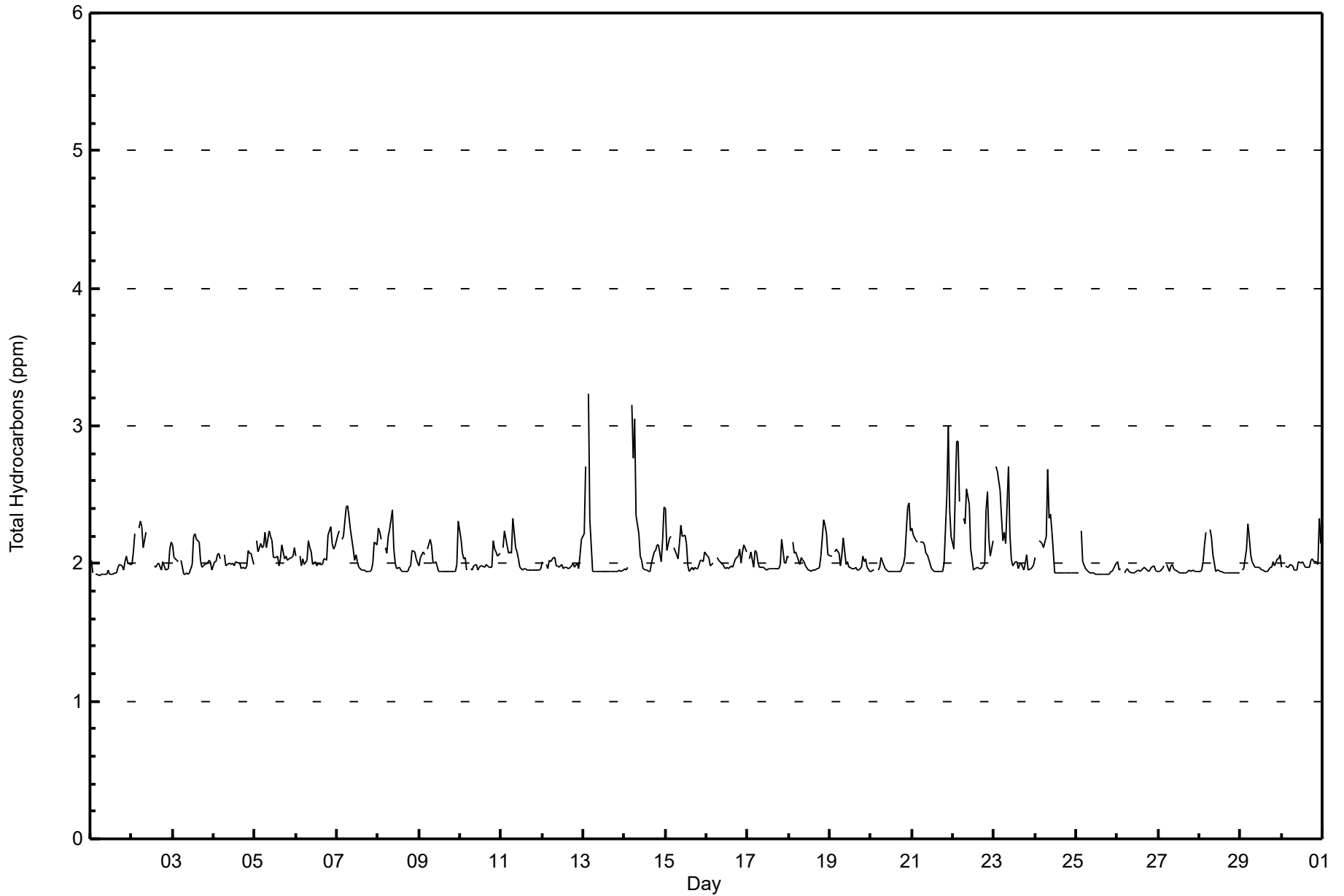
Maximum Value: 3.2 ppm on Apr 13 04:00																			Maximum Daily Average: 2.2 ppm on Apr 22						Hours in Service: 720			
Minimum Value: 1.9 ppm on Apr 1 06:00																			Minimum Daily Average: 2.0 ppm on Apr 27						Hours of Data: 686			
Maximum Diurnal Average: 2.2 ppm at hour 4																			Minimum Diurnal Average: 2.0 ppm at hour 15						Hours of Missing Data: 34			
Monthly Average: 2.05 ppm																			Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.7						Hours of Calibration: 34			
																			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-Apr	2.0	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	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
2-Apr	2.0	2.1	Z	Z	2.3	2.3	2.3	2.1	2.2	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.1	2.2	2.1	2.3	2.1	2.3
3-Apr	2.1	2.0	2.0	2.0	Z	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
4-Apr	2.0	2.0	2.1	2.1	2.0	Z	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	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1
5-Apr	Z	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2
6-Apr	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.3
7-Apr	2.2	2.2	Z	2.2	2.2	2.4	2.4	2.3	2.3	2.1	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.1	2.1	2.1	2.1	2.4
8-Apr	2.3	2.2	2.2	Z	2.1	2.1	2.2	2.2	2.4	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.4
9-Apr	2.0	2.0	2.1	2.1	Z	2.1	2.2	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	2.0	2.3	2.0	2.0	2.3	2.3
10-Apr	2.2	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.2
11-Apr	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3
12-Apr	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	2.1	2.2	2.0	2.0	2.0	2.2
13-Apr	2.2	2.7	Z	3.2	2.3	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	3.2
14-Apr	2.0	2.0	2.0	Z	3.2	2.8	3.1	2.3	2.2	2.1	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.1	2.1	2.1	2.1	2.0	2.2	2.4	2.2	2.2	2.2	3.2
15-Apr	2.4	2.1	2.2	2.2	Z	2.1	2.1	2.0	2.1	2.3	2.2	2.2	2.1	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.4
16-Apr	2.1	2.0	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	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1
17-Apr	Z	2.0	2.1	2.0	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	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.2
18-Apr	2.0	Z	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.3	2.3	2.2	2.1	2.0	2.0	2.3	2.3
19-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.1	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	1.9	2.0	2.0	2.0	2.2
20-Apr	1.9	1.9	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.4	2.4	2.2	2.0	2.0	2.4	2.4
21-Apr	2.3	2.2	2.2	2.2	Z	2.2	2.2	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.5	3.0	2.4	2.2	2.1	2.1	2.1	3.0
22-Apr	2.1	2.5	2.9	2.9	2.5	Z	2.3	2.3	2.5	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.5	2.2	2.1	2.2	2.2	2.2	2.9	2.9
23-Apr	Z	2.7	2.7	2.5	2.3	2.2	2.2	2.1	2.7	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.7	2.7
24-Apr	2.0	Z	2.2	2.2	2.1	2.1	2.2	2.7	2.3	2.4	2.2	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	2.7
25-Apr	1.9	1.9	Z	2.2	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	2.0	2.0	2.0	2.0	2.0	2.2
26-Apr	2.0	1.9	2.0	Z	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0
27-Apr	1.9	1.9	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	2.0	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0
28-Apr	1.9	2.0	2.0	2.1	2.2	Z	2.3	2.2	2.1	1.9	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	2.3
29-Apr	Z	1.9	2.0	2.1	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	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	2.1	2.3
30-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	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	2.3	2.2	2.0	2.0	2.0	2.3
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerospan      C - Calibration																												





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	476	69.39	69.39
2.1 - 3.0	207	30.17	99.56
3.1 - 10.0	3	0.44	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Barge Landing - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	67	64	34	12	8	24	34	31	26	27	30	28	20	25	20	26	476
2.1 - 3.0	39	20	6	9	6	3	10	21	17	11	7	4	3	2	15	34	207
3.1 - 10.0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	106	84	40	21	14	27	44	53	45	38	37	32	23	27	35	60	686

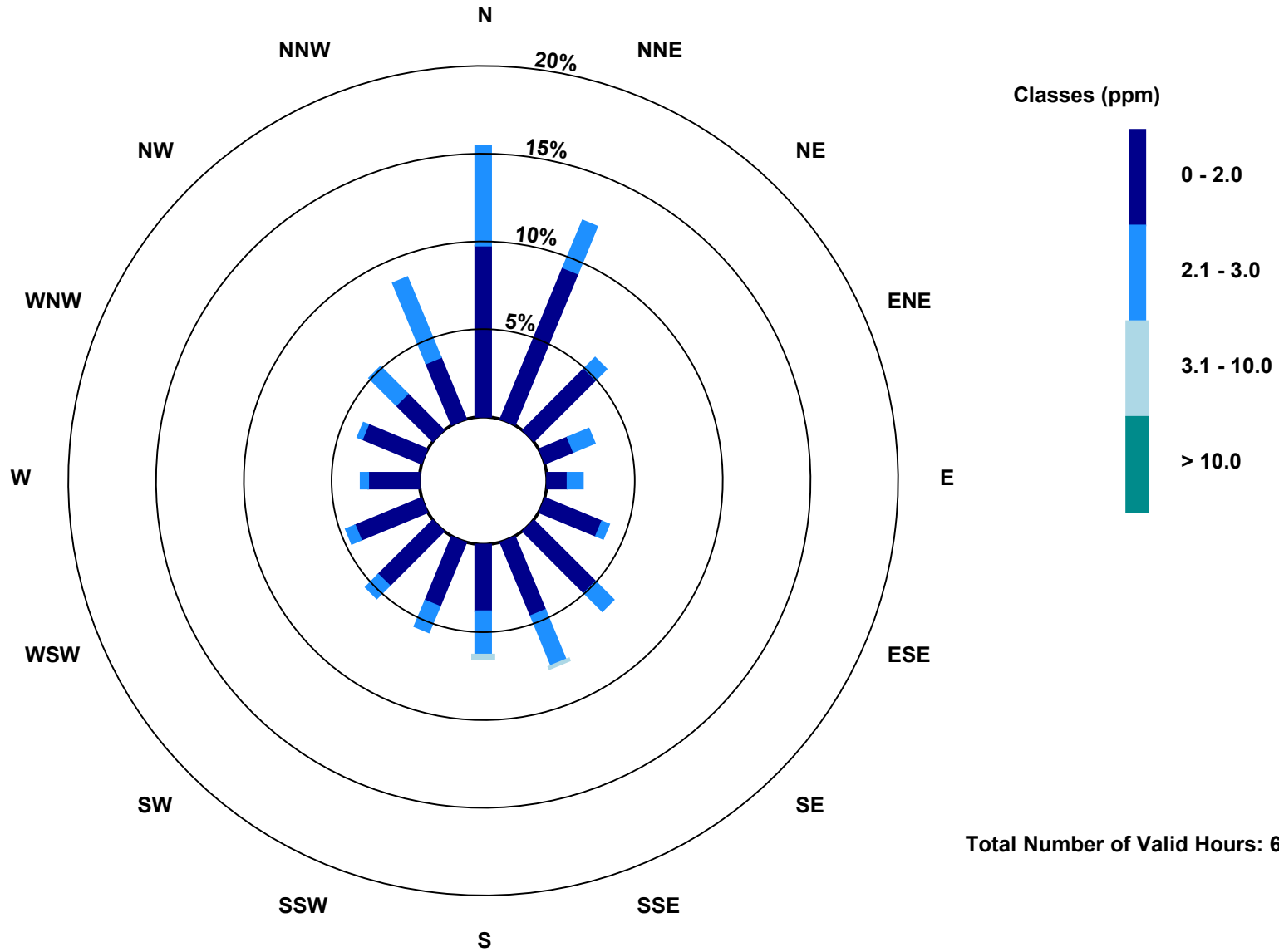
Total Number of Valid Hours: 686

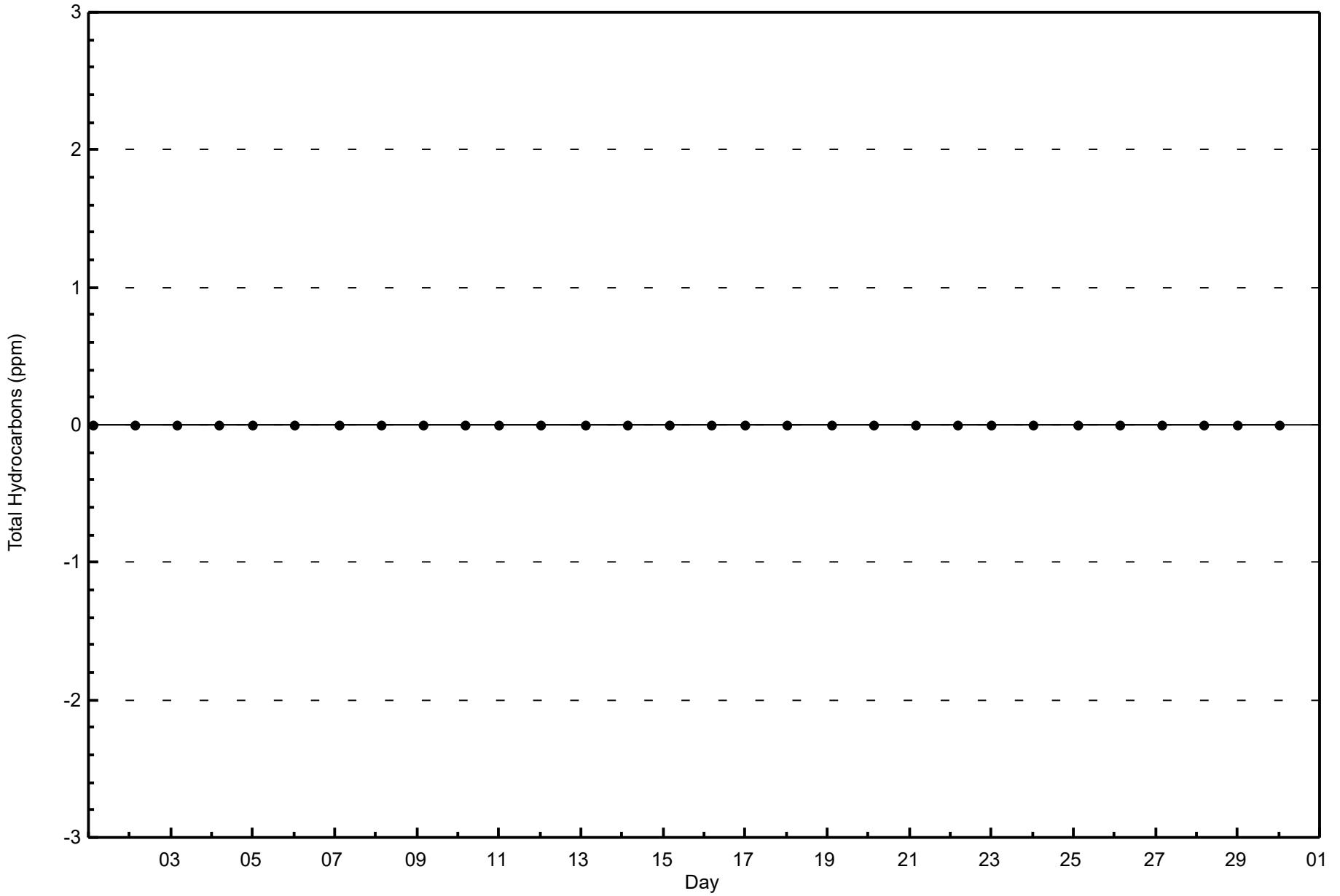
Total Number of Hours: 720

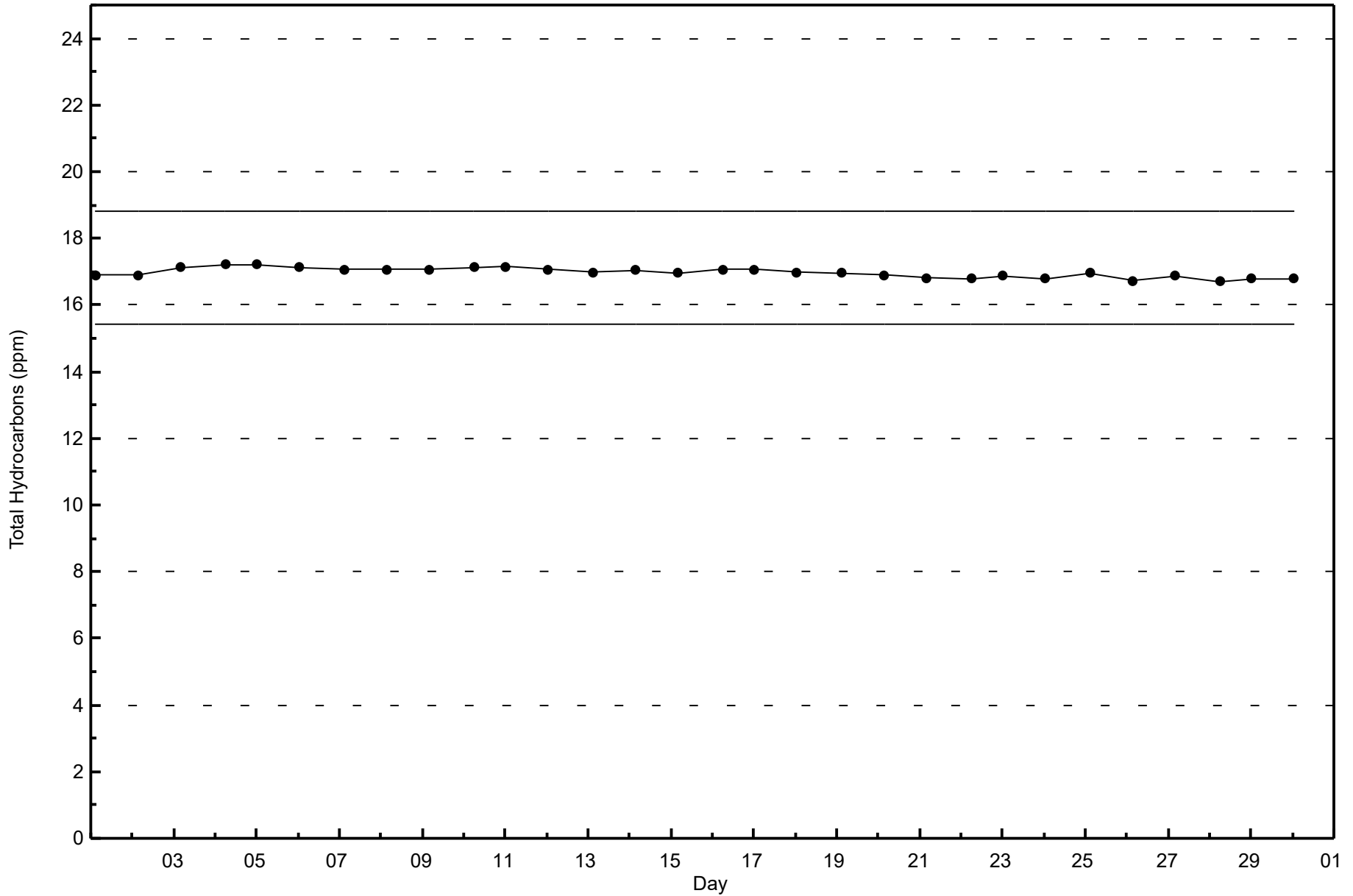


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

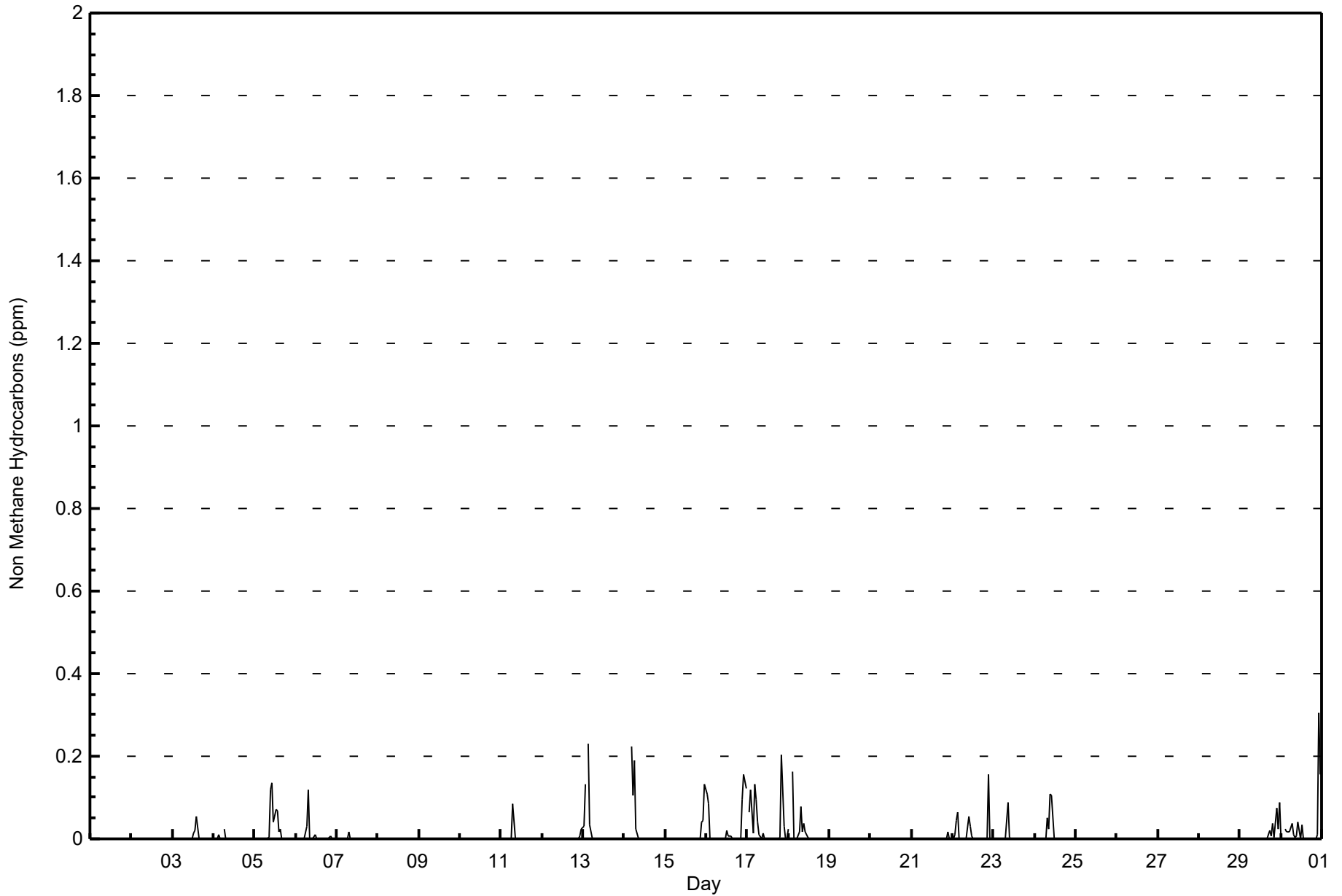
Total Hydrocarbons (THC) - ppm  
Barge Landing















**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	600	87.46	87.46
0.006 - 0.05	53	7.73	95.19
0.06 - 0.1	24	3.50	98.69
> 0.1	9	1.31	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	53	72	40	21	14	27	44	48	39	38	35	31	23	27	35	53	600
0.006 - 0.05	29	11	0	0	0	0	0	4	2	0	1	0	0	0	0	6	53
0.06 - 0.1	18	1	0	0	0	0	0	0	2	0	1	1	0	0	0	1	24
> 0.1	6	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	9
<b>Totals</b>	106	84	40	21	14	27	44	53	45	38	37	32	23	27	35	60	686

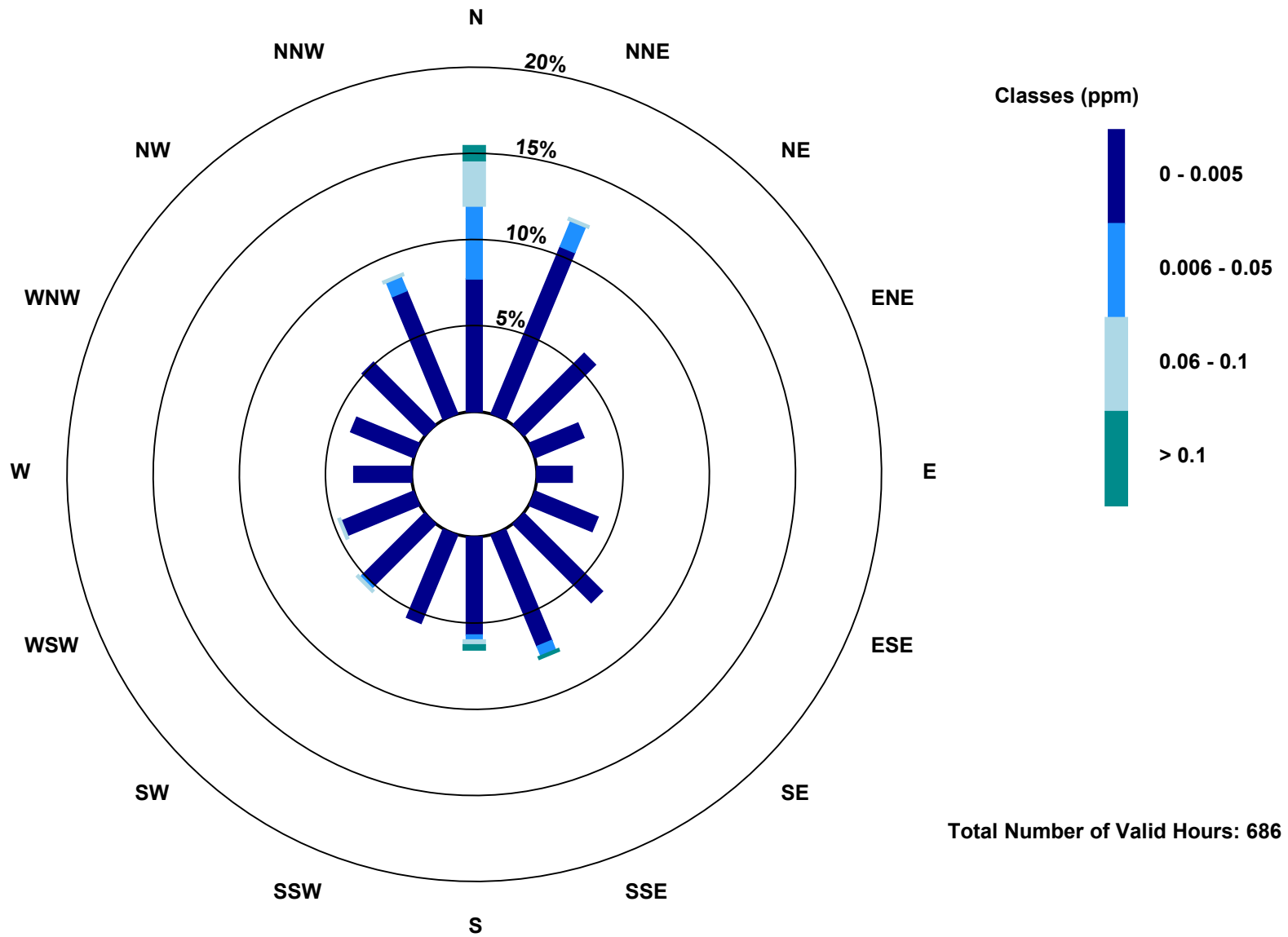
Total Number of Valid Hours: 686

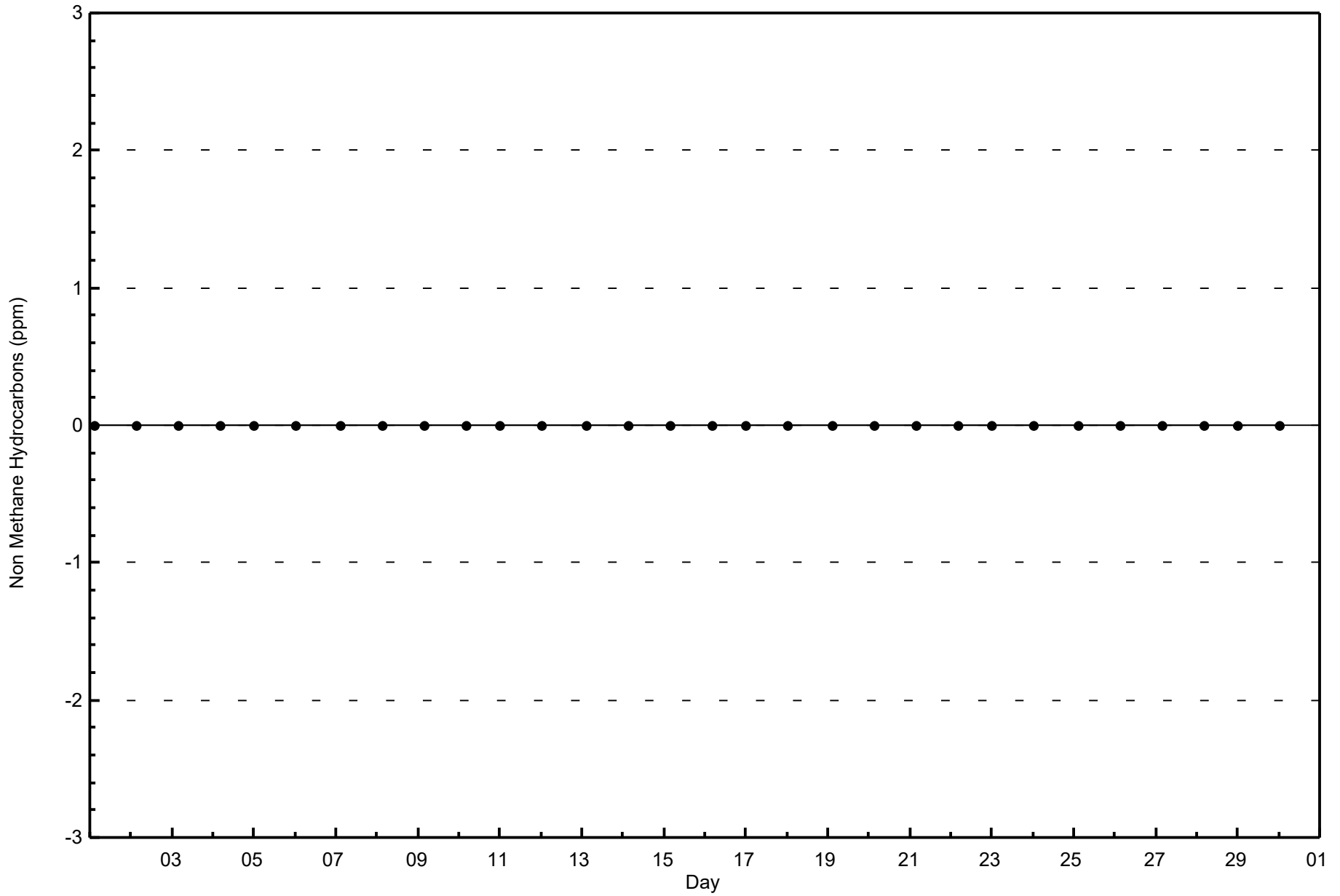
Total Number of Hours: 720

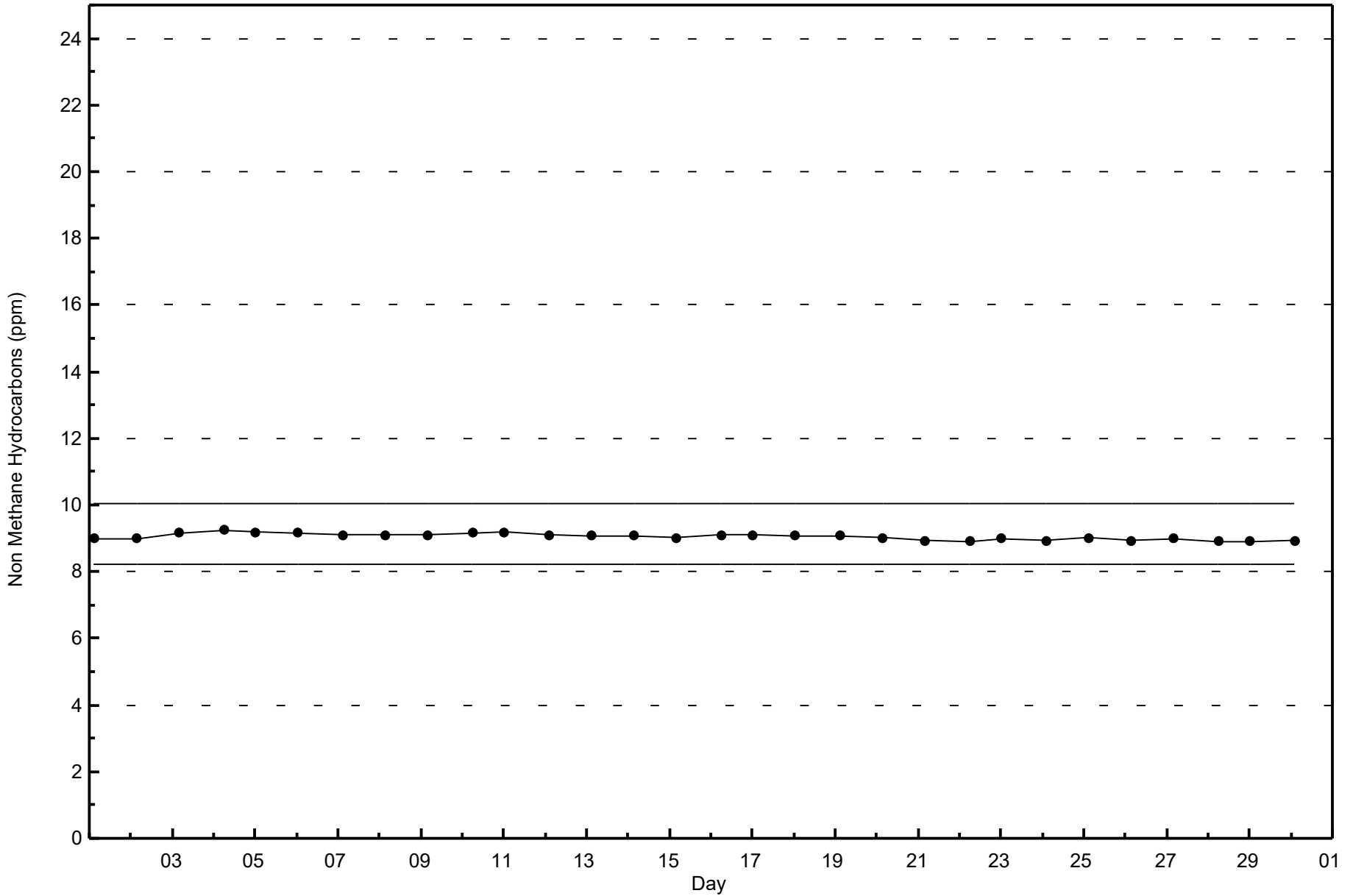


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing





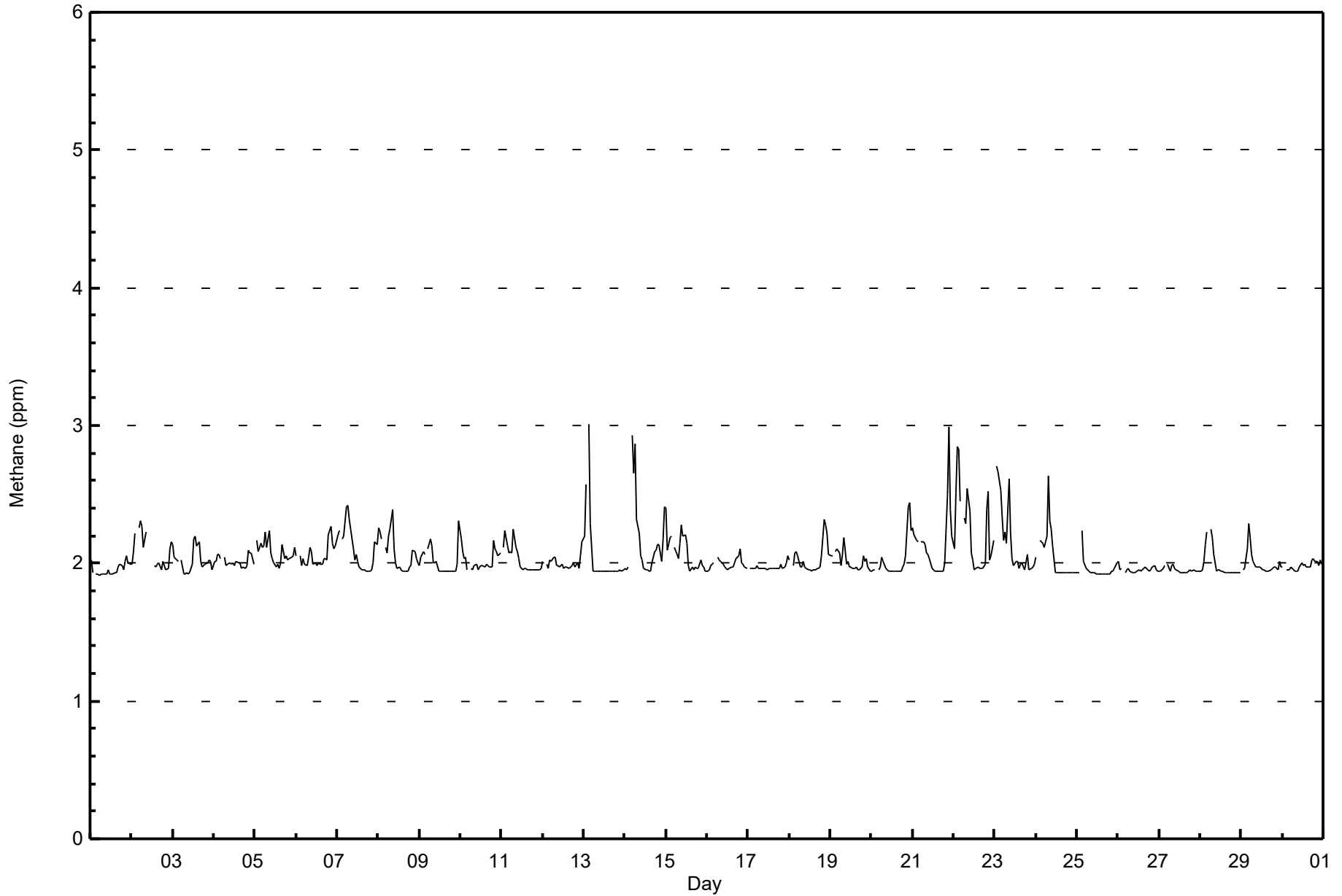






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	494	72.01	72.01
2.1 - 3.0	192	27.99	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Barge Landing - April 2024**

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	64	34	12	8	24	34	31	26	27	30	28	20	25	20	26	494
2.1 - 3.0	21	20	6	9	6	3	10	22	19	11	7	4	3	2	15	34	192
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>	106	84	40	21	14	27	44	53	45	38	37	32	23	27	35	60	686

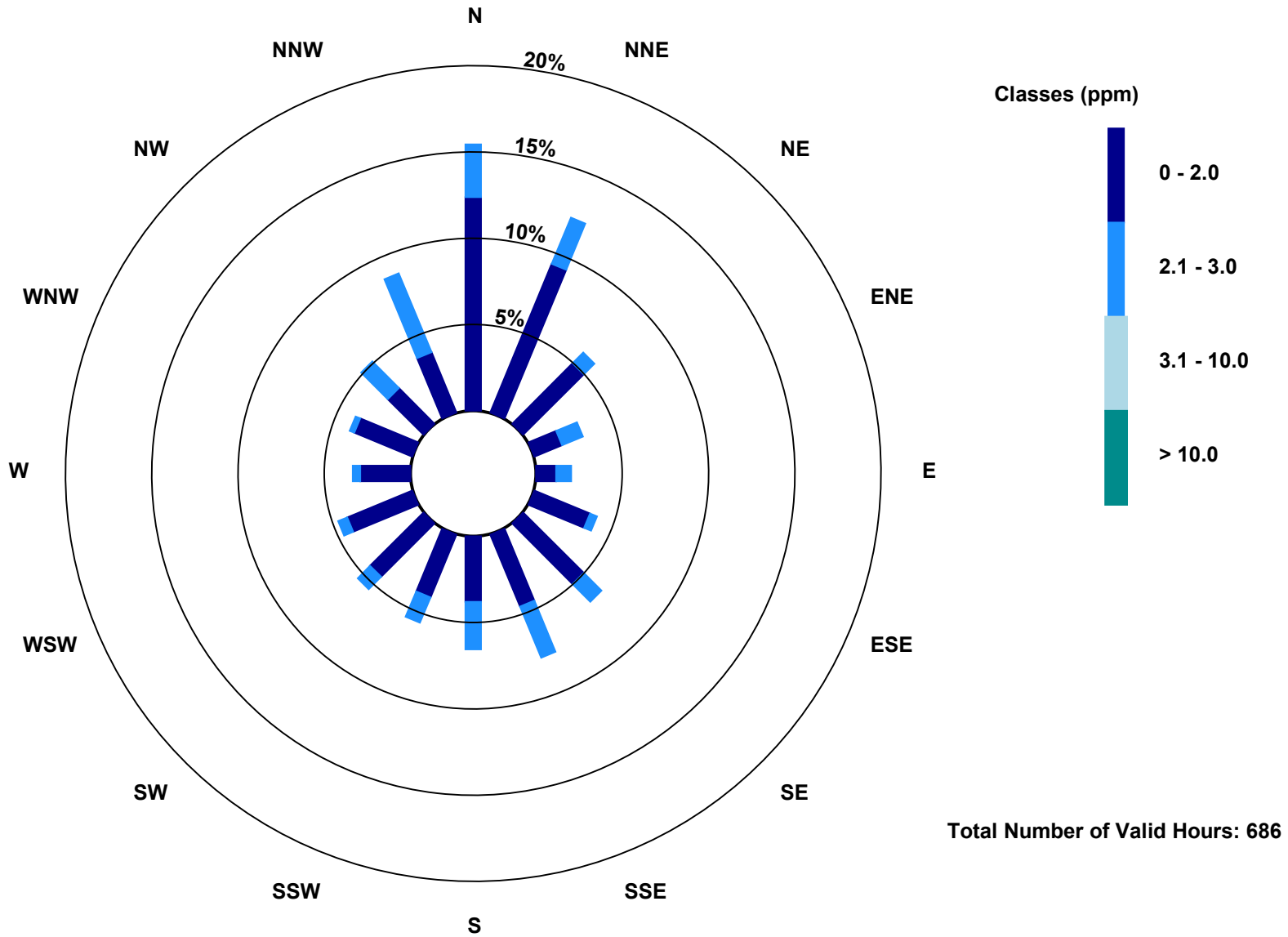
Total Number of Valid Hours: 686

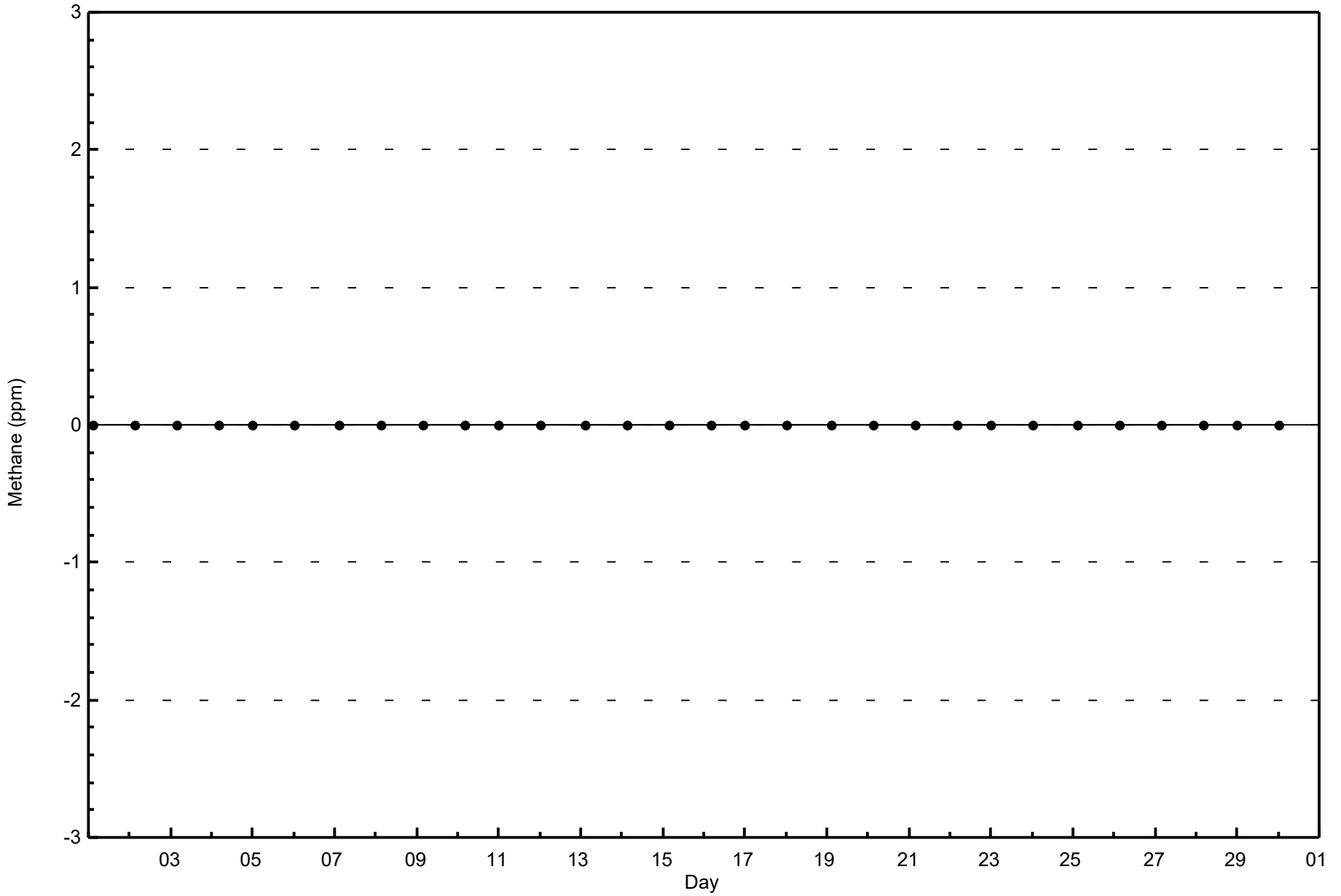
Total Number of Hours: 720

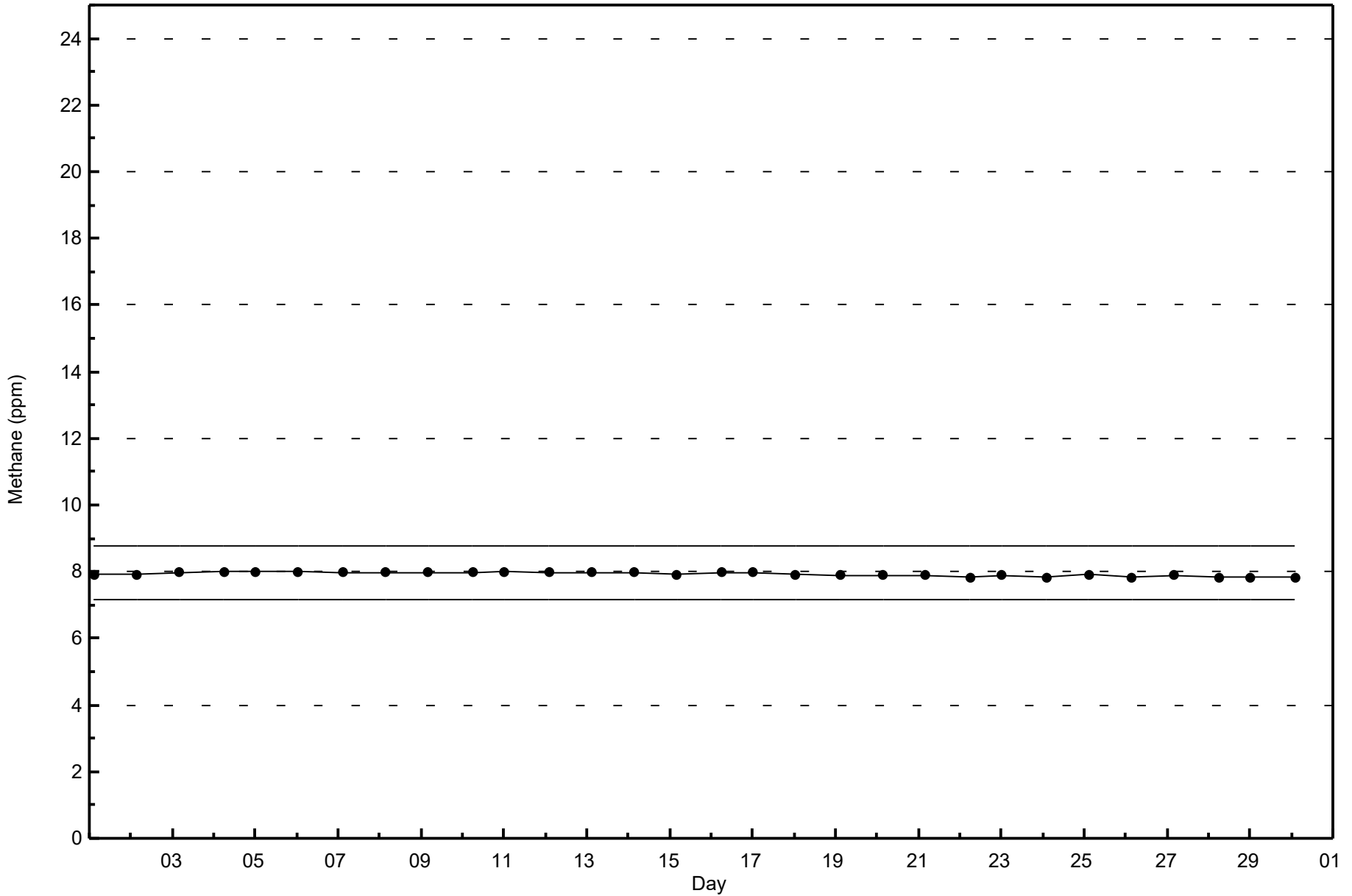


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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







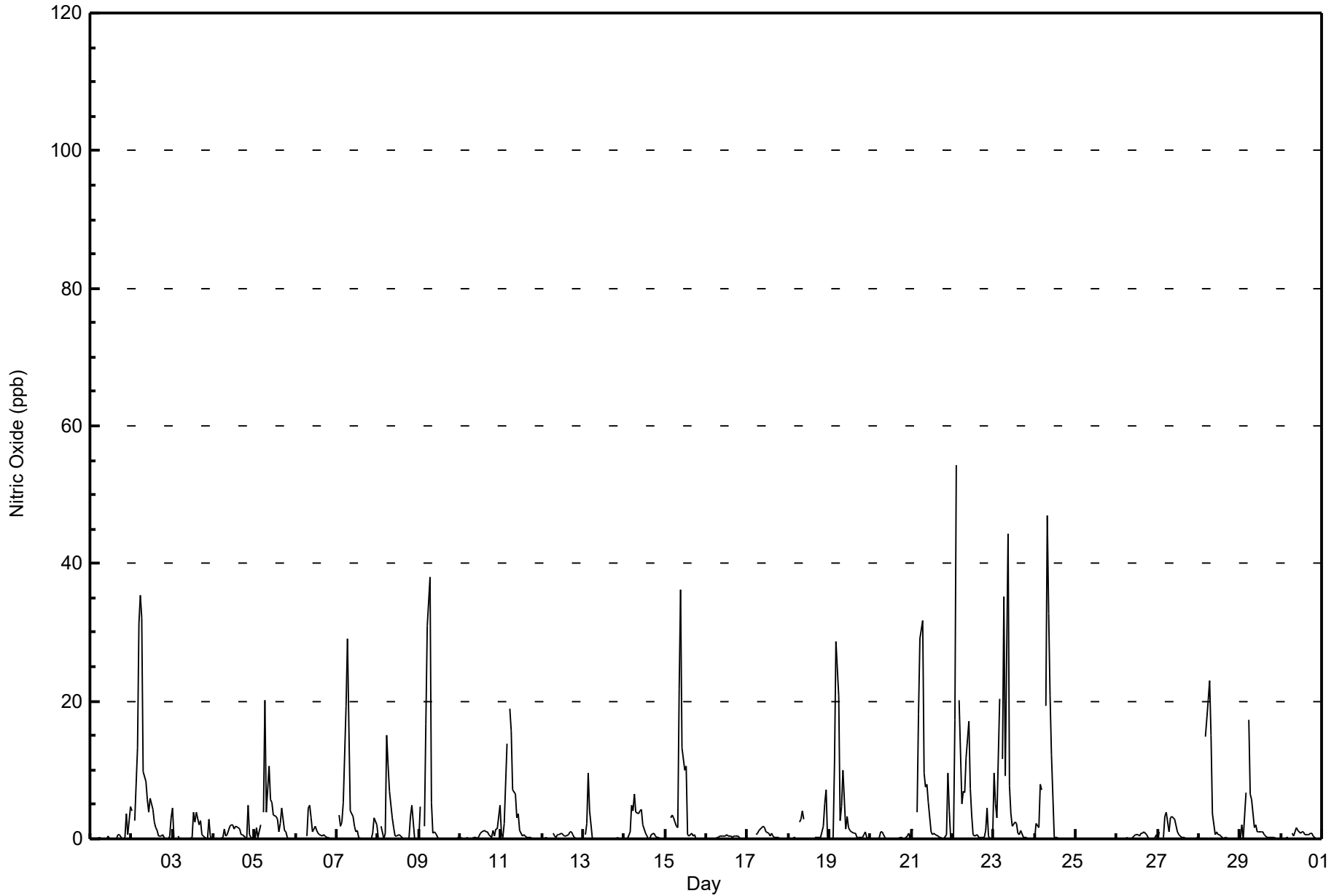


Maximum Value: 54.2 ppb on Apr 22 03:00																				Maximum Daily Average: 7.3 ppb on Apr 2					Hours in Service: 720								
Minimum Value: 0.0 ppb on Apr 1 02:00																				Minimum Daily Average: 0.0 ppb on Apr 25					Hours of Data: 685								
Maximum Diurnal Average: 9.6 ppb at hour 7																				Minimum Diurnal Average: 0.2 ppb at hour 19					Hours of Missing Data: 35								
Monthly Average: 2.55 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.3 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 6.5 P <sub>99</sub> = 33.1					Hours of Calibration: 35								
																				Percent Operational Time: 100.0													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Apr	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.6	0.6	0.1	0.0	0.2	3.7	0.6	4.7	0.5	4.7								
2-Apr	4.0	Z	2.6	13.2	31.4	35.5	32.0	9.8	8.3	5.7	3.9	5.9	4.3	2.4	1.6	1.2	0.5	0.3	0.6	0.3	0.0	0.0	0.3	3.1	7.3	35.5							
3-Apr	4.5	0.2	Z	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	3.8	2.4	3.9	2.0	2.7	0.7	0.5	0.1	0.1	2.9	0.3	0.0	1.1	4.5							
4-Apr	0.0	0.0	0.0	Z	0.1	0.1	1.5	0.5	0.6	1.8	2.1	2.0	1.3	1.8	1.6	1.5	0.5	0.5	0.2	0.1	5.0	0.7	0.3	0.0	1.0	5.0							
5-Apr	0.1	1.6	0.3	2.1	Z	3.9	20.1	3.9	10.6	5.7	5.3	3.4	3.2	2.9	1.0	2.3	4.5	1.3	1.1	0.1	0.1	0.0	0.0	3.2	20.1								
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.4	4.5	4.8	3.1	1.1	1.8	1.2	0.8	0.5	0.5	0.5	0.4	0.3	0.1	0.1	0.1	0.1	0.0	0.9	4.8							
7-Apr	Z	3.5	1.8	2.5	5.4	19.4	29.2	16.2	4.2	3.2	1.7	1.1	1.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.1	2.0	4.2	29.2							
8-Apr	0.2	Z	1.9	0.0	0.7	15.0	10.8	6.9	3.0	1.6	0.5	0.5	0.5	0.4	0.1	0.0	0.1	0.1	0.2	3.3	4.9	0.0	0.0	0.0	2.2	15.0							
9-Apr	0.0	4.6	Z	1.9	16.7	30.8	38.1	5.2	0.8	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	4.4	38.1							
10-Apr	0.1	0.0	0.1	Z	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.4	0.7	1.0	1.3	0.9	0.9	0.6	0.2	1.2	0.5	1.3	1.4	4.9	0.7	4.9							
11-Apr	0.9	0.3	2.2	13.8	Z	19.0	15.7	7.2	6.4	3.1	3.6	1.2	0.4	0.6	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.3	19.0							
12-Apr	0.0	0.0	0.1	0.0	0.0	Z	0.9	0.5	0.2	0.6	0.6	0.8	0.6	0.5	0.3	0.7	1.0	0.9	0.7	0.1	0.0	0.0	0.0	0.1	0.4	1.0							
13-Apr	Z	0.6	2.3	9.5	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.7	9.5							
14-Apr	0.0	Z	0.1	1.1	4.9	4.1	6.5	3.9	3.7	4.0	4.3	1.9	0.7	0.3	0.0	0.0	0.7	0.8	0.4	0.2	0.2	0.0	0.1	0.1	1.7	6.5							
15-Apr	0.3	0.1	Z	3.0	3.4	3.1	1.7	1.6	21.8	36.3	13.1	10.0	10.6	0.6	0.3	0.8	0.5	0.7	0.1	0.1	0.0	0.0	0.0	0.0	4.7	36.3							
16-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.2	0.3	0.5	0.4	0.2	0.0	0.1	0.1	0.0	0.2	0.5							
17-Apr	0.0	0.0	0.0	0.0	Z	0.5	0.7	1.2	1.6	1.8	1.6	0.9	0.8	0.4	0.8	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.5	1.8							
18-Apr	0.0	0.0	0.1	0.2	0.1	Z	2.5	2.8	4.1	2.8	C	C	C	C	C	0.3	0.3	0.3	0.2	0.1	1.8	5.0	7.2	0.0	1.5	7.2							
19-Apr	Z	0.1	0.1	11.3	28.7	20.7	2.7	4.6	10.0	1.5	3.3	1.7	1.3	1.1	0.9	0.8	0.2	0.1	0.1	0.1	0.7	1.0	0.3	0.0	4.0	28.7							
20-Apr	0.0	Z	0.0	0.0	0.0	0.1	1.1	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.5	0.9	0.1	0.2	1.1							
21-Apr	1.4	1.3	Z	3.9	18.1	29.2	31.8	9.7	7.5	8.0	5.3	0.9	0.7	0.8	0.5	0.4	0.3	0.2	0.0	0.1	0.6	9.5	4.0	0.0	5.8	31.8							
22-Apr	0.0	17.3	54.2	Z	20.1	5.1	7.0	6.7	11.9	17.2	7.4	3.4	0.6	0.5	0.6	0.3	0.2	0.2	0.3	1.2	4.4	0.3	0.1	0.1	6.9	54.2							
23-Apr	9.5	5.1	3.0	20.4	Z	11.5	35.1	9.1	44.3	7.7	3.8	1.9	2.5	2.3	0.9	0.6	1.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	6.9	44.3							
24-Apr	0.0	2.2	1.7	7.9	7.2	Z	19.4	47.0	32.8	20.8	12.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	47.0							
25-Apr	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1							
26-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.4	0.5	0.6	0.4	0.8	0.9	1.1	0.7	0.3	0.1	0.1	0.0	0.3	0.6	0.3	1.1						
27-Apr	0.0	1.0	Z	0.1	3.3	3.9	1.0	3.1	3.3	3.0	2.9	0.9	0.6	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.1	3.9							
28-Apr	0.0	0.0	0.0	Z	14.8	20.1	22.9	15.1	3.7	0.6	1.0	0.6	0.7	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	3.5	22.9							
29-Apr	0.0	2.1	0.0	6.7	Z	17.3	6.5	5.7	1.7	2.1	1.0	1.0	1.1	1.0	0.6	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	2.1	17.3							
30-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.8	0.4	1.0	1.6	1.2	0.9	1.1	1.1	0.6	0.6	0.7	0.8	0.9	0.3	0.1	0.1	0.1	0.1	0.6	1.6							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	666	97.23	97.23
21 - 40	16	2.34	99.56
41 - 80	3	0.44	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Barge Landing - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	102	84	39	20	15	28	37	54	44	36	37	31	20	29	35	55	666
21 - 40	1	0	0	0	0	0	3	2	2	2	1	0	1	0	0	4	16
11 - 80	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	104	84	39	20	15	28	40	56	47	38	38	31	21	29	35	60	685

Total Number of Valid Hours: 685

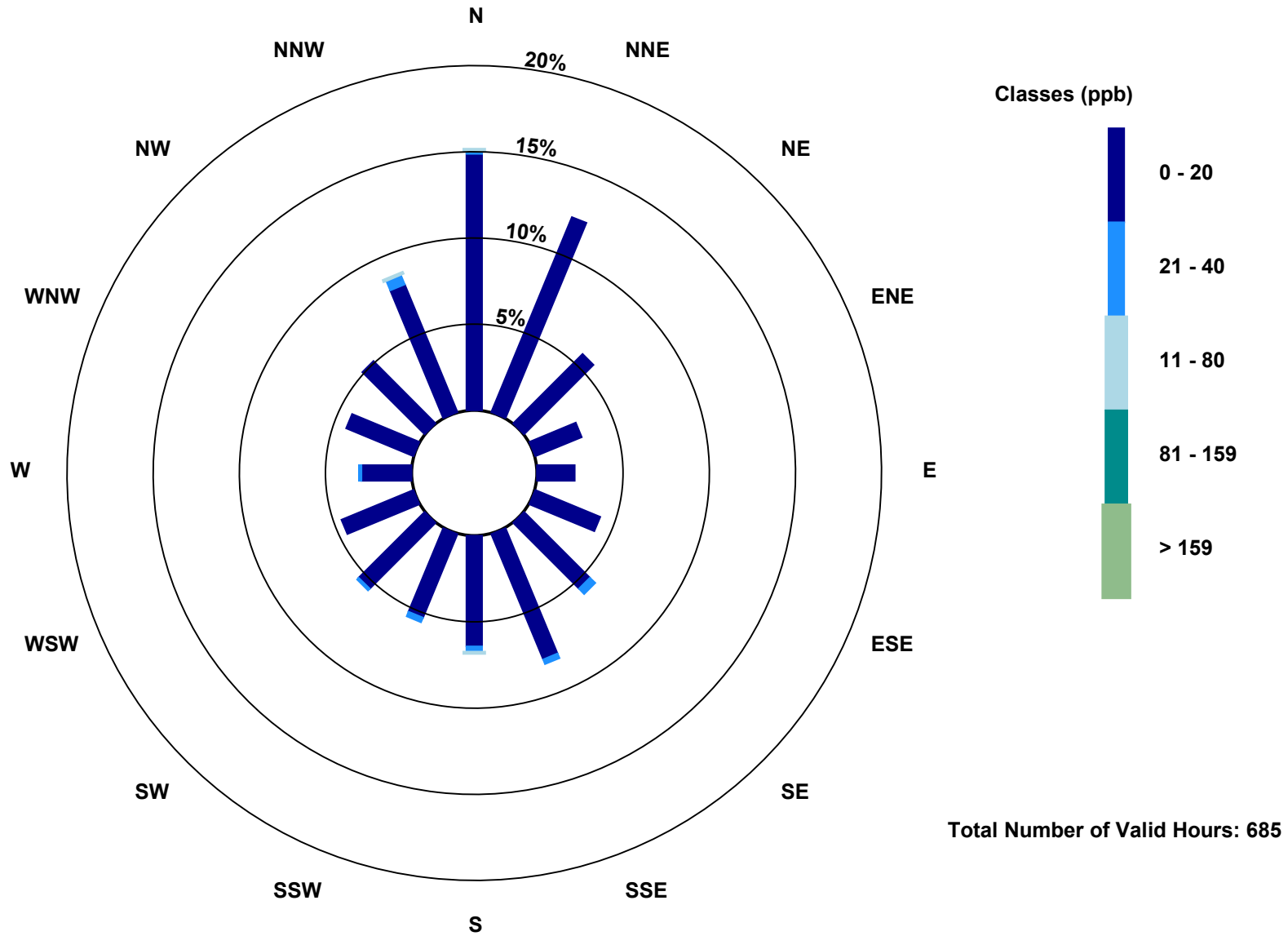
Total Number of Hours: 720

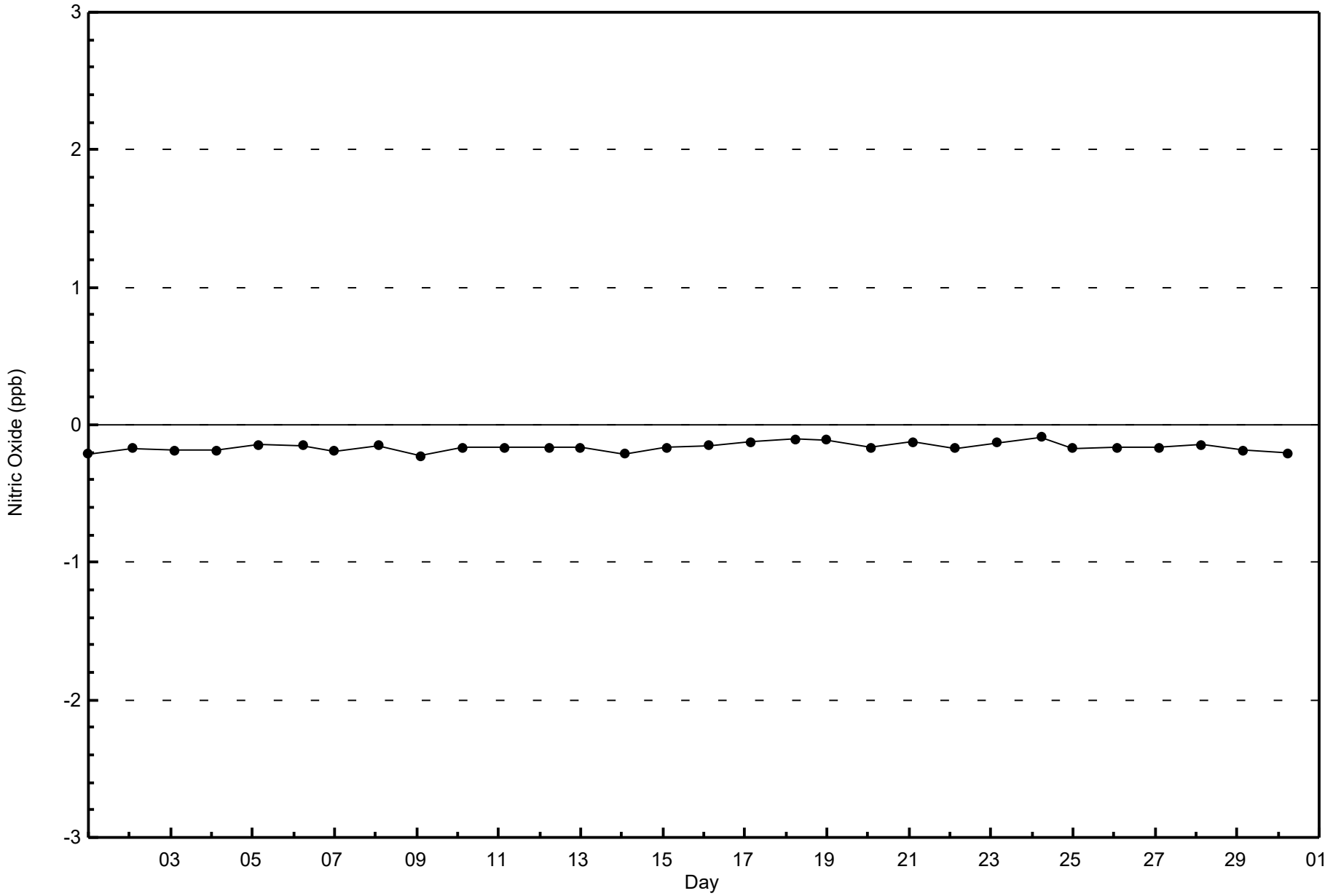


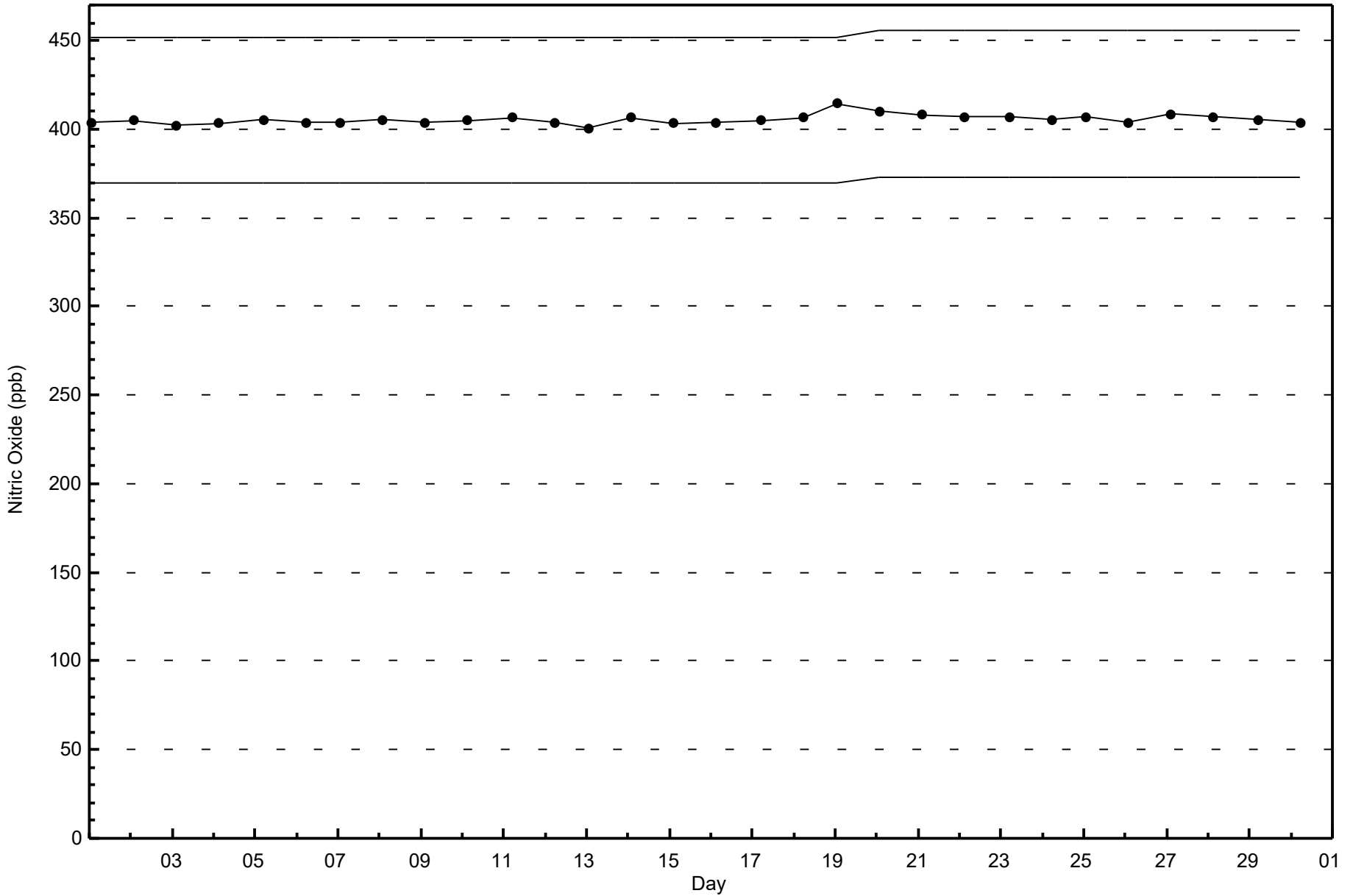


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Barge Landing









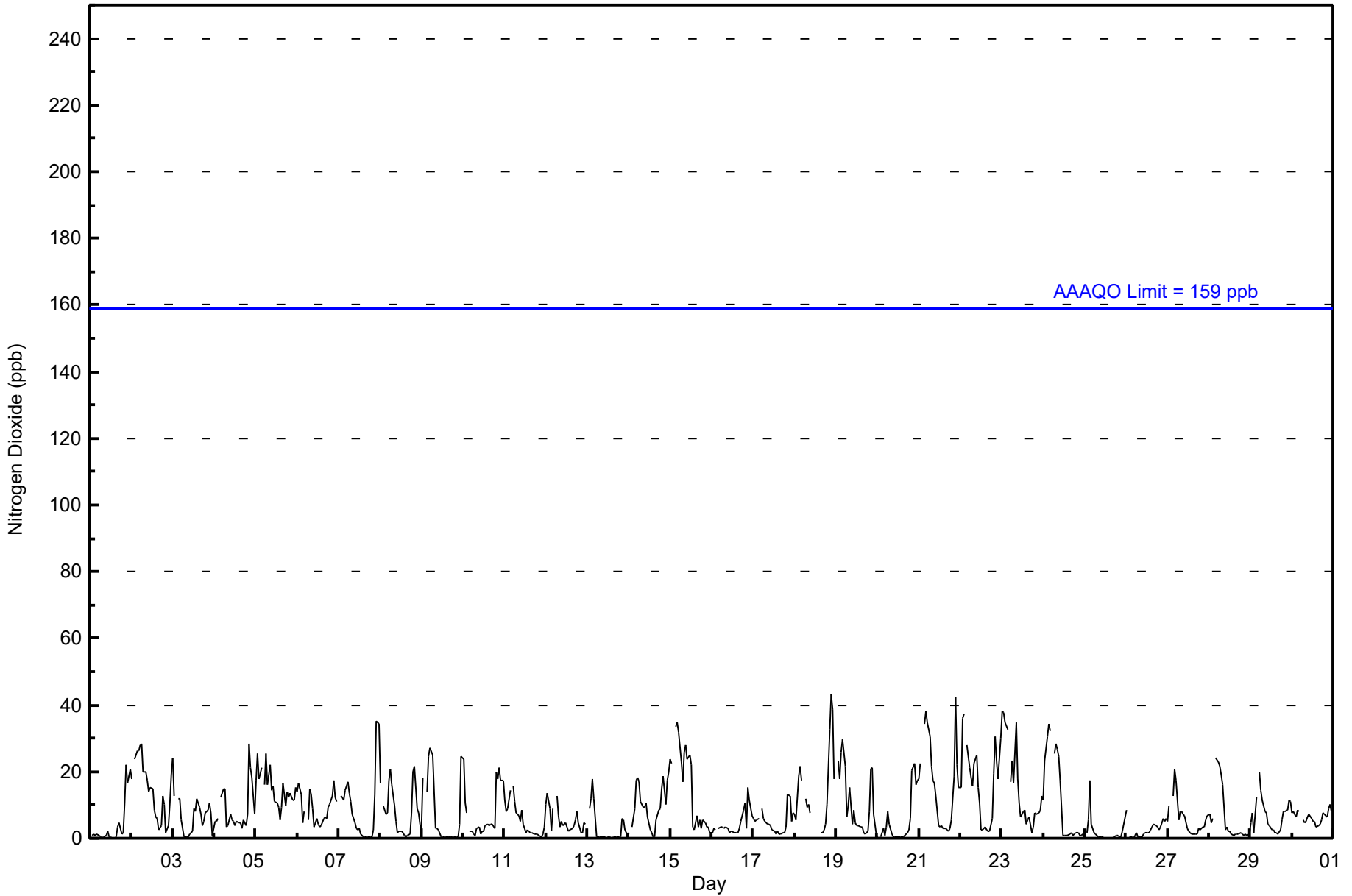
**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Barge Landing - April 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 43.4 ppb on Apr 18 22:00	Maximum Daily Average: 16.8 ppb on Apr 22		Hours of Data:	685
Minimum Value: 0.1 ppb on Apr 25 16:00	Minimum Daily Average: 2.0 ppb on Apr 25		Hours of Missing Data:	35
Maximum Diurnal Average: 15.5 ppb at hour 5	Minimum Diurnal Average: 2.6 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 8.59 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.9 Median = 5.3 Q <sub>3</sub> = 12.7 P <sub>90</sub> = 21.6 P <sub>99</sub> = 36.1		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-Apr	Z	0.8	1.2	0.8	1.1	0.9	0.3	0.2	0.4	0.8	2.1	0.4	0.3	0.2	0.2	0.4	3.3	4.8	1.4	1.7	10.6	22.2	16.4	20.9	4.0	22.2																							
2-Apr	18.0	Z	23.6	26.4	26.2	27.9	28.2	19.9	19.8	17.4	14.0	15.4	14.9	8.4	6.3	6.1	2.7	4.0	12.9	10.3	1.6	3.8	10.7	19.2	14.7	28.2																							
3-Apr	24.3	12.6	Z	11.9	11.9	5.3	0.6	0.5	0.6	0.6	1.1	2.1	9.1	8.2	12.0	9.5	7.4	3.8	5.1	7.7	8.5	10.4	7.5	0.8	7.0	24.3																							
4-Apr	5.1	4.9	6.0	Z	12.2	14.8	14.8	3.3	3.8	7.2	5.7	5.1	3.8	5.0	4.5	4.8	3.1	5.7	4.0	7.4	28.3	21.1	18.1	7.2	8.5	28.3																							
5-Apr	17.5	25.4	18.0	21.0	Z	16.1	16.1	25.4	15.9	22.0	14.6	15.6	11.0	10.8	9.3	5.7	9.3	16.6	9.9	13.9	12.2	13.5	11.6	11.5	15.1	14.9	25.4																						
6-Apr	13.9	16.6	13.2	4.7	8.0	Z	5.6	14.8	13.1	8.7	3.2	5.9	4.1	3.6	4.0	6.1	6.2	5.8	9.3	10.1	12.5	17.3	12.4	10.9	9.1	17.3																							
7-Apr	Z	12.7	12.1	11.3	14.5	17.1	13.7	11.0	7.4	4.6	2.9	2.4	2.8	1.2	0.6	0.6	0.6	0.4	0.4	0.5	2.5	13.0	35.3	34.5	8.8	35.3																							
8-Apr	16.7	Z	9.7	7.3	7.7	17.4	20.7	15.9	9.7	4.9	1.9	2.2	2.2	1.5	0.8	0.5	1.0	1.2	7.5	20.1	21.8	8.8	7.8	4.1	8.3	21.8																							
9-Apr	2.4	18.2	Z	14.0	24.6	27.1	25.0	13.9	2.9	3.1	2.7	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	4.1	24.4	7.2	27.1																							
10-Apr	23.7	10.5	7.8	Z	2.0	2.3	1.2	1.0	2.8	3.2	1.1	2.2	2.2	4.0	4.4	3.9	4.1	4.1	3.1	20.0	17.6	21.3	17.5	17.4	7.7	23.7																							
11-Apr	11.6	8.1	9.0	14.6	Z	15.6	11.1	7.7	6.8	4.9	8.3	4.3	1.7	2.4	2.3	1.9	1.6	1.3	1.1	1.1	1.0	0.4	1.1	3.3	5.3	15.6																							
12-Apr	10.3	13.5	9.0	2.1	8.9	Z	12.7	6.9	3.6	5.0	3.7	4.5	3.5	2.3	2.5	3.1	4.0	5.3	8.1	4.6	1.9	1.8	4.7	4.2	5.5	13.5																							
13-Apr	Z	9.0	11.9	18.0	12.0	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	6.0	5.3	2.4	0.8	3.0	18.0																							
14-Apr	1.9	Z	3.6	9.1	17.3	18.2	16.8	11.0	9.5	9.5	10.5	6.2	2.5	1.6	0.5	0.3	5.3	8.5	9.1	15.0	18.5	10.2	17.2	20.1	9.7	20.1																							
15-Apr	23.6	22.6	Z	33.4	34.7	31.8	22.8	16.8	25.8	27.8	23.8	24.9	21.9	3.6	2.6	6.9	3.5	5.6	3.0	5.3	4.6	3.4	3.2	1.5	15.4	34.7																							
16-Apr	1.7	2.8	2.5	Z	2.9	3.4	3.4	2.9	3.4	2.8	1.9	2.0	2.0	1.9	1.9	1.7	3.0	5.1	8.6	10.4	2.9	15.2	11.4	6.7	4.4	15.2																							
17-Apr	6.1	5.0	5.6	5.9	Z	8.8	6.0	4.9	4.4	4.3	3.7	2.4	2.0	1.3	2.1	1.3	1.1	1.5	1.8	3.5	13.1	12.8	4.9	7.7	4.8	13.1																							
18-Apr	7.3	5.6	18.5	21.5	17.3	Z	11.8	9.5	10.3	7.7	C	C	C	C	C	1.5	1.7	2.5	4.4	10.1	32.5	43.4	38.5	18.0	14.6	43.4																							
19-Apr	Z	23.2	18.0	25.8	29.8	21.4	6.2	9.6	15.3	4.4	8.3	4.8	4.0	4.0	3.5	3.6	1.7	1.4	2.3	7.9	20.8	21.1	7.2	0.8	10.7	29.8																							
20-Apr	0.5	Z	0.6	2.9	1.0	3.4	8.2	4.2	1.1	0.5	0.4	0.4	0.3	0.4	0.4	0.6	0.9	1.9	2.6	6.1	20.2	22.6	15.9	17.3	4.9	22.6																							
21-Apr	17.9	22.5	Z	34.4	38.0	34.8	30.7	21.6	17.2	16.5	12.6	3.9	3.3	3.9	3.0	2.8	2.5	2.3	2.8	5.5	18.7	42.5	22.2	15.3	16.3	42.5																							
22-Apr	15.4	35.9	37.3	Z	27.8	21.1	18.3	15.7	22.3	25.0	15.1	10.8	2.7	2.6	3.3	2.4	2.0	2.3	6.0	19.7	30.4	23.4	17.9	30.1	16.8	37.3																							
23-Apr	38.3	37.7	34.6	32.5	Z	17.1	23.3	16.5	34.7	17.6	10.4	6.2	8.1	8.4	4.4	5.4	6.5	1.7	3.4	7.6	7.2	7.6	8.5	12.6	15.2	38.3																							
24-Apr	11.5	23.3	30.4	34.5	32.3	Z	25.3	28.5	26.9	24.5	17.4	0.9	1.0	1.0	0.9	1.3	1.6	1.0	1.3	1.9	1.6	0.8	1.0	1.1	11.7	34.5																							
25-Apr	Z	1.5	5.5	17.2	4.3	1.6	1.2	0.8	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.6	0.9	0.7	0.4	0.3	2.1	6.5	2.0	17.2																							
26-Apr	8.6	Z	0.5	0.4	0.2	1.0	1.9	0.5	0.3	0.5	1.4	1.8	1.9	1.6	2.5	3.2	4.4	3.7	3.3	2.4	3.3	5.9	5.2	6.0	2.6	8.6																							
27-Apr	5.2	9.9	Z	12.7	20.8	17.5	5.3	8.2	7.9	7.0	6.7	3.0	2.3	1.5	1.3	1.2	1.2	1.4	3.0	2.6	3.6	3.6	5.6	6.7	6.0	20.8																							
28-Apr	7.2	4.7	5.9	Z	24.2	23.0	21.4	19.1	16.0	2.7	3.3	2.3	2.3	1.4	0.9	1.3	1.4	1.1	1.5	1.4	0.8	1.1	1.0	1.3	6.3	24.2																							
29-Apr	4.8	7.8	1.8	12.4	Z	19.9	14.3	11.3	7.9	7.6	4.1	3.7	2.7	2.5	1.9	1.8	1.4	2.7	5.7	8.0	7.9	8.5	11.5	11.0	7.0	19.9																							
30-Apr	7.7	7.9	6.5	8.3	8.0	Z	5.7	4.7	4.9	6.3	7.3	5.9	5.1	4.9	3.4	4.0	4.4	5.5	7.8	7.3	6.3	9.1	10.1	8.0	6.5	10.1																							
																								12.0	13.7	11.7	15.3	15.5	14.7	12.7	9.9	10.1	8.0	6.5	4.7	4.1	3.0	2.6	2.9	3.1	3.2	4.5	7.1	10.6	12.3	11.1	11.1	Diurnal Average	
																								38.3	37.7	37.3	34.5	38.0	34.8	30.7	28.5	34.7	27.8	23.8	24.9	21.9	9.3	12.0	9.5	16.6	9.9	13.9	20.1	32.5	43.4	38.5	34.5	Diurnal Maximum	

Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Barge Landing - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	604	88.18	88.18
21 - 40	79	11.53	99.71
41 - 80	2	0.29	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Barge Landing - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	93	78	38	17	12	27	35	50	42	33	35	30	19	28	32	35	604
21 - 40	10	6	1	3	3	1	5	6	5	5	3	1	2	1	3	24	79
11 - 80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	104	84	39	20	15	28	40	56	47	38	38	31	21	29	35	60	685

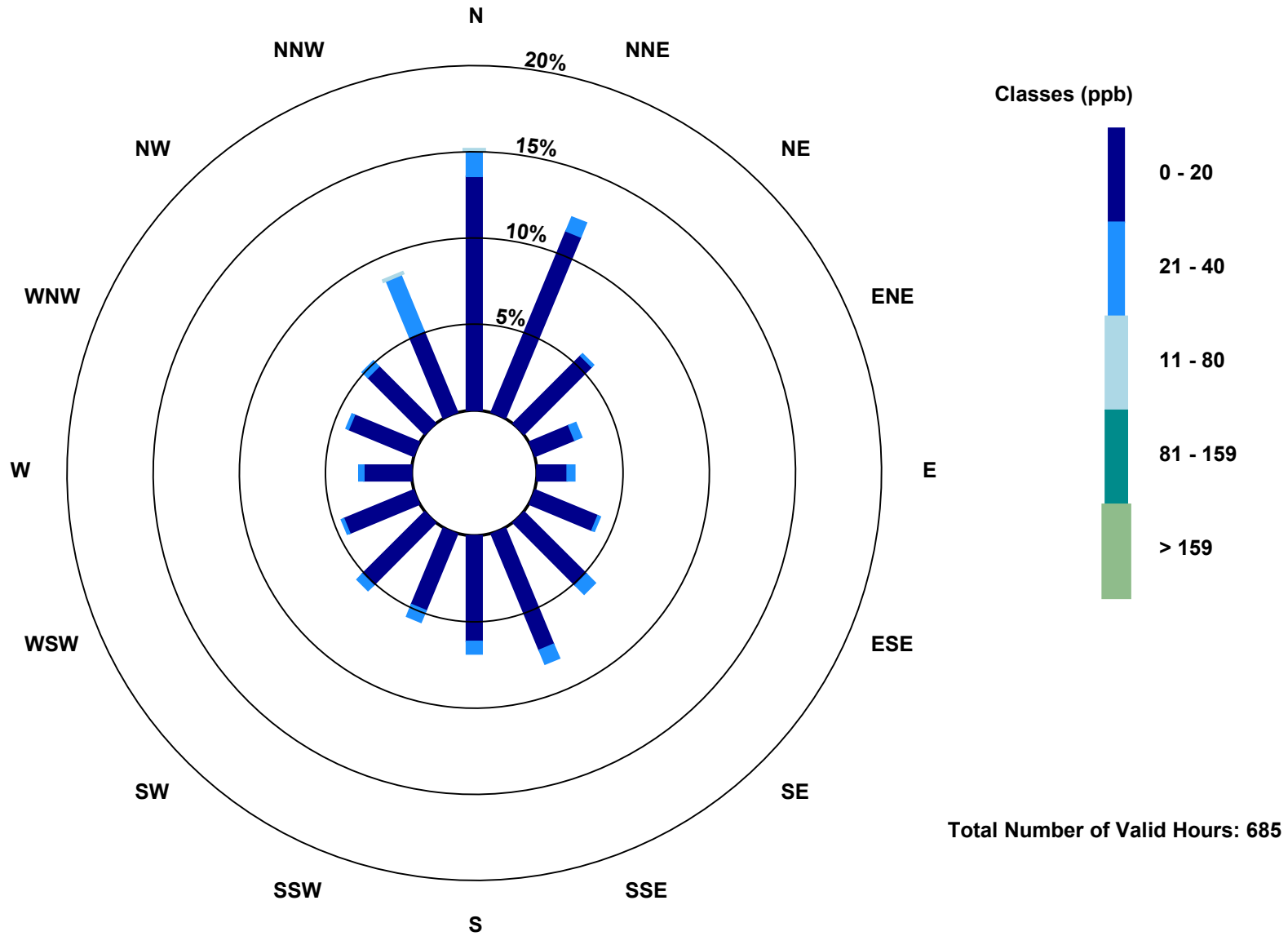
Total Number of Valid Hours: 685

Total Number of Hours: 720

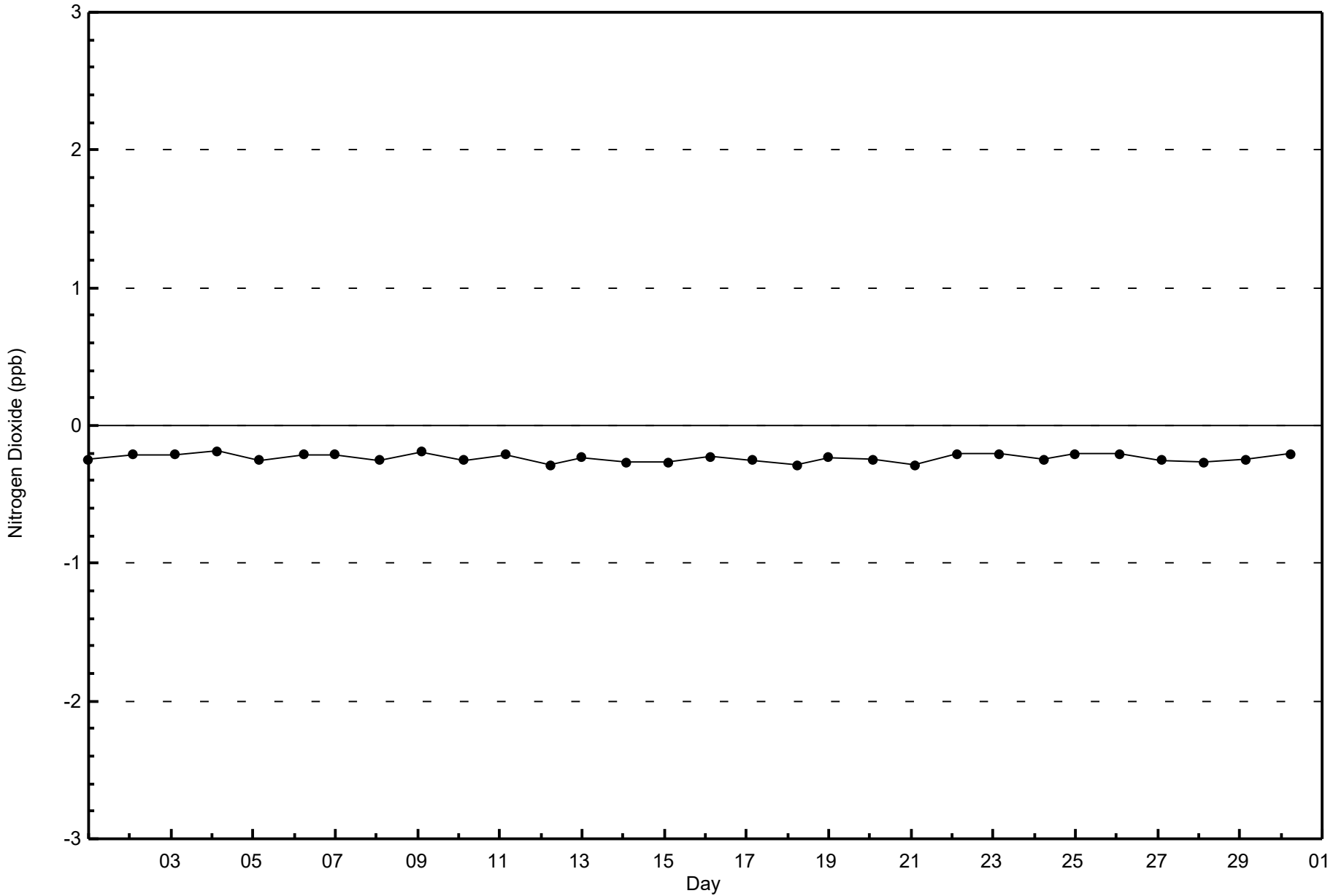


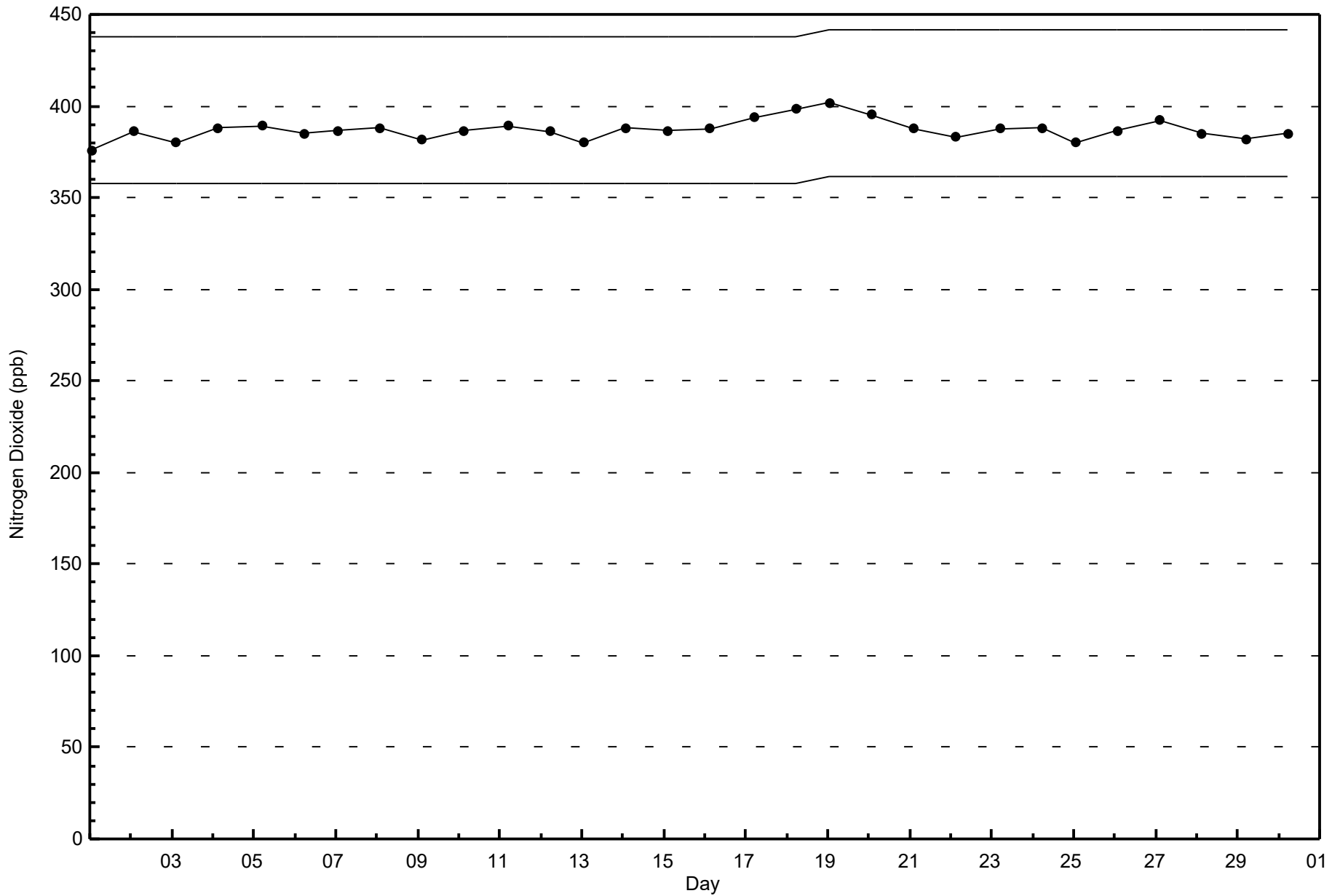
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











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

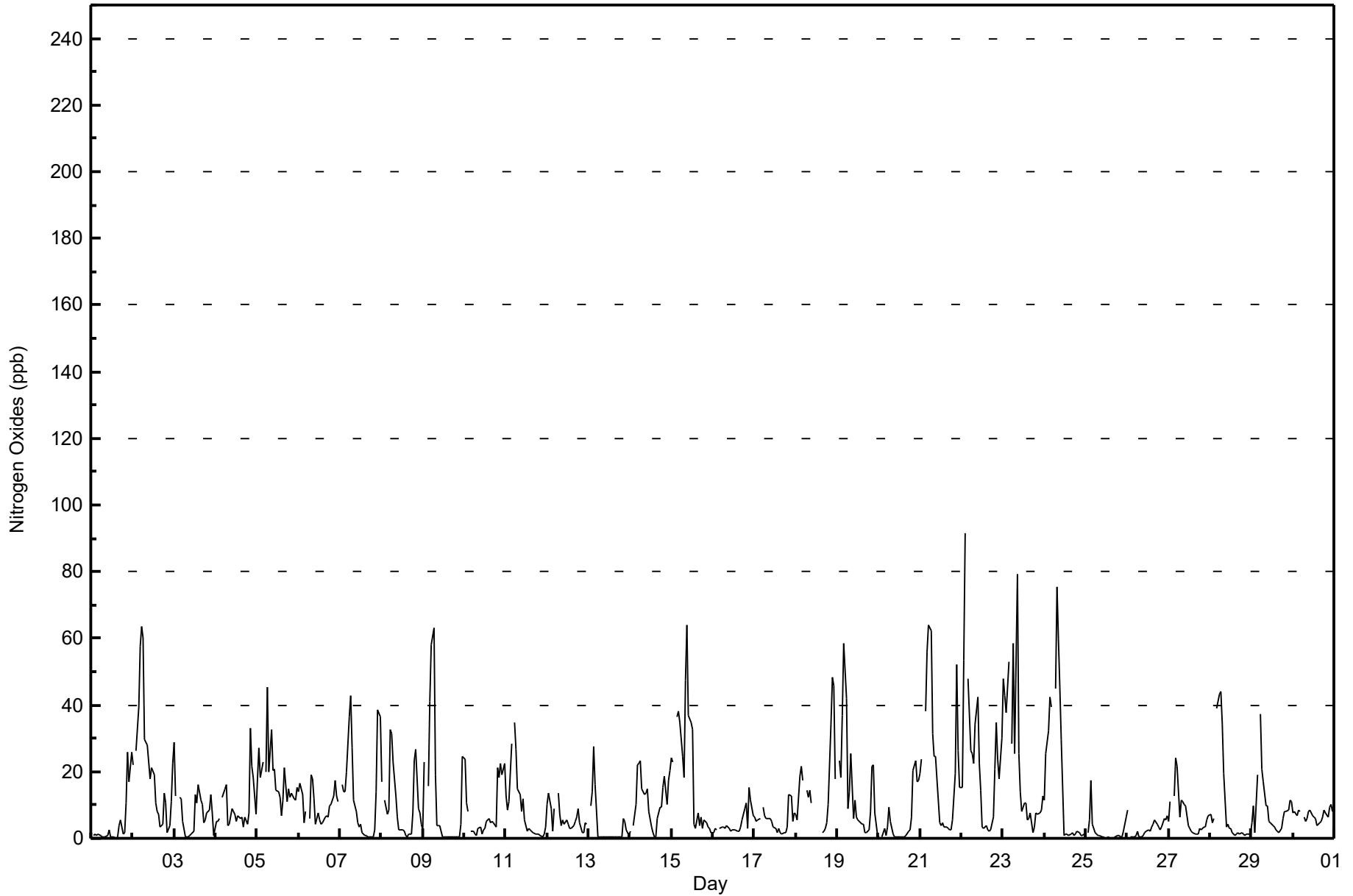
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - April 2024**

Maximum Value: 91.5 ppb on Apr 22 03:00		Maximum Daily Average: 23.8 ppb on Apr 22		Hours in Service:	720																																											
Minimum Value: 0.1 ppb on Apr 25 16:00		Minimum Daily Average: 2.0 ppb on Apr 25		Hours of Data:	685																																											
Maximum Diurnal Average: 24.3 ppb at hour 6		Minimum Diurnal Average: 3.2 ppb at hour 15		Hours of Missing Data:	35																																											
Monthly Average: 11.14 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 2.3 Median = 6.0 Q <sub>3</sub> = 14.8 P <sub>90</sub> = 27.4 P <sub>99</sub> = 62.6		Hours of Calibration:	35																																											
				Percent Operational Time:	100.0																																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	Z	0.8	1.2	0.8	1.2	1.0	0.3	0.2	0.4	0.9	2.4	0.4	0.3	0.2	0.2	0.5	3.9	5.4	1.5	1.7	10.8	25.9	17.0	25.6	4.5	25.9																						
2-Apr	22.0	Z	26.2	39.6	57.6	63.4	60.2	29.7	28.1	23.1	17.9	21.3	19.2	10.8	7.9	7.3	3.2	4.3	13.5	10.6	1.6	3.8	11.0	22.3	21.9	63.4																						
3-Apr	28.8	12.8	Z	12.3	12.0	5.3	0.6	0.5	0.6	0.6	1.2	2.3	12.9	10.6	15.9	11.5	10.1	4.5	5.6	7.8	8.6	13.3	7.8	0.8	8.1	28.8																						
4-Apr	5.1	4.9	6.0	Z	12.3	14.9	16.3	3.8	4.4	9.0	7.8	7.1	5.1	6.8	6.1	6.3	3.6	6.2	4.2	7.5	33.3	21.8	18.4	7.2	9.5	33.3																						
5-Apr	17.6	27.0	18.3	23.1	Z	20.0	45.5	19.8	32.6	20.3	20.9	14.4	14.0	12.2	6.7	11.6	21.1	11.2	15.0	12.3	13.6	11.7	11.5	15.1	18.1	45.5																						
6-Apr	13.9	16.6	13.2	4.7	8.0	Z	6.0	19.3	17.9	11.8	4.3	7.7	5.3	4.4	4.5	6.6	6.7	6.2	9.6	10.2	12.6	17.4	12.5	10.9	10.0	19.3																						
7-Apr	Z	16.2	13.9	13.8	19.9	36.5	42.9	27.2	11.6	7.8	4.6	3.5	4.1	1.5	0.7	0.6	0.6	0.4	0.4	0.5	2.5	13.8	38.4	36.5	13.0	42.9																						
8-Apr	16.9	Z	11.6	7.3	8.4	32.4	31.5	22.8	12.7	6.5	2.4	2.7	2.7	1.9	0.9	0.5	1.1	1.3	7.7	23.4	26.7	8.8	7.8	4.1	10.5	32.4																						
9-Apr	2.4	22.8	Z	15.9	41.3	57.9	63.1	19.1	3.7	4.0	3.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	4.1	24.5	11.6	63.1																						
10-Apr	23.8	10.5	7.9	Z	2.2	2.3	1.2	1.0	3.0	3.4	1.1	2.6	2.9	5.0	5.7	4.8	5.0	4.7	3.3	21.2	18.1	22.6	18.9	22.3	8.4	23.8																						
11-Apr	12.5	8.4	11.2	28.4	Z	34.6	26.8	14.9	13.2	8.0	11.9	5.5	2.1	3.0	2.7	2.1	1.8	1.4	1.1	1.1	1.0	0.4	1.1	3.3	8.6	34.6																						
12-Apr	10.3	13.5	9.1	2.1	8.9	Z	13.6	7.4	3.8	5.6	4.3	5.3	4.1	2.8	2.8	3.8	5.0	6.2	8.8	4.7	1.9	1.8	4.7	4.3	5.9	13.6																						
13-Apr	Z	9.6	14.2	27.5	16.2	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	6.1	5.3	2.4	0.8	3.8	27.5																						
14-Apr	1.9	Z	3.7	10.2	22.2	22.3	23.3	14.9	13.2	13.5	14.8	8.1	3.2	1.9	0.5	0.3	6.0	9.3	9.5	15.2	18.7	10.2	17.3	20.2	11.3	23.3																						
15-Apr	23.9	22.7	Z	36.4	38.1	34.9	24.5	18.4	47.6	64.1	36.9	34.9	32.5	4.2	2.9	7.7	4.0	6.3	3.1	5.4	4.6	3.4	3.2	1.5	20.1	64.1																						
16-Apr	1.7	2.8	2.5	Z	2.9	3.4	3.5	3.1	3.7	3.2	2.3	2.4	2.5	2.3	2.3	1.9	3.3	5.6	9.0	10.6	2.9	15.3	11.5	6.7	4.6	15.3																						
17-Apr	6.1	5.0	5.6	5.9	Z	9.3	6.7	6.1	6.0	6.1	5.3	3.3	2.8	1.7	2.9	1.6	1.4	1.7	1.9	3.6	13.1	12.8	4.9	7.7	5.3	13.1																						
18-Apr	7.3	5.6	18.6	21.7	17.4	Z	14.3	12.3	14.4	10.5	C	C	C	C	C	1.8	2.0	2.8	4.6	10.2	34.3	48.4	45.7	18.0	16.1	48.4																						
19-Apr	Z	23.3	18.1	37.1	58.5	42.1	8.9	14.2	25.3	5.9	11.6	6.5	5.3	5.1	4.4	4.4	1.9	1.5	2.4	8.0	21.5	22.1	7.5	0.8	14.6	58.5																						
20-Apr	0.5	Z	0.6	2.9	1.0	3.5	9.3	5.2	1.3	0.5	0.4	0.4	0.3	0.4	0.4	0.6	0.9	2.0	2.7	6.1	20.2	23.1	16.8	17.4	5.1	23.1																						
21-Apr	19.3	23.8	Z	38.3	56.1	64.0	62.5	31.3	24.7	24.5	17.9	4.8	4.0	4.7	3.5	3.2	2.8	2.5	2.8	5.6	19.3	52.0	26.2	15.3	22.1	64.0																						
22-Apr	15.4	53.2	91.5	Z	47.9	26.2	25.3	22.4	34.2	42.2	22.5	14.2	3.3	3.1	3.9	2.7	2.2	2.5	6.3	20.9	34.8	23.7	18.0	30.2	23.8	91.5																						
23-Apr	47.8	42.8	37.6	52.9	Z	28.6	58.4	25.6	79.0	25.3	14.2	8.1	10.6	10.7	5.3	6.0	7.7	1.8	3.5	7.7	7.2	7.6	8.5	12.6	22.1	79.0																						
24-Apr	11.5	25.5	32.1	42.4	39.5	Z	44.7	75.5	59.7	45.3	29.5	1.0	1.2	1.1	1.0	1.4	1.7	1.0	1.3	1.9	1.6	0.8	1.0	1.1	18.3	75.5																						
25-Apr	Z	1.5	5.5	17.3	4.3	1.6	1.2	0.9	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.6	0.9	0.7	0.4	0.3	2.1	6.5	2.0	17.3																						
26-Apr	8.6	Z	0.5	0.4	0.2	1.0	2.1	0.6	0.4	0.6	1.8	2.3	2.5	2.0	3.3	4.1	5.5	4.4	3.6	2.5	3.4	5.9	5.5	6.6	2.9	8.6																						
27-Apr	5.2	10.9	Z	12.8	24.1	21.4	6.3	11.3	11.2	10.0	9.6	3.9	2.9	1.9	1.5	1.3	1.3	1.4	3.0	2.6	3.6	3.6	5.6	6.8	7.1	24.1																						
28-Apr	7.2	4.7	5.9	Z	39.0	43.1	44.3	34.2	19.7	3.3	4.3	2.9	3.0	1.7	1.0	1.4	1.5	1.2	1.6	1.4	0.8	1.1	1.1	1.3	9.8	44.3																						
29-Apr	4.8	9.9	1.8	19.1	Z	37.2	20.8	17.0	9.6	9.7	5.1	4.7	3.8	3.5	2.5	2.1	1.6	3.0	6.0	8.2	8.0	8.6	11.6	11.1	9.1	37.2																						
30-Apr	7.8	8.0	6.6	8.4	8.1	Z	6.5	5.1	5.9	7.9	8.5	6.8	6.2	6.0	4.0	4.6	5.1	6.3	8.7	7.6	6.4	9.2	10.2	8.1	7.0	10.2																						
																								Diurnal Average																								
																								Diurnal Maximum																								
																								12.9	15.3	14.5	19.2	21.9	24.3	22.4	15.5	16.3	12.5	9.2	6.1	5.4	3.8	3.2	3.4	3.7	3.6	4.7	7.3	11.3	13.2	11.7	11.6	
																								47.8	53.2	91.5	52.9	58.5	64.0	63.1	75.5	79.0	64.1	36.9	34.9	32.5	12.2	15.9	11.6	21.1	11.2	15.0	23.4	34.8	52.0	45.7	36.5	
Z - zerospan																								C - Calibration																								



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	565	82.48	82.48
21 - 40	86	12.55	95.04
41 - 80	33	4.82	99.85
81 - 159	1	0.15	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	91	76	36	15	10	25	31	45	33	31	34	28	19	28	30	33	565
21 - 40	9	5	3	5	5	3	6	8	11	5	3	3	0	1	4	15	86
11 - 80	4	3	0	0	0	0	3	3	2	2	1	0	2	0	1	12	33
81 - 159	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	104	84	39	20	15	28	40	56	47	38	38	31	21	29	35	60	685

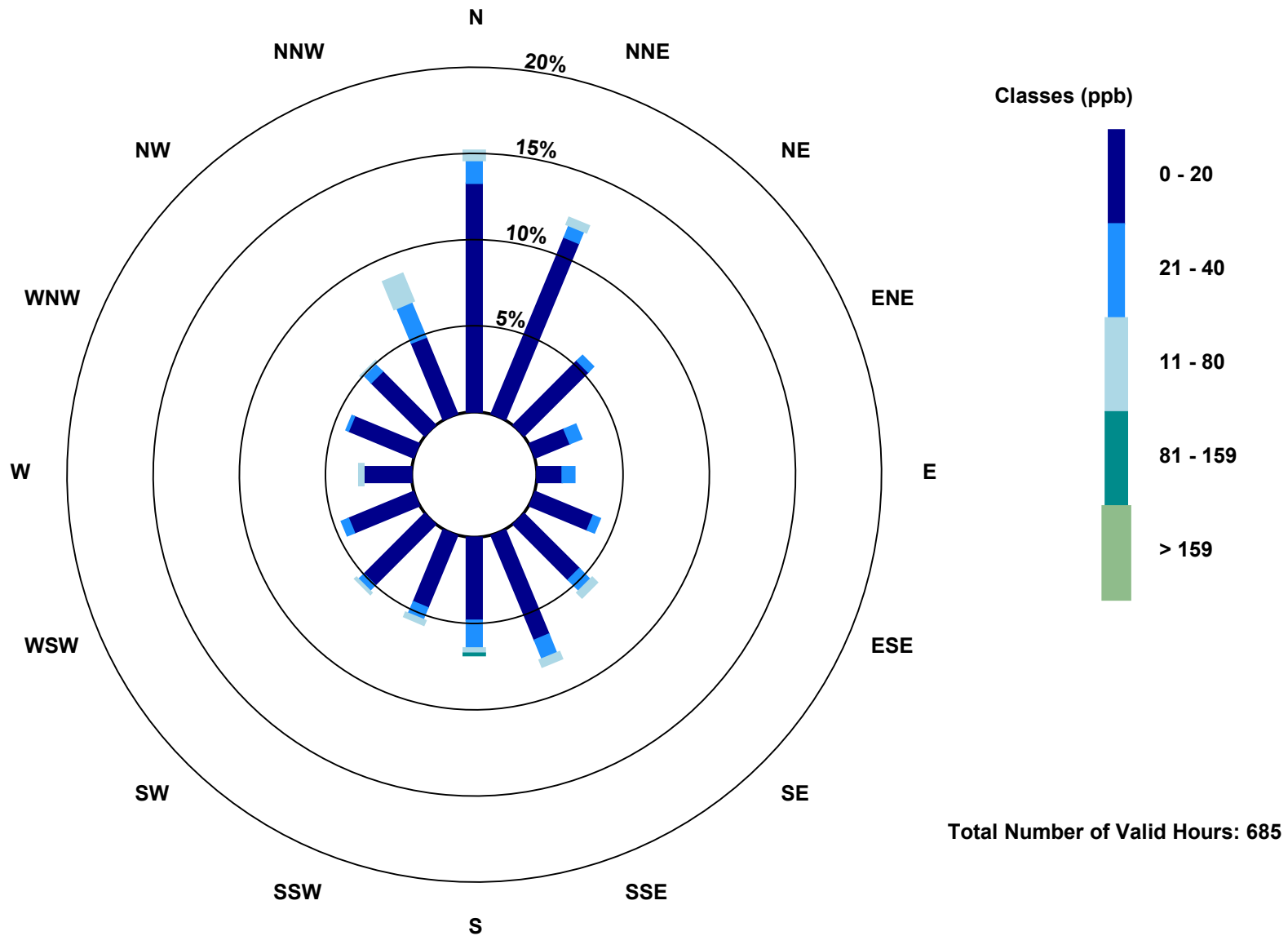
Total Number of Valid Hours: 685

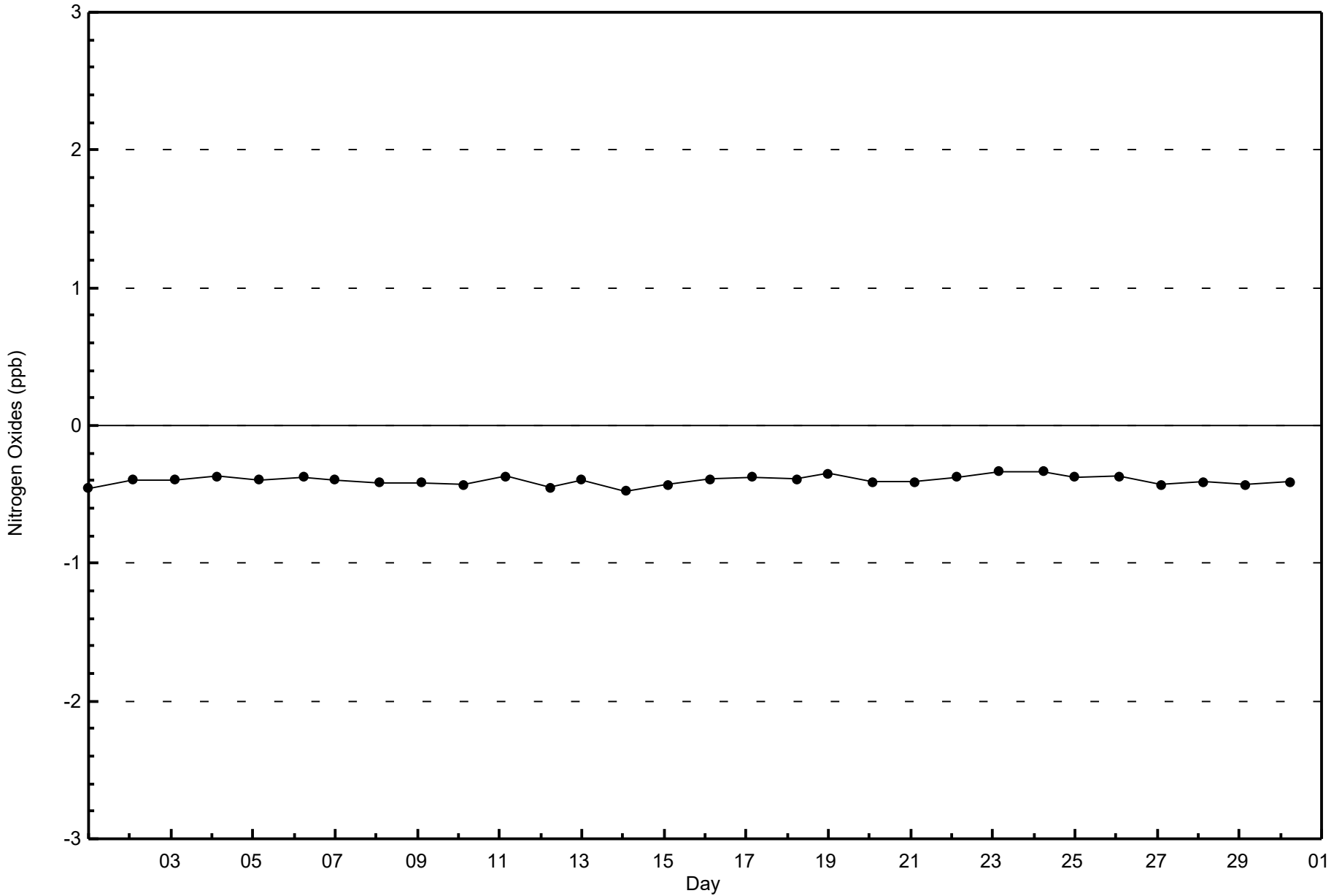
Total Number of Hours: 720



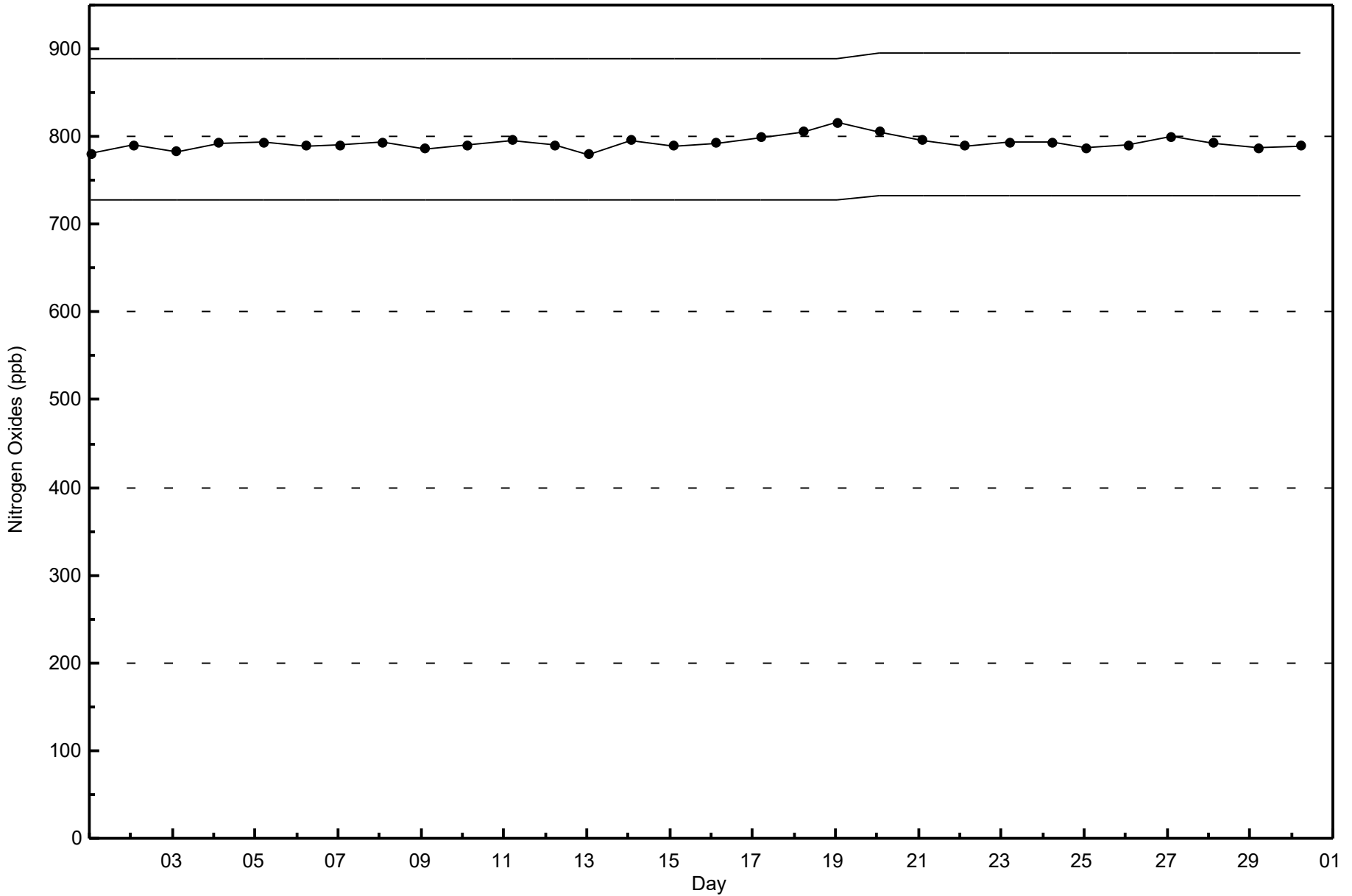
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











Summary of Hour Averages

Barge Landing - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 46.3 µg/m <sup>3</sup> on Apr 21 07:00	Maximum Daily Average: 15.3 µg/m <sup>3</sup> on Apr 21		Hours of Data:	718
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 25 22:00	Minimum Daily Average: 1.6 µg/m <sup>3</sup> on Apr 16		Hours of Missing Data:	2
Maximum Diurnal Average: 12.4 µg/m <sup>3</sup> at hour 6	Minimum Diurnal Average: 5.0 µg/m <sup>3</sup> at hour 17		Hours of Calibration:	2
Monthly Average: 7.62 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 2.7 Q <sub>1</sub> = 4.1 Median = 6.2 Q <sub>3</sub> = 8.9 P <sub>90</sub> = 14.3 P <sub>99</sub> = 30.4		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	5.8	3.7	2.5	2.7	3.8	4.1	3.8	3.1	4.8	2.6	4.0	4.0	3.0	2.4	2.7	4.2	5.5	6.7	4.0	3.9	6.5	9.4	6.2	7.5	4.5	9.4																						
2-Apr	8.0	9.5	19.3	21.1	23.6	21.3	17.2	11.2	12.7	12.3	14.4	15.0	13.7	11.1	8.5	9.5	3.9	5.0	7.8	7.3	3.5	5.3	6.4	7.6	11.5	23.6																						
3-Apr	9.3	6.7	5.9	6.7	7.3	5.7	3.3	3.6	4.3	4.0	4.5	3.8	5.9	7.1	8.6	8.8	5.7	5.8	5.2	7.6	6.4	6.9	6.6	4.2	6.0	9.3																						
4-Apr	5.7	5.7	6.9	7.2	6.3	7.6	7.0	4.0	3.8	4.3	4.9	5.7	6.9	5.3	6.4	4.9	4.0	4.8	4.1	5.4	5.9	5.9	7.2	4.7	5.6	7.6																						
5-Apr	6.4	6.8	6.2	7.1	6.3	6.2	10.0	9.6	10.4	6.2	5.9	6.5	6.5	7.1	6.1	5.6	6.8	5.8	5.9	6.0	7.4	7.8	8.4	8.9	7.1	10.4																						
6-Apr	8.9	8.1	7.6	7.4	6.6	6.5	3.9	5.5	6.2	4.8	3.4	4.3	5.3	5.8	5.2	6.1	7.4	6.3	6.0	6.5	9.8	7.5	6.8	7.5	6.4	9.8																						
7-Apr	8.9	10.0	10.1	9.6	11.2	18.2	18.7	21.4	19.9	15.1	11.9	10.2	9.0	6.8	6.0	3.8	5.2	5.9	4.7	4.3	3.8	5.9	12.7	13.7	10.3	21.4																						
8-Apr	8.5	6.6	8.8	7.3	10.3	19.0	22.1	19.0	11.0	9.6	6.8	5.7	6.8	5.2	4.6	6.3	6.3	5.4	6.9	18.0	21.0	9.3	12.0	6.9	10.1	22.1																						
9-Apr	6.5	8.2	13.9	8.6	16.9	30.5	29.0	11.5	5.0	4.5	5.8	6.6	5.4	4.0	5.3	4.2	3.5	6.3	6.9	3.7	4.8	6.9	5.5	12.4	9.0	30.5																						
10-Apr	9.8	6.2	6.2	7.6	5.8	8.0	3.9	5.0	4.9	7.1	6.5	5.6	7.0	7.3	8.9	7.1	7.8	7.5	5.9	5.6	7.4	11.3	9.5	11.4	7.2	11.4																						
11-Apr	10.5	8.7	13.5	14.2	16.3	15.0	13.4	9.2	9.0	6.4	7.8	6.0	4.9	6.9	6.2	7.7	4.8	6.4	4.9	6.6	6.0	5.8	8.8	6.4	8.6	16.3																						
12-Apr	10.4	11.4	10.0	5.0	9.1	11.5	13.2	11.0	9.1	6.1	8.3	9.8	9.2	9.4	7.5	7.6	6.5	6.7	7.1	8.2	5.7	7.7	6.5	9.7	8.6	13.2																						
13-Apr	8.0	12.6	15.5	15.4	10.2	5.3	5.0	5.0	4.5	6.6	C	C	1.1	1.2	1.2	1.2	1.4	1.4	1.5	3.5	4.0	2.8	2.5	5.0	15.5																							
14-Apr	2.0	1.8	2.9	4.9	9.4	11.7	13.8	8.8	6.3	4.9	5.2	3.2	2.9	2.9	2.5	1.9	4.6	7.7	8.2	7.6	8.3	6.7	7.1	7.7	6.0	13.8																						
15-Apr	9.2	7.8	7.8	7.6	9.0	8.5	6.4	5.0	7.4	14.8	5.0	5.1	7.1	3.7	2.7	2.1	1.7	1.5	1.0	1.0	1.6	1.8	1.8	1.9	5.1	14.8																						
16-Apr	2.2	1.2	1.0	0.9	0.9	1.1	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.6	1.9	1.8	1.7	1.8	1.8	1.7	1.4	1.8	2.1	4.0	1.6	4.0																						
17-Apr	5.5	7.7	2.4	3.2	3.5	2.8	4.0	5.4	4.1	3.9	3.0	3.9	4.8	5.0	3.2	4.4	3.3	3.1	2.7	3.3	4.1	5.0	3.1	3.6	4.0	7.7																						
18-Apr	3.7	3.8	4.7	4.4	4.7	5.4	6.0	6.5	6.7	7.0	5.9	5.5	5.4	4.7	4.2	3.8	3.7	4.0	4.3	5.5	13.6	18.6	15.3	7.0	6.4	18.6																						
19-Apr	6.4	7.7	6.8	10.5	27.2	25.2	6.9	5.0	9.3	4.7	6.0	5.5	6.9	8.9	8.3	9.8	6.5	5.7	6.6	13.2	28.0	18.9	7.0	4.1	10.2	28.0																						
20-Apr	3.8	3.6	3.4	4.0	3.2	3.4	5.0	4.4	3.6	3.1	2.9	3.0	3.0	3.0	3.2	3.7	3.7	6.3	6.3	9.1	33.8	24.2	12.9	15.5	7.0	33.8																						
21-Apr	18.5	15.9	16.9	17.1	23.2	28.9	46.3	16.6	12.6	9.6	9.3	6.6	6.6	6.1	5.6	5.3	5.0	4.7	5.4	5.7	17.1	44.2	25.2	15.9	15.3	46.3																						
22-Apr	12.5	24.2	35.7	30.0	19.1	12.7	11.7	11.1	10.2	13.2	13.9	11.4	6.1	6.0	7.6	6.9	7.0	7.8	11.2	16.2	16.8	25.4	21.3	23.7	15.1	35.7																						
23-Apr	29.5	16.9	14.5	19.2	24.1	14.0	34.4	12.9	20.5	11.7	8.9	7.0	7.8	9.1	9.4	6.9	7.6	6.9	8.1	14.6	14.4	10.4	8.8	10.8	13.7	34.4																						
24-Apr	10.9	9.0	10.9	10.9	10.4	10.6	10.2	13.6	14.6	14.9	13.1	5.2	5.3	5.6	6.5	5.9	7.9	7.9	6.6	6.0	6.1	7.4	6.1	5.5	8.8	14.9																						
25-Apr	5.5	6.1	9.1	10.8	14.2	36.4	30.9	7.3	4.3	3.5	3.6	2.6	3.5	4.5	2.4	1.6	4.3	17.9	20.8	11.9	1.9	0.2	0.3	0.6	8.5	36.4																						
26-Apr	1.3	1.0	1.2	2.1	2.5	2.5	2.7	2.7	2.6	2.4	2.9	3.2	3.3	3.2	3.7	3.8	4.5	3.9	3.2	3.4	4.3	5.5	4.0	4.3	3.1	5.5																						
27-Apr	3.9	4.2	5.7	8.3	17.5	24.4	5.1	6.8	6.5	5.0	4.9	4.4	4.6	4.3	4.4	5.8	7.0	10.1	8.9	6.1	6.8	5.4	4.5	4.2	7.0	24.4																						
28-Apr	4.0	3.7	6.8	7.7	8.0	8.6	10.5	9.7	13.0	5.5	7.7	6.9	6.4	5.4	4.1	4.6	5.1	5.4	4.6	3.9	3.0	2.5	1.9	2.0	5.9	13.0																						
29-Apr	2.7	3.0	3.0	5.0	7.1	11.0	6.6	6.6	6.4	7.5	5.2	4.8	6.5	4.9	4.9	4.1	4.2	6.1	6.2	8.6	7.6	6.2	4.5	4.7	5.7	11.0																						
30-Apr	4.7	5.0	6.8	7.7	10.1	7.3	10.3	13.3	7.5	3.1	2.9	2.9	2.5	2.8	3.0	3.3	3.5	3.6	3.7	3.4	3.4	3.4	3.4	3.3	5.0	13.3																						
																								7.8	7.6	8.9	9.1	10.9	12.4	12.1	8.5	8.1	6.9	6.4	5.7	5.6	5.4	5.2	5.1	5.0	6.0	6.0	6.9	8.8	9.4	7.6	7.4	Diurnal Average
																								29.5	24.2	35.7	30.0	27.2	36.4	46.3	21.4	20.5	15.1	14.4	15.0	13.7	11.1	9.4	9.8	7.9	17.9	20.8	18.0	33.8	44.2	25.2	23.7	Diurnal Maximum

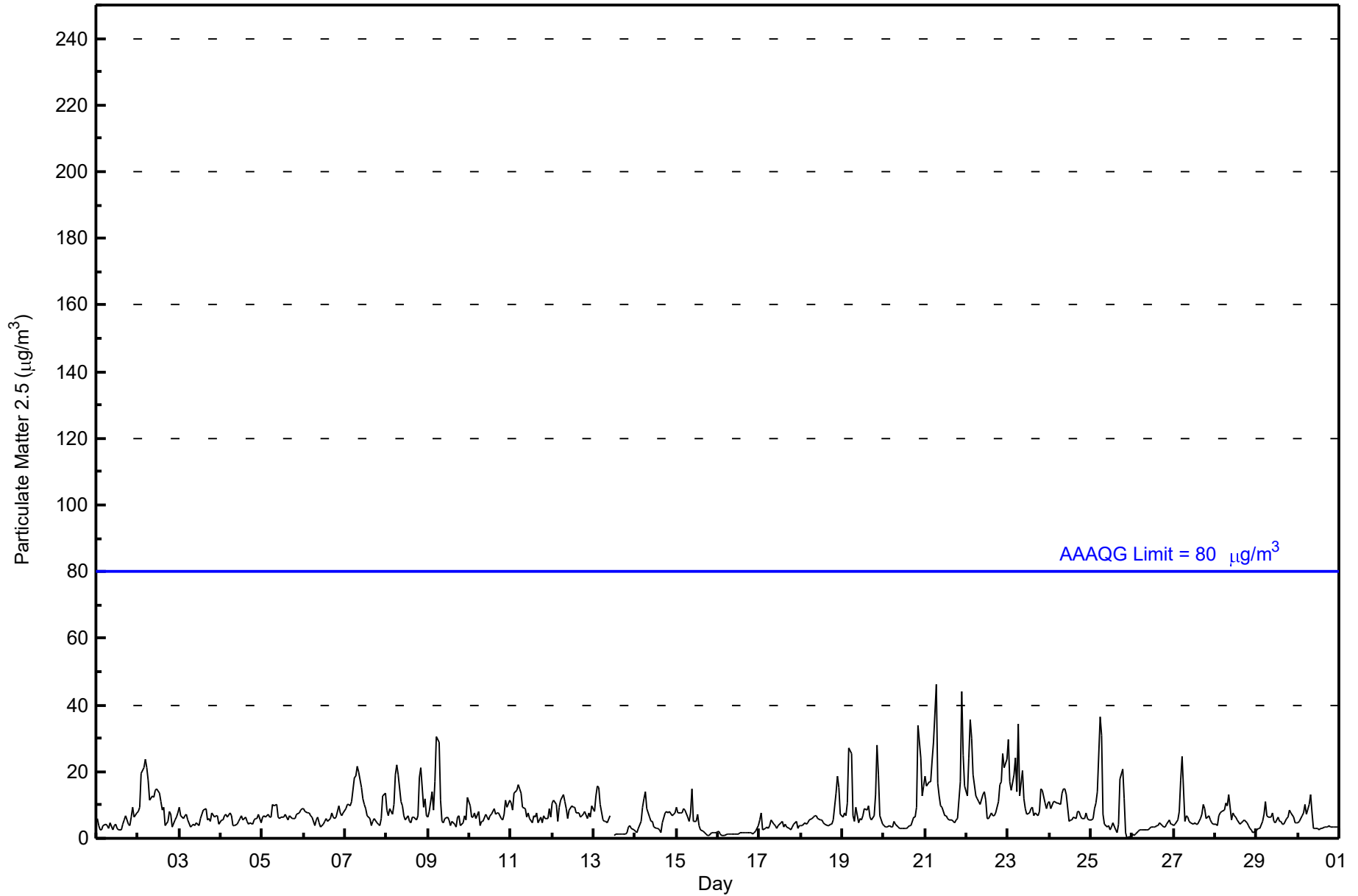
C - Calibration

Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m<sup>3</sup> 24-hr 29 µg/m<sup>3</sup>



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Barge Landing - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	293	40.81	40.81
6 - 15	366	50.97	91.78
16 - 25	45	6.27	98.05
26 - 80	14	1.95	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Barge Landing - April 2024**

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	
0 - 5	65	40	15	8	1	16	14	6	8	11	22	23	14	20	11	19	293
6 - 15	40	42	24	14	12	10	24	44	30	24	15	9	7	6	23	42	366
16 - 25	5	4	1	0	2	2	5	9	6	3	0	0	1	1	2	4	45
26 - 80	0	1	0	0	0	0	2	0	3	2	2	1	2	0	0	1	14
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	110	87	40	22	15	28	45	59	47	40	39	33	24	27	36	66	718

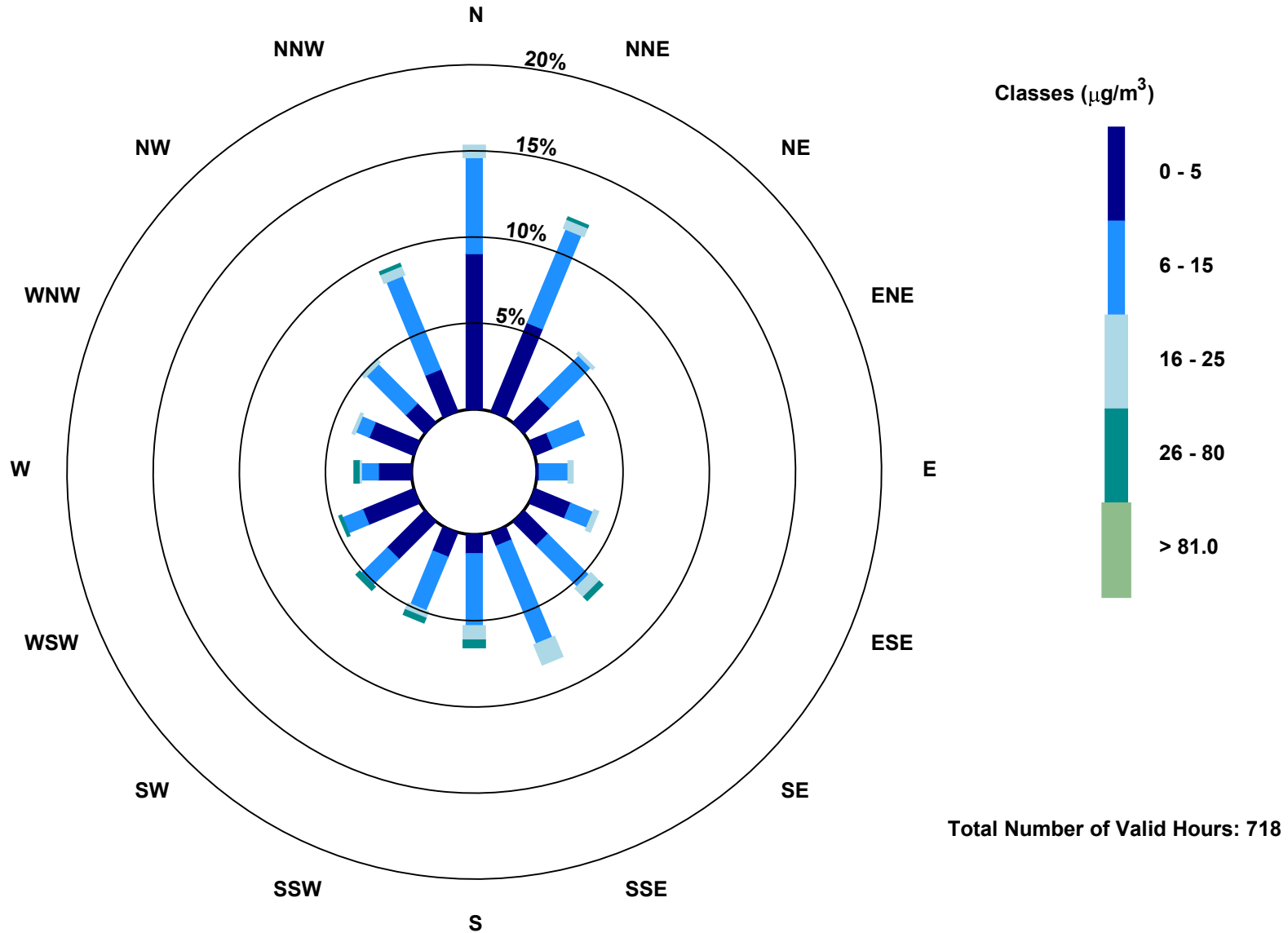
Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Barge Landing





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

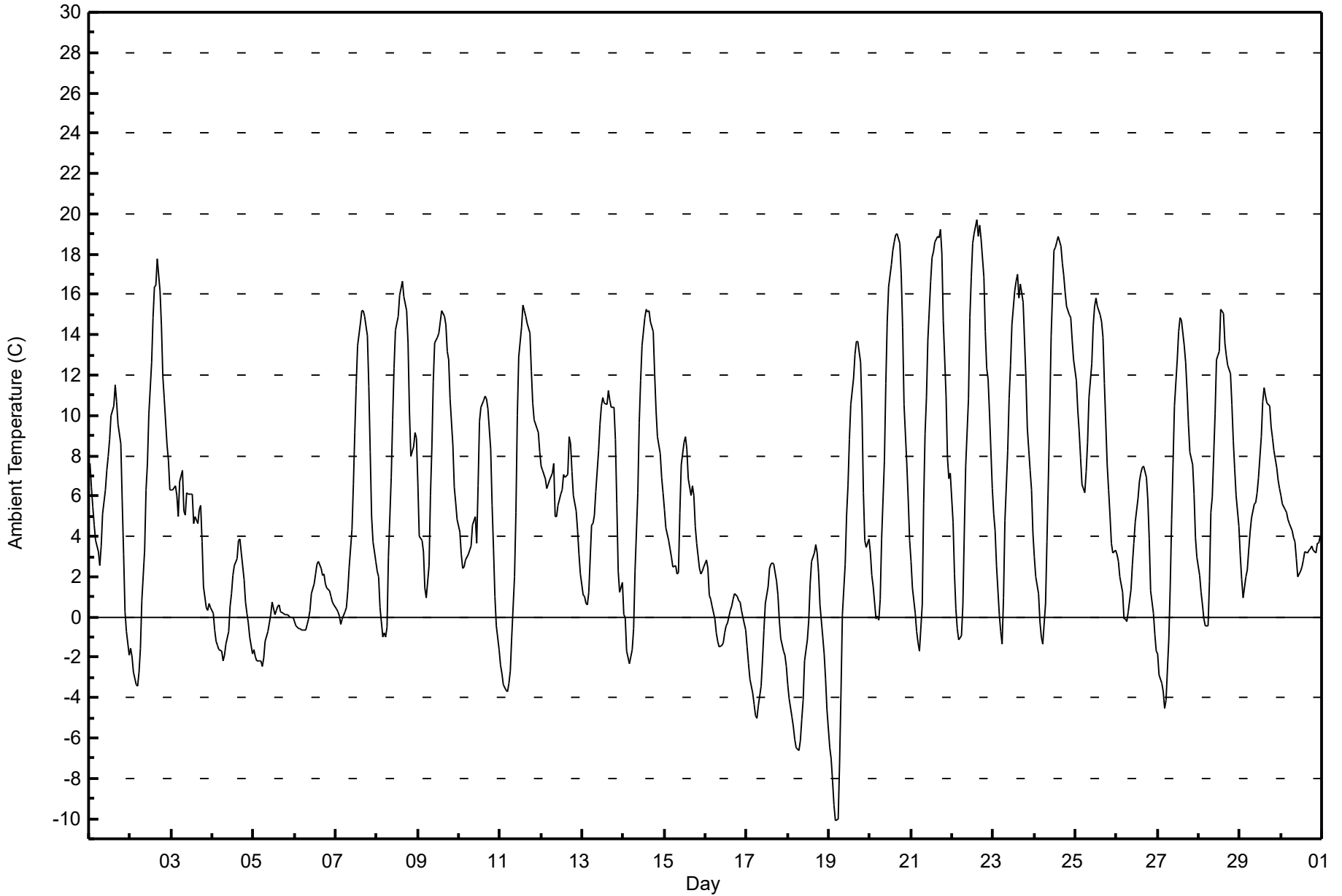
**Ambient Temperature (AT) - C**  
**Barge Landing - April 2024**

Maximum Value: 19.7 C on Apr 22 15:00		Maximum Daily Average: 10.6 C on Apr 24		Hours in Service: 720																							
Minimum Value: -10.1 C on Apr 19 05:00		Minimum Daily Average: -2.0 C on Apr 18		Hours of Data: 720																							
Maximum Diurnal Average: 10.9 C at hour 15		Minimum Diurnal Average: -0.2 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 5.42 C		Percentiles: P <sub>1</sub> = -6.5 P <sub>10</sub> = -1.6 Q <sub>1</sub> = 0.6 Median = 4.5 Q <sub>3</sub> = 10.1 P <sub>90</sub> = 14.7 P <sub>99</sub> = 18.9		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-Apr	7.6	6.4	5.4	4.6	3.8	3.2	2.5	3.5	5.1	6.3	7.3	7.9	8.8	10.0	10.5	11.5	10.7	9.6	8.6	5.8	3.1	0.3	-0.7	-1.9	5.8	11.5	
2-Apr	-1.5	-1.9	-2.7	-3.4	-3.5	-2.7	-1.6	0.8	3.3	6.3	7.6	10.1	12.7	14.8	16.4	16.4	17.8	16.2	14.5	11.9	10.8	8.5	7.8	6.3	6.9	17.8	
3-Apr	6.3	6.3	6.5	6.1	5.0	6.7	7.3	5.3	5.0	6.1	6.1	6.1	4.6	5.0	4.7	5.3	5.6	3.8	1.5	0.5	0.3	0.7	0.5	4.6	7.3		
4-Apr	0.2	-0.7	-1.2	-1.4	-1.6	-1.7	-2.2	-1.9	-1.3	-0.7	0.5	1.1	2.1	2.6	2.9	3.8	3.9	3.2	1.8	0.7	0.2	-0.3	-1.0	-1.8	0.3	3.9	
5-Apr	-1.6	-1.9	-2.2	-2.2	-2.2	-2.4	-2.0	-1.2	-0.7	-0.3	0.1	0.7	0.1	0.4	0.5	0.6	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	-0.6	0.7	
6-Apr	-0.2	-0.4	-0.6	-0.6	-0.6	-0.6	-0.7	-0.4	-0.1	0.3	1.2	1.7	2.1	2.6	2.7	2.4	2.0	2.1	1.7	1.5	1.3	1.0	0.8	0.6	0.8	2.7	
7-Apr	0.4	0.3	0.0	-0.4	-0.1	0.2	0.5	1.3	2.5	4.4	6.6	9.2	11.5	13.5	14.6	15.2	15.2	14.9	14.0	11.5	8.2	5.0	3.7	2.7	6.4	15.2	
8-Apr	2.3	2.0	0.5	-1.0	-0.8	-1.0	-0.5	2.9	7.0	9.8	12.3	14.2	14.9	16.0	16.3	16.6	15.9	15.2	13.6	10.2	8.0	8.5	9.1	8.9	8.4	16.6	
9-Apr	6.7	4.0	3.8	3.2	1.5	0.9	2.6	6.0	8.4	11.7	13.6	13.9	14.1	14.7	15.2	14.9	14.5	13.2	12.8	10.8	8.5	6.4	5.7	4.9	8.8	15.2	
10-Apr	4.2	3.1	2.4	2.5	2.8	3.1	3.3	3.5	4.6	5.0	3.6	6.5	9.7	10.4	10.8	11.0	10.8	10.3	8.3	5.6	3.4	1.0	-0.5	-1.6	5.2	11.0	
11-Apr	-2.4	-2.8	-3.3	-3.6	-3.7	-3.3	-2.7	-1.0	2.0	5.2	10.0	12.9	14.3	15.5	15.2	14.9	14.5	14.1	12.2	10.6	9.8	9.4	9.1	8.2	6.5	15.5	
12-Apr	7.5	7.3	6.9	6.4	6.6	6.8	7.2	7.6	5.0	5.0	5.5	6.1	6.3	7.1	6.9	7.1	8.9	8.6	7.2	6.1	5.3	4.3	3.1	2.2	6.3	8.9	
13-Apr	1.1	1.0	0.7	0.6	1.2	4.6	4.7	5.0	6.2	8.2	9.6	10.5	10.9	10.6	10.6	11.3	10.7	10.4	10.4	8.8	5.6	2.3	1.2	1.7	6.2	11.3	
14-Apr	0.1	0.0	-1.7	-2.3	-2.0	-1.6	-0.6	2.3	6.2	9.6	11.7	13.4	14.9	15.3	15.1	15.2	14.6	14.1	12.1	10.3	9.0	8.1	6.9	6.2	7.4	15.3	
15-Apr	5.3	4.5	3.8	3.4	3.0	2.4	2.6	2.1	2.2	5.2	7.5	8.6	8.9	8.3	6.8	6.0	6.5	6.0	4.5	3.6	2.4	2.1	2.3	2.5	4.6	8.9	
16-Apr	2.8	2.4	1.1	0.9	0.5	-0.1	-0.8	-1.2	-1.4	-1.4	-1.2	-0.8	-0.5	-0.3	0.3	0.5	0.9	1.2	1.0	0.8	0.7	0.4	0.0	-0.7	0.2	2.8	
17-Apr	-1.5	-2.3	-3.1	-3.8	-4.3	-4.9	-5.1	-4.4	-3.4	-2.1	-0.6	0.7	1.5	2.4	2.6	2.7	2.6	1.8	1.1	-0.1	-1.1	-1.7	-1.9	-2.4	-1.1	2.7	
18-Apr	-3.3	-4.1	-4.9	-5.4	-6.0	-6.5	-6.6	-6.1	-5.1	-4.1	-2.2	-1.1	-0.1	1.6	2.8	3.2	3.6	3.2	2.2	0.6	-1.0	-1.8	-3.1	-4.6	-2.0	3.6	
19-Apr	-6.5	-7.1	-8.2	-9.3	-10.1	-10.1	-7.2	-3.8	0.1	2.6	5.1	6.5	8.8	10.6	11.9	13.1	13.7	13.7	12.6	10.2	6.2	3.8	3.4	3.9	2.7	13.7	
20-Apr	3.2	2.1	1.5	-0.1	0.0	-0.2	0.9	3.9	7.8	11.6	14.6	16.4	17.5	18.2	18.6	19.0	19.1	18.5	17.0	14.3	10.6	7.6	5.8	3.8	9.6	19.1	
21-Apr	2.8	1.4	0.2	-0.7	-1.2	-1.7	0.6	5.6	9.1	10.9	13.7	16.7	17.8	18.1	18.6	18.9	18.8	19.3	18.0	14.7	11.0	7.9	6.8	7.1	9.8	19.3	
22-Apr	4.7	2.1	0.4	-0.6	-1.1	-0.9	0.6	4.1	7.5	10.8	14.8	16.9	18.5	19.0	19.7	18.9	19.5	18.7	16.9	14.2	12.4	11.8	10.1	6.4	10.2	19.7	
23-Apr	5.1	4.3	2.5	0.1	-0.7	-1.4	1.0	4.8	8.3	10.8	12.5	14.5	16.1	16.6	17.0	15.8	16.5	15.6	13.7	11.8	9.4	7.3	6.3	4.1	8.8	17.0	
24-Apr	3.0	2.0	1.1	-0.2	-1.0	-1.3	0.7	3.7	6.8	10.2	13.9	18.2	18.3	18.6	18.9	18.4	17.5	16.9	16.1	15.4	15.0	14.8	13.7	12.8	10.6	18.9	
25-Apr	11.7	10.3	9.2	7.9	6.6	6.2	7.2	8.7	10.9	12.6	14.4	15.4	15.8	15.4	15.0	14.6	13.9	11.6	7.5	6.3	5.1	3.7	3.2	3.3	9.8	15.8	
26-Apr	3.1	2.7	2.0	1.2	-0.1	-0.1	-0.2	0.2	1.4	2.7	3.7	4.7	5.9	6.7	7.1	7.4	7.5	6.9	5.8	3.9	1.3	0.2	-0.9	-1.7	3.0	7.5	
27-Apr	-1.9	-2.9	-3.3	-3.7	-4.5	-4.1	-1.1	1.6	4.9	7.6	10.4	12.8	14.2	14.8	14.7	13.4	12.6	11.3	9.5	8.2	7.5	6.1	4.0	3.0	5.6	14.8	
28-Apr	2.1	1.2	0.6	-0.1	-0.4	-0.4	1.8	5.2	6.0	10.1	12.7	13.0	13.2	15.3	15.0	13.6	13.0	12.5	12.0	10.6	8.7	7.3	6.0	4.5	7.6	15.3	
29-Apr	3.0	1.9	1.0	2.0	2.3	3.3	4.2	4.9	5.6	5.6	6.2	6.9	8.9	10.7	11.4	11.0	10.6	10.5	9.4	8.9	8.3	7.4	6.8	6.4	6.5	11.4	
30-Apr	6.0	5.6	5.4	5.2	4.9	4.6	4.3	3.9	3.7	2.9	2.0	2.3	2.5	2.8	3.3	3.1	3.3	3.4	3.5	3.3	3.2	3.6	3.7	4.0	3.8	6.0	
		2.3	1.6	0.8	0.2	-0.2	-0.1	0.7	2.2	3.9	5.8	7.4	8.9	9.9	10.6	10.9	10.8	10.8	10.3	9.1	7.4	5.8	4.5	3.7	3.0	Diurnal Average	
		11.7	10.3	9.2	7.9	6.6	6.8	7.3	8.7	10.9	12.6	14.8	18.2	18.5	19.0	19.7	19.0	19.5	19.3	18.0	15.4	15.0	14.8	13.7	12.8	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Barge Landing - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Barge Landing - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	142	19.72	19.72
0 - 10	397	55.14	74.86
10 - 20	181	25.14	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

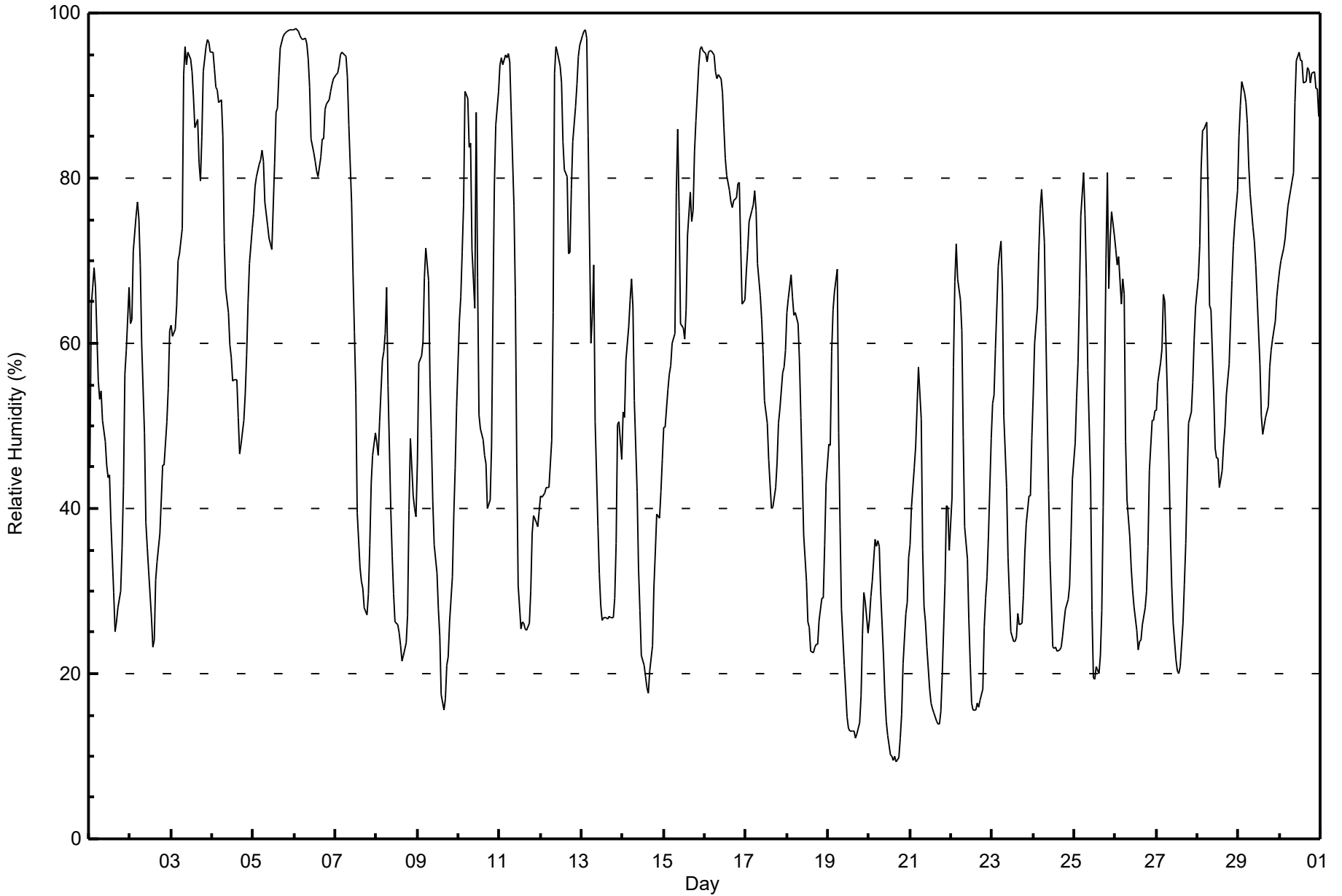
**Relative Humidity (RH) - %**  
**Barge Landing - April 2024**

Maximum Value: 98.1 % on Apr 6 02:00      Maximum Daily Average: 90.3 % on Apr 6																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: 9.3 % on Apr 20 17:00      Minimum Daily Average: 21.8 % on Apr 20 Maximum Diurnal Average: 73.4 % at hour 5      Minimum Diurnal Average: 40.2 % at hour 15 Monthly Average: 55.82 %      Percentiles: P <sub>1</sub> = 12.3 P <sub>10</sub> = 23.2 Q <sub>1</sub> = 33.7 Median = 55.4 Q <sub>3</sub> = 76.7 P <sub>90</sub> = 92.6 P <sub>99</sub> = 97.8																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	45.0	64.6	66.7	69.1	66.7	55.4	53.2	54.2	50.7	48.2	45.3	43.8	44.1	38.5	29.8	25.1	26.3	28.0	30.1	35.2	42.7	56.2	59.1	66.8	47.7	69.1																							
2-Apr	62.4	62.8	71.1	75.4	77.2	75.1	69.5	60.1	49.1	38.3	35.3	32.3	26.8	23.3	24.0	31.4	33.6	36.9	41.1	45.3	45.3	50.4	54.6	61.5	49.3	77.2																							
3-Apr	62.2	60.8	61.6	64.6	70.0	70.9	73.9	92.5	96.0	93.7	95.2	94.5	92.9	89.9	86.1	87.1	81.9	79.6	85.1	93.0	96.0	96.8	96.4	95.2	84.0	96.8																							
4-Apr	95.2	93.3	91.0	90.7	89.1	89.4	85.1	72.2	66.7	63.7	59.9	58.3	55.5	55.6	51.0	46.6	47.8	50.7	53.8	58.6	64.9	69.7	73.9	68.3	95.2	95.2																							
5-Apr	75.8	78.9	80.2	81.7	82.2	83.4	82.1	77.2	74.3	72.7	72.1	71.4	81.9	88.0	88.4	92.4	95.8	97.1	97.5	97.7	97.9	98.0	98.0	98.0	85.9	98.0																							
6-Apr	98.1	98.1	97.8	97.2	97.0	96.9	96.9	96.4	94.5	91.0	84.8	83.1	82.1	80.8	80.2	82.6	84.8	84.7	88.3	89.0	89.5	90.5	91.3	92.1	90.3	98.1																							
7-Apr	92.6	92.7	93.6	95.0	95.2	94.9	94.7	92.1	86.4	76.9	68.5	61.3	54.1	39.4	32.9	31.2	30.4	27.9	27.1	29.7	35.6	43.0	46.4	49.2	62.1	95.2																							
8-Apr	47.9	46.4	50.5	57.9	59.0	61.1	66.7	54.9	39.9	34.2	29.7	26.3	25.9	24.9	23.3	21.6	22.2	23.7	27.1	39.8	48.5	41.6	40.0	39.0	39.7	66.7																							
9-Apr	45.5	57.7	58.5	60.2	68.0	71.5	67.6	55.5	48.5	40.9	35.6	32.2	27.7	24.6	17.5	15.6	17.0	21.1	22.0	26.2	31.7	39.1	44.9	52.3	40.9	71.5																							
10-Apr	62.7	65.6	71.0	76.8	90.5	89.6	83.8	84.2	71.4	64.3	88.0	68.0	51.4	49.6	48.3	46.4	45.5	40.0	41.0	47.7	64.4	79.2	86.4	90.6	66.9	90.6																							
11-Apr	93.7	94.6	93.7	94.9	94.6	95.1	94.1	88.2	76.5	65.6	45.5	30.6	25.5	26.3	26.1	25.5	25.2	26.0	30.1	36.9	39.2	38.3	37.9	39.7	56.0	95.1																							
12-Apr	41.5	41.3	41.9	42.6	42.6	42.6	48.4	63.7	92.7	96.0	95.2	93.6	91.5	84.4	81.0	80.2	70.8	71.0	78.7	84.5	88.6	91.3	94.8	96.1	73.1	96.1																							
13-Apr	97.3	97.7	97.9	97.0	85.1	60.0	63.4	69.5	50.5	37.8	32.0	28.3	26.4	26.7	26.8	26.5	26.9	26.8	26.8	29.2	35.8	50.2	50.5	45.9	50.6	97.9																							
14-Apr	51.7	51.0	58.0	62.1	65.3	67.8	64.4	53.0	42.0	32.7	27.6	22.2	21.0	19.7	18.3	17.7	20.4	23.4	30.5	34.8	39.4	38.9	42.1	45.9	39.6	67.8																							
15-Apr	49.8	49.9	54.3	56.2	57.2	60.0	61.1	78.3	85.9	76.0	62.4	61.9	60.6	64.1	73.0	78.3	74.7	76.1	83.2	87.0	93.5	95.5	95.9	95.4	72.1	95.9																							
16-Apr	95.0	94.1	95.2	95.4	95.4	95.0	92.8	92.0	92.6	92.1	90.3	86.1	82.4	80.4	78.5	77.2	76.5	77.3	77.7	79.4	79.5	71.9	64.7	65.3	84.4	95.4																							
17-Apr	68.6	71.3	74.7	76.1	76.8	78.4	76.1	69.7	65.7	62.9	58.6	53.1	50.4	45.9	42.8	40.0	40.2	42.5	45.6	50.3	52.0	56.4	57.1	59.1	58.9	78.4																							
18-Apr	63.7	65.4	68.3	65.6	63.3	63.8	62.4	57.7	51.0	44.0	36.8	31.1	26.3	25.6	22.8	22.6	23.2	23.5	23.5	26.4	29.1	29.1	35.6	43.1	41.8	68.3																							
19-Apr	47.8	47.7	58.9	64.1	66.3	69.1	49.1	37.9	27.9	21.0	17.9	14.8	13.5	13.0	13.0	13.0	12.2	12.8	14.0	17.4	24.8	29.8	28.7	25.0	30.8	69.1																							
20-Apr	26.6	29.3	31.2	36.3	35.3	36.1	35.4	29.9	22.1	17.5	14.2	12.6	10.2	9.9	9.5	9.9	9.3	9.8	12.2	15.1	21.2	27.3	28.7	34.1	21.8	36.3																							
21-Apr	35.6	40.1	44.9	47.4	52.2	57.1	50.9	35.1	28.2	26.3	23.3	18.2	16.5	15.8	15.2	14.3	13.9	13.9	15.4	19.8	30.9	40.3	40.1	34.8	30.4	57.1																							
22-Apr	41.4	57.1	67.4	72.0	67.9	65.2	61.5	48.6	37.7	33.9	26.6	21.2	16.5	15.6	15.6	16.5	16.0	16.7	18.1	25.5	29.1	31.6	36.6	48.5	37.0	72.0																							
23-Apr	52.8	53.8	59.3	69.3	71.1	72.3	66.3	51.2	42.5	34.0	29.5	25.2	23.9	23.8	24.4	27.2	25.9	26.1	29.6	34.5	38.1	41.5	41.5	48.4	42.2	72.3																							
24-Apr	53.7	60.0	64.5	71.2	76.3	78.7	72.2	61.9	51.7	42.3	33.7	23.2	23.0	23.2	22.7	22.9	23.2	24.6	26.2	27.7	28.9	30.7	36.4	43.5	42.6	78.7																							
25-Apr	47.9	53.4	57.7	65.6	75.4	80.6	75.7	67.8	56.9	43.5	27.7	19.4	19.4	20.8	20.0	22.3	27.7	40.2	70.1	80.7	66.6	72.6	76.0	73.1	52.5	80.7																							
26-Apr	71.4	69.5	70.6	64.7	67.8	65.9	48.1	41.0	36.6	32.8	30.2	28.2	25.2	22.9	23.8	24.1	26.0	27.9	30.0	35.4	44.7	50.6	50.7	51.9	43.3	71.4																							
27-Apr	51.9	55.2	57.6	59.4	65.9	65.1	52.8	45.6	36.9	30.5	26.0	21.8	20.4	20.1	20.9	26.1	30.9	35.8	43.3	50.3	51.6	55.3	60.5	64.3	43.7	65.9																							
28-Apr	67.9	71.8	81.1	85.8	85.9	86.7	77.4	64.6	64.1	53.8	47.3	46.1	46.1	42.5	44.6	47.7	49.9	53.7	57.4	62.7	67.6	71.8	74.5	78.5	63.7	86.7																							
29-Apr	85.0	88.8	91.7	90.3	89.2	86.6	81.5	78.1	74.0	72.4	69.6	65.6	57.4	51.3	49.1	50.0	51.0	52.4	57.2	59.1	60.6	62.7	65.5	67.3	69.0	91.7																							
30-Apr	68.9	70.1	71.6	72.8	74.8	76.7	78.6	79.6	80.7	89.2	94.3	95.2	94.3	94.2	91.5	91.7	93.4	93.1	91.4	92.7	92.9	90.8	90.8	87.4	85.7	95.2																							
																								63.3	66.1	69.4	71.9	73.4	73.0	69.5	65.1	59.8	54.3	50.1	45.7	43.1	41.4	40.2	40.6	40.7	42.0	45.7	50.2	54.1	57.9	59.8	62.2	Diurnal Average	
																								98.1	98.1	97.9	97.2	97.0	96.9	96.9	96.4	96.0	96.0	95.2	95.2	94.3	94.2	91.5	92.4	95.8	97.1	97.5	97.7	97.9	98.0	98.0	98.0	98.0	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Barge Landing - April 2024**





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - inHg**

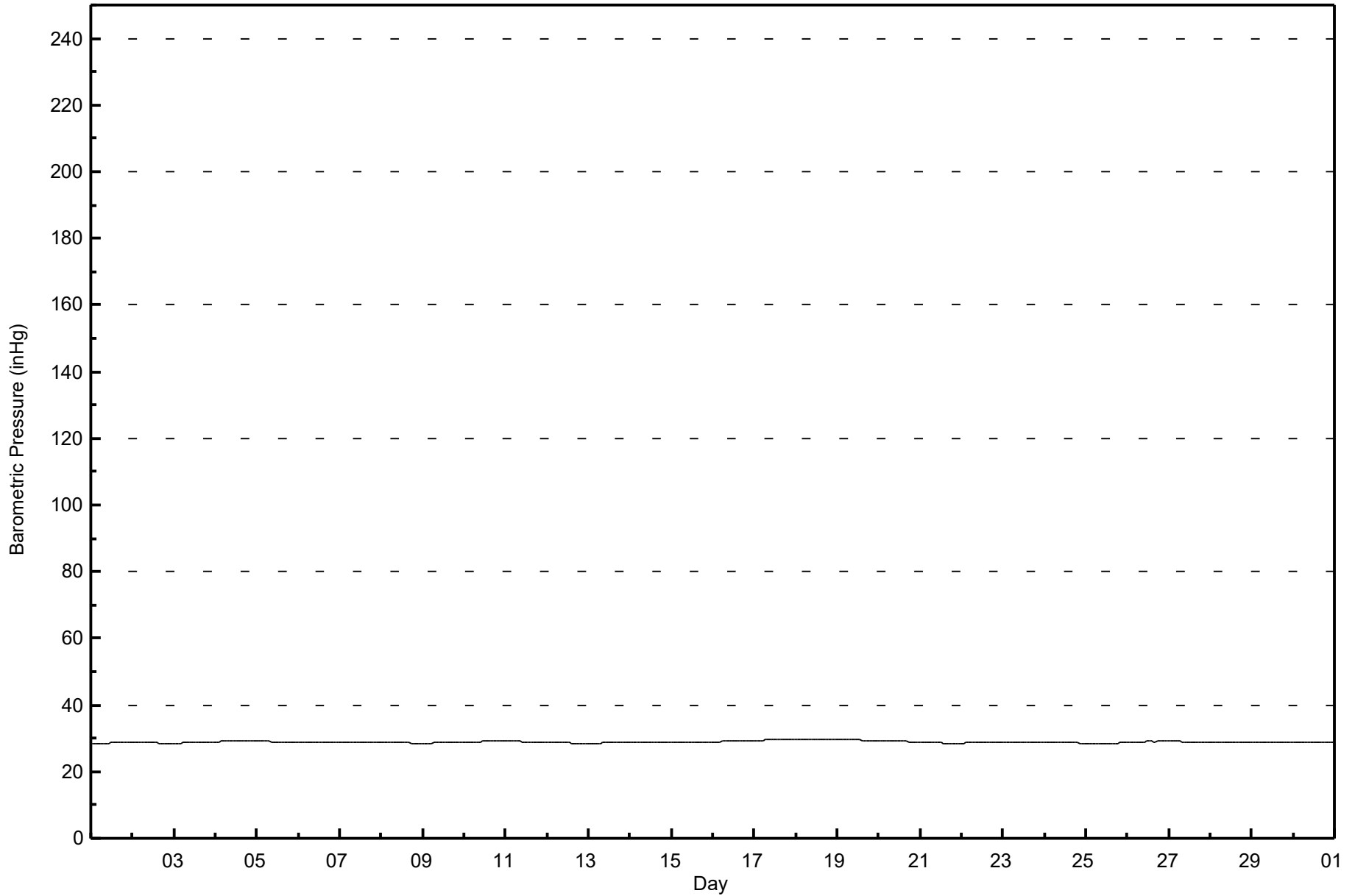
**Barge Landing - April 2024**

Maximum Value: 29.6 inHg on Apr 18 09:00		Maximum Daily Average: 29.6 inHg on Apr 18																				Hours in Service: 720				
Minimum Value: 28.3 inHg on Apr 1 01:00		Minimum Daily Average: 28.6 inHg on Apr 25																				Hours of Data: 720				
Maximum Diurnal Average: 28.9 inHg at hour 8		Minimum Diurnal Average: 28.9 inHg at hour 17																				Hours of Missing Data: 0				
Monthly Average: 28.90 inHg		Percentiles: P <sub>1</sub> = 28.5 P <sub>10</sub> = 28.6 Q <sub>1</sub> = 28.7 Median = 28.9 Q <sub>3</sub> = 29.0 P <sub>90</sub> = 29.3 P <sub>99</sub> = 29.6																				Hours of Calibration: 0				
		Percent Operational Time: 100.0																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	28.3	28.3	28.3	28.4	28.4	28.4	28.5	28.5	28.5	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.9	28.6	28.9
2-Apr	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.9
3-Apr	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.7	28.9
4-Apr	29.0	29.0	29.0	29.0	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	29.1	29.2	
5-Apr	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	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	28.9	28.9	28.9	29.0	29.1
6-Apr	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9
7-Apr	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
8-Apr	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	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.8
9-Apr	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.6	28.8
10-Apr	28.8	28.9	28.9	28.9	28.9	28.9	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	29.1	29.1	29.1	29.1	29.1	29.0	29.1
11-Apr	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	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	28.9	29.1
12-Apr	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.8
13-Apr	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.6	28.8
14-Apr	28.8	28.8	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	28.8	28.9
15-Apr	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	28.9	29.0
16-Apr	29.0	29.0	29.0	29.0	29.0	29.0	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	29.4	29.2	29.4
17-Apr	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	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.6
18-Apr	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	29.6	29.6	29.6	29.6	29.6	29.6
19-Apr	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.5	29.6
20-Apr	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	29.1	29.3
21-Apr	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.9
22-Apr	28.6	28.6	28.6	28.6	28.6	28.7	28.7	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	28.9	28.9	28.7	28.9
23-Apr	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0
24-Apr	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.8	29.0
25-Apr	28.6	28.5	28.5	28.5	28.5	28.5	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.7	28.7	28.7	28.8	28.6	28.8
26-Apr	28.8	28.8	28.8	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.0	29.1
27-Apr	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.9	28.9	28.9	28.8	28.8	28.8	28.9	29.1
28-Apr	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	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.8
29-Apr	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	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.8
30-Apr	28.8	28.8	28.8	28.8	28.8	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	28.9	29.0
																								Diurnal Average		
																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Barometric Pressure (BP) - inHg**  
**Barge Landing - April 2024**





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

**Wind Speed (WS) - km/h**  
**Barge Landing - April 2024**

Maximum Speed: 19 km/h on Apr 25 13:00	Maximum Daily Speed Average: 11.3 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 23 04:00	Minimum Daily Speed Average: 0.8 km/h on Apr 14	Hours of Data: 710
Maximum Diurnal Speed Average: 2.8 km/h at hour 20	Minimum Diurnal Speed Average: 0.4 km/h at hour 14	Hours of Missing Data: 10
Monthly Average Velocity: 1.2 km/h 11.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 10 P <sub>90</sub> = 12 P <sub>99</sub> = 17	Percent Operational Time: 98.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	WSW8	NNW12	WNW8	WSW7	WSW10	WSW9	WSW7	WNW13	WNW14	NW12	NW9	NW12	WNW11	WNW11	W13	WNW13	NW10	NW8	NW8	NNW4	NNW2	SE3	S3	SE2	WNW7.4	WNW14	
2-Apr	SE2	SW2	SE4	ESE3	ESE4	SE3	SE3	SSE5	S6	S7	SSE5	SSW5	SSE10	SSE12	SSE13	S12	S12	SE10	SE8	SE7	SE9	SE6	ESE4	ENE3	SSE5.9	SSE13	
3-Apr	ESE6	SE4	SE4	SE3	N1	WNW6	W8	WNW7	WSW2	SW2	SSW4	WSW2	N4	NNE6	N5	NE6	ENE8	ENE8	ENE6	NE3	ENE1	SE1	E4	E5	NE1.4	ENE8	
4-Apr	NE4	NNE4	NNE4	NNW4	NW2	NNW4	N6	N6	NE6	NE7	NE6	NNE6	NNE7	NNE7	NE7	ENE6	NE6	NE6	NE6	ENE6	NE2	ENE3	NE2	NNE4.6	NE7		
5-Apr	N2	NNW1	NNW2	E2	E2	NE2	N3	NE5	NNE6	N7	N7	N6	N7	N8	N7	NNW5	NNW5	NNW4	NNW4	NNW3	NNW3	NNW2	NW1	NW2	N3.7	N8	
6-Apr	NW3	NW3	NW3	N3	N3	NE3	N3	N3	N4	NNE4	NE5	N5	NNE7	NNE6	NNE5	NE5	NNE5	NE5	NE2	NNE3	NW3	NW1	NW2	NW1	NNE3.2	NNE7	
7-Apr	SSW0	SE1	SSE2	S3	S3	SSW3	S3	SSE4	S6	SSW9	SSW10	SSW10	SSW10	SW11	SW12	SW10	SW7	SW10	WSW10	SW6	SW4	SSE4	S4	SE5	SSW5.6	SW12	
8-Apr	SSE5	SE5	SE3	W1	WSW3	SE4	SE3	SE5	SSE7	SW8	SSW9	S10	SSW10	SSW11	SSW10	SW10	SW8	SSW5	SSE2	E3	E4	N1	WSW2	NNW3	S4.1	SSW11	
9-Apr	WNW2	ESE3	S2	NNW1	S1	SE2	SSE3	ESE3	SW6	SW5	WSW11	WSW13	WSW13	WSW15	WSW14	W13	W12	W10	W9	W8	W5	NW4	NNW5	NNW4	WSW5.4	WSW15	
10-Apr	NW2	WNW2	NW2	WSW3	WSW6	NNW7	NNW8	NW4	NW7	NNW9	NNW10	NW7	NNW8	N10	NNE11	NE9	NE9	NE9	NE7	NE5	ENE4	E2	ENE1	ENE1	N4.1	NNE11	
11-Apr	NNE1	ESE1	ESE3	ESE3	ESE3	ESE4	S1	WSW3	WNW4	NW5	S4	SSE9	SSE11	SSE13	SE14	SE14	SE16	SE16	SE15	SE14	SE16	SE17	SE15	SE11	SE7.7	SE17	
12-Apr	SSE8	SE9	SE9	SE9	SSE7	SE7	SSE9	S11	SSE13	SE13	SE13	SE11	SSE12	SSE13	SSE10	SE12	SSE11	SSE10	SE7	ESE7	SSE4	ESE6	SE5	NE1	SE8.8	SSE13	
13-Apr	SE3	SE4	ESE4	SSE4	SSW4	WSW13	WSW13	W8	NN10	WNW12	WNW14	WNW17	WNW17	WNW15	WNW13	WNW13	WNW11	WNW10	WNW8	NW5	W2	SSW2	SE2	WNW1	W6.7	WNW17	
14-Apr	WNW3	W2	SSW2	S4	SSE5	SE3	SSE5	SSE6	SSE7	SSE6	SSW5	SSE5	S6	S5	SW6	WSW9	N7	NNE5	NE7	NE8	NNE7	NE10	NNW6	N5	SE0.8	NE10	
15-Apr	NNW5	NNW4	NW4	NW3	NW3	WNW2	SSW3	NNW4	NNW8	N7	NNW6	NNW6	N8	ENE10	ENE12	NE10	NE13	NE12	NE12	NNE10	N9	N10	N11	NNE6.3	NE13		
16-Apr	N12	N14	N15	N15	N15	UO	UO	UO	UO	UO	UO	UO	N17	NNE17	NNE15	NNE14	NNE11	NE11	NE10	NNE10	NNE9	N11	N12	N12	---	N17	
17-Apr	N12	N12	N11	N12	N12	N10	N13	N13	N12	NNE12	N12	NNE13	NNE14	NNE14	N14	N14	NNE12	NNE11	NNE11	NNE9	N8	N7	NNE7	NNE7	NNE11.3	NNE14	
18-Apr	N6	N7	N8	N8	N9	N9	NNE10	N11	N10	N11	N11	N12	NNE12	NNE11	NNE11	NNE11	NNE10	NNE10	N10	N7	N5	N6	NNW4	NW3	N8.7	NNE12	
19-Apr	WNW1	NW2	NW2	SW2	SSW2	S3	SSW4	SSW5	SW6	SW7	SSW6	SW7	S6	S8	S9	S9	SSW10	SW9	SSW8	SSW6	SSE4	SSE4	S3	SW5	SSW4.8	SSW10	
20-Apr	SW5	SW5	SW5	SSW4	SW6	SSW6	SSW6	SW6	SW8	SW9	WSW9	SW9	WSW10	WSW10	WSW8	SW10	SSW10	S9	S8	S6	S5	SE5	SE5	SE5	SSW6.1	SW10	
21-Apr	SE6	ESE5	E5	UO	E2	UO	ESE2	SE4	S7	WSW6	WSW5	SSE9	SSE8	SSW8	SSW7	SSW8	WSW7	WNW3	NNW4	N3	N2	NNW1	NNW5	NNW7	SSW1.9	SSE9	
22-Apr	NNW3	E1	SE2	WSW2	NW2	WNW2	NNW2	NW3	NW4	NNW3	NNE6	NNE7	NNE8	NNE7	NE7	NNE9	NNE10	NNE11	NNE9	NE5	NNE5	N10	N6	NE2	NNE4.5	NNE11	
23-Apr	NNE3	NNE2	UO	NE0	SSE1	WSW2	SE1	WNW3	NNW4	NNE5	NNW4	N4	NE5	NE7	ENE7	NNE5	NE8	NNE9	NNE8	NNE7	NE5	NNE5	NE5	N2	NNE3.8	NNE9	
24-Apr	N3	NNW4	NNW4	NNW3	NW3	NNW3	NNW4	NNW6	NNW6	NNW7	N5	ESE12	ESE12	ESE14	E13	ESE14	ESE15	E11	E8	E8	ESE11	ESE17	ESE14	ESE12	E5.6	ESE17	
25-Apr	SE4	ESE4	WSW2	WSW3	SW4	W4	SW6	SW7	SW9	WSW12	WSW13	WSW15	WSW19	WSW18	WSW17	WSW18	W16	WNW17	NNW11	WNW7	NNW13	NNW8	NW5	NW5	W7.8	WSW19	
26-Apr	NW7	NNW8	NNW8	NNW10	NNW6	NNW8	NNW12	NNW12	NNW12	NNW11	N8	NNW9	NNW9	NNW10	NNW7	N8	NE8	NE8	ENE7	ENE6	E5	E5	SE4	ESE6	N6.1	NNW12	
27-Apr	ESE3	ESE4	SSE5	ENE2	E2	ESE5	SE7	SSW6	S6	S8	S7	S10	S11	S12	S12	SSW13	SSW12	SSW12	S11	SSE7	ESE6	ESE6	E5	ESE6	SSW6.1	SSW13	
28-Apr	E4	N3	NNW5	NNW4	NNW5	NNW4	NNW3	WSW4	W2	SE6	SSE7	SSE11	SSE9	SE8	SE9	ESE11	ESE10	ESE10	ESE9	ESE12	ESE10	ESE9	SE8	ESE5	ESE4.5	ESE12	
29-Apr	E2	ENE2	ENE3	E3	E2	ENE2	ENE4	NE4	NE7	NNE7	NNE7	NNE7	NNE8	NE9	NE10	NE10	NE10	NE10	NNE11	N12	NNE11	NNE10	NNE10	N10	N10	NNE6.7	N12
30-Apr	NNE10	NNE10	NNE11	NNE12	N12	N11	N13	N13	NNE12	N12	N10	N10	N11	N12	N14	N13	N10	N10	N10	N10	N10	NNW7	N10	N8	N8	N10.7	N14

NNE1.4	NNE1.7	N1.5	N1.5	NNW1.1	NW1.0	NW1.1	NW1.7	NW2.1	NW2.0	NNW1.9	W1.1	NW1.0	NNE0.4	NNE0.6	N0.7	NE1.5	NE2.1	NNE2.5	NE2.8	NE2.7	ENE2.8	NE2.0	NE2.1	Diurnal Average	
N12	N14	N15	N15	N15	WSW13	N13	WNW13	WNW14	SE13	WNW14	WNW17	WSW19	WSW18	WSW17	WSW18	W16	WNW17	SE15	ESE14	ESE16	ESE17	SE15	ESE12	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Barge Landing - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 7 km/h on Apr 13 13:00	Hours of Data: 710
Minimum Value: 1 km/h on Apr 27 02:00	Hours of Missing Data: 10
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 4 P <sub>90</sub> = 4 P <sub>99</sub> = 6	Hours of Calibration: 0
	Percent Operational Time: 98.6

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-Apr	4	4	4	2	3	3	4	6	6	4	3	4	4	4	6	5	4	2	3	1	1	1	1	1	6
2-Apr	1	1	1	1	1	1	1	2	2	3	2	3	4	4	5	4	4	4	2	4	3	1	1	2	5
3-Apr	1	1	1	1	2	3	3	4	2	2	1	2	2	2	2	2	3	2	2	1	1	1	1	4	
4-Apr	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2
5-Apr	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	
6-Apr	1	1	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	
7-Apr	1	1	1	1	1	1	1	2	2	3	4	4	4	3	4	4	3	3	3	2	1	1	1	4	
8-Apr	1	1	1	1	1	2	2	2	2	2	3	4	4	5	4	4	4	2	1	1	1	1	3	5	
9-Apr	2	1	1	1	1	2	1	2	2	2	5	4	5	5	5	5	4	5	3	3	2	1	1	5	
10-Apr	1	1	1	1	2	4	3	2	3	4	5	3	3	3	3	3	3	3	3	1	1	1	1	5	
11-Apr	1	1	1	1	1	2	1	1	1	2	3	4	5	5	6	5	5	5	5	4	5	5	4	6	
12-Apr	3	2	3	3	3	2	3	5	5	5	5	4	5	5	4	4	4	4	2	2	2	2	2	5	
13-Apr	2	1	1	1	3	4	4	3	4	5	6	6	7	6	6	6	4	4	4	2	1	1	1	7	
14-Apr	1	1	1	1	1	1	2	2	3	2	2	3	4	4	4	3	3	2	2	2	3	2	1	4	
15-Apr	1	1	1	1	1	1	2	2	2	2	2	2	3	4	4	4	4	4	4	4	3	2	3	4	
16-Apr	4	4	5	5	5	UO	UO	UO	UO	UO	UO	UO	6	6	5	5	4	4	4	3	3	4	4	6	
17-Apr	4	4	4	3	4	3	4	4	4	3	4	4	4	5	5	5	4	3	3	3	2	2	2	5	
18-Apr	2	2	2	2	3	3	3	3	3	4	4	4	4	3	4	3	3	3	3	2	1	1	1	4	
19-Apr	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	4	4	3	3	2	1	1	1	4	
20-Apr	1	1	2	2	1	2	2	2	2	3	3	4	3	3	4	4	4	4	3	2	1	1	1	4	
21-Apr	1	1	1	UO	1	UO	1	2	3	2	3	4	4	4	3	3	3	2	1	1	1	1	2	4	
22-Apr	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	1	1	3	3	4	
23-Apr	1	1	UO	1	1	2	1	1	2	2	2	2	2	3	2	3	3	3	2	2	2	2	1	3	
24-Apr	1	1	1	1	1	1	1	2	2	2	3	4	4	4	4	5	4	3	4	4	6	4	3	6	
25-Apr	4	2	1	1	2	2	1	3	2	4	5	6	7	6	5	6	6	7	6	3	4	3	2	7	
26-Apr	3	3	2	4	2	3	5	4	4	4	3	3	4	3	3	3	3	3	2	2	1	1	1	5	
27-Apr	1	1	2	1	1	2	2	2	3	3	3	5	5	5	5	5	4	5	5	2	1	1	1	5	
28-Apr	1	1	1	1	1	1	2	2	2	3	4	4	3	3	3	3	3	3	3	3	3	3	2	4	
29-Apr	1	1	1	1	1	1	1	2	3	2	2	2	3	3	3	4	3	4	3	3	3	3	3	4	
30-Apr	3	3	3	4	4	4	4	4	4	4	3	3	4	4	4	4	3	4	3	3	2	3	3	4	
	4	4	5	5	5	4	5	6	6	5	6	6	7	6	6	6	6	7	6	4	5	6	4	4	

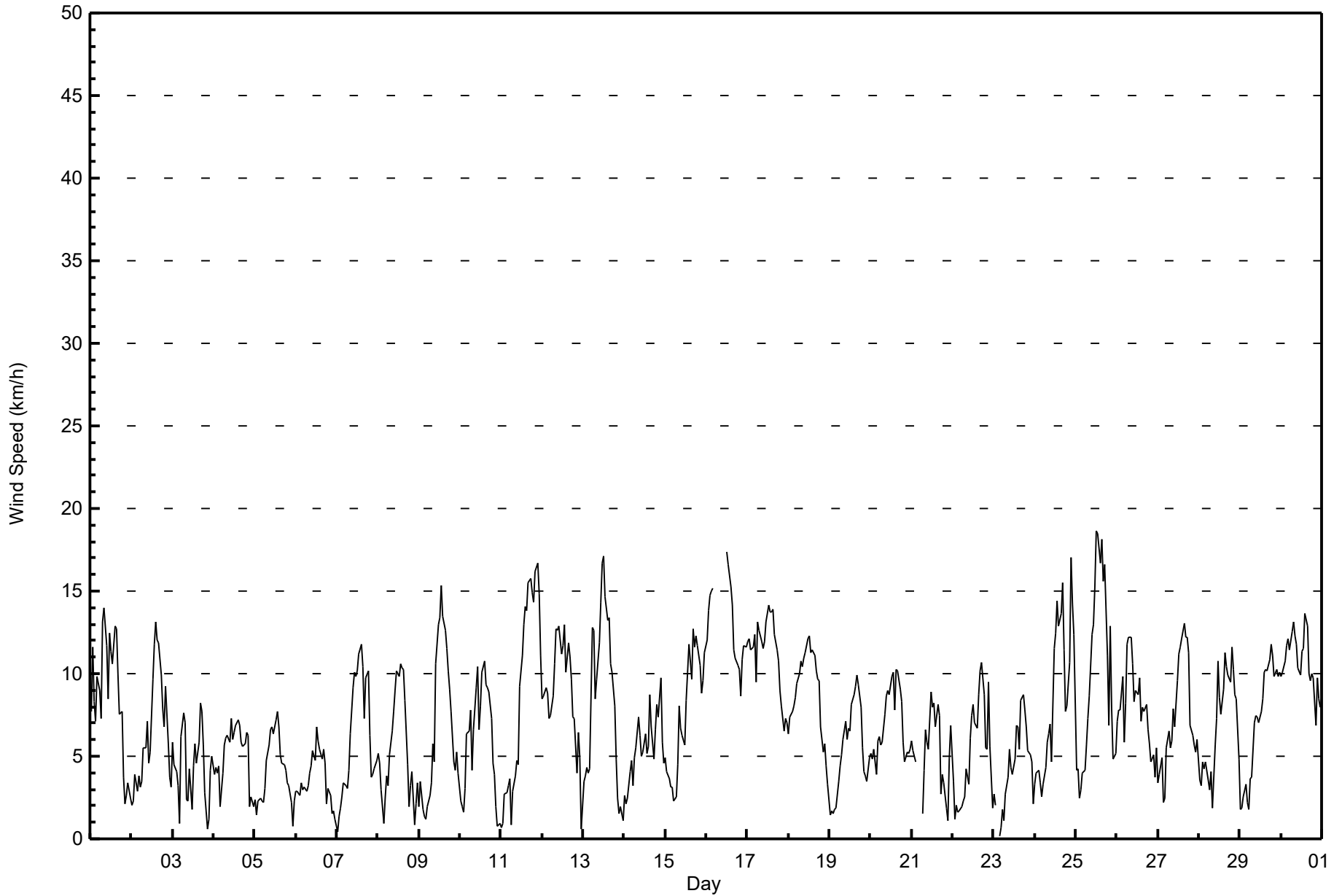
Diurnal Maximum

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Barge Landing - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Barge Landing - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	283	39.86	39.86
6 - 11	313	44.08	83.94
12 - 19	114	16.06	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Barge Landing - April 2024**

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	19	15	20	11	17	19	31	17	14	14	10	12	6	10	27	41	283
6 - 11	51	48	25	10	3	14	18	19	20	19	23	15	5	9	9	25	313
12 - 19	27	11	4	1	1	11	10	6	4	3	1	13	3	13	2	4	114
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	97	74	49	22	21	44	59	42	38	36	34	40	14	32	38	70	710

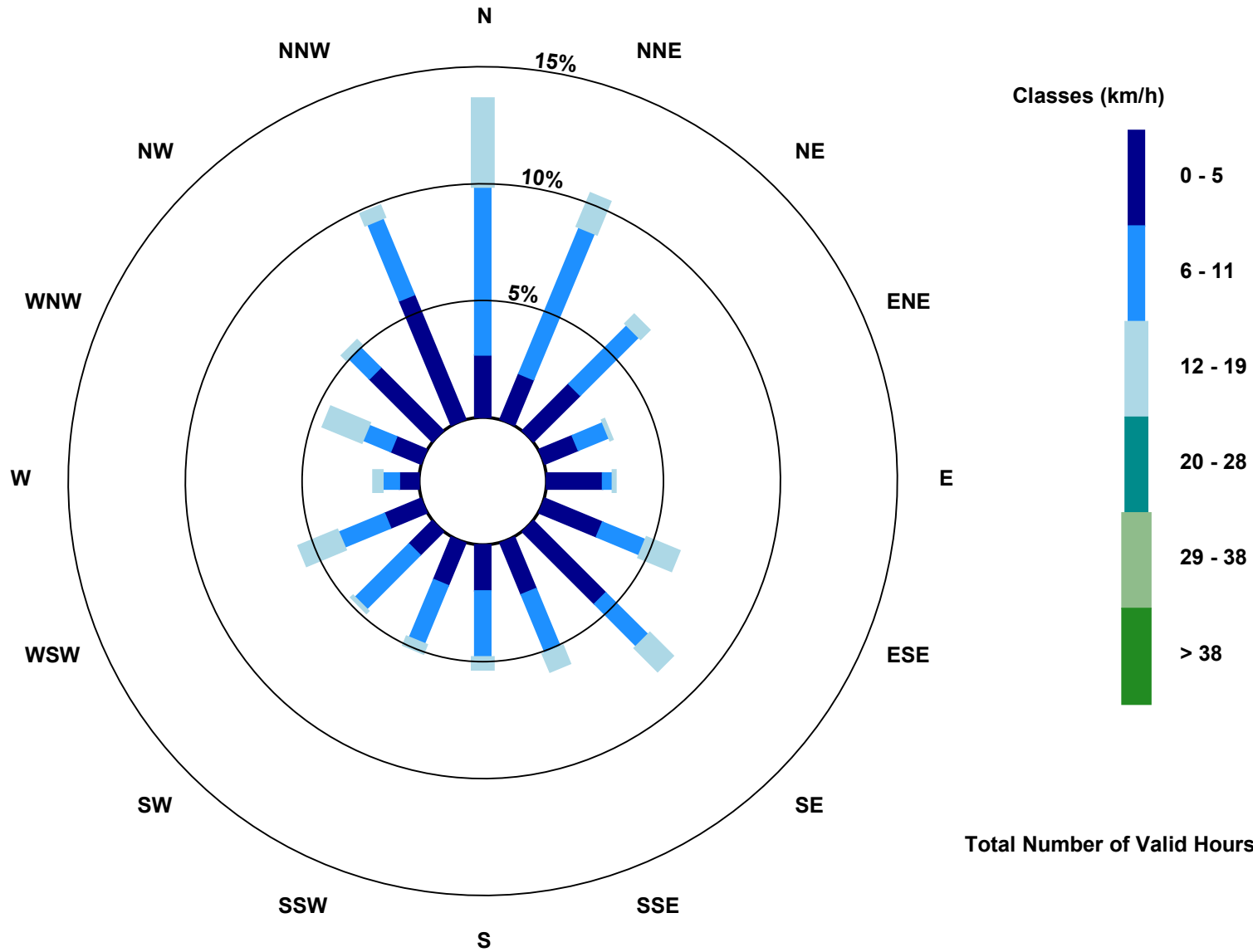
Total Number of Valid Hours: 710

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Barge Landing





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

**Wind Direction (WD) - deg**  
**Barge Landing - April 2024**

Direction of Maximum Speed: 241 deg on Apr 25 13:00		Hours in Service: 720
Direction of Maximum Daily Speed Average: 11.8 deg on Apr 17		Hours of Data: 710
Direction of Minimum Speed: 48 deg on Apr 23 04:00	Direction of Minimum Daily Speed Average: 0.8 deg on Apr 14	Hours of Missing Data: 10
Monthly Average Direction: 11.3 deg		Percent Operational Time: 98.6

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-Apr	246	297	285	257	258	248	249	302	300	309	321	306	298	294	281	300	321	317	315	331	337	130	184	133	291.8
2-Apr	133	226	143	119	123	128	145	155	170	171	166	193	160	155	161	175	178	146	133	133	131	130	118	77	152.9
3-Apr	106	127	125	136	7	287	276	300	247	223	205	252	350	32	358	38	57	67	63	46	77	126	92	92	50.9
4-Apr	48	31	18	338	313	335	355	351	7	35	39	37	33	30	24	36	69	56	35	49	64	37	62	38	29.6
5-Apr	1	336	336	80	81	44	2	46	17	9	4	10	6	9	5	346	332	335	333	330	333	330	315	323	1.1
6-Apr	323	326	322	3	2	49	359	354	349	26	44	4	17	22	31	37	20	45	48	17	320	317	314	310	11.3
7-Apr	194	138	157	176	173	202	172	168	173	197	200	192	207	218	226	233	221	236	242	227	231	166	172	146	206.1
8-Apr	151	137	132	266	238	143	140	144	167	224	201	186	203	201	208	218	215	209	152	90	87	354	244	335	190.0
9-Apr	298	122	169	342	175	145	157	123	226	233	247	242	246	244	238	260	261	261	263	266	272	324	330	341	251.8
10-Apr	318	284	307	244	255	328	337	325	321	329	337	313	332	5	25	35	51	51	47	40	72	97	72	70	357.8
11-Apr	29	106	117	123	114	116	178	253	293	320	185	151	156	147	136	132	131	125	125	124	124	128	134	142	134.3
12-Apr	153	137	129	136	153	135	150	169	152	144	144	142	148	158	147	132	158	154	138	123	154	115	142	51	144.9
13-Apr	131	133	123	154	192	243	255	276	306	284	295	287	294	294	297	288	291	295	293	307	262	204	144	285	280.8
14-Apr	301	261	208	191	150	141	156	167	166	200	153	184	170	221	247	351	23	34	35	30	40	348	355	143.4	143.4
15-Apr	347	336	326	326	324	301	211	329	337	354	330	346	2	57	67	50	40	40	35	35	28	9	357	5	15.6
16-Apr	5	5	360	1	357	UO	UO	UO	UO	UO	UO	UO	9	15	19	21	26	39	37	33	19	0	4	8	--
17-Apr	10	7	9	9	9	3	9	9	6	14	11	14	19	16	7	11	13	19	22	16	4	9	21	21	11.8
18-Apr	7	4	359	0	355	4	16	5	2	3	10	4	13	23	17	16	24	17	360	353	354	349	336	318	6.2
19-Apr	303	323	316	221	203	178	200	208	217	223	195	220	183	176	185	175	206	216	205	199	158	162	180	219	199.3
20-Apr	221	221	223	194	217	213	200	215	220	227	240	231	250	239	243	231	207	190	186	185	171	144	139	126	212.2
21-Apr	128	113	100	UO	101	UO	118	145	188	244	249	161	162	193	196	211	251	298	331	351	11	340	334	334	195.5
22-Apr	346	90	141	243	308	294	327	322	310	337	18	32	21	28	39	32	33	19	16	36	24	6	6	50	16.4
23-Apr	25	33	UO	48	156	242	144	299	339	20	348	357	37	49	63	20	34	31	31	33	38	23	36	351	26.7
24-Apr	349	345	344	340	326	338	339	336	327	335	1	107	123	118	100	106	102	93	99	96	109	121	119	114	93.2
25-Apr	132	116	255	253	230	262	232	232	233	239	252	242	241	243	243	247	259	290	313	285	339	344	311	318	259.6
26-Apr	326	327	327	341	338	332	327	334	330	342	354	334	332	341	347	1	37	36	58	71	81	87	124	119	352.9
27-Apr	109	119	157	75	86	117	125	199	190	187	181	185	179	170	189	196	201	202	186	149	123	112	99	105	167.9
28-Apr	98	355	338	339	340	336	330	246	276	140	167	157	160	132	129	117	104	114	107	110	122	123	126	114	121.5
29-Apr	92	74	57	82	85	75	77	55	44	24	24	22	33	36	39	39	34	21	6	15	16	13	7	11	28.8
30-Apr	13	12	12	13	7	9	8	7	12	9	358	8	0	359	360	1	1	357	357	351	347	1	358	5	4.0

23.6	16.9	10.5	0.5	338.5	313.1	319.2	311.6	305.1	305.8	299.9	261.0	307.9	30.6	24.4	357.9	38.6	36.0	33.3	48.2	55.3	59.5	56.2	42.2
Diurnal Average																							

UO - Unstable Operation  
 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**  
**Barge Landing - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 95 deg on Apr 3 05:00	Hours of Data: 710
Minimum Value: 7 deg on Apr 21 03:00	Hours of Missing Data: 10
Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 16 Q <sub>1</sub> = 20 Median = 24 Q <sub>3</sub> = 34 P <sub>90</sub> = 49 P <sub>99</sub> = 80	Hours of Calibration: 0
	Percent Operational Time: 98.6

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-Apr	50	28	28	17	20	23	29	27	26	25	29	26	30	33	33	30	23	20	19	15	51	48	35	35	51
2-Apr	44	52	31	15	7	15	22	23	28	33	57	49	30	28	29	29	28	20	14	36	12	14	54	34	57
3-Apr	16	12	32	69	95	33	28	28	48	38	26	79	28	44	29	22	25	22	21	39	83	74	21	28	95
4-Apr	48	36	32	26	52	20	22	24	25	27	25	39	34	36	30	32	33	25	20	20	23	53	28	52	53
5-Apr	24	43	28	33	36	22	30	33	24	21	23	24	22	19	21	22	17	18	16	16	16	16	20	19	43
6-Apr	16	17	41	23	32	27	26	21	24	26	28	32	24	27	28	29	19	25	42	18	39	39	49	31	49
7-Apr	88	68	51	40	21	24	26	28	30	33	30	35	35	31	27	27	36	19	20	18	35	20	19	16	88
8-Apr	16	12	20	65	34	48	37	24	34	30	35	36	40	38	33	31	34	30	43	8	8	80	78	31	80
9-Apr	55	35	63	31	58	54	35	49	26	48	30	25	26	25	33	31	28	29	34	25	29	24	17	17	63
10-Apr	41	39	30	34	28	23	21	21	33	21	24	32	29	26	23	23	24	21	20	17	17	28	42	58	58
11-Apr	77	78	22	18	22	21	79	28	32	33	85	38	34	32	28	25	20	17	15	15	15	15	16	20	85
12-Apr	21	16	13	18	21	16	23	28	25	22	21	22	23	26	27	20	29	28	20	12	31	21	22	81	81
13-Apr	19	18	11	18	45	19	24	30	25	33	33	31	30	33	31	33	31	31	31	21	31	56	47	67	67
14-Apr	41	53	37	20	19	42	26	29	29	42	51	58	61	66	70	36	24	22	18	15	16	20	27	15	70
15-Apr	16	15	21	29	23	47	64	45	16	25	24	24	26	31	20	22	21	22	20	20	20	20	19	19	64
16-Apr	19	20	20	22	20	UO	UO	UO	UO	UO	UO	UO	22	20	20	20	18	19	19	18	19	20	20	19	22
17-Apr	18	20	19	18	18	21	20	20	22	22	23	23	21	25	23	25	24	20	19	18	17	16	16	18	25
18-Apr	19	17	17	17	17	19	19	20	22	23	24	23	23	24	25	23	23	24	21	17	13	14	15	38	38
19-Apr	55	24	48	40	40	18	22	27	32	37	49	45	59	42	38	38	33	26	24	23	23	21	37	20	59
20-Apr	17	18	19	35	19	20	23	27	23	22	30	43	32	30	43	31	29	30	26	21	16	11	12	12	43
21-Apr	10	10	7	UO	18	UO	31	42	38	40	68	41	59	57	56	54	38	82	34	19	21	49	28	14	82
22-Apr	24	57	18	38	37	24	24	34	29	53	52	32	32	33	46	24	24	25	22	13	19	18	43	27	57
23-Apr	29	24	UO	78	92	39	59	31	48	36	59	61	55	35	34	31	25	21	18	17	25	26	45	64	92
24-Apr	32	15	17	11	24	21	16	18	19	23	65	24	24	19	20	18	17	21	23	22	17	14	14	14	65
25-Apr	68	25	53	55	49	43	19	19	24	22	29	27	26	22	22	24	31	33	24	35	19	19	26	24	68
26-Apr	21	18	17	20	23	19	20	21	22	27	34	37	34	35	54	36	39	24	24	17	21	23	32	10	54
27-Apr	15	11	30	44	36	17	22	40	50	36	54	56	39	38	37	30	30	31	31	26	11	10	11	9	56
28-Apr	18	27	10	11	11	13	40	30	58	47	53	32	41	43	32	17	18	18	16	15	16	14	13	13	58
29-Apr	21	30	15	18	40	62	23	26	22	22	25	27	32	28	25	22	20	22	19	19	18	19	20	19	62
30-Apr	19	19	20	20	20	20	20	20	20	19	22	21	20	20	20	20	20	20	20	18	21	18	19	19	22

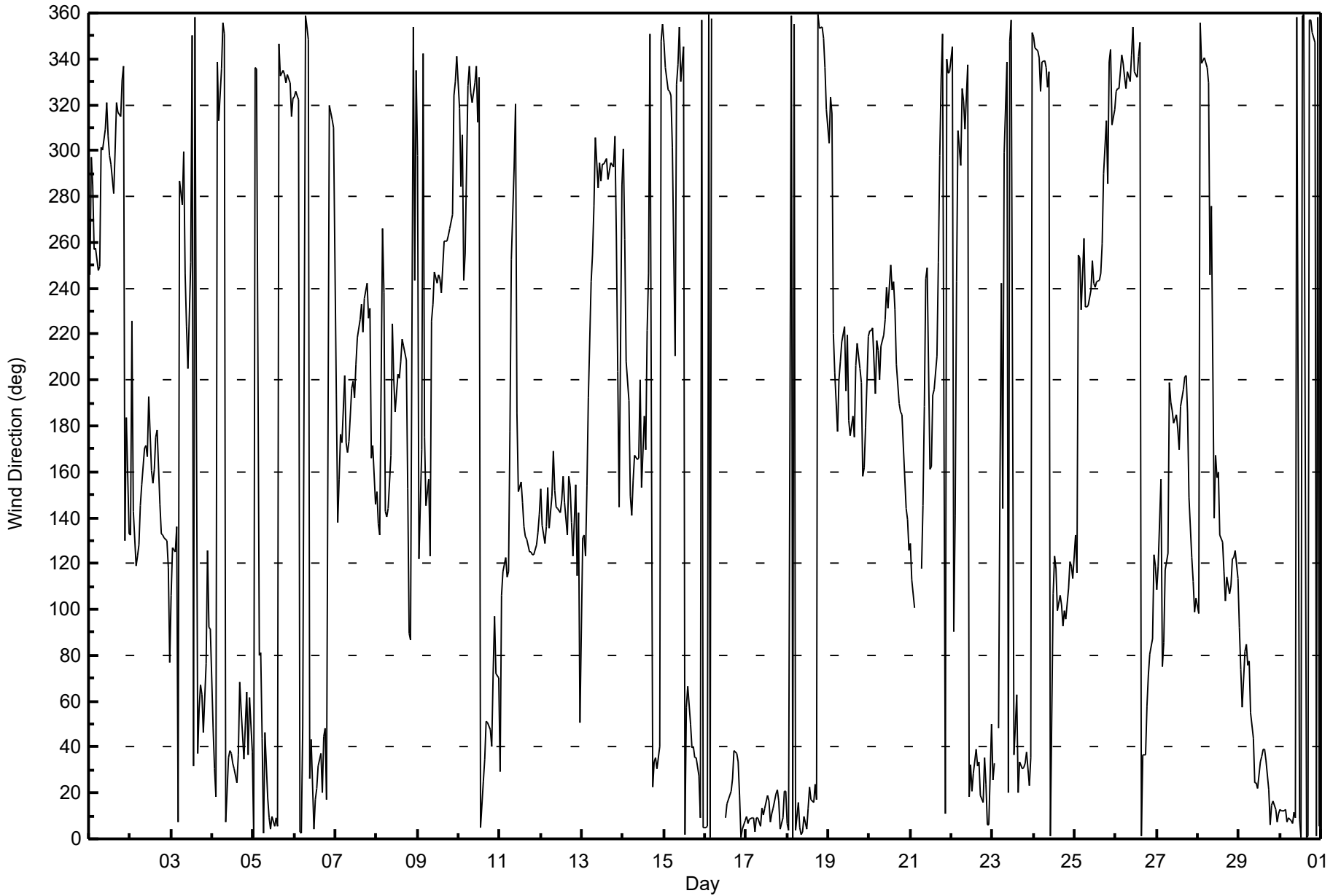
88	78	63	78	95	62	79	49	58	53	85	79	61	66	70	54	39	82	43	39	83	80	78	81	
Diurnal Maximum																								

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Barge Landing - April 2024**





Maximum Speed: 33 km/h on Apr 16 14:00	Maximum Daily Speed Average: 25.1 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 3 05:00	Minimum Daily Speed Average: 0.9 km/h on Apr 14	Hours of Data: 720
Maximum Diurnal Speed Average: 5.7 km/h at hour 20	Minimum Diurnal Speed Average: 1.9 km/h at hour 14	Hours of Missing Data: 0
Monthly Average Velocity: 2.8 km/h 7.0 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 17 P <sub>90</sub> = 22 P <sub>99</sub> = 29	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-Apr	WSW13	WNW21	WNW15	W13	W17	WSW15	WSW13	WNW23	WNW24	WNW20	NW14	WNW22	WNW19	WNW18	W22	WNW22	NW17	NW13	NW14	NW8	NNW8	ENE2	SSW9	SW7	WNW13.8	WNW24
2-Apr	S5	SSW6	S9	SSE7	SSE8	SE7	SSE8	SSE11	S9	SSE12	SSE7	S8	SSE16	SSE19	SSE23	S20	S18	SSE16	SE12	SE11	SE15	SSE11	SSE8	E8	SSE10.8	SSE23
3-Apr	ESE11	SE10	SE9	SSE8	SW0	WNW13	W14	WNW13	WSW6	SW3	SSW8	W3	N7	NNE11	N7	NE10	NE14	ENE14	ENE11	NE7	ENE5	E4	E7	E8	NE2.3	W14
4-Apr	NE7	NNE8	NNE7	NNW8	NW3	NNW7	N10	N10	N10	NNE10	NE11	NE9	NNE10	NNE11	NNE12	NNE12	ENE10	NE10	NE12	NE14	ENE13	NE5	ENE6	NE6	NNE8.4	NE14
5-Apr	NNE5	N3	N5	ENE5	ENE5	NE6	NNE6	NE8	NNE10	N11	N11	N11	N13	N14	N12	N8	NNW8	NNW8	NNW8	NNW7	NNW6	NNW4	NW4	NW5	N6.9	N14
6-Apr	NW6	NNW6	NW6	N7	N7	NE7	N5	N6	N7	NNE8	NE9	N7	NNE12	NNE11	NNE10	NE9	NNE11	NE8	NE4	NNE7	NNW5	NW4	NW4	NW4	N6.2	NNE12
7-Apr	W2	SSW2	SSE5	S7	S7	SSW7	S6	SSE7	S10	SSW13	SSW14	S14	SSW14	SW15	SW16	SW14	SW10	SW14	WSW15	SW12	WSW10	SSW8	SSW9	S10	SSW9.2	SW16
8-Apr	SSE12	SSE10	SSE7	SSW5	SW6	S8	SSE7	SSE8	SSE10	SW10	SSW12	S16	SSW14	SSW15	SSW14	SW14	SSW12	SSW7	SSW4	E6	E11	SSE0	W4	NNW7	S7.2	S16
9-Apr	NW8	SE4	SSW6	WNW5	W4	SSW5	S5	SE4	SW7	SW5	WSW14	WSW17	WSW18	WSW21	WSW19	W19	W18	W16	W15	W13	W10	NW9	NNW11	NNW9	WSW8.9	WSW21
10-Apr	NNW5	NW5	NW5	W7	W11	NNW13	NNW14	NNW8	NW12	NNW16	NNW18	NW11	NNW12	N17	NNE20	NNE17	NE16	NE16	NE14	NE12	ENE10	E7	E5	E4	N7.9	NNE20
11-Apr	ENE5	E3	ESE6	SE7	SE7	SE8	SE4	SW2	WNW4	NW6	S7	SSE14	SSE16	SSE19	SE21	SE21	SE23	SE24	SE22	SE22	SE24	SE25	SE22	SE18	SE12.4	SE25
12-Apr	SSE16	SE14	SE14	SE14	SSE14	SE12	SSE15	SSE18	SSE21	SSE21	SSE21	SSE17	SSE20	SSE22	SSE16	SE17	SSE18	SSE16	SE12	SE12	SSE8	ESE11	SSE10	S3	SSE14.8	SSE22
13-Apr	SSE8	S8	S8	S9	SW9	WSW20	W20	W14	WNW17	W20	WNW24	WNW28	WNW28	WNW25	WNW22	WNW23	WNW18	WNW18	WNW14	WNW10	W8	W7	SW3	WNW3	W13.0	WNW28
14-Apr	NW7	W5	SW6	SSW9	S9	S8	SSE10	SSE8	SSE11	SSE9	SSW6	SSE7	S9	SSE8	SW9	WSW12	N11	NNE9	NNE15	NNE19	NNE18	NE21	N11	N9	E0.9	NE21
15-Apr	N10	NNW9	NNW7	NNW7	NNW7	NW6	SW5	NW9	NNW16	N11	NNW10	NNW9	N16	NE19	ENE22	NE18	NE25	NE23	NNE25	NNE23	NNE22	N17	N16	N20	NNE12.5	NNE25
16-Apr	N22	N25	N25	N26	N26	N25	N29	N29	N27	N26	N27	N30	N33	NNE33	NNE32	NNE29	NNE24	NNE22	NNE22	NNE21	NNE18	N19	N22	N22	N25.1	NNE33
17-Apr	N23	N23	N22	N22	N23	N17	N24	N23	N21	NNE21	N21	NNE25	NNE28	NNE26	N25	N26	NNE24	NNE23	NNE22	NNE18	N15	NNE13	NNE16	NNE15	NNE21.5	NNE28
18-Apr	N13	N13	N14	N14	N15	N17	NNE20	N19	N17	N18	N20	N21	NNE23	NNE22	NNE20	NNE21	NNE20	NNE18	N16	N12	N11	N12	NNW10	NW8	N16.1	NNE23
19-Apr	NW7	NNW6	NW5	WSW4	SW7	SSW7	S6	SSW6	SSW7	SW8	SSW8	SW8	S9	S12	S13	S14	SSW14	SSW13	SSW12	SSW11	SSW8	SSW8	SW8	SW9	SSW7.3	S14
20-Apr	SW9	SW9	SW10	SW8	SW11	SW12	SSW9	SSW8	SW10	SW11	WSW11	SW11	WSW13	WSW13	WSW9	SW13	SSW14	S14	S13	S11	S11	S11	SSE11	SSE12	SSW9.8	SSW14
21-Apr	SSE12	SE11	SE10	SE5	SSE5	SE3	SE3	SSE6	S9	WSW6	WSW7	SSE12	SSE12	S12	S10	SSW10	WSW10	NW4	NNW6	N8	NNE9	NNW8	NNW14	NNW16	S2.3	NNW16
22-Apr	NNW10	N5	S2	WSW1	NW5	WNW5	NNW6	NW4	NW6	NNW4	NNE10	NNE12	NNE14	NNE11	NE11	NNE16	NNE19	NNE20	NNE17	NE15	NNE16	N19	N12	NNE5	NNE9.1	NNE20
23-Apr	NNE9	NNE6	NNW7	NNW5	NNW4	WSW4	W0	NW3	N5	NNE7	N5	N5	NNE7	NE12	ENE12	NNE10	NNE15	NNE17	NNE17	NNE16	NE13	NE12	NE12	NNE6	NNE7.9	NNE17
24-Apr	N7	N10	NNW10	NNW8	NNW7	NNW8	NNW7	NNW9	NNW10	NNW11	N7	ESE17	SE18	ESE21	E20	ESE22	ESE24	E19	E13	E14	ESE17	SE25	ESE22	ESE19	E8.4	SE25
25-Apr	SE7	ESE8	WSW5	W6	WSW8	W7	SW8	SW9	SW11	WSW17	WSW17	WSW21	WSW21	WSW26	WSW24	WSW26	W24	WNW29	NW20	WNW12	NNW23	NNW14	NW9	NW9	W12.0	WNW29
26-Apr	NW12	NW14	NNW14	NNW17	NNW11	NNW15	NW20	NNW21	NNW20	NNW17	N13	NNW14	NNW13	NNW15	N11	N13	NE13	NE15	ENE12	ENE13	ENE12	ENE12	ESE7	SE11	N10.0	NNW21
27-Apr	ESE7	SE8	SSE11	E5	E5	ESE11	SE9	S7	S8	S11	S10	S14	S17	S18	S19	SSW20	SSW19	SSW18	S18	SSE11	SE10	ESE11	ESE11	ESE11	SSE10.2	SSW20
28-Apr	ESE8	NE4	NNW9	NNW9	NNW11	NNW7	NNW4	SW5	SSW2	SE9	S10	SSE16	SSE12	SE10	SE13	ESE17	ESE16	ESE15	ESE15	ESE18	SE16	SE13	SE13	ESE9	ESE7.0	ESE18
29-Apr	ESE5	ESE5	ENE8	ENE7	ENE6	ENE5	ENE6	NE6	NE13	NNE14	NNE14	NNE12	NNE13	NNE15	NE18	NE19	NNE21	NNE21	N22	NNE22	NNE20	NNE21	N18	N19	NNE12.7	NNE22
30-Apr	NNE20	NNE20	NNE21	NNE22	N22	N22	N24	N24	N24	N23	N18	N20	N20	N20	N24	N22	N17	N16	N17	N17	N12	N17	N14	N15	N19.5	N24

NNE2.7	N2.7	N2.2	N2.5	NW2.7	NW2.6	NNW3.0	NNW3.7	NW4.0	NNW4.0	NW3.7	NW2.1	NNW2.3	NNE1.9	NNE2.0	N2.5	NNE3.8	NNE4.5	NNE5.1	NE5.7	NE5.6	NE4.8	NE3.1	NE3.6	Diurnal Average
N23	N25	N25	N26	N26	N25	N29	N29	N27	N26	N27	N30	N33	NNE33	NNE32	NNE29	NE25	WNW29	NNE25	NNE23	SE24	SE25	SE22	N22	Diurnal Maximum

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

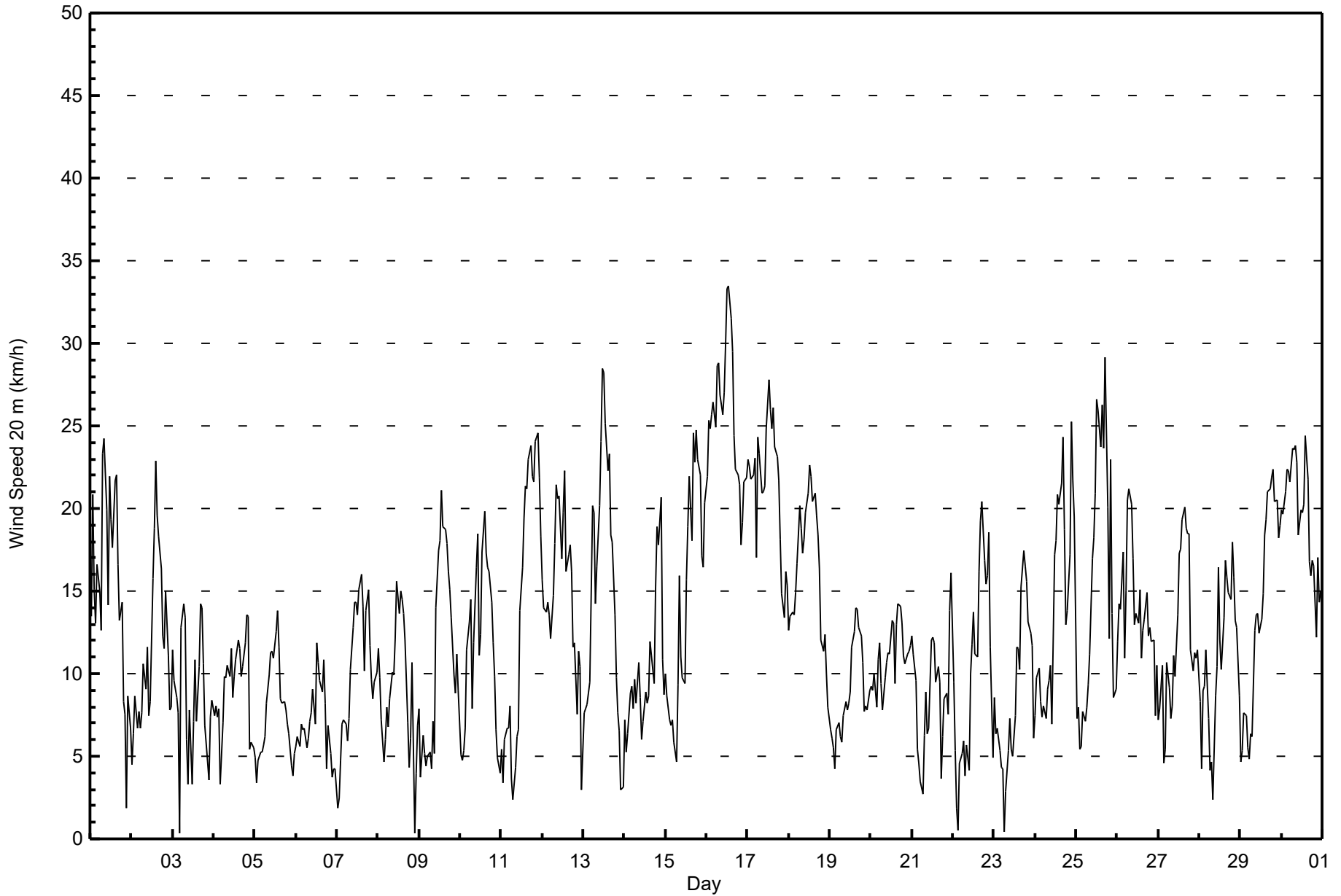


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Apr 25 18:00 Minimum Value: 0 km/h on Apr 27 02:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 9																		Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	6	6	5	2	3	4	5	7	7	5	5	6	5	6	7	8	6	3	4	2	2	2	1	1	8
2-Apr	2	2	2	1	1	2	2	2	2	3	3	5	4	5	6	5	5	4	2	5	3	1	3	4	6
3-Apr	2	2	1	3	2	5	4	5	2	1	2	3	4	4	2	3	4	3	3	2	3	2	2	2	5
4-Apr	3	3	2	4	1	2	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2	1	4
5-Apr	1	2	2	2	2	2	2	3	3	2	3	3	3	4	3	3	2	2	2	1	1	2	1	1	4
6-Apr	1	2	3	2	2	2	1	1	2	2	3	3	3	3	3	3	3	2	1	2	1	1	1	1	3
7-Apr	1	1	1	1	1	1	1	2	2	3	4	4	4	4	5	4	4	4	4	2	2	1	1	2	5
8-Apr	2	1	2	1	1	2	2	2	2	2	4	5	5	6	5	4	4	2	1	3	1	2	4	2	6
9-Apr	2	2	2	1	1	1	1	2	2	2	7	5	6	6	6	6	5	6	4	4	2	2	2	2	7
10-Apr	2	1	1	2	3	6	4	3	5	5	8	4	4	5	5	5	5	4	4	2	2	1	1	1	8
11-Apr	2	2	1	1	2	2	2	1	2	2	4	5	5	7	6	6	6	5	5	5	5	5	5	4	7
12-Apr	3	3	3	3	3	2	4	6	6	5	6	5	5	5	4	4	4	4	3	2	2	3	1	3	6
13-Apr	2	1	1	1	4	5	5	4	5	7	8	8	9	9	8	7	6	6	5	2	1	2	2	2	9
14-Apr	2	2	1	2	1	1	2	2	3	3	2	3	4	5	6	4	4	3	3	3	3	4	3	2	6
15-Apr	2	2	1	2	2	2	2	4	3	4	2	3	5	5	5	5	6	6	7	6	6	5	4	5	7
16-Apr	6	6	7	7	7	7	8	9	7	8	9	9	9	9	8	7	6	6	5	5	5	6	6	5	9
17-Apr	6	6	6	5	6	6	7	6	6	6	6	7	7	7	7	7	7	6	5	5	3	3	4	3	7
18-Apr	3	3	3	3	4	4	5	4	5	5	6	6	6	6	6	5	6	6	5	3	2	2	2	2	6
19-Apr	1	1	2	2	1	1	2	2	2	3	3	3	3	4	4	4	4	4	3	2	1	1	2	2	4
20-Apr	1	1	2	2	2	2	2	2	2	3	4	4	4	4	4	4	4	4	3	2	1	1	1	1	4
21-Apr	2	1	1	1	2	1	1	2	3	2	3	4	4	5	4	4	3	3	2	1	1	1	3	2	5
22-Apr	2	2	1	1	1	1	1	1	2	2	4	3	4	4	5	5	5	5	5	2	2	4	6	2	6
23-Apr	3	1	1	2	2	3	1	1	3	2	2	4	3	4	3	4	5	4	3	3	3	4	2	5	5
24-Apr	2	1	2	2	2	1	2	3	2	3	3	4	5	5	5	6	6	4	5	5	7	5	4	7	7
25-Apr	5	2	2	2	3	3	2	3	3	4	6	7	8	7	6	7	7	10	8	4	6	5	2	3	10
26-Apr	5	4	3	6	4	4	7	6	5	5	5	5	6	6	6	4	5	4	3	2	2	2	2	2	7
27-Apr	1	0	3	1	2	1	2	2	3	3	3	7	6	7	6	5	5	5	5	3	1	1	1	1	7
28-Apr	1	2	2	1	1	2	3	2	2	3	6	5	3	4	4	3	4	3	3	3	3	3	3	2	6
29-Apr	1	1	1	2	2	2	1	3	4	3	3	3	4	5	5	5	5	6	5	5	5	5	5	5	6
30-Apr	5	5	6	6	6	6	6	6	6	6	5	7	6	6	7	6	5	6	5	5	4	4	4	3	7
																		Diurnal Maximum							







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	85	11.81	11.81
6 - 11	274	38.06	49.86
12 - 19	230	31.94	81.81
20 - 28	123	17.08	98.89
29 - 38	8	1.11	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - April 2024**

<b>Wind Speed</b> <b>Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	7	2	3	6	6	3	5	3	4	5	7	5	5	4	13	7	85
6 - 11	25	23	15	8	5	13	16	27	28	20	24	8	7	1	15	39	274
12 - 19	37	28	19	7	3	8	14	23	14	14	8	13	9	10	6	17	230
20 - 28	37	31	3	1	1	4	10	6	1	1	0	7	3	13	2	3	123
29 - 38	4	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	8
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	110	87	40	22	15	28	45	59	47	40	39	33	24	29	36	66	720

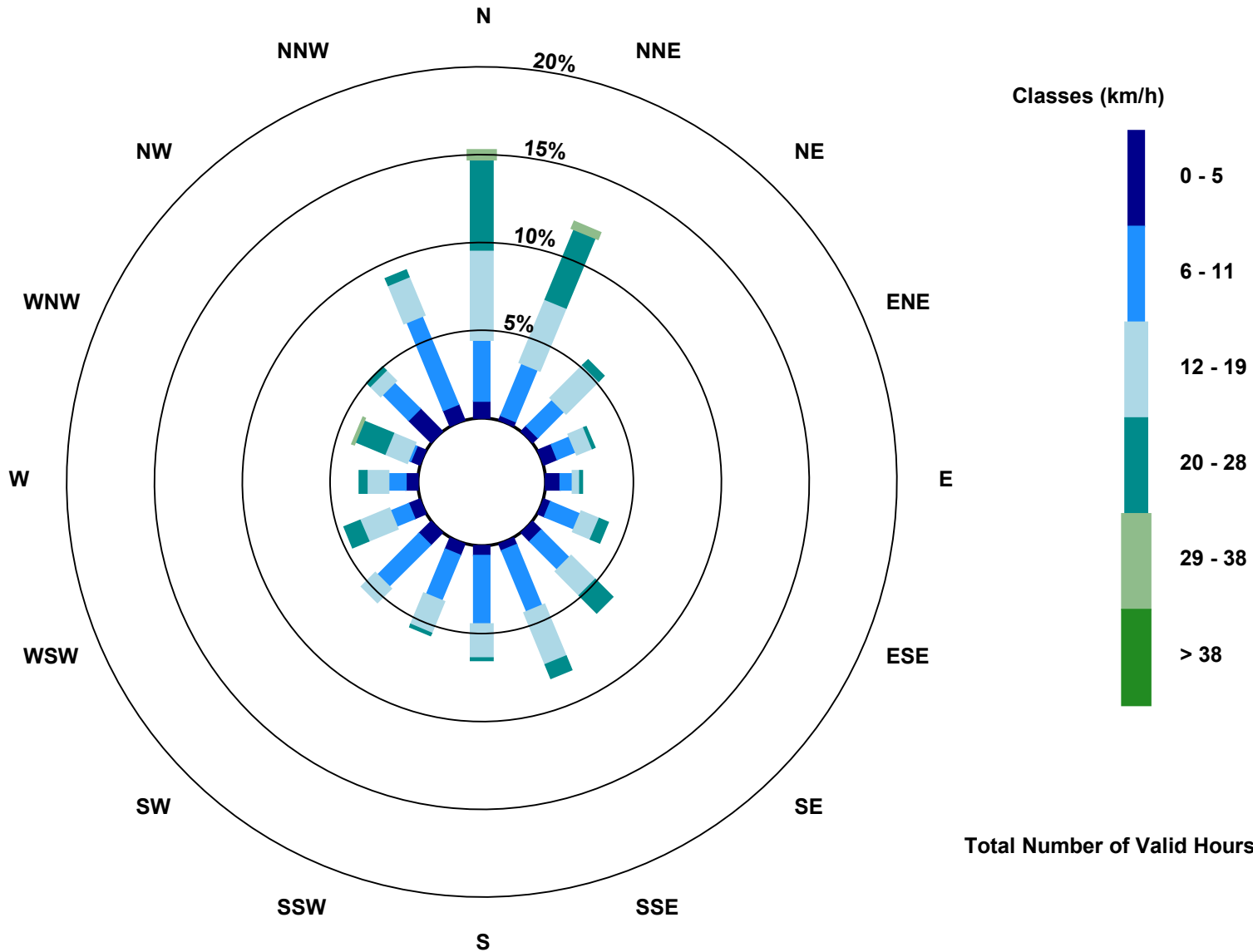
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 20 m (WS20m) - km/h  
Barge Landing





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Wind Direction 20 m (WD20m) - deg**

**Barge Landing - April 2024**

Direction of Maximum Speed: 14 deg on Apr 16 14:00		Hours in Service: 720
Direction of Maximum Daily Speed Average: 8.3 deg on Apr 16		Hours of Data: 720
Direction of Minimum Speed: 234 deg on Apr 3 05:00	Direction of Minimum Daily Speed Average: 0.9 deg on Apr 14	Hours of Missing Data: 0
Monthly Average Direction: 7.0 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-Apr	245	293	283	261	263	251	258	294	293	301	315	299	292	290	280	296	317	308	306	321	332	75	206	217	287.4
2-Apr	183	200	175	160	150	141	156	160	169	168	167	184	161	157	161	174	177	152	140	137	138	148	164	83	158.9
3-Apr	110	145	142	150	234	285	276	292	251	227	205	259	357	26	1	35	52	61	57	49	76	93	85	88	52.7
4-Apr	47	32	20	341	321	335	355	351	5	30	38	38	32	29	23	33	64	52	35	46	58	54	67	54	30.2
5-Apr	16	6	349	71	76	50	13	41	19	10	5	9	5	9	7	351	332	335	335	334	337	332	321	321	3.2
6-Apr	325	327	325	4	4	43	3	355	349	25	37	360	17	22	32	34	18	41	45	18	333	311	322	310	9.0
7-Apr	275	193	160	183	184	207	186	168	171	194	196	189	199	218	226	231	220	236	243	226	247	203	192	170	207.0
8-Apr	168	165	166	196	235	171	161	155	167	223	196	186	199	198	205	216	211	207	197	101	93	152	261	332	188.6
9-Apr	308	143	198	290	265	201	182	124	224	231	245	243	248	245	237	262	264	261	262	270	271	309	331	345	257.1
10-Apr	347	306	309	260	264	327	337	329	319	328	337	306	329	4	23	31	46	45	44	39	68	100	101	99	359.9
11-Apr	75	84	118	130	124	131	141	232	292	319	174	153	156	149	139	137	136	129	129	128	127	133	139	146	136.5
12-Apr	156	145	134	142	157	141	154	168	154	149	149	148	152	159	151	137	157	156	145	128	157	120	149	182	149.5
13-Apr	160	178	176	186	227	247	260	277	297	281	290	284	289	289	290	282	287	291	289	295	274	264	230	288	275.1
14-Apr	312	263	217	201	180	171	162	166	165	198	156	179	167	221	249	350	24	33	32	30	39	356	360	96.7	
15-Apr	351	340	344	344	328	316	219	322	338	351	329	345	2	53	61	45	36	36	33	33	27	10	359	6	14.7
16-Apr	7	5	360	1	359	355	355	355	354	358	2	5	9	14	17	19	24	33	33	30	19	2	7	9	8.3
17-Apr	10	8	9	10	10	5	10	10	5	12	9	13	18	15	5	10	13	17	19	16	6	12	19	20	11.7
18-Apr	10	8	1	1	357	5	15	6	2	3	10	5	14	19	16	15	23	15	1	355	357	356	342	317	6.6
19-Apr	306	327	321	247	231	193	189	194	207	218	194	215	183	174	184	174	203	209	207	207	198	207	226	229	207.1
20-Apr	224	223	224	216	220	214	203	208	219	225	244	230	258	244	248	229	205	188	185	189	184	169	162	153	210.9
21-Apr	152	139	132	131	151	132	126	154	179	246	257	162	162	185	191	209	251	304	335	351	22	345	333	333	187.4
22-Apr	341	354	170	242	318	294	329	320	312	332	18	33	21	31	35	29	30	17	15	35	24	7	360	22	13.5
23-Apr	27	12	342	337	343	255	276	322	349	20	359	1	31	47	59	24	31	29	29	32	44	39	46	21	25.4
24-Apr	2	351	338	344	334	337	342	336	330	334	353	109	125	120	100	105	103	93	98	97	109	124	122	114	88.9
25-Apr	137	121	251	268	239	266	234	229	231	242	255	243	243	246	245	249	261	286	304	284	336	344	309	312	263.4
26-Apr	321	326	327	340	338	331	325	332	328	339	351	336	332	338	349	10	45	55	65	71	70	75	115	128	356.2
27-Apr	119	134	164	98	95	115	129	188	185	180	174	182	181	175	186	196	199	199	183	155	127	118	105	116	164.7
28-Apr	114	41	348	348	339	338	343	218	212	141	170	159	159	136	134	120	104	116	108	111	125	126	129	117	120.6
29-Apr	112	104	76	71	72	68	74	49	42	23	21	20	33	33	36	35	31	19	7	14	15	12	7	11	28.5
30-Apr	13	12	12	12	7	9	9	7	11	11	360	8	1	360	1	1	0	358	357	352	351	4	360	6	4.9

19.1	7.2	353.1	352.0	324.1	319.5	332.6	327.9	322.4	326.6	324.7	313.5	333.4	16.0	22.1	8.4	31.0	30.7	27.2	39.8	44.1	49.0	42.6	34.7
Diurnal Average																							

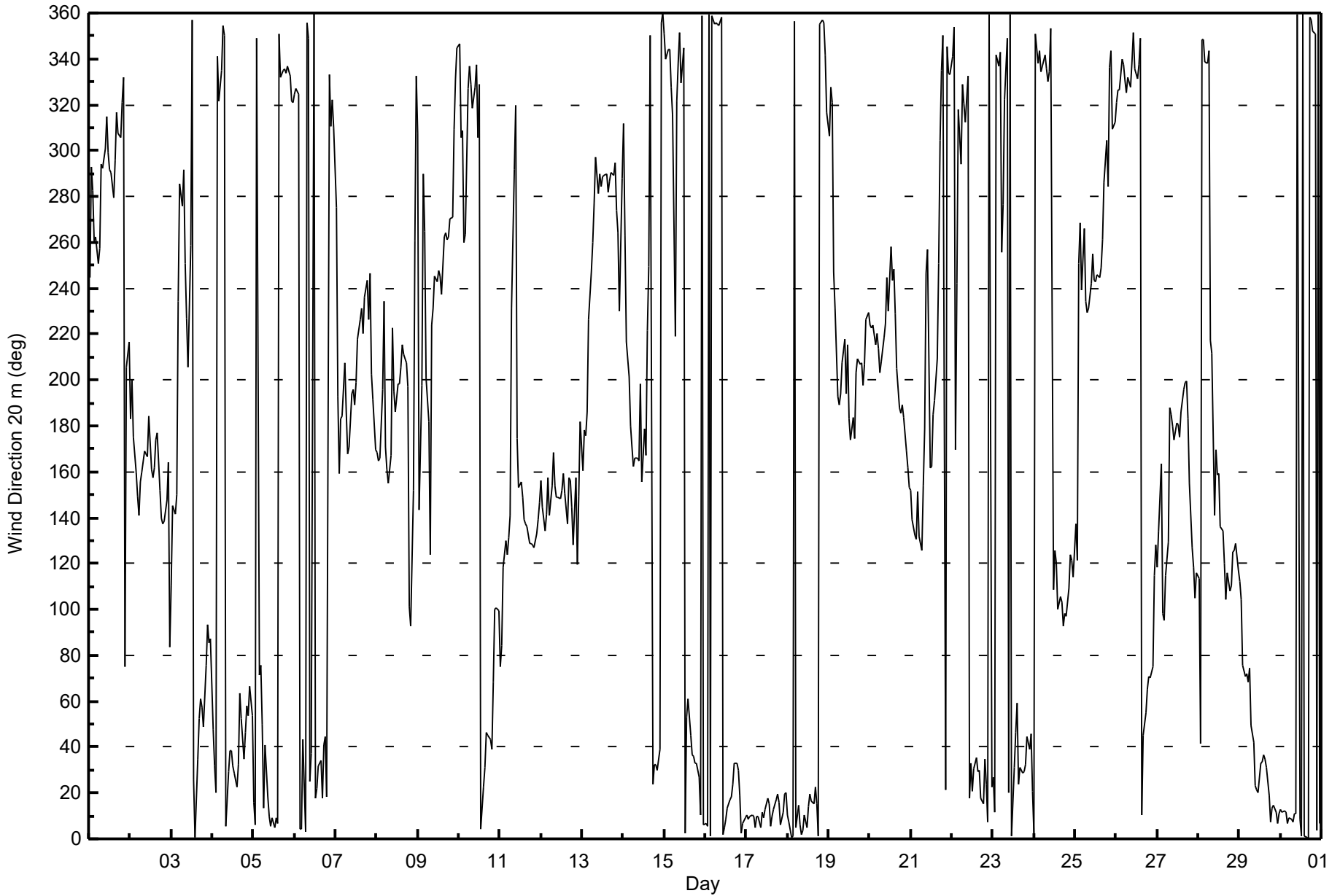
All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 20 m (WD20m) - deg**  
**Barge Landing - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 106 deg on Apr 3 05:00 Minimum Value: 3 deg on Apr 8 21:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 17 Q <sub>3</sub> = 23 P <sub>90</sub> = 36 P <sub>99</sub> = 73																		Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	43	16	15	9	11	17	19	16	15	16	22	16	18	20	21	19	18	14	13	12	7	79	13	13	79
2-Apr	36	16	11	9	8	9	16	12	15	19	40	42	17	16	15	15	17	13	9	19	8	10	28	18	42
3-Apr	12	9	19	55	106	20	15	16	15	33	14	65	23	32	22	16	18	15	15	18	50	38	16	22	106
4-Apr	40	25	25	18	46	15	20	19	18	20	19	34	26	28	22	22	27	18	13	13	12	27	21	32	46
5-Apr	21	18	21	22	20	18	23	22	17	14	19	17	16	14	17	19	11	12	11	11	10	12	15	15	23
6-Apr	11	13	21	17	24	21	23	18	20	17	18	32	15	20	21	23	13	18	35	12	35	27	24	12	35
7-Apr	62	43	34	18	13	12	15	15	16	22	21	27	26	27	22	23	30	16	15	12	14	20	12	9	62
8-Apr	8	7	12	25	18	34	19	13	21	26	24	25	32	29	27	28	27	19	12	29	3	90	74	33	90
9-Apr	13	58	22	31	24	26	20	47	22	51	29	21	23	20	28	23	19	20	23	13	13	17	14	11	58
10-Apr	31	30	13	17	16	17	14	16	20	17	21	24	22	21	16	17	17	14	14	14	9	6	10	20	31
11-Apr	18	32	6	11	17	9	36	47	31	25	76	25	22	23	21	19	15	13	12	11	11	11	11	12	76
12-Apr	11	11	10	12	11	11	14	16	14	13	13	14	14	13	15	15	15	15	13	8	22	15	18	70	70
13-Apr	13	11	10	12	23	14	16	20	16	19	20	19	20	19	18	18	17	18	20	12	14	14	56	54	56
14-Apr	16	38	11	9	10	19	10	14	16	28	49	55	53	54	63	29	20	17	11	10	11	12	24	13	63
15-Apr	13	11	18	17	13	27	45	44	11	21	16	20	21	26	15	15	14	16	13	14	13	16	17	16	45
16-Apr	17	17	17	18	18	18	19	18	18	19	19	18	17	14	14	14	12	13	13	12	15	16	17	15	19
17-Apr	15	15	15	14	16	16	14	15	18	17	17	17	14	18	19	19	19	15	14	13	14	12	11	11	19
18-Apr	15	14	14	15	16	16	13	15	18	18	18	17	17	16	19	15	16	19	18	15	13	13	13	10	19
19-Apr	10	7	11	22	10	11	14	21	26	37	36	38	44	30	29	25	25	19	15	11	12	16	16	12	44
20-Apr	11	9	9	14	8	10	14	20	17	18	27	38	26	27	44	26	22	22	17	11	8	7	8	6	44
21-Apr	8	7	5	7	26	13	23	27	27	42	61	28	43	41	47	52	29	68	24	15	10	13	5	8	68
22-Apr	6	18	30	86	33	16	10	24	23	49	55	24	21	23	35	18	15	19	17	7	13	15	19	24	86
23-Apr	12	10	15	14	42	32	94	29	39	30	42	56	49	29	28	21	16	14	12	12	13	13	19	38	94
24-Apr	18	12	9	11	15	9	12	14	15	18	62	19	20	15	17	13	13	16	18	19	13	11	11	10	62
25-Apr	50	19	45	48	27	22	15	19	19	18	21	22	21	19	18	18	23	20	16	25	15	16	21	18	50
26-Apr	16	14	14	17	20	16	16	17	18	21	26	28	30	30	43	44	37	41	30	10	9	11	24	7	44
27-Apr	9	5	20	43	31	18	20	36	41	27	37	54	29	31	26	21	20	23	19	16	8	5	8	6	54
28-Apr	9	47	26	36	3	10	75	41	59	32	47	22	29	33	23	16	14	15	13	12	14	11	9	9	75
29-Apr	17	23	7	11	22	31	18	20	16	17	17	19	22	20	18	15	14	17	15	15	14	14	15	15	31
30-Apr	14	16	14	16	16	15	16	16	15	15	18	18	18	17	19	16	18	18	17	17	17	16	17	14	19
																		62 58 45 86 106 34 94 47 59 51 76 65 53 54 63 52 37 68 35 29 50 90 74 70							
Diurnal Maximum																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS11 LOWER CAMP APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)

APRIL 2024

MONTHLY SUMMARY

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	686	34	34	100	327.3	1	20	0
H2S (ppb) Average	679	35	41	99.17	58.7	6	3.7	1
THC (ppm) Average	686	34	34	100	4	-	2.4	-
CH4(ppm) Average	686	34	34	100	3.8	-	2.4	-
NMHC(ppm) Average	686	34	34	100	0.209	-	0.054	-
Temperature (C) Average	720	0	0	100	18.5	-	9.8	-
Relative Humidity (%) Average	720	0	0	100	99.3	-	90.5	-
Barometric Pressure (inHg) Average	720	0	0	100	29.8	-	29.8	-
Wind Speed 10 m (km/h) Average	713	0	7	99.03	29	-	20	-
Wind Direction 10 m (deg) Average	713	0	7	99.03	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	2.9	16.3	-	0	0	0	0.1	0.7	4.2	327.3
H2S (ppb) Average	679	0.69	2.8	-	0	0	0	0.2	0.5	1	58.7
THC (ppm) Average	686	2.14	0.2	-	2	2	2	2.1	2.2	2.4	4
CH4(ppm) Average	686	2.12	0.2	-	2	2	2	2	2.2	2.3	3.8
NMHC(ppm) Average	686	0.014	0.026	-	0	0	0	0	0	0.1	0.209
Temperature 2 m (C) Average	720	5.04	5.7	-	-9.7	-1.2	0.6	4.3	8.9	13.7	18.5
Relative Humidity (%) Average	720	59.79	24.2	-	8.8	26.2	39.8	60.7	79.8	92.4	99.3
Barometric Pressure (inHg) Average	720	29.09	0.3	-	28.5	28.8	28.9	29	29.2	29.5	29.8
Wind Speed 10 m (km/h) Average	713	10.9	7	-	0	3	5	10	16	20	29
Wind Direction 10 m (deg) Average	713	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
 APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S	07 Apr 2024 10:00	07 Apr 2024 13:00	4	Unstable Operation - flatline in analyzer output signal
H2S	24 Apr 2024 13:00	24 Apr 2024 14:00	2	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	04 Apr 2024 08:00	04 Apr 2024 08:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	06 Apr 2024 06:00	06 Apr 2024 08:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	08 Apr 2024 19:00	08 Apr 2024 20:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	23 Apr 2024 05:00	23 Apr 2024 05:00	1	Flat line in sensor output signal



Wood Buffalo Environmental Association

Summary of Hour Averages

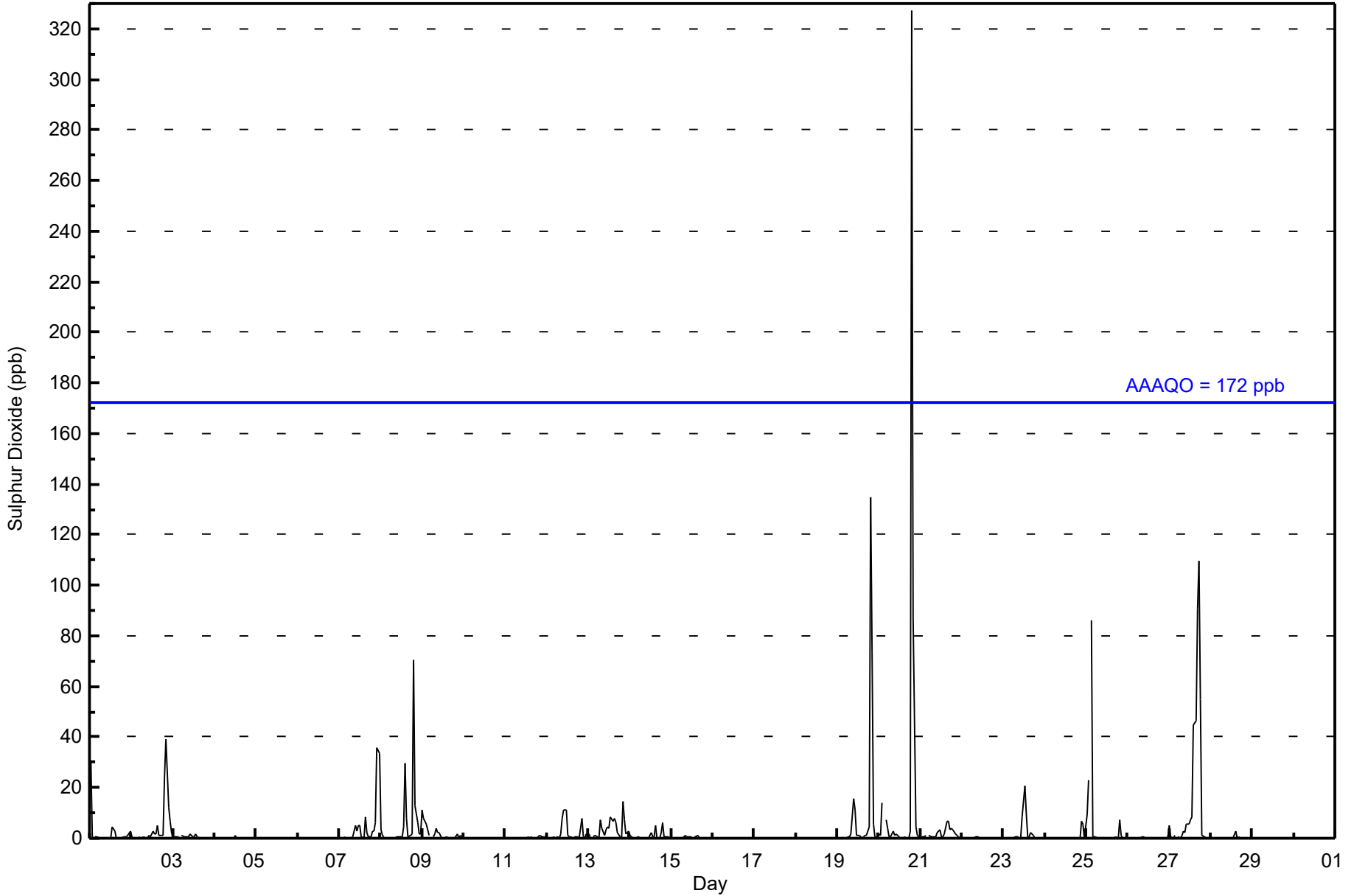
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Lower Camp - April 2024

Number of Exceedences (AAAQO):	1-hr: 1	24-hr: 0	Hours in Service:	720
Maximum Value: 327.3 ppb on Apr 20 20:00	Maximum Daily Average: 20.0 ppb on Apr 20		Hours of Data:	686
Minimum Value: 0.0 ppb on Apr 1 09:00	Minimum Daily Average: 0.0 ppb on Apr 17		Hours of Missing Data:	34
Maximum Diurnal Average: 19.3 ppb at hour 20	Minimum Diurnal Average: 0.2 ppb at hour 7		Hours of Calibration:	34
Monthly Average: 2.90 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 4.2 P <sub>99</sub> = 71.0		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-Apr	30.9	0.5	Z	0.5	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	4.7	2.8	0.0	0.0	0.0	0.0	0.5	0.6	0.8	1.2	2.9	2.0	30.9																							
2-Apr	0.8	0.2	0.2	Z	0.7	0.1	0.2	0.4	0.2	0.2	1.4	0.7	3.0	1.6	1.9	5.2	1.1	1.2	0.9	24.3	38.9	12.5	6.6	2.3	4.5	38.9																							
3-Apr	0.8	0.7	0.5	0.5	Z	1.0	0.6	0.4	0.4	0.5	1.8	0.7	0.7	1.4	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.5	1.8																							
4-Apr	0.1	0.1	0.1	0.1	0.0	Z	0.1	0.1	0.2	0.1	0.1	0.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3																							
5-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
6-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
7-Apr	0.0	0.0	Z	0.3	0.2	0.3	0.0	0.1	0.4	5.2	2.5	4.8	4.9	0.4	0.1	8.3	2.3	0.6	0.4	2.7	3.0	6.4	35.6	33.6	4.9	35.6																							
8-Apr	3.5	1.2	0.4	Z	0.2	0.2	0.1	0.2	0.2	0.3	0.7	0.3	0.5	4.3	29.5	8.0	0.5	1.1	1.9	70.5	12.7	6.0	1.6	2.0	6.3	70.5																							
9-Apr	10.9	7.8	5.7	3.6	1.2	Z	0.6	1.5	4.2	2.0	2.3	0.3	0.2	0.2	0.5	0.1	0.1	0.0	0.1	0.0	1.4	0.1	0.9	0.5	1.9	10.9																							
10-Apr	0.3	0.2	0.2	0.1	0.2	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
11-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.5	0.2	0.6	0.2	0.1	0.1	0.3	1.1	0.4	0.3	0.2	0.2	1.1																							
12-Apr	2.0	Z	0.1	0.1	0.4	0.2	0.7	0.2	1.7	7.9	11.0	10.9	1.0	0.5	0.8	0.2	0.5	0.3	0.4	0.0	8.0	0.7	0.1	1.5	2.1	11.0																							
13-Apr	1.6	0.2	Z	0.6	1.0	0.3	0.2	7.3	3.7	1.3	3.4	4.2	3.8	8.1	6.7	7.8	5.9	2.5	0.4	0.2	14.4	7.5	1.6	2.9	3.7	14.4																							
14-Apr	1.0	0.8	0.2	Z	0.8	0.3	0.2	0.2	0.1	0.1	0.0	0.2	2.5	0.8	0.8	4.8	0.2	0.0	2.4	6.2	0.5	0.4	0.5	0.2	1.0	6.2																							
15-Apr	0.5	0.3	0.2	0.2	Z	0.2	0.2	0.6	0.9	0.5	0.5	0.4	0.2	0.2	0.4	0.9	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.9																							
16-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
17-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
18-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1																							
19-Apr	0.0	0.0	Z	0.1	0.1	0.1	0.3	0.6	1.5	15.5	11.1	0.9	1.0	1.4	0.2	0.7	1.3	0.8	4.2	134.7	73.8	5.8	0.6	0.3	11.1	134.7																							
20-Apr	1.5	1.0	14.1	Z	7.4	4.1	0.6	0.7	2.7	1.4	1.8	1.0	0.2	0.2	0.4	0.3	0.2	2.6	327.3	87.1	4.4	1.2	0.6	20.0	327.3																								
21-Apr	0.4	0.4	0.8	0.9	Z	1.0	0.4	0.3	0.4	0.4	2.0	3.6	0.7	0.4	1.5	6.8	6.7	3.5	3.8	3.1	1.5	1.2	0.7	0.2	1.8	6.8																							
22-Apr	0.1	0.1	0.0	0.0	0.0	Z	0.1	0.2	0.3	0.4	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.2	0.2	0.0	0.0	0.1	0.4																							
23-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.2	8.2	20.9	9.5	0.4	0.6	2.1	1.0	0.1	0.0	0.0	0.1	0.2	0.1	1.9	20.9																							
24-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	0.2	0.1	0.0	0.0	0.0	0.1	0.3	6.8	5.4	0.1	0.7	6.8																							
25-Apr	9.5	22.7	Z	86.3	0.6	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.8	0.1	7.3	1.2	0.1	0.1	0.1	5.7	86.3																							
26-Apr	0.1	0.1	0.2	Z	0.0	0.1	0.0	0.1	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.5	0.1	0.5																							
27-Apr	5.0	0.4	0.3	0.9	Z	0.4	0.3	1.1	3.0	2.1	5.8	5.4	7.2	8.1	44.6	46.2	90.6	109.9	55.0	1.0	0.6	0.2	0.2	0.3	16.9	109.9																							
28-Apr	0.1	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	2.7	0.2	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.7																							
29-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1																						
30-Apr	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
																								2.8	1.5	0.9	3.8	0.5	0.4	0.2	0.5	0.7	1.3	1.6	1.5	1.7	1.5	3.1	3.1	3.8	4.1	2.4	19.3	8.2	1.8	1.9	1.6	Diurnal Average	
																								30.9	22.7	14.1	86.3	7.4	4.1	0.7	7.3	4.2	15.5	11.1	10.9	20.9	9.5	44.6	46.2	90.6	109.9	55.0	327.3	87.1	12.5	35.6	33.6	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Lower Camp - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	658	95.92	95.92
11 - 20	9	1.31	97.23
21 - 60	11	1.60	98.83
61 - 110	6	0.87	99.71
111 - 172	1	0.15	99.85
> 172	1	0.15	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Lower Camp - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	49	18	9	5	18	134	30	5	0	7	28	50	65	79	67	88	652
11 - 20	0	0	1	0	1	3	1	1	0	0	1	0	0	1	0	0	9
21 - 60	0	0	0	1	0	1	1	3	1	2	1	0	0	0	1	0	11
61 - 110	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	5
111 - 172	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
> 172	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<b>Totals</b>	49	18	10	6	19	138	32	9	5	12	30	50	65	80	68	88	679

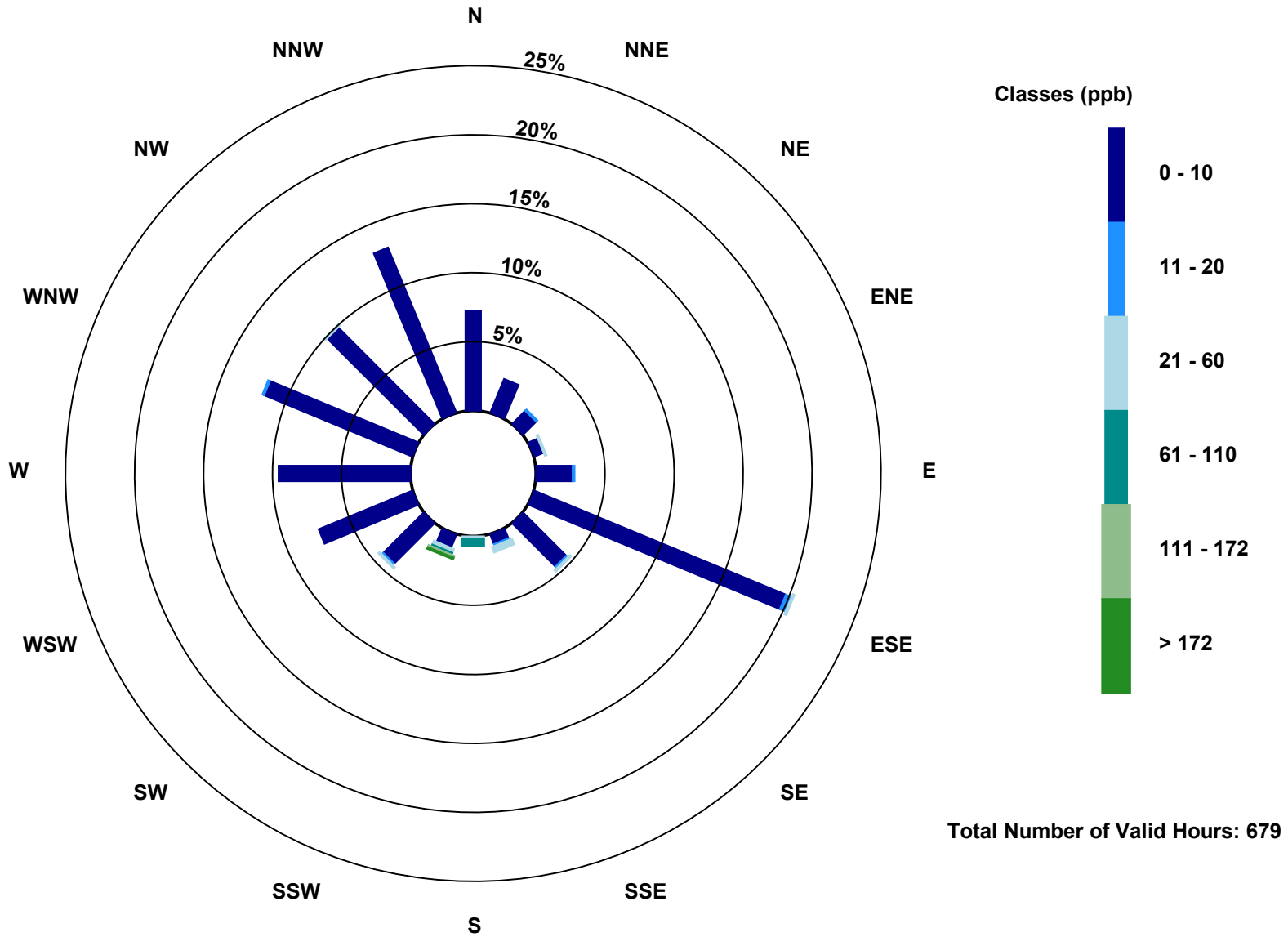
Total Number of Valid Hours: 679

Total Number of Hours: 720

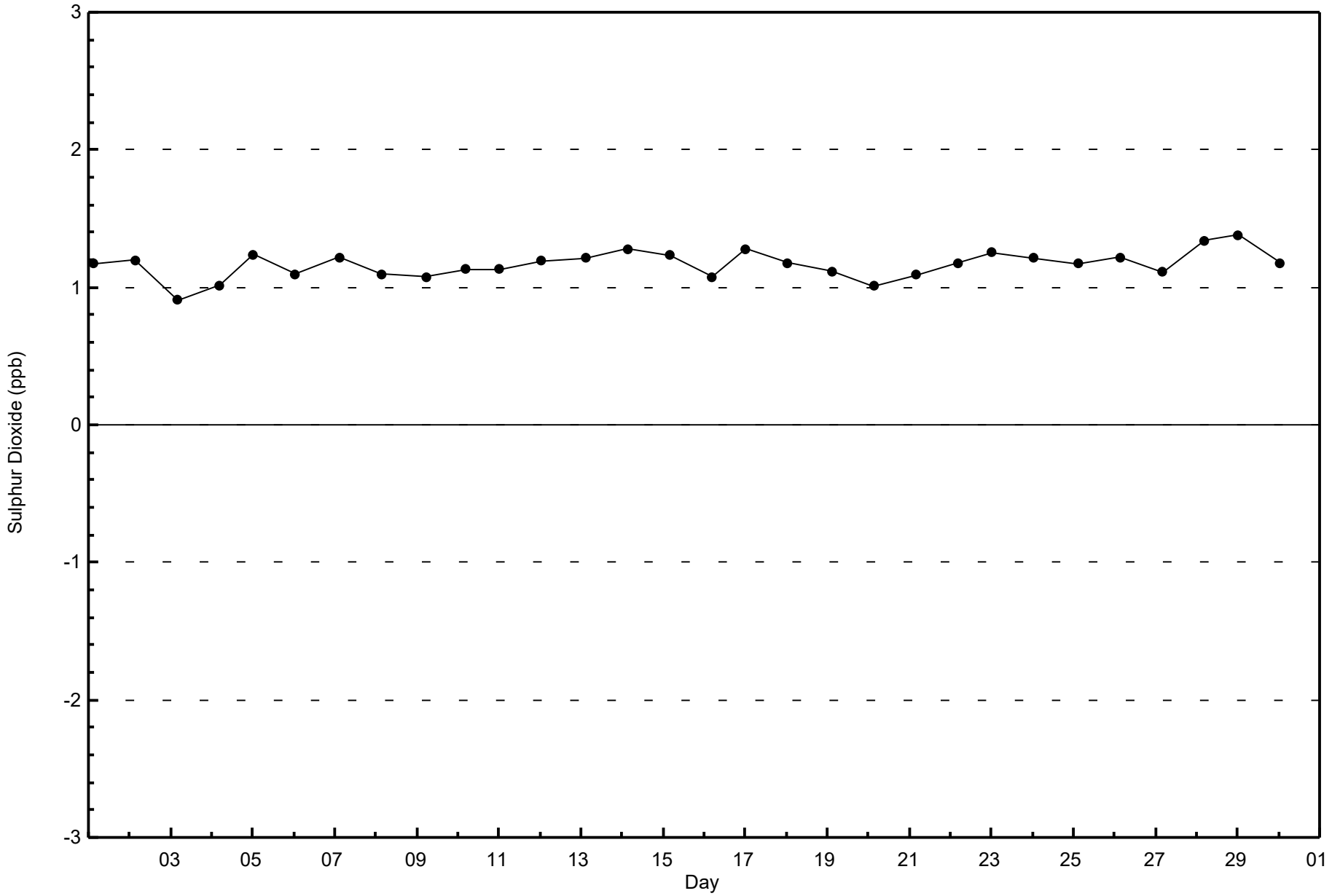


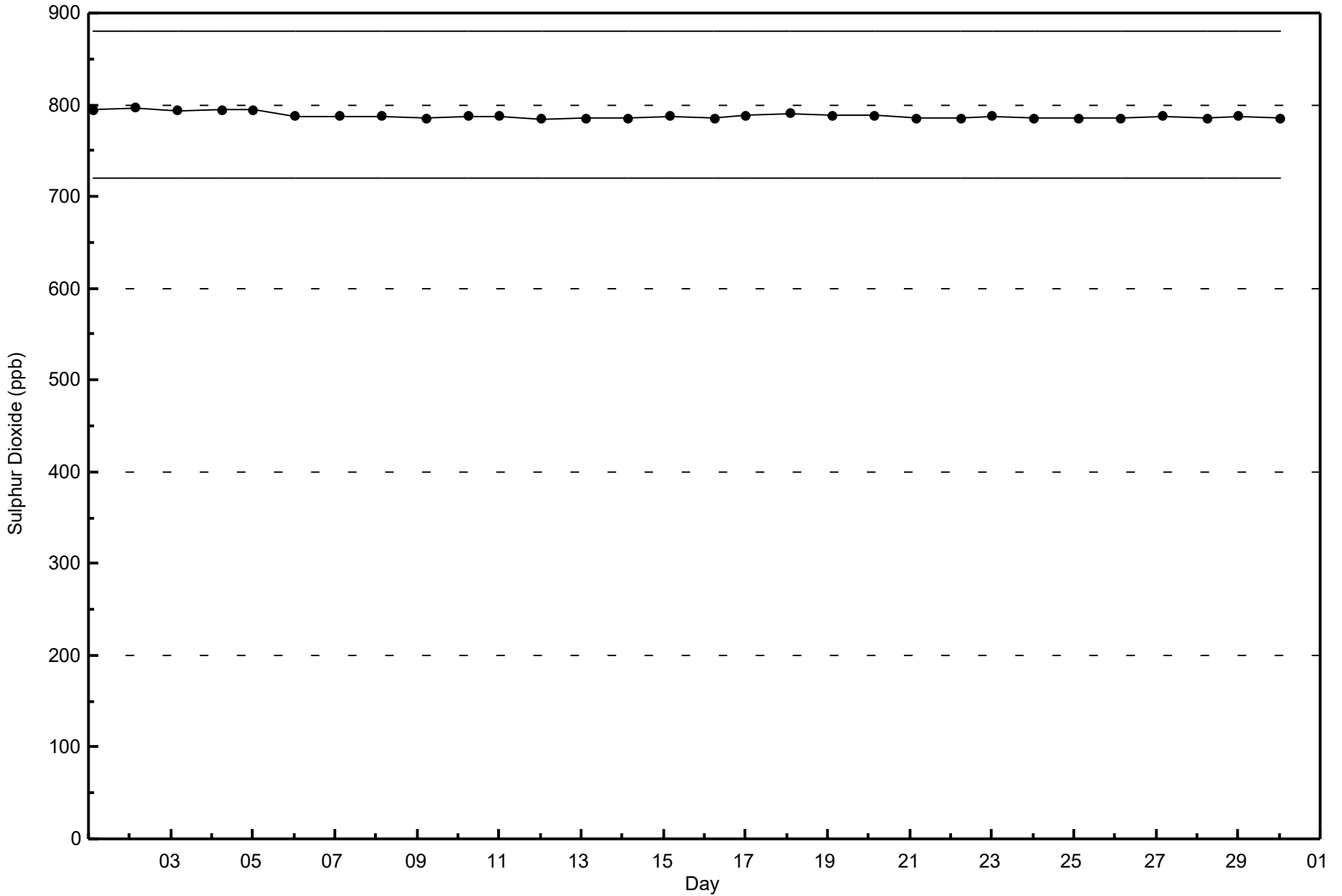
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

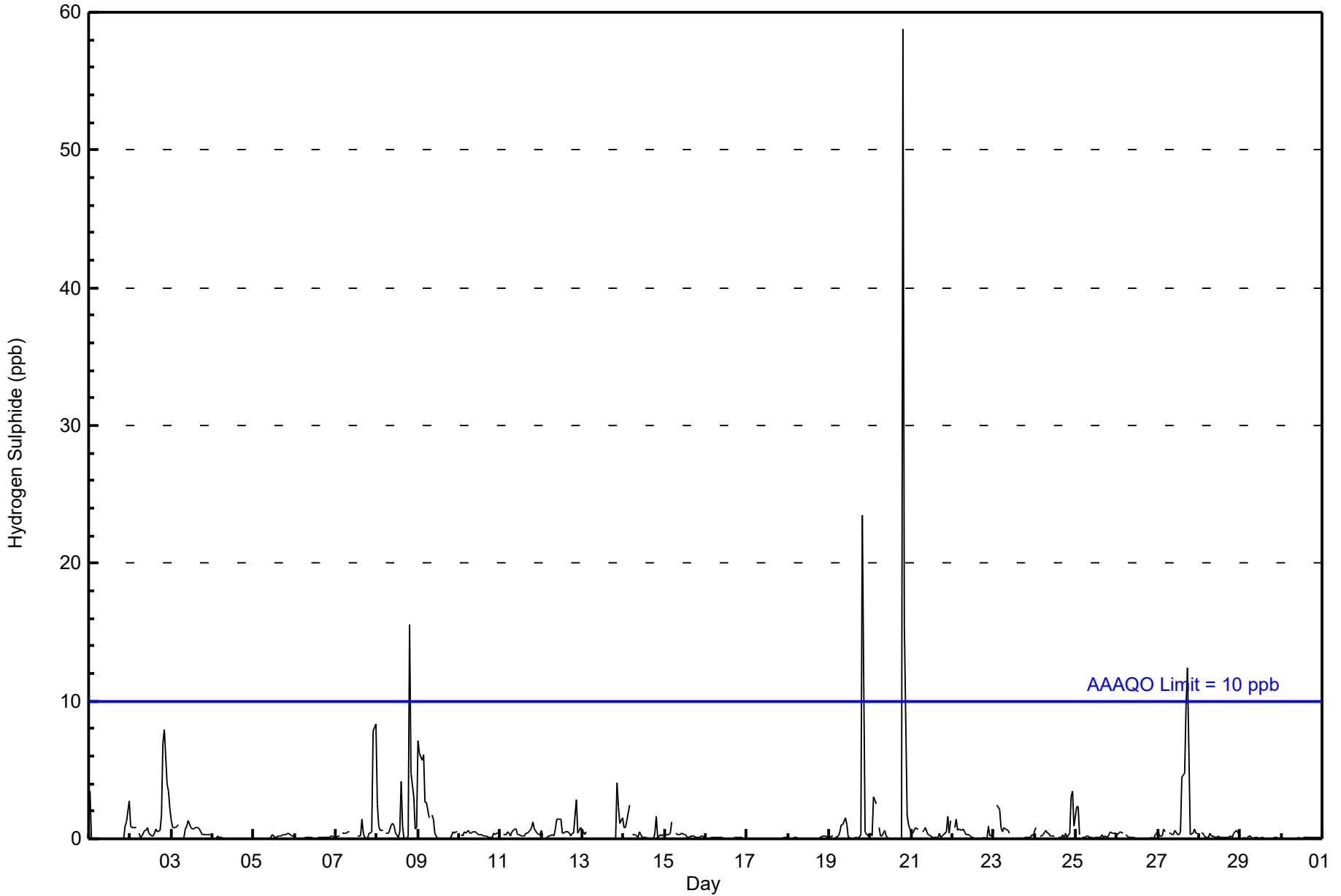
Hydrogen Sulphide (H<sub>2</sub>S) - ppb

Lower Camp - April 2024

Number of Exceedences (AAAQO):	1-hr: 6	24-hr: 1	Hours in Service:	720
Maximum Value: 58.7 ppb on Apr 20 20:00	Maximum Daily Average: 3.7 ppb on Apr 20		Hours of Data:	679
Minimum Value: 0.0 ppb on Apr 1 02:00	Minimum Daily Average: 0.0 ppb on Apr 4		Hours of Missing Data:	41
Maximum Diurnal Average: 3.7 ppb at hour 20	Minimum Diurnal Average: 0.1 ppb at hour 13		Hours of Calibration:	35
Monthly Average: 0.69 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 1.0 P <sub>99</sub> = 8.6		Percent Operational Time:	99.2

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	3.5	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.2	2.8	0.4	3.5																							
2-Apr	0.9	0.8	0.8	0.8	Z	0.4	0.1	0.2	0.6	0.6	0.8	0.4	0.2	0.2	0.4	0.7	0.5	0.6	1.7	6.9	7.9	3.9	3.5	2.1	1.5	7.9																							
3-Apr	1.3	0.8	0.8	0.9	1.0	Z	0.0	0.1	0.7	0.9	1.3	0.8	0.7	0.7	0.8	0.8	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.6	1.3																							
4-Apr	Z	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
5-Apr	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.1	0.4																							
6-Apr	0.2	0.2	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2																							
7-Apr	0.1	0.2	0.2	Z	0.5	0.4	0.4	0.6	0.5	UO	UO	UO	UO	0.3	0.2	1.4	0.4	0.1	0.0	0.4	0.4	0.5	7.8	8.3	1.2	8.3																							
8-Apr	2.6	0.9	0.6	0.6	Z	0.4	0.4	0.4	1.0	1.1	0.9	0.4	0.1	0.5	4.2	0.9	0.0	0.0	0.2	15.6	4.8	3.1	0.7	0.8	1.7	15.6																							
9-Apr	7.1	6.2	5.7	6.1	2.7	2.7	1.5	Z	1.8	1.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.6	7.1																							
10-Apr	Z	0.3	0.2	0.5	0.4	0.6	0.4	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.3	0.4	0.4	0.3	0.6																							
11-Apr	0.4	Z	0.3	0.3	0.6	0.4	0.2	0.5	0.7	0.7	0.3	0.3	0.2	0.2	0.2	0.4	0.4	0.6	0.8	1.2	0.7	0.4	0.3	0.3	0.4	1.2																							
12-Apr	0.6	0.2	Z	0.1	0.2	0.2	0.3	0.2	0.7	1.4	1.4	1.4	0.4	0.4	0.5	0.5	0.4	0.2	0.4	0.4	2.9	0.4	0.6	0.8	0.6	2.9																							
13-Apr	0.5	0.3	0.5	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	2.3	1.1	1.6	0.5	4.1																							
14-Apr	0.8	0.8	1.3	2.4	Z	0.3	0.4	0.3	0.1	0.5	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	1.7	0.1	0.3	0.2	0.3	0.5	2.4																							
15-Apr	0.3	0.3	0.3	0.4	1.2	Z	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.1	0.3	1.2																							
16-Apr	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1																							
17-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1																							
18-Apr	0.2	0.2	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.2																							
19-Apr	0.1	0.2	0.2	Z	0.1	0.2	0.6	1.0	1.0	1.5	1.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.3	23.5	11.7	0.5	0.3	0.2	1.9	23.5																							
20-Apr	0.4	0.2	3.0	2.6	Z	0.8	0.2	0.3	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.7	15.5	1.8	1.0	0.7	3.7	58.7																							
21-Apr	0.4	0.4	0.9	0.7	0.7	Z	0.5	0.6	0.8	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.4	0.1	0.2	0.3	0.5	1.6	0.4	1.3	0.5	1.6																							
22-Apr	Z	0.8	1.4	0.7	0.7	0.7	0.8	0.5	0.3	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.9	0.2	0.3	0.4	1.4																							
23-Apr	0.6	Z	2.4	2.2	0.8	0.5	0.8	0.7	0.7	0.4	C	C	C	C	C	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.2	0.6	2.4																							
24-Apr	0.6	0.8	Z	0.2	0.2	0.3	0.6	0.4	0.4	0.2	0.2	0.2	M	M	0.1	0.1	0.3	0.0	0.4	0.1	0.4	3.1	3.5	0.9	0.6	3.5																							
25-Apr	2.3	2.3	0.3	Z	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.3	0.5	0.4	0.4	0.4	0.4	2.3																							
26-Apr	0.3	0.4	0.6	0.4	Z	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4	0.2	0.6																							
27-Apr	0.6	0.2	0.2	0.7	0.5	Z	0.4	0.4	0.3	0.3	0.6	0.3	0.3	0.5	4.5	4.7	9.6	12.4	6.4	0.3	0.4	0.7	0.4	0.4	2.0	12.4																							
28-Apr	Z	0.4	0.4	0.2	0.1	0.1	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.5	0.6	0.3	0.6																							
29-Apr	0.3	Z	0.1	0.0	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.3																							
30-Apr	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2																							
																								1.0	0.7	0.8	0.8	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.1	0.4	0.4	0.5	0.5	0.4	3.7	1.8	0.8	0.8	0.8	Diurnal Average	
																								7.1	6.2	5.7	6.1	2.7	2.7	1.5	1.0	1.8	1.5	1.4	1.4	0.7	0.7	4.5	4.7	9.6	12.4	6.4	58.7	15.5	3.9	7.8	8.3	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      UO - Unstable Operation  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Lower Camp - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	645	94.99	94.99
3 - 4	15	2.21	97.20
5 - 7	9	1.33	98.53
8 - 11	4	0.59	99.12
> 11	6	0.88	100.00

Total Number of Valid Hours: 679

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	49	18	9	3	20	128	27	6	0	6	28	51	67	77	63	87	639
3 - 4	0	0	0	0	1	5	2	1	0	2	2	0	0	1	1	0	15
5 - 7	0	0	0	0	0	3	3	2	1	0	0	0	0	0	0	0	9
8 - 11	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	4
> 11	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	5
<b>Totals</b>	49	18	9	3	21	137	32	9	4	12	30	51	67	78	65	87	672

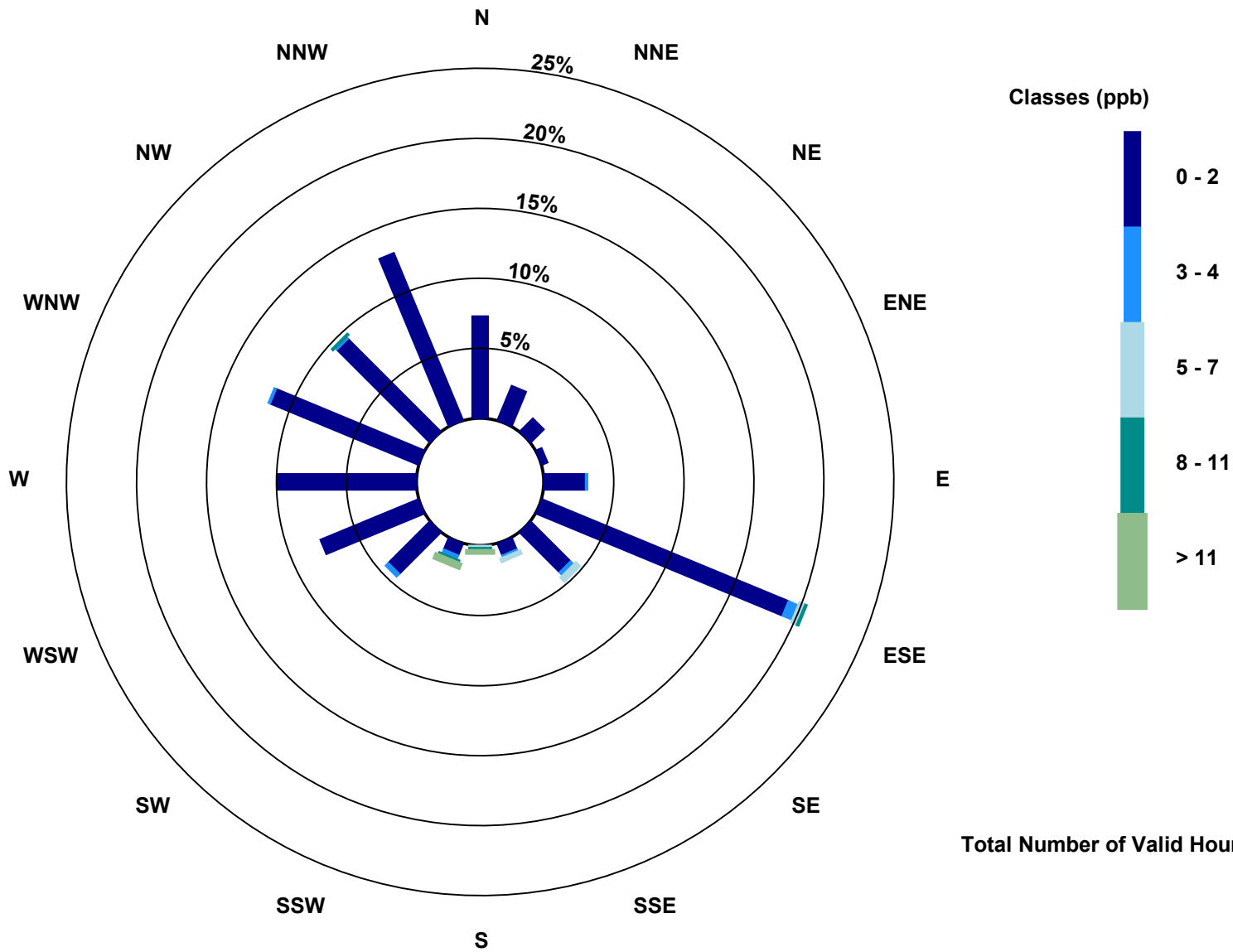
Total Number of Valid Hours: 672

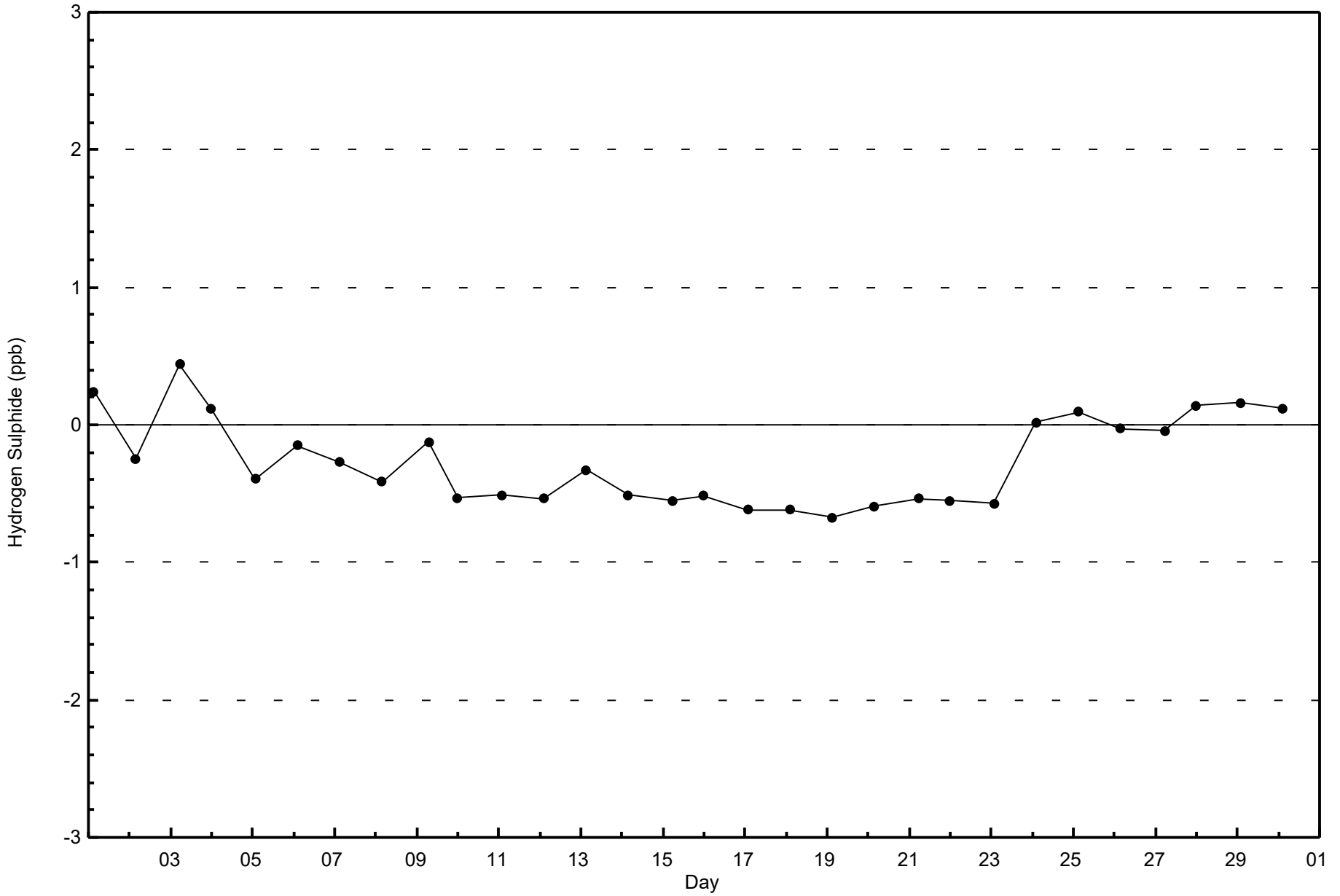
Total Number of Hours: 720



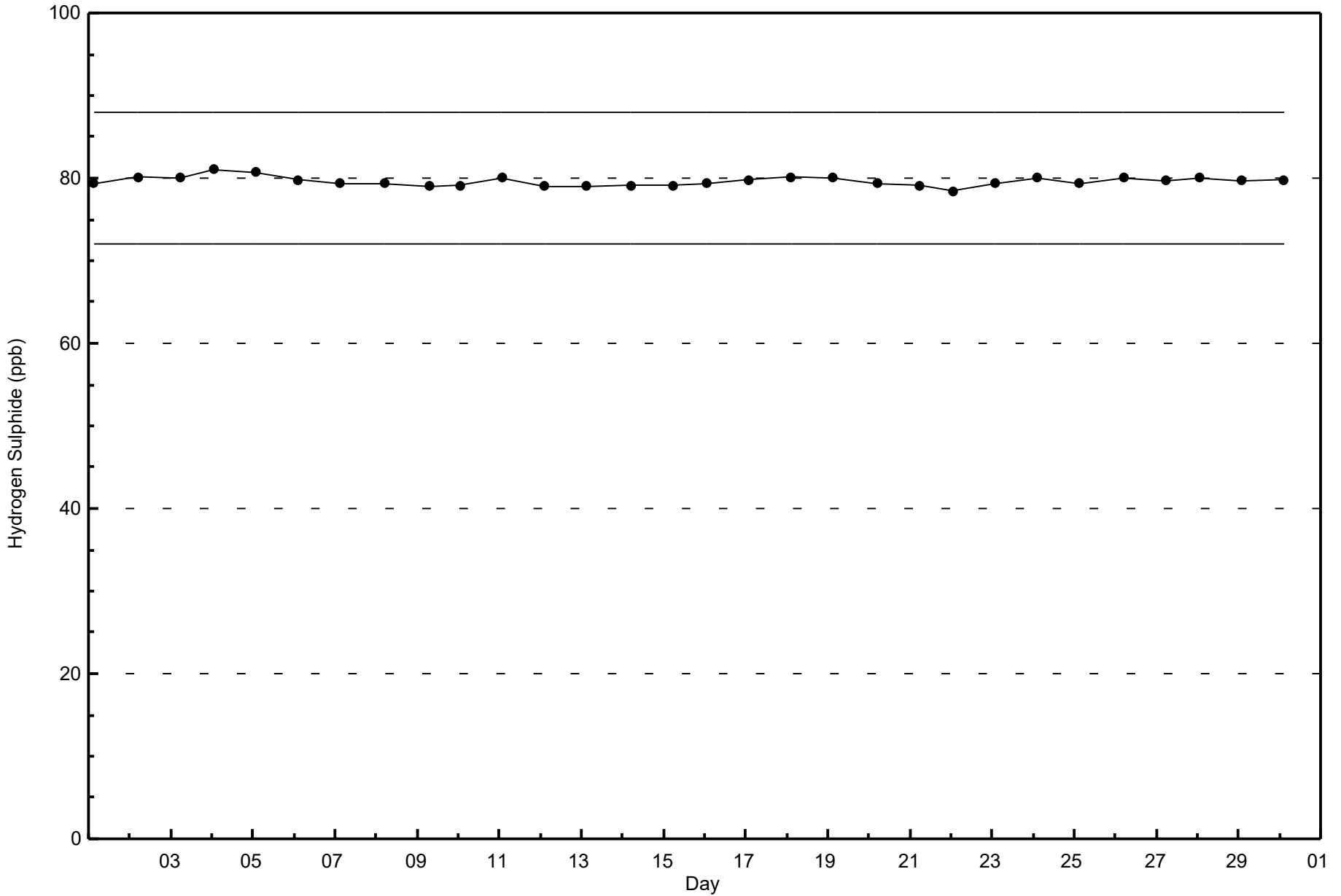
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











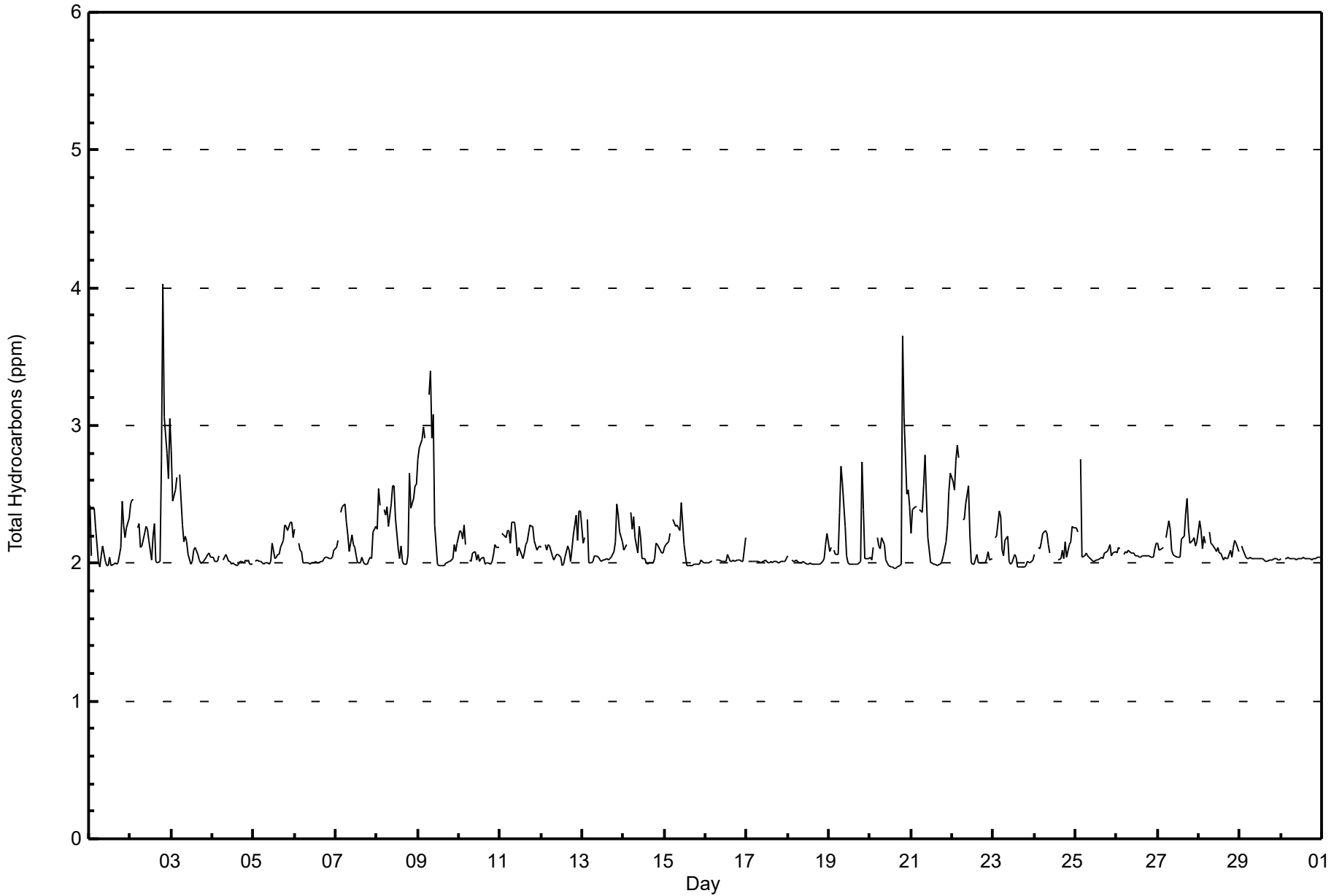
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Lower Camp - April 2024

Maximum Value: 4.0 ppm on Apr 2 20:00		Maximum Daily Average: 2.4 ppm on Apr 2		Hours in Service: 720																								
Minimum Value: 2.0 ppm on Apr 20 15:00		Minimum Daily Average: 2.0 ppm on Apr 17		Hours of Data: 686																								
Maximum Diurnal Average: 2.3 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Missing Data: 34																								
Monthly Average: 2.14 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.4 P <sub>99</sub> = 3.1		Hours of Calibration: 34																								
				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-Apr	2.4	2.1	Z	2.4	2.3	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.3	2.2	2.3	2.3	2.1	2.5		
2-Apr	2.4	2.5	2.5	Z	2.3	2.3	2.1	2.1	2.2	2.3	2.2	2.2	2.0	2.2	2.3	2.0	2.0	2.0	2.7	4.0	3.1	2.8	2.6	3.1	2.4	4.0		
3-Apr	2.8	2.4	2.5	2.6	Z	2.6	2.3	2.2	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.2	2.8		
4-Apr	2.0	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1		
5-Apr	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.3	2.3	2.2	2.1	2.3		
6-Apr	2.2	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2		
7-Apr	2.1	2.2	Z	2.4	2.4	2.4	2.3	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.1	2.4		
8-Apr	2.2	2.5	2.4	Z	2.4	2.3	2.4	2.3	2.4	2.6	2.6	2.3	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.7	2.4	2.5	2.6	2.6	2.3	2.7		
9-Apr	2.8	2.8	2.9	3.0	2.9	Z	3.2	3.4	2.9	3.1	2.3	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	2.4	3.4		
10-Apr	2.2	2.2	2.2	2.3	2.1	Z	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.3		
11-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.2	2.3		
12-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.4	2.2	2.4	2.4	2.4	2.1	2.4		
13-Apr	2.1	2.2	Z	2.3	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.4	2.2	2.2	2.1	2.4		
14-Apr	2.1	2.1	2.1	Z	2.4	2.3	2.3	2.2	2.1	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.4		
15-Apr	2.1	2.1	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.2	2.4	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	2.1	2.4		
16-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.2		
17-Apr	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	2.0		
18-Apr	2.1	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	2.1	2.2	2.0	2.2		
19-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.4	2.7	2.6	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.4	2.0	2.0	2.0	2.2	2.7		
20-Apr	2.0	2.0	2.1	Z	2.2	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.7	3.1	2.5	2.5	2.4	2.2	3.7		
21-Apr	2.2	2.4	2.4	2.4	Z	2.4	2.4	2.6	2.8	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.5	2.7	2.3	2.8		
22-Apr	2.6	2.5	2.7	2.9	2.8	Z	2.3	2.3	2.4	2.6	2.2	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.9		
23-Apr	Z	2.2	2.2	2.4	2.3	2.1	2.0	2.2	2.2	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4		
24-Apr	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	Z	C	C	C	C	2.0	2.0	2.1	2.0	2.2	2.0	2.1	2.2	2.3	2.3	2.1	2.3	
25-Apr	2.3	2.2	Z	2.8	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	
26-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	
27-Apr	2.1	2.1	2.1	2.1	Z	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.2	2.2	2.4	2.5	2.3	2.1	2.2	2.2	2.1	2.2	2.2	2.5		
28-Apr	2.3	2.2	2.1	2.2	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.1	2.1	2.1	2.3	
29-Apr	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	2.0	2.0	2.1	
30-Apr	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	2.0	
		2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	Dial Average
		2.8	2.8	2.9	3.0	2.9	2.6	3.2	3.4	2.9	3.1	2.6	2.3	2.1	2.2	2.3	2.2	2.4	2.5	2.7	4.0	3.1	2.8	2.6	3.1	2.2	2.2	Dial Maximum
Z - zerospan		C - Calibration																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	340	49.56	49.56
2.1 - 3.0	338	49.27	98.83
3.1 - 10.0	8	1.17	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Lower Camp - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	46	17	5	2	4	18	10	3	0	3	24	38	22	29	35	80	336
2.1 - 3.0	3	1	5	4	15	116	21	6	4	8	6	11	43	51	33	8	335
3.1 - 10.0	0	0	0	0	0	4	1	0	1	1	0	1	0	0	0	0	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	49	18	10	6	19	138	32	9	5	12	30	50	65	80	68	88	679

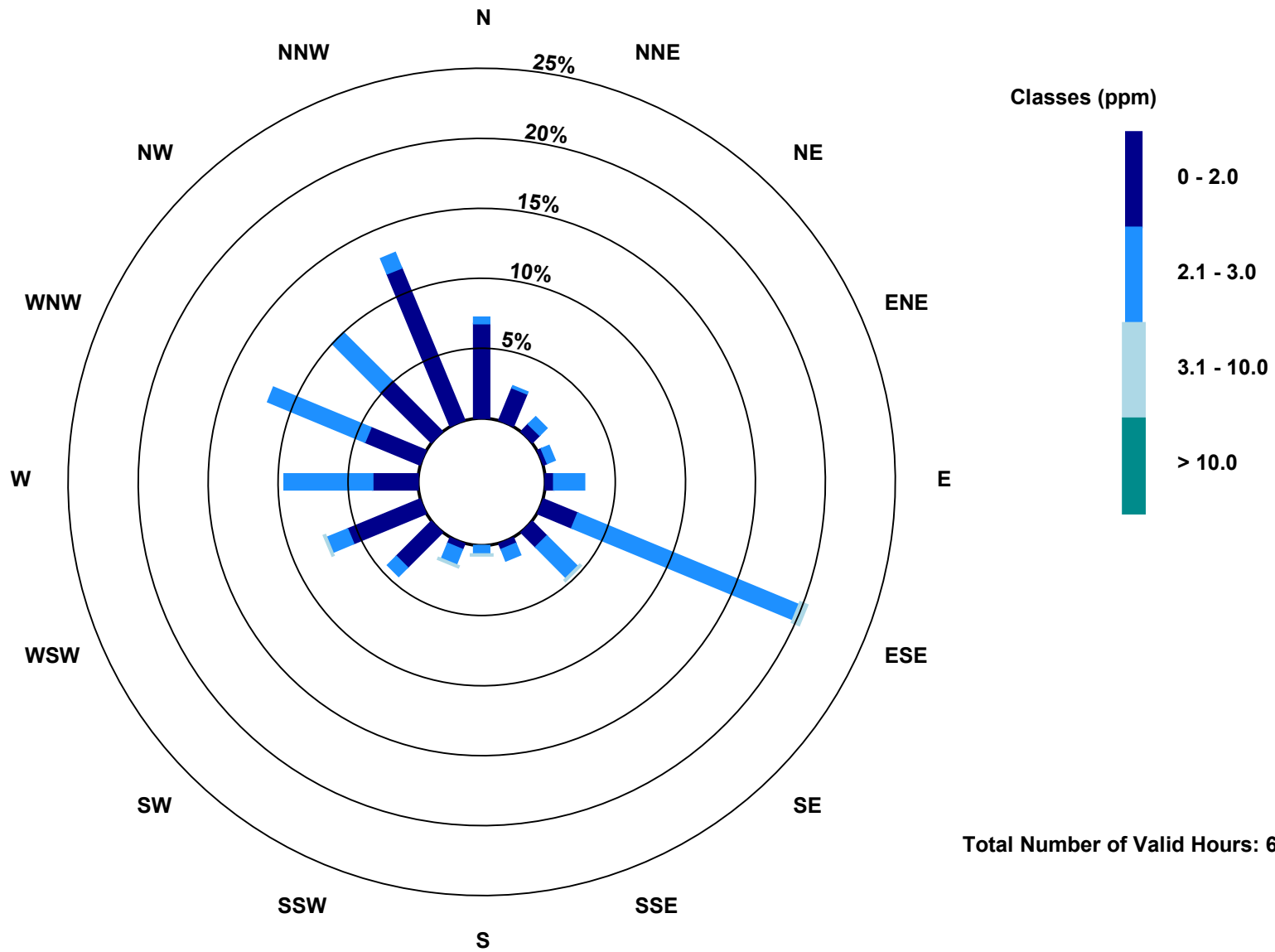
Total Number of Valid Hours: 679

Total Number of Hours: 720

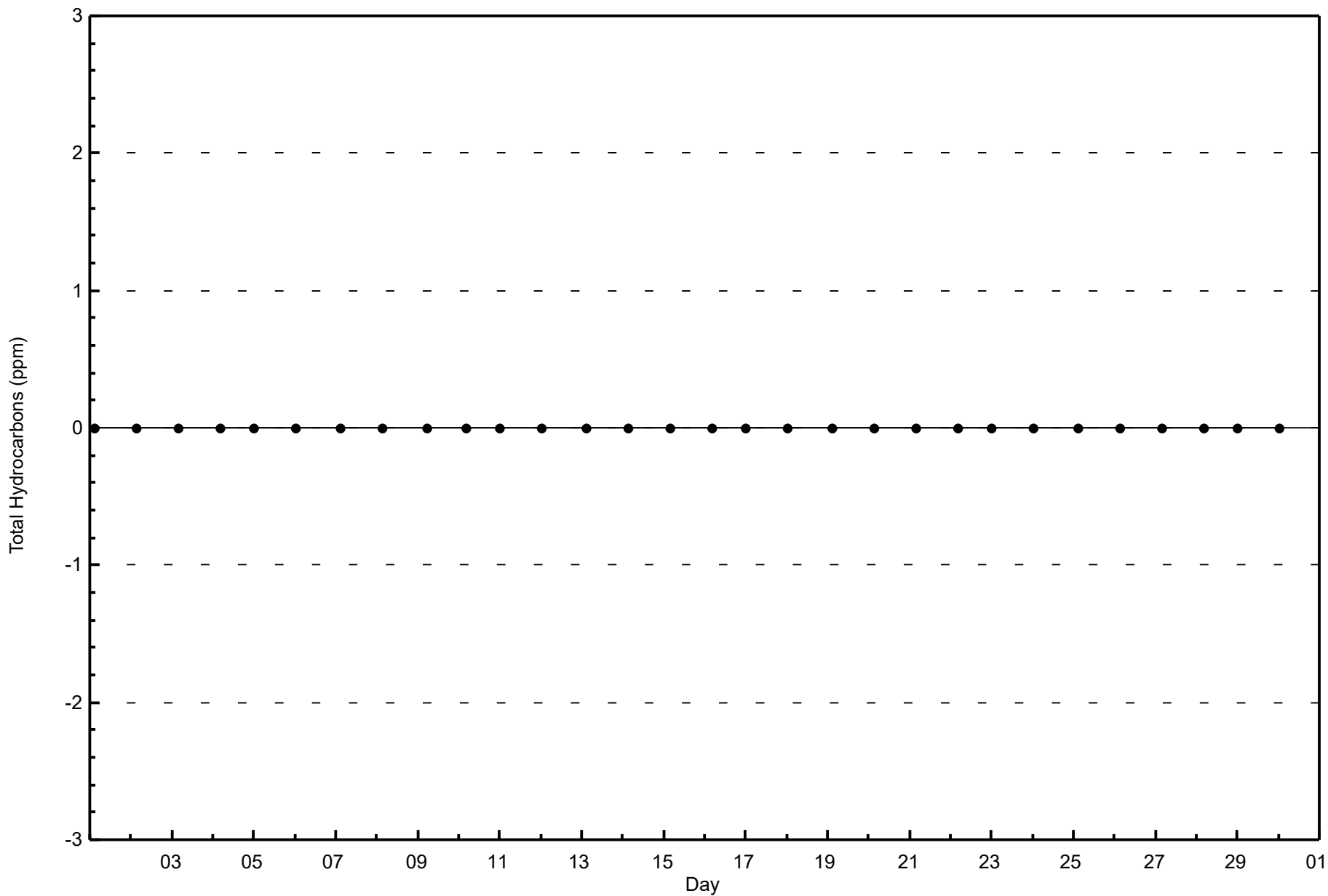


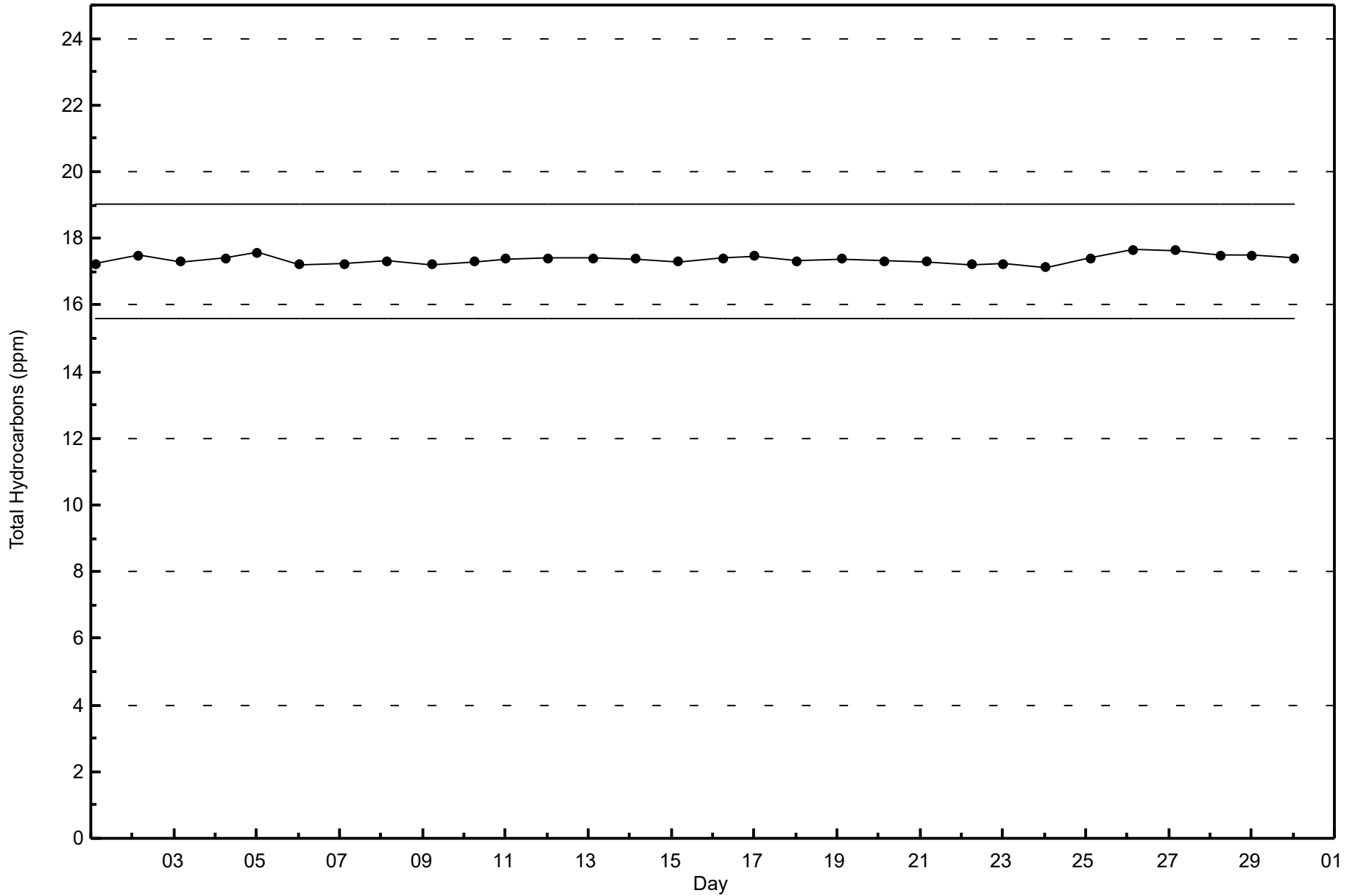
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Lower Camp



Total Number of Valid Hours: 679









# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Methane (CH<sub>4</sub>) - ppm Lower Camp - April 2024

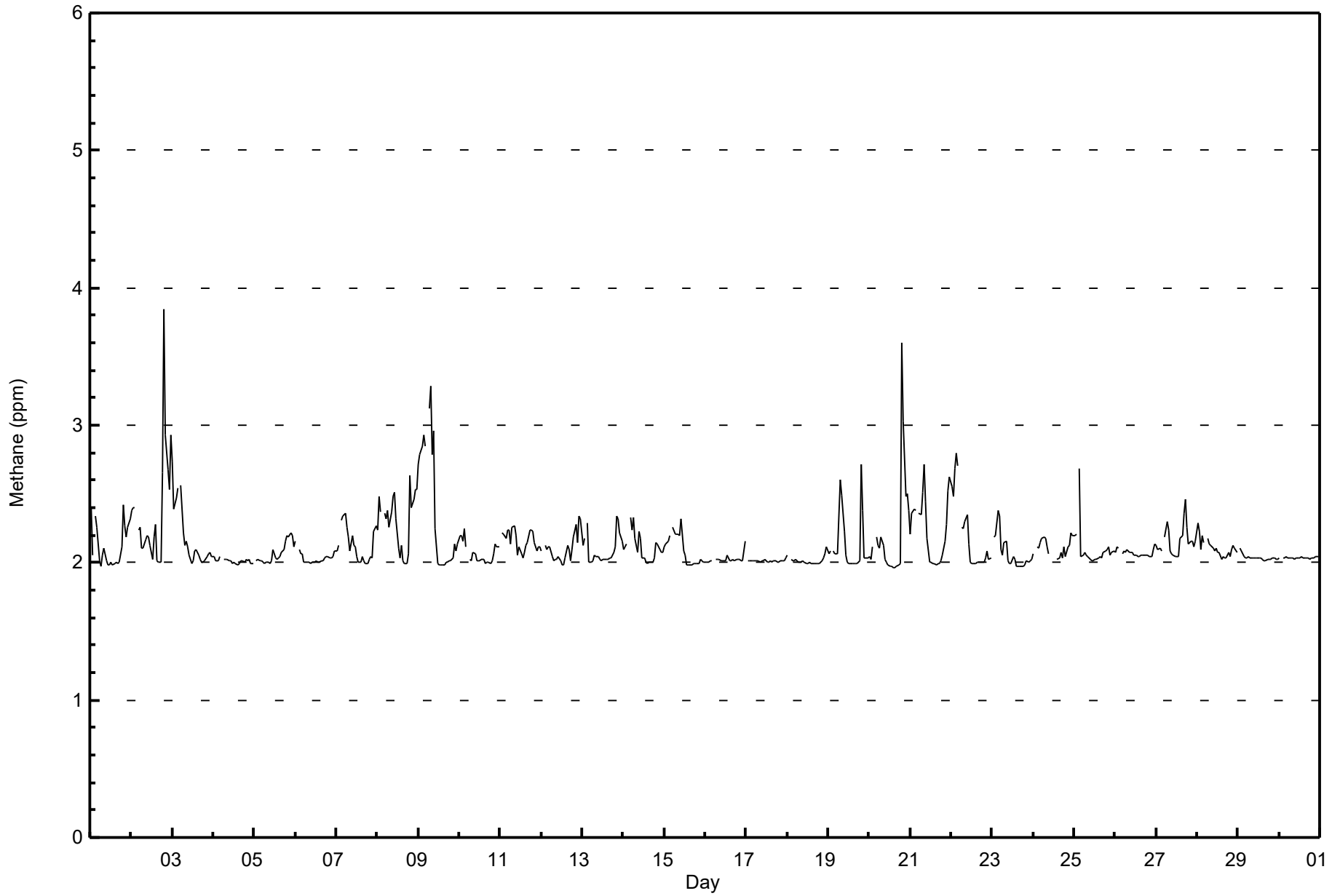
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum					
Maximum Value: 3.8 ppm on Apr 2 20:00		Maximum Daily Average: 2.4 ppm on Apr 9		Hours of Data: 686														Hours of Missing Data: 34		Hours of Calibration: 34							
Minimum Value: 2.0 ppm on Apr 20 15:00		Minimum Daily Average: 2.0 ppm on Apr 4		Hours of Calibration: 34														Percent Operational Time: 100.0									
Maximum Diurnal Average: 2.2 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 14		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.9																							
Monthly Average: 2.12 ppm																											
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-Apr	2.4	2.1	Z	2.3	2.3	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.3	2.2	2.3	2.3	2.1	2.4	
2-Apr	2.4	2.4	2.4	Z	2.2	2.3	2.1	2.1	2.2	2.2	2.2	2.1	2.0	2.2	2.3	2.0	2.0	2.0	2.7	3.8	2.9	2.7	2.5	2.9	2.4	3.8	
3-Apr	2.7	2.4	2.5	2.5	Z	2.6	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.2	2.7	
4-Apr	2.0	2.0	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	
5-Apr	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	
6-Apr	2.2	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	
7-Apr	2.1	2.1	Z	2.3	2.3	2.4	2.3	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.1	2.4	
8-Apr	2.2	2.5	2.4	Z	2.4	2.3	2.4	2.3	2.4	2.5	2.5	2.3	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.6	2.4	2.5	2.5	2.5	2.3	2.6	
9-Apr	2.7	2.8	2.8	2.9	2.8	Z	3.1	3.3	2.8	3.0	2.2	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	2.4	3.3	
10-Apr	2.2	2.2	2.2	2.3	2.1	Z	2.0	2.0	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	2.1	2.3	
11-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	
12-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.3	2.1	2.3	2.3	2.1	2.3	2.3	
13-Apr	2.1	2.2	Z	2.3	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.3	2.2	2.2	2.1	2.3	
14-Apr	2.1	2.1	2.1	Z	2.3	2.2	2.3	2.2	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.3	
15-Apr	2.1	2.1	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.3	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	2.1	2.3	
16-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.2	
17-Apr	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	2.0	
18-Apr	2.1	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	2.1	2.1	2.0	2.0	2.1	
19-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.3	2.6	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.4	2.0	2.0	2.0	2.1	2.7	
20-Apr	2.0	2.0	2.1	Z	2.2	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.6	3.0	2.5	2.5	2.4	2.2	3.6	
21-Apr	2.2	2.4	2.4	2.4	Z	2.4	2.4	2.5	2.7	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.5	2.6	2.2	2.7		
22-Apr	2.5	2.5	2.7	2.8	2.7	Z	2.3	2.2	2.3	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.8		
23-Apr	Z	2.2	2.2	2.4	2.3	2.1	2.0	2.1	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	2.1	2.4		
24-Apr	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	C	C	C	C	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.2	2.2	2.1	2.2	
25-Apr	2.2	2.2	Z	2.7	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7	
26-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	
27-Apr	2.1	2.1	2.1	2.1	Z	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.2	2.2	2.4	2.5	2.3	2.1	2.2	2.2	2.1	2.2	2.2	2.5	
28-Apr	2.3	2.2	2.1	2.2	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.3	
29-Apr	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	2.0	2.1	
30-Apr	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	
																								Diurnal Average		Diurnal Maximum	
																								2.2		2.7	
																								2.2		2.8	
																								2.2		2.9	
																								2.2		2.8	
																								2.6		3.1	
																								3.1		3.3	
																								2.8		3.0	
																								3.0		2.5	
																								2.3		2.1	
																								2.2		2.3	
																								2.2		2.3	
																								2.2		2.4	
																								2.2		2.5	
																								2.4		2.5	
																								2.5		2.7	
																								3.8		3.0	
																								2.7		2.5	
																								2.9		2.9	

Z - zerospan      C - Calibration



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Lower Camp - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	352	51.31	51.31
2.1 - 3.0	330	48.10	99.42
3.1 - 10.0	4	0.58	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Lower Camp - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2.0	46	17	5	3	4	20	10	3	0	3	25	38	24	31	38	81	348
2.1 - 3.0	3	1	5	3	15	117	21	6	5	8	5	11	41	49	30	7	327
3.1 - 10.0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>49</b>	<b>18</b>	<b>10</b>	<b>6</b>	<b>19</b>	<b>138</b>	<b>32</b>	<b>9</b>	<b>5</b>	<b>12</b>	<b>30</b>	<b>50</b>	<b>65</b>	<b>80</b>	<b>68</b>	<b>88</b>	<b>679</b>

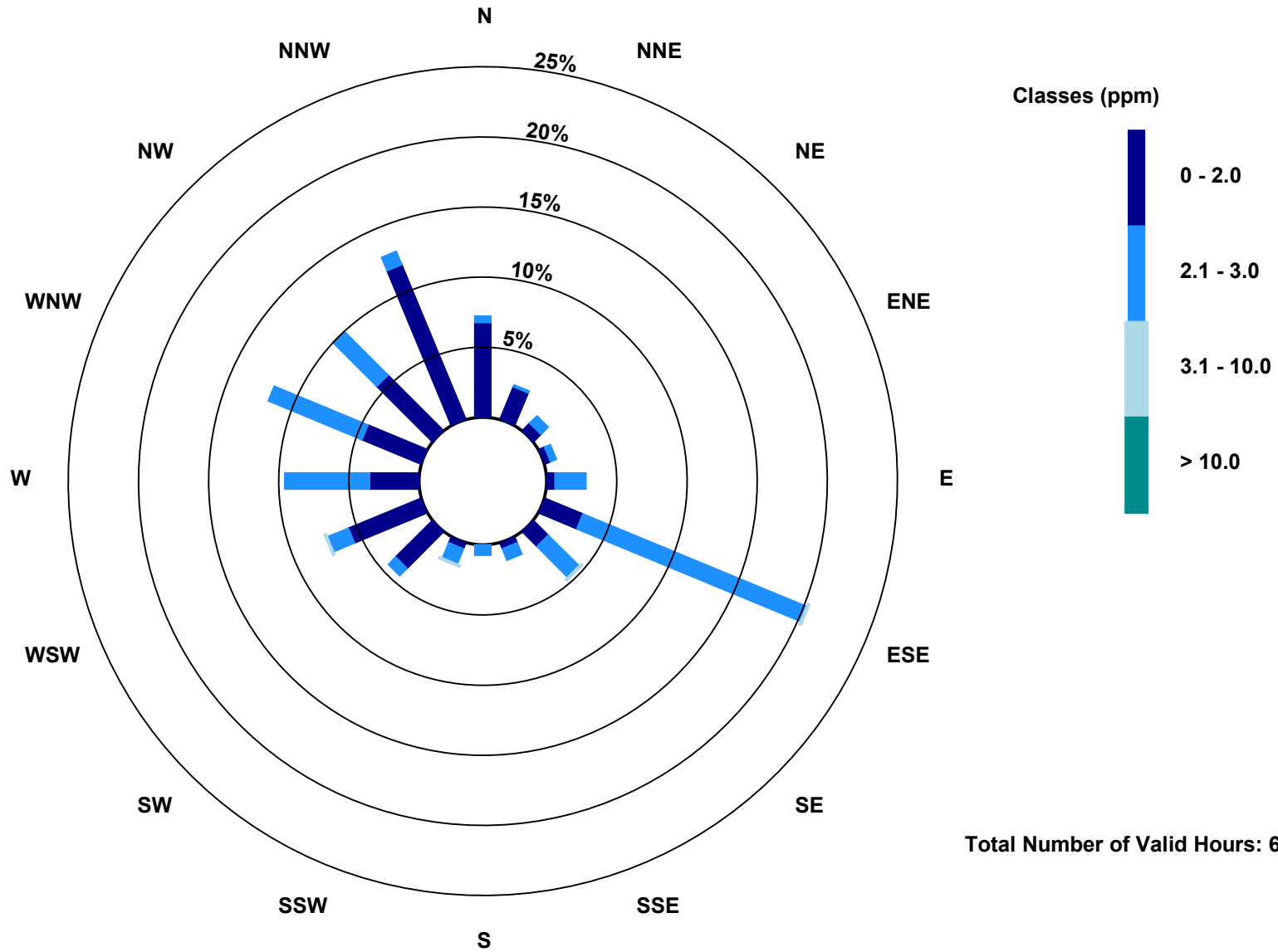
Total Number of Valid Hours: 679

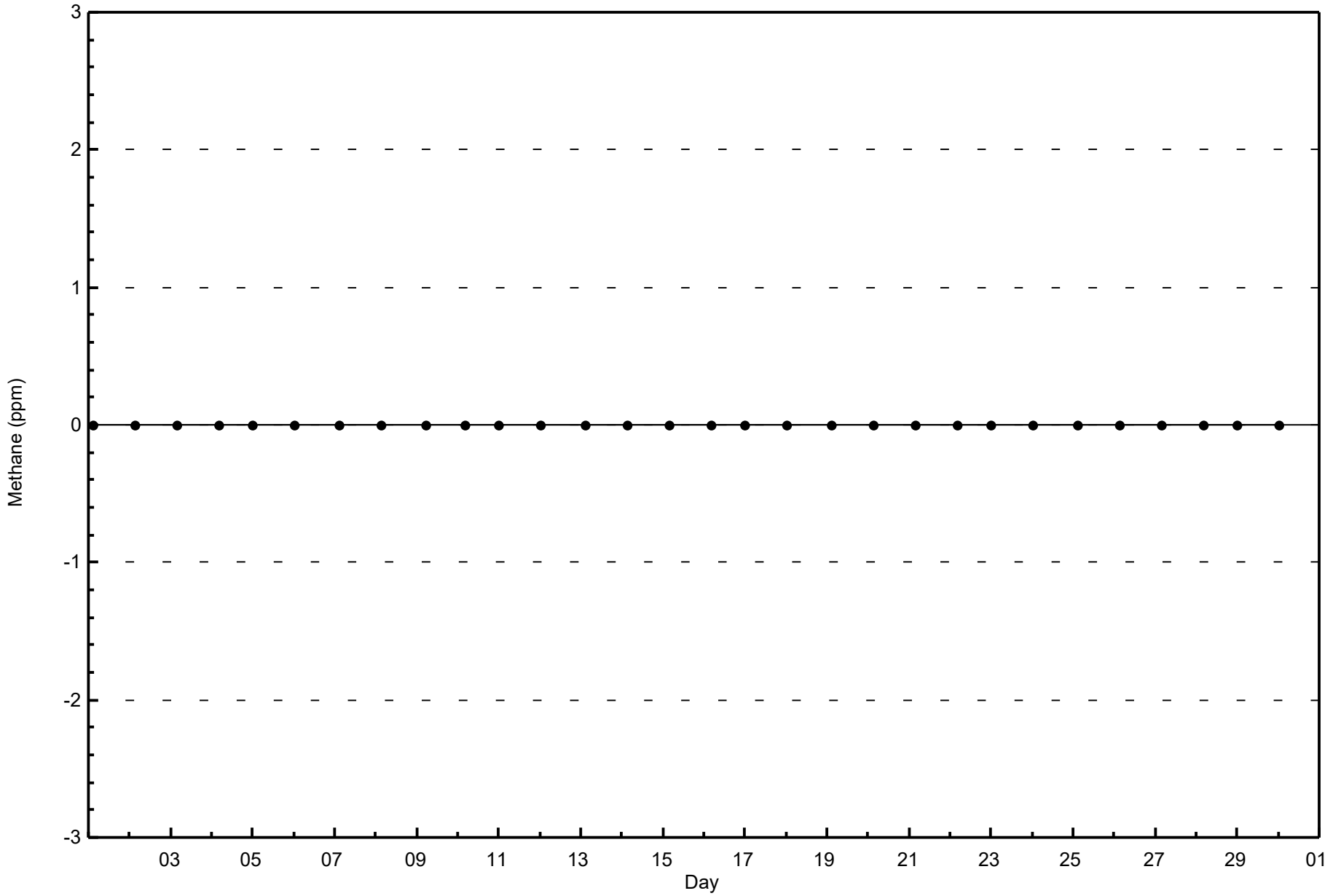
Total Number of Hours: 720

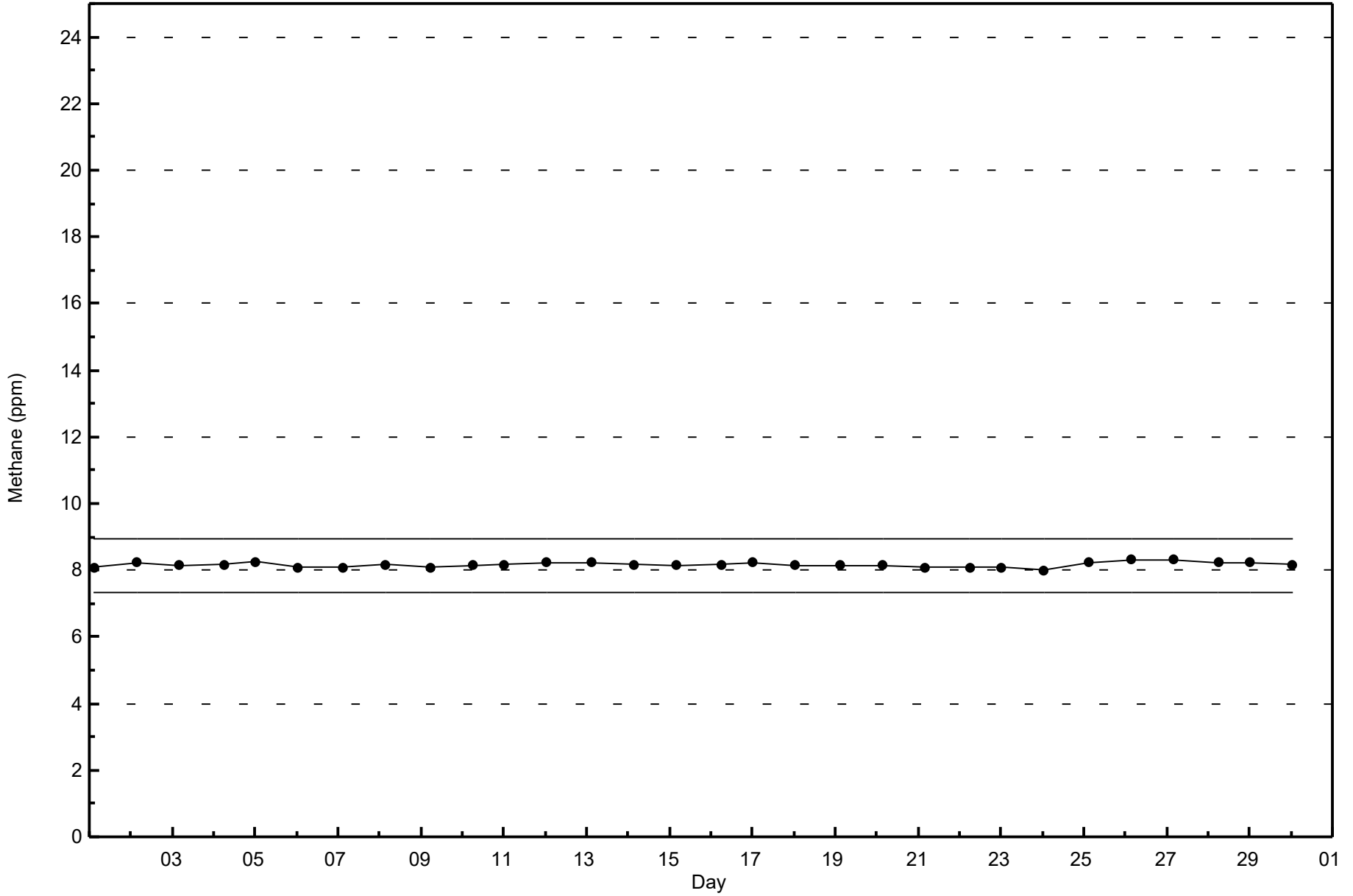


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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







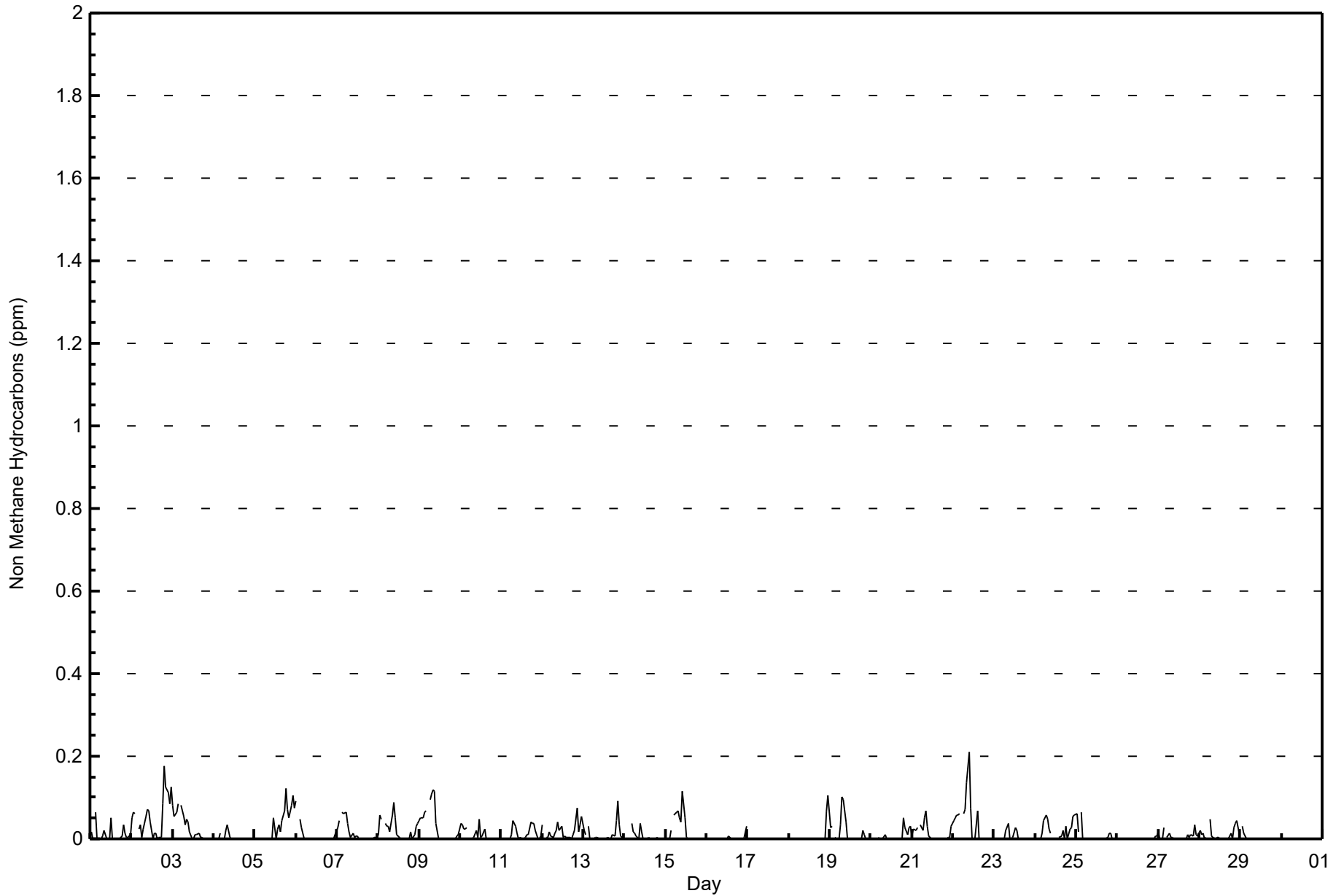


Summary of Hour Averages

Lower Camp - April 2024

Maximum Value: 0.209 ppm on Apr 22 10:00																				Maximum Daily Average: 0.054 ppm on Apr 2					Hours in Service: 720	
Minimum Value: 0.000 ppm on Apr 1 06:00																				Minimum Daily Average: 0.000 ppm on Apr 30					Hours of Data: 686	
Maximum Diurnal Average: 0.027 ppm at hour 9																				Minimum Diurnal Average: 0.002 ppm at hour 16					Hours of Missing Data: 34	
Monthly Average: 0.014 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> = 0.1 P <sub>99</sub> = 0.1					Hours of Calibration: 34	
																									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-Apr	0.016	0.001	Z	0.064	0.001	0.000	0.000	0.007	0.021	0.000	0.000	0.000	0.049	0.000	0.000	0.000	0.000	0.000	0.008	0.033	0.013	0.005	0.003	0.009	0.010	0.064
2-Apr	0.051	0.064	0.062	Z	0.025	0.033	0.005	0.023	0.056	0.073	0.067	0.041	0.000	0.013	0.014	0.001	0.002	0.004	0.083	0.175	0.127	0.113	0.086	0.124	0.054	0.175
3-Apr	0.080	0.055	0.064	0.084	Z	0.080	0.055	0.034	0.048	0.042	0.018	0.000	0.000	0.011	0.011	0.012	0.004	0.003	0.000	0.000	0.001	0.000	0.001	0.000	0.026	0.084
4-Apr	0.001	0.000	0.000	0.000	0.013	Z	0.000	0.021	0.035	0.002	0.001	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	0.003	0.035
5-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.051	0.001	0.025	0.033	0.016	0.043	0.069	0.122	0.071	0.052	0.081	0.104	0.076	0.032	0.122
6-Apr	0.092	Z	0.047	0.028	0.012	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	0.012	0.008	0.092	
7-Apr	0.026	0.044	Z	0.063	0.063	0.066	0.037	0.016	0.004	0.012	0.005	0.008	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.003	0.015	0.066	
8-Apr	0.011	0.059	0.047	Z	0.036	0.029	0.031	0.017	0.058	0.089	0.052	0.010	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.012	0.030	0.037	0.023	0.089
9-Apr	0.045	0.050	0.051	0.063	0.068	Z	0.096	0.108	0.118	0.116	0.037	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.009	0.033	0.118	
10-Apr	0.038	0.035	0.023	0.025	0.027	Z	0.000	0.000	0.005	0.020	0.002	0.048	0.002	0.007	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.048	
11-Apr	Z	0.001	0.001	0.001	0.000	0.001	0.009	0.045	0.030	0.013	0.000	0.002	0.002	0.000	0.002	0.011	0.012	0.041	0.038	0.036	0.022	0.001	0.000	0.007	0.012	0.045
12-Apr	0.035	Z	0.005	0.003	0.016	0.006	0.005	0.012	0.021	0.041	0.019	0.032	0.003	0.007	0.004	0.003	0.003	0.001	0.009	0.019	0.073	0.019	0.034	0.055	0.018	0.073
13-Apr	0.019	0.009	Z	0.030	0.000	0.000	0.000	0.002	0.004	0.000	0.000	0.000	0.000	0.001	0.003	0.001	0.000	0.010	0.006	0.043	0.092	0.033	0.005	0.000	0.011	0.092
14-Apr	0.000	0.000	0.000	Z	0.038	0.017	0.014	0.007	0.001	0.039	0.016	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.006	0.039
15-Apr	0.001	0.000	0.001	0.021	Z	0.056	0.064	0.068	0.050	0.039	0.114	0.052	0.004	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.021	0.114
16-Apr	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029	0.002	0.029	
17-Apr	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	0.000	
18-Apr	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	0.067	0.105	0.007	0.105	
19-Apr	0.028	0.030	Z	0.004	0.000	0.000	0.034	0.103	0.094	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.009	0.000	0.000	0.000	0.016	0.103
20-Apr	0.000	0.000	0.000	Z	0.005	0.001	0.000	0.001	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.051	0.027	0.012	0.027	0.030	0.007	0.051
21-Apr	0.006	0.025	0.020	0.027	Z	0.034	0.021	0.051	0.067	0.029	0.008	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.030	0.014	0.067	
22-Apr	0.046	0.051	0.056	0.058	0.060	Z	0.060	0.073	0.136	0.209	0.076	0.000	0.000	0.000	0.069	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.209	
23-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.036	0.001	0.000	0.003	0.028	0.021	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.036	
24-Apr	0.000	Z	0.000	0.000	0.015	0.045	0.058	0.047	0.023	0.014	C	C	C	C	0.004	0.007	0.019	0.000	0.031	0.001	0.024	0.029	0.053	0.058	0.022	0.058
25-Apr	0.062	0.016	Z	0.065	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.012	0.014	0.000	0.000	0.000	0.008	0.065
26-Apr	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	0.007	0.006	0.001	0.007	
27-Apr	0.017	0.000	0.000	0.027	Z	0.003	0.013	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.002	0.010	0.006	0.033	0.010	0.007	0.006	0.033
28-Apr	0.020	0.010	0.014	0.001	0.002	Z	0.048	0.007	0.005	0.000	0.003	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.028	0.039	0.045	0.012	0.011	0.048
29-Apr	Z	0.029	0.012	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	0.002	0.029
30-Apr	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	0.000
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	449	65.45	65.45
0.006 - 0.05	177	25.80	91.25
0.06 - 0.1	58	8.45	99.71
> 0.1	2	0.29	100.00

Total Number of Valid Hours: 686  
Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - April 2024**

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	46	18	8	3	4	52	11	5	2	6	26	44	39	49	50	81	444
0.006 - 0.05	3	0	2	3	12	66	16	4	2	5	3	2	22	15	13	7	175
0.06 - 0.1	0	0	0	0	3	20	4	0	1	1	1	4	4	15	5	0	58
> 0.1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
<b>Totals</b>	49	18	10	6	19	138	32	9	5	12	30	50	65	80	68	88	679

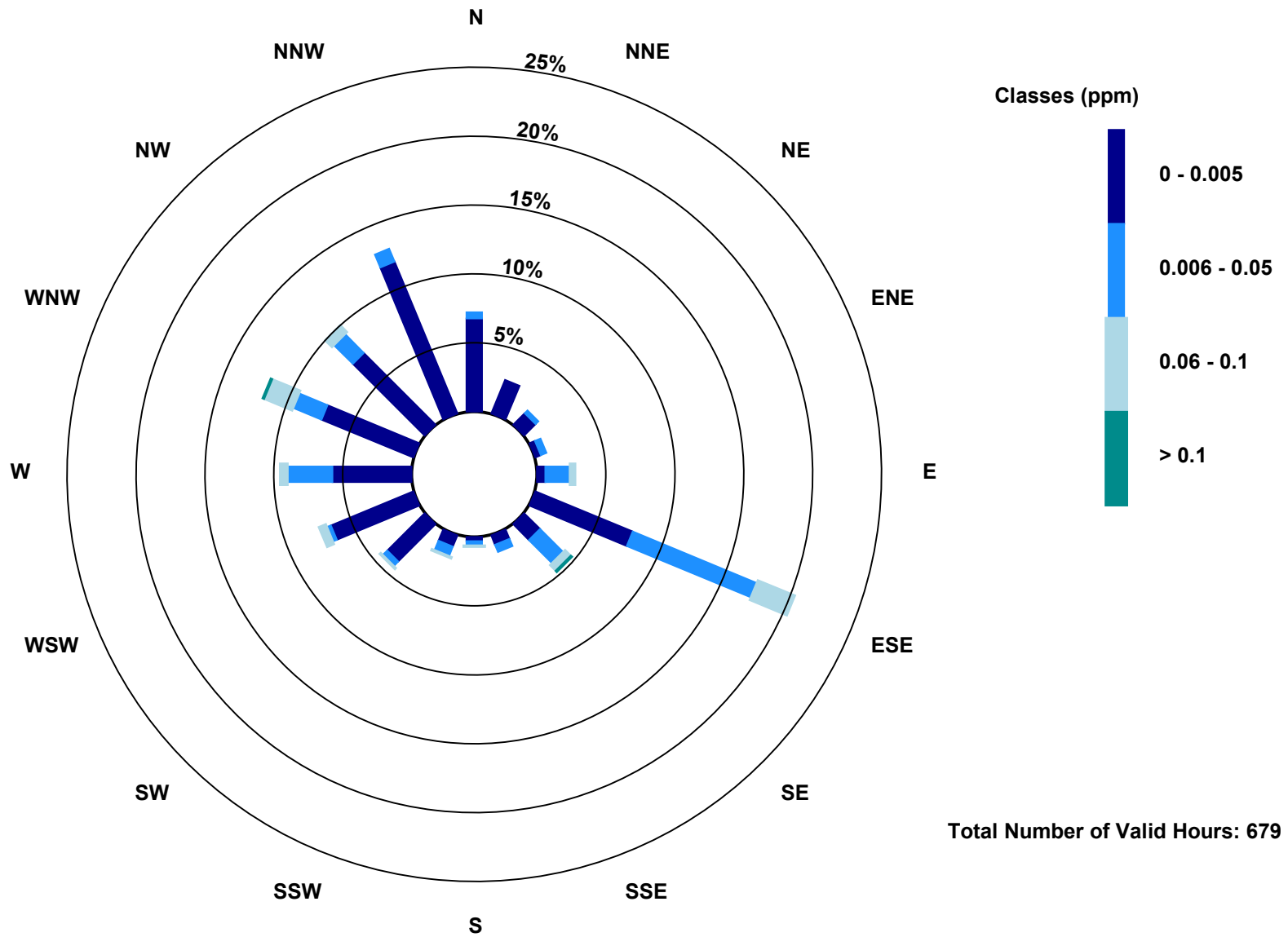
Total Number of Valid Hours: 679

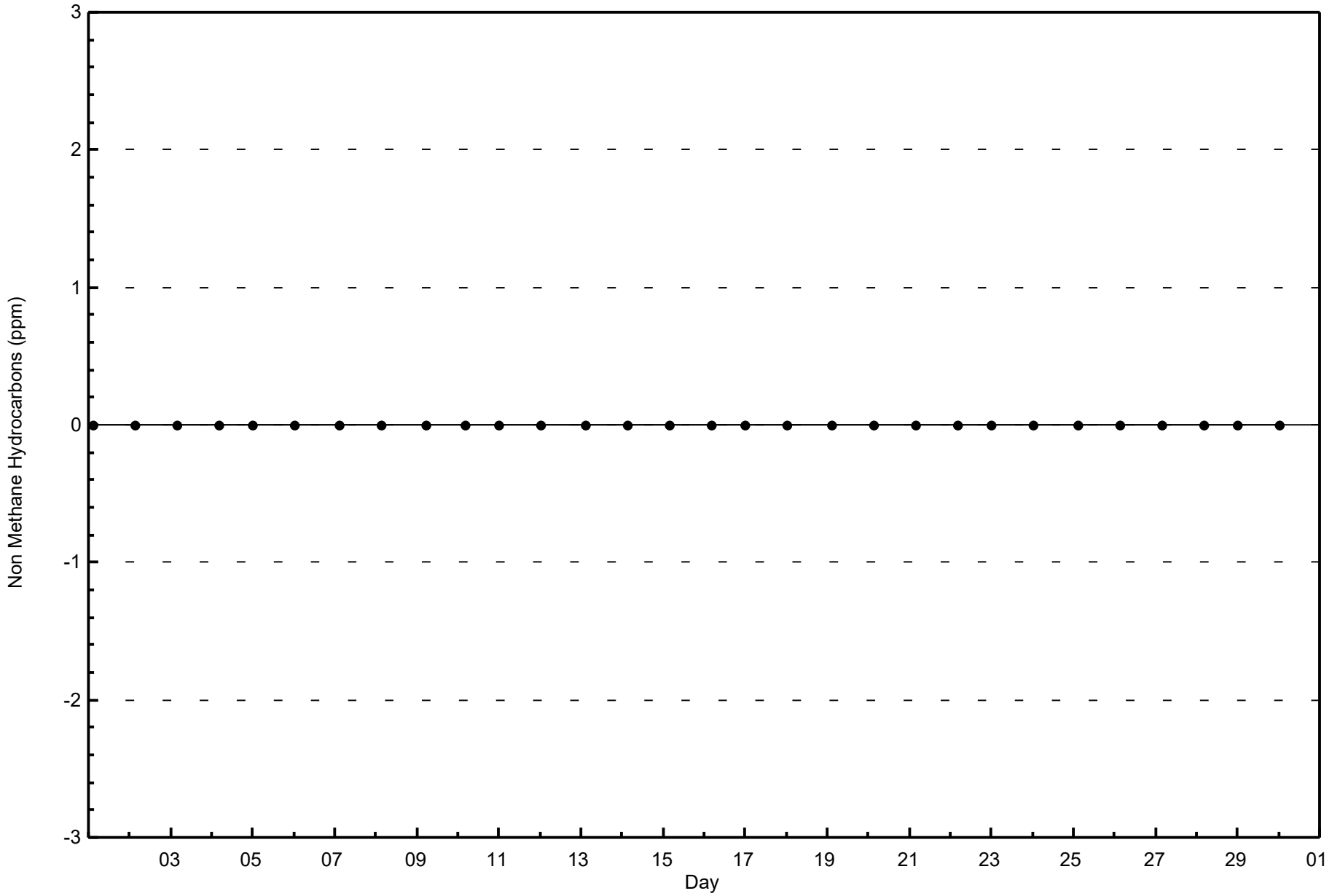
Total Number of Hours: 720

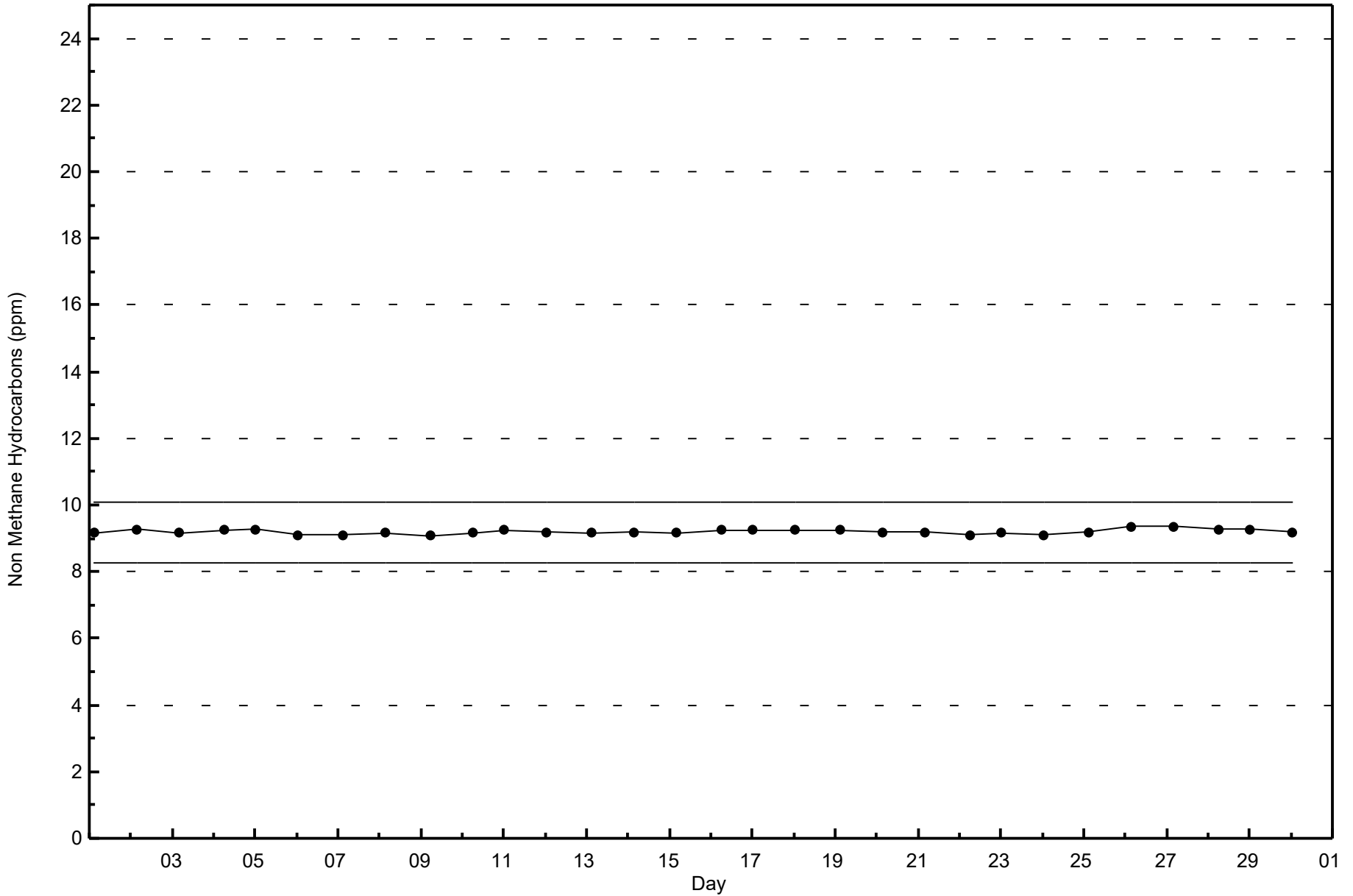


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp









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

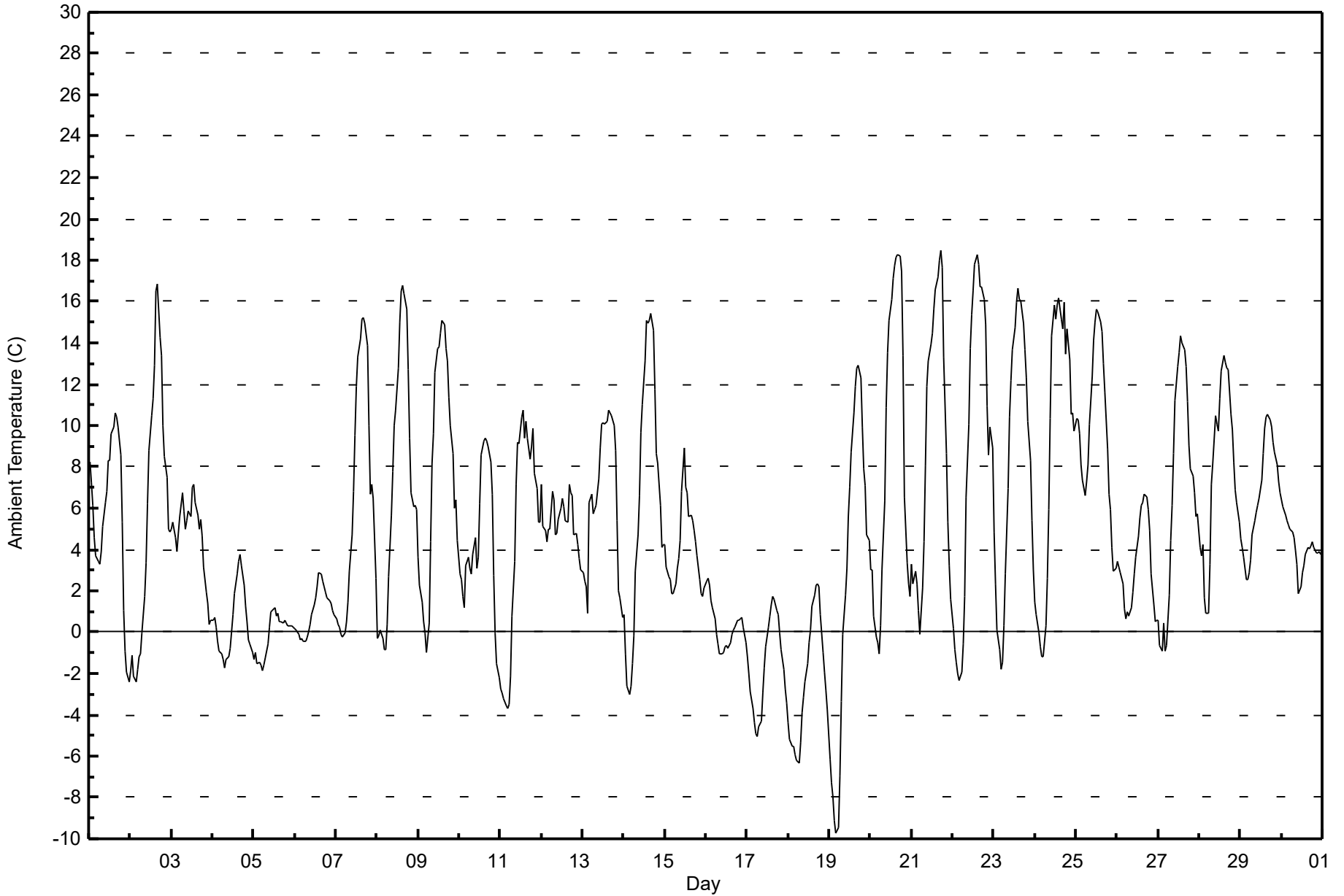
**Ambient Temperature (AT) - C**  
**Lower Camp - April 2024**

Maximum Value: 18.5 C on Apr 21 18:00      Maximum Daily Average: 9.8 C on Apr 25																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: -9.7 C on Apr 19 05:00      Minimum Daily Average: -2.3 C on Apr 18 Maximum Diurnal Average: 10.1 C at hour 16      Minimum Diurnal Average: 0.2 C at hour 6 Monthly Average: 5.04 C      Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -1.2 Q <sub>1</sub> = 0.6 Median = 4.3 Q <sub>3</sub> = 8.9 P <sub>90</sub> = 13.7 P <sub>99</sub> = 17.8																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	8.3	7.2	6.2	4.6	3.7	3.4	3.3	3.9	5.1	6.2	6.8	8.3	8.3	9.6	9.9	10.6	10.4	9.9	8.6	5.3	1.1	-0.9	-2.0	-2.4	5.6	10.6																							
2-Apr	-1.8	-1.1	-2.1	-2.4	-1.8	-1.2	-1.1	-0.1	1.7	3.3	6.2	8.8	10.5	11.3	12.9	16.5	16.9	14.3	13.4	10.0	8.5	7.5	5.0	4.9	5.8	16.9																							
3-Apr	5.0	5.3	4.6	3.9	4.8	5.6	6.7	5.9	5.0	5.4	5.8	5.6	7.0	7.1	6.3	5.7	5.0	5.4	4.6	3.1	1.9	1.4	0.4	0.6	4.7	7.1																							
4-Apr	0.6	0.7	0.2	-0.4	-0.9	-1.0	-1.3	-1.7	-1.3	-1.2	-0.8	0.0	0.8	1.9	2.8	3.4	3.8	3.2	2.2	1.2	0.5	-0.4	-0.6	-1.0	0.5	3.8																							
5-Apr	-1.3	-1.0	-1.5	-1.5	-1.6	-1.9	-1.6	-1.3	-0.6	0.2	0.9	1.0	1.2	0.7	0.9	0.5	0.5	0.4	0.6	0.4	0.3	0.3	0.3	0.2	-0.1	1.2																							
6-Apr	0.2	0.1	-0.1	-0.4	-0.3	-0.4	-0.5	-0.3	0.0	0.4	0.8	1.3	1.7	2.2	2.9	2.8	2.5	2.2	1.9	1.6	1.5	1.4	1.1	0.8	1.0	2.9																							
7-Apr	0.7	0.4	0.3	-0.1	-0.3	-0.1	0.5	1.4	3.0	4.7	6.8	9.5	11.9	13.3	14.2	15.2	15.2	15.0	13.9	10.0	6.7	7.2	6.5	2.6	6.6	15.2																							
8-Apr	-0.3	-0.1	0.1	-0.3	-0.9	-0.8	0.4	2.6	5.7	7.8	10.0	10.7	12.8	15.0	16.5	16.8	16.4	15.6	12.7	9.4	6.8	6.1	6.1	5.9	7.3	16.8																							
9-Apr	3.6	2.3	1.5	0.5	0.0	-1.0	0.4	4.4	8.2	9.6	12.6	13.7	13.8	14.5	15.1	14.9	13.7	13.1	11.4	10.0	8.6	6.0	6.4	4.4	7.8	15.1																							
10-Apr	2.8	2.5	1.7	1.2	3.2	3.6	3.1	2.8	3.7	4.6	3.1	3.6	6.2	8.6	9.3	9.4	9.2	9.0	8.2	6.7	2.8	0.0	-1.5	-2.2	4.2	9.4																							
11-Apr	-2.7	-2.9	-3.2	-3.6	-3.7	-3.5	-2.1	0.8	3.4	7.2	9.2	9.1	10.4	10.7	9.4	10.2	9.4	8.3	9.0	9.8	7.7	7.0	5.4	5.3	4.6	10.7																							
12-Apr	7.1	5.1	4.9	4.4	5.0	5.0	6.8	6.4	4.7	4.8	5.4	6.0	6.5	6.1	5.4	5.4	7.1	6.8	6.6	4.7	4.8	4.2	3.5	3.0	5.4	7.1																							
13-Apr	2.9	2.5	2.2	0.9	6.3	6.6	5.7	6.0	6.2	7.5	8.9	10.1	10.2	10.1	10.2	10.7	10.6	10.5	10.0	8.8	5.4	2.0	1.6	0.7	6.5	10.7																							
14-Apr	0.8	-1.0	-2.6	-3.0	-2.6	-1.5	-0.2	2.9	4.7	6.6	9.6	11.0	13.1	15.1	14.9	15.1	15.4	14.6	11.8	8.7	8.1	6.1	4.1	4.2	6.5	15.4																							
15-Apr	4.2	3.1	2.7	2.5	1.9	1.9	2.3	3.1	3.5	4.5	6.8	8.9	7.0	6.8	5.6	5.7	5.4	4.9	4.4	3.7	2.6	1.8	1.7	2.2	4.0	8.9																							
16-Apr	2.5	2.6	2.2	1.5	1.2	0.6	-0.1	-0.6	-1.0	-1.1	-0.9	-0.7	-0.6	-0.8	-0.5	-0.1	0.1	0.3	0.6	0.6	0.7	0.7	0.3	-0.5	0.3	2.6																							
17-Apr	-1.2	-2.0	-2.9	-3.7	-4.3	-4.9	-5.0	-4.6	-4.3	-3.0	-1.7	-0.7	0.2	0.8	1.4	1.7	1.6	1.1	0.9	0.0	-0.9	-1.8	-2.7	-3.4	-1.6	1.7																							
18-Apr	-4.3	-5.2	-5.5	-5.6	-5.9	-6.2	-6.3	-5.3	-3.9	-3.1	-2.4	-1.5	-0.5	0.1	1.3	1.8	2.2	2.4	2.2	0.9	-1.0	-1.9	-2.8	-3.7	-2.3	2.4																							
19-Apr	-6.1	-7.3	-8.0	-9.1	-9.7	-9.4	-7.0	-3.4	-0.1	1.8	3.1	5.6	7.0	8.7	10.6	11.9	12.8	12.9	12.3	9.9	7.9	7.1	4.7	4.5	2.5	12.9																							
20-Apr	3.0	3.0	0.8	-0.2	-0.5	-1.1	0.3	3.0	6.3	10.9	13.5	15.1	16.1	17.1	17.8	18.2	18.3	18.2	17.4	13.4	6.6	3.4	2.3	1.7	8.5	18.3																							
21-Apr	3.3	2.3	3.0	2.3	1.1	-0.1	2.1	4.4	8.0	11.9	13.1	13.9	14.5	15.6	16.6	17.2	18.0	18.5	17.7	13.3	8.6	5.3	3.2	1.6	9.0	18.5																							
22-Apr	0.2	-0.8	-1.5	-2.0	-2.3	-2.0	-0.6	1.7	6.5	10.0	13.7	15.4	16.5	17.8	18.3	17.8	16.7	16.7	16.1	14.9	11.0	8.6	9.9	8.9	8.8	18.3																							
23-Apr	4.9	2.4	0.1	-0.9	-1.8	-1.5	0.3	2.8	7.0	10.4	12.2	13.6	14.7	15.9	16.6	16.1	16.1	14.9	13.7	12.3	10.2	8.3	5.4	3.0	8.2	16.6																							
24-Apr	1.4	0.8	-0.1	-0.7	-1.2	-1.2	0.3	2.6	6.0	10.3	14.3	15.8	15.2	15.8	16.2	15.1	14.7	16.0	13.5	14.7	13.2	10.5	10.6	9.7	8.9	16.2																							
25-Apr	10.4	10.3	9.6	8.1	7.4	6.6	7.3	8.1	10.0	12.3	14.2	15.0	15.6	15.5	15.0	14.6	13.0	11.6	8.9	6.7	6.0	4.1	2.9	3.1	9.8	15.6																							
26-Apr	3.4	3.1	2.9	2.4	1.1	0.6	1.0	0.8	1.2	2.0	2.8	3.6	4.6	5.5	6.1	6.3	6.7	6.6	6.0	4.9	2.8	1.3	0.5	0.6	3.2	6.7																							
27-Apr	0.6	-0.6	-0.9	0.5	-0.9	-0.6	1.8	4.4	6.1	8.6	11.2	12.8	13.5	14.3	14.0	13.6	12.8	11.1	9.1	7.9	7.6	6.8	5.6	5.7	6.9	14.3																							
28-Apr	4.1	3.7	4.2	1.7	0.9	0.9	3.3	7.2	8.2	10.5	10.1	9.8	11.3	12.7	13.4	13.0	12.8	12.7	10.5	9.8	8.2	6.9	6.3	5.3	7.8	13.4																							
29-Apr	4.5	4.1	3.6	2.6	2.5	2.9	3.5	4.7	5.4	5.8	6.2	6.5	7.4	8.6	9.9	10.4	10.5	10.3	9.9	9.2	8.7	8.1	7.3	6.8	6.6	10.5																							
30-Apr	6.4	6.0	5.6	5.4	5.2	5.0	4.8	4.6	4.0	3.3	1.8	2.2	2.9	3.3	3.8	4.1	4.0	4.1	4.3	4.1	3.9	3.8	3.9	3.8	4.2	6.4																							
																								2.1	1.5	0.9	0.3	0.2	0.2	0.9	2.2	3.7	5.4	6.8	7.8	8.7	9.5	9.9	10.1	10.1	9.7	8.7	7.2	5.4	4.0	3.2	2.5	Diurnal Average	
																								10.4	10.3	9.6	8.1	7.4	6.6	7.3	8.1	10.0	12.3	14.3	15.8	16.5	17.8	18.3	18.2	18.3	18.5	17.7	14.9	13.2	10.5	10.6	9.7	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Lower Camp - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Lower Camp - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	138	19.17	19.17
0 - 10	432	60.00	79.17
10 - 20	150	20.83	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

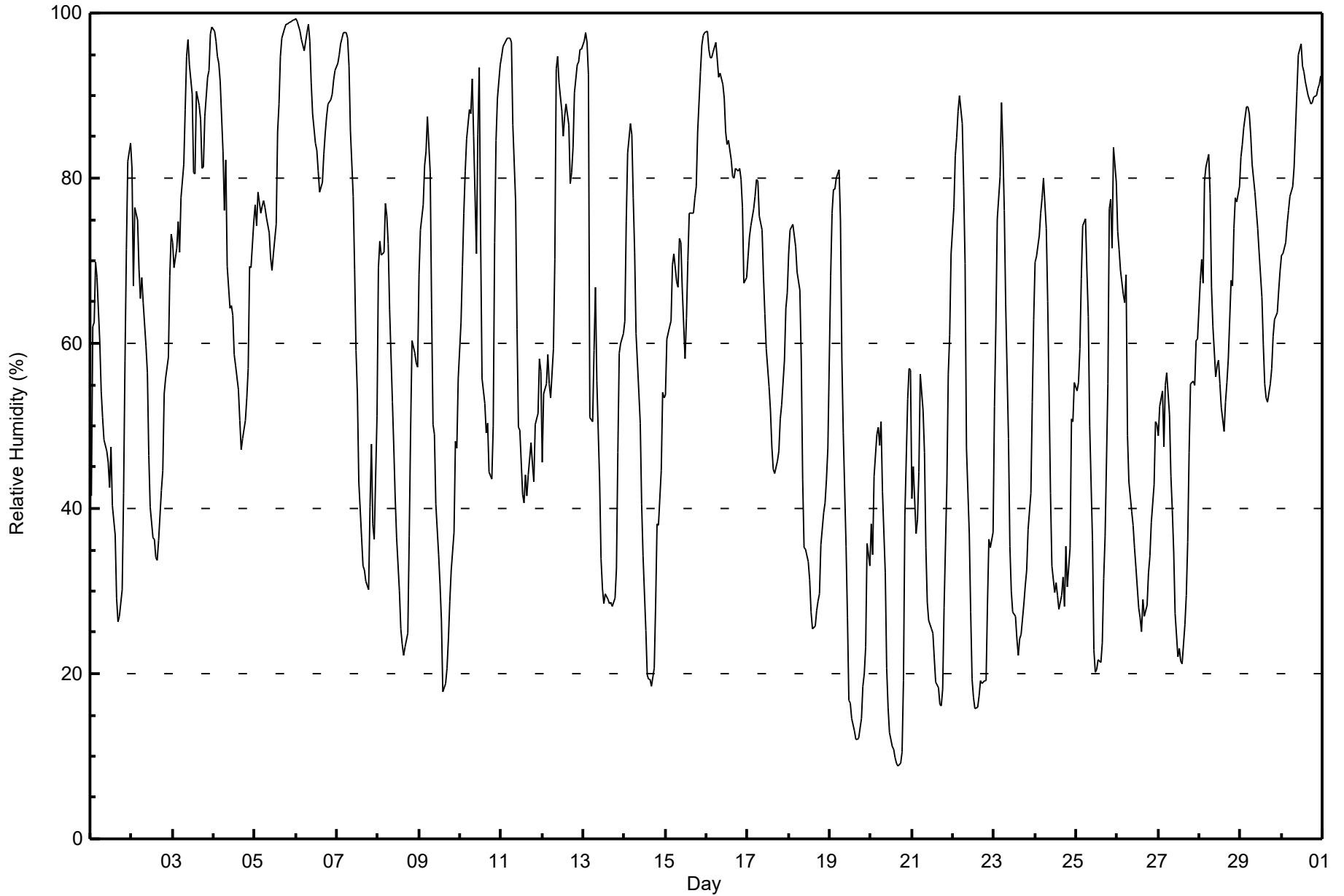
**Relative Humidity (RH) - %**  
**Lower Camp - April 2024**

Maximum Value: 99.3 % on Apr 6 01:00		Maximum Daily Average: 90.5 % on Apr 6		Hours in Service: 720																																												
Minimum Value: 8.8 % on Apr 20 17:00		Minimum Daily Average: 30.5 % on Apr 20		Hours of Data: 720																																												
Maximum Diurnal Average: 76.4 % at hour 4		Minimum Diurnal Average: 42.9 % at hour 16		Hours of Missing Data: 0																																												
Monthly Average: 59.79 %		Percentiles: P <sub>1</sub> = 12.1 P <sub>10</sub> = 26.2 Q <sub>1</sub> = 39.8 Median = 60.7 Q <sub>3</sub> = 79.8 P <sub>90</sub> = 92.4 P <sub>99</sub> = 98.6		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	41.5	62.0	62.5	69.9	68.0	60.2	54.3	50.9	48.3	46.9	45.7	42.6	47.4	40.4	36.8	29.2	26.3	27.0	30.2	41.9	57.8	71.4	82.0	84.2	51.1	84.2																						
2-Apr	81.2	66.9	76.4	75.0	69.0	65.5	67.9	65.0	59.7	56.4	46.4	40.1	36.5	36.2	34.0	33.8	36.2	42.2	44.6	53.9	55.7	58.4	68.2	73.2	55.9	81.2																						
3-Apr	72.1	69.2	71.5	74.8	71.1	77.6	81.7	88.3	94.7	96.8	93.7	90.1	80.7	80.6	90.6	88.9	87.1	81.2	81.4	87.5	92.2	93.1	97.4	98.3	85.0	98.3																						
4-Apr	97.9	96.5	94.8	93.9	91.8	83.2	76.1	82.1	69.3	64.3	64.6	63.4	58.7	57.2	54.4	50.7	47.1	48.5	50.6	53.4	57.0	69.4	69.2	74.8	69.5	97.9																						
5-Apr	76.9	74.3	78.3	75.7	76.6	77.3	76.5	75.3	73.3	70.4	68.9	70.8	74.4	85.6	88.9	94.8	97.0	98.1	98.6	98.7	98.8	98.9	99.1	99.2	84.4	99.2																						
6-Apr	99.3	99.0	97.8	96.8	96.1	95.4	97.6	98.6	96.7	91.5	87.7	84.3	83.3	80.9	78.4	79.5	82.8	85.3	87.5	89.0	89.6	90.1	91.9	93.0	90.5	99.3																						
7-Apr	93.9	94.9	96.3	97.0	97.7	97.6	97.0	93.5	85.7	77.7	68.9	59.2	53.8	43.2	36.5	33.0	32.5	31.2	30.3	40.1	47.8	38.1	36.3	51.2	63.9	97.7																						
8-Apr	69.2	72.4	70.7	71.0	76.9	75.5	72.0	64.1	52.9	47.3	41.2	36.5	30.0	25.5	23.5	22.3	23.2	24.9	36.7	49.5	60.4	58.8	57.7	57.1	50.8	76.9																						
9-Apr	68.3	73.7	76.8	81.6	83.1	87.5	80.8	64.1	50.1	48.9	40.5	34.5	30.8	26.5	17.8	18.8	20.7	24.3	28.8	32.6	37.1	48.2	47.3	55.8	49.1	87.5																						
10-Apr	62.5	69.3	75.8	80.9	84.8	88.3	87.8	92.0	85.2	70.9	85.3	93.5	72.7	55.7	52.8	49.2	50.4	44.4	43.6	50.0	72.2	84.7	89.7	93.7	72.3	93.7																						
11-Apr	94.7	96.0	96.3	96.9	96.9	96.9	96.4	86.4	77.2	61.7	49.8	49.4	41.8	40.6	44.1	41.5	44.1	48.0	45.4	43.2	50.1	51.5	58.2	56.7	65.2	96.9																						
12-Apr	45.5	53.8	55.1	58.6	55.0	53.4	59.2	70.2	93.2	94.8	91.6	88.1	85.0	87.4	89.0	86.4	79.3	80.7	83.8	90.4	93.7	94.0	95.5	95.5	78.3	95.5																						
13-Apr	96.6	97.6	96.4	92.5	51.0	50.5	59.1	66.8	55.5	43.2	33.9	30.4	28.4	29.7	28.9	28.5	28.7	28.1	29.2	32.6	46.8	58.9	59.9	61.2	51.4	97.6																						
14-Apr	62.7	74.7	83.1	86.5	85.2	77.6	71.0	61.2	54.0	50.4	40.6	34.2	25.2	19.8	19.3	19.3	18.6	20.6	28.4	38.2	37.9	44.6	54.1	53.5	48.4	86.5																						
15-Apr	53.8	60.6	62.0	62.7	69.5	70.8	67.5	66.8	72.8	72.3	66.6	58.1	63.0	69.9	75.7	75.8	75.8	77.6	79.0	85.6	92.9	96.1	97.4	97.7	73.7	97.7																						
16-Apr	97.8	95.6	94.5	94.6	95.3	96.5	94.5	92.3	92.7	91.3	89.7	85.7	84.1	84.5	82.3	80.1	80.0	81.1	80.8	81.1	79.8	76.4	67.2	68.0	86.1	97.8																						
17-Apr	70.5	72.9	74.2	76.2	77.7	79.9	79.7	75.4	73.7	68.2	63.6	59.3	54.7	51.8	47.5	44.7	44.2	45.7	46.9	50.8	52.6	57.9	64.2	66.0	62.4	79.9																						
18-Apr	70.8	73.8	74.3	73.1	71.8	68.7	66.4	58.0	43.5	35.2	35.0	33.5	31.3	27.5	25.4	25.7	27.6	28.9	29.7	35.5	39.6	40.6	43.6	47.3	46.1	74.3																						
19-Apr	68.2	75.7	78.6	78.7	80.0	81.0	75.0	58.1	49.1	35.4	26.7	16.8	16.4	14.6	13.1	12.1	12.1	12.3	14.5	18.4	20.0	23.2	35.7	33.0	39.5	81.0																						
20-Apr	38.2	34.4	43.9	49.0	49.9	47.6	50.5	42.0	32.2	20.6	15.9	12.8	11.2	10.9	9.8	9.2	8.8	9.2	10.5	19.1	39.1	53.2	57.0	56.7	30.5	57.0																						
21-Apr	41.3	45.0	37.0	38.6	44.5	56.3	51.8	46.7	35.3	28.6	26.4	25.4	25.0	21.8	19.1	18.2	16.3	16.2	18.1	27.9	43.1	56.2	61.0	70.9	36.3	70.9																						
22-Apr	76.5	82.7	84.9	88.2	90.0	86.5	79.0	69.6	47.3	37.0	27.4	19.3	17.2	15.7	15.9	17.2	19.2	18.9	19.2	19.2	28.6	36.3	35.2	37.2	44.5	90.0																						
23-Apr	52.3	62.4	75.0	80.2	89.1	83.8	76.2	64.7	48.4	35.4	30.1	27.5	26.9	24.2	22.2	24.2	24.7	28.5	30.7	32.5	37.4	41.8	52.9	62.8	47.2	89.1																						
24-Apr	69.8	70.5	73.0	75.8	77.7	80.0	73.8	65.1	53.9	41.8	33.1	29.8	31.0	29.4	27.8	29.6	31.6	28.2	35.5	30.6	35.2	50.8	50.5	55.2	49.2	80.0																						
25-Apr	54.3	55.3	59.3	67.8	74.3	75.1	68.8	63.2	50.0	36.2	22.9	20.3	20.6	21.7	21.4	23.7	31.5	36.5	55.1	76.3	77.5	71.5	83.7	79.5	51.9	83.7																						
26-Apr	73.5	71.3	68.8	65.9	64.9	68.3	48.7	43.2	39.6	38.0	35.2	32.8	28.0	26.9	25.0	28.9	27.0	28.3	32.2	34.2	38.3	42.8	50.4	50.2	44.3	73.5																						
27-Apr	48.8	52.4	54.2	47.4	55.0	56.4	51.4	43.9	39.9	34.8	27.4	22.1	23.0	21.6	21.2	25.9	29.6	35.9	46.7	55.1	55.4	55.0	60.4	60.4	42.7	60.4																						
28-Apr	67.6	70.2	67.3	79.7	81.3	82.9	78.2	66.8	62.0	55.9	57.3	57.9	55.1	52.2	49.2	52.9	55.2	58.2	67.7	66.9	73.8	77.6	77.2	78.9	66.3	82.9																						
29-Apr	82.6	84.0	86.1	88.7	88.6	87.9	85.3	81.6	78.3	76.1	73.9	71.1	65.6	59.9	55.0	53.3	52.9	55.0	57.0	60.8	62.9	63.8	66.4	68.9	71.1	88.7																						
30-Apr	70.6	70.9	72.2	74.4	76.1	77.8	79.1	81.4	85.9	90.5	94.9	96.3	93.6	92.8	91.6	90.0	89.5	89.1	89.2	89.8	90.1	90.8	91.3	92.4	85.8	96.3																						
																								70.0	72.6	74.6	76.4	76.3	76.2	73.4	69.3	63.3	57.3	52.8	49.5	46.5	44.5	43.2	42.9	43.3	44.5	47.7	52.8	58.8	63.1	66.7	69.1	Diurnal Average
																								99.3	99.0	97.8	97.0	97.7	97.6	97.6	98.6	96.7	96.8	94.9	96.3	93.6	92.8	91.6	94.8	97.0	98.1	98.6	98.7	98.8	98.9	99.1	99.2	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Lower Camp - April 2024**





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - inHg**

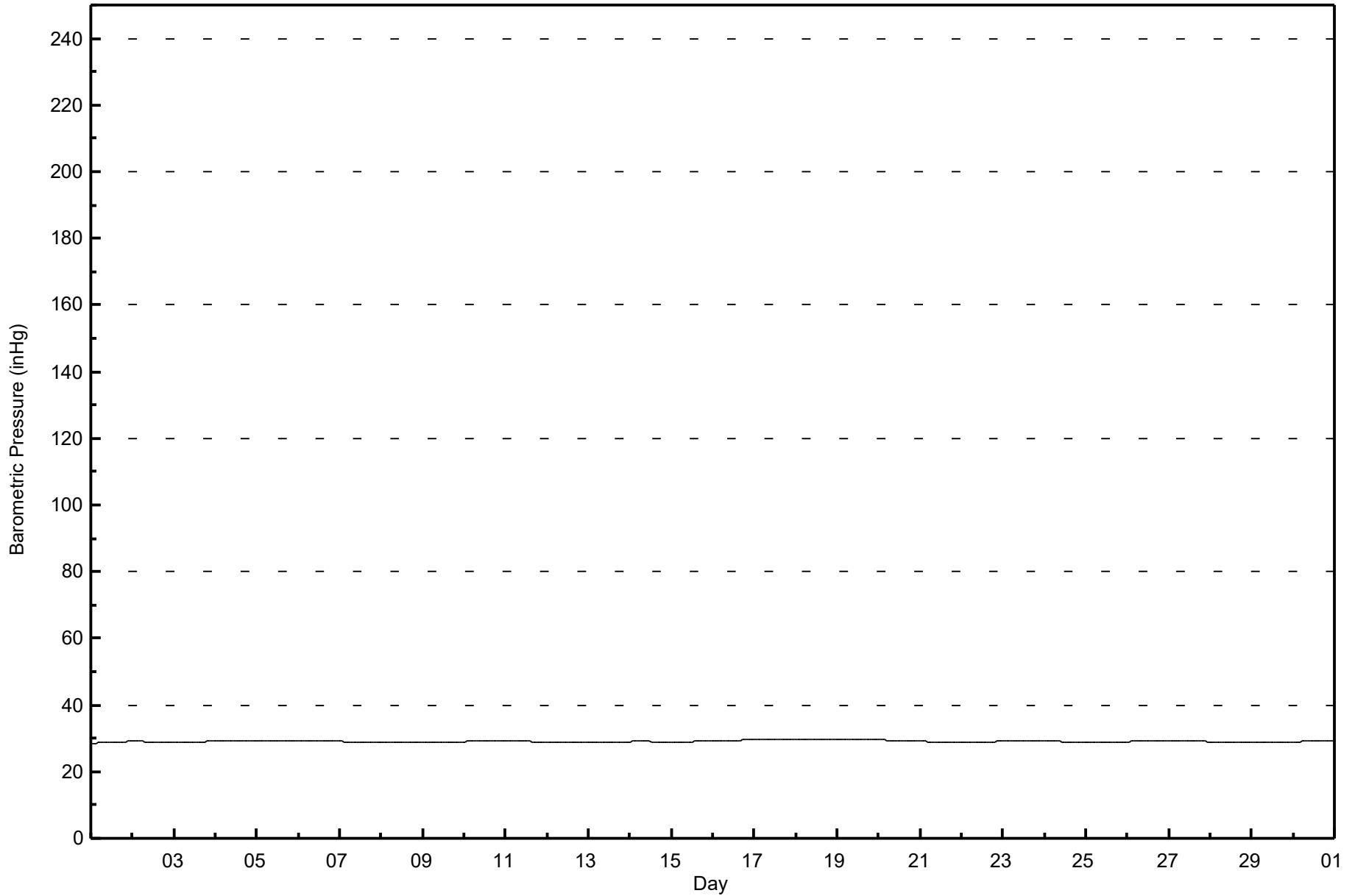
**Lower Camp - April 2024**

Maximum Value: 29.8 inHg on Apr 18 10:00		Maximum Daily Average: 29.8 inHg on Apr 18		Hours in Service: 720																						
Minimum Value: 28.5 inHg on Apr 1 01:00		Minimum Daily Average: 28.8 inHg on Apr 25		Hours of Data: 720																						
Maximum Diurnal Average: 29.1 inHg at hour 8		Minimum Diurnal Average: 29.1 inHg at hour 18		Hours of Missing Data: 0																						
Monthly Average: 29.09 inHg		Percentiles: P <sub>1</sub> = 28.7 P <sub>10</sub> = 28.8 Q <sub>1</sub> = 28.9 Median = 29.0 Q <sub>3</sub> = 29.2 P <sub>90</sub> = 29.5 P <sub>99</sub> = 29.8		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-Apr	28.5	28.5	28.5	28.6	28.6	28.6	28.7	28.7	28.7	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	28.8	29.1
2-Apr	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	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	28.9	29.1
3-Apr	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	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	28.9	29.1
4-Apr	29.1	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.4	29.4	29.4	29.4	29.3	29.3	29.4
5-Apr	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.3
6-Apr	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
7-Apr	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0
8-Apr	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	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	28.9	29.0
9-Apr	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	28.9	28.9	28.9	28.9	29.0	29.0	29.0	28.8	29.0
10-Apr	29.0	29.0	29.1	29.1	29.1	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	29.3	29.3	29.3	29.3	29.2	29.3
11-Apr	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.3
12-Apr	29.0	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	28.7	28.7	28.7	28.7	28.7	28.7	28.8	29.0
13-Apr	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	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	28.8	29.0
14-Apr	29.0	29.0	29.1	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	29.0	29.0	29.0	29.0	29.0	29.0	29.1
15-Apr	29.0	29.0	29.0	29.0	29.0	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	29.1	29.0	29.1
16-Apr	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.3	29.5
17-Apr	29.6	29.6	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.7	29.8
18-Apr	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8
19-Apr	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.7	29.8
20-Apr	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.3	29.5
21-Apr	29.1	29.1	29.1	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.9	29.1
22-Apr	28.8	28.8	28.8	28.8	28.8	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	29.1	29.1	29.1	29.1	28.9	29.1
23-Apr	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2
24-Apr	29.2	29.1	29.1	29.1	29.1	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	29.0	29.2
25-Apr	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.9	28.9	28.8	28.9
26-Apr	29.0	29.0	29.0	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	29.3	29.2	29.3
27-Apr	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.1	29.1	29.0	29.0	29.0	29.0	29.1	29.3
28-Apr	29.0	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0
29-Apr	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	28.9	28.9	29.0	29.0	29.0	29.0	29.0	28.9	29.0
30-Apr	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	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.1	29.2
																								Diurnal Average		
																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Barometric Pressure (BP) - inHg**  
**Lower Camp - April 2024**





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

**Wind Speed (WS) - km/h**  
**Lower Camp - April 2024**

Maximum Speed: 29 km/h on Apr 25 17:00	Maximum Daily Speed Average: 20.1 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 23 06:00	Minimum Daily Speed Average: 1.8 km/h on Apr 14	Hours of Data: 713
Maximum Diurnal Speed Average: 3.9 km/h at hour 19	Minimum Diurnal Speed Average: 0.3 km/h at hour 1	Hours of Missing Data: 7
Monthly Average Velocity: 2.1 km/h 330.0 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 10 Q <sub>3</sub> = 16 P <sub>90</sub> = 20 P <sub>99</sub> = 26	Percent Operational Time: 99.0

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-Apr	SW10	W21	W19	WSW9	WSW14	SW18	WSW14	W13	W20	W23	WNW17	WNW19	W22	W19	W14	WNW16	WNW20	WNW15	WNW10	WSW4	WSW1	ESE1	SE1	ESE1	W12.4	W23
2-Apr	ESE6	ESE7	E1	ESE10	ESE11	ESE13	ESE12	ESE11	SE12	ESE12	ESE10	ESE14	ESE18	ESE19	ESE16	SE14	SE12	SE12	SE8	SE6	ESE3	WNW2	SSW1	ESE10	ESE9.7	ESE19
3-Apr	ESE9	ESE12	ESE7	ESE4	SSE2	W11	W16	W19	W6	SE1	SSW5	WNW3	WSW11	WNW9	WNW8	WNW7	NNE10	NNE10	N8	NNW5	W5	SSW1	W4	WSW3	WNW2.7	W19
4-Apr	NW3	WNW5	NW7	WNW8	NW9	WNW10	WNW15	UO	NNW12	NNW13	NW11	NE5	WNW2	NNW7	N7	NNE8	NNW6	NNW11	NNW11	NW4	WNW3	ENE4	NE1	NNE3	NNW6.3	WNW15
5-Apr	N2	NE5	NW2	NE3	NE5	N4	NNE6	N8	NNW8	NNW6	WNW8	WNW13	NW11	NW10	WNW10	WNW8	NW7	WNW5	WNW7	WNW7	WNW6	WNW4	W6	WNW6	WNW5.6	WNW13
6-Apr	WNW7	WNW9	NW10	NW7	N5	UO	UO	UO	NNW8	NW7	NNW10	NNW8	N9	NNW11	NW7	WNW8	NNW11	NNW8	WNW6	WNW5	W6	WNW4	W3	WNW2	NNW6.6	NNW11
7-Apr	W2	ESE3	WSW2	WNW2	WSW1	E1	ESE6	ESE8	SE9	SE6	SE7	SE8	SW7	WSW12	WSW10	WSW6	WSW10	WSW11	SW11	SW4	SW5	SW8	SSW8	NW1	SSW3.8	WSW12
8-Apr	ESE1	ESE5	ESE5	SE5	ESE5	ESE6	ESE9	ESE8	ESE15	ESE13	ESE12	ESE14	ESE11	WSW5	SSW11	SW13	WSW11	SSW7	UO	UO	ESE2	NW1	WNW4	SW2	SE4.7	ESE15
9-Apr	ESE1	ESE1	SE0	SE2	E0	ESE1	WSW1	ESE5	ESE7	ESE11	SSW6	WSW20	WSW16	WSW19	SW19	WSW15	WSW15	WSW17	WSW16	WSW16	SW12	W8	WSW9	W5	SW7.3	WSW20
10-Apr	W3	W4	W3	WNW3	W13	W12	WNW12	WNW8	W11	W18	NW15	NW3	NNW10	NNW13	NNW14	N15	NNE15	NNE14	NNE10	NNE3	WSW2	SW1	WNW1	NW2	NNW6.5	W18
11-Apr	WNW2	WNW3	WNW2	WNW2	WNW1	ESE1	ESE9	ESE11	ESE14	ESE12	ESE16	ESE21	ESE23	ESE24	ESE23	ESE24	ESE23	ESE21	ESE19	ESE19	ESE25	ESE21	ESE14	ESE14	ESE13.5	ESE25
12-Apr	SE13	ESE13	ESE13	ESE14	ESE12	ESE11	SE10	SSE12	SE15	ESE17	ESE18	SE14	SSE13	SE12	ESE13	ESE16	ESE16	ESE13	SE11	ESE12	SE5	ESE6	ESE10	ESE9	SE12.3	ESE18
13-Apr	ESE7	SE9	SE10	SE3	SW17	SW23	WSW21	W20	W20	WNW21	W26	W27	W23	W24	W23	W18	W19	W16	W12	SW4	N2	NE3	ENE3	W12.1	W27	
14-Apr	W4	NW3	ESE2	ESE2	ESE6	ESE8	ESE8	ESE12	ESE14	ESE12	ESE13	ESE12	SW2	WSW11	WSW12	W10	WSW8	W8	WSW2	W4	W6	W3	NW3	NW5	S1.8	ESE14
15-Apr	W4	WNW3	W4	W3	WNW4	WNW5	NW10	NW5	NW6	WNW6	WNW5	NW5	ESE14	NE17	NNE15	NNE13	NNE14	NNE16	NNE14	N13	NW9	NW9	NW8	NW9	N5.6	ENE17
16-Apr	NW10	NNW18	NNW20	NNW15	NW15	NNW17	NNW22	NNW20	NNW21	NNW25	NNW25	NNW28	NNW28	NNW27	NNW28	N28	NNW23	N19	N19	N17	N16	NNW14	NNW17	NNW18	NNW20.1	NNW28
17-Apr	NNW19	NNW19	NNW18	NNW16	NNW16	NNW14	NNW17	N22	NNW21	N20	NNW20	N24	NNW24	NNW25	N23	N23	N23	N21	N21	NNW15	NW8	NW6	NW6	NW6	NNW17.5	NNW25
18-Apr	WNW6	WNW6	WNW8	NW11	NW10	NW11	NNW14	NNW15	NNW17	NNW20	NNW20	N21	NNW19	N20	N20	N21	N21	N18	N16	NNW8	WNW5	WNW5	W5	WSW4	NNW12.2	N21
19-Apr	WNW1	W1	WNW2	WNW1	NW1	NNW1	E4	ESE6	ESE6	E5	NE5	W8	WNW9	WNW8	W9	SW9	SW11	SSW13	SSW9	SSW7	SSW8	WSW10	WSW11	SW14	SW4.0	SW14
20-Apr	SW5	WSW7	SSE4	SE7	ESE9	SE7	ESE11	ESE11	SSE5	SW9	WSW13	WSW14	SW12	WSW14	WSW13	SW13	SW12	SW10	SW8	SSW4	S1	E4	E2	E3	SSW5.2	WSW14
21-Apr	SE6	SE6	SE6	SE9	ESE8	ESE9	ESE11	ESE9	ESE10	ESE11	ESE13	ESE18	ESE17	ESE16	ESE14	ESE10	ESE5	SSE3	W6	W3	W1	WNW3	WNW5	W2	ESE6.7	ESE18
22-Apr	WNW2	WNW2	WNW2	W1	WNW3	W3	WNW2	WNW3	WNW7	WNW7	NW9	N15	N10	NW7	NW8	NW13	NNW14	NNE16	NNW15	NNW8	WSW2	NW6	NW6	WNW6	NNW6.2	NNE16
23-Apr	WSW4	WNW4	WNW3	W2	UO	W0	WNW2	WNW3	WNW5	WNW6	WNW6	NNW4	ENE1	NNW1	N3	NW7	NNW7	N11	NNE14	N9	WNW4	W4	NW2	WNW3	NNW3.6	NNE14
24-Apr	WNW3	W5	W3	W6	W4	W5	WNW4	WNW5	NNW5	E7	ESE19	ESE20	E21	E20	ESE25	ESE26	E25	E21	ESE19	E21	ESE21	ESE23	ESE21	ESE18	ESE11.1	ESE26
25-Apr	ESE17	SSE10	SW15	S7	SW16	SW9	WSW12	WSW12	SW16	SW19	WSW21	WSW24	WSW24	WSW24	SW23	WSW22	WSW29	WSW19	WNW24	W17	WNW17	NW16	WNW7	WNW11	WSW14.0	WSW29
26-Apr	WNW15	WNW18	NW16	NW15	NW12	WNW11	NW23	NW22	NW19	NW17	NW14	NNW15	NW15	NW16	NW15	NNW13	NNW11	NNE10	NNE12	NE10	E1	ESE6	E10	ESE9	NNW10.3	NW23
27-Apr	ESE12	ESE8	ESE9	SE11	E5	ESE7	ESE9	ESE13	ESE15	ESE14	ESE14	SE14	SE14	SE15	SSE13	S13	S11	S13	SSE13	SE7	ESE11	ESE7	ESE9	E10	SE10.1	ESE15
28-Apr	ENE2	N2	NE4	W6	W5	W3	E4	ESE21	ESE20	ESE22	ESE23	ESE20	ESE19	ESE18	ESE18	ESE17	ESE18	ESE17	ESE18	E18	ESE18	ESE18	E17	E12	ESE12.7	ESE23
29-Apr	E13	ENE8	NE8	N4	NW4	WNW4	W4	N5	N8	N8	NNW9	NNW12	NNW11	N12	N15	N16	N16	N16	N17	NNW17	NNW16	N18	N18	NNW15	N10.1	N18
30-Apr	NNW14	NNW14	NNW15	NNW16	NNW18	NNW19	NNW21	N21	N20	NNW18	NNW15	NNW14	NNW18	NNW17	NNW18	NNW14	NNW17	NNW17	NNW17	NW14	NW11	NNW13	NW12	NNW12	NNW15.8	NNW21

NNW0.3	NW1.6	NW2.3	NW1.5	NNW2.4	NNW2.5	NNW2.7	NNW1.8	N2.3	NNW2.2	NNW2.2	NNW2.0	NNW2.2	NW3.5	NW3.2	NNW3.3	NNW3.4	N3.4	NNW3.9	NNW2.4	NW0.8	NNW1.1	NNW1.0	N1.1	Diurnal Average
NNW19	W21	NNW20	NNW16	NNW18	SW23	NW23	NW22	NNW21	NNW25	NNW25	NNW28	NNW28	NNW27	NNW28	N28	WSW29	E21	WNW24	E21	ESE25	ESE23	ESE21	ESE18	Diurnal Maximum

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Lower Camp - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 9 km/h on Apr 25 17:00	Hours of Data: 713
Minimum Value: 1 km/h on Apr 7 04:00	Hours of Missing Data: 7
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 99.0

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	7	5	6	2	4	3	4	3	7	5	4	5	5	5	4	5	4	4	2	2	1	2	1	1	7
2-Apr	3	2	2	2	2	2	2	2	3	2	3	2	3	2	3	4	4	4	2	3	2	1	1	3	4
3-Apr	3	3	3	3	2	6	3	4	5	1	3	2	3	3	2	2	3	3	3	2	2	2	2	2	6
4-Apr	2	2	2	1	2	3	5	UO	4	3	3	3	1	3	3	4	3	3	2	2	2	2	1	2	5
5-Apr	1	2	2	3	2	1	1	2	2	1	2	3	2	2	2	1	1	1	2	2	1	1	1	1	3
6-Apr	1	2	2	2	3	UO	UO	UO	2	2	2	2	3	2	2	2	2	2	1	1	1	1	2	1	3
7-Apr	1	1	1	1	1	1	1	2	3	3	3	3	3	4	3	3	3	3	3	2	2	2	2	2	4
8-Apr	2	2	2	1	2	2	2	3	2	1	2	2	3	4	5	5	4	2	UO	UO	2	2	2	2	5
9-Apr	1	1	2	1	2	2	1	2	2	2	5	5	4	5	6	4	4	4	4	3	3	3	3	2	6
10-Apr	2	2	1	1	4	3	4	3	5	5	5	2	3	4	5	5	4	3	3	2	1	1	1	2	5
11-Apr	1	1	1	1	1	1	2	2	2	2	3	3	4	4	4	4	4	3	3	4	4	4	2	2	4
12-Apr	3	2	2	2	2	2	3	4	4	4	4	4	5	4	3	2	3	2	3	3	4	4	4	3	5
13-Apr	2	2	2	3	4	5	4	4	4	4	6	6	6	6	6	5	5	4	4	3	3	1	1	1	6
14-Apr	3	1	1	2	1	3	2	2	2	1	2	3	4	4	3	2	3	2	2	1	1	1	1	2	4
15-Apr	2	1	1	1	1	2	4	3	2	1	1	4	2	4	4	3	3	3	3	3	3	2	2	2	4
16-Apr	3	4	5	4	4	4	5	5	5	5	6	6	6	7	7	6	5	4	5	4	4	4	3	4	7
17-Apr	4	4	4	4	4	3	4	4	5	4	4	6	6	6	6	6	6	5	5	3	3	2	1	1	6
18-Apr	1	1	2	2	3	3	3	4	4	4	5	5	5	5	6	5	5	4	4	3	1	1	1	1	6
19-Apr	1	1	1	1	1	1	2	1	2	1	1	3	2	2	2	3	3	3	3	2	2	3	3	3	3
20-Apr	3	3	1	2	3	2	1	1	3	3	3	3	3	4	4	4	3	3	2	2	1	2	1	3	4
21-Apr	4	3	2	3	2	2	1	2	2	2	3	5	4	5	4	3	2	2	2	2	1	2	1	2	5
22-Apr	2	1	1	1	1	1	1	1	1	2	3	4	5	3	3	4	4	4	4	3	1	2	2	1	5
23-Apr	2	1	1	1	UO	1	1	1	2	1	2	2	2	2	2	3	3	5	4	3	2	2	2	2	5
24-Apr	1	1	2	1	1	1	1	1	2	5	4	3	4	4	5	5	5	5	5	4	5	5	4	3	5
25-Apr	4	4	5	4	3	4	3	3	3	4	5	5	5	5	5	7	9	7	6	4	5	6	1	3	9
26-Apr	3	4	4	5	3	4	6	6	5	5	4	3	4	4	5	5	4	4	2	3	2	4	4	4	6
27-Apr	4	2	3	4	2	2	1	2	3	4	4	5	5	7	5	5	5	5	5	3	3	3	4	2	7
28-Apr	3	2	2	2	1	1	8	5	3	3	3	4	3	3	3	4	3	3	3	3	4	5	5	2	8
29-Apr	3	2	1	2	1	1	1	2	3	2	3	3	3	4	5	4	5	4	4	3	3	4	3	3	5
30-Apr	3	3	4	4	4	5	5	5	5	4	4	3	4	3	4	3	4	4	4	3	3	4	4	3	5
	7	5	6	5	4	6	8	6	7	5	6	6	6	7	7	7	9	7	6	4	5	6	5	4	

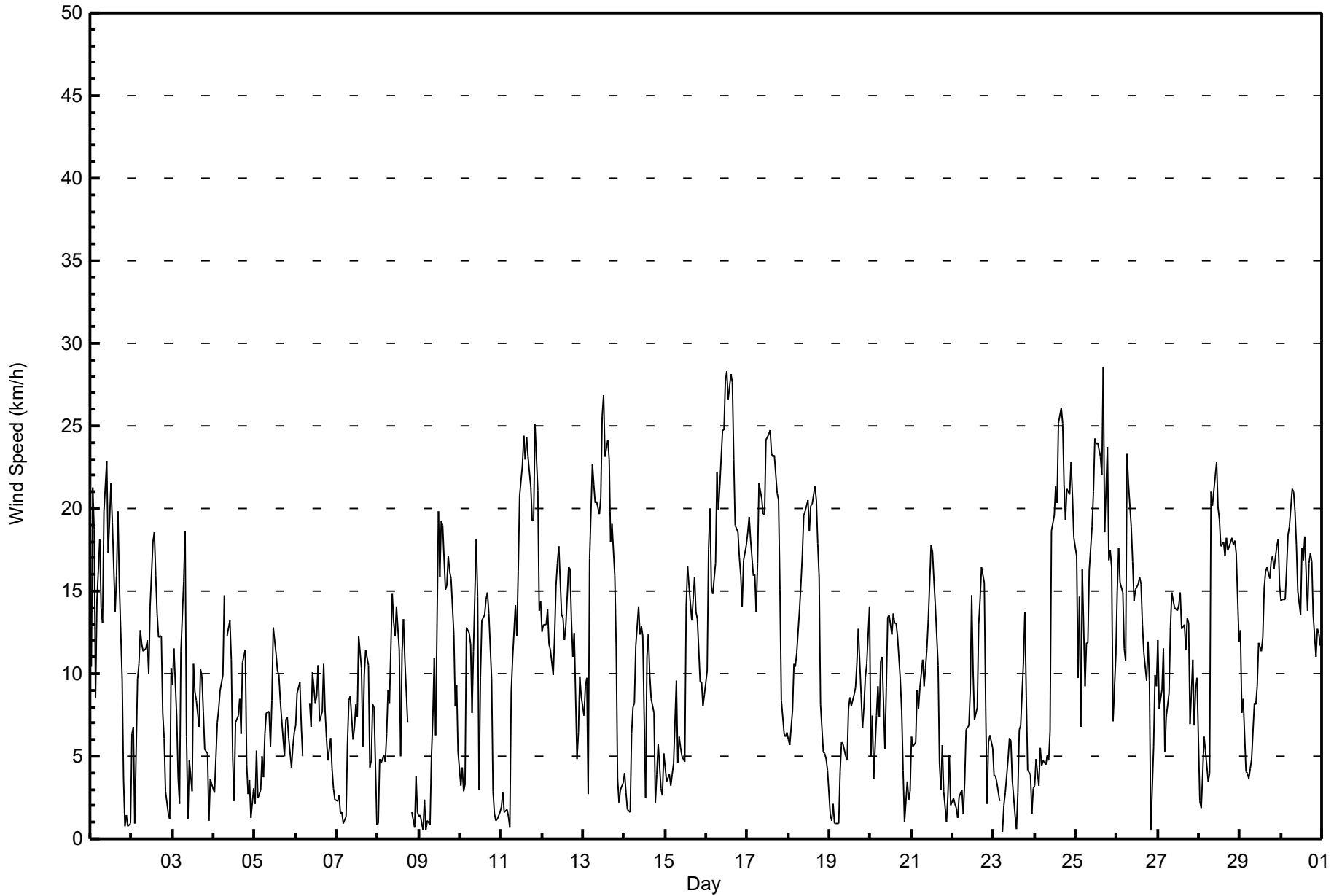
Diurnal Maximum

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Lower Camp - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Lower Camp - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	184	25.81	25.81
6 - 11	216	30.29	56.10
12 - 19	227	31.84	87.94
20 - 28	85	11.92	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 713

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Lower Camp - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	8	2	8	4	11	18	7	4	1	4	6	13	31	45	17	5	184
6 - 11	9	6	2	1	3	48	17	2	2	7	10	13	13	28	35	20	216
12 - 19	17	10	0	1	4	59	11	4	2	1	13	18	14	10	15	48	227
20 - 28	16	0	0	0	5	20	0	0	0	0	2	7	12	3	2	18	85
29 - 38	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>50</b>	<b>18</b>	<b>10</b>	<b>6</b>	<b>23</b>	<b>145</b>	<b>35</b>	<b>10</b>	<b>5</b>	<b>12</b>	<b>31</b>	<b>52</b>	<b>70</b>	<b>86</b>	<b>69</b>	<b>91</b>	<b>713</b>

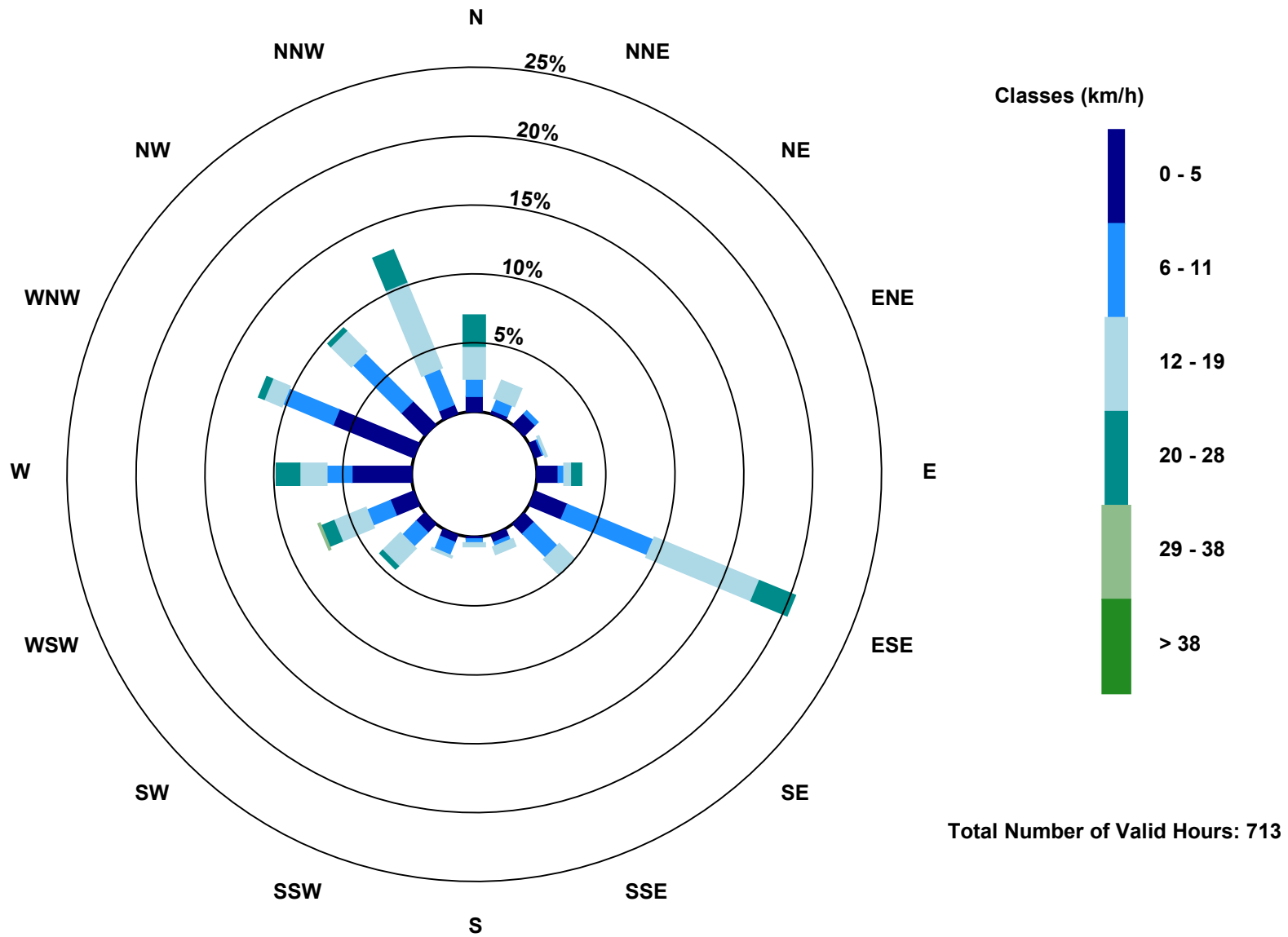
Total Number of Valid Hours: 713

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Lower Camp





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

**Wind Direction (WD) - deg**  
**Lower Camp - April 2024**

Direction of Maximum Speed: 237 deg on Apr 25 17:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 340.8 deg on Apr 16	Hours of Data: 713
Direction of Minimum Speed: 265 deg on Apr 23 06:00	Hours of Missing Data: 7
Direction of Minimum Daily Speed Average: 1.8 deg on Apr 14	Percent Operational Time: 99.0
Monthly Average Direction: 330.0 deg	

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-Apr	220	275	276	255	254	235	237	273	274	280	293	282	276	275	277	295	287	296	286	245	257	109	132	106	272.4
2-Apr	111	123	100	114	121	123	121	121	125	120	123	122	120	117	122	133	135	129	127	140	112	297	195	116	123.0
3-Apr	114	117	103	110	156	280	267	274	271	133	211	284	239	306	311	319	14	21	9	340	270	208	280	254	293.2
4-Apr	310	294	305	303	310	298	299	UO	336	329	321	51	303	346	359	18	334	336	345	304	301	59	35	24	329.0
5-Apr	357	43	318	41	42	351	18	358	348	340	312	300	323	316	303	295	307	306	303	297	300	287	279	285	320.0
6-Apr	293	300	306	317	359	UO	UO	UO	329	324	330	341	351	331	322	316	334	341	293	290	275	283	280	284	318.7
7-Apr	260	113	248	288	254	95	115	119	126	146	143	137	230	252	258	242	241	242	232	235	220	218	213	317	210.3
8-Apr	120	114	118	130	119	118	120	114	120	115	111	108	108	258	192	224	241	211	UO	UO	111	321	293	226	140.3
9-Apr	115	107	137	127	92	105	237	106	114	116	198	243	245	249	233	247	243	246	238	239	230	261	240	277	234.3
10-Apr	275	278	280	290	276	273	292	294	281	280	308	323	342	336	328	356	21	17	26	24	242	230	288	318	317.4
11-Apr	287	288	291	302	288	112	122	120	110	116	114	110	106	109	108	108	112	113	118	120	115	115	117	121	113.4
12-Apr	130	121	121	119	121	121	137	147	125	122	122	128	147	140	123	115	119	118	126	114	141	116	119	112	124.7
13-Apr	114	126	125	130	229	235	241	262	275	280	284	269	274	266	273	270	274	276	280	267	221	7	55	65	263.3
14-Apr	270	316	107	103	115	113	115	114	111	110	114	113	236	238	256	267	251	261	247	262	278	281	312	309	170.6
15-Apr	280	282	269	279	297	291	307	311	305	292	288	320	109	56	33	18	28	30	19	1	325	310	311	316	352.5
16-Apr	320	346	342	330	324	327	330	329	332	337	340	339	343	343	347	349	347	359	359	354	350	328	339	344	340.8
17-Apr	338	341	338	338	338	333	338	351	346	358	346	355	348	348	354	356	358	359	358	344	326	312	313	316	346.4
18-Apr	303	288	292	315	317	321	335	330	335	335	346	352	346	354	359	7	358	3	8	347	295	289	272	250	340.4
19-Apr	290	280	283	285	320	348	94	116	116	92	46	262	294	291	260	230	221	213	208	193	210	242	247	235	232.5
20-Apr	227	238	167	124	119	129	115	118	163	233	244	246	232	239	242	230	235	228	220	194	182	96	89	90	207.4
21-Apr	134	135	137	125	115	114	120	118	118	116	105	110	108	112	108	108	108	157	259	266	280	284	287	268	118.0
22-Apr	286	292	282	280	285	279	283	290	296	298	318	349	356	325	313	321	347	14	338	343	243	315	314	288	327.3
23-Apr	256	294	284	280	UO	265	289	312	294	298	300	329	57	336	349	305	336	359	12	352	285	273	315	289	321.4
24-Apr	289	272	263	266	266	276	286	302	327	98	117	119	100	98	102	105	99	96	108	97	108	112	110	114	105.9
25-Apr	120	151	233	190	231	236	246	247	236	236	238	242	243	239	236	245	237	257	295	280	295	315	282	289	247.6
26-Apr	285	297	306	309	306	299	304	307	323	325	325	335	311	322	322	343	338	13	33	41	82	118	96	108	324.0
27-Apr	115	114	116	127	94	112	115	113	111	115	121	132	134	135	167	175	179	182	158	127	107	108	110	99	129.8
28-Apr	70	354	39	277	264	268	85	104	104	109	110	109	112	109	120	116	117	115	108	97	110	108	97	89	107.5
29-Apr	99	70	53	358	315	301	277	359	6	355	339	341	338	3	357	5	9	2	356	345	348	354	350	345	357.9
30-Apr	345	341	333	340	344	345	348	349	355	347	330	339	343	340	342	343	336	333	330	321	318	327	324	333	339.0

331.9 321.0 312.9 324.1 294.3 282.3 302.2 343.5 351.8 345.7 341.4 340.1 327.6 321.9 319.3 330.7 332.4 349.0 348.6 348.4 309.0 345.3 343.7 359.9

Diurnal Average

UO - Unstable Operation

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



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

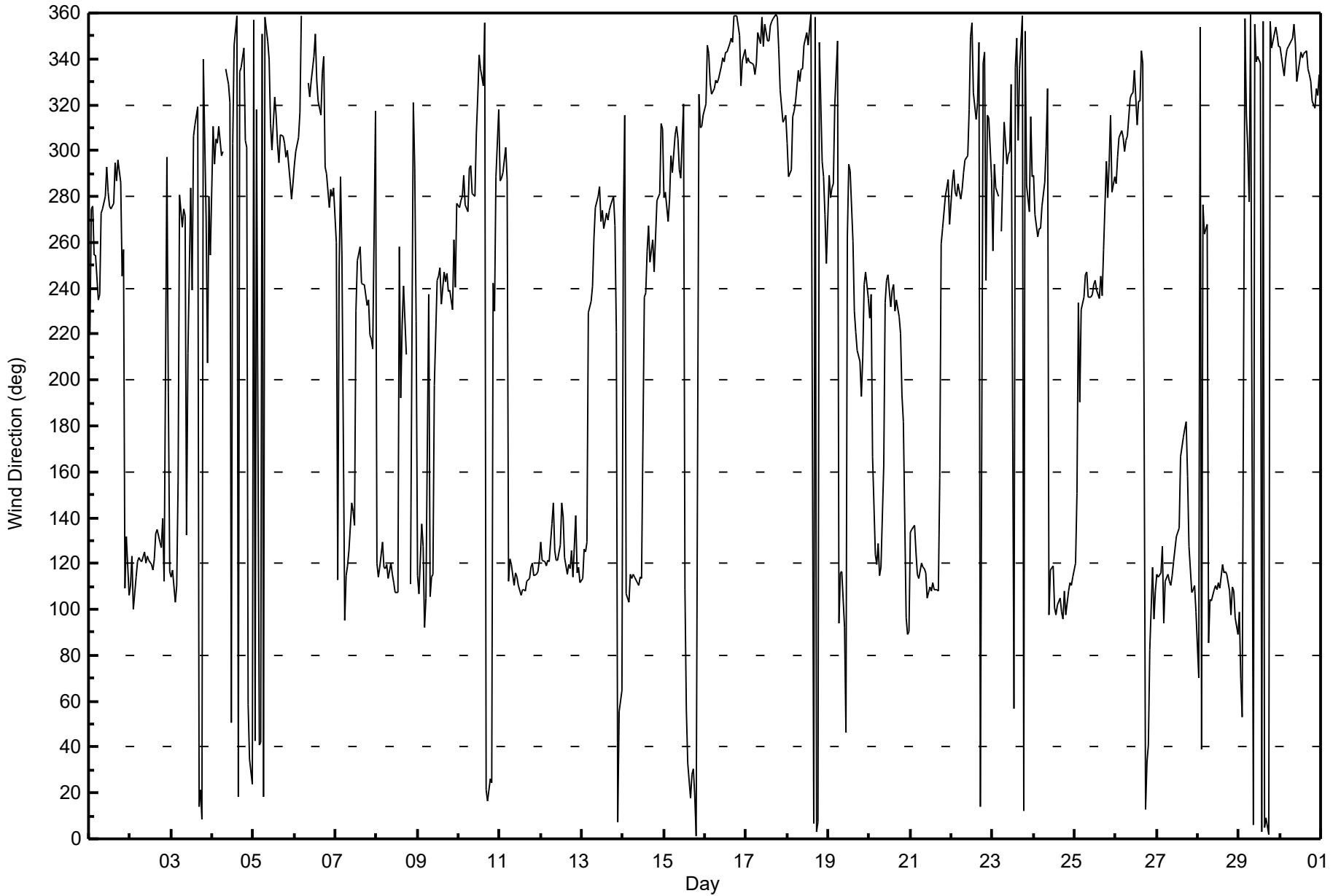
**Wind Direction (WD) - deg**  
**Lower Camp - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 104 deg on Apr 23 14:00																	Hours in Service: 720 Hours of Data: 713 Hours of Missing Data: 7 Hours of Calibration: 0 Percent Operational Time: 99.0								
Minimum Value: 4 deg on Apr 8 09:00																									
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 10 Q <sub>1</sub> = 14 Median = 19 Q <sub>3</sub> = 31 P <sub>90</sub> = 61 P <sub>99</sub> = 92																									
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-Apr	48	12	11	15	12	13	14	18	12	13	16	16	12	17	26	19	12	13	12	53	59	88	83	87	88
2-Apr	17	16	101	13	15	12	11	12	12	12	22	10	9	6	10	25	22	17	13	56	90	73	76	8	101
3-Apr	23	17	30	76	83	35	12	12	22	78	55	72	37	22	17	21	17	19	29	30	24	92	44	30	92
4-Apr	37	23	16	13	16	13	25	UO	19	18	22	71	76	43	39	35	50	14	13	41	58	57	92	80	92
5-Apr	63	33	55	61	32	44	12	14	16	18	18	11	18	18	14	9	11	18	17	12	13	16	13	9	63
6-Apr	14	11	19	18	39	UO	UO	UO	23	22	16	19	25	16	22	17	17	17	11	14	10	11	10	24	39
7-Apr	71	67	32	64	80	81	11	12	26	53	46	43	57	22	22	68	25	22	14	22	21	14	20	88	88
8-Apr	99	46	47	17	45	28	10	17	4	5	5	6	14	63	39	35	26	20	UO	UO	93	88	46	89	99
9-Apr	90	78	85	52	87	89	78	46	19	4	65	14	17	14	21	14	13	14	14	13	12	29	18	38	90
10-Apr	43	22	33	29	13	16	14	18	15	14	17	50	14	20	22	24	18	23	23	73	59	52	34	47	73
11-Apr	23	31	32	37	30	92	10	7	5	11	8	6	10	9	8	8	6	6	9	11	9	8	10	10	92
12-Apr	18	9	10	7	10	10	24	27	21	16	14	22	29	30	15	7	9	9	15	15	65	70	26	25	70
13-Apr	33	13	27	67	15	13	12	13	12	13	17	15	14	15	15	15	14	12	11	16	79	76	55	56	79
14-Apr	75	46	84	101	11	17	17	6	7	7	7	8	93	30	23	25	28	13	69	40	22	44	60	32	101
15-Apr	29	19	22	35	24	29	22	72	22	23	25	65	20	18	20	21	17	17	19	23	22	15	16	16	72
16-Apr	19	14	15	18	18	18	17	17	17	15	16	15	16	18	18	17	16	17	17	16	18	17	15	14	19
17-Apr	16	16	17	16	16	17	18	15	16	17	20	19	19	19	23	21	22	18	18	14	17	15	15	16	23
18-Apr	18	20	13	16	18	19	17	18	17	17	18	20	24	23	23	19	21	21	17	28	15	13	16	19	28
19-Apr	33	39	35	45	74	88	56	11	15	38	26	59	21	28	30	33	24	19	19	21	20	18	18	12	88
20-Apr	66	41	50	21	24	28	6	6	66	29	16	21	20	18	20	24	18	21	17	24	97	54	76	76	97
21-Apr	77	72	46	20	22	11	6	8	11	8	12	10	11	12	16	26	42	69	12	22	31	35	19	58	77
22-Apr	33	34	22	35	10	11	20	19	20	18	24	24	44	48	32	24	23	21	17	18	31	36	34	21	48
23-Apr	24	15	19	16	UO	83	16	29	19	24	34	56	92	104	74	27	21	27	15	29	35	36	84	46	104
24-Apr	42	20	63	16	22	19	17	20	31	62	8	9	17	14	13	10	14	13	13	12	13	9	12	8	63
25-Apr	12	37	22	43	11	31	22	19	16	16	15	14	15	17	15	14	14	25	14	22	27	17	13	10	43
26-Apr	12	12	15	16	19	14	13	17	21	23	27	20	26	25	23	22	28	39	21	14	88	42	24	32	88
27-Apr	18	20	21	28	38	20	10	9	12	15	22	33	35	33	36	37	34	32	32	36	17	40	35	16	40
28-Apr	83	79	61	24	13	19	80	8	7	7	7	8	7	10	10	9	8	7	8	10	9	10	10	9	83
29-Apr	19	16	17	49	24	34	16	29	22	22	17	18	26	31	27	21	23	21	17	14	13	15	14	13	49
30-Apr	15	17	18	16	16	17	17	16	16	17	18	18	15	17	17	19	16	16	17	18	19	21	22	19	22
																	Diurnal Maximum								
UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Lower Camp - April 2024**





## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS13 FORT MCKAY SOUTH APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
 APRIL 2024

MONTHLY SUMMARY

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	684	36	36	100	26.2	0	5.9	0
TRS(ppb) Average	685	35	35	100	2.9	0	1.3	0
THC(ppm) Average	684	36	36	100	3.2	-	2.3	-
NMHC(ppm) Average	684	36	36	100	0.564	-	0.08	-
CH4(ppm) Average	684	36	36	100	2.8	-	2.3	-
O3(ppb) Average	686	34	34	100	50	0	37.5	-
NO2(ppb) Average	685	35	35	100	37.3	0	13.2	-
NO(ppb) Average	685	35	35	100	53.2	-	8.7	-
NOX(ppb) Average	685	35	35	100	75.2	-	20.2	-
PM2.5(ug/m3) Average	687	2	33	95.69	73.6	0	14.3	0
ET(C) Average	720	0	0	100	19.1	-	10	-
RH(%) Average	720	0	0	100	98.3	-	90.2	-
WS(km/h) Average	701	0	19	97.36	30	-	22	-
WD(deg) Average	701	0	19	97.36	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2(ppb) Average	684	1.07	2.6	-	0	0.2	0.3	0.4	0.6	1.8	26.2
TRS(ppb) Average	685	0.56	0.3	-	0.3	0.4	0.4	0.5	0.5	0.8	2.9
THC(ppm) Average	684	2.18	0.1	-	2	2.1	2.1	2.1	2.2	2.4	3.2
NMHC(ppm) Average	684	0.017	0.065	-	0	0	0	0	0	0	0.564
CH4(ppm) Average	684	2.16	0.1	-	2	2.1	2.1	2.1	2.2	2.3	2.8
O3(ppb) Average	686	27.55	13	-	1.6	8.5	17.5	28.2	39.2	43.9	50
NO2(ppb) Average	685	6.43	6.6	-	0	0.4	1.7	4.1	8.9	15.7	37.3
NO(ppb) Average	685	1.79	5.2	-	0	0	0	0.2	1.2	4	53.2
NOX(ppb) Average	685	8.22	10.3	-	0	0.5	1.9	4.8	10.6	19.6	75.2
PM2.5(ug/m3) Average	687	5.09	5.1	-	0.2	1.4	2.6	4	6	9.3	73.6
Temperature 2 m (C) Average	720	4.8	6.4	-	-12.4	-2.9	0	3.8	9.5	14.1	19.1
Relative Humidity (%) Average	720	57.51	24.7	-	9.7	23.8	35	60.3	77.7	91	98.3
Wind Speed 10 m (km/h) Average	701	9.9	6	-	0	2	5	9	14	18	30
Wind Direction 10 m (deg) Average	701	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
APRIL 2024

OPERATIONAL NOTES

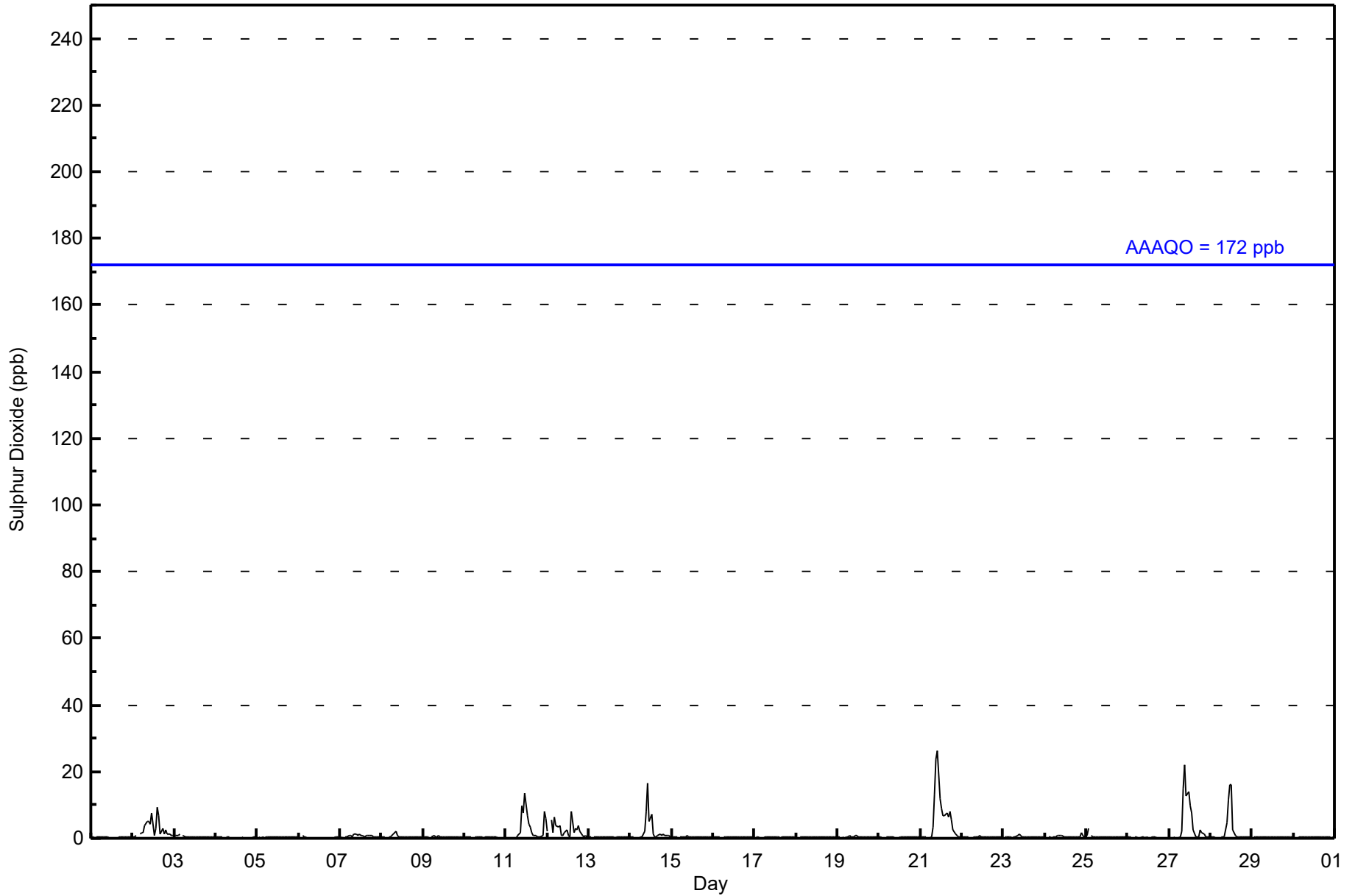
Parameter	Period Start	Period End	Duration (Hours)	Notes
PM2.5	18 Apr 2024 04:00	19 Apr 2024 09:00	30	Unstable Operation - inconsistent response
PM2.5	19 Apr 2024 10:00	19 Apr 2024 10:00	1	Maintenance - clean optical chamber
Wind Speed, Wind Direction	02 Apr 2024 04:00	02 Apr 2024 05:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	06 Apr 2024 01:00	06 Apr 2024 09:00	9	Flat line in sensor output signal
Wind Speed, Wind Direction	06 Apr 2024 23:00	06 Apr 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	07 Apr 2024 01:00	07 Apr 2024 02:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	09 Apr 2024 04:00	09 Apr 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Apr 2024 07:00	11 Apr 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Apr 2024 06:00	21 Apr 2024 07:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Apr 2024 04:00	29 Apr 2024 04:00	1	Flat line in sensor output signal





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort McKay South - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	671	98.10	98.10
11 - 20	10	1.46	99.56
21 - 60	3	0.44	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	137	80	12	2	2	8	48	47	50	37	39	60	21	28	31	52	654
11 - 20	0	0	0	0	0	1	4	4	1	0	0	0	0	0	0	0	10
21 - 60	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
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>	137	80	12	2	2	9	53	53	51	37	39	60	21	28	31	52	667

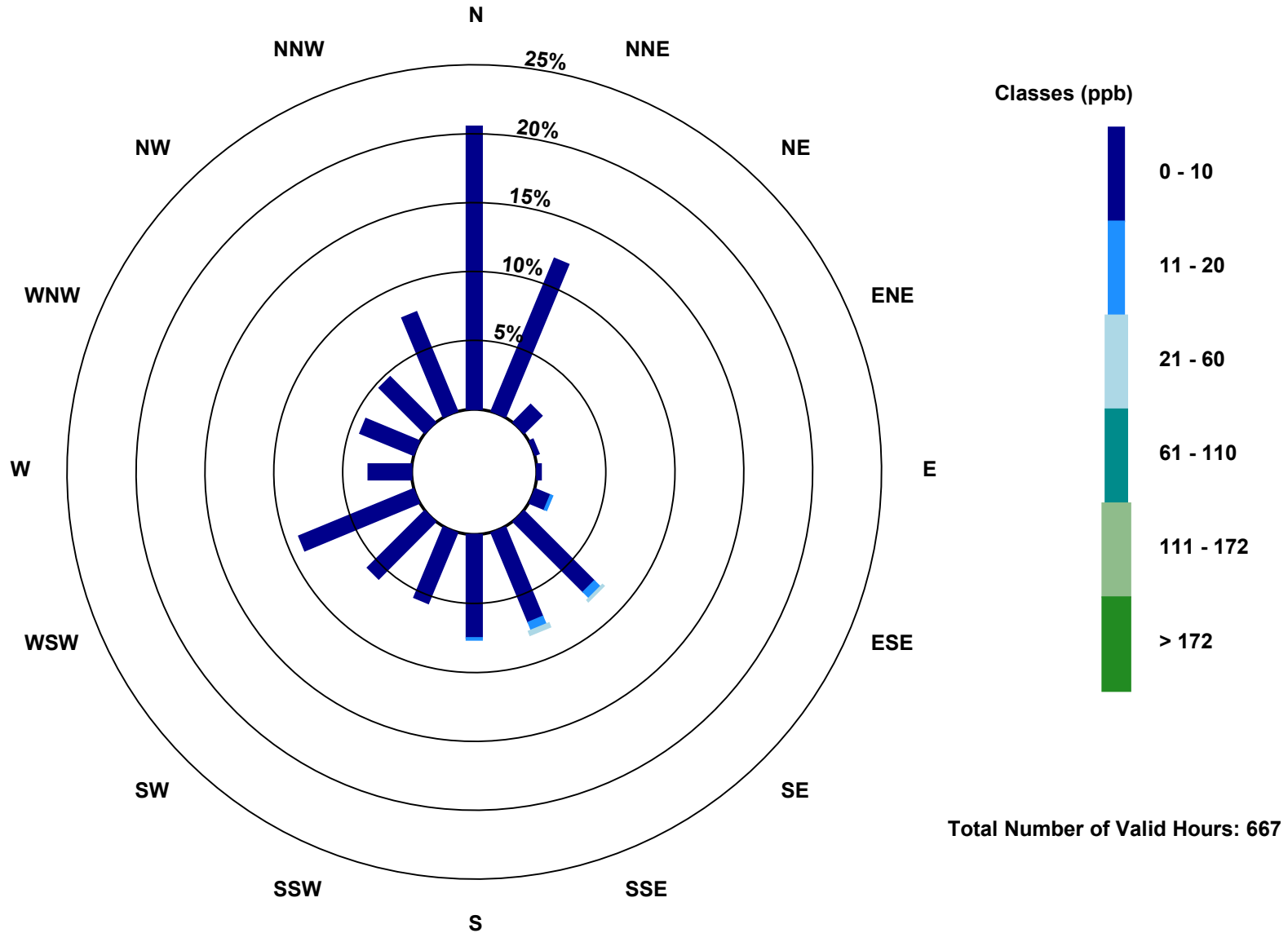
Total Number of Valid Hours: 667

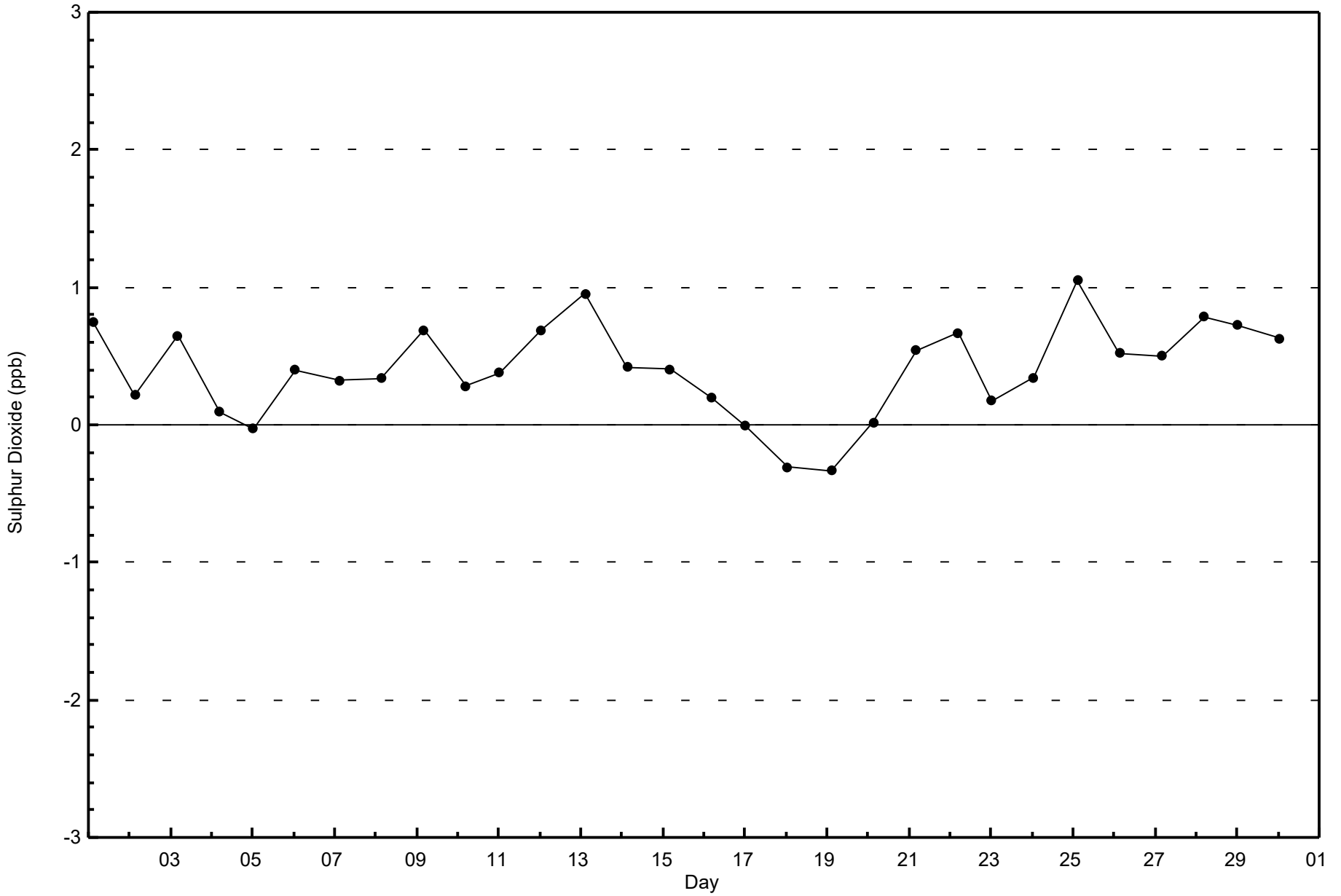
Total Number of Hours: 720



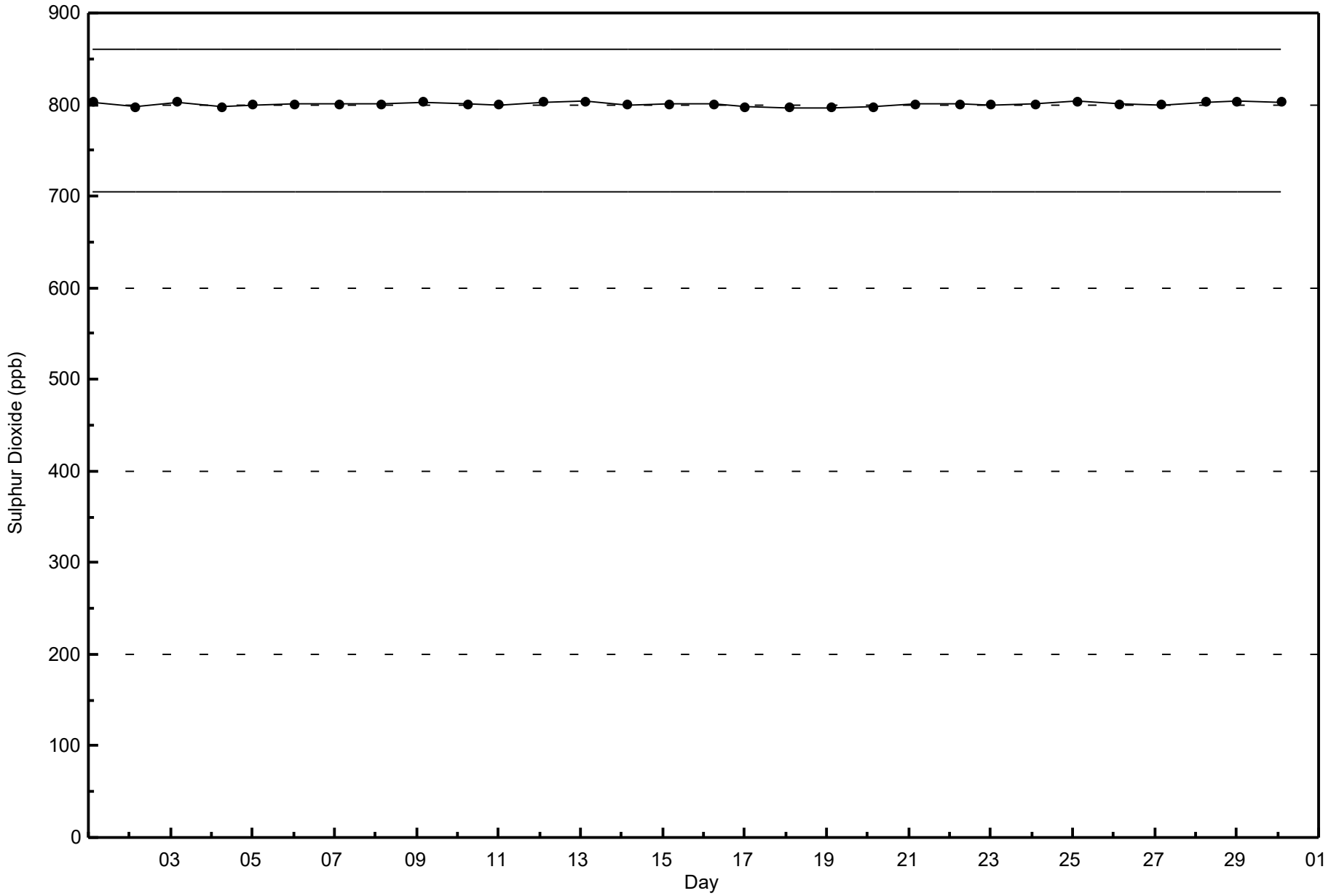
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

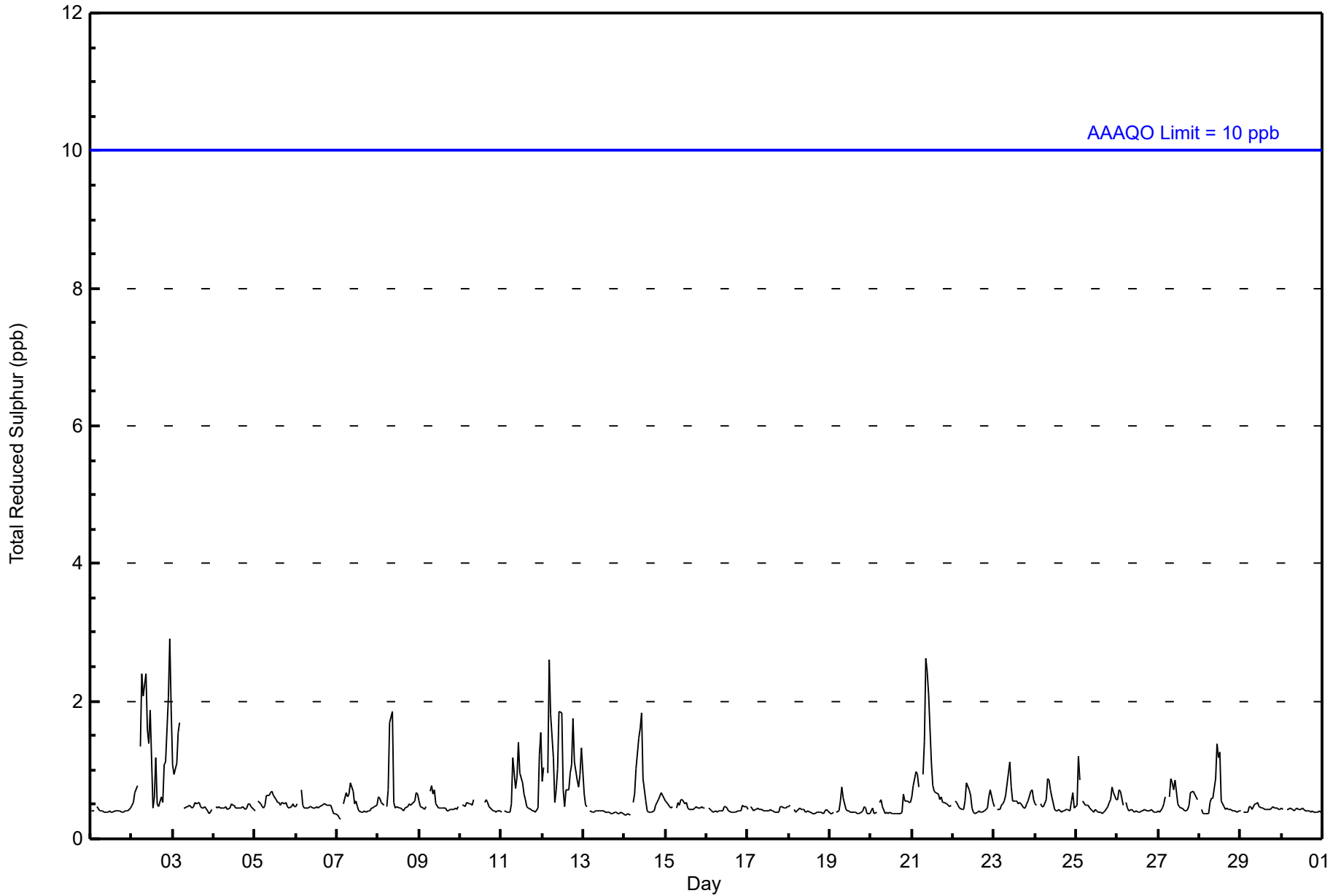














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	682	99.56	99.56
3 - 4	3	0.44	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: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	135	84	11	4	2	10	51	52	48	39	38	57	21	31	33	50	666
3 - 4	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	3
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>	135	84	11	4	2	10	52	52	49	39	39	57	21	31	33	50	669

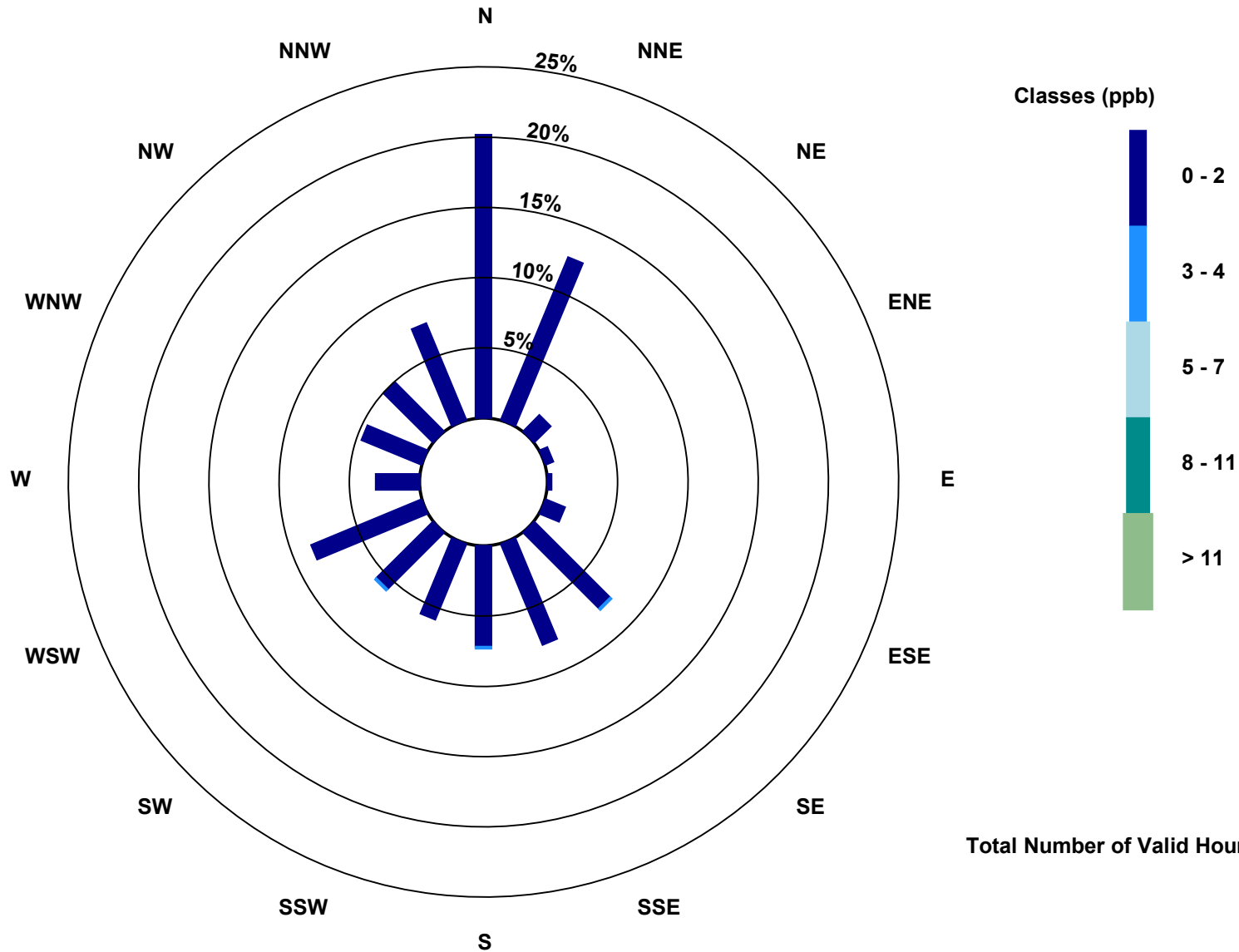
Total Number of Valid Hours: 669

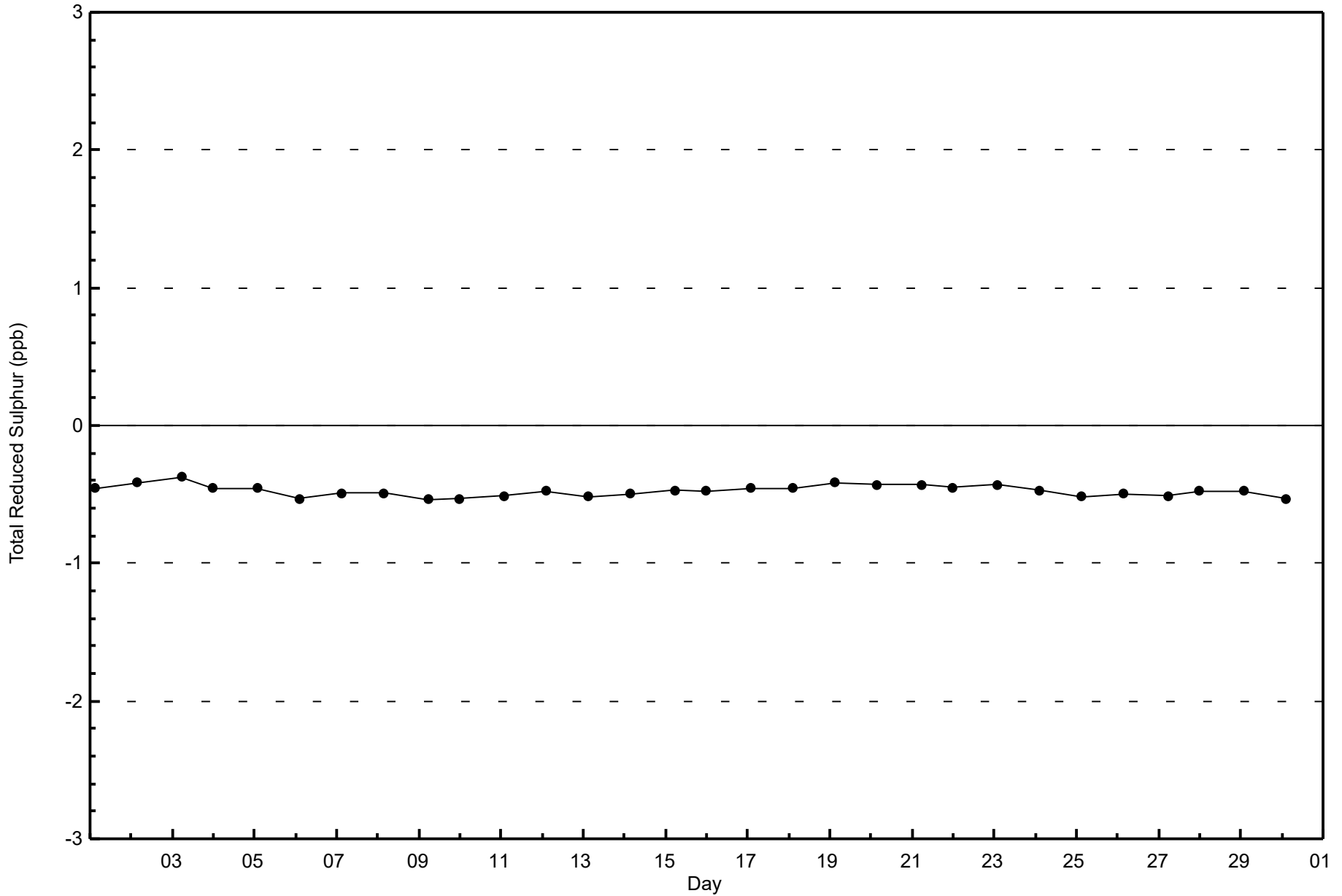
Total Number of Hours: 720

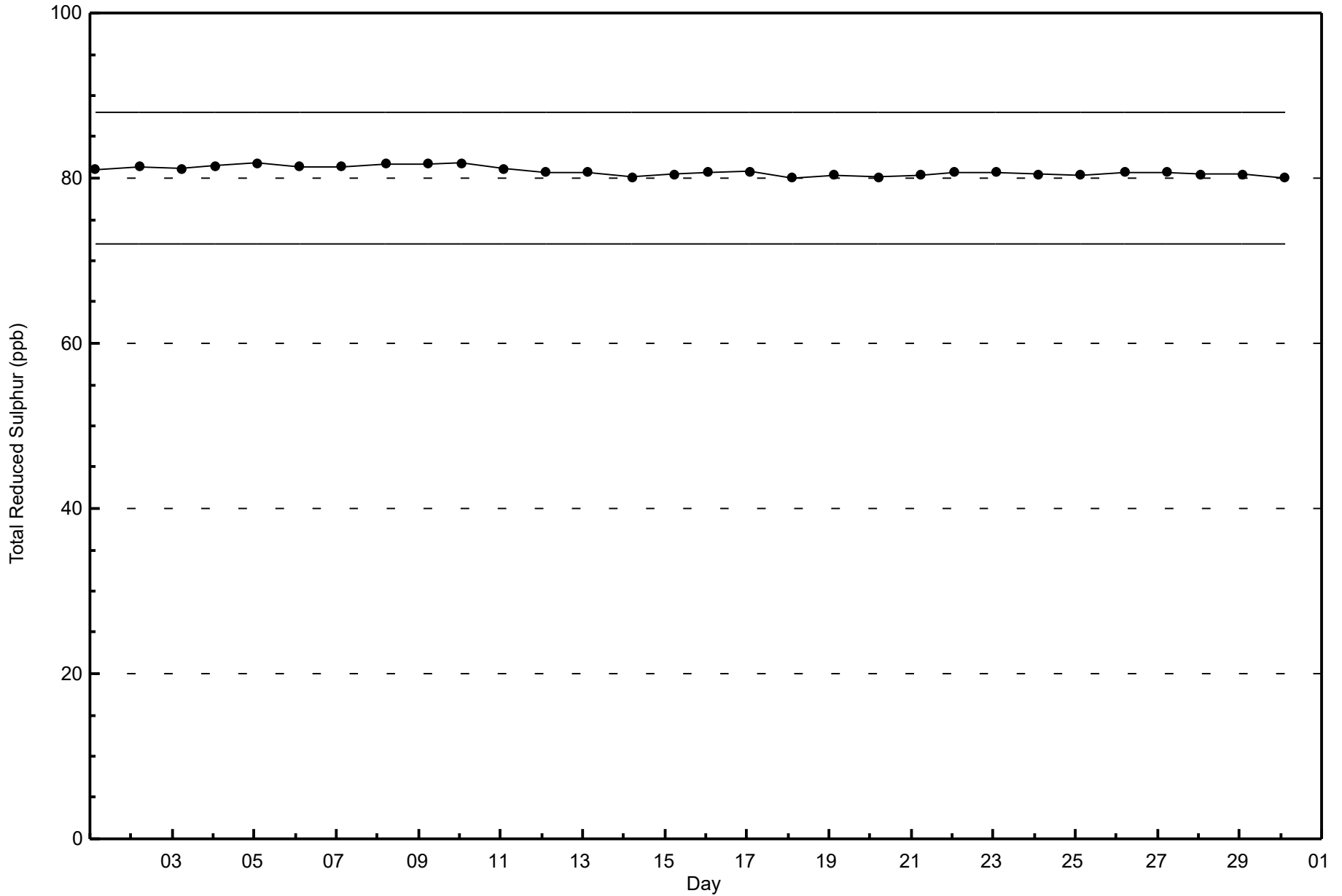


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Fort McKay South











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

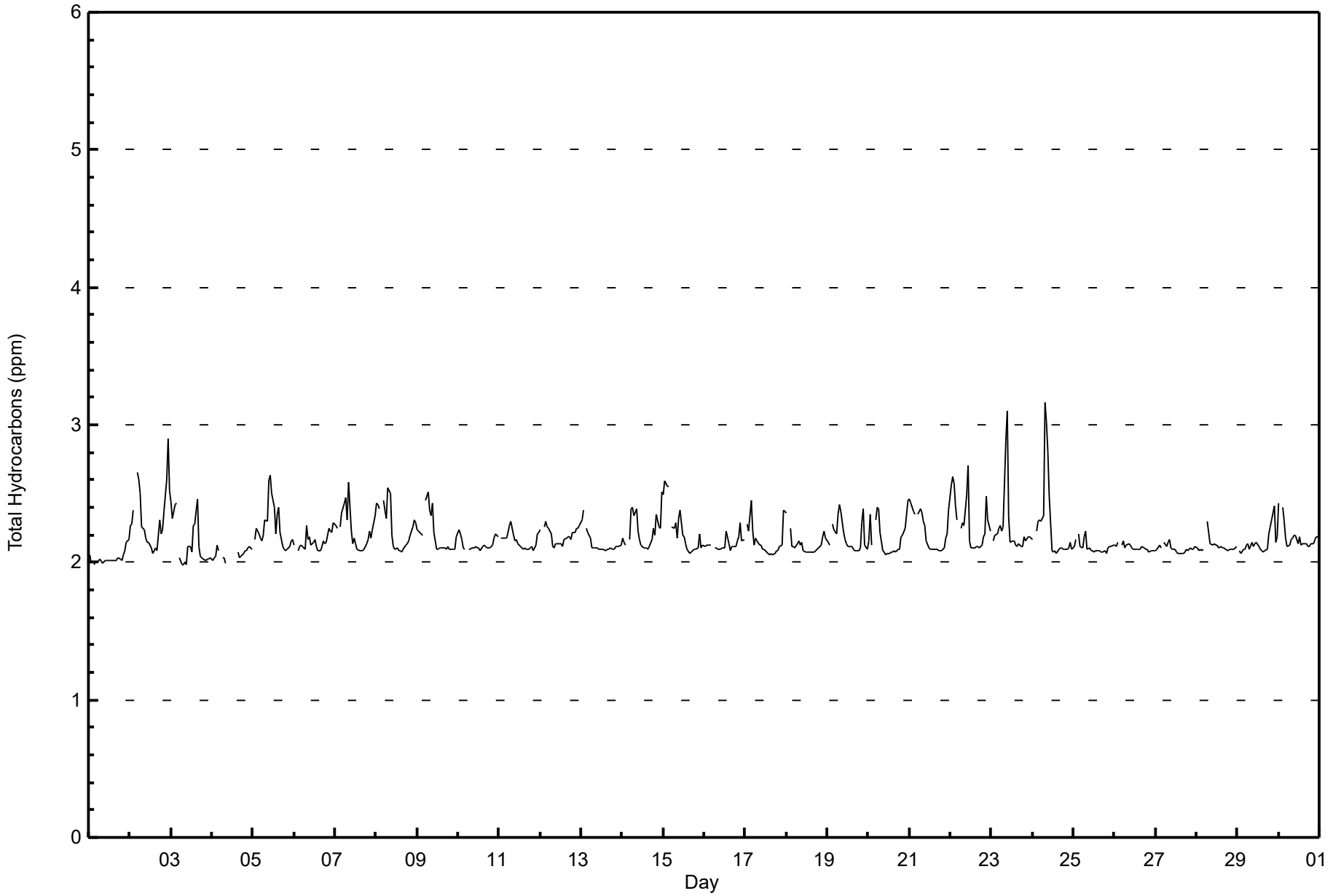
**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - April 2024**

Maximum Value: 3.2 ppm on Apr 24 08:00		Maximum Daily Average: 2.3 ppm on Apr 2		Hours in Service: 720																																													
Minimum Value: 2.0 ppm on Apr 3 08:00		Minimum Daily Average: 2.0 ppm on Apr 1		Hours of Data: 684																																													
Maximum Diurnal Average: 2.2 ppm at hour 8		Minimum Diurnal Average: 2.1 ppm at hour 17		Hours of Missing Data: 36																																													
Monthly Average: 2.18 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.7		Hours of Calibration: 36																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	2.1	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	2.1	2.1	2.1	2.2	2.0	2.2																								
2-Apr	2.3	2.3	2.4	Z	2.7	2.6	2.5	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.4	2.6	2.9	2.5	2.3	2.9																							
3-Apr	2.4	2.3	2.4	2.4	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.3	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5																							
4-Apr	2.0	2.0	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.0	C	C	C	C	C	C	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
5-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.6	2.6	2.5	2.4	2.2	2.3	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.6																							
6-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.3																							
7-Apr	2.3	2.3	Z	2.3	2.4	2.4	2.5	2.3	2.6	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.6																							
8-Apr	2.4	2.4	2.4	Z	2.5	2.4	2.3	2.5	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.5																							
9-Apr	2.2	2.2	2.2	2.2	Z	2.5	2.5	2.4	2.3	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5																							
10-Apr	2.2	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2																							
11-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3																							
12-Apr	2.2	Z	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3																							
13-Apr	2.3	2.4	Z	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																							
14-Apr	2.2	2.1	2.1	Z	2.2	2.4	2.4	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.4	2.3	2.2	2.5	2.2	2.5																							
15-Apr	2.5	2.6	2.6	2.6	Z	2.3	2.2	2.3	2.2	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.6																							
16-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.1	2.3																							
17-Apr	Z	2.3	2.2	2.5	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.4	2.2	2.5																							
18-Apr	2.4	Z	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.4																							
19-Apr	2.1	2.1	Z	2.3	2.2	2.2	2.4	2.4	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.1	2.1	2.2	2.4																							
20-Apr	2.2	2.4	2.1	Z	2.3	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.4	2.2	2.4																							
21-Apr	2.5	2.4	2.4	2.3	Z	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.2	2.5																							
22-Apr	2.6	2.6	2.6	2.4	2.3	Z	2.2	2.3	2.3	2.5	2.7	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.3	2.2	2.3	2.7																							
23-Apr	Z	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.9	3.1	2.3	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	3.1																							
24-Apr	2.2	Z	2.2	2.3	2.3	2.3	2.3	3.2	3.0	2.8	2.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.2																							
25-Apr	2.1	2.2	Z	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
26-Apr	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
27-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
28-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																							
29-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.1	2.2	2.1	2.4																							
30-Apr	2.4	Z	2.4	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.4																						
																								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	Diurnal Average		
																								2.6	2.6	2.6	2.6	2.7	2.6	2.5	3.2	3.0	3.1	2.7	2.5	2.4	2.3	2.3	2.5	2.2	2.3	2.3	2.3	2.4	2.6	2.9	2.5	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	38	5.56	5.56
2.1 - 3.0	644	94.15	99.71
3.1 - 10.0	2	0.29	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort McKay South - April 2024**

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	4	2	5	0	0	0	1	1	0	0	2	4	0	8	8	3	38
2.1 - 3.0	133	76	7	2	2	9	52	52	51	37	37	56	21	20	23	49	627
3.1 - 10.0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	137	80	12	2	2	9	53	53	51	37	39	60	21	28	31	52	667

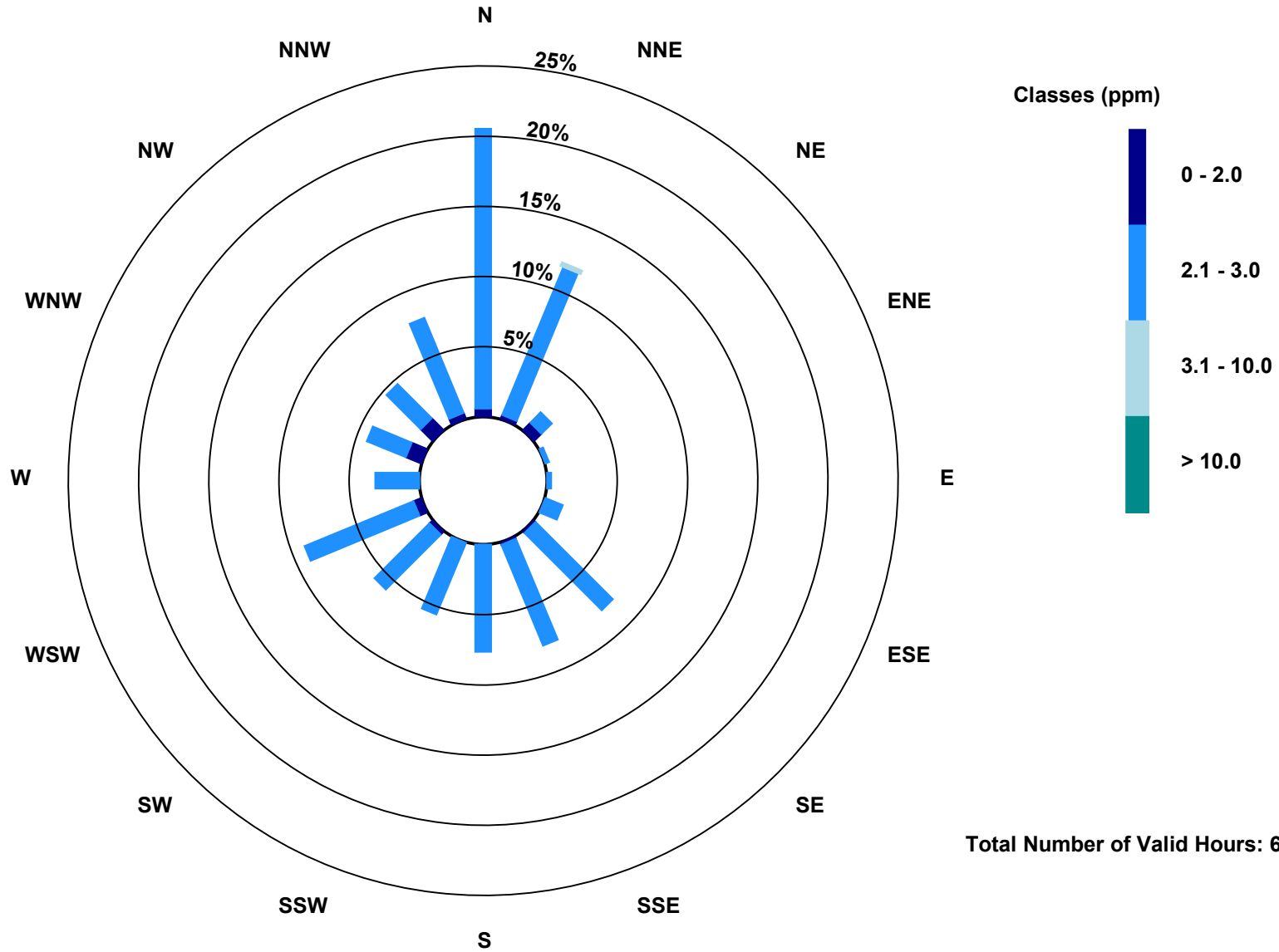
Total Number of Valid Hours: 667

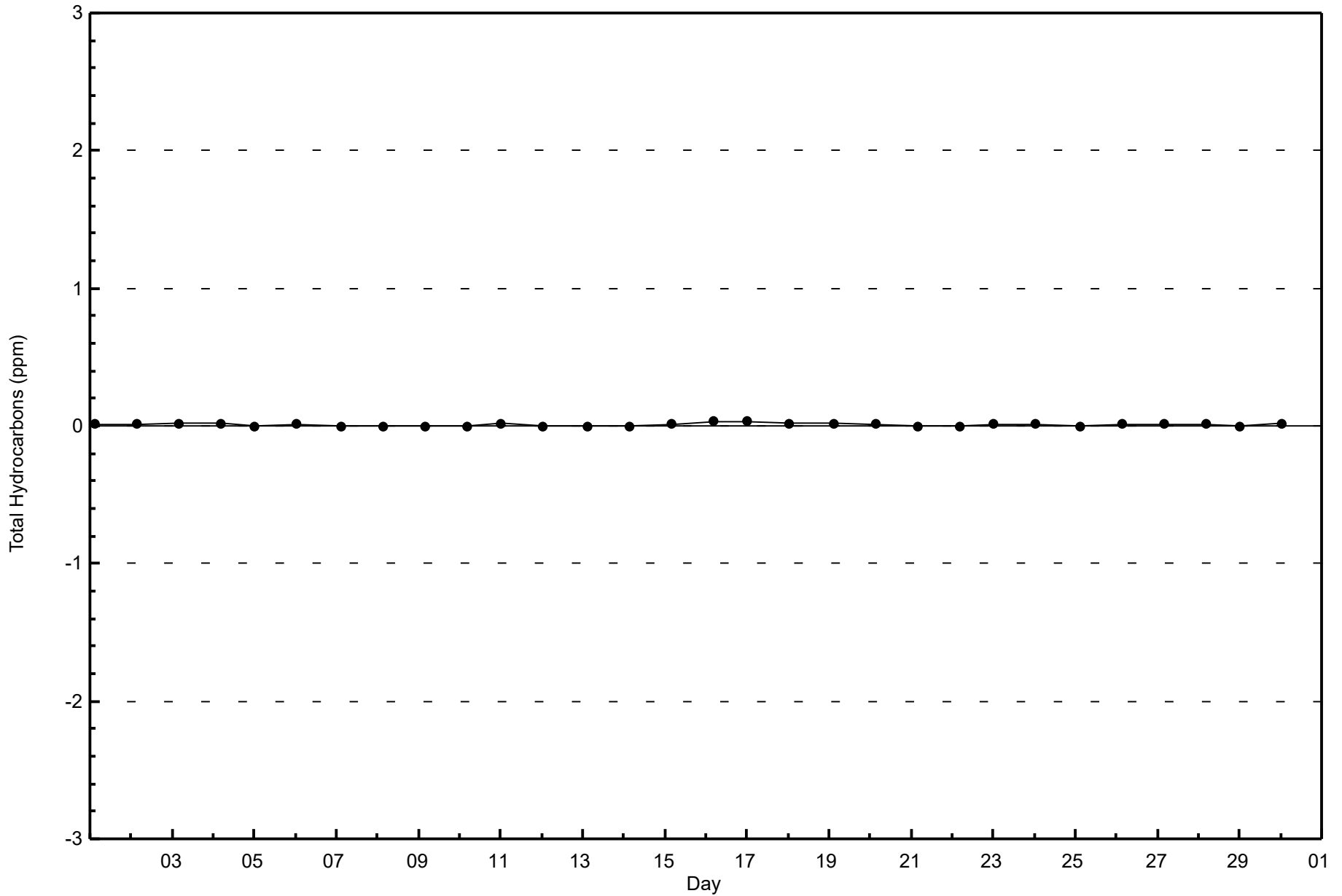
Total Number of Hours: 720

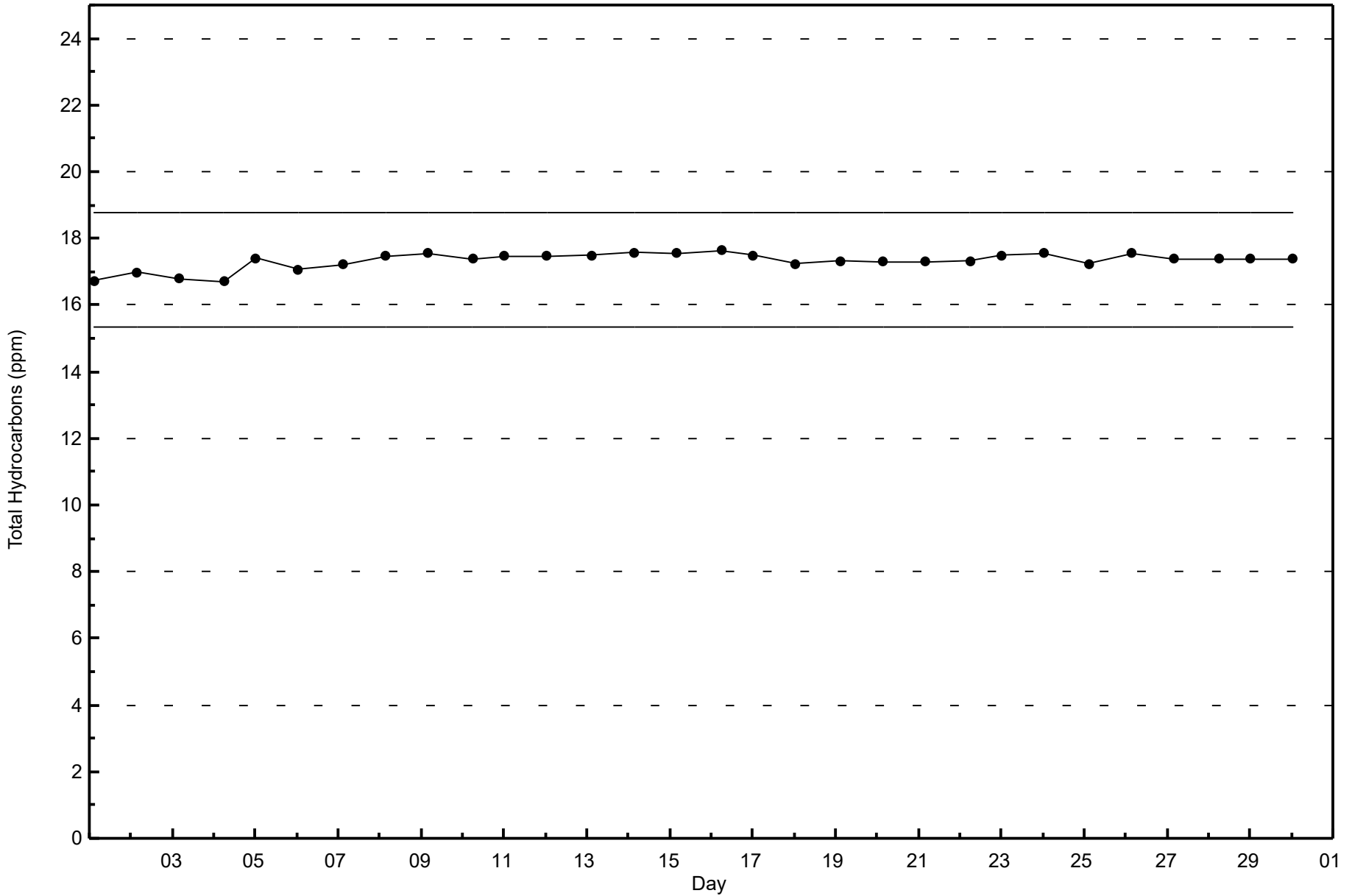


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Fort McKay South









Wood Buffalo Environmental Association

Summary of Hour Averages

Non Methane Hydrocarbons (NMHC) - ppm

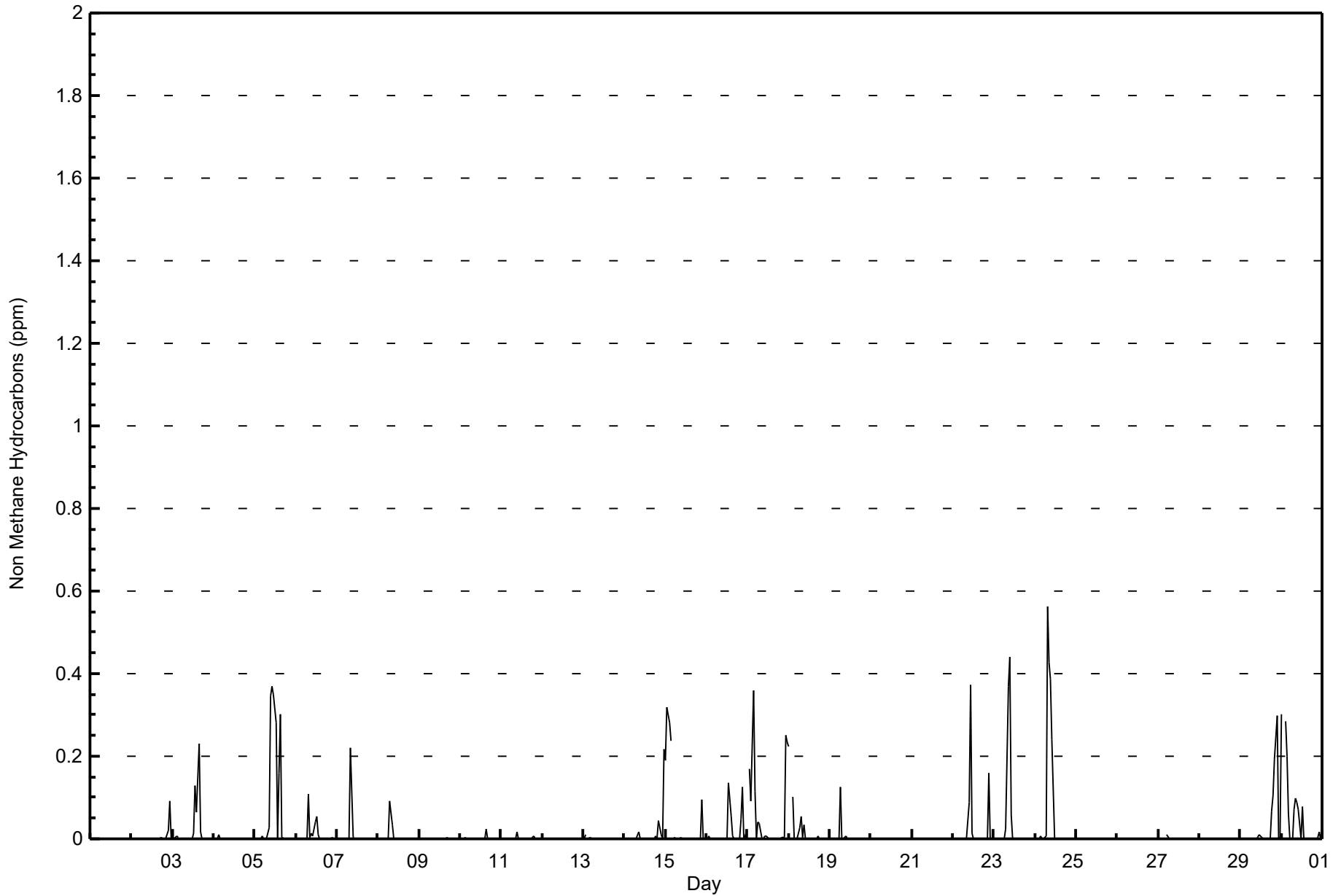
Fort McKay South - April 2024

Maximum Value: 0.564 ppm on Apr 24 08:00	Maximum Daily Average: 0.080 ppm on Apr 5	Hours in Service: 720
Minimum Value: 0.000 ppm on Apr 1 01:00	Minimum Daily Average: 0.000 ppm on Apr 1	Hours of Data: 684
Maximum Diurnal Average: 0.049 ppm at hour 10	Minimum Diurnal Average: 0.000 ppm at hour 18	Hours of Missing Data: 36
Monthly Average: 0.017 ppm	Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.0$ Median = 0.0 $Q_3 = 0.0$ $P_{90} = 0.0$ $P_{99} = 0.4$	Hours of Calibration: 36
		Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24													
1-Apr	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
2-Apr	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	0.005	0.000	0.000	0.000	0.019	0.091	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.091
3-Apr	0.000	0.000	0.006	0.002	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.129	0.063	0.231	0.019	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	0.020	0.231		
4-Apr	0.000	0.000	0.000	0.009	0.000	Z	0.000	0.000	0.000	0.000	C	C	C	C	C	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	-	0.009			
5-Apr	Z	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.028	0.347	0.371	0.351	0.283	0.000	0.161	0.301	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.080	0.371					
6-Apr	0.000	Z	0.000	0.000	0.002	0.000	0.000	0.108	0.005	0.013	0.006	0.041	0.054	0.009	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	0.000	0.000	0.000	0.010	0.108					
7-Apr	0.000	0.000	Z	0.000	0.001	0.000	0.000	0.000	0.220	0.003	0.000	0.000	0.002	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	0.010	0.220					
8-Apr	0.000	0.001	0.000	Z	0.000	0.000	0.000	0.092	0.033	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	0.005	0.092					
9-Apr	0.000	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	0.004	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	0.000	0.004	0.004			
10-Apr	0.000	0.000	0.000	0.002	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.023	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	0.001	0.023	0.023				
11-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.004	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017	0.017				
12-Apr	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
13-Apr	0.000	0.011	Z	0.000	0.002	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	0.000	0.000	0.001	0.011	0.011				
14-Apr	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.045	0.009	0.001	0.217	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.217					
15-Apr	0.189	0.319	0.282	0.237	Z	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.049	0.319						
16-Apr	0.002	0.007	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.136	0.053	0.006	0.000	0.000	0.000	0.000	0.000	0.046	0.126	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.017	0.136						
17-Apr	Z	0.171	0.092	0.359	0.116	0.000	0.040	0.036	0.000	0.000	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.004	0.250	0.234	0.000	0.000	0.000	0.000	0.000	0.057	0.359						
18-Apr	0.223	Z	0.103	0.000	0.000	0.000	0.026	0.055	0.003	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.223							
19-Apr	0.000	0.000	Z	0.000	0.000	0.000	0.124	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	0.000	0.000	0.006	0.124							
20-Apr	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	0.000	0.000	0.000	0.000	0.000	0.000				
21-Apr	0.000	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	0.000	0.001	0.000	0.001	0.001				
22-Apr	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.088	0.372	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.158	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.372	0.372						
23-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.369	0.439	0.058	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	0.039	0.439	0.439							
24-Apr	0.000	Z	0.000	0.006	0.000	0.000	0.007	0.564	0.428	0.387	0.239	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	0.071	0.564	0.564							
25-Apr	0.000	0.000	Z	0.000	0.001	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	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001				
26-Apr	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	0.000	0.000	0.000	0.000	0.000	0.000				
27-Apr	0.000	0.000	0.000	0.000	Z	0.011	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	0.000	0.000	0.000	0.011				
28-Apr	0.000	0.000	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	0.001	0.000	0.001	0.001				
29-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.011	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.067	0.105	0.194	0.300	0.000	0.004	0.000	0.000	0.030	0.300	0.300							
30-Apr	0.303	Z	0.286	0.200	0.061	0.000	0.000	0.072	0.100	0.087	0.071	0.000	0.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.017	0.000	0.000	0.000	0.055	0.303	0.303								
																								Diurnal Average	0.017												
																								Diurnal Maximum	0.303												

Z - zerospan      C - Calibration







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	591	86.40	86.40
0.006 - 0.05	39	5.70	92.11
0.06 - 0.1	23	3.36	95.47
> 0.1	31	4.53	100.00

Total Number of Valid Hours: 684  
Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort McKay South - April 2024**

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	60	12	2	2	9	49	50	49	36	38	59	21	28	30	46	575
0.006 - 0.05	18	11	0	0	0	0	3	1	2	1	0	1	0	0	0	2	39
0.06 - 0.1	15	4	0	0	0	0	1	1	0	0	1	0	0	0	0	0	22
> 0.1	20	5	0	0	0	0	0	1	0	0	0	0	0	0	1	4	31
<b>Totals</b>	137	80	12	2	2	9	53	53	51	37	39	60	21	28	31	52	667

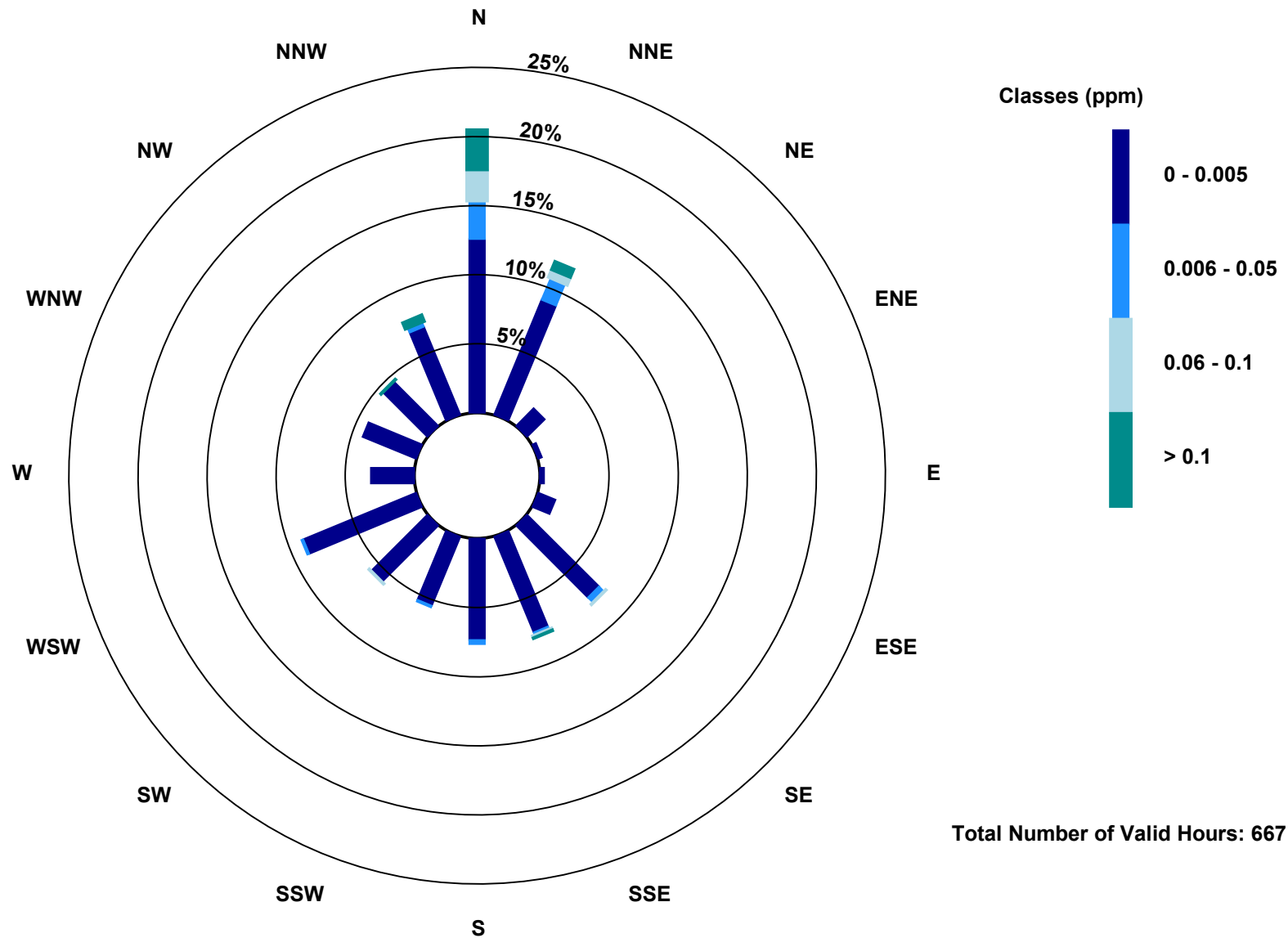
Total Number of Valid Hours: 667

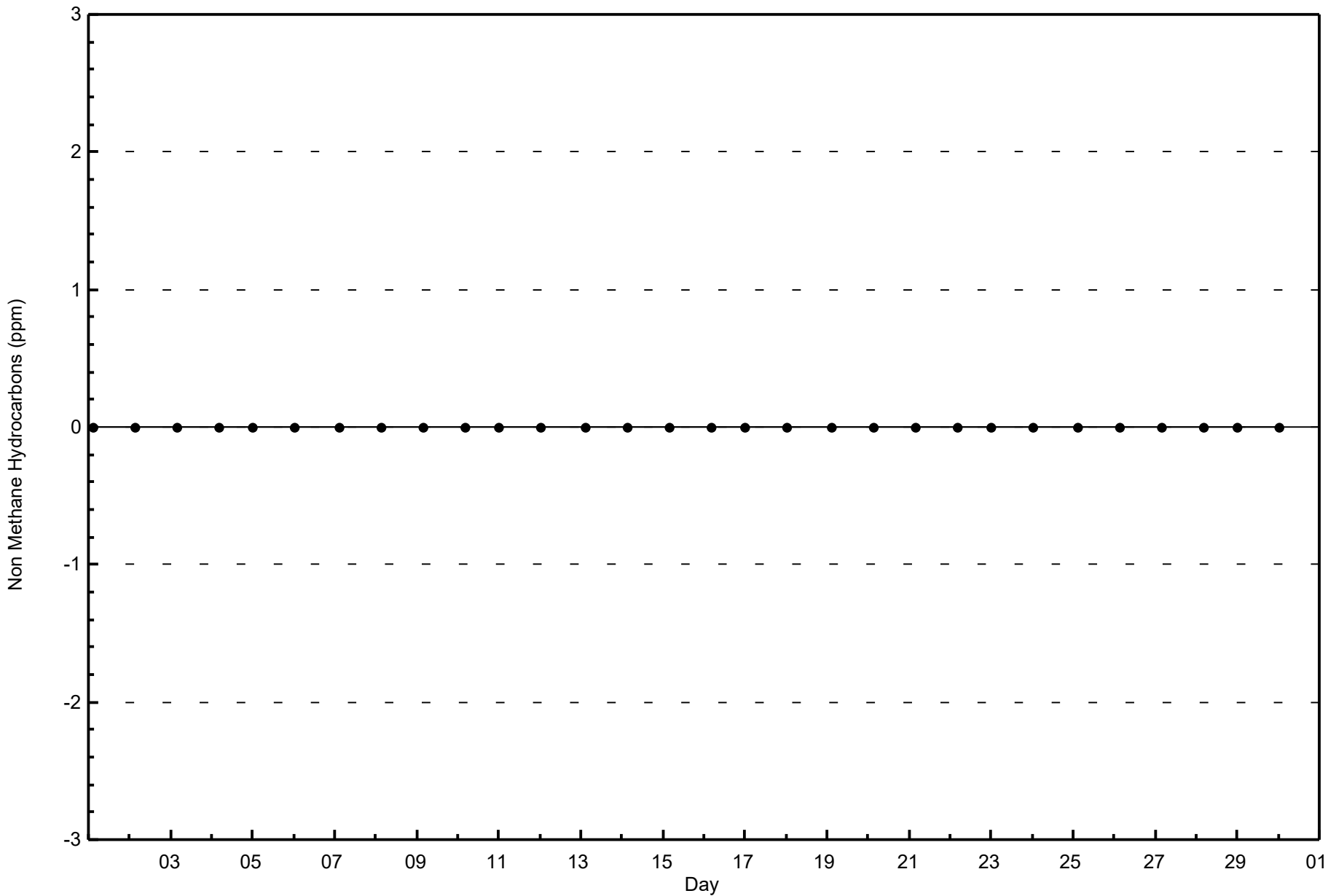
Total Number of Hours: 720

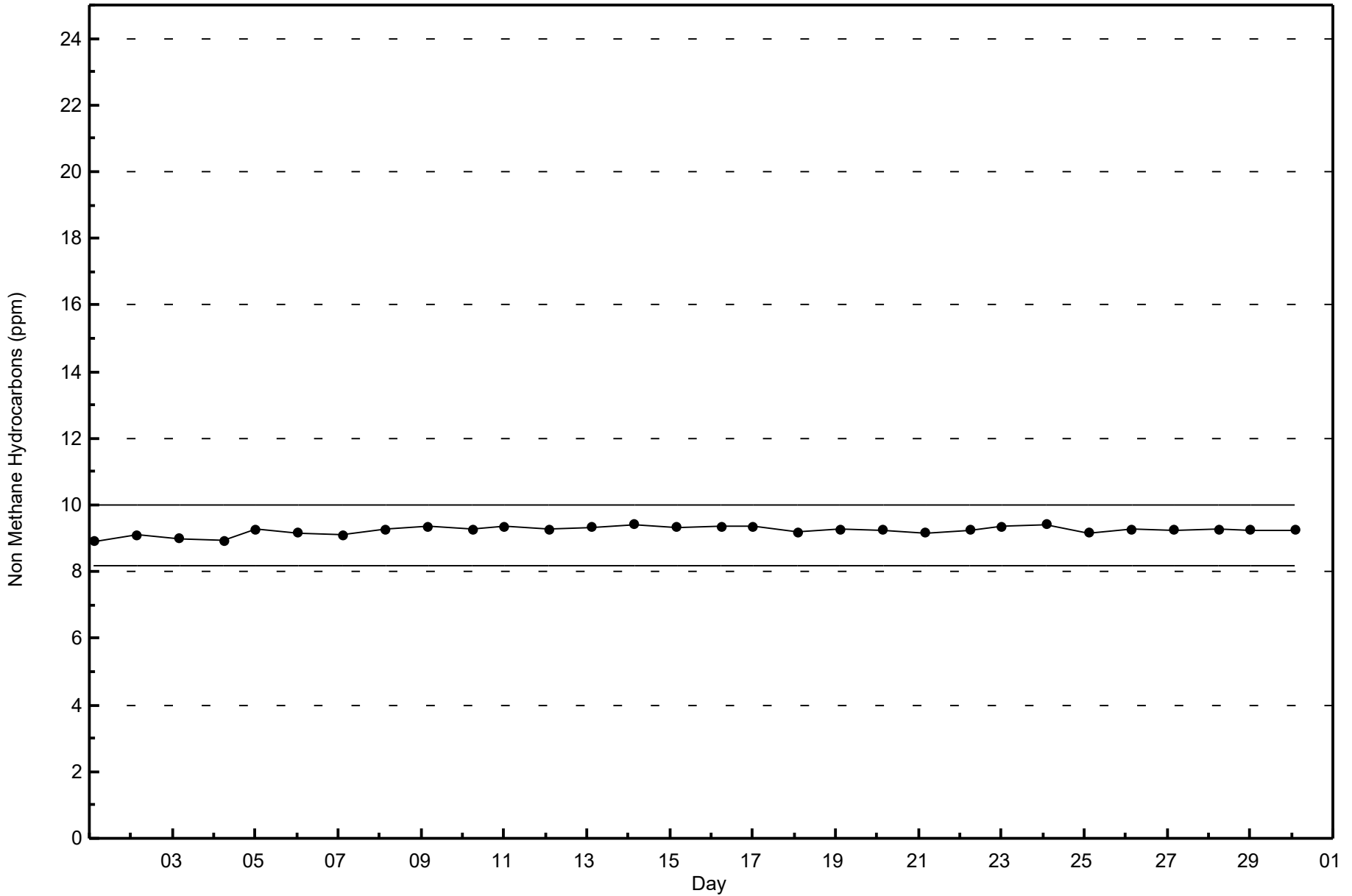


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

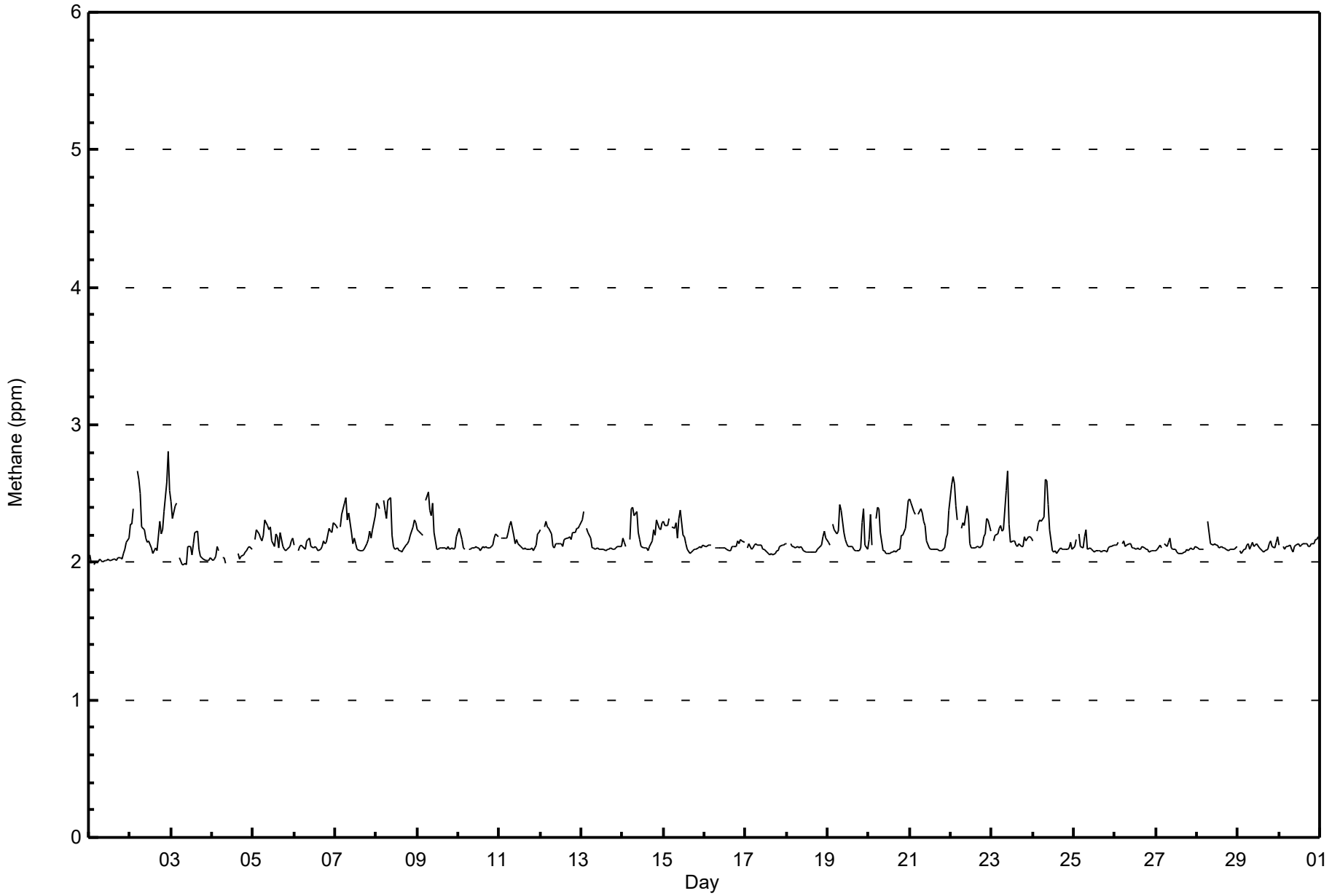
## Fort McKay South - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720																Daily Average		Daily Maximum																								
Maximum Value: 2.8 ppm on Apr 2 23:00		Maximum Daily Average: 2.3 ppm on Apr 2		Hours of Data: 684																2.0		2.2																										
Minimum Value: 2.0 ppm on Apr 3 08:00		Minimum Daily Average: 2.0 ppm on Apr 1		Hours of Missing Data: 36																2.3		2.8																										
Maximum Diurnal Average: 2.2 ppm at hour 6		Minimum Diurnal Average: 2.1 ppm at hour 16		Hours of Calibration: 36																2.1		2.4																										
Monthly Average: 2.16 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.6		Percent Operational Time: 100.0																--		2.1																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	2.1	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	2.1	2.1	2.2	2.2	2.0	2.2																							
2-Apr	2.3	2.3	Z	Z	2.7	2.6	2.5	2.3	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.2	2.4	2.6	2.8	2.5	2.3	2.8																						
3-Apr	2.4	2.3	Z	Z	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4																						
4-Apr	2.0	2.0	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.0	C	C	C	C	C	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
5-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.2	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3																						
6-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.3	2.2	2.2	2.3	2.1	2.3																						
7-Apr	2.3	2.3	Z	Z	2.4	2.4	2.5	2.3	2.4	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.5																						
8-Apr	2.4	2.4	Z	Z	2.5	2.4	2.3	2.4	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.5																						
9-Apr	2.2	2.2	2.2	Z	Z	2.5	2.5	2.4	2.3	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5																						
10-Apr	2.2	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2																						
11-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3																						
12-Apr	2.2	Z	Z	Z	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3																						
13-Apr	2.3	2.4	Z	Z	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																						
14-Apr	2.2	2.1	2.1	Z	2.2	2.4	2.4	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.4																						
15-Apr	2.3	2.3	Z	Z	Z	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4																						
16-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.2																						
17-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
18-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2																						
19-Apr	2.1	2.1	Z	Z	2.3	2.2	2.2	2.2	2.4	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.1	2.1	2.2	2.4																						
20-Apr	2.2	2.4	2.1	Z	Z	2.3	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.5	2.2	2.5																						
21-Apr	2.5	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.2	2.5																							
22-Apr	2.6	2.6	2.6	2.4	2.3	Z	2.2	2.3	2.3	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.3	2.6																						
23-Apr	Z	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.5	2.7	2.3	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.7																						
24-Apr	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.6	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.6																						
25-Apr	2.1	2.2	Z	Z	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
26-Apr	2.1	2.1	2.2	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
27-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
28-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																						
29-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.2																						
30-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2																						
																								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	Diumal Average
																								2.6	2.6	2.6	2.4	2.7	2.6	2.5	2.6	2.6	2.7	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.4	2.6	2.8	2.5	Diumal Maximum
Z - zerospan																								C - Calibration																								



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	38	5.56	5.56
2.1 - 3.0	646	94.44	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - April 2024**

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	4	2	5	0	0	0	1	1	0	0	2	4	0	8	8	3	38
2.1 - 3.0	133	78	7	2	2	9	52	52	51	37	37	56	21	20	23	49	629
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>	137	80	12	2	2	9	53	53	51	37	39	60	21	28	31	52	667

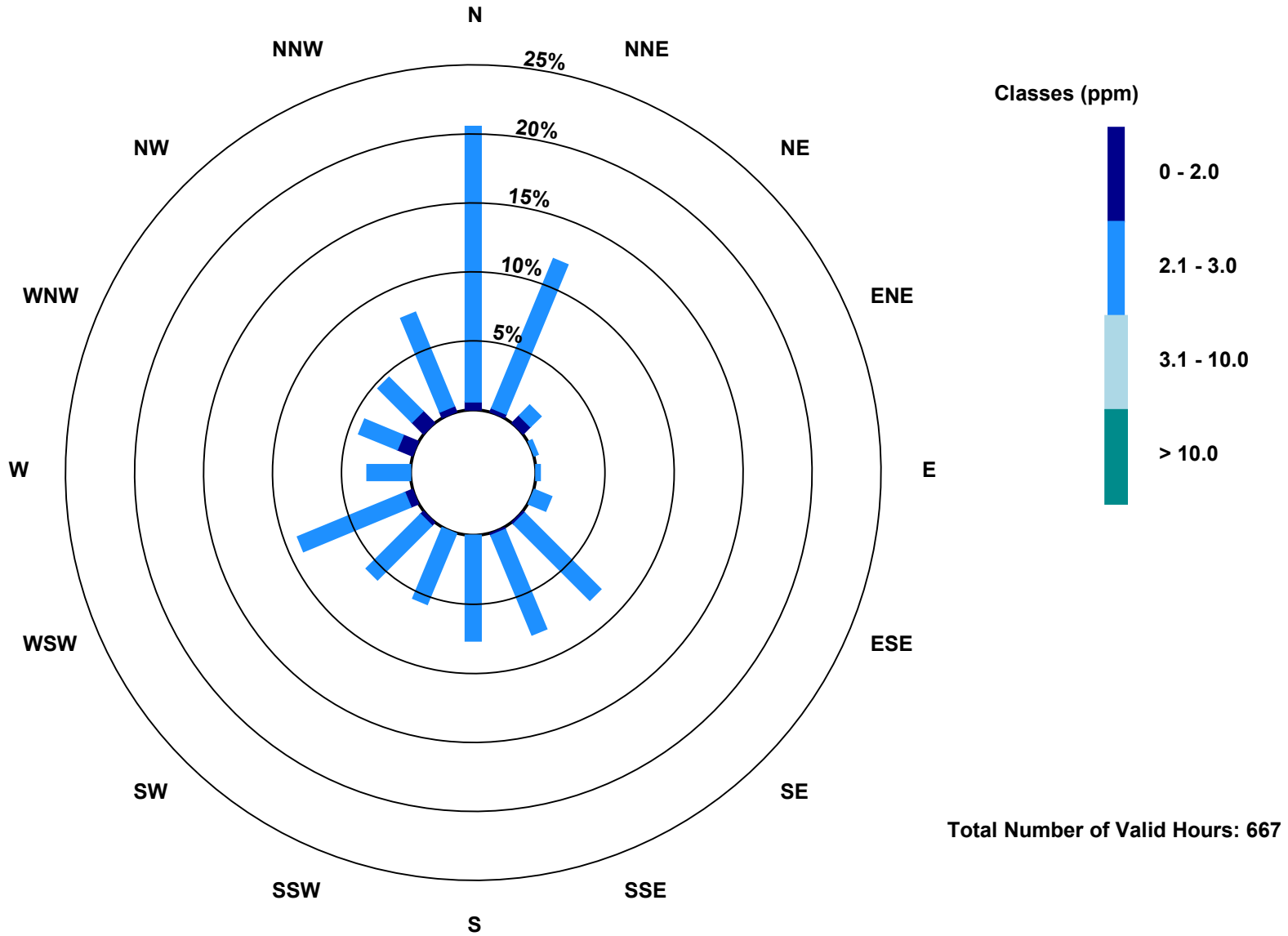
Total Number of Valid Hours: 667

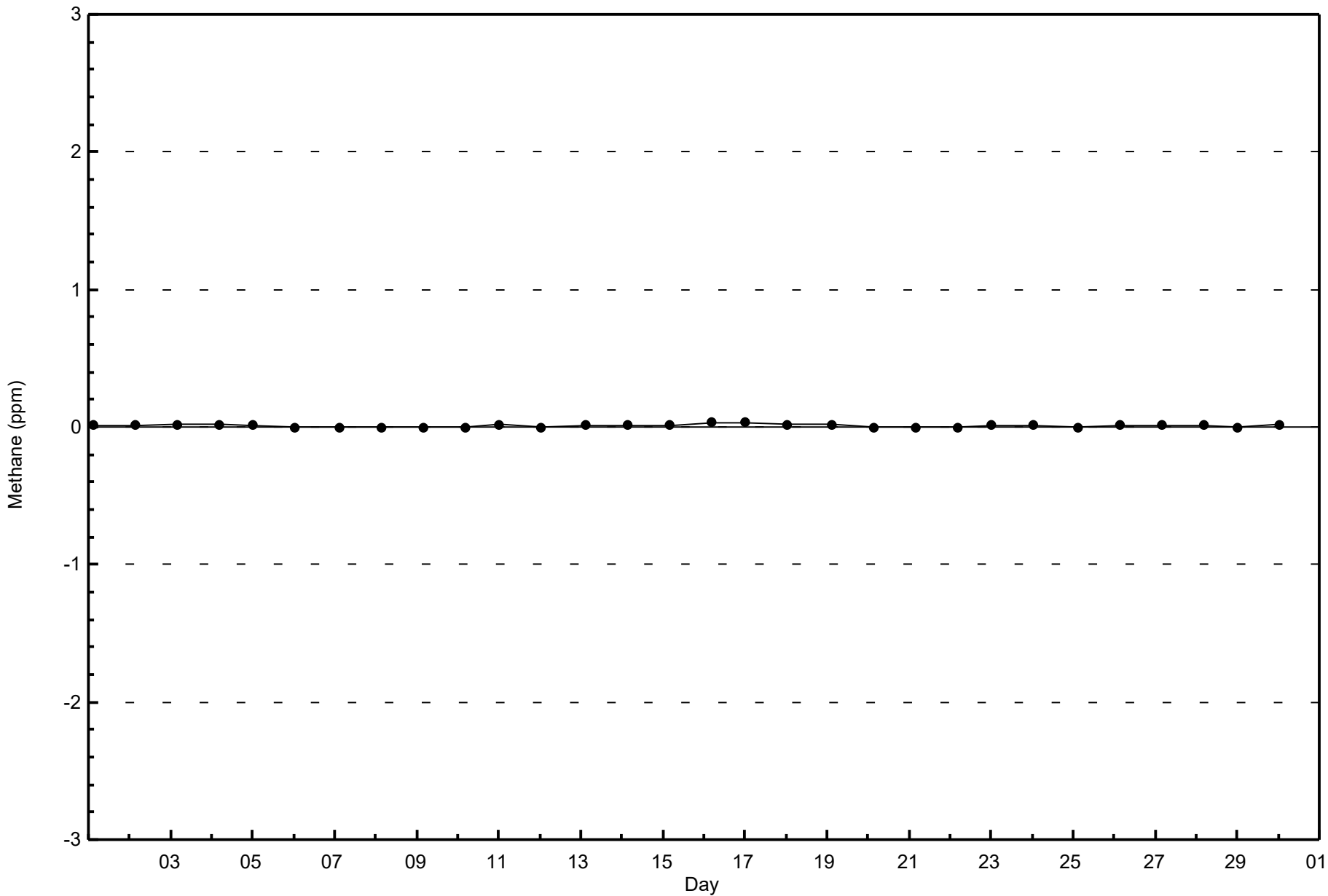
Total Number of Hours: 720

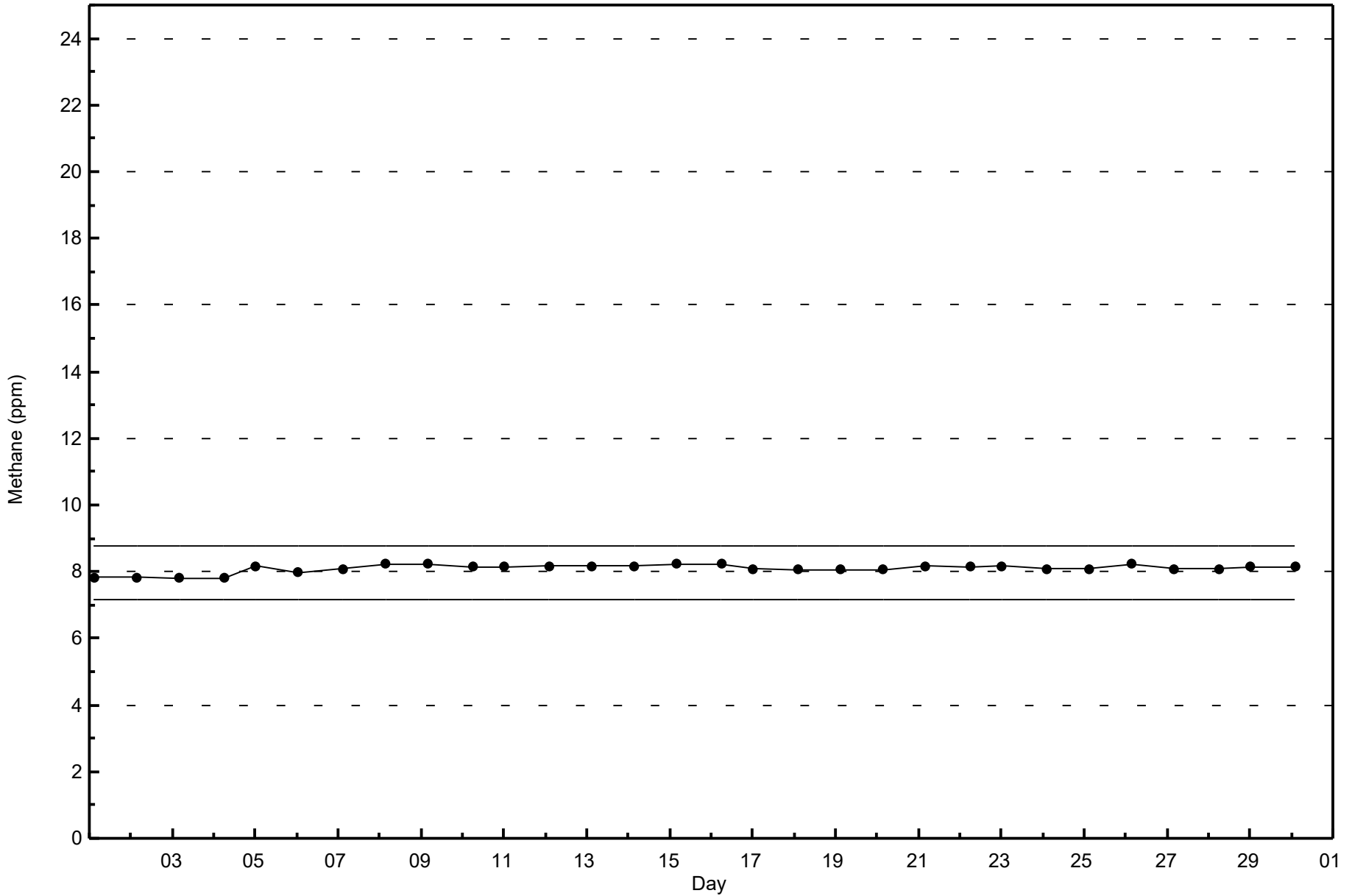


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Methane (CH<sub>4</sub>) - ppm  
Fort McKay South









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

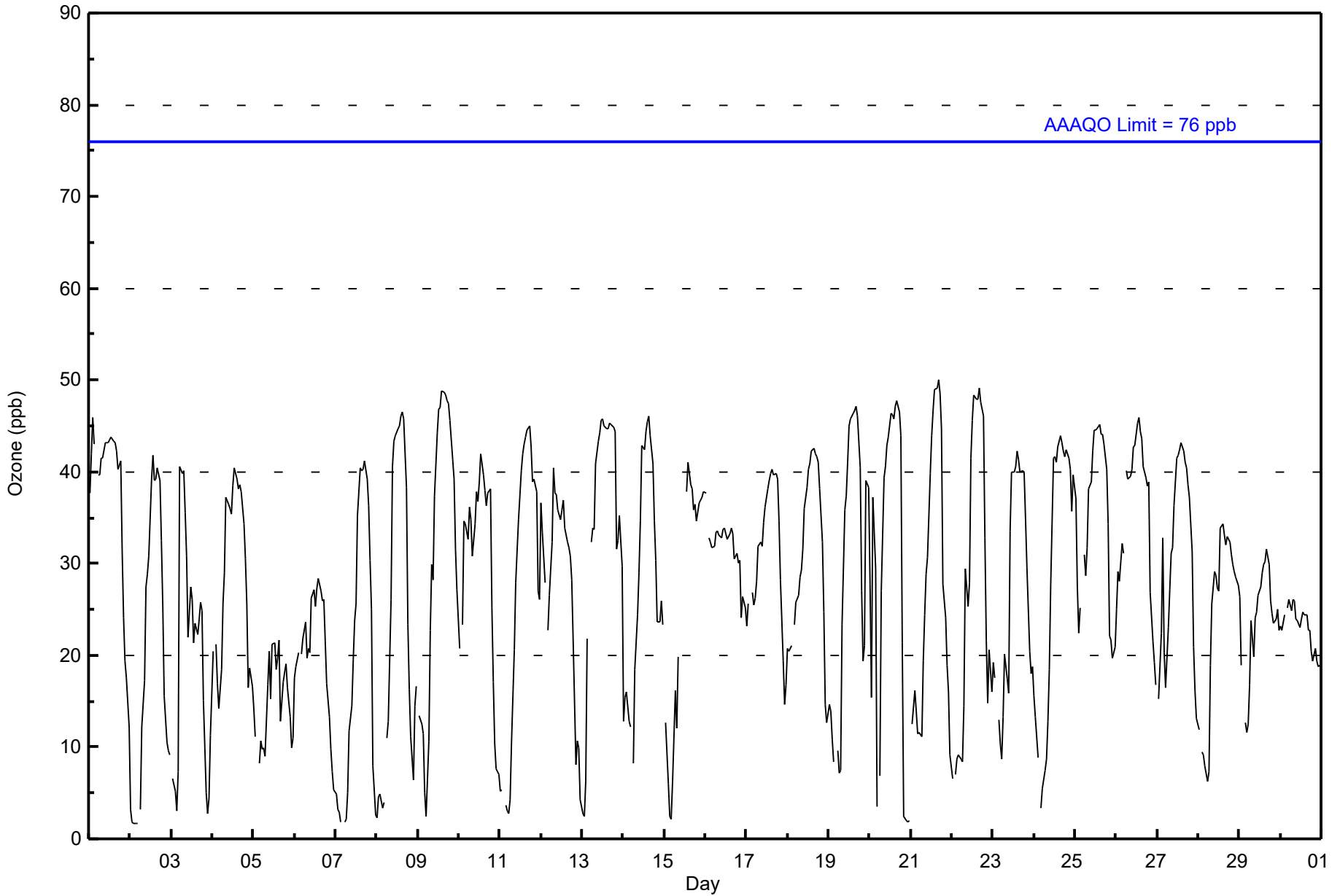
## Fort McKay South - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720																											
Maximum Value: 50.0 ppb on Apr 21 17:00		Maximum Daily Average: 37.5 ppb on Apr 1																	Hours of Data:	686																													
Minimum Value: 1.6 ppb on Apr 2 04:00		Minimum Daily Average: 15.0 ppb on Apr 5																	Hours of Missing Data:	34																													
Maximum Diurnal Average: 39.6 ppb at hour 15		Minimum Diurnal Average: 14.1 ppb at hour 5																	Hours of Calibration:	34																													
Monthly Average: 27.55 ppb		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 8.5 Q <sub>1</sub> = 17.5 Median = 28.2 Q <sub>3</sub> = 39.2 P <sub>90</sub> = 43.9 P <sub>99</sub> = 48.4																	Percent Operational Time:	100.0																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	37.7	41.9	46.0	42.9	Z	39.6	39.7	41.5	41.4	43.2	43.1	43.5	43.8	43.4	43.1	42.2	40.3	41.2	31.5	24.1	19.4	17.5	12.2	37.5	46.0																								
2-Apr	3.2	1.9	1.7	1.6	1.7	Z	3.2	12.3	17.3	27.5	28.9	30.8	39.2	41.7	39.0	39.3	40.4	39.1	32.5	25.4	15.5	10.5	9.7	9.1	20.5	41.7																							
3-Apr	Z	6.6	5.2	3.1	7.3	40.5	39.9	40.2	35.5	30.8	21.9	27.4	26.1	21.4	23.5	22.3	24.0	25.7	24.8	15.1	5.1	2.7	4.5	11.3	20.2	40.5																							
4-Apr	20.4	Z	21.2	16.9	14.3	18.4	25.7	28.9	37.3	36.4	35.9	35.4	38.4	40.4	39.2	38.1	38.7	37.8	34.3	30.5	25.7	16.5	18.6	16.6	28.9	40.4																							
5-Apr	14.2	11.2	Z	8.3	10.7	9.8	9.9	9.1	16.7	20.4	15.2	21.1	21.3	18.5	19.7	21.7	12.9	17.1	18.2	19.0	16.5	13.2	10.0	10.9	15.0	21.7																							
6-Apr	17.6	18.7	20.2	Z	20.1	21.8	23.6	19.7	20.7	20.2	26.2	27.1	25.3	27.4	28.4	26.9	25.9	26.0	21.5	17.0	13.3	9.7	7.4	5.4	20.4	28.4																							
7-Apr	4.8	3.3	2.8	1.9	Z	1.9	2.2	5.0	11.7	14.6	19.5	23.9	25.7	35.2	40.4	40.1	40.2	41.2	39.2	36.2	30.4	25.1	7.9	2.6	19.8	41.2																							
8-Apr	2.3	4.6	4.8	3.3	4.0	Z	10.9	12.8	26.1	40.6	43.4	43.9	44.7	44.9	46.0	46.5	45.7	38.3	23.4	16.3	11.1	6.4	14.5	16.6	24.0	46.5																							
9-Apr	Z	13.4	12.5	11.4	5.1	2.4	10.7	22.8	29.9	28.2	37.4	44.3	46.8	46.9	48.7	48.6	48.3	47.8	47.4	45.6	41.4	39.2	31.5	27.2	32.1	48.7																							
10-Apr	20.8	Z	23.3	34.7	34.3	32.6	36.2	34.8	30.9	34.3	37.8	36.8	38.9	41.9	39.6	38.0	36.2	37.6	38.1	25.1	17.1	10.4	7.6	7.0	30.2	41.9																							
11-Apr	5.2	5.4	Z	3.6	3.1	2.8	4.2	10.6	20.5	27.8	31.4	34.8	40.1	42.0	43.1	43.8	44.6	45.0	42.8	38.9	39.2	37.8	27.0	26.1	26.9	45.0																							
12-Apr	36.5	33.4	27.9	Z	22.8	26.5	32.4	40.4	37.7	37.6	35.8	34.8	35.8	36.9	33.9	32.3	31.7	30.7	28.2	21.7	8.0	10.6	9.9	4.3	28.3	40.4																							
13-Apr	2.7	2.5	6.2	21.8	Z	32.4	33.9	33.7	40.8	43.4	44.2	45.6	45.7	45.0	44.7	44.7	45.2	45.2	44.9	44.4	31.6	32.5	35.3	29.7	34.6	45.7																							
14-Apr	12.7	15.3	16.0	12.8	12.2	Z	8.2	18.4	24.4	29.0	34.6	42.8	42.4	44.3	45.5	46.0	44.0	40.8	34.7	30.4	23.6	23.6	25.9	23.3	28.3	46.0																							
15-Apr	Z	12.7	6.0	2.4	2.1	6.3	16.2	12.1	19.9	C	C	C	C	37.9	41.0	38.5	38.2	35.9	36.5	34.6	36.6	37.0	37.2	37.9	25.7	41.0																							
16-Apr	37.7	Z	32.8	32.3	31.7	31.9	33.4	33.6	33.1	32.8	33.7	33.8	33.2	32.6	33.2	33.8	33.3	30.5	31.1	30.1	30.3	24.1	26.4	25.2	31.8	37.7																							
17-Apr	23.3	25.6	Z	26.9	25.4	26.3	28.1	31.9	32.4	31.9	34.5	36.2	38.2	39.0	39.8	40.2	39.7	39.8	39.3	34.6	28.3	19.3	14.6	16.8	31.0	40.2																							
18-Apr	20.7	20.5	21.0	Z	23.3	25.8	26.6	28.5	29.3	31.6	35.9	38.3	40.3	40.9	42.3	42.5	41.9	41.7	41.0	38.2	32.3	24.7	14.6	12.6	31.1	42.5																							
19-Apr	14.6	13.8	10.8	8.4	Z	9.6	7.2	7.5	23.3	35.9	37.4	41.1	45.1	45.7	46.4	46.7	47.1	46.0	40.5	27.0	19.3	21.0	39.0	38.3	29.2	47.1																							
20-Apr	27.7	15.4	37.2	29.4	3.5	Z	6.9	27.0	39.4	40.6	42.9	43.9	46.3	46.2	45.8	47.1	47.7	46.5	43.9	21.4	2.4	1.9	1.9	1.9	29.0	47.7																							
21-Apr	Z	12.5	16.1	13.9	11.5	11.6	11.1	19.4	24.4	28.9	30.7	39.8	43.9	46.7	49.0	49.1	50.0	48.6	44.7	27.7	24.1	18.9	16.0	9.2	28.2	50.0																							
22-Apr	6.6	Z	7.1	8.6	9.2	8.7	8.4	14.5	29.5	25.3	27.9	41.5	45.6	48.4	47.8	47.9	49.1	47.6	46.0	32.8	21.5	14.8	20.6	16.0	27.2	49.1																							
23-Apr	19.2	17.5	Z	13.0	10.4	8.7	13.3	20.2	17.4	15.9	33.6	39.9	39.9	40.6	42.2	41.4	40.0	40.1	39.9	34.9	29.5	20.4	18.0	18.8	26.7	42.2																							
24-Apr	15.6	13.3	8.8	Z	3.3	5.5	7.4	8.7	12.8	18.5	27.8	41.4	41.7	41.1	42.7	44.0	43.2	42.3	41.7	42.4	41.5	40.2	35.6	39.7	28.7	44.0																							
25-Apr	37.0	27.5	22.4	25.2	Z	31.0	28.7	31.7	38.2	38.9	42.2	44.5	44.6	44.7	45.2	44.0	44.1	43.0	40.2	34.3	22.1	21.6	19.7	20.9	34.4	45.2																							
26-Apr	25.0	29.2	28.1	32.2	31.1	Z	40.1	39.2	39.5	40.3	42.7	42.8	45.3	45.9	44.4	43.6	40.5	39.3	38.4	38.9	26.9	21.6	19.2	16.8	35.3	45.9																							
27-Apr	Z	15.3	22.5	32.8	20.2	16.4	23.0	27.1	31.2	31.7	36.3	41.5	41.9	42.4	43.1	42.2	41.1	40.4	38.6	37.2	31.3	20.9	16.2	13.1	30.7	43.1																							
28-Apr	11.9	Z	9.4	9.2	8.0	6.2	7.4	18.9	25.7	29.2	28.7	27.3	26.9	33.9	34.3	33.2	32.1	33.0	32.3	31.0	30.0	29.1	28.6	27.6	24.1	34.3																							
29-Apr	26.3	18.9	Z	12.7	11.6	12.4	16.8	23.8	19.8	24.1	24.7	26.5	27.5	29.0	29.9	30.1	31.5	29.8	25.9	24.6	23.5	23.9	25.0	22.7	23.5	31.5																							
30-Apr	23.1	22.7	24.4	Z	25.2	26.1	24.9	26.0	25.9	23.9	23.8	23.1	24.0	24.7	24.4	24.4	22.7	22.7	20.5	19.3	20.7	19.3	18.7	19.0	23.0	26.1																							
																								18.7	16.1	17.4	16.4	14.1	18.2	19.3	23.3	27.8	30.5	33.0	36.3	37.9	39.0	39.6	39.3	38.7	38.0	35.7	30.2	24.1	20.5	19.3	18.0	Diurnal Average	
																								37.7	41.9	46.0	42.9	34.3	40.5	40.1	41.5	41.4	43.4	44.2	45.6	46.8	48.4	49.0	49.1	50.0	48.6	47.4	45.6	41.5	40.2	39.0	39.7	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb																																																	



Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Fort McKay South - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	212	30.90	30.90
21 - 50	474	69.10	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort McKay South - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	34	11	3	0	0	0	7	12	24	13	13	22	11	13	9	25	197
21 - 50	98	72	8	4	2	10	46	40	23	26	24	35	11	19	23	30	471
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>	132	83	11	4	2	10	53	52	47	39	37	57	22	32	32	55	668

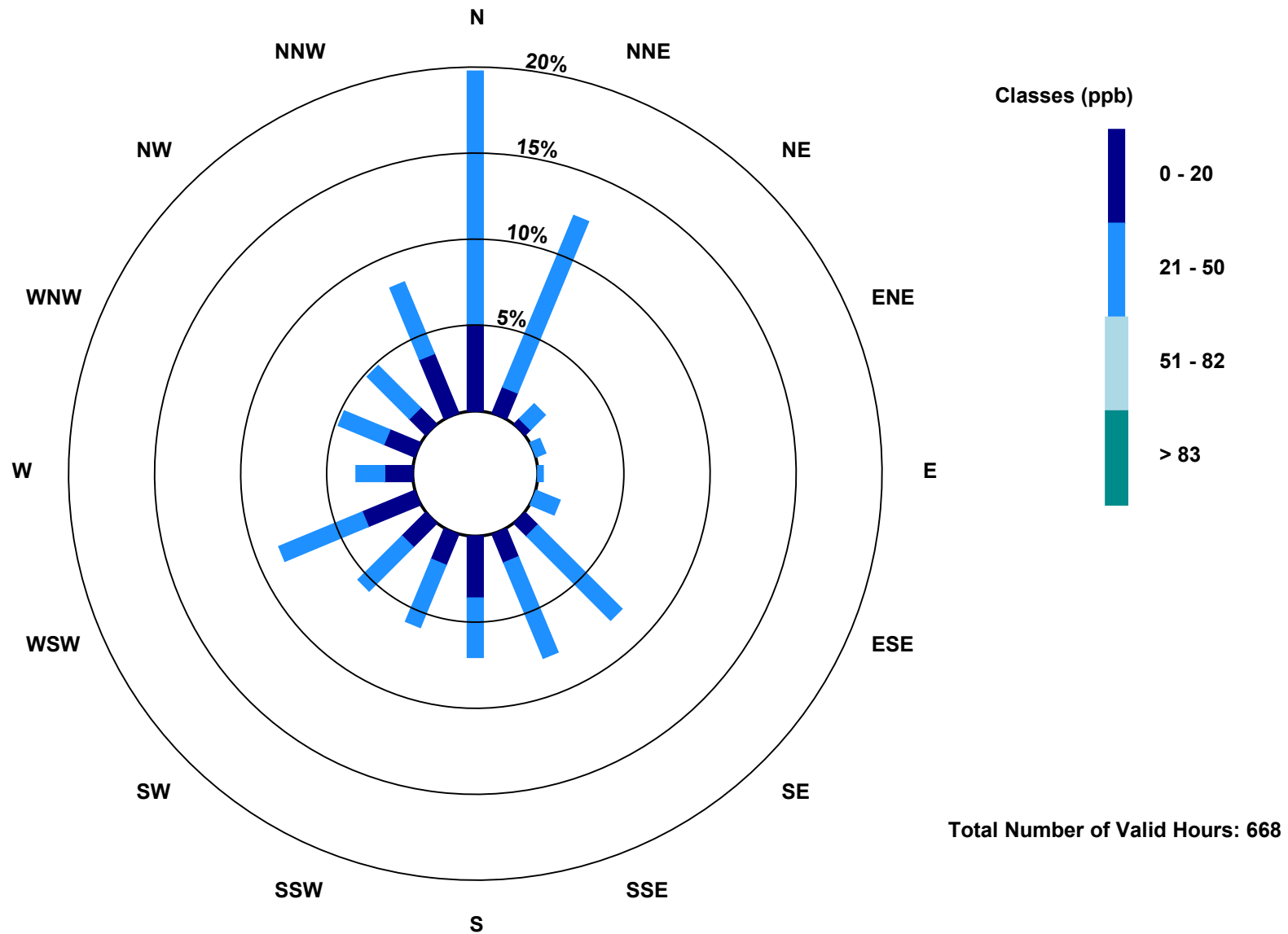
Total Number of Valid Hours: 668

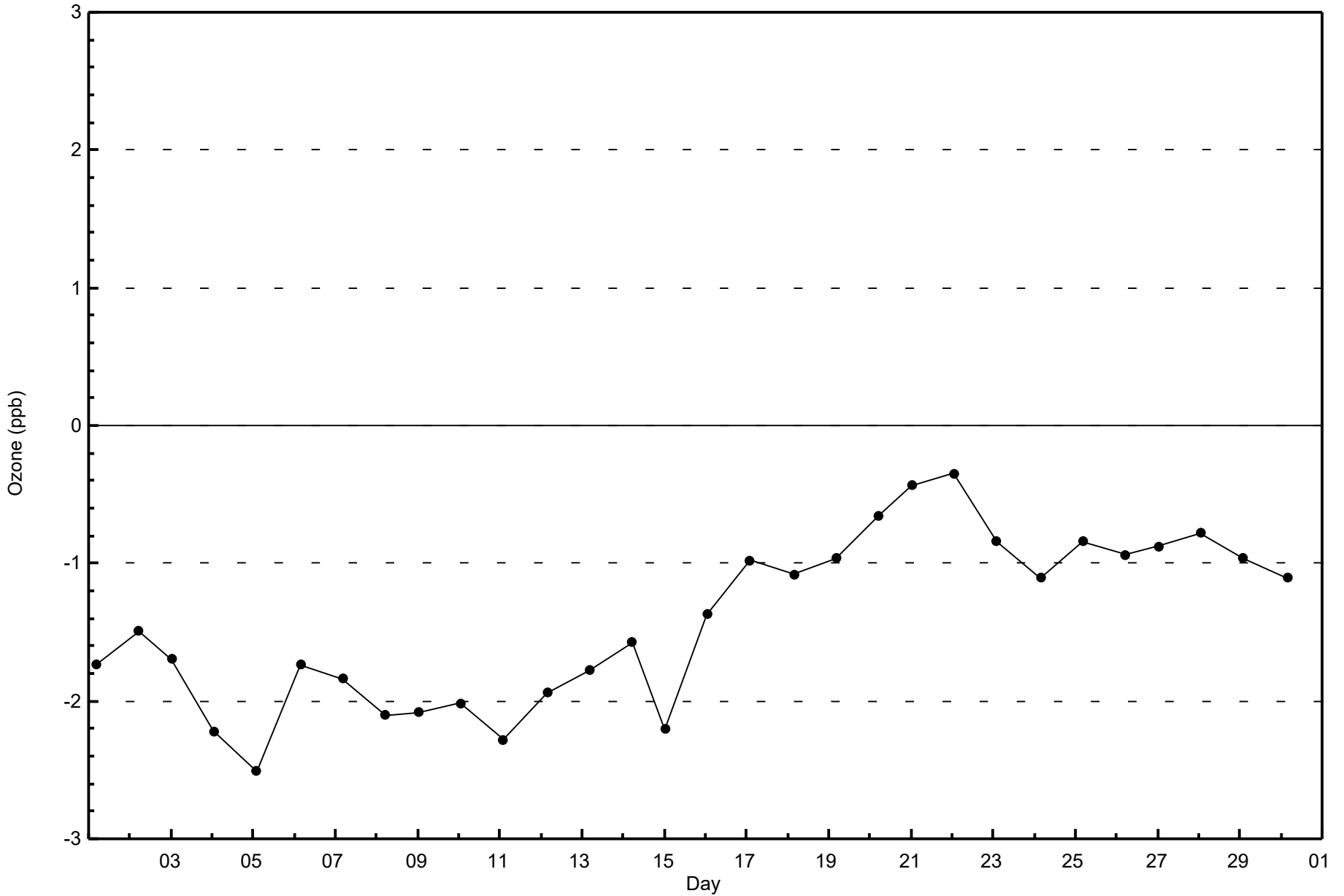
Total Number of Hours: 720

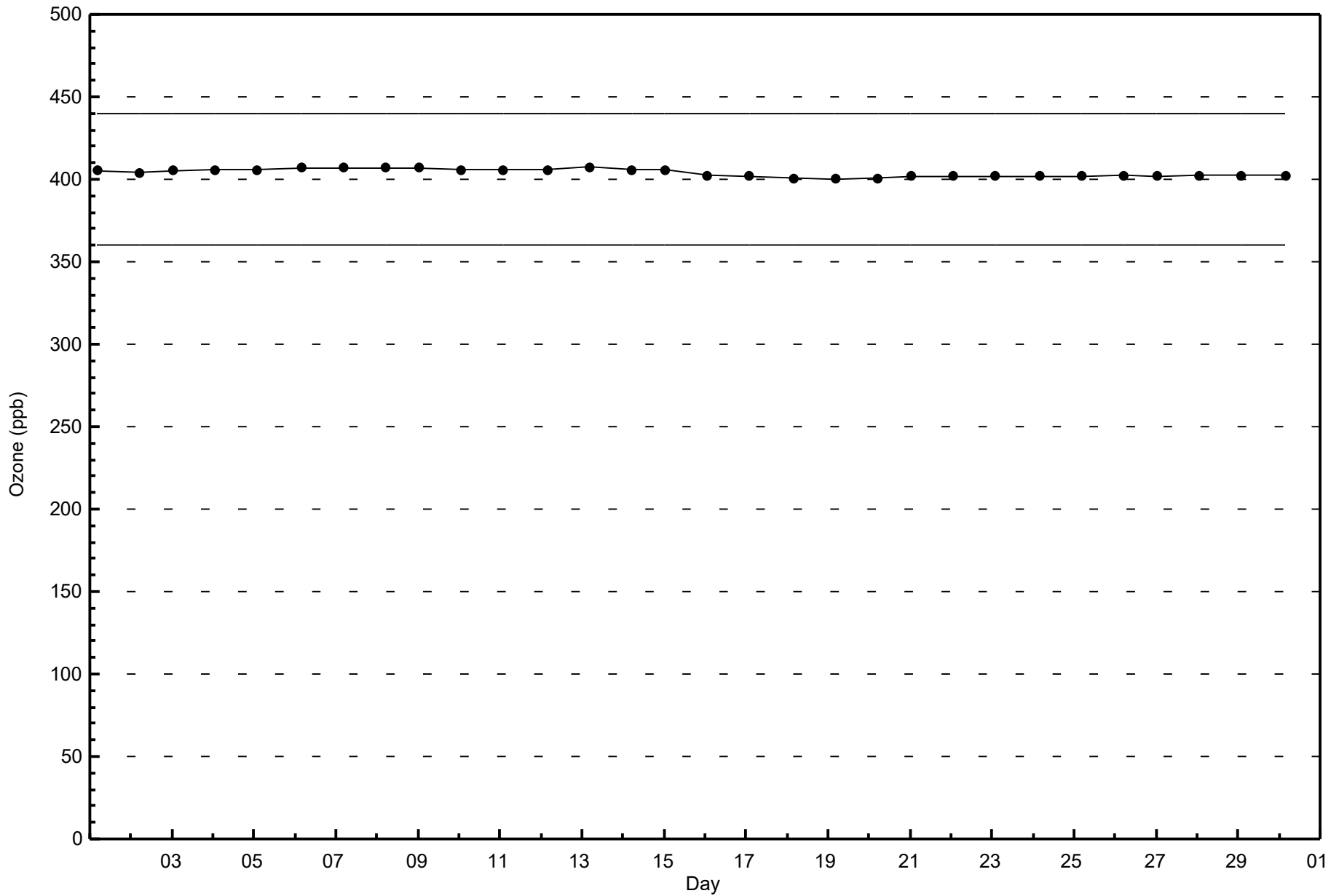


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Ozone (O<sub>3</sub>) - ppb  
Fort McKay South





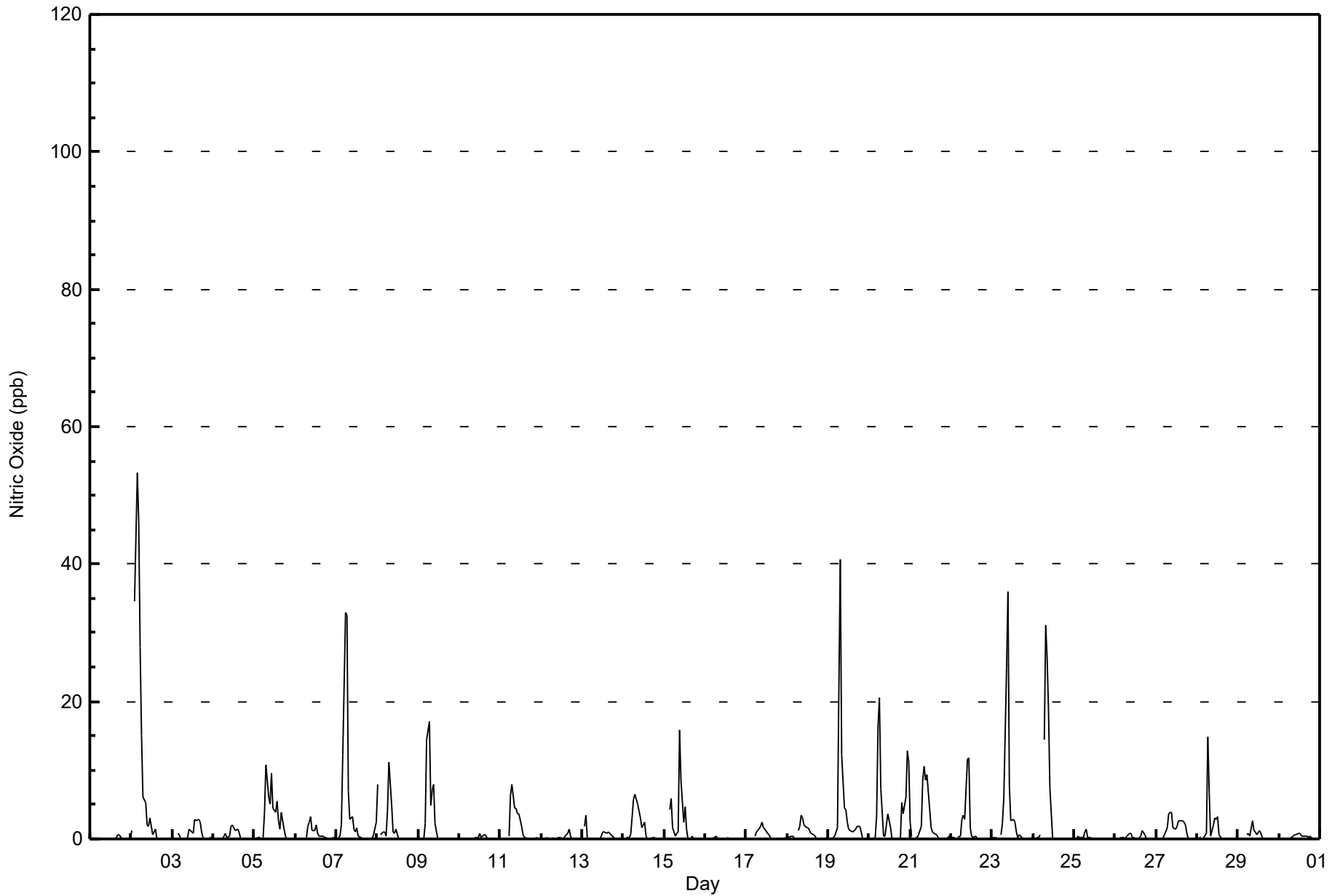




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - April 2024**

Maximum Value: 53.2 ppb on Apr 2 04:00		Maximum Daily Average: 8.7 ppb on Apr 2		Hours in Service: 720																							
Minimum Value: 0.0 ppb on Apr 1 02:00		Minimum Daily Average: 0.1 ppb on Apr 16		Hours of Data: 685																							
Maximum Diurnal Average: 5.7 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 21		Hours of Missing Data: 35																							
Monthly Average: 1.79 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 4.0 P <sub>99</sub> = 31.3		Hours of Calibration: 35																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
2-Apr	1.2	Z	34.6	53.2	46.2	27.9	15.1	6.1	5.4	2.0	1.9	3.0	0.6	1.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	53.2	
3-Apr	0.2	0.3	Z	0.8	0.6	0.1	0.0	0.0	0.0	0.2	1.4	1.0	0.9	2.8	2.7	2.8	2.4	1.0	0.1	0.0	0.0	0.0	0.3	0.3	0.8	2.8	
4-Apr	0.1	0.0	0.0	Z	0.0	0.0	0.5	0.8	0.1	0.5	1.9	2.0	1.6	1.3	1.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.0	
5-Apr	0.0	0.1	0.2	0.1	Z	0.1	4.0	10.8	6.2	5.1	9.5	4.5	3.9	5.5	2.6	1.5	3.9	1.4	0.4	0.0	0.0	0.0	0.1	0.1	2.6	10.8	
6-Apr	0.0	0.0	0.1	0.1	0.0	Z	0.2	1.8	2.5	3.2	1.2	1.3	2.0	0.8	0.5	0.3	0.5	0.3	0.1	0.0	0.0	0.0	0.1	0.3	0.7	3.2	
7-Apr	Z	0.3	0.5	2.0	12.2	33.0	32.5	7.0	2.9	3.2	1.5	0.9	1.7	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.4	4.4	33.0	
8-Apr	7.9	Z	0.6	1.0	1.0	0.5	4.0	11.2	4.9	1.1	0.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	11.2	
9-Apr	0.0	0.0	Z	0.0	2.3	14.5	17.0	4.9	7.1	8.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	17.0	
10-Apr	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.8	0.3	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
11-Apr	0.0	0.0	0.1	0.1	Z	0.3	6.3	7.8	4.4	4.4	3.7	3.7	1.9	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	7.8	
12-Apr	0.0	0.0	0.1	0.1	0.1	Z	0.3	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.4	0.9	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	
13-Apr	Z	1.8	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0	1.0	0.9	1.0	0.8	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.5	
14-Apr	0.0	Z	0.2	0.2	0.7	3.0	5.7	6.4	5.1	4.0	3.0	1.6	2.4	0.5	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	1.4	6.4	
15-Apr	0.0	0.0	Z	4.3	5.9	1.5	0.4	0.7	1.1	15.8	8.5	2.4	4.8	1.5	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.1	15.8	
16-Apr	0.0	0.0	0.0	Z	0.1	0.2	0.4	0.2	C	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
17-Apr	0.0	0.0	0.0	0.0	Z	0.4	1.1	1.2	1.8	2.4	1.6	1.4	0.8	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	2.4	
18-Apr	0.1	0.2	0.4	0.3	0.2	Z	1.3	1.9	3.4	3.1	2.1	1.7	1.6	1.2	0.8	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8	3.4	
19-Apr	Z	0.0	0.0	0.3	0.3	1.7	21.8	40.6	12.1	4.4	4.3	2.5	1.3	1.1	1.1	1.2	1.5	1.8	1.9	1.0	0.0	0.0	0.0	0.0	4.3	40.6	
20-Apr	0.0	Z	0.1	0.2	3.2	16.3	20.6	7.4	0.3	0.5	2.0	3.7	1.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	5.2	3.6	6.1	12.8	4.1	20.6	
21-Apr	2.5	0.4	Z	0.2	0.2	0.7	1.9	8.6	10.5	8.5	9.4	4.3	1.7	1.0	0.7	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.5	2.3	10.5	
22-Apr	0.3	0.2	0.2	Z	0.2	0.5	2.8	3.4	2.8	11.6	11.9	1.6	0.5	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	11.9	
23-Apr	0.3	0.3	0.1	0.0	Z	0.6	2.3	6.0	24.8	36.0	7.8	2.6	2.8	2.5	1.1	0.3	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.1	3.8	36.0	
24-Apr	0.2	0.1	0.2	0.2	0.5	Z	14.4	31.0	26.5	18.8	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	31.0	
25-Apr	Z	0.1	0.3	0.1	0.1	0.2	0.9	1.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4	
26-Apr	0.0	Z	0.1	0.2	0.3	0.1	0.0	0.5	0.8	0.9	0.2	0.3	0.0	0.0	0.1	0.4	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	
27-Apr	0.0	0.0	Z	0.0	0.2	0.6	1.7	3.6	4.0	3.8	1.6	1.4	1.8	2.6	2.7	2.7	2.5	2.0	0.9	0.0	0.0	0.0	0.0	0.0	1.4	4.0	
28-Apr	0.0	0.2	0.1	Z	0.2	0.8	14.9	6.7	0.5	2.1	3.1	2.8	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	14.9	
29-Apr	0.0	0.0	0.0	0.0	Z	0.5	0.7	0.4	2.6	1.2	1.1	0.7	1.1	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.6	
30-Apr	0.0	0.0	0.1	0.1	0.1	Z	0.3	0.2	0.3	0.5	0.6	0.8	0.9	0.4	0.4	0.3	0.5	0.3	0.5	0.2	0.0	0.0	0.0	0.0	0.3	0.9	
		0.5	0.2	1.7	2.5	3.0	4.1	5.7	5.7	4.5	4.9	3.1	1.6	1.3	0.9	0.6	0.5	0.6	0.3	0.1	0.2	0.1	0.2	0.5	0.5	Diurnal Average	
		7.9	1.8	34.6	53.2	46.2	33.0	32.5	40.6	26.5	36.0	11.9	4.5	4.8	5.5	2.7	2.8	3.9	2.0	1.9	5.2	3.6	6.1	12.8	11.1	Diurnal Maximum	
Z - zerspan		C - Calibration																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	672	98.10	98.10
21 - 40	10	1.46	99.56
41 - 80	3	0.44	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685  
Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	130	81	12	4	2	10	52	47	48	37	37	57	21	33	33	53	657
21 - 40	2	2	0	0	0	0	0	3	2	0	1	0	0	0	0	0	10
11 - 80	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	132	83	12	4	2	10	53	50	50	37	38	57	21	33	33	53	668

Total Number of Valid Hours: 668

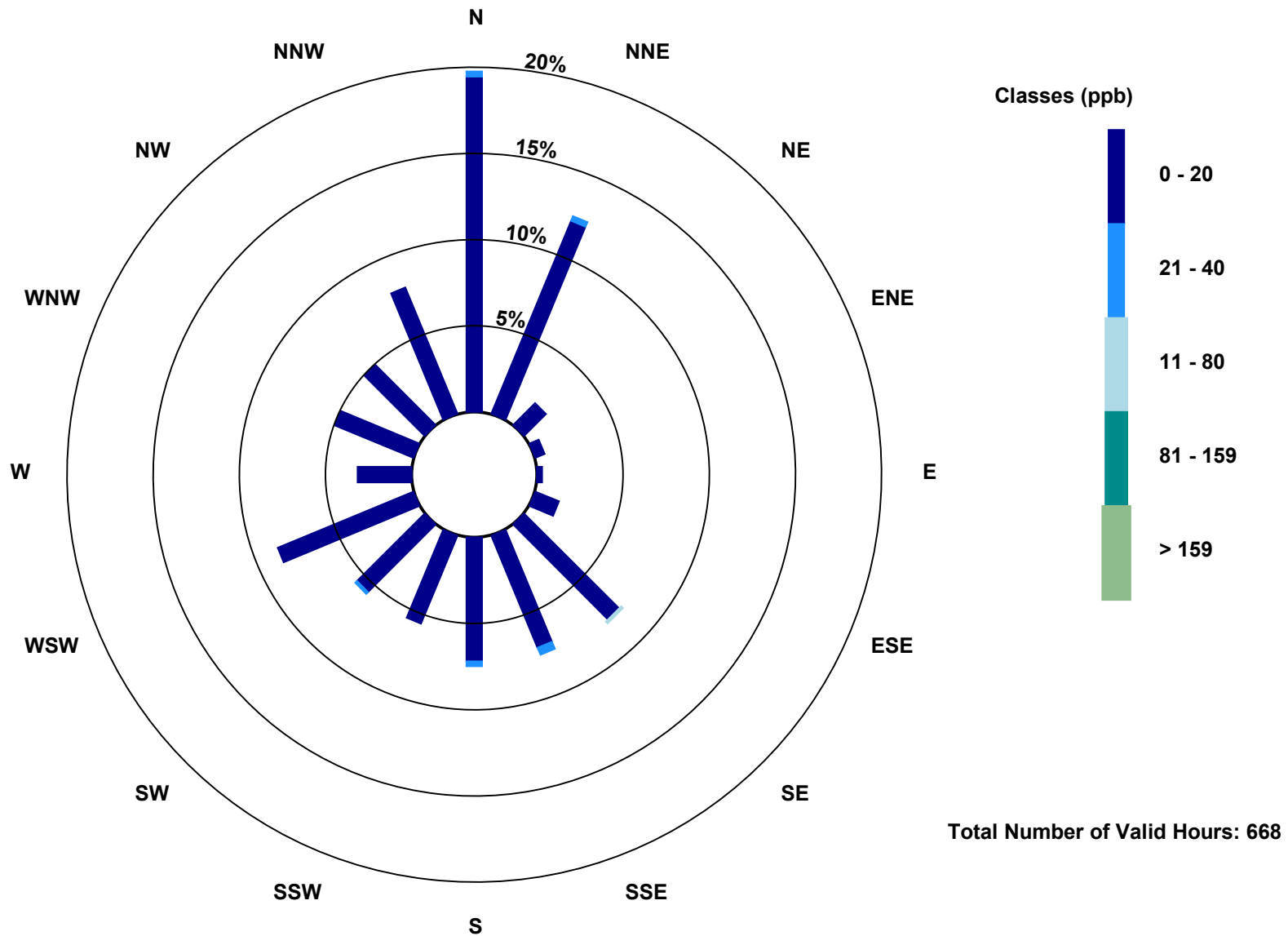
Total Number of Hours: 720

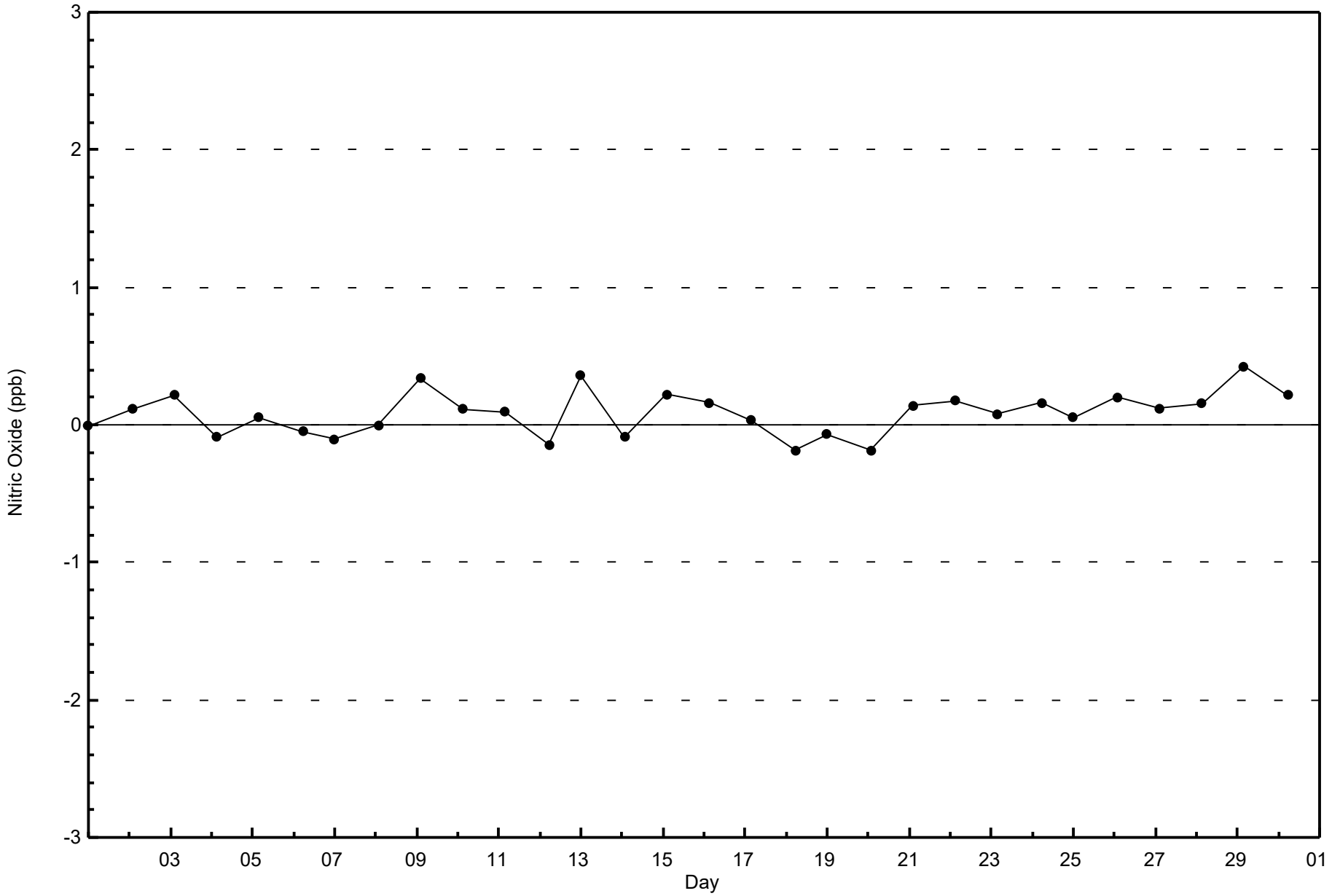




Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Fort McKay South

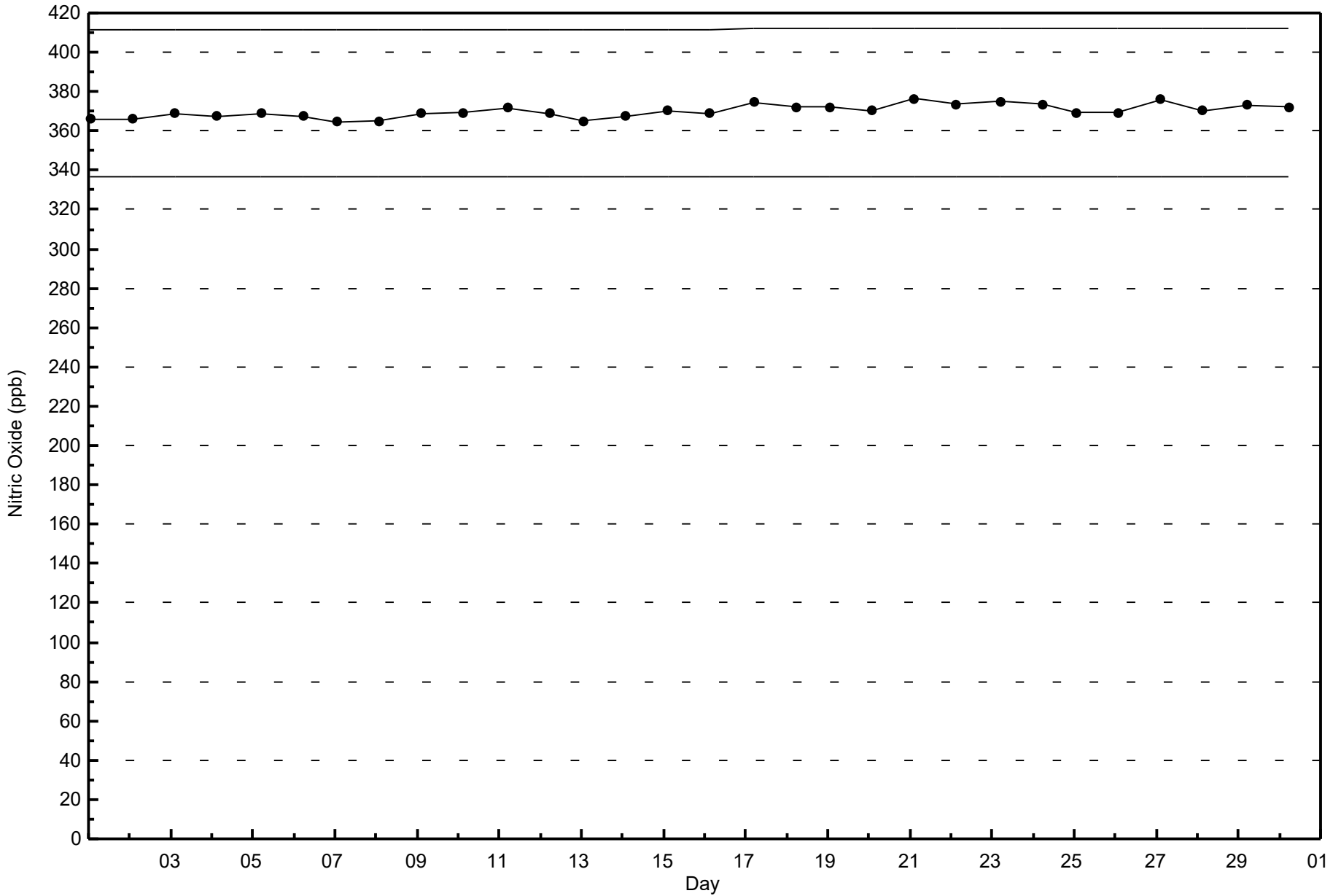






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Fort McKay South - April 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Fort McKay South - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 37.3 ppb on Apr 23 10:00	Maximum Daily Average: 13.2 ppb on Apr 5		Hours of Data:	685
Minimum Value: 0.0 ppb on Apr 1 12:00	Minimum Daily Average: 0.4 ppb on Apr 1		Hours of Missing Data:	35
Maximum Diurnal Average: 9.3 ppb at hour 5	Minimum Diurnal Average: 2.6 ppb at hour 16		Hours of Calibration:	35
Monthly Average: 6.43 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.7 Median = 4.1 Q <sub>3</sub> = 8.9 P <sub>90</sub> = 15.7 P <sub>99</sub> = 27.8		Percent Operational Time:	100.0

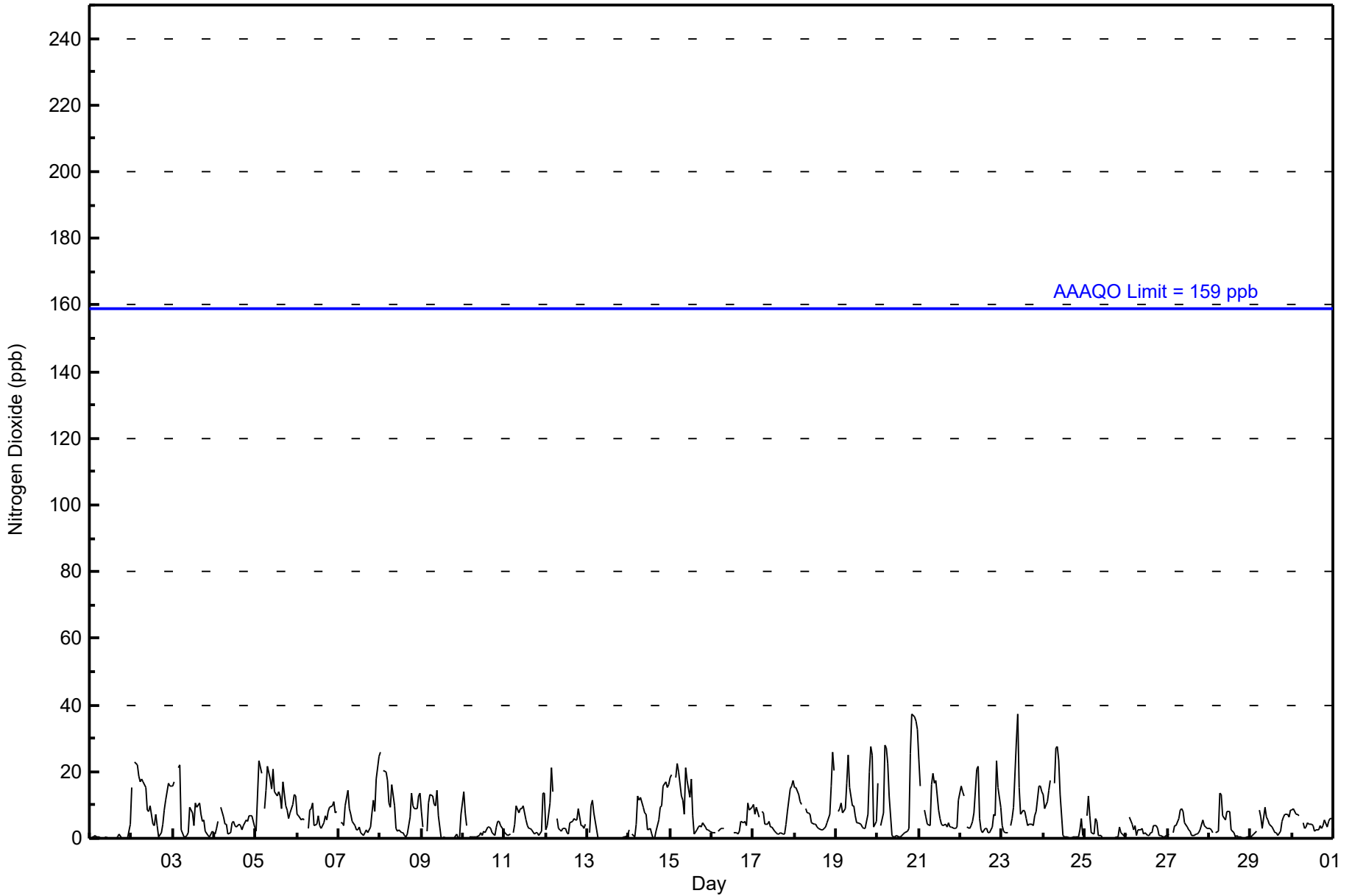
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	Z	0.4	0.3	0.7	0.6	0.4	0.2	0.1	0.2	0.3	0.2	0.0	0.0	0.1	0.2	0.1	0.4	1.4	0.0	0.0	0.0	0.0	0.2	4.1	0.4	4.1																							
2-Apr	15.3	Z	23.0	22.0	18.6	16.9	17.7	16.9	15.4	8.6	8.1	9.9	4.4	3.8	7.2	3.9	0.6	1.6	4.1	8.5	11.4	16.6	15.6	15.5	11.5	23.0																							
3-Apr	15.6	17.1	Z	21.3	22.2	2.4	0.6	0.5	0.9	1.8	9.3	7.8	4.0	10.4	9.3	10.6	7.0	5.2	5.7	2.3	0.7	0.5	1.2	2.0	6.9	22.2																							
4-Apr	1.4	2.8	4.9	Z	9.2	6.5	4.2	4.1	1.1	1.9	4.5	5.0	3.8	3.6	4.2	3.8	2.7	3.8	5.5	5.1	6.7	6.7	6.6	3.5	4.4	9.2																							
5-Apr	2.2	12.6	23.4	19.4	Z	8.8	14.4	21.5	17.8	15.0	20.7	13.8	12.8	14.1	12.8	9.1	16.8	9.9	8.4	5.9	7.7	10.2	13.0	12.7	13.2	23.4																							
6-Apr	7.0	6.7	5.4	6.1	5.6	Z	2.8	8.3	9.0	10.4	4.0	4.1	6.6	3.9	3.1	4.5	6.7	5.7	8.1	9.4	9.9	11.0	7.6	8.1	6.7	11.0																							
7-Apr	Z	4.5	4.7	3.7	9.8	14.3	8.8	7.2	5.2	3.9	2.4	2.4	3.6	1.5	1.0	1.5	2.4	1.6	3.5	7.8	11.4	8.1	17.6	24.6	6.6	24.6																							
8-Apr	26.0	Z	20.2	19.8	17.3	10.6	9.2	15.9	9.9	3.1	2.0	2.5	1.5	1.5	0.7	0.5	1.1	6.5	13.4	9.7	8.7	8.7	12.9	13.4	9.4	26.0																							
9-Apr	8.1	3.6	Z	2.2	10.6	13.2	12.8	10.0	9.6	14.2	6.6	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.2	0.4	7.4	4.4	14.2																						
10-Apr	14.1	7.5	3.7	Z	0.5	0.6	0.4	0.3	0.3	0.9	1.6	1.0	2.2	1.5	3.3	3.6	2.8	1.8	0.9	3.5	5.1	4.9	3.9	2.5	2.9	14.1																							
11-Apr	1.7	1.4	1.0	1.1	Z	1.7	4.3	9.9	7.6	8.8	8.9	9.8	5.3	3.8	3.1	3.1	2.6	1.1	1.6	1.9	0.7	2.1	13.7	13.6	4.7	13.7																							
12-Apr	2.6	3.7	10.6	21.1	13.9	Z	6.1	2.9	2.4	2.3	2.9	2.9	1.8	1.3	4.5	4.9	5.9	5.5	5.4	8.9	3.8	4.0	2.8	4.4	5.4	21.1																							
13-Apr	Z	1.8	9.9	11.6	7.8	2.5	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.6	0.5	0.7	1.6	11.6																							
14-Apr	2.4	Z	1.2	0.5	4.1	12.9	11.3	12.1	9.2	7.6	7.3	2.7	2.8	1.3	0.2	2.1	5.3	9.2	9.8	15.5	16.9	15.1	16.3	7.2	16.9																								
15-Apr	18.4	19.0	Z	18.3	22.3	19.9	12.8	11.5	7.0	21.0	17.2	12.1	17.8	6.7	1.1	2.4	3.5	3.8	3.2	4.8	3.2	2.7	2.7	2.1	10.2	22.3																							
16-Apr	1.7	1.9	1.8	Z	2.2	2.9	2.8	2.9	C	C	C	C	C	1.7	1.5	1.2	2.0	4.9	4.6	5.2	3.8	10.6	8.5	9.3	3.9	10.6																							
17-Apr	10.0	7.4	9.2	6.5	Z	8.0	7.5	4.2	4.3	4.9	3.4	3.2	2.0	1.9	1.4	1.3	1.5	1.1	1.1	4.4	8.2	14.7	15.5	17.4	6.0	17.4																							
18-Apr	15.3	15.4	13.3	11.0	10.2	Z	9.1	7.5	7.8	7.3	4.7	4.4	4.1	3.2	2.9	2.6	2.5	3.0	3.3	4.6	7.1	15.8	25.9	20.3	8.8	25.9																							
19-Apr	Z	8.1	8.9	10.8	7.6	9.0	16.6	25.0	15.4	9.8	9.6	6.8	4.7	4.5	4.2	3.6	2.9	3.0	7.2	20.0	27.7	24.9	3.5	5.0	10.4	27.7																							
20-Apr	16.7	Z	3.9	7.8	28.1	27.2	22.6	12.7	0.7	0.5	0.4	1.0	0.5	0.5	0.9	1.2	1.5	2.3	3.0	25.5	37.1	36.3	35.2	32.8	13.0	37.1																							
21-Apr	23.6	15.6	Z	8.4	6.3	4.3	3.9	16.1	19.6	16.5	17.4	8.5	5.8	4.1	3.7	4.2	3.6	4.7	3.5	3.5	3.0	2.9	3.5	11.4	8.4	23.6																							
22-Apr	15.8	14.0	12.8	Z	3.4	3.1	3.9	5.1	7.7	20.7	21.6	6.0	2.4	1.8	3.1	2.9	1.7	1.8	3.6	7.4	6.6	23.2	15.4	9.3	8.4	23.2																							
23-Apr	3.7	2.1	1.9	1.9	Z	3.8	5.8	9.2	28.8	37.3	15.2	7.4	8.4	7.9	5.9	3.8	4.4	4.1	3.7	6.6	8.2	15.8	15.6	14.1	9.4	37.3																							
24-Apr	13.1	8.8	10.9	14.5	17.2	Z	16.5	27.1	27.7	23.1	13.3	0.9	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4	2.5	6.1	1.0	8.1	27.7																							
25-Apr	Z	6.8	12.7	6.9	1.9	1.1	5.8	5.2	1.0	0.7	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.2	0.5	0.3	3.5	1.8	1.1	0.4	2.2	12.7																							
26-Apr	1.4	Z	6.4	4.4	2.5	3.8	0.9	2.6	2.6	2.8	1.1	1.5	1.0	1.0	1.5	1.5	3.8	3.8	3.0	0.8	0.7	0.6	0.6	0.7	2.1	6.4																							
27-Apr	1.0	1.3	Z	1.6	3.7	4.0	5.9	8.5	8.8	8.0	4.7	3.3	2.6	2.2	0.9	0.9	1.3	1.4	1.8	2.5	5.5	3.8	3.4	3.0	3.5	8.8																							
28-Apr	2.8	2.4	1.9	Z	1.5	2.1	13.6	13.3	6.8	5.5	7.9	8.1	8.0	2.4	1.8	0.5	0.7	0.4	0.5	0.2	0.1	0.2	0.3	0.3	3.5	13.6																							
29-Apr	0.5	0.7	1.3	2.1	Z	8.6	6.3	3.0	9.5	6.5	5.5	4.1	3.5	2.6	1.8	1.9	1.0	2.1	4.9	6.3	7.4	7.3	6.3	8.3	4.4	9.5																							
30-Apr	8.3	8.9	7.0	7.2	6.6	Z	4.7	3.1	3.5	4.6	4.4	4.3	3.8	2.3	2.5	2.5	4.0	2.8	3.9	5.3	3.5	5.2	5.9	6.0	4.8	8.9																							
																								9.1	7.0	8.0	9.2	9.3	7.5	7.7	8.9	8.3	8.6	7.1	4.6	3.9	3.0	2.8	2.6	2.9	3.0	3.8	5.7	7.0	8.6	8.7	9.0	Diurnal Average	
																								26.0	19.0	23.4	22.0	28.1	27.2	22.6	27.1	28.8	37.3	21.6	13.8	17.8	14.1	12.8	10.6	16.8	9.9	13.4	25.5	37.1	36.3	35.2	32.8	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort McKay South - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	652	95.18	95.18
21 - 40	33	4.82	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay South - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	125	78	12	4	2	10	51	46	45	35	34	57	21	31	33	52	636
21 - 40	7	5	0	0	0	0	2	4	5	2	4	0	0	2	0	1	32
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	132	83	12	4	2	10	53	50	50	37	38	57	21	33	33	53	668

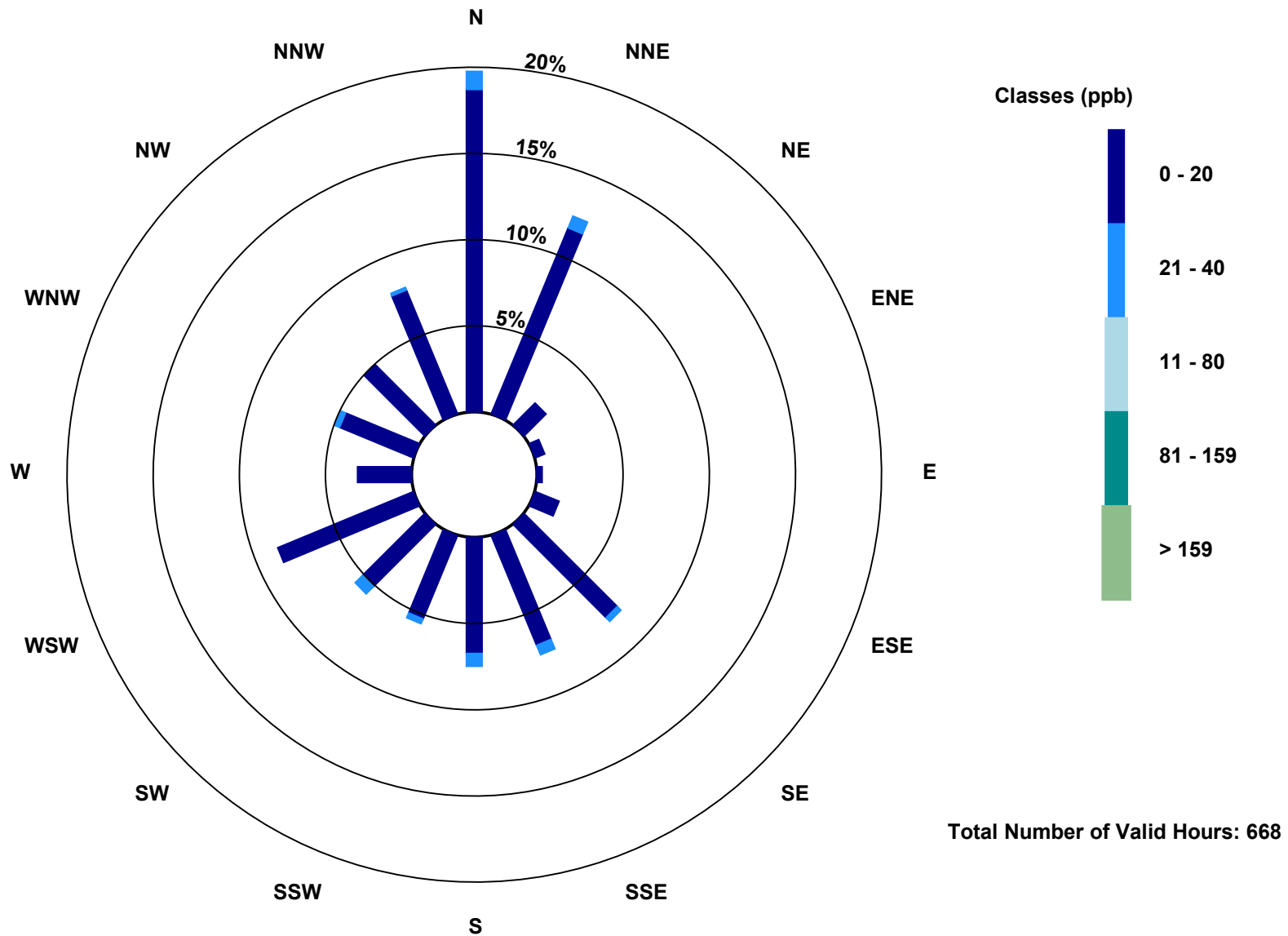
Total Number of Valid Hours: 668

Total Number of Hours: 720

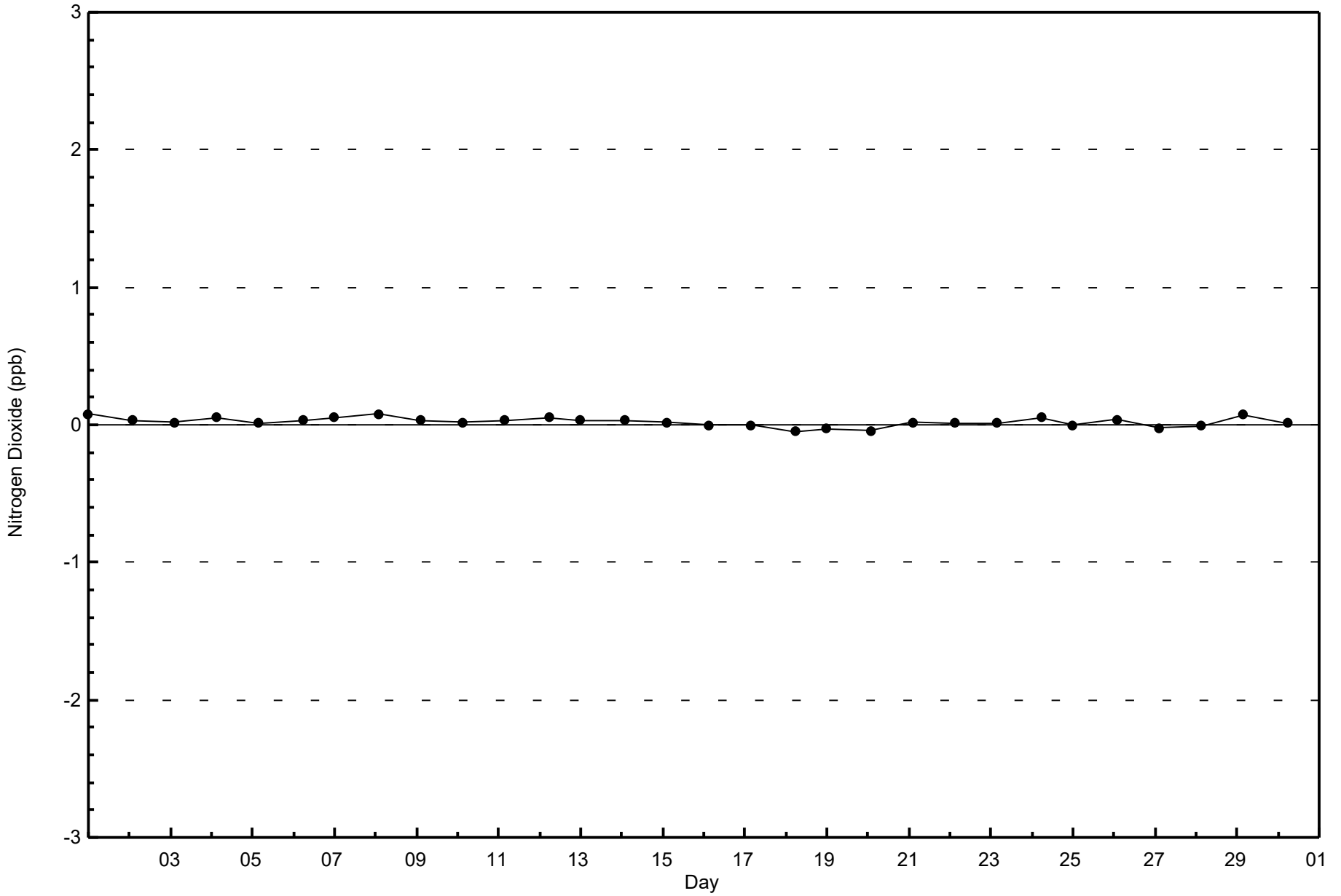


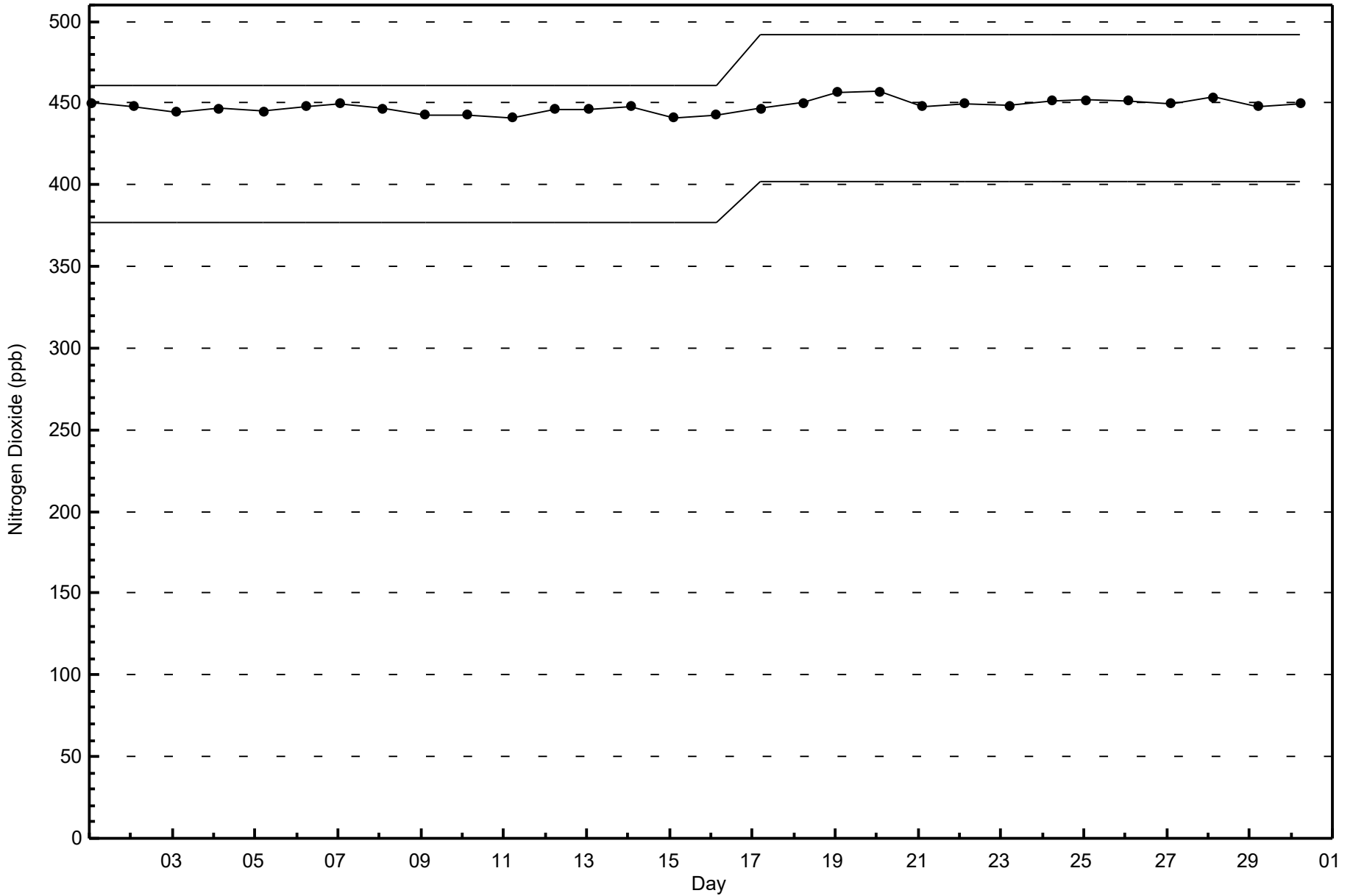
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











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

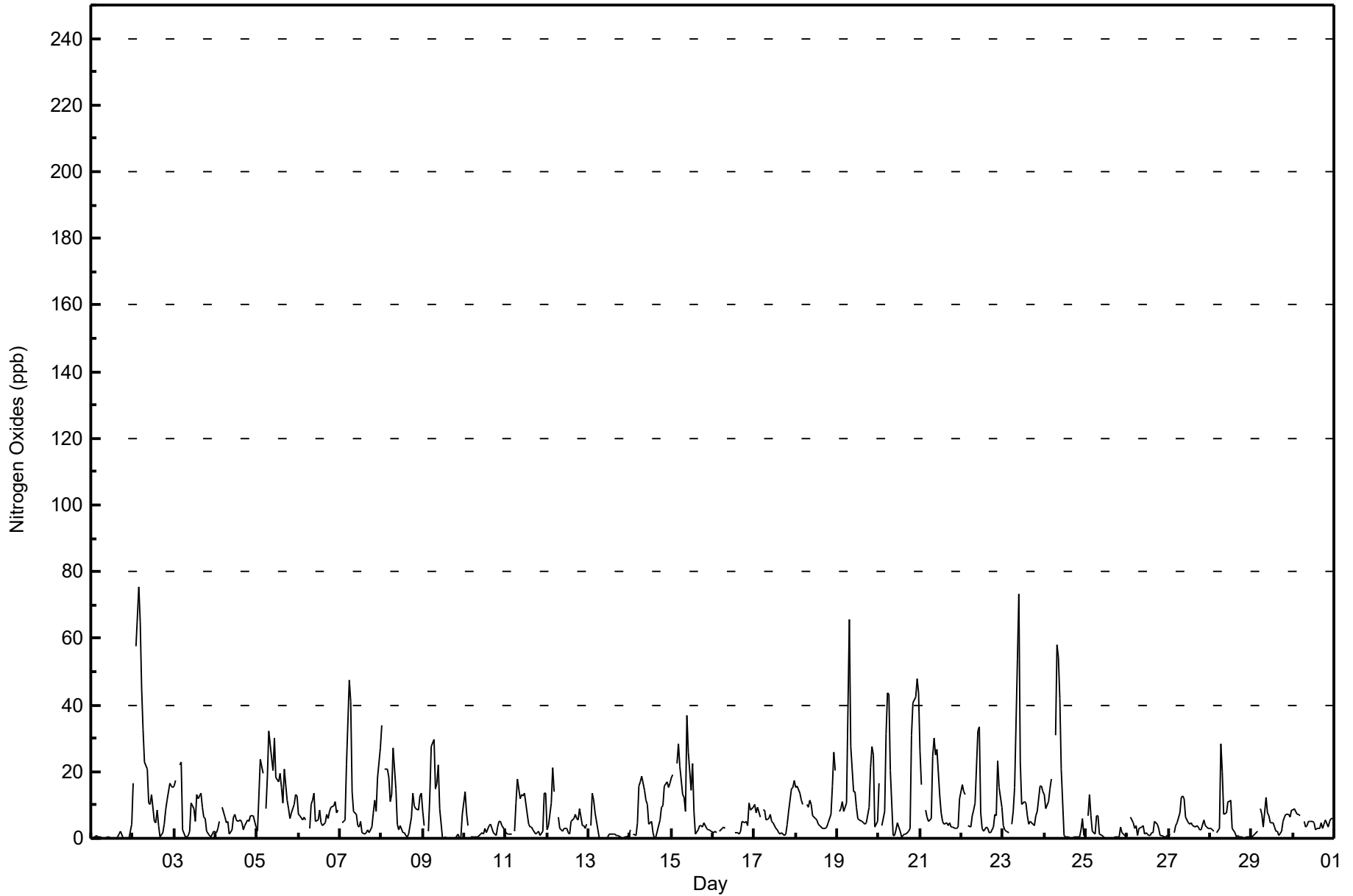
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - April 2024**

Maximum Value: 75.2 ppb on Apr 2 04:00																						Maximum Daily Average: 20.2 ppb on Apr 2																						Hours in Service: 720					
Minimum Value: 0.0 ppb on Apr 1 12:00																						Minimum Daily Average: 0.5 ppb on Apr 1																						Hours of Data: 685					
Maximum Diurnal Average: 14.6 ppb at hour 8																						Minimum Diurnal Average: 3.0 ppb at hour 16																						Hours of Missing Data: 35					
Monthly Average: 8.22 ppb																						Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.9 Median = 4.8 Q <sub>3</sub> = 10.6 P <sub>90</sub> = 19.6 P <sub>99</sub> = 53.7																						Hours of Calibration: 35					
																						Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	Z	0.4	0.3	0.7	0.6	0.4	0.2	0.1	0.2	0.3	0.2	0.0	0.0	0.1	0.2	0.4	1.1	2.0	0.0	0.0	0.0	0.0	0.2	4.1	0.5	4.1																							
2-Apr	16.5	Z	57.6	75.2	64.8	44.8	32.8	23.0	20.8	10.6	10.0	12.9	5.0	4.8	8.5	3.9	0.6	1.6	4.1	8.5	11.4	16.6	15.6	15.5	20.2	75.2																							
3-Apr	15.8	17.4	Z	22.1	22.8	2.5	0.6	0.5	0.9	2.0	10.7	8.8	4.9	13.2	12.0	13.4	9.4	6.2	5.8	2.3	0.7	0.5	1.5	2.3	7.7	22.8																							
4-Apr	1.5	2.8	4.9	Z	9.2	6.5	4.7	4.9	1.2	2.4	6.4	7.0	5.4	4.9	5.6	4.7	2.7	3.8	5.5	5.1	6.7	6.7	6.6	3.5	4.9	9.2																							
5-Apr	2.2	12.7	23.6	19.5	Z	8.9	18.4	32.3	24.0	20.1	30.2	18.3	16.7	19.6	15.4	10.6	20.7	11.3	8.8	5.9	7.7	10.2	13.1	12.8	15.8	32.3																							
6-Apr	7.0	6.7	5.5	6.2	5.6	Z	3.0	10.1	11.5	13.6	5.2	5.4	8.6	4.7	3.6	4.8	7.2	6.0	8.2	9.4	9.9	11.0	7.7	8.4	7.4	13.6																							
7-Apr	Z	4.8	5.2	5.7	22.0	47.3	41.3	14.2	8.1	7.1	3.9	3.3	5.3	1.8	1.2	1.6	2.4	1.6	3.5	7.8	11.4	8.1	18.1	27.0	11.0	47.3																							
8-Apr	33.9	Z	20.8	20.8	18.3	11.1	13.2	27.1	14.8	4.2	2.7	3.9	1.5	1.5	0.7	0.5	1.1	6.5	13.4	9.7	8.7	8.7	12.9	13.4	10.9	33.9																							
9-Apr	8.1	3.6	Z	2.2	12.9	27.7	29.8	14.9	16.7	22.2	8.8	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.2	0.4	7.4	6.8	29.8																							
10-Apr	14.1	7.5	3.7	Z	0.6	0.6	0.4	0.3	0.3	1.1	1.9	1.2	3.0	1.8	3.9	4.1	2.9	1.8	0.9	3.5	5.1	4.9	3.9	2.5	3.0	14.1																							
11-Apr	1.7	1.4	1.1	1.2	Z	2.0	10.6	17.7	12.0	13.2	12.6	13.5	7.2	4.3	3.3	3.3	2.6	1.1	1.6	1.9	0.7	2.2	13.7	13.6	6.2	17.7																							
12-Apr	2.6	3.7	10.7	21.2	14.0	Z	6.4	2.9	2.4	2.3	3.1	3.1	1.8	1.3	4.9	5.8	7.2	5.9	5.4	8.9	3.8	4.0	2.8	4.4	5.6	21.2																							
13-Apr	Z	3.6	13.4	11.6	7.8	2.5	0.0	0.1	0.0	0.0	0.0	0.6	1.1	1.2	1.1	1.1	1.0	0.8	0.5	0.0	0.0	0.6	0.5	0.7	2.1	13.4																							
14-Apr	2.4	Z	1.4	0.7	4.8	15.9	17.0	18.5	14.3	11.6	10.3	4.3	5.2	1.8	0.2	2.1	5.6	9.3	9.8	15.5	16.9	15.1	16.3	16.3	8.7	18.5																							
15-Apr	18.4	19.0	Z	22.6	28.2	21.4	13.2	12.2	8.1	36.8	25.7	14.5	22.6	8.2	1.1	2.4	3.8	3.9	3.2	4.8	3.2	2.7	2.7	2.1	12.2	36.8																							
16-Apr	1.7	1.9	1.8	Z	2.3	3.1	3.2	3.1	C	C	C	C	C	1.9	1.5	1.2	2.0	4.9	4.6	5.2	3.8	10.6	8.5	9.3	3.9	10.6																							
17-Apr	10.0	7.4	9.2	6.5	Z	8.4	8.6	5.4	6.1	7.3	5.0	4.6	2.8	2.5	1.6	1.4	1.6	1.1	1.1	4.4	8.2	14.7	15.5	17.5	6.6	17.5																							
18-Apr	15.4	15.6	13.7	11.3	10.4	Z	10.4	9.4	11.2	10.4	6.8	6.1	5.7	4.4	3.7	3.1	2.8	3.1	3.3	4.6	7.1	15.8	25.9	20.4	9.6	25.9																							
19-Apr	Z	8.1	8.9	11.1	7.9	10.7	38.4	65.6	27.5	14.2	13.9	9.3	6.0	5.6	5.3	4.8	4.4	4.8	9.1	21.0	27.7	24.9	3.5	5.0	14.7	65.6																							
20-Apr	16.7	Z	4.0	8.0	31.3	43.5	43.2	20.1	1.0	1.0	2.4	4.7	2.2	0.5	1.0	1.2	1.5	2.3	3.0	30.7	40.7	42.4	48.0	43.9	17.1	48.0																							
21-Apr	26.1	16.0	Z	8.6	6.5	5.0	5.8	24.7	30.1	25.0	26.8	12.8	7.5	5.1	4.4	4.8	3.8	4.7	3.5	3.5	3.0	2.9	3.6	11.9	10.7	30.1																							
22-Apr	16.1	14.2	13.0	Z	3.6	3.6	6.7	8.5	10.5	32.3	33.5	7.6	2.9	2.0	3.5	3.0	1.7	1.8	3.6	7.4	6.6	23.2	15.4	9.3	10.0	33.5																							
23-Apr	4.0	2.4	2.0	1.9	Z	4.4	8.1	15.2	53.6	73.3	23.0	10.0	11.2	10.4	7.0	4.1	5.0	4.3	3.7	6.6	8.2	15.8	15.6	14.2	13.2	73.3																							
24-Apr	13.3	8.9	11.1	14.7	17.7	Z	30.9	58.1	54.2	41.9	20.6	0.9	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4	2.5	6.1	1.0	12.4	58.1																							
25-Apr	Z	6.9	13.0	7.0	2.0	1.3	6.7	6.6	1.3	1.0	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.2	0.5	0.3	3.5	1.8	1.1	0.4	2.4	13.0																							
26-Apr	1.4	Z	6.5	4.6	2.8	3.9	0.9	3.1	3.4	3.7	1.3	1.8	1.0	1.0	1.6	1.9	5.0	4.4	3.0	0.8	0.7	0.6	0.6	0.7	2.4	6.5																							
27-Apr	1.0	1.3	Z	1.6	3.9	4.6	7.6	12.1	12.8	11.8	6.3	4.7	4.4	4.8	3.6	3.6	3.8	3.4	2.7	2.5	5.5	3.8	3.4	3.0	4.9	12.8																							
28-Apr	2.8	2.6	2.0	Z	1.7	2.9	28.5	20.0	7.3	7.6	11.0	10.9	11.3	2.9	1.8	0.5	0.7	0.4	0.5	0.2	0.1	0.2	0.3	0.3	5.1	28.5																							
29-Apr	0.5	0.7	1.3	2.1	Z	9.1	7.0	3.4	12.1	7.7	6.6	4.8	4.6	3.5	2.1	1.9	1.0	2.1	4.9	6.3	7.4	7.3	6.3	8.3	4.8	12.1																							
30-Apr	8.3	8.9	7.1	7.3	6.7	Z	5.0	3.3	3.8	5.1	5.0	5.1	4.7	2.7	2.9	2.8	4.5	3.1	4.4	5.5	3.5	5.2	5.9	6.0	5.1	8.9																							
																								9.7	7.1	9.7	11.8	12.3	11.7	13.4	14.6	12.8	13.4	10.1	6.2	5.3	3.9	3.4	3.0	3.4	3.3	3.9	5.9	7.1	8.8	9.2	9.5	Diurnal Average	
																								33.9	19.0	57.6	75.2	64.8	47.3	43.2	65.6	54.2	73.3	33.5	18.3	22.6	19.6	15.4	13.4	20.7	11.3	13.4	30.7	40.7	42.4	48.0	43.9	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	621	90.66	90.66
21 - 40	46	6.72	97.37
41 - 80	18	2.63	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685  
Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay South - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	121	75	12	4	2	10	47	39	40	33	34	57	20	30	32	50	606
21 - 40	8	6	0	0	0	0	5	8	5	4	2	0	1	3	1	3	46
11 - 80	3	2	0	0	0	0	1	3	5	0	2	0	0	0	0	0	16
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	132	83	12	4	2	10	53	50	50	37	38	57	21	33	33	53	668

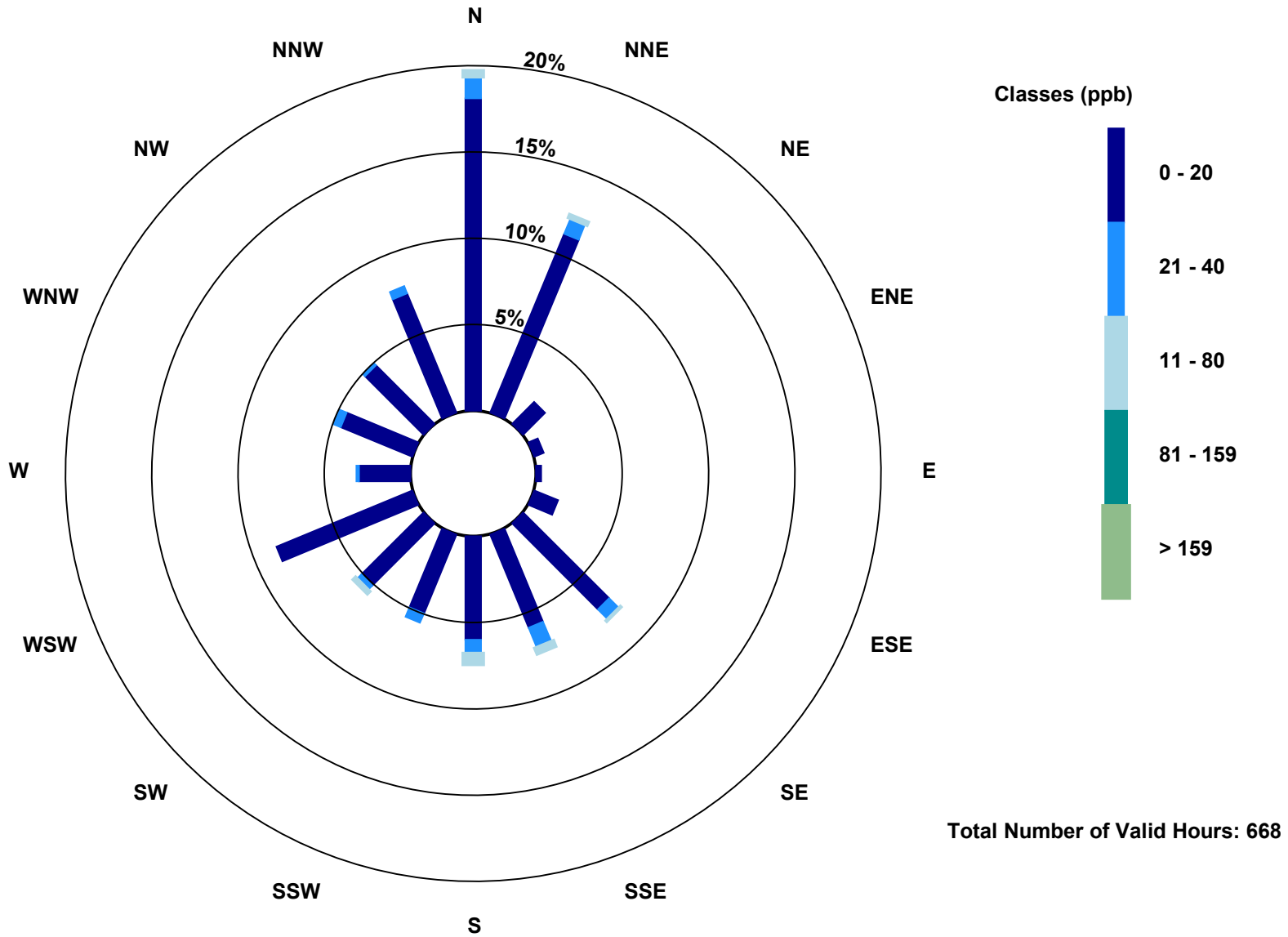
Total Number of Valid Hours: 668

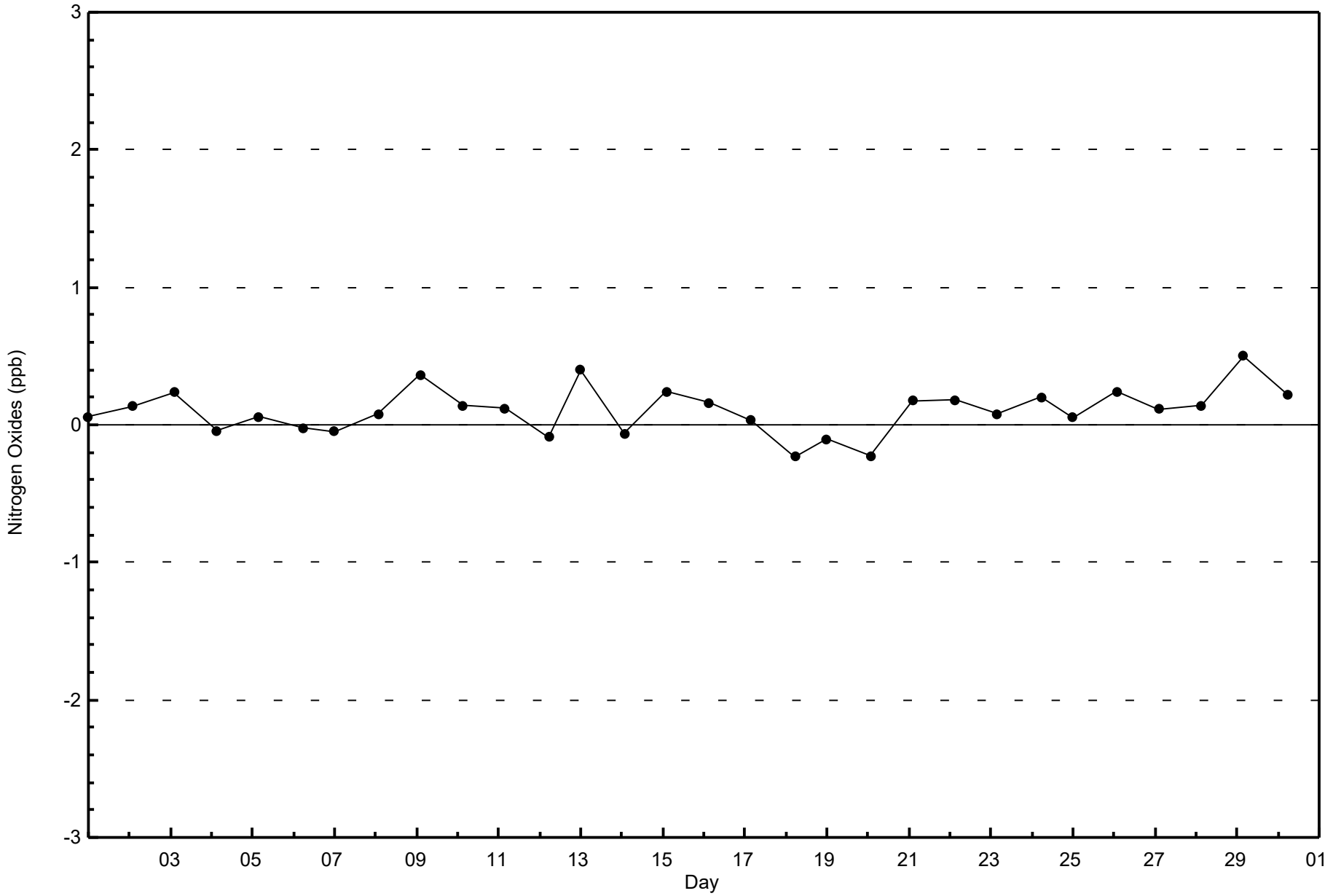
Total Number of Hours: 720



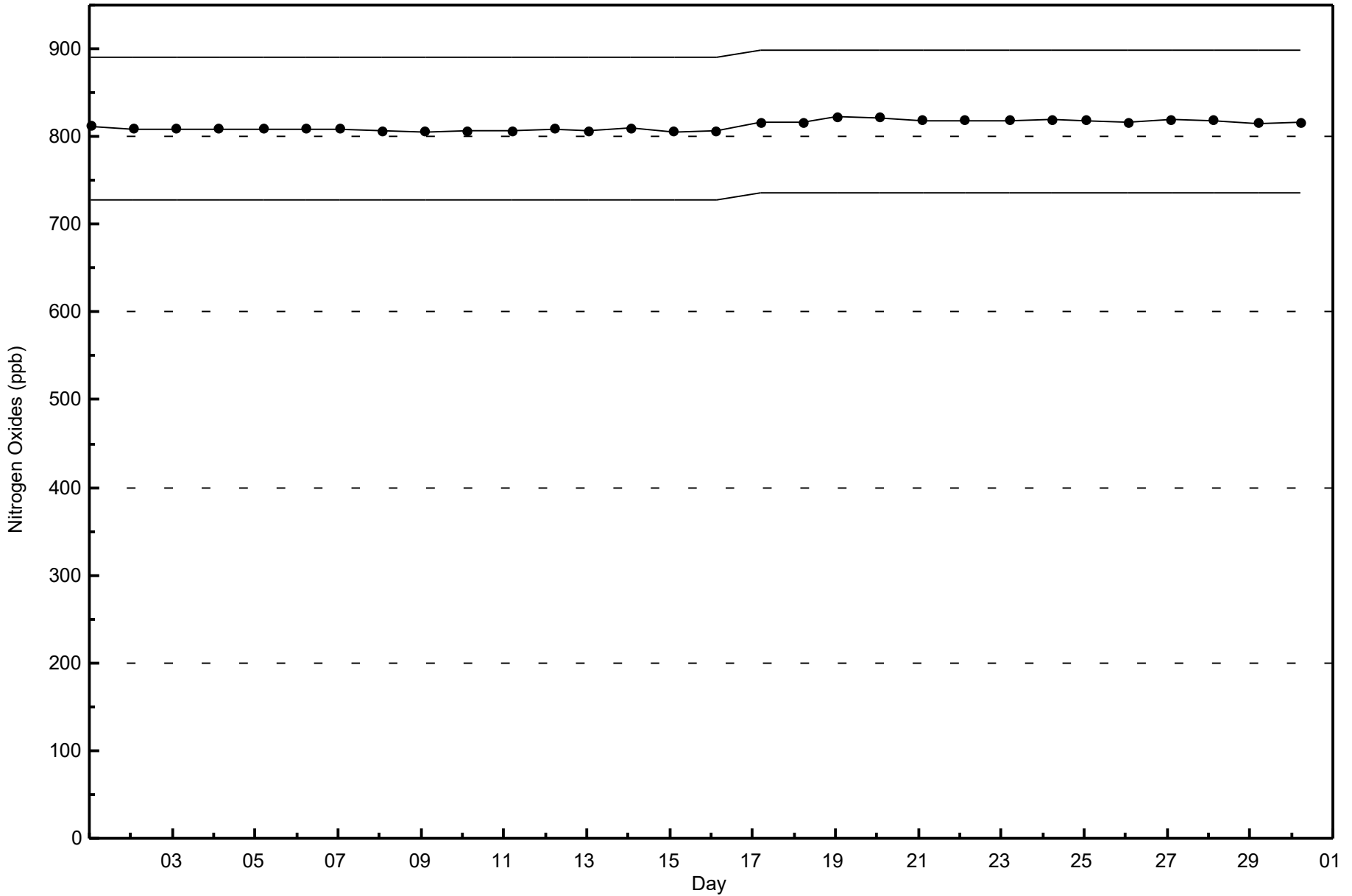
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











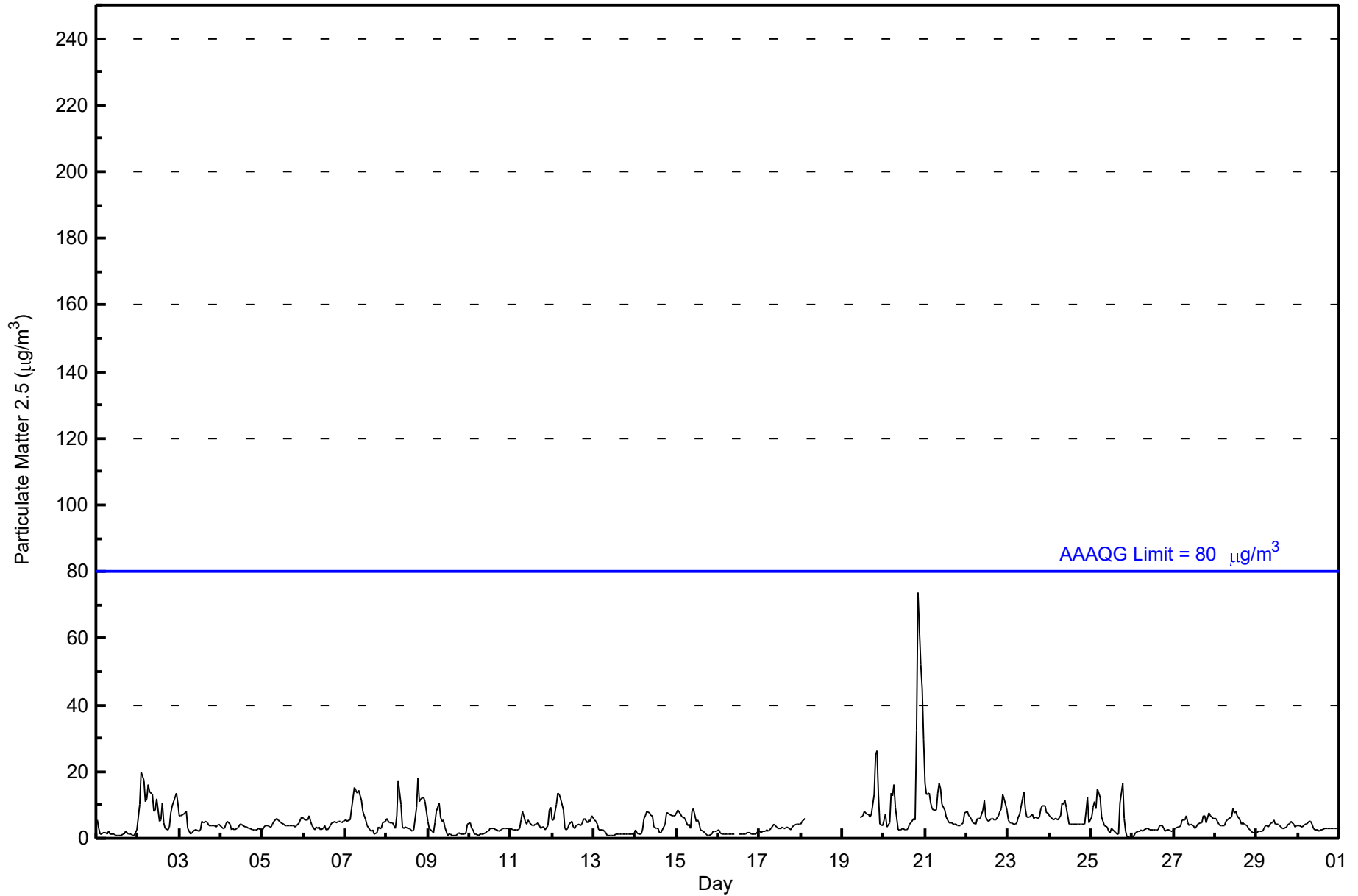
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort McKay South - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720																Daily Average		Daily Maximum																																															
Maximum Value: 73.6 µg/m <sup>3</sup> on Apr 20 21:00		Maximum Daily Average: 14.3 µg/m <sup>3</sup> on Apr 20		Hours of Data: 687																Hours of Missing Data: 33		Hours of Calibration: 2																																																	
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 26 00:00		Minimum Daily Average: 1.4 µg/m <sup>3</sup> on Apr 16		Hours of Calibration: 2																Percent Operational Time: 95.7																																																			
Maximum Diurnal Average: 7.5 µg/m <sup>3</sup> at hour 21		Minimum Diurnal Average: 3.4 µg/m <sup>3</sup> at hour 16																																																																					
Monthly Average: 5.09 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 2.6 Median = 4.0 Q <sub>3</sub> = 6.0 P <sub>90</sub> = 9.3 P <sub>99</sub> = 20.6																																																																					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																															
1-Apr	5.4	2.9	1.3	1.3	1.7	1.5	1.3	2.0	1.3	1.3	1.2	0.9	0.8	0.8	1.0	1.2	1.5	2.0	1.3	1.2	1.1	1.0	1.0	2.7	1.6	5.4																																													
2-Apr	6.4	10.3	19.9	17.5	10.9	11.7	15.9	14.0	13.3	7.9	8.4	11.9	5.3	5.6	10.8	4.5	2.8	2.6	3.6	7.7	9.6	12.2	13.5	10.6	9.9	19.9																																													
3-Apr	6.9	6.6	7.2	7.8	8.0	2.8	1.4	1.9	2.3	2.4	2.4	2.1	2.5	5.2	4.7	5.3	4.7	3.7	3.8	3.8	3.7	3.6	4.0	4.2	4.2	8.0																																													
4-Apr	3.6	2.9	3.0	4.3	5.2	4.2	2.5	3.1	2.5	2.8	3.4	4.1	4.1	3.7	3.5	3.5	2.9	2.8	2.6	2.5	2.7	2.7	2.8	2.6	3.2	5.2																																													
5-Apr	2.5	3.4	3.6	3.7	3.4	3.3	4.1	5.2	6.0	5.3	5.1	4.6	4.0	3.8	4.0	3.6	4.0	3.8	3.7	3.4	4.0	4.9	5.7	6.5	4.2	6.5																																													
6-Apr	5.8	5.6	5.7	6.6	5.2	3.9	2.6	3.3	2.9	3.4	2.7	3.2	3.8	2.5	2.7	3.8	4.7	4.9	4.9	4.7	4.9	4.9	4.6	5.0	4.3	6.6																																													
7-Apr	5.4	5.3	5.5	5.5	8.9	15.4	14.4	13.5	14.4	11.3	8.0	6.6	5.7	3.8	2.3	2.2	2.4	1.3	1.7	3.3	2.9	3.0	4.8	4.9	6.4	15.4																																													
8-Apr	5.8	5.0	4.6	4.5	3.8	2.9	6.8	17.3	10.1	3.5	2.8	3.3	2.8	2.8	2.4	2.0	2.6	9.2	18.4	11.1	12.1	12.5	11.1	8.1	6.9	18.4																																													
9-Apr	5.0	3.2	2.1	1.8	4.7	8.2	10.6	6.2	5.0	5.6	3.5	1.0	1.2	1.3	0.8	0.7	0.9	1.1	1.8	1.4	1.4	1.4	1.5	4.3	3.1	10.6																																													
10-Apr	4.6	3.0	2.6	1.4	1.2	0.9	1.2	1.5	1.4	1.8	2.0	2.0	2.8	2.8	2.8	2.7	2.6	2.3	2.4	3.0	2.8	2.8	2.8	2.8	2.3	4.6																																													
11-Apr	2.8	2.7	2.6	2.6	2.8	3.1	5.4	8.0	5.2	4.0	5.5	4.5	3.7	4.0	4.2	4.3	4.5	3.1	3.6	3.2	2.4	3.7	8.4	9.4	4.3	9.4																																													
12-Apr	5.4	5.4	10.2	13.4	13.3	11.7	8.3	2.8	2.4	3.0	4.4	5.1	3.3	2.9	3.7	4.0	3.8	4.3	5.4	5.8	4.8	5.5	5.1	6.9	5.9	13.4																																													
13-Apr	5.3	5.0	4.2	2.5	2.4	2.3	2.0	1.6	0.8	0.8	0.8	0.9	1.0	1.1	1.2	1.1	1.3	1.4	1.3	1.4	1.4	1.3	1.3	1.4	1.8	5.3																																													
14-Apr	2.5	1.8	1.3	1.2	2.6	6.1	6.8	8.2	7.6	6.8	7.0	3.5	3.0	3.1	1.6	1.9	2.6	4.3	7.8	7.7	7.3	6.8	7.0	6.8	4.8	8.2																																													
15-Apr	7.5	8.3	7.1	6.5	6.5	5.7	4.0	4.2	3.1	8.2	8.9	5.1	5.6	4.7	2.7	2.2	1.8	1.4	0.9	1.0	1.4	2.3	2.3	2.3	4.3	8.9																																													
16-Apr	2.5	1.7	1.4	1.3	1.1	1.3	1.4	1.3	1.3	1.3	C	C	1.1	1.2	1.3	1.4	1.4	1.8	1.6	1.4	1.3	1.5	1.2	2.0	1.4	2.5																																													
17-Apr	2.1	1.9	2.1	2.1	2.3	2.0	2.7	3.1	4.2	4.0	3.2	3.1	3.1	3.2	3.1	2.9	3.2	3.0	2.8	3.3	3.8	4.1	4.1	4.4	3.1	4.4																																													
18-Apr	4.3	5.0	6.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	6.0																																													
19-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	6.2	6.5	6.8	8.0	7.4	7.4	6.3	7.1	13.1	25.0	26.4	13.3	4.4	3.9	--	26.4																																													
20-Apr	5.5	7.2	3.3	4.5	13.4	12.8	16.1	9.5	2.5	2.5	2.6	2.9	2.7	2.7	3.1	4.2	4.7	6.0	5.4	32.2	73.6	52.1	44.8	29.5	14.3	73.6																																													
21-Apr	16.5	13.3	13.5	10.5	9.0	8.3	8.5	13.4	16.6	14.9	10.1	8.6	6.2	5.3	4.6	4.6	4.3	4.4	4.2	3.9	3.9	4.1	4.5	7.6	8.4	16.6																																													
22-Apr	7.9	6.8	6.2	5.4	4.7	4.2	6.0	6.1	5.9	8.5	11.6	6.4	5.5	5.0	5.7	6.0	5.6	5.5	6.7	8.3	9.1	13.1	11.8	8.4	7.1	13.1																																													
23-Apr	5.6	4.8	4.5	4.4	4.4	4.9	6.5	7.1	11.7	14.2	8.9	6.2	6.4	7.0	7.1	5.9	6.3	5.9	6.2	8.7	9.9	9.6	7.7	7.7	7.1	14.2																																													
24-Apr	6.8	6.3	5.7	6.0	6.0	5.7	7.0	10.5	10.3	11.3	9.3	4.2	4.1	4.1	4.2	4.2	4.2	4.3	4.2	4.3	4.2	7.9	12.3	4.8	6.3	12.3																																													
25-Apr	6.2	9.2	10.8	8.7	14.7	12.1	6.5	5.2	3.9	3.3	2.1	1.7	3.0	2.4	1.6	1.3	1.5	10.7	16.6	5.9	2.3	0.3	0.3	0.2	5.4	16.6																																													
26-Apr	0.5	0.9	1.7	2.2	2.3	2.5	2.1	2.4	2.8	2.9	2.6	2.7	2.6	2.5	2.7	2.7	3.7	3.8	3.0	2.3	2.6	2.5	2.3	2.2	2.4	3.8																																													
27-Apr	2.4	3.0	3.2	3.3	4.0	5.6	5.4	6.9	4.9	3.9	4.3	3.6	3.1	3.2	4.1	4.6	4.7	6.7	6.8	4.8	7.6	6.7	6.3	6.1	4.8	7.6																																													
28-Apr	5.9	5.3	4.3	3.9	3.7	3.6	5.2	5.6	5.8	6.3	8.9	7.6	7.9	6.8	5.7	4.2	4.7	4.4	3.9	3.2	2.7	2.3	1.7	1.5	4.8	8.9																																													
29-Apr	1.7	2.0	1.9	2.2	2.8	4.0	3.9	3.6	4.6	4.7	5.4	4.4	4.1	3.6	3.3	3.1	2.8	3.2	4.3	4.4	5.1	4.2	3.6	4.0	3.6	5.4																																													
30-Apr	3.8	3.7	3.5	4.0	4.1	4.4	5.2	5.0	4.3	2.8	2.5	2.6	2.0	2.4	2.6	2.9	3.0	2.9	3.1	3.1	3.0	3.1	2.9	2.9	3.3	5.2																																													
																								5.1	4.9	5.1	5.0	5.5	5.5	5.8	6.2	5.6	5.3	5.1	4.3	3.7	3.6	3.6	3.4	3.4	4.1	5.0	5.9	7.5	6.7	6.3	5.6	Diurnal Average																							
																								16.5	13.3	19.9	17.5	14.7	15.4	16.1	17.3	16.6	14.9	11.6	11.9	7.9	8.0	10.8	7.4	6.3	10.7	18.4	32.2	73.6	52.1	44.8	29.5	Diurnal Maximum																							
C - Calibration																								M - Maintenance																								UO - Unstable Operation																							
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup>																								24-hr 29 µg/m <sup>3</sup>																																															





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Fort McKay South - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	480	69.87	69.87
6 - 15	191	27.80	97.67
16 - 25	10	1.46	99.13
26 - 80	6	0.87	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 687

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Fort McKay South - April 2024**

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	
0 - 5	100	62	11	3	1	8	32	23	24	19	29	44	18	25	30	40	469
6 - 15	27	20	1	1	1	2	18	28	21	19	6	16	4	6	3	11	184
16 - 25	0	0	0	0	0	0	2	1	2	1	2	0	0	0	1	0	9
26 - 80	0	0	0	0	0	0	0	0	3	1	2	0	0	0	0	0	6
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	127	82	12	4	2	10	52	52	50	40	39	60	22	31	34	51	668

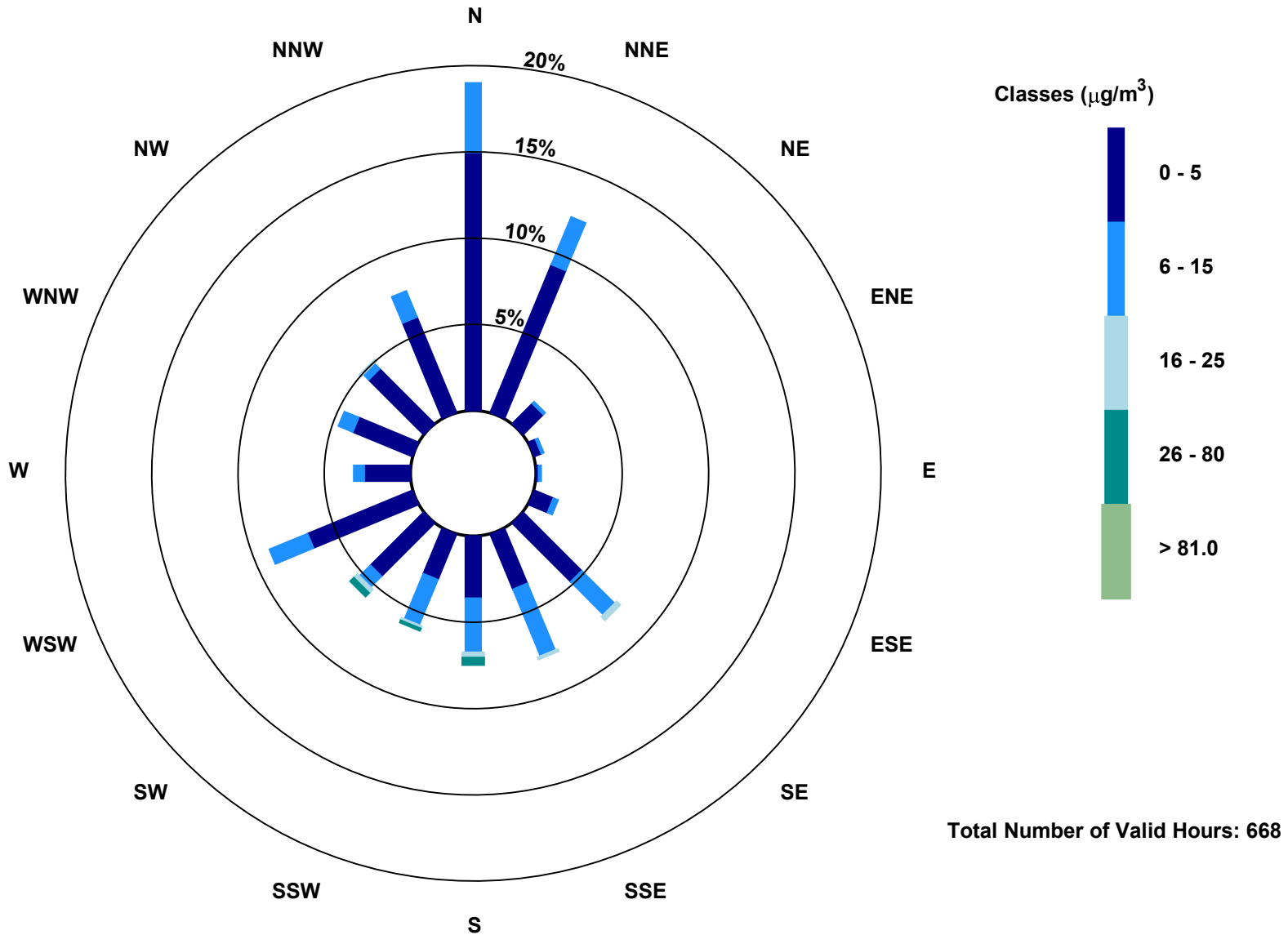
Total Number of Valid Hours: 668

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort McKay South





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

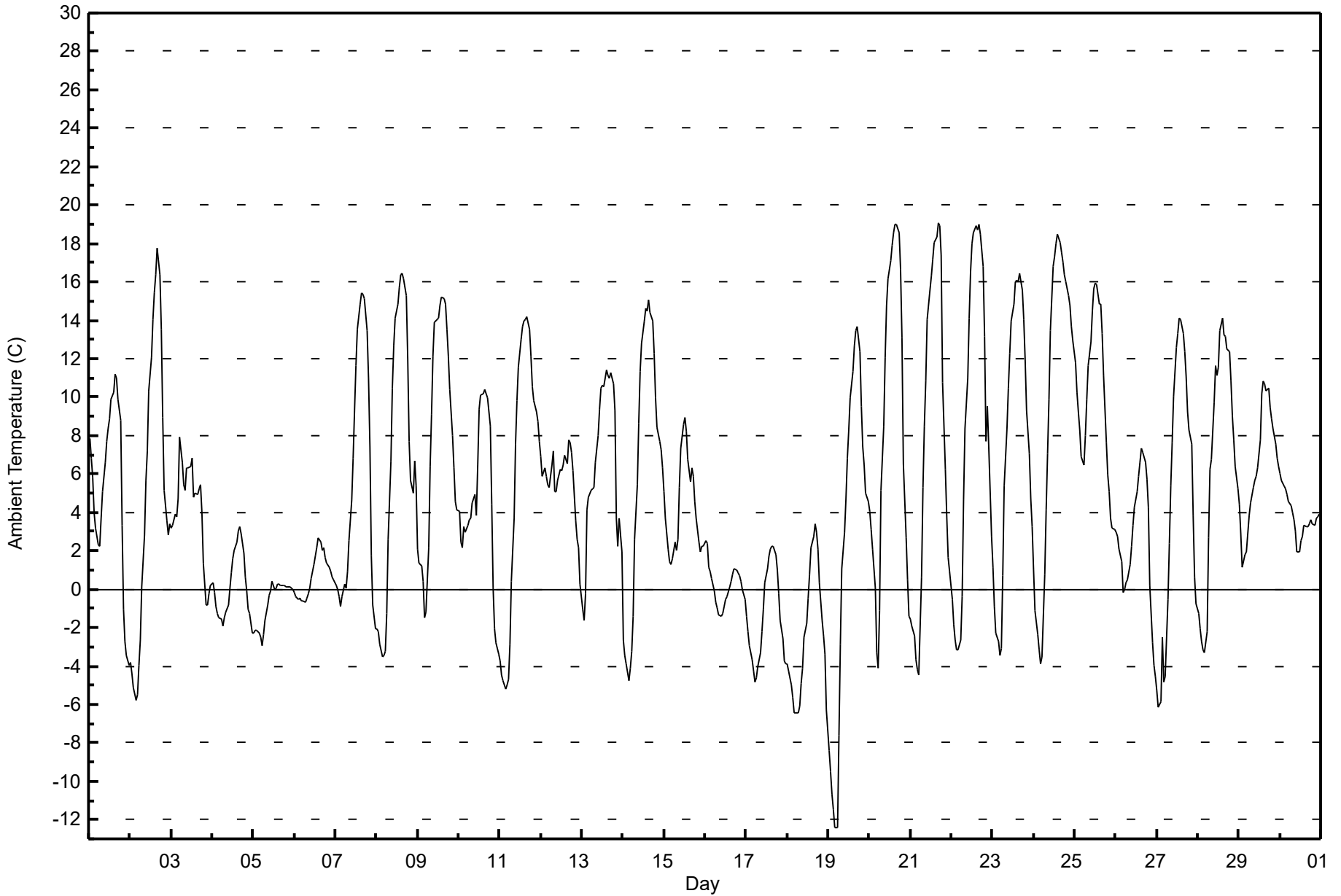
**Ambient Temperature (AT) - C**  
**Fort McKay South - April 2024**

Maximum Value: 19.1 C on Apr 21 17:00		Maximum Daily Average: 10.0 C on Apr 25		Hours in Service: 720																							
Minimum Value: -12.4 C on Apr 19 05:00		Minimum Daily Average: -2.4 C on Apr 18		Hours of Data: 720																							
Maximum Diurnal Average: 10.7 C at hour 17		Minimum Diurnal Average: -1.2 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 4.80 C		Percentiles: P <sub>1</sub> = -6.5 P <sub>10</sub> = -2.9 Q <sub>1</sub> = 0.0 Median = 3.8 Q <sub>3</sub> = 9.5 P <sub>90</sub> = 14.1 P <sub>99</sub> = 18.6		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	7.8	6.8	5.8	4.0	3.2	2.3	2.2	3.7	5.1	6.6	7.7	8.4	8.9	9.9	10.3	11.2	11.0	9.9	8.8	3.3	-1.0	-2.7	-3.4	-3.9	5.2	11.2	
2-Apr	-3.8	-4.4	-5.2	-5.8	-5.5	-4.0	-2.7	0.2	2.8	5.6	7.2	10.3	12.1	14.1	15.4	16.4	17.7	16.3	13.5	9.0	5.1	3.6	2.8	3.4	5.2	17.7	
3-Apr	3.2	3.4	3.9	3.8	4.7	7.9	6.6	5.4	5.2	6.3	6.3	6.4	6.8	4.8	5.0	4.9	5.2	5.4	4.0	1.3	-0.8	-0.8	-0.2	0.2	4.1	7.9	
4-Apr	0.4	-0.2	-0.9	-1.3	-1.5	-1.5	-1.9	-1.5	-1.2	-0.9	0.0	0.8	1.6	2.0	2.5	3.0	3.2	2.9	1.9	0.6	-0.1	-1.1	-1.3	-2.3	0.1	3.2	
5-Apr	-2.3	-2.1	-2.1	-2.3	-2.5	-2.9	-2.4	-1.6	-0.8	-0.3	-0.1	0.4	0.0	0.0	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	-0.1	-0.7	0.4	
6-Apr	-0.2	-0.4	-0.5	-0.4	-0.6	-0.6	-0.7	-0.4	-0.2	0.1	0.6	1.3	1.7	2.2	2.6	2.5	2.0	2.1	1.7	1.4	1.1	0.9	0.6	0.5	0.7	2.6	
7-Apr	0.2	0.0	-0.4	-0.9	-0.4	0.2	0.1	0.9	2.5	4.7	6.8	9.3	11.7	13.6	14.8	15.4	15.4	15.1	13.4	11.0	7.4	1.8	-0.8	-2.0	5.8	15.4	
8-Apr	-2.1	-2.2	-2.8	-3.5	-3.5	-3.2	-1.2	2.6	6.7	10.5	12.6	14.1	14.9	15.7	16.4	16.5	16.2	15.3	12.0	7.7	5.7	5.0	6.7	5.4	6.9	16.5	
9-Apr	2.1	1.4	1.2	0.4	-1.5	-1.2	2.2	6.4	9.1	12.1	13.9	14.0	14.1	14.8	15.2	15.1	14.8	13.5	12.1	10.4	8.0	6.3	4.6	4.1	8.0	15.2	
10-Apr	4.1	2.5	2.2	3.2	2.9	3.3	3.6	3.7	4.5	4.9	3.8	6.5	9.4	10.1	10.1	10.4	10.2	10.0	8.5	4.4	0.0	-2.1	-2.8	-3.4	4.6	10.4	
11-Apr	-3.7	-4.5	-4.8	-5.2	-5.0	-4.7	-2.9	0.4	3.7	7.6	9.8	11.5	13.0	13.6	13.9	14.1	14.2	13.5	12.1	10.5	9.8	9.2	8.7	7.7	5.9	14.2	
12-Apr	6.9	5.9	6.3	5.8	5.5	5.3	6.5	7.2	5.1	5.1	5.7	6.2	6.1	6.4	7.0	6.6	7.7	7.6	7.1	6.2	3.5	2.6	2.2	0.3	5.6	7.7	
13-Apr	-1.0	-1.6	-0.3	4.1	4.8	5.2	5.2	5.3	6.6	8.0	9.3	10.4	10.6	10.6	11.4	11.2	11.0	11.3	10.7	9.3	3.7	2.2	3.7	2.0	6.4	11.4	
14-Apr	-2.7	-3.4	-3.9	-4.8	-4.1	-3.2	-1.4	2.6	5.4	8.7	11.3	12.8	14.0	14.6	14.5	15.1	14.4	13.9	12.3	9.9	8.4	7.7	7.2	6.3	6.5	15.1	
15-Apr	5.1	3.7	2.1	1.4	1.3	1.6	2.5	2.0	2.6	5.3	7.3	8.6	9.0	8.2	6.7	5.6	6.3	5.9	4.6	3.7	2.4	1.9	2.2	2.3	4.3	9.0	
16-Apr	2.5	2.4	1.1	0.9	0.5	-0.1	-0.7	-1.0	-1.3	-1.4	-1.3	-0.9	-0.5	-0.4	0.1	0.4	0.8	1.1	1.0	0.8	0.7	0.4	0.0	-0.6	0.2	2.5	
17-Apr	-1.4	-2.2	-2.9	-3.7	-4.3	-4.8	-4.6	-4.0	-3.3	-2.2	-1.0	0.3	1.1	1.8	2.1	2.3	2.2	1.8	1.0	-0.3	-1.6	-2.6	-3.8	-3.9	-1.4	2.3	
18-Apr	-3.9	-4.3	-5.0	-5.6	-6.4	-6.5	-6.5	-6.1	-4.9	-4.1	-2.5	-1.8	-0.5	0.8	2.1	2.7	3.4	3.0	2.1	0.3	-1.6	-2.4	-3.4	-6.3	-2.4	3.4	
19-Apr	-8.4	-9.5	-10.6	-11.5	-12.4	-12.4	-7.6	-2.9	1.1	3.0	4.7	6.8	8.3	9.9	11.3	12.6	13.5	13.7	12.4	9.5	7.4	6.5	5.0	4.6	2.3	13.7	
20-Apr	4.0	3.1	2.1	0.1	-3.3	-4.1	-1.2	5.2	8.5	12.1	14.7	16.2	17.1	17.9	18.6	19.0	19.0	18.5	16.7	13.1	6.5	2.7	0.5	-1.4	8.6	19.0	
21-Apr	-1.6	-1.9	-2.4	-3.7	-4.2	-4.5	0.7	5.3	8.5	10.9	14.0	15.5	16.3	17.2	18.0	18.4	19.1	18.9	17.4	10.8	6.2	3.7	1.7	0.9	7.7	19.1	
22-Apr	-0.6	-1.9	-2.6	-3.2	-3.2	-2.7	-0.4	4.7	8.3	11.0	14.1	16.5	18.0	18.6	18.9	18.7	19.0	18.5	16.8	13.2	7.7	9.5	7.4	2.8	8.7	19.0	
23-Apr	1.1	-0.9	-2.3	-2.8	-3.5	-3.1	0.7	5.3	8.4	10.5	12.3	13.9	14.8	16.0	16.0	16.0	16.4	15.6	14.0	11.9	9.3	7.1	4.7	3.2	7.7	16.4	
24-Apr	1.0	-1.1	-2.3	-3.2	-3.9	-3.5	0.8	4.1	7.0	9.9	13.4	16.8	17.4	18.0	18.4	18.1	17.5	17.0	16.4	16.0	15.3	14.7	13.7	13.0	9.8	18.4	
25-Apr	11.8	10.2	9.2	8.3	6.9	6.5	8.0	9.9	11.7	12.9	14.5	15.7	15.9	15.8	14.8	14.8	13.3	11.1	7.7	5.9	5.1	3.7	3.2	3.1	10.0	15.9	
26-Apr	3.0	2.7	2.1	1.4	-0.2	0.0	0.3	0.5	1.3	2.2	3.3	4.3	5.1	5.9	6.6	7.3	7.1	6.6	5.7	4.3	0.2	-2.8	-4.0	-4.6	2.4	7.3	
27-Apr	-5.2	-6.1	-5.9	-2.5	-4.8	-4.5	-0.5	2.4	5.4	7.6	10.0	12.6	13.3	14.1	14.1	13.3	12.4	11.0	9.2	8.3	7.5	3.9	0.6	-0.8	4.8	14.1	
28-Apr	-1.3	-2.1	-2.7	-3.1	-3.3	-2.2	2.7	6.2	6.8	9.8	11.7	11.1	11.6	13.5	14.1	13.2	13.2	12.5	12.4	10.8	9.0	7.8	6.4	5.2	6.8	14.1	
29-Apr	4.4	2.9	1.1	1.8	1.9	2.9	3.8	4.5	5.3	5.7	5.8	6.3	7.7	10.1	10.8	10.7	10.3	10.4	9.5	8.8	8.3	7.5	6.8	6.4	6.4	10.8	
30-Apr	6.0	5.7	5.4	5.2	4.9	4.6	4.3	4.0	3.6	3.0	2.0	2.0	2.6	2.7	3.3	3.2	3.2	3.4	3.6	3.4	3.3	3.7	3.7	3.9	3.8	6.0	
		0.9	0.1	-0.5	-0.8	-1.2	-1.0	0.5	2.5	4.1	5.8	7.3	8.5	9.4	10.1	10.5	10.6	10.7	10.2	9.0	6.9	4.6	3.3	2.4	1.5	Diurnal Average	
		11.8	10.2	9.2	8.3	6.9	7.9	8.0	9.9	11.7	12.9	14.7	16.8	18.0	18.6	18.9	19.0	19.1	18.9	17.4	16.0	15.3	14.7	13.7	13.0	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Fort McKay South - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Fort McKay South - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	182	25.28	25.28
0 - 10	370	51.39	76.67
10 - 20	168	23.33	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720

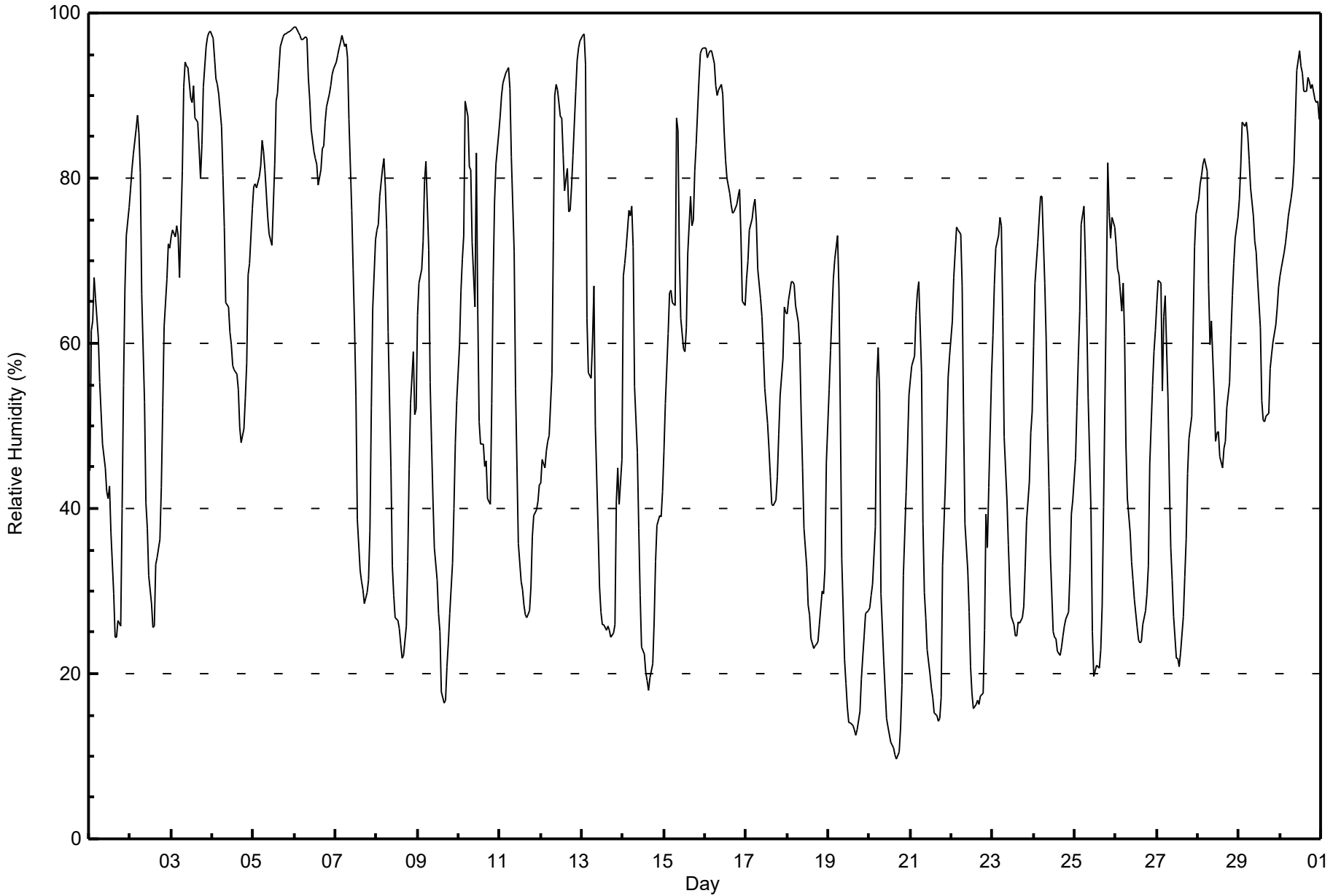


**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %  
Fort McKay South - April 2024**

Maximum Value: 98.3 % on Apr 6 02:00      Maximum Daily Average: 90.2 % on Apr 6																						Hours in Service: 720 Hours of Data: 720																										
Minimum Value: 9.7 % on Apr 20 17:00      Minimum Daily Average: 27.7 % on Apr 20 Maximum Diurnal Average: 76.3 % at hour 5      Minimum Diurnal Average: 40.5 % at hour 15 Monthly Average: 57.51 %      Percentiles: P <sub>1</sub> = 13.2 P <sub>10</sub> = 23.8 Q <sub>1</sub> = 35.0 Median = 60.3 Q <sub>3</sub> = 77.7 P <sub>90</sub> = 91.0 P <sub>99</sub> = 97.6																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	44.6	61.5	62.7	68.0	65.4	60.7	55.2	51.5	47.8	44.9	42.1	41.2	42.7	37.1	29.7	24.4	24.5	26.4	25.7	40.1	54.9	66.6	73.0	76.4	48.6	76.4																						
2-Apr	78.7	81.0	82.9	85.9	87.7	85.4	80.6	65.9	52.8	40.7	37.7	31.9	28.5	25.6	25.7	33.1	34.0	36.3	42.5	52.2	62.0	67.8	72.1	71.5	56.8	87.7																						
3-Apr	72.9	73.8	72.9	74.3	73.1	68.0	80.8	91.0	94.1	93.6	93.4	89.7	89.2	91.1	87.3	86.8	83.6	80.0	84.0	91.0	95.9	97.2	97.7	97.8	85.8	97.8																						
4-Apr	96.9	94.6	92.1	91.4	90.3	86.3	80.4	74.0	65.0	64.5	61.3	59.7	57.3	56.9	56.3	54.5	49.8	48.0	49.6	53.3	57.7	68.3	69.6	76.2	68.9	96.9																						
5-Apr	78.9	79.3	78.8	80.1	81.5	84.6	83.3	81.0	75.3	73.2	72.6	71.8	81.7	89.3	90.3	93.2	96.0	97.1	97.5	97.5	97.7	97.8	97.9	98.1	86.4	98.1																						
6-Apr	98.3	98.3	97.6	97.3	96.8	96.8	97.2	96.9	92.2	89.5	85.9	83.2	82.4	81.7	79.2	81.0	83.6	84.0	86.8	88.7	90.1	91.2	92.5	93.3	90.2	98.3																						
7-Apr	94.1	95.0	95.7	96.5	97.3	95.9	96.2	94.6	87.1	76.0	69.0	62.1	53.5	38.6	32.5	31.1	30.1	28.5	29.8	31.4	37.2	52.3	64.2	72.5	65.1	97.3																						
8-Apr	73.6	74.3	77.9	81.1	82.3	79.0	73.8	61.3	44.8	33.1	29.6	26.7	26.5	25.4	23.5	21.9	22.3	25.7	33.6	44.8	52.6	59.0	51.4	52.1	49.0	82.3																						
9-Apr	63.3	67.2	69.0	72.3	79.7	82.0	71.4	55.2	47.9	41.3	35.3	31.4	27.2	25.1	17.8	16.4	16.9	20.8	23.7	27.2	33.4	40.0	47.9	53.1	44.4	82.0																						
10-Apr	59.8	66.3	70.1	73.0	89.3	87.5	81.3	81.0	72.2	64.4	83.0	64.0	50.5	47.9	47.9	45.0	45.8	41.1	40.6	52.7	67.5	77.0	81.7	85.4	65.6	89.3																						
11-Apr	87.5	90.1	91.6	92.8	93.1	93.4	90.9	82.5	71.3	54.6	45.3	35.8	31.2	30.2	28.3	27.0	26.8	27.6	30.6	36.6	39.2	39.8	40.8	42.8	55.4	93.4																						
12-Apr	43.1	46.0	44.9	47.0	48.1	48.8	56.3	72.4	90.0	91.3	90.7	87.4	87.3	83.0	78.4	81.2	75.9	76.1	79.0	82.8	90.5	94.3	95.8	96.7	74.4	96.7																						
13-Apr	97.3	97.5	93.8	63.1	56.4	55.8	60.4	66.9	50.0	37.3	30.6	27.5	25.9	25.2	25.8	25.3	24.3	24.8	25.8	40.8	44.9	40.5	46.0	46.3	97.5	97.5																						
14-Apr	68.1	69.7	71.6	76.0	75.5	76.6	71.7	54.8	46.8	37.6	29.4	23.2	22.3	20.1	19.1	17.9	19.5	21.2	26.3	33.6	38.0	39.1	39.1	42.0	43.3	76.6																						
15-Apr	46.9	52.6	61.2	66.1	66.4	65.0	64.6	87.3	85.7	70.7	63.1	59.3	59.0	61.9	70.8	77.8	74.2	74.8	80.9	84.1	91.9	95.1	95.6	95.8	73.0	95.8																						
16-Apr	95.8	94.6	95.1	95.3	95.4	93.9	91.1	90.0	90.8	91.4	90.1	85.6	82.1	80.0	78.1	76.7	75.8	76.0	76.8	77.8	78.7	72.9	65.1	64.6	83.9	95.8																						
17-Apr	67.8	70.1	73.7	75.1	76.6	77.5	74.7	69.1	65.4	63.2	59.2	54.5	50.4	47.3	44.0	40.6	40.4	41.1	43.9	49.0	53.7	58.1	64.4	63.7	59.3	77.5																						
18-Apr	63.6	65.2	67.5	67.5	67.2	64.5	62.5	59.6	51.5	44.9	37.7	32.9	28.3	27.2	24.2	23.1	23.3	23.5	24.0	25.9	29.9	29.7	32.7	45.5	42.6	67.5																						
19-Apr	54.5	59.2	63.6	67.9	70.2	73.1	66.7	51.3	33.9	21.8	18.9	15.9	14.0	14.1	13.8	13.2	12.6	13.2	15.4	19.4	22.1	24.6	27.3	27.6	33.9	73.1																						
20-Apr	28.0	29.5	30.9	37.8	55.6	59.5	54.1	29.7	21.6	17.9	14.7	13.6	11.6	11.3	11.1	10.2	9.7	10.4	13.4	18.7	31.9	42.0	47.7	53.8	27.7	59.5																						
21-Apr	55.6	57.4	58.6	63.4	66.2	67.4	56.5	38.1	29.7	26.8	22.9	19.9	18.3	17.1	15.2	15.0	14.3	14.6	17.0	33.0	43.0	49.5	55.9	58.4	38.1	67.4																						
22-Apr	62.7	68.0	71.0	74.0	73.8	73.2	67.0	51.2	38.2	32.6	27.4	20.9	17.6	15.8	16.2	16.8	16.2	17.3	17.6	25.2	39.2	35.2	42.5	56.3	40.7	74.0																						
23-Apr	60.9	67.1	71.5	73.0	75.3	74.2	63.3	48.7	41.0	35.7	30.6	26.9	25.9	24.6	24.7	26.3	26.2	26.8	28.1	32.9	38.4	43.2	49.1	51.7	44.4	75.3																						
24-Apr	59.6	67.3	72.2	75.0	77.9	77.7	67.3	60.5	50.3	42.6	34.4	25.0	24.5	24.2	22.7	22.3	23.3	24.5	25.7	26.6	27.5	32.2	39.3	41.0	43.5	77.9																						
25-Apr	46.1	52.3	58.4	63.9	74.5	76.7	70.4	63.1	53.5	39.8	25.1	19.6	20.3	21.0	20.7	23.0	28.3	40.1	66.2	81.9	76.0	72.7	75.3	74.0	51.8	81.9																						
26-Apr	71.8	69.0	68.2	63.8	67.3	60.9	47.5	41.2	37.1	33.6	31.4	29.0	25.5	24.1	23.7	23.8	26.0	27.7	29.7	33.0	45.5	54.9	59.1	61.6	44.0	71.8																						
27-Apr	64.7	67.6	67.3	54.2	63.2	65.8	53.4	43.3	35.2	31.3	27.0	21.8	21.9	20.8	22.6	26.9	31.7	36.2	44.3	48.5	51.2	62.3	71.6	75.6	46.2	75.6																						
28-Apr	77.4	79.3	80.3	81.7	82.3	80.9	67.1	59.9	62.6	53.9	48.1	49.2	49.3	46.3	45.0	47.2	48.2	52.1	55.3	61.0	65.7	69.6	72.7	75.3	62.9	82.3																						
29-Apr	77.5	81.5	86.8	86.3	86.7	85.2	82.3	78.7	75.4	72.3	71.0	67.7	61.9	53.1	50.7	50.6	51.1	51.6	56.9	58.6	60.1	62.2	64.3	66.8	68.3	86.8																						
30-Apr	68.1	69.2	71.0	72.3	73.8	75.4	77.7	79.0	81.8	87.3	93.1	95.4	93.5	92.7	90.5	90.5	92.2	91.6	90.8	91.3	89.4	89.1	89.3	87.2	84.7	95.4																						
																								68.6	71.5	73.3	73.9	76.3	75.7	71.5	66.0	59.7	53.6	50.0	45.8	43.7	42.0	40.5	40.8	40.9	42.0	45.4	50.8	56.7	61.0	63.9	66.8	Diurnal Average
																								98.3	98.3	97.6	97.3	97.3	96.8	97.2	96.9	94.1	93.6	93.4	95.4	93.5	92.7	90.5	93.2	96.0	97.1	97.5	97.5	97.7	97.8	97.9	98.1	Diurnal Maximum





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Fort McKay South - April 2024

Maximum Speed: 30 km/h on Apr 16 13:00	Maximum Daily Speed Average: 21.9 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 5 05:00	Minimum Daily Speed Average: 0.9 km/h on Apr 14	Hours of Data: 701
Maximum Diurnal Speed Average: 4.0 km/h at hour 7	Minimum Diurnal Speed Average: 0.8 km/h at hour 12	Hours of Missing Data: 19
Monthly Average Velocity: 2.5 km/h 354.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 5 Median = 9 Q <sub>3</sub> = 14 P <sub>90</sub> = 18 P <sub>99</sub> = 27	Percent Operational Time: 97.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	WSW10	NW13	NW8	WSW5	WSW7	SW7	WSW6	NNW17	WNW15	NW19	NW18	NW14	WNW12	WNW13	NW14	NW16	NNW17	NNW11	NW9	WNW4	WSW3	WSW3	SW3	SSW2	WNW8.9	NW19	
2-Apr	WSW2	SW2	SW3	UO	UO	S3	S1	SSE6	SSE8	SSE13	SSE9	SSE11	SSE18	SSE19	SSE18	S17	S17	S13	S9	SSE5	S5	S4	SW2	NNW3	SSE8.0	SSE19	
3-Apr	SW1	SSW3	SSW5	S4	WNW3	WNW10	WNW9	WNW9	WSW3	SE3	SSW4	SSW6	N7	N11	NNE7	NNE10	NNE10	NE9	NE8	N4	NW2	SW2	NE0	SSE3	NNW2.0	N11	
4-Apr	NE4	N9	N7	N6	NNW4	NW7	NNW10	N9	NNE9	NNE8	NNE9	ENE7	ENE7	NNE11	NNE12	NNE10	NNE9	NE8	N8	N7	N5	N4	NNE4	NNW2	NNE6.7	NNE12	
5-Apr	NNW2	N5	N5	NNE5	S0	N2	N6	N7	N10	N11	NNE11	N12	N13	N12	N11	N9	NNW8	NNW7	NNW8	NNW7	NNW7	NNW5	NNW4	NNW4	N6.9	N13	
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	N7	NNE8	NNE7	N11	NNE8	NE6	NNE8	N9	NNE6	NNE3	N4	NW4	WNW3	UO	W2	---	N11	
7-Apr	UO	UO	SSW2	S2	SSW4	S4	SSE2	SSE4	SSE9	S13	S14	S13	SSW12	SSW13	SW13	SSW11	SW8	SW8	SW7	SW8	SW6	SW5	SSW4	SSW3	SSW7.3	S14	
8-Apr	SE2	SSE0	WNW0	NW1	WNW1	S4	S3	SE5	SE9	SSE10	S14	SSW13	S16	S15	SSW11	SW11	SSW9	SSW5	SW3	SW2	SW1	W2	WSW4	W1	SSW5.2	S16	
9-Apr	W4	SSW2	SW1	UO	SSW1	S3	S4	SE2	SSW4	SSE3	SW10	WSW14	WSW14	SW15	WSW14	WSW12	WSW13	W12	WSW11	WSW7	W6	WNW7	NW5	NW4	WSW6.2	SW15	
10-Apr	NNW5	NW3	WNW4	W6	W6	NNW9	NW14	NW9	WNW8	NW14	NNW15	NW10	N14	N16	NNE15	NNE13	NNE12	NNE11	NNE8	N6	WNW3	WSW3	WSW2	WSW1	NNW6.9	N16	
11-Apr	WNW1	WSW1	SW1	W1	SSW0	SW1	UO	SE5	SE8	SE10	SE10	SE16	SE17	SE21	SE20	SE18	SE19	SE17	SE15	SSE12	SE16	SSE18	SSE16	SSE12	SSE10.8	SE21	
12-Apr	S10	SSE10	SSE12	SSE8	S8	SSE6	S12	S21	SSE18	SSE19	SSE17	SSE17	SSE18	SSE19	SSE14	SE16	SSE17	SE15	SSE10	SE6	SW2	S5	S3	SSW3	SSE11.6	S21	
13-Apr	WSW1	S3	SSW6	SW10	SW11	WSW12	W14	WNW10	WNW11	NW17	NW19	WNW19	NW19	NW16	W17	WNW16	NW13	NW14	WNW11	WNW8	W4	WSW8	WSW9	W7	WNW9.9	NW19	
14-Apr	NNW1	SSE3	S2	S6	S4	S3	S4	SE6	SE8	SE9	ESE9	ESE13	SSE7	SSW5	SW9	W6	NNW7	NNE7	N7	NNW9	NNW9	N9	N10	N8	E0.9	ESE13	
15-Apr	N7	N5	NNW4	NW4	WNW2	W3	WSW2	N5	N10	NNE10	N10	N10	N14	NNE14	NE13	NNE14	NNE16	NNE17	NNE17	NNE17	N16	N16	N15	N15	NNE10.0	NNE17	
16-Apr	N16	N21	N23	N24	N24	N27	N28	N30	N27	N26	N27	N29	N30	NNE27	NNE23	NNE24	NNE18	NNE13	NNE14	NNE14	N13	N16	N16	N19	N21.9	N30	
17-Apr	N17	N20	N18	N18	N18	N18	N20	N23	NNE22	NNE20	NNE21	NNE21	NNE25	N24	N25	N26	N22	NNE19	NNE18	N13	NNW8	NNW7	NNW7	NNW8	N18.1	N26	
18-Apr	NNW10	N11	N12	N11	NNW10	N15	N16	N18	N18	N18	N18	N21	N20	N20	N19	NNE19	NNE17	N17	N14	NNW11	NNW8	NNW9	NNW7	WNW2	N14.0	N21	
19-Apr	W3	WNW1	WSW2	WSW1	S3	S4	SSE4	SE5	SSE5	SW8	SSW10	S9	SSW8	S12	S12	SSW12	SSW12	SSW11	SSW8	SSW8	SW8	SW10	WSW9	WSW11	SSW6.5	SSW12	
20-Apr	WSW10	WSW8	WSW6	SW5	SSE5	SSE2	SSE5	SSW5	SW9	WSW9	WSW10	SW12	SW12	SW12	SW11	SW11	SSW12	SSW11	S11	SSW8	SW5	S4	S2	S2	SW7.1	SW12	
21-Apr	S5	S3	SSW3	WSW1	WNW1	UO	UO	SE4	SE8	SE8	SSE11	SE13	ESE14	SE12	SE10	SE6	SW6	W4	N4	NNW2	WSW2	W2	WNW2	NNW4	SSE3.4	ESE14	
22-Apr	SSW1	WSW3	WSW2	WSW3	NNW1	W2	N1	NNE3	NNE8	NNE10	N10	NNE11	NNE13	NNE12	NNE10	NNE13	NNE15	NNE17	N15	N5	NNW5	N10	N3	NW3	N6.4	NNE17	
23-Apr	WNW2	WSW4	WSW2	SW1	WSW2	N1	N1	NNE3	N7	NNE6	NNE6	E6	ENE7	NE9	NNE11	NNE12	NNE11	NNE12	NNE12	NNE12	N9	N8	N8	NNW7	N6	NNE5.2	NNE12
24-Apr	N6	N4	NNW2	WSW2	WSW2	NNW1	N4	NNE7	N9	N10	NNE8	ESE11	SE14	SE14	SE15	ESE15	ESE14	E11	ESE8	ESE10	SE11	SE18	SE14	SE10	ESE5.8	SE18	
25-Apr	SSE5	SSE5	WSW7	WSW7	WSW8	WSW8	WSW7	SW8	SW10	WSW13	WSW14	WSW16	WSW17	WSW17	WSW14	WSW16	WSW15	WNW15	NW16	WNW9	NNW14	NNW11	WNW6	NW8	W8.9	WSW17	
26-Apr	NW10	NNW14	NNW9	NNW17	NNW9	NNW15	NNW18	NNW19	N22	NNW16	NNW15	NNW15	NNW16	NNW17	N14	N12	NNE12	NE10	NE8	ENE6	NNE2	W1	WSW2	W1	NNW10.7	N22	
27-Apr	WNW2	WSW2	S6	S6	NNW3	NNW1	ESE1	SE6	SSE9	SSE11	SE9	S17	S18	SSE19	S21	S17	SSW17	SSW18	S17	SSE12	SE5	SSW0	WSW2	WSW1	S8.1	S21	
28-Apr	W2	NW2	NW2	NW3	NW2	W1	NNE2	SSE7	SE5	SE10	SSE17	SSE16	SSE12	SSE12	SSE14	SE13	SE11	SE11	SE10	SE12	SE11	SE9	SE9	SE6	SE7.2	SSE17	
29-Apr	ESE6	SE3	NE3	UO	NNE4	NNE3	NNE4	NNE6	NE8	NNE10	NNE13	N12	NNE10	NNE12	NNE16	NNE14	NNE16	NNE15	N19	N18	N16	N17	N17	N16	NNE10.6	N19	
30-Apr	N17	N18	N17	N19	N21	N22	N23	N23	N22	N19	N17	N15	N20	N22	N22	N21	N18	N16	N18	N17	N16	N16	N14	N11	N18.5	N23	
NNW2.5NNW3.0NNW2.5NNW2.8 NNW2.6 NNW3.3NNW4.0 N3.5 N3.1 N3.1 N2.9NNE0.8NNE2.0NNE1.9NNE1.7NNE2.6NNE2.9NNE3.5 N3.6 N2.8NNW2.5NNW2.2NNW2.2NNW2.3																								Diurnal Average			
N17 N21 N23 N24 N24 N27 N28 N30 N27 N26 N27 N29 N30 NNE27 N25 N26 N22 NNE19 N19 N18 NNE17 SE18 N17 N19																								Diurnal Maximum			

UO - Unstable Operation

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



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Fort McKay South - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 7 km/h on Apr 16 13:00	Hours of Data: 701
Minimum Value: 0 km/h on Apr 19 06:00	Hours of Missing Data: 19
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 97.4

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-Apr	6	5	4	1	2	2	3	6	5	6	6	5	5	5	6	6	5	4	4	2	1	2	1	1	6
2-Apr	1	2	1	UO	UO	1	1	1	2	3	2	4	4	4	4	4	3	3	1	2	2	1	1	3	4
3-Apr	2	2	2	1	3	3	3	3	2	2	2	2	4	5	2	2	2	3	2	1	1	1	2	1	5
4-Apr	3	3	1	2	3	3	2	3	2	2	3	3	3	3	3	3	2	2	2	1	1	1	1	2	3
5-Apr	1	1	1	1	1	1	1	2	2	2	2	2	3	2	2	2	1	1	1	1	1	1	1	1	3
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	2	3	2	2	2	2	2	2	1	1	1	1	UO	1	3
7-Apr	UO	UO	1	1	1	1	1	3	3	3	3	4	4	4	4	4	4	4	2	2	2	1	1	1	4
8-Apr	1	1	1	1	1	1	1	2	2	3	4	4	5	4	5	4	3	2	1	1	1	2	3	2	5
9-Apr	2	1	1	UO	1	2	1	2	2	2	4	4	5	5	5	5	5	5	4	2	2	2	2	2	5
10-Apr	2	2	2	2	2	3	4	3	3	6	7	3	4	5	4	4	3	3	3	1	1	1	2	1	7
11-Apr	1	1	1	1	1	1	UO	2	2	2	3	4	4	4	5	4	4	4	4	3	4	4	4	3	5
12-Apr	2	2	3	1	1	1	6	4	4	4	4	4	4	4	3	4	3	3	2	2	1	3	1	2	6
13-Apr	1	1	2	3	3	4	5	4	5	6	6	7	7	6	6	6	5	5	4	3	1	2	2	2	7
14-Apr	1	2	2	1	2	2	3	2	2	2	3	5	4	4	4	4	3	2	2	1	2	2	2	1	5
15-Apr	1	2	1	1	1	2	2	2	3	3	2	2	4	4	3	4	5	5	4	5	4	3	4	3	5
16-Apr	3	5	5	6	5	7	6	7	7	6	6	7	7	7	6	6	4	4	4	3	3	4	4	4	7
17-Apr	5	6	6	5	4	4	5	5	5	4	6	5	6	6	6	6	6	5	5	3	2	2	1	2	6
18-Apr	2	2	2	2	2	3	4	4	4	4	5	5	5	5	5	5	5	4	3	2	1	1	2	1	5
19-Apr	1	1	1	1	1	0	1	1	2	3	3	3	3	4	4	4	3	3	2	1	2	2	2	2	4
20-Apr	3	2	2	2	1	1	1	2	3	3	3	4	5	5	4	4	4	3	2	1	1	2	1	2	5
21-Apr	1	1	1	1	1	UO	UO	2	2	2	3	4	4	4	4	3	3	3	2	1	2	1	1	2	4
22-Apr	1	1	1	1	1	2	1	1	2	2	3	3	4	3	4	3	4	4	4	2	1	2	3	1	4
23-Apr	1	1	1	1	1	1	1	1	3	3	2	3	4	3	3	3	3	3	2	2	1	2	2	4	4
24-Apr	2	1	2	2	2	1	2	2	2	2	3	4	4	4	4	5	5	4	3	4	4	5	4	3	5
25-Apr	4	3	2	2	3	3	2	3	3	5	5	7	6	6	6	6	6	7	6	3	4	4	2	2	7
26-Apr	3	5	4	6	2	6	5	5	5	5	5	5	6	5	5	5	4	3	3	2	1	1	1	1	6
27-Apr	1	1	4	5	2	1	2	2	3	3	4	5	6	6	5	5	5	6	6	3	2	1	1	1	6
28-Apr	1	1	1	1	2	1	2	3	2	5	4	4	3	4	3	3	4	3	3	4	3	3	2	2	5
29-Apr	2	2	2	UO	2	1	1	2	3	3	3	3	3	3	4	4	4	5	4	4	4	4	4	3	5
30-Apr	4	4	4	5	5	5	6	6	6	5	4	4	5	5	6	6	4	4	4	4	3	3	3	4	6
	6	6	6	6	5	7	6	7	7	6	7	7	7	7	6	6	6	7	6	5	4	5	4	4	

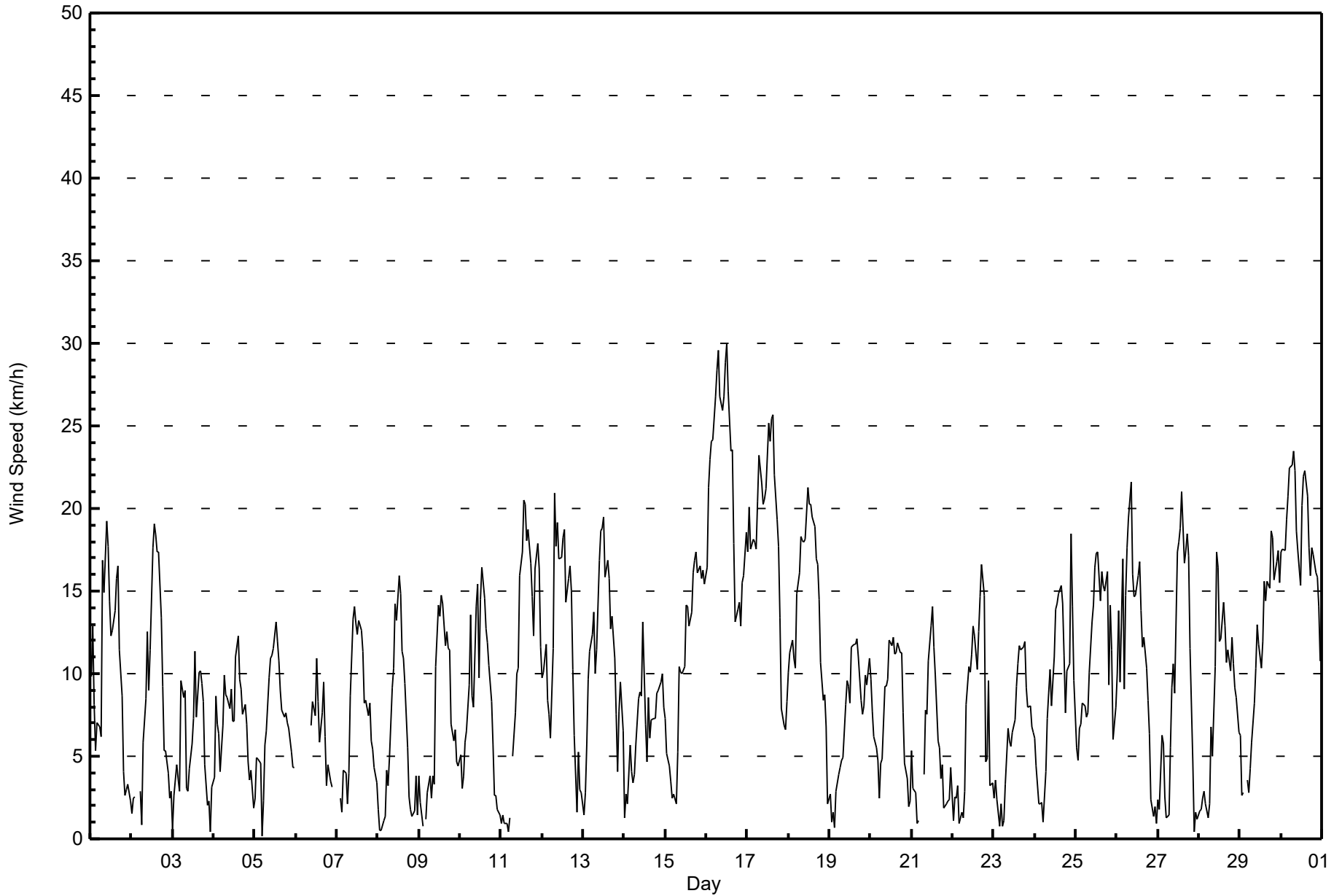
Diurnal Maximum

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Fort McKay South - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Fort McKay South - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	205	29.24	29.24
6 - 11	236	33.67	62.91
12 - 19	216	30.81	93.72
20 - 28	41	5.85	99.57
29 - 38	3	0.43	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort McKay South - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	17	10	3	0	0	1	10	14	26	19	17	28	15	15	12	18	205
6 - 11	39	32	8	4	2	5	24	15	8	13	18	20	5	11	8	24	236
12 - 19	54	34	1	0	0	4	17	25	16	8	5	14	3	7	14	14	216
20 - 28	29	8	0	0	0	0	2	0	2	0	0	0	0	0	0	0	41
29 - 38	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	142	84	12	4	2	10	53	54	52	40	40	62	23	33	34	56	701

Total Number of Valid Hours: 701

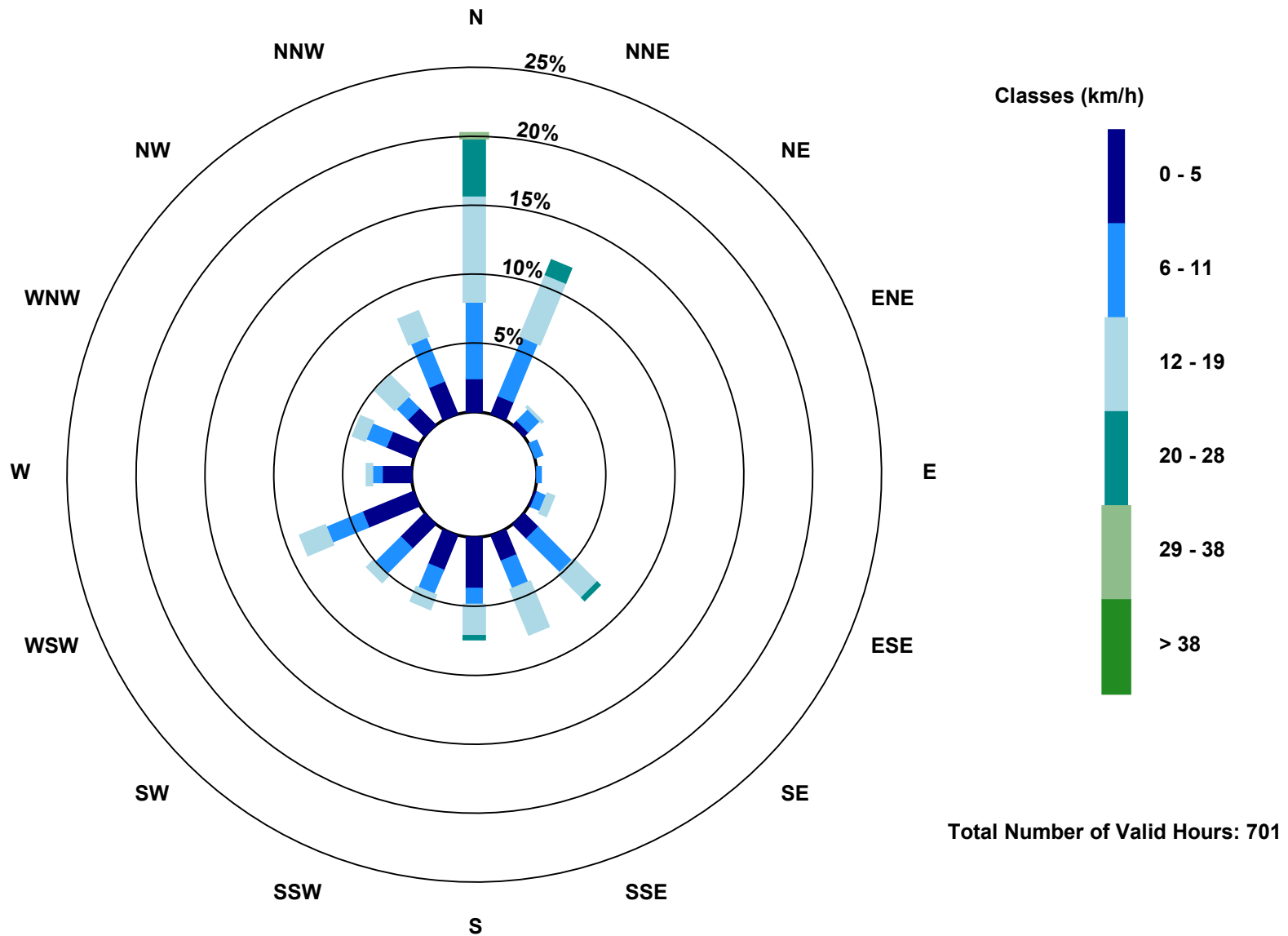
Total Number of Hours: 720





Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Fort McKay South





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

**Wind Direction (WD) - deg**  
**Fort McKay South - April 2024**

Direction of Maximum Speed: 8 deg on Apr 16 13:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 6.4 deg on Apr 16	Hours of Data: 701
Direction of Minimum Speed: 185 deg on Apr 5 05:00	Hours of Missing Data: 19
Direction of Minimum Daily Speed Average: 0.9 deg on Apr 14	Percent Operational Time: 97.4
Monthly Average Direction: 354.3 deg	

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-Apr	258	305	312	248	257	228	258	302	303	318	325	317	287	292	305	312	337	340	313	300	241	246	220	198	301.3
2-Apr	240	234	228	UO	UO	191	180	149	156	162	148	160	162	156	158	172	177	170	169	168	183	190	225	336	167.7
3-Apr	227	199	196	180	296	292	283	297	252	137	205	213	3	9	24	20	33	45	34	2	308	222	55	165	344.7
4-Apr	35	11	11	352	331	322	345	4	30	24	31	58	63	13	17	27	31	38	10	355	355	360	19	347	15.0
5-Apr	338	2	5	12	185	357	359	6	7	359	12	3	6	10	5	358	344	348	345	342	345	340	329	325	357.7
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	6	20	18	5	24	36	15	5	23	30	4	317	296	UO	269	--
7-Apr	UO	UO	207	177	204	189	156	160	166	190	184	189	194	210	217	201	224	233	223	216	227	214	202	201	201.5
8-Apr	127	155	294	326	293	184	171	146	144	166	176	196	186	188	213	223	197	204	223	234	235	274	254	264	191.8
9-Apr	260	201	220	UO	200	179	179	127	197	159	224	239	239	233	238	247	256	271	241	255	265	295	326	317	243.7
10-Apr	333	307	300	276	269	307	322	311	302	326	341	317	354	355	20	23	26	32	28	353	289	249	253	257	340.2
11-Apr	285	240	217	268	201	222	UO	141	144	136	141	139	142	143	143	143	146	146	148	146	156	159	167	147.4	
12-Apr	178	156	156	167	173	163	171	176	163	158	155	156	159	163	161	144	149	146	152	143	221	175	182	202	160.5
13-Apr	240	186	208	218	224	240	263	282	291	305	308	292	308	305	278	292	305	308	299	292	272	258	256	262	282.2
14-Apr	332	163	177	171	172	187	181	138	137	131	118	115	161	211	222	275	342	20	2	348	343	351	2	5	82.4
15-Apr	351	4	346	317	300	280	246	349	350	16	9	6	9	32	51	33	32	26	18	22	17	5	359	3	12.7
16-Apr	5	4	359	0	1	1	2	2	360	2	7	9	8	15	15	16	17	26	14	13	7	360	4	6	6.4
17-Apr	6	6	8	11	6	3	8	10	13	13	17	14	12	7	5	8	11	16	14	6	347	344	340	346	8.0
18-Apr	348	2	354	351	339	358	6	3	5	7	11	6	8	8	6	14	12	10	2	346	340	339	338	287	1.7
19-Apr	277	291	239	243	181	171	161	135	166	223	198	190	200	181	190	194	204	208	206	211	228	234	243	248	205.6
20-Apr	248	243	238	223	161	167	166	203	236	252	252	215	232	219	230	214	206	196	184	201	219	187	191	191	217.4
21-Apr	173	186	197	255	298	UO	UO	136	140	131	149	144	123	132	138	137	222	280	349	330	249	270	302	330	149.6
22-Apr	201	237	246	256	338	267	7	33	17	12	359	28	14	12	28	28	26	16	9	354	329	1	10	311	10.0
23-Apr	292	258	246	233	245	353	4	29	10	22	27	101	72	36	33	13	21	19	18	7	356	353	341	355	15.3
24-Apr	356	2	336	258	251	340	9	14	9	8	17	122	125	127	125	123	111	90	110	112	136	143	140	136	107.0
25-Apr	151	156	257	241	252	255	251	233	235	243	251	241	251	237	246	256	251	296	316	284	333	344	303	310	262.8
26-Apr	321	340	331	340	337	337	334	341	349	331	334	341	347	339	354	0	26	38	46	60	27	272	253	271	346.8
27-Apr	288	250	190	186	338	344	108	138	164	152	124	169	172	168	182	191	195	192	185	160	137	207	245	249	176.2
28-Apr	267	310	317	321	322	274	32	154	145	140	148	155	156	162	151	143	139	131	133	132	136	136	131	127	143.7
29-Apr	114	124	35	UO	15	22	29	31	38	29	12	6	16	24	19	25	24	19	8	7	11	9	4	4	17.5
30-Apr	5	7	5	6	5	2	5	8	10	11	2	2	5	2	5	4	3	359	359	358	357	0	3	2	3.8

333.0	344.4	331.3	327.2	321.6	324.4	340.1	357.0	4.7	3.6	6.0	31.7	15.4	20.2	20.6	12.5	18.1	20.0	8.5	3.0	345.5	339.0	337.1	335.9
Diurnal Average																							

UO - Unstable Operation  
 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**  
**Fort McKay South - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 99 deg on Apr 3 01:00	Hours of Data: 701
Minimum Value: 6 deg on Apr 12 02:00	Hours of Missing Data: 19
Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 13 Q <sub>1</sub> = 17 Median = 22 Q <sub>3</sub> = 31 P <sub>90</sub> = 49 P <sub>99</sub> = 82	Hours of Calibration: 0
	Percent Operational Time: 97.4

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-Apr	49	29	27	16	24	23	42	25	24	23	23	27	34	34	33	26	22	20	20	24	57	41	24	55	57
2-Apr	59	48	19	UO	UO	15	82	13	12	16	21	20	13	13	14	13	13	12	9	15	20	23	71	72	82
3-Apr	99	35	27	43	86	23	24	27	43	43	25	29	33	23	22	18	18	20	21	26	42	45	85	22	99
4-Apr	48	21	15	17	8	14	21	23	20	25	27	45	46	28	25	26	22	20	16	15	21	14	24	45	48
5-Apr	23	12	17	19	97	40	16	15	16	16	17	18	16	16	16	16	12	13	13	13	13	15	19	97	
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	25	21	32	19	21	29	22	15	22	44	15	36	24	UO	39	44
7-Apr	UO	UO	33	56	18	22	46	64	15	21	21	26	26	25	30	29	36	24	22	18	15	12	11	52	64
8-Apr	67	75	67	46	42	12	26	21	17	22	20	27	23	23	34	33	24	23	29	40	53	59	63	69	75
9-Apr	15	27	47	UO	68	35	29	76	61	68	35	29	33	31	33	34	35	33	24	23	22	19	31	34	76
10-Apr	34	41	16	19	25	21	19	18	23	23	22	26	28	30	19	20	19	19	23	12	28	25	42	49	49
11-Apr	56	56	70	62	85	77	UO	23	16	22	29	19	19	14	15	15	15	13	14	14	13	11	11	13	85
12-Apr	12	6	8	10	12	15	14	13	12	11	12	13	13	12	18	14	13	14	13	16	74	53	41	60	74
13-Apr	82	40	18	21	21	22	27	30	31	25	31	32	31	29	33	30	30	28	32	24	21	10	11	39	82
14-Apr	78	26	55	8	26	34	33	11	15	22	26	19	72	73	34	68	43	19	16	15	13	15	13	12	78
15-Apr	10	12	13	17	58	40	86	31	18	25	20	17	18	29	23	19	19	20	16	17	16	16	16	15	86
16-Apr	16	16	17	17	18	18	18	19	18	18	18	17	19	17	18	18	17	17	17	17	15	15	17	16	19
17-Apr	16	16	16	17	18	16	16	18	18	18	18	18	19	20	19	20	20	19	18	16	12	11	11	11	20
18-Apr	13	15	14	13	15	16	17	17	19	18	18	17	17	19	21	20	20	19	16	13	11	10	15	31	31
19-Apr	29	80	29	79	24	7	12	14	54	41	41	32	49	29	25	30	23	22	17	14	16	15	13	14	80
20-Apr	19	20	29	37	19	43	22	55	27	37	42	36	43	38	38	31	28	26	12	12	17	39	29	53	55
21-Apr	15	46	27	49	41	UO	UO	29	21	35	28	27	22	30	38	54	69	71	23	35	47	37	36	19	71
22-Apr	80	26	26	12	38	46	26	24	15	16	24	26	28	27	33	22	21	19	17	25	12	15	32	36	80
23-Apr	38	18	11	66	15	71	53	36	28	51	60	57	58	37	24	19	22	19	17	15	14	13	12	18	71
24-Apr	10	17	52	33	25	63	22	17	19	18	43	29	24	22	21	26	31	28	32	21	14	19	16	63	63
25-Apr	80	31	40	19	22	23	30	33	33	32	34	35	30	30	32	29	33	30	22	25	22	17	21	18	80
26-Apr	17	18	19	16	13	15	20	20	21	27	27	40	30	30	29	38	27	30	28	23	40	58	38	72	72
27-Apr	28	41	15	79	46	68	73	31	31	26	41	23	20	23	24	25	19	17	15	12	21	86	26	35	86
28-Apr	25	24	28	28	41	53	53	25	17	26	20	16	22	27	21	20	26	24	22	19	15	16	19	21	53
29-Apr	18	38	27	UO	17	22	20	19	23	18	18	21	30	30	22	21	18	20	17	17	16	16	16	16	38
30-Apr	16	16	18	17	17	17	17	17	17	17	18	18	18	17	18	18	17	18	17	17	16	16	16	18	18

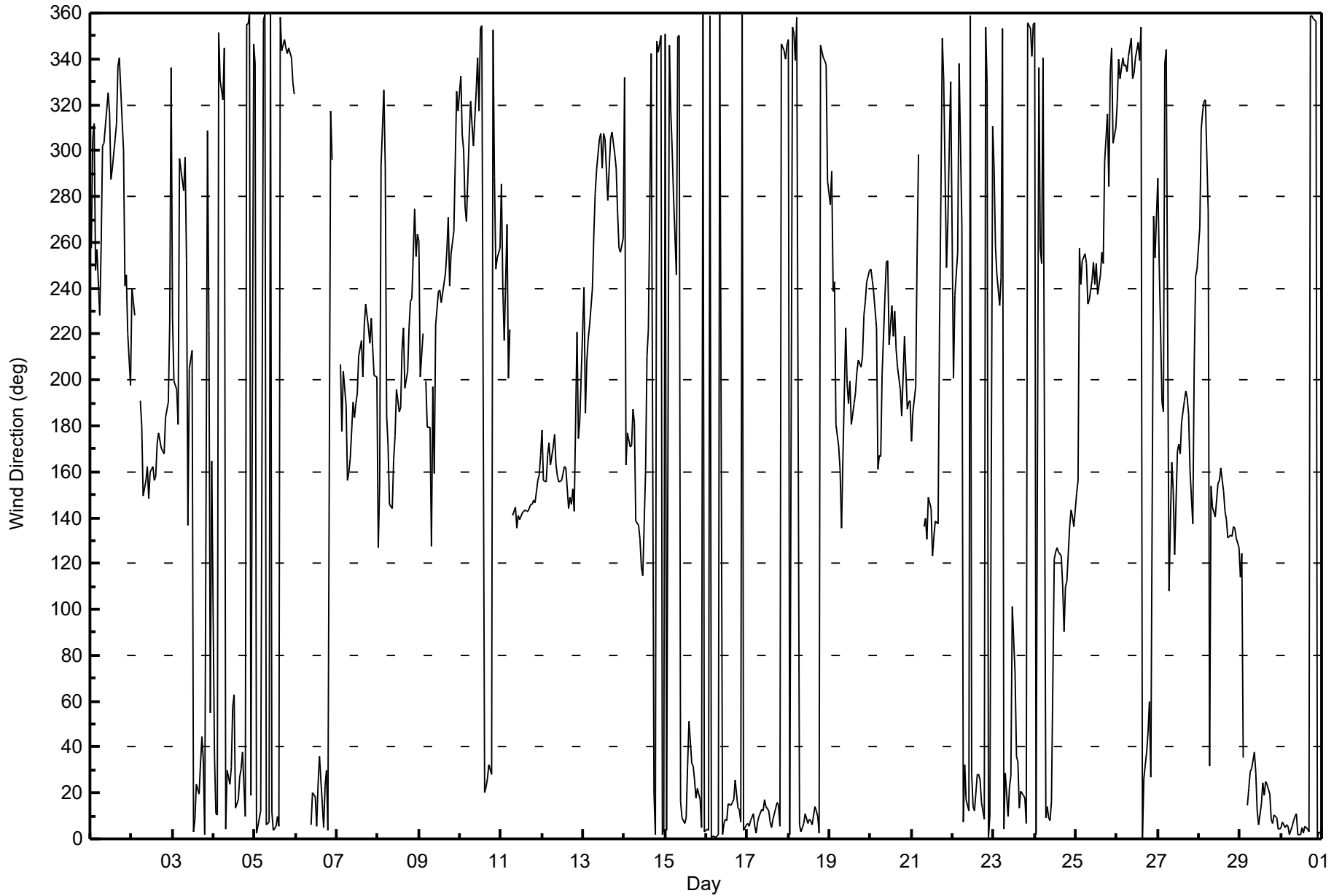
99	80	70	79	97	77	86	76	61	68	60	57	72	73	38	68	69	71	44	40	74	86	85	72	
Diurnal Maximum																								

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Fort McKay South - April 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS14  
ANZAC  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
 APRIL 2024

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	677	34	43	98.75	9.4	0	2.2	0
TRS(ppb) Average	684	36	36	100	0.7	0	0.2	0
THC(ppm) Average	683	34	37	99.58	2.4	-	2	-
NMHC(ppm) Average	683	34	37	99.58	0.369	-	0.034	-
CH4(ppm) Average	683	34	37	99.58	2.1	-	2	-
NO2(ppb) Average	665	35	55	97.22	28.4	0	4.3	-
NO(ppb) Average	665	35	55	97.22	18.9	-	1.5	-
NOX(ppb) Average	665	35	55	97.22	41.8	-	4.6	-
O3(ppb) Average	665	35	55	97.22	55.7	0	47.6	-
PM2.5(ug/m3) Average	717	3	3	100	30.8	0	8	0
AT 2m(C) Average	720	0	0	100	17.7	-	9.7	-
RH(%) Average	720	0	0	100	100	-	94.2	-
WS(km/h) Average	596	3	124	83.19	28	-	22	-
WD(deg) Average	596	3	124	83.19	-	-	-	-
Leaf Wetness (% of range) Average	719	0	1	99.86	74.1	-	11.4	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2(ppb) Average	677	0.46	0.9	-	0	0	0	0.2	0.5	1.2	9.4
TRS(ppb) Average	684	0.15	0.1	-	0.1	0.1	0.1	0.1	0.2	0.2	0.7
THC(ppm) Average	683	1.93	0	-	1.9	1.9	1.9	1.9	1.9	2	2.4
NMHC (ppm) Average	683	0.009	0.028	-	0	0	0	0	0	0	0.369
CH4(ppm) Average	683	1.93	0	-	1.9	1.9	1.9	1.9	1.9	2	2.1
NO2(ppb) Average	665	1.58	2.2	-	0	0.2	0.5	0.8	1.8	3.8	28.4
NO(ppb) Average	665	0.41	1.4	-	0	0	0	0.1	0.2	0.8	18.9
NOX(ppb) Average	665	1.99	3.3	-	0	0.2	0.5	0.9	2.1	4.8	41.8
O3(ppb) Average	665	36.44	10.1	-	4.5	22.1	29.3	38.6	44	47.6	55.7
PM2.5(ug/m3) Average	717	3.87	2.8	-	0.2	1.5	2.4	3.2	4.7	6.4	30.8
Temperature 2 m (C) Average	720	4.03	5.7	-	-12.5	-2.6	-0.2	3.2	7.9	12.4	17.7
Relative Humidity (%) Average	720	57.23	26.5	-	11	23.3	32.9	54.6	82.7	94.8	100
Wind Speed 20 m (km/h) Average	596	13.5	6	-	2	6	9	13	18	22	28
Wind Direction 20 m (deg) Average	596	258.5	-	-	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	719	2.43	7.6	-	0	0	0	0	0	8	74.1

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
APRIL 2024

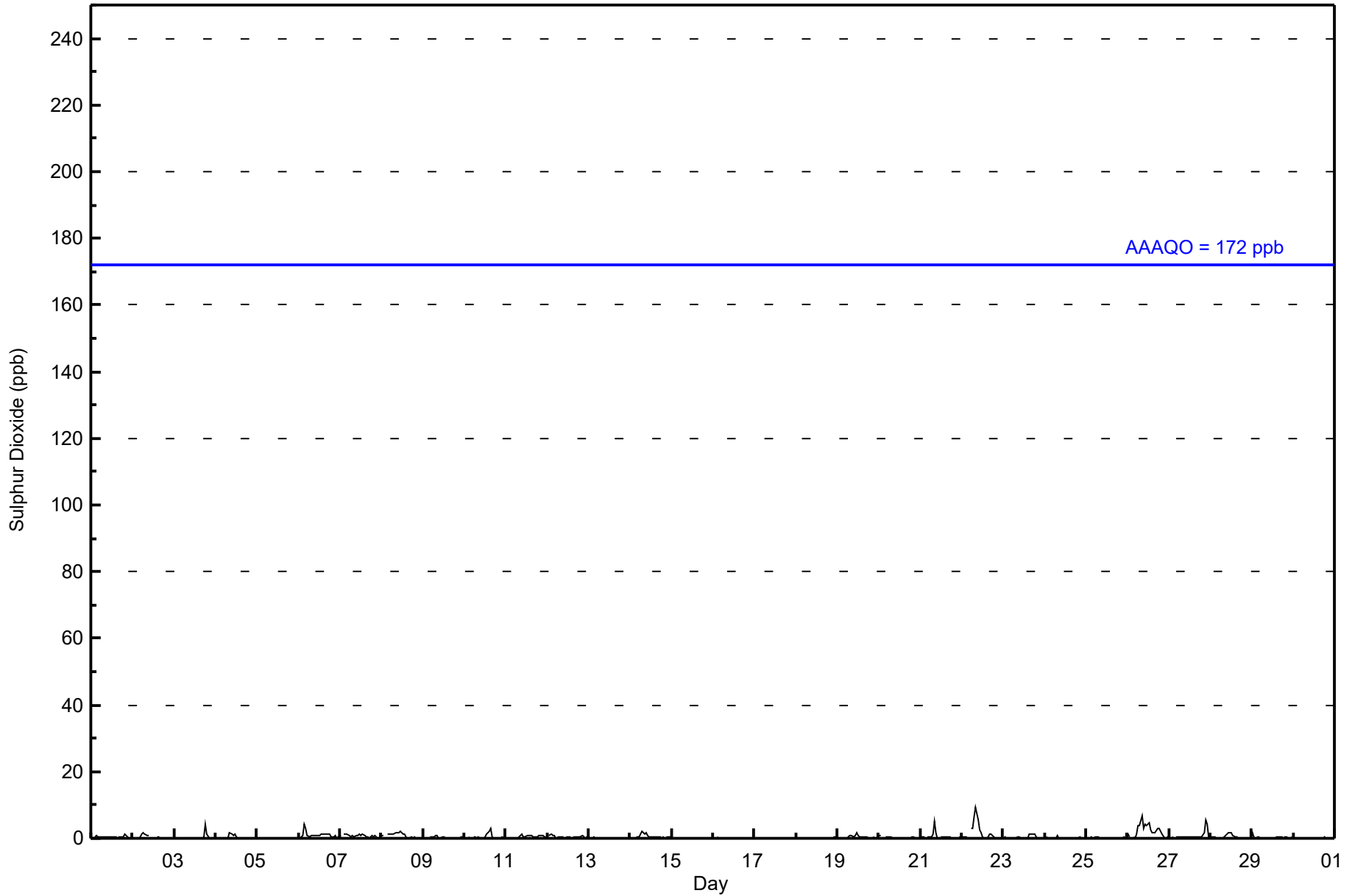
OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	16 Apr 2024 10:00	16 Apr 2024 18:00	9	Maintenance - UV lamp replaced
THC/NMHC/CH4	30 Apr 2024 12:00	30 Apr 2024 14:00	3	Maintenance - replaced support gas cylinder
NO2, O3	02 Apr 2024 15:00	03 Apr 2024 10:00	20	Maintenance - station operator activities
Wind Speed, Wind Direction	03 Apr 2024 12:00	08 Apr 2024 12:00	121	Sensor Failure - damaged wiring
Surface Leaf Wetness	10 Apr 2024 06:00	10 Apr 2024 06:00	1	Sensor operated out of range





Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720																										
Maximum Value: 9.4 ppb on Apr 22 09:00		Maximum Daily Average: 2.2 ppb on Apr 26																	Hours of Data:	677																												
Minimum Value: 0.0 ppb on Apr 2 00:00		Minimum Daily Average: 0.0 ppb on Apr 5																	Hours of Missing Data:	43																												
Maximum Diurnal Average: 1.1 ppb at hour 9		Minimum Diurnal Average: 0.2 ppb at hour 24																	Hours of Calibration:	34																												
Monthly Average: 0.46 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 1.2 P <sub>99</sub> = 4.3																	Percent Operational Time:	98.8																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	0.5	Z	0.4	0.6	0.5	0.6	0.5	0.5	0.4	0.4	0.3	0.4	0.3	0.4	0.2	0.2	0.2	0.4	0.2	1.5	0.9	0.6	0.2	0.0	0.4	1.5																						
2-Apr	0.0	0.0	Z	0.0	0.4	1.1	1.8	1.1	1.0	0.9	C	C	C	C	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.8																						
3-Apr	0.0	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	0.0	0.0	0.0	0.2	4.2	1.1	0.0	0.0	0.0	0.0	0.2	4.2																						
4-Apr	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	1.6	1.3	0.7	1.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	1.6																						
5-Apr	0.0	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
6-Apr	Z	0.1	0.8	4.2	3.0	0.7	0.5	1.0	0.8	0.7	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.4	0.6	0.3	0.7	0.2	0.5	1.1	4.2																						
7-Apr	0.7	Z	1.1	1.2	1.3	1.0	0.6	0.7	0.6	0.7	1.0	1.2	0.8	1.5	1.0	0.5	0.6	0.2	0.8	0.5	0.8	0.5	0.2	0.5	0.8	1.5																						
8-Apr	0.9	0.9	Z	1.1	1.2	1.3	1.3	1.3	1.6	1.7	1.7	1.9	1.4	1.2	0.3	0.0	0.1	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.8	1.9																						
9-Apr	0.0	0.0	0.1	Z	0.6	0.4	0.5	0.7	0.8	0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.3	0.3	0.2	0.8																						
10-Apr	0.1	0.1	0.1	0.3	Z	0.2	0.2	0.2	0.3	0.0	0.1	0.0	0.5	1.4	2.3	2.8	0.2	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.4	2.8																						
11-Apr	0.1	0.0	0.0	0.0	0.1	Z	0.1	0.0	0.8	1.3	0.5	0.6	1.1	0.8	0.8	0.7	0.4	0.6	0.6	0.7	0.7	0.7	0.5	0.3	0.5	1.3																						
12-Apr	Z	0.8	1.2	1.1	0.7	0.2	0.2	0.2	0.5	0.3	0.2	0.4	0.3	0.3	0.2	0.2	0.4	0.4	0.5	0.5	0.7	0.3	0.2	0.2	0.4	1.2																						
13-Apr	0.5	Z	0.1	0.4	0.2	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.5																						
14-Apr	0.0	0.0	Z	0.3	0.6	0.5	1.2	2.2	1.4	1.9	0.8	0.6	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.5	2.2																						
15-Apr	0.4	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4																						
16-Apr	0.2	0.0	0.0	0.3	Z	0.0	0.0	0.0	0.2	M	M	M	M	M	M	M	M	M	M	0.0	0.0	0.0	0.0	0.0	--	0.3																						
17-Apr	0.1	0.1	0.1	0.2	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
18-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2																					
19-Apr	0.1	Z	0.2	0.2	0.1	0.1	0.3	1.0	0.7	0.6	0.9	1.9	0.9	0.4	0.2	0.5	0.3	0.3	0.2	0.0	0.2	0.3	0.2	0.2	0.4	1.9																						
20-Apr	0.7	0.6	Z	0.2	0.2	0.3	0.3	0.4	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.7																						
21-Apr	0.2	0.4	0.3	Z	0.3	0.3	0.6	1.3	5.0	1.9	0.1	0.1	0.4	0.3	0.3	0.5	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.6	5.0																						
22-Apr	0.2	0.2	0.3	0.3	Z	3.0	3.0	6.5	9.4	5.5	2.4	1.6	0.2	0.1	0.1	0.4	1.1	1.2	0.3	0.2	0.1	0.1	0.1	0.2	1.6	9.4																						
23-Apr	0.1	0.2	0.1	0.1	0.1	Z	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.2	1.2	1.3	1.4	1.5	0.3	0.2	0.1	0.1	0.1	0.4	1.5																						
24-Apr	Z	0.2	0.2	0.0	0.1	0.1	0.1	0.8	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.1	0.2	0.2	0.1	0.8																						
25-Apr	0.1	Z	0.2	0.2	0.2	0.2	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.5	0.1	0.1	0.5																						
26-Apr	1.2	0.5	Z	0.2	0.2	1.2	3.6	3.8	6.6	2.9	4.2	3.8	4.6	2.4	1.7	1.7	1.7	3.1	2.8	1.9	1.1	0.1	0.1	0.3	2.2	6.6																						
27-Apr	0.0	0.0	0.2	Z	0.4	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.3	0.3	1.5	5.6	4.1	0.6	0.8	5.6																						
28-Apr	0.6	0.3	0.5	0.3	Z	0.1	0.2	0.2	0.5	1.4	1.8	1.7	1.7	0.9	0.4	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.8																						
29-Apr	1.5	0.5	0.2	0.3	0.3	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.1	0.3	0.2	0.1	0.1	0.2	0.3	1.5																						
30-Apr	Z	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.2																						
																								0.3	0.2	0.3	0.5	0.4	0.5	0.6	0.8	1.1	0.8	0.6	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.5	0.3	0.3	0.3	0.3	0.2	Diurnal Average
																								1.5	0.9	1.2	4.2	3.0	3.0	3.6	6.5	9.4	5.5	4.2	3.8	4.6	2.4	2.3	2.8	1.7	3.1	4.2	1.9	1.5	5.6	4.1	0.6	Diurnal Maximum
Z - zerospan      C - Calibration      M - Maintenance																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																																





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	677	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: 677

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 10	66	18	12	13	7	32	44	59	37	13	16	19	69	63	37	53	558
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>	66	18	12	13	7	32	44	59	37	13	16	19	69	63	37	53	558

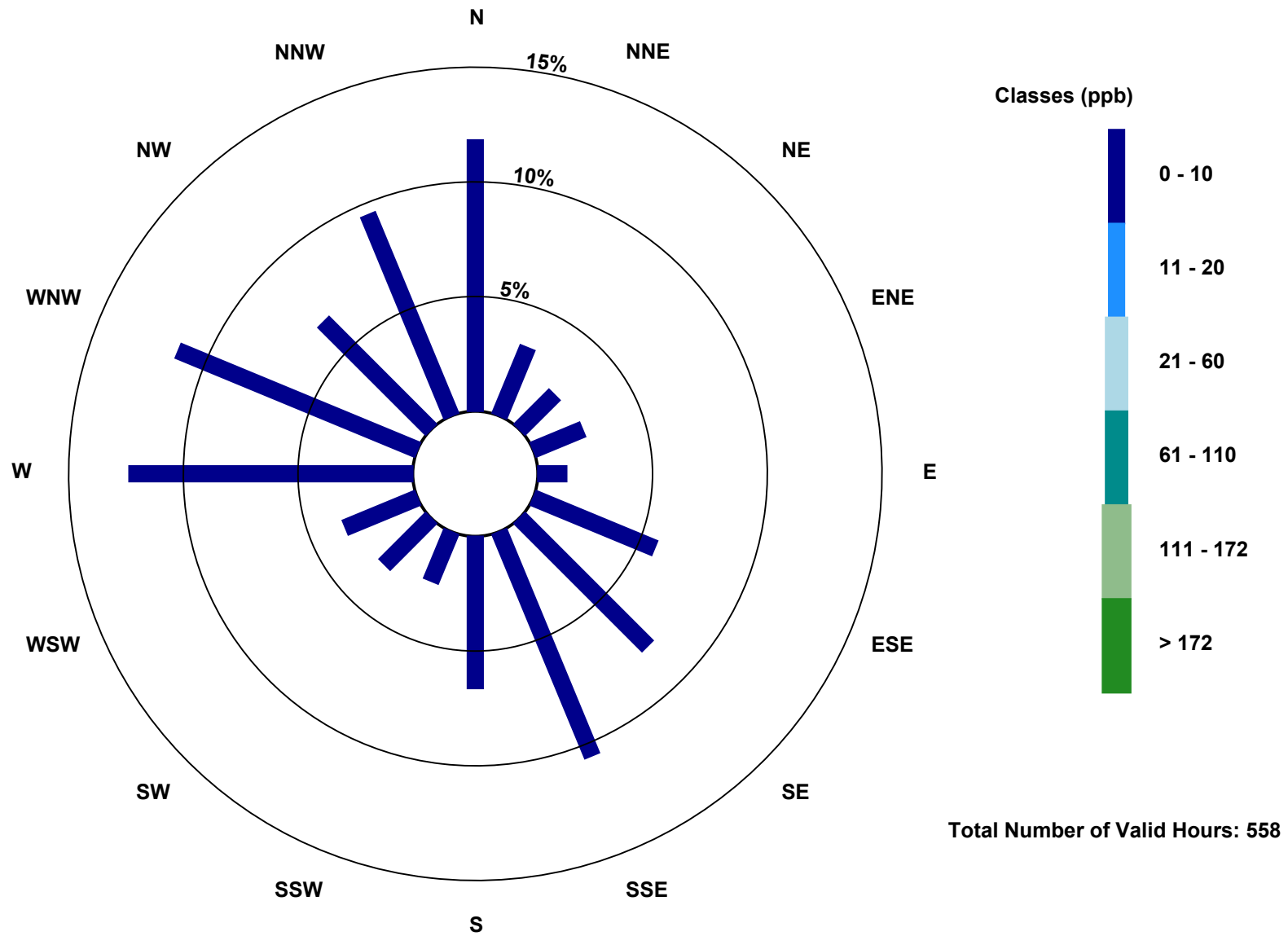
Total Number of Valid Hours: 558

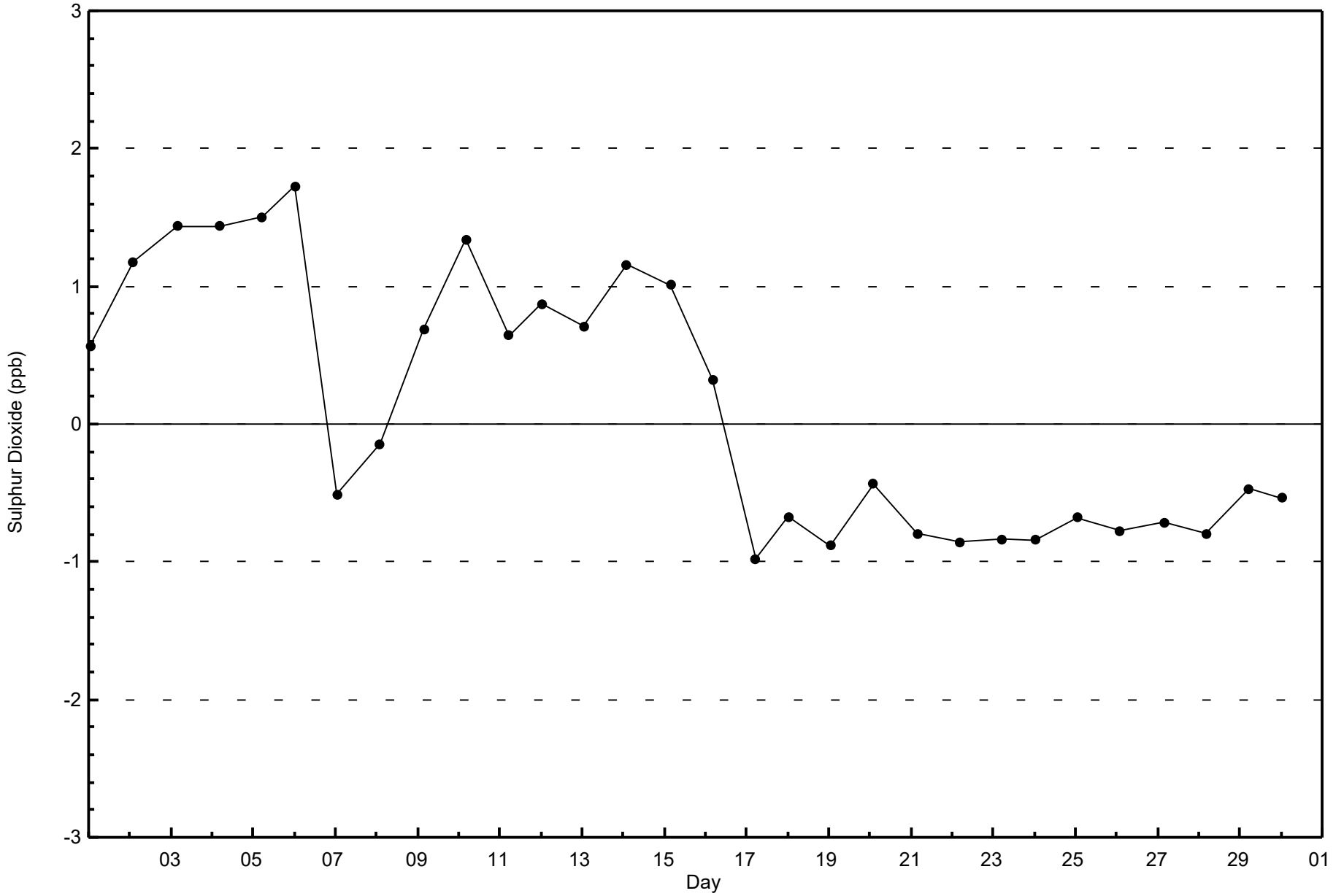
Total Number of Hours: 720

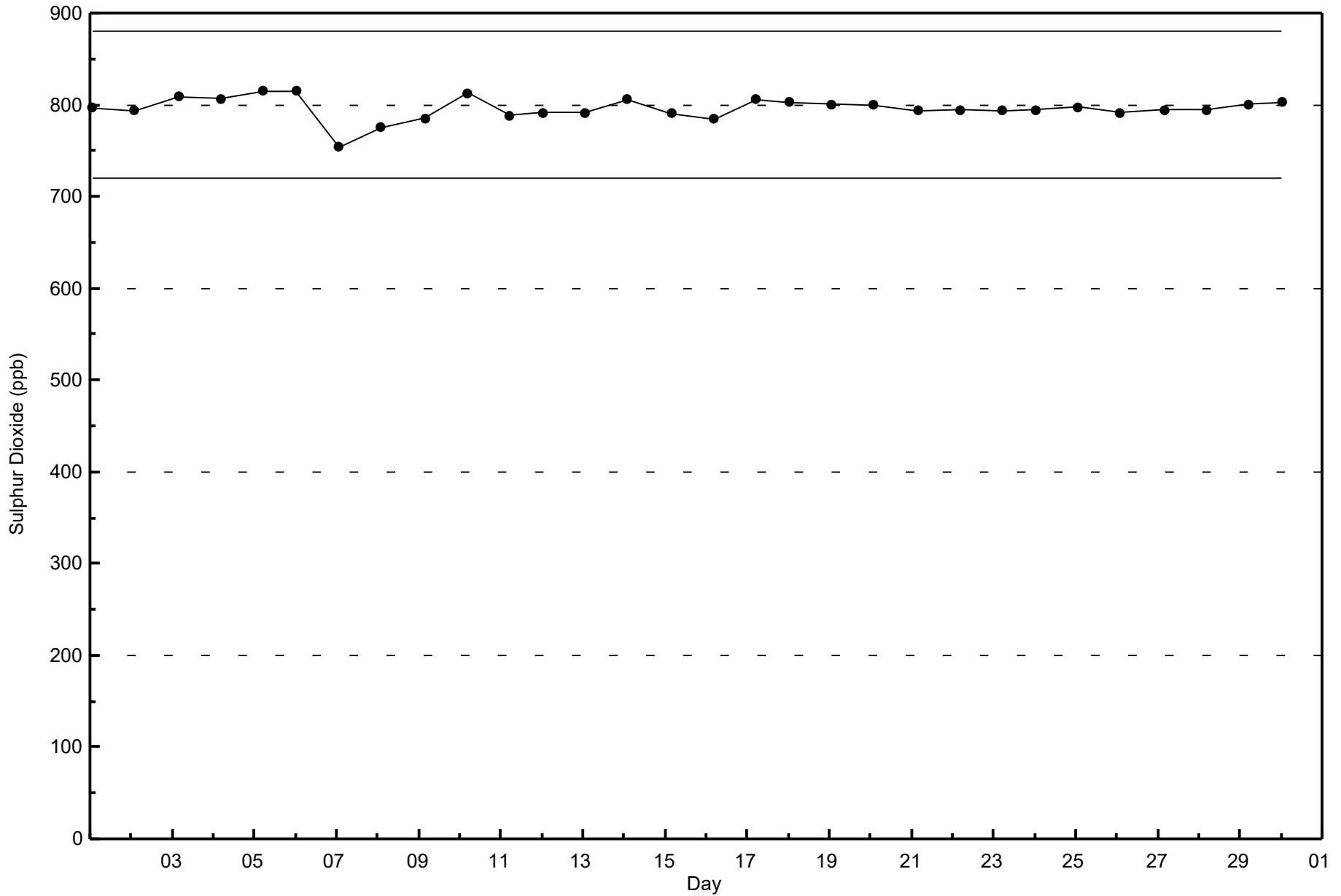


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









# Wood Buffalo Environmental Association

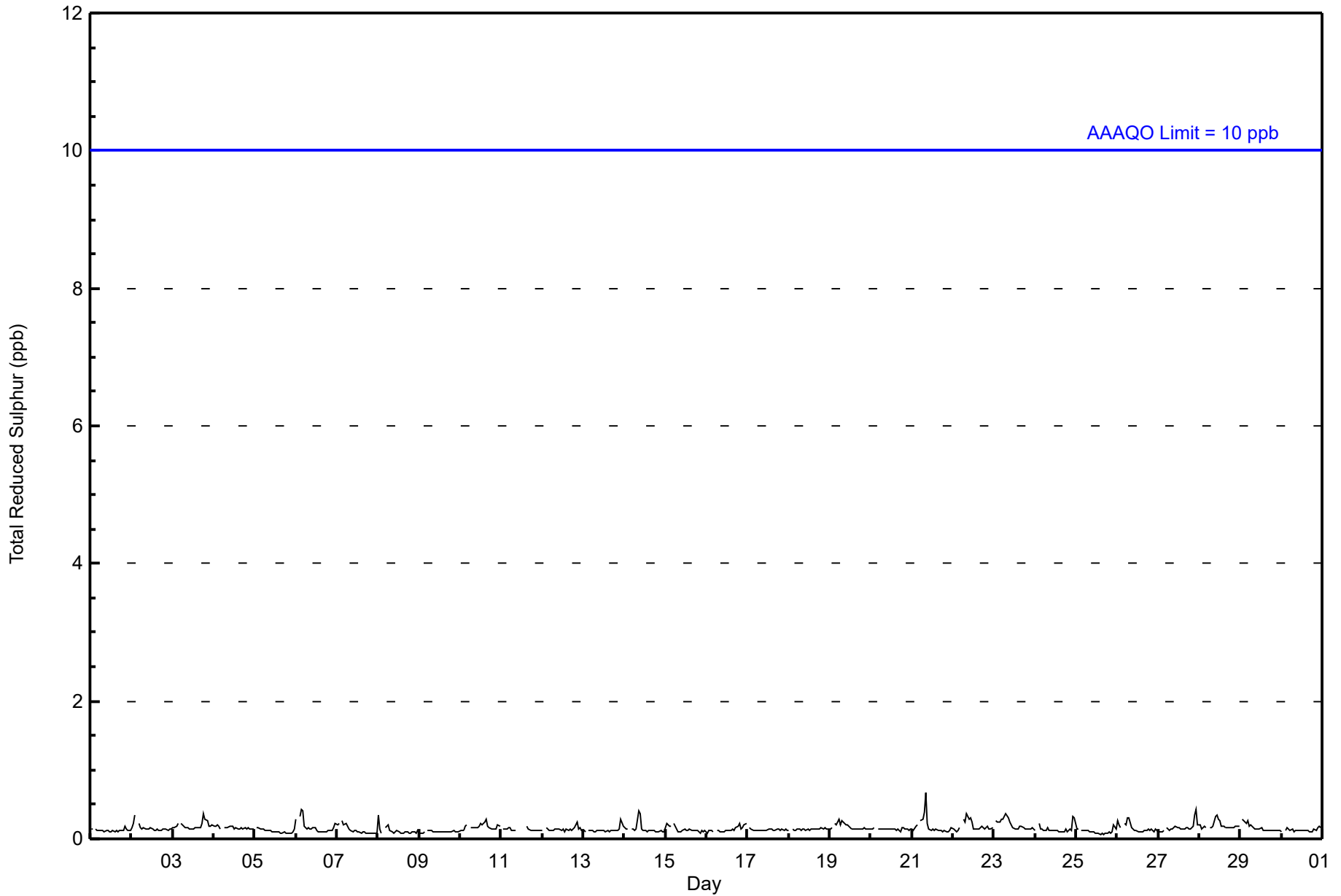
## Summary of Hour Averages

# Total Reduced Sulphur (TRS) - ppb

## Anzac - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																	Hours in Service: 720																
Maximum Value: 0.7 ppb on Apr 21 09:00																	Maximum Daily Average: 0.2 ppb on Apr 23																
Minimum Value: 0.1 ppb on Apr 25 15:00																	Hours of Data: 684																
Maximum Diurnal Average: 0.2 ppb at hour 9																	Hours of Missing Data: 36																
Monthly Average: 0.15 ppb																	Hours of Calibration: 36																
																	Percent Operational Time: 100.0																
																	Minimum Daily Average: 0.1 ppb on Apr 9																
																	Minimum Diurnal Average: 0.1 ppb at hour 17																
																	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.4																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Apr	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2					
2-Apr	0.2	0.2	0.3	Z	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3			
3-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4				
4-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2			
5-Apr	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			
6-Apr	0.3	Z	0.3	0.4	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4			
7-Apr	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
8-Apr	0.4	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
9-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
10-Apr	0.1	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3		
11-Apr	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	C	C	C	C	C	C	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	--	
12-Apr	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
13-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
14-Apr	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
15-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
16-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
17-Apr	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
18-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
19-Apr	0.1	0.2	Z	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
20-Apr	0.1	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
21-Apr	0.1	0.1	0.2	0.2	Z	0.3	0.3	0.4	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
22-Apr	0.1	0.1	0.1	0.1	0.2	Z	0.3	0.2	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
23-Apr	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	
24-Apr	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
25-Apr	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	
26-Apr	0.3	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
27-Apr	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28-Apr	0.2	0.1	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29-Apr	Z	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
30-Apr	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
																								Diurnal Average									
																								Diurnal Maximum									
																								Diurnal Average									
																								Diurnal Maximum									
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**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	684	100.00	100.00
3 - 4	0	0.00	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	66	18	11	12	8	34	43	55	37	14	18	19	69	63	39	59	565
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	66	18	11	12	8	34	43	55	37	14	18	19	69	63	39	59	565

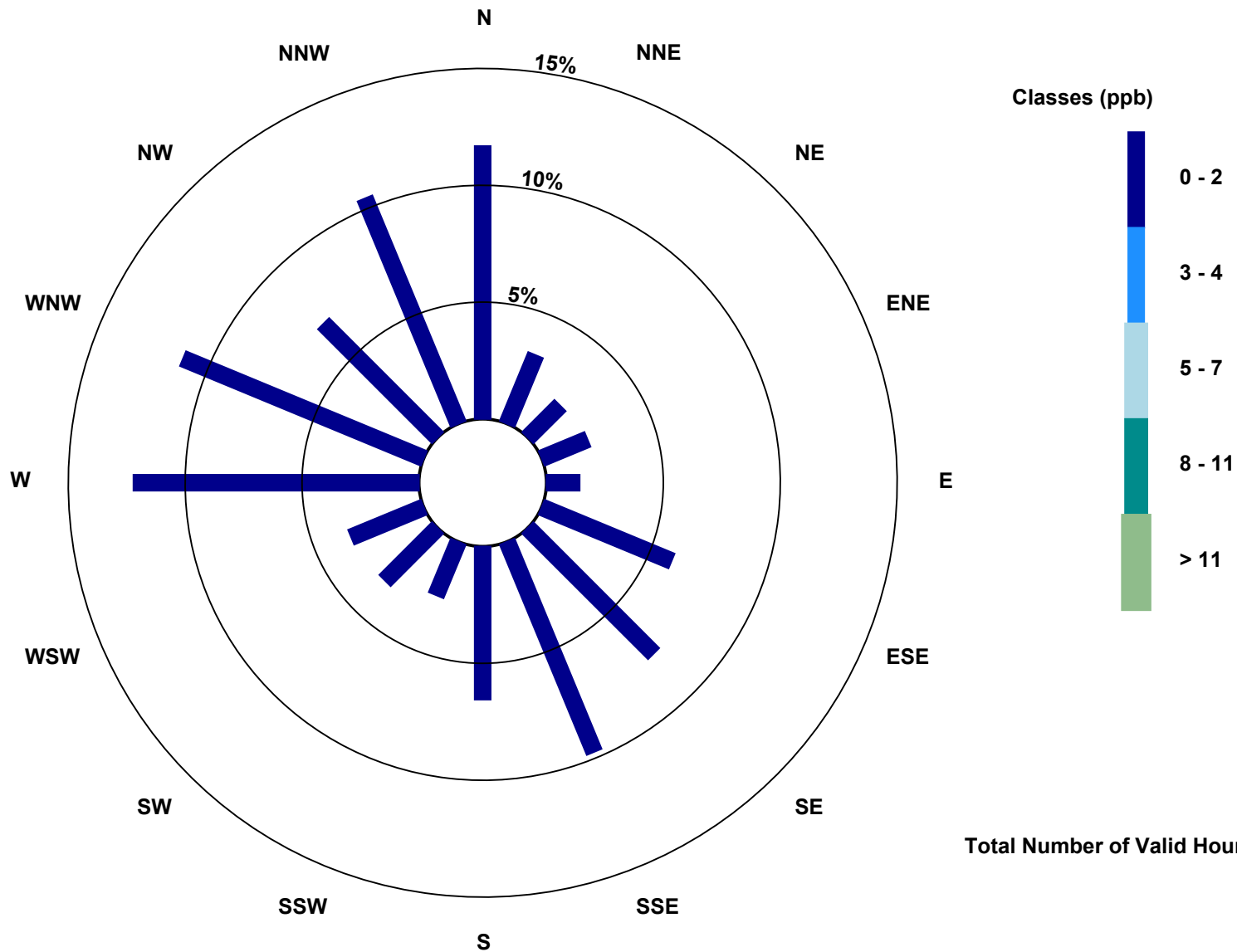
Total Number of Valid Hours: 565

Total Number of Hours: 720

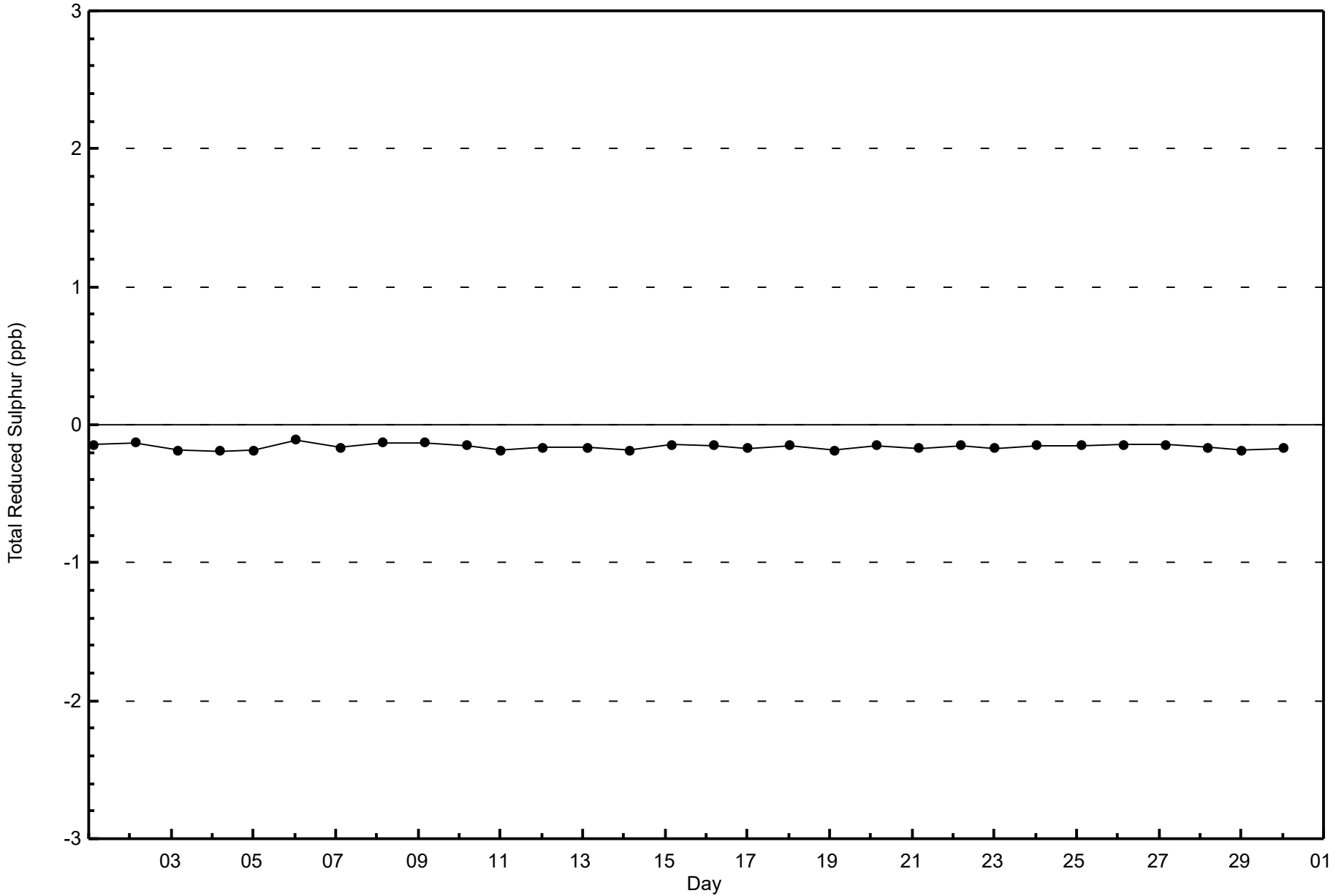


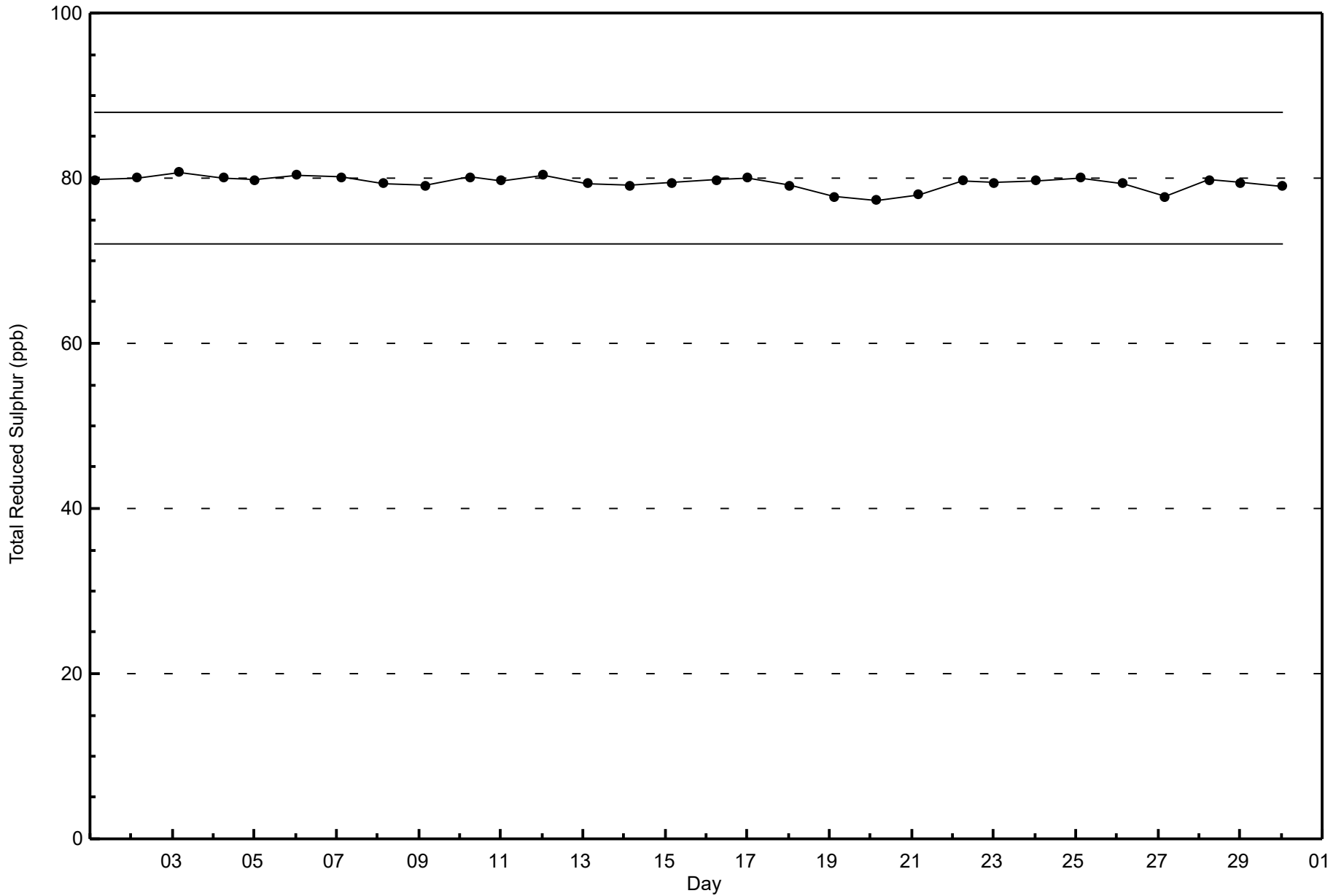
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Anzac



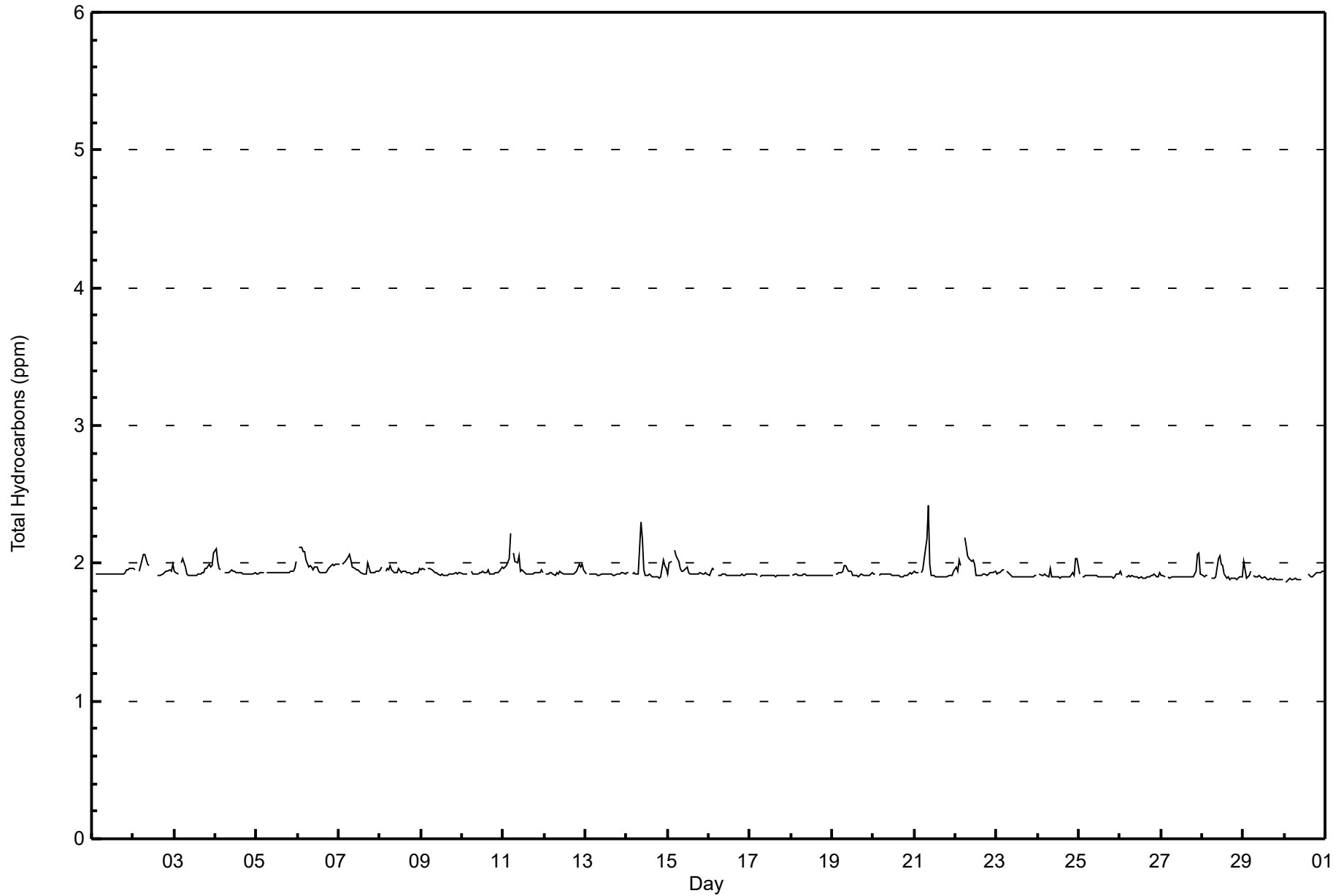
Total Number of Valid Hours: 565







Maximum Value: 2.4 ppm on Apr 21 09:00		Maximum Daily Average: 2.0 ppm on Apr 6		Hours in Service: 720																						
Minimum Value: 1.9 ppm on Apr 30 02:00		Minimum Daily Average: 1.9 ppm on Apr 30		Hours of Data: 683																						
Maximum Diurnal Average: 2.0 ppm at hour 9		Minimum Diurnal Average: 1.9 ppm at hour 17		Hours of Missing Data: 37																						
Monthly Average: 1.93 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 1.9 Q <sub>3</sub> = 1.9 P <sub>90</sub> = 2.0 P <sub>99</sub> = 2.1		Hours of Calibration: 34																						
				Percent Operational Time: 99.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	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	2.0	2.0	2.0	2.0	1.9	2.0	
2-Apr	2.0	2.0	Z	1.9	2.0	2.0	2.1	2.1	2.0	2.0	C	C	C	C	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1
3-Apr	1.9	1.9	1.9	Z	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	2.0	2.0	2.0	2.0	2.1	1.9	2.1	
4-Apr	2.1	2.0	2.0	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	2.1	
5-Apr	1.9	1.9	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	2.0	2.0	1.9	2.0	
6-Apr	Z	2.1	2.1	2.1	2.1	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	2.0	2.1	
7-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.1	
8-Apr	2.0	2.0	Z	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	
9-Apr	2.0	2.0	1.9	Z	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	2.0	
10-Apr	1.9	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	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	
11-Apr	2.0	2.0	2.0	2.0	2.2	Z	2.1	2.0	2.0	2.1	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.2	
12-Apr	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	2.0	2.0	2.0	1.9	2.0	
13-Apr	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	
14-Apr	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	2.3	2.2	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	2.3	
15-Apr	1.9	2.0	2.0	Z	2.1	2.1	2.0	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	2.1	
16-Apr	1.9	1.9	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	1.9	1.9	1.9	1.9	1.9	1.9	2.0	
17-Apr	1.9	1.9	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	
18-Apr	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	
19-Apr	1.9	Z	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	
20-Apr	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	
21-Apr	1.9	1.9	1.9	Z	1.9	2.0	2.1	2.2	2.4	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	2.4	
22-Apr	2.0	1.9	2.0	2.0	Z	2.2	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	
23-Apr	1.9	1.9	1.9	1.9	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	1.9	1.9	1.9	1.9	1.9	2.0	
24-Apr	Z	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	
25-Apr	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	
26-Apr	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	
27-Apr	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	2.1	2.1	1.9	2.1	
28-Apr	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	2.0	2.1	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	2.1	
29-Apr	2.0	2.0	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	2.0	
30-Apr	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	M	M	M	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Anzac - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	659	96.49	96.49
2.1 - 3.0	24	3.51	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Anzac - April 2024**

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	65	18	12	11	7	29	38	55	37	13	16	19	69	62	36	60	547
2.1 - 3.0	0	0	0	2	0	3	6	4	0	0	0	0	0	1	1	0	17
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>	65	18	12	13	7	32	44	59	37	13	16	19	69	63	37	60	564

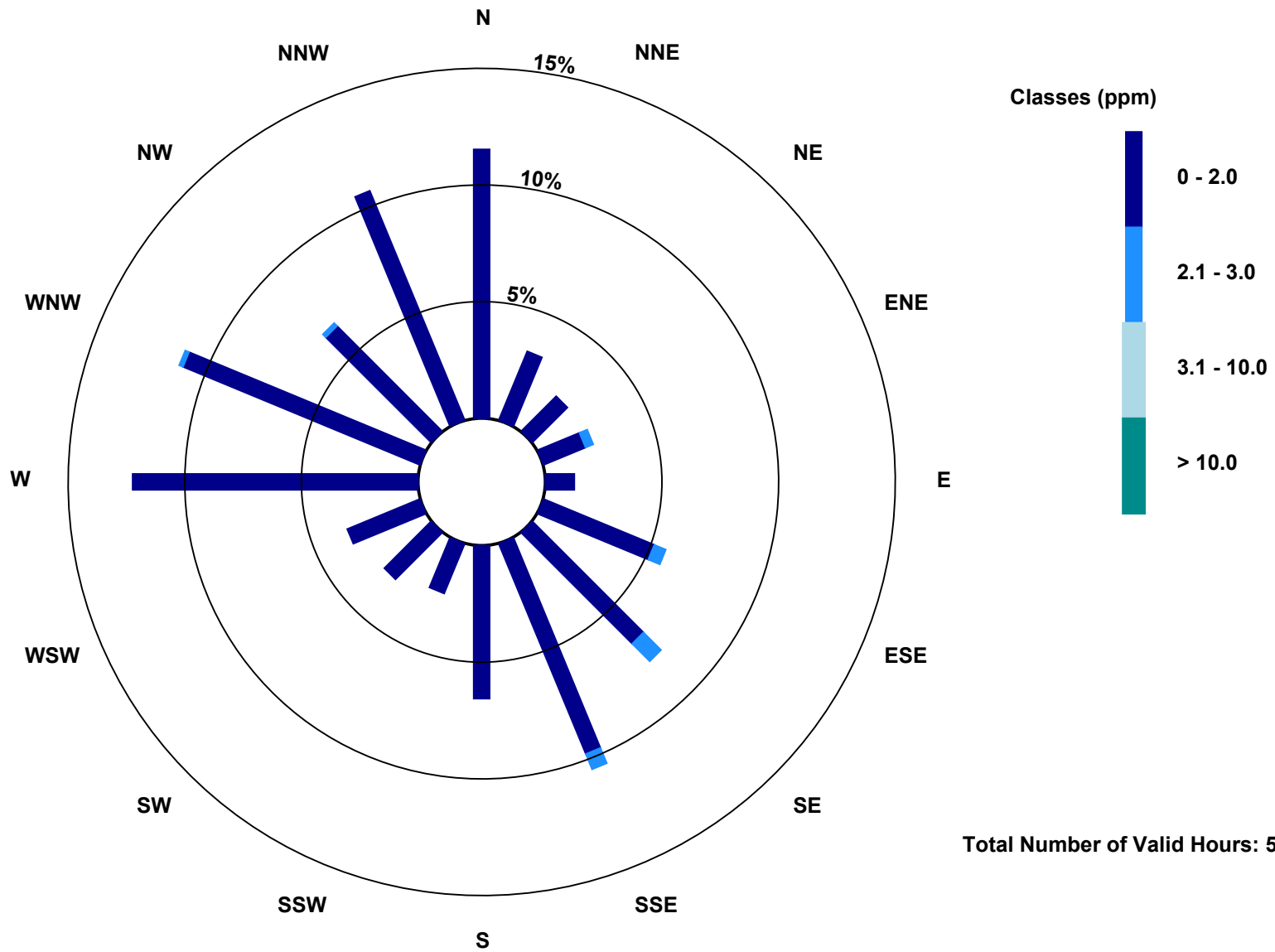
Total Number of Valid Hours: 564

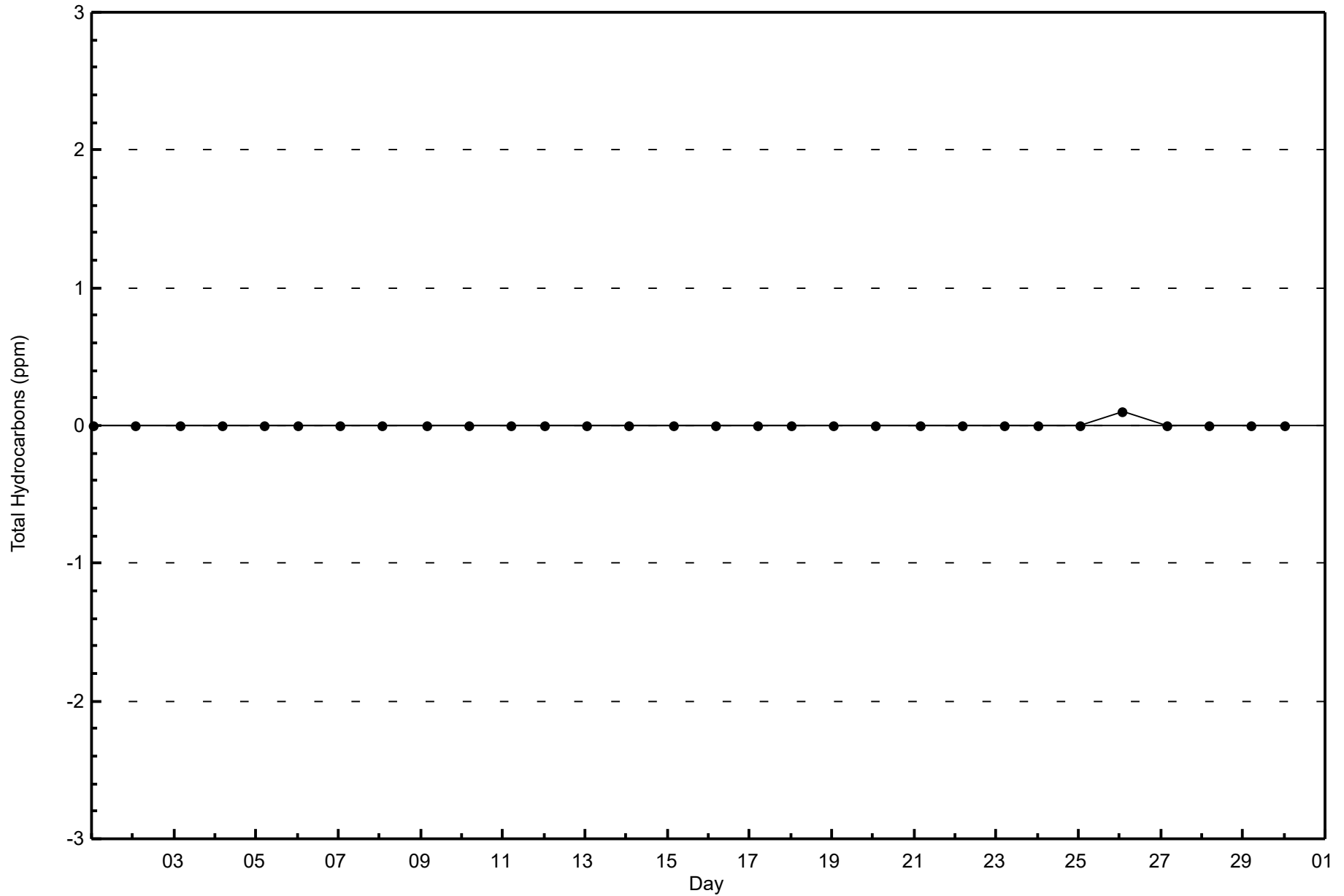
Total Number of Hours: 720

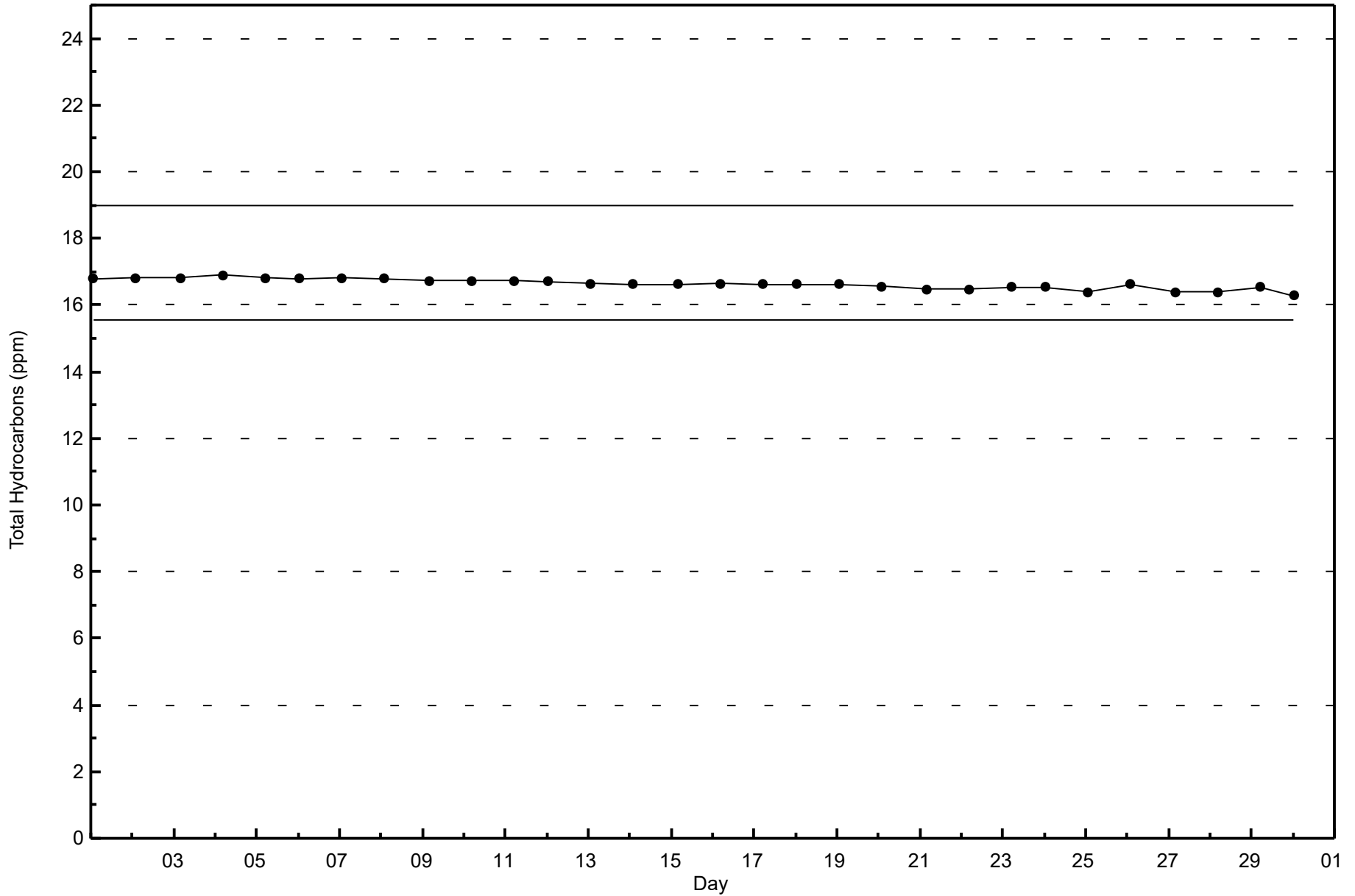


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Anzac





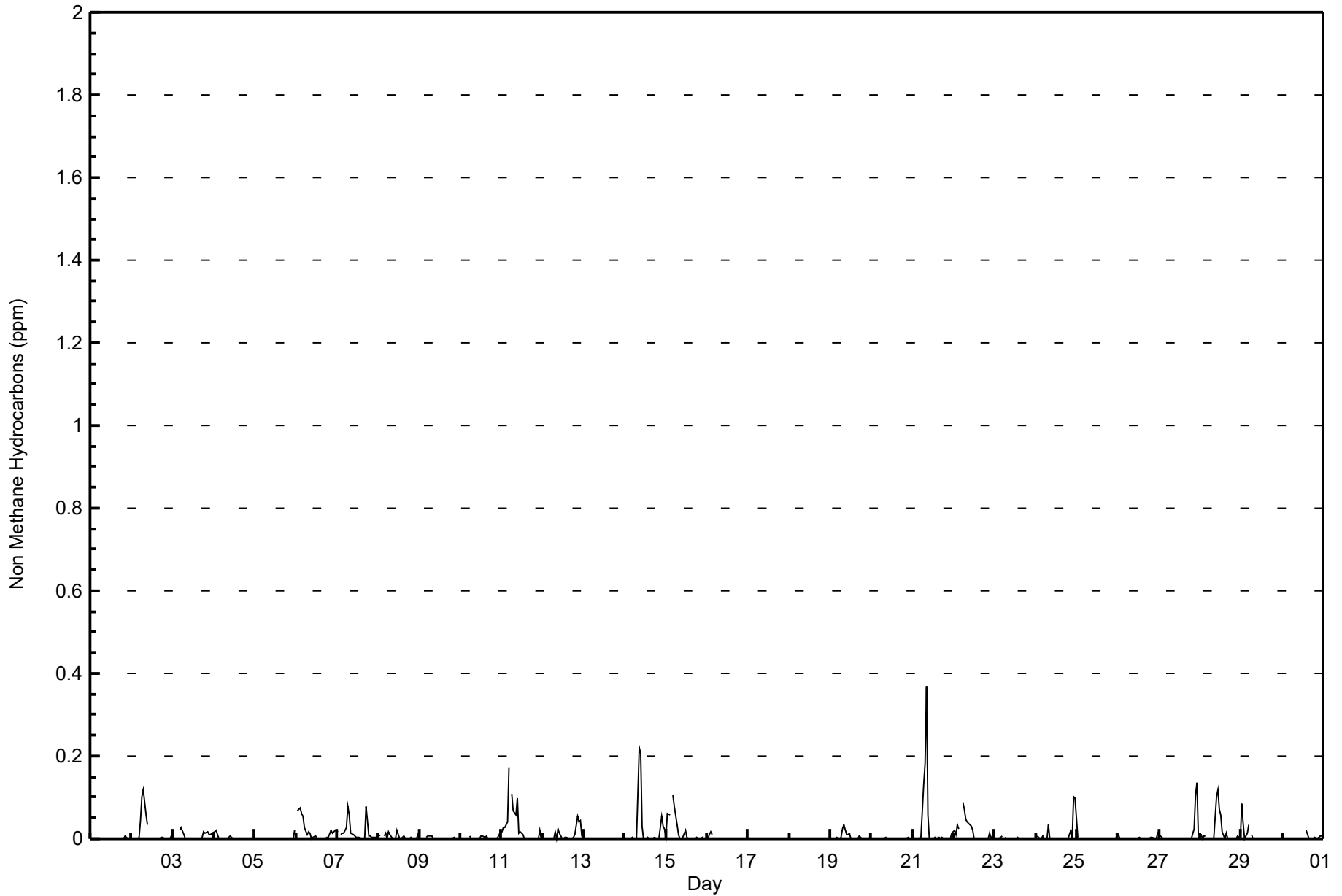




Summary of Hour Averages

Anzac - April 2024

Maximum Value: 0.369 ppm on Apr 21 09:00		Maximum Daily Average: 0.034 ppm on Apr 21		Hours in Service: 720																																												
Minimum Value: 0.000 ppm on Apr 1 01:00		Minimum Daily Average: 0.000 ppm on Apr 18		Hours of Data: 683																																												
Maximum Diurnal Average: 0.027 ppm at hour 9		Minimum Diurnal Average: 0.000 ppm at hour 17		Hours of Missing Data: 37																																												
Monthly Average: 0.009 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> = 0.1		Hours of Calibration: 34																																												
				Percent Operational Time: 99.6																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	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	0.007	0.003	0.001	0.000	0.000	0.007																						
2-Apr	0.001	0.001	Z	0.000	0.004	0.043	0.103	0.120	0.057	0.035	C	C	C	C	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.001	0.006	0.020	0.120																						
3-Apr	0.001	0.001	0.001	Z	0.020	0.028	0.012	0.001	0.000	0.001	0.001	0.000	0.001	0.001	0.002	0.001	0.004	0.019	0.015	0.018	0.010	0.009	0.015	0.007	0.028																							
4-Apr	0.018	0.020	0.009	0.000	Z	0.000	0.001	0.000	0.000	0.007	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.020																							
5-Apr	0.000	0.000	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	0.001	0.021	0.001	0.021																							
6-Apr	Z	0.067	0.075	0.062	0.055	0.028	0.010	0.016	0.012	0.002	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.001	0.005	0.005	0.019	0.014	0.017	0.019	0.018	0.075																						
7-Apr	0.016	Z	0.011	0.014	0.013	0.028	0.078	0.058	0.013	0.011	0.008	0.004	0.004	0.003	0.000	0.000	0.000	0.077	0.007	0.007	0.004	0.002	0.005	0.004	0.016	0.078																						
8-Apr	0.012	0.008	Z	0.007	0.014	0.002	0.017	0.011	0.000	0.000	0.000	0.019	0.000	0.000	0.002	0.007	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.009	0.005	0.019																						
9-Apr	0.000	0.000	0.001	Z	0.003	0.006	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.001	0.000	0.001	0.006																						
10-Apr	0.000	0.000	0.000	0.000	Z	0.006	0.000	0.000	0.001	0.000	0.001	0.000	0.005	0.006	0.002	0.007	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.015	0.002	0.015																						
11-Apr	0.018	0.028	0.028	0.040	0.173	Z	0.109	0.068	0.057	0.099	0.012	0.017	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.020	0.000	0.029	0.173																						
12-Apr	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.017	0.000	0.024	0.013	0.000	0.001	0.005	0.005	0.001	0.000	0.001	0.002	0.011	0.056	0.039	0.044	0.007	0.010	0.056																						
13-Apr	0.001	Z	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001																						
14-Apr	0.000	0.001	Z	0.001	0.003	0.001	0.001	0.000	0.000	0.219	0.205	0.031	0.000	0.000	0.004	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.054	0.031	0.024	0.025	0.219																					
15-Apr	0.003	0.059	0.056	Z	0.104	0.078	0.035	0.010	0.000	0.000	0.005	0.021	0.005	0.001	0.000	0.000	0.001	0.000	0.002	0.001	0.000	0.003	0.002	0.002	0.017	0.104																						
16-Apr	0.000	0.010	0.016	0.010	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.016																						
17-Apr	0.000	0.000	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																						
18-Apr	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	0.000	0.000																						
19-Apr	0.000	Z	0.000	0.000	0.002	0.001	0.003	0.025	0.033	0.012	0.010	0.013	0.001	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.001	0.000	0.005	0.005	0.033																						
20-Apr	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.003																						
21-Apr	0.000	0.000	0.000	Z	0.000	0.005	0.132	0.184	0.369	0.059	0.000	0.000	0.001	0.003	0.000	0.005	0.001	0.002	0.000	0.000	0.000	0.001	0.002	0.014	0.034	0.369																						
22-Apr	0.019	0.010	0.033	0.024	Z	0.088	0.072	0.046	0.041	0.033	0.030	0.022	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.015	0.004	0.005	0.019	0.088																						
23-Apr	0.000	0.001	0.001	0.003	0.006	Z	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.006																						
24-Apr	Z	0.007	0.000	0.000	0.007	0.000	0.000	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.022	0.000	0.101	0.098	0.101																							
25-Apr	0.003	Z	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.001	0.003																						
26-Apr	0.009	0.001	Z	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.003	0.000	0.002	0.015	0.002	0.015																						
27-Apr	0.005	0.006	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.105	0.135	0.011	0.013	0.135																						
28-Apr	0.012	0.000	0.006	0.006	Z	0.000	0.000	0.000	0.002	0.100	0.119	0.072	0.059	0.016	0.000	0.014	0.001	0.000	0.000	0.000	0.000	0.000	0.008	0.001	0.018	0.119																						
29-Apr	0.085	0.038	0.000	0.013	0.034	Z	0.010	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.008	0.085																						
30-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	0.021	0.000	0.000	0.000	0.001	0.002	0.002	0.003	0.006	0.005	0.002	0.021																						
																								0.008	0.010	0.010	0.007	0.017	0.013	0.020	0.020	0.027	0.020	0.008	0.006	0.003	0.001	0.001	0.001	0.000	0.003	0.001	0.002	0.005	0.008	0.013	0.009	Diurnal Average
																								0.085	0.067	0.075	0.062	0.173	0.088	0.132	0.184	0.369	0.205	0.119	0.072	0.059	0.016	0.021	0.014	0.001	0.077	0.019	0.015	0.056	0.105	0.135	0.098	Diurnal Maximum
Z - zerospan		C - Calibration					M - Maintenance																																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Anzac - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	531	77.75	77.75
0.006 - 0.05	116	16.98	94.73
0.06 - 0.1	31	4.54	99.27
> 0.1	5	0.73	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Anzac - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	64	17	11	9	6	22	18	38	29	13	13	16	62	48	33	57	456
0.006 - 0.05	1	1	1	1	1	5	13	15	7	0	3	3	7	14	3	3	78
0.06 - 0.1	0	0	0	3	0	3	11	5	1	0	0	0	0	1	1	0	25
> 0.1	0	0	0	0	0	2	2	1	0	0	0	0	0	0	0	0	5
<b>Totals</b>	65	18	12	13	7	32	44	59	37	13	16	19	69	63	37	60	564

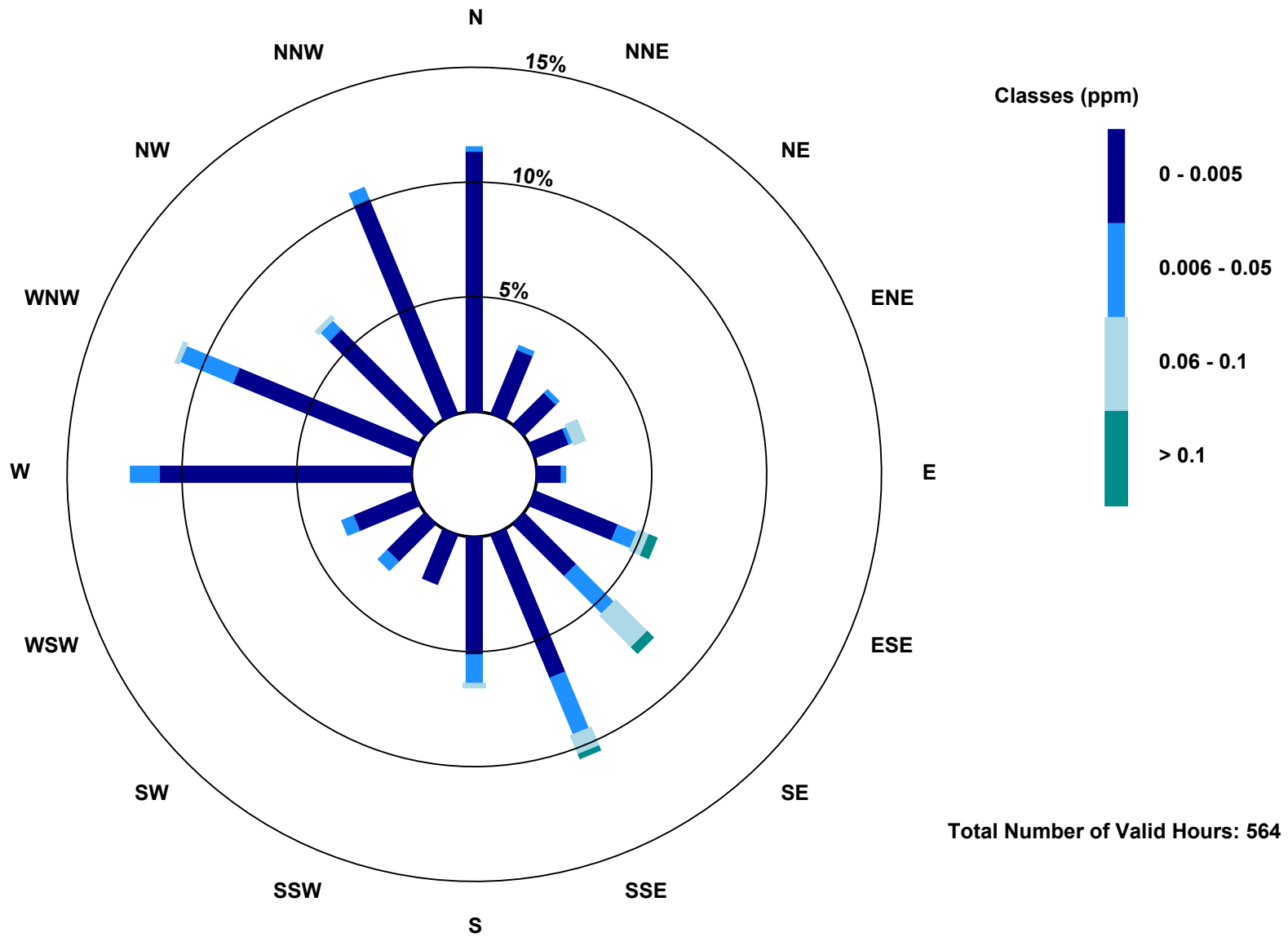
Total Number of Valid Hours: 564

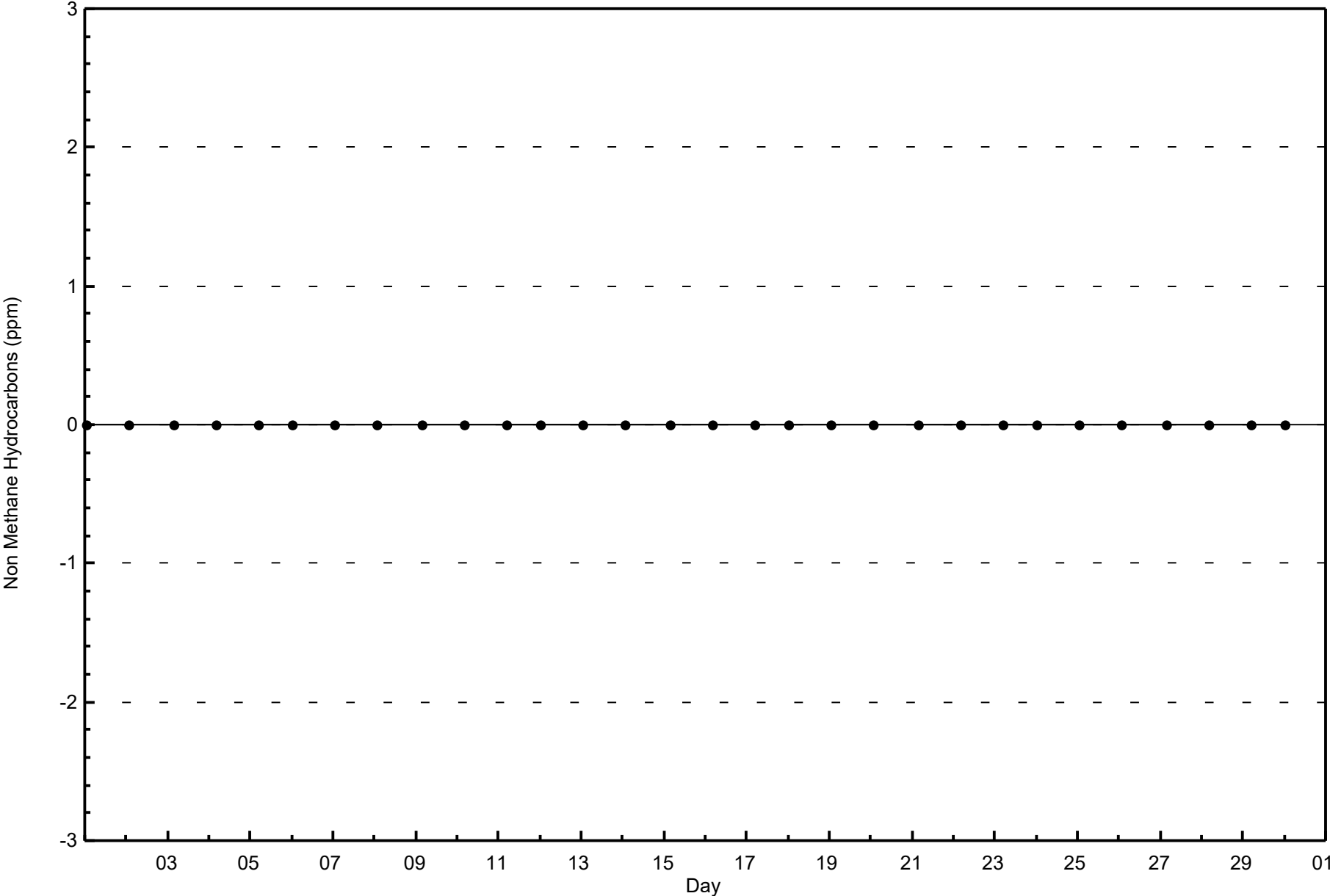
Total Number of Hours: 720

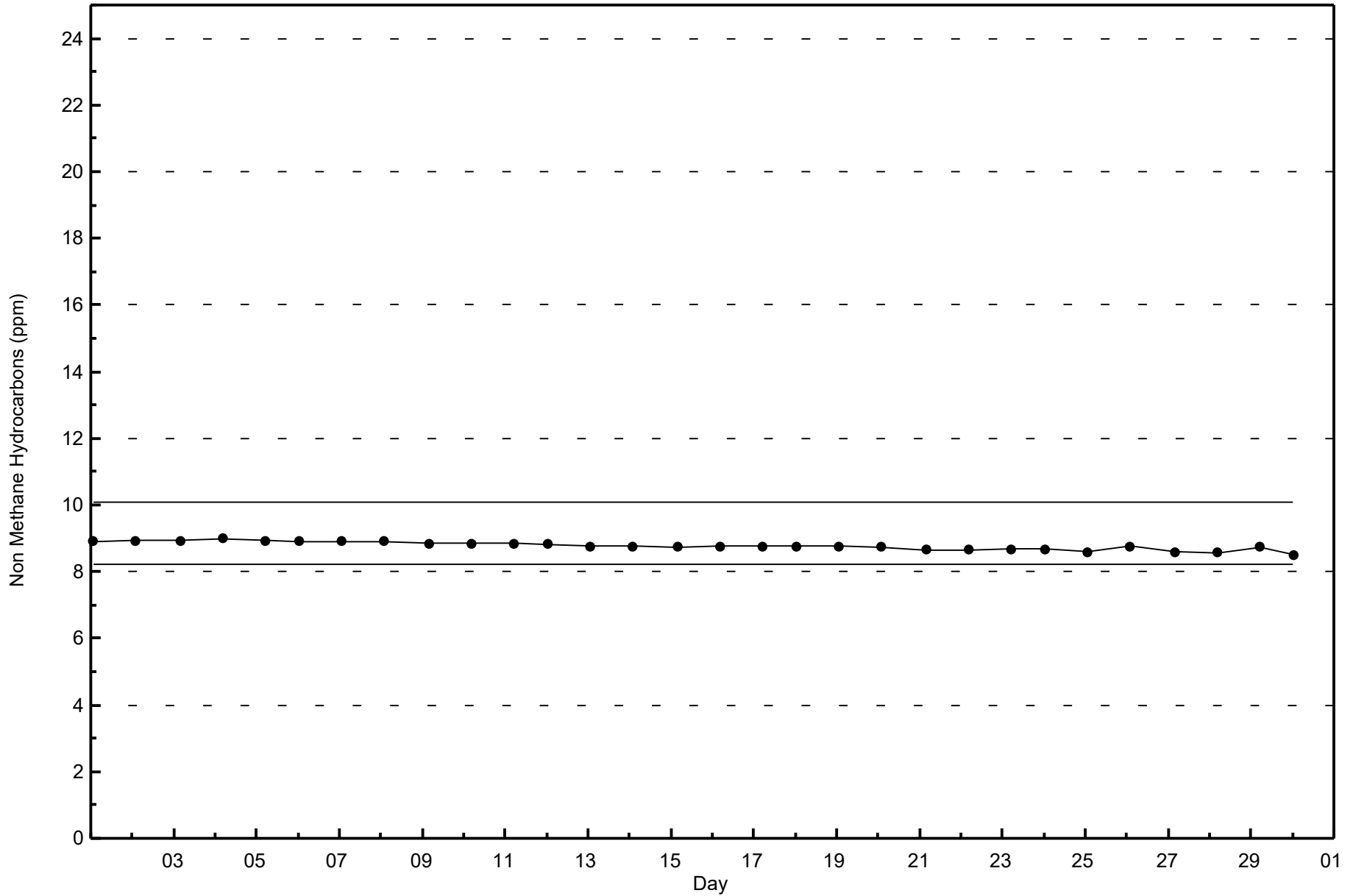


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Anzac





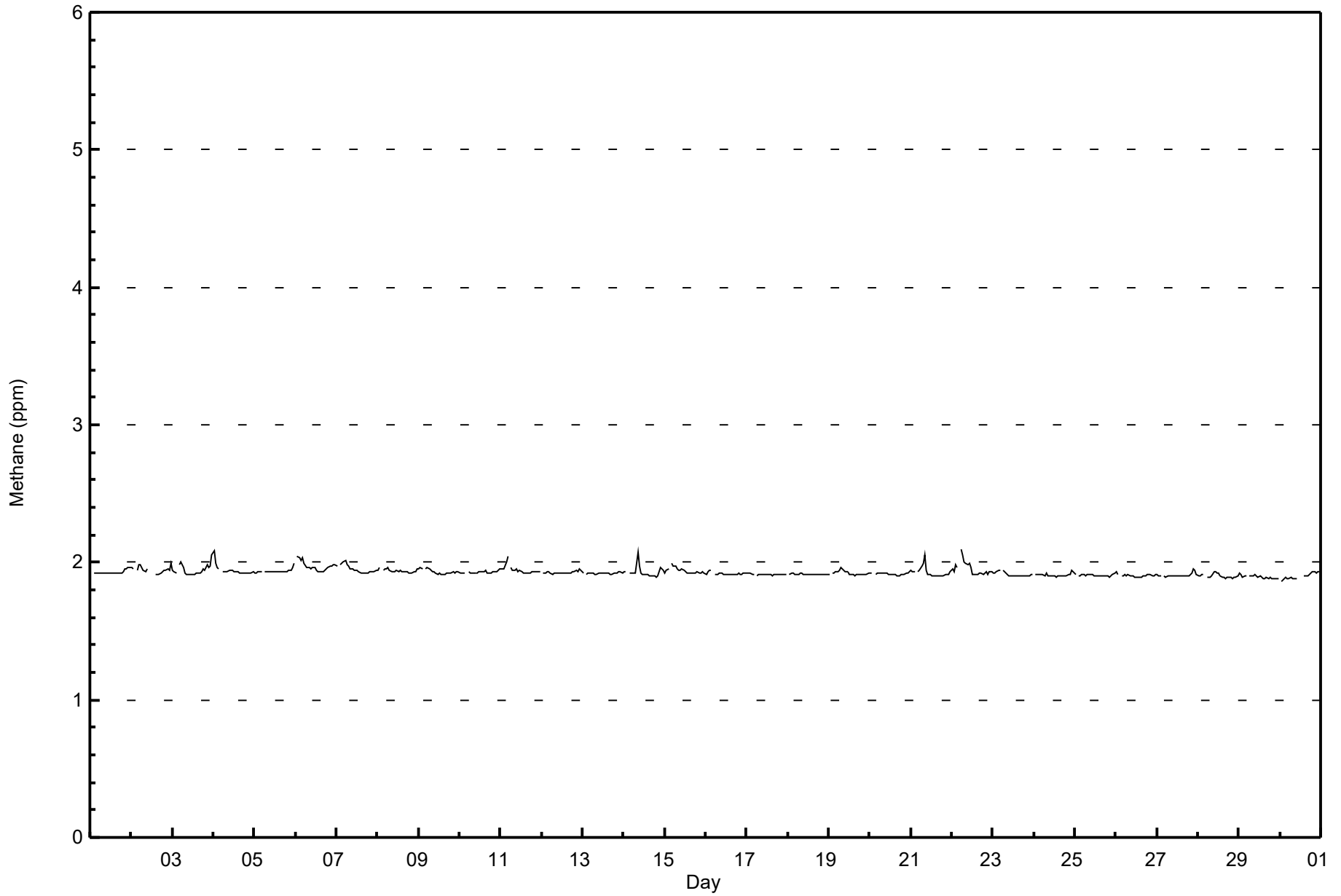






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	677	99.12	99.12
2.1 - 3.0	6	0.88	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - April 2024**

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	65	18	12	13	7	31	43	59	37	13	16	19	69	62	36	60	560
2.1 - 3.0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	4
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>	65	18	12	13	7	32	44	59	37	13	16	19	69	63	37	60	564

Total Number of Valid Hours: 564

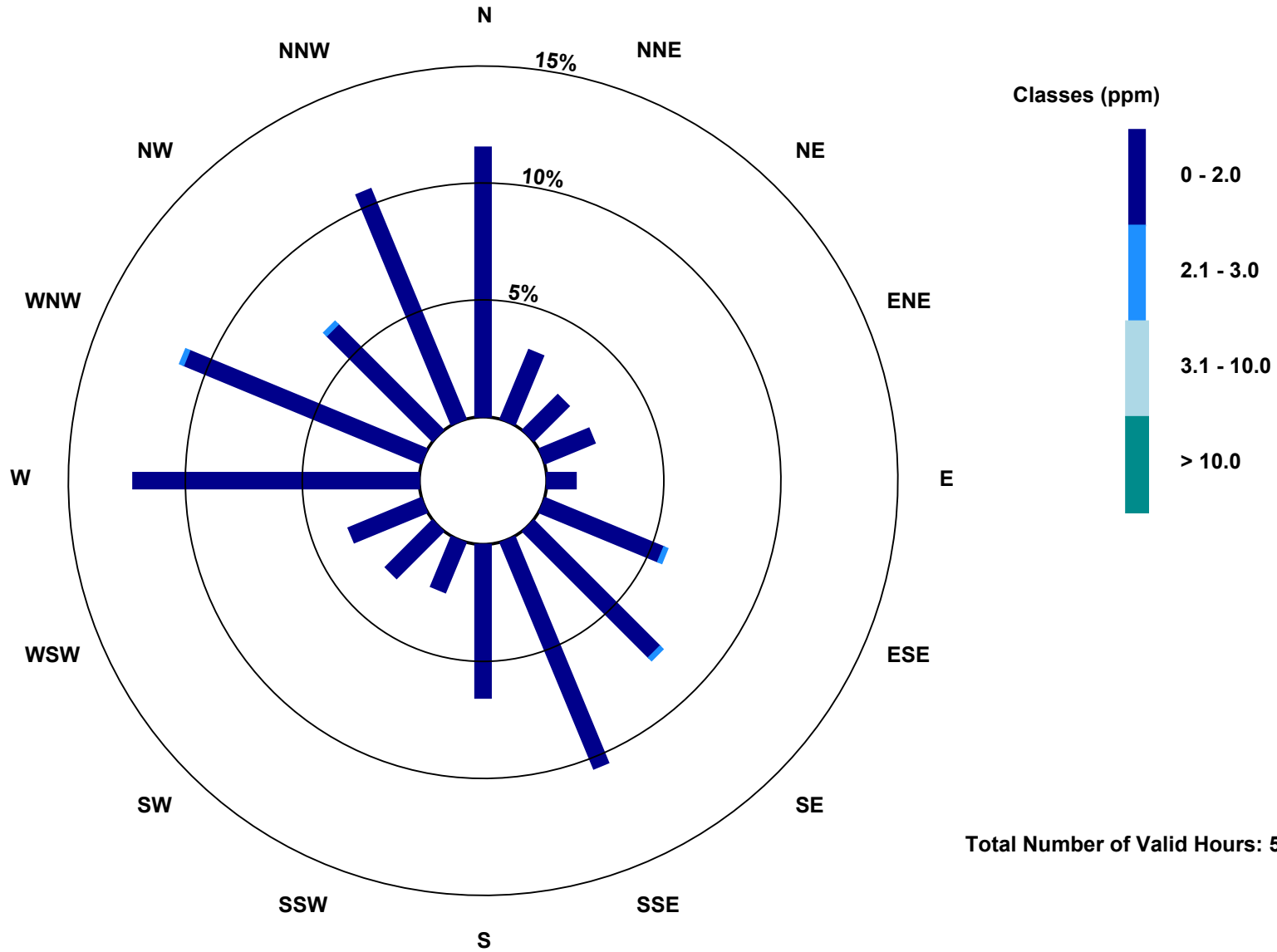
Total Number of Hours: 720



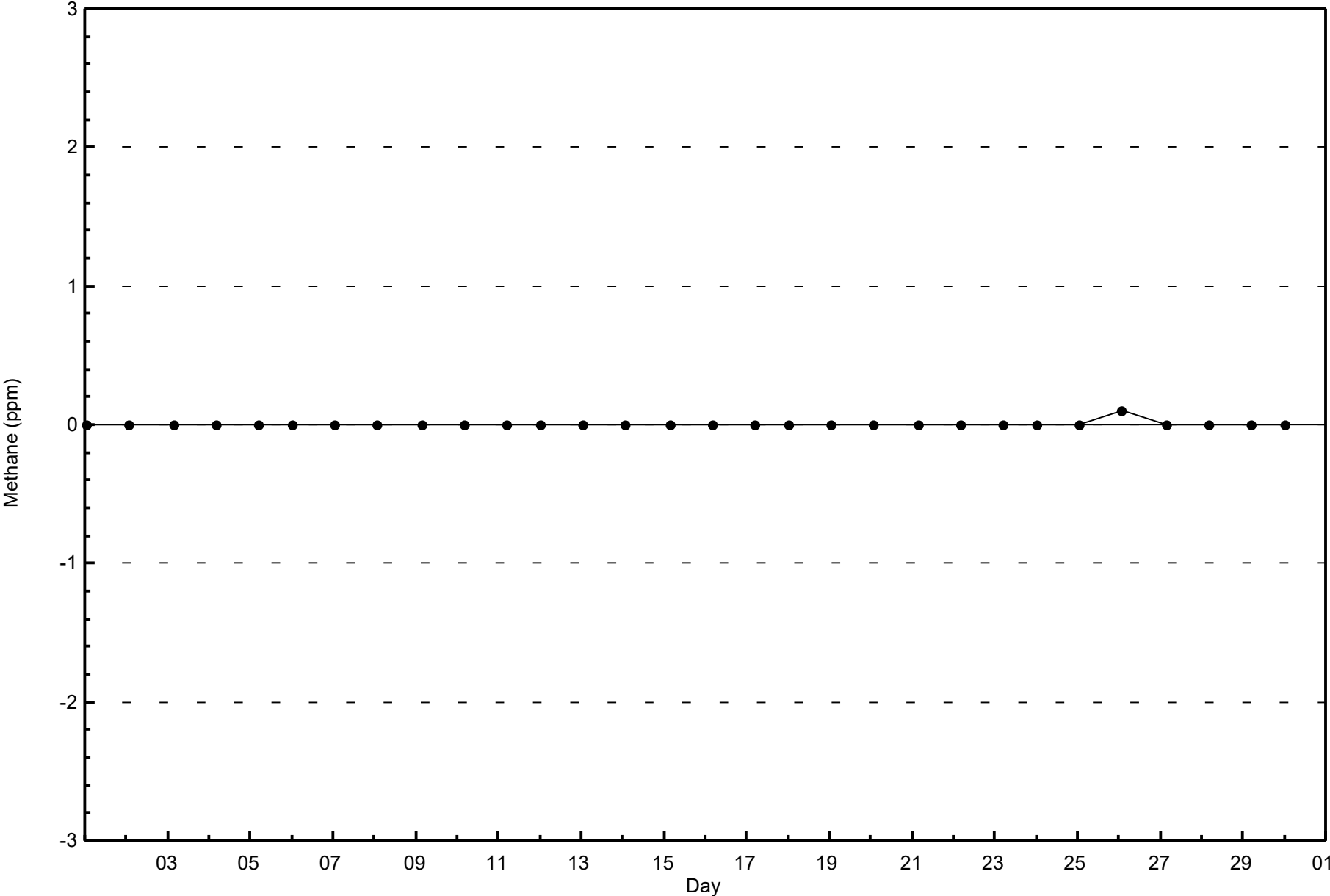


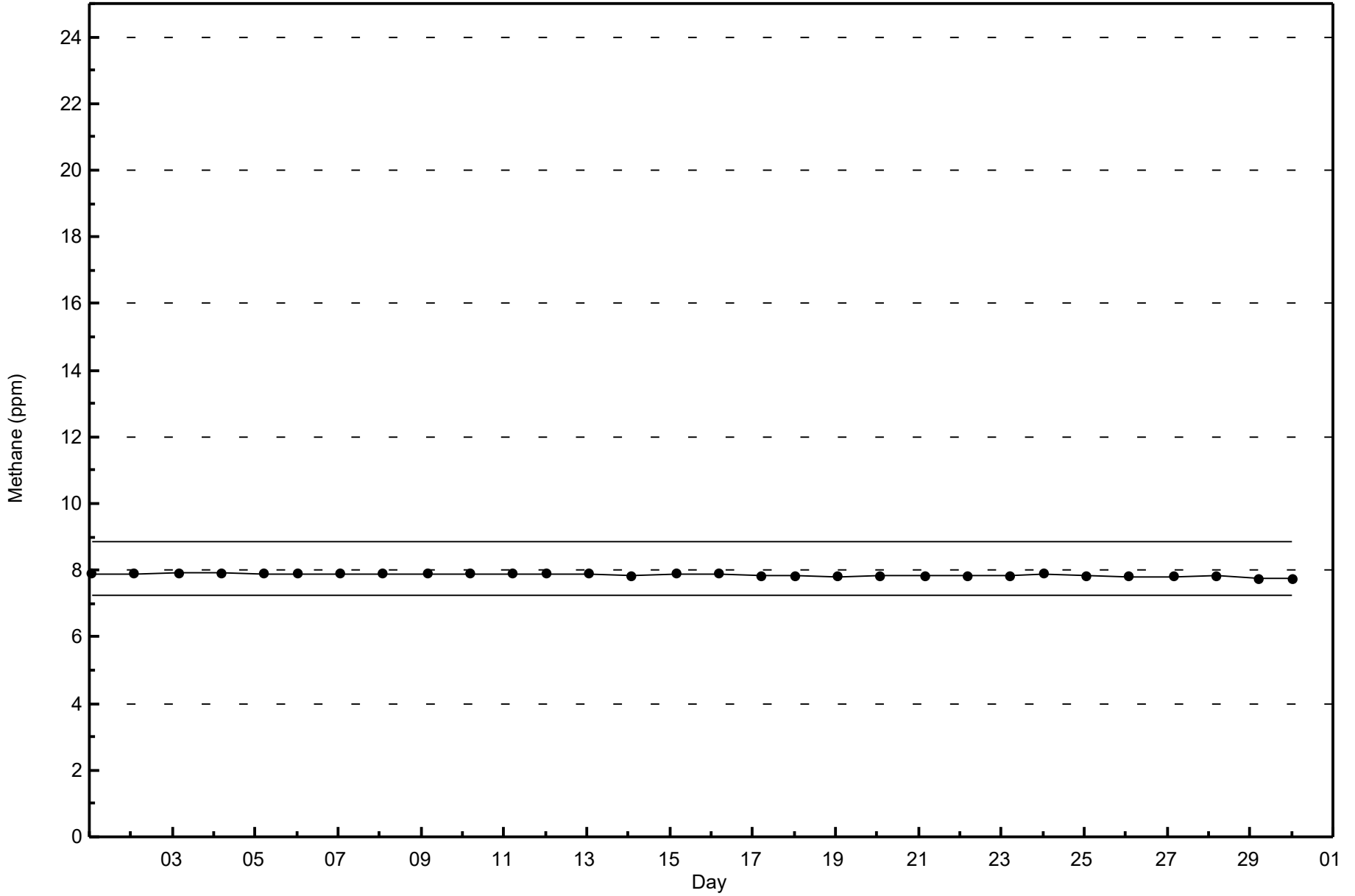
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 564





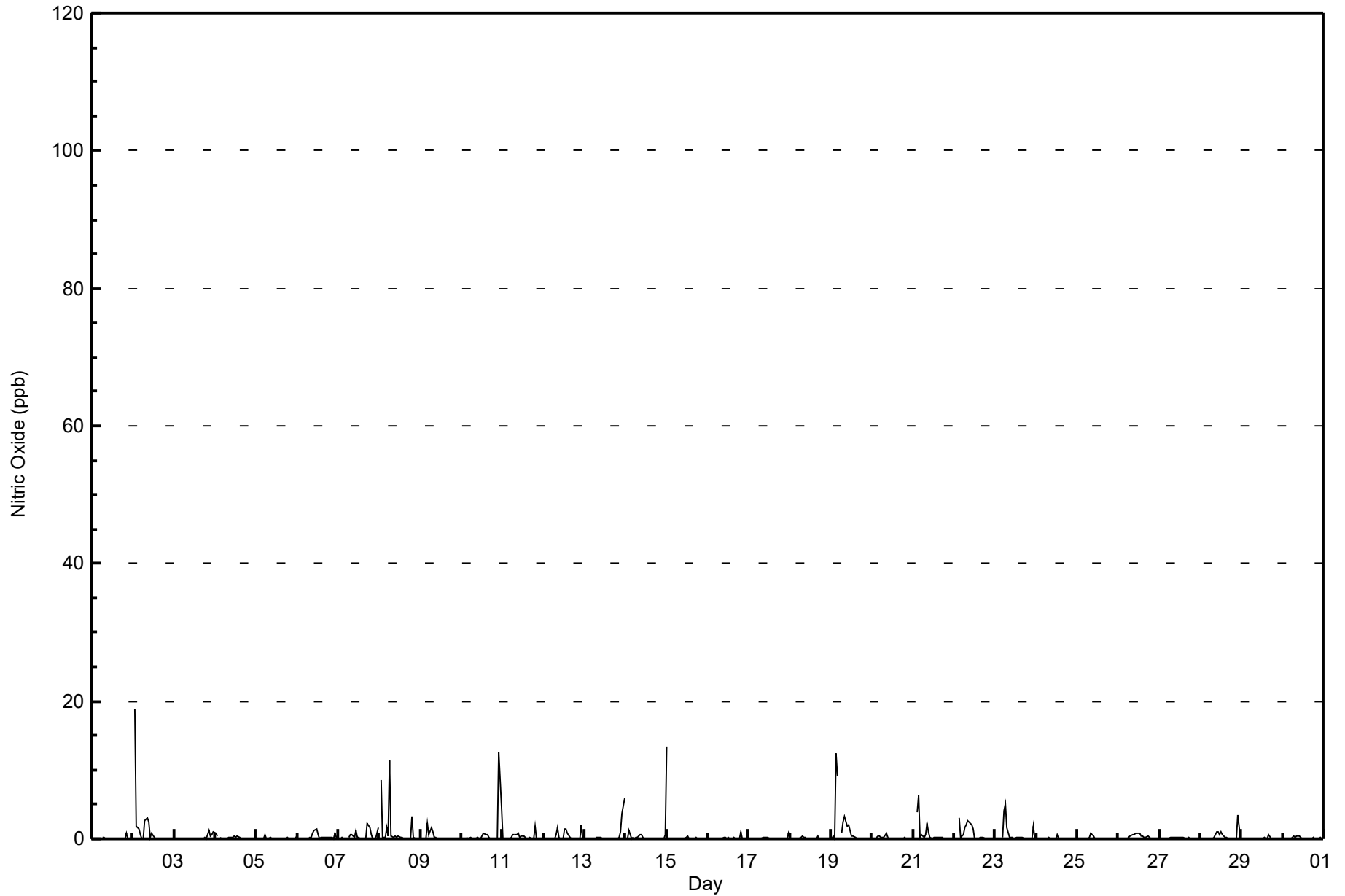


Maximum Value: 18.9 ppb on Apr 2 02:00		Maximum Daily Average: 1.5 ppb on Apr 19		Hours in Service: 720																						
Minimum Value: 0.0 ppb on Apr 1 01:00		Minimum Daily Average: 0.0 ppb on Apr 24		Hours of Data: 665																						
Maximum Diurnal Average: 1.1 ppb at hour 2		Minimum Diurnal Average: 0.1 ppb at hour 22		Hours of Missing Data: 55																						
Monthly Average: 0.41 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.8 P <sub>99</sub> = 7.1		Hours of Calibration: 35																						
				Percent Operational Time: 97.2																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.1	0.1	0.7
2-Apr	Z	18.9	1.9	1.4	0.6	0.0	0.1	2.5	3.0	2.4	0.3	0.9	0.3	0.0	M	M	M	M	M	M	M	M	M	M	--	18.9
3-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	0.0	0.0	0.2	0.0	1.1	0.5	0.7	1.0	--	1.1
4-Apr	0.8	0.5	Z	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
5-Apr	0.0	0.0	0.0	Z	0.0	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.7
6-Apr	0.1	0.0	0.1	0.0	Z	0.0	0.1	0.2	0.3	0.7	1.2	1.3	0.6	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.7	0.1	0.3	1.3
7-Apr	0.0	0.0	0.2	0.0	0.0	Z	0.2	0.6	0.6	0.3	1.3	0.2	0.1	0.1	0.0	0.0	0.1	2.2	1.6	0.5	0.0	0.0	0.0	1.7	0.4	2.2
8-Apr	Z	8.6	0.2	0.2	1.6	0.4	11.5	0.4	0.2	0.3	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	3.3	0.3	0.0	0.0	1.2	11.5
9-Apr	0.0	Z	0.0	0.0	2.3	0.7	1.7	1.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	2.3
10-Apr	0.0	0.0	Z	0.3	0.0	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.8	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	12.6	4.7	0.9	12.6
11-Apr	0.0	0.0	0.0	Z	0.1	0.2	0.7	0.6	0.7	0.9	0.3	0.4	0.4	0.1	0.0	0.1	0.1	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.3	1.9
12-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.6	1.7	0.2	0.0	0.0	1.4	1.3	0.9	0.1	0.1	0.1	0.0	0.1	0.0	0.1	2.1	0.0	0.4	2.1
13-Apr	0.0	0.1	0.1	0.0	0.1	Z	0.1	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	3.6	5.9	0.5	5.9
14-Apr	Z	0.1	1.2	0.0	0.1	0.0	0.1	0.2	0.5	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.2	1.2
15-Apr	13.4	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.6	13.4
16-Apr	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	1.0
17-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.9
18-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.3	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
19-Apr	0.1	0.3	0.1	12.5	9.1	Z	0.9	2.4	3.2	1.8	2.1	1.1	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	1.5	12.5
20-Apr	Z	0.0	0.0	0.3	0.3	0.3	0.1	0.1	0.9	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.9
21-Apr	0.0	Z	3.8	6.3	0.1	0.5	0.2	0.7	2.3	0.9	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.3
22-Apr	0.1	0.0	Z	3.1	0.2	0.7	1.6	2.0	2.6	2.3	1.9	1.4	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.7	3.1
23-Apr	0.0	0.0	0.0	Z	0.1	4.2	5.0	1.5	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	1.9	0.0	0.6	5.0
24-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
25-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.9	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
26-Apr	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.7	0.7	0.8	0.8	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.3	0.8
27-Apr	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2
28-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.0	0.6	1.1	0.7	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.4	3.4
29-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
30-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.3	0.2	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.4
																								Diurnal Average		
																								Diurnal Maximum		
0.6 1.1 0.3 1.0 0.6 0.3 0.8 0.5 0.7 0.5 0.4 0.3 0.3 0.2 0.1 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.9 0.5																										
13.4 18.9 3.8 12.5 9.1 4.2 11.5 2.5 3.2 2.4 2.1 1.4 1.4 1.3 0.9 0.6 0.6 2.2 1.6 3.3 1.1 0.9 12.6 5.9																										
Z - zerospan C - Calibration M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Anzac - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	665	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 665

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Anzac - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	69	18	10	13	7	32	46	58	31	11	15	21	67	61	35	57	551
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	69	18	10	13	7	32	46	58	31	11	15	21	67	61	35	57	551

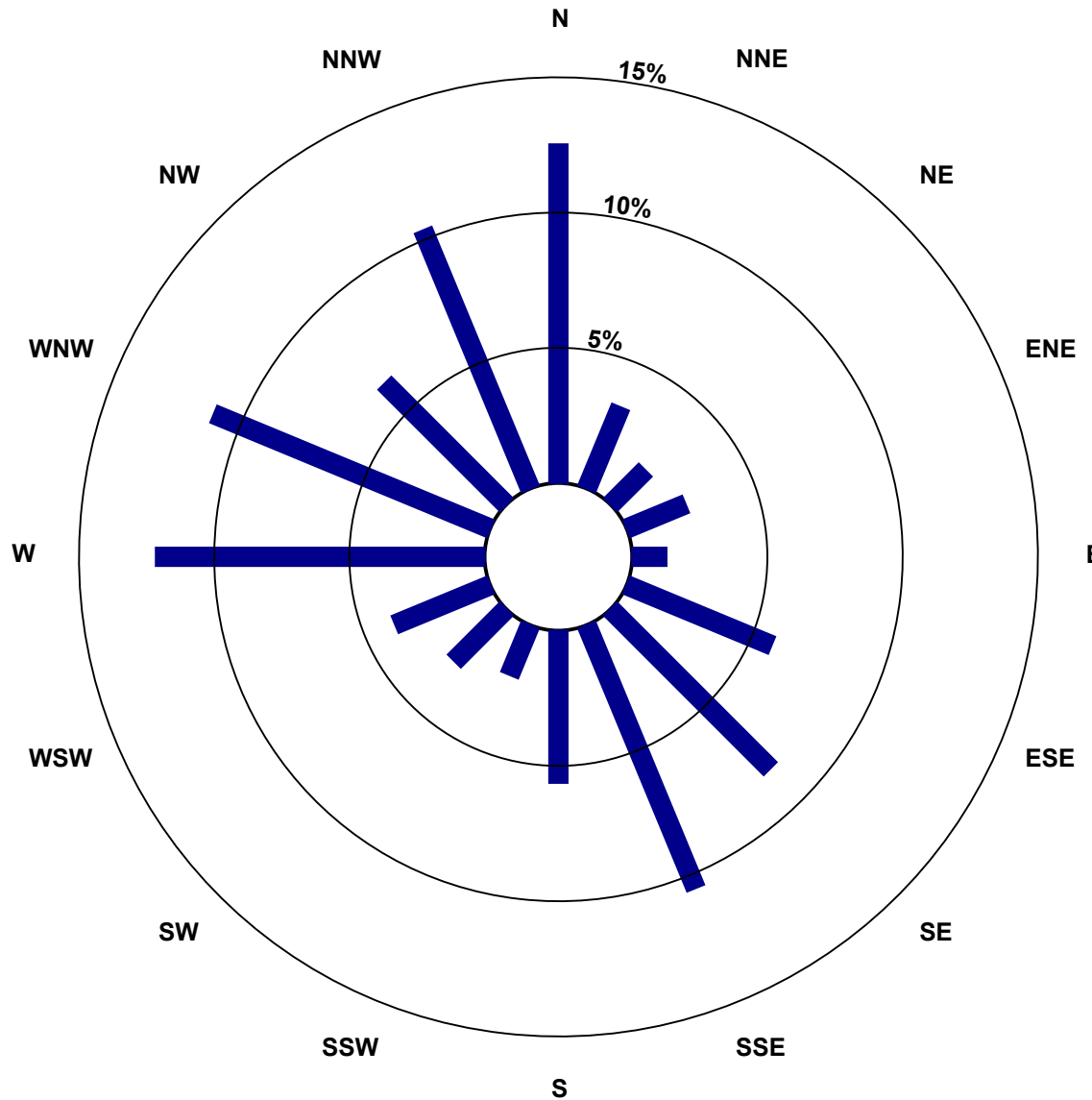
Total Number of Valid Hours: 551

Total Number of Hours: 720

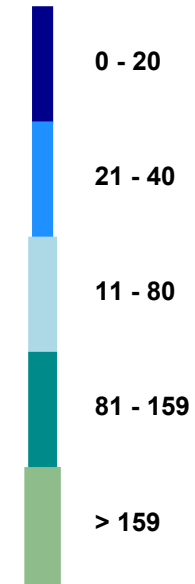


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Anzac

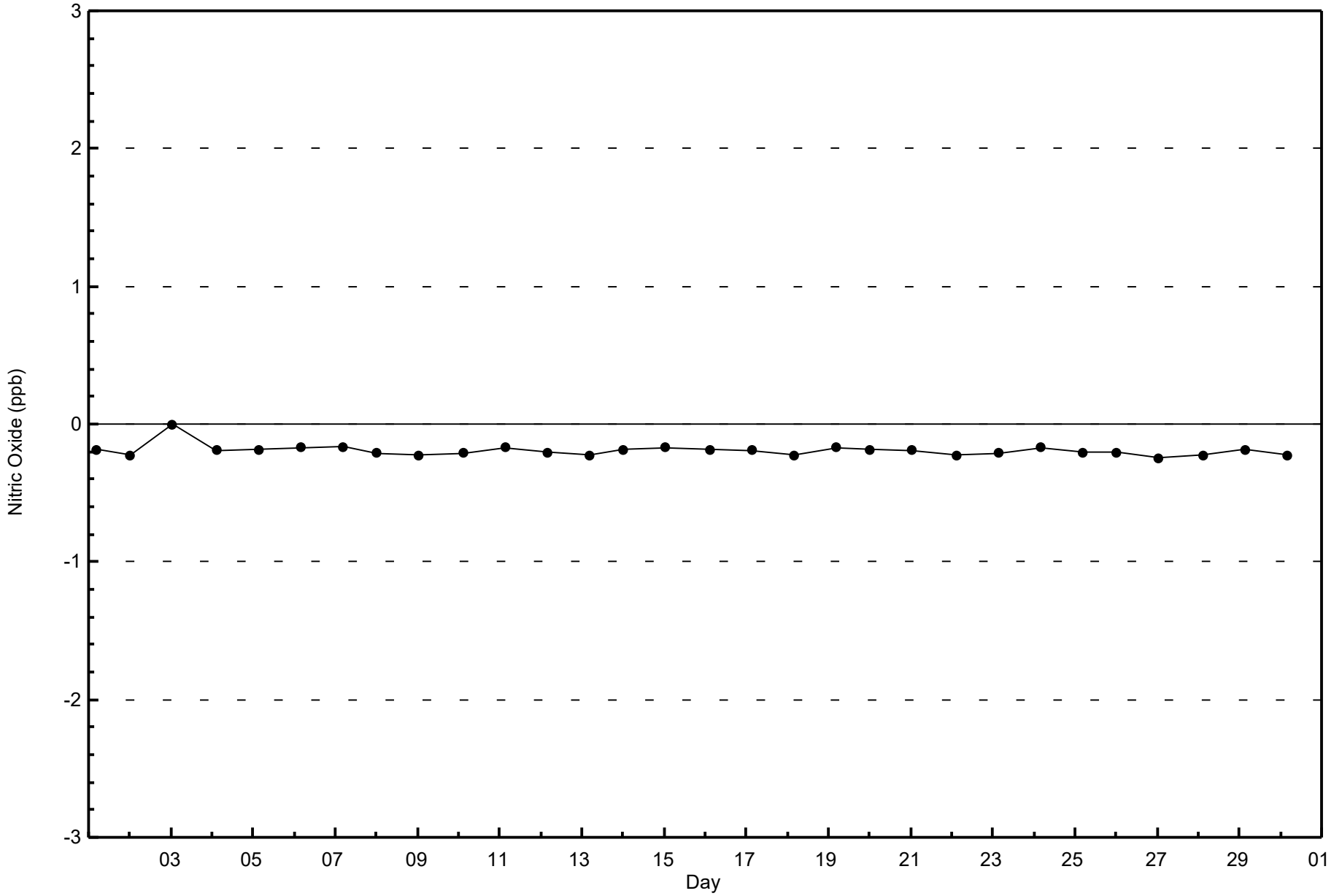


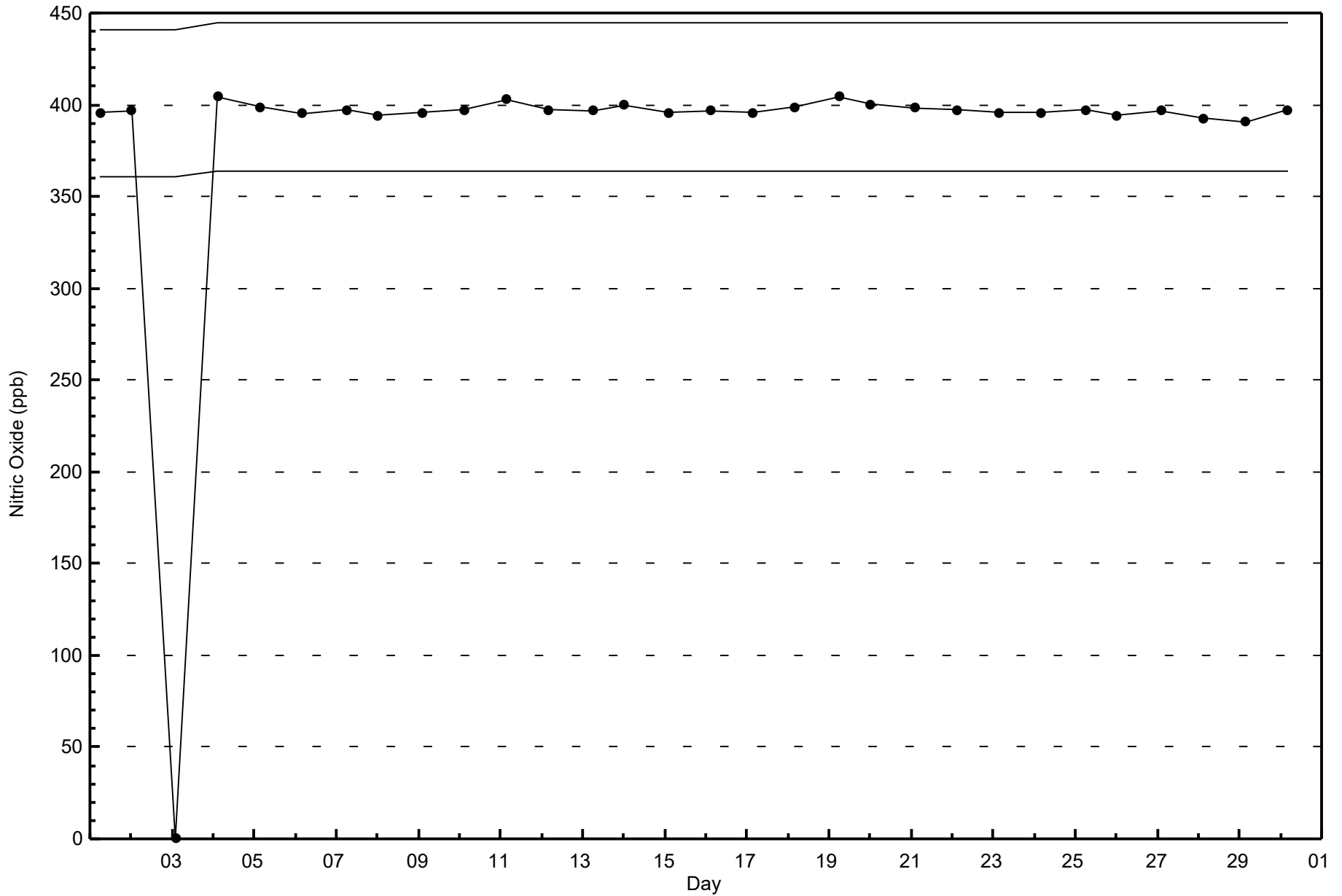
Classes (ppb)



Total Number of Valid Hours: 551









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Anzac - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 28.4 ppb on Apr 15 01:00	Maximum Daily Average: 4.3 ppb on Apr 6		Hours of Data:	665
Minimum Value: 0.0 ppb on Apr 20 16:00	Minimum Daily Average: 0.4 ppb on Apr 17		Hours of Missing Data:	55
Maximum Diurnal Average: 2.6 ppb at hour 7	Minimum Diurnal Average: 0.6 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 1.58 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.5 Median = 0.8 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 3.8 P <sub>99</sub> = 10.4		Percent Operational Time:	97.2

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.8	1.0	0.9	0.7	0.6	Z	0.7	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	1.2	4.2	3.0	7.8	4.6	1.3	7.8		
2-Apr	Z	10.7	3.3	2.5	2.1	2.1	2.5	3.8	2.8	3.0	1.8	2.0	1.7	1.0	M	M	M	M	M	M	M	M	M	M	--	10.7	
3-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	0.7	1.0	4.6	2.9	3.4	1.4	2.7	4.3	--	4.6	
4-Apr	3.6	2.7	Z	1.0	0.7	0.5	0.5	0.3	1.4	1.9	1.7	1.6	0.6	1.1	0.7	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.9	3.6	
5-Apr	0.3	0.2	0.3	Z	0.3	0.8	0.3	0.3	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	1.5	0.6	0.3	1.1	2.3	4.5	0.7	4.5	
6-Apr	7.1	8.2	8.4	10.3	Z	5.9	3.0	3.8	2.7	2.4	4.4	5.2	2.2	0.5	1.1	0.9	1.3	2.1	3.4	4.7	5.8	4.8	5.3	4.8	4.3	10.3	
7-Apr	3.9	3.3	3.4	3.6	3.0	Z	2.2	2.1	1.4	1.0	2.0	0.9	0.7	0.6	0.3	0.3	0.6	2.6	3.9	2.8	0.9	0.7	0.7	2.3	1.9	3.9	
8-Apr	Z	16.4	3.6	2.4	3.3	1.8	12.2	2.1	0.8	1.3	0.7	1.4	0.8	0.6	0.5	0.5	0.6	0.9	1.0	4.0	1.7	0.9	1.0	1.0	2.6	16.4	
9-Apr	1.0	Z	1.0	1.2	5.0	4.0	6.1	3.9	1.2	1.0	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	1.1	1.6	0.7	1.1	0.8	1.4	6.1	
10-Apr	0.5	0.4	Z	1.6	3.6	2.3	0.5	0.4	0.5	0.5	0.5	0.7	1.9	2.3	2.2	2.5	0.9	0.3	0.5	0.9	0.8	0.8	7.3	6.1	1.7	7.3	
11-Apr	0.9	0.8	0.8	Z	6.0	6.1	4.5	2.7	2.3	2.7	1.3	1.5	1.4	0.9	0.8	0.8	1.1	1.0	0.9	1.9	1.2	1.3	1.3	1.2	1.9	6.1	
12-Apr	0.6	1.0	2.0	2.2	Z	1.1	0.9	1.1	1.3	0.9	0.6	0.6	1.2	1.7	1.4	0.7	0.9	0.9	0.8	1.3	1.2	0.8	2.8	0.8	1.2	2.8	
13-Apr	0.6	0.5	0.6	0.6	0.5	Z	0.7	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.7	1.4	2.7	5.8	8.4	1.2	8.4	
14-Apr	Z	2.7	6.5	1.6	2.3	1.7	1.5	1.3	1.8	2.1	1.0	0.6	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.2	1.2	1.8	12.8	1.8	12.8	
15-Apr	28.4	Z	2.3	2.1	2.2	1.1	0.8	0.9	0.4	0.4	1.0	1.3	1.0	0.6	0.5	1.1	0.6	0.9	0.5	0.5	0.4	0.6	1.0	0.5	2.1	28.4	
16-Apr	0.2	2.0	Z	5.4	2.3	1.0	0.8	0.8	0.7	1.0	0.8	0.8	0.7	0.6	0.5	0.9	0.4	0.4	0.5	0.5	0.2	0.2	0.2	0.2	0.9	0.9	5.4
17-Apr	0.2	0.3	0.7	Z	0.4	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.9	0.4	0.9
18-Apr	0.2	0.2	0.2	0.2	Z	0.5	0.7	1.7	1.3	0.6	0.4	0.3	0.4	0.4	0.3	0.2	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	1.7
19-Apr	0.3	2.6	1.8	7.4	6.6	Z	5.0	6.5	6.8	4.6	4.3	3.2	1.7	1.3	1.1	0.7	0.6	0.6	0.7	1.6	0.9	1.2	1.6	6.3	2.9	7.4	
20-Apr	Z	0.8	0.9	1.8	1.8	1.5	0.9	0.8	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.4	1.6	0.7	1.1	1.2	0.9	0.7	1.8	
21-Apr	0.8	Z	6.2	5.5	0.8	2.5	1.4	2.7	6.8	2.6	0.4	0.2	0.5	0.4	0.4	0.7	0.6	0.7	0.0	0.0	0.0	0.5	0.9	1.5	1.6	6.8	
22-Apr	1.9	1.4	Z	3.2	5.2	14.3	12.0	8.6	8.2	6.3	6.0	5.1	0.6	0.6	0.7	1.0	1.7	1.9	0.9	0.8	0.6	2.4	1.0	0.8	3.7	14.3	
23-Apr	0.9	1.4	1.7	Z	2.7	4.4	8.5	4.4	1.4	1.0	0.9	0.6	0.9	1.2	1.1	1.5	1.6	1.7	1.8	0.8	0.7	0.5	1.0	1.9	1.9	8.5	
24-Apr	1.7	1.1	0.5	0.6	Z	1.4	0.5	1.4	0.3	0.2	0.2	0.2	0.6	0.3	0.3	0.5	0.3	0.4	0.3	0.3	0.9	0.9	1.4	1.2	0.7	1.7	
25-Apr	0.9	0.7	0.8	0.8	0.7	Z	0.9	0.9	2.1	1.2	0.5	0.3	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.6	1.7	2.2	0.8	2.2	
26-Apr	Z	1.0	0.5	0.7	1.1	2.6	3.5	3.6	2.3	1.9	2.2	2.1	2.3	1.5	1.2	1.1	1.2	2.1	3.1	3.2	2.8	1.0	0.9	0.8	1.9	3.6	
27-Apr	0.5	Z	0.8	1.6	1.3	1.4	1.3	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	1.0	0.7	0.7	2.1	5.7	5.0	1.3	5.7	
28-Apr	0.9	0.6	Z	1.2	0.6	0.5	0.6	0.7	1.4	3.9	3.9	2.5	3.2	2.1	1.0	1.1	0.6	0.6	0.6	0.6	0.5	0.5	0.7	0.6	1.3	3.9	
29-Apr	4.0	1.6	0.7	Z	1.6	0.7	0.8	0.5	0.7	0.5	0.5	0.5	0.6	0.8	0.5	0.6	1.3	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.8	4.0	
30-Apr	0.2	0.2	0.1	0.1	Z	0.3	2.0	1.5	1.5	1.4	1.3	0.2	0.1	0.2	0.2	0.2	0.2	0.6	2.1	2.2	2.2	2.0	3.1	3.1	1.1	3.1	

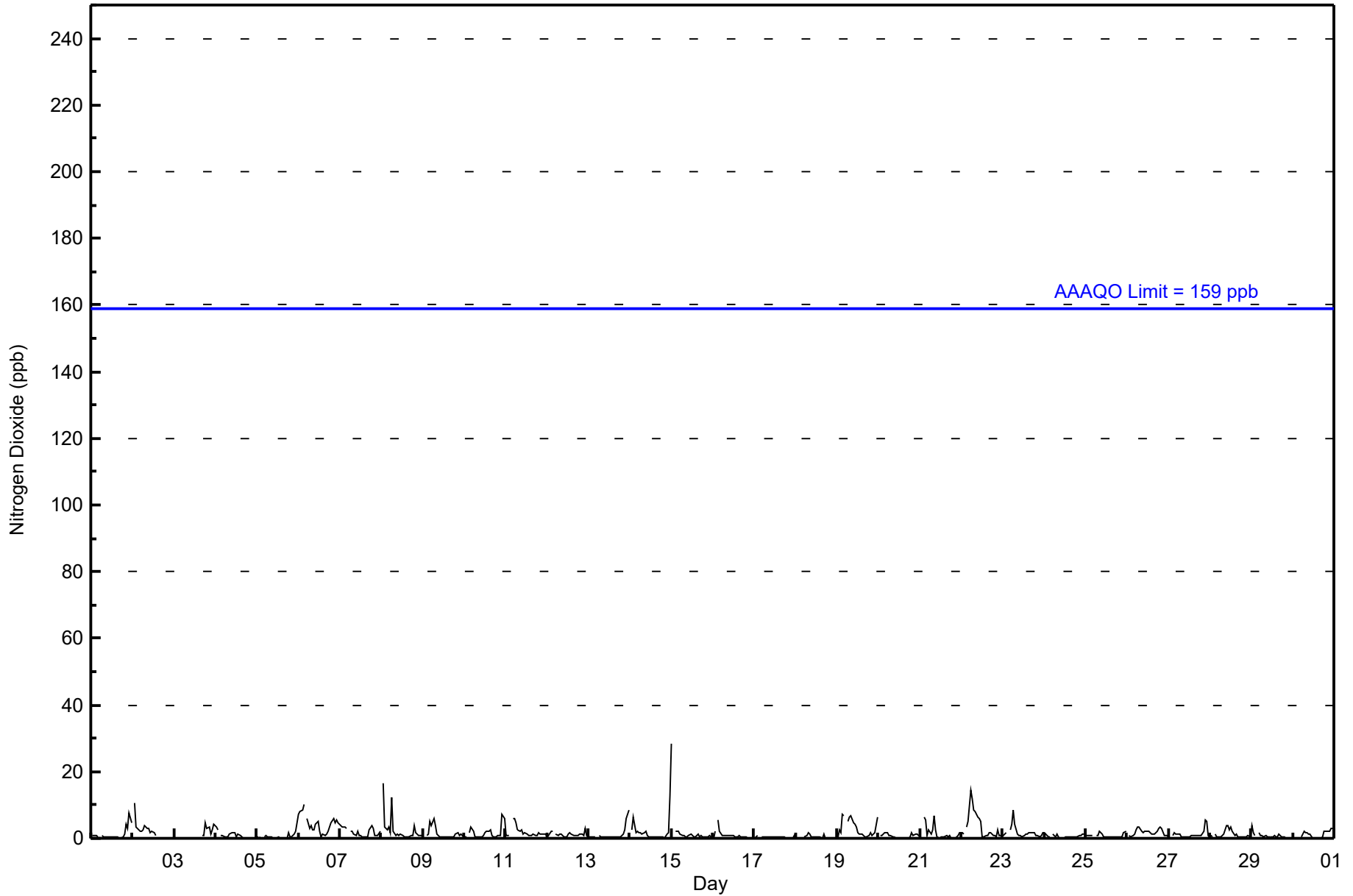
2.5	2.5	2.0	2.4	2.3	2.5	2.6	2.0	1.8	1.5	1.3	1.2	0.9	0.8	0.6	0.7	0.7	0.8	1.1	1.3	1.2	1.3	2.1	2.6	Diurnal Average	
28.4	16.4	8.4	10.3	6.6	14.3	12.2	8.6	8.2	6.3	6.0	5.2	3.2	2.3	2.2	2.5	1.7	2.6	4.6	4.7	5.8	5.7	7.8	12.8	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Anzac - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	664	99.85	99.85
21 - 40	1	0.15	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 665

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Anzac - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	69	18	10	13	7	32	46	57	31	11	15	21	67	61	35	57	550
21 - 40	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	69	18	10	13	7	32	46	58	31	11	15	21	67	61	35	57	551

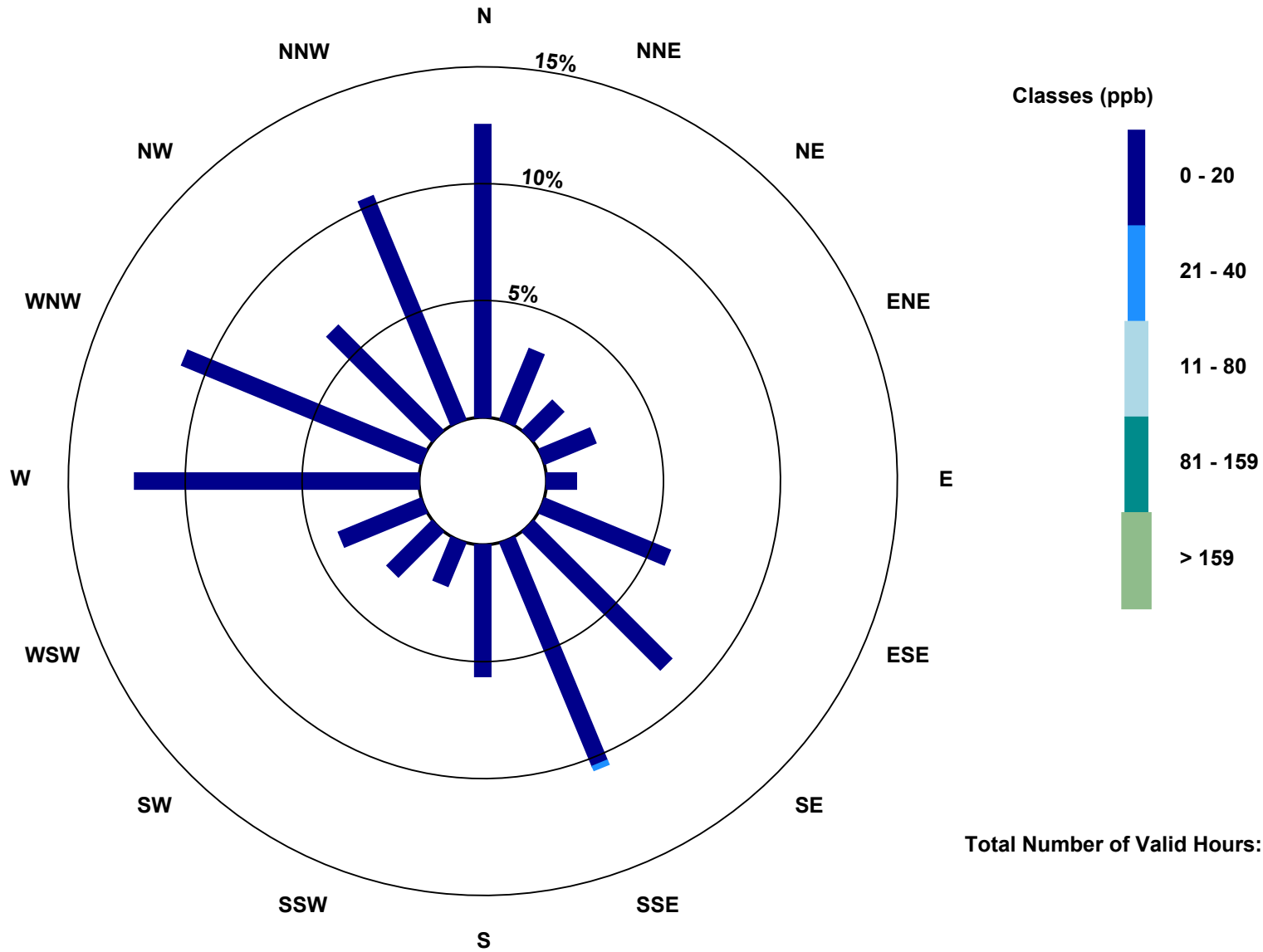
Total Number of Valid Hours: 551

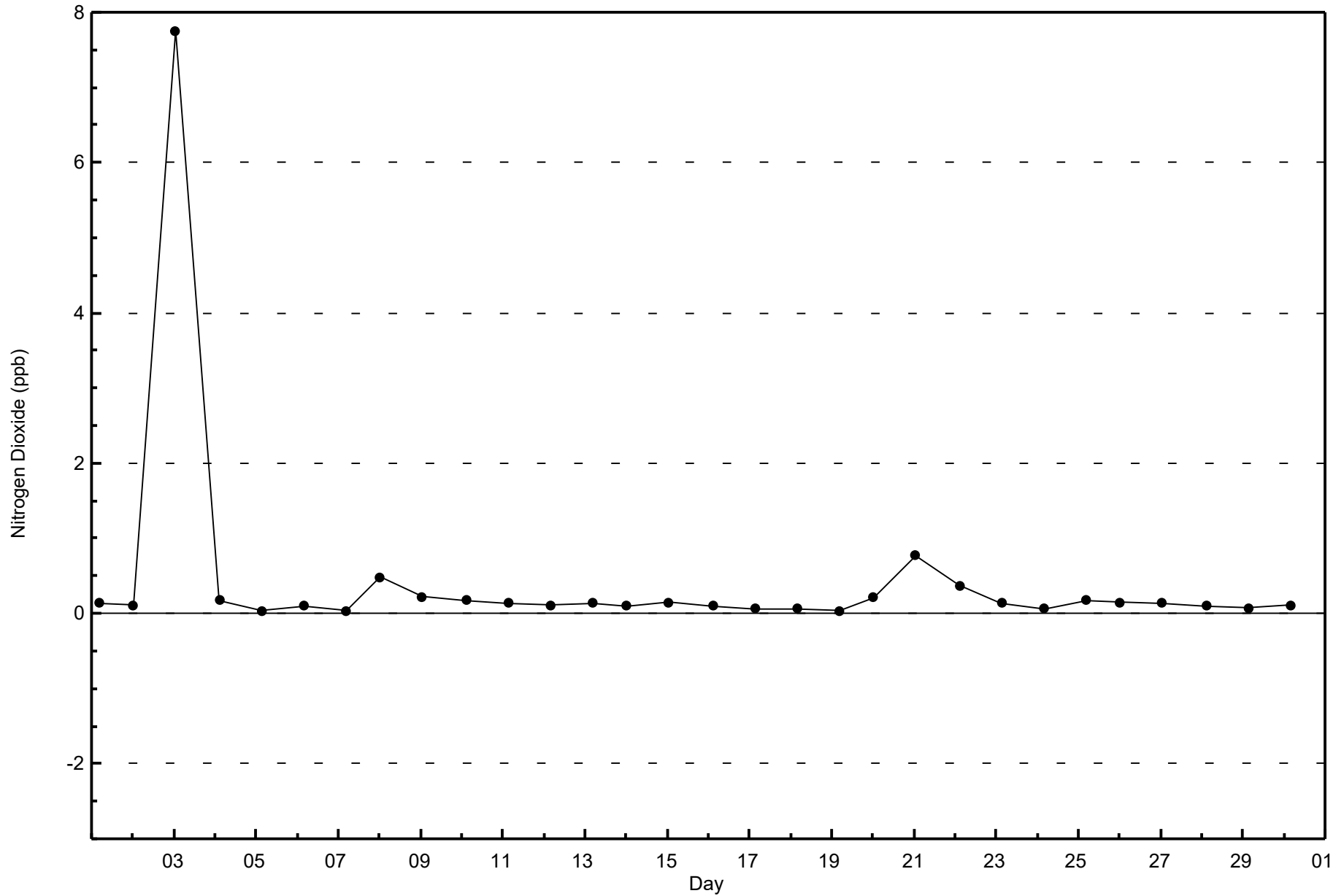
Total Number of Hours: 720



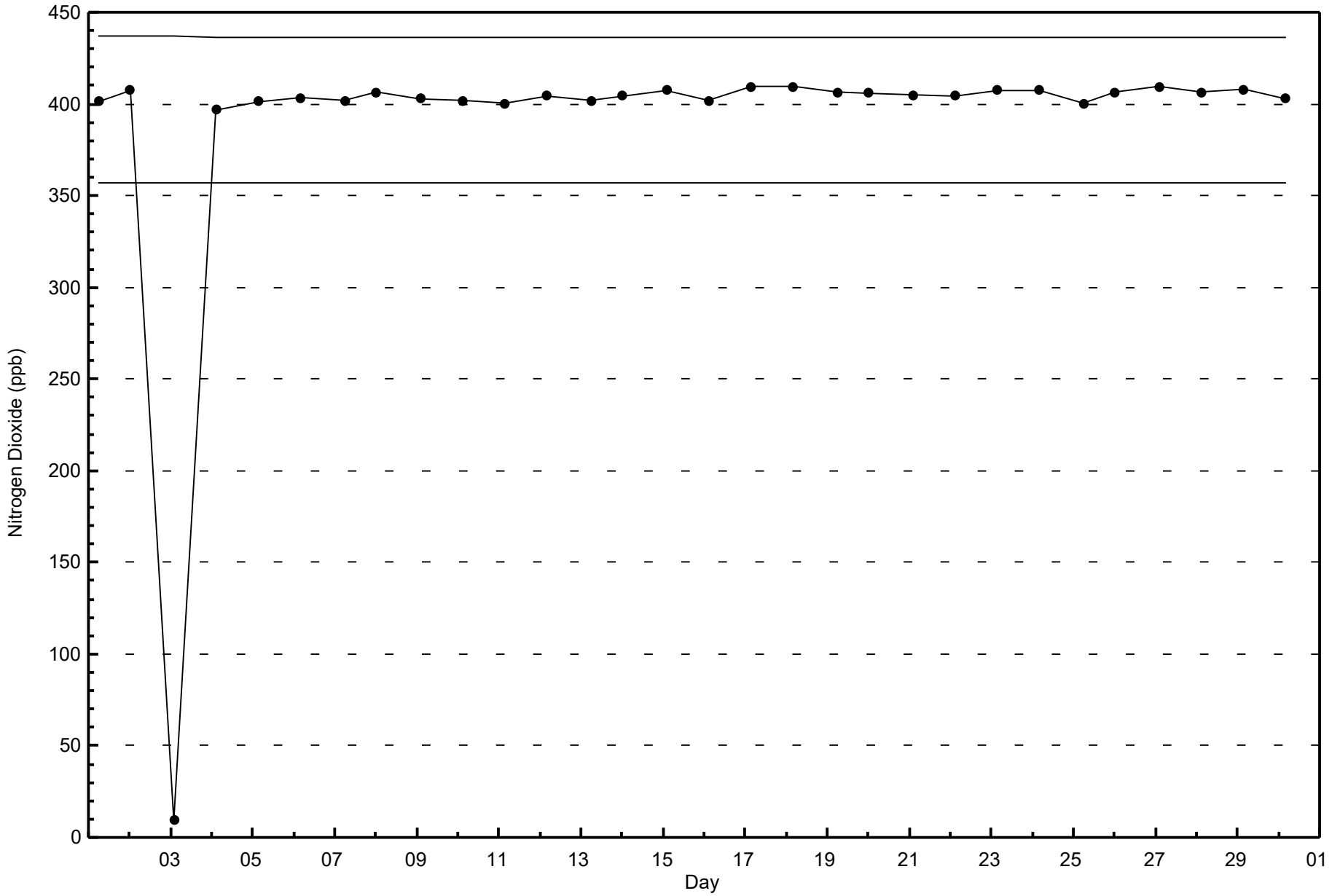
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









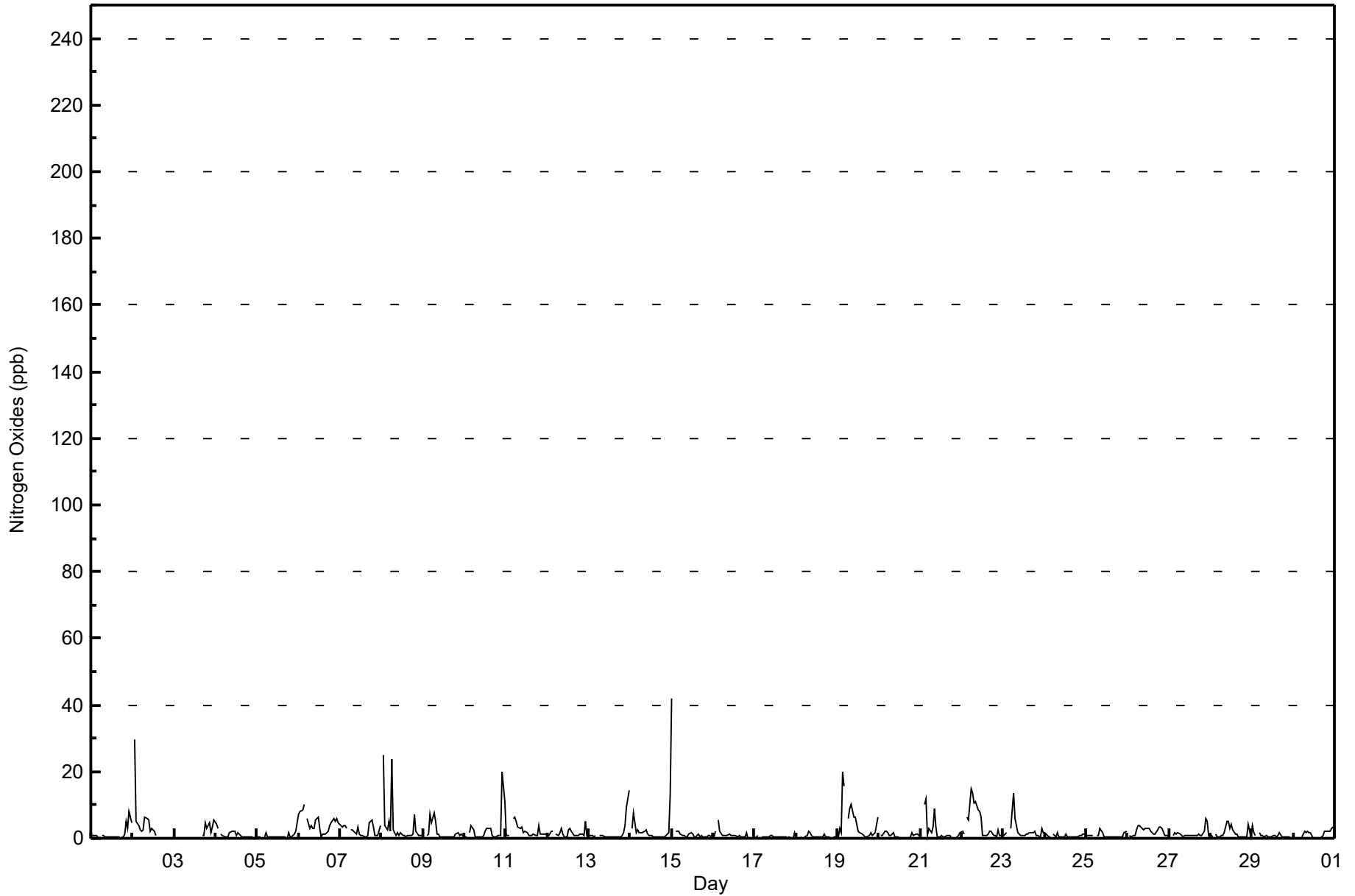


Maximum Value: 41.8 ppb on Apr 15 01:00		Maximum Daily Average: 4.6 ppb on Apr 6		Hours in Service:	720																					
Minimum Value: 0.0 ppb on Apr 21 21:00		Minimum Daily Average: 0.5 ppb on Apr 17		Hours of Data:	665																					
Maximum Diurnal Average: 3.6 ppb at hour 2		Minimum Diurnal Average: 0.8 ppb at hour 17		Hours of Missing Data:	55																					
Monthly Average: 1.99 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.5 Median = 0.9 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 4.8 P <sub>99</sub> = 15.2		Hours of Calibration:	35																					
				Percent Operational Time:	97.2																					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.8	1.0	0.9	0.7	0.6	Z	0.8	0.7	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	1.2	4.9	3.0	7.9	4.7	1.3	7.9	
2-Apr	Z	29.6	5.2	3.9	2.7	2.1	2.6	6.3	5.8	5.4	2.1	2.9	2.0	1.0	M	M	M	M	M	M	M	M	M	M	--	29.6
3-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	0.7	1.0	4.8	2.9	4.5	1.9	3.4	5.3	--	5.3
4-Apr	4.4	3.2	Z	1.1	0.8	0.5	0.6	0.4	1.6	2.1	2.0	2.0	0.7	1.5	0.8	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.0	4.4
5-Apr	0.3	0.2	0.3	Z	0.3	1.5	0.3	0.3	0.6	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	1.6	0.6	0.3	1.2	2.3	4.6	0.7	4.6
6-Apr	7.2	8.2	8.5	10.3	Z	5.9	3.1	4.0	3.0	3.1	5.6	6.5	2.8	0.5	1.3	1.1	1.5	2.3	3.6	4.9	6.0	4.9	6.0	4.9	4.6	10.3
7-Apr	3.9	3.3	3.6	3.6	3.0	Z	2.4	2.7	2.0	1.3	3.3	1.1	0.8	0.7	0.3	0.3	0.7	4.8	5.5	3.3	0.9	0.7	0.7	4.0	2.3	5.5
8-Apr	Z	25.0	3.8	2.6	4.9	2.2	23.7	2.5	1.0	1.6	0.9	1.7	0.9	0.8	0.6	0.6	0.7	1.0	1.1	7.3	2.0	0.9	1.0	1.0	3.8	25.0
9-Apr	1.0	Z	1.0	1.2	7.3	4.7	7.8	5.0	1.4	1.2	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	1.1	1.6	0.7	1.1	0.8	1.7	7.8
10-Apr	0.5	0.4	Z	1.9	3.6	2.5	0.6	0.5	0.5	0.6	0.6	0.8	2.2	3.1	2.8	3.1	1.0	0.3	0.5	0.9	0.8	0.8	19.9	10.8	2.6	19.9
11-Apr	0.9	0.8	0.8	Z	6.1	6.3	5.2	3.3	3.0	3.6	1.6	1.9	1.8	1.0	0.8	0.9	1.2	1.0	0.9	3.8	1.2	1.3	1.3	1.2	2.2	6.3
12-Apr	0.6	1.0	2.0	2.2	Z	1.1	0.9	1.7	3.0	1.1	0.6	0.6	2.6	3.0	2.3	0.8	1.0	1.0	0.8	1.4	1.2	0.9	4.9	0.8	1.6	4.9
13-Apr	0.6	0.6	0.7	0.6	0.6	Z	0.8	0.8	0.8	0.6	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.7	1.6	3.6	9.4	14.3	1.7	14.3
14-Apr	Z	2.8	1.7	1.6	2.4	1.7	1.6	1.5	2.3	2.7	1.2	0.7	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.2	1.2	1.8	13.3	2.0	13.3
15-Apr	41.8	Z	2.3	2.1	2.3	1.1	0.8	0.9	0.4	0.4	1.1	1.5	1.3	0.6	0.5	1.1	0.6	1.0	0.5	0.5	0.4	0.7	1.0	0.5	2.8	41.8
16-Apr	0.2	2.0	Z	5.5	2.3	1.0	0.8	0.8	0.8	1.1	0.9	0.9	0.8	0.7	0.6	1.0	0.4	0.4	0.5	1.5	0.2	0.2	0.2	0.2	1.0	5.5
17-Apr	0.2	0.3	0.7	Z	0.4	0.5	0.6	0.5	0.5	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	1.8	0.5	1.8
18-Apr	0.2	0.2	0.2	0.2	Z	0.5	0.8	2.0	1.6	0.8	0.4	0.3	0.4	0.5	0.3	0.2	1.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	2.0
19-Apr	0.4	2.9	1.9	19.9	15.7	Z	5.9	8.9	10.0	6.4	6.4	4.3	2.2	1.6	1.3	0.8	0.6	0.6	0.7	1.7	0.9	1.2	1.6	6.4	4.5	19.9
20-Apr	Z	0.8	0.9	2.1	2.1	1.8	1.0	0.9	1.5	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.5	1.7	0.7	1.1	1.2	0.9	0.8	2.1
21-Apr	0.8	Z	10.0	11.8	0.9	3.0	1.6	3.4	9.1	3.5	0.5	0.3	0.7	0.5	0.5	0.9	0.7	0.8	0.0	0.0	0.0	0.5	0.9	1.5	2.3	11.8
22-Apr	2.0	1.4	Z	6.3	5.4	15.0	13.6	10.6	10.8	8.6	7.9	6.5	0.7	0.7	0.8	1.1	1.9	2.1	0.9	0.8	0.6	2.5	1.0	0.8	4.4	15.0
23-Apr	0.9	1.4	1.7	Z	2.8	8.6	13.5	5.9	1.7	1.2	1.0	0.7	1.0	1.4	1.3	1.7	1.7	1.8	1.9	0.8	0.7	0.5	2.9	1.9	2.5	13.5
24-Apr	1.7	1.1	0.5	0.6	Z	1.4	0.5	1.7	0.3	0.2	0.2	0.2	1.1	0.3	0.3	0.6	0.3	0.4	0.3	0.3	0.9	0.9	1.4	1.2	0.7	1.7
25-Apr	0.9	0.7	0.8	0.8	0.7	Z	1.0	1.0	3.0	1.6	0.6	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.6	1.7	2.2	0.9	3.0
26-Apr	Z	1.0	0.5	0.7	1.1	2.7	3.8	4.0	3.0	2.6	3.0	2.9	3.1	2.0	1.5	1.4	1.5	2.4	3.4	3.3	2.8	1.0	0.9	0.8	2.1	4.0
27-Apr	0.5	Z	0.8	1.6	1.3	1.5	1.5	0.7	0.6	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.8	1.1	0.7	0.7	2.1	5.8	5.0	0.9	1.3	5.8
28-Apr	0.9	0.6	Z	1.2	0.6	0.5	0.6	0.7	1.5	4.9	4.9	3.1	4.3	2.8	1.2	1.4	0.6	0.6	0.6	0.6	0.5	0.5	4.1	0.6	1.6	4.9
29-Apr	4.0	1.6	0.7	Z	1.6	0.7	0.8	0.5	0.7	0.6	0.5	0.5	0.7	0.9	0.6	0.7	1.9	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.8	4.0
30-Apr	0.2	0.2	0.1	0.1	Z	0.3	2.3	1.7	1.9	1.7	1.7	0.2	0.1	0.2	0.2	0.2	0.2	0.7	2.3	2.3	2.3	2.0	3.2	3.2	1.2	3.2
																								Diurnal Average		
																								Diurnal Maximum		
3.1 3.6 2.3 3.4 2.9 2.8 3.4 2.5 2.5 2.0 1.7 1.5 1.2 0.9 0.8 0.8 0.8 0.9 1.2 1.5 1.3 1.4 2.9 3.1																										
41.8 29.6 10.0 19.9 15.7 15.0 23.7 10.6 10.8 8.6 7.9 6.5 4.3 3.1 2.8 3.1 1.9 4.8 5.5 7.3 6.0 5.8 19.9 14.3																										
Z - zerospan C - Calibration M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	661	99.40	99.40
21 - 40	3	0.45	99.85
41 - 80	1	0.15	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 665

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	69	18	10	13	7	32	46	57	31	11	14	21	67	61	35	57	549
21 - 40	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	69	18	10	13	7	32	46	58	31	11	15	21	67	61	35	57	551

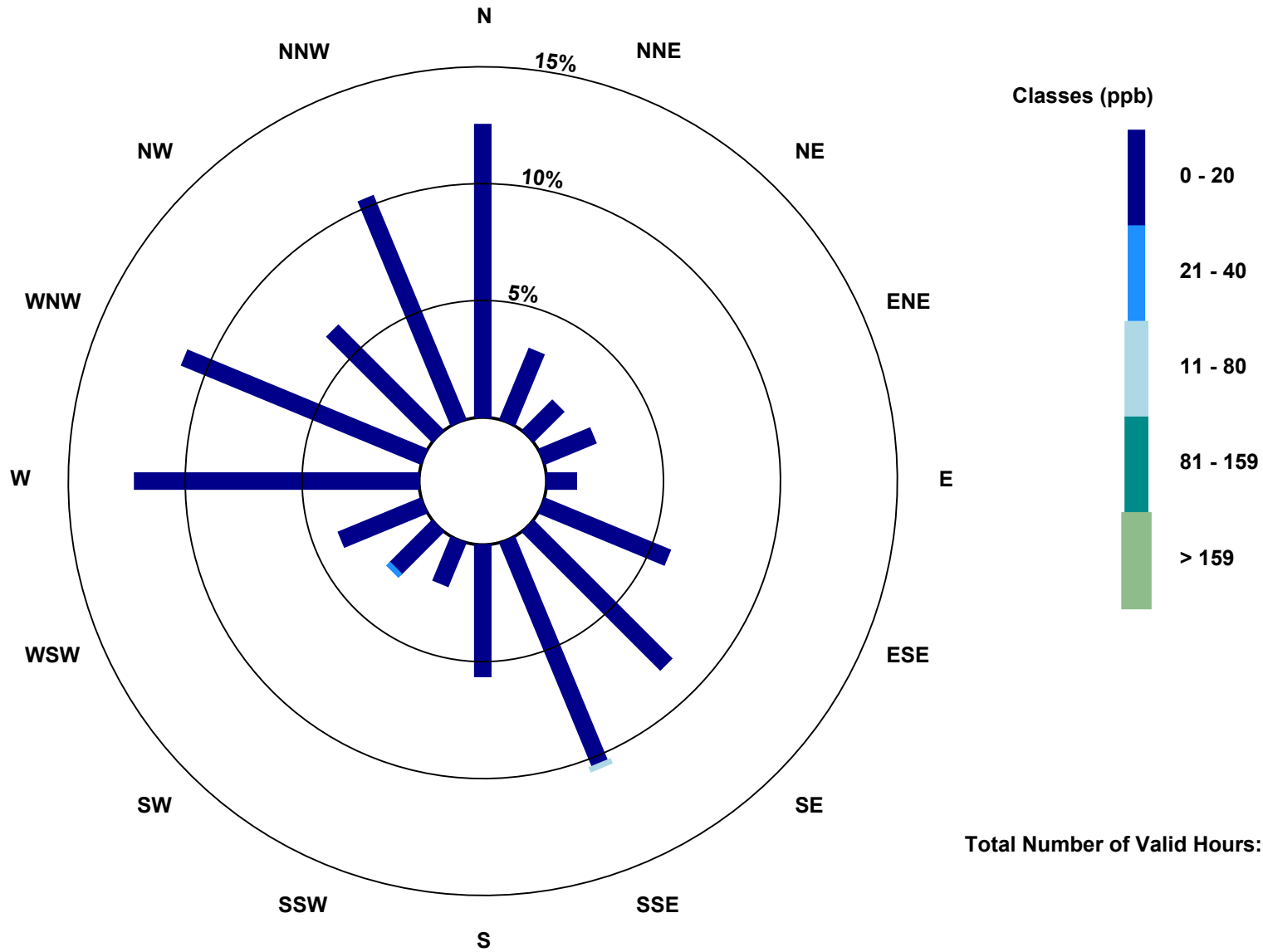
Total Number of Valid Hours: 551

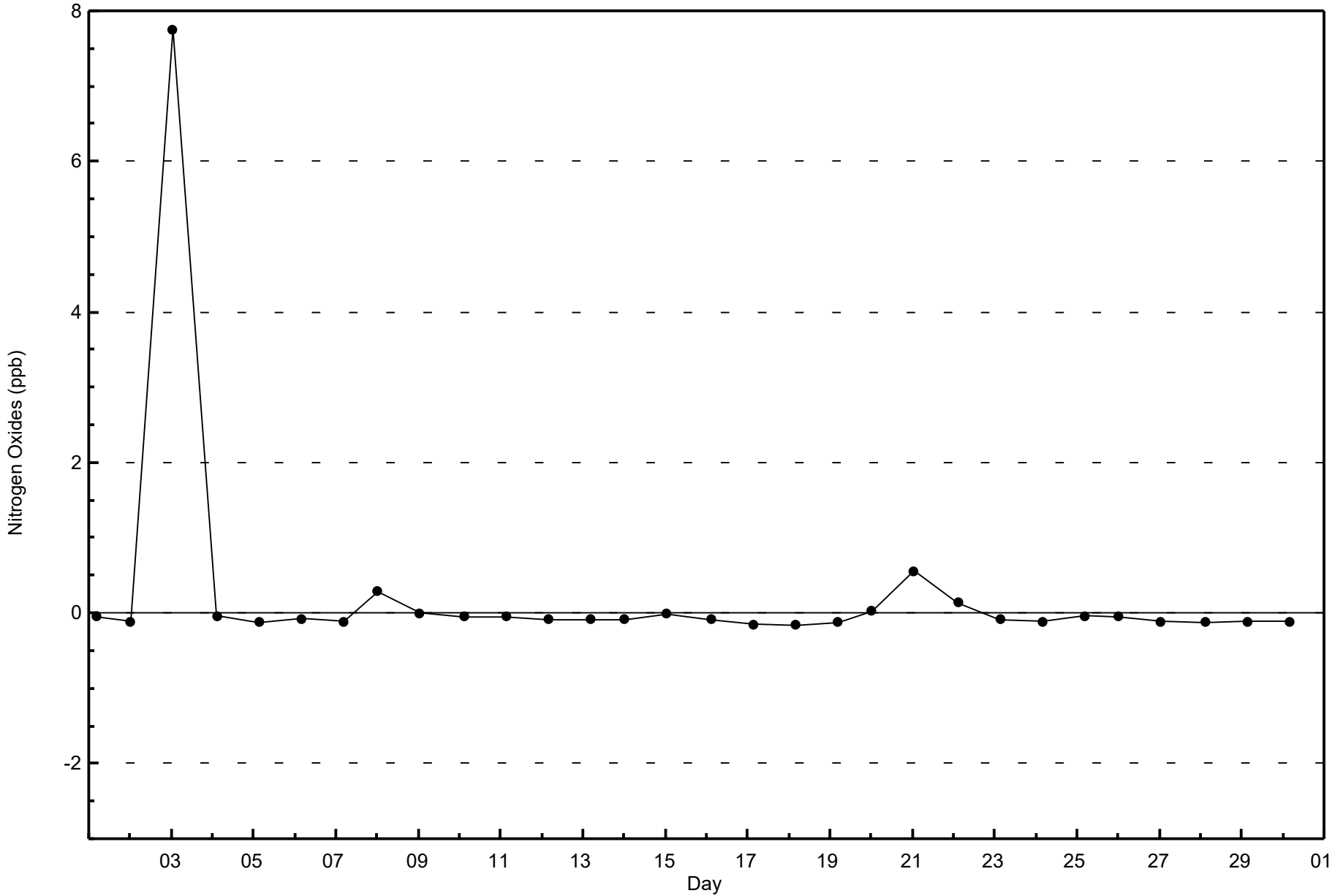
Total Number of Hours: 720

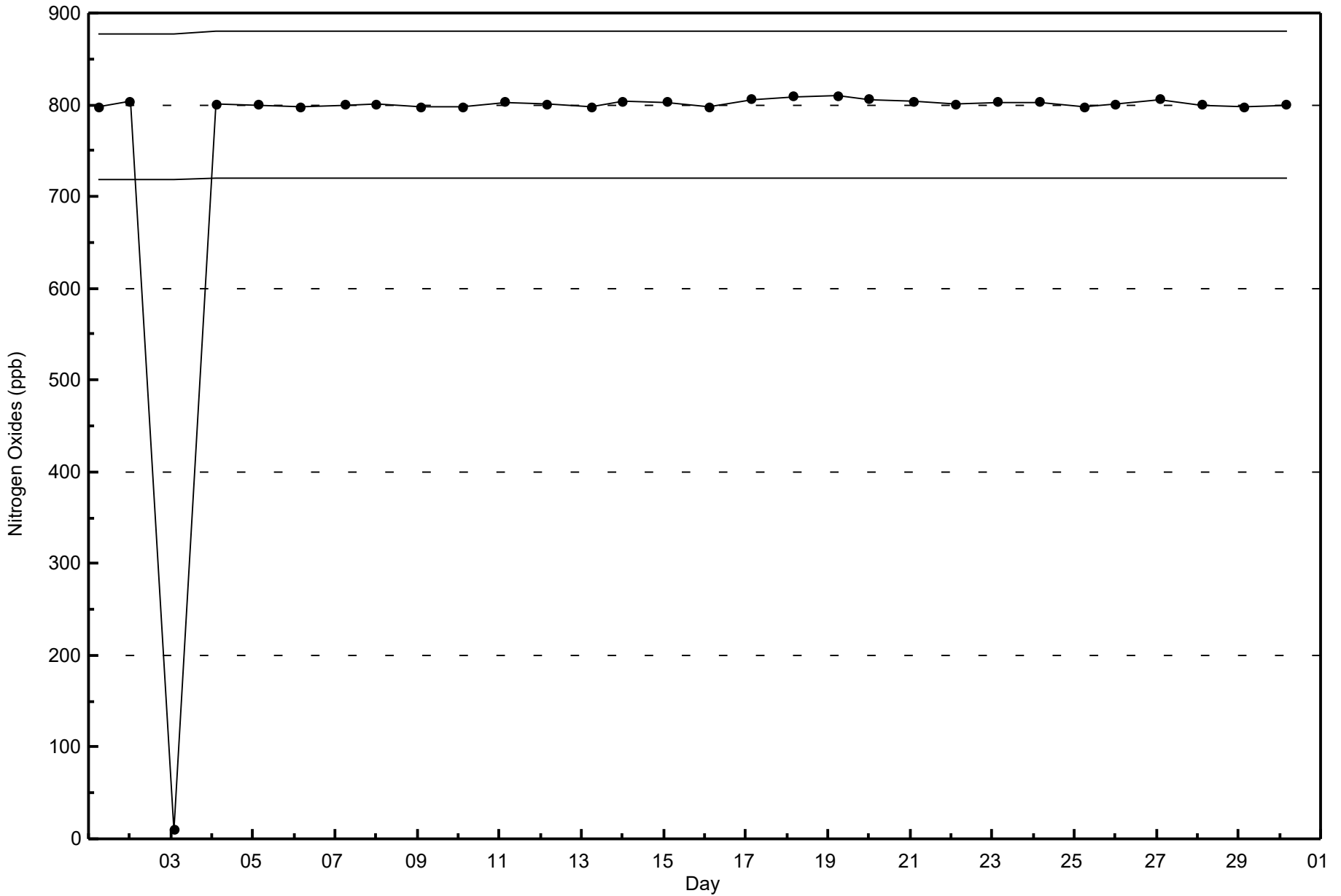


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

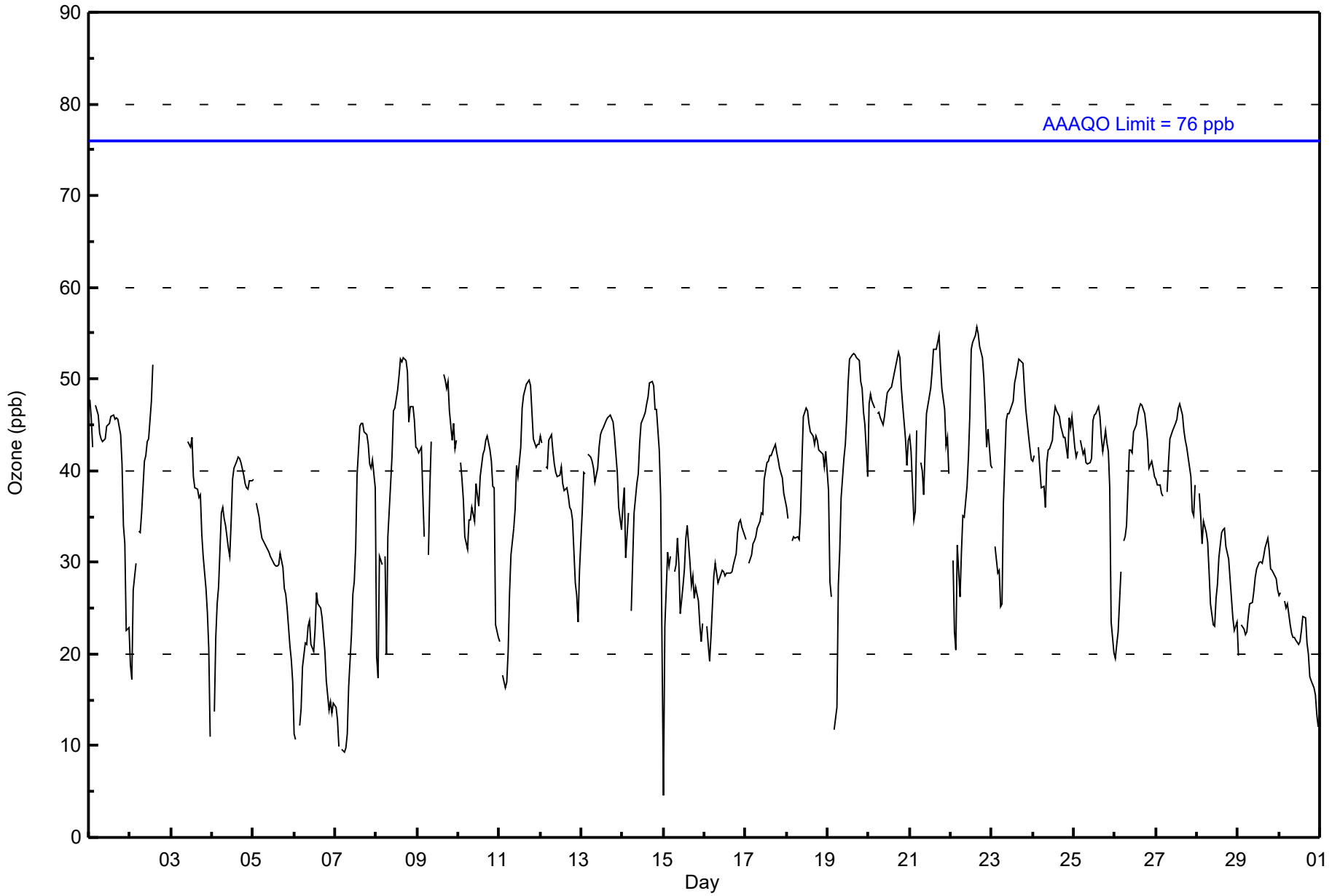
Anzac - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	720																												
Maximum Value: 55.7 ppb on Apr 22 16:00		Maximum Daily Average: 47.6 ppb on Apr 20																	Hours of Data:		665																												
Minimum Value: 4.5 ppb on Apr 15 01:00		Minimum Daily Average: 19.0 ppb on Apr 6																	Hours of Missing Data:		55																												
Maximum Diurnal Average: 42.5 ppb at hour 16		Minimum Diurnal Average: 30.5 ppb at hour 4																	Hours of Calibration:		35																												
Monthly Average: 36.44 ppb		Percentiles: P <sub>1</sub> = 11.1 P <sub>10</sub> = 22.1 Q <sub>1</sub> = 29.3 Median = 38.6 Q <sub>3</sub> = 44.0 P <sub>90</sub> = 47.6 P <sub>99</sub> = 53.3																	Percent Operational Time:		97.2																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	47.8	45.8	42.5	Z	47.1	46.1	44.0	43.5	43.2	43.5	44.9	45.1	45.2	45.9	46.1	45.7	45.7	45.7	44.0	40.7	34.0	32.0	22.5	22.9	41.9	47.8																							
2-Apr	18.7	17.3	27.0	30.0	Z	33.4	33.2	35.4	41.0	41.7	43.1	43.5	47.6	51.6	M	M	M	M	M	M	M	M	M	M	--	51.6																							
3-Apr	M	M	M	M	M	M	M	M	M	M	43.1	42.5	43.6	39.4	38.1	38.0	37.1	37.4	33.1	30.7	27.2	24.6	20.5	11.0	--	43.6																							
4-Apr	Z	13.8	21.8	25.5	27.3	35.4	36.1	34.8	34.1	31.5	30.6	34.5	39.0	40.3	41.1	41.5	41.3	40.9	39.5	38.6	38.2	38.0	38.8	38.8	34.8	41.5																							
5-Apr	39.0	Z	36.5	35.0	33.6	32.7	32.3	32.1	31.4	31.1	30.7	30.3	29.7	29.6	29.5	29.8	31.0	29.4	27.1	26.5	25.0	20.9	19.4	17.0	29.5	39.0																							
6-Apr	11.3	10.7	Z	12.3	14.1	18.6	21.1	21.0	23.0	23.7	21.1	20.3	22.8	26.7	25.6	25.0	24.0	22.2	20.2	17.1	13.9	14.9	13.5	14.6	19.0	26.7																							
7-Apr	14.2	12.7	10.0	Z	9.7	9.3	9.7	11.2	16.4	22.2	26.6	27.9	31.6	39.6	44.8	45.2	45.2	44.2	44.0	42.8	40.8	40.3	41.2	38.1	29.0	45.2																							
8-Apr	19.7	17.4	30.7	29.7	Z	30.6	20.0	32.7	38.7	41.6	46.6	46.9	48.8	50.3	52.2	51.9	52.4	52.0	50.7	45.4	47.0	46.9	45.4	42.5	40.9	52.4																							
9-Apr	42.3	42.0	42.5	37.3	32.8	Z	30.8	37.9	43.2	C	C	C	C	C	C	50.5	49.9	49.0	49.7	46.5	43.4	45.1	42.4	43.2	--	50.5																							
10-Apr	Z	40.9	39.1	36.7	32.8	31.4	34.7	34.6	36.0	34.5	38.6	37.4	36.2	39.3	41.9	42.2	43.3	43.7	42.2	41.0	38.2	38.1	23.2	21.8	36.9	43.7																							
11-Apr	21.3	Z	17.7	16.3	16.9	20.3	26.6	30.9	33.8	35.8	40.5	39.4	42.5	46.8	48.1	48.9	49.4	49.9	49.3	46.4	43.4	42.5	42.8	42.8	37.1	49.9																							
12-Apr	43.8	43.1	Z	40.5	40.2	43.3	43.9	42.1	40.8	39.8	39.4	39.5	40.4	38.6	37.9	38.1	37.3	36.0	35.7	34.7	27.8	26.3	23.5	29.1	37.5	43.9																							
13-Apr	35.6	39.8	39.7	Z	41.8	41.5	41.0	40.3	38.7	40.2	42.5	44.0	44.3	44.7	45.5	45.7	45.9	46.0	45.3	43.8	41.8	39.8	36.0	33.6	41.6	46.0																							
14-Apr	36.2	38.1	30.6	35.4	Z	24.7	30.2	35.4	38.6	39.7	43.0	45.1	46.0	46.3	47.3	48.0	49.5	49.7	49.2	46.7	46.7	42.2	37.3	20.4	40.3	49.7																							
15-Apr	4.5	23.0	31.2	29.6	30.6	Z	29.0	29.8	32.6	29.9	24.5	27.5	29.3	32.7	34.1	29.9	27.4	28.5	26.0	27.3	25.7	23.2	21.3	23.3	27.0	34.1																							
16-Apr	Z	23.1	21.0	19.2	22.0	28.5	29.9	28.8	27.8	28.7	29.1	29.0	28.6	28.9	28.8	28.9	29.0	29.8	30.9	33.2	34.4	34.6	33.8	33.0	28.7	34.6																							
17-Apr	32.5	Z	29.9	30.8	32.0	32.4	32.8	33.8	34.5	35.4	35.2	39.1	40.8	41.1	41.6	41.7	42.2	42.8	42.0	41.3	40.3	39.1	37.6	36.8	37.2	42.8																							
18-Apr	36.0	34.8	Z	32.4	32.8	32.6	32.8	32.5	35.4	41.0	46.0	46.9	46.5	45.1	44.3	43.8	42.8	43.8	43.3	42.3	41.9	41.8	40.4	42.1	40.1	46.9																							
19-Apr	37.8	27.9	26.2	Z	11.7	14.1	27.4	31.2	37.1	41.3	42.9	45.7	49.6	52.1	52.6	52.7	52.6	52.3	52.1	49.7	49.0	46.3	45.1	39.4	40.7	52.7																							
20-Apr	47.2	48.3	47.6	46.8	Z	46.3	46.4	45.8	45.1	46.0	47.3	48.5	48.9	49.1	49.9	50.6	51.4	52.9	52.3	49.1	47.1	43.5	40.6	43.3	47.6	52.9																							
21-Apr	43.8	42.1	34.7	35.6	44.3	Z	40.9	40.0	37.4	42.1	46.2	48.1	49.0	50.8	53.2	53.2	54.0	54.8	51.6	49.0	46.7	42.7	43.6	39.6	45.4	54.8																							
22-Apr	Z	30.2	22.5	20.5	31.9	26.3	31.1	35.1	35.0	38.3	41.5	46.1	53.2	54.0	54.7	55.7	55.0	53.5	52.3	50.2	46.8	42.6	44.5	40.6	41.8	55.7																							
23-Apr	40.3	Z	31.8	28.9	29.1	25.2	25.5	36.4	45.5	46.2	46.3	46.7	47.7	49.6	50.3	51.3	52.1	51.9	51.6	48.9	46.7	43.7	42.4	41.2	42.6	52.1																							
24-Apr	41.0	41.6	Z	42.6	40.3	38.1	38.2	36.1	40.9	42.2	42.4	43.4	45.7	47.0	46.5	46.0	44.9	44.2	43.6	43.6	41.4	45.8	44.6	45.9	42.9	47.0																							
25-Apr	42.6	41.5	42.2	Z	43.4	41.9	42.3	40.8	40.7	41.0	41.3	45.4	46.1	46.3	46.9	45.9	43.6	42.1	44.3	43.0	42.1	38.1	23.5	20.2	41.1	46.9																							
26-Apr	19.5	21.1	22.4	29.0	Z	32.4	32.8	34.0	42.2	42.3	42.0	44.2	45.0	46.1	46.8	47.3	47.1	46.1	44.8	43.3	40.3	41.1	40.3	39.4	38.7	47.3																							
27-Apr	39.0	38.5	38.4	37.6	37.2	Z	37.7	40.9	43.5	44.0	44.4	45.2	45.6	46.8	47.3	46.1	44.4	43.4	42.5	41.5	39.4	35.6	35.0	38.4	41.4	47.3																							
28-Apr	Z	37.5	35.0	32.0	34.4	33.3	32.3	28.9	25.5	23.2	23.0	26.2	27.5	30.5	33.3	33.5	33.7	31.8	30.4	28.2	26.1	24.0	22.5	23.4	29.4	37.5																							
29-Apr	19.8	Z	23.1	22.7	22.1	22.4	24.0	25.5	25.7	26.8	28.4	29.2	30.0	30.0	30.0	30.6	31.5	32.6	31.3	29.3	29.1	28.5	28.2	27.0	27.3	32.6																							
30-Apr	26.4	26.7	Z	25.7	25.0	25.4	23.2	22.3	21.8	21.8	21.5	21.1	21.4	22.6	24.1	23.9	21.2	19.9	17.6	17.0	16.3	15.5	13.4	12.0	21.1	26.7																							
																								31.7	31.6	31.0	30.5	30.5	30.6	32.1	33.6	35.5	36.3	37.7	38.9	40.4	41.8	42.2	42.5	42.2	42.0	40.9	39.2	37.3	35.8	33.2	31.8	Diurnal Average	
																								47.8	48.3	47.6	46.8	47.1	46.3	46.4	45.8	45.5	46.2	47.3	48.5	53.2	54.0	54.7	55.7	55.0	54.8	52.3	50.2	49.0	46.9	45.4	45.9	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	49	7.37	7.37
21 - 50	582	87.52	94.89
51 - 82	34	5.11	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 665

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	0	0	0	0	0	0	2	5	0	1	1	0	1	8	3	1	22
21 - 50	64	17	8	11	7	33	40	50	31	10	11	18	58	51	30	52	491
51 - 82	3	1	2	1	0	1	3	1	0	2	3	1	7	3	0	5	33
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	67	18	10	12	7	34	45	56	31	13	15	19	66	62	33	58	546

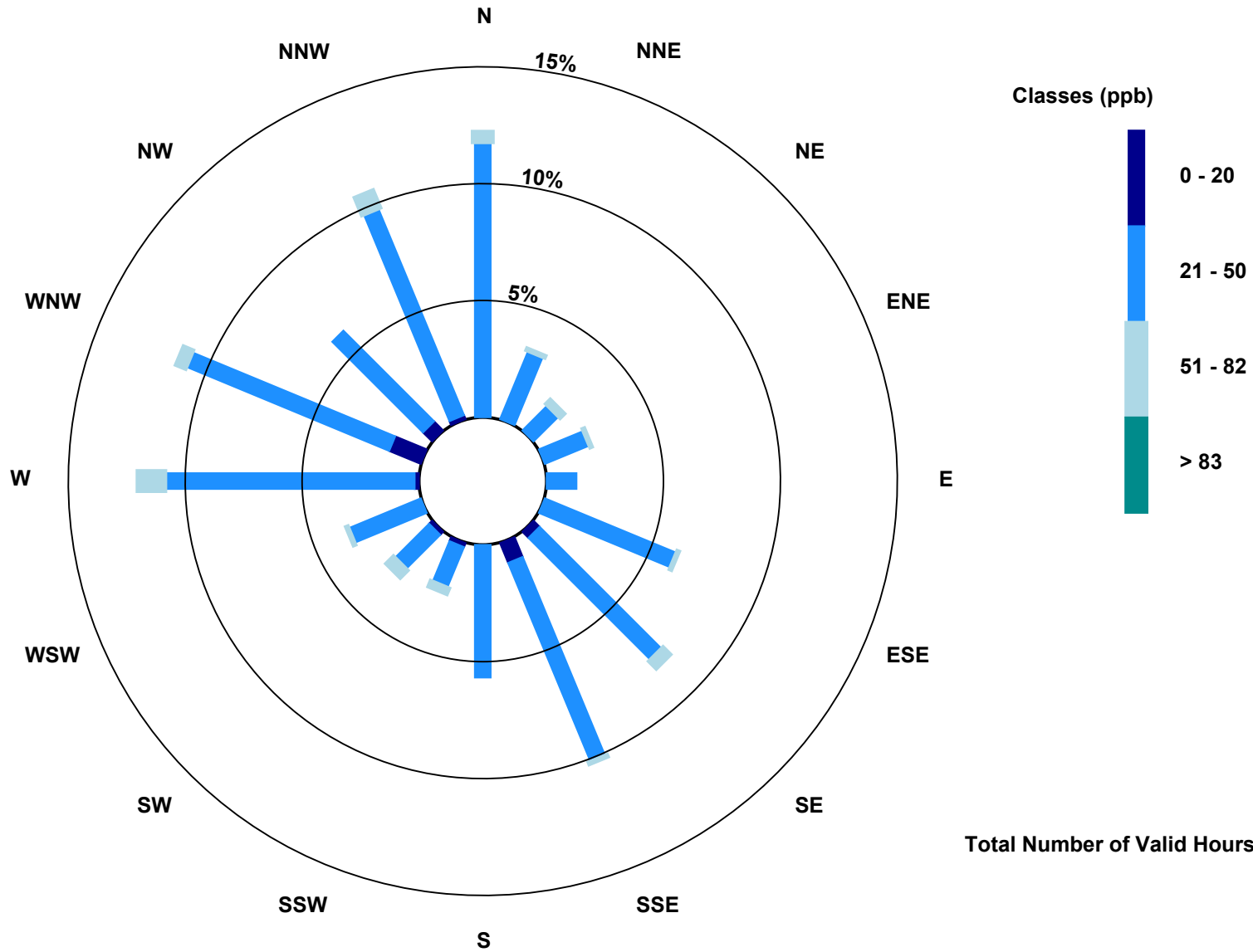
Total Number of Valid Hours: 546

Total Number of Hours: 720

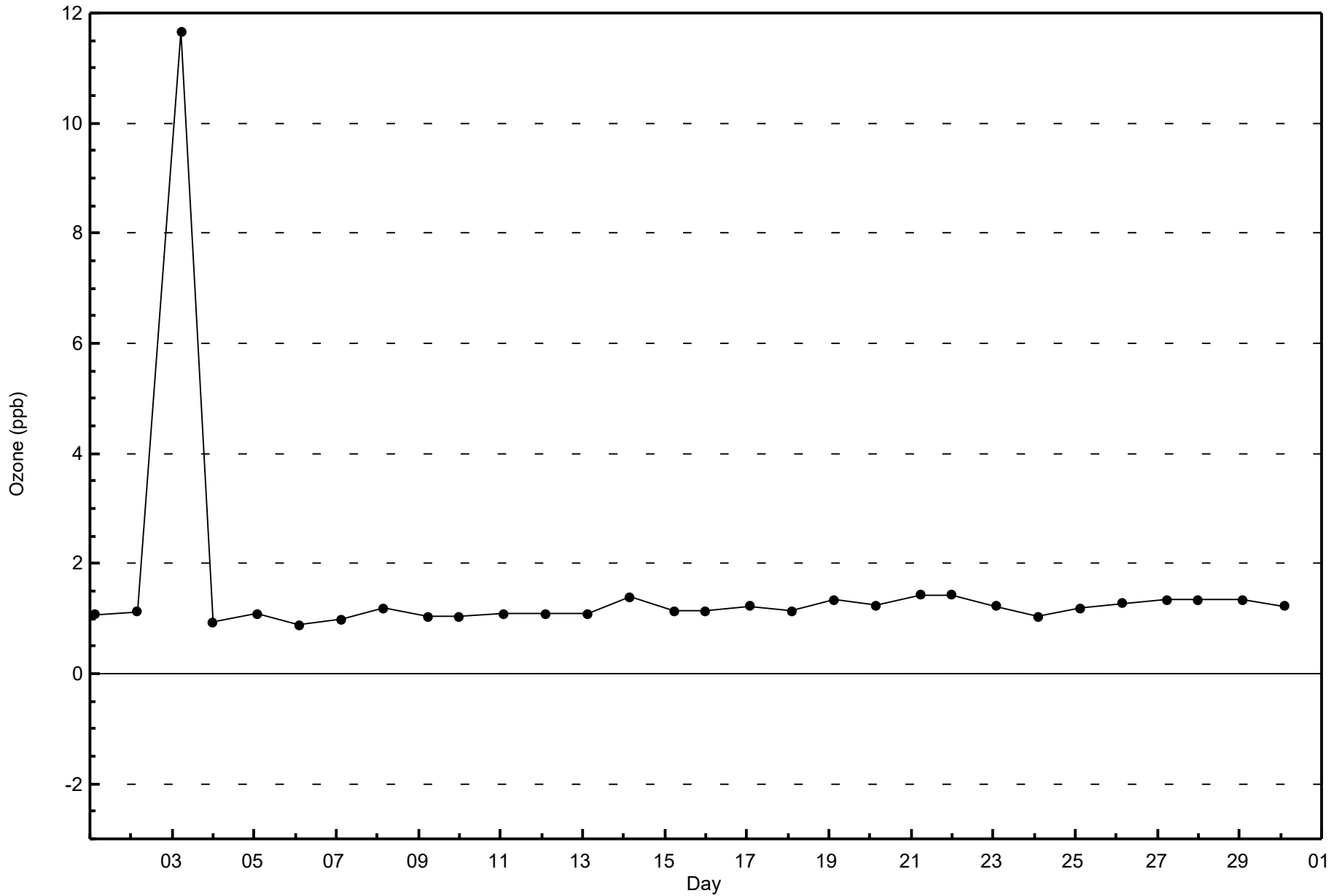


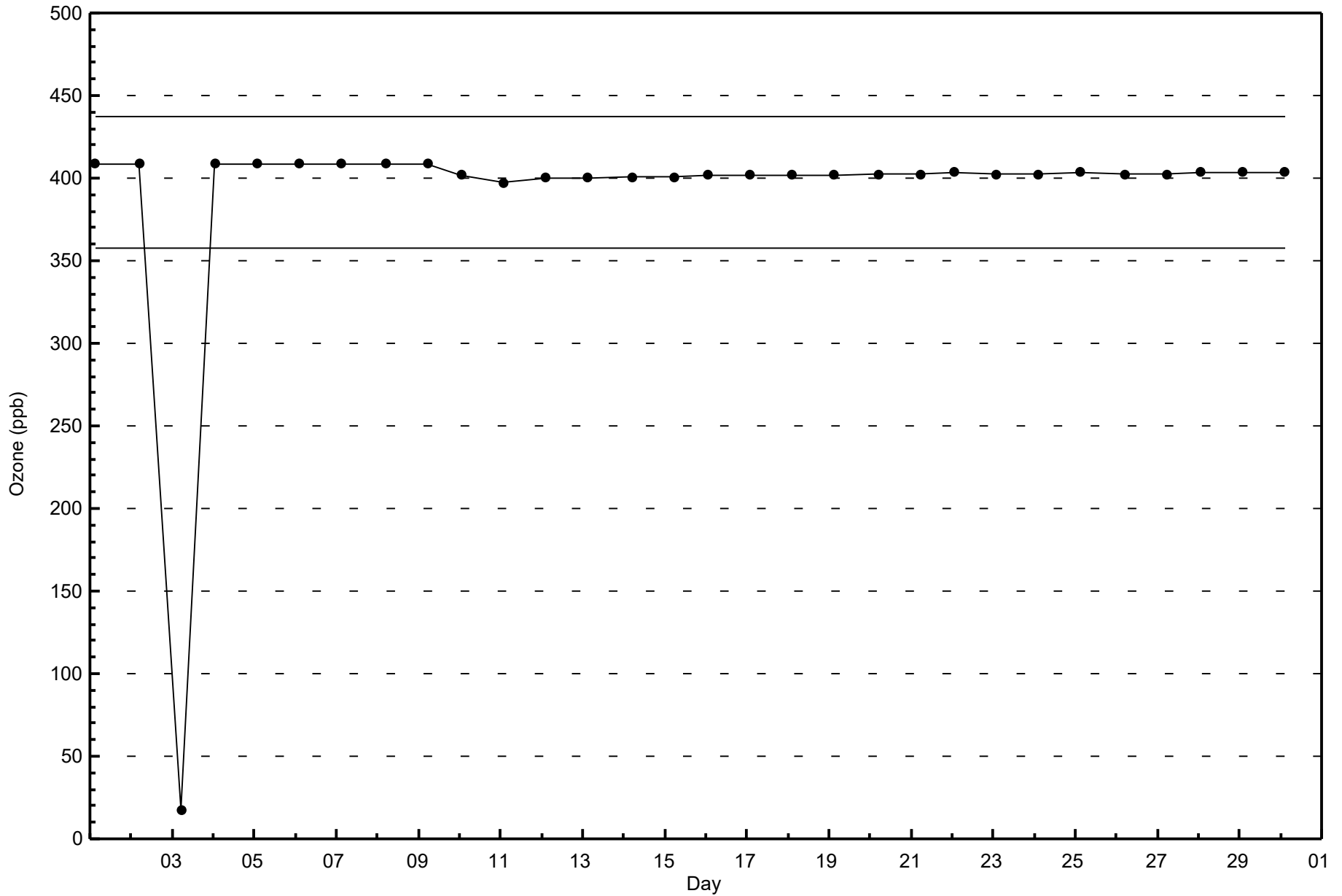
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 546





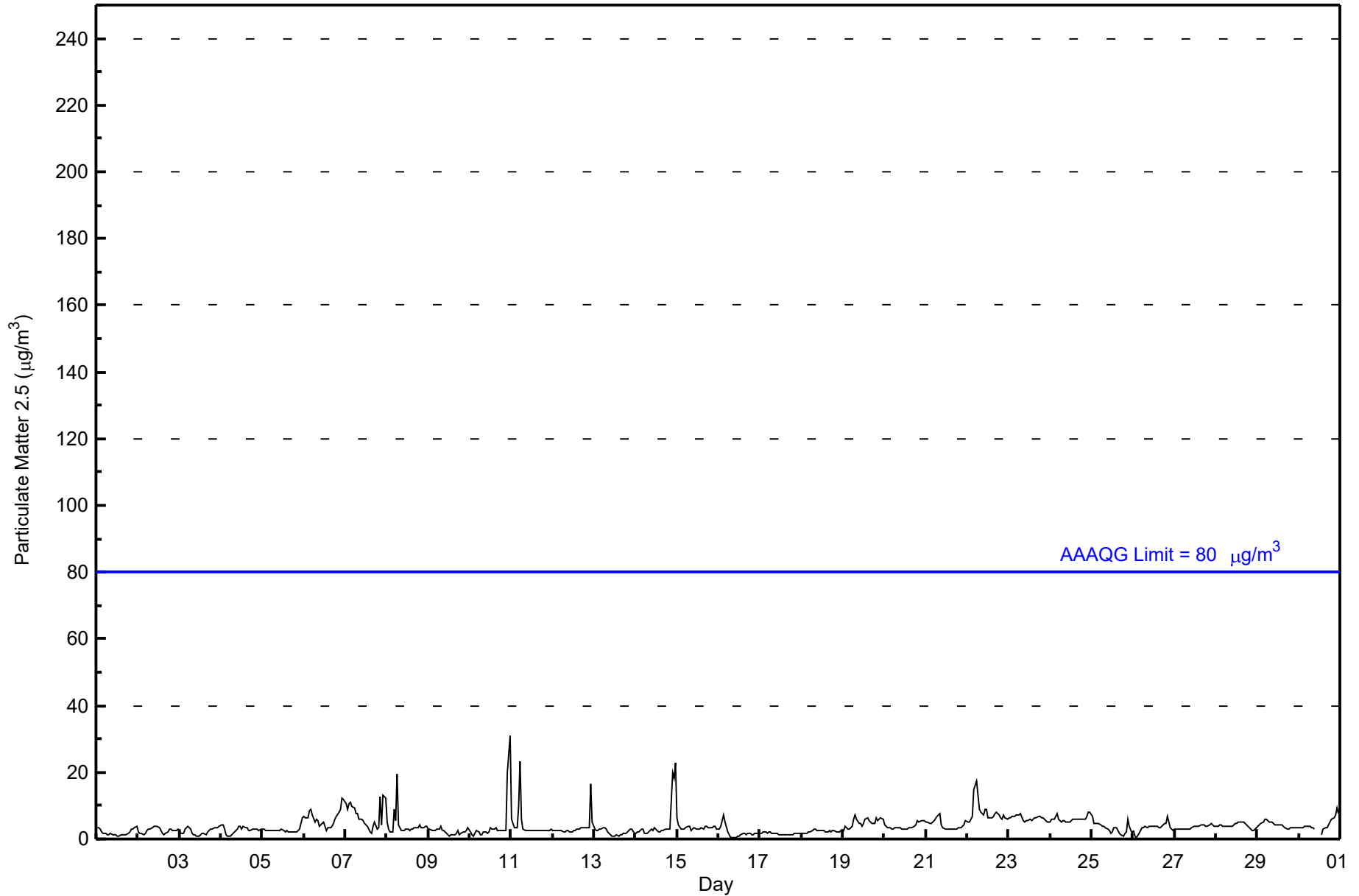


Summary of Hour Averages

Anzac - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	720					
Maximum Value: 30.8 µg/m <sup>3</sup> on Apr 11 00:00		Maximum Daily Average: 8.0 µg/m <sup>3</sup> on Apr 22																	Hours of Data: 717							
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 16 09:00		Minimum Daily Average: 1.6 µg/m <sup>3</sup> on Apr 17																	Hours of Missing Data: 3							
Maximum Diurnal Average: 6.1 µg/m <sup>3</sup> at hour 24		Minimum Diurnal Average: 3.1 µg/m <sup>3</sup> at hour 14																	Hours of Calibration: 3							
Monthly Average: 3.87 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.4 Median = 3.2 Q <sub>3</sub> = 4.7 P <sub>90</sub> = 6.4 P <sub>99</sub> = 17.1																	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-Apr	3.6	3.5	2.8	2.0	1.8	1.6	1.5	1.5	1.5	1.2	1.3	1.1	1.0	0.7	1.2	1.1	1.4	1.4	1.5	2.1	2.8	3.0	3.3	3.7	1.9	3.7
2-Apr	2.2	1.8	1.5	1.5	1.8	2.7	3.1	3.0	3.3	3.8	3.9	3.7	3.6	2.7	1.8	1.4	1.7	2.2	2.9	2.8	2.7	2.5	2.6	3.0	2.6	3.9
3-Apr	2.6	1.7	1.6	3.1	3.4	3.6	2.9	1.6	1.3	1.3	1.0	0.9	1.5	1.7	1.6	1.4	2.0	2.7	2.9	3.1	3.2	3.3	3.5	3.6	2.3	3.6
4-Apr	4.3	4.1	2.9	1.3	0.9	0.8	1.1	1.7	2.2	3.0	3.9	4.0	3.1	3.9	3.5	3.2	2.7	2.7	2.8	2.9	2.8	2.8	2.7	2.8	2.7	4.3
5-Apr	2.9	2.8	2.7	2.5	2.4	2.5	2.5	2.4	2.5	2.6	2.7	2.9	2.6	2.3	2.4	2.3	2.1	2.2	2.3	2.3	2.1	3.2	4.5	6.4	2.8	6.4
6-Apr	6.8	6.5	6.4	8.4	9.1	7.1	5.2	6.0	5.6	3.7	4.3	5.1	4.0	2.7	3.4	3.5	3.9	4.8	6.1	7.0	7.9	9.0	12.2	11.7	6.3	12.2
7-Apr	10.8	8.9	10.5	11.0	9.9	9.3	7.8	7.7	6.1	5.8	5.5	4.7	4.3	3.7	2.3	1.8	3.6	5.3	2.8	3.3	12.8	4.3	13.3	12.2	7.0	13.3
8-Apr	5.2	3.1	2.1	2.3	9.0	5.4	19.5	4.2	2.7	2.6	2.6	2.9	2.8	2.6	3.0	3.0	3.4	3.5	3.4	4.3	3.5	3.4	4.0	3.7	4.3	19.5
9-Apr	3.1	2.8	2.6	2.5	2.5	2.8	2.9	3.8	2.4	2.6	2.2	1.4	0.8	1.2	1.2	1.1	1.8	2.7	1.2	1.7	2.3	2.0	2.6	3.3	2.2	3.8
10-Apr	2.0	1.2	1.0	1.5	2.7	2.0	1.2	1.3	2.0	2.2	1.8	2.2	3.4	3.1	2.8	3.4	2.7	2.4	2.7	2.7	2.6	2.7	19.7	30.8	4.2	30.8
11-Apr	5.8	4.8	3.5	3.6	9.6	23.4	6.0	2.8	2.5	2.6	2.6	2.6	2.4	2.4	2.6	2.5	2.6	2.4	2.4	2.6	2.5	2.5	2.7	2.9	4.2	23.4
12-Apr	2.6	2.5	2.5	2.5	2.5	2.3	2.3	1.9	2.4	2.6	2.0	2.3	2.4	2.4	3.2	3.1	3.3	3.2	3.3	3.5	3.5	3.6	16.5	5.1	3.4	16.5
13-Apr	2.8	2.5	2.6	2.9	3.2	3.3	3.3	2.9	2.3	1.1	0.8	1.0	1.1	1.1	1.0	1.2	1.4	1.7	1.6	1.9	2.4	2.9	2.8	1.7	2.1	3.3
14-Apr	1.7	2.0	2.3	3.2	3.1	1.8	1.8	1.8	2.7	2.9	2.4	3.3	2.7	2.3	2.2	2.4	2.7	2.9	2.9	3.0	3.0	20.1	18.2	22.9	4.8	22.9
15-Apr	6.4	4.4	3.0	3.1	3.1	3.4	3.7	4.0	2.5	3.0	3.5	3.1	2.8	3.0	3.2	3.1	3.8	3.9	3.5	3.2	3.5	3.9	3.9	3.1	3.5	6.4
16-Apr	2.8	3.8	5.3	7.1	5.0	2.0	1.3	0.5	0.2	0.3	0.3	0.6	0.8	1.3	1.5	1.6	1.4	1.7	1.8	1.4	1.3	1.5	1.7	1.8	2.0	7.1
17-Apr	1.8	1.8	2.0	2.0	1.8	1.9	2.2	1.6	1.7	1.8	1.9	1.4	1.3	1.3	1.2	1.2	1.3	1.4	1.3	1.3	1.5	1.7	1.8	1.9	1.6	2.2
18-Apr	1.9	1.9	1.9	1.9	2.0	2.2	2.5	2.8	2.9	2.6	2.5	2.4	2.3	2.4	2.3	2.3	2.3	2.2	2.4	2.4	2.3	2.3	2.3	2.5	2.3	2.9
19-Apr	2.5	4.0	3.3	2.9	2.9	3.8	5.9	7.2	6.1	4.7	4.7	4.0	4.5	5.7	6.2	5.7	5.2	4.8	4.7	6.4	5.4	6.0	6.2	5.9	4.9	7.2
20-Apr	4.4	4.0	3.6	3.2	3.1	3.1	3.2	3.3	3.5	3.2	3.2	3.2	3.1	3.2	3.4	3.4	3.3	3.7	4.2	5.4	4.9	5.4	5.6	5.3	3.8	5.6
21-Apr	5.2	5.1	4.6	4.8	5.0	5.3	6.6	7.3	7.5	4.4	3.6	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.2	3.3	3.4	3.8	4.2	5.5	4.4	7.5
22-Apr	5.0	5.2	6.0	6.9	14.7	17.2	13.3	8.8	7.9	7.4	8.8	8.9	6.2	6.4	6.4	6.7	7.7	7.9	7.0	6.4	6.0	7.4	6.5	6.1	8.0	17.2
23-Apr	6.2	6.4	6.6	6.7	7.1	7.1	7.2	7.6	5.5	5.3	5.5	5.6	5.8	5.6	6.0	6.3	6.5	6.8	6.9	6.2	6.2	5.6	5.1	5.0	6.2	7.6
24-Apr	5.3	6.1	5.8	6.7	7.5	5.8	5.2	5.7	5.5	5.1	5.0	5.0	5.4	5.8	5.7	5.9	5.8	6.1	6.1	5.9	6.0	6.7	7.9	8.2	6.0	8.2
25-Apr	6.6	4.9	4.6	4.6	4.5	4.4	4.0	3.8	3.5	2.8	2.4	1.5	1.9	3.4	3.4	2.5	1.7	1.2	0.9	1.6	2.0	6.0	3.9	1.6	3.2	6.6
26-Apr	2.4	0.7	0.5	1.7	2.7	3.4	3.4	3.7	3.3	3.7	3.8	3.7	3.8	3.7	3.6	3.4	3.4	4.1	4.8	4.9	6.7	3.3	3.0	2.7	3.3	6.7
27-Apr	2.8	2.9	3.0	3.1	2.8	2.8	2.9	2.9	3.0	3.0	3.4	3.7	3.7	3.7	3.9	4.2	4.4	4.3	3.8	3.6	4.3	4.5	4.0	3.7	3.5	4.5
28-Apr	4.0	4.0	4.1	4.2	3.8	3.7	3.7	3.6	3.7	3.8	4.2	4.5	4.8	4.9	4.9	5.1	5.1	4.6	3.9	3.4	3.2	2.7	2.7	3.3	4.0	5.1
29-Apr	3.8	4.1	4.6	5.2	6.1	6.1	5.5	5.2	4.9	4.7	4.3	4.4	4.2	4.2	4.1	3.7	3.2	3.0	3.2	3.2	3.3	3.5	3.4	3.4	4.2	6.1
30-Apr	3.4	3.4	3.6	3.6	3.6	3.6	3.7	3.5	3.4	3.0	C	C	C	1.4	2.9	3.5	3.6	4.2	5.3	6.0	6.4	7.4	9.2	7.7	4.4	9.2
																								Diurnal Average		
																								Diurnal Maximum		
																								4.0 3.7 3.6 3.9 4.6 4.8 4.5 3.8 3.5 3.2 3.2 3.2 3.1 3.1 3.1 3.1 3.2 3.4 3.4 3.6 4.0 4.6 6.0 6.1		
																								10.8 8.9 10.5 11.0 14.7 23.4 19.5 8.8 7.9 7.4 8.8 8.9 6.2 6.4 6.4 6.7 7.7 7.9 7.0 7.0 12.8 20.1 19.7 30.8		
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>**  
**Anzac - April 2024**

<b>Concentration Ranges (µg/m<sup>3</sup>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	590	82.29	82.29
6 - 15	118	16.46	98.74
16 - 25	8	1.12	99.86
26 - 80	1	0.14	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>**  
**Anzac - April 2024**

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	
0 - 5	62	15	8	10	6	25	37	56	32	13	17	17	66	46	31	55	496
6 - 15	5	3	4	3	2	9	10	4	3	1	1	5	5	20	8	6	89
16 - 25	0	0	0	0	0	0	1	2	3	0	0	0	0	1	0	0	7
26 - 80	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	67	18	12	13	8	34	48	62	39	14	18	22	71	67	39	61	593

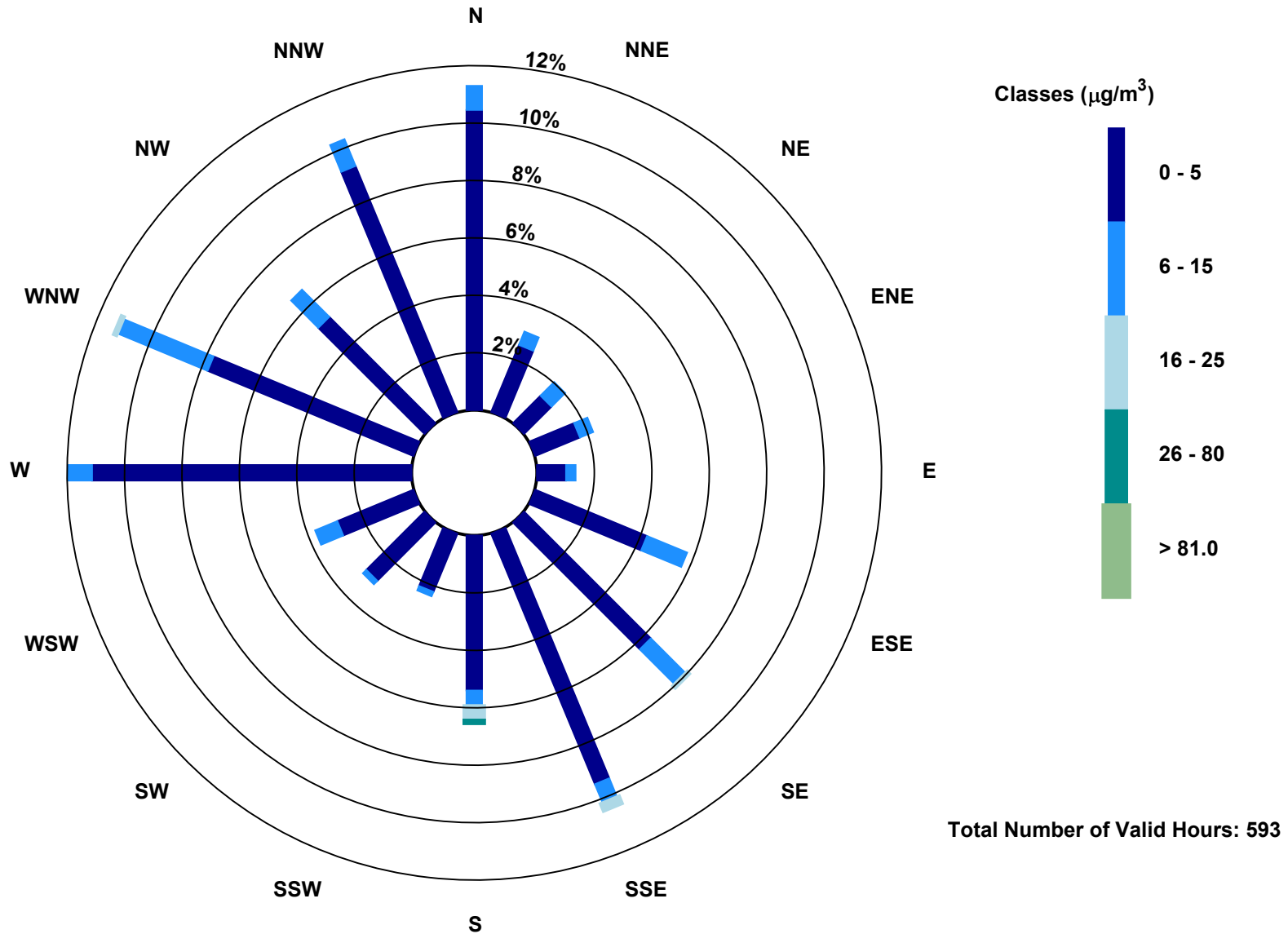
Total Number of Valid Hours: 593

Total Number of Hours: 720



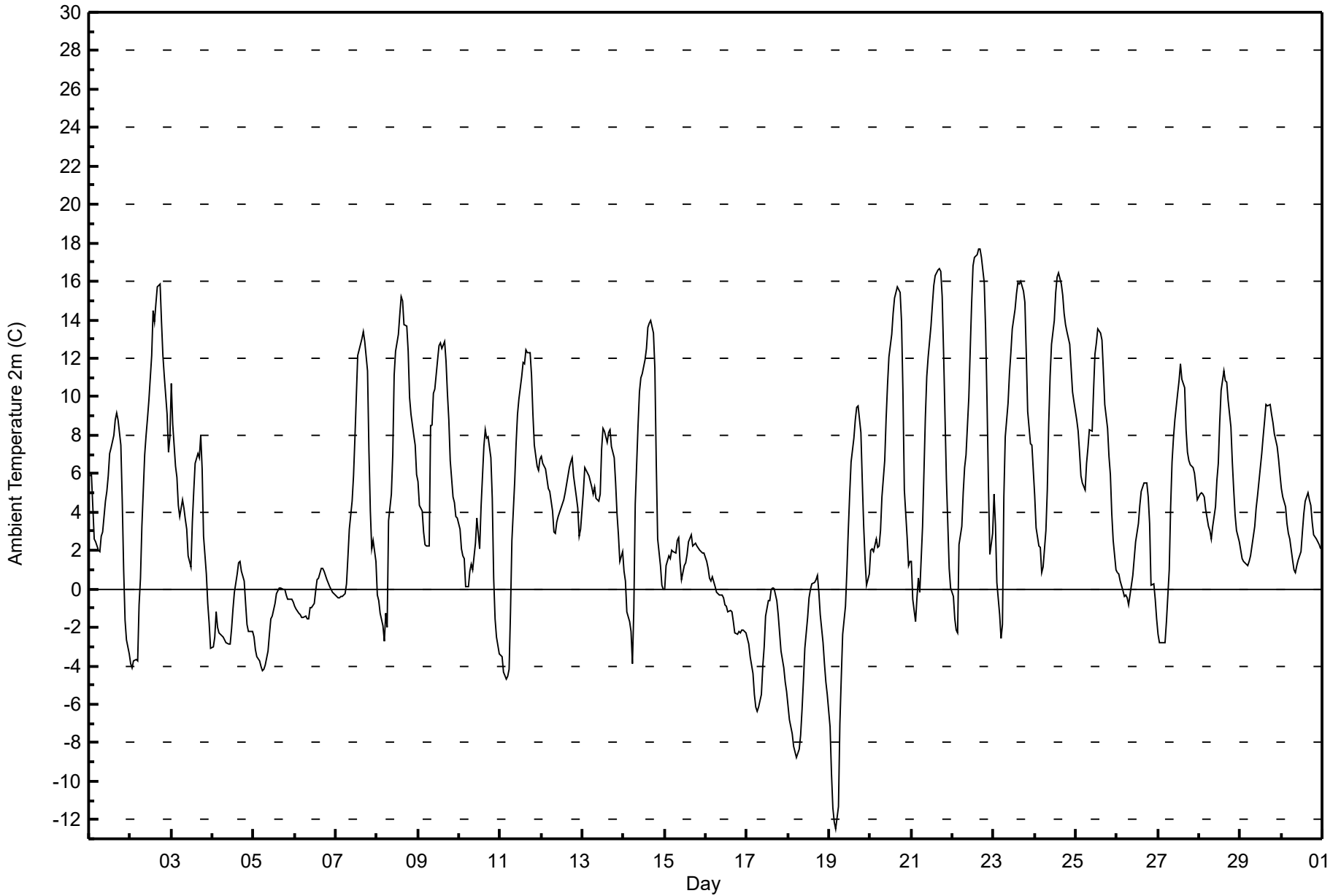
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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





Maximum Value: 17.7 C on Apr 22 16:00      Maximum Daily Average: 9.7 C on Apr 24																				Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -12.5 C on Apr 19 05:00      Minimum Daily Average: -3.9 C on Apr 18 Maximum Diurnal Average: 9.0 C at hour 16      Minimum Diurnal Average: -0.4 C at hour 5 Monthly Average: 4.03 C      Percentiles: P <sub>1</sub> = -8.3 P <sub>10</sub> = -2.6 Q <sub>1</sub> = -0.2 Median = 3.2 Q <sub>3</sub> = 7.9 P <sub>90</sub> = 12.4 P <sub>99</sub> = 16.6																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	5.9	5.9	4.3	2.6	2.4	2.0	1.9	2.7	3.0	4.6	5.1	5.9	7.0	7.4	8.0	8.8	9.1	8.8	7.5	4.6	1.0	-1.7	-2.7	-3.4	4.2	9.1
2-Apr	-3.9	-4.1	-3.8	-3.7	-3.7	-0.8	0.6	3.3	7.0	8.0	8.8	9.8	12.2	14.4	13.9	14.9	15.7	15.9	13.9	12.1	11.0	9.0	7.1	7.9	6.9	15.9
3-Apr	10.7	8.6	6.4	5.8	4.4	3.7	4.6	4.2	3.6	3.1	1.7	1.1	3.5	5.0	6.5	7.0	6.8	8.0	6.3	2.8	0.8	-0.8	-1.8	-3.1	4.1	10.7
4-Apr	-3.0	-2.5	-1.2	-2.0	-2.3	-2.4	-2.5	-2.6	-2.8	-2.9	-2.9	-2.1	-1.0	-0.2	0.8	1.4	1.4	0.9	0.4	-0.8	-1.8	-2.2	-2.2	-2.2	-1.4	1.4
5-Apr	-2.5	-3.2	-3.6	-3.8	-4.0	-4.3	-4.2	-3.9	-3.2	-2.3	-1.6	-1.4	-0.7	-0.2	-0.1	0.1	0.0	0.0	0.0	-0.3	-0.5	-0.5	-0.6	-0.7	-1.7	0.1
6-Apr	-0.9	-1.0	-1.3	-1.4	-1.5	-1.5	-1.4	-1.5	-1.6	-0.9	-1.0	-0.7	-0.1	0.5	0.6	1.1	1.1	0.9	0.7	0.5	0.2	0.0	-0.2	-0.2	-0.4	1.1
7-Apr	-0.4	-0.5	-0.4	-0.4	-0.4	-0.3	0.2	1.6	3.1	4.6	5.9	7.8	10.0	12.1	12.7	13.1	13.4	12.9	11.4	7.2	4.0	2.1	2.5	1.4	5.2	13.4
8-Apr	-0.3	-0.6	-1.2	-1.9	-2.7	-1.3	-2.0	3.6	4.9	7.0	11.1	12.4	13.2	14.3	15.2	15.0	13.8	13.7	12.4	10.0	9.1	8.0	7.5	6.0	7.0	15.2
9-Apr	5.6	4.3	4.0	2.9	2.3	2.3	2.3	8.5	8.5	10.2	10.4	11.9	12.7	12.8	12.5	12.9	11.8	10.2	8.8	6.7	4.8	4.5	3.8	3.7	7.4	12.9
10-Apr	3.1	2.1	1.7	1.6	0.1	0.1	0.9	1.3	1.0	2.4	3.7	2.9	2.1	4.2	7.4	8.3	7.9	7.9	6.8	4.7	0.6	-1.6	-2.5	-3.4	2.6	8.3
11-Apr	-3.4	-3.5	-4.3	-4.7	-4.5	-4.1	-1.2	2.5	5.6	7.5	9.1	9.9	11.1	11.8	11.7	12.4	12.3	12.3	11.1	9.1	7.4	6.4	6.1	6.7	5.3	12.4
12-Apr	6.9	6.6	6.2	5.7	5.2	5.1	4.1	3.0	2.9	3.5	3.8	4.2	4.4	4.6	5.0	5.9	6.3	6.6	6.8	5.9	4.8	4.2	2.8	3.1	4.9	6.9
13-Apr	5.1	6.3	6.2	6.0	5.9	5.3	4.9	5.3	4.7	4.6	4.9	7.2	8.4	8.2	7.6	8.2	8.3	7.4	6.8	5.5	3.9	2.8	1.4	2.0	5.7	8.4
14-Apr	0.9	0.4	-1.2	-1.7	-2.2	-3.9	-1.1	4.4	8.5	10.3	11.0	11.2	11.9	12.5	13.6	13.8	14.0	13.3	11.5	6.5	2.6	1.2	0.2	0.0	5.7	14.0
15-Apr	-0.1	1.2	1.7	1.6	2.0	1.9	1.8	2.5	2.6	1.4	0.5	1.2	1.3	1.8	2.4	2.9	2.2	2.3	2.4	2.3	2.0	2.0	1.9	1.8	1.8	2.9
16-Apr	1.4	1.1	0.5	0.4	0.6	0.1	-0.2	-0.2	-0.3	-0.4	-0.5	-0.8	-0.9	-1.2	-1.1	-1.2	-1.7	-2.3	-2.4	-2.2	-2.3	-2.2	-2.1	-2.3	-0.8	1.4
17-Apr	-2.6	-2.9	-3.5	-4.4	-5.5	-6.1	-6.4	-6.2	-5.5	-4.0	-3.0	-1.4	-0.6	-0.6	0.0	0.0	0.0	-0.6	-1.4	-2.3	-3.2	-4.1	-4.8	-5.3	-3.1	0.0
18-Apr	-6.1	-6.8	-7.6	-8.2	-8.5	-8.8	-8.4	-7.6	-6.3	-4.8	-3.1	-1.5	-0.5	-0.1	0.3	0.4	0.5	0.7	-0.2	-1.3	-2.8	-3.9	-4.9	-5.5	-3.9	0.7
19-Apr	-7.2	-9.6	-11.4	-12.1	-12.5	-11.4	-7.0	-4.6	-2.4	-0.9	0.9	3.1	4.9	6.6	7.8	8.8	9.5	9.5	8.1	5.6	3.3	1.5	0.2	0.8	-0.4	9.5
20-Apr	2.0	2.1	1.9	2.6	2.2	2.2	3.1	4.8	6.7	8.9	10.6	12.1	13.3	14.4	15.2	15.4	15.7	15.4	13.9	10.3	5.1	2.7	1.2	1.4	7.6	15.7
21-Apr	1.4	-0.6	-1.7	-0.5	0.6	-0.2	3.2	6.1	8.9	11.0	12.1	13.6	14.8	15.8	16.3	16.6	16.7	16.6	15.2	12.3	5.7	3.4	1.1	0.1	7.9	16.7
22-Apr	-0.4	-1.6	-2.1	-2.3	2.3	3.2	5.0	6.3	7.0	9.9	12.4	14.9	16.8	17.2	17.4	17.7	17.7	17.3	15.9	13.4	9.7	5.5	1.8	2.9	8.7	17.7
23-Apr	4.9	3.3	0.3	-1.3	-2.6	-1.9	4.8	7.9	9.7	11.2	12.3	13.6	14.5	15.4	15.9	15.9	16.0	15.5	14.9	12.2	9.2	7.6	7.4	6.2	8.9	16.0
24-Apr	4.9	3.2	2.2	2.2	0.8	1.2	3.0	5.1	8.6	11.1	12.7	14.0	15.4	16.2	16.5	15.9	15.3	14.4	13.8	13.4	12.7	11.5	10.2	9.7	9.7	16.5
25-Apr	8.8	8.2	7.2	5.9	5.5	5.1	6.5	7.3	8.3	8.2	10.3	12.2	12.8	13.5	13.3	12.9	11.3	9.6	8.4	6.9	5.9	3.9	2.5	1.0	8.2	13.5
26-Apr	0.8	0.7	0.4	-0.1	-0.4	-0.3	-0.5	-0.8	0.2	0.7	1.6	2.4	3.4	4.4	5.1	5.3	5.5	5.5	4.8	3.4	0.2	0.2	-0.6	-1.5	1.7	5.5
27-Apr	-2.3	-2.8	-2.8	-2.8	-2.8	-1.7	1.0	4.3	6.6	7.8	8.8	10.2	10.8	11.7	10.9	10.5	8.3	7.1	6.7	6.5	6.3	6.1	5.4	4.7	4.9	11.7
28-Apr	4.9	5.0	4.9	4.8	4.1	3.3	3.1	2.6	3.2	4.3	5.7	6.5	8.6	10.3	11.4	10.9	10.8	9.8	8.4	6.6	5.1	3.9	3.0	2.4	6.0	11.4
29-Apr	2.0	1.6	1.4	1.3	1.2	1.4	1.8	2.3	3.3	4.2	4.9	5.6	7.1	7.9	8.7	9.6	9.5	9.6	9.1	8.6	8.0	7.4	6.7	5.9	5.4	9.6
30-Apr	5.2	4.8	4.2	3.4	2.9	2.6	1.5	1.0	0.9	1.2	1.5	1.9	3.0	3.9	4.6	5.0	4.7	4.4	3.5	2.8	2.6	2.4	2.3	2.1	3.0	5.2
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Anzac - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	192	26.67	26.67
0 - 10	404	56.11	82.78
10 - 20	124	17.22	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720

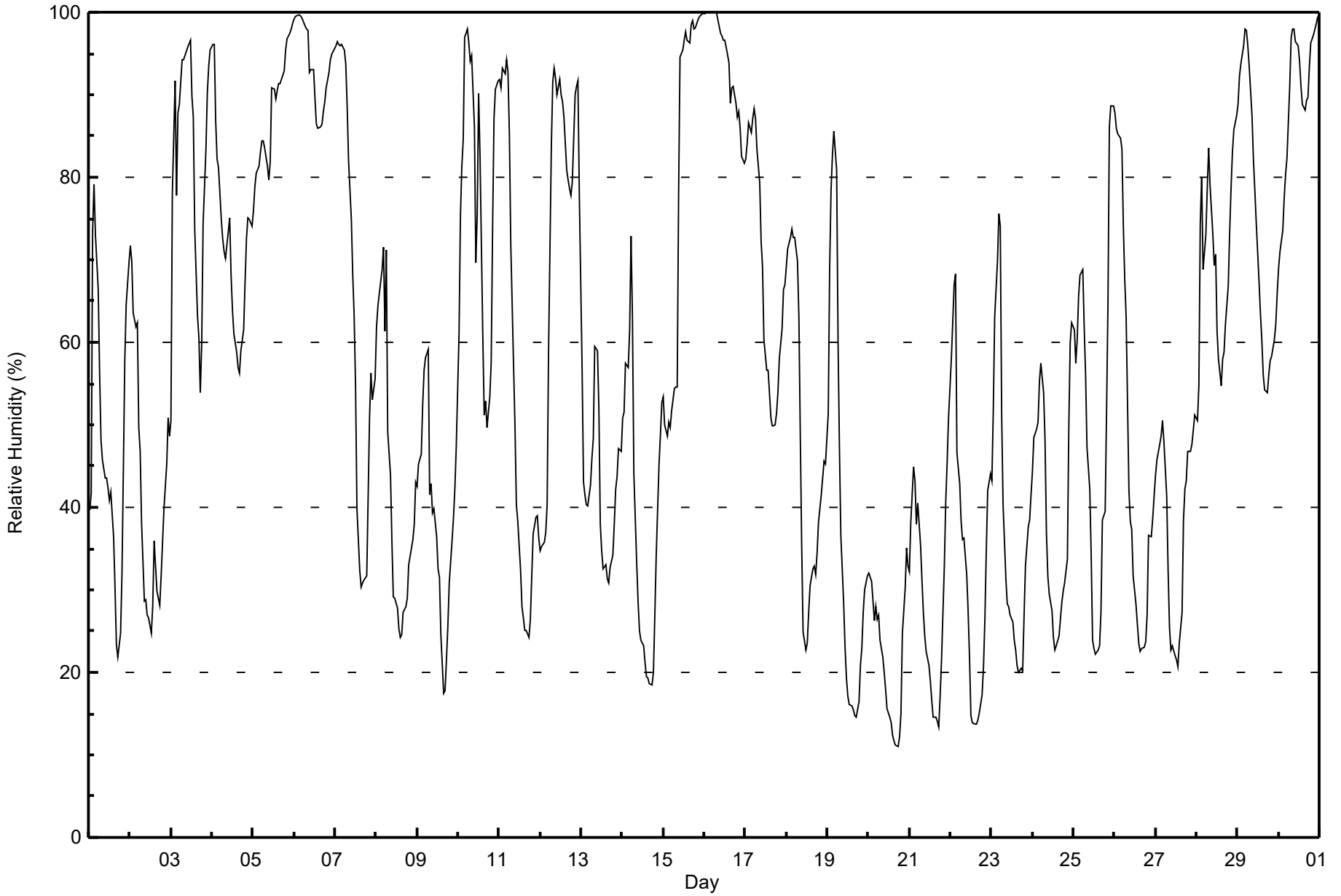


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Anzac - April 2024**

Maximum Value: 100.0 % on Apr 16 04:00		Maximum Daily Average: 94.2 % on Apr 16		Hours in Service: 720																							
Minimum Value: 11.0 % on Apr 20 18:00		Minimum Daily Average: 21.9 % on Apr 20		Hours of Data: 720																							
Maximum Diurnal Average: 71.1 % at hour 5		Minimum Diurnal Average: 42.9 % at hour 16		Hours of Missing Data: 0																							
Monthly Average: 57.23 %		Percentiles: P <sub>1</sub> = 13.7 P <sub>10</sub> = 23.3 Q <sub>1</sub> = 32.9 Median = 54.6 Q <sub>3</sub> = 82.7 P <sub>90</sub> = 94.8 P <sub>99</sub> = 99.9		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-Apr	39.7	41.6	73.5	79.2	73.0	66.5	56.3	48.1	45.7	43.6	42.3	40.9	41.8	36.4	30.3	23.4	21.9	24.7	32.1	44.8	57.9	64.6	69.7	47.6	79.2		
2-Apr	71.7	69.9	63.6	61.9	62.4	49.7	46.8	38.1	28.6	28.9	27.0	26.6	24.8	28.1	36.0	32.9	29.8	28.1	31.7	35.8	39.8	45.2	50.8	48.7	42.0	71.7	
3-Apr	50.5	77.9	91.8	77.8	87.8	88.8	94.3	94.3	94.8	95.2	95.8	96.7	89.8	87.3	73.7	63.3	60.5	53.9	59.8	74.3	83.2	90.1	93.3	95.4	82.1	96.7	
4-Apr	96.1	96.1	86.7	82.3	81.2	74.9	72.5	71.0	70.1	73.4	75.1	68.1	63.8	61.1	58.9	56.9	56.3	59.0	61.6	67.3	72.6	75.1	74.9	74.1	72.0	96.1	
5-Apr	75.9	78.9	80.5	81.3	83.1	84.3	84.4	83.6	81.4	79.6	81.9	90.9	90.7	89.4	90.6	91.4	91.3	92.3	92.8	95.4	96.7	97.5	98.0	98.6	87.9	98.6	
6-Apr	99.2	99.5	99.6	99.7	99.5	99.2	98.4	98.0	97.8	92.7	93.1	93.1	89.4	86.4	85.9	86.1	86.5	87.9	89.2	90.9	92.7	94.2	95.0	95.2	93.7	99.7	
7-Apr	96.0	96.4	96.0	96.0	96.0	95.3	93.7	88.6	82.1	74.9	68.2	63.2	54.8	39.9	32.4	30.4	30.8	31.3	31.8	41.1	50.9	56.2	53.0	55.5	64.8	96.4	
8-Apr	61.9	64.3	66.0	68.8	71.5	61.4	71.2	49.1	43.9	36.0	29.2	29.0	27.8	25.2	24.2	24.5	27.2	28.0	29.0	33.1	34.0	36.1	38.0	43.1	42.6	71.5	
9-Apr	42.6	45.3	46.5	52.4	56.5	58.2	59.1	41.5	42.8	39.3	39.9	36.5	32.5	31.5	24.7	17.5	17.8	21.6	25.6	30.9	35.9	38.6	42.2	47.3	38.6	59.1	
10-Apr	60.9	75.3	81.3	84.7	96.9	98.0	96.3	94.0	94.8	86.1	69.7	75.5	90.1	82.6	60.7	51.1	52.8	49.6	53.4	57.6	73.8	87.2	90.7	91.8	77.3	98.0	
11-Apr	91.9	90.9	93.2	92.5	94.2	92.6	85.3	71.8	57.1	49.8	40.3	38.4	32.3	27.9	26.6	25.2	25.0	24.3	26.4	31.7	36.8	38.9	38.9	36.3	52.8	94.2	
12-Apr	34.7	35.3	35.7	36.9	40.4	58.9	83.7	91.6	93.2	92.0	90.0	91.8	89.9	89.1	87.3	80.9	79.7	78.7	77.7	79.5	90.0	91.0	91.8	77.9	74.9	93.2	
13-Apr	56.7	43.0	41.5	40.4	40.2	42.8	45.9	48.4	59.5	59.0	51.9	37.9	34.7	32.5	33.1	31.4	30.8	32.7	34.3	37.9	42.2	43.7	47.2	46.7	42.3	59.5	
14-Apr	50.8	51.5	57.4	56.9	61.5	72.9	62.9	44.1	33.4	28.7	25.0	24.0	23.2	21.2	19.5	19.3	18.6	18.5	19.9	27.0	34.3	45.3	48.8	52.7	38.2	72.9	
15-Apr	53.3	50.1	48.7	50.3	49.7	51.7	54.4	54.5	54.5	77.9	94.7	95.5	96.7	97.7	96.5	96.2	98.5	99.0	97.9	98.1	99.1	99.5	99.7	99.9	79.8	99.9	
16-Apr	99.9	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.1	97.4	97.1	96.6	96.6	95.8	93.8	88.9	90.9	91.0	88.9	87.3	87.9	85.9	82.6	81.8	94.2	100.0	
17-Apr	82.2	84.1	86.5	85.5	87.2	88.3	87.1	83.5	79.2	72.3	69.2	60.4	56.7	56.6	53.7	50.8	49.8	50.1	51.4	53.9	57.9	61.6	66.4	67.0	68.4	88.3	
18-Apr	69.1	71.3	72.7	73.7	72.8	72.8	69.8	63.1	48.7	35.5	24.9	22.7	23.5	27.2	30.5	32.6	32.9	31.8	34.4	38.1	41.6	43.5	45.6	45.2	46.8	73.7	
19-Apr	51.3	69.0	78.4	82.6	85.7	80.9	60.2	47.0	36.7	28.5	23.0	19.3	17.1	16.1	15.9	15.4	14.7	14.6	16.5	20.8	22.9	27.3	30.1	31.8	37.7	85.7	
20-Apr	32.0	31.5	31.1	26.2	27.9	26.5	26.9	23.8	21.9	19.9	17.9	15.6	14.5	13.8	12.4	11.6	11.3	11.0	12.2	15.2	24.7	30.2	35.1	32.8	21.9	35.1	
21-Apr	32.3	38.1	44.8	43.3	38.0	40.6	35.5	31.1	27.3	24.4	22.5	20.9	19.0	16.6	14.6	14.5	14.0	13.5	17.1	21.5	32.8	40.7	45.5	50.9	29.1	50.9	
22-Apr	58.0	62.4	67.0	68.3	46.7	42.9	38.3	36.1	36.3	31.9	27.4	21.9	14.7	13.9	13.7	13.7	14.3	15.0	17.3	20.7	26.4	34.8	42.1	44.1	33.7	68.3	
23-Apr	43.2	51.7	63.0	69.9	75.7	74.1	51.3	40.4	31.3	28.3	28.0	27.0	26.1	24.0	22.7	20.9	20.0	20.5	20.2	26.7	32.9	37.7	38.4	41.5	38.1	75.7	
24-Apr	44.5	48.5	49.6	50.4	55.2	57.5	53.9	48.2	36.9	31.7	29.5	27.5	24.3	22.7	23.3	24.5	26.5	28.4	29.9	30.9	33.7	49.6	60.0	62.3	39.6	62.3	
25-Apr	61.5	57.4	60.3	65.6	68.1	68.8	61.8	56.1	47.3	42.3	34.3	23.9	22.9	22.2	22.7	23.3	27.3	38.5	39.5	51.6	64.6	86.1	88.6	88.7	51.0	88.7	
26-Apr	87.8	85.9	85.3	84.8	83.4	74.1	67.6	63.1	42.1	38.3	37.2	31.7	28.3	26.0	23.6	22.5	22.9	23.0	23.8	27.0	36.5	36.4	38.6	41.4	47.1	87.8	
27-Apr	43.9	45.8	47.6	48.7	50.5	48.0	41.4	32.3	25.4	22.8	23.2	22.0	21.5	20.7	23.6	27.3	38.4	42.3	43.2	46.7	46.8	47.6	49.3	51.1	37.9	51.1	
28-Apr	50.4	54.7	74.5	79.9	68.9	73.0	78.6	83.5	79.0	73.0	69.4	70.6	61.4	58.0	54.8	58.0	58.8	62.3	66.8	73.2	78.6	83.0	85.7	87.4	70.1	87.4	
29-Apr	88.9	92.2	93.7	96.0	98.0	97.8	95.9	93.3	87.5	82.2	78.5	74.6	67.4	63.5	60.3	56.0	54.2	53.8	56.1	57.7	58.2	60.3	62.3	65.9	74.8	98.0	
30-Apr	68.9	71.0	73.5	77.5	80.3	82.3	91.3	96.9	98.0	97.9	96.4	96.0	94.1	91.0	88.9	88.2	89.3	89.7	93.4	96.2	97.2	97.9	98.7	99.4	89.7	99.4	
		63.2	66.0	69.7	70.4	71.1	70.8	68.8	63.8	59.2	56.1	53.5	51.3	49.0	47.0	44.7	42.9	43.1	43.7	45.6	50.0	55.7	60.6	63.2	64.1	Diurnal Average	
		99.9	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.1	97.9	97.1	96.7	96.7	97.7	96.5	96.2	98.5	99.0	97.9	98.1	99.1	99.5	99.7	99.9	Diurnal Maximum	







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Anzac - April 2024**

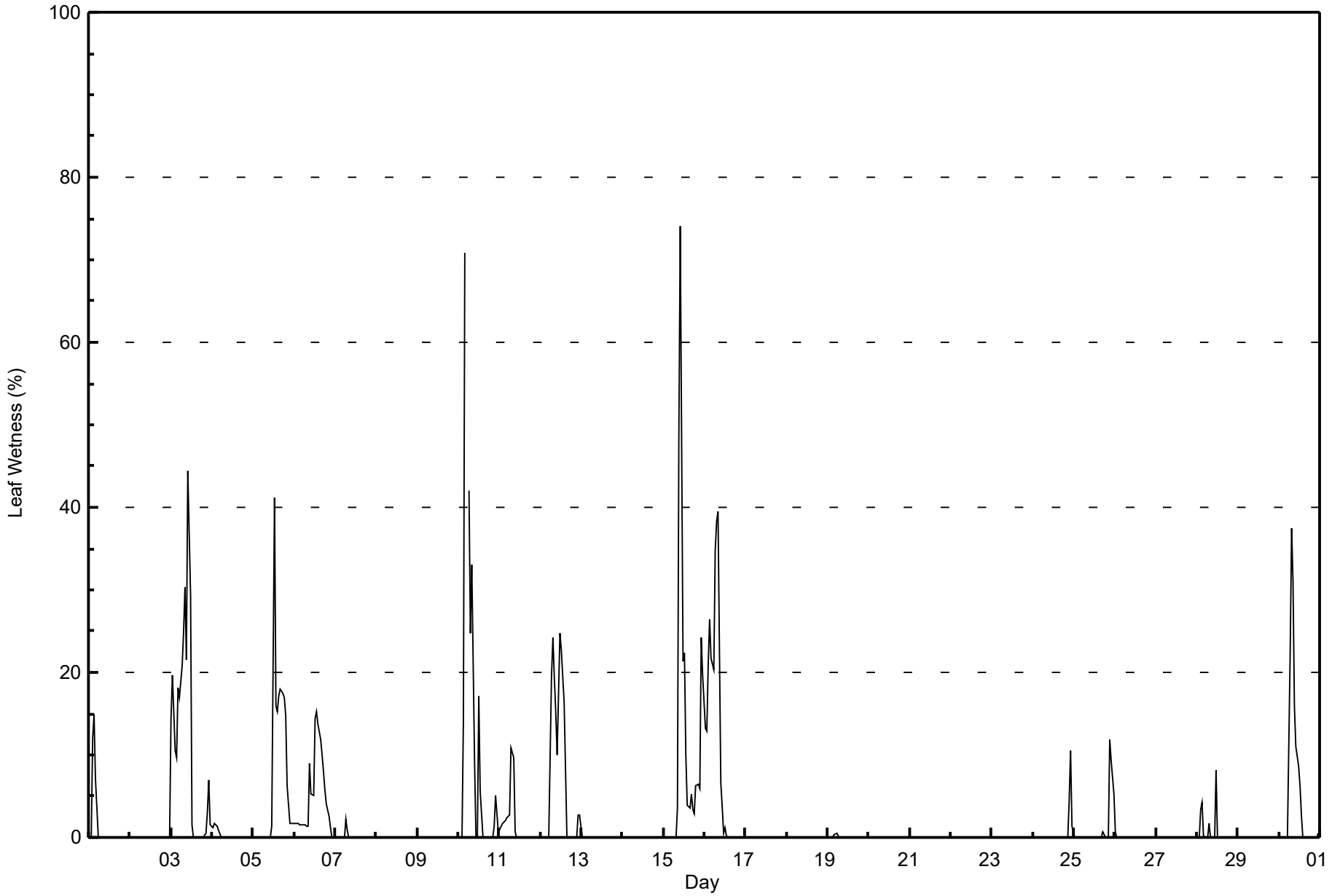
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	40	5.56	5.56
20 - 40	199	27.64	33.19
40 - 60	159	22.08	55.28
60 - 80	124	17.22	72.50
80 - 100	194	26.94	99.44

Total Number of Valid Hours: 720

Total Number of Hours: 720



Maximum Value: 74.1 % on Apr 15 11:00																				Maximum Daily Average: 11.4 % on Apr 3					Hours in Service: 720		
Minimum Value: 0.0 % on Apr 1 01:00																				Minimum Daily Average: 0.0 % on Apr 2					Hours of Data: 719		
Maximum Diurnal Average: 5.6 % at hour 9																				Minimum Diurnal Average: 0.5 % at hour 21					Hours of Missing Data: 1		
Monthly Average: 2.43 %																				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> = 8.0 P <sub>99</sub> = 38.2					Hours of Calibration: 0		
																									Percent Operational Time: 99.9		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.0	0.0	12.0	14.9	7.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	14.9	
2-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Apr	14.4	19.7	10.4	9.7	18.1	17.0	20.9	24.9	30.3	21.5	44.5	29.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.1	7.0	1.5	11.4	44.5	
4-Apr	1.2	1.7	1.6	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7	
5-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	41.2	15.9	15.3	17.1	18.0	17.5	16.9	14.8	6.2	1.8	1.7	1.6	7.1	41.2
6-Apr	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.4	9.1	5.3	5.1	14.4	15.2	13.8	11.9	10.0	8.0	5.8	4.1	2.6	1.2	0.1	0.0	5.0	15.2	
7-Apr	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1	
8-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	0.0	0.0	14.2	70.9	OR	42.0	24.7	33.1	9.0	0.0	0.0	17.2	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	5.1	0.6	9.7	70.9	
11-Apr	1.0	1.4	1.8	2.1	2.4	2.6	2.7	10.8	9.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	10.8	
12-Apr	0.0	0.0	0.0	0.0	0.0	0.0	19.7	24.3	19.4	15.2	10.1	24.8	22.7	19.4	16.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	7.4	24.8	
13-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	48.3	74.1	21.3	22.4	10.0	3.9	3.5	5.3	3.3	2.8	6.3	6.5	5.9	24.3	19.7	10.9	74.1	
16-Apr	13.2	12.8	21.1	26.5	21.7	20.4	34.7	38.3	39.5	6.6	3.7	0.5	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	39.5	
17-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Apr	0.0	0.0	0.0	0.0	0.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
20-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	10.4	1.4	0.7	10.4	
25-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	11.9	9.3	5.3	1.1	11.9	
26-Apr	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	
27-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Apr	0.0	0.0	3.3	4.3	0.2	0.0	0.0	1.7	0.0	0.0	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	8.1	
29-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Apr	0.0	0.0	0.0	0.0	0.0	0.0	22.8	37.4	31.1	15.9	11.0	8.6	6.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	5.7	37.4	
																								Diurnal Average			
																								Diurnal Maximum			
OR - Out of Range																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Leaf Wetness (LW) - %**  
**Anzac - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	574	79.83	79.83
0.4 - 0.5	4	0.56	80.39
0.6 - 0.7	4	0.56	80.95
0.8 - 1.4	13	1.81	82.75
1.5 - 10	58	8.07	90.82
> 10	64	8.90	99.72

Total Number of Valid Hours: 719

Total Number of Hours: 720



Maximum Speed: 28 km/h on Apr 1 11:00	Maximum Daily Speed Average: 21.2 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 2 km/h on Apr 21 23:00	Minimum Daily Speed Average: 2.3 km/h on Apr 15	Hours of Data: 596
Maximum Diurnal Speed Average: 5.3 km/h at hour 15	Minimum Diurnal Speed Average: 0.4 km/h at hour 23	Hours of Missing Data: 124
Monthly Average Velocity: 3.0 km/h 299.8 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 6 Q <sub>1</sub> = 9 Median = 13 Q <sub>3</sub> = 18 P <sub>90</sub> = 22 P <sub>99</sub> = 27	Percent Operational Time: 83.2

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	SSW27	SW20WNN23WNN16	W21	W25	W24	W25WNN23WNN28	NW28	NW25	NW24	NW22WNN22	NW19	NW22	NW18NWN14	NNW9	WSW6	WSW6	SW6	SW6	WNN16.5	NW28							
2-Apr	SSW6	SW7	S8	S10	SSE10	SSE13	SSE12	SSE14	SE14	SE12	SE15	SE19	SSE17	SW16	SW12	S12	S15	SSE14	S15	S11	S12	S12	S9	S8	S11.1	SE19	
3-Apr	SSW9	SW7	NE6	E6	NE6	NW3	NW16	NW18	NW23	NNW19	NNW17	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NW23
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
7-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
8-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
9-Apr	SW8	SW6	SW7	WSW7	W7	WSW6	SW5	W6WNN12WNN13WNN15WNN15	W14	W17	W20	W20	W19	W16	W17	W9	W9	W9	W10	W10	W11.0	W20					
10-Apr	W17	W17WNN18WNN16WNN13WNN12WNN15	NW18	NW22	NW20	NW27	NW26	NW19	NW14	N21	NNW20	NNE14	NE11	NNE9	NE8	ENE7	E6	SSE4	S6	NW11.1	NW27						
11-Apr	S7	SSE8	SSE8	SSE7	SSE8	SE9	SSE10	SSE11	SE13	SE14	SE17	SE17	SSE17	SSE17	SSE17	SSE19	SE20	SE19	SSE18	SE15	SSE15	SE15	SSE17	SSE18	SSE13.8	SE20	
12-Apr	S19	SSE19	SSE20	SSE18	SSE16	S19	S24	SSE26	SSE21	SSE21	SSE18	SSE13	SSE17	SSE15	S11	S10	SSE10	SSE10	SSE9	SE9	SSE12	SSE15	S9	SW9	SSE15.0	SSE26	
13-Apr	SW15WSW18WSW18WSW19WSW24WSW23WSW23	W25WNN22WNN21WNN20WNN26WNN27	W26WNN23WNN21WNN20WNN16WNN14	W9	W7	W7	W8	W8	W17.5	WNN27																	
14-Apr	W9	W7	W8	WSW8	WSW7	WSW5	S4	SSE7	SE7	ESE9	WNN3WNN12	W14WNN13	WNN9WNN10WNN12	W10	NW7	NNE3	ENE3	S5	S7	SSE6	W4.4	W14					
15-Apr	SSE5	ESE8	ENE5	SE4	ENE2	ENE4	E5	NNW2	NNE3	SSE3	S5	NNE3	NNE6	NE7	NE5	NNE4	NNW7	NNW4	NW4	N4	NNE7	NW4	WNN4	NNW6	NE2.3	ESE8	
16-Apr	NNW9	NNW10	WNN9	WNN8	NW11	NNW14	NW13	NW15	NNW18	NNW20	NNW19	NNW18	NNW20	NNW24	N25	NNW23	N24	N23	N24	N22	N21	N20	N20	NNW17.1	N25		
17-Apr	N21	N19	NNW19	NNW21	NNW20	NNW22	NNW23	NNW23	NNW24	NNW24	N27	N28	N27	N26	N25	N25	N24	N22	N20	N19	N15	N14	N15	N21.2	N28		
18-Apr	N13	N12	N11	NNW10	NNW12	NNW14	NW13	NNW16	NNW17	N19	N18	N18	N19	N20	N18	N19	N19	N18	N15	N11	N11	N10	N11	N11	N14.5	N20	
19-Apr	N9	WNN6	W6	NW5	W7	WNN8	WNN8WNN10	W10	W13WNN10	W12WNN12	W13	W12	W11	W10	W9	W9	WSW7	SW9	WSW8	WSW9	W9	W8.6	W13				
20-Apr	W12	W12	W11	W13	W13	W12	W14	W16	W16	W14WNN15WNN15WNN14	W13	W12WNN11	W10WNN10	W7	WSW4	SSW6	SSW7	SSW9	SW10	W10.7	W16						
21-Apr	SSW10	SSW9	S10	S10	SSE8	SSE8	SE9	SE9	ESE11	SE16	SSE21	SSE15	SE13	SE15	SE11	SE6	ESE6	SSE2	ENE10	E7	ENE6	SSE5	SSW2	WSW4	SE7.6	SSE21	
22-Apr	SW4	W4	WNN8WNN11WNN13WNN12	NW11WNN12WNN13WNN13	W13	NW10	N19	NNW19	NNW19	NNW21	NNW18	N18	NNE14	N10	NNE9	ENE5	NE4	NNW11	NNW9.8	NNW21							
23-Apr	N15	NW8	WNN8	WNN8	WNN8	WNN7	WNN6	NW2	ENE6	ENE7	NNE5	NW8	NW8WNN10	WNN7	NNW9	N6	NE7	NE7	NE10	ENE11	E11	E11	ESE11	N4.1	N15		
24-Apr	ESE9	SE9	SE9	SE12	SE9	SE11	SE13	SE14	ESE19	ESE22	ESE22	ESE23	ESE26	ESE26	ESE24	ESE26	E25	E20	ESE16	ESE19	SSE10	S8	SE7	S10	ESE15.5	ESE26	
25-Apr	SW9WSW12WSW10	W12	W13	W9	W14	W16	W17	W16	W15	W19	W21WSW23	W24	W23	W21	W12	W21WNN20	NW16	NW16	NNW22	NNW17	W15.0	W24					
26-Apr	WNN13	NW15	NW16	NNW18	NNW14	NNW19	NNW19	NNW23	NNW27	NNW23	NNW21	NNW22	NNW19	NNW19	NNW18	NNW16	NNW14	N12	NNE9	NNE7	ENE7	E10	SE10	SSE13	NNW12.6	NNW27	
27-Apr	SSE14	SSE15	SSE16	SSE16	SSE15	SSE14	SSE16	S18	S21	S20	S20	S20	SSE19	S21	S22	S21	SSW19	S18	SE12	SE12	SE12	SE10	SE11	SSE15.8	S22		
28-Apr	SE14	SE15	SE19	SSE17	SSE16	SSE15	SE15	SE12	SE11	SE12	ESE12	SE12	ESE15	ESE15	ESE17	ESE18	ESE17	ESE17	ESE16	ESE13	ESE12	ESE11	ESE11	SE14	SE13.9	SE19	
29-Apr	SE11	SE9	ESE10	ESE10	SE9	ESE8	ESE7	ESE8	ENE7	NE5	NE6	NNE5	N9	N11	N12	N13	NNW15	N15	NNW14	N13	NNE15	NNE14	NNE15	N13	NNE6.4	NNW15	
30-Apr	N13	N13	N12	N12	N11	N15	N14	NNW12	N14	N15	N16	N15	N17	N12	N12	NNW14	NNW16	NW18	NW17	NW15WNN12WNN10WNN10WNN11	NNW12.4	NW18					

SW3.2WSW3.6WSW3.6WSW3.5	W4.1	W4.1	W4.5	W5.0	NW4.8	NW4.1	NW4.5	NW5.3	NW5.1	NW5.2	NW5.3	NW5.1	NW5.1	NNW3.9	NNW3.3	NNE2.9	NE1.8	ESE1.0	SE0.4	WSW0.9	Diurnal Average		
SSW27	SW20WNN23	NNW21	WSW24	W25	S24	SSE26	NNW27	WNN28	NW28	N27	N28	N27	N26	ESE26	N25	N24	N23	N24	N22	N21	NNW22	N20	Diurnal Maximum

C - Calibration      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



# Wood Buffalo Environmental Association

## Summary of Hour Standard Deviations

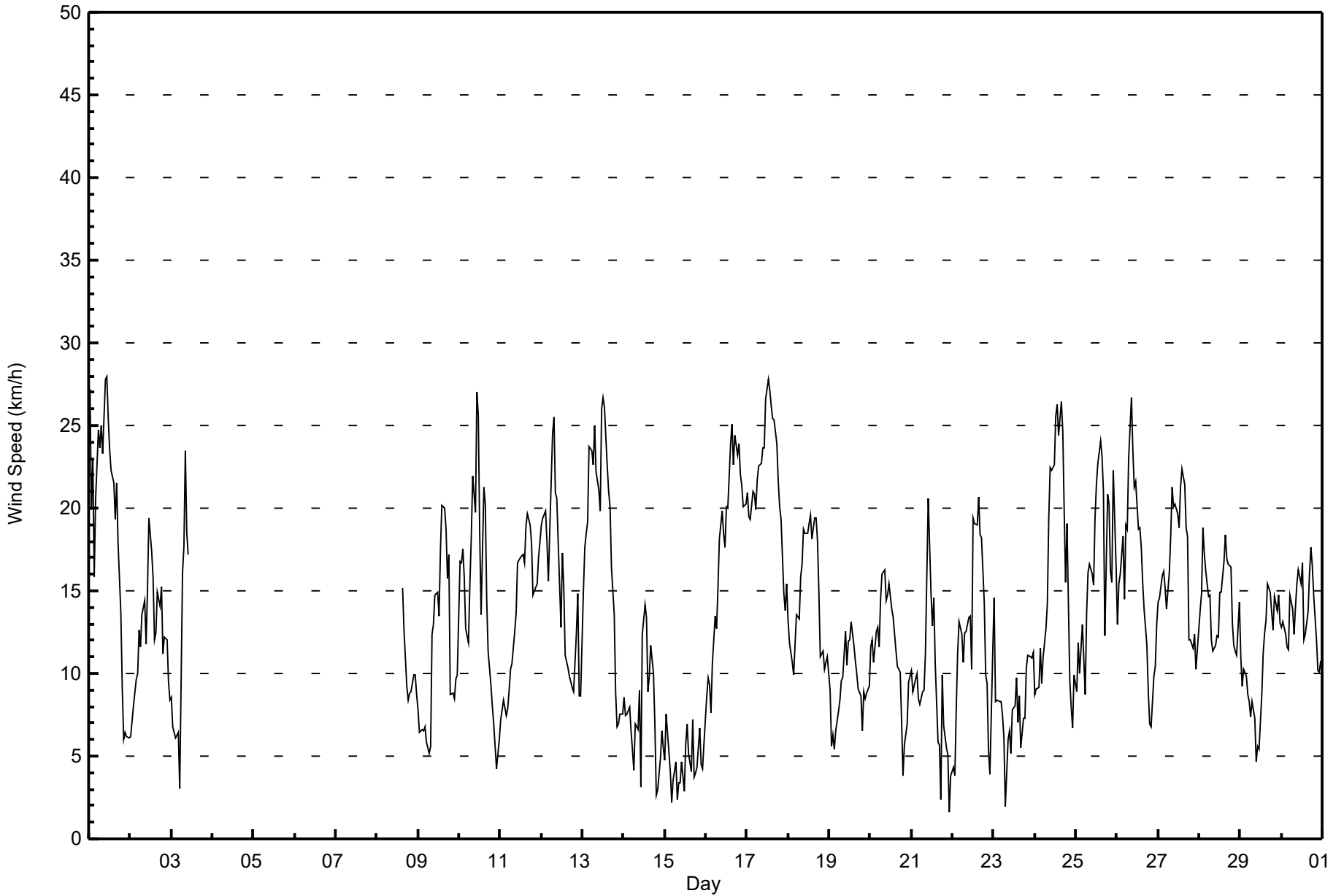
Wind Speed (WS) - km/h  
Anzac - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0														Hours in Service: 720											
Maximum Value: 10 km/h on Apr 1 03:00														Hours of Data: 596											
Minimum Value: 1 km/h on Apr 1 23:00														Hours of Missing Data: 124											
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 7														Hours of Calibration: 3											
														Percent Operational Time: 83.2											
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-Apr	8	7	10	7	5	6	6	6	6	8	8	6	7	6	5	5	6	5	3	2	1	1	1	1	10
2-Apr	1	1	1	1	2	1	1	2	3	3	4	5	5	6	4	4	4	4	2	2	2	1	2	3	6
3-Apr	4	3	3	4	2	6	5	4	6	5	5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6	
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
7-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
8-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	
9-Apr	2	1	1	2	1	1	1	4	3	3	4	4	4	5	5	6	5	4	5	2	2	2	2	4	6
10-Apr	4	4	4	4	4	3	4	5	6	6	7	7	6	5	5	6	4	3	3	2	1	1	1	1	7
11-Apr	1	1	1	1	1	2	2	2	3	3	4	4	4	5	5	5	5	5	4	3	3	3	3	4	5
12-Apr	4	4	4	3	3	6	5	5	5	5	5	3	4	3	3	2	2	2	2	2	3	2	2	2	6
13-Apr	5	4	5	5	6	6	6	7	5	6	5	7	7	7	6	6	5	4	4	3	1	1	1	1	7
14-Apr	1	1	1	1	1	1	2	2	2	3	3	4	4	4	3	3	3	3	2	1	1	1	1	1	4
15-Apr	1	2	3	2	3	2	2	2	2	2	1	2	1	1	1	1	2	1	1	1	1	1	1	2	3
16-Apr	1	2	2	2	3	3	3	3	4	5	4	4	5	5	6	6	5	5	5	6	6	5	5	5	6
17-Apr	5	5	4	4	5	4	5	5	5	5	5	6	7	7	7	7	6	6	5	5	5	3	3	4	7
18-Apr	3	3	2	1	2	2	3	4	4	4	5	5	5	5	4	5	5	4	4	3	1	1	1	1	5
19-Apr	2	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	2	2	2	1	1	1	1	1	3
20-Apr	2	2	3	3	3	3	4	4	4	3	4	4	3	3	3	3	2	2	2	1	1	1	2	4	
21-Apr	1	1	1	1	1	1	2	2	3	4	5	6	5	5	4	5	3	2	3	1	1	1	1	2	6
22-Apr	1	2	1	2	2	2	2	3	2	3	3	4	6	5	5	6	5	4	3	2	2	1	1	7	7
23-Apr	2	1	1	1	1	1	2	2	2	2	3	4	4	4	4	4	2	2	2	2	2	3	2	4	
24-Apr	2	2	2	3	2	2	3	4	5	6	6	6	7	7	7	6	6	6	5	6	4	3	3	2	7
25-Apr	3	2	3	3	3	2	4	4	4	4	4	5	6	7	6	7	6	5	6	7	4	4	5	4	7
26-Apr	3	4	4	5	3	4	5	6	6	6	6	5	6	6	5	5	5	3	2	2	2	2	2	2	6
27-Apr	2	2	2	2	2	2	3	4	5	5	5	6	5	7	7	6	6	6	3	3	3	3	2	2	7
28-Apr	3	3	4	3	3	3	3	3	3	3	3	3	5	4	4	4	4	4	4	3	3	2	3	3	5
29-Apr	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	3	3	3	2	4	3	4	3	4
30-Apr	3	3	3	3	2	3	3	3	3	4	3	3	4	3	3	3	4	4	4	3	3	2	2	3	4
														Diurnal Maximum											
C - Calibration														UO - Unstable Operation											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Anzac - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Anzac - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	41	6.88	6.88
6 - 11	204	34.23	41.11
12 - 19	245	41.11	82.21
20 - 28	106	17.79	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 596

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Anzac - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1	6	3	5	1	0	1	5	3	1	2	3	1	2	5	2	41
6 - 11	12	6	9	8	6	13	19	15	19	11	10	11	25	25	7	8	204
12 - 19	37	6	0	0	0	13	27	37	9	1	5	4	32	27	17	30	245
20 - 28	20	0	0	0	1	8	1	5	8	1	1	4	13	13	10	21	106
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>	70	18	12	13	8	34	48	62	39	14	18	22	71	67	39	61	596

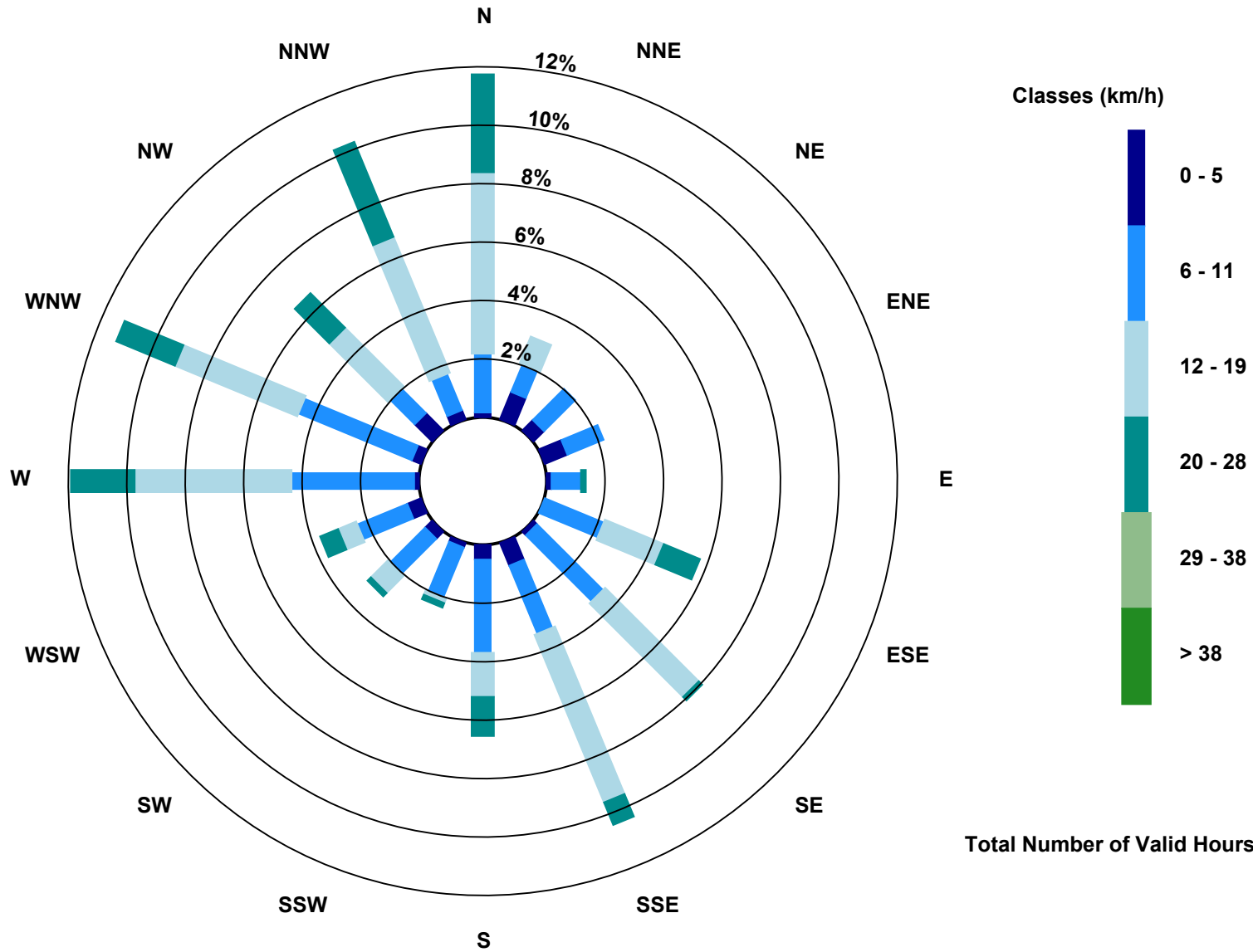
Total Number of Valid Hours: 596

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Anzac





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

**Wind Direction (WD) - deg**  
**Anzac - April 2024**

Direction of Maximum Speed: 310 deg on Apr 1 11:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 353.9 deg on Apr 17	Hours of Data: 596
Direction of Minimum Speed: 206 deg on Apr 21 23:00	Direction of Minimum Daily Speed Average: 2.3 deg on Apr 15
Direction of Minimum Speed: 206 deg on Apr 21 23:00	Hours of Missing Data: 124
Monthly Average Direction: 299.8 deg	Percent Operational Time: 83.2

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-Apr	204	231	298	299	280	277	274	274	291	296	310	313	307	306	303	307	308	307	328	337	258	248	235	215	288.9
2-Apr	208	214	191	170	158	158	155	152	146	138	134	138	154	221	229	187	191	168	171	176	181	177	174	189	170.8
3-Apr	208	232	55	91	45	307	308	307	319	334	331	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
7-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
8-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Apr	226	228	226	254	273	242	236	273	287	282	282	284	281	281	271	260	270	278	278	263	261	269	259	268	268.8
10-Apr	270	276	283	297	290	284	298	304	311	306	315	323	316	322	350	347	12	39	30	38	77	97	148	170	317.9
11-Apr	172	167	157	156	149	146	150	152	145	134	131	141	157	163	152	149	144	146	152	144	147	144	154	163	149.7
12-Apr	170	162	161	164	168	172	170	160	153	154	160	152	152	160	182	174	160	160	151	139	147	160	181	221	162.6
13-Apr	235	253	251	251	253	252	257	271	289	288	282	293	282	280	283	296	284	283	285	277	270	268	261	270	272.6
14-Apr	266	267	263	247	246	242	185	159	130	122	283	286	281	300	283	292	283	277	304	32	66	169	171	160	261.3
15-Apr	147	112	74	127	76	63	84	346	29	151	189	12	28	52	54	28	342	333	317	357	24	318	301	334	34.4
16-Apr	339	338	290	288	321	332	320	325	335	335	334	331	335	344	347	352	344	353	354	2	7	5	3	0	344.1
17-Apr	357	350	344	340	338	332	333	335	335	342	340	354	360	3	8	9	8	7	6	8	6	7	4	9	353.9
18-Apr	5	6	352	338	338	333	325	329	339	353	358	4	357	3	5	357	1	5	7	5	357	359	354	360	354.6
19-Apr	355	293	281	305	272	285	285	282	281	278	284	279	284	275	270	259	270	275	281	252	234	242	246	264	275.2
20-Apr	277	278	273	266	270	267	276	279	275	281	284	284	287	279	280	284	278	285	267	248	193	212	212	214	270.7
21-Apr	203	198	190	191	162	152	142	130	115	135	148	147	134	144	144	126	116	150	76	85	65	153	206	240	145.7
22-Apr	233	277	297	289	285	290	305	289	286	283	275	321	6	346	345	338	346	358	19	9	12	57	45	335	327.8
23-Apr	356	317	290	288	284	283	283	305	59	62	18	325	311	301	297	346	2	35	37	47	65	79	94	104	359.3
24-Apr	118	127	125	131	128	125	127	128	120	114	112	113	106	109	105	105	93	101	115	107	154	182	143	171	116.5
25-Apr	218	248	248	260	272	265	273	273	277	275	263	270	268	258	264	261	275	273	281	298	312	322	339	328	277.7
26-Apr	302	306	309	338	333	330	328	336	334	336	338	340	332	344	338	336	337	2	23	32	74	96	126	154	338.8
27-Apr	157	158	163	167	164	157	168	178	174	177	179	172	167	177	174	186	193	170	146	143	130	134	129	124	165.8
28-Apr	141	143	146	152	153	148	146	144	141	126	121	140	119	121	111	115	115	104	110	112	109	112	116	125	128.0
29-Apr	136	125	121	118	126	110	115	109	74	55	50	27	356	10	3	353	348	351	333	354	13	17	18	11	32.0
30-Apr	9	5	4	2	354	351	355	344	350	358	357	353	350	2	9	348	332	319	309	305	300	294	299	303	341.6

231.3	246.7	258.5	257.3	266.3	268.4	269.6	278.5	305.0	311.3	309.8	315.4	319.0	309.6	318.2	315.8	319.0	337.3	343.7	17.9	42.4	110.9	142.6	237.1
Diurnal Average																							

C - Calibration      UO - Unstable Operation  
 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**  
**Anzac - April 2024**

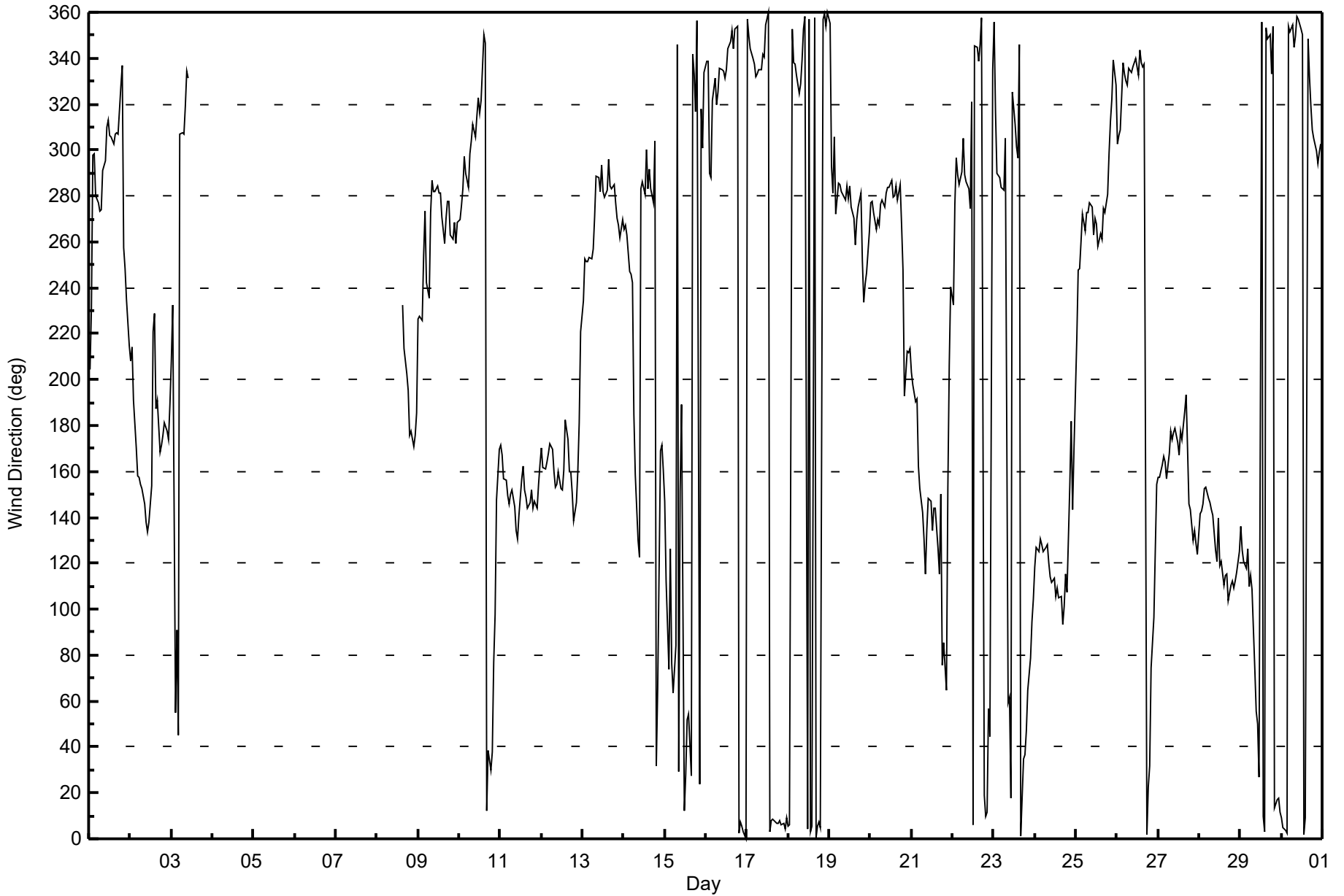
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 88 deg on Apr 14 11:00	Hours of Data: 596
Minimum Value: 5 deg on Apr 2 04:00	Hours of Missing Data: 124
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 19 P <sub>90</sub> = 26 P <sub>99</sub> = 70	Hours of Calibration: 3
	Percent Operational Time: 83.2

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-Apr	18	27	18	24	15	16	16	16	17	16	17	17	20	17	17	19	19	17	14	12	20	12	7	8	27
2-Apr	9	7	8	5	7	6	7	9	12	15	13	15	25	25	26	18	20	21	15	15	12	11	17	31	31
3-Apr	34	43	56	65	45	79	14	15	15	24	35	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	79	
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
7-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
8-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	22	18	18	14	8	6	5	11	22	22
9-Apr	12	14	11	30	14	19	11	21	16	16	18	18	19	17	21	18	19	16	15	18	12	14	13	30	
10-Apr	16	16	16	13	15	15	16	17	15	15	15	15	15	25	18	21	20	24	14	13	12	8	22	25	
11-Apr	6	6	6	10	9	10	9	11	14	18	16	20	21	20	15	17	16	14	12	13	12	14	11	13	21
12-Apr	10	11	11	11	10	12	12	11	13	13	14	15	14	13	17	17	15	14	12	13	11	9	21	16	21
13-Apr	20	14	15	15	14	14	16	16	16	17	17	18	18	18	17	18	17	17	16	15	12	12	10	11	20
14-Apr	10	9	7	5	9	7	39	22	29	26	88	22	21	25	41	30	20	21	18	28	16	16	14	15	88
15-Apr	16	20	51	57	81	63	38	71	56	65	15	75	17	16	29	44	17	28	17	15	12	25	17	20	81
16-Apr	13	15	15	13	14	14	14	13	14	14	13	13	16	15	16	16	16	16	16	17	17	16	16	15	17
17-Apr	16	15	13	13	13	12	13	13	14	16	15	19	20	17	18	18	19	17	17	16	17	16	14	15	20
18-Apr	14	14	13	11	12	11	14	14	15	17	16	19	21	19	19	18	17	20	16	13	11	11	8	11	21
19-Apr	11	29	9	20	8	10	13	16	19	13	21	20	22	21	23	22	23	19	16	17	9	7	7	10	29
20-Apr	11	13	14	14	13	14	15	15	15	16	16	16	17	20	21	23	20	17	18	26	12	13	11	11	26
21-Apr	10	8	10	10	13	8	12	16	17	18	16	26	30	25	37	70	56	84	28	12	11	26	51	28	84
22-Apr	15	41	16	8	11	13	15	14	14	16	15	46	26	24	22	19	19	19	16	12	11	23	31	23	46
23-Apr	12	24	11	11	8	8	12	62	37	42	64	50	55	37	54	44	52	29	19	16	10	14	14	15	64
24-Apr	15	16	15	13	10	12	14	18	16	16	19	16	17	17	18	15	15	16	17	17	29	33	40	25	40
25-Apr	18	16	13	16	17	14	16	17	17	17	18	22	19	17	20	18	24	30	16	18	18	15	20	15	30
26-Apr	17	15	14	16	13	13	14	15	16	21	21	20	24	22	25	23	22	26	18	13	17	12	18	9	26
27-Apr	8	8	8	8	8	9	9	13	15	18	20	21	25	25	19	23	19	17	14	15	15	15	14	12	25
28-Apr	12	13	13	10	11	13	14	16	15	15	18	16	19	20	22	21	18	16	14	14	14	14	14	15	22
29-Apr	17	17	14	16	16	19	21	17	22	41	39	51	29	25	25	24	16	16	12	16	14	13	14	16	51
30-Apr	15	15	14	14	14	13	14	14	14	17	15	16	16	15	16	18	15	13	14	15	15	16	15	14	18

Diurnal Maximum

C - Calibration

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS17  
WAPASU  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)

APRIL 2024

## MONTHLY SUMMARY

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	686	34	34	100	16.3	0	2.7	0
H2S (ppb) Average	683	37	37	100	0.6	0	0.2	0
THC (ppm) Average	686	34	34	100	2.7	-	2.3	-
O3 (ppb) Average	686	34	34	100	56.3	0	48.4	-
NO2 (ppb) Average	631	36	89	92.64	18.7	0	4.4	-
NO (ppb) Average	631	36	89	92.64	4.9	-	0.8	-
NOX (ppb) Average	631	36	89	92.64	19.3	-	5	-
PM2.5 (ug/m3) Average	717	3	3	100	38.5	0	6.1	0
Temperature 2 m (C) Average	720	0	0	100	17.2	-	10.1	-
Relative Humidity (%) Average	717	0	3	99.58	100	-	97.1	-
Wind Speed 10 m (km/h) Average	677	0	43	94.03	21	-	16	-
Wind Direction 10 m (deg) Average	677	0	43	94.03	-	-	-	-
Precipitation (mm) Total	720	0	0	100	2.4	-	8.9	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	0.52	1.6	-	0	0	0	0	0.1	1.3	16.3
H2S (ppb) Average	683	0.08	0.1	-	0	0	0	0.1	0.1	0.2	0.6
THC (ppm) Average	686	2.25	0.1	-	2	2.2	2.2	2.2	2.3	2.3	2.7
O3 (ppb) Average	686	37.88	9.7	-	5.2	24	31.7	39.2	45.2	48.9	56.3
NO2 (ppb) Average	631	1.9	2.6	-	0	0.2	0.4	0.7	2.4	5.3	18.7
NO (ppb) Average	631	0.22	0.5	-	0	0	0	0	0.2	0.6	4.9
NOX (ppb) Average	631	2.12	2.9	-	0	0.2	0.4	0.8	2.7	5.9	19.3
PM2.5 (ug/m3) Average	717	3.25	2.3	-	0.1	1.5	2.1	2.9	3.9	5.2	38.5
Temperature 2 m (C) Average	720	3.72	6	-	-16	-3	-0.2	3.2	7.9	12.3	17.2
Relative Humidity (%) Average	717	59.93	27.5	-	10.6	25	35.9	56.9	87.7	98	100
Wind Speed 10 m (km/h) Average	677	9.6	4	-	1	4	6	9	13	15	21
Wind Direction 10 m (deg) Average	677	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	720	-	-	39.75	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
APRIL 2024

OPERATIONAL NOTES

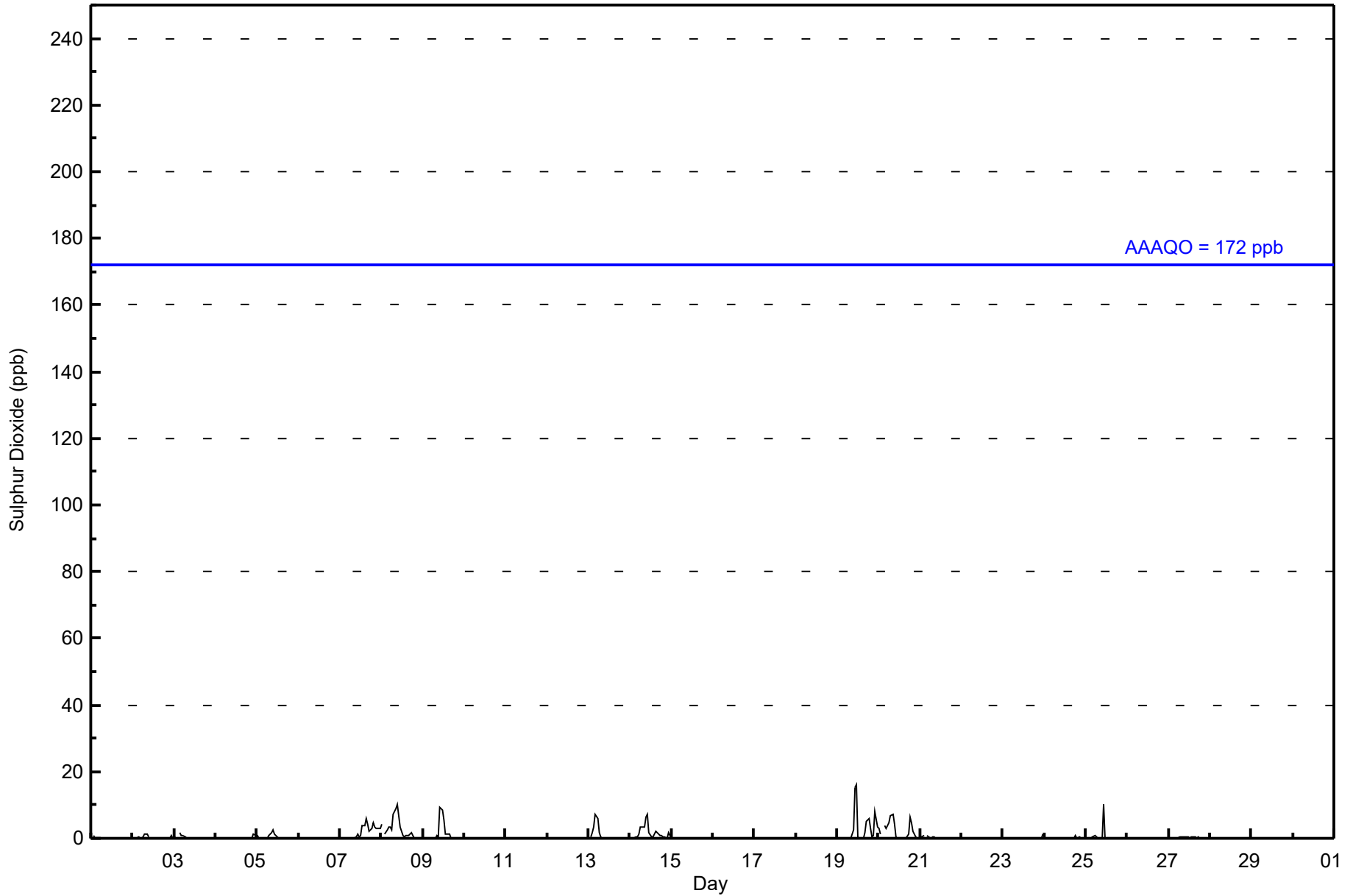
Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2	14 Apr 2024 05:00	14 Apr 2024 11:00	7	Unstable Operation - flatline in analyzer output signal
NO2	14 Apr 2024 12:00	14 Apr 2024 13:00	2	Maintenance - analyzer rebooted
NO2	16 Apr 2024 15:00	18 Apr 2024 10:00	44	Maintenance - replaced sample pump and analyzer
Relative Humidity	16 Apr 2024 04:00	16 Apr 2024 06:00	3	Sensor operated out of range
Wind Speed, Wind Direction	04 Apr 2024 00:00	04 Apr 2024 12:00	13	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	11 Apr 2024 01:00	11 Apr 2024 04:00	4	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	16 Apr 2024 05:00	16 Apr 2024 13:00	9	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	17 Apr 2024 02:00	17 Apr 2024 09:00	8	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Apr 2024 01:00	26 Apr 2024 09:00	9	Flat line in sensor output signal - Sensor frozen





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	684	99.71	99.71
11 - 20	2	0.29	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	64	98	30	17	23	40	62	105	33	31	35	24	19	19	17	28	645
11 - 20	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
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>	64	98	30	17	23	40	62	105	33	31	35	26	19	19	17	28	647

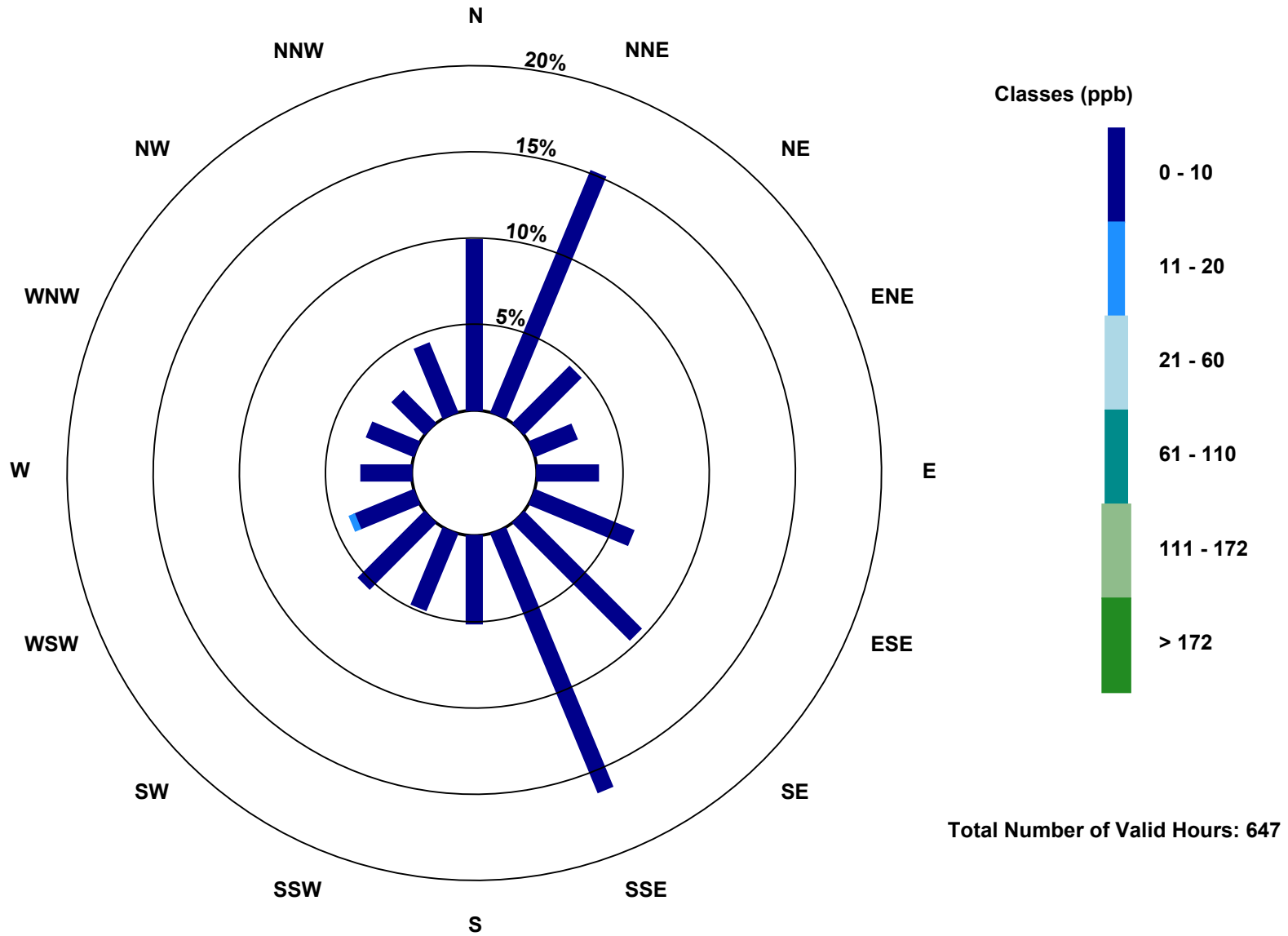
Total Number of Valid Hours: 647

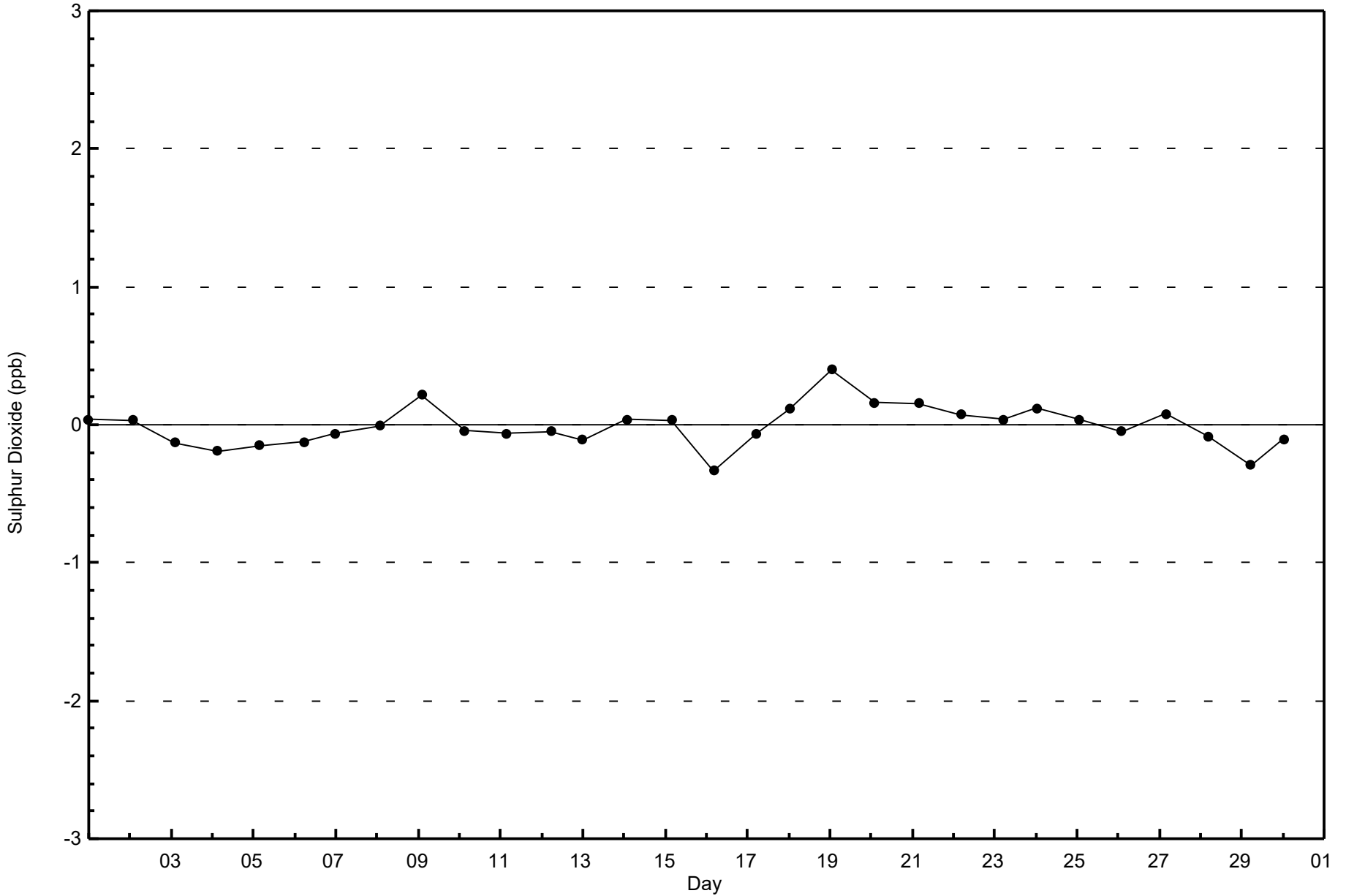
Total Number of Hours: 720



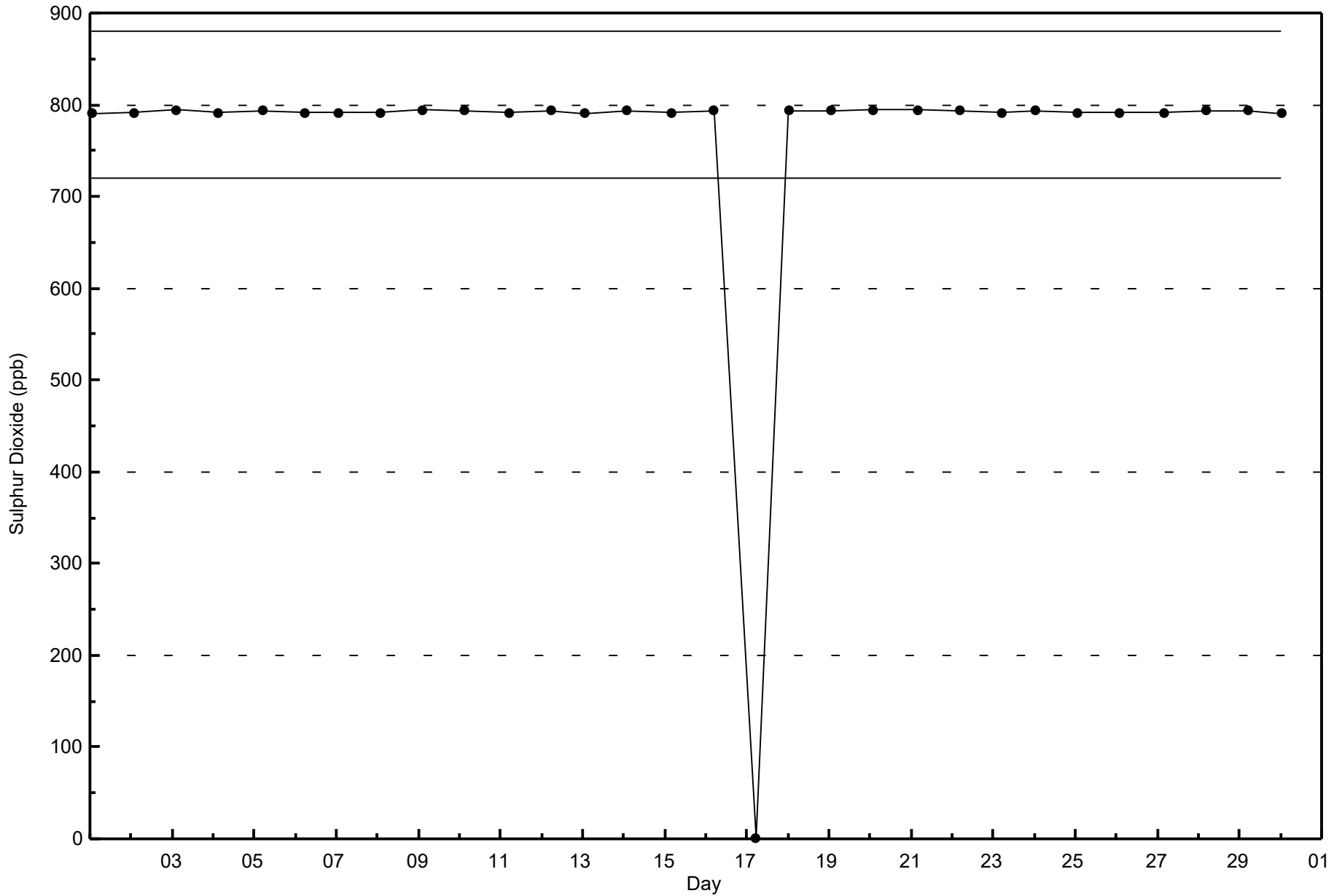
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

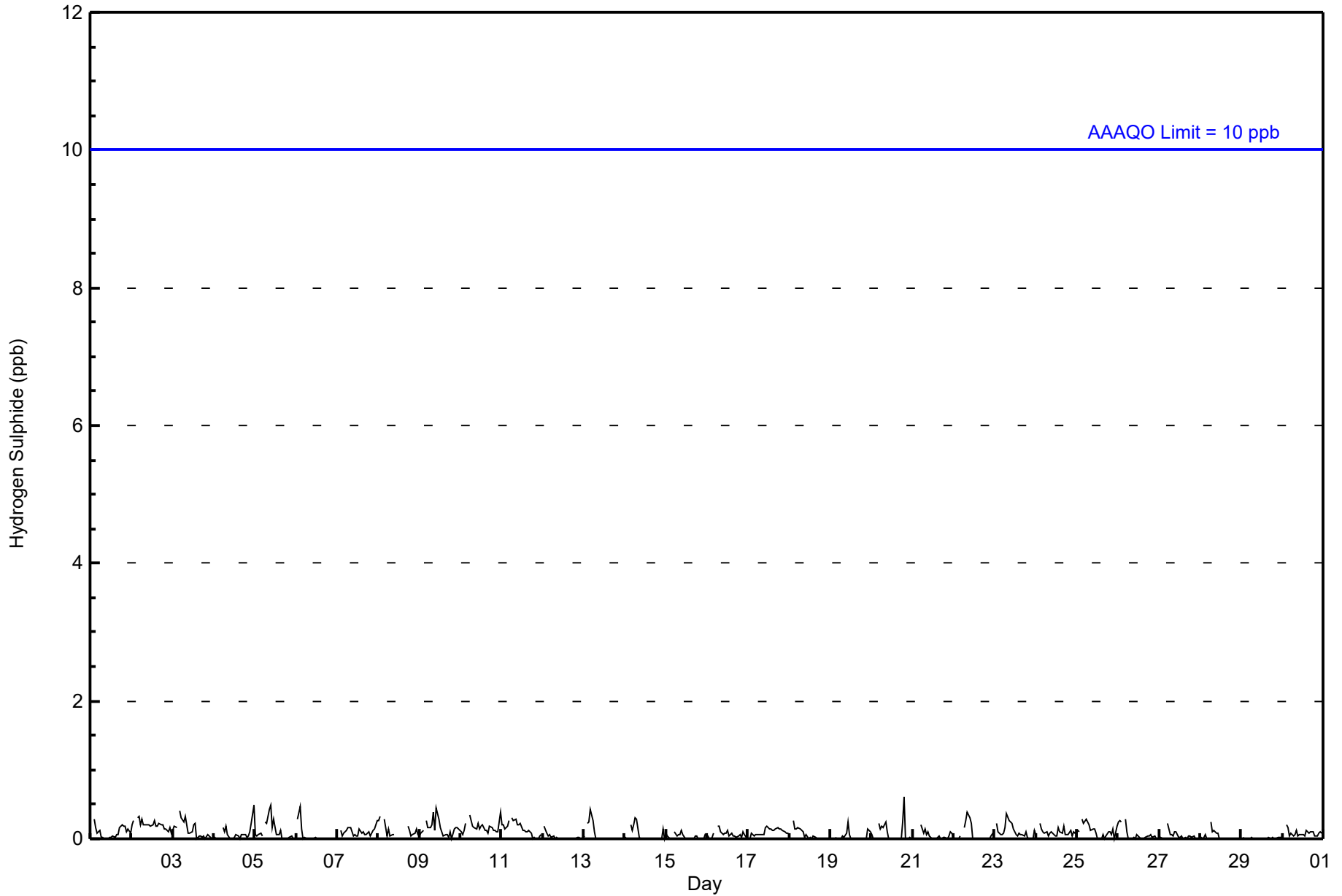














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	683	100.00	100.00
3 - 4	0	0.00	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: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Wapasu - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	63	98	30	16	25	41	64	105	36	26	32	25	18	19	18	27	643
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	63	98	30	16	25	41	64	105	36	26	32	25	18	19	18	27	643

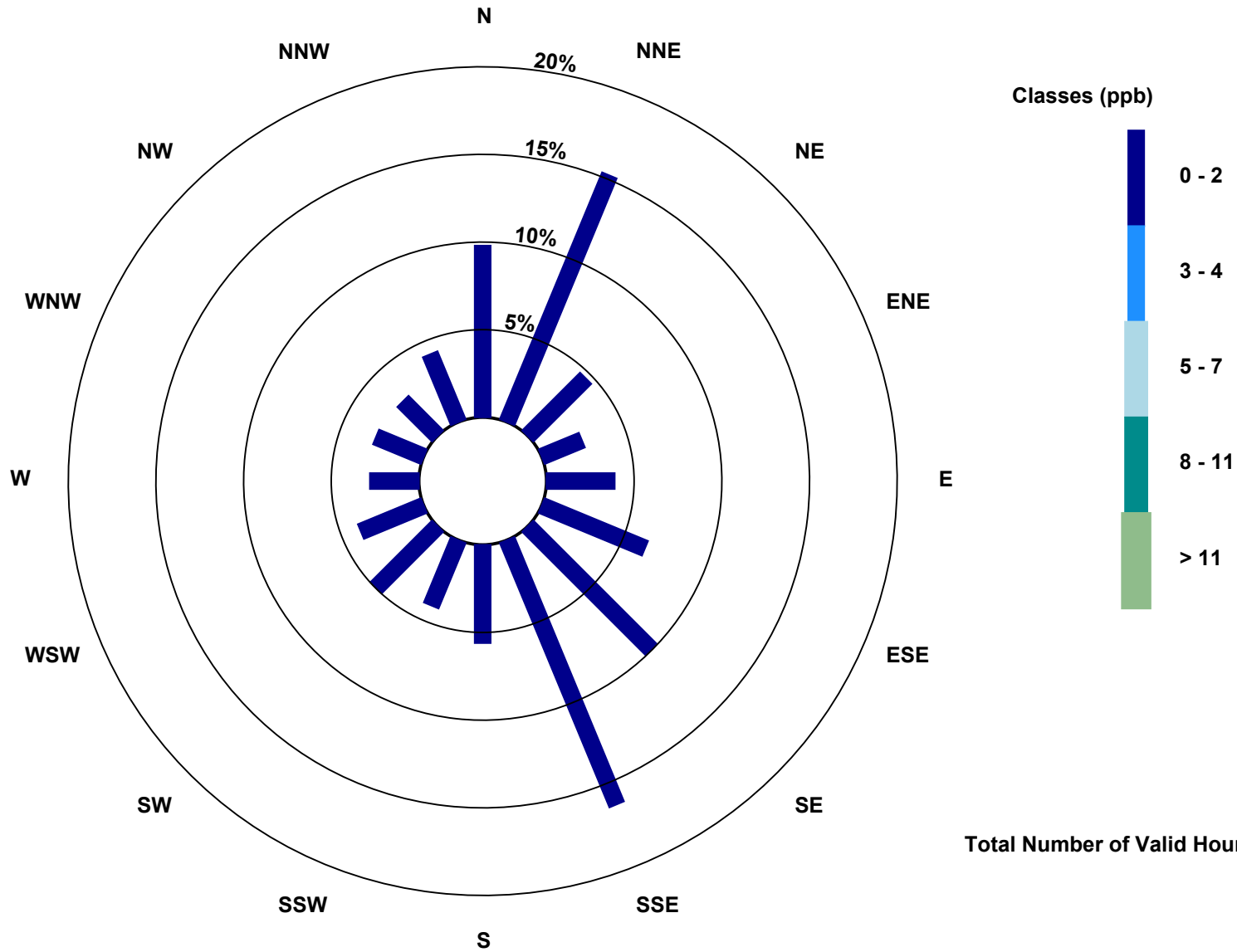
Total Number of Valid Hours: 643

Total Number of Hours: 720

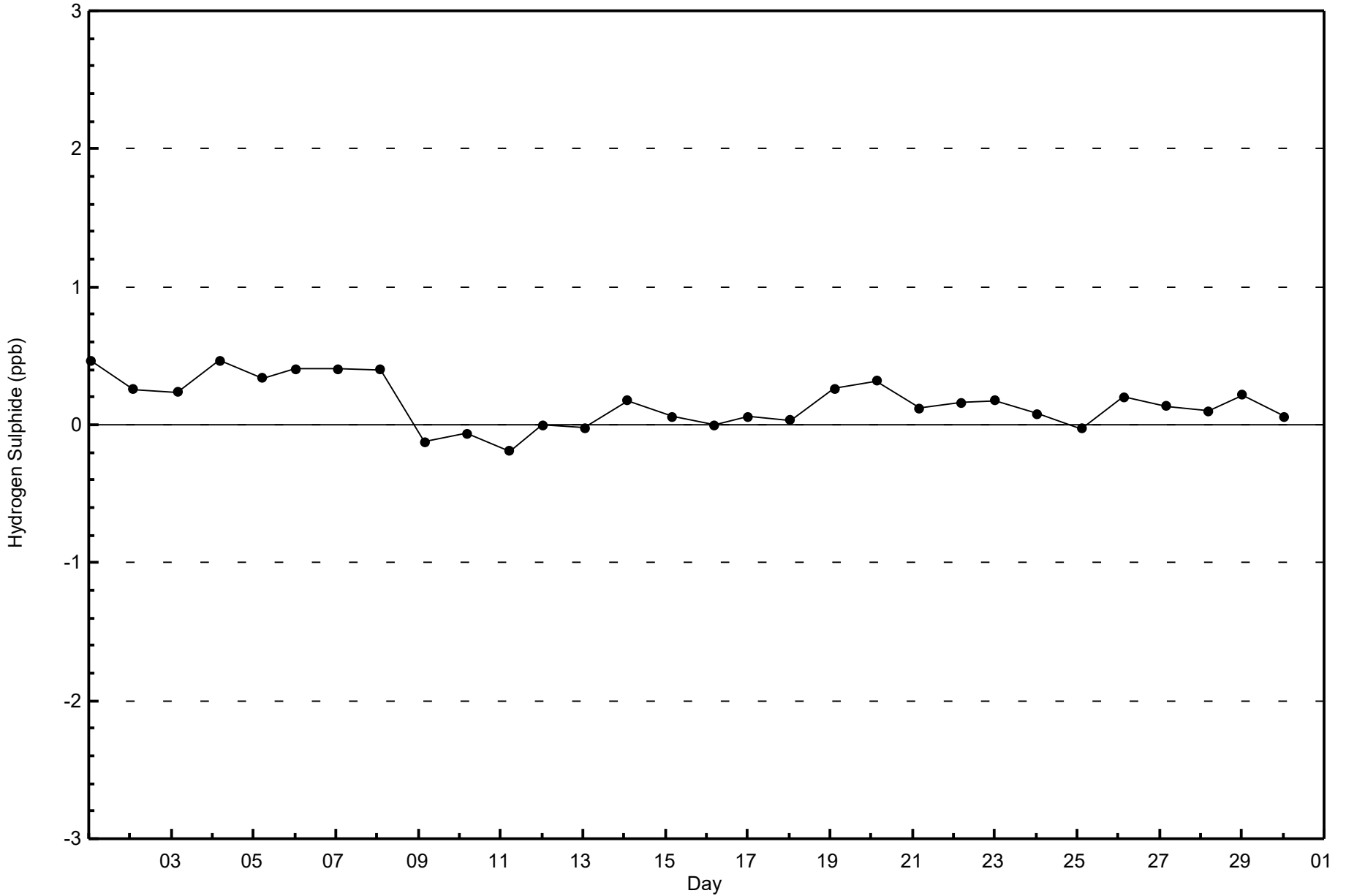


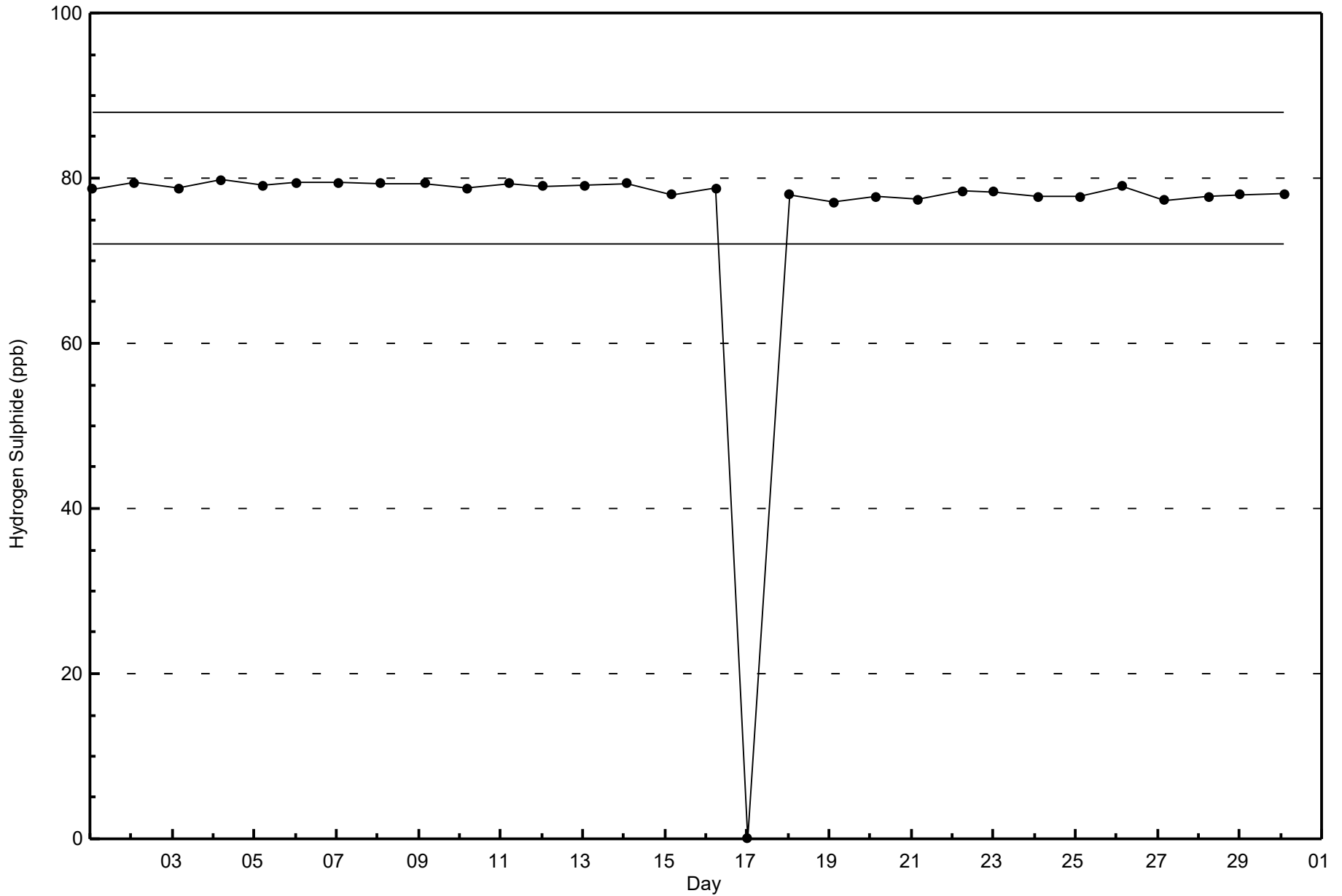
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 643



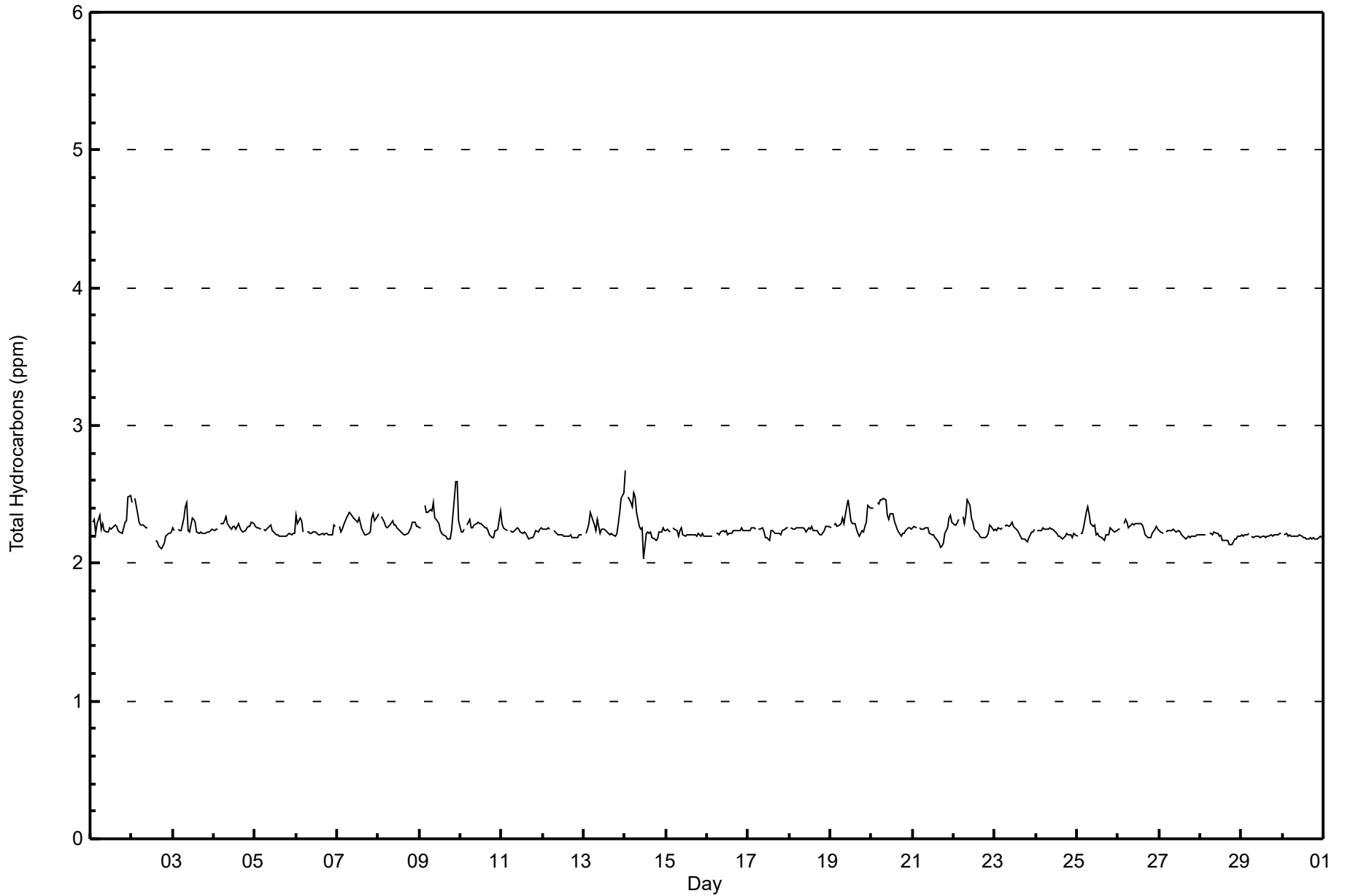






Maximum Value: 2.7 ppm on Apr 14 01:00		Maximum Daily Average: 2.3 ppm on Apr 20		Hours in Service: 720																						
Minimum Value: 2.0 ppm on Apr 14 12:00		Minimum Daily Average: 2.2 ppm on Apr 28		Hours of Data: 686																						
Maximum Diurnal Average: 2.3 ppm at hour 6		Minimum Diurnal Average: 2.2 ppm at hour 18		Hours of Missing Data: 34																						
Monthly Average: 2.25 ppm		Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.2 Median = 2.2 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.5		Hours of Calibration: 34																						
				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-Apr	Z	2.3	2.3	2.2	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.5	2.5	2.3	2.5
2-Apr	2.4	Z	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	C	C	C	C	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.5
3-Apr	2.3	2.2	Z	2.2	2.2	2.2	2.3	2.4	2.4	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4
4-Apr	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
5-Apr	2.3	2.3	2.3	2.2	Z	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
6-Apr	2.3	2.3	2.3	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3
7-Apr	Z	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.4
8-Apr	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4
9-Apr	2.3	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.6	2.6	2.3	2.3	2.6
10-Apr	2.2	2.2	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.4
11-Apr	2.3	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3
12-Apr	2.2	2.3	2.2	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
13-Apr	Z	2.2	2.2	2.3	2.4	2.3	2.3	2.2	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.3	2.5
14-Apr	2.7	Z	2.5	2.4	2.4	2.5	2.5	2.4	2.3	2.2	2.3	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.7
15-Apr	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
16-Apr	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3
17-Apr	2.2	2.2	2.3	2.3	2.2	Z	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3
18-Apr	Z	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3
19-Apr	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.5
20-Apr	2.4	2.4	Z	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.3	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.5
21-Apr	2.3	2.3	2.3	Z	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.2	2.3
22-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.5
23-Apr	2.2	2.2	2.3	2.2	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
24-Apr	Z	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
25-Apr	2.2	Z	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.4
26-Apr	2.3	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3
27-Apr	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
28-Apr	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
29-Apr	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
30-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
																								Diurnal Average		
																								Diurnal Maximum		
																								2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3		
																								2.7 2.4 2.5 2.4 2.4 2.5 2.5 2.5 2.5 2.4 2.5 2.4 2.4 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.3 2.5 2.6 2.6 2.5		

Z - zerospan C - Calibration





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	1	0.15	0.15
2.1 - 3.0	685	99.85	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Wapasu - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
0 - 2.0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
2.1 - 3.0	64	98	30	17	23	40	62	105	33	30	35	26	19	19	17	28	646	
3.1 - 10.0	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	0
<b>Totals</b>	64	98	30	17	23	40	62	105	33	31	35	26	19	19	17	28	647	

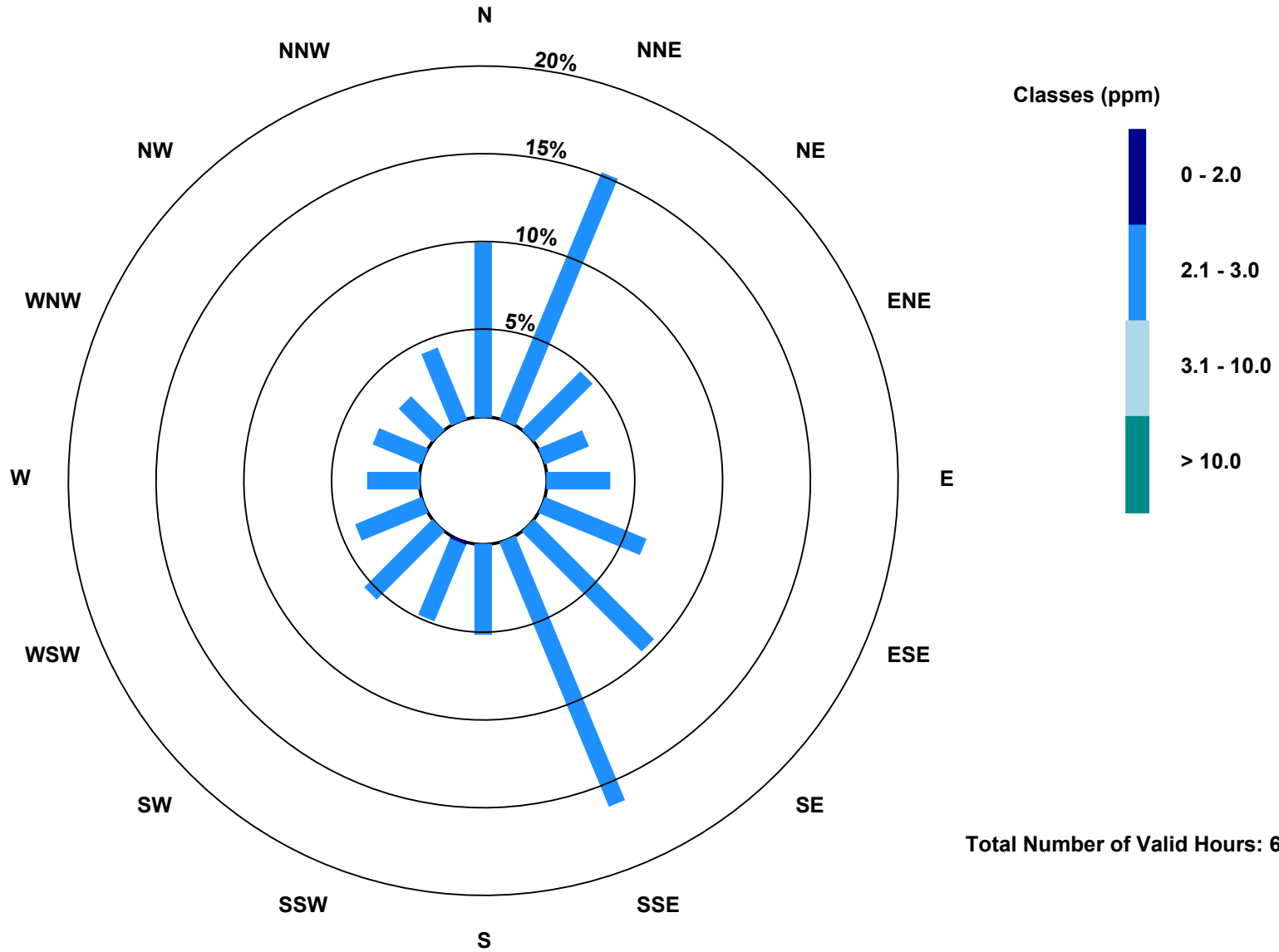
Total Number of Valid Hours: 647

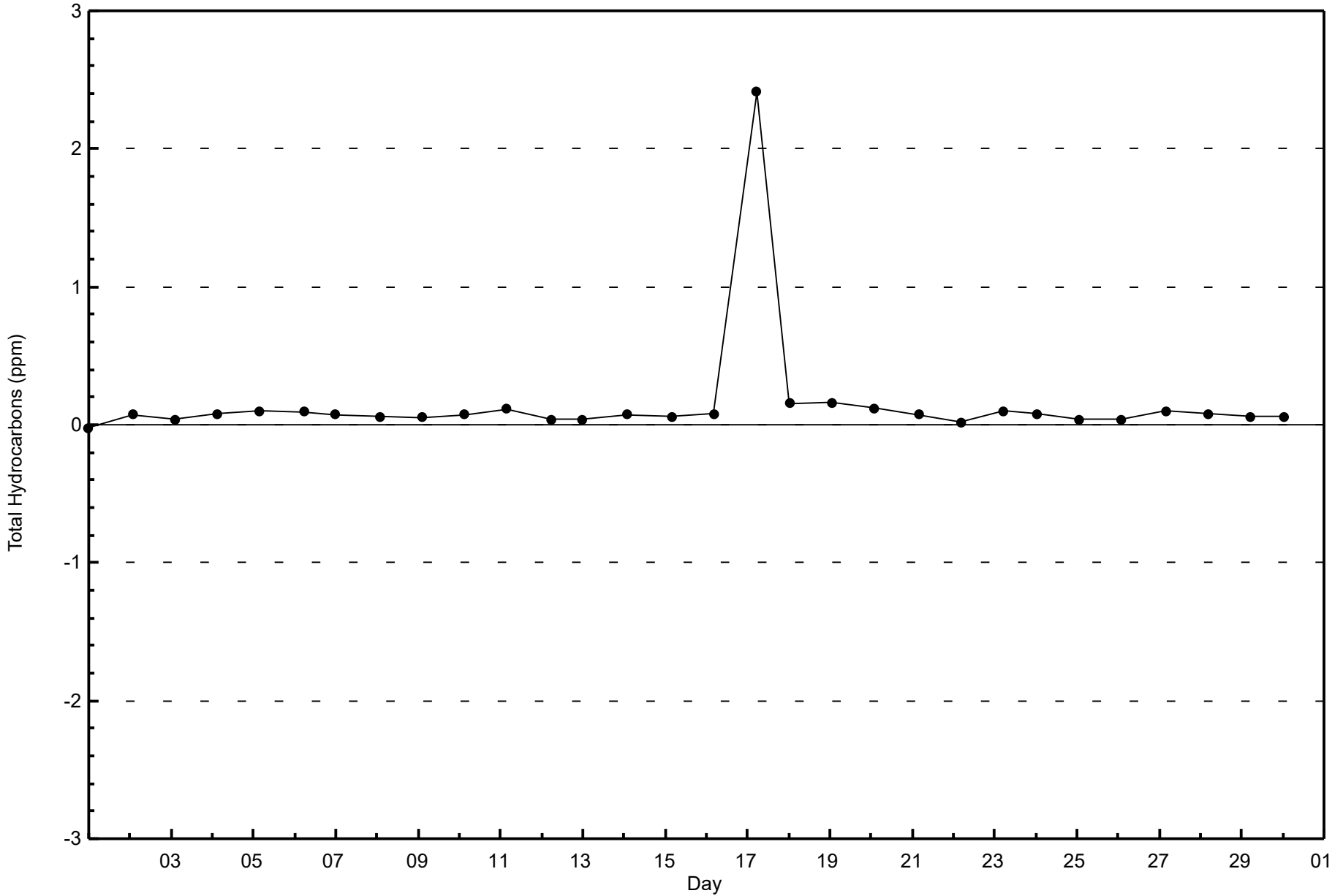
Total Number of Hours: 720

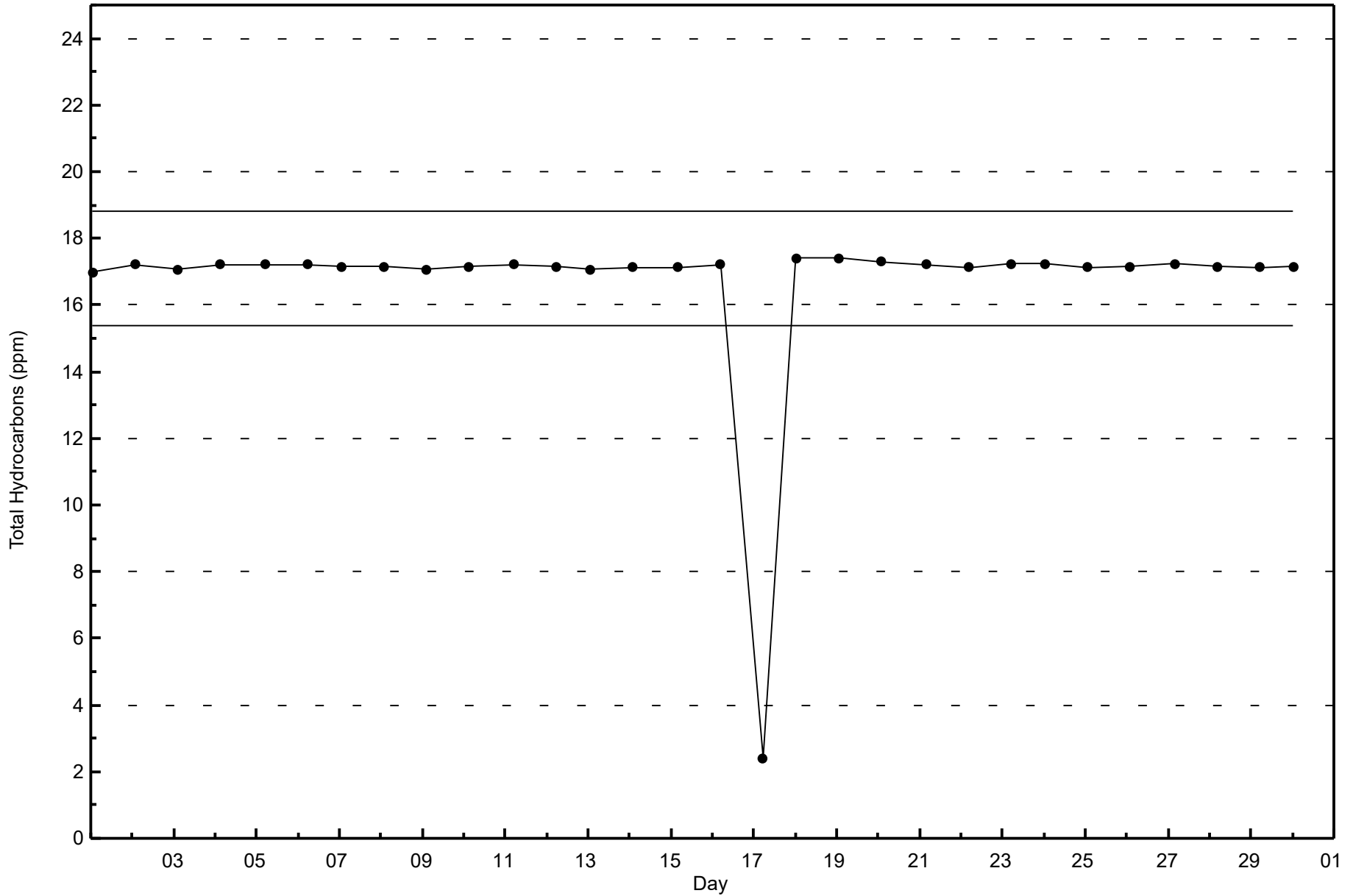


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Wapasu









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Wapasu - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 56.3 ppb on Apr 21 16:00	Maximum Daily Average: 48.4 ppb on Apr 21		Hours of Data:	686
Minimum Value: 5.2 ppb on Apr 14 01:00	Minimum Daily Average: 25.1 ppb on Apr 6		Hours of Missing Data:	34
Maximum Diurnal Average: 44.3 ppb at hour 16	Minimum Diurnal Average: 29.6 ppb at hour 6		Hours of Calibration:	34
Monthly Average: 37.88 ppb	Percentiles: P <sub>1</sub> = 11.1 P <sub>10</sub> = 24.0 Q <sub>1</sub> = 31.7 Median = 39.2 Q <sub>3</sub> = 45.2 P <sub>90</sub> = 48.9 P <sub>99</sub> = 54.0		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-Apr	47.2	43.2	Z	46.7	41.3	36.9	42.6	41.8	43.5	44.9	45.6	47.3	46.7	46.4	46.5	46.0	46.0	46.1	44.3	35.8	26.7	21.1	15.3	15.3	39.9	47.3																							
2-Apr	21.4	24.6	25.7	Z	38.7	41.1	42.4	41.2	43.1	46.2	47.9	48.5	50.3	50.3	51.5	51.1	47.9	46.5	48.4	49.3	49.9	48.8	45.1	46.2	43.8	51.5																							
3-Apr	46.6	44.7	43.3	40.3	Z	35.2	27.2	26.0	29.0	40.5	39.0	29.7	28.1	26.9	31.5	31.2	30.7	31.1	30.9	29.8	30.5	30.7	29.3	28.5	33.1	46.6																							
4-Apr	28.8	28.2	27.3	27.9	25.8	Z	29.0	29.8	37.5	41.2	C	C	C	C	43.7	44.8	43.9	43.8	41.4	37.0	35.7	37.1	36.6	36.1	35.6	44.8																							
5-Apr	Z	38.8	38.4	37.1	36.4	Z	34.3	29.7	32.8	31.0	28.6	33.1	29.2	33.0	32.6	32.3	31.7	30.3	27.3	24.0	21.7	21.0	20.0	19.3	16.6	29.5	38.8																						
6-Apr	10.1	Z	21.6	24.2	26.5	22.7	25.6	28.6	31.3	32.4	32.4	32.4	32.4	33.2	33.1	31.6	29.6	29.0	25.1	20.7	18.9	15.7	9.5	9.9	25.1	33.2																							
7-Apr	20.6	18.2	Z	15.6	16.6	12.1	11.0	13.1	15.3	23.6	29.2	33.4	35.9	33.9	40.4	41.6	42.4	42.1	42.1	43.9	42.6	41.7	41.2	39.1	30.2	43.9																							
8-Apr	36.9	32.0	30.4	Z	38.4	39.8	40.6	40.8	43.7	44.5	46.6	49.2	51.3	51.0	50.2	49.2	49.5	48.1	45.2	37.0	39.3	43.2	45.1	45.9	43.4	51.3																							
9-Apr	41.3	38.2	27.4	19.1	Z	13.3	15.1	31.5	39.2	44.1	45.7	48.3	46.1	49.2	50.8	52.3	52.3	51.5	49.7	48.4	35.7	28.7	24.0	37.4	38.7	52.3																							
10-Apr	42.1	41.0	35.5	28.9	33.3	Z	37.3	36.8	36.2	31.9	32.9	33.5	34.7	35.5	37.7	40.8	41.8	42.7	39.9	31.7	23.0	21.2	24.4	17.8	33.9	42.7																							
11-Apr	Z	22.6	25.5	26.6	27.2	30.1	31.9	34.5	37.8	43.4	44.4	45.9	47.1	48.6	49.9	49.9	50.4	44.7	44.4	43.7	43.6	44.2	44.4	44.1	40.2	50.4																							
12-Apr	44.5	Z	44.4	44.7	44.9	43.3	43.0	44.4	45.8	45.4	44.3	43.1	41.7	41.2	39.7	38.2	37.4	37.3	35.6	34.5	31.4	28.1	28.0	28.3	39.5	45.8																							
13-Apr	27.0	25.1	Z	22.0	22.3	27.8	32.4	31.4	30.0	45.0	45.8	45.8	47.4	47.2	47.1	46.5	45.6	46.6	45.4	42.3	35.2	20.9	11.7	7.7	34.7	47.4																							
14-Apr	5.2	11.1	24.4	Z	27.9	23.4	25.5	33.8	43.7	46.1	44.5	48.1	49.1	49.4	48.9	48.7	49.4	49.4	47.5	45.9	44.3	44.8	39.9	44.0	38.9	49.4																							
15-Apr	43.8	43.0	42.0	40.9	37.6	Z	37.2	50.3	41.4	36.8	46.6	46.4	45.0	39.6	40.6	41.4	39.4	37.9	36.5	34.1	35.4	38.1	34.2	30.9	40.0	50.3																							
16-Apr	Z	38.3	39.7	39.6	35.7	34.7	35.1	36.8	36.8	35.5	35.3	35.5	35.4	35.0	35.7	35.9	37.1	38.0	38.4	38.3	37.8	35.5	33.9	33.8	36.4	39.7																							
17-Apr	33.6	Z	35.5	36.3	36.9	36.5	36.0	34.9	36.0	37.7	38.5	40.2	42.0	42.2	42.8	44.6	44.9	45.5	44.8	42.4	39.9	38.4	37.7	36.4	39.3	45.5																							
18-Apr	35.9	33.9	Z	34.7	34.5	34.3	35.2	37.9	42.4	44.8	47.4	48.6	49.1	49.7	49.7	50.4	49.7	49.5	49.6	47.5	40.7	28.0	28.8	30.1	41.4	50.4																							
19-Apr	34.2	33.1	20.6	Z	23.3	21.8	25.0	42.5	47.4	44.2	41.9	45.3	52.6	53.6	51.5	53.5	54.1	51.6	48.7	45.4	44.8	41.4	37.5	39.7	41.5	54.1																							
20-Apr	36.4	36.5	38.3	37.4	Z	32.7	31.5	34.5	35.7	42.5	47.1	47.4	50.6	51.6	52.3	52.8	53.2	52.0	49.3	46.3	43.7	46.2	46.3	48.3	44.0	53.2																							
21-Apr	48.9	49.1	48.7	48.9	49.4	Z	49.2	48.6	48.4	50.4	52.0	54.0	54.4	55.4	55.6	56.3	56.0	56.1	53.7	50.3	36.9	22.5	26.4	41.6	48.4	56.3																							
22-Apr	Z	38.7	33.9	23.9	23.2	21.4	39.5	40.2	34.7	38.0	42.9	46.6	50.9	53.1	53.5	53.9	53.3	53.4	52.6	50.2	38.5	32.0	41.9	40.8	41.6	53.9																							
23-Apr	43.2	Z	22.2	15.9	13.6	12.0	20.7	40.3	43.9	40.7	42.5	46.3	45.9	46.4	46.9	48.1	48.1	48.0	47.6	46.4	43.9	46.9	46.5	37.7	38.8	48.1																							
24-Apr	44.1	44.1	Z	40.3	38.0	37.2	38.7	41.4	41.3	42.5	44.1	45.2	45.9	45.9	46.9	46.5	46.4	46.1	45.1	45.2	42.4	43.3	42.6	43.6	43.3	46.9																							
25-Apr	42.4	40.3	41.9	Z	36.7	29.8	31.5	35.8	43.6	47.4	42.7	47.0	48.3	48.8	48.6	48.9	47.2	45.6	27.1	17.6	19.9	21.1	23.3	25.7	37.4	48.9																							
26-Apr	30.1	32.4	33.4	30.7	Z	35.2	43.0	43.7	43.2	44.2	43.7	44.6	44.6	44.9	44.9	44.4	44.3	43.6	41.8	36.5	39.3	40.5	41.1	40.6	44.9	44.9																							
27-Apr	41.6	42.9	43.3	43.3	42.9	Z	41.0	42.1	43.1	44.0	45.6	45.8	47.2	47.7	48.8	48.7	48.4	48.0	44.5	44.6	43.8	43.5	42.5	41.0	44.5	48.8																							
28-Apr	Z	41.5	39.9	38.5	36.8	37.0	37.9	38.1	38.2	38.4	37.9	36.8	37.0	37.2	37.5	37.0	36.2	35.6	35.3	33.6	31.9	32.2	31.0	29.1	36.3	41.5																							
29-Apr	28.8	Z	22.2	13.0	9.4	15.8	29.3	31.6	31.8	32.2	32.2	32.0	32.9	33.4	34.1	34.7	34.1	34.4	33.5	32.5	31.8	31.7	31.1	31.3	29.3	34.7																							
30-Apr	31.7	31.1	Z	31.3	31.7	31.6	31.0	29.7	28.2	25.7	25.5	24.9	25.3	26.1	25.9	26.2	24.4	23.5	22.3	22.0	22.4	22.6	21.9	23.7	26.5	31.7																							
																								34.6	34.9	33.6	32.3	31.9	29.6	33.2	36.5	38.1	40.1	41.3	42.1	43.1	43.3	43.9	44.3	43.8	43.2	41.2	38.7	35.6	33.6	32.7	33.1	Diurnal Average	
																								48.9	49.1	48.7	48.9	49.4	43.3	49.2	50.3	48.4	50.4	52.0	54.0	54.4	55.4	55.6	56.3	56.0	56.1	53.7	50.3	49.9	48.8	46.5	48.3	Diurnal Maximum	

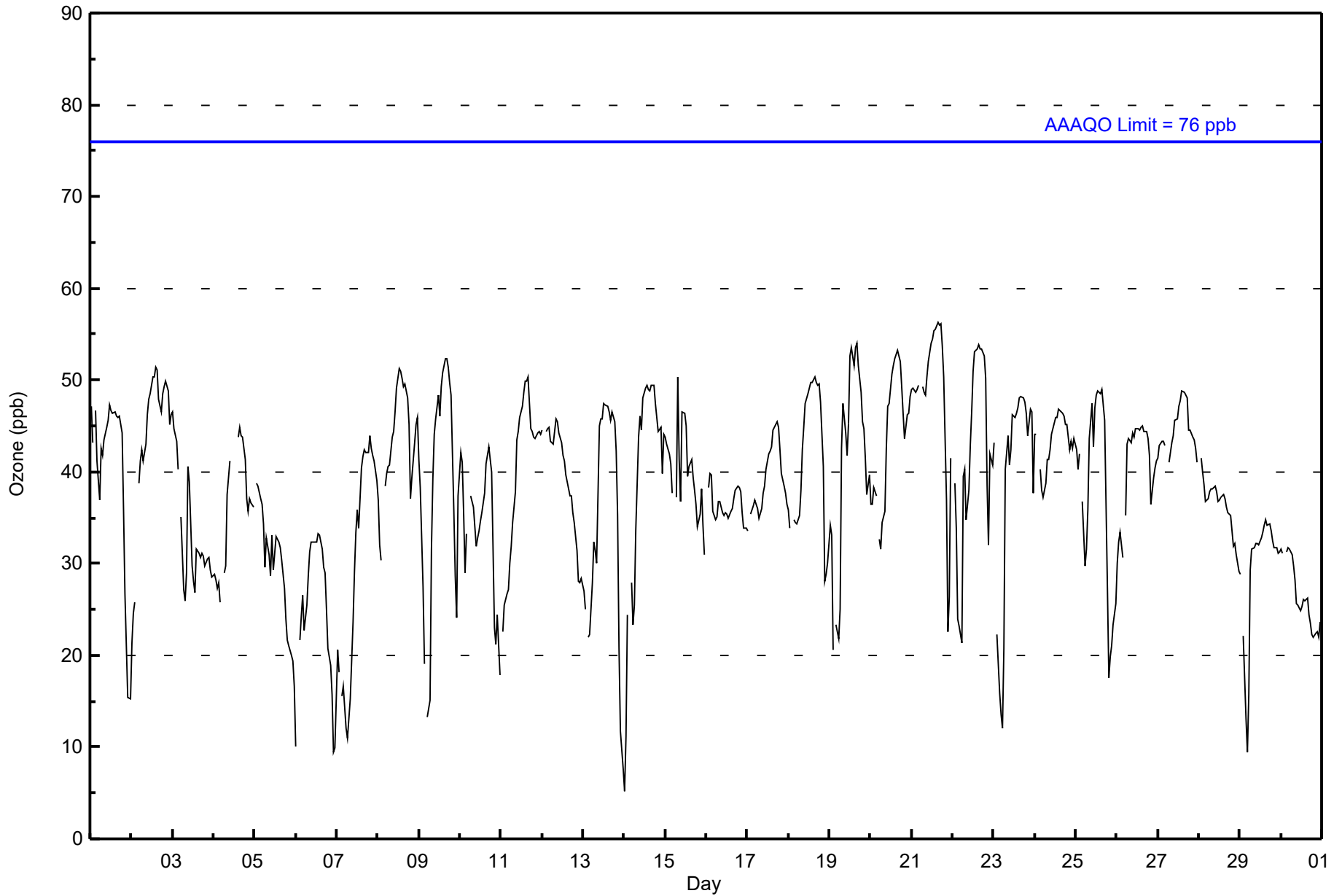
Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	33	4.81	4.81
21 - 50	617	89.94	94.75
51 - 82	36	5.25	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	1	2	3	0	2	1	6	7	3	4	0	0	0	0	0	4	33
21 - 50	55	95	25	17	24	38	54	96	31	26	31	20	13	18	14	23	580
51 - 82	6	1	1	0	0	1	1	5	1	1	4	6	6	0	3	0	36
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	62	98	29	17	26	40	61	108	35	31	35	26	19	18	17	27	649

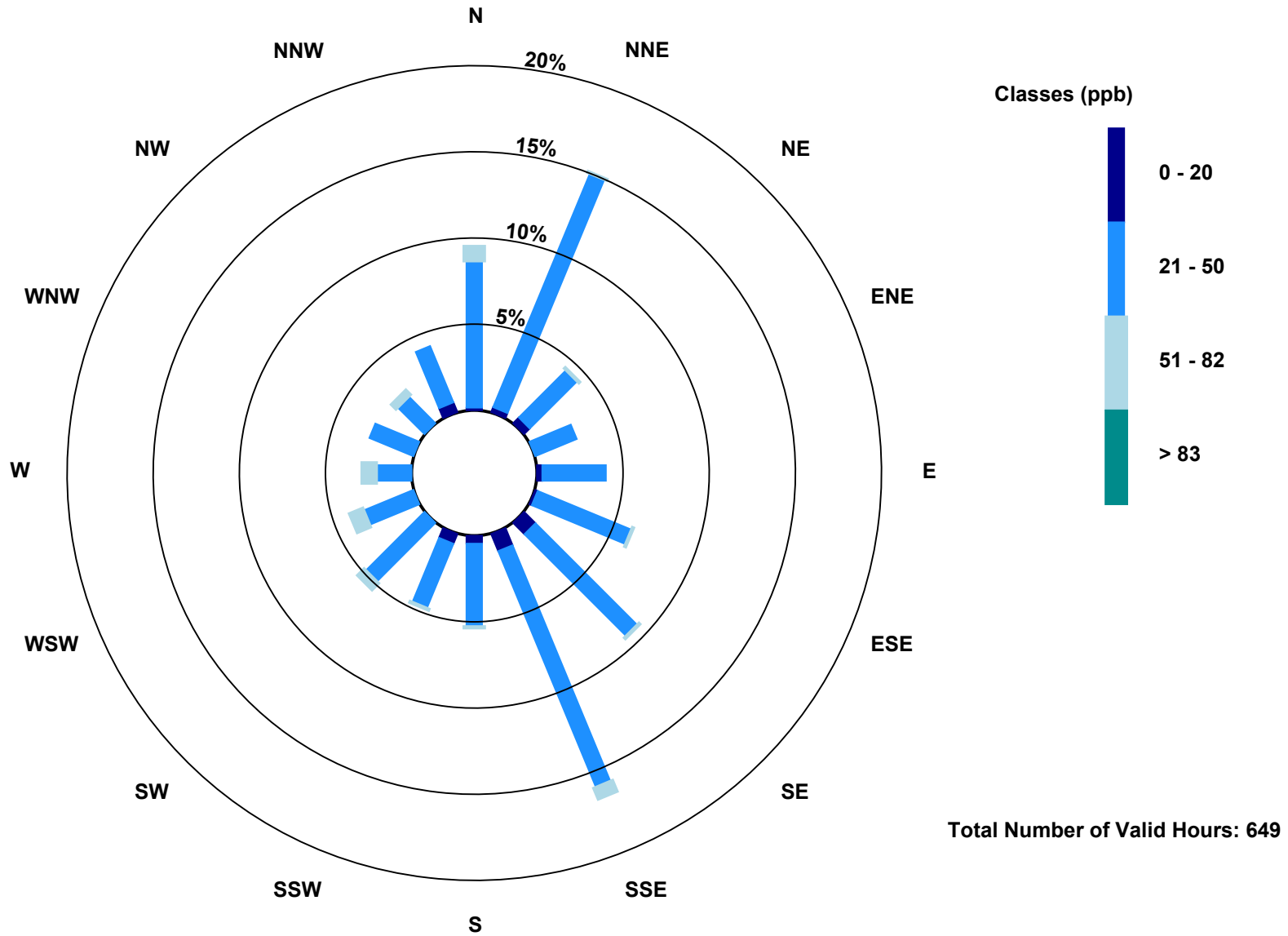
Total Number of Valid Hours: 649

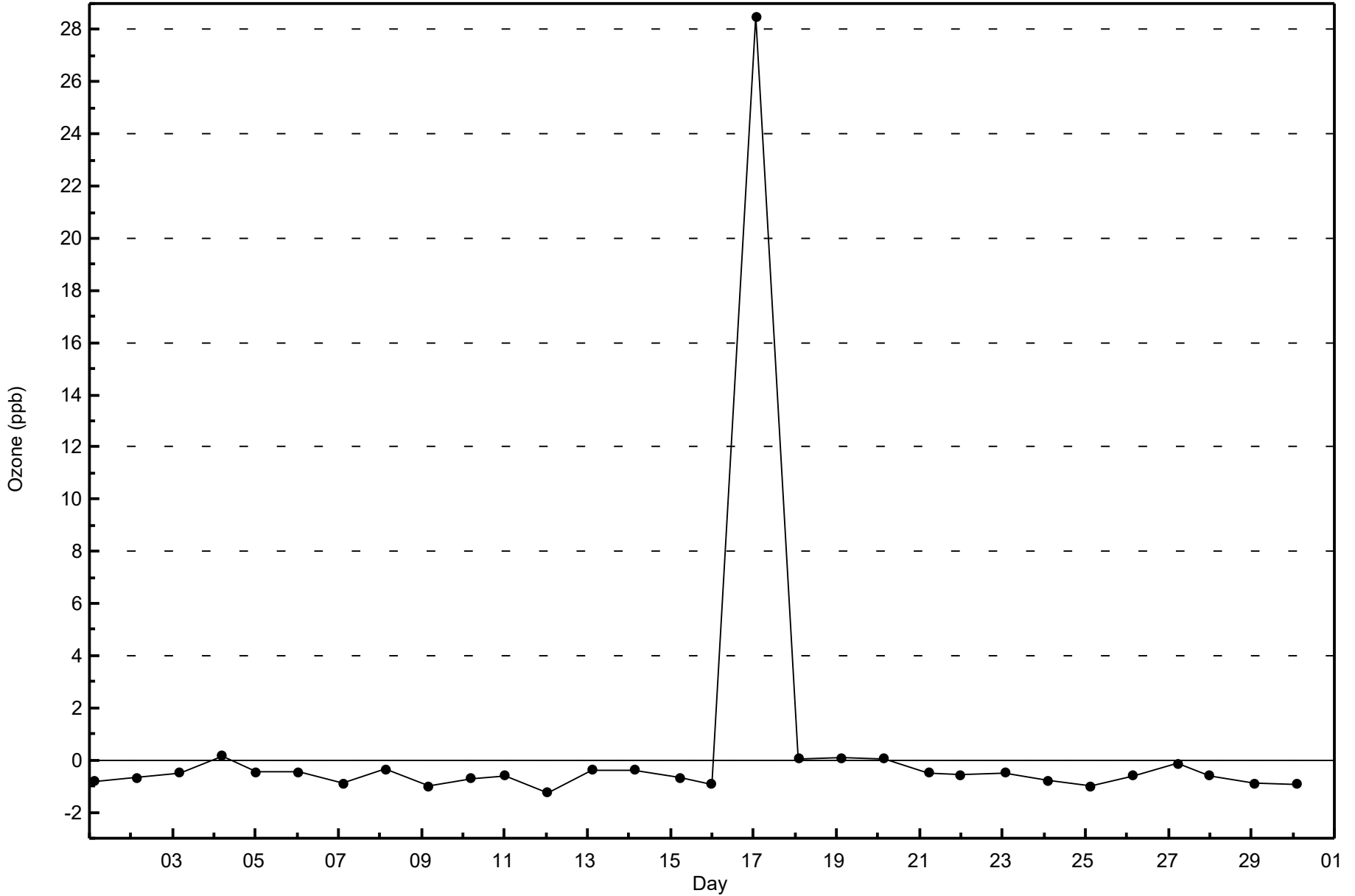
Total Number of Hours: 720

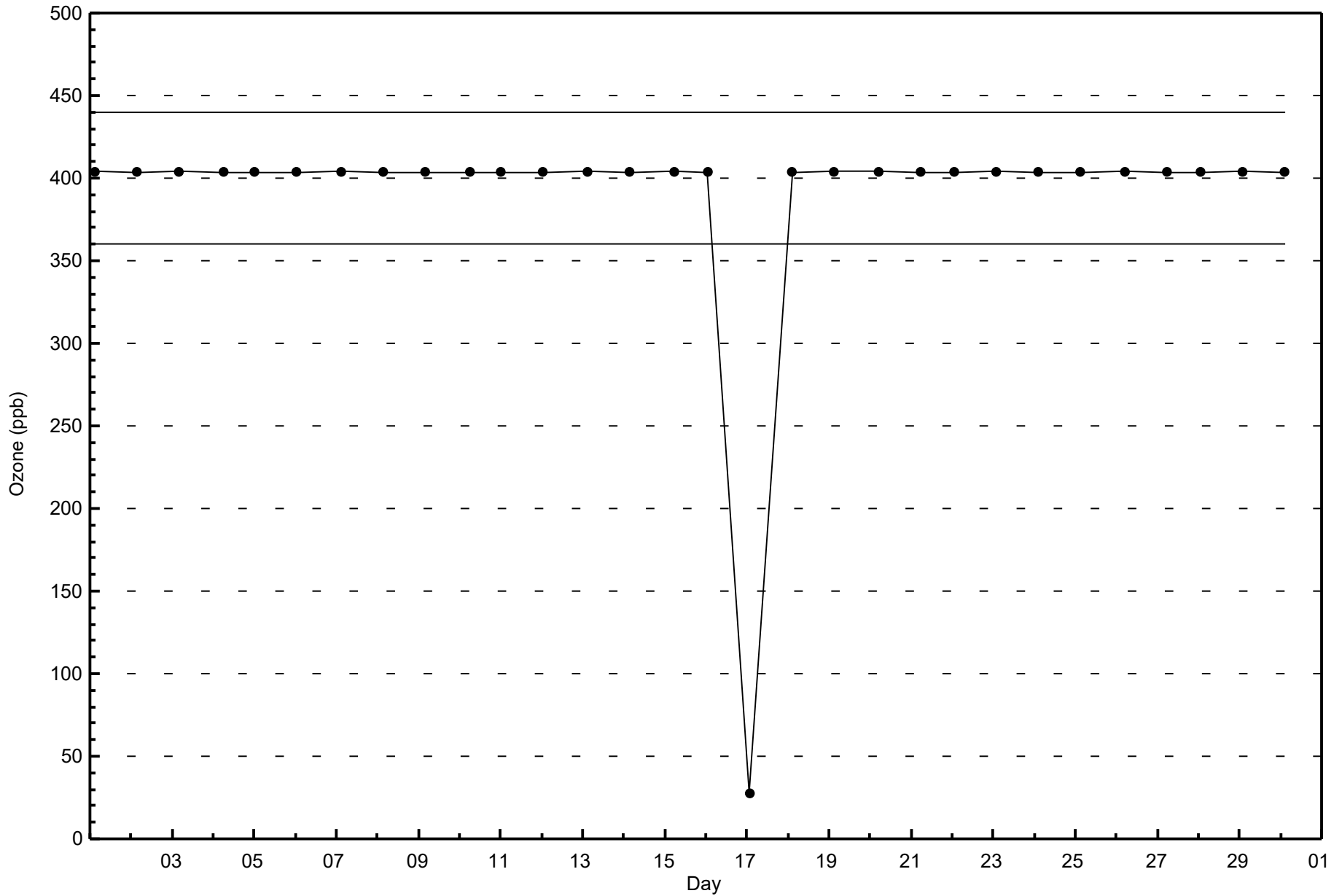


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

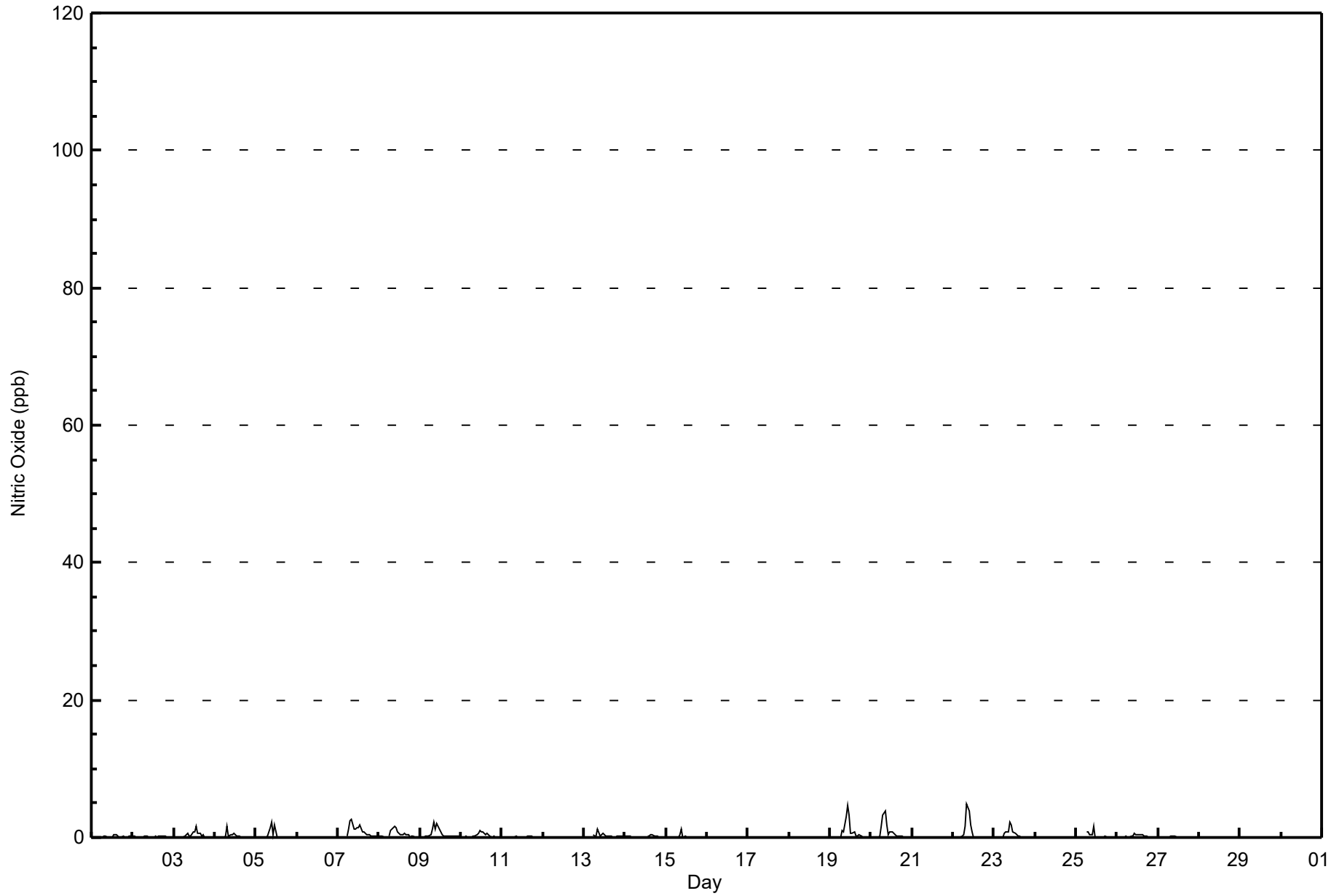
**Nitric Oxide (NO) - ppb**  
**Wapasu - April 2024**

Maximum Value: 4.9 ppb on Apr 22 09:00		Maximum Daily Average: 0.8 ppb on Apr 7		Hours in Service: 720																						
Minimum Value: 0.0 ppb on Apr 1 01:00		Minimum Daily Average: 0.0 ppb on Apr 12		Hours of Data: 631																						
Maximum Diurnal Average: 0.8 ppb at hour 9		Minimum Diurnal Average: 0.0 ppb at hour 5		Hours of Missing Data: 89																						
Monthly Average: 0.22 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.6 P <sub>99</sub> = 2.9		Hours of Calibration: 36																						
				Percent Operational Time: 92.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.4	0.3	0.3	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.2	0.1	0.4	
2-Apr	0.2	0.1	0.1	0.0	0.0	Z	0.0	0.2	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	
3-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.6	0.3	0.2	0.8	0.9	1.7	0.6	0.5	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.7	
4-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	1.6	0.3	0.3	0.3	0.7	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.6	
5-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	1.4	2.2	0.4	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	
6-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7-Apr	0.0	0.0	0.0	0.0	Z	0.3	1.3	2.4	2.6	1.2	1.1	1.5	1.5	1.9	0.7	0.9	0.7	0.5	0.4	0.2	0.2	0.2	0.1	0.1	2.6	
8-Apr	0.2	0.1	0.1	0.1	0.0	Z	0.2	1.1	1.3	1.6	1.5	0.8	0.5	0.4	0.4	0.5	0.4	0.4	0.1	0.1	0.1	0.0	0.0	0.0	1.6	
9-Apr	Z	0.0	0.1	0.1	0.2	0.1	0.4	1.2	2.3	1.2	2.0	1.3	0.8	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	2.3	
10-Apr	0.0	Z	0.1	0.2	0.0	0.1	0.1	0.1	0.3	0.5	0.6	1.0	0.7	0.8	0.5	0.5	0.4	0.2	0.1	0.2	0.1	0.0	0.0	0.0	1.0	
11-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
12-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13-Apr	0.0	0.0	0.0	0.1	Z	0.3	0.2	0.2	1.1	0.2	0.4	0.5	0.4	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	1.1	
14-Apr	0.2	0.2	0.1	0.1	UO	UO	UO	UO	UO	UO	UO	M	M	0.2	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.3	
15-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	
16-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	M	M	M	M	M	M	M	M	M	M	0.0	
17-Apr	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.0	
18-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	1.1	0.7	3.0	4.8	3.2	0.5	0.6	0.7	0.2	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.0	4.8	
20-Apr	Z	0.0	0.0	0.0	0.0	0.3	1.5	3.2	3.8	1.9	0.5	0.8	0.8	0.5	0.4	0.3	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	3.8	
21-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	
22-Apr	0.0	0.0	Z	0.0	0.0	0.2	0.4	1.6	4.9	3.8	1.9	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	
23-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.5	0.8	0.7	2.2	1.8	0.7	0.6	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	
24-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.8	0.9	0.4	0.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.6	
26-Apr	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.3	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
27-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
28-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
29-Apr	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
30-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan																										
C - Calibration																										
M - Maintenance																										
UO - Unstable Operation																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Wapasu - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	631	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 631

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	53	70	25	17	24	40	64	106	36	26	33	25	18	19	18	28	602
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>53</b>	<b>70</b>	<b>25</b>	<b>17</b>	<b>24</b>	<b>40</b>	<b>64</b>	<b>106</b>	<b>36</b>	<b>26</b>	<b>33</b>	<b>25</b>	<b>18</b>	<b>19</b>	<b>18</b>	<b>28</b>	<b>602</b>

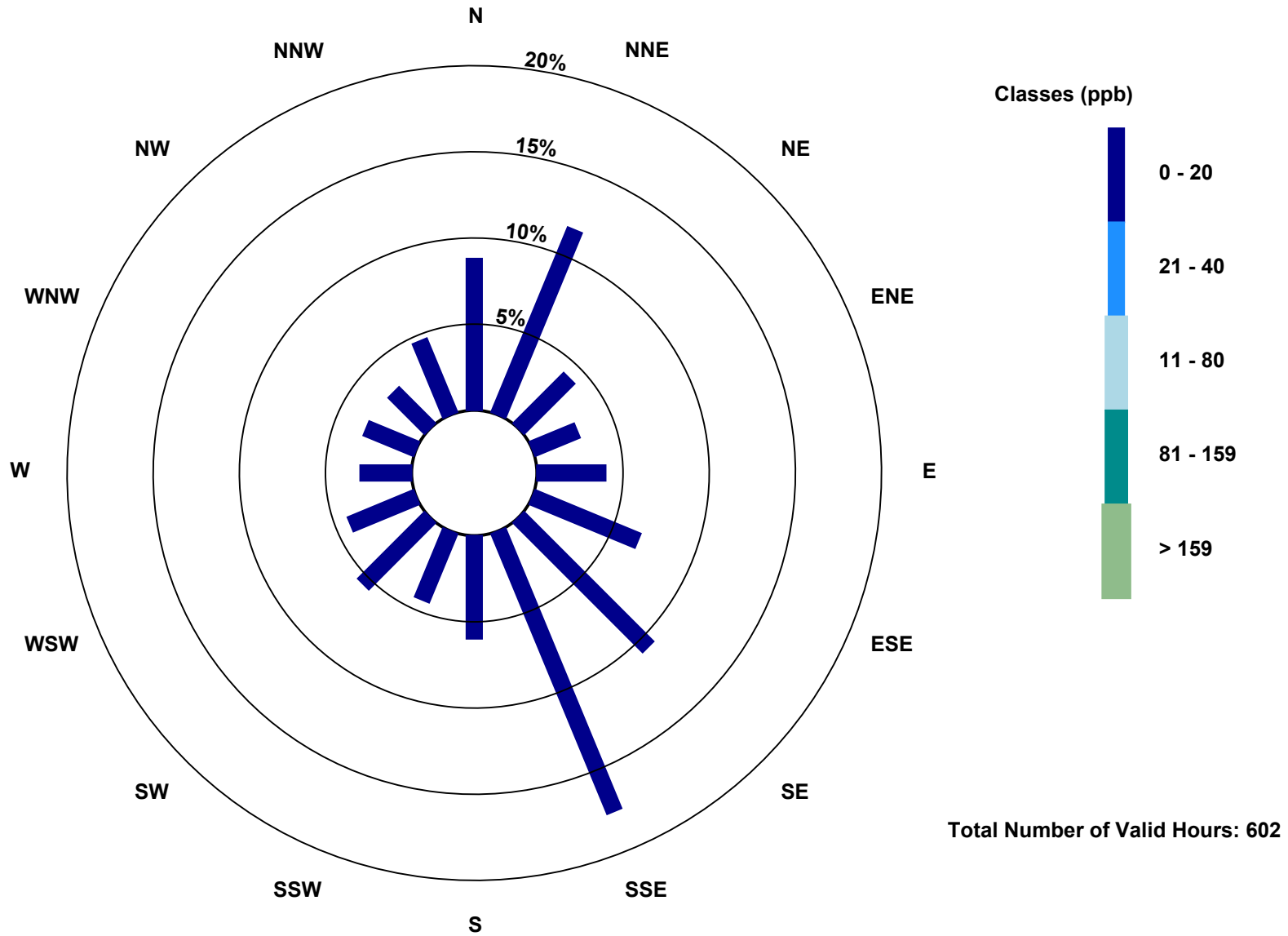
Total Number of Valid Hours: 602

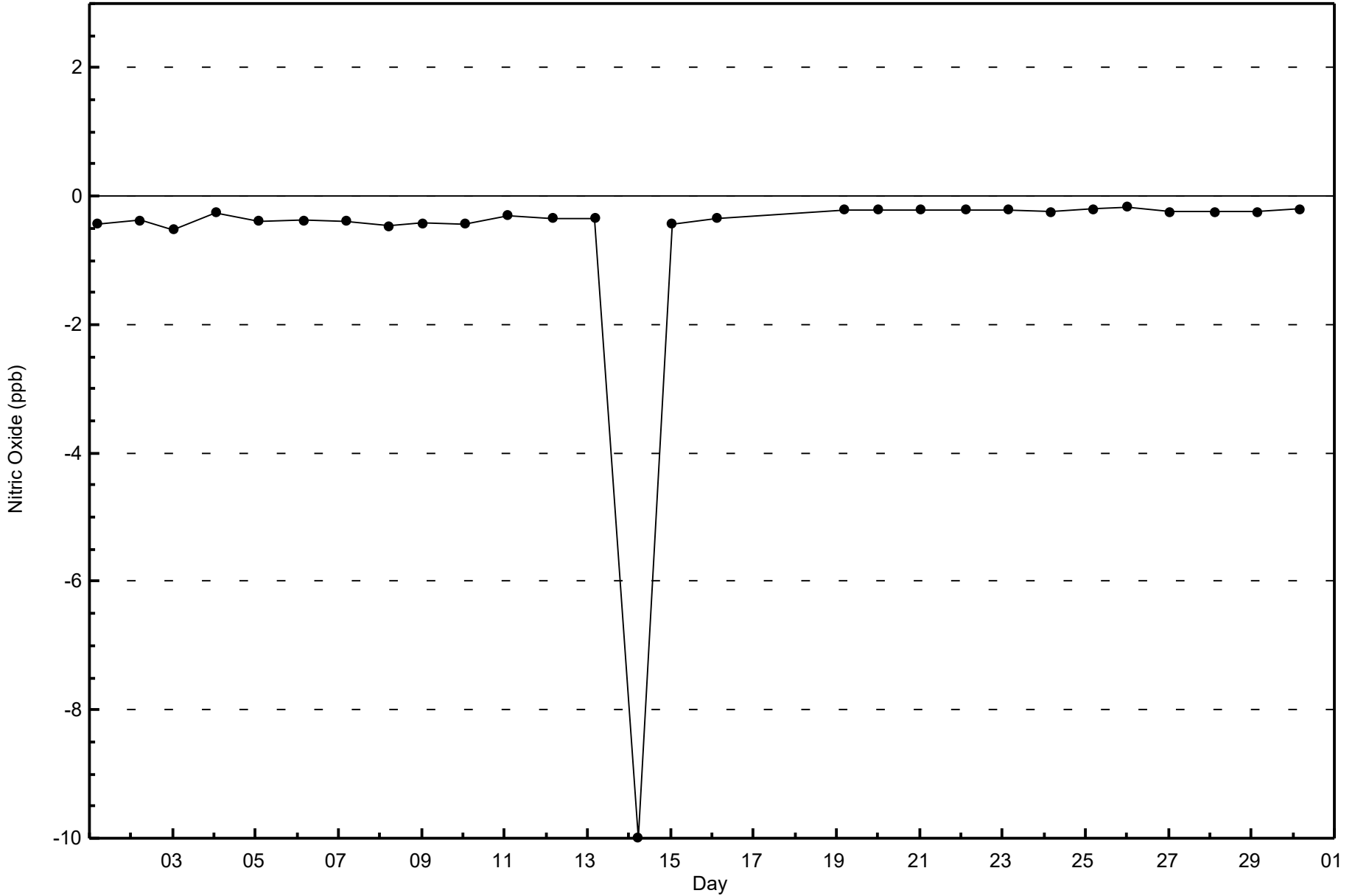
Total Number of Hours: 720

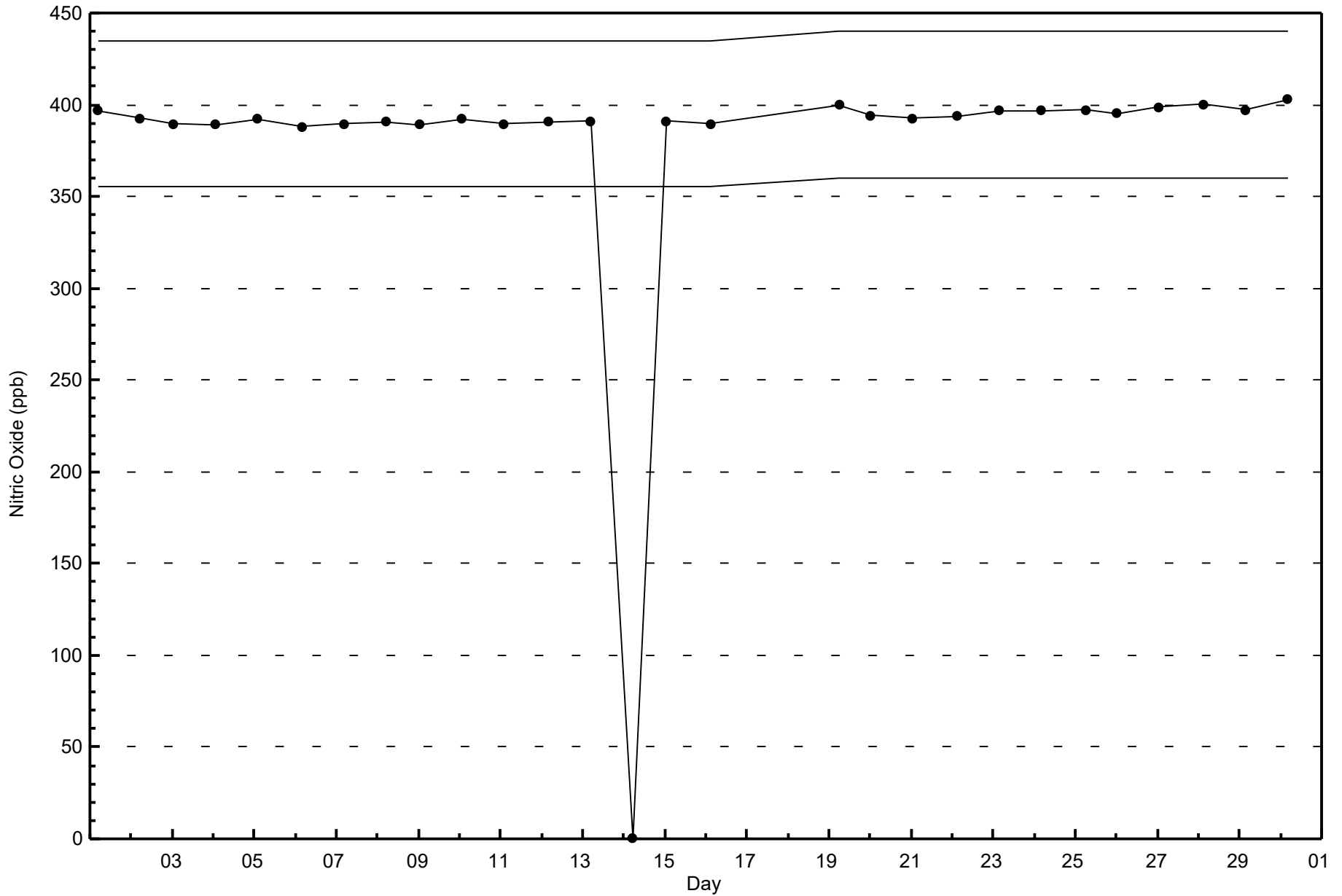


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Wapasu









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

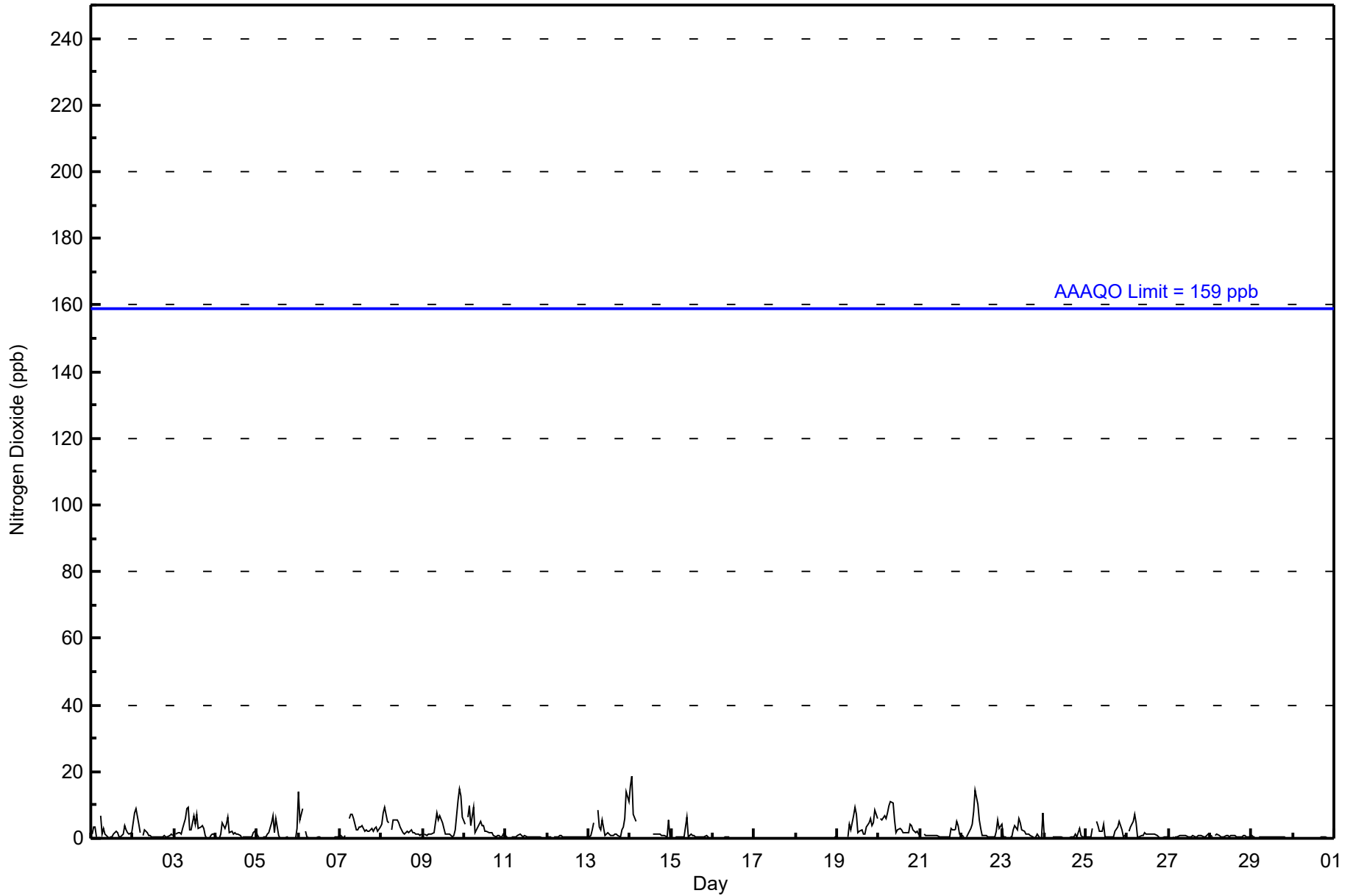
## Wapasu - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																					Hours in Service:	720		
Maximum Value: 18.7 ppb on Apr 14 02:00		Maximum Daily Average: 4.4 ppb on Apr 20																						Hours of Data:	631		
Minimum Value: 0.0 ppb on Apr 18 16:00		Minimum Daily Average: 0.2 ppb on Apr 30																						Hours of Missing Data:	89		
Maximum Diurnal Average: 3.3 ppb at hour 9		Minimum Diurnal Average: 0.9 ppb at hour 17																						Hours of Calibration:	36		
Monthly Average: 1.90 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.7 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 5.3 P <sub>99</sub> = 12.4																						Percent Operational Time:	92.6		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	1.2	3.4	3.4	0.5	Z	6.8	1.2	3.0	1.3	0.4	0.2	0.3	0.6	1.4	2.0	1.9	0.5	0.4	1.1	4.0	2.7	1.8	1.1	1.6	1.8	6.8	
2-Apr	4.6	7.8	9.1	4.1	1.5	Z	0.8	2.4	1.5	0.8	0.9	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.7	0.6	0.6	0.8	1.4	0.9	1.8	9.1	
3-Apr	Z	1.1	1.5	1.6	1.3	2.8	5.8	8.7	9.3	2.4	2.4	6.6	4.3	7.0	2.8	3.2	3.8	3.0	0.7	0.2	0.2	0.7	1.2	1.1	3.1	9.3	
4-Apr	0.3	Z	0.2	1.1	4.5	3.0	4.3	6.4	1.9	2.0	1.3	1.8	1.3	1.1	0.9	0.2	0.3	0.3	0.3	0.6	0.6	0.4	1.7	2.6	1.6	6.4	
5-Apr	1.0	0.3	Z	0.3	0.3	0.3	1.1	1.7	4.5	6.7	1.8	6.0	0.7	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	3.1	1.3	6.7	
6-Apr	13.9	5.3	8.8	Z	2.1	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	1.5	13.9	
7-Apr	0.8	0.3	0.2	0.8	Z	5.9	7.1	7.4	5.9	2.4	2.5	3.2	3.2	3.7	2.1	2.6	2.3	2.0	2.8	2.2	2.9	3.6	2.2	3.2	3.0	7.4	
8-Apr	4.2	7.7	9.5	5.1	4.5	Z	2.7	5.4	5.4	5.3	4.6	3.2	1.5	1.3	1.9	2.0	1.8	2.4	1.7	1.6	1.3	1.2	0.9	1.2	3.3	9.5	
9-Apr	Z	1.1	0.9	1.3	1.2	1.3	1.6	4.7	7.5	5.4	6.6	4.5	3.0	1.4	1.2	1.1	0.7	0.4	0.9	2.4	11.5	15.0	12.8	6.4	4.0	15.0	
10-Apr	4.2	Z	6.3	9.8	3.8	9.4	1.8	2.5	3.5	5.2	3.9	3.8	2.2	2.3	1.8	1.7	1.8	0.9	0.4	0.9	0.8	0.3	0.3	2.0	3.0	9.8	
11-Apr	0.6	0.4	Z	0.4	0.3	0.3	0.3	0.7	1.4	0.7	0.6	0.7	0.5	0.5	0.5	0.6	0.6	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.5	1.4	
12-Apr	0.3	0.3	0.4	Z	0.4	0.4	0.6	0.8	0.8	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.8	
13-Apr	0.3	0.9	2.5	4.7	Z	8.3	3.4	2.6	5.7	0.8	1.2	1.7	1.4	0.9	0.8	1.1	1.4	0.8	0.6	2.6	3.2	5.8	13.8	11.0	3.3	13.8	
14-Apr	15.8	18.7	7.0	4.9	UO	UO	UO	UO	UO	UO	UO	M	M	1.1	1.3	1.4	1.3	1.1	1.0	0.8	0.7	0.5	5.4	0.6	--	18.7	
15-Apr	0.5	Z	0.5	0.6	0.5	0.5	0.6	0.4	3.6	6.3	0.6	1.1	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.7	0.3	0.2	0.2	0.9	6.3	
16-Apr	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.4	0.4	0.3	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.4
17-Apr	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
18-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	--	0.3	
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.5	4.1	2.5	6.8	9.5	7.0	1.8	2.0	2.7	1.3	1.4	3.3	4.8	6.1	3.8	4.8	8.6	5.9	3.3	9.5	
20-Apr	Z	6.1	5.3	6.7	5.9	7.5	9.7	11.0	10.6	5.3	1.8	2.7	3.0	2.5	1.9	1.8	1.5	1.8	4.2	3.7	2.4	1.8	2.0	1.1	4.4	11.0	
21-Apr	0.8	Z	1.1	0.9	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.6	2.9	2.6	2.6	5.0	3.8	1.2	1.3	5.0	
22-Apr	0.7	0.6	Z	0.5	1.2	3.0	4.1	7.9	14.4	10.3	5.6	3.0	0.7	0.7	0.7	0.6	0.6	0.4	0.4	0.4	2.3	5.6	3.0	4.4	3.1	14.4	
23-Apr	0.4	0.3	0.4	Z	0.4	0.4	2.7	3.7	2.5	6.0	4.7	2.5	2.0	1.4	1.2	1.1	0.8	0.6	0.2	0.5	1.3	0.2	0.2	7.8	1.8	7.8	
24-Apr	0.5	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	1.1	0.4	2.8	0.7	0.3	0.4	0.4	2.8	
25-Apr	0.5	0.4	0.4	0.6	3.1	Z	5.0	3.9	2.3	2.0	4.4	0.5	0.5	0.5	0.5	0.6	0.6	2.2	3.6	5.1	3.8	2.5	0.4	1.3	1.9	5.1	
26-Apr	Z	2.3	3.2	5.0	7.0	4.5	0.3	0.4	1.0	1.0	1.5	1.1	1.4	1.4	1.1	1.3	1.1	0.9	0.3	0.2	0.2	0.4	0.4	0.4	1.6	7.0	
27-Apr	0.3	Z	0.3	0.2	0.3	0.6	0.7	0.8	0.8	0.7	0.7	0.6	0.5	0.6	0.7	0.6	0.6	0.8	1.0	0.8	0.6	0.4	1.0	1.3	0.6	1.3	
28-Apr	0.9	0.4	Z	0.7	1.2	0.7	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.8	0.7	0.6	0.6	0.5	0.7	1.2	
29-Apr	0.7	0.5	0.5	Z	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.7	
30-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.4
		2.2	2.5	2.7	2.1	1.9	2.5	2.1	3.0	3.3	2.7	2.2	2.1	1.3	1.3	1.0	1.0	0.9	0.9	1.1	1.4	1.7	1.9	2.2	2.1	Diurnal Average	
		15.8	18.7	9.5	9.8	7.0	9.4	9.7	11.0	14.4	10.3	9.5	7.0	4.3	7.0	2.8	3.2	3.8	3.3	4.8	6.1	11.5	15.0	13.8	11.0	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				UO - Unstable Operation																	
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr	159 ppb																								



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Wapasu - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	631	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 631

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	53	70	25	17	24	40	64	106	36	26	33	25	18	19	18	28	602
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>53</b>	<b>70</b>	<b>25</b>	<b>17</b>	<b>24</b>	<b>40</b>	<b>64</b>	<b>106</b>	<b>36</b>	<b>26</b>	<b>33</b>	<b>25</b>	<b>18</b>	<b>19</b>	<b>18</b>	<b>28</b>	<b>602</b>

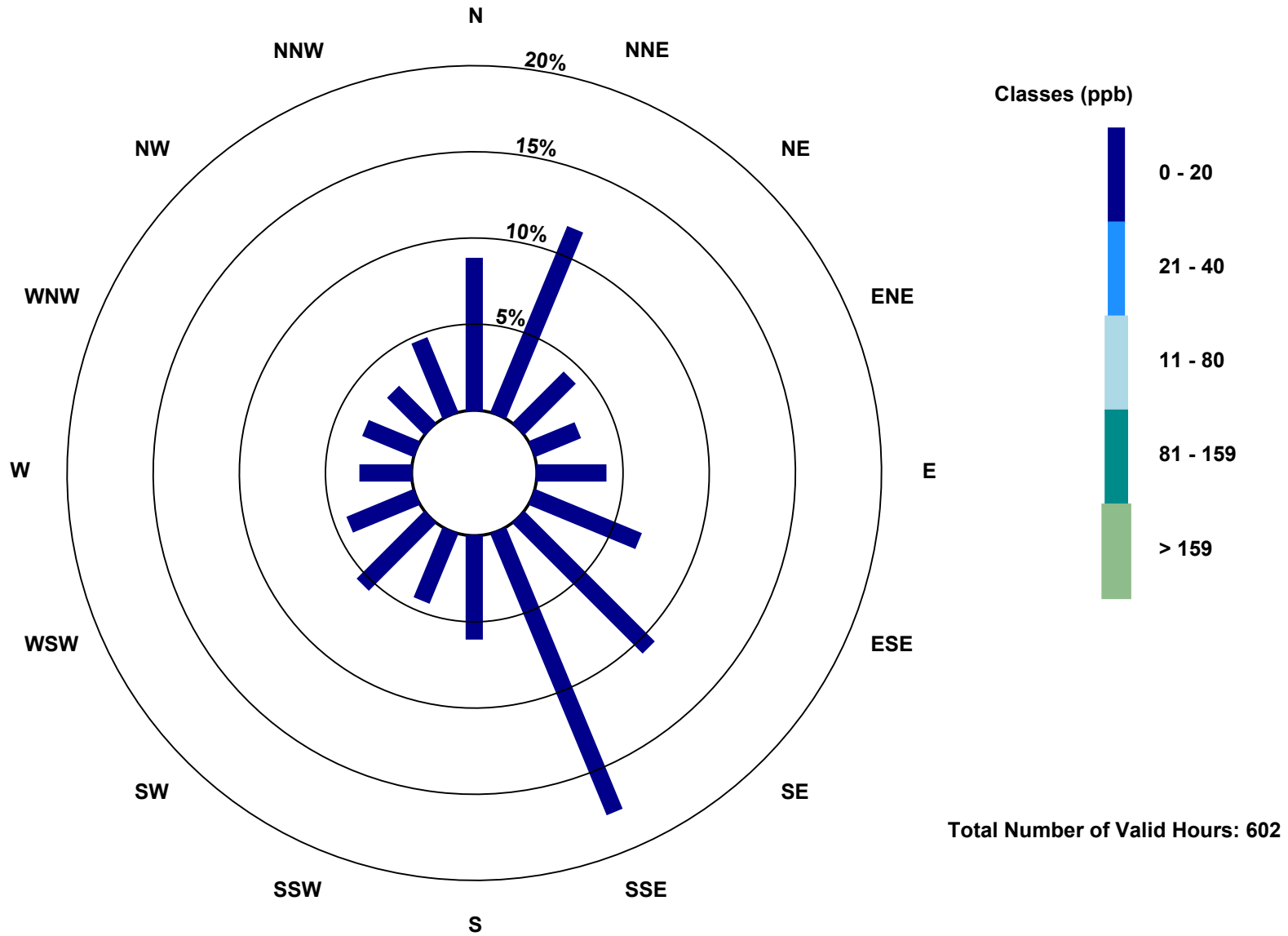
Total Number of Valid Hours: 602

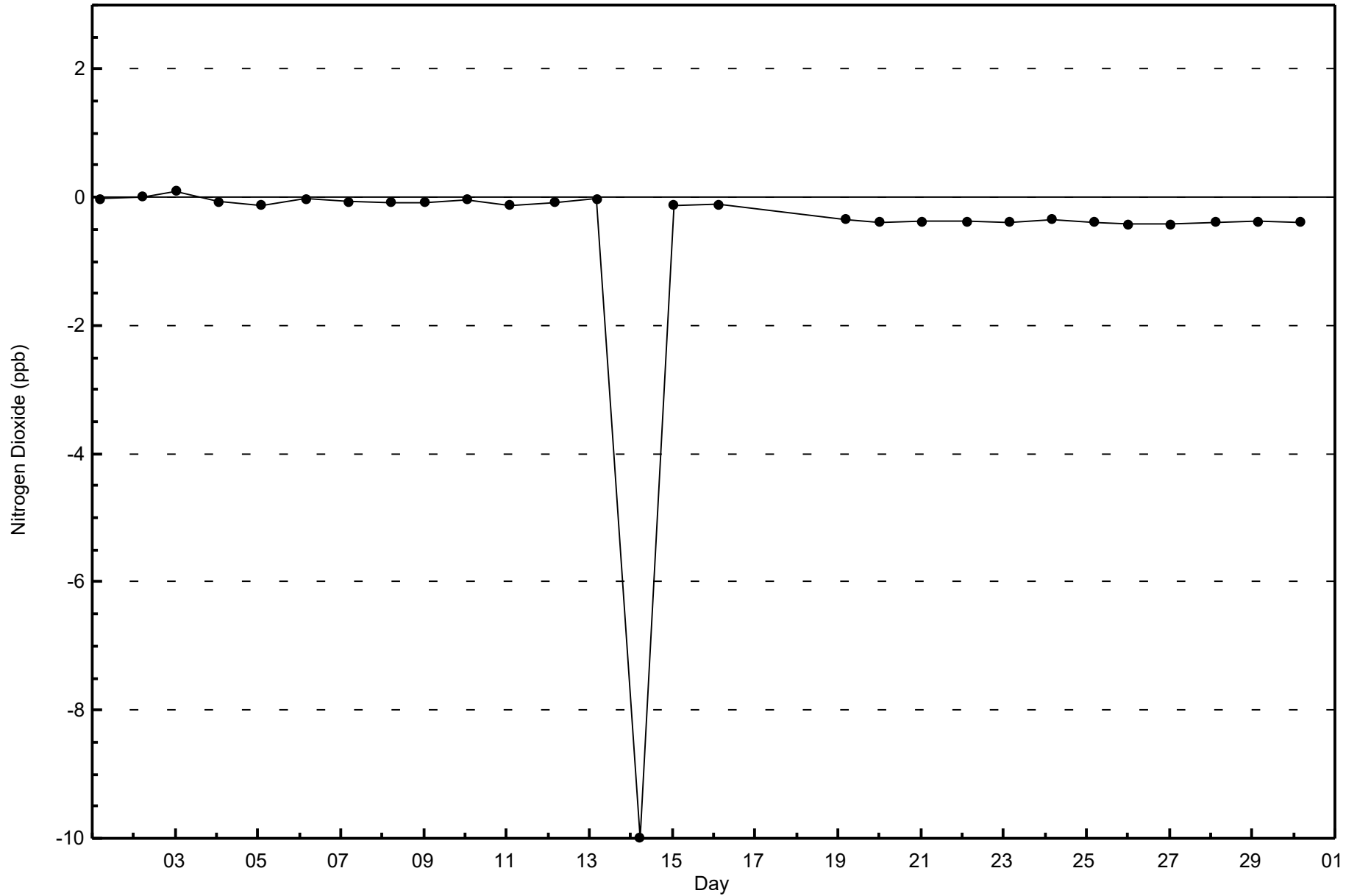
Total Number of Hours: 720

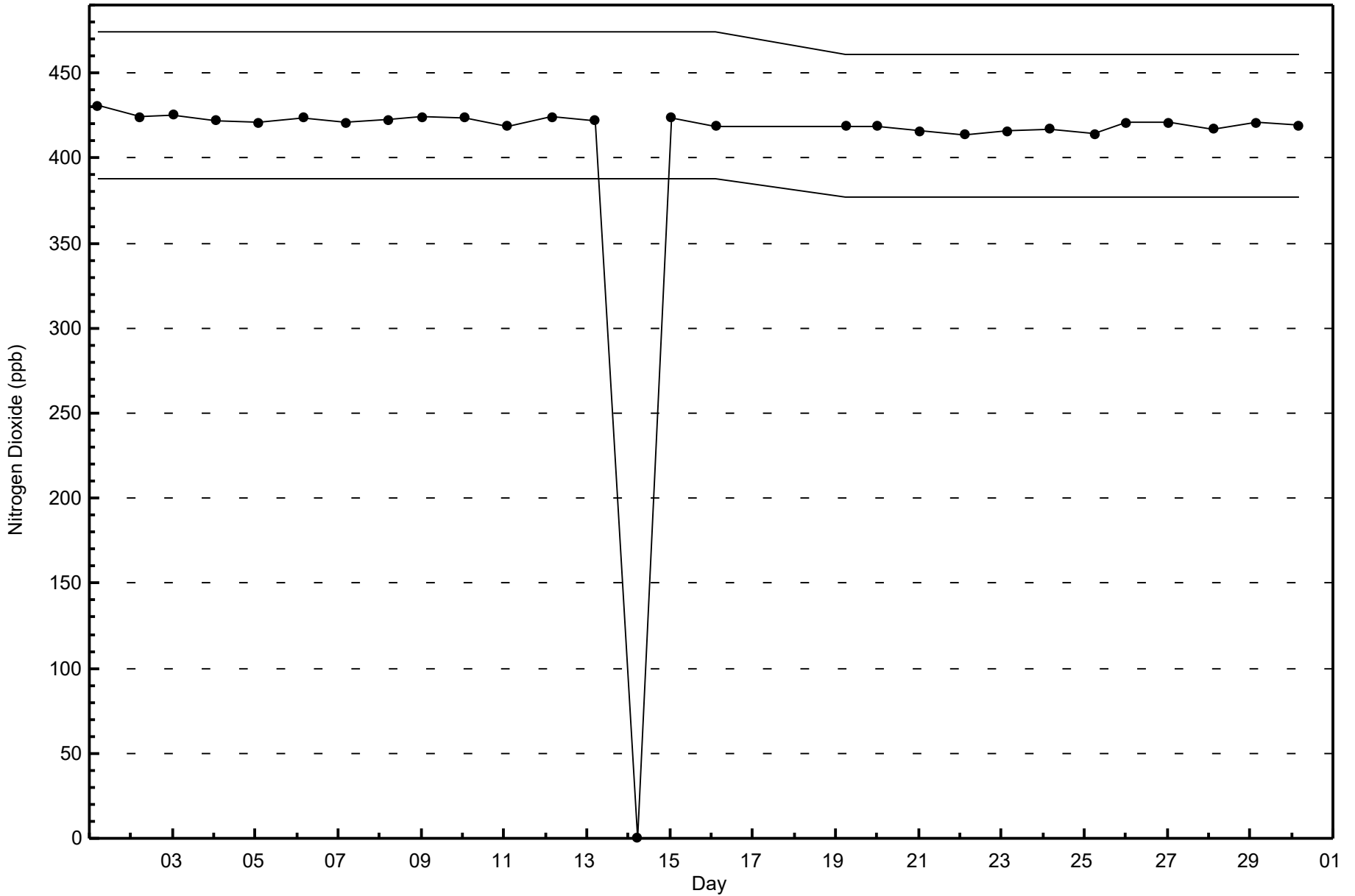


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

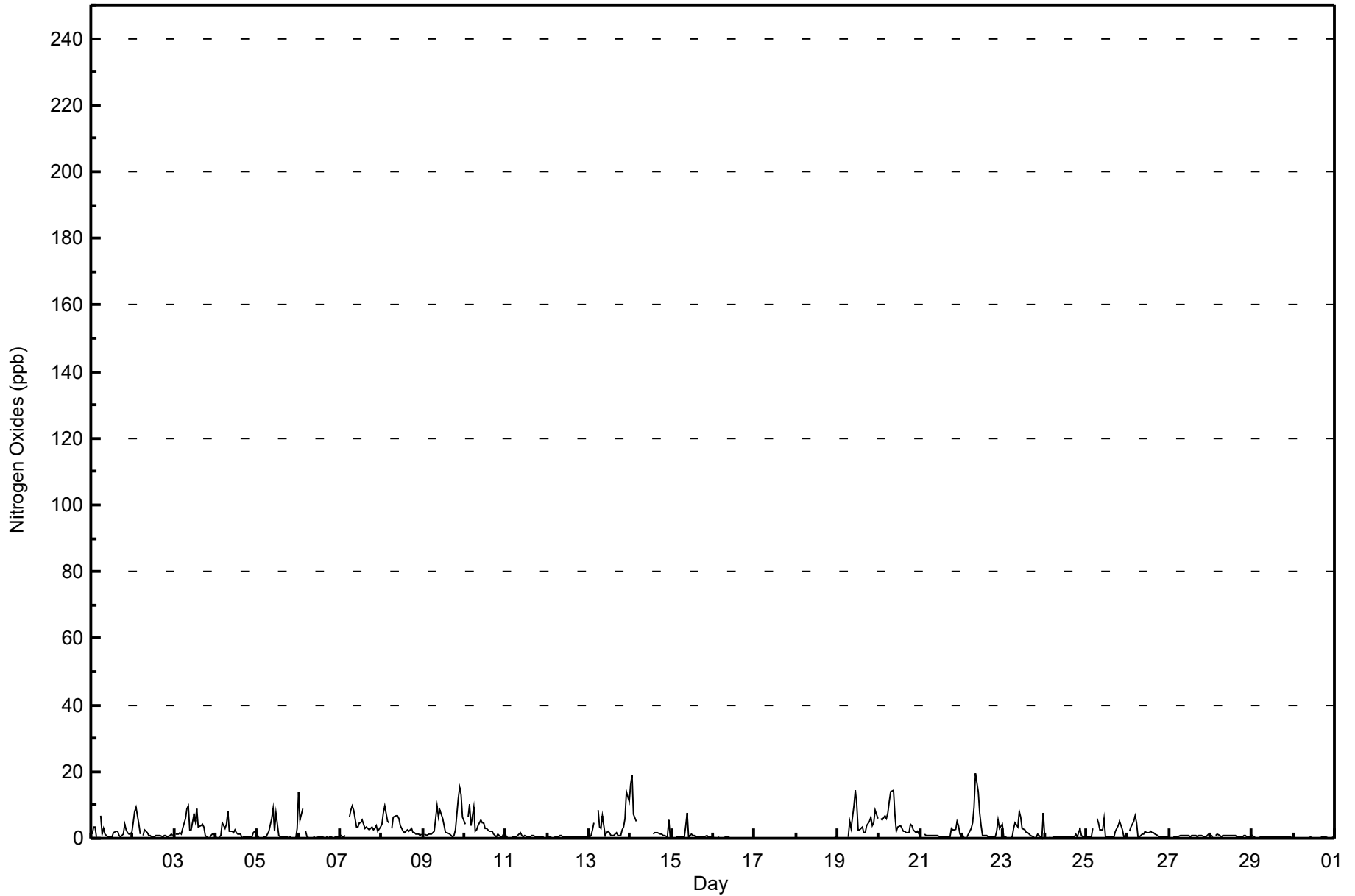
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - April 2024**

Maximum Value: 19.3 ppb on Apr 22 09:00																						Maximum Daily Average: 5.0 ppb on Apr 20																						Hours in Service: 720					
Minimum Value: 0.0 ppb on Apr 18 16:00																						Minimum Daily Average: 0.2 ppb on Apr 30																						Hours of Data: 631					
Maximum Diurnal Average: 4.1 ppb at hour 9																						Minimum Diurnal Average: 1.0 ppb at hour 17																						Hours of Missing Data: 89					
Monthly Average: 2.12 ppb																						Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.8 Q <sub>3</sub> = 2.7 P <sub>90</sub> = 5.9 P <sub>99</sub> = 14.1																						Hours of Calibration: 36					
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.8 Q <sub>3</sub> = 2.7 P <sub>90</sub> = 5.9 P <sub>99</sub> = 14.1																						Percent Operational Time: 92.6																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	1.2	3.4	3.4	0.5	Z	6.8	1.2	3.2	1.4	0.4	0.2	0.3	0.6	1.8	2.3	2.2	0.6	0.4	1.2	4.1	2.7	1.9	1.3	1.8	1.9	6.8																							
2-Apr	4.8	7.9	9.2	4.1	1.5	Z	0.8	2.6	1.6	0.8	0.9	0.6	0.6	0.8	0.7	0.7	0.7	0.6	0.8	0.7	0.6	0.8	1.4	0.9	1.9	9.2																							
3-Apr	Z	1.1	1.5	1.6	1.3	2.8	6.0	9.1	9.9	2.7	2.6	7.4	5.2	8.7	3.4	3.7	4.1	3.3	0.7	0.2	0.2	0.7	1.2	1.1	3.4	9.9																							
4-Apr	0.3	Z	0.2	1.1	4.5	3.0	4.4	8.0	2.2	2.3	1.6	2.5	1.6	1.4	1.2	0.2	0.3	0.3	0.3	0.6	0.6	0.4	1.7	2.7	1.8	8.0																							
5-Apr	1.0	0.3	Z	0.3	0.3	0.3	1.1	1.9	5.9	8.9	2.2	7.8	0.7	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	3.1	1.6	8.9																							
6-Apr	13.9	5.3	8.8	Z	2.1	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	1.5	13.9																							
7-Apr	0.8	0.3	0.2	0.8	Z	6.2	8.4	9.8	8.5	3.6	3.6	4.7	4.7	5.6	2.8	3.5	3.0	2.5	3.2	2.4	3.1	3.8	2.3	3.3	3.8	9.8																							
8-Apr	4.4	7.8	9.6	5.2	4.5	Z	2.9	6.5	6.7	6.9	6.1	4.0	2.0	1.7	2.3	2.5	2.2	2.8	1.8	1.7	1.4	1.2	0.9	1.2	3.7	9.6																							
9-Apr	Z	1.1	1.0	1.4	1.4	1.4	2.0	5.9	9.8	6.6	8.6	5.8	3.8	1.8	1.5	1.4	0.9	0.6	1.0	2.6	11.7	15.2	13.0	6.5	4.6	15.2																							
10-Apr	4.2	Z	6.4	10.0	3.8	9.5	1.9	2.6	3.8	5.7	4.5	4.8	2.9	3.1	2.3	2.2	2.2	1.1	0.5	1.1	0.9	0.3	0.3	2.0	3.3	10.0																							
11-Apr	0.6	0.4	Z	0.4	0.3	0.3	0.3	0.7	1.6	0.7	0.6	0.7	0.5	0.5	0.6	0.7	0.7	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.5	1.6																							
12-Apr	0.3	0.3	0.4	Z	0.4	0.4	0.6	0.8	0.8	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.8																							
13-Apr	0.3	0.9	2.5	4.8	Z	8.6	3.6	2.8	6.8	1.0	1.6	2.2	1.8	1.0	0.9	1.3	1.6	0.9	0.7	2.7	3.3	5.9	14.0	11.2	3.5	14.0																							
14-Apr	16.0	18.9	7.1	5.0	UO	UO	UO	UO	UO	UO	UO	M	M	1.3	1.5	1.7	1.6	1.4	1.2	0.9	0.7	0.5	5.5	0.6	--	18.9																							
15-Apr	0.5	Z	0.5	0.6	0.5	0.5	0.6	0.4	4.0	7.5	0.6	1.2	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.7	0.3	0.2	0.2	1.0	7.5																							
16-Apr	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.4	0.4	0.3	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.4																						
17-Apr	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--																						
18-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	--	0.3																							
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.6	5.2	3.2	9.8	14.3	10.2	2.3	2.6	3.4	1.5	1.6	3.7	5.1	6.2	3.8	4.8	8.6	5.9	4.0	14.3																							
20-Apr	Z	6.1	5.3	6.7	5.9	7.8	11.2	14.2	14.4	7.2	2.3	3.5	3.8	3.0	2.3	2.1	1.7	1.9	4.4	3.7	2.4	1.8	2.0	1.1	5.0	14.4																							
21-Apr	0.8	Z	1.1	0.9	0.8	0.7	0.7	0.8	0.9	0.7	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.6	3.0	2.6	2.6	5.0	3.8	1.2	1.3	5.0																							
22-Apr	0.7	0.6	Z	0.5	1.2	3.2	4.5	9.5	19.3	14.1	7.5	3.9	0.8	0.7	0.7	0.6	0.6	0.4	0.4	0.4	2.3	5.6	3.0	4.4	3.7	19.3																							
23-Apr	0.4	0.3	0.4	Z	0.4	0.4	3.2	4.5	3.2	8.2	6.5	3.2	2.6	1.7	1.5	1.2	0.9	0.6	0.2	0.5	1.3	0.2	0.2	7.8	2.2	8.2																							
24-Apr	0.5	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	1.1	0.4	2.8	0.7	0.3	0.4	0.5	2.8																							
25-Apr	0.5	0.4	0.4	0.6	3.1	Z	5.8	4.8	2.7	2.4	6.0	0.5	0.5	0.5	0.5	0.6	0.6	2.3	3.6	5.1	3.8	2.5	0.4	1.3	2.1	6.0																							
26-Apr	Z	2.3	3.2	5.0	7.0	4.6	0.3	0.4	1.2	1.3	2.0	1.5	1.9	1.9	1.5	1.7	1.4	1.0	0.3	0.2	0.2	0.4	0.4	0.4	1.8	7.0																							
27-Apr	0.3	Z	0.3	0.2	0.3	0.6	0.8	0.9	1.0	0.8	0.8	0.7	0.5	0.7	0.7	0.6	0.6	0.8	1.0	0.8	0.6	0.4	1.0	1.3	0.7	1.3																							
28-Apr	0.9	0.4	Z	0.7	1.2	0.7	0.6	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.8	0.7	0.6	0.6	0.5	0.7	1.2																							
29-Apr	0.7	0.5	0.5	Z	0.4	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.7																							
30-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.4																						
																								2.2	2.6	2.7	2.1	1.9	2.6	2.3	3.6	4.1	3.5	2.9	2.6	1.5	1.6	1.2	1.1	1.0	1.0	1.2	1.4	1.7	1.9	2.3	2.2	Diurnal Average	
																								16.0	18.9	9.6	10.0	7.0	9.5	11.2	14.2	19.3	14.1	14.3	10.2	5.2	8.7	3.4	3.7	4.1	3.7	5.1	6.2	11.7	15.2	14.0	11.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	631	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 631

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Wapasu - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	53	70	25	17	24	40	64	106	36	26	33	25	18	19	18	28	602
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>53</b>	<b>70</b>	<b>25</b>	<b>17</b>	<b>24</b>	<b>40</b>	<b>64</b>	<b>106</b>	<b>36</b>	<b>26</b>	<b>33</b>	<b>25</b>	<b>18</b>	<b>19</b>	<b>18</b>	<b>28</b>	<b>602</b>

Total Number of Valid Hours: 602

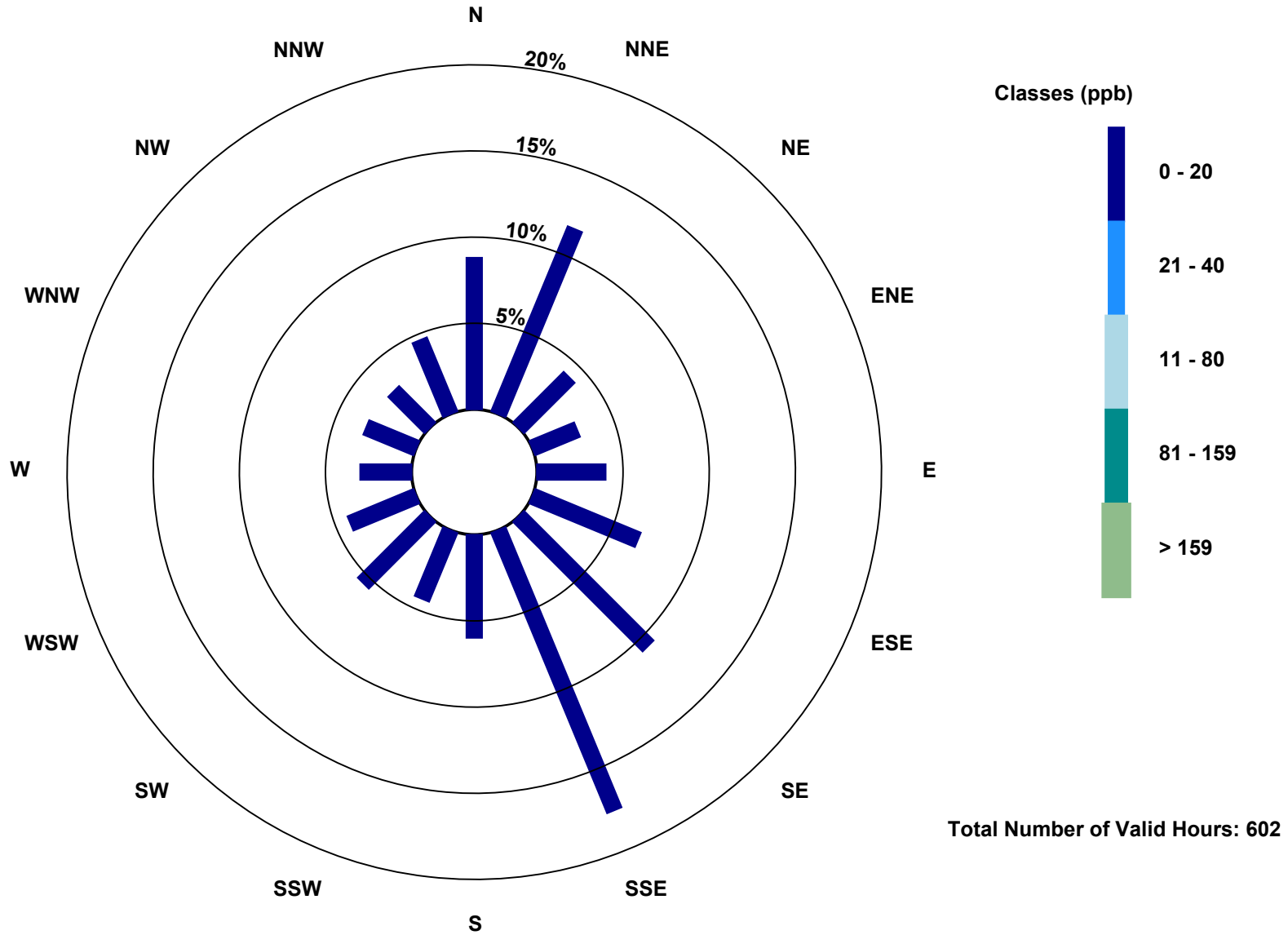
Total Number of Hours: 720

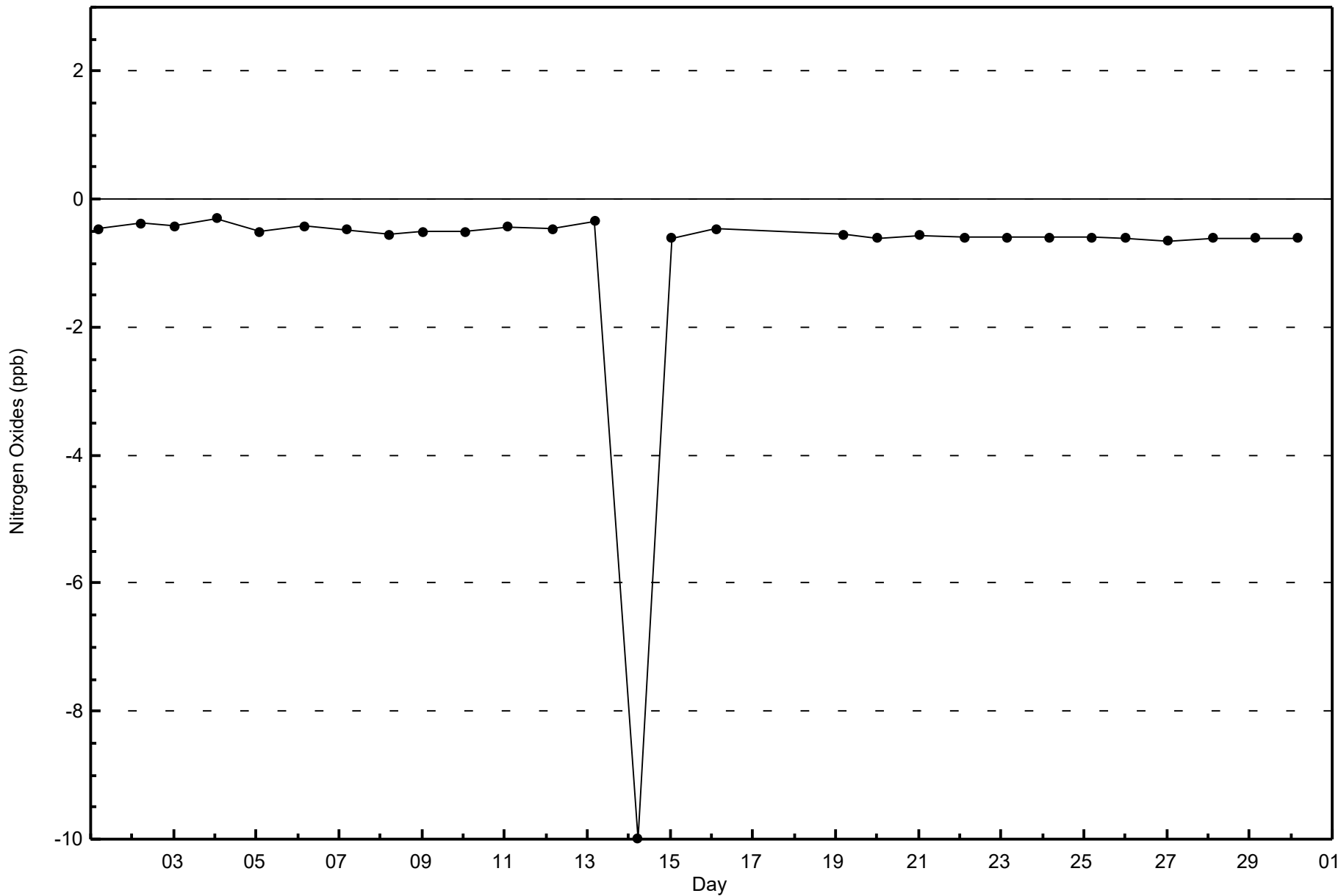


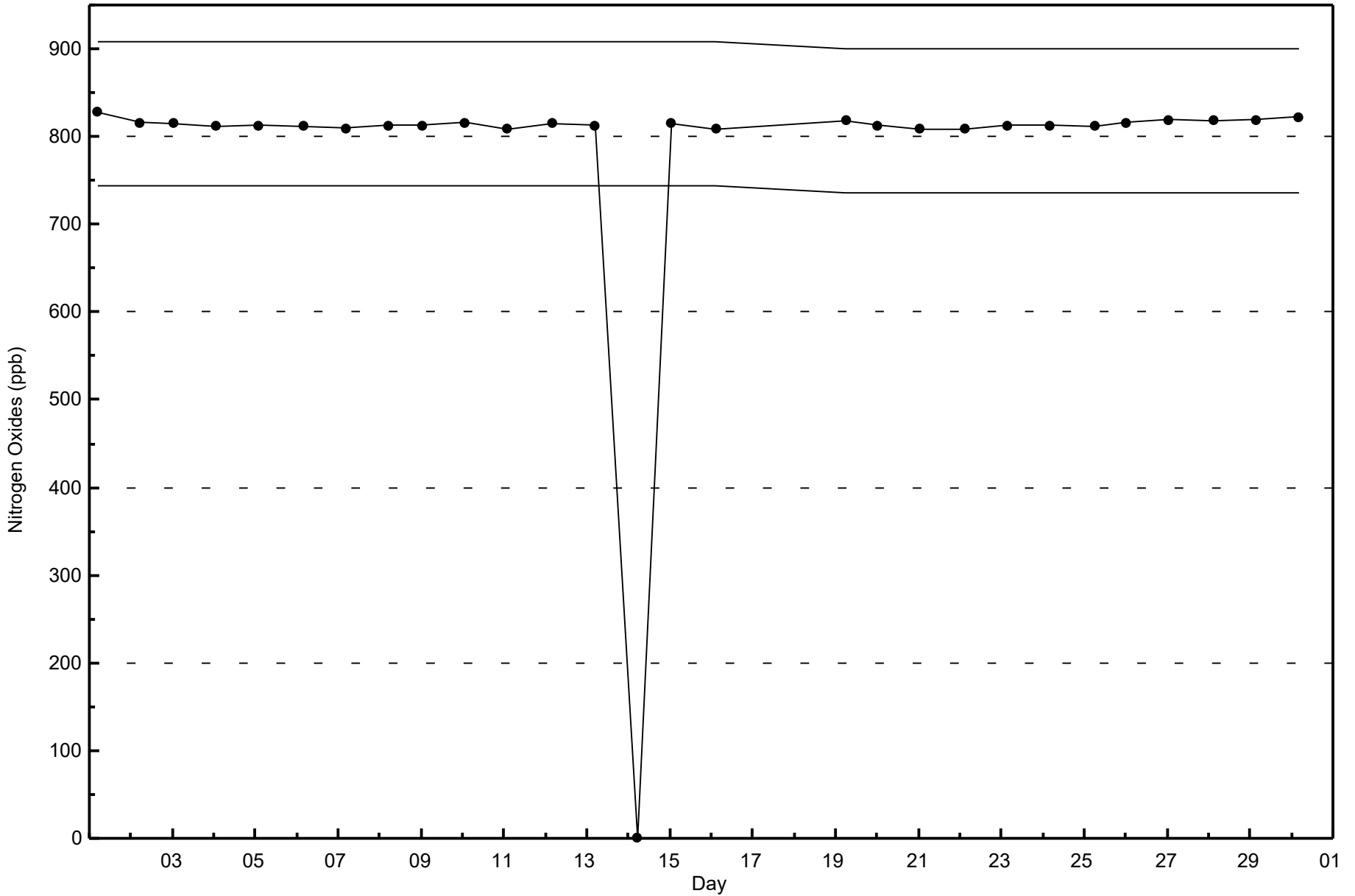


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









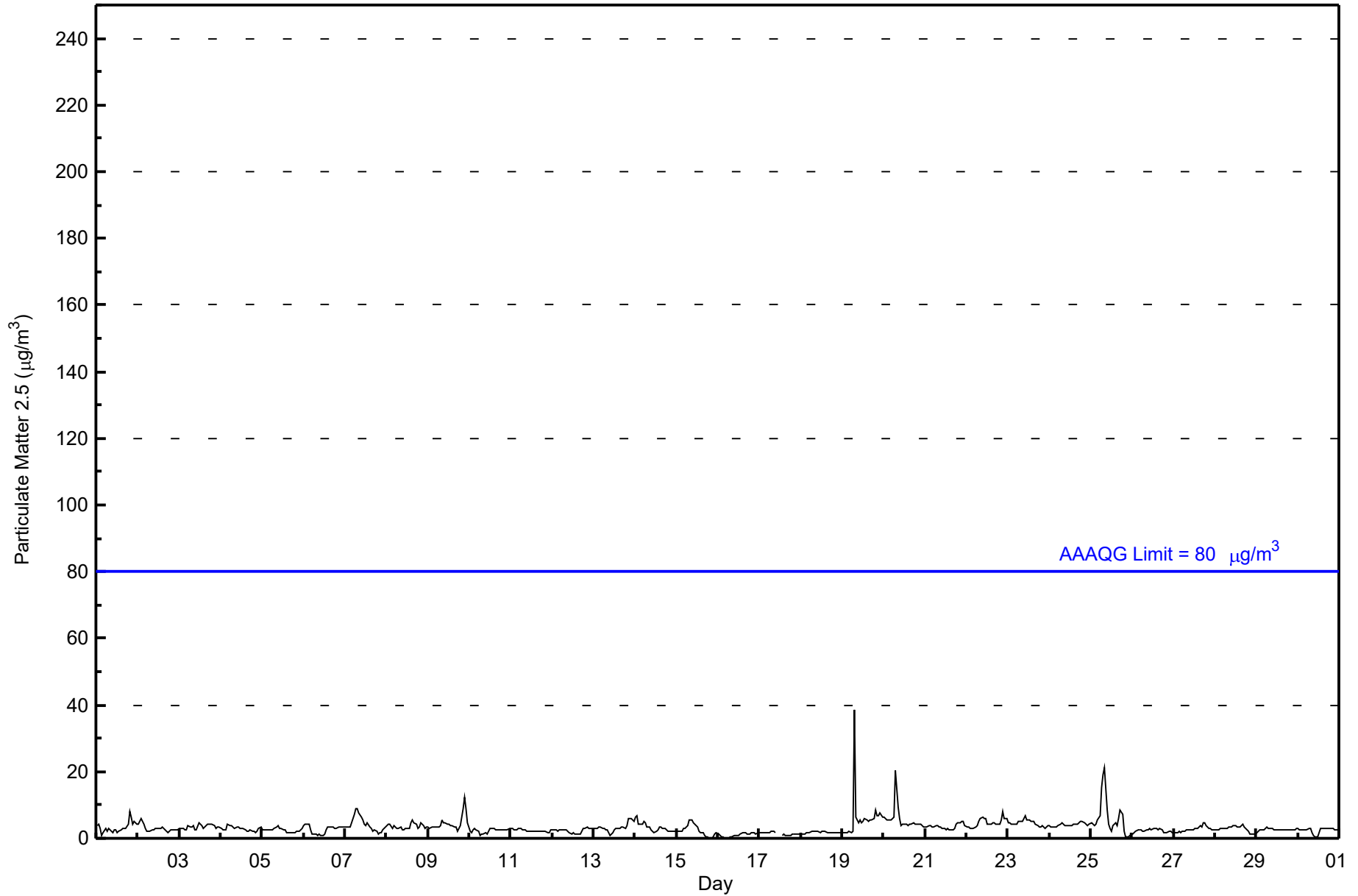
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Wapasu - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum																										
Maximum Value: 38.5 µg/m <sup>3</sup> on Apr 19 08:00		Maximum Daily Average: 6.1 µg/m <sup>3</sup> on Apr 19															Hours of Data: 717		Hours of Missing Data: 3																														
Minimum Value: 0.1 µg/m <sup>3</sup> on Apr 16 05:00		Minimum Daily Average: 1.0 µg/m <sup>3</sup> on Apr 16															Hours of Calibration: 3		Percent Operational Time: 100.0																														
Maximum Diurnal Average: 5.5 µg/m <sup>3</sup> at hour 8		Minimum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 4																																															
Monthly Average: 3.25 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.1 Median = 2.9 Q <sub>3</sub> = 3.9 P <sub>90</sub> = 5.2 P <sub>99</sub> = 9.0																																															
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-Apr	4.0	4.3	2.9	1.0	1.6	2.8	2.0	2.9	2.7	1.7	2.4	2.3	1.5	2.2	2.7	3.0	2.9	2.9	4.2	8.1	6.3	4.3	5.1	4.2	3.3	8.1																							
2-Apr	4.3	4.9	6.1	4.2	2.8	2.2	2.1	2.1	2.4	2.7	3.0	2.9	2.8	3.0	3.2	3.0	2.5	1.8	2.0	2.7	2.6	2.7	2.7	2.7	3.0	6.1																							
3-Apr	3.0	3.0	2.9	2.7	2.7	3.6	3.2	3.3	3.8	2.5	2.7	4.5	4.2	3.9	3.1	3.9	4.2	4.2	4.4	4.2	3.6	3.2	3.4	3.4	3.5	4.5																							
4-Apr	2.8	2.4	2.5	2.8	4.2	4.0	3.6	3.4	3.1	3.3	3.4	3.0	2.9	2.9	2.7	2.2	2.3	2.4	2.0	2.2	1.8	2.3	2.9	3.3	2.8	4.2																							
5-Apr	2.7	2.7	2.7	2.7	2.7	2.6	2.7	2.9	3.3	3.8	3.0	3.0	2.6	2.5	1.8	1.6	1.6	1.5	1.5	1.8	2.2	2.2	2.5	3.1	2.5	3.8																							
6-Apr	3.8	4.4	4.2	4.1	2.6	1.2	1.2	1.1	0.9	1.1	0.9	0.9	1.4	2.5	3.3	3.3	3.4	3.2	3.1	3.0	3.2	3.4	3.4	3.4	2.6	4.4																							
7-Apr	3.4	3.4	3.3	3.6	4.6	7.0	8.7	8.7	7.4	6.3	5.4	4.4	4.0	4.8	3.6	2.8	2.3	2.6	2.0	1.2	1.5	1.8	2.3	3.5	4.1	8.7																							
8-Apr	3.9	4.4	4.1	2.9	3.9	3.3	2.9	3.0	3.4	2.6	2.7	2.8	2.8	3.1	4.6	5.3	4.7	4.1	3.0	3.4	4.5	3.9	2.8	3.3	3.6	5.3																							
9-Apr	3.4	3.2	3.3	3.6	3.6	3.5	3.5	3.8	5.5	4.5	4.7	4.4	4.1	3.9	3.8	3.3	3.2	2.1	2.8	3.8	8.8	12.5	9.0	4.6	4.5	12.5																							
10-Apr	2.2	1.9	2.5	3.1	2.5	2.2	0.7	1.1	1.5	1.6	1.1	2.1	2.8	2.9	2.9	2.7	2.6	2.5	2.4	2.5	2.6	2.6	2.7	3.1	2.3	3.1																							
11-Apr	2.8	2.8	2.7	2.7	2.8	2.9	2.8	2.7	2.5	1.9	2.2	2.3	2.2	2.0	2.0	1.9	2.0	2.2	2.2	2.2	2.0	1.8	1.9	2.3	2.3	2.9																							
12-Apr	2.6	2.6	2.6	2.3	2.4	2.5	2.4	2.5	2.6	2.2	1.8	1.3	1.7	1.2	1.1	1.2	1.3	2.1	2.8	3.1	3.2	3.0	2.9	3.0	2.3	3.2																							
13-Apr	2.8	2.8	3.0	3.2	3.2	3.0	2.8	2.6	2.3	1.0	1.2	1.8	2.5	2.8	3.0	2.9	3.6	3.4	3.2	3.6	5.9	6.1	6.1	5.0	3.2	6.1																							
14-Apr	6.4	6.8	4.2	4.4	4.3	5.3	4.7	3.4	3.2	2.5	2.3	1.7	2.2	2.7	3.2	3.2	2.8	3.0	2.4	2.1	1.9	2.2	2.2	2.2	3.3	6.8																							
15-Apr	2.0	2.0	2.0	2.2	2.9	2.9	3.6	5.6	5.4	5.5	4.5	4.0	3.4	2.3	1.6	1.6	0.9	0.3	0.3	0.1	0.2	0.6	1.2	1.7	2.4	5.6																							
16-Apr	1.3	0.8	0.4	0.3	0.1	0.1	0.2	0.4	0.5	0.7	0.7	0.7	0.8	1.3	1.7	1.8	1.7	1.4	1.5	1.6	1.6	1.6	1.5	1.7	1.0	1.8																							
17-Apr	1.9	1.9	1.7	1.7	1.6	1.6	1.9	2.1	1.9	1.7	C	C	C	1.0	1.1	1.0	0.8	0.9	1.0	1.1	1.1	1.2	1.2	1.3	1.4	2.1																							
18-Apr	1.3	1.3	1.4	1.6	1.7	1.8	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.6	1.8	2.0																							
19-Apr	1.8	1.8	1.5	1.7	1.9	1.9	2.2	38.5	6.3	4.6	5.6	4.6	5.0	5.8	5.3	5.3	5.6	5.4	5.8	8.5	6.7	6.7	7.4	6.5	6.1	38.5																							
20-Apr	6.4	6.0	5.5	5.5	5.7	6.1	6.4	20.5	9.1	5.7	3.9	4.1	4.1	4.2	3.8	4.0	4.3	4.5	4.2	4.3	4.1	4.1	3.9	3.5	5.6	20.5																							
21-Apr	3.5	3.6	3.7	3.7	3.5	3.4	3.9	3.6	3.5	3.2	3.1	2.9	2.7	2.8	2.7	2.6	2.7	3.0	4.1	4.7	4.7	5.2	5.0	3.7	3.6	5.2																							
22-Apr	3.3	3.2	3.0	2.9	3.0	3.4	3.8	5.0	6.0	6.2	6.1	5.8	4.4	4.4	4.4	4.6	4.5	4.2	4.2	4.1	5.6	8.0	5.9	5.9	4.7	8.0																							
23-Apr	4.6	4.6	4.2	4.1	4.2	4.2	5.0	5.2	5.2	6.1	6.9	5.6	5.5	5.3	5.1	5.1	4.4	3.9	3.5	3.3	3.8	3.2	3.2	3.6	4.6	6.9																							
24-Apr	3.7	3.4	3.5	3.5	3.6	3.6	4.3	4.6	4.1	3.8	3.9	3.8	3.8	4.0	4.1	4.0	4.2	4.5	5.3	5.1	4.6	4.1	4.0	4.4	4.1	5.3																							
25-Apr	4.6	4.3	4.0	4.2	5.4	6.9	15.1	19.1	21.3	8.5	4.4	2.9	2.3	3.9	4.6	3.9	6.1	8.4	7.0	2.1	0.5	0.4	0.5	1.1	5.9	21.3																							
26-Apr	1.5	1.8	2.3	2.6	2.6	2.4	2.0	2.0	2.6	2.6	2.8	2.7	2.8	2.8	2.8	2.7	2.8	2.6	1.8	1.8	1.7	2.1	2.0	1.9	2.3	2.8																							
27-Apr	1.8	1.7	1.8	1.9	1.9	2.0	2.1	2.5	2.6	2.4	2.5	2.5	3.0	2.9	3.1	3.8	3.5	4.5	4.5	3.9	3.0	2.8	2.7	2.6	2.8	4.5																							
28-Apr	2.6	2.6	2.7	2.8	2.8	2.9	3.0	3.2	3.3	3.4	3.6	3.7	3.7	3.4	3.5	4.0	4.2	3.6	2.6	2.0	1.3	1.1	1.2	1.3	2.8	4.2																							
29-Apr	1.6	2.3	2.6	2.7	2.6	3.0	3.2	3.2	3.1	3.0	2.7	2.6	2.5	2.5	2.4	2.4	2.5	2.4	2.3	2.5	2.6	2.6	2.6	2.9	2.6	3.2																							
30-Apr	2.9	2.7	2.5	2.6	2.6	2.7	2.8	2.9	1.8	0.8	0.5	0.6	1.6	3.0	3.0	3.0	3.0	3.0	3.0	2.8	2.8	2.7	2.7	2.7	2.4	3.0																							
																								3.1	3.1	3.0	2.9	3.0	3.2	3.5	5.5	4.1	3.3	3.1	3.0	2.9	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.2	3.3	3.2	3.1	Diurnal Average	
																								6.4	6.8	6.1	5.5	5.7	7.0	15.1	38.5	21.3	8.5	6.9	5.8	5.5	5.8	5.3	5.3	6.1	8.4	7.0	8.5	8.8	12.5	9.0	6.5	Diurnal Maximum	
C - Calibration																																																	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>**  
**Wapasu - April 2024**

<b>Concentration Ranges (µg/m<sup>3</sup>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	659	91.91	91.91
6 - 15	54	7.53	99.44
16 - 25	3	0.42	99.86
26 - 80	1	0.14	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Wapasu - April 2024**

Concentration Ranges ( $\mu\text{g}/\text{m}^3$ )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	54	97	30	17	25	41	68	112	26	23	28	17	17	18	16	27	616
6 - 15	7	3	1	0	1	1	0	4	11	7	5	8	2	1	2	1	54
16 - 25	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3
26 - 80	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	61	100	31	17	26	42	68	116	37	31	35	26	19	19	18	28	674

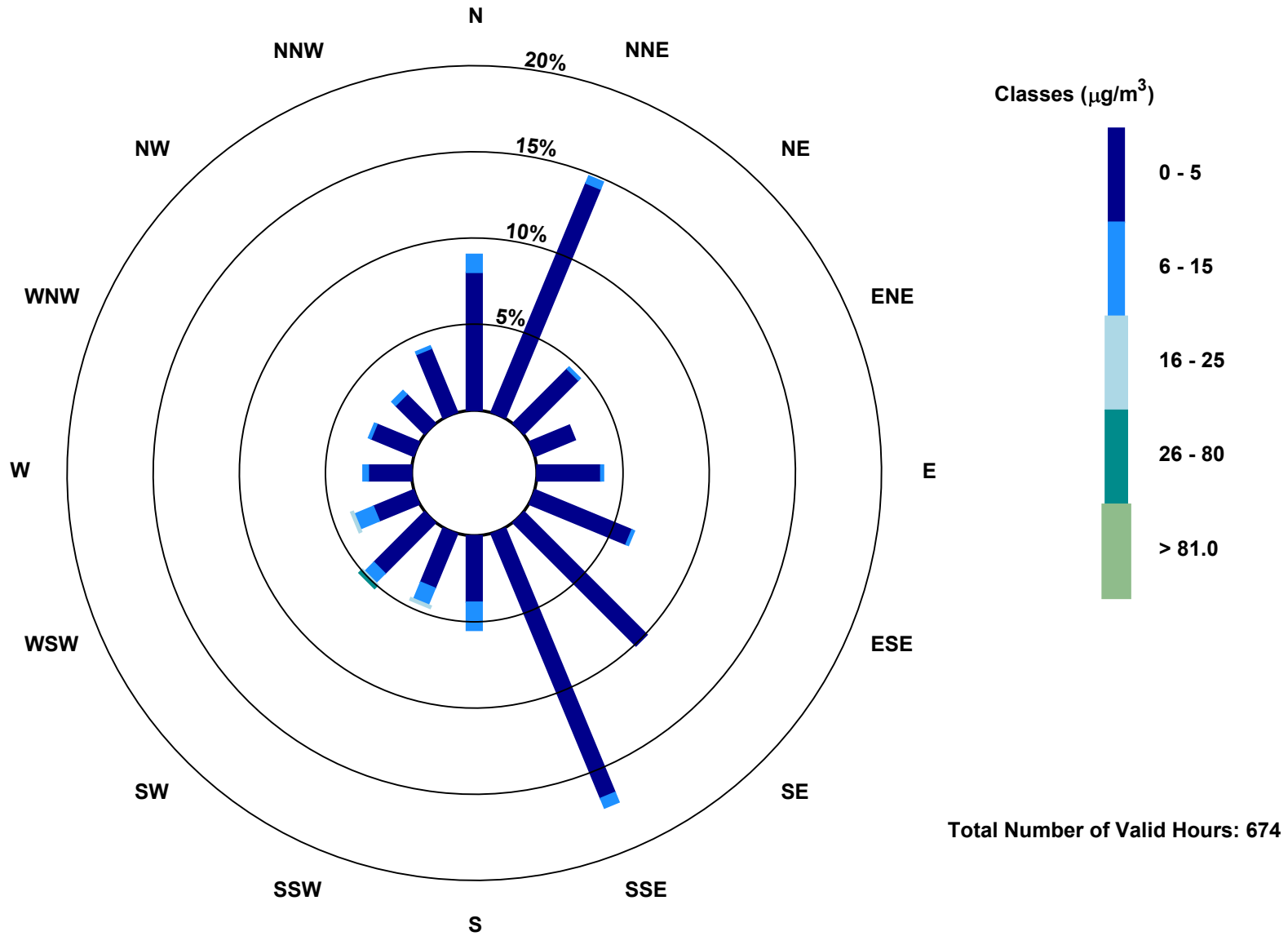
Total Number of Valid Hours: 674

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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







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

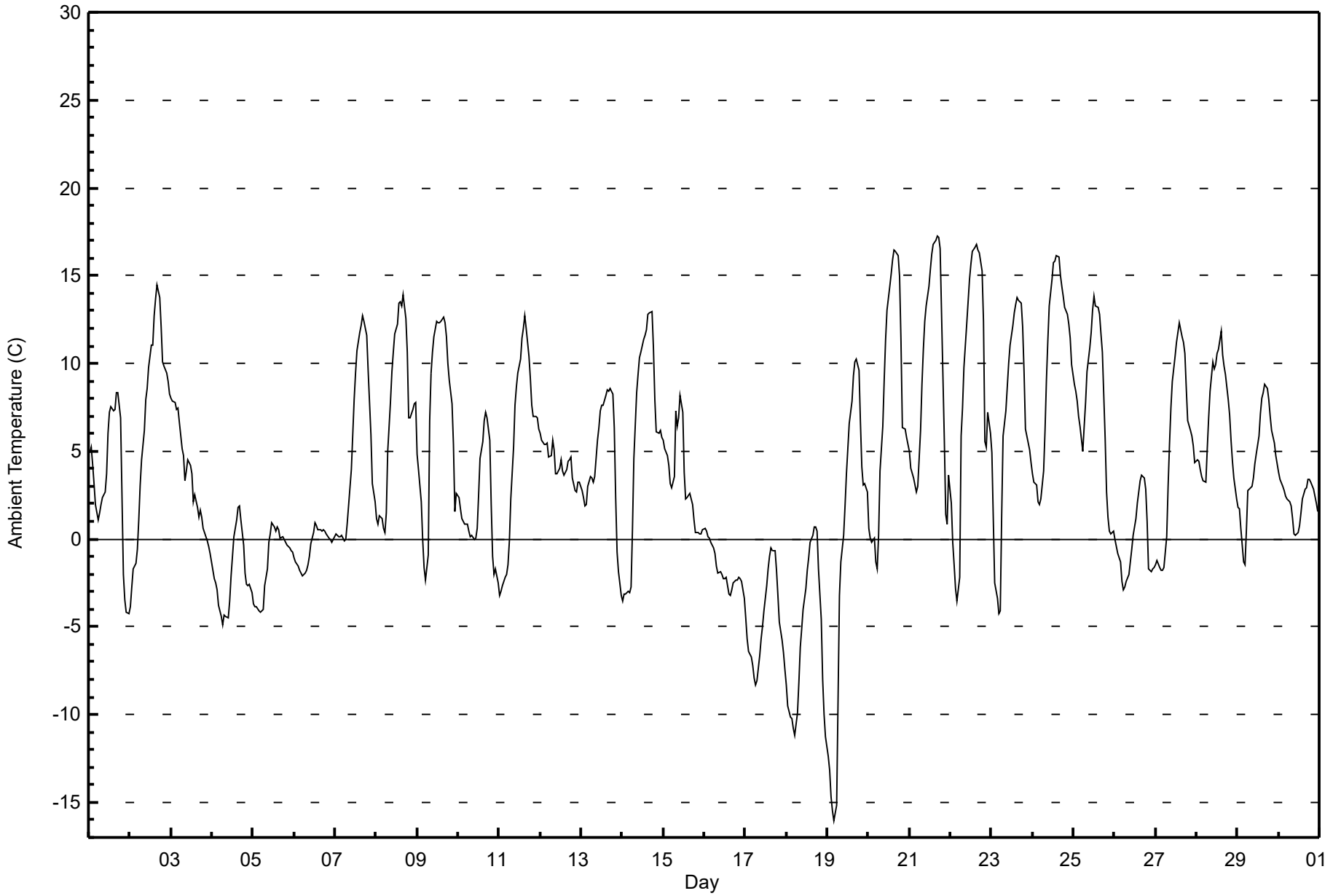
**Ambient Temperature (AT) - C**  
**Wapasu - April 2024**

Maximum Value: 17.2 C on Apr 21 17:00      Maximum Daily Average: 10.1 C on Apr 24																						Hours in Service: 720 Hours of Data: 720				
Minimum Value: -16.0 C on Apr 19 05:00      Minimum Daily Average: -5.5 C on Apr 18 Maximum Diurnal Average: 8.2 C at hour 17      Minimum Diurnal Average: -0.9 C at hour 6 Monthly Average: 3.72 C      Percentiles: P <sub>1</sub> = -11.1 P <sub>10</sub> = -3.0 Q <sub>1</sub> = -0.2 Median = 3.2 Q <sub>3</sub> = 7.9 P <sub>90</sub> = 12.3 P <sub>99</sub> = 16.5																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	4.9	5.2	4.3	3.2	2.0	1.1	1.5	1.9	2.4	2.6	3.7	6.0	7.2	7.5	7.3	8.3	8.4	6.9	2.5	-2.0	-3.5	-4.2	-4.2	3.4	8.4	
2-Apr	-3.9	-2.7	-1.7	-1.4	-0.6	1.1	3.1	4.5	6.2	7.9	8.6	9.8	11.1	11.0	12.7	13.6	14.5	13.7	12.0	10.1	9.8	9.4	9.0	8.3	6.9	14.5
3-Apr	8.0	7.8	7.8	7.4	7.4	6.7	5.1	4.8	3.3	3.9	4.5	4.2	3.7	2.1	2.5	1.8	1.3	1.6	1.2	0.6	0.2	-0.1	-0.5	-0.8	3.5	8.0
4-Apr	-1.8	-2.3	-2.5	-2.9	-3.8	-4.4	-4.9	-4.3	-4.4	-4.5	-3.5	-2.1	-1.0	0.1	1.1	1.8	1.9	1.1	-0.4	-2.0	-2.6	-2.6	-2.6	-3.0	-2.1	1.9
5-Apr	-3.7	-3.8	-3.8	-4.1	-4.1	-4.1	-4.0	-2.7	-1.7	-0.2	0.3	0.9	0.7	0.5	0.7	0.5	0.1	0.1	0.0	-0.2	-0.4	-0.5	-0.6	-0.7	-1.3	0.9
6-Apr	-1.0	-1.3	-1.5	-1.8	-2.0	-2.1	-1.9	-1.8	-1.4	-1.0	-0.3	0.4	1.0	0.8	0.6	0.5	0.4	0.5	0.5	0.3	0.1	-0.1	-0.2	-0.1	-0.5	1.0
7-Apr	0.3	0.2	0.1	0.2	0.2	-0.1	0.0	0.9	1.9	3.9	5.9	8.0	9.4	10.7	11.8	12.1	12.7	12.4	11.6	9.6	7.8	5.9	3.1	2.2	5.4	12.7
8-Apr	1.1	0.8	1.3	1.1	0.6	0.4	1.5	5.0	7.9	9.5	10.7	11.7	12.2	13.4	13.5	13.3	13.9	12.6	10.7	6.9	6.9	7.3	7.7	7.8	7.4	13.9
9-Apr	4.9	4.0	2.1	0.0	-1.6	-2.4	-0.9	6.7	9.4	10.7	11.5	12.4	12.3	12.3	12.4	12.7	12.3	11.5	10.0	9.0	7.7	5.4	1.5	2.6	6.9	12.7
10-Apr	2.3	1.7	1.1	1.0	0.8	0.9	0.4	0.1	0.2	0.0	0.1	0.6	2.5	4.6	5.5	6.7	7.2	6.9	5.6	2.0	-1.0	-2.0	-1.7	-2.5	1.8	7.2
11-Apr	-3.2	-3.0	-2.7	-2.2	-2.0	-1.4	-0.1	2.2	5.2	7.6	8.6	9.4	10.2	11.5	12.0	12.7	12.0	10.4	9.2	7.6	7.0	6.9	6.9	6.2	5.5	12.7
12-Apr	6.1	5.6	5.4	5.4	5.5	4.7	4.7	5.6	5.0	3.7	3.7	4.0	4.5	3.9	3.6	3.9	4.4	4.5	4.7	3.5	2.7	2.7	3.2	3.2	4.3	6.1
13-Apr	2.8	2.4	1.9	1.9	3.0	3.6	3.4	3.2	3.6	5.6	6.4	7.3	7.7	7.6	8.2	8.5	8.4	8.5	8.3	6.3	2.3	-0.8	-1.9	-3.2	4.4	8.5
14-Apr	-3.5	-3.2	-3.1	-3.0	-3.1	-2.7	0.5	4.6	8.3	9.4	10.3	10.6	11.3	11.6	11.9	12.8	12.9	12.9	10.9	8.0	6.1	6.0	6.2	5.8	5.9	12.9
15-Apr	5.6	5.1	4.7	4.2	3.1	2.9	3.6	7.3	6.4	6.9	8.1	7.2	3.8	2.3	2.3	2.6	2.3	1.9	1.1	0.3	0.4	0.3	0.3	0.5	3.5	8.1
16-Apr	0.6	0.5	0.1	0.0	-0.2	-0.5	-0.9	-1.6	-2.0	-1.9	-2.0	-2.3	-2.2	-2.2	-3.1	-3.2	-2.9	-2.5	-2.3	-2.3	-2.1	-2.2	-2.5	-3.4	-1.7	0.6
17-Apr	-4.5	-5.7	-6.4	-6.7	-7.2	-7.9	-8.3	-8.1	-6.6	-5.7	-5.0	-4.1	-2.6	-1.7	-1.0	-0.5	-0.7	-0.7	-1.8	-3.2	-4.7	-5.8	-6.5	-7.4	-4.7	-0.5
18-Apr	-8.3	-9.6	-10.2	-10.2	-10.8	-11.2	-9.9	-8.2	-6.2	-5.1	-4.0	-2.8	-1.8	-1.1	-0.2	0.2	0.6	0.7	0.4	-1.7	-4.6	-8.0	-10.0	-11.3	-5.5	0.7
19-Apr	-12.4	-13.2	-14.7	-15.5	-16.0	-15.2	-9.2	-3.2	-1.3	0.2	1.9	3.7	5.1	6.6	7.9	9.3	10.1	10.3	9.6	6.7	4.1	3.1	3.1	2.7	-0.7	10.3
20-Apr	0.6	0.0	-0.2	0.1	-1.3	-1.7	0.2	3.8	6.4	9.1	11.3	13.1	14.4	15.1	15.9	16.5	16.4	16.1	15.0	11.3	6.3	6.3	5.8	5.4	7.7	16.5
21-Apr	5.0	4.0	3.5	3.1	2.6	3.0	6.2	8.8	10.8	12.4	13.3	14.4	15.3	16.2	16.7	17.0	17.2	17.1	16.5	12.9	5.6	1.4	0.9	3.6	9.5	17.2
22-Apr	2.0	-0.2	-1.5	-2.9	-3.5	-2.2	5.9	7.5	9.7	12.2	13.5	14.8	15.7	16.4	16.7	16.8	16.4	16.3	15.3	12.4	5.5	5.2	7.2	6.0	8.6	16.8
23-Apr	4.9	1.2	-2.5	-3.4	-4.3	-4.1	1.3	5.9	7.3	8.7	10.0	11.0	12.1	12.8	13.4	13.7	13.6	13.5	12.1	9.5	6.3	5.5	5.1	4.4	6.6	13.7
24-Apr	3.7	3.3	3.1	2.1	2.0	2.3	3.9	6.2	9.0	11.3	13.2	14.8	15.7	15.8	16.2	16.1	15.0	14.4	13.8	13.2	12.8	12.2	11.5	10.0	10.1	16.2
25-Apr	8.8	8.4	7.8	7.0	6.4	5.0	6.5	7.8	9.6	10.9	11.8	13.1	13.8	13.3	13.2	12.8	11.7	10.6	5.7	2.7	1.3	0.4	0.3	0.4	7.9	13.8
26-Apr	0.0	-0.4	-0.8	-1.3	-2.4	-2.9	-2.8	-2.5	-2.0	-1.3	-0.6	0.2	1.2	2.1	2.7	3.3	3.6	3.5	2.8	1.0	-1.7	-1.9	-1.7	-1.6	-0.2	3.6
27-Apr	-1.5	-1.3	-1.6	-1.8	-1.8	-1.7	0.1	3.0	5.4	7.4	9.0	10.4	11.2	11.7	12.4	11.5	11.2	10.5	8.5	6.7	6.2	5.9	5.3	4.3	5.5	12.4
28-Apr	4.5	4.4	4.0	3.6	3.3	3.3	5.2	6.9	8.4	10.1	9.7	9.9	10.6	10.8	11.8	10.5	9.9	9.4	7.9	7.0	5.6	4.5	3.5	2.3	7.0	11.8
29-Apr	1.8	1.7	0.6	-1.3	-1.5	0.5	2.7	2.9	3.0	3.5	4.3	4.8	5.8	7.1	8.0	8.3	8.8	8.6	7.9	7.0	6.2	5.5	4.8	4.3	4.4	8.8
30-Apr	3.8	3.4	3.0	2.8	2.5	2.3	2.1	1.9	1.1	0.3	0.2	0.4	0.8	1.5	2.3	2.8	2.9	3.4	3.4	3.2	2.9	2.4	2.0	1.6	2.2	3.8
																								Diurnal Average		
																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Wapasu - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Wapasu - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	196	27.22	27.22
0 - 10	399	55.42	82.64
10 - 20	125	17.36	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

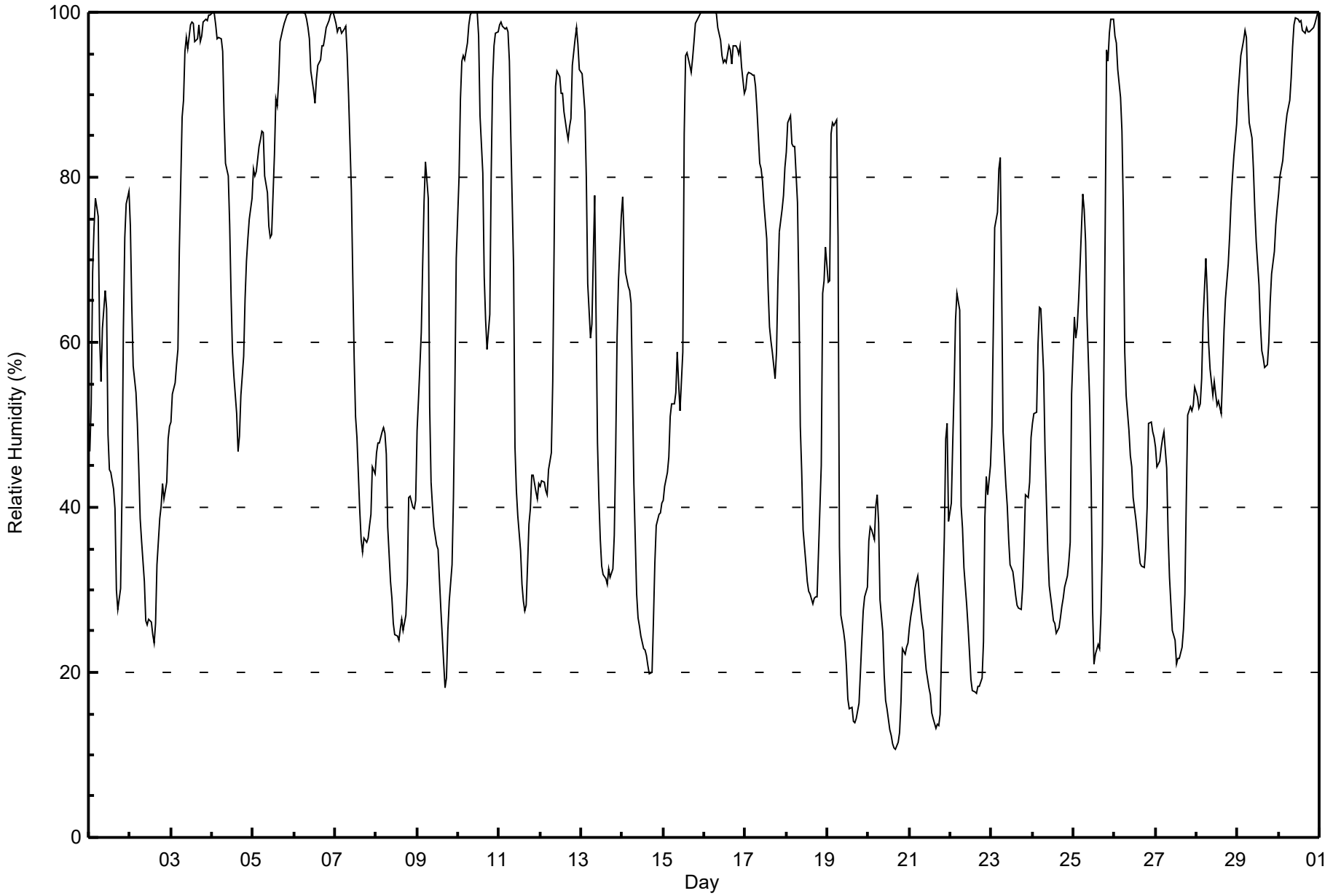
Total Number of Hours: 720



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

**Relative Humidity (RH) - %**  
**Wapasu - April 2024**

Maximum Value: 100.0 % on Apr 5 23:00      Maximum Daily Average: 97.1 % on Apr 6																						Hours in Service:	720																								
Minimum Value: 10.6 % on Apr 20 17:00      Minimum Daily Average: 23.5 % on Apr 20																						Hours of Data:	717																								
Maximum Diurnal Average: 73.2 % at hour 6      Minimum Diurnal Average: 46.3 % at hour 16																						Hours of Missing Data:	3																								
Monthly Average: 59.93 %      Percentiles: P <sub>1</sub> = 13.3 P <sub>10</sub> = 25.0 Q <sub>1</sub> = 35.9 Median = 56.9 Q <sub>3</sub> = 87.7 P <sub>90</sub> = 98.0 P <sub>99</sub> = 100.0																						Hours of Calibration:	0																								
																						Percent Operational Time:	99.6																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Apr	46.8	52.5	68.4	73.8	77.5	75.3	60.9	55.3	61.8	66.2	64.0	48.8	44.6	44.3	42.2	39.9	30.0	27.6	30.2	41.8	61.8	72.7	76.7	78.2	55.9	78.2																					
2-Apr	74.0	64.4	57.1	53.8	50.2	44.8	38.7	35.9	30.9	26.3	25.7	26.4	26.1	24.5	23.5	25.9	33.1	38.6	40.2	42.9	41.0	43.0	48.3	49.8	40.2	74.0																					
3-Apr	50.4	53.8	55.1	57.3	59.2	71.3	87.3	89.3	95.2	97.0	95.7	98.4	98.7	98.7	96.4	96.7	98.5	96.5	97.1	98.8	99.2	99.0	99.7	99.7	87.0	99.7																					
4-Apr	99.9	99.9	98.4	96.8	96.9	96.9	95.3	87.3	81.6	80.2	74.2	65.5	58.8	55.9	51.4	46.8	48.6	53.6	58.2	65.3	69.9	72.5	74.9	77.5	75.3	99.9																					
5-Apr	80.9	80.1	80.7	83.7	84.6	85.5	85.4	80.2	78.1	74.1	72.6	73.1	82.7	89.6	88.7	91.5	96.5	98.0	98.6	99.1	99.6	99.9	100.0	100.0	87.6	100.0																					
6-Apr	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.1	98.2	96.9	92.9	90.4	89.0	91.8	93.5	94.2	95.9	95.9	97.0	98.1	99.0	99.6	99.9	100.0	97.1	100.0																					
7-Apr	98.7	97.6	98.2	98.2	97.5	98.0	98.3	94.9	90.1	78.4	68.1	58.1	51.1	48.5	39.7	36.0	34.6	36.4	35.7	36.3	37.8	39.2	44.9	44.1	65.0	98.7																					
8-Apr	46.5	47.8	47.8	49.2	49.7	49.0	46.5	37.7	31.0	28.9	26.0	24.5	24.4	23.8	25.3	26.5	25.1	26.9	31.0	41.2	41.4	40.0	39.8	40.8	36.3	49.7																					
9-Apr	49.3	53.0	61.2	69.4	77.2	81.8	77.4	52.3	43.0	40.2	37.5	35.4	34.9	31.1	27.7	21.2	18.1	19.3	25.1	28.6	33.1	41.3	53.9	70.1	45.1	81.8																					
10-Apr	80.1	89.5	94.1	94.8	94.3	96.2	98.5	99.7	100.0	100.0	100.0	100.0	97.1	87.4	80.5	68.0	62.7	59.1	63.4	80.5	91.7	96.0	97.5	97.7	88.7	100.0																					
11-Apr	98.5	98.7	98.3	97.9	98.2	97.6	94.0	85.0	69.1	47.3	42.0	38.9	34.7	30.8	28.7	27.5	28.2	37.9	39.9	43.8	44.0	41.8	41.0	42.8	58.6	98.7																					
12-Apr	42.6	43.2	43.0	42.1	41.5	44.6	46.6	55.2	71.9	91.1	92.9	92.1	90.1	90.1	88.1	85.6	84.6	86.1	87.2	93.6	96.8	98.2	96.1	93.1	74.8	98.2																					
13-Apr	92.5	90.3	88.0	80.0	67.2	60.6	62.2	70.3	77.7	47.8	41.0	36.0	32.9	31.9	31.4	30.8	32.5	31.5	32.5	36.6	46.8	60.7	67.4	75.2	55.2	92.5																					
14-Apr	77.7	72.6	68.5	66.7	66.2	64.7	54.2	42.8	29.4	26.6	25.5	24.4	23.0	22.7	22.0	20.8	19.8	20.0	26.3	33.1	37.8	39.1	39.3	40.5	40.2	77.7																					
15-Apr	40.8	42.6	44.3	46.0	51.1	52.6	52.6	54.0	58.7	55.0	51.6	58.9	85.3	93.0	94.8	95.0	93.5	92.7	94.5	96.4	98.7	99.3	99.7	100.0	73.3	100.0																					
16-Apr	100.0	100.0	100.0	OR	OR	OR	100.0	99.8	98.2	96.6	94.8	94.0	94.3	93.8	96.0	95.5	93.7	95.9	95.9	95.6	94.9	95.9	93.3	90.1	96.1	100.0																					
17-Apr	90.6	92.3	92.7	92.6	92.4	92.3	91.1	88.3	81.7	81.1	79.4	76.7	72.5	66.5	61.8	60.1	58.7	55.6	58.7	67.2	73.4	76.1	77.8	81.1	77.5	92.7																					
18-Apr	83.1	86.6	87.5	84.1	83.7	83.8	76.9	66.1	49.9	44.4	37.3	33.1	31.1	29.8	29.6	28.3	29.0	29.2	29.1	34.4	45.2	66.0	67.5	71.4	54.5	87.5																					
19-Apr	67.3	67.4	85.3	86.6	86.3	86.9	72.6	35.2	27.0	24.9	23.6	20.7	16.8	15.6	15.7	14.1	13.9	14.5	16.2	20.0	23.9	27.4	29.1	30.4	38.4	86.9																					
20-Apr	35.9	37.7	37.3	36.1	40.1	41.6	38.1	28.8	25.0	19.7	16.6	15.6	13.0	12.3	11.4	10.8	10.6	11.6	12.7	16.5	22.9	22.3	23.0	23.6	23.5	41.6																					
21-Apr	25.3	26.7	28.7	30.2	31.0	31.6	27.9	26.1	25.1	22.3	20.3	18.1	17.3	15.1	14.3	13.2	13.7	13.6	14.9	22.5	36.5	48.2	50.2	38.4	25.5	50.2																					
22-Apr	40.5	47.8	54.4	62.8	65.9	63.8	40.2	37.5	32.6	28.1	25.4	22.3	19.1	17.8	17.6	17.4	18.3	18.3	19.3	23.7	38.9	43.8	41.5	45.1	35.1	65.9																					
23-Apr	49.9	61.4	73.9	75.7	81.0	82.4	66.5	49.2	42.8	40.1	36.2	33.0	32.1	30.8	29.4	28.1	27.8	27.7	30.3	35.2	41.5	41.2	43.0	48.4	46.1	82.4																					
24-Apr	50.2	51.4	51.6	59.9	64.3	64.0	56.2	46.9	40.7	34.7	30.6	27.8	26.2	25.9	24.8	25.4	26.6	28.0	28.9	30.3	31.6	33.4	35.8	53.7	39.5	64.3																					
25-Apr	63.0	60.4	61.9	65.0	69.2	78.0	76.2	72.2	63.1	52.3	42.9	27.6	21.1	22.2	23.3	22.8	27.2	35.5	73.4	95.4	94.1	97.4	99.1	99.1	60.1	99.1																					
26-Apr	97.2	96.2	93.1	89.6	85.5	75.9	58.8	53.6	49.3	46.3	44.9	41.2	38.5	36.7	34.8	33.3	32.9	32.7	35.0	40.0	50.2	50.3	49.1	48.5	54.7	97.2																					
27-Apr	47.2	44.8	45.6	47.0	48.3	49.2	44.8	36.7	31.6	28.2	25.1	23.9	21.0	21.7	21.7	23.0	25.3	29.6	40.8	51.2	52.2	51.6	52.4	54.5	38.2	54.5																					
28-Apr	53.4	52.1	52.5	55.6	62.7	70.2	66.0	59.9	56.9	53.5	55.3	53.7	52.4	52.9	51.3	56.4	61.5	65.3	69.5	72.9	76.9	80.0	82.5	86.5	62.5	86.5																					
29-Apr	90.1	92.4	94.7	96.6	97.8	96.9	90.2	86.6	84.8	81.1	76.1	72.3	67.0	62.2	59.0	58.1	56.9	57.3	60.0	65.0	68.3	71.0	74.2	76.3	76.4	97.8																					
30-Apr	78.0	80.2	82.1	84.2	86.1	87.7	89.2	92.0	95.8	98.5	99.3	99.1	98.8	99.0	97.9	97.5	98.1	97.6	97.6	97.8	98.1	98.7	99.2	100.0	93.9	100.0																					
																						68.3	69.4	71.5	71.6	72.6	73.2	69.7	63.9	60.7	56.9	53.9	51.0	49.8	48.9	47.4	46.3	46.5	47.8	51.4	56.9	61.6	64.9	66.6	68.6	Diurnal Average	
																						100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	100.0	100.0	100.0	100.0	98.8	99.0	97.9	97.5	98.5	98.0	98.6	99.1	99.6	99.9	100.0	100.0	Diurnal Maximum	
OR - Out of Range																																															





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Wapasu - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	37	5.16	5.16
20 - 40	177	24.69	29.85
40 - 60	164	22.87	52.72
60 - 80	109	15.20	67.92
80 - 100	211	29.43	97.35

Total Number of Valid Hours: 717

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

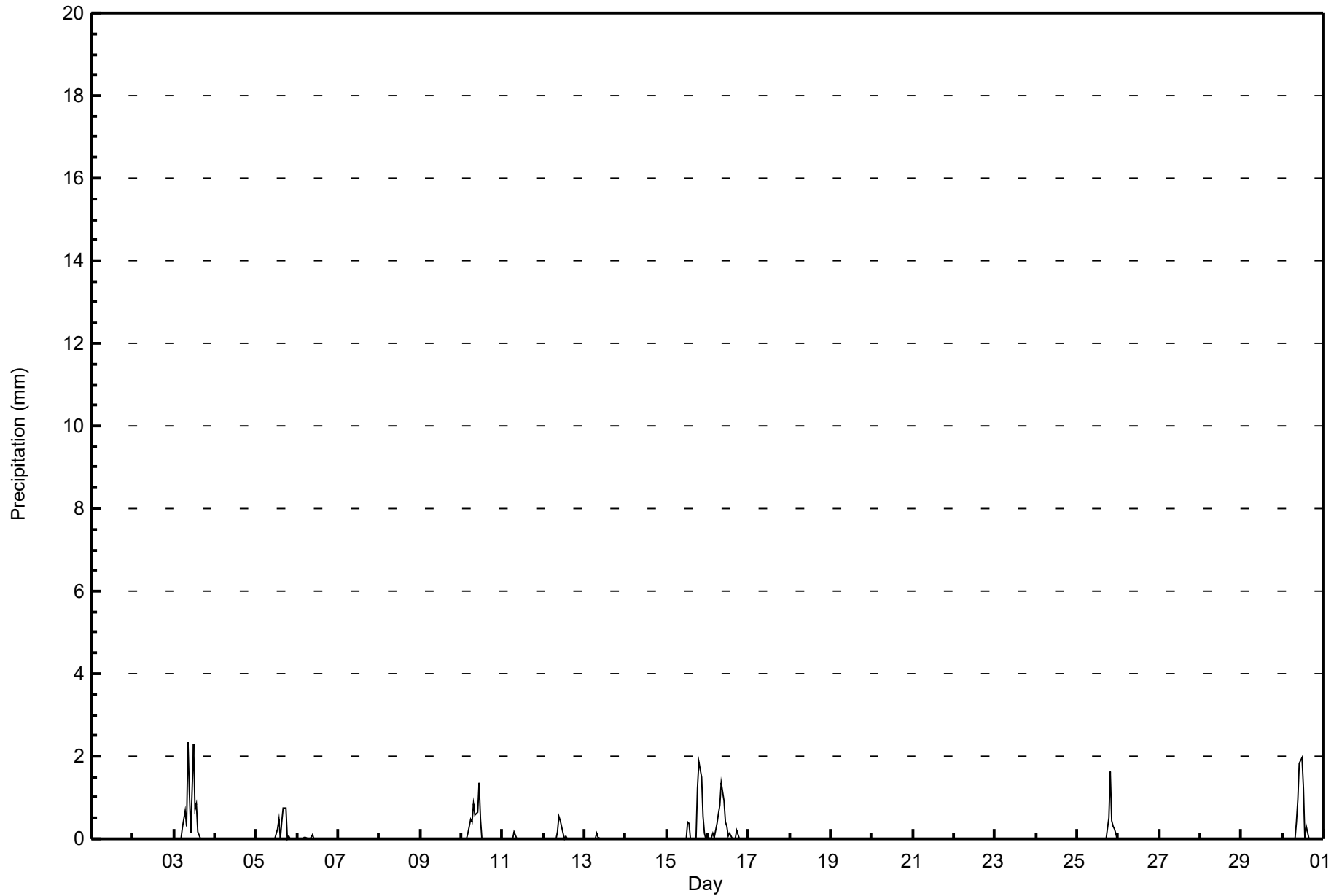
**Wapasu - April 2024**

Maximum Value: 2.4 mm on Apr 3 09:00																				Maximum Daily Total: 8.9 mm on Apr 3					Hours in Service: 720										
Minimum Value: 0.0 mm on Apr 1 01:00																				Minimum Daily Total: 0.0 mm on Apr 1					Hours of Data: 720										
Maximum Diurnal Total: 5.2 mm at hour 12																				Minimum Diurnal Total: 0.0 mm at hour 2					Hours of Missing Data: 0										
Monthly Total: 39.75 mm																				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> = 1.4					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-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3-Apr	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.3	2.4	1.1	0.1	2.3	0.7	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	2.4
4-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.4	0.7	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.8	
6-Apr	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	
7-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10-Apr	0.0	0.0	0.0	0.0	0.1	0.5	0.4	0.8	0.6	0.6	1.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	1.4	
11-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
12-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.5	
13-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	
14-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	1.2	1.9	1.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	1.9	
16-Apr	0.1	0.0	0.1	0.2	0.1	0.4	0.6	0.8	1.4	0.9	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.4	
17-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
19-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
20-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
21-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
22-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
23-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.6	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	1.6	
26-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
28-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
29-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
30-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	1.8	2.0	1.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	2.0	
																								Diurnal Average											
																								Diurnal Maximum											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Wapasu - April 2024**







# Wood Buffalo Environmental Association

## Summary of Hour Averages

### Wind Speed (WS) - km/h

### Wapasu - April 2024

Maximum Speed: 21 km/h on Apr 11 22:00	Maximum Daily Speed Average: 15.6 km/h on Apr 24	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 5 06:00	Minimum Daily Speed Average: 2.7 km/h on Apr 3	Hours of Data: 677
Maximum Diurnal Speed Average: 5.5 km/h at hour 1	Minimum Diurnal Speed Average: 1.0 km/h at hour 10	Hours of Missing Data: 43
Monthly Average Velocity: 1.7 km/h 125.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 15 P <sub>99</sub> = 19	Percent Operational Time: 94.0

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-Apr	S13WSW11WNW13	NW10	W8	WSW9	WSW12	WNW14	WNW15	NW18	NNW15	NNW18	WNW15	WNW14	W14	WNW9	NW13	NW11	NW7	WNW3	WSW2	SSE2	SE5	SSE5	WNW8.1	NNW18			
2-Apr	SSE6	SSE7	SSE7	SSE7	SSE8	SSE10	SSE12	SSE14	SSE13	SSE13	S12	SSE14	SSE17	SSE17	SSE18	SSE17	S16	S12	SSE12	SE14	SSE15	SSE12	SSE9	SSE8	SSE12.0	SSE18	
3-Apr	SSE8	SSE8	SSE6	SSE6	SSE5	NW4	NW3	NW5	NW8	N5	NW3	W7	NW6	N7	N6	N9	N6	N7	NNE8	NNE7	NNE7	N7	N6	UO	N2.7	N9	
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	N8	N8	N10	NNE9	NE7	E7	ENE6	E5	E5	ESE7	ESE7	ESE9	---	N10
5-Apr	ESE10	SE10	SE7	SE5	ESE5	E1	NE4	E7	ESE6	ESE7	SE6	E5	NNE8	NE10	NE9	ENE7	ENE5	NE3	NNE3	N3	NNE3	NNE2	N3	NNW2	E4.0	ESE10	
6-Apr	NNW5	NNW5	N5	N4	NNE4	NNE3	NNE3	NNE4	NNE5	NNE5	N6	NNE6	NNE7	NNE8	NE5	N5	NNE6	NE5	NNE3	N3	NE4	NE1	SSE2	SSE2	NNE4.0	NNE8	
7-Apr	S3	SSE3	SE4	S4	SSW4	SSW5	S6	S8	SSW8	SSW11	SW12	SW13	SW14	SW14	SW15	SW14	SW12	SSW9	SW9	SW8	SSW7	SSW7	S6	S6	SSW7.9	SW15	
8-Apr	SSE6	SSE7	SSE8	SSE8	SSE7	SSE7	SSE7	S7	SSW8	SW13	SW12	SSW12	SW13	SSW13	SSW13	SSW10	SW10	SW7	SSE4	SE5	SE6	SE7	SE6	SSW2	S6.9	SW13	
9-Apr	ESE5	SE3	SE4	SE4	SE4	SE4	ESE4	S4	SW6	SW7	SW9	SW12	SW14	WSW15	WSW13	WSW13	WSW11	W9	W10	W6	WSW6	WSW4	NW3	NNE8	SW4.9	WSW15	
10-Apr	N9	N10	N8	NW6	W4	NW9	NNW16	NNW13	NNW16	NNW13	N8	NNW11	NNW13	N11	N10	N11	N11	N10	NE8	ENE4	E5	E6	E5	SSW4	N7.5	NNW16	
11-Apr	UO	UO	UO	UO	SE6	SSE8	SSE10	SSE12	SSE12	SSE12	SSE12	SSE12	SE15	SSE15	SSE15	SSE16	SSE17	SE18	SE19	SE19	SE20	SE21	SSE20	SSE18	SSE14.7	SE21	
12-Apr	SSE17	SSE16	SSE17	SSE19	SSE18	SSE14	SSE15	S14	S16	SSE19	SSE19	SSE17	SSE15	SSE16	SSE18	SSE14	SSE14	SSE13	SSE12	SSE13	SSE12	SSE10	SSE12	SSE12	SSE15.1	SSE19	
13-Apr	SSE11	S8	S7	S8	SSW11	SW14	SW12	WSW10	NNW10	NNW15	NNW15	NNW15	NNW16	NNW17	NNW17	NNW15	NNW13	NNW15	NNW10	W6	W4	WSW3	SSE2	SE5	W7.6	NNW17	
14-Apr	SSE6	SSE6	SSE6	SSE6	SSE6	SSE7	SSE7	SSE6	SSW6	WSW6	SW4	SSW6	SW7	W7	WSW7	NNW4	N3	NNW4	ENE10	E8	E8	E11	ESE12	ESE14	SSE3.5	ESE14	
15-Apr	ESE14	SE12	SE9	SE4	SE1	SE5	SSE7	ESE2	N7	NE7	ENE11	ESE13	E12	ENE10	NE11	ENE12	ENE13	ENE12	ENE12	NE10	NE10	NE9	NNE6	NNE6	ENE7.1	ESE14	
16-Apr	NNE8	NNE9	NNE10	NNE11	UO	UO	UO	UO	UO	UO	UO	UO	UO	N13	N16	N15	NNE12	NNE9	NNE9	NNE8	NNE6	NNE5	NNE7	NNE9	---	N16	
17-Apr	N5	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNE6	N8	N8	N13	N15	N17	NNE15	NNE14	NNE13	NNE12	NNE8	NNE6	NE6	NE6	---	N17	
18-Apr	NE7	NE6	NE7	NE8	NNE6	NNE7	NNE8	NNE10	NNE12	NNE13	NNE13	NNE15	NNE14	NNE15	N15	NNE14	NNE14	NNE12	NNE9	NNE5	NNE3	NE3	ENE3	ENE4	NNE9.1	NNE15	
19-Apr	E5	E4	SE4	SE5	SE4	SE4	SSE4	SW6	SW8	SW9	WSW8	W8	W8	NW9	NW9	W7	WSW9	SW9	SW8	S5	S6	S6	SSW7	SSW8	SW4.0	WSW9	
20-Apr	S6	S6	S7	SSW7	S7	S6	S6	SSW9	SSW8	SW9	W11	W10	W12	W11	WSW12	W11	WSW10	SW10	SW9	SSW5	SSE6	SSE8	SSE8	SSE8	SW6.4	W12	
21-Apr	SSE9	SSE8	SSE9	SSE8	SSE8	SSE8	SSE8	SSE9	S8	S11	SSE13	SSE12	S10	SSE8	ESE8	SE5	SW5	NW5	N6	NNW5	NNE3	ENE4	ESE6	SE6	SSE5.6	SSE13	
22-Apr	SE4	ESE4	E2	ESE4	E4	ENE4	NNW8	N7	N8	NNE10	N11	N10	N10	N12	N13	N13	N11	NNE11	NE10	NE5	E4	N8	N7	NNE6	NNE6.5	N13	
23-Apr	NNE6	NE4	ESE3	E3	SE4	SE4	NNE3	N7	NNW9	N8	N8	N9	N9	N11	N10	NNW12	N9	NNE10	NE10	NE8	ENE7	E9	E13	ESE13	NNE5.6	ESE13	
24-Apr	ESE14	ESE14	ESE14	ESE15	ESE15	ESE14	ESE12	SE17	SE17	ESE15	ESE14	SE16	ESE16	ESE18	ESE20	ESE18	ESE18	ESE18	ESE18	ESE15	ESE15	ESE15	SE11	SE16	ESE15.6	ESE20	
25-Apr	SE17	SE13	SE14	SE10	S8	SSW7	SW8	SW9	WSW8	WSW11	SW16	WSW17	W16	WSW17	WSW20	WSW17	WSW17	W16	NNW17	NNW12	NNW16	NNW12	NNW11	NNW14	WSW7.0	WSW20	
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNW15	NNW16	NNW16	NNW15	NNW14	NNW13	NNW10	N10	NNE8	NE8	ENE6	E6	ESE8	SE10	SE10	---	NNW16	
27-Apr	SE11	SSE14	SSE16	SSE15	SSE15	SSE12	S12	S13	SSW12	SSW12	SSW12	S14	SSW16	SSW16	S14	SSW14	S13	S13	SSW14	S11	SSE10	SSE11	SE11	SE10	S12.2	SSE16	
28-Apr	SE12	SE12	SE12	SE11	SE10	SE11	SE13	SSE16	SSE14	SSE13	SSE13	SE13	SSE12	SE11	SE12	SE13	SE12	SE14	SE12	SE12	SE13	SE13	SE13	SE10	SE12.3	SSE16	
29-Apr	SE10	SE9	ESE3	NNE1	NE4	E4	E5	E7	E7	NE6	NE7	NNE7	N8	NNE8	NNE10	NNE11	NNE11	NNE11	NNE11	NNE10	NNE11	NNE11	NNE9	NNE9	NNE10	NE6.5	NNE11
30-Apr	NNE9	NNE11	NNE11	NNE11	NNE12	NNE13	NNE13	NNE13	NNE12	N10	N10	NNE11	NNE11	NNE12	NNE13	NNE14	N12	N11	N9	N10	NNE11	NNE9	N9	N10	NNE11.0	NNE14	

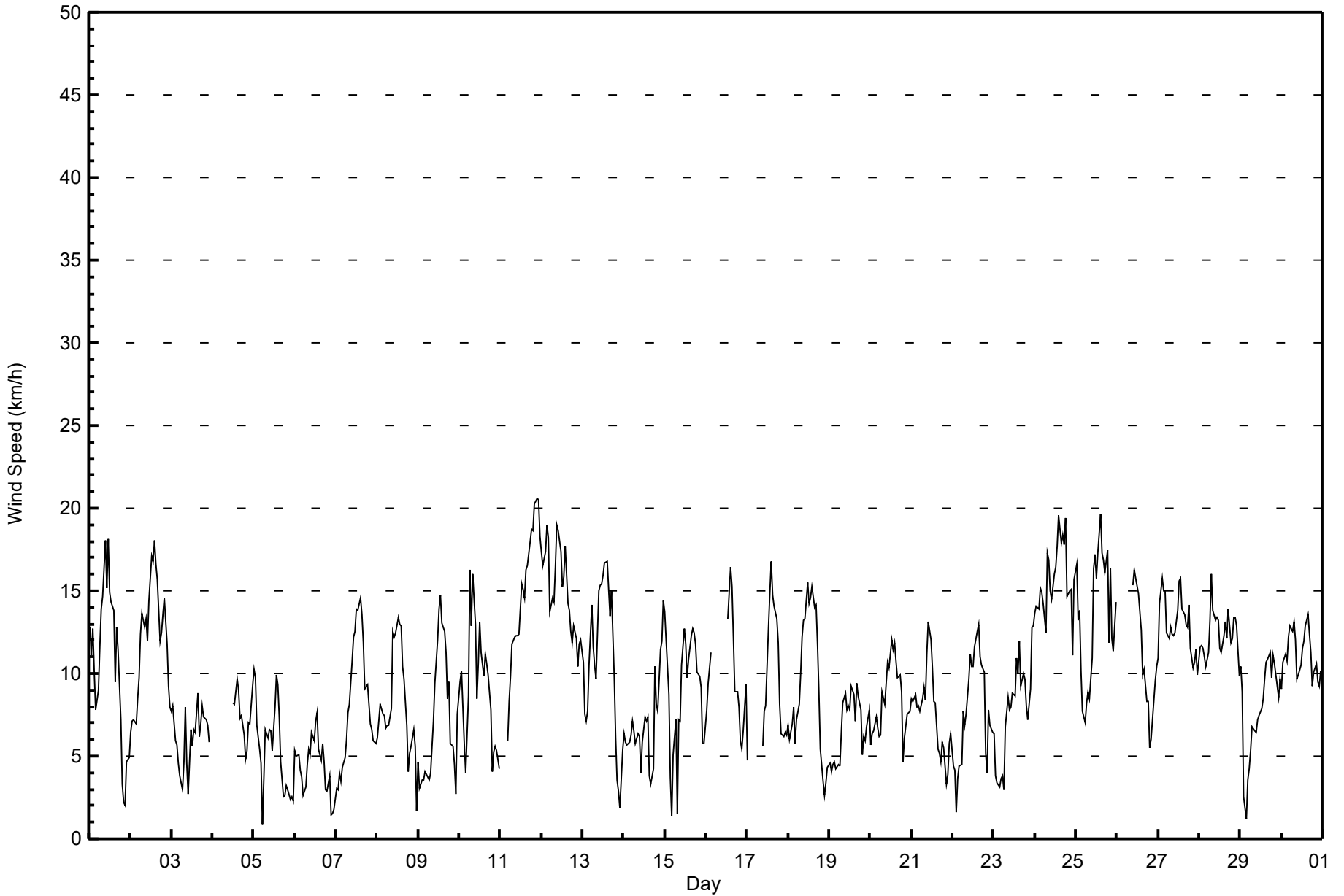
SE5.5 SE5.0 SE4.4 SE3.9 SSE4.3 SSE3.7 SSE3.0 S2.7SSW1.7 SW1.0 SW1.4WSW1.2NNW1.6 NW1.7NNW1.3NNW1.6 N1.0NNE1.6 ENE2.7 E2.7 E3.7 ESE3.7 ESE3.9 ESE4.0	Diurnal Average
SSE17 SSE16 SSE17 SSE19 SSE18 ESE14NNW16 ESE17 SE17 SSE19 SSE19NNW18 SSE17 ESE18WSW20 ESE18 ESE18 SE18 ESE19 SE19 SE20 SE21 SSE20 SSE18	Diurnal Maximum

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Wapasu - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Wapasu - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	122	18.02	18.02
6 - 11	321	47.42	65.44
12 - 19	229	33.83	99.26
20 - 28	5	0.74	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 677

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Wapasu - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	9	16	10	6	14	8	20	10	4	5	2	3	2	3	6	4	122
6 - 11	45	61	21	7	10	9	22	48	21	16	18	13	13	3	9	5	321
12 - 19	10	23	0	4	2	24	24	57	12	10	15	9	4	13	3	19	229
20 - 28	0	0	0	0	0	1	2	1	0	0	0	1	0	0	0	0	5
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>	<b>64</b>	<b>100</b>	<b>31</b>	<b>17</b>	<b>26</b>	<b>42</b>	<b>68</b>	<b>116</b>	<b>37</b>	<b>31</b>	<b>35</b>	<b>26</b>	<b>19</b>	<b>19</b>	<b>18</b>	<b>28</b>	<b>677</b>

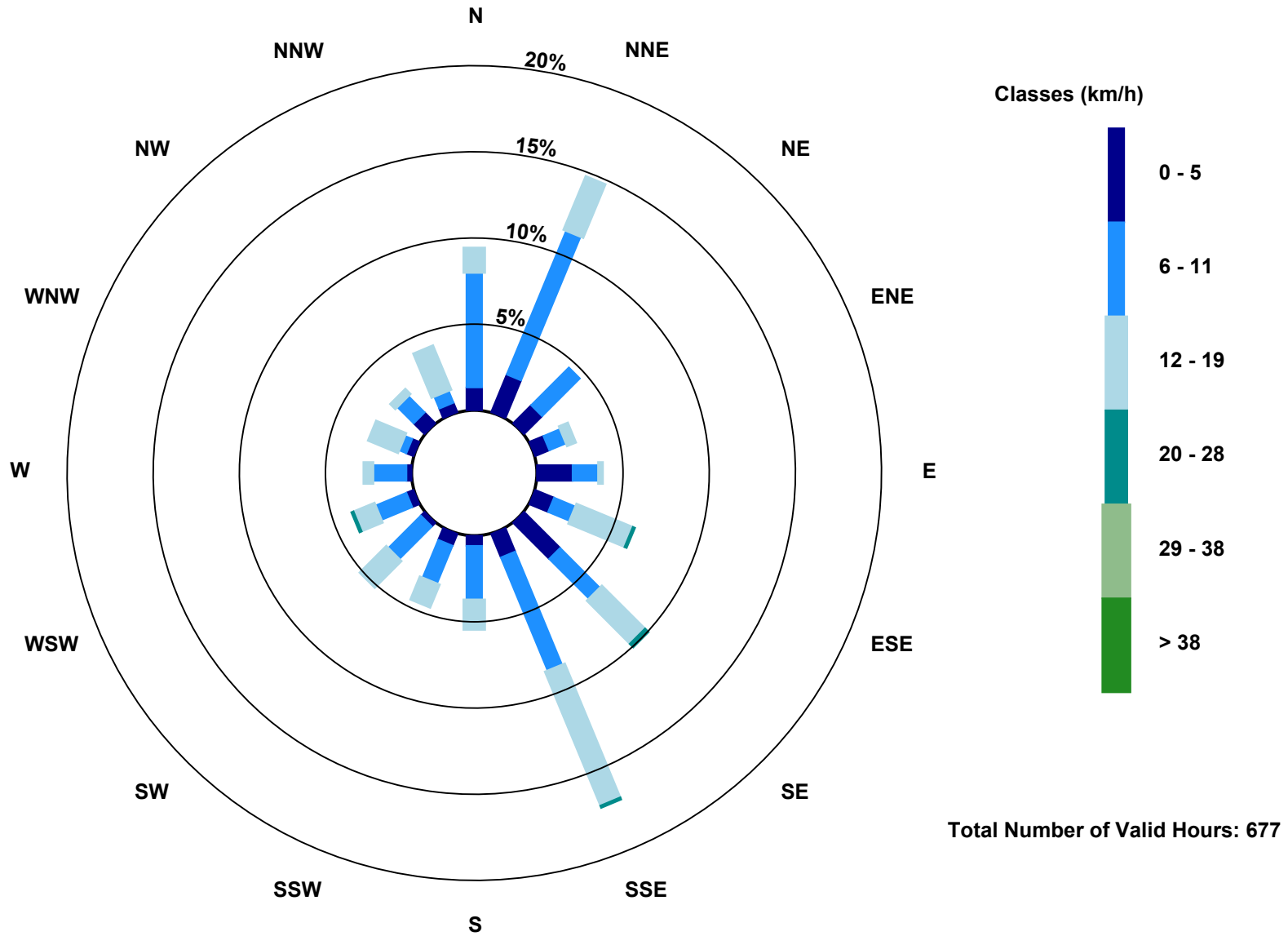
Total Number of Valid Hours: 677

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Wapasu





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Wapasu - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 8 km/h on Apr 16 14:00	Hours of Data: 677
Minimum Value: 0 km/h on Apr 23 04:00	Hours of Missing Data: 43
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 94.0

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	4	4	3	3	2	3	5	5	6	5	5	4	5	5	3	5	4	3	1	1	1	1	1	6
2-Apr	1	1	1	1	2	2	3	4	4	4	4	4	6	6	6	5	5	4	3	3	4	4	2	2	6
3-Apr	2	2	2	1	2	2	1	2	2	2	2	2	2	2	3	3	2	2	3	2	2	2	2	3	3
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	2	2	1	1	2	2	3	3
5-Apr	3	3	3	2	2	2	2	3	3	2	2	2	3	3	3	3	1	1	1	1	1	1	1	3	
6-Apr	1	1	2	2	2	1	1	2	2	2	2	2	2	3	2	1	2	2	1	1	1	1	1	3	
7-Apr	1	1	1	1	1	1	2	2	3	3	4	4	5	4	4	4	4	3	3	2	2	2	1	1	5
8-Apr	1	1	1	1	1	1	1	2	3	3	4	4	4	4	5	4	3	3	1	1	1	2	2	3	5
9-Apr	2	2	1	1	1	1	1	2	2	3	4	4	5	5	5	5	4	3	3	4	2	1	2	2	5
10-Apr	3	3	2	2	2	4	5	4	5	4	3	3	3	4	3	3	3	3	2	1	1	1	1	1	5
11-Apr	UO	UO	UO	UO	3	2	2	3	4	4	4	4	4	5	6	5	5	6	5	5	5	6	6	5	6
12-Apr	5	4	5	5	6	4	4	5	6	6	6	5	5	5	5	4	4	4	4	4	4	3	3	3	6
13-Apr	3	2	2	2	3	4	3	3	4	5	5	5	5	6	6	5	5	6	3	2	1	1	2	1	6
14-Apr	1	1	1	1	1	1	1	2	2	3	3	3	3	4	4	3	2	3	4	2	2	4	3	4	4
15-Apr	4	3	3	2	2	2	3	2	3	3	4	4	4	4	4	4	4	4	4	3	3	3	2	2	4
16-Apr	3	3	4	4	UO	UO	UO	UO	UO	UO	UO	UO	UO	8	7	8	7	7	6	5	4	4	4	5	8
17-Apr	6	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	6	6	6	6	7	6	5	5	5	3	2	2	2	7
18-Apr	1	1	2	2	2	2	3	3	4	5	5	5	5	4	5	5	4	4	3	2	1	1	1	1	5
19-Apr	1	1	1	0	0	1	1	1	2	3	3	3	3	3	3	3	3	3	3	1	1	1	2	2	3
20-Apr	1	2	2	2	1	1	2	3	2	3	4	3	4	4	5	4	4	3	3	2	1	1	1	1	5
21-Apr	2	1	2	1	2	2	2	3	3	4	4	4	4	3	3	3	3	2	2	2	1	1	1	1	4
22-Apr	1	1	1	1	1	1	2	2	2	3	3	4	4	4	4	5	5	4	4	2	1	3	2	2	5
23-Apr	1	1	0	0	1	1	2	2	3	3	3	4	4	4	4	4	3	4	3	2	2	2	4	3	4
24-Apr	4	4	4	4	4	4	4	5	5	5	4	5	5	5	6	6	6	5	6	5	5	5	3	6	6
25-Apr	5	4	4	4	2	2	2	2	3	4	5	5	6	7	6	6	6	6	7	3	5	3	3	5	7
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	7	5	5	5	4	4	4	4	3	3	2	1	2	2	2	7
27-Apr	3	4	4	4	4	4	4	4	4	4	4	5	5	6	6	5	5	5	5	5	3	3	3	2	6
28-Apr	3	3	3	3	2	3	4	5	4	4	4	4	4	4	4	4	3	4	3	3	3	4	4	3	5
29-Apr	3	3	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	3	3	3	4
30-Apr	3	4	4	4	5	5	5	5	5	3	3	3	4	4	4	5	4	3	3	3	4	3	3	3	5
	6	4	5	5	6	5	5	5	6	7	6	6	6	8	7	8	7	7	7	5	5	6	6	6	
	Diurnal Maximum																								

UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Wapasu - April 2024**

Direction of Maximum Speed: 146 deg on Apr 11 22:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 120.7 deg on Apr 24	Hours of Data: 677
Direction of Minimum Speed: 90 deg on Apr 5 06:00	Hours of Missing Data: 43
Direction of Minimum Daily Speed Average: 2.7 deg on Apr 3	Percent Operational Time: 94.0
Monthly Average Direction: 125.9 deg	

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-Apr	179	250	302	314	268	249	250	292	298	323	329	330	303	291	281	302	308	310	306	289	248	157	136	152	293.0	
2-Apr	148	147	152	155	156	152	154	159	158	164	169	147	159	162	162	165	181	171	152	146	153	160	160	162	158.9	
3-Apr	163	153	149	153	164	317	313	307	320	356	322	259	326	359	4	3	9	11	27	23	25	9	10	UC	2.2	
4-Apr	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	359	350	9	31	52	80	75	79	93	106	112	114	--
5-Apr	115	128	131	131	111	90	41	98	106	110	131	79	29	47	53	60	58	39	17	354	19	12	354	344	79.4	
6-Apr	340	336	351	358	14	24	13	12	24	32	6	13	22	30	34	11	21	37	30	6	45	51	152	158	17.2	
7-Apr	191	160	146	191	203	202	182	187	198	202	215	219	220	219	232	234	222	202	222	220	207	206	179	182	209.4	
8-Apr	161	159	163	160	157	154	166	182	203	231	220	211	224	207	212	213	221	215	148	137	126	129	139	197	190.4	
9-Apr	117	130	142	144	127	131	123	176	226	222	230	234	236	241	245	248	258	263	259	268	257	258	324	13	235.9	
10-Apr	5	3	353	324	280	324	338	336	341	344	350	347	340	357	352	359	356	10	49	73	91	95	93	193	354.7	
11-Apr	UC	UC	UC	UC	144	148	147	153	154	155	168	158	142	150	163	154	150	131	135	135	136	146	155	154	148.2	
12-Apr	159	159	154	156	161	160	160	173	174	162	163	161	161	156	154	160	159	167	163	156	149	154	153	159	159.9	
13-Apr	164	176	175	189	208	220	234	254	282	304	290	285	288	301	288	287	292	303	303	278	265	243	156	144	267.6	
14-Apr	148	157	160	156	156	153	155	162	197	245	215	209	214	281	245	286	355	303	72	84	88	94	113	118	148.6	
15-Apr	123	126	128	128	136	133	159	108	4	34	78	102	82	58	53	65	63	68	57	56	50	39	21	25	75.2	
16-Apr	21	18	15	14	UC	UC	UC	UC	UC	UC	UC	UC	UC	358	7	7	14	21	32	29	18	13	12	14	--	
17-Apr	8	UC	UC	UC	UC	UC	UC	UC	UC	UC	13	3	0	5	4	9	17	23	21	28	29	31	32	36	35	--
18-Apr	45	47	46	47	23	21	22	15	16	20	16	17	17	14	11	12	12	18	24	23	23	52	65	70	22.4	
19-Apr	88	91	146	145	131	137	158	227	235	231	251	259	268	308	320	281	241	232	221	187	181	185	202	211	224.4	
20-Apr	190	185	184	202	183	177	183	208	203	234	266	276	274	264	248	275	250	233	222	196	156	163	163	165	221.0	
21-Apr	168	161	161	161	153	149	151	162	175	174	167	159	175	156	123	129	218	322	353	339	31	74	112	127	155.3	
22-Apr	128	116	88	110	80	59	348	3	2	13	8	357	352	1	1	355	352	23	35	45	89	358	11	19	14.7	
23-Apr	26	39	102	90	131	137	22	356	348	360	354	354	8	10	3	348	4	18	38	51	67	84	99	114	32.0	
24-Apr	118	119	117	119	119	119	116	124	124	120	123	128	116	123	118	116	119	114	113	123	107	120	145	145	120.7	
25-Apr	129	138	156	165	187	210	231	231	245	238	228	254	270	249	246	248	243	280	339	341	344	331	327	336	255.8	
26-Apr	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	341	342	343	347	346	339	346	6	28	55	71	100	117	128	136	--
27-Apr	142	152	156	157	162	166	171	184	193	192	200	188	198	199	186	192	181	191	201	187	155	147	143	133	175.4	
28-Apr	133	132	131	137	138	140	143	150	157	158	155	145	152	130	138	136	138	125	131	136	133	132	135	137	139.4	
29-Apr	130	126	114	18	56	92	100	84	86	37	51	22	11	15	32	22	32	29	29	32	31	23	29	33	44.6	
30-Apr	26	30	27	23	19	27	27	22	22	9	11	17	16	22	19	14	2	6	357	8	15	16	6	6	16.5	

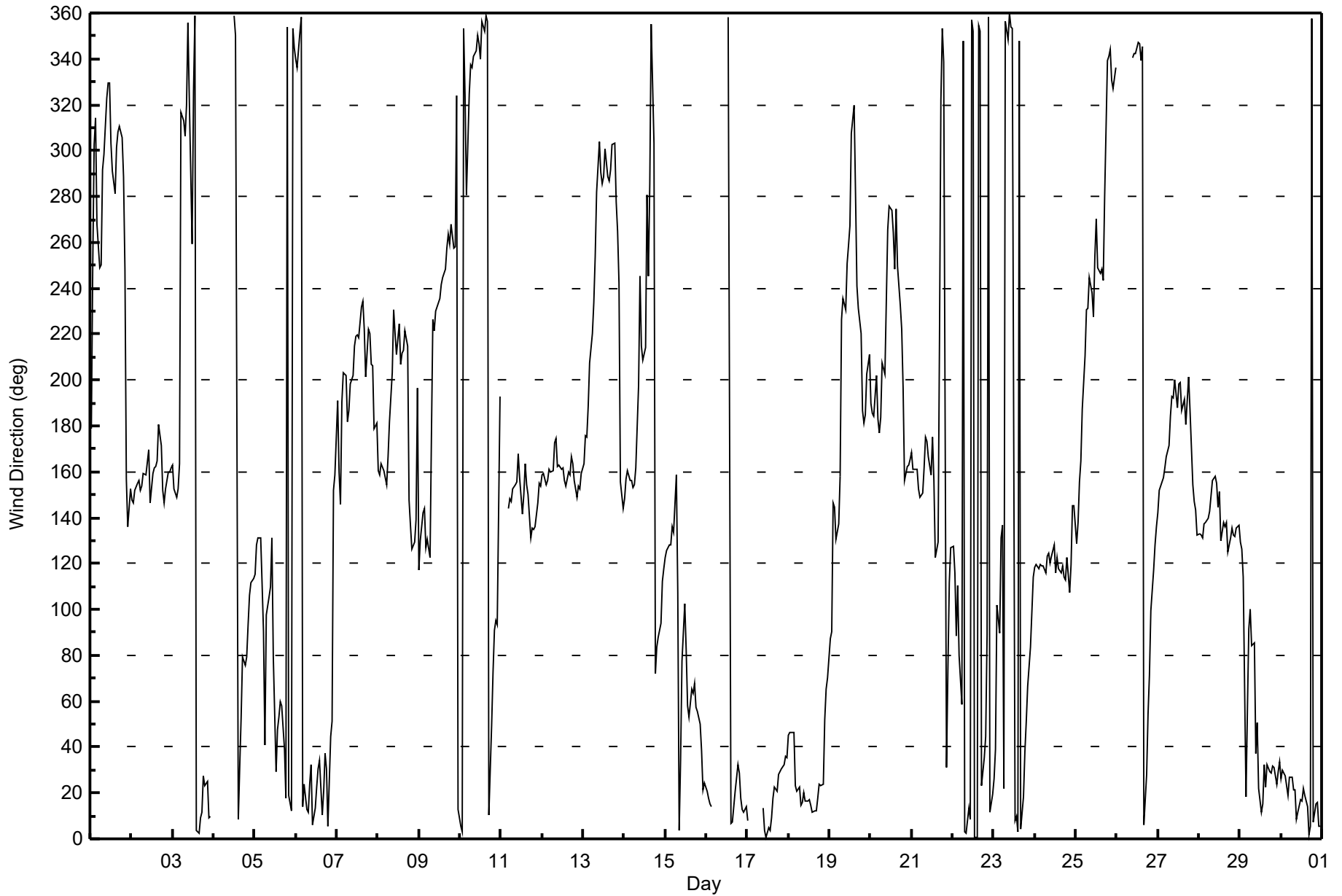
128.3	132.4	134.7	139.2	149.4	151.2	154.5	169.4	194.9	235.3	228.1	241.3	287.0	325.7	330.7	346.4	349.1	31.0	63.9	86.7	96.3	105.9	115.8	119.4
Diurnal Average																							

UC - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Wapasu - April 2024**







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Wapasu - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 94 deg on Apr 15 05:00	Hours of Data: 677
Minimum Value: 3 deg on Apr 19 04:00	Hours of Missing Data: 43
Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 16 Q <sub>1</sub> = 20 Median = 26 Q <sub>3</sub> = 30 P <sub>90</sub> = 37 P <sub>99</sub> = 80	Hours of Calibration: 0
	Percent Operational Time: 94.0

Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	30	38	29	22	26	22	22	29	27	22	21	24	28	34	30	27	29	25	26	21	31	35	16	15	38	
2-Apr	8	9	8	12	14	15	17	21	23	26	26	21	23	25	25	27	28	27	19	16	18	25	19	19	28	
3-Apr	20	22	19	19	47	61	54	40	21	29	37	28	42	27	29	27	29	28	29	29	29	29	28	UO	61	
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	42	51	35	37	36	25	20	21	15	21	19	20	51
5-Apr	20	20	25	26	26	86	44	34	27	26	30	45	30	25	23	38	24	27	28	21	27	26	29	23	86	
6-Apr	17	20	29	33	32	24	28	32	31	36	28	35	33	29	30	29	28	33	37	23	24	57	74	51	74	
7-Apr	37	32	18	30	27	24	26	27	27	25	24	26	27	26	22	28	26	28	21	16	21	25	14	19	37	
8-Apr	16	9	11	11	9	8	15	26	27	20	29	27	23	28	26	28	33	21	21	7	13	16	31	81	81	
9-Apr	37	39	23	41	15	19	14	39	38	38	33	29	24	33	27	32	27	29	27	47	27	23	62	29	62	
10-Apr	29	26	22	26	28	29	19	20	20	19	23	21	20	26	25	26	28	32	25	16	11	12	14	37	37	
11-Apr	UO	UO	UO	UO	12	16	17	18	21	30	30	28	24	27	31	28	23	20	19	20	19	20	21	20	31	
12-Apr	22	21	20	20	23	23	22	28	28	24	25	23	24	24	22	23	24	26	25	21	20	20	19	21	28	
13-Apr	22	27	24	25	24	19	20	22	33	31	32	32	32	28	31	31	29	27	28	29	33	68	83	9	83	
14-Apr	6	11	8	8	9	8	13	25	30	60	82	68	46	45	43	86	73	67	24	17	18	21	19	18	86	
15-Apr	18	18	21	80	94	25	23	83	29	31	29	30	26	25	26	23	24	23	22	21	22	25	28	27	94	
16-Apr	31	30	32	31	UO	UO	UO	UO	UO	UO	UO	UO	UO	29	29	28	30	28	25	28	27	24	27	29	32	
17-Apr	20	UO	UO	UO	UO	UO	UO	UO	UO	UO	25	27	24	29	31	30	33	31	33	30	25	22	21	20	20	33
18-Apr	15	14	16	22	26	25	30	29	29	31	30	30	32	32	33	31	31	36	31	24	14	41	30	9	41	
19-Apr	11	12	14	3	12	8	24	15	27	31	43	44	48	40	37	45	28	27	23	18	16	18	19	17	48	
20-Apr	16	26	24	19	18	16	24	23	27	26	33	37	35	42	34	41	33	27	19	27	9	9	10	11	42	
21-Apr	15	12	14	15	14	15	18	26	32	32	31	35	36	43	48	68	58	51	34	17	24	34	15	9	68	
22-Apr	7	19	63	16	25	22	21	25	27	30	30	35	34	36	32	33	34	34	27	21	18	40	29	25	63	
23-Apr	21	23	19	24	15	12	47	29	27	39	43	41	52	37	40	25	38	32	24	20	18	21	22	20	52	
24-Apr	19	20	18	19	19	19	21	20	21	25	26	26	24	24	25	21	21	22	22	24	22	25	30	30	30	
25-Apr	19	21	20	27	27	21	16	21	37	28	25	30	35	30	26	25	23	32	26	21	20	18	21	20	37	
26-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	24	27	29	30	30	32	48	36	38	26	25	13	17	18	19	48	
27-Apr	17	19	18	21	24	24	26	28	30	28	30	32	30	34	35	31	30	28	27	28	21	19	17	17	35	
28-Apr	17	16	17	16	16	17	20	22	25	29	26	25	30	26	29	25	24	24	22	20	19	19	19	20	30	
29-Apr	19	19	68	66	22	19	26	30	33	38	38	35	37	44	32	31	30	31	29	29	28	30	29	27	68	
30-Apr	30	28	30	30	32	30	30	32	32	29	30	31	30	33	31	29	28	28	25	28	30	31	28	28	33	
Diurnal Maximum																										
37 39 68 80 94 86 54 83 38 60 82 68 52 51 48 86 73 67 37 47 33 68 83 81																										

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS18 STONY MOUNTAIN APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
 APRIL 2024

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	684	35	36	99.86	5.2	0	1	0
TRS(ppb) Average	683	36	37	99.86	4.2	0	0.4	0
THC(ppm) Average	682	35	38	99.58	2.3	-	2.1	-
NMHC(ppm) Average	682	35	38	99.58	0.106	-	0.019	-
CH4(ppm) Average	682	35	38	99.58	2.3	-	2.1	-
O3 (ppb) Average	684	35	36	99.86	56.3	0	49.8	-
NO2 (ppb) Average	684	35	36	99.86	7.9	0	1.8	-
NO (ppb) Average	684	35	36	99.86	2.3	-	0.3	-
NOX (ppb) Average	684	35	36	99.86	10.2	-	2.1	-
PM2.5 (ug/m3) Average	718	1	2	99.86	12.8	0	5.5	0
CO(ppm) Average	685	34	35	99.86	0.2	0	0.2	0
CO2(ppm) Average	685	34	35	99.86	448.7	0	440.6	0
Temperature 2 m (C) Average	720	0	0	100	19.4	-	11.2	-
Relative Humidity (%) Average	720	0	0	100	100	-	97	-
Wind Speed 10 m (km/h) Average	720	0	0	100	18	-	12	-
Wind Speed 20 m (km/h) Average	719	0	1	99.86	26	-	18	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	0	-
Wind Direction 20 m (deg) Average	719	0	1	99.86	-	-	0	-
Precipitation (mm) Total	713	0	7	99.03	1.7	-	3.9	-
Leaf Wetness (% of range) Average	704	0	16	97.78	38.4	-	13	-
Global Solar Radiation (W/m2) Average	720	0	0	100	881.3	-	284.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	684	0.26	0.4	-	0	0	0.1	0.2	0.3	0.6	5.2
TRS (ppb) Average	683	0.24	0.2	-	0.1	0.2	0.2	0.2	0.2	0.3	4.2
THC (ppm) Average	682	2.07	0	-	2	2	2	2.1	2.1	2.1	2.3
NMHC(ppm) Average	682	0.004	0.013	-	0	0	0	0	0	0	0.106
CH4(ppm) Average	682	2.06	0	-	2	2	2	2.1	2.1	2.1	2.3
O3 (ppb) Average	684	39.19	9	-	14.2	25.3	33.1	41.7	45.3	49	56.3
NO2 (ppb) Average	684	0.91	0.6	-	0.2	0.3	0.5	0.8	1.2	1.6	7.9
NO (ppb) Average	684	0.06	0.1	-	0	0	0	0	0.1	0.2	2.3
NOX (ppb) Average	684	0.97	0.8	-	0.2	0.3	0.5	0.8	1.3	1.7	10.2
PM2.5 (ug/m3) Average	718	2.65	1.4	-	0.1	1	1.5	2.6	3.5	4.7	12.8
CO(ppm) Average	685	0.15	0	-	0.1	0.1	0.1	0.2	0.2	0.2	0.2
CO2(ppm) Average	685	436.49	3	-	431.1	433	434.2	436.1	438.1	440.5	448.7
Temperature 2 m (C) Average	720	4.81	5.5	-	-9.5	-1.6	0.8	4.2	8.4	12.5	19.4
Relative Humidity (%) Average	720	53.03	26.9	-	10.5	20.8	29.8	47.4	76.7	94.6	100
Wind Speed 10 m (km/h) Average	720	7.9	3	-	1	4	5	8	10	12	18
Wind Speed 20 m (km/h) Average	719	12.1	5	-	1	7	9	11	15	18	26
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	719	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	713	-	-	15.63	-	-	-	-	-	-	-
Surface Wetness (% of range) Average	704	2.58	4.6	-	0	0.7	1	1.3	1.7	2.5	38.4
Global Solar Radiation (W/m2) Average	720	170.42	230.6	-	0	0.1	0.4	39.1	308.4	552.7	881.3

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
APRIL 2024

MONTHLY SUMMARY

Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	05 Apr 2024 09:00	05 Apr 2024 09:00	1	Station power failure
THC/NMHC/CH4	26 Apr 2024 15:00	26 Apr 2024 16:00	2	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction 20m	16 Apr 2024 14:00	16 Apr 2024 14:00	1	Flat line in sensor output signal
Precipitation Collector	24 Apr 2024 01:00	24 Apr 2024 07:00	7	DAS Failure - data not recorded
Surface Leaf Wetness	05 Apr 2024 18:00	06 Apr 2024 09:00	16	Unstable Operations - excessive baseline drift



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

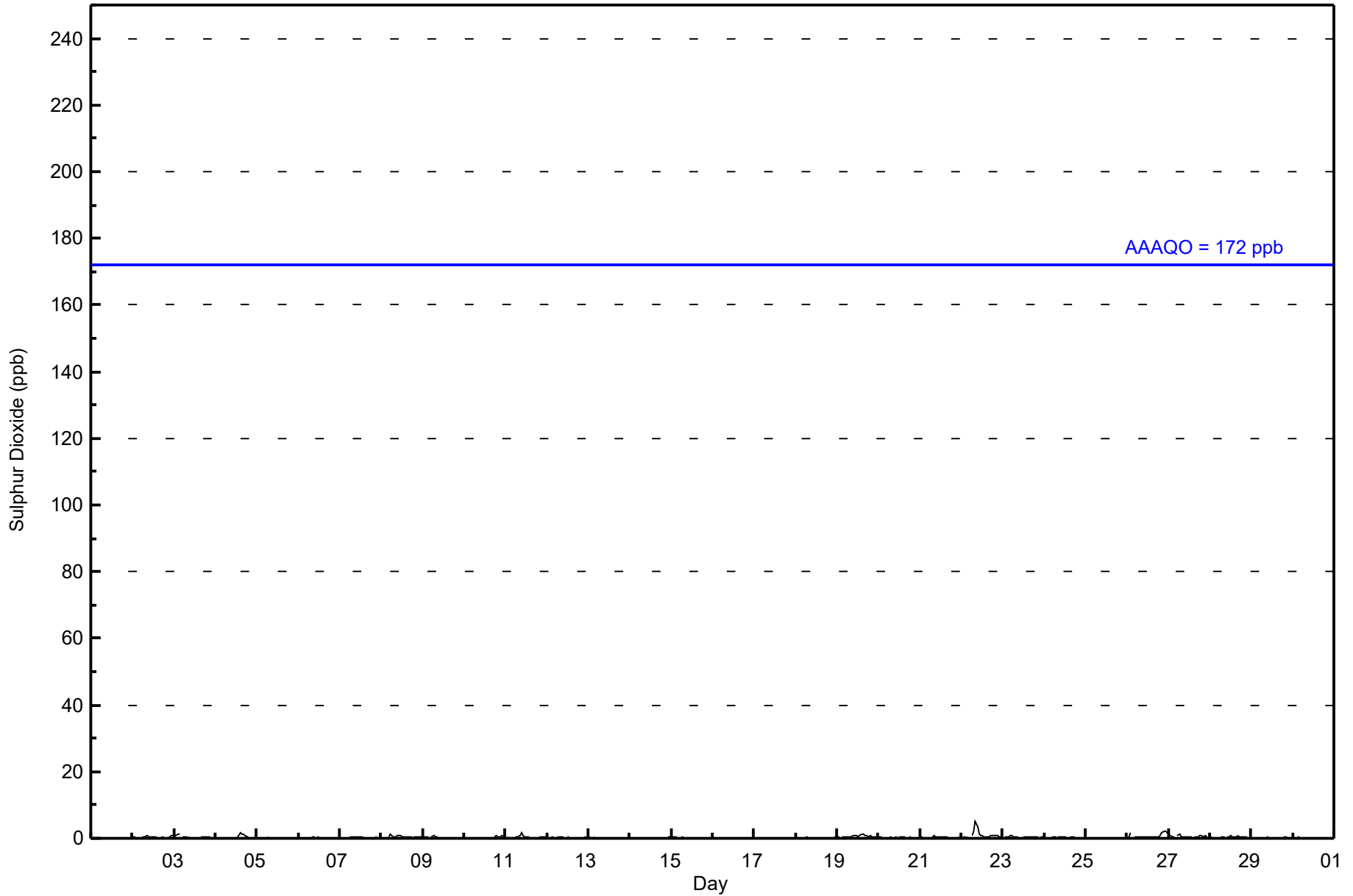
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720																Daily Average		Daily Maximum																								
Maximum Value: 5.2 ppb on Apr 22 09:00		Maximum Daily Average: 1.0 ppb on Apr 22		Hours of Data: 684																Hours of Missing Data: 36		Hours of Calibration: 35		Percent Operational Time: 99.9																								
Minimum Value: 0.0 ppb on Apr 1 06:00		Minimum Daily Average: 0.0 ppb on Apr 17		Hours of Missing Data: 36																Hours of Calibration: 35		Percent Operational Time: 99.9																										
Maximum Diurnal Average: 0.4 ppb at hour 9		Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Calibration: 35																Hours of Calibration: 35		Percent Operational Time: 99.9																										
Monthly Average: 0.26 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.6		Hours of Calibration: 35																Hours of Calibration: 35		Percent Operational Time: 99.9																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	0.0	0.1	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2																						
2-Apr	0.4	0.3	0.2	Z	0.2	0.2	0.4	0.4	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.0	0.0	0.1	0.5	0.8	0.7	0.3	0.8																						
3-Apr	0.7	0.7	1.4	1.1	Z	0.5	0.6	0.4	0.2	0.3	C	C	C	C	C	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.4	1.4																						
4-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.3	1.9	1.4	1.3	1.0	0.4	0.2	0.1	0.1	0.2	0.2	0.3	1.9																						
5-Apr	Z	0.2	0.1	0.1	0.0	0.1	0.0	0.2	PF	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2																						
6-Apr	0.0	Z	0.0	0.1	0.2	0.1	0.1	0.1	0.4	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
7-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.3																						
8-Apr	0.1	0.2	0.2	Z	0.4	1.2	0.9	0.4	0.5	0.7	0.7	0.6	0.4	0.3	0.4	0.6	0.6	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.4	1.2																						
9-Apr	0.4	0.5	0.5	0.5	Z	0.4	0.6	0.6	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6																						
10-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.7	0.6	0.4	0.6	0.8	0.6	0.2	0.8																						
11-Apr	Z	0.2	0.1	0.2	0.1	0.2	0.4	0.5	1.1	1.6	1.0	0.6	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.4	0.3	0.6	0.4	0.4	1.6																						
12-Apr	0.3	Z	0.3	0.2	0.1	0.1	0.6	0.3	0.2	0.4	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6																						
13-Apr	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2																						
14-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.3																						
15-Apr	0.3	0.2	0.2	0.2	Z	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3																						
16-Apr	0.1	0.1	0.1	0.1	0.0	Z	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1																						
17-Apr	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1																						
18-Apr	0.1	Z	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.3																						
19-Apr	0.3	0.4	Z	0.4	0.4	0.3	0.3	0.2	0.3	0.8	0.6	0.8	0.6	1.0	1.4	1.2	0.9	0.8	0.5	0.7	0.6	0.5	0.5	0.4	0.6	1.4																						
20-Apr	0.4	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.4																						
21-Apr	0.3	0.3	0.2	0.1	Z	0.0	0.1	0.4	0.7	0.3	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.7																						
22-Apr	0.1	0.2	0.3	0.2	0.4	Z	0.7	2.3	5.2	3.2	1.4	1.1	0.7	0.5	0.4	0.3	0.4	0.9	0.9	0.8	0.9	0.7	0.5	0.3	1.0	5.2																						
23-Apr	Z	0.4	0.4	0.5	0.7	0.7	0.5	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.4	0.3	0.2	0.2	0.4	0.6	0.4	0.7																						
24-Apr	0.5	Z	0.2	0.1	0.0	0.2	0.2	0.2	0.5	0.4	0.4	0.5	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5																						
25-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2																						
26-Apr	0.2	0.5	1.6	Z	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.7	1.7	2.1	2.2	1.5	0.7	2.2																						
27-Apr	1.1	0.7	0.3	0.3	Z	0.8	1.1	0.5	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.9	0.7	0.3	0.8	0.2	0.2	0.5	1.1																						
28-Apr	0.2	0.1	0.1	0.0	0.0	Z	0.4	0.4	0.3	0.1	0.3	0.5	0.7	0.6	0.6	0.6	0.7	0.6	0.3	0.4	0.6	0.3	0.1	0.0	0.3	0.7																						
29-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.3	0.1	0.2	0.1	0.1	0.3																						
30-Apr	0.2	Z	0.1	0.3	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.3																						
																								0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	Diurnal Average
																								1.1	0.7	1.6	1.1	0.7	1.2	1.1	2.3	5.2	3.2	1.4	1.1	0.7	1.0	1.9	1.4	1.3	1.0	0.9	0.8	1.7	2.1	2.2	1.5	Diurnal Maximum
Z - zerspan      C - Calibration      PF - Power Failure																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																																



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	684	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: 684

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

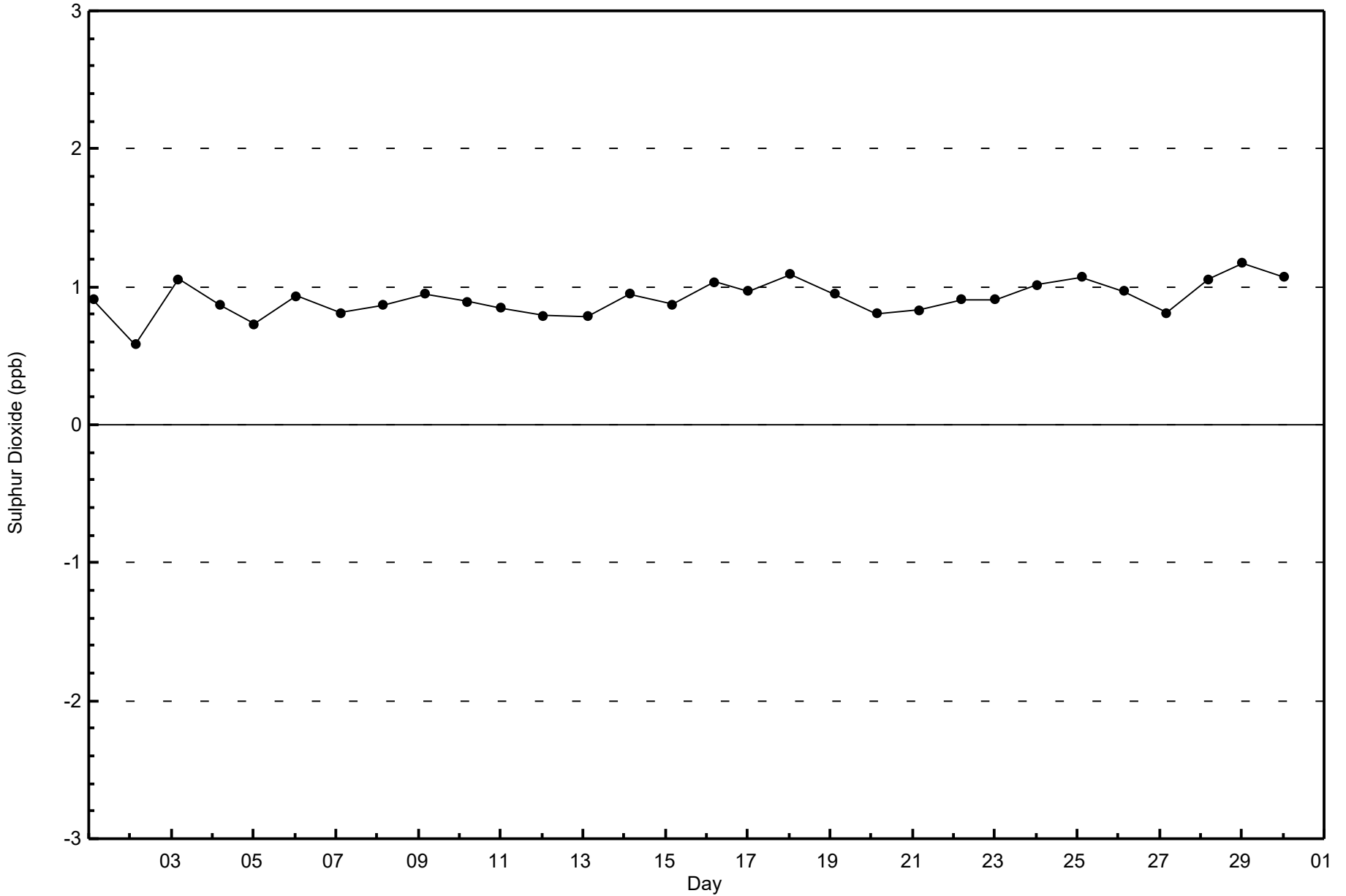
**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Stony Mountain - April 2024**

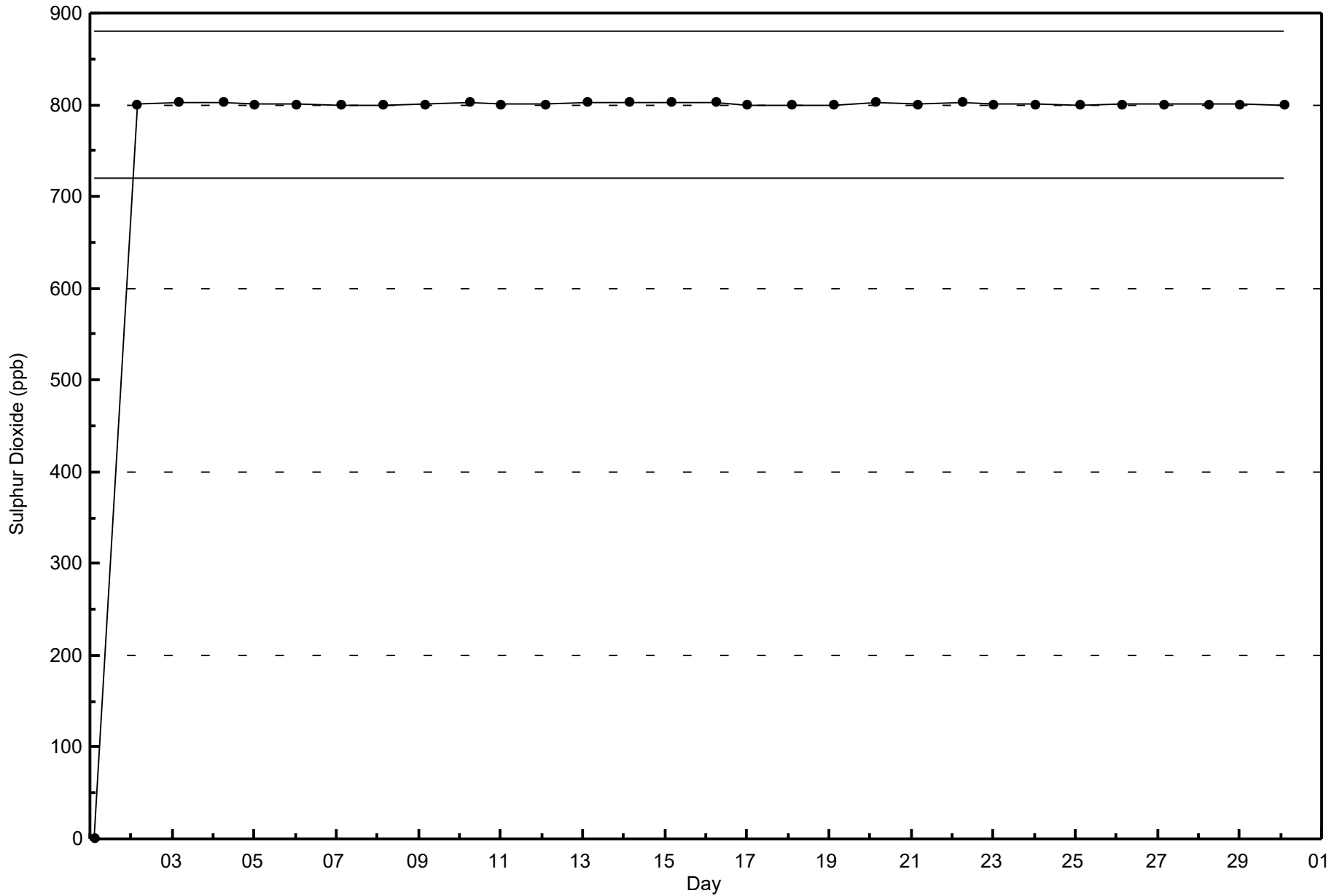
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 10	90	43	35	27	21	19	30	32	44	49	31	26	53	78	49	56	683
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>	90	43	35	27	21	19	30	32	44	49	31	26	53	78	49	56	683

Total Number of Valid Hours: 683

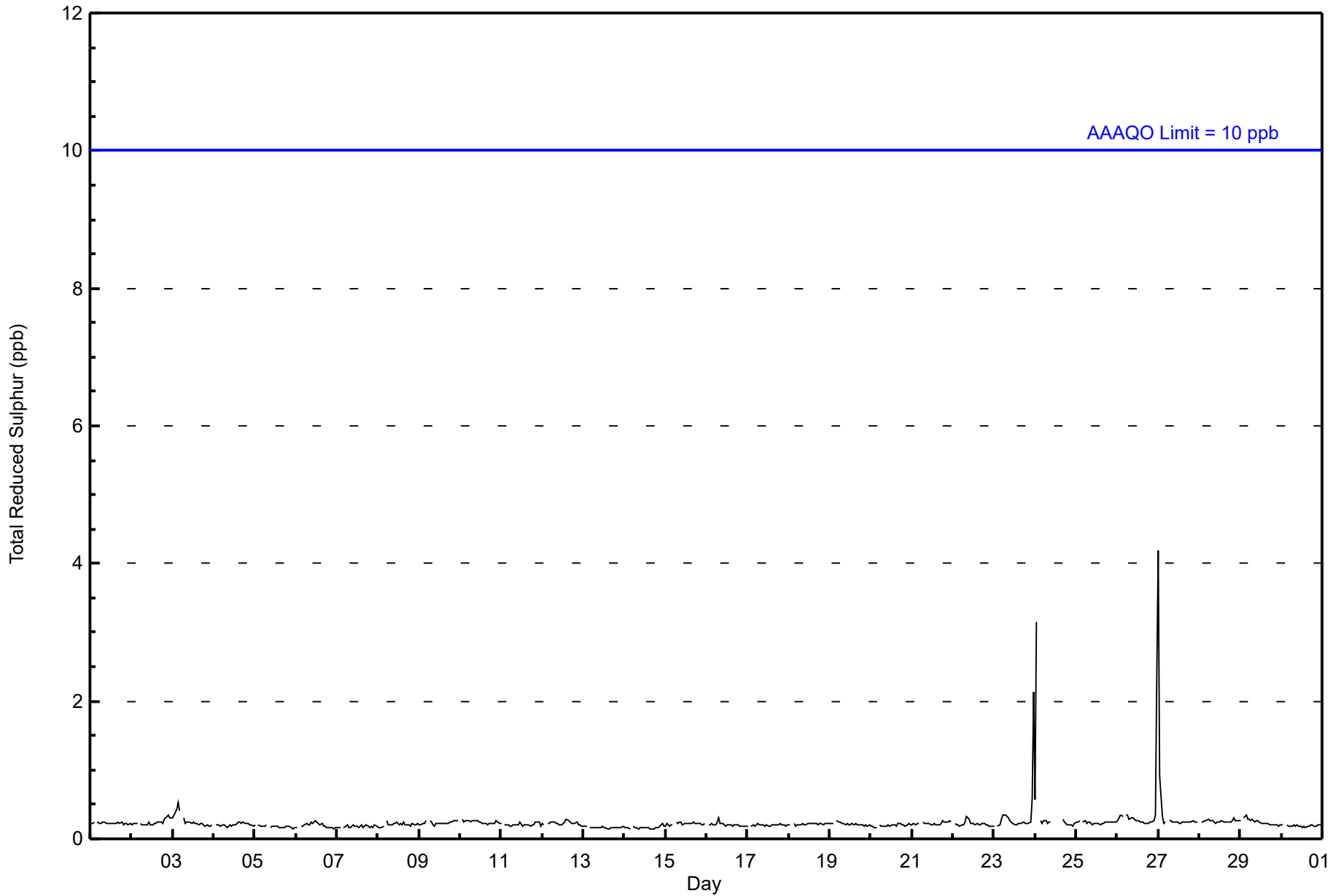
Total Number of Hours: 720













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	681	99.71	99.71
3 - 4	2	0.29	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: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	88	44	33	27	19	17	30	32	44	49	31	27	52	80	53	54	680
3 - 4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
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>	88	44	33	27	19	18	31	32	44	49	31	27	52	80	53	54	682

Total Number of Valid Hours: 682

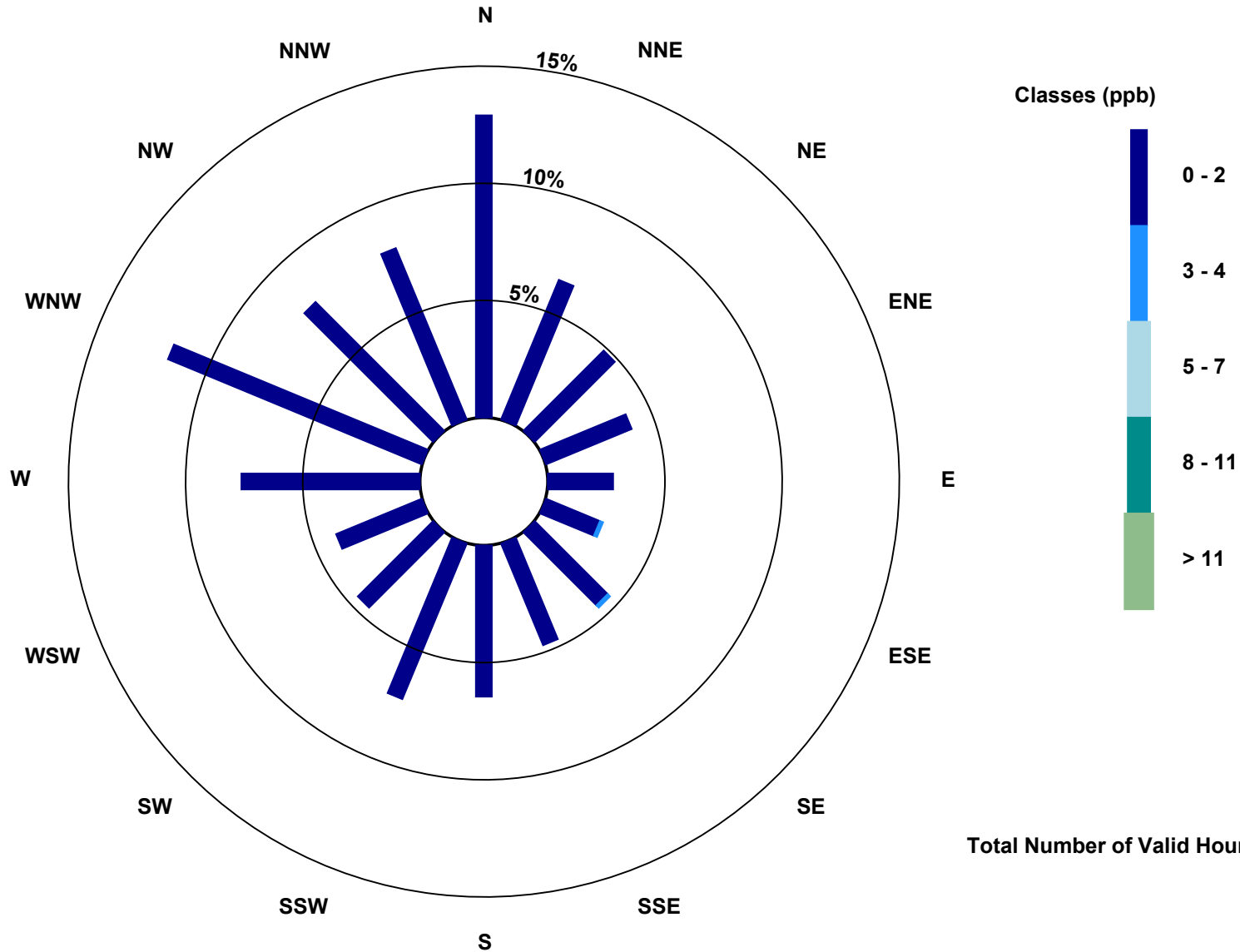
Total Number of Hours: 720

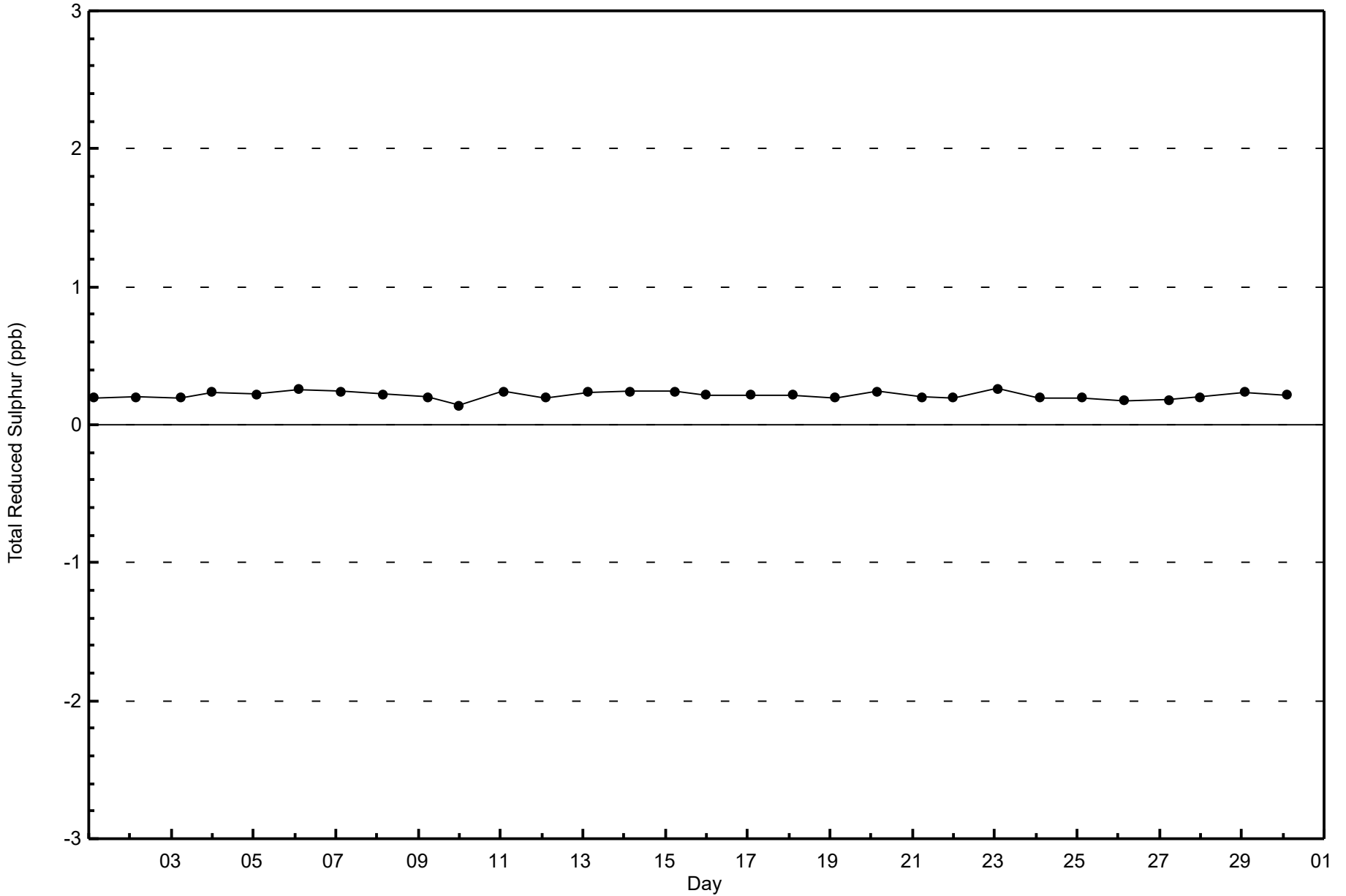


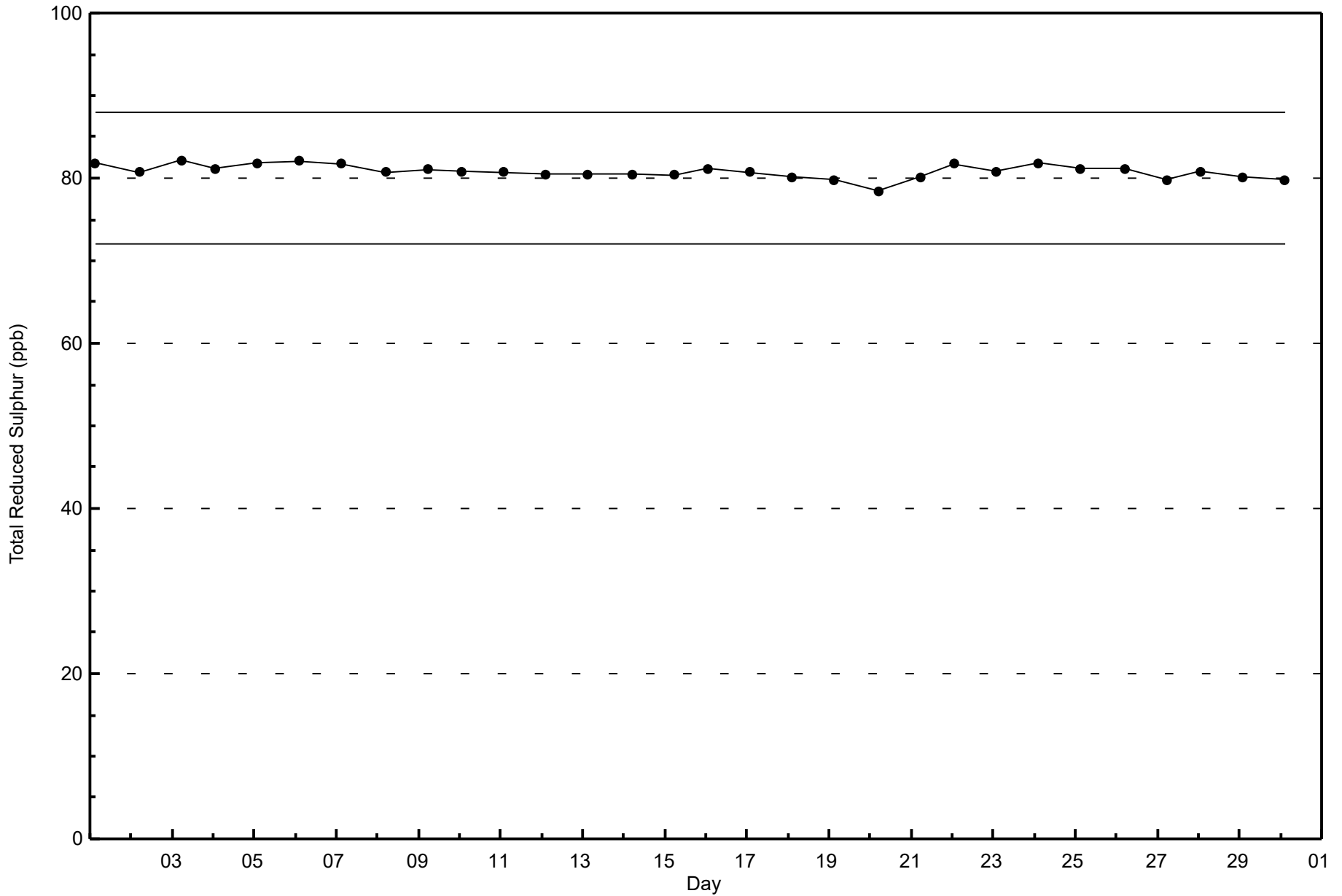


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Stony Mountain









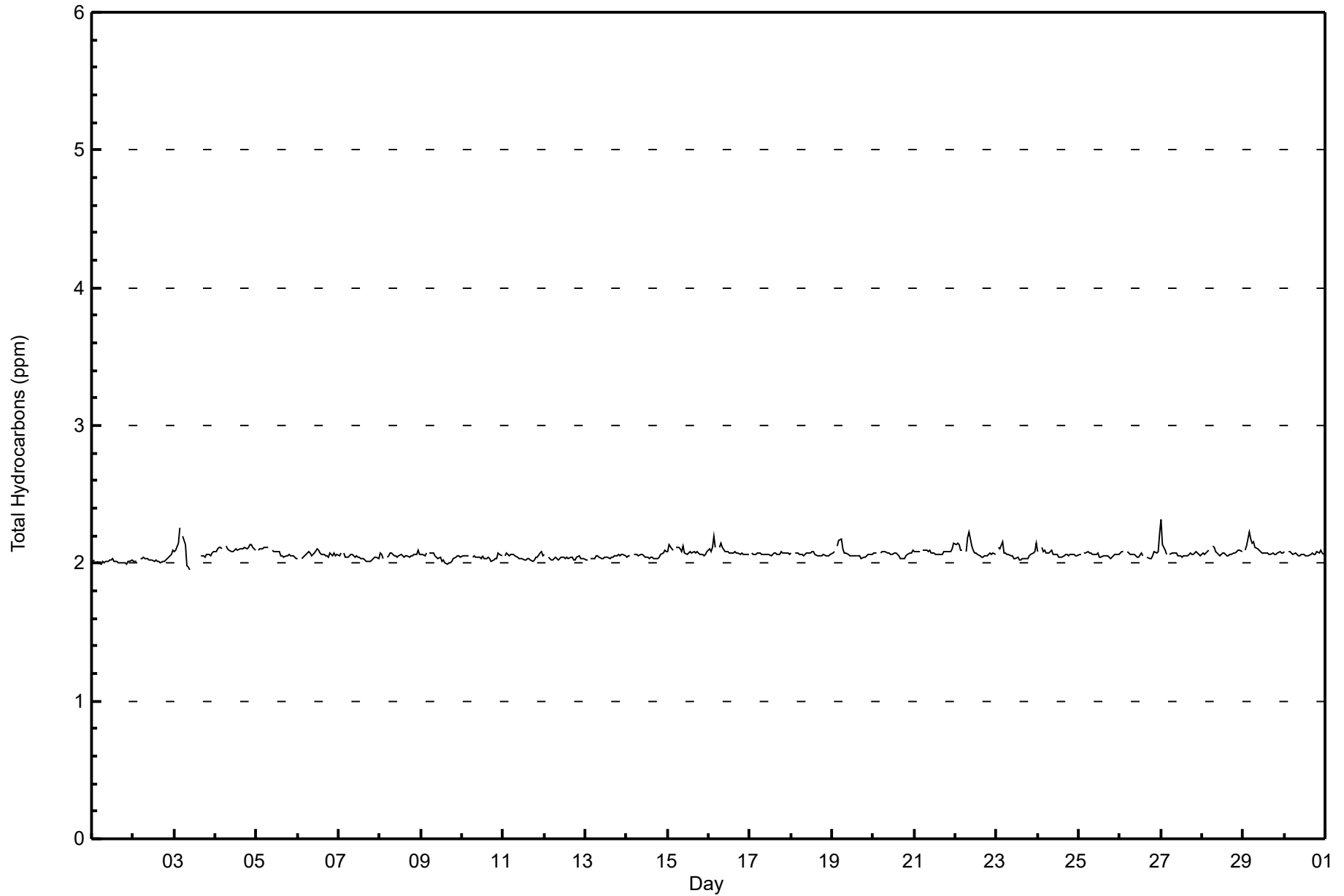
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Stony Mountain - April 2024

Maximum Value: 2.3 ppm on Apr 27 01:00																				Maximum Daily Average: 2.1 ppm on Apr 4					Hours in Service: 720		
Minimum Value: 2.0 ppm on Apr 3 10:00																				Minimum Daily Average: 2.0 ppm on Apr 1					Hours of Data: 682		
Maximum Diurnal Average: 2.1 ppm at hour 4																				Minimum Diurnal Average: 2.0 ppm at hour 19					Hours of Missing Data: 38		
Monthly Average: 2.07 ppm																				Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2					Hours of Calibration: 35		
																									Percent Operational Time: 99.6		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	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
2-Apr	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	2.1	2.1	2.1	2.1	2.0	2.1
3-Apr	2.1	2.1	2.1	2.3	Z	2.2	2.1	2.0	2.0	2.0	C	C	C	C	C	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3
4-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	PF	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1
6-Apr	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
7-Apr	2.1	2.1	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
8-Apr	2.1	2.1	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9-Apr	2.1	2.1	2.1	2.1	Z	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	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1
10-Apr	2.1	2.1	2.1	2.0	2.1	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1
11-Apr	Z	2.1	2.1	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	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1
12-Apr	2.1	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	2.1	2.0	2.0	2.0	2.0	2.0	2.1
13-Apr	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1
14-Apr	2.0	2.1	2.0	Z	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1
15-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
16-Apr	2.1	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
17-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1
19-Apr	2.1	2.1	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
20-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
21-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
22-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
23-Apr	Z	2.1	2.1	2.2	2.1	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	2.1	2.1	2.1
24-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
25-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
26-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	M	M	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
27-Apr	2.3	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
28-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
29-Apr	Z	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
30-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance      PF - Power Failure																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	203	29.77	29.77
2.1 - 3.0	479	70.23	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 682

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Stony Mountain - April 2024**

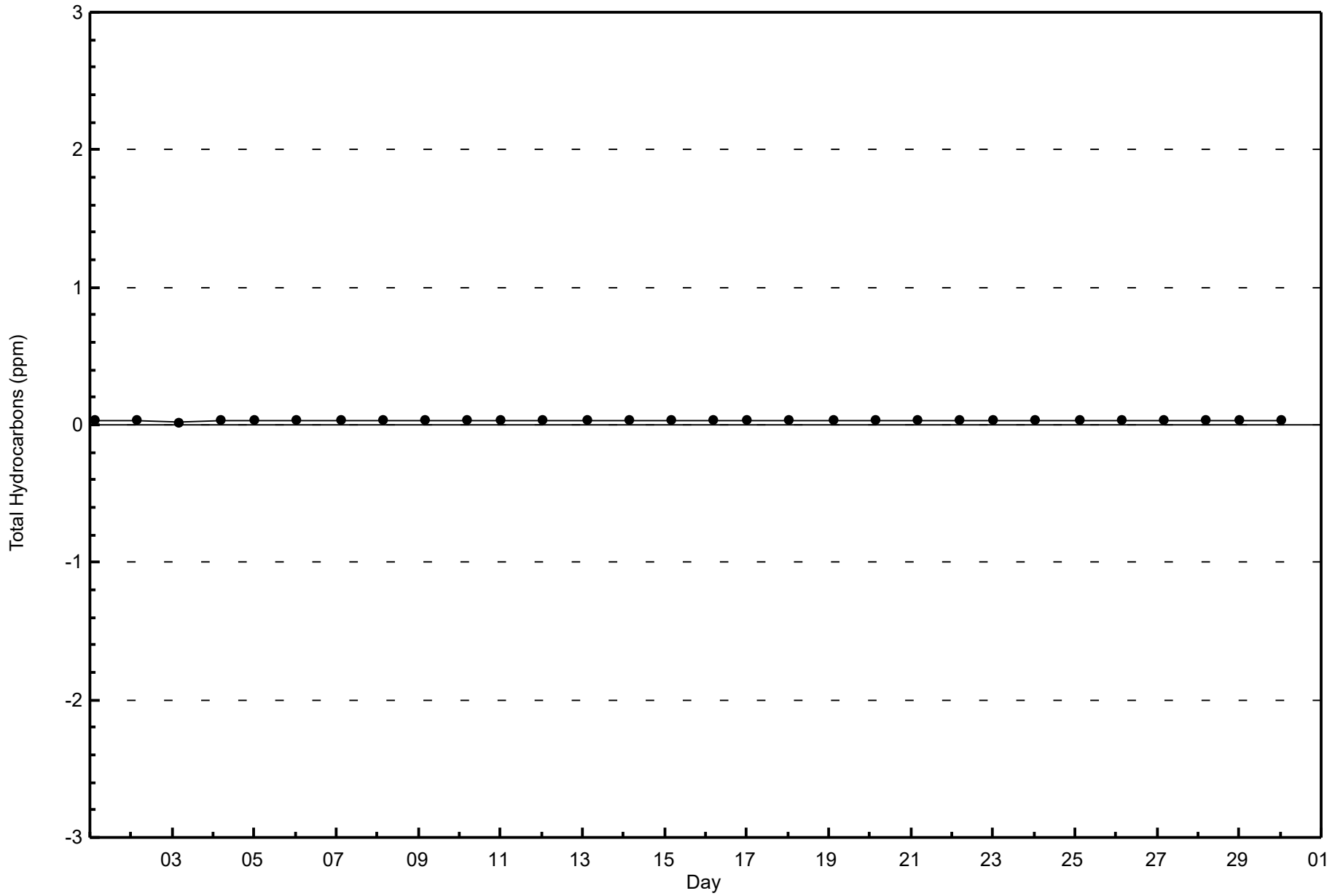
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2.0	13	3	1	5	5	4	10	8	18	20	13	14	26	38	16	9	203
2.1 - 3.0	75	40	34	22	16	15	20	24	26	29	18	12	27	40	33	47	478
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>	<b>88</b>	<b>43</b>	<b>35</b>	<b>27</b>	<b>21</b>	<b>19</b>	<b>30</b>	<b>32</b>	<b>44</b>	<b>49</b>	<b>31</b>	<b>26</b>	<b>53</b>	<b>78</b>	<b>49</b>	<b>56</b>	<b>681</b>

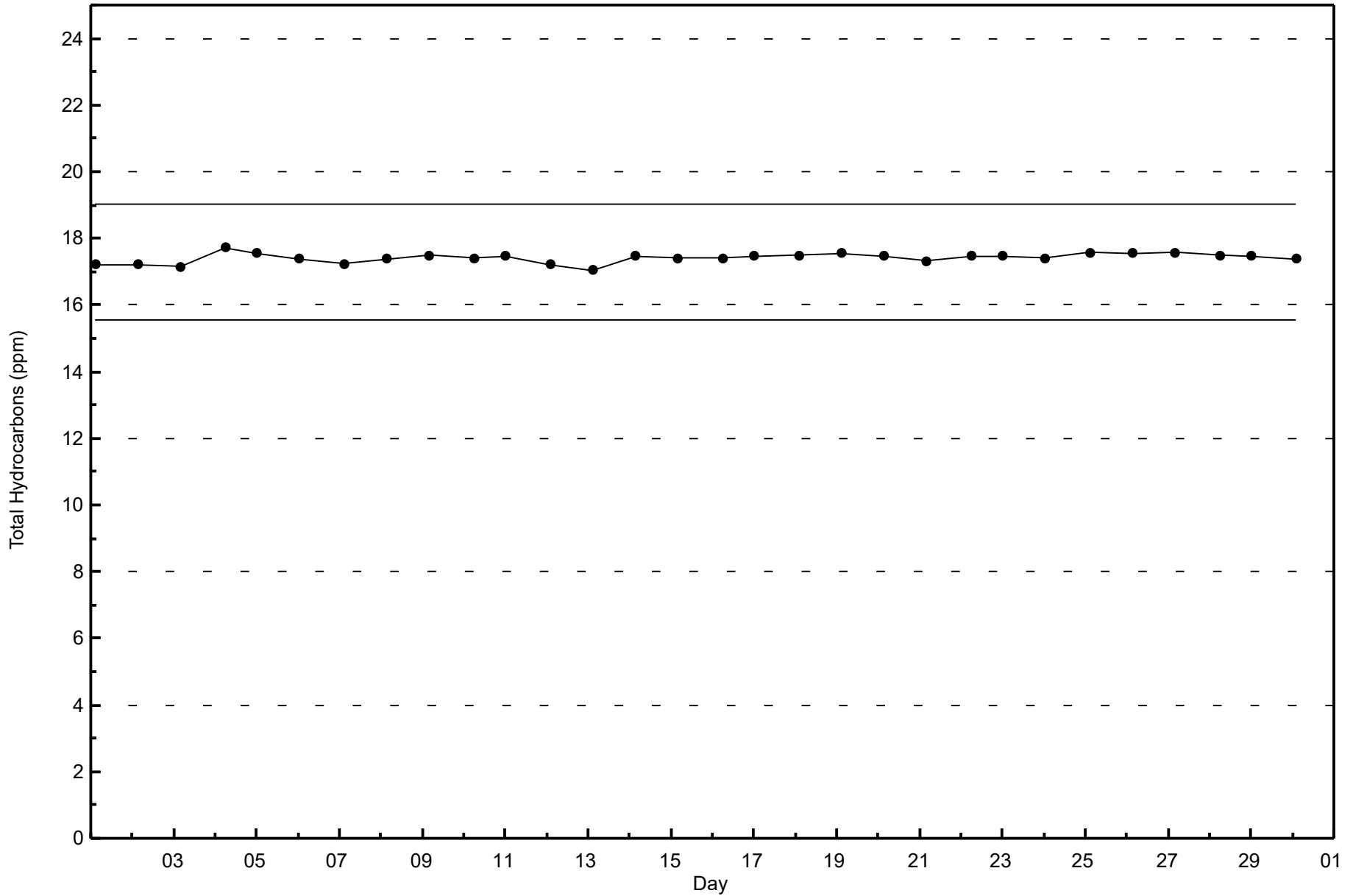
Total Number of Valid Hours: 681

Total Number of Hours: 720







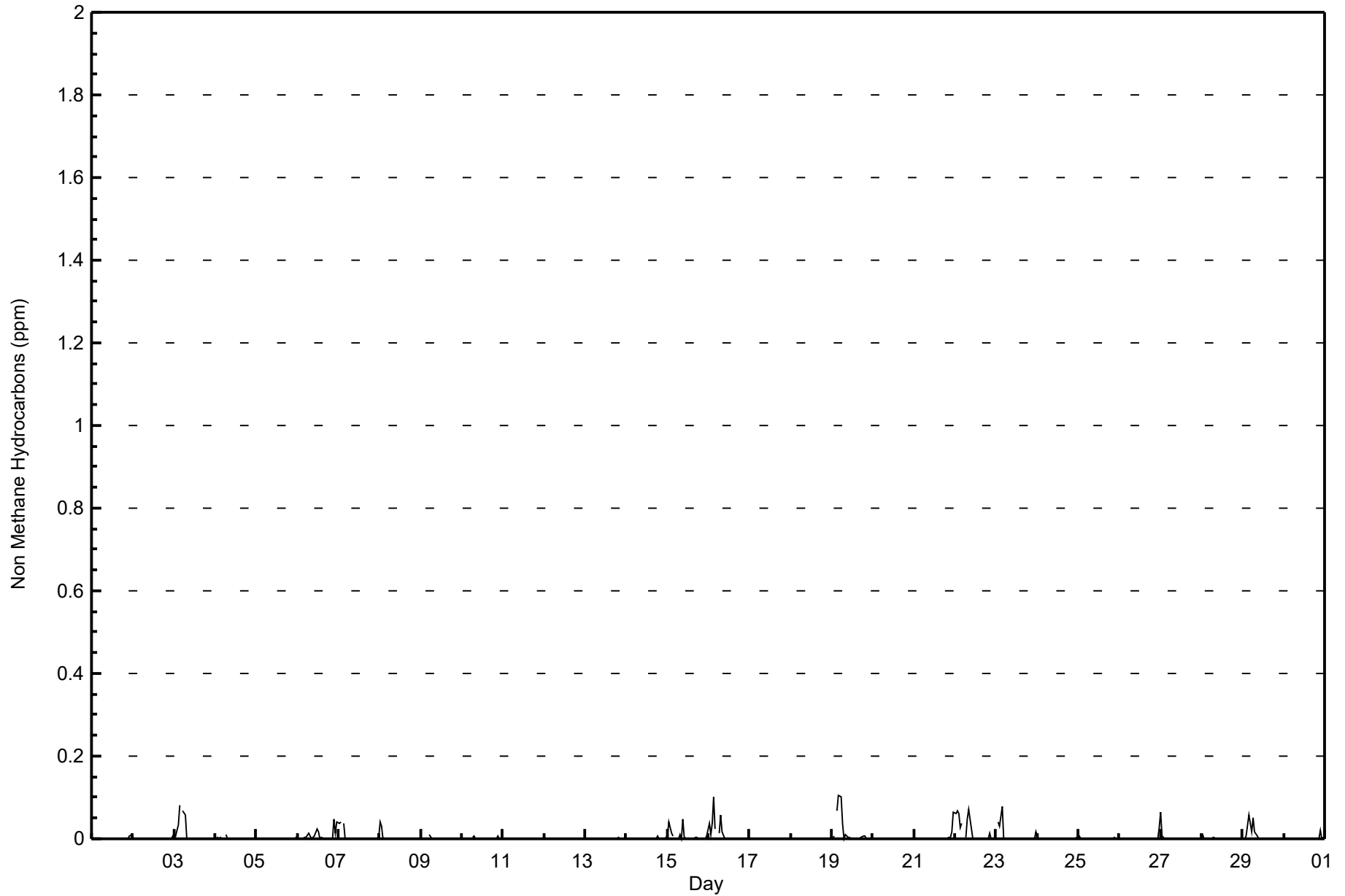




Summary of Hour Averages

Stony Mountain - April 2024

Maximum Value: 0.106 ppm on Apr 19 05:00		Maximum Daily Average: 0.019 ppm on Apr 22		Hours in Service: 720																																													
Minimum Value: 0.000 ppm on Apr 1 01:00		Minimum Daily Average: 0.000 ppm on Apr 11		Hours of Data: 682																																													
Maximum Diurnal Average: 0.019 ppm at hour 4		Minimum Diurnal Average: 0.000 ppm at hour 17		Hours of Missing Data: 38																																													
Monthly Average: 0.004 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> = 0.1		Hours of Calibration: 35																																													
				Percent Operational Time: 99.6																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.000	0.000	Z	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.006	0.010	0.001	0.010																							
2-Apr	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	0.001	0.001	0.008	0.000	0.008																							
3-Apr	0.014	0.007	0.033	0.083	Z	0.069	0.057	0.000	0.000	0.000	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.083																							
4-Apr	0.000	0.002	0.001	0.004	0.001	Z	0.010	0.001	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	0.001	0.010																							
5-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	PF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.002																							
6-Apr	0.000	Z	0.000	0.001	0.004	0.005	0.012	0.007	0.001	0.003	0.007	0.024	0.017	0.002	0.002	0.001	0.000	0.001	0.000	0.000	0.000	0.046	0.015	0.041	0.008	0.046																							
7-Apr	0.037	0.041	Z	0.037	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004	0.005	0.041																							
8-Apr	0.041	0.030	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.041																							
9-Apr	0.000	0.000	0.001	0.000	Z	0.011	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	0.001	0.011																							
10-Apr	0.000	0.000	0.001	0.001	0.000	Z	0.002	0.007	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	0.001	0.000	0.001	0.008																							
11-Apr	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	0.000	0.000																							
12-Apr	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	0.000																							
13-Apr	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	0.002	0.000	0.000	0.000	0.000	0.000	0.002																							
14-Apr	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	0.007	0.000	0.000	0.001	0.003	0.003	0.000	0.007																							
15-Apr	0.006	0.041	0.015	0.006	Z	0.000	0.000	0.010	0.000	0.048	0.004	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.000	0.000	0.000	0.002	0.008	0.006	0.006	0.048																							
16-Apr	0.036	0.009	0.038	0.101	0.024	Z	0.013	0.057	0.018	0.001	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	0.013	0.013	0.101																							
17-Apr	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	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001																							
18-Apr	0.000	Z	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002																							
19-Apr	0.001	0.008	Z	0.067	0.106	0.103	0.036	0.002	0.010	0.003	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.003	0.008	0.005	0.000	0.000	0.001	0.000	0.016	0.106																							
20-Apr	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																							
21-Apr	0.000	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	0.001	0.002	0.000	0.004	0.005	0.016	0.066	0.004	0.066																							
22-Apr	0.061	0.069	0.061	0.028	0.039	Z	0.004	0.049	0.072	0.024	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.014	0.000	0.000	0.003	0.019	0.072																							
23-Apr	Z	0.041	0.030	0.076	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.016	0.007	0.076																							
24-Apr	0.003	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	0.001	0.003	0.000	0.003																							
25-Apr	0.005	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	0.002	0.000	0.000	0.000	0.005																							
26-Apr	0.002	0.002	0.000	Z	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.029	0.002	0.029																							
27-Apr	0.065	0.008	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	0.001	0.000	0.000	0.003	0.065																							
28-Apr	0.009	0.000	0.000	0.000	0.001	Z	0.005	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.009																							
29-Apr	Z	0.000	0.006	0.059	0.038	0.016	0.052	0.016	0.008	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.009	0.059																							
30-Apr	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.022	0.000	0.002	0.001	0.022																							
																								0.011	0.010	0.007	0.019	0.009	0.008	0.006	0.005	0.004	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.003	0.002	0.007	Diurnal Average		
																								0.065	0.069	0.061	0.101	0.106	0.103	0.057	0.057	0.072	0.048	0.007	0.024	0.017	0.002	0.002	0.001	0.002	0.004	0.008	0.005	0.014	0.046	0.016	0.066	Diurnal Maximum	
Z - zerospan																								C - Calibration			M - Maintenance			PF - Power Failure																			





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	607	89.00	89.00
0.006 - 0.05	59	8.65	97.65
0.06 - 0.1	16	2.35	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 682

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

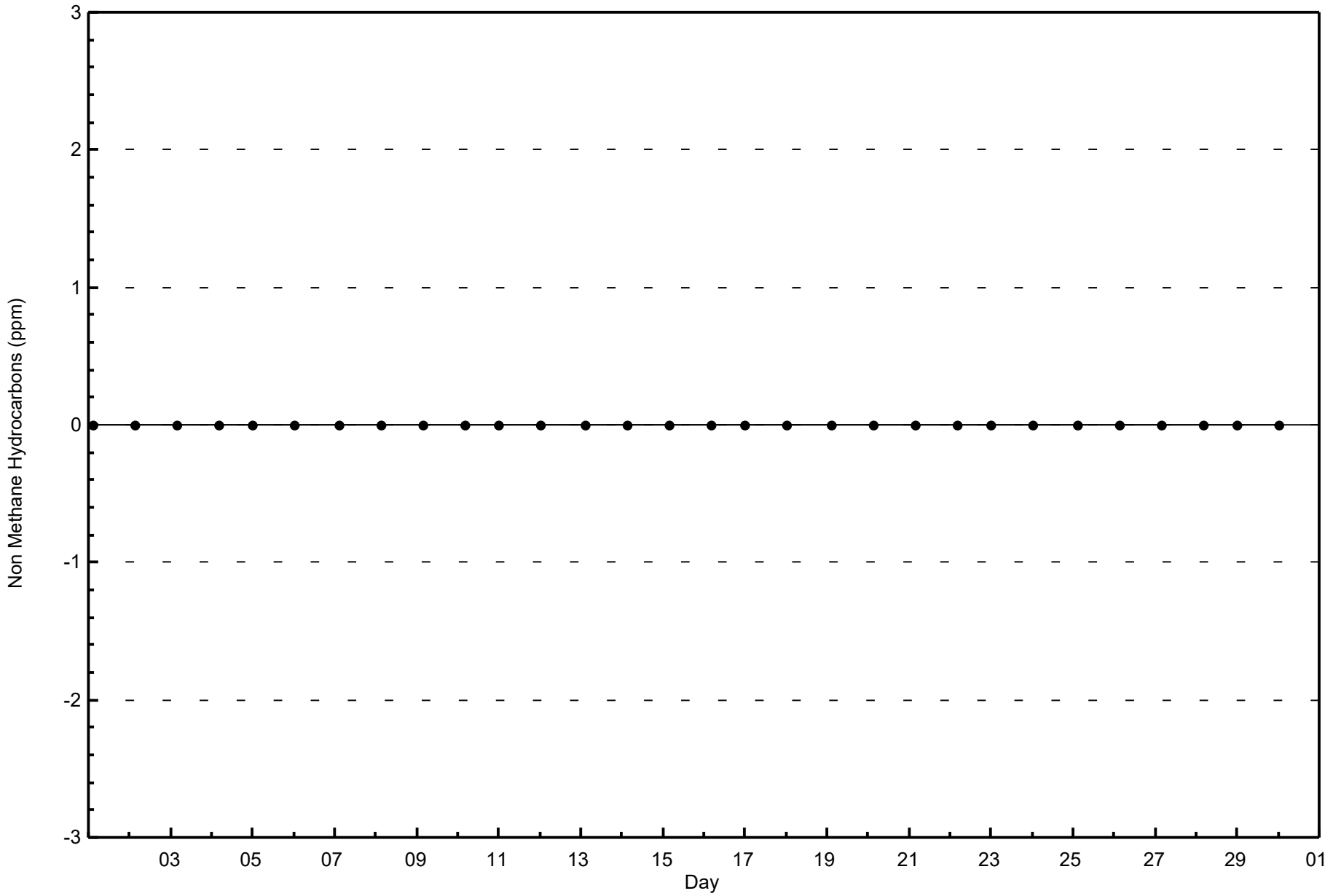
**Non Methane Hydrocarbons (NMHC) - ppm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	78	40	32	27	19	16	25	31	43	47	28	26	51	70	28	45	606
0.006 - 0.05	9	3	3	0	1	3	3	1	1	2	3	0	2	7	14	7	59
0.06 - 0.1	1	0	0	0	1	0	2	0	0	0	0	0	0	1	7	4	16
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	88	43	35	27	21	19	30	32	44	49	31	26	53	78	49	56	681

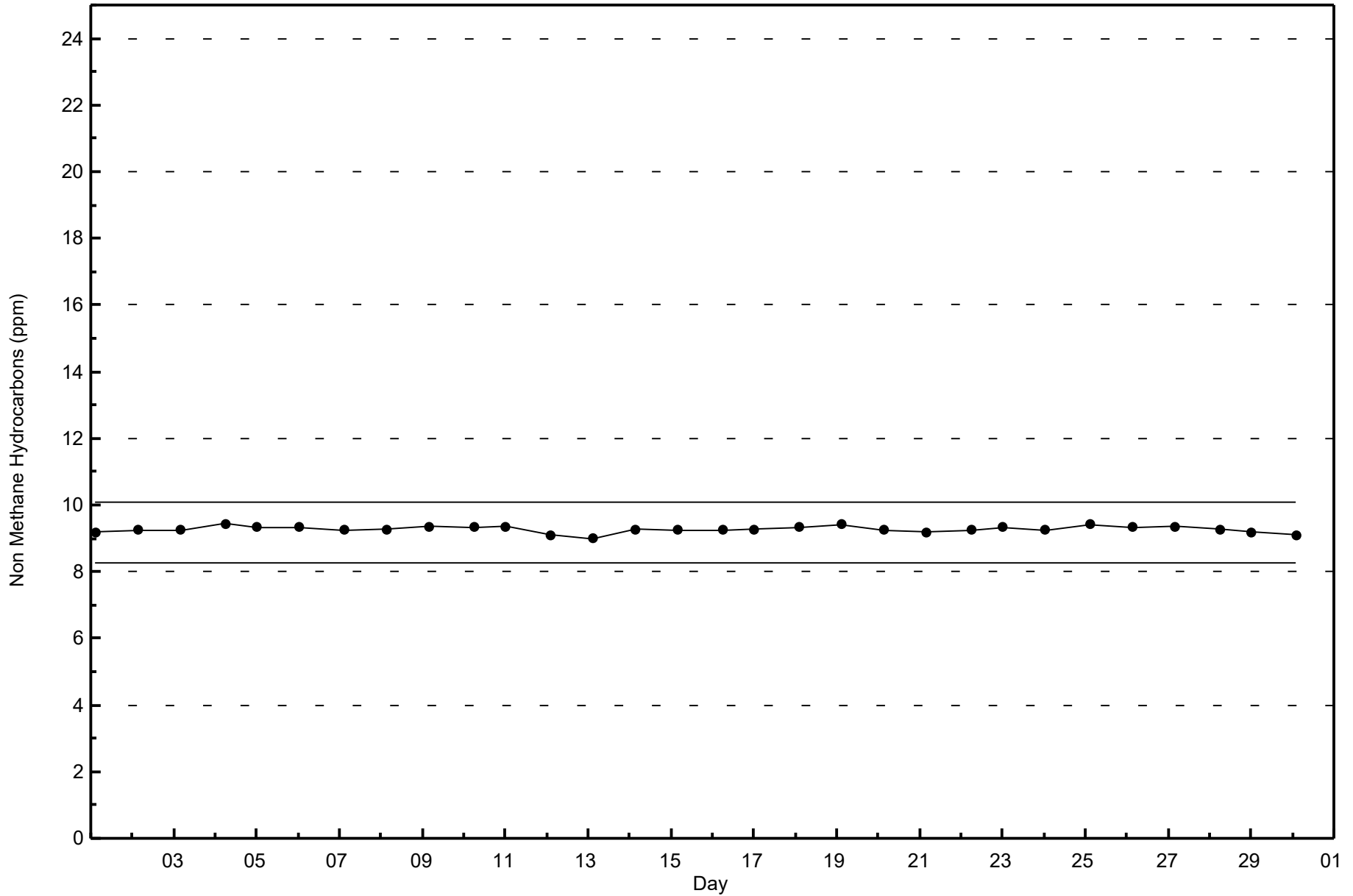
Total Number of Valid Hours: 681

Total Number of Hours: 720











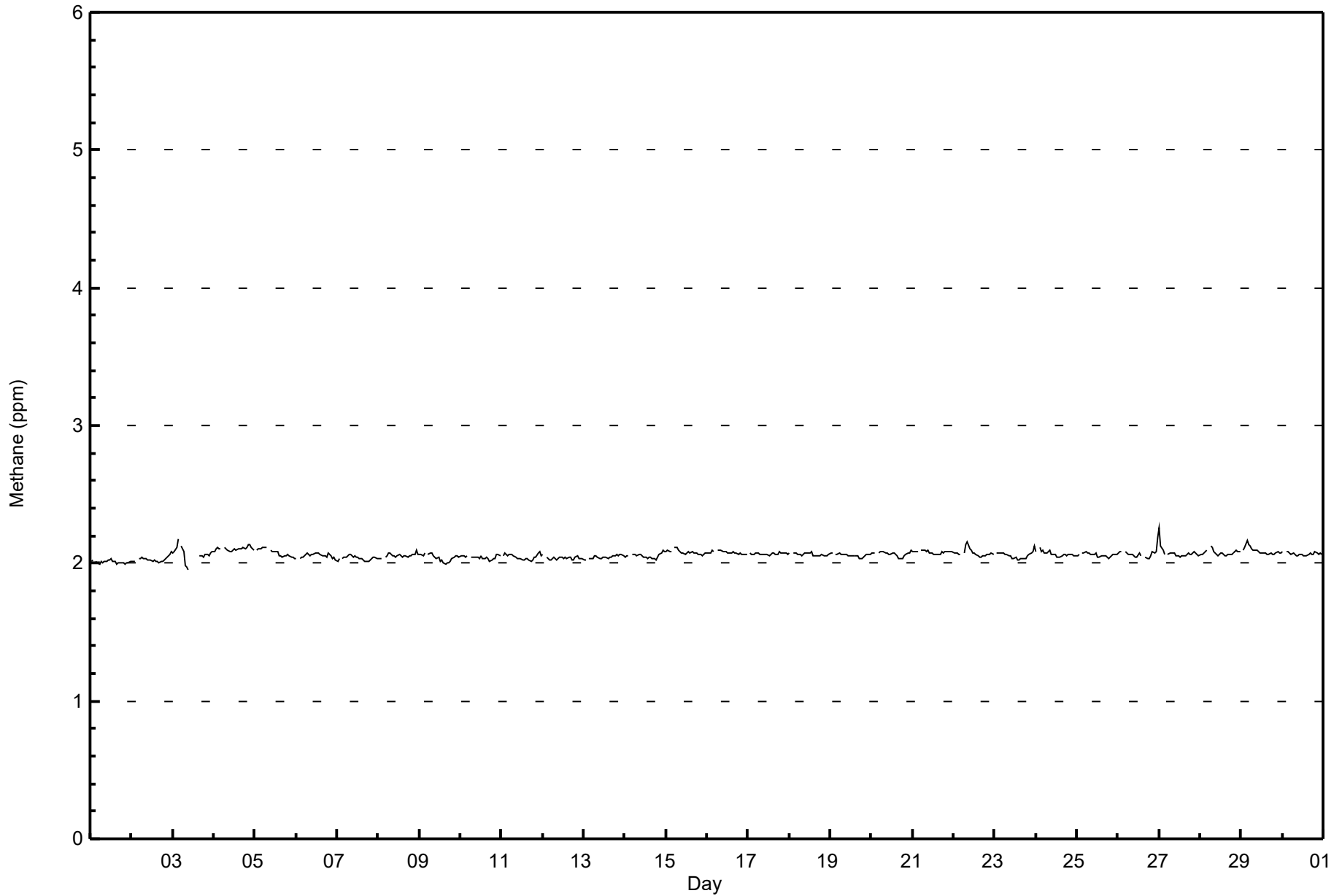
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Stony Mountain - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														720							
Maximum Value: 2.3 ppm on Apr 27 01:00		Maximum Daily Average: 2.1 ppm on Apr 4		Hours of Data:														682									
Minimum Value: 2.0 ppm on Apr 3 10:00		Minimum Daily Average: 2.0 ppm on Apr 1		Hours of Missing Data:														38									
Maximum Diurnal Average: 2.1 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 19		Hours of Calibration:														35									
Monthly Average: 2.06 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.1		Percent Operational Time:														99.6									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	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
2-Apr	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	2.1	2.1	2.1	2.1	2.0	2.1
3-Apr	2.1	2.1	2.1	2.2	Z	2.1	2.1	2.0	2.0	2.0	C	C	C	C	C	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
4-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	PF	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1
6-Apr	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1
7-Apr	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
8-Apr	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9-Apr	2.1	2.1	2.1	2.1	Z	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	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1
10-Apr	2.1	2.1	2.1	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1
11-Apr	Z	2.1	2.1	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	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1
12-Apr	2.1	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	2.1	2.0	2.0	2.0	2.0	2.0	2.1
13-Apr	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1
14-Apr	2.0	2.1	2.0	Z	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1
15-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
16-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
17-Apr	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1
19-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
20-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
21-Apr	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
22-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
23-Apr	Z	2.1	2.1	2.1	2.1	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	2.1	2.1	2.1
24-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
25-Apr	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
26-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	M	M	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1
27-Apr	2.3	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
28-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
29-Apr	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
30-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerspan																											
C - Calibration																											
M - Maintenance																											
PF - Power Failure																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	212	31.09	31.09
2.1 - 3.0	470	68.91	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 682

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	14	4	1	5	5	4	10	8	18	20	14	14	26	40	19	10	212
2.1 - 3.0	74	39	34	22	16	15	20	24	26	29	17	12	27	38	30	46	469
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>	88	43	35	27	21	19	30	32	44	49	31	26	53	78	49	56	681

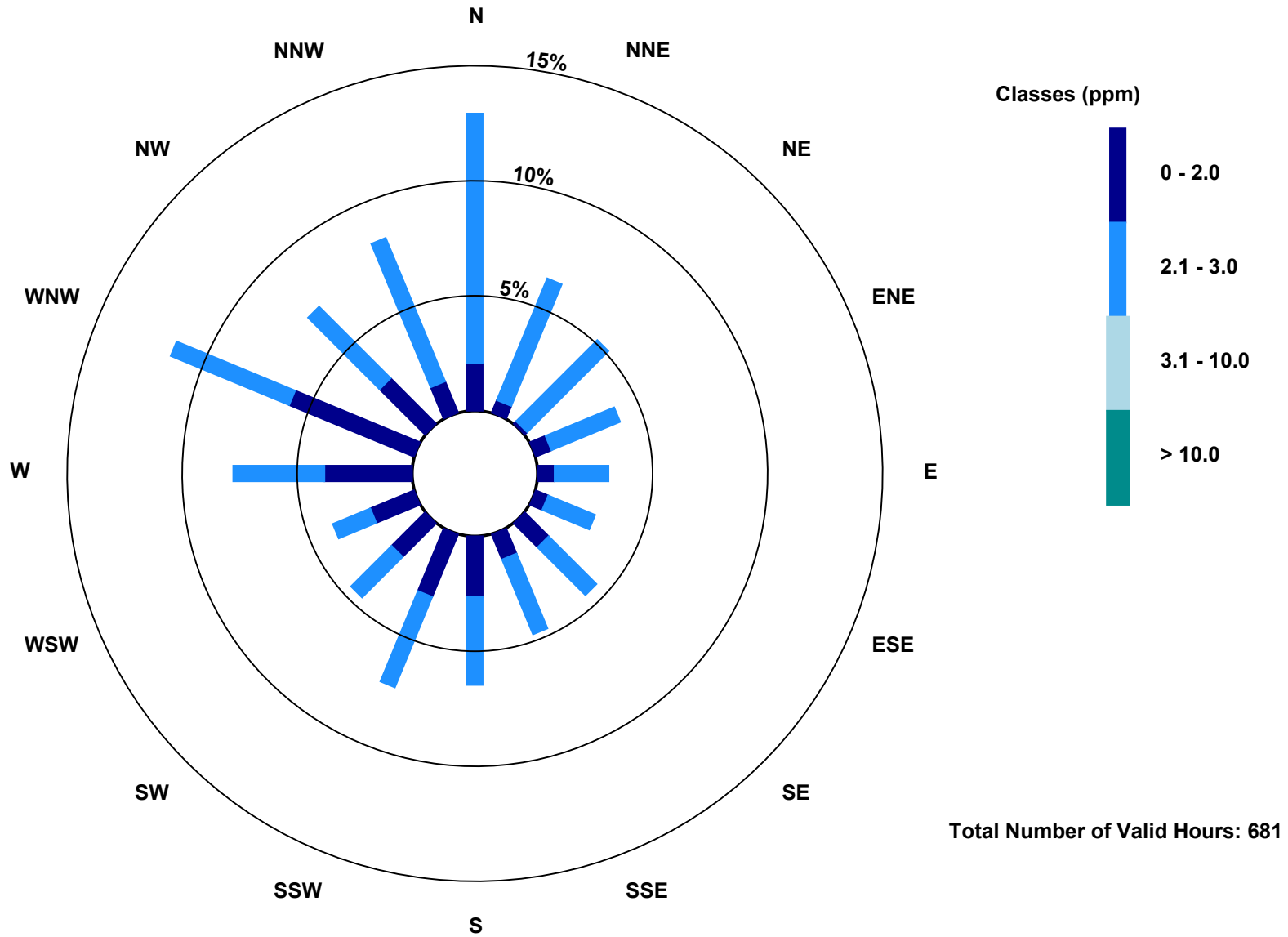
Total Number of Valid Hours: 681

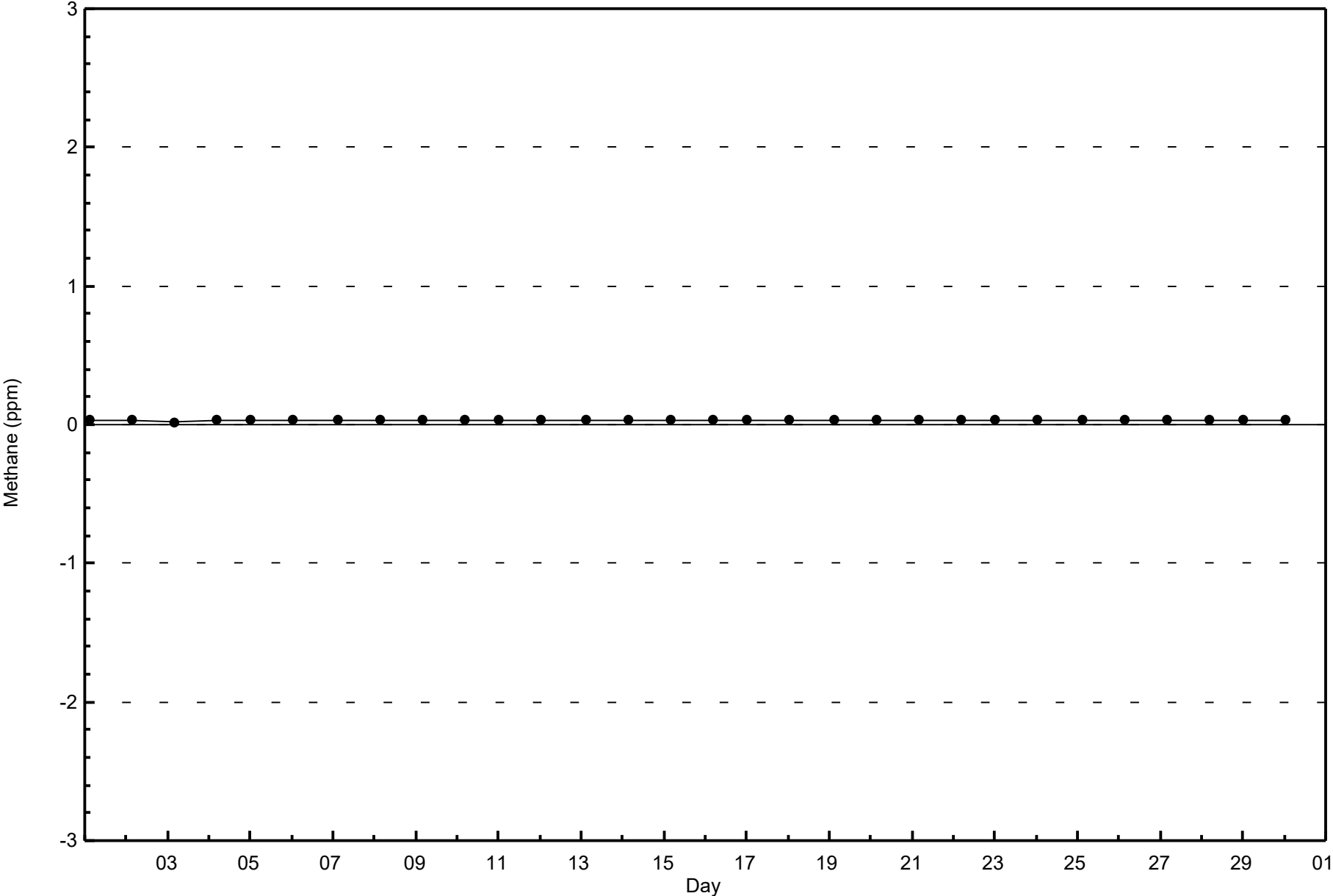
Total Number of Hours: 720

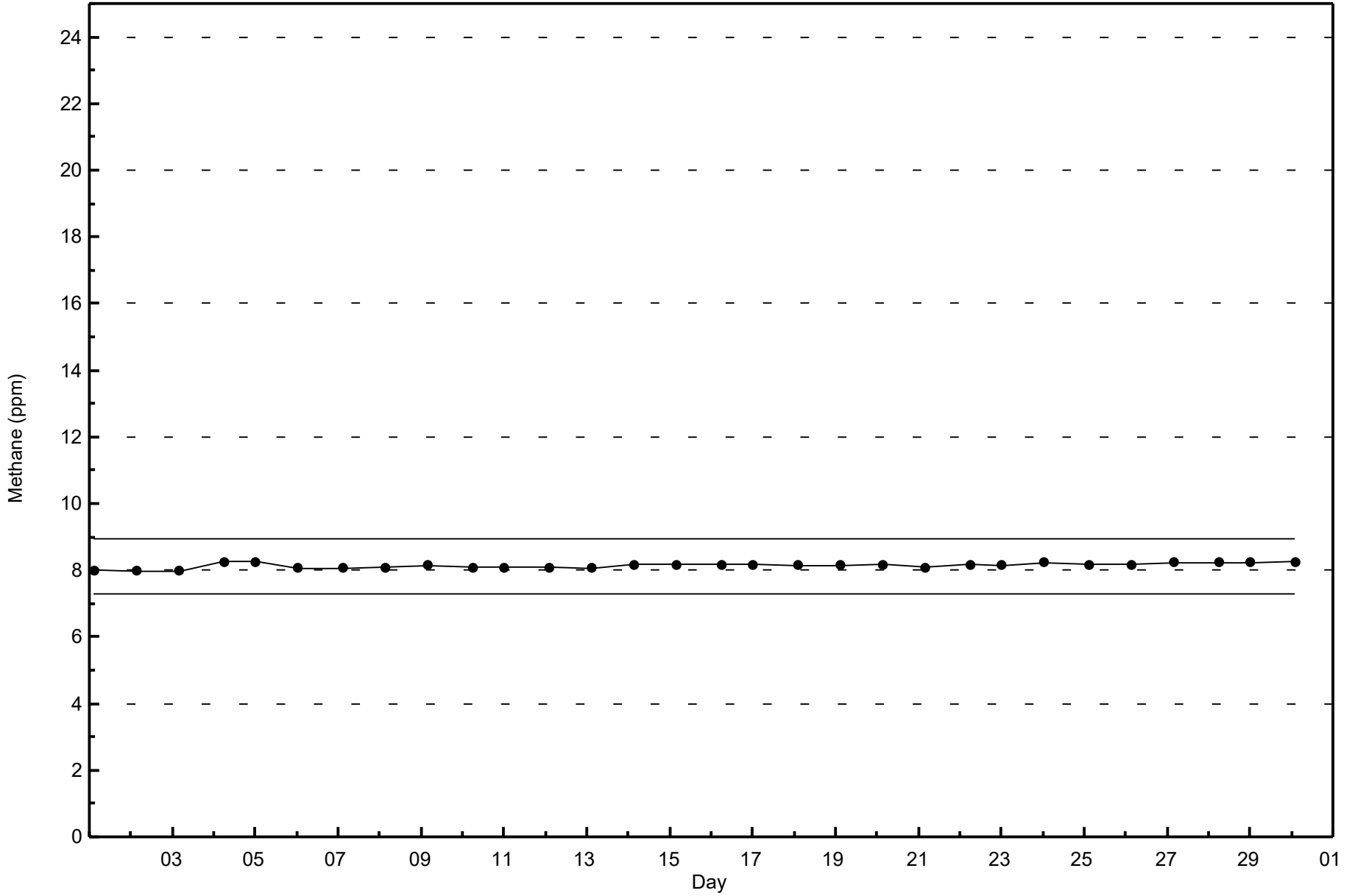


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









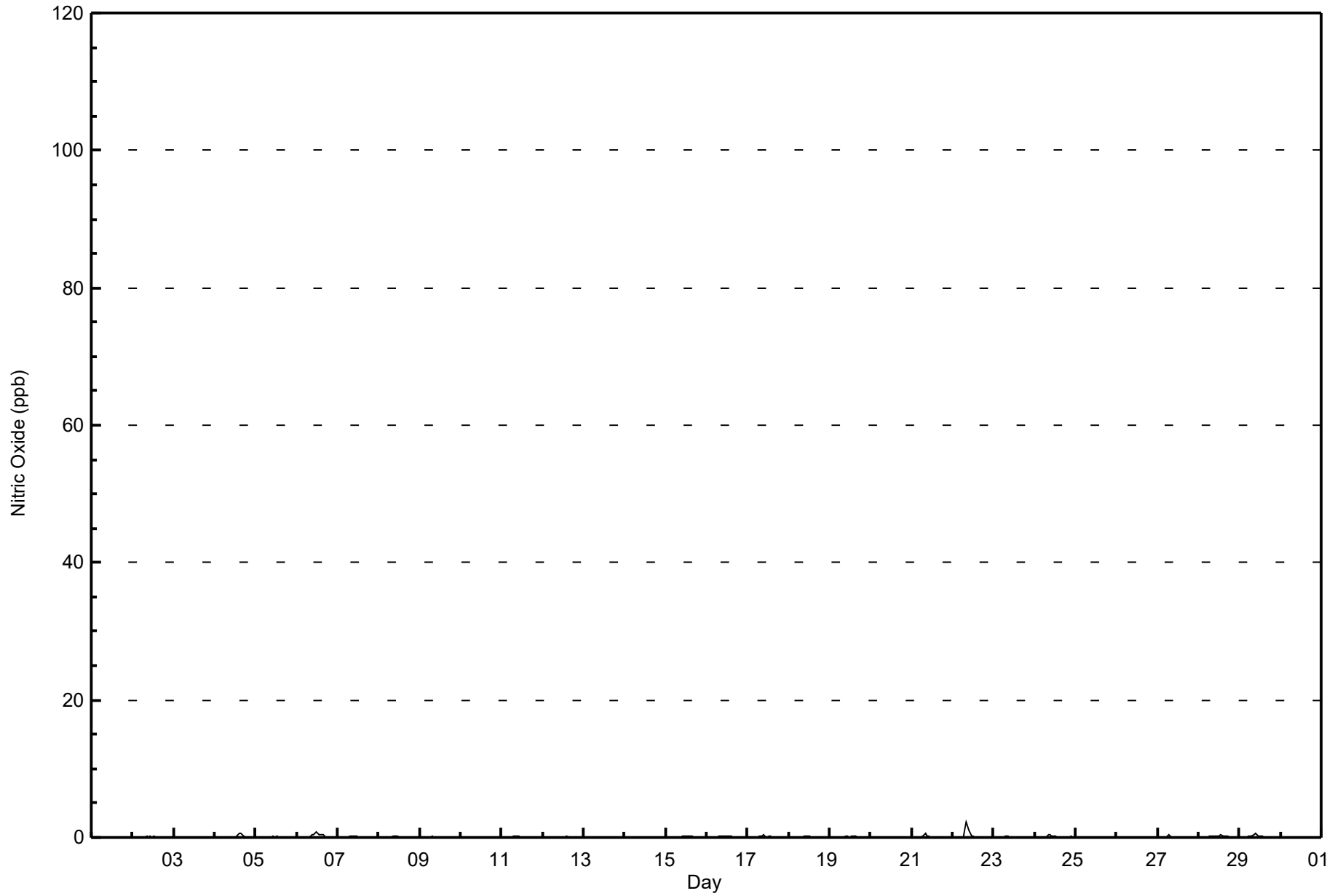


Maximum Value: 2.3 ppb on Apr 22 09:00		Maximum Daily Average: 0.3 ppb on Apr 22		Hours in Service: 720																																		
Minimum Value: 0.0 ppb on Apr 1 17:00		Minimum Daily Average: 0.0 ppb on Apr 26		Hours of Data: 684																																		
Maximum Diurnal Average: 0.2 ppb at hour 9		Minimum Diurnal Average: 0.0 ppb at hour 3		Hours of Missing Data: 36																																		
Monthly Average: 0.06 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.6		Hours of Calibration: 35																																		
				Percent Operational Time: 99.9																																		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24														
1-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
2-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2			
3-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1			
4-Apr	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	0.1	0.6	0.7	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7				
5-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	PF	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1			
6-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.3	0.3	0.7	0.6	0.5	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7				
7-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
8-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3				
9-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2		
10-Apr	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	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
11-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2			
12-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
13-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
14-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
15-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2			
16-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2			
17-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3			
18-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3			
20-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
21-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6			
22-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.1	1.3	2.3	1.1	0.5	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3			
23-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.1	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
24-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.5	0.3	0.2	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5			
25-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
26-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27-Apr	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3		
28-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3		
29-Apr	0.0	0.0	0.0	Z	0.0	0.2	0.2	0.2	0.3	0.5	0.4	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5		
30-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
																								Diurnal Average														
																								Diurnal Maximum														
Z - zerospan		C - Calibration				PF - Power Failure																																



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

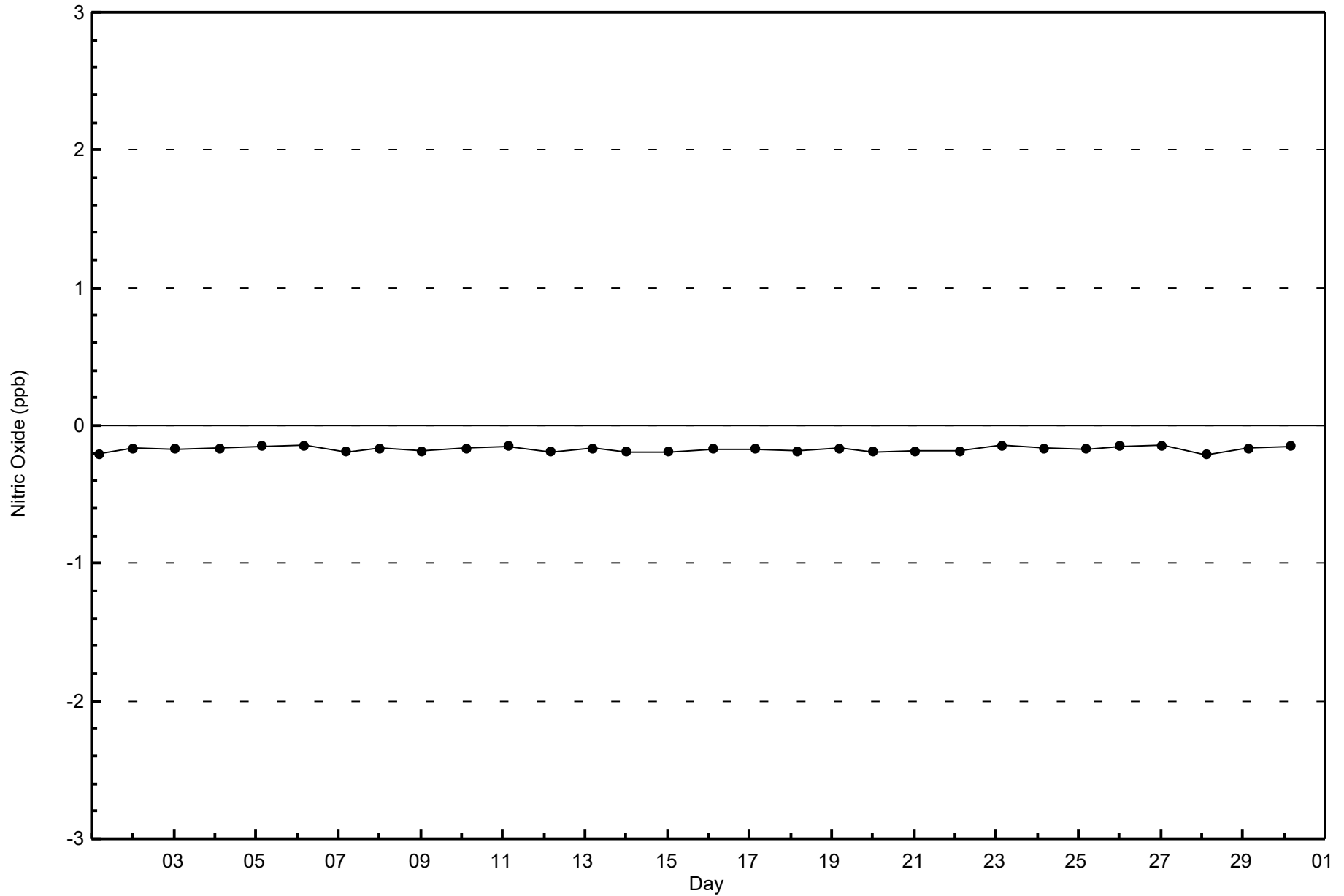
**Nitric Oxide (NO) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	90	42	34	26	18	21	30	32	47	48	30	26	52	80	50	57	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	90	42	34	26	18	21	30	32	47	48	30	26	52	80	50	57	683

Total Number of Valid Hours: 683

Total Number of Hours: 720

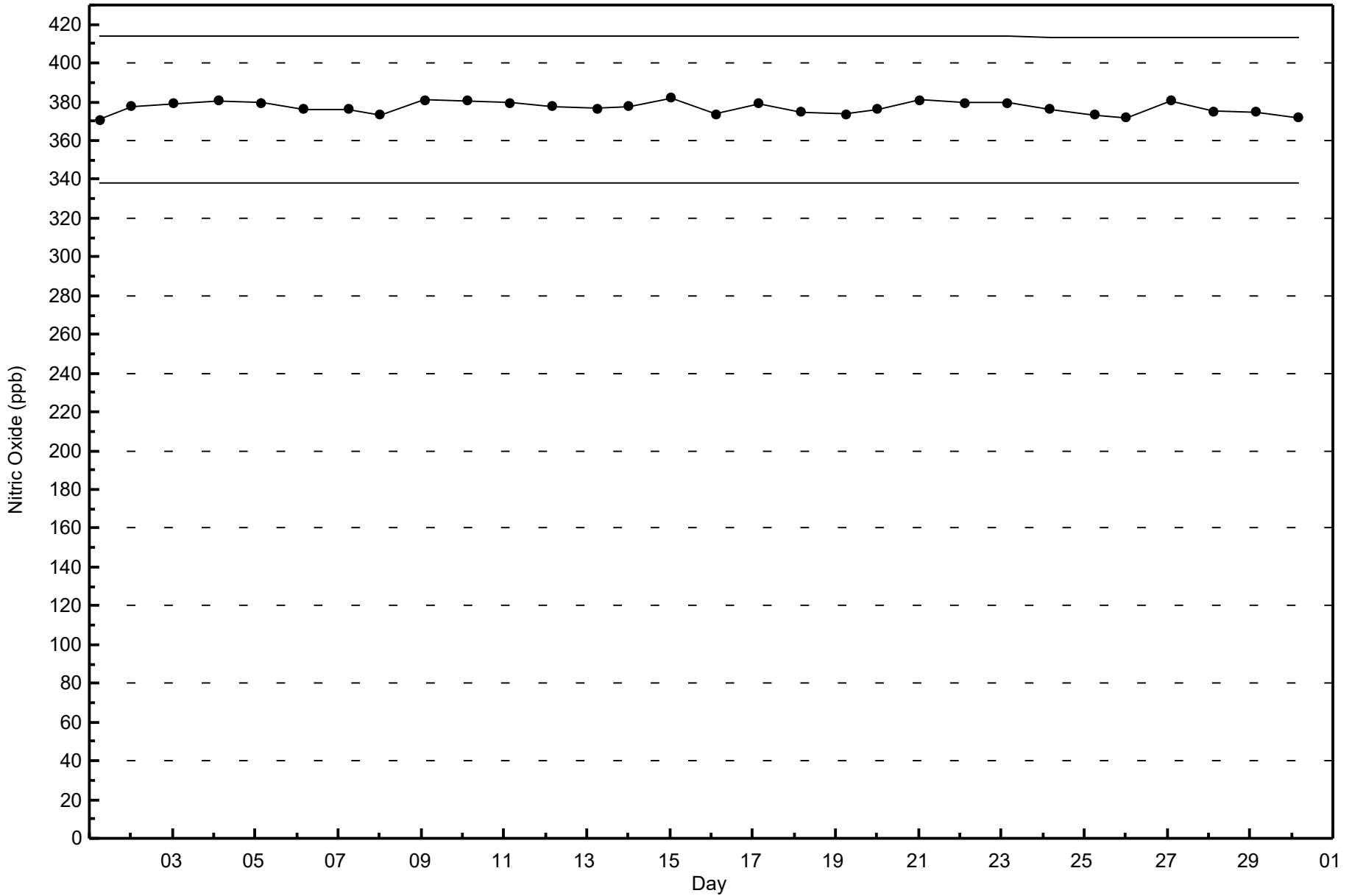






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Stony Mountain - April 2024





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Stony Mountain - April 2024**

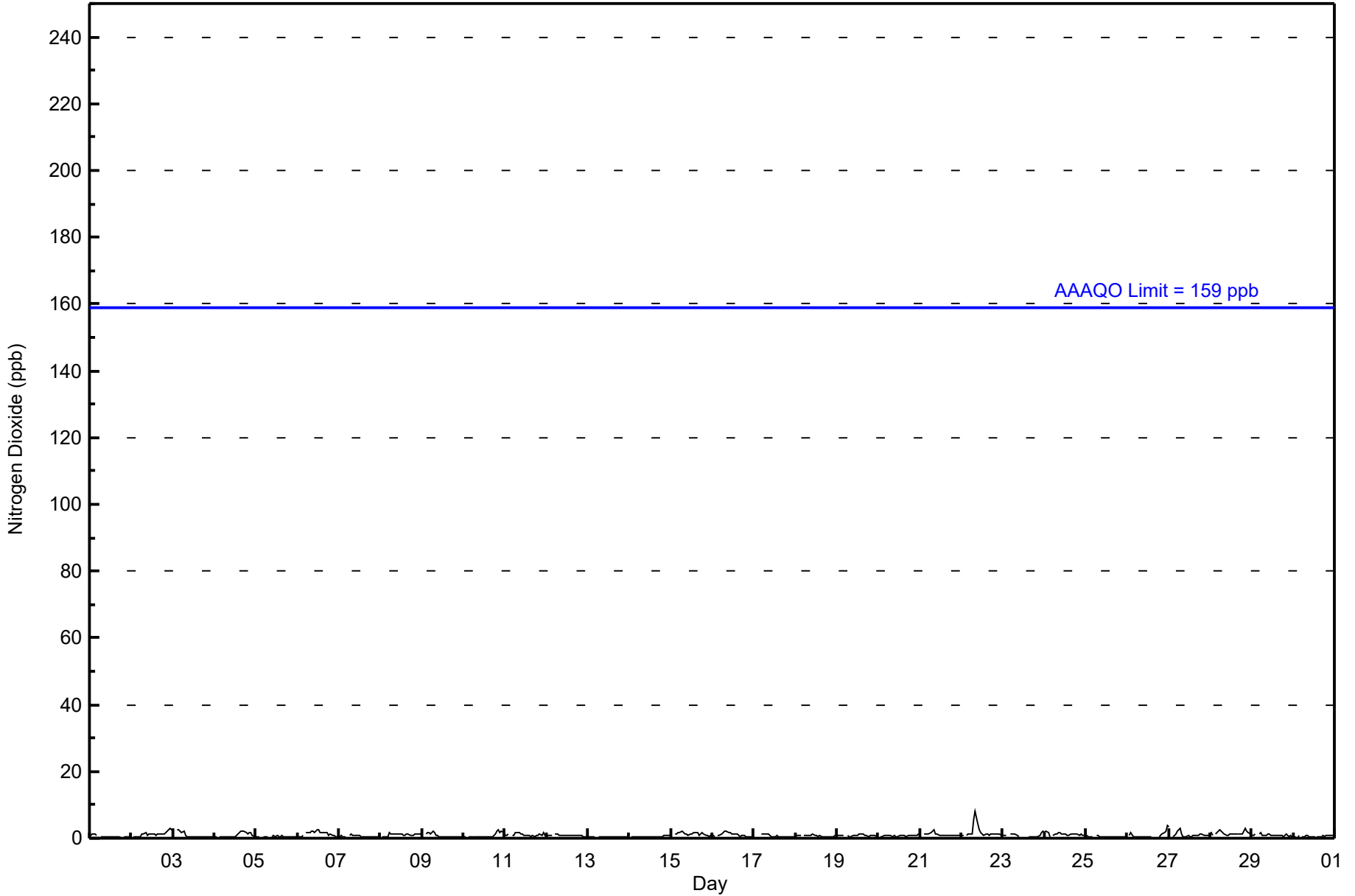
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7.9 ppb on Apr 22 09:00      Maximum Daily Average: 1.8 ppb on Apr 22		Hours in Service: 720 Hours of Data: 684 Hours of Missing Data: 36 Hours of Calibration: 35 Percent Operational Time: 99.9																								
Minimum Value: 0.2 ppb on Apr 1 19:00 Maximum Diurnal Average: 1.2 ppb at hour 9 Monthly Average: 0.91 ppb		Minimum Daily Average: 0.4 ppb on Apr 13 Minimum Diurnal Average: 0.7 ppb at hour 2 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.5 Median = 0.8 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 1.6 P <sub>99</sub> = 2.9																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	1.0	1.1	1.3	1.1	0.7	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.5	1.3
2-Apr	Z	0.4	0.3	0.4	0.5	0.5	1.3	1.3	1.6	1.0	1.2	1.1	1.3	1.2	0.9	1.1	1.1	1.1	1.1	1.4	1.7	2.5	2.9	2.6	1.2	2.9
3-Apr	2.5	Z	2.4	2.4	2.0	1.9	2.1	0.9	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.9	2.5
4-Apr	0.4	0.4	Z	0.4	0.3	0.3	0.4	0.6	0.5	0.4	0.4	0.5	0.4	0.8	1.9	2.1	2.3	2.3	1.9	1.4	1.7	1.9	0.9	0.6	1.0	2.3
5-Apr	0.6	0.5	0.6	Z	0.4	0.5	0.5	0.5	PF	0.5	0.8	0.6	0.8	0.6	0.6	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.8
6-Apr	0.5	0.5	0.5	0.7	Z	1.6	1.7	1.9	2.3	2.3	1.9	2.6	2.5	1.9	1.9	1.7	1.8	1.5	1.0	1.4	0.8	0.7	0.5	0.4	1.4	2.6
7-Apr	0.5	0.7	0.6	0.5	0.5	Z	1.0	1.1	0.9	0.8	0.8	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.5	0.4	0.6	1.1
8-Apr	Z	0.5	0.5	0.5	0.6	1.8	1.4	1.1	1.4	1.4	1.3	1.4	1.1	1.0	1.0	1.1	1.4	1.0	1.0	0.9	1.1	1.3	1.3	1.3	1.1	1.8
9-Apr	1.8	Z	1.4	1.5	1.5	1.4	2.2	1.9	0.8	0.7	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.8	2.2
10-Apr	0.4	0.4	Z	0.4	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.3	1.2	2.1	2.6	1.8	2.2	1.6	0.8	2.6
11-Apr	1.0	0.9	1.3	Z	0.8	0.9	1.6	1.8	1.5	1.4	1.1	0.9	0.7	0.7	0.8	0.6	0.7	0.6	0.8	0.8	1.4	0.9	1.9	1.0	1.0	1.9
12-Apr	0.5	0.7	0.9	1.0	Z	1.1	1.3	0.9	0.8	0.8	0.7	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.8	0.6	0.6	0.6	0.8	1.3
13-Apr	0.6	0.6	0.6	0.5	0.6	Z	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6
14-Apr	Z	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.8	0.8	0.8	0.5	0.8
15-Apr	0.9	Z	1.3	1.4	1.9	1.8	2.0	1.5	1.4	1.3	1.0	1.1	1.2	1.5	1.5	1.5	1.0	1.2	1.6	1.3	0.7	0.7	0.6	0.8	1.3	2.0
16-Apr	0.9	0.6	Z	0.8	0.9	1.4	1.5	2.0	2.1	1.8	1.5	1.1	1.2	1.2	1.1	0.9	0.6	0.7	0.9	0.4	0.4	0.4	0.4	0.3	1.0	2.1
17-Apr	0.2	0.2	0.2	Z	1.2	1.3	1.3	1.2	1.1	1.0	0.6	0.4	0.6	0.7	0.6	0.4	0.4	0.4	0.5	0.6	0.5	0.3	0.3	0.6	0.6	1.3
18-Apr	0.6	0.7	0.7	0.7	Z	0.9	1.0	0.9	0.7	0.9	1.1	1.0	0.8	0.6	0.7	0.6	0.5	0.4	0.4	0.5	0.6	0.5	0.6	0.8	0.7	1.1
19-Apr	0.8	0.8	0.9	0.9	0.9	Z	0.7	0.5	0.5	1.0	0.9	0.7	0.8	1.3	1.4	1.2	0.9	0.9	0.6	0.7	0.7	0.8	0.7	0.6	0.8	1.4
20-Apr	Z	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.6	0.7	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.8	0.8	0.9	0.9	0.9	1.0	1.1	0.7	1.1
21-Apr	1.4	Z	1.4	1.1	1.1	1.4	1.6	2.1	2.4	1.4	1.1	0.9	0.8	0.8	0.8	0.9	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.2	2.4
22-Apr	0.7	0.7	Z	0.8	1.1	1.3	1.2	5.7	7.9	4.1	2.5	1.9	1.4	1.0	1.2	1.2	1.0	1.2	1.3	1.3	1.4	1.4	1.4	0.8	1.8	7.9
23-Apr	0.9	0.8	0.8	Z	1.3	1.3	1.1	1.1	1.0	0.6	C	C	C	C	C	0.6	0.5	0.5	0.6	0.6	0.6	0.7	1.6	2.3	0.9	2.3
24-Apr	1.9	2.2	1.6	0.6	Z	0.9	1.3	1.3	1.8	1.5	1.1	1.3	1.3	0.8	0.9	1.1	1.1	1.2	1.1	1.2	1.0	1.1	0.9	0.8	1.2	2.2
25-Apr	0.7	0.6	0.6	0.6	0.6	Z	0.8	0.7	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.8
26-Apr	Z	0.7	1.5	0.6	0.4	0.5	0.6	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.8	1.3	1.6	2.2	3.7	0.8	3.7
27-Apr	3.2	Z	0.5	0.7	1.2	2.0	3.0	1.4	0.6	0.5	0.6	0.7	0.6	0.6	0.8	0.8	0.9	0.9	1.4	1.2	1.0	1.0	0.7	0.9	1.1	3.2
28-Apr	1.6	1.0	Z	1.1	1.5	2.5	2.2	1.8	1.2	0.8	0.9	1.1	1.4	1.3	1.2	1.1	1.1	1.3	1.2	2.1	2.9	2.2	1.8	1.2	1.5	2.9
29-Apr	1.0	0.9	1.3	Z	1.4	1.8	0.9	0.8	1.0	1.1	1.2	0.9	1.0	0.9	0.9	0.8	0.7	0.7	0.5	0.9	1.2	0.6	0.7	0.5	0.9	1.8
30-Apr	0.3	0.3	0.2	0.7	Z	0.3	0.4	0.7	0.7	0.4	0.4	0.4	0.3	0.2	0.3	0.4	0.6	0.7	0.6	0.9	0.9	1.0	1.0	1.0	0.6	1.0
																								Diurnal Average		
																								Diurnal Maximum		
																								1.0 0.7 0.9 0.8 0.9 1.2 1.2 1.2 1.2 1.0 0.9 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.9 1.0 0.9 1.0 0.9		
																								3.2 2.2 2.4 2.4 2.0 2.5 3.0 5.7 7.9 4.1 2.5 2.6 2.5 1.9 1.9 2.1 2.3 2.3 1.9 2.1 2.9 2.5 2.9 3.7		
Z - zerspan      C - Calibration      PF - Power Failure																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

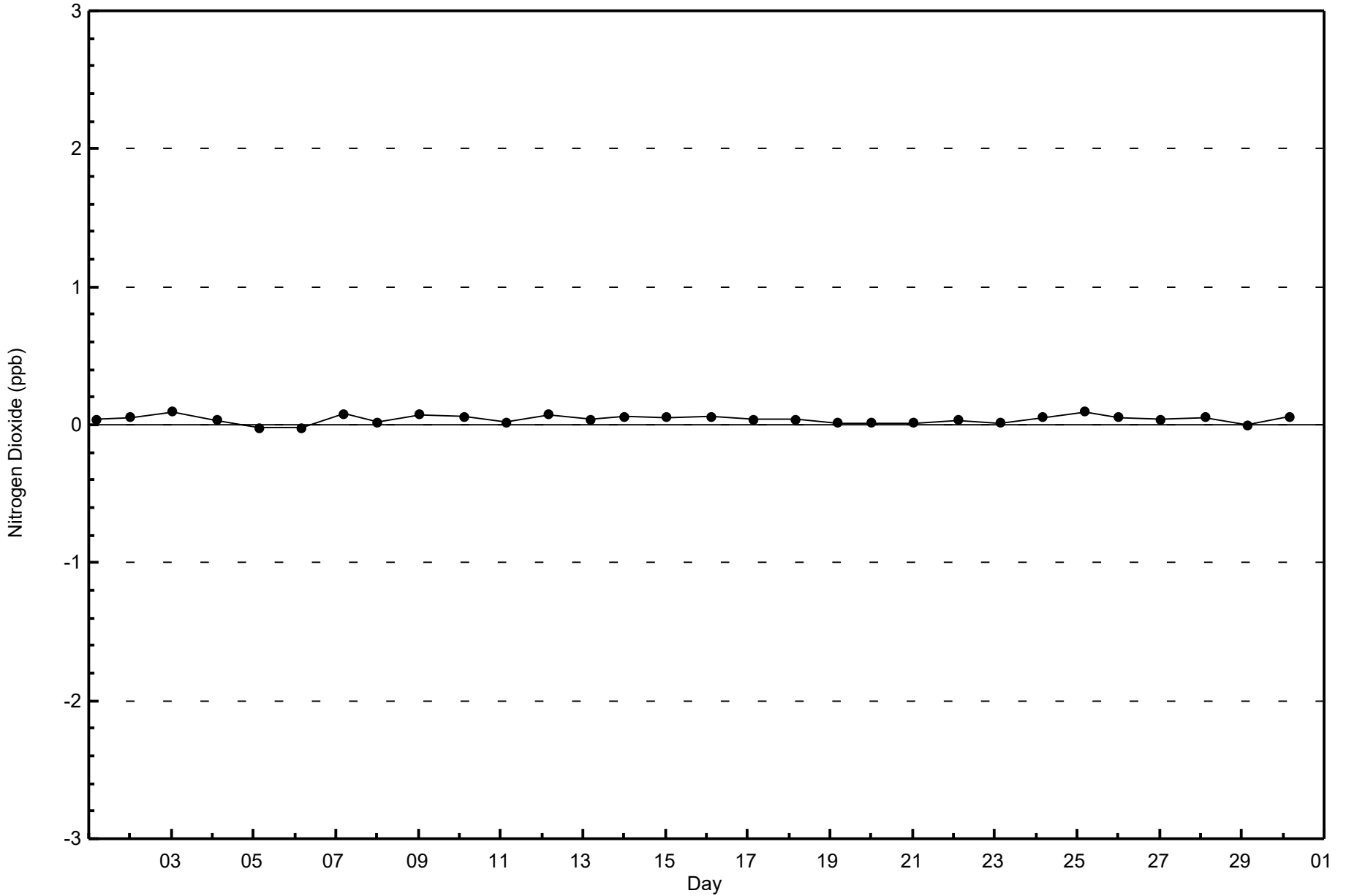
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - April 2024**

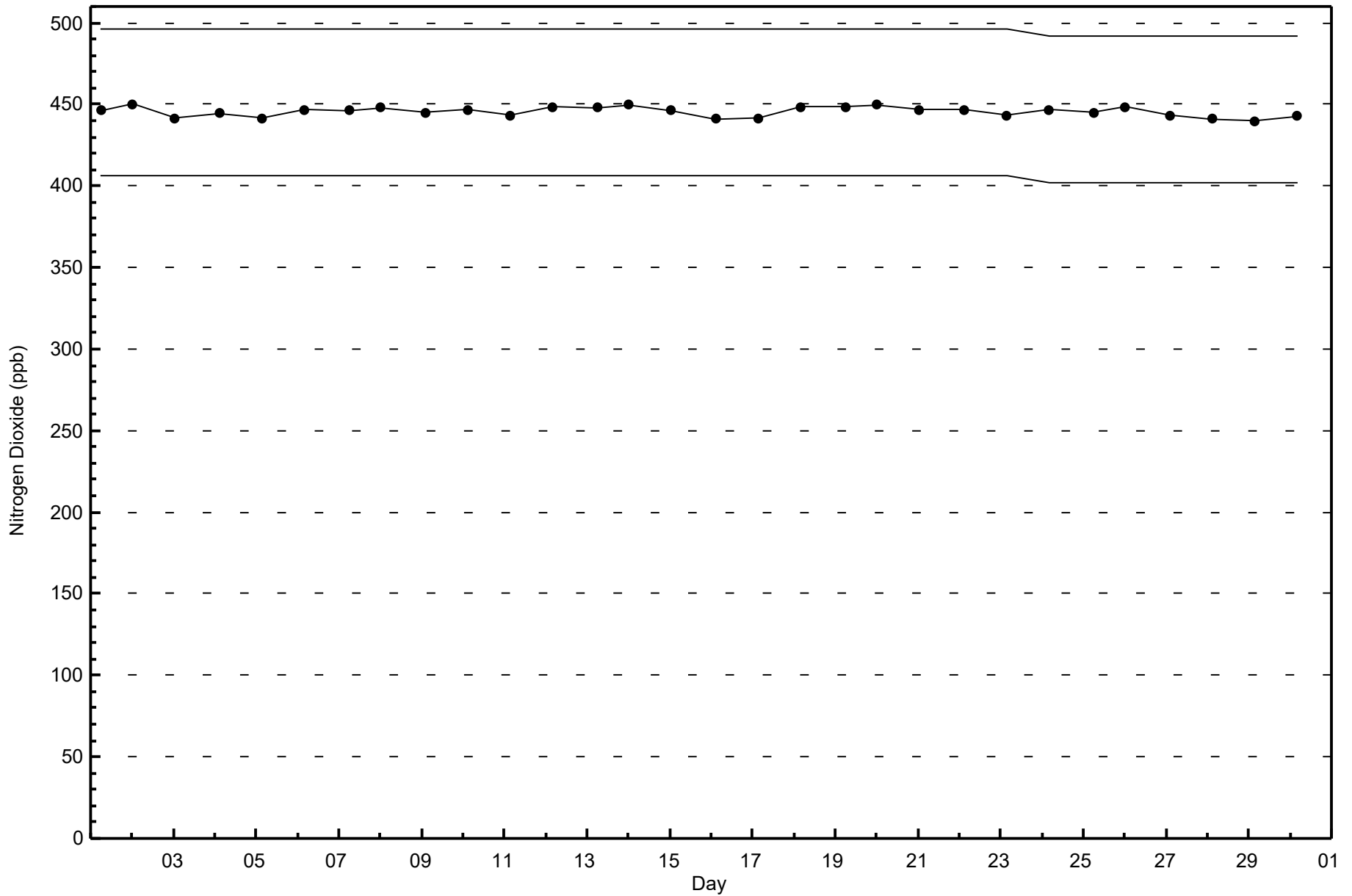
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	90	42	34	26	18	21	30	32	47	48	30	26	52	80	50	57	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	90	42	34	26	18	21	30	32	47	48	30	26	52	80	50	57	683

Total Number of Valid Hours: 683

Total Number of Hours: 720









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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - April 2024**

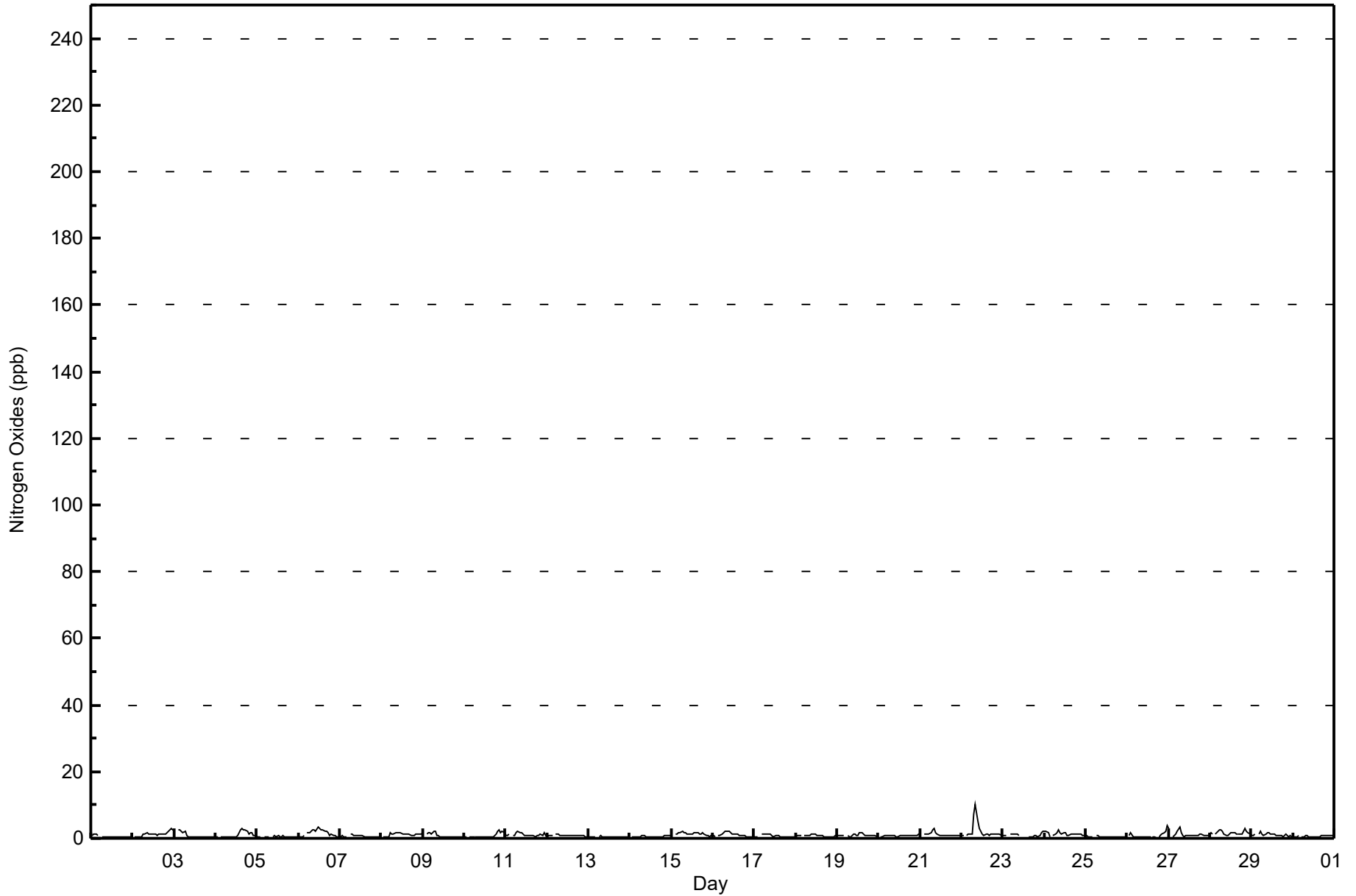
Maximum Value: 10.2 ppb on Apr 22 09:00		Maximum Daily Average: 2.1 ppb on Apr 22		Hours in Service: 720																						
Minimum Value: 0.2 ppb on Apr 26 18:00		Minimum Daily Average: 0.4 ppb on Apr 13		Hours of Data: 684																						
Maximum Diurnal Average: 1.5 ppb at hour 9		Minimum Diurnal Average: 0.7 ppb at hour 2		Hours of Missing Data: 36																						
Monthly Average: 0.97 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.5 Median = 0.8 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 1.7 P <sub>99</sub> = 3.1		Hours of Calibration: 35																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	1.0	1.1	1.3	1.1	0.7	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.5	1.3
2-Apr	Z	0.4	0.3	0.4	0.5	0.5	1.3	1.4	1.8	1.1	1.3	1.2	1.4	1.3	1.0	1.2	1.2	1.2	1.1	1.4	1.7	2.5	2.9	2.6	1.3	2.9
3-Apr	2.5	Z	2.4	2.4	2.0	1.9	2.2	1.0	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.9	2.5
4-Apr	0.4	0.4	Z	0.4	0.3	0.3	0.4	0.6	0.5	0.4	0.4	0.5	0.4	0.9	2.5	2.8	2.7	2.5	1.9	1.4	1.7	1.9	0.9	0.6	1.1	2.8
5-Apr	0.6	0.5	0.6	Z	0.4	0.5	0.5	0.5	PF	0.5	0.9	0.6	0.9	0.6	0.6	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.6	0.9
6-Apr	0.5	0.5	0.5	0.7	Z	1.6	1.7	2.0	2.5	2.6	2.2	3.3	3.1	2.4	2.4	2.1	2.0	1.6	1.0	1.4	0.8	0.7	0.5	0.4	1.6	3.3
7-Apr	0.5	0.7	0.6	0.5	0.5	Z	1.1	1.2	1.0	0.9	0.9	0.9	0.8	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.5	0.4	0.6	1.2
8-Apr	Z	0.5	0.5	0.5	0.6	1.8	1.4	1.2	1.6	1.7	1.5	1.6	1.2	1.1	1.1	1.2	1.4	1.0	1.0	0.9	1.1	1.3	1.3	1.3	1.2	1.8
9-Apr	1.8	Z	1.4	1.5	1.5	1.4	2.3	2.1	0.9	0.7	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.8	2.3
10-Apr	0.4	0.4	Z	0.4	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.6	0.5	0.4	0.3	1.2	2.1	2.6	1.8	2.2	1.6	0.8	2.6
11-Apr	1.0	0.9	1.3	Z	0.8	0.9	1.7	2.0	1.7	1.6	1.3	1.0	0.8	0.8	0.9	0.6	0.7	0.6	0.8	0.8	1.4	0.9	1.9	1.0	1.1	2.0
12-Apr	0.5	0.7	0.9	1.0	Z	1.1	1.4	0.9	0.8	0.9	0.8	1.0	1.0	1.0	1.0	1.0	0.8	0.8	0.8	0.7	0.8	0.6	0.6	0.6	0.9	1.4
13-Apr	0.6	0.6	0.6	0.5	0.6	Z	0.6	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7
14-Apr	Z	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.8	0.8	0.8	0.5	0.8
15-Apr	0.9	Z	1.3	1.4	1.9	1.8	2.0	1.6	1.5	1.4	1.1	1.2	1.3	1.7	1.7	1.6	1.1	1.3	1.7	1.3	0.7	0.7	0.6	0.8	1.3	2.0
16-Apr	0.9	0.6	Z	0.8	0.9	1.4	1.6	2.2	2.3	2.0	1.7	1.3	1.3	1.3	1.2	1.0	0.7	0.8	0.9	0.4	0.4	0.4	0.4	0.3	1.1	2.3
17-Apr	0.2	0.2	0.2	Z	1.2	1.3	1.3	1.3	1.3	1.3	0.7	0.5	0.7	0.9	0.7	0.4	0.4	0.4	0.5	0.6	0.5	0.3	0.3	0.6	0.7	1.3
18-Apr	0.6	0.7	0.7	0.7	Z	0.9	1.0	1.0	0.8	1.1	1.3	1.2	0.9	0.7	0.8	0.7	0.5	0.4	0.4	0.5	0.6	0.5	0.6	0.8	0.8	1.3
19-Apr	0.8	0.8	0.9	0.9	0.9	Z	0.7	0.5	0.6	1.2	1.1	0.8	0.9	1.6	1.7	1.4	1.0	0.9	0.6	0.7	0.7	0.8	0.7	0.6	0.9	1.7
20-Apr	Z	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.6	0.6	0.7	0.9	0.8	0.7	0.6	0.8	0.8	0.9	0.9	0.9	1.0	1.1	0.8	1.1
21-Apr	1.4	Z	1.4	1.1	1.1	1.4	1.7	2.5	3.0	1.7	1.2	1.0	0.9	0.9	0.8	0.9	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.3	3.0
22-Apr	0.7	0.7	Z	0.8	1.1	1.3	1.3	7.0	10.2	5.2	3.0	2.1	1.5	1.0	1.3	1.2	1.0	1.2	1.3	1.3	1.4	1.4	1.4	0.8	2.1	10.2
23-Apr	0.9	0.8	0.8	Z	1.3	1.3	1.2	1.3	1.2	0.7	C	C	C	C	C	0.6	0.5	0.5	0.6	0.6	0.6	0.7	1.6	2.3	1.0	2.3
24-Apr	1.9	2.2	1.6	0.6	Z	0.9	1.4	1.5	2.3	1.8	1.3	1.5	1.6	0.9	1.0	1.1	1.1	1.2	1.1	1.2	1.1	1.3	0.9	0.8	1.3	2.3
25-Apr	0.7	0.6	0.6	0.6	0.6	Z	0.9	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.9
26-Apr	Z	0.7	1.5	0.6	0.4	0.5	0.6	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.8	1.3	1.6	2.2	3.7	0.8	3.7
27-Apr	3.2	Z	0.5	0.7	1.2	2.1	3.3	1.6	0.7	0.6	0.7	0.8	0.7	0.7	0.8	0.9	0.9	0.9	1.4	1.2	1.0	1.0	0.7	1.0	1.1	3.3
28-Apr	1.7	1.1	Z	1.2	1.6	2.6	2.4	2.0	1.3	0.9	1.0	1.2	1.7	1.6	1.5	1.3	1.3	1.4	1.3	2.2	2.9	2.2	1.8	1.2	1.6	2.9
29-Apr	1.0	0.9	1.3	Z	1.4	2.0	1.1	1.0	1.3	1.6	1.6	1.1	1.2	1.1	1.0	0.8	0.8	0.7	0.5	0.9	1.2	0.6	0.7	0.5	1.1	2.0
30-Apr	0.3	0.3	0.2	0.7	Z	0.3	0.4	0.7	0.8	0.5	0.5	0.5	0.4	0.2	0.3	0.4	0.7	0.7	0.6	0.9	0.9	1.0	1.0	1.0	0.6	1.0
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		

Z - zerspan      C - Calibration      PF - Power Failure



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - April 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	90	42	34	26	18	21	30	32	47	48	30	26	52	80	50	57	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	90	42	34	26	18	21	30	32	47	48	30	26	52	80	50	57	683

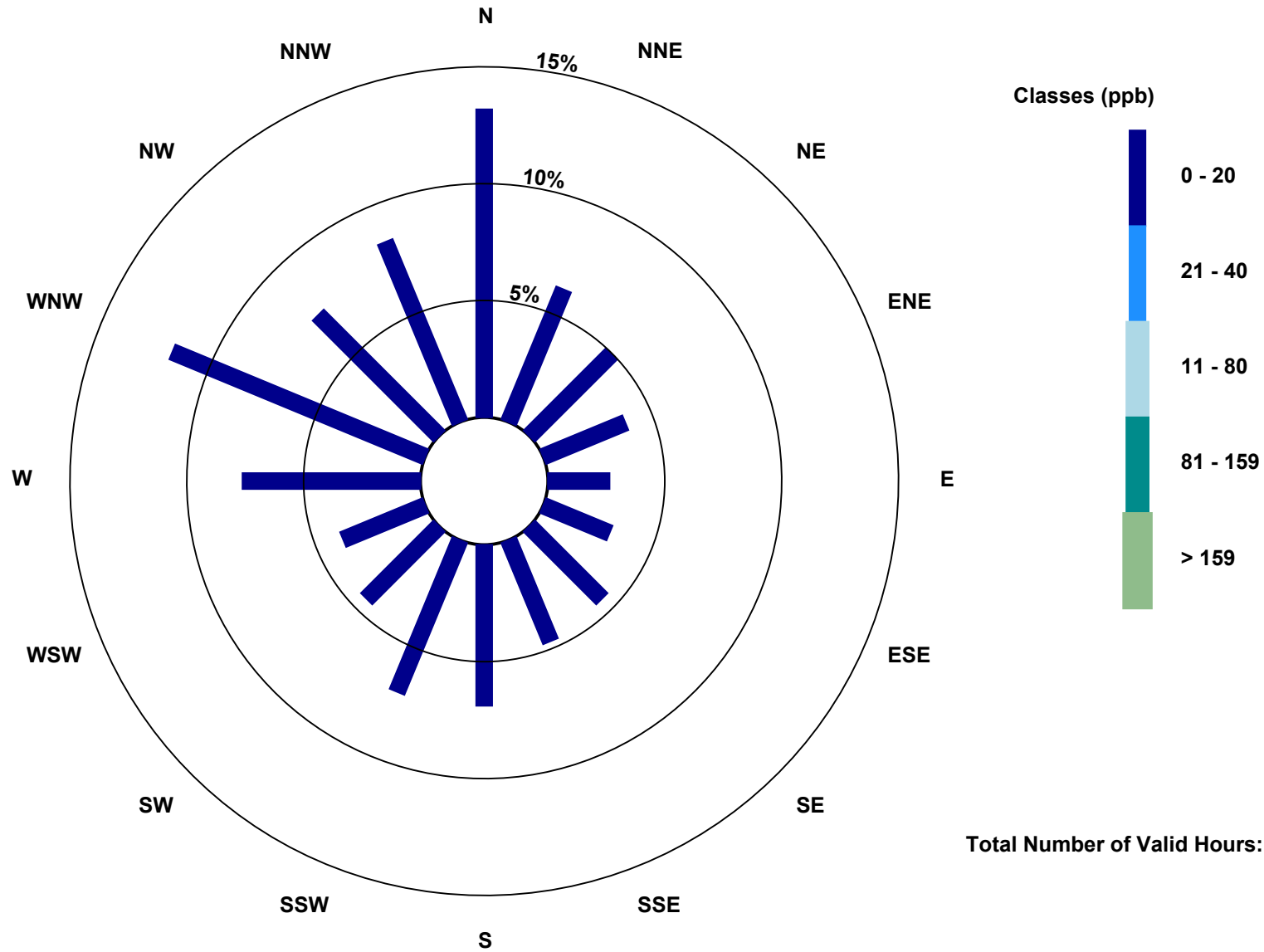
Total Number of Valid Hours: 683

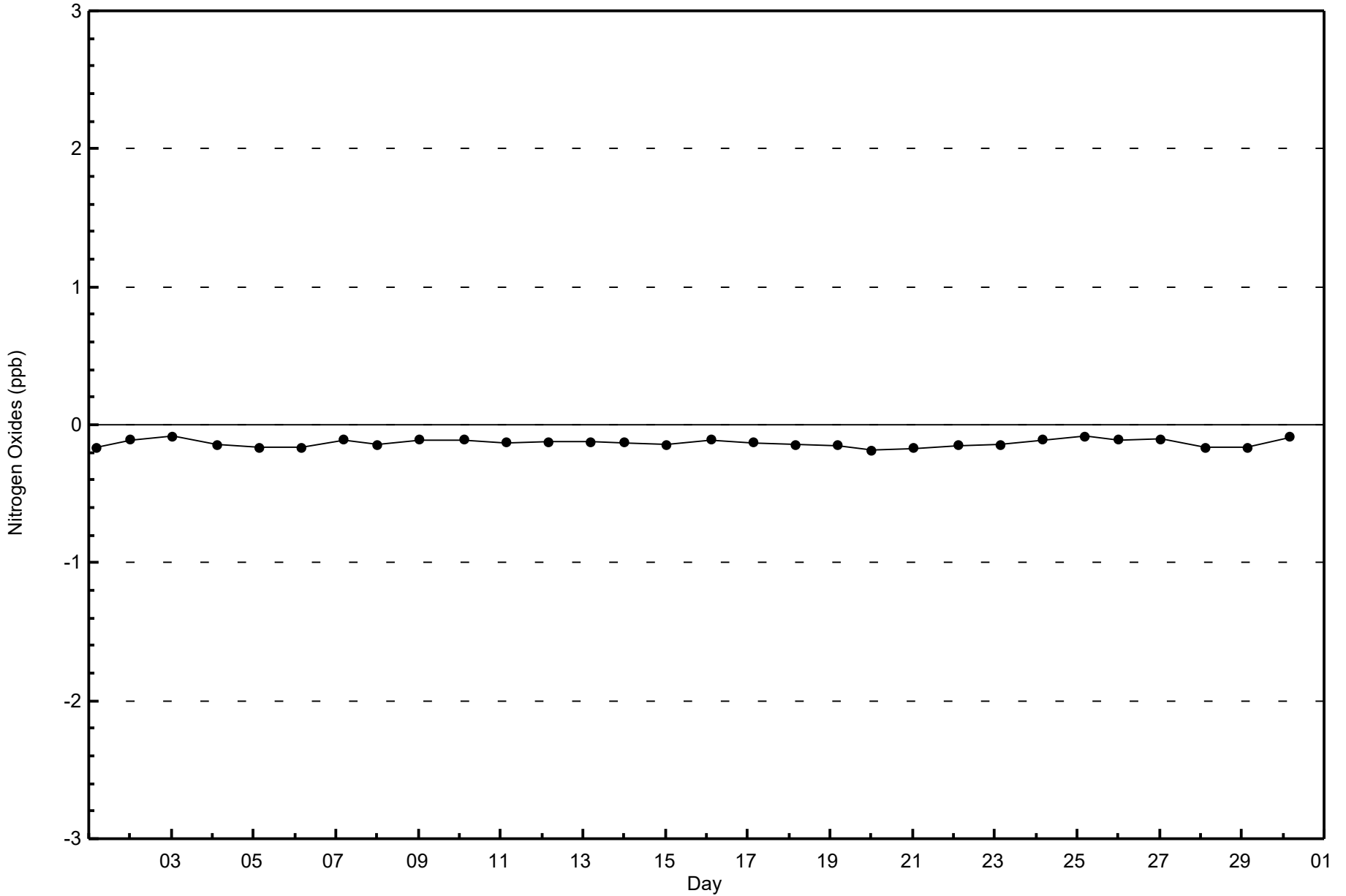
Total Number of Hours: 720

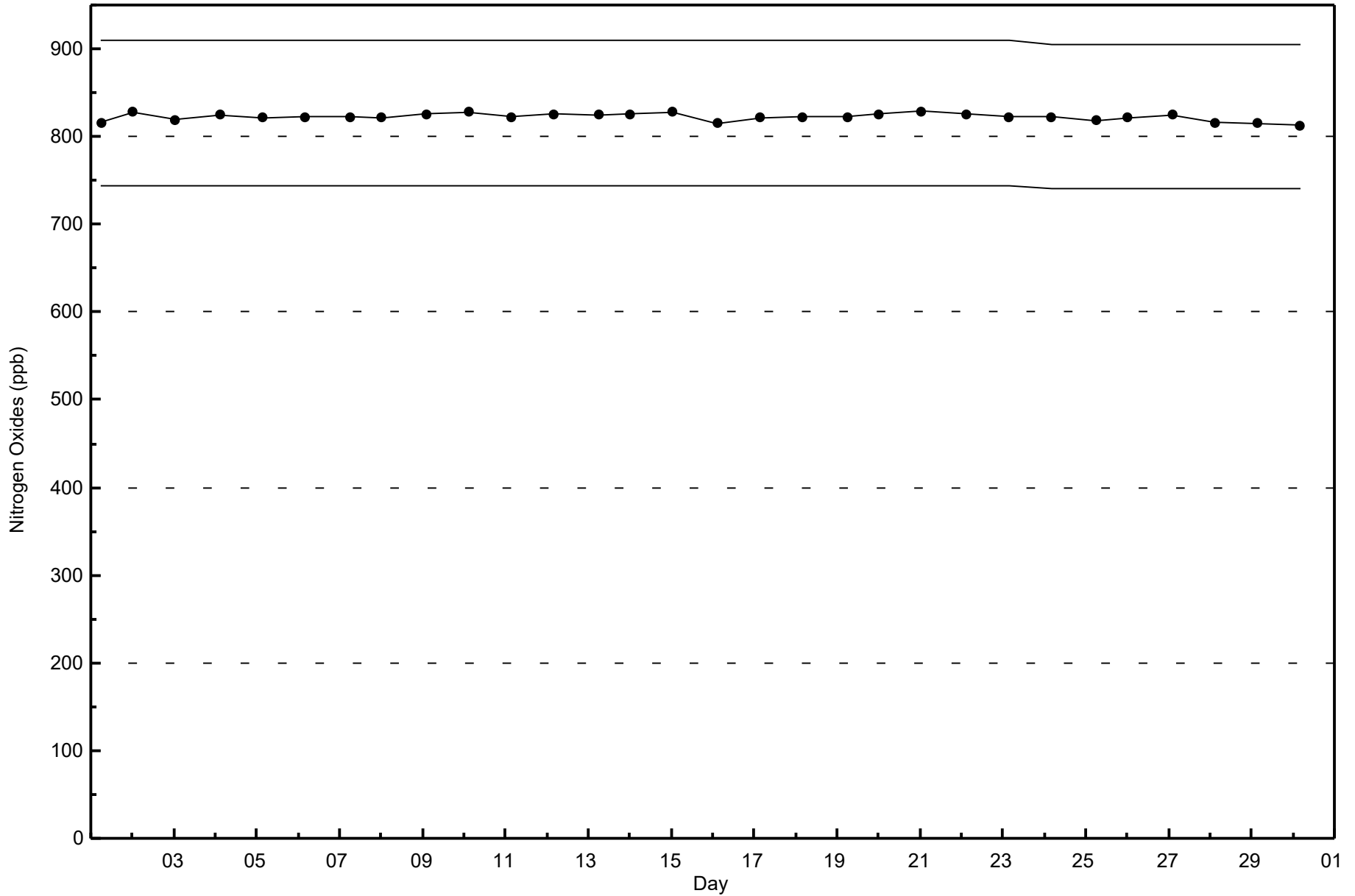


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

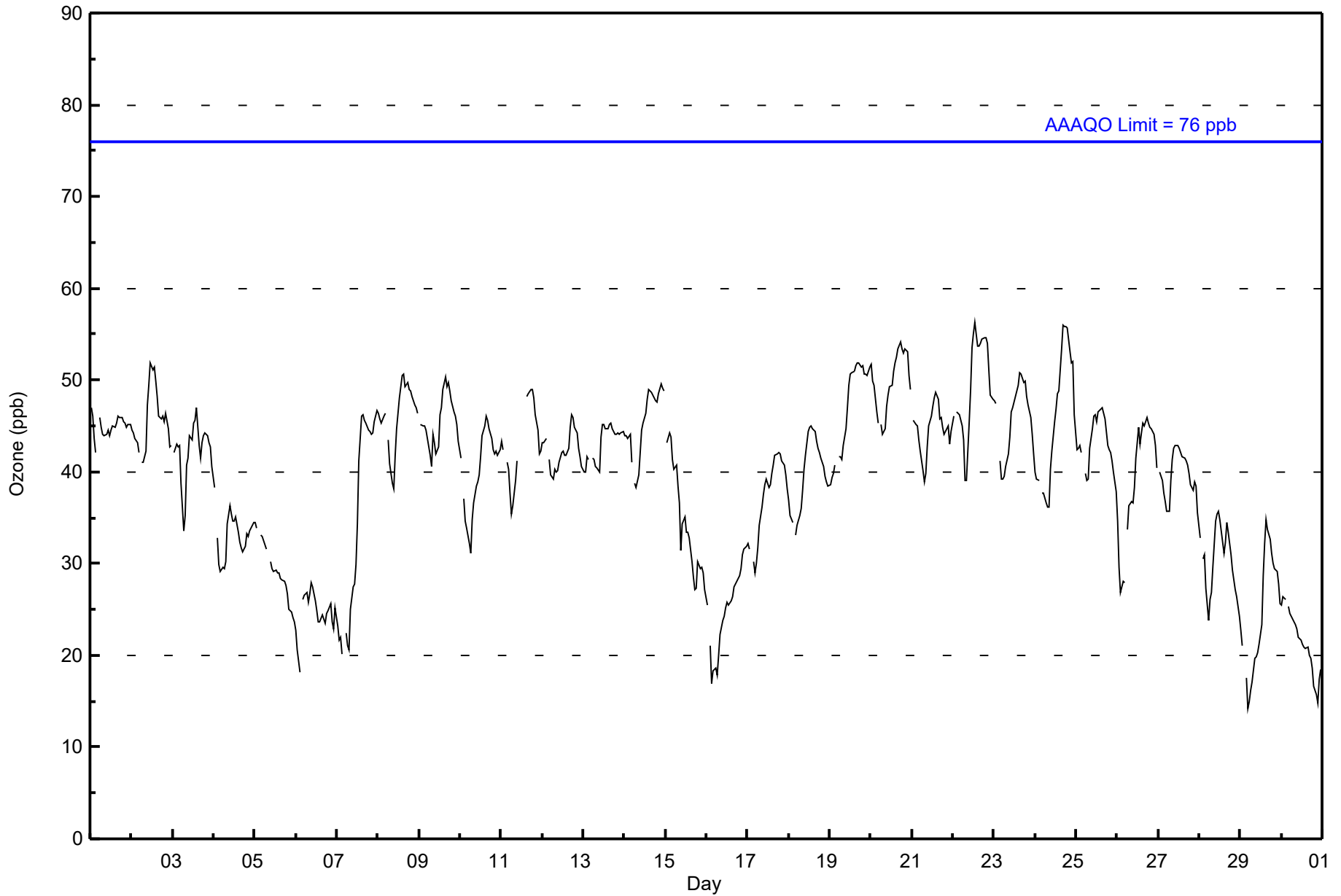
Ozone (O<sub>3</sub>) - ppb

Stony Mountain - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 56.3 ppb on Apr 22 14:00	Maximum Daily Average: 49.8 ppb on Apr 20		Hours of Data:	684
Minimum Value: 14.2 ppb on Apr 29 05:00	Minimum Daily Average: 21.3 ppb on Apr 30		Hours of Missing Data:	36
Maximum Diurnal Average: 42.4 ppb at hour 16	Minimum Diurnal Average: 34.3 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 39.19 ppb	Percentiles: P <sub>1</sub> = 17.1 P <sub>10</sub> = 25.3 Q <sub>1</sub> = 33.1 Median = 41.7 Q <sub>3</sub> = 45.3 P <sub>90</sub> = 49.0 P <sub>99</sub> = 54.6		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-Apr	47.0	46.0	43.6	42.0	Z	45.9	44.8	44.2	44.0	44.1	44.5	44.0	44.6	44.9	44.9	45.3	46.0	46.0	45.9	45.5	45.2	44.9	45.2	45.1	44.9	47.0																						
2-Apr	44.6	44.2	43.7	43.1	42.1	Z	41.0	41.1	42.2	47.3	49.5	51.9	51.1	51.3	49.9	48.3	46.1	45.7	46.1	45.5	46.3	44.8	42.6	42.8	45.7	51.9																						
3-Apr	Z	42.2	43.0	42.7	42.9	38.7	33.6	35.2	40.8	41.5	43.9	43.5	45.4	45.6	47.0	42.8	41.5	43.1	43.9	44.2	43.9	43.1	42.7	40.6	42.3	47.0																						
4-Apr	38.3	Z	32.8	29.9	29.2	29.6	29.4	30.2	34.4	36.3	35.3	34.7	34.6	35.0	33.4	32.4	31.7	31.3	31.9	33.3	33.0	33.6	33.9	34.5	33.0	38.3																						
5-Apr	34.5	33.9	Z	33.2	33.0	32.6	32.1	31.5	PF	30.2	29.4	29.1	29.3	28.9	28.9	28.3	28.2	28.1	27.6	26.8	25.0	24.7	24.1	23.7	29.2	34.5																						
6-Apr	22.7	20.6	18.1	Z	26.1	26.6	26.8	25.8	26.7	27.9	27.5	26.0	24.9	23.6	23.6	24.5	24.0	23.5	24.5	24.9	25.7	23.7	22.9	25.2	24.6	27.9																						
7-Apr	23.2	21.7	21.9	20.1	Z	22.4	21.0	20.6	25.1	27.4	27.8	29.8	34.3	41.2	46.1	46.3	45.7	45.3	44.5	44.4	44.1	44.3	45.4	46.7	34.3	46.7																						
8-Apr	46.4	45.8	45.2	46.0	46.4	Z	43.4	40.8	38.8	38.1	41.8	44.7	48.1	49.3	50.5	50.6	49.2	49.7	49.0	48.9	48.1	47.3	46.9	46.4	46.2	50.6																						
9-Apr	Z	45.2	45.0	44.9	44.5	43.7	41.8	40.6	44.0	43.1	41.9	42.7	46.2	47.0	49.0	50.3	49.3	49.7	48.8	47.7	46.5	46.1	45.1	43.3	45.5	50.3																						
10-Apr	41.5	Z	37.0	34.7	33.8	32.1	31.2	34.7	36.6	38.4	38.9	39.7	41.6	43.9	44.9	46.0	45.6	44.8	43.6	42.4	42.0	42.2	41.9	42.4	40.0	46.0																						
11-Apr	43.3	42.4	Z	41.0	40.3	37.7	35.4	36.3	39.1	41.2	C	C	C	C	C	48.2	48.5	49.0	48.9	48.0	46.3	44.6	41.9	42.2	43.0	49.0																						
12-Apr	43.1	43.2	43.6	Z	41.4	39.7	39.2	40.2	39.9	40.2	41.0	42.1	42.3	41.9	41.7	42.5	44.9	46.3	45.9	44.8	44.3	42.6	41.7	40.6	42.3	46.3																						
13-Apr	40.0	40.0	41.7	41.3	Z	41.5	41.4	40.6	40.4	39.9	43.8	45.1	45.2	44.8	44.7	45.1	45.3	44.7	44.1	44.0	44.3	44.1	44.3	44.4	43.1	45.3																						
14-Apr	44.0	43.9	43.7	44.1	41.0	Z	38.8	38.3	39.7	42.1	44.5	45.3	46.4	47.9	49.0	48.8	48.6	48.1	47.8	47.5	48.5	49.6	49.1	48.8	45.4	49.6																						
15-Apr	Z	43.1	44.3	43.8	41.4	40.2	40.7	38.5	36.6	31.4	34.3	35.1	33.4	33.5	32.9	30.3	28.6	27.2	27.3	30.2	29.5	29.6	29.0	27.2	34.3	44.3																						
16-Apr	25.4	Z	21.0	17.0	18.4	18.6	17.8	20.0	22.3	23.8	24.3	25.2	25.7	25.4	26.0	26.5	27.4	27.7	28.3	28.7	29.4	31.0	31.6	31.8	24.9	31.8																						
17-Apr	32.1	31.6	Z	30.2	29.1	30.1	31.7	34.2	36.1	37.5	38.5	39.1	38.4	38.6	39.8	40.7	41.9	41.9	42.0	42.0	41.2	40.8	39.6	38.1	37.2	42.0																						
18-Apr	36.9	35.3	34.5	Z	33.1	34.2	35.2	36.0	37.9	40.3	41.9	44.5	44.9	44.9	44.8	44.4	43.4	42.6	42.1	41.4	40.5	39.4	38.8	38.4	39.8	44.9																						
19-Apr	38.6	39.3	39.8	40.7	Z	41.6	41.7	41.4	42.9	44.7	47.0	49.4	50.7	50.8	51.0	51.5	51.9	51.9	51.4	51.5	50.7	50.7	50.4	51.5	47.0	51.9																						
20-Apr	51.7	49.9	49.4	46.5	45.3	Z	45.1	44.1	44.8	47.1	48.3	49.3	49.4	50.9	51.8	52.4	53.4	54.1	53.4	53.0	53.3	53.1	50.6	49.0	49.8	54.1																						
21-Apr	Z	45.7	45.2	45.0	43.5	42.2	40.2	39.0	39.8	42.8	44.9	46.1	47.1	48.1	48.7	47.8	45.8	46.0	44.8	44.1	44.6	44.9	43.0	44.5	44.5	48.7																						
22-Apr	46.1	Z	46.6	46.4	46.2	45.0	43.5	39.0	39.1	45.5	49.0	53.5	55.1	56.3	53.7	53.7	54.0	54.4	54.6	54.7	54.0	51.1	48.4	47.9	49.5	56.3																						
23-Apr	47.8	47.4	Z	41.2	39.2	39.2	39.6	40.5	41.9	43.8	46.5	47.0	48.1	48.9	49.4	50.8	50.7	49.7	49.9	48.2	47.3	46.0	44.1	41.9	45.6	50.8																						
24-Apr	39.9	39.2	39.0	Z	37.8	37.7	36.5	36.2	36.1	40.2	42.3	45.5	46.8	48.4	48.8	53.5	56.0	55.9	55.8	55.7	53.1	51.8	52.0	46.2	45.9	56.0																						
25-Apr	42.5	42.6	42.9	42.0	Z	39.8	39.0	39.2	42.6	44.8	46.1	46.3	45.5	46.5	46.5	46.8	46.9	46.4	45.7	42.9	42.3	42.1	41.2	39.9	37.8	43.1	46.9																					
26-Apr	34.6	29.6	26.8	28.0	28.0	Z	33.7	36.3	36.8	36.6	38.3	41.5	44.8	42.9	44.2	45.3	45.0	45.9	45.3	44.9	44.7	44.0	42.8	40.5	39.2	45.9																						
27-Apr	Z	40.0	39.1	37.8	36.8	35.7	35.6	39.1	41.4	42.6	42.9	42.8	42.6	42.1	41.6	41.5	41.2	40.7	39.7	38.6	38.0	38.9	38.4	35.5	39.7	42.9																						
28-Apr	32.8	Z	30.5	30.9	27.3	23.8	26.2	26.8	29.5	34.6	35.4	35.7	34.7	33.6	31.1	32.4	34.5	33.5	31.0	29.3	28.2	27.1	26.3	24.3	30.4	35.7																						
29-Apr	22.7	21.0	Z	17.5	14.2	14.9	16.2	17.1	19.7	19.9	20.3	21.2	23.4	28.7	32.2	34.8	33.8	32.6	31.1	30.0	29.5	29.1	27.7	25.7	24.5	34.8																						
30-Apr	25.6	26.4	26.1	Z	25.4	24.6	24.0	23.7	23.3	22.9	22.0	21.7	21.2	20.8	20.8	20.8	20.1	19.6	18.7	16.6	15.8	14.8	17.4	18.5	21.3	26.4																						
																								37.8	38.4	37.8	37.2	35.4	34.3	34.9	35.0	36.6	37.9	39.0	40.1	40.9	41.6	42.0	42.4	42.3	42.2	41.7	41.3	40.8	40.3	39.6	38.9	Diurnal Average
																								51.7	49.9	49.4	46.5	46.4	45.9	45.1	44.2	44.8	47.3	49.5	53.5	55.1	56.3	53.7	53.7	56.0	55.9	55.8	55.7	54.0	53.1	52.0	51.5	Diurnal Maximum

Z - zerospan      C - Calibration      PF - Power Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	23	3.36	3.36
21 - 50	614	89.77	93.13
51 - 82	47	6.87	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Stony Mountain - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
0 - 20	6	0	1	1	2	0	0	0	0	0	0	1	0	0	0	6	6	23
21 - 50	76	39	30	26	19	20	29	30	42	34	29	23	48	78	42	48	613	
51 - 82	7	3	1	1	1	0	1	2	3	8	2	4	5	2	6	1	47	
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Totals</b>	89	42	32	28	22	20	30	32	45	42	32	27	53	80	54	55	683	

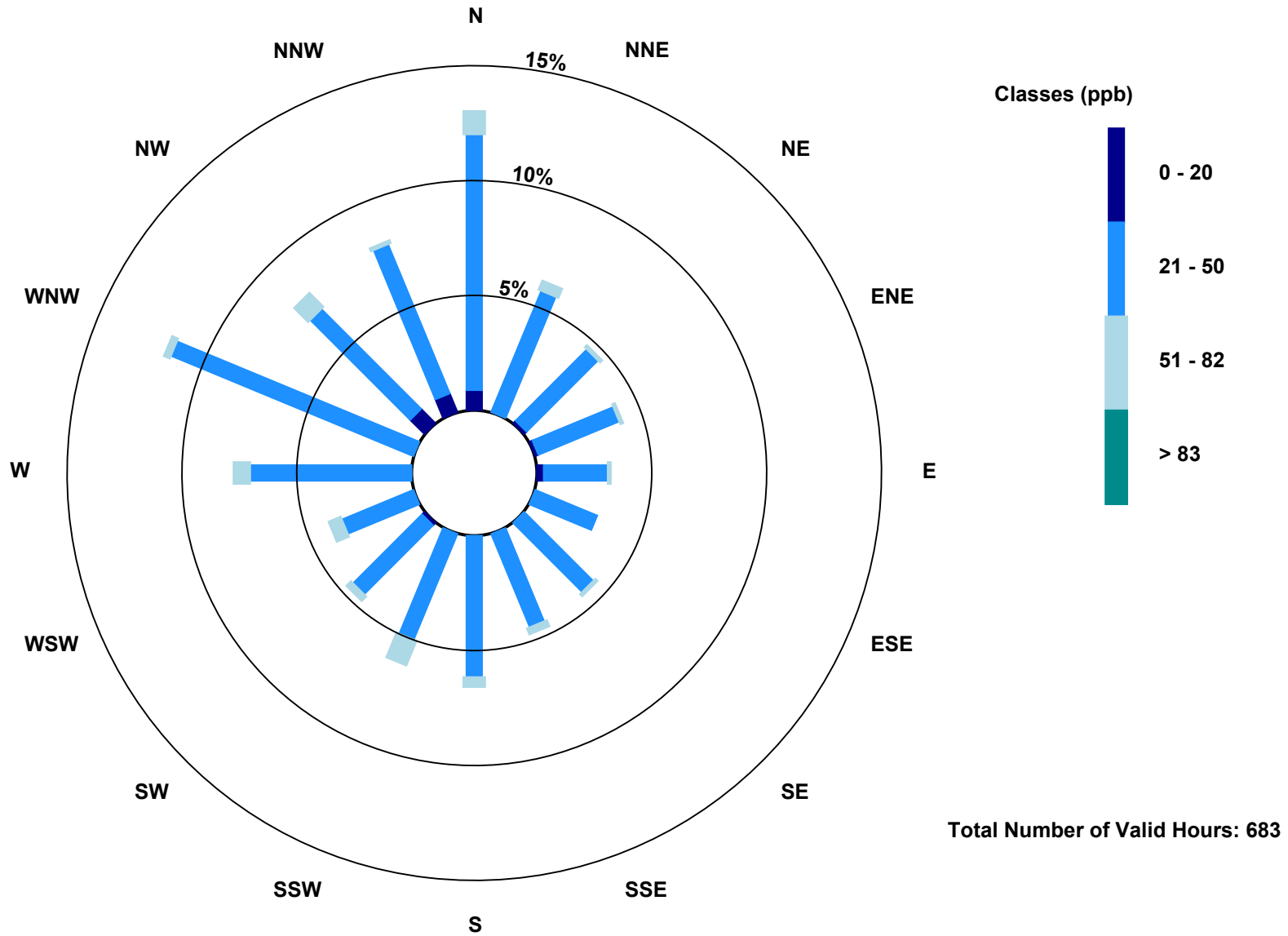
Total Number of Valid Hours: 683

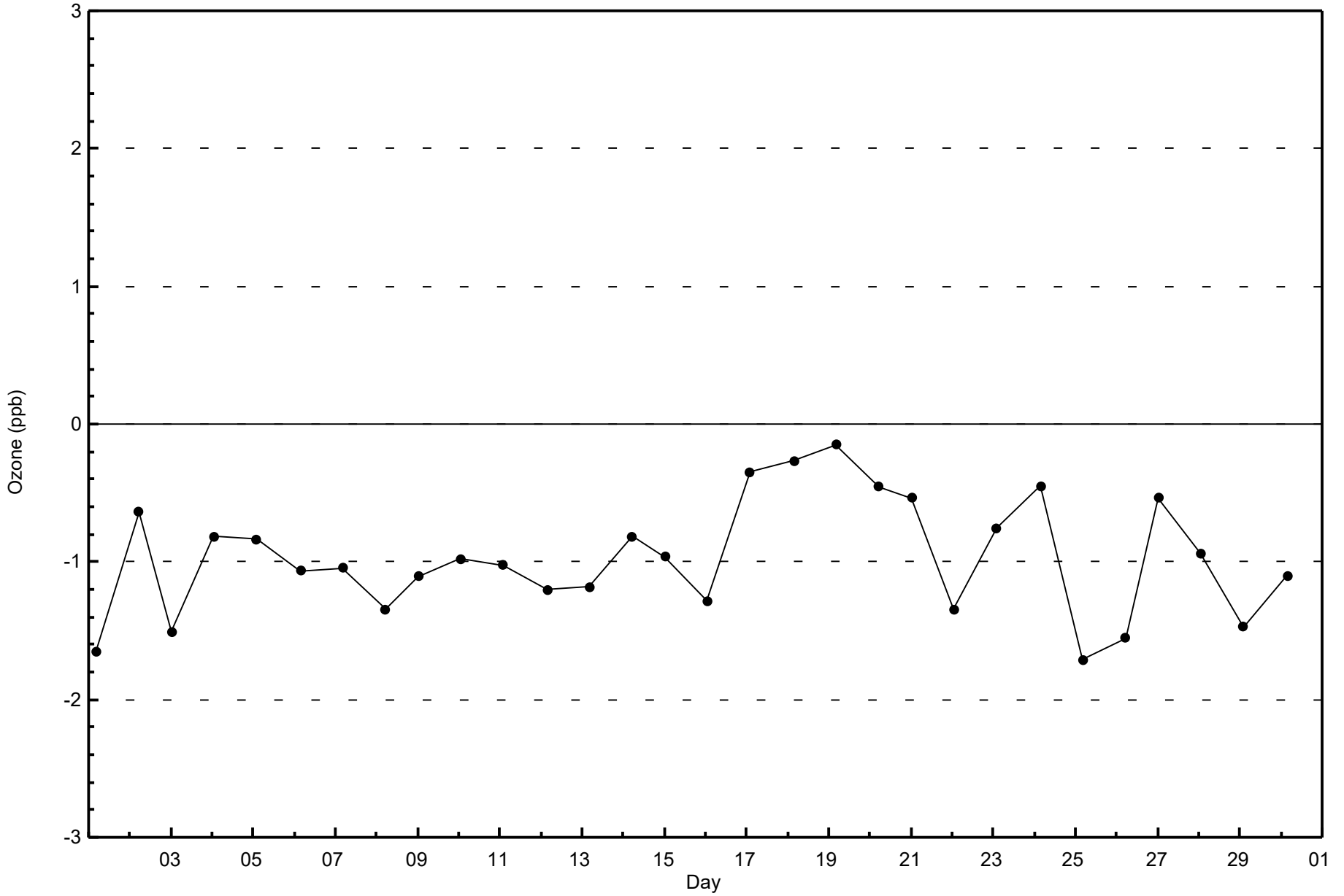
Total Number of Hours: 720

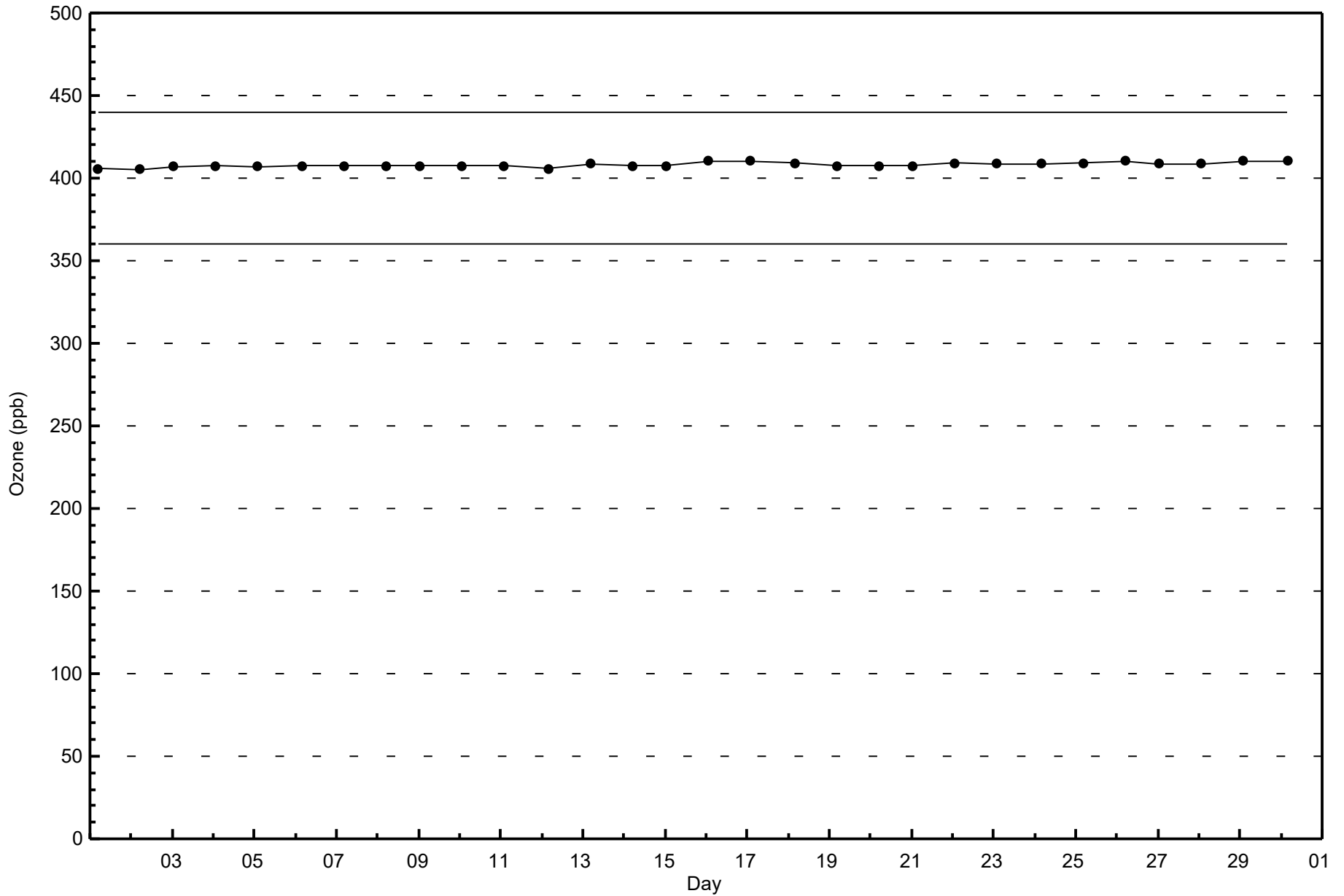


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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





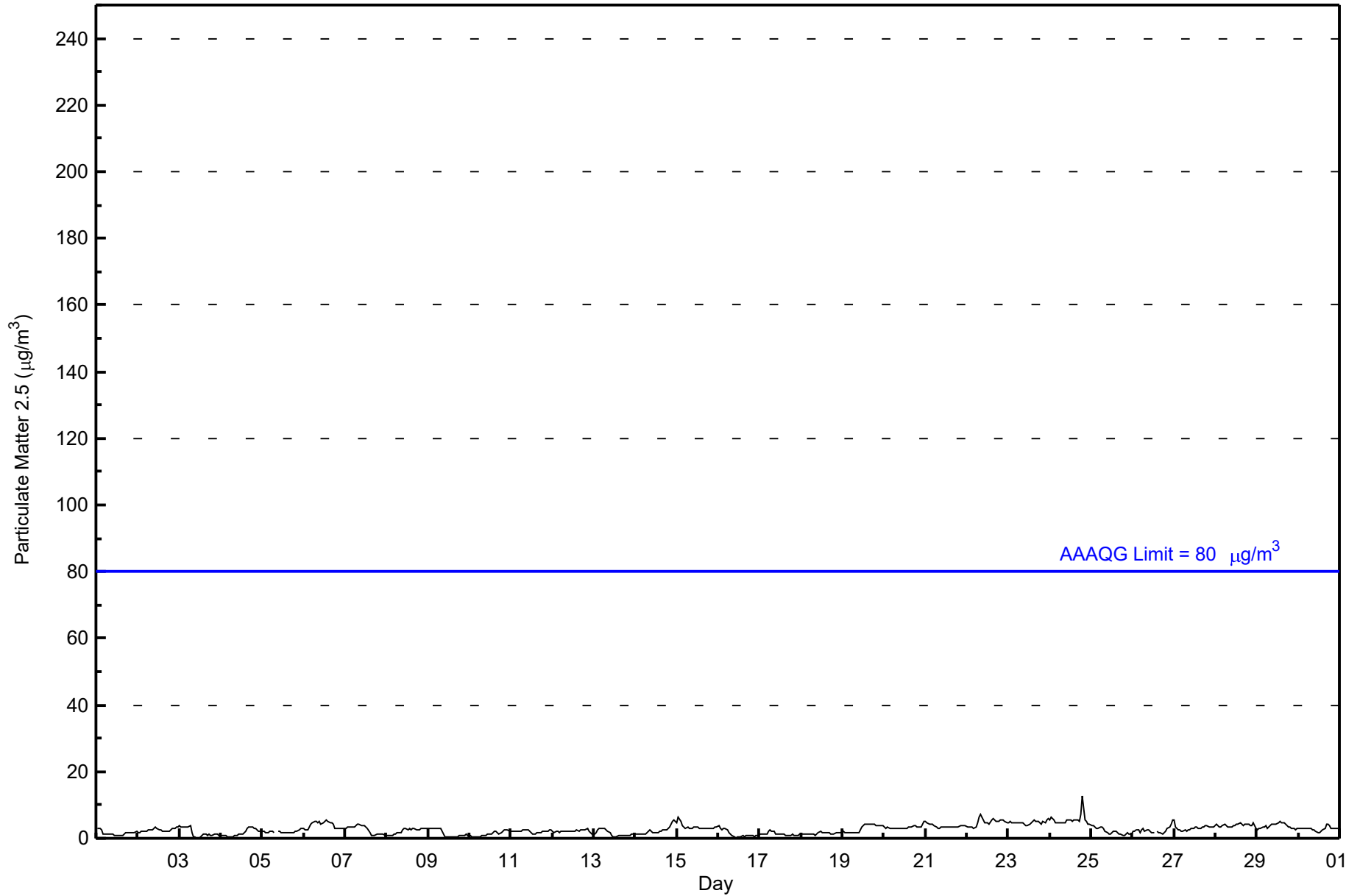




Summary of Hour Averages

Stony Mountain - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	720					
Maximum Value: 12.8 µg/m <sup>3</sup> on Apr 24 20:00		Maximum Daily Average: 5.5 µg/m <sup>3</sup> on Apr 24																	Hours of Data: 718							
Minimum Value: 0.1 µg/m <sup>3</sup> on Apr 3 12:00		Minimum Daily Average: 1.3 µg/m <sup>3</sup> on Apr 17																	Hours of Missing Data: 2							
Maximum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 23		Minimum Diurnal Average: 2.4 µg/m <sup>3</sup> at hour 12																	Hours of Calibration: 1							
Monthly Average: 2.65 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.5 Median = 2.6 Q <sub>3</sub> = 3.5 P <sub>90</sub> = 4.7 P <sub>99</sub> = 5.8																	Percent Operational Time: 99.9							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	3.0	3.0	3.0	2.5	1.2	1.1	1.2	1.2	1.2	1.1	1.0	0.8	0.6	0.6	0.7	1.0	1.4	1.6	1.7	1.7	1.7	1.8	1.8	1.9	1.5	3.0
2-Apr	1.9	1.9	2.0	2.1	2.1	2.2	2.5	2.6	2.5	2.8	3.2	2.9	2.5	2.5	2.2	2.2	2.0	2.1	2.3	2.7	2.9	3.1	3.2	3.4	2.5	3.4
3-Apr	3.7	3.5	3.6	3.6	3.5	3.6	3.7	1.6	0.5	0.2	0.2	0.1	0.5	1.1	1.4	1.1	1.0	1.1	1.0	1.1	1.2	1.1	1.0	1.7	3.7	
4-Apr	0.9	0.9	0.8	0.7	0.5	0.3	0.3	0.5	1.0	0.9	1.2	1.4	1.1	1.2	2.3	3.2	3.6	3.5	3.3	3.0	2.9	2.6	2.0	2.0	1.7	3.6
5-Apr	1.9	1.9	1.8	1.6	2.0	2.2	1.9	1.9	PF	2.1	2.0	1.9	1.7	1.7	1.8	1.6	1.6	1.9	1.8	2.1	2.3	2.6	2.8	3.0	2.0	3.0
6-Apr	2.9	2.7	2.7	3.3	4.1	4.7	5.2	5.2	4.8	5.0	4.4	4.6	5.0	5.4	5.3	4.8	4.6	4.2	3.1	2.9	3.0	3.2	3.1	2.9	4.0	5.4
7-Apr	3.0	3.3	3.3	3.2	3.2	3.5	3.8	4.4	4.3	3.8	3.8	3.7	3.4	2.9	1.7	1.0	0.9	1.0	1.1	1.2	1.4	1.4	1.1	0.8	2.6	4.4
8-Apr	0.8	0.8	1.0	1.1	1.1	1.3	1.5	1.6	1.9	2.7	3.0	2.9	2.7	2.8	2.8	3.0	3.1	2.7	2.7	2.6	2.8	3.0	3.0	2.8	2.2	3.1
9-Apr	2.9	2.8	2.8	3.0	2.9	2.9	3.1	3.1	2.2	1.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.9	0.9	1.0	1.1	1.0	1.6	3.1
10-Apr	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.7	1.0	1.0	1.1	1.1	1.2	1.2	2.0	1.9	1.5	1.1	1.7	2.3	2.7	2.5	2.6	2.3	1.3	2.7
11-Apr	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.5	2.4	2.4	2.5	2.1	1.3	1.1	1.3	1.7	1.9	1.8	2.3	2.0	2.0	2.1	2.6	2.4	2.0	2.6
12-Apr	1.9	1.8	2.1	2.0	1.8	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.2	2.3	2.4	2.3	2.5	2.6	2.5	2.5	2.8	2.1	1.7	1.4	2.1	2.8
13-Apr	1.2	1.8	2.5	2.8	2.9	2.9	2.8	2.7	2.1	1.5	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0	0.9	1.0	1.0	1.1	1.2	1.5	2.9
14-Apr	1.2	1.2	1.2	1.2	1.2	1.2	1.4	1.7	2.4	2.2	1.9	1.6	1.6	1.9	2.1	2.2	2.5	2.6	2.7	2.8	3.6	5.2	5.3	5.0	2.3	5.3
15-Apr	4.5	6.3	4.9	3.7	3.5	3.2	3.3	3.0	3.0	3.2	3.4	3.2	3.3	3.1	3.1	3.0	3.1	3.0	2.9	2.8	2.8	3.1	3.5	3.6	3.4	6.3
16-Apr	3.7	2.9	2.6	3.0	2.9	2.4	1.7	1.3	1.0	0.5	0.2	0.4	0.6	0.6	0.7	0.6	0.7	1.0	1.0	0.9	0.9	0.6	0.7	0.7	1.3	3.7
17-Apr	1.1	1.2	1.2	1.2	1.4	1.9	2.4	2.2	1.9	1.4	1.2	1.1	1.2	1.4	1.3	1.0	0.9	0.9	1.0	1.1	1.0	0.9	1.0	1.1	1.3	2.4
18-Apr	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.2	1.0	1.3	1.8	2.0	1.8	1.6	1.6	1.5	1.5	1.4	1.4	1.5	1.6	1.6	1.6	1.7	1.5	2.0
19-Apr	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.9	1.9	1.8	2.4	3.2	3.7	4.1	4.2	4.2	4.4	4.3	4.1	3.8	3.7	3.7	3.8	4.0	3.0	4.4
20-Apr	3.6	3.1	3.2	3.0	3.0	3.1	3.0	2.9	2.9	2.8	2.8	2.8	2.9	3.1	3.3	3.6	3.5	3.6	3.7	3.5	3.5	3.5	4.3	5.1	3.3	5.1
21-Apr	5.0	4.7	4.3	4.2	4.3	3.8	3.5	3.1	2.9	3.2	3.5	3.4	3.4	3.4	3.3	3.4	3.3	3.2	3.3	3.4	3.6	3.9	3.9	3.7	3.6	5.0
22-Apr	3.3	3.2	3.2	3.2	3.2	3.2	4.8	6.6	7.1	5.4	4.5	4.6	4.5	4.2	5.4	5.9	5.4	5.1	5.2	5.3	5.5	5.5	5.2	4.8	4.8	7.1
23-Apr	4.8	5.0	4.7	4.8	4.7	4.8	4.8	4.7	4.5	4.4	3.8	3.8	4.2	4.8	5.1	5.3	5.0	4.9	4.6	4.4	5.0	4.8	5.5	5.8	4.8	5.8
24-Apr	5.5	6.4	5.4	4.7	4.5	4.6	4.7	4.7	4.7	4.8	5.4	5.3	5.5	5.2	5.5	5.3	5.3	5.3	7.1	12.8	5.5	5.0	4.3	4.3	5.5	12.8
25-Apr	3.8	3.7	3.5	3.1	3.1	3.2	3.3	3.0	2.2	1.5	1.3	1.4	1.8	2.0	2.2	1.6	1.3	1.4	0.9	0.9	1.1	1.8	1.3	1.4	2.1	3.8
26-Apr	2.0	2.3	2.7	2.6	1.6	2.4	3.0	2.2	2.4	2.7	2.3	1.7	1.6	C	2.1	1.8	1.6	1.5	1.6	2.3	2.9	3.2	4.4	5.3	2.4	5.3
27-Apr	5.5	3.5	2.6	2.4	2.3	2.2	2.4	2.3	2.4	2.6	2.8	2.9	3.3	3.5	3.1	3.2	3.2	3.3	3.7	3.6	3.4	3.3	3.2	3.5	3.1	5.5
28-Apr	4.2	3.7	3.5	3.5	3.9	4.1	3.7	3.5	3.3	3.4	3.7	4.0	4.3	4.3	4.5	4.2	3.9	4.3	4.4	4.2	3.8	3.8	4.6	3.1	3.9	4.6
29-Apr	2.7	2.8	3.1	3.4	3.5	3.6	3.1	3.5	4.3	4.1	4.2	4.2	4.7	4.9	4.7	4.5	4.5	4.0	3.3	3.3	3.1	2.8	2.7	2.8	3.7	4.9
30-Apr	3.0	3.0	2.8	2.9	3.0	3.1	3.1	2.8	2.5	2.3	1.9	1.7	1.7	2.0	2.5	3.1	4.3	4.3	3.7	2.8	2.9	3.1	3.1	3.1	2.9	4.3
																								Diurnal Average		
																								Diurnal Maximum		
																								2.8 2.8 2.7 2.6 2.6 2.6 2.7 2.7 2.6 2.5 2.4 2.4 2.4 2.5 2.7 2.6 2.7 2.6 2.7 2.8 2.7 2.8 2.9 2.8		
																								5.5 6.4 5.4 4.8 4.7 4.8 5.2 6.6 7.1 5.4 5.4 5.3 5.5 5.4 5.5 5.9 5.4 5.3 7.1 12.8 5.5 5.5 5.5 5.8		
C - Calibration PF - Power Failure																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Stony Mountain - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	705	98.19	98.19
6 - 15	13	1.81	100.00
16 - 25	0	0.00	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Stony Mountain - April 2024**

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	
0 - 5	91	44	34	28	22	16	32	33	47	50	32	28	54	83	53	57	704
6 - 15	1	0	1	0	0	5	0	1	0	1	1	0	0	1	1	1	13
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	92	44	35	28	22	21	32	34	47	51	33	28	54	84	54	58	717

Total Number of Valid Hours: 717

Total Number of Hours: 720







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

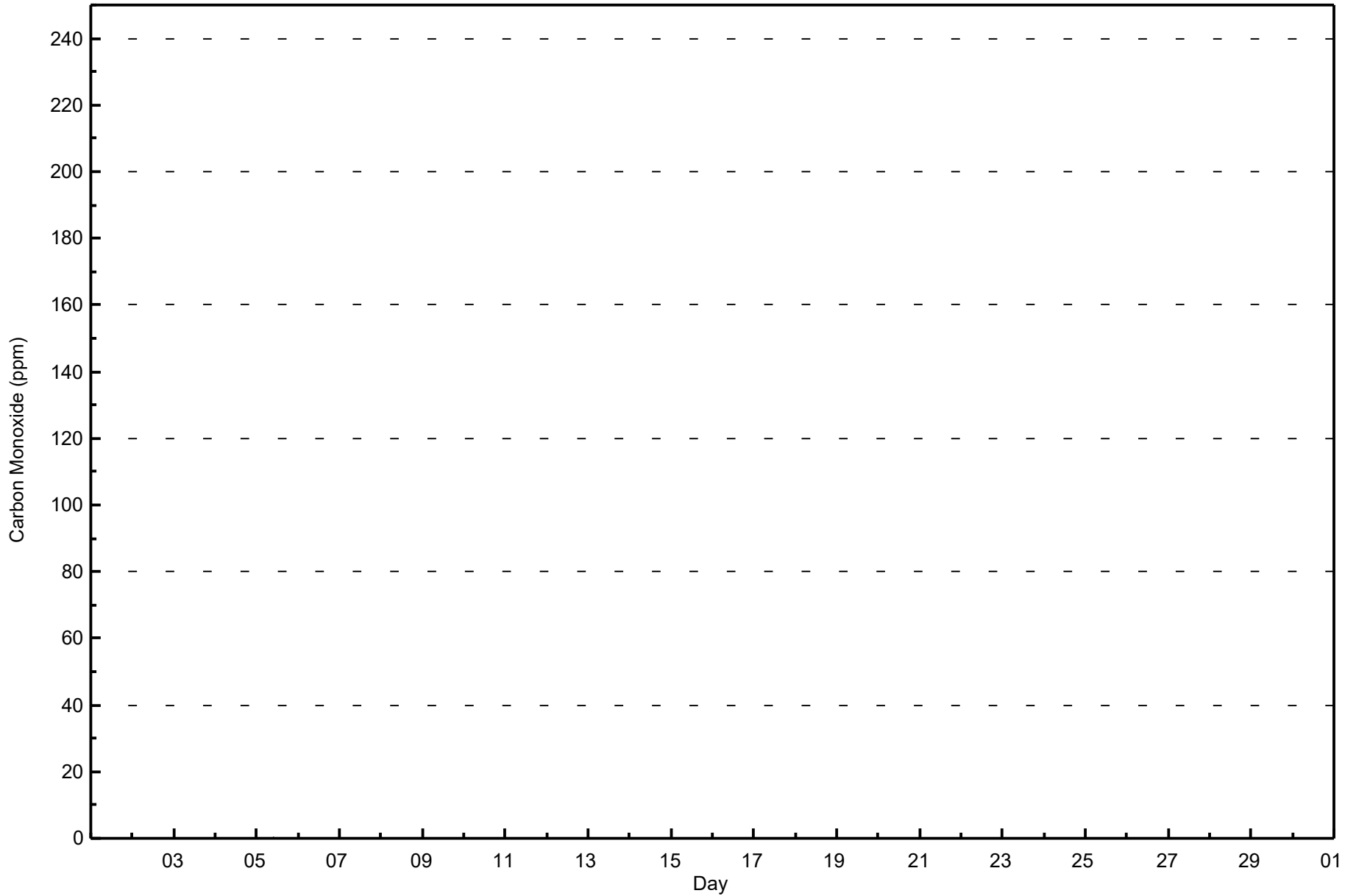
**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720					
Maximum Value: 0.2 ppm on Apr 5 10:00		Maximum Daily Average: 0.2 ppm on Apr 7																	Hours of Data:	685							
Minimum Value: 0.1 ppm on Apr 26 13:00		Minimum Daily Average: 0.1 ppm on Apr 19																	Hours of Missing Data:	35							
Maximum Diurnal Average: 0.2 ppm at hour 10		Minimum Diurnal Average: 0.1 ppm at hour 18																	Hours of Calibration:	34							
Monthly Average: 0.15 ppm		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.2																	Percent Operational Time:	99.9							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
2-Apr	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3-Apr	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
4-Apr	0.2	0.2	0.2	Z	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
5-Apr	0.2	0.2	0.2	0.2	Z	0.1	0.1	0.1	PF	0.2	0.2	C	C	C	C	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8-Apr	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
9-Apr	0.1	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
10-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
11-Apr	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12-Apr	0.2	0.1	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13-Apr	Z	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
14-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1
15-Apr	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
16-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
21-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
22-Apr	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
24-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25-Apr	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2
26-Apr	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
27-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2
28-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29-Apr	0.2	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerspan      C - Calibration      PF - Power Failure																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	685	100.00	100.00
0.4 - 0.5	0	0.00	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Stony Mountain - April 2024**

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	90	41	31	27	20	21	30	33	46	47	31	26	54	80	51	56	684
0.4 - 0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	90	41	31	27	20	21	30	33	46	47	31	26	54	80	51	56	684

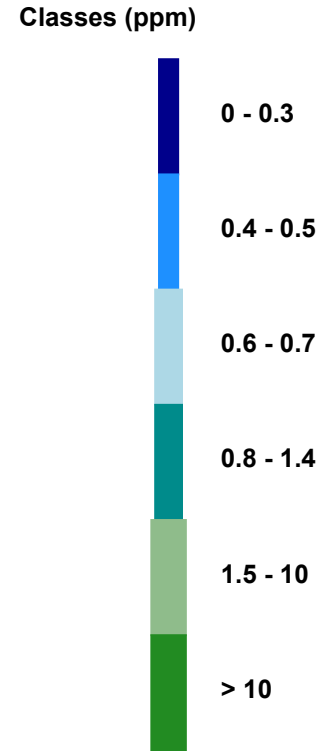
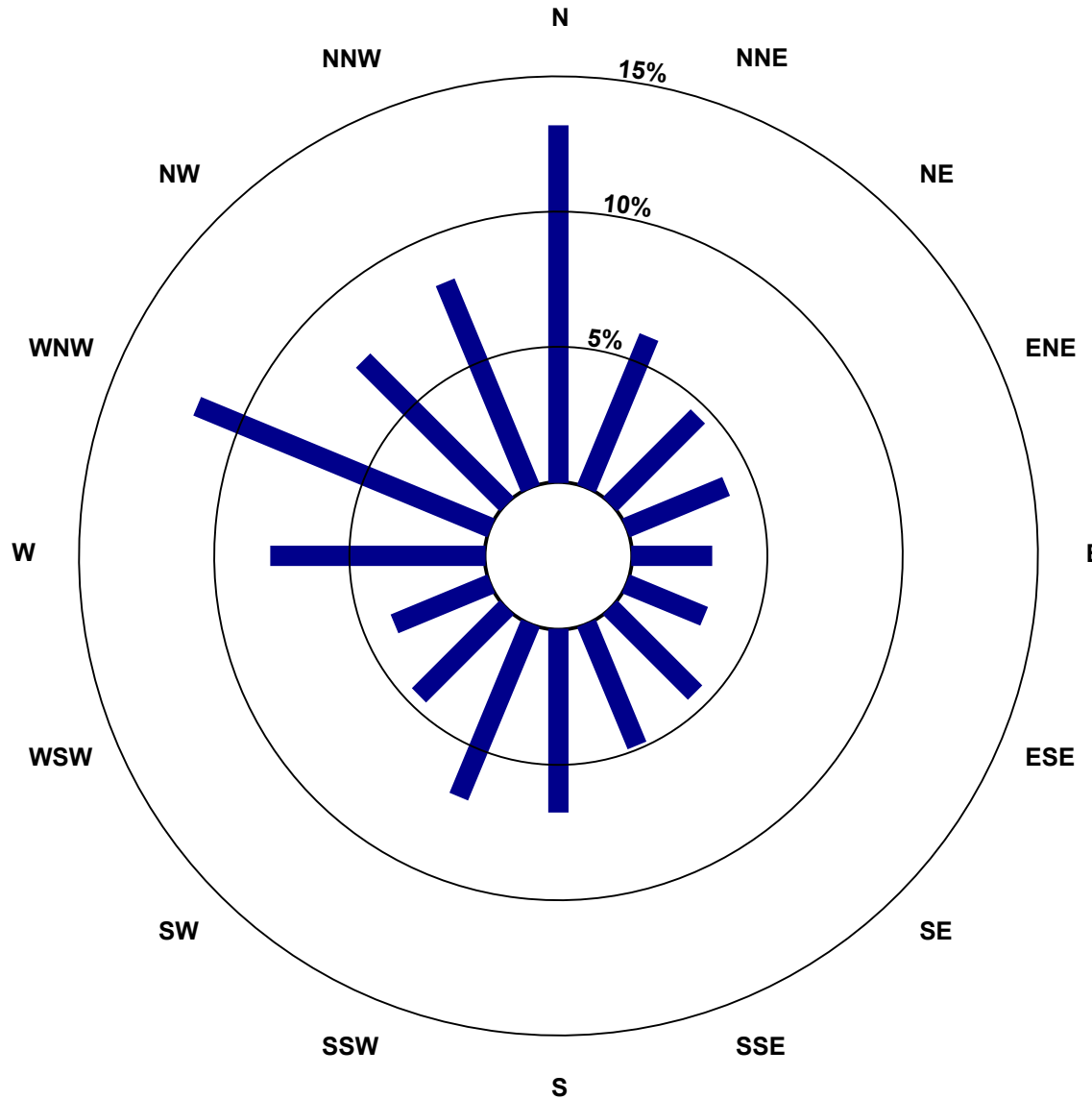
Total Number of Valid Hours: 684

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Monoxide (CO) - ppm  
Stony Mountain



Total Number of Valid Hours: 684



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

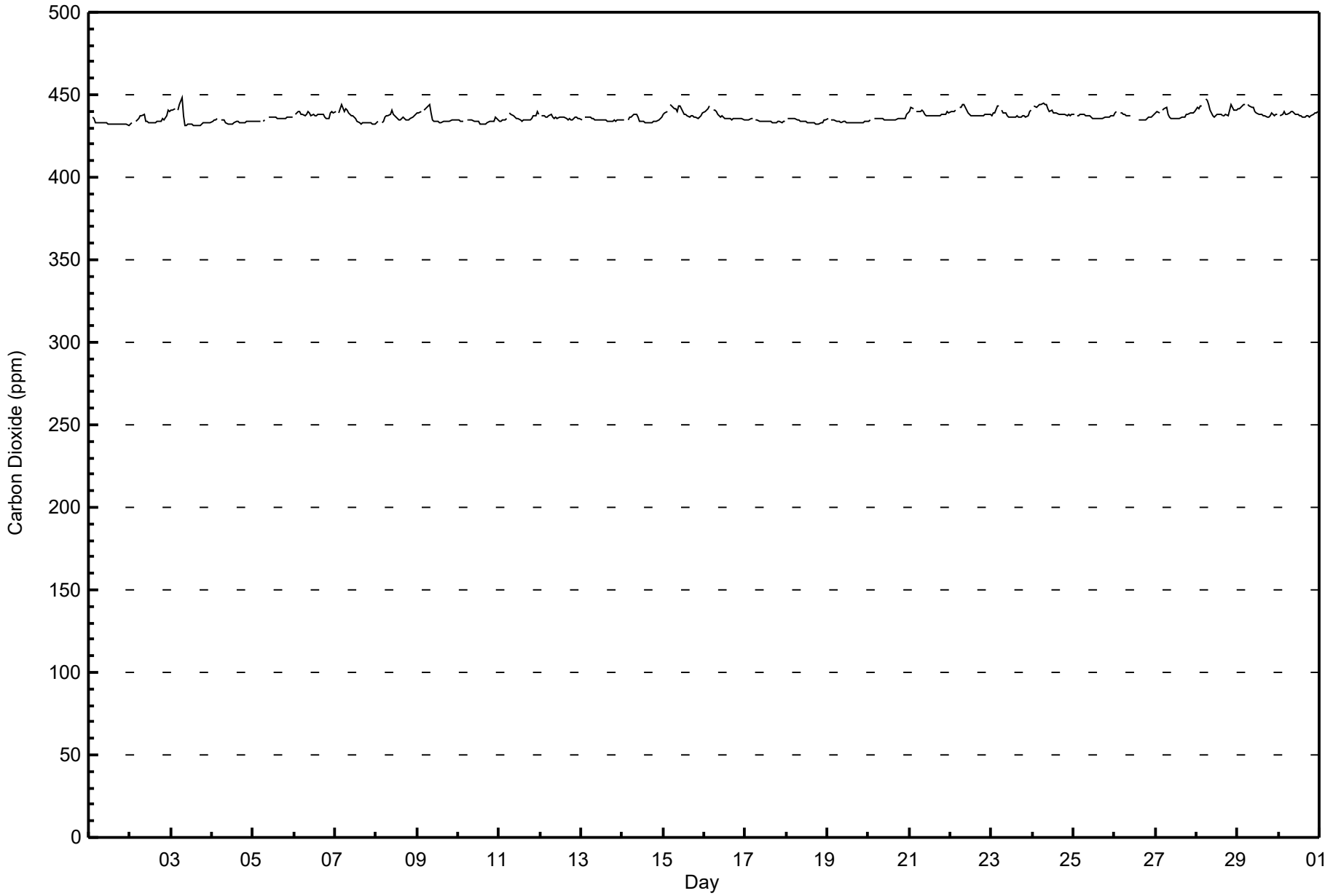
**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	720					
Maximum Value: 448.7 ppm on Apr 3 07:00		Maximum Daily Average: 440.6 ppm on Apr 28																	Hours of Data:	685						
Minimum Value: 431.1 ppm on Apr 3 15:00		Minimum Daily Average: 432.8 ppm on Apr 1																	Hours of Missing Data:	35						
Maximum Diurnal Average: 439.0 ppm at hour 7		Minimum Diurnal Average: 435.0 ppm at hour 18																	Hours of Calibration:	34						
Monthly Average: 436.49 ppm		Percentiles: P <sub>1</sub> = 431.7 P <sub>10</sub> = 433.0 Q <sub>1</sub> = 434.2 Median = 436.1 Q <sub>3</sub> = 438.1 P <sub>90</sub> = 440.5 P <sub>99</sub> = 444.3																	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-Apr	435.0	Z	436.1	435.2	433.3	432.7	433.2	433.3	433.2	433.0	432.7	432.6	432.3	432.0	431.9	432.0	431.9	431.8	431.8	432.1	432.0	432.1	431.9	431.8	432.8	436.1
2-Apr	432.3	432.7	Z	433.5	434.4	435.4	437.1	437.7	438.3	434.0	434.0	433.2	432.9	433.2	433.2	433.2	433.8	434.3	434.2	435.3	434.9	437.6	440.5	439.4	435.0	440.5
3-Apr	440.3	440.9	441.2	Z	440.6	444.3	448.7	437.2	431.4	431.6	431.9	432.1	431.9	431.4	431.1	431.3	431.3	431.5	432.2	432.8	432.9	433.4	432.9	433.2	435.0	448.7
4-Apr	433.9	434.7	435.0	435.7	Z	435.0	434.9	434.6	432.9	431.9	432.1	432.4	432.2	433.3	433.9	433.6	433.5	433.4	433.2	433.1	433.5	433.7	433.7	433.6	433.6	435.7
5-Apr	433.6	433.8	433.9	433.9	433.9	Z	434.2	434.4	PF	436.2	436.1	436.3	436.4	436.1	436.0	435.8	435.8	435.6	435.6	435.7	436.1	436.3	436.7	436.8	435.4	436.8
6-Apr	Z	438.3	439.9	439.7	438.2	438.0	437.5	438.4	439.5	438.7	436.9	437.8	437.5	437.7	438.1	437.7	437.8	437.9	436.3	436.0	435.9	438.7	440.1	438.7	438.1	440.1
7-Apr	439.6	Z	439.4	441.7	444.3	440.0	441.2	440.6	439.1	437.5	437.5	436.8	435.2	433.8	432.7	432.6	432.7	433.0	432.9	433.0	433.2	433.1	432.6	432.5	436.3	444.3
8-Apr	433.2	433.9	Z	433.4	433.7	436.7	437.2	437.7	438.5	441.0	438.4	437.0	435.2	434.7	434.6	435.4	436.2	434.7	435.0	435.0	435.7	436.7	437.2	438.1	436.0	441.0
9-Apr	438.6	439.2	440.2	Z	440.3	441.4	443.0	444.0	438.7	435.0	434.2	434.1	433.6	433.3	433.3	433.8	433.8	434.0	434.3	434.3	434.6	434.5	434.9	434.9	436.4	444.0
10-Apr	434.5	434.0	434.1	434.3	Z	434.7	434.6	434.5	434.3	434.0	433.9	434.0	433.9	432.6	432.3	432.4	432.6	433.1	433.7	433.7	433.5	434.2	436.4	435.0	433.9	436.4
11-Apr	433.9	434.3	434.7	434.6	435.2	Z	439.4	438.4	437.5	436.6	435.6	435.3	434.6	434.1	434.7	434.7	434.9	435.0	435.1	435.6	437.0	437.4	439.9	438.4	436.0	439.9
12-Apr	Z	437.3	437.2	436.4	436.0	436.9	437.9	436.4	436.0	436.2	435.8	436.2	436.5	436.4	436.1	435.9	435.2	435.2	435.1	435.1	436.2	436.3	435.5	435.6	436.1	437.9
13-Apr	435.1	Z	436.3	436.8	436.7	436.0	435.8	435.4	434.9	434.9	434.5	434.6	434.6	434.5	434.4	434.2	434.0	434.0	434.2	434.4	434.1	434.6	434.7	434.3	434.9	436.8
14-Apr	434.6	434.6	Z	434.5	436.8	436.6	437.7	438.5	437.9	436.1	434.0	433.7	433.9	433.2	433.0	433.1	433.2	433.4	433.9	433.5	433.8	434.4	435.3	436.2	434.9	438.5
15-Apr	438.3	439.1	439.8	Z	443.9	443.3	441.4	441.9	439.7	443.2	442.9	439.6	438.4	437.8	437.6	436.7	437.2	437.0	436.5	436.2	435.9	436.6	437.7	439.2	439.1	443.9
16-Apr	439.8	440.3	441.6	443.2	Z	440.3	440.8	439.6	438.1	436.7	437.0	436.4	436.0	435.7	435.5	435.5	435.2	435.2	435.5	435.5	435.6	435.3	435.3	435.0	437.3	443.2
17-Apr	434.9	434.7	434.7	435.4	435.5	Z	435.1	434.6	434.3	434.1	433.9	434.0	434.1	434.0	433.8	433.6	433.5	433.3	433.3	433.5	433.6	433.3	433.7	434.2	434.1	435.5
18-Apr	Z	435.4	435.3	435.4	435.3	435.5	435.1	434.5	434.1	434.3	434.0	433.6	433.5	432.9	433.0	432.8	432.6	432.4	432.4	432.5	433.0	433.3	434.4	435.1	433.9	435.5
19-Apr	435.2	Z	435.1	434.7	434.6	434.3	434.1	433.9	433.0	434.2	433.7	433.0	432.8	433.2	433.0	433.0	432.9	432.9	432.9	432.7	432.8	433.0	433.5	433.7	433.6	435.2
20-Apr	434.2	434.5	Z	435.4	435.7	435.3	435.4	435.7	435.5	434.6	434.4	434.3	434.7	435.0	435.0	434.9	434.7	435.2	435.5	435.6	435.5	436.0	438.3	439.3	435.4	439.3
21-Apr	440.2	442.0	441.5	Z	440.0	439.9	440.0	440.6	440.1	438.1	437.3	437.0	437.1	437.0	437.0	437.4	437.1	437.0	437.2	437.8	437.9	437.9	439.4	439.4	438.6	442.0
22-Apr	439.6	440.0	440.1	440.3	Z	442.7	442.6	443.7	444.4	441.0	438.7	437.7	437.4	437.5	437.5	437.4	437.1	437.2	437.6	437.5	437.8	438.2	438.4	437.8	439.2	444.4
23-Apr	437.5	438.8	438.8	443.2	443.2	Z	441.0	438.8	438.8	437.4	436.5	436.4	436.4	436.5	436.3	436.9	436.6	436.7	437.6	437.2	436.7	437.0	439.8	440.9	438.2	443.2
24-Apr	Z	443.0	442.6	443.5	443.9	444.1	444.5	443.9	443.9	441.4	439.9	440.6	439.0	439.0	438.7	438.4	438.5	438.3	438.4	438.0	437.4	437.9	436.9	438.3	440.4	444.5
25-Apr	437.8	Z	437.5	437.6	437.7	437.9	437.7	437.6	437.1	437.0	436.3	435.9	435.9	435.7	435.7	435.9	435.8	435.7	436.3	436.7	436.4	436.9	437.2	437.6	436.8	437.9
26-Apr	438.7	439.6	Z	439.2	438.8	438.5	438.0	437.3	436.9	436.9	Z	C	C	C	C	435.1	435.1	435.1	435.1	435.5	436.2	436.4	437.5	438.2	437.0	439.6
27-Apr	438.6	439.6	439.4	Z	440.6	441.7	442.1	438.2	436.6	435.7	435.6	435.5	435.5	435.6	435.9	436.0	436.1	436.3	437.7	438.2	438.7	439.2	438.9	439.9	437.9	442.1
28-Apr	442.2	441.9	443.5	443.0	Z	447.7	446.7	444.5	440.4	437.0	436.7	437.1	438.2	437.8	437.9	437.3	437.5	437.7	437.4	441.0	444.1	442.3	440.7	441.1	440.6	447.7
29-Apr	441.5	441.7	442.0	443.7	443.7	Z	444.0	443.1	442.7	442.4	440.1	439.3	438.4	437.8	437.9	437.1	437.0	436.5	436.2	437.5	438.6	437.3	437.9	438.1	439.8	444.0
30-Apr	Z	437.7	437.9	439.6	438.2	438.3	439.0	439.8	439.7	438.6	438.1	437.8	437.6	437.1	436.7	436.4	437.4	436.9	436.5	437.1	438.0	438.7	439.2	439.5	438.1	439.8
436.9 437.7 438.3 437.8 438.2 438.7 439.0 438.3 437.5 436.6 436.0 435.7 435.4 435.1 435.1 435.0 435.0 435.0 435.0 435.1 435.4 435.7 436.1 436.7 436.9																								Diurnal Average		
442.2 443.0 443.5 443.7 444.3 447.7 448.7 444.5 444.4 443.2 442.9 440.6 439.0 439.0 438.7 438.4 438.5 438.3 438.4 441.0 444.1 442.3 440.7 441.1																								Diurnal Maximum		
Z - zerspan		C - Calibration				PF - Power Failure																				



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	0	0.00	0.00
420 - 440	616	89.93	89.93
440 - 460	69	10.07	100.00
460 - 480	0	0.00	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
400 - 420	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
420 - 440	84	41	28	24	14	12	24	32	40	43	24	25	52	76	44	52	615
440 - 460	5	1	6	4	8	7	7	1	4	5	7	0	2	4	5	3	69
460 - 480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
480 - 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>89</b>	<b>42</b>	<b>34</b>	<b>28</b>	<b>22</b>	<b>19</b>	<b>31</b>	<b>33</b>	<b>44</b>	<b>48</b>	<b>31</b>	<b>25</b>	<b>54</b>	<b>80</b>	<b>49</b>	<b>55</b>	<b>684</b>

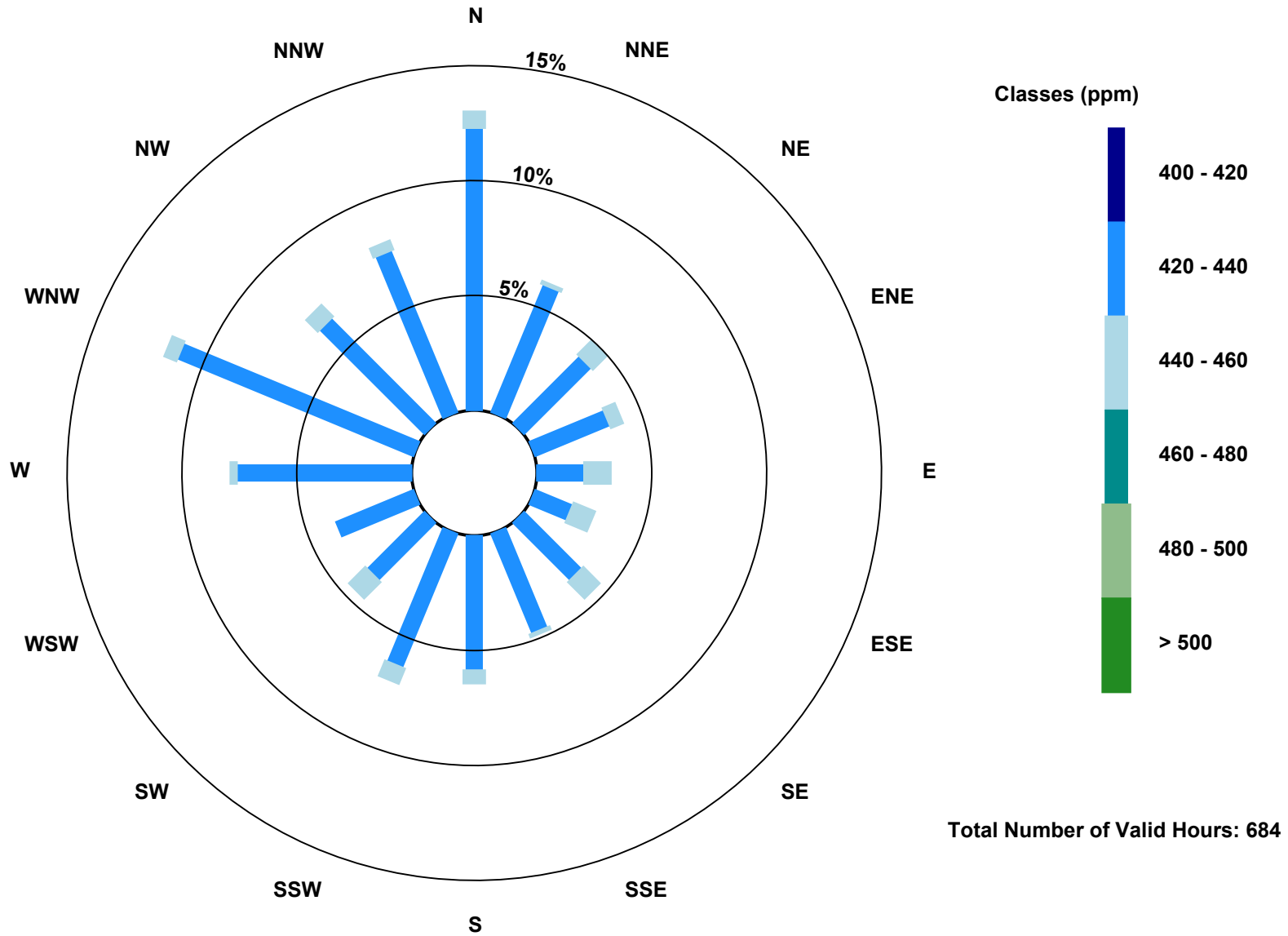
Total Number of Valid Hours: 684

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain



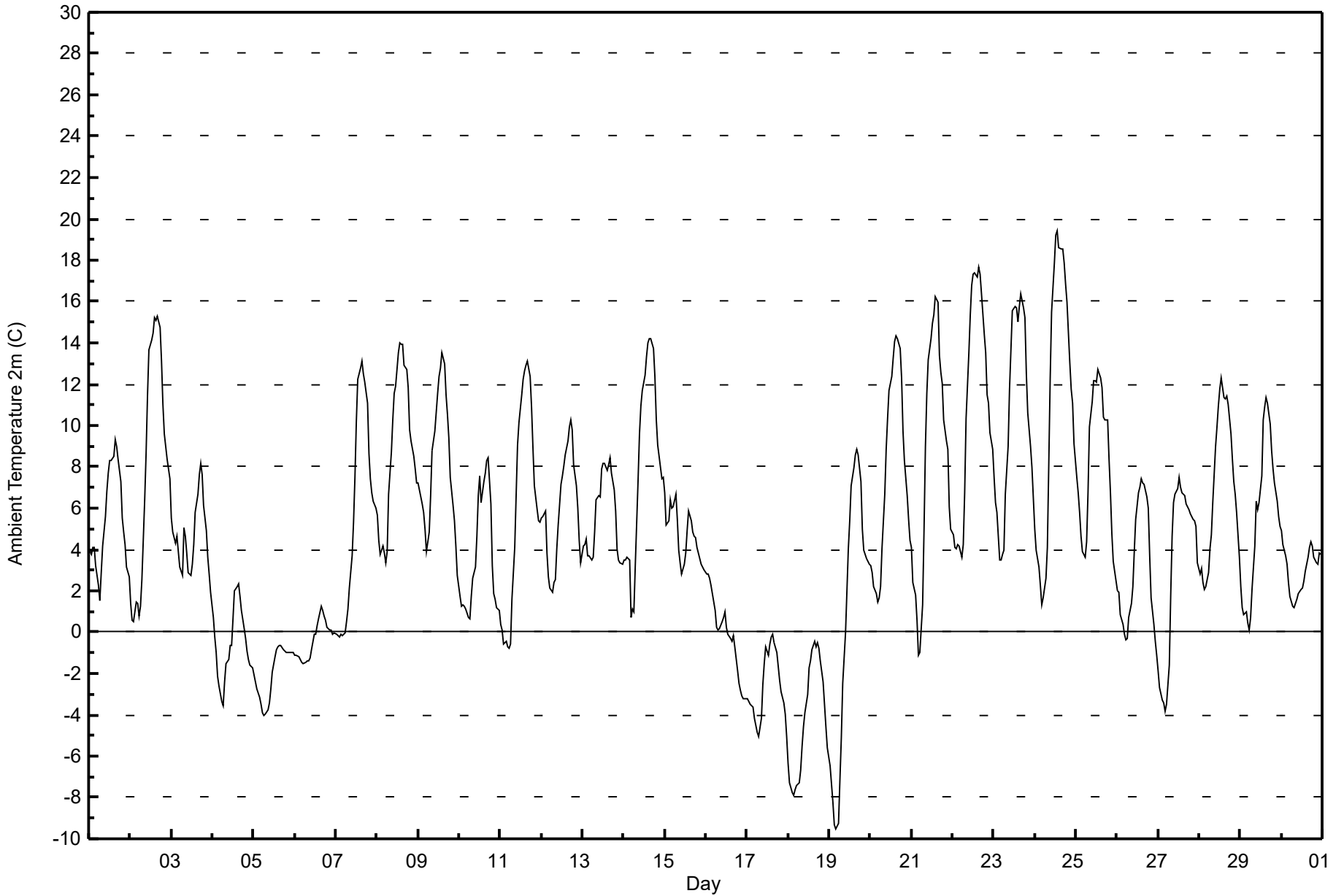


Maximum Value: 19.4 C on Apr 24 14:00		Maximum Daily Average: 11.2 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -9.5 C on Apr 19 05:00		Minimum Daily Average: -4.1 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 9.1 C at hour 16		Minimum Diurnal Average: 0.4 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 4.81 C		Percentiles: P <sub>1</sub> = -7.4 P <sub>10</sub> = -1.6 Q <sub>1</sub> = 0.8 Median = 4.2 Q <sub>3</sub> = 8.4 P <sub>90</sub> = 12.5 P <sub>99</sub> = 17.6		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	3.9	3.8	4.1	4.1	3.2	2.3	1.5	2.9	4.2	5.6	6.8	7.7	8.3	8.3	8.5	9.3	9.0	8.4	7.3	5.5	4.9	4.2	3.2	2.7	5.4	9.3																						
2-Apr	1.4	0.6	0.5	1.5	1.4	0.8	1.3	2.6	6.4	8.6	11.5	13.7	14.1	14.4	15.3	15.1	15.3	14.8	13.1	11.0	9.6	8.4	7.9	7.4	8.2	15.3																						
3-Apr	5.6	4.8	4.3	4.7	3.9	3.2	2.7	5.0	4.6	3.9	2.9	2.8	3.3	4.2	5.8	6.7	7.6	8.2	7.6	6.1	4.9	3.7	2.8	1.9	4.6	8.2																						
4-Apr	0.7	-0.3	-1.0	-2.2	-2.6	-3.3	-3.5	-2.4	-1.5	-1.3	-0.7	-0.6	0.7	2.0	2.2	2.3	1.7	1.1	0.2	-0.3	-0.9	-1.4	-1.6	-1.7	-0.6	2.3																						
5-Apr	-2.1	-2.4	-2.7	-3.2	-3.5	-3.9	-4.0	-3.9	-3.8	-3.4	-2.7	-2.0	-1.2	-0.8	-0.7	-0.6	-0.6	-0.9	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-0.6																						
6-Apr	-1.1	-1.1	-1.2	-1.3	-1.4	-1.5	-1.5	-1.4	-1.4	-1.3	-0.9	-0.1	-0.1	0.3	0.6	1.2	1.0	0.8	0.6	0.3	0.1	0.1	-0.1	-0.1	-0.4	1.2																						
7-Apr	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	0.5	1.1	2.1	3.7	5.3	7.5	10.2	12.2	12.8	13.1	12.5	12.1	11.1	8.7	7.4	6.7	6.3	6.0	5.8	13.1																						
8-Apr	5.7	4.4	3.7	4.2	3.9	3.3	3.9	6.7	8.7	10.3	11.5	11.9	13.5	14.0	14.0	13.9	12.9	12.7	11.8	9.8	9.3	8.5	7.9	7.2	8.9	14.0																						
9-Apr	7.2	6.9	6.2	5.8	5.0	3.9	4.9	6.6	8.8	9.3	9.7	11.5	12.4	12.8	13.5	13.0	11.5	10.5	9.4	7.5	6.1	5.4	4.2	2.7	8.1	13.5																						
10-Apr	1.7	1.2	1.3	1.3	1.1	0.7	0.6	1.7	2.6	3.2	4.6	6.6	7.6	6.3	7.3	7.7	8.3	8.5	6.2	3.2	1.8	1.6	1.2	1.1	3.6	8.5																						
11-Apr	0.4	0.1	-0.5	-0.5	-0.7	-0.7	-0.5	1.6	4.1	6.6	9.0	10.1	11.5	12.3	12.7	12.9	13.1	12.4	10.9	8.9	7.1	5.9	5.4	5.3	6.1	13.1																						
12-Apr	5.5	5.6	5.8	3.9	2.6	2.1	1.9	2.4	2.5	4.0	5.2	7.1	7.5	8.0	8.6	9.3	9.9	10.3	9.8	8.1	7.1	6.0	4.4	3.4	5.9	10.3																						
13-Apr	4.2	4.2	4.5	3.7	3.7	3.5	3.7	4.9	6.4	6.6	6.6	7.9	8.1	8.2	7.9	8.1	8.4	7.7	6.9	5.9	4.0	3.5	3.4	3.3	5.6	8.4																						
14-Apr	3.5	3.5	3.6	3.5	0.7	1.1	1.0	3.2	7.4	9.6	11.0	11.7	12.4	13.3	14.0	14.2	14.2	13.7	12.4	10.3	9.1	7.9	7.4	7.5	8.2	14.2																						
15-Apr	6.7	5.2	5.4	6.4	6.0	6.1	6.7	5.5	4.0	3.4	2.8	3.3	3.8	4.9	5.9	5.4	4.9	4.6	4.6	4.1	3.6	3.3	3.2	3.0	4.7	6.7																						
16-Apr	2.8	2.8	2.6	2.3	1.9	1.1	0.2	0.1	0.1	0.5	0.7	1.0	0.3	-0.1	-0.3	-0.5	-0.1	-0.7	-1.9	-2.5	-2.8	-3.1	-3.2	-3.2	-0.1	2.8																						
17-Apr	-3.2	-3.3	-3.5	-3.6	-4.2	-4.5	-4.8	-5.0	-4.2	-2.5	-1.5	-0.7	-1.1	-0.6	-0.3	-0.1	-0.5	-1.0	-1.7	-2.3	-2.9	-3.4	-3.9	-5.1	-2.7	-0.1																						
18-Apr	-6.3	-7.3	-7.7	-7.9	-7.6	-7.4	-7.3	-6.7	-5.5	-4.6	-3.9	-3.0	-1.8	-1.4	-0.8	-0.4	-0.7	-0.5	-0.8	-1.4	-2.4	-3.5	-4.6	-5.6	-4.1	-0.4																						
19-Apr	-6.5	-7.4	-8.2	-9.3	-9.5	-9.3	-7.2	-5.1	-2.5	0.0	2.0	4.1	5.4	7.1	8.0	8.6	8.8	8.6	7.3	5.0	4.0	3.7	3.6	3.3	0.6	8.8																						
20-Apr	3.2	2.9	2.2	1.9	1.4	1.7	2.2	4.0	6.7	8.9	10.3	11.7	12.4	13.2	14.1	14.3	14.2	13.7	12.3	9.8	8.3	6.6	5.5	4.5	7.7	14.3																						
21-Apr	4.1	2.4	1.8	0.6	-1.1	-1.0	1.3	4.9	9.0	11.6	13.2	14.2	14.9	15.4	16.2	16.0	13.4	12.6	12.1	10.3	9.2	8.9	6.1	5.0	8.4	16.2																						
22-Apr	4.7	4.1	4.1	4.2	4.2	3.6	4.2	6.7	10.4	13.5	15.3	16.8	17.3	17.4	17.2	17.6	17.4	16.4	14.4	13.5	11.5	11.1	9.6	8.8	11.0	17.6																						
23-Apr	7.5	6.3	5.8	3.5	3.5	3.7	4.0	6.7	9.0	11.7	13.7	15.6	15.8	15.7	15.0	15.8	16.4	15.7	15.3	12.5	10.6	9.0	8.0	6.5	10.3	16.4																						
24-Apr	5.0	4.0	3.2	2.2	1.3	1.6	2.6	4.1	8.1	12.3	15.5	17.9	19.2	19.4	18.6	18.6	18.5	17.9	16.8	15.9	13.0	11.7	11.1	9.1	11.2	19.4																						
25-Apr	7.5	6.7	5.8	4.7	3.9	3.6	4.4	6.8	10.0	11.1	12.2	12.2	12.1	12.7	12.3	11.8	10.4	10.3	10.3	8.4	6.7	4.8	3.4	2.5	8.1	12.7																						
26-Apr	2.0	1.9	0.8	0.4	-0.1	-0.4	-0.3	0.7	1.4	2.2	3.9	5.5	6.7	7.0	7.4	7.2	7.2	6.6	6.0	3.7	1.6	0.3	-0.4	-1.1	2.9	7.4																						
27-Apr	-1.9	-2.7	-3.3	-3.5	-3.8	-3.5	-1.6	1.8	4.7	6.3	6.7	6.9	7.5	7.0	6.7	6.6	6.2	6.0	5.9	5.7	5.4	5.4	5.1	3.4	3.2	7.5																						
28-Apr	2.8	3.1	2.4	2.1	2.2	2.9	4.0	4.7	6.3	9.0	10.0	10.9	11.7	12.3	11.3	11.3	11.4	11.0	9.6	8.4	7.3	6.7	5.8	3.7	7.1	12.3																						
29-Apr	2.2	1.2	0.8	1.0	0.5	0.1	0.7	2.1	4.1	6.3	5.9	6.3	7.5	10.3	10.9	11.4	11.1	10.1	8.8	7.9	7.2	6.4	5.6	5.1	5.6	11.4																						
30-Apr	4.9	4.2	3.7	3.3	2.4	1.7	1.3	1.2	1.4	1.6	1.8	2.0	2.2	2.5	2.9	3.6	4.1	4.4	4.2	3.6	3.4	3.3	3.8	3.8	3.0	4.9																						
																								2.4	1.8	1.5	1.1	0.6	0.4	0.8	2.1	3.8	5.2	6.3	7.3	8.1	8.6	8.9	9.1	8.9	8.5	7.6	6.2	5.1	4.4	3.7	3.0	Diurnal Average
																								7.5	6.9	6.2	6.4	6.0	6.1	6.7	6.8	10.4	13.5	15.5	17.9	19.2	19.4	18.6	18.6	18.5	17.9	16.8	15.9	13.0	11.7	11.1	9.1	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature 2m (AT 2m) - C**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Stony Mountain - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	149	20.69	20.69
0 - 10	436	60.56	81.25
10 - 20	135	18.75	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

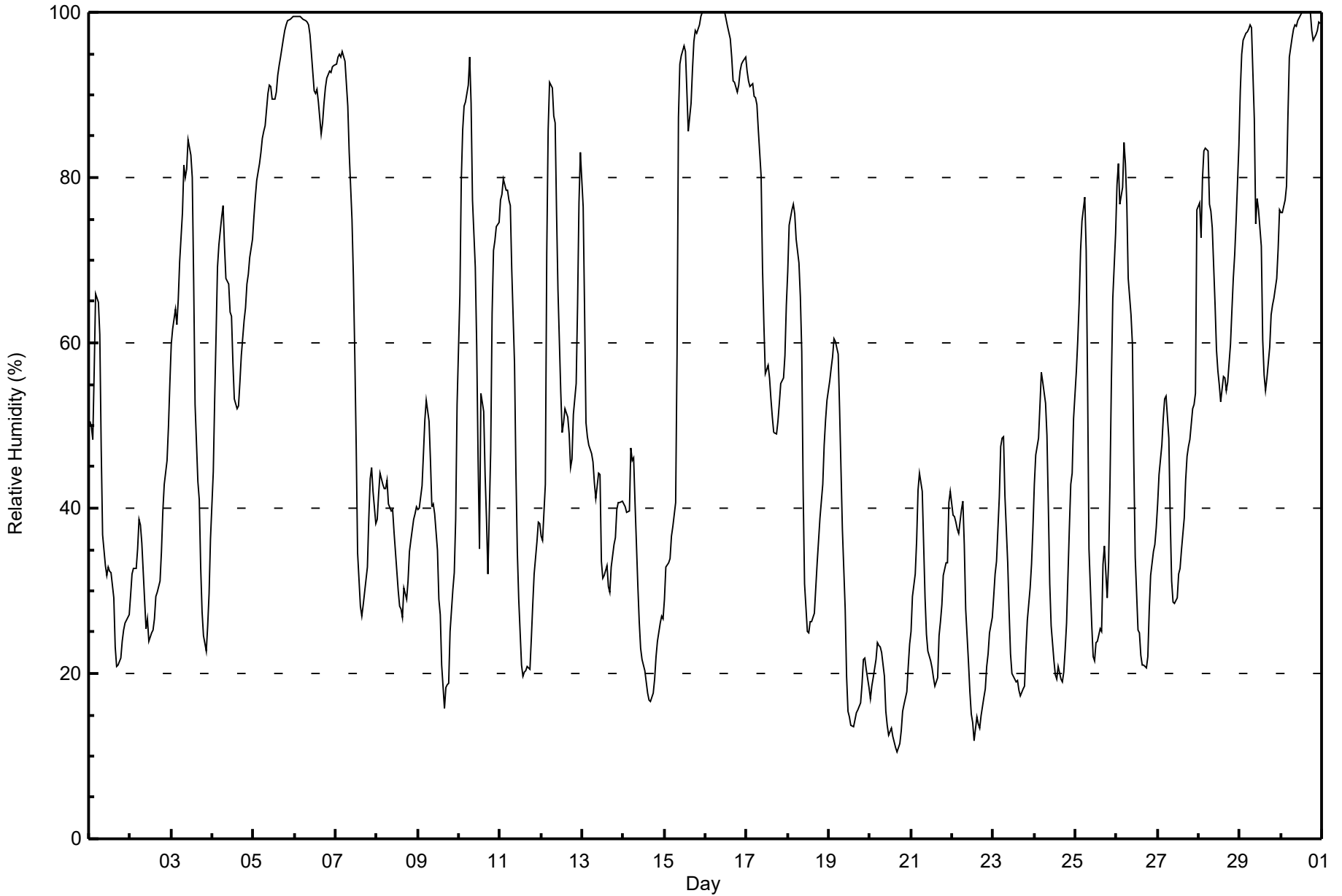
**Stony Mountain - April 2024**

Maximum Value: 100.0 % on Apr 16 00:00      Maximum Daily Average: 97.0 % on Apr 16																						Hours in Service:	720																											
Minimum Value: 10.5 % on Apr 20 17:00      Minimum Daily Average: 17.0 % on Apr 20																						Hours of Data:	720																											
Maximum Diurnal Average: 67.8 % at hour 6      Minimum Diurnal Average: 40.4 % at hour 16																						Hours of Missing Data:	0																											
Monthly Average: 53.03 %      Percentiles: P <sub>1</sub> = 13.2 P <sub>10</sub> = 20.8 Q <sub>1</sub> = 29.8 Median = 47.4 Q <sub>3</sub> = 76.7 P <sub>90</sub> = 94.6 P <sub>99</sub> = 100.0																						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-Apr	50.6	49.8	48.3	56.6	65.9	65.0	61.1	47.3	36.7	33.1	31.8	32.9	32.4	32.2	29.1	23.2	20.8	21.1	21.9	23.9	25.3	26.0	26.5	27.2	37.0	65.9																								
2-Apr	29.5	32.0	32.7	32.7	35.2	38.6	38.0	35.8	28.9	25.5	26.7	24.0	24.8	25.2	26.6	29.3	29.8	31.3	34.7	39.6	42.9	45.8	49.9	55.1	33.9	55.1																								
3-Apr	59.9	61.8	64.1	62.2	65.2	69.8	75.7	81.6	80.0	81.1	84.5	82.8	80.0	67.5	52.5	43.2	41.0	32.9	27.5	24.5	22.8	25.8	29.7	36.2	56.3	84.5																								
4-Apr	44.5	53.3	61.0	69.2	71.8	75.2	76.7	71.7	67.7	67.2	63.7	63.2	57.6	53.2	52.0	52.3	55.3	58.4	62.6	64.3	67.1	68.4	70.4	72.6	63.3	76.7																								
5-Apr	75.2	77.6	79.6	81.6	83.1	84.7	85.5	86.3	90.2	91.3	91.0	89.4	89.5	90.3	92.3	93.5	94.6	96.8	97.9	98.5	98.9	99.2	99.3	99.4	90.2	99.4																								
6-Apr	99.5	99.5	99.5	99.4	99.4	99.2	99.1	98.9	98.5	97.2	95.0	90.6	90.3	90.7	89.1	85.3	86.7	89.0	90.8	92.1	92.9	92.8	93.4	93.5	94.3	99.5																								
7-Apr	93.8	94.6	94.9	94.5	95.3	94.1	91.4	88.6	83.0	74.9	67.9	58.5	47.5	34.5	28.2	26.9	28.2	29.9	32.9	38.8	43.5	44.9	42.1	38.1	61.1	95.3																								
8-Apr	38.6	41.6	44.3	42.9	42.4	42.4	43.4	40.5	39.6	39.8	37.0	34.8	29.9	28.1	27.9	26.8	30.4	29.0	31.2	34.7	36.1	38.6	39.3	40.1	36.6	44.3																								
9-Apr	39.8	40.0	42.6	46.6	50.6	53.1	50.5	45.8	40.2	40.6	39.4	34.9	28.9	27.2	21.0	15.8	18.4	18.7	18.7	25.0	30.1	32.3	38.6	52.5	35.5	53.1																								
10-Apr	65.8	79.7	85.8	88.6	89.2	91.3	94.5	89.0	77.3	69.1	59.7	45.9	35.2	53.9	51.7	44.1	38.7	32.0	46.9	63.6	71.3	72.4	74.1	74.5	66.4	94.5																								
11-Apr	77.3	78.0	79.9	78.5	78.4	77.3	76.6	68.9	57.4	44.4	34.8	29.1	21.1	19.7	20.2	20.4	20.8	20.5	24.2	28.4	32.0	35.9	38.3	38.1	45.8	79.9																								
12-Apr	36.6	36.0	42.8	70.9	85.8	91.6	90.9	87.4	86.7	75.8	66.4	54.1	49.1	50.3	52.1	51.0	48.9	45.0	45.9	51.4	55.0	64.6	76.9	83.1	62.4	91.6																								
13-Apr	76.5	63.9	50.3	48.7	47.7	46.6	45.7	43.1	41.3	44.3	44.0	33.6	31.5	31.8	33.1	30.5	29.8	32.9	35.6	36.5	39.8	40.7	40.6	40.9	42.0	76.5																								
14-Apr	40.6	40.2	39.4	39.6	47.2	45.8	46.1	40.6	30.6	26.3	23.1	21.6	20.3	19.1	17.6	16.8	16.7	17.6	19.3	22.0	23.9	26.0	26.9	26.6	28.9	47.2																								
15-Apr	29.0	32.9	33.3	33.9	36.6	37.9	40.8	58.7	87.2	93.7	94.8	95.9	95.3	90.4	85.6	89.0	93.1	96.5	97.9	97.5	98.5	99.5	100.0	100.0	75.8	100.0																								
16-Apr	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.2	98.4	96.9	94.7	91.6	91.5	90.3	91.2	92.9	93.8	94.1	94.5	97.0	100.0																								
17-Apr	92.8	91.8	91.0	91.4	89.8	89.7	88.8	85.8	80.1	69.1	62.0	56.3	57.3	55.8	53.3	51.1	49.2	49.0	50.5	52.8	55.1	55.8	58.6	64.5	68.4	92.8																								
18-Apr	68.7	74.2	76.1	76.7	75.6	72.5	69.6	65.6	59.0	42.2	30.8	25.1	24.9	26.2	26.2	27.2	30.4	33.4	36.1	38.9	42.9	47.6	50.6	53.1	48.9	76.7																								
19-Apr	55.3	57.0	58.3	60.6	60.2	58.7	52.0	44.8	37.5	27.7	19.7	15.5	14.7	13.7	13.6	14.4	15.2	15.5	16.5	18.6	21.8	21.9	20.5	18.3	31.3	60.6																								
20-Apr	16.9	18.5	19.6	21.8	23.7	23.5	23.1	22.6	19.6	15.4	13.7	12.6	13.3	12.3	11.6	11.1	10.5	11.5	13.1	15.4	16.3	17.8	20.8	23.5	17.0	23.7																								
21-Apr	25.2	29.3	32.0	36.0	42.1	44.2	42.1	35.7	29.1	24.8	22.7	21.6	20.7	19.5	18.5	19.6	24.6	26.3	28.3	31.8	33.5	33.4	40.6	42.0	30.1	44.2																								
22-Apr	39.2	39.0	38.3	37.5	37.0	39.8	40.8	35.6	27.7	21.4	17.8	15.1	14.1	11.9	14.7	13.9	13.5	14.8	17.0	18.1	20.8	22.3	25.0	26.8	25.1	40.8																								
23-Apr	29.3	32.0	33.6	41.4	47.4	48.5	48.7	41.5	33.5	27.5	22.3	20.0	19.3	19.0	19.2	18.0	17.3	18.2	18.5	23.0	26.4	30.4	33.2	37.6	29.4	48.7																								
24-Apr	42.9	46.5	48.5	52.4	56.5	55.3	52.7	48.9	40.2	30.8	25.7	21.5	19.8	19.4	20.9	19.3	19.0	20.2	22.8	26.1	37.7	42.9	44.3	50.8	36.0	56.5																								
25-Apr	56.5	60.4	64.8	71.1	74.7	77.6	71.2	55.1	35.2	25.7	22.0	21.5	23.8	23.9	25.5	25.0	33.2	35.5	29.2	33.5	43.1	55.4	65.4	73.2	45.9	77.6																								
26-Apr	79.2	81.7	76.8	78.9	84.2	81.7	76.7	67.8	63.3	59.8	45.6	34.1	25.2	24.9	22.2	21.0	21.0	20.7	22.0	27.7	31.9	34.7	35.6	37.6	48.1	84.2																								
27-Apr	40.5	44.0	47.6	50.9	53.3	53.5	48.5	38.6	31.2	28.6	28.5	29.2	32.1	32.7	35.0	38.7	43.4	46.3	47.5	48.3	52.1	52.5	53.9	76.1	43.9	76.1																								
28-Apr	77.0	72.7	79.8	83.2	83.6	83.2	76.8	75.9	73.9	64.6	59.2	56.6	55.0	53.0	55.9	55.8	54.2	55.3	59.8	63.9	67.8	70.7	74.8	83.9	68.2	83.9																								
29-Apr	90.5	95.0	96.6	97.5	97.7	98.0	98.5	98.2	87.2	74.4	77.4	76.1	71.7	60.3	56.1	54.3	55.7	59.5	63.3	64.7	65.5	67.8	71.4	76.0	77.2	98.5																								
30-Apr	75.7	75.7	77.3	79.1	87.5	94.6	96.9	98.1	98.4	98.3	99.0	99.7	100.0	100.0	100.0	100.0	100.0	100.0	97.7	96.6	97.2	97.7	98.9	98.7	94.5	100.0																								
																								58.2	60.0	61.3	64.1	66.9	67.8	66.7	63.3	58.7	53.8	50.2	46.5	44.1	42.8	41.6	40.4	41.1	41.6	43.4	46.4	49.5	51.9	54.5	57.8	Diurnal Average		
																								100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.9	98.5	98.9	99.5	100.0	100.0	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Stony Mountain - April 2024**







Wood Buffalo Environmental Association

Summary of Hour Averages

Precipitation (PC) - mm

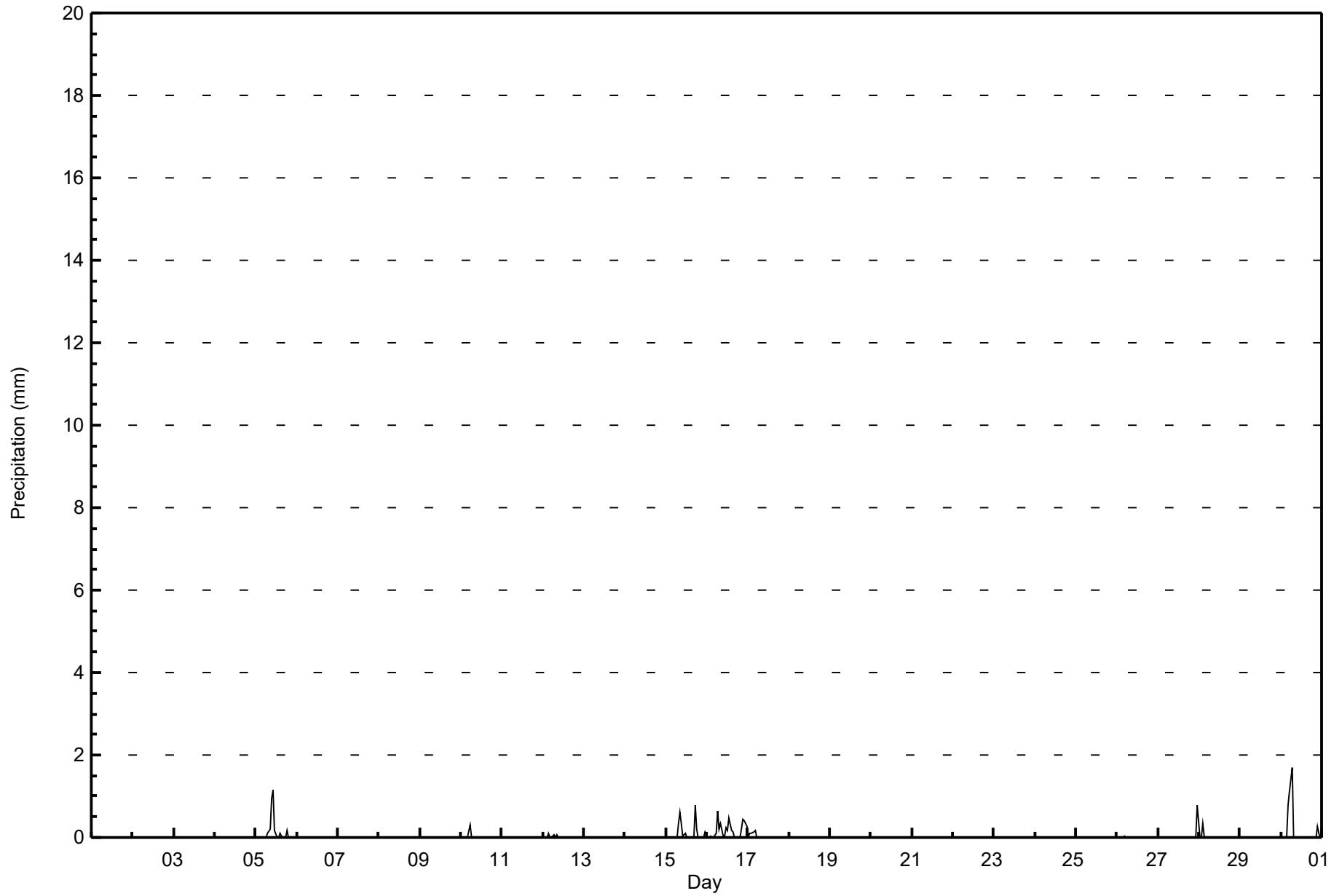
Stony Mountain - April 2024

Maximum Value: 1.7 mm on Apr 30 07:00																				Maximum Daily Total: 3.9 mm on Apr 30					Hours in Service: 720										
Minimum Value: 0.0 mm on Apr 1 01:00																				Minimum Daily Total: 0.0 mm on Apr 1					Hours of Data: 713										
Maximum Diurnal Total: 2.4 mm at hour 7																				Minimum Diurnal Total: 0.0 mm at hour 17					Hours of Missing Data: 7										
Monthly Total: 15.63 mm																				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> = 0.6					Hours of Calibration: 0										
																									Percent Operational Time: 99.0										
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-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
3-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
4-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
5-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.0	1.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	1.2	
6-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
7-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
8-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
9-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
10-Apr	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3		
11-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
12-Apr	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1		
13-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
14-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
15-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	0.8		
16-Apr	0.0	0.0	0.1	0.0	0.0	0.1	0.6	0.2	0.3	0.1	0.1	0.2	0.2	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.6		
17-Apr	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2		
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
19-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
20-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
21-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
22-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
23-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
24-Apr	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0		
25-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
26-Apr	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
27-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8		
28-Apr	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4		
29-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
30-Apr	0.0	0.0	0.0	0.0	0.8	1.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	3.9	1.7
																								Diurnal Average											
																								Diurnal Maximum											
DF - DAS Failure																																			



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Precipitation (PC) - mm**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	701	98.32	98.32
0.4 - 0.5	3	0.42	98.74
0.6 - 0.7	2	0.28	99.02
0.8 - 1.4	6	0.84	99.86
1.5 - 10	1	0.14	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 713

Total Number of Hours: 720



Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

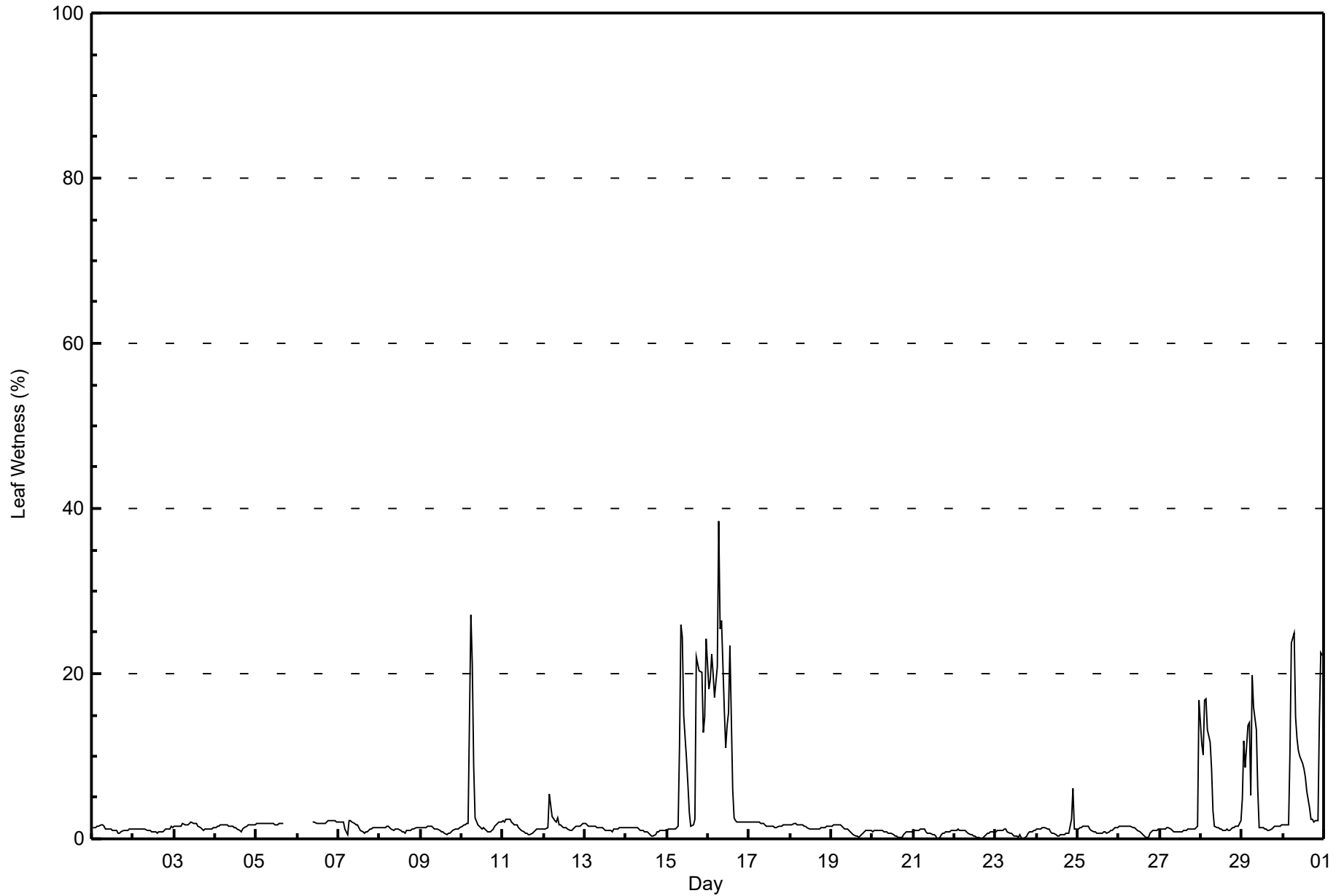
Stony Mountain - April 2024

Maximum Value: 38.4 % on Apr 16 07:00		Maximum Daily Average: 13.0 % on Apr 16		Hours in Service: 720																							
Minimum Value: 0.0 % on Apr 22 17:00		Minimum Daily Average: 0.7 % on Apr 22		Hours of Data: 704																							
Maximum Diurnal Average: 5.2 % at hour 7		Minimum Diurnal Average: 1.0 % at hour 17		Hours of Missing Data: 16																							
Monthly Average: 2.58 %		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.0 Median = 1.3 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 2.5 P <sub>99</sub> = 24.2		Hours of Calibration: 0																							
				Percent Operational Time: 97.8																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	1.4	1.4	1.4	1.4	1.6	1.6	1.6	1.5	1.2	1.2	1.2	1.1	1.0	1.0	1.0	0.7	0.6	0.8	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.6	
2-Apr	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.8	0.8	0.9	1.0	1.2	1.2	1.3	1.5	1.4	1.1	1.5	
3-Apr	1.5	1.6	1.6	1.5	1.6	1.9	1.7	1.7	1.7	1.8	2.0	1.9	1.8	1.8	1.5	1.4	1.2	1.0	1.2	1.2	1.2	1.3	1.3	1.3	1.5	2.0	
4-Apr	1.4	1.5	1.5	1.6	1.7	1.7	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.2	1.1	0.8	1.1	1.4	1.6	1.6	1.7	1.7	1.7	1.7	1.5	1.8	
5-Apr	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	1.8	1.9	1.9	1.8	UO	UO	UO	UO	UO	UO	UO	--	1.9	
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.9	2.1	2.2	2.2	2.1	2.2	2.1	2.1	--	2.2	
7-Apr	2.1	2.1	2.0	2.1	1.1	0.5	2.3	2.2	2.1	1.9	1.8	1.6	1.3	1.0	0.8	0.6	0.9	0.9	1.1	1.2	1.3	1.4	1.4	1.4	1.5	2.3	
8-Apr	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.2	1.1	1.1	1.2	1.1	1.0	0.9	0.8	0.7	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.2	1.5	
9-Apr	1.3	1.3	1.3	1.4	1.5	1.5	1.5	1.3	1.2	1.2	1.2	1.1	0.9	0.8	0.7	0.5	0.6	0.7	0.9	1.0	1.1	1.2	1.2	1.3	1.1	1.5	
10-Apr	1.5	1.8	1.8	1.9	1.9	27.1	21.2	8.8	2.5	1.6	1.5	1.4	1.2	1.3	1.0	0.9	0.9	0.8	1.2	1.6	1.8	1.8	2.0	2.0	3.7	27.1	
11-Apr	2.2	2.1	2.3	2.4	2.3	2.0	1.9	1.8	1.6	1.4	1.2	1.1	0.9	0.7	0.7	0.5	0.4	0.6	0.9	1.0	1.1	1.2	1.2	1.2	1.4	2.4	
12-Apr	1.2	1.2	1.3	5.4	4.1	2.8	2.1	2.1	2.5	1.7	1.6	1.4	1.4	1.4	1.1	1.1	1.0	1.1	1.3	1.5	1.5	1.6	1.7	1.9	1.8	5.4	
13-Apr	1.8	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.3	1.3	1.3	1.2	1.1	1.1	1.1	0.9	1.1	1.2	1.3	1.3	1.4	1.4	1.4	1.3	1.8		
14-Apr	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.1	1.0	1.0	0.9	0.8	0.7	0.5	0.4	0.4	0.4	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.4	
15-Apr	1.1	1.1	1.1	1.1	1.2	1.2	1.5	11.2	26.0	24.5	15.0	9.7	6.6	3.3	1.6	1.6	2.3	22.0	21.2	20.3	20.1	12.9	14.8	24.3	10.2	26.0	
16-Apr	18.1	19.4	22.4	19.9	17.1	20.9	38.4	25.5	26.4	15.6	11.0	13.7	15.3	23.5	6.0	2.5	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	13.0	38.4	
17-Apr	2.1	2.1	2.0	2.1	2.0	2.0	2.0	1.9	1.8	1.7	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	2.1	
18-Apr	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.5	1.4	1.3	1.1	1.2	1.1	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.5	1.8	
19-Apr	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.4	1.2	1.2	1.0	0.9	0.7	0.6	0.4	0.3	0.2	0.3	0.7	0.9	0.9	1.0	1.0	1.0	1.0	1.7	
20-Apr	0.9	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.8	0.7	0.6	0.6	0.4	0.3	0.2	0.2	0.2	0.6	0.7	0.8	0.8	0.8	0.9	0.7	1.0	
21-Apr	0.9	1.0	1.0	1.1	1.2	1.2	1.1	0.9	0.7	0.7	0.6	0.6	0.5	0.3	0.0	0.2	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.1	0.8	1.2	
22-Apr	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.9	0.6	0.6	0.5	0.4	0.4	0.2	0.2	0.0	0.0	0.1	0.5	0.6	0.7	0.8	0.8	0.9	0.7	1.1	
23-Apr	0.9	1.0	1.0	1.0	1.1	1.1	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.4	0.2	0.1	0.2	0.4	0.7	0.9	0.9	1.0	1.1	0.7	1.1	
24-Apr	1.1	1.2	1.2	1.3	1.3	1.3	1.2	1.1	0.8	0.8	0.6	0.5	0.3	0.3	0.5	0.5	0.6	0.6	0.7	0.8	2.3	6.1	1.2	1.2	1.1	6.1	
25-Apr	1.3	1.3	1.4	1.5	1.5	1.6	1.5	1.3	1.0	0.9	0.8	0.7	0.7	0.6	0.7	0.8	0.8	0.7	0.8	1.0	1.1	1.2	1.3	1.4	1.1	1.6	
26-Apr	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.4	1.3	1.2	1.0	0.9	0.6	0.5	0.3	0.2	0.2	0.6	0.9	1.0	1.1	1.1	1.1	1.1	1.6	
27-Apr	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.1	0.9	0.9	0.9	0.9	0.9	0.8	0.9	1.0	1.0	1.1	1.2	1.2	1.2	1.3	1.3	1.6	16.7	1.8	16.7
28-Apr	11.6	10.1	16.8	16.9	13.2	11.6	8.5	3.4	1.6	1.4	1.3	1.2	1.1	1.0	1.0	1.1	1.0	1.1	1.3	1.4	1.5	1.5	1.6	2.3	4.7	16.9	
29-Apr	5.0	11.8	8.6	13.8	14.0	5.2	19.8	15.9	13.2	5.9	1.4	1.4	1.3	1.1	1.1	1.1	1.1	1.2	1.4	1.5	1.5	1.6	1.6	1.7	5.5	19.8	
30-Apr	1.7	1.7	1.7	1.7	10.5	23.6	25.0	14.8	12.1	10.7	9.9	9.1	8.5	7.5	5.8	3.7	2.4	2.3	2.1	2.2	2.2	14.5	22.5	22.2	9.1	25.0	
																								Diurnal Average			
																								Diurnal Maximum			
2.5 2.7 3.0 3.2 3.3 4.3 5.2 3.9 3.9 3.0 2.3 2.1 1.9 2.0 1.2 1.0 1.0 1.7 1.8 1.9 2.0 2.3 2.6 3.5 18.1 19.4 22.4 19.9 17.1 27.1 38.4 25.5 26.4 24.5 15.0 13.7 15.3 23.5 6.0 3.7 2.4 22.0 21.2 20.3 20.1 14.5 22.5 24.3																											
UO - Unstable Operation																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Leaf Wetness (LW) - %**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Leaf Wetness (LW) - %**  
**Stony Mountain - April 2024**

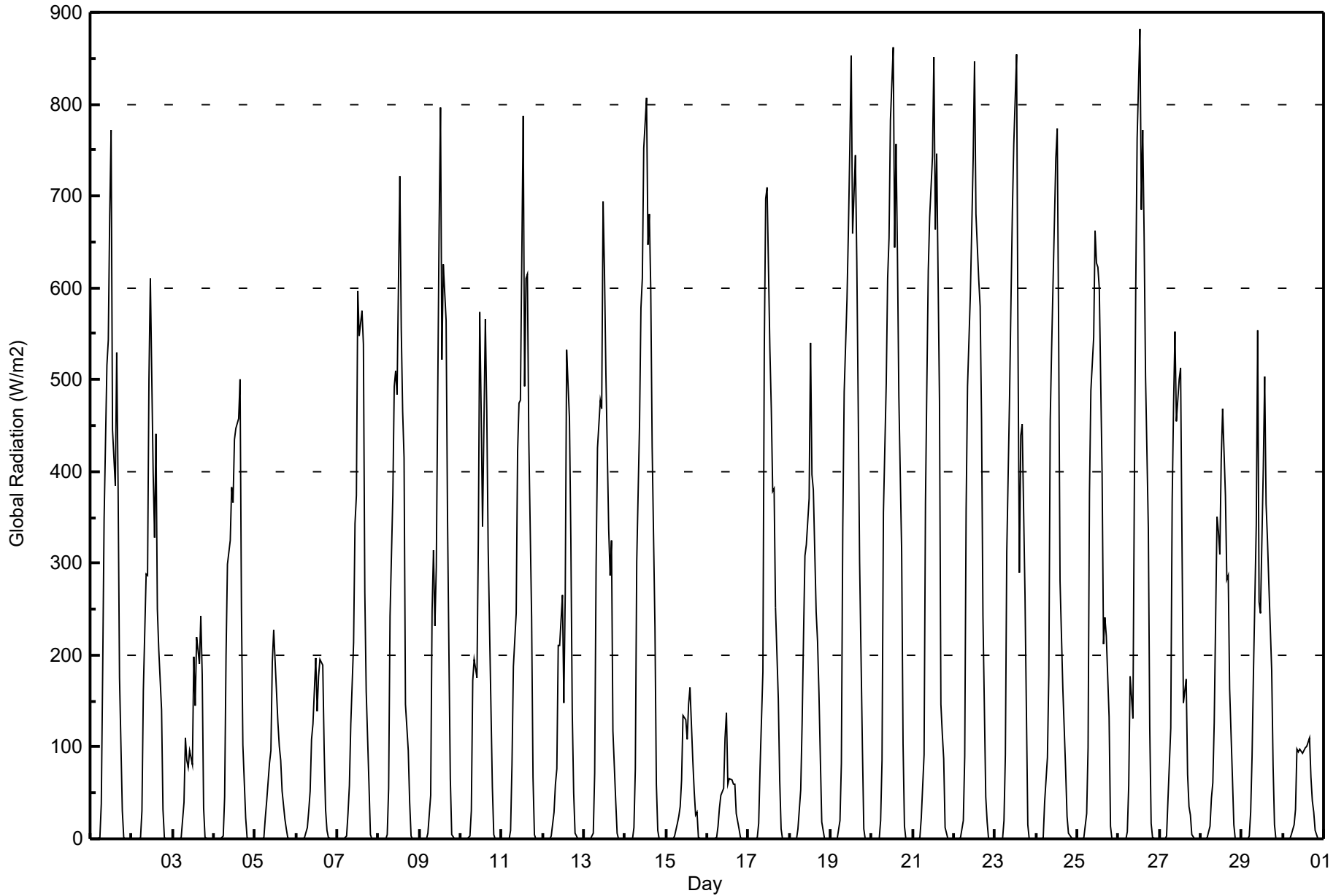
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	25	3.55	3.55
0.4 - 0.5	23	3.27	6.82
0.6 - 0.7	45	6.39	13.21
0.8 - 1.4	333	47.30	60.51
1.5 - 10	210	29.83	90.34
> 10	49	6.96	97.30

Total Number of Valid Hours: 704

Total Number of Hours: 720



Maximum Value: 881.3 W/m2 on Apr 26 13:00      Maximum Daily Average: 284.1 W/m2 on Apr 20																						Hours in Service:	720																									
Minimum Value: 0.0 W/m2 on Apr 15 02:00      Minimum Daily Average: 31.1 W/m2 on Apr 16																						Hours of Data:	720																									
Maximum Diurnal Average: 541.6 W/m2 at hour 13      Minimum Diurnal Average: 0.3 W/m2 at hour 2																						Hours of Missing Data:	0																									
Monthly Average: 170.42 W/m2      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.4 Median = 39.1 Q <sub>3</sub> = 308.4 P <sub>90</sub> = 552.7 P <sub>99</sub> = 794.0																						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-Apr	0.2	0.2	0.1	0.1	0.1	1.4	38.8	185.3	347.8	515.2	543.5	678.3	771.5	446.2	384.3	529.7	380.2	175.4	30.9	1.6	0.4	0.3	0.2	0.1	209.7	771.5																						
2-Apr	0.6	0.6	0.5	0.1	0.3	1.9	31.0	161.9	288.0	286.6	499.7	610.4	398.3	327.9	440.9	250.6	206.2	139.8	32.6	1.7	0.2	0.2	0.1	0.2	153.3	610.4																						
3-Apr	0.3	0.3	0.2	0.1	0.0	0.8	39.5	110.0	86.1	78.1	96.3	80.8	198.7	144.8	220.2	191.0	241.9	178.0	34.3	2.1	0.2	0.2	0.2	0.2	71.0	241.9																						
4-Apr	0.2	0.1	0.2	0.2	0.2	2.5	45.2	200.1	298.7	325.2	383.4	366.6	434.5	446.5	458.4	500.1	248.0	101.8	22.7	1.2	0.0	0.1	0.1	0.1	159.8	500.1																						
5-Apr	0.1	0.1	0.0	0.1	0.0	1.4	22.4	41.7	82.7	96.0	192.9	125.9	100.5	85.3	52.6	21.6	10.2	1.0	0.7	0.5	0.6	0.6	0.6	0.6	51.0	227.7																						
6-Apr	0.7	0.5	0.7	0.6	0.6	1.2	11.5	29.9	51.2	108.4	125.4	197.5	139.4	176.8	195.9	189.0	97.7	32.1	9.6	1.1	0.7	0.6	0.7	0.7	57.2	197.5																						
7-Apr	0.6	0.7	0.7	0.6	0.7	2.7	28.1	57.2	124.5	213.1	343.7	373.6	596.3	547.7	575.6	538.3	268.1	159.6	58.5	4.4	0.3	0.3	0.3	0.1	162.3	596.3																						
8-Apr	0.0	0.2	0.6	0.7	0.6	4.7	55.4	241.9	373.7	493.1	509.2	484.0	720.9	555.1	466.0	414.3	146.3	96.1	39.6	2.3	0.3	0.3	0.2	0.3	191.9	720.9																						
9-Apr	0.2	0.1	0.2	0.3	0.5	5.5	47.4	248.1	314.8	232.2	295.5	662.9	795.8	521.2	625.7	564.1	350.2	205.1	65.5	3.9	0.3	0.3	0.2	0.2	205.8	795.8																						
10-Apr	0.2	0.3	0.3	0.3	0.3	2.5	31.1	172.3	194.8	175.7	326.2	573.3	467.4	340.4	565.5	466.6	317.2	228.5	55.8	4.6	0.6	0.6	0.6	0.6	163.6	573.3																						
11-Apr	0.7	0.6	0.5	0.6	0.6	8.7	80.8	187.3	246.1	421.4	474.7	477.1	786.4	492.9	609.9	614.0	434.8	241.5	66.5	5.2	0.4	0.3	0.3	0.3	214.7	786.4																						
12-Apr	0.2	0.1	0.1	0.2	0.5	2.7	28.7	59.0	76.2	210.3	211.0	264.9	148.1	268.2	532.6	457.0	324.5	137.9	49.6	6.7	0.6	0.5	0.5	0.6	115.9	532.6																						
13-Apr	0.5	0.4	0.3	0.3	0.3	6.8	71.4	294.1	426.3	476.8	467.7	693.8	616.0	506.3	337.1	286.6	325.7	117.4	40.7	6.6	0.3	0.3	0.4	0.4	194.9	693.8																						
14-Apr	0.5	0.4	0.4	0.6	0.6	11.7	76.1	302.7	451.0	577.8	610.0	752.2	806.4	646.7	680.6	597.4	427.5	231.1	60.0	8.8	0.6	0.4	0.4	0.1	260.2	806.4																						
15-Apr	0.0	0.0	0.0	0.2	0.1	3.4	16.3	24.0	35.8	63.8	134.7	129.8	107.8	146.8	164.7	84.9	51.9	25.6	29.5	2.3	0.4	0.3	0.3	0.3	42.6	164.7																						
16-Apr	0.4	0.3	0.3	0.3	0.3	2.0	14.0	33.4	47.6	55.2	109.9	136.7	59.2	65.5	63.9	59.2	59.4	27.1	10.0	1.3	0.1	0.1	0.2	0.1	31.1	136.7																						
17-Apr	0.1	0.1	0.1	0.1	0.1	1.8	16.4	78.2	180.8	531.7	696.4	709.8	531.8	468.4	378.6	382.1	251.8	153.2	64.8	11.3	0.3	0.2	0.1	0.0	185.8	709.8																						
18-Apr	0.0	0.0	0.0	0.0	0.1	10.7	52.8	126.3	220.7	308.2	319.9	371.4	540.1	396.3	379.6	247.7	215.1	159.4	86.5	18.5	0.0	0.0	0.0	0.0	143.9	540.1																						
19-Apr	0.0	0.0	0.1	0.1	0.5	20.0	82.7	338.4	486.4	587.9	661.8	750.0	853.1	659.1	744.3	627.9	472.0	301.7	98.8	10.9	0.4	0.2	0.3	0.3	279.0	853.1																						
20-Apr	0.3	0.3	0.5	0.2	0.5	19.8	85.8	355.8	495.0	610.7	654.8	782.0	861.8	643.3	757.4	636.7	481.6	312.8	104.1	13.1	0.7	0.6	0.5	0.5	284.1	861.8																						
21-Apr	0.7	0.6	0.7	0.6	1.1	22.1	91.4	366.1	497.7	619.6	677.6	743.4	851.7	663.1	745.3	475.6	146.9	114.9	86.2	12.7	0.4	0.1	0.0	0.0	254.9	851.7																						
22-Apr	0.0	0.0	0.0	0.0	0.8	19.4	89.8	359.1	492.1	592.4	663.0	739.6	846.9	680.4	608.6	579.8	455.7	243.3	45.0	18.9	0.2	0.0	0.0	0.0	268.1	846.9																						
23-Apr	0.3	0.0	0.0	0.0	0.6	19.6	91.4	313.1	482.7	585.4	683.1	755.9	853.7	538.9	289.5	439.7	451.5	264.7	139.0	14.6	0.4	0.3	0.3	0.4	246.9	853.7																						
24-Apr	0.2	0.2	0.0	0.0	1.9	39.8	88.0	179.1	456.2	533.8	604.4	741.8	773.5	552.0	280.1	162.9	118.5	74.9	24.0	6.2	0.8	0.4	0.4	0.3	193.3	773.5																						
25-Apr	0.2	0.2	0.4	0.4	1.5	26.9	98.9	376.7	488.4	545.7	662.3	622.2	599.1	398.7	211.4	241.3	220.9	132.4	14.2	0.4	0.0	0.1	0.1	0.1	219.6	662.3																						
26-Apr	0.0	0.0	0.0	0.0	0.8	7.8	57.5	177.4	130.8	376.7	597.8	763.1	881.3	684.4	771.7	655.0	503.5	337.2	120.6	16.3	0.8	0.3	0.4	0.4	253.5	881.3																						
27-Apr	0.3	0.5	0.5	0.5	3.5	42.4	120.2	367.9	472.6	552.6	454.6	501.1	512.8	325.1	147.6	173.4	70.7	34.5	25.7	4.7	0.2	0.0	0.1	0.4	158.8	552.6																						
28-Apr	0.1	0.1	0.3	0.4	1.5	14.2	44.0	61.4	127.1	350.8	333.3	309.0	412.7	468.3	374.2	282.5	286.5	163.0	64.9	15.7	0.3	0.0	0.0	0.3	137.9	468.3																						
29-Apr	0.5	0.5	0.6	0.6	3.0	28.6	90.5	181.1	341.3	553.6	257.7	246.0	402.6	502.9	365.0	324.8	276.6	183.8	79.8	15.9	0.3	0.0	0.0	0.0	160.7	553.6																						
30-Apr	0.0	0.0	0.0	0.0	0.6	4.6	14.6	32.1	97.4	94.1	98.1	92.4	95.9	99.6	101.4	109.4	67.8	41.6	29.0	9.6	0.6	0.3	0.4	0.3	41.2	109.4																						
																								0.3	0.3	0.3	0.3	0.7	11.2	55.4	188.7	280.5	372.4	423.0	494.7	541.6	434.7	425.5	371.2	265.7	157.5	57.2	7.9	0.4	0.3	0.3	0.3	Diurnal Average
																								0.7	0.7	0.7	0.7	3.5	42.4	120.2	376.7	497.7	619.6	696.4	782.0	881.3	684.4	771.7	655.0	503.5	337.2	139.0	18.9	0.8	0.6	0.7	0.7	Diurnal Maximum







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Global Radiation (GR) - W/m2**  
**Stony Mountain - April 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	333	46.25	46.25
21 - 100	100	13.89	60.14
101 - 300	104	14.44	74.58
301 - 600	126	17.50	92.08
601 - 900	57	7.92	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

**Wind Speed (WS) - km/h**  
**Stony Mountain - April 2024**

Maximum Speed: 18 km/h on Apr 1 01:00	Maximum Daily Speed Average: 10.2 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 6 23:00	Minimum Daily Speed Average: 1.4 km/h on Apr 15	Hours of Data: 720
Maximum Diurnal Speed Average: 2.7 km/h at hour 10	Minimum Diurnal Speed Average: 0.7 km/h at hour 23	Hours of Missing Data: 0
Monthly Average Velocity: 1.8 km/h 298.7 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 5 Median = 8 Q <sub>3</sub> = 10 P <sub>90</sub> = 12 P <sub>99</sub> = 15	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-Apr	SSW18	SSW16	SW13	WNW10	WNW10	W10	W9	WNW14	WNW18	WNW16	WNW17	NW16	NW15	NW11	WNW10	WNW12	WNW13	WNW12	WNW8	W7	W7	W7	WNW5	WNW4	W10.0	SSW18
2-Apr	SW3	SSW5	SSW6	SSW7	SSW9	S8	S8	S8	S10	S12	S12	S13	SSW13	SSW11	S13	SSW14	S11	S10	SSE7	SSE7	SE5	SE7	S6	NW1	S8.3	SSW14
3-Apr	SE3	SE5	SE2	SE5	SE2	WNW4	NW8	NW11	NNW10	NW13	NW13	NW12	WNW13	WNW12	WNW11	WNW11	WNW9	W9	WNW7	W9	W11	W10	W10	WNW10	WNW7.0	WNW13
4-Apr	WNW8	W8	WNW9	WNW7	WNW7	WNW7	NW7	NNW5	NNW8	N7	N7	NNE7	NE8	NE9	ENE9	ENE8	NNE8	NE7	NE7	NE7	NE6	NE7	NE7	ENE7	N4.6	ENE9
5-Apr	ENE8	ENE8	NE8	NNE8	NNE9	NE10	NNE9	NE9	NNE8	NNE8	NNE9	NNE11	NE9	NE9	NE9	NE8	NNE8	NNE7	N5	NNE4	N4	NNW3	N3	N3	NNE7.1	NNE11
6-Apr	N3	N3	N3	NNE6	NNE6	N5	N4	N5	N5	NNE6	NE5	NNE6	NE7	NNE5	N5	NE5	NE6	NE4	ENE4	ENE3	ENE3	NW1	N1	N2	NNE4.1	NE7
7-Apr	NW2	NW3	WNW2	SW1	S5	SSW6	SW7	SSW8	SW7	SW6	SW6	SW6	WSW8	WSW10	W8	W8	W6	WSW5	W3	W3	W3	W4	WNW4	WSW4.6	WSW10	
8-Apr	WNW4	W2	SSW5	SSW5	SE4	SE5	SSE6	SSE7	SSE7	W7	SSW9	SSW9	SW10	SSW12	SSW12	S13	S9	S9	SSW6	S4	SSW5	SSW5	SSW5	S5	SSW5.9	S13
9-Apr	SSW5	S4	S4	S4	S4	W4	SW6	SW5	WNW9	NW9	WNW10	WNW9	W10	W11	W13	W13	W14	W12	W11	W8	W8	W9	W10	W12	W7.3	W14
10-Apr	W12	WNW10	W9	WNW11	WNW12	WNW11	NW11	NW11	NW13	NW12	NW10	NW13	NW16	NNW13	NNW11	N10	NNW8	N8	NE8	ESE4	SE3	S4	S4	SSW5	NW7.1	NW16
11-Apr	S4	S5	S6	S5	S5	S7	S8	S9	S10	S11	S9	S9	SSW12	SSW12	SSW13	SSW12	S11	SSW11	SSE10	SSE9	SE8	SE11	SE11	SSE11	S8.6	SSW13
12-Apr	SSE12	SSE10	S14	SSE12	SE12	SE12	SE12	SE12	SE12	SE11	SE10	SE8	S6	W7	W9	W8	WSW8	WSW6	S2	S4	SSW7	SSW12	SSW11	SSW11	S6.6	S14
13-Apr	SW11	SW9	WSW9	SW9	SW10	WSW12	WSW12	WSW12	W15	WNW15	WNW14	W13	W15	W15	W14	WNW15	WNW13	NW10	NW7	WNW5	W5	W5	WSW5	WSW5	W9.8	W15
14-Apr	WSW6	SW7	SW7	SW7	SW8	SSW8	SSW9	SSW9	SSW7	SSW10	WSW11	WSW12	W13	WSW13	WSW13	WSW12	W11	WSW7	W2	SE3	SSE3	SE3	SSE3	SSW3	SW6.7	W13
15-Apr	WSW2	SW2	SW2	S5	S5	S5	SW5	SW5	SW4	NNW4	NNE6	NNE6	NNE6	ENE7	ENE6	NNE6	NNW5	N4	NNE4	NNE5	NNE4	NNW3	NW2	NW3	N1.4	ENE7
16-Apr	NW3	NNW3	NW4	NW5	NW5	NW7	NW5	NW6	NNW6	NNW7	NNW7	NNW7	NNW7	NNW6	NNW7	NNW7	NNW7	NNW9	NNW9	NNW9	N8	N9	N8	N9	NNW6.3	NNW9
17-Apr	N8	NNW7	N8	NNW7	NNW8	NNW7	NNW8	NNW9	NNW9	N11	N12	N13	N13	N12	NNW12	N12	N13	N11	N10	N12	N11	NNE11	NNE12	N10	N10.2	N13
18-Apr	N6	NNW5	NNW5	NNW5	NNW6	N7	N9	N9	N10	NNE12	NNE12	NNE11	N13	N12	NNE12	N11	NNE12	NNE11	NNE10	N9	N6	N5	N4	NNW4	N8.3	N13
19-Apr	NNW4	NNW4	NW4	NW4	NW4	NW4	NW4	NW5	NW6	NW6	NNW6	NNW5	NW5	WNW6	NW6	NW6	NW6	WNW5	WNW6	W4	W6	W7	W7	WSW7	WNW4.6	WSW7
20-Apr	W8	WSW9	WSW9	W13	W13	W13	W12	W10	WNW10	W10	W9	WSW9	WSW10	WSW10	WSW9	WSW9	SW9	SW8	SSW8	SSW5	SSW5	SSW5	SSW8	SSW9	WSW8.2	W13
21-Apr	S8	SSW9	S8	S6	SSE5	SE5	SSE6	SE7	SE9	ESE11	SE12	SE11	SE7	SSE7	SE4	ESE3	SSW8	WSW7	WSW4	WSW5	W7	W7	NW6	NW5	S4.0	SE12
22-Apr	NW5	NW4	NW5	WNW5	WNW6	WNW8	WNW8	WNW7	NW6	NNW5	N6	N9	N11	NNW11	N10	NNW10	N9	NNE8	NNE2	N2	N3	NE5	NE5	NE5	NNW5.5	NNW11
23-Apr	ENE3	NNW4	N4	NNW5	N6	NNE6	NE6	ENE8	ENE8	ENE8	ENE8	E8	SE4	E5	ENE4	E3	N3	ENE7	E7	E5	E5	E5	ESE7	ESE6	ENE4.6	ENE8
24-Apr	ESE7	E5	NE7	NE9	NE7	ENE7	ENE6	ENE8	E11	E12	E14	E15	ESE15	E14	SE10	SSE11	S11	SE9	SSW9	WSW5	S2	NE2	WNW8	E5.7	E15	
25-Apr	WNW7	WNW8	W9	W10	W9	W11	W11	WNW10	WNW10	WNW13	WNW13	WNW13	W12	WSW12	WSW11	W12	WSW12	SW9	WNW11	WNW12	WNW10	WNW8	WNW9	WNW8	W10.0	WNW13
26-Apr	NW7	NNW6	NNW7	NNW6	NNW6	NNW8	NNW6	NW7	NW7	NW10	NW11	NW9	NW9	NNW9	N9	N8	N7	NNE7	NNW5	ENE6	ENE5	E5	ESE6	ESE6	NNW5.4	NW11
27-Apr	SE6	SSE7	SSE7	SSE8	S7	S7	S7	SSW10	S10	S12	SSE13	SSE14	SSE14	SSE13	SSE11	SSE12	SSE10	SE9	SE8	SE6	SE7	SE8	SSE4	ENE4	SSE8.5	SSE14
28-Apr	NNE4	NE6	ENE4	E4	ESE5	SE6	SE5	SE6	SE6	SE8	ESE9	ESE6	E9	E10	E10	E10	ESE8	E8	E8	E7	ESE7	ESE7	ESE6	E5	ESE6.3	E10
29-Apr	ESE5	E5	SE5	E2	WNW1	NW3	NNW2	NNW1	N5	N7	NE8	NE9	NE9	N9	NE10	NE9	NE10	NE11	NNE11	N7	NNW6	NNW6	N7	NNE8	NNE5.3	NE11
30-Apr	NNE10	NNE11	N9	N9	N9	N8	N9	N10	N12	NNE13	NNE13	NNE11	NNE11	N9	N9	N8	NNW6	NNW6	NW7	NW7	NW6	NW5	ENE4	NNW4	N7.9	NNE13

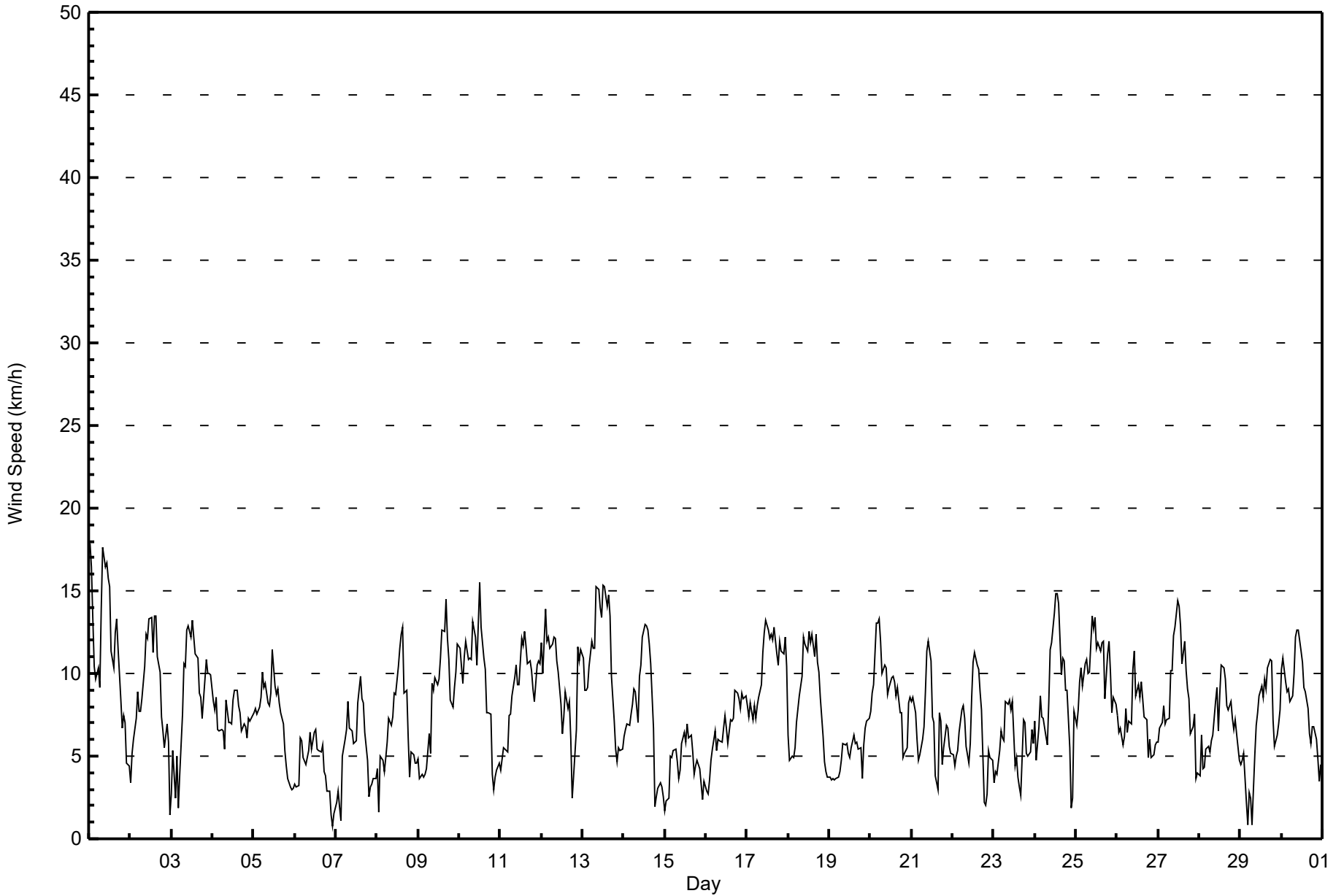
WSW1.4	W1.4	WSW1.9	W1.9	W1.7	W2.3	W2.2	WNW1.9	NW2.6	NW2.7	NNW2.4	NNW2.2	NW2.6	NW2.6	NW2.3	NW2.5	WNW2.6	NW2.0	NNW1.3	NW0.9	WNW1.2	WNW0.9	W0.7	WNW1.4	Diurnal Average
SSW18	SSW16	S14	W13	W13	W13	W12	WNW14	WNW18	WNW16	WNW17	NW16	NW16	W15	E14	WNW15	W14	W12	WNW11	N12	N11	SSW12	NNE12	W12	Diurnal Maximum

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Stony Mountain - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	190	26.39	26.39
6 - 11	420	58.33	84.72
12 - 19	110	15.28	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Stony Mountain - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	22	7	7	9	11	4	16	4	19	12	8	7	10	10	24	20	190
6 - 11	44	33	30	17	9	13	22	20	26	25	18	19	40	37	30	37	420
12 - 19	10	7	0	0	4	1	6	7	7	11	1	9	18	19	8	2	110
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	76	47	37	26	24	18	44	31	52	48	27	35	68	66	62	59	720

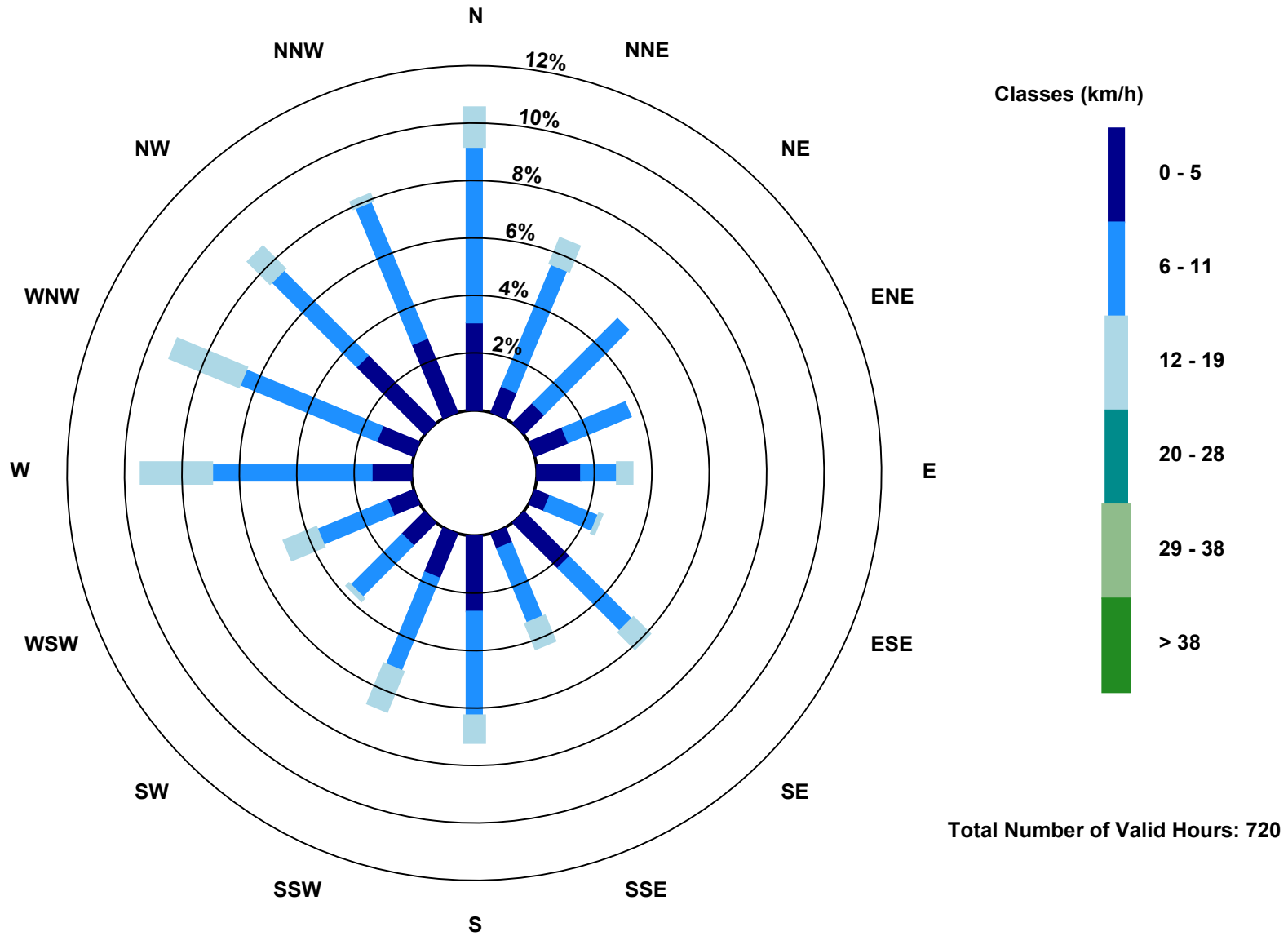
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Stony Mountain





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Apr 1 09:00 Minimum Value: 0 km/h on Apr 7 00:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 6																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	6	6	5	5	4	4	4	6	7	7	7	6	6	6	5	6	6	5	3	2	3	3	2	1	7
2-Apr	1	1	2	2	3	2	2	3	4	4	5	5	5	4	5	5	4	4	3	2	2	2	2	1	5
3-Apr	1	2	1	2	1	2	3	4	4	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	5
4-Apr	3	3	3	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	3
5-Apr	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	1	1	1	1	1	3
6-Apr	1	1	1	2	2	2	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	1	0	3
7-Apr	1	1	1	1	1	2	2	2	2	2	2	2	3	4	4	3	3	3	2	1	1	1	1	1	4
8-Apr	1	1	1	1	1	1	2	2	3	4	4	3	4	5	5	5	3	3	2	1	1	1	1	1	5
9-Apr	2	1	1	1	1	2	2	2	3	4	4	4	4	4	5	5	6	6	5	3	3	4	4	4	6
10-Apr	5	4	4	5	4	4	4	4	5	5	5	5	7	6	5	4	3	3	3	1	1	1	1	1	7
11-Apr	1	1	1	1	1	2	3	3	4	4	3	4	4	4	5	5	4	4	4	4	3	4	4	4	5
12-Apr	5	4	6	5	5	5	5	4	5	5	4	4	2	5	4	4	3	3	1	2	2	4	3	4	6
13-Apr	4	3	3	3	4	5	5	5	6	6	6	6	6	6	6	6	5	4	3	2	1	2	2	2	6
14-Apr	2	2	2	2	2	2	3	2	2	4	5	5	5	6	6	5	4	3	1	1	1	1	1	1	6
15-Apr	2	1	1	2	2	2	2	2	2	2	2	2	2	3	2	2	2	1	1	2	2	1	1	1	3
16-Apr	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	3	4	3	3	4
17-Apr	3	3	3	3	4	3	3	4	4	5	6	5	5	5	5	5	5	5	4	5	5	5	5	4	6
18-Apr	3	2	2	2	2	3	3	4	4	4	5	4	5	5	5	5	4	4	4	4	3	2	1	1	5
19-Apr	1	1	0	0	0	1	1	1	2	2	2	3	3	3	3	3	3	3	2	1	2	2	2	3	3
20-Apr	3	3	4	5	5	5	4	4	4	4	4	4	4	5	4	3	4	3	3	1	1	1	2	3	5
21-Apr	2	2	2	2	1	1	2	2	4	5	5	5	4	4	3	3	4	3	2	2	2	2	1	1	5
22-Apr	1	1	1	1	2	2	2	2	2	2	3	4	5	4	5	4	4	3	2	1	1	2	2	1	5
23-Apr	1	1	1	2	2	2	2	3	3	3	3	4	3	3	1	2	4	3	3	2	2	2	2	2	4
24-Apr	2	2	2	2	2	2	2	2	3	4	4	5	6	6	5	4	4	6	4	5	6	5	3	4	6
25-Apr	2	3	3	4	4	4	4	4	4	5	5	5	5	6	5	6	6	4	5	5	4	3	3	3	6
26-Apr	2	3	3	2	3	4	3	3	3	4	5	4	4	4	4	3	3	3	2	2	1	1	2	2	5
27-Apr	2	2	2	3	2	2	2	4	4	5	5	5	6	5	5	5	4	3	3	2	2	3	2	2	6
28-Apr	1	2	1	1	1	2	2	2	2	3	3	3	3	4	4	3	3	3	3	2	2	2	2	2	4
29-Apr	1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	4	3	4	4	3	2	2	3	3	4
30-Apr	4	4	4	4	4	3	3	4	5	5	4	4	4	4	3	3	3	2	2	2	2	1	2	1	5
																	Diurnal Maximum								



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

**Wind Direction (WD) - deg**  
**Stony Mountain - April 2024**

Direction of Maximum Speed: 196 deg on Apr 1 01:00 Direction of Maximum Daily Speed Average: 357.1 deg on Apr 17	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0
Direction of Minimum Speed: 350 deg on Apr 6 23:00 Direction of Minimum Daily Speed Average: 1.4 deg on Apr 15	Percent Operational Time: 100.0
Monthly Average Direction: 298.7 deg	

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-Apr	196	206	228	296	292	280	279	282	287	294	300	304	306	315	295	286	293	290	292	276	272	281	285	287	280.7
2-Apr	221	207	202	204	198	188	190	181	182	186	183	188	202	195	191	193	181	180	165	163	135	146	174	313	186.3
3-Apr	133	139	130	137	132	298	306	326	330	312	308	304	299	287	282	293	290	281	284	270	275	280	278	284	292.5
4-Apr	286	280	283	283	283	299	317	330	341	356	354	17	38	54	60	57	30	38	41	34	53	45	52	69	7.4
5-Apr	66	57	46	26	28	40	28	35	28	22	32	32	35	35	38	34	25	25	10	25	7	346	359	354	31.4
6-Apr	359	354	350	21	18	11	357	2	359	26	35	25	42	13	6	44	42	46	62	63	60	310	350	3	21.8
7-Apr	314	318	293	215	186	211	220	212	222	222	226	219	224	242	252	278	267	260	249	261	272	280	261	293	243.4
8-Apr	302	280	206	196	144	143	148	148	166	271	210	205	215	201	196	180	190	186	196	188	206	202	196	184	194.0
9-Apr	202	189	171	173	181	280	214	220	297	305	292	298	280	277	263	266	273	277	269	266	269	261	267	275	266.9
10-Apr	280	283	278	282	292	298	306	314	316	318	323	311	315	334	343	356	327	358	54	103	137	183	189	196	311.6
11-Apr	186	183	183	187	186	189	172	175	176	178	183	186	192	198	199	196	169	196	159	157	143	144	145	150	176.2
12-Apr	152	158	171	157	137	133	124	133	127	126	132	146	187	265	272	267	255	257	178	174	193	208	205	211	170.4
13-Apr	221	233	239	230	228	244	245	254	278	283	298	279	281	280	277	290	290	304	305	287	261	264	258	243	268.3
14-Apr	238	236	232	228	214	210	205	204	200	213	247	243	269	255	251	249	259	248	280	143	154	126	163	202	232.3
15-Apr	252	230	219	191	185	190	225	219	216	328	12	27	17	58	60	16	344	351	15	29	13	340	326	320	356.8
16-Apr	319	345	316	315	316	306	312	312	317	339	334	342	341	333	342	343	348	347	347	346	350	350	354	354	337.4
17-Apr	351	348	352	346	342	344	340	341	340	356	5	7	5	356	348	349	0	355	359	6	10	16	15	6	357.1
18-Apr	354	338	342	336	346	359	2	356	1	16	13	13	9	10	21	11	20	21	20	9	1	357	352	341	6.5
19-Apr	335	334	326	318	316	311	311	315	318	309	333	339	310	291	308	306	317	302	295	270	265	264	260	255	302.0
20-Apr	260	254	245	271	272	271	271	280	284	280	259	254	239	242	241	240	232	225	205	198	209	195	196	195	248.4
21-Apr	191	193	190	179	150	146	156	128	127	120	129	131	141	162	137	120	203	253	248	258	271	278	308	313	171.9
22-Apr	318	321	307	303	294	293	293	303	322	341	350	355	359	347	2	347	6	25	31	6	349	37	37	40	343.0
23-Apr	75	348	8	343	2	16	49	59	61	70	71	84	135	81	75	91	359	67	85	84	87	86	106	110	65.4
24-Apr	102	99	36	43	44	59	63	60	71	86	84	84	93	102	99	124	159	178	144	203	256	170	46	293	96.8
25-Apr	299	300	281	278	277	271	277	285	288	286	293	283	269	253	256	265	258	231	289	290	299	301	289	293	278.9
26-Apr	305	336	340	336	330	327	333	320	322	316	316	320	323	342	356	5	8	12	344	63	75	96	107	109	344.9
27-Apr	128	149	153	165	169	169	170	165	172	172	159	168	161	153	163	168	148	145	133	131	133	137	155	69	155.9
28-Apr	28	45	76	81	119	138	135	141	144	142	121	105	88	91	101	89	117	95	98	99	113	113	109	91	105.1
29-Apr	116	93	137	86	283	323	331	342	1	7	40	50	38	10	42	49	51	35	23	359	347	345	4	20	29.4
30-Apr	15	14	3	10	4	358	0	4	7	24	30	31	17	7	3	358	344	330	324	319	310	317	65	336	3.6

256.9 261.6 255.5 274.7 275.5 279.1 278.7 287.1 308.6 318.5 331.5 329.6 313.2 307.4 306.0 305.4 299.2 307.1 342.0 323.3 299.0 281.6 273.2 295.5

Diurnal Average

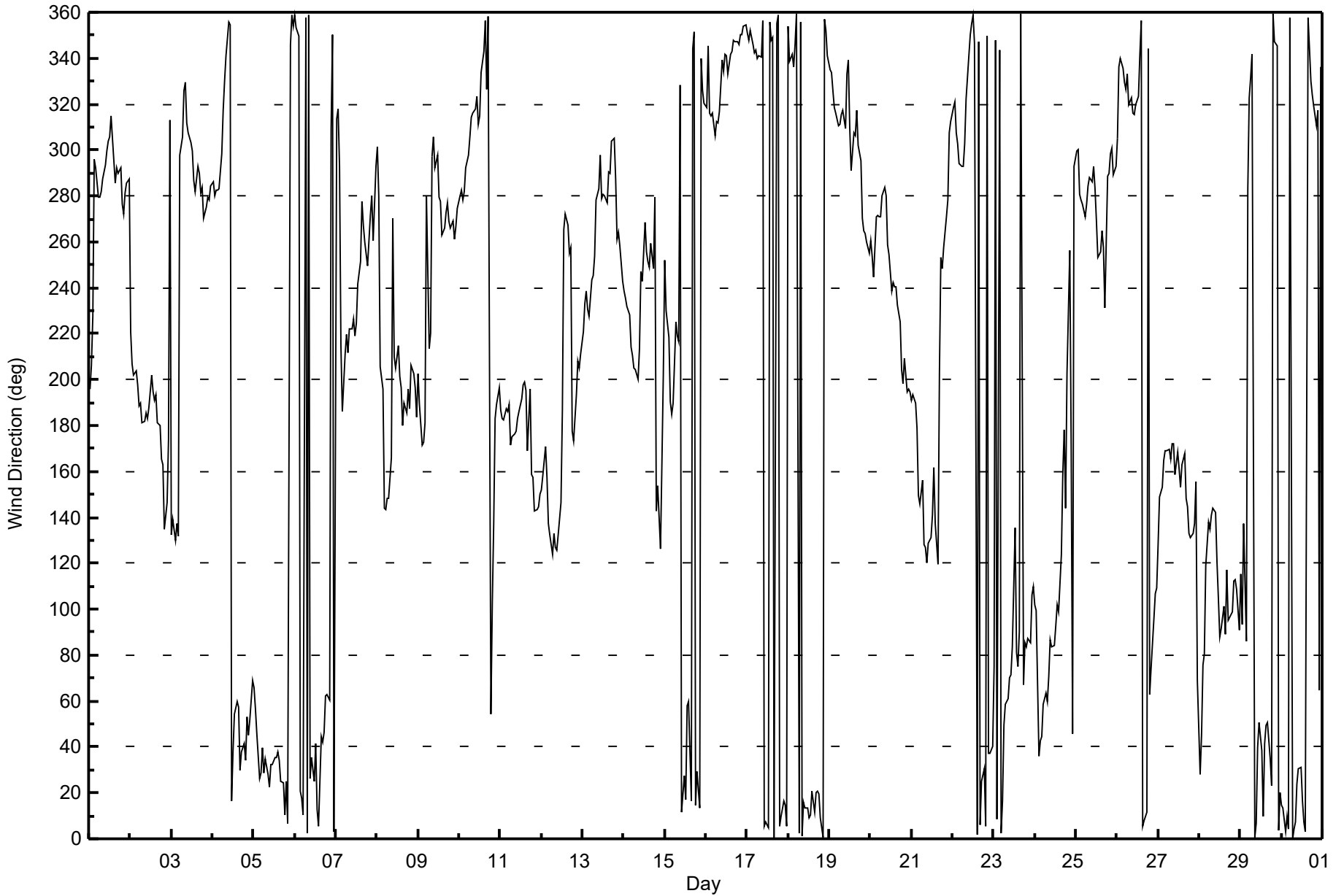
All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Apr 23 17:00 Minimum Value: 7 deg on Apr 19 04:00 Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 18 Q <sub>1</sub> = 23 Median = 27 Q <sub>3</sub> = 33 P <sub>90</sub> = 41 P <sub>99</sub> = 81																			Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	24	23	27	37	28	26	27	28	31	29	30	30	29	32	35	33	33	28	27	24	23	22	21	15	37
2-Apr	40	14	15	16	20	19	20	21	25	24	30	32	30	29	29	25	32	29	28	23	23	17	37	83	83
3-Apr	61	19	73	25	84	69	18	24	28	25	24	25	24	26	30	28	31	32	30	25	25	22	23	22	84
4-Apr	20	21	24	24	24	24	19	30	30	37	36	37	31	30	30	38	35	28	22	25	20	19	18	19	38
5-Apr	21	20	23	22	23	19	19	22	22	24	24	20	21	25	21	23	24	23	22	26	28	32	35	27	35
6-Apr	28	31	27	22	23	25	31	26	27	31	28	32	28	32	35	31	28	26	22	25	21	47	68	40	68
7-Apr	23	32	58	69	24	18	25	19	26	28	38	41	46	43	35	37	36	36	27	16	12	15	14	14	69
8-Apr	11	65	11	14	16	17	21	25	29	50	43	36	37	35	32	32	28	29	22	19	19	16	16	18	65
9-Apr	35	34	32	22	25	40	18	34	26	28	31	37	43	36	35	34	30	32	30	25	22	25	28	24	43
10-Apr	25	26	27	27	26	24	22	23	26	27	33	31	30	32	35	36	34	37	27	18	25	16	16	15	37
11-Apr	16	19	17	18	21	19	23	22	26	29	37	39	35	38	34	33	41	36	33	30	26	28	27	30	41
12-Apr	27	30	30	31	25	26	26	27	28	30	30	41	32	50	38	42	38	39	41	21	20	21	20	21	50
13-Apr	24	24	27	26	26	31	31	35	29	32	31	35	30	33	30	28	30	28	26	23	18	19	22	21	35
14-Apr	21	22	21	19	17	19	19	18	30	33	43	40	37	40	40	36	39	43	80	19	13	32	30	55	80
15-Apr	72	51	61	26	26	25	34	52	30	24	30	27	25	24	29	24	24	25	21	26	29	26	45	28	72
16-Apr	35	35	24	22	23	23	18	18	21	28	25	29	27	23	26	27	30	31	29	32	29	28	28	28	35
17-Apr	29	30	30	30	28	27	29	28	30	33	32	33	31	34	35	33	32	32	33	26	28	27	25	28	35
18-Apr	27	24	21	22	26	28	26	27	29	27	28	27	27	30	27	29	26	26	26	27	26	24	21	14	30
19-Apr	12	11	10	7	11	13	14	27	37	49	50	71	69	60	60	55	49	49	26	24	20	22	24	24	71
20-Apr	25	27	27	26	24	25	27	28	31	32	39	42	40	46	40	41	40	33	24	18	15	17	20	19	46
21-Apr	20	20	19	21	17	20	26	26	28	31	34	42	55	71	83	81	59	32	38	29	20	22	18	10	83
22-Apr	14	16	10	11	15	16	19	21	45	59	59	49	38	35	40	37	36	34	46	50	23	27	28	24	59
23-Apr	29	24	41	19	21	22	23	24	30	33	39	45	73	67	47	87	94	39	25	16	16	14	18	22	94
24-Apr	22	24	16	15	15	16	18	24	23	24	25	24	28	28	24	34	35	35	36	48	76	84	79	23	84
25-Apr	19	20	23	24	24	24	27	23	32	29	32	33	35	41	40	34	43	36	31	27	26	23	24	23	43
26-Apr	21	32	31	32	28	30	32	32	36	29	35	46	45	50	41	42	44	42	40	22	21	15	17	17	50
27-Apr	19	20	21	23	23	21	24	30	34	34	33	33	35	32	33	34	33	30	23	22	21	23	52	55	55
28-Apr	28	19	25	17	20	19	21	20	23	30	28	39	30	26	29	24	30	28	22	17	20	18	18	20	39
29-Apr	18	22	17	38	70	36	68	92	33	38	23	20	26	37	30	34	27	26	26	26	29	29	25	25	92
30-Apr	23	23	23	25	26	23	24	25	24	25	24	24	25	25	26	28	30	29	23	21	17	32	53	26	53
																			72 65 73 69 84 69 68 92 45 59 59 71 73 71 83 87 94 49 80 50 76 84 79 83						
Diurnal Maximum																									



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

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - April 2024**

Maximum Speed: 26 km/h on Apr 10 13:00	Maximum Daily Speed Average: 15.6 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 29 05:00	Minimum Daily Speed Average: 1.7 km/h on Apr 15	Hours of Data: 719
Maximum Diurnal Speed Average: 4.8 km/h at hour 10	Minimum Diurnal Speed Average: 1.3 km/h at hour 23	Hours of Missing Data: 1
Monthly Average Velocity: 3.0 km/h 301.4 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 9 Median = 11 Q <sub>3</sub> = 15 P <sub>90</sub> = 18 P <sub>99</sub> = 24	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-Apr	SSW26	SW23	SW19	NW18	WNW16	WNW15	WNW14	WNW20	WNW26	WNW25	NW26	NW25	NW24	NW19	WNW16	WNW18	WNW20	WNW17	WNW13	WNW11	W12	WNW11	WNW9	WNW8	WNW15.4	WNW26
2-Apr	SW5	SW9	SW11	SW12	SSW14	SSW13	SSW13	S14	S15	S17	S17	SSW19	SSW18	SSW16	SSW19	SSW19	S17	S16	S13	S13	SE10	SSE13	S11	WNW2	SSW12.9	SSW19
3-Apr	ESE4	SE11	SE7	SE9	SE4	WNW6	NW13	NNW20	NNW20	NW21	NW21	NW20	NW20	WNW18	WNW16	WNW16	WNW13	WNW12	WNW11	W13	WNW17	WNW15	WNW15	WNW15	WNW10.7	NW21
4-Apr	WNW13	WNW12	WNW13	WNW11	WNW10	WNW11	NW11	NNW9	NNW15	N11	N10	NNE9	NE10	ENE12	ENE12	ENE10	NNE10	NE8	NE9	NE9	ENE9	NE10	ENE10	ENE11	N6.7	NNW15
5-Apr	ENE11	ENE11	NE10	NNE10	NNE11	NE13	NNE12	NE12	NNE10	NNE11	NNE11	NE14	NE11	NE11	NE11	NE10	NNE10	NNE9	N8	NNE6	N6	N5	N5	N5	NNE9.2	NE14
6-Apr	N6	N6	N6	NNE8	NNE8	NNE7	N8	N8	N9	NNE9	NE7	NNE8	NE8	NNE8	N8	NE7	NE8	NE5	ENE5	ENE4	ENE4	NNW2	N2	NNE3	NNE6.0	N9
7-Apr	NW4	NW5	WNW4	SW2	SSW8	SW10	SW10	SW11	SW9	SW8	SW7	SW8	WSW8	WSW11	W13	WNW11	W11	W9	W7	W5	WNW7	WNW7	W7	WNW8	WSW7.0	W13
8-Apr	NW9	NW5	SSW7	SSW8	SSE9	SSE10	SSE11	SSE11	S10	W10	SW12	SSW11	SW13	SSW16	SSW17	S19	SSW13	S13	SSW9	SSW7	SSW9	SSW9	SSW8	S9	SSW8.9	S19
9-Apr	SSW8	SSW7	S8	S7	S8	W8	SW10	SW7	WNW14	NW14	WNW14	WNW13	WNW14	WNW15	W17	W17	W20	WNW17	W16	W13	W12	W14	W16	W17	W10.8	W20
10-Apr	WNW17	WNW15	WNW14	WNW16	WNW18	NW17	NW18	NW18	NW23	NW21	NNW19	NW21	NW26	NNW25	NNW20	N16	NNW13	N12	ENE10	ESE7	SE7	S7	S8	SSW8	NW11.6	NW26
11-Apr	S9	S9	SSW11	SSW10	SSW10	SSW13	S14	S14	S15	S15	S13	S13	SSW16	SSW16	SSW17	SSW16	S15	SSW15	SSE17	SSE16	SSE14	SSE18	SSE18	SSE18	S13.6	SSE18
12-Apr	SSE19	SSE17	S23	SSE19	SSE19	SE18	SE17	SE18	SE18	SE16	SE15	SSE11	SSW8	W10	W12	W10	W11	W8	S4	S8	SSW11	SW17	SW16	SW17	S10.5	S23
13-Apr	SW17	WSW14	WSW14	WSW14	WSW15	WSW18	WSW17	W16	WNW22	WNW22	NW22	WNW19	WNW21	WNW22	WNW20	WNW21	WNW20	NW15	NW12	WNW8	W8	W9	W9	WSW9	W14.8	WNW22
14-Apr	WSW10	WSW11	WSW12	WSW12	SW13	SW13	SW13	SW12	SSW9	SW13	WSW14	WSW16	W18	W18	W17	WSW16	W15	W9	W3	SSE6	SSE7	SE7	SSE7	S6	WSW9.8	W28
15-Apr	SW4	SW5	SSW6	SSW9	SSW9	SSW10	SW9	SW8	SW7	NNW7	N8	NNE9	NNE8	ENE10	ENE8	NNE8	N9	N6	NNE6	NNE7	NNE6	NNW6	NNW5	NNW7	WNW11.7	ENE10
16-Apr	NNW5	N5	NW6	NW8	NW9	NW11	NW9	NW10	NW11	NNW12	NNW14	NNW15	NNW12	UO	NNW7	NNW11	NNW8	N15	N14	N12	N9	N11	N10	N11	NNW10.0	N15
17-Apr	N9	N9	N10	NNW8	NNW10	NNW8	NNW10	NNW11	NNW14	N17	N18	N21	N21	N22	NNW23	N22	N21	N21	N18	N19	N17	NNE16	NNE18	N17	N15.6	NNW23
18-Apr	N12	NNW11	NNW11	NNW11	NNW11	N12	N14	N15	N16	NNE17	N17	N16	N19	N18	NNE17	N16	NNE17	NNE15	NNE14	N13	N11	N9	N9	N9	N13.6	N19
19-Apr	NNW9	N9	NNW8	NNW8	NNW8	NW7	NW6	NW6	NW8	NW8	NNW8	NNW8	NW7	WNW7	NW9	NW8	NW9	NW9	NW9	WNW7	W10	W11	W11	W12	NW7.6	W12
20-Apr	W13	WSW14	WSW15	W19	W19	W20	W17	WNW14	WNW14	WNW15	W12	W12	WSW13	WSW13	WSW12	WSW11	WSW12	SW10	SSW11	SSW9	SW9	SSW10	SSW14	SSW14	WSW11.9	W20
21-Apr	SSW14	SSW14	SSW13	S12	SSE11	SSE10	S11	SE9	SE12	SE16	SE16	SE15	SE11	S10	SE5	SE5	SSW11	WSW10	WSW6	W9	W11	W11	NW11	NW11	S6.4	SE16
22-Apr	NW10	NNW9	NW10	NW10	WNW11	WNW13	NNW10	NW7	NNW6	N8	N13	N16	N19	N16	NNW19	N14	NNE11	NNE4	NNE4	N6	NE9	NE9	NE8	NNW8.8	N19	
23-Apr	E7	N8	NNE7	N11	NNE12	NNE10	NE8	ENE11	ENE11	ENE10	E11	SE6	E6	ENE5	E3	N4	ENE10	E11	E9	E9	E9	ESE11	ESE10	ENE7.0	NNE12	
24-Apr	ESE12	ESE9	NE10	NE12	NE11	ENE12	ENE10	ENE8	E11	E17	E17	E20	ESE22	ESE22	ESE21	SE15	SSE16	S16	SSE14	SSW13	W9	S4	ENE4	WNW12	ESE8.4	ESE22
25-Apr	WNW12	WNW13	WNW14	WNW16	WNW15	W16	W16	WNW14	WNW14	WNW20	WNW19	WNW19	W16	W16	W16	W17	W17	WSW12	WNW17	WNW18	NNW16	NW13	WNW14	WNW13	WNW14.9	WNW20
26-Apr	NW13	NNW12	NNW13	NNW11	NNW11	NNW15	NNW13	NNW13	NNW12	NW17	NW19	NW13	NNW14	NNW13	N15	N12	N11	N10	NNW8	ENE9	ENE8	E9	ESE10	ESE10	NNW9.2	NW19
27-Apr	SE10	SSE13	SSE13	S15	S14	S14	S12	S16	S15	S17	SSE19	S22	S22	SSE19	S17	S18	SSE16	SSE14	SE13	SE10	SE11	SSE12	SSE7	E7	SSE13.9	S22
28-Apr	NE7	NE10	E8	E9	ESE10	SE10	SE8	SSE10	SSE10	SSE12	SE12	ESE9	E12	E15	ESE14	E14	SE11	ESE11	ESE12	ESE10	ESE10	ESE11	ESE10	E8	ESE9.5	E15
29-Apr	ESE8	E8	SE10	E4	E1	NW5	NNW4	N1	N7	N9	NE9	NE11	NE11	N12	NE13	NE12	NE14	NE14	NNE14	N12	N11	N12	N11	NNE11	NNE7.4	NNE14
30-Apr	NNE15	NNE16	N16	N13	N15	N16	N15	N17	N19	NNE17	NE17	NNE15	NNE15	N14	N14	N13	N12	NNW12	NNW14	NNW14	NNW11	NNW9	ENE6	N10	N13.3	N19

W2.3	W2.4	W3.2	W3.3	W2.9	W3.9	W3.9	NNW3.3	NW4.5	NW4.8	NNW4.2	NNW3.9	NW4.6	NW4.3	NW3.8	NW4.1	NW4.2	NW3.5	NNW2.3	NW1.6	NNW2.1	NNW1.5	W1.3	WNW2.4	Diurnal Average	
SSW26	SW23	S23	SSE19	W19	W20	NW18	NNW20	WNW26	WNW25	NW26	NW25	NW26	NNW25	NNW23	N22	N21	N21	N18	N19	N17	SSE18	NNE18	SSE18	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 10 km/h on Apr 1 11:00	Hours of Data: 719
Minimum Value: 1 km/h on Apr 10 21:00	Hours of Missing Data: 1
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 7 P <sub>99</sub> = 8	Hours of Calibration: 0
	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	8	7	6	7	5	5	5	8	9	9	10	8	9	8	7	8	7	6	4	3	3	3	2	1	10
2-Apr	2	1	1	2	3	2	3	3	5	5	6	7	6	5	6	6	6	5	3	3	3	2	3	2	7
3-Apr	3	2	3	2	2	3	5	6	7	6	6	6	7	6	6	5	5	5	4	5	4	4	4	7	
4-Apr	4	3	4	3	3	3	3	3	5	4	4	3	4	4	4	3	3	2	3	2	3	3	3	5	
5-Apr	3	3	3	3	3	4	3	3	3	3	3	4	4	3	4	3	3	3	2	2	2	2	1	4	
6-Apr	2	2	2	3	3	2	3	3	3	3	2	3	3	3	2	2	2	2	1	1	1	1	1	3	
7-Apr	1	2	2	1	2	2	2	3	3	3	2	3	4	4	5	4	4	4	3	1	1	1	1	5	
8-Apr	1	3	1	1	1	1	2	3	3	5	5	4	5	6	6	7	4	4	3	1	2	1	1	7	
9-Apr	2	2	2	1	1	2	2	3	5	5	5	5	6	6	6	7	7	6	6	4	3	4	4	7	
10-Apr	5	6	5	5	5	5	5	6	7	7	8	8	9	9	8	6	5	4	4	1	1	1	1	9	
11-Apr	1	1	2	2	2	3	3	3	4	5	4	5	6	6	6	6	6	5	5	5	4	5	5	6	6
12-Apr	6	6	8	6	5	5	5	6	6	5	5	5	3	6	4	5	4	4	1	2	3	5	4	5	8
13-Apr	5	4	4	4	5	6	5	6	8	8	7	7	8	7	8	7	7	6	4	3	2	2	2	8	
14-Apr	2	2	3	2	3	3	3	3	3	5	6	6	6	7	7	6	6	4	2	2	1	1	1	3	7
15-Apr	2	2	2	2	2	2	3	3	2	3	3	2	3	3	2	2	3	2	2	2	2	1	2	3	3
16-Apr	2	2	2	2	3	3	2	3	3	4	4	5	6	UO	6	6	6	7	7	7	6	7	7	7	7
17-Apr	6	7	7	6	7	6	7	7	7	9	8	8	8	8	8	8	8	8	7	7	5	6	6	6	9
18-Apr	4	3	3	3	4	4	5	5	6	6	6	5	6	6	6	6	6	5	5	5	3	2	2	2	6
19-Apr	2	1	1	1	1	1	1	2	2	3	3	4	4	4	4	3	4	4	3	1	2	2	3	3	4
20-Apr	3	4	4	6	6	5	5	5	5	5	5	5	5	5	5	4	4	3	3	1	1	2	3	3	6
21-Apr	3	3	3	2	1	2	2	3	4	6	5	6	5	5	4	4	4	3	2	3	3	2	2	1	6
22-Apr	2	1	1	1	2	3	3	3	2	2	3	6	7	6	6	7	6	4	2	2	2	2	2	2	7
23-Apr	1	1	2	3	3	3	2	3	3	4	4	5	4	4	2	3	4	4	3	2	2	2	2	5	
24-Apr	3	2	2	3	2	2	2	2	4	5	4	6	7	7	6	5	6	7	5	7	8	6	4	5	8
25-Apr	3	3	4	4	4	5	5	5	5	6	6	6	6	6	6	8	7	4	7	6	5	4	4	3	8
26-Apr	3	4	4	4	4	5	5	4	5	5	6	5	5	6	5	5	4	4	3	2	2	1	2	2	6
27-Apr	2	3	3	3	3	3	3	5	5	6	7	7	8	7	6	7	6	5	4	3	3	3	2	3	8
28-Apr	1	2	2	2	2	2	2	2	2	4	3	3	4	4	4	4	4	3	3	3	2	2	2	2	4
29-Apr	1	2	2	2	1	2	2	1	2	3	2	3	4	4	4	4	4	4	5	4	3	4	4	4	5
30-Apr	5	5	5	5	5	5	4	5	6	5	5	5	5	4	4	4	4	4	4	3	3	2	3	3	6

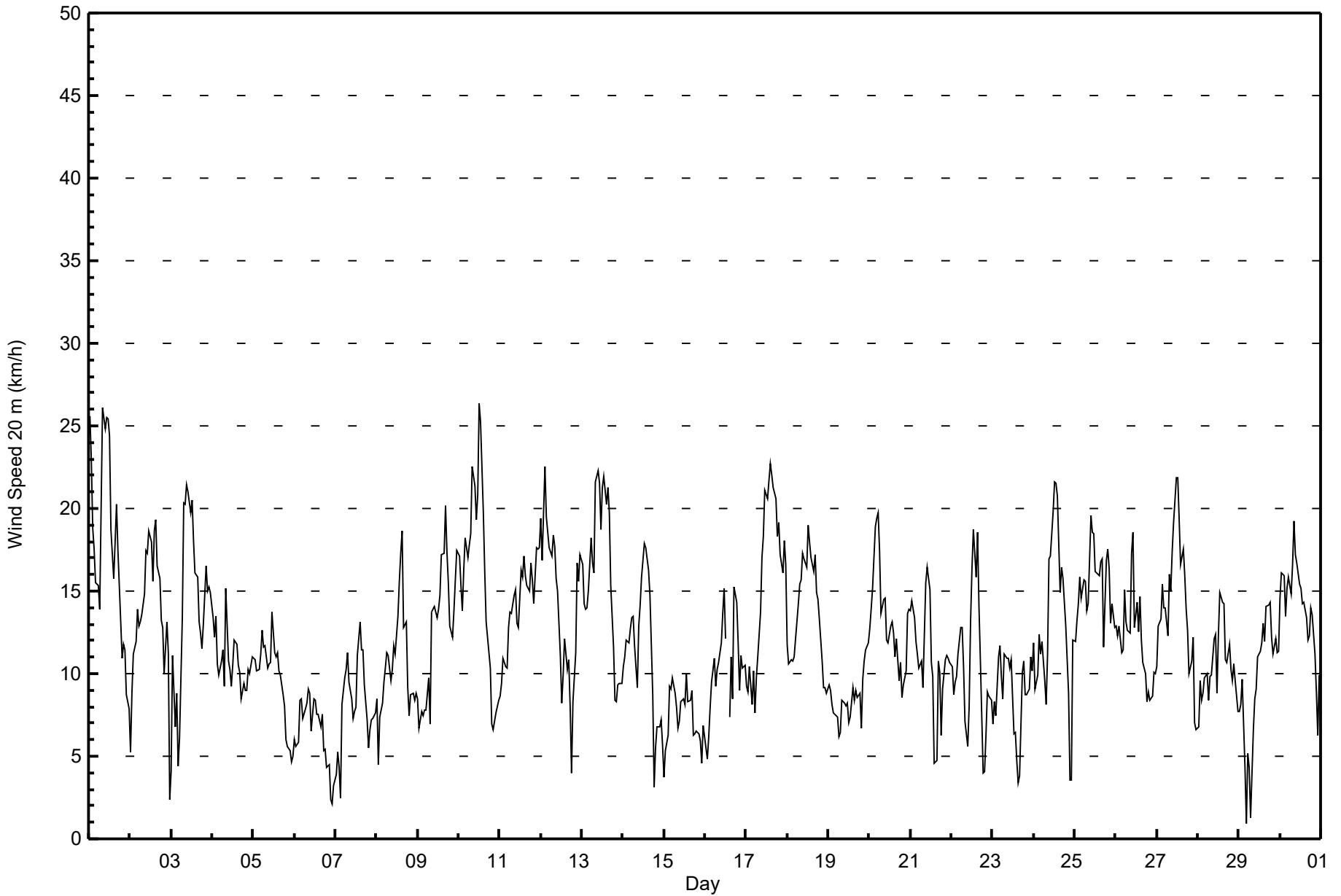
8	7	8	7	7	6	7	8	9	9	10	8	9	9	8	8	8	8	8	7	7	8	7	7	7	
Diurnal Maximum																									

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	41	5.70	5.70
6 - 11	322	44.78	50.49
12 - 19	310	43.12	93.60
20 - 28	46	6.40	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h  
Stony Mountain - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	7	3	1	5	3	1	3	0	2	1	3	0	2	3	3	4	41
6 - 11	36	27	25	20	13	14	16	13	14	26	16	10	19	19	24	30	322
12 - 19	43	15	9	3	5	3	13	21	28	23	13	18	31	50	15	20	310
20 - 28	6	0	0	0	1	3	0	0	3	1	1	0	2	12	12	5	46
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>	92	45	35	28	22	21	32	34	47	51	33	28	54	84	54	59	719

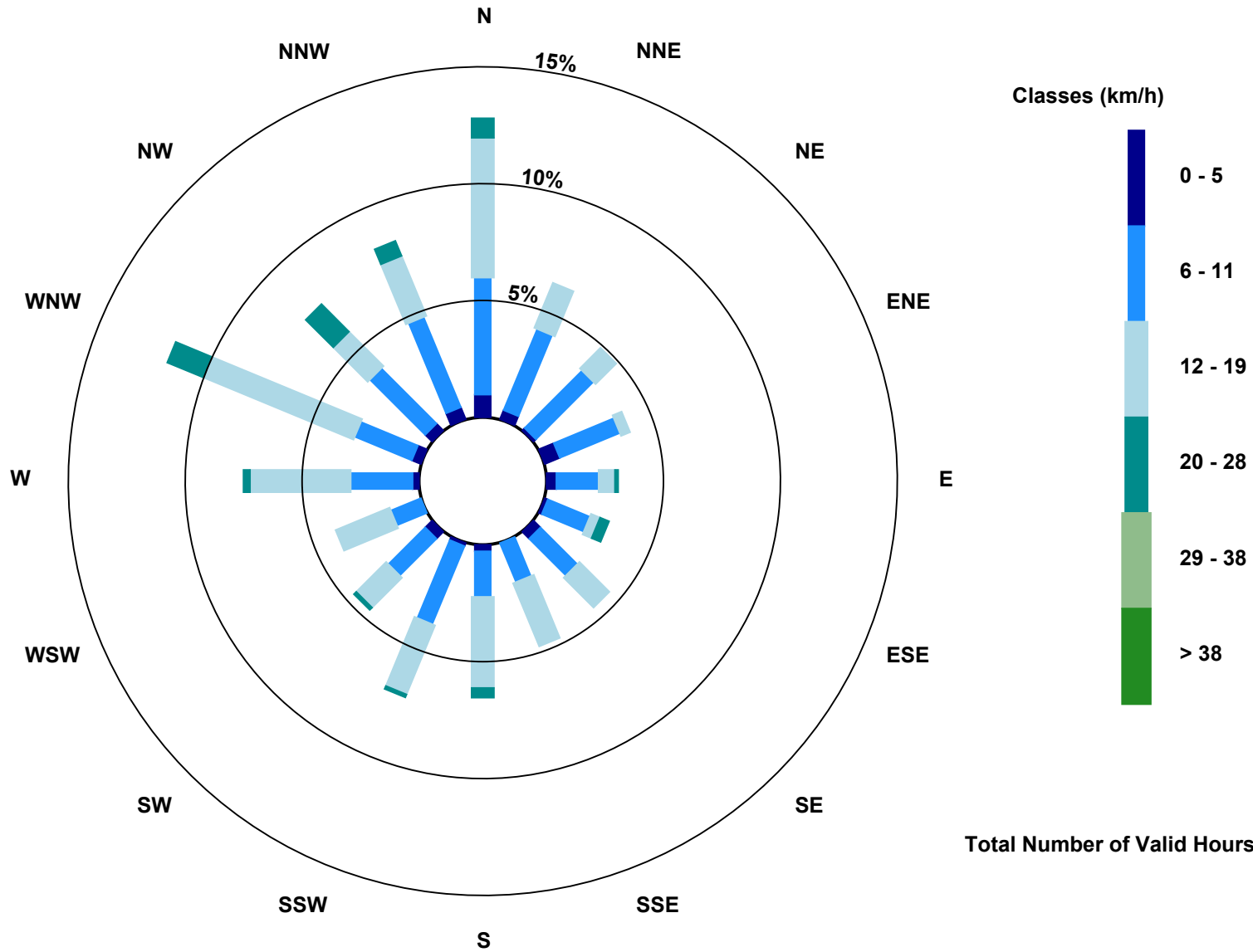
Total Number of Valid Hours: 719

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 20 m (WS20m) - km/h  
Stony Mountain



Total Number of Valid Hours: 719





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Stony Mountain - April 2024

Direction of Maximum Speed: 322 deg on Apr 10 13:00		Hours in Service:	720
Direction of Maximum Daily Speed Average: 357.4 deg on Apr 17		Hours of Data:	719
Direction of Minimum Speed: 92 deg on Apr 29 05:00		Hours of Missing Data:	1
Direction of Minimum Daily Speed Average: 1.7 deg on Apr 15		Percent Operational Time:	99.9
Monthly Average Direction: 301.4 deg			

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-Apr	200	214	234	305	300	286	285	290	293	300	306	311	313	321	303	292	299	296	298	286	280	286	290	293	288.5
2-Apr	235	218	216	214	207	198	199	190	186	191	188	193	208	200	196	198	185	184	175	174	146	153	182	283	192.7
3-Apr	121	141	135	140	131	301	311	330	336	320	316	310	306	291	288	298	299	291	290	277	282	287	286	288	300.5
4-Apr	292	286	289	290	288	301	322	333	345	355	354	13	38	59	66	61	31	38	43	35	58	52	57	74	4.5
5-Apr	72	61	50	28	31	43	31	39	30	23	33	34	39	38	41	35	25	24	11	24	5	350	353	355	32.9
6-Apr	358	355	351	24	17	12	358	3	357	26	36	19	46	12	6	43	44	51	68	68	66	342	358	16	21.1
7-Apr	319	318	295	233	194	224	230	222	235	233	234	229	237	252	260	285	271	269	259	279	288	293	275	295	255.8
8-Apr	304	304	206	194	148	150	157	161	175	277	217	210	220	204	202	184	194	187	201	194	213	210	204	190	198.0
9-Apr	208	204	175	177	190	279	226	231	303	309	297	300	283	283	268	270	277	283	271	273	276	267	273	279	270.1
10-Apr	285	289	283	290	299	305	312	321	322	325	330	321	322	338	344	354	336	356	61	105	134	175	179	194	318.9
11-Apr	186	185	194	198	197	197	184	184	185	184	187	190	198	201	199	197	176	197	166	166	155	154	154	161	181.9
12-Apr	161	166	177	165	147	144	136	143	139	139	143	158	194	269	279	271	260	264	191	181	200	214	215	219	178.1
13-Apr	233	244	250	242	240	251	253	262	283	291	304	285	289	285	282	296	294	310	313	296	276	277	268	257	276.0
14-Apr	251	247	245	239	229	222	217	218	210	223	252	250	276	263	259	257	264	259	278	157	164	137	167	187	238.5
15-Apr	214	217	213	200	195	197	231	225	223	327	10	27	21	64	66	18	349	358	21	29	14	344	334	328	341.7
16-Apr	329	351	325	321	322	313	318	316	323	344	341	344	346	UO	345	346	348	349	350	349	352	354	357	355	340.0
17-Apr	352	350	356	347	347	347	344	344	344	355	1	4	1	355	347	351	358	355	360	6	9	14	15	4	357.4
18-Apr	355	345	348	342	348	1	2	358	3	14	10	11	8	8	18	9	17	19	18	7	1	3	1	352	4.9
19-Apr	347	349	339	330	329	320	311	323	322	317	332	334	321	303	314	315	325	310	306	282	270	270	265	260	310.8
20-Apr	264	257	252	274	275	275	272	283	287	286	271	262	246	251	247	250	237	232	210	203	216	199	204	202	252.9
21-Apr	198	202	199	190	164	159	170	137	138	132	139	138	145	170	146	125	212	258	256	264	271	278	308	320	185.2
22-Apr	326	332	312	308	294	291	294	304	326	347	350	353	354	350	1	348	3	22	31	14	0	46	50	50	344.5
23-Apr	85	360	12	355	14	27	55	64	66	76	78	90	138	87	76	86	359	72	90	92	95	93	114	119	69.5
24-Apr	111	111	50	49	54	67	70	69	79	95	94	97	104	114	111	142	168	185	157	210	264	181	58	301	108.5
25-Apr	302	303	288	284	283	277	280	291	297	295	299	288	280	263	261	274	266	240	296	298	308	310	298	300	286.8
26-Apr	313	341	344	340	335	334	336	329	330	324	323	322	327	341	353	1	6	10	347	69	77	101	112	115	347.2
27-Apr	134	155	162	174	179	178	178	174	176	176	168	173	169	161	169	173	158	157	143	142	145	148	163	86	163.8
28-Apr	48	54	81	85	123	144	146	149	153	152	133	112	96	98	109	98	126	104	106	108	121	121	114	96	112.8
29-Apr	116	99	140	98	92	325	335	353	358	8	40	53	42	11	45	54	55	37	23	359	350	349	8	24	31.7
30-Apr	15	14	6	6	6	360	2	5	8	24	34	32	16	8	4	360	351	343	339	334	328	333	67	354	4.9

265.6 270.5 260.7 276.3 273.8 278.3 279.8 293.7 312.7 320.4 328.4 327.8 317.7 313.7 310.4 311.1 303.8 313.7 337.0 314.3 299.3 282.8 272.1 298.8

Diurnal Average

UO - Unstable Operation

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



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

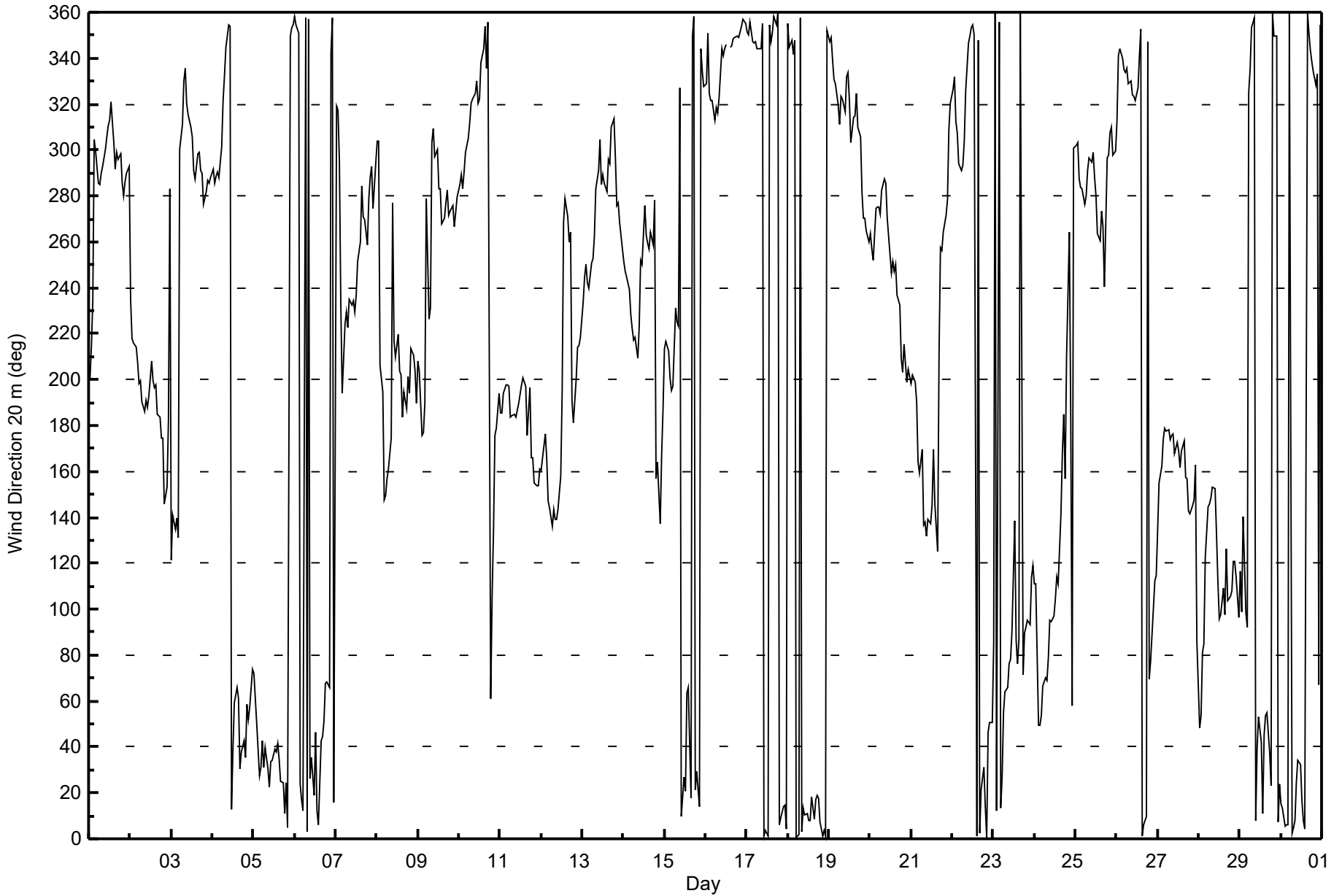
**Wind Direction 20 m (WD20m) - deg**  
**Stony Mountain - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 95 deg on Apr 23 16:00	Hours of Data: 719
Minimum Value: 7 deg on Apr 19 05:00	Hours of Missing Data: 1
	Hours of Calibration: 0
	Percent Operational Time: 99.9
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 14 Q <sub>1</sub> = 17 Median = 21 Q <sub>3</sub> = 26 P <sub>90</sub> = 34 P <sub>99</sub> = 69	

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-Apr	20	19	21	31	22	20	20	23	23	24	23	23	22	22	28	26	24	24	19	18	17	17	14	11	31
2-Apr	34	10	7	12	15	14	14	16	21	21	24	27	25	23	25	19	24	20	17	14	18	10	27	65	65
3-Apr	64	11	40	13	60	69	15	18	21	19	18	19	19	22	23	23	25	27	20	19	19	18	18	18	69
4-Apr	16	17	18	18	19	20	16	21	22	28	28	32	30	26	27	32	29	29	20	24	17	17	18	17	32
5-Apr	17	18	20	18	22	18	19	18	21	21	21	19	20	23	20	21	22	22	21	23	21	23	24	20	24
6-Apr	20	20	20	20	21	20	21	19	20	28	29	30	24	32	27	29	22	24	20	19	16	41	46	27	46
7-Apr	18	13	37	57	21	12	17	16	21	24	30	34	40	37	29	29	31	28	20	15	8	11	9	10	57
8-Apr	10	51	8	15	8	11	13	16	23	45	36	31	31	30	27	25	23	23	18	10	13	11	10	11	51
9-Apr	26	30	24	15	21	36	14	31	21	22	23	29	34	30	27	29	24	23	22	19	16	19	19	19	36
10-Apr	20	20	21	20	20	19	19	19	19	20	21	23	22	21	24	27	25	30	27	15	16	16	17	11	30
11-Apr	13	15	10	11	12	14	14	15	19	21	30	32	31	33	28	31	30	27	22	19	17	17	18	20	33
12-Apr	18	21	20	21	19	20	19	20	21	22	22	30	26	49	32	38	30	29	35	12	15	17	17	16	49
13-Apr	18	18	20	18	19	22	22	28	25	25	23	27	26	26	24	22	24	21	20	19	14	15	15	16	28
14-Apr	15	15	14	12	12	13	15	16	30	28	36	33	29	34	31	29	33	36	50	16	10	27	22	48	50
15-Apr	57	31	38	18	14	14	26	40	15	29	28	25	23	21	27	20	18	20	20	24	25	21	33	19	57
16-Apr	20	24	18	17	18	17	15	16	16	19	19	20	19	UO	17	20	20	21	21	21	20	20	21	20	24
17-Apr	20	20	19	19	18	18	19	19	20	23	25	26	24	25	25	24	23	25	24	22	23	23	22	22	26
18-Apr	20	19	17	17	19	20	21	21	22	23	23	22	23	26	24	26	23	24	23	22	19	17	17	15	26
19-Apr	14	13	11	7	7	10	12	22	27	33	38	50	59	53	46	43	36	38	21	22	15	16	17	17	59
20-Apr	17	19	19	20	19	19	22	22	23	24	32	34	35	37	36	36	31	31	22	13	9	11	15	14	37
21-Apr	15	15	14	12	10	12	17	20	21	24	28	33	47	64	78	76	43	24	34	20	15	17	16	9	78
22-Apr	11	17	9	10	11	12	14	17	33	51	48	38	29	27	31	26	29	27	34	35	16	25	24	16	51
23-Apr	21	26	41	17	18	18	21	21	25	30	33	42	69	61	37	95	92	38	19	14	13	13	14	18	95
24-Apr	20	19	18	13	12	13	15	22	21	19	21	22	23	25	20	29	26	29	28	42	67	85	78	20	85
25-Apr	16	17	18	18	18	20	20	20	25	22	25	26	28	37	31	28	37	30	24	22	20	19	18	18	37
26-Apr	17	22	21	21	19	20	21	21	24	20	24	37	33	37	32	35	37	32	30	20	17	12	12	12	37
27-Apr	14	11	13	14	13	13	16	20	27	28	25	24	24	23	24	24	23	23	18	16	15	16	36	61	61
28-Apr	21	15	16	13	15	11	15	15	15	24	22	32	25	22	23	20	26	25	20	15	15	14	15	15	32
29-Apr	13	17	12	27	66	37	35	83	28	31	22	17	23	31	26	31	22	25	23	20	19	21	20	21	83
30-Apr	21	20	19	20	20	19	20	19	20	22	21	21	21	21	20	19	20	19	17	15	14	22	40	20	40
	64	51	41	57	66	69	35	83	33	51	48	50	69	64	78	95	92	38	50	42	67	85	78	65	

Diurnal Maximum

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS19  
FIREBAG  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
 APRIL 2024

MONTHLY SUMMARY

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	686	34	34	100	15.1	0	2.4	0
H2S (ppb) Average	684	35	36	99.86	2.9	0	0.4	0
THC (ppm) Average	686	34	34	100	2.8	-	2.4	-
NO2 (ppb) Average	661	40	59	97.36	38.4	0	7.2	-
NO (ppb) Average	661	40	59	97.36	25.1	-	2.1	-
NOX (ppb) Average	661	40	59	97.36	54.4	-	9.3	-
Temperature 2 m (C) Average	720	0	0	100	15.8	-	9.5	-
Relative Humidity (%) Average	720	0	0	100	98	-	94	-
Wind Speed 10 m (km/h) Average	639	0	81	88.75	32	-	23	-
Wind Direction 10 m (deg) Average	639	0	81	88.75	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	0.54	1.5	-	0	0	0	0.1	0.2	1.5	15.1
H2S (ppb) Average	684	0.11	0.2	-	0	0	0	0	0.1	0.2	2.9
THC (ppm) Average	686	2.25	0.1	-	2.1	2.2	2.2	2.2	2.3	2.3	2.8
NO2 (ppb) Average	661	2	3.3	-	0.1	0.2	0.4	0.9	2.3	4.6	38.4
NO (ppb) Average	661	0.31	1.3	-	0	0	0	0.1	0.2	0.7	25.1
NOX (ppb) Average	661	2.31	4.2	-	0.1	0.2	0.4	1	2.6	5.5	54.4
Temperature 2 m (C) Average	720	3.26	5.5	-	-11.5	-3.1	-0.4	2.7	7.2	10.9	15.8
Relative Humidity (%) Average	720	59.78	26.7	-	11	25.7	35.8	57.1	88.7	95.1	98
Wind Speed 10 m (km/h) Average	639	14.2	6	-	1	6	10	14	19	23	32
Wind Direction 10 m (deg) Average	639	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2	03 Apr 2024 17:00	04 Apr 2024 10:00	18	Maintenance - replaced sample pump
NO2, H2S	22 Apr 2024 13:00	22 Apr 2024 13:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	03 Apr 2024 23:00	04 Apr 2024 13:00	15	Flat line in sensor output signal
Wind Speed, Wind Direction	04 Apr 2024 19:00	05 Apr 2024 11:00	17	Flat line in sensor output signal
Wind Speed, Wind Direction	05 Apr 2024 13:00	05 Apr 2024 13:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	16 Apr 2024 03:00	17 Apr 2024 14:00	36	Flat line in sensor output signal
Wind Speed, Wind Direction	17 Apr 2024 21:00	18 Apr 2024 08:00	12	Flat line in sensor output signal



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 15.1 ppb on Apr 19 12:00	Maximum Daily Average: 2.4 ppb on Apr 19		Hours of Data:	686
Minimum Value: 0.0 ppb on Apr 1 04:00	Minimum Daily Average: 0.0 ppb on Apr 29		Hours of Missing Data:	34
Maximum Diurnal Average: 1.1 ppb at hour 11	Minimum Diurnal Average: 0.2 ppb at hour 14		Hours of Calibration:	34
Monthly Average: 0.54 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 1.5 P <sub>99</sub> = 7.8		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-Apr	0.4	0.5	Z	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
2-Apr	0.0	0.0	0.2	Z	0.1	0.1	0.4	0.8	1.0	0.6	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	1.0
3-Apr	0.1	0.2	0.8	0.8	Z	0.6	0.6	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
4-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.3	2.0	3.7	3.2	0.5	3.7
5-Apr	Z	0.4	0.4	0.3	0.3	0.5	1.8	5.2	4.0	4.9	2.9	1.2	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	1.1	5.2
6-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.5
7-Apr	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.3	0.1	0.4	1.7	3.6	2.1	1.1	0.2	0.3	1.4	3.1	2.8	3.6	1.0	3.6
8-Apr	3.3	3.3	0.5	Z	0.3	1.1	1.4	1.5	8.5	5.4	3.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.3	8.5
9-Apr	0.0	0.1	0.0	0.1	Z	0.2	0.0	0.1	0.2	0.4	4.4	6.9	4.9	3.0	2.5	2.1	0.4	0.3	0.6	0.4	0.1	0.3	0.2	0.0	1.2	6.9
10-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
12-Apr	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1
13-Apr	0.1	0.1	Z	2.1	1.4	2.0	2.4	0.7	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4
14-Apr	0.0	0.0	0.1	Z	0.8	1.1	3.6	2.1	8.5	7.7	3.1	0.7	0.0	0.2	1.4	2.3	2.0	1.6	0.8	0.5	0.3	0.3	3.4	5.2	2.0	8.5
15-Apr	0.2	0.1	0.1	0.4	Z	0.0	0.0	0.1	0.2	0.1	0.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
16-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
17-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1
18-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
19-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.4	0.3	5.1	15.1	9.0	0.5	0.2	0.3	0.7	4.3	4.9	3.5	0.8	0.7	4.6	5.1	2.4	15.1
20-Apr	2.6	1.4	1.8	Z	4.6	4.7	5.1	4.5	4.0	2.1	1.7	0.7	0.5	0.4	0.3	0.2	0.6	1.5	3.3	3.4	1.1	0.1	0.1	0.1	1.9	5.1
21-Apr	0.2	0.6	1.2	0.9	Z	0.3	0.2	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.8	0.3	0.1	0.2	0.2	0.3	0.1	0.3	1.2
22-Apr	0.1	0.1	0.0	0.0	0.1	Z	0.1	0.2	0.3	0.2	C	C	C	C	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.3
23-Apr	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	4.3	4.3
24-Apr	3.4	Z	11.3	10.1	0.3	7.2	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.8	0.8	1.1	0.2	2.7	3.8	1.5	2.3	0.6	0.1	0.1	2.1	11.3
25-Apr	0.1	0.1	Z	0.1	0.3	0.3	0.6	0.6	1.0	0.6	8.1	0.3	0.1	0.1	0.2	0.4	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.6	8.1
26-Apr	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.2
27-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.2	0.3	0.3	0.3	0.5	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.5
28-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.4	0.3	0.7	0.6	0.4	0.8	0.6	0.6	1.0	0.8	1.1	1.0	0.6	0.2	0.3	0.4	0.2	0.5	0.5	0.4	0.2	0.3	0.5	0.7	Diurnal Average	
3.4	3.3	11.3	10.1	4.6	7.2	5.1	5.2	8.5	7.7	8.1	15.1	9.0	3.0	2.5	3.6	2.1	4.3	4.9	3.5	2.3	3.1	4.6	5.2	Diurnal Maximum	

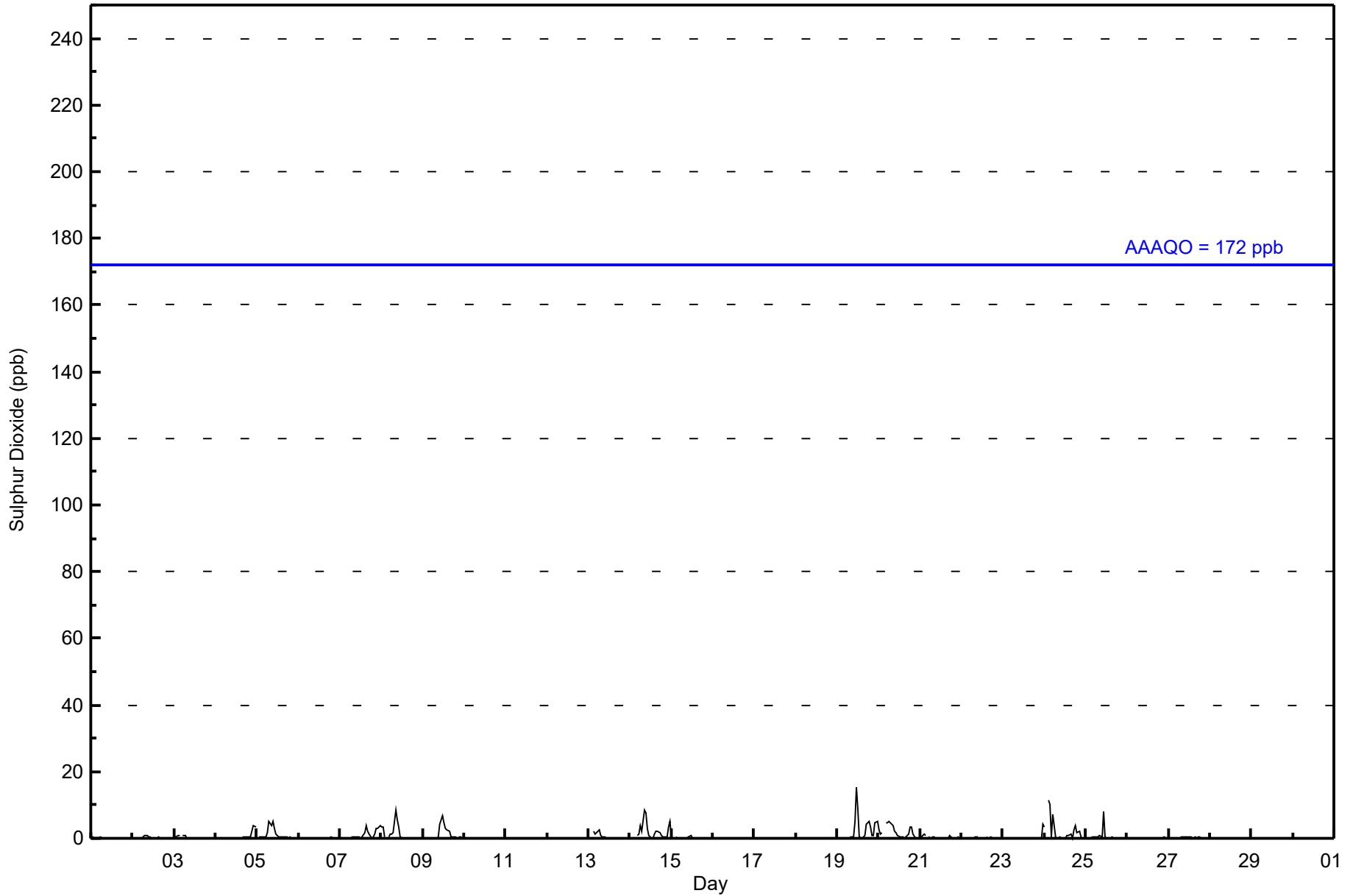
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Firebag - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	684	99.71	99.71
11 - 20	2	0.29	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 10	35	80	34	19	13	39	40	58	47	40	57	21	27	32	15	51	608
11 - 20	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
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>	35	80	34	19	13	40	40	58	47	40	57	21	27	33	15	51	610

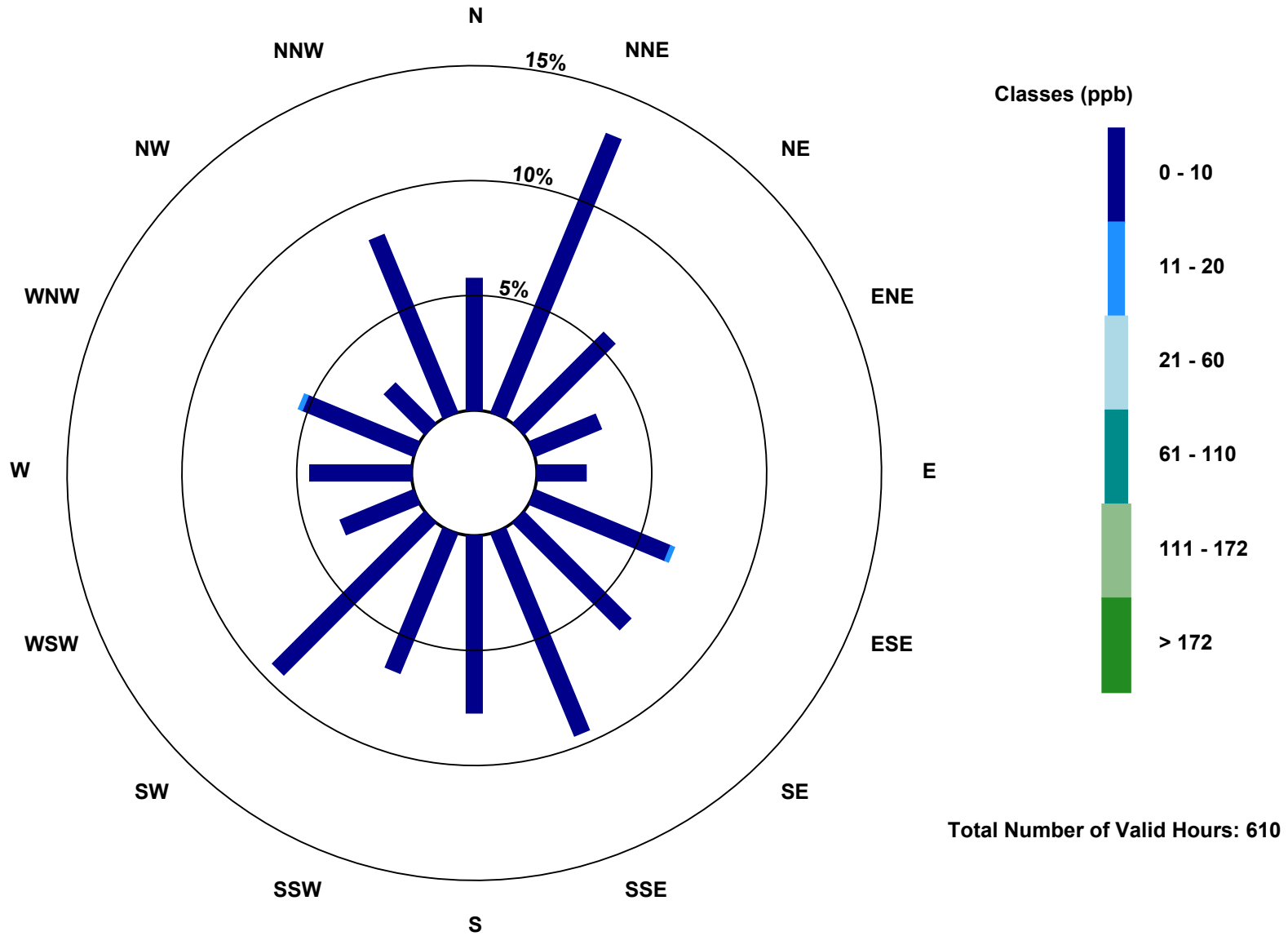
Total Number of Valid Hours: 610

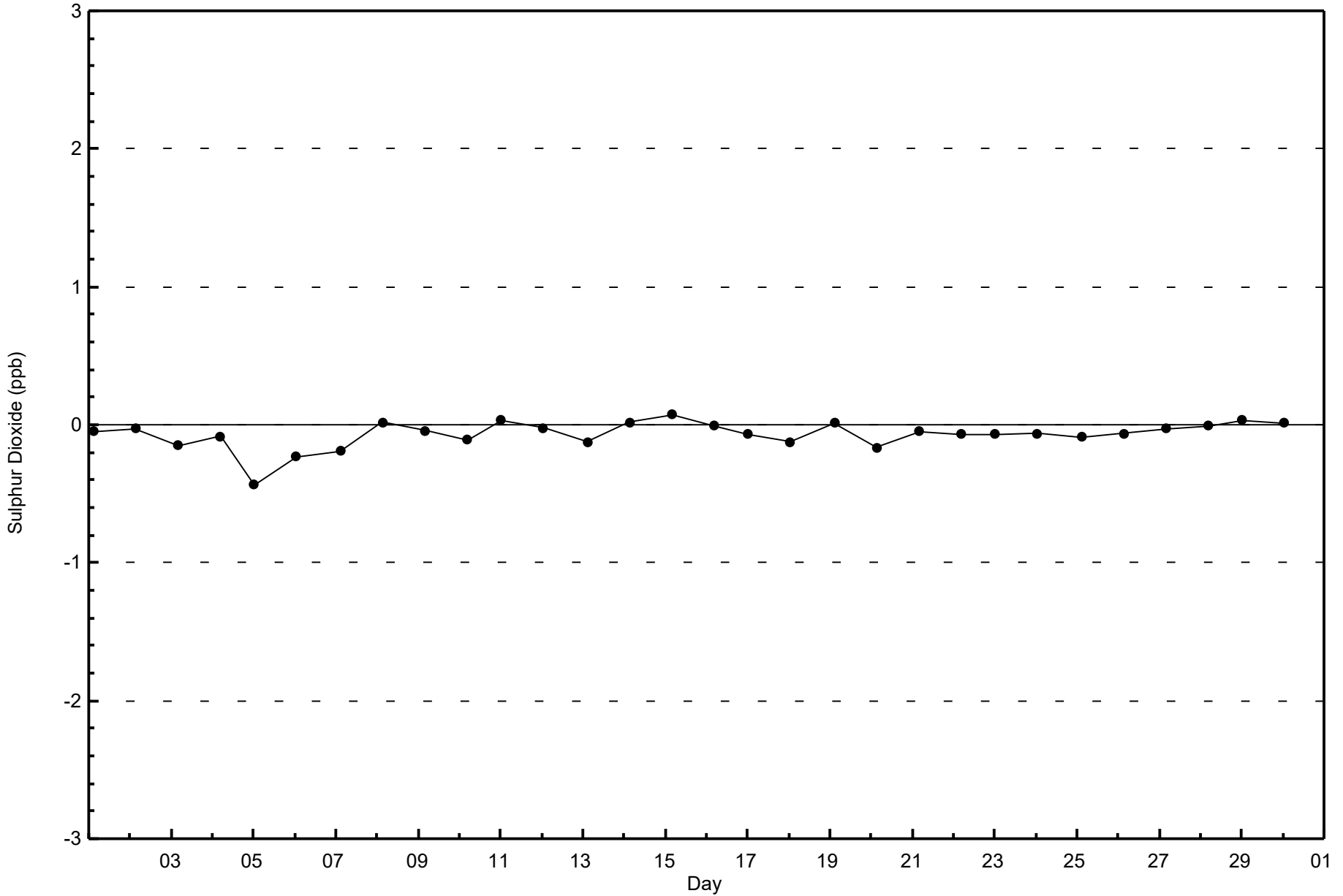
Total Number of Hours: 720

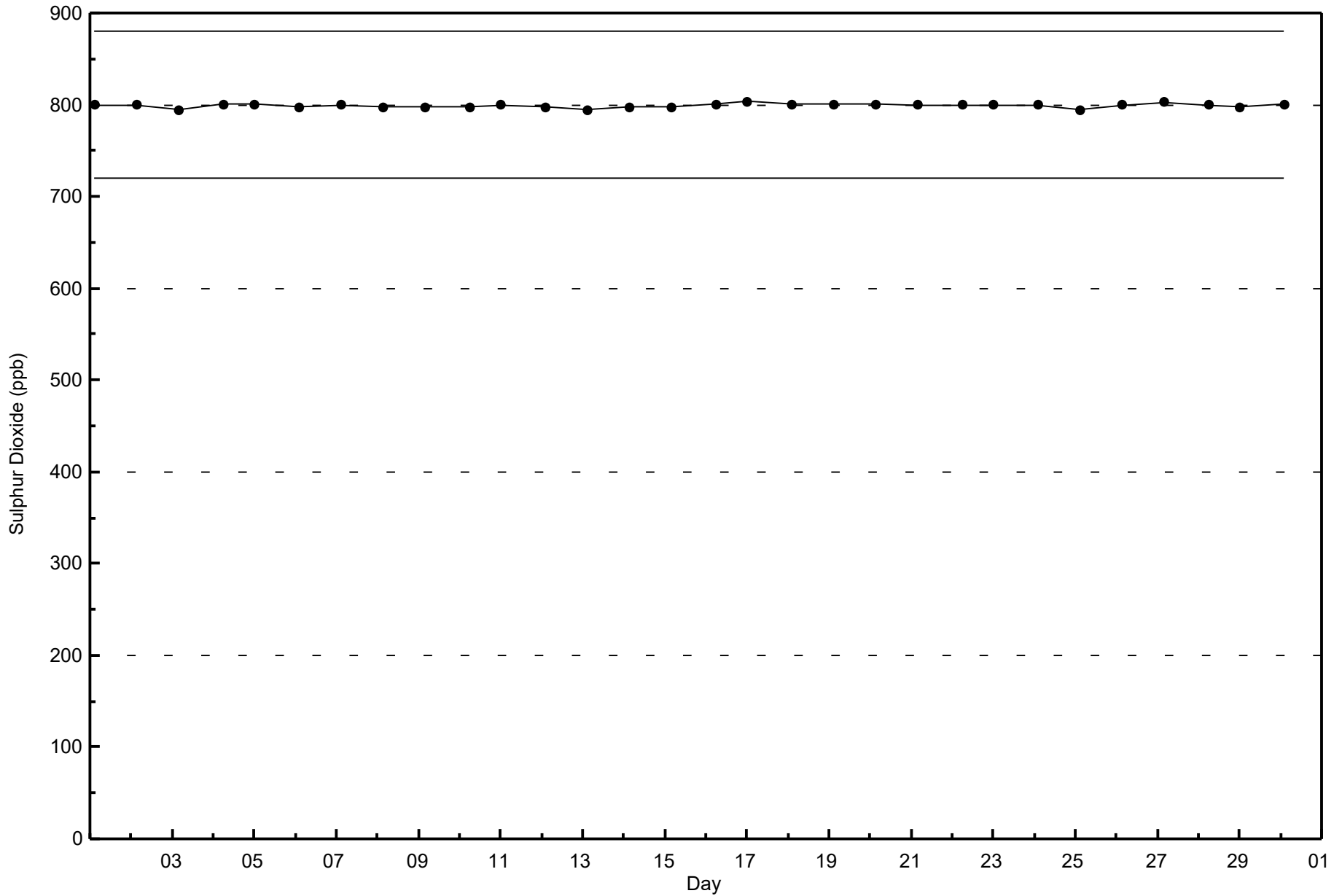


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

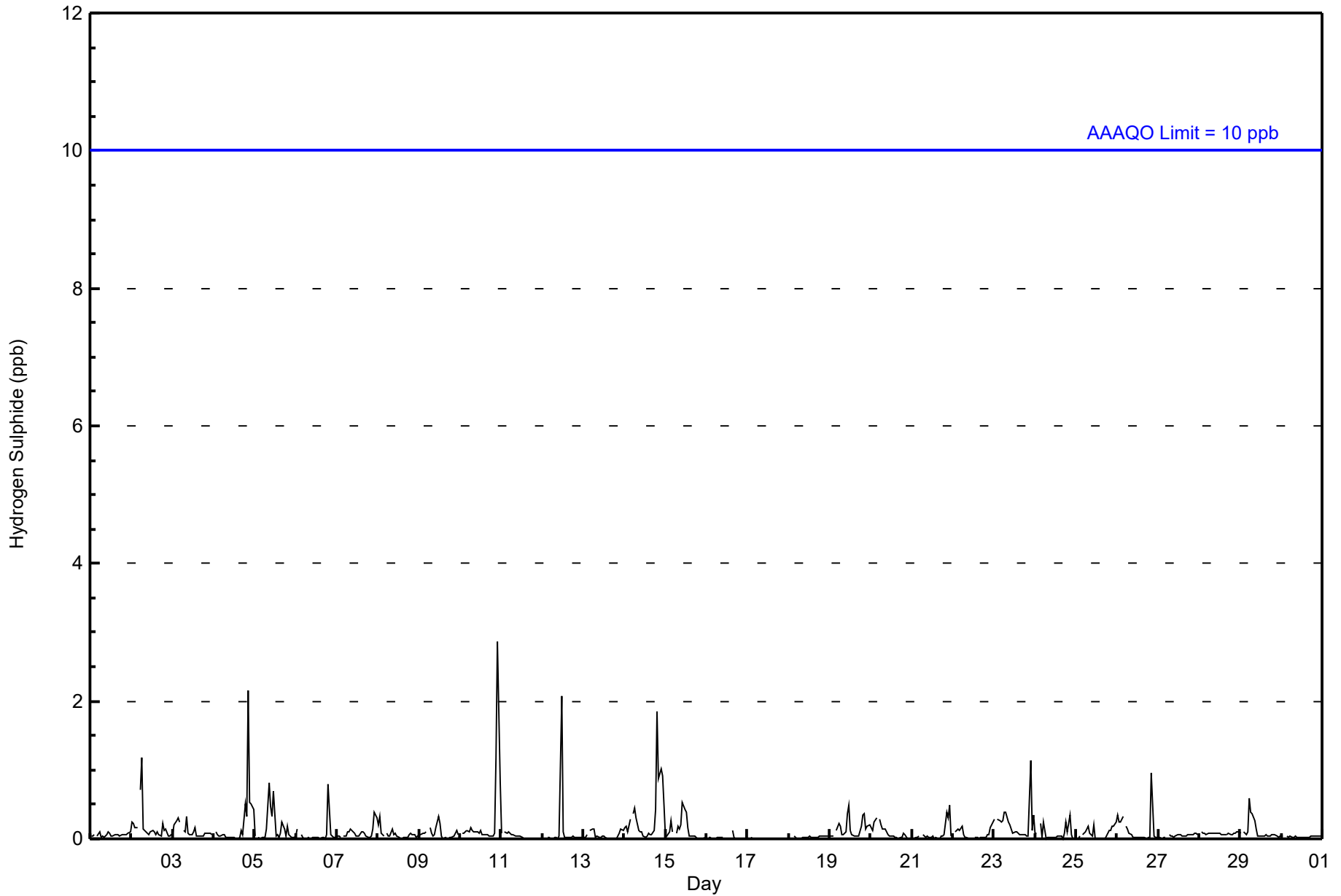
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Firebag















**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	683	99.85	99.85
3 - 4	1	0.15	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Firebag - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	35	81	35	19	11	39	41	57	49	39	57	21	27	33	16	51	611
3 - 4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	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>	35	81	35	19	12	39	41	57	49	39	57	21	27	33	16	51	612

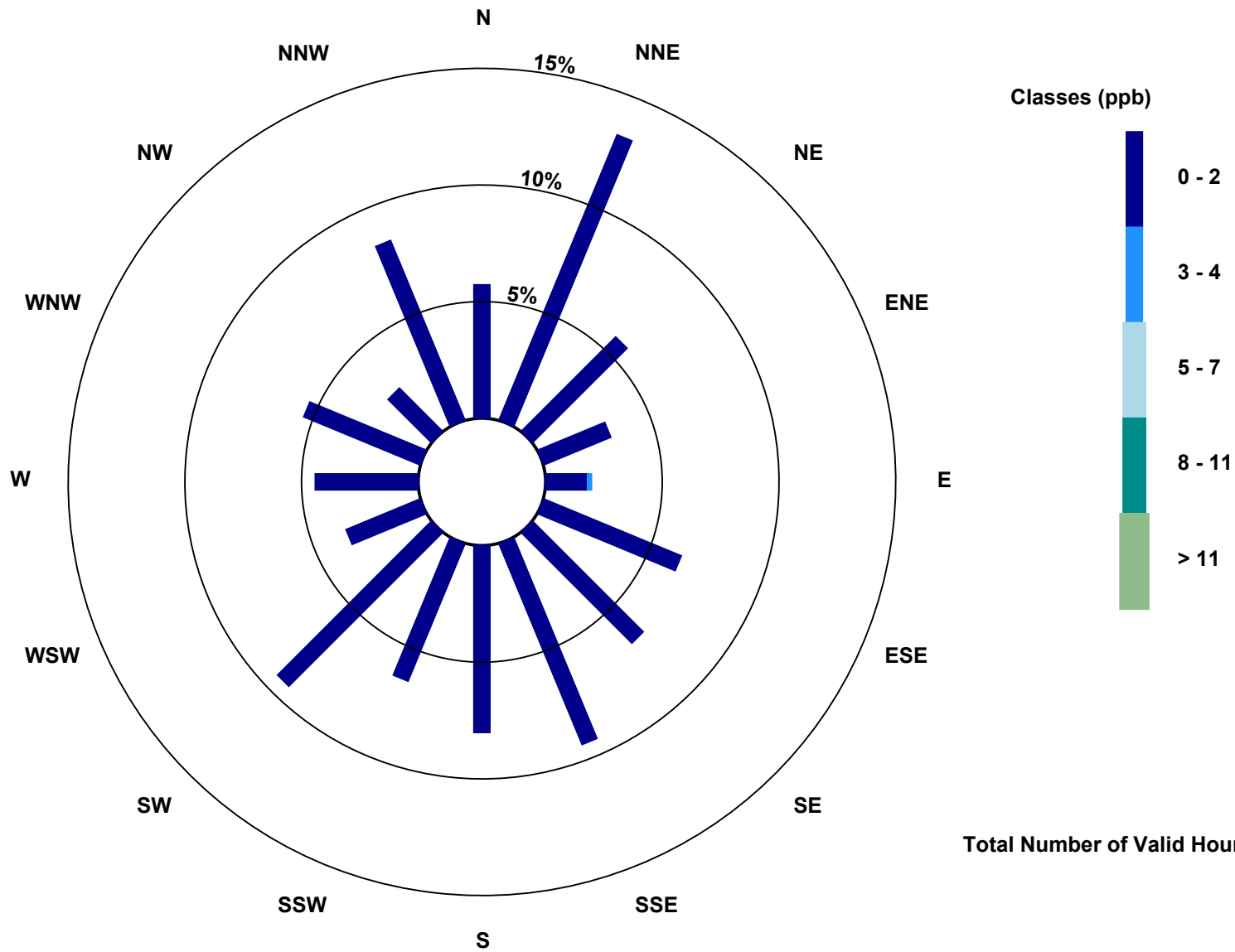
Total Number of Valid Hours: 612

Total Number of Hours: 720

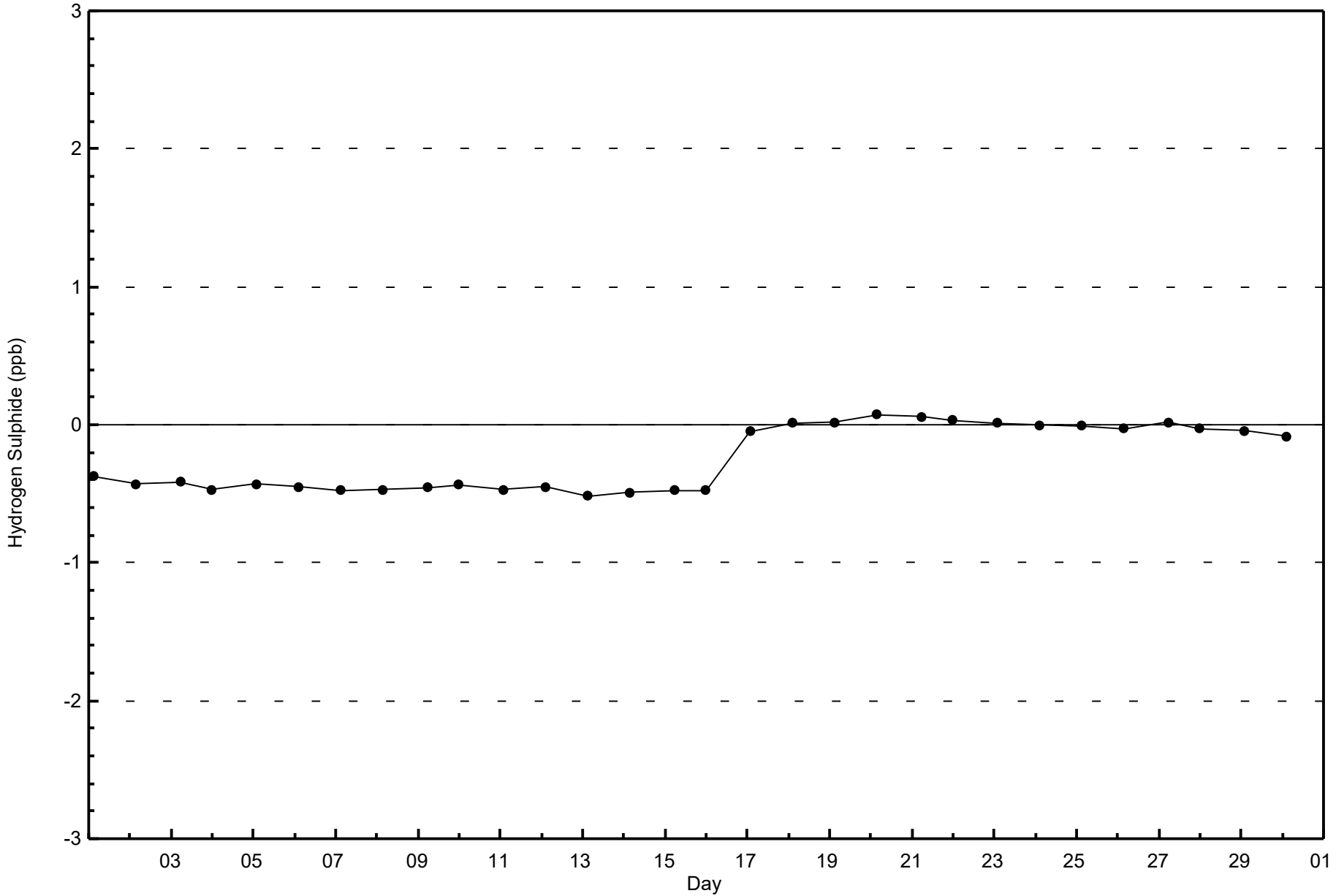


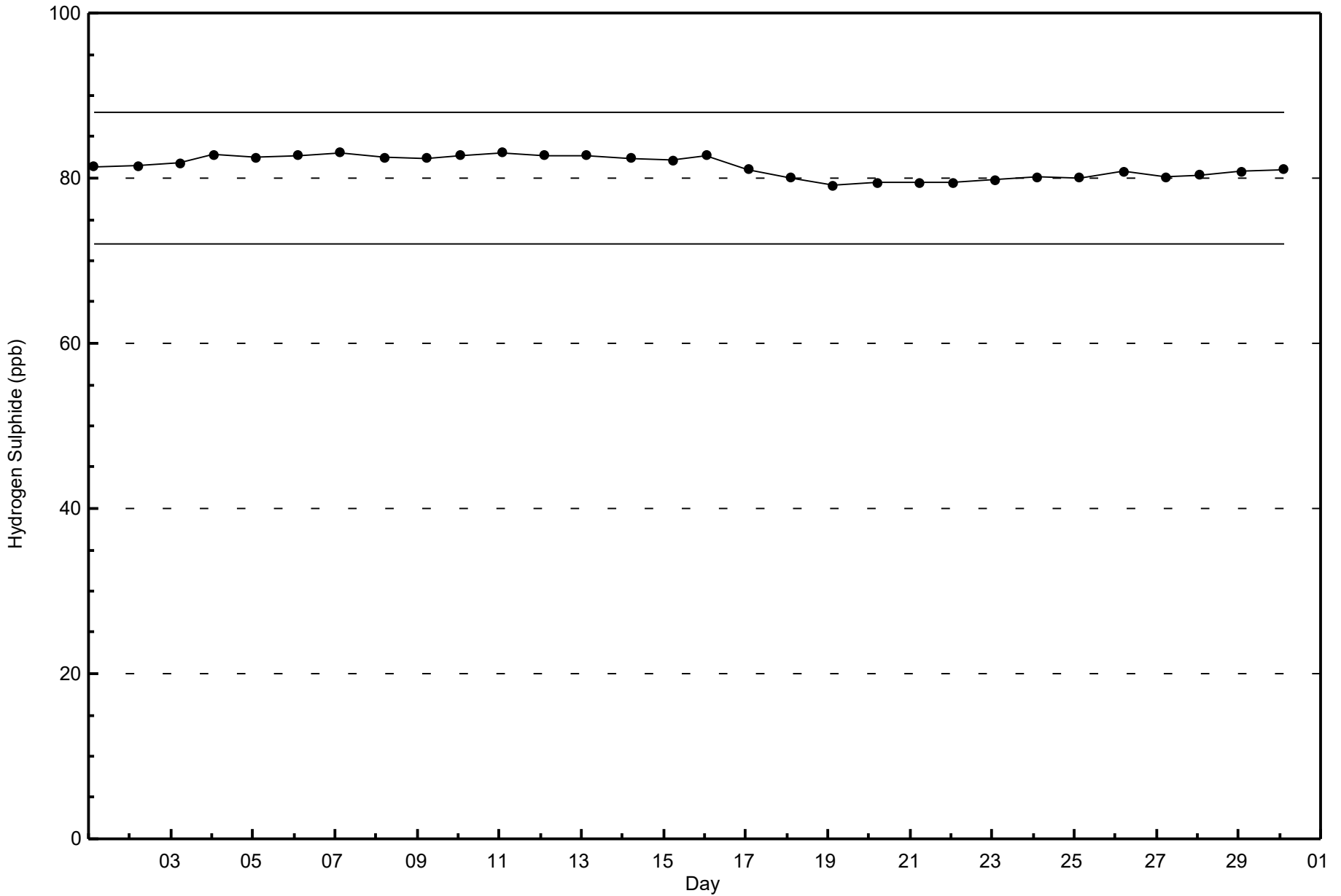
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



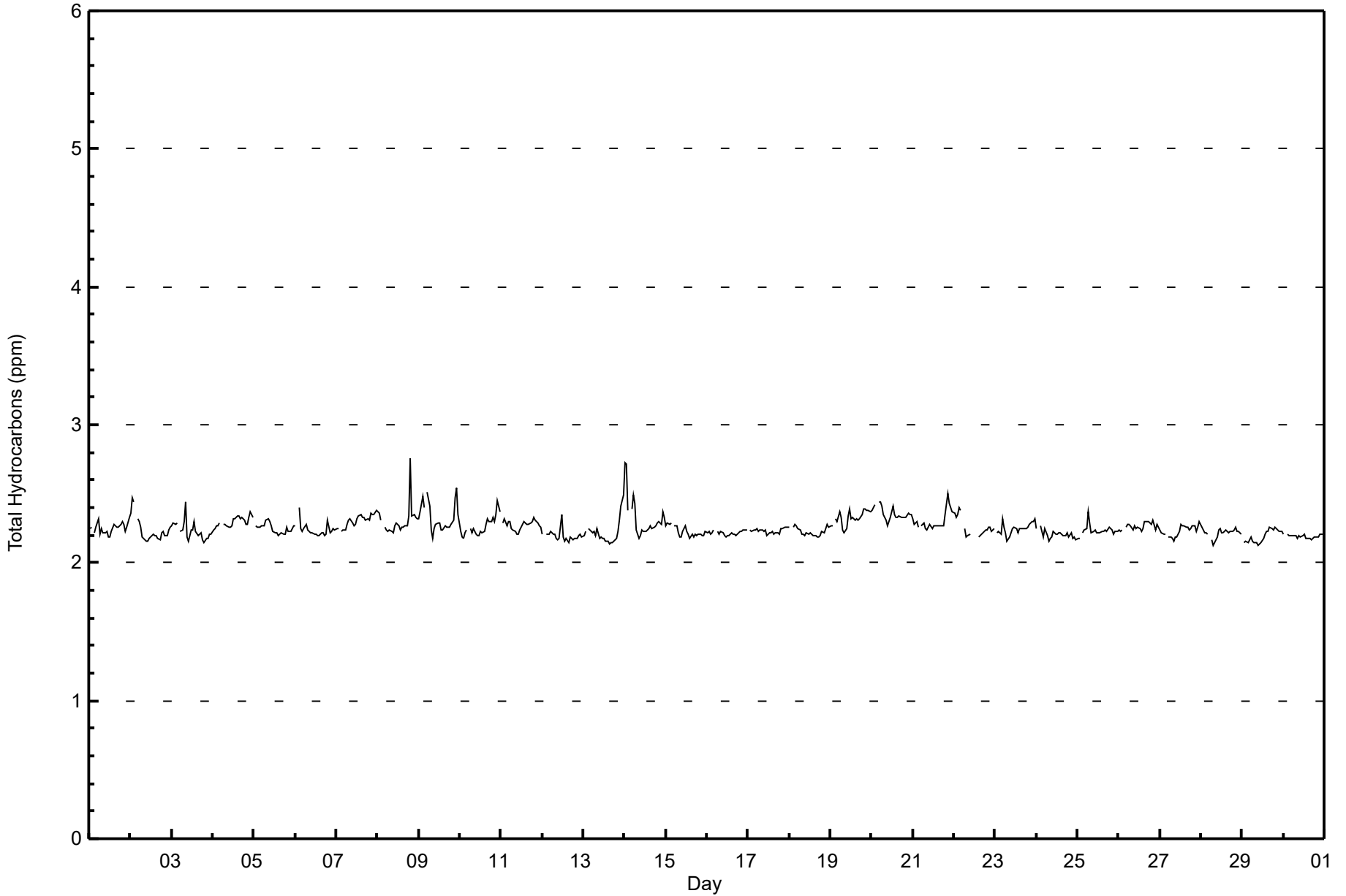
Total Number of Valid Hours: 612







Maximum Value: 2.8 ppm on Apr 8 20:00																				Maximum Daily Average: 2.4 ppm on Apr 20					Hours in Service: 720								
Minimum Value: 2.1 ppm on Apr 29 10:00																				Minimum Daily Average: 2.2 ppm on Apr 30					Hours of Data: 686								
Maximum Diurnal Average: 2.3 ppm at hour 23																				Minimum Diurnal Average: 2.2 ppm at hour 10					Hours of Missing Data: 34								
Monthly Average: 2.25 ppm																				Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.2 Median = 2.2 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.5					Hours of Calibration: 34								
																				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-Apr	2.3	2.3	Z	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3							
2-Apr	2.4	2.5	2.4	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3							
3-Apr	2.3	2.3	2.3	2.3	Z	2.2	2.2	2.3	2.4	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
4-Apr	2.2	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3							
5-Apr	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.2	2.3							
6-Apr	2.3	Z	2.4	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2							
7-Apr	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.3	2.4							
8-Apr	2.4	2.4	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.8	2.3	2.4	2.3	2.3	2.3							
9-Apr	2.3	2.4	2.5	2.4	Z	2.5	2.4	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.5	2.4	2.3	2.5							
10-Apr	2.2	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4							
11-Apr	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3							
12-Apr	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
13-Apr	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.2	2.5							
14-Apr	2.7	2.7	2.4	Z	2.4	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.7							
15-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
16-Apr	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
17-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.2							
18-Apr	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2							
19-Apr	2.3	2.3	Z	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3							
20-Apr	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.4							
21-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.4	2.4	2.4	2.3	2.5							
22-Apr	2.4	2.3	2.4	2.4	2.4	Z	2.2	2.2	2.2	2.2	C	C	C	C	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.4							
23-Apr	Z	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3							
24-Apr	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
25-Apr	2.2	2.2	Z	2.2	2.2	2.2	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4							
26-Apr	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3							
27-Apr	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3							
28-Apr	2.3	2.2	2.2	2.2	2.2	Z	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2							
29-Apr	Z	2.1	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2							
30-Apr	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Firebag - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	0	0.00	0.00
2.1 - 3.0	686	100.00	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Firebag - April 2024**

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	35	80	34	19	13	40	40	58	47	40	57	21	27	33	15	51	610
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>	35	80	34	19	13	40	40	58	47	40	57	21	27	33	15	51	610

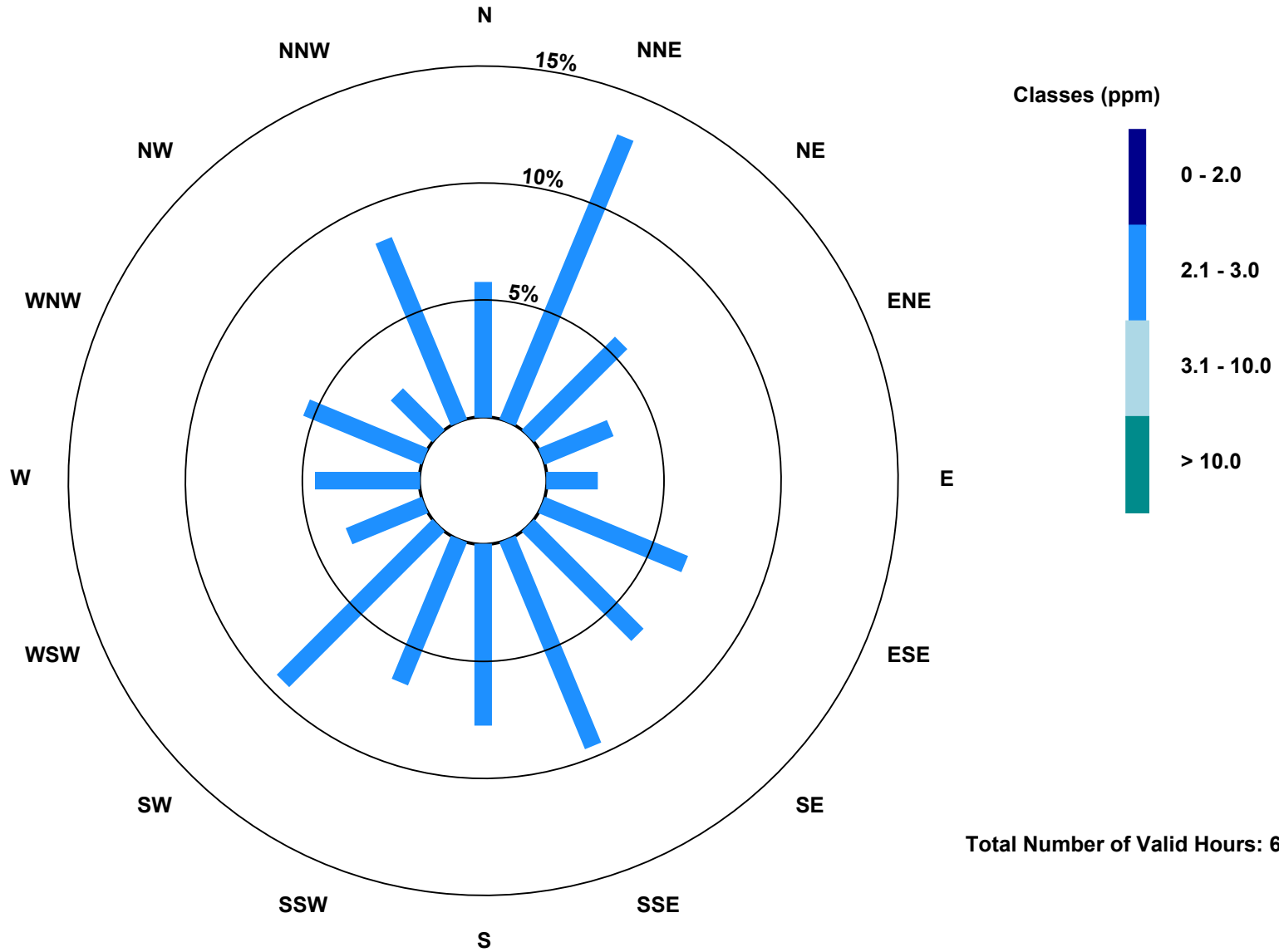
Total Number of Valid Hours: 610

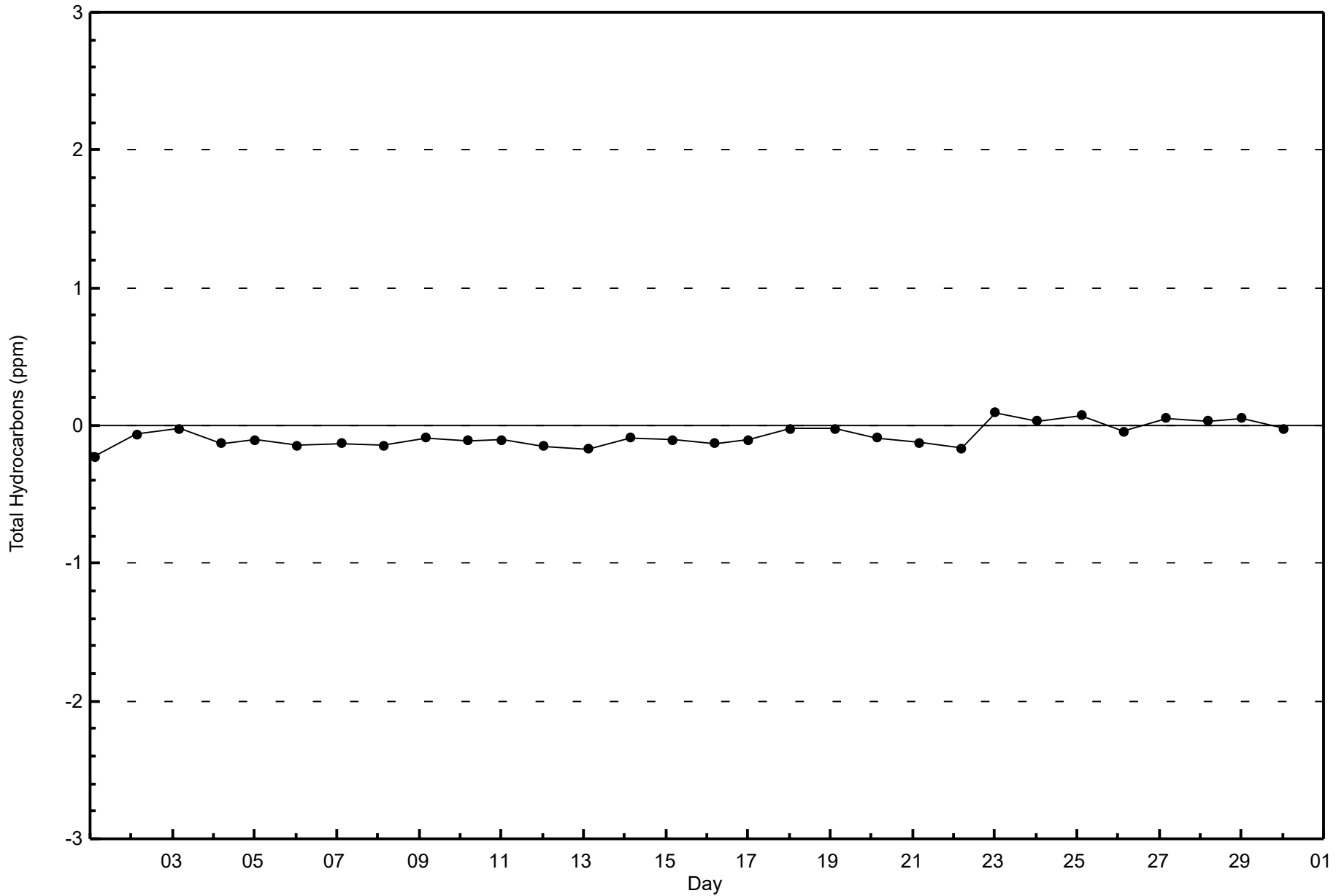
Total Number of Hours: 720

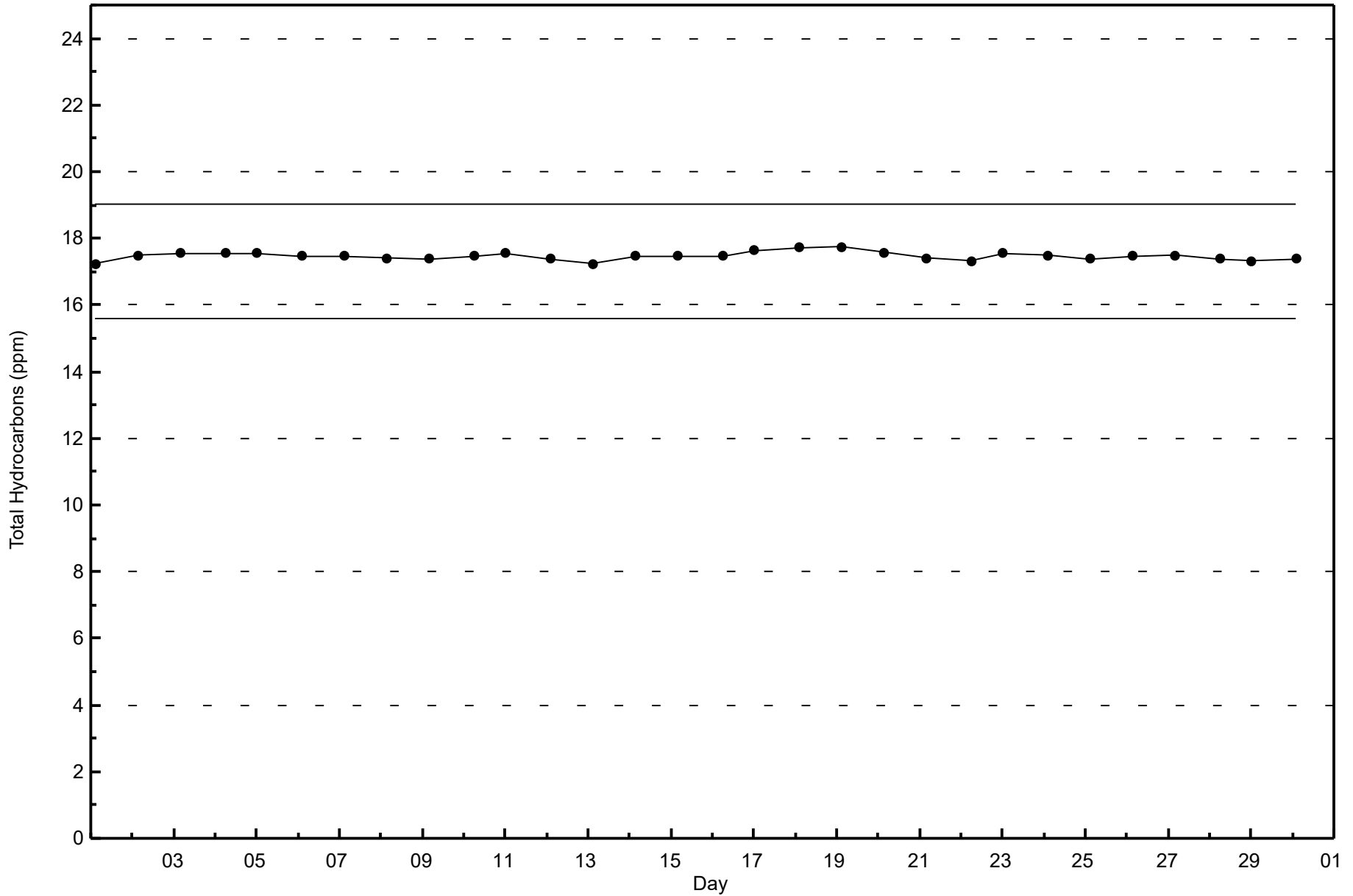


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Firebag







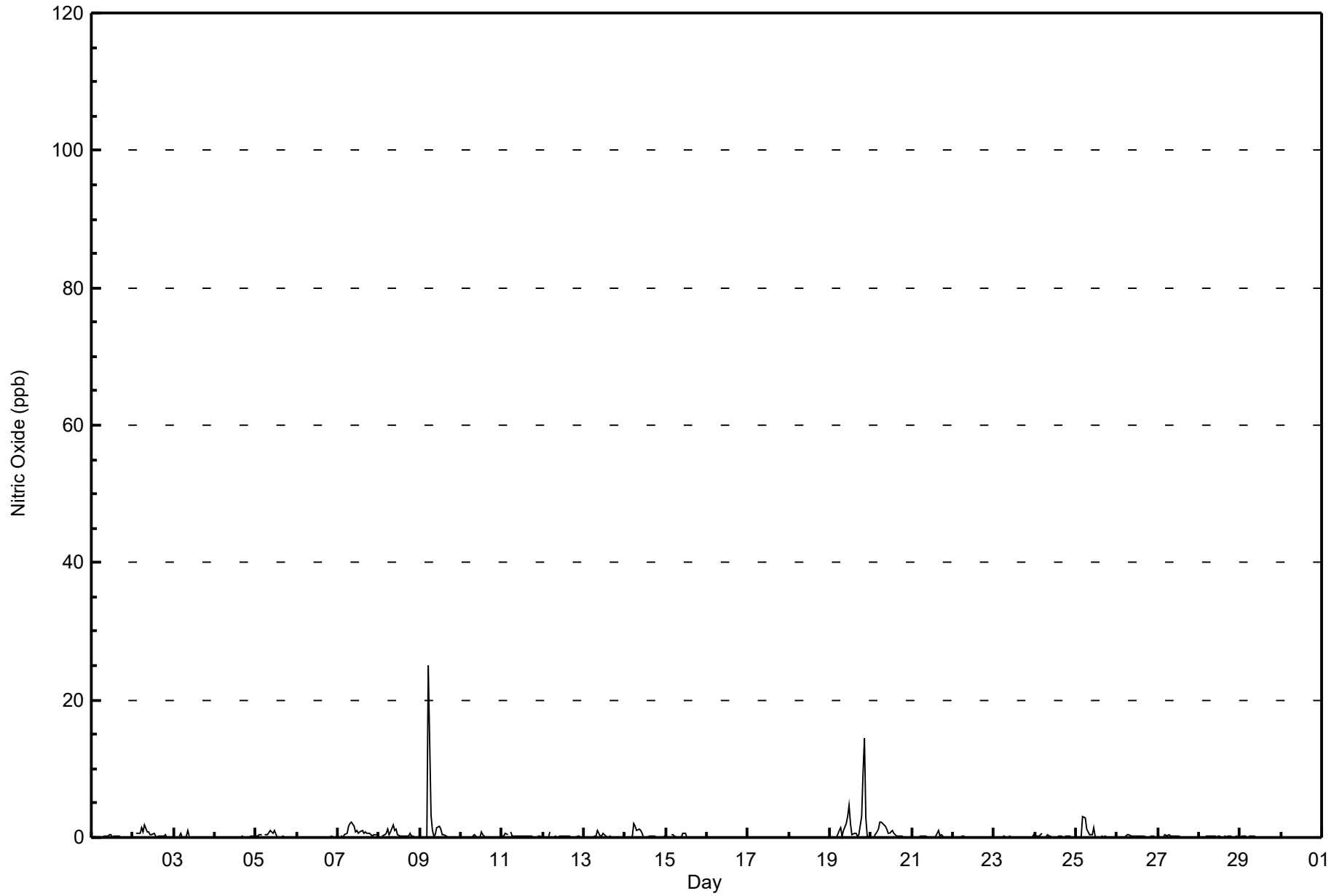


Maximum Value: 25.1 ppb on Apr 9 06:00		Maximum Daily Average: 2.1 ppb on Apr 19		Hours in Service: 720																						
Minimum Value: 0.0 ppb on Apr 1 03:00		Minimum Daily Average: 0.0 ppb on Apr 16		Hours of Data: 661																						
Maximum Diurnal Average: 1.6 ppb at hour 6		Minimum Diurnal Average: 0.1 ppb at hour 23		Hours of Missing Data: 59																						
Monthly Average: 0.31 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.7 P <sub>99</sub> = 3.0		Hours of Calibration: 40																						
				Percent Operational Time: 97.4																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.5	0.5	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
2-Apr	0.0	Z	0.6	0.5	0.5	1.4	0.9	1.7	0.9	0.8	0.5	0.4	0.7	0.1	0.1	0.2	0.2	0.1	0.2	0.4	0.1	0.0	0.0	0.0	0.4	1.7
3-Apr	0.0	0.1	Z	0.2	0.6	0.0	0.2	0.9	0.2	C	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	0.9
4-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3
5-Apr	0.3	0.3	0.3	0.4	Z	0.4	0.4	0.5	1.1	0.9	0.7	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
6-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.2
7-Apr	Z	0.0	0.1	0.1	0.4	0.6	1.6	2.1	2.2	1.5	0.8	1.1	0.6	0.9	1.0	0.5	0.7	0.5	0.6	0.4	0.2	0.4	0.4	0.5	0.8	2.2
8-Apr	0.6	Z	0.2	0.5	0.5	1.2	0.4	0.8	1.9	1.1	1.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.6	0.1	0.2	0.1	0.0	0.0	0.5	1.9
9-Apr	0.1	0.0	Z	0.1	0.0	25.1	3.3	1.0	0.3	0.3	1.4	1.5	1.2	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	25.1
10-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.3	0.3	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.8
11-Apr	0.1	0.2	0.7	0.4	Z	0.8	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.8
12-Apr	0.0	0.0	0.0	0.1	0.8	Z	0.1	0.3	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.8
13-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.0	0.2	0.3	0.7	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.0
14-Apr	0.6	Z	0.0	0.0	0.2	2.0	1.6	1.0	1.1	1.0	0.5	0.1	0.0	0.1	0.3	0.2	0.2	0.3	0.1	0.0	0.0	0.1	0.1	0.2	0.4	2.0
15-Apr	0.2	0.2	Z	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.7	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
16-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Apr	Z	0.0	0.0	0.1	0.1	1.1	1.4	0.3	1.0	2.0	3.1	4.8	2.0	0.5	0.6	0.6	0.2	0.3	3.1	9.4	14.4	2.9	0.3	0.0	2.1	14.4
20-Apr	0.0	Z	0.2	0.8	1.2	2.1	2.3	2.0	1.7	1.2	0.6	0.5	0.9	0.6	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.7	2.3
21-Apr	0.0	0.0	Z	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.2	1.0	0.3	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.1	1.0
22-Apr	0.0	0.0	0.0	Z	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
23-Apr	0.0	0.0	0.0	0.0	Z	0.2	0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.3
24-Apr	0.1	0.1	0.1	0.5	0.5	Z	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.5
25-Apr	Z	0.1	0.1	0.0	3.0	2.8	1.2	0.9	0.4	0.4	1.4	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.0
26-Apr	0.0	Z	0.0	0.0	0.0	0.2	0.3	0.4	0.3	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.2	0.4
27-Apr	0.1	0.1	Z	0.2	0.5	0.1	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
28-Apr	0.0	0.0	0.0	Z	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
29-Apr	0.1	0.2	0.1	0.1	Z	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
30-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
																								Diurnal Average		
																								Diurnal Maximum		
0.1 0.1 0.1 0.2 0.4 1.6 0.5 0.5 0.5 0.4 0.5 0.5 0.3 0.2 0.2 0.2 0.1 0.1 0.2 0.4 0.5 0.2 0.1 0.1 0.1 0.1																										
0.6 0.3 0.7 0.8 3.0 25.1 3.3 2.1 2.2 2.0 3.1 4.8 2.0 0.9 1.0 1.0 0.7 0.5 3.1 9.4 14.4 2.9 0.4 0.5																										
Z - zerospan C - Calibration M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Firebag - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	660	99.85	99.85
21 - 40	1	0.15	100.00
11 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 661

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Firebag - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	31	81	33	19	12	38	41	58	49	39	55	20	26	34	16	46	598
21 - 40	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	31	81	33	19	13	38	41	58	49	39	55	20	26	34	16	46	599

Total Number of Valid Hours: 599

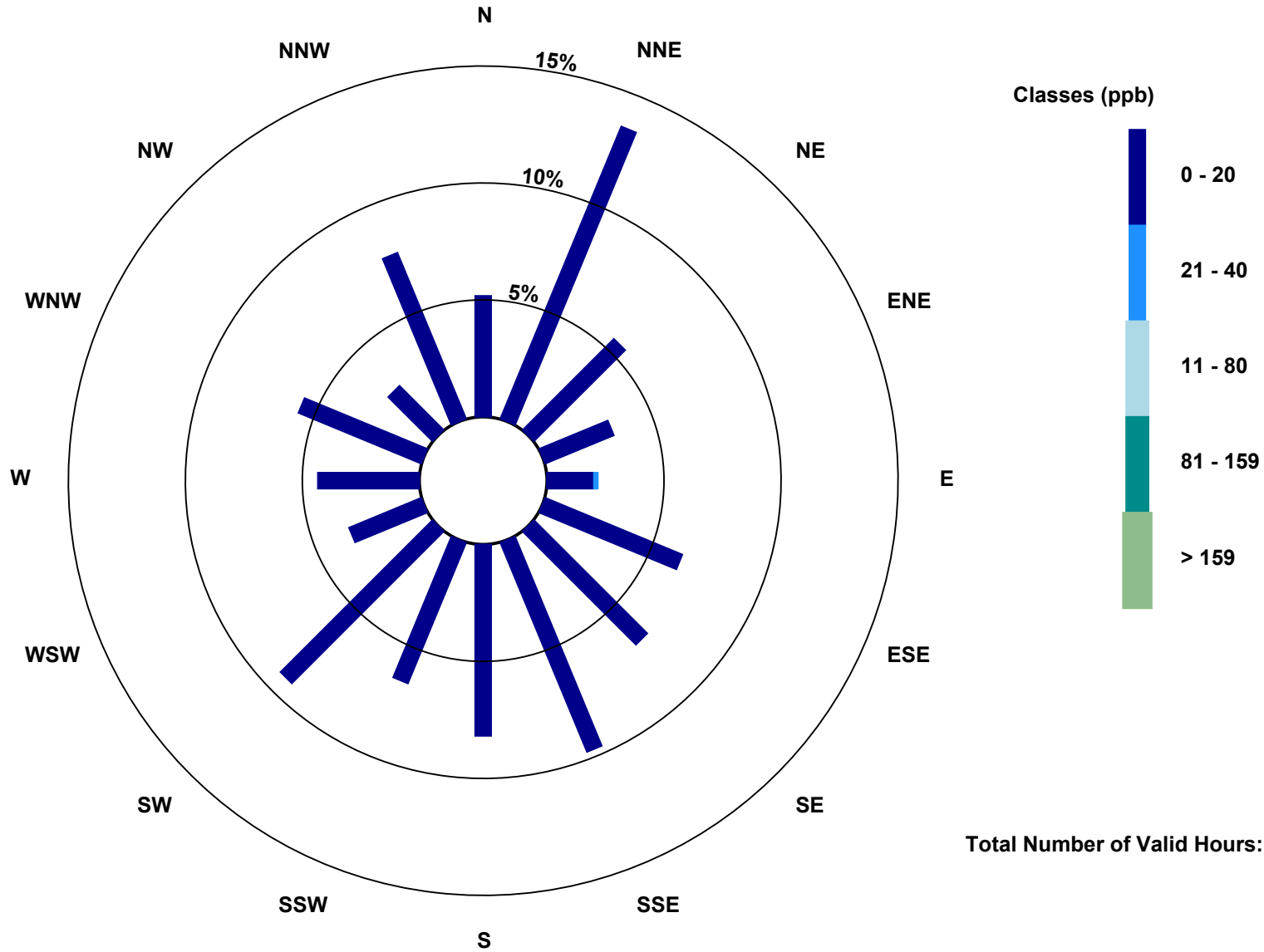
Total Number of Hours: 720



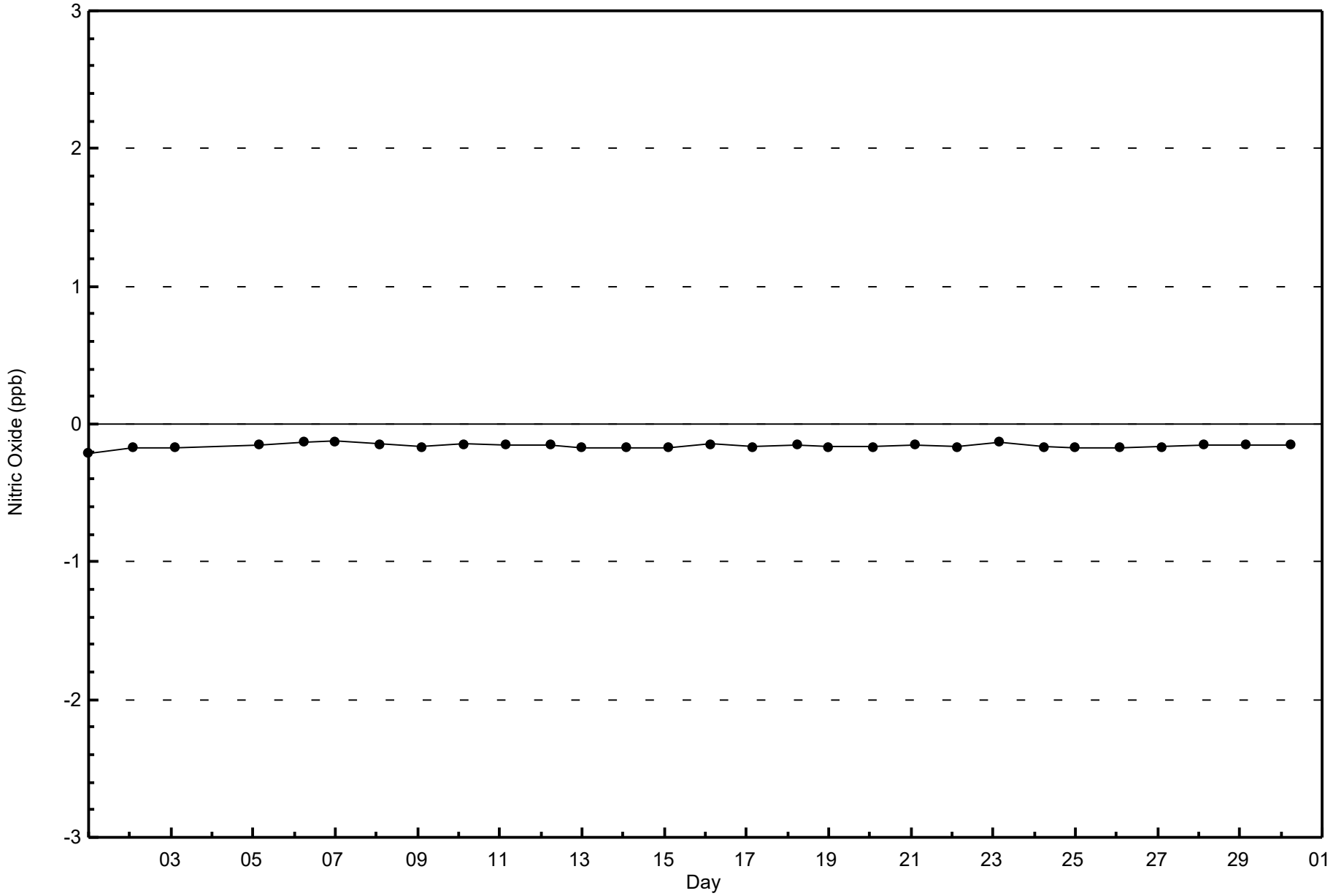


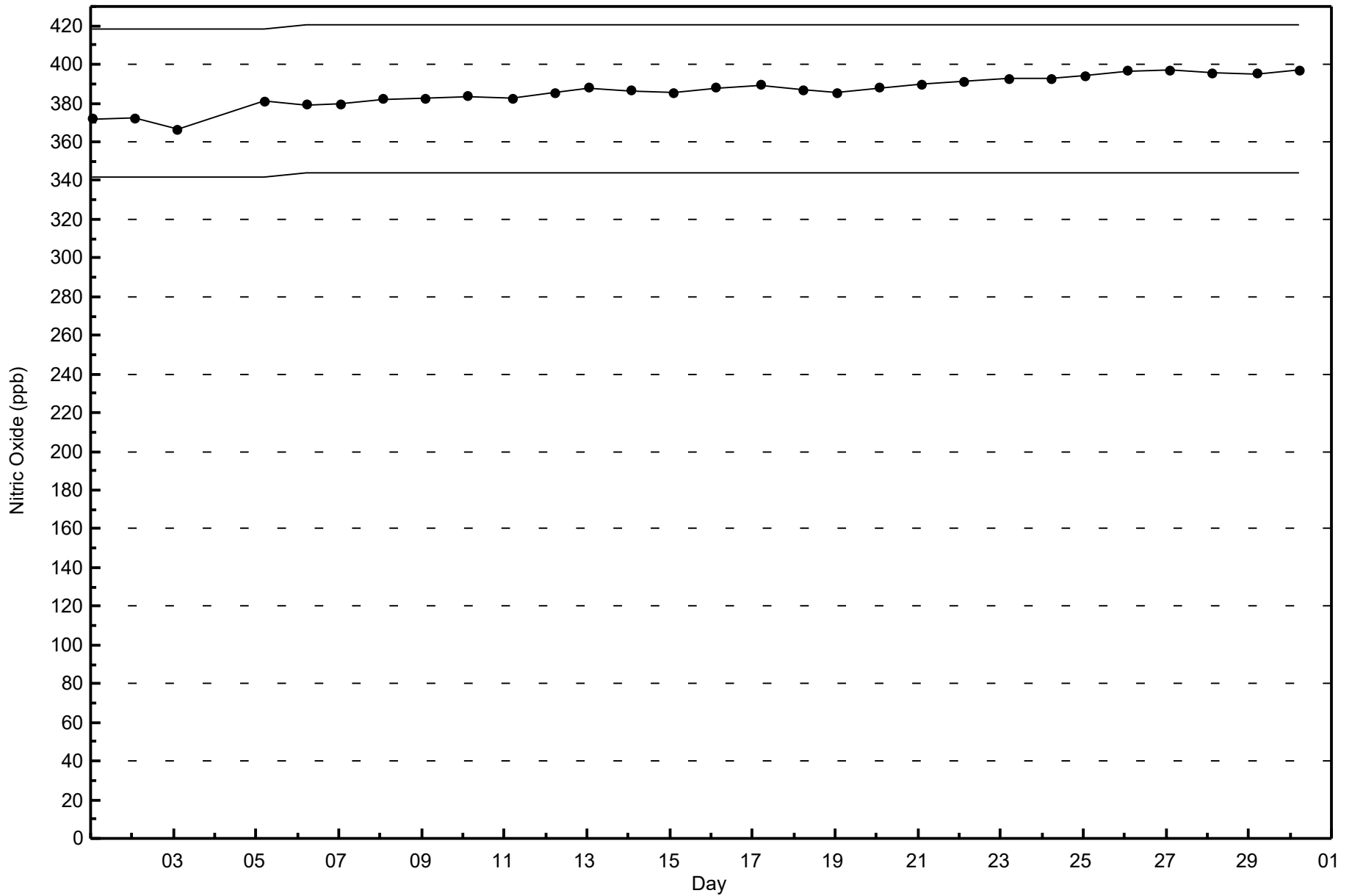
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Firebag



Total Number of Valid Hours: 599







Wood Buffalo Environmental Association

Summary of Hour Averages

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

Firebag - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 38.4 ppb on Apr 19 21:00	Maximum Daily Average: 7.2 ppb on Apr 19		Hours of Data:	661
Minimum Value: 0.1 ppb on Apr 18 02:00	Minimum Daily Average: 0.2 ppb on Apr 30		Hours of Missing Data:	59
Maximum Diurnal Average: 5.5 ppb at hour 6	Minimum Diurnal Average: 0.7 ppb at hour 17		Hours of Calibration:	40
Monthly Average: 2.00 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.9 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 4.6 P <sub>99</sub> = 14.8		Percent Operational Time:	97.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	Z	2.7	4.0	0.6	2.7	6.4	0.7	2.2	1.1	1.2	2.2	1.2	0.4	1.0	1.7	1.8	0.7	0.2	0.4	0.8	1.3	1.4	1.7	4.5	1.8	6.4	
2-Apr	7.0	Z	10.8	7.2	5.6	6.2	5.0	4.6	3.0	2.3	2.0	1.6	1.6	0.8	0.7	0.9	1.0	0.9	3.3	3.7	1.1	1.0	1.3	1.5	3.2	10.8	
3-Apr	2.6	3.4	Z	4.7	5.7	3.8	2.8	5.5	12.8	2.3	C	C	C	C	C	C	M	M	M	M	M	M	M	M	--	12.8	
4-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.3	1.0	0.4	0.6	0.7	0.4	2.4	3.2	2.5	--	3.2	
5-Apr	1.3	1.4	1.5	2.0	Z	1.7	1.4	1.6	4.3	2.7	2.3	2.9	0.2	0.3	0.2	0.4	1.0	0.4	0.3	0.5	0.3	0.2	0.2	0.2	1.2	4.3	
6-Apr	0.2	11.2	15.4	1.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.3	2.3	1.5	1.1	1.2	1.7	15.4	
7-Apr	Z	0.9	2.7	0.8	1.4	2.3	5.2	5.1	4.0	2.3	1.6	2.0	1.5	1.9	2.3	2.0	2.0	1.9	2.1	1.7	1.6	2.4	3.1	5.5	2.4	5.5	
8-Apr	9.2	Z	7.9	4.3	3.2	6.2	3.0	2.6	5.6	3.1	2.8	1.1	0.9	0.8	0.8	0.8	1.2	1.4	9.8	8.2	4.1	2.4	2.5	1.9	3.6	9.8	
9-Apr	3.7	4.3	Z	4.5	4.1	29.3	11.2	3.3	1.3	1.8	4.4	5.6	3.9	1.5	1.5	1.2	0.7	0.9	1.4	2.1	2.7	9.5	12.1	4.7	5.0	29.3	
10-Apr	0.8	0.4	0.6	Z	3.3	2.2	2.9	2.7	2.7	0.4	0.3	0.4	2.0	1.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	2.9	2.2	3.2	1.3	3.3	
11-Apr	2.8	2.2	5.7	3.2	Z	3.9	1.1	0.7	0.9	0.8	0.8	0.7	0.8	0.6	0.8	0.9	0.8	0.8	0.8	0.8	0.6	0.7	0.9	0.4	1.4	5.7	
12-Apr	0.3	0.4	0.4	0.5	2.0	Z	0.9	1.5	0.8	0.6	1.0	1.2	0.8	1.0	0.9	0.7	0.6	0.5	0.6	0.6	0.8	0.8	0.6	0.6	0.8	2.0	
13-Apr	Z	1.3	1.9	4.1	4.0	3.6	3.0	2.4	5.0	1.1	0.9	1.9	1.6	1.2	0.8	0.9	1.0	0.7	0.4	1.7	2.9	7.4	14.8	14.9	3.4	14.9	
14-Apr	21.9	Z	6.3	5.8	6.6	18.7	10.2	4.5	3.7	3.1	1.8	0.5	0.3	0.7	1.3	1.4	1.3	1.9	1.3	1.0	0.9	3.4	4.6	2.5	4.5	21.9	
15-Apr	1.9	1.8	Z	2.2	2.2	2.0	1.5	1.7	1.4	0.7	3.0	3.8	0.9	0.7	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.1	3.8
16-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17-Apr	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
18-Apr	0.2	0.1	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
19-Apr	Z	0.4	0.6	3.3	3.5	6.8	5.8	1.3	2.8	4.0	6.3	9.2	4.6	1.8	2.2	2.0	1.4	2.5	10.2	27.1	38.4	13.8	9.5	7.2	7.2	38.4	
20-Apr	6.0	Z	4.8	6.2	8.6	11.8	10.9	7.0	5.0	3.4	2.2	2.0	3.2	2.3	1.9	1.7	1.7	1.7	2.6	3.4	2.2	2.3	1.2	0.9	4.0	11.8	
21-Apr	0.6	1.1	Z	1.2	3.1	3.2	1.9	1.3	1.1	0.9	0.9	0.8	0.8	0.7	0.9	3.4	1.4	2.7	2.0	4.1	12.6	5.5	3.1	2.9	2.4	12.6	
22-Apr	2.8	2.3	2.3	Z	4.3	7.7	1.5	0.7	0.7	0.6	0.5	0.4	M	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	1.3	7.7	
23-Apr	0.3	0.3	0.3	0.3	Z	2.0	1.0	0.7	0.6	1.0	0.4	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.3	5.2	2.5	6.3	1.1	6.3	
24-Apr	1.2	1.3	3.0	3.6	2.1	Z	1.1	0.9	0.6	0.6	0.4	0.3	0.4	0.5	0.6	0.9	0.6	0.9	3.3	1.9	5.4	0.7	0.5	0.8	1.4	5.4	
25-Apr	Z	0.9	0.7	0.7	6.3	7.8	5.9	3.7	2.2	1.8	4.0	0.7	0.4	0.4	0.5	0.6	0.6	1.2	0.7	0.3	0.7	1.6	3.1	1.1	2.0	7.8	
26-Apr	1.7	Z	0.5	0.4	0.9	2.2	1.9	1.3	0.7	0.5	0.6	0.8	0.8	0.8	0.9	0.7	0.6	0.3	0.2	0.2	2.4	2.1	0.9	0.8	1.0	2.4	
27-Apr	1.1	0.8	Z	0.7	1.4	0.9	1.8	0.8	0.6	0.6	0.8	1.0	0.8	0.7	0.6	0.7	0.6	0.8	0.8	0.9	0.9	0.8	0.9	1.2	0.9	1.8	
28-Apr	0.8	0.8	0.8	Z	1.6	1.8	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.7	0.7	0.8	0.7	0.9	1.0	0.9	0.9	0.8	1.0	0.9	0.9	1.8
29-Apr	0.9	1.0	1.3	1.3	Z	1.8	1.9	1.6	1.4	0.6	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.7	1.9	
30-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2

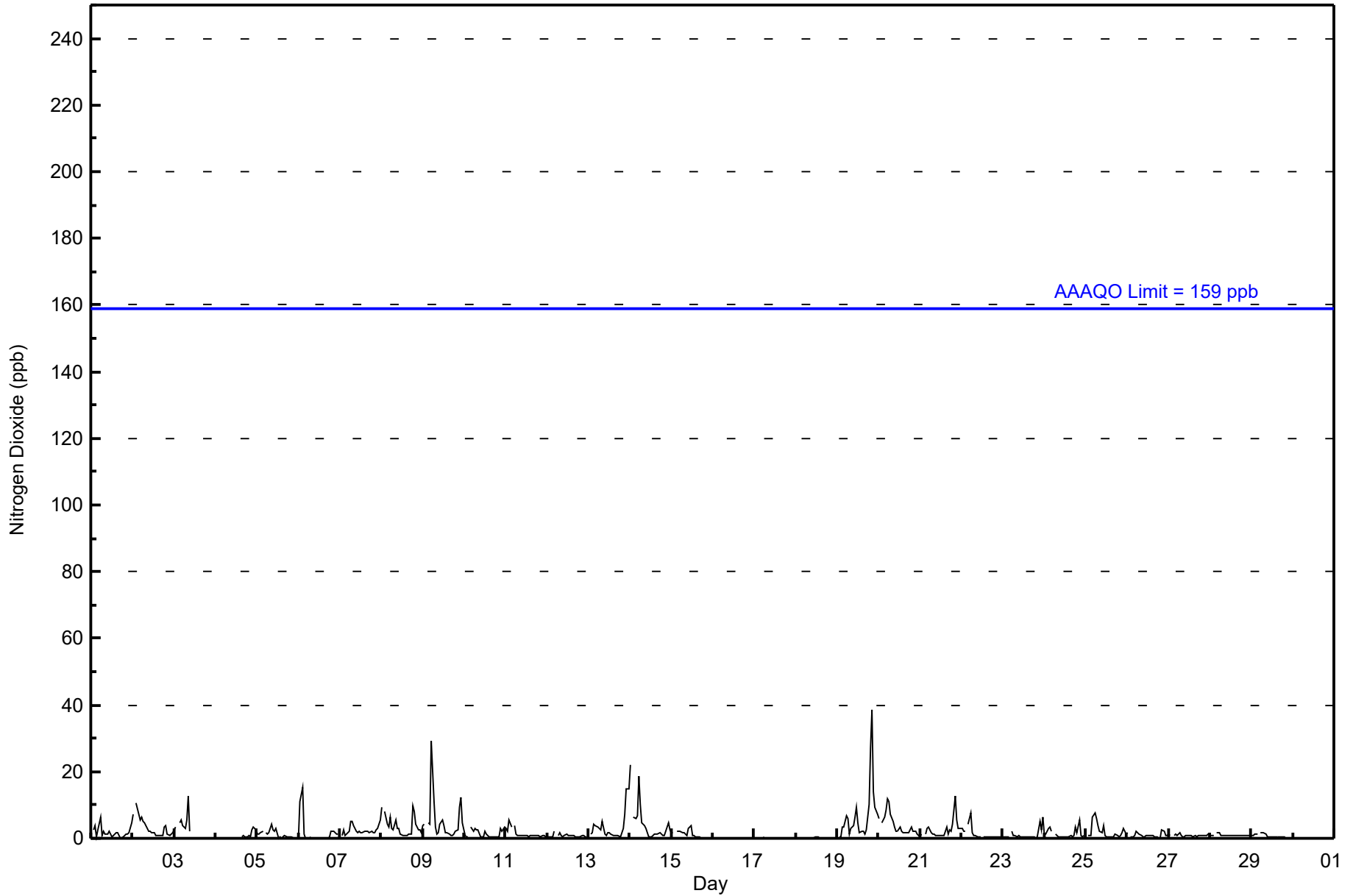
2.8	1.7	3.0	2.4	3.1	5.5	2.9	2.1	2.2	1.3	1.5	1.5	1.1	0.8	0.8	0.9	0.7	0.8	1.5	2.2	2.9	2.4	2.5	2.3	Diurnal Average	
21.9	11.2	15.4	7.2	8.6	29.3	11.2	7.0	12.8	4.0	6.3	9.2	4.6	2.3	2.3	3.4	2.0	2.7	10.2	27.1	38.4	13.8	14.8	14.9	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Firebag - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	657	99.39	99.39
21 - 40	4	0.61	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 661

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	31	81	33	19	12	38	41	58	49	38	53	20	26	34	16	46	595
21 - 40	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	4
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	31	81	33	19	13	38	41	58	49	39	55	20	26	34	16	46	599

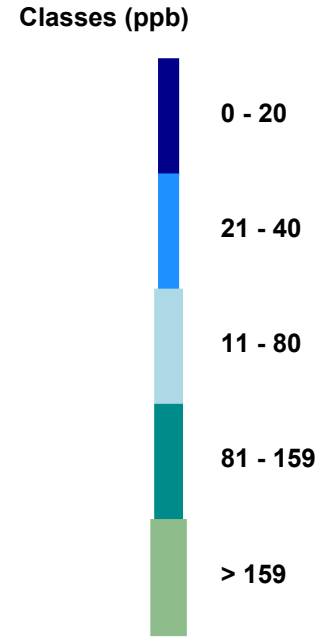
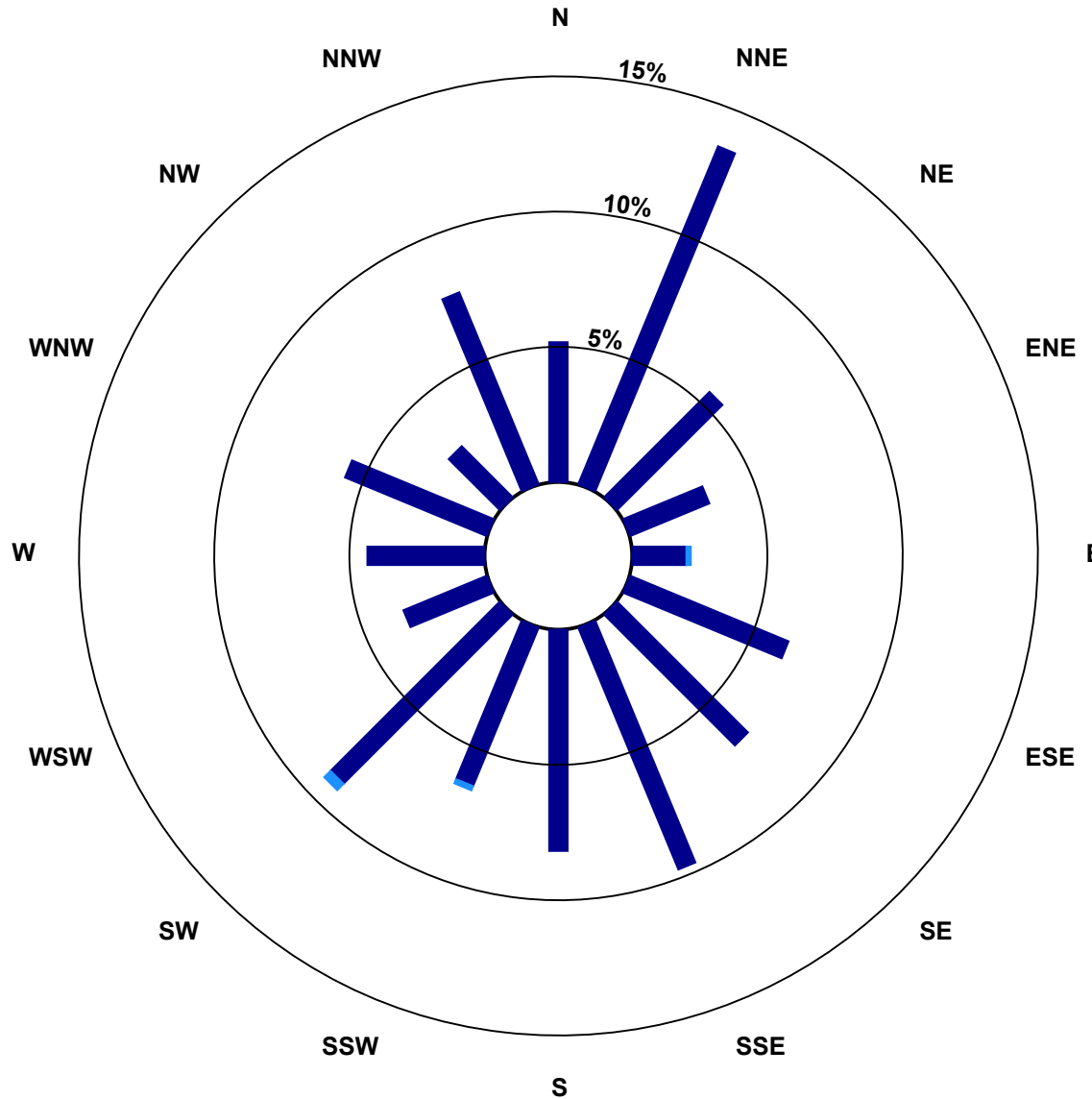
Total Number of Valid Hours: 599

Total Number of Hours: 720



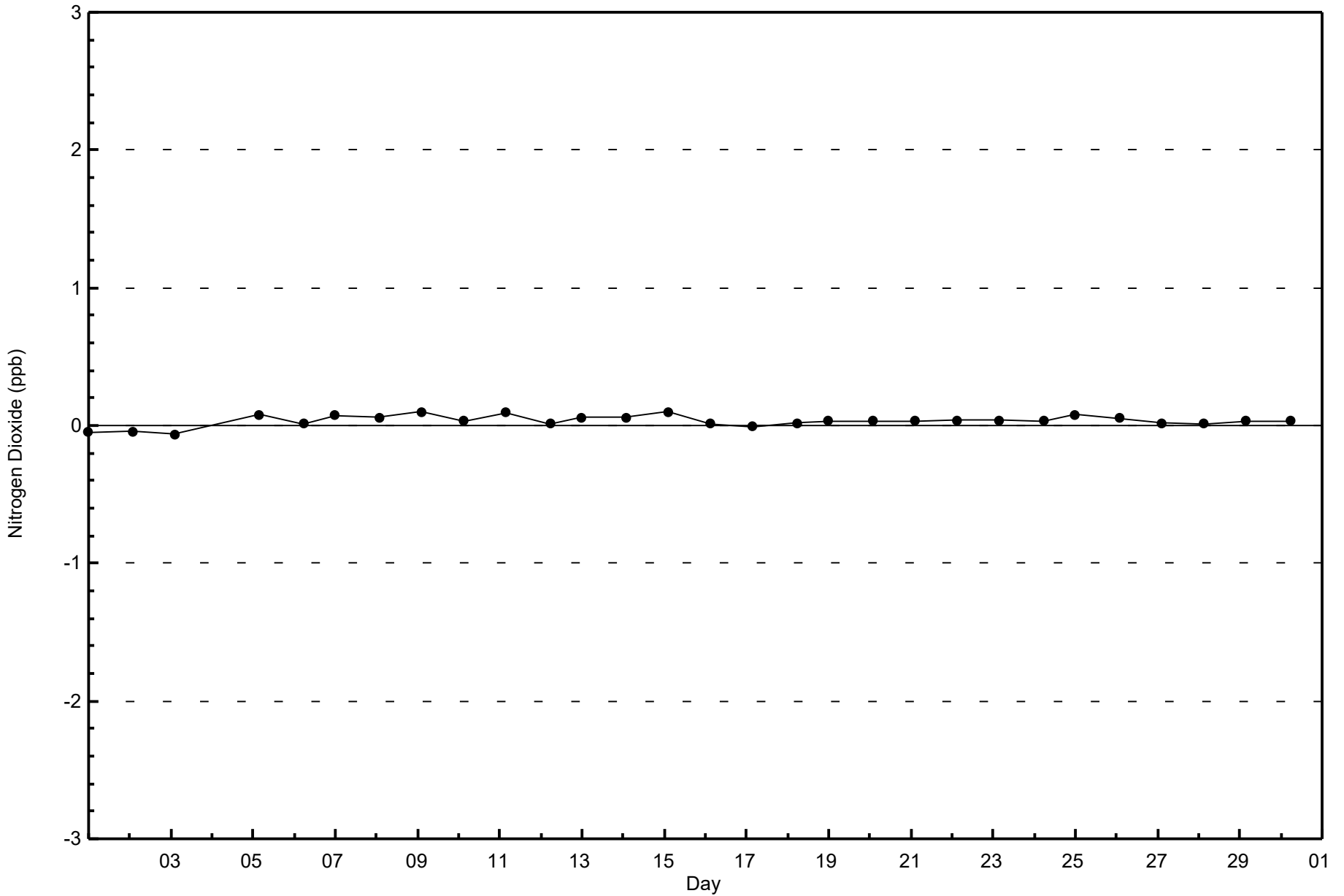
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

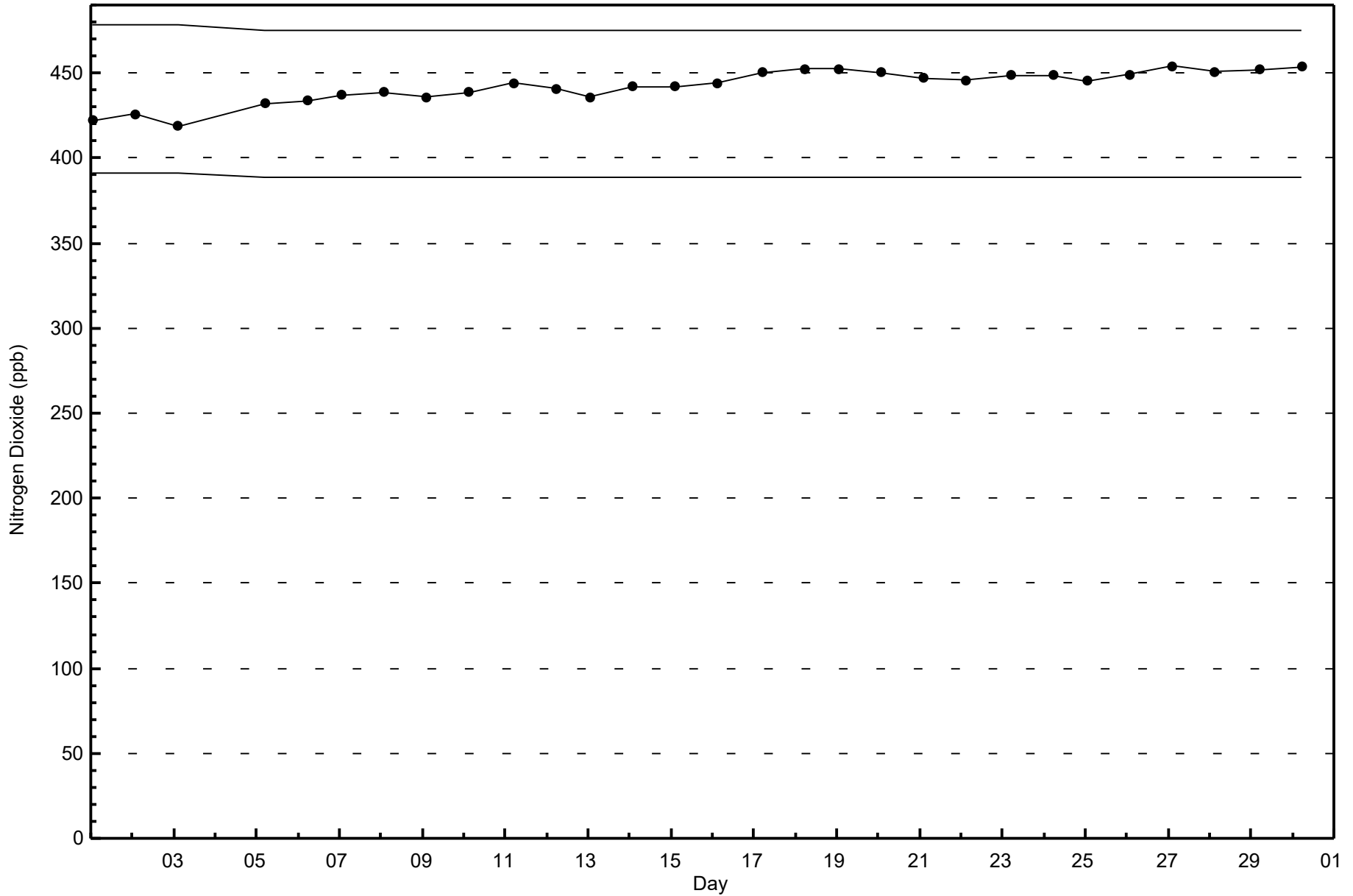
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag



Total Number of Valid Hours: 599

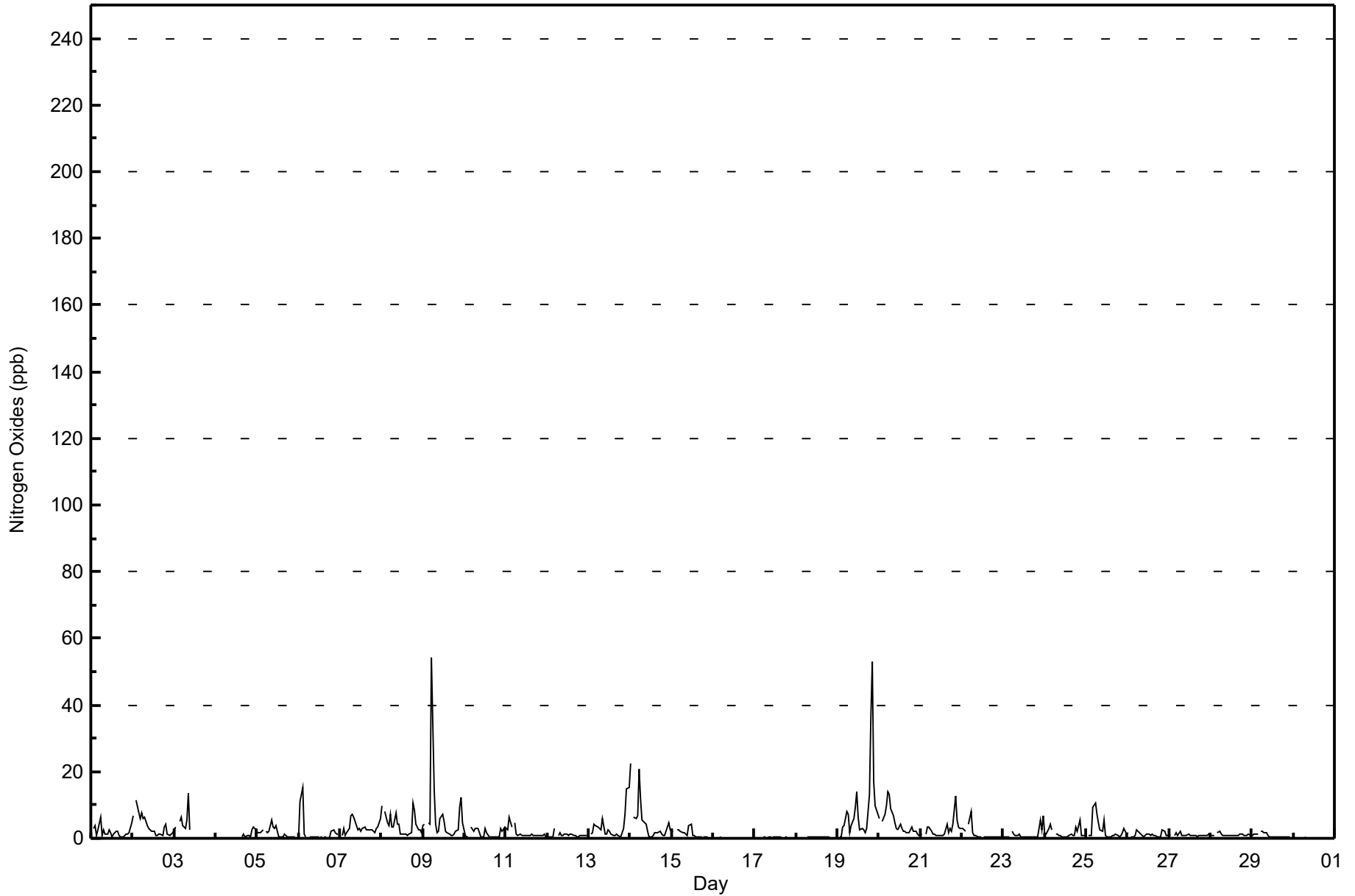








Maximum Value: 54.4 ppb on Apr 9 06:00		Maximum Daily Average: 9.3 ppb on Apr 19		Hours in Service: 720																							
Minimum Value: 0.1 ppb on May 1 00:00		Minimum Daily Average: 0.2 ppb on Apr 30		Hours of Data: 661																							
Maximum Diurnal Average: 7.2 ppb at hour 6		Minimum Diurnal Average: 0.9 ppb at hour 17		Hours of Missing Data: 59																							
Monthly Average: 2.31 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 1.0 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 5.5 P <sub>99</sub> = 15.2		Hours of Calibration: 40																							
				Percent Operational Time: 97.4																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	Z	2.9	4.0	0.6	2.7	6.4	0.7	2.4	1.3	1.3	2.7	1.7	0.5	1.3	2.0	2.0	0.8	0.2	0.4	0.8	1.3	1.4	1.7	4.5	1.9	6.4	
2-Apr	7.0	Z	11.4	7.7	6.1	7.6	5.9	6.3	3.9	3.1	2.5	2.0	2.3	0.9	0.8	1.1	1.2	1.0	3.5	4.1	1.2	1.0	1.3	1.5	3.6	11.4	
3-Apr	2.6	3.5	Z	4.9	6.3	3.8	2.8	5.7	13.7	2.5	C	C	C	C	C	C	M	M	M	M	M	M	M	M	--	13.7	
4-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.3	1.3	0.4	0.6	0.7	0.4	2.5	3.3	2.7	--	3.3	
5-Apr	1.6	1.7	1.8	2.4	Z	2.1	1.8	2.1	5.4	3.6	3.0	3.9	0.2	0.3	0.2	0.4	1.1	0.4	0.3	0.5	0.3	0.2	0.2	0.2	1.5	5.4	
6-Apr	0.2	11.2	15.4	1.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.3	2.5	1.6	1.1	1.2	1.7	15.4	
7-Apr	Z	0.9	2.8	0.9	1.8	2.9	6.8	7.2	6.2	3.8	2.4	3.1	2.1	2.8	3.3	2.5	2.7	2.4	2.7	2.1	1.8	2.8	3.5	6.0	3.2	7.2	
8-Apr	9.8	Z	8.1	4.8	3.7	7.4	3.4	3.4	7.5	4.2	4.0	1.4	1.2	1.1	1.1	1.0	1.4	1.7	10.4	8.3	4.3	2.5	2.5	1.9	4.1	10.4	
9-Apr	3.8	4.3	Z	4.6	4.1	54.4	14.5	4.3	1.6	2.1	5.8	7.1	5.1	1.9	1.8	1.4	0.8	0.9	1.4	2.1	2.7	9.5	12.1	4.7	6.6	54.4	
10-Apr	0.8	0.4	0.6	Z	3.3	2.2	3.0	3.0	3.0	0.4	0.3	0.4	2.8	1.9	0.4	0.4	0.3	0.3	0.3	0.3	0.3	3.0	2.2	3.4	1.4	3.4	
11-Apr	2.9	2.4	6.4	3.6	Z	4.7	1.4	0.9	1.1	1.0	1.0	0.8	1.0	0.8	1.0	1.1	1.0	0.9	0.9	0.9	0.7	0.8	1.1	0.5	1.6	6.4	
12-Apr	0.3	0.4	0.4	0.6	2.8	Z	1.0	1.8	0.9	0.7	1.2	1.4	0.9	1.3	1.1	0.8	0.7	0.6	0.6	0.7	0.9	0.9	0.7	0.7	0.9	2.8	
13-Apr	Z	1.3	1.9	4.1	4.0	3.6	3.1	2.6	6.0	1.3	1.2	2.6	2.0	1.3	0.9	1.0	1.1	0.7	0.4	1.7	2.9	7.4	14.8	15.1	3.5	15.1	
14-Apr	22.5	Z	6.3	5.8	6.8	20.7	11.8	5.5	4.8	4.1	2.3	0.6	0.3	0.8	1.6	1.5	2.2	1.4	1.0	0.9	3.5	4.7	2.7	4.9	22.5		
15-Apr	2.1	2.0	Z	2.5	2.6	2.2	1.6	1.7	1.4	0.7	3.7	4.4	1.0	0.7	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.3	4.4	
16-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17-Apr	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
18-Apr	0.2	0.1	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
19-Apr	Z	0.4	0.6	3.4	3.6	7.9	7.2	1.6	3.8	6.0	9.4	14.0	6.6	2.3	2.8	2.6	1.6	2.8	13.3	36.5	52.8	16.7	9.8	7.2	9.3	52.8	
20-Apr	6.0	Z	5.0	7.0	9.8	13.9	13.2	9.0	6.7	4.6	2.8	2.5	4.1	2.9	2.3	2.0	1.9	1.9	2.7	3.4	2.2	2.3	1.2	0.9	4.7	13.9	
21-Apr	0.6	1.1	Z	1.2	3.2	3.4	2.1	1.5	1.2	1.0	1.0	0.9	0.8	0.7	1.1	4.4	1.7	3.1	2.1	4.1	12.6	5.5	3.2	2.9	2.6	12.6	
22-Apr	2.8	2.3	2.3	Z	4.3	8.0	1.6	0.7	0.8	0.6	0.5	0.4	M	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	1.3	8.0	
23-Apr	0.3	0.3	0.3	0.3	Z	2.2	1.1	0.7	0.7	1.2	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.3	5.3	2.6	6.6	1.1	6.6		
24-Apr	1.3	1.4	3.1	4.1	2.6	Z	1.4	1.3	0.8	0.7	0.5	0.4	0.5	0.6	0.7	1.1	0.7	1.0	3.5	2.0	5.6	0.8	0.6	0.9	1.5	5.6	
25-Apr	Z	1.0	0.8	0.7	9.3	10.6	7.1	4.6	2.6	2.2	5.4	0.8	0.4	0.4	0.6	0.7	0.7	1.3	0.7	0.3	0.7	1.6	3.1	1.1	2.5	10.6	
26-Apr	1.7	Z	0.5	0.4	0.9	2.4	2.2	1.7	1.0	0.6	0.8	1.1	1.1	1.0	1.2	0.9	0.7	0.3	0.2	0.2	2.6	2.3	1.0	0.9	1.1	2.6	
27-Apr	1.2	0.9	Z	0.9	1.9	1.0	2.1	1.0	0.7	0.7	0.9	1.2	0.9	0.8	0.7	0.8	0.6	0.9	0.8	0.9	0.9	0.8	0.9	1.2	1.0	2.1	
28-Apr	0.8	0.8	0.8	Z	1.7	2.0	1.2	1.0	0.9	0.9	0.9	0.9	1.0	0.8	0.8	1.0	0.8	1.1	1.1	1.0	1.0	0.9	1.1	1.0	1.0	2.0	
29-Apr	1.0	1.2	1.4	1.4	Z	2.0	2.1	1.7	1.6	0.7	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.8	2.1	
30-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
		2.9	1.7	3.1	2.6	3.4	7.2	3.5	2.5	2.7	1.7	1.9	1.9	1.4	1.0	1.0	1.0	0.9	0.9	1.7	2.6	3.5	2.6	2.6	2.4	Diurnal Average	
		22.5	11.2	15.4	7.7	9.8	54.4	14.5	9.0	13.7	6.0	9.4	14.0	6.6	2.9	3.3	4.4	2.7	3.1	13.3	36.5	52.8	16.7	14.8	15.1	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	656	99.24	99.24
21 - 40	3	0.45	99.70
41 - 80	2	0.30	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 661

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Firebag - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	31	81	33	19	12	38	41	58	48	38	53	20	26	34	16	46	594
21 - 40	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3
11 - 80	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>31</b>	<b>81</b>	<b>33</b>	<b>19</b>	<b>13</b>	<b>38</b>	<b>41</b>	<b>58</b>	<b>49</b>	<b>39</b>	<b>55</b>	<b>20</b>	<b>26</b>	<b>34</b>	<b>16</b>	<b>46</b>	<b>599</b>

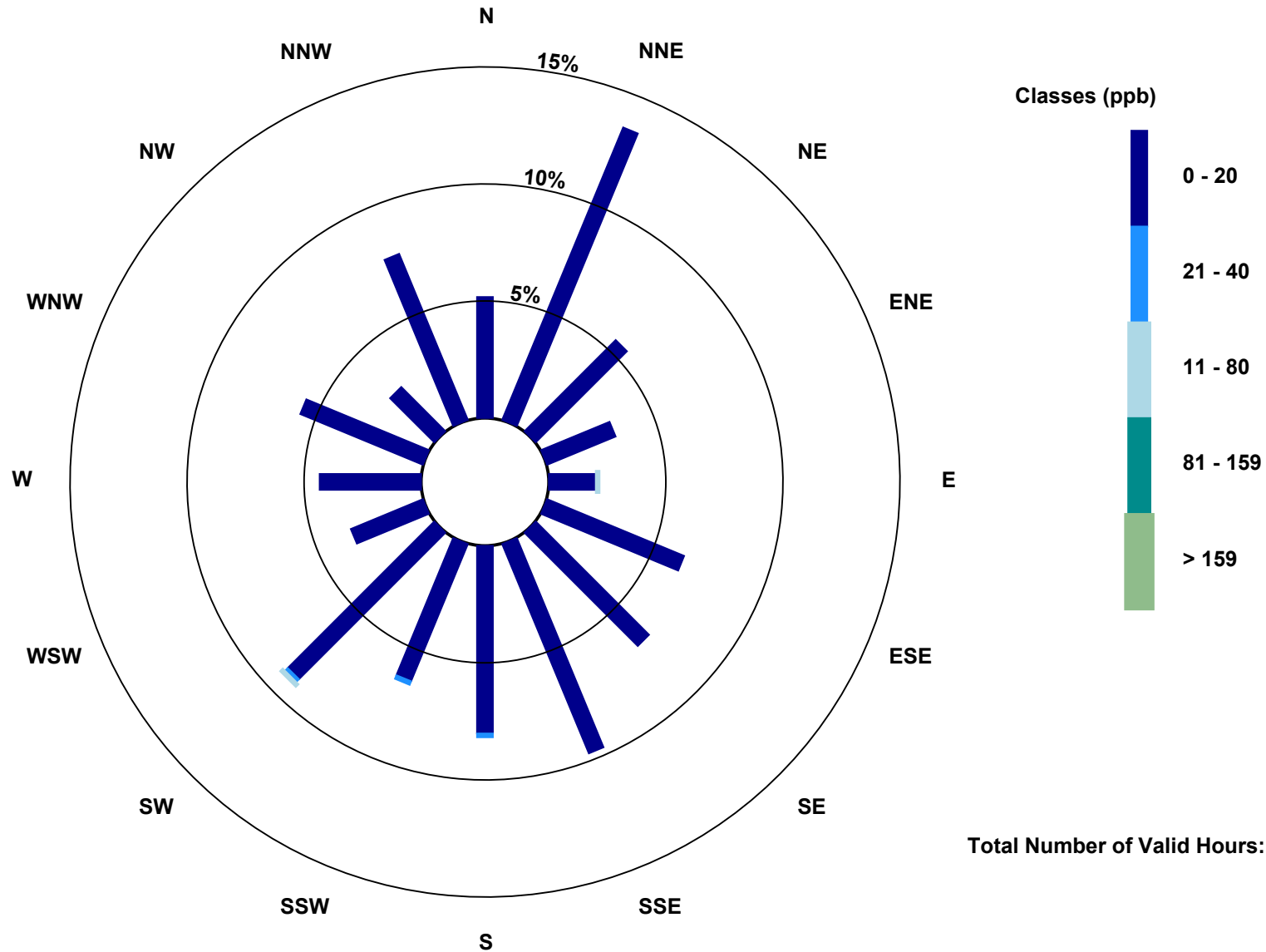
Total Number of Valid Hours: 599

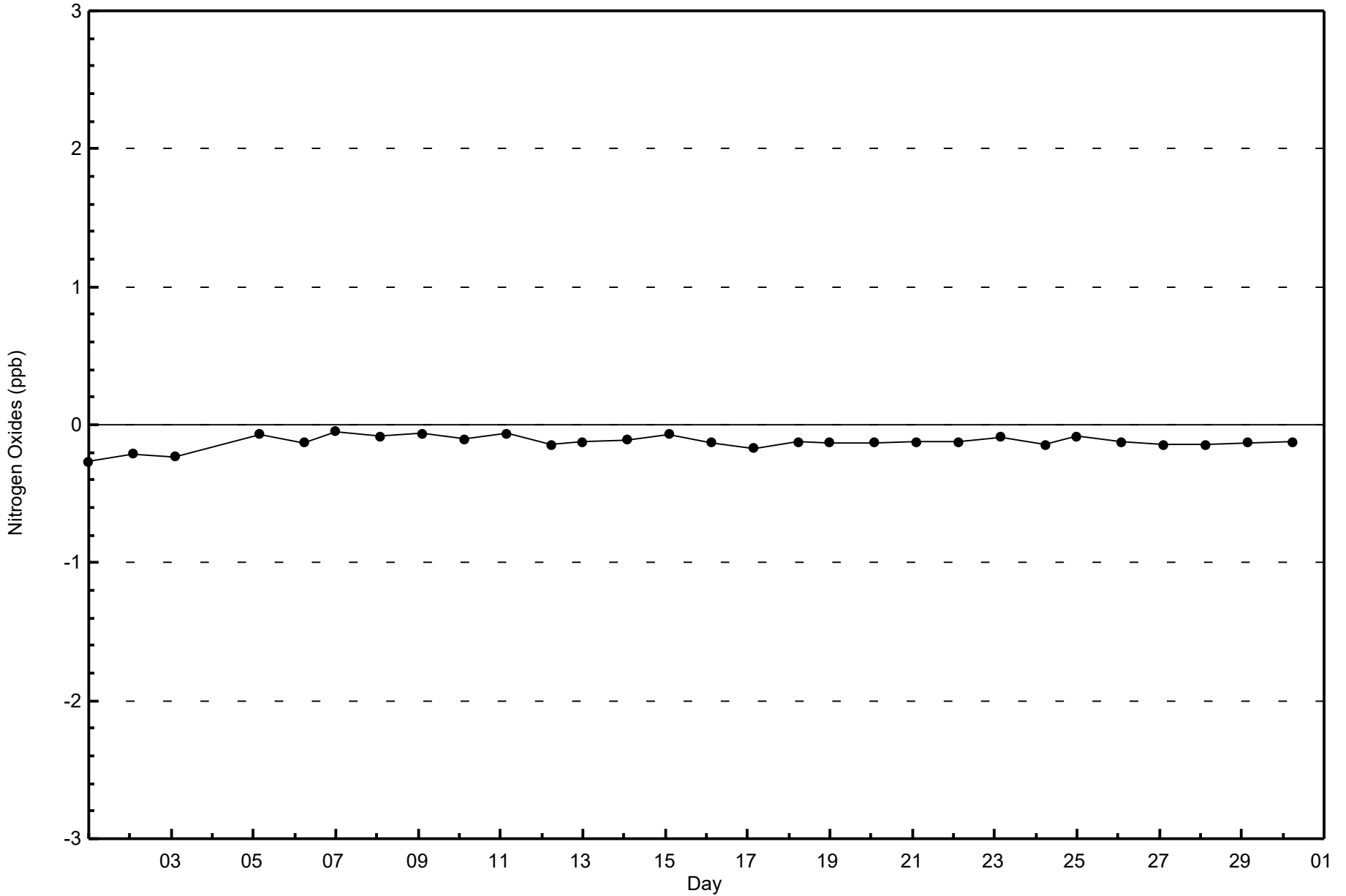
Total Number of Hours: 720



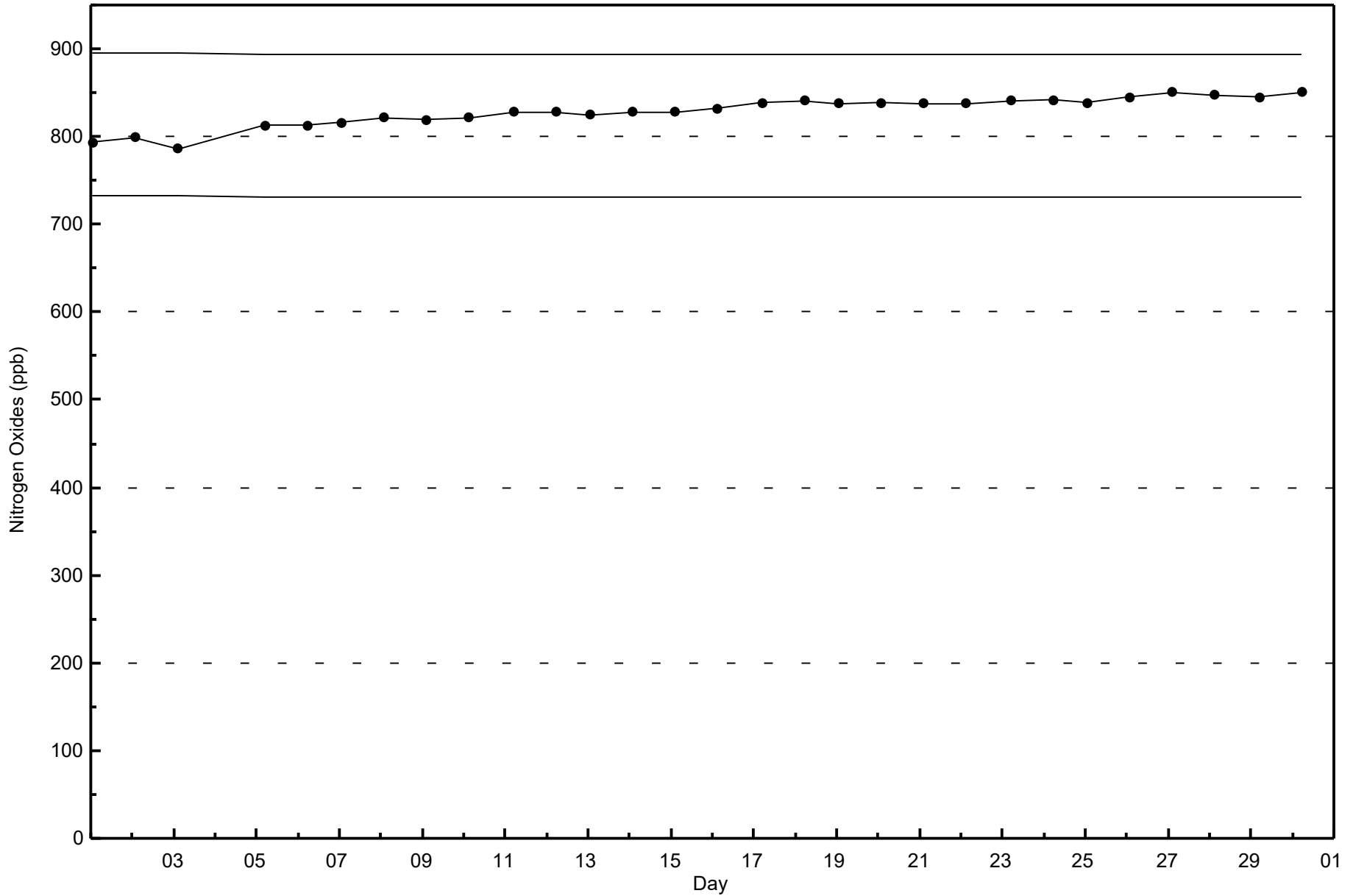
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



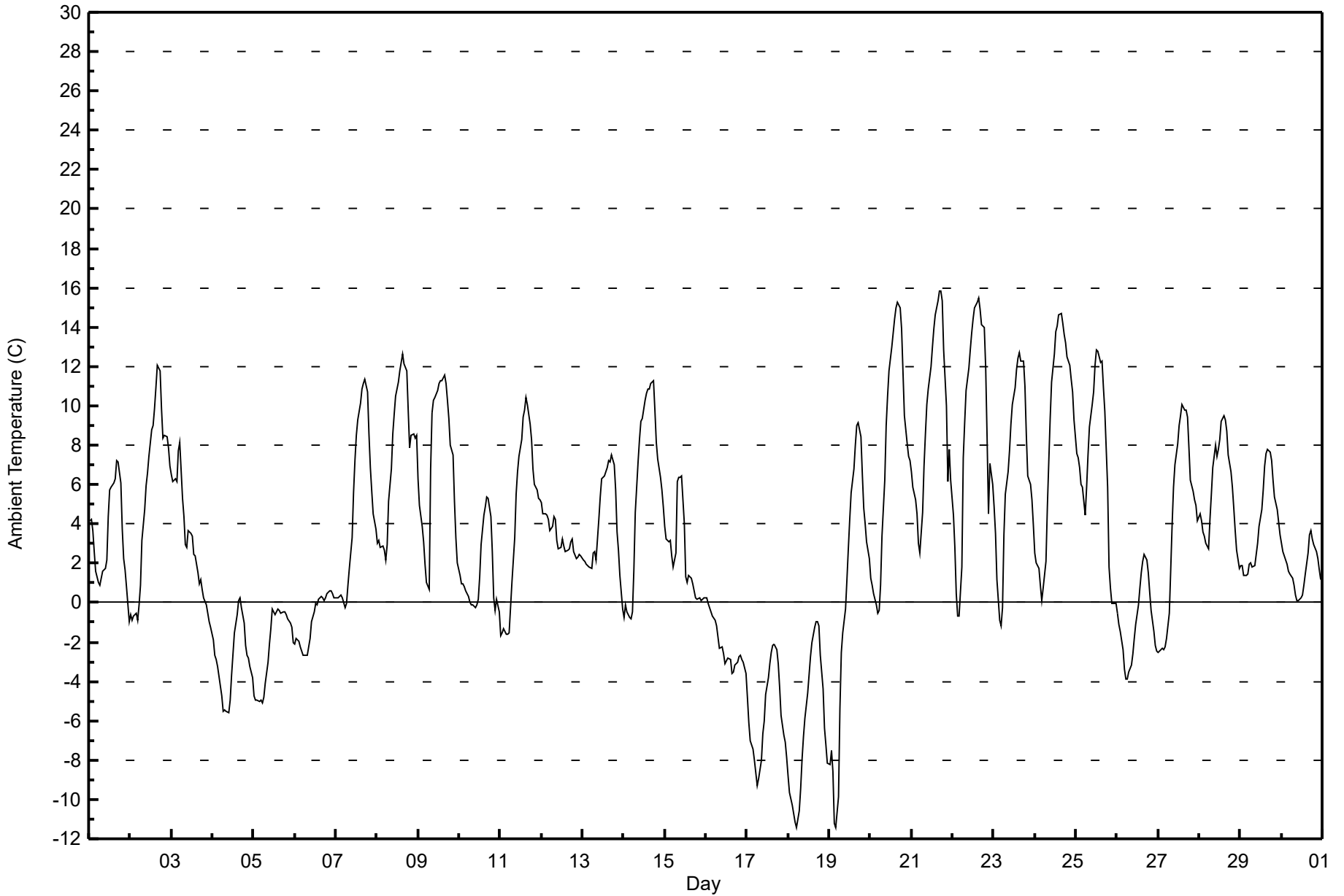








Maximum Value: 15.8 C on Apr 21 18:00      Maximum Daily Average: 9.5 C on Apr 21																						Hours in Service: 720 Hours of Data: 720																										
Minimum Value: -11.5 C on Apr 18 06:00      Minimum Daily Average: -6.2 C on Apr 18 Maximum Diurnal Average: 7.0 C at hour 17      Minimum Diurnal Average: -0.6 C at hour 6 Monthly Average: 3.26 C      Percentiles: P <sub>1</sub> = -9.8 P <sub>10</sub> = -3.1 Q <sub>1</sub> = -0.4 Median = 2.7 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 10.9 P <sub>99</sub> = 15.0																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	4.2	4.2	3.7	2.6	1.6	1.0	0.9	1.3	1.6	1.7	2.2	4.3	5.7	5.9	6.1	6.3	7.2	7.2	6.1	3.7	2.2	1.7	0.8	-0.9	3.4	7.2																						
2-Apr	-0.6	-0.9	-0.7	-0.5	-0.9	-0.1	0.9	3.2	4.7	5.9	6.6	7.4	8.8	9.0	9.9	11.0	12.0	11.8	9.9	8.4	8.5	8.5	7.9	6.9	5.7	12.0																						
3-Apr	6.5	6.2	6.3	6.2	7.7	8.1	5.3	4.4	3.0	2.8	3.7	3.5	3.4	2.4	2.4	1.5	0.9	1.2	0.7	0.2	-0.1	-0.5	-1.0	-1.2	3.1	8.1																						
4-Apr	-1.9	-2.7	-2.9	-3.2	-3.8	-4.7	-5.5	-5.4	-5.5	-5.6	-4.9	-3.7	-2.6	-1.5	-0.6	0.1	0.3	-0.3	-1.0	-2.1	-2.7	-2.8	-3.2	-3.8	-2.9	0.3																						
5-Apr	-4.8	-4.9	-5.0	-5.0	-4.9	-5.1	-4.8	-4.1	-3.0	-2.1	-1.3	-0.3	-0.6	-0.5	-0.3	-0.4	-0.5	-0.5	-0.4	-0.6	-0.8	-1.0	-1.2	-2.0	-2.3	-0.3																						
6-Apr	-2.1	-1.8	-2.0	-2.2	-2.5	-2.7	-2.7	-2.6	-2.2	-1.8	-1.0	-0.5	0.0	-0.1	0.2	0.4	0.3	0.1	0.2	0.5	0.6	0.6	0.4	0.3	-0.9	0.6																						
7-Apr	0.3	0.3	0.3	0.4	0.3	-0.2	0.0	0.9	1.7	3.3	5.6	7.2	8.5	9.3	10.2	10.8	11.1	11.3	10.7	8.6	6.9	5.6	4.5	3.8	5.0	11.3																						
8-Apr	3.0	3.1	2.8	2.9	2.7	2.2	3.0	5.2	6.8	8.6	9.5	10.5	11.2	11.8	12.2	12.6	12.2	11.8	9.8	7.9	8.5	8.6	8.3	8.5	7.6	12.6																						
9-Apr	6.3	5.0	3.9	3.1	2.0	1.0	0.7	6.8	9.6	10.3	10.4	10.8	11.2	11.2	11.3	11.6	11.1	10.3	9.4	8.0	7.5	5.2	3.3	2.0	7.2	11.6																						
10-Apr	1.4	1.0	1.0	0.8	0.6	0.3	0.1	-0.1	-0.1	-0.2	-0.1	0.2	1.3	3.0	4.4	4.9	5.4	5.3	4.4	2.6	0.3	-0.4	0.2	-0.4	1.5	5.4																						
11-Apr	-1.7	-1.5	-1.3	-1.6	-1.6	-1.6	-0.2	1.0	3.3	5.5	6.6	7.4	8.3	9.4	9.8	10.4	10.1	9.1	8.3	6.8	6.0	5.7	5.3	5.3	4.5	10.4																						
12-Apr	5.1	4.5	4.5	4.4	4.2	3.7	3.9	4.4	4.2	3.1	2.7	2.8	3.2	2.9	2.6	2.7	2.8	3.1	3.2	2.6	2.2	2.3	2.4	2.4	3.3	5.1																						
13-Apr	2.2	2.1	2.0	1.9	1.8	1.8	2.5	2.6	2.2	4.2	5.3	6.3	6.3	6.4	6.8	7.2	7.2	7.5	7.0	5.8	3.6	2.7	1.4	-0.3	4.0	7.5																						
14-Apr	-0.7	-0.1	-0.5	-0.7	-0.8	-0.5	1.7	4.6	7.2	8.3	9.2	9.3	10.3	10.6	10.9	10.9	11.2	11.3	9.8	8.2	7.3	6.4	5.7	4.9	6.0	11.3																						
15-Apr	3.8	3.2	3.1	3.1	2.4	1.8	2.5	6.1	6.3	6.4	4.0	1.3	1.0	1.4	1.3	1.0	1.0	0.6	0.3	0.2	0.2	0.1	0.1	0.2	2.4	6.4																						
16-Apr	0.3	0.0	-0.3	-0.4	-0.7	-0.9	-1.2	-1.7	-2.3	-2.2	-2.6	-3.1	-3.0	-2.8	-2.9	-3.6	-3.5	-3.2	-3.0	-2.7	-2.7	-2.9	-3.0	-3.6	-2.2	0.3																						
17-Apr	-4.8	-6.1	-7.0	-7.4	-8.0	-8.7	-9.3	-8.9	-8.0	-6.7	-6.1	-4.7	-3.8	-3.1	-2.5	-2.2	-2.1	-2.4	-3.1	-4.3	-5.7	-6.7	-7.1	-7.9	-5.7	-2.1																						
18-Apr	-8.8	-9.6	-10.3	-10.7	-11.2	-11.5	-10.6	-9.5	-7.9	-6.8	-5.9	-4.6	-3.7	-2.8	-2.0	-1.3	-1.0	-0.9	-1.2	-2.6	-4.4	-6.4	-7.2	-8.2	-6.2	-0.9																						
19-Apr	-8.2	-7.5	-8.6	-11.2	-11.4	-9.8	-5.4	-2.5	-1.5	-0.3	1.2	2.7	4.2	5.6	6.8	8.0	9.0	9.1	8.5	6.5	4.8	4.0	3.1	2.2	0.4	9.1																						
20-Apr	1.3	0.9	0.5	-0.1	-0.5	-0.4	0.9	3.4	6.2	9.0	10.5	11.8	13.0	13.7	14.4	15.0	15.2	15.0	13.9	11.7	9.5	8.1	7.4	7.2	7.8	15.2																						
21-Apr	6.7	5.9	5.2	4.5	3.0	2.5	4.6	6.9	8.6	10.1	10.9	12.0	13.0	13.9	14.6	15.3	15.8	15.8	15.3	12.8	10.0	6.2	7.8	6.2	9.5	15.8																						
22-Apr	4.5	2.8	0.4	-0.7	-0.7	1.8	7.3	9.1	10.8	11.9	12.8	13.7	14.4	15.0	15.3	15.5	14.9	14.2	14.0	11.9	8.3	4.5	7.1	6.0	9.0	15.5																						
23-Apr	4.9	3.5	1.1	-0.9	-1.2	-0.3	3.4	5.5	6.6	7.7	9.1	10.1	11.0	11.8	12.4	12.7	12.3	12.3	11.0	8.5	6.4	6.0	5.2	3.9	6.8	12.7																						
24-Apr	2.5	2.0	1.8	0.9	0.1	0.7	2.1	4.9	7.2	9.4	11.2	12.6	13.7	14.1	14.6	14.7	14.2	13.6	13.2	12.5	12.1	11.4	10.7	9.3	8.7	14.7																						
25-Apr	7.5	7.4	6.9	6.0	5.9	4.5	5.8	7.5	8.9	10.1	10.7	12.0	12.9	12.8	12.2	12.3	10.9	9.7	5.8	1.8	0.7	0.0	0.0	-0.1	7.2	12.9																						
26-Apr	-0.5	-1.1	-1.5	-2.4	-3.4	-3.9	-3.9	-3.6	-3.2	-2.6	-1.8	-1.1	-0.1	0.8	1.5	2.1	2.4	2.2	1.5	0.5	-0.4	-1.4	-2.1	-2.4	-1.0	2.4																						
27-Apr	-2.5	-2.5	-2.3	-2.4	-2.3	-1.9	-0.5	1.6	4.0	5.8	7.0	8.0	9.0	9.5	10.1	9.8	9.8	9.4	7.8	6.2	5.6	5.2	4.9	4.1	4.3	10.1																						
28-Apr	4.5	4.2	3.6	3.4	3.0	2.8	4.2	5.5	6.9	8.0	7.4	7.8	8.3	9.2	9.5	9.3	8.7	7.5	6.6	5.9	4.8	3.7	2.7	1.7	5.8	9.5																						
29-Apr	1.9	1.9	1.4	1.4	1.4	2.0	2.0	1.8	1.9	2.5	3.0	3.9	4.8	5.7	7.0	7.6	7.8	7.7	7.2	6.2	5.4	4.7	4.1	3.5	4.0	7.8																						
30-Apr	3.0	2.6	2.2	1.9	1.6	1.5	1.2	0.9	0.4	0.1	0.1	0.3	0.4	0.9	1.5	2.5	3.5	3.6	3.3	3.0	2.6	2.2	1.6	1.2	1.7	3.6																						
																								1.1	0.7	0.3	-0.2	-0.5	-0.6	0.3	1.6	2.6	3.6	4.3	5.0	5.7	6.2	6.7	7.0	7.0	6.8	6.0	4.6	3.6	2.7	2.3	1.6	Diurnal Average
																								7.5	7.4	6.9	6.2	7.7	8.1	7.3	9.1	10.8	11.9	12.8	13.7	14.4	15.0	15.3	15.5	15.8	15.8	15.3	12.8	12.1	11.4	10.7	9.3	Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Firebag - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	209	29.03	29.03
0 - 10	416	57.78	86.81
10 - 20	95	13.19	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



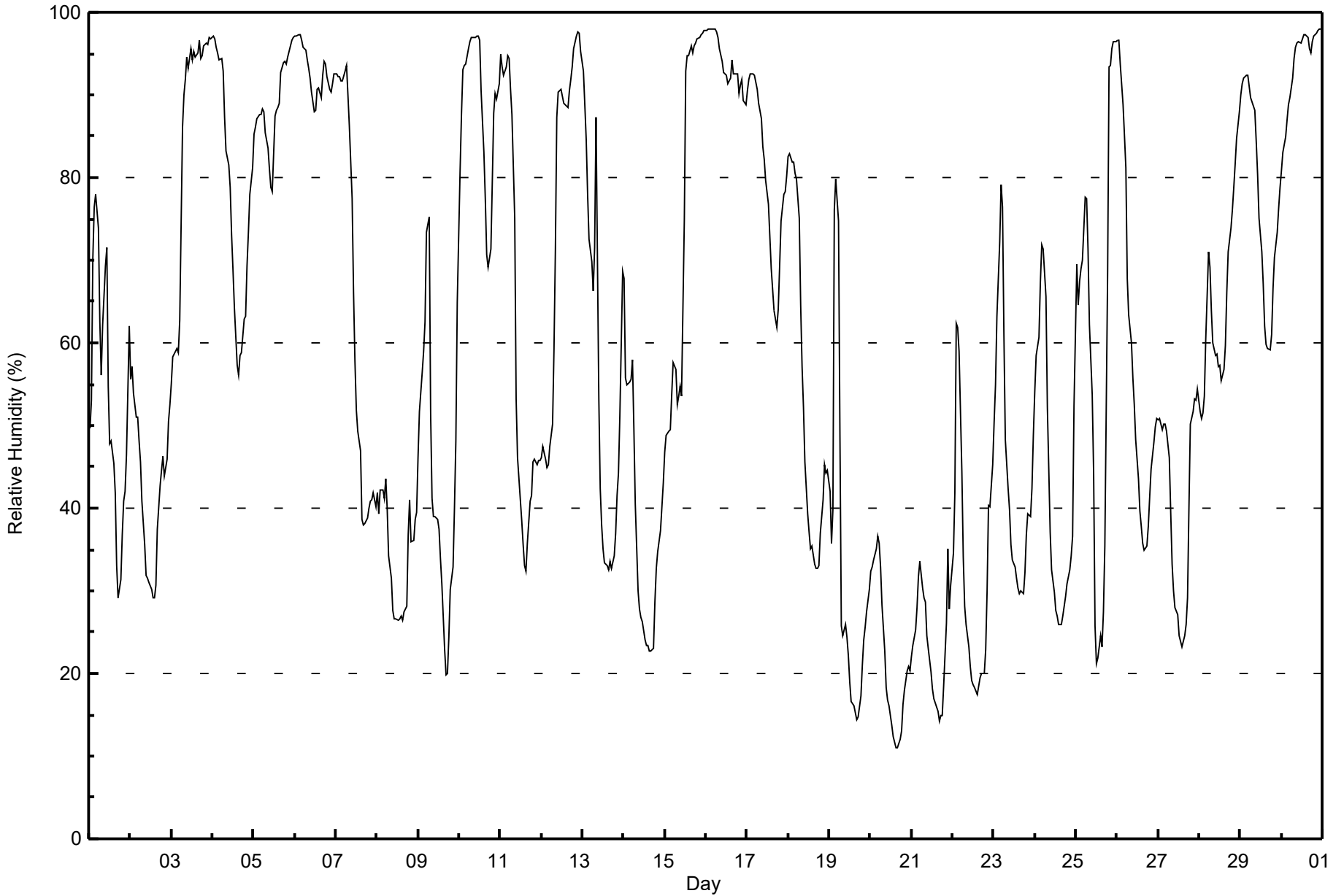
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Firebag - April 2024**

Maximum Value: 98.0 % on Apr 16 04:00      Maximum Daily Average: 94.0 % on Apr 16																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: 11.0 % on Apr 20 17:00      Minimum Daily Average: 21.8 % on Apr 20 Maximum Diurnal Average: 72.0 % at hour 6      Minimum Diurnal Average: 48.3 % at hour 16 Monthly Average: 59.78 %      Percentiles: P <sub>1</sub> = 14.2 P <sub>10</sub> = 25.7 Q <sub>1</sub> = 35.8 Median = 57.1 Q <sub>3</sub> = 88.7 P <sub>90</sub> = 95.1 P <sub>99</sub> = 97.8																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	49.6	53.0	70.1	76.4	78.0	73.9	62.5	56.0	62.1	69.4	71.5	54.8	47.8	48.1	45.4	41.9	33.0	29.2	31.4	36.9	40.8	42.0	46.5	62.0	53.4	78.0																							
2-Apr	55.6	57.1	54.0	51.0	51.0	48.1	45.5	40.9	35.5	31.9	31.5	31.1	30.2	29.2	29.1	30.7	37.5	42.8	44.7	46.3	43.8	46.0	50.4	52.6	42.3	57.1																							
3-Apr	55.1	58.3	59.0	59.3	58.8	62.7	86.1	90.0	91.9	94.6	93.3	95.5	94.2	95.3	94.6	95.1	96.6	94.4	94.8	96.0	96.3	96.1	97.0	96.8	85.5	97.0																							
4-Apr	97.2	96.8	95.8	95.1	94.3	94.4	92.9	87.4	83.2	81.5	78.9	73.0	68.8	64.2	57.2	56.1	58.5	58.9	62.9	63.2	69.2	73.4	77.9	81.3	77.6	97.2																							
5-Apr	85.3	86.2	87.1	87.6	87.6	88.4	88.0	85.5	83.6	81.0	78.8	78.3	87.5	88.1	88.6	89.0	92.7	93.9	94.0	93.7	94.6	96.0	96.5	96.9	88.7	96.9																							
6-Apr	97.1	97.2	97.3	97.2	96.6	95.8	95.4	94.2	93.3	92.0	90.4	88.0	88.2	90.7	90.9	89.6	92.4	94.1	93.8	92.3	90.7	90.4	91.4	92.6	93.0	97.3																							
7-Apr	92.6	92.2	92.2	91.8	91.7	92.9	93.6	90.0	86.3	77.4	66.0	57.8	51.9	49.3	46.9	38.6	38.0	38.1	38.9	40.0	40.8	41.0	41.8	40.2	63.7	93.6																							
8-Apr	41.8	39.3	42.2	42.1	41.2	43.5	40.0	34.2	31.5	27.6	26.6	26.6	26.5	26.7	27.0	26.5	27.4	28.2	36.9	41.1	36.0	36.1	38.7	39.5	34.5	43.5																							
9-Apr	46.0	51.7	56.4	58.9	62.5	73.5	75.2	51.6	41.1	39.1	39.1	38.7	37.4	33.8	30.8	22.9	19.9	19.9	24.4	30.1	32.8	39.9	48.1	65.0	43.3	75.2																							
10-Apr	80.7	87.7	93.0	93.5	93.7	95.6	96.4	96.9	97.0	97.0	97.1	97.0	96.6	90.6	83.1	77.5	70.6	69.2	71.4	79.5	87.8	90.1	89.5	91.4	88.5	97.1																							
11-Apr	95.0	93.5	92.3	93.3	94.8	94.4	90.7	87.6	75.0	53.2	46.1	43.6	38.4	35.6	33.0	32.4	35.8	40.9	41.5	45.7	45.9	45.2	45.7	45.7	60.2	95.0																							
12-Apr	46.1	47.5	45.9	45.0	45.3	47.5	50.2	59.2	71.1	87.3	90.4	90.7	89.8	89.0	88.9	88.4	90.6	91.9	93.5	95.6	97.2	97.6	97.5	95.3	76.7	97.6																							
13-Apr	92.8	88.9	84.5	78.0	72.5	69.9	66.3	71.5	87.4	53.2	42.4	37.9	35.1	33.4	33.0	32.5	33.6	32.7	34.3	37.0	41.5	44.2	51.2	68.6	55.1	92.8																							
14-Apr	67.9	55.8	55.0	55.2	55.7	57.9	49.6	40.5	30.0	27.7	26.8	26.3	24.0	23.4	23.3	22.7	22.7	23.1	28.6	32.8	34.8	37.3	40.1	43.0	37.7	67.9																							
15-Apr	46.7	48.8	49.3	49.5	53.8	57.6	56.9	52.5	53.6	54.7	53.5	75.0	92.9	94.8	94.8	96.0	95.0	95.9	96.3	96.7	97.0	97.3	97.5	97.7	75.2	97.7																							
16-Apr	97.8	97.9	98.0	98.0	98.0	97.9	97.6	97.0	95.7	94.0	92.7	92.6	92.3	91.3	92.0	94.2	92.5	92.6	92.5	90.2	91.3	91.8	89.3	88.9	94.0	98.0																							
17-Apr	90.5	91.8	92.5	92.5	92.4	91.5	90.7	89.1	87.1	83.7	82.2	79.6	76.8	72.8	68.9	66.4	63.9	61.8	64.1	69.4	74.8	78.0	78.3	80.2	80.0	92.5																							
18-Apr	82.5	83.0	81.9	81.8	80.5	79.8	75.1	64.6	57.1	52.2	45.5	39.3	37.1	35.1	35.4	33.2	32.7	32.6	33.1	36.9	41.0	45.2	44.3	44.5	53.1	83.0																							
19-Apr	42.1	35.8	39.8	76.2	79.9	74.8	49.1	25.8	24.6	26.0	24.4	22.2	18.9	16.6	16.2	15.2	14.4	14.8	17.2	21.1	24.0	25.6	27.5	30.2	31.8	79.9																							
20-Apr	32.4	32.9	33.7	35.1	36.5	35.8	32.9	28.2	22.7	18.3	16.8	16.1	13.7	12.5	11.6	11.1	11.0	12.0	13.1	16.3	18.0	20.3	20.8	20.3	21.8	36.5																							
21-Apr	22.0	23.4	25.2	28.0	31.8	33.5	30.4	29.2	28.6	24.6	23.0	20.2	18.2	17.0	16.4	15.4	14.2	15.0	15.0	18.5	26.0	35.1	27.7	30.6	23.7	35.1																							
22-Apr	34.5	41.9	62.4	61.8	59.0	44.3	34.1	28.1	25.9	23.3	20.8	19.1	18.7	18.3	17.5	18.4	19.4	20.1	20.1	22.9	29.9	40.4	40.1	45.3	31.9	62.4																							
23-Apr	50.3	55.0	63.3	72.2	79.2	76.5	61.1	48.4	42.4	39.8	35.6	33.7	33.0	31.6	30.3	29.7	30.0	29.6	32.2	36.8	39.2	38.9	42.4	48.8	45.0	79.2																							
24-Apr	54.0	58.4	60.7	67.3	71.9	71.3	65.5	52.2	44.7	37.1	32.6	29.9	27.6	26.9	25.9	26.0	26.9	28.1	29.3	30.9	32.5	34.2	36.5	52.4	42.6	71.9																							
25-Apr	69.5	64.5	67.4	69.0	70.0	77.7	77.4	71.4	62.2	53.8	44.3	25.7	21.3	21.9	24.5	23.2	27.4	35.4	68.6	93.4	93.6	95.5	96.4	96.5	60.4	96.5																							
26-Apr	96.6	96.6	93.8	88.8	85.0	81.2	67.9	63.4	60.0	55.8	52.5	48.3	43.5	39.7	37.8	35.8	34.9	35.4	37.9	41.4	44.8	48.0	49.8	50.8	57.9	96.6																							
27-Apr	50.7	50.9	49.6	50.3	50.1	49.3	46.1	39.5	33.2	29.9	28.0	27.1	24.6	23.9	23.3	24.5	25.9	29.1	40.0	50.2	51.6	53.2	53.0	54.4	39.9	54.4																							
28-Apr	51.7	50.9	51.5	53.5	60.6	71.0	69.2	63.9	60.0	58.4	58.7	57.1	57.3	55.5	56.7	59.6	66.2	71.0	73.9	76.0	78.9	81.8	84.7	88.0	64.8	88.0																							
29-Apr	90.0	91.3	92.0	92.4	92.5	91.0	89.7	89.2	88.2	84.3	80.4	75.0	71.0	67.0	62.1	59.8	59.3	59.1	61.0	66.6	70.4	73.5	76.3	78.7	77.5	92.5																							
30-Apr	80.9	83.1	84.9	86.9	88.7	89.7	92.0	94.3	95.8	96.3	96.5	96.4	96.7	97.3	97.4	97.0	95.6	95.2	96.5	97.1	97.5	97.8	97.9	98.0	93.7	98.0																							
																								66.5	67.0	69.0	70.9	71.8	72.0	68.9	64.1	61.7	58.2	55.5	53.2	52.0	50.7	49.4	48.3	48.6	49.5	52.7	56.5	58.8	61.1	62.5	65.9	Diurnal Average	
																								97.8	97.9	98.0	98.0	98.0	97.9	97.6	97.0	97.0	97.0	97.1	97.0	96.7	97.3	97.4	97.0	96.6	95.9	96.5	97.1	97.5	97.8	97.9	98.0	Diurnal Maximum	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Firebag - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	35	4.86	4.86
20 - 40	186	25.83	30.69
40 - 60	164	22.78	53.47
60 - 80	103	14.31	67.78
80 - 100	232	32.22	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Firebag - April 2024

Maximum Speed: 32 km/h on Apr 12 09:00	Maximum Daily Speed Average: 23.0 km/h on Apr 12	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 9 06:00	Minimum Daily Speed Average: 3.9 km/h on Apr 14	Hours of Data: 639
Maximum Diurnal Speed Average: 4.2 km/h at hour 1	Minimum Diurnal Speed Average: 0.9 km/h at hour 17	Hours of Missing Data: 81
Monthly Average Velocity: 1.0 km/h 163.7 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 6 Q <sub>1</sub> = 10 Median = 14 Q <sub>3</sub> = 19 P <sub>90</sub> = 23 P <sub>99</sub> = 27	Percent Operational Time: 88.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	S26	SW16WNW21	NW19WNW14	W19	W20WNW22WNW23	NW28	NW24	NW26	NW21WNW19WNW19WNW15	NW17	NW18	NW12	WNW8	WNW7	W7	WNW5	WSW4	WNW14.5	NW28								
2-Apr	SSW7	SSW6	SSW10	S11	SSE12	SSE13	SSE17	S21	S20	S20	S19	SSE18	SSE25	SSE25	S26	S24	S25	S19	SE13	SSE15	SSE21	S19	S14	S14	S16.8	S26	
3-Apr	S11	SSE9	SE5	SSE8	SE8	WNW1	NW9	NW7	NW16	NNW10	NW8	WSW13	W12	NNW10	NNW8	N12	NNW10	N10	N14	N15	N14	N12	UO	UO	NNW5.0	NW16	
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	ENE9	UO	NNE10	NNE13	ENE12	ENE10	UO	UO	UO	UO	---	NNE13
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	ENE9	UO	NE13	NE13	ENE11	ENE8	NE6	NE4	NE4	NE4	---	NE13
6-Apr	NNW3	NNW9	N9	N7	NNE7	NE7	NNE4	NNE9	NE9	NE8	NNE9	NNE10	NE10	NE12	NE8	NE6	NNE9	NE8	NE5	ESE4	ESE7	SE7	SSW5	SSW4	NE5.7	NE12	
7-Apr	SW5	S7	S6	SSW7	SW10	SW11	SW13	SSW14	SSW16	SW16	SW17	SW18	SW19	SW17	WSW18	SW16	SW15	SW11	SW9	SW9	SSW10	SSW11	SW10	SW10	SW12.2	SW19	
8-Apr	SSW10	SSW11	SSW11	SSW12	SSW11	SSW9	SSW11	SW11	SW13	SW16	SSW16	SSW15	SW15	SW20	SW22	SW20	SW14	SW10	S5	SE6	SE10	SE12	SSE5	SSE7	SSW10.9	SW22	
9-Apr	SE3	S2	SW4	SW2	NW4	E1	NNE3	NNE4	SSW4	WSW6	WSW11	SW12	SW17	WSW19	WSW16	W15	W15	W10	W14	W12	WNW11	W8	NW7	N10	W6.8	WSW19	
10-Apr	N12	N16	NNW17	NNW14	NW11	NW13	NNW17	NNW18	NNW18	NNW18	NNW13	NNW16	NNW19	NNW17	NNW15	N13	N13	N12	NNE10	ENE6	ENE6	ESE5	E9	ESE6	N11.2	NNW19	
11-Apr	S7	S7	SSE8	SE9	SSE9	SSE12	SSE13	SSE16	SSE19	SSE19	S20	SSE21	SSE22	SSE19	SSE21	SSE23	SE23	SE25	SE22	SE21	SE23	SE23	SSE23	SSE25	SSE17.5	SSE25	
12-Apr	S25	S24	S24	S26	S26	S24	S26	S27	S32	SSE30	SSE29	SSE25	SSE25	SSE25	SSE26	SSE22	SSE19	S19	S18	SSE18	SSE19	SSE15	S15	S16	S23.0	S32	
13-Apr	S15	SSW14	SSW15	SW14	SW16	SW16	WSW16	W18	WNW15	NW22	WNW24	WNW24	WNW22	WNW23	WNW24	WNW23	WNW20	WNW21	NW15	WNW10	W7	W7	W4	SW3	W13.1	WNW24	
14-Apr	SSW4	SW8	SW8	SW9	SSW9	S5	SSW7	SW10	SW11	SW7	W7	SW10	WSW7	WSW9	SW12	SW6	SSW6	E8	E13	E11	E12	E16	E17	ESE16	S3.9	E17	
15-Apr	ESE13	ESE13	ESE14	ESE16	ESE14	SE10	SSE9	N4	NNE9	ENE12	E15	E16	ENE14	ENE15	NE16	NE17	NE18	NE17	NE17	NE15	NE13	NNE11	NNE9	NNE8	ENE10.9	ENE18	
16-Apr	NNE12	NNE15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNE15	
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNE14	NNE10	NNE8	NNE13	NNE11	NNE5	UO	UO	---	NNE14	
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	NNE14	N14	N20	NNE22	N22	N23	NNE21	NNE22	NNE23	NNE19	NNE16	NNE10	NNE8	NNE9	NNE9	NNE8	---	NNE23	
19-Apr	NE8	NE9	NE4	NNW2	SSW3	SW3	WSW5	W9	W10	WSW10	WNW9	WNW11	WNW11	WNW10	WNW12	WNW10	W11	W10	SW11	SW9	SW11	SW13	SW12	SW11	W6.2	SW13	
20-Apr	SW10	SW11	SW11	SW11	SW12	SW11	SW12	WSW14	WSW14	W12	WNW14	W15	WNW14	WNW16	WNW15	WNW14	W11	WSW11	SW11	SSW9	SSW11	SSW11	SSW11	SSW12	WSW10.5	WNW16	
21-Apr	SSW14	SSW13	SSW13	SSW11	SSE11	SSE11	SSE11	SSE12	S14	SSE20	SSE20	SSE17	SSE14	SSE10	SSE8	S8	S4	NE2	NE6	NNW6	NNW8	ENE4	ESE11	ESE8	SSE8.0	SSE20	
22-Apr	ESE5	ESE4	SSW3	NNW3	N6	NNE7	N8	N13	NNE16	NNE18	NNE17	NNE15	N15	N13	N16	N16	NNE16	NNE15	NNE15	NE8	NE5	N10	N15	N14	NNE10.2	NNE18	
23-Apr	N12	NNE8	NNE6	N5	NNW5	N4	N6	N11	NNW13	NNW12	NNW12	NNW12	NNW13	NNW11	N11	NNE10	NNE11	NNE13	NNE14	NE12	ENE12	ENE15	E19	ESE19	NNE8.6	E19	
24-Apr	ESE17	ESE16	ESE16	ESE15	ESE14	ESE18	ESE16	ESE19	ESE22	ESE22	ESE22	ESE23	SE23	ESE26	ESE26	ESE27	ESE24	ESE25	ESE25	ESE19	E22	ESE17	SE17	SSW25	ESE20.2	ESE27	
25-Apr	ESE17	SE15	SE19	SSE17	SSW15	SW11	WSW10	W11	WNW11	W15	WSW21	W22	W22	WSW23	WSW26	WSW27	WSW21	W20	NNW21	NNW15	NNW22	NNW19	NNW19	NNW24	W10.1	WSW27	
26-Apr	NNW22	NNW25	NNW27	NNW28	NNW22	NNW22	NNW23	NNW23	NNW22	NNW23	NNW20	NNW21	NNW19	NNW18	NNW17	NNW15	NNW14	NNE12	NE11	NE9	E9	ESE9	SE11	SE13	NNW14.4	NNW28	
27-Apr	SE13	SSE15	SSE22	S20	S23	S22	S19	S21	SSW22	SSW21	SSW20	S22	S25	S26	S24	S26	S24	S24	SSW25	S21	S16	SSE17	SE13	SE11	S19.7	S26	
28-Apr	SE13	SE14	SE14	SE14	SE12	SE12	SSE18	SSE23	SSE19	SSE18	SE18	SE18	SE16	SE17	SE19	SE19	SE20	ESE19	SE17	SE17	SE17	SE15	ESE14	SE12	SE16.1	SSE23	
29-Apr	SE13	ESE13	SE10	SE11	ESE7	ENE10	ENE9	ENE10	ENE10	ENE9	NE11	NNE11	NNE11	NE12	NE15	NNE15	NNE17	NNE17	NNE16	NNE16	NNE15	NNE14	NNE14	NNE15	NE10.1	NNE17	
30-Apr	NNE14	NNE16	NNE18	NNE22	NNE21	NNE21	NNE22	NNE22	NNE20	N18	NNE19	NNE20	NNE22	NNE22	NNE23	NNE23	NNE21	NNE18	N16	N16	NNE21	NNE18	NNE18	NNE15	NNW19.2	NNE23	
SSE4.2 SSE3.1 S3.2 S3.2 S3.9 S3.4 SSW3.5 SW3.0 WSW2.5 WSW1.7 WSW1.8 WSW1.3 WSW2.9 WNW1.5 NW1.4 NW0.9 NNE0.9 NE2.5 NE3.3 E2.7 E3.5 ESE3.4 ESE3.6 SE3.6																								Diurnal Average			
S26 NNW25 NNW27 NNW28 S26 S24 S26 S27 S32 SSE30 SSE29 NNW26 SSE25 S26 WSW26 WSW27 S25 ESE25 ESE25 S21 SE23 SSE23 SSE23 SSE25																								Diurnal Maximum			

UO - Unstable Operation

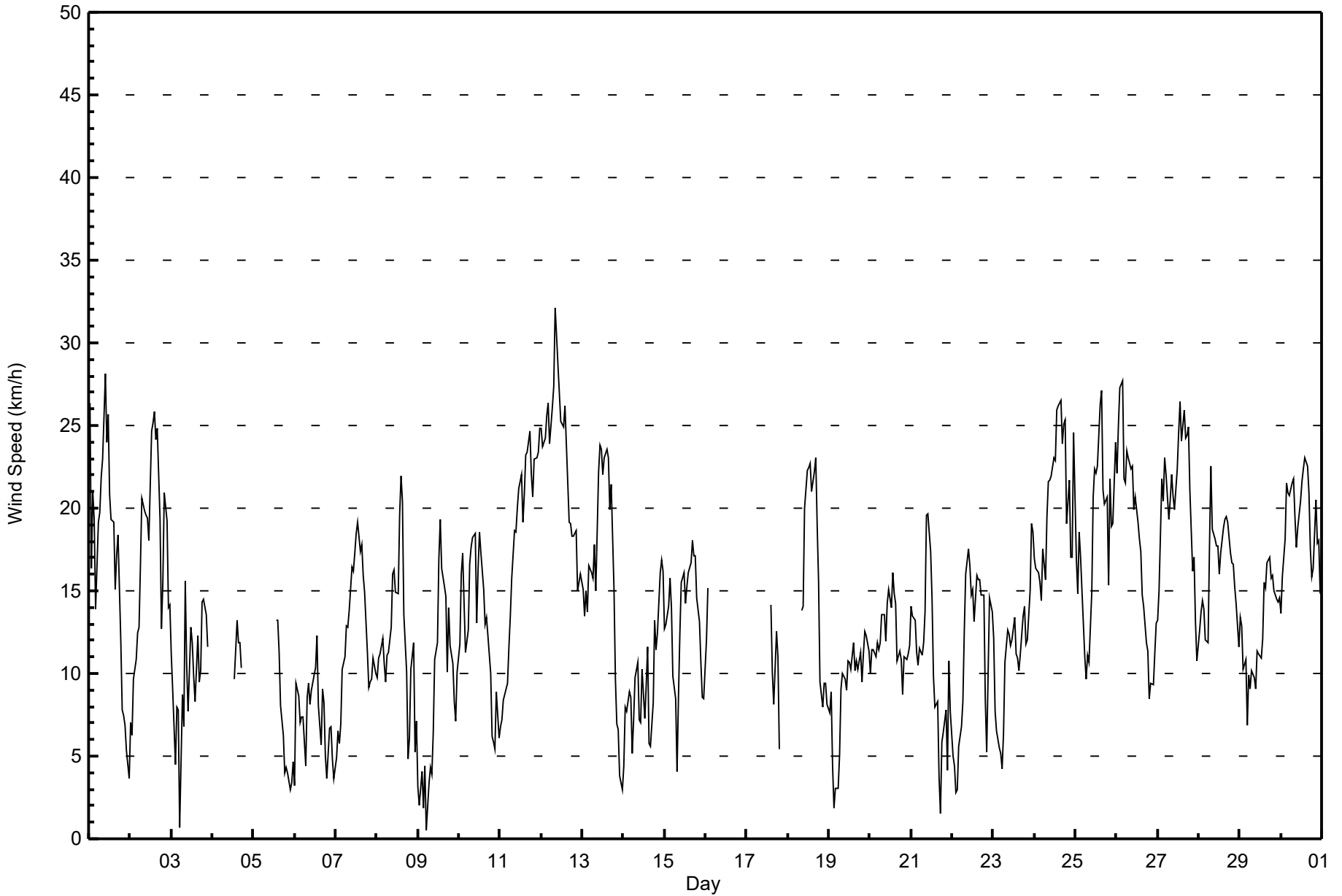
All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Firebag - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Firebag - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	51	7.98	7.98
6 - 11	189	29.58	37.56
12 - 19	263	41.16	78.72
20 - 28	133	20.81	99.53
29 - 38	3	0.47	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 639

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Firebag - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	4	4	8	1	1	4	2	1	4	6	5	2	1	2	1	5	51
6 - 11	10	27	14	11	4	6	10	11	7	20	27	7	12	10	5	8	189
12 - 19	22	35	13	7	7	21	25	26	12	12	24	7	10	11	7	24	263
20 - 28	2	18	0	0	1	11	6	20	28	4	3	5	4	11	4	16	133
29 - 38	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	3
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>38</b>	<b>84</b>	<b>35</b>	<b>19</b>	<b>13</b>	<b>42</b>	<b>43</b>	<b>60</b>	<b>52</b>	<b>42</b>	<b>59</b>	<b>21</b>	<b>27</b>	<b>34</b>	<b>17</b>	<b>53</b>	<b>639</b>

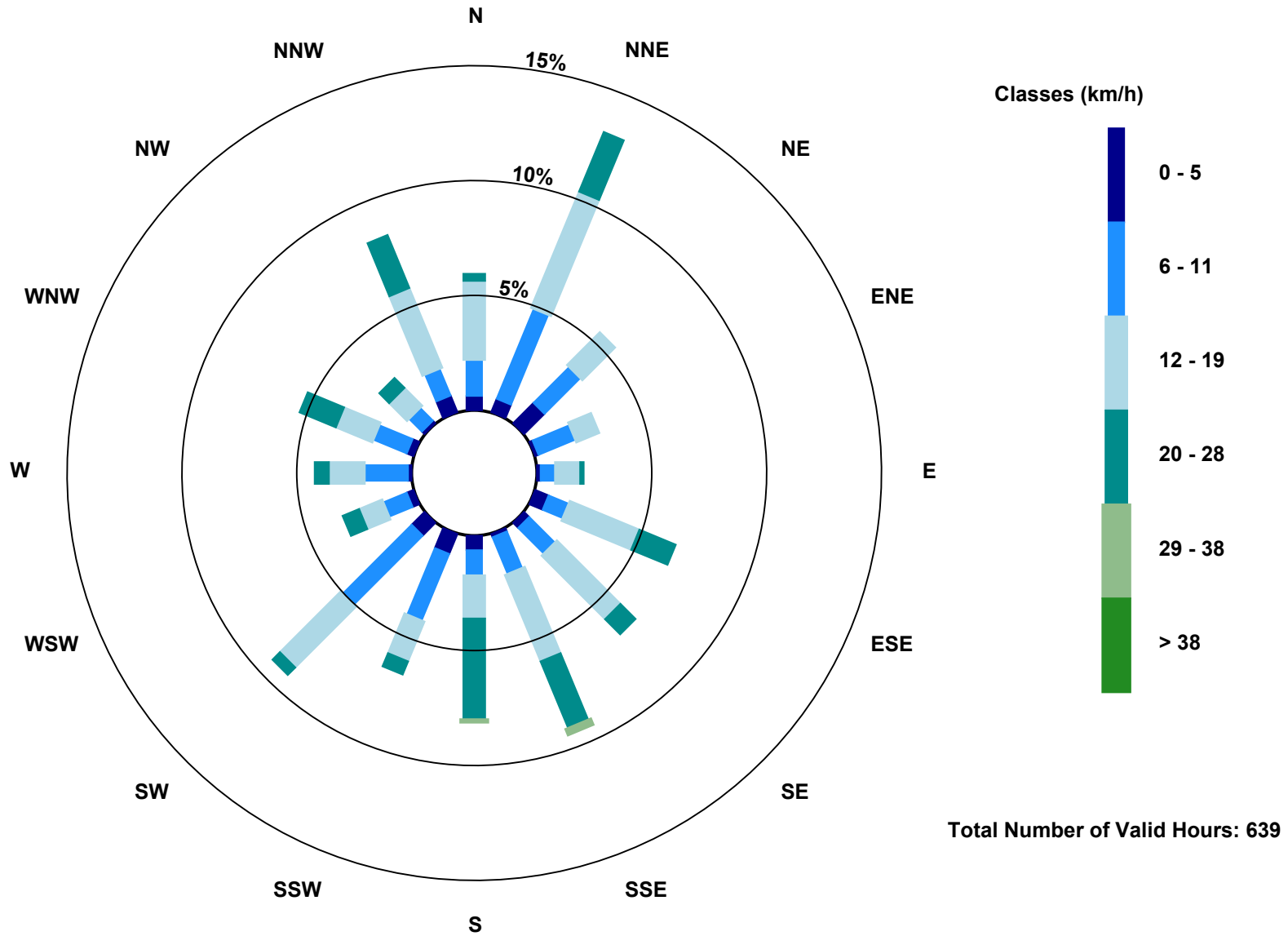
Total Number of Valid Hours: 639

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Firebag





# Wood Buffalo Environmental Association

## Summary of Hour Standard Deviations

# Wind Speed (WS) - km/h

## Firebag - April 2024

Number of Exceedences (AAAQO):	1-hr: 0    24-hr: 0	Hours in Service:	720
Maximum Value: 9 km/h on Apr 17 15:00		Hours of Data:	639
Minimum Value: 1 km/h on Apr 23 05:00		Hours of Missing Data:	81
		Hours of Calibration:	0
		Percent Operational Time:	88.8
Percentiles: P <sub>1</sub> = 1   P <sub>10</sub> = 1   Q <sub>1</sub> = 2   Median = 3   Q <sub>3</sub> = 4   P <sub>90</sub> = 5   P <sub>99</sub> = 7			

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	4	4	5	5	4	4	4	6	6	6	5	6	6	5	6	4	6	4	4	1	1	1	2	2	6
2-Apr	1	1	2	1	1	2	2	3	3	3	4	3	5	4	4	5	4	4	2	2	3	3	2	2	5
3-Apr	2	2	2	4	4	3	3	2	3	4	2	4	4	2	2	2	3	2	3	3	3	3	UO	UO	4
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	UO	UO	4	4	3	3	2	UO	UO	4
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	3	3	2	1	2	1	1	1	2	5
6-Apr	1	3	2	2	2	2	1	2	2	2	2	2	3	3	3	2	2	2	1	1	1	2	1	1	3
7-Apr	1	1	1	2	2	2	2	2	3	2	3	3	4	4	4	4	4	3	2	1	1	1	2	1	4
8-Apr	1	1	2	2	1	1	1	2	2	3	3	4	4	5	4	5	6	4	1	1	2	2	6	5	6
9-Apr	3	2	2	1	3	1	1	1	3	3	3	4	5	6	5	6	5	3	4	5	6	2	1	3	6
10-Apr	2	4	4	4	2	4	4	4	4	4	3	4	4	4	3	3	3	3	2	1	2	1	1	1	4
11-Apr	1	1	1	1	1	1	2	2	3	3	3	3	3	4	5	5	5	6	4	4	4	4	4	3	6
12-Apr	3	3	4	4	4	3	4	4	6	5	5	4	4	5	4	4	3	3	3	3	3	3	2	2	6
13-Apr	2	2	2	2	2	3	3	4	5	7	7	7	6	6	7	6	6	6	4	3	1	1	1	2	7
14-Apr	2	1	1	1	2	1	1	2	2	4	3	5	4	5	5	3	3	4	4	2	3	5	3	2	5
15-Apr	2	2	2	2	3	2	4	4	2	3	4	4	3	3	3	3	3	3	3	3	2	2	2	2	4
16-Apr	3	6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9	7	7	8	7	5	UO	UO	UO	9
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	5	6	5	5	5	5	5	5	5	5	4	4	2	1	1	1	6
19-Apr	1	1	2	1	1	1	1	2	2	3	3	3	3	3	4	4	3	3	2	1	1	1	1	2	4
20-Apr	1	1	1	1	1	1	2	2	2	3	4	4	5	4	5	5	4	3	3	1	1	1	1	1	5
21-Apr	2	2	2	1	1	1	2	2	2	4	4	4	4	5	4	5	3	2	2	3	2	1	2	1	5
22-Apr	1	1	1	2	1	1	2	3	3	4	4	4	4	5	5	5	5	3	3	2	1	6	3	2	6
23-Apr	2	2	1	1	1	1	2	3	3	4	4	4	5	4	5	5	4	3	3	3	2	3	4	4	5
24-Apr	3	3	3	2	2	3	4	4	4	5	4	5	5	5	5	5	5	5	5	5	6	4	4	8	8
25-Apr	4	3	3	3	2	2	2	2	3	4	5	6	7	7	7	7	6	7	7	4	5	5	4	6	7
26-Apr	5	6	7	6	5	6	5	6	5	5	5	5	5	5	5	5	5	5	3	1	2	2	3	2	7
27-Apr	2	3	3	3	3	3	3	3	3	4	5	6	6	6	6	4	5	5	5	5	3	3	3	2	6
28-Apr	2	2	2	2	2	2	4	4	4	3	3	3	3	3	4	4	3	4	3	4	3	3	3	3	4
29-Apr	3	3	3	2	2	2	2	2	3	3	3	3	3	4	4	4	3	4	4	3	3	3	3	3	4
30-Apr	3	3	4	4	5	4	5	5	5	4	4	4	5	5	5	5	5	5	3	3	4	4	4	4	5

Diurnal Maximum

UO - Unstable Operation



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Direction (WD) - deg

## Firebag - April 2024

Direction of Maximum Speed: 184 deg on Apr 12 09:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 169.0 deg on Apr 12	Hours of Data: 639
Direction of Minimum Speed: 97 deg on Apr 9 06:00	Hours of Missing Data: 81
Direction of Minimum Daily Speed Average: 3.9 deg on Apr 14	Percent Operational Time: 88.8
Monthly Average Direction: 163.7 deg	

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-Apr	187	235	299	312	283	269	265	293	302	323	325	326	309	302	299	296	309	318	316	303	290	280	285	251	296.3			
2-Apr	212	201	193	173	168	161	159	173	169	171	175	150	162	168	173	169	177	172	144	148	167	178	184	185	170.1			
3-Apr	185	163	144	158	139	299	317	307	314	338	319	251	278	336	331	356	346	352	7	9	9	8	UO	UO	333.9			
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	21	31	52	68	60	UO	UO	UO	UO	UO	--			
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	76	UO	50	49	59	70	52	45	54	34	37	353	328	--
6-Apr	342	346	356	8	29	43	29	26	38	36	15	30	37	40	39	39	24	43	55	104	112	132	210	197	34.3			
7-Apr	222	190	170	199	226	221	217	215	212	203	214	222	221	226	232	247	219	217	218	220	215	212	209	214	217.9			
8-Apr	210	203	199	208	211	200	205	223	226	225	209	211	227	220	220	223	227	220	173	136	128	134	156	166	207.0			
9-Apr	126	186	217	232	308	97	31	24	212	246	238	235	230	244	249	261	265	280	279	280	293	275	305	3	262.6			
10-Apr	360	353	347	335	310	317	329	336	342	344	348	343	331	341	345	354	4	10	25	67	65	102	85	115	350.3			
11-Apr	178	173	157	146	157	165	163	164	165	164	173	163	161	151	164	160	143	134	135	134	139	146	150	165	154.4			
12-Apr	173	173	173	170	170	171	173	181	184	168	162	160	164	156	157	164	168	170	170	166	166	168	169	174	169.0			
13-Apr	186	204	212	217	220	233	241	265	284	308	292	290	291	300	294	294	296	303	308	291	280	263	279	216	273.9			
14-Apr	199	220	218	216	211	183	212	218	222	217	277	216	243	254	234	227	207	84	86	82	88	80	99	108	176.4			
15-Apr	113	113	108	107	109	134	164	1	22	67	81	92	62	58	53	54	57	52	47	47	41	29	26	28	69.7			
16-Apr	17	15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--			
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	12	13	16	17	16	15	UO	UO	UO	--		
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	16	10	11	15	11	11	18	22	19	23	20	19	18	21	24	32	--		
19-Apr	49	54	40	335	208	226	252	266	269	247	286	299	286	301	300	303	281	269	233	219	217	225	230	236	265.1			
20-Apr	236	230	231	229	228	227	230	241	245	261	289	276	285	285	290	291	274	248	233	208	202	200	200	204	246.6			
21-Apr	208	208	206	192	166	168	161	162	170	166	160	156	158	162	161	191	169	45	42	343	341	62	117	117	167.0			
22-Apr	120	117	208	331	355	19	351	5	21	28	22	18	351	359	8	10	12	24	18	34	36	352	353	4	12.5			
23-Apr	10	20	16	353	334	356	350	351	344	344	346	343	335	336	2	26	24	23	32	50	59	76	87	103	19.9			
24-Apr	107	109	107	110	110	107	115	117	115	121	124	108	111	109	115	107	104	117	104	117	95	120	132	159	114.8			
25-Apr	116	135	155	164	200	219	252	264	286	260	247	259	260	254	254	250	258	272	339	334	342	333	334	339	267.7			
26-Apr	333	337	343	343	339	334	331	334	334	339	336	342	337	332	340	340	342	13	43	55	94	112	129	139	345.6			
27-Apr	145	159	168	170	173	181	185	191	197	198	199	185	188	178	179	183	180	180	204	191	169	151	138	134	179.2			
28-Apr	136	135	131	134	135	139	148	154	159	153	141	136	143	131	128	141	141	117	128	137	131	128	123	130	137.2			
29-Apr	126	118	126	138	110	77	75	67	65	57	39	30	33	37	39	28	26	24	22	23	21	18	23	21	47.4			
30-Apr	16	19	22	19	17	20	22	18	16	10	12	17	19	18	18	21	17	12	7	6	15	17	17	13	16.5			

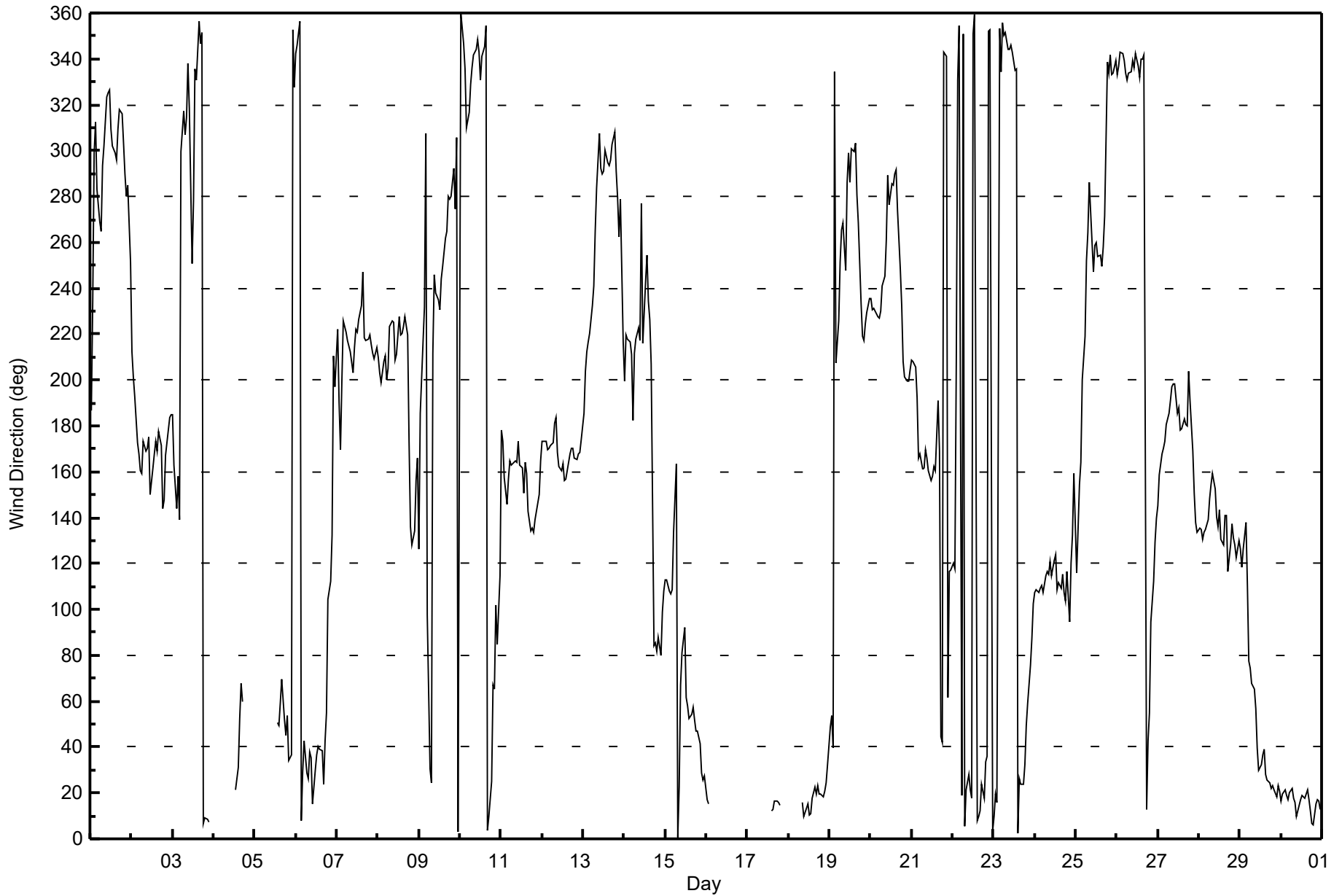
152.7	155.9	170.0	171.5	183.8	186.7	207.5	231.5	249.4	248.8	257.1	247.0	256.9	295.9	314.6	322.2	13.3	39.2	45.7	81.7	92.2	110.5	115.6	132.5
Diurnal Average																							

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Firebag - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Firebag - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 99 deg on Apr 3 06:00	Hours of Data: 639
Minimum Value: 3 deg on Apr 19 00:00	Hours of Missing Data: 81
Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 8 Q <sub>1</sub> = 11 Median = 14 Q <sub>3</sub> = 18 P <sub>90</sub> = 27 P <sub>99</sub> = 73	Hours of Calibration: 0
	Percent Operational Time: 88.8

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-Apr	9	35	19	12	19	15	14	18	17	13	13	14	18	19	17	19	16	13	11	8	8	12	11	39	39
2-Apr	14	15	6	8	6	6	7	8	8	8	9	12	12	9	8	9	9	10	13	11	9	8	7	8	15
3-Apr	9	12	56	45	66	99	15	20	13	15	25	14	21	14	16	14	13	17	13	14	13	15	UO	UO	99
4-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	26	19	20	17	13	UO	UO	UO	UO	UO	UO	26
5-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	17	10	13	17	16	28	19	22	27	26	13	28
6-Apr	19	12	18	20	18	13	21	18	15	22	20	17	17	15	19	11	18	14	21	26	14	18	36	40	40
7-Apr	17	12	24	11	12	10	9	10	10	13	16	15	16	16	18	17	18	13	10	9	11	10	8	10	24
8-Apr	9	8	9	8	9	5	7	13	16	15	17	19	23	17	16	19	16	11	18	14	8	11	47	49	49
9-Apr	70	78	33	76	41	75	39	29	63	45	28	24	21	19	20	25	20	17	16	23	35	14	18	14	78
10-Apr	12	14	13	18	14	14	14	12	13	13	13	13	12	16	20	18	19	15	16	9	10	14	6	26	26
11-Apr	22	7	9	10	9	8	8	7	9	10	11	13	13	19	17	17	23	12	12	11	12	11	10	9	23
12-Apr	8	7	8	9	9	8	8	8	9	9	9	10	10	11	11	11	9	8	9	9	8	9	8	8	11
13-Apr	7	11	8	9	9	11	13	13	19	17	18	21	20	16	20	18	18	17	14	17	10	23	38	18	38
14-Apr	31	8	8	8	18	14	11	9	15	44	45	32	53	43	28	55	59	45	13	14	13	14	11	9	59
15-Apr	10	10	9	9	11	18	25	96	17	19	20	17	11	10	12	11	10	9	9	9	9	10	12	11	96
16-Apr	12	11	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	12
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	15	16	14	13	11	11	UO	UO	UO	UO	16
18-Apr	UO	UO	UO	UO	UO	UO	UO	UO	14	16	16	16	17	17	15	16	15	13	13	9	7	5	4	3	17
19-Apr	12	4	25	63	13	21	15	14	22	27	36	23	28	30	24	29	28	24	15	7	7	8	8	8	63
20-Apr	7	7	8	8	7	8	10	10	12	23	20	22	26	27	25	27	47	33	10	10	4	4	5	6	47
21-Apr	8	8	9	11	6	6	8	9	11	16	17	18	24	33	61	52	85	93	22	31	8	43	10	10	93
22-Apr	14	23	33	33	14	4	13	16	16	16	17	20	23	31	21	22	23	15	14	10	8	15	13	14	33
23-Apr	10	8	4	14	9	4	14	16	18	22	24	28	28	32	30	45	25	17	14	10	11	11	10	12	45
24-Apr	10	10	9	10	10	11	13	12	12	15	15	18	17	14	16	12	13	11	11	15	13	16	19	22	22
25-Apr	12	20	10	11	12	11	14	22	26	23	17	24	28	22	16	14	18	32	20	13	13	12	12	13	32
26-Apr	12	13	14	13	12	11	11	13	16	19	19	18	22	22	22	27	23	29	18	11	15	14	14	12	29
27-Apr	11	11	8	7	8	8	8	9	10	14	16	16	18	16	19	11	16	16	12	11	14	10	11	12	19
28-Apr	12	12	11	11	12	12	11	12	12	18	15	14	19	19	18	18	15	16	15	15	13	13	13	14	19
29-Apr	14	14	13	13	25	15	14	16	21	27	18	20	25	21	20	19	15	12	12	12	12	11	12	11	27
30-Apr	12	12	11	12	13	12	12	13	13	13	13	12	12	14	12	12	13	15	15	14	11	12	12	15	15

70	78	56	76	66	99	39	96	63	45	45	32	53	43	61	55	85	93	28	31	35	43	47	49	
Diurnal Maximum																								

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS20 MACKAY RIVER APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)

APRIL 2024

MONTHLY SUMMARY

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	686	34	34	100	13.6	0	2.9	0
H2S (ppb) Average	685	35	35	100	4.8	0	0.6	0
THC (ppm) Average	686	34	34	100	3.1	-	2.4	-
NO2 (ppb) Average	686	34	34	100	29.9	0	7.1	-
NO (ppb) Average	686	34	34	100	5.9	-	1.2	-
NOX (ppb) Average	686	34	34	100	31.6	-	7.4	-
Temperature 2 m (C) Average	720	0	0	100	18.9	-	9.9	-
Relative Humidity (%) Average	720	0	0	100	100	-	96.9	-
Wind Speed 10 m (km/h) Average	719	0	1	99.86	20	-	15	-
Wind Direction 10 m (deg) Average	719	0	1	99.86	-	-	-	-
Precipitation (mm) Total	720	0	0	100	3.3	-	9.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	0.67	1.6	-	0	0	0	0.1	0.4	1.8	13.6
H2S (ppb) Average	685	0.14	0.3	-	0	0	0	0.1	0.1	0.2	4.8
THC (ppm) Average	686	2.27	0.1	-	2.1	2.2	2.2	2.3	2.3	2.4	3.1
NO2 (ppb) Average	686	1.77	2.7	-	0.1	0.3	0.4	0.7	2.1	4.2	29.9
NO (ppb) Average	686	0.17	0.5	-	0	0	0	0	0.1	0.5	5.9
NOX (ppb) Average	686	1.94	3.1	-	0.1	0.3	0.4	0.8	2.2	4.7	31.6
Temperature 2 m (C) Average	720	4.12	6.1	-	-15.3	-2.6	-0.5	3.4	8.5	13.1	18.9
Relative Humidity (%) Average	720	56.86	25.8	-	10.2	23.7	32.9	57	77.9	93.9	100
Wind Speed 10 m (km/h) Average	719	8.5	4	-	0	3	5	8	11	15	20
Wind Direction 10 m (deg) Average	719	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	720	-	-	26.45	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION -MACKAY RIVER (AMS20)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	22 Apr 2024 03:00	22 Apr 2024 03:00	1	Flat line in sensor output signal



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Mackay River - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 13.6 ppb on Apr 4 16:00	Maximum Daily Average: 2.9 ppb on Apr 6		Hours of Data:	686
Minimum Value: 0.0 ppb on Apr 2 14:00	Minimum Daily Average: 0.0 ppb on Apr 20		Hours of Missing Data:	34
Maximum Diurnal Average: 1.3 ppb at hour 16	Minimum Diurnal Average: 0.3 ppb at hour 2		Hours of Calibration:	34
Monthly Average: 0.67 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 1.8 P <sub>99</sub> = 7.6		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-Apr	Z	1.6	0.3	0.1	0.2	0.2	0.1	0.2	0.1	4.9	5.5	3.0	1.1	0.4	0.1	1.7	5.0	6.7	4.1	0.3	0.6	0.3	0.2	0.2	1.6	6.7	
2-Apr	0.0	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.3	
3-Apr	0.1	0.2	Z	1.2	2.6	2.0	1.9	0.5	1.4	0.7	0.2	0.1	0.1	0.1	0.1	1.5	0.7	0.1	1.7	3.3	1.7	0.6	0.4	0.3	0.9	3.3	
4-Apr	0.1	0.0	0.0	Z	0.0	2.1	2.7	0.2	0.4	0.1	0.0	0.1	0.1	0.4	4.5	13.6	7.5	7.1	2.6	2.3	2.0	2.8	1.3	0.4	2.2	13.6	
5-Apr	0.1	0.1	0.1	0.0	Z	0.1	0.0	0.1	0.3	0.2	2.1	4.7	5.2	11.4	8.2	6.6	4.3	2.8	1.5	0.4	0.4	0.7	1.5	2.1	2.3	11.4	
6-Apr	0.9	0.8	0.7	0.1	0.1	Z	0.5	2.4	1.0	6.6	2.1	0.8	4.9	10.6	10.9	7.0	5.5	3.7	2.2	2.2	1.1	0.7	0.8	0.7	2.9	10.9	
7-Apr	Z	0.7	0.6	0.5	0.5	0.3	0.5	0.6	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.7	
8-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
9-Apr	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2
10-Apr	0.0	1.5	0.1	Z	1.7	0.2	0.1	C	C	C	C	0.0	3.0	1.2	0.3	0.0	0.0	0.0	0.4	1.9	0.7	0.2	0.0	0.0	0.6	3.0	
11-Apr	0.0	0.0	0.0	0.0	Z	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.3	0.2	0.5	
12-Apr	0.4	0.7	0.5	0.4	0.2	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.7	
13-Apr	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
14-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.4	0.1	0.2	0.2	0.1	0.3	0.5	0.5	0.1	0.5	
15-Apr	0.5	0.4	Z	0.6	0.4	0.6	3.6	2.6	0.4	0.2	0.2	5.9	5.3	3.3	1.7	4.0	0.5	0.1	1.3	1.3	0.3	1.5	0.5	0.1	1.5	5.9	
16-Apr	0.0	0.0	0.1	Z	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.4	
17-Apr	0.3	0.4	0.3	0.3	Z	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.4	
18-Apr	0.0	0.1	0.1	0.1	0.3	Z	0.7	0.9	0.6	0.7	0.5	0.4	0.3	0.1	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.9	
19-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.5	0.4	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.2	0.5	
20-Apr	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
21-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.5	0.4	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.2	0.5	
22-Apr	0.3	0.3	0.3	Z	0.4	0.3	0.2	1.7	1.1	0.7	0.6	0.3	0.2	0.2	0.4	3.1	0.8	3.5	0.4	0.1	0.0	0.0	0.3	0.2	0.7	3.5	
23-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	2.5	5.3	4.7	5.9	4.4	1.4	0.9	1.0	0.2	0.1	2.4	1.7	4.1	0.5	0.9	1.8	0.8	1.7	5.9	
24-Apr	0.1	0.0	0.0	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	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.0	0.2	
25-Apr	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.9	0.0	3.0	0.0	0.0	2.9	0.5	3.9	
26-Apr	6.7	Z	7.1	4.1	1.1	0.7	2.9	0.0	1.8	1.8	0.0	0.4	0.2	0.9	0.4	0.6	0.0	0.0	0.0	0.0	1.5	1.1	0.3	0.1	1.4	7.1	
27-Apr	0.1	0.2	Z	0.4	0.5	0.6	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.6	
28-Apr	0.3	0.3	0.2	Z	0.1	0.1	0.3	0.2	0.3	0.4	0.5	0.6	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.6	
29-Apr	0.2	0.2	0.1	0.2	Z	0.0	0.1	0.1	0.4	4.7	12.6	9.5	1.3	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.2	0.1	1.3	12.6	
30-Apr	0.0	0.1	0.2	0.1	0.2	Z	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.4	

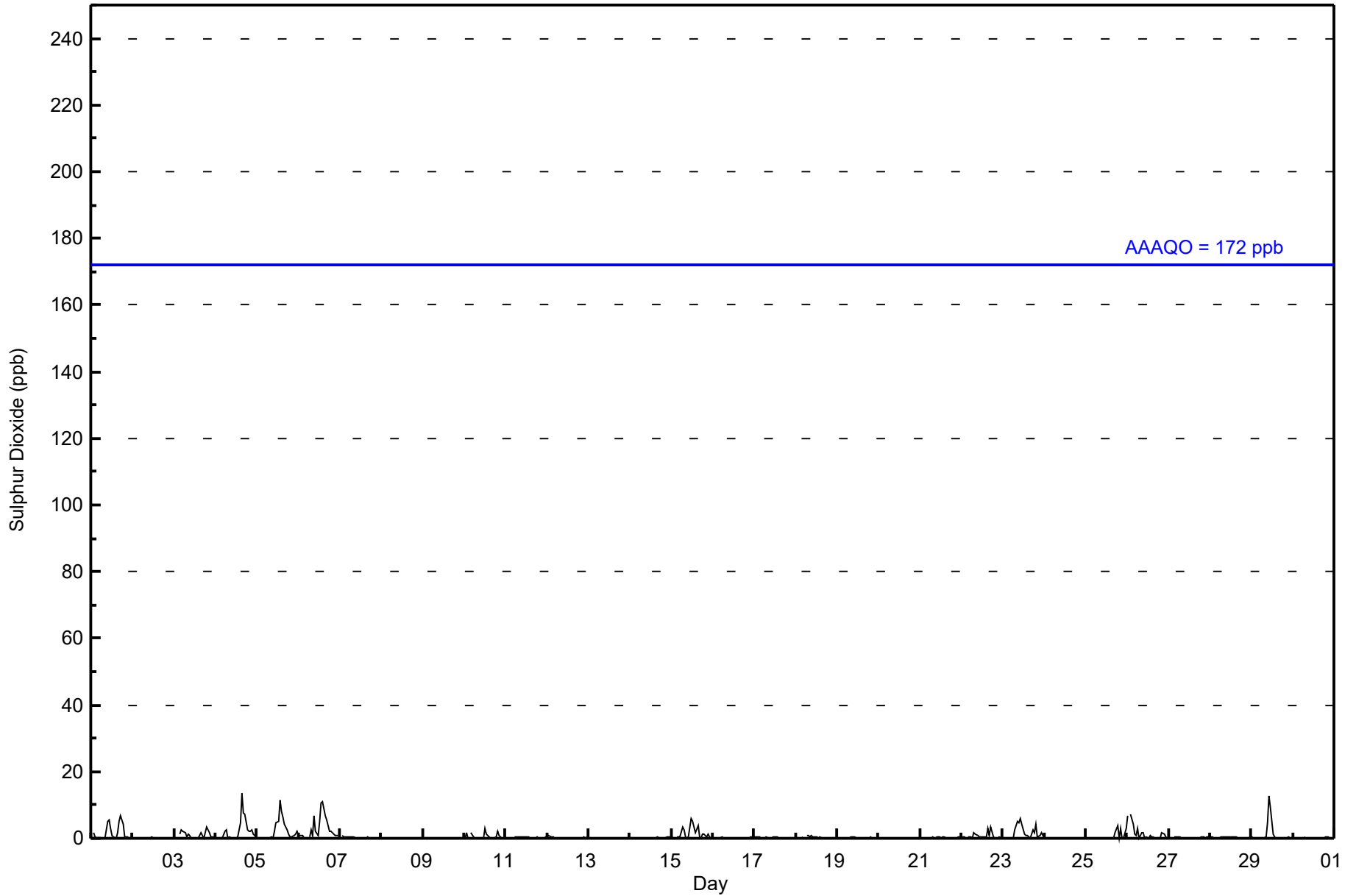
0.4	0.3	0.4	0.4	0.3	0.3	0.5	0.5	0.5	1.0	1.1	1.1	0.9	1.1	1.0	1.3	0.9	1.0	0.7	0.6	0.5	0.4	0.3	0.4	Diurnal Average	
6.7	1.6	7.1	4.1	2.6	2.1	3.6	2.6	5.3	6.6	12.6	9.5	5.3	11.4	10.9	13.6	7.5	7.1	4.1	4.1	3.0	2.8	1.8	2.9	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	681	99.27	99.27
11 - 20	5	0.73	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	63	94	29	22	32	36	54	50	35	29	45	53	52	28	28	30	680
11 - 20	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	5
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>	63	96	30	23	33	36	54	50	35	29	45	53	52	28	28	30	685

Total Number of Valid Hours: 685

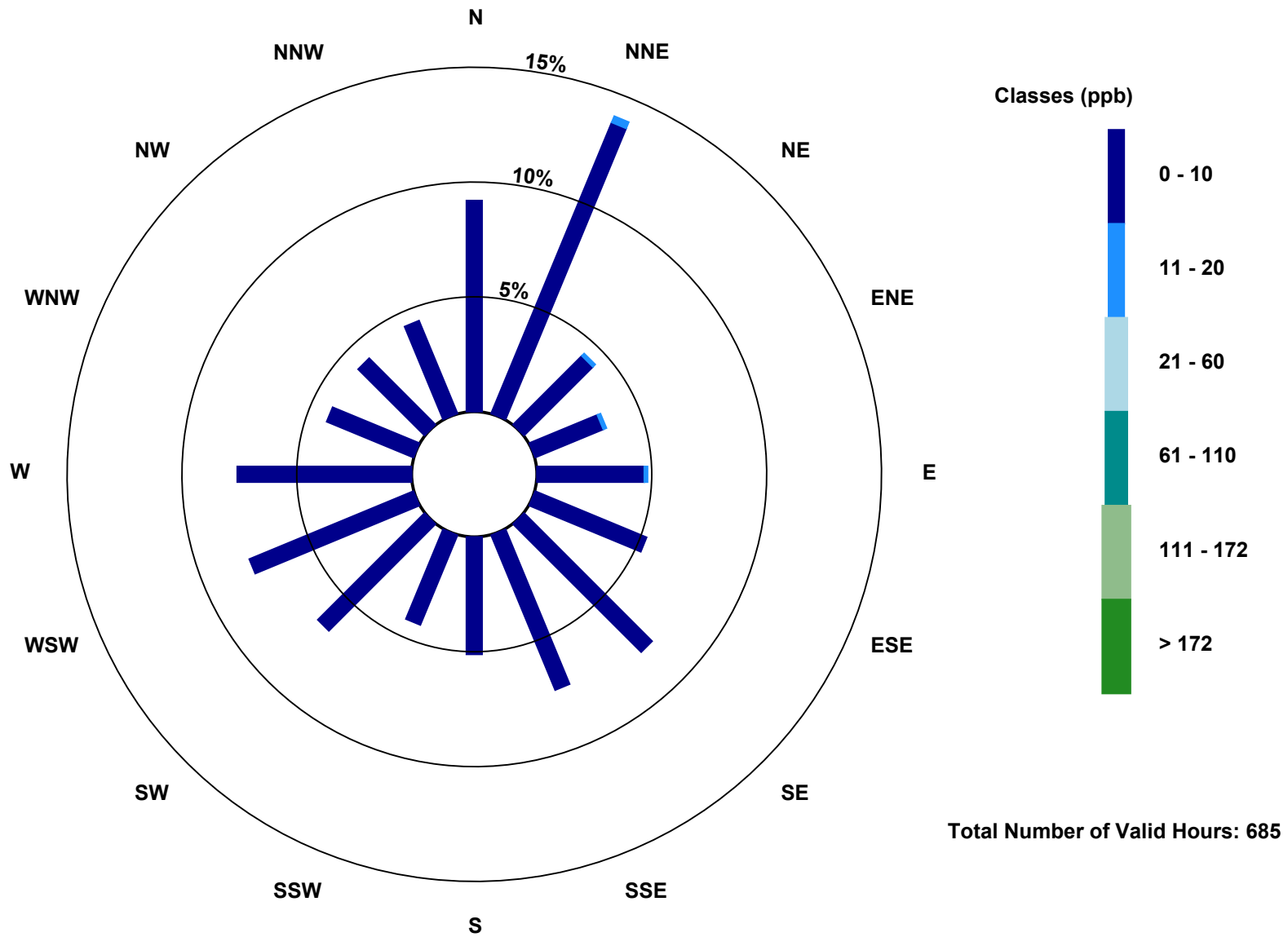
Total Number of Hours: 720

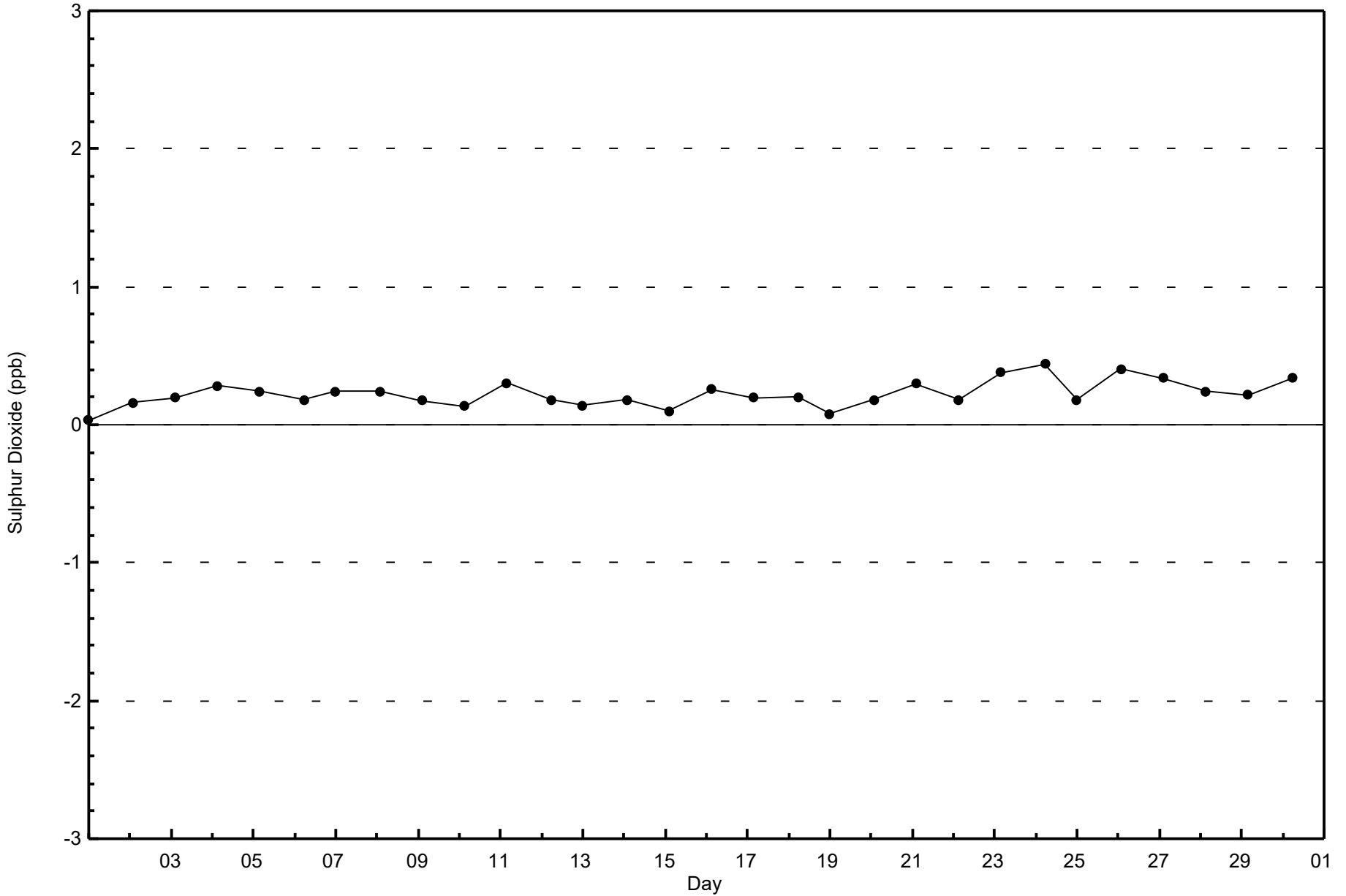


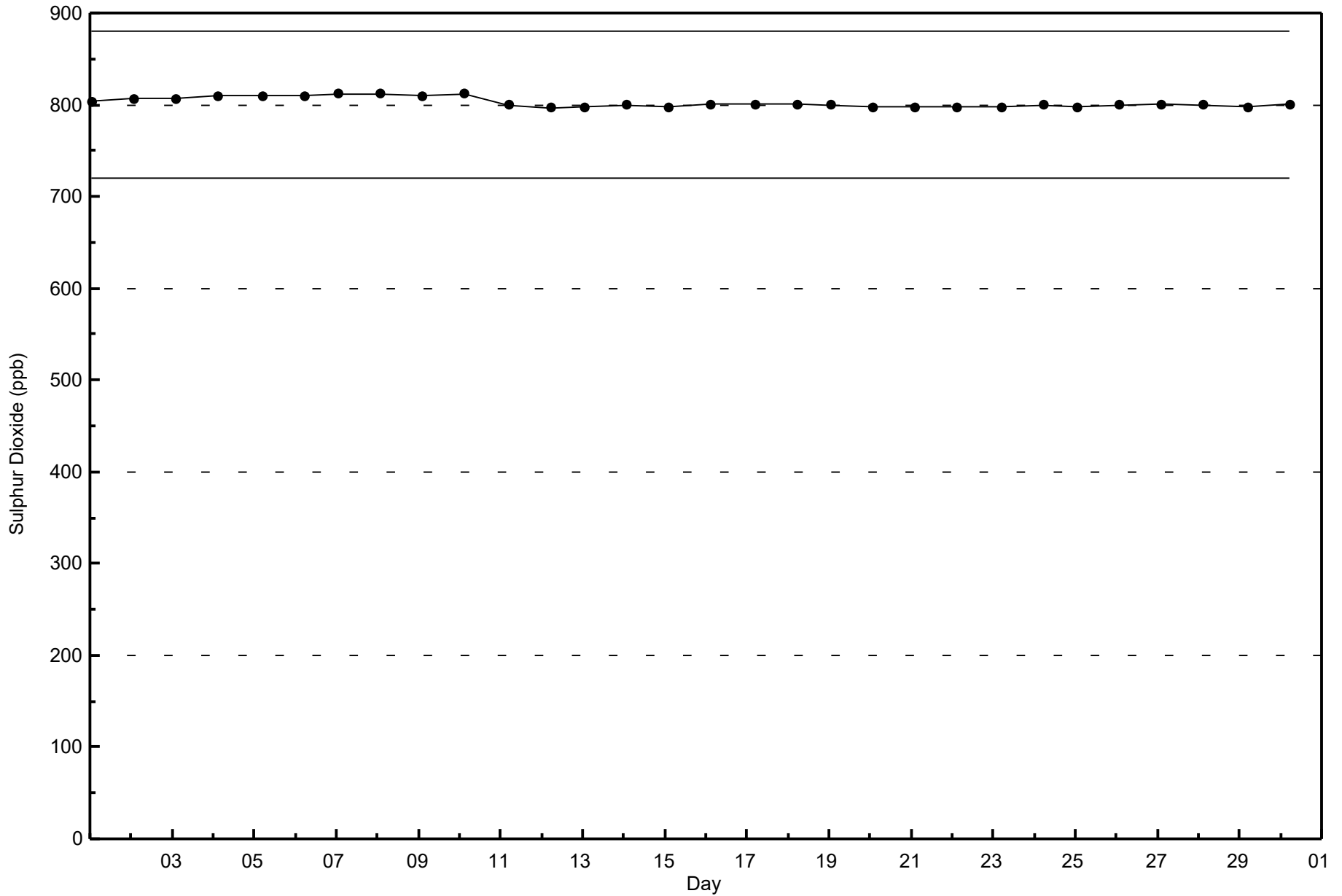


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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





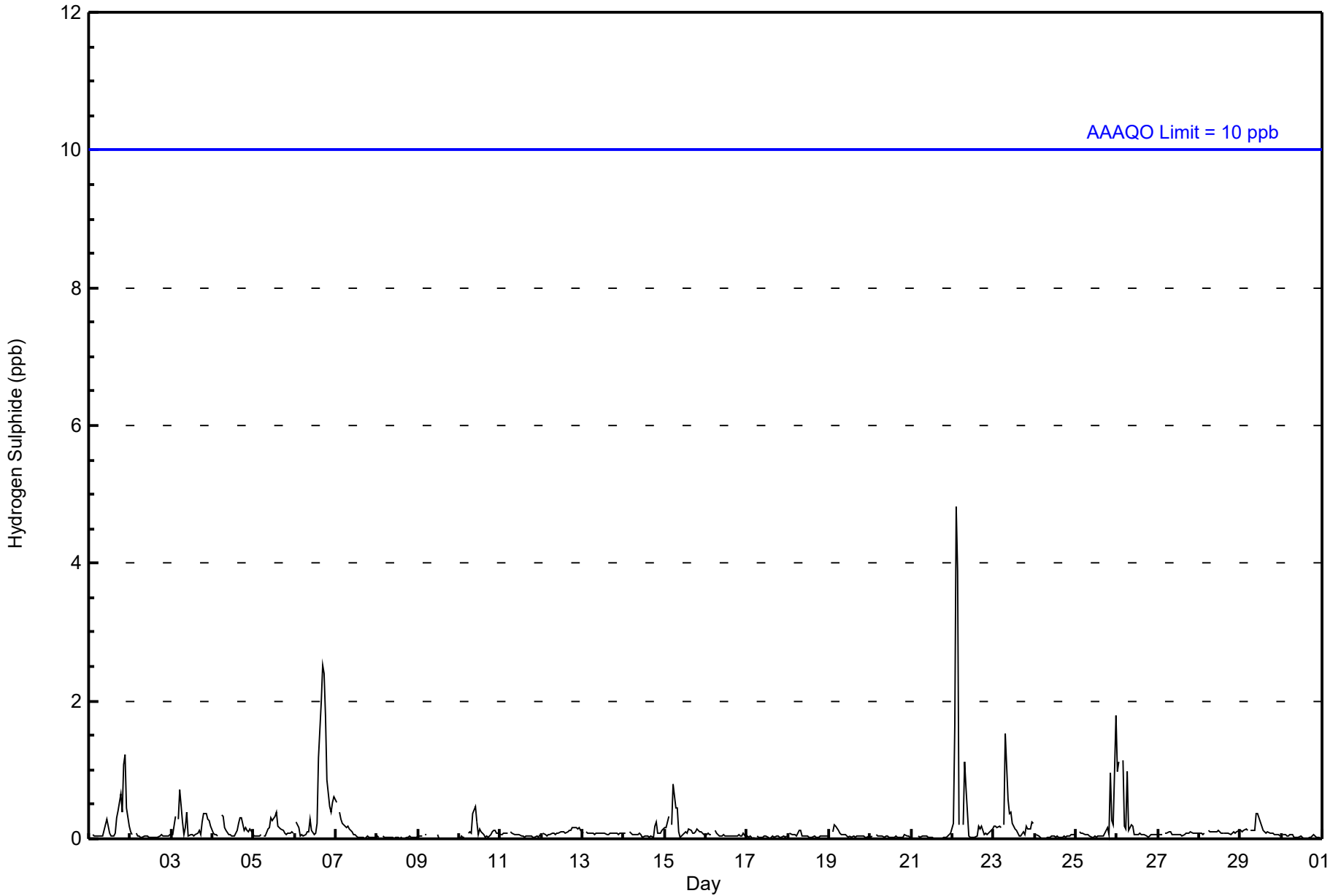




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mackay River - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum																										
Maximum Value: 4.8 ppb on Apr 22 03:00		Maximum Daily Average: 0.6 ppb on Apr 6																	Hours of Data: 685		Hours of Missing Data: 35																												
Minimum Value: 0.0 ppb on Apr 9 13:00		Minimum Daily Average: 0.0 ppb on Apr 9																	Hours of Calibration: 35		Percent Operational Time: 100.0																												
Maximum Diurnal Average: 0.3 ppb at hour 3		Minimum Diurnal Average: 0.1 ppb at hour 14																																															
Monthly Average: 0.14 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 1.7																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.0	0.1	0.3	0.4	0.6	0.4	1.1	1.2	0.5	0.2	0.3	1.2																							
2-Apr	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1																					
3-Apr	0.1	0.1	0.3	Z	0.3	0.7	0.2	0.1	0.2	0.4	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.4	0.4	0.3	0.3	0.2	0.2	0.7																							
4-Apr	0.1	0.1	0.1	0.0	Z	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.3	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3																						
5-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
6-Apr	Z	0.3	0.2	0.0	0.1	0.0	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	1.2	2.0	2.5	2.4	1.8	0.9	0.5	0.4	0.5	0.6	0.6	2.5																							
7-Apr	0.5	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
8-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
9-Apr	0.0	0.0	0.0	Z	0.1	0.1	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
10-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5																						
11-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1																						
12-Apr	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2																						
13-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
14-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
15-Apr	0.2	0.2	0.3	Z	0.2	0.8	0.5	0.5	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8																						
16-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1																						
17-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
18-Apr	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
19-Apr	0.0	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
20-Apr	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1																						
21-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1																						
22-Apr	0.2	1.6	4.8	3.9	0.2	Z	0.2	1.1	0.7	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	4.8																						
23-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	1.5	0.6	0.4	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	1.5																						
24-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1																						
25-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	1.0	0.3	0.2	1.8	0.2	1.8																							
26-Apr	1.0	1.1	Z	1.1	0.2	0.1	1.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	1.1																							
27-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
28-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
29-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
30-Apr	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
																								0.1	0.2	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	Diurnal Average	
																								1.0	1.6	4.8	3.9	0.3	0.8	1.0	1.5	0.7	0.5	0.4	0.3	0.3	0.4	1.2	2.0	2.5	2.4	1.8	0.9	1.1	1.2	0.5	1.8	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	682	99.56	99.56
3 - 4	2	0.29	99.85
5 - 7	1	0.15	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	66	96	29	23	34	36	53	49	37	28	44	51	53	28	29	26	682
3 - 4	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
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>	66	97	29	23	34	36	53	49	37	28	44	51	54	28	29	26	684

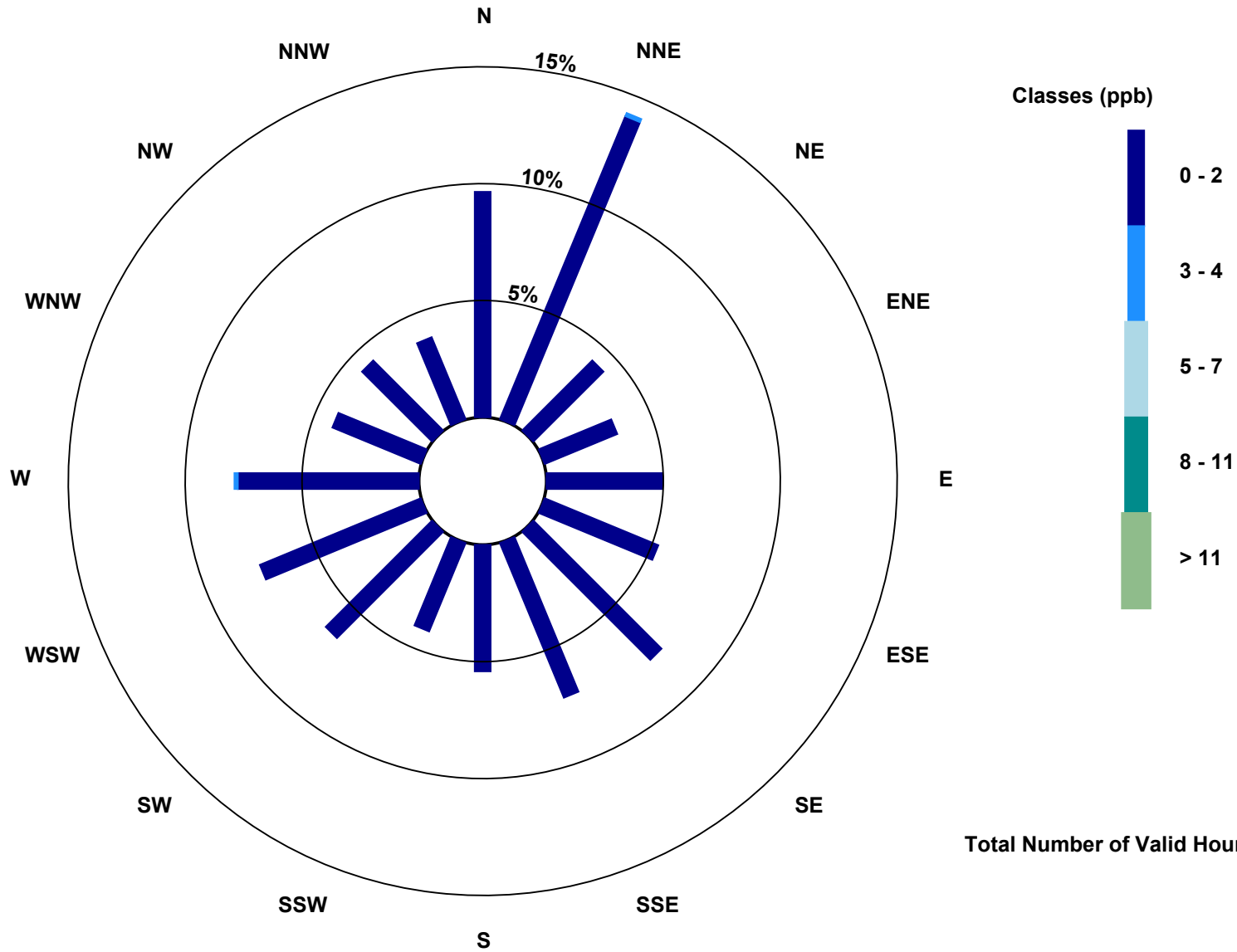
Total Number of Valid Hours: 684

Total Number of Hours: 720



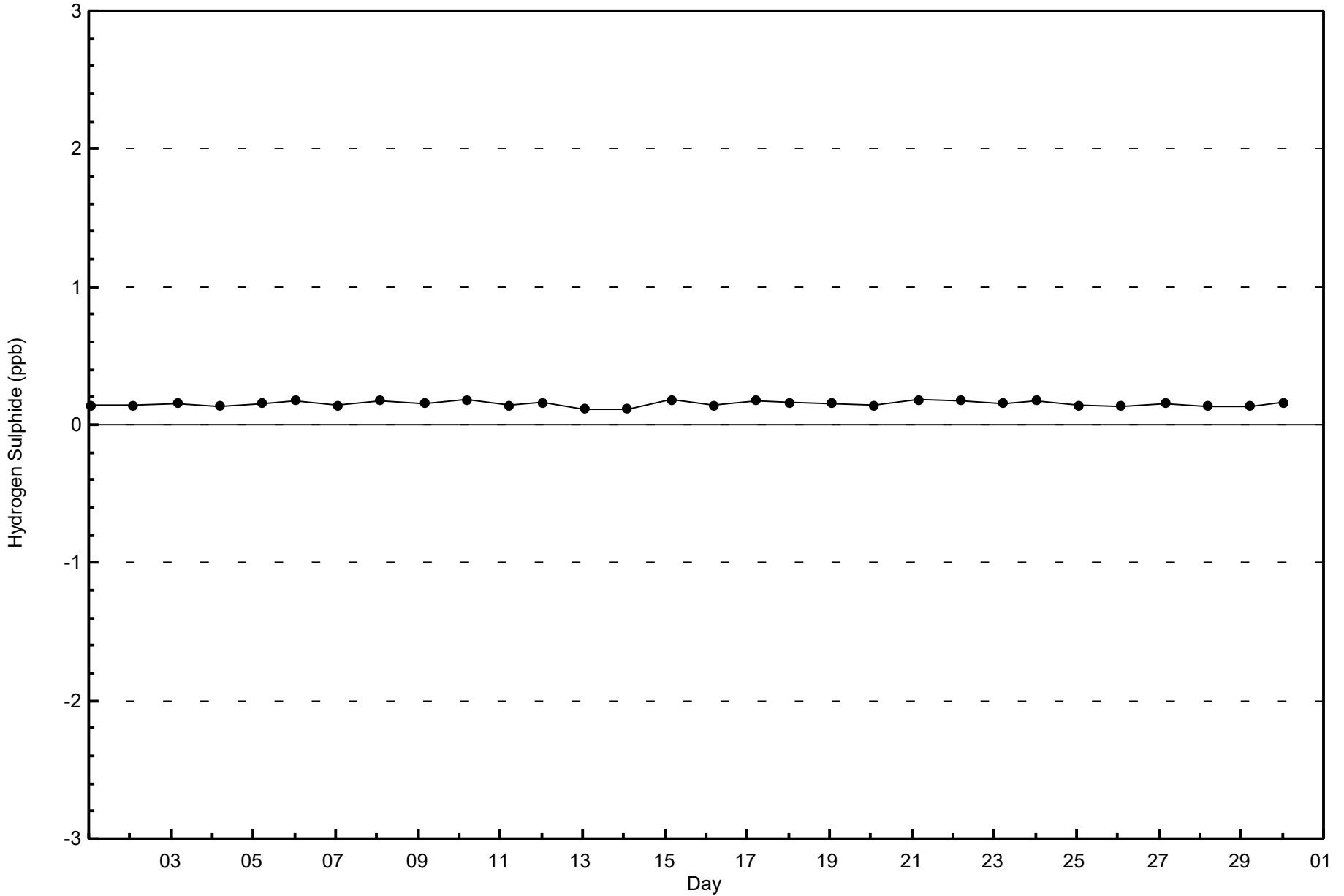
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

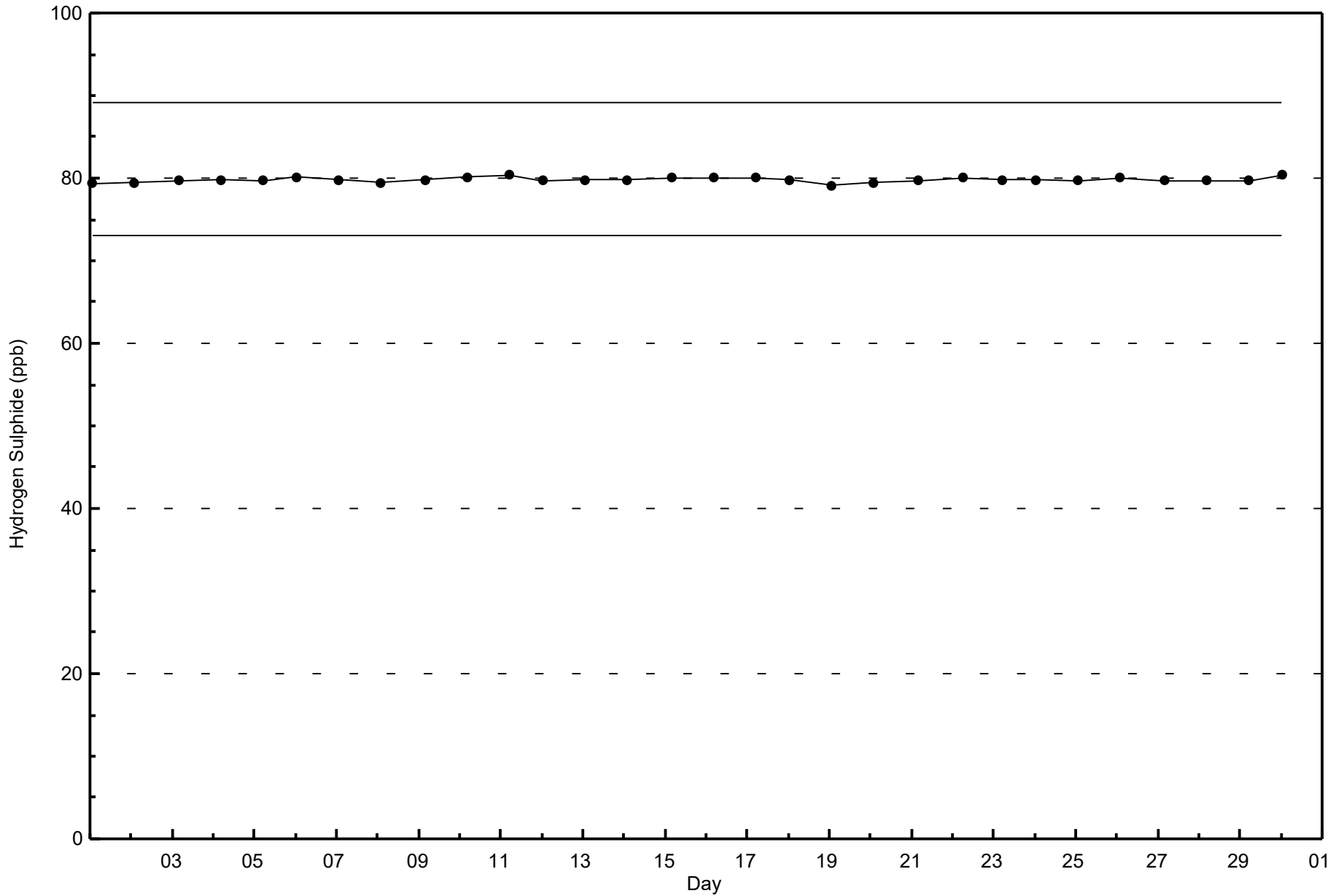
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River



Total Number of Valid Hours: 684









Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

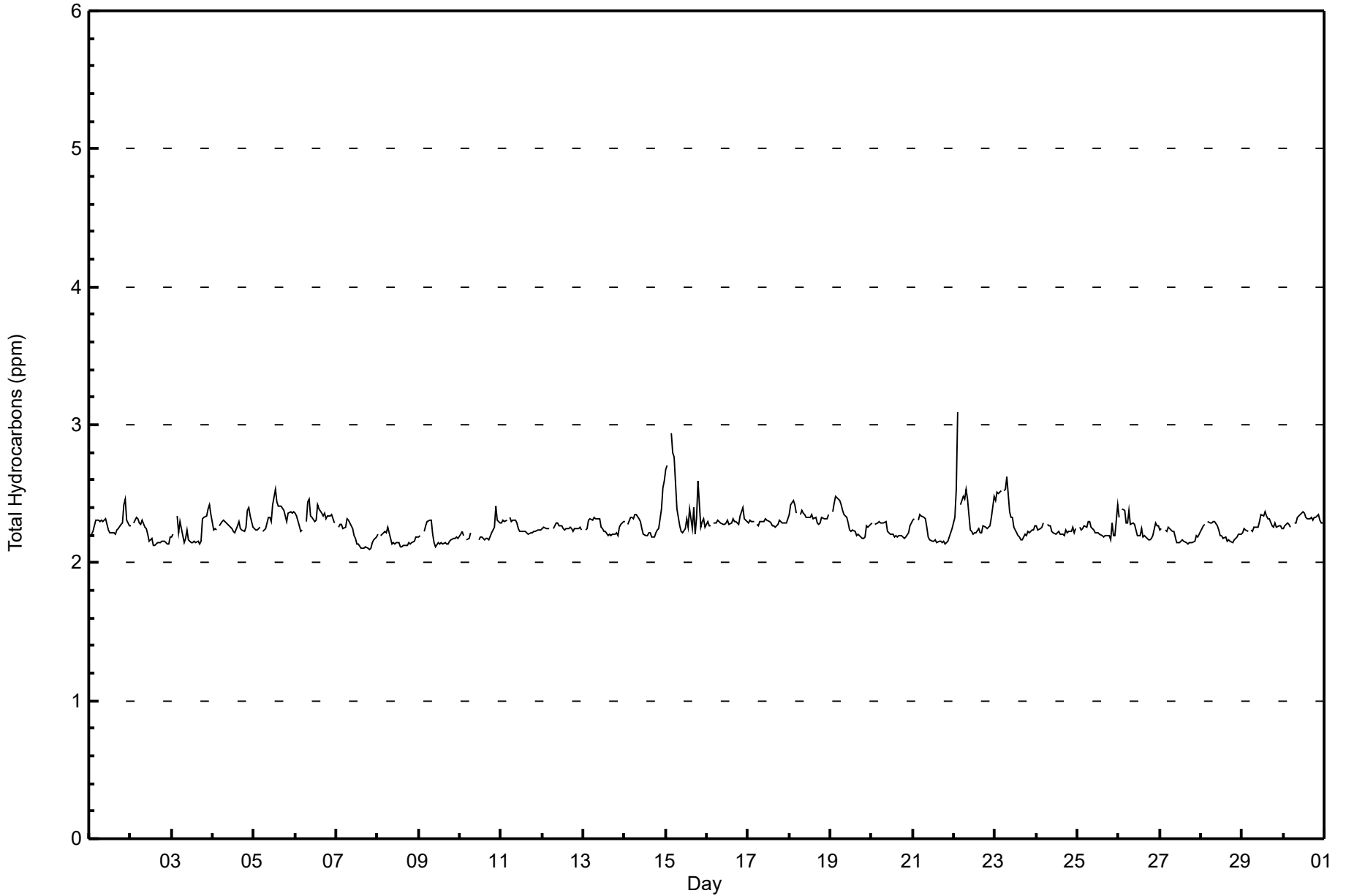
Mackay River - April 2024

Maximum Value: 3.1 ppm on Apr 22 03:00		Maximum Daily Average: 2.4 ppm on Apr 15		Hours in Service: 720																						
Minimum Value: 2.1 ppm on Apr 7 20:00		Minimum Daily Average: 2.2 ppm on Apr 8		Hours of Data: 686																						
Maximum Diurnal Average: 2.3 ppm at hour 4		Minimum Diurnal Average: 2.2 ppm at hour 18		Hours of Missing Data: 34																						
Monthly Average: 2.27 ppm		Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.2 Median = 2.3 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.6		Hours of Calibration: 34																						
				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-Apr	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.3	2.3	2.3	2.5
2-Apr	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3
3-Apr	2.2	2.2	Z	2.3	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.4
4-Apr	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.4
5-Apr	2.2	2.2	2.2	2.3	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.5
6-Apr	2.4	2.3	2.3	2.2	2.2	Z	2.3	2.4	2.5	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.5
7-Apr	Z	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3
8-Apr	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3
9-Apr	2.2	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
10-Apr	2.2	2.2	2.2	Z	2.2	2.2	2.2	C	C	C	C	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.2	2.4
11-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
12-Apr	2.2	2.3	2.2	2.2	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3
13-Apr	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
14-Apr	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.6	2.3	2.6
15-Apr	2.7	2.7	Z	2.9	2.8	2.8	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.2	2.4	2.2	2.3	2.6	2.3	2.3	2.3	2.3	2.4	2.9
16-Apr	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4
17-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
18-Apr	2.3	2.4	2.5	2.4	2.4	Z	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.5
19-Apr	Z	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.5
20-Apr	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3
21-Apr	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.3
22-Apr	2.3	2.5	3.1	Z	2.4	2.5	2.5	2.5	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.5	2.4	3.1
23-Apr	2.5	2.5	2.5	2.5	Z	2.5	2.5	2.6	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.6
24-Apr	2.3	2.2	2.2	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3
25-Apr	Z	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.4	2.2	2.4
26-Apr	2.3	Z	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4
27-Apr	2.2	2.2	Z	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3
28-Apr	2.2	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3
29-Apr	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.4
30-Apr	2.2	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
																								Diurnal Average		
																								Diurnal Maximum		
																								2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3		
																								2.7 2.7 3.1 2.9 2.8 2.8 2.5 2.6 2.5 2.3 2.3 2.4 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.3 2.6 2.4 2.5 2.5 2.6		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	0	0.00	0.00
2.1 - 3.0	685	99.85	99.85
3.1 - 10.0	1	0.15	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	63	96	30	23	33	36	54	50	35	29	45	53	52	28	28	30	685
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>	63	96	30	23	33	36	54	50	35	29	45	53	52	28	28	30	685

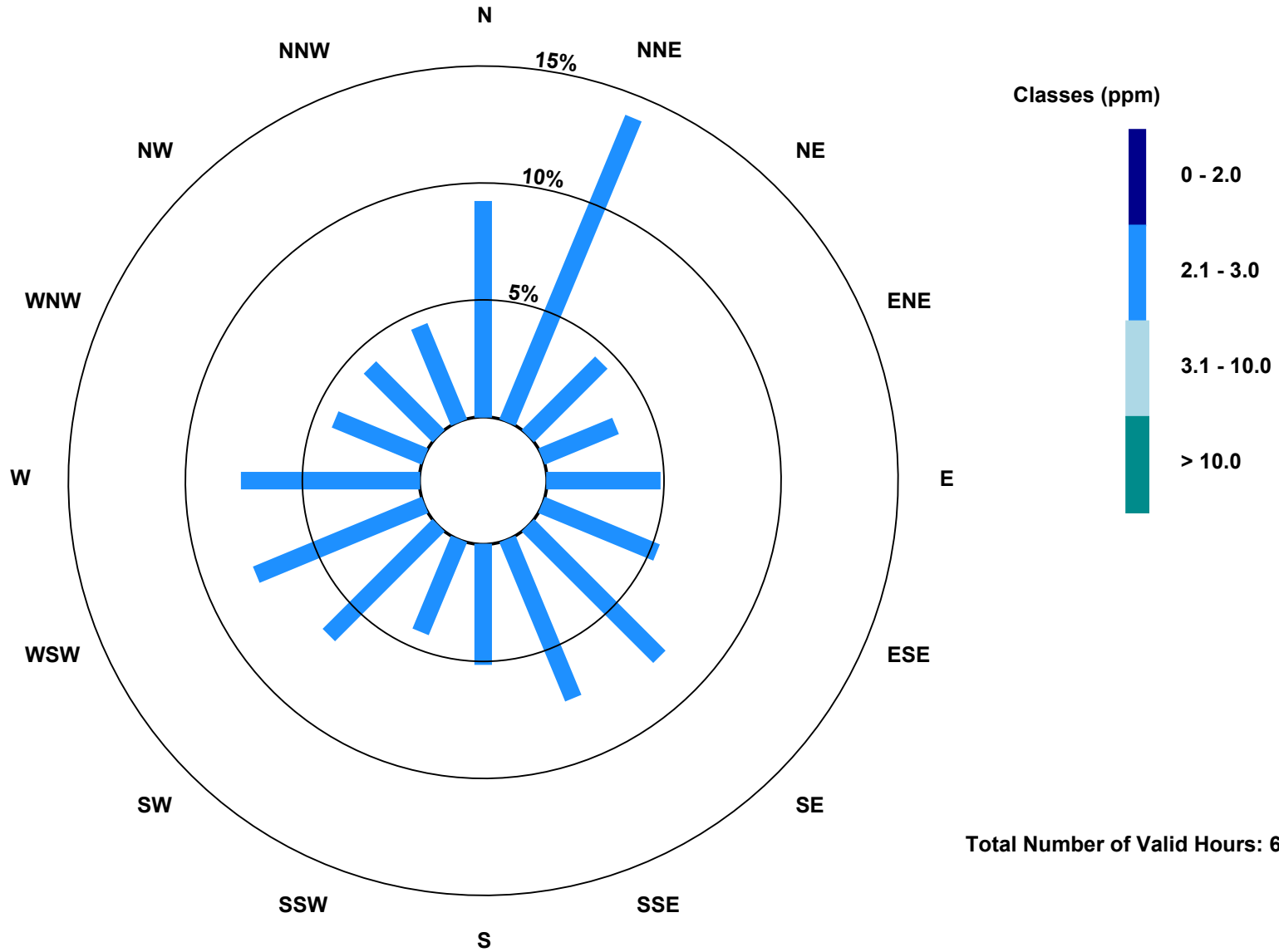
Total Number of Valid Hours: 685

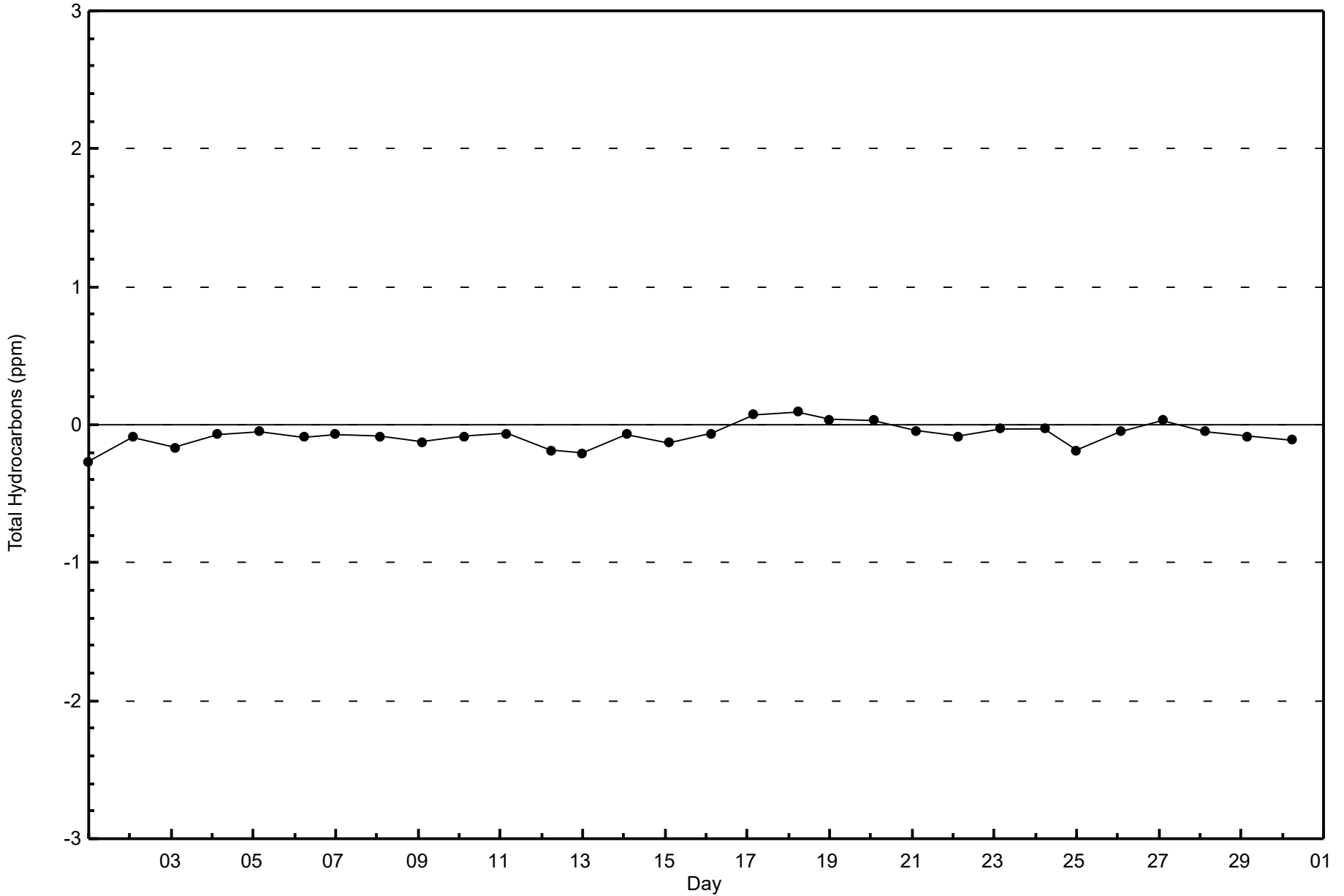
Total Number of Hours: 720



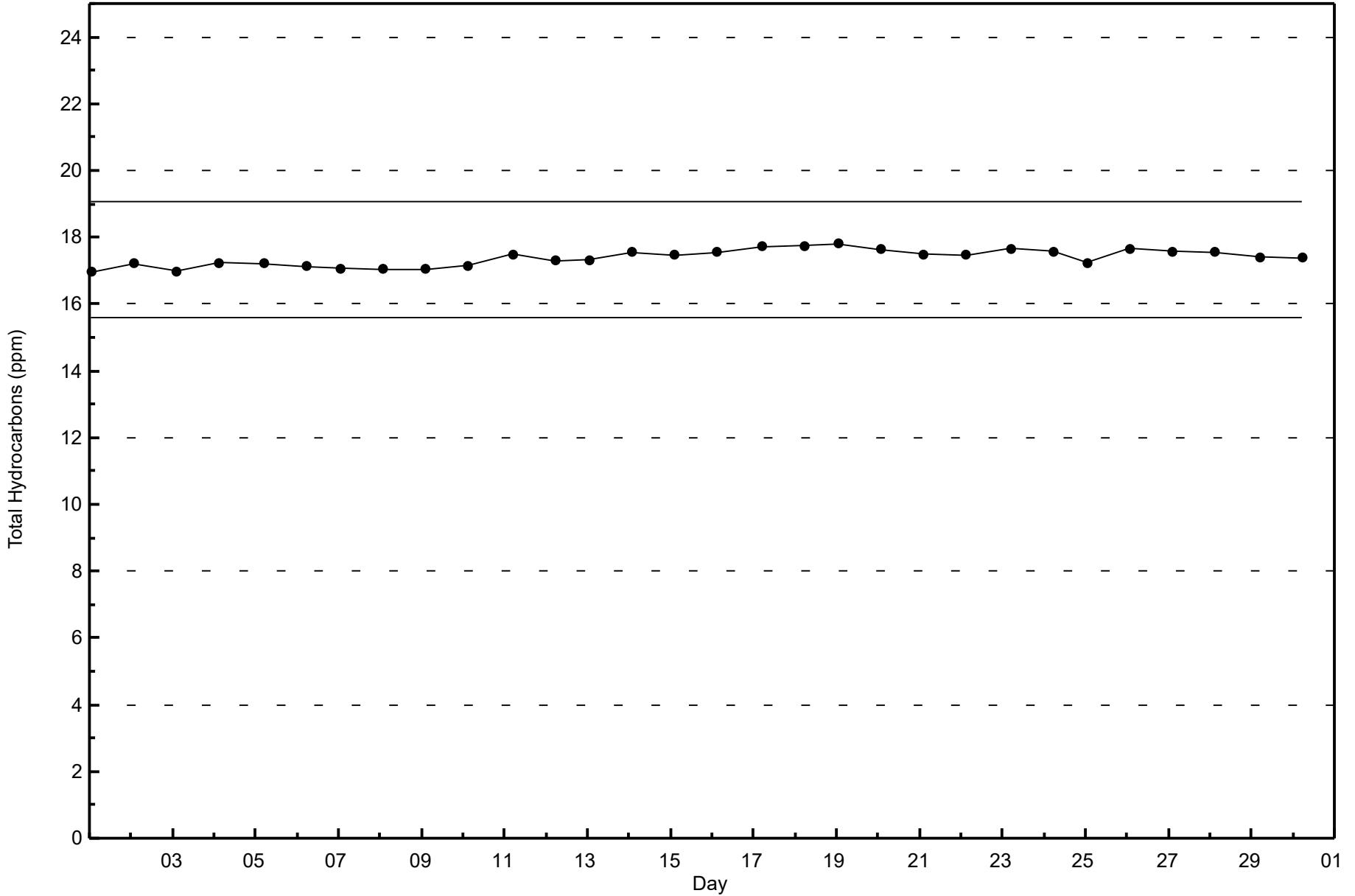
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Mackay River











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

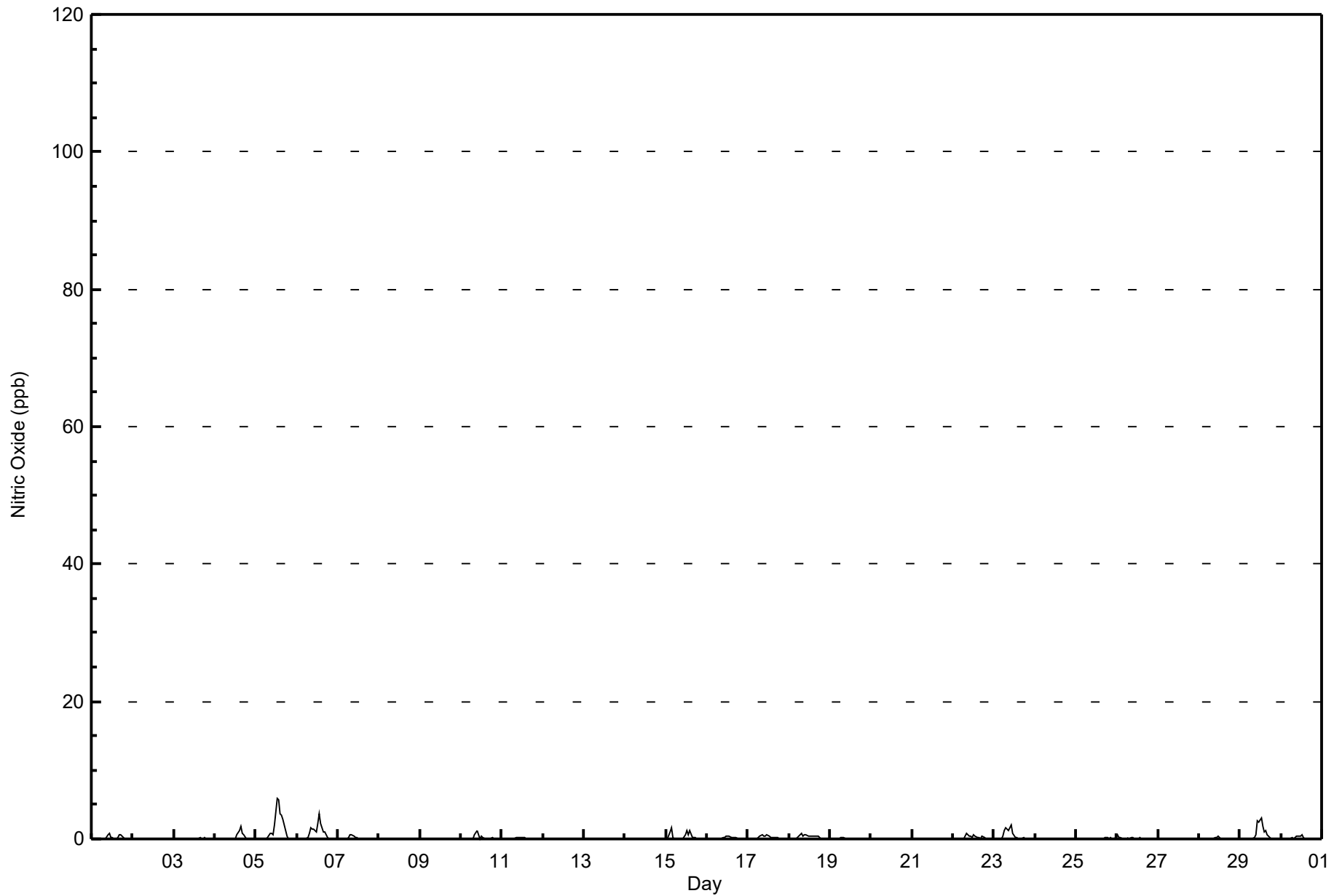
**Nitric Oxide (NO) - ppb**  
**Mackay River - April 2024**

Maximum Value: 5.9 ppb on Apr 5 13:00																				Maximum Daily Average: 1.2 ppb on Apr 5					Hours in Service:	720	
Minimum Value: 0.0 ppb on Apr 1 03:00																				Minimum Daily Average: 0.0 ppb on Apr 8					Hours of Data:	686	
Maximum Diurnal Average: 0.5 ppb at hour 13																				Minimum Diurnal Average: 0.0 ppb at hour 23					Hours of Missing Data:	34	
Monthly Average: 0.17 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.5 P <sub>99</sub> = 2.6					Hours of Calibration:	34	
																									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-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.5	0.8	0.3	0.1	0.0	0.0	0.2	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
2-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
4-Apr	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.5	1.2	1.9	0.9	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
5-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.8	0.8	0.6	2.1	5.9	5.6	3.7	3.5	2.8	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9
6-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.8	1.7	1.5	1.4	1.0	2.2	3.8	2.3	1.0	1.1	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8
7-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.6	0.6	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
8-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.5	1.1	0.6	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
11-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
12-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
13-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	Z	0.0	1.0	1.7	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.5	1.2	0.7	1.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
16-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
17-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.4	0.6	0.5	0.5	0.6	0.5	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
18-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.5	0.8	0.5	0.7	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
19-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
20-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
22-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.8	0.4	0.3	0.3	0.5	0.4	0.3	0.3	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
23-Apr	0.0	0.0	Z	0.0	0.0	0.3	1.2	1.7	1.2	1.7	2.1	0.8	0.3	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1
24-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Apr	0.0	0.0	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	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.3	0.0	0.3	
26-Apr	0.5	0.3	0.3	0.0	0.0	Z	0.2	0.0	0.3	0.3	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
27-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
28-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
29-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.6	2.5	2.5	3.1	1.9	1.0	1.1	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
30-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.3	0.5	0.3	0.5	0.6	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	686	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	64	98	28	24	34	33	56	52	34	27	42	52	53	30	30	28	685
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	64	98	28	24	34	33	56	52	34	27	42	52	53	30	30	28	685

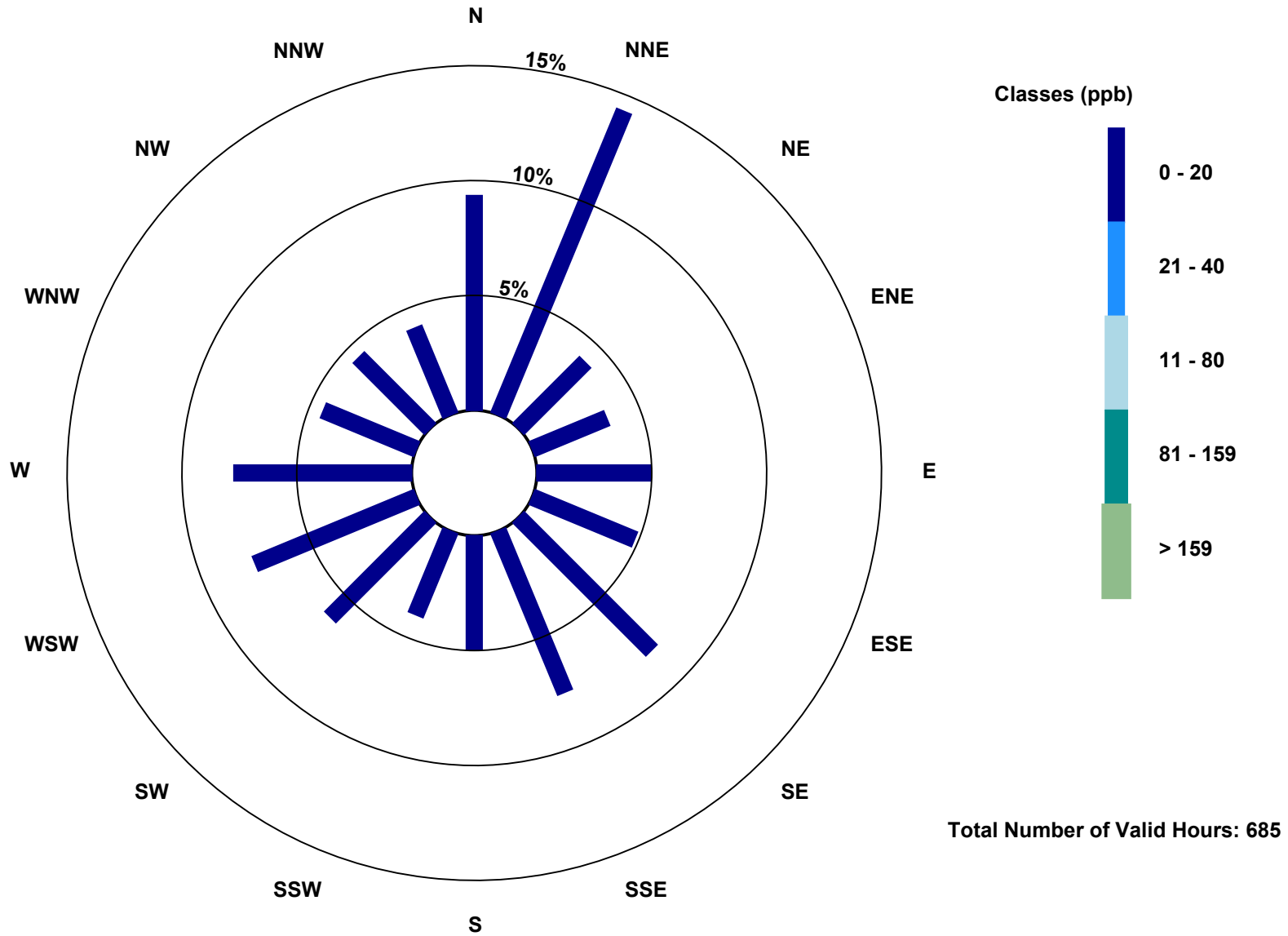
Total Number of Valid Hours: 685

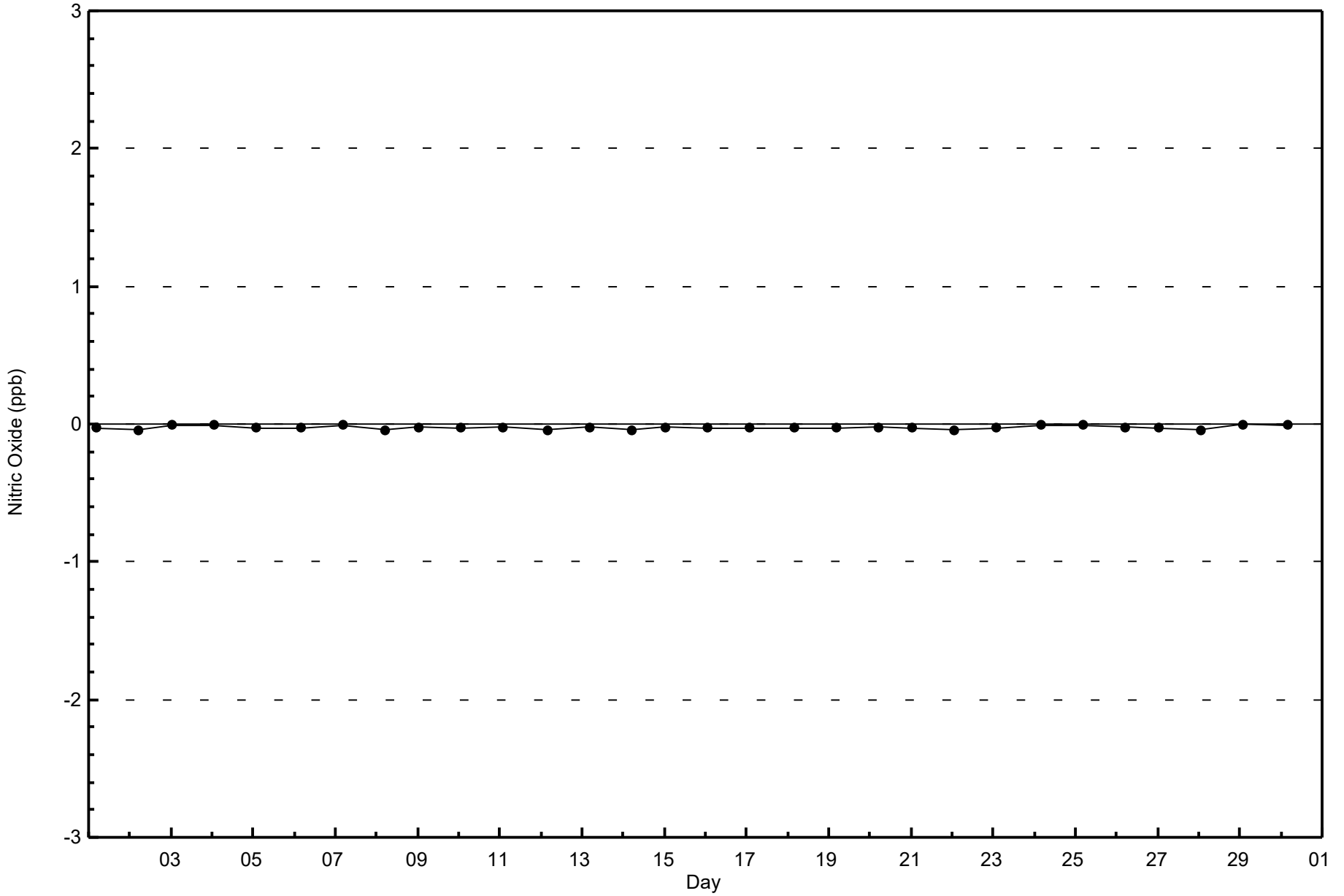
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Mackay River

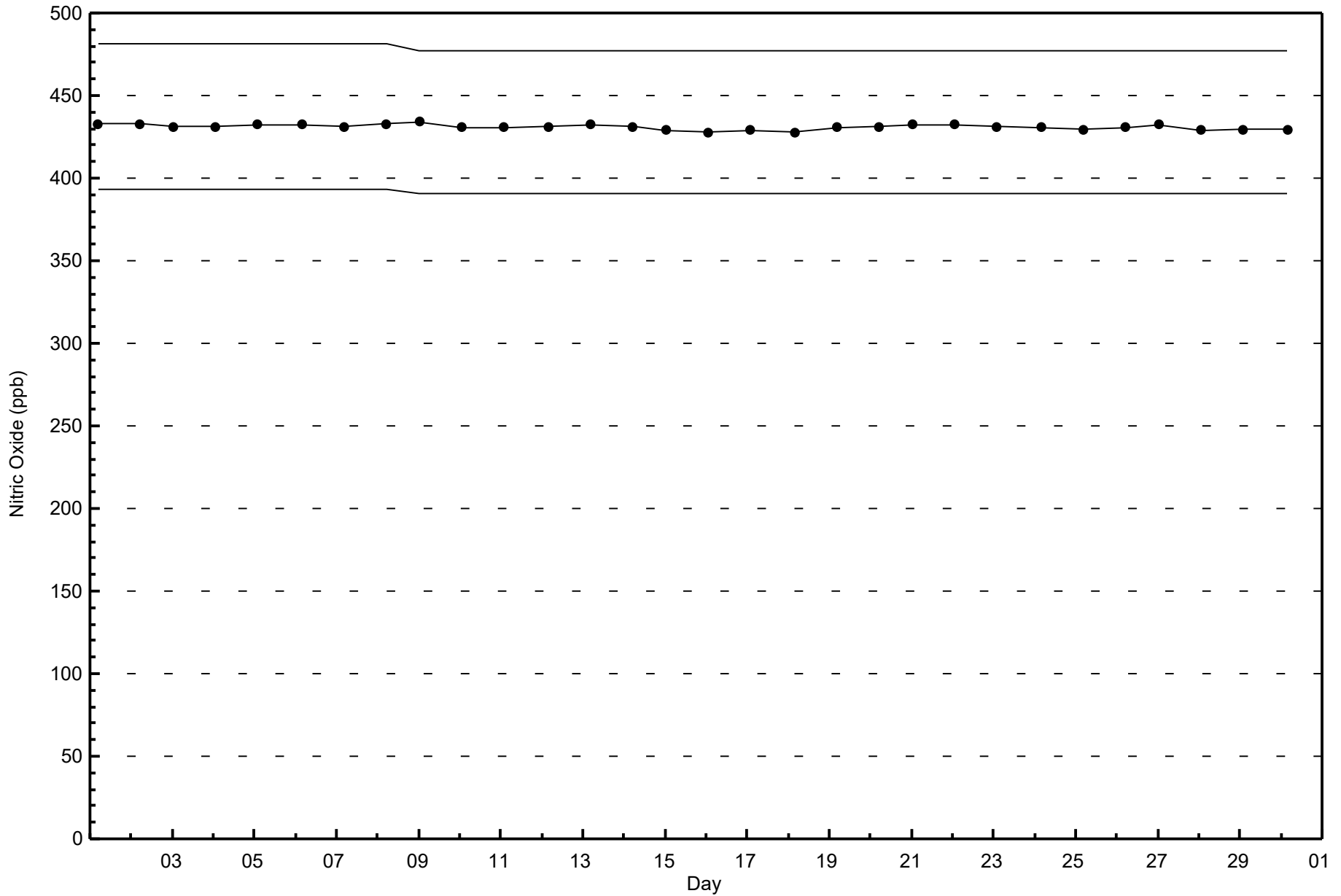






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Mackay River - April 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

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

Mackay River - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 29.9 ppb on Apr 15 04:00	Maximum Daily Average: 7.1 ppb on Apr 15		Hours of Data:	686
Minimum Value: 0.1 ppb on Apr 9 05:00	Minimum Daily Average: 0.2 ppb on Apr 8		Hours of Missing Data:	34
Maximum Diurnal Average: 2.3 ppb at hour 3	Minimum Diurnal Average: 1.3 ppb at hour 7		Hours of Calibration:	34
Monthly Average: 1.77 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.7 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 4.2 P <sub>99</sub> = 13.4		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	1.5	1.6	0.6	0.4	Z	0.4	0.3	0.3	0.3	1.9	2.2	1.4	0.6	0.4	0.3	0.9	2.2	2.9	1.9	0.3	0.7	0.6	0.5	0.3	1.0	2.9	
2-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.5	0.4	0.5	0.7	0.8	0.7	0.6	0.4	0.4	0.5	0.5	0.5	0.8	
3-Apr	Z	0.6	1.0	1.3	1.7	1.7	1.3	0.7	1.3	1.1	0.4	0.4	0.4	0.4	0.4	0.9	0.6	0.3	5.4	5.5	4.3	3.1	2.4	1.6	1.6	5.5	
4-Apr	0.3	Z	0.3	0.3	0.3	1.4	1.7	0.4	0.5	0.3	0.4	0.4	0.6	1.7	3.3	6.1	4.7	5.0	3.2	2.9	4.3	6.0	4.0	1.3	2.1	6.1	
5-Apr	0.5	0.4	Z	0.5	0.4	0.3	0.3	1.1	4.2	3.9	2.7	7.7	12.7	14.2	11.5	13.8	10.4	7.3	5.6	4.9	5.6	5.9	4.9	5.0	5.4	14.2	
6-Apr	3.7	2.2	1.0	Z	0.4	0.4	2.6	7.9	8.8	6.1	3.9	3.0	8.3	12.8	12.2	8.1	7.3	7.2	5.7	6.0	5.8	6.2	4.5	3.8	5.6	12.8	
7-Apr	3.8	3.3	3.1	2.8	Z	2.4	2.5	2.1	1.2	0.9	1.0	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.3	1.3	3.8		
8-Apr	0.3	0.3	0.2	0.2	0.3	Z	0.3	C	C	C	C	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
9-Apr	Z	0.2	0.2	0.2	0.1	0.3	0.4	0.3	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.5
10-Apr	0.3	Z	0.4	0.4	1.2	0.3	0.3	0.4	3.5	4.0	1.9	0.3	1.2	0.8	0.5	0.3	0.3	0.3	2.5	2.7	1.9	1.5	1.6	1.4	1.2	4.0	
11-Apr	1.1	0.8	Z	0.6	0.7	0.9	1.0	0.9	0.9	0.9	0.8	0.9	1.2	0.9	0.7	0.7	0.8	0.8	0.7	0.5	0.5	0.5	0.5	0.8	0.8	1.2	
12-Apr	0.8	1.2	1.0	Z	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	1.2	
13-Apr	0.4	0.3	0.4	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.3	0.4		
14-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.4	0.4	1.7	8.0	10.7	13.4	1.7	13.4	
15-Apr	Z	14.2	27.0	29.9	21.8	13.4	3.4	2.0	1.1	0.7	0.7	3.7	6.8	4.8	7.0	2.3	2.0	2.3	2.5	2.3	4.5	6.1	3.3	1.6	7.1	29.9	
16-Apr	1.4	Z	1.0	0.7	1.0	1.7	2.0	1.4	0.8	0.6	1.2	1.6	2.1	1.7	1.0	1.2	1.5	1.4	1.3	4.8	3.5	3.2	3.2	2.2	1.8	4.8	
17-Apr	2.7	2.9	Z	2.6	2.6	1.7	1.0	1.4	1.7	1.3	1.1	1.4	1.3	0.9	1.0	1.0	1.0	1.1	1.1	1.4	1.4	1.2	1.3	2.2	1.5	2.9	
18-Apr	3.1	5.9	6.5	Z	5.1	4.2	5.0	3.7	1.8	2.6	1.9	1.7	1.5	1.2	1.4	1.5	1.6	1.9	2.3	2.8	2.9	2.8	2.0	1.8	2.8	6.5	
19-Apr	1.9	2.0	2.2	2.7	Z	1.6	0.8	1.2	0.9	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	2.7	
20-Apr	0.4	0.3	0.3	0.3	0.4	Z	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.6	
21-Apr	Z	0.5	0.4	0.5	0.5	0.5	0.6	0.8	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.5	0.5	0.8	1.0	0.6	1.0	
22-Apr	1.0	Z	1.1	1.1	1.0	0.7	0.9	2.0	3.3	1.8	1.8	1.4	2.5	2.3	1.8	1.4	0.7	3.1	2.6	3.2	3.2	2.4	3.2	11.7	2.4	11.7	
23-Apr	8.7	7.8	Z	6.1	5.3	4.7	3.9	5.8	4.8	5.2	5.6	3.0	1.5	1.0	0.8	0.5	0.6	2.4	1.8	2.8	2.3	2.4	2.7	3.6	3.6	8.7	
24-Apr	2.7	0.7	0.3	Z	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.5	0.8	0.8	0.7	0.6	2.7	
25-Apr	0.6	0.5	0.5	0.5	Z	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.2	2.2	0.3	2.2	0.2	0.2	1.8	0.6	2.2	
26-Apr	3.6	3.2	3.9	2.6	0.7	Z	1.8	0.3	1.0	1.0	0.3	0.4	0.4	0.6	0.4	0.4	0.3	0.2	0.2	0.8	2.4	2.8	2.2	1.3	1.3	3.9	
27-Apr	Z	1.0	0.9	0.7	0.7	0.8	0.7	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.7	0.6	1.0
28-Apr	0.7	Z	0.7	0.6	0.5	0.7	1.0	1.0	1.1	1.1	1.4	1.3	1.2	1.0	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.7	1.0	0.8	1.4	
29-Apr	1.0	0.9	Z	0.9	0.9	0.7	0.7	0.9	1.4	3.5	7.9	6.5	7.0	5.7	3.8	4.4	3.3	2.5	2.1	2.7	2.5	3.3	3.2	2.1	3.0	7.9	
30-Apr	1.8	2.6	3.6	Z	2.7	2.7	2.9	1.6	2.5	2.8	1.9	2.1	2.9	1.5	0.7	0.7	1.0	0.7	1.7	2.1	3.1	1.6	0.9	2.2	2.0	3.6	

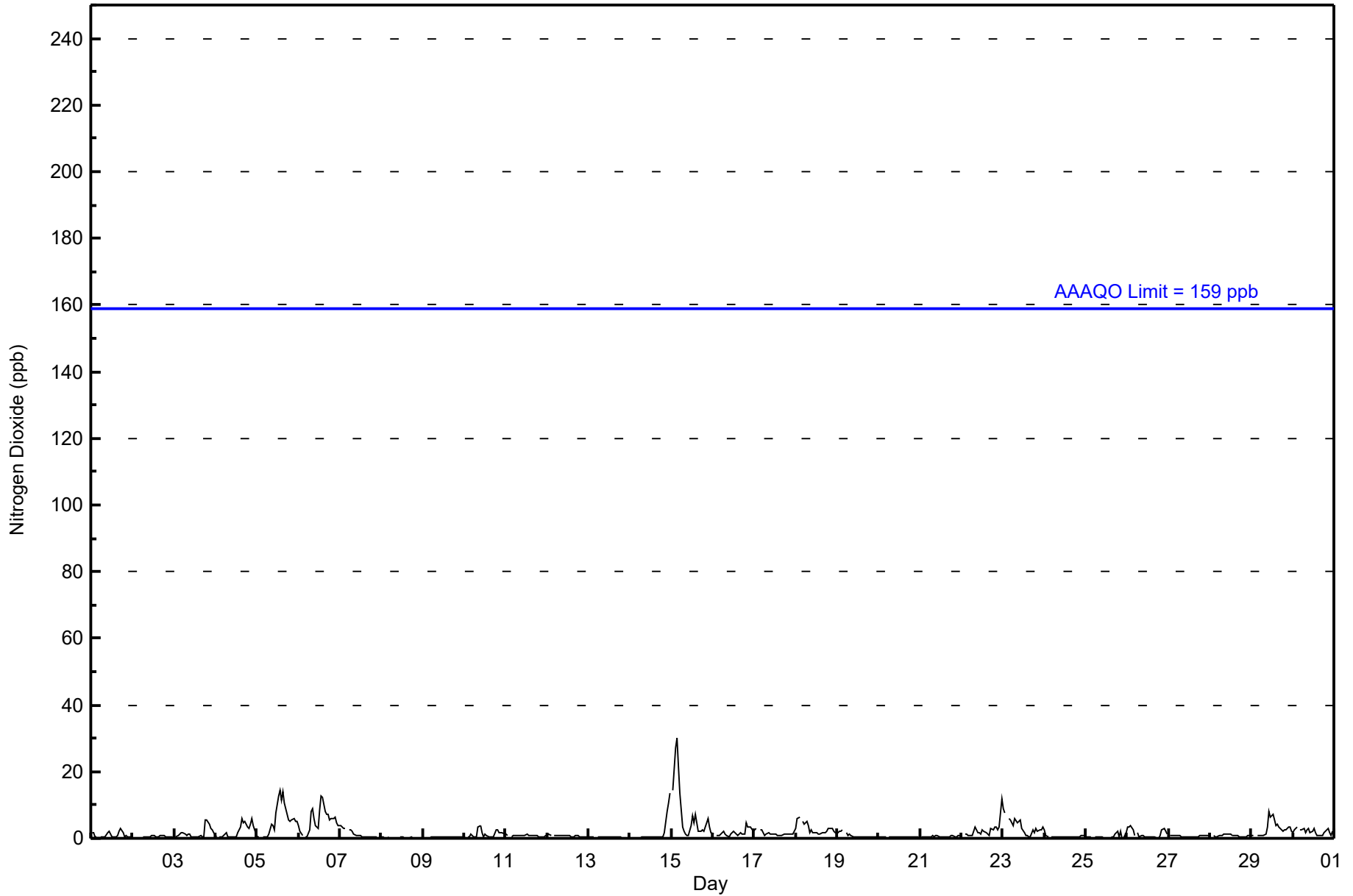
1.7	2.1	2.3	2.3	2.0	1.7	1.3	1.4	1.6	1.6	1.5	1.4	1.9	1.9	1.8	1.7	1.5	1.6	1.6	1.7	1.9	2.1	1.9	2.1	Diurnal Average	
8.7	14.2	27.0	29.9	21.8	13.4	5.0	7.9	8.8	6.1	7.9	7.7	12.7	14.2	12.2	13.8	10.4	7.3	5.7	6.0	5.8	8.0	10.7	13.4	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	683	99.56	99.56
21 - 40	3	0.44	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	63	97	28	24	34	33	56	52	34	27	42	52	53	30	30	27	682
21 - 40	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	64	98	28	24	34	33	56	52	34	27	42	52	53	30	30	28	685

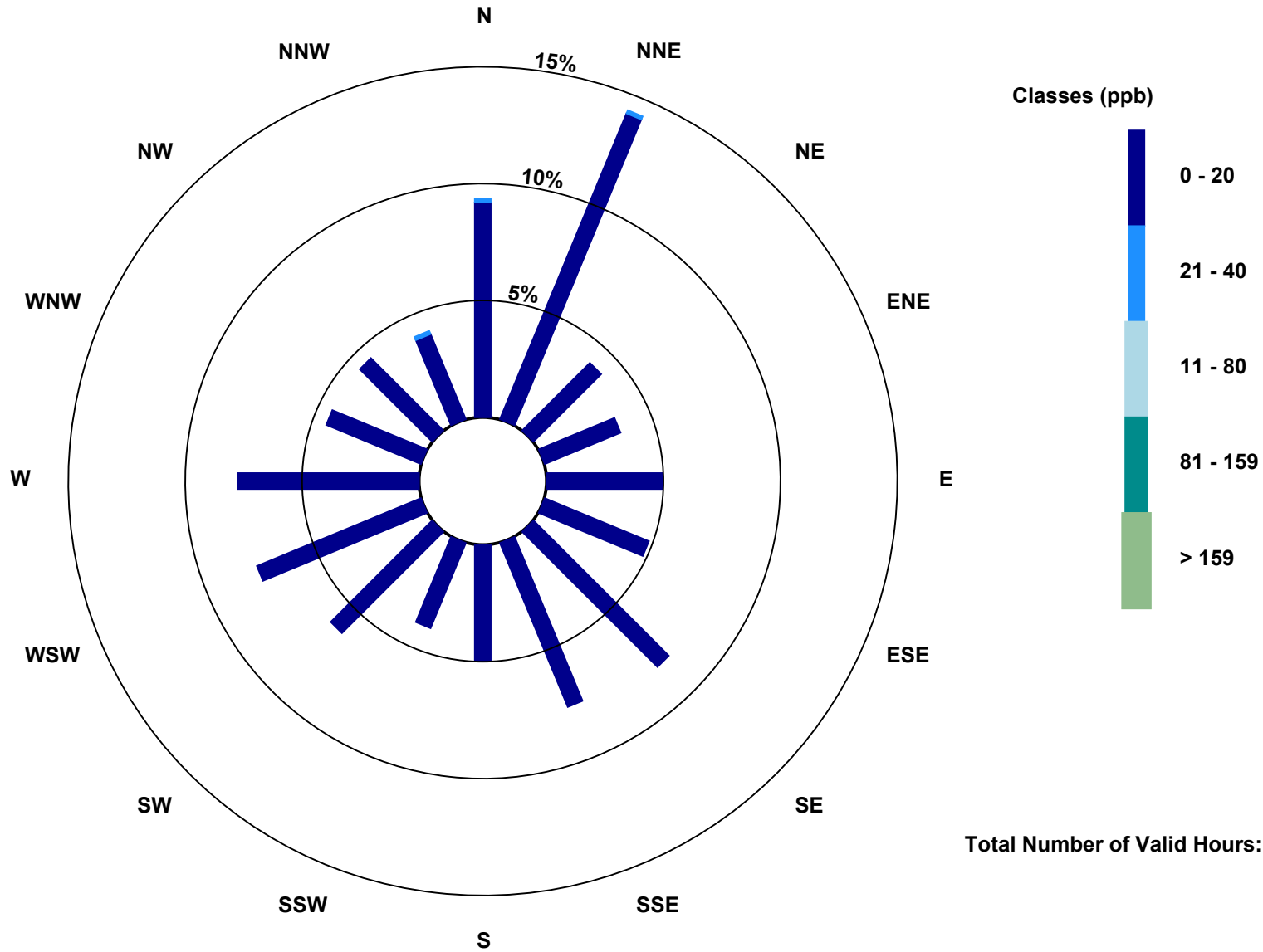
Total Number of Valid Hours: 685

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

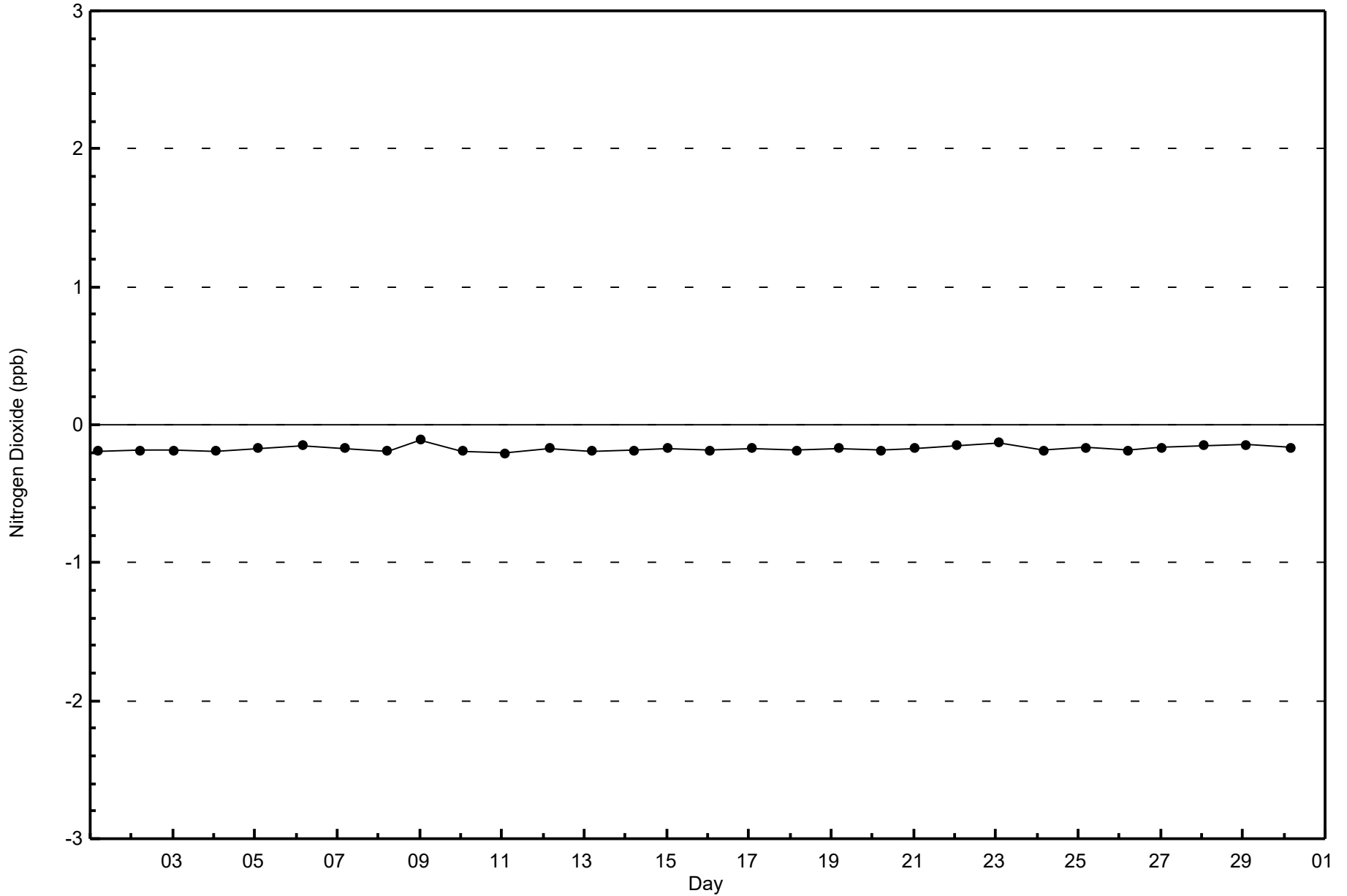
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River

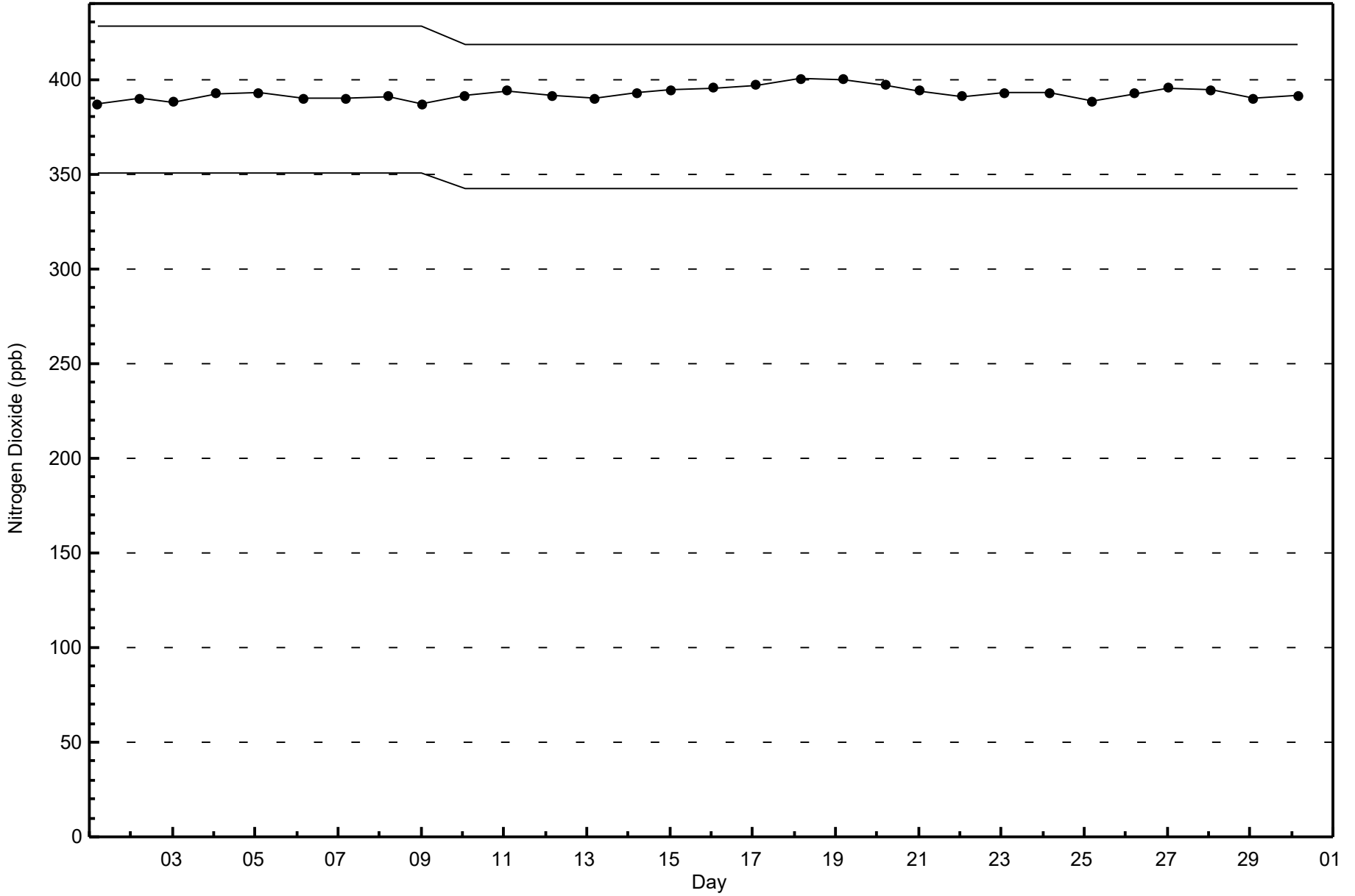




Wood Buffalo Environmental Association  
Zero Responses

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - April 2024







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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - April 2024**

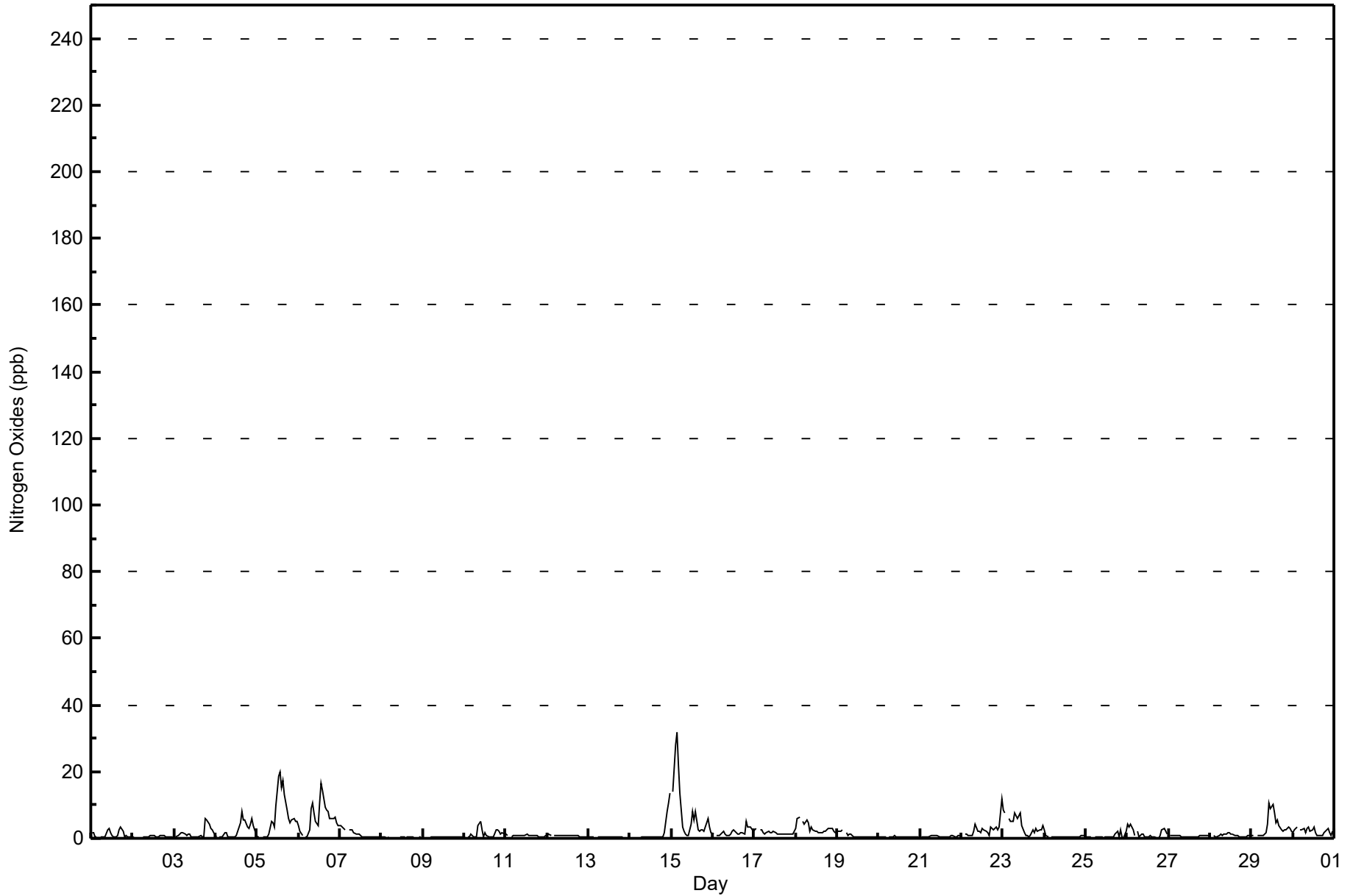
Maximum Value: 31.6 ppb on Apr 15 04:00      Maximum Daily Average: 7.4 ppb on Apr 15																				Hours in Service: 720 Hours of Data: 686						
Minimum Value: 0.1 ppb on Apr 14 05:00      Minimum Daily Average: 0.2 ppb on Apr 8 Maximum Diurnal Average: 2.5 ppb at hour 13      Minimum Diurnal Average: 1.4 ppb at hour 7 Monthly Average: 1.94 ppb      Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.8 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 4.7 P <sub>99</sub> = 15.4																				Hours of Missing Data: 34 Hours of Calibration: 34 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	1.5	1.6	0.6	0.4	Z	0.4	0.3	0.3	0.3	2.4	3.0	1.7	0.7	0.4	0.3	1.1	2.7	3.4	2.1	0.3	0.7	0.6	0.5	0.3	1.1	3.4
2-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.5	0.4	0.5	0.7	0.8	0.7	0.6	0.4	0.4	0.5	0.5	0.5	0.8
3-Apr	Z	0.6	1.0	1.3	1.7	1.7	1.3	0.7	1.4	1.1	0.4	0.4	0.4	0.4	1.0	0.6	0.3	5.7	5.5	4.3	3.1	2.4	1.6	1.6	5.7	
4-Apr	0.3	Z	0.3	0.3	0.3	1.5	1.8	0.4	0.5	0.3	0.4	0.4	0.7	2.2	4.5	8.0	5.6	5.5	3.3	2.9	4.3	6.0	4.0	1.3	2.4	8.0
5-Apr	0.5	0.4	Z	0.5	0.4	0.3	0.3	1.2	5.0	4.7	3.3	9.8	18.6	19.8	15.2	17.3	13.2	8.6	5.9	4.9	5.6	5.9	4.9	5.0	6.6	19.8
6-Apr	3.7	2.2	1.0	Z	0.4	0.4	2.7	8.7	10.5	7.6	5.3	4.0	10.5	16.6	14.5	9.1	8.4	7.9	5.9	6.0	5.8	6.2	4.5	3.8	6.3	16.6
7-Apr	3.8	3.3	3.1	2.8	Z	2.4	2.7	2.7	1.8	1.3	1.2	1.1	0.8	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.3	1.4	3.8	
8-Apr	0.3	0.3	0.2	0.2	0.3	Z	0.3	C	C	C	C	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
9-Apr	Z	0.2	0.2	0.2	0.1	0.3	0.4	0.3	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.5
10-Apr	0.3	Z	0.4	0.4	1.3	0.3	0.3	0.4	4.0	5.1	2.5	0.3	1.5	1.0	0.6	0.3	0.3	0.3	2.6	2.7	1.9	1.5	1.6	1.4	1.3	5.1
11-Apr	1.1	0.8	Z	0.6	0.7	0.9	1.0	1.0	1.0	1.0	0.9	1.0	1.4	1.0	0.7	0.8	0.8	0.8	0.7	0.5	0.5	0.5	0.5	0.8	0.8	1.4
12-Apr	0.8	1.2	1.0	Z	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	1.2
13-Apr	0.4	0.3	0.4	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.3	0.4	
14-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.4	0.4	1.7	8.0	10.7	13.4	1.7	13.4
15-Apr	Z	14.2	28.0	31.6	21.9	13.5	3.4	2.0	1.2	0.7	0.8	4.2	8.0	5.5	8.2	2.5	2.2	2.5	2.6	2.3	4.5	6.1	3.3	1.6	7.4	31.6
16-Apr	1.4	Z	1.0	0.7	1.0	1.7	2.0	1.5	0.9	0.7	1.4	2.0	2.5	2.1	1.2	1.4	1.7	1.6	1.4	4.9	3.5	3.2	3.2	2.2	1.9	4.9
17-Apr	2.7	2.9	Z	2.6	2.6	1.7	1.1	1.8	2.3	1.8	1.6	2.0	1.8	1.2	1.3	1.2	1.2	1.3	1.2	1.4	1.4	1.2	1.3	2.2	1.7	2.9
18-Apr	3.1	5.9	6.5	Z	5.1	4.3	5.5	4.5	2.3	3.3	2.5	2.2	1.9	1.6	1.8	1.8	2.0	2.2	2.5	2.8	2.9	2.8	2.0	1.8	3.1	6.5
19-Apr	1.9	2.0	2.2	2.7	Z	1.7	0.9	1.5	1.1	0.6	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	2.7
20-Apr	0.4	0.3	0.3	0.3	0.4	Z	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.4	0.6
21-Apr	Z	0.5	0.4	0.5	0.5	0.5	0.6	0.9	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.5	0.5	0.8	1.0	0.6	1.0
22-Apr	1.0	Z	1.1	1.1	1.0	0.7	1.0	2.3	4.1	2.2	2.1	1.7	3.0	2.7	2.1	1.7	0.8	3.4	2.7	3.2	3.2	2.4	3.2	11.7	2.5	11.7
23-Apr	8.7	7.8	Z	6.1	5.3	5.0	5.1	7.5	6.0	6.9	7.7	3.8	1.8	1.1	0.9	0.5	0.6	2.6	1.9	2.8	2.3	2.4	2.7	3.6	4.0	8.7
24-Apr	2.7	0.7	0.3	Z	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.5	0.8	0.8	0.7	0.6	2.7
25-Apr	0.6	0.5	0.5	0.5	Z	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.3	2.3	0.3	2.3	0.2	0.2	2.1	0.6	2.3
26-Apr	4.1	3.5	4.2	2.6	0.7	Z	2.0	0.3	1.3	1.3	0.3	0.5	0.4	0.8	0.5	0.5	0.3	0.2	0.2	0.8	2.4	2.8	2.2	1.3	1.4	4.2
27-Apr	Z	1.0	0.9	0.7	0.7	0.8	0.8	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.7	0.6	1.0
28-Apr	0.7	Z	0.7	0.6	0.5	0.7	1.1	1.0	1.2	1.3	1.6	1.6	1.4	1.1	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.7	1.0	0.9	1.6
29-Apr	1.0	0.9	Z	0.9	0.9	0.7	0.7	1.0	1.7	4.1	10.4	9.0	10.1	7.6	4.8	5.5	3.8	2.7	2.2	2.7	2.5	3.3	3.2	2.1	3.6	10.4
30-Apr	1.8	2.6	3.6	Z	2.7	2.7	3.0	1.7	2.8	3.3	2.2	2.6	3.5	1.7	0.7	0.7	1.1	0.7	1.8	2.1	3.1	1.6	0.9	2.2	2.1	3.6
																								Diurnal Average		
																								Diurnal Maximum		
1.7 2.1 2.3 2.3 2.0 1.8 1.4 1.6 1.9 1.9 1.8 1.8 2.5 2.4 2.1 2.0 1.7 1.7 1.7 1.7 1.9 2.1 1.9 2.2																								Diurnal Average		
8.7 14.2 28.0 31.6 21.9 13.5 5.5 8.7 10.5 7.6 10.4 9.8 18.6 19.8 15.2 17.3 13.2 8.6 5.9 6.0 5.8 8.0 10.7 13.4																								Diurnal Maximum		
Z - zerospan      C - Calibration																										





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Mackay River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	683	99.56	99.56
21 - 40	3	0.44	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Mackay River - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	63	97	28	24	34	33	56	52	34	27	42	52	53	30	30	27	682
21 - 40	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	64	98	28	24	34	33	56	52	34	27	42	52	53	30	30	28	685

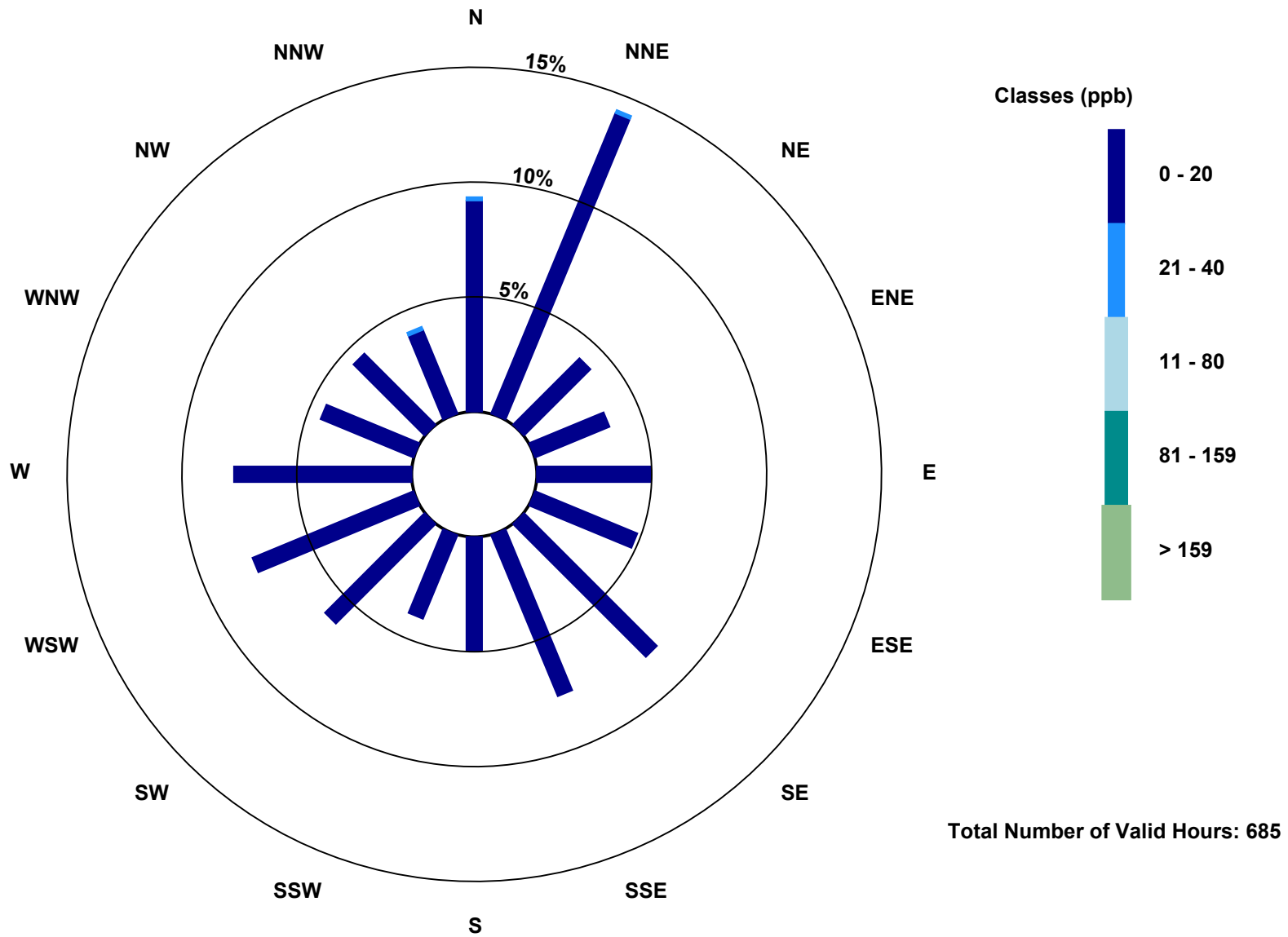
Total Number of Valid Hours: 685

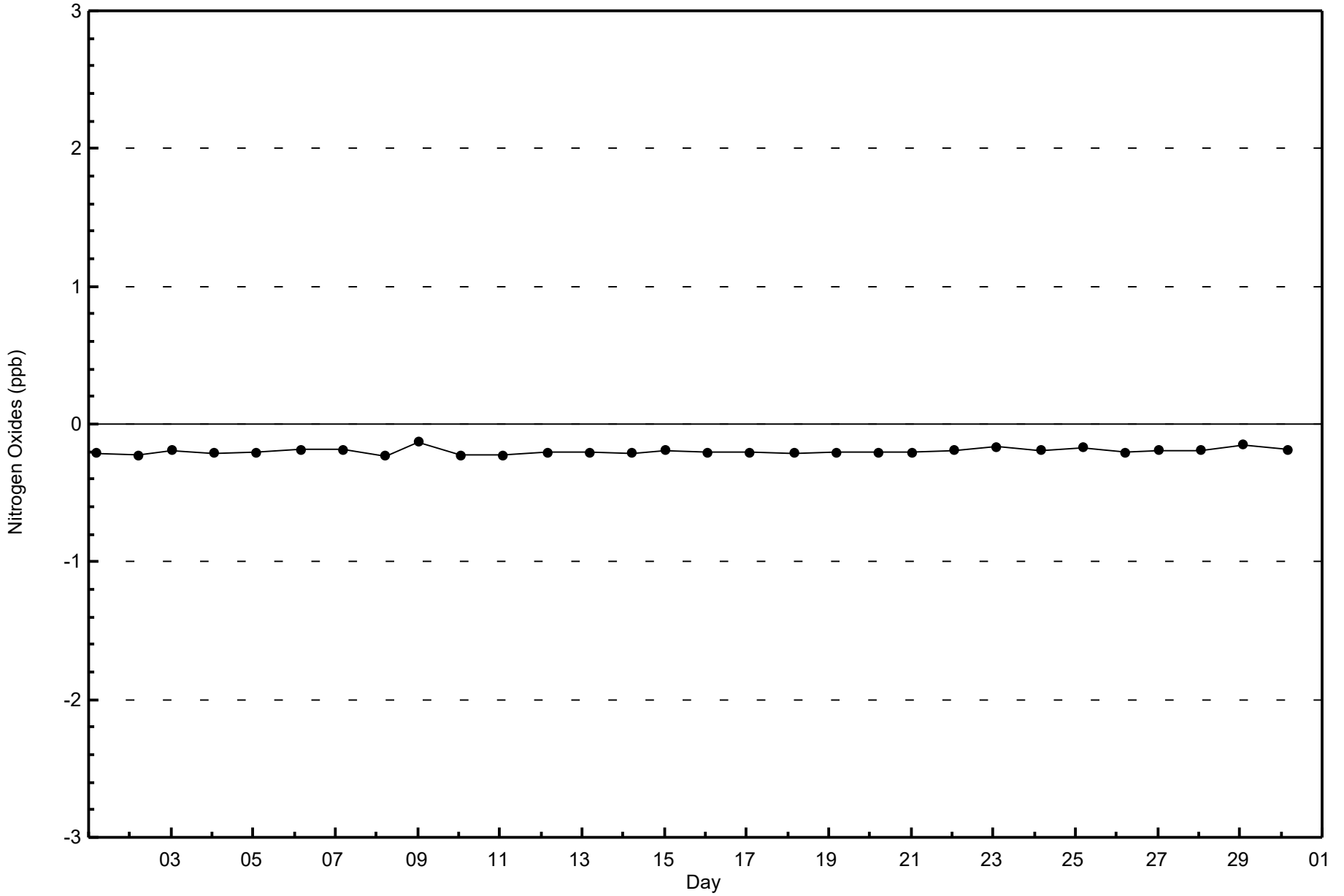
Total Number of Hours: 720

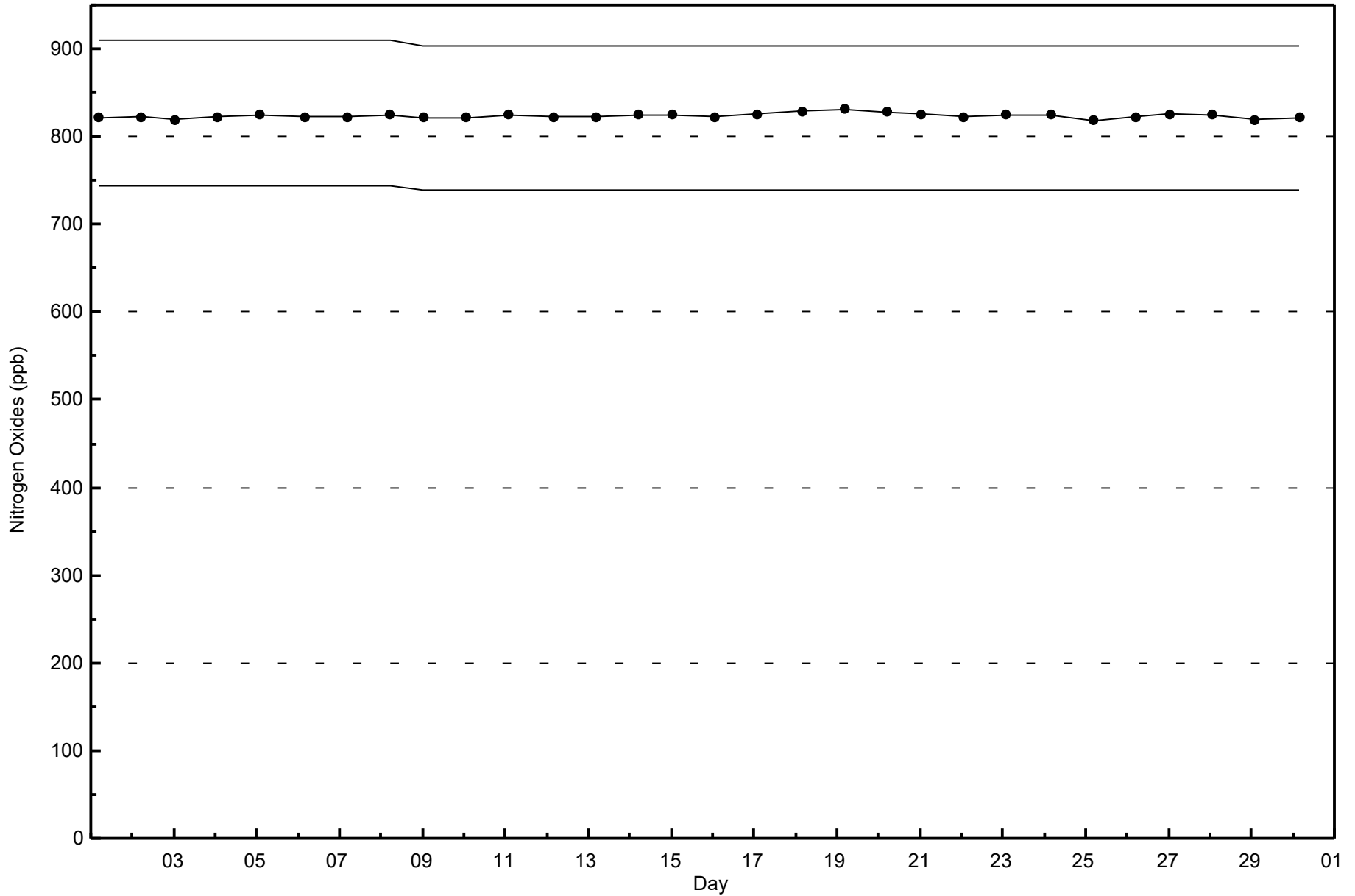


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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







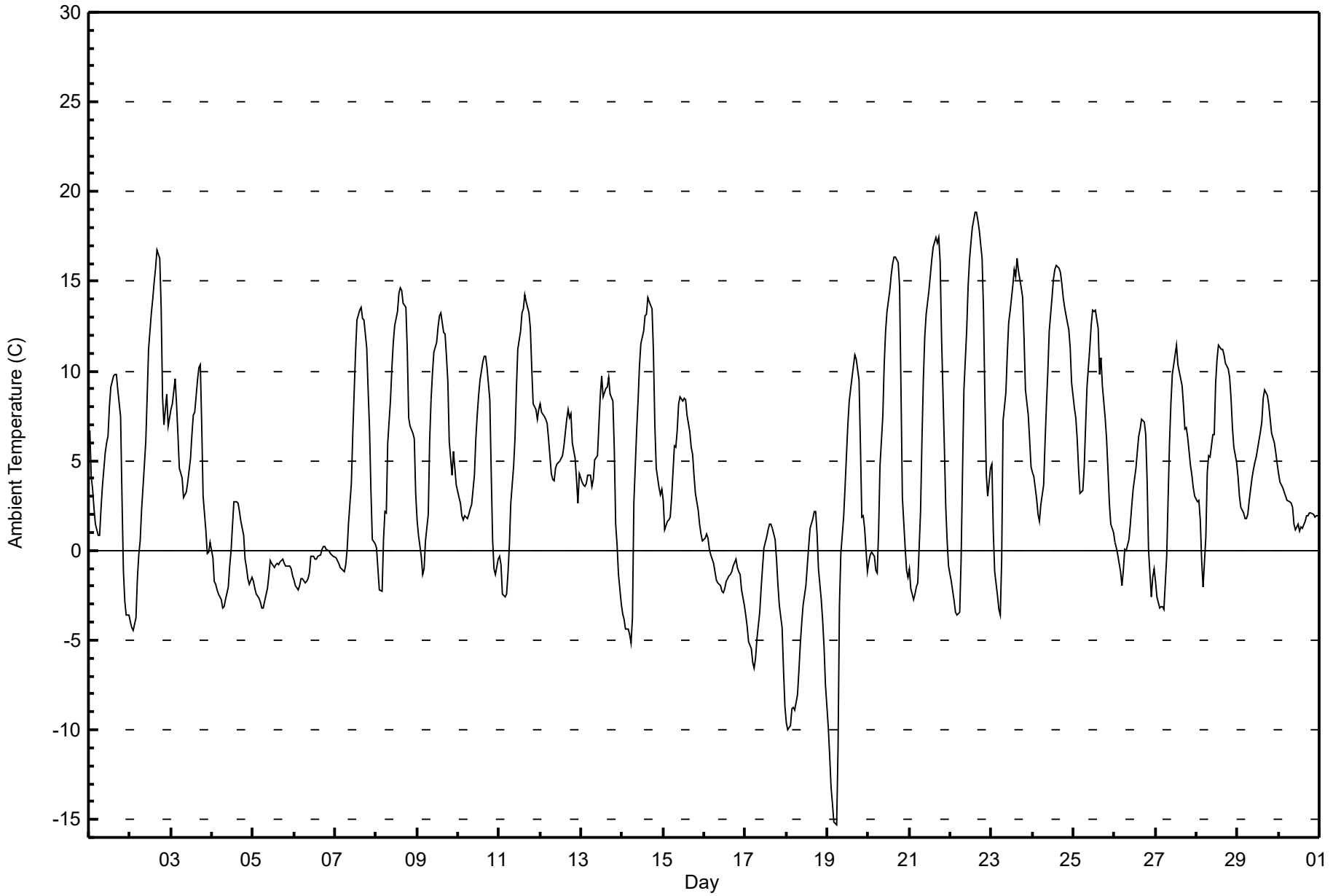


Maximum Value: 18.9 C on Apr 22 15:00																				Maximum Daily Average: 9.9 C on Apr 24					Hours in Service: 720								
Minimum Value: -15.3 C on Apr 19 06:00																				Minimum Daily Average: -4.1 C on Apr 18					Hours of Data: 720								
Maximum Diurnal Average: 9.4 C at hour 17																				Minimum Diurnal Average: -1.1 C at hour 5					Hours of Missing Data: 0								
Monthly Average: 4.12 C																				Percentiles: P <sub>1</sub> = -9.8 P <sub>10</sub> = -2.6 Q <sub>1</sub> = -0.5 Median = 3.4 Q <sub>3</sub> = 8.5 P <sub>90</sub> = 13.1 P <sub>99</sub> = 17.2					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-Apr	6.7	4.1	3.4	2.3	1.4	0.8	0.8	2.4	3.6	5.4	6.0	6.4	8.0	9.1	9.7	9.8	9.8	8.9	7.5	3.0	-1.1	-2.8	-3.6	-3.6	4.1	9.8							
2-Apr	-4.0	-4.3	-4.5	-3.8	-1.6	-0.2	0.5	2.2	4.8	6.1	8.6	11.2	13.3	14.0	14.9	15.7	16.8	16.3	13.5	8.5	7.0	8.7	6.9	7.4	6.6	16.8							
3-Apr	7.9	8.1	9.5	8.1	6.4	4.6	4.0	2.9	3.1	3.3	3.8	5.2	6.4	7.6	7.7	9.5	10.2	10.3	7.0	3.1	1.1	-0.2	-0.1	0.5	5.4	10.3							
4-Apr	-0.4	-1.7	-1.9	-2.2	-2.4	-2.7	-3.2	-3.1	-2.7	-2.0	-0.8	0.0	1.4	2.7	2.7	2.6	2.2	1.7	0.8	-0.5	-0.9	-1.6	-1.9	-1.5	-0.6	2.7							
5-Apr	-1.7	-2.1	-2.4	-2.7	-2.9	-3.2	-3.2	-2.9	-2.1	-1.4	-0.5	-0.7	-0.9	-0.8	0.7	-0.8	-0.7	-0.5	-0.7	-0.8	-0.9	-0.9	-1.1	-1.4	-1.5	-0.5							
6-Apr	-1.7	-1.9	-2.2	-2.0	-1.6	-1.6	-1.8	-1.7	-1.6	-1.3	-0.4	-0.3	-0.5	-0.5	-0.4	-0.3	0.0	0.2	0.2	0.0	-0.1	-0.1	-0.2	-0.3	-0.8	0.2							
7-Apr	-0.4	-0.5	-0.7	-0.9	-1.0	-1.2	-0.8	0.0	1.5	3.7	6.4	8.8	11.0	12.9	13.4	13.6	13.0	12.8	11.3	9.0	6.8	3.3	0.6	0.4	5.1	13.6							
8-Apr	0.2	-1.1	-2.2	-2.3	0.6	2.2	2.1	6.0	8.4	10.2	11.6	12.6	13.3	14.4	14.6	14.5	13.8	13.6	11.1	7.4	6.9	6.5	6.2	3.2	7.2	14.6							
9-Apr	1.7	0.9	-0.3	-1.3	-1.1	0.5	2.0	6.1	8.4	9.9	11.0	11.6	12.5	13.1	13.2	12.1	12.1	10.8	9.4	6.1	4.2	5.5	4.6	3.6	6.5	13.2							
10-Apr	2.9	2.6	1.9	1.7	1.9	1.8	2.0	2.3	2.5	4.2	6.2	7.5	8.6	9.5	10.5	10.8	10.8	10.2	8.4	4.4	0.6	-1.0	-1.3	-0.5	4.5	10.8							
11-Apr	-0.4	-0.8	-2.4	-2.6	-2.4	-1.3	0.3	2.6	4.7	6.2	9.0	11.2	12.2	13.2	13.4	14.2	13.8	13.2	12.4	10.1	8.2	7.9	7.3	7.8	6.6	14.2							
12-Apr	8.1	7.7	7.4	7.3	7.1	6.2	4.3	3.9	3.9	4.6	4.8	4.9	5.1	5.3	5.8	7.3	7.9	7.4	7.6	6.0	5.2	3.9	2.6	4.3	5.8	8.1							
13-Apr	3.8	3.6	3.5	3.7	4.2	4.2	3.6	3.9	5.1	5.3	7.0	8.6	9.7	8.5	9.0	9.1	9.7	8.7	8.4	5.7	1.5	0.3	-1.4	-3.0	5.1	9.7							
14-Apr	-3.5	-3.9	-4.4	-4.4	-4.7	-5.2	-3.8	2.6	6.7	8.4	10.3	11.5	12.3	13.1	13.2	14.1	13.8	13.5	11.1	7.0	4.6	3.5	3.1	3.4	5.1	14.1							
15-Apr	2.8	1.1	1.6	1.7	1.8	2.9	5.8	5.8	6.7	8.2	8.5	8.3	8.5	8.4	7.5	6.6	5.8	5.4	4.2	3.2	2.3	1.5	0.9	0.5	4.6	8.5							
16-Apr	0.7	0.9	0.7	0.1	-0.3	-0.7	-1.2	-1.7	-1.8	-2.0	-2.2	-2.3	-2.1	-1.7	-1.4	-1.4	-1.2	-0.8	-0.5	-1.0	-1.2	-1.3	-2.2	-3.1	-1.2	0.9							
17-Apr	-3.6	-4.2	-5.1	-5.5	-6.2	-6.5	-6.0	-4.9	-3.5	-2.1	-0.9	0.2	0.8	1.1	1.5	1.5	1.2	0.6	-0.5	-1.9	-3.0	-4.3	-6.7	-8.7	-2.8	1.5							
18-Apr	-9.6	-10.0	-9.7	-8.9	-8.8	-8.9	-8.0	-6.7	-5.3	-4.0	-3.0	-2.0	-0.8	0.2	1.2	1.8	2.2	2.1	1.0	-1.0	-2.8	-3.9	-5.4	-7.5	-4.1	2.2							
19-Apr	-9.8	-11.4	-13.2	-14.1	-15.1	-15.3	-11.0	-3.1	-0.1	1.9	3.5	5.3	7.0	8.3	9.6	10.3	10.9	10.7	9.5	5.9	1.9	1.9	1.3	-1.2	-0.3	10.9							
20-Apr	-0.7	-0.2	-0.1	-0.4	-1.1	-1.2	1.1	4.7	7.5	10.3	12.2	13.3	14.5	15.3	15.9	16.4	16.4	16.1	14.7	9.1	3.0	0.2	-1.1	-1.5	6.9	16.4							
21-Apr	-1.0	-2.1	-2.8	-2.4	-2.1	-1.8	2.2	6.1	9.5	11.9	13.1	14.4	15.3	16.2	16.9	17.4	17.2	17.5	16.1	11.9	5.8	2.5	0.5	-0.9	7.6	17.5							
22-Apr	-1.8	-2.3	-2.8	-3.4	-3.6	-3.5	-0.5	4.3	8.9	12.3	14.8	16.2	17.1	18.0	18.9	18.8	18.4	17.8	16.3	13.4	8.5	4.2	3.1	4.6	8.2	18.9							
23-Apr	4.8	1.0	-1.2	-2.5	-3.3	-3.6	-0.6	7.2	8.8	10.9	12.7	13.3	14.8	15.6	15.3	16.3	15.6	14.7	14.1	11.8	9.0	7.5	6.1	4.7	8.0	16.3							
24-Apr	4.3	4.1	2.9	2.0	1.6	2.5	3.7	6.0	8.1	10.0	12.2	14.1	15.1	15.6	15.9	15.7	15.5	14.9	14.1	13.5	12.7	12.3	11.3	9.3	9.9	15.9							
25-Apr	7.9	7.4	6.2	4.5	3.2	3.4	4.6	6.9	9.1	11.3	12.5	13.4	13.3	13.4	12.4	9.8	10.8	9.2	7.4	6.2	4.5	2.7	1.5	1.0	7.6	13.4							
26-Apr	0.5	0.1	-0.2	-1.2	-2.0	-1.1	0.1	0.0	0.6	1.5	2.5	3.4	4.6	5.5	6.3	6.7	7.3	7.1	6.4	3.9	0.1	-2.6	-1.5	-1.1	2.0	7.3							
27-Apr	-1.7	-2.6	-3.2	-3.1	-3.1	-3.3	-0.3	2.8	6.0	8.2	9.8	10.9	11.4	10.4	10.0	9.2	8.1	6.7	6.9	6.3	4.7	4.2	3.5	3.0	4.4	11.4							
28-Apr	2.7	2.8	1.7	-0.6	-2.0	0.7	4.4	5.3	5.2	6.4	6.4	9.4	10.7	11.4	11.2	11.2	10.9	10.5	10.2	9.7	8.5	6.9	5.7	4.9	6.4	11.4							
29-Apr	4.1	3.1	2.4	2.1	1.7	1.8	2.0	2.8	4.0	4.5	4.9	5.2	6.1	6.6	7.1	8.5	8.9	8.6	8.1	7.3	6.5	6.0	5.4	4.8	5.1	8.9							
30-Apr	4.3	3.8	3.5	3.2	3.0	2.8	2.7	2.6	2.4	1.5	1.2	1.4	1.1	1.3	1.2	1.6	1.9	2.0	2.1	2.1	2.0	1.9	1.9	1.9	2.2	4.3							
																								Diurnal Average									
																								Diurnal Maximum									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Mackay River - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Mackay River - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	213	29.58	29.58
0 - 10	374	51.94	81.53
10 - 20	133	18.47	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

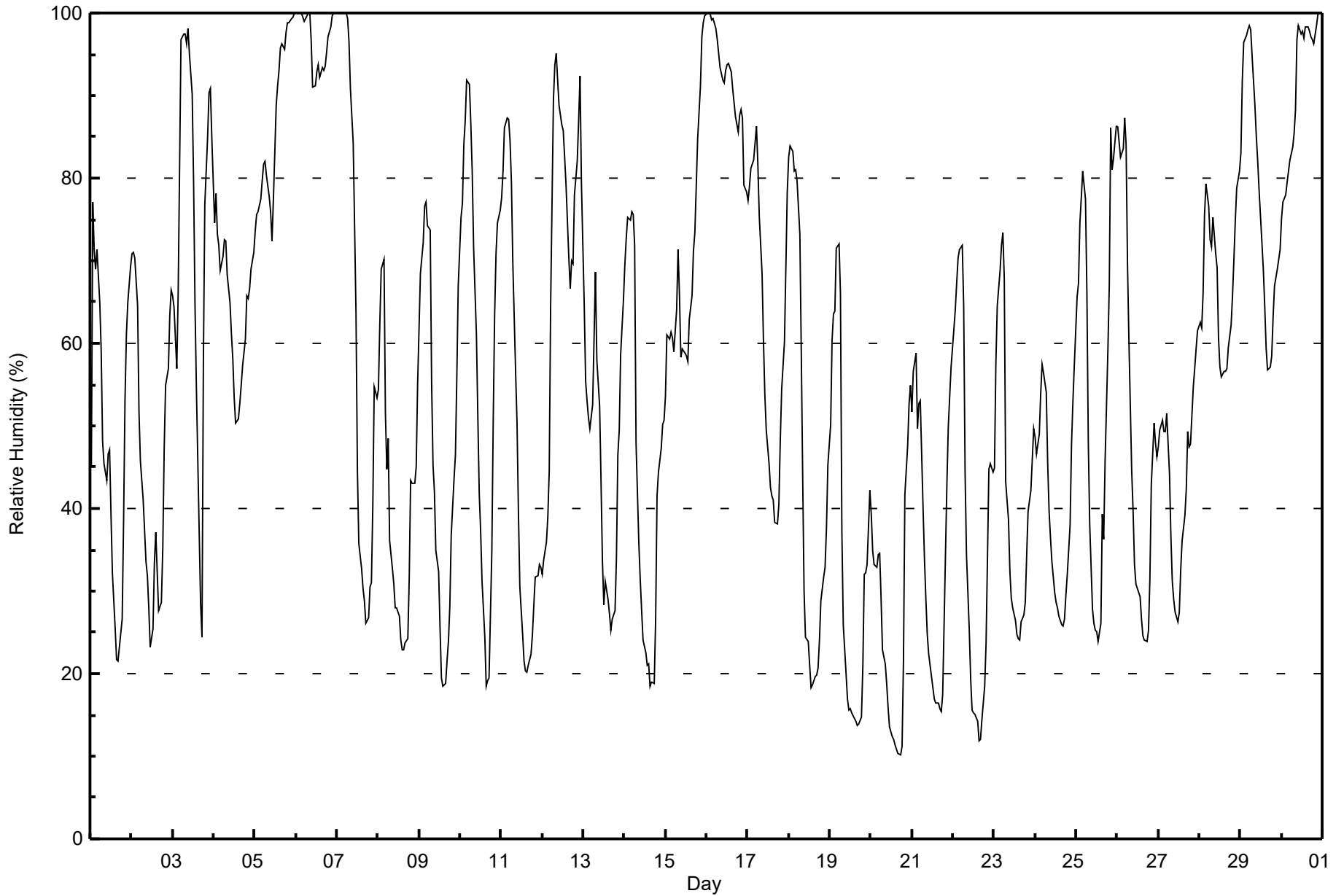
**Relative Humidity (RH) - %**  
**Mackay River - April 2024**

Maximum Value: 100.0 % on Apr 6 00:00																								Hours in Service: 720		
Maximum Daily Average: 96.9 % on Apr 6																								Hours of Data: 720		
Minimum Value: 10.2 % on Apr 20 18:00																								Hours of Missing Data: 0		
Minimum Daily Average: 26.2 % on Apr 20																								Hours of Calibration: 0		
Maximum Diurnal Average: 73.4 % at hour 6																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 39.5 % at hour 17																										
Monthly Average: 56.86 %																										
Percentiles: P <sub>1</sub> = 12.1 P <sub>10</sub> = 23.7 Q <sub>1</sub> = 32.9 Median = 57.0 Q <sub>3</sub> = 77.9 P <sub>90</sub> = 93.9 P <sub>99</sub> = 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-Apr	45.1	77.2	71.4	69.0	71.4	65.0	59.2	48.2	45.5	43.4	46.6	47.1	39.3	32.3	25.4	21.6	21.6	23.2	26.5	38.5	53.1	61.1	64.9	69.3	48.6	77.2
2-Apr	70.8	71.1	70.4	64.6	51.7	45.7	43.5	41.1	33.5	31.8	27.9	23.3	25.4	33.4	37.1	32.3	27.6	28.6	35.3	47.2	55.0	56.9	63.4	66.4	45.2	71.1
3-Apr	65.8	64.4	57.0	66.3	81.4	96.8	97.4	97.5	96.4	98.2	95.1	90.2	79.5	64.8	54.6	37.2	28.6	24.4	58.0	76.8	84.9	90.4	90.8	85.0	74.2	98.2
4-Apr	74.6	78.1	73.2	71.8	68.8	70.4	72.6	72.4	68.3	65.0	61.1	58.1	53.4	50.3	50.8	52.6	55.0	57.2	60.5	65.7	65.3	66.6	69.0	71.1	64.7	78.1
5-Apr	73.6	75.5	75.9	77.5	79.6	81.6	82.1	80.3	77.8	75.9	72.3	77.5	88.8	91.2	93.0	95.8	96.3	95.6	97.7	98.8	98.9	99.4	99.4	100.0	86.9	100.0
6-Apr	100.0	100.0	100.0	100.0	99.6	99.0	99.7	100.0	100.0	96.6	91.1	91.2	92.9	93.7	92.3	93.3	93.0	93.6	95.3	97.1	98.2	99.6	100.0	100.0	96.9	100.0
7-Apr	100.0	100.0	100.0	100.0	100.0	100.0	99.3	96.5	90.8	84.2	74.1	63.6	44.5	35.8	32.7	30.3	28.9	26.0	26.8	30.5	31.1	40.3	54.7	53.4	64.3	100.0
8-Apr	54.4	62.4	69.0	70.1	51.6	44.7	48.4	36.1	32.8	30.9	28.0	28.0	26.9	24.0	22.9	22.8	23.8	24.2	31.4	43.5	43.1	43.1	45.0	55.0	40.1	70.1
9-Apr	61.6	68.5	72.3	76.7	77.1	74.2	73.8	55.3	45.3	42.0	34.9	32.3	25.6	19.6	18.5	18.9	21.5	23.9	28.1	36.8	43.6	46.5	56.0	67.0	46.7	77.1
10-Apr	75.2	77.0	84.0	86.9	91.8	91.3	86.7	80.6	71.6	61.1	51.2	41.9	37.4	31.1	24.5	18.6	19.1	19.5	34.7	50.7	63.4	70.8	74.5	76.0	59.1	91.8
11-Apr	77.7	80.8	86.1	87.4	87.1	84.5	79.4	69.6	56.5	50.3	39.5	30.5	24.7	21.5	20.3	20.1	21.0	22.4	24.8	28.3	31.7	31.8	33.2	32.8	47.6	87.4
12-Apr	32.0	33.7	36.0	38.9	44.6	64.7	89.4	93.7	95.0	91.8	88.8	86.4	85.8	82.6	79.2	70.4	66.6	69.9	69.7	77.9	82.0	86.9	92.4	79.3	72.4	95.0
13-Apr	64.6	55.4	53.0	51.0	49.7	52.5	60.5	68.7	58.0	52.5	43.3	33.6	28.3	31.1	29.0	27.3	25.3	26.6	34.1	46.4	49.4	58.7	65.3	45.5	68.7	
14-Apr	69.5	72.8	75.3	75.0	75.9	75.6	71.8	48.0	35.7	31.3	27.6	24.1	22.5	21.1	21.2	18.5	18.8	26.6	41.5	44.4	47.2	50.2	50.6	44.3	75.9	
15-Apr	53.6	61.0	60.6	61.3	60.6	59.0	64.1	71.3	65.9	58.3	59.2	58.9	58.5	57.8	62.9	65.8	71.2	73.4	78.9	84.7	91.1	97.1	98.8	99.7	69.7	99.7
16-Apr	100.0	100.0	99.8	99.1	99.3	98.2	96.7	95.2	93.5	91.8	91.5	93.1	93.7	93.8	92.9	90.9	89.2	87.4	85.5	87.6	88.3	87.2	79.2	78.3	92.2	100.0
17-Apr	77.3	79.0	81.3	82.1	84.3	86.2	81.7	75.4	68.5	60.3	53.7	49.5	45.4	42.5	41.5	41.0	38.3	38.1	40.5	48.2	54.4	60.1	69.1	78.3	61.5	86.2
18-Apr	82.5	84.0	83.2	80.9	81.0	79.6	73.1	59.2	44.0	30.0	24.3	23.9	21.0	18.4	18.6	19.7	19.9	20.6	24.1	28.8	31.8	32.9	37.7	45.3	44.4	84.0
19-Apr	50.1	60.3	63.6	64.0	71.6	72.1	65.9	37.2	26.0	20.0	16.9	15.6	15.8	15.3	14.5	14.3	13.7	13.9	14.8	20.9	32.1	32.1	33.1	42.2	34.4	72.1
20-Apr	39.4	34.9	33.1	33.0	34.4	34.5	29.2	22.8	21.2	18.8	15.9	13.6	12.3	12.0	11.3	10.8	10.4	10.2	11.2	21.6	41.7	47.7	52.7	54.9	26.2	54.9
21-Apr	51.7	56.6	58.8	49.6	52.7	53.0	39.9	33.8	28.9	24.7	22.4	19.7	18.3	17.0	16.5	16.4	15.8	15.4	17.4	26.0	43.0	49.8	53.5	57.2	34.9	58.8
22-Apr	61.7	64.1	67.3	70.3	71.3	71.9	64.6	44.4	34.4	25.3	19.4	15.5	15.2	15.1	14.3	11.8	12.0	14.5	18.6	23.7	34.1	44.8	45.4	44.4	37.7	71.9
23-Apr	44.9	57.7	64.6	68.8	71.8	73.5	67.8	43.2	38.6	32.4	29.2	28.0	26.5	24.8	24.3	24.1	26.3	27.1	28.7	34.4	39.7	42.2	45.9	49.7	42.3	73.5
24-Apr	48.7	46.7	49.0	53.9	57.5	56.4	54.1	45.5	39.7	36.4	33.5	29.8	28.7	28.0	27.0	26.0	25.8	26.7	29.5	32.0	38.0	47.5	52.8	57.3	40.4	57.5
25-Apr	65.6	67.2	74.6	77.7	80.8	77.5	66.2	48.2	38.1	27.9	26.2	25.2	25.0	23.9	26.1	39.4	36.2	45.7	59.1	67.1	86.1	80.9	82.4	86.2	55.6	86.2
26-Apr	86.3	84.5	82.5	83.5	87.3	84.0	69.6	60.4	44.5	39.6	33.2	30.9	29.8	29.3	26.7	24.6	24.1	23.9	25.2	31.6	42.8	50.3	47.9	46.2	49.5	87.3
27-Apr	47.4	49.5	50.6	49.3	49.3	51.6	44.2	36.7	31.2	28.9	27.4	26.2	27.4	32.6	36.1	39.2	42.4	49.4	47.5	47.9	54.8	57.0	59.4	61.5	43.6	61.5
28-Apr	62.5	61.9	66.1	75.5	79.3	76.6	72.5	71.6	75.2	70.8	69.2	60.6	57.1	55.9	56.6	56.6	57.0	59.4	62.2	65.7	70.2	74.9	78.8	80.9	67.4	80.9
29-Apr	83.1	91.9	96.4	97.3	98.0	98.5	97.9	94.7	88.8	85.2	82.0	78.4	72.2	69.0	64.6	59.4	56.8	57.2	58.4	63.3	67.0	68.9	70.1	71.4	77.9	98.5
30-Apr	75.0	77.1	78.0	79.5	80.9	82.3	83.7	85.4	88.4	96.8	98.5	97.5	97.8	97.0	98.3	98.3	97.8	97.2	96.8	96.3	98.6	99.8	99.9	100.0	91.7	100.0
66.5 69.8 71.1 72.0 73.0 73.4 71.2 63.8 57.8 53.4 49.5 46.5 44.0 42.2 41.1 39.9 39.5 40.5 44.7 51.6 58.5 62.1 65.3 67.5																								Diurnal Average		
100.0 100.0 100.0 100.0 100.0 100.0 99.7 100.0 100.0 98.2 98.5 97.5 97.8 97.0 98.3 98.3 97.8 97.2 97.7 98.8 98.9 99.8 100.0 100.0																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Mackay River - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	50	6.94	6.94
20 - 40	181	25.14	32.08
40 - 60	155	21.53	53.61
60 - 80	171	23.75	77.36
80 - 100	145	20.14	97.50

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

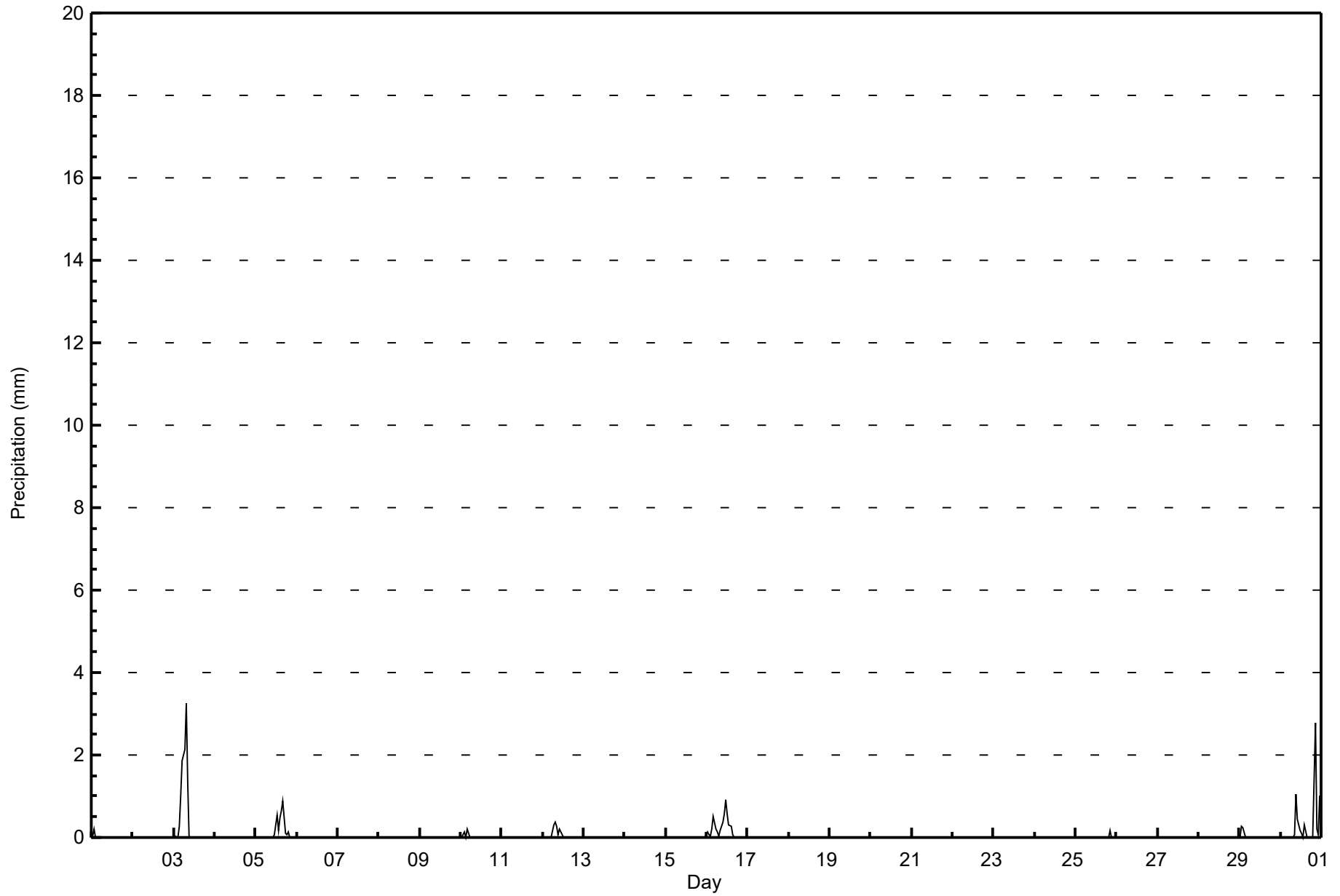
**Mackay River - April 2024**

Maximum Value: 3.3 mm on Apr 3 08:00      Maximum Daily Total: 9.9 mm on Apr 3																				Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Minimum Value: 0.0 mm on Apr 1 03:00      Minimum Daily Total: 0.0 mm on Apr 2 Maximum Diurnal Total: 3.7 mm at hour 8      Minimum Diurnal Total: 0.1 mm at hour 19 Monthly Total: 26.45 mm      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> = 1.0																											
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-Apr	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	
2-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Apr	0.0	0.1	0.0	0.3	1.0	1.9	2.1	3.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	3.3	
4-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.2	0.5	0.7	0.9	0.1	0.1	0.1	0.1	0.0	0.0	0.0	3.1	0.9	
6-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Apr	0.0	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	
11-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.4	
13-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Apr	0.1	0.1	0.1	0.2	0.5	0.2	0.1	0.1	0.2	0.4	0.6	0.9	0.6	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.9	
17-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.2	0.2
26-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Apr	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.3
30-Apr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.4	0.2	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	2.8	0.2	0.1	1.0	6.2	2.8	2.8
																								Diurnal Average			
																								Diurnal Maximum			



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Precipitation (PC) - mm**  
**Mackay River - April 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	701	97.36	97.36
0.4 - 0.5	5	0.69	98.06
0.6 - 0.7	4	0.56	98.61
0.8 - 1.4	6	0.83	99.44
1.5 - 10	4	0.56	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

**Wind Speed (WS) - km/h**  
**Mackay River - April 2024**

Maximum Speed: 20 km/h on Apr 16 11:00	Maximum Daily Speed Average: 15.3 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 23 07:00	Minimum Daily Speed Average: 2.7 km/h on Apr 14	Hours of Data: 719
Maximum Diurnal Speed Average: 3.3 km/h at hour 19	Minimum Diurnal Speed Average: 0.1 km/h at hour 1	Hours of Missing Data: 1
Monthly Average Velocity: 1.4 km/h 346.2 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 8 Q <sub>3</sub> = 11 P <sub>90</sub> = 15 P <sub>99</sub> = 18	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-Apr	WSW9	NNW17	W10	W10	W10	WSW10	WSW11	W14	WNW16	WNW17	WNW18	WNW17	WNW13	W14	W14	WNW16	WNW15	NW15	NW10	WNW2	SSE2	SSE3	SE3	SE3	WNW9.8	WNW18	
2-Apr	SE4	SSE5	SSE4	SSE5	SE6	SSE6	SSE6	SE8	SSE9	SE9	SE11	S11	S11	SSW11	S13	S12	S12	S8	SSW4	SW3	SSW5	SSW6	SSW5	S6	S7.0	S13	
3-Apr	SSW5	WNW5	WNW9	NW8	WNW10	NW8	WNW11	WNW9	WNW8	SW5	SSW6	WSW7	W8	W10	W9	WNW12	W11	W9	NNE8	NE4	E1	SSW1	SSW1	WSW4	W5.3	WNW12	
4-Apr	W7	W5	W10	W9	WNW10	NW11	NW10	NW9	NNW7	NNW8	N7	NNW3	NNE3	NNE6	ENE8	E9	ENE8	E7	ENE4	NE4	NE4	NE4	ENE4	E6	N3.1	NW11	
5-Apr	E6	E5	ENE3	E4	ENE5	NE5	NE6	NE8	ENE8	ENE7	NNE9	NNE9	N10	NNE8	NNE8	NNE7	NNE6	NNE7	N5	N5	N5	N4	N3	NNW4	NE5.4	N10	
6-Apr	NNW5	NW5	NW6	NNW5	NNE3	NNE5	NNE5	N5	NNE6	NNE5	NNE5	N7	NNE8	NE7	ENE4	NE4	NNE4	E3	ENE3	ENE3	ESE0	SSE1	SW1	WSW2	NNE3.4	NNE8	
7-Apr	SSE1	SSE2	SSE3	S4	S5	S5	SSW5	S6	SSW7	SSW7	SSW8	SSW9	SW10	SW8	SW11	SW10	SW12	SW12	WSW11	SW7	SSW7	SW5	SSW5	S6	SSW6.3	SW12	
8-Apr	S6	S7	SSE6	S6	S8	SSW7	SW4	WSW5	WSW6	WSW7	SW8	SW10	SW10	SW12	SW11	SSW10	SW8	SSW6	SE2	SE4	SE4	S3	W4	SW3	SSW5.7	SW12	
9-Apr	SW2	SSE2	SE3	SE3	SE3	SSE3	SSW4	SW4	WSW8	WSW11	W11	WSW12	WSW13	WSW13	WSW11	W12	WSW12	WSW11	WSW10	WSW4	SW4	WSW7	WSW8	WSW8	WSW6.6	WSW13	
10-Apr	W6	WNW7	W6	W6	WNW10	WNW9	WNW11	WNW11	WNW11	NW14	NW15	NNW16	NW14	NW14	NNW15	NNW14	NNW11	N9	NE7	ENE3	E2	ESE4	ESE5	ESE5	NW6.8	NNW16	
11-Apr	SE5	ESE5	ESE4	SE3	SE5	SE6	SE8	SE9	SE10	SE9	SE11	SE11	SSE11	SSE12	SSE11	S11	S9	SSE8	SE7	SE6	SE6	SE6	SE8	SSE9	SE7.5	SSE12	
12-Apr	SSE11	SSE11	S10	S10	SSE10	SSE11	SSE11	SE11	SE12	SE13	SSE11	S11	SSE11	SSE11	SSE9	SSE10	SE10	SE10	SE10	SE10	SE8	NE1	SE6	SSE6	S8	SSE9.3	SE13
13-Apr	SW7	SW7	SSW8	SW9	SW10	WSW9	W10	W12	W14	W17	W19	W19	W16	W15	WNW15	W14	W10	W8	WSW5	SW4	SW5	SW4	SW3	W9.6	W19		
14-Apr	SW4	SW4	SW4	SE2	SSW3	ESE3	SE5	SSE6	S4	SSW7	WSW7	WSW9	WSW9	SW7	W8	SW8	W7	WSW5	W0	SE2	ENE3	NNE3	NNE4	NE4	SW2.7	WSW9	
15-Apr	NE3	NNE2	NNE3	NNW2	N3	NNW5	NW7	NE1	NNE2	NNE4	NE8	NE11	NNE11	NNE12	NE14	NNE14	NNE16	NNE15	NNE13	NNE13	NNE12	NNE12	NNE11	NNE8.3	NNE16		
16-Apr	NNE13	NNE14	NNE16	NNE14	NNE11	N18	N18	N17	N20	N19	N20	N17	N17	N16	NNE17	NNE17	NNE17	NNE15	N16	NNE12	N11	N11	N12	N12	N15.3	N20	
17-Apr	N14	N13	NNW12	N14	N12	NNW11	N13	N16	N16	N17	N18	N16	NNE18	NNE18	NNE18	NNE17	NNE18	NNE16	NNE15	N12	N9	N6	NNW4	NNW4	N13.2	NNE18	
18-Apr	NNW4	NNW4	NNW6	N7	N8	N8	N9	N15	N14	NNE14	N15	N16	NNE16	NNE17	NNE15	NNE15	NNE14	NNE13	NNE12	NNE7	NNE6	NNE5	NNE4	NNE3	N10.1	NNE17	
19-Apr	S1	SE1	SSW0	SSE2	SSE1	WSW3	WSW2	W3	W6	WSW7	W6	W7	W7	W7	WSW8	WSW8	WSW7	WSW8	SW7	SSW5	SSW6	SSW6	SW6	SW5	WSW4.4	WSW8	
20-Apr	SW6	WSW5	WSW6	SW7	SW6	SW7	WSW6	WSW7	W7	W8	WSW9	W10	WSW9	WSW10	W9	WSW8	SW7	SW6	SSW6	SSE3	SSE3	SE3	SSE4	S5	WSW5.8	W10	
21-Apr	S5	SSE5	SSE5	SE6	SE6	SE6	SE6	SE8	SE8	SSE11	SE12	SE10	SE9	SE8	ENE3	E6	ESE4	NNE4	NNE9	NE3	SSE2	SSE2	S2	SSE1	SE4.7	SE12	
22-Apr	S0	W1	UO	W3	W3	WSW2	W4	WNW4	NW6	NNE9	NNE12	NNE10	N4	N6	NW10	NW17	NW15	NNW11	NNE11	NE7	NE2	NE1	NNE5	NNE7	NNW5.0	NW17	
23-Apr	NNE6	NNE2	SSE1	SSE2	SSE3	SSE2	S0	NNE3	NNE4	N3	NNW6	NNW4	NNW7	NW6	SSW4	NNW6	ENE7	E8	NE5	NE8	NE8	NE7	ENE6	NE6	NNE3.1	NE8	
24-Apr	ENE6	ENE7	NE5	NE6	ENE6	E9	E10	E14	E17	E17	E16	E15	E16	E16	E17	E16	E17	ESE17	ESE12	ESE10	ESE6	ESE11	SE8	SW5	E10.9	E17	
25-Apr	W8	W7	WSW7	WSW5	SW5	SW5	WSW7	W11	W11	W14	W14	WSW13	WSW14	WSW14	WSW15	W15	WSW12	W13	WNW13	WNW10	NW12	NNW14	NW10	NW10	W9.7	W15	
26-Apr	NW10	WNW9	WNW10	WNW6	WNW3	WNW6	NW13	NNW14	NW14	NW13	NNW13	NW13	NNW11	NW10	NW10	NW9	NNW7	N6	NNE6	ENE5	E3	ESE4	ESE7	ESE9	NW6.4	NW14	
27-Apr	SE8	SE7	SE6	SSE6	SSE5	SSE5	S8	S10	S11	S13	S12	SSE14	SSE16	S15	SSE15	S12	S15	SE12	SE11	SE9	ESE7	ESE8	ESE7	ESE8	SSE9.3	SSE16	
28-Apr	ESE8	ESE8	E3	ENE2	ENE3	E5	ESE8	ESE10	ESE10	ESE11	ESE11	ESE10	ESE9	ESE10	ESE7	E7	E7	ENE7	E7	E10	E10	ESE13	ESE12	ESE10	ESE8.1	ESE13	
29-Apr	ESE9	ESE9	E6	E6	E7	E5	E5	ENE6	NE7	NE7	NNE9	NNE10	NNE10	NNE10	N10	NNE9	NNE12	NNE12	NNE12	NNE11	N10	N11	NNE11	NNE13	NE7.7	NNE13	
30-Apr	NNE11	N11	N13	N14	N15	N14	N15	N16	NNE16	N13	N14	N15	N15	NNE17	NNE16	NNE16	NNE14	N15	N14	N12	N13	N14	NNE14	NNE13	N14.1	NNE17	

SSE0.1 NW0.6 NW1.1 NW0.8 NW0.7 NW0.8 NW1.6 NNW1.6 NNW2.2 NW1.7 NNW2.5 NW2.6 NW2.3 NW2.2 NW1.9 NW2.6 NNW2.3 N2.5 NNE3.3 NE2.7 NE2.1 ENE1.8 ENE1.6 ENE0.9	Diurnal Average
N14 WNW17 NNE16 NNE14 N15 N18 N18 N17 N20 N19 N20 W19 W19 NNE18 NNE18 NNE17 NNE18 ESE17 N16 NNE13 N13 NNW14 NNE14 NNE13	Diurnal Maximum

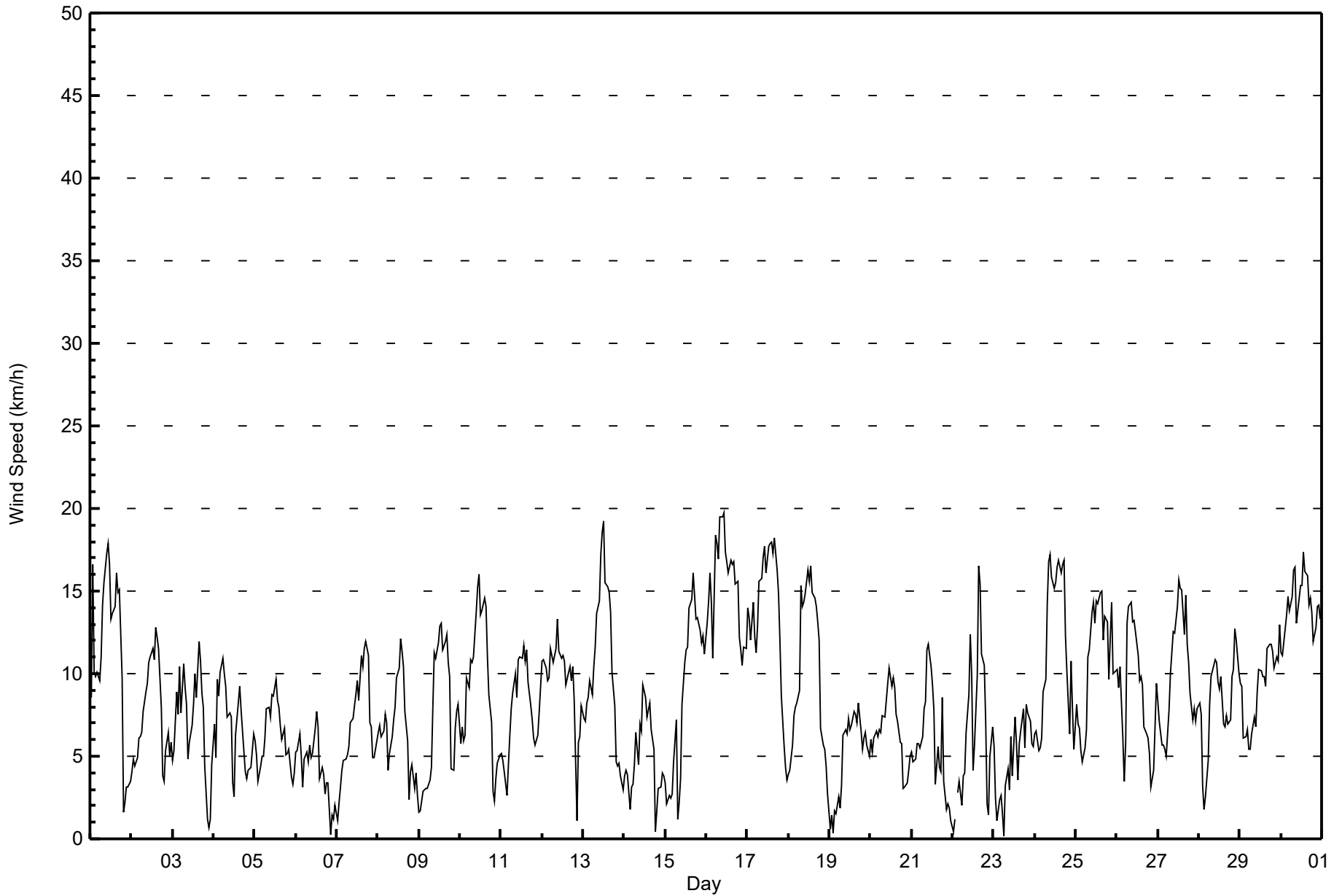
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Mackay River - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	200	27.82	27.82
6 - 11	342	47.57	75.38
12 - 19	175	24.34	99.72
20 - 28	2	0.28	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Mackay River - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	8	22	15	14	9	9	16	28	11	13	20	11	8	4	1	11	200
6 - 11	17	32	14	11	16	23	37	23	18	16	24	35	31	17	17	11	342
12 - 19	39	45	1	0	10	4	4	4	8	0	3	9	17	11	12	8	175
20 - 28	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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>	<b>66</b>	<b>99</b>	<b>30</b>	<b>25</b>	<b>35</b>	<b>36</b>	<b>57</b>	<b>55</b>	<b>37</b>	<b>29</b>	<b>47</b>	<b>55</b>	<b>56</b>	<b>32</b>	<b>30</b>	<b>30</b>	<b>719</b>

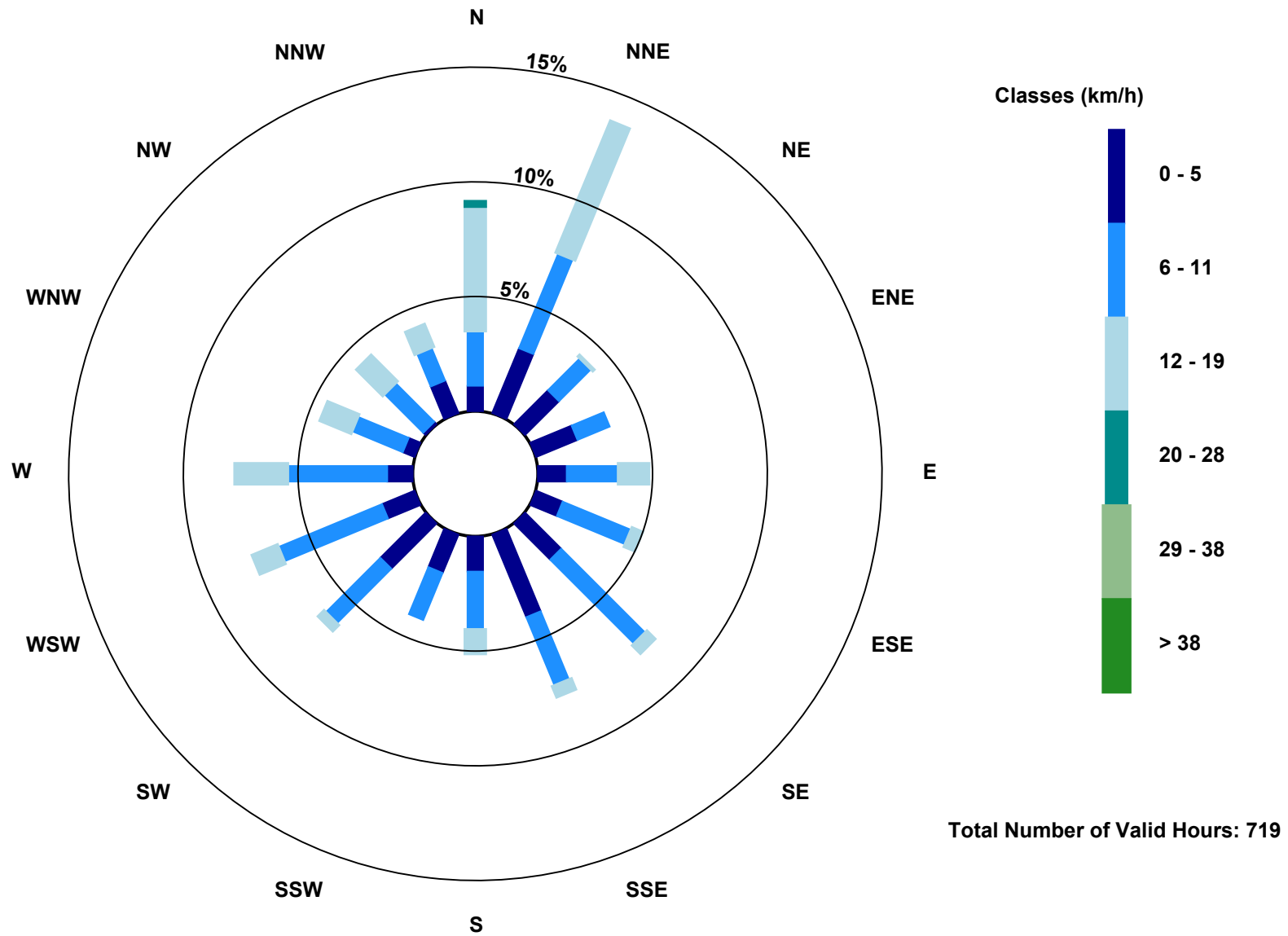
Total Number of Valid Hours: 719

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Mackay River





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Mackay River - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 8 km/h on Apr 16 05:00	Hours of Data: 719
Minimum Value: 0 km/h on Apr 20 22:00	Hours of Missing Data: 1
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 6	Hours of Calibration: 0
	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	7	4	4	4	4	4	6	6	6	6	6	5	5	6	6	5	5	3	2	0	1	1	1	7
2-Apr	1	1	1	1	1	2	2	2	3	3	4	4	4	4	4	4	4	2	1	1	1	1	1	2	4
3-Apr	1	3	3	3	4	2	4	3	4	3	2	3	4	4	3	5	5	4	3	2	1	1	1	3	5
4-Apr	3	2	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3	2	2	1	2	2	1	3	4
5-Apr	2	2	1	1	2	2	2	3	3	2	3	3	3	2	2	2	2	2	2	2	2	1	2	2	3
6-Apr	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	2
7-Apr	1	1	1	1	1	1	1	1	2	2	3	3	4	4	5	5	5	5	5	2	2	1	1	1	5
8-Apr	2	1	1	2	2	2	2	2	3	3	3	4	4	5	4	4	3	2	1	1	1	1	1	1	5
9-Apr	1	1	1	1	1	3	2	2	3	5	4	5	6	6	5	5	5	5	4	2	2	3	3	3	6
10-Apr	2	2	2	3	3	3	3	4	3	4	5	5	5	5	5	5	4	3	2	1	1	1	1	1	5
11-Apr	1	1	1	1	1	2	2	3	3	3	3	4	4	5	5	4	4	3	2	1	1	2	2	3	5
12-Apr	4	4	3	4	3	4	3	3	3	4	4	4	3	3	3	3	3	3	3	2	2	1	1	2	4
13-Apr	2	2	2	3	4	4	5	5	6	6	7	7	8	6	6	6	6	4	3	3	1	1	1	1	8
14-Apr	1	1	1	1	1	1	2	2	2	3	3	4	4	3	4	4	3	3	1	1	2	1	1	1	4
15-Apr	2	1	1	2	2	3	3	2	1	2	3	3	4	4	4	5	5	5	5	5	5	4	4	4	5
16-Apr	4	5	5	6	8	6	6	5	6	6	6	6	5	6	5	5	5	5	5	4	3	3	3	3	8
17-Apr	4	4	3	4	4	3	4	5	5	5	5	5	6	6	6	6	6	5	5	4	3	1	1	1	6
18-Apr	1	1	1	2	2	2	3	5	4	5	4	5	5	5	5	5	4	4	4	2	2	1	1	2	5
19-Apr	1	0	1	1	1	1	1	2	2	2	3	2	3	3	3	3	3	3	3	1	1	2	1	1	3
20-Apr	2	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4	3	3	2	1	0	0	1	1	4
21-Apr	1	1	1	1	1	1	1	2	2	4	4	4	3	4	3	3	2	3	3	2	1	0	1	1	4
22-Apr	1	1	UO	1	1	1	2	1	2	3	4	4	3	4	7	5	5	4	4	3	2	1	1	2	7
23-Apr	2	1	1	1	0	1	1	1	2	2	3	2	3	3	2	3	3	3	2	3	2	2	2	2	3
24-Apr	2	2	2	2	2	3	3	5	5	5	5	5	6	6	6	6	6	5	5	5	3	4	3	3	6
25-Apr	4	3	2	2	1	2	3	5	4	5	6	5	6	6	6	7	5	6	5	4	5	4	3	3	7
26-Apr	3	3	3	2	2	3	4	4	4	5	4	5	5	5	4	4	3	3	3	2	1	1	2	3	5
27-Apr	2	2	1	2	2	2	2	4	4	4	4	5	6	5	5	5	4	4	4	3	2	2	2	2	6
28-Apr	2	2	2	1	1	2	2	2	3	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3
29-Apr	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	3	4	4	4
30-Apr	3	4	4	4	5	5	5	6	6	4	4	5	5	6	6	5	5	5	4	4	4	5	4	4	6
	5	7	5	6	8	6	6	6	6	6	7	7	8	6	7	7	6	6	5	5	5	5	4	4	

Diurnal Maximum

UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Mackay River - April 2024**

Direction of Maximum Speed: 8 deg on Apr 16 11:00		Hours in Service:	720
Direction of Maximum Daily Speed Average: 9.6 deg on Apr 16		Hours of Data:	719
Direction of Minimum Speed: 185 deg on Apr 23 07:00		Hours of Missing Data:	1
Direction of Minimum Daily Speed Average: 2.7 deg on Apr 14		Percent Operational Time:	99.9
Monthly Average Direction: 346.2 deg			

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-Apr	247	292	278	265	266	255	253	276	285	301	302	298	284	278	267	291	300	312	315	299	147	147	144	144	283.4
2-Apr	141	167	153	149	146	151	149	142	152	145	142	174	189	195	189	184	188	172	196	215	196	195	203	190	172.2
3-Apr	198	283	302	319	297	308	292	287	295	219	209	242	259	269	267	285	281	275	32	48	88	195	192	251	281.0
4-Apr	270	264	277	280	289	307	314	314	329	337	3	328	33	24	66	93	76	79	72	39	49	48	76	93	350.3
5-Apr	98	89	76	81	69	41	42	51	62	60	17	17	10	24	33	19	20	13	11	10	11	11	353	348	33.9
6-Apr	333	320	319	343	13	27	16	10	14	27	13	10	25	39	68	37	23	81	67	73	102	166	221	258	15.6
7-Apr	160	152	150	172	178	190	203	178	197	204	192	210	234	236	230	233	231	236	239	226	211	215	198	188	213.3
8-Apr	176	172	168	172	191	196	225	242	256	237	225	232	214	217	221	198	214	197	146	127	132	184	275	226	206.2
9-Apr	222	159	146	145	138	156	194	231	255	254	266	247	238	243	238	263	246	256	256	252	224	237	253	250	242.8
10-Apr	271	288	276	280	292	285	288	290	303	307	308	337	309	315	327	337	346	10	43	78	95	114	117	123	315.6
11-Apr	131	123	120	131	128	130	129	134	144	138	137	138	158	168	164	180	177	147	130	131	131	136	135	157	145.3
12-Apr	159	162	169	173	167	163	154	145	135	145	166	175	155	157	151	148	137	136	137	129	54	142	157	190	154.0
13-Apr	221	219	203	216	231	243	263	276	280	271	280	279	271	280	277	286	271	280	281	252	220	232	231	227	263.3
14-Apr	228	220	218	130	195	122	139	162	169	201	237	253	251	218	270	219	265	245	277	128	59	31	33	39	220.9
15-Apr	35	24	24	335	355	345	305	52	17	29	34	35	22	21	36	29	18	21	33	22	20	23	22	21	21.6
16-Apr	20	17	16	14	15	11	7	9	4	4	8	2	2	6	13	17	15	12	8	15	11	10	358	359	9.6
17-Apr	356	356	348	353	352	345	352	349	353	360	8	10	18	25	25	28	22	23	20	10	9	1	344	334	6.5
18-Apr	330	343	346	355	359	360	5	8	9	13	11	8	13	14	13	19	16	17	20	17	18	19	22	29	10.5
19-Apr	176	140	192	153	164	238	256	259	259	244	262	262	269	262	245	252	244	253	230	205	200	209	218	218	239.3
20-Apr	228	238	243	236	231	236	245	246	269	259	245	261	249	249	264	253	231	230	204	166	147	145	164	173	237.4
21-Apr	170	157	151	145	144	139	136	142	129	147	139	133	124	133	74	83	115	19	23	38	148	156	171	150	129.0
22-Apr	177	277	UO	264	260	252	276	303	323	15	18	29	351	360	313	314	322	330	23	41	55	56	27	31	346.5
23-Apr	20	25	160	151	147	156	185	14	24	5	342	343	334	319	195	334	58	83	55	39	37	42	57	55	30.3
24-Apr	59	57	53	51	63	87	82	97	100	98	95	89	88	91	97	93	94	105	106	115	105	117	124	217	94.7
25-Apr	262	266	257	249	222	231	254	259	263	263	261	249	241	243	241	267	255	271	296	284	310	333	325	308	268.2
26-Apr	305	303	303	303	283	286	313	328	322	324	328	320	328	324	320	310	347	352	24	62	86	115	114	123	325.6
27-Apr	130	135	139	160	152	152	171	173	172	184	170	162	168	182	164	180	172	145	138	137	123	119	114	111	156.9
28-Apr	110	109	79	75	78	94	108	111	106	115	108	112	103	104	106	93	88	78	82	99	100	105	107	105	102.2
29-Apr	106	103	90	91	100	86	86	74	55	37	29	27	29	17	2	20	27	25	19	14	10	5	15	15	36.7
30-Apr	13	8	7	8	6	4	9	11	15	9	2	7	6	13	12	20	16	5	5	5	7	7	15	12	9.3

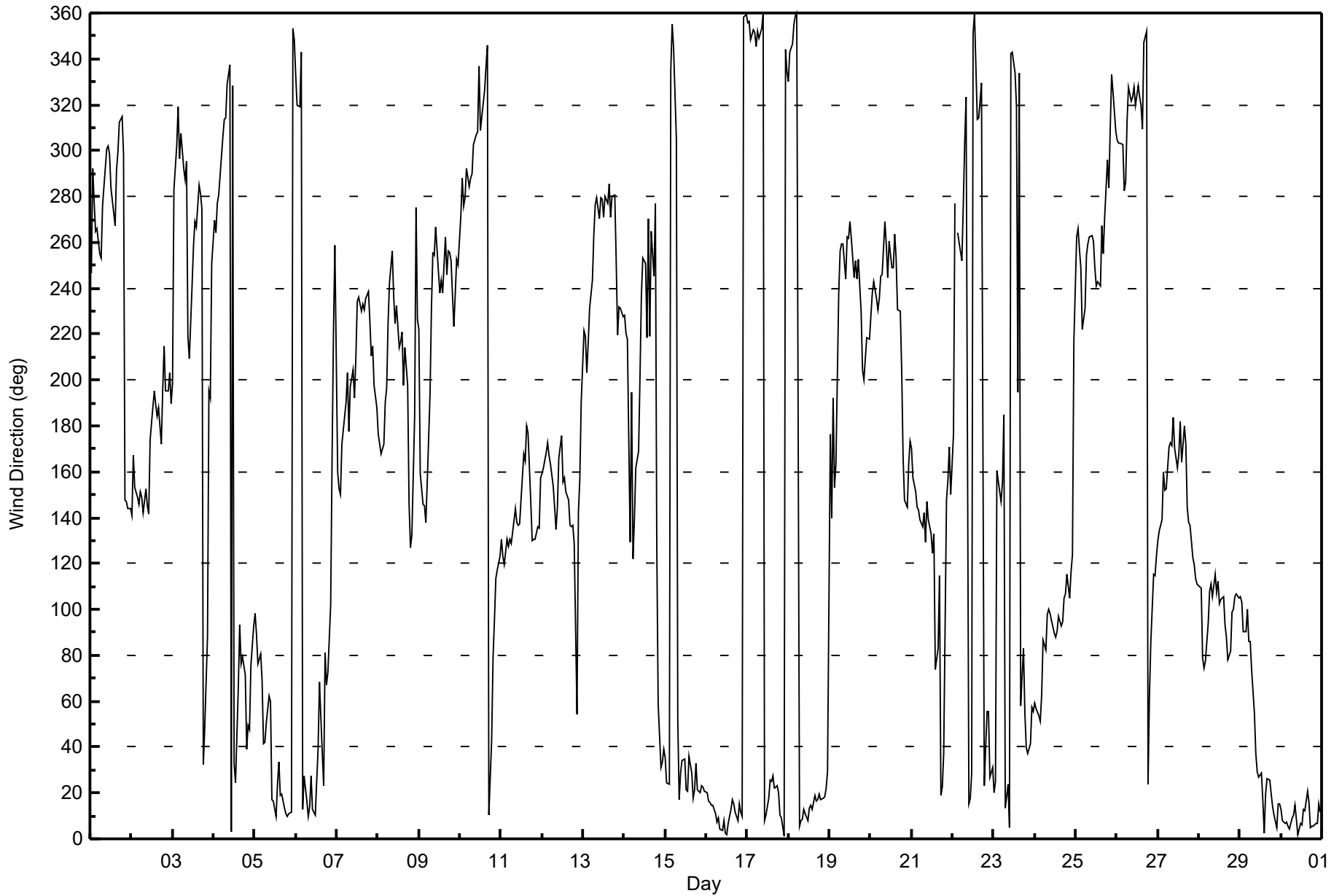
168.3	317.6	306.8	309.6	283.0	316.7	316.2	332.8	336.1	324.7	335.9	323.7	310.9	313.1	309.8	324.8	339.4	359.6	24.0	46.8	47.3	61.4	61.0	73.0
Diurnal Average																							

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Mackay River - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Mackay River - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 99 deg on Apr 4 13:00	Hours of Data: 719
Minimum Value: 7 deg on Apr 20 21:00	Hours of Missing Data: 1
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 18 Q <sub>1</sub> = 23 Median = 27 Q <sub>3</sub> = 37 P <sub>90</sub> = 49 P <sub>99</sub> = 85	Hours of Calibration: 0
	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	49	24	32	42	37	43	45	33	29	25	23	27	34	36	37	28	28	21	18	66	26	8	7	19	66
2-Apr	10	11	12	16	17	21	23	22	24	23	24	27	27	27	27	26	26	24	21	20	21	17	16	26	27
3-Apr	24	30	21	18	23	20	22	22	24	58	26	43	47	39	37	36	36	38	43	33	77	78	85	42	85
4-Apr	33	31	28	28	23	24	21	22	29	36	51	85	99	55	44	30	36	29	27	24	29	24	31	24	99
5-Apr	21	28	31	32	29	22	26	29	30	30	27	27	25	26	26	25	25	25	25	21	23	28	37	32	37
6-Apr	28	31	24	24	34	38	29	39	28	36	37	37	28	32	44	33	40	38	27	35	69	78	71	62	78
7-Apr	65	38	22	22	21	21	24	21	26	29	33	40	47	50	43	43	34	39	36	28	20	20	18	16	65
8-Apr	14	11	11	13	15	18	36	40	44	49	45	39	40	42	39	38	35	37	28	18	23	51	27	30	51
9-Apr	54	41	16	10	16	83	47	43	40	42	40	41	44	41	47	38	43	43	41	34	23	47	40	41	83
10-Apr	39	26	24	24	23	23	24	23	21	21	24	25	33	32	29	28	33	32	30	26	20	19	13	12	39
11-Apr	13	14	13	27	17	19	18	22	22	27	27	35	32	37	36	33	31	29	21	18	19	23	22	26	37
12-Apr	25	25	26	25	25	25	26	24	22	26	27	25	27	26	26	32	26	25	24	18	99	17	18	24	99
13-Apr	28	25	19	25	34	44	39	35	32	34	31	36	39	33	35	31	37	33	33	36	16	20	18	26	44
14-Apr	15	16	17	53	38	16	24	21	50	37	54	41	50	52	43	49	47	47	98	38	51	20	20	21	98
15-Apr	19	54	44	69	59	63	31	84	54	60	33	29	28	30	26	25	26	27	26	25	26	24	24	24	84
16-Apr	22	25	25	24	23	25	25	25	25	26	26	25	25	26	25	25	25	25	23	23	23	24	24	25	26
17-Apr	24	24	23	23	23	22	24	24	26	27	27	28	28	26	27	27	26	26	26	25	23	22	14	11	28
18-Apr	15	15	16	20	22	24	24	25	27	26	26	27	29	26	30	29	28	28	26	24	21	20	20	61	61
19-Apr	89	12	82	46	55	18	34	58	41	44	60	49	62	56	52	49	46	40	37	15	15	17	20	18	89
20-Apr	27	34	38	35	28	29	39	42	41	46	47	42	49	48	47	50	51	49	37	22	7	7	13	12	51
21-Apr	13	13	13	12	14	13	16	22	28	30	32	33	44	54	91	64	72	82	23	29	16	14	38	54	91
22-Apr	77	35	UO	11	13	38	17	35	27	31	29	39	90	73	59	25	23	35	24	25	30	35	14	17	90
23-Apr	19	32	72	11	10	24	94	42	51	84	55	79	51	71	75	63	39	30	23	21	20	22	26	24	94
24-Apr	31	27	28	24	26	30	31	23	23	24	26	29	28	30	26	27	27	21	23	32	27	21	21	53	53
25-Apr	41	34	36	36	23	37	47	42	40	40	39	42	42	44	42	39	42	38	24	31	21	22	20	19	47
26-Apr	19	20	20	19	27	25	21	24	27	29	29	34	37	47	40	49	71	46	42	28	27	18	15	18	71
27-Apr	18	19	20	25	23	22	24	27	28	30	33	33	35	29	26	33	28	27	24	24	17	17	16	15	35
28-Apr	15	17	33	27	27	24	18	18	17	21	20	29	32	28	35	28	31	29	31	23	21	18	18	18	35
29-Apr	19	21	26	27	30	31	33	30	27	27	27	29	27	28	29	33	26	26	24	24	25	25	24	24	33
30-Apr	24	24	25	25	25	25	26	25	24	25	25	24	27	26	26	24	24	26	24	25	25	26	23	24	27

89	54	82	69	59	83	94	84	84	54	84	60	85	99	73	91	64	72	82	98	66	99	78	85	62	
Diurnal Maximum																									

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS21  
CONKLIN  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
 APRIL 2024

MONTHLY SUMMARY

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	683	34	37	99.58	3.1	0	0.7	0
TRS(ppb) Average	681	35	39	99.44	1.3	0	0.5	0
THC(ppm) Average	596	35	124	87.64	2.7	-	2.2	-
NMHC(ppm) Average	596	35	124	87.64	0.581	-	0.031	-
CH4(ppm) Average	596	35	124	87.64	2.5	-	2.2	-
O3 (ppb) Average	683	34	37	99.58	59.3	0	43.3	-
NO2 (ppb) Average	599	32	121	87.64	16.9	0	2.6	-
NO (ppb) Average	599	32	121	87.64	12.6	-	1.4	-
NOX (ppb) Average	599	32	121	87.64	20.7	-	3.8	-
PM2.5 (ug/m3) Average	717	1	3	99.72	55.7	0	10.2	0
Temperature 2 m (C) Average	720	0	0	100	19.2	-	9.4	-
Relative Humidity (%) Average	720	0	0	100	99.1	-	94.7	-
Wind Speed 10 m (km/h) Average	717	0	3	99.58	23	-	17	-
Wind Direction 10 m (deg) Average	717	0	3	99.58	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	683	0.24	0.3	-	0	0	0.1	0.2	0.3	0.5	3.1
TRS (ppb) Average	681	0.41	0.1	-	0.2	0.3	0.4	0.4	0.4	0.5	1.3
THC (ppm) Average	596	2.07	0.1	-	2	2	2	2	2.1	2.2	2.7
NMHC(ppm) Average	596	0.002	0.024	-	0	0	0	0	0	0	0.581
CH4(ppm) Average	596	2.07	0.1	-	2	2	2	2	2.1	2.2	2.5
O3 (ppb) Average	683	34.53	12.9	-	2.6	15.9	24.5	36.1	45.3	50.2	59.3
NO2 (ppb) Average	599	1.41	1.4	-	0	0.3	0.6	1.1	1.8	2.7	16.9
NO (ppb) Average	599	0.33	1	-	0	0	0	0.1	0.2	0.7	12.6
NOX (ppb) Average	599	1.74	2	-	0	0.4	0.7	1.2	2.1	3.3	20.7
PM2.5 (ug/m3) Average	717	4.54	5.7	-	0.2	1.1	1.9	3.1	4.8	8.9	55.7
Temperature 2 m (C) Average	720	3.93	6.4	-	-14	-3.7	-0.6	3.2	8.3	13.4	19.2
Relative Humidity (%) Average	720	59.22	26	-	10.1	22	33.9	62.6	82.1	92.3	99.1
Wind Speed 10 m (km/h) Average	717	7.8	5	-	0	2	4	7	12	15	23
Wind Direction 10 m (deg) Average	717	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS 21)  
APRIL 2024

OPERATIONAL NOTES

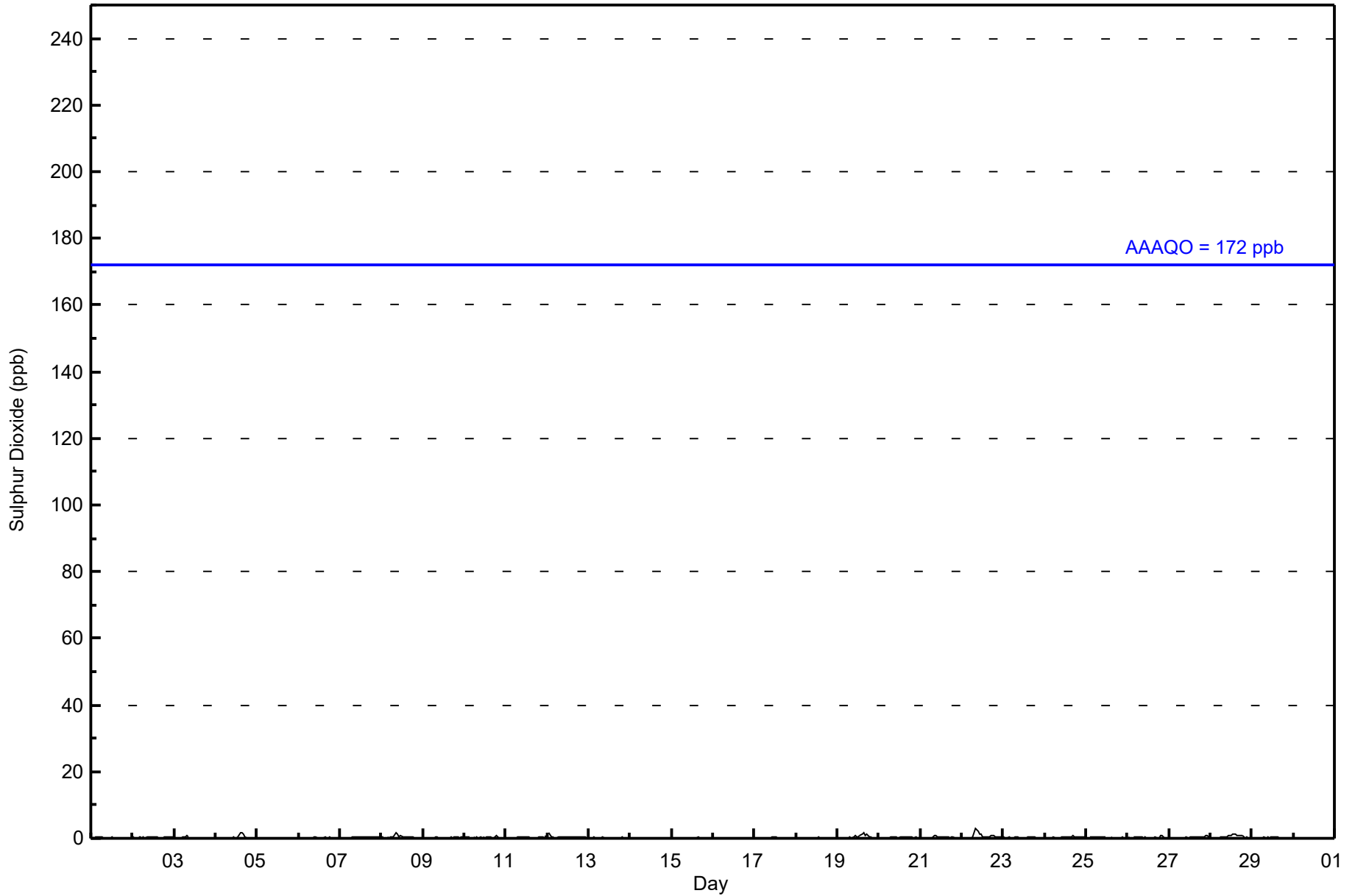
Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	05 Apr 2024 09:00	05 Apr 2024 09:00	1	Station power failure
SO2	25 Apr 2024 13:00	25 Apr 2024 14:00	2	Maintenance - WBEA internal audit
NO2, TRS	25 Apr 2024 11:00	25 Apr 2024 13:00	3	Maintenance - WBEA internal audit
O3, THC/NMHC/CH4	25 Apr 2024 14:00	25 Apr 2024 15:00	2	Maintenance - WBEA internal audit
PM2.5	25 Apr 2024 15:00	25 Apr 2024 15:00	1	Maintenance - WBEA internal audit
THC/NMHC/CH4	17 Apr 2024 07:00	18 Apr 2024 00:00	18	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	18 Apr 2024 02:00	19 Apr 2024 07:00	30	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	19 Apr 2024 08:00	19 Apr 2024 13:00	6	Maintenance - actuator replaced
THC/NMHC/CH4	21 Apr 2024 05:00	22 Apr 2024 11:00	31	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	22 Apr 2024 12:00	22 Apr 2024 12:00	1	Maintenance - analyzer replaced
NO2	14 Apr 2024 02:00	16 Apr 2024 09:00	56	Analyzer Failure - sample pump failure
NO2	16 Apr 2024 10:00	17 Apr 2024 14:00	29	Maintenance - stabilization post maintenance
Wind Speed, Wind Direction	06 Apr 2024 21:00	06 Apr 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	07 Apr 2024 01:00	07 Apr 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Apr 2024 21:00	10 Apr 2024 21:00	1	Flat line in sensor output signal





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	683	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: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 10	93	47	18	8	4	35	45	53	70	38	20	17	45	67	54	66	680
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>	93	47	18	8	4	35	45	53	70	38	20	17	45	67	54	66	680

Total Number of Valid Hours: 680

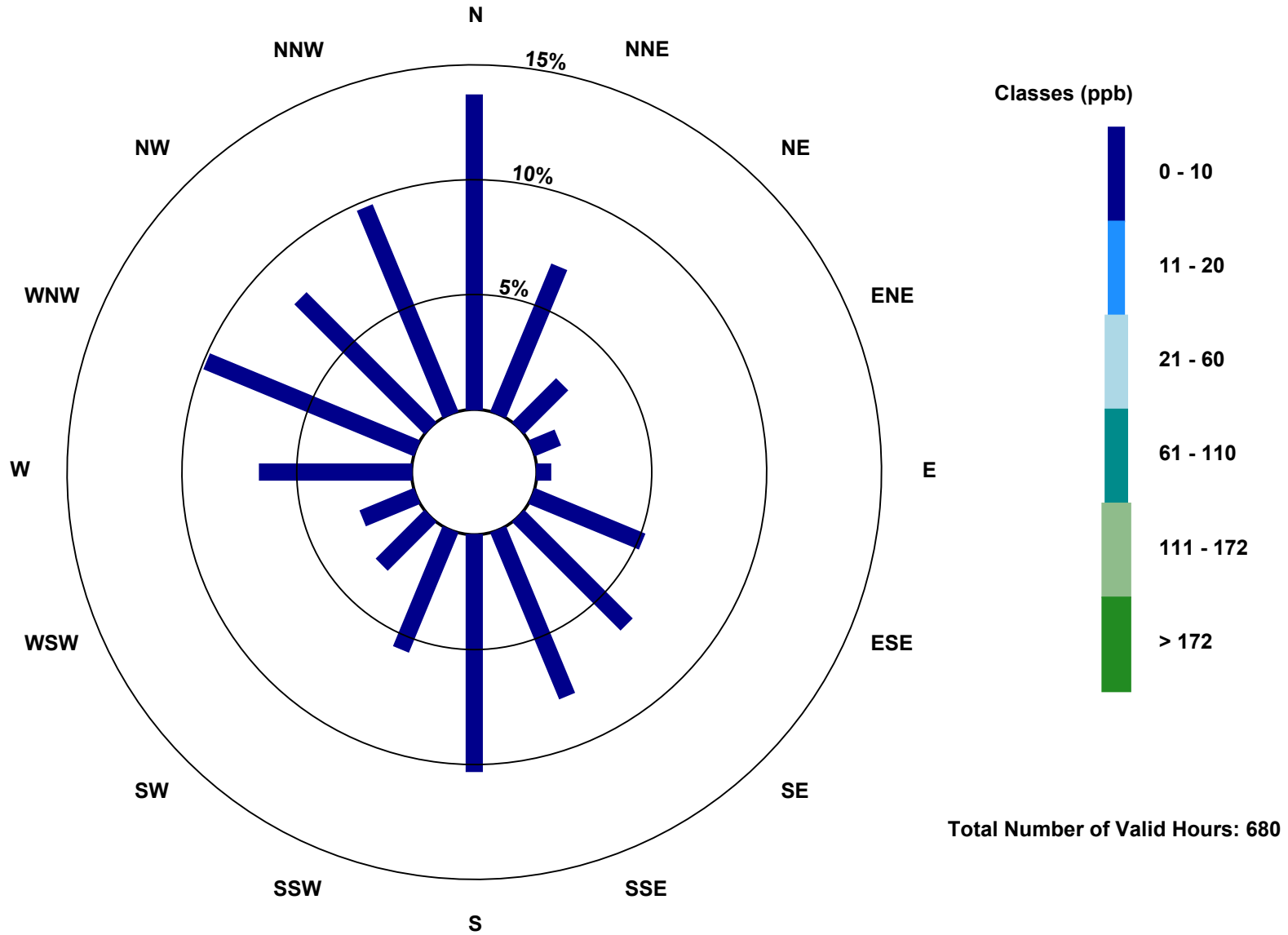
Total Number of Hours: 720

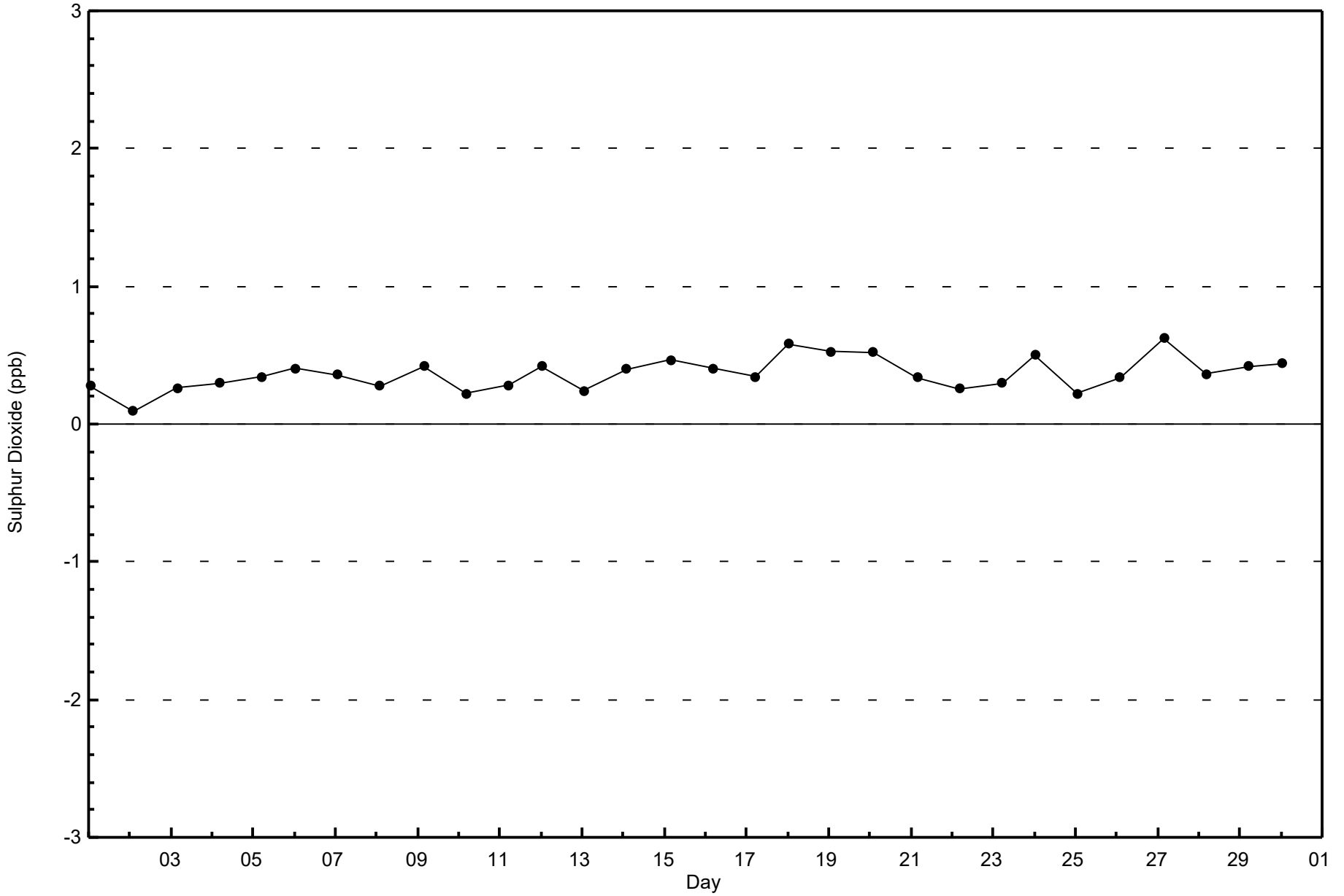


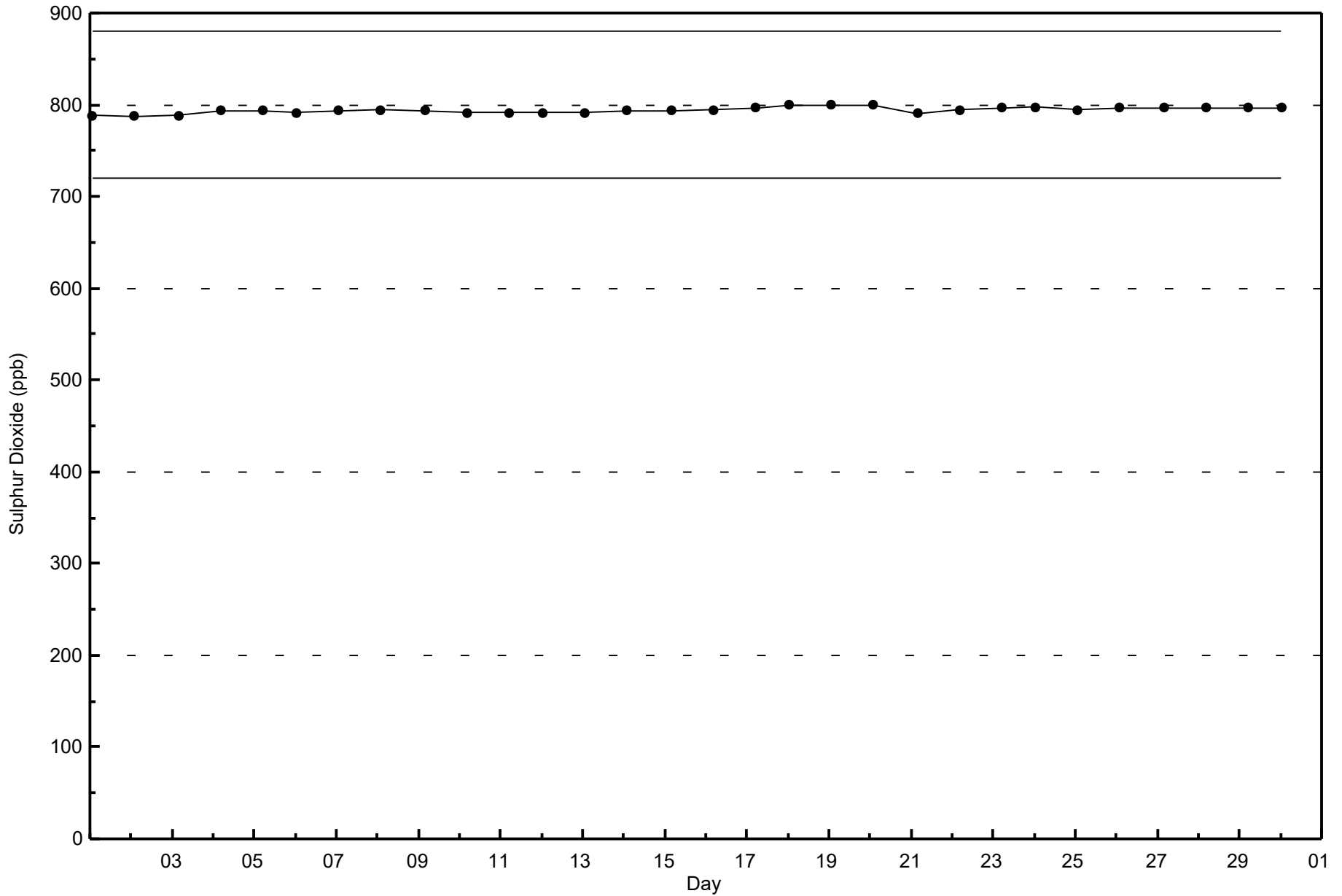


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

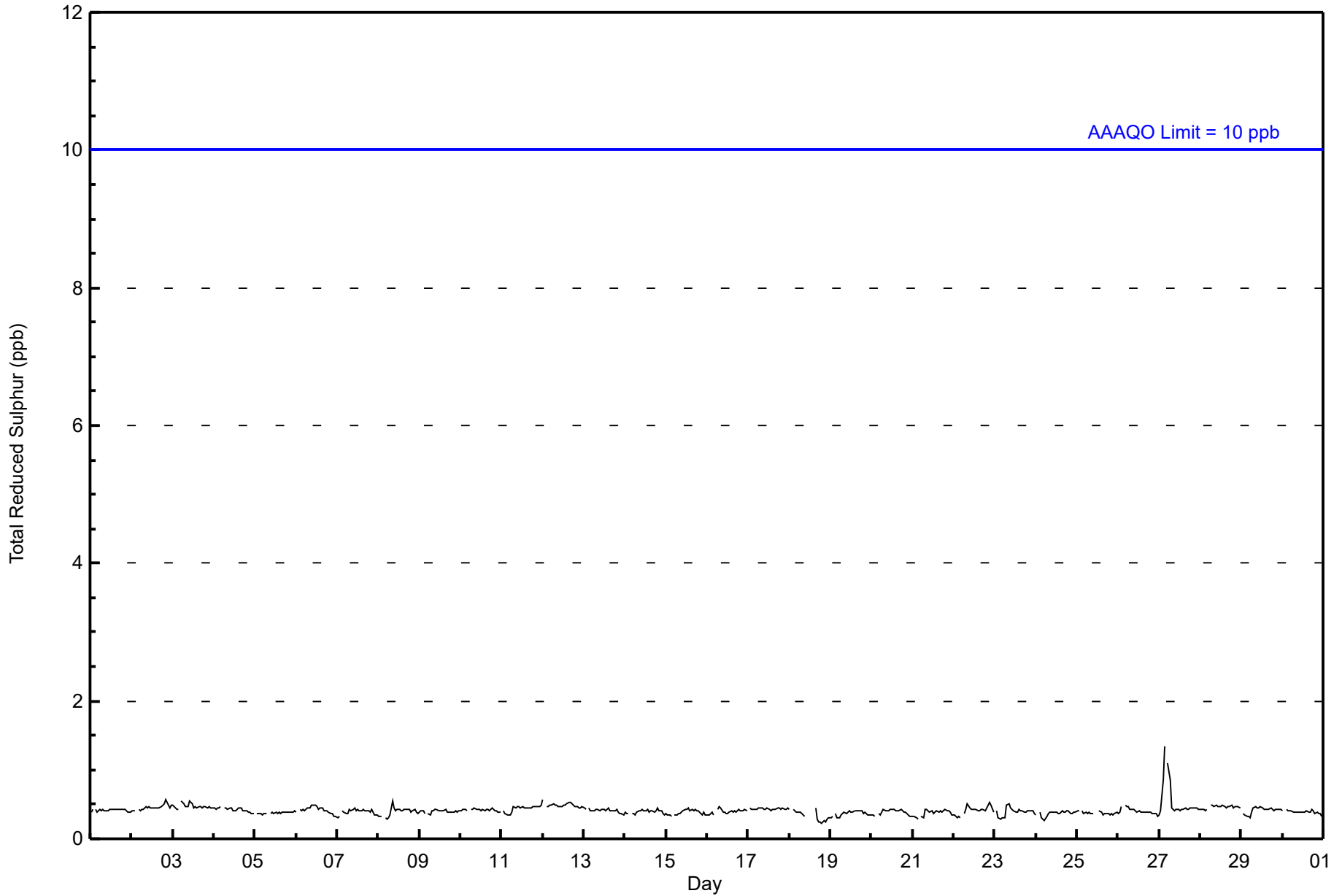
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	681	100.00	100.00
3 - 4	0	0.00	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: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Conklin - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	87	48	19	7	4	35	47	54	69	40	20	15	45	65	56	67	678
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	87	48	19	7	4	35	47	54	69	40	20	15	45	65	56	67	678

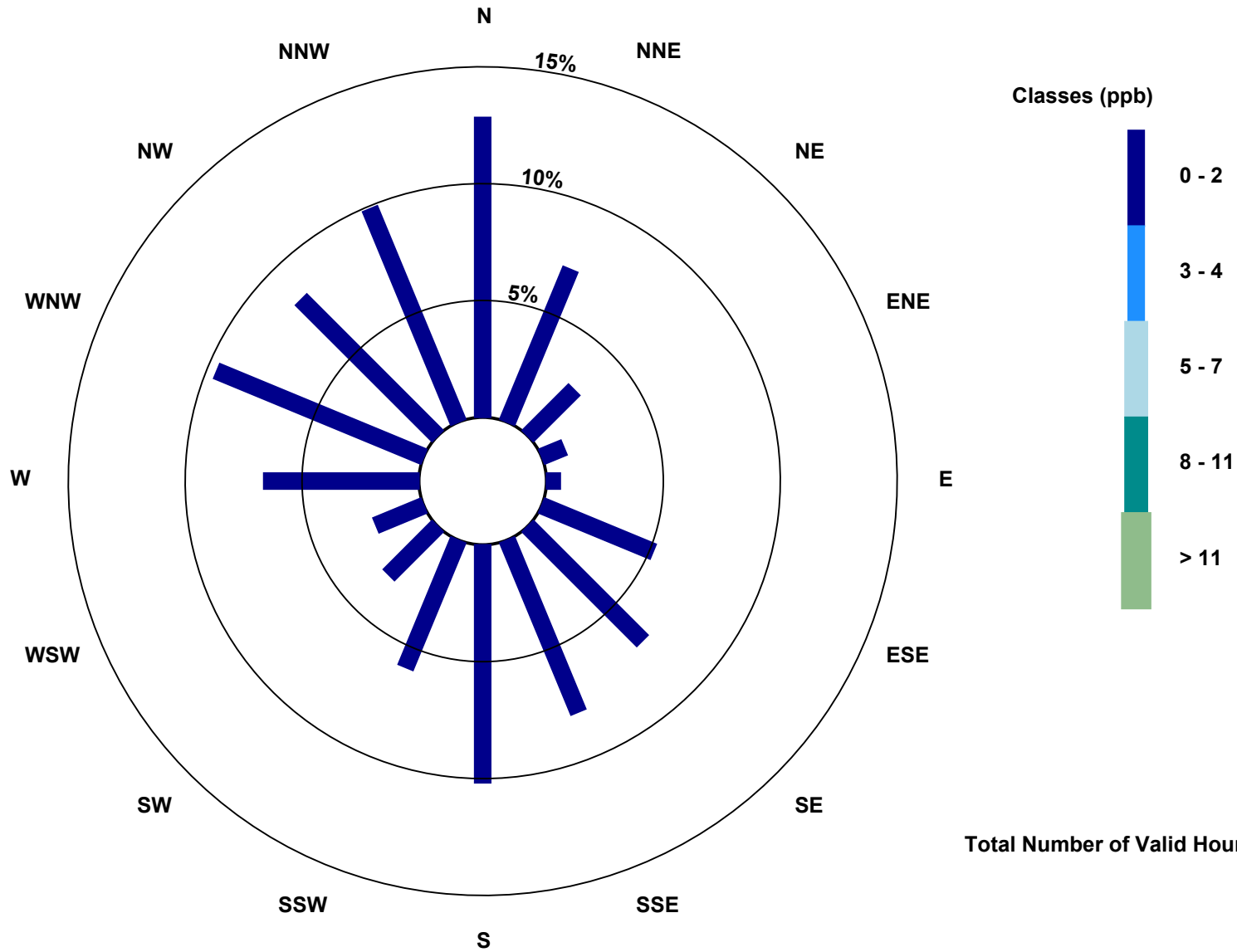
Total Number of Valid Hours: 678

Total Number of Hours: 720

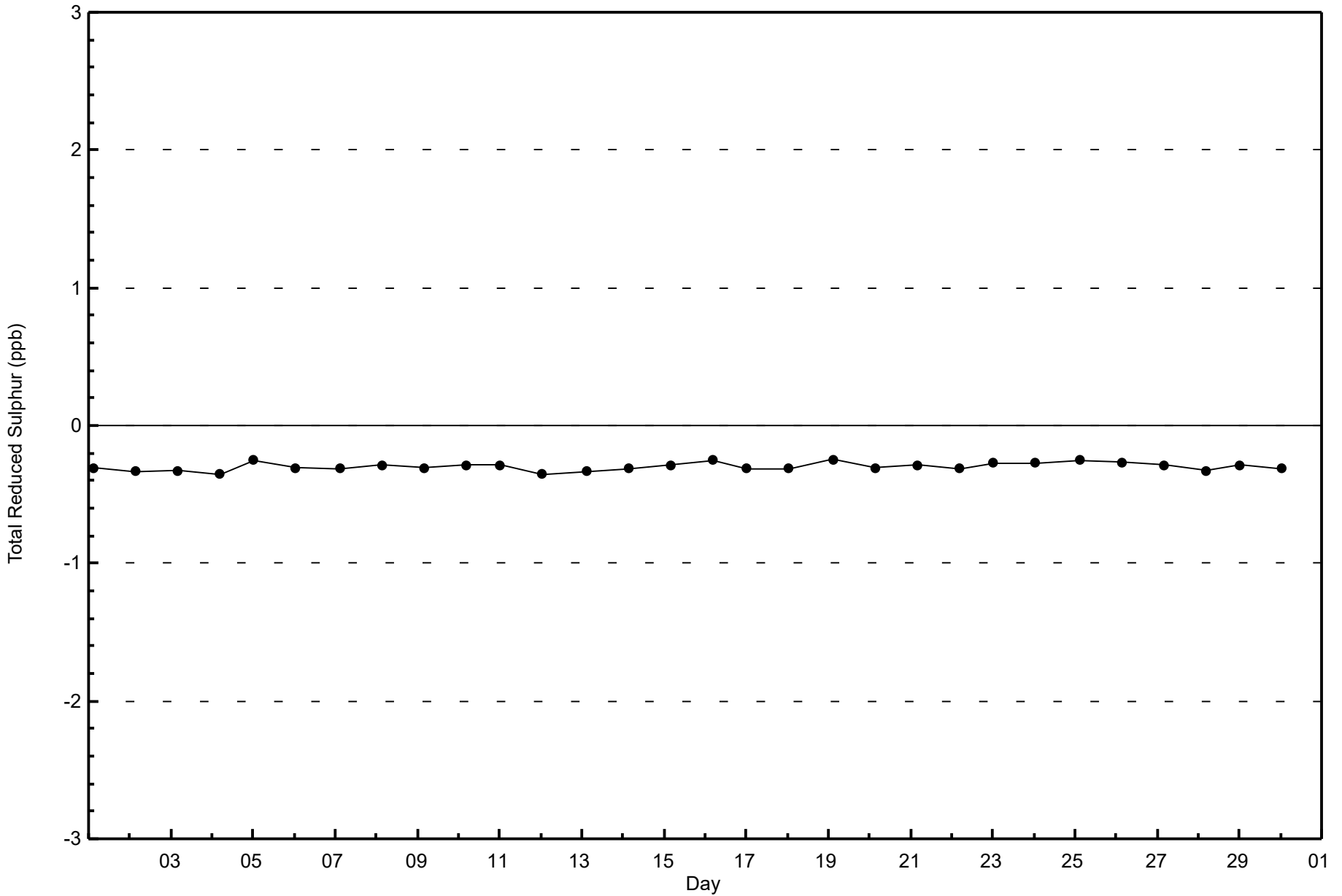


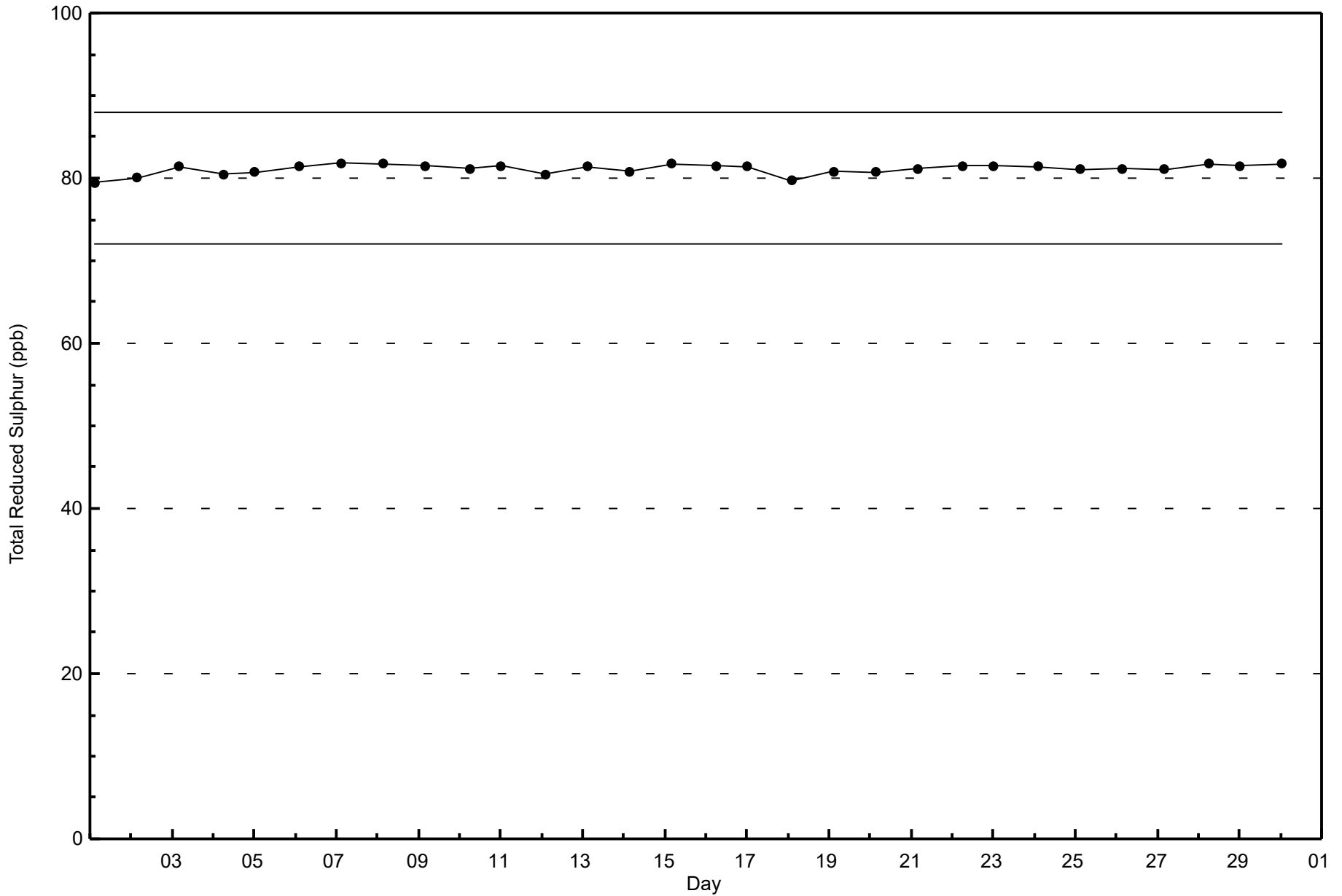
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Conklin



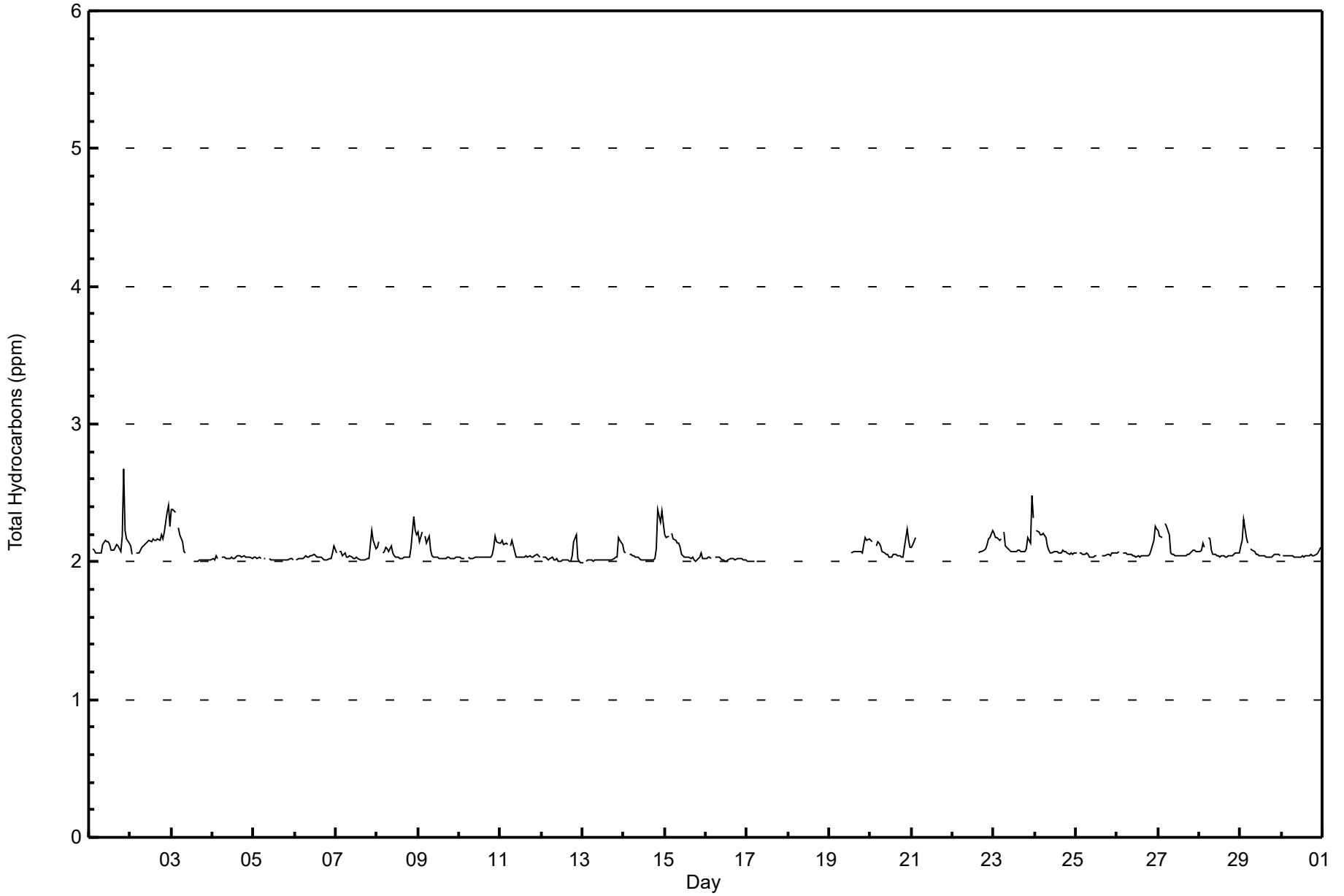








Maximum Value: 2.7 ppm on Apr 1 21:00		Maximum Daily Average: 2.2 ppm on Apr 2		Hours in Service: 720																											
Minimum Value: 2.0 ppm on Apr 13 01:00		Minimum Daily Average: 2.0 ppm on Apr 5		Hours of Data: 596																											
Maximum Diurnal Average: 2.1 ppm at hour 23		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Missing Data: 124																											
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.4		Hours of Calibration: 35																											
				Percent Operational Time: 87.6																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
1-Apr	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.7	2.2	2.2	2.1	2.1	2.7						
2-Apr	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.3	2.2	2.4					
3-Apr	2.4	2.4	2.4	Z	2.2	2.2	2.1	2.1	2.1	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4					
4-Apr	2.0	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					
5-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	PF	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
6-Apr	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1					
7-Apr	2.1	Z	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.2					
8-Apr	2.1	2.1	Z	2.1	2.1	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	2.3	2.2	2.2	2.1	2.3					
9-Apr	2.2	2.1	2.2	Z	2.2	2.1	2.2	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	2.1	2.2					
10-Apr	2.0	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	2.1	2.1	2.2	2.1	2.1	2.0	2.2					
11-Apr	2.1	2.2	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.2					
12-Apr	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	2.1	2.2	2.0	2.0	2.0	2.0	2.2					
13-Apr	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	2.2	2.2	2.1	2.0	2.2					
14-Apr	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	2.1	2.4	2.3	2.4	2.3	2.1	2.4					
15-Apr	2.2	2.2	2.2	Z	2.2	2.2	2.2	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	2.0	2.0	2.1	2.2					
16-Apr	2.0	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					
17-Apr	2.0	2.0	2.0	2.0	2.0	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.0					
18-Apr	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--					
19-Apr	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	--	2.2					
20-Apr	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.2					
21-Apr	2.1	2.1	2.2	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.2				
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	--	2.2				
23-Apr	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.5	2.3	2.1	2.5				
24-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2				
25-Apr	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	M	M	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1				
26-Apr	2.1	2.1	Z	2.1	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	2.2	2.3	2.2	2.1	2.3					
27-Apr	2.2	2.2	2.2	Z	2.3	2.3	2.2	2.1	2.1	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	2.1	2.1	2.1	2.1	2.3				
28-Apr	2.1	2.1	2.1	2.1	Z	2.2	2.2	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	2.1	2.1	2.2				
29-Apr	2.1	2.2	2.3	2.2	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	2.1	2.1	2.0	2.1	2.1	2.3					
30-Apr	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	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1					
																								Diurnal Average							
																								Diurnal Maximum							
Z - zerospan																								C - Calibration		M - Maintenance		UO - Unstable Operation		PF - Power Failure	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Conklin - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	319	53.52	53.52
2.1 - 3.0	277	46.48	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 596

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Conklin - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	47	37	15	5	1	10	8	18	15	17	13	10	33	38	22	29	318
2.1 - 3.0	10	8	3	3	3	19	34	31	50	16	6	5	10	27	28	22	275
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>	57	45	18	8	4	29	42	49	65	33	19	15	43	65	50	51	593

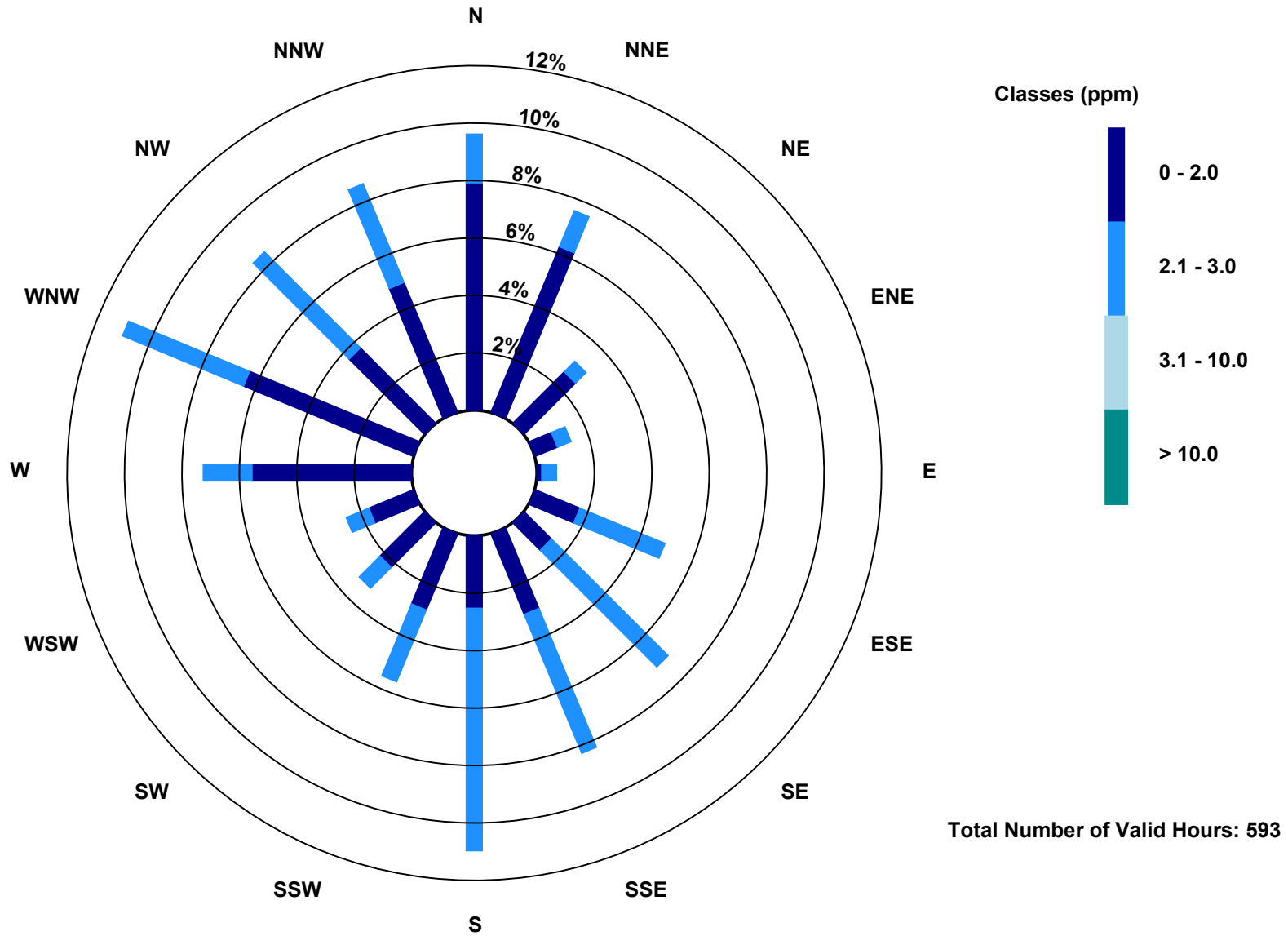
Total Number of Valid Hours: 593

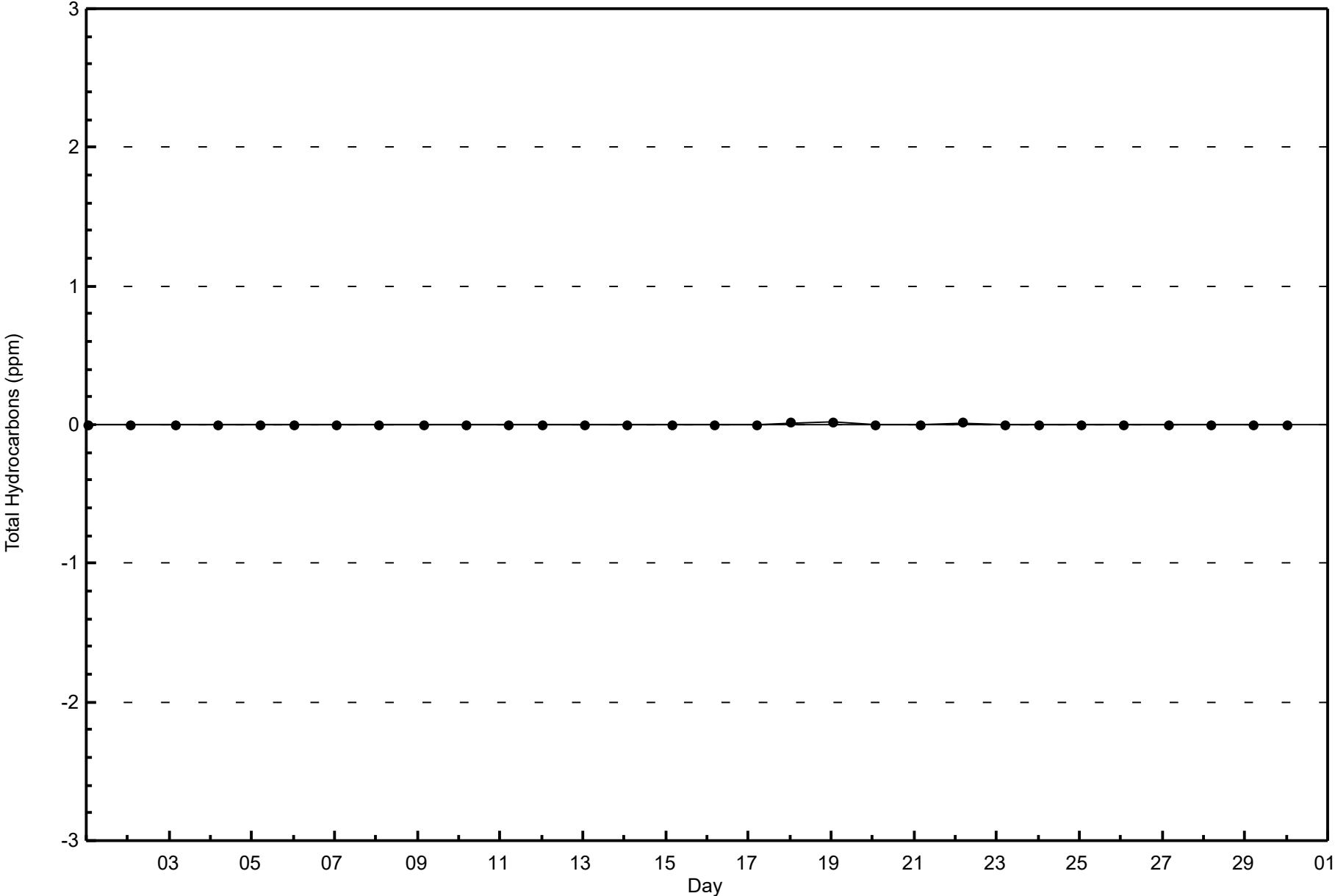
Total Number of Hours: 720



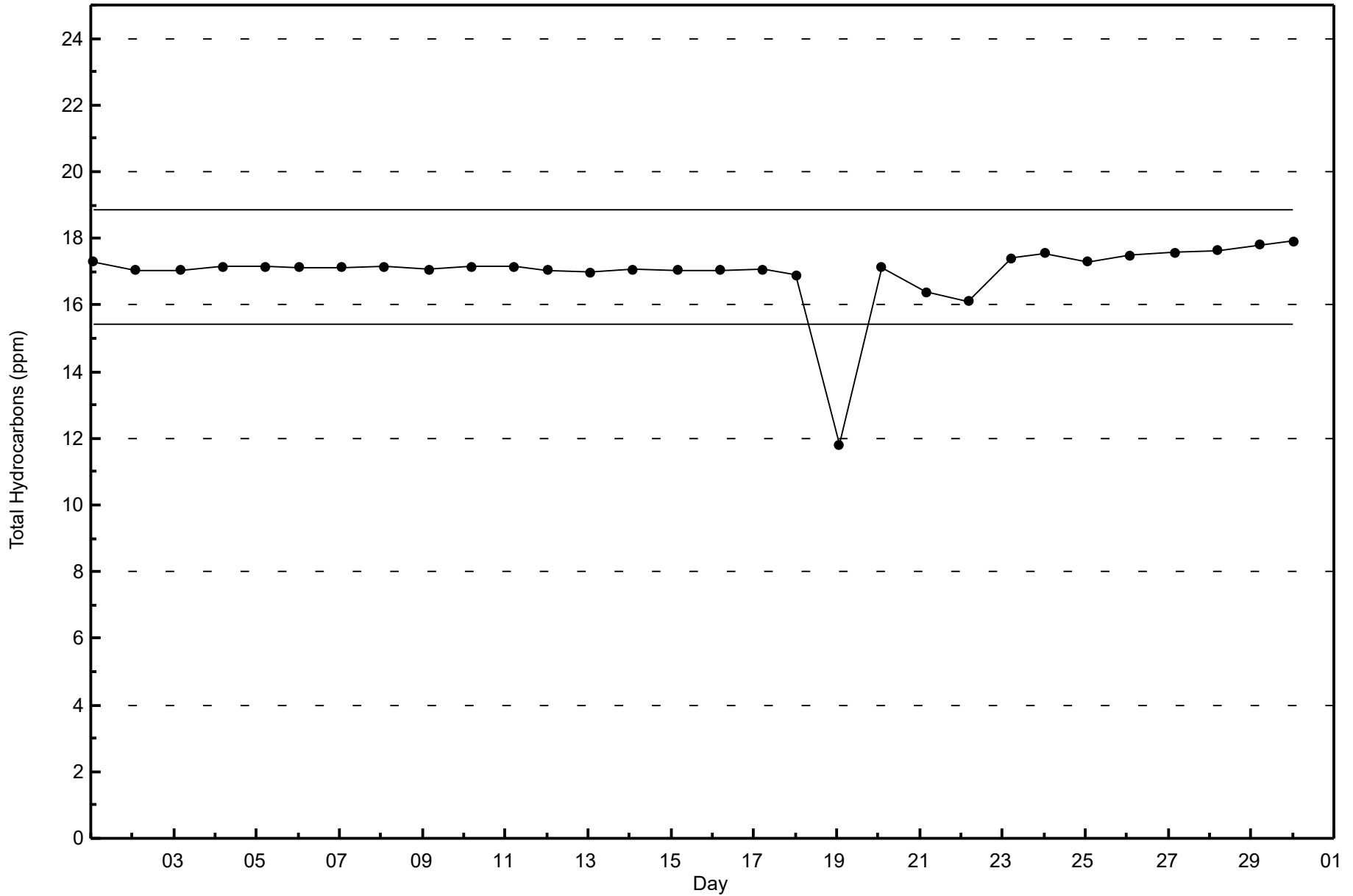
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Conklin







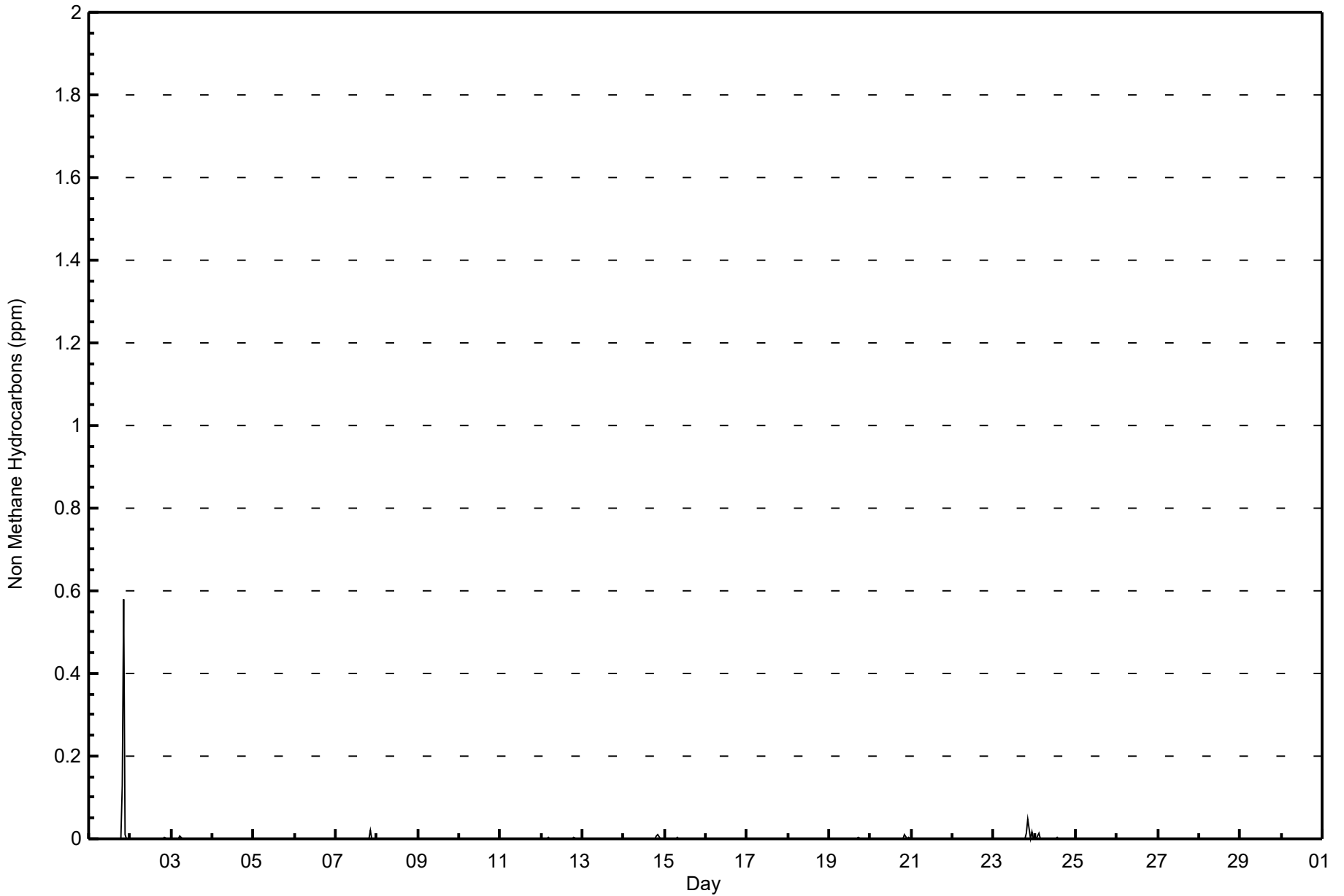




Summary of Hour Averages

Conklin - April 2024

Maximum Value: 0.581 ppm on Apr 1 21:00																				Maximum Daily Average: 0.031 ppm on Apr 1					Hours in Service:	720
Minimum Value: 0.000 ppm on Apr 1 01:00																				Minimum Daily Average: 0.000 ppm on Apr 4					Hours of Data:	596
Maximum Diurnal Average: 0.025 ppm at hour 21																				Minimum Diurnal Average: 0.000 ppm at hour 2					Hours of Missing Data:	124
Monthly Average: 0.002 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> = 0.0					Hours of Calibration:	35
																									Percent Operational Time:	87.6
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	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	0.130	0.581	0.009	0.000	0.000	0.031	0.581
2-Apr	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	0.004	0.000	0.000	0.000	0.000	0.004
3-Apr	0.000	0.000	0.000	Z	0.000	0.008	0.000	0.000	0.000	C	C	C	C	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
4-Apr	0.000	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
5-Apr	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	PF	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
6-Apr	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	0.000	0.000
7-Apr	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	0.021	0.000	0.000	0.000	0.001	0.021
8-Apr	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	0.001	0.000	0.000	0.000	0.000	0.001
9-Apr	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
10-Apr	0.000	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
11-Apr	0.000	0.000	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
12-Apr	Z	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.003
13-Apr	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	0.000
14-Apr	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	0.006	0.010	0.000	0.000	0.000	0.001	0.010
15-Apr	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.002	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
16-Apr	0.000	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
17-Apr	0.000	0.000	0.000	0.000	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000
18-Apr	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
19-Apr	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	--	0.002
20-Apr	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	0.009	0.000	0.005	0.000	0.001	0.009	
21-Apr	0.003	0.000	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.003
22-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	0.000
23-Apr	0.000	0.000	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	0.015	0.048	0.000	0.018	0.000	0.004	0.048
24-Apr	Z	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.014
25-Apr	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	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
26-Apr	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
27-Apr	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
28-Apr	0.000	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
29-Apr	0.000	0.000	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
30-Apr	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	0.000	0.000
																				0.000 0.000 0.001 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.006 0.025 0.000 0.001 0.000					Diurnal Average	
																				0.003 0.000 0.014 0.000 0.003 0.008 0.000 0.002 0.000 0.000 0.000 0.000 0.000 0.004 0.000 0.000 0.000 0.002 0.000 0.130 0.581 0.009 0.018 0.000					Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				UO - Unstable Operation				PF - Power Failure												





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Conklin - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	584	97.99	97.99
0.006 - 0.05	10	1.68	99.66
0.06 - 0.1	1	0.17	99.83
> 0.1	1	0.17	100.00

Total Number of Valid Hours: 596

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Conklin - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	57	45	18	8	4	28	41	46	63	32	19	15	42	65	49	49	581
0.006 - 0.05	0	0	0	0	0	1	1	2	2	1	0	0	0	0	1	2	10
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
> 0.1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
<b>Totals</b>	57	45	18	8	4	29	42	49	65	33	19	15	43	65	50	51	593

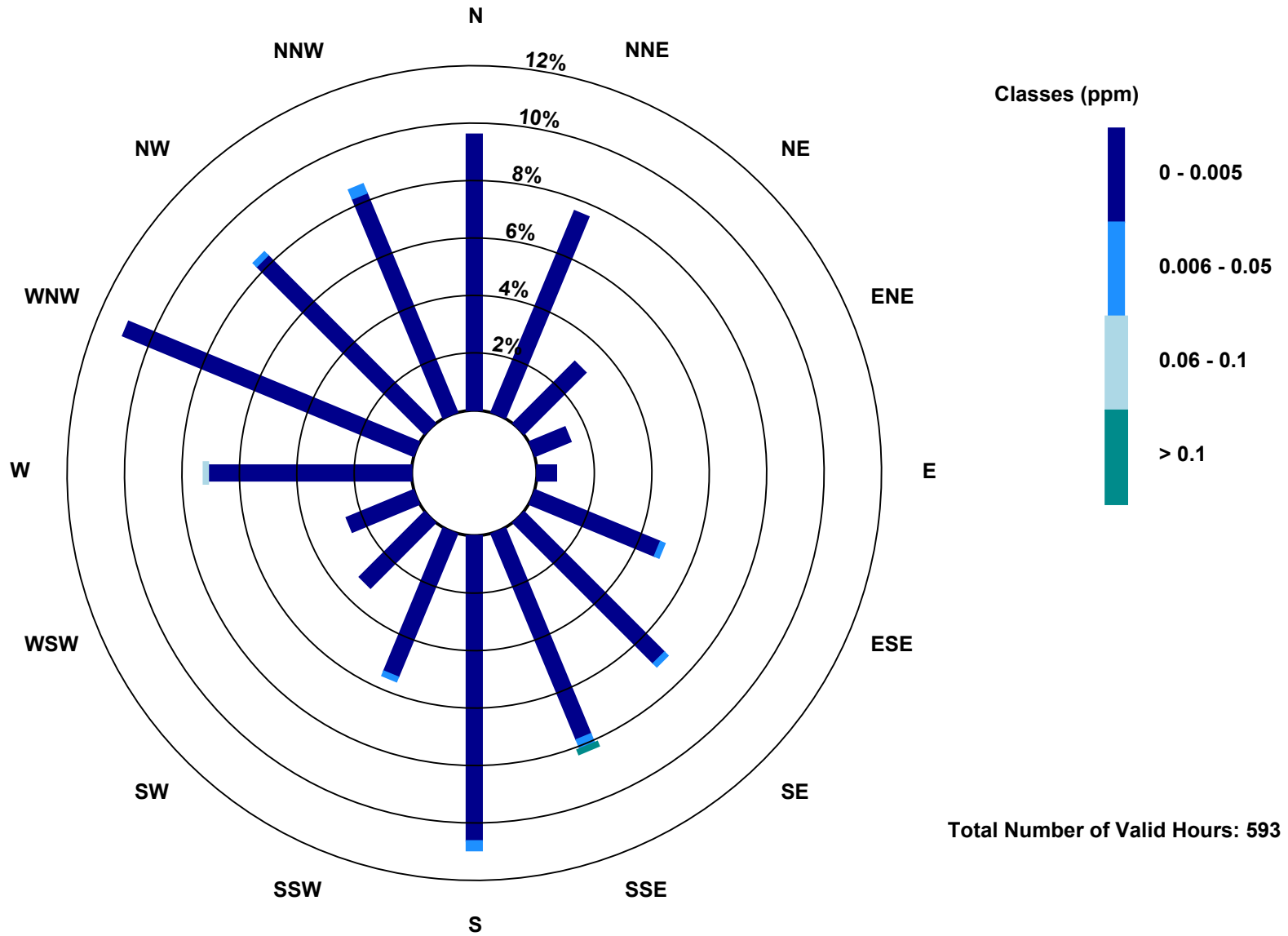
Total Number of Valid Hours: 593

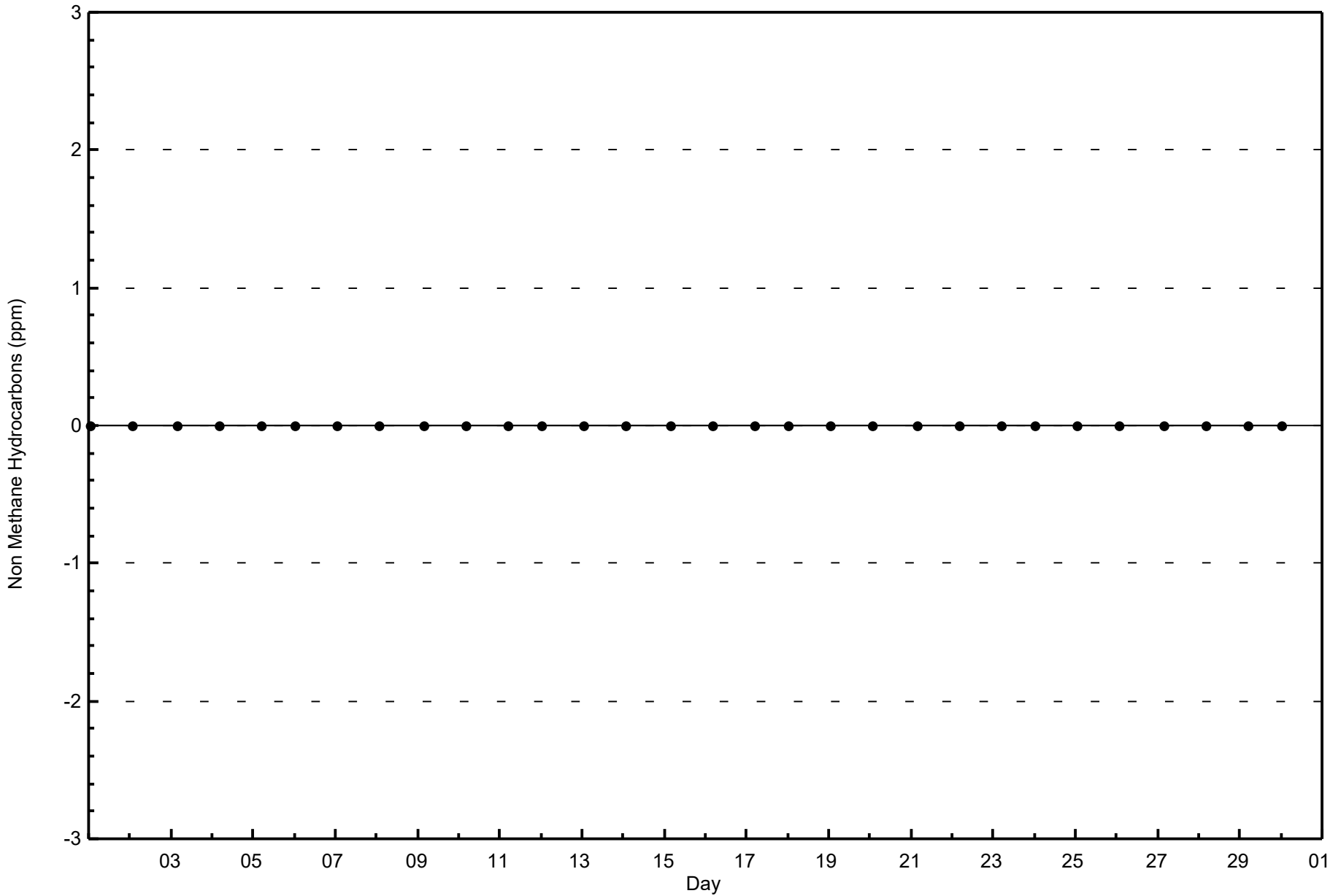
Total Number of Hours: 720

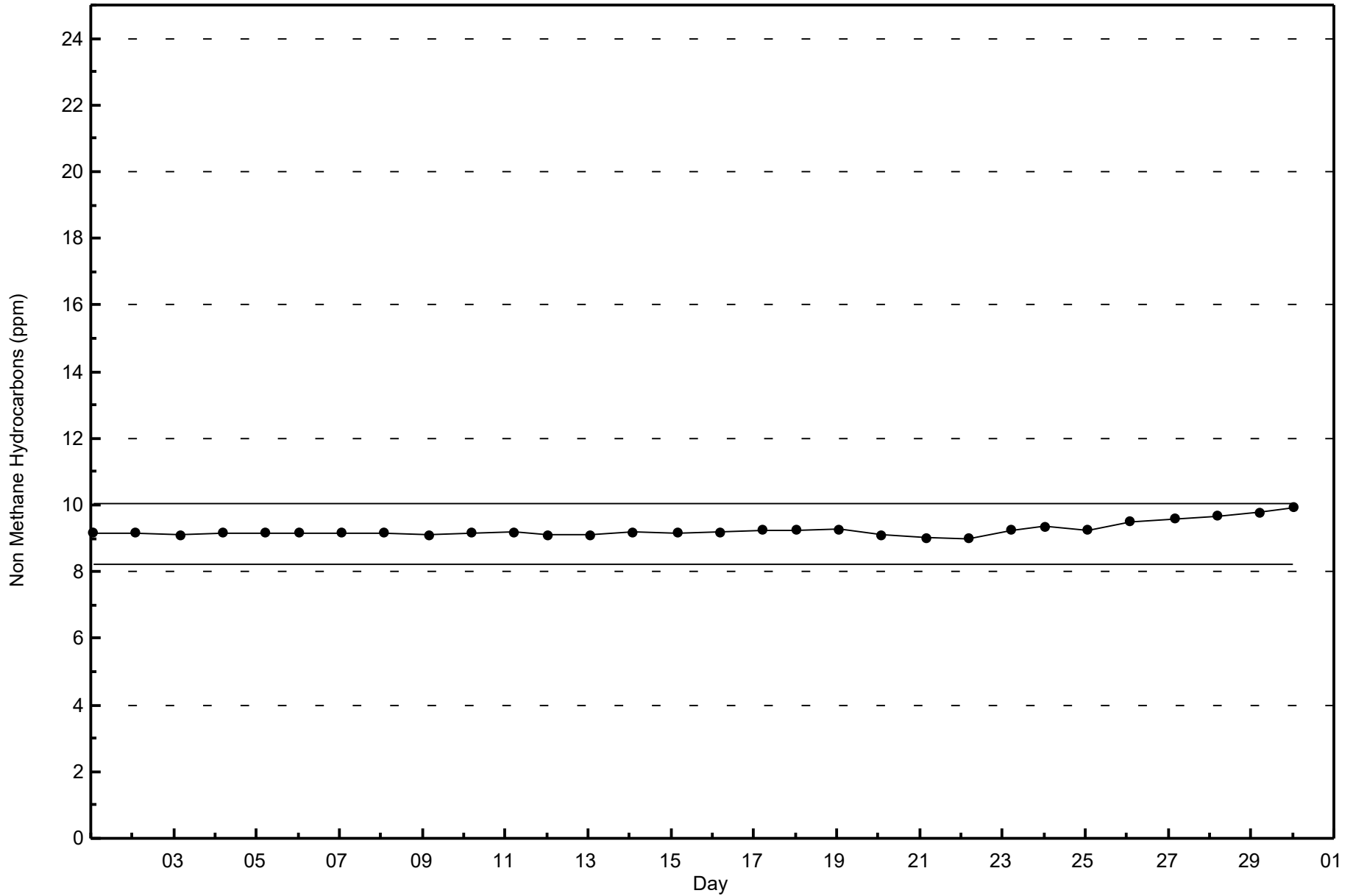


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Conklin







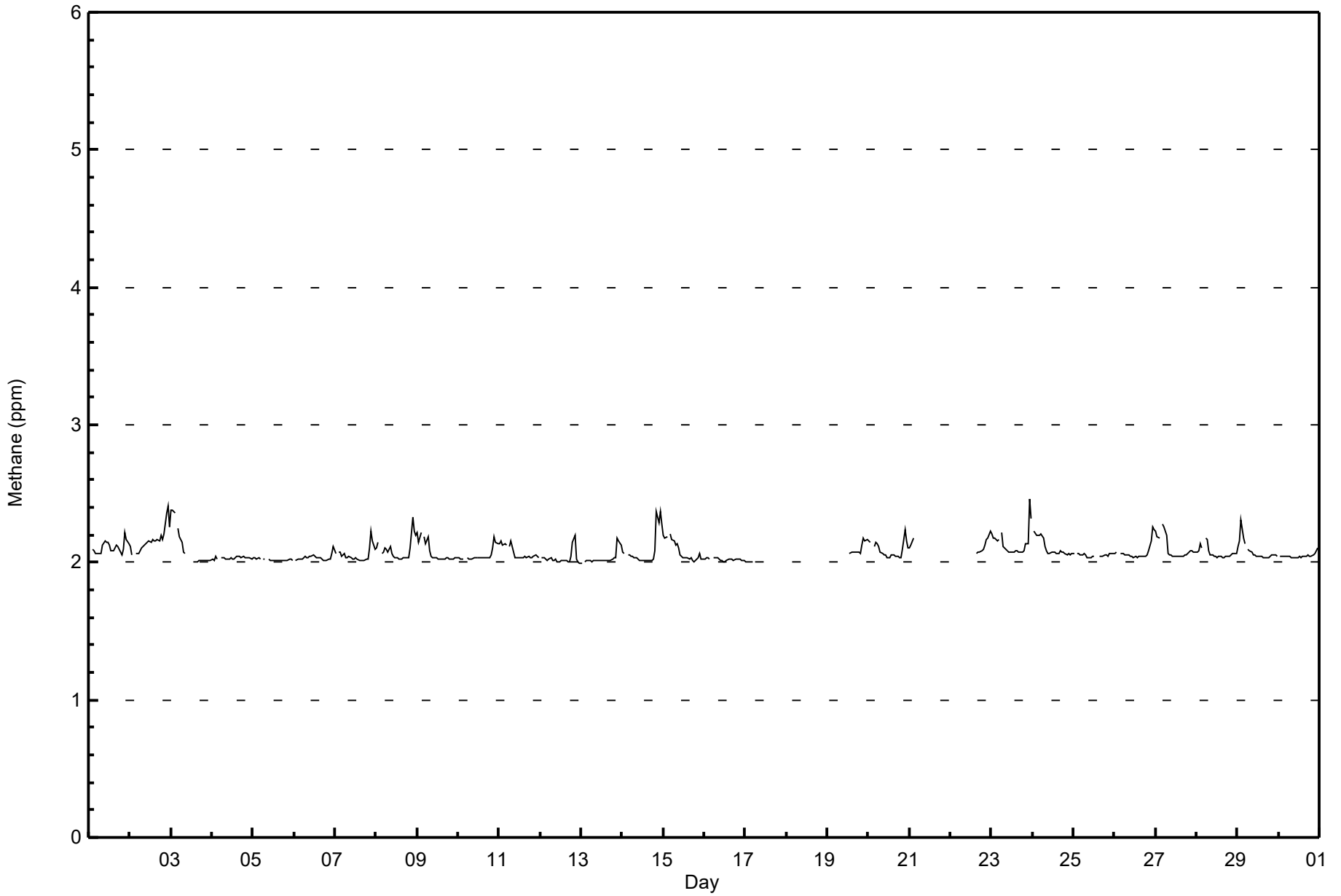






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Conklin - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Conklin - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	319	53.52	53.52
2.1 - 3.0	277	46.48	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 596

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Conklin - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	47	37	15	5	1	10	8	18	15	17	13	10	33	38	22	29	318
2.1 - 3.0	10	8	3	3	3	19	34	31	50	16	6	5	10	27	28	22	275
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>	57	45	18	8	4	29	42	49	65	33	19	15	43	65	50	51	593

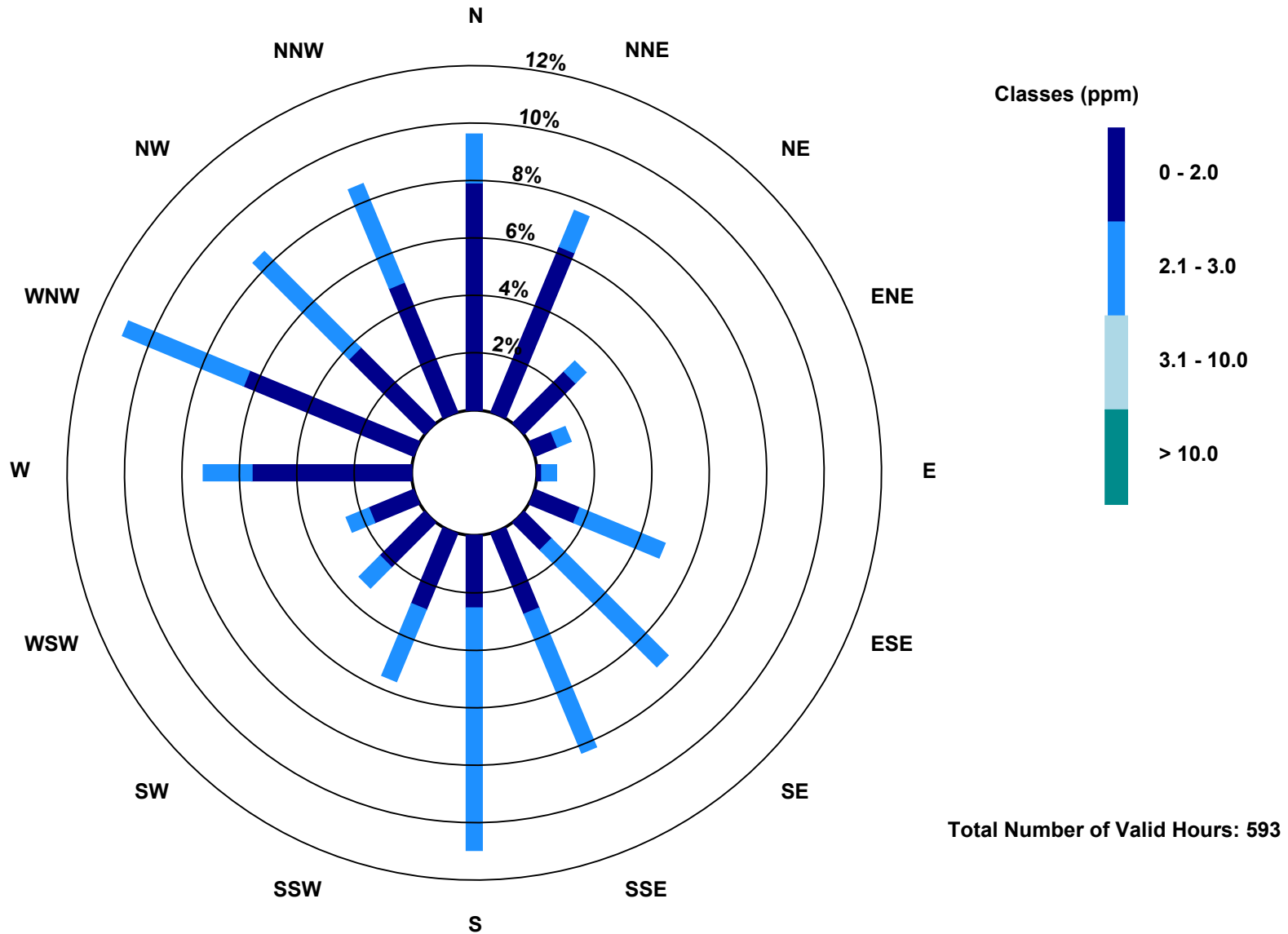
Total Number of Valid Hours: 593

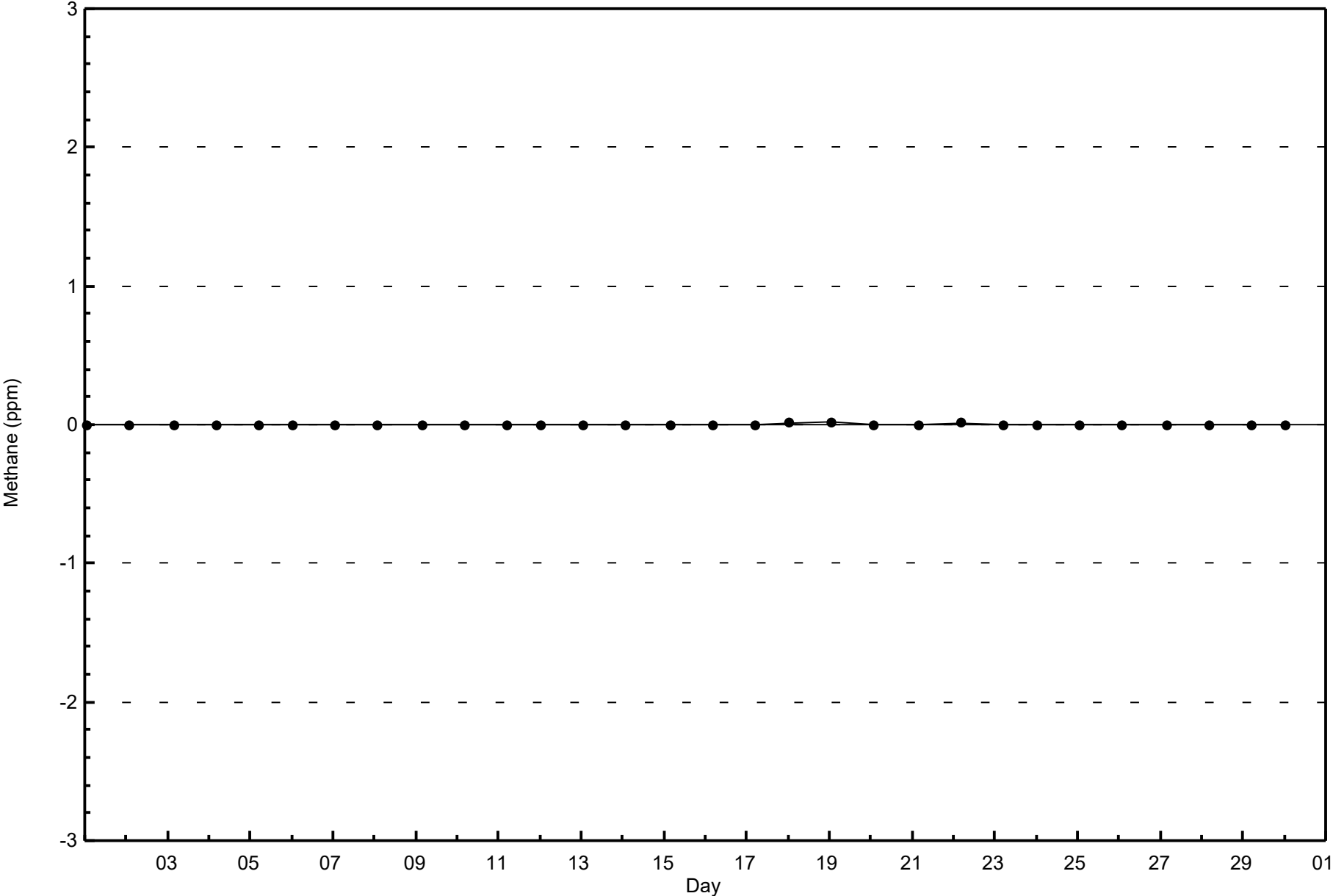
Total Number of Hours: 720

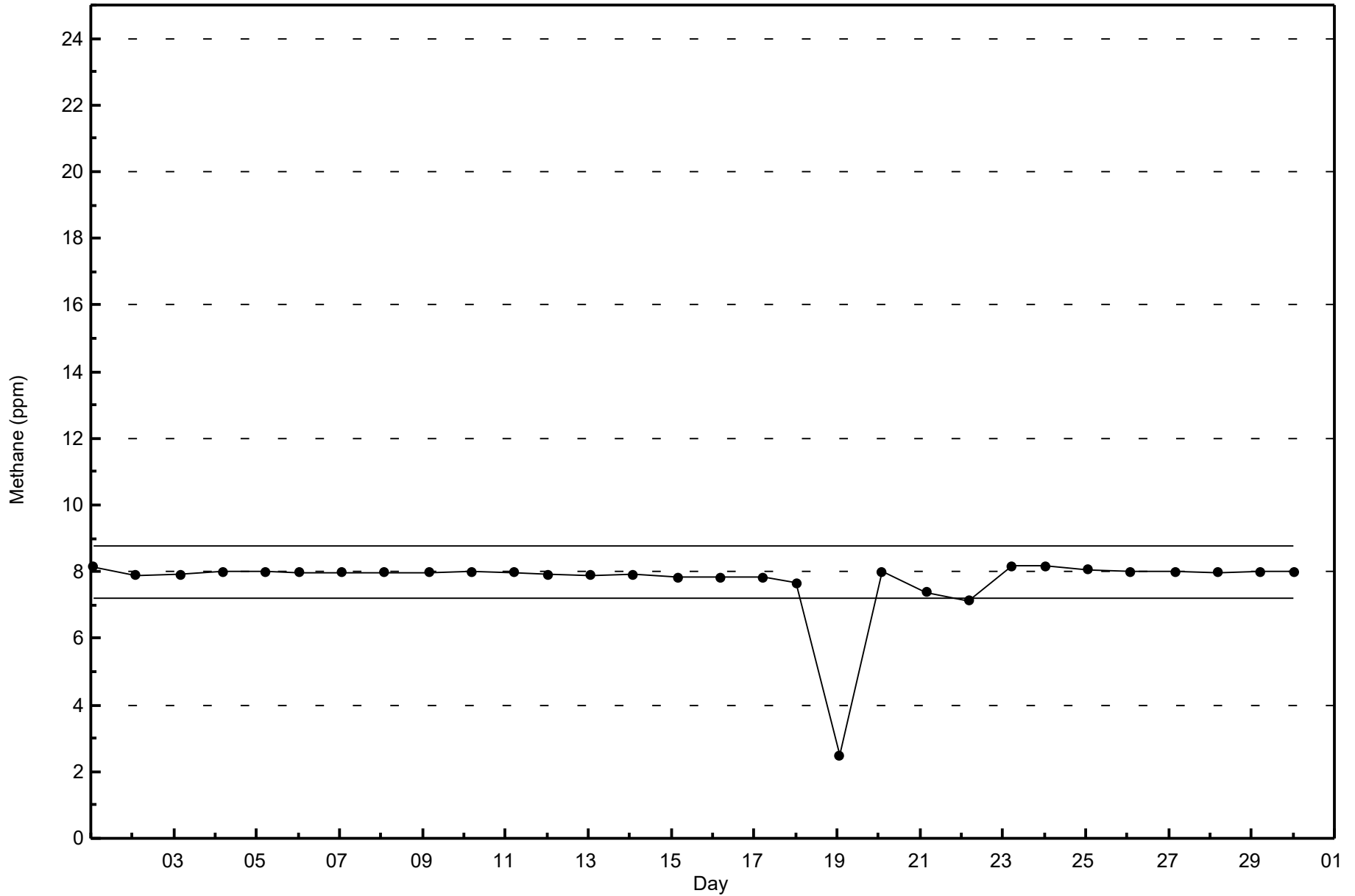


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









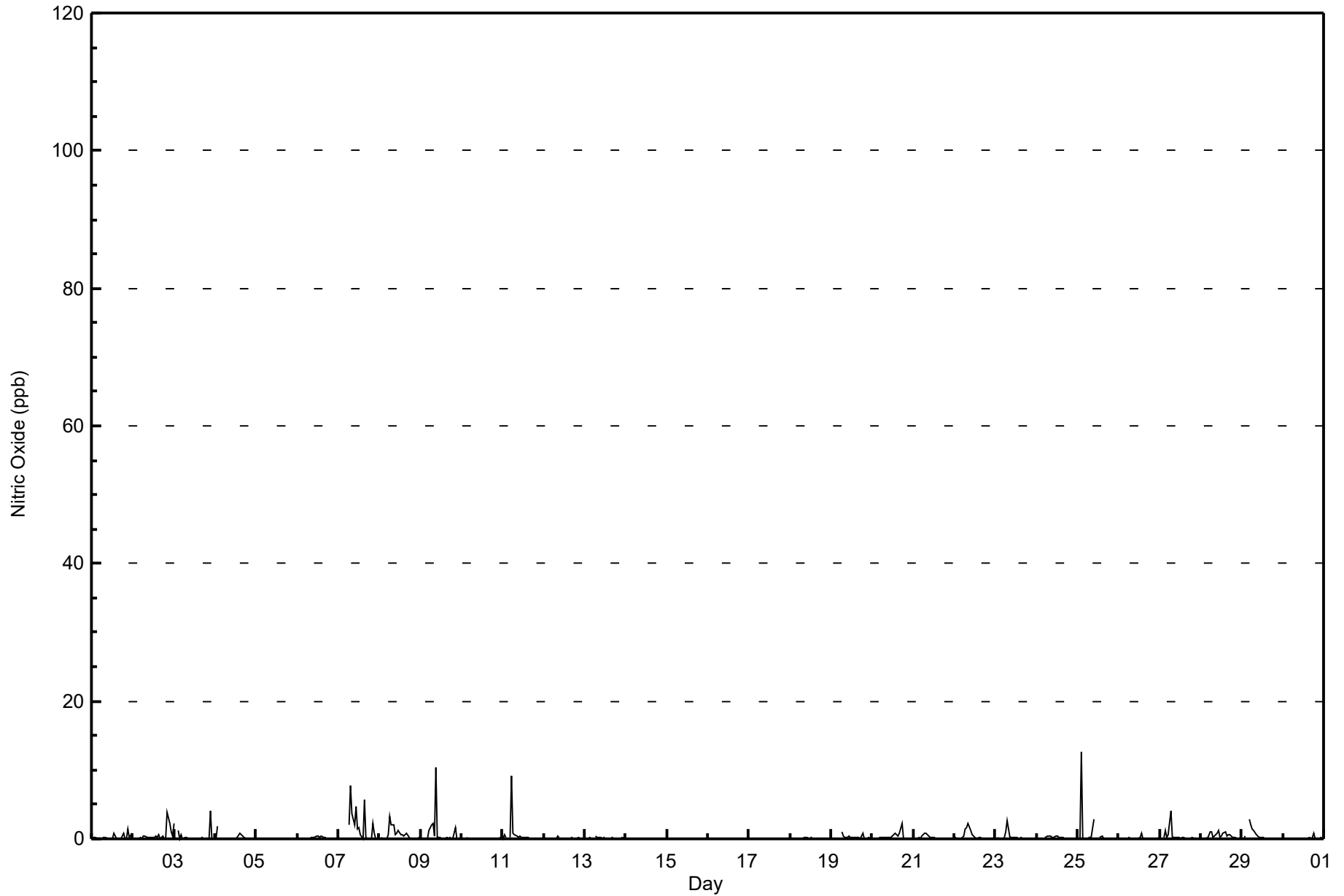
Maximum Value: 12.6 ppb on Apr 25 03:00		Maximum Daily Average: 1.4 ppb on Apr 7		Hours in Service: 720																							
Minimum Value: 0.0 ppb on Apr 2 20:00		Minimum Daily Average: 0.0 ppb on Apr 5		Hours of Data: 599																							
Maximum Diurnal Average: 0.8 ppb at hour 8		Minimum Diurnal Average: 0.0 ppb at hour 20		Hours of Missing Data: 121																							
Monthly Average: 0.33 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.7 P <sub>99</sub> = 4.1		Hours of Calibration: 32																							
				Percent Operational Time: 87.6																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.2	0.3	0.2	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.8	0.0	0.1	0.1	0.0	0.9	0.0	0.0	1.3	0.2	0.8	0.2	1.3	
2-Apr	Z	0.1	0.0	0.0	0.3	0.1	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.1	0.5	0.0	0.4	0.0	0.0	3.8	2.2	1.1	0.4	0.5	3.8	
3-Apr	2.3	Z	1.3	0.1	0.6	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	4.0	0.0	0.0	0.4	4.0	
4-Apr	0.0	1.9	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.7	0.7	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.2	1.9	
5-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	PF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
7-Apr	0.0	0.0	0.0	0.0	0.1	Z	2.0	7.7	3.7	2.1	4.8	1.5	1.6	0.5	0.1	5.6	0.1	0.0	0.0	0.0	2.2	0.7	0.1	0.0	1.4	7.7	
8-Apr	Z	0.1	0.1	0.0	0.0	0.6	3.2	2.1	2.1	0.6	0.7	1.2	0.7	0.6	0.5	0.7	0.8	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.6	3.2	
9-Apr	0.1	Z	0.1	0.0	0.1	1.2	2.1	2.2	0.4	10.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	1.5	0.0	0.1	0.1	0.8	10.3	
10-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.1	0.5	
11-Apr	0.0	0.6	0.3	Z	0.1	9.1	0.7	0.5	0.4	0.2	0.3	0.3	0.3	0.1	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6	9.1	
12-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	0.2	Z	C	C	C	C	C	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	
13-Apr	0.0	0.0	0.0	0.2	0.0	Z	0.4	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	
14-Apr	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--
15-Apr	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--
16-Apr	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
17-Apr	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
19-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.9	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.1	0.1	0.8	0.0	0.0	0.0	0.1	0.0	0.2	0.9	0.9
20-Apr	Z	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.5	0.9	0.6	0.5	0.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3	
21-Apr	0.0	Z	0.1	0.1	0.1	0.4	0.8	0.7	0.7	0.5	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	
22-Apr	0.2	0.0	Z	0.0	0.0	0.4	1.4	1.6	2.2	1.1	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	2.2
23-Apr	0.1	0.1	0.1	Z	0.1	0.2	1.0	2.7	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.3	2.7	
24-Apr	0.1	0.1	0.1	0.1	Z	0.3	0.5	0.4	0.4	0.3	0.3	0.3	0.5	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	
25-Apr	0.0	0.0	12.6	0.0	0.0	Z	0.2	0.2	0.2	2.8	M	M	M	0.3	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	12.6	
26-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
27-Apr	0.4	Z	0.2	1.2	0.2	0.6	4.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.4	4.1	
28-Apr	0.0	0.0	Z	0.1	0.1	0.9	1.0	0.3	0.4	0.8	1.3	0.2	0.4	0.8	1.0	0.5	0.6	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.4	1.3	
29-Apr	0.0	0.1	0.4	Z	2.8	2.1	1.5	1.1	0.6	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.8	
30-Apr	0.0	0.0	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	0.1	0.1	0.1	0.7	0.0	0.0	0.0	0.2	0.1	0.1	0.7	
		0.2	0.2	0.7	0.1	0.2	0.8	0.8	0.8	0.5	0.8	0.4	0.3	0.3	0.3	0.2	0.4	0.1	0.2	0.1	0.0	0.3	0.3	0.1	0.1	Diurnal Average	
		2.3	1.9	12.6	1.2	2.8	9.1	4.1	7.7	3.7	10.3	4.8	1.5	1.6	0.9	1.0	5.6	0.8	2.3	0.9	0.1	3.8	4.0	1.1	0.8	Diurnal Maximum	
Z - zerspan		C - Calibration					M - Maintenance					AF - Analyzer Failure					PF - Power Failure										





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Conklin - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	599	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 599

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	74	44	15	8	4	35	43	51	60	37	19	10	37	64	48	47	596
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	74	44	15	8	4	35	43	51	60	37	19	10	37	64	48	47	596

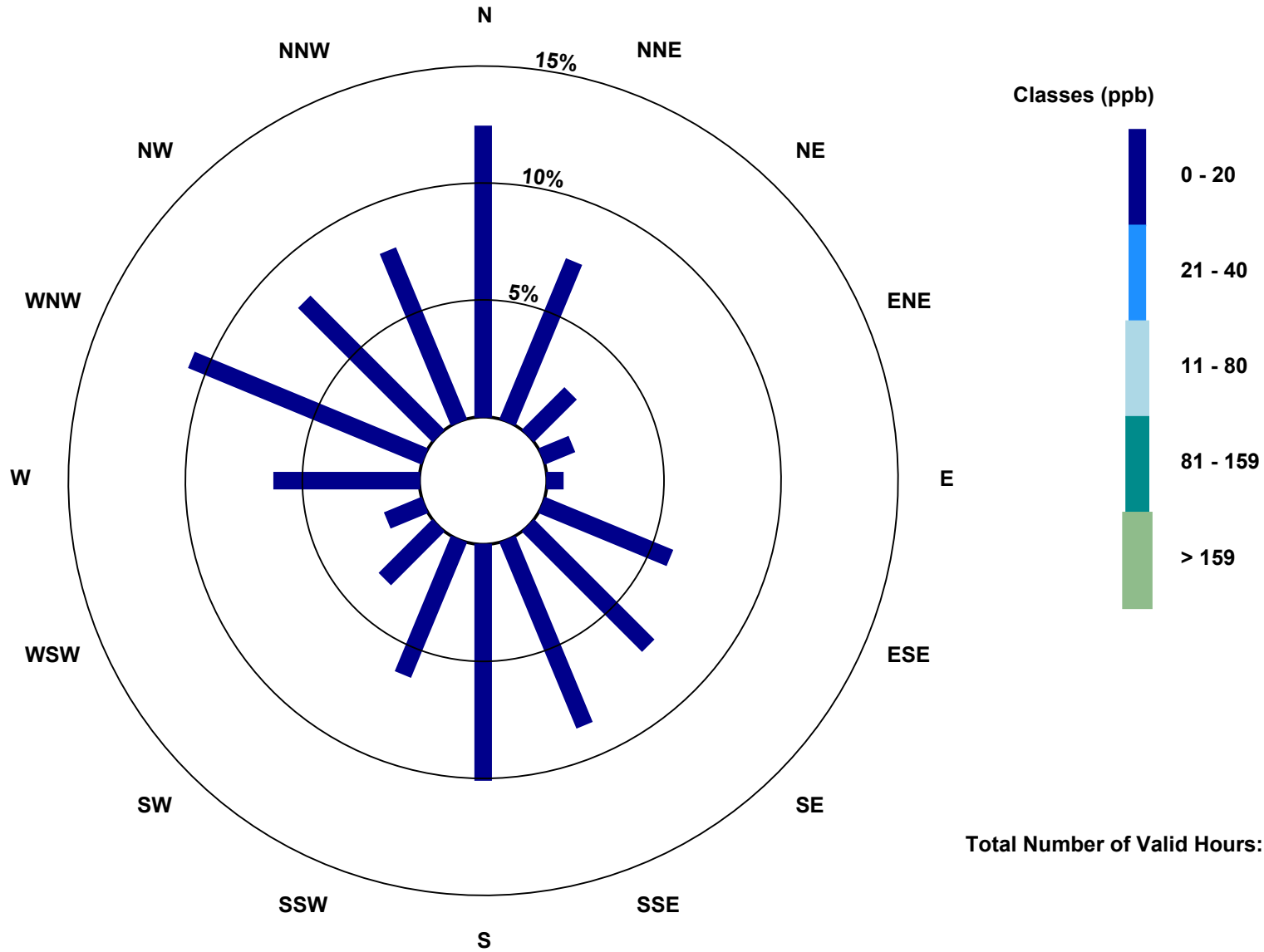
Total Number of Valid Hours: 596

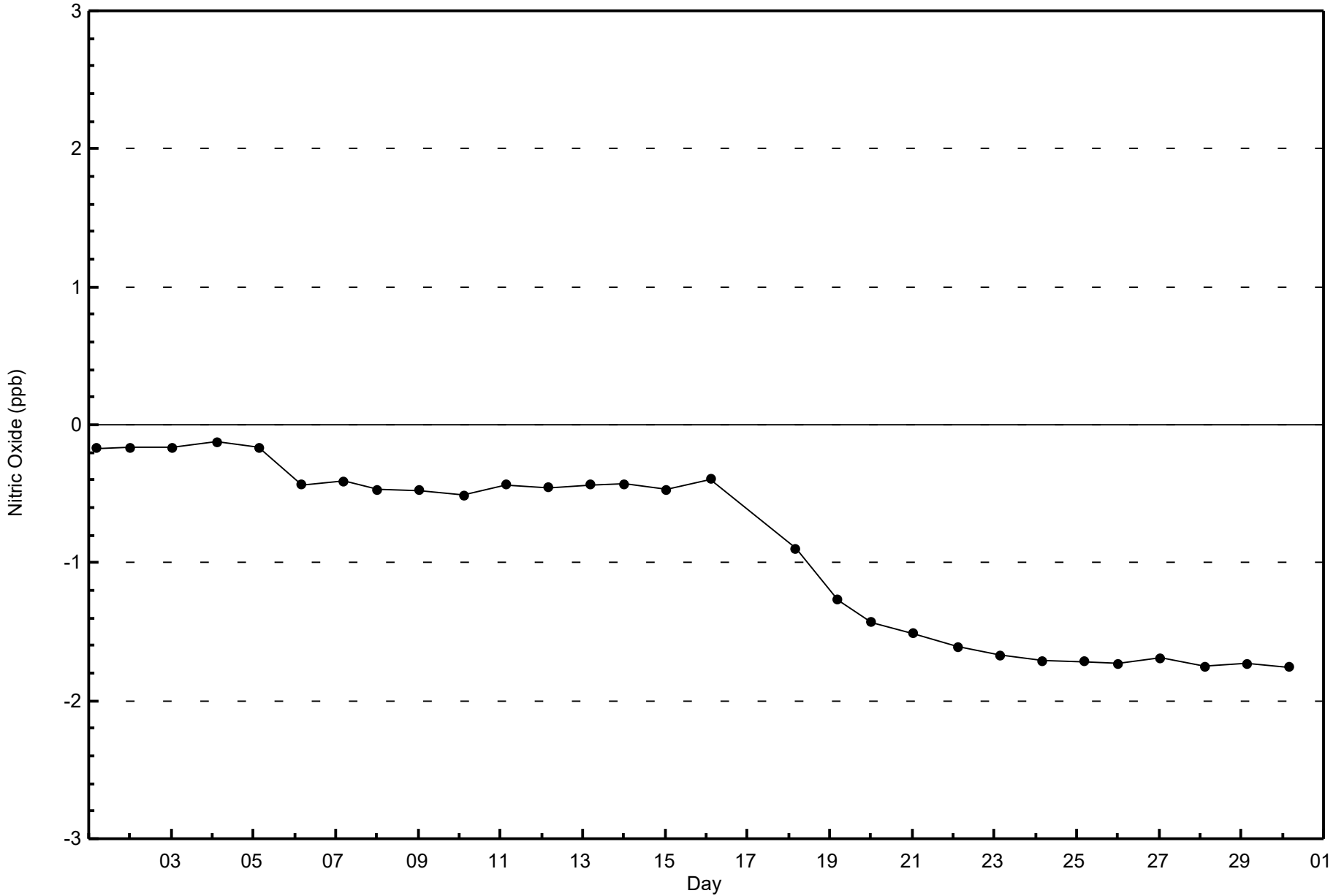
Total Number of Hours: 720

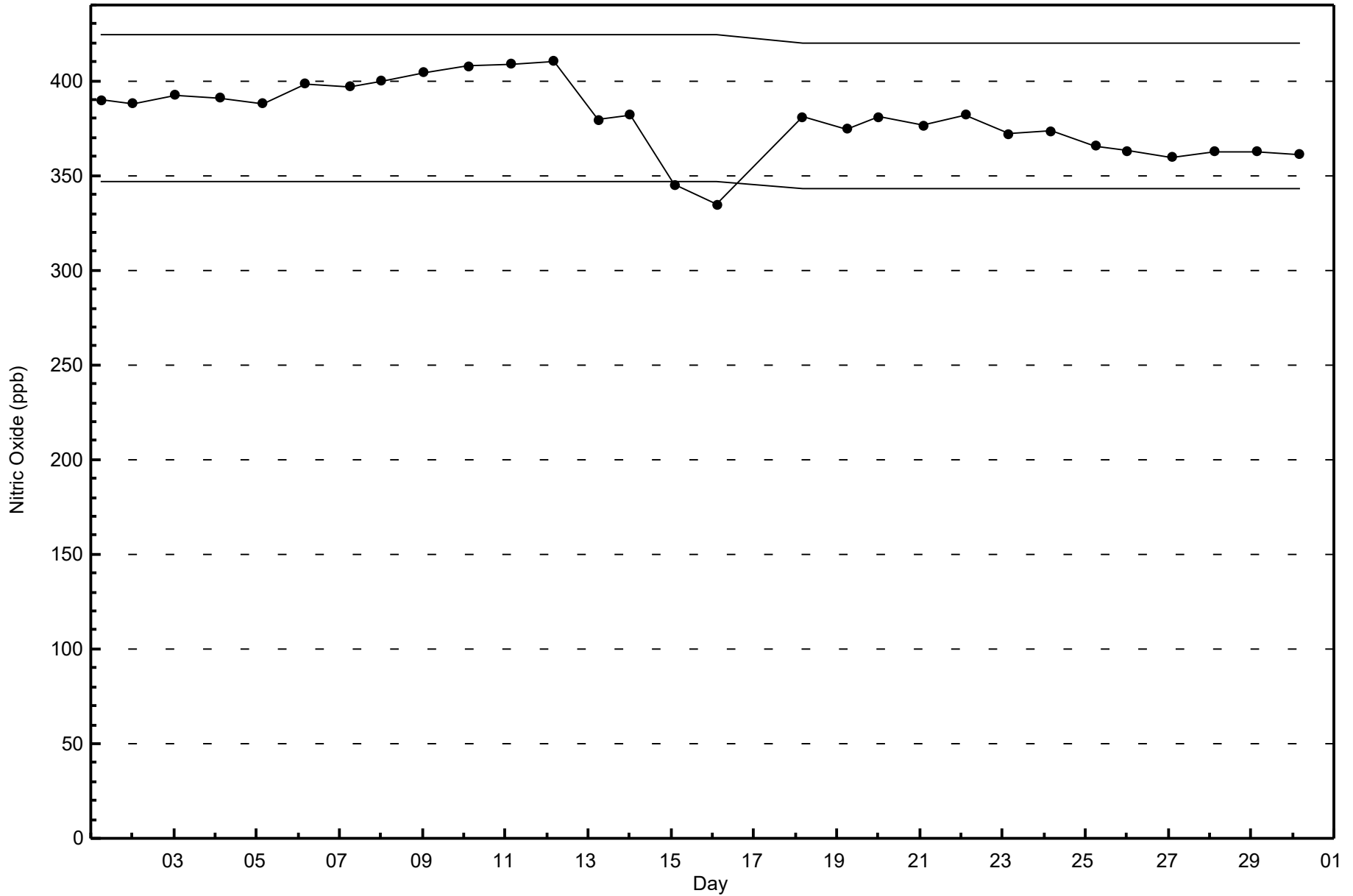


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Conklin









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

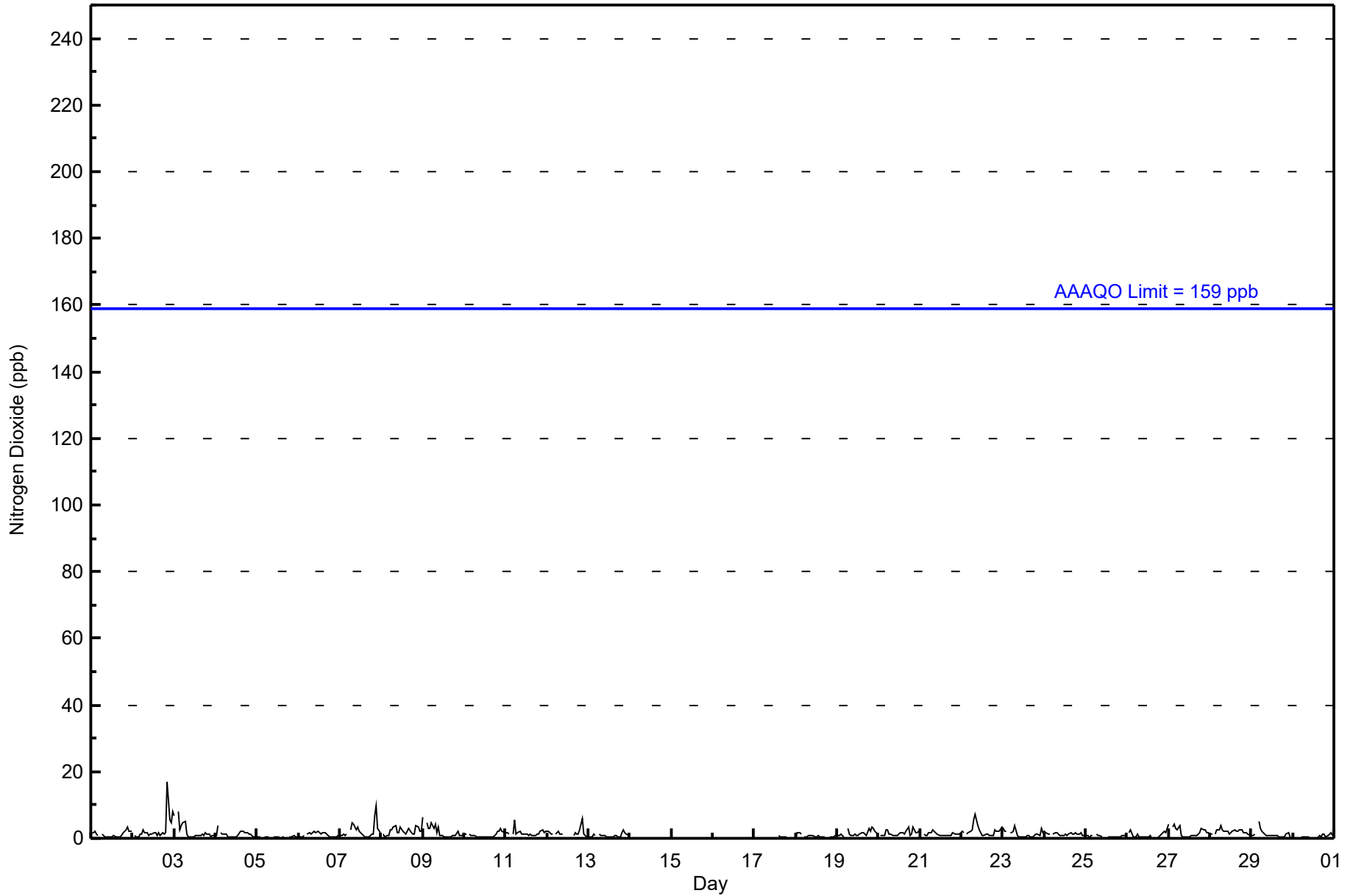
## Conklin - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720																											
Maximum Value: 16.9 ppb on Apr 2 21:00		Maximum Daily Average: 2.6 ppb on Apr 2																	Hours of Data:	599																													
Minimum Value: 0.0 ppb on Apr 17 21:00		Minimum Daily Average: 0.3 ppb on Apr 5																	Hours of Missing Data:	121																													
Maximum Diurnal Average: 2.6 ppb at hour 21		Minimum Diurnal Average: 0.9 ppb at hour 13																	Hours of Calibration:	32																													
Monthly Average: 1.41 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.6 Median = 1.1 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 2.7 P <sub>99</sub> = 6.6																	Percent Operational Time:	87.6																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	1.8	1.9	2.0	1.4	0.9	Z	1.4	0.9	0.6	0.4	0.3	0.3	0.3	0.7	0.5	0.5	0.4	0.4	1.9	2.3	2.5	3.3	2.0	2.0	1.2	3.3																							
2-Apr	Z	0.9	0.4	0.5	1.2	1.4	2.5	1.8	1.5	0.8	1.2	1.2	1.5	1.7	1.0	1.7	0.9	1.5	1.4	1.7	16.9	5.5	4.6	8.1	2.6	16.9																							
3-Apr	6.6	Z	8.1	2.7	3.8	4.8	4.9	1.3	0.4	0.4	0.6	0.6	0.7	1.0	0.9	0.9	1.1	0.8	1.6	1.1	1.3	0.5	1.0	0.9	2.0	8.1																							
4-Apr	0.8	3.8	Z	1.7	1.1	1.2	1.1	0.6	0.5	0.4	0.4	0.5	0.4	0.9	2.2	2.0	2.1	1.9	1.5	1.2	1.1	0.8	0.5	0.4	1.2	3.8																							
5-Apr	0.3	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	PF	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.7	0.6	0.6	0.3	0.7																							
6-Apr	0.4	0.4	0.6	0.9	Z	1.1	1.6	1.4	1.9	2.1	1.7	2.1	1.9	1.4	1.6	1.5	1.4	0.7	0.6	0.4	0.4	0.5	0.6	0.7	1.1	2.1																							
7-Apr	0.8	0.9	1.3	1.0	1.1	Z	2.5	4.7	4.2	2.5	3.6	2.1	1.9	1.4	0.5	0.6	0.6	0.6	1.2	1.4	6.8	9.6	2.9	1.5	2.3	9.6																							
8-Apr	Z	1.2	0.6	0.8	0.8	2.4	2.7	3.2	3.9	1.9	1.8	3.2	2.1	1.7	1.1	2.1	2.8	1.8	1.3	1.3	4.0	3.2	2.2	2.1	2.1	4.0																							
9-Apr	6.3	Z	4.7	3.0	3.1	4.6	3.1	4.2	1.8	3.3	0.8	0.7	0.5	0.4	0.5	0.6	0.6	0.8	0.9	0.8	2.3	0.8	0.8	1.0	2.0	6.3																							
10-Apr	1.1	1.1	Z	1.1	0.7	0.9	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.6	0.4	0.3	1.4	2.2	2.3	3.0	2.0	1.8	1.0	3.0																							
11-Apr	1.5	1.9	1.3	Z	1.3	5.7	1.4	1.5	2.0	1.1	1.1	1.2	1.2	0.9	1.1	1.0	0.8	1.0	1.2	1.4	2.3	2.5	1.5	2.0	1.6	5.7																							
12-Apr	2.3	2.2	1.4	1.3	Z	1.3	2.0	1.4	1.2	1.2	C	C	C	C	C	1.0	1.7	1.3	1.1	2.5	5.9	1.1	0.8	0.5	1.7	5.9																							
13-Apr	0.5	0.6	0.6	1.1	0.8	Z	1.4	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.4	1.7	2.5	1.8	1.2	0.7	0.9	2.5																								
14-Apr	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--																						
15-Apr	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--																						
16-Apr	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--																							
17-Apr	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.7	0.5	0.6	0.5	0.4	0.2	0.0	0.0	0.1	0.1	--	0.7																						
18-Apr	0.1	1.6	1.6	1.4	Z	0.4	0.5	0.9	1.0	0.8	0.7	0.5	0.6	0.7	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.7	0.6	1.6																							
19-Apr	0.7	0.9	1.1	0.8	0.6	Z	3.0	1.3	0.9	0.9	1.1	0.9	0.9	1.1	1.5	1.5	1.1	1.0	3.0	2.1	3.2	2.8	2.2	1.4	1.5	3.2																							
20-Apr	Z	1.0	0.7	1.0	2.5	2.6	1.3	1.2	0.9	0.8	1.0	1.0	1.5	1.7	1.5	1.3	2.0	3.2	1.0	1.4	3.5	1.8	1.7	2.3	1.6	3.5																							
21-Apr	1.8	Z	1.3	0.9	0.9	1.7	1.9	2.6	2.3	1.8	1.2	0.9	0.9	0.7	0.8	0.8	0.9	0.9	1.0	1.6	1.4	1.4	1.4	1.4	1.3	2.6																							
22-Apr	2.1	1.6	Z	1.4	1.6	2.1	2.7	5.5	7.2	3.9	2.4	1.9	1.0	0.8	1.3	1.3	0.8	1.0	1.0	2.4	2.0	2.0	2.1	3.5	2.2	7.2																							
23-Apr	3.0	2.2	2.0	Z	1.6	1.6	2.1	3.9	0.8	0.5	0.5	0.5	0.4	0.4	0.7	0.8	0.6	0.6	0.7	1.2	1.4	0.9	2.9	1.5	1.3	3.9																							
24-Apr	2.0	1.5	1.3	1.3	Z	1.2	1.7	1.6	1.1	0.8	0.9	1.0	1.2	1.0	1.1	1.7	1.3	1.3	1.6	1.1	1.4	1.9	0.7	0.9	1.3	2.0																							
25-Apr	1.0	0.9	0.0	0.7	0.8	Z	1.3	1.0	0.7	0.5	M	M	M	0.5	0.6	0.4	0.5	0.4	0.6	0.6	0.5	1.0	1.0	1.0	0.7	1.3																							
26-Apr	Z	1.7	2.4	0.6	0.3	0.5	1.4	0.3	0.3	0.3	0.3	0.3	0.4	0.9	0.2	0.2	0.2	0.2	0.3	1.0	1.4	2.0	1.9	3.0	0.9	3.0																							
27-Apr	4.2	Z	3.5	4.1	2.8	2.7	3.7	0.7	0.6	0.6	0.6	0.6	0.6	0.8	0.7	0.7	0.9	1.1	1.9	2.8	2.5	2.7	1.9	1.8	1.8	4.2																							
28-Apr	1.4	1.3	Z	1.4	2.4	2.7	3.8	2.4	2.1	2.2	2.1	1.4	1.5	2.0	2.4	2.1	2.0	2.6	2.4	1.9	1.8	1.9	1.1	1.0	2.0	3.8																							
29-Apr	0.7	0.9	1.3	Z	5.2	2.8	2.1	1.9	1.0	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.5	0.4	0.4	1.2	1.6	0.4	0.2	1.2	5.2																							
30-Apr	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.7	0.6	1.2	1.3	0.6	0.7	1.3	1.7	0.9	0.5	1.7																							
																								Diurnal Average																									
																								Diurnal Maximum																									
																								1.8	1.3	1.7	1.3	1.6	2.0	2.0	1.8	1.5	1.1	1.0	1.0	0.9	0.9	1.0	1.0	1.0	1.1	1.3	2.6	2.0	1.5	1.6	Diurnal Average		
																								6.6	3.8	8.1	4.1	5.2	5.7	4.9	5.5	7.2	3.9	3.6	3.2	2.1	2.0	2.4	2.1	2.8	3.2	3.0	2.8	16.9	9.6	4.6	8.1	Diurnal Maximum	
Z - zerspan C - Calibration M - Maintenance AF - Analyzer Failure PF - Power Failure																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Conklin - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	599	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 599

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Conklin - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	74	44	15	8	4	35	43	51	60	37	19	10	37	64	48	47	596
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	74	44	15	8	4	35	43	51	60	37	19	10	37	64	48	47	596

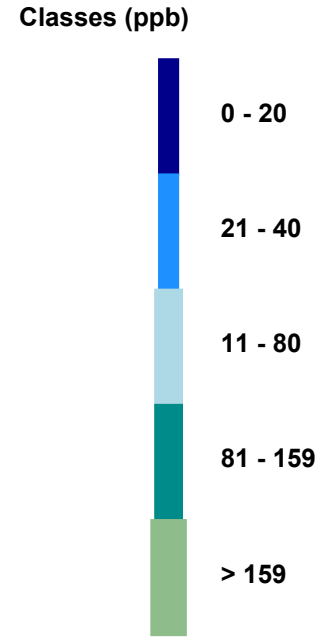
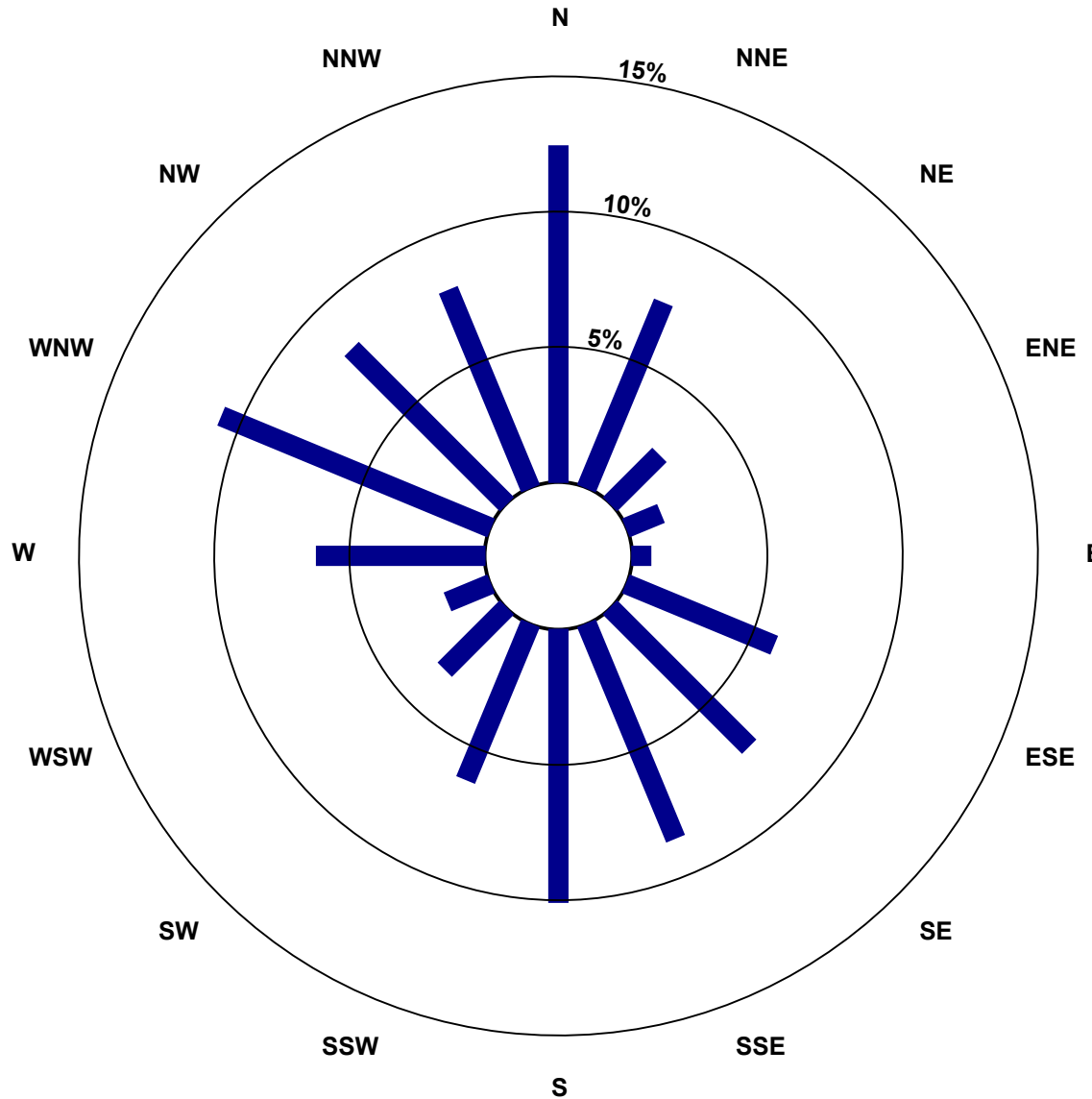
Total Number of Valid Hours: 596

Total Number of Hours: 720

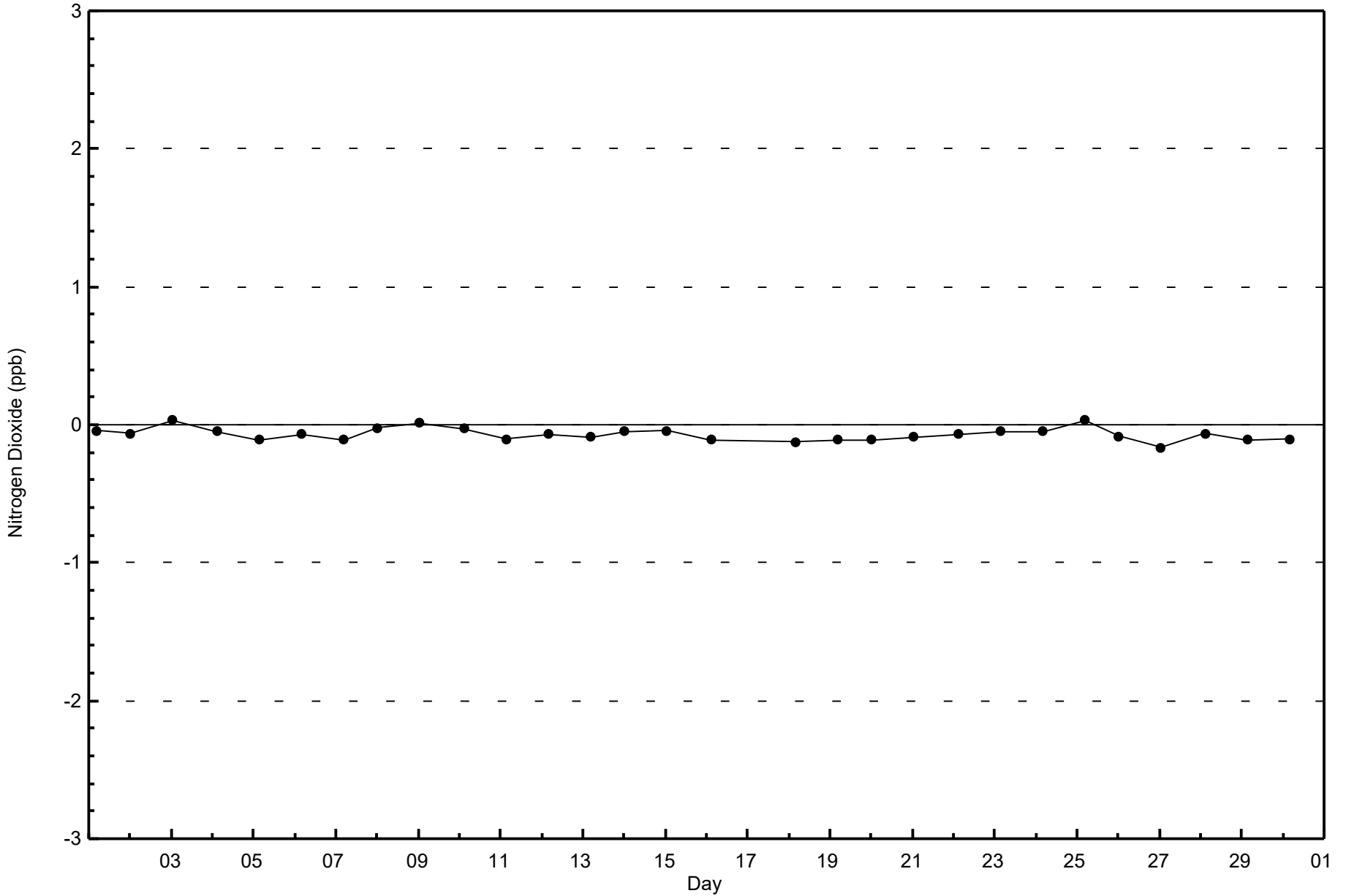


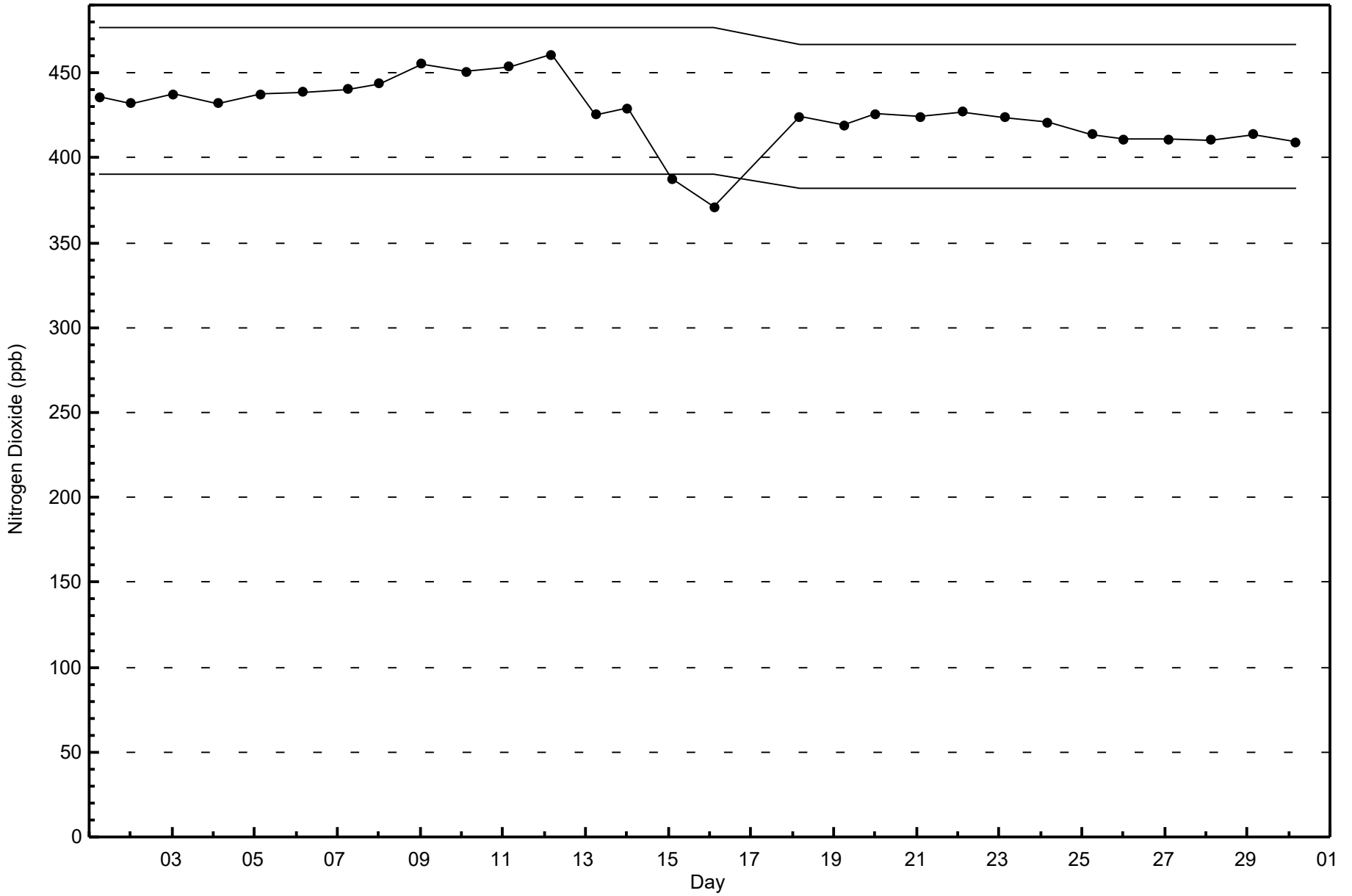
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 596







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

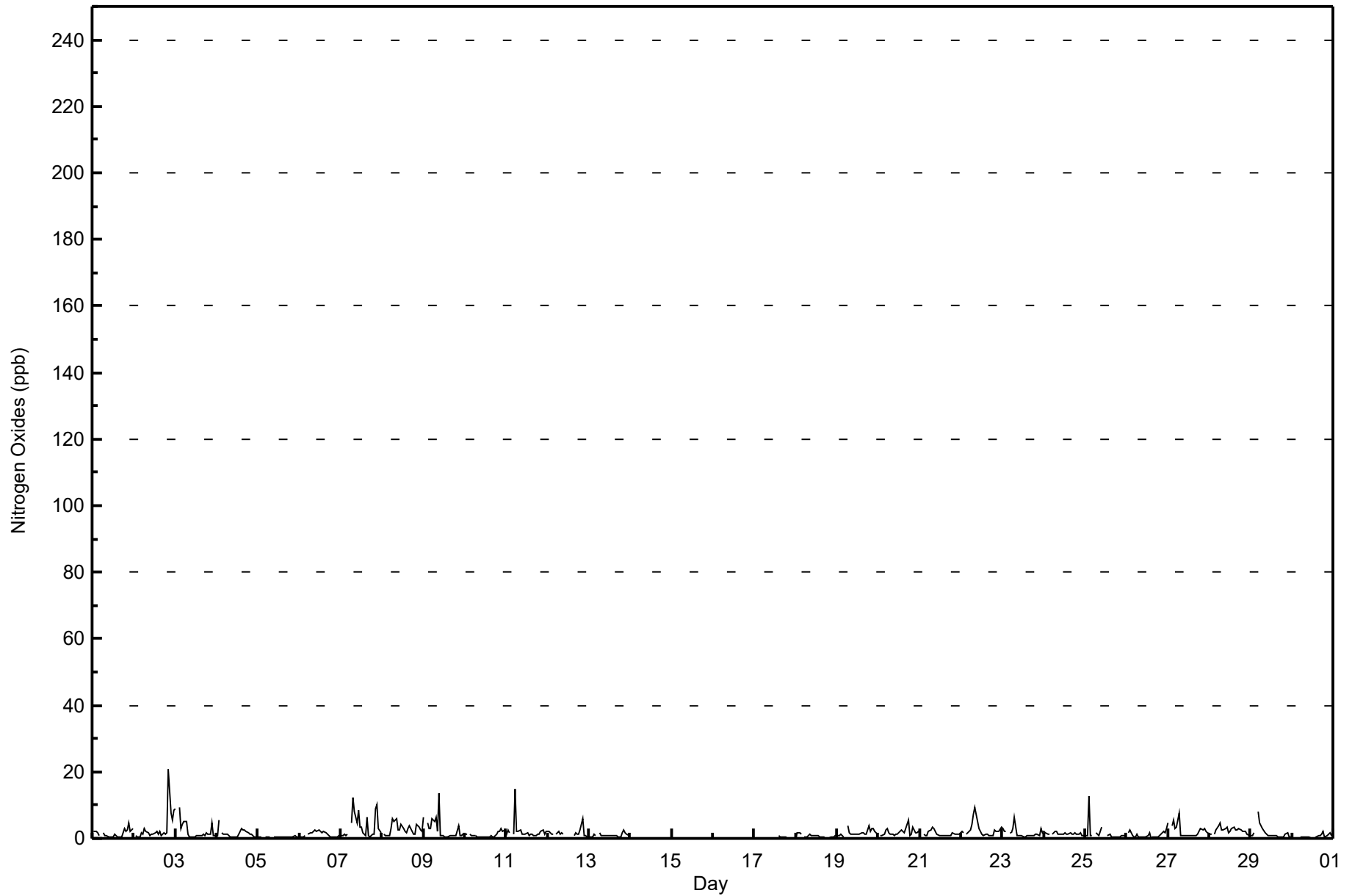
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - April 2024**

Maximum Value: 20.7 ppb on Apr 2 21:00		Maximum Daily Average: 3.8 ppb on Apr 7		Hours in Service: 720																											
Minimum Value: 0.0 ppb on Apr 17 21:00		Minimum Daily Average: 0.4 ppb on Apr 5		Hours of Data: 599																											
Maximum Diurnal Average: 2.9 ppb at hour 21		Minimum Diurnal Average: 1.1 ppb at hour 17		Hours of Missing Data: 121																											
Monthly Average: 1.74 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.7 Median = 1.2 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 3.3 P <sub>99</sub> = 9.4		Hours of Calibration: 32																											
				Percent Operational Time: 87.6																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
1-Apr	2.0	2.2	2.2	1.5	0.9	Z	1.5	1.0	0.7	0.5	0.4	0.3	0.3	1.5	0.5	0.6	0.5	0.4	2.8	2.3	2.5	4.6	2.2	2.8	1.5	4.6					
2-Apr	Z	1.0	0.4	0.5	1.5	1.5	2.9	2.2	1.8	1.0	1.4	1.4	1.8	2.0	1.1	2.2	0.9	1.9	1.4	1.7	20.7	7.7	5.7	8.5	3.1	20.7					
3-Apr	8.9	Z	9.4	2.8	4.4	4.9	5.2	1.4	0.4	0.4	0.6	0.6	0.8	1.1	1.0	1.0	1.2	0.9	1.6	1.1	1.3	4.5	1.0	0.9	2.4	9.4					
4-Apr	0.8	5.7	Z	1.7	1.1	1.2	1.2	0.7	0.6	0.4	0.5	0.5	0.5	1.1	2.9	2.7	2.5	2.1	1.5	1.2	1.1	0.8	0.5	0.4	1.4	5.7					
5-Apr	0.3	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	PF	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.7	0.6	0.6	0.4	0.7					
6-Apr	0.4	0.4	0.6	0.9	Z	1.1	1.6	1.5	2.0	2.4	2.0	2.6	2.2	1.7	1.9	1.8	1.5	0.7	0.6	0.4	0.4	0.5	0.6	0.7	1.2	2.6					
7-Apr	0.8	0.9	1.3	1.0	1.2	Z	4.5	12.4	7.9	4.6	8.4	3.6	3.5	1.9	0.6	6.2	0.7	0.6	1.2	1.4	9.0	10.3	3.0	1.5	3.8	12.4					
8-Apr	Z	1.3	0.7	0.8	0.8	3.0	5.9	5.3	6.0	2.5	2.5	4.4	2.8	2.3	1.6	2.8	3.6	2.0	1.3	1.3	4.0	3.3	2.3	2.2	2.7	6.0					
9-Apr	6.4	Z	4.8	3.0	3.2	5.8	5.2	6.4	2.2	13.6	0.9	0.8	0.6	0.5	0.6	0.7	0.7	0.9	1.0	0.8	3.8	0.8	0.9	1.1	2.8	13.6					
10-Apr	1.2	1.2	Z	1.2	0.8	1.0	0.8	0.4	0.4	0.3	0.3	0.4	0.3	0.6	0.6	0.7	0.4	0.3	1.5	2.2	2.3	3.0	2.0	2.3	1.1	3.0					
11-Apr	1.5	2.5	1.6	Z	1.4	14.8	2.1	2.0	2.4	1.3	1.4	1.5	1.5	1.0	1.4	1.1	0.9	1.0	1.3	1.4	2.3	2.5	1.5	2.0	2.2	14.8					
12-Apr	2.3	2.2	1.4	1.3	Z	1.3	2.0	1.4	1.6	1.4	C	C	C	C	C	1.0	1.8	1.3	1.1	2.5	6.0	1.1	0.8	0.5	1.7	6.0					
13-Apr	0.5	0.6	0.6	1.3	0.8	Z	1.8	1.0	1.0	0.8	0.7	0.9	0.7	0.7	0.7	0.7	0.8	0.6	0.4	1.7	2.5	1.8	1.3	0.7	1.0	2.5					
14-Apr	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--				
15-Apr	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--				
16-Apr	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--				
17-Apr	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.7	0.5	0.6	0.5	0.4	0.2	0.0	0.0	0.1	0.1	--	0.7				
18-Apr	0.1	1.6	1.6	1.4	Z	0.4	0.5	1.0	1.1	0.9	0.8	0.6	0.7	0.8	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.7	0.7	1.6					
19-Apr	0.7	0.9	1.1	0.8	0.6	Z	3.9	1.6	1.2	1.2	1.4	1.2	1.1	1.3	1.8	1.8	1.2	1.1	3.8	2.1	3.2	2.8	2.3	1.4	1.7	3.9					
20-Apr	Z	1.0	0.7	1.1	2.6	2.8	1.5	1.4	1.1	0.9	1.2	1.2	2.0	2.6	2.1	1.8	2.8	5.5	1.0	1.4	3.5	1.8	1.7	2.3	1.9	5.5					
21-Apr	1.8	Z	1.4	1.0	1.0	2.1	2.7	3.3	3.0	2.3	1.4	1.0	1.0	0.8	0.8	0.8	0.9	0.9	1.0	1.6	1.4	1.4	1.4	1.4	1.5	3.3					
22-Apr	2.3	1.6	Z	1.4	1.6	2.5	4.1	7.1	9.4	5.0	3.0	2.3	1.1	0.9	1.4	1.4	0.9	1.0	1.0	2.4	2.0	2.1	2.1	3.6	2.6	9.4					
23-Apr	3.1	2.3	2.1	Z	1.7	1.8	3.1	6.6	1.0	0.7	0.7	0.7	0.5	0.5	0.8	0.9	0.7	0.7	0.7	1.2	1.4	1.0	3.0	1.5	1.6	6.6					
24-Apr	2.1	1.6	1.4	1.4	Z	1.5	2.2	2.0	1.5	1.1	1.2	1.3	1.7	1.2	1.3	1.9	1.3	1.4	1.6	1.1	1.4	1.9	0.7	0.9	1.5	2.2					
25-Apr	1.0	0.9	12.6	0.7	0.8	Z	1.5	1.2	0.9	3.3	M	M	M	0.8	1.1	0.4	0.5	0.5	0.6	0.6	0.5	1.0	1.0	1.0	1.5	12.6					
26-Apr	Z	1.7	2.4	0.6	0.3	0.5	1.5	0.3	0.3	0.3	0.3	0.4	0.7	1.7	0.2	0.2	0.2	0.2	0.3	1.0	1.4	2.0	1.9	3.0	0.9	3.0					
27-Apr	4.6	Z	3.7	5.3	3.0	3.3	7.8	0.8	0.8	0.7	0.7	0.7	0.7	0.9	0.8	0.8	1.0	1.1	2.0	2.9	2.5	2.8	1.9	1.8	2.2	7.8					
28-Apr	1.4	1.3	Z	1.5	2.5	3.6	4.8	2.7	2.5	3.0	3.4	1.6	1.9	2.8	3.4	2.6	2.6	3.1	2.6	2.0	1.9	1.9	1.1	1.0	2.4	4.8					
29-Apr	0.7	1.0	1.7	Z	8.0	4.9	3.6	3.0	1.6	1.3	0.9	0.9	1.0	0.9	0.8	0.8	0.6	0.5	0.4	0.4	1.2	1.6	0.4	0.2	1.6	8.0					
30-Apr	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.8	0.7	1.3	2.0	0.6	0.7	1.3	1.9	1.0	0.6	2.0					
																								Diurnal Average							
																								Diurnal Maximum							
																								2.0 1.5 2.4 1.4 1.9 2.8 2.8 2.6 2.1 1.9 1.4 1.2 1.2 1.2 1.1 1.4 1.1 1.1 1.2 1.3 2.9 2.3 1.6 1.6							
																								8.9 5.7 12.6 5.3 8.0 14.8 7.8 12.4 9.4 13.6 8.4 4.4 3.5 2.8 3.4 6.2 3.6 5.5 3.8 2.9 20.7 10.3 5.7 8.5							
Z - zerspan																								C - Calibration		M - Maintenance		AF - Analyzer Failure		PF - Power Failure	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	598	99.83	99.83
21 - 40	1	0.17	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 599

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

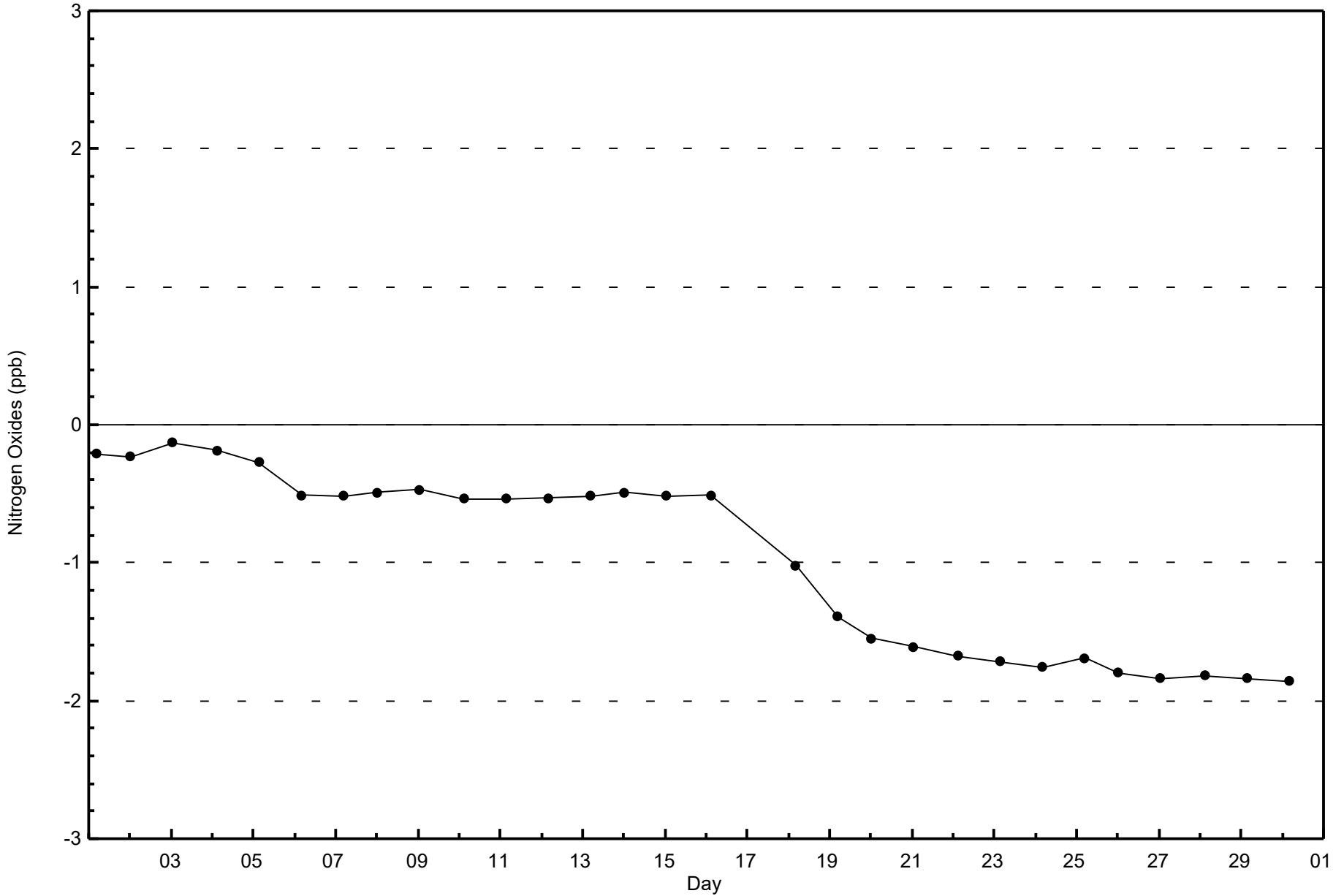
**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Conklin - April 2024**

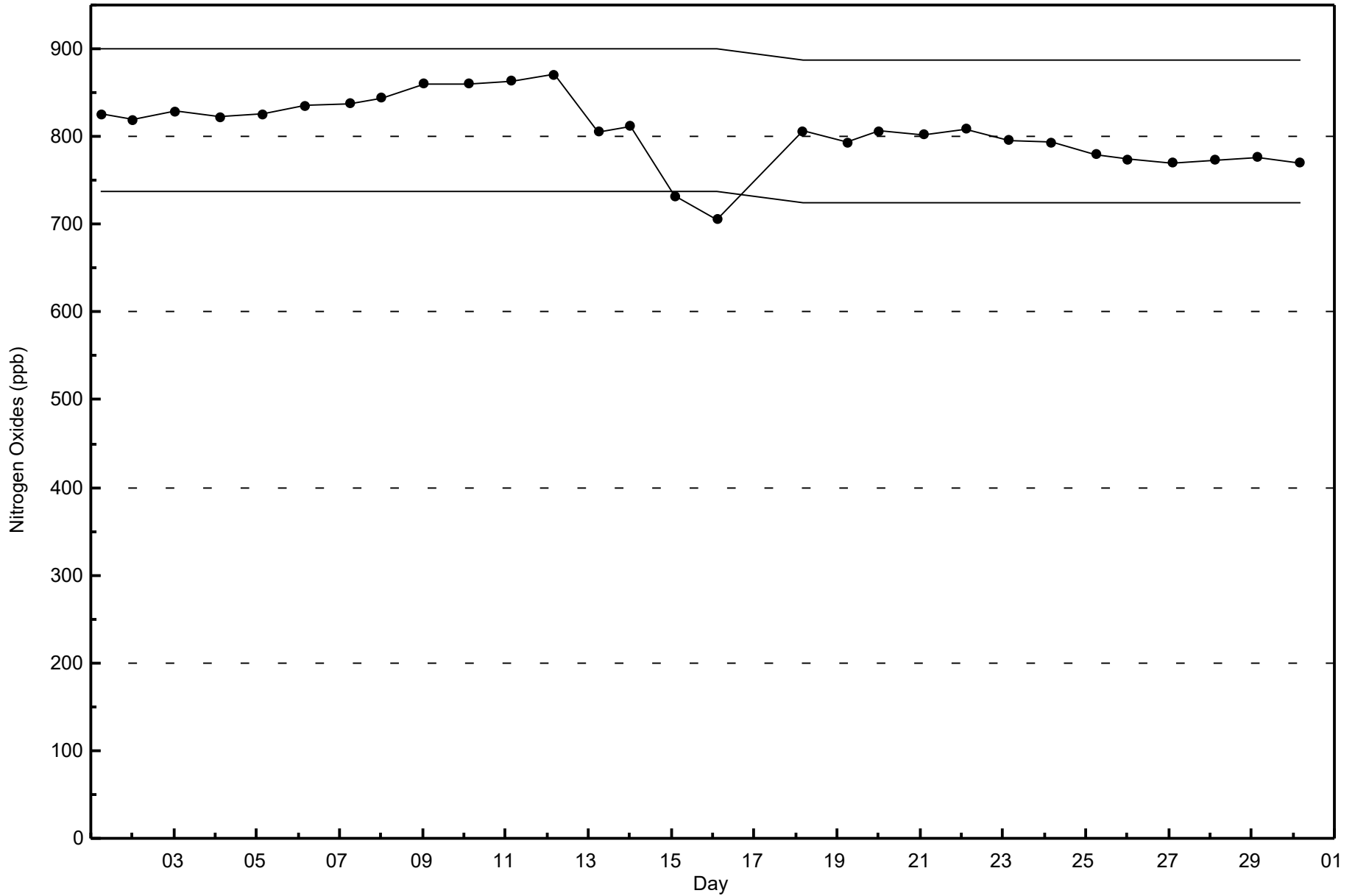
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	74	44	15	8	4	35	43	51	59	37	19	10	37	64	48	47	595
21 - 40	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	74	44	15	8	4	35	43	51	60	37	19	10	37	64	48	47	596

Total Number of Valid Hours: 596

Total Number of Hours: 720









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Conklin - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 59.3 ppb on Apr 22 14:00	Maximum Daily Average: 43.3 ppb on Apr 25		Hours of Data:	683
Minimum Value: 2.6 ppb on Apr 29 05:00	Minimum Daily Average: 21.5 ppb on Apr 30		Hours of Missing Data:	37
Maximum Diurnal Average: 44.3 ppb at hour 16	Minimum Diurnal Average: 22.3 ppb at hour 4		Hours of Calibration:	34
Monthly Average: 34.53 ppb	Percentiles: P <sub>1</sub> = 6.3 P <sub>10</sub> = 15.9 Q <sub>1</sub> = 24.5 Median = 36.1 Q <sub>3</sub> = 45.3 P <sub>90</sub> = 50.2 P <sub>99</sub> = 57.3		Percent Operational Time:	99.6

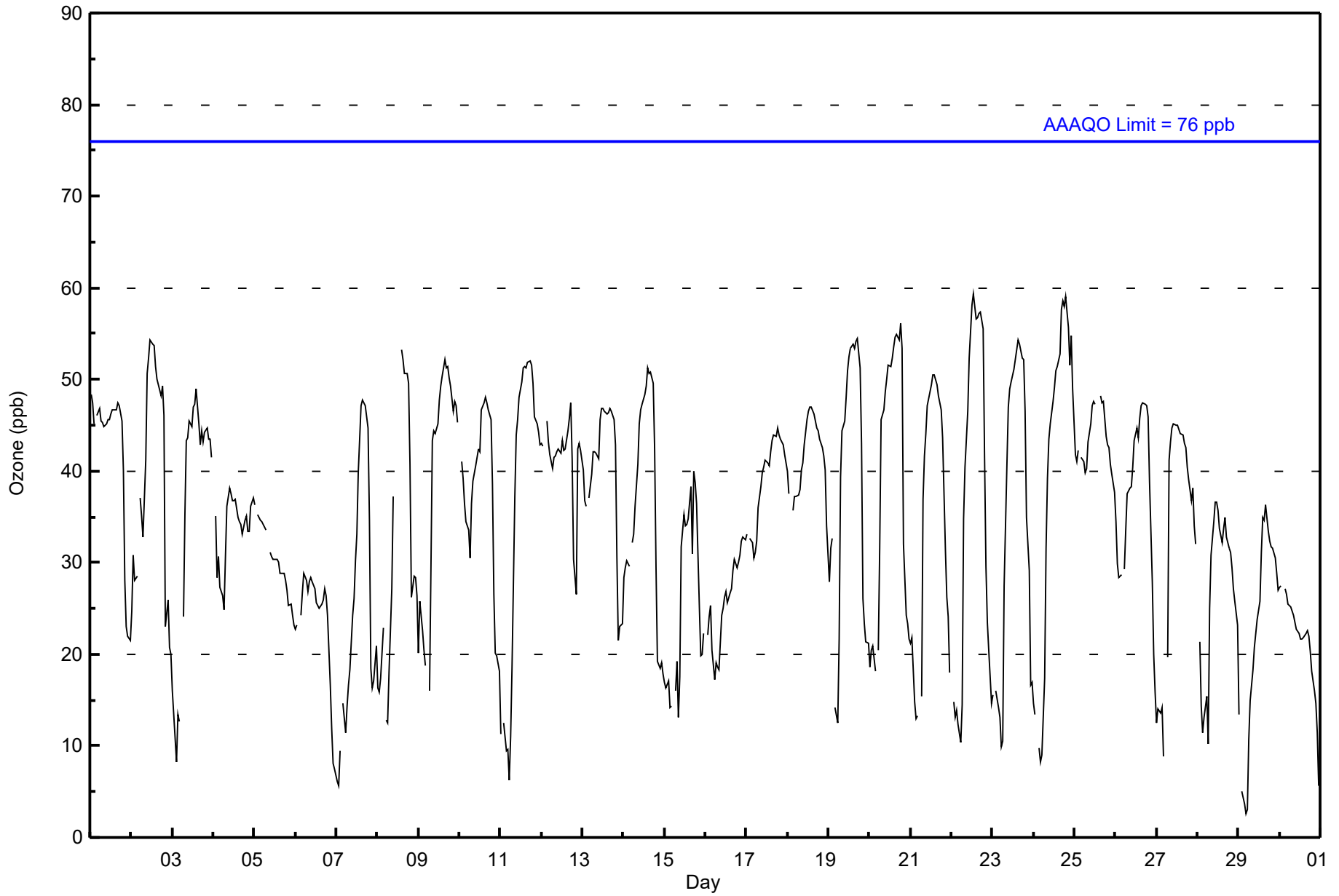
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	48.3	47.4	45.1	Z	46.1	46.9	45.5	45.3	44.9	45.1	45.6	45.6	46.2	46.6	46.7	46.7	47.4	47.2	45.5	40.1	28.1	23.0	21.9	21.6	42.0	48.3																						
2-Apr	24.7	30.8	28.0	28.6	Z	37.0	35.1	32.8	41.2	50.7	52.4	54.4	53.8	53.7	51.5	50.1	49.4	48.2	49.3	46.0	23.1	25.9	20.8	20.1	39.5	54.4																						
3-Apr	16.0	13.5	8.3	13.4	12.7	Z	24.1	35.3	43.4	43.7	45.4	44.9	47.0	47.3	49.0	45.1	42.9	44.3	43.2	44.2	44.6	43.4	43.5	41.5	36.4	49.0																						
4-Apr	Z	35.0	28.4	30.7	27.3	26.4	24.9	30.7	36.1	38.2	37.5	36.8	36.9	34.9	34.5	34.1	33.1	34.7	35.1	33.5	33.4	36.2	37.0	33.6	38.2	33.6																						
5-Apr	36.4	Z	35.3	34.7	34.5	34.1	33.8	33.5	PF	31.2	30.6	30.4	30.3	30.4	30.1	28.9	28.8	28.8	28.1	27.0	25.4	25.5	24.2	23.2	30.2	36.4																						
6-Apr	22.8	23.2	Z	24.2	26.7	28.8	28.1	26.8	28.0	28.4	27.9	27.1	25.6	25.4	25.0	25.4	26.0	27.2	26.3	24.3	16.6	11.9	8.1	7.5	23.5	28.8																						
7-Apr	6.1	5.6	9.5	Z	14.6	11.5	14.4	16.6	18.4	24.3	26.1	30.2	33.0	39.9	47.2	47.7	47.4	47.1	44.6	34.7	18.4	16.4	17.1	20.9	25.7	47.7																						
8-Apr	16.4	15.8	17.4	22.9	Z	12.8	12.6	18.1	27.1	37.3	C	C	C	C	53.2	52.1	50.7	50.7	49.6	40.7	26.3	28.5	28.3	26.4	30.9	53.2																						
9-Apr	20.1	25.8	22.6	20.5	18.7	Z	16.0	29.5	43.3	44.4	44.0	45.2	47.7	49.3	50.3	52.2	51.2	51.4	50.3	49.3	46.5	47.5	47.2	45.3	39.9	52.2																						
10-Apr	Z	41.0	39.2	36.4	34.4	33.5	30.6	36.4	39.0	40.6	41.6	42.4	42.1	46.7	47.4	48.1	47.5	46.6	45.6	38.6	26.6	20.2	19.9	18.2	37.5	48.1																						
11-Apr	11.3	Z	12.5	9.5	9.6	6.3	11.1	18.6	37.2	44.0	45.6	48.1	49.7	51.2	51.4	51.3	51.8	52.0	51.6	49.6	45.9	45.1	44.3	42.9	36.5	52.0																						
12-Apr	43.0	42.7	Z	45.4	43.1	41.8	40.3	41.5	41.6	42.1	42.4	41.9	43.4	42.2	42.5	44.3	45.8	47.4	41.3	30.3	26.5	42.4	43.0	42.2	41.6	47.4																						
13-Apr	40.1	36.8	36.1	Z	37.0	39.6	42.2	42.1	41.9	41.4	45.6	46.8	46.8	46.5	46.3	46.3	46.9	46.5	45.6	42.8	30.6	21.5	23.1	23.4	39.8	46.9																						
14-Apr	28.4	29.5	30.3	29.5	Z	32.3	33.1	36.1	40.7	45.1	46.7	47.2	48.4	49.3	51.3	50.6	50.8	49.5	42.4	29.4	19.2	18.5	19.1	17.9	36.8	51.3																						
15-Apr	16.9	16.3	17.1	14.2	14.3	Z	16.0	19.3	13.2	17.5	31.8	35.2	34.1	34.2	34.7	38.2	30.9	40.0	38.8	36.5	25.2	19.9	20.0	22.3	25.5	40.0																						
16-Apr	Z	22.2	24.1	25.4	20.5	17.2	19.1	18.6	18.4	24.3	25.0	26.2	26.9	25.6	26.6	27.1	29.1	30.3	29.4	30.1	30.8	32.4	32.8	32.6	25.8	32.8																						
17-Apr	33.1	Z	32.6	32.2	30.5	31.1	32.4	36.0	38.3	39.9	40.5	41.1	40.8	40.6	42.2	43.3	43.9	43.8	44.7	43.9	43.5	42.8	41.8	40.9	39.1	44.7																						
18-Apr	39.9	37.5	Z	35.7	37.2	37.2	37.3	38.0	40.2	40.9	42.8	45.6	46.6	46.9	46.9	46.3	45.4	44.7	44.3	43.5	42.6	41.7	40.1	34.0	41.5	46.9																						
19-Apr	27.8	31.5	32.6	Z	14.2	12.5	21.7	39.3	44.3	45.5	48.0	50.9	52.5	53.4	53.8	53.4	54.2	54.5	51.2	42.9	26.2	23.4	21.4	21.2	38.1	54.5																						
20-Apr	18.6	20.4	21.0	18.2	Z	20.4	31.6	45.6	46.7	48.6	50.0	51.5	51.4	52.3	53.6	54.7	55.0	54.3	56.1	53.3	32.0	24.2	23.3	21.7	39.3	56.1																						
21-Apr	21.3	21.7	14.8	13.0	13.3	Z	15.4	37.0	41.7	44.1	47.1	48.7	49.4	50.5	50.5	49.5	48.2	47.4	46.7	43.6	31.4	26.3	24.1	18.1	35.0	50.5																						
22-Apr	Z	14.8	13.1	13.9	12.3	10.3	14.6	34.7	40.5	46.5	52.3	55.3	58.2	59.3	56.6	56.8	57.2	57.4	55.6	41.6	29.6	23.4	20.5	14.7	36.5	59.3																						
23-Apr	15.6	Z	16.0	14.1	13.1	10.0	10.6	27.5	40.7	47.0	49.0	49.8	51.1	52.2	53.3	54.2	53.9	52.4	52.1	46.5	35.0	29.2	16.7	16.9	35.1	54.2																						
24-Apr	14.7	13.4	Z	9.8	8.2	9.0	17.4	31.5	39.3	43.5	45.1	47.6	49.1	50.9	51.4	52.8	57.7	58.5	57.9	59.1	55.6	51.6	54.7	49.0	40.3	59.1																						
25-Apr	41.8	41.1	42.3	Z	41.4	41.1	39.8	40.3	43.2	45.1	47.1	47.5	47.2	M	M	48.2	47.5	47.6	43.8	42.9	42.6	40.7	39.7	37.6	43.3	48.2																						
26-Apr	34.5	29.8	28.4	28.7	Z	29.3	33.6	37.5	38.2	38.3	40.5	43.3	44.7	43.6	45.7	47.1	47.5	47.3	47.1	45.9	38.8	27.9	19.9	15.8	37.1	47.5																						
27-Apr	12.5	14.0	13.5	14.2	8.9	Z	19.7	41.2	43.2	44.7	45.1	45.0	45.0	44.5	44.1	43.9	43.1	42.5	40.4	39.0	36.8	38.1	34.0	32.0	34.2	45.1																						
28-Apr	Z	21.4	14.3	11.5	13.1	15.5	10.3	24.9	30.8	34.4	36.6	36.7	35.6	33.7	32.2	33.8	34.9	32.8	31.6	31.1	29.5	27.2	25.8	23.2	27.0	36.7																						
29-Apr	13.4	Z	5.0	3.6	2.6	3.1	10.7	15.0	18.3	20.8	22.3	23.8	25.8	31.1	34.9	34.7	36.4	33.4	32.4	31.8	31.5	30.5	28.8	27.0	22.5	36.4																						
30-Apr	27.3	27.5	Z	27.2	26.5	25.5	25.1	24.7	24.2	23.5	22.7	22.2	21.7	21.6	21.8	22.2	22.5	21.9	20.2	18.1	16.1	14.6	11.4	5.6	21.5	27.5																						
																								25.2	26.4	23.5	22.3	22.4	24.5	24.9	31.8	36.0	38.7	40.6	41.8	42.5	43.1	44.0	44.3	44.3	44.3	43.0	39.4	31.9	29.9	28.4	26.7	Diurnal Average
																								48.3	47.4	45.1	45.4	46.1	46.9	45.5	45.6	46.7	50.7	52.4	55.3	58.2	59.3	56.6	56.8	57.7	58.5	57.9	59.1	55.6	51.6	54.7	49.0	Diurnal Maximum

Z - zerospan      C - Calibration      M - Maintenance      PF - Power Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb



Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Conklin - April 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	120	17.57	17.57
21 - 50	496	72.62	90.19
51 - 82	67	9.81	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	2	3	0	0	1	3	15	22	25	9	2	4	2	4	16	10	118
21 - 50	85	43	16	7	2	27	29	28	37	18	13	10	34	58	38	50	495
51 - 82	6	2	2	1	1	6	2	6	7	9	5	2	8	4	3	3	67
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>93</b>	<b>48</b>	<b>18</b>	<b>8</b>	<b>4</b>	<b>36</b>	<b>46</b>	<b>56</b>	<b>69</b>	<b>36</b>	<b>20</b>	<b>16</b>	<b>44</b>	<b>66</b>	<b>57</b>	<b>63</b>	<b>680</b>

Total Number of Valid Hours: 680

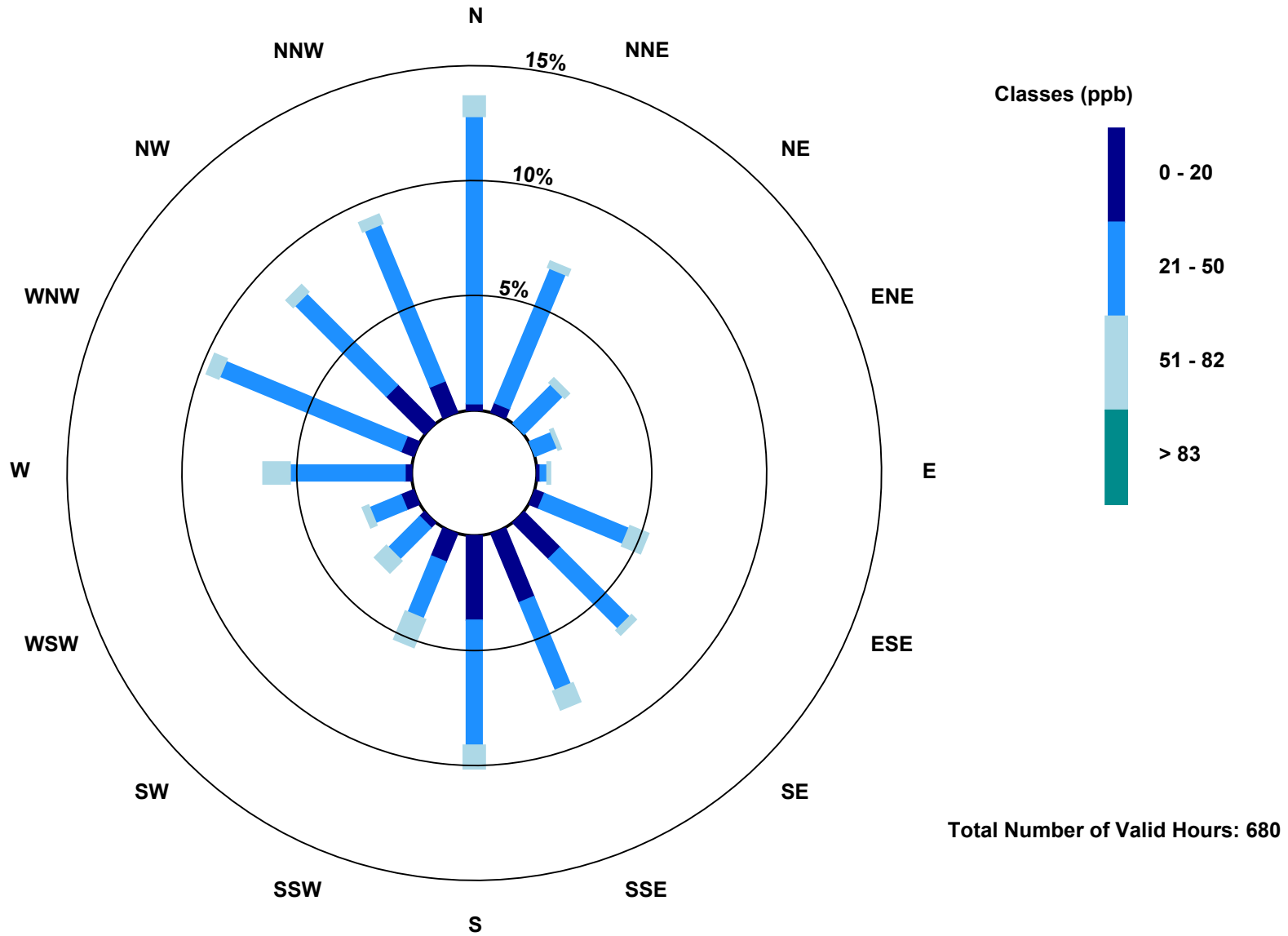
Total Number of Hours: 720

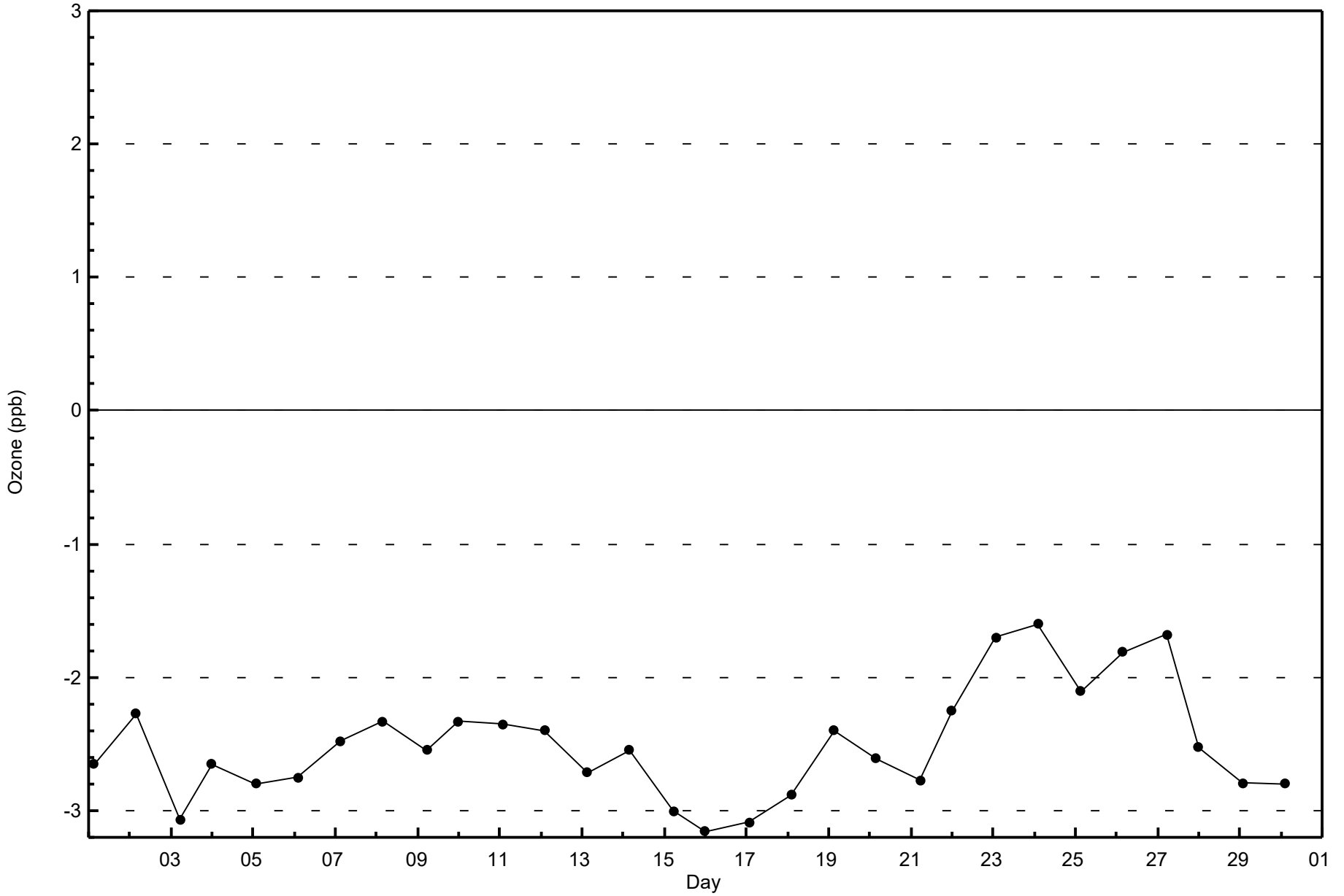




Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

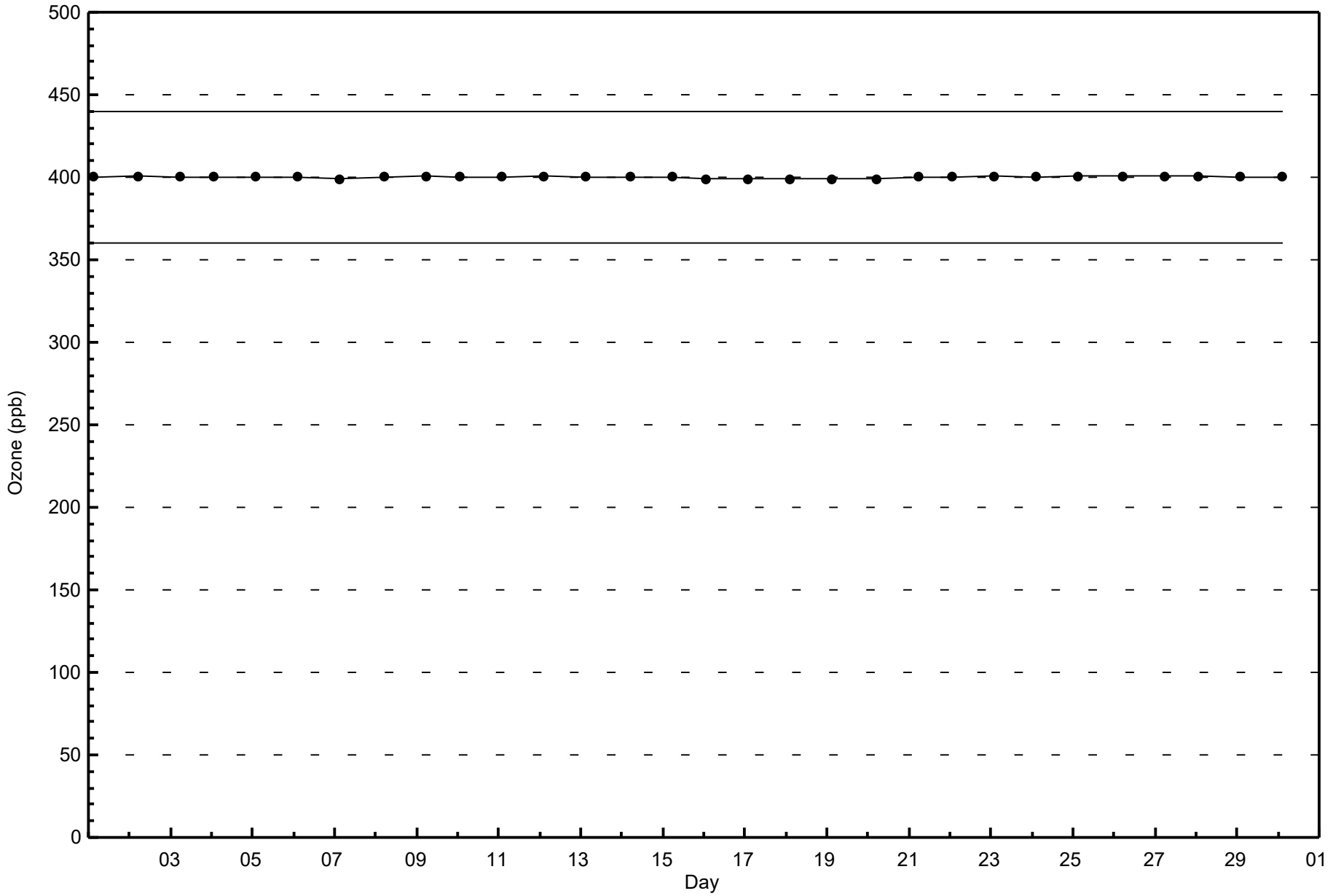






Wood Buffalo Environmental Association  
Span Responses

Ozone (O<sub>3</sub>) - ppb  
Conklin - April 2024

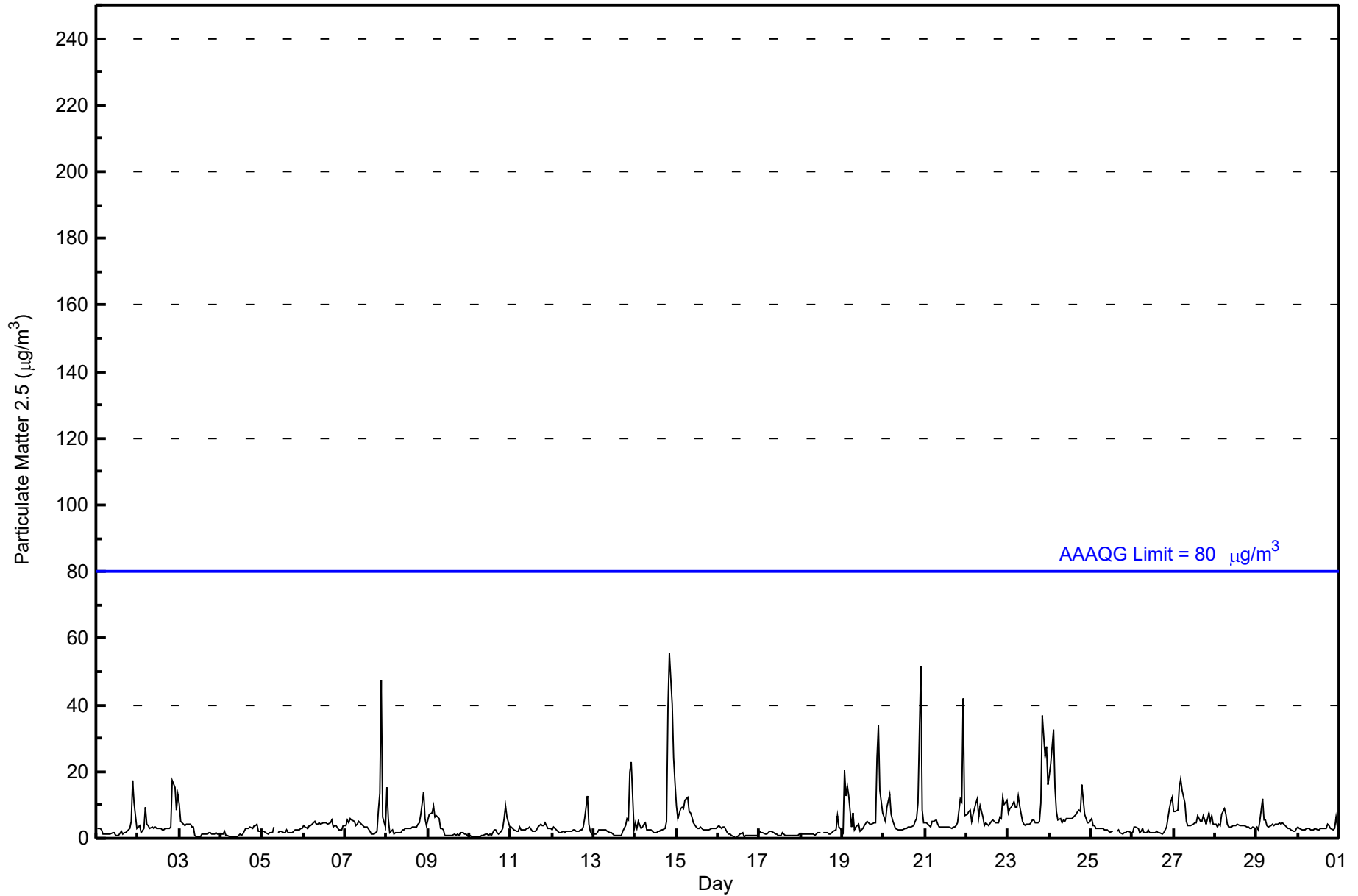




Summary of Hour Averages

Conklin - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:															720																											
Maximum Value: 55.7 µg/m <sup>3</sup> on Apr 14 21:00		Maximum Daily Average: 10.2 µg/m <sup>3</sup> on Apr 23		Hours of Data:															717																													
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 16 11:00		Minimum Daily Average: 1.3 µg/m <sup>3</sup> on Apr 17		Hours of Missing Data:															3																													
Maximum Diurnal Average: 12.0 µg/m <sup>3</sup> at hour 22		Minimum Diurnal Average: 2.5 µg/m <sup>3</sup> at hour 12		Hours of Calibration:															1																													
Monthly Average: 4.54 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.9 Median = 3.1 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 8.9 P <sub>99</sub> = 33.7		Percent Operational Time:															99.7																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	2.8	2.8	2.9	2.7	1.5	1.1	1.1	1.1	1.3	1.6	1.6	1.0	0.6	0.7	2.2	1.5	1.9	1.8	2.4	3.1	5.1	17.4	10.5	2.9	3.0	17.4																						
2-Apr	3.2	3.7	1.6	2.9	9.2	4.2	3.9	3.1	3.4	3.0	3.4	3.1	2.8	2.8	2.7	2.6	3.0	3.2	2.9	3.3	17.5	15.2	8.4	12.9	5.1	17.5																						
3-Apr	10.0	4.9	4.2	3.7	4.1	4.2	4.2	3.5	3.3	0.7	0.3	0.3	0.6	1.2	1.3	1.2	1.3	1.5	1.5	1.4	1.2	1.7	1.2	1.1	2.4	10.0																						
4-Apr	1.2	1.2	1.9	0.9	0.6	0.5	0.4	0.5	0.5	0.6	0.9	1.2	1.0	1.3	2.9	3.0	3.0	3.2	3.1	3.8	3.7	4.3	2.0	1.9	1.8	4.3																						
5-Apr	2.0	2.1	1.7	1.4	1.7	1.8	1.6	3.2	PF	1.9	2.0	2.1	1.6	1.5	2.7	1.5	1.6	1.8	2.0	2.5	2.6	2.7	2.9	3.1	2.1	3.2																						
6-Apr	3.6	3.2	3.2	3.8	4.0	4.4	4.9	4.4	4.3	4.8	4.2	4.5	4.8	4.6	4.3	4.5	5.7	3.2	3.8	3.7	2.7	2.7	2.6	3.7	4.0	5.7																						
7-Apr	3.7	5.7	4.5	5.7	5.6	5.1	4.0	4.3	4.9	4.4	3.9	3.4	3.4	3.2	2.2	1.4	1.1	1.4	2.2	8.4	13.4	47.6	6.2	3.6	6.2	47.6																						
8-Apr	15.4	6.0	1.7	2.4	1.3	1.8	1.7	1.5	1.9	2.3	2.7	2.8	2.8	3.0	2.9	3.4	3.4	3.2	4.4	4.6	7.1	14.1	6.0	3.7	4.2	15.4																						
9-Apr	5.4	7.1	7.5	9.8	6.4	6.7	6.1	3.2	3.1	2.3	0.8	0.9	0.7	0.7	0.7	1.1	1.1	1.1	0.9	1.6	1.8	1.4	1.2	1.0	3.0	9.8																						
10-Apr	0.8	0.6	0.5	0.4	0.3	0.5	0.3	0.8	0.9	1.1	1.4	1.0	1.1	1.1	2.6	2.4	1.5	1.2	2.0	2.9	5.9	9.7	6.4	3.5	2.0	9.7																						
11-Apr	3.4	3.0	2.3	2.3	2.2	3.4	2.4	2.6	2.6	3.0	2.8	3.3	2.2	2.1	2.3	2.5	3.3	4.3	4.0	3.7	4.5	3.1	2.9	2.9	3.0	4.5																						
12-Apr	2.7	3.4	2.7	2.2	1.8	1.8	1.9	1.9	2.0	2.0	1.9	2.0	2.7	2.4	2.3	2.3	2.5	2.7	3.4	5.8	12.8	4.1	2.3	1.5	3.0	12.8																						
13-Apr	1.2	1.2	1.7	2.7	2.6	2.7	2.7	2.7	2.3	1.8	1.6	1.2	1.0	0.9	0.9	1.0	1.0	2.1	3.7	5.8	5.7	20.0	22.8	2.6	3.8	22.8																						
14-Apr	4.7	3.0	4.9	2.9	3.3	4.4	4.5	2.6	2.5	2.3	2.1	1.7	1.9	2.1	2.1	2.6	2.4	2.9	4.9	38.9	55.7	40.3	24.1	16.7	9.7	55.7																						
15-Apr	9.8	6.0	8.8	9.2	9.1	11.5	12.1	8.2	7.8	6.5	4.5	3.3	2.9	2.9	3.3	2.7	2.7	2.7	2.6	2.7	2.8	2.8	3.0	3.0	5.5	12.1																						
16-Apr	3.8	3.3	3.1	3.4	3.3	1.9	1.3	1.1	1.0	0.5	0.2	0.4	0.9	1.4	1.6	0.5	0.7	1.0	0.8	0.8	1.0	0.7	0.8	1.0	1.4	3.8																						
17-Apr	2.0	1.8	1.7	1.3	1.1	1.7	2.2	1.9	1.7	1.3	1.2	1.0	1.0	1.5	1.2	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.1	1.3	2.2																						
18-Apr	1.3	1.2	1.1	1.1	1.2	1.3	1.3	1.2	1.0	1.2	1.6	1.8	C	1.8	1.9	1.6	1.4	1.5	1.6	2.0	2.4	6.9	3.6	3.1	1.9	6.9																						
19-Apr	1.6	20.3	12.6	15.8	12.6	3.3	7.4	2.6	3.3	4.1	1.9	2.5	3.1	3.9	4.9	4.5	4.4	4.1	4.5	4.8	24.3	33.9	14.3	7.7	8.4	33.9																						
20-Apr	6.5	5.0	9.2	13.3	7.2	5.7	4.3	2.8	2.7	2.7	2.7	2.7	2.8	3.1	3.4	3.3	3.5	4.0	5.2	6.1	10.6	51.7	8.5	4.7	7.2	51.7																						
21-Apr	4.5	4.8	3.8	3.2	5.1	4.9	5.7	4.4	3.5	3.3	3.4	3.5	3.5	3.4	3.3	3.1	3.4	3.3	3.7	4.5	11.8	10.8	41.8	6.7	6.2	41.8																						
22-Apr	7.2	8.0	8.5	4.9	7.2	10.7	12.1	6.4	9.6	6.2	3.8	4.5	4.2	3.9	4.9	5.3	4.9	4.7	4.8	6.3	5.9	12.4	10.4	11.3	7.0	12.4																						
23-Apr	7.5	9.0	9.4	11.1	9.5	9.4	12.6	9.9	5.3	4.3	3.9	4.0	4.2	4.5	5.3	5.4	4.6	4.8	4.9	10.6	37.0	24.6	27.4	16.3	10.2	37.0																						
24-Apr	19.2	22.6	32.8	15.2	8.1	5.4	6.0	4.8	5.6	5.1	6.0	5.7	5.9	5.7	6.1	7.0	8.1	8.4	8.3	16.3	7.3	5.9	4.5	4.8	9.4	32.8																						
25-Apr	6.0	3.8	4.0	3.1	3.0	3.1	3.1	3.0	2.5	2.5	2.1	1.6	2.1	2.2	M	1.9	2.3	1.8	1.4	1.7	1.8	2.3	2.1	1.6	2.6	6.0																						
26-Apr	1.9	3.3	3.5	2.8	1.5	2.1	3.1	1.5	1.6	2.5	1.8	1.7	1.6	1.7	1.9	1.7	1.7	1.4	1.5	2.7	3.2	9.1	11.0	12.2	3.2	12.2																						
27-Apr	8.0	8.1	8.3	15.2	17.6	14.4	10.5	5.0	3.8	3.8	3.9	4.2	4.7	4.5	6.7	5.0	5.0	7.0	5.5	4.2	7.8	5.2	6.7	4.3	7.1	17.6																						
28-Apr	4.4	3.3	4.0	3.8	7.3	9.0	7.1	4.2	3.3	3.3	3.8	3.8	4.0	4.1	3.9	3.8	3.8	3.7	3.3	3.3	3.2	3.2	3.2	2.9	4.1	9.0																						
29-Apr	3.4	2.7	5.3	11.7	5.4	5.3	3.8	3.5	3.9	4.1	3.9	4.0	4.4	4.6	4.4	4.7	4.4	3.5	3.1	2.9	2.6	2.2	2.2	2.9	4.1	11.7																						
30-Apr	3.2	2.8	2.7	2.7	2.7	2.9	2.8	2.5	2.5	2.6	3.0	2.7	2.7	2.8	2.8	2.8	3.2	4.3	3.9	2.8	2.6	2.8	6.3	3.3	3.1	6.3																						
																								5.0	5.1	5.3	5.4	4.9	4.5	4.5	3.3	3.2	2.9	2.6	2.5	2.6	2.7	3.0	2.8	2.9	3.0	3.2	5.4	8.8	12.0	8.2	4.9	Diurnal Average
																								19.2	22.6	32.8	15.8	17.6	14.4	12.6	9.9	9.6	6.5	6.0	5.7	5.9	5.7	6.7	7.0	8.1	8.4	8.3	38.9	55.7	51.7	41.8	16.7	Diurnal Maximum
C - Calibration      M - Maintenance      PF - Power Failure																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Conklin - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	575	80.20	80.20
6 - 15	117	16.32	96.51
16 - 25	15	2.09	98.61
26 - 80	10	1.39	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Conklin - April 2024**

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	
0 - 5	90	46	19	7	4	27	35	34	40	22	19	14	41	65	52	58	573
6 - 15	4	2	0	1	0	9	13	21	24	16	3	2	4	4	6	7	116
16 - 25	1	0	0	0	0	0	1	2	4	2	0	1	0	0	2	2	15
26 - 80	0	0	0	0	0	0	0	2	5	0	0	0	0	1	0	2	10
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	95	48	19	8	4	36	49	59	73	40	22	17	45	70	60	69	714

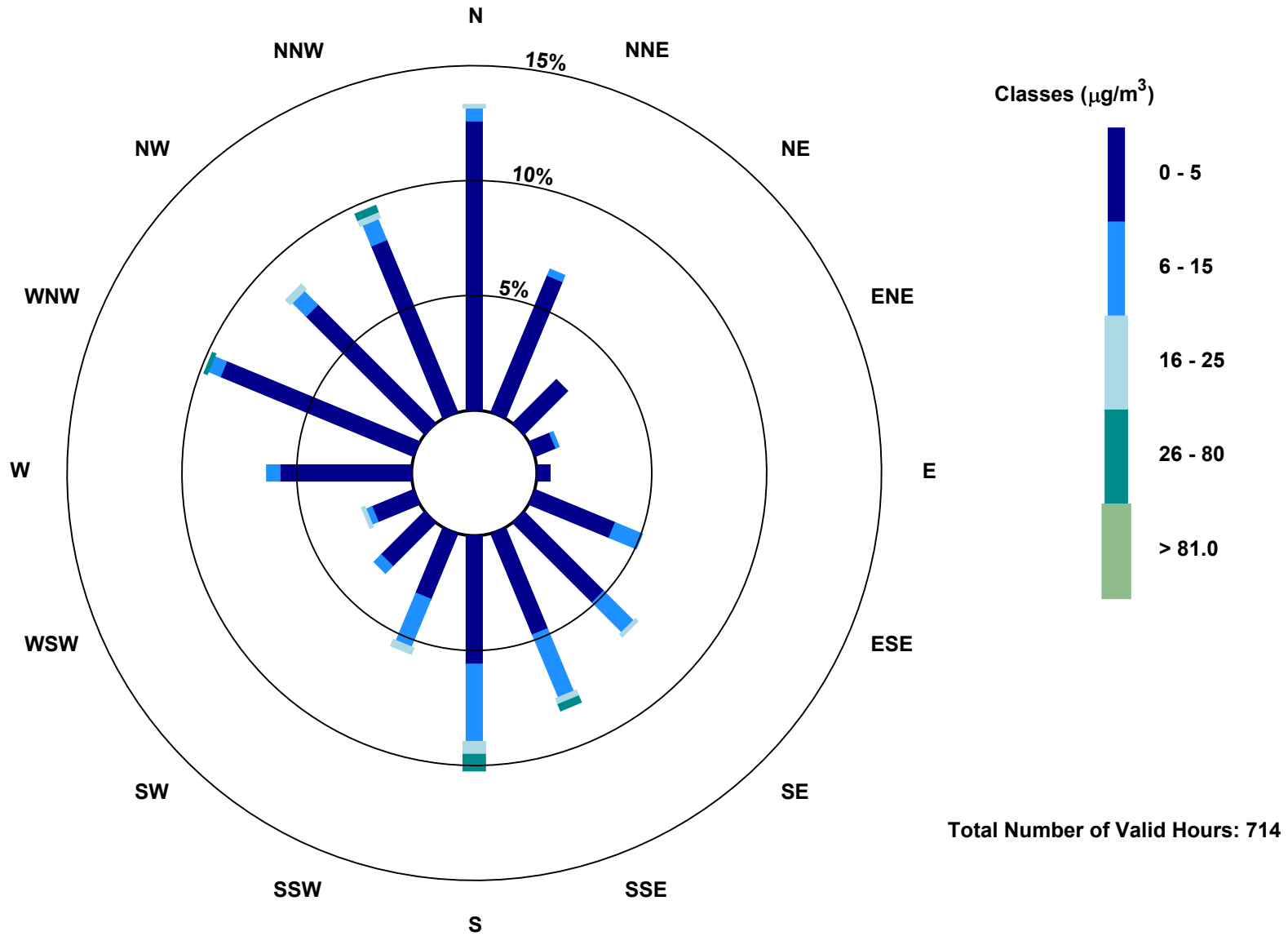
Total Number of Valid Hours: 714

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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





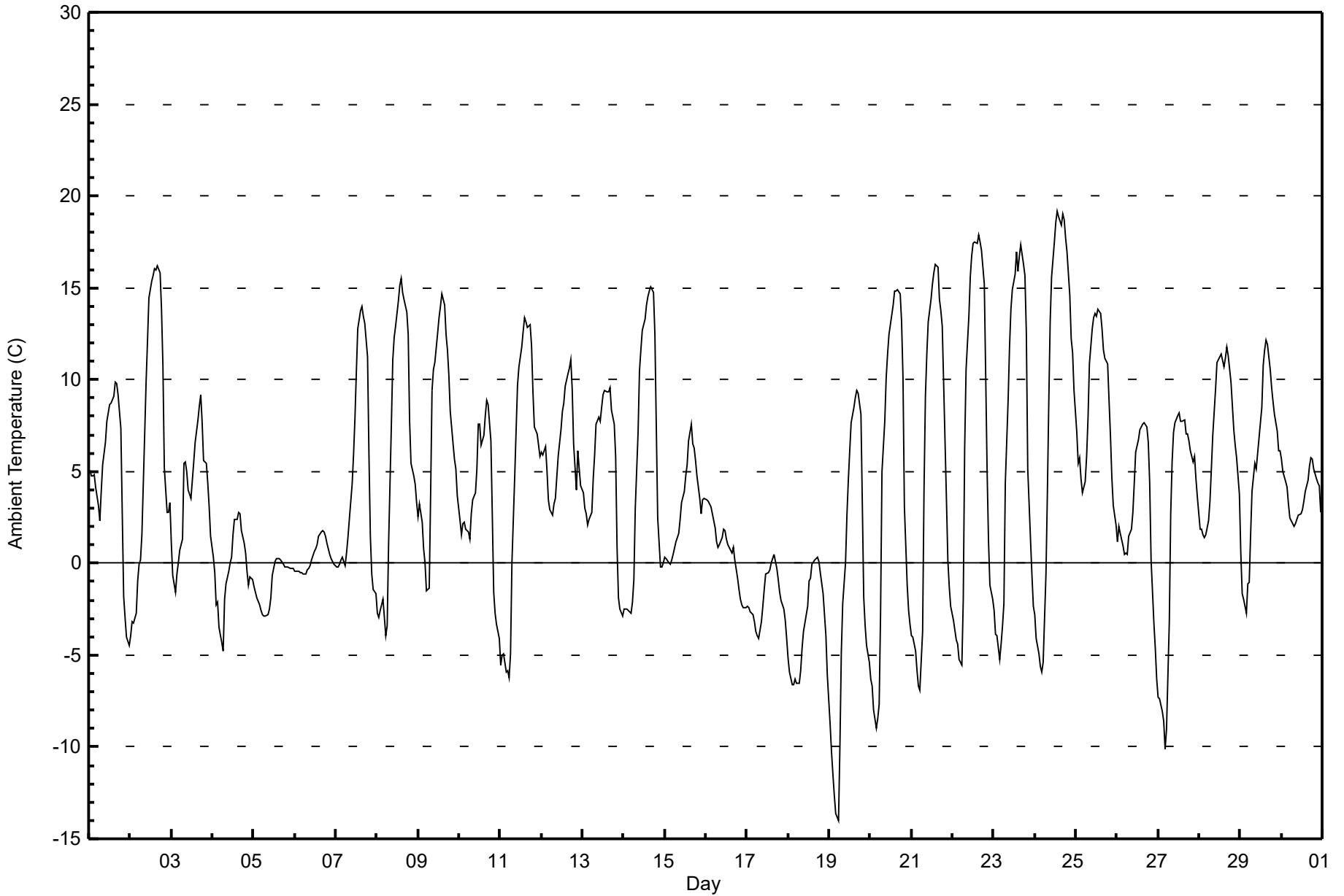


Maximum Value: 19.2 C on Apr 24 14:00      Maximum Daily Average: 9.4 C on Apr 24																				Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -14.0 C on Apr 19 06:00      Minimum Daily Average: -3.3 C on Apr 18 Maximum Diurnal Average: 9.8 C at hour 16      Minimum Diurnal Average: -2.1 C at hour 6 Monthly Average: 3.93 C      Percentiles: P <sub>1</sub> = -9.0 P <sub>10</sub> = -3.7 Q <sub>1</sub> = -0.6 Median = 3.2 Q <sub>3</sub> = 8.3 P <sub>90</sub> = 13.4 P <sub>99</sub> = 17.7																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	5.0	4.8	4.8	4.8	4.1	3.2	2.3	3.9	5.3	6.6	7.7	8.2	8.6	8.7	9.1	9.9	9.8	9.2	7.4	2.7	-1.8	-3.0	-4.0	-4.5	4.7	9.9
2-Apr	-4.0	-3.2	-3.3	-2.7	-1.0	0.0	0.2	1.5	7.0	9.8	12.1	14.5	15.4	15.7	16.0	16.0	16.2	15.8	13.8	10.8	5.2	2.8	2.8	3.3	6.9	16.2
3-Apr	1.1	-0.7	-1.6	-0.6	0.0	0.7	1.4	5.4	5.5	5.0	4.0	3.5	4.5	5.5	6.6	7.8	8.6	9.2	7.6	5.6	5.5	4.4	3.1	1.5	3.9	9.2
4-Apr	0.3	-0.5	-2.2	-2.1	-3.5	-4.3	-4.8	-2.0	-1.1	-0.4	0.0	0.3	1.6	2.4	2.4	2.8	2.7	1.8	1.1	0.5	-0.4	-1.2	-0.7	-0.9	-0.3	2.8
5-Apr	-1.3	-1.6	-1.9	-2.2	-2.6	-2.8	-2.9	-2.9	-2.8	-2.5	-1.8	-0.7	0.1	0.3	0.2	0.2	0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-1.1	0.3
6-Apr	-0.4	-0.4	-0.5	-0.5	-0.5	-0.6	-0.6	-0.4	-0.3	-0.1	0.2	0.7	0.8	1.1	1.5	1.7	1.8	1.7	1.5	1.1	0.5	0.2	0.1	0.0	0.4	1.8
7-Apr	-0.2	-0.2	-0.1	0.2	0.3	-0.1	0.6	1.4	2.4	4.3	5.9	7.9	10.4	12.8	13.8	14.0	13.4	13.0	11.3	5.9	1.5	-0.6	-1.4	-1.7	4.8	14.0
8-Apr	-2.7	-2.9	-2.6	-2.0	-2.9	-4.0	-3.4	1.0	7.6	11.1	12.3	13.0	14.3	15.1	15.5	14.7	14.3	13.7	12.4	7.7	5.4	4.8	4.3	3.3	6.3	15.5
9-Apr	2.5	3.2	2.3	0.8	0.0	-1.5	-1.4	3.7	9.4	10.6	11.0	12.6	13.4	14.0	14.7	14.0	12.5	11.6	10.3	8.2	6.5	5.7	5.1	3.7	7.2	14.7
10-Apr	2.3	1.6	2.1	2.3	1.9	1.7	1.3	2.7	3.5	3.9	5.1	7.6	7.6	6.5	6.9	8.0	8.9	8.7	6.7	2.6	-1.6	-2.7	-3.4	-4.1	3.3	8.9
11-Apr	-5.6	-5.0	-5.0	-5.9	-5.8	-6.2	-4.9	0.0	4.7	7.3	9.7	10.7	11.8	12.6	13.4	13.1	12.9	13.0	11.9	9.4	7.4	7.0	6.4	5.8	4.9	13.4
12-Apr	6.0	5.9	6.3	5.1	3.5	2.9	2.6	3.2	3.5	4.7	5.8	7.3	8.2	8.7	9.7	10.3	10.6	11.1	9.5	6.5	4.0	6.2	5.1	4.2	6.3	11.1
13-Apr	3.8	3.0	2.7	2.1	2.4	2.7	4.6	5.9	7.6	8.0	7.7	8.5	9.2	9.4	9.3	9.4	9.6	8.4	7.6	5.9	0.8	-1.8	-2.5	-2.9	5.1	9.6
14-Apr	-2.5	-2.5	-2.5	-2.6	-2.7	-2.1	-0.9	3.0	7.1	10.5	11.6	12.7	13.3	14.0	14.6	14.8	15.0	14.7	12.5	7.4	2.5	-0.2	-0.2	0.0	5.7	15.0
15-Apr	0.3	0.2	0.1	-0.1	0.2	0.5	1.1	1.4	1.6	2.4	3.3	4.0	4.7	5.4	6.6	7.6	6.5	6.2	5.6	4.8	3.5	2.7	3.4	3.5	3.2	7.6
16-Apr	3.5	3.3	3.2	3.1	2.7	1.9	1.1	0.9	1.0	1.4	1.9	1.8	1.3	1.1	0.7	0.6	0.9	0.1	-0.8	-1.5	-2.0	-2.3	-2.4	-2.4	0.8	3.5
17-Apr	-2.3	-2.5	-2.6	-2.8	-3.2	-3.7	-3.9	-4.1	-3.2	-2.4	-1.4	-0.6	-0.5	-0.4	0.0	0.3	0.5	-0.3	-0.9	-1.6	-2.1	-2.5	-3.1	-4.1	-2.0	0.5
18-Apr	-5.1	-6.0	-6.6	-6.6	-6.3	-6.6	-6.5	-5.8	-4.7	-3.7	-3.2	-2.3	-1.0	-0.8	-0.1	0.2	0.3	0.3	0.1	-0.5	-1.6	-2.8	-3.9	-6.1	-3.3	0.3
19-Apr	-8.7	-10.3	-11.5	-12.6	-13.6	-14.0	-10.0	-4.9	-2.2	0.0	2.6	4.5	6.1	7.6	8.5	9.1	9.4	9.2	8.1	3.2	-1.9	-3.4	-4.5	-5.4	-1.4	9.4
20-Apr	-6.3	-6.7	-8.0	-9.0	-8.4	-7.7	-2.7	5.0	7.8	10.1	11.4	12.5	13.5	14.1	14.8	14.8	14.9	14.7	13.1	10.1	3.1	-1.2	-2.5	-3.4	4.3	14.9
21-Apr	-3.9	-4.0	-4.8	-5.9	-6.7	-6.9	-3.7	4.0	9.1	11.4	13.1	14.4	15.2	15.8	16.3	16.1	14.4	13.7	12.9	9.8	3.5	0.2	-1.3	-2.3	5.4	16.3
22-Apr	-3.1	-3.7	-4.2	-4.4	-5.2	-5.6	-2.0	6.3	10.6	13.4	15.6	16.7	17.4	17.5	17.4	17.8	17.5	17.0	15.2	10.2	5.0	1.2	-1.2	-2.0	7.0	17.8
23-Apr	-2.6	-3.8	-4.0	-5.3	-4.4	-3.4	-2.2	4.4	8.9	11.8	13.8	14.9	15.7	17.0	15.9	16.7	17.3	16.3	15.7	12.5	5.1	1.2	-0.7	-2.3	6.6	17.3
24-Apr	-2.8	-4.1	-5.0	-5.6	-6.0	-5.4	-0.5	3.8	8.7	13.1	15.6	17.5	18.6	19.2	18.9	18.4	19.0	18.7	17.7	17.0	14.6	12.2	11.5	9.4	9.4	19.2
25-Apr	7.1	5.4	5.7	4.6	3.9	4.4	5.9	7.9	10.8	12.7	13.4	13.6	13.5	13.9	13.6	12.8	11.6	11.1	10.9	8.9	6.9	4.7	3.2	2.1	8.7	13.9
26-Apr	1.1	2.0	1.7	0.9	0.5	0.6	0.5	1.5	1.8	2.7	4.4	6.0	6.7	7.3	7.4	7.6	7.6	7.4	6.6	4.3	0.2	-3.3	-4.6	-6.3	2.7	7.6
27-Apr	-7.3	-7.4	-8.1	-8.6	-10.2	-9.0	-3.2	2.7	5.5	7.1	7.6	8.0	8.2	7.8	7.7	7.8	7.0	7.1	6.6	6.1	5.5	5.8	4.6	3.6	2.3	8.2
28-Apr	1.9	1.8	1.5	1.4	1.6	2.3	3.4	5.2	7.0	9.5	10.9	11.1	11.2	11.4	10.7	11.1	11.8	11.3	9.9	8.6	7.3	6.5	5.8	3.7	6.9	11.8
29-Apr	0.6	-1.7	-2.0	-2.7	-1.1	-1.0	1.5	3.9	5.4	5.1	6.0	6.8	8.5	10.8	11.6	12.2	11.9	10.5	9.6	8.8	8.1	7.2	6.2	6.1	5.5	12.2
30-Apr	5.7	5.0	4.4	4.1	3.2	2.5	2.1	2.0	2.2	2.4	2.6	2.7	2.9	3.4	3.9	4.5	5.3	5.8	5.7	5.1	4.6	4.4	4.2	2.8	3.8	5.8
																								Diurnal Average		
																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Conklin - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Conklin - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	218	30.28	30.28
0 - 10	362	50.28	80.56
10 - 20	140	19.44	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



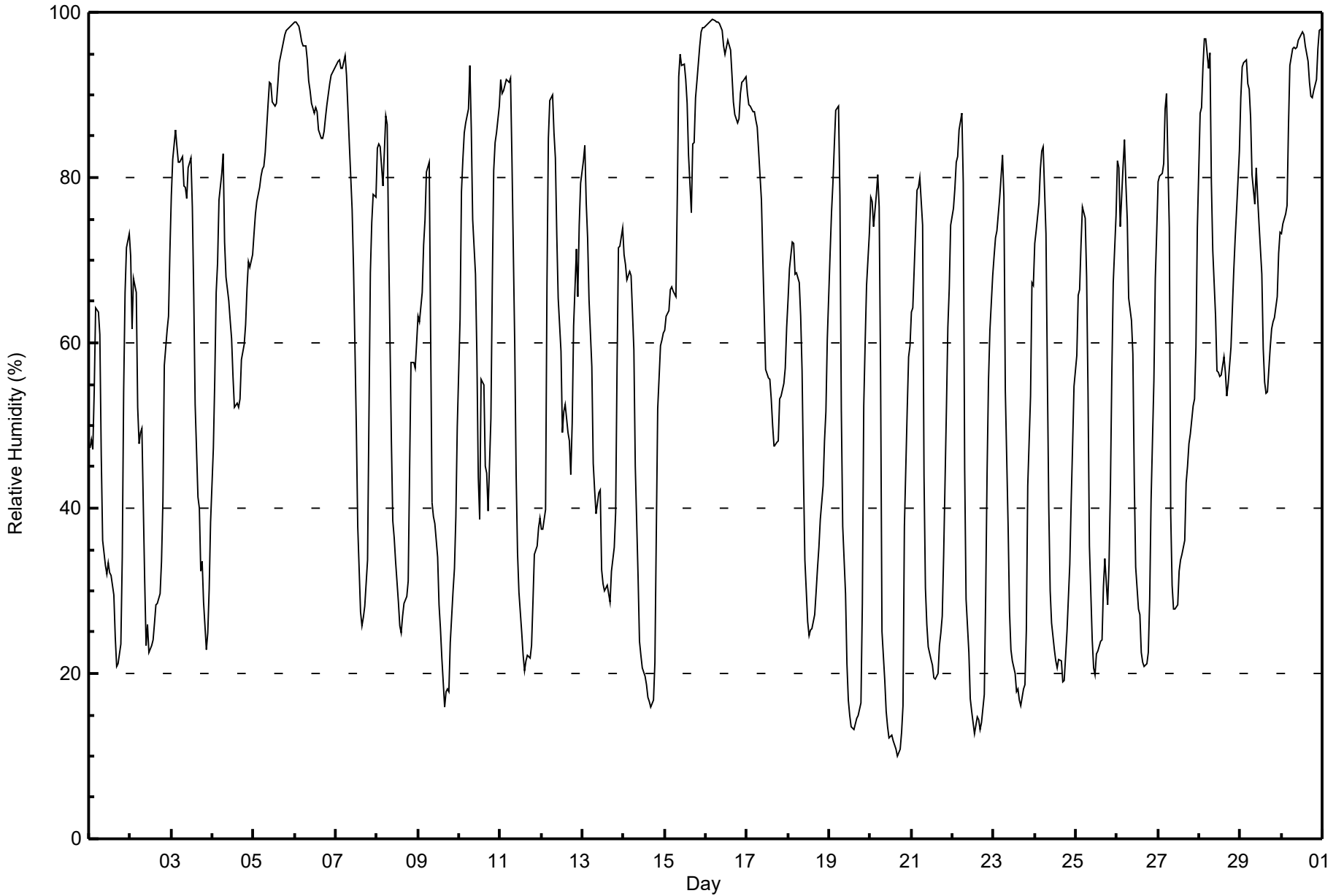
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Conklin - April 2024**

Maximum Value: 99.1 % on Apr 16 05:00		Maximum Daily Average: 94.7 % on Apr 16		Hours in Service: 720																																												
Minimum Value: 10.1 % on Apr 20 17:00		Minimum Daily Average: 37.9 % on Apr 20		Hours of Data: 720																																												
Maximum Diurnal Average: 81.5 % at hour 6		Minimum Diurnal Average: 39.5 % at hour 16		Hours of Missing Data: 0																																												
Monthly Average: 59.22 %		Percentiles: P <sub>1</sub> = 12.7 P <sub>10</sub> = 22.0 Q <sub>1</sub> = 33.9 Median = 62.6 Q <sub>3</sub> = 82.1 P <sub>90</sub> = 92.3 P <sub>99</sub> = 98.7		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	47.3	48.4	47.2	54.2	64.2	63.7	61.0	46.5	36.0	33.1	32.1	33.4	32.2	31.9	29.4	24.4	20.8	21.2	23.5	34.1	54.2	66.1	71.6	73.2	43.7	73.2																						
2-Apr	70.5	61.8	67.8	66.1	52.2	47.9	49.1	49.6	31.1	23.4	25.9	22.5	23.4	24.1	26.1	28.4	28.4	29.6	33.5	40.9	57.3	61.6	63.2	71.2	44.0	71.2																						
3-Apr	77.8	82.2	85.7	83.8	81.8	81.9	82.5	79.1	78.7	77.4	81.1	82.3	76.5	65.8	52.6	41.3	40.0	32.4	33.6	28.6	22.8	24.8	30.2	38.3	60.9	85.7																						
4-Apr	47.4	55.5	66.0	69.6	77.3	80.5	83.0	72.3	67.9	65.1	62.8	60.6	55.9	52.2	52.6	53.1	58.0	59.9	62.3	66.5	69.9	69.2	70.6	63.8	83.0																							
5-Apr	73.3	75.5	77.1	78.8	80.1	80.9	81.4	83.0	88.8	91.5	91.3	89.2	88.7	89.0	91.3	93.9	94.7	96.4	97.3	97.8	98.0	98.2	98.5	98.7	88.9	98.7																						
6-Apr	98.8	98.7	98.3	97.5	96.5	95.9	96.0	94.3	91.8	90.4	89.0	87.8	88.5	87.9	85.8	84.8	84.8	85.5	87.3	88.7	91.3	92.4	92.7	93.0	91.6	98.8																						
7-Apr	93.8	94.1	94.2	93.3	93.2	94.8	92.3	88.3	84.1	76.1	68.9	59.5	49.6	37.7	27.5	25.7	26.8	28.1	33.7	51.3	68.4	74.6	77.9	77.6	67.1	94.8																						
8-Apr	83.5	84.1	83.7	78.9	83.3	87.5	86.5	72.6	48.1	38.5	36.4	33.6	28.7	25.8	25.0	26.9	28.5	29.3	31.2	44.8	57.6	57.7	56.9	60.0	53.7	87.5																						
9-Apr	63.2	62.6	66.0	71.9	74.9	80.6	81.9	61.0	40.6	38.9	38.2	34.0	28.3	25.4	21.9	16.0	17.8	18.1	17.7	23.7	30.1	32.7	38.9	49.9	43.1	81.9																						
10-Apr	62.8	78.3	82.2	85.5	86.7	88.3	93.6	86.0	74.8	68.4	58.5	43.7	38.7	55.5	54.8	45.1	44.2	39.6	50.9	67.1	80.9	84.2	85.5	88.7	68.5	93.6																						
11-Apr	91.9	90.2	90.5	91.9	91.8	91.6	92.1	82.5	59.8	44.1	34.6	29.8	24.9	22.2	20.4	21.6	22.2	21.9	23.5	28.6	34.3	35.5	37.7	38.8	50.9	92.1																						
12-Apr	37.4	37.4	39.8	67.2	84.8	89.4	89.9	85.4	82.4	73.1	65.5	59.0	49.2	51.7	52.6	49.1	48.1	44.0	50.4	62.1	71.3	65.5	74.3	79.4	62.9	89.9																						
13-Apr	82.0	83.9	76.9	72.7	65.2	57.1	45.4	42.2	39.4	41.8	42.2	32.6	30.8	29.9	30.7	29.6	28.6	32.3	35.2	39.5	57.2	71.5	71.6	74.0	50.5	83.9																						
14-Apr	70.7	69.5	67.6	68.6	68.2	63.8	59.2	45.1	31.7	23.9	22.2	20.6	19.6	18.7	17.1	16.6	16.0	16.8	21.3	37.0	52.1	59.7	60.3	61.1	42.0	70.7																						
15-Apr	61.5	63.1	63.9	66.4	66.8	66.3	65.6	77.9	92.2	94.9	93.6	93.8	91.9	89.1	82.7	75.8	84.1	84.3	89.6	91.7	95.9	97.7	98.2	98.2	82.7	98.2																						
16-Apr	98.4	98.6	98.8	99.0	99.1	99.1	98.9	98.8	98.6	97.8	96.0	94.9	95.8	96.6	95.5	92.3	89.2	87.6	86.6	87.1	90.1	91.5	91.7	92.1	94.7	99.1																						
17-Apr	90.1	88.8	88.7	88.0	87.0	86.0	83.2	77.2	70.1	63.6	56.8	55.8	55.6	53.1	50.0	47.5	47.9	48.1	53.3	53.6	55.1	56.9	61.8	66.9	66.9	90.1																						
18-Apr	65.2	68.9	72.2	72.1	68.4	68.5	67.2	63.3	56.6	44.0	33.8	26.2	24.5	25.3	25.4	27.0	29.9	32.8	35.3	38.6	42.7	48.2	51.8	60.4	47.8	72.2																						
19-Apr	70.8	75.8	79.3	83.9	88.1	88.7	77.8	51.9	37.9	29.7	21.1	16.8	14.9	13.6	13.1	14.0	14.6	14.9	16.4	28.5	52.4	60.0	66.9	73.2	46.0	88.7																						
20-Apr	77.7	77.2	74.1	78.0	80.3	76.4	56.6	25.1	19.2	15.4	13.5	12.1	12.5	11.9	11.3	10.8	10.1	10.8	12.8	16.0	37.7	51.8	58.3	59.7	37.9	80.3																						
21-Apr	63.7	64.3	73.8	78.4	78.8	80.0	74.3	43.9	30.3	25.9	23.3	21.7	21.0	19.4	19.3	20.0	23.4	25.0	26.9	34.3	52.2	61.9	66.6	74.3	45.9	80.0																						
22-Apr	76.2	78.7	81.9	82.6	85.7	87.9	79.4	44.8	29.0	22.6	17.0	15.5	14.1	12.7	14.7	14.4	13.2	14.2	17.4	29.5	44.5	55.5	61.6	68.2	44.2	87.9																						
23-Apr	70.5	72.7	73.6	77.5	80.1	82.7	77.6	54.2	37.8	27.4	22.8	21.6	20.0	17.9	18.2	16.8	16.1	18.1	18.7	25.2	42.7	53.6	67.2	67.0	45.0	82.7																						
24-Apr	72.0	73.6	76.9	80.9	83.3	83.7	73.3	56.1	40.2	30.1	26.1	22.9	21.5	20.7	21.7	21.6	19.0	19.2	22.0	25.1	33.3	40.8	47.6	54.8	44.4	83.7																						
25-Apr	58.5	65.8	66.4	71.9	76.4	75.1	68.0	54.1	35.5	24.1	20.6	19.8	22.3	22.8	23.8	24.1	30.6	34.0	28.3	33.2	42.7	56.5	67.2	75.4	45.7	76.4																						
26-Apr	82.1	81.2	74.1	81.3	84.6	79.4	74.9	65.5	62.6	58.6	43.3	32.8	27.9	27.2	22.6	21.4	20.9	21.2	22.6	29.0	41.1	55.5	67.9	73.4	52.1	84.6																						
27-Apr	79.5	80.2	80.5	81.7	88.3	90.1	73.9	39.3	30.7	27.8	27.8	28.3	32.3	33.7	34.4	36.1	43.1	45.0	47.7	49.0	52.3	53.2	59.5	73.9	53.7	90.1																						
28-Apr	87.8	88.4	93.4	96.8	96.8	93.2	95.1	79.4	71.3	63.1	56.6	56.5	56.0	56.1	58.3	56.4	53.6	55.1	59.6	64.2	68.9	72.6	76.2	83.2	72.4	96.8																						
29-Apr	89.7	93.4	94.0	94.3	91.4	90.8	87.4	80.3	76.8	81.2	77.7	74.5	68.4	59.4	55.3	53.8	54.0	59.6	61.8	62.6	63.1	65.6	70.8	73.4	74.1	94.3																						
30-Apr	73.1	74.3	75.6	76.6	86.2	93.6	95.7	95.8	95.7	95.7	96.7	97.4	97.6	97.2	95.9	94.1	91.6	89.8	89.7	90.5	91.9	95.7	97.8	98.0	91.1	98.0																						
																								73.9	75.6	77.0	79.6	81.4	81.5	78.2	66.7	58.2	53.1	49.4	46.0	43.7	42.6	41.1	39.5	39.8	40.4	42.8	48.8	58.2	63.6	67.8	72.0	Diurnal Average
																								98.8	98.7	98.8	99.0	99.1	99.1	98.9	98.8	98.6	97.8	96.7	97.4	97.6	97.2	95.9	94.1	94.7	96.4	97.3	97.8	98.0	98.2	98.5	98.7	Diurnal Maximum





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

**Wind Speed (WS) - km/h**  
**Conklin - April 2024**

Maximum Speed: 23 km/h on Apr 10 14:00	Maximum Daily Speed Average: 17.0 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 7 00:00	Minimum Daily Speed Average: 2.8 km/h on Apr 15	Hours of Data: 717
Maximum Diurnal Speed Average: 3.7 km/h at hour 9	Minimum Diurnal Speed Average: 0.4 km/h at hour 23	Hours of Missing Data: 3
Monthly Average Velocity: 1.9 km/h 321.9 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 12 P <sub>90</sub> = 15 P <sub>99</sub> = 20	Percent Operational Time: 99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SSW18	SW16	SW15	WNW10	WNW7	WNW8	W7	WNW13	WNW13	WNW14	NW16	NW18	NW20	NW15	NW11	WNW11	WNW12	NW11	WNW6	W2	SSE2	SE2	S2	S3	WNW8.1	NW20
2-Apr	S5	SSE4	SE5	SSE5	S6	S6	S6	SSE3	SE4	S14	S14	S17	SSW16	SSW15	SSW14	S14	S14	S12	SSE8	SE5	S2	SSE4	SSE2	N0	S7.8	S17
3-Apr	SSE3	SSE2	W0	SSE2	WNW0	NW4	NW2	NNW13	NNW15	NW14	NW13	NW12	NW12	WNW10	WNW10	WNW9	WNW8	WNW7	WNW5	W6	WNW8	W7	W7	WNW5	WNW6.3	NNW15
4-Apr	WNW5	W4	WSW4	W4	WNW4	WNW3	NNW4	NNW6	NNW13	N10	N9	N9	NE8	ENE9	ENE9	NE8	NNE7	NNE8	NNE7	NNE5	NE3	NNE4	NE7	ENE7	N4.7	NNW13
5-Apr	ENE6	NE6	NE6	N6	NNE7	NE6	NNE7	NNE7	NNE7	N7	NNE7	NNE8	NNE7	NNE8	NNE7	N7	N8	N7	N7	N5	N5	NNW5	N4	NNW4	NNE6.1	NNE8
6-Apr	N5	N5	N5	NNE6	NNE6	NNE6	N7	N6	N8	NNE7	NNE6	NNE7	NNE6	N7	NNE5	NNE5	NNE5	NE4	NE3	NNE2	UO	WNW1	E0	NW0	NNE4.8	N8
7-Apr	UO	ESE1	WSW1	SE3	S3	SSE3	SSW6	SSW7	SW5	WSW7	SW7	SW6	SSW7	SW6	W9	W9	W8	W8	WNW4	WNW1	S2	S4	S5	S3	SW3.8	W9
8-Apr	S2	SSE4	SSE4	SSE5	SE5	SE3	SE5	SE4	ESE4	NW6	SW7	WSW11	SSW12	SSW15	SSW15	SSW14	SSW11	SSE8	S4	SSE1	SSW2	SSW5	SSW5	SSE4	SSW5.2	SSW15
9-Apr	S1	SE1	SSE3	SSW1	S3	SSW2	S4	S5	WNW6	NW10	WNW8	WNW10	W10	WNW11	W10	W13	W14	W12	W10	W8	W7	W7	W9	W9	W6.1	W14
10-Apr	WNW7	WNW7	W8	WNW8	WNW8	NW9	NW9	NW12	NW16	NW16	NW16	NW15	NW17	NNW23	NNW20	NNW15	NNE11	NNE9	ENE8	ESE1	UO	S3	SSE4	SE3	NW8.4	NNW23
11-Apr	SE1	SE3	SE3	SE3	SE4	SSE3	SE4	ESE4	S7	S11	SSE11	S10	S10	S13	S13	S15	SSE16	SSE16	SSE14	SSE10	SSE11	SSE15	SSE15	SSE11	SSE9.2	SSE16
12-Apr	SE12	SE10	S13	S17	SE15	SE15	SE14	SE15	SE14	SE15	SE14	ESE9	S5	WNW3	WNW8	WNW8	W8	W5	ESE2	S3	SSW4	SSW11	SSW11	SW11	SSE7.1	S17
13-Apr	SW13	SW9	SW9	SSW8	SW9	WSW10	WSW12	WSW13	WNW13	WNW14	NW15	NW13	WNW13	WNW13	WNW13	WNW12	WNW12	NW11	NW7	W3	SSW2	S3	SSE4	S4	W7.8	WNW15
14-Apr	S4	SSE4	S5	S5	S6	SSW7	S7	SSW7	WSW8	WSW13	SW16	WSW13	W13	W14	W15	W12	W9	SW7	W2	SSE2	SSE2	S2	SSE3	WSW1	SW6.1	SW16
15-Apr	WNW1	S1	SE1	SE1	SSE1	NW0	NNW3	NNW1	NNW5	N6	NNE5	N8	NE6	NE5	NE7	N6	NE5	NNE5	N4	NNW5	N4	NNW5	NW3	NW3	N2.8	N8
16-Apr	NW3	NNW4	NNW5	NNW6	NW6	NW7	NW7	NW5	NW6	NNW9	NNW10	N12	NNW10	NNW9	NNW11	NNW12	N15	N18	N18	N15	N16	N17	N16	N15	NNW10.4	N18
17-Apr	N14	N16	N14	NNW15	NNW14	NNW15	NNW15	NNW19	NNW18	N20	N20	N21	N22	N21	N21	N19	N20	N17	N18	N14	NNE14	N14	N15	N15	N17.0	N22
18-Apr	N11	NNW9	NNW7	NNW8	N11	N11	N12	N13	N14	N15	N16	N15	N17	N17	N16	N15	N14	NNE13	N12	N9	N8	NNW6	N7	NNW5	N11.6	N17
19-Apr	N4	N3	N3	NNW1	SSW1	SSW2	S1	NNW5	NW5	WNW6	NW5	NW5	NNW5	WNW7	WNW7	WNW7	WNW7	NW7	NW5	W2	S3	S3	S3	S4	WNW3.0	WNW7
20-Apr	S3	S3	SE2	E1	SSE3	SE2	SE4	WNW7	WNW8	NW9	W10	W9	WSW10	SW13	SW9	SW12	SW11	SW9	SSW10	SSW5	SSW4	S4	SSW5	SSW5	SW4.9	SW13
21-Apr	S3	S3	SSE3	SSE3	SSE3	SSE3	SSE2	ESE7	ESE10	SE13	SE14	SE12	ESE13	ESE10	ESE10	ESE11	SSW6	WSW8	WSW5	W4	SW0	NW0	WNW1	SSW1	SE4.5	SE14
22-Apr	S2	SSW1	S2	S2	SSW2	S2	SSE3	WNW4	NNW5	N6	N8	N11	N15	NNW16	N16	NNW17	N15	N9	N4	W1	NW1	SSW0	W1	S2	N4.5	NNW17
23-Apr	S1	SW1	NW1	SW1	S1	S0	S1	SE2	ESE5	ESE10	SE11	SE12	SE10	E7	SE6	NNE2	NE3	ENE7	ESE7	ESE4	NNW2	SSW0	S2	NNW0	ESE3.2	SE12
24-Apr	S2	NW1	NNW2	WNW0	NNW1	NW1	NNW2	NW0	ENE5	ESE11	ESE13	ESE15	ESE17	ESE18	ESE16	ESE11	SSE15	S13	SSE11	SSW12	WSW6	W2	NE4	NW5	SE4.9	ESE18
25-Apr	NW5	NW4	WNW6	WNW6	WNW5	W7	WNW7	WNW8	WNW9	NW11	WNW12	W12	WNW11	W11	W12	W13	W13	SW12	WNW10	WNW9	NW8	WNW5	WNW5	WNW4	WNW8.1	W13
26-Apr	NW4	NNW9	NNW12	NNW9	NNW8	NW9	NNW12	NNW10	NNW11	NW12	NW13	NW10	NNW13	NNW13	NNW12	NNW11	NNW9	N7	NE7	ENE5	NE2	SE0	SE1	SE1	NNW7.7	NNW13
27-Apr	SSE2	SSE2	SSE2	SSE2	NW0	SSE2	SE4	SSE10	S14	S17	S17	SSE17	SSE19	SSE17	SSE15	S15	SSE13	SSE11	SE9	ESE6	SE4	SE5	N2	NNE4	SSE8.0	SSE19
28-Apr	NNW4	NNW3	NW1	NNE1	SSE2	SSE2	NW1	ESE3	ESE6	SE8	SSE9	E10	ESE11	ESE14	ESE14	ESE10	ESE11	ESE10	ESE10	ESE8	SE5	SE3	E3	ESE3	ESE5.4	ESE14
29-Apr	WSW1	N0	S1	WSW1	S2	NNW2	N3	W3	NNE7	N7	NNE8	NNE7	NNE8	N10	NNE9	NE8	NE11	NNE12	NNE11	N9	NNW10	N11	N7	NNE9	NNE5.8	NNE12
30-Apr	NNE10	N9	N9	N10	N10	N10	N12	N12	N13	NNE12	NNE13	NNE13	N12	N11	N11	N13	N10	NNW10	NNW9	NNW7	NW4	NW4	SSW2	NNW3	N9.0	N13

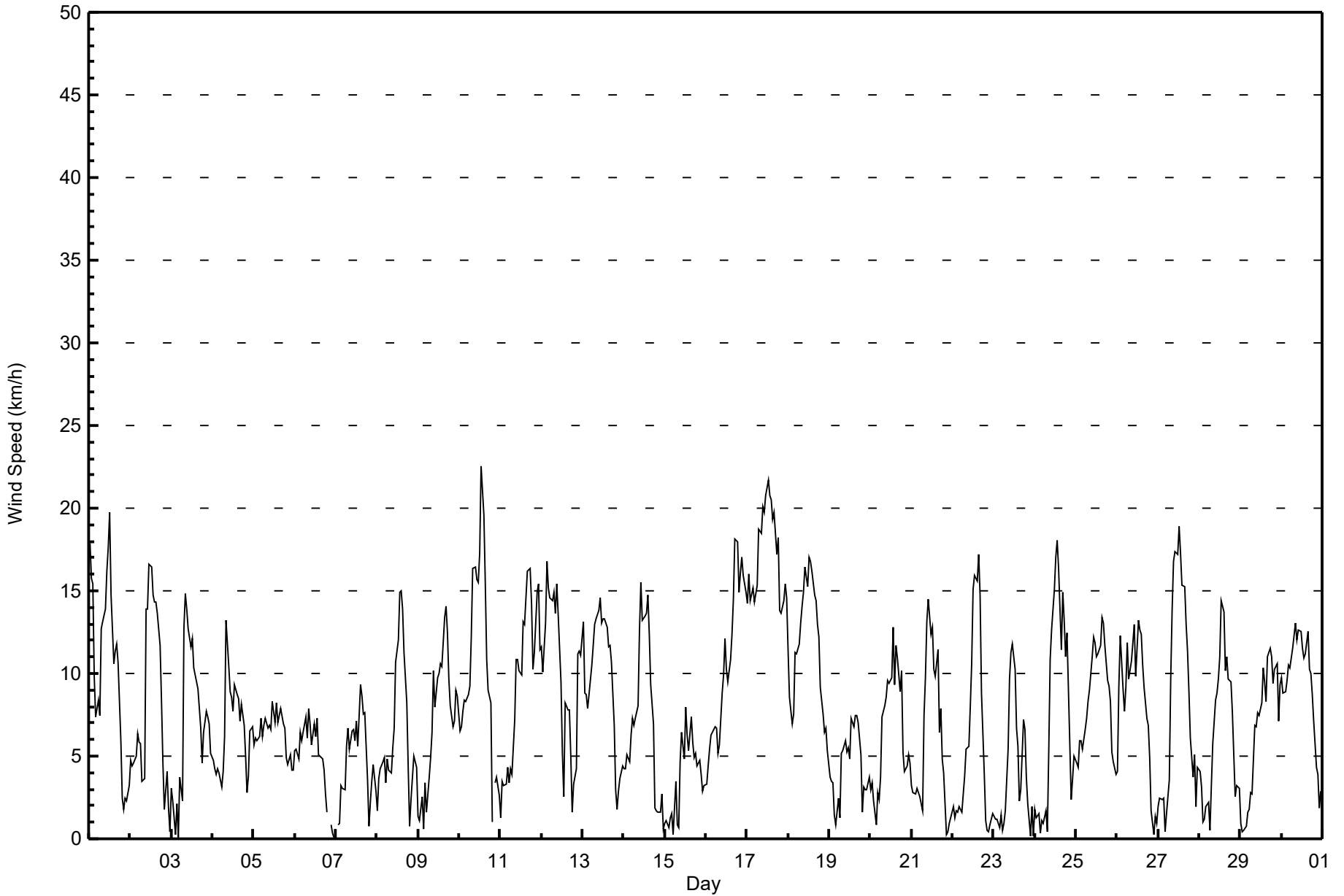
W0.9	WNW1.0	WNW1.1	NW1.0	WNW0.8	NW1.3	NW1.6	NW2.6	NNW3.7	NNW3.3	NW2.6	NNW3.0	NNW2.9	NNW3.1	NW3.0	NW3.3	NW2.9	NW2.2	N2.0	NNW1.2	NW1.4	WNW0.8	NW0.4	NNW0.9	Diurnal Average	
SSW18	NNW16	SW15	S17	SE15	NNW15	NNW15	NNW19	NNW18	NNW20	N20	N21	N22	NNW23	N21	N19	N20	N18	N18	N15	N16	N17	N16	N15	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Conklin - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Conklin - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	277	38.63	38.63
6 - 11	260	36.26	74.90
12 - 19	170	23.71	98.61
20 - 28	10	1.39	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Conklin - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	14	13	8	2	2	10	31	38	48	19	4	6	13	18	28	23	277
6 - 11	38	30	11	6	2	18	6	10	9	12	11	7	22	38	16	24	260
12 - 19	38	6	0	0	0	8	12	11	16	9	7	4	11	14	15	19	170
20 - 28	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	10
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>	96	49	19	8	4	36	49	59	73	40	22	17	46	70	60	69	717

Total Number of Valid Hours: 717

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Conklin - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 8 km/h on Apr 1 12:00	Hours of Data: 717
Minimum Value: 0 km/h on Apr 19 03:00	Hours of Missing Data: 3
Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 99.6

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-Apr	6	4	4	4	3	4	3	6	6	6	7	8	7	6	4	5	5	4	3	1	1	1	1	1	8
2-Apr	1	1	1	1	1	1	1	1	3	4	4	5	5	4	4	5	4	3	3	2	1	1	1	2	5
3-Apr	1	1	1	1	1	3	1	5	5	5	5	5	4	4	4	3	3	2	2	3	3	3	2	5	
4-Apr	2	2	2	1	1	1	1	3	4	3	3	4	3	4	3	3	4	2	2	1	1	2	2	4	
5-Apr	2	2	2	2	3	2	2	2	2	2	2	3	2	3	3	2	2	2	2	1	1	1	1	3	
6-Apr	1	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	1	1	1	UO	1	1	3	
7-Apr	UO	1	1	2	1	1	1	2	2	2	2	2	3	3	4	4	3	3	2	1	1	1	1	4	
8-Apr	1	1	1	1	1	1	1	1	1	4	4	3	5	5	5	5	4	3	2	1	1	1	1	5	
9-Apr	1	1	2	1	2	1	1	1	3	5	3	3	4	4	5	6	6	5	4	3	2	2	4	6	
10-Apr	3	3	3	4	3	3	4	4	6	6	6	7	7	7	6	5	4	3	4	1	UO	1	1	7	
11-Apr	1	1	1	1	0	0	1	1	5	3	3	3	4	5	5	5	5	5	4	2	3	3	4	5	
12-Apr	3	2	6	6	4	4	3	3	3	5	4	3	3	3	3	3	3	3	1	0	2	3	3	6	
13-Apr	4	2	2	2	2	3	4	5	6	6	6	5	6	6	6	5	5	4	3	1	2	1	1	6	
14-Apr	1	1	1	1	2	1	1	3	3	4	5	6	6	6	6	5	4	3	2	1	2	1	1	6	
15-Apr	2	1	1	1	1	1	2	2	1	2	2	2	2	2	2	3	2	2	2	1	1	1	2	3	
16-Apr	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	6	5	5	4	5	4	6	
17-Apr	4	5	4	4	4	4	4	5	5	6	6	6	7	6	6	6	6	6	5	5	4	4	5	7	
18-Apr	3	2	2	3	4	4	3	4	5	5	5	5	6	6	5	5	5	4	4	3	2	1	1	6	
19-Apr	1	0	0	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	2	1	1	1	2	3	
20-Apr	1	1	1	1	1	1	1	3	3	3	3	4	4	4	4	5	3	3	3	1	1	1	1	5	
21-Apr	1	1	0	1	0	1	1	3	3	4	4	4	4	4	3	4	3	3	2	2	1	1	1	4	
22-Apr	1	1	1	1	1	1	1	2	2	2	3	5	6	6	6	6	5	4	3	1	1	1	2	6	
23-Apr	2	2	2	1	1	1	1	1	2	3	3	3	3	3	2	3	3	2	2	2	1	1	1	3	
24-Apr	1	1	1	1	1	1	1	1	3	4	4	5	5	5	4	3	4	5	6	5	4	3	4	6	
25-Apr	1	1	3	2	2	3	3	3	4	4	5	5	4	5	6	6	6	4	4	4	4	2	2	6	
26-Apr	1	3	4	3	3	3	4	4	3	4	5	4	5	5	5	5	4	3	2	2	1	1	1	5	
27-Apr	1	0	1	1	1	1	2	3	4	5	5	5	5	5	5	7	4	4	2	2	1	2	1	7	
28-Apr	2	2	1	1	2	1	1	1	2	2	3	3	3	4	4	3	3	3	3	2	2	1	1	4	
29-Apr	1	1	1	1	1	1	1	1	3	3	2	2	3	3	4	4	4	4	4	3	3	3	2	4	
30-Apr	3	3	3	3	3	4	4	4	4	4	4	4	4	3	3	3	3	3	2	2	2	2	1	4	

Diurnal Maximum

UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Conklin - April 2024**

Direction of Maximum Speed: 336 deg on Apr 10 14:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 353.5 deg on Apr 17	Hours of Data: 717
Direction of Minimum Speed: 316 deg on Apr 7 00:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 2.8 deg on Apr 15	Percent Operational Time: 99.6
Monthly Average Direction: 321.9 deg	

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-Apr	211	223	223	302	303	283	279	284	298	301	305	311	323	321	307	296	302	308	296	270	164	143	172	169	286.9
2-Apr	177	165	145	158	191	187	187	149	144	190	190	190	196	202	194	189	180	177	159	141	180	164	158	7	182.4
3-Apr	152	164	274	152	301	321	314	329	334	321	314	312	310	298	287	296	294	284	282	265	283	280	281	299	302.4
4-Apr	300	265	250	270	285	298	327	347	348	354	357	350	41	71	66	40	30	14	20	20	47	14	43	59	9.1
5-Apr	69	48	34	11	17	36	16	27	15	10	21	21	22	29	33	10	10	11	4	11	356	343	353	344	18.2
6-Apr	354	354	1	15	15	19	353	3	8	23	25	12	27	11	25	26	13	41	35	13	UO	302	101	316	13.2
7-Apr	UO	115	257	133	171	164	213	210	233	240	221	216	195	226	275	271	271	260	286	287	180	176	190	184	228.0
8-Apr	175	161	151	159	137	130	143	131	123	307	226	237	210	206	208	202	202	163	179	160	205	207	193	151	192.0
9-Apr	170	140	154	194	176	203	169	185	300	314	296	301	274	286	280	273	271	281	278	267	267	261	279	279	274.4
10-Apr	283	285	276	287	299	305	309	319	322	323	325	316	325	336	340	348	23	23	62	122	UO	175	165	144	326.1
11-Apr	124	142	134	143	139	154	131	122	174	174	168	175	188	172	171	170	160	158	163	152	153	148	147	147	159.7
12-Apr	144	146	170	170	143	138	131	140	139	138	137	123	177	289	301	290	261	271	123	175	203	209	205	214	163.7
13-Apr	230	222	223	211	221	240	244	258	283	293	304	304	288	293	294	300	293	308	309	275	198	180	161	181	269.8
14-Apr	174	167	190	177	187	194	191	213	257	247	233	249	260	261	264	263	265	234	276	168	149	180	152	246	234.8
15-Apr	291	184	137	142	156	305	335	348	31	342	1	20	349	39	42	51	350	44	22	6	329	315	324	325	6.3
16-Apr	325	340	336	337	322	320	321	315	322	333	338	352	347	335	338	343	351	355	350	350	350	350	349	351	343.3
17-Apr	352	349	350	347	340	344	347	346	343	349	355	357	353	349	349	356	357	356	356	10	12	5	11	1	353.5
18-Apr	354	341	336	346	1	2	0	356	7	7	1	5	0	5	5	9	6	15	7	11	353	348	349	337	0.8
19-Apr	349	353	359	334	207	205	177	329	322	295	314	323	348	283	300	284	298	308	310	264	189	173	177	185	301.1
20-Apr	175	175	135	101	148	124	141	292	292	304	268	268	252	233	233	221	220	226	201	201	195	183	197	199	229.4
21-Apr	182	178	150	151	162	164	166	115	116	127	134	134	122	120	110	102	192	255	243	272	226	306	282	208	138.7
22-Apr	183	207	188	180	192	172	152	295	343	349	0	358	1	345	1	348	352	360	11	275	315	213	279	190	350.8
23-Apr	180	218	307	214	178	185	169	133	118	113	125	126	130	89	128	29	36	70	104	106	334	204	175	336	114.4
24-Apr	171	317	333	282	330	326	328	304	69	106	112	111	116	112	116	112	152	181	154	210	248	275	45	312	129.6
25-Apr	316	308	289	298	295	277	293	297	304	286	278	293	271	266	271	272	233	297	302	310	303	300	298		286.2
26-Apr	310	334	341	331	329	326	338	330	332	324	323	325	344	347	339	337	334	357	36	57	43	134	145	140	338.4
27-Apr	166	164	164	164	323	165	144	162	173	171	172	165	164	152	167	171	152	156	129	121	126	131	353	12	159.1
28-Apr	331	331	308	19	148	148	317	104	112	132	149	92	108	111	111	105	113	111	111	112	126	126	95	107	111.5
29-Apr	256	350	173	258	182	332	2	278	24	8	17	24	33	2	31	46	37	27	15	354	348	350	352	21	13.0
30-Apr	15	7	359	6	358	359	2	5	4	20	24	17	9	5	353	349	350	340	333	328	320	326	196	342	359.7

271.1 290.0 281.7 306.6 303.5 308.7 321.6 319.6 334.7 326.9 319.0 329.8 330.0 328.1 322.3 319.6 313.9 324.9 359.5 338.3 322.4 291.9 303.9 327.7

Diurnal Average

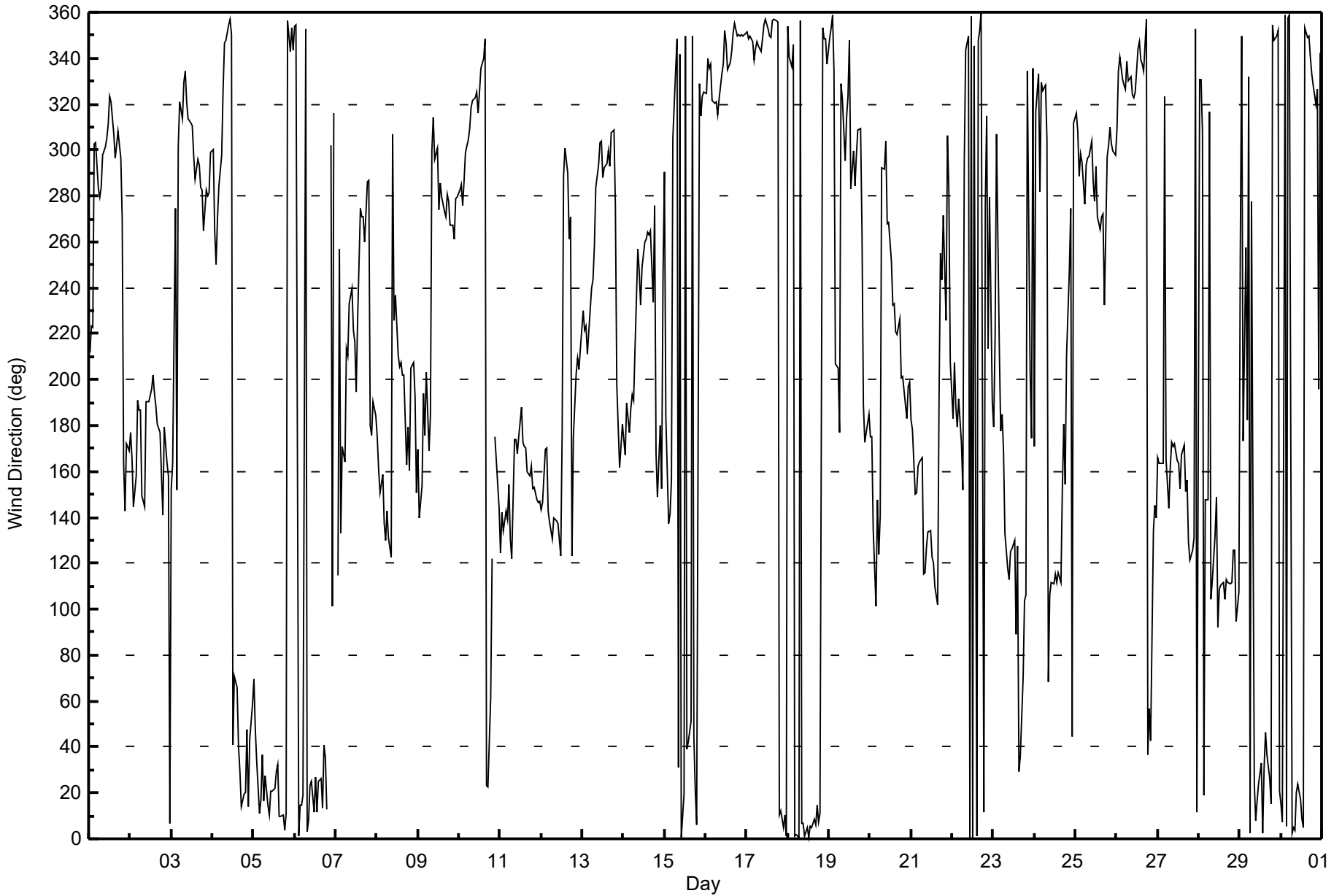
UO - Unstable Operation

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Conklin - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Conklin - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 107 deg on Apr 15 01:00	Hours of Data: 717
Minimum Value: 6 deg on Apr 21 00:00	Hours of Missing Data: 3
Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 17 Q <sub>1</sub> = 21 Median = 27 Q <sub>3</sub> = 37 P <sub>90</sub> = 67 P <sub>99</sub> = 94	Hours of Calibration: 0
	Percent Operational Time: 99.6

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-Apr	20	21	20	34	30	31	27	31	33	33	32	28	25	27	32	33	33	29	26	34	62	30	45	21	62
2-Apr	15	22	12	20	14	15	19	29	52	20	22	23	21	22	22	21	20	19	16	25	72	19	74	98	98
3-Apr	50	50	90	53	92	54	66	22	22	21	26	26	28	34	32	35	34	34	26	20	27	30	29	25	92
4-Apr	23	33	37	22	23	26	18	27	23	29	36	44	44	43	45	39	44	25	22	30	29	20	28	29	45
5-Apr	30	26	30	22	23	25	25	26	24	25	29	26	30	27	31	21	22	23	21	25	25	21	24	20	31
6-Apr	19	17	21	23	25	25	21	20	22	29	30	29	38	26	54	48	39	40	28	42	UO	39	79	91	91
7-Apr	UO	85	78	56	34	23	22	23	24	23	25	44	44	62	38	41	34	29	28	55	18	14	13	18	85
8-Apr	55	26	13	15	10	8	10	14	20	75	62	29	36	30	28	26	25	20	20	93	24	16	16	12	93
9-Apr	82	92	70	99	45	65	20	32	34	27	36	35	37	39	39	35	30	34	29	23	20	21	29	30	99
10-Apr	33	31	29	34	32	28	26	22	21	21	23	29	26	22	22	26	32	29	43	94	UO	20	19	22	94
11-Apr	47	15	11	9	8	11	10	15	33	24	29	32	31	30	42	25	21	21	18	13	13	13	14	14	47
12-Apr	14	14	19	19	15	16	16	17	18	19	19	28	51	86	37	39	37	40	85	20	18	17	15	18	86
13-Apr	20	18	19	20	19	19	21	25	34	33	32	35	36	34	34	34	35	30	26	27	28	15	11	15	36
14-Apr	16	17	13	16	19	14	17	25	29	24	28	40	37	36	35	37	37	40	74	13	64	64	26	80	80
15-Apr	107	89	98	80	81	102	88	83	77	47	26	30	21	35	35	32	34	39	24	30	13	14	18	28	107
16-Apr	28	20	20	17	22	22	20	23	20	19	19	21	24	22	19	19	19	21	19	21	19	19	19	19	28
17-Apr	19	19	18	16	18	17	18	18	20	20	23	24	23	21	22	24	22	22	22	24	25	23	24	22	25
18-Apr	20	17	18	19	22	22	21	23	24	25	25	25	25	26	25	26	24	26	25	24	16	14	14	11	26
19-Apr	14	9	9	71	57	10	53	33	49	54	69	69	74	55	48	41	39	35	33	39	16	20	20	22	74
20-Apr	18	21	30	73	22	35	48	37	35	32	37	38	41	32	46	32	30	31	18	14	9	16	8	6	73
21-Apr	19	31	23	12	12	13	19	18	20	26	24	29	29	43	33	33	61	34	44	28	71	94	73	52	94
22-Apr	33	53	33	18	18	54	24	51	38	46	51	41	34	27	27	28	31	28	65	73	85	70	91	74	91
23-Apr	82	68	76	81	29	69	91	72	51	29	22	19	29	64	33	88	96	38	26	28	83	82	33	83	96
24-Apr	28	78	82	81	71	67	52	94	67	30	25	24	21	18	20	21	25	41	35	64	81	66	31	94	94
25-Apr	21	19	29	28	31	36	37	36	33	32	35	37	36	40	41	31	37	28	32	31	23	23	25	22	41
26-Apr	22	21	19	20	19	20	20	26	22	27	26	43	33	35	36	42	33	44	36	35	64	89	55	66	89
27-Apr	49	23	14	13	87	17	30	24	23	22	24	24	24	22	22	23	23	24	13	17	31	25	61	68	87
28-Apr	42	20	78	80	55	29	72	33	18	29	32	30	25	21	19	27	23	20	18	18	23	36	37	36	80
29-Apr	66	90	83	78	21	68	47	67	45	38	28	32	36	28	40	37	30	26	24	20	17	18	18	25	90
30-Apr	25	22	21	22	21	22	21	22	24	25	26	23	26	25	19	18	20	19	20	19	34	46	79	31	79

107	92	98	99	92	102	91	94	77	75	69	69	74	86	54	88	96	44	85	94	85	94	91	98	
Diurnal Maximum																								

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS22  
JANVIER  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
 APRIL 2024

MONTHLY SUMMARY

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	685	35	35	100	2.9	0	1	0
TRS(ppb) Average	684	36	36	100	0.3	0	0.2	0
THC(ppm) Average	681	35	39	99.44	2.2	-	2.1	-
NMHC(ppm) Average	681	35	39	99.44	0.009	-	0.001	-
CH4(ppm) Average	681	35	39	99.44	2.2	-	2.1	-
O3 (ppb) Average	687	33	33	100	61.4	0	53.3	-
NO2 (ppb) Average	685	35	35	100	5.9	0	1.3	-
NO (ppb) Average	685	35	35	100	3.3	-	0.4	-
NOX (ppb) Average	685	35	35	100	7.9	-	1.7	-
PM2.5 (ug/m3) Average	717	3	3	100	81	1	17.7	0
Temperature 2 m (C) Average	720	0	0	100	18.7	-	10	-
Relative Humidity (%) Average	720	0	0	100	99.7	-	94.8	-
Wind Speed 10 m (km/h) Average	720	0	0	100	20	-	13	-
Wind Speed 20 m (km/h) Average	718	0	2	99.72	27	-	17	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-
Wind Direction 20 m (deg) Average	718	0	2	99.72	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	685	0.19	0.3	-	0	0	0	0.1	0.2	0.4	2.9
TRS (ppb) Average	684	0.15	0.1	-	0	0.1	0.1	0.1	0.2	0.2	0.3
THC (ppm) Average	681	2	0	-	1.9	2	2	2	2	2.1	2.2
NMHC(ppm) Average	681	0	0.001	-	0	0	0	0	0	0	0.009
CH4(ppm) Average	681	2	0	-	1.9	2	2	2	2	2.1	2.2
O3 (ppb) Average	687	41.88	10.4	-	16.1	26.7	33.9	43.5	50.3	54.6	61.4
NO2 (ppb) Average	685	0.54	0.7	-	0	0	0	0.3	0.8	1.3	5.9
NO (ppb) Average	685	0.17	0.3	-	0	0	0	0.1	0.3	0.4	3.3
NOX (ppb) Average	685	0.71	0.8	-	0	0	0.1	0.5	1	1.6	7.9
PM2.5 (ug/m3) Average	717	3.32	5.7	-	0.4	1.1	1.6	2.6	3.6	4.6	81
Temperature 2 m (C) Average	720	4.9	5.8	-	-9.6	-2	0.5	3.9	9	13.6	18.7
Relative Humidity (%) Average	720	56.7	25.9	-	10.1	22.6	33.4	57.7	80.1	92.6	99.7
Wind Speed 10 m (km/h) Average	720	7.4	4	-	0	2	4	7	10	13	20
Wind Speed 20 m (km/h) Average	718	10	5	-	0	4	6	10	14	17	27
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	718	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
APRIL 2024

OPERATIONAL NOTES

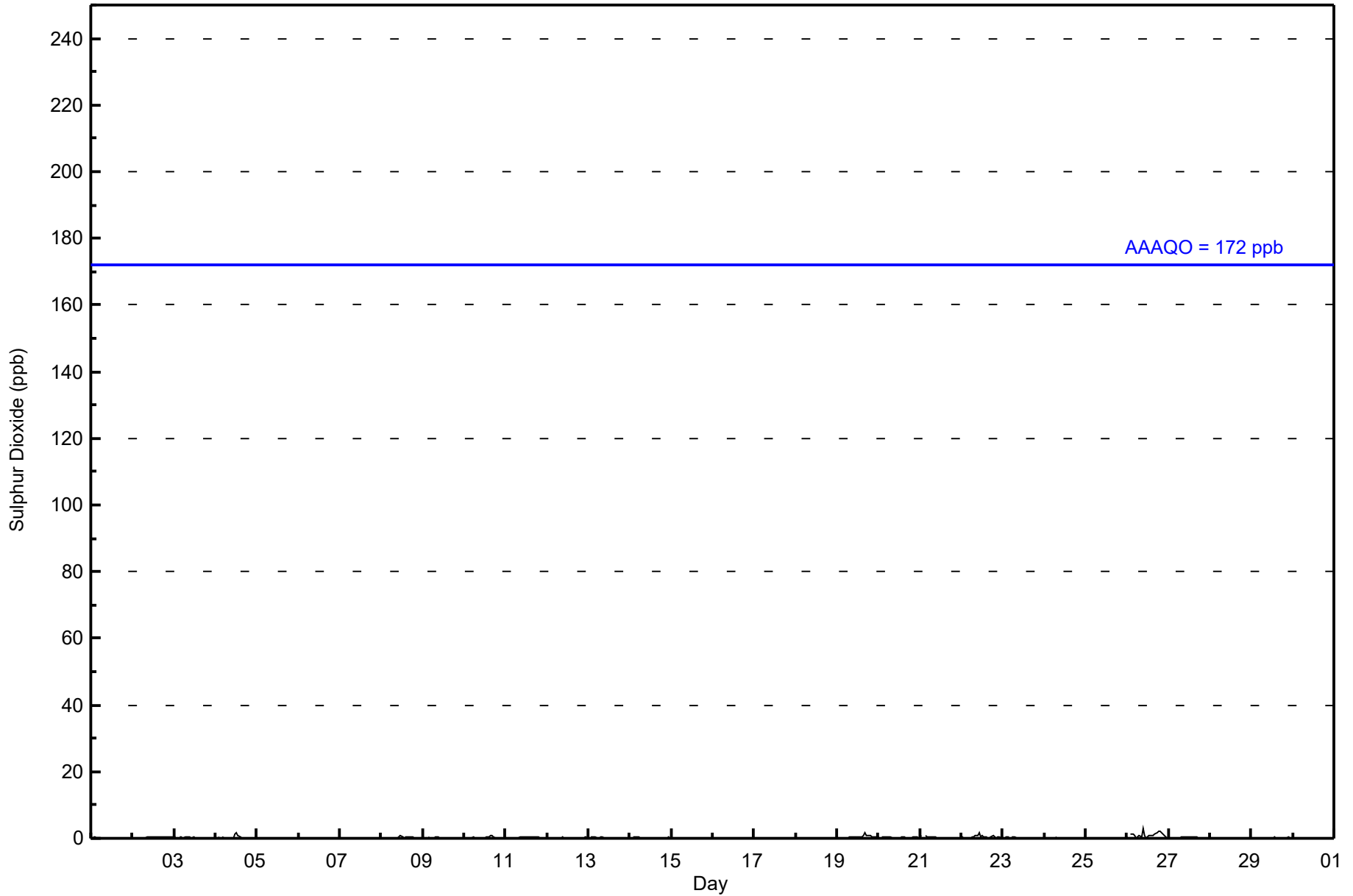
Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	19 Apr 2024 12:00	19 Apr 2024 15:00	4	Maintenance - actuator replaced
Wind Speed, Wind Direction 20m	10 Apr 2024 21:00	10 Apr 2024 22:00	2	Flat line in sensor output signal





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	685	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: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	101	133	28	20	30	15	12	25	51	63	40	30	35	48	30	22	683
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>	101	133	28	20	30	15	12	25	51	63	40	30	35	48	30	22	683

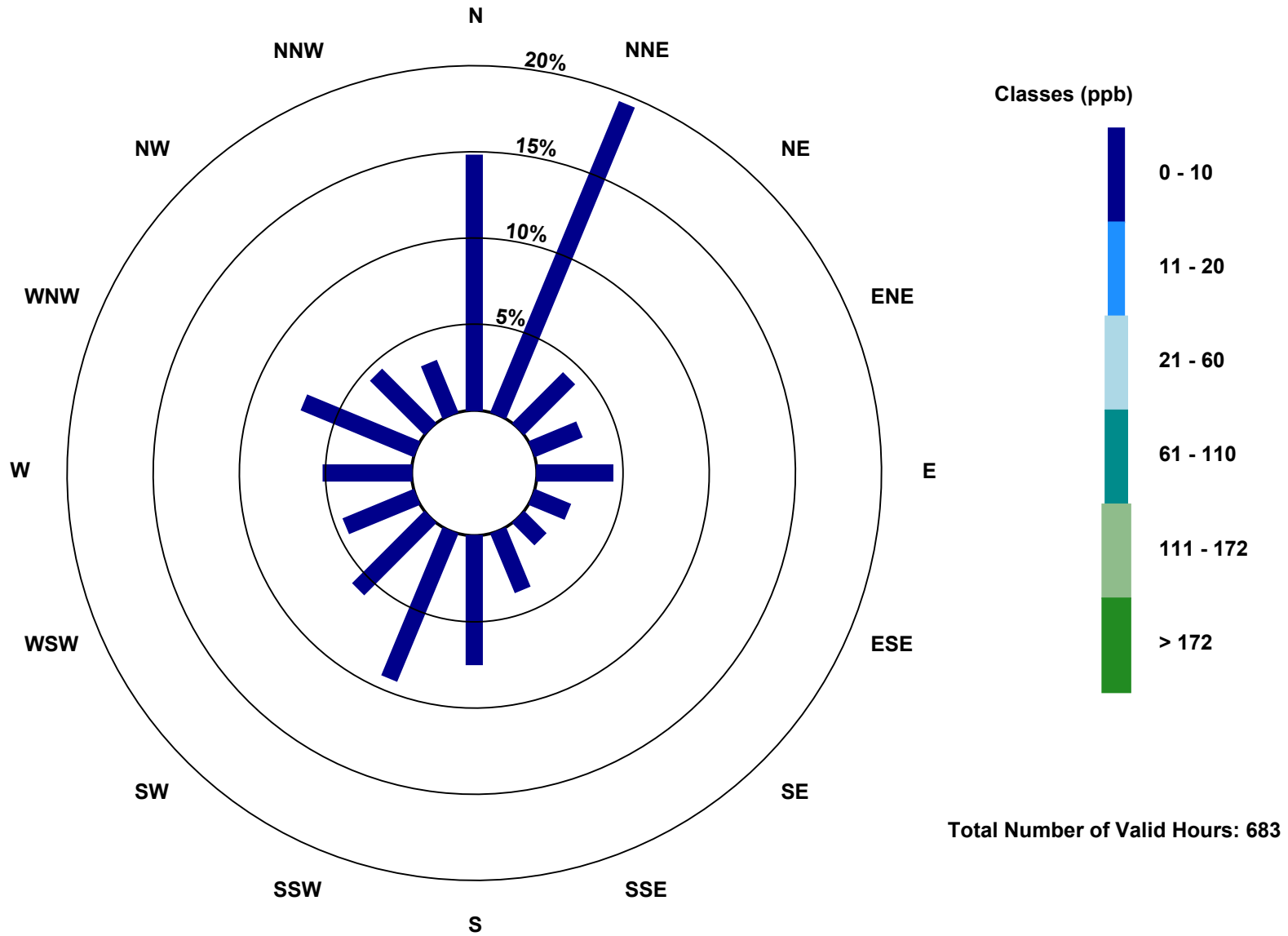
Total Number of Valid Hours: 683

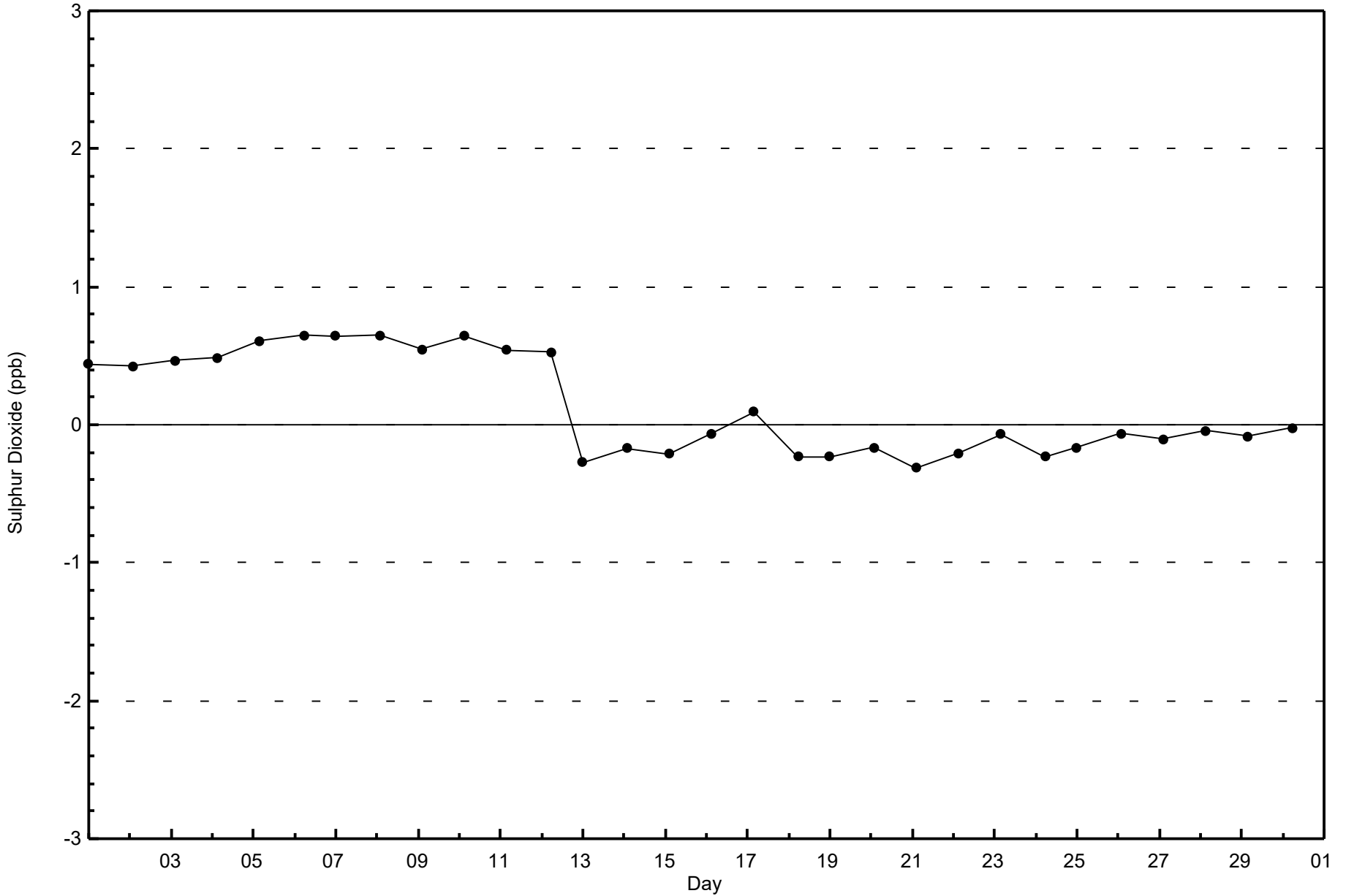
Total Number of Hours: 720



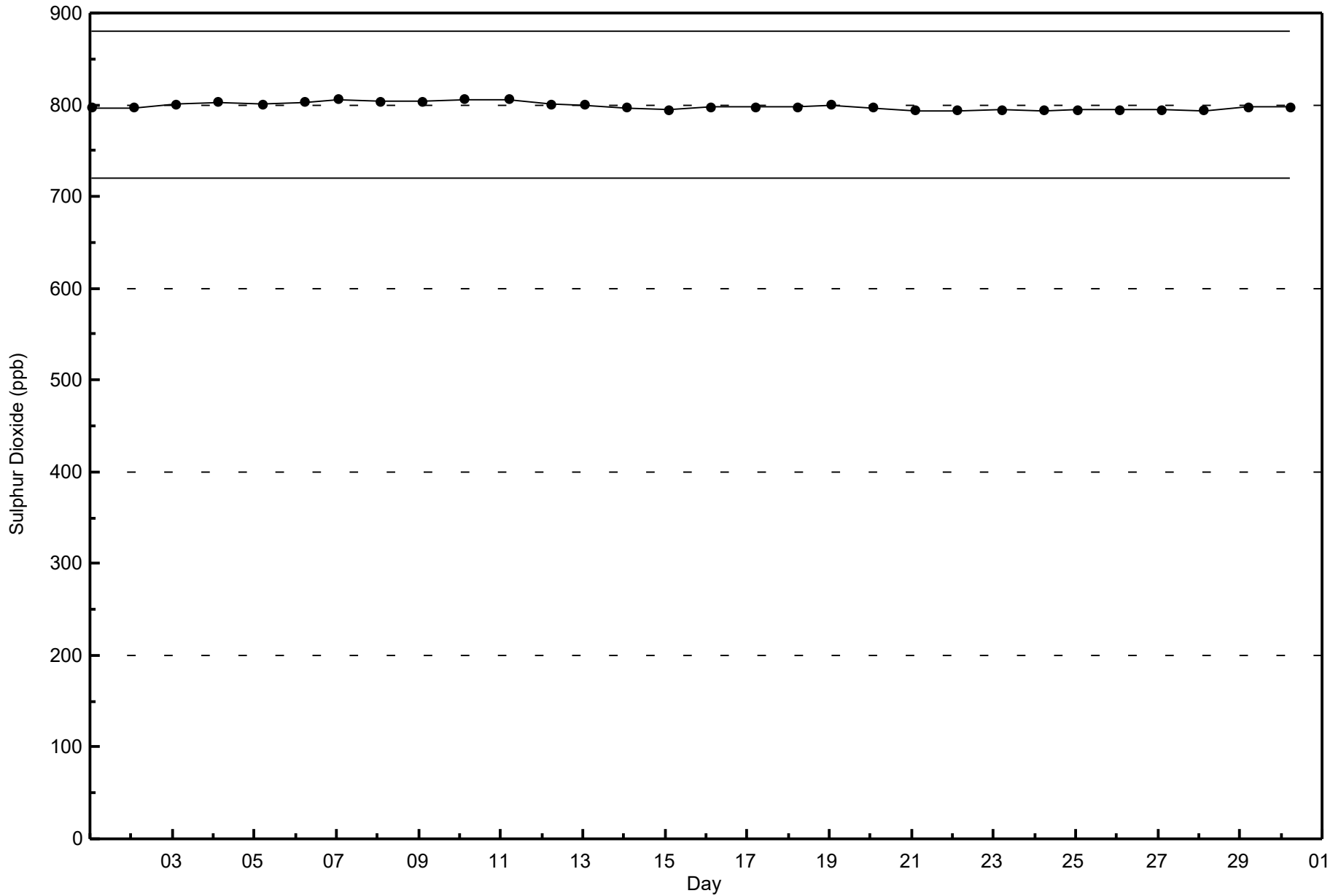
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

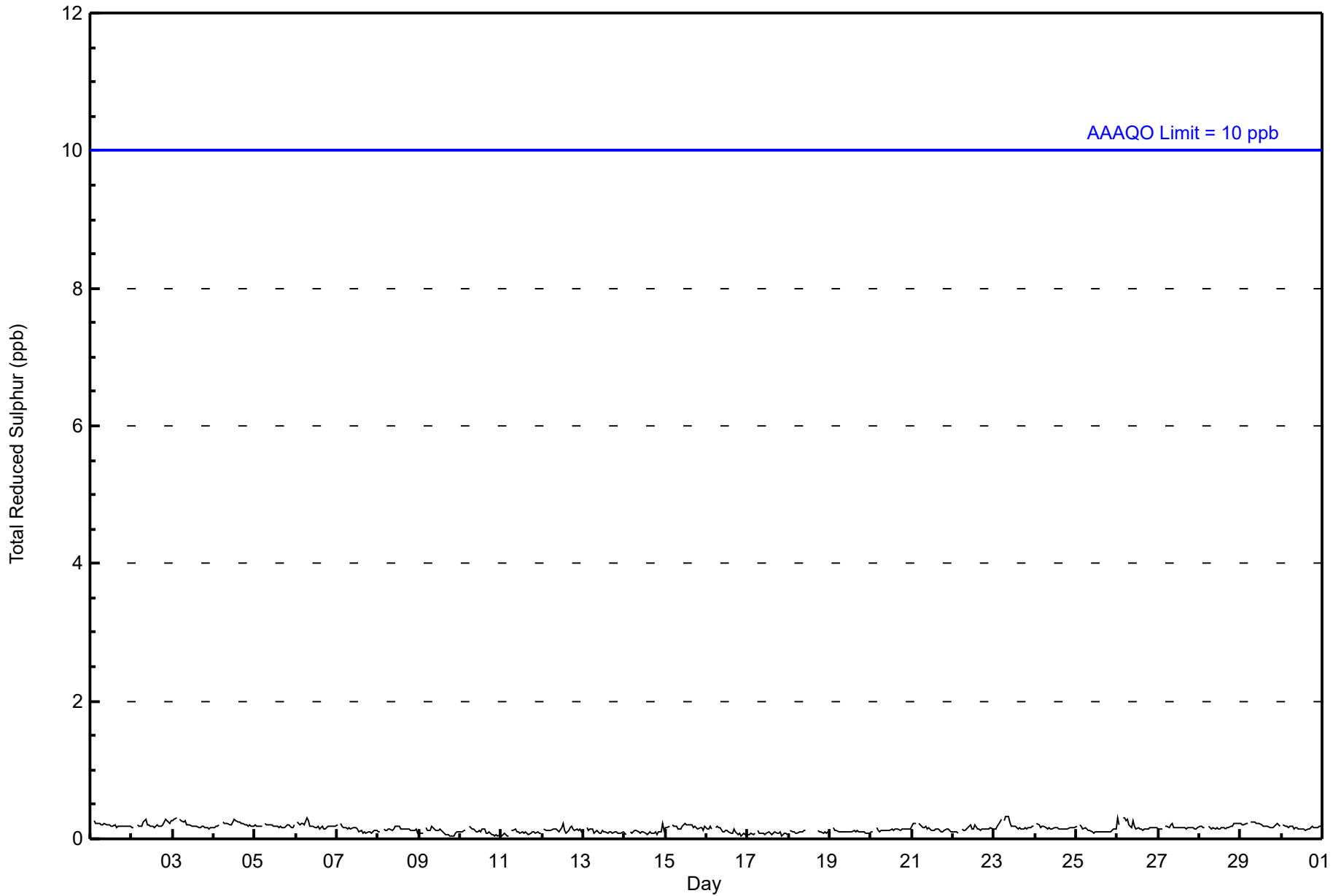














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	684	100.00	100.00
3 - 4	0	0.00	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2	102	128	28	18	31	15	13	26	50	65	39	31	37	47	30	22	682
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	102	128	28	18	31	15	13	26	50	65	39	31	37	47	30	22	682

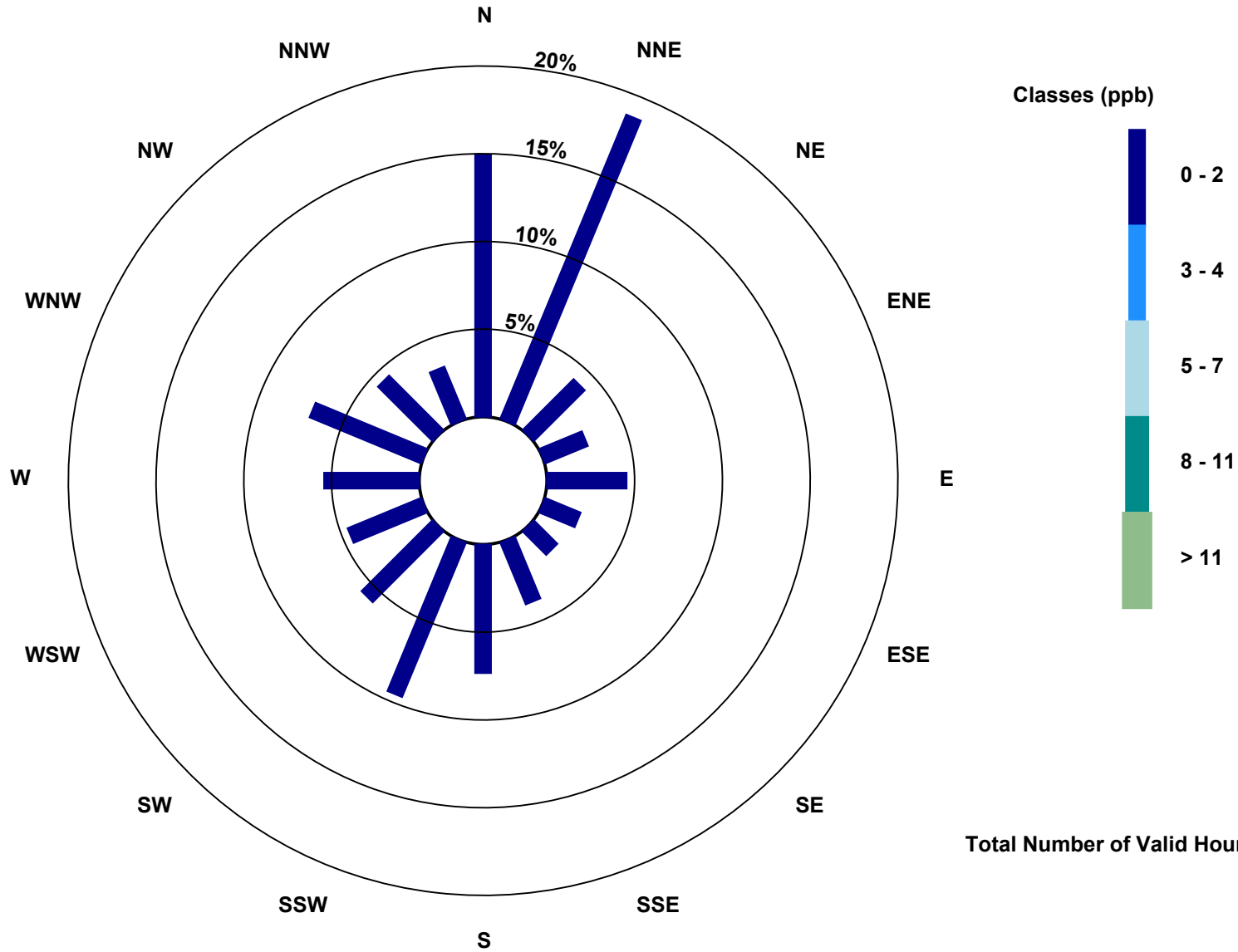
Total Number of Valid Hours: 682

Total Number of Hours: 720

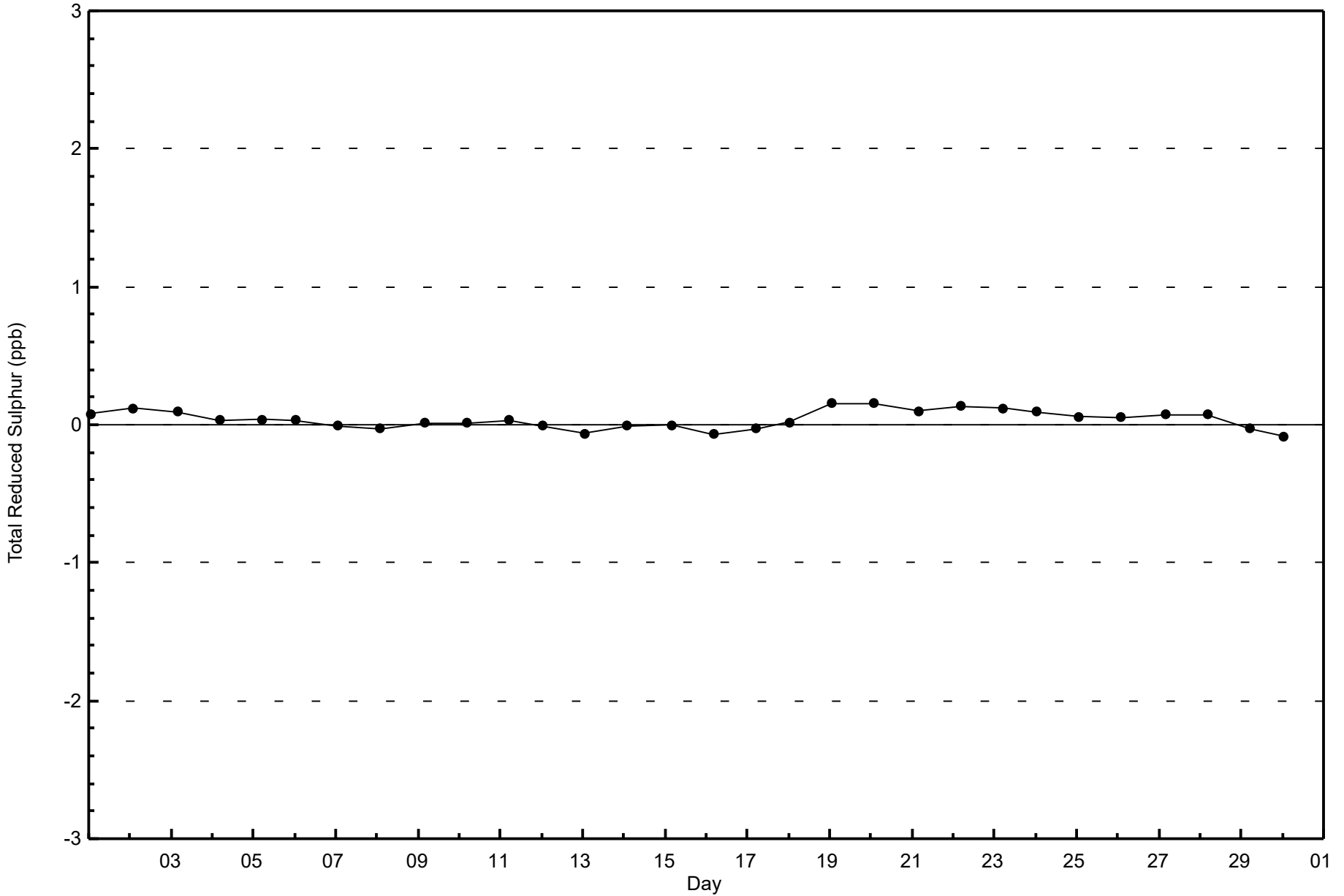


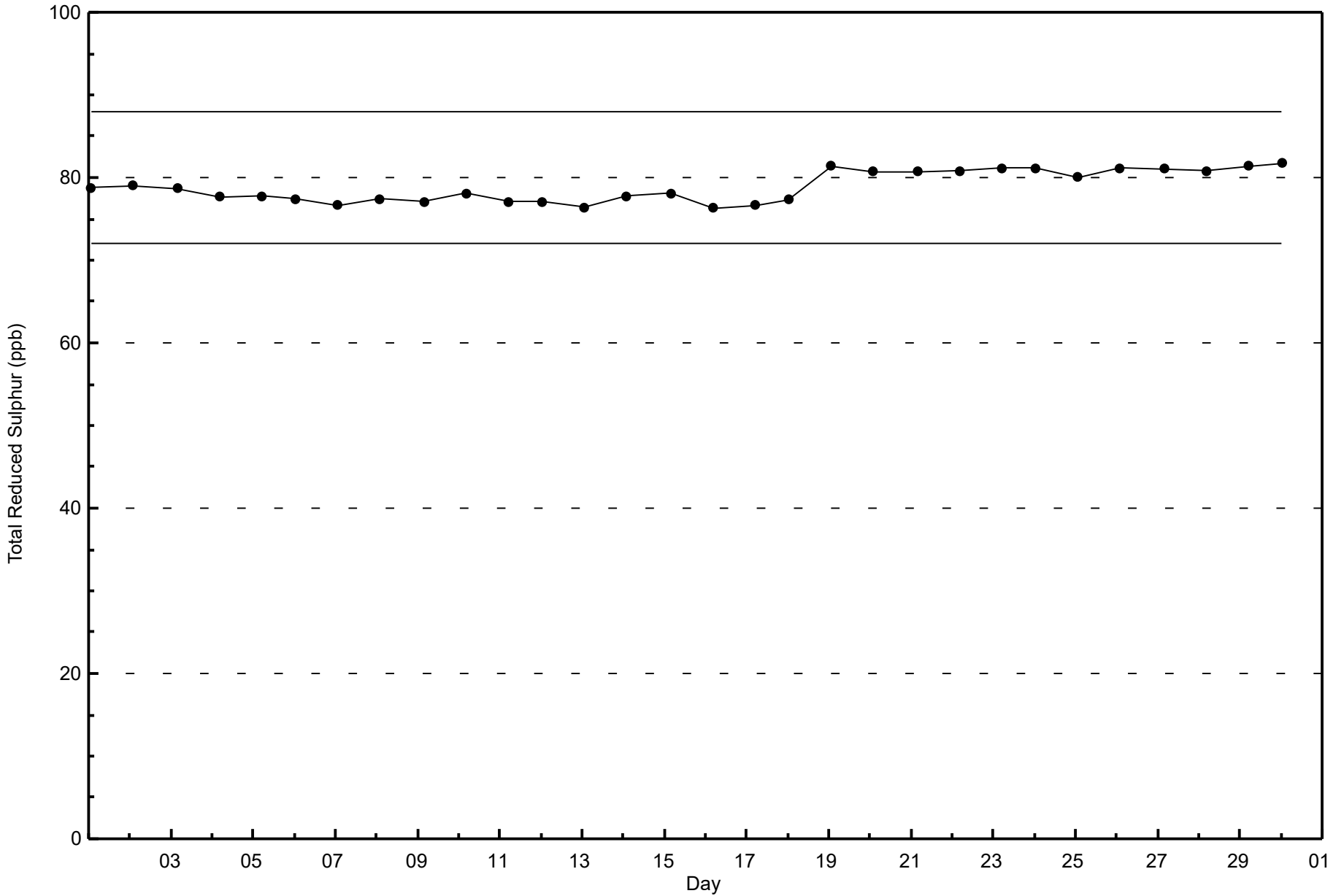
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Janvier



Total Number of Valid Hours: 682









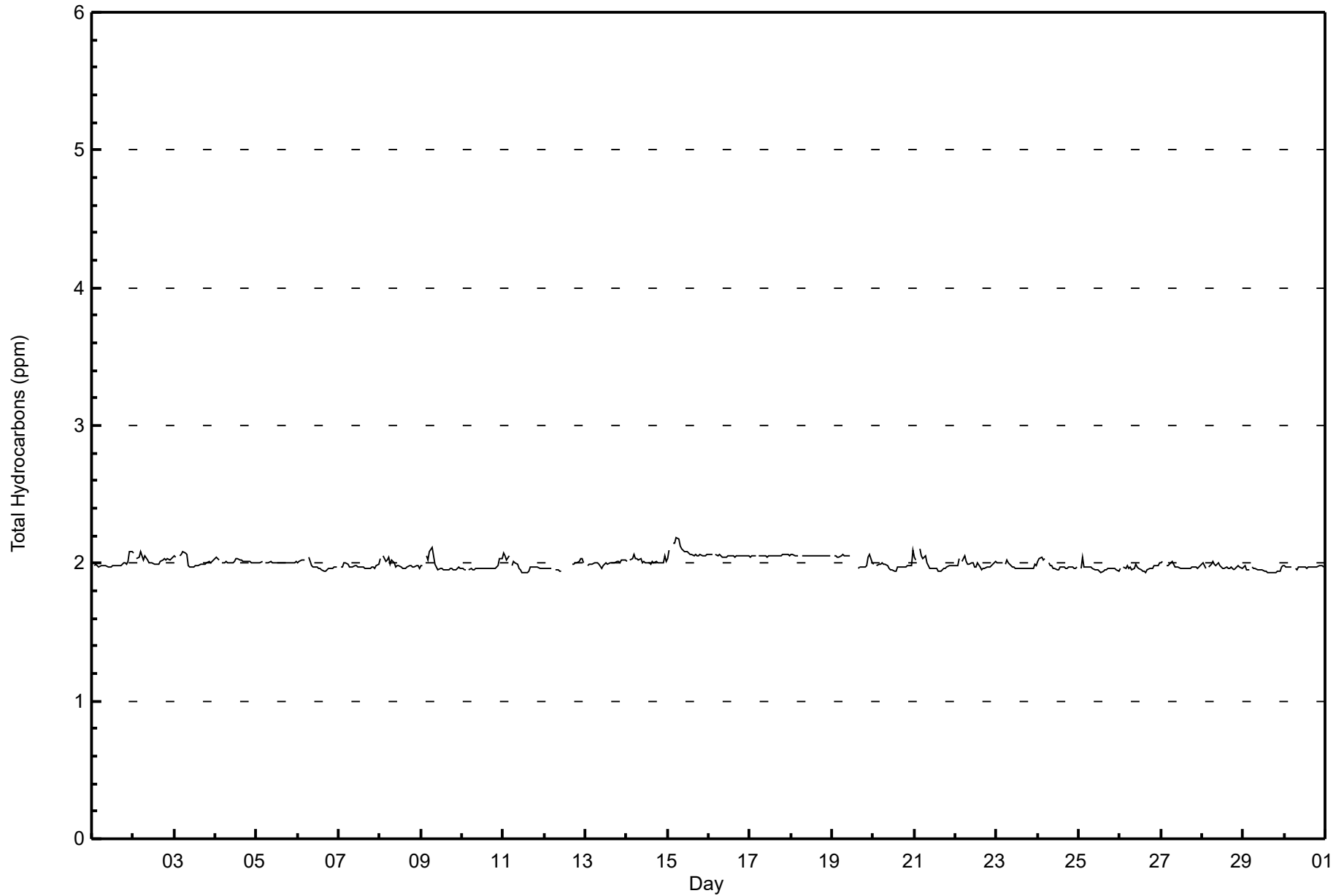
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Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Janvier - April 2024

Maximum Value: 2.2 ppm on Apr 15 06:00		Maximum Daily Average: 2.1 ppm on Apr 15		Hours in Service: 720																							
Minimum Value: 1.9 ppm on Apr 11 12:00		Minimum Daily Average: 2.0 ppm on Apr 29		Hours of Data: 681																							
Maximum Diurnal Average: 2.0 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 16		Hours of Missing Data: 39																							
Monthly Average: 2.00 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.1		Hours of Calibration: 35																							
				Percent Operational Time: 99.4																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	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	2.1	2.1	2.0	2.1		
2-Apr	2.1	Z	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
3-Apr	2.1	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
4-Apr	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	
5-Apr	2.0	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	
6-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
7-Apr	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	2.0	
8-Apr	2.0	Z	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	2.0	2.1	
9-Apr	2.0	2.0	Z	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.1	
10-Apr	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	
11-Apr	2.1	2.1	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.0	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	2.1	
12-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	1.9	1.9	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
13-Apr	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	2.0	
14-Apr	2.0	Z	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	
15-Apr	2.0	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
16-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
17-Apr	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
18-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
19-Apr	Z	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	M	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	
20-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	2.1	2.1	
21-Apr	2.0	2.0	Z	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
22-Apr	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
23-Apr	2.0	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	
24-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	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	
25-Apr	Z	2.0	2.0	2.0	2.0	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	1.9	2.0	2.0	
26-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	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	
27-Apr	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	
28-Apr	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	
29-Apr	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	
30-Apr	2.0	2.0	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	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Janvier - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	564	82.82	82.82
2.1 - 3.0	117	17.18	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Janvier - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	61	90	23	19	30	15	11	25	44	49	37	29	34	46	29	20	562
2.1 - 3.0	39	40	5	1	0	0	1	0	7	14	3	1	1	2	1	2	117
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>	100	130	28	20	30	15	12	25	51	63	40	30	35	48	30	22	679

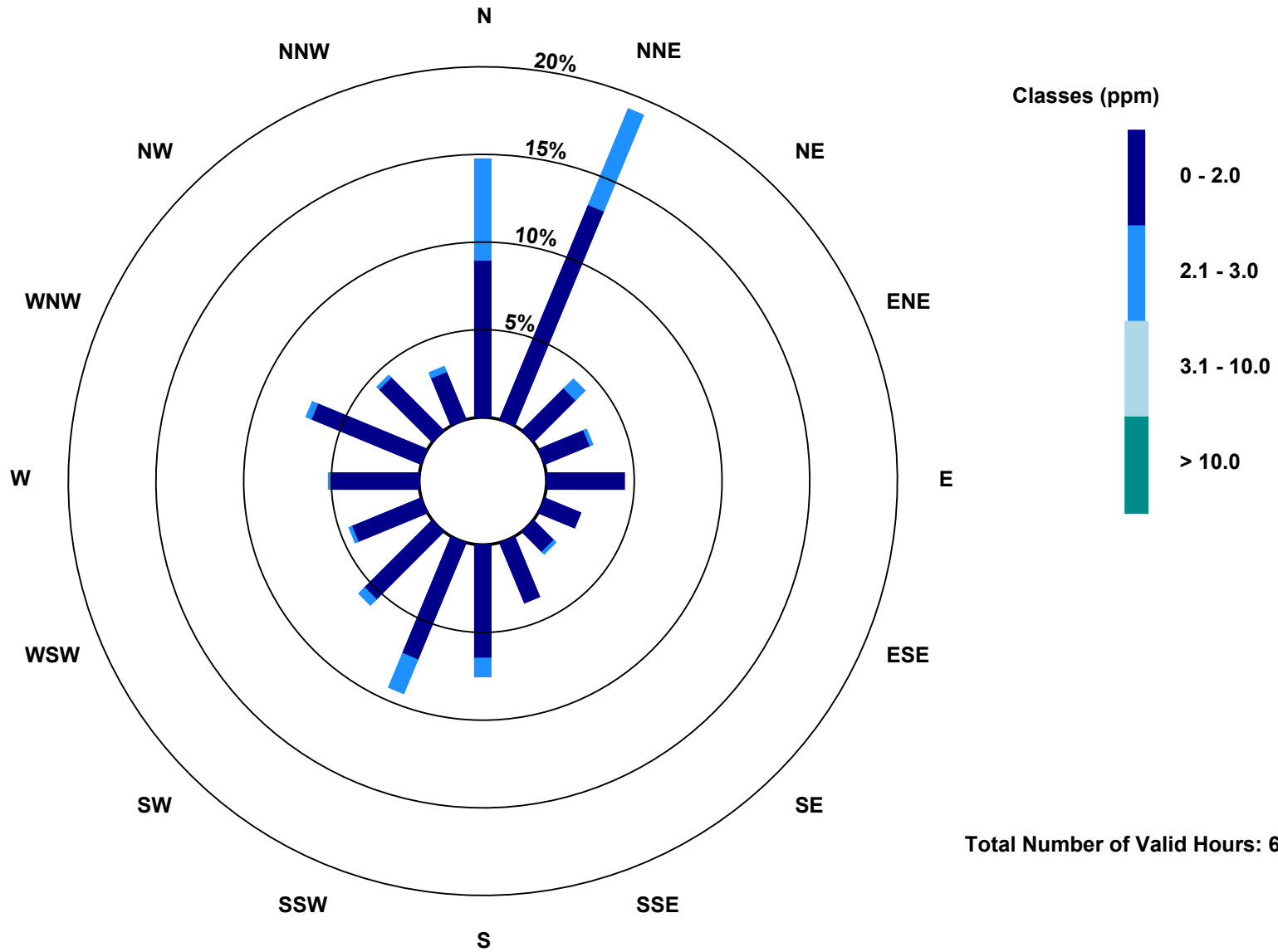
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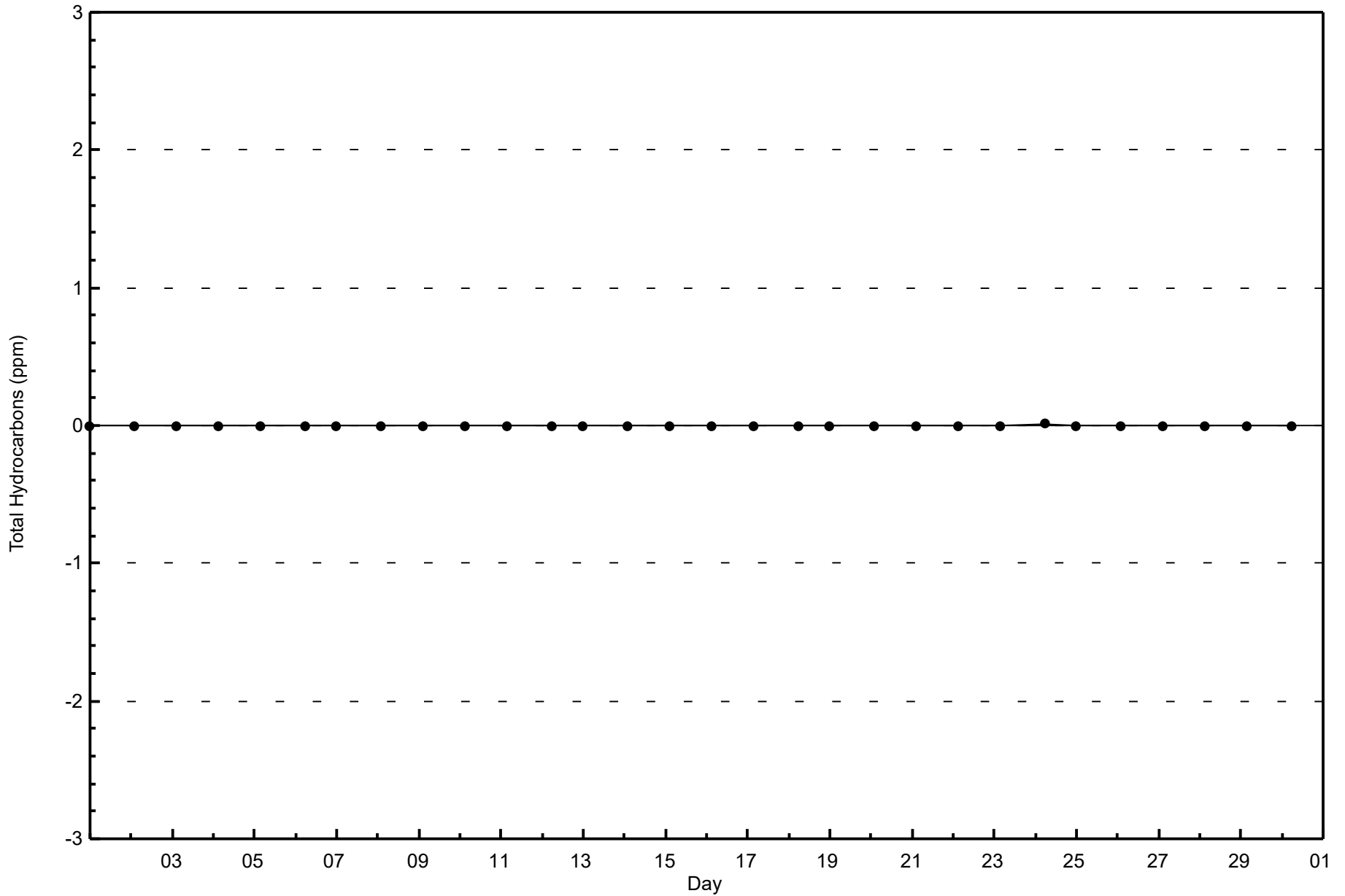
Total Number of Hours: 720

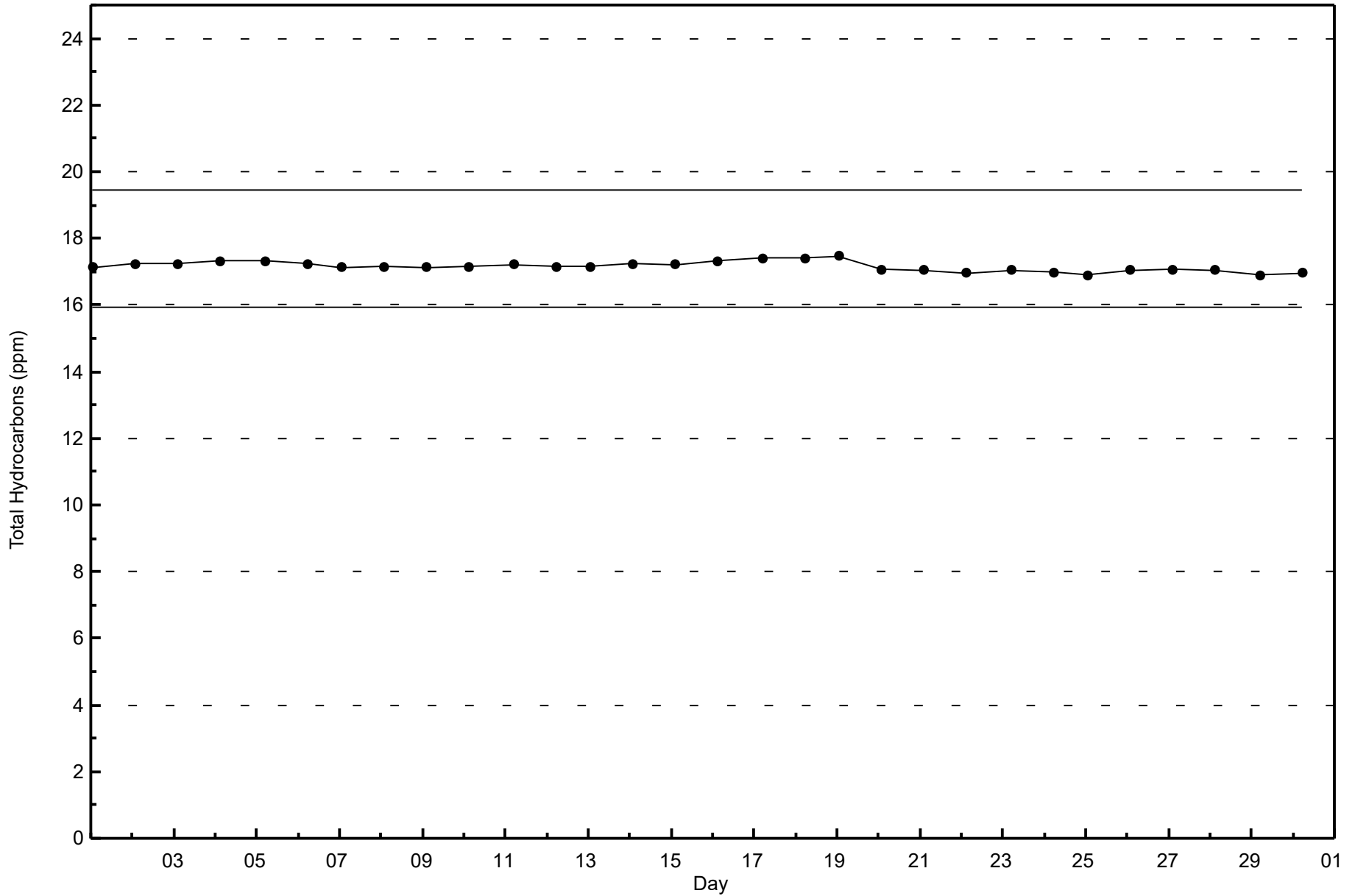


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Janvier







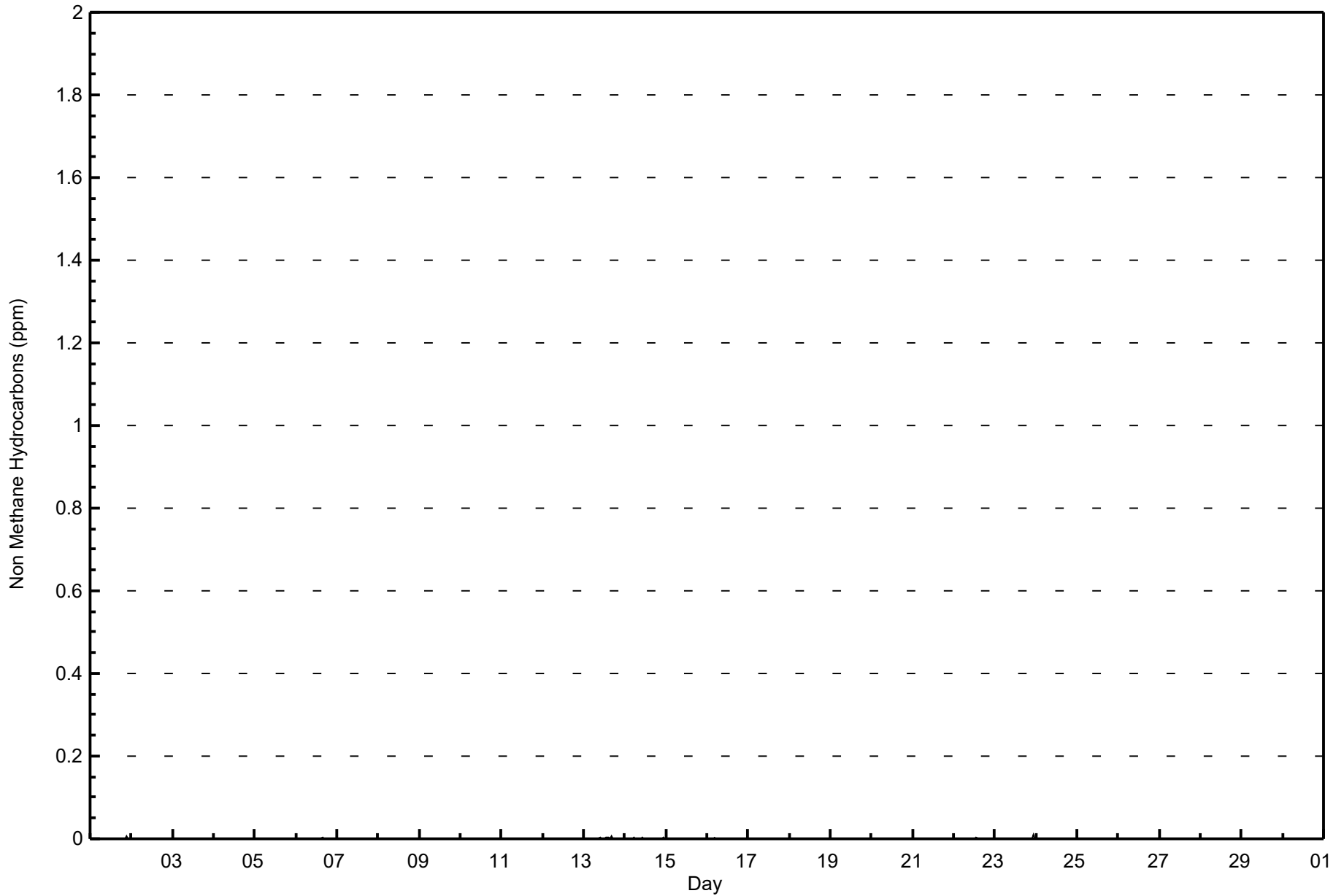


Summary of Hour Averages

Janvier - April 2024

Maximum Value: 0.009 ppm on Apr 23 23:00		Maximum Daily Average: 0.001 ppm on Apr 13		Hours in Service: 720																								
Minimum Value: 0.000 ppm on Apr 1 02:00		Minimum Daily Average: 0.000 ppm on Apr 2		Hours of Data: 681																								
Maximum Diurnal Average: 0.000 ppm at hour 23		Minimum Diurnal Average: 0.000 ppm at hour 1		Hours of Missing Data: 39																								
Monthly Average: 0.000 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> = 0.0		Hours of Calibration: 35																								
				Percent Operational Time: 99.4																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Apr	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	0.008	0.000	0.000	0.000	0.000	0.008	
2-Apr	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	0.000	0.000	0.000
3-Apr	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	0.000	0.000
4-Apr	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	0.000
5-Apr	0.000	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
6-Apr	0.000	0.000	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	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
7-Apr	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	0.000	0.000	0.000	0.000
8-Apr	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	0.000	0.000	0.000
9-Apr	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	0.000	0.000
10-Apr	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	0.000
11-Apr	0.000	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
12-Apr	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13-Apr	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.002	0.001	0.000	0.003	0.004	0.001	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.007
14-Apr	0.000	Z	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.004
15-Apr	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	0.000	0.000
16-Apr	0.000	0.000	0.000	Z	0.003	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	0.003
17-Apr	0.000	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
18-Apr	0.000	0.000	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
19-Apr	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	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	0.000
20-Apr	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	0.000	0.000	0.000
21-Apr	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	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
22-Apr	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	0.002	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
23-Apr	0.000	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	0.009	0.002	0.009
24-Apr	0.000	0.000	0.000	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	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
25-Apr	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	0.000	0.000	0.000	0.000
26-Apr	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	0.000	0.000	0.000
27-Apr	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	0.000	0.000
28-Apr	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
29-Apr	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
30-Apr	0.000	0.000	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
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerospan C - Calibration M - Maintenance																												







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	678	99.56	99.56
0.006 - 0.05	3	0.44	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	100	130	28	19	30	15	12	25	51	63	39	30	35	47	30	22	676
0.006 - 0.05	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	3
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	100	130	28	20	30	15	12	25	51	63	40	30	35	48	30	22	679

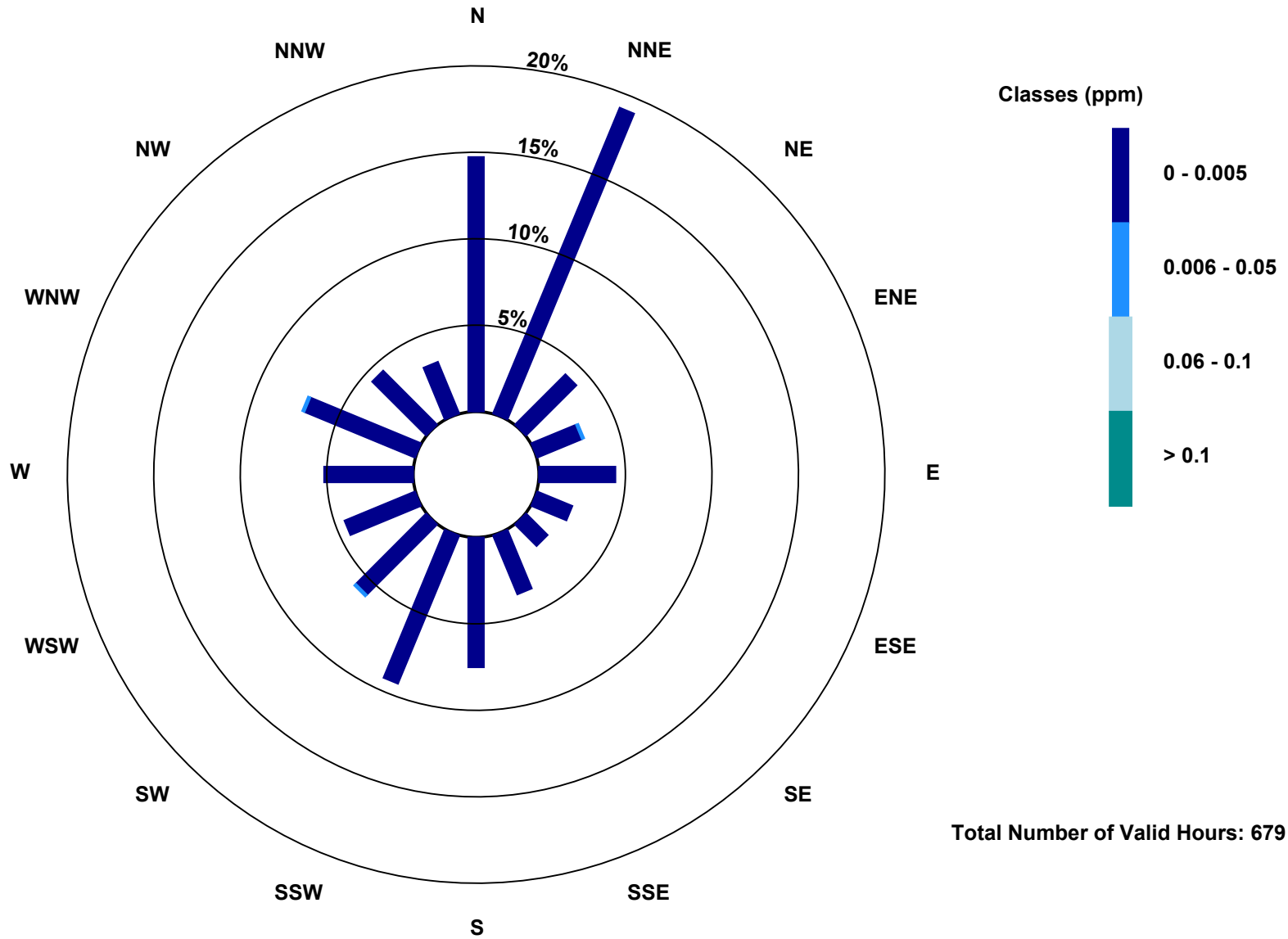
Total Number of Valid Hours: 679

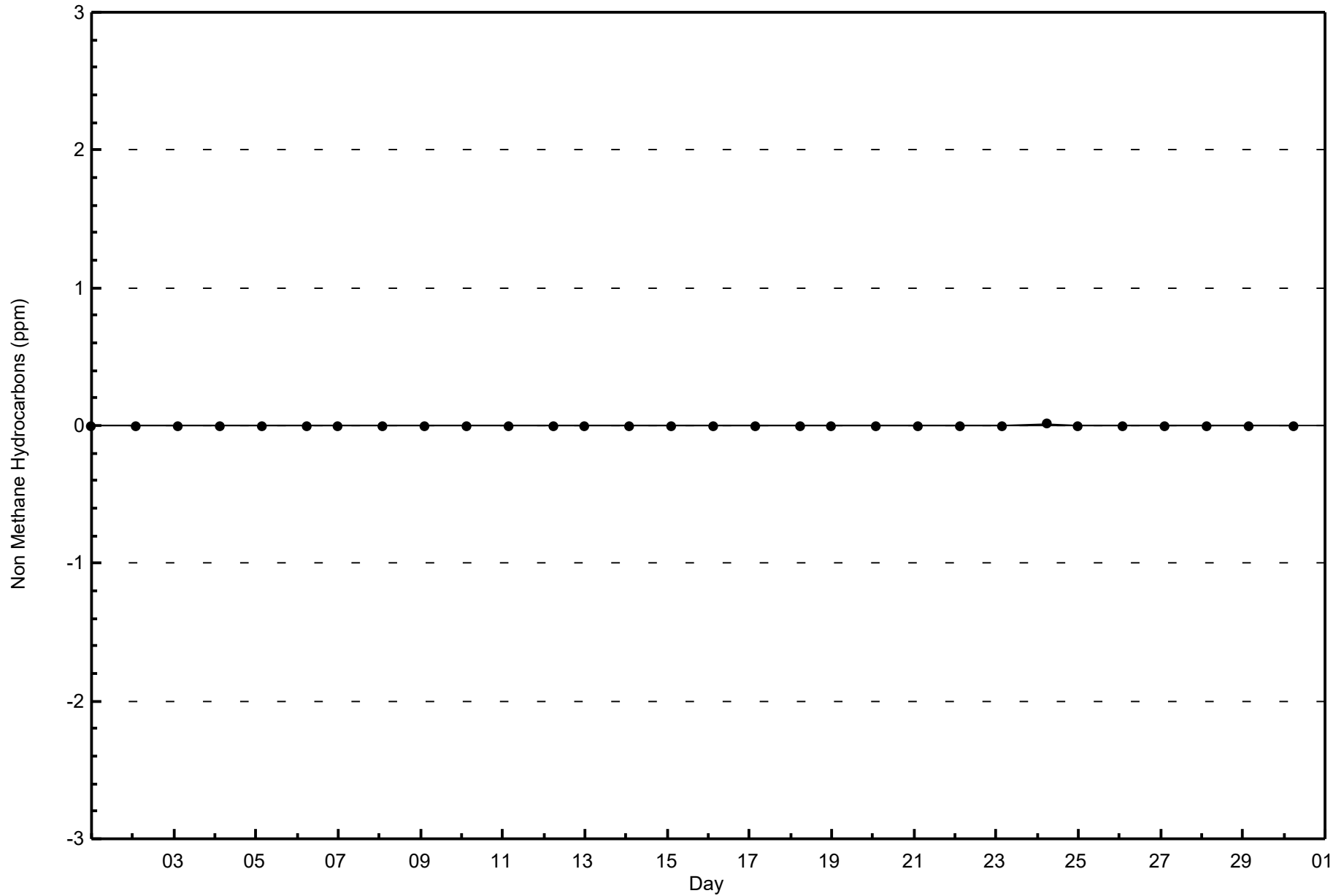
Total Number of Hours: 720

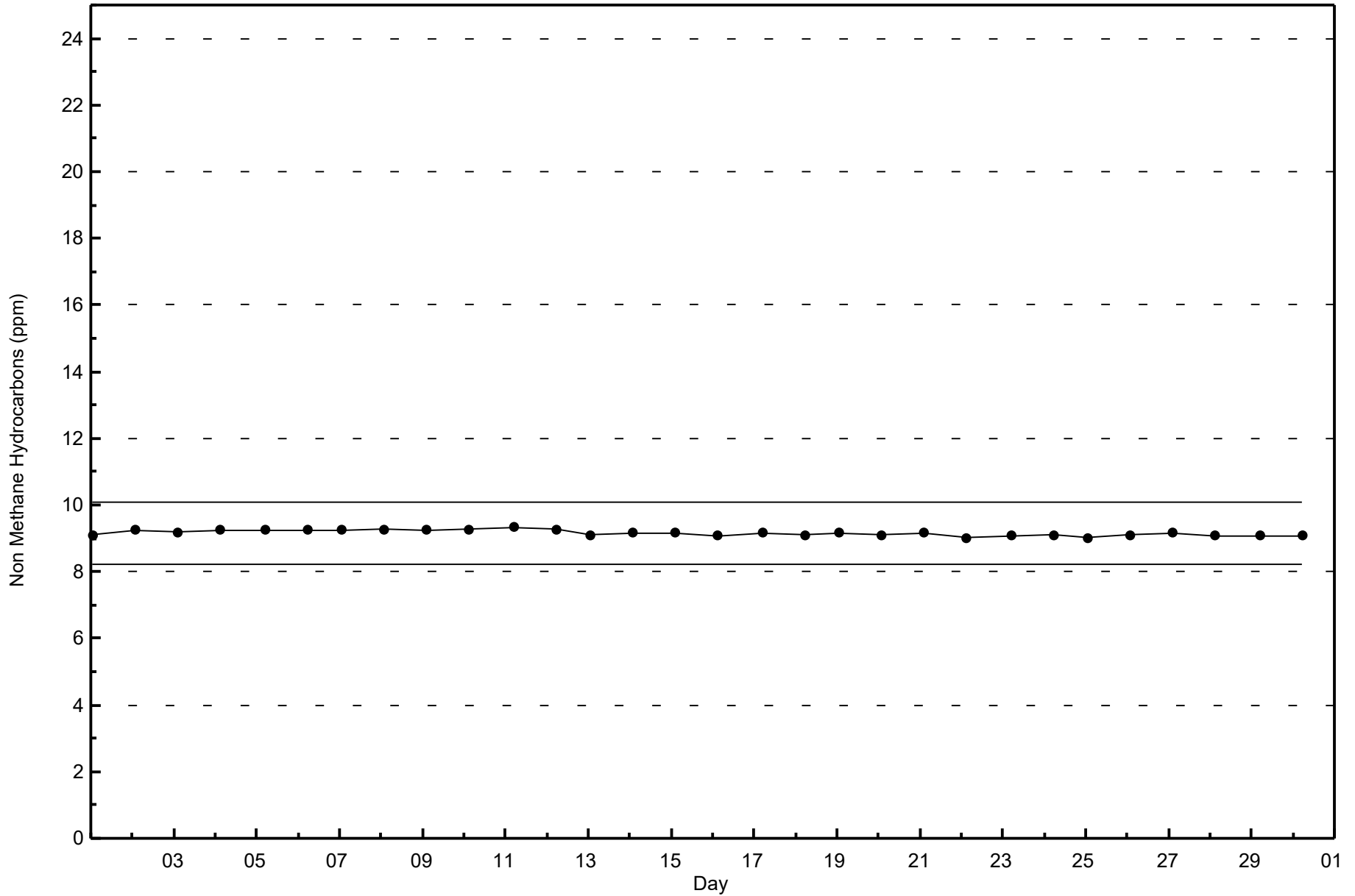


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Janvier









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

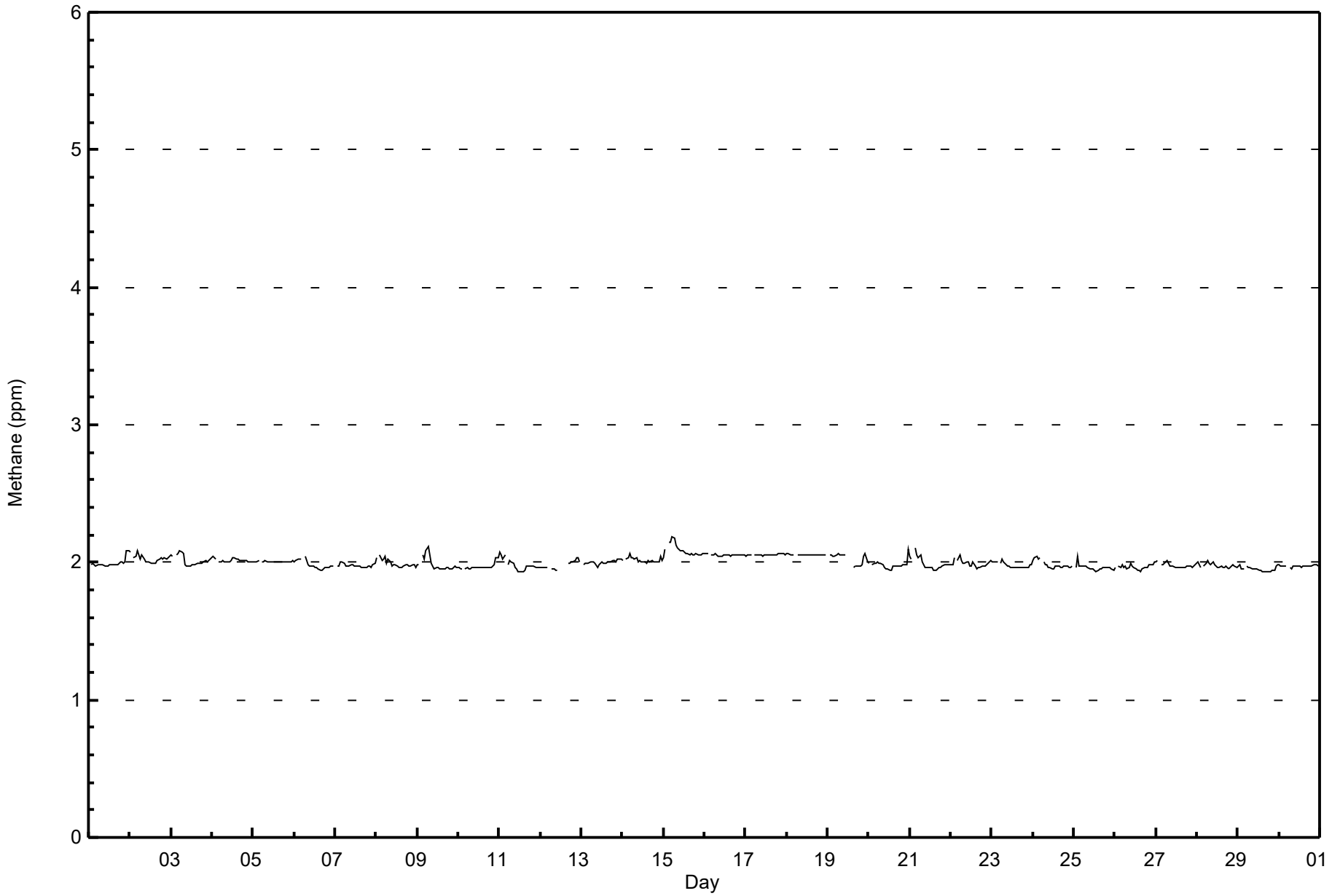
Janvier - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.2 ppm on Apr 15 06:00      Maximum Daily Average: 2.1 ppm on Apr 15		Hours in Service: 720 Hours of Data: 681 Hours of Missing Data: 39 Hours of Calibration: 35 Percent Operational Time: 99.4																										
Minimum Value: 1.9 ppm on Apr 11 12:00 Maximum Diurnal Average: 2.0 ppm at hour 6 Monthly Average: 2.00 ppm		Minimum Daily Average: 2.0 ppm on Apr 29 Minimum Diurnal Average: 2.0 ppm at hour 16 Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.1																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Apr	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	2.1	2.1	2.0	2.1			
2-Apr	2.1	Z	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
3-Apr	2.1	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
4-Apr	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	
5-Apr	2.0	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	
6-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	
7-Apr	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	2.0	2.0	
8-Apr	2.0	Z	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	2.0	2.0	2.1	
9-Apr	2.0	2.0	Z	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.1	
10-Apr	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	
11-Apr	2.1	2.1	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.0	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	2.1	
12-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	1.9	1.9	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
13-Apr	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	2.0	2.0	
14-Apr	2.0	Z	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
15-Apr	2.0	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
16-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
17-Apr	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Apr	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19-Apr	Z	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	M	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	
20-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	2.1	2.1	
21-Apr	2.0	2.0	Z	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
22-Apr	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
23-Apr	2.0	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	
24-Apr	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	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	
25-Apr	Z	2.0	2.0	2.0	2.0	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	2.0	2.0	1.9	2.0	
26-Apr	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	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	
27-Apr	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	
28-Apr	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	
29-Apr	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	
30-Apr	2.0	2.0	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	
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerspan      C - Calibration      M - Maintenance																												



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	565	82.97	82.97
2.1 - 3.0	116	17.03	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Janvier - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	61	91	23	19	30	15	11	25	44	49	37	29	34	46	29	20	563
2.1 - 3.0	39	39	5	1	0	0	1	0	7	14	3	1	1	2	1	2	116
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>	100	130	28	20	30	15	12	25	51	63	40	30	35	48	30	22	679

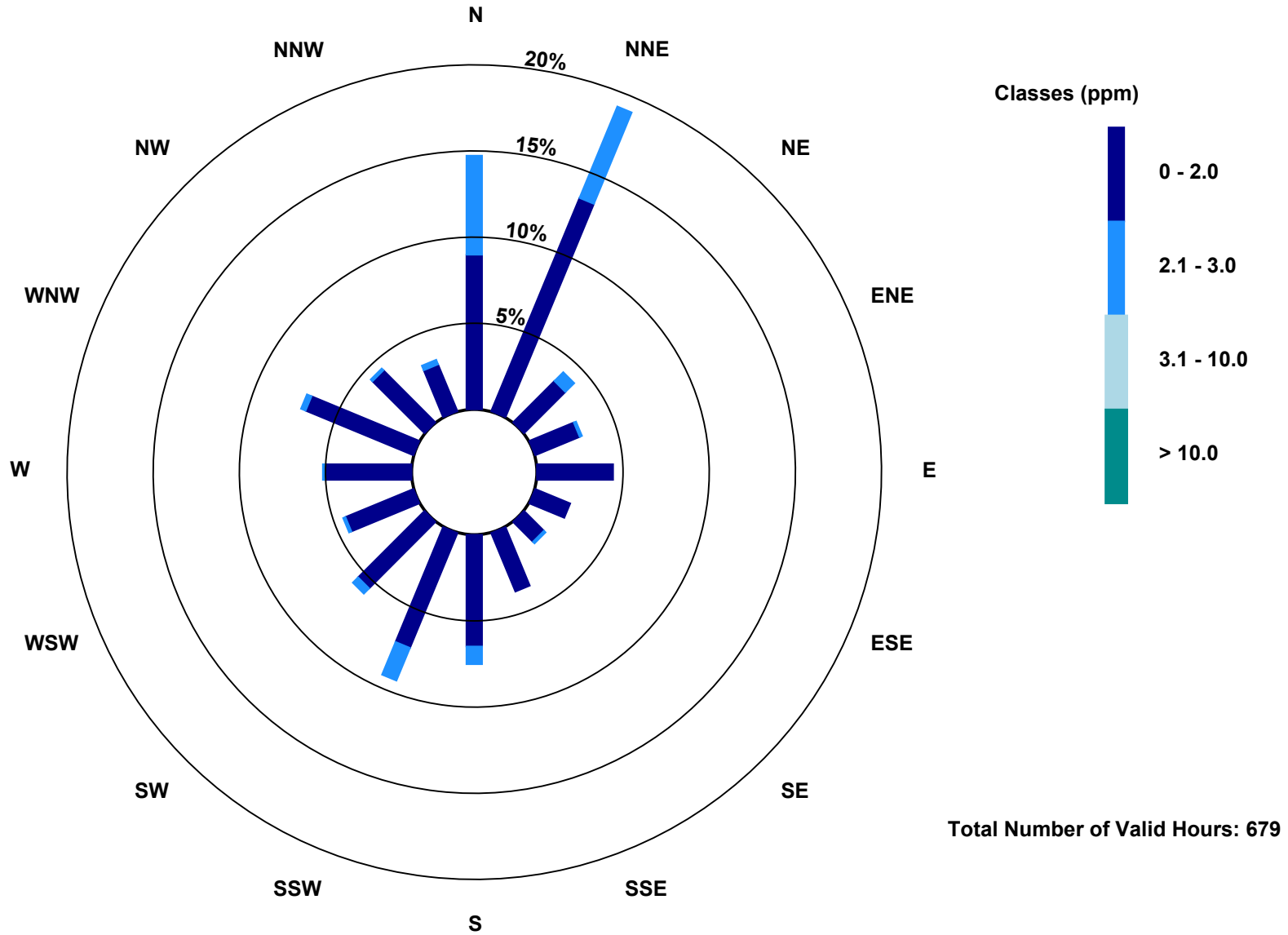
Total Number of Valid Hours: 679

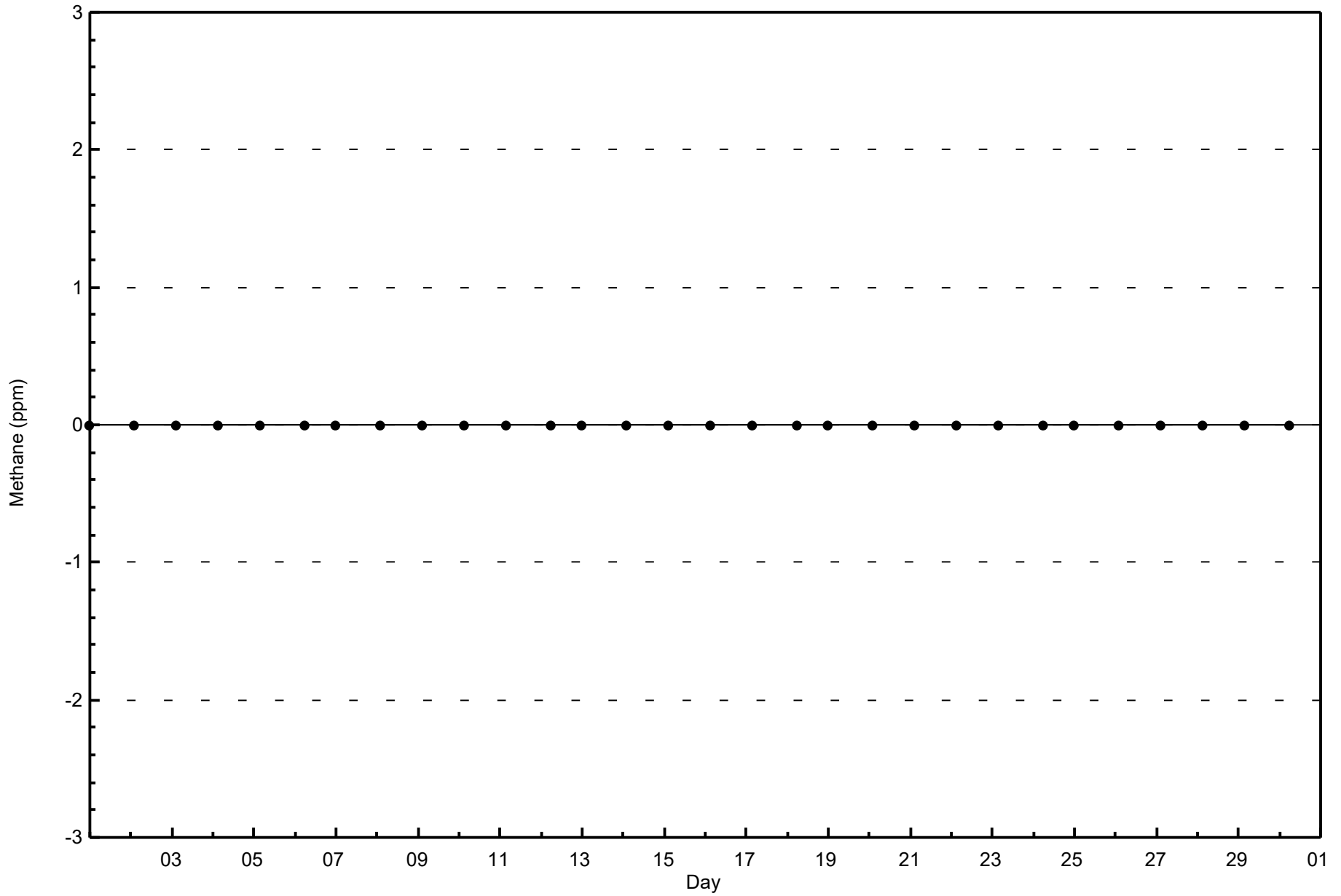
Total Number of Hours: 720

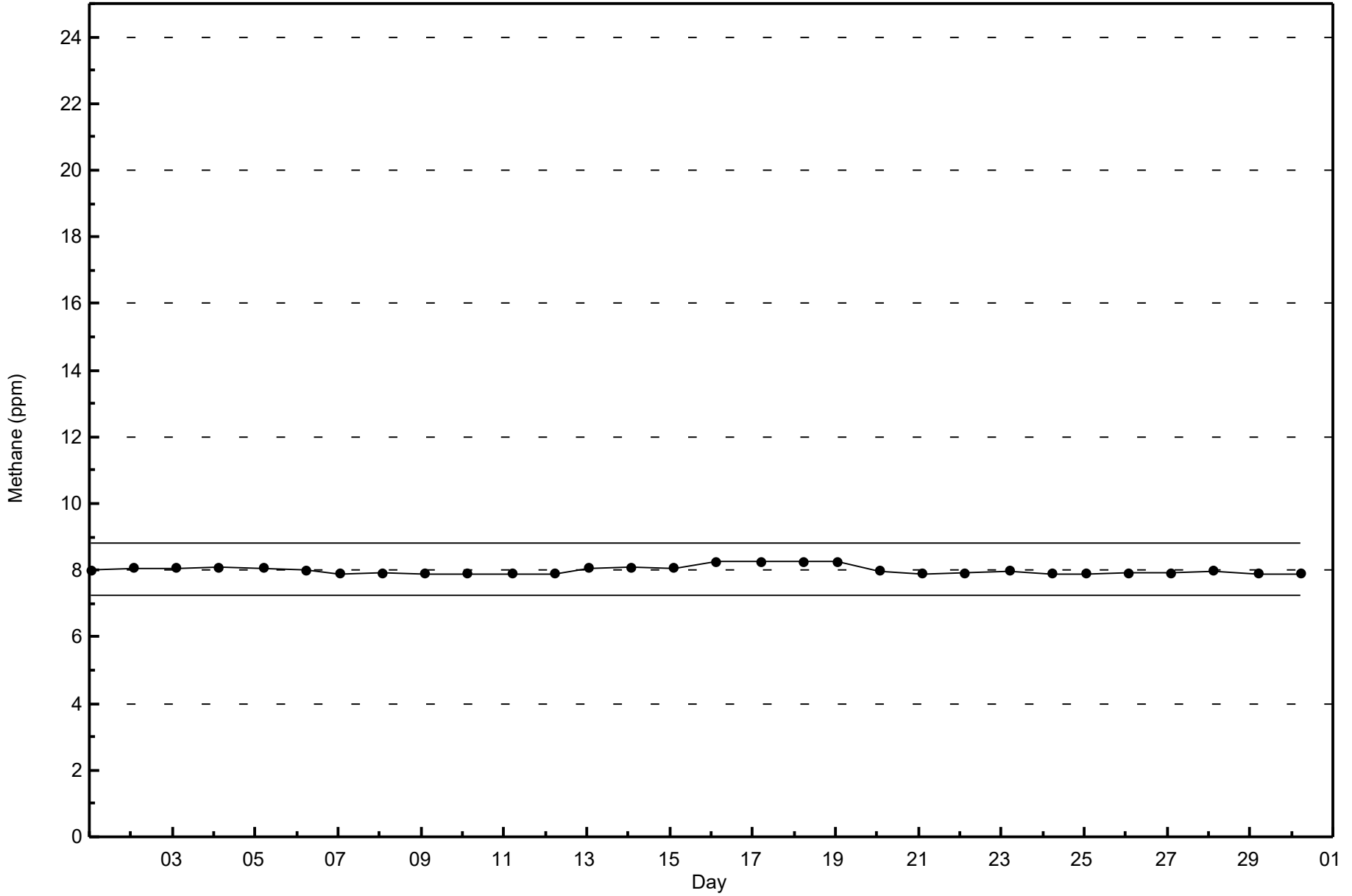


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

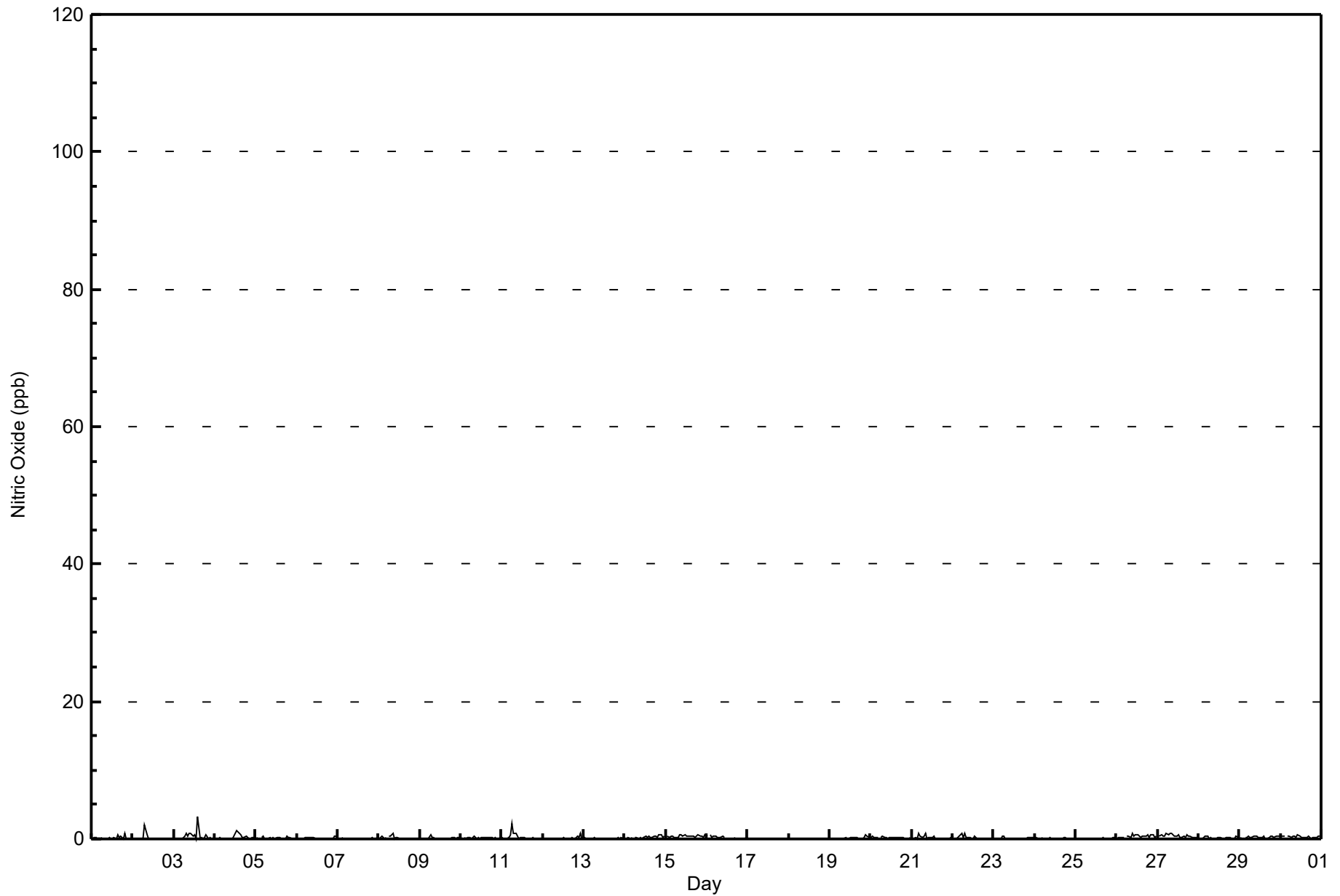
**Nitric Oxide (NO) - ppb**  
**Janvier - April 2024**

Maximum Value: 3.3 ppb on Apr 3 15:00		Maximum Daily Average: 0.4 ppb on Apr 27		Hours in Service: 720																						
Minimum Value: 0.0 ppb on Apr 1 07:00		Minimum Daily Average: 0.0 ppb on Apr 18		Hours of Data: 685																						
Maximum Diurnal Average: 0.3 ppb at hour 8		Minimum Diurnal Average: 0.1 ppb at hour 1		Hours of Missing Data: 35																						
Monthly Average: 0.17 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.4 P <sub>99</sub> = 0.8		Hours of Calibration: 35																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.0	0.2	0.3	0.1	Z	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.6	0.1	0.4	0.1	0.7	0.0	0.0	0.0	0.0	0.1	0.7
2-Apr	0.0	0.0	0.1	0.0	0.0	Z	0.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	2.0
3-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.3	0.9	0.8	0.4	0.6	0.0	3.3	0.0	0.1	0.0	0.1	0.5	0.0	0.2	0.0	0.0	0.4	3.3
4-Apr	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.8	1.2	0.8	0.6	0.2	0.2	0.3	0.2	0.0	0.0	0.2	0.1	0.2	1.2
5-Apr	0.0	0.2	Z	0.1	0.3	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.3	0.1	0.0	0.0	0.1	0.3	0.1	0.2	0.0	0.0	0.0	0.1	0.3
6-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.4
7-Apr	0.0	0.0	0.0	0.2	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.0	0.3
8-Apr	0.0	0.2	0.5	0.0	0.2	Z	0.3	0.5	0.8	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
9-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.7
10-Apr	0.2	Z	0.1	0.0	0.3	0.2	0.0	0.2	0.4	0.1	0.1	0.0	0.2	0.2	0.1	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.0	0.2	0.2	0.4
11-Apr	0.2	0.0	Z	0.3	0.3	0.7	2.3	0.7	0.8	0.4	0.0	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.3	2.3
12-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.3	0.8	0.0	0.1	0.8
13-Apr	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.2
14-Apr	0.0	0.0	0.1	0.0	0.1	Z	0.2	0.1	0.1	0.2	0.0	0.2	0.4	0.2	0.3	0.3	0.2	0.4	0.3	0.2	0.6	0.5	0.3	0.3	0.2	0.6
15-Apr	Z	0.4	0.2	0.3	0.3	0.2	0.3	0.3	0.6	0.5	0.5	0.7	0.4	0.4	0.5	0.3	0.3	0.3	0.5	0.5	0.3	0.5	0.2	0.6	0.4	0.7
16-Apr	0.5	Z	0.5	0.2	0.4	0.4	0.2	0.1	0.2	0.3	0.2	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.5
17-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18-Apr	0.0	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
19-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.2	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.7	0.3	0.2	0.1	0.7
20-Apr	0.2	0.4	0.1	0.1	0.2	Z	0.1	0.4	0.3	0.2	0.0	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.3	0.2	0.4
21-Apr	Z	0.0	0.2	0.0	0.7	0.3	0.3	0.3	0.8	0.1	0.1	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8
22-Apr	0.3	Z	0.0	0.2	0.3	0.7	0.1	0.8	0.2	0.2	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
23-Apr	0.0	0.0	Z	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.4
24-Apr	0.0	0.2	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.3
25-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2
26-Apr	0.0	0.2	0.2	0.2	0.2	Z	0.3	0.4	0.2	0.8	0.5	0.5	0.5	0.4	0.3	0.5	0.3	0.5	0.5	0.3	0.6	0.5	0.2	0.5	0.4	0.8
27-Apr	Z	0.4	0.5	0.4	0.4	0.8	0.6	0.9	0.7	0.6	0.4	0.4	0.7	0.3	0.2	0.4	0.1	0.6	0.5	0.4	0.3	0.1	0.3	0.2	0.4	0.9
28-Apr	0.1	Z	0.1	0.2	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.3	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.1	0.4	0.2	0.1	0.4
29-Apr	0.1	0.1	Z	0.1	0.1	0.3	0.3	0.2	0.4	0.4	0.5	0.2	0.3	0.1	0.3	0.0	0.0	0.3	0.4	0.3	0.2	0.4	0.4	0.4	0.3	0.5
30-Apr	0.5	0.4	0.4	Z	0.4	0.4	0.3	0.3	0.4	0.3	0.7	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.7
																								Diurnal Average		
																								Diurnal Maximum		
																								0.1 0.1 0.1 0.1 0.2 0.2 0.2 0.3 0.3 0.2 0.2 0.1 0.2 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.2 0.2 0.2		
																								0.5 0.4 0.5 0.4 0.7 0.8 2.3 2.0 0.8 0.9 0.8 0.7 0.8 1.2 3.3 0.6 0.3 0.6 0.5 0.7 0.6 0.7 0.8 0.6		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Janvier - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	<b>Totals</b>
0 - 20	99	133	29	19	30	15	11	25	51	66	39	31	36	47	30	22	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	99	133	29	19	30	15	11	25	51	66	39	31	36	47	30	22	683

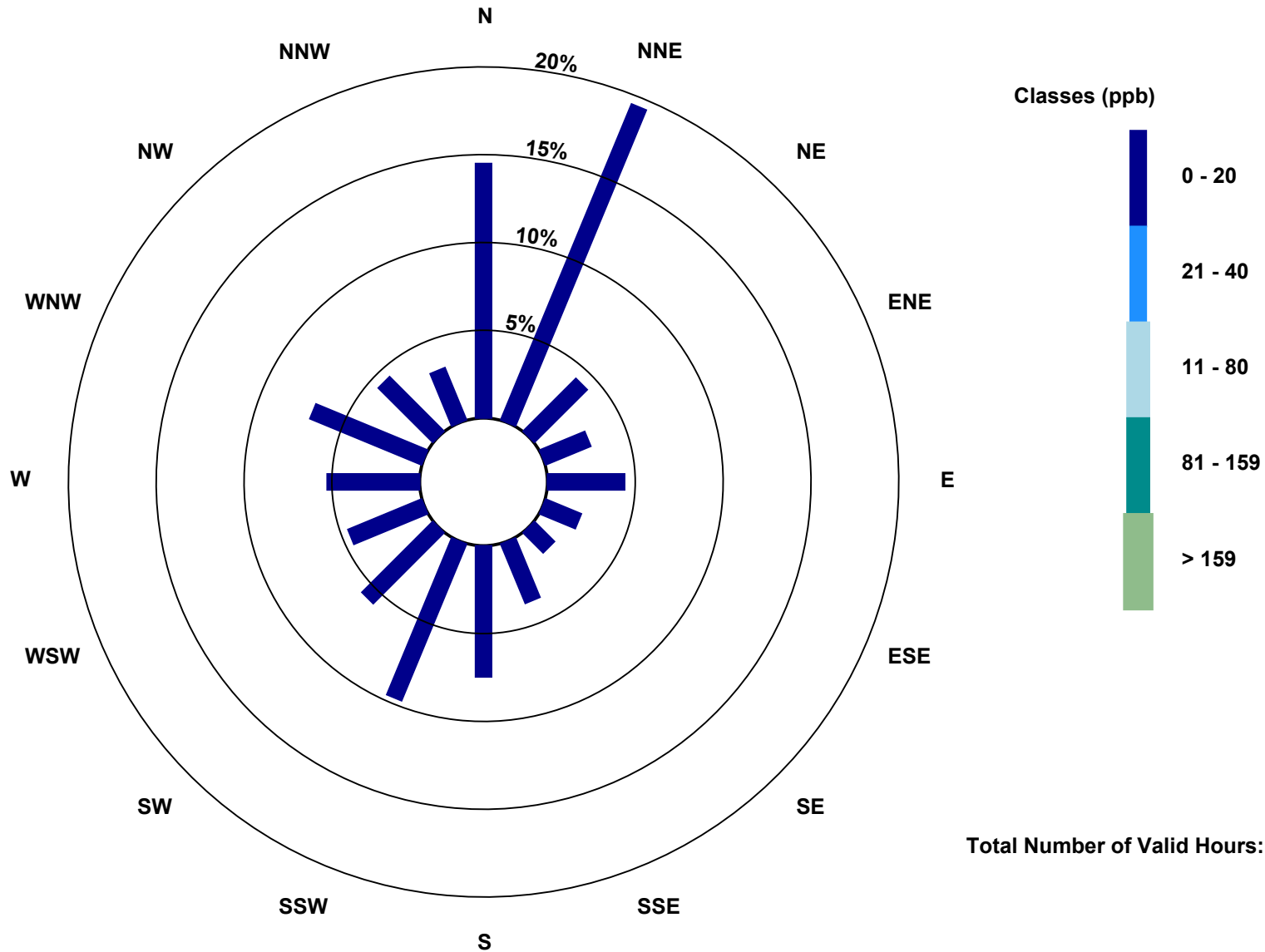
Total Number of Valid Hours: 683

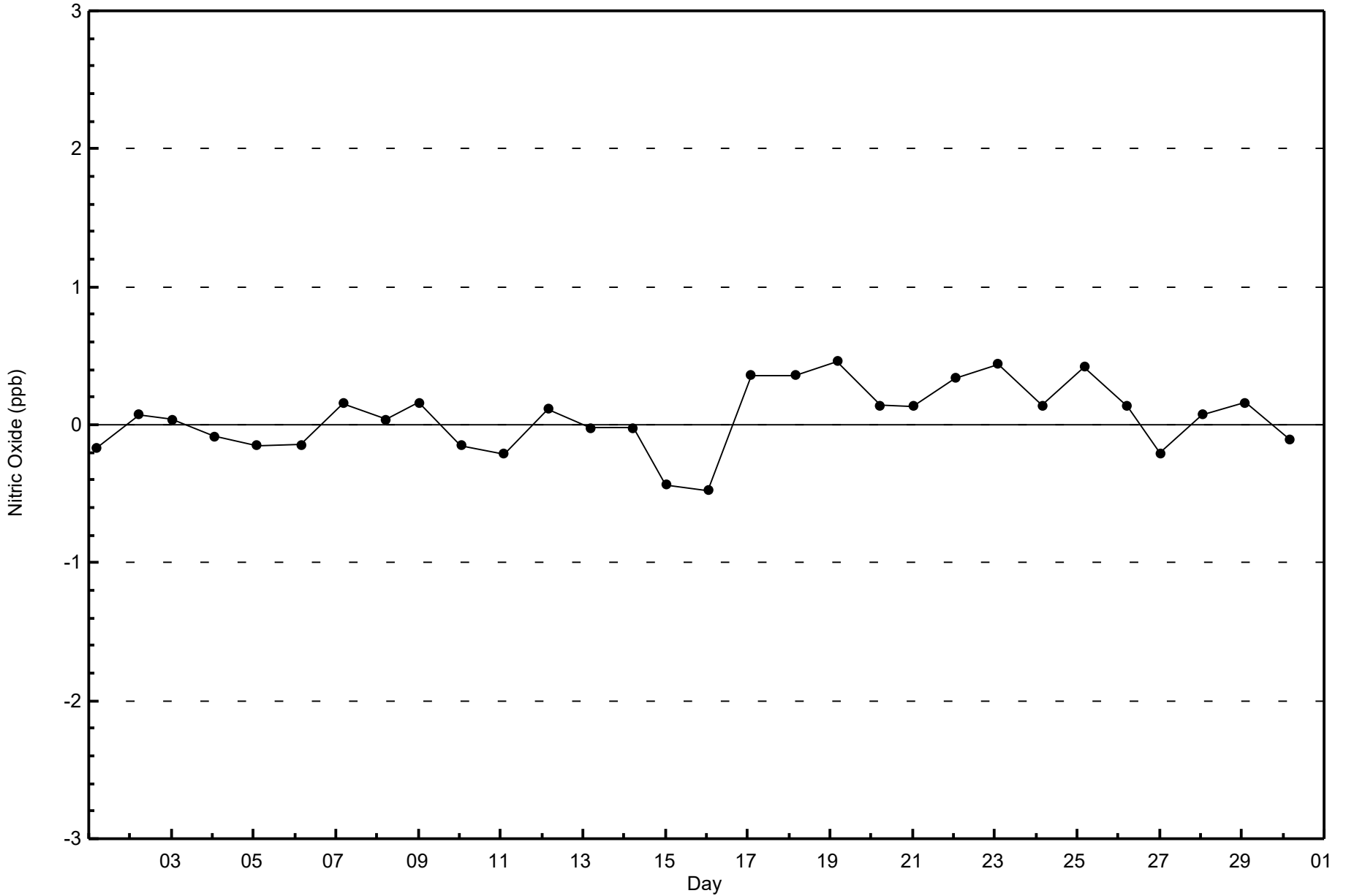
Total Number of Hours: 720

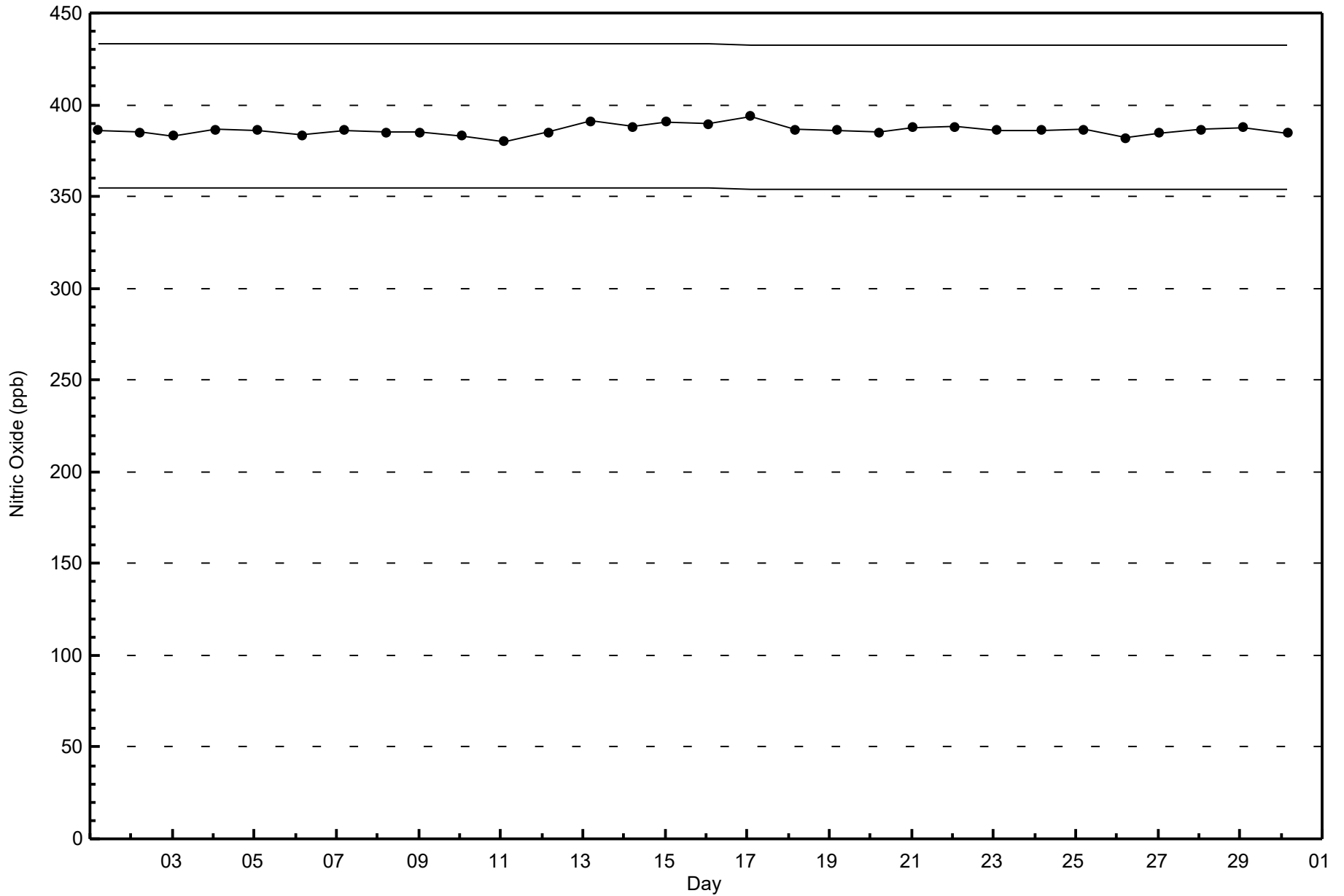


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Janvier









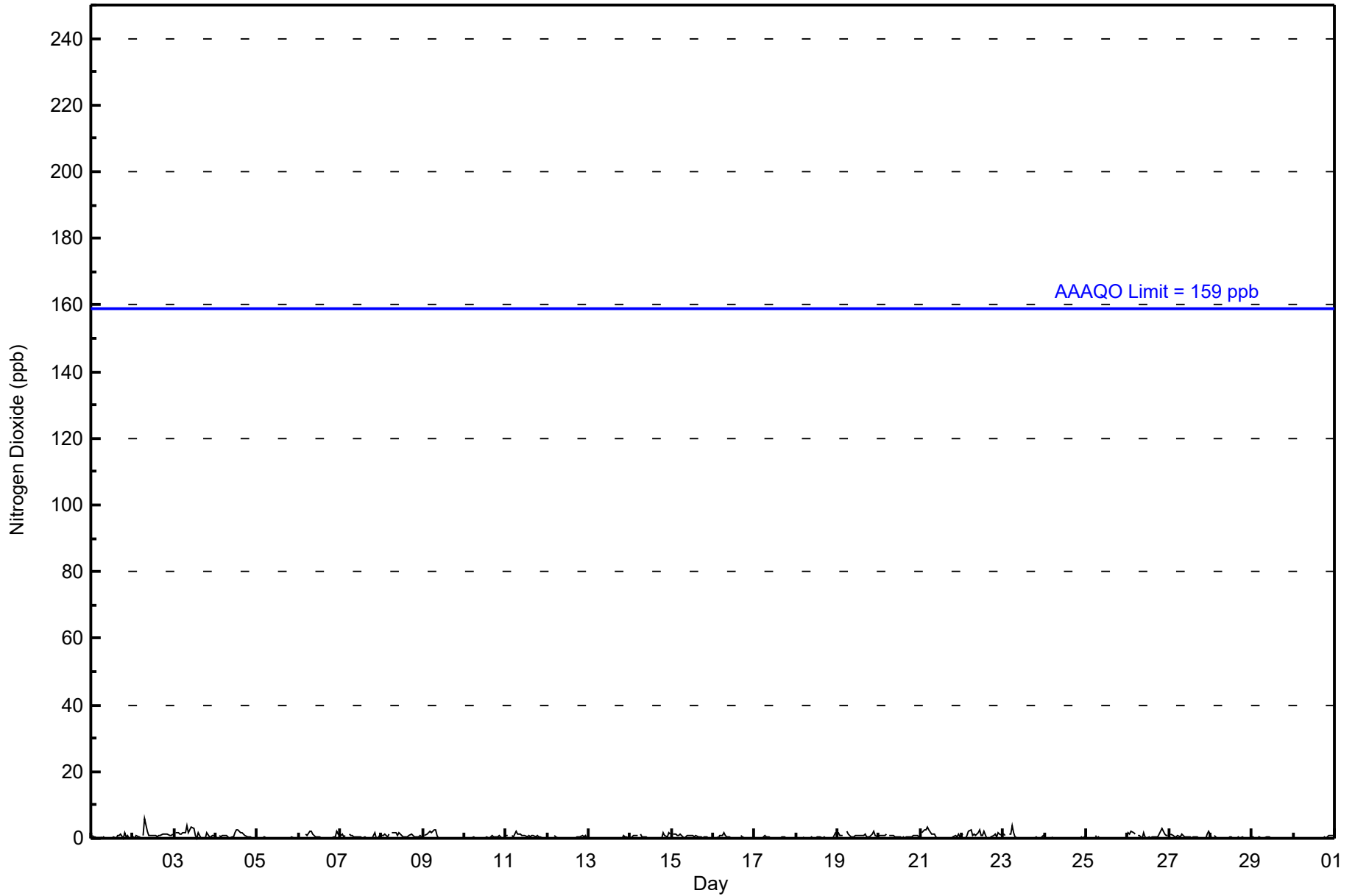
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Janvier - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														720						
Maximum Value: 5.9 ppb on Apr 2 08:00		Maximum Daily Average: 1.3 ppb on Apr 3														Hours of Data:		685								
Minimum Value: 0.0 ppb on Apr 1 09:00		Minimum Daily Average: 0.1 ppb on Apr 25														Hours of Missing Data:		35								
Maximum Diurnal Average: 1.0 ppb at hour 6		Minimum Diurnal Average: 0.3 ppb at hour 16														Hours of Calibration:		35								
Monthly Average: 0.54 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.3 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 1.3 P <sub>99</sub> = 2.8														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-Apr	0.8	0.6	0.6	0.2	Z	0.4	0.1	0.3	0.0	0.0	0.1	0.0	0.0	0.3	0.2	1.0	0.9	1.2	0.1	1.7	0.5	0.7	0.2	0.0	0.4	1.7
2-Apr	0.3	0.0	0.7	0.5	0.5	Z	0.8	5.9	2.3	1.0	0.7	0.7	0.8	0.7	0.5	0.7	0.9	1.2	1.1	1.2	1.2	1.0	0.8	1.2	1.1	5.9
3-Apr	Z	1.7	1.6	1.3	1.3	1.5	1.5	3.8	1.9	2.6	3.4	3.1	0.8	0.1	1.6	0.0	0.2	0.0	0.2	1.6	0.3	0.5	0.9	0.7	1.3	3.8
4-Apr	0.4	Z	0.8	0.5	0.7	0.8	0.8	0.4	0.1	0.5	0.6	1.5	2.6	2.7	1.9	1.6	1.1	1.0	0.6	0.6	0.3	0.2	0.1	0.2	0.9	2.7
5-Apr	0.2	0.1	Z	0.5	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.1	0.5
6-Apr	0.0	0.0	0.1	Z	1.3	0.8	2.3	2.1	1.3	1.0	0.6	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	2.2	1.1	0.7	2.3
7-Apr	0.9	1.4	0.5	0.8	Z	1.3	1.0	0.8	0.5	0.6	0.5	0.4	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.8	1.6	0.1	0.1	1.2	0.6	1.6
8-Apr	0.7	0.8	1.1	0.6	1.3	Z	1.6	1.7	1.6	0.9	1.5	1.1	0.6	0.4	0.5	0.6	0.8	1.1	1.0	0.4	0.5	0.6	0.7	0.3	0.9	1.7
9-Apr	Z	0.7	1.3	1.7	2.1	1.8	2.6	2.5	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.6
10-Apr	0.0	Z	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.4	0.7	0.5	0.3	0.5	1.0	0.4	0.2	0.4	0.3	1.0
11-Apr	0.7	0.8	Z	0.9	0.6	1.2	2.0	1.2	1.3	0.9	0.7	0.8	0.5	0.7	0.5	0.7	0.7	0.6	0.8	0.6	0.3	0.2	0.0	0.1	0.7	2.0
12-Apr	0.0	0.1	0.0	Z	0.8	0.4	0.0	0.1	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.4	0.3	0.6	0.7	0.6	1.0	0.2	0.3	1.0
13-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.5	0.2	0.1	0.7
14-Apr	0.2	0.5	1.0	1.0	0.9	Z	1.2	0.5	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7	0.8	0.4	1.9	1.2	0.5	1.9
15-Apr	Z	1.1	1.2	0.8	0.9	1.3	0.4	0.1	0.3	0.9	0.7	0.7	0.8	0.5	1.0	0.5	0.6	0.5	0.2	0.3	0.3	0.2	0.0	0.0	0.6	1.3
16-Apr	0.0	Z	0.5	0.2	0.7	1.0	1.7	1.0	0.4	0.4	0.1	C	C	C	C	C	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.4	1.7
17-Apr	0.0	0.0	Z	0.1	0.1	0.5	0.7	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.7
18-Apr	0.0	0.1	0.0	Z	0.3	0.1	0.0	0.0	0.2	0.3	0.1	0.1	0.4	0.3	0.4	0.2	0.5	0.1	0.0	0.1	0.1	0.2	1.0	1.5	0.3	1.5
19-Apr	1.8	1.0	0.8	0.9	Z	2.1	1.3	0.7	0.3	0.6	0.7	0.9	0.9	0.9	1.0	1.0	1.1	0.6	0.6	1.0	1.1	2.1	0.8	0.6	1.0	2.1
20-Apr	0.7	1.0	0.7	1.0	1.1	Z	0.9	1.0	0.8	0.4	0.3	0.4	0.4	0.2	0.3	0.2	0.4	0.5	0.5	0.6	1.0	0.7	0.7	0.3	0.6	1.1
21-Apr	Z	1.5	2.7	2.6	3.6	2.4	1.1	1.1	1.2	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.4	1.3	0.3	0.9	3.6
22-Apr	1.2	Z	0.1	0.8	2.1	2.7	0.8	1.2	0.9	1.7	2.4	1.0	0.7	2.1	0.2	0.0	0.1	0.3	0.8	1.1	0.6	1.5	1.4	0.7	1.1	2.7
23-Apr	1.1	0.8	Z	1.4	1.1	3.8	1.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.6	0.7	0.5	3.8
24-Apr	0.3	0.1	0.2	Z	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.4	0.1	0.1	0.6
25-Apr	0.1	0.0	0.0	0.0	Z	0.7	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
26-Apr	1.8	1.3	2.2	1.9	1.1	Z	1.0	0.8	0.0	1.8	0.4	0.0	0.3	0.2	0.4	0.4	0.6	0.6	1.3	2.0	3.1	1.4	0.8	0.8	1.1	3.1
27-Apr	Z	1.1	0.7	0.3	0.5	1.0	0.6	1.2	1.0	0.4	0.3	0.4	0.6	0.1	0.3	0.5	0.4	0.2	0.1	0.0	0.2	0.0	1.4	2.0	0.6	2.0
28-Apr	0.5	Z	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.1	0.2	0.3	0.1	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.8
29-Apr	0.6	0.3	Z	0.5	0.5	0.1	0.0	0.0	0.3	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
30-Apr	0.0	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	0.0	0.0	0.0	0.0	0.3	0.2	0.7	0.7	0.8	0.8	0.2	0.8
																								Diurnal Average		
																								Diurnal Maximum		
																								0.5 0.6 0.7 0.8 0.9 1.0 0.8 0.9 0.6 0.5 0.5 0.4 0.4 0.4 0.3 0.3 0.4 0.3 0.3 0.5 0.6 0.4 0.6 0.5		
																								1.8 1.7 2.7 2.6 3.6 3.8 2.6 5.9 2.3 2.6 3.4 3.1 2.6 2.7 1.9 1.6 1.1 1.2 1.3 2.0 3.1 2.1 2.2 2.0		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	<b>Totals</b>
0 - 20	99	133	29	19	30	15	11	25	51	66	39	31	36	47	30	22	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	99	133	29	19	30	15	11	25	51	66	39	31	36	47	30	22	683

Total Number of Valid Hours: 683

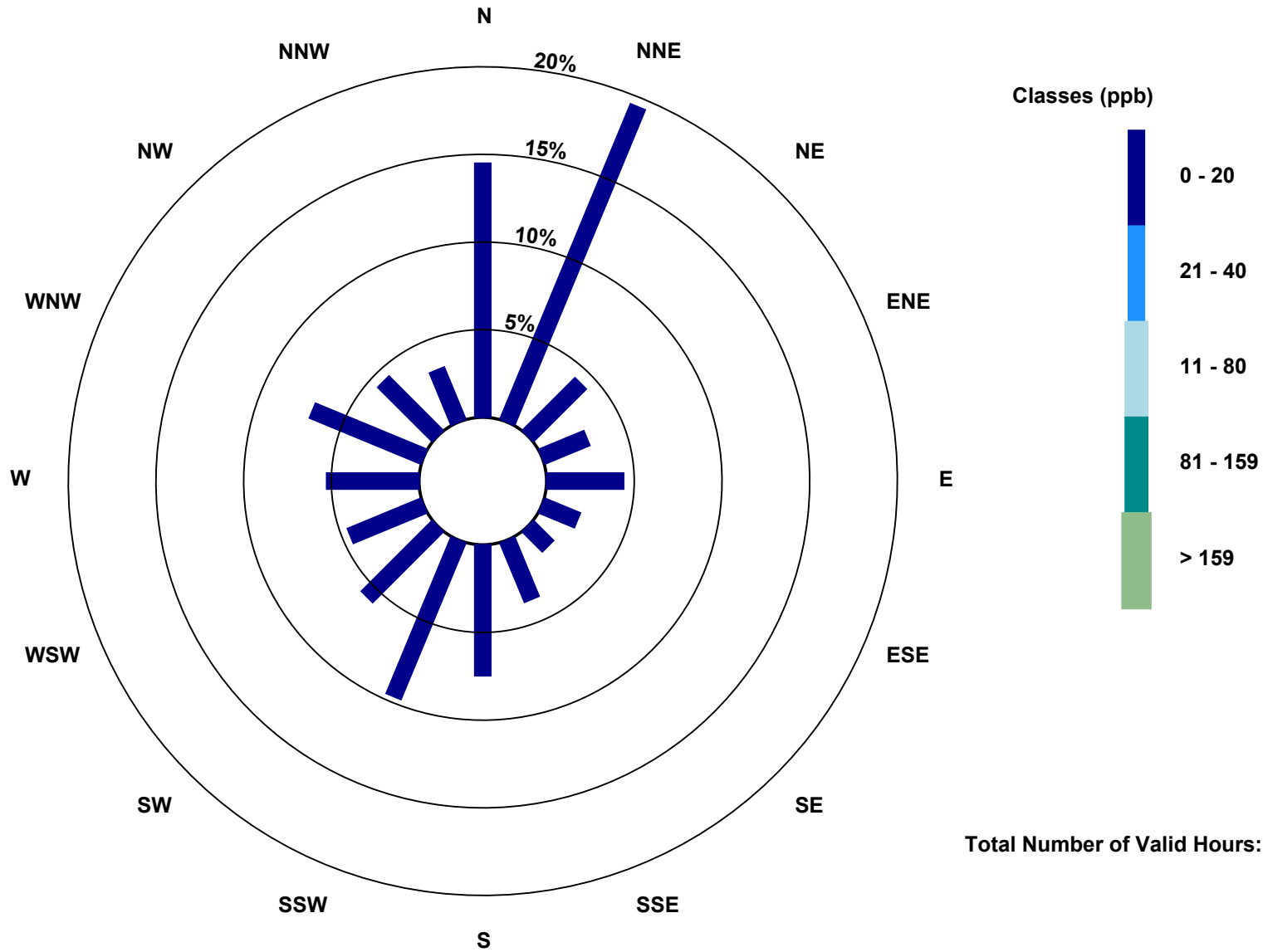
Total Number of Hours: 720



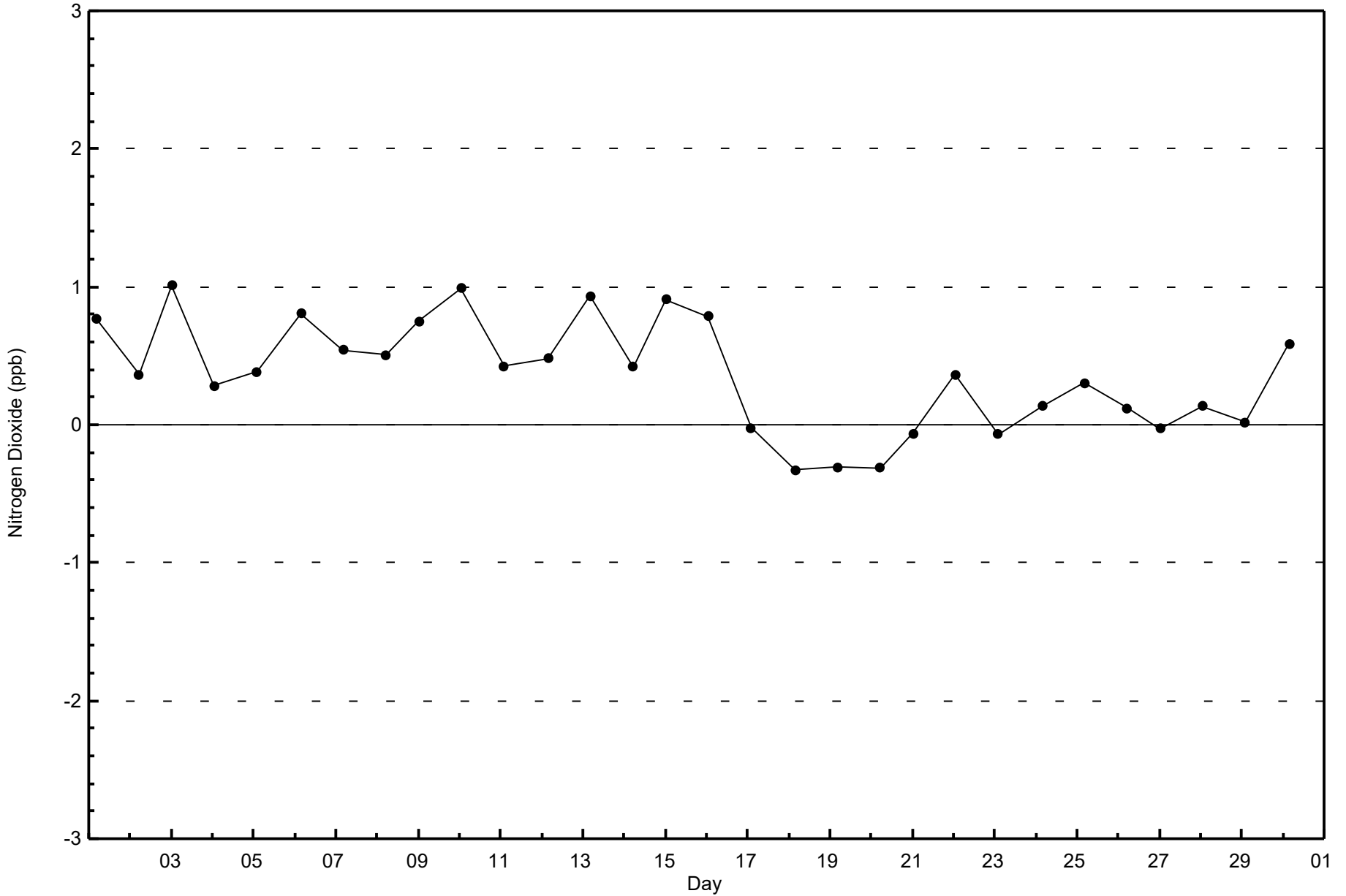


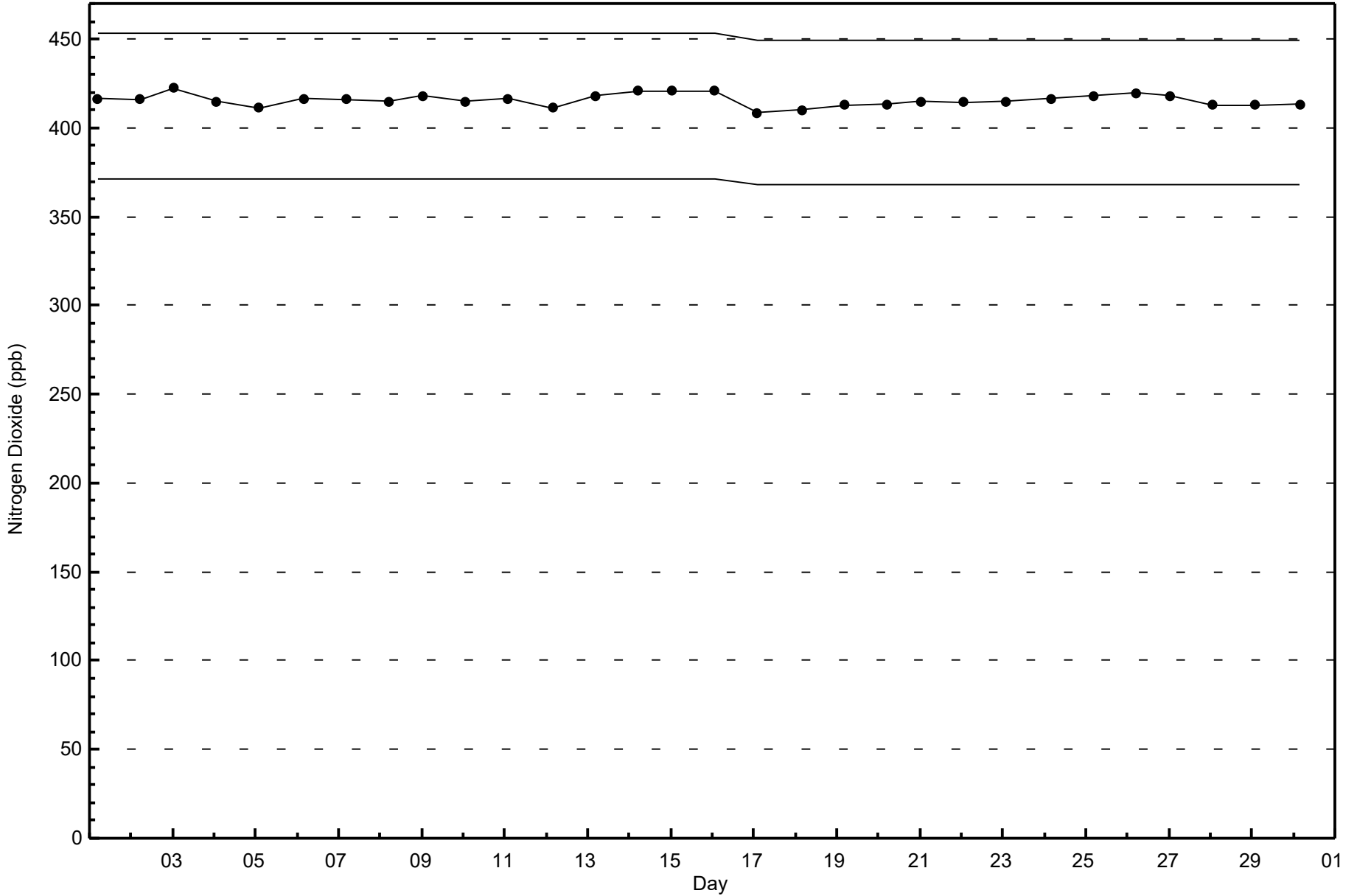
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 683







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

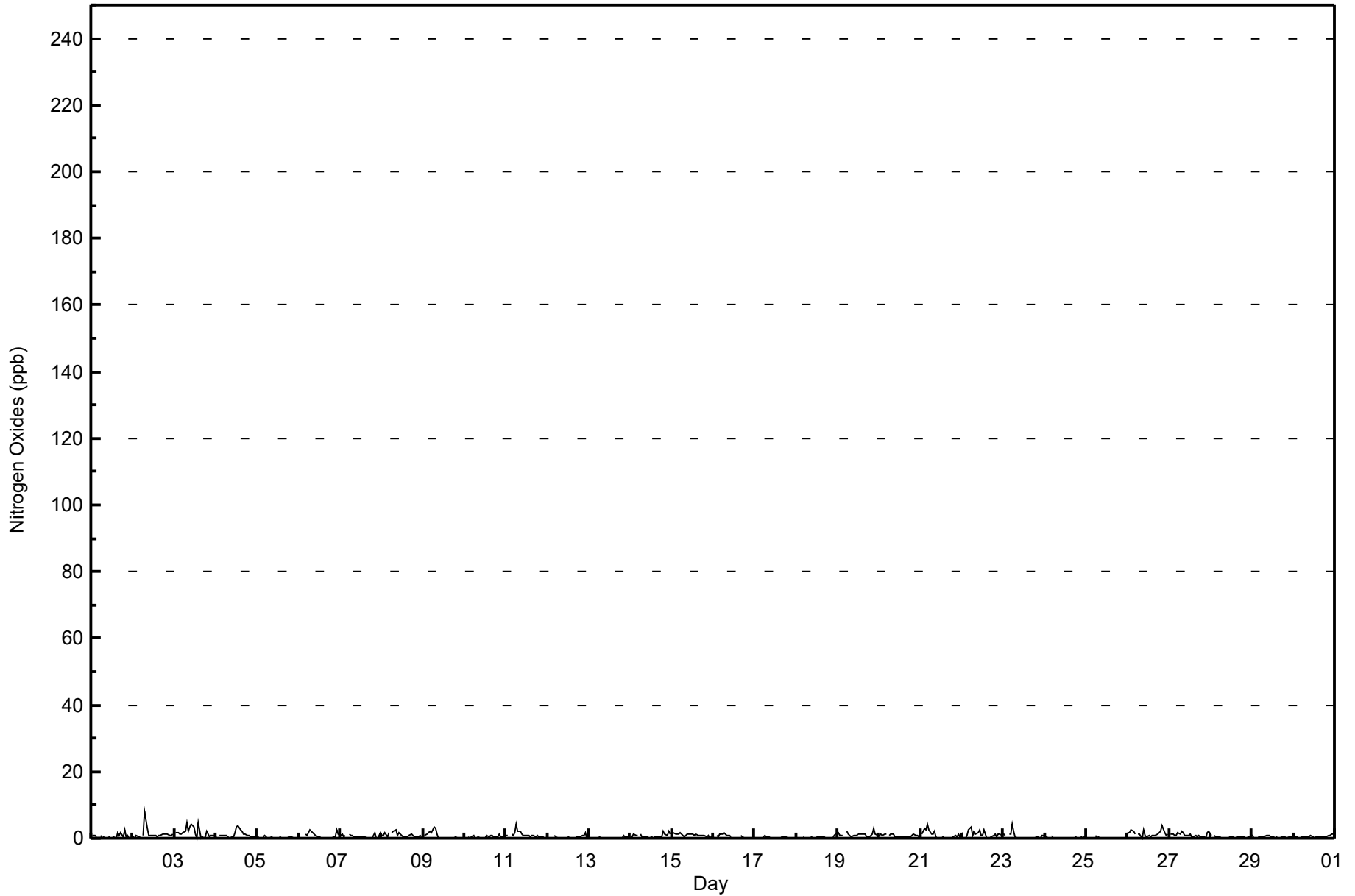
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - April 2024**

Maximum Value: 7.9 ppb on Apr 2 08:00																				Maximum Daily Average: 1.7 ppb on Apr 3					Hours in Service: 720				
Minimum Value: 0.0 ppb on Apr 1 09:00																				Minimum Daily Average: 0.1 ppb on Apr 25					Hours of Data: 685				
Maximum Diurnal Average: 1.2 ppb at hour 8																				Minimum Diurnal Average: 0.4 ppb at hour 16					Hours of Missing Data: 35				
Monthly Average: 0.71 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.5 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.6 P <sub>99</sub> = 4.0					Hours of Calibration: 35				
																				Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Apr	0.8	0.8	0.9	0.3	Z	0.6	0.1	0.3	0.0	0.0	0.3	0.0	0.0	0.5	0.2	1.6	1.0	1.6	0.2	2.4	0.5	0.7	0.2	0.0	0.6	2.4			
2-Apr	0.3	0.0	0.8	0.5	0.5	Z	0.8	7.9	2.8	1.0	0.7	0.7	0.8	0.7	0.5	0.7	0.9	1.2	1.1	1.3	1.3	1.0	0.8	1.2	1.2	7.9			
3-Apr	Z	1.7	1.6	1.3	1.3	1.5	1.9	4.6	2.2	3.5	4.2	3.5	1.4	0.1	4.9	0.0	0.3	0.0	0.3	2.1	0.3	0.7	0.9	0.7	1.7	4.9			
4-Apr	0.4	Z	0.8	0.6	0.8	0.8	0.8	0.5	0.1	0.6	0.6	1.8	3.4	3.9	2.7	2.2	1.3	1.2	0.9	0.8	0.3	0.2	0.3	0.3	1.1	3.9			
5-Apr	0.2	0.3	Z	0.6	0.8	0.3	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.5	0.1	0.0	0.1	0.1	0.3	0.2	0.6	0.0	0.0	0.0	0.2	0.8			
6-Apr	0.0	0.0	0.1	Z	1.3	0.9	2.4	2.2	1.6	1.1	0.7	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	2.6	1.4	0.7	2.6			
7-Apr	0.9	1.4	0.5	1.0	Z	1.3	1.0	0.8	0.6	0.6	0.5	0.4	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.9	1.7	0.1	0.1	1.5	0.6	1.7			
8-Apr	0.7	1.0	1.6	0.6	1.5	Z	1.9	2.2	2.4	0.9	1.8	1.3	0.6	0.4	0.5	0.6	0.8	1.2	1.0	0.4	0.5	0.6	0.7	0.3	1.0	2.4			
9-Apr	Z	0.7	1.3	1.7	2.1	1.8	3.3	2.8	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.7	3.3			
10-Apr	0.2	Z	0.3	0.0	0.3	0.7	0.0	0.2	0.4	0.1	0.1	0.0	0.2	0.7	0.3	0.7	0.9	0.6	0.5	0.6	1.2	0.5	0.2	0.6	0.4	1.2			
11-Apr	0.9	0.8	Z	1.2	0.9	1.9	4.3	1.9	2.1	1.3	0.7	1.0	0.7	0.9	0.6	0.8	0.7	0.6	0.9	0.6	0.3	0.2	0.1	0.1	1.0	4.3			
12-Apr	0.0	0.1	0.0	Z	0.8	0.4	0.0	0.1	0.2	0.2	0.1	0.0	0.3	0.0	0.0	0.0	0.1	0.6	0.3	0.6	1.1	0.9	1.8	0.2	0.3	1.8			
13-Apr	0.1	0.0	0.0	0.0	Z	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.9	0.3	0.6	0.2	0.1	0.9			
14-Apr	0.2	0.5	1.1	1.0	1.0	Z	1.4	0.6	0.6	0.6	0.2	0.2	0.4	0.2	0.3	0.3	0.2	0.6	0.3	1.9	1.4	0.9	2.2	1.5	0.8	2.2			
15-Apr	Z	1.5	1.4	1.1	1.2	1.5	0.7	0.4	0.9	1.4	1.2	1.4	1.2	0.9	1.5	0.8	0.9	0.8	0.7	0.8	0.6	0.7	0.2	0.6	1.0	1.5			
16-Apr	0.5	Z	1.0	0.4	1.1	1.4	1.9	1.1	0.6	0.7	0.3	C	C	C	C	C	0.8	0.5	0.2	0.1	0.0	0.0	0.0	0.2	0.6	1.9			
17-Apr	0.0	0.0	Z	0.1	0.1	0.5	0.7	0.5	0.6	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.7			
18-Apr	0.0	0.1	0.0	Z	0.3	0.1	0.0	0.0	0.2	0.3	0.1	0.1	0.4	0.3	0.5	0.2	0.5	0.1	0.0	0.1	0.1	0.2	1.0	1.5	0.3	1.5			
19-Apr	1.8	1.0	0.8	0.9	Z	2.2	1.3	0.8	0.3	0.8	0.7	0.9	1.1	1.2	1.2	1.2	1.3	0.6	0.6	1.0	1.3	2.8	1.1	0.8	1.1	2.8			
20-Apr	0.9	1.4	0.8	1.1	1.3	Z	1.0	1.4	1.1	0.6	0.3	0.6	0.6	0.4	0.5	0.5	0.6	0.6	0.6	0.8	1.1	0.7	0.8	0.6	0.8	1.4			
21-Apr	Z	1.5	2.9	2.6	4.3	2.7	1.4	1.4	2.0	0.5	0.1	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.4	1.3	0.4	1.0	4.3			
22-Apr	1.5	Z	0.1	1.0	2.4	3.4	0.9	2.0	1.1	1.9	2.6	1.0	0.8	2.4	0.2	0.0	0.1	0.3	0.8	1.1	0.6	1.5	1.4	0.7	1.2	3.4			
23-Apr	1.1	0.8	Z	1.4	1.1	4.2	2.1	0.5	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.4	0.4	0.2	0.8	0.9	0.6	4.2			
24-Apr	0.3	0.3	0.2	Z	0.7	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.4	0.1	0.5	0.2	0.7			
25-Apr	0.1	0.0	0.0	0.0	Z	0.7	0.2	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.7			
26-Apr	1.8	1.5	2.4	2.1	1.3	Z	1.3	1.2	0.2	2.6	0.9	0.5	0.8	0.6	0.7	0.9	0.9	1.1	1.8	2.3	3.7	1.9	1.0	1.3	1.4	3.7			
27-Apr	Z	1.5	1.2	0.7	0.9	1.8	1.2	2.1	1.7	1.0	0.7	0.8	1.3	0.4	0.5	0.9	0.5	0.8	0.6	0.4	0.5	0.1	1.7	2.2	1.0	2.2			
28-Apr	0.6	Z	0.9	0.5	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.5	0.4	0.5	0.1	0.2	0.4	0.3	0.5	0.2	0.2	0.2	0.6	0.3	0.3	0.9			
29-Apr	0.7	0.4	Z	0.6	0.6	0.4	0.3	0.2	0.7	0.9	0.9	0.3	0.3	0.1	0.3	0.0	0.0	0.3	0.4	0.3	0.2	0.4	0.4	0.4	0.4	0.4	0.9		
30-Apr	0.5	0.4	0.4	Z	0.4	0.4	0.3	0.3	0.4	0.3	0.7	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3	1.0	0.9	1.2	1.1	0.5	1.2			
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan C - Calibration																													



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Totals
0 - 20	99	133	29	19	30	15	11	25	51	66	39	31	36	47	30	22	683
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	99	133	29	19	30	15	11	25	51	66	39	31	36	47	30	22	683

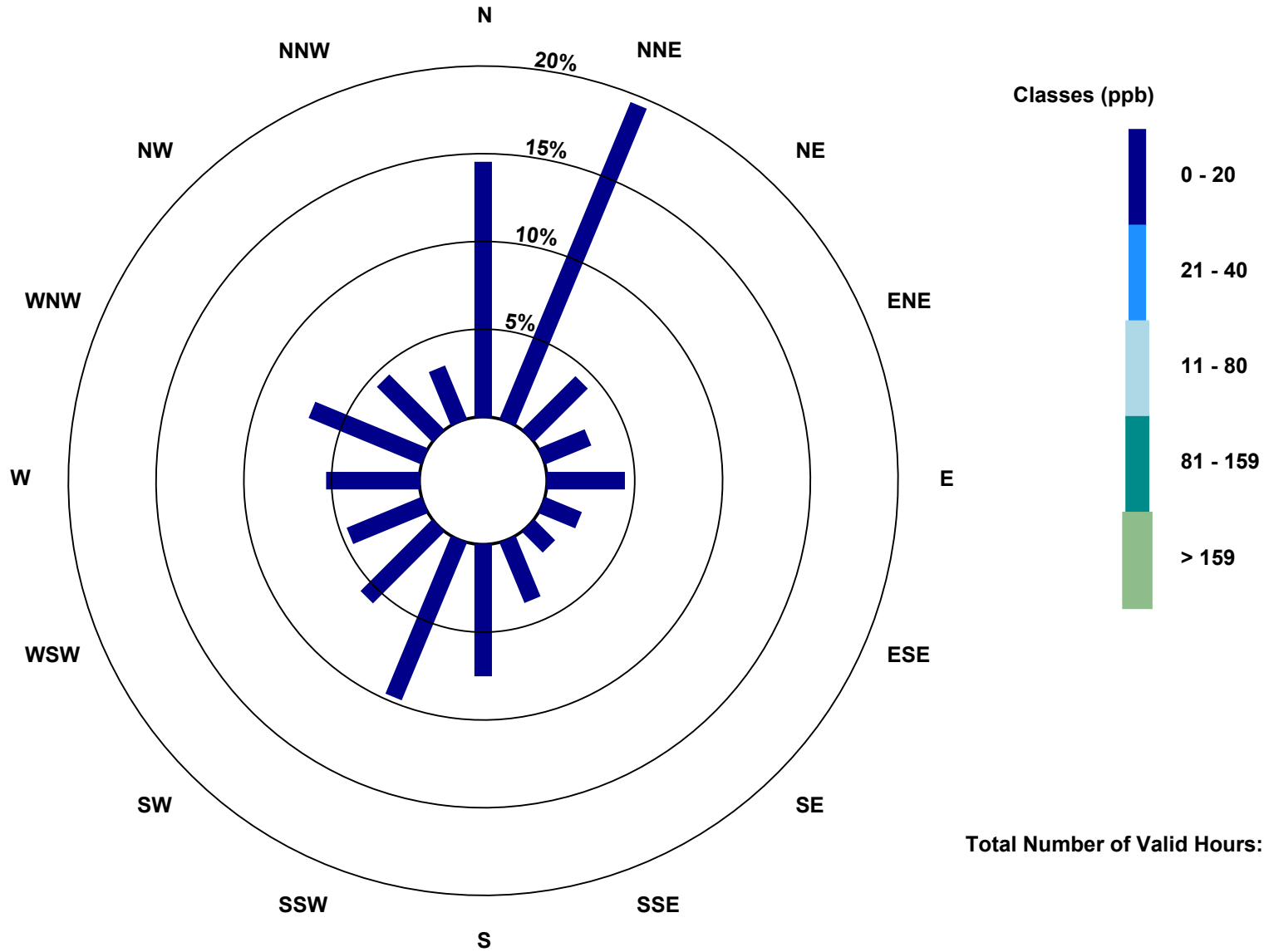
Total Number of Valid Hours: 683

Total Number of Hours: 720

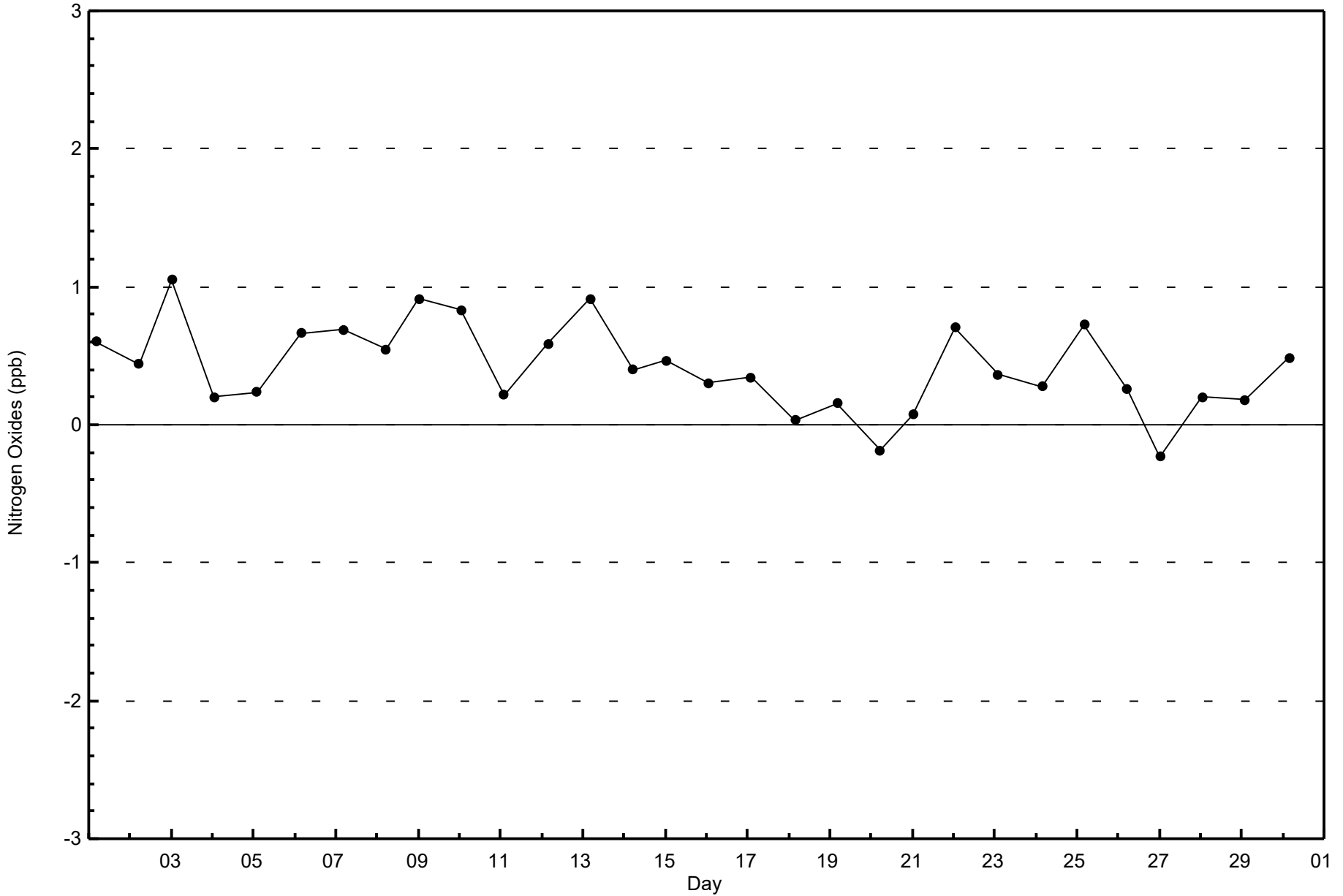


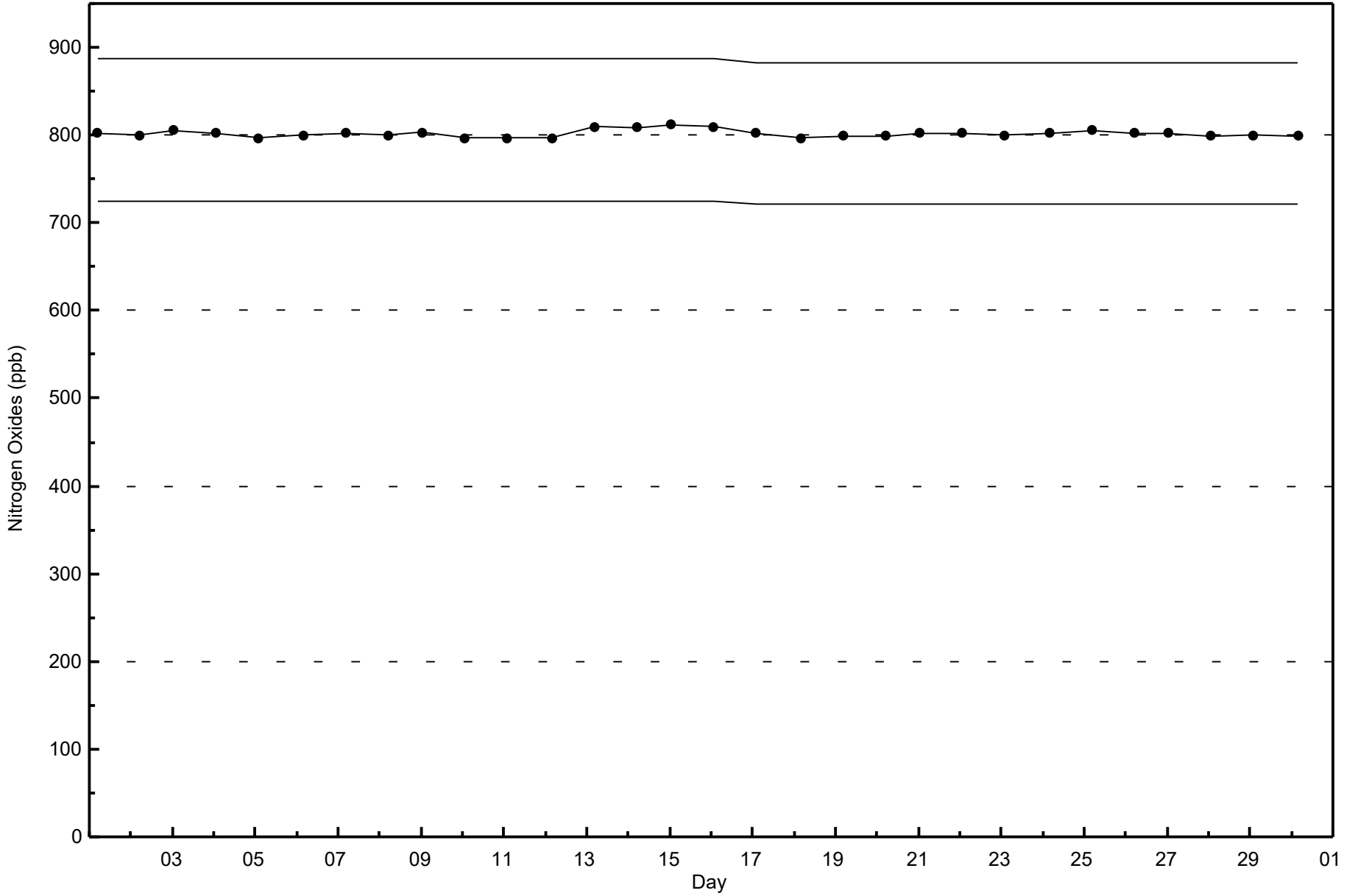
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











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

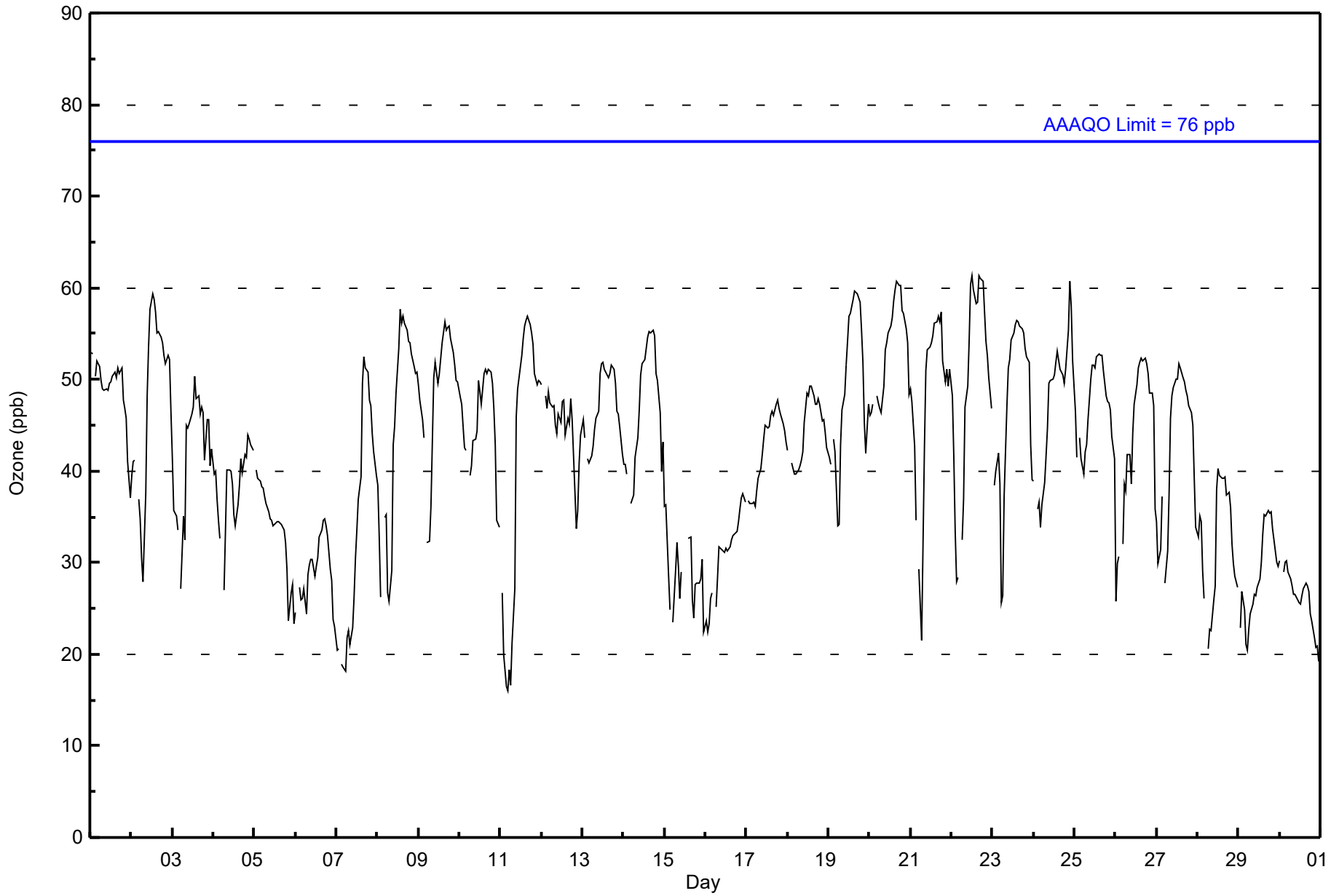
**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum																									
Maximum Value: 61.4 ppb on Apr 22 13:00		Maximum Daily Average: 53.3 ppb on Apr 20																	Hours of Data: 687		Hours of Missing Data: 33																											
Minimum Value: 16.1 ppb on Apr 11 05:00		Minimum Daily Average: 26.1 ppb on Apr 30																	Hours of Calibration: 33		Percent Operational Time: 100.0																											
Maximum Diurnal Average: 48.0 ppb at hour 16		Minimum Diurnal Average: 32.8 ppb at hour 7																																														
Monthly Average: 41.88 ppb		Percentiles: P <sub>1</sub> = 19.1 P <sub>10</sub> = 26.7 Q <sub>1</sub> = 33.9 Median = 43.5 Q <sub>3</sub> = 50.3 P <sub>90</sub> = 54.6 P <sub>99</sub> = 60.3																																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	53.0	52.7	Z	50.4	52.1	51.4	50.0	49.0	48.8	49.0	48.9	49.6	49.8	50.3	50.8	50.2	51.2	50.6	51.2	47.8	46.9	45.7	41.1	37.1	49.0	53.0																						
2-Apr	39.4	41.1	41.2	Z	36.9	34.9	30.5	27.9	37.5	48.1	53.5	57.7	59.4	58.7	57.3	55.0	55.3	54.6	53.9	52.6	51.7	52.6	52.2	46.6	47.8	59.4																						
3-Apr	41.5	35.7	35.1	33.5	Z	27.2	35.1	32.5	45.0	44.7	45.2	46.2	47.0	50.3	47.9	48.2	46.2	47.0	46.3	41.2	45.6	45.6	40.5	42.5	42.2	50.3																						
4-Apr	39.6	40.0	37.0	34.6	32.7	Z	27.0	33.5	40.2	40.2	40.0	38.6	35.2	34.0	36.3	38.5	41.3	39.9	41.8	41.6	44.0	43.5	42.9	42.2	38.5	44.0																						
5-Apr	Z	40.2	39.2	39.0	38.4	38.1	37.2	36.5	35.6	34.8	34.6	34.1	34.3	34.4	34.5	34.3	34.1	33.5	32.2	29.2	23.7	26.8	27.7	23.3	33.7	40.2																						
6-Apr	24.6	Z	27.3	25.9	26.1	27.2	24.5	28.6	29.7	30.4	30.4	28.6	29.6	30.4	32.8	33.6	34.6	34.8	34.0	33.0	29.3	28.0	23.8	23.1	29.1	34.8																						
7-Apr	20.4	20.6	Z	18.9	18.5	18.1	21.9	22.6	21.1	22.9	26.2	30.5	33.6	36.9	39.4	49.5	52.5	51.3	50.7	47.8	47.2	44.1	42.1	39.6	33.8	52.5																						
8-Apr	38.5	32.9	26.2	Z	34.9	35.3	26.7	25.7	29.2	42.8	44.9	48.5	53.4	57.7	56.2	57.0	56.1	55.3	54.1	54.1	52.8	51.4	50.6	50.9	45.0	57.7																						
9-Apr	49.4	47.8	45.6	43.6	Z	32.2	32.3	36.1	43.2	50.2	51.8	49.6	50.6	52.4	54.0	56.2	55.3	55.7	55.8	54.5	53.0	51.6	49.9	49.7	48.7	56.2																						
10-Apr	48.1	47.3	44.8	42.5	42.2	Z	39.4	40.6	43.3	43.5	44.4	49.8	48.7	47.2	50.6	51.1	50.7	51.2	50.8	49.6	46.8	42.9	34.6	33.9	45.4	51.2																						
11-Apr	Z	26.7	20.0	16.5	16.1	18.3	16.6	21.2	27.2	45.9	48.9	50.2	52.6	54.4	55.8	56.4	56.8	55.9	55.1	53.9	50.7	49.5	49.9	49.8	41.2	56.8																						
12-Apr	49.4	Z	48.1	46.8	48.6	47.4	47.0	47.1	45.1	44.2	46.2	45.2	47.6	47.7	43.9	45.7	45.2	47.9	45.6	41.6	33.7	35.8	40.8	43.9	45.0	49.4																						
13-Apr	45.7	43.6	Z	41.3	41.0	41.7	42.7	44.5	45.7	46.5	50.7	51.7	51.8	51.1	50.5	50.2	50.7	51.6	51.1	49.5	46.5	46.2	44.8	41.8	47.0	51.8																						
14-Apr	40.7	40.8	39.6	Z	36.4	36.9	37.4	41.5	43.7	46.7	50.5	51.7	52.2	53.4	54.6	55.2	55.0	55.4	54.7	50.7	49.8	46.3	39.9	43.2	46.8	55.4																						
15-Apr	36.2	36.3	28.5	24.9	Z	23.5	29.2	32.2	29.5	26.1	29.0	C	C	C	32.6	32.7	25.9	23.9	27.7	27.8	27.8	28.3	30.4	22.4	28.8	36.3																						
16-Apr	23.7	22.4	23.4	26.1	26.8	Z	25.1	28.4	31.7	31.3	31.2	31.1	31.6	31.2	31.7	32.5	33.0	33.2	33.4	34.4	35.9	37.1	37.5	36.7	30.8	37.5																						
17-Apr	Z	36.8	36.5	36.5	36.6	36.2	37.8	39.1	40.3	41.8	43.5	45.0	44.7	44.8	46.1	46.5	46.0	47.3	47.8	46.9	46.2	45.1	44.4	43.2	42.6	47.8																						
18-Apr	42.2	Z	41.0	40.3	39.7	39.6	40.1	40.6	41.1	42.1	45.3	48.5	48.2	49.2	49.3	48.2	47.3	47.2	48.0	47.2	45.5	45.6	44.2	42.6	44.5	49.3																						
19-Apr	41.4	40.8	Z	43.5	42.1	34.0	34.2	42.9	46.7	48.4	51.5	54.2	56.9	57.2	58.7	59.7	59.4	59.4	58.5	55.4	51.9	45.4	42.0	47.3	49.2	59.7																						
20-Apr	46.1	46.4	47.3	Z	48.2	47.5	46.9	46.4	49.3	53.2	54.0	55.1	55.8	56.7	58.5	59.8	60.7	60.2	60.2	57.5	57.2	55.5	54.0	48.4	53.3	60.7																						
21-Apr	48.9	47.6	42.6	34.6	Z	29.2	21.6	32.2	42.5	51.0	53.3	53.5	54.0	54.8	56.2	56.4	56.9	56.2	57.4	52.1	49.7	51.2	49.3	51.0	47.9	57.4																						
22-Apr	48.2	41.7	33.4	27.9	28.4	Z	32.5	36.9	47.0	49.3	54.3	60.4	61.4	59.8	58.2	58.4	61.3	61.1	60.7	57.4	54.1	52.6	50.2	46.9	49.7	61.4																						
23-Apr	Z	38.4	40.0	41.9	38.6	25.7	26.5	37.2	47.1	51.3	52.2	54.3	55.1	56.0	56.4	56.2	55.8	55.5	55.0	53.3	52.5	51.9	42.9	39.1	47.1	56.4																						
24-Apr	39.0	Z	35.9	36.7	33.8	36.4	38.7	41.7	44.7	49.5	49.9	50.0	50.5	51.8	53.1	51.1	50.8	50.6	49.6	51.1	55.4	60.7	57.9	52.0	47.4	60.7																						
25-Apr	46.5	41.5	Z	43.7	41.3	39.6	42.1	42.8	45.6	50.0	51.5	51.6	51.3	52.5	52.8	52.7	52.6	51.0	48.2	47.7	47.4	46.7	43.8	41.4	47.1	52.8																						
26-Apr	25.7	30.0	30.6	Z	32.0	38.5	37.8	41.8	41.8	38.6	44.1	47.3	49.5	51.3	51.9	52.3	52.0	52.4	51.8	50.7	48.4	48.5	47.1	35.9	43.5	52.4																						
27-Apr	34.5	29.9	31.4	37.2	Z	27.8	31.2	37.5	45.7	48.3	49.1	50.1	50.0	51.7	51.3	50.2	49.7	48.9	48.2	47.2	46.3	45.0	39.1	33.9	42.8	51.7																						
28-Apr	32.7	35.1	34.5	29.1	26.1	Z	20.7	22.8	22.6	26.0	27.4	37.9	40.3	39.5	39.2	39.1	39.3	37.3	37.7	36.0	32.0	29.8	28.6	27.3	32.2	40.3																						
29-Apr	Z	22.9	26.8	24.9	21.0	20.5	22.8	24.3	25.5	26.6	26.4	27.2	28.2	30.0	33.1	35.3	35.0	35.7	35.4	35.5	33.7	31.3	30.0	29.5	28.8	35.7																						
30-Apr	30.3	Z	29.0	30.0	30.3	29.0	28.2	27.5	26.6	26.5	26.2	25.6	25.5	26.4	27.1	27.8	27.5	26.8	24.3	23.6	21.8	20.8	20.9	19.2	26.1	30.3																						
																								39.4	37.6	35.4	34.8	34.7	33.4	32.8	35.4	38.8	41.7	43.5	45.6	46.5	47.3	47.4	48.0	47.9	47.7	47.4	45.7	44.2	43.5	41.4	39.5	Diurnal Average
																								53.0	52.7	48.1	50.4	52.1	51.4	50.0	49.0	49.3	53.2	54.3	60.4	61.4	59.8	58.7	59.8	61.3	61.1	60.7	57.5	57.2	60.7	57.9	52.0	Diurnal Maximum
Z - zerospan C - Calibration																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb																																																



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	11	1.60	1.60
21 - 50	507	73.80	75.40
51 - 82	169	24.60	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 687

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Janvier - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	1	1	0	0	0	0	0	1	5	1	1	1	0	0	0	0	11
21 - 50	91	113	21	13	18	11	10	10	30	52	31	20	18	22	23	22	505
51 - 82	10	18	7	6	13	4	2	14	17	11	8	9	18	26	5	1	169
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	102	132	28	19	31	15	12	25	52	64	40	30	36	48	28	23	685

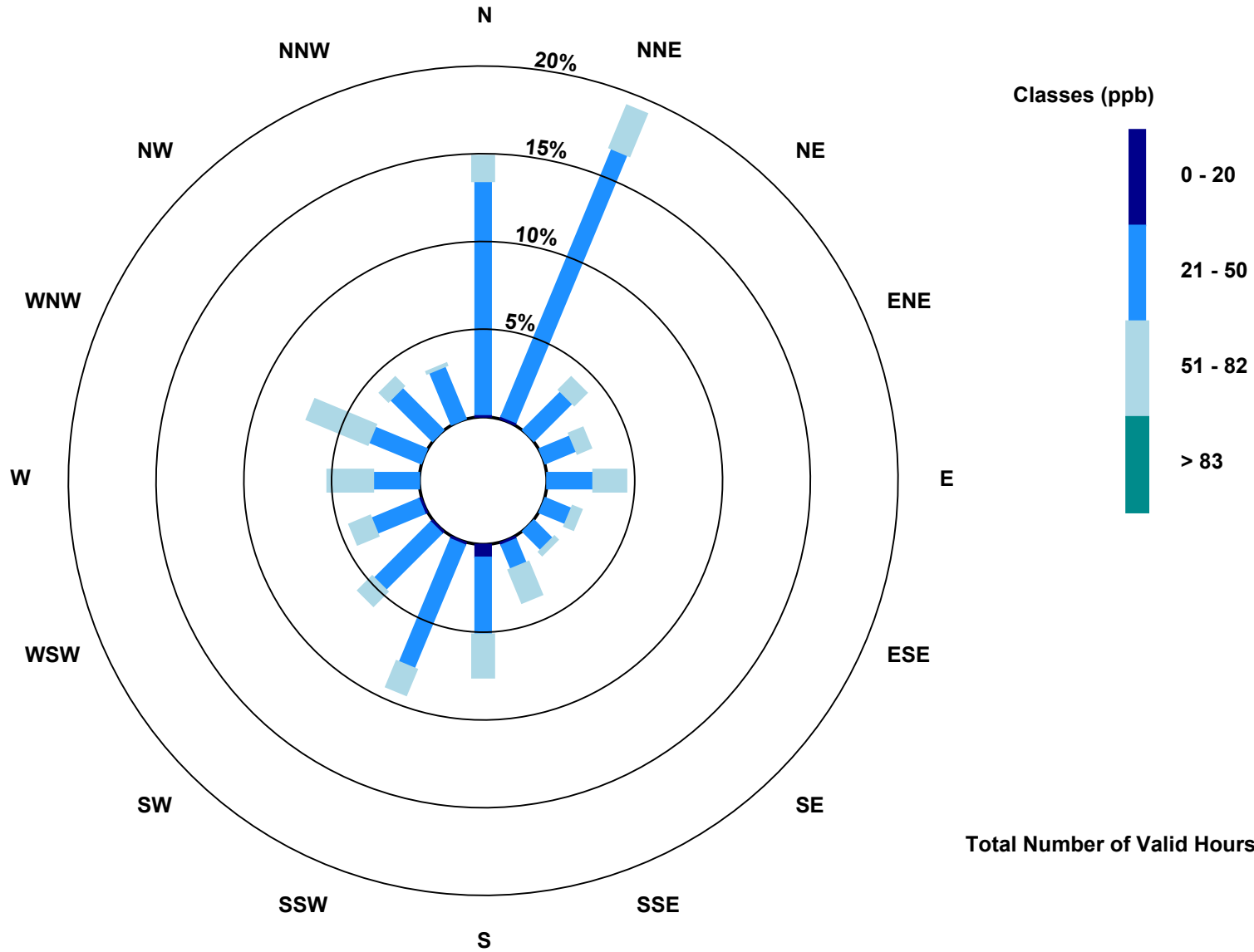
Total Number of Valid Hours: 685

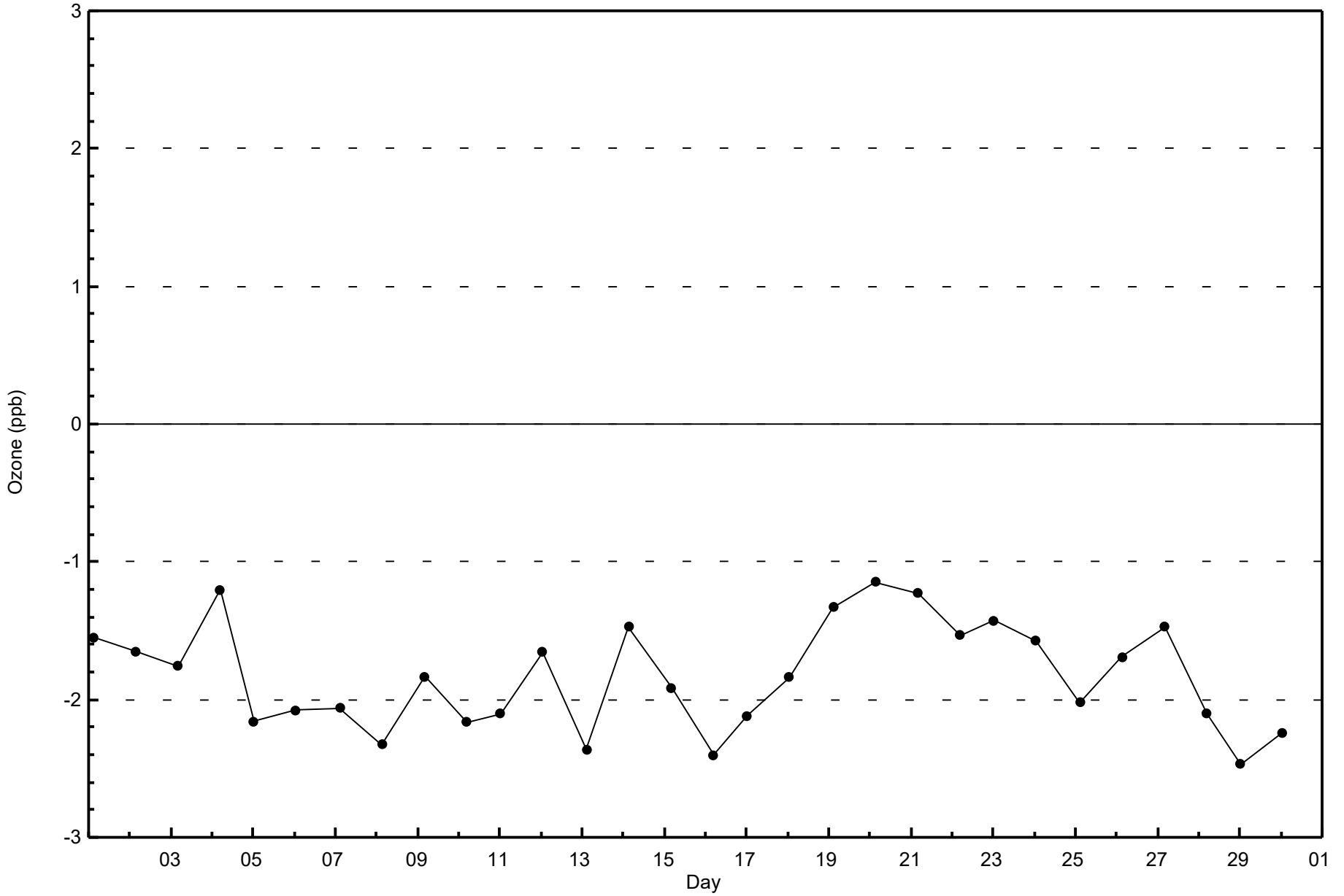
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



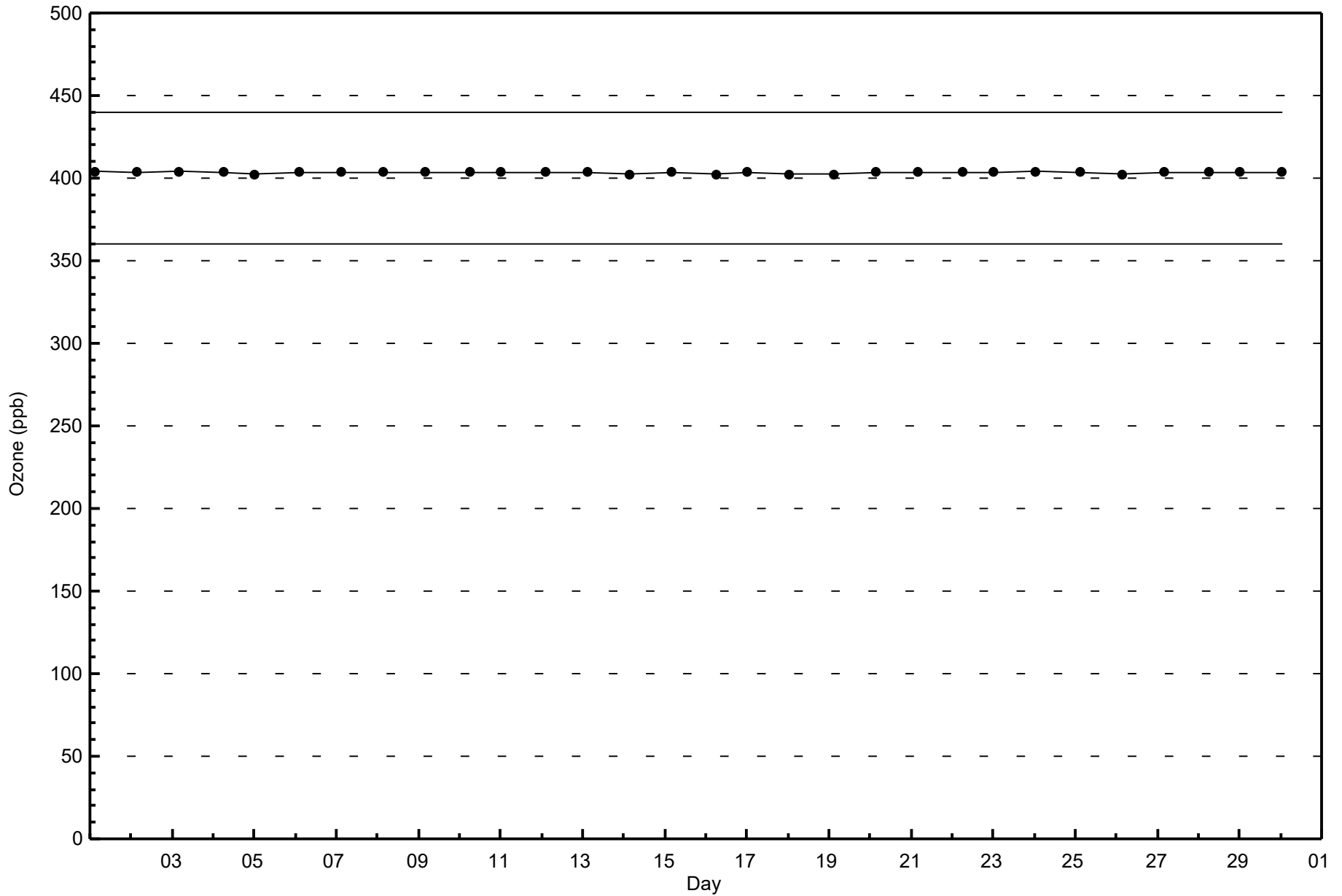






**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - April 2024**

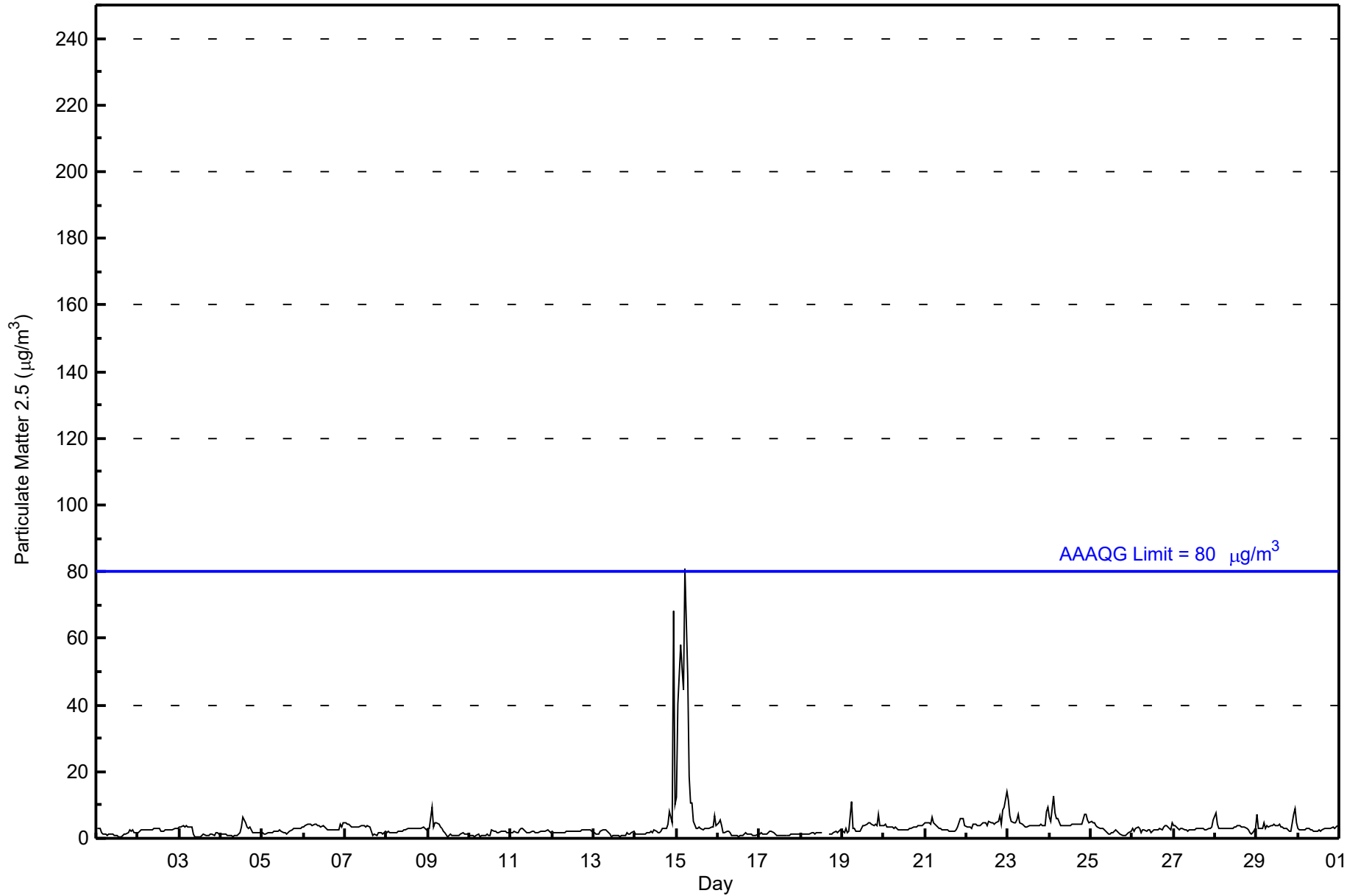




Summary of Hour Averages

Janvier - April 2024

Number of Exceedences (AAAQO):		1-hr: 1	24-hr: 0																		Hours in Service:	720				
Maximum Value: 81.0 µg/m <sup>3</sup> on Apr 15 06:00		Maximum Daily Average: 17.7 µg/m <sup>3</sup> on Apr 15																	Hours of Data:	717						
Minimum Value: 0.4 µg/m <sup>3</sup> on Apr 3 12:00		Minimum Daily Average: 1.2 µg/m <sup>3</sup> on Apr 17																	Hours of Missing Data:	3						
Maximum Diurnal Average: 5.7 µg/m <sup>3</sup> at hour 6		Minimum Diurnal Average: 2.3 µg/m <sup>3</sup> at hour 12																	Hours of Calibration:	3						
Monthly Average: 3.32 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.6 Median = 2.6 Q <sub>3</sub> = 3.6 P <sub>90</sub> = 4.6 P <sub>99</sub> = 17.8																	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-Apr	2.8	3.0	2.9	1.8	1.3	1.1	1.0	1.1	1.1	1.1	1.0	0.8	0.8	0.6	0.5	0.8	1.1	1.4	1.6	2.6	2.1	2.7	1.6	1.5	1.5	3.0
2-Apr	1.5	2.1	2.7	2.6	2.4	2.4	2.4	2.8	2.7	2.9	3.0	3.1	2.8	2.3	2.0	2.0	2.5	2.7	2.5	2.5	2.6	3.1	3.1	3.2	2.6	3.2
3-Apr	3.3	3.2	3.7	3.4	3.6	3.4	3.3	3.2	1.4	0.4	0.6	0.4	0.5	0.7	1.1	1.0	1.0	1.1	1.3	1.0	1.6	1.7	1.3	1.8	3.7	
4-Apr	1.3	1.2	1.3	1.1	0.9	0.7	0.7	0.5	0.7	0.9	1.2	1.8	3.4	6.4	4.7	3.2	2.9	3.3	1.8	1.8	1.6	1.7	1.7	1.9	6.4	
5-Apr	1.5	1.5	1.5	1.6	1.7	1.7	1.7	2.2	2.1	2.0	2.4	2.2	1.7	1.5	1.4	1.5	2.2	2.7	2.8	2.8	3.0	3.0	3.2	2.1	3.2	
6-Apr	3.2	3.8	4.3	4.3	4.3	4.0	4.4	4.2	4.0	3.8	3.5	3.9	3.2	2.8	2.5	2.5	2.6	2.5	2.4	2.6	2.6	4.1	3.5	4.5	3.5	4.5
7-Apr	4.6	4.4	4.2	3.8	3.6	3.4	3.4	3.3	3.4	3.7	3.7	3.7	3.6	3.6	3.4	2.1	1.0	1.2	0.9	1.8	1.5	1.6	1.1	2.2	2.9	4.6
8-Apr	1.9	2.0	1.8	1.6	1.8	1.6	1.9	2.0	2.0	2.2	2.5	2.5	2.8	3.0	2.8	2.9	2.9	2.9	2.9	2.8	2.8	3.2	3.2	2.6	2.4	3.2
9-Apr	3.2	3.1	9.1	3.5	4.5	4.6	4.0	3.4	3.0	2.3	1.6	0.6	0.7	1.1	0.9	0.7	1.1	0.6	0.7	1.4	1.5	1.1	1.2	1.3	2.3	9.1
10-Apr	0.9	0.7	0.8	0.6	0.9	1.1	0.4	0.7	0.8	0.9	1.1	0.9	0.9	2.6	2.3	2.0	1.9	1.8	2.2	2.1	2.0	1.6	1.6	1.4	2.6	
11-Apr	1.6	1.8	2.0	1.9	1.9	2.3	2.8	2.8	2.3	1.9	1.7	1.6	1.9	2.1	1.8	1.9	1.9	2.2	2.3	2.2	2.0	2.5	1.9	1.8	2.0	2.8
12-Apr	2.0	1.6	1.8	1.7	1.8	1.7	1.9	1.9	2.1	2.2	1.9	1.9	2.0	2.1	2.0	2.0	2.2	2.5	2.6	2.5	2.6	2.5	2.6	2.1	2.1	2.6
13-Apr	1.5	1.2	1.2	1.5	1.9	2.5	2.7	2.7	2.2	1.3	0.6	0.8	0.7	0.8	0.7	0.6	0.7	0.9	1.0	1.5	1.3	1.2	1.6	2.0	1.4	2.7
14-Apr	1.3	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.8	1.9	1.8	2.4	2.1	1.8	1.9	2.0	3.0	3.1	2.8	4.1	7.9	4.8	68.2	10.1	5.4	68.2
15-Apr	12.2	40.3	58.0	50.8	44.6	81.0	48.5	18.5	10.8	10.5	5.2	3.1	3.0	3.3	3.0	2.7	2.9	2.8	2.9	2.9	3.6	3.6	6.9	3.8	17.7	81.0
16-Apr	4.6	5.4	4.0	1.8	1.9	1.9	2.1	1.5	0.9	1.0	0.9	0.8	0.5	0.7	0.7	1.2	1.5	1.1	1.2	1.2	0.9	0.7	0.9	1.1	1.6	5.4
17-Apr	1.3	1.5	1.4	1.4	1.2	1.9	2.2	2.0	1.6	1.1	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.1	1.3	1.2	2.2
18-Apr	1.2	1.2	1.2	1.3	1.3	1.3	1.5	1.5	1.4	1.7	1.8	1.8	1.8	C	C	C	1.4	1.5	1.4	1.7	2.0	1.7	2.0	2.4	1.6	2.4
19-Apr	2.3	1.8	2.8	1.8	2.3	11.1	3.0	3.0	2.0	2.1	2.2	3.0	3.9	3.8	4.1	4.6	4.8	4.0	3.7	4.0	4.0	7.3	3.9	3.7	3.7	11.1
20-Apr	3.9	4.1	3.3	3.2	3.2	3.3	2.9	3.2	2.7	2.6	2.7	2.5	2.7	2.5	2.6	2.8	3.0	3.3	3.4	3.5	3.9	3.7	3.9	4.2	3.2	4.2
21-Apr	4.5	4.9	4.9	4.3	6.6	4.6	3.8	3.4	3.0	2.8	2.7	2.5	2.4	2.4	2.2	2.2	2.2	2.3	2.4	3.2	5.8	5.8	5.7	3.6	3.7	6.6
22-Apr	3.3	3.3	3.3	3.2	4.3	4.3	3.8	4.0	3.9	4.5	4.7	4.7	4.0	5.1	4.5	4.7	4.4	4.8	5.1	6.8	4.4	8.7	9.2	14.2	5.1	14.2
23-Apr	11.4	6.6	4.9	4.6	4.7	5.5	7.3	4.8	4.4	3.7	3.5	3.6	3.7	3.7	3.8	3.9	3.9	3.9	3.9	4.0	3.9	3.9	8.2	9.2	5.0	11.4
24-Apr	6.5	5.0	12.9	7.5	5.9	6.0	4.0	3.9	3.9	4.0	3.9	3.9	4.0	4.0	4.1	4.1	4.2	4.2	4.3	4.4	7.2	7.2	5.6	4.7	5.2	12.9
25-Apr	4.9	4.7	4.5	3.8	3.4	3.1	3.0	3.0	2.6	1.6	1.3	1.2	1.5	1.8	2.4	2.1	1.7	1.1	0.9	0.9	1.0	1.4	1.7	2.1	2.3	4.9
26-Apr	3.0	2.1	3.0	3.6	2.8	1.8	2.4	2.8	1.9	2.7	2.4	1.9	2.4	2.3	2.6	2.6	2.8	2.7	3.5	3.8	3.8	3.1	2.7	4.7	2.8	4.7
27-Apr	3.8	3.8	3.1	2.6	2.8	2.8	2.5	2.5	2.2	2.4	2.6	2.6	2.8	2.9	2.9	3.0	2.8	2.9	2.7	2.7	2.9	3.0	3.6	5.4	3.0	5.4
28-Apr	7.6	4.4	3.2	3.1	3.1	3.0	2.9	2.8	2.9	3.0	3.1	3.5	3.6	3.8	3.6	3.4	3.4	3.2	3.1	2.4	1.5	1.4	1.6	3.0	3.2	7.6
29-Apr	7.2	2.8	2.8	3.0	4.6	3.1	3.7	3.6	3.6	3.9	4.3	4.0	3.8	4.0	3.5	3.4	3.2	2.9	2.6	2.1	2.2	7.1	8.8	4.8	4.0	8.8
30-Apr	2.9	2.7	2.6	2.6	2.7	2.8	2.8	2.6	2.4	2.3	2.1	2.1	2.4	2.3	2.5	2.8	3.0	3.0	2.8	3.0	3.3	3.2	3.6	3.8	2.8	3.8
																								Diurnal Average		
																								Diurnal Maximum		
3.7 4.2 5.2 4.3 4.2 5.7 4.3 3.2 2.7 2.6 2.4 2.3 2.3 2.6 2.5 2.4 2.4 2.5 2.4 2.7 2.9 3.3 5.5 3.7																										
12.2 40.3 58.0 50.8 44.6 81.0 48.5 18.5 10.8 10.5 5.2 4.7 4.0 6.4 4.7 4.7 4.8 4.8 5.1 6.8 7.9 8.7 68.2 14.2																										
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Janvier - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	673	93.86	93.86
6 - 15	36	5.02	98.88
16 - 25	1	0.14	99.02
26 - 80	6	0.84	99.86
> 81.0	1	0.14	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Janvier - April 2024**

Concentration Ranges ( $\mu\text{g}/\text{m}^3$ )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	103	118	23	18	30	15	13	26	53	69	38	30	37	46	30	22	671
6 - 15	4	12	6	2	1	0	0	0	1	2	3	2	0	2	0	1	36
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
26 - 80	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
> 81.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	108	135	30	20	31	15	13	26	54	71	41	32	37	48	30	24	715

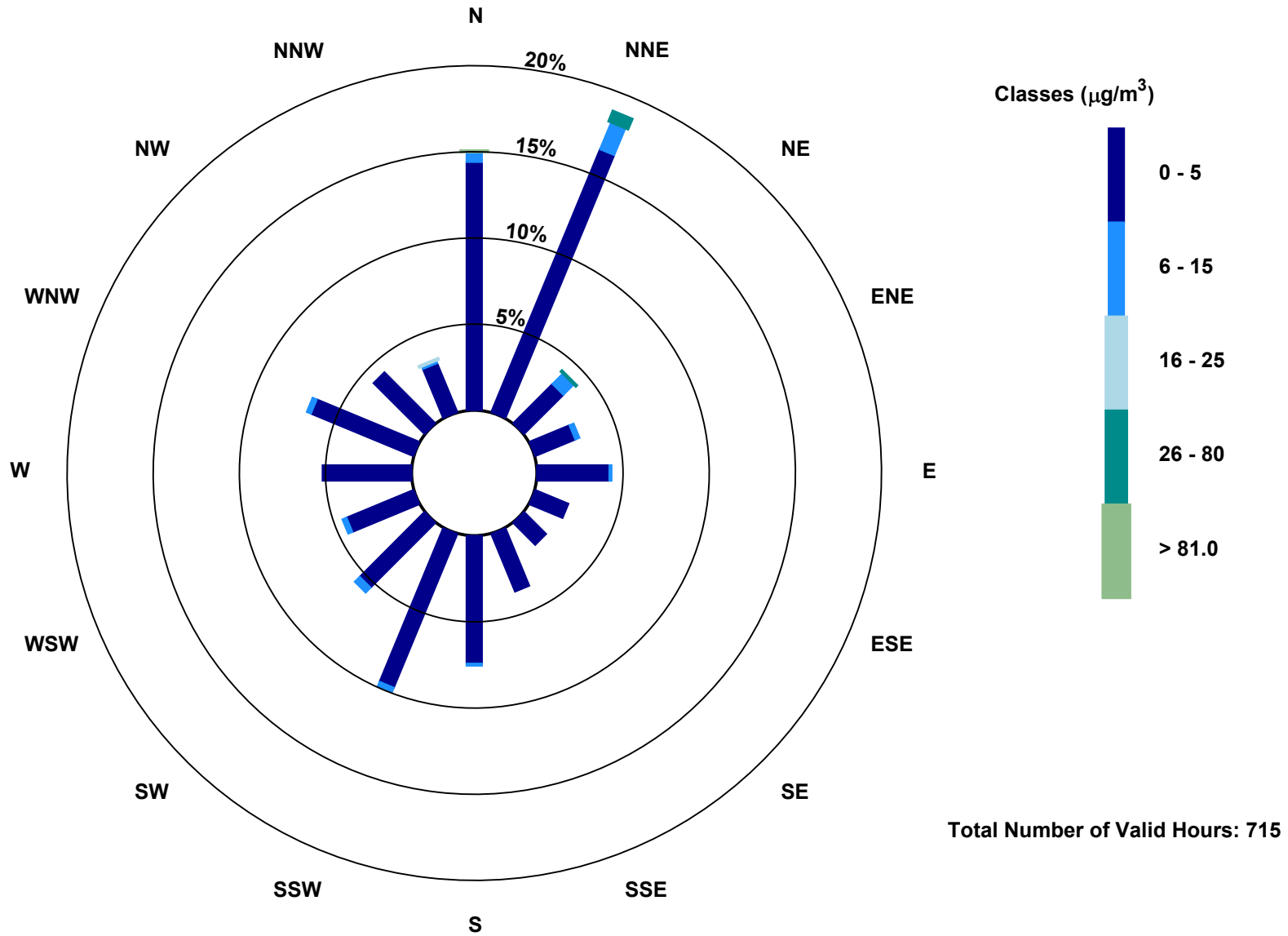
Total Number of Valid Hours: 715

Total Number of Hours: 720



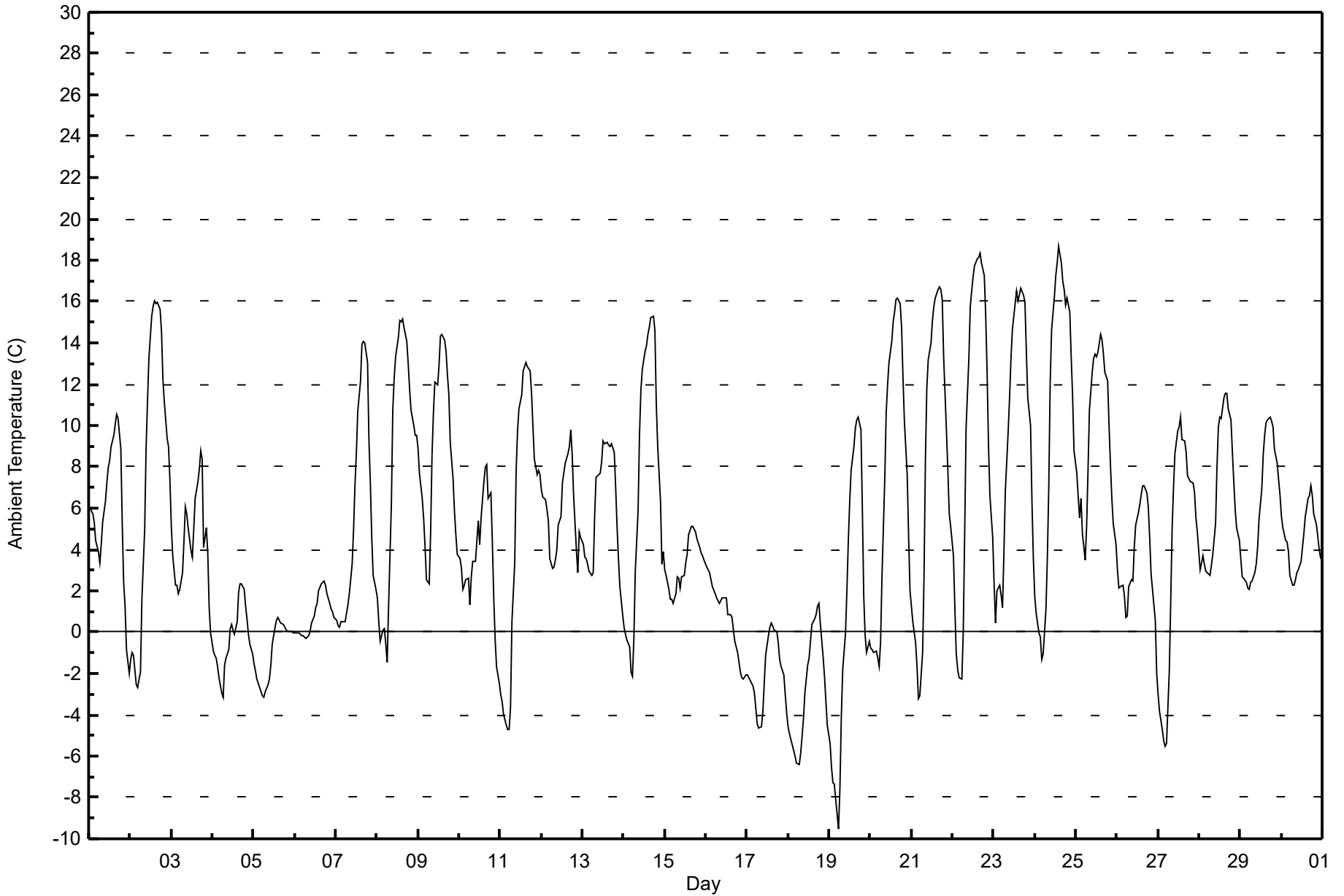
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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





Maximum Value: 18.7 C on Apr 24 15:00		Maximum Daily Average: 10.0 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -9.6 C on Apr 19 06:00		Minimum Daily Average: -2.8 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 9.8 C at hour 17		Minimum Diurnal Average: -0.5 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 4.90 C		Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -2.0 Q <sub>1</sub> = 0.5 Median = 3.9 Q <sub>3</sub> = 9.0 P <sub>90</sub> = 13.6 P <sub>99</sub> = 17.7		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	6.0	5.8	5.7	5.3	4.5	3.9	3.3	4.2	5.3	6.4	7.2	8.0	8.3	9.0	9.6	10.1	10.5	10.3	8.9	5.2	2.4	1.2	-0.9	-2.0	5.8	10.5																						
2-Apr	-1.3	-1.0	-1.1	-2.6	-2.7	-2.3	-1.9	1.6	5.0	8.9	11.2	13.2	15.3	15.8	16.1	15.9	16.0	15.7	14.5	12.2	11.1	9.4	9.0	7.4	7.7	16.1																						
3-Apr	5.1	3.7	2.2	2.3	1.9	2.1	2.9	4.4	6.1	5.7	5.0	4.0	3.6	5.0	6.5	7.3	7.9	8.8	8.4	4.1	5.0	3.9	1.2	0.0	4.5	8.8																						
4-Apr	-0.9	-1.1	-1.3	-1.6	-2.2	-2.9	-3.1	-1.6	-1.3	-0.9	0.2	0.4	0.1	-0.1	0.5	1.9	2.3	2.3	2.0	1.2	0.6	-0.1	-0.6	-1.1	-0.3	2.3																						
5-Apr	-1.5	-1.8	-2.3	-2.7	-2.9	-3.1	-3.2	-2.9	-2.5	-2.3	-1.6	-0.6	0.2	0.5	0.7	0.5	0.4	0.4	0.2	0.1	0.1	0.1	0.0	0.0	-1.0	0.7																						
6-Apr	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.3	-0.3	-0.2	0.0	0.4	0.7	1.2	1.4	2.0	2.4	2.4	2.5	2.3	1.8	1.4	1.1	1.0	0.7	0.8	2.5																						
7-Apr	0.6	0.3	0.2	0.5	0.5	0.5	0.9	1.3	1.8	3.3	4.9	7.1	8.6	10.7	12.2	13.9	14.1	14.0	13.1	9.3	7.2	4.6	2.8	2.0	5.6	14.1																						
8-Apr	1.7	0.5	-0.5	0.1	0.2	-0.6	-1.5	1.2	6.2	10.8	12.3	13.4	14.2	15.1	15.0	15.2	14.7	14.1	13.0	11.7	10.7	10.0	9.5	9.6	8.2	15.2																						
9-Apr	8.9	7.7	6.4	5.5	4.1	2.5	2.3	4.8	8.6	10.6	12.1	12.0	12.9	14.3	14.4	14.1	13.6	12.4	11.5	9.2	7.4	5.8	4.7	3.8	8.7	14.4																						
10-Apr	3.6	3.1	2.1	2.3	2.5	2.6	1.3	2.7	3.4	3.4	4.4	5.4	4.2	5.5	7.3	8.0	8.1	6.5	6.7	4.4	1.7	-0.3	-1.6	-2.5	3.5	8.1																						
11-Apr	-3.0	-3.4	-4.0	-4.5	-4.7	-4.7	-3.6	0.5	3.4	7.8	9.7	10.8	11.5	12.6	12.8	13.0	12.8	12.6	11.6	9.9	8.4	7.7	7.8	7.6	5.5	13.0																						
12-Apr	6.9	6.6	6.4	6.0	5.4	3.5	3.1	3.2	3.5	3.9	5.2	5.6	7.3	7.7	8.2	8.7	9.0	9.8	8.6	6.6	3.9	2.9	4.8	4.6	5.9	9.8																						
13-Apr	4.2	3.7	3.5	3.3	2.9	2.8	2.9	5.6	7.5	7.6	7.7	8.2	9.3	9.1	9.2	9.0	9.0	9.1	8.7	7.0	5.1	3.5	2.2	0.8	5.9	9.3																						
14-Apr	0.2	-0.1	-0.3	-0.7	-1.9	-2.1	-0.3	2.9	5.9	9.5	11.7	12.7	13.6	13.9	14.4	14.8	15.2	15.3	14.6	11.0	9.0	6.3	3.3	3.9	7.2	15.3																						
15-Apr	3.0	2.8	2.1	1.6	1.6	1.4	1.8	2.7	2.6	2.1	2.7	2.8	3.4	3.8	4.7	5.1	5.1	5.0	4.8	4.5	4.1	3.9	3.7	3.5	3.3	5.1																						
16-Apr	3.2	3.0	2.9	2.6	2.2	1.8	1.7	1.5	1.4	1.7	1.7	1.6	1.7	0.9	0.9	0.7	0.1	-0.5	-1.0	-1.5	-1.9	-2.2	-2.2	-2.1	0.7	3.2																						
17-Apr	-2.1	-2.2	-2.3	-2.6	-2.9	-3.7	-4.4	-4.7	-4.6	-3.9	-2.5	-1.2	-0.1	0.2	0.4	0.3	0.1	0.0	-0.5	-1.3	-1.7	-2.1	-3.0	-3.9	-2.0	0.4																						
18-Apr	-4.6	-4.9	-5.4	-5.7	-6.0	-6.4	-6.4	-5.9	-5.1	-4.1	-3.0	-1.6	-1.2	-0.4	0.4	0.6	0.8	1.3	1.4	0.4	-1.2	-2.1	-3.4	-4.5	-2.8	1.4																						
19-Apr	-5.4	-6.6	-7.3	-7.4	-8.1	-9.6	-7.6	-4.1	-1.8	0.0	2.1	4.4	6.4	7.8	9.0	9.8	10.3	10.4	9.8	6.0	1.8	-0.2	-1.0	-0.5	0.8	10.4																						
20-Apr	-0.8	-0.9	-1.0	-0.9	-1.3	-1.7	-0.5	2.7	7.5	10.6	11.9	13.0	14.1	15.0	15.5	16.1	16.2	15.9	14.7	12.3	10.2	7.7	4.6	2.0	7.6	16.2																						
21-Apr	1.2	0.5	-0.5	-1.7	-3.2	-3.1	-1.0	2.7	8.4	11.9	13.2	14.0	15.1	15.8	16.2	16.6	16.7	16.5	16.1	13.3	9.7	7.8	5.8	5.1	8.2	16.7																						
22-Apr	3.7	1.2	-1.0	-1.8	-2.2	-2.3	0.0	4.8	9.8	13.3	15.7	16.5	17.2	17.8	18.1	18.2	18.3	17.8	17.2	15.4	12.6	9.1	6.6	4.6	9.6	18.3																						
23-Apr	2.3	0.4	2.0	2.3	1.8	1.2	3.8	6.8	9.7	11.3	13.2	14.6	15.9	16.5	16.0	16.3	16.6	16.3	16.0	13.6	11.3	10.0	6.3	3.6	9.5	16.6																						
24-Apr	1.7	0.9	0.0	-0.3	-1.3	-1.1	1.1	3.6	7.0	12.0	14.6	16.2	17.3	17.8	17.8	17.0	16.6	15.8	16.1	15.5	13.3	11.4	8.8	10.0	18.7	18.7																						
25-Apr	7.7	6.5	5.5	6.5	4.8	3.5	5.1	7.8	10.8	12.6	13.3	13.5	13.3	13.5	14.4	14.2	13.4	12.6	12.2	10.0	8.1	6.5	5.2	4.2	9.4	14.4																						
26-Apr	3.0	2.1	2.2	2.3	1.7	0.7	0.8	2.2	2.5	2.4	4.1	5.2	5.8	6.2	6.7	7.1	7.1	6.8	6.0	4.6	2.8	1.3	0.6	-2.0	3.4	7.1																						
27-Apr	-3.0	-3.8	-4.7	-5.2	-5.5	-5.4	-1.8	1.4	5.0	7.0	8.6	9.7	9.9	10.4	9.3	9.2	8.7	7.6	7.4	7.3	7.2	6.7	5.5	4.9	4.0	10.4																						
28-Apr	3.0	3.4	3.7	3.3	2.9	2.8	2.8	3.2	3.7	5.2	8.0	10.0	10.4	10.4	11.4	11.6	11.5	10.8	10.2	8.7	7.3	6.0	5.0	4.4	6.7	11.6																						
29-Apr	3.5	2.7	2.6	2.4	2.1	2.1	2.4	2.5	2.9	3.3	4.1	5.4	6.9	8.5	9.6	10.1	10.3	10.4	10.2	9.9	8.8	8.1	7.4	6.6	6.0	10.4																						
30-Apr	5.6	5.0	4.5	4.3	3.9	2.7	2.3	2.3	2.5	2.9	3.0	3.4	4.1	4.8	5.6	6.4	6.6	7.1	6.6	5.8	5.2	4.6	4.0	3.6	4.5	7.1																						
																								1.8	1.1	0.7	0.4	-0.1	-0.5	0.1	1.9	3.8	5.4	6.7	7.6	8.3	9.0	9.5	9.8	9.8	9.6	9.0	7.3	5.8	4.5	3.3	2.4	Diurnal Average
																								8.9	7.7	6.4	6.5	5.4	3.9	5.1	7.8	10.8	13.3	15.7	16.5	17.3	17.8	18.7	18.2	18.3	17.8	17.2	16.1	15.5	13.3	11.4	9.6	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Janvier - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	150	20.83	20.83
0 - 10	422	58.61	79.44
10 - 20	148	20.56	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



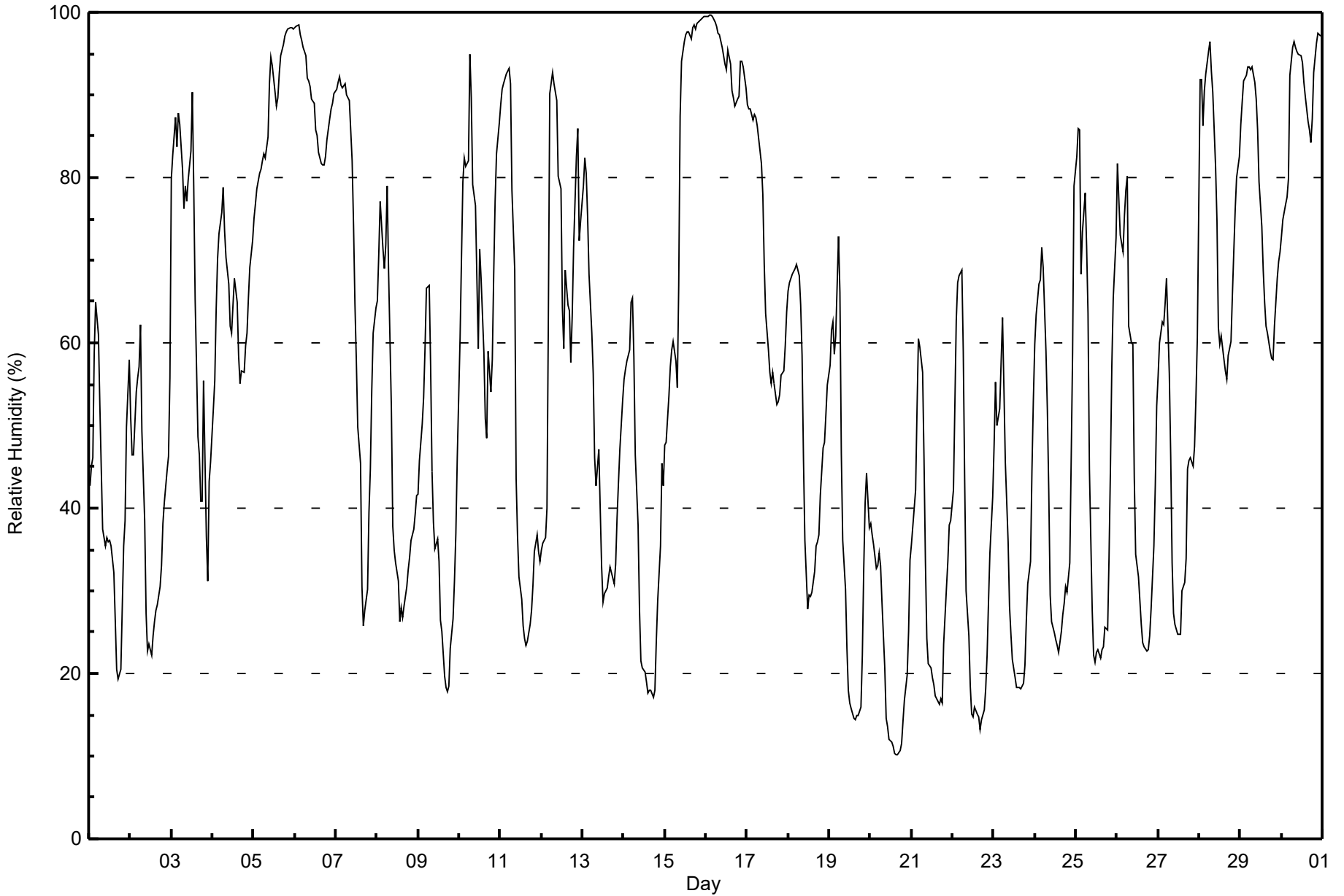
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Janvier - April 2024**

<b>Maximum Value: 99.7 % on Apr 16 03:00</b> <b>Maximum Daily Average: 94.8 % on Apr 16</b>																						Hours in Service: 720 Hours of Data: 720																											
<b>Minimum Value: 10.1 % on Apr 20 17:00</b> <b>Minimum Daily Average: 21.6 % on Apr 20</b>																						Hours of Missing Data: 0 Hours of Calibration: 0																											
<b>Maximum Diurnal Average: 75.6 % at hour 6</b> <b>Minimum Diurnal Average: 41.6 % at hour 17</b>																						Percent Operational Time: 100.0																											
<b>Monthly Average: 56.70 %</b> Percentiles: $P_1 = 12.3$ $P_{10} = 22.6$ $Q_1 = 33.4$ Median = 57.7 $Q_3 = 80.1$ $P_{90} = 92.6$ $P_{99} = 99.1$																																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	42.6	45.0	46.0	58.8	64.8	60.9	52.6	44.9	37.5	35.5	36.4	35.9	36.1	35.4	32.2	26.5	20.4	19.3	20.6	28.0	35.3	38.5	49.8	57.9	40.1	64.8																							
2-Apr	51.0	46.4	46.4	54.0	55.8	57.2	62.2	49.4	38.5	27.3	22.7	23.5	22.3	24.6	26.3	27.6	28.3	30.5	33.0	38.2	40.7	44.5	46.3	55.8	39.7	62.2																							
3-Apr	79.8	82.7	87.3	83.8	87.7	86.4	80.9	76.2	78.9	77.2	79.7	83.3	90.3	78.9	65.2	48.7	46.4	40.9	40.9	55.4	36.6	31.2	43.2	45.6	67.0	90.3																							
4-Apr	52.0	55.3	64.1	70.1	73.3	75.8	78.8	73.5	70.4	67.1	62.0	61.2	64.6	67.8	64.9	58.5	55.2	56.6	56.4	59.6	61.2	65.3	69.1	72.4	64.8	78.8																							
5-Apr	75.1	76.8	78.6	80.4	81.0	82.0	82.9	82.4	85.0	91.4	94.6	93.6	90.3	88.6	89.7	92.6	94.7	96.0	97.0	97.7	98.0	98.2	98.1	98.1	89.3	98.2																							
6-Apr	98.2	98.4	98.4	97.3	96.7	95.7	94.7	92.0	91.7	91.0	89.4	88.9	85.8	85.2	83.1	81.8	81.6	81.5	82.5	84.5	87.1	88.3	89.0	90.1	89.7	98.4																							
7-Apr	90.7	91.6	92.2	91.2	90.8	91.4	90.1	89.7	89.4	82.0	74.3	64.8	57.8	49.9	45.4	30.5	25.8	27.6	30.2	39.4	44.7	54.3	61.2	64.3	65.4	92.2																							
8-Apr	65.0	70.7	77.1	71.3	68.9	71.8	78.9	68.6	52.1	37.8	34.9	33.3	31.3	26.3	27.9	26.8	28.2	30.6	32.5	34.1	36.1	37.5	39.4	41.5	46.8	78.9																							
9-Apr	41.7	45.8	50.1	53.4	59.4	66.6	67.0	57.2	44.4	38.3	35.1	36.3	33.6	26.4	25.1	19.7	18.3	17.7	18.5	23.0	26.5	31.1	36.9	46.1	38.3	67.0																							
10-Apr	60.6	70.2	79.5	82.4	81.3	82.1	95.0	89.7	79.2	76.6	67.8	59.3	71.4	67.7	58.9	50.9	48.4	58.9	54.0	58.0	68.2	77.2	82.9	86.5	71.1	95.0																							
11-Apr	88.8	90.7	91.4	92.6	92.9	93.3	91.3	78.5	68.9	43.6	36.6	31.6	29.0	25.8	24.3	23.5	23.9	25.9	27.6	30.7	34.8	36.8	34.7	33.5	52.1	93.3																							
12-Apr	34.9	35.8	36.5	40.1	63.2	90.2	92.8	91.4	90.3	89.4	80.2	78.7	64.3	59.3	68.7	64.5	63.9	57.6	63.3	71.5	82.6	85.9	72.4	74.7	68.8	92.8																							
13-Apr	79.1	82.5	80.5	75.2	68.4	61.2	56.2	46.2	42.6	47.0	39.8	32.9	28.6	29.7	30.3	31.6	32.9	32.2	30.8	33.2	38.7	43.0	47.2	53.1	47.6	82.5																							
14-Apr	55.5	56.8	57.8	59.2	64.9	65.4	58.3	46.5	38.0	27.9	21.5	20.7	20.2	19.0	17.6	17.9	17.9	17.1	17.9	23.9	28.8	35.5	45.4	42.7	36.5	65.4																							
15-Apr	47.6	48.0	53.6	57.1	59.1	60.1	57.9	54.6	66.9	87.5	94.1	96.4	97.3	97.6	97.6	96.8	98.1	98.5	98.0	98.7	99.0	99.1	99.3	99.5	81.8	99.5																							
16-Apr	99.5	99.5	99.7	99.6	99.4	98.8	98.3	97.5	97.2	95.7	94.7	93.7	93.0	95.4	93.7	90.4	89.7	88.7	89.6	89.9	94.0	94.2	93.4	90.8	94.8	99.7																							
17-Apr	88.8	88.4	88.3	87.0	87.6	87.3	86.3	84.8	81.8	77.9	69.5	63.6	59.1	56.5	55.1	56.4	55.2	52.5	52.8	53.7	56.2	56.5	59.6	63.8	69.5	88.8																							
18-Apr	66.2	67.3	68.4	68.6	69.0	69.5	68.1	64.6	58.6	45.9	36.1	27.9	29.6	29.4	29.8	32.3	35.3	36.0	36.8	41.5	47.3	48.0	51.4	55.0	49.3	69.5																							
19-Apr	57.4	61.6	62.6	58.7	60.8	72.8	66.1	46.5	36.1	30.1	23.0	18.0	16.5	15.7	14.6	14.4	15.0	15.0	15.9	22.2	32.8	40.7	44.3	37.7	36.6	72.8																							
20-Apr	38.2	36.7	35.6	32.8	33.0	34.6	33.1	28.7	20.8	14.5	13.5	12.1	11.6	11.1	10.3	10.1	10.1	10.6	11.5	14.3	16.8	19.8	25.2	33.7	21.6	38.2																							
21-Apr	35.5	37.7	42.1	51.9	60.6	59.4	56.5	46.0	33.6	24.2	21.2	20.7	19.4	18.7	17.3	16.5	16.2	16.9	16.5	23.6	30.3	33.5	38.0	38.4	32.3	60.6																							
22-Apr	42.2	52.4	62.7	67.3	68.2	68.8	59.0	43.4	30.1	24.5	18.5	15.1	14.7	15.9	15.1	14.7	13.3	14.4	15.6	18.1	22.3	28.7	34.6	41.3	33.4	68.8																							
23-Apr	47.6	55.3	49.9	52.1	57.7	63.0	54.6	45.6	35.9	28.1	24.8	21.8	19.4	18.2	18.3	18.3	18.2	18.8	21.1	26.5	30.9	33.5	44.5	53.1	35.7	63.0																							
24-Apr	59.8	63.4	67.2	67.7	71.6	69.2	58.9	51.9	42.1	29.5	26.2	24.9	24.0	23.3	22.6	25.0	27.1	28.5	30.5	29.9	33.5	45.9	58.8	79.0	44.2	79.0																							
25-Apr	82.5	86.0	85.8	68.3	73.4	78.1	71.7	63.6	44.7	27.6	22.3	21.4	22.5	22.9	21.8	22.9	23.2	25.5	25.3	34.0	45.0	57.3	65.4	72.7	48.5	86.0																							
26-Apr	81.7	77.4	73.1	70.9	75.5	78.4	80.1	62.0	60.1	59.9	43.8	34.3	31.8	28.8	25.9	23.7	23.3	22.8	22.8	24.5	27.8	35.5	42.7	52.4	48.3	81.7																							
27-Apr	56.0	60.0	62.5	62.2	64.8	67.8	56.3	46.2	33.3	27.4	25.9	24.7	24.8	24.8	30.0	31.1	33.9	44.7	45.8	46.0	45.1	47.5	53.5	60.7	44.8	67.8																							
28-Apr	91.9	91.8	86.3	90.5	92.5	95.2	96.5	92.9	90.3	81.3	74.7	61.9	59.8	60.8	58.0	56.6	55.7	58.4	60.2	65.8	71.1	76.1	80.0	82.6	76.3	96.5																							
29-Apr	86.4	89.2	91.7	92.4	93.4	93.4	93.0	93.3	91.5	89.5	85.7	79.4	74.0	68.8	64.9	62.1	61.2	59.1	58.2	58.0	62.1	67.7	69.9	71.1	77.3	93.4																							
30-Apr	72.8	74.9	76.7	77.6	79.8	92.3	95.8	96.4	95.8	95.2	94.9	94.7	93.9	91.5	89.8	86.7	85.7	84.2	87.2	92.7	96.3	97.5	97.2	97.1	89.4	97.5																							
																								65.6	67.9	69.7	70.5	73.2	75.6	73.8	66.8	60.8	55.7	51.5	48.5	47.2	45.5	44.2	42.0	41.6	42.2	43.1	47.2	51.0	55.0	59.1	63.0	Diurnal Average	
																								99.5	99.5	99.7	99.6	99.4	98.8	98.3	97.5	97.2	95.7	94.9	96.4	97.3	97.6	97.6	96.8	98.1	98.5	98.0	98.7	99.0	99.1	99.3	99.5	Diurnal Maximum	





Maximum Speed: 20 km/h on Apr 13 10:00	Maximum Daily Speed Average: 12.6 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 27 03:00	Minimum Daily Speed Average: 0.7 km/h on Apr 19	Hours of Data: 720
Maximum Diurnal Speed Average: 2.9 km/h at hour 16	Minimum Diurnal Speed Average: 0.3 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 1.3 km/h 342.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 10 P <sub>90</sub> = 13 P <sub>99</sub> = 16	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-Apr	SSW18	SW16	WSW12	WNW9	W8	WNW12	W12	WNW14	WNW17	WNW17	WNW15	NW14	NW14	NW11	NW9	WNW11	WNW13	WNW12	WNW7	SW2	SSW3	S3	SSW3	SSW5	W8.8	SSW18	
2-Apr	SSW7	SSW8	SSW8	SSW5	SSW6	S4	SSW2	SW1	SW2	S8	S11	S12	SSW13	SW12	SSW12	SSW11	S11	S9	S9	SSE6	SSE7	SSE4	SSE5	S2	S7.0	SSW13	
3-Apr	SE5	ESE1	ENE2	ESE1	NNE2	W3	NE4	W3	N9	NNW8	WNW10	WNW8	WNW7	W6	WSW7	W11	W9	WNW10	WSW4	S3	W9	NW4	WSW3	SSW2	WNW3.4	W11	
4-Apr	WSW4	SW4	WSW5	WSW6	SW5	WSW4	W4	NNW4	N6	N7	NNE9	NNE10	NNE11	NNE11	NNE9	E5	ESE7	ESE5	NE7	NNE7	NE10	NE8	NE8	NE8	NNE3.7	NNE11	
5-Apr	NE8	NNE7	NNE8	NNE9	NNE9	NNE10	NNE10	NNE10	NNE9	NNE8	NNE8	NNE9	NNE11	NNE11	NNE9	NNE8	NNE8	NNE6	N4	NNE3	NNW2	N3	NNE3	NNW2	NNE7.2	NNE11	
6-Apr	NNE4	N4	N5	NNE5	N4	N3	N6	NNE6	NNE8	NNE10	NNE6	NNE7	NNE9	NNE6	NNE7	NNE7	NNE7	NNE5	NW2	NW1	N2	NW1	NW1	SSE1	NNE4.6	NNE10	
7-Apr	SW1	S1	S2	SSE4	S3	SW4	SW5	S7	SSW6	SSW8	SW8	SW7	SSW9	S7	SSE10	WSW5	W9	W7	W6	SSW2	SSE3	S2	SSW4	SSW6	SSW4.3	SSE10	
8-Apr	SSW6	SSW2	SSW4	SSW8	SSW7	S4	SSE3	SW2	WSW2	SW4	WSW7	SW9	SW10	SW11	S12	S12	SSW13	S10	S5	SSE5	SSE7	SSE7	S8	SSE5	SSW6.2	SSW13	
9-Apr	S6	SSW5	SSW4	SSE2	ESE2	SSW4	SSW2	SSW3	SW6	WSW7	W9	W9	WNW8	WSW12	WNW13	WNW13	WNW15	WNW14	W11	WNW7	W6	W6	W7	WSW6	W6.3	WNW15	
10-Apr	W9	WSW8	SW6	WSW7	W5	NW7	WNW5	NW7	NW10	NW9	NW11	NNW12	NW12	N10	N11	NNE11	N9	NNE11	NNE7	NE3	SE2	S2	S2	SSW2	NW4.7	NW12	
11-Apr	S2	SSE2	S2	SSE2	SSE3	SSE2	S2	NNW2	NNW3	S10	SSE10	SSW10	S11	S10	SSE11	SSE12	SSE13	SSE13	SSE11	SSE9	SSE10	S11	S15	S12	SSE7.3	S15	
12-Apr	S9	SSE9	S12	S11	S13	S10	SSE8	SE9	SSE7	SE5	ESE10	SE8	SSE8	S5	NNW5	N4	NW4	WNW3	E4	ESE6	SSE2	S3	SSW9	SSW9	S5.3	S13	
13-Apr	SW10	SW9	SW9	SSW9	SW9	SW8	SW8	WSW11	W17	WNW20	WNW14	WNW13	WNW16	WNW16	WNW16	WNW14	WNW14	WNW12	WNW9	W5	SW5	SW5	SW5	SSW7	W9.4	WNW20	
14-Apr	SSW7	SSW10	SSW10	SSW9	SSW6	S5	SSW7	SSW7	SSW9	SW8	SW11	WSW13	WSW12	W11	W13	WNW11	W8	WSW6	WNW3	NE2	E4	ENE3	NE3	NE3	SW5.4	W13	
15-Apr	NE3	NE2	W0	E1	N1	N3	NNE3	W1	WSW2	NE3	NNE3	NNE5	NNE5	N5	NE6	NNE6	NNE5	NNE4	NNE4	NNE4	NNE4	NNE3	NNE3	N3	NNE2.9	NNE6	
16-Apr	N3	NNW2	N4	N4	NNE6	N5	N5	N7	N7	N7	N10	NNE10	NNE11	NNE10	N10	N14	NNE13	N12	N12	N13	N10	N10	N10	N10	N8.5	N14	
17-Apr	N10	N8	N9	N10	N9	N9	N11	NNE10	N11	NNE11	NNE14	NNE16	NNE15	NNE16	NNE17	NNE16	NNE16	NNE16	NNE14	NNE14	NNE15	NNE15	NNE13	N9	NNE12.6	NNE17	
18-Apr	N8	N8	N9	N10	NNE10	NNE10	N11	NNE10	NNE12	NNE13	NNE12	NNE13	NNE16	NNE14	NNE13	NNE14	NNE14	NNE12	NNE13	NNE11	NNE7	NNE7	NNE4	NNE4	NNE10.6	NNE16	
19-Apr	N2	NNW1	NE1	ENE2	ENE2	SSW3	SSW2	WNW1	W1	S3	ENE4	NE5	NE5	NNE4	N6	N6	NW5	WNW6	WNW5	WSW3	SSW4	SSW6	SSW7	SSW7	NW0.7	SSW7	
20-Apr	SSW8	SSW8	SSW9	SSW10	SSW9	SSW9	SSW9	SSW8	WSW7	W10	W10	W11	WSW12	WSW11	WSW10	WSW9	SW9	SW9	SSW10	SSW8	SSW9	SSW7	SSW5	S2	SW7.8	WSW12	
21-Apr	SSE3	SE3	SSW3	SSE3	SSE2	SE2	NW1	NNW3	ESE4	SSE11	SSE12	SE11	ESE10	ESE11	ESE9	E7	E6	NE6	NE4	WNW1	N2	NNE4	NNE3	NE4	ESE3.4	SSE12	
22-Apr	NE3	SE1	SSW3	SSW3	SSW3	SSW3	SSW5	SSW4	N1	NNE4	N7	NNE12	NNE12	N11	N11	NNE13	N10	N8	NNE9	NE7	NE4	ENE1	ENE0	SSW2	NNE3.7	NNE13	
23-Apr	ESE1	WSW1	NNE4	NNE3	ENE2	SSE1	ENE1	NNE5	NE4	ESE8	E7	NE6	SSE2	ENE6	NE4	ENE4	NE6	ENE6	ENE8	E5	E5	E5	NE4	NNE3	ENE3.5	ESE8	
24-Apr	NNE2	N3	NNE3	NNE4	N3	NNE4	NNE5	NNE7	N6	ENE11	ENE12	ENE13	E14	E14	E14	E13	ENE14	ENE14	E14	E10	SE8	SSW6	SSW5	W5	E6	ENE6.1	ENE14
25-Apr	W2	E1	SSW4	WSW5	SW6	SSW7	WSW8	WSW8	W8	WNW14	WNW12	W13	W14	W15	WSW14	W16	W16	WSW14	W15	WNW12	WNW9	WNW9	WNW7	NW4	W8.9	W16	
26-Apr	NNE10	NNE9	NNW5	NW4	NNW8	N6	NNW4	NW7	NW9	NNE10	NNW10	N9	N9	NE11	NNE13	NNE11	NNE11	NE11	NNE9	NE8	ENE5	ENE4	E5	E1	NNE6.8	NNE13	
27-Apr	ESE3	SSE1	N0	ENE1	SSE2	SE0	SW3	SW4	SSW12	S13	S12	S14	S14	S16	SSW16	S14	S12	S11	SE7	SE6	ESE5	E3	NNE2	NW0	S6.3	S16	
28-Apr	NNE4	NE6	ENE5	ENE2	NE3	NNE3	N4	N4	N4	N6	N5	SE6	ESE8	SE7	ESE8	ESE9	E9	ENE10	ENE7	E7	E8	ENE6	ENE4	ENE3	ENE4.6	ENE10	
29-Apr	NNE3	NE4	E5	ENE3	N2	NNE3	NNE5	NNE6	NNE5	NNE6	NNE8	NE5	E5	NNE10	NNE11	NNE11	NNE12	NNE11	NNE9	NNE9	NNE8	NNE11	NE13	NNE11	NNE7.1	NE13	
30-Apr	NNE9	NNE7	NNE9	NNE12	NNE11	NNE10	NNE10	NNE11	NNE13	NNE15	NNE14	NNE11	NNE11	NNE10	N10	NNE11	N9	N8	N9	NNE10	NNE9	N6	NNE7	N6	NNE9.8	NNE15	

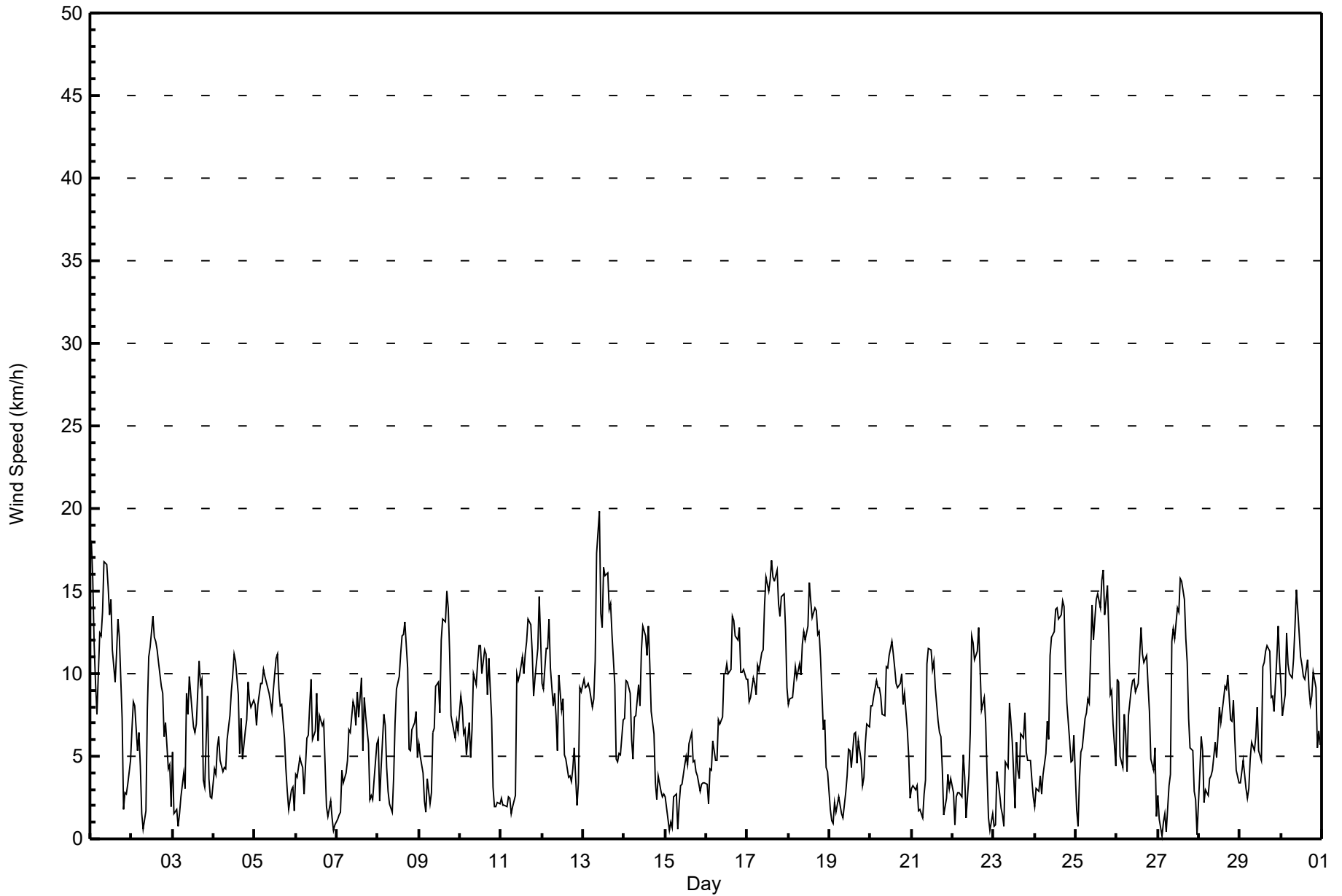
SSW0.6	SSW0.6	SW0.8	WSW0.6	W0.5	WNW0.9	NW1.2	NW2.1	NW2.9	NNW2.1	NNW2.5	NNW2.5	NNW2.2	N2.3	N2.9	NNW2.7	N2.4	N2.5	NE1.9	NE1.0	NE1.0	NNE0.4	E0.3	Diurnal Average		
SSW18	SW16	WSW12	NNE12	S13	WNW12	WNW12	WNW14	W17	WNW20	WNW15	NNE16	WNW16	WNW16	NNE17	NNE16	W16	NNE16	W15	NNE14	NNE15	NNE15	S15	S12	Diurnal Maximum	

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Janvier - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Janvier - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	269	37.36	37.36
6 - 11	335	46.53	83.89
12 - 19	115	15.97	99.86
20 - 28	1	0.14	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Janvier - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	28	40	20	18	13	8	7	21	20	30	15	11	9	7	11	11	269
6 - 11	47	83	16	7	8	10	8	15	18	42	18	15	20	16	9	3	335
12 - 19	4	34	1	5	3	0	0	4	14	6	2	7	8	23	3	1	115
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
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>	79	157	37	30	24	18	15	40	52	78	35	33	37	47	23	15	720

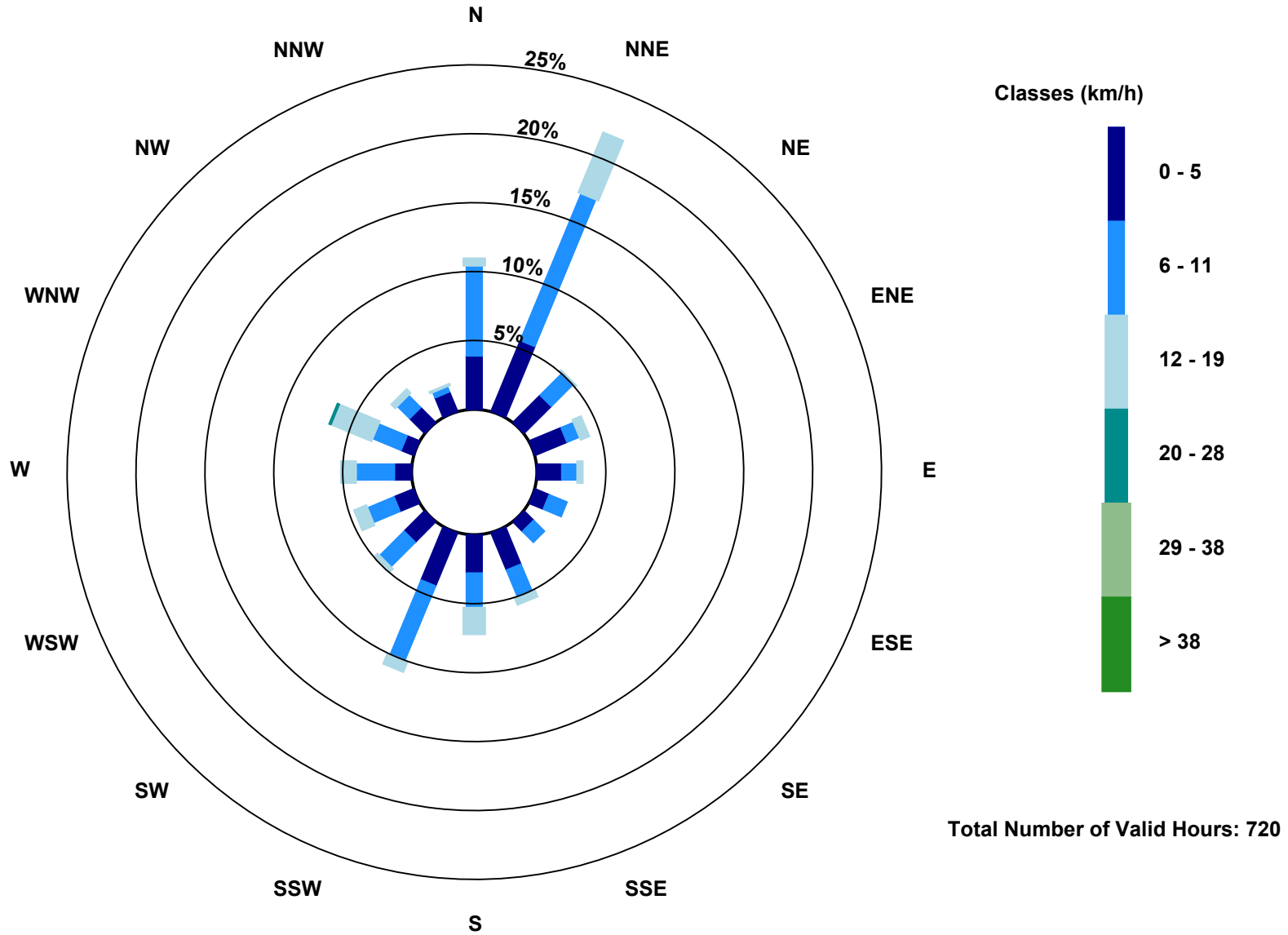
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Janvier







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Janvier - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Apr 1 11:00 Minimum Value: 0 km/h on Apr 7 23:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 6																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	5	5	5	3	5	4	5	7	7	7	6	7	5	5	6	5	5	4	1	1	1	2	1	7
2-Apr	2	1	1	1	2	2	1	1	1	4	4	4	4	4	4	4	4	3	3	2	2	2	1	2	4
3-Apr	2	1	1	1	2	2	2	2	4	4	4	3	2	2	3	4	4	4	1	1	3	3	1	1	4
4-Apr	1	1	1	1	1	1	2	2	3	3	4	4	3	3	3	3	3	2	2	3	3	2	2	2	4
5-Apr	2	2	2	2	3	3	3	3	2	2	2	3	3	3	3	3	3	2	2	1	1	1	1	1	3
6-Apr	1	1	2	1	2	1	2	2	3	3	2	2	3	2	2	2	2	2	1	1	1	1	1	1	3
7-Apr	1	1	1	1	1	1	1	2	2	2	3	2	2	3	3	3	3	3	2	1	0	1	0	1	3
8-Apr	2	1	1	2	1	1	1	1	1	3	3	4	4	4	5	5	5	4	2	2	2	2	3	2	5
9-Apr	3	3	1	2	1	2	1	1	4	3	4	4	3	4	5	5	5	6	4	3	2	2	2	2	6
10-Apr	3	4	2	2	2	3	2	3	5	5	5	7	6	5	5	5	4	6	2	2	1	1	1	1	7
11-Apr	1	1	1	1	1	1	1	1	1	4	3	3	4	5	5	5	5	5	4	3	3	4	5	4	5
12-Apr	4	3	4	3	4	4	3	3	3	3	4	3	4	2	2	2	2	2	2	1	1	1	3	2	4
13-Apr	3	3	3	2	3	2	3	4	6	7	6	6	6	6	6	5	5	5	5	1	1	1	1	2	7
14-Apr	1	1	1	2	1	2	2	3	2	3	4	4	5	5	5	4	4	3	1	1	1	1	1	1	5
15-Apr	1	2	1	1	1	1	2	1	1	1	1	2	1	2	2	2	2	1	1	1	1	1	1	1	2
16-Apr	1	1	2	2	2	2	2	3	3	3	4	4	4	4	4	5	6	5	6	6	5	5	5	5	6
17-Apr	4	5	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	4	6
18-Apr	3	3	3	3	4	3	4	4	4	4	5	5	6	5	5	5	5	4	4	4	2	2	1	1	6
19-Apr	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	2	2	1	0	1	1	1	3
20-Apr	1	1	1	2	2	2	2	2	3	4	4	4	5	5	4	3	3	3	3	2	2	2	2	1	5
21-Apr	1	1	1	1	1	1	1	1	3	4	4	4	4	4	4	4	3	2	2	2	1	1	1	1	4
22-Apr	1	1	1	1	1	1	1	1	1	2	4	5	4	5	5	5	5	3	3	2	3	1	1	1	5
23-Apr	1	1	1	1	1	1	1	2	2	3	3	3	3	4	2	2	2	2	2	2	1	1	1	1	4
24-Apr	1	2	2	1	2	1	2	2	3	4	4	4	5	5	5	5	5	4	5	5	6	4	3	3	6
25-Apr	2	1	1	2	1	2	3	3	3	5	4	6	5	6	5	6	6	5	6	5	3	4	3	3	6
26-Apr	4	4	3	2	4	3	3	4	4	4	4	4	4	5	4	4	4	4	3	2	1	1	2	1	5
27-Apr	1	1	1	1	1	1	2	2	4	4	4	4	5	5	5	5	5	6	3	2	2	1	1	2	6
28-Apr	3	2	1	2	1	1	1	1	2	2	2	4	3	3	4	3	3	4	2	2	3	2	2	2	4
29-Apr	1	2	2	1	1	1	2	2	2	2	2	2	3	3	4	3	4	4	3	3	3	3	4	4	4
30-Apr	3	3	3	4	4	3	3	4	4	5	5	4	4	4	3	4	3	3	3	4	4	2	2	2	5
																	Diurnal Maximum								



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

**Wind Direction (WD) - deg**  
**Janvier - April 2024**

Direction of Maximum Speed: 283 deg on Apr 13 10:00 Direction of Maximum Daily Speed Average: 13.6 deg on Apr 17	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0
Direction of Minimum Speed: 355 deg on Apr 27 03:00 Direction of Minimum Daily Speed Average: 0.7 deg on Apr 19	Percent Operational Time: 100.0
Monthly Average Direction: 342.6 deg	

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-Apr	206	218	243	301	279	282	281	286	287	294	303	307	311	306	304	301	292	287	286	233	213	173	195	194	278.9
2-Apr	200	197	198	197	195	185	195	225	222	189	186	182	200	215	205	196	180	176	176	156	161	156	157	180	188.9
3-Apr	146	112	71	119	26	264	52	277	3	333	296	288	286	262	257	275	271	282	254	171	266	321	237	207	282.8
4-Apr	241	222	237	255	235	253	274	332	352	9	24	22	25	27	34	85	106	105	44	29	46	52	41	43	26.8
5-Apr	40	30	26	30	30	31	28	28	23	23	20	23	29	31	32	24	25	18	8	17	343	5	25	346	25.9
6-Apr	13	2	9	12	7	356	8	16	17	27	25	12	23	15	22	27	33	18	320	310	6	319	310	162	15.4
7-Apr	216	183	180	147	186	227	218	191	208	208	217	222	198	190	158	238	271	275	275	212	157	181	193	197	209.7
8-Apr	198	193	199	198	195	191	148	214	251	216	253	229	232	229	187	189	193	185	170	164	156	167	188	156	196.1
9-Apr	175	207	197	166	121	194	209	198	228	237	281	281	284	253	287	286	285	282	280	282	269	259	262	253	263.3
10-Apr	264	255	230	249	277	304	300	304	312	311	305	334	318	359	8	15	10	23	25	42	142	181	175	194	323.3
11-Apr	189	158	178	159	161	148	170	348	340	178	160	193	175	173	168	168	151	152	160	154	164	171	176	180	168.0
12-Apr	185	168	176	187	190	181	161	143	165	142	123	135	151	171	327	353	317	289	93	117	165	170	209	211	170.1
13-Apr	217	216	218	213	219	219	225	249	274	283	294	301	285	283	285	286	283	287	286	262	234	233	230	204	263.1
14-Apr	203	200	201	200	197	185	195	196	198	217	236	238	250	267	259	283	269	256	283	45	85	73	37	41	229.1
15-Apr	36	40	276	82	358	6	19	281	247	52	29	25	25	11	38	32	16	18	21	15	12	13	18	4	21.4
16-Apr	5	345	8	5	13	359	5	9	10	6	9	13	12	12	11	11	12	9	10	9	10	10	9	9	9.4
17-Apr	10	10	8	7	7	6	5	12	10	13	12	17	12	15	16	17	17	18	16	16	21	17	14	11	13.6
18-Apr	10	10	11	10	14	14	10	12	17	15	14	13	20	21	16	18	20	18	14	21	20	19	21	21	15.8
19-Apr	3	343	52	65	57	208	209	289	278	189	78	34	36	30	7	350	320	293	293	256	198	200	200	200	307.3
20-Apr	196	195	198	201	204	202	203	206	243	274	265	265	256	251	258	253	232	222	212	202	205	208	207	191	226.4
21-Apr	148	139	197	164	162	145	321	330	120	164	152	128	114	109	115	92	87	53	34	302	0	25	18	38	112.5
22-Apr	43	140	201	210	198	197	202	202	7	28	2	15	12	5	11	15	6	8	18	40	45	60	67	202	14.5
23-Apr	110	256	17	33	60	153	74	13	50	111	96	36	162	57	41	63	40	69	57	82	88	84	56	17	63.5
24-Apr	12	8	25	18	8	20	13	17	10	68	77	74	79	81	83	77	76	84	86	127	201	212	281	92	71.2
25-Apr	261	98	203	245	214	199	237	255	274	290	285	274	271	267	249	269	269	254	281	292	295	299	295	315	269.4
26-Apr	14	12	344	313	345	357	340	319	317	14	343	2	9	34	32	21	29	38	24	40	57	77	91	79	13.7
27-Apr	122	167	355	61	152	138	219	216	192	171	176	179	176	174	195	181	187	176	134	129	119	84	31	315	173.6
28-Apr	29	47	57	70	35	26	8	8	9	10	5	125	110	128	121	117	90	71	74	81	85	77	70	68	74.3
29-Apr	30	51	86	72	6	13	27	23	25	24	30	46	79	28	26	25	22	24	17	14	18	32	37	26	29.7
30-Apr	25	18	25	23	20	15	17	18	16	23	24	21	17	12	9	13	11	6	11	17	12	8	13	8	16.7

203.0 210.0 219.1 255.5 274.7 282.2 314.8 322.8 321.9 332.8 336.3 342.6 339.6 345.1 351.2 350.7 347.0 352.0 3.5 36.6 52.7 47.0 31.3 86.8

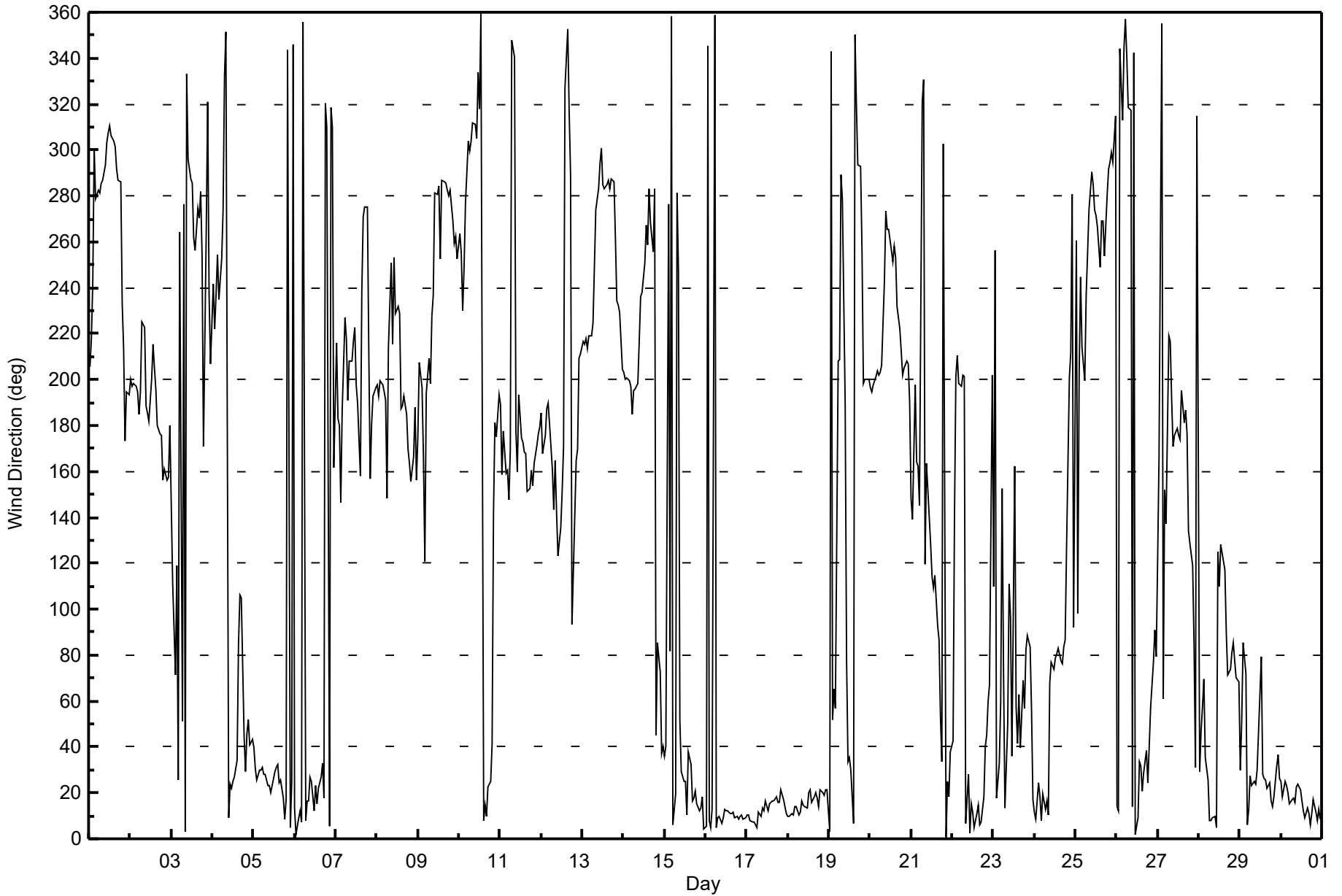
Diurnal Average

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Janvier - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Janvier - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 105 deg on Apr 15 08:00 Minimum Value: 5 deg on Apr 19 22:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 17 Q <sub>1</sub> = 22 Median = 28 Q <sub>3</sub> = 39 P <sub>90</sub> = 58 P <sub>99</sub> = 94																			Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	18	21	30	50	27	20	18	23	24	33	44	45	42	41	43	41	28	29	20	56	33	27	26	8	56
2-Apr	8	8	10	12	14	21	59	80	72	58	22	26	28	26	23	22	20	21	22	18	23	26	36	76	80
3-Apr	28	88	56	87	79	75	68	66	49	48	30	26	22	26	30	21	23	22	42	24	22	56	53	34	88
4-Apr	23	25	19	15	19	29	36	57	44	40	35	29	25	23	30	54	28	34	19	17	17	17	15	16	57
5-Apr	14	20	15	14	18	16	16	16	18	17	19	19	16	15	17	18	20	23	28	32	47	43	37	48	48
6-Apr	23	31	29	25	30	39	29	26	22	19	27	30	25	39	27	27	19	39	63	42	31	47	65	67	67
7-Apr	49	67	69	19	30	23	20	16	19	17	26	28	17	29	29	61	28	26	21	31	11	24	7	7	69
8-Apr	9	41	13	9	10	18	15	48	62	64	35	38	33	33	27	29	20	20	23	19	20	22	22	56	64
9-Apr	26	38	23	55	81	37	62	49	38	42	34	27	32	29	29	27	25	22	19	17	18	17	19	22	81
10-Apr	20	31	25	28	21	37	37	39	41	48	41	60	50	50	40	36	36	22	16	29	47	38	29	34	60
11-Apr	23	40	41	35	21	18	57	29	53	32	33	36	30	43	41	33	29	28	27	24	25	24	22	21	57
12-Apr	23	26	23	19	17	23	32	29	33	45	26	30	46	42	57	63	49	69	34	17	63	32	16	15	69
13-Apr	18	17	17	18	18	17	20	24	22	22	35	41	32	25	23	27	26	30	25	24	16	16	17	11	41
14-Apr	9	7	8	9	9	21	11	12	18	31	27	34	36	41	37	28	66	37	34	38	39	46	37	21	66
15-Apr	36	85	103	97	87	55	58	105	64	42	47	22	31	33	28	22	22	20	19	16	23	29	23	31	105
16-Apr	32	51	30	41	30	40	30	27	30	37	34	31	33	28	32	31	31	31	27	29	29	27	25	24	51
17-Apr	26	26	27	29	28	32	31	27	30	27	29	26	30	27	25	25	26	24	25	26	22	23	26	29	32
18-Apr	28	27	27	26	25	25	23	28	25	26	28	28	22	24	26	24	22	27	23	22	18	15	17	16	28
19-Apr	33	53	65	30	42	19	22	87	99	76	71	60	79	79	50	52	67	41	36	28	9	5	6	8	99
20-Apr	9	9	8	10	12	11	13	19	37	28	30	32	31	39	35	36	35	29	21	12	12	10	14	18	39
21-Apr	18	16	19	24	55	48	51	30	79	34	39	39	40	46	49	58	51	42	28	72	61	32	34	15	79
22-Apr	28	80	20	15	25	26	11	35	97	68	57	31	33	40	42	32	42	40	22	22	33	73	85	57	97
23-Apr	82	86	22	32	41	41	81	40	58	29	50	62	92	66	71	58	44	30	23	22	16	15	39	27	92
24-Apr	53	32	24	19	37	16	31	20	38	30	26	25	27	27	27	24	25	27	29	55	65	67	74	26	74
25-Apr	91	82	32	22	18	11	25	26	32	27	29	32	28	29	30	25	26	26	23	26	31	31	33	55	91
26-Apr	26	28	55	60	47	44	55	53	51	37	50	51	55	37	29	36	29	23	20	14	16	17	20	98	98
27-Apr	55	74	99	67	44	88	44	49	21	31	33	32	32	25	28	30	35	27	22	23	56	46	94	99	99
28-Apr	57	19	20	69	32	27	22	23	28	23	43	80	39	40	40	35	39	22	22	21	21	31	33	63	80
29-Apr	24	26	27	29	35	34	27	26	39	34	26	37	63	26	24	26	22	23	22	22	20	16	14	17	63
30-Apr	17	21	17	16	21	23	20	21	23	22	20	21	24	26	28	25	31	37	33	33	26	25	21	20	37
	91	88	103	97	87	88	81	105	99	76	71	80	92	79	71	63	67	69	63	72	65	73	85	98	
	Diurnal Maximum																								



Maximum Speed: 27 km/h on Apr 13 10:00	Maximum Daily Speed Average: 17.4 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 15 03:00	Minimum Daily Speed Average: 2.3 km/h on Apr 19	Hours of Data: 718
Maximum Diurnal Speed Average: 4.5 km/h at hour 9	Minimum Diurnal Speed Average: 0.6 km/h at hour 24	Hours of Missing Data: 2
Monthly Average Velocity: 2.4 km/h 334.7 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 10 Q <sub>3</sub> = 14 P <sub>90</sub> = 17 P <sub>99</sub> = 22	Percent Operational Time: 99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SSW23	SW20	WSW16	NW14	WNW11	WNW17	WNW17	WNW19	WNW23	WNW25	NW24	NW21	NW22	NW17	NW13	NW17	WNW19	WNW18	WNW11	WNW5	W5	SW2	SSW6	SSW8	WNW13.0	WNW25
2-Apr	SSW9	SSW11	SSW11	SSW8	SSW9	SSW7	S3	S2	SSW2	S9	S13	S14	SSW16	SW15	SSW15	SSW14	S14	S12	S12	SSE9	SSE10	SSE7	SSE7	SSW4	S9.3	SSW16
3-Apr	SE8	ESE5	NE3	NE1	N4	W3	NE5	WNW5	N13	NNW12	NW15	WNW11	WNW10	W8	WSW9	W15	W12	WNW13	W5	SSW6	W13	NW7	WNW5	WNW5	WNW5.5	W15
4-Apr	W7	WSW6	WSW9	W9	WSW8	W7	WNW7	NNW7	NNW9	N10	NNE10	NNE12	NNE13	NNE13	NE10	E7	ESE9	ESE6	NE8	NNE10	NE12	ENE11	NE10	NE10	NNE4.5	NNE13
5-Apr	NE10	NNE8	NNE10	NNE11	NNE12	NNE12	NNE12	NNE11	NNE10	NNE9	NNE11	NNE13	NE14	NE11	NNE10	NNE10	NNE8	N6	NNE4	NNW4	N5	NNE4	NNW3	NNW3	NNE9.0	NE14
6-Apr	NNE6	N6	N7	N7	N7	N4	N8	N8	NNE10	NNE11	NNE7	N8	NNE11	N7	NNE9	NNE8	NNE8	NNE6	NNW4	NNW3	N4	NNW3	NNW2	SW2	N6.1	NNE11
7-Apr	WSW2	SSW3	SSW3	SSE6	S5	SW6	SW7	SSW8	SSW8	SSW10	SW9	SW8	SSW10	S9	SSE11	WSW6	W11	WNW10	W8	W4	SW4	SSW5	SSW7	SSW8	SW5.6	W11
8-Apr	SSW9	SSW4	SSW7	SSW10	SSW10	SSW7	S5	SSW4	SW2	SW5	WSW9	SW11	SW12	SW14	S15	S15	SSW16	S13	S8	S8	SSE10	S10	S11	SSE7	SSW8.3	SSW16
9-Apr	SSE8	SSW8	SSW7	S4	SE2	SW6	SSW5	SSW5	SW8	WSW9	WNW13	WNW13	WNW10	WSW15	WNW18	WNW18	WNW21	WNW20	WNW16	WNW11	W10	W9	W11	W9	W8.8	WNW21
10-Apr	W12	W11	WSW9	WSW9	WNW7	NW11	NW8	NW11	NW15	NW15	NW16	NNW18	NW18	N14	N16	N14	N11	NNE14	NNE9	NNE6	UO	UO	SSW4	SSW4	NW8.5	NW18
11-Apr	SSW5	S4	SSW4	S4	S5	S4	S3	N2	NNW3	S12	SSE11	SSW12	S13	S12	SSE13	S14	SSE15	SSE16	SSE14	SSE11	SSE12	SSE14	S18	S15	S9.3	S18
12-Apr	S12	SSE12	S15	S14	S16	S13	SSE10	SE11	SSE9	SE7	SE12	SE9	SSE10	S6	NNW7	N4	NW5	NW5	E6	ESE8	SSE5	S6	SW13	SW13	S6.7	S16
13-Apr	SW14	SW13	SW13	SW13	SW13	SW11	SW12	WSW14	W23	WNW27	NW20	NW19	WNW23	WNW22	WNW22	WNW19	WNW19	WNW18	WNW14	W7	WSW8	WSW8	WSW8	SW9	W13.3	WNW27
14-Apr	SW9	SSW11	SSW12	SSW12	SSW9	SSW8	SSW10	SSW9	SSW10	SW10	WSW14	WSW16	WSW16	W14	W17	WNW14	W11	W8	WNW5	NNE4	E7	E6	NNE5	NNE5	SW6.8	W17
15-Apr	NNE5	NNE5	NE0	NNE3	NNE2	N4	NNE4	NNW1	WSW3	NE5	NNE5	NNE6	NNE6	NNE6	NE7	NE8	NNE6	NNE7	NE6	NNE6	NNE5	NNE5	NNE5	N5	NNE4.5	NE8
16-Apr	N5	NNW4	N7	N6	N8	N7	N7	N10	N10	N10	N14	N13	N14	N14	N15	N18	N18	N17	N17	N19	N16	N15	N15	N15	N12.3	N19
17-Apr	N15	N13	N13	N15	N15	N15	N17	N16	N17	N16	N20	NNE20	N19	N20	NNE22	NNE21	NNE21	NNE21	NNE19	NNE18	NNE18	NNE19	NNE17	N13	N17.4	NNE22
18-Apr	N11	N12	N12	N13	N14	N13	N14	N13	NNE15	NNE16	N15	N16	NNE19	NNE18	NNE17	NNE18	NNE17	NNE16	N17	NNE14	NNE10	NNE11	NNE7	NNE7	NNE13.8	NNE19
19-Apr	NNE4	N4	N4	NNE4	NNE4	SW3	SSW3	NW2	WNW2	SSW3	ENE5	NNE6	NNE6	NNE5	N7	NNW8	NW7	WNW8	NW7	WNW6	WSW6	SW7	SW9	SW8	NW2.3	SW9
20-Apr	SW10	SSW10	SSW11	SSW12	SW12	SSW11	SW10	SW8	WSW9	W13	W13	W14	W15	WSW14	W13	W12	SW11	SW12	SW12	SSW11	SSW12	SSW10	SSW8	S5	SW10.1	WSW15
21-Apr	S5	S5	SSW6	S6	S6	SSE5	SSW3	N3	ESE5	SSE13	SSE14	SE14	ESE12	ESE13	ESE11	E8	E8	ENE7	NNE5	NW3	N5	NNE7	N6	N6	ESE4.1	SSE14
22-Apr	NNE5	ENE3	SSW3	SSW5	SSW6	SSW5	SSW6	SSW4	N2	NNE4	N8	NNE15	N15	N14	N15	NNE17	N14	N10	NNE10	NE9	NE7	NNE4	N3	WSW1	N5.1	NNE17
23-Apr	NNW1	WNW2	N8	N6	NNE4	ENE2	NE3	NNE6	NE5	ESE9	E8	NE6	S1	ENE6	NE5	ENE4	NE7	ENE8	ENE9	E8	E8	E8	ENE6	NNE5	ENE4.7	ESE9
24-Apr	N6	NNE7	NNE6	NNE8	NNE7	NNE7	NNE8	NNE9	N7	ENE14	ENE15	E16	E17	E17	E16	E17	E18	E19	E14	SE11	SSW8	SW6	WNW8	E9	ENE7.9	E19
25-Apr	W3	NNW3	WSW5	WSW8	SW8	SSW9	WSW11	WSW11	W11	WNW20	WNW17	W18	W19	W19	WSW16	W21	W21	WSW18	WNW21	WNW19	NW14	NW14	NW12	NW8	W12.5	W21
26-Apr	N13	N13	NNW8	NW7	NNW11	NNW9	NNW6	NW11	NW14	N12	NNW14	N11	N11	NNE13	NNE15	NNE13	NNE13	NE13	NNE12	NE10	ENE7	E7	E8	ESE5	N8.9	NNE15
27-Apr	SE6	SSE3	NNW1	NE1	S4	S3	SSW6	SW5	S14	S15	S14	S17	S16	S19	SSW19	S17	S15	S13	SE9	SE7	ESE7	ESE5	ENE3	NNW1	S8.0	SSW19
28-Apr	NNE7	NE9	ENE8	E5	ENE5	ENE4	NNE5	N5	N6	N7	N5	SE7	ESE10	SE9	ESE11	ESE11	E11	ENE12	E9	E9	E11	E8	E5	E4	ENE6.1	ENE12
29-Apr	NE5	ENE6	E6	E4	NNE3	NNE4	NNE6	NNE7	NNE6	NNE7	NNE9	NE6	ENE6	NNE12	NNE13	NNE13	NNE14	NNE14	NNE11	N12	NNE11	NE14	NE16	NNE13	NNE8.6	NE16
30-Apr	NNE12	NNE10	NNE12	NNE16	NNE14	N14	NNE13	NNE15	NNE17	NNE19	NNE17	NNE14	NNE14	N13	N13	N14	N12	N11	N11	NNE13	N13	N9	NNE11	N9	NNE13.1	NNE19

W0.9	W1.0	W1.4	NNW1.3	NNW1.4	NNW1.9	NW2.1	NW3.2	NW4.5	NNW3.7	NNW4.2	NNW4.1	NNW3.7	NNW3.4	NNW3.5	NNW4.3	NNW4.1	NNW3.6	N3.7	NNE2.8	NNE1.6	NNE1.7	N0.9	NNW0.6	Diurnal Average
SSW23	SW20	WSW16	NNE16	S16	WNW17	WNW17	WNW19	WNW23	WNW27	NW24	NW21	WNW23	WNW22	WNW22	W21	W21	NNE21	WNW21	N19	NNE18	NNE19	S18	S15	Diurnal Maximum

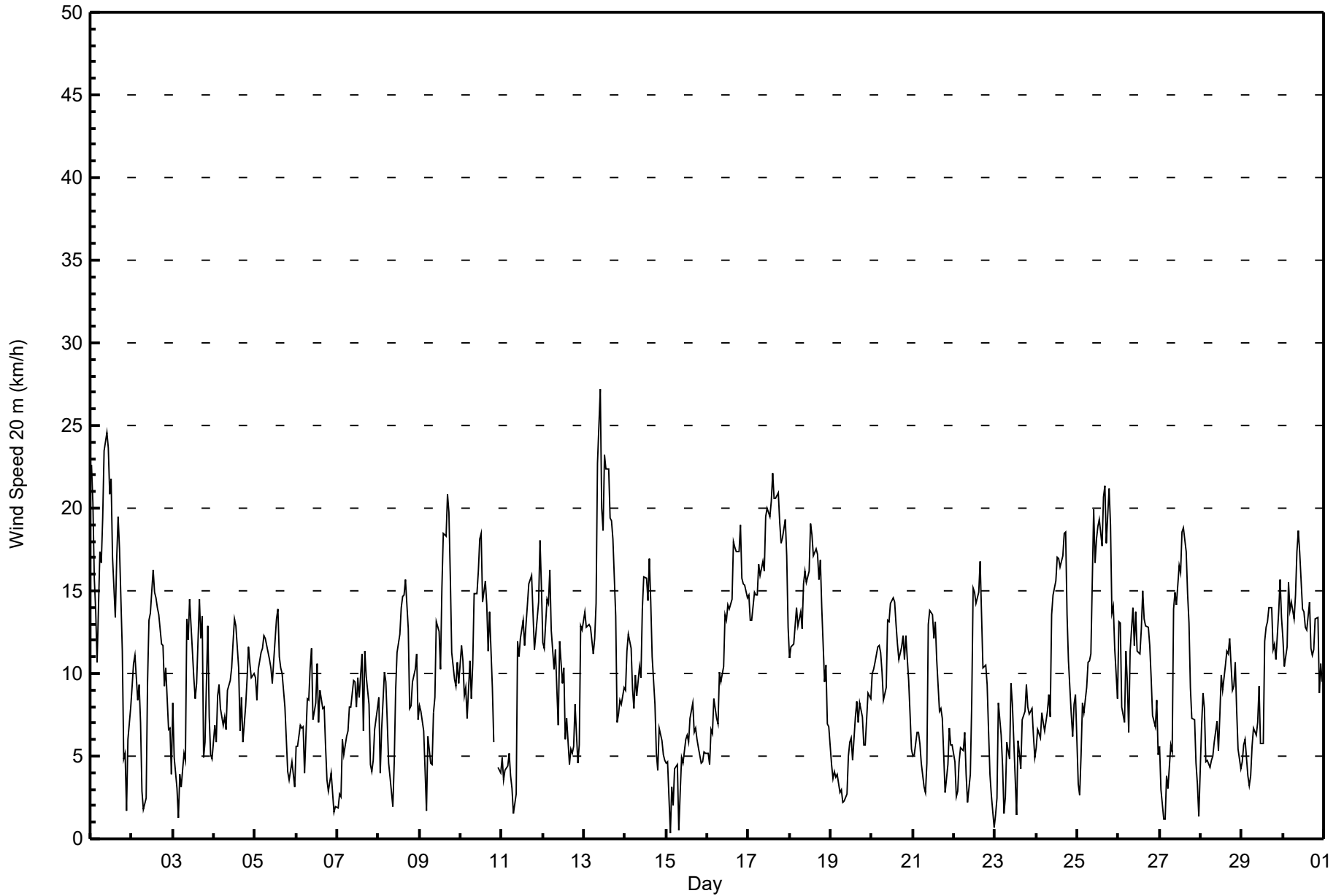
UO - Unstable Operation  
All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 1 11:00 Minimum Value: 0 km/h on Apr 7 21:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 6 P <sub>99</sub> = 8																	Hours in Service: 720 Hours of Data: 718 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	6	6	5	7	3	6	4	6	8	8	9	8	8	7	6	7	6	6	4	1	1	2	2	1	9
2-Apr	2	1	1	1	2	1	1	1	1	5	4	4	5	5	4	5	4	4	3	2	3	2	2	2	5
3-Apr	2	2	1	1	3	3	3	2	6	4	5	3	3	3	3	4	4	5	2	2	3	4	1	1	6
4-Apr	1	1	2	2	1	1	2	2	4	3	4	4	3	3	3	3	3	2	2	3	3	3	2	2	4
5-Apr	2	2	2	2	3	3	3	2	2	2	2	3	4	3	3	3	3	2	2	1	1	2	1	1	4
6-Apr	1	2	2	2	2	2	3	3	3	3	2	3	3	3	2	2	2	2	1	1	1	1	1	2	3
7-Apr	1	1	2	1	1	1	1	2	2	2	3	3	2	3	3	4	4	3	2	1	0	2	1	1	4
8-Apr	1	1	1	2	1	2	1	1	1	3	3	4	4	5	5	5	5	4	2	2	2	2	3	3	5
9-Apr	3	3	1	2	1	2	1	2	4	3	5	5	3	5	6	6	6	7	5	3	2	2	2	2	7
10-Apr	3	4	3	2	2	4	3	4	6	6	7	8	8	6	6	5	5	7	3	2	UO	UO	1	1	8
11-Apr	1	1	2	1	1	1	1	1	1	4	3	4	4	5	5	5	5	6	4	3	4	5	5	5	6
12-Apr	4	4	4	4	4	5	4	4	3	3	4	3	5	3	3	2	2	3	2	2	2	3	3	3	5
13-Apr	3	3	3	3	3	3	3	4	6	8	7	7	8	7	6	5	6	5	5	2	1	1	1	1	8
14-Apr	1	1	1	2	1	3	2	3	3	3	4	5	6	6	6	5	5	3	2	1	2	2	1	1	6
15-Apr	1	3	1	2	1	1	2	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	2	3
16-Apr	1	1	2	2	3	3	2	3	3	4	5	5	5	5	5	7	7	6	6	6	5	5	5	5	7
17-Apr	5	4	4	5	5	5	6	6	6	6	7	7	7	7	6	7	7	7	6	5	6	6	6	4	7
18-Apr	4	4	4	4	4	4	4	4	5	5	5	6	6	5	5	5	5	5	5	4	2	3	2	1	6
19-Apr	2	1	1	1	1	2	2	2	2	2	3	2	4	3	3	4	3	3	2	1	1	1	1	1	4
20-Apr	1	1	2	2	2	2	2	2	4	4	4	4	5	5	5	4	4	4	3	2	2	2	3	1	5
21-Apr	1	1	1	1	1	1	1	1	4	4	5	5	5	5	4	4	3	2	2	2	2	2	2	1	5
22-Apr	1	1	1	2	1	1	1	1	2	2	4	5	5	5	5	6	6	4	3	3	3	1	1	1	6
23-Apr	1	2	2	1	1	1	1	2	2	3	3	4	3	4	3	2	3	3	3	2	1	2	1	1	4
24-Apr	2	2	2	1	2	1	2	2	3	4	4	4	5	5	5	6	6	6	5	6	6	7	6	4	7
25-Apr	2	1	2	2	1	2	3	3	4	6	5	6	6	7	6	7	7	6	7	6	4	5	4	4	7
26-Apr	5	4	4	3	5	3	3	5	6	5	5	5	5	5	4	5	4	4	3	2	2	1	2	2	6
27-Apr	2	1	1	1	1	1	2	3	4	5	5	6	5	6	6	6	6	6	3	2	2	2	1	3	6
28-Apr	4	3	2	2	1	1	2	1	2	2	2	4	3	3	4	3	4	4	2	3	3	3	2	2	4
29-Apr	2	2	2	1	1	1	3	2	2	2	2	2	3	4	4	3	4	4	3	3	3	3	4	4	4
30-Apr	3	3	3	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	5	5	3	3	2	5
Diurnal Maximum																									
UO - Unstable Operation																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	149	20.75	20.75
6 - 11	301	41.92	62.67
12 - 19	242	33.70	96.38
20 - 28	26	3.62	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - April 2024**

<b>Wind Speed</b> <b>Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	17	27	10	7	4	4	1	3	16	20	6	5	5	7	4	13	149
6 - 11	36	57	15	10	19	9	10	14	10	40	20	17	15	12	9	8	301
12 - 19	53	49	5	3	8	2	2	9	28	10	14	10	14	18	14	3	242
20 - 28	2	5	0	0	0	0	0	0	0	1	1	0	3	11	3	0	26
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>	<b>108</b>	<b>138</b>	<b>30</b>	<b>20</b>	<b>31</b>	<b>15</b>	<b>13</b>	<b>26</b>	<b>54</b>	<b>71</b>	<b>41</b>	<b>32</b>	<b>37</b>	<b>48</b>	<b>30</b>	<b>24</b>	<b>718</b>

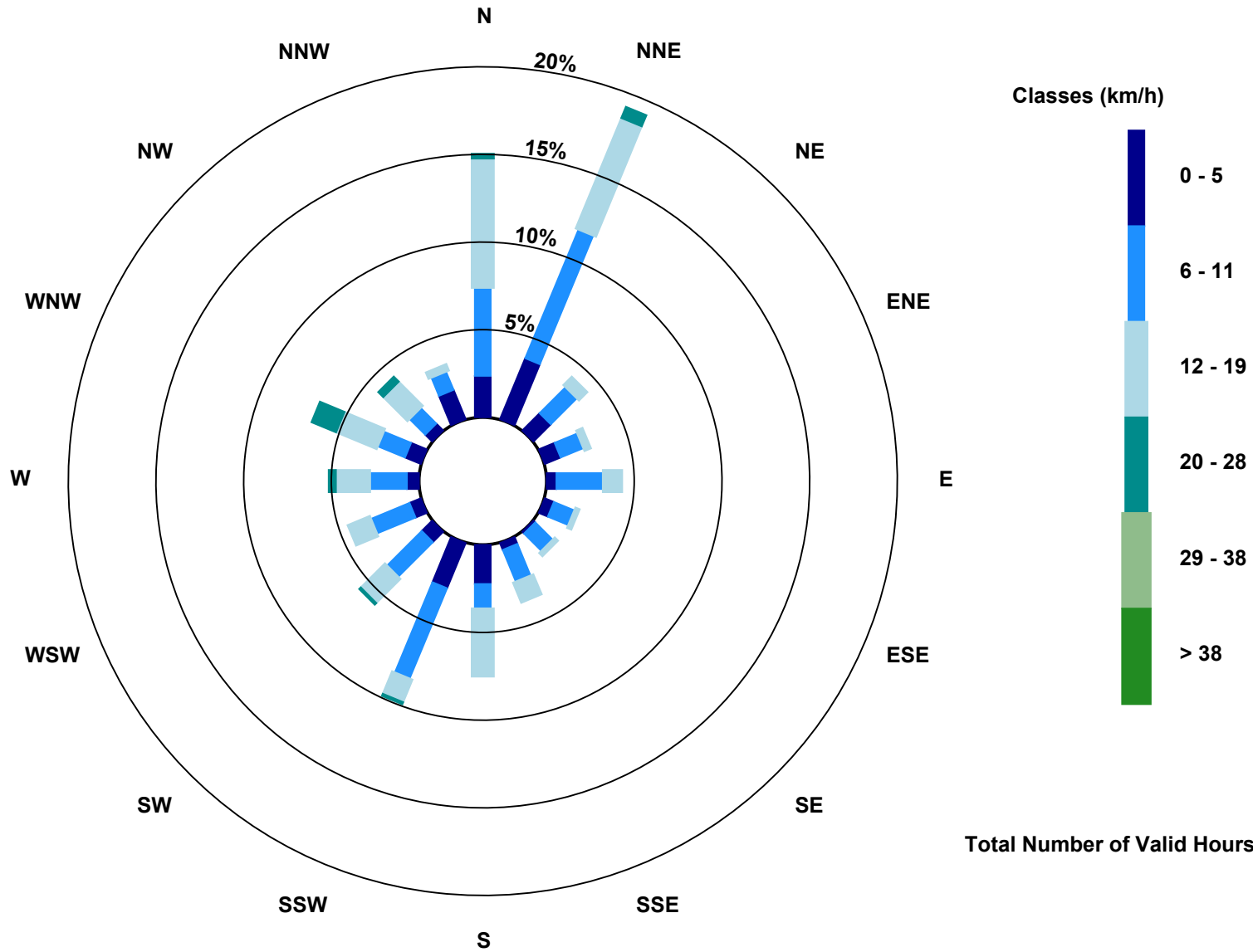
Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed 20 m (WS20m) - km/h  
Janvier





Direction of Maximum Speed: 286 deg on Apr 13 10:00		Hours in Service:	720
Direction of Maximum Daily Speed Average: 9.4 deg on Apr 17		Hours of Data:	718
Direction of Minimum Speed: 52 deg on Apr 15 03:00		Hours of Missing Data:	2
Direction of Minimum Daily Speed Average: 2.3 deg on Apr 19		Percent Operational Time:	99.7
Monthly Average Direction: 334.7 deg			

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-Apr	208	221	246	309	287	287	287	292	294	301	310	317	316	312	309	307	300	295	294	303	274	232	208	204	288.1
2-Apr	210	207	205	204	205	197	178	180	198	184	184	179	201	217	207	197	178	175	175	159	162	166	161	205	190.4
3-Apr	144	123	40	43	9	274	40	286	351	331	306	300	294	264	258	279	275	289	263	207	267	314	305	290	293.7
4-Apr	265	242	246	262	240	260	285	334	348	3	22	16	23	29	35	87	103	104	46	33	51	57	46	47	18.2
5-Apr	44	33	29	31	31	32	31	31	25	22	17	21	31	34	36	28	28	19	9	19	348	355	14	347	26.4
6-Apr	12	359	359	10	8	358	2	11	17	25	24	6	22	10	16	19	30	14	328	327	357	339	333	233	9.8
7-Apr	243	210	210	147	183	232	226	194	213	211	222	228	202	191	157	243	276	282	280	264	236	198	202	209	219.1
8-Apr	206	196	207	207	210	202	188	200	228	221	255	233	235	232	188	189	194	185	172	170	161	169	186	165	199.4
9-Apr	168	208	203	179	129	215	213	199	230	248	288	286	286	255	293	292	290	288	284	289	277	271	267	260	268.2
10-Apr	270	262	240	254	289	314	310	316	317	320	313	334	324	350	0	5	3	24	24	30	UO	UO	193	212	324.5
11-Apr	204	189	195	189	191	182	183	7	343	180	163	197	174	173	166	169	152	152	159	154	159	165	170	175	169.9
12-Apr	180	166	172	185	189	175	157	142	159	141	125	137	150	169	331	350	312	304	95	114	147	179	214	221	169.1
13-Apr	224	222	224	221	225	226	231	251	278	286	304	307	292	289	288	293	289	294	294	276	246	239	237	221	269.6
14-Apr	221	208	204	204	203	200	200	200	201	219	237	240	253	269	262	286	275	260	286	33	83	85	22	29	235.1
15-Apr	16	16	52	29	20	9	22	334	245	45	24	24	27	12	42	35	21	26	34	21	27	29	14	358	23.1
16-Apr	2	348	0	2	9	354	0	3	0	357	1	3	4	2	1	2	3	2	4	2	2	2	3	5	1.9
17-Apr	6	5	3	1	1	358	359	4	4	10	8	15	7	8	14	15	15	15	15	15	19	15	12	7	9.4
18-Apr	6	7	7	7	11	10	8	5	14	12	10	10	17	21	13	17	18	17	11	21	20	20	16	18	13.2
19-Apr	17	5	2	18	17	226	206	324	292	207	73	26	22	25	2	348	324	303	304	284	244	219	217	220	318.1
20-Apr	217	210	213	212	214	212	215	218	250	281	267	271	259	253	261	259	234	227	218	207	209	213	207	190	232.9
21-Apr	185	178	195	174	173	165	201	353	122	163	154	127	116	110	116	98	90	60	32	307	1	27	8	11	122.0
22-Apr	17	61	196	212	206	208	213	213	357	14	357	12	8	2	7	13	359	3	15	41	53	21	353	239	7.8
23-Apr	338	298	10	8	22	69	54	19	48	105	94	46	172	60	42	60	42	73	62	86	88	90	77	27	58.4
24-Apr	8	12	16	18	22	15	13	13	9	72	78	80	82	83	89	81	88	91	127	201	215	289	91		69.9
25-Apr	278	328	245	253	231	213	240	258	277	298	294	278	274	271	253	271	273	255	286	298	305	310	306	324	276.9
26-Apr	7	2	339	320	340	348	336	325	322	7	338	350	6	33	29	18	29	39	26	43	59	82	96	104	10.1
27-Apr	125	153	335	35	172	169	205	215	190	170	177	179	174	172	193	178	185	173	134	130	121	105	67	347	171.3
28-Apr	22	42	65	90	57	63	12	7	11	10	356	126	109	127	121	118	93	77	83	88	89	82	80	85	77.7
29-Apr	43	68	89	80	25	16	24	22	23	22	31	45	75	28	24	24	20	23	15	8	12	34	39	28	29.7
30-Apr	25	17	23	23	16	11	14	14	14	22	24	20	13	11	8	10	0	355	1	17	10	6	15	9	13.9

263.0	263.8	260.4	284.4	290.3	286.4	308.3	325.0	324.6	331.9	333.3	336.6	334.9	337.8	344.0	344.1	341.1	347.3	357.3	21.5	22.0	29.3	350.4	339.8
Diurnal Average																							

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

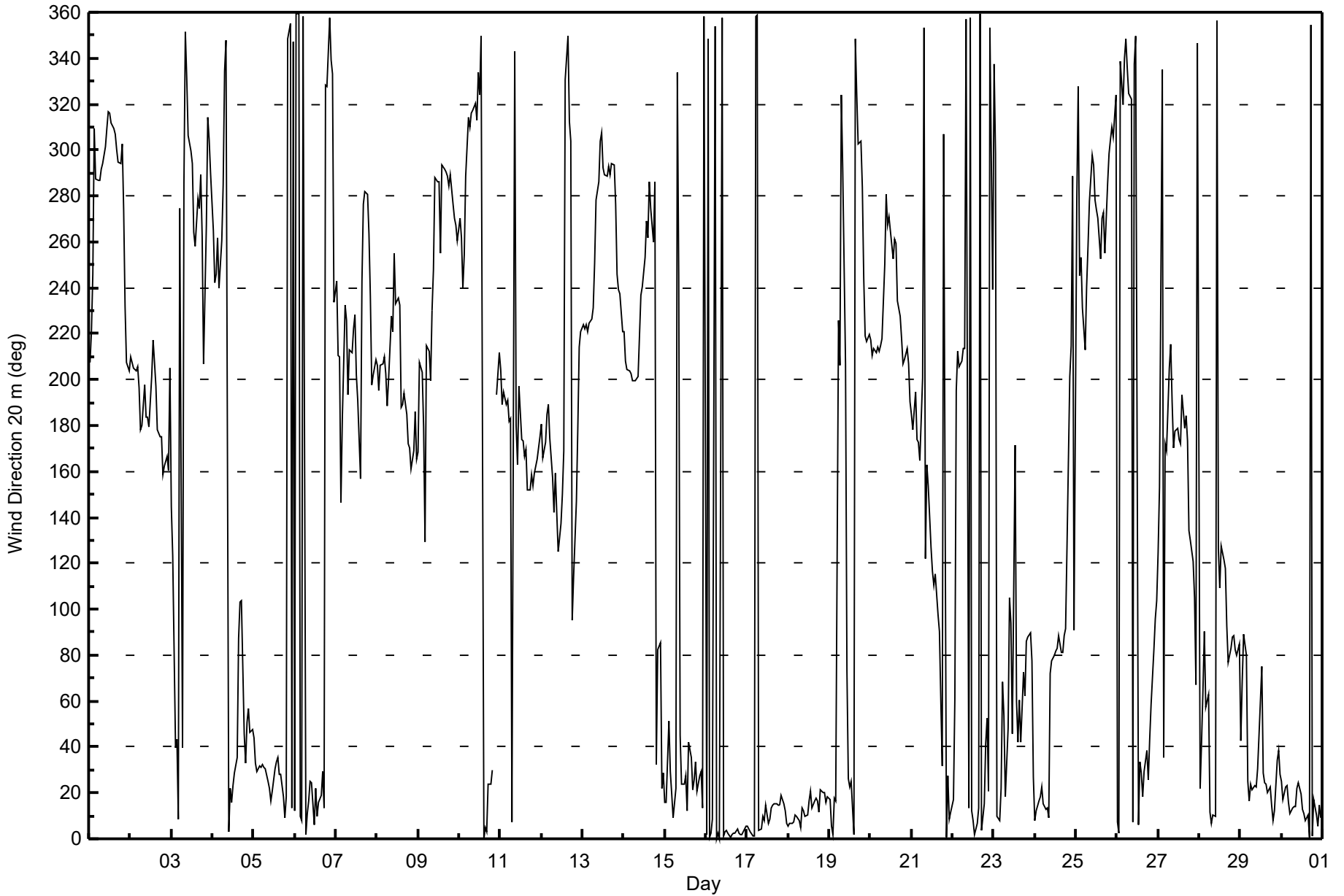
**Wind Direction 20 m (WD20m) - deg**  
**Janvier - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 106 deg on Apr 15 08:00	Hours of Data: 718
Minimum Value: 5 deg on Apr 7 23:00	Hours of Missing Data: 2
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 13 Q <sub>1</sub> = 18 Median = 23 Q <sub>3</sub> = 30 P <sub>90</sub> = 44 P <sub>99</sub> = 83	Hours of Calibration: 0
	Percent Operational Time: 99.7

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	16	18	27	36	25	19	16	19	18	25	32	32	28	31	32	31	20	22	14	19	19	57	11	7	57
2-Apr	7	8	8	9	9	15	41	52	71	66	21	23	25	24	20	21	19	18	19	16	19	21	27	67	71
3-Apr	18	52	49	64	49	84	70	43	33	32	23	21	18	24	26	18	19	19	36	12	19	38	25	16	84
4-Apr	14	21	14	13	13	21	28	35	34	31	31	27	22	21	27	46	26	29	18	12	15	15	14	14	46
5-Apr	13	16	13	12	15	13	14	13	16	15	18	18	15	12	15	16	18	19	24	24	23	29	34	31	34
6-Apr	17	21	23	21	19	30	24	21	19	17	24	29	21	35	25	26	21	32	36	25	21	22	43	54	54
7-Apr	42	43	51	13	29	15	17	17	16	14	21	27	18	30	25	60	25	22	17	16	12	10	5	7	60
8-Apr	7	21	10	8	10	8	8	37	66	64	31	33	27	29	26	29	19	16	18	15	17	17	18	46	66
9-Apr	23	30	13	42	73	32	25	39	33	36	26	24	26	26	23	23	21	19	17	14	15	15	17	17	73
10-Apr	17	27	19	23	18	28	25	26	29	30	30	39	32	37	34	29	33	18	16	10	UO	UO	14	14	39
11-Apr	10	22	24	14	10	18	35	21	56	26	29	33	27	39	38	29	26	25	24	20	22	22	22	21	56
12-Apr	21	24	21	17	16	22	27	25	30	39	21	26	36	40	44	54	36	48	34	13	47	18	14	14	54
13-Apr	15	15	15	15	14	14	17	22	19	19	27	31	25	19	19	22	20	21	19	21	14	13	13	13	31
14-Apr	10	6	7	8	8	12	10	14	16	27	24	28	32	35	32	23	51	35	24	38	18	27	15	12	51
15-Apr	21	51	99	55	46	42	41	106	54	30	39	18	24	27	22	18	16	17	15	13	14	25	17	25	106
16-Apr	23	24	22	26	24	27	23	21	25	31	29	26	27	25	27	28	26	26	24	23	26	25	23	21	31
17-Apr	23	25	24	26	25	28	27	25	25	24	24	23	27	28	21	22	22	22	22	22	20	22	22	25	28
18-Apr	24	23	21	23	20	21	22	26	21	23	26	24	21	20	25	20	20	24	21	19	15	14	15	13	26
19-Apr	14	16	16	19	11	50	18	86	76	83	59	57	83	75	45	42	53	30	25	14	15	7	8	10	86
20-Apr	11	9	9	10	12	11	14	18	35	26	28	27	27	35	30	31	30	26	18	11	10	9	12	11	35
21-Apr	12	11	8	14	13	17	36	30	72	28	36	35	37	41	41	61	43	35	34	64	48	26	24	13	72
22-Apr	17	47	28	11	13	14	11	32	79	68	47	29	27	36	34	28	33	36	22	20	20	19	15	66	79
23-Apr	61	59	15	16	10	41	64	29	53	26	47	62	90	70	70	56	43	24	19	17	12	12	26	26	90
24-Apr	22	12	14	12	11	13	19	17	32	23	20	22	22	23	23	21	22	22	21	47	61	67	72	26	72
25-Apr	73	33	27	17	15	11	20	23	26	22	24	26	25	25	26	23	24	23	20	19	23	21	21	34	73
26-Apr	24	26	36	39	34	32	37	39	35	33	39	41	44	33	25	31	25	22	18	13	15	12	15	27	44
27-Apr	29	49	77	86	19	23	32	40	21	30	30	29	29	29	26	26	30	33	24	17	18	33	35	83	86
28-Apr	33	22	16	25	30	20	18	21	18	18	37	77	31	30	34	30	34	19	18	18	18	27	28	55	77
29-Apr	18	18	22	22	25	31	29	22	28	28	20	38	51	19	22	21	20	19	20	20	19	14	12	16	51
30-Apr	16	17	14	14	20	20	19	19	20	18	16	19	22	20	22	22	27	29	28	28	21	21	16	17	29

73	59	99	86	73	84	70	106	79	83	59	77	90	75	70	61	53	48	36	64	61	67	72	83	
Diurnal Maximum																								

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS23**  
**FORT HILLS**  
**APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)

APRIL 2024

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	686	33	34	99.86	23.9	0	4.1	0
TRS(ppb) Average	685	34	35	99.86	1.4	0	0.6	0
THC(ppm) Average	686	33	34	99.86	6.1	-	3	-
NMHC(ppm) Average	686	33	34	99.86	2.224	-	0.454	-
CH4(ppm) Average	686	33	34	99.86	4.7	-	2.6	-
NO2 (ppb) Average	684	35	36	99.86	59.9	0	23.9	-
NO (ppb) Average	684	35	36	99.86	347.8	-	65.2	-
NOX (ppb) Average	684	35	36	99.86	407.7	-	89.1	-
PM2.5 (ug/m3) Average	719	1	1	100	325.4	5	39.3	1
Temperature 2 m (C) Average	720	0	0	100	18.3	-	10.9	-
Relative Humidity (%) Average	720	0	0	100	98.4	-	89.2	-
Wind Speed 10 m (km/h) Average	720	0	0	100	38	-	31	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	0.58	1.8	-	0	0	0	0.1	0.3	1.3	23.9
TRS (ppb) Average	685	0.19	0.2	-	0	0.1	0.1	0.1	0.2	0.3	1.4
THC (ppm) Average	686	2.3	0.5	-	2	2	2	2.1	2.4	2.8	6.1
NMHC(ppm) Average	686	0.155	0.251	-	0	0	0	0.1	0.2	0.4	2.224
CH4(ppm) Average	686	2.14	0.3	-	1.9	2	2	2	2.2	2.4	4.7
NO2 (ppb) Average	684	12.49	12.1	-	0.2	1	3.1	7.6	19.8	32.2	59.9
NO (ppb) Average	684	8.96	28.1	-	0	0	0.2	1	4.6	22.3	347.8
NOX (ppb) Average	684	21.44	36.7	-	0.2	1.1	3.7	9.1	23.8	52.8	407.7
PM2.5 (ug/m3) Average	719	8.17	16.9	-	0.2	1.5	2.6	4	8	17.4	325.4
Temperature 2 m (C) Average	720	5.23	5.5	-	-7.6	-1.1	0.9	4.5	9.3	13.2	18.3
Relative Humidity (%) Average	720	54.99	24	-	9.3	23.9	33.8	54.2	75.3	89.3	98.4
Wind Speed 10 m (km/h) Average	720	13.7	8	-	1	5	8	12	18	25	38
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	11 Apr 2024 08:00	11 Apr 2024 08:00	1	Maintenance - sample manifold cleaned



Wood Buffalo Environmental Association

Summary of Hour Averages

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

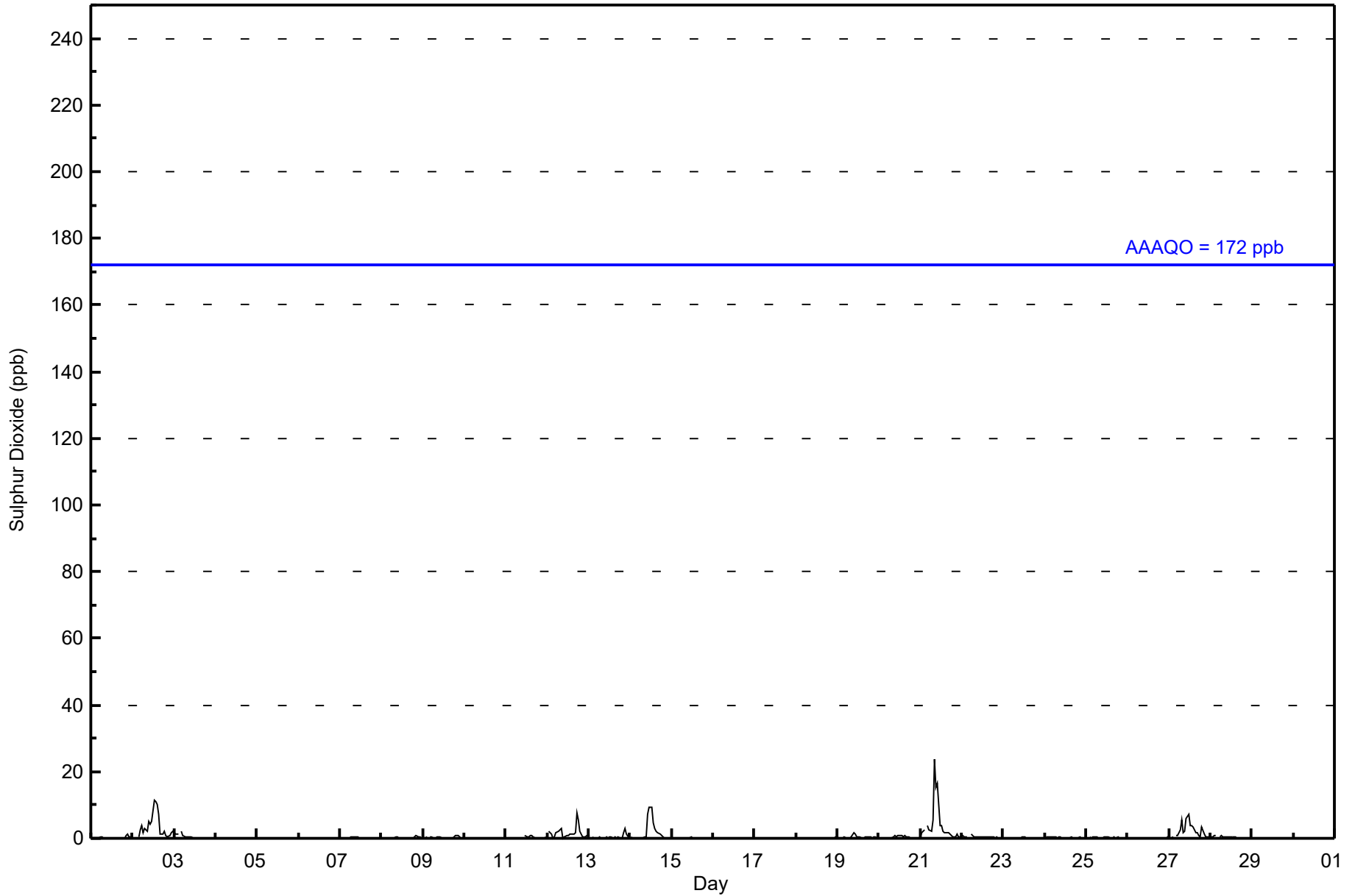
Fort Hills - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum																										
Maximum Value: 23.9 ppb on Apr 21 09:00		Maximum Daily Average: 4.1 ppb on Apr 21																	Hours of Data: 686		Hours of Missing Data: 34																												
Minimum Value: 0.0 ppb on Apr 1 10:00		Minimum Daily Average: 0.0 ppb on Apr 6																	Hours of Calibration: 33		Percent Operational Time: 99.9																												
Maximum Diurnal Average: 1.4 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 4																																															
Monthly Average: 0.58 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 1.3 P <sub>99</sub> = 9.4																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.5	Z	0.1	0.2	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.7	1.1	0.4	0.3	0.2	1.1																							
2-Apr	0.0	0.1	Z	0.5	2.6	3.8	1.8	3.1	2.1	5.1	4.2	5.2	11.4	10.9	10.2	7.2	1.2	1.1	2.0	1.0	0.6	0.9	1.8	2.3	3.4	11.4																							
3-Apr	1.9	1.3	1.4	Z	2.3	0.8	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	2.3																							
4-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
5-Apr	0.0	0.0	0.1	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
6-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
7-Apr	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.4	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																							
8-Apr	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.7	0.6	0.5	0.2	0.2	0.7																							
9-Apr	0.2	0.1	0.4	Z	0.2	0.3	0.2	0.1	0.5	0.5	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.2	0.9	1.0	0.2	0.0	0.0	0.3	1.0																							
10-Apr	0.1	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1																							
11-Apr	0.1	0.0	0.0	0.0	0.2	Z	0.1	M	C	C	C	0.9	0.3	0.5	1.0	0.8	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.3	0.3	1.0																							
12-Apr	Z	2.1	1.1	0.2	0.3	1.8	2.0	2.6	2.9	0.2	0.3	0.9	0.8	1.1	1.3	1.3	1.6	7.5	5.7	2.2	0.3	0.3	0.6	0.7	1.6	7.5																							
13-Apr	1.0	Z	0.2	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.5	0.1	0.2	0.1	0.1	1.7	3.1	1.1	0.2	0.5	3.1																							
14-Apr	0.2	0.3	Z	0.1	0.1	0.0	0.1	0.2	0.5	0.6	7.4	9.4	9.5	4.6	2.9	2.1	1.7	1.1	0.7	0.4	0.1	0.0	0.0	0.1	1.8	9.5																							
15-Apr	0.0	0.1	0.2	Z	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
16-Apr	0.0	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
17-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
18-Apr	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.1	0.4																						
19-Apr	0.6	Z	0.1	0.1	0.4	0.1	0.1	0.2	0.5	1.8	1.5	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.2	0.4	1.8																							
20-Apr	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.7	0.4	0.7	0.9	0.7	0.5	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.9																							
21-Apr	0.3	1.5	2.7	Z	3.7	2.4	2.3	5.3	23.9	15.3	16.7	3.8	3.7	2.0	1.6	1.7	1.7	1.3	0.8	0.5	0.6	1.2	0.6	0.5	4.1	23.9																							
22-Apr	0.8	0.6	0.5	0.4	Z	1.1	0.9	0.6	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.2	0.3	0.1	0.0	0.1	0.4	1.1																							
23-Apr	0.0	0.1	0.1	0.1	0.0	Z	0.0	0.2	0.2	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
24-Apr	Z	0.3	0.2	0.2	0.3	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.5																							
25-Apr	0.1	Z	0.4	0.1	0.3	0.3	0.2	0.1	0.1	0.0	0.5	0.3	0.4	0.3	0.1	0.1	0.3	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.2	0.5																							
26-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2																							
27-Apr	0.1	0.1	0.3	Z	0.7	0.7	2.5	5.3	1.8	1.9	5.8	7.3	3.6	3.8	3.6	1.6	1.5	0.9	0.3	3.4	1.3	0.5	0.6	0.5	2.1	7.3																							
28-Apr	0.3	0.6	0.8	1.0	Z	0.6	0.9	0.6	0.3	0.3	0.4	0.3	0.4	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0																							
29-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2																							
30-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
																								0.3	0.3	0.3	0.1	0.5	0.5	0.5	0.7	1.2	1.0	1.4	1.1	1.1	0.9	0.8	0.6	0.3	0.5	0.4	0.3	0.3	0.3	0.2	0.2	Diurnal Average	
																								1.9	2.1	2.7	1.0	3.7	3.8	2.5	5.3	23.9	15.3	16.7	9.4	11.4	10.9	10.2	7.2	1.7	7.5	5.7	3.4	1.7	3.1	1.8	2.3	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																																	



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Hills - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	681	99.27	99.27
11 - 20	4	0.58	99.85
21 - 60	1	0.15	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Hills - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	116	108	49	23	12	25	60	59	41	34	28	23	12	38	16	37	681
11 - 20	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	4
21 - 60	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
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>	116	108	49	23	12	25	62	61	41	35	28	23	12	38	16	37	686

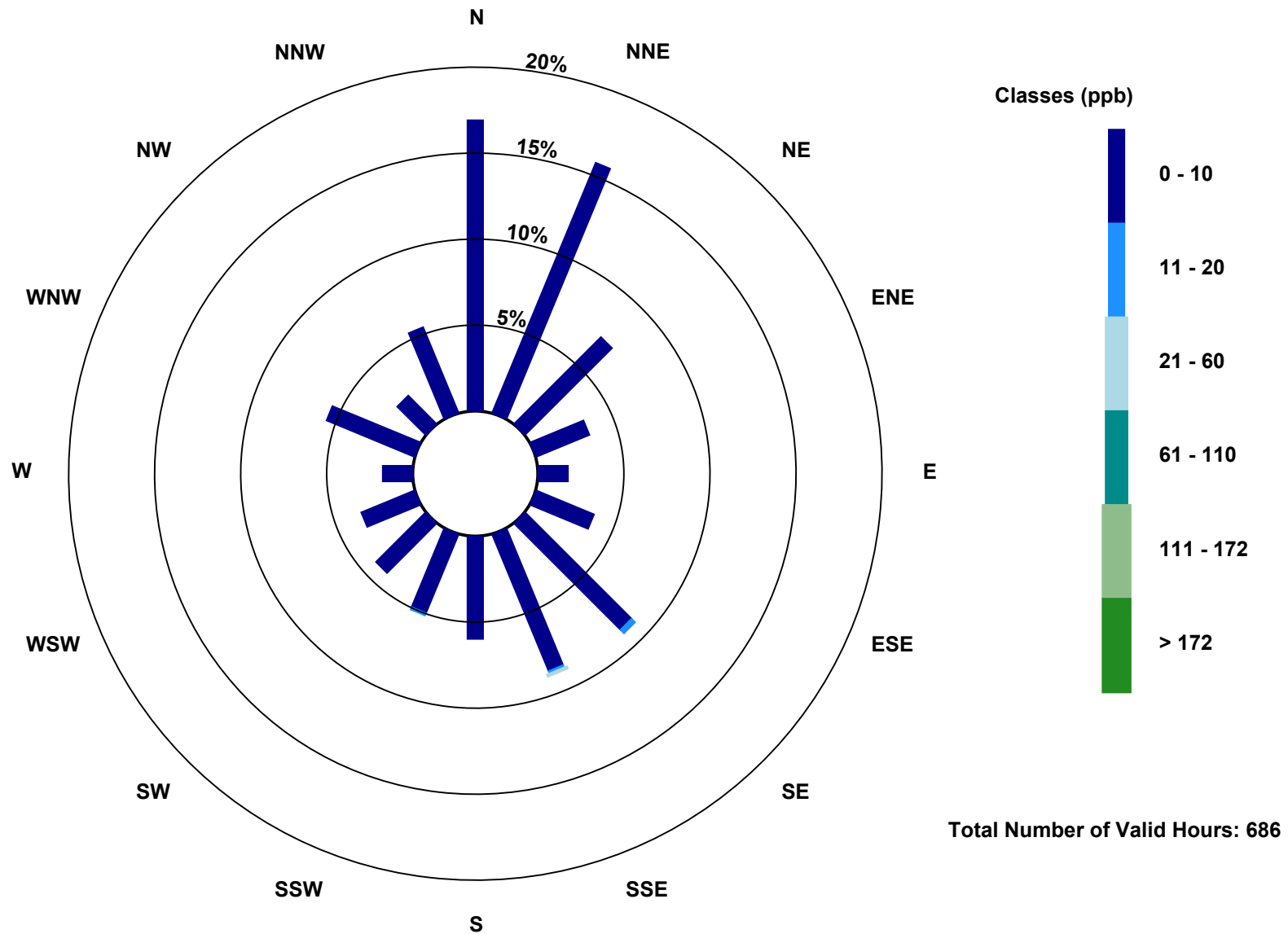
Total Number of Valid Hours: 686

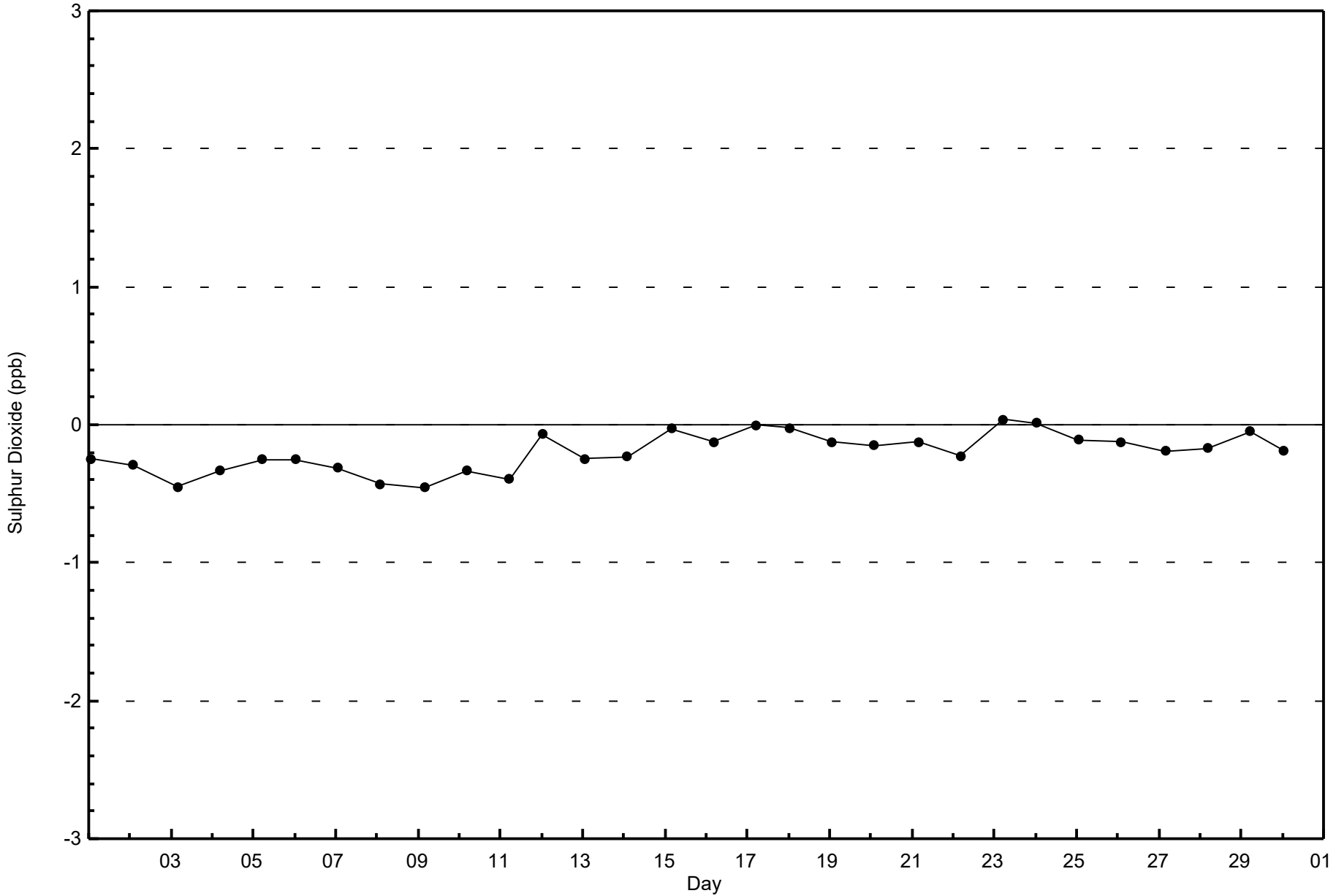
Total Number of Hours: 720

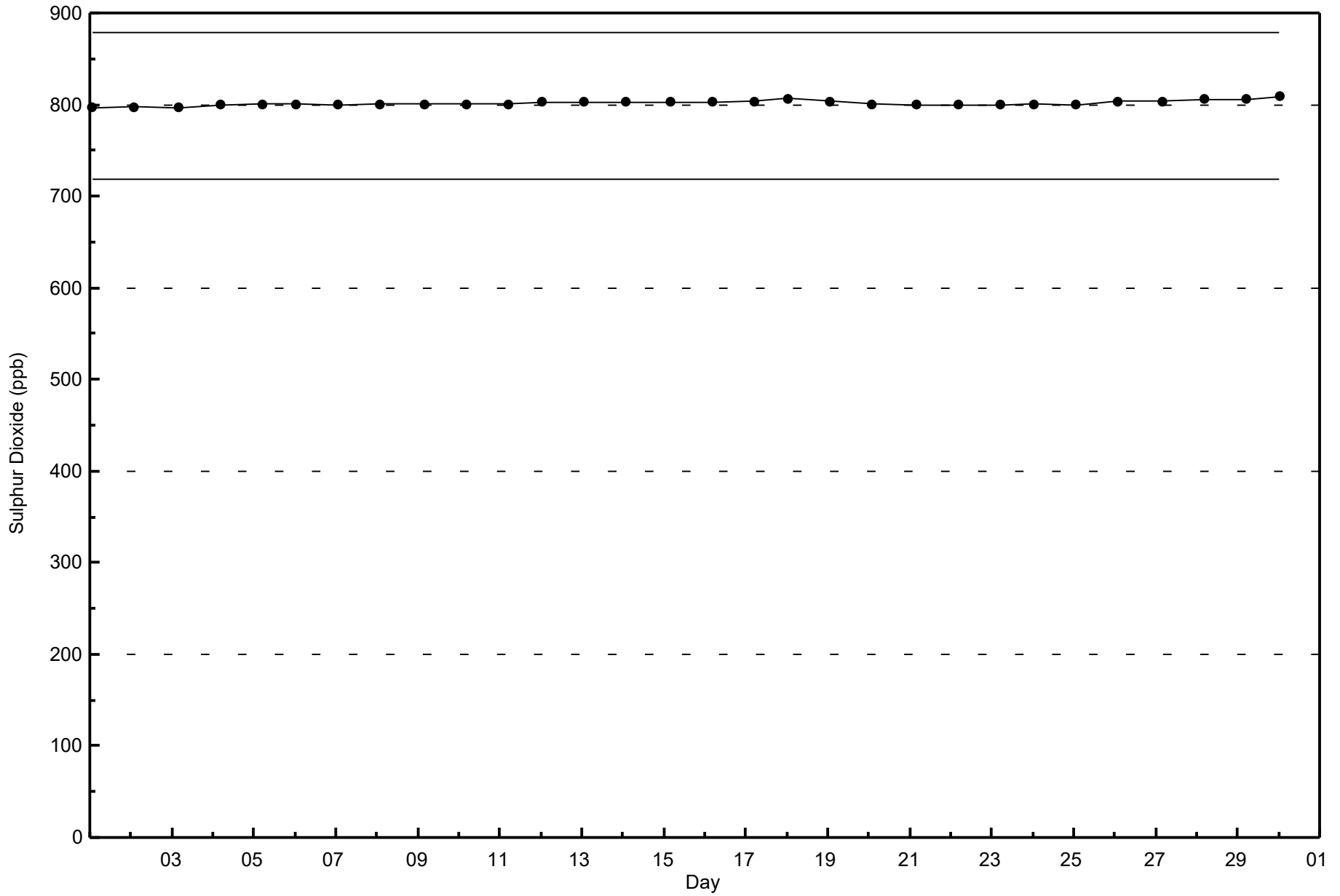


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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

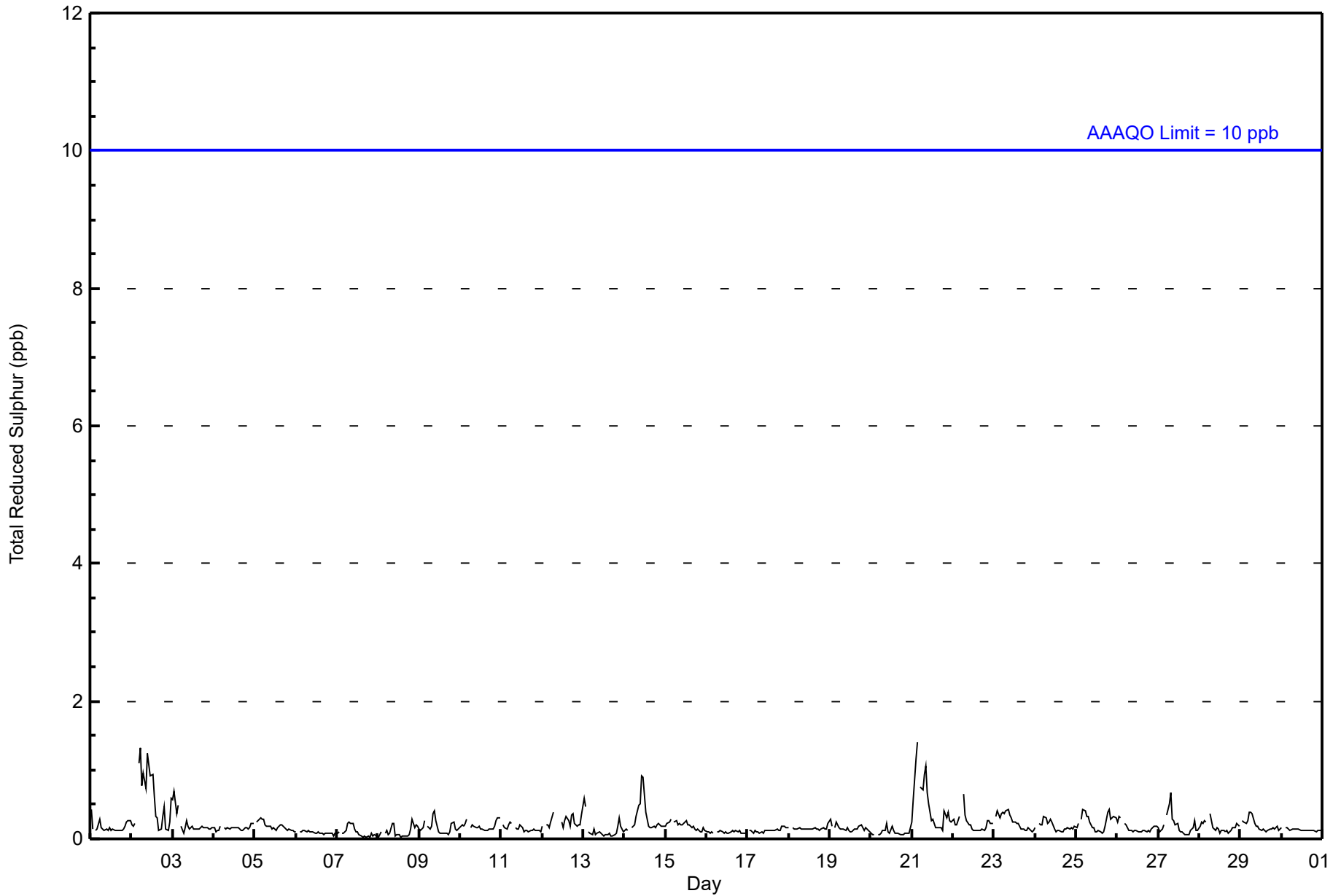














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	685	100.00	100.00
3 - 4	0	0.00	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: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Hills - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2	114	108	50	22	12	24	64	57	41	36	27	24	13	37	21	35	685
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	114	108	50	22	12	24	64	57	41	36	27	24	13	37	21	35	685

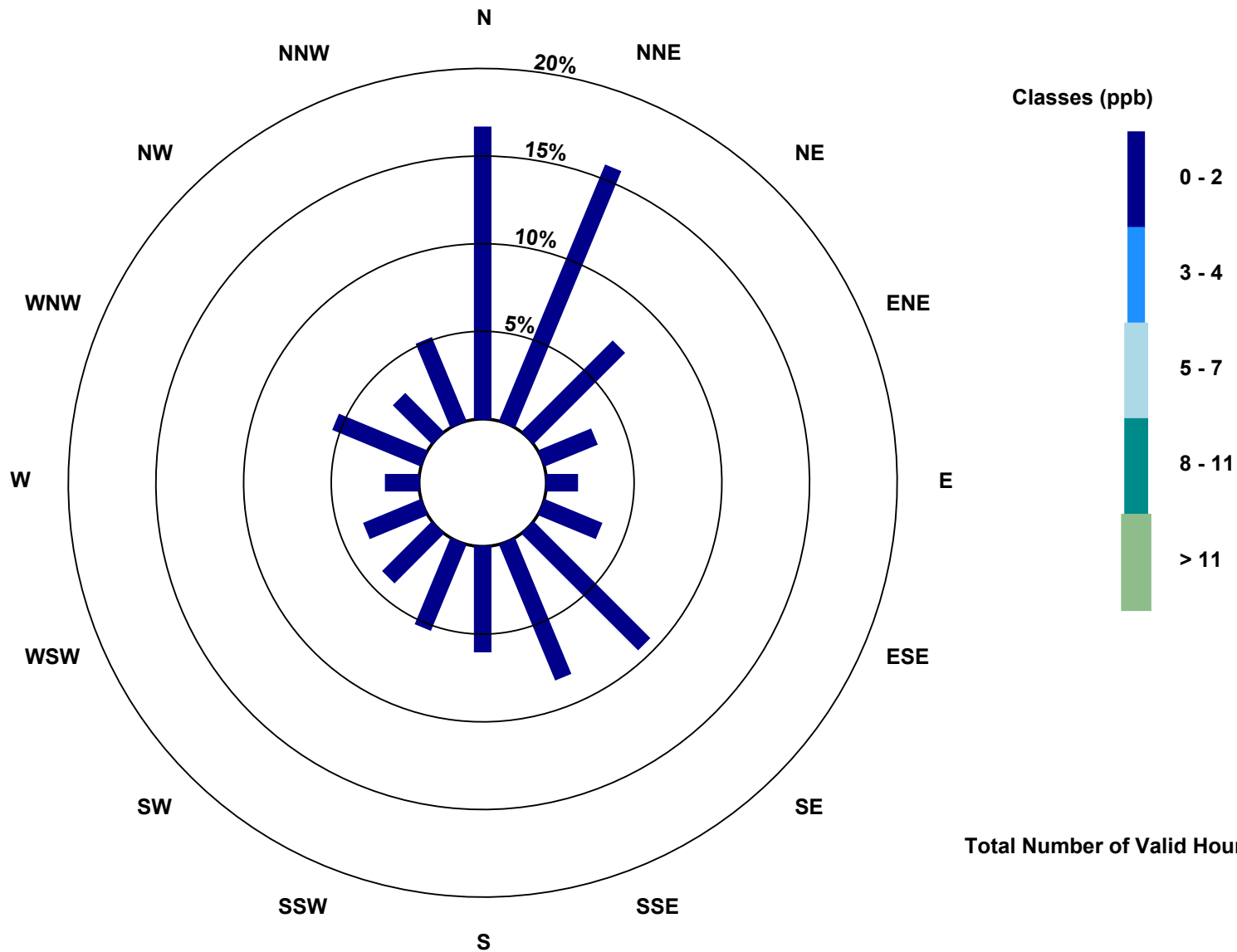
Total Number of Valid Hours: 685

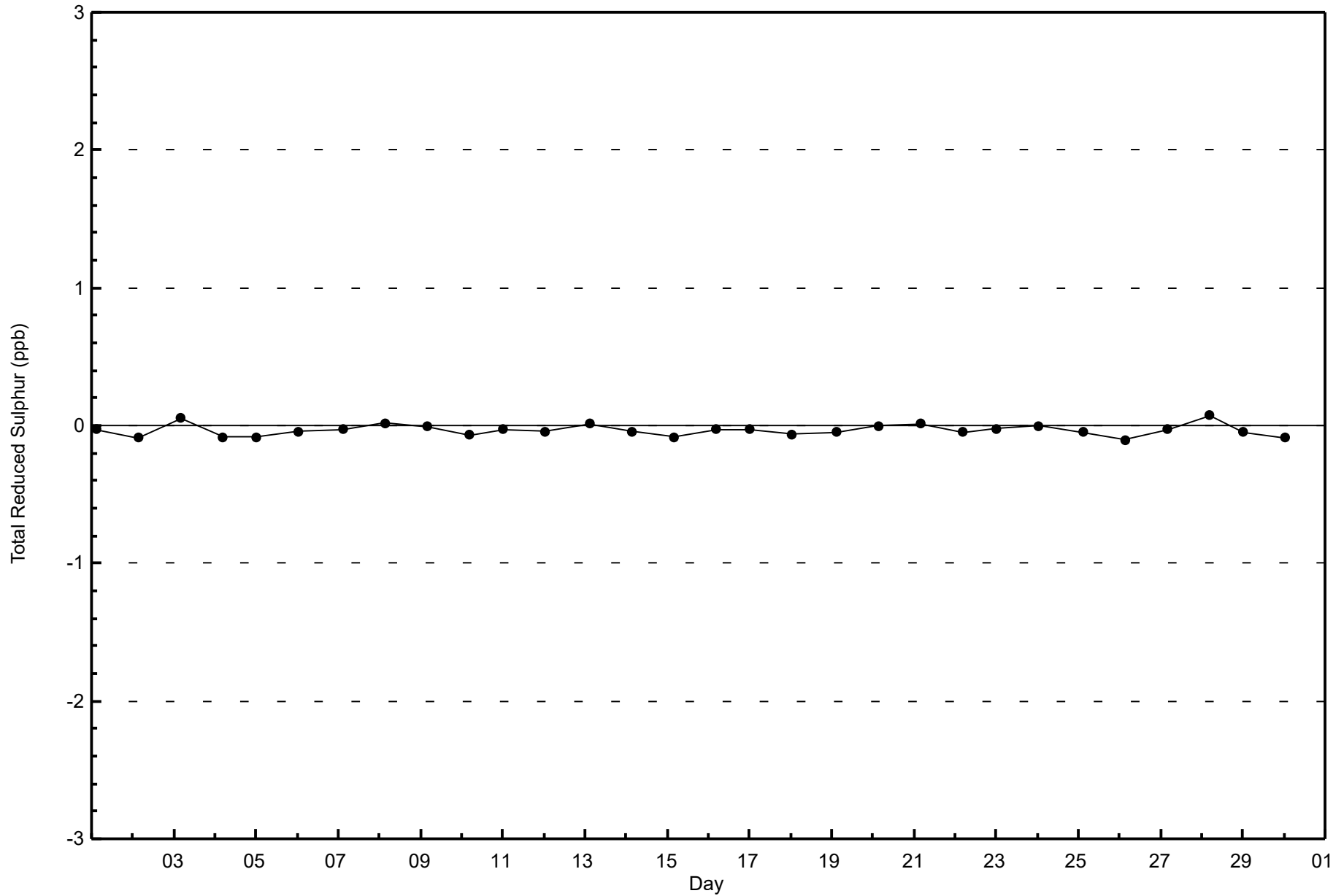
Total Number of Hours: 720

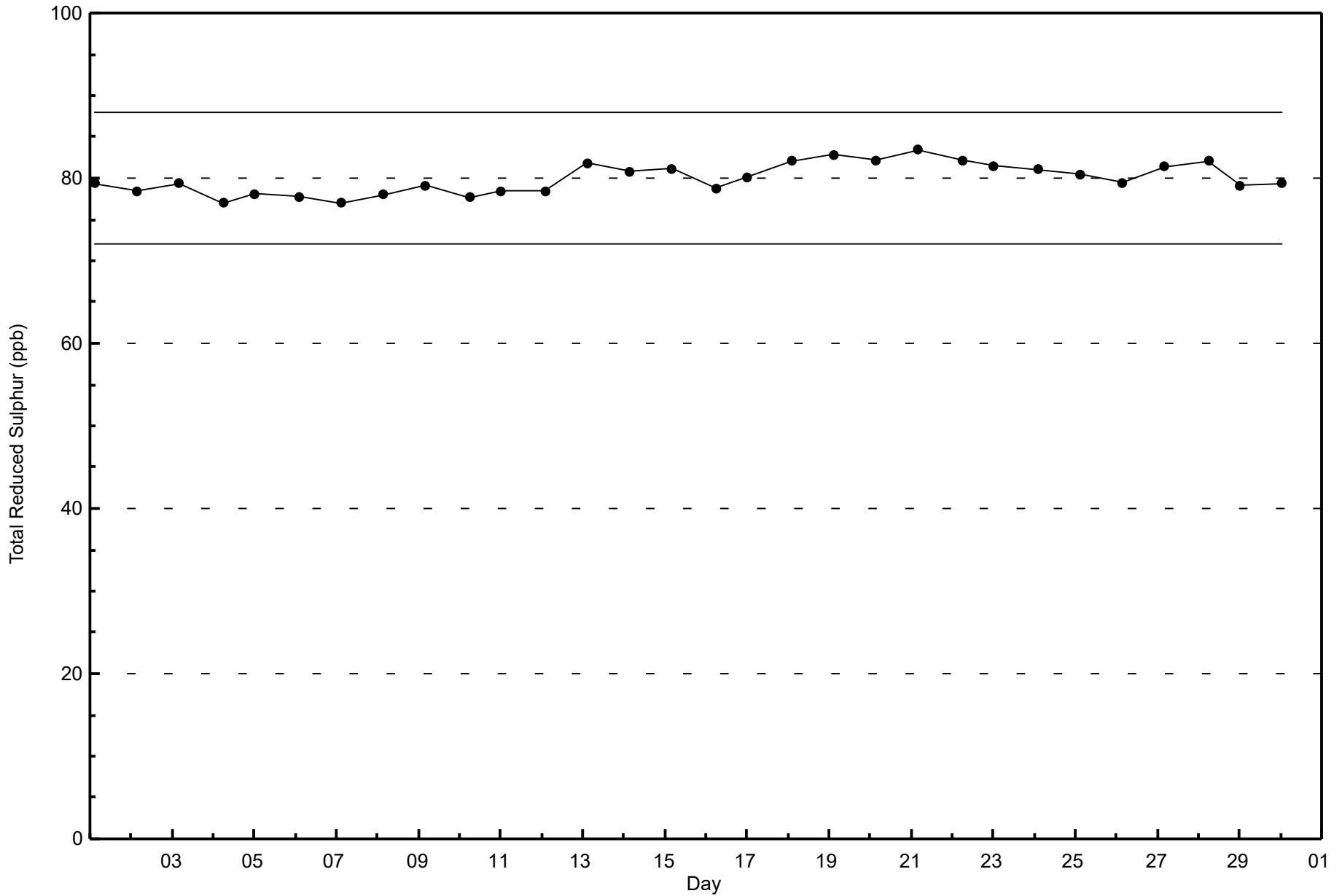


**Wood Buffalo Environmental Association**  
**Wind Rose Apr 2024**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Hills**

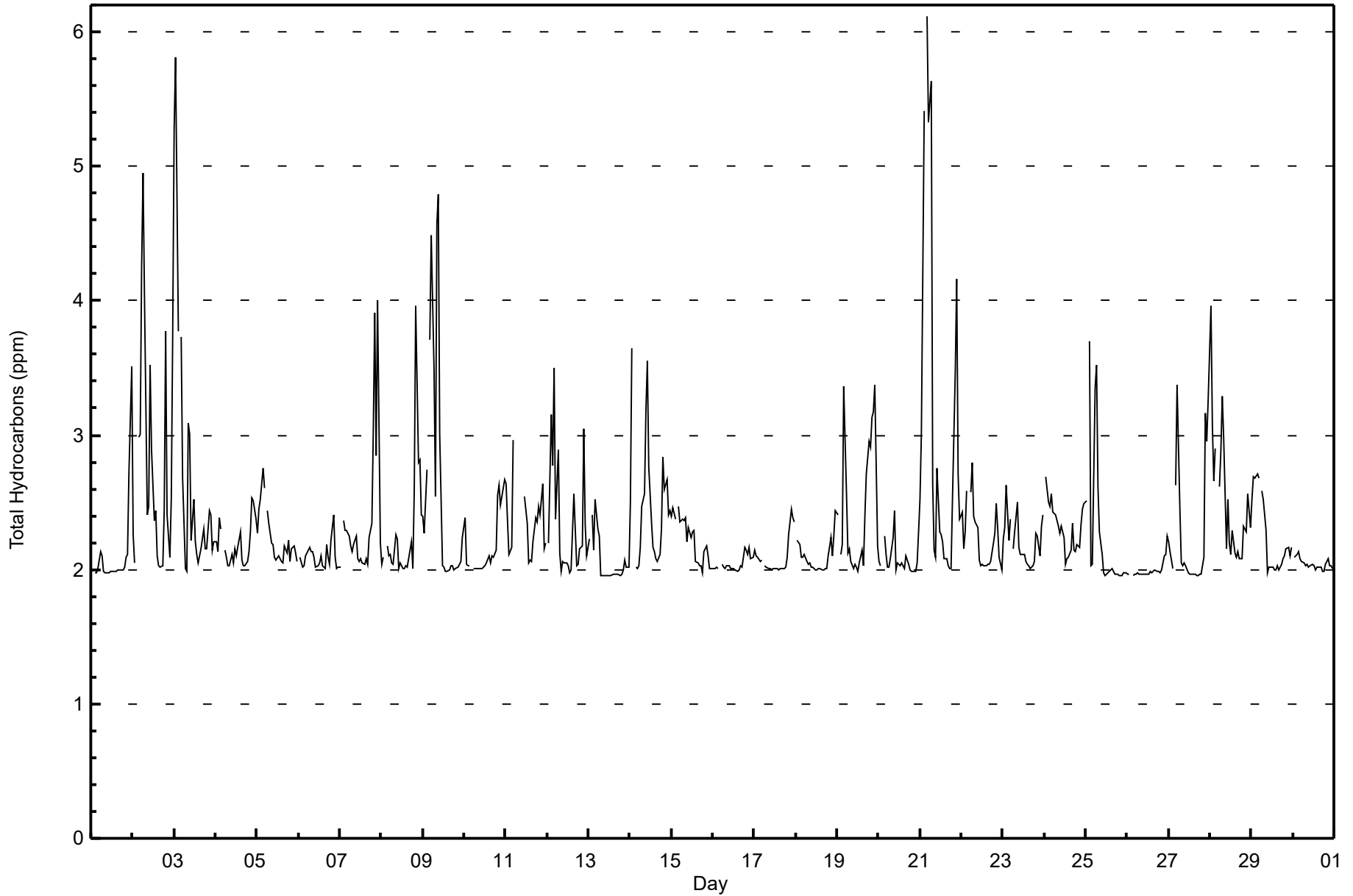














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	256	37.32	37.32
2.1 - 3.0	385	56.12	93.44
3.1 - 10.0	45	6.56	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - April 2024**

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	24	53	18	9	2	2	4	15	14	15	7	16	7	30	10	30	256
2.1 - 3.0	88	54	31	14	10	19	44	38	22	18	16	6	4	8	6	7	385
3.1 - 10.0	4	1	0	0	0	4	14	8	5	2	5	1	1	0	0	0	45
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	116	108	49	23	12	25	62	61	41	35	28	23	12	38	16	37	686

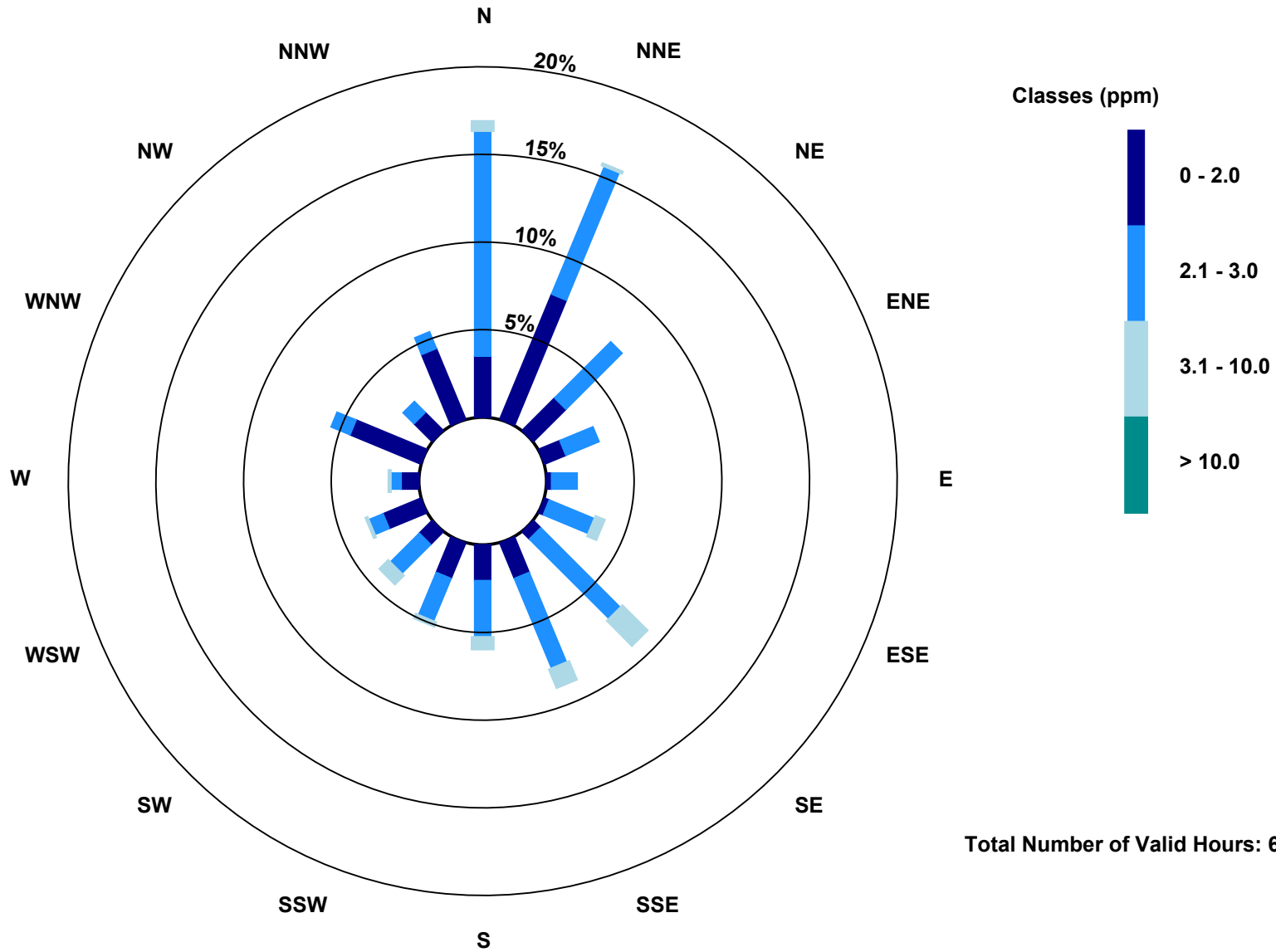
Total Number of Valid Hours: 686

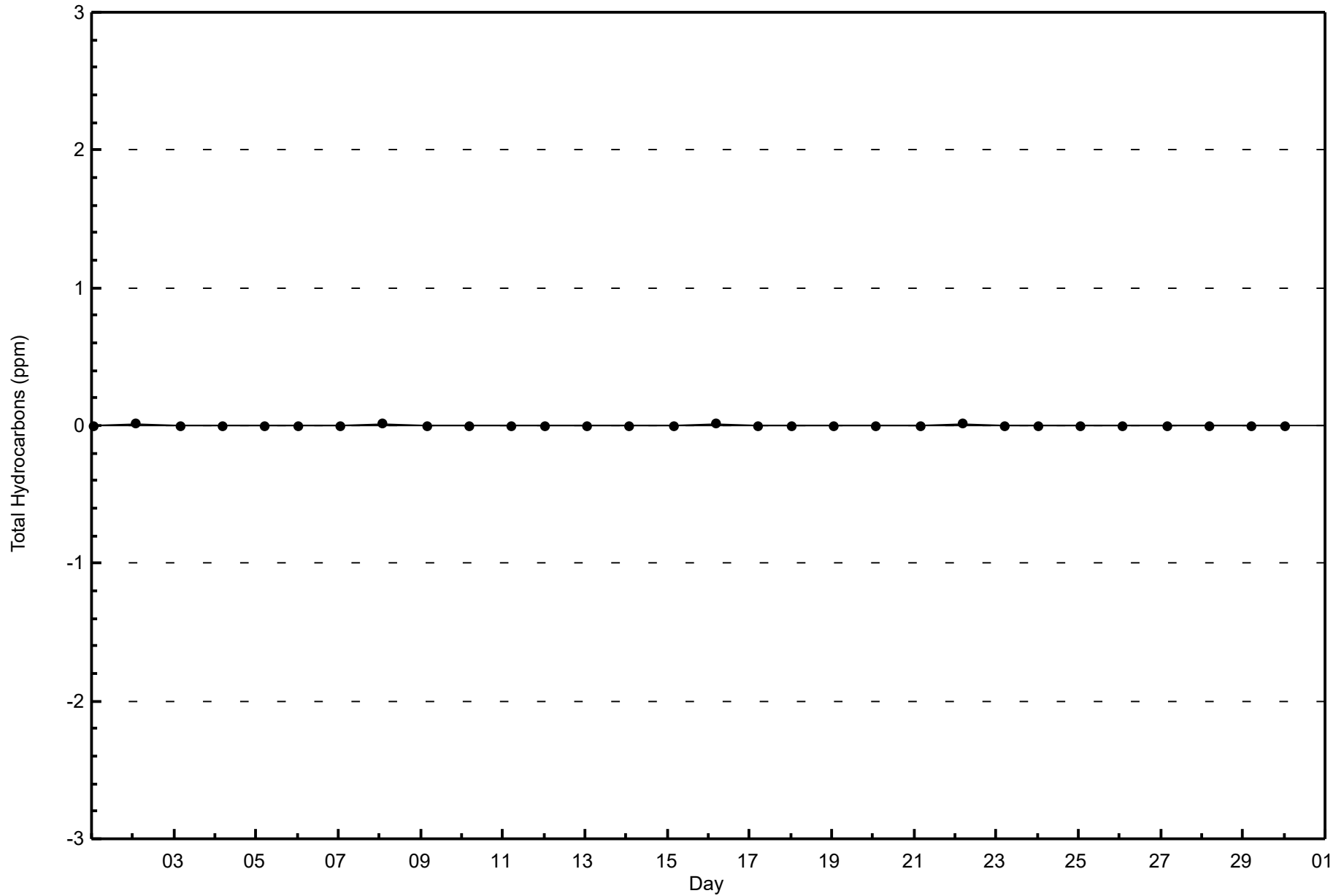
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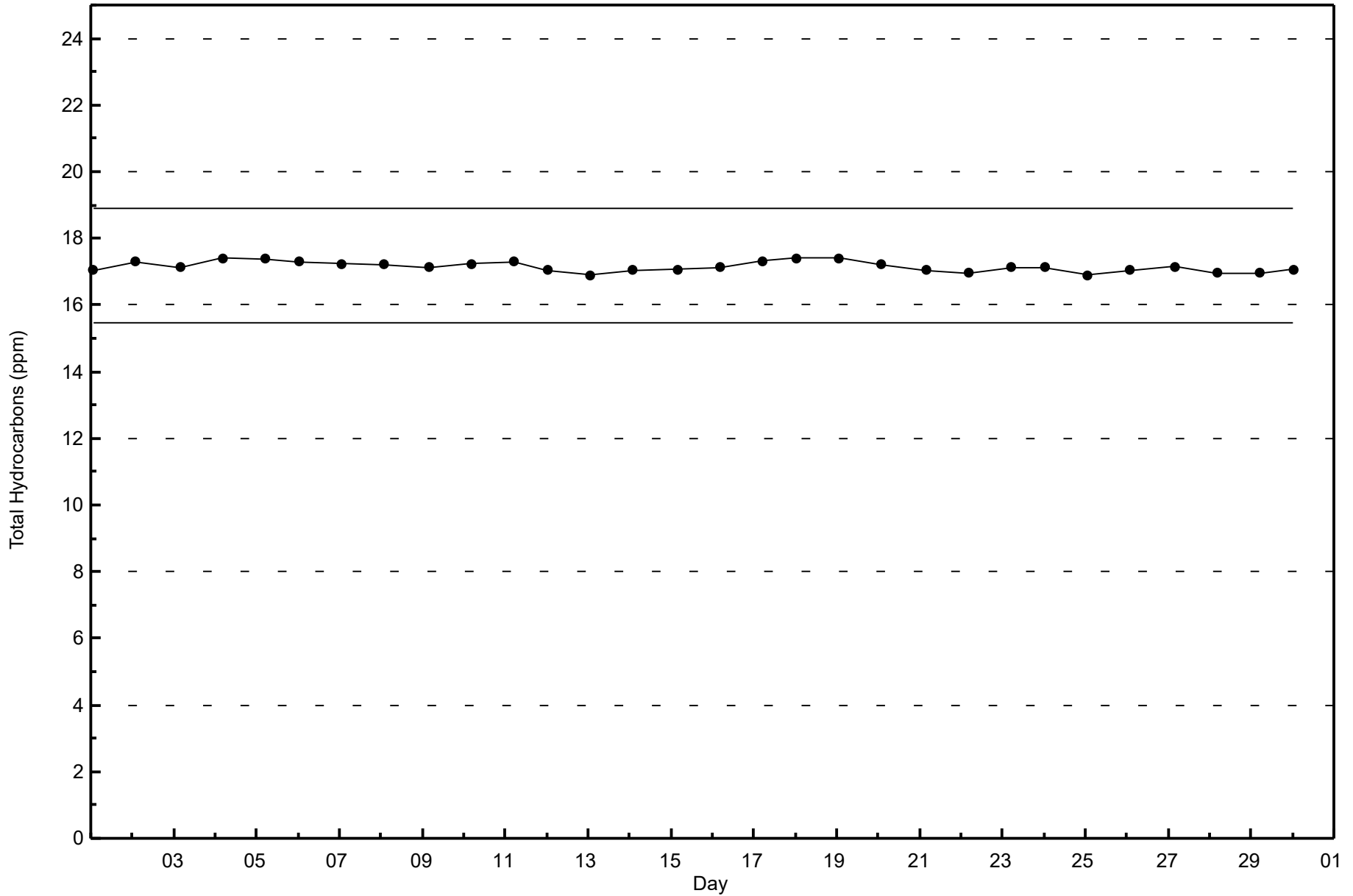


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Fort Hills





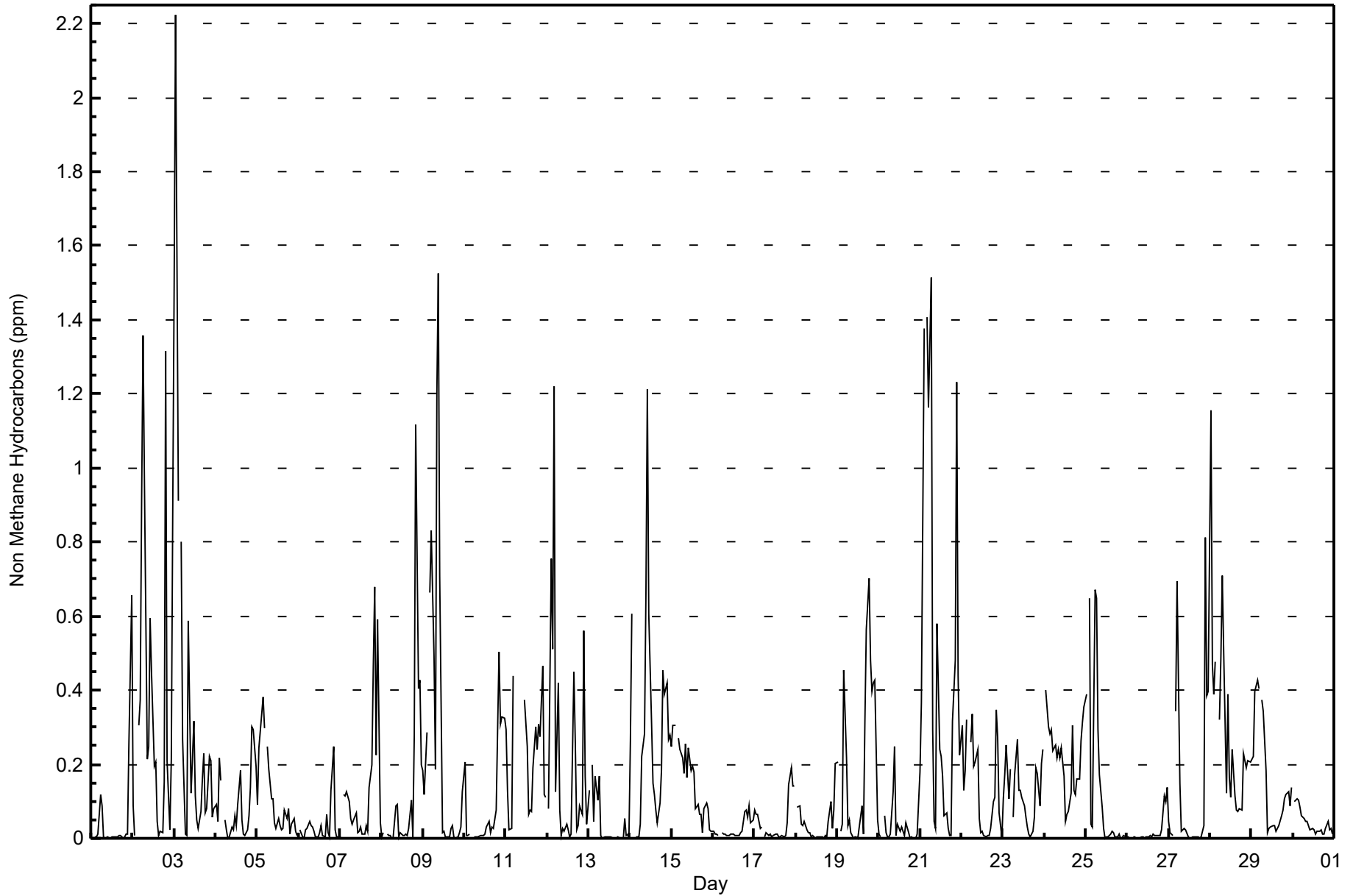




Summary of Hour Averages

Fort Hills - April 2024

Maximum Value: 2.224 ppm on Apr 3 02:00      Maximum Daily Average: 0.454 ppm on Apr 21																								Hours in Service: 720 Hours of Data: 686		
Minimum Value: 0.000 ppm on Apr 1 11:00      Minimum Daily Average: 0.020 ppm on Apr 26																								Hours of Missing Data: 34 Hours of Calibration: 33		
Maximum Diurnal Average: 0.308 ppm at hour 5      Minimum Diurnal Average: 0.037 ppm at hour 15																								Percent Operational Time: 99.9		
Monthly Average: 0.155 ppm      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.4 P <sub>99</sub> = 1.3																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.077	Z	0.003	0.003	0.011	0.117	0.088	0.006	0.001	0.003	0.000	0.002	0.005	0.004	0.003	0.004	0.009	0.006	0.002	0.005	0.013	0.013	0.261	0.655	0.056	0.655
2-Apr	0.088	0.006	Z	0.304	0.373	0.915	1.359	0.953	0.213	0.247	0.596	0.445	0.194	0.207	0.046	0.009	0.017	0.014	0.154	1.314	0.209	0.022	0.215	0.873	0.381	1.359
3-Apr	1.484	2.224	0.911	Z	0.801	0.268	0.010	0.006	0.588	0.350	0.123	0.316	0.115	0.051	0.027	0.073	0.159	0.228	0.070	0.078	0.222	0.211	0.058	0.081	0.368	2.224
4-Apr	0.092	0.046	0.218	0.157	Z	0.048	0.023	0.002	0.004	0.031	0.021	0.063	0.034	0.092	0.182	0.051	0.010	0.009	0.024	0.060	0.138	0.301	0.292	0.194	0.091	0.301
5-Apr	0.091	0.246	0.289	0.382	0.296	Z	0.250	0.187	0.105	0.107	0.043	0.026	0.052	0.035	0.022	0.027	0.077	0.055	0.079	0.011	0.038	0.054	0.020	0.007	0.109	0.382
6-Apr	Z	0.023	0.004	0.001	0.022	0.025	0.046	0.036	0.032	0.019	0.003	0.005	0.016	0.033	0.009	0.003	0.065	0.016	0.005	0.130	0.248	0.023	0.004	0.004	0.034	0.248
7-Apr	0.006	Z	0.119	0.113	0.128	0.099	0.054	0.039	0.049	0.069	0.013	0.021	0.031	0.012	0.013	0.035	0.018	0.136	0.197	0.464	0.680	0.227	0.590	0.043	0.137	0.680
8-Apr	0.003	0.015	Z	0.011	0.007	0.006	0.001	0.001	0.086	0.091	0.003	0.015	0.006	0.008	0.013	0.008	0.026	0.102	0.003	0.277	1.118	0.404	0.428	0.198	0.123	1.118
9-Apr	0.183	0.118	0.285	Z	0.662	0.831	0.487	0.186	1.207	1.526	0.708	0.016	0.017	0.006	0.004	0.005	0.027	0.034	0.005	0.001	0.003	0.017	0.029	0.125	0.282	1.526
10-Apr	0.207	0.009	0.007	0.010	Z	0.000	0.004	0.003	0.004	0.009	0.008	0.008	0.011	0.030	0.046	0.016	0.030	0.027	0.077	0.293	0.504	0.308	0.328	0.326	0.098	0.504
11-Apr	0.293	0.130	0.025	0.027	0.439	Z	0.557	M	C	C	C	0.374	0.248	0.064	0.076	0.071	0.191	0.303	0.239	0.308	0.273	0.466	0.117	0.110	0.227	0.557
12-Apr	Z	0.082	0.754	0.510	1.221	0.127	0.418	0.075	0.008	0.028	0.019	0.037	0.022	0.005	0.013	0.450	0.254	0.025	0.033	0.089	0.064	0.560	0.166	0.040	0.217	1.221
13-Apr	0.129	Z	0.197	0.045	0.168	0.104	0.169	0.006	0.002	0.002	0.002	0.005	0.003	0.005	0.001	0.001	0.002	0.004	0.002	0.000	0.000	0.052	0.007	0.012	0.040	0.197
14-Apr	0.264	0.607	Z	0.005	0.002	0.006	0.037	0.220	0.282	0.662	1.212	0.605	0.309	0.150	0.117	0.074	0.043	0.095	0.184	0.456	0.388	0.418	0.268	0.279	0.291	1.212
15-Apr	0.248	0.306	0.305	Z	0.271	0.241	0.219	0.175	0.255	0.165	0.244	0.184	0.193	0.180	0.079	0.091	0.064	0.063	0.014	0.081	0.097	0.080	0.022	0.020	0.156	0.306
16-Apr	0.019	0.013	0.012	0.008	Z	0.015	0.011	0.010	0.009	0.008	0.012	0.013	0.013	0.008	0.007	0.007	0.016	0.020	0.073	0.077	0.058	0.087	0.042	0.048	0.025	0.087
17-Apr	0.077	0.066	0.064	0.028	0.031	Z	0.005	0.015	0.007	0.011	0.006	0.008	0.010	0.010	0.005	0.002	0.007	0.005	0.009	0.040	0.145	0.190	0.143	0.141	0.045	0.190
18-Apr	Z	0.082	0.088	0.037	0.036	0.045	0.022	0.015	0.017	0.004	0.008	0.002	0.003	0.006	0.003	0.004	0.001	0.007	0.003	0.045	0.101	0.025	0.078	0.202	0.036	0.202
19-Apr	0.206	Z	0.021	0.040	0.453	0.219	0.034	0.049	0.017	0.001	0.005	0.003	0.001	0.030	0.088	0.012	0.311	0.563	0.701	0.480	0.397	0.418	0.425	0.050	0.197	0.701
20-Apr	0.011	0.004	Z	0.060	0.017	0.003	0.004	0.010	0.126	0.246	0.007	0.039	0.018	0.030	0.018	0.007	0.043	0.016	0.000	0.003	0.002	0.002	0.011	0.096	0.033	0.246
21-Apr	0.178	0.365	1.375	Z	1.408	1.163	1.515	0.292	0.044	0.025	0.581	0.241	0.219	0.170	0.061	0.068	0.025	0.006	0.009	0.317	0.480	1.230	0.437	0.226	0.454	1.515
22-Apr	0.305	0.131	0.183	0.321	Z	0.260	0.335	0.194	0.206	0.239	0.055	0.015	0.021	0.008	0.006	0.008	0.009	0.028	0.099	0.109	0.346	0.272	0.067	0.005	0.140	0.346
23-Apr	0.106	0.171	0.251	0.107	0.188	Z	0.057	0.171	0.266	0.131	0.130	0.109	0.089	0.057	0.032	0.010	0.004	0.019	0.057	0.190	0.174	0.087	0.202	0.242	0.124	0.266
24-Apr	Z	0.399	0.301	0.280	0.294	0.236	0.251	0.219	0.239	0.217	0.243	0.166	0.047	0.066	0.071	0.121	0.305	0.128	0.118	0.159	0.160	0.265	0.314	0.355	0.215	0.399
25-Apr	0.388	Z	0.647	0.039	0.030	0.672	0.650	0.293	0.172	0.084	0.028	0.000	0.002	0.005	0.012	0.017	0.017	0.005	0.006	0.011	0.001	0.001	0.006	0.003	0.134	0.672
26-Apr	0.003	0.005	Z	0.004	0.002	0.001	0.001	0.002	0.003	0.002	0.001	0.003	0.003	0.006	0.003	0.010	0.009	0.008	0.006	0.009	0.022	0.113	0.099	0.139	0.020	0.139
27-Apr	0.045	0.015	0.007	Z	0.345	0.696	0.147	0.017	0.023	0.028	0.021	0.005	0.000	0.002	0.003	0.003	0.003	0.004	0.002	0.006	0.033	0.813	0.384	0.395	0.130	0.813
28-Apr	1.154	0.470	0.389	0.477	Z	0.322	0.486	0.711	0.503	0.124	0.389	0.163	0.111	0.239	0.114	0.075	0.074	0.082	0.077	0.229	0.210	0.192	0.211	0.207	0.305	1.154
29-Apr	0.213	0.222	0.395	0.426	0.406	Z	0.375	0.344	0.182	0.015	0.027	0.032	0.036	0.033	0.019	0.025	0.034	0.061	0.077	0.106	0.119	0.127	0.088	0.137	0.152	0.426
30-Apr	Z	0.100	0.106	0.103	0.084	0.063	0.054	0.045	0.047	0.035	0.023	0.028	0.024	0.010	0.017	0.018	0.021	0.010	0.011	0.027	0.046	0.022	0.026	0.013	0.041	0.106
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort Hills - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	106	15.45	15.45
0.006 - 0.05	239	34.84	50.29
0.06 - 0.1	124	18.08	68.37
> 0.1	217	31.63	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

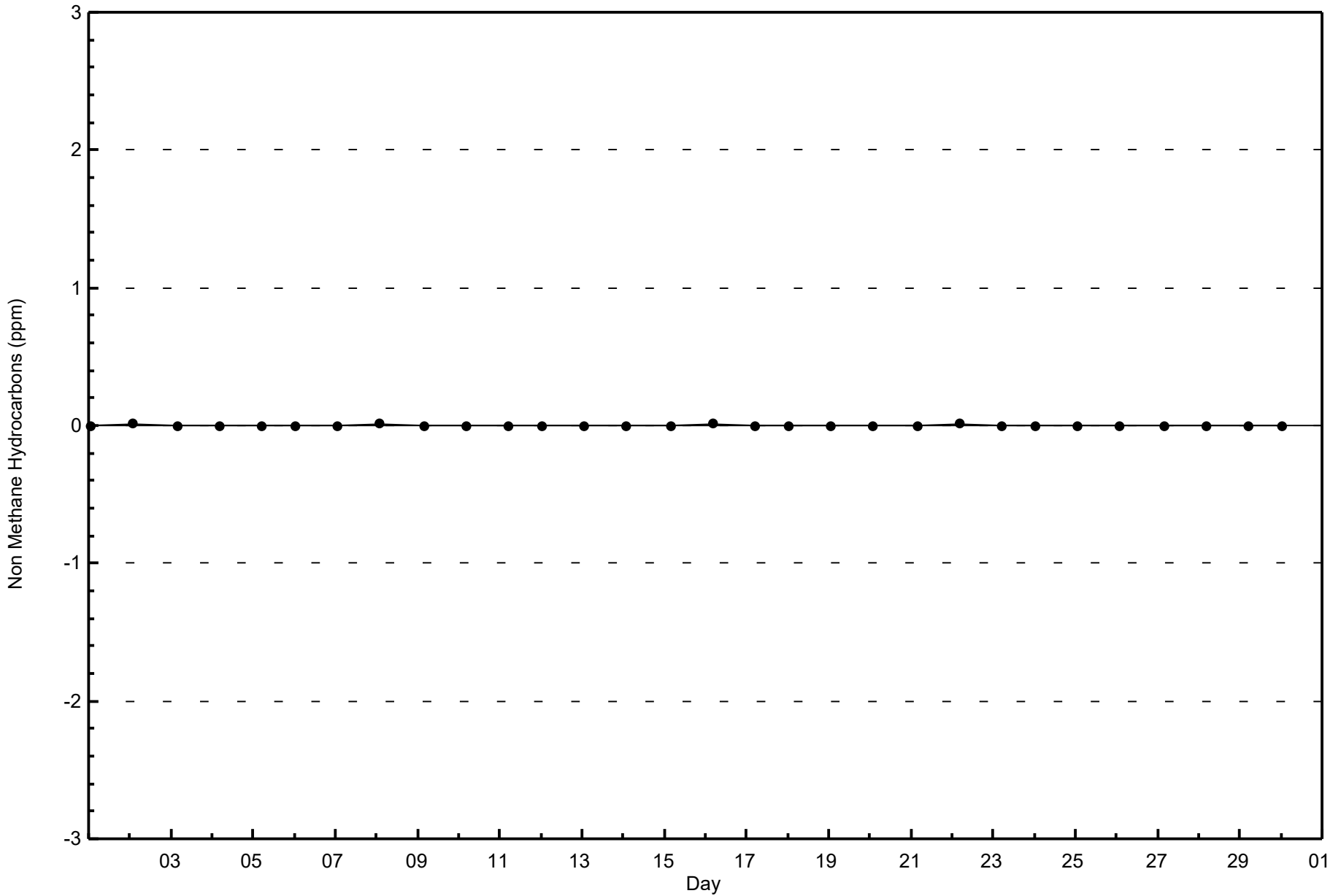
**Non Methane Hydrocarbons (NMHC) - ppm  
Fort Hills - April 2024**

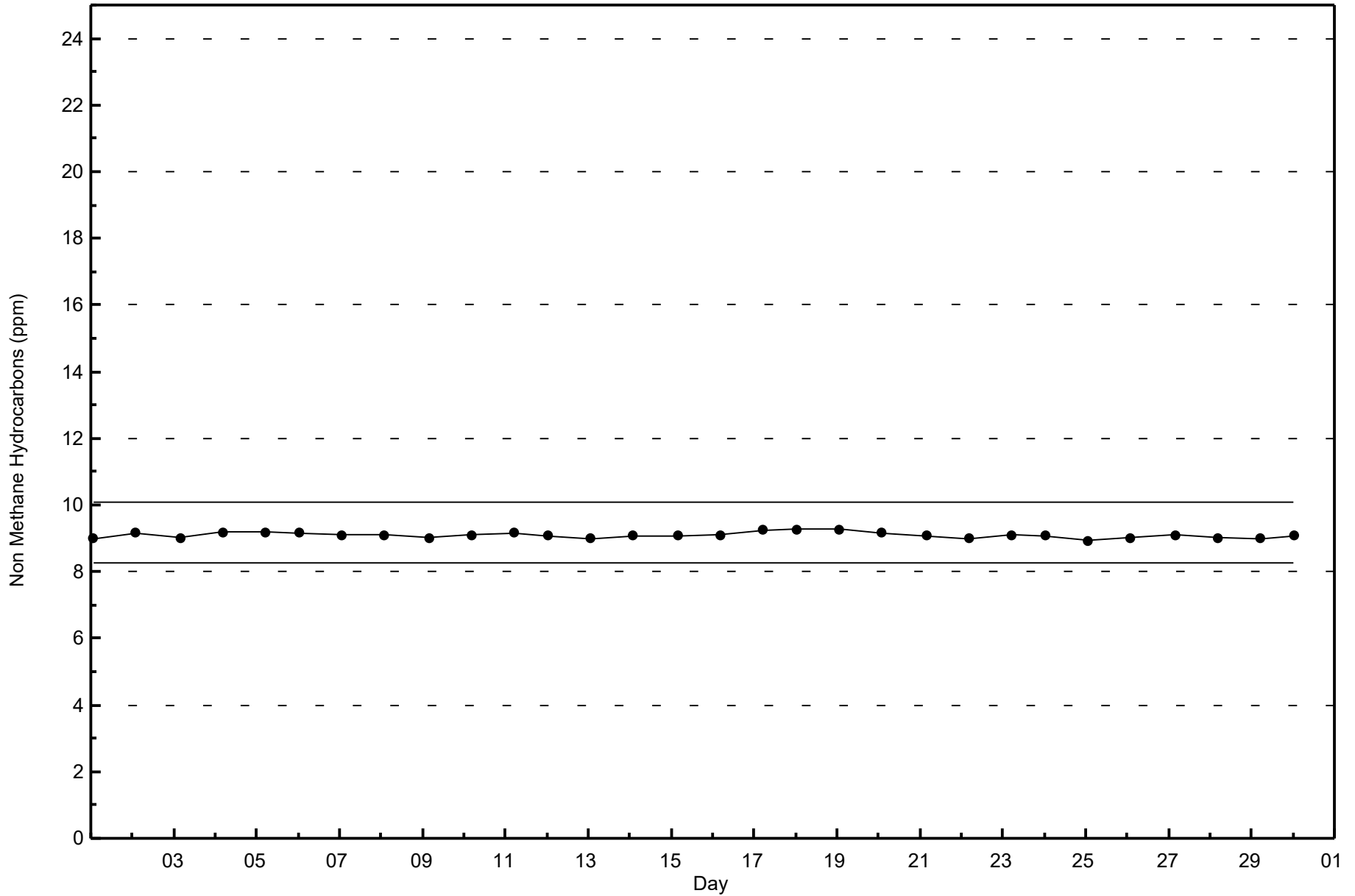
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 0.005	6	13	2	0	0	1	1	6	8	12	0	4	3	20	8	22	106
0.006 - 0.05	40	55	21	10	2	1	6	22	16	9	14	13	5	11	6	8	239
0.06 - 0.1	24	21	14	8	7	6	13	8	8	6	4	2	1	1	1	0	124
> 0.1	46	19	12	5	3	17	42	25	9	8	10	4	3	6	1	7	217
<b>Totals</b>	<b>116</b>	<b>108</b>	<b>49</b>	<b>23</b>	<b>12</b>	<b>25</b>	<b>62</b>	<b>61</b>	<b>41</b>	<b>35</b>	<b>28</b>	<b>23</b>	<b>12</b>	<b>38</b>	<b>16</b>	<b>37</b>	<b>686</b>

Total Number of Valid Hours: 686

Total Number of Hours: 720









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

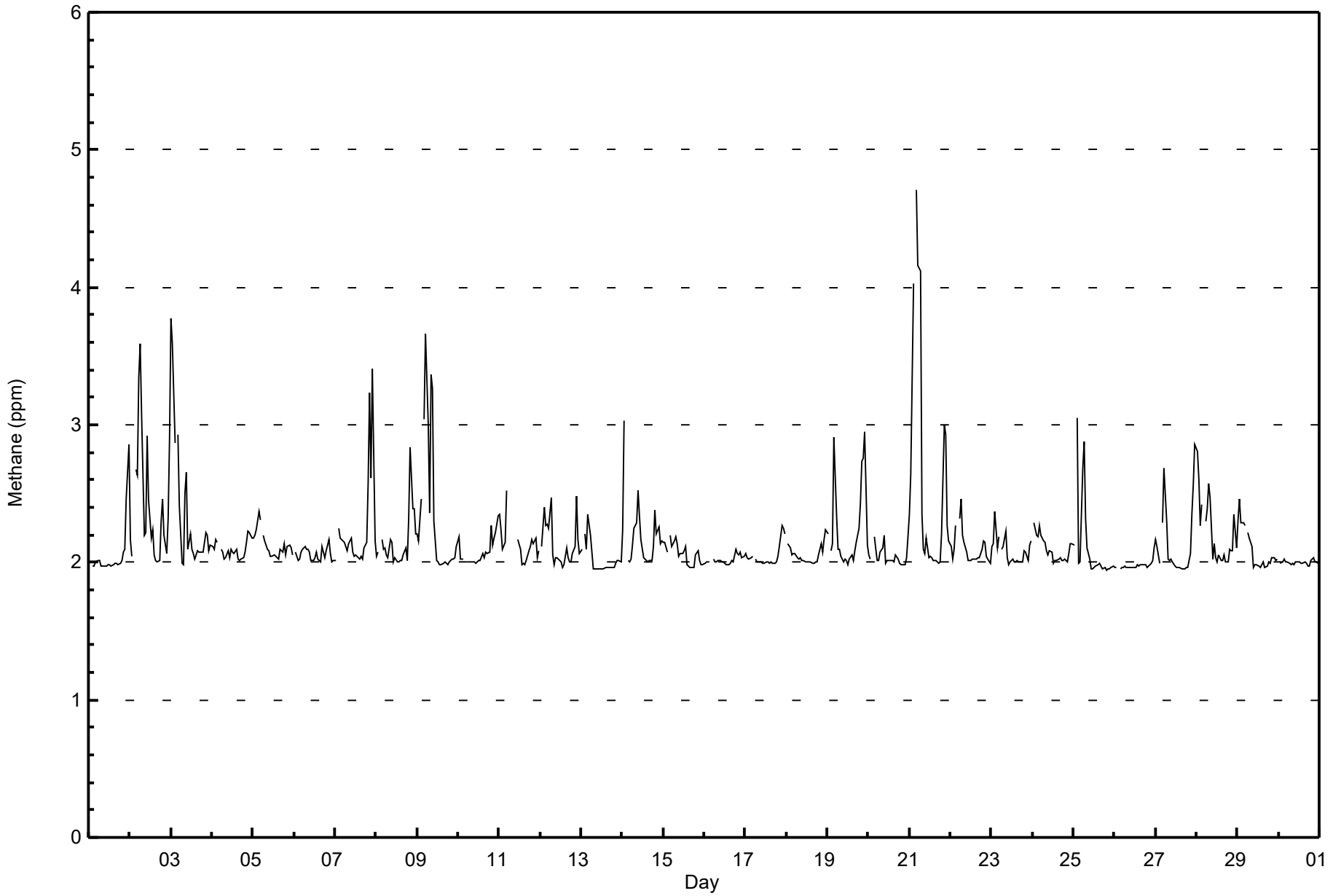
## Fort Hills - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum																											
Maximum Value: 4.7 ppm on Apr 21 05:00		Maximum Daily Average: 2.6 ppm on Apr 21		Hours of Data: 686														2.1		2.9																													
Minimum Value: 1.9 ppm on Apr 25 20:00		Minimum Daily Average: 2.0 ppm on Apr 26		Hours of Missing Data: 34														2.4		3.6																													
Maximum Diurnal Average: 2.4 ppm at hour 5		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Calibration: 33														2.4		3.8																													
Monthly Average: 2.14 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.4 P <sub>99</sub> = 3.6		Percent Operational Time: 99.9														2.1		2.2																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	2.1	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	2.1	2.1	2.5	2.9	2.1	2.9																							
2-Apr	2.2	2.0	Z	2.7	2.6	3.3	3.6	3.1	2.2	2.2	2.9	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.3	2.5	2.2	2.1	2.3	2.9	2.4	3.6																							
3-Apr	3.8	3.6	2.9	Z	2.9	2.4	2.0	2.0	2.5	2.7	2.1	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.4	3.8																							
4-Apr	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.1	2.2																							
5-Apr	2.2	2.2	2.2	2.4	2.3	Z	2.2	2.2	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.4																							
6-Apr	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.1	2.0	2.0	2.1	2.2																							
7-Apr	2.0	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.6	3.2	2.6	3.4	2.2	2.3	3.4																							
8-Apr	2.0	2.1	Z	2.2	2.1	2.1	2.1	2.0	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.3	2.8	2.4	2.4	2.2	2.1	2.8																							
9-Apr	2.2	2.2	2.5	Z	3.0	3.7	3.0	2.4	3.4	3.3	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	3.7																							
10-Apr	2.2	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.3	2.1	2.2	2.2	2.3	2.1	2.3	2.3																							
11-Apr	2.3	2.2	2.1	2.1	2.5	Z	2.6	M	C	C	C	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.2	2.0	2.1	2.2	2.6	2.6																							
12-Apr	Z	2.1	2.4	2.3	2.3	2.2	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.5	2.2	2.1	2.1	2.5	2.5																							
13-Apr	2.1	Z	2.2	2.1	2.4	2.2	2.1	2.0	2.0	2.0	2.0	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	2.4																							
14-Apr	2.2	3.0	Z	2.0	2.0	2.0	2.1	2.2	2.3	2.5	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.2	2.3	2.1	2.2	2.2	2.2	3.0																							
15-Apr	2.2	2.2	2.1	Z	2.2	2.1	2.2	2.2	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2																							
16-Apr	2.0	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	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1																							
17-Apr	2.1	2.0	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	2.1	2.3	2.2	2.2	2.0	2.3	2.3																							
18-Apr	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	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2																							
19-Apr	2.2	Z	2.1	2.1	2.9	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.2	2.4	2.7	2.8	2.9	2.1	2.2	2.9	2.9																							
20-Apr	2.1	2.0	Z	2.2	2.1	2.0	2.0	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.2																							
21-Apr	2.3	2.6	4.0	Z	4.7	4.2	4.1	2.3	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	3.0	2.9	2.3	2.2	2.6	4.7	4.7																							
22-Apr	2.1	2.0	2.1	2.3	Z	2.3	2.5	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.5	2.5																							
23-Apr	2.1	2.1	2.4	2.1	2.2	Z	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.1	2.4	2.4																							
24-Apr	Z	2.3	2.2	2.2	2.3	2.2	2.2	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	2.1	2.1	2.1	2.1	2.1	2.3																							
25-Apr	2.1	Z	3.1	2.0	2.0	2.7	2.9	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.1	3.1	3.1																							
26-Apr	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	2.1	2.0	2.1	2.1																							
27-Apr	2.2	2.1	2.0	Z	2.3	2.7	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.6	2.9	2.1	2.9	2.9																							
28-Apr	2.8	2.6	2.3	2.4	Z	2.3	2.4	2.6	2.5	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.3	2.1	2.2	2.8	2.8																							
29-Apr	2.3	2.5	2.3	2.3	2.3	Z	2.2	2.2	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	2.1	2.5	2.5																							
30-Apr	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	2.0																							
																								2.2	2.2	2.3	2.1	2.4	2.4	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	Diurnal Average		
																								3.8	3.6	4.0	2.7	4.7	4.2	4.1	3.1	3.4	3.3	2.9	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.3	2.6	3.2	2.9	3.4	2.9	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort Hills - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	351	51.17	51.17
2.1 - 3.0	320	46.65	97.81
3.1 - 10.0	15	2.19	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort Hills - April 2024**

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	41	73	24	14	9	10	15	20	19	16	11	18	8	32	11	30	351
2.1 - 3.0	74	35	25	9	3	15	40	38	20	19	15	5	4	6	5	7	320
3.1 - 10.0	1	0	0	0	0	0	7	3	2	0	2	0	0	0	0	0	15
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	116	108	49	23	12	25	62	61	41	35	28	23	12	38	16	37	686

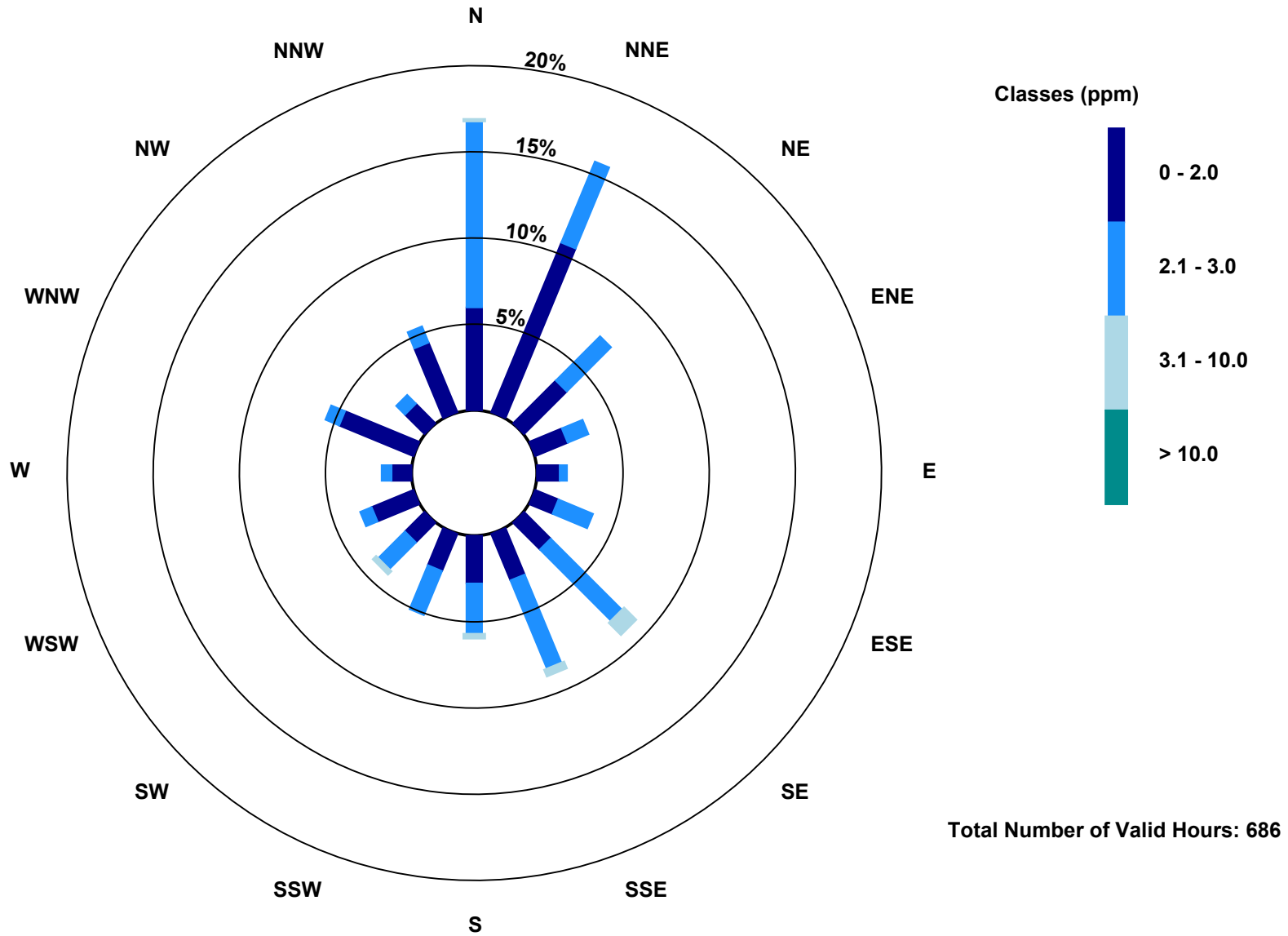
Total Number of Valid Hours: 686

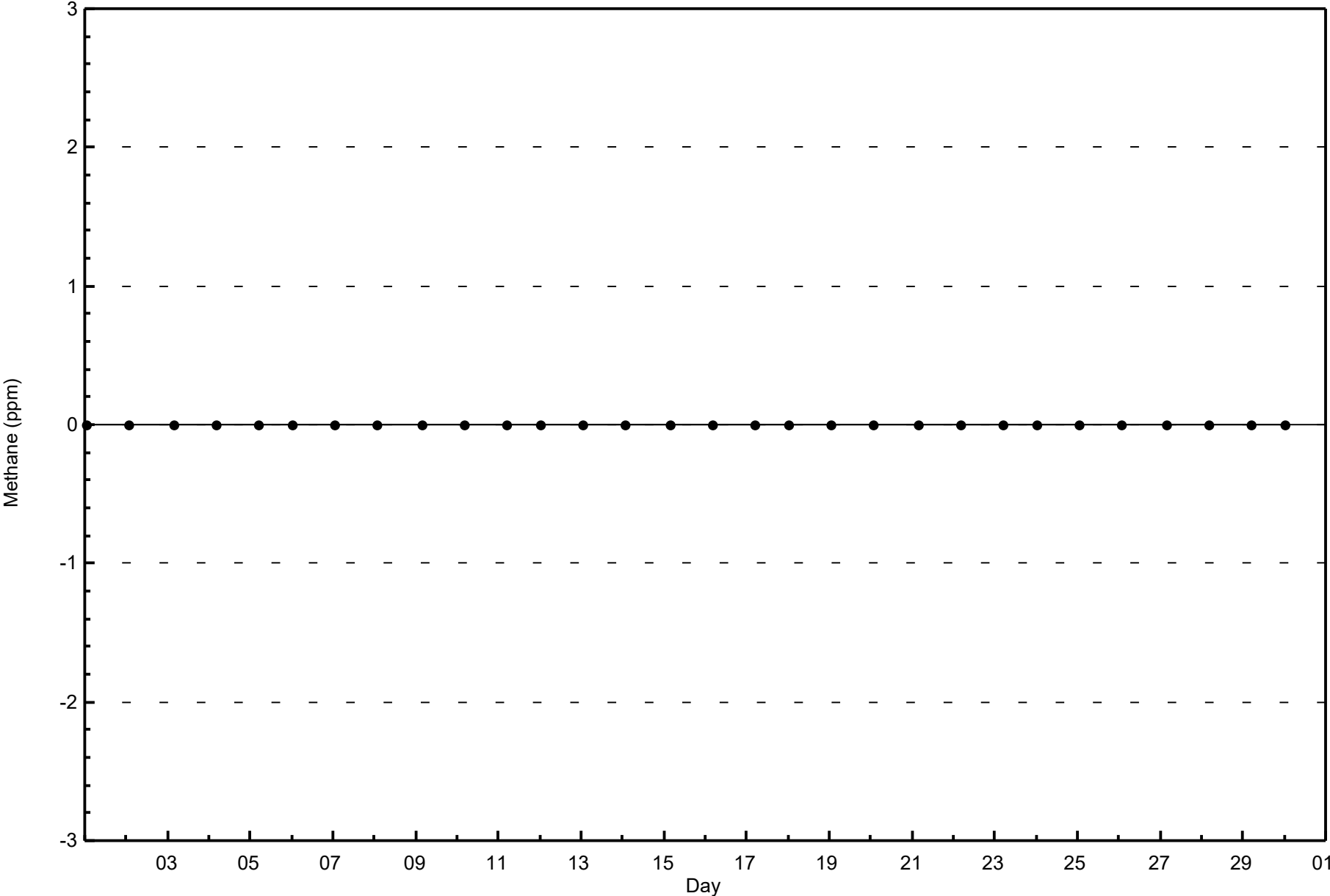
Total Number of Hours: 720

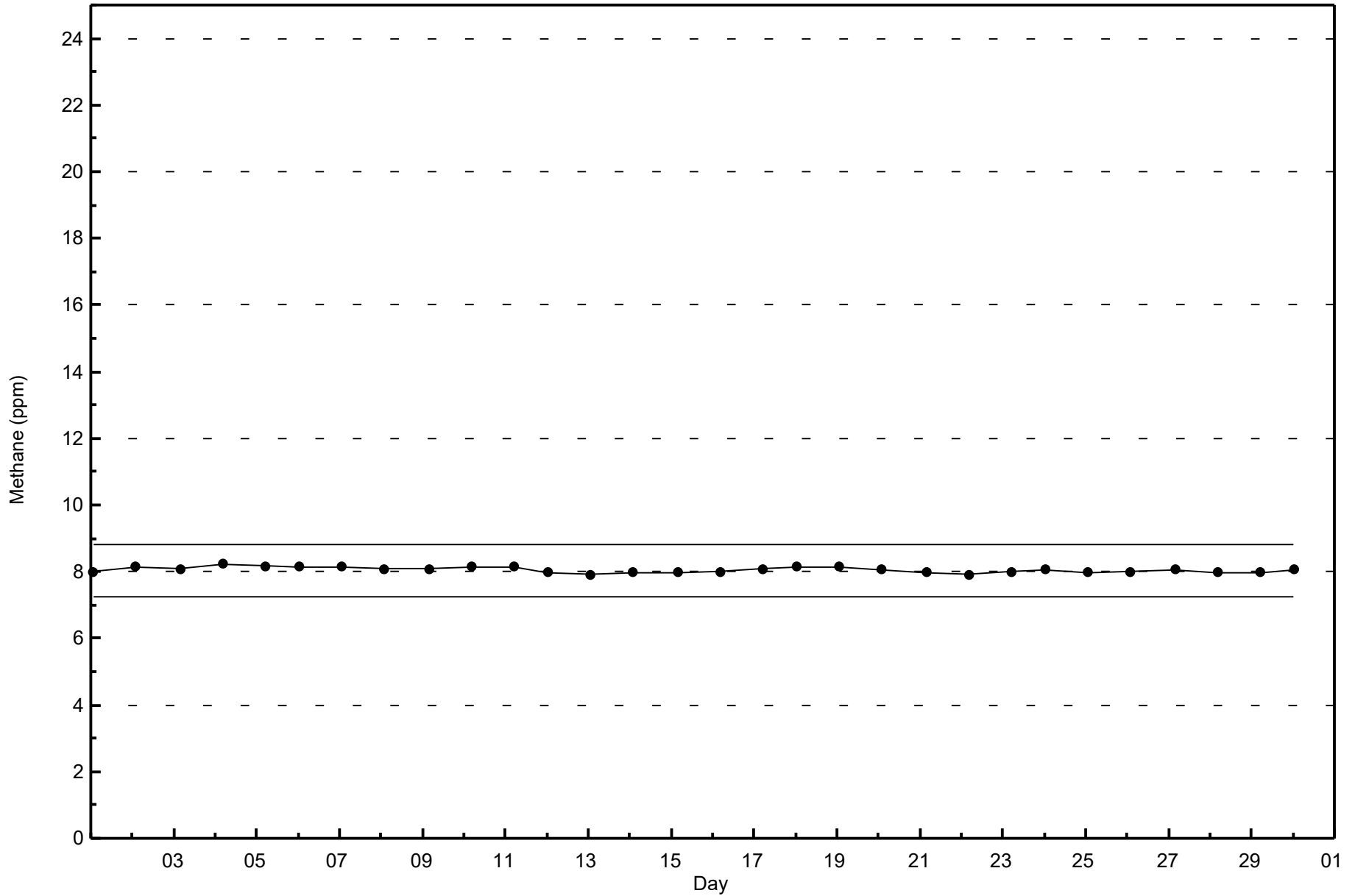


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

Fort Hills - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 347.8 ppb on Apr 21 04:00	Maximum Daily Average: 65.2 ppb on Apr 21		Hours of Data:	684
Minimum Value: 0.0 ppb on Apr 1 02:00	Minimum Daily Average: 0.2 ppb on Apr 13		Hours of Missing Data:	36
Maximum Diurnal Average: 29.0 ppb at hour 4	Minimum Diurnal Average: 1.0 ppb at hour 16		Hours of Calibration:	35
Monthly Average: 8.96 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 1.0 Q <sub>3</sub> = 4.6 P <sub>90</sub> = 22.3 P <sub>99</sub> = 137.8		Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	8.3	30.3	1.7	30.3
2-Apr	Z	0.0	0.0	26.0	21.5	107.5	147.6	65.8	7.0	8.3	36.8	17.5	6.7	5.8	1.8	0.8	0.1	0.0	0.0	6.1	0.0	0.0	3.1	148.3	26.6	148.3
3-Apr	123.4	Z	59.2	120.9	41.1	4.5	0.0	0.0	17.1	10.7	2.6	6.4	3.2	4.3	4.0	2.7	4.0	2.8	1.5	0.3	1.6	0.4	1.2	0.8	17.9	123.4
4-Apr	0.6	0.3	Z	1.8	0.8	0.8	C	C	C	C	C	5.2	3.4	3.8	3.4	1.3	0.5	0.2	0.5	0.2	1.3	1.0	5.2	3.4	1.9	5.2
5-Apr	2.1	11.4	17.6	Z	9.4	9.9	19.3	12.0	14.3	11.3	4.5	4.2	4.2	2.4	2.6	4.7	5.8	0.9	1.6	0.5	2.5	3.5	0.8	0.4	6.3	19.3
6-Apr	0.4	0.3	0.1	0.1	Z	0.7	5.2	4.3	3.4	2.6	2.6	4.0	4.6	2.6	1.6	0.4	0.9	0.4	0.2	0.5	1.3	0.1	0.0	0.0	1.6	5.2
7-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.5	1.0	2.7	7.6	0.9	1.1	0.5	0.2	0.4	0.5	0.3	1.1	0.5	0.7	13.6	0.3	16.8	0.0	2.1	16.8
8-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	2.1	0.0	0.3	0.0	0.0	0.2	0.1	0.4	0.4	0.0	46.8	108.2	10.4	6.7	0.0	7.7	108.2
9-Apr	0.0	Z	28.9	39.5	22.0	32.7	19.9	4.9	64.0	63.0	20.0	0.2	0.3	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	12.9	64.0
10-Apr	8.7	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.3	0.1	0.3	0.7	2.7	2.3	1.4	0.7	1.0	0.5	8.5	11.9	16.0	14.0	3.0	16.0
11-Apr	10.3	1.9	0.0	Z	25.4	49.2	22.4	M	10.5	5.4	7.8	20.7	9.8	0.6	0.8	0.6	0.5	3.1	3.0	13.3	7.6	1.3	0.0	0.0	8.8	49.2
12-Apr	0.0	2.2	27.0	0.3	Z	0.1	9.1	0.5	0.0	0.2	0.4	0.3	0.6	0.2	0.1	1.9	1.5	1.2	0.6	0.1	0.0	3.4	0.7	0.0	2.2	27.0
13-Apr	0.0	2.0	0.2	0.0	1.4	Z	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0
14-Apr	Z	26.9	0.5	0.0	0.0	0.0	1.2	8.8	8.2	23.3	27.0	19.7	5.6	2.4	2.5	1.6	1.2	1.2	1.2	9.4	5.3	0.5	4.8	3.5	6.7	27.0
15-Apr	6.3	Z	29.6	19.4	9.2	29.7	19.6	3.5	33.6	11.9	24.5	10.0	3.6	1.5	1.3	0.9	0.6	0.5	0.1	0.2	0.3	0.1	0.0	0.1	9.0	33.6
16-Apr	0.0	0.0	Z	0.1	0.2	0.1	0.2	0.4	0.8	1.0	1.4	1.4	4.2	1.9	2.0	1.6	1.5	2.5	0.9	2.7	1.2	1.6	2.0	1.2	1.3	4.2
17-Apr	2.6	1.3	2.1	Z	0.2	0.2	1.1	1.7	2.2	1.8	2.7	2.1	2.0	1.4	1.2	1.3	0.9	1.5	0.6	1.3	8.7	11.2	5.7	9.1	2.7	11.2
18-Apr	10.5	1.6	4.4	0.5	Z	1.4	3.5	3.2	4.7	2.3	2.4	1.7	1.9	1.1	1.1	1.2	1.1	0.8	0.6	1.2	4.1	0.0	0.4	37.5	3.8	37.5
19-Apr	65.4	3.4	0.0	0.2	44.7	Z	1.5	4.1	1.9	0.5	1.0	0.7	0.1	0.7	1.0	0.5	4.3	14.7	23.1	6.6	6.0	10.8	12.2	0.0	8.8	65.4
20-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.2	2.0	4.5	6.4	0.3	0.7	0.5	0.5	0.3	0.3	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.4
21-Apr	0.0	Z	157.9	347.8	326.6	231.3	180.4	11.5	4.7	4.6	12.6	2.9	2.1	1.3	0.8	0.9	0.6	0.3	0.2	2.7	24.0	135.8	33.5	17.2	65.2	347.8
22-Apr	73.8	20.0	Z	14.8	6.3	6.7	11.9	34.5	39.6	11.6	3.0	1.2	0.7	0.4	0.6	0.7	0.6	1.0	2.0	0.7	22.1	9.2	0.0	0.0	11.4	73.8
23-Apr	0.0	11.9	18.9	Z	4.2	4.1	2.8	32.8	29.7	5.0	3.1	3.1	2.4	1.0	0.8	0.7	0.3	0.7	0.9	0.7	1.4	0.2	1.4	4.2	5.7	32.8
24-Apr	27.6	63.1	38.4	46.2	Z	36.8	78.2	22.5	23.3	11.5	7.4	2.5	0.4	0.4	0.3	0.7	0.5	0.4	0.4	0.5	0.2	0.0	0.6	0.6	15.8	78.2
25-Apr	0.6	1.7	33.9	0.1	0.0	Z	19.5	6.8	2.9	1.5	0.4	0.1	0.1	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	33.9
26-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.1	1.5	0.9	0.6	0.9	0.3	0.2	0.5	0.5	0.5	0.3	1.5
27-Apr	0.1	Z	0.0	0.1	7.1	26.9	7.0	1.5	1.2	1.8	1.3	0.9	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	4.5	47.7	42.6	6.2	47.7
28-Apr	20.7	56.5	Z	106.8	83.3	47.8	104.7	68.0	29.0	2.4	5.5	3.3	1.0	2.7	1.0	0.7	0.8	0.8	0.4	0.4	2.1	3.6	3.6	0.3	23.7	106.8
29-Apr	8.6	3.3	8.0	Z	24.7	44.4	42.3	31.3	3.5	0.5	1.1	1.7	1.8	0.8	0.6	0.8	0.5	1.5	2.1	7.0	6.4	1.2	0.7	4.7	8.6	44.4
30-Apr	7.6	2.2	2.6	0.4	Z	0.3	1.0	1.7	1.5	2.6	1.2	1.5	2.4	1.0	0.9	0.8	0.3	0.1	0.5	0.4	0.3	0.5	0.5	0.6	1.4	7.6

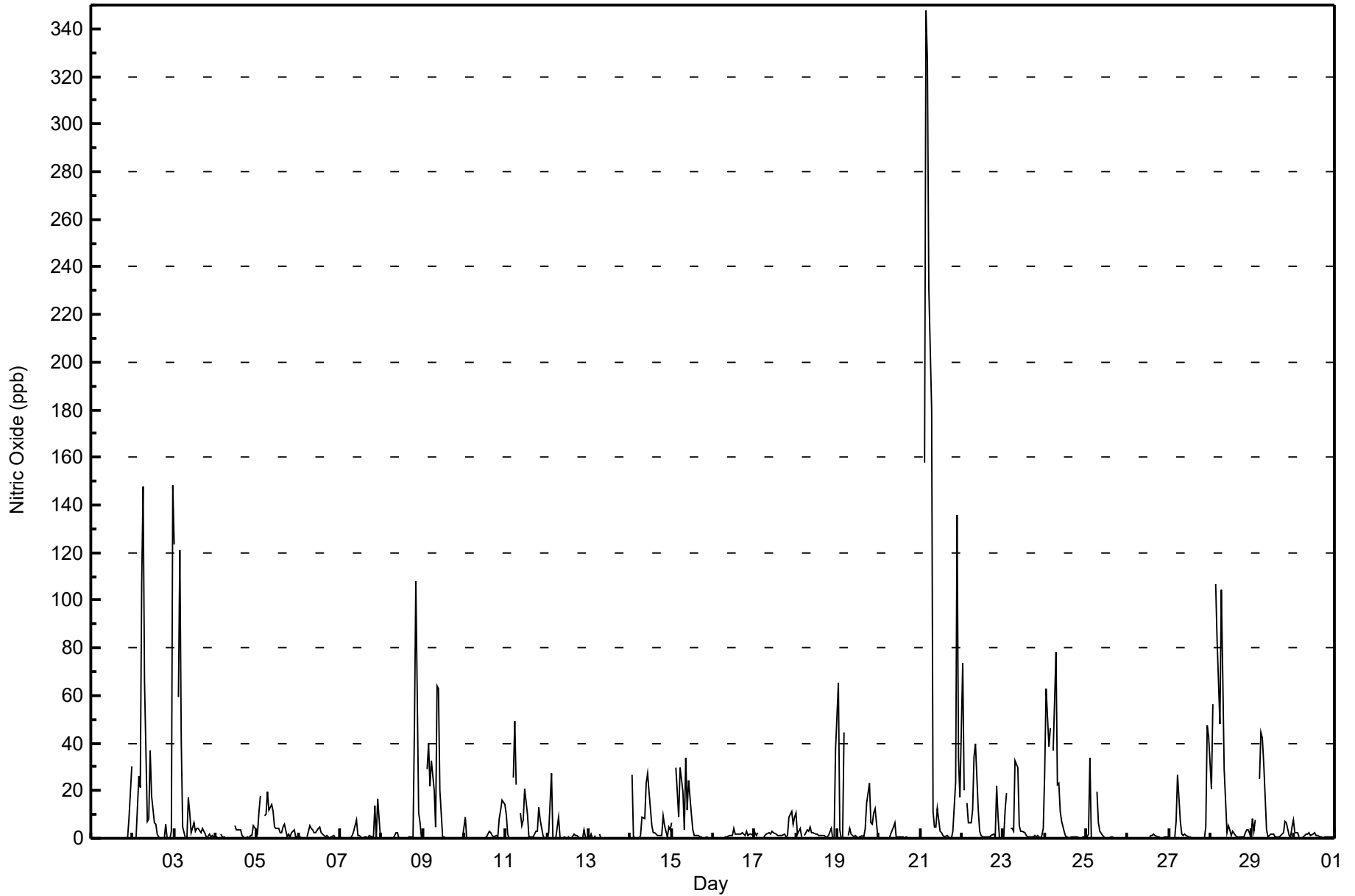
14.8	8.4	17.2	29.0	25.1	25.4	24.2	11.5	10.8	6.9	5.9	3.8	2.1	1.3	1.1	1.0	1.0	1.3	1.4	3.4	7.6	7.1	5.8	10.6	Diurnal Average	
123.4	63.1	157.9	347.8	326.6	231.3	180.4	68.0	64.0	63.0	36.8	20.7	9.8	5.8	4.0	4.7	5.8	14.7	23.1	46.8	108.2	135.8	47.7	148.3	Diurnal Maximum	

Z - zerspan C - Calibration M - Maintenance



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Fort Hills - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	610	89.18	89.18
21 - 40	39	5.70	94.88
41 - 80	20	2.92	97.81
81 - 159	11	1.61	99.42
> 159	4	0.58	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	89	101	50	21	11	20	46	52	36	33	25	23	10	38	20	35	610
21 - 40	15	5	0	0	0	3	7	2	4	1	0	0	1	0	0	1	39
41 - 80	8	0	0	0	0	0	6	3	2	0	0	0	0	0	0	1	20
81 - 159	4	0	0	0	0	2	3	2	0	0	0	0	0	0	0	0	11
> 159	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	4
<b>Totals</b>	116	106	50	21	11	25	65	60	42	34	25	23	11	38	20	37	684

Total Number of Valid Hours: 684

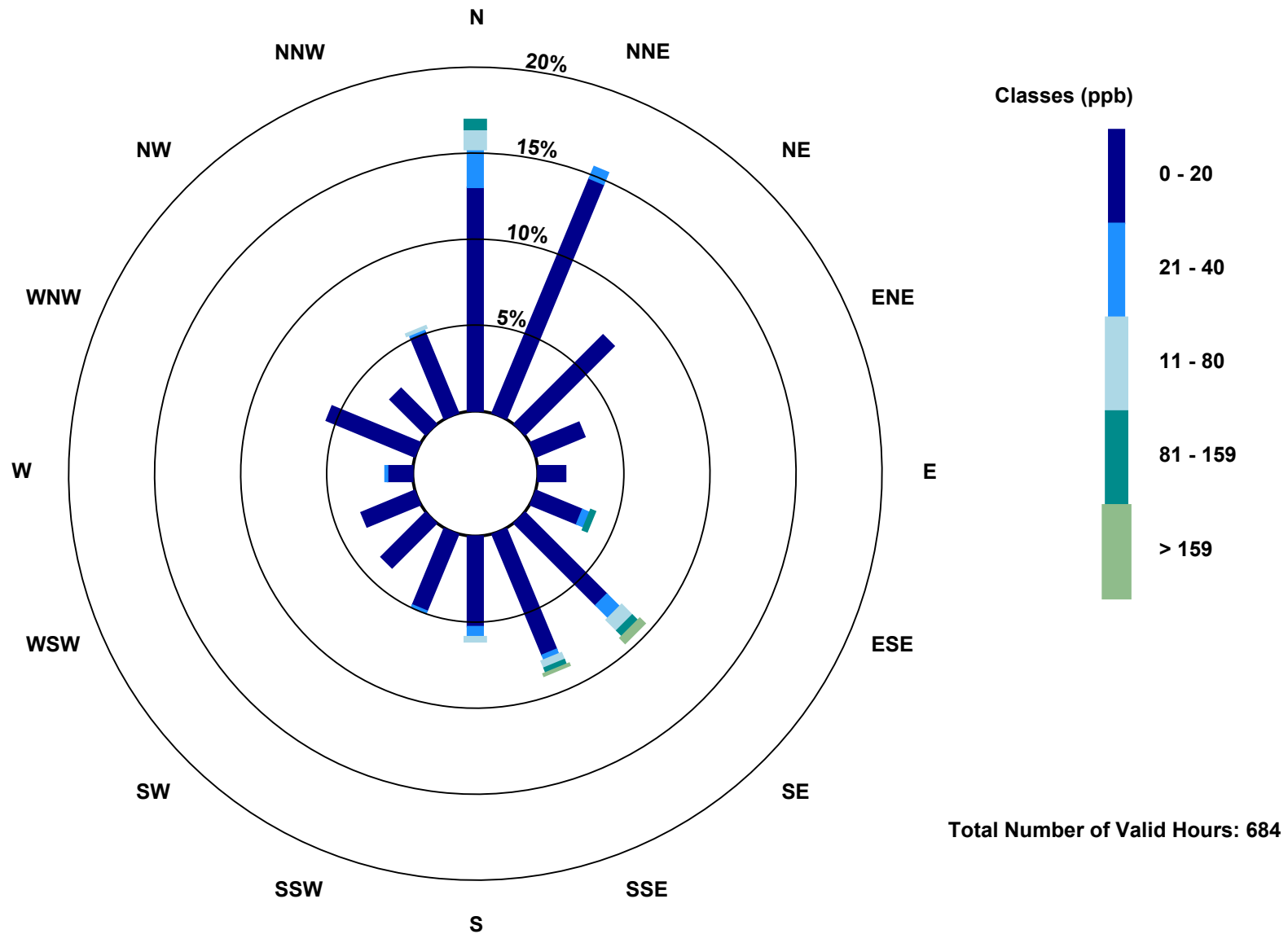
Total Number of Hours: 720

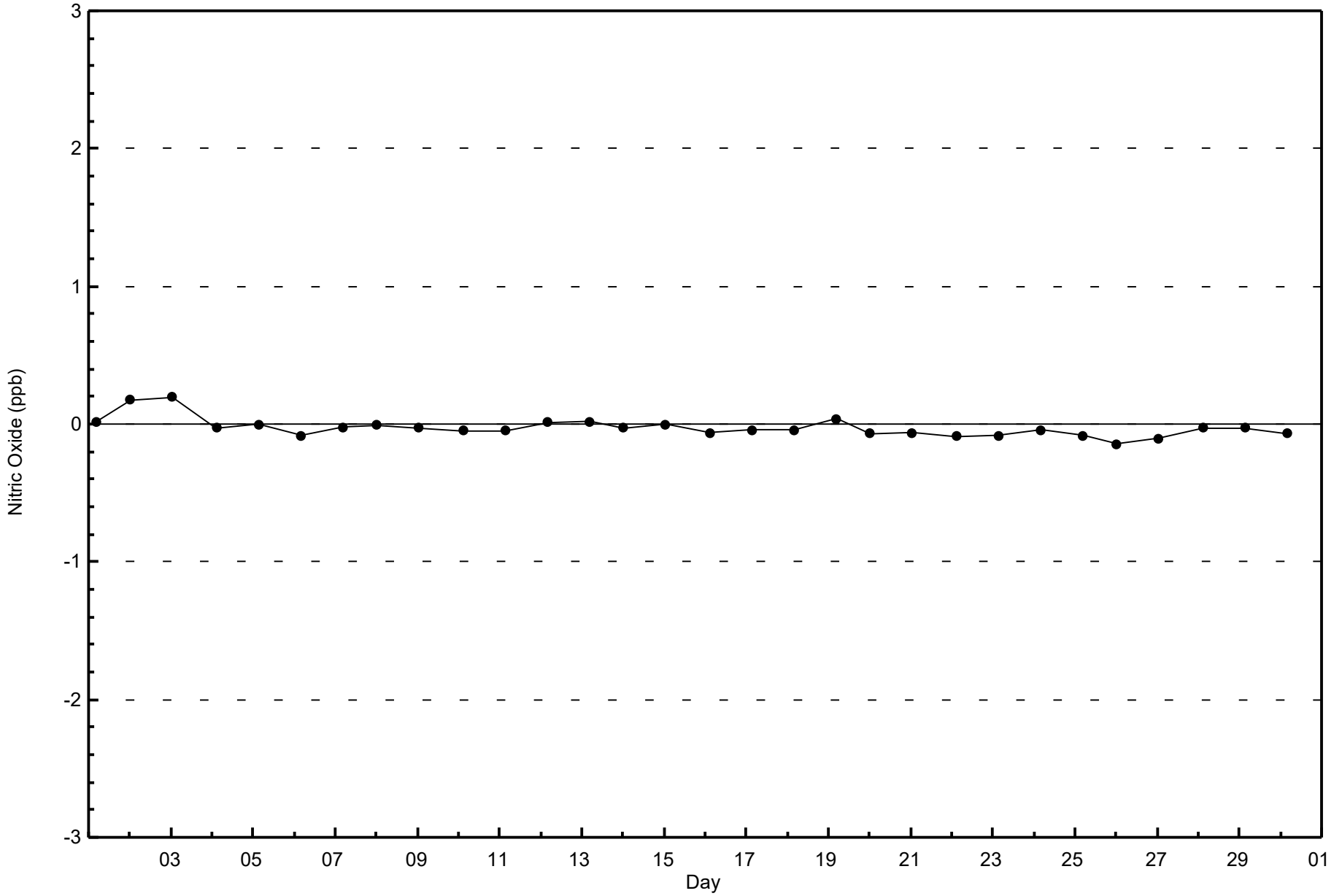


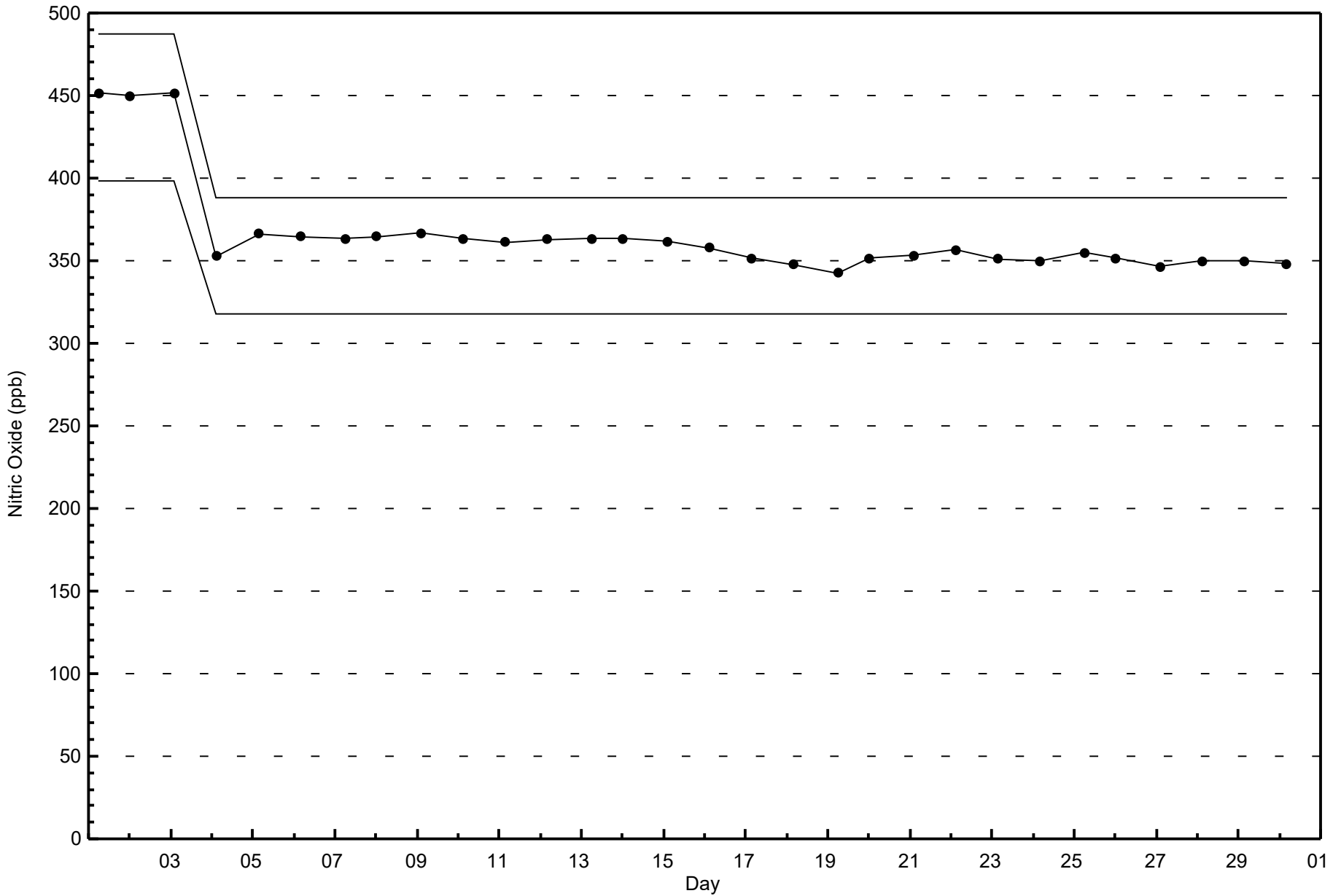


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Fort Hills









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort Hills - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 59.9 ppb on Apr 21 04:00	Maximum Daily Average: 23.9 ppb on Apr 21		Hours of Data:	684
Minimum Value: 0.2 ppb on Apr 1 17:00	Minimum Daily Average: 3.5 ppb on Apr 1		Hours of Missing Data:	36
Maximum Diurnal Average: 21.8 ppb at hour 1	Minimum Diurnal Average: 3.9 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 12.49 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 3.1 Median = 7.6 Q <sub>3</sub> = 19.8 P <sub>90</sub> = 32.2 P <sub>99</sub> = 46.8		Percent Operational Time:	99.9

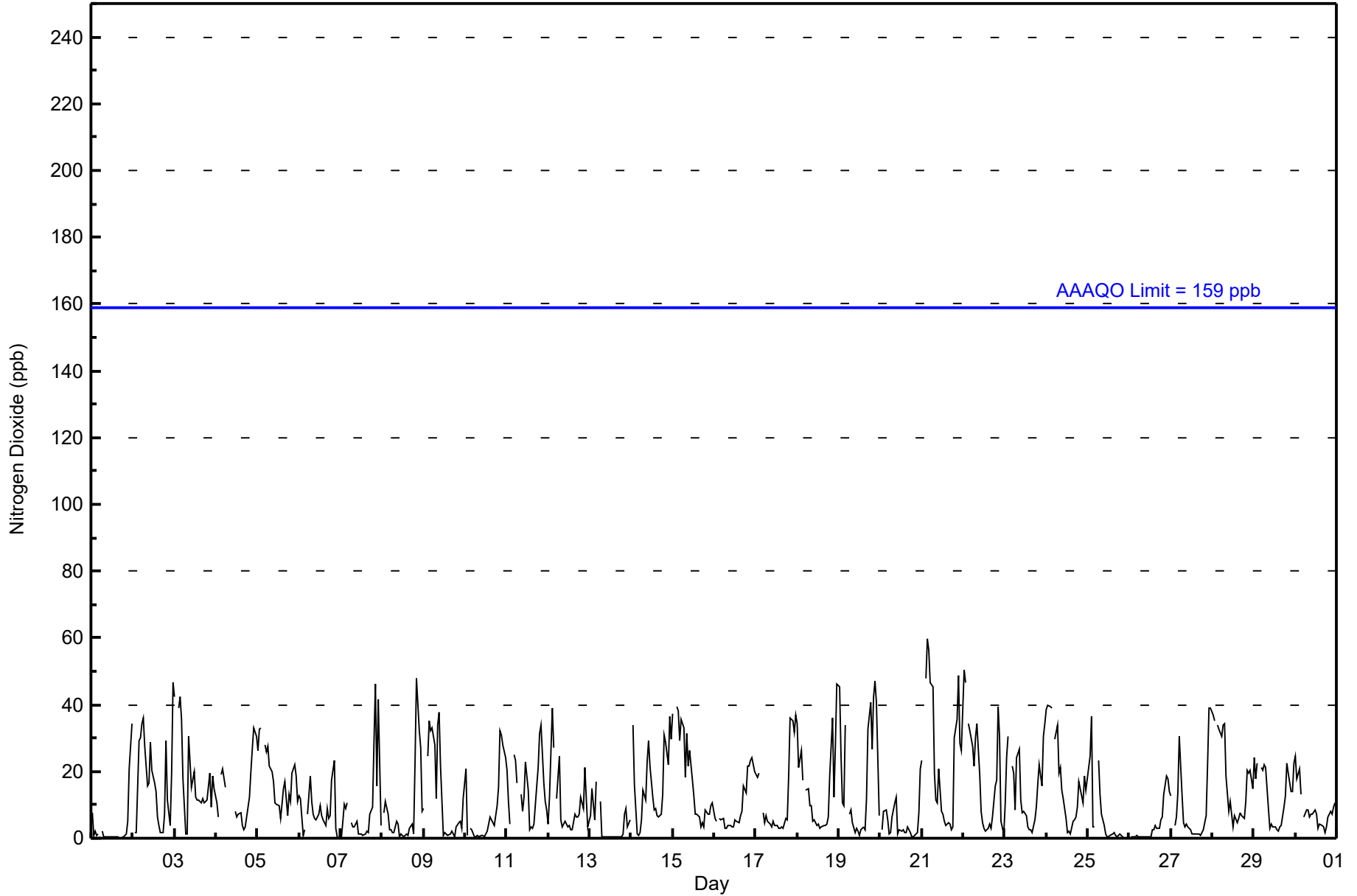
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	7.8	0.8	2.0	0.9	1.4	Z	2.3	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.4	1.0	1.1	5.0	20.8	34.2	3.5	34.2																						
2-Apr	Z	1.7	1.6	29.2	30.1	34.3	36.1	27.4	15.6	16.4	28.8	20.4	16.6	13.9	6.3	4.0	1.9	1.5	7.2	29.4	11.3	3.8	19.5	46.4	17.5	46.4																						
3-Apr	42.3	Z	38.9	42.5	35.8	17.9	1.3	1.4	30.7	22.9	15.1	20.0	12.3	11.3	11.4	10.7	11.7	10.7	11.2	11.4	19.7	9.2	18.5	15.0	18.3	42.5																						
4-Apr	10.6	6.4	Z	19.2	20.8	15.2	C	C	C	C	8.2	6.5	7.2	7.5	3.8	2.6	3.6	9.4	12.3	20.1	26.9	33.2	30.3	13.5	33.2																							
5-Apr	26.1	32.7	33.2	Z	28.0	25.8	27.4	21.5	20.1	16.9	10.8	10.0	9.9	6.1	10.0	15.0	17.1	6.9	13.2	11.0	19.6	22.1	18.7	11.1	18.0	33.2																						
6-Apr	12.7	11.7	1.0	2.4	Z	7.3	18.6	10.9	7.2	5.9	5.5	7.4	9.9	6.6	5.7	3.9	8.8	6.0	6.9	17.5	23.4	3.0	0.6	0.2	8.0	23.4																						
7-Apr	0.4	5.0	10.2	8.8	10.8	Z	4.7	3.3	3.5	5.1	1.3	1.4	1.3	1.0	1.4	2.1	1.9	7.4	9.5	29.3	46.1	15.7	41.4	4.0	9.4	46.1																						
8-Apr	Z	7.8	10.9	7.1	2.6	2.6	1.5	1.5	5.0	4.4	0.4	1.2	0.6	0.7	1.1	0.8	2.8	4.2	1.1	22.9	47.8	32.2	27.1	8.2	8.5	47.8																						
9-Apr	9.0	Z	24.4	35.3	32.2	32.9	27.8	11.7	33.8	37.7	21.4	0.9	1.5	1.3	1.0	1.1	2.2	1.1	0.5	3.4	4.7	4.9	2.8	11.8	13.2	37.7																						
10-Apr	20.8	0.8	Z	2.9	2.4	0.4	0.6	0.7	0.6	0.7	1.0	0.6	1.1	2.0	6.3	5.7	4.8	3.8	9.9	15.4	32.1	30.8	28.0	24.0	8.5	32.1																						
11-Apr	20.2	11.0	4.1	Z	25.0	23.2	16.7	M	13.1	8.2	12.1	23.0	14.2	2.5	3.5	3.0	4.4	15.7	21.1	31.3	33.9	16.6	11.1	8.6	14.7	33.9																						
12-Apr	4.4	12.1	39.0	27.2	Z	11.9	24.5	5.6	3.5	4.3	5.0	3.6	3.9	2.6	2.5	7.3	6.5	6.5	7.3	12.2	8.8	21.2	11.7	3.6	10.2	39.0																						
13-Apr	6.8	15.0	10.1	5.5	16.9	Z	11.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.3	0.4	1.2	7.3	9.1	3.5	5.7	4.2	16.9																						
14-Apr	Z	33.7	15.9	1.3	0.7	1.5	5.3	14.4	11.6	22.8	29.4	21.7	12.4	8.4	8.9	6.8	6.3	7.4	13.1	30.9	28.9	21.9	36.5	29.8	16.1	36.5																						
15-Apr	37.5	Z	39.2	38.0	29.1	35.8	33.0	18.1	31.2	21.5	26.2	17.2	12.8	7.1	7.2	6.3	3.4	4.8	3.5	8.3	7.2	7.3	9.8	10.8	18.1	39.2																						
16-Apr	5.8	5.2	Z	5.8	5.5	6.0	3.1	2.8	3.9	4.0	3.5	3.4	5.7	4.9	4.6	6.6	7.9	15.5	13.6	21.5	21.4	23.4	24.3	20.0	9.5	24.3																						
17-Apr	19.2	18.3	19.5	Z	7.7	4.6	6.8	5.2	4.2	3.6	4.9	4.0	3.9	3.1	2.9	3.6	2.9	5.8	5.4	18.7	36.1	35.3	31.9	36.8	12.4	36.8																						
18-Apr	34.3	21.2	26.1	17.4	Z	14.6	15.0	9.9	9.6	5.1	5.4	4.0	4.4	2.8	3.3	3.8	3.9	4.1	6.2	18.6	36.2	12.1	27.7	46.2	14.4	46.2																						
19-Apr	45.4	24.4	10.8	9.9	34.0	Z	7.4	8.6	4.5	1.7	3.1	2.3	1.0	2.5	3.6	2.5	12.0	32.5	40.7	26.7	42.3	47.0	40.7	6.8	17.8	47.0																						
20-Apr	Z	2.4	7.9	8.4	5.7	1.4	1.8	6.4	10.7	12.3	1.2	2.5	2.2	2.4	1.6	1.6	3.3	1.5	0.4	0.5	1.0	1.8	7.8	20.7	4.6	20.7																						
21-Apr	23.2	Z	47.8	59.9	56.2	46.7	45.4	19.6	11.6	10.4	20.6	8.2	7.0	5.1	4.0	4.6	4.1	2.7	3.6	30.1	35.8	48.9	28.6	26.3	23.9	59.9																						
22-Apr	50.5	46.7	Z	34.4	32.1	27.7	21.7	30.2	34.2	18.9	8.0	4.5	3.0	2.2	3.0	4.4	3.0	6.2	15.8	17.3	39.4	30.4	5.0	1.2	19.1	50.5																						
23-Apr	10.0	24.1	30.5	Z	21.6	19.7	8.6	24.3	26.6	11.4	7.7	8.1	6.7	3.4	2.6	2.6	1.6	5.5	9.2	15.9	22.1	15.5	30.6	34.2	14.9	34.2																						
24-Apr	38.6	40.0	39.2	38.8	Z	29.6	33.9	19.5	21.2	14.5	11.7	5.9	1.8	2.2	1.4	4.9	5.3	6.3	9.3	16.8	12.6	10.5	18.8	14.3	17.3	40.0																						
25-Apr	21.1	24.5	36.4	3.6	3.4	Z	23.5	13.1	7.3	4.0	1.4	0.5	0.6	0.9	1.4	1.8	1.0	0.6	1.2	0.8	0.3	0.2	0.2	0.2	6.4	36.4																						
26-Apr	Z	0.3	0.3	0.5	0.8	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	2.7	2.7	4.0	3.1	2.9	5.6	6.5	13.0	18.5	17.8	14.1	4.1	18.5																						
27-Apr	12.5	Z	4.0	6.5	13.4	30.4	12.5	4.5	3.2	4.1	3.5	2.7	1.4	1.4	1.4	1.2	1.1	0.9	1.9	2.5	6.7	22.2	39.0	39.0	9.4	39.0																						
28-Apr	36.9	35.0	Z	34.0	32.6	30.6	33.9	34.3	18.6	7.9	11.0	7.1	3.5	6.7	4.6	5.9	7.5	6.7	5.9	11.0	20.4	19.6	20.2	14.9	17.8	36.9																						
29-Apr	24.3	17.8	22.4	Z	21.0	20.2	22.0	21.3	8.9	3.0	4.2	3.6	3.5	2.7	2.3	3.2	4.0	9.4	12.7	22.5	19.6	14.0	13.8	22.5	13.0	24.3																						
30-Apr	24.5	17.7	20.9	13.3	Z	6.5	8.3	8.5	6.5	7.3	7.3	8.4	7.3	3.1	4.4	3.9	3.3	1.5	3.3	6.5	8.1	7.0	9.2	10.8	8.6	24.5																						
																								21.8	16.7	19.9	18.1	18.8	17.9	15.7	11.6	12.0	9.5	8.7	6.7	5.2	3.9	3.9	4.2	4.6	6.1	8.3	15.1	20.9	17.9	20.0	18.4	Diurnal Average
																								50.5	46.7	47.8	59.9	56.2	46.7	45.4	34.3	34.2	37.7	29.4	23.0	16.6	13.9	11.4	15.0	17.1	32.5	40.7	31.3	47.8	48.9	41.4	46.4	Diurnal Maximum

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Hills - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	522	76.32	76.32
21 - 40	142	20.76	97.08
41 - 80	20	2.92	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	59	88	45	20	10	16	38	46	35	31	19	22	9	33	18	33	522
21 - 40	52	18	5	1	1	6	22	12	7	3	1	1	2	5	2	4	142
11 - 80	5	0	0	0	0	3	5	2	0	0	5	0	0	0	0	0	20
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	116	106	50	21	11	25	65	60	42	34	25	23	11	38	20	37	684

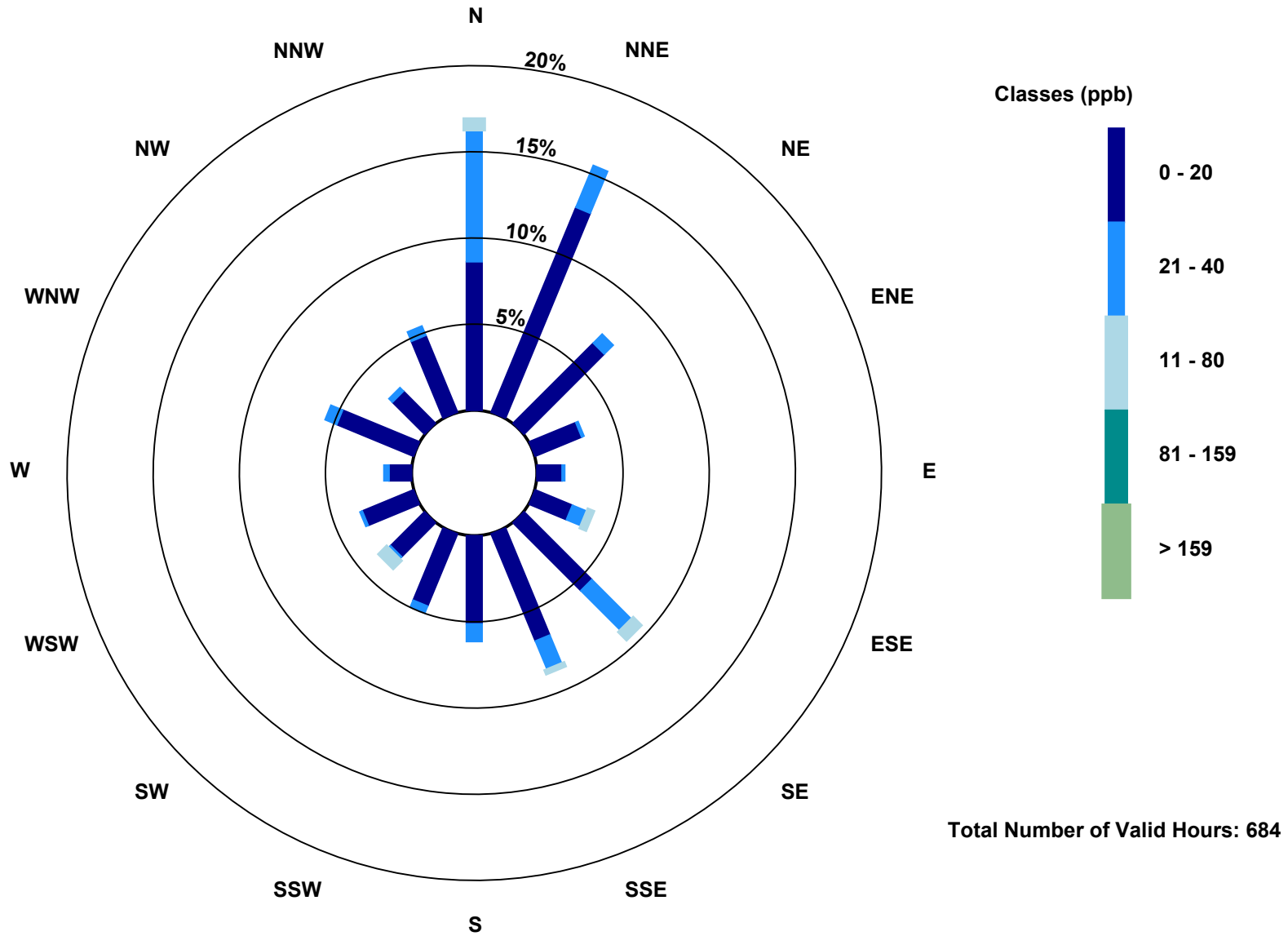
Total Number of Valid Hours: 684

Total Number of Hours: 720

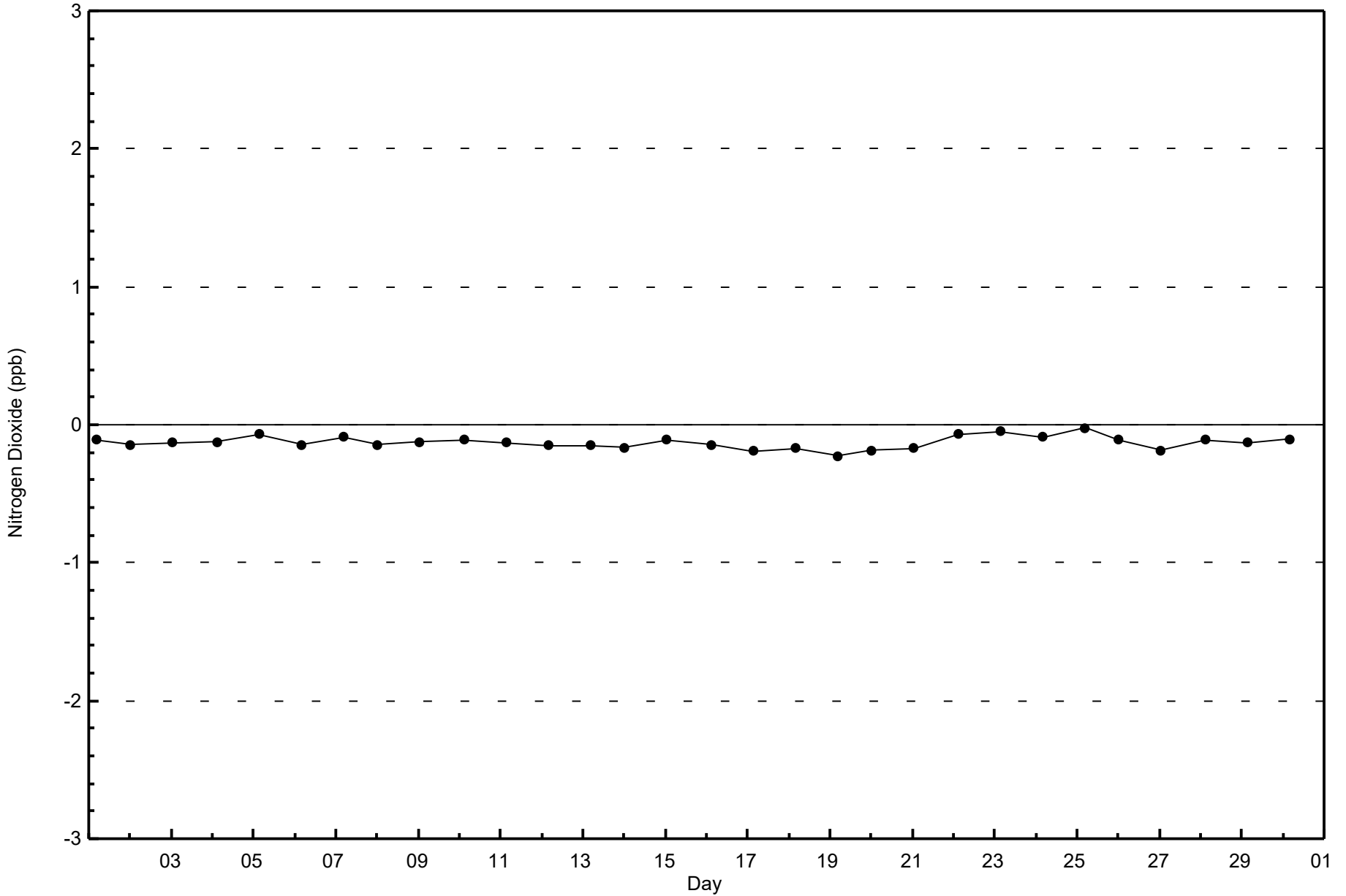


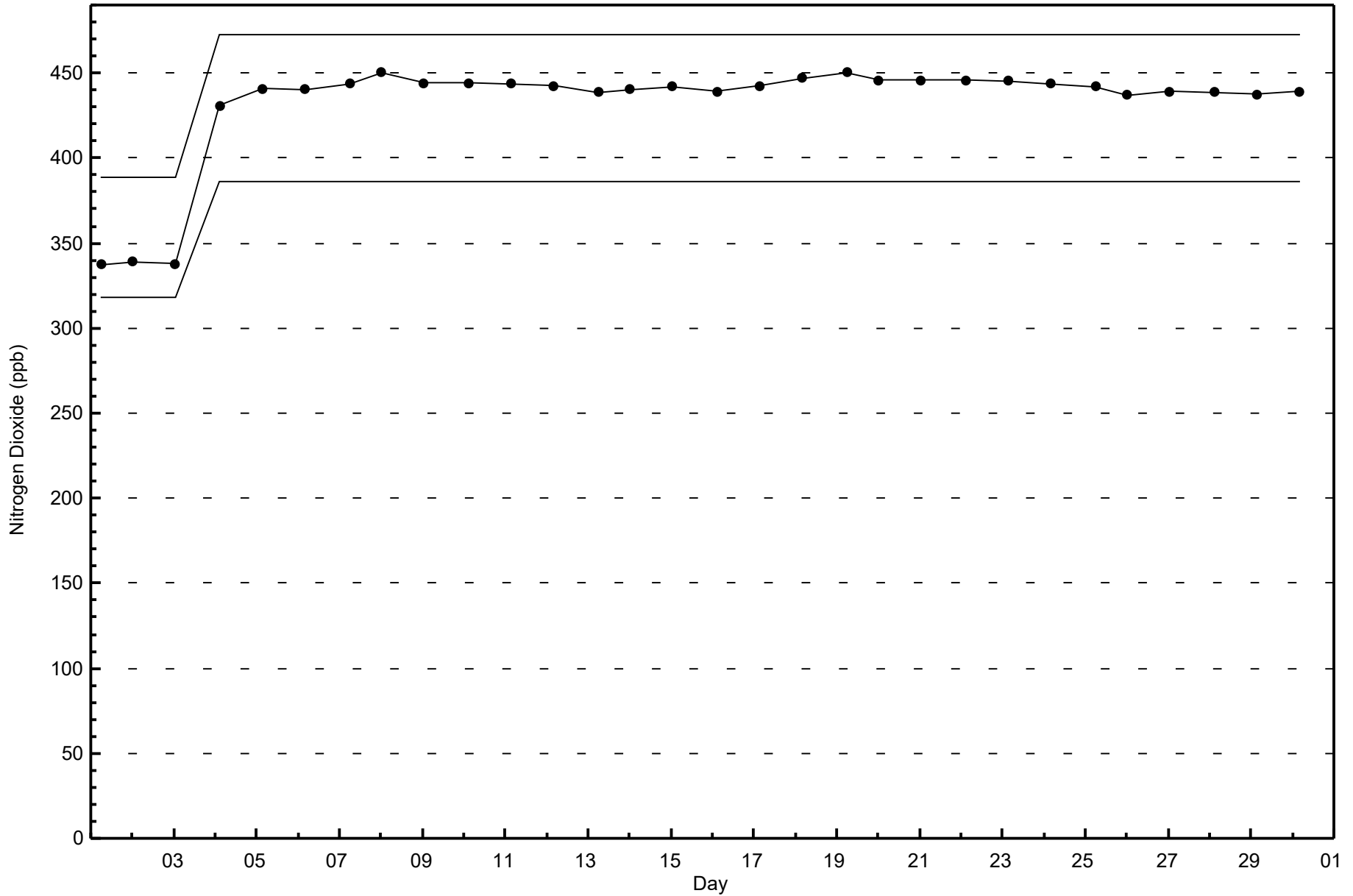
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort Hills - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 407.7 ppb on Apr 21 04:00	Maximum Daily Average: 89.1 ppb on Apr 21		Hours of Data:	684
Minimum Value: 0.2 ppb on Apr 25 23:00	Minimum Daily Average: 4.4 ppb on Apr 13		Hours of Missing Data:	36
Maximum Diurnal Average: 47.1 ppb at hour 4	Minimum Diurnal Average: 5.0 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 21.44 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 3.7 Median = 9.1 Q <sub>3</sub> = 23.8 P <sub>90</sub> = 52.8 P <sub>99</sub> = 183.8		Percent Operational Time:	99.9

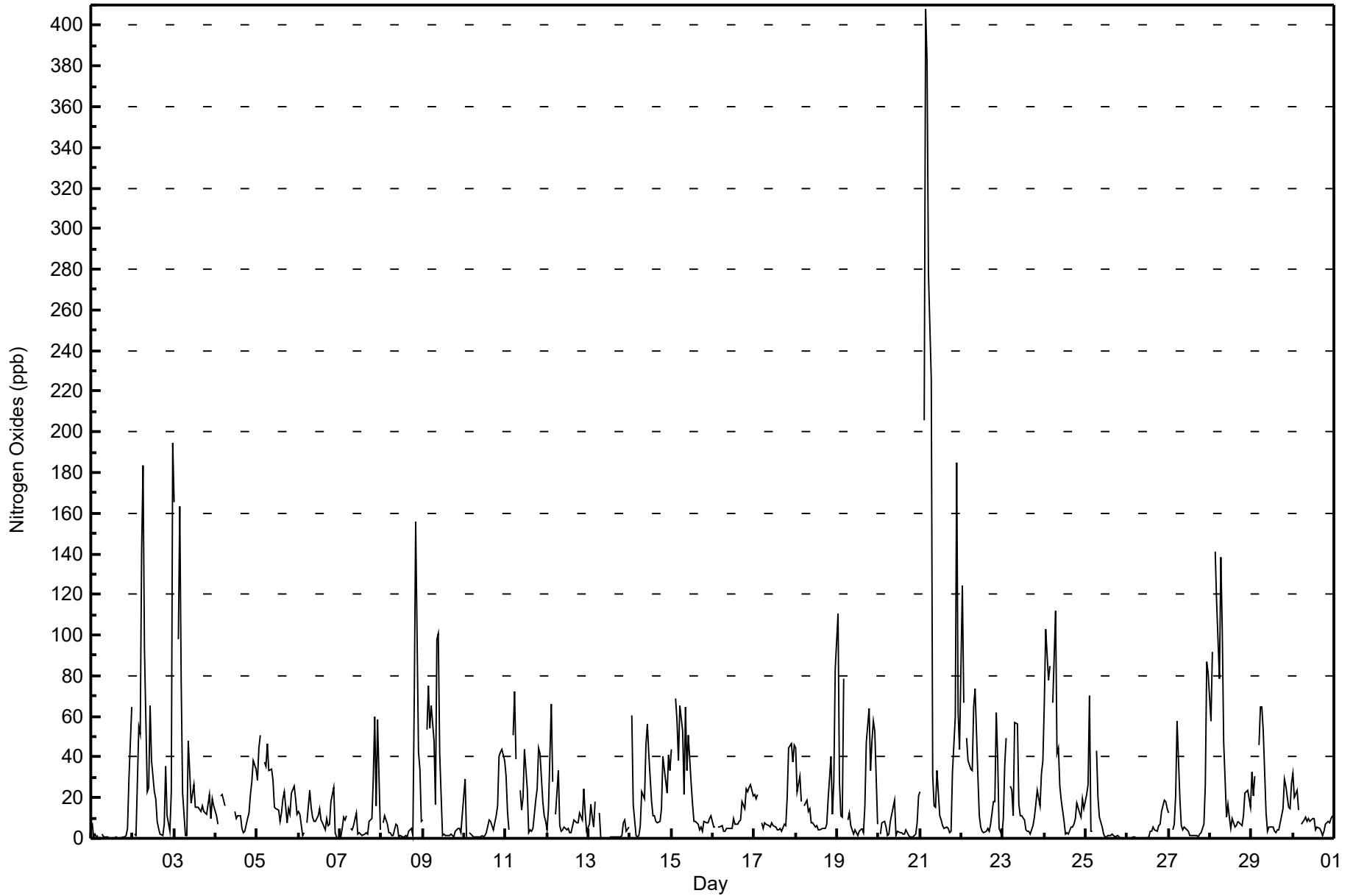
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	7.8	0.8	2.0	0.9	1.4	Z	2.3	0.4	0.4	0.5	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.4	1.0	1.1	5.0	29.1	64.5	5.2	64.5																								
2-Apr	Z	1.7	1.6	55.2	51.6	141.8	183.7	93.2	22.6	24.7	65.6	37.9	23.3	19.7	8.1	4.8	2.0	1.5	7.2	35.5	11.3	3.8	22.6	194.7	44.1	194.7																							
3-Apr	165.7	Z	98.1	163.4	76.9	22.4	1.3	1.4	47.8	33.6	17.7	26.4	15.5	15.6	15.4	13.4	15.7	13.5	12.7	11.7	21.3	9.6	19.7	15.8	36.3	165.7																							
4-Apr	11.2	6.7	Z	21.0	21.6	16.0	C	C	C	C	C	13.4	9.9	11.0	10.9	5.1	3.1	3.8	9.9	12.5	21.4	27.9	38.4	33.7	15.4	38.4																							
5-Apr	28.2	44.1	50.8	Z	37.4	35.7	46.7	33.5	34.4	28.2	15.3	14.1	14.1	8.5	12.6	19.7	22.9	7.8	14.8	11.5	22.1	25.6	19.5	11.5	24.3	50.8																							
6-Apr	13.1	12.0	1.1	2.5	Z	8.0	23.8	15.2	10.6	8.5	8.1	11.4	14.5	9.2	7.3	4.3	9.7	6.4	7.1	18.0	24.7	3.1	0.6	0.2	9.5	24.7																							
7-Apr	0.4	5.0	10.2	8.8	10.8	Z	5.2	4.3	6.2	12.7	2.2	2.5	1.8	1.2	1.8	2.6	2.2	8.5	10.0	30.0	59.7	16.0	58.2	4.0	11.5	59.7																							
8-Apr	Z	7.8	10.9	7.1	2.6	2.6	1.5	1.7	7.1	6.5	0.4	1.5	0.6	0.7	1.3	0.9	3.2	4.6	1.1	69.7	156.0	42.6	33.8	8.2	16.2	156.0																							
9-Apr	9.0	Z	53.3	74.8	54.2	65.6	47.7	16.6	97.8	100.7	41.4	1.1	1.8	1.5	1.1	1.3	2.4	1.1	0.5	3.4	4.7	4.9	2.8	11.9	26.1	100.7																							
10-Apr	29.5	0.8	Z	2.9	2.4	0.4	0.6	0.9	0.7	0.7	1.3	0.7	1.4	2.7	9.0	8.0	6.2	4.5	10.9	15.9	40.6	42.7	44.0	38.0	11.5	44.0																							
11-Apr	30.5	12.9	4.1	Z	50.4	72.4	39.1	M	23.6	13.6	19.9	43.7	24.0	3.1	4.3	3.6	4.9	18.8	24.1	44.6	41.5	17.9	11.1	8.6	23.5	72.4																							
12-Apr	4.4	14.3	66.0	27.5	Z	12.0	33.6	6.1	3.5	4.5	5.4	3.9	4.5	2.8	2.6	9.2	8.0	7.7	7.9	12.3	8.8	24.6	12.4	3.6	12.4	66.0																							
13-Apr	6.8	17.0	10.3	5.5	18.3	Z	12.8	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.3	0.4	1.2	7.3	9.1	3.5	5.7	4.4	18.3																							
14-Apr	Z	60.6	16.4	1.3	0.7	1.5	6.5	23.2	19.8	46.1	56.4	41.4	18.0	10.8	11.4	8.4	7.5	8.6	14.3	40.3	34.2	22.4	41.3	33.3	22.8	60.6																							
15-Apr	43.8	Z	68.8	57.4	38.3	65.5	52.6	21.6	64.8	33.4	50.7	27.2	16.4	8.6	8.5	7.2	4.0	5.3	3.6	8.5	7.5	7.4	9.8	10.9	27.0	68.8																							
16-Apr	5.8	5.2	Z	5.9	5.7	6.1	3.3	3.2	4.7	5.0	4.9	4.8	9.9	6.8	6.6	8.2	9.4	18.0	14.5	24.2	22.7	25.0	26.3	21.2	10.7	26.3																							
17-Apr	21.8	19.6	21.6	Z	7.9	4.8	7.9	6.9	6.4	5.4	7.6	6.1	5.9	4.5	4.1	4.9	3.8	7.3	6.0	20.0	44.8	46.5	37.6	45.9	15.1	46.5																							
18-Apr	44.8	22.8	30.5	17.9	Z	16.0	18.5	13.1	14.3	7.4	7.8	5.7	6.3	3.9	4.4	5.0	5.0	4.9	6.8	19.8	40.3	12.1	28.1	83.7	18.2	83.7																							
19-Apr	110.8	27.8	10.8	10.1	78.7	Z	8.9	12.7	6.4	2.2	4.1	3.0	1.1	3.2	4.6	3.0	16.3	47.2	63.8	33.3	48.3	57.8	52.9	6.8	26.7	110.8																							
20-Apr	Z	2.4	7.9	8.4	5.7	1.4	2.0	8.4	15.2	18.7	1.5	3.2	2.7	2.9	1.9	1.9	3.9	1.7	0.4	0.5	1.0	1.8	7.8	20.7	5.3	20.7																							
21-Apr	23.2	Z	205.7	407.7	382.8	278.0	225.8	31.1	16.3	15.0	33.2	11.1	9.1	6.4	4.8	5.5	4.7	3.0	3.8	32.8	59.8	184.7	62.1	43.5	89.1	407.7																							
22-Apr	124.3	66.7	Z	49.2	38.4	34.4	33.6	64.7	73.8	30.5	11.0	5.7	3.7	2.6	3.6	5.1	3.6	7.2	17.8	18.0	61.5	39.6	5.0	1.2	30.5	124.3																							
23-Apr	10.0	36.0	49.4	Z	25.8	23.8	11.4	57.1	56.3	16.4	10.8	11.2	9.1	4.4	3.4	3.3	1.9	6.2	10.1	16.6	23.5	15.7	32.0	38.4	20.6	57.1																							
24-Apr	66.2	103.1	77.6	85.0	Z	66.4	112.1	42.0	44.5	26.0	19.1	8.4	2.2	2.6	1.7	5.6	5.8	6.7	9.7	17.3	12.8	10.5	19.4	14.9	33.0	112.1																							
25-Apr	21.7	26.2	70.3	3.7	3.4	Z	43.0	19.9	10.2	5.5	1.8	0.6	0.7	1.1	1.7	2.1	1.1	0.6	1.2	0.8	0.3	0.2	0.2	0.2	9.4	70.3																							
26-Apr	Z	0.3	0.3	0.5	0.8	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	3.7	3.8	5.5	4.0	3.5	6.5	6.8	13.2	19.0	18.3	14.6	4.5	19.0																							
27-Apr	12.6	Z	4.0	6.6	20.5	57.3	19.5	6.0	4.4	5.9	4.8	3.6	1.7	1.7	1.6	1.3	1.1	0.9	1.9	2.5	6.7	26.7	86.7	81.6	15.6	86.7																							
28-Apr	57.6	91.5	Z	140.8	115.9	78.4	138.6	102.3	47.6	10.3	16.5	10.4	4.5	9.4	5.6	6.6	8.3	7.5	6.3	11.4	22.5	23.2	23.8	15.2	41.5	140.8																							
29-Apr	32.9	21.1	30.4	Z	45.7	64.6	64.3	52.6	12.4	3.5	5.3	5.3	5.3	3.5	2.9	4.0	4.5	10.9	14.8	29.5	26.0	15.2	14.5	27.2	21.6	64.6																							
30-Apr	32.1	19.9	23.5	13.7	Z	6.8	9.3	10.2	8.0	9.9	8.5	9.9	9.7	4.1	5.3	4.7	3.6	1.6	3.8	6.9	8.4	7.5	9.7	11.4	9.9	32.1																							
																								36.6	25.1	37.0	47.1	43.9	43.3	39.9	23.2	22.8	16.4	14.6	10.5	7.3	5.2	5.0	5.2	5.6	7.3	9.7	18.5	28.5	24.9	25.7	29.0	Diurnal Average	
																								165.7	103.1	205.7	407.7	382.8	278.0	225.8	102.3	97.8	100.7	65.6	43.7	24.0	19.7	15.4	19.7	22.9	47.2	63.8	69.7	156.0	184.7	86.7	194.7	Diurnal Maximum	

Z - zerspan      C - Calibration      M - Maintenance



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	484	70.76	70.76
21 - 40	95	13.89	84.65
41 - 80	76	11.11	95.76
81 - 159	19	2.78	98.54
> 159	10	1.46	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Hills - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	49	82	43	20	10	16	32	42	34	27	19	22	7	33	17	31	484
21 - 40	27	19	7	0	0	2	12	7	3	4	1	1	2	4	3	3	95
11 - 80	29	5	0	1	1	5	10	7	4	3	5	0	2	1	0	3	76
81 - 159	10	0	0	0	0	1	6	1	1	0	0	0	0	0	0	0	19
> 159	1	0	0	0	0	1	5	3	0	0	0	0	0	0	0	0	10
<b>Totals</b>	116	106	50	21	11	25	65	60	42	34	25	23	11	38	20	37	684

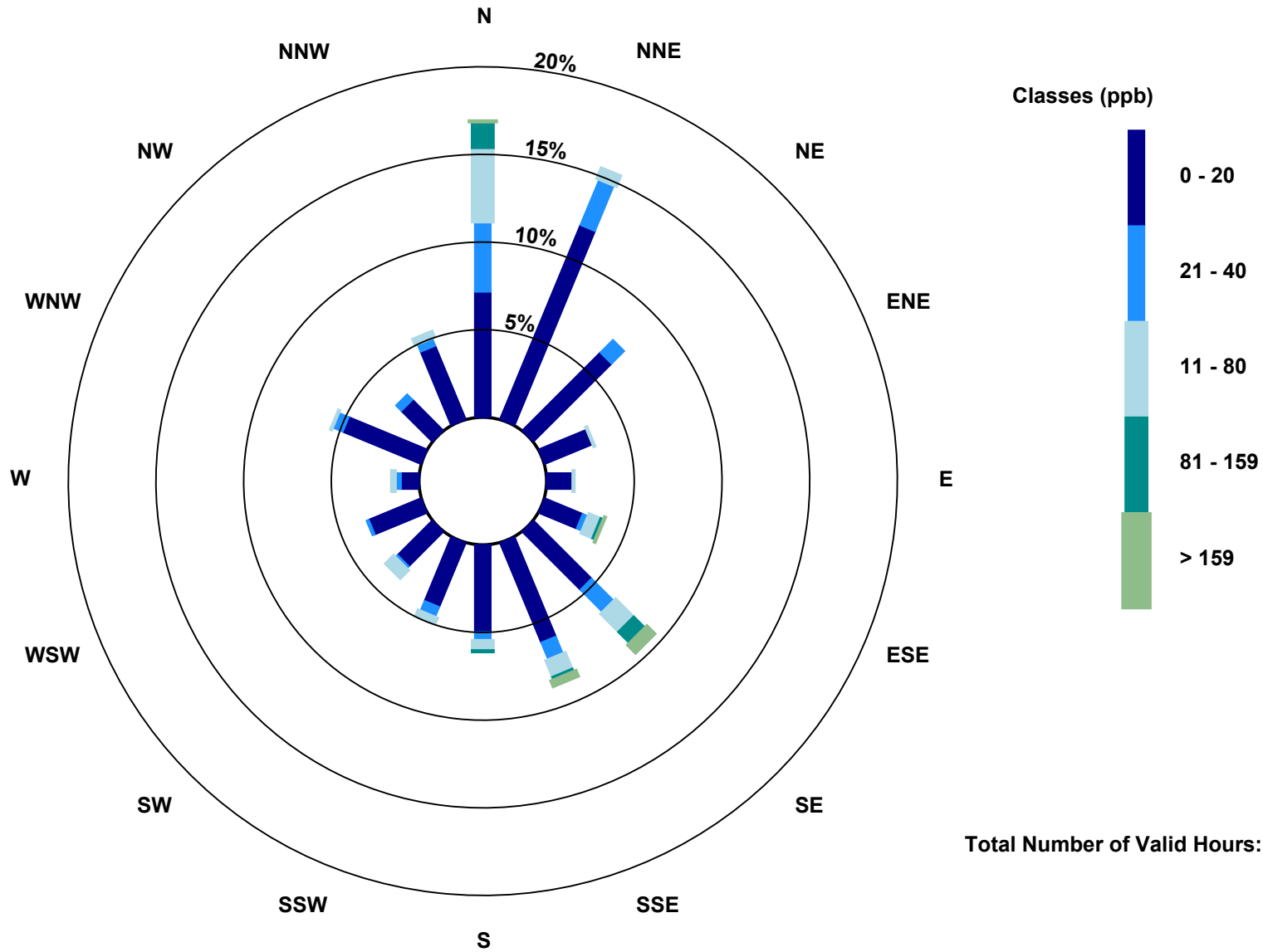
Total Number of Valid Hours: 684

Total Number of Hours: 720

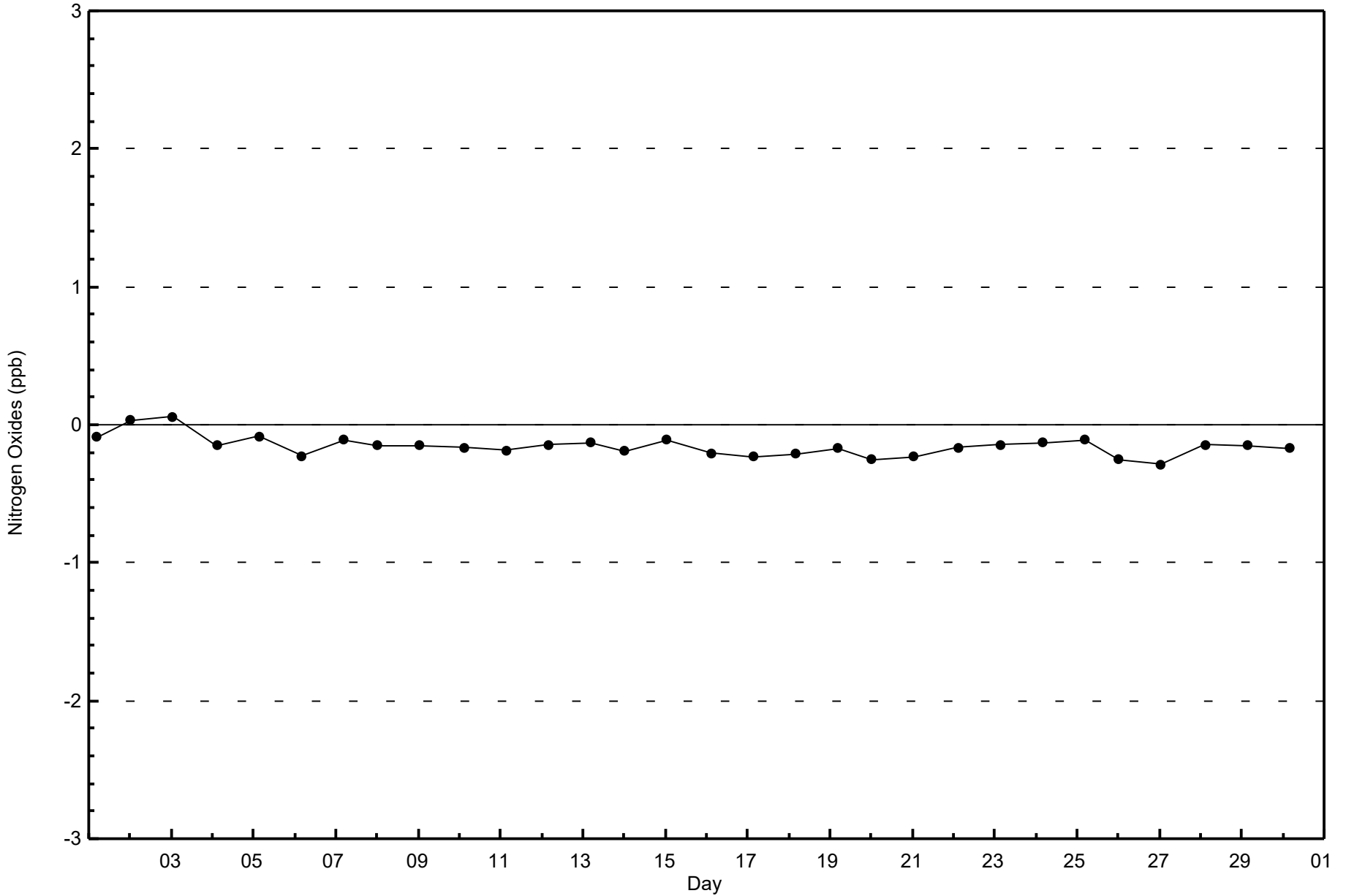


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

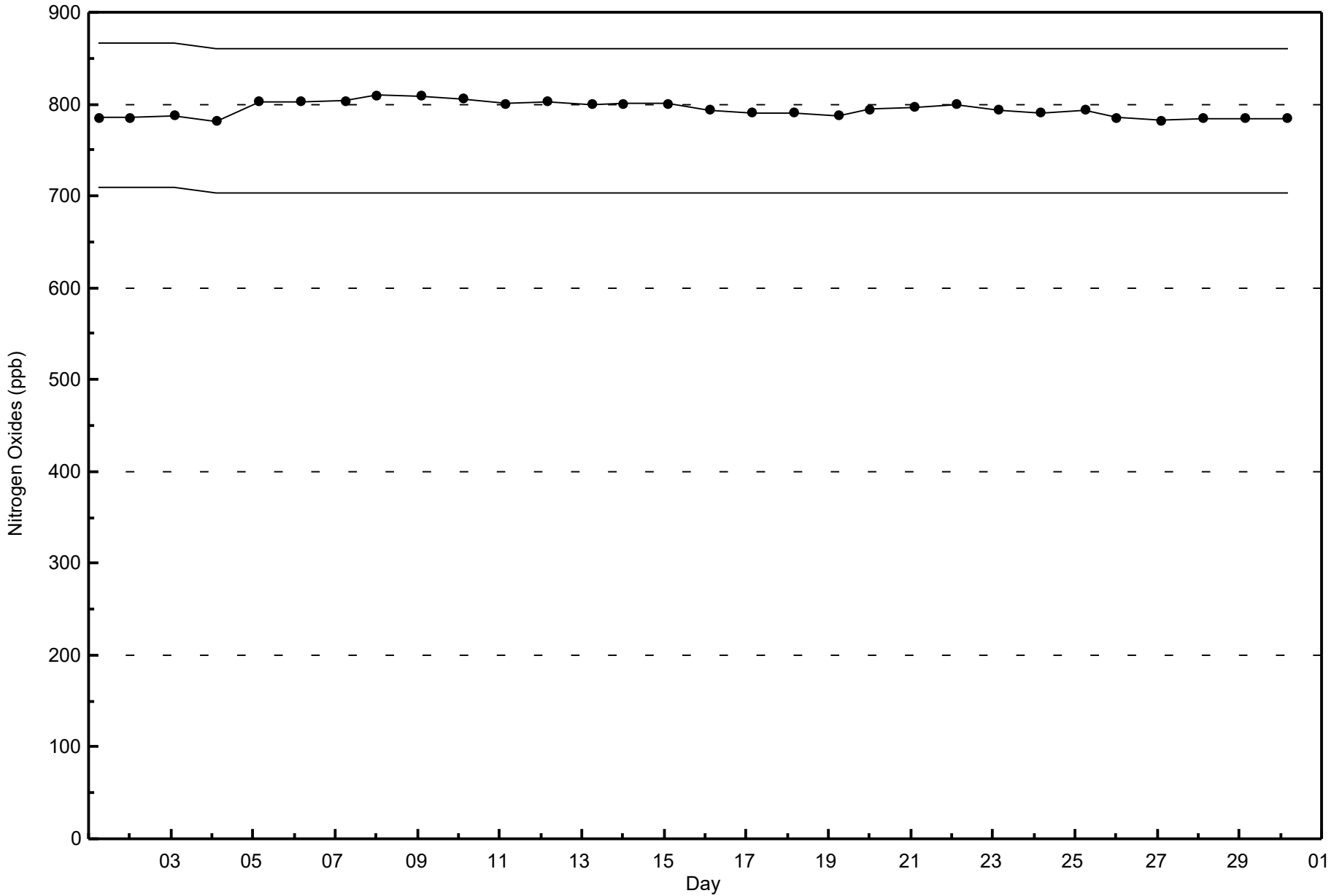
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Hills



Total Number of Valid Hours: 684





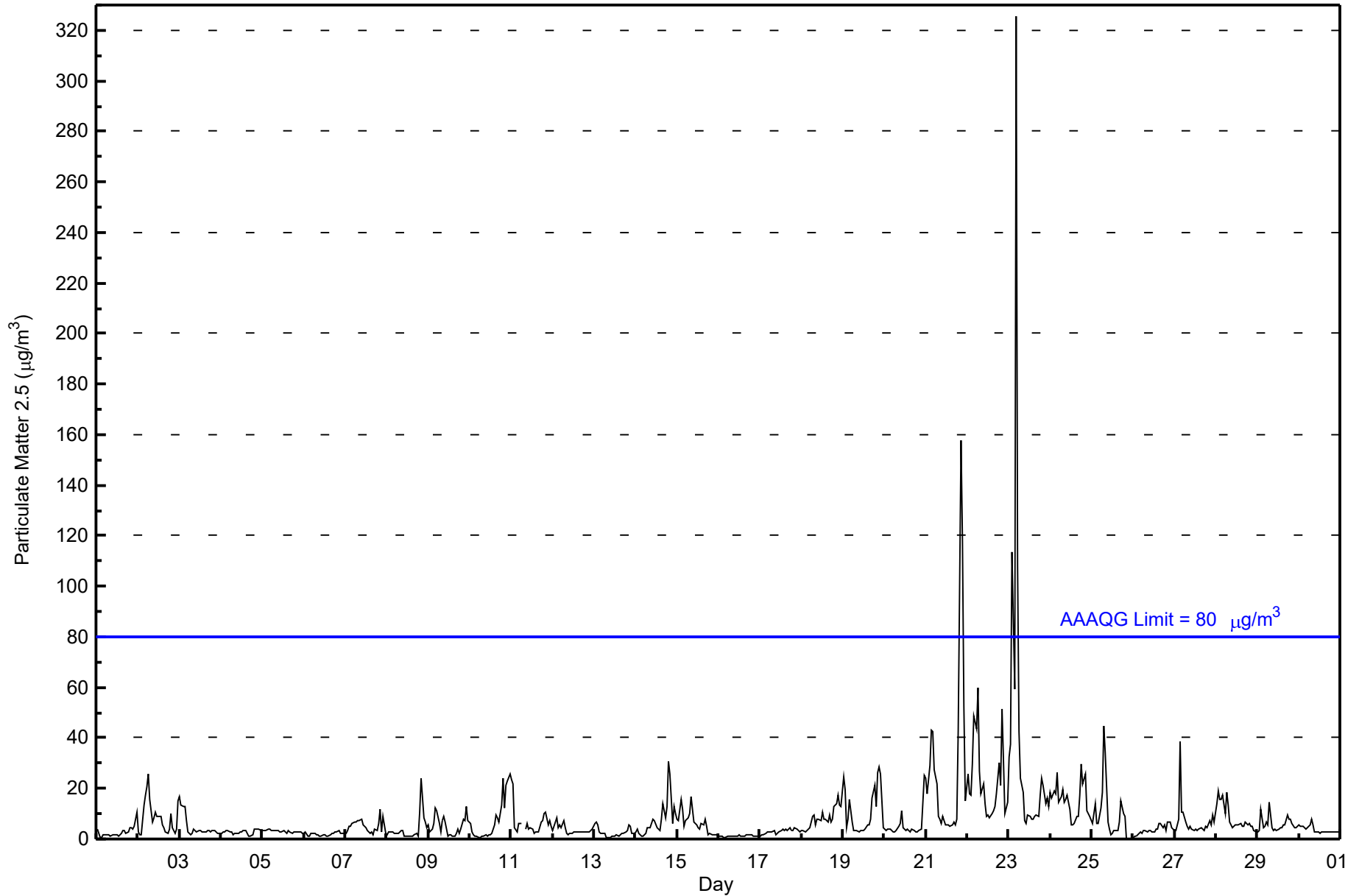




Summary of Hour Averages

Fort Hills - April 2024

Number of Exceedences (AAAQO):		1-hr: 5	24-hr: 1	Hours in Service: 720																	720																												
Maximum Value: 325.4 µg/m <sup>3</sup> on Apr 23 05:00		Maximum Daily Average: 39.3 µg/m <sup>3</sup> on Apr 23																	Hours of Data: 719																														
Minimum Value: 0.2 µg/m <sup>3</sup> on Apr 25 22:00		Minimum Daily Average: 1.2 µg/m <sup>3</sup> on Apr 16																	Hours of Missing Data: 1																														
Maximum Diurnal Average: 19.8 µg/m <sup>3</sup> at hour 5		Minimum Diurnal Average: 3.8 µg/m <sup>3</sup> at hour 14																	Hours of Calibration: 1																														
Monthly Average: 8.17 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.6 Median = 4.0 Q <sub>3</sub> = 8.0 P <sub>90</sub> = 17.4 P <sub>99</sub> = 52.6																	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-Apr	3.7	2.1	0.7	0.8	1.6	1.5	1.4	1.5	1.3	1.6	1.4	1.4	1.9	1.3	2.0	3.6	3.2	2.2	2.7	4.2	4.7	4.2	5.2	10.5	2.7	10.5																							
2-Apr	3.0	1.5	1.5	13.4	17.4	20.5	25.5	15.6	6.9	8.2	10.7	8.9	9.2	8.8	5.3	4.3	3.0	2.3	3.7	10.1	4.3	2.4	3.7	15.0	8.6	25.5																							
3-Apr	16.8	13.3	12.9	12.8	7.3	3.0	1.5	2.2	3.7	3.5	3.0	3.1	3.2	2.7	2.7	2.9	3.1	3.3	3.0	3.2	3.6	2.8	2.5	2.5	4.9	16.8																							
4-Apr	2.3	2.7	2.9	3.1	3.1	2.9	2.7	1.9	2.0	2.5	2.5	2.7	2.8	3.1	3.3	2.1	1.3	1.1	1.9	3.7	3.9	3.9	3.8	3.2	2.7	3.9																							
5-Apr	3.4	3.2	3.3	4.2	3.9	3.4	3.3	3.2	3.3	3.1	2.7	2.9	3.3	2.5	2.4	3.5	2.7	2.5	2.6	2.7	2.7	2.7	2.1	3.0	4.2																								
6-Apr	2.2	2.6	1.2	1.4	2.4	2.0	2.1	1.9	1.8	1.3	1.1	1.4	1.9	1.1	1.2	1.8	2.2	2.3	2.6	3.0	3.3	2.5	2.3	2.3	2.0	3.3																							
7-Apr	2.5	3.1	4.8	5.3	6.2	6.5	6.9	7.1	7.4	8.0	5.6	5.1	4.5	3.2	2.2	2.6	1.9	3.8	3.3	6.2	11.7	2.9	9.1	2.4	5.1	11.7																							
8-Apr	1.9	2.7	3.0	2.6	2.2	2.2	2.2	2.2	3.1	3.2	1.1	1.2	1.0	1.1	1.3	1.3	1.7	2.1	1.2	10.4	23.8	8.5	6.5	4.5	3.8	23.8																							
9-Apr	5.7	2.8	4.1	6.3	12.1	11.2	5.9	3.0	7.1	8.7	6.5	0.9	2.0	1.9	1.2	1.2	2.0	4.1	2.2	4.1	7.8	7.3	12.8	7.5	5.3	12.8																							
10-Apr	6.2	2.7	1.5	1.3	1.1	0.5	0.7	1.1	1.4	1.6	1.2	1.4	1.9	2.4	5.7	9.5	8.4	6.9	13.3	24.3	12.0	21.1	23.0	25.5	7.3	25.5																							
11-Apr	23.4	21.6	4.7	2.8	6.4	5.9	5.9	C	4.0	6.0	3.7	4.4	4.1	2.2	2.8	2.8	2.7	6.4	7.3	10.1	10.6	5.6	7.2	5.1	6.8	23.4																							
12-Apr	3.1	5.0	8.5	4.4	5.8	4.7	7.4	4.4	2.5	1.9	2.3	2.5	2.7	2.7	2.7	3.1	2.6	3.0	3.1	3.0	2.6	2.8	3.1	3.7	3.6	8.5																							
13-Apr	6.3	6.9	5.9	2.8	2.4	2.1	2.1	0.8	0.6	0.7	0.8	0.9	1.2	1.4	1.2	1.9	2.3	2.3	2.7	3.6	5.4	5.2	2.4	2.3	2.7	6.9																							
14-Apr	2.7	3.9	2.3	1.2	1.2	1.4	2.3	4.3	4.5	6.3	8.1	7.5	4.3	3.9	3.6	8.0	13.9	8.2	13.1	30.7	25.6	6.0	12.8	10.2	7.7	30.7																							
15-Apr	8.0	7.5	15.6	11.6	5.2	7.5	8.5	10.3	17.0	11.7	6.8	5.5	4.3	3.9	6.4	5.7	7.9	4.8	1.8	2.0	1.9	1.8	1.5	1.7	6.6	17.0																							
16-Apr	1.2	0.9	0.9	0.7	0.7	0.9	1.0	1.2	1.1	1.1	1.1	1.2	1.7	1.1	1.3	1.3	1.5	1.7	1.5	1.7	1.2	1.1	1.3	1.4	1.2	1.7																							
17-Apr	1.4	1.6	1.8	2.1	2.5	2.6	2.5	3.1	3.2	1.9	2.2	2.8	3.4	3.9	3.6	3.8	3.4	4.7	3.6	3.4	4.6	4.0	3.2	3.0	3.0	4.7																							
18-Apr	3.4	3.4	2.8	3.4	4.0	4.5	9.0	9.5	5.9	7.6	7.7	7.0	10.6	7.6	7.9	6.6	9.4	6.7	7.8	12.9	14.2	17.3	13.4	13.1	8.2	17.3																							
19-Apr	24.8	19.6	4.5	7.7	15.5	6.7	3.3	3.3	3.3	2.6	3.1	3.5	3.3	4.0	5.5	5.7	7.9	16.2	21.2	13.0	26.1	28.6	25.6	4.7	10.8	28.6																							
20-Apr	3.7	3.5	3.8	4.0	3.5	2.9	2.8	3.5	5.0	6.4	11.0	4.5	3.4	4.1	3.4	3.0	3.8	3.2	2.7	2.7	3.1	4.0	14.8	25.2	5.3	25.2																							
21-Apr	23.8	17.6	29.1	43.0	42.8	27.4	22.0	8.9	7.9	6.1	9.0	5.4	5.6	5.4	5.1	5.7	6.9	5.8	7.7	43.2	157.6	118.3	52.8	14.9	28.0	157.6																							
22-Apr	25.9	17.8	17.5	29.8	48.4	43.4	59.9	27.0	18.0	21.6	14.0	9.0	9.6	8.3	9.9	11.0	13.1	18.0	30.4	21.2	51.4	31.2	10.0	14.3	23.4	59.9																							
23-Apr	32.5	37.6	113.4	59.4	325.4	108.2	42.7	24.1	18.3	7.4	6.3	9.5	9.2	7.9	7.6	9.2	9.8	9.0	17.3	23.8	21.1	13.8	16.1	12.9	39.3	325.4																							
24-Apr	18.3	16.5	19.0	18.1	26.4	14.4	16.6	19.4	14.7	15.5	17.4	11.9	5.9	5.8	6.2	8.9	9.1	17.6	29.6	21.6	25.6	11.2	10.1	9.2	15.4	29.6																							
25-Apr	6.2	9.8	13.9	6.0	6.0	12.4	18.4	44.9	34.1	6.5	3.7	1.9	2.3	3.4	3.4	3.3	7.0	15.3	10.0	8.9	0.2	0.2	0.2	0.2	9.1	44.9																							
26-Apr	0.6	0.9	1.4	2.1	2.7	2.1	3.1	3.4	3.1	3.3	3.5	2.8	2.8	4.1	4.2	6.0	6.2	4.6	5.5	3.5	6.7	6.7	4.2	3.8	3.6	6.7																							
27-Apr	3.3	3.1	7.9	38.7	10.4	10.6	6.9	5.3	3.8	4.9	4.0	3.5	3.7	3.6	4.1	4.3	3.9	3.6	4.8	4.4	7.2	5.8	9.4	6.5	6.8	38.7																							
28-Apr	13.9	19.0	15.7	15.5	17.4	9.9	18.6	13.6	6.6	4.7	5.0	5.5	5.4	5.8	6.4	5.0	5.1	6.9	5.8	6.4	5.2	4.8	3.4	2.9	8.7	19.0																							
29-Apr	2.9	3.5	11.9	4.4	5.1	6.7	5.7	14.7	4.5	3.4	3.7	3.5	3.9	4.5	4.4	5.8	5.7	9.6	7.7	7.9	6.0	4.5	4.6	5.0	5.8	14.7																							
30-Apr	5.5	5.1	4.8	4.5	3.8	4.5	5.4	7.7	5.3	2.7	2.6	2.5	2.4	2.6	2.5	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.6	3.6	7.7																							
																								8.6	8.0	10.7	10.4	19.8	11.1	9.9	8.6	6.7	5.5	5.1	4.1	4.0	3.8	4.0	4.6	5.1	6.0	7.4	10.0	15.2	11.1	9.0	7.3	Diurnal Average	
																								32.5	37.6	113.4	59.4	325.4	108.2	59.9	44.9	34.1	21.6	17.4	11.9	10.6	8.8	9.9	11.0	13.9	18.0	30.4	43.2	157.6	118.3	52.8	25.5	Diurnal Maximum	
C - Calibration																																																	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Fort Hills - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	436	60.64	60.64
6 - 15	197	27.40	88.04
16 - 25	50	6.95	94.99
26 - 80	31	4.31	99.30
> 81.0	5	0.70	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Fort Hills - April 2024**

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	
0 - 5	71	71	28	11	4	5	32	38	31	23	19	22	9	29	15	28	436
6 - 15	30	28	16	9	5	17	29	19	10	11	5	1	3	6	2	6	197
16 - 25	19	5	5	2	1	3	3	6	1	1	0	0	0	1	1	2	50
26 - 80	3	5	1	1	2	0	3	1	2	2	4	1	1	1	2	2	31
> 81.0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5
<b>Totals</b>	124	110	50	23	12	25	67	64	44	37	28	24	13	38	21	39	719

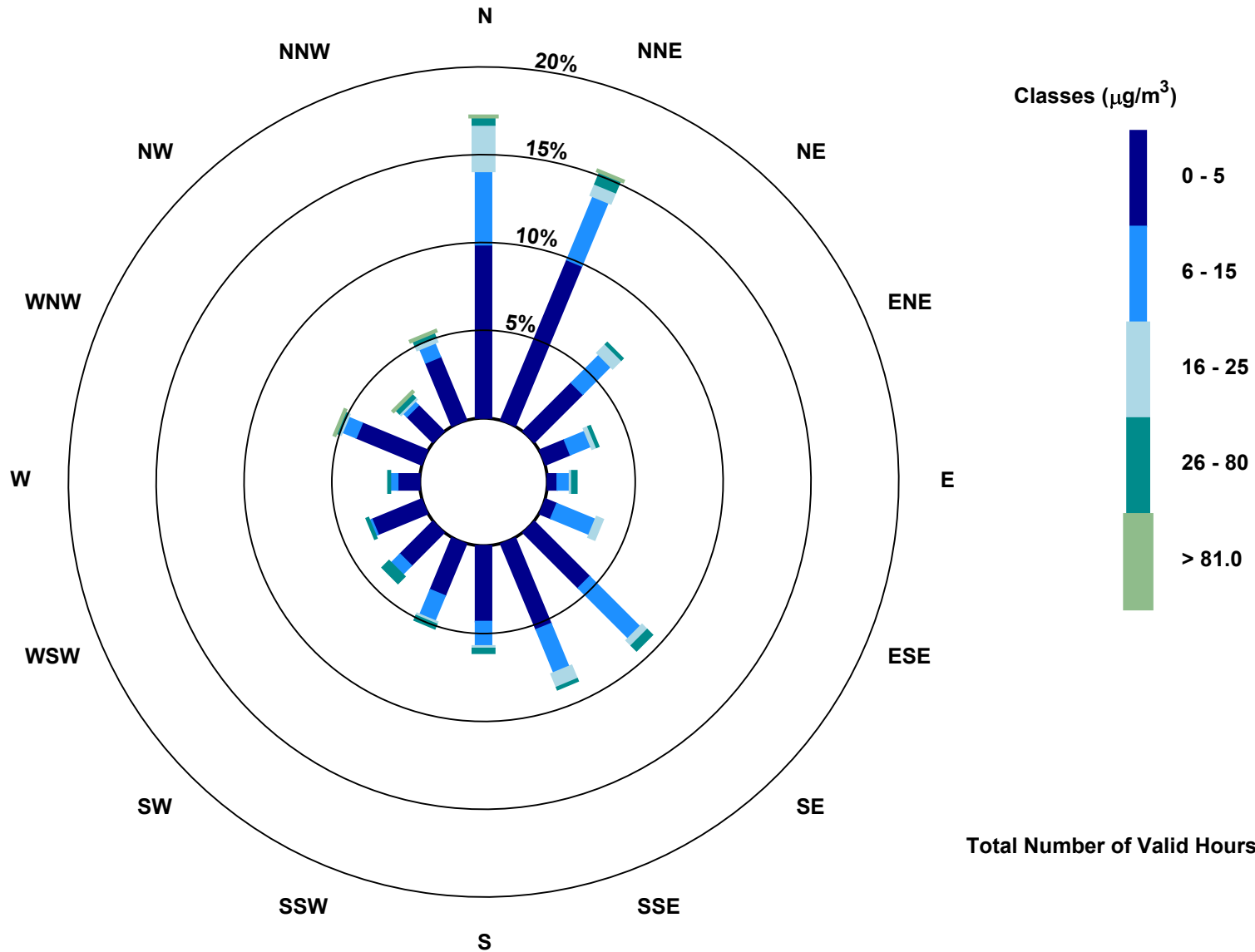
Total Number of Valid Hours: 719

Total Number of Hours: 720



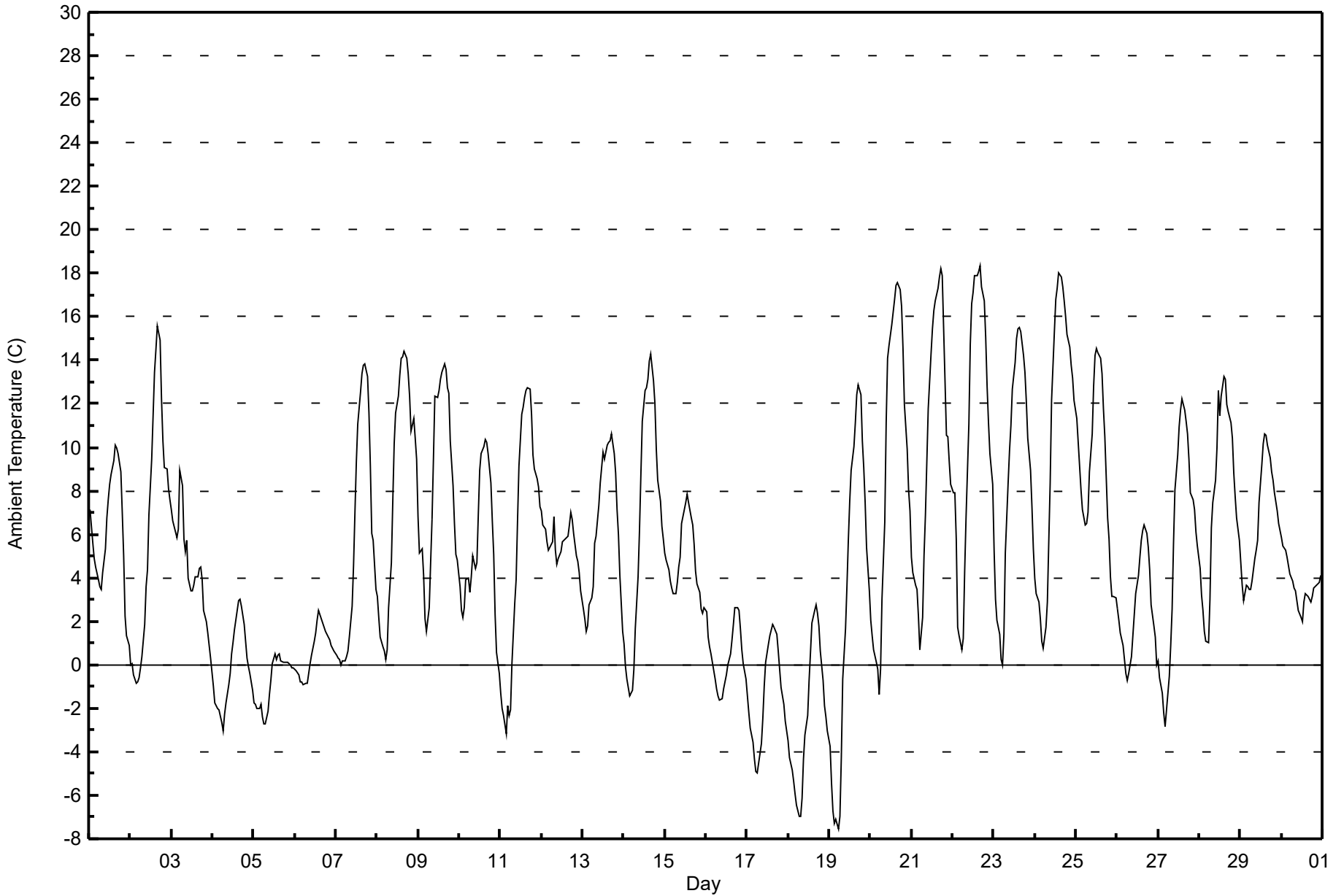
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort Hills





Maximum Value: 18.3 C on Apr 22 17:00		Maximum Daily Average: 10.9 C on Apr 22		Hours in Service: 720																																												
Minimum Value: -7.6 C on Apr 19 06:00		Minimum Daily Average: -2.4 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 9.9 C at hour 17		Minimum Diurnal Average: 0.5 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 5.23 C		Percentiles: P <sub>1</sub> = -6.4 P <sub>10</sub> = -1.1 Q <sub>1</sub> = 0.9 Median = 4.5 Q <sub>3</sub> = 9.3 P <sub>90</sub> = 13.2 P <sub>99</sub> = 17.8		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-Apr	7.1	6.4	5.6	4.9	4.5	3.9	3.6	3.5	4.2	5.4	6.7	7.6	8.3	8.7	9.4	10.1	10.0	9.7	8.8	7.0	5.0	2.2	1.3	0.9	6.0	10.1																						
2-Apr	0.0	0.1	-0.4	-0.8	-0.8	-0.6	-0.1	0.4	1.9	3.6	4.3	6.9	9.5	11.5	13.4	14.4	15.5	14.9	12.2	10.3	9.1	9.0	8.1	7.6	6.2	15.5																						
3-Apr	7.2	6.6	6.1	5.9	6.2	8.9	8.2	5.8	5.2	5.7	4.0	3.4	3.4	3.7	4.1	4.0	4.5	4.5	3.9	2.5	2.0	1.5	0.9	0.3	4.5	8.9																						
4-Apr	-1.0	-1.7	-1.9	-2.0	-2.1	-2.7	-3.0	-2.3	-1.7	-0.9	-0.4	0.5	1.0	1.6	2.5	3.0	3.0	2.7	1.9	1.1	0.3	-0.1	-0.4	-1.1	-0.2	3.0																						
5-Apr	-1.8	-1.8	-2.0	-2.0	-1.8	-2.4	-2.7	-2.7	-2.1	-1.4	-0.7	0.0	0.5	0.2	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.0	-0.1	-0.2	-0.8	0.5																						
6-Apr	-0.2	-0.3	-0.5	-0.8	-0.8	-0.9	-0.8	-0.8	-0.4	0.0	0.5	1.1	1.4	2.1	2.5	2.1	1.9	1.7	1.5	1.4	1.2	0.9	0.8	0.7	0.6	2.5																						
7-Apr	0.5	0.3	0.2	0.0	0.2	0.2	0.4	0.6	1.3	2.7	4.6	7.0	9.3	11.1	12.5	13.4	13.8	13.8	13.3	11.6	9.1	6.1	5.7	3.5	5.9	13.8																						
8-Apr	3.1	2.2	1.3	0.9	0.6	0.2	0.7	2.7	4.7	7.5	10.1	11.6	12.4	13.3	14.1	14.2	14.4	14.1	13.4	12.4	10.7	11.3	10.4	9.4	8.2	14.4																						
9-Apr	6.8	5.1	5.3	4.1	2.1	1.6	2.6	4.7	6.7	9.4	12.3	12.3	12.6	13.1	13.5	13.8	13.5	12.8	12.5	10.3	8.3	6.5	5.1	4.8	8.3	13.8																						
10-Apr	3.6	2.5	2.2	2.6	3.9	4.0	3.3	4.0	5.0	4.4	4.7	6.9	8.9	9.7	10.0	10.4	10.2	9.7	8.4	6.6	5.1	2.3	0.6	-0.4	5.4	10.4																						
11-Apr	-1.3	-2.0	-2.3	-3.1	-1.9	-2.4	-2.1	0.1	2.8	3.9	6.6	9.1	11.5	11.8	12.3	12.6	12.7	12.7	11.5	9.7	9.0	8.5	8.2	7.3	5.6	12.7																						
12-Apr	7.1	6.5	6.3	5.7	5.3	5.4	5.7	6.8	5.3	4.6	4.9	5.2	5.6	5.7	5.8	5.9	6.4	7.0	6.7	6.0	5.0	4.8	4.2	3.4	5.6	7.1																						
13-Apr	2.5	2.1	1.6	1.8	2.8	3.1	3.6	5.6	5.9	7.3	8.3	9.0	9.8	9.5	10.1	10.3	10.3	10.6	9.7	8.8	7.1	6.0	4.1	1.6	6.3	10.6																						
14-Apr	1.0	-0.1	-0.6	-1.4	-1.3	-1.2	-0.2	1.7	4.0	6.2	8.7	11.2	12.6	12.7	13.1	13.9	14.3	13.0	12.0	9.9	8.5	7.6	6.4	5.8	6.6	14.3																						
15-Apr	5.1	4.8	4.4	3.8	3.5	3.3	3.3	3.8	4.5	5.0	6.5	7.2	7.4	7.9	7.5	6.8	6.4	5.5	4.3	3.7	3.3	2.6	2.4	2.6	4.8	7.9																						
16-Apr	2.5	1.3	0.8	0.5	0.1	-0.7	-1.1	-1.5	-1.6	-1.6	-1.1	-0.8	-0.5	0.0	0.5	1.1	1.9	2.6	2.6	2.5	1.6	0.7	0.1	-0.6	0.4	2.6																						
17-Apr	-1.5	-2.2	-2.9	-3.6	-4.3	-4.9	-5.0	-4.5	-3.6	-2.5	-1.0	0.1	1.0	1.4	1.6	1.8	1.7	1.4	0.7	-0.2	-1.0	-1.8	-2.6	-3.0	-1.5	1.8																						
18-Apr	-3.5	-4.3	-4.8	-5.3	-5.9	-6.5	-7.0	-7.0	-6.2	-4.4	-3.2	-2.3	-0.7	0.6	1.9	2.5	2.7	2.4	1.8	0.7	-0.7	-1.9	-2.4	-3.0	-2.4	2.7																						
19-Apr	-3.7	-5.5	-6.7	-7.3	-7.1	-7.6	-7.0	-4.3	-0.6	1.7	3.6	5.7	7.5	9.0	10.0	11.1	12.4	12.9	12.4	10.3	9.1	7.5	5.4	3.4	3.0	12.9																						
20-Apr	2.1	1.4	0.7	0.1	-0.2	-1.3	-0.2	3.0	6.6	11.1	14.1	14.6	15.6	16.2	16.8	17.4	17.6	17.2	16.5	14.6	12.0	9.9	8.0	7.0	9.2	17.6																						
21-Apr	4.9	4.3	3.7	3.4	2.3	0.7	2.2	5.0	6.9	9.3	11.8	14.3	15.4	16.3	16.7	17.3	17.8	18.2	17.9	15.5	10.6	10.5	9.4	8.3	10.1	18.2																						
22-Apr	7.9	7.9	5.8	1.8	1.3	0.7	1.2	4.3	6.8	11.0	14.8	16.6	17.1	17.9	17.9	18.1	18.3	17.4	16.8	15.0	12.8	11.1	9.7	8.3	10.9	18.3																						
23-Apr	5.2	3.0	2.0	1.4	0.3	0.0	1.4	5.1	8.3	9.9	11.0	12.7	13.9	15.0	15.4	15.5	15.3	14.2	13.4	12.1	10.4	8.9	7.3	5.3	8.6	15.5																						
24-Apr	4.0	3.3	2.9	2.1	1.1	0.7	1.8	2.9	5.6	8.4	12.1	15.3	16.8	17.3	18.0	17.8	17.4	16.8	16.0	15.2	14.6	13.8	13.2	12.2	10.4	18.0																						
25-Apr	11.3	10.2	9.1	8.0	7.2	6.4	6.5	7.0	8.9	10.6	12.8	14.2	14.5	14.3	14.1	13.4	11.8	10.5	6.8	5.8	4.1	3.1	3.1	3.1	9.0	14.5																						
26-Apr	2.6	2.0	1.5	0.9	0.2	-0.4	-0.7	-0.4	0.4	1.3	2.3	3.3	4.1	5.0	5.7	6.2	6.4	6.0	5.4	4.4	2.8	1.8	1.3	0.0	2.6	6.4																						
27-Apr	0.1	-0.6	-1.3	-2.2	-2.9	-2.1	-0.5	0.9	2.6	5.6	8.0	9.6	10.9	11.7	12.2	11.7	11.2	10.6	9.5	7.9	7.6	7.2	6.1	5.4	5.4	12.2																						
28-Apr	4.5	3.2	2.5	1.5	1.1	1.0	3.0	6.3	7.5	8.5	10.0	12.6	11.5	12.3	13.3	13.1	12.0	11.6	11.2	10.4	8.8	7.7	6.7	5.7	7.8	13.3																						
29-Apr	4.7	3.7	2.9	3.7	3.6	3.4	3.4	3.9	4.9	5.3	5.7	7.5	9.2	10.2	10.6	10.6	10.1	9.5	8.9	8.5	7.9	7.0	6.5	6.2	6.6	10.6																						
30-Apr	5.9	5.5	5.3	4.9	4.6	4.2	3.9	3.5	3.4	2.9	2.5	2.2	2.0	2.9	3.3	3.1	3.0	2.9	3.2	3.5	3.7	3.7	3.8	4.1	3.7	5.9																						
																								2.9	2.1	1.5	1.0	0.7	0.5	0.8	1.9	3.2	4.7	6.2	7.5	8.4	9.1	9.6	9.9	9.9	9.6	8.8	7.6	6.3	5.3	4.4	3.6	Diurnal Average
																								11.3	10.2	9.1	8.0	7.2	8.9	8.2	7.0	8.9	11.1	14.8	16.6	17.1	17.9	18.0	18.1	18.3	18.2	17.9	15.5	14.6	13.8	13.2	12.2	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Fort Hills - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	123	17.08	17.08
0 - 10	439	60.97	78.06
10 - 20	158	21.94	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

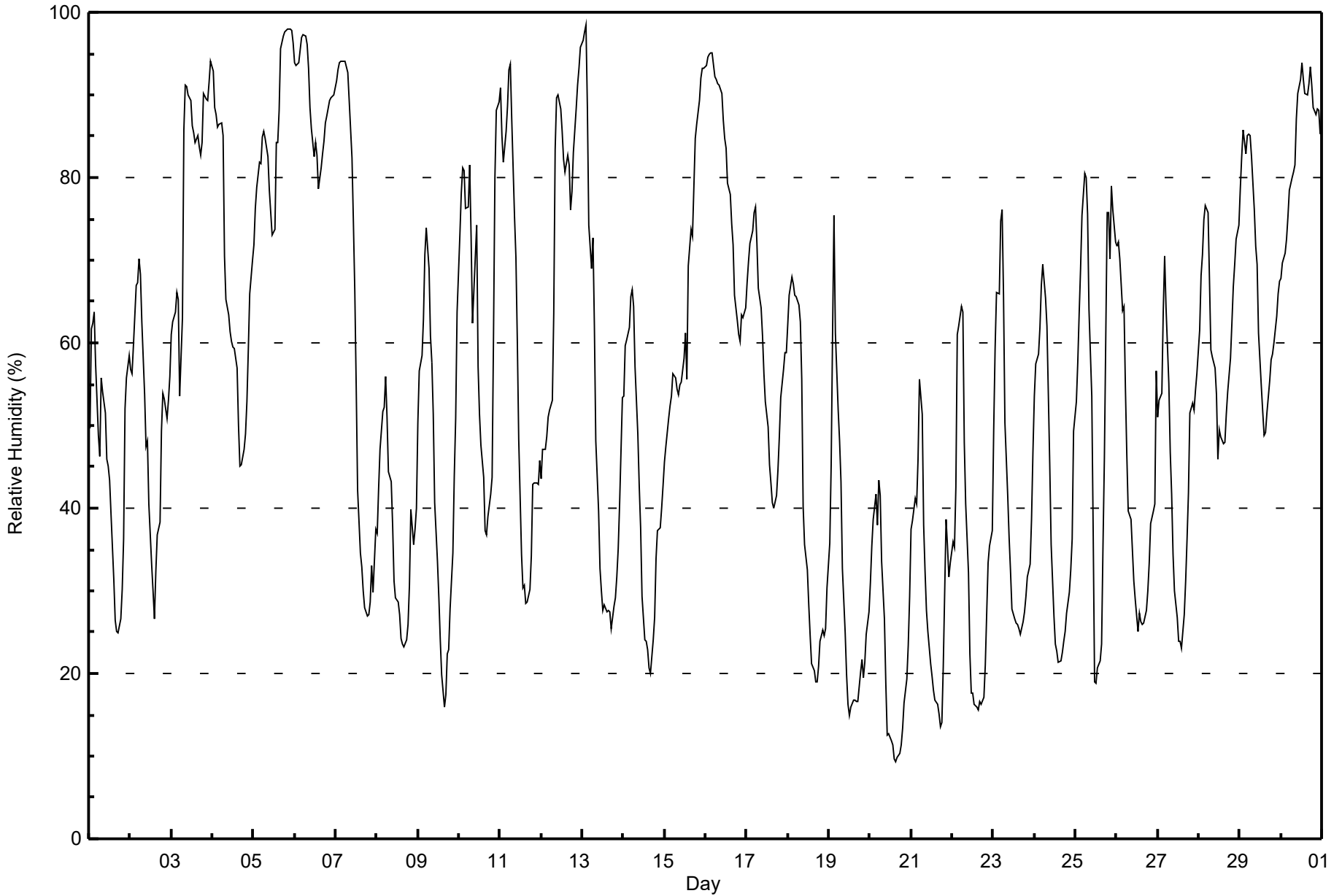
**Fort Hills - April 2024**

<b>Maximum Value: 98.4 % on Apr 13 03:00</b> <b>Maximum Daily Average: 89.2 % on Apr 6</b>																						<b>Hours in Service: 720</b>																										
<b>Minimum Value: 9.3 % on Apr 20 16:00</b> <b>Minimum Daily Average: 22.9 % on Apr 20</b>																						<b>Hours of Data: 720</b>																										
<b>Maximum Diurnal Average: 70.5 % at hour 5</b> <b>Minimum Diurnal Average: 40.3 % at hour 16</b>																						<b>Hours of Missing Data: 0</b>																										
<b>Monthly Average: 54.99 %</b> <b>Percentiles: P<sub>1</sub> = 12.5 P<sub>10</sub> = 23.9 Q<sub>1</sub> = 33.8 Median = 54.2 Q<sub>3</sub> = 75.3 P<sub>90</sub> = 89.3 P<sub>99</sub> = 97.3</b>																						<b>Hours of Calibration: 0</b>																										
																						<b>Percent Operational Time: 100.0</b>																										
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-Apr	49.7	61.8	62.5	63.8	57.5	48.8	46.2	55.8	54.0	51.5	45.9	45.0	43.4	39.4	31.4	26.5	25.2	24.9	26.5	30.2	36.2	52.0	55.8	58.4	45.5	63.8																						
2-Apr	56.9	56.3	59.7	67.0	67.3	70.1	68.2	62.5	53.7	47.4	48.2	40.6	33.2	30.0	26.7	32.4	36.7	38.2	49.3	54.0	53.2	50.8	53.1	55.9	50.5	70.1																						
3-Apr	61.0	62.5	63.7	66.1	65.2	53.6	63.1	85.8	91.1	91.0	90.0	89.3	86.3	85.4	84.2	85.0	83.7	82.7	84.2	90.1	89.6	89.3	91.5	94.1	80.3	94.1																						
4-Apr	93.0	88.5	87.6	86.0	86.4	86.6	85.1	70.5	65.2	63.4	61.4	60.1	59.4	59.4	57.0	50.1	45.2	45.2	47.1	49.0	52.9	59.2	65.9	69.9	66.4	93.0																						
5-Apr	71.8	76.2	78.8	81.9	81.7	84.9	85.6	84.8	82.5	78.4	75.8	73.1	73.7	84.3	84.2	88.2	95.5	97.1	97.7	97.8	97.9	97.9	97.8	96.2	86.0	97.9																						
6-Apr	93.9	93.6	93.8	95.5	96.9	97.3	97.1	96.1	93.3	88.5	85.9	82.5	84.2	82.7	78.7	81.1	82.9	84.4	86.7	87.4	89.3	89.6	89.9	89.9	89.2	97.3																						
7-Apr	91.6	93.1	93.8	94.0	94.0	94.1	93.4	92.7	89.3	82.3	74.6	66.3	54.7	42.3	34.6	32.9	30.0	28.0	26.9	27.2	28.6	33.0	29.9	37.5	61.0	94.1																						
8-Apr	36.9	42.4	47.2	51.6	52.2	55.8	51.1	44.5	43.2	38.0	31.2	29.1	28.6	27.1	24.2	23.5	23.1	24.1	25.9	30.7	39.8	35.7	37.4	40.1	36.8	55.8																						
9-Apr	50.3	56.6	58.5	62.8	70.7	73.9	68.9	60.8	57.5	51.3	40.7	33.6	29.2	24.1	19.8	15.9	17.5	22.4	22.9	27.8	34.6	43.9	50.8	63.7	44.1	73.9																						
10-Apr	73.0	78.1	81.2	80.8	76.2	76.4	81.5	72.9	62.4	70.3	74.2	57.2	51.3	47.6	43.7	37.4	36.8	39.0	41.7	43.8	60.9	80.0	88.1	89.2	64.3	89.2																						
11-Apr	90.9	85.1	81.9	85.7	88.6	93.0	93.8	87.2	75.2	70.3	60.2	48.4	34.5	30.3	30.7	28.6	28.6	30.1	34.2	42.9	43.1	43.0	42.8	45.8	58.1	93.8																						
12-Apr	43.6	47.1	47.2	48.7	51.0	51.8	53.0	63.6	83.4	89.7	90.1	88.3	85.6	82.2	80.7	82.6	81.5	76.1	78.3	83.1	88.2	91.1	93.2	95.7	74.0	95.7																						
13-Apr	96.7	97.7	98.4	88.6	74.2	68.9	72.7	62.0	48.2	39.6	32.7	30.0	27.6	28.2	27.5	27.6	27.5	25.4	28.2	29.2	31.7	35.1	40.5	53.5	49.6	98.4																						
14-Apr	53.6	59.7	60.3	61.9	65.6	66.4	64.4	57.1	49.0	42.8	37.6	29.4	24.0	24.0	22.9	20.6	20.0	24.1	26.9	33.9	37.3	37.6	40.0	42.6	41.7	66.4																						
15-Apr	45.6	47.4	50.9	52.4	53.6	56.2	55.8	54.4	53.7	54.9	55.3	58.1	61.1	55.5	69.3	73.7	72.8	78.8	84.7	86.5	89.3	92.0	93.3	93.2	66.2	93.3																						
16-Apr	93.6	94.6	95.0	95.1	95.1	92.1	91.9	91.4	91.2	90.1	87.0	84.7	83.5	79.4	77.9	74.4	71.9	65.8	62.7	60.9	60.2	63.3	63.1	64.2	80.4	95.1																						
17-Apr	67.3	69.9	72.0	73.6	75.7	76.5	72.0	66.6	64.3	60.9	56.3	53.0	49.8	45.2	43.1	40.7	40.0	41.5	44.6	48.7	53.5	56.8	58.8	58.7	57.9	76.5																						
18-Apr	62.3	65.8	68.0	67.1	65.8	65.7	64.5	62.5	55.5	40.1	35.6	32.6	28.2	24.6	21.1	20.4	19.1	19.1	20.8	23.9	25.3	24.6	25.4	30.4	40.3	68.0																						
19-Apr	35.8	45.3	61.2	75.4	61.1	51.8	48.2	43.2	32.7	24.9	19.8	16.3	14.9	16.0	16.9	16.9	16.6	16.5	20.1	21.7	19.5	21.4	24.7	27.5	31.2	75.4																						
20-Apr	31.1	35.4	38.7	41.8	38.0	43.3	41.6	33.6	26.6	18.8	12.5	12.7	11.9	11.3	9.7	9.3	9.8	10.4	11.3	13.5	16.5	19.3	23.4	29.3	22.9	43.3																						
21-Apr	37.4	38.4	41.1	40.5	45.9	55.6	51.4	38.0	32.4	27.6	25.0	21.2	19.6	17.9	16.8	16.3	15.2	13.5	14.0	20.9	38.6	35.4	31.8	33.4	30.3	55.6																						
22-Apr	35.9	35.2	42.5	61.0	62.1	64.3	63.8	47.9	40.4	32.1	22.4	17.5	17.6	16.4	15.9	15.6	16.5	16.3	17.1	21.0	27.3	33.3	35.4	37.3	33.1	64.3																						
23-Apr	49.4	59.3	66.1	65.9	74.8	76.1	65.8	50.4	41.6	36.4	32.4	27.8	26.7	26.1	26.0	25.5	24.8	26.2	27.4	29.4	31.7	33.2	38.6	46.8	42.0	76.1																						
24-Apr	53.5	57.5	58.6	61.9	66.9	69.5	65.4	62.1	53.7	45.2	35.6	27.0	23.6	22.7	21.3	21.5	22.6	23.9	25.1	27.2	29.8	32.5	36.2	49.3	41.4	69.5																						
25-Apr	52.8	57.7	63.5	69.0	75.4	80.4	80.0	75.7	64.0	53.6	37.1	19.0	18.8	20.7	21.6	23.6	35.4	46.2	75.7	75.8	70.2	78.9	76.1	72.2	56.0	80.4																						
26-Apr	71.7	72.1	70.1	63.8	64.4	54.5	46.4	39.6	38.6	34.9	31.2	29.0	25.1	27.3	26.3	25.9	26.1	27.7	30.1	33.3	38.1	39.7	40.5	56.7	42.2	72.1																						
27-Apr	51.1	53.0	54.0	63.7	70.6	64.2	55.1	46.8	41.7	34.4	29.9	26.8	23.9	23.9	23.1	27.1	31.2	36.3	41.8	51.5	52.8	51.8	54.3	56.3	44.4	70.6																						
28-Apr	61.5	68.1	70.7	74.9	76.6	75.7	67.7	59.1	58.4	56.9	53.8	46.0	49.5	48.6	47.9	47.9	51.4	54.1	58.1	62.4	66.8	69.4	72.6	74.3	61.3	76.6																						
29-Apr	78.7	82.6	85.8	82.9	85.0	85.2	85.0	82.6	76.0	71.6	69.5	61.1	54.8	51.6	48.8	49.1	51.5	55.5	57.9	58.7	60.0	63.2	65.9	67.4	68.0	85.8																						
30-Apr	67.8	69.7	70.9	72.5	75.3	78.4	80.0	80.8	81.6	87.1	90.1	91.8	93.8	91.9	90.2	90.0	91.4	93.3	91.1	88.4	87.6	88.3	88.1	85.3	84.4	93.8																						
																								61.9	65.0	67.5	69.9	70.5	70.4	68.6	64.4	60.0	55.8	51.4	46.6	44.0	42.2	40.7	40.3	41.0	42.2	45.3	48.4	51.7	54.7	56.8	60.5	Diurnal Average
																								96.7	97.7	98.4	95.5	96.9	97.3	97.1	96.1	93.3	91.0	90.1	91.8	93.8	91.9	90.2	90.0	95.5	97.1	97.7	97.8	97.9	97.9	97.8	96.2	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Fort Hills - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Fort Hills - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	44	6.11	6.11
20 - 40	186	25.83	31.94
40 - 60	180	25.00	56.94
60 - 80	159	22.08	79.03
80 - 100	151	20.97	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



Maximum Speed: 38 km/h on Apr 16 12:00	Maximum Daily Speed Average: 30.3 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 2 11:00	Minimum Daily Speed Average: 2.6 km/h on Apr 21	Hours of Data: 720
Maximum Diurnal Speed Average: 5.9 km/h at hour 18	Minimum Diurnal Speed Average: 2.7 km/h at hour 13	Hours of Missing Data: 0
Monthly Average Velocity: 4.0 km/h 19.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 18 P <sub>90</sub> = 25 P <sub>99</sub> = 35	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	WSW17	NW19	NNW10	W10	W17	W18	WNW18	WNW24	NW23	NW19	NNW18	NW20	WNW18	WNW15	WNW16	NW24	WNW20	WNW20	WNW14	NW8	NW5	SW3	WNW3	SSE7	WNW13.7	NW24
2-Apr	S6	SSE7	SE8	SE9	SE8	SE6	SSE6	S7	SSW6	SSW10	W1	SSW5	SSW8	SSE16	SSE23	S27	S22	SSE19	SSE18	SE16	SSE14	SSE7	SE7	ESE8	SSE10.2	S27
3-Apr	SE11	SE6	SE6	SE7	SSE2	W6	WNW15	WNW10	SSW5	NNW4	N13	NNE10	NNE15	NNE12	NNE11	NNE9	ENE8	NE10	ENE10	NE10	NE7	NE9	N5	NE9	NNE4.8	WNW15
4-Apr	NE12	NE12	NNE7	NNE9	N7	N11	NW4	N8	N9	ENE7	ENE8	ENE6	ENE6	E6	ENE7	ENE12	ENE10	E9	NE10	NE12	NE11	NNE7	NE6	NNE9	NE7.4	NE12
5-Apr	N10	N8	N9	NNE9	NE6	N7	N12	N14	N12	N12	N14	NNE14	NNE14	N18	NNE15	NNE12	N10	N12	N11	N9	N11	N10	N8	N8	N11.0	N18
6-Apr	NNE6	N7	NNW9	N9	NNE10	NE10	NNE7	N10	N11	NNE10	N11	NNE10	NNE12	NNE12	NE9	ESE8	NE10	NE10	NE6	NNE6	N6	NW4	NW2	WNW4	NNE7.3	NNE12
7-Apr	S2	SE4	SSE5	S9	SSW11	SSW11	SSW11	S12	S16	SSW18	SSW17	SSW15	SW18	SW18	SW21	WSW17	SW17	WSW15	WSW16	SW13	SW10	SW8	SW7	SSW9	SSW11.5	SW21
8-Apr	S8	S7	S8	SE8	SE8	SSE13	SSE12	S13	SE13	S12	SSW18	SW19	SW19	SW19	SW20	SW18	SW17	SW11	SSW6	SE4	ESE7	SSE14	W5	WNW7	SSW9.3	SW20
9-Apr	NNW6	SSW4	SE4	SSW4	N2	S4	SSE2	SE7	SE9	SE10	SSE6	SW21	WSW23	WSW21	WSW21	WSW20	WSW19	WNW18	WNW15	WNW10	W7	NNW6	NW8	N13	WSW6.4	WSW23
10-Apr	N9	NNW5	W5	WSW6	NW11	NNW21	NNW18	NNW17	NNW17	NNW22	NNW14	NNW12	N17	NNE22	NNE20	NNE20	NNE16	NE16	NE12	NE11	E6	ENE3	WNW2	NNW3	N10.5	NNE22
11-Apr	NNW2	N2	W2	SSW2	SE6	S4	S3	WSW2	W1	NW4	SE5	SE7	SE11	SE19	SE23	SSE24	SSE25	SE24	SE22	SE18	SE25	SE25	SSE23	SSE11	SE10.9	SE25
12-Apr	SSE7	SE8	SE9	SE11	SE10	SE12	SE13	S23	S29	SSE29	SSE25	SSE25	SSE26	SSE26	SSE20	SE20	SE19	SSE18	SSE15	SSE13	SSE9	SSE15	S5	S8	SSE16.0	SSE29
13-Apr	SSE10	SSE9	S10	S10	SW12	SW18	WSW12	NW16	NW13	WNW16	WNW22	WNW22	WNW27	WNW24	WNW22	WNW23	WNW19	WNW20	NW12	WNW9	WNW7	WNW8	WNW5	WSW1	W11.2	WNW27
14-Apr	SW5	S6	SSE5	SSE7	SE8	SE9	SSE10	SSE11	SE9	SE11	ESE8	ESE9	ESE10	ESE10	SE8	ENE4	NNE8	NE19	NE18	NNE14	NNE16	N16	N20	N13	ENE5.3	N20
15-Apr	N12	NNE14	N12	N13	N13	N11	N8	N7	NNE11	N16	N14	N14	NNE16	NE16	E17	ENE18	ENE28	ENE32	NE33	NE25	NNE22	NNE26	N27	NNE28	NNE16.6	NE33
16-Apr	NNE30	N31	N31	N35	N36	N36	N34	N37	N34	N36	NNE38	NNE38	NNE34	NNE36	NNE36	NNE35	NNE29	NNE26	NNE21	NNE18	NNE20	N18	N23	N24	NNE30.3	NNE38
17-Apr	NNE25	NNE26	NNE26	N24	N24	N22	NNE27	NNE26	NNE25	NNE25	NNE23	NNE26	NNE26	NNE30	NNE30	NNE29	NNE27	NNE26	NNE25	N18	N12	N10	N9	N12	NNE23.1	NNE30
18-Apr	N14	N15	N17	N20	N19	N22	NNE24	NNE23	N21	NNE21	NNE22	NNE24	NNE23	NNE23	NNE22	NNE22	NNE23	NNE22	N19	N15	N10	N9	N9	N7	NNE18.5	NNE24
19-Apr	N7	NW3	SW2	SSW3	SSE4	SSE7	SSE8	SSE7	S9	SSW12	SSW10	SSW7	S7	SE14	SE17	SE18	ESE15	ESE11	ESE7	S7	SW13	SW12	SW9	S6	SSE6.3	SE18
20-Apr	SSE8	S11	SSW9	SSW11	S8	SSE9	SSE9	S10	SSW10	SW8	WNW11	WSW14	WSW16	WSW15	WSW16	WSW15	SW11	SSW13	SSW14	S12	SSW11	SSW10	S6	SSE7	SSW9.1	WSW16
21-Apr	SSE6	SSE7	SSE8	SE9	SE9	SE6	SSE7	SSE11	SSE11	SE10	SE7	ESE8	SSE3	WSW3	SE7	SE1	WNW6	NNW4	N5	NE5	NNE5	N9	N14	N13	ESE2.6	N14
22-Apr	N16	N18	NNW7	W4	WSW3	WNW4	NW3	NNW7	N10	N12	NNE13	NE13	E10	NE8	ENE10	NE14	NNE19	NNE21	NNE16	NE12	NNE13	NNE17	N15	N9	NNE9.8	NNE21
23-Apr	ENE1	S1	NNW3	SW2	WNW1	NW3	NW2	N5	NNE7	ESE4	SE5	NE5	NE8	ENE11	ENE13	NE13	NE16	NE16	NE17	NE16	NE16	NE16	NNE10	NNE9	NE7.2	NE17
24-Apr	N9	N11	N11	N10	N13	N11	N12	N12	N14	N14	NNE13	ENE10	ESE13	ESE18	ESE20	E15	ESE16	E15	E14	ENE10	E9	ESE12	ESE14	ESE15	ENE8.4	ESE20
25-Apr	ESE7	NE7	N6	NNW12	W7	WSW7	SSW7	SSW10	SSW15	SW17	WSW18	W20	W21	WSW25	WSW25	WSW28	W25	WNW27	WNW14	NNW17	NNW21	NNW10	NW10	NNW16	W10.8	WSW28
26-Apr	NNW14	NNW12	NNW16	NNW23	NNW15	NNW21	NNW20	NNW26	NNW22	NNW17	NNW13	NNW14	NNW16	NNE11	NNE13	NNE12	NNE14	NE14	ENE13	ENE10	ENE8	E6	E5	S4	N11.3	NNW26
27-Apr	SSE9	SSE10	SSE6	S2	SSE7	S9	S14	S13	SSW14	S10	SSE13	SSE18	S22	S21	S23	SSW27	SSW21	SSW19	SSW23	S18	SSE13	SE13	SE12	SE11	S13.7	SSW27
28-Apr	ESE1	N7	N11	N10	N8	N9	N6	SSE5	SSE10	S4	SE10	SE10	S18	SSE13	ESE13	SE14	SE18	SE17	SE15	ESE16	SE18	SE15	SE10	SE12	SE7.4	SE18
29-Apr	SSE8	SE5	ESE3	E3	N2	NNW6	N8	N11	NE15	NE15	NE13	NE11	NE10	NE12	NE19	NE21	NE21	NNE25	NNE24	NNE23	NNE21	NNE20	N21	NNE19	NNE12.5	NNE25
30-Apr	NNE21	NNE21	NNE21	N23	N28	N31	NNE30	NNE31	NNE29	NNE27	N27	NNE24	NNE27	N29	N30	N30	N25	N24	N25	N22	N24	NNE30	NNE28	NNE22	N26.3	N31

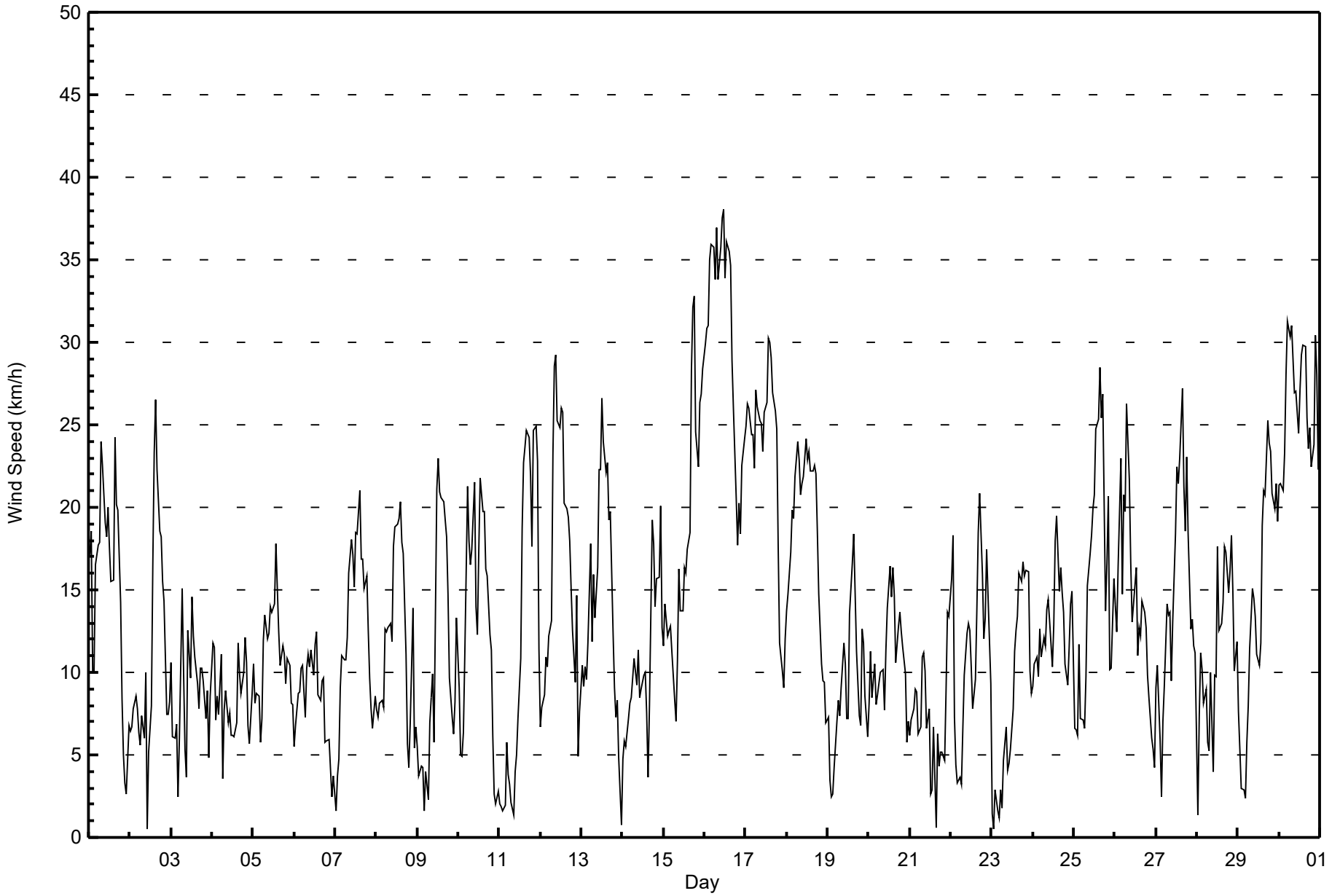
NNE3.8	NNE4.5	NNE4.2	N3.8	N3.8	N4.2	N3.9	N4.3	N3.6	N4.0	N4.7	N3.7	N2.7	NNE2.8	NE2.8	NE3.1	NNE4.0	NNE5.9	NE5.9	NE5.8	NE5.0	NE4.6	NNE4.7	NNE4.9	Diurnal Average	
NNE30	N31	N31	N35	N36	N36	N34	N37	N34	N36	NNE38	NNE38	NNE34	NNE36	NNE36	NNE35	NNE29	ENE32	NE33	NE25	SE25	NNE30	NNE28	NNE28	Diurnal Maximum	

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Fort Hills - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Hills - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	81	11.25	11.25
6 - 11	258	35.83	47.08
12 - 19	219	30.42	77.50
20 - 28	130	18.06	95.56
29 - 38	32	4.44	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Hills - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	6	1	2	3	2	3	7	7	9	6	4	4	5	7	9	6	81
6 - 11	49	20	20	14	6	12	35	32	20	17	7	2	3	9	4	8	258
12 - 19	39	25	24	4	4	9	19	15	8	11	14	12	2	11	5	17	219
20 - 28	18	48	3	1	0	1	6	9	6	3	3	7	3	11	3	8	130
29 - 38	12	16	1	1	0	0	0	1	1	0	0	0	0	0	0	0	32
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	124	110	50	23	12	25	67	64	44	37	28	25	13	38	21	39	720

Total Number of Valid Hours: 720

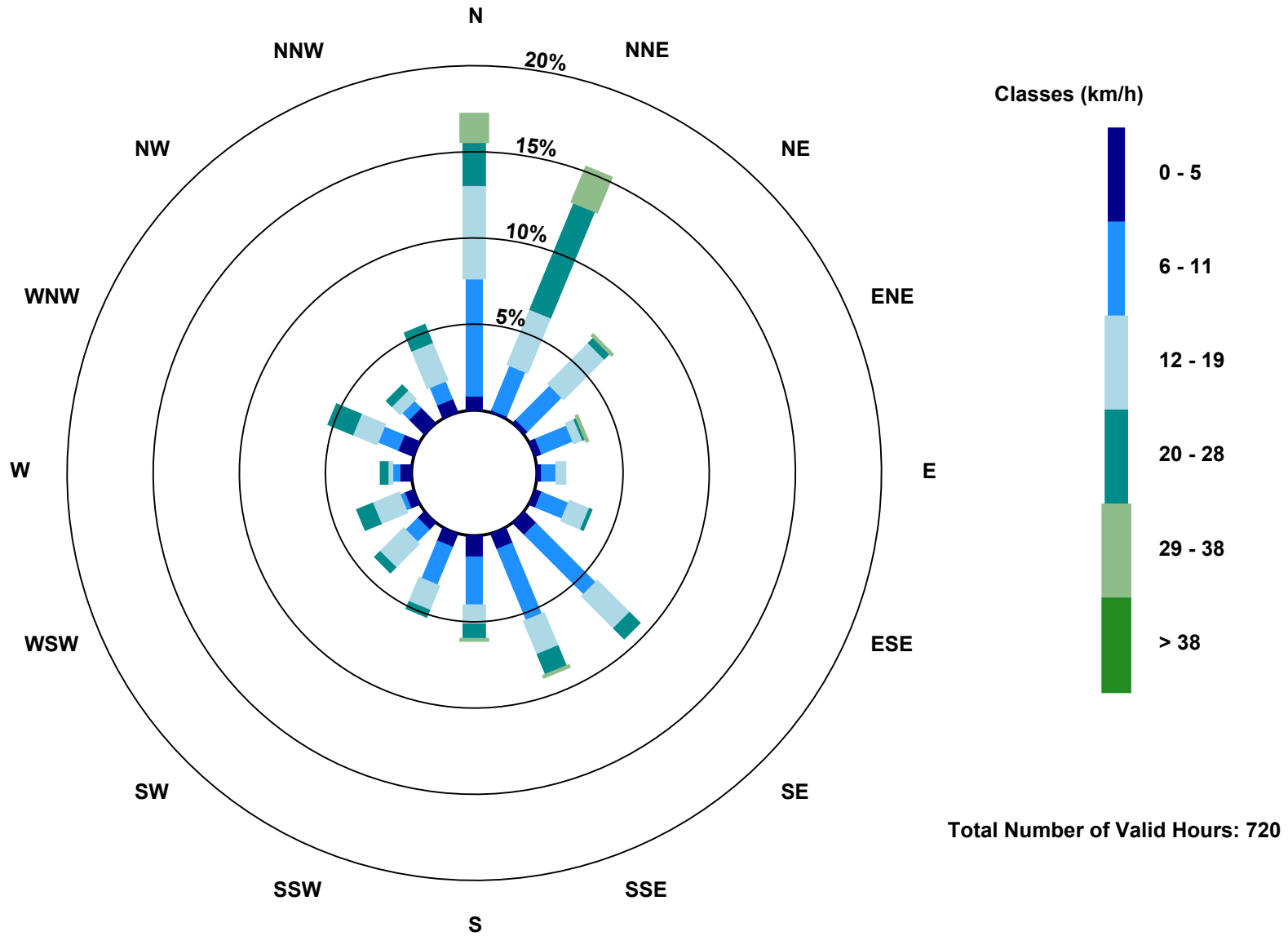
Total Number of Hours: 720





Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Fort Hills





**Wood Buffalo Environmental Association**

**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**

**Fort Hills - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Apr 10 10:00 Minimum Value: 1 km/h on Apr 19 04:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	6	7	5	3	3	4	5	6	6	5	5	4	5	5	4	6	5	4	3	2	3	2	2	2	7
2-Apr	1	1	1	1	1	1	2	2	1	2	2	1	2	5	3	5	4	3	2	2	3	2	3	2	5
3-Apr	2	2	2	2	3	3	3	3	2	4	2	2	3	2	3	3	2	2	2	1	2	3	2	2	4
4-Apr	2	2	3	2	2	3	2	3	2	2	2	2	2	2	3	3	3	2	2	2	2	1	2	2	3
5-Apr	1	1	1	2	2	2	2	2	2	2	2	2	2	3	4	3	3	2	2	2	2	2	3	2	4
6-Apr	2	2	2	2	2	2	1	2	2	2	2	2	3	3	3	2	2	2	2	1	1	1	2	1	3
7-Apr	1	2	1	1	2	3	2	2	3	3	3	3	4	4	5	4	4	4	3	2	1	2	2	2	5
8-Apr	2	1	1	1	2	2	2	2	3	3	4	4	4	5	5	4	4	3	1	1	2	4	3	2	5
9-Apr	1	1	3	2	1	1	2	3	2	2	6	5	5	5	6	5	4	5	4	2	1	3	2	3	6
10-Apr	2	3	2	2	6	4	5	4	4	4	10	5	4	4	3	4	3	3	3	2	1	1	2	1	10
11-Apr	1	1	1	2	1	1	2	1	2	1	2	2	4	4	5	4	4	5	5	4	3	4	3	4	5
12-Apr	1	2	1	2	2	2	2	6	7	5	4	3	4	4	3	3	3	3	2	2	2	6	2	2	7
13-Apr	2	1	1	2	3	4	3	4	4	7	6	6	6	6	5	6	4	5	3	2	1	1	2	2	7
14-Apr	2	1	2	2	1	1	1	2	2	2	2	2	4	4	3	3	3	3	4	2	3	3	3	4	4
15-Apr	2	2	2	2	2	2	2	2	3	3	3	2	3	3	5	4	6	7	7	6	5	5	4	5	7
16-Apr	5	5	6	6	6	7	7	7	7	7	7	7	7	7	7	7	6	5	6	5	4	3	4	4	7
17-Apr	4	5	5	4	4	4	5	5	5	4	4	5	5	6	6	5	5	5	4	4	2	2	2	2	6
18-Apr	2	2	3	3	3	4	4	4	3	4	4	4	4	5	4	5	4	4	3	2	2	1	1	2	5
19-Apr	2	2	1	1	1	1	1	1	2	3	4	3	3	4	3	3	5	3	2	4	2	1	1	1	5
20-Apr	1	2	1	3	1	1	1	2	1	3	4	4	5	5	4	4	5	3	2	1	1	1	1	2	5
21-Apr	2	1	1	1	1	1	2	2	2	2	3	2	3	2	4	3	3	2	2	1	2	2	2	2	4
22-Apr	2	2	6	2	1	1	1	2	3	2	3	4	3	4	3	4	5	5	4	2	3	3	2	3	6
23-Apr	1	2	1	1	1	1	1	3	2	3	3	3	3	4	4	4	3	3	3	3	3	3	2	2	4
24-Apr	2	3	2	1	2	2	2	2	2	2	3	3	4	5	5	4	5	4	5	4	5	4	4	6	6
25-Apr	3	1	1	3	1	2	2	2	3	4	4	5	6	6	7	6	9	8	6	7	4	4	3	3	9
26-Apr	4	3	5	6	5	5	5	6	5	5	5	5	6	5	5	5	4	3	3	2	2	1	2	1	6
27-Apr	2	2	4	3	3	2	2	3	3	4	4	5	5	7	6	6	4	5	5	5	2	2	1	1	7
28-Apr	3	2	2	2	2	1	1	3	3	2	3	4	3	4	4	4	3	2	3	4	3	2	3	3	4
29-Apr	1	1	1	1	2	1	2	2	2	3	3	4	4	5	4	4	4	4	4	4	4	4	3	4	5
30-Apr	5	4	4	4	5	6	5	6	5	5	4	5	5	6	5	6	5	5	5	4	5	5	5	4	6
Diurnal Maximum																									



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Direction (WD) - deg

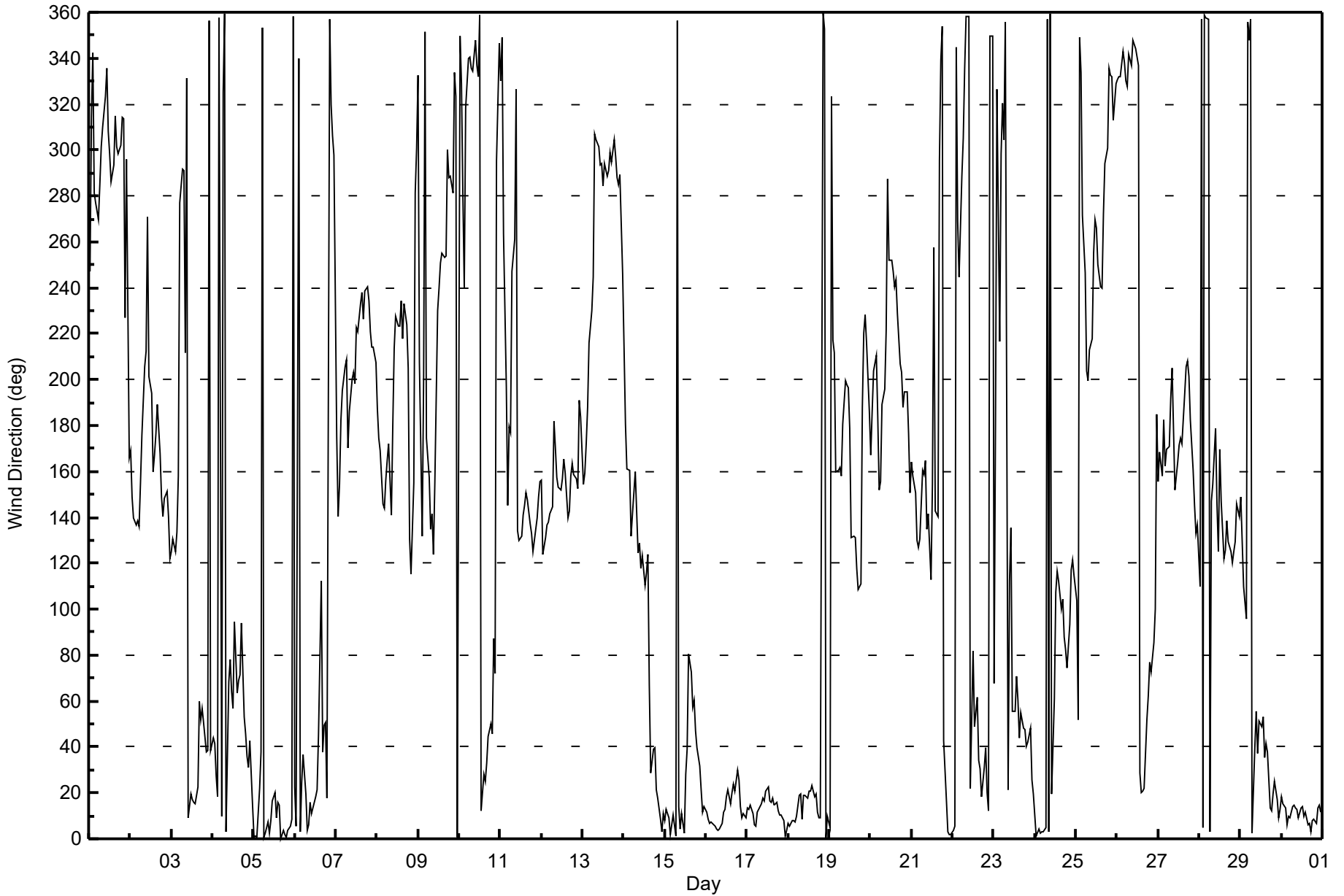
## Fort Hills - April 2024

Direction of Maximum Speed: 13 deg on Apr 16 12:00		Hours in Service:	720
Direction of Maximum Daily Speed Average: 12.1 deg on Apr 16		Hours of Data:	720
Direction of Minimum Speed: 271 deg on Apr 2 11:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 2.6 deg on Apr 21		Percent Operational Time:	100.0
Monthly Average Direction: 19.3 deg			

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-Apr	247	314	342	281	277	270	285	301	310	323	336	308	298	286	294	315	301	299	302	314	314	227	296	166	299.3
2-Apr	169	149	139	137	139	136	155	176	206	212	271	201	194	160	167	176	189	168	149	141	148	151	141	122	163.2
3-Apr	125	131	125	134	158	277	291	291	211	332	9	19	17	16	16	22	60	52	57	51	38	39	356	39	28.9
4-Apr	44	41	28	18	357	10	326	359	3	69	78	64	57	95	64	69	71	94	53	46	36	31	42	14	42.6
5-Apr	1	1	0	22	38	354	1	2	7	2	8	16	20	9	16	14	0	4	2	0	4	5	9	358	7.3
6-Apr	23	6	340	3	25	37	20	4	6	16	11	16	18	21	45	112	38	49	51	18	357	320	306	298	18.6
7-Apr	175	140	154	183	195	206	208	170	186	200	203	198	223	221	233	238	226	238	240	234	221	214	214	208	212.6
8-Apr	187	175	169	146	144	156	165	172	141	180	213	227	223	224	235	218	233	224	205	130	115	155	281	301	197.7
9-Apr	333	208	132	200	351	174	157	135	142	124	155	230	240	251	255	253	254	300	288	289	281	334	324	0	256.1
10-Apr	350	329	281	240	319	340	340	336	334	348	337	332	359	12	28	25	33	44	50	46	87	72	295	347	0.2
11-Apr	330	349	263	197	145	180	177	247	261	326	134	130	132	141	145	151	148	137	133	125	130	140	149	155	142.2
12-Apr	156	124	131	136	138	142	144	182	170	158	153	152	157	165	159	140	143	158	163	159	157	152	191	184	155.9
13-Apr	155	159	172	188	216	230	245	307	304	302	294	294	284	294	289	291	299	295	304	297	288	285	289	246	279.9
14-Apr	214	181	161	160	132	142	151	160	124	129	118	123	110	116	124	67	29	39	39	21	18	9	3	11	77.4
15-Apr	8	13	9	2	6	10	1	356	14	4	11	2	28	39	80	73	57	61	47	40	31	22	11	14	29.2
16-Apr	12	8	7	7	7	5	4	3	4	6	12	13	18	21	15	20	24	21	30	26	14	9	11	9	12.1
17-Apr	13	13	15	11	6	5	12	13	15	18	17	21	23	16	16	18	15	16	12	10	11	8	1	4	13.7
18-Apr	7	6	8	8	7	10	19	19	8	19	19	17	21	21	23	18	19	12	9	9	360	353	0	10	13.5
19-Apr	5	323	217	212	160	160	162	158	180	199	198	196	179	131	132	131	118	109	111	188	221	228	216	186	164.9
20-Apr	167	186	204	210	184	152	156	189	196	221	287	252	252	247	241	243	229	207	203	188	194	194	177	150	211.1
21-Apr	164	158	151	130	127	130	161	158	165	135	142	113	154	257	143	140	296	339	354	43	17	3	2	2	118.3
22-Apr	4	6	345	269	244	288	305	335	358	358	22	52	82	49	62	34	30	18	31	40	20	12	350	350	16.5
23-Apr	68	182	327	217	298	321	304	356	22	112	135	55	56	71	61	44	55	48	47	40	42	48	26	20	45.4
24-Apr	11	1	5	3	3	3	5	357	3	359	20	61	108	117	112	100	104	88	83	74	93	117	121	114	62.7
25-Apr	104	52	349	334	272	247	204	200	213	218	255	270	266	250	240	240	272	294	301	336	333	332	313	329	273.4
26-Apr	331	332	332	343	338	330	328	342	337	348	346	344	337	29	20	21	22	52	62	77	73	86	100	185	356.4
27-Apr	156	168	158	183	162	169	171	191	205	178	152	164	172	175	172	194	205	208	201	182	160	145	133	137	176.5
28-Apr	110	357	5	359	358	357	3	147	155	179	146	125	169	147	122	125	139	129	125	120	125	129	146	141	124.9
29-Apr	149	130	110	96	356	348	357	2	40	56	37	51	49	53	36	42	38	14	12	19	25	17	9	13	29.2
30-Apr	18	15	14	6	10	9	14	15	13	13	9	14	14	10	11	6	7	3	8	9	7	14	15	12	11.0

21.5	16.8	13.9	6.8	4.8	353.9	352.3	349.2	0.3	8.6	7.1	2.9	0.9	33.1	53.4	41.2	31.9	29.2	37.9	41.4	40.0	40.4	15.7	22.0
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**  
**Fort Hills - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Apr 21 16:00 Minimum Value: 6 deg on Apr 2 20:00														Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0											
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 12 Median = 15 Q <sub>3</sub> = 22 P <sub>90</sub> = 35 P <sub>99</sub> = 84																									
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-Apr	29	24	23	13	11	12	15	14	17	17	16	17	16	18	19	13	14	12	11	14	12	32	73	24	73
2-Apr	22	12	11	6	12	12	30	12	18	13	91	29	36	13	16	13	10	16	7	6	7	38	20	15	91
3-Apr	20	23	45	20	80	61	15	17	32	66	9	11	10	17	14	30	21	11	10	9	13	15	23	16	80
4-Apr	12	15	18	18	19	13	34	17	16	35	28	48	46	51	55	21	26	23	14	8	10	12	37	27	55
5-Apr	11	11	11	18	15	14	11	13	12	13	12	12	14	12	14	11	12	12	12	12	10	10	16	21	21
6-Apr	22	21	15	20	15	14	16	12	10	13	14	19	18	15	35	26	14	16	21	12	22	15	50	16	50
7-Apr	67	44	30	9	10	11	12	9	10	13	13	17	15	15	15	18	22	16	14	10	8	19	17	13	67
8-Apr	20	25	13	12	14	10	10	10	20	27	15	16	19	23	18	20	14	10	15	36	20	25	71	22	71
9-Apr	22	40	44	31	70	30	53	22	20	15	58	16	15	18	16	16	14	19	14	16	17	49	27	14	70
10-Apr	15	22	27	19	29	12	13	11	13	16	23	24	19	15	16	14	14	11	10	10	19	41	41	36	41
11-Apr	32	63	63	66	9	25	54	65	69	33	30	23	23	14	15	12	10	10	12	12	8	8	7	14	69
12-Apr	23	13	11	10	8	7	7	14	12	8	7	7	9	9	11	10	11	13	8	8	26	19	58	24	58
13-Apr	7	9	14	15	15	9	22	14	16	22	18	18	17	15	17	14	13	16	12	11	11	8	48	93	93
14-Apr	38	17	23	18	9	16	10	10	18	12	22	23	29	25	38	83	29	14	10	11	12	19	17	21	83
15-Apr	17	8	7	12	11	10	13	20	14	14	12	14	16	23	20	14	13	12	10	13	12	11	11	11	23
16-Apr	12	11	14	15	15	16	16	17	17	14	13	12	10	11	11	10	10	10	13	17	10	13	11	12	17
17-Apr	10	10	12	12	14	12	13	11	12	11	13	13	15	15	13	14	14	12	12	12	10	9	12	11	15
18-Apr	12	12	12	12	11	12	11	9	12	16	15	14	14	16	16	14	13	11	12	12	12	10	11	9	16
19-Apr	24	20	19	27	11	9	8	9	24	15	22	37	45	25	14	15	24	24	18	42	6	6	15	14	45
20-Apr	9	13	10	16	20	9	8	14	10	38	33	27	23	23	20	24	27	23	11	6	7	9	27	12	38
21-Apr	16	8	10	6	6	7	15	11	18	16	32	29	88	89	58	94	44	42	35	10	16	11	12	13	94
22-Apr	12	11	52	30	31	28	16	21	14	14	18	25	35	48	28	19	17	15	12	8	13	12	9	10	52
23-Apr	59	84	50	29	35	18	25	24	31	70	67	60	48	27	26	19	14	12	10	10	9	10	19	26	84
24-Apr	14	12	12	12	11	11	10	14	13	12	21	42	27	21	22	23	23	20	22	25	45	22	18	22	45
25-Apr	27	17	29	10	28	12	14	11	14	14	24	21	20	19	16	15	18	23	23	14	11	20	17	11	29
26-Apr	12	12	11	13	13	12	14	15	14	20	28	25	20	38	32	29	23	18	18	16	12	19	21	36	38
27-Apr	15	11	69	93	8	8	12	13	13	31	24	22	22	23	20	15	13	17	14	12	7	9	7	7	93
28-Apr	89	11	11	14	11	10	14	70	19	52	26	30	14	26	27	17	10	11	10	15	12	13	9	9	89
29-Apr	19	29	17	23	79	16	14	15	15	12	18	32	30	28	15	14	18	13	11	11	11	12	11	11	79
30-Apr	10	11	11	13	11	12	12	11	12	12	12	15	13	14	11	12	13	14	11	12	12	10	9	11	15
	89	84	69	93	80	61	54	70	69	70	91	60	88	89	58	94	44	42	35	42	45	49	73	93	
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS25 WASKŌW OHCI PIMÂTISIWIN APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)  
 APRIL 2024

MONTHLY SUMMARY

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	686	33	34	99.86	33.9	0	4.9	0
H2S(ppb) Average	683	36	37	99.86	2.3	0	0.7	0
Temperature 2 m (C) Average	720	0	0	100	19.1	0	10.2	0
Relative Humidity (%) Average	720	0	0	100	100	-	90.2	-
Wind Speed 10 m (km/h) Average	698	0	22	96.94	22	0	15	0
Wind Direction 10 m (deg) Average	698	0	22	96.94	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKÖW OHCI PIMĀTISIWIN (AMS25)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	0.73	2.6	-	0	0	0	0	0.2	1.5	33.9
H2S (ppb) Average	683	0.19	0.3	-	0	0	0.1	0.1	0.2	0.5	2.3
Temperature 2 m (C) Average	720	5.11	6.1	-	-10.2	-2	0.2	4.2	9.4	14.4	19.1
Relative Humidity (%) Average	720	56.27	25.2	-	8.6	22.3	34	57.9	75.5	91.7	100
Wind Speed 10 m (km/h) Average	698	6.8	4	-	0	2	3	6	10	13	22
Wind Direction 10 m (deg) Average	698	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)

APRIL 2024

OPERATIONAL NOTES

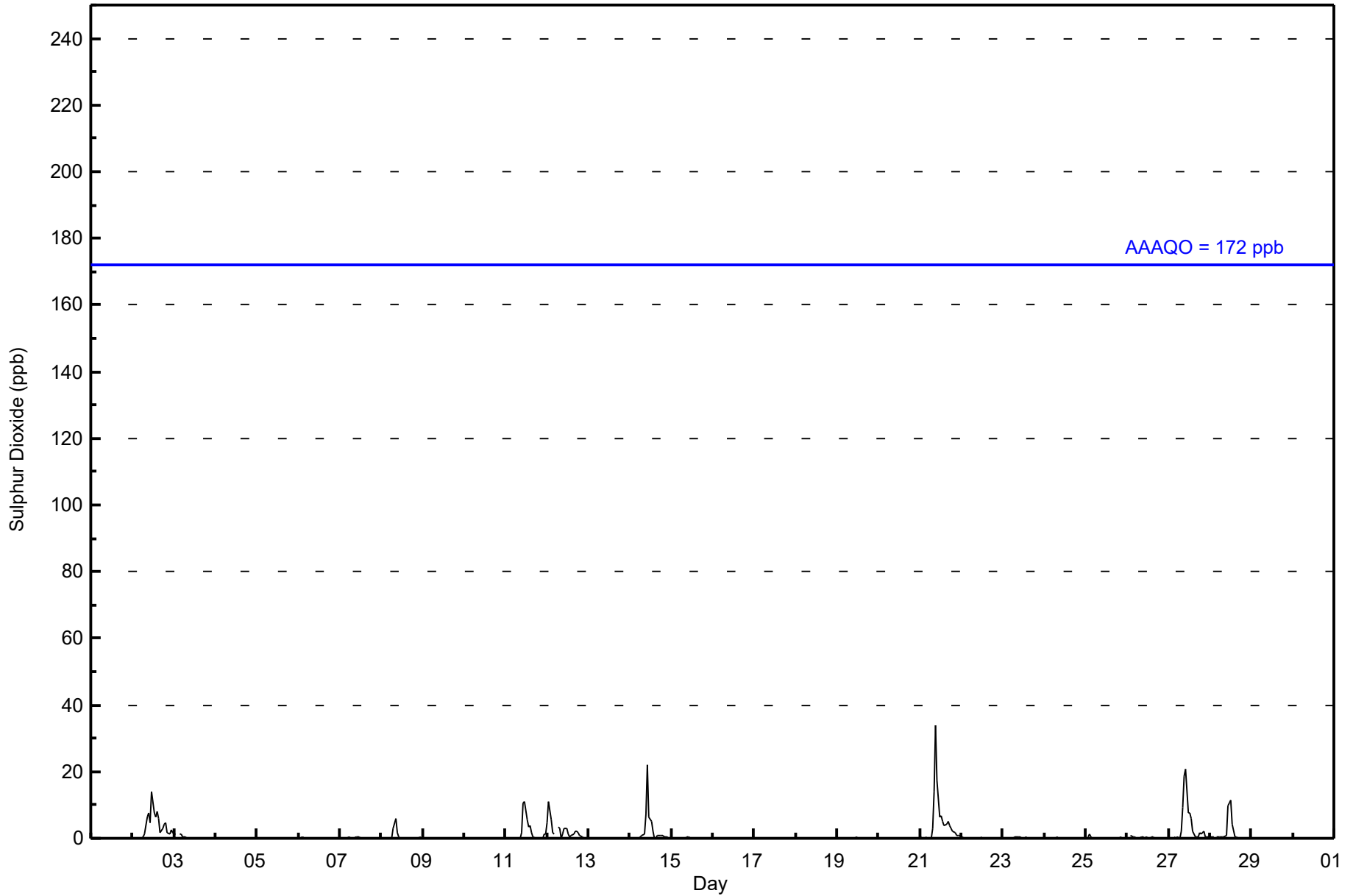
Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	22 Apr 2024 08:00	22 Apr 2024 08:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	04 Apr 2024 02:00	04 Apr 2024 09:00	8	Flat line in sensor output signal
Wind Speed, Wind Direction	06 Apr 2024 00:00	06 Apr 2024 08:00	9	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Apr 2024 04:00	11 Apr 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Apr 2024 05:00	19 Apr 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Apr 2024 05:00	21 Apr 2024 07:00	3	Flat line in sensor output signal





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Waskow ohci Pimatisiwin - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	675	98.40	98.40
11 - 20	8	1.17	99.56
21 - 60	3	0.44	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	103	55	42	9	16	20	68	60	31	25	25	34	42	42	35	48	655
11 - 20	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	0	8
21 - 60	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
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>	103	55	42	9	16	20	74	65	31	25	25	34	42	42	35	48	666

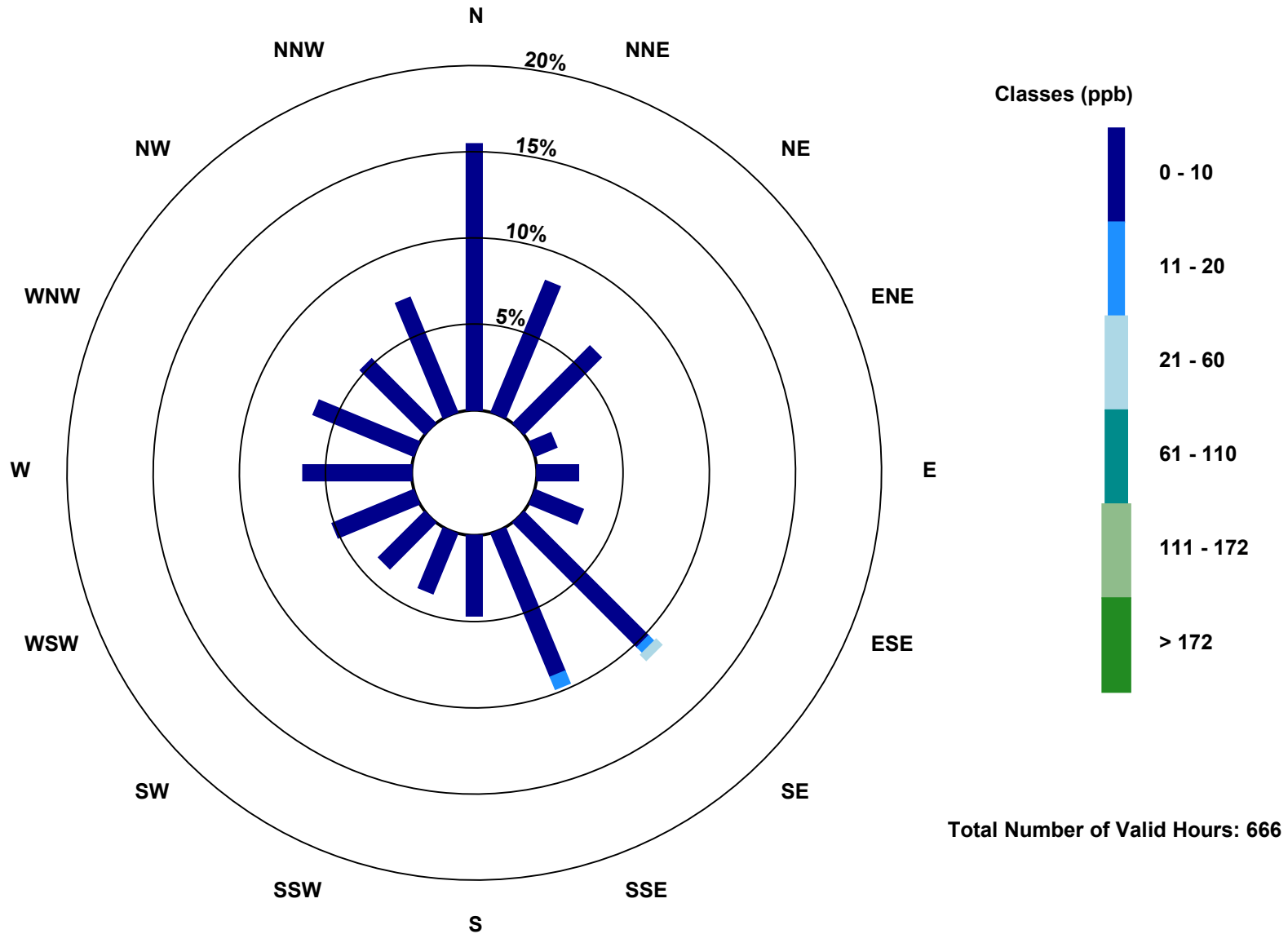
Total Number of Valid Hours: 666

Total Number of Hours: 720

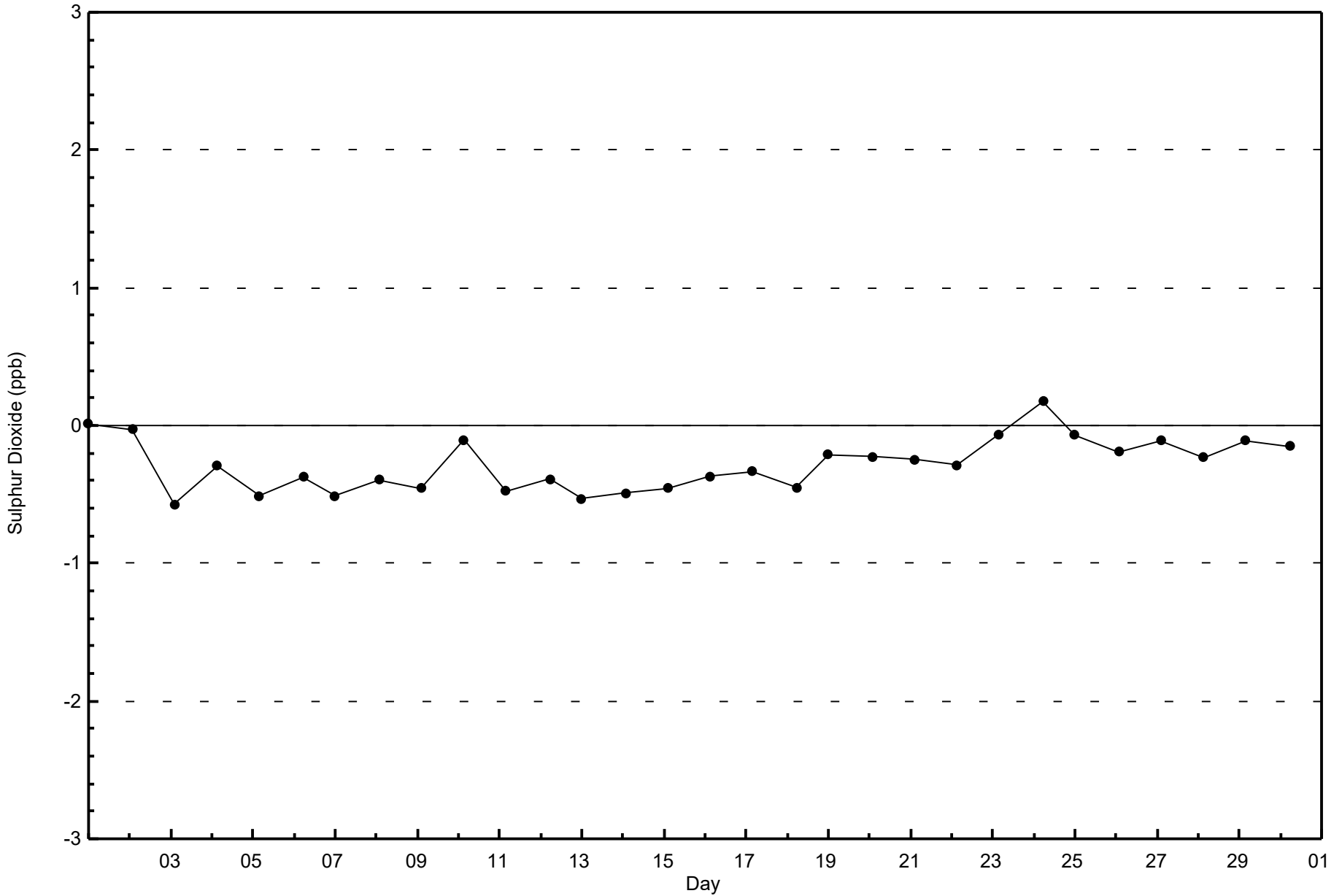


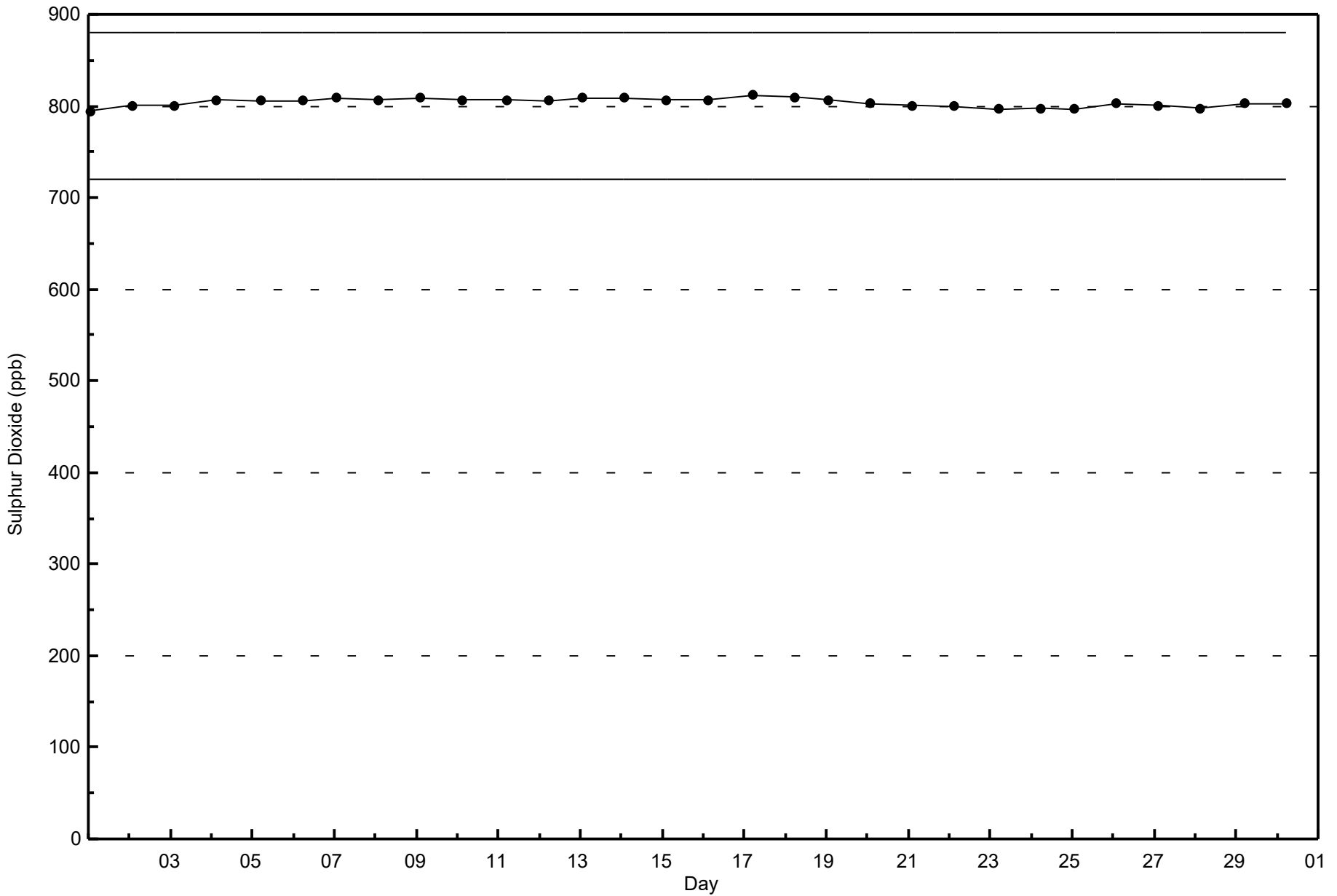
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 666









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

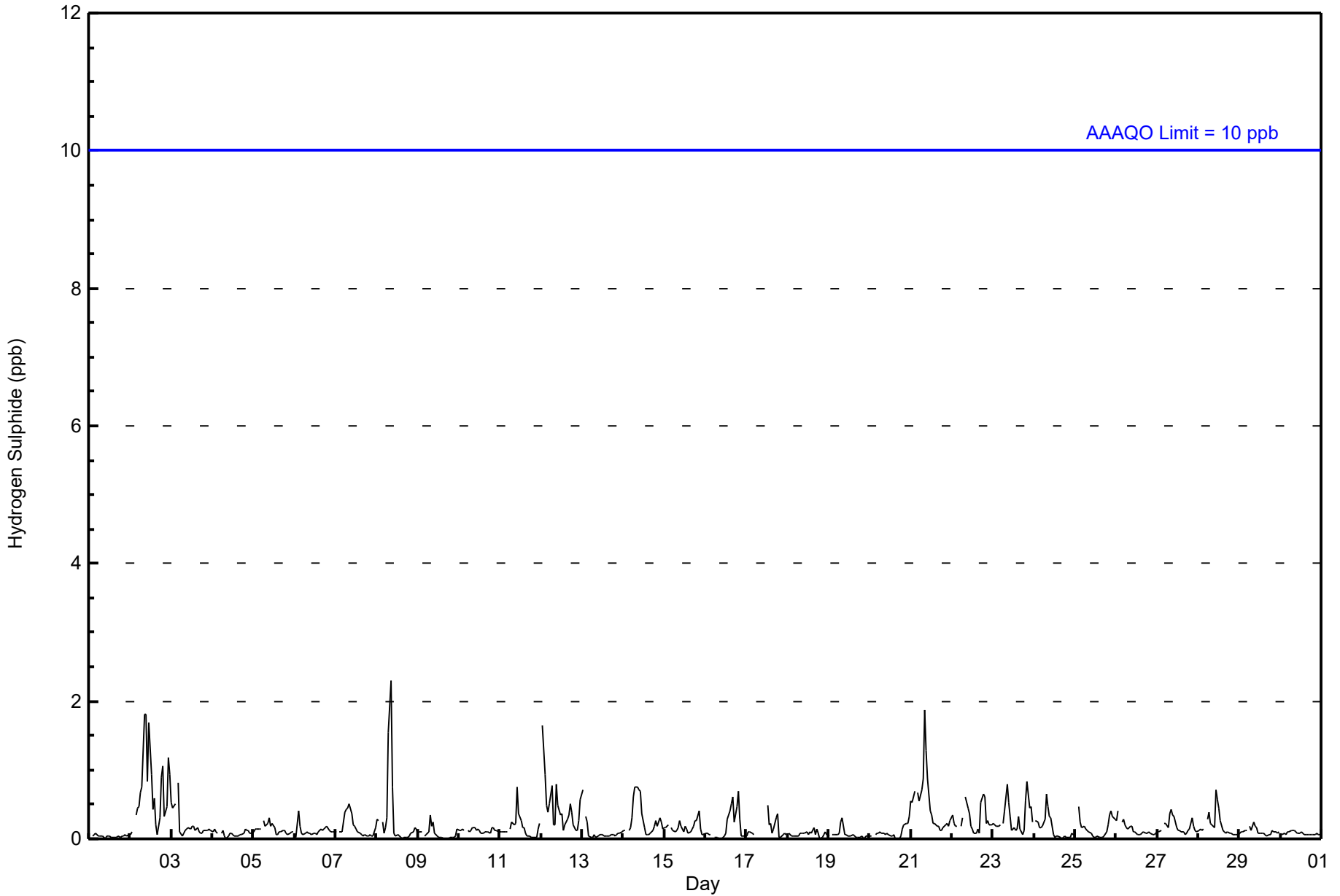
## Waskow ohci Pimatisiwin - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		720																																									
Maximum Value: 2.3 ppb on Apr 8 09:00		Maximum Daily Average: 0.7 ppb on Apr 2				Hours of Data:		683																																									
Minimum Value: 0.0 ppb on Apr 9 17:00		Minimum Daily Average: 0.0 ppb on Apr 1				Hours of Missing Data:		37																																									
Maximum Diurnal Average: 0.4 ppb at hour 9		Minimum Diurnal Average: 0.1 ppb at hour 17				Hours of Calibration:		36																																									
Monthly Average: 0.19 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 1.3				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-Apr	0.1	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1																						
2-Apr	0.1	0.1	Z	0.4	0.5	0.5	0.7	0.8	1.8	1.8	0.8	1.7	0.9	0.4	0.6	0.2	0.1	0.3	0.9	1.1	0.3	0.5	1.2	0.9	0.7	1.8	0.7	1.8																					
3-Apr	0.5	0.4	0.5	Z	0.8	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8	0.2	0.8																					
4-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																					
5-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																					
6-Apr	Z	0.0	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																					
7-Apr	0.1	Z	0.1	0.1	0.1	0.4	0.4	0.5	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.5	0.2	0.5																					
8-Apr	0.3	0.3	Z	0.2	0.1	0.2	0.3	1.6	2.3	0.8	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.3	2.3	0.3	2.3																					
9-Apr	0.1	0.1	0.1	Z	0.0	0.1	0.1	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.3																					
10-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2																					
11-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.2	0.7	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.7	0.2	0.7																					
12-Apr	Z	1.7	0.9	0.5	0.4	0.5	0.8	0.2	0.2	0.8	0.5	0.3	0.4	0.1	0.2	0.3	0.3	0.5	0.4	0.2	0.1	0.1	0.3	0.6	0.4	1.7	0.4	1.7																					
13-Apr	0.7	Z	0.3	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7																					
14-Apr	0.1	0.1	Z	0.1	0.2	0.3	0.6	0.7	0.7	0.7	0.7	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.3																					
15-Apr	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.2																					
16-Apr	0.1	0.1	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.5	0.6	0.2	0.5	0.7	0.3	0.0	0.0	0.0	0.2	0.7	0.2	0.7																					
17-Apr	0.0	0.1	0.1	0.1	0.1	Z	C	C	C	C	C	C	0.5	0.2	0.2	0.1	0.1	0.3	0.4	0.0	0.0	0.1	0.1	0.1	--	0.5	--	0.5																					
18-Apr	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2																					
19-Apr	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.3																					
20-Apr	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.3																					
21-Apr	0.6	0.5	0.7	Z	0.7	0.6	0.7	0.9	1.9	1.3	0.9	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.5	1.9	0.5	1.9																					
22-Apr	0.3	0.2	0.2	0.2	Z	0.2	0.3	M	0.6	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.5	0.7	0.6	0.2	0.3	0.2	0.2	0.3	0.7	0.3	0.7																					
23-Apr	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.4	0.8	0.5	0.3	0.1	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.6	0.8	0.5	0.5	0.2	0.3	0.8	0.3	0.8																					
24-Apr	Z	0.3	0.2	0.2	0.2	0.2	0.3	0.7	0.5	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.7																					
25-Apr	0.1	Z	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.4	0.3	0.3	0.2	0.5	0.2	0.5																					
26-Apr	0.3	0.4	Z	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4																				
27-Apr	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.2	0.4	0.2	0.4																				
28-Apr	0.1	0.1	0.1	0.1	Z	0.3	0.4	0.2	0.2	0.2	0.7	0.6	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7	0.2	0.7																				
29-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2																				
30-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																				
																								0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	Diurnal Average		
																								0.7	1.7	0.9	0.5	0.8	0.6	0.8	1.6	2.3	1.8	0.9	1.7	0.9	0.4	0.6	0.5	0.6	0.5	0.9	1.1	0.8	0.5	1.2	0.9	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb      24-hr 3 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Waskow ohci Pimatisiwin - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Waskow ohci Pimatisiwin - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	683	100.00	100.00
3 - 4	0	0.00	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: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin - April 2024**

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	55	42	9	15	20	74	67	31	25	26	36	42	40	35	48	663
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	55	42	9	15	20	74	67	31	25	26	36	42	40	35	48	663

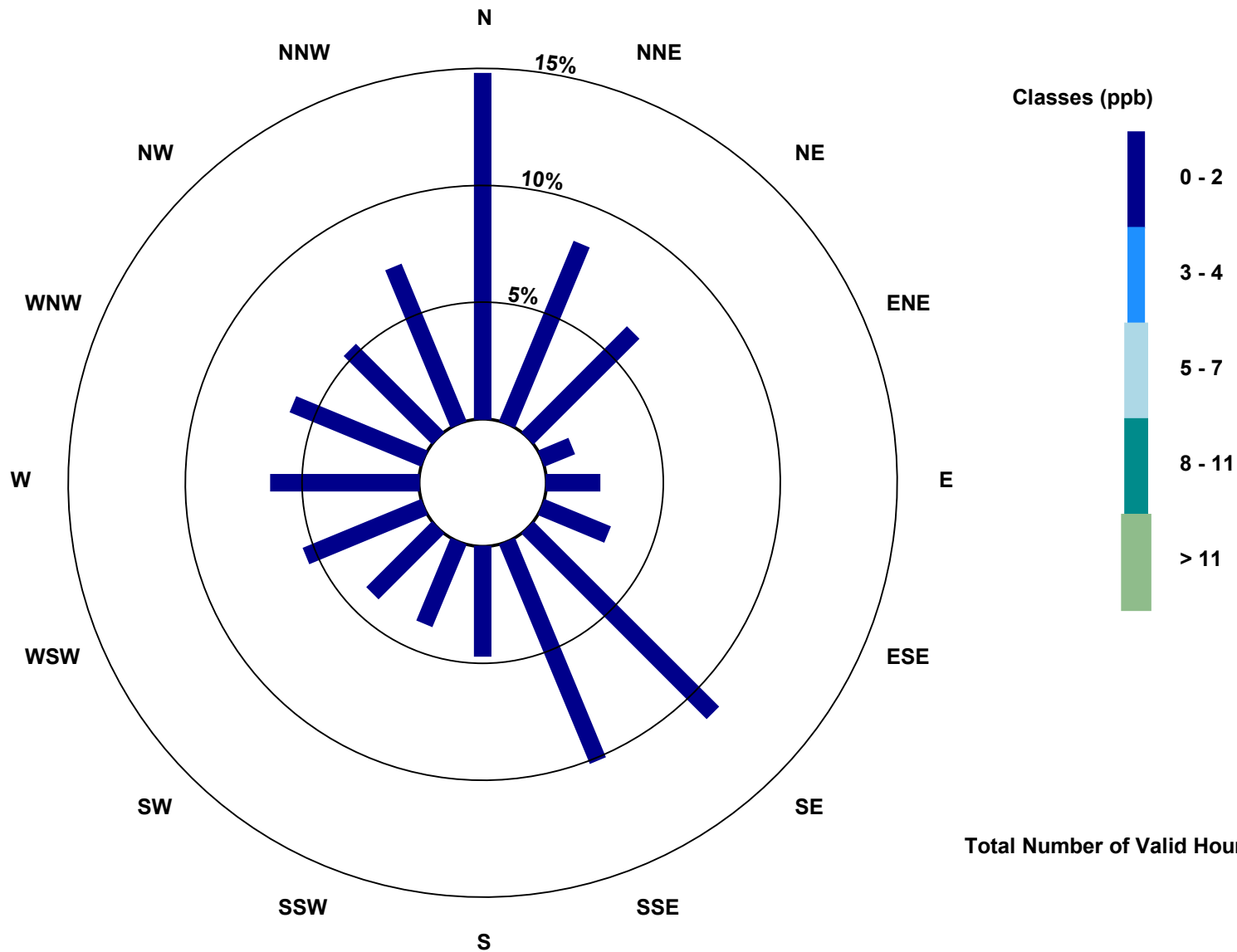
Total Number of Valid Hours: 663

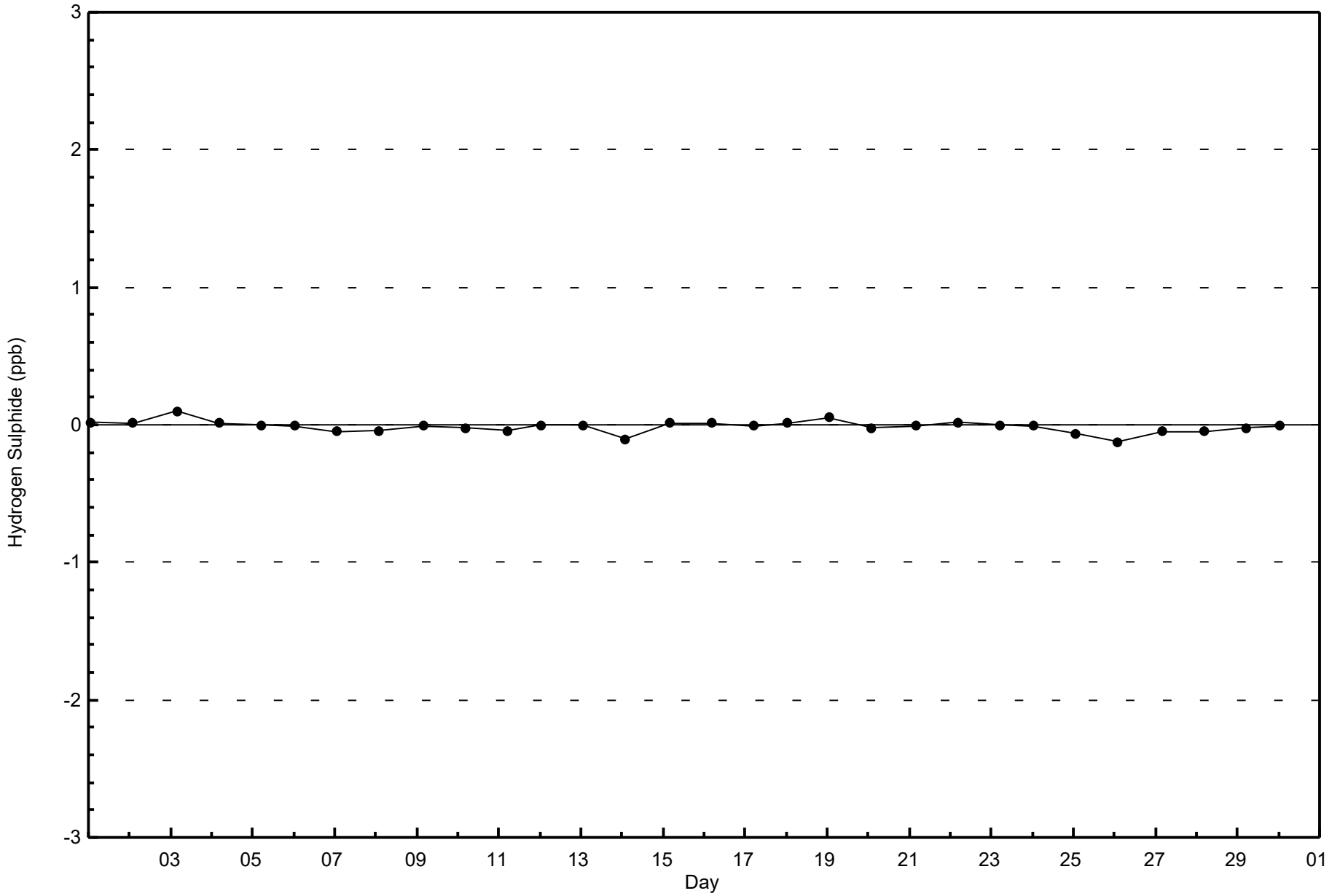
Total Number of Hours: 720

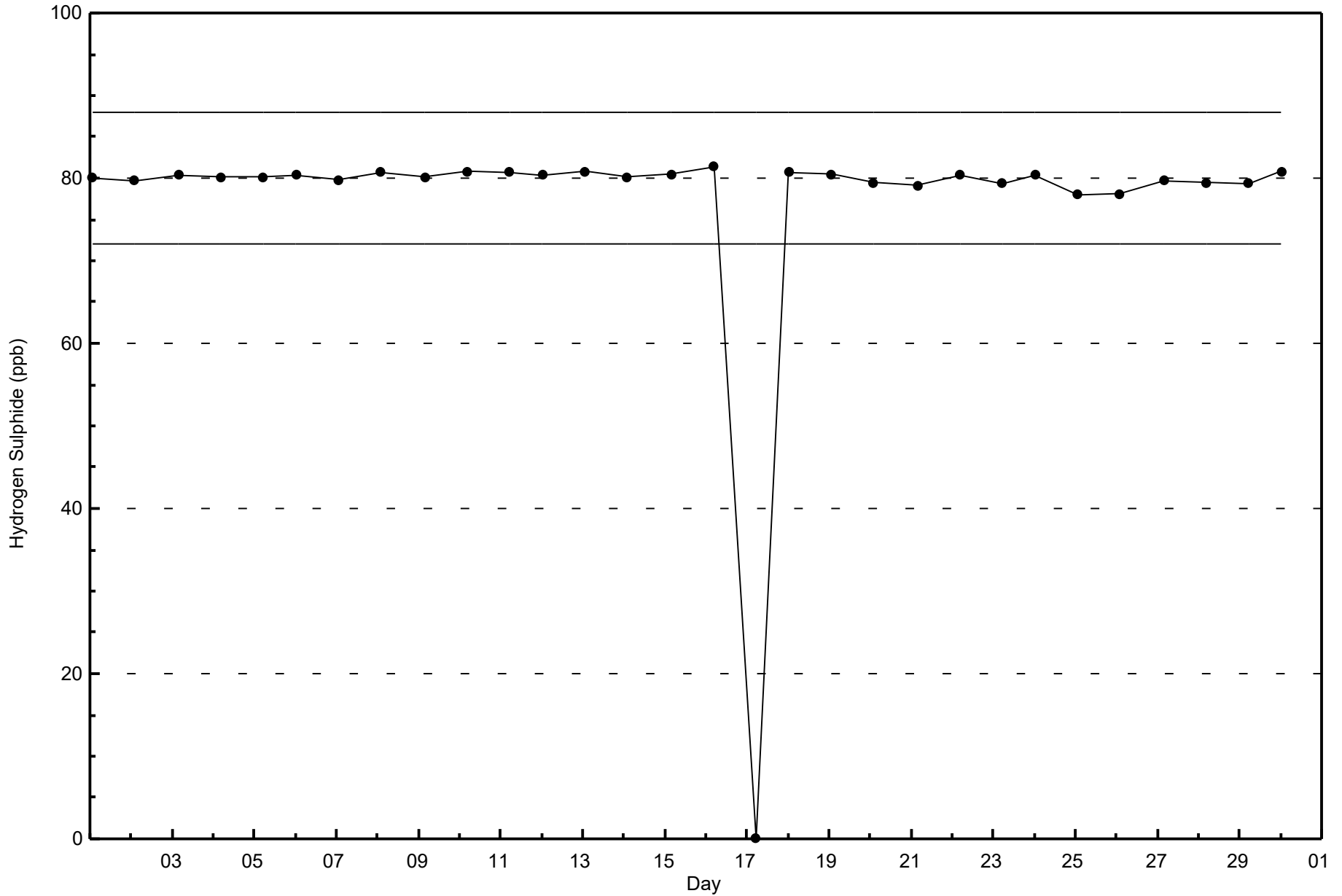


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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







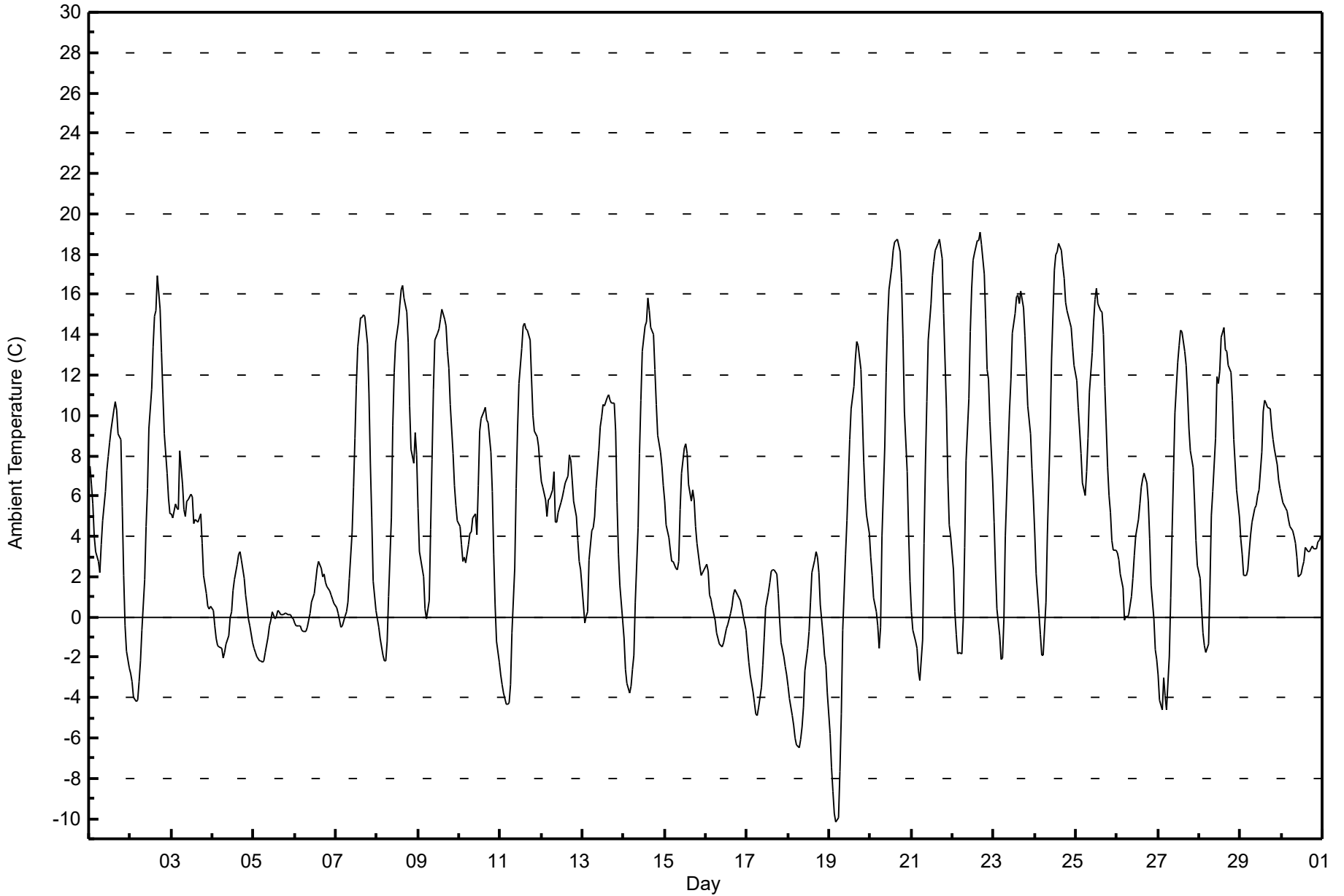


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Waskow ohci Pimatisiwin - April 2024**

Maximum Value: 19.1 C on Apr 22 17:00		Maximum Daily Average: 10.2 C on Apr 24		Hours in Service: 720																							
Minimum Value: -10.2 C on Apr 19 05:00		Minimum Daily Average: -2.2 C on Apr 18		Hours of Data: 720																							
Maximum Diurnal Average: 10.6 C at hour 17		Minimum Diurnal Average: -0.5 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 5.11 C		Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -2.0 Q <sub>1</sub> = 0.2 Median = 4.2 Q <sub>3</sub> = 9.4 P <sub>90</sub> = 14.4 P <sub>99</sub> = 18.5		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	7.5	6.6	5.6	4.0	3.2	2.7	2.2	3.6	4.8	6.2	7.3	8.0	8.7	9.3	10.3	10.7	10.3	9.1	8.8	5.5	2.1	-0.4	-1.7	-2.5	5.5	10.7	
2-Apr	-2.8	-3.2	-4.0	-4.2	-4.1	-3.2	-2.2	-0.7	1.8	4.5	6.4	9.4	11.3	13.4	14.9	15.2	16.9	15.2	13.1	11.0	9.1	7.2	5.9	5.1	5.7	16.9	
3-Apr	5.1	4.9	5.6	5.4	5.4	8.2	6.6	5.3	5.0	5.8	5.8	6.1	5.9	4.6	4.9	4.7	4.9	5.1	3.6	2.1	1.1	0.6	0.4	0.5	4.5	8.2	
4-Apr	0.3	-0.4	-1.1	-1.4	-1.5	-1.6	-2.1	-1.7	-1.3	-0.9	0.0	0.3	1.3	1.8	2.6	3.1	3.2	2.8	1.9	1.1	0.5	-0.1	-0.4	-1.3	0.2	3.2	
5-Apr	-1.6	-1.8	-2.0	-2.2	-2.2	-2.3	-2.2	-1.8	-1.0	-0.5	-0.2	0.3	-0.1	0.0	0.3	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.0	-0.1	-0.7	0.3	
6-Apr	-0.3	-0.5	-0.5	-0.4	-0.7	-0.7	-0.7	-0.5	-0.2	0.2	0.7	1.1	1.8	2.4	2.7	2.4	2.0	2.1	1.7	1.5	1.3	1.1	0.8	0.7	0.8	2.7	
7-Apr	0.5	0.2	-0.1	-0.5	-0.5	0.1	0.3	0.7	1.9	4.2	6.5	8.8	11.5	13.4	14.8	14.9	15.0	14.9	13.6	11.1	7.6	4.9	1.8	0.3	6.1	15.0	
8-Apr	-0.1	-0.5	-1.1	-1.9	-2.2	-2.2	-1.2	1.1	4.9	9.5	12.1	13.6	14.5	15.5	16.2	16.5	15.8	15.2	13.6	10.5	8.3	7.6	9.1	8.0	7.6	16.5	
9-Apr	5.4	3.3	2.4	2.0	0.4	-0.1	0.8	4.3	7.9	11.3	13.7	14.1	14.3	14.7	15.3	14.8	14.5	13.2	12.3	10.6	8.1	6.5	5.5	4.8	8.3	15.3	
10-Apr	4.5	3.6	2.8	3.0	2.7	3.6	4.2	4.2	4.9	5.1	4.1	6.5	9.2	9.8	10.2	10.4	9.7	9.7	8.2	6.2	3.1	0.6	-1.2	-2.2	5.1	10.4	
11-Apr	-2.9	-3.3	-3.8	-4.3	-4.3	-4.3	-3.4	-0.8	2.4	6.3	9.3	11.6	13.3	14.4	14.6	14.3	14.2	13.8	11.8	10.0	9.3	8.9	8.4	7.5	6.0	14.6	
12-Apr	6.7	6.4	5.8	4.9	5.8	5.9	6.3	7.2	4.7	4.7	5.2	5.7	5.9	6.3	6.7	7.0	8.1	7.8	6.8	5.7	5.0	3.8	2.8	2.4	5.7	8.1	
13-Apr	0.6	-0.3	0.0	0.3	2.8	4.3	4.4	5.0	6.4	8.3	9.4	9.9	10.5	10.5	10.9	11.0	10.7	10.6	10.6	9.2	5.7	3.1	1.6	-0.1	6.1	11.0	
14-Apr	-1.0	-2.6	-3.3	-3.8	-3.4	-2.6	-1.9	0.8	4.4	8.1	10.8	13.2	14.4	14.7	15.8	15.2	14.4	14.0	12.3	10.5	9.0	8.1	7.5	6.5	6.7	15.8	
15-Apr	5.8	4.6	3.9	3.3	2.8	2.8	2.4	2.3	2.8	5.4	7.1	8.4	8.6	8.1	6.6	5.7	6.3	5.8	4.5	3.7	2.6	2.1	2.2	2.3	4.6	8.6	
16-Apr	2.6	2.2	1.1	0.9	0.5	-0.2	-0.8	-1.1	-1.4	-1.5	-1.3	-0.9	-0.6	-0.4	0.2	0.5	1.1	1.4	1.1	0.9	0.8	0.5	0.1	-0.7	0.2	2.6	
17-Apr	-1.5	-2.2	-2.9	-3.7	-4.3	-4.8	-4.9	-4.4	-3.5	-2.4	-1.0	0.5	1.2	1.7	2.3	2.4	2.3	2.1	1.2	-0.2	-1.3	-2.0	-2.5	-2.9	-1.3	2.4	
18-Apr	-3.4	-4.1	-4.9	-5.4	-6.0	-6.3	-6.5	-6.1	-5.4	-4.5	-2.6	-1.5	-0.7	0.8	2.2	2.8	3.2	3.0	2.2	0.6	-0.9	-1.9	-2.4	-3.8	-2.2	3.2	
19-Apr	-5.8	-7.5	-8.7	-9.7	-10.2	-10.0	-7.6	-4.8	-0.7	3.1	4.8	6.8	8.8	10.3	11.5	12.8	13.7	13.4	12.3	10.0	7.7	5.9	5.1	4.1	2.7	13.7	
20-Apr	2.9	2.1	1.0	0.3	-0.4	-1.5	-0.5	4.0	8.4	12.2	14.7	16.2	17.4	18.2	18.6	18.7	18.7	18.1	16.6	13.8	10.2	7.2	4.2	1.8	9.3	18.7	
21-Apr	0.2	-0.6	-1.2	-1.6	-2.6	-3.1	-1.2	3.6	7.5	10.7	13.7	15.6	16.9	17.6	18.2	18.5	18.7	18.2	17.8	15.0	10.3	6.9	4.6	4.0	8.7	18.7	
22-Apr	2.3	0.3	-0.9	-1.8	-1.7	-1.8	-0.1	3.5	7.8	10.8	14.1	16.3	17.7	18.1	18.7	18.7	19.1	18.5	17.0	14.8	12.3	11.8	9.7	6.7	9.7	19.1	
23-Apr	4.7	2.4	0.4	-0.9	-2.1	-2.0	-0.1	4.0	8.2	10.3	11.8	14.1	15.1	15.9	15.5	16.2	15.3	13.9	12.2	10.5	9.1	7.3	5.9	8.5	16.2		
24-Apr	4.1	2.1	0.2	-0.9	-1.9	-1.9	0.7	4.0	6.7	9.2	12.8	17.2	18.0	18.1	18.5	18.2	17.4	16.8	15.6	15.2	14.6	14.4	13.4	12.5	10.2	18.5	
25-Apr	11.7	10.4	9.3	8.1	6.7	6.0	7.2	8.9	11.2	13.1	14.7	15.8	16.3	15.6	15.2	15.2	14.0	11.4	7.4	6.0	5.2	3.8	3.3	3.3	10.0	16.3	
26-Apr	3.1	2.9	2.1	1.4	-0.2	0.1	0.0	0.1	1.0	1.9	3.0	4.0	4.8	5.6	6.5	6.9	7.1	6.6	5.7	3.8	1.6	-0.1	-1.6	-2.1	2.7	7.1	
27-Apr	-2.9	-4.1	-4.6	-3.0	-3.9	-4.6	-1.9	0.9	4.3	7.2	10.1	12.7	13.5	14.2	14.1	13.2	12.5	11.1	9.4	8.2	7.4	5.8	3.8	2.5	5.2	14.2	
28-Apr	1.9	0.5	-0.8	-1.4	-1.7	-1.4	1.6	5.0	6.2	8.9	12.0	11.6	12.2	13.9	14.3	13.3	13.2	12.5	12.1	10.7	8.8	7.6	6.3	5.0	7.2	14.3	
29-Apr	3.9	3.1	2.1	2.0	2.4	3.3	4.1	4.7	5.4	5.5	6.1	6.3	8.2	10.2	10.7	10.6	10.4	10.3	9.4	8.8	8.3	7.5	6.8	6.3	6.5	10.7	
30-Apr	6.1	5.7	5.4	5.2	4.9	4.5	4.3	4.0	3.7	3.0	2.0	2.1	2.5	2.8	3.4	3.3	3.3	3.4	3.5	3.4	3.4	3.7	3.8	4.0	3.8	6.1	
		1.9	1.0	0.3	-0.2	-0.5	-0.4	0.3	1.8	3.6	5.5	7.1	8.5	9.4	10.1	10.6	10.6	10.6	10.1	8.9	7.4	5.7	4.5	3.5	2.6	Diurnal Average	
		11.7	10.4	9.3	8.1	6.7	8.2	7.2	8.9	11.2	13.1	14.7	17.2	18.0	18.2	18.7	18.7	19.1	18.5	17.8	15.2	14.6	14.4	13.4	12.5	Diurnal Maximum	







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Waskow ohci Pimatisiwin - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	164	22.78	22.78
0 - 10	384	53.33	76.11
10 - 20	172	23.89	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



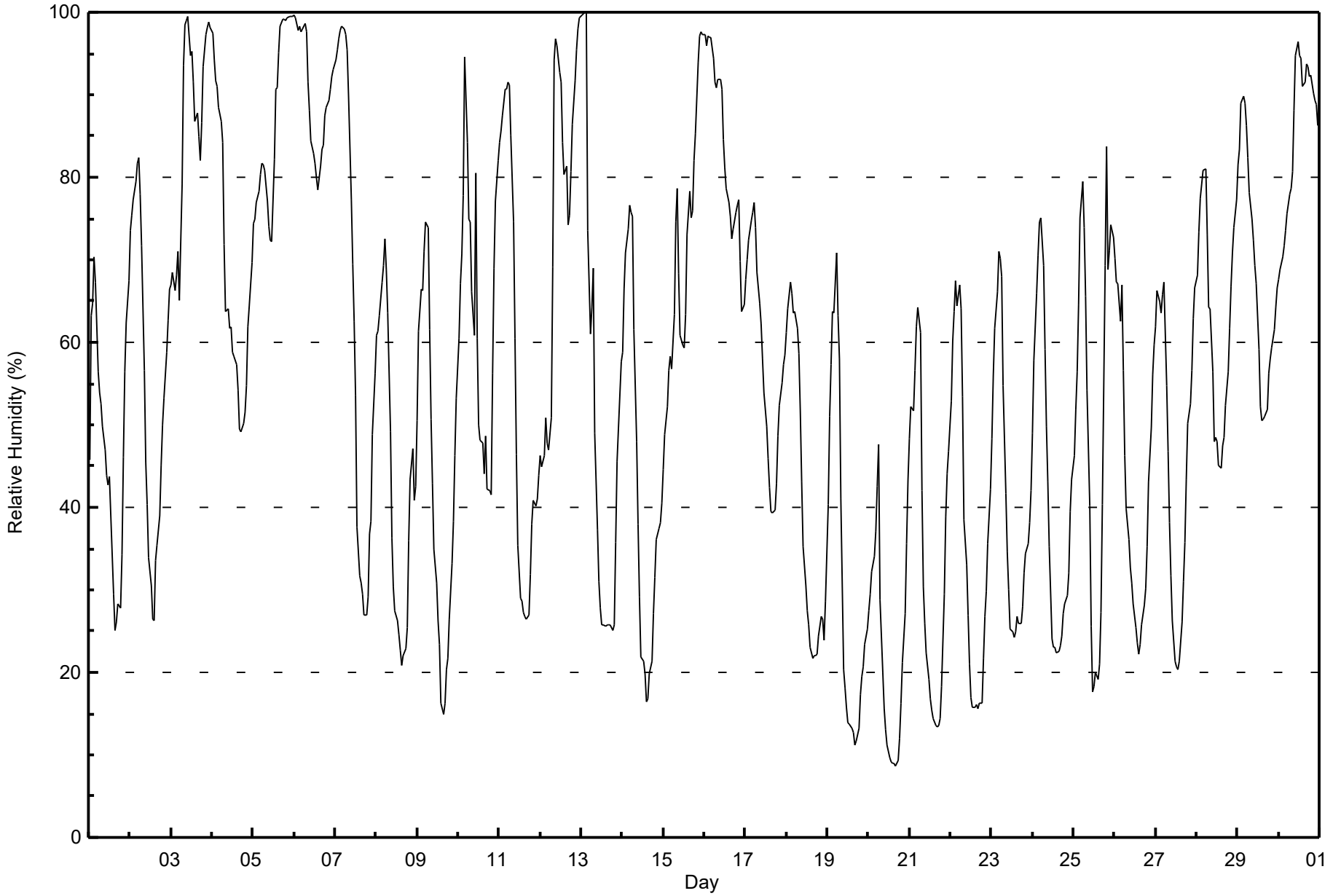
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Waskow ohci Pimatisiwin - April 2024**

Maximum Value: 100.0 % on Apr 13 03:00		Maximum Daily Average: 90.2 % on Apr 6		Hours in Service: 720																							
Minimum Value: 8.6 % on Apr 20 17:00		Minimum Daily Average: 22.9 % on Apr 20		Hours of Data: 720																							
Maximum Diurnal Average: 74.2 % at hour 5		Minimum Diurnal Average: 40.0 % at hour 15		Hours of Missing Data: 0																							
Monthly Average: 56.27 %		Percentiles: P <sub>1</sub> = 11.4 P <sub>10</sub> = 22.3 Q <sub>1</sub> = 34.0 Median = 57.9 Q <sub>3</sub> = 75.5 P <sub>90</sub> = 91.7 P <sub>99</sub> = 99.5		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	45.8	63.2	64.8	70.3	67.3	56.4	54.0	52.6	49.9	46.9	43.9	42.7	43.7	39.0	29.4	25.1	26.1	28.3	27.8	34.3	46.0	56.4	62.4	67.5	47.7	70.3	
2-Apr	73.6	75.5	77.3	79.5	81.7	82.3	78.0	71.8	56.5	45.3	40.3	34.0	30.5	26.3	33.6	35.3	39.1	45.1	50.0	53.2	58.8	62.8	66.4	66.4	55.1	82.3	
3-Apr	67.0	68.6	66.3	68.1	71.1	65.0	79.2	93.6	98.5	99.0	99.5	94.8	95.2	91.6	86.7	87.8	84.9	82.1	86.6	93.4	97.3	98.1	98.8	98.2	86.3	99.5	
4-Apr	97.4	94.2	91.7	90.9	88.4	86.7	84.2	71.9	63.8	64.0	61.7	61.9	58.7	58.3	57.2	54.3	49.5	49.2	50.1	51.6	54.8	61.9	64.4	69.6	68.2	97.4	
5-Apr	74.4	74.9	77.0	78.4	80.4	81.6	81.5	80.8	77.1	74.0	72.4	72.2	82.1	90.6	90.9	95.2	98.3	99.1	99.2	99.1	99.3	99.5	99.5	99.4	86.5	99.5	
6-Apr	99.7	99.3	97.8	98.2	97.6	98.0	98.7	97.6	91.4	88.1	84.5	82.9	81.7	80.1	78.5	81.3	83.4	83.9	87.4	88.4	89.4	90.7	92.3	93.1	90.2	99.7	
7-Apr	94.2	95.4	96.8	97.8	98.4	98.0	97.3	95.4	89.8	77.3	69.6	62.5	53.6	37.6	31.7	30.8	29.5	27.0	27.0	29.1	36.7	38.4	48.8	56.3	63.3	98.4	
8-Apr	60.8	61.3	63.3	67.4	69.2	72.6	68.7	63.6	49.2	36.3	30.4	27.4	26.2	24.6	22.7	20.9	22.0	22.8	25.3	35.9	43.4	47.1	40.8	42.5	43.5	72.6	
9-Apr	50.5	61.3	66.4	66.3	71.0	74.6	73.9	61.6	50.7	42.8	34.9	30.8	26.3	23.3	16.3	14.9	16.2	20.4	21.7	26.5	33.2	38.3	46.3	53.1	42.6	74.6	
10-Apr	60.6	67.1	70.7	77.8	94.6	84.2	75.0	74.6	66.1	60.8	80.6	60.6	49.9	48.1	47.8	44.2	48.6	42.2	42.0	41.6	56.2	69.0	77.1	82.1	63.4	94.6	
11-Apr	84.3	85.7	87.5	90.7	90.6	91.5	91.2	85.0	74.6	60.5	46.4	35.5	28.9	28.7	27.2	26.8	26.4	26.9	31.8	38.0	40.8	40.2	40.9	43.9	55.2	91.5	
12-Apr	46.2	44.9	46.4	50.8	47.8	47.0	50.9	69.1	94.3	96.8	95.9	92.7	91.6	84.3	80.3	81.4	74.3	75.5	80.7	86.5	91.7	95.5	98.0	99.4	75.9	99.4	
13-Apr	99.6	99.9	100.0	100.0	73.6	61.0	64.2	69.0	49.0	37.2	31.1	27.8	25.8	25.7	25.6	25.8	25.7	25.2	25.8	35.8	45.6	49.6	57.7	57.7	50.3	100.0	
14-Apr	58.8	66.4	70.8	73.7	76.5	75.8	75.2	61.6	48.0	38.0	29.1	21.9	21.4	19.9	16.5	16.8	19.8	21.4	27.2	31.6	36.1	37.5	38.2	40.5	42.6	76.5	
15-Apr	44.5	48.7	52.1	56.6	58.2	56.7	63.3	74.6	78.7	68.3	60.9	59.7	59.3	63.4	73.1	78.3	75.1	76.0	82.0	85.2	94.0	97.1	97.6	97.2	70.9	97.6	
16-Apr	97.4	95.9	97.1	96.9	96.9	94.4	91.6	90.9	91.8	91.9	90.7	84.5	81.1	78.7	77.0	75.3	72.5	73.8	75.8	76.6	77.4	69.9	63.8	64.6	83.6	97.4	
17-Apr	67.7	70.1	72.3	74.7	75.7	76.9	74.0	68.5	64.7	62.3	57.9	53.9	49.8	45.8	42.3	39.5	39.3	39.7	42.9	48.6	52.3	55.1	57.3	58.5	57.9	76.9	
18-Apr	61.3	64.0	67.3	66.0	63.6	63.7	61.8	58.7	51.7	43.1	35.2	30.6	27.5	25.8	23.1	21.8	22.0	22.0	22.2	24.4	26.8	26.5	24.0	28.6	40.1	67.3	
19-Apr	40.3	51.1	57.2	63.8	63.5	70.9	63.2	58.0	41.0	20.3	18.2	15.8	14.0	13.7	13.2	12.8	11.3	11.7	13.2	17.3	19.4	20.7	23.5	25.2	31.6	70.9	
20-Apr	27.5	29.5	32.1	34.1	37.2	42.6	47.5	28.8	20.1	15.7	13.0	11.2	9.7	9.2	9.0	9.0	8.6	9.3	12.1	16.3	21.2	27.1	35.7	43.2	22.9	47.5	
21-Apr	48.4	52.2	51.7	56.6	61.8	64.2	61.2	42.1	30.4	26.0	22.4	19.2	16.8	15.4	14.4	13.5	13.4	13.5	14.4	18.4	29.5	38.7	44.1	46.7	33.9	64.2	
22-Apr	52.9	60.1	63.7	67.4	64.3	66.9	64.1	53.4	38.5	33.1	26.9	21.1	16.9	15.8	15.8	16.1	15.5	16.3	16.3	21.6	26.8	29.8	35.6	42.2	36.7	67.4	
23-Apr	48.3	55.9	61.7	66.0	71.1	70.1	67.9	54.7	41.8	34.6	30.1	25.3	24.8	24.3	24.8	26.7	25.9	26.0	27.9	32.0	34.5	35.6	38.1	42.1	41.3	71.1	
24-Apr	48.9	57.8	65.9	70.5	74.6	75.1	69.4	59.1	49.8	43.1	35.3	24.0	23.0	23.0	22.4	22.6	23.3	24.5	27.1	28.3	29.3	32.0	39.6	43.4	42.2	75.1	
25-Apr	46.3	51.9	56.4	64.5	75.1	79.5	74.0	65.6	54.2	40.2	25.7	17.6	18.3	20.0	19.1	21.1	27.3	40.4	69.3	83.7	68.8	71.2	74.3	72.7	51.5	83.7	
26-Apr	70.1	67.2	67.1	62.5	66.9	56.7	46.4	39.8	36.0	32.7	30.9	28.4	25.4	23.6	22.1	23.4	25.7	28.1	30.2	35.3	43.0	49.7	56.2	59.6	42.8	70.1	
27-Apr	61.9	66.2	64.9	63.6	65.8	67.2	54.8	46.7	38.1	31.6	26.3	21.3	20.6	20.4	21.4	26.1	31.0	35.8	43.4	50.1	52.5	56.5	63.0	66.6	45.7	67.2	
28-Apr	68.1	73.3	77.4	79.2	80.8	80.9	73.0	64.2	64.1	56.4	48.0	48.5	48.0	45.0	44.8	47.5	48.4	52.4	56.4	61.6	66.8	70.8	74.0	77.3	62.8	80.9	
29-Apr	81.5	83.5	89.1	89.9	88.9	86.3	82.4	78.2	74.9	72.4	69.4	67.1	59.2	52.1	50.6	50.6	51.0	51.9	56.4	58.0	59.2	61.5	64.2	66.6	68.5	89.9	
30-Apr	67.6	68.8	70.3	71.7	73.5	75.6	77.9	78.7	80.6	88.2	94.8	96.5	94.7	94.4	91.0	91.6	93.8	93.4	92.1	92.3	90.2	89.3	88.8	86.3	85.1	96.5	
		64.8	68.5	70.8	73.1	74.2	73.4	71.5	67.0	60.5	54.2	50.2	45.7	43.5	41.6	40.0	40.5	40.8	41.9	45.3	49.4	53.5	57.0	60.0	63.0	Diurnal Average	
		99.7	99.9	100.0	100.0	98.4	98.0	98.7	97.6	98.5	99.0	99.5	96.5	95.2	94.4	91.0	95.2	98.3	99.1	99.2	99.1	99.3	99.5	99.5	99.4	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Waskow ohci Pimatisiwin - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	48	6.67	6.67
20 - 40	172	23.89	30.56
40 - 60	156	21.67	52.22
60 - 80	195	27.08	79.31
80 - 100	148	20.56	99.86

Total Number of Valid Hours: 720

Total Number of Hours: 720

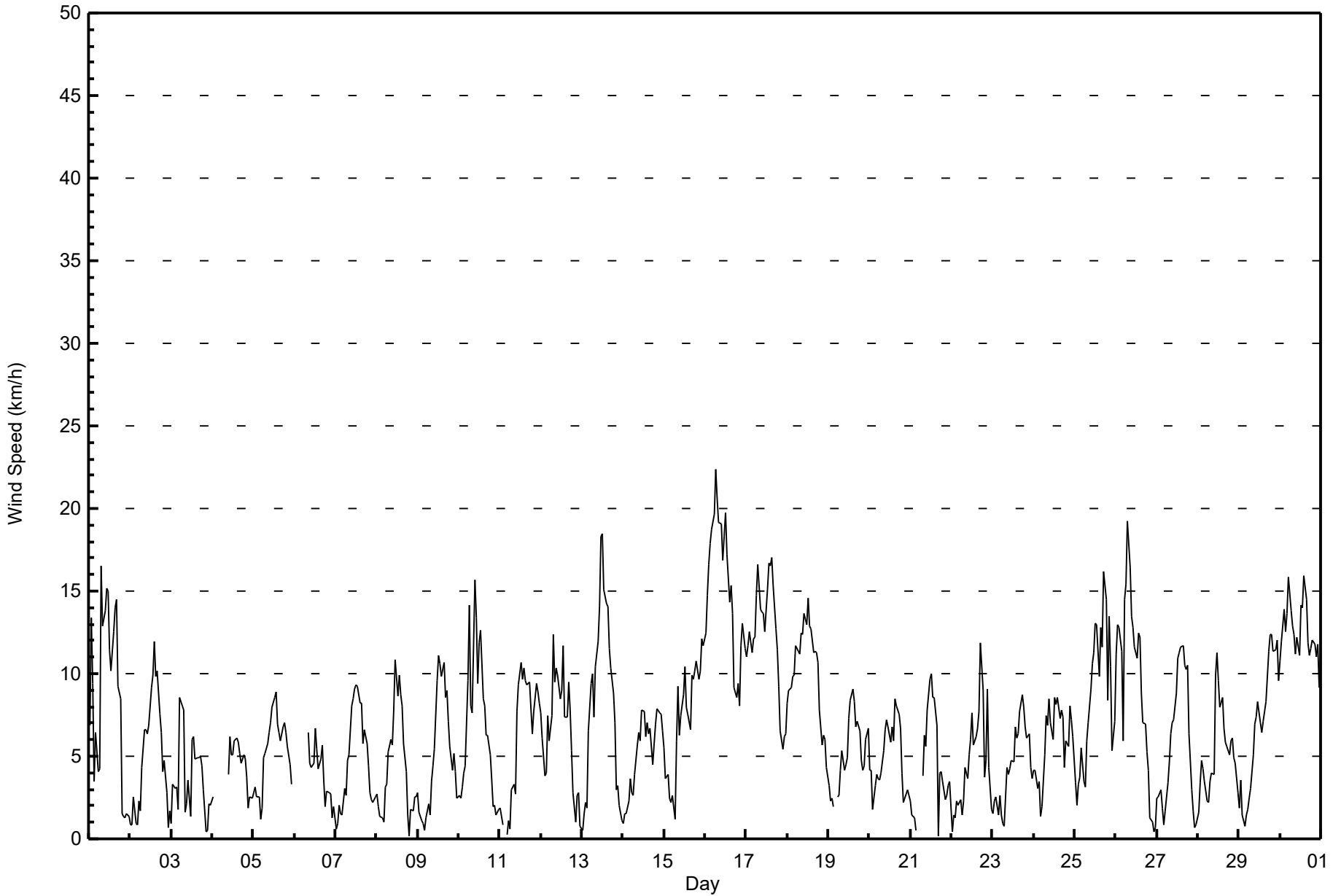


Maximum Speed: 22 km/h on Apr 16 07:00	Maximum Daily Speed Average: 15.0 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 21 17:00	Minimum Daily Speed Average: 0.7 km/h on Apr 3	Hours of Data: 698
Maximum Diurnal Speed Average: 2.8 km/h at hour 7	Minimum Diurnal Speed Average: 0.6 km/h at hour 12	Hours of Missing Data: 22
Monthly Average Velocity: 1.9 km/h 349.1 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 6 Q <sub>3</sub> = 10 P <sub>90</sub> = 13 P <sub>99</sub> = 19	Percent Operational Time: 96.9

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-Apr	WSW7	WNW13	WSW3	W6	SW4	WSW4	WNW17	WNW13	WNW14	NW15	WNW15	W11	WNW10	WNW13	WNW14	NW14	NW9	NW8	W2	SW1	WSW1	S1	S1	WNW8.0	WNW17	
2-Apr	SSW1	SSW1	SSE3	SE1	SE1	ESE2	S2	SE4	SSE7	SSE7	SSE6	SSE7	SE9	SE10	SE12	SSE10	SSE10	SE8	SSE6	SE4	SSE5	SE3	SSE1	WNW2	SSE4.8	SE12
3-Apr	SSE1	SSE3	SSE3	SSE3	W2	W9	W8	WNW8	SW2	SE2	S4	S1	N6	NNE6	N5	NE5	NE5	ENE5	NE4	NE3	NNW0	SSE0	E2	E2	N0.7	W9
4-Apr	NE3	UO	UO	UO	UO	UO	UO	UO	UO	UO	NE4	NE6	ENE5	ENE5	NE6	NE6	NE5	NE5	NNE5	NNE5	NNE4	NNE2	NNE3	NNW2	---	NE6
5-Apr	NW3	N3	NNW3	N3	WNW1	N2	N5	N5	N6	N6	N7	N8	N9	N9	N7	NNW6	NNW6	NNW7	NNW7	NNW6	NNW6	NNW4	NNW3	UO	NNW5.1	N9
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	N6	N5	NE4	N5	NNE7	NNE5	NE4	NNE5	NNE6	NE4	NNE2	N3	WNW3	WNW3	WNW1	W2	---	NNE7
7-Apr	SE1	SSE1	S2	SSE2	SSE1	SSW3	S3	SSE5	SE5	S8	S9	S9	SSE9	SSW9	SW8	SSW8	SSW6	SW7	SW6	SSW4	SW3	SSE2	SSE2	SSE3	S4.3	SSE9
8-Apr	S3	S2	SSW1	SW1	WSW1	SSE3	SSE3	SSE5	SE6	SE6	SSE8	SSE11	S9	SSW10	SSW9	SSW8	S6	SSW4	S1	SSE0	WSW2	W2	SSW3	NW3	S3.7	SSE11
9-Apr	W3	S2	SW1	NW1	SSW0	SSE1	SE2	E1	SE3	SE4	WSW5	SW10	WSW11	SW11	SW10	W11	WSW9	WSW9	WSW7	W6	W4	WNW5	NW4	NW2	WSW3.9	WSW11
10-Apr	NNW3	NW2	WNW3	W4	WSW4	NW10	NW14	NW8	WNW8	NW16	NW13	WNW9	NNW12	NNW13	NNE8	NNE8	NE6	NE6	NE5	NNE4	WNW2	WSW2	WSW1	W2	NNW5.2	NW16
11-Apr	W2	WSW1	SW1	UO	SSW0	SW1	NNW1	SE3	SSE3	E3	SE8	SSE9	SE11	SE10	SE10	SE10	ESE9	SE9	SE8	SE6	SE8	SE9	SSE9	SSE8	SE5.6	SE11
12-Apr	SE8	SSE6	SSE4	SE4	SE7	SSE6	SSE7	SSE12	SE10	SE10	SE10	SE8	SE9	SE12	SE7	SE7	SE9	SE8	SE5	ESE3	SSW1	ESE3	SSE3	SSW1	SE6.6	SSE12
13-Apr	SE1	SSE1	S2	SSW2	SW6	WSW9	WSW10	W7	WNW10	WNW12	WNW14	WNW18	WNW18	W15	W14	W14	WNW12	WNW10	WNW9	W7	W3	W3	W2	NNW1	W7.9	WNW18
14-Apr	W1	SSE2	S2	SE2	SSE4	SSE3	SE3	SE4	SE6	SE6	SE6	SE8	SE8	SE6	SSW7	WSW6	NNW7	NNE4	NNE6	N7	NNW8	NNW8	NNW8	N7	E1.1	NNW8
15-Apr	NNW6	N4	NNW4	WNW2	WNW2	W3	SE1	NW6	NW9	N6	N7	NNW9	N10	NE8	NE8	NE7	NNE10	NE10	NNE10	NNE11	NNE10	N10	N12	N12	N6.2	N12
16-Apr	N12	N15	N17	NNW18	NNW19	NNW20	NNW22	N21	N19	N19	N17	N18	N20	N17	NNE14	NNE15	NNE14	NNE9	NNE9	N8	NNW12	N13	N11	N15.0	NNW22	
17-Apr	N11	N12	N13	N11	N12	N12	N15	N17	N14	N14	NNE14	NNE13	NNE15	N17	N17	N17	N15	NNE13	NNE11	N9	NNW6	NNW5	NNW6	NNW6	N12.1	N17
18-Apr	NNW8	N9	NNW9	NNW10	NNW10	NNW12	N11	N11	N12	N12	N14	N13	N15	N13	N13	NNE11	N11	N11	N11	NNW8	NW6	NW6	NW6	WNW4	N9.9	N15
19-Apr	W3	W2	W2	SW2	UO	SSE3	SE3	SE4	SE5	SSW4	SSE5	SE5	SE7	SE8	SSE9	SSE8	SSW7	S7	S6	SSW5	SW4	WSW4	WSW6	WSW7	S3.7	SSE9
20-Apr	WSW4	SW4	SSW2	S3	S4	S4	SSE4	S4	SSW5	SW7	WSW7	SW7	W6	WSW7	WSW6	SSW8	S8	S8	SSE7	S4	S2	S3	SSE3	SSE3	SSW4.0	SSW8
21-Apr	SSE2	S1	SSE1	NE1	UO	UO	UO	SSE4	SE6	SE6	SSE8	SSE10	SE10	SE9	SSE9	SSE7	E0	NNW4	N4	NW3	W2	W3	WNW3	W4	SSE2.6	SE10
22-Apr	W0	SW1	WSW1	WSW2	W2	W2	NW1	NNE2	NNE4	NE4	NE5	NE6	NNE8	NNE6	NE6	NE7	NE8	NNE12	NNE9	NNE4	NNW5	NNW9	NNW4	W2	NNE3.6	NNE12
23-Apr	W1	WSW2	W3	W1	WSW3	WNW1	ENE1	NE1	NNE4	NE4	NNE4	ESE5	ENE5	NE7	NE6	NNE6	NNE8	NNE9	NE8	NNE7	NNE6	NNE6	ESE4	ESE4	NNE3.4	NNE9
24-Apr	NNW4	NNW4	WNW3	NW3	W1	NW2	NNW5	N7	N7	N9	N7	ESE6	ESE9	ESE8	E9	E7	E8	E7	E4	E6	E6	ESE8	ESE7	ESE6	ENE3.3	E9
25-Apr	SSE3	SE2	W3	WSW4	WSW5	W3	SW3	SW6	SW7	WSW9	WSW11	SE11	WSW13	WSW13	SW10	SW13	WSW12	W16	WNW14	W8	NNW13	NNW10	WNW5	WNW7	W6.8	W16
26-Apr	NW11	NW13	NW13	NNW11	NW6	NW15	NW15	NW19	NW16	NW13	WNW13	WNW12	WNW11	NW12	NNW12	NNW9	NE7	NE7	NE5	ENE4	N1	W1	SW0	ESE1	NW8.3	NW19
27-Apr	WNW2	WSW3	SSE3	E2	N1	SSW2	SE3	SSE5	SE6	SE7	SE7	SE9	SSE11	SE11	SSE12	S12	S10	S10	SSE10	SE6	SE3	ESE2	ENE1	SE1	SSE5.0	S12
28-Apr	NNW2	NW3	NW5	NW4	NW3	WNW2	N2	SSE3	SE4	ESE4	SSE10	SSE11	SE10	SSE8	SE9	SE7	E6	ESE6	ESE5	ESE6	ESE6	ESE5	ESE5	E3	SE3.3	SSE11
29-Apr	ENE2	E4	NE1	NNE1	NNE1	NE2	ENE2	NE3	NE5	NNE7	NNE7	N8	NNE7	NE6	NE7	NE8	NE8	N11	N12	N12	N11	N11	N12	N10	NNE6.2	N12
30-Apr	N11	N12	N14	N13	N14	N16	N14	NNE13	NNE12	N11	N12	N11	N14	N14	N16	N14	N12	N11	N12	N12	N12	N11	N12	N9	N12.5	N16

NNW1.9	NNW2.2	NW2.4	NNW2.1	NW2.2	NW2.7	NNW2.8	NNW2.4	N2.1	N2.4	NNW1.8	N0.6	N1.5	NNE1.3	NE1.2	NNE1.2	NNE2.2	NNE2.4	NNE2.6	N2.5	N2.2	N2.2	NNW2.0	NNW1.9	Diurnal Average	
N12	N15	N17	NNW18	NNW19	NNW20	NNW22	N21	N19	N19	N17	WNW18	N20	N17	N17	N17	N15	W16	WNW14	N12	NNW13	NNW12	N13	N12	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Waskow ohci Pimatisiwin - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	300	42.98	42.98
6 - 11	286	40.97	83.95
12 - 19	108	15.47	99.43
20 - 28	4	0.57	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 698

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Waskow ohci Pimatisiwin - April 2024**

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	13	21	21	9	9	10	27	41	20	18	13	19	31	17	14	17	300
6 - 11	41	27	23	0	7	10	47	28	11	9	13	15	9	11	11	24	286
12 - 19	49	10	0	0	0	0	2	2	1	0	1	3	4	15	13	8	108
20 - 28	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
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>	105	58	44	9	16	20	76	71	32	27	27	37	44	43	38	51	698

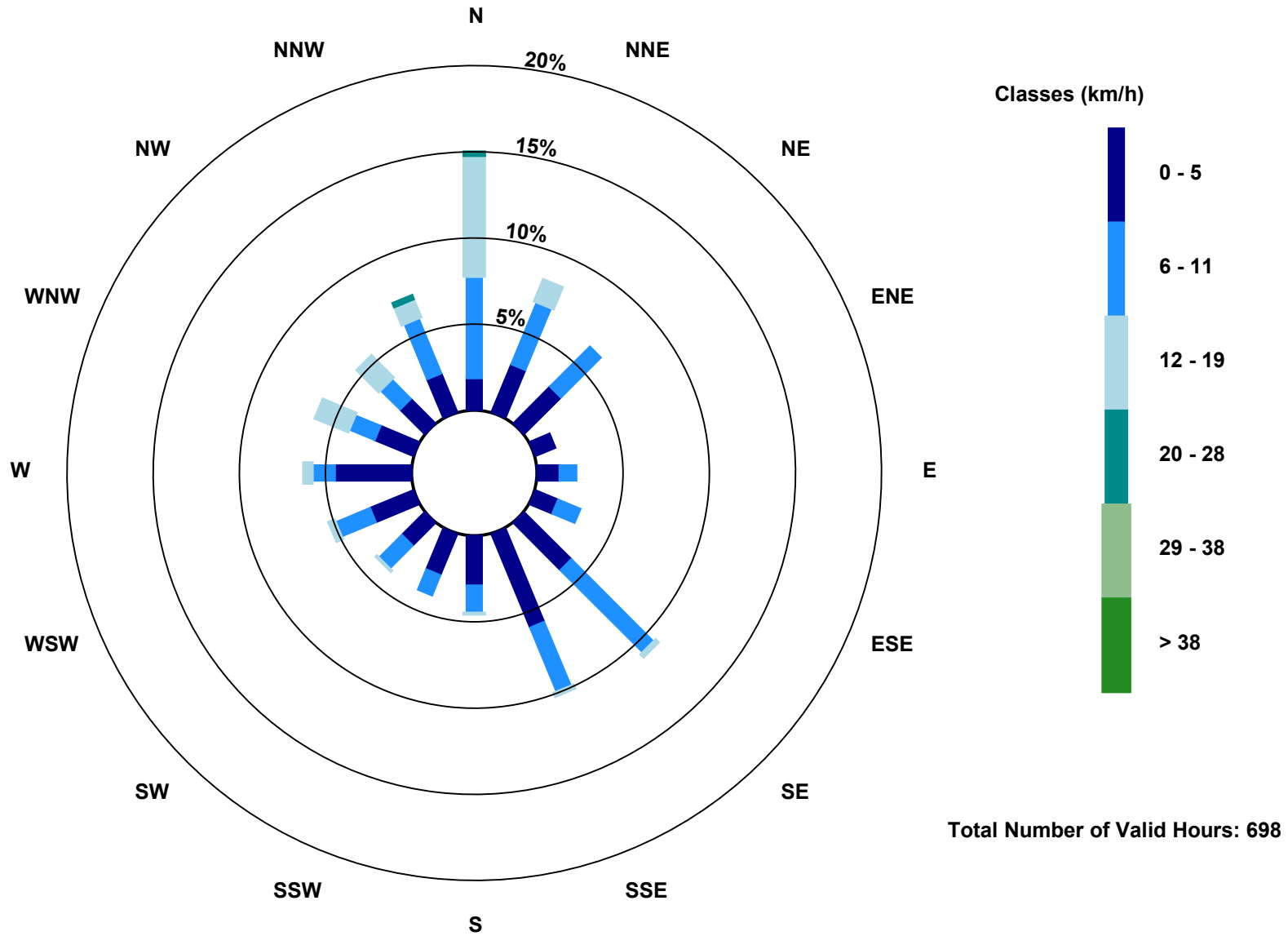
Total Number of Valid Hours: 698

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Waskow ohci Pimatisiwin





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**

**Waskow ohci Pimatisiwin - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 7 km/h on Apr 16 13:00	Hours of Data: 698
Minimum Value: 0 km/h on Apr 23 05:00	Hours of Missing Data: 22
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 96.9

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	5	5	1	2	2	4	6	4	5	5	5	4	4	5	5	5	3	3	1	1	1	1	1	6
2-Apr	1	1	1	1	1	1	1	2	2	2	2	3	3	3	4	3	4	3	2	1	1	1	2	1	4
3-Apr	1	1	1	1	2	3	3	4	1	1	1	3	4	2	2	1	1	1	1	1	1	1	1	1	4
4-Apr	2	UO	UO	UO	UO	UO	UO	UO	UO	3	2	2	1	2	2	2	2	1	2	1	1	1	1	1	3
5-Apr	1	1	1	1	1	1	1	2	2	2	2	3	3	2	2	2	1	2	2	2	1	1	1	UO	3
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	3	2	1	2	2	2	2	2	2	1	1	1	1	1	1	1	3
7-Apr	1	1	1	1	1	1	1	2	2	3	3	3	4	3	4	3	3	3	3	2	1	1	1	1	4
8-Apr	1	1	1	1	1	1	2	2	2	2	3	4	3	4	4	3	3	2	1	1	1	1	2	1	4
9-Apr	1	1	1	1	1	1	1	1	1	1	4	4	4	5	5	4	4	4	3	3	2	1	2	1	5
10-Apr	1	2	1	2	1	4	4	3	2	5	6	3	4	6	3	4	2	2	2	2	1	1	1	1	6
11-Apr	1	1	1	UO	1	1	1	1	1	2	3	3	4	4	4	4	4	4	3	2	3	3	3	2	4
12-Apr	2	2	1	1	2	2	2	5	3	4	3	3	3	4	3	3	3	3	2	1	1	2	1	1	5
13-Apr	1	1	1	1	3	4	4	3	4	6	6	7	7	6	6	6	5	4	4	4	1	1	1	1	7
14-Apr	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	3	3	2	2	2	2	2	2	2	4
15-Apr	1	1	1	1	1	1	1	2	3	3	2	2	3	3	2	2	4	4	4	4	3	3	4	3	4
16-Apr	4	5	5	5	5	6	7	6	7	6	6	7	7	6	5	6	5	5	3	3	3	3	4	4	7
17-Apr	3	4	4	3	4	4	5	5	5	4	5	5	5	6	6	6	6	5	4	3	2	1	2	2	6
18-Apr	2	2	2	3	2	3	4	4	4	4	4	5	5	5	5	5	4	4	3	2	1	1	2	1	5
19-Apr	1	1	1	1	UO	1	1	1	1	2	2	2	2	3	3	3	3	3	2	2	1	2	2	2	3
20-Apr	2	2	1	1	2	1	1	2	2	2	3	3	3	3	3	4	3	3	2	1	1	1	1	1	4
21-Apr	1	1	1	1	UO	UO	UO	1	2	2	4	3	4	3	3	2	2	2	1	2	1	1	1	1	4
22-Apr	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	2	2	2	2	1	4
23-Apr	1	1	1	1	0	1	1	1	2	1	2	2	2	2	2	2	3	3	3	3	2	2	2	2	3
24-Apr	1	1	2	1	1	1	2	2	2	3	3	2	3	3	3	2	3	2	2	2	3	3	2	2	3
25-Apr	2	1	2	1	2	1	2	3	3	4	5	5	6	5	5	6	6	7	7	3	4	4	2	3	7
26-Apr	3	4	4	5	2	6	5	5	5	4	4	4	4	5	5	4	3	3	2	1	1	1	1	1	6
27-Apr	1	1	2	1	1	1	2	2	2	2	2	3	4	4	4	5	4	4	4	2	1	1	1	1	5
28-Apr	1	1	1	1	1	1	1	2	1	2	4	4	3	3	3	3	2	2	2	2	2	2	1	1	4
29-Apr	1	1	1	1	1	1	1	1	2	3	3	3	3	2	3	3	3	4	4	4	4	4	4	3	4
30-Apr	3	4	5	5	5	5	5	5	5	4	4	4	5	4	6	5	4	4	3	4	4	4	4	3	6

5	5	5	5	5	6	7	6	7	6	6	7	7	6	6	6	6	6	7	7	4	4	4	4	4	
Diurnal Maximum																									

UO - Unstable Operation



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

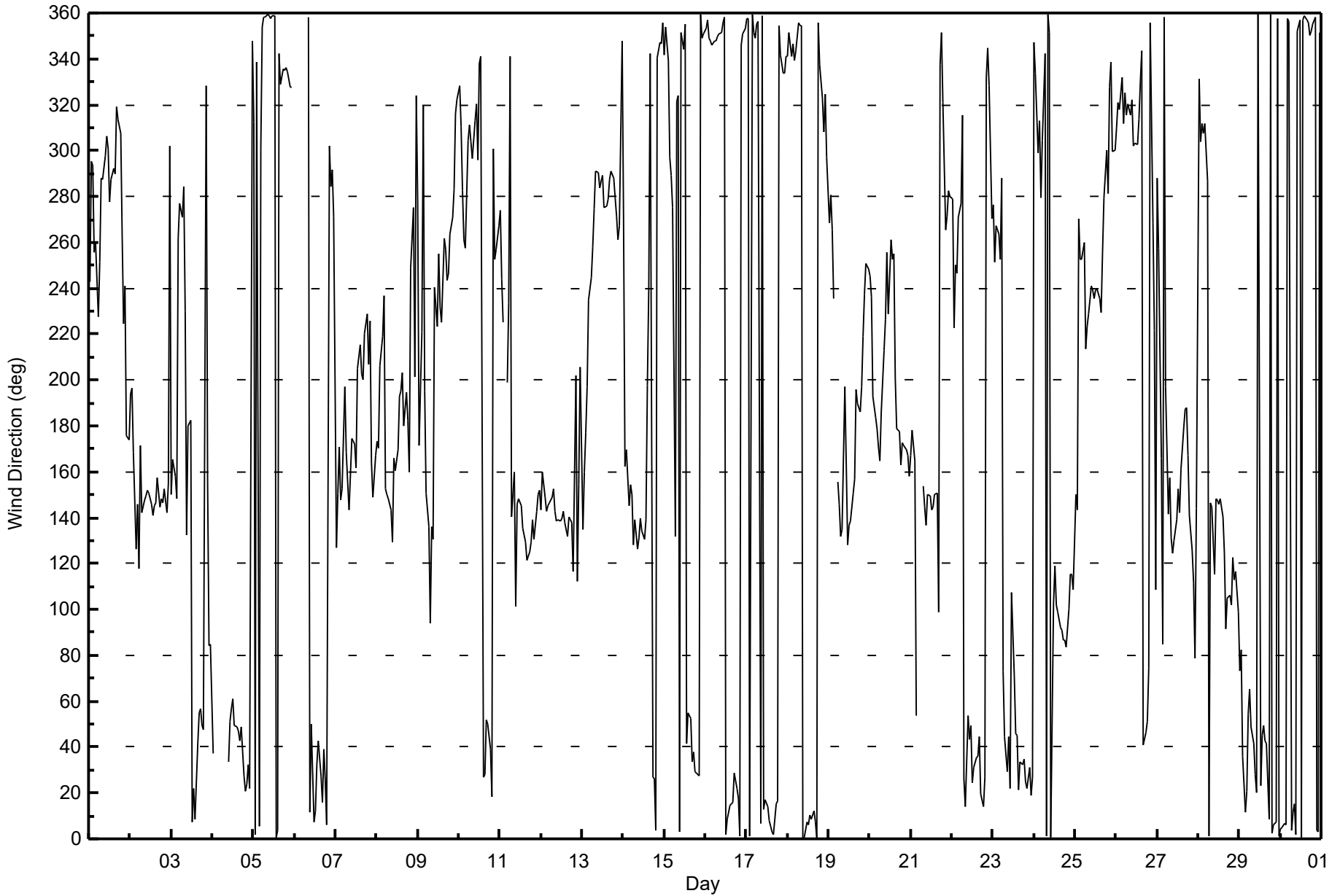
**Wind Direction (WD) - deg**  
**Waskow ohci Pimatisiwin - April 2024**

Direction of Maximum Speed: 348 deg on Apr 16 07:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 357.6 deg on Apr 16	Hours of Data: 698
Direction of Minimum Speed: 99 deg on Apr 21 17:00	Hours of Missing Data: 22
Direction of Minimum Daily Speed Average: 0.7 deg on Apr 3	Percent Operational Time: 96.9
Monthly Average Direction: 349.1 deg	

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-Apr	243	295	293	256	260	228	252	288	288	298	307	301	278	288	292	290	319	314	308	263	225	241	176	174	289.5
2-Apr	194	197	168	127	146	118	171	142	148	149	152	151	146	141	145	147	157	144	148	146	152	142	155	302	148.6
3-Apr	150	166	158	148	262	277	271	284	230	133	180	182	7	22	8	42	55	57	50	48	328	156	84	85	10.9
4-Apr	37	UO	UO	UO	UO	UO	UO	UO	UO	34	51	57	7	22	8	42	55	57	50	48	328	156	84	85	--
5-Apr	313	2	338	6	301	354	358	358	359	359	358	359	359	1	4	342	329	335	335	336	334	328	328	UO	348.0
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	358	11	50	8	12	33	42	27	16	39	26	6	302	284	292	272	--
7-Apr	127	151	171	148	153	197	169	156	144	175	173	172	161	205	215	203	200	220	229	207	226	164	149	167	186.0
8-Apr	173	170	206	219	237	152	150	149	143	129	166	160	169	193	195	203	180	195	182	160	249	275	201	324	177.0
9-Apr	279	172	221	320	195	151	136	94	136	131	240	223	255	232	225	262	257	244	247	264	271	283	316	322	244.4
10-Apr	328	311	283	261	257	304	311	304	297	313	320	296	338	341	27	28	52	50	39	19	301	253	257	267	326.5
11-Apr	274	244	225	UO	199	234	341	140	160	101	146	148	145	135	132	129	121	125	129	139	131	143	150	152	139.4
12-Apr	144	160	149	143	145	147	149	153	143	139	139	138	140	143	138	132	140	139	138	117	202	112	155	205	142.6
13-Apr	135	160	177	197	235	245	258	275	291	291	284	287	290	275	276	279	287	291	288	279	271	261	267	348	277.4
14-Apr	270	162	170	145	155	150	128	139	127	131	140	134	130	139	197	240	342	27	26	4	341	347	346	356	92.7
15-Apr	342	354	340	297	289	275	132	321	324	3	352	344	355	42	55	53	33	38	29	29	28	359	349	351	5.9
16-Apr	353	357	349	348	346	348	348	349	351	351	356	358	2	8	15	15	16	29	22	18	1	346	351	353	357.6
17-Apr	357	358	1	359	351	349	355	356	7	359	13	17	14	8	5	3	2	15	17	355	342	334	334	341	1.2
18-Apr	341	352	341	347	339	344	356	354	355	0	1	7	6	11	9	12	7	0	356	337	323	308	325	297	353.5
19-Apr	268	281	265	236	UO	156	146	132	135	197	164	128	137	139	151	157	196	190	186	197	219	237	251	249	181.0
20-Apr	245	236	193	184	179	171	165	186	213	226	256	229	261	252	255	201	179	177	163	173	172	170	167	158	205.6
21-Apr	167	178	165	53	UO	UO	UO	154	145	137	150	149	144	145	150	151	99	337	351	321	266	271	283	280	156.0
22-Apr	279	223	250	247	271	277	316	26	14	54	43	50	25	31	36	36	45	19	14	27	332	345	328	270	14.4
23-Apr	277	252	267	263	253	288	73	45	29	45	22	107	71	46	45	22	33	32	35	25	22	31	19	27	30.7
24-Apr	347	334	299	313	280	305	343	1	360	352	0	103	119	102	99	92	91	87	87	84	100	115	115	109	67.5
25-Apr	150	143	270	252	253	260	214	223	229	241	239	236	239	240	235	229	256	279	300	281	327	339	300	300	260.4
26-Apr	310	321	318	332	312	325	316	320	315	322	302	303	303	314	330	344	41	46	51	74	355	268	222	109	324.4
27-Apr	288	258	166	85	358	197	141	157	131	124	130	139	152	142	161	179	187	188	167	141	126	112	78	144	156.4
28-Apr	331	304	312	308	312	287	1	147	145	116	148	148	146	148	141	125	92	105	106	102	123	113	117	99	127.8
29-Apr	73	82	36	12	20	54	65	49	42	28	20	360	23	45	50	43	42	9	359	2	6	8	358	1	19.5
30-Apr	4	5	7	6	358	357	3	12	15	2	352	357	1	357	359	357	356	350	352	355	358	4	3	352	0.1

326.6	329.2	324.3	332.1	311.5	315.3	331.4	333.2	350.6	353.7	343.4	350.8	10.3	26.4	38.7	13.6	22.3	17.7	11.4	9.9	350.6	349.3	345.7	340.5
Diurnal Average																							

UO - Unstable Operation  
 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**

**Waskow ohci Pimatisiwin - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 110 deg on Apr 21 17:00	Hours in Service: 720 Hours of Data: 698 Hours of Missing Data: 22 Hours of Calibration: 0 Percent Operational Time: 96.9
Minimum Value: 11 deg on Apr 19 06:00	
Percentiles: P <sub>1</sub> = 15 P <sub>10</sub> = 20 Q <sub>1</sub> = 24 Median = 29 Q <sub>3</sub> = 42 P <sub>90</sub> = 59 P <sub>99</sub> = 92	

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-Apr	54	27	25	21	29	57	69	25	25	22	21	27	33	33	28	30	20	18	16	57	62	77	52	57	77
2-Apr	89	81	25	58	67	31	43	23	24	24	38	28	24	24	22	24	28	23	21	23	19	34	72	80	89
3-Apr	87	26	47	58	97	24	22	27	68	54	26	85	24	35	35	26	21	21	21	32	86	78	46	46	97
4-Apr	46	UO	UO	UO	UO	UO	UO	UO	UO	38	30	32	42	33	32	31	29	19	21	22	25	37	26	25	46
5-Apr	32	26	39	37	72	31	18	22	25	28	27	24	23	25	24	20	17	17	17	18	16	24	24	UO	72
6-Apr	UO	UO	UO	UO	UO	UO	UO	UO	29	33	30	36	31	34	33	25	26	33	48	27	40	39	78	61	78
7-Apr	77	59	37	24	35	24	34	22	26	37	35	37	35	44	52	48	50	42	39	30	38	40	37	38	77
8-Apr	22	32	58	59	64	46	28	23	24	26	37	31	45	40	47	48	49	43	68	94	35	92	80	34	94
9-Apr	45	58	82	74	86	52	40	82	39	33	75	46	41	46	51	42	48	42	44	35	24	18	34	77	86
10-Apr	50	51	21	29	31	22	18	19	23	20	24	28	30	37	32	31	26	22	25	18	30	45	55	43	55
11-Apr	69	54	86	UO	96	71	77	35	55	60	30	27	25	29	28	25	25	25	25	26	25	23	21	21	96
12-Apr	19	19	26	22	20	20	20	26	24	22	23	24	24	23	24	25	24	24	21	34	83	54	58	89	89
13-Apr	88	41	23	54	35	35	35	33	31	38	35	30	27	33	34	33	33	30	30	24	19	13	69	81	88
14-Apr	104	60	56	25	18	33	45	35	23	25	32	30	35	48	63	57	39	31	22	25	18	21	19	17	104
15-Apr	17	45	20	48	66	46	79	33	18	39	25	20	25	31	20	25	27	27	24	24	25	24	20	20	79
16-Apr	21	22	20	21	20	21	21	22	23	21	24	24	25	26	25	24	24	27	24	23	26	18	20	20	27
17-Apr	22	22	24	22	21	19	22	23	25	27	29	27	27	29	27	24	28	27	27	21	19	18	17	20	29
18-Apr	16	20	16	17	18	18	21	25	25	26	27	28	26	31	29	30	31	25	25	17	15	12	18	15	31
19-Apr	18	31	28	26	UO	11	29	21	26	66	76	64	34	31	32	42	48	40	30	30	33	30	25	27	76
20-Apr	59	62	86	52	43	26	35	60	64	50	51	67	65	65	61	53	38	33	28	31	55	13	22	29	86
21-Apr	33	31	44	37	UO	UO	UO	26	29	39	35	30	28	32	35	33	110	65	41	24	21	23	41	21	110
22-Apr	100	56	47	18	18	27	44	43	40	48	39	33	37	47	38	35	29	27	29	26	20	18	33	68	100
23-Apr	80	49	15	15	11	48	41	70	46	51	57	52	52	32	32	30	28	25	23	23	21	25	28	44	80
24-Apr	29	30	36	29	60	59	22	24	25	30	49	53	28	28	28	25	21	23	27	23	26	25	27	24	60
25-Apr	56	59	44	36	28	49	69	54	50	46	52	49	46	46	47	44	45	34	23	25	20	20	22	22	69
26-Apr	17	17	16	19	24	18	19	19	22	27	29	37	38	33	34	47	34	27	23	18	54	77	99	86	99
27-Apr	21	39	34	65	92	43	26	34	27	26	29	42	39	31	37	39	36	35	32	23	29	24	42	46	92
28-Apr	48	26	15	20	18	31	35	51	27	43	29	24	30	39	29	30	27	25	25	23	26	24	27	26	51
29-Apr	29	25	36	31	37	33	27	25	28	27	30	28	40	37	29	26	25	28	22	23	24	23	23	26	40
30-Apr	23	24	23	23	22	22	23	24	25	24	23	24	24	23	24	23	23	24	21	21	22	22	24	23	25

104	81	86	74	97	71	79	82	68	66	76	85	65	65	63	57	110	65	68	94	86	92	99	89	
Diurnal Maximum																								

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS26 CHRISTINA LAKE APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
 APRIL 2024

MONTHLY SUMMARY

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	686	33	34	99.86	17.2	0	5.3	0
H2S (ppb) Average	661	38	59	97.08	10	0	1.2	0
NO2 (ppb) Average	684	36	36	100	20.2	0	5.6	-
NO (ppb) Average	684	36	36	100	19.4	-	3.5	-
NOX (ppb) Average	684	36	36	100	39	-	9	-
Temperature 2 m (C) Average	720	0	0	100	19.1	-	10.5	-
Relative Humidity (%) Average	720	0	0	100	100	-	94.6	-
Wind Speed 10 m (km/h) Average	720	0	0	100	32	-	23	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	686	0.72	1.7	-	0	0	0.1	0.2	0.5	2	17.2
H2S (ppb) Average	661	0.28	0.7	-	0	0	0.1	0.2	0.3	0.5	10
NO2 (ppb) Average	684	3.06	3.1	-	0.1	0.6	1	1.8	4.1	7.4	20.2
NO (ppb) Average	684	0.99	2	-	0	0	0.1	0.3	1	2.5	19.4
NOX (ppb) Average	684	4.05	4.7	-	0.1	0.7	1.2	2.1	5.2	9.5	39
Temperature 2 m (C) Average	720	4.73	5.6	-	-9.3	-2.1	0.4	4.5	8.4	13	19.1
Relative Humidity (%) Average	720	55.49	25	-	11.8	22.9	33	54.5	74.8	91.7	100
Wind Speed 10 m (km/h) Average	720	12.6	6	-	1	4	8	12	17	21	32
Wind Direction 10 m (deg) Average	720	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	11 Apr 2024 11:00	11 Apr 2024 11:00	1	Maintenance - station logger/modem reset
H2S	10 Apr 2024 14:00	11 Apr 2024 10:00	21	Maintenance - analyzer replaced



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

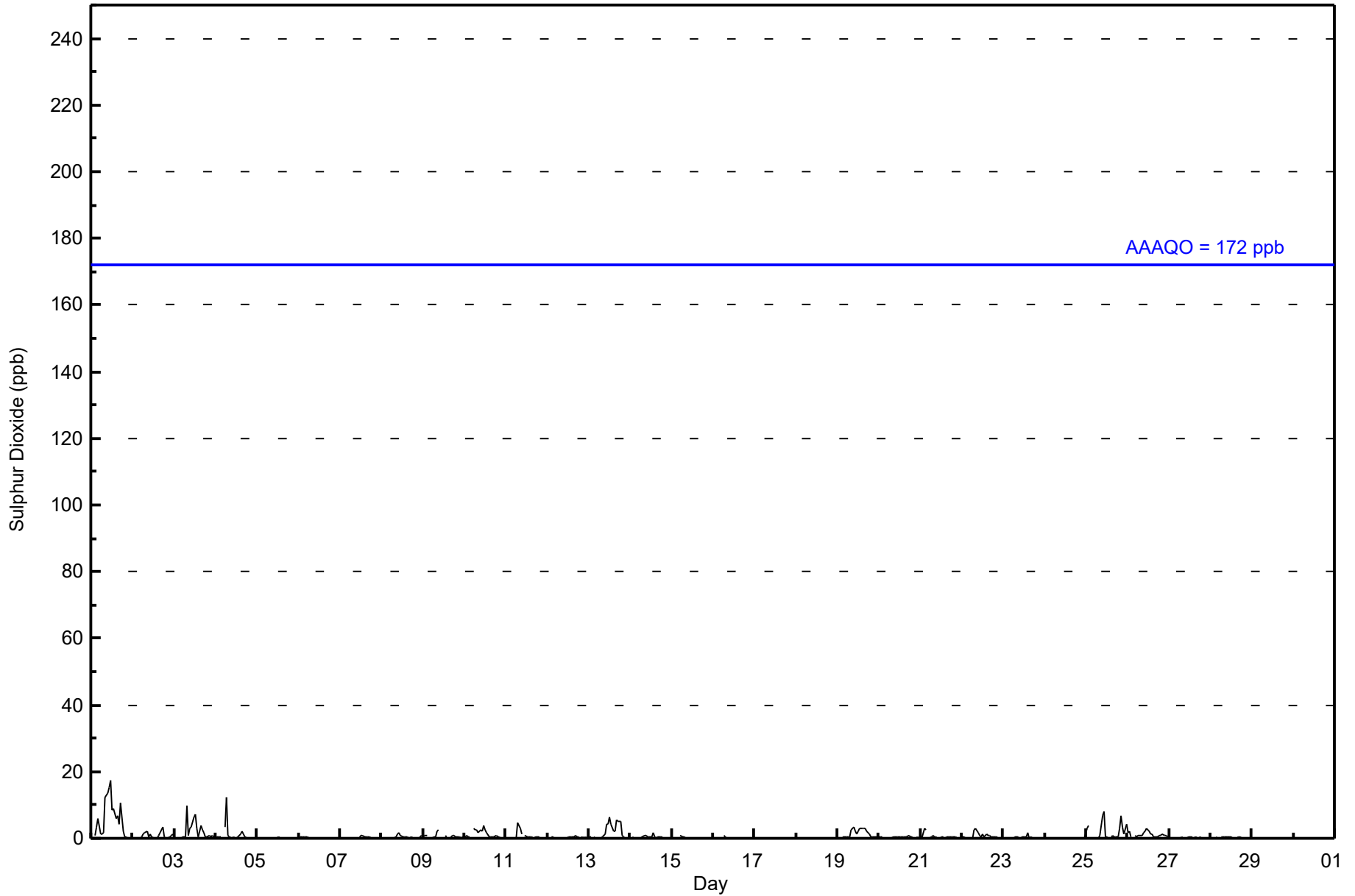
## Christina Lake - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum																											
Maximum Value: 17.2 ppb on Apr 1 12:00		Maximum Daily Average: 5.3 ppb on Apr 1		Hours of Data: 686														Daily Average		Daily Maximum																													
Minimum Value: 0.0 ppb on Apr 2 02:00		Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Missing Data: 34														Daily Average		Daily Maximum																													
Maximum Diurnal Average: 1.5 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 23		Hours of Calibration: 33														Daily Average		Daily Maximum																													
Monthly Average: 0.72 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 2.0 P <sub>99</sub> = 9.0		Percent Operational Time: 99.9														Daily Average		Daily Maximum																													
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-Apr	0.5	Z	1.0	3.5	5.9	1.2	1.1	1.6	12.3	13.4	15.1	17.2	8.4	8.9	6.1	6.7	4.2	10.6	2.3	0.3	0.3	0.2	0.1	0.1	5.3	17.2																							
2-Apr	0.0	0.0	Z	0.0	0.0	0.2	1.1	1.9	2.3	0.4	1.1	0.3	0.2	0.2	0.7	1.9	3.4	0.6	0.0	0.1	0.4	0.9	1.3	0.7	3.4																								
3-Apr	0.4	0.1	0.0	Z	0.0	0.4	0.3	9.7	0.9	3.1	3.6	6.4	7.1	2.8	0.5	3.9	2.7	1.7	0.5	0.3	0.8	0.5	0.7	0.4	2.0	9.7																							
4-Apr	0.6	0.6	0.3	0.5	Z	3.2	12.4	0.9	0.3	0.2	0.4	0.2	0.2	0.4	1.1	2.0	1.3	0.4	0.2	0.1	0.1	0.1	0.1	0.2	1.1	12.4																							
5-Apr	0.2	0.1	0.2	0.2	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3																							
6-Apr	Z	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
7-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.8	0.9	0.4	0.4	0.5	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.9																							
8-Apr	0.1	0.1	Z	0.2	0.0	0.1	0.1	0.1	0.2	1.3	1.8	0.9	0.3	0.3	0.3	0.3	0.1	0.5	0.1	0.1	0.1	0.1	0.3	0.7	0.4	1.8																							
9-Apr	0.3	0.7	1.0	Z	0.1	0.2	0.3	0.4	2.1	2.7	C	C	C	0.8	0.1	0.1	0.3	0.7	0.9	0.5	0.3	0.4	0.1	0.5	0.6	2.7																							
10-Apr	0.6	0.6	0.3	0.4	Z	2.9	2.5	2.6	1.7	2.7	2.2	3.9	2.4	1.7	0.5	0.5	0.3	0.4	0.8	0.4	0.2	0.2	0.1	0.1	1.2	3.9																							
11-Apr	0.1	0.0	0.0	0.1	0.0	Z	0.1	4.8	2.8	1.5	M	0.8	0.6	0.4	0.5	0.4	0.2	0.3	0.3	0.4	0.2	0.1	0.1	0.0	0.6	4.8																							
12-Apr	0.1	Z	0.2	0.4	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.4	0.6	0.4	1.0	0.5	0.3	0.2	0.3	0.2	0.2	0.1	0.2	1.0																							
13-Apr	0.5	0.3	Z	0.3	0.2	0.1	0.0	0.0	0.4	1.4	4.1	4.2	6.3	4.1	1.9	2.1	5.5	4.9	4.9	0.7	0.4	0.1	0.1	0.1	1.9	6.3																							
14-Apr	0.1	0.1	0.3	Z	0.2	0.1	0.0	0.4	1.0	0.8	0.5	0.2	0.2	1.8	0.2	0.2	0.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.3	1.8																							
15-Apr	0.0	0.0	0.0	0.0	Z	0.7	0.5	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.7																							
16-Apr	0.0	0.0	0.1	0.1	0.1	Z	0.7	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.7																							
17-Apr	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
18-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1																							
19-Apr	0.0	0.1	Z	0.2	0.4	0.3	0.4	0.3	2.6	3.5	2.0	1.4	2.0	2.9	2.8	3.1	3.0	2.0	1.4	0.5	0.4	0.4	0.3	0.3	1.3	3.5																							
20-Apr	0.3	0.2	0.5	Z	0.1	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.7	0.5	0.2	0.2	0.1	0.4	0.2	0.3	0.7																							
21-Apr	0.2	0.2	3.2	2.6	Z	0.1	0.3	0.7	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.4	0.5	0.4	0.3	0.1	0.2	0.2	0.5	3.2																							
22-Apr	0.4	0.2	0.0	0.1	0.1	Z	0.2	2.7	2.8	1.6	0.9	0.6	1.1	0.6	1.2	0.7	0.7	0.4	0.5	0.4	0.2	0.2	0.2	0.1	0.7	2.8																							
23-Apr	Z	0.1	0.1	0.2	0.0	0.0	0.1	0.2	0.4	0.1	0.1	0.2	0.3	0.3	1.7	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2	1.7																							
24-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.2																							
25-Apr	3.1	3.8	Z	0.0	0.0	0.0	0.0	0.0	1.0	6.8	7.8	0.4	0.4	0.0	0.1	1.0	0.6	0.6	0.4	2.8	6.8	3.4	1.2	4.4	1.9	7.8																							
26-Apr	1.7	2.0	0.6	Z	0.9	0.6	0.7	0.7	1.0	1.6	2.1	2.8	2.0	1.3	1.2	0.2	0.4	0.5	0.7	1.0	1.2	1.0	0.8	0.4	1.1	2.8																							
27-Apr	0.2	0.0	0.1	0.0	Z	0.0	0.2	0.4	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.4																							
28-Apr	0.2	0.1	0.2	0.2	0.3	Z	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3																							
29-Apr	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2																							
30-Apr	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
																								0.4	0.4	0.4	0.4	0.4	0.4	0.7	1.0	1.1	1.4	1.5	1.4	1.2	1.0	0.7	0.8	0.8	1.0	0.5	0.3	0.4	0.3	0.2	0.3	Diurnal Average	
																								3.1	3.8	3.2	3.5	5.9	3.2	12.4	9.7	12.3	13.4	15.1	17.2	8.4	8.9	6.1	6.7	5.5	10.6	4.9	2.8	6.8	3.4	1.2	4.4	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	680	99.13	99.13
11 - 20	6	0.87	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Christina Lake - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	39	109	57	20	14	40	30	47	36	52	46	56	53	29	30	22	680
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	6
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>	39	109	57	20	14	40	30	47	36	52	46	56	53	34	31	22	686

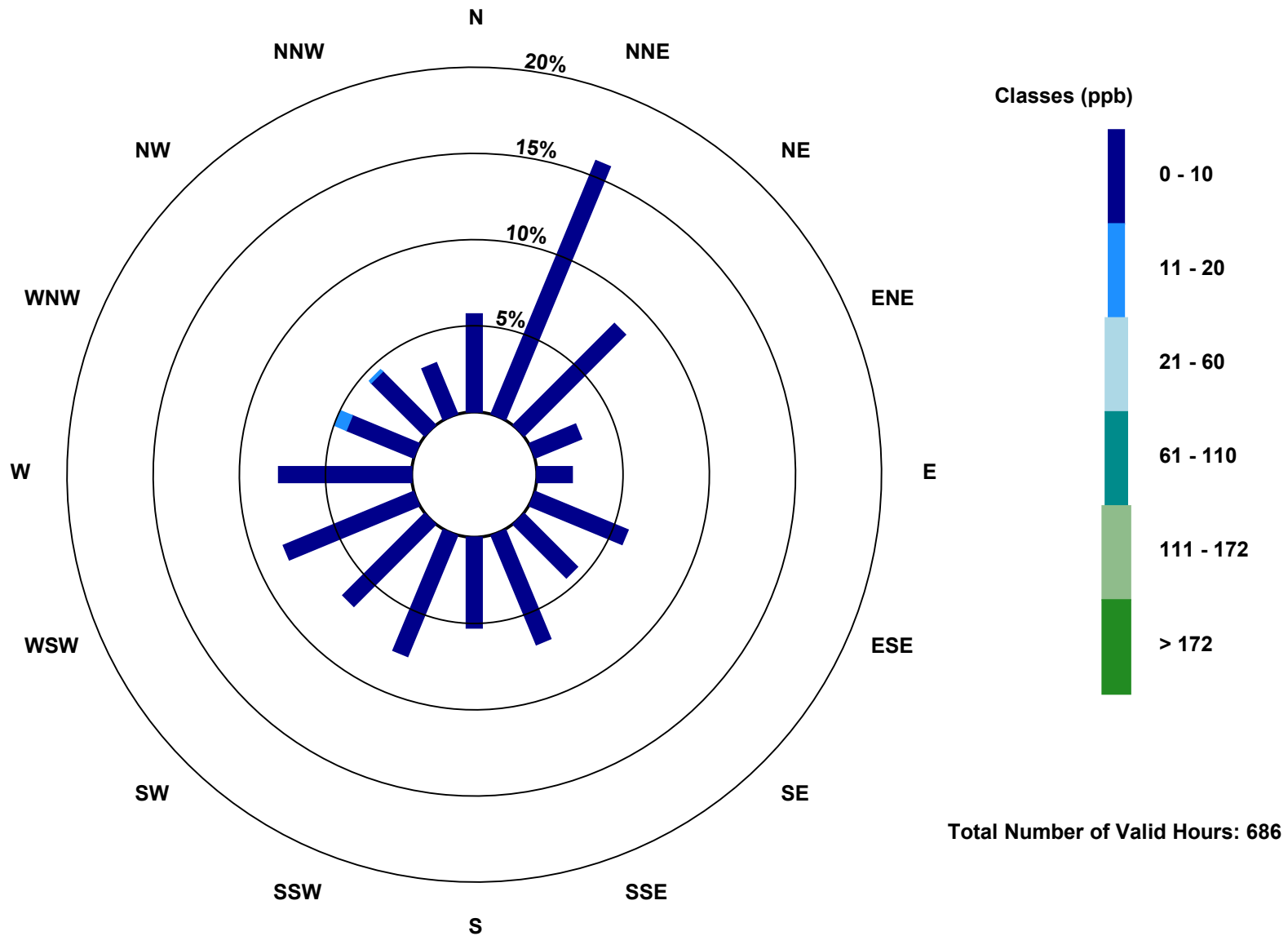
Total Number of Valid Hours: 686

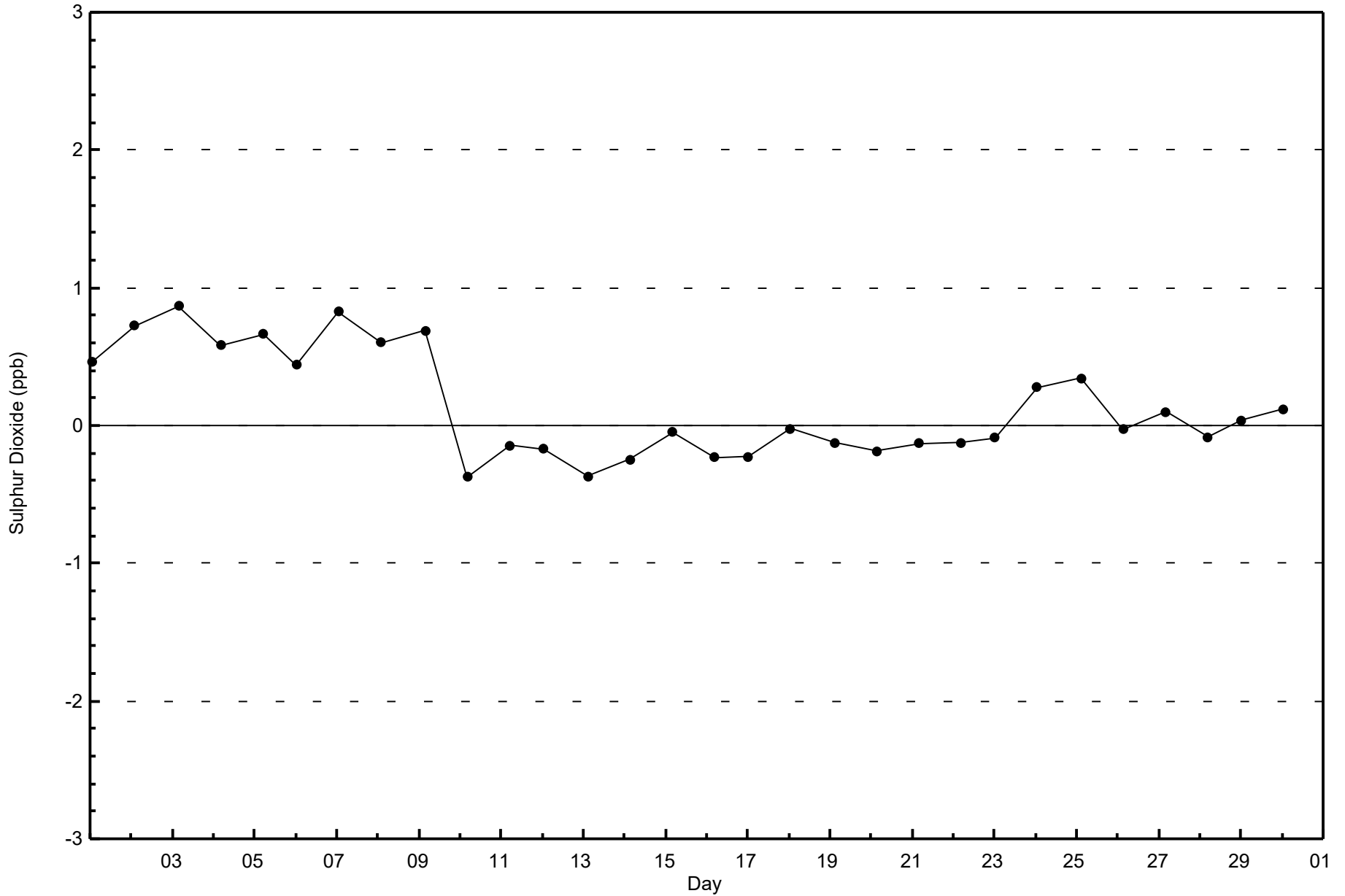
Total Number of Hours: 720



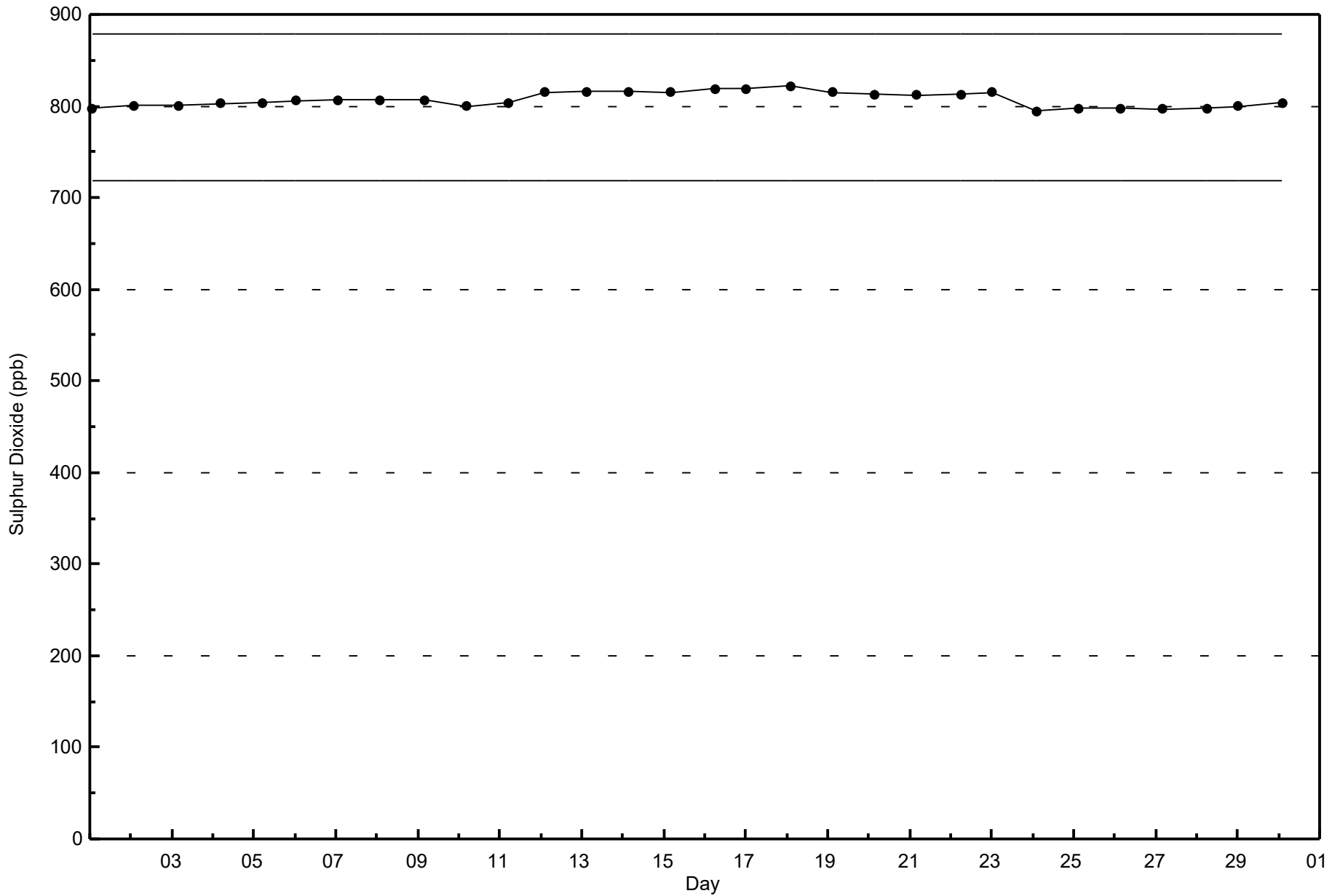
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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







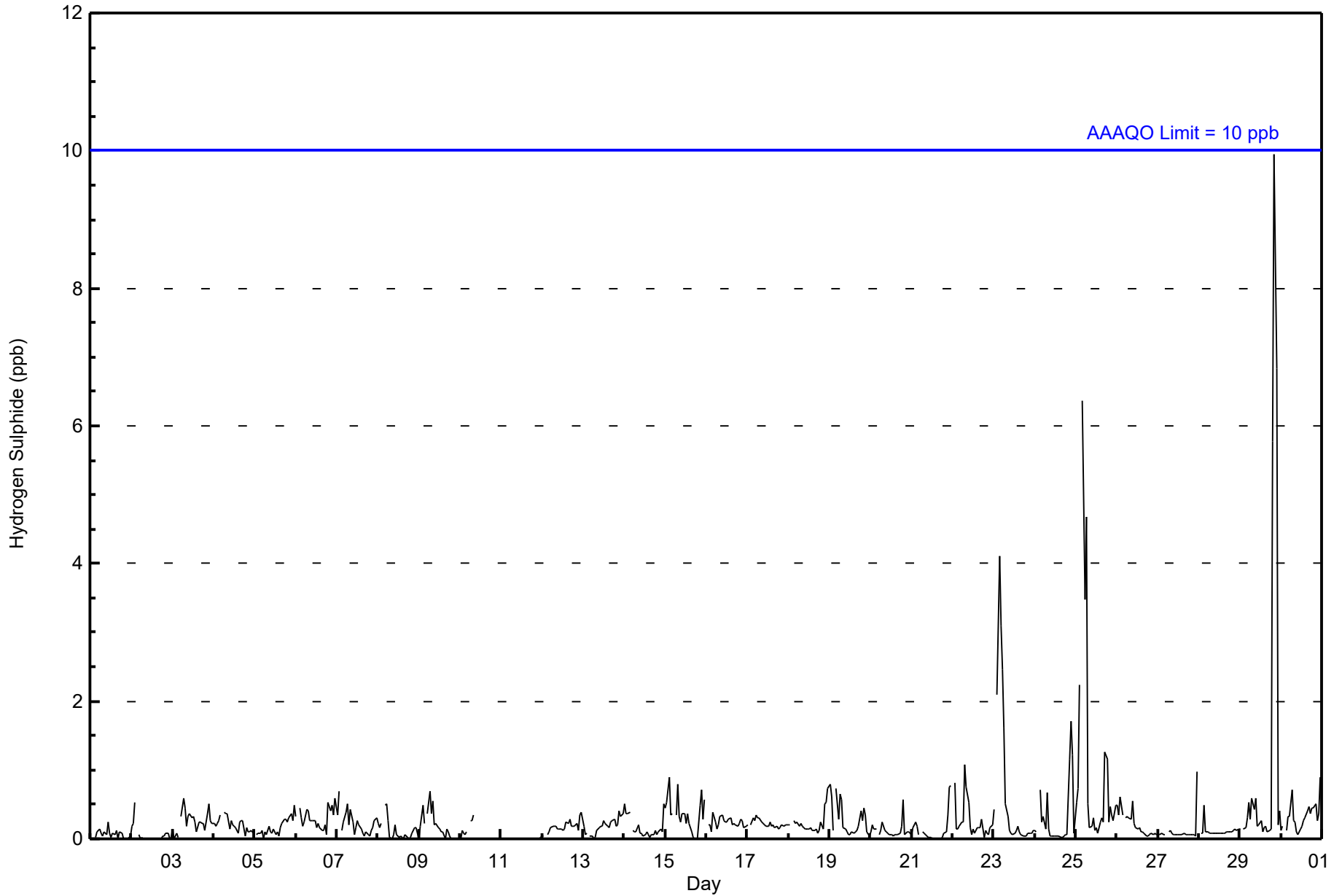




Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 10.0 ppb on Apr 29 21:00	Maximum Daily Average: 1.2 ppb on Apr 29		Hours of Data:	661
Minimum Value: 0.0 ppb on Apr 1 01:00	Minimum Daily Average: 0.1 ppb on Apr 2		Hours of Missing Data:	59
Maximum Diurnal Average: 0.6 ppb at hour 5	Minimum Diurnal Average: 0.1 ppb at hour 16		Hours of Calibration:	38
Monthly Average: 0.28 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.5 P <sub>99</sub> = 3.2		Percent Operational Time:	97.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2																					
2-Apr	0.2	0.2	0.5	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.5																					
3-Apr	0.1	0.0	0.1	0.0	Z	0.3	0.6	0.5	0.2	0.3	0.4	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.4	0.5	0.3	0.2	0.3	0.3	0.6	0.6																					
4-Apr	0.2	0.2	0.2	0.3	0.3	Z	0.4	0.4	0.4	0.4	0.1	0.3	0.2	0.2	0.1	0.2	0.3	0.3	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																					
5-Apr	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.3	0.5	0.2	0.2	0.2	0.5																					
6-Apr	0.3	Z	0.5	0.3	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.5	0.4	0.5	0.4	0.6	0.3	0.3	0.3	0.6																					
7-Apr	0.3	0.7	Z	0.1	0.2	0.4	0.5	0.2	0.4	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.7																					
8-Apr	0.2	0.2	0.2	Z	0.5	0.5	0.3	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.5																					
9-Apr	0.0	0.2	0.5	0.2	Z	0.4	0.7	0.4	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7																					
10-Apr	0.0	0.1	0.1	0.1	0.1	Z	0.3	0.3	0.3	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0.3																					
11-Apr	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
12-Apr	0.0	0.0	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.4	0.2	0.2	0.2	0.4																					
13-Apr	0.2	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.4	0.3	0.4	0.2	0.2	0.2	0.4																					
14-Apr	0.5	0.4	0.4	0.4	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.2	0.2	0.5																					
15-Apr	0.5	0.5	0.9	0.3	0.4	Z	0.3	0.8	0.3	0.2	0.4	0.4	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.5	0.7	0.3	0.6	0.4	0.4	0.4	0.9																					
16-Apr	Z	0.2	0.2	0.1	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4																					
17-Apr	0.2	Z	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3																					
18-Apr	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.5	0.5	0.7	0.2	0.2	0.2	0.7																					
19-Apr	0.8	0.6	0.1	Z	0.7	0.3	0.6	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.5	0.3	0.1	0.0	0.3	0.3	0.8																					
20-Apr	0.1	0.2	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6																					
21-Apr	0.1	0.2	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.8	0.8	0.1	0.1	0.1	0.8																					
22-Apr	Z	0.8	0.1	0.1	0.2	0.2	0.2	1.1	0.8	0.5	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	1.1																					
23-Apr	0.4	Z	2.1	4.1	3.1	2.5	1.6	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	4.1																					
24-Apr	0.1	0.1	Z	0.7	0.2	0.3	0.1	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.2	1.7	1.2	0.1	0.3	0.3	0.3	1.7																					
25-Apr	0.5	0.7	2.2	Z	6.4	3.5	4.7	0.5	0.2	0.2	0.3	0.1	0.2	0.1	0.2	0.3	0.2	1.3	1.2	0.2	0.5	0.3	0.3	0.5	1.1	1.1	1.1	6.4																					
26-Apr	0.5	0.3	0.6	0.3	Z	0.3	0.3	0.3	0.3	0.5	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.6																					
27-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	1.0	0.1	0.1	0.1	1.0																					
28-Apr	Z	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5																					
29-Apr	0.1	Z	0.1	0.2	0.3	0.5	0.3	0.6	0.4	0.6	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.1	5.8	10.0	6.8	0.2	0.4	1.2	1.2	1.2	10.0																					
30-Apr	0.1	0.2	Z	0.1	0.3	0.3	0.7	0.3	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.3	0.4	0.9	0.3	0.3	0.3	0.9																					
																								0.2	0.3	0.4	0.4	0.6	0.5	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.6	0.5	0.2	0.3	Diurnal Average	
																								0.8	0.8	2.2	4.1	6.4	3.5	4.7	1.1	0.8	0.6	0.4	0.4	0.3	0.4	0.3	0.4	0.5	1.3	1.2	5.8	10.0	6.8	1.2	1.0	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Christina Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	653	98.79	98.79
3 - 4	3	0.45	99.24
5 - 7	4	0.61	99.85
8 - 11	1	0.15	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 661

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Christina Lake - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	34	107	55	18	15	40	31	45	30	44	42	57	51	37	27	20	653
3 - 4	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3
5 - 7	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4
8 - 11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	35	110	55	18	15	40	31	45	30	44	43	59	52	37	27	20	661

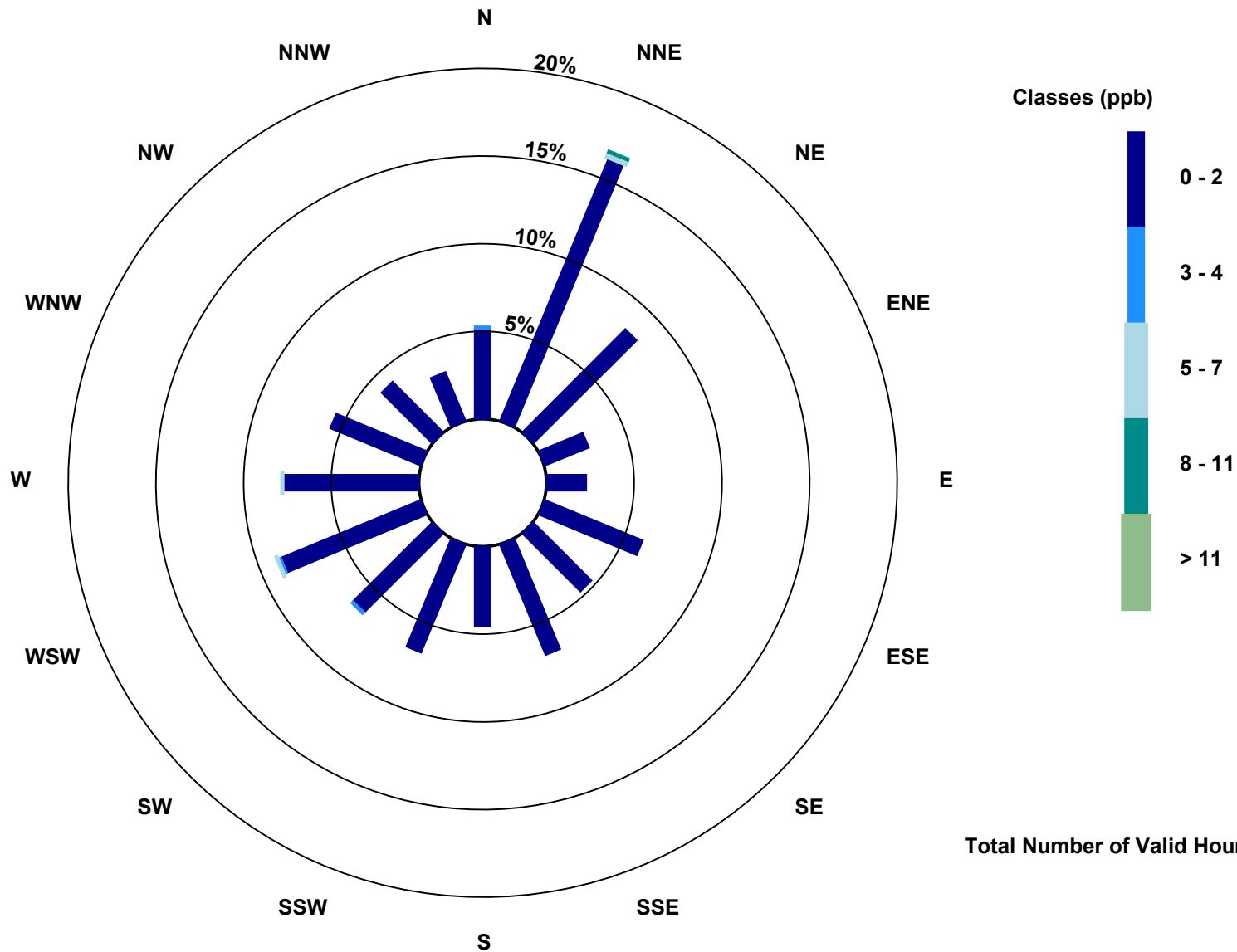
Total Number of Valid Hours: 661

Total Number of Hours: 720

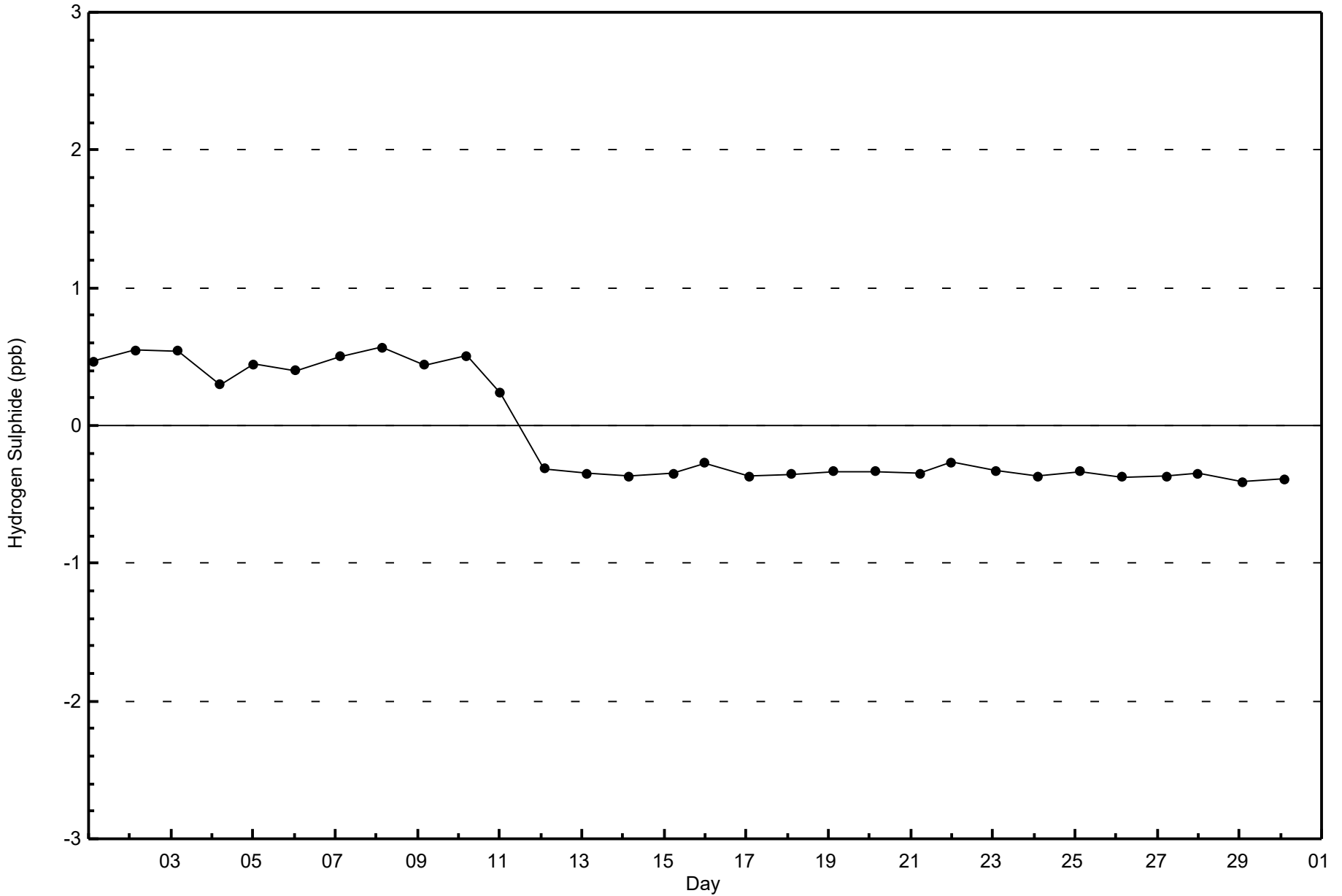


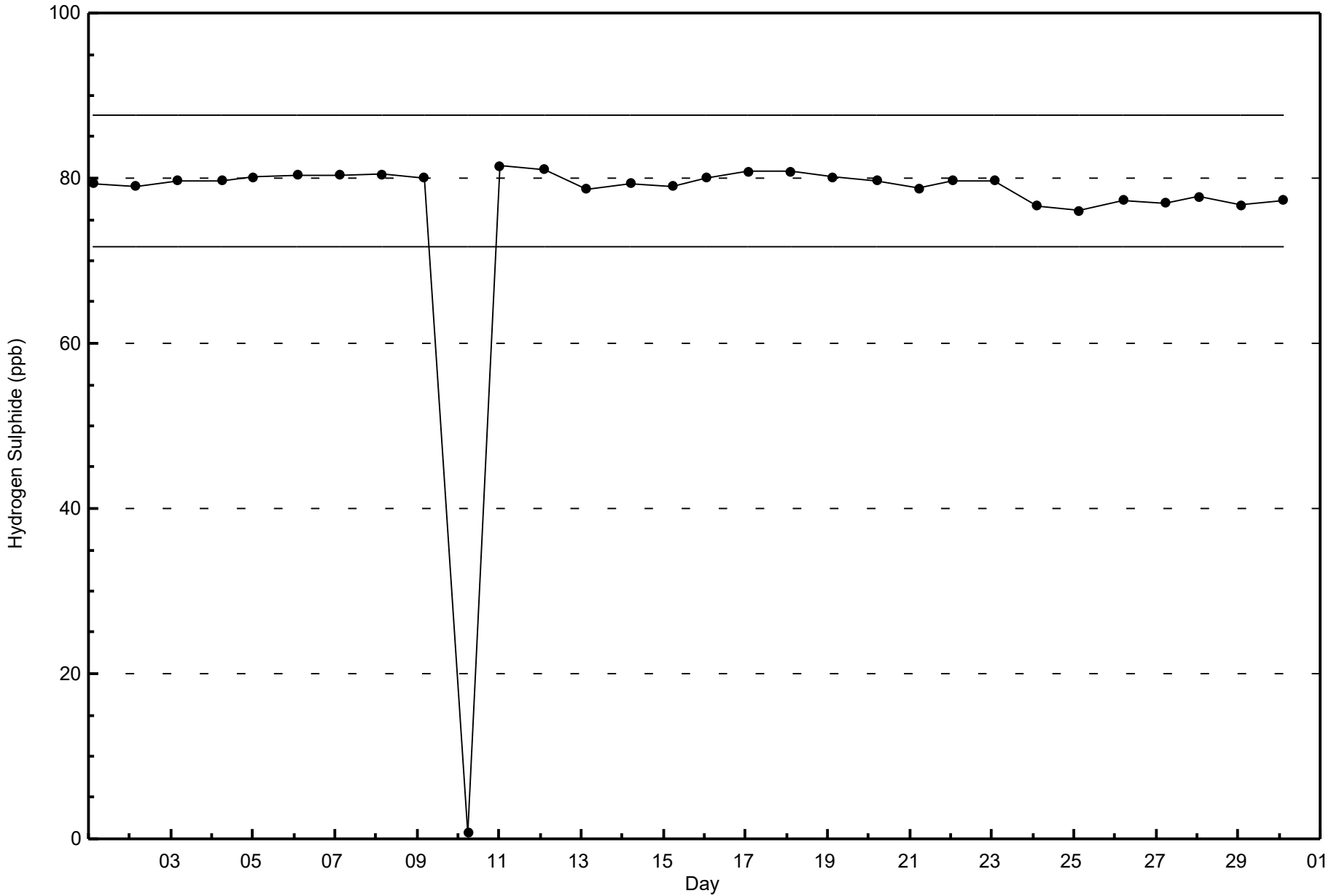
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 661









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

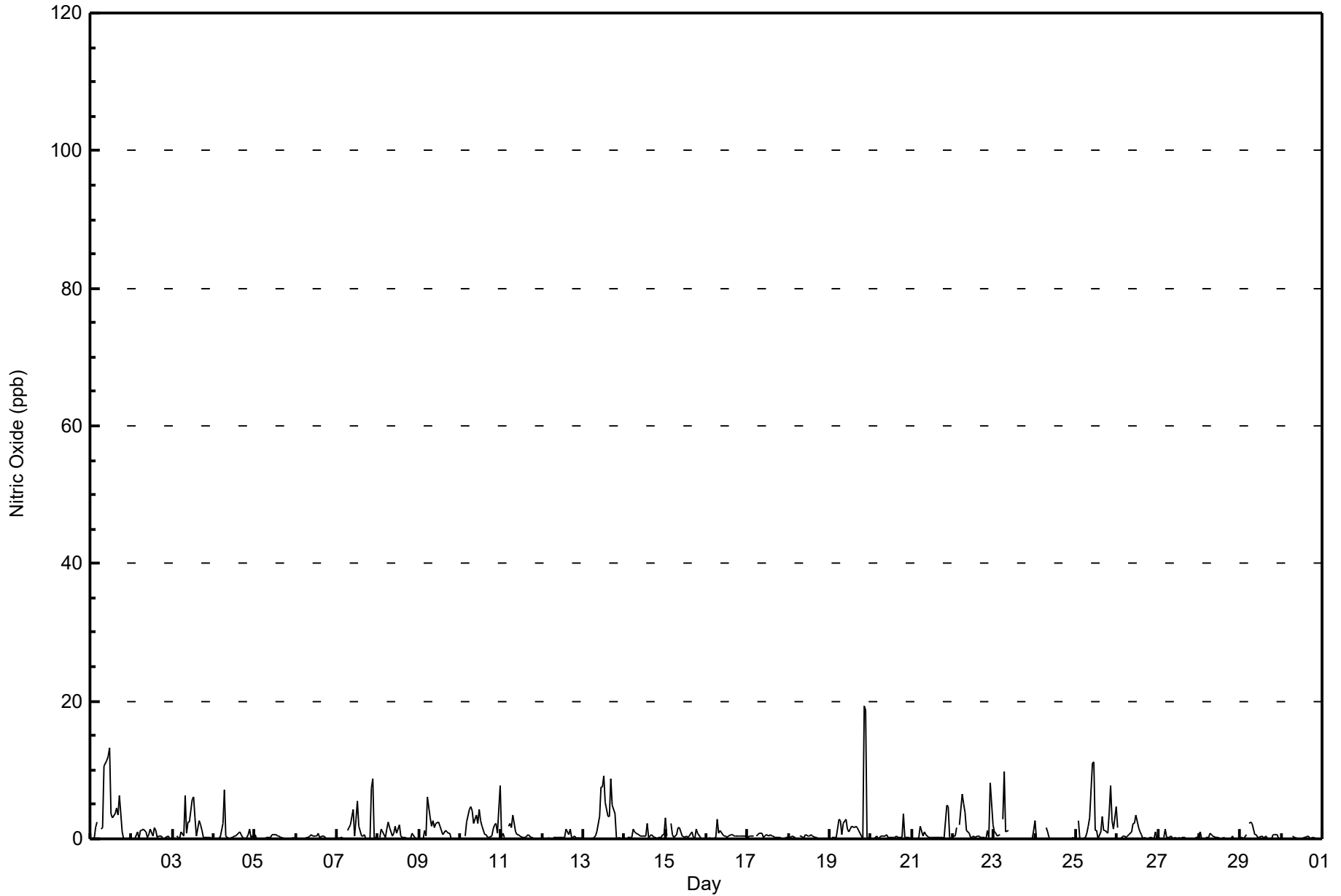
**Nitric Oxide (NO) - ppb**  
**Christina Lake - April 2024**

Maximum Value: 19.4 ppb on Apr 19 21:00																				Maximum Daily Average: 3.5 ppb on Apr 1					Hours in Service: 720	
Minimum Value: 0.0 ppb on Apr 1 22:00																				Minimum Daily Average: 0.1 ppb on Apr 30					Hours of Data: 684	
Maximum Diurnal Average: 1.8 ppb at hour 7																				Minimum Diurnal Average: 0.2 ppb at hour 3					Hours of Missing Data: 36	
Monthly Average: 0.99 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 2.5 P <sub>99</sub> = 10.6					Hours of Calibration: 36	
																									Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	0.0	0.0	0.0	1.7	2.5	Z	1.5	1.6	10.5	11.4	12.0	13.3	3.6	3.0	3.6	4.4	3.4	6.3	1.1	0.1	0.0	0.0	0.0	0.2	3.5	13.3
2-Apr	Z	0.1	0.0	0.9	0.1	1.3	1.3	1.3	1.0	0.3	0.7	1.5	0.4	1.6	1.3	0.2	0.4	0.5	0.1	0.0	0.3	0.3	0.0	0.0	0.6	1.6
3-Apr	0.1	Z	0.4	0.1	0.0	1.0	0.3	6.3	0.8	2.3	2.4	5.8	6.0	3.0	0.5	2.5	2.1	1.2	0.1	0.1	0.2	0.2	0.1	0.1	1.6	6.3
4-Apr	0.0	0.0	Z	0.1	0.2	2.3	7.1	0.5	0.3	0.1	0.2	0.1	0.3	0.4	0.9	1.0	0.6	0.3	0.1	0.2	0.6	1.5	0.2	0.7	0.8	7.1
5-Apr	0.6	0.1	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.2	0.6	0.6	0.6	0.5	0.4	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.6
6-Apr	0.1	0.1	0.1	0.0	Z	0.0	0.1	0.2	0.5	0.6	0.4	0.5	0.5	0.7	0.2	0.3	0.4	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.7
7-Apr	0.1	0.1	0.2	0.2	0.1	Z	1.3	1.6	1.9	4.3	0.3	2.8	5.5	1.8	0.3	0.5	0.5	0.0	0.1	0.0	7.3	8.7	0.2	0.3	1.7	8.7
8-Apr	Z	0.2	1.4	0.6	0.1	1.4	2.4	1.5	0.5	0.9	1.8	0.8	2.1	0.4	0.3	0.3	0.3	0.1	0.0	0.0	0.9	0.3	0.0	0.0	0.7	2.4
9-Apr	0.0	Z	0.0	1.1	0.3	6.2	3.0	1.9	2.6	1.7	2.2	2.5	1.8	1.2	0.7	1.2	1.0	0.9	0.8	0.0	0.0	0.0	0.0	0.0	1.3	6.2
10-Apr	0.0	0.1	Z	0.5	2.4	4.2	4.7	4.1	2.2	3.4	2.1	4.3	2.6	1.8	0.6	0.6	0.3	0.2	0.5	1.3	2.0	2.2	0.9	7.7	2.1	7.7
11-Apr	0.3	0.7	0.1	Z	1.8	2.3	1.7	3.4	1.0	0.7	0.5	0.4	0.3	0.2	0.3	0.3	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.7	3.4
12-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.1	1.4	0.7	1.5	0.2	0.1	0.5	0.1	0.1	0.1	0.2	0.3	1.5
13-Apr	Z	0.0	0.0	0.1	0.0	0.1	0.2	0.5	1.0	3.3	7.6	7.6	9.1	5.3	3.3	3.3	8.6	5.0	3.6	0.2	0.1	0.3	0.0	0.2	2.6	9.1
14-Apr	0.2	Z	0.1	0.1	0.2	1.3	1.0	0.9	0.7	0.4	0.3	0.4	0.3	2.2	0.3	0.4	0.5	0.2	0.1	0.1	0.1	0.3	0.7	0.7	0.5	2.2
15-Apr	3.1	0.5	Z	2.3	0.7	0.2	0.6	1.6	1.7	1.0	0.4	0.2	0.3	0.3	0.3	1.0	0.2	0.0	1.4	0.9	0.2	0.0	0.0	0.0	0.7	3.1
16-Apr	0.1	0.1	0.1	Z	0.1	0.2	2.8	0.9	1.2	0.5	0.5	0.5	0.2	0.5	0.5	0.7	0.4	0.3	0.5	0.5	0.5	0.5	0.4	0.3	0.5	2.8
17-Apr	0.2	0.4	0.4	0.4	Z	0.4	0.6	0.8	0.7	0.2	0.4	0.6	0.4	0.6	0.4	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.8
18-Apr	0.3	0.3	0.3	0.2	0.2	Z	0.4	0.4	0.2	0.3	0.6	0.4	0.4	0.5	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
19-Apr	Z	0.2	0.2	0.1	0.3	2.9	2.6	0.7	2.2	2.8	1.4	1.0	1.5	1.8	1.6	1.9	1.6	1.3	0.5	0.1	19.4	18.8	0.2	0.0	2.7	19.4
20-Apr	0.0	Z	0.1	0.3	0.1	0.2	0.4	0.3	0.5	0.6	0.3	0.2	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	3.8	0.2	0.2	0.1	0.4	3.8
21-Apr	0.0	0.1	Z	0.0	0.1	1.8	0.4	1.0	0.6	0.5	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	5.0	4.7	0.2	0.1	0.7	5.0
22-Apr	0.4	0.4	1.7	Z	2.0	6.5	5.0	3.8	1.3	0.7	0.3	0.2	0.4	0.2	0.5	0.3	0.2	0.1	0.1	0.1	1.2	0.3	8.1	2.1	1.6	8.1
23-Apr	1.0	0.9	0.4	0.5	Z	2.8	9.8	1.0	1.1	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	--	9.8
24-Apr	2.7	0.0	0.0	0.0	0.1	Z	1.6	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.3	2.7	0.0
25-Apr	Z	2.6	0.1	0.1	0.1	0.1	0.8	1.8	3.0	11.0	11.2	1.3	1.3	0.0	1.0	3.2	1.2	1.3	0.8	3.9	7.7	2.6	1.4	4.7	2.7	11.2
26-Apr	1.6	Z	0.1	0.5	0.4	0.3	0.5	0.6	1.0	2.2	2.2	3.4	1.6	1.1	0.7	0.1	0.1	0.0	0.1	0.1	0.3	0.1	0.9	0.0	0.8	3.4
27-Apr	0.1	0.2	Z	0.3	1.3	0.2	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	1.3
28-Apr	1.1	0.0	0.1	Z	0.2	0.2	0.9	0.6	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.2	1.1
29-Apr	0.1	0.1	0.0	0.7	Z	2.3	2.4	2.2	0.5	0.6	0.3	0.3	0.3	0.2	0.2	0.3	0.1	0.0	0.0	0.6	0.7	0.7	0.1	0.0	0.6	2.4
30-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.4	0.2	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.4	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.4
																								Diurnal Average		
																								Diurnal Maximum		
0.5 0.3 0.2 0.4 0.5 1.6 1.8 1.4 1.3 1.7 1.7 1.7 1.4 1.0 0.7 0.8 0.8 0.6 0.4 0.5 1.6 1.4 0.5 0.6																										
3.1 2.6 1.7 2.3 2.5 6.5 9.8 6.3 10.5 11.4 12.0 13.3 9.1 5.3 3.6 4.4 8.6 6.3 3.6 3.9 19.4 18.8 8.1 7.7																										
Z - zerspan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Christina Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Christina Lake - April 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	37	110	54	16	14	41	33	45	39	51	44	58	51	39	31	21	684
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	37	110	54	16	14	41	33	45	39	51	44	58	51	39	31	21	684

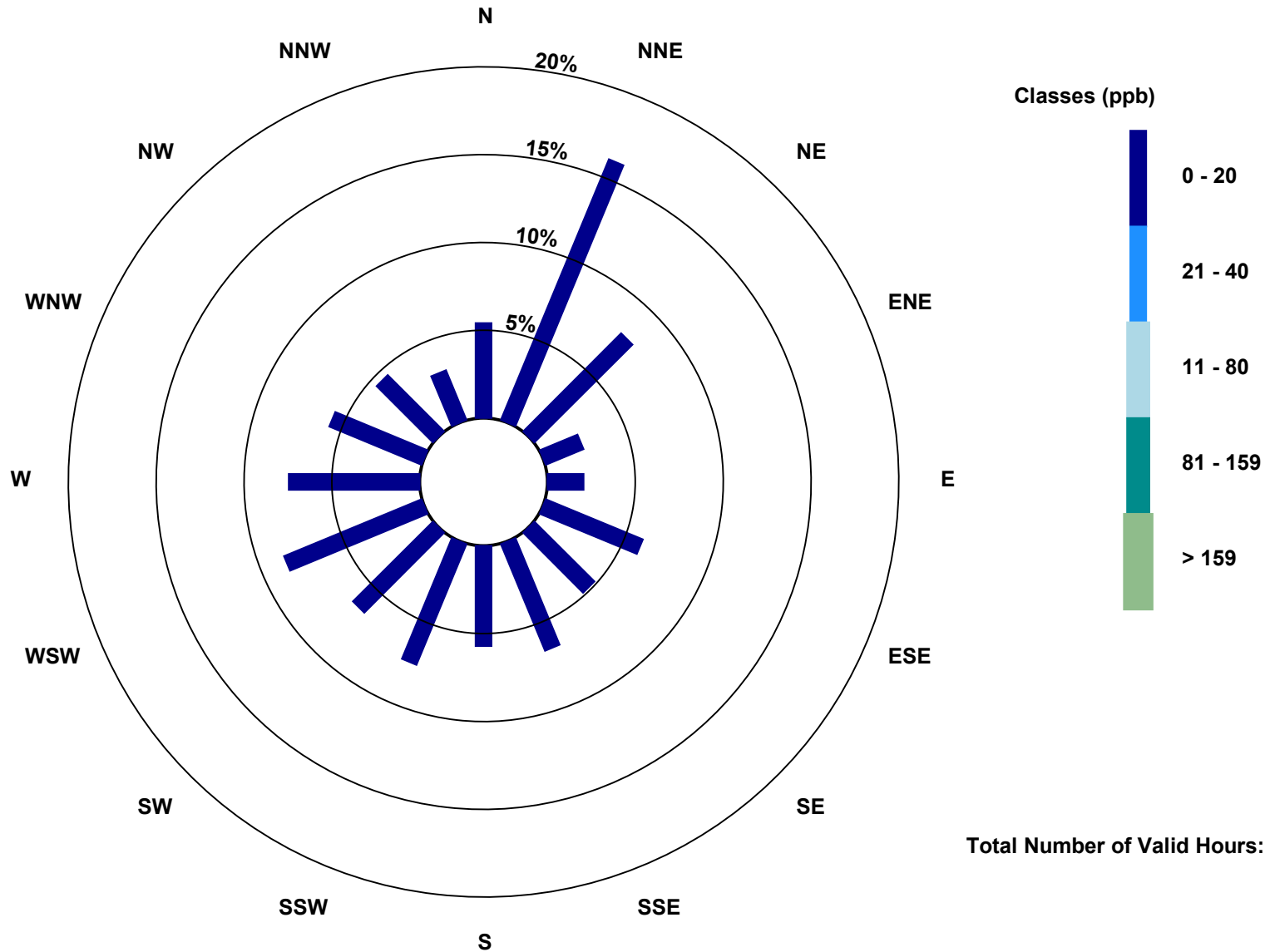
Total Number of Valid Hours: 684

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

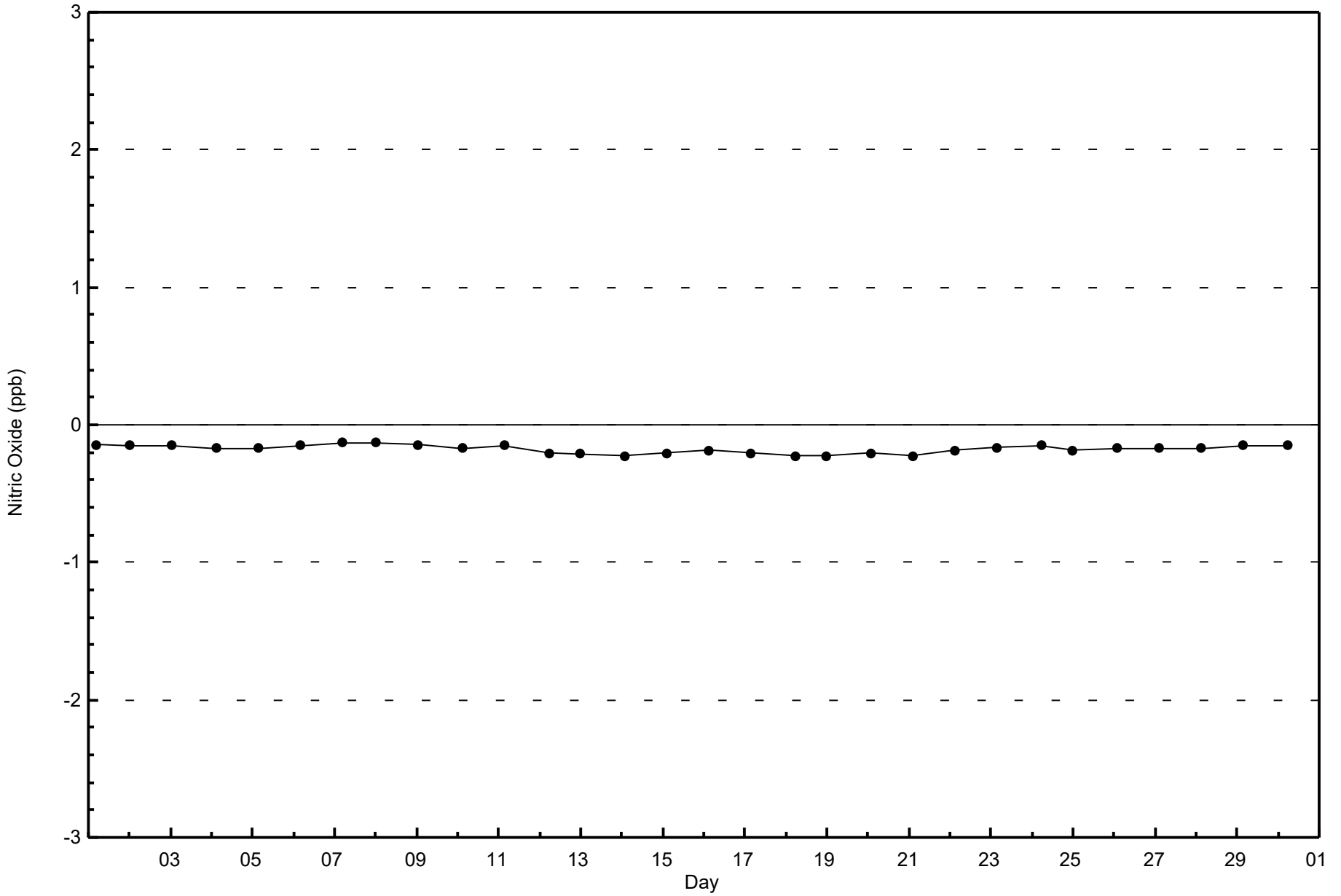
Nitric Oxide (NO) - ppb  
Christina Lake





**Wood Buffalo Environmental Association**  
**Zero Responses**

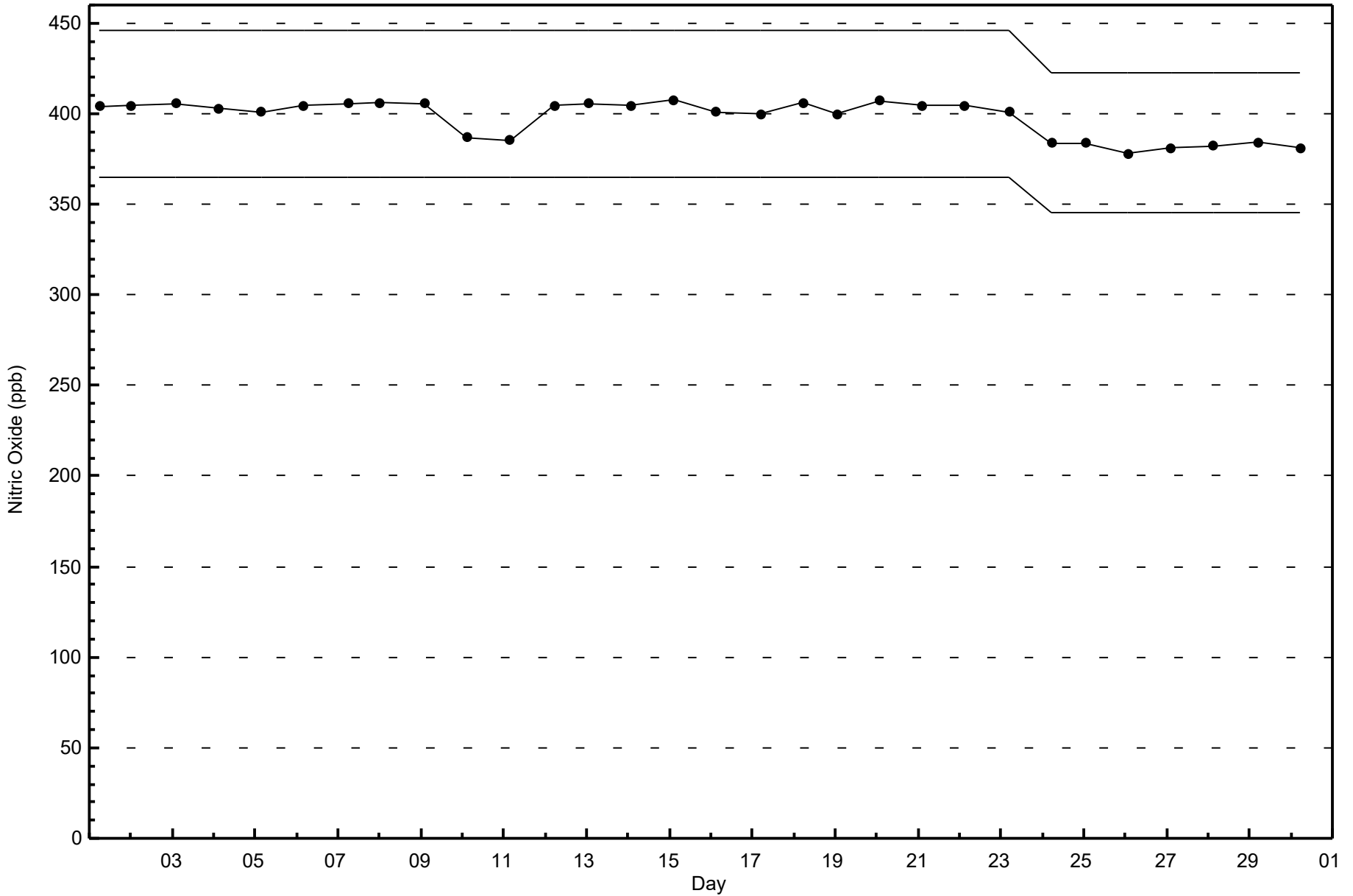
**Nitric Oxide (NO) - ppb**  
**Christina Lake - April 2024**





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Christina Lake - April 2024





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - April 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 20.2 ppb on Apr 19 22:00	Maximum Daily Average: 5.6 ppb on Apr 15		Hours of Data:	684
Minimum Value: 0.1 ppb on Apr 30 04:00	Minimum Daily Average: 0.6 ppb on Apr 30		Hours of Missing Data:	36
Maximum Diurnal Average: 5.0 ppb at hour 6	Minimum Diurnal Average: 1.9 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 3.06 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.0 Median = 1.8 Q <sub>3</sub> = 4.1 P <sub>90</sub> = 7.4 P <sub>99</sub> = 13.7		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	1.3	1.6	1.7	5.0	7.7	Z	4.8	3.5	12.4	11.2	11.3	11.3	4.7	4.7	5.9	6.8	6.0	10.4	5.4	3.3	2.0	1.6	2.0	2.5	5.5	12.4																							
2-Apr	Z	4.2	5.1	6.8	4.3	6.7	5.4	6.0	3.1	1.0	2.2	2.8	1.7	4.1	3.4	1.7	3.1	4.5	1.8	1.9	5.0	6.5	3.8	5.3	3.9	6.8																							
3-Apr	6.6	Z	6.2	4.0	3.7	10.7	5.3	10.3	2.4	4.8	5.6	11.3	12.3	7.6	3.0	6.8	4.9	3.9	1.8	2.7	2.0	1.7	1.9	1.7	5.3	12.3																							
4-Apr	2.2	1.8	Z	3.0	2.3	5.3	10.8	1.4	0.7	0.4	0.7	0.6	0.9	1.0	1.8	2.1	2.2	1.9	1.4	3.1	5.4	9.8	1.9	3.9	2.8	10.8																							
5-Apr	4.0	0.7	1.1	Z	1.7	1.3	1.2	2.0	1.2	1.0	1.3	1.1	1.2	1.3	1.3	0.9	0.8	0.4	0.5	0.5	0.5	0.5	0.7	0.4	1.1	4.0																							
6-Apr	0.5	0.9	0.5	0.7	Z	1.0	1.3	1.4	2.2	2.0	1.6	1.3	1.3	1.7	0.6	1.2	2.0	3.1	1.1	0.4	0.6	0.4	1.8	0.9	1.2	3.1																							
7-Apr	3.8	2.5	2.7	2.9	1.9	Z	5.9	5.0	5.2	4.3	1.3	1.9	4.8	2.1	1.3	1.4	1.9	0.7	2.5	2.7	7.4	10.3	5.5	5.0	3.6	10.3																							
8-Apr	Z	7.0	3.7	5.4	3.2	4.2	5.7	3.1	1.4	2.5	4.1	2.6	3.5	1.9	1.8	1.9	2.1	1.5	1.2	1.4	3.5	2.8	2.3	2.2	3.0	7.0																							
9-Apr	1.5	Z	5.1	11.6	8.2	10.2	11.6	6.3	6.5	5.3	5.1	4.0	3.3	2.5	1.7	2.3	2.4	2.9	3.9	1.4	1.5	1.7	1.3	2.2	4.5	11.6																							
10-Apr	1.4	1.8	Z	2.0	5.9	9.1	8.9	7.3	3.8	5.6	3.6	5.2	4.4	3.3	1.8	2.0	1.3	1.1	4.6	5.2	5.8	7.5	5.0	8.3	4.6	9.1																							
11-Apr	4.3	6.7	3.6	Z	7.9	5.9	3.6	9.2	3.8	2.0	1.7	1.5	1.2	1.2	1.2	1.4	1.4	1.1	1.3	1.5	0.8	0.5	0.4	0.5	2.7	9.2																							
12-Apr	0.6	0.6	1.0	1.5	1.0	Z	0.9	0.9	1.1	0.9	0.8	0.8	0.9	1.4	3.0	1.8	4.4	1.3	1.8	3.0	1.9	2.0	1.1	1.1	1.5	4.4																							
13-Apr	Z	1.2	1.3	1.6	2.0	2.4	2.1	1.4	2.1	4.7	8.3	8.4	11.1	8.4	5.7	5.7	10.6	9.5	10.2	2.1	3.2	4.6	2.8	3.3	4.9	11.1																							
14-Apr	5.9	Z	2.9	3.8	3.4	7.4	5.0	3.1	2.1	1.3	1.1	0.9	1.0	3.1	0.9	0.9	1.2	0.8	1.4	0.8	4.5	8.8	5.6	10.5	3.3	10.5																							
15-Apr	16.2	14.9	Z	15.6	13.6	6.7	8.2	12.4	5.5	3.9	2.5	1.5	2.1	1.5	1.4	3.8	0.8	0.7	5.9	6.2	2.7	1.7	1.2	0.8	5.6	16.2																							
16-Apr	1.1	1.3	0.9	Z	1.0	1.3	3.6	2.5	2.9	1.9	1.9	1.9	1.3	1.9	2.0	2.0	1.3	1.4	1.6	1.7	1.6	1.3	1.1	1.0	1.7	3.6																							
17-Apr	0.8	1.1	1.1	1.5	Z	1.6	2.1	2.4	2.1	0.9	1.0	1.0	0.7	1.2	1.0	0.9	0.7	0.6	0.8	0.6	0.3	0.4	0.6	0.6	1.0	2.4																							
18-Apr	1.1	1.1	1.1	0.9	0.7	Z	1.1	1.2	0.7	0.6	1.1	0.9	0.7	1.2	0.9	0.6	0.7	0.3	0.3	0.3	0.3	0.5	0.6	0.9	0.8	1.2																							
19-Apr	Z	1.7	1.8	3.2	6.6	9.4	11.0	2.2	4.3	5.0	2.8	2.1	3.5	4.1	4.3	4.8	4.7	3.7	3.0	1.7	17.1	20.2	5.6	2.8	5.5	20.2																							
20-Apr	4.6	Z	2.8	6.5	4.9	4.7	3.6	1.7	1.6	1.5	1.0	0.9	0.7	1.0	1.2	1.3	1.0	1.3	1.5	11.7	3.3	2.4	6.9	2.0	3.0	11.7																							
21-Apr	2.4	1.3	Z	6.5	2.7	4.8	2.1	3.4	2.2	1.6	0.8	0.8	0.7	0.7	0.6	0.7	0.9	1.1	1.4	1.7	8.8	14.4	6.5	5.9	3.1	14.4																							
22-Apr	7.8	5.8	6.5	Z	9.8	8.5	9.6	10.0	4.3	2.6	1.3	1.0	1.6	1.0	2.3	1.8	1.4	0.9	1.5	2.9	8.4	5.4	11.3	8.5	5.0	11.3																							
23-Apr	10.8	10.2	10.6	10.3	Z	8.2	9.4	2.9	3.0	C	C	C	C	C	C	0.5	0.6	0.5	0.7	0.4	0.4	0.6	3.0	5.1	--	10.8																							
24-Apr	8.8	0.7	1.2	1.4	2.6	Z	6.5	4.2	1.2	0.4	0.4	0.5	0.5	0.5	0.5	0.6	1.1	0.8	1.3	1.1	1.8	1.9	3.0	1.4	1.8	8.8																							
25-Apr	Z	9.1	2.7	3.0	2.1	1.8	3.1	3.8	4.8	11.1	11.4	2.5	2.2	0.4	2.0	4.9	3.4	2.0	2.4	8.6	15.5	8.0	5.1	12.2	5.3	15.5																							
26-Apr	5.8	Z	1.5	2.2	1.7	1.2	2.0	1.9	2.2	3.0	2.7	4.0	2.5	1.7	1.4	0.4	0.7	0.7	1.0	5.4	5.6	2.6	3.3	1.6	2.4	5.8																							
27-Apr	1.7	1.7	Z	1.1	1.5	0.9	0.8	1.2	0.6	0.4	0.6	0.7	0.8	0.6	0.7	1.1	0.9	1.5	0.7	0.6	0.9	0.4	1.4	2.5	1.0	2.5																							
28-Apr	4.2	1.8	4.1	Z	1.9	1.8	1.9	1.2	1.1	0.8	0.9	1.1	0.6	0.6	0.7	0.7	0.6	0.7	0.6	1.0	0.8	0.8	0.6	0.7	1.3	4.2																							
29-Apr	1.0	1.6	1.2	1.8	Z	3.7	3.1	2.8	1.2	1.2	0.8	0.9	1.0	0.9	1.2	1.4	0.7	0.4	0.4	2.7	4.0	2.9	0.4	0.4	1.6	4.0																							
30-Apr	0.2	0.2	0.2	0.1	0.2	Z	1.1	0.5	0.3	0.2	0.2	0.2	0.2	0.6	0.5	0.9	0.7	0.3	1.1	1.2	1.0	1.5	1.1	1.1	0.6	1.5																							
																								3.9	3.3	2.8	4.1	3.9	5.0	4.7	3.8	2.9	2.8	2.7	2.5	2.5	2.1	1.9	2.1	2.2	2.0	2.1	2.6	3.9	4.1	2.9	3.2	Diurnal Average	
																								16.2	14.9	10.6	15.6	13.6	10.7	11.6	12.4	12.4	11.2	11.4	11.3	12.3	8.4	5.9	6.8	10.6	10.4	10.2	11.7	17.1	20.2	11.3	12.2	Diurnal Maximum	

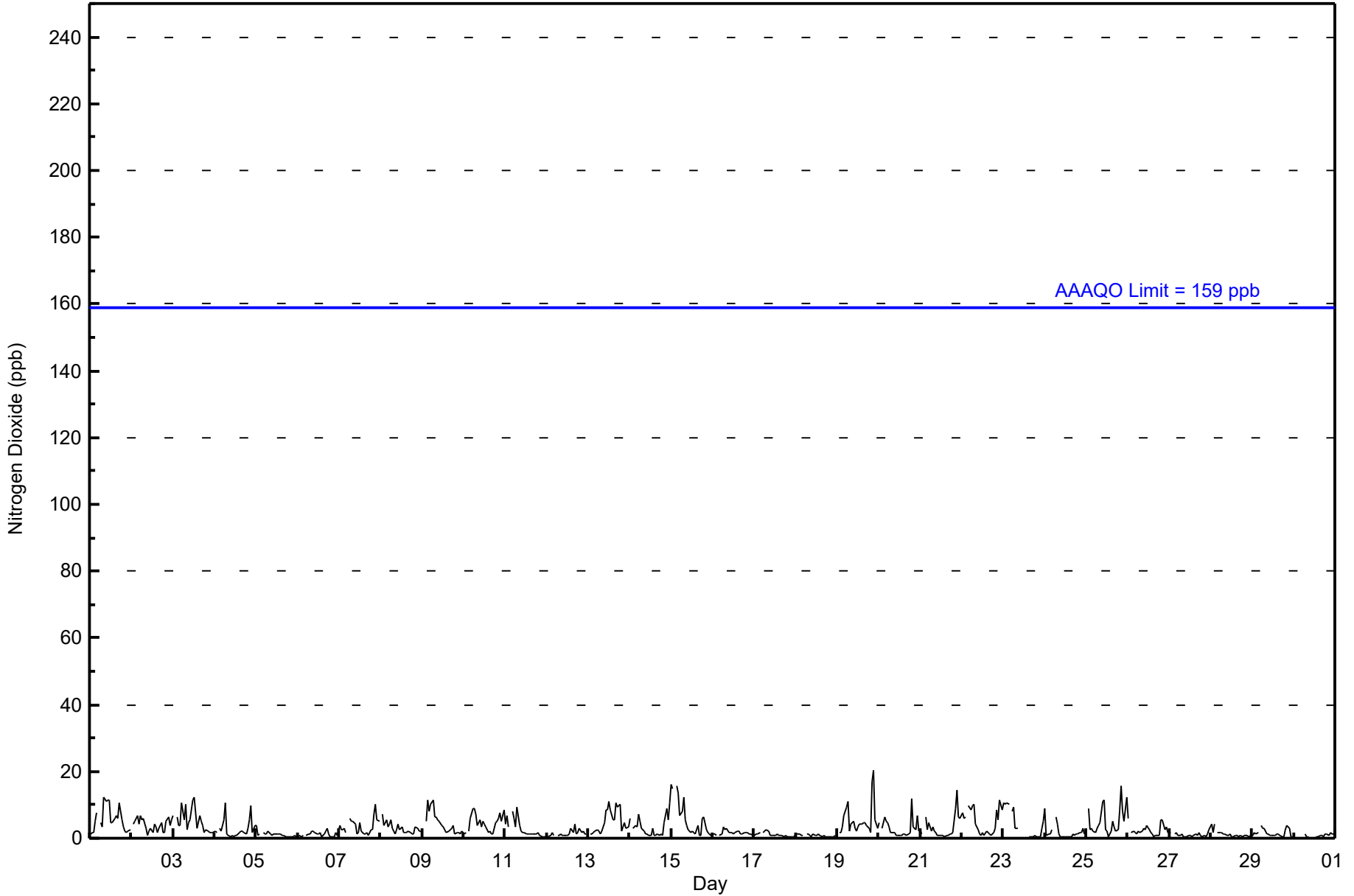
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Christina Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	37	110	54	16	14	41	33	45	39	51	44	58	51	39	31	21	684
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>37</b>	<b>110</b>	<b>54</b>	<b>16</b>	<b>14</b>	<b>41</b>	<b>33</b>	<b>45</b>	<b>39</b>	<b>51</b>	<b>44</b>	<b>58</b>	<b>51</b>	<b>39</b>	<b>31</b>	<b>21</b>	<b>684</b>

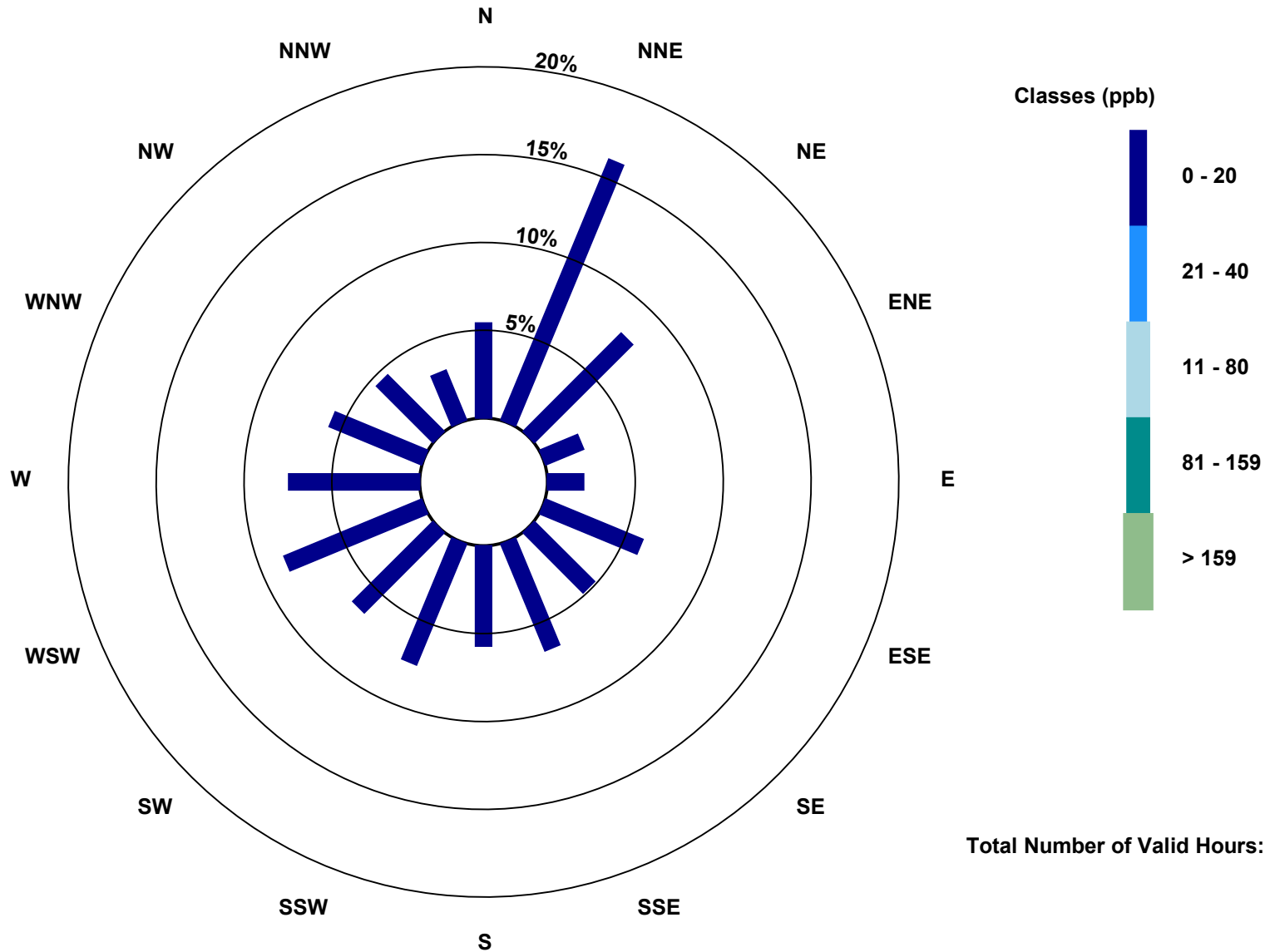
Total Number of Valid Hours: 684

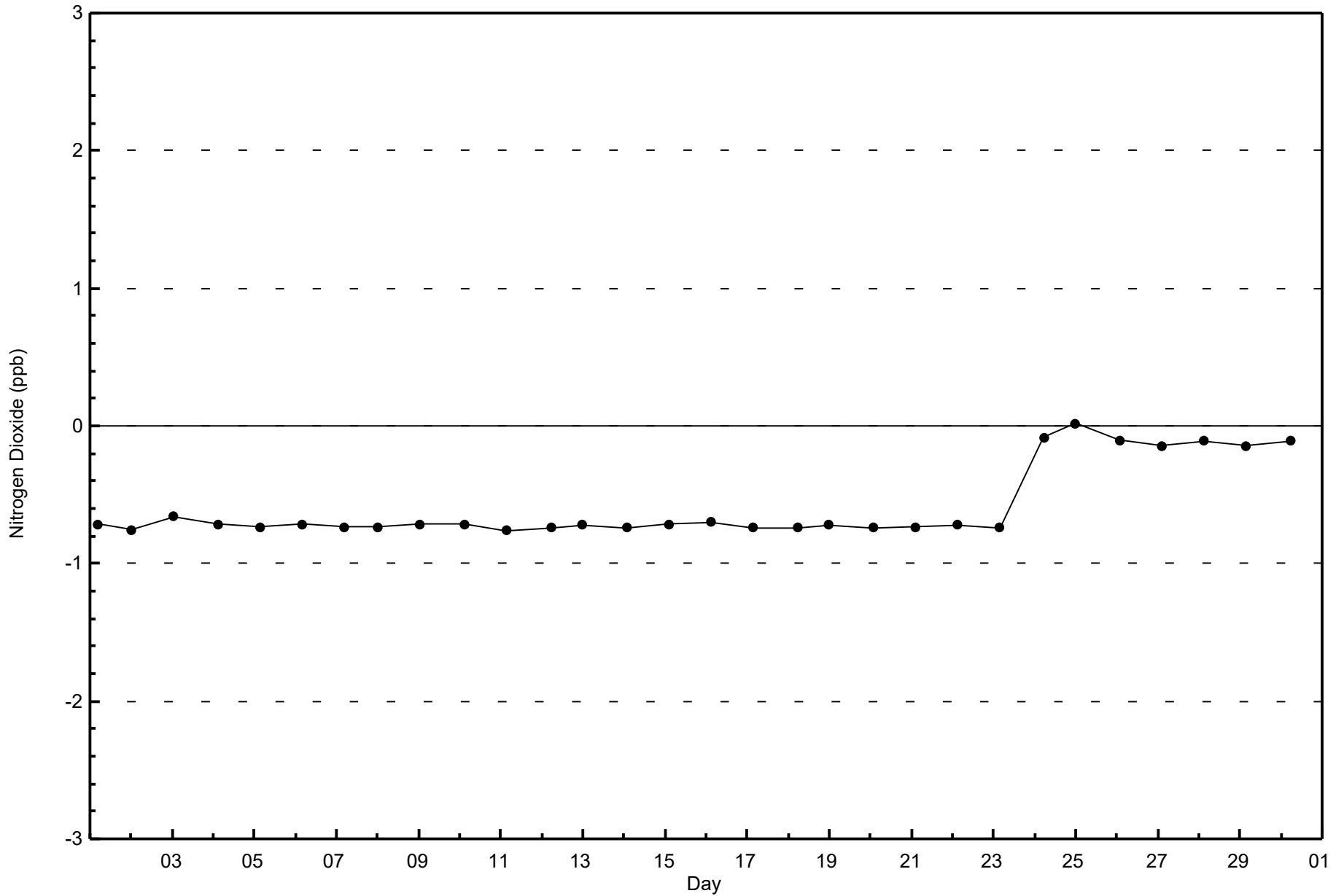
Total Number of Hours: 720

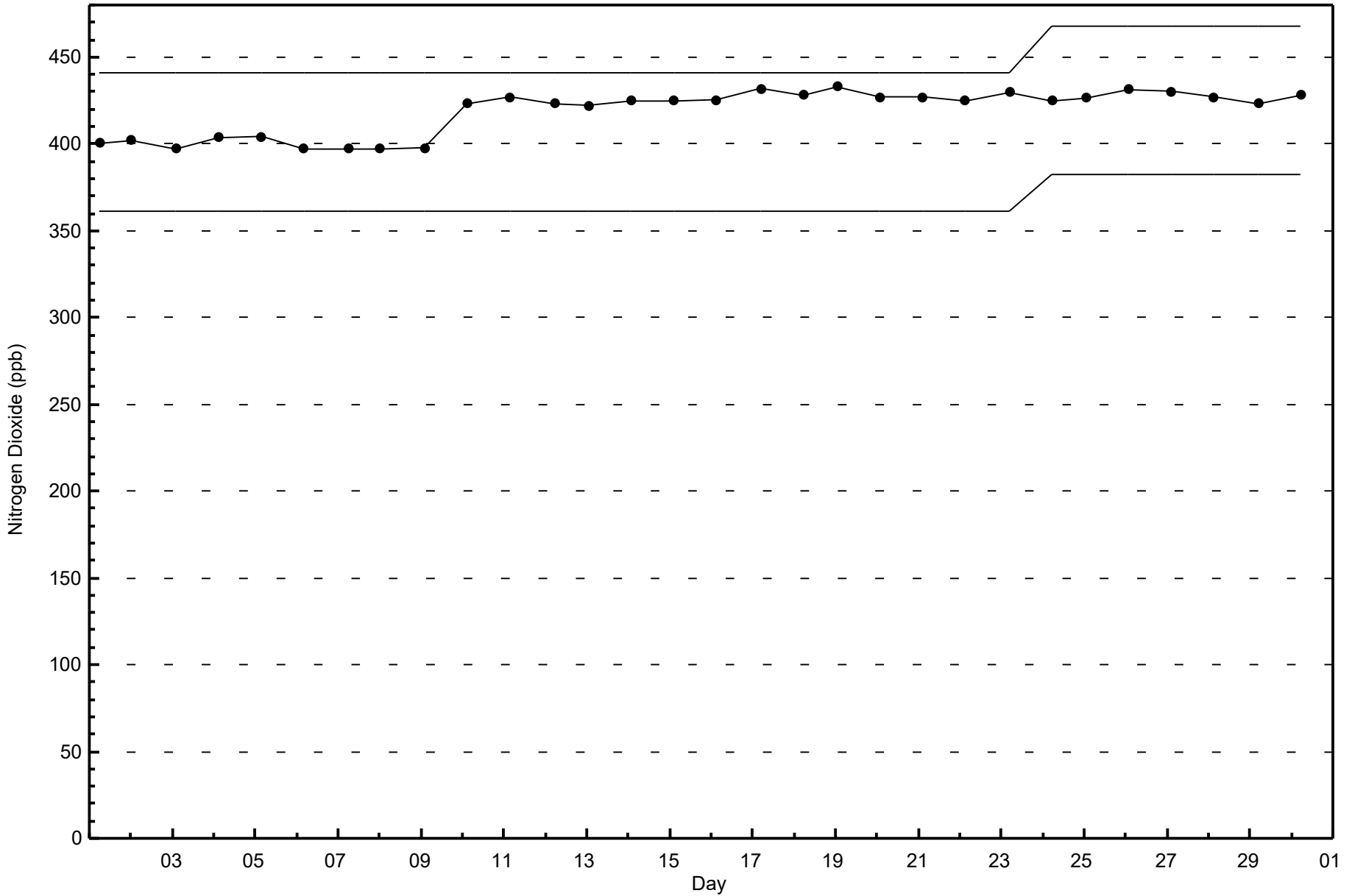


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

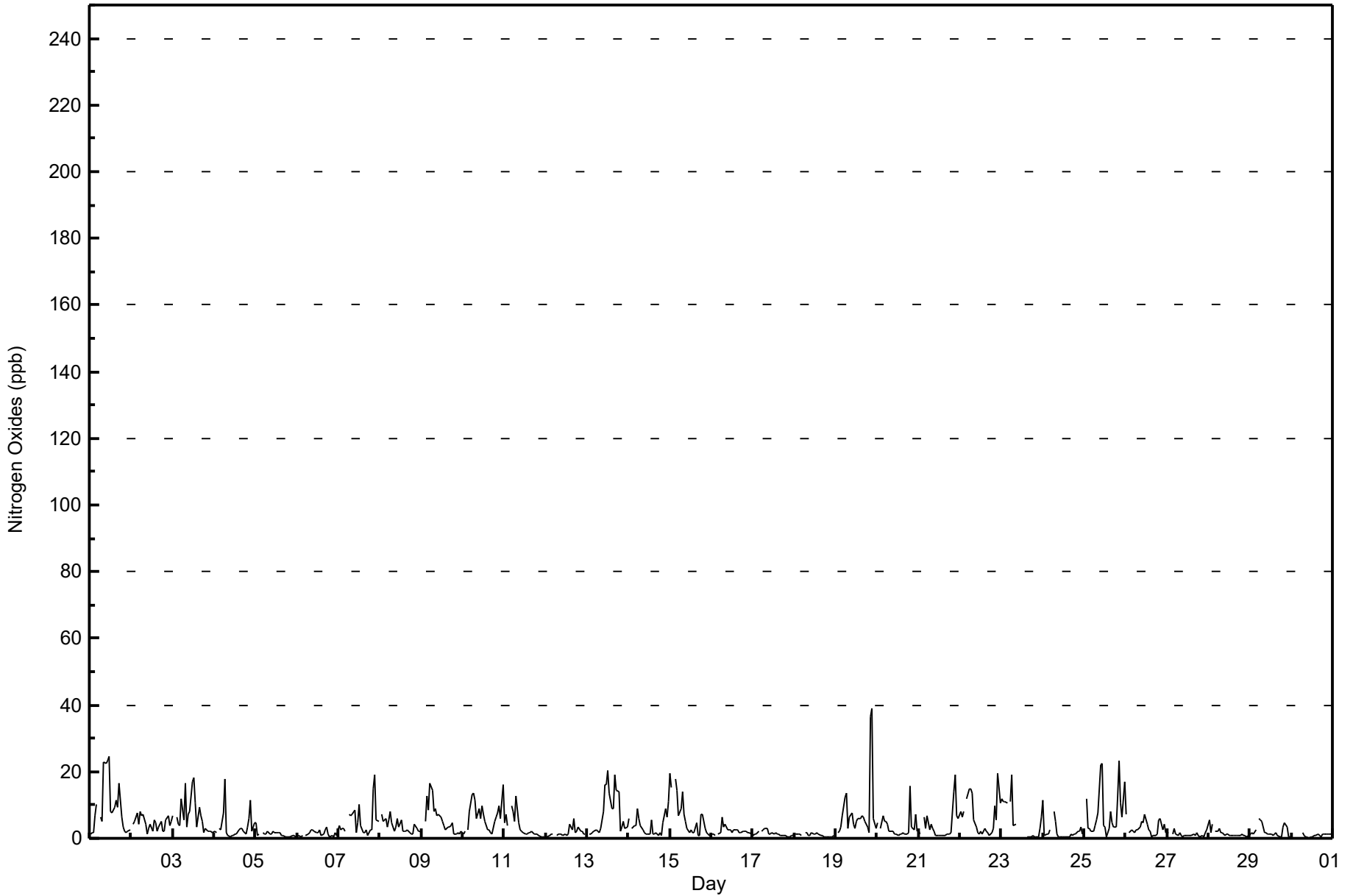
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - April 2024**

Maximum Value: 39.0 ppb on Apr 19 22:00																				Maximum Daily Average: 9.0 ppb on Apr 1					Hours in Service: 720	
Minimum Value: 0.1 ppb on Apr 30 04:00																				Minimum Daily Average: 0.7 ppb on Apr 30					Hours of Data: 684	
Maximum Diurnal Average: 6.5 ppb at hour 6																				Minimum Diurnal Average: 2.5 ppb at hour 19					Hours of Missing Data: 36	
Monthly Average: 4.05 ppb																				Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.2 Median = 2.1 Q <sub>3</sub> = 5.2 P <sub>90</sub> = 9.5 P <sub>99</sub> = 22.6					Hours of Calibration: 36	
																									Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	1.3	1.6	1.7	6.7	10.2	Z	6.3	5.1	22.9	22.6	23.3	24.6	8.3	7.7	9.5	11.2	9.4	16.7	6.5	3.4	2.0	1.6	2.0	2.7	9.0	24.6
2-Apr	Z	4.3	5.1	7.7	4.4	8.0	6.7	7.3	4.1	1.3	2.9	4.3	2.1	5.7	4.7	1.9	3.5	5.0	1.9	1.9	5.3	6.8	3.8	5.3	4.5	8.0
3-Apr	6.7	Z	6.6	4.1	3.7	11.7	5.6	16.6	3.2	7.1	8.0	17.1	18.3	10.6	3.5	9.3	7.0	5.1	1.9	2.8	2.2	1.9	2.0	1.8	6.8	18.3
4-Apr	2.2	1.8	Z	3.1	2.5	7.6	17.9	1.9	1.0	0.5	0.9	0.7	1.2	1.4	2.7	3.1	2.8	2.2	1.5	3.3	6.0	11.3	2.1	4.6	3.6	17.9
5-Apr	4.6	0.8	1.1	Z	1.7	1.3	1.2	2.2	1.3	1.2	1.9	1.7	1.8	1.8	1.7	1.0	0.9	0.4	0.6	0.6	0.5	0.6	0.8	0.4	1.3	4.6
6-Apr	0.6	1.0	0.6	0.7	Z	1.0	1.4	1.6	2.7	2.6	2.0	1.8	1.8	2.4	0.8	1.5	2.4	3.4	1.2	0.4	0.7	0.4	1.8	0.9	1.5	3.4
7-Apr	3.9	2.6	2.9	3.1	2.0	Z	7.2	6.6	7.1	8.6	1.6	4.7	10.3	3.9	1.6	1.9	2.4	0.7	2.6	2.7	14.7	19.0	5.7	5.3	5.3	19.0
8-Apr	Z	7.2	5.1	6.0	3.3	5.6	8.1	4.6	1.9	3.4	5.9	3.4	5.6	2.3	2.1	2.2	2.4	1.6	1.2	1.4	4.4	3.1	2.3	2.2	3.7	8.1
9-Apr	1.5	Z	5.1	12.7	8.5	16.4	14.6	8.2	9.1	7.0	7.3	6.5	5.1	3.7	2.4	3.5	3.4	3.8	4.7	1.4	1.5	1.7	1.3	2.2	5.7	16.4
10-Apr	1.4	1.9	Z	2.5	8.3	13.3	13.6	11.4	6.0	9.0	5.7	9.5	7.0	5.1	2.4	2.6	1.6	1.3	5.1	6.5	7.8	9.7	5.9	16.0	6.7	16.0
11-Apr	4.6	7.4	3.7	Z	9.7	8.2	5.3	12.6	4.8	2.7	2.2	1.9	1.5	1.4	1.5	1.7	2.0	1.3	1.4	1.5	0.8	0.5	0.4	0.6	3.4	12.6
12-Apr	0.6	0.6	1.0	1.5	1.1	Z	1.0	1.1	1.4	1.1	1.1	1.1	1.1	1.5	4.4	2.5	5.9	1.5	1.9	3.5	2.0	2.1	1.2	1.3	1.8	5.9
13-Apr	Z	1.2	1.3	1.7	2.0	2.5	2.3	1.9	3.1	8.0	15.9	16.0	20.2	13.7	9.0	9.0	19.2	14.5	13.8	2.3	3.3	4.9	2.8	3.5	7.5	20.2
14-Apr	6.1	Z	3.0	3.9	3.6	8.7	6.0	4.0	2.8	1.7	1.4	1.3	1.3	5.3	1.2	1.3	1.7	1.0	1.5	0.9	4.6	9.1	6.3	11.2	3.8	11.2
15-Apr	19.3	15.4	Z	17.9	14.3	6.9	8.8	14.0	7.2	4.9	2.9	1.7	2.4	1.8	1.7	4.8	1.0	0.7	7.3	7.1	2.9	1.7	1.2	0.8	6.4	19.3
16-Apr	1.2	1.4	1.0	Z	1.1	1.5	6.4	3.4	4.1	2.4	2.4	2.4	1.5	2.4	2.5	2.7	1.7	1.7	2.1	2.2	2.1	1.8	1.5	1.3	2.2	6.4
17-Apr	1.0	1.5	1.5	1.9	Z	2.0	2.7	3.2	2.8	1.1	1.4	1.6	1.1	1.8	1.4	1.3	0.9	0.7	1.0	0.7	0.4	0.5	0.7	0.7	1.4	3.2
18-Apr	1.4	1.4	1.4	1.1	0.9	Z	1.5	1.6	0.9	0.9	1.7	1.3	1.1	1.7	1.2	0.8	1.0	0.4	0.3	0.3	0.3	0.5	0.6	0.9	1.0	1.7
19-Apr	Z	1.9	2.0	3.3	6.9	12.3	13.6	2.9	6.5	7.8	4.2	3.1	5.0	5.9	5.9	6.7	6.3	5.0	3.5	1.8	36.5	39.0	5.8	2.8	8.2	39.0
20-Apr	4.6	Z	2.9	6.8	5.0	4.9	4.0	2.0	2.1	2.1	1.3	1.1	0.8	1.2	1.5	1.6	1.2	1.5	1.7	15.5	3.5	2.6	7.1	2.1	3.3	15.5
21-Apr	2.4	1.4	Z	6.5	2.8	6.6	2.5	4.4	2.8	2.1	1.0	1.0	0.8	0.9	0.8	0.9	1.1	1.3	1.5	1.8	13.8	19.1	6.7	6.0	3.8	19.1
22-Apr	8.2	6.2	8.2	Z	11.8	15.0	14.6	13.8	5.6	3.3	1.6	1.2	2.0	1.2	2.8	2.1	1.6	1.0	1.6	3.0	9.6	5.7	19.4	10.6	6.5	19.4
23-Apr	11.8	11.1	11.0	10.8	Z	11.0	19.2	3.9	4.1	C	C	C	C	C	C	0.5	0.6	0.5	0.7	0.4	0.4	0.6	3.1	6.3	--	19.2
24-Apr	11.5	0.7	1.2	1.4	2.7	Z	8.1	5.3	1.5	0.4	0.4	0.5	0.5	0.5	0.5	0.6	1.1	0.8	1.3	1.1	1.9	2.0	3.2	1.4	2.1	11.5
25-Apr	Z	11.7	2.8	3.1	2.2	1.9	3.9	5.6	7.8	22.1	22.6	3.8	3.5	0.4	3.0	8.1	4.6	3.3	3.2	12.5	23.2	10.6	6.5	16.9	8.0	23.2
26-Apr	7.4	Z	1.6	2.7	2.1	1.5	2.5	2.5	3.2	5.2	4.9	7.4	4.1	2.8	2.1	0.5	0.8	0.7	1.1	5.5	5.9	2.7	4.2	1.6	3.2	7.4
27-Apr	1.8	1.9	Z	1.4	2.8	1.1	1.0	1.6	0.8	0.5	0.8	0.8	0.9	0.7	0.9	1.3	1.0	1.6	0.7	0.6	0.9	0.4	1.6	2.6	1.2	2.8
28-Apr	5.3	1.8	4.2	Z	2.1	2.0	2.8	1.8	1.6	1.0	1.1	1.3	0.7	0.7	0.8	0.8	0.7	0.8	0.6	1.4	0.8	0.8	0.6	0.7	1.5	5.3
29-Apr	1.1	1.7	1.2	2.5	Z	6.0	5.5	5.0	1.7	1.8	1.1	1.2	1.3	1.1	1.4	1.7	0.8	0.4	0.4	3.3	4.7	3.6	0.5	0.4	2.1	6.0
30-Apr	0.2	0.2	0.2	0.1	0.2	Z	1.5	0.7	0.5	0.3	0.2	0.3	0.3	0.8	0.7	1.3	0.9	0.4	1.3	1.4	1.1	1.5	1.1	1.1	0.7	1.5
																								Diurnal Average		
																								Diurnal Maximum		
4.4 3.5 3.1 4.5 4.4 6.5 6.5 5.2 4.2 4.6 4.4 4.3 3.8 3.1 2.6 2.9 3.0 2.6 2.5 3.0 5.5 5.5 3.4 3.8																										
19.3 15.4 11.0 17.9 14.3 16.4 19.2 16.6 22.9 22.6 23.3 24.6 20.2 13.7 9.5 11.2 19.2 16.7 13.8 15.5 36.5 39.0 19.4 16.9																										
Z - zerspan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	675	98.68	98.68
21 - 40	9	1.32	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Christina Lake - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	37	110	54	16	14	41	33	45	39	51	44	56	51	33	30	21	675
21 - 40	0	0	0	0	0	0	0	0	0	0	0	2	0	6	1	0	9
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	37	110	54	16	14	41	33	45	39	51	44	58	51	39	31	21	684

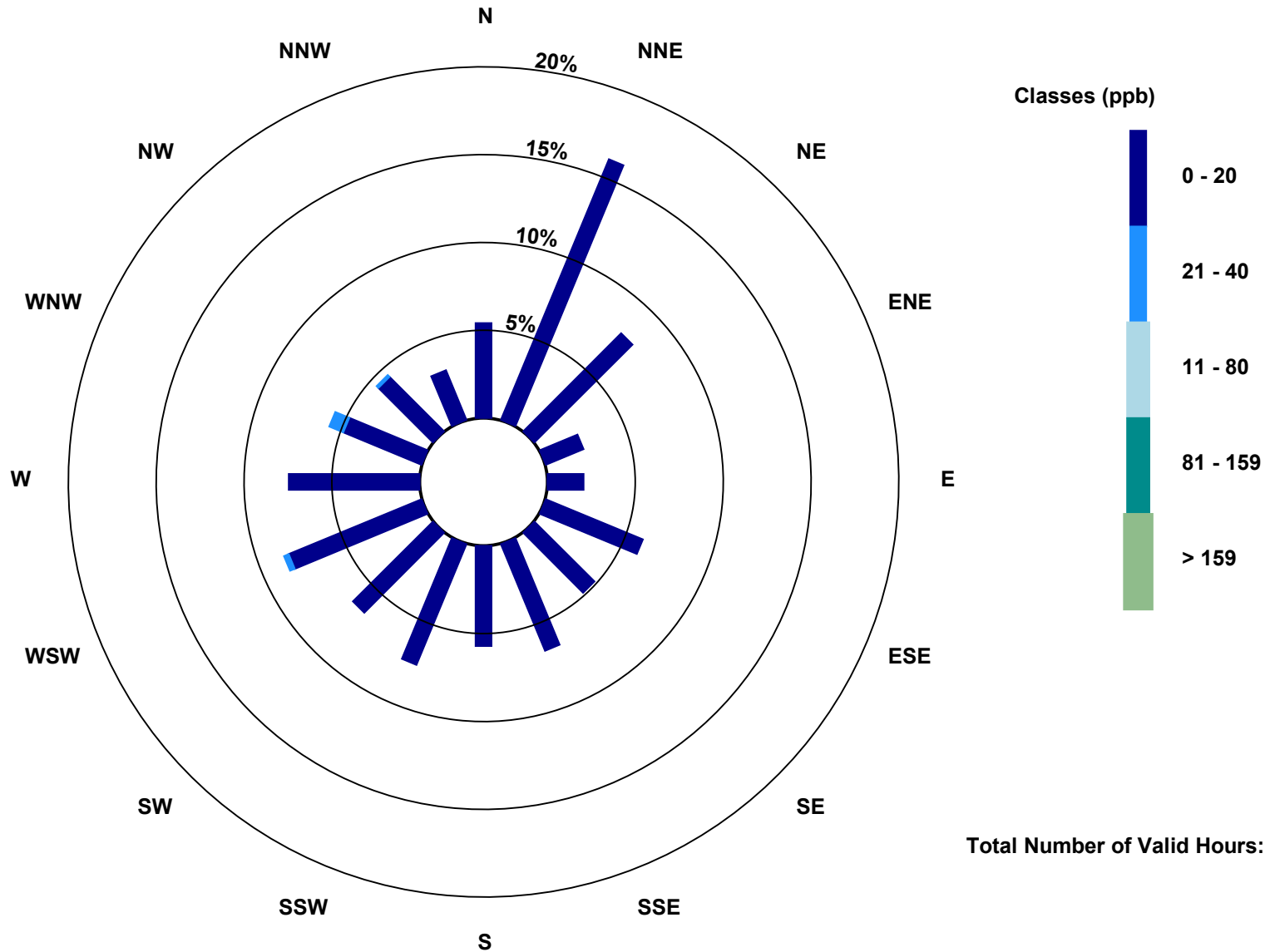
Total Number of Valid Hours: 684

Total Number of Hours: 720

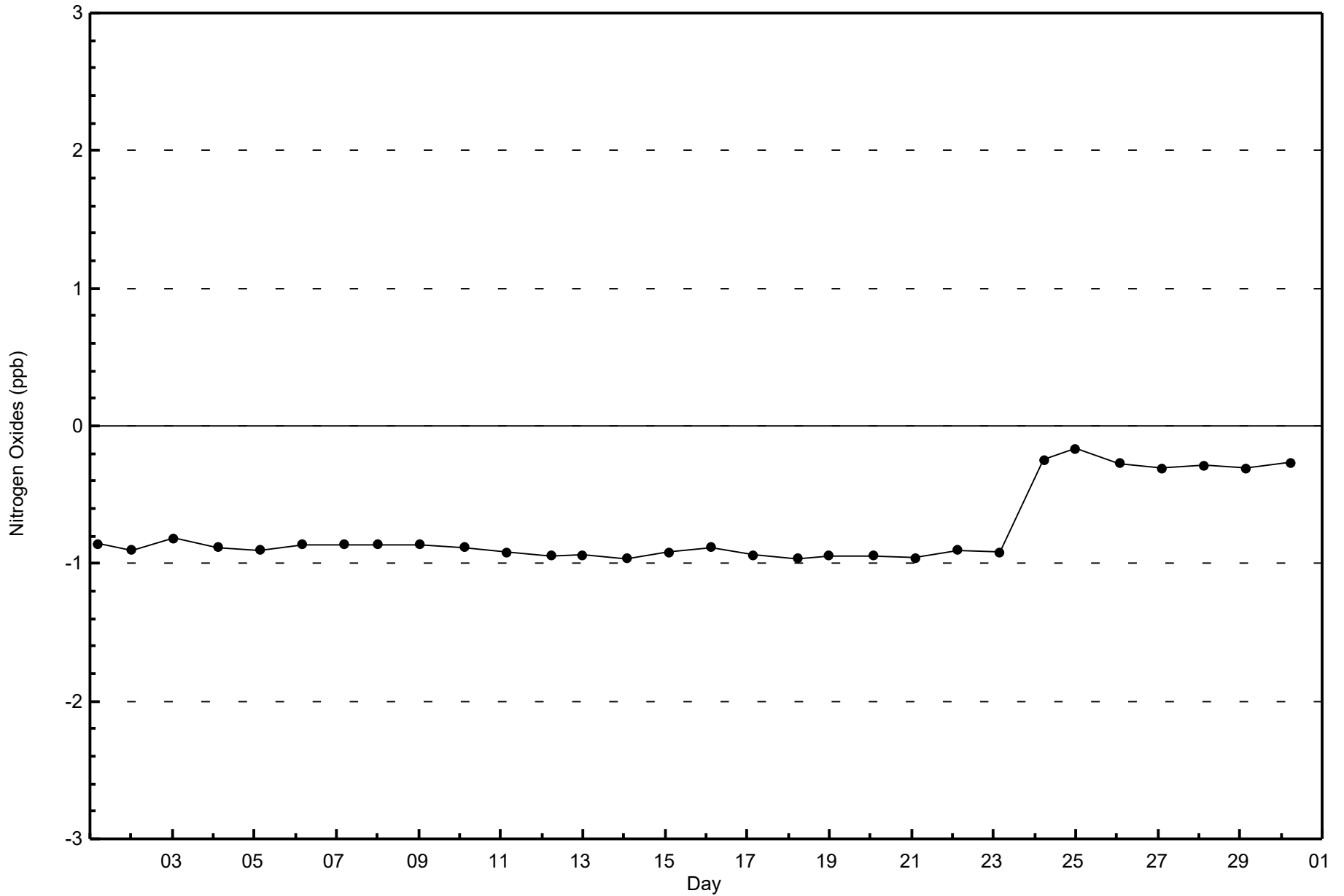


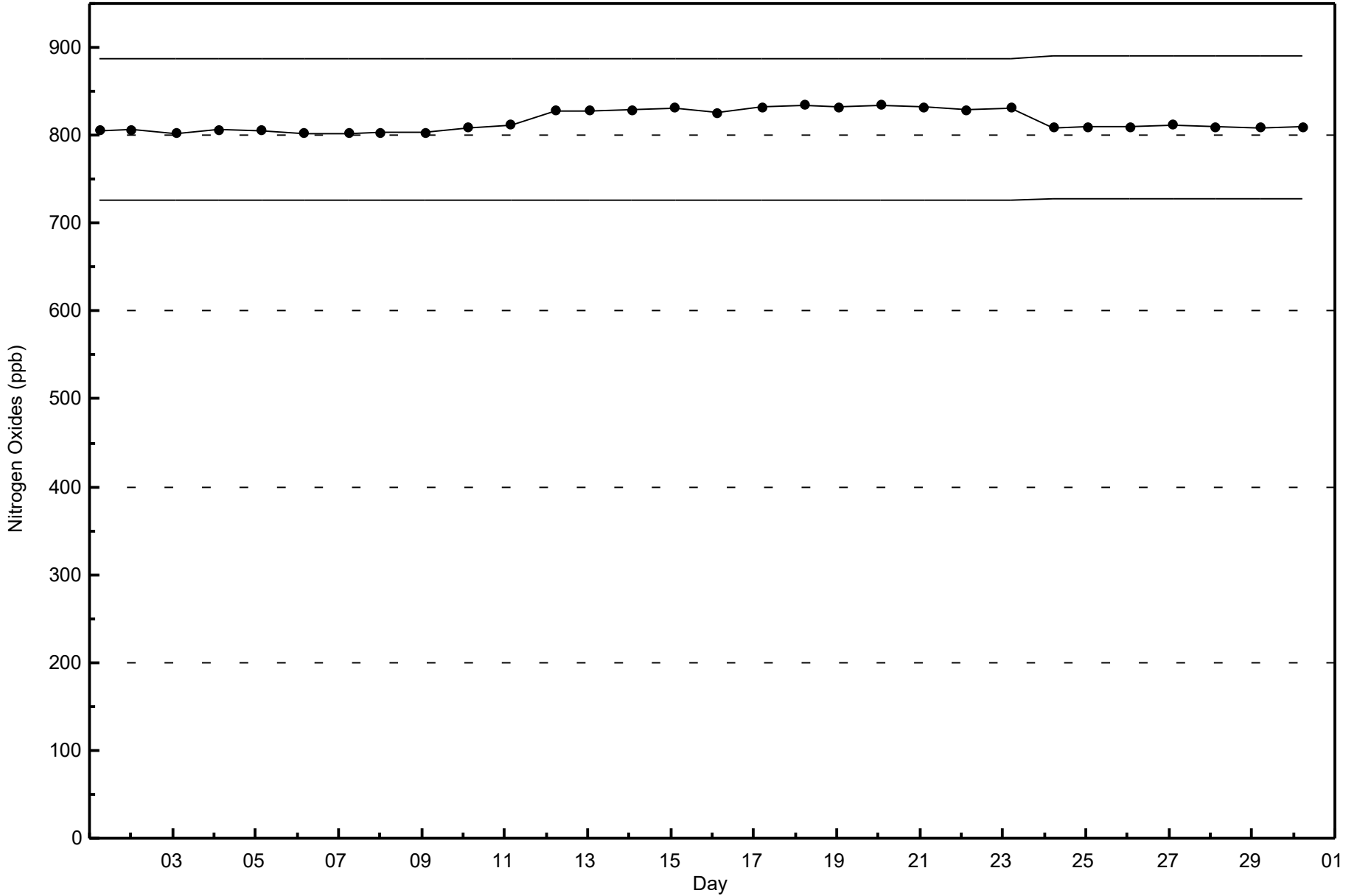
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 684







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

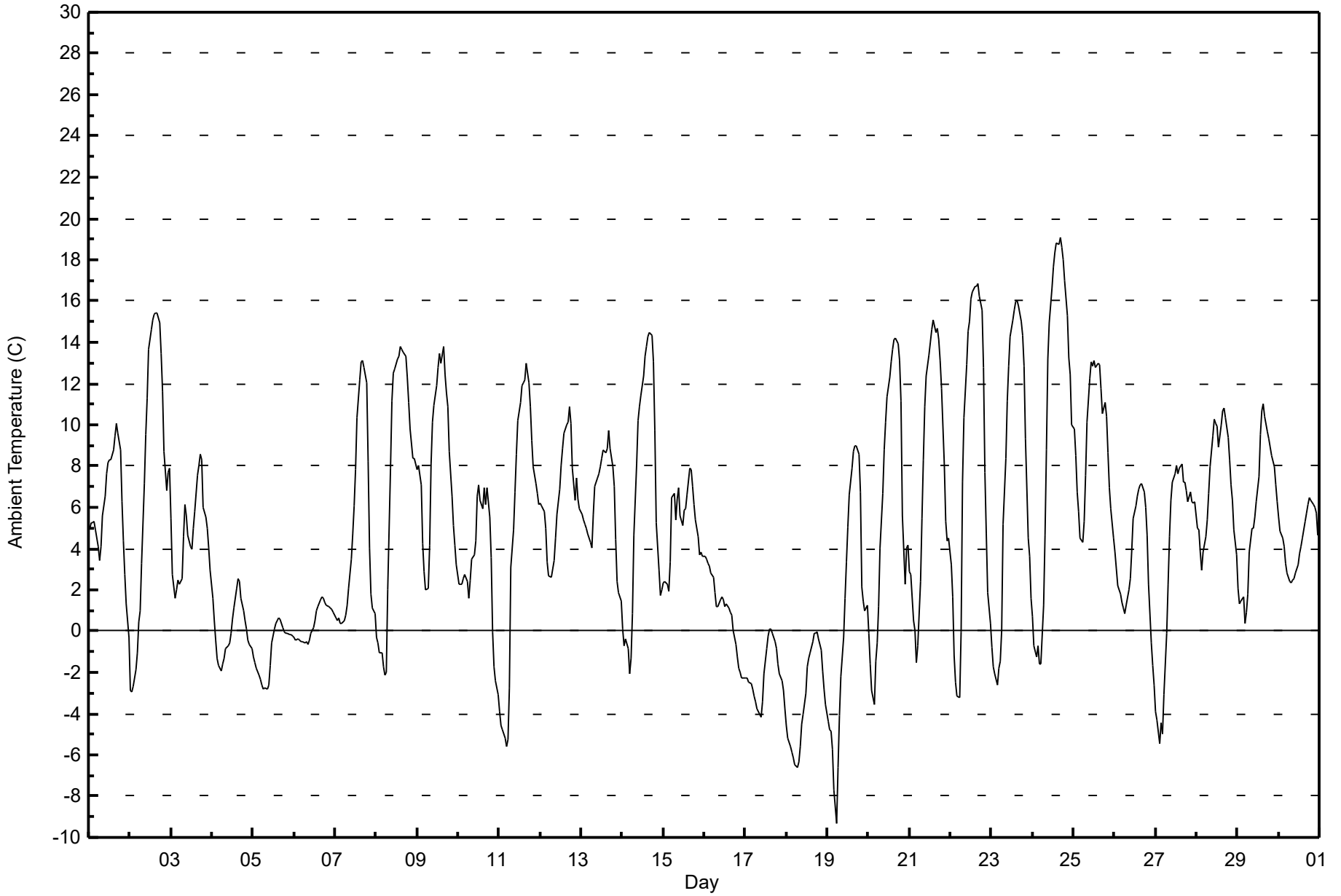
**Ambient Temperature (AT) - C**  
**Christina Lake - April 2024**

Maximum Value: 19.1 C on Apr 24 17:00		Maximum Daily Average: 10.5 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -9.3 C on Apr 19 06:00		Minimum Daily Average: -3.3 C on Apr 18		Hours of Data: 720																																												
Maximum Diurnal Average: 9.4 C at hour 16		Minimum Diurnal Average: -0.2 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 4.73 C		Percentiles: P <sub>1</sub> = -5.8 P <sub>10</sub> = -2.1 Q <sub>1</sub> = 0.4 Median = 4.5 Q <sub>3</sub> = 8.4 P <sub>90</sub> = 13.0 P <sub>99</sub> = 16.9		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-Apr	5.0	5.2	5.2	5.3	4.9	4.1	3.4	4.1	5.6	6.5	7.6	8.1	8.3	8.8	9.4	10.1	9.6	8.8	6.3	4.4	2.7	1.3	-0.3	6.0	10.1																							
2-Apr	-2.9	-2.9	-2.7	-1.9	-1.1	0.4	1.0	3.3	7.2	9.5	11.3	13.6	14.6	15.1	15.4	15.4	15.0	13.5	11.7	8.7	6.8	7.7	7.9	7.6	15.4																							
3-Apr	5.5	2.7	1.6	2.0	2.5	2.3	2.5	4.6	6.1	5.6	4.7	4.1	4.0	5.0	5.8	7.5	8.0	8.6	8.3	6.0	5.5	5.0	4.0	3.0	4.8	8.6																						
4-Apr	1.6	0.5	-0.4	-1.3	-1.6	-2.0	-1.6	-1.3	-0.8	-0.7	-0.6	-0.1	0.6	1.1	2.1	2.6	2.4	1.6	1.0	0.5	0.1	-0.4	-0.6	-0.8	0.1	2.6																						
5-Apr	-1.2	-1.5	-1.8	-2.2	-2.4	-2.6	-2.8	-2.7	-2.8	-2.6	-1.7	-0.6	0.1	0.4	0.5	0.6	0.5	0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-1.0	0.6																						
6-Apr	-0.3	-0.4	-0.4	-0.5	-0.5	-0.5	-0.6	-0.5	-0.6	-0.4	-0.1	0.2	0.5	1.0	1.2	1.5	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.9	0.4	1.7																						
7-Apr	0.6	0.5	0.7	0.4	0.4	0.5	0.8	1.2	2.1	3.5	4.7	6.1	7.8	10.3	12.1	13.0	13.1	12.8	12.1	8.2	4.1	1.8	1.1	0.9	5.0	13.1																						
8-Apr	-0.3	-0.6	-1.1	-1.1	-1.7	-2.1	-2.0	2.0	7.9	11.1	12.5	12.7	13.2	13.4	13.8	13.7	13.5	13.3	12.3	11.1	9.8	8.4	8.4	8.1	7.4	13.8																						
9-Apr	7.8	8.0	7.1	4.3	2.9	2.0	2.1	4.2	8.1	10.1	11.0	11.9	12.8	13.4	13.0	13.8	12.4	11.5	10.9	8.7	6.5	5.1	4.2	3.2	8.1	13.8																						
10-Apr	2.3	2.3	2.3	2.6	2.7	2.4	1.6	2.5	3.5	3.7	4.4	6.5	7.1	6.3	5.9	6.9	6.1	7.0	5.5	3.6	0.0	-1.7	-2.4	-3.1	3.2	7.1																						
11-Apr	-3.9	-4.6	-4.8	-5.2	-5.6	-5.3	-2.7	3.1	4.9	6.8	8.6	10.2	11.1	11.9	12.0	12.2	13.0	12.0	10.9	9.2	8.0	7.1	6.7	6.1	5.1	13.0																						
12-Apr	6.2	6.0	5.8	5.0	3.3	2.7	2.6	3.0	3.4	4.5	5.7	6.9	8.0	8.9	9.6	10.0	10.1	10.9	10.1	7.9	6.4	7.4	6.4	5.9	6.5	10.9																						
13-Apr	5.6	5.4	5.2	5.0	4.7	4.3	4.0	5.6	7.0	7.4	7.6	7.9	8.4	8.8	8.7	8.9	9.7	8.9	8.0	7.0	4.5	2.4	1.8	1.4	6.2	9.7																						
14-Apr	0.1	-0.7	-0.3	-0.9	-2.1	-1.3	0.9	4.6	8.1	10.2	10.9	11.5	12.4	13.3	13.8	14.2	14.5	14.3	13.1	9.7	5.2	3.0	1.7	2.0	6.6	14.5																						
15-Apr	2.3	2.4	2.3	1.9	3.4	6.4	6.7	5.4	6.4	7.0	5.6	5.1	5.8	5.9	6.6	7.9	7.9	7.0	6.2	5.4	4.6	3.7	3.9	3.7	5.1	7.9																						
16-Apr	3.6	3.5	3.3	3.1	2.8	2.6	1.8	1.2	1.2	1.5	1.6	1.5	1.2	1.3	1.1	0.9	0.8	0.0	-0.7	-1.2	-1.8	-2.0	-2.3	-2.3	1.0	3.6																						
17-Apr	-2.3	-2.3	-2.5	-2.6	-2.8	-3.1	-3.4	-3.8	-4.0	-4.2	-3.4	-2.1	-0.9	-0.3	0.1	0.1	-0.1	-0.5	-0.9	-1.6	-2.1	-2.4	-2.8	-3.7	-2.2	0.1																						
18-Apr	-4.6	-5.2	-5.6	-5.9	-6.2	-6.5	-6.6	-6.3	-5.6	-4.5	-4.0	-3.0	-1.7	-1.3	-1.1	-0.5	-0.1	-0.1	-0.1	-0.4	-0.9	-1.9	-2.8	-3.6	-3.3	-0.1																						
19-Apr	-4.4	-4.8	-4.9	-5.7	-7.7	-9.3	-6.6	-4.1	-2.2	-0.3	1.6	3.4	5.0	6.6	7.9	8.7	9.0	9.0	8.6	6.7	2.1	1.5	1.0	1.2	0.9	9.0																						
20-Apr	-0.1	-1.6	-2.9	-3.6	-1.4	-0.5	1.2	4.0	6.7	8.8	10.1	11.3	12.3	13.1	13.7	14.2	14.2	14.0	13.1	11.2	5.6	2.3	4.0	4.2	6.4	14.2																						
21-Apr	2.9	2.7	0.5	0.0	-1.5	-0.7	2.4	5.5	8.3	10.9	12.4	13.4	14.0	14.6	15.1	14.5	14.7	14.1	13.1	11.8	8.0	5.3	4.3	4.5	8.0	15.1																						
22-Apr	3.2	1.7	-1.2	-2.5	-3.1	-3.2	0.0	7.2	10.4	12.9	14.6	15.0	16.1	16.4	16.7	16.7	16.8	16.2	15.6	12.8	7.7	4.7	1.9	0.4	8.2	16.8																						
23-Apr	-0.7	-1.7	-2.1	-2.6	-1.8	-1.4	0.0	5.2	8.4	11.1	12.9	14.3	15.1	15.5	16.0	16.0	15.7	15.0	14.3	12.9	9.3	4.5	3.6	1.6	7.5	16.0																						
24-Apr	0.7	-0.7	-1.2	-0.7	-1.6	-1.6	1.3	4.6	8.8	13.2	15.0	16.7	17.6	18.3	18.8	18.8	19.1	18.6	18.0	17.0	15.3	13.2	12.5	10.0	10.5	19.1																						
25-Apr	9.8	8.5	6.7	5.8	4.5	4.3	5.3	7.5	10.1	12.2	13.0	12.8	13.1	12.7	13.0	12.9	11.8	10.5	11.1	10.4	8.7	7.0	5.9	4.5	9.3	13.1																						
26-Apr	3.8	3.0	2.2	1.8	1.4	1.1	0.9	1.3	2.0	2.6	3.9	5.4	6.1	6.5	6.9	7.1	7.2	6.8	6.0	4.7	2.3	-0.6	-1.6	-2.6	3.2	7.2																						
27-Apr	-3.9	-4.3	-5.4	-4.4	-5.0	-3.1	-0.1	2.3	4.6	6.4	7.2	7.6	8.1	7.6	7.9	8.1	7.2	7.2	6.8	6.3	6.7	6.3	6.2	6.3	3.6	8.1																						
28-Apr	5.0	4.9	3.9	3.0	3.9	4.6	5.4	6.7	8.0	9.5	10.3	10.1	9.9	8.9	10.0	10.7	10.8	10.3	9.4	8.3	7.1	6.3	4.9	3.7	7.3	10.8																						
29-Apr	2.0	1.3	1.4	1.7	0.4	0.9	1.8	3.8	5.0	5.0	5.5	6.2	7.5	9.5	10.7	11.0	10.4	9.7	9.3	8.9	8.5	8.0	7.1	6.3	5.9	11.0																						
30-Apr	5.5	4.8	4.5	4.1	3.3	2.8	2.4	2.4	2.5	2.6	2.8	3.2	3.8	4.1	4.5	5.3	5.7	6.1	6.5	6.3	6.1	6.0	5.7	4.6	4.4	6.5																						
																								1.6	1.1	0.5	0.2	-0.2	-0.1	0.7	2.5	4.3	5.7	6.5	7.3	8.1	8.6	9.0	9.4	9.4	9.0	8.4	7.0	5.0	3.7	3.1	2.5	Diurnal Average
																								9.8	8.5	7.1	5.8	4.9	6.4	6.7	7.5	10.4	13.2	15.0	16.7	17.6	18.3	18.8	18.8	19.1	18.6	18.0	17.0	15.3	13.2	12.5	10.0	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Christina Lake - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	167	23.19	23.19
0 - 10	414	57.50	80.69
10 - 20	139	19.31	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720





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

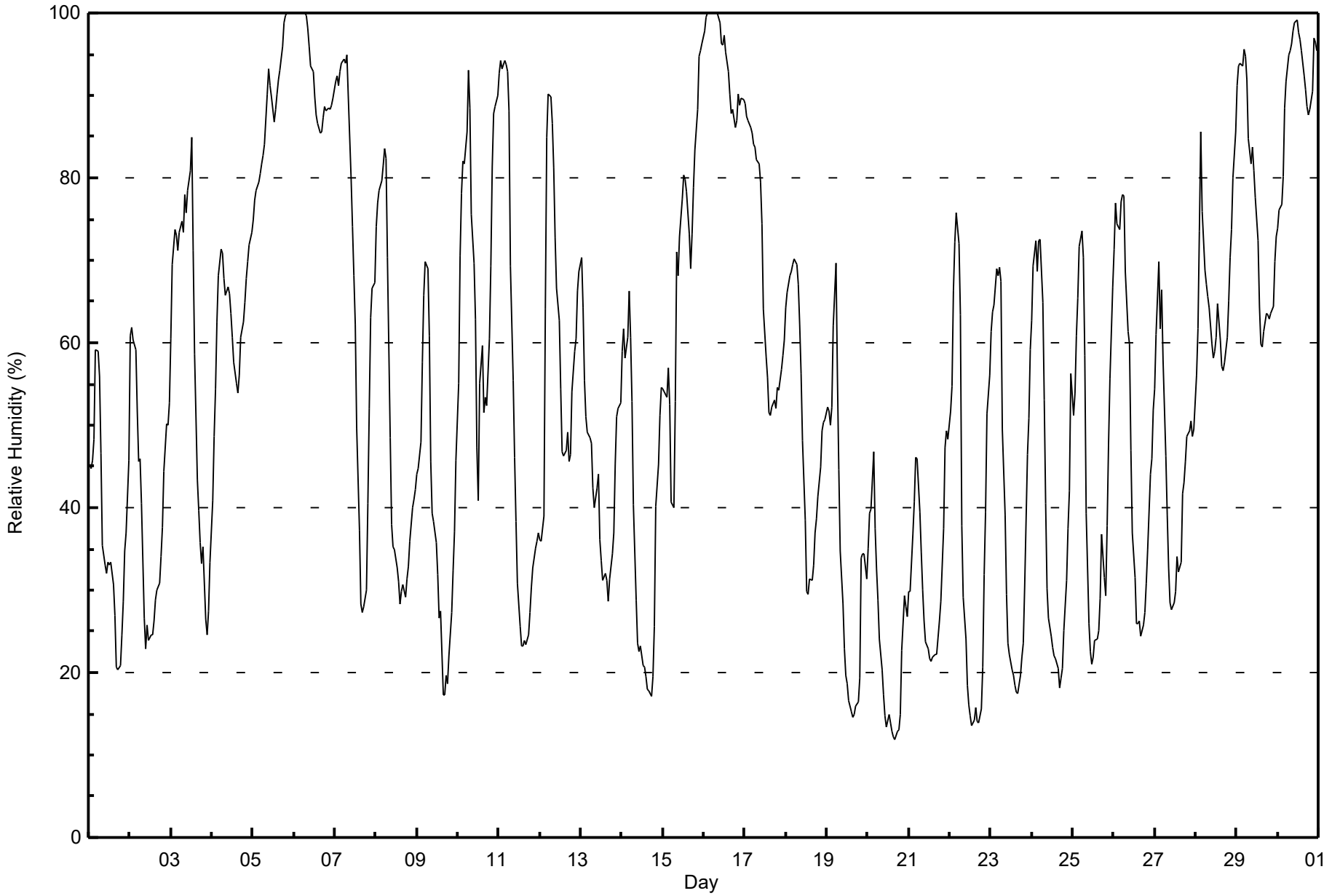
**Relative Humidity (RH) - %**  
**Christina Lake - April 2024**

Maximum Value: 100.0 % on Apr 5 21:00      Maximum Daily Average: 94.6 % on Apr 16																						Hours in Service:	720																								
Minimum Value: 11.8 % on Apr 20 17:00      Minimum Daily Average: 23.5 % on Apr 20																						Hours of Data:	720																								
Maximum Diurnal Average: 73.1 % at hour 5      Minimum Diurnal Average: 40.6 % at hour 17																						Hours of Missing Data:	0																								
Monthly Average: 55.49 %      Percentiles: P <sub>1</sub> = 13.9 P <sub>10</sub> = 22.9 Q <sub>1</sub> = 33.0 Median = 54.5 Q <sub>3</sub> = 74.8 P <sub>90</sub> = 91.7 P <sub>99</sub> = 100.0																						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-Apr	45.2	44.8	45.8	48.4	59.2	59.0	55.9	46.6	35.4	33.1	32.1	33.4	33.1	33.4	30.6	26.9	20.8	20.4	20.9	24.5	28.7	34.8	37.0	45.7	37.3	59.2																					
2-Apr	60.8	61.9	60.4	59.1	51.8	45.5	45.9	40.5	26.6	22.8	25.8	23.8	24.5	24.6	26.2	28.8	29.9	30.8	34.0	37.6	44.4	50.2	50.0	52.7	39.9	61.9																					
3-Apr	60.5	69.5	73.7	73.0	71.2	73.5	74.7	73.4	78.0	75.7	78.4	80.8	84.9	71.2	58.6	43.3	39.6	35.7	33.2	35.3	26.4	24.5	27.5	33.4	58.2	84.9																					
4-Apr	40.8	48.6	54.5	62.6	68.2	71.4	70.9	67.9	65.8	66.8	65.9	63.5	60.7	57.6	55.0	53.9	56.1	60.7	62.6	65.0	67.7	69.8	71.9	73.4	62.5	73.4																					
5-Apr	74.9	77.2	78.5	79.5	80.5	81.7	82.6	84.0	90.1	93.3	91.2	89.8	86.9	88.4	90.2	91.8	93.1	95.9	98.8	99.7	100.0	100.0	100.0	100.0	89.5	100.0																					
6-Apr	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.7	98.2	95.9	93.5	92.9	89.9	87.6	86.7	85.5	85.6	87.3	88.6	88.1	88.5	88.3	88.9	89.7	93.1	100.0																					
7-Apr	91.7	92.4	91.2	92.9	93.9	94.4	93.9	94.9	89.9	80.1	74.1	68.1	62.2	49.6	37.2	28.3	27.2	28.0	30.0	40.5	52.0	63.1	66.6	67.2	67.1	94.9																					
8-Apr	74.1	77.0	78.4	79.6	81.6	83.6	82.4	70.4	48.5	38.0	35.2	34.9	32.7	31.1	28.3	29.8	30.6	29.2	31.4	32.9	36.0	39.9	41.0	42.1	49.5	83.6																					
9-Apr	44.1	44.8	48.0	57.7	65.8	69.8	69.1	60.9	45.5	39.3	38.3	35.8	31.9	26.7	27.4	17.3	17.3	19.7	18.6	22.1	27.4	32.4	37.1	45.7	39.3	69.8																					
10-Apr	55.0	70.5	78.2	82.0	81.7	85.7	93.0	88.5	75.5	69.7	62.9	47.3	40.9	55.0	59.6	51.5	53.4	52.4	60.6	69.2	81.4	87.8	88.7	89.9	70.0	93.0																					
11-Apr	92.7	94.2	93.2	94.2	93.8	93.0	88.1	69.3	55.4	46.1	38.3	30.8	25.7	23.2	23.2	23.9	23.4	24.6	27.3	30.4	32.7	35.2	36.0	36.9	51.3	94.2																					
12-Apr	36.0	35.9	39.0	64.1	84.9	90.2	89.9	86.7	81.2	72.8	66.7	62.8	54.4	46.8	46.3	47.0	49.1	45.6	46.4	54.0	59.0	60.4	66.2	68.6	60.6	90.2																					
13-Apr	70.4	64.3	55.5	51.1	49.2	48.4	47.8	42.3	40.1	42.4	44.1	36.2	33.6	31.2	32.1	31.2	28.7	31.4	34.4	37.0	45.3	51.1	52.0	52.6	43.8	70.4																					
14-Apr	58.9	61.6	58.2	60.7	66.2	60.7	52.8	40.3	28.9	23.6	22.6	23.3	20.9	20.7	19.5	18.0	17.8	17.1	19.4	25.5	40.1	45.2	51.2	54.6	37.8	66.2																					
15-Apr	54.4	54.0	53.4	57.0	52.6	40.7	40.0	53.0	71.0	68.2	73.0	77.5	80.4	79.8	78.3	73.2	68.9	73.3	78.9	83.3	88.2	94.8	95.5	96.3	70.2	96.3																					
16-Apr	97.8	99.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.9	96.3	96.2	97.3	95.2	92.8	90.1	87.8	88.3	86.2	87.0	90.3	88.8	89.7	89.5	94.6	100.0																					
17-Apr	89.0	87.5	87.0	86.0	85.4	84.1	83.8	82.3	81.6	79.5	74.5	64.1	58.3	55.7	51.5	51.2	52.2	53.0	52.1	54.5	54.2	56.8	58.4	60.4	68.5	89.0																					
18-Apr	64.3	66.1	68.1	68.7	69.6	70.1	69.5	67.1	62.2	56.3	48.2	38.4	29.8	29.4	31.4	31.3	33.1	36.9	38.7	41.4	45.0	49.3	50.3	50.7	50.7	70.1																					
19-Apr	52.3	51.8	49.9	52.3	62.1	69.7	55.9	44.6	34.8	28.2	22.9	19.6	18.7	16.6	15.2	14.5	14.8	16.0	16.4	19.3	33.9	34.4	34.4	31.3	33.7	69.7																					
20-Apr	35.1	39.4	39.8	46.8	37.4	32.6	28.9	24.1	20.3	17.2	14.7	13.4	14.9	13.8	12.9	12.3	11.8	12.9	13.0	14.9	22.8	29.4	28.0	26.8	23.5	46.8																					
21-Apr	29.8	29.8	36.7	40.6	46.0	45.9	39.6	34.6	30.1	26.2	23.7	22.9	21.6	21.4	21.9	22.2	22.2	24.3	26.3	28.7	37.4	47.3	49.4	48.2	32.4	49.4																					
22-Apr	51.6	54.7	66.2	72.3	75.8	72.1	63.4	37.9	29.2	24.0	18.5	16.2	14.8	13.6	14.3	15.8	14.1	13.9	15.7	20.7	31.8	39.5	51.4	56.1	36.8	75.8																					
23-Apr	61.3	63.7	64.6	68.9	68.1	69.1	67.4	49.5	39.1	29.5	23.5	22.2	20.4	19.7	18.5	17.7	17.5	19.7	21.8	23.5	30.5	46.5	50.8	59.1	40.5	69.1																					
24-Apr	62.8	69.4	72.4	68.7	72.4	72.5	64.9	53.0	40.6	30.2	26.7	24.5	23.0	22.0	21.7	20.5	18.2	19.2	20.5	25.1	31.2	37.5	42.1	56.3	41.5	72.5																					
25-Apr	51.2	54.0	60.8	65.5	71.7	73.5	70.3	58.5	39.3	25.9	22.5	20.9	21.9	24.0	24.0	25.1	28.9	36.7	31.5	29.3	37.8	47.5	55.7	66.7	43.5	73.5																					
26-Apr	71.4	76.9	74.3	73.7	77.2	77.9	77.7	68.6	61.4	59.9	47.0	37.0	31.6	26.0	25.9	26.3	24.4	25.7	27.2	30.8	34.9	44.2	46.0	51.8	49.9	77.9																					
27-Apr	54.4	61.1	69.8	61.7	66.4	57.9	46.3	39.2	32.8	28.5	27.6	28.4	29.9	34.1	32.2	33.3	41.6	43.1	45.6	48.6	49.3	50.5	48.6	49.5	45.0	69.8																					
28-Apr	56.0	61.7	73.5	85.6	75.9	68.7	67.2	65.6	64.3	59.9	58.2	58.9	60.6	64.8	60.3	57.1	56.6	57.7	60.7	65.1	70.4	73.8	80.1	85.6	66.2	85.6																					
29-Apr	91.2	93.5	93.9	93.6	95.6	94.7	91.8	84.7	81.7	83.7	80.9	77.5	72.4	64.5	59.8	59.5	61.3	63.6	63.3	62.8	63.6	64.4	69.9	72.9	76.7	95.6																					
30-Apr	73.9	76.1	76.8	80.2	88.5	91.7	94.9	95.4	96.3	97.9	98.9	99.2	97.6	96.8	95.5	92.4	90.7	88.6	87.6	88.4	90.6	96.9	96.4	95.4	91.1	99.2																					
																						63.4	66.1	68.1	70.9	73.1	72.6	70.3	64.1	58.1	53.8	50.9	48.0	45.8	44.1	42.6	40.7	40.6	41.7	43.1	46.2	51.4	56.1	58.7	61.6	Diurnal Average	
																						100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.9	98.9	99.2	97.6	96.8	95.5	92.4	93.1	95.9	98.8	99.7	100.0	100.0	100.0	100.0	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Christina Lake - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	45	6.25	6.25
20 - 40	199	27.64	33.89
40 - 60	159	22.08	55.97
60 - 80	163	22.64	78.61
80 - 100	136	18.89	97.50

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

**Wind Speed (WS) - km/h**  
**Christina Lake - April 2024**

Maximum Speed: 32 km/h on Apr 1 12:00	Maximum Daily Speed Average: 23.2 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 15 00:00	Minimum Daily Speed Average: 4.5 km/h on Apr 23	Hours of Data: 720
Maximum Diurnal Speed Average: 5.1 km/h at hour 11	Minimum Diurnal Speed Average: 0.3 km/h at hour 22	Hours of Missing Data: 0
Monthly Average Velocity: 2.3 km/h 330.7 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 17 P <sub>90</sub> = 21 P <sub>99</sub> = 28	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-Apr	SSW27	SW25	SW20WNW19	NW18	W18	W17	W24WNW27WNW29WNW31WNW32	NW31	NW24	NW19WNW17WNW22WNW20	W14WSW11WSW12WSW11	S5	SW5	WNW16.6	WNW32											
2-Apr	SSW6	SSW6	S4	SSW6	SSW5	S7	SE5	SSE6	S17	SSW20	SSW17	SSW21	SSW22	SW18	SSW18	SSW18	S17	S18	SSE10	SE8	ESE8	ESE8	SSE6	SE3	S10.1	SSW22
3-Apr	ESE4	ESE6	SE5	ESE6	ESE3	W3	W3	NW14	NNW23	NW23	NW24	NW20	NW17WNW17	W14WNW17	W16	W15	WSW9WSW11	W12	W13WSW12WSW12	WNW9.2	NW24					
4-Apr	WSW12WSW12WSW12WSW12WSW11WNW11	NW15	NNW12	N17	NNE14	NNE12	NE14	NE12	NE15	NE13	NNE14	NNE16	NNE16	NE12	NE9	E7	ENE7	ENE10	ENE11	NNE6.6	N17					
5-Apr	ENE11	NE11	NE11	NE13	NE13	NE12	NE14	NE12	NNE12	NE12	NE13	NE14	NE17	NE16	NE14	NE11	NNE12	NNE12	NNE11	NE10	NNE10	NNE9	NE8	NNE8	NE11.7	NE17
6-Apr	NNE10	NE9	NNE8	NNE11	NE11	NNE11	NNE11	NNE11	NNE14	NE12	NNE10	NE12	NE12	NE12	NE11	NE11	NE10	ENE9	NE6	NNE7	NNE8	NE6	NNE3	NNE4	NE9.4	NNE14
7-Apr	W3	WNW1	WNW5	SSE5	SSW6	SW6	SSW6	SSW4	SW5	SW9WSW10	SW9	SW8	SW10WSW10	W12	W10	WSW9	WSW7	SW7	S3	SSW6	SSW5	S3	SW5.8	W12		
8-Apr	SSW4	SW2	SSW4	SSW4	SSE3	SSW3	SSE3	ESE2	SSE12	SSW14	NW11	W9	SSW12	SSW12	SSW15	SSW18	SSW16	S14	S9	SSE9	S8	S8	S8	S8	SSW7.4	SSW18
9-Apr	SSE9	SSW8	ESE1	ESE5	SSW5	SW4	SW4	S5	W7WNW13WNW19WNW17WNW12	W15WSW13	W21	W22	W20	W17	W12WSW10WSW11	W11WSW11	W9.6	W22								
10-Apr	WSW10	W13	W13	W17WNW19	NW16	NW17	NW20	NW26	NW27	NW27	NW32	NNW28	NNW30	N21	N18	NNE17	NE12	ENE11	SSE5	SSW6	SW5	SW3	SW3	NW12.1	NW32	
11-Apr	S3	SSW3	S3	SSE3	ESE3	SE2	S5	S6	SSW16	SSW17	S15	S13	SSW14	SSW14	S17	SSW17	SSE18	S17	SSE19	SSE15	SSE15	SSE17	SSE21	SSE17	S11.5	SSE21
12-Apr	SSE16	SSE15	S15	S23	SSE18	SE20	SE20	SE18	SE16	SE17	SSE20	SE18	SSE12	SW7	W14	W14	W12	W11	SW5	SSE8	S9	SW16	SW16	SW16	S10.7	S23
13-Apr	WSW18	SW15WSW14	SW15WSW17WSW16WSW16WSW19	W22WNW26WNW29WNW25WNW23WNW22WNW23WNW22WNW22	NW20	NW15	W11WSW11	SW9WSW10	SW10	W16.0	WNW29															
14-Apr	SW8	SW7	SW9	SSW8	SSW8	SSW7	SSW7	SSW6	SW10	SW17	SW22WSW18	W20	W18WSW17WSW17WSW13WSW12	SW7	S4	SE4	SSE5	ESE4	SE1	WSW9.1	SW22					
15-Apr	E3	SE1	E2	ESE3	S3	S8	SE1	WSW5	SW7	SSW6	NNW7	NNE10	NNE11	NNE12	NNE15	ENE16	E18	E14	ENE11	ENE10	NE8	NNE7	N7	N8	ENE4.6	E18
16-Apr	N7	NNW6	NNW13	NNW12	N11	NW13	NW15	NW15	NNW13	N12	NNE17	NNE17	NNE17	N18	NNE18	N22	NNE22	NNE23	NNE25	N24	N20	N22	N23	NNE23	N16.1	NNE25
17-Apr	NNE21	N23	NNE22	N22	N20	N21	N23	N24	NNE25	NNE24	NNE25	NNE28	N27	N25	N26	NNE25	NNE25	NNE23	NNE24	NNE22	NNE21	NNE21	NNE21	NNE22	NNE23.2	NNE28
18-Apr	NNE19	NNE18	NNE17	NNE17	NNE18	NNE17	NNE19	NNE19	NNE19	NNE21	NNE21	NNE20	N22	NNE23	NNE21	NNE21	NNE23	NNE21	NNE19	NNE14	NNE14	NNE10	NNE11	NNE9	NNE17.9	NNE23
19-Apr	NNE8	NNE10	N10	N6	W4	W5	W4	N5	NW9	NNW9	N8	NNW5	NW9	NNW11	WNW9WNW10WNW10WNW11	W12WSW10WSW10WSW10WSW10	WSW9	WNW6.1	W12							
20-Apr	WSW7	SW5	SSW2	WSW6	WSW9	WSW9WSW11	W12	W13	W13	W14	W13WSW14WSW15WSW13WSW13WSW13	SW12	SW11	SW9	SSW8	SSW8	SSW9	SSW9	WSW9.8	WSW15						
21-Apr	SSW7	S9	SSE6	SSE7	SE6	SSE8	SSE11	SE11	SSE14	SSE18	SSE18	SSE16	SSE13	SE12	ESE15	ESE11	SE10	SW9	SW12	WSW9	SW10	WSW4	WSW3	W5	SSE7.8	SSE18
22-Apr	NW4	WSW5	SW4	SSW4	SW5	SSW4	SW3	NNW2	N4	NNE6	NNE11	NNE17	N17	NNE19	N21	NNE18	N20	NNE16	NE10	NE4	E3	ESE3	S2	SSW6	NNE5.6	N21
23-Apr	SW6	SSW2	SSW4	SW4	N2	SSE3	S4	ESE4	ENE7	E12	ENE11	ENE9	NE10	NE8	N7	NE8	ENE7	ENE10	E8	ESE8	ESE6	ESE7	ESE6	E4	E4.5	E12
24-Apr	SSE4	E3	NE5	NNE6	NE4	NE3	ENE3	NNE3	ENE7	E14	ESE19	ESE24	ESE27	ESE27	ESE25	ESE18	SSE16	S12	SSW12	SSW16	W15WSW10	NNW7	NE5	ESE7.0	ESE27	
25-Apr	NW16WNW13WSW11	W11WSW11WSW11	W11	W12WNW15WNW22	NW22	W20	W19WSW21	W20	W18	W21	W17	W12WNW20WNW17WNW15WNW16	NW16	W15.1	NW22											
26-Apr	WNW14	NNW17	NNE15	NNW16	NNW18	NNW17	NNW19	NNW17	NNW19	NW20	NW23	NW17	NNW17	NNW17	N14	NNE15	NNE12	NE15	NE13	ENE11	E6	ESE5	ESE6	ESE5	NNW11.1	NW23
27-Apr	SE5	SE6	SSE5	SSE7	SE7	SE10	SSE15	S18	S18	S20	S21	S21	S22	SSE20	S20	S20	SSE14	SSE13	ESE8	ESE7	SE10	ESE8	SE8	NE7	SSE11.8	S22
28-Apr	E7	NE7	ENE3	ENE3	SE9	SE9	SE9	SSE14	SSE15	SE16	SE13	SE14	ESE17	ESE19	ESE16	SE12	ESE14	ESE15	ESE13	ESE10	ESE7	ESE6	E8	E6	ESE10.2	ESE19
29-Apr	E6	SE4	SE4	ESE4	SW4	SW2	SSE2	SSE1	NNE10	NNE11	NE11	NE12	NE13	NE15	NE12	NE17	NE18	NNE18	NNE17	NNE13	NNE12	NNE14	NE18	NNE17	NE9.2	NE18
30-Apr	NE18	NNE16	NNE15	NNE18	NNE15	NNE15	NNE17	NNE20	NNE20	NE19	NNE19	NNE17	NNE16	NNE16	NNE15	N17	N16	N15	N13	NNE14	N11	NE7	NE8	NNE9	NNE14.9	NNE20

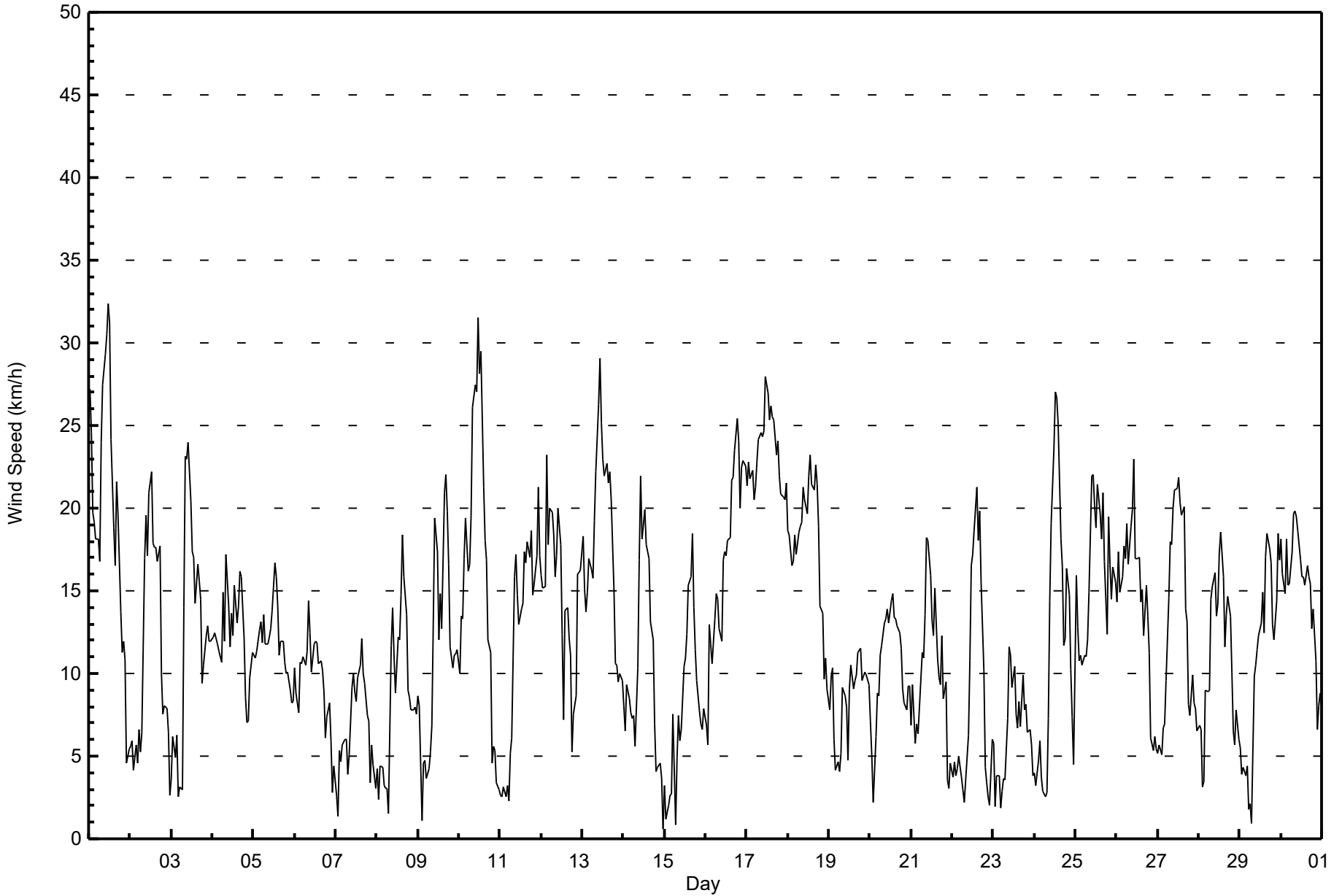
WSW1.0WNW1.4	NW1.4WNW1.7	NW1.8WNW2.2	NW2.1	NW2.8	NW3.9	NW3.6NNW5.1	NNW4.6NNW4.4	NNW4.6NNW3.8	NNW3.7	NNW3.4	NNW2.9	NNE2.3	NNE0.9	NNW0.4	NNW0.3	NNE0.3	N1.3											Diurnal Average	
SSW27	SW25	NNE22	S23	N20	N21	N23	N24	WNW27WNW29WNW31WNW32	NW31	NNW30	N26	NNE25	NNE25	NNE23	NNE25	N24	NNE21	N22	N23	NNE23						Diurnal Maximum			

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Christina Lake - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	112	15.56	15.56
6 - 11	221	30.69	46.25
12 - 19	274	38.06	84.31
20 - 28	106	14.72	99.03
29 - 38	7	0.97	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Christina Lake - April 2024**

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	3	3	5	3	5	13	11	11	11	15	16	4	7	2	1	2	112
6 - 11	9	27	22	16	7	16	12	11	10	20	20	31	7	5	3	5	221
12 - 19	10	54	31	1	4	9	9	23	11	16	9	24	30	16	14	13	274
20 - 28	18	29	0	0	0	4	2	3	7	4	3	1	9	12	12	2	106
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	1	7
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	40	113	58	20	16	42	34	48	39	55	48	60	53	39	32	23	720

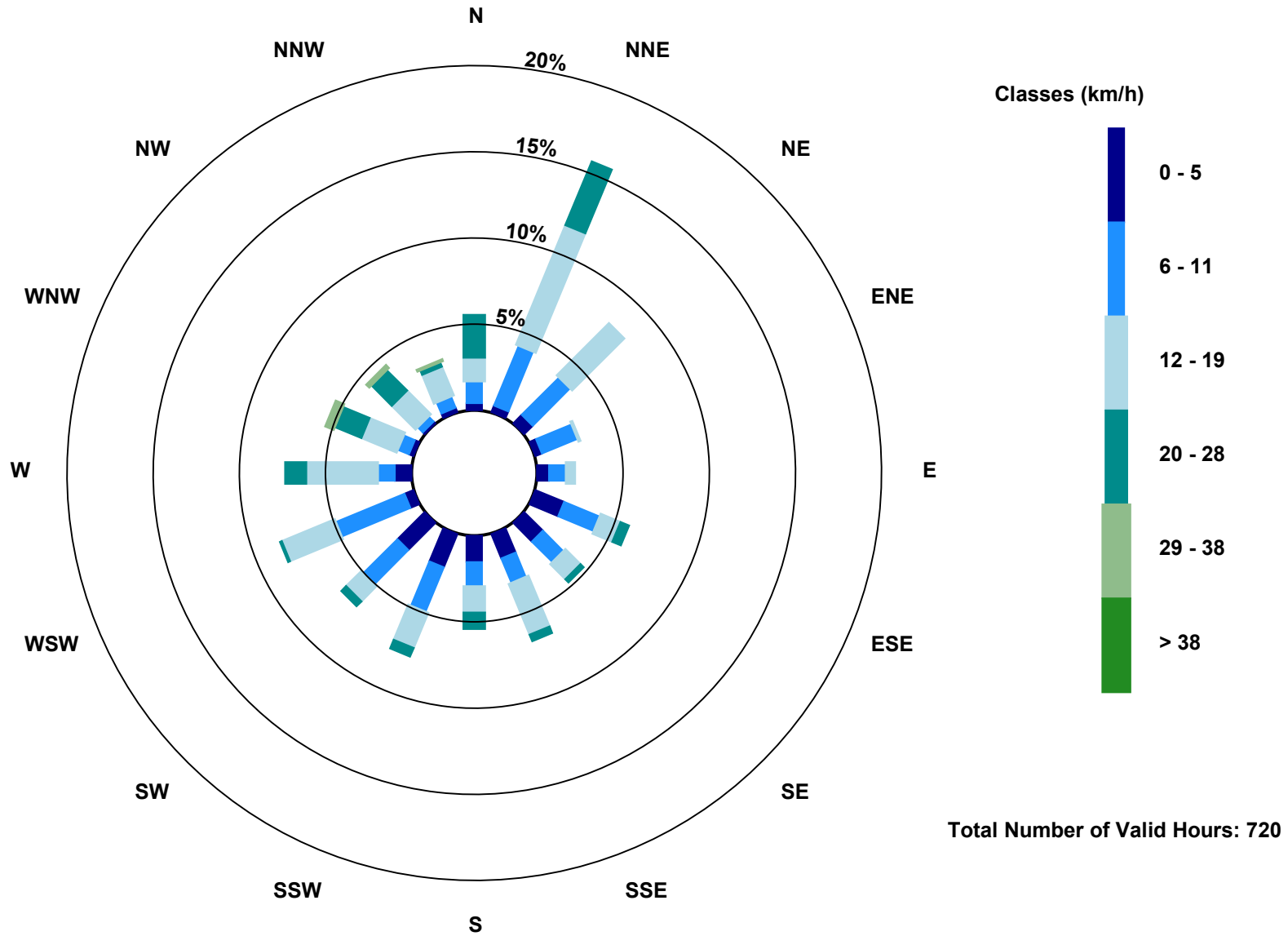
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Christina Lake







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Christina Lake - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 1 08:00 Minimum Value: 1 km/h on Apr 11 01:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 7																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	6	6	5	6	5	6	4	9	7	8	8	7	7	6	5	5	6	6	5	2	1	2	1	1	9
2-Apr	1	1	1	2	1	2	1	4	4	4	4	5	5	4	5	5	4	4	3	2	2	1	1	2	5
3-Apr	2	2	2	1	2	4	2	6	6	5	5	6	5	5	4	5	4	4	2	1	3	3	2	2	6
4-Apr	1	1	2	1	2	4	4	3	4	3	3	3	3	3	4	4	3	3	2	4	1	1	2	3	4
5-Apr	3	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	1	1	3
6-Apr	2	1	2	2	2	2	2	2	2	2	2	3	2	3	2	2	3	2	1	2	1	2	2	1	3
7-Apr	1	2	3	2	1	1	1	1	1	2	2	2	2	3	4	4	3	3	2	1	1	1	2	1	4
8-Apr	2	1	1	1	2	2	2	1	3	3	5	3	4	4	6	4	4	4	1	1	1	1	2	2	6
9-Apr	3	5	2	1	2	1	3	2	4	5	5	6	5	5	5	6	6	6	6	3	2	2	3	2	6
10-Apr	2	3	4	5	5	4	4	6	6	5	7	7	7	7	6	5	8	5	7	1	1	2	1	1	8
11-Apr	1	1	2	1	1	2	3	3	5	4	4	3	5	5	5	5	5	5	4	3	3	4	4	3	5
12-Apr	3	3	5	7	4	5	5	4	5	4	5	5	3	4	4	4	4	3	1	1	2	3	3	3	7
13-Apr	3	3	2	2	3	3	3	5	7	7	7	6	6	6	6	6	6	5	4	2	1	1	1	1	7
14-Apr	1	1	1	2	2	1	1	1	4	4	5	5	6	5	6	6	5	4	2	2	2	1	2	1	6
15-Apr	1	2	1	2	2	3	2	2	2	2	5	2	3	3	3	3	4	3	2	2	1	1	2	2	5
16-Apr	3	3	2	3	2	3	3	3	3	3	4	4	4	4	5	5	6	5	5	6	5	5	5	5	6
17-Apr	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	5	6	6	5	5	5	6	6
18-Apr	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	4	5	5	4	3	3	2	2	2	5
19-Apr	1	2	3	2	1	2	2	2	3	3	3	4	4	4	4	5	5	4	4	2	1	1	1	1	5
20-Apr	1	2	1	2	1	2	2	3	3	4	4	4	5	5	4	4	4	3	2	1	1	1	1	2	5
21-Apr	1	2	1	1	1	2	2	2	3	5	5	5	5	5	4	3	4	6	3	2	1	3	1	1	6
22-Apr	2	2	1	1	1	1	1	1	1	3	5	5	5	6	6	6	6	5	3	1	1	2	2	2	6
23-Apr	2	3	2	1	1	1	1	2	3	3	4	4	4	4	3	3	3	2	1	1	1	1	1	2	4
24-Apr	2	2	2	2	1	1	2	1	3	3	4	5	5	5	5	6	4	4	5	7	6	5	5	4	7
25-Apr	4	4	2	2	2	2	3	3	6	6	5	6	6	6	6	6	6	7	4	5	5	4	4	4	7
26-Apr	4	4	4	4	4	4	4	4	4	5	6	6	6	6	6	5	4	3	3	3	1	1	1	1	6
27-Apr	1	1	1	1	1	2	3	4	4	5	4	5	5	6	5	5	5	4	2	2	3	2	2	2	6
28-Apr	1	1	1	2	1	1	3	3	4	3	4	3	3	4	3	4	3	3	3	2	1	1	1	2	4
29-Apr	1	2	2	1	2	2	1	2	2	2	2	2	2	3	4	3	3	3	3	3	3	3	3	4	4
30-Apr	5	4	3	5	4	3	4	4	4	4	3	3	3	3	3	4	4	4	3	3	3	3	2	2	5
																	Diurnal Maximum								



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

**Wind Direction (WD) - deg**  
**Christina Lake - April 2024**

Direction of Maximum Speed: 303 deg on Apr 1 12:00 Direction of Maximum Daily Speed Average: 12.9 deg on Apr 17	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0
Direction of Minimum Speed: 126 deg on Apr 15 00:00 Direction of Minimum Daily Speed Average: 4.5 deg on Apr 23	Percent Operational Time: 100.0
Monthly Average Direction: 330.7 deg	

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-Apr	209	220	234	285	306	277	275	281	298	299	303	303	322	324	305	295	287	302	281	250	247	244	180	217	283.0
2-Apr	196	201	186	200	197	186	127	165	190	196	193	210	202	215	213	194	183	184	166	143	105	102	149	126	187.5
3-Apr	102	115	132	119	118	267	264	315	341	323	319	307	304	283	270	291	279	281	257	242	261	265	258	258	290.9
4-Apr	250	248	251	243	257	294	318	339	359	27	23	43	45	34	54	26	27	31	46	46	81	68	57	68	13.3
5-Apr	75	54	42	37	40	38	36	39	27	34	40	42	50	54	53	43	29	30	30	35	29	25	37	27	40.1
6-Apr	27	38	29	29	39	32	22	26	32	37	32	37	48	41	42	52	54	61	43	27	29	39	15	20	36.3
7-Apr	261	296	292	161	200	233	210	195	216	233	246	228	219	217	246	265	270	256	245	224	177	192	200	184	231.9
8-Apr	211	222	197	211	167	197	149	115	157	192	307	264	201	202	195	201	205	184	172	164	189	180	186	179	195.0
9-Apr	168	205	123	123	206	225	227	191	270	288	286	300	296	273	251	265	273	278	277	260	251	252	259	258	264.2
10-Apr	246	266	268	274	287	309	307	318	321	321	322	323	334	342	357	357	23	51	67	165	202	215	217	219	320.7
11-Apr	191	203	188	160	117	146	180	182	193	192	181	183	201	212	190	195	168	177	158	158	157	153	158	163	175.9
12-Apr	157	158	173	187	154	143	137	145	142	146	148	137	153	216	275	264	276	261	219	168	189	219	227	228	177.7
13-Apr	239	236	240	236	238	244	249	255	278	285	299	292	301	295	284	285	292	304	312	260	237	231	237	229	271.6
14-Apr	232	226	219	211	208	211	211	203	232	235	235	247	262	272	258	252	255	252	223	179	130	153	123	126	236.5
15-Apr	82	129	92	123	179	187	128	246	215	201	340	22	31	24	30	62	100	93	77	75	39	19	1	9	57.2
16-Apr	2	345	334	335	6	325	322	320	328	6	17	12	19	7	13	10	13	15	12	9	10	11	11	12	2.7
17-Apr	13	11	12	8	7	356	4	4	13	17	14	14	10	3	11	13	18	18	19	22	21	23	20	20	12.9
18-Apr	12	14	13	16	18	17	15	15	19	23	21	15	10	13	22	24	20	31	30	27	30	27	23	23	19.5
19-Apr	22	12	3	350	263	263	272	352	325	335	355	338	314	329	296	285	287	283	276	257	237	242	247	245	300.2
20-Apr	238	231	200	249	247	253	254	262	261	260	264	265	251	249	244	238	237	229	225	224	205	207	204	200	241.4
21-Apr	197	187	166	147	140	156	156	144	159	147	147	153	154	131	104	104	130	214	235	246	226	246	239	259	161.3
22-Apr	310	257	224	207	228	203	228	348	6	15	12	26	9	22	358	25	6	22	46	56	84	113	182	210	12.8
23-Apr	215	203	211	217	7	154	176	108	59	85	65	70	52	56	9	49	58	71	81	103	121	112	123	86	82.3
24-Apr	160	87	35	33	35	40	78	26	65	91	113	108	110	108	111	118	149	171	203	193	260	255	348	38	118.4
25-Apr	313	298	255	262	253	256	262	264	283	302	306	276	267	246	272	276	269	271	268	290	299	298	286	314	280.0
26-Apr	292	327	14	334	330	327	337	337	327	322	322	324	344	333	356	23	29	47	42	60	97	122	121	120	348.1
27-Apr	127	132	150	152	133	144	162	169	174	177	170	173	179	166	171	178	165	155	118	114	134	119	134	38	159.6
28-Apr	93	56	75	76	127	137	140	157	153	142	136	134	110	113	116	125	111	117	106	105	113	119	99	90	120.6
29-Apr	97	132	126	111	220	217	148	161	26	21	41	39	36	45	40	44	39	32	31	24	15	17	35	33	37.8
30-Apr	37	30	33	31	15	20	24	25	28	35	33	31	29	23	14	8	9	357	2	15	8	52	36	17	23.0

258.2 290.1 305.3 300.7 306.3 292.7 309.9 317.0 324.0 322.0 331.3 335.9 345.6 342.4 339.0 336.7 341.9 348.0 11.7 28.9 331.8 281.6 13.8 353.7

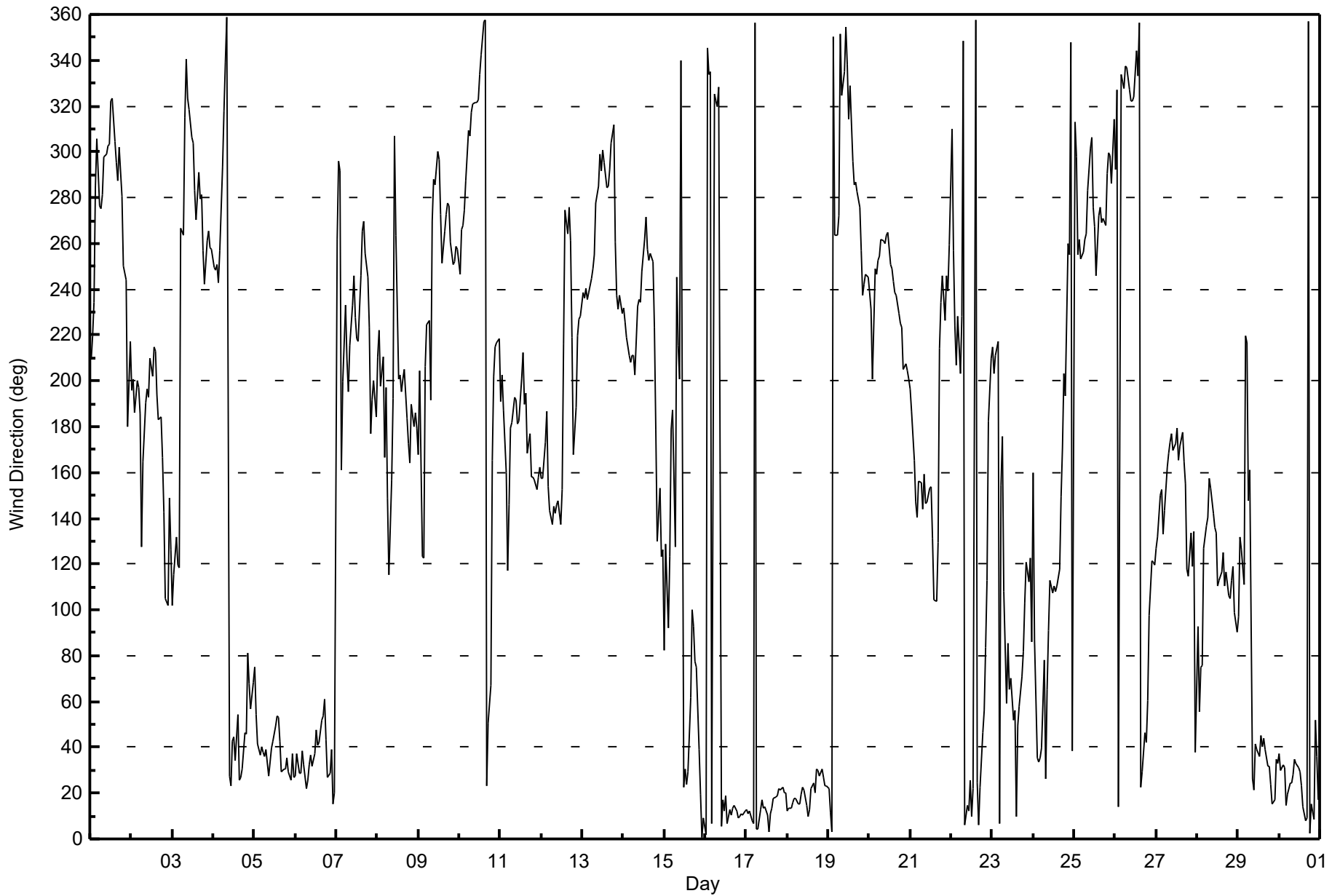
Diurnal Average

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Christina Lake - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Christina Lake - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Apr 15 07:00 Minimum Value: 4 deg on Apr 20 22:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 17 Q <sub>3</sub> = 23 P <sub>90</sub> = 37 P <sub>99</sub> = 76		Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	12	14	14	30	23	15	15	17	16	16	16	16	15	16	26	27	17	20	17	12	8	9	46	22	46	
2-Apr	11	7	17	13	14	16	34	27	12	13	15	17	14	16	15	14	13	13	15	13	24	19	26	76	76	
3-Apr	41	21	21	16	55	77	77	22	16	17	14	17	22	19	17	25	19	18	19	9	17	16	15	14	77	
4-Apr	10	10	12	9	21	37	13	25	22	18	26	16	22	15	23	21	13	16	10	34	14	11	11	14	37	
5-Apr	14	12	11	9	11	10	10	11	11	10	12	13	11	11	11	12	11	10	10	9	11	12	9	11	14	
6-Apr	11	12	12	11	11	10	13	12	11	17	13	15	15	21	18	17	16	14	14	9	9	17	65	24	65	
7-Apr	43	77	38	24	29	8	17	21	15	14	16	19	16	24	30	28	29	22	19	12	20	15	60	32	77	
8-Apr	25	33	15	18	26	52	19	48	13	21	35	38	25	29	29	13	16	16	11	6	25	12	14	37	52	
9-Apr	22	37	68	21	22	33	45	47	44	21	18	23	33	25	36	19	18	16	18	16	10	12	17	16	68	
10-Apr	13	17	16	15	14	16	18	13	12	15	13	16	21	21	21	27	26	14	29	28	16	13	21	20	29	
11-Apr	20	31	42	45	33	51	17	20	13	13	22	29	23	25	21	18	20	16	11	10	11	11	11	11	51	
12-Apr	12	12	13	15	13	13	13	16	15	16	16	15	24	42	21	23	24	22	25	6	13	11	10	10	42	
13-Apr	10	11	10	10	10	14	13	17	18	16	17	19	20	20	18	19	18	21	17	21	7	4	7	7	21	
14-Apr	5	9	5	8	7	6	7	14	22	16	17	24	21	25	23	20	28	24	13	16	24	18	25	97	97	
15-Apr	53	74	66	50	61	20	99	38	19	29	63	13	17	13	11	19	13	12	12	12	19	13	31	24	99	
16-Apr	18	50	14	17	22	15	11	10	15	21	12	12	13	18	14	14	15	15	14	16	16	13	13	13	50	
17-Apr	15	14	14	15	18	19	17	17	14	14	15	16	20	19	17	19	17	14	17	16	13	15	14	13	20	
18-Apr	13	14	13	14	13	14	12	12	14	14	15	17	22	18	17	15	16	12	13	11	10	11	11	11	22	
19-Apr	11	11	18	32	29	28	41	38	26	35	45	77	50	39	51	48	38	30	19	17	5	5	7	9	77	
20-Apr	7	8	25	14	13	14	15	17	18	22	23	25	28	22	26	21	23	21	12	8	5	4	10	11	28	
21-Apr	9	11	8	17	12	12	12	16	16	21	21	26	37	37	26	23	27	40	14	12	14	76	61	25	76	
22-Apr	46	23	26	24	13	25	40	60	45	45	37	23	27	21	27	24	25	13	9	29	37	53	56	8	60	
23-Apr	30	75	58	36	80	57	16	48	29	22	24	40	38	57	52	35	42	20	19	15	7	13	11	33	80	
24-Apr	35	51	28	14	12	29	64	42	22	20	16	15	14	14	14	17	14	20	27	31	37	25	68	75	75	
25-Apr	15	21	16	16	13	15	17	18	22	17	19	23	22	22	22	22	26	22	21	14	16	17	15	17	26	
26-Apr	19	15	17	17	16	15	13	18	17	18	18	32	32	26	33	28	32	17	12	12	33	15	15	9	33	
27-Apr	12	12	24	10	17	12	14	11	18	18	17	18	18	18	20	20	20	19	17	21	16	12	14	20	24	
28-Apr	16	14	20	31	11	12	14	13	14	16	19	21	14	15	19	26	19	14	11	12	21	15	13	14	31	
29-Apr	11	30	30	17	17	35	54	85	19	19	18	15	16	17	34	20	14	10	11	12	12	13	9	15	85	
30-Apr	11	10	11	12	15	14	13	13	13	11	10	11	11	14	14	16	17	20	19	13	16	48	27	13	48	
		53	77	68	50	80	77	99	85	45	45	63	77	50	57	52	48	42	40	29	34	37	76	68	97	
		Diurnal Maximum																								



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS27**  
**JACKFISH 2/3**  
**APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
APRIL 2024

MONTHLY SUMMARY

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	682	34	38	99.44	10.5	0	2.2	0
H2S (ppb) Average	678	36	42	99.17	2.2	0	0.5	0
NO2 (ppb) Average	680	36	40	99.44	19.8	0	3.8	-
NO (ppb) Average	680	36	40	99.44	9.7	-	1.7	-
NOX (ppb) Average	680	36	40	99.44	27.8	-	5.3	-
Temperature 2 m (C) Average	718	0	2	99.72	18.6	-	11	-
Relative Humidity (%) Average	718	0	2	99.72	98.5	-	96.9	-
Wind Speed 10 m (km/h) Average	718	0	2	99.72	17	-	11	-
Wind Direction 10 m (deg) Average	718	0	2	99.72	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	682	0.47	1.1	-	0	0	0	0.1	0.3	1	10.5
H2S (ppb) Average	678	0.22	0.2	-	0	0.1	0.1	0.2	0.3	0.4	2.2
NO2 (ppb) Average	680	1.15	2.2	-	0	0	0	0.4	1.3	2.9	19.8
NO (ppb) Average	680	0.44	1	-	0	0	0	0.2	0.4	0.8	9.7
NOX (ppb) Average	680	1.59	3.1	-	0	0	0.1	0.6	1.7	3.6	27.8
Temperature 2 m (C) Average	718	4.4	5.4	-	-10.1	-1.8	0.3	4	7.9	12.1	18.6
Relative Humidity (%) Average	718	54.25	25.8	-	11.3	22.4	31.6	49.9	74.8	94.9	98.5
Wind Speed 10 m (km/h) Average	718	7.6	3	-	1	3	5	7	10	12	17
Wind Direction 10 m (deg) Average	718	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	02 Apr 2024 08:00	02 Apr 2024 08:00	1	Maintenance - station logger/modem reset
ALL PARAMETERS	05 Apr 2024 17:00	05 Apr 2024 17:00	1	DAS Failure - data not recorded
ALL GASEOUS ANALYZERS	19 Apr 2024 09:00	19 Apr 2024 10:00	2	Maintenance - sample manifold cleaned
H2S	01 Apr 2024 05:00	01 Apr 2024 05:00	1	Unstable Operation - excessive baseline drift
H2S	02 Apr 2024 03:00	02 Apr 2024 03:00	1	Unstable Operation - excessive baseline drift





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

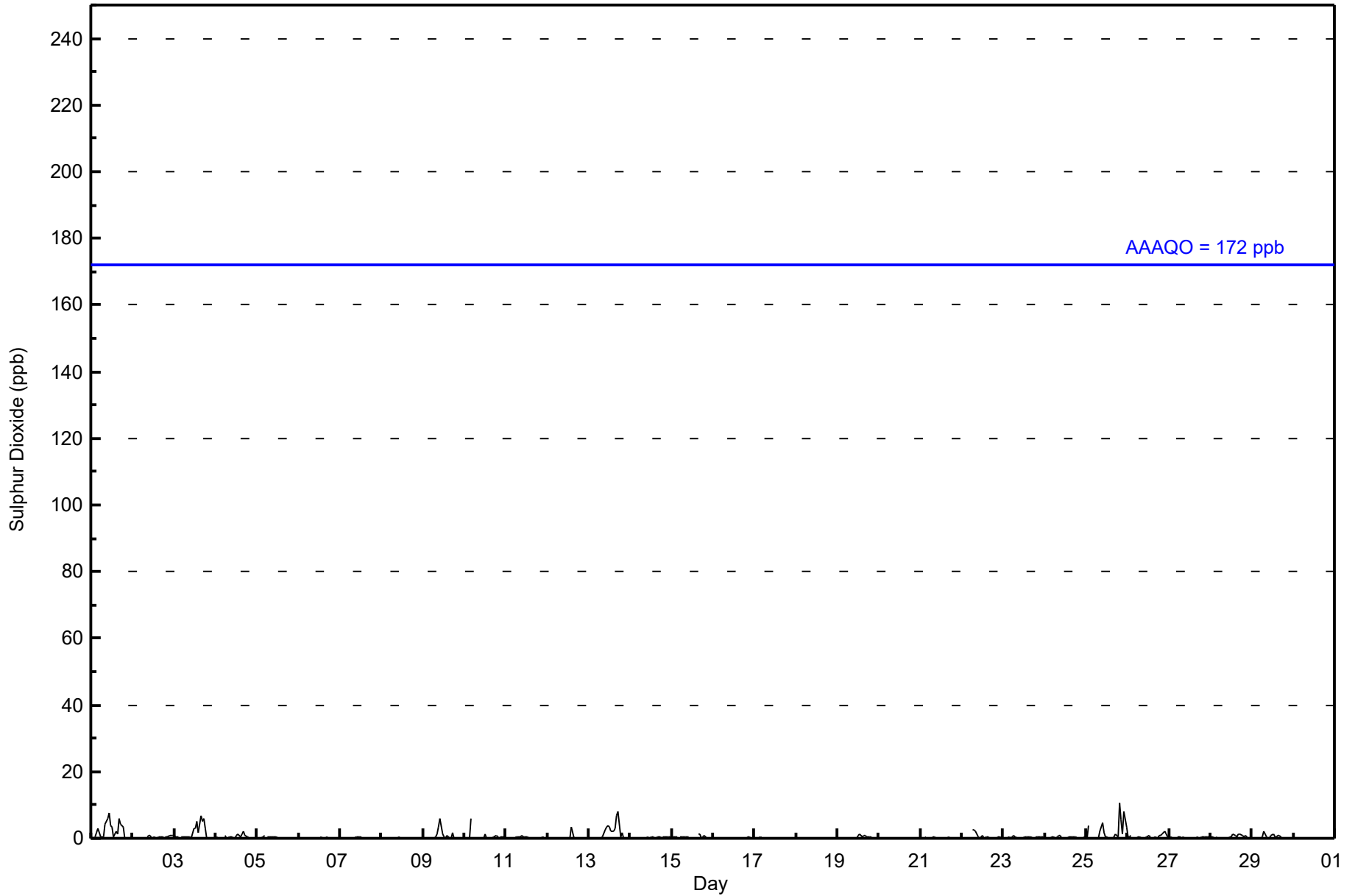
## Jackfish 2/3 - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum					
Maximum Value: 10.5 ppb on Apr 25 20:00		Maximum Daily Average: 2.2 ppb on Apr 1		Hours of Data: 682														Hours of Missing Data: 38		Hours of Calibration: 34							
Minimum Value: 0.0 ppb on Apr 2 05:00		Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Calibration: 34														Percent Operational Time: 99.4									
Maximum Diurnal Average: 0.9 ppb at hour 17		Minimum Diurnal Average: 0.1 ppb at hour 6		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 1.0 P <sub>99</sub> = 6.0																							
Monthly Average: 0.47 ppb																											
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-Apr	0.3	Z	0.4	1.7	3.0	0.6	0.3	0.5	4.1	6.0	7.8	3.9	3.5	0.4	2.0	1.4	5.8	4.4	3.3	0.1	0.2	0.1	0.1	0.2	2.2	7.8	
2-Apr	0.2	0.1	Z	0.0	0.0	0.0	0.0	M	0.5	0.8	0.7	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.6	0.9	1.0	1.1	0.4	1.1	
3-Apr	0.7	0.6	0.6	Z	0.2	0.3	0.6	0.5	0.2	0.3	0.2	2.9	2.9	5.2	1.6	6.6	4.9	5.8	3.1	0.1	0.1	0.1	0.1	0.1	1.6	6.6	
4-Apr	0.5	0.0	0.1	0.0	Z	0.7	0.0	0.0	0.2	0.3	0.2	0.2	0.7	1.2	0.4	1.2	2.3	1.0	0.4	0.1	0.1	0.1	0.1	0.2	0.4	2.3	
5-Apr	0.1	0.1	0.2	0.5	0.7	Z	0.6	0.3	0.2	0.5	0.5	0.2	0.1	0.0	0.0	0.0	DF	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.7	
6-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.1	0.1	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.5	
7-Apr	0.1	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.4	0.4	0.4	0.3	0.2	0.1	0.2	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.4	
8-Apr	0.1	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
9-Apr	0.1	0.2	0.1	0.0	Z	0.2	0.1	0.3	1.3	3.3	6.0	1.5	0.6	0.0	0.9	0.1	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.0	
10-Apr	0.1	0.0	0.1	0.2	6.0	Z	0.2	0.1	0.2	0.1	0.1	0.1	1.1	0.2	0.1	0.1	0.1	0.4	1.0	0.5	0.2	0.3	0.2	0.3	0.5	6.0	
11-Apr	Z	0.0	0.0	0.1	0.1	0.1	0.4	0.4	0.5	0.6	0.3	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.2	0.6	
12-Apr	0.4	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.4	
13-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	2.4	3.3	3.8	3.3	2.1	2.3	3.1	6.6	8.1	0.3	1.6	0.2	0.0	0.0	0.0	1.6	8.1	
14-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.4	0.3	0.3	0.2	0.4	
15-Apr	0.3	0.4	0.2	0.4	Z	0.3	0.6	0.4	0.3	0.3	0.6	C	C	C	C	1.2	1.2	0.0	0.6	0.8	0.0	0.0	0.0	0.4	1.2		
16-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.1	0.1	0.0	0.3	
17-Apr	Z	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.1	0.3	
18-Apr	0.0	Z	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.2	
19-Apr	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	M	M	0.0	0.0	1.0	1.1	0.6	1.0	1.0	0.5	0.4	0.4	0.1	0.1	0.1	0.0	0.3	1.1	
20-Apr	0.0	0.0	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
21-Apr	0.1	0.1	0.1	0.2	Z	0.0	0.0	0.3	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.4	
22-Apr	0.0	0.0	0.0	0.1	0.1	Z	2.5	2.6	1.9	0.6	0.1	0.4	0.8	0.2	0.3	0.4	0.1	0.2	0.2	0.0	0.1	0.4	0.3	0.1	0.5	2.6	
23-Apr	Z	0.0	0.0	0.3	0.2	0.2	1.0	0.5	0.0	0.1	0.0	0.1	0.4	0.6	0.2	0.2	0.3	0.0	0.1	0.3	0.2	0.2	0.2	0.2	0.2	1.0	
24-Apr	0.1	Z	0.0	0.1	0.4	0.2	0.2	0.3	0.7	0.8	0.2	0.2	0.2	0.1	0.2	0.3	0.4	0.3	0.3	0.1	0.2	0.1	0.2	0.3	0.3	0.8	
25-Apr	0.1	3.9	Z	0.0	0.0	0.0	0.0	0.0	2.3	4.6	1.5	0.4	0.2	0.1	0.1	0.1	0.2	1.2	0.4	10.5	5.5	1.5	7.9	3.2	1.9	10.5	
26-Apr	0.3	0.3	0.9	Z	0.1	0.1	0.6	0.4	0.2	0.1	0.1	0.6	0.9	0.1	0.2	0.2	0.3	0.2	1.0	1.0	1.4	2.2	1.2	0.4	0.5	2.2	
27-Apr	0.2	0.3	0.1	0.2	Z	0.4	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.2	0.2	0.3	0.2	0.4	
28-Apr	0.3	0.4	0.2	0.1	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.4	1.1	0.8	0.5	1.1	1.5	0.8	0.3	0.9	0.3	0.1	0.1	0.4	1.5	
29-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.5	2.1	0.2	0.1	0.2	0.7	1.4	0.3	0.6	0.9	0.6	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.4	2.1	
30-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	
		0.2	0.3	0.1	0.2	0.5	0.1	0.3	0.3	0.5	0.8	0.8	0.6	0.7	0.5	0.5	0.6	0.9	0.9	0.4	0.6	0.4	0.3	0.4	0.3	Diurnal Average	
		0.7	3.9	0.9	1.7	6.0	0.7	2.5	2.6	4.1	6.0	7.8	3.9	3.5	5.2	3.4	6.6	6.6	8.1	3.3	10.5	5.5	2.2	7.9	3.2	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				DF - DAS Failure																	
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 172 ppb				24-hr 48 ppb																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	682	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: 682

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	0	0	0	0	0	5	4	2	5	11	3	3	5	8	4	0	50
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>	0	0	0	0	0	5	4	2	5	11	3	3	5	8	4	0	50

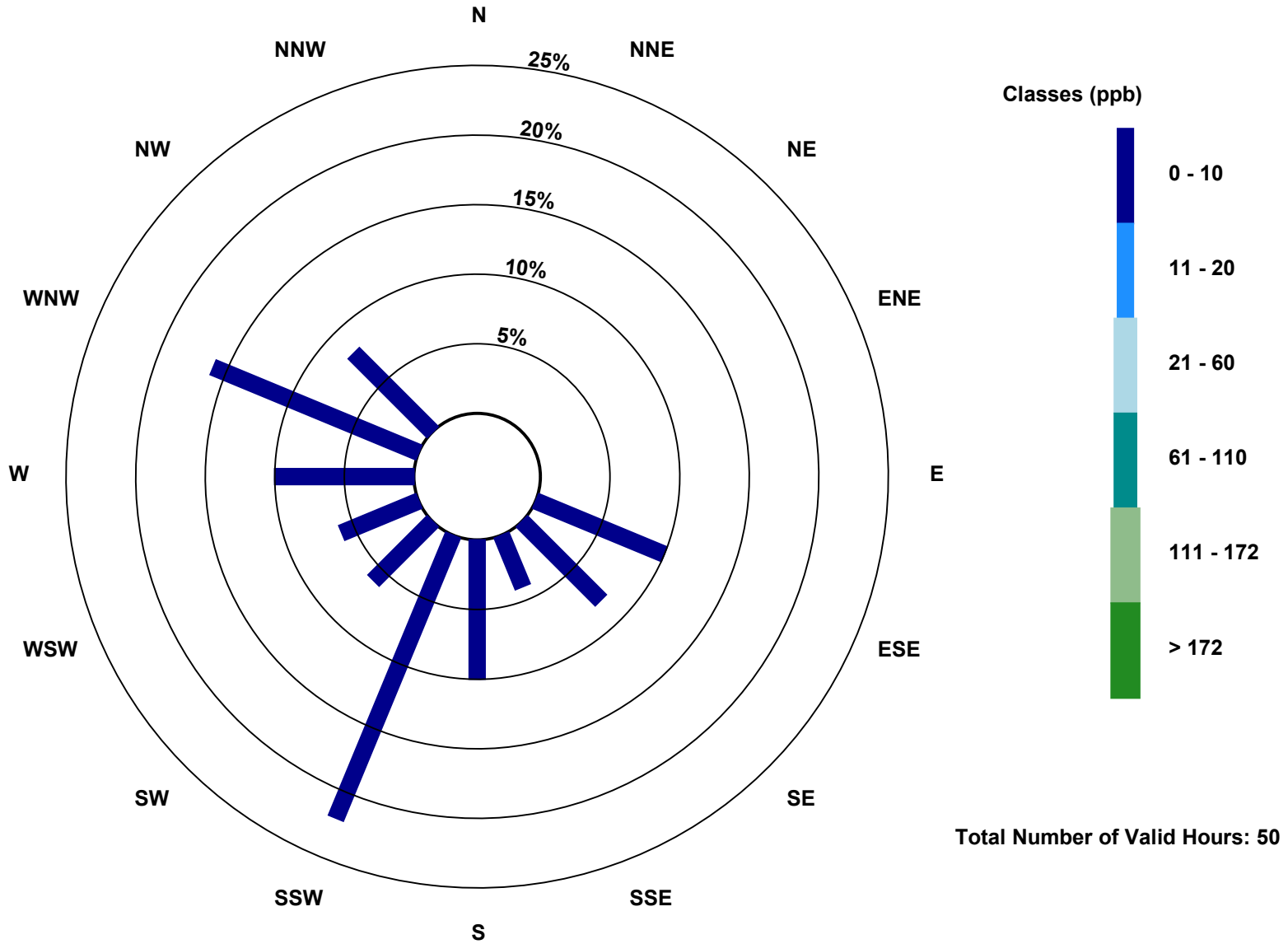
Total Number of Valid Hours: 50

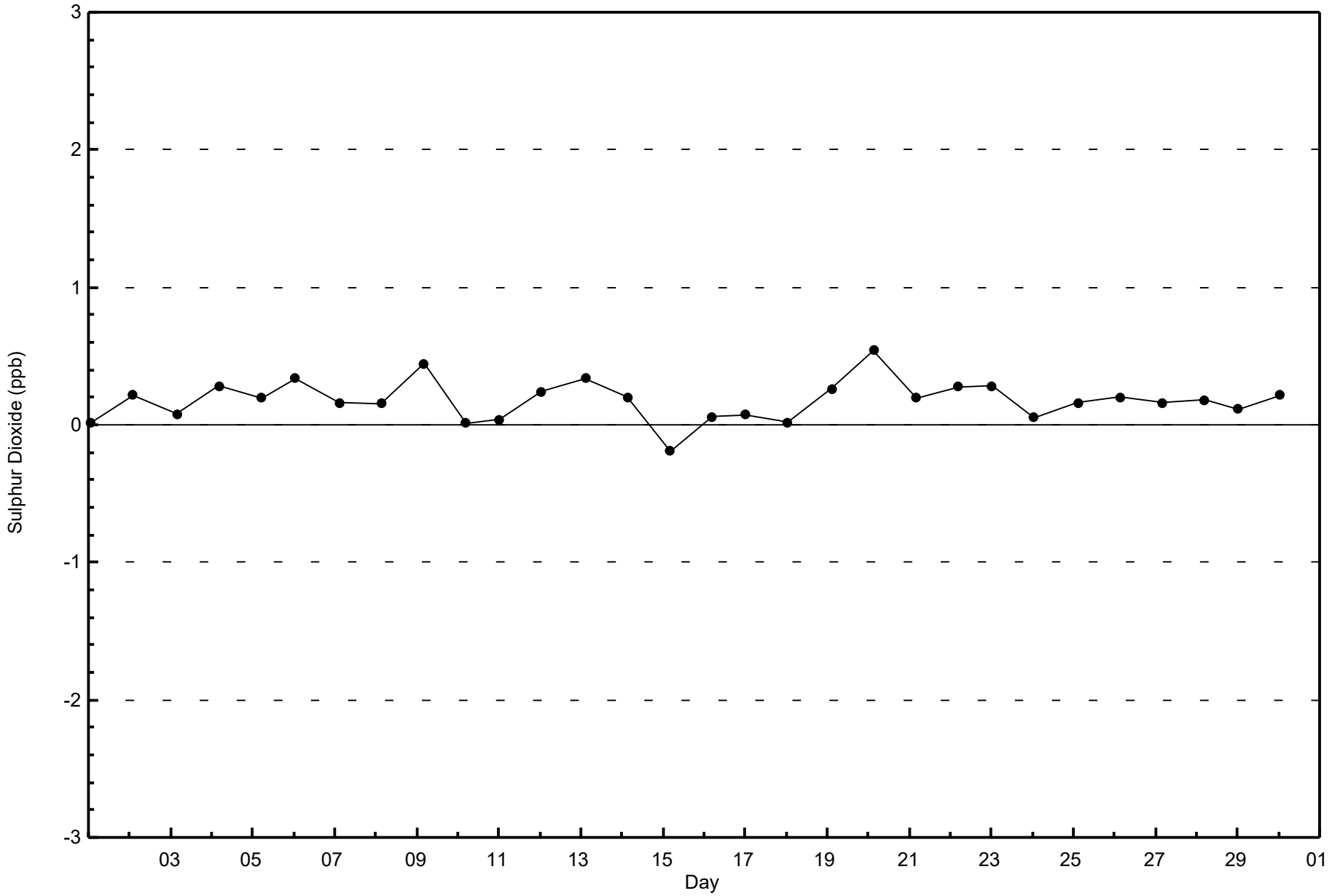
Total Number of Hours: 720

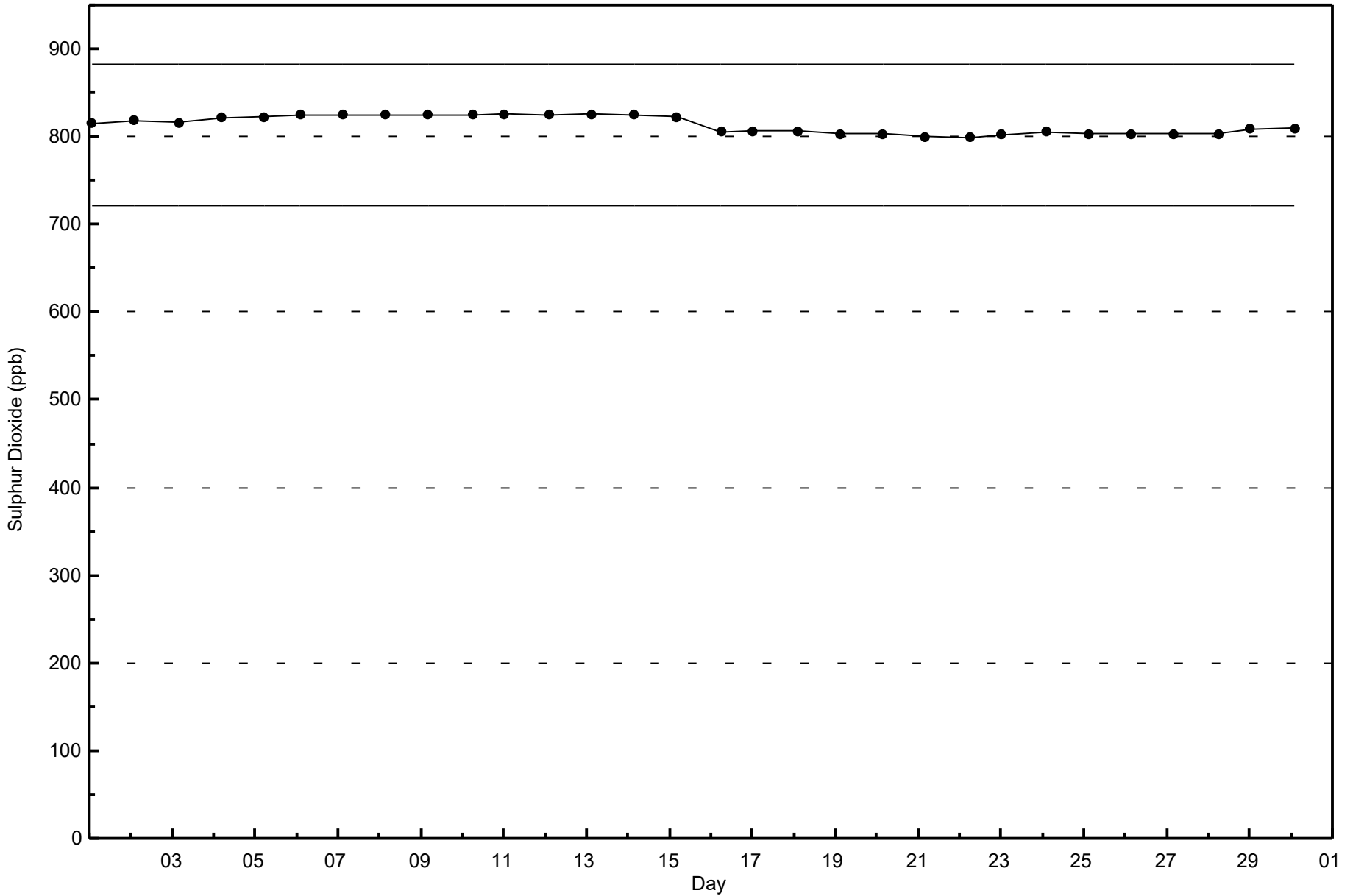


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3









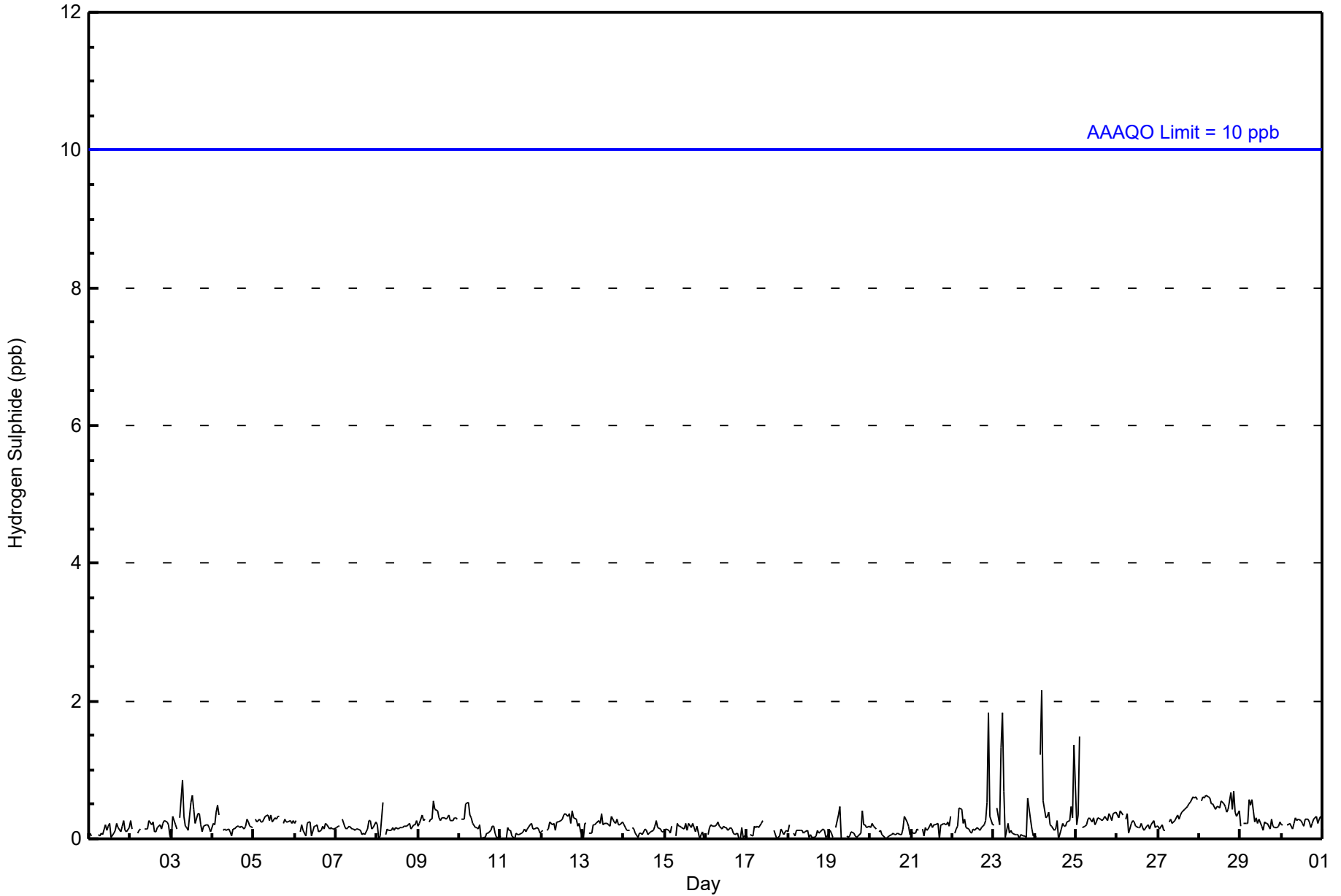
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average	Daily Maximum																											
Maximum Value: 2.2 ppb on Apr 24 05:00		Maximum Daily Average: 0.5 ppb on Apr 28																	Hours of Data: 678																														
Minimum Value: 0.0 ppb on Apr 3 01:00		Minimum Daily Average: 0.1 ppb on Apr 18																	Hours of Missing Data: 42																														
Maximum Diurnal Average: 0.4 ppb at hour 5		Minimum Diurnal Average: 0.1 ppb at hour 5																	Hours of Calibration: 36																														
Monthly Average: 0.22 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.4 P <sub>99</sub> = 0.9																	Percent Operational Time: 99.2																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.1	0.0	Z	0.1	UO	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.0	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.3	0.2	0.2	0.0	0.2	0.3																		
2-Apr	0.3	0.2	UO	Z	0.1	0.1	0.1	M	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2																		
3-Apr	0.0	0.3	0.2	0.1	Z	0.3	0.8	0.3	0.2	0.2	0.1	0.5	0.6	0.4	0.2	0.4	0.4	0.2	0.1	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.3	0.2	0.8																		
4-Apr	0.2	0.2	0.4	0.5	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5																		
5-Apr	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	DF	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3																			
6-Apr	0.2	0.3	Z	0.1	0.2	0.1	0.0	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.3																			
7-Apr	0.2	0.2	0.2	Z	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3																		
8-Apr	0.2	0.0	0.0	0.5	Z	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.5																		
9-Apr	0.2	0.2	0.3	0.3	0.3	Z	0.2	0.3	0.3	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6																		
10-Apr	Z	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.2	0.5																		
11-Apr	0.0	Z	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2																		
12-Apr	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.2	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.4																		
13-Apr	0.0	0.2	0.2	Z	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.4																		
14-Apr	0.2	0.2	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																		
15-Apr	0.1	0.1	0.1	0.1	0.2	Z	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2																		
16-Apr	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3																		
17-Apr	0.0	Z	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.3	C	C	C	C	C	C	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	--	0.3																		
18-Apr	0.1	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2																		
19-Apr	0.1	0.1	0.0	Z	0.2	0.3	0.5	0.0	M	M	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5																		
20-Apr	0.2	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3																		
21-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3																		
22-Apr	Z	0.1	0.1	0.2	0.4	0.4	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.5	1.8	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	1.8																		
23-Apr	0.2	Z	0.4	0.2	1.3	1.8	0.7	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.6	0.3	0.2	0.0	0.3	0.3	0.3	0.3	0.3	0.3	1.8																		
24-Apr	0.1	0.0	Z	1.2	2.2	0.5	0.3	0.3	0.4	0.2	0.2	0.1	0.1	0.3	0.0	0.1	0.2	0.2	0.2	0.3	0.5	0.3	1.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.2																		
25-Apr	0.2	0.3	1.5	Z	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.5																		
26-Apr	0.3	0.3	0.4	0.3	Z	0.3	0.4	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4																		
27-Apr	0.2	0.1	0.2	0.1	0.1	Z	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6																		
28-Apr	Z	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.7	0.4	0.7	0.4	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.7																		
29-Apr	0.2	Z	0.2	0.2	0.2	0.6	0.5	0.6	0.3	0.3	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6																		
30-Apr	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3																		
																								0.1	0.2	0.3	0.2	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	Diurnal Average	
																								0.3	0.6	1.5	1.2	2.2	1.8	0.8	0.6	0.5	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.4	0.5	0.7	0.5	0.7	1.8	0.6	1.4	Diurnal Maximum	
Z - zerospan                      C - Calibration                      M - Maintenance                      DF - DAS Failure                      UO - Unstable Operation																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb																																																	





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	678	100.00	100.00
3 - 4	0	0.00	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: 678

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 2/3 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	54	72	56	22	16	19	30	34	67	44	37	61	57	40	34	35	678
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	54	72	56	22	16	19	30	34	67	44	37	61	57	40	34	35	678

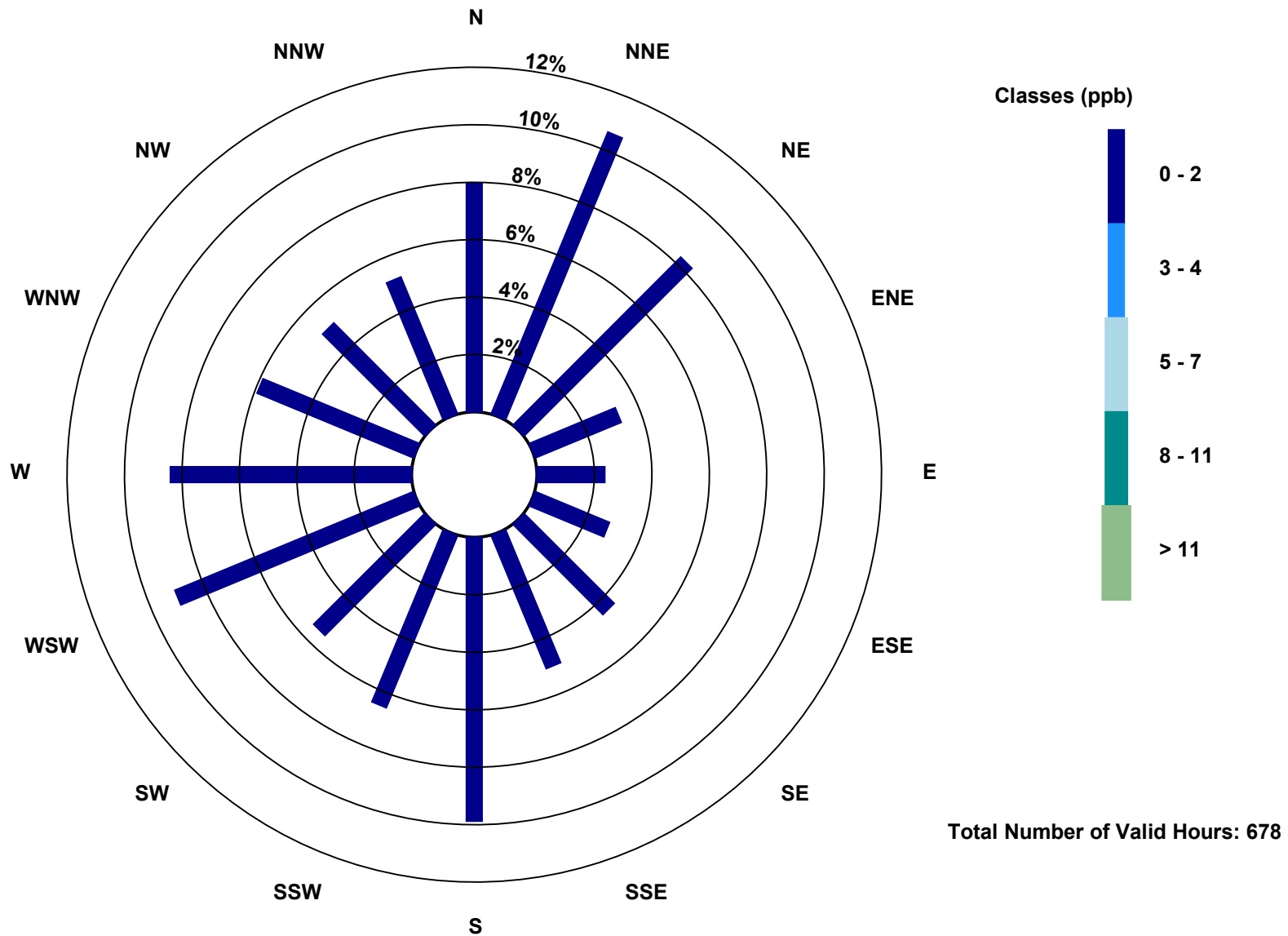
Total Number of Valid Hours: 678

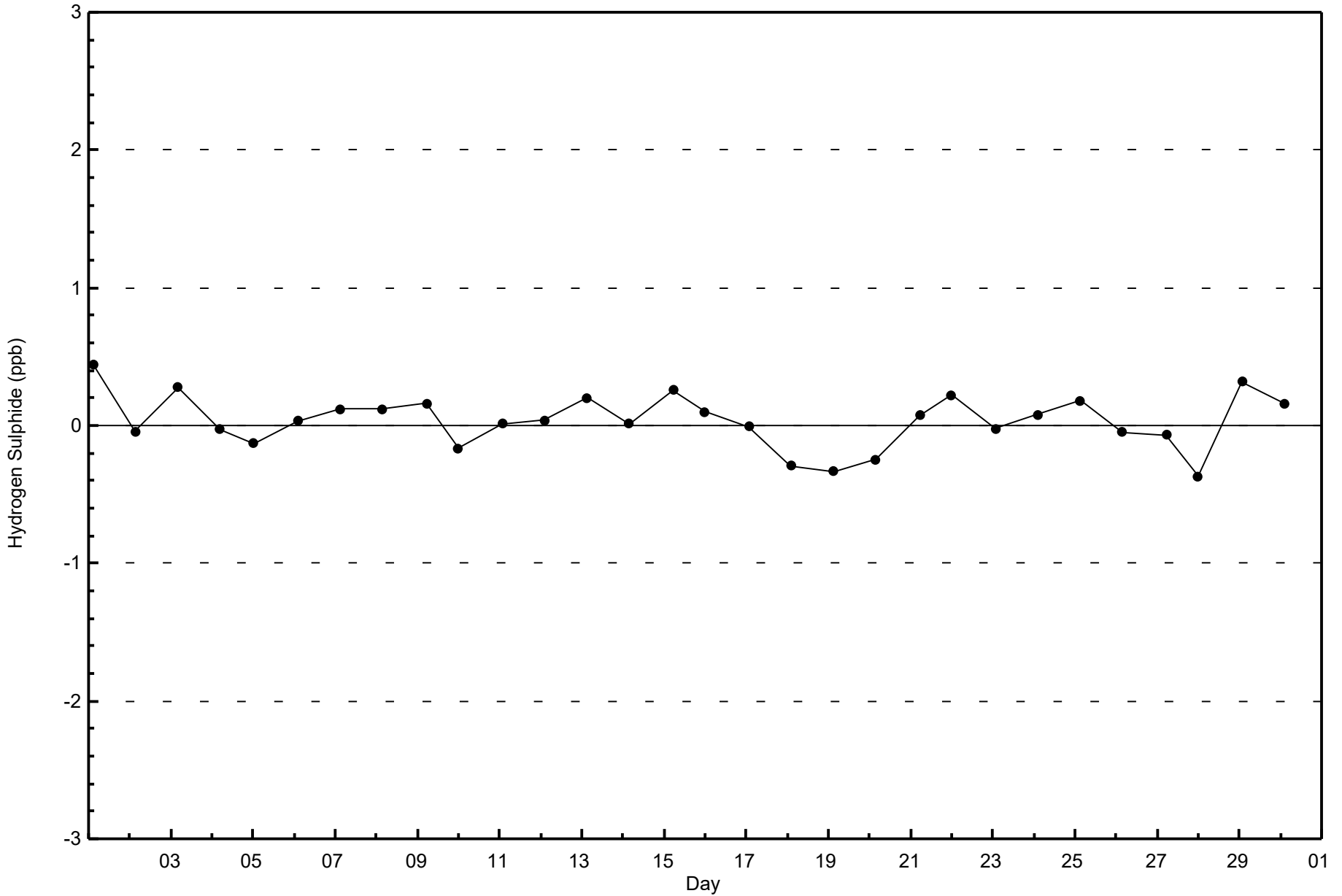
Total Number of Hours: 720

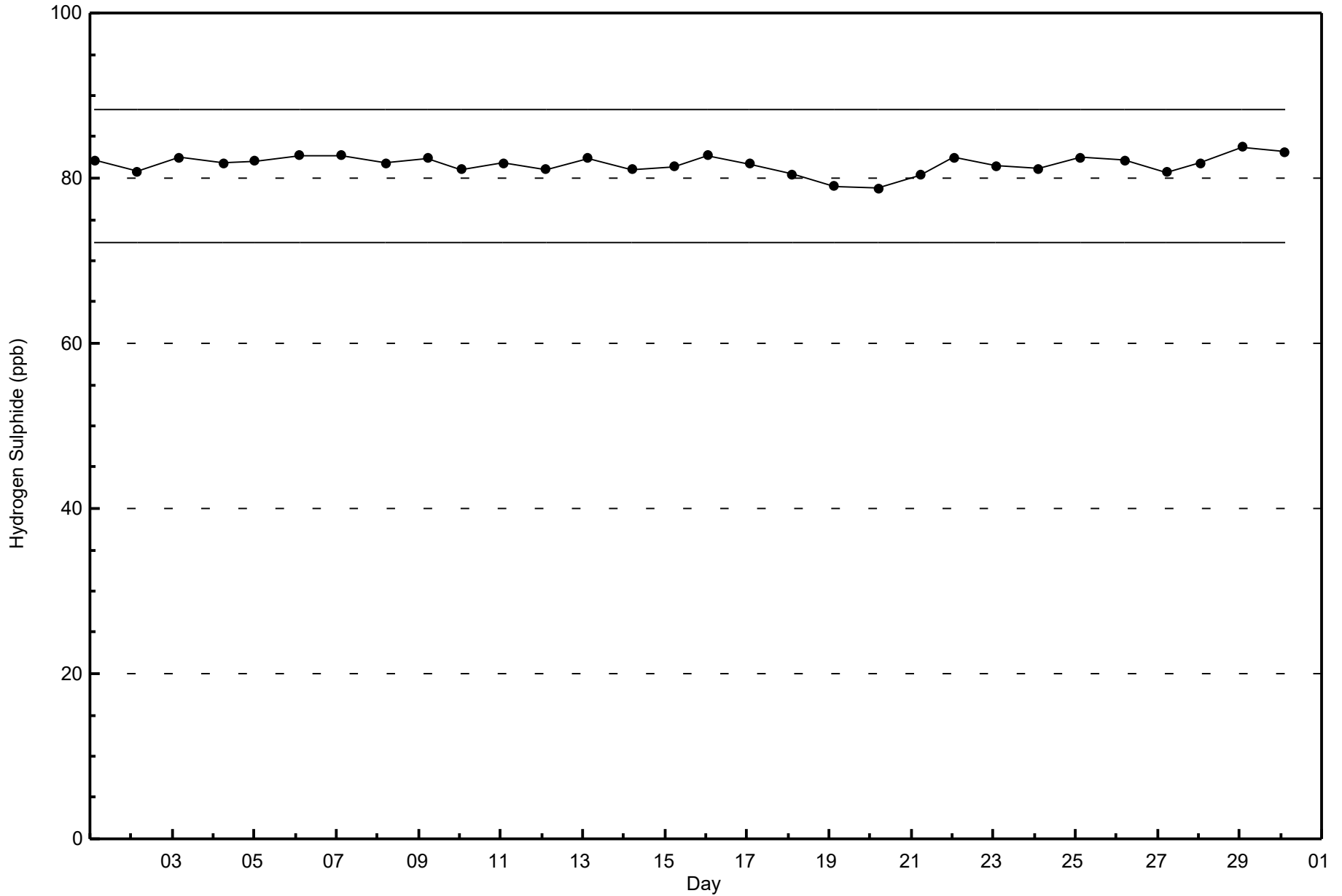


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 2/3









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

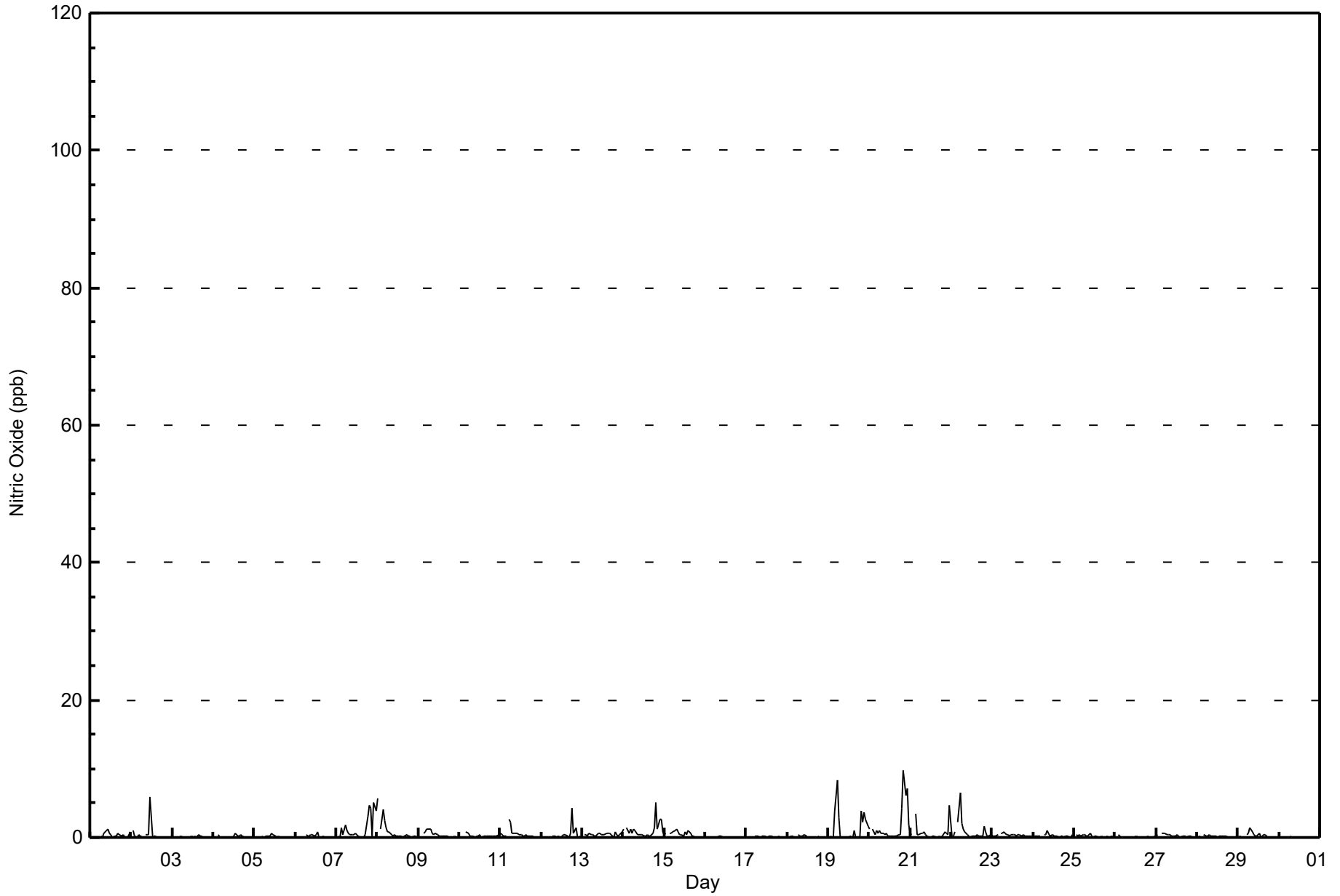
**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - April 2024**

Maximum Value: 9.7 ppb on Apr 20 21:00		Maximum Daily Average: 1.7 ppb on Apr 20		Hours in Service: 720																																													
Minimum Value: 0.0 ppb on Apr 1 01:00		Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Data: 680																																													
Maximum Diurnal Average: 1.2 ppb at hour 6		Minimum Diurnal Average: 0.2 ppb at hour 17		Hours of Missing Data: 40																																													
Monthly Average: 0.44 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 5.3		Hours of Calibration: 36																																													
				Percent Operational Time: 99.4																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.6	1.0	1.3	0.6	0.5	0.0	0.2	0.3	0.5	0.4	0.2	0.3	0.0	0.0	0.0	0.9	0.3	1.3																							
2-Apr	Z	0.9	0.2	0.0	0.4	0.2	0.2	M	0.4	0.4	0.4	5.9	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.4	5.9																							
3-Apr	0.4	Z	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
4-Apr	0.0	0.0	Z	0.3	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.5	0.1	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.5																							
5-Apr	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.1	0.1	0.2	0.6	0.5	0.1	0.1	0.1	0.0	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																							
6-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.4	0.1	0.2	0.3	0.4	0.3	0.4	0.8	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																							
7-Apr	Z	0.1	0.0	1.4	0.5	1.8	1.0	0.6	0.3	0.5	0.3	0.5	0.4	0.2	0.0	0.0	0.1	0.4	3.0	4.6	4.2	0.1	5.1	3.9	1.3	5.1																							
8-Apr	5.7	Z	1.2	4.1	2.4	1.5	0.8	0.8	0.5	0.3	0.5	0.1	0.2	0.2	0.1	0.0	0.2	0.4	0.1	0.2	0.0	0.2	0.2	0.1	0.9	5.7																							
9-Apr	0.1	0.1	Z	0.6	0.9	1.2	1.2	1.2	0.5	0.4	0.6	0.3	0.2	0.2	0.3	0.1	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.4	1.2																							
10-Apr	0.0	0.0	0.0	Z	0.8	0.6	0.1	0.1	0.2	0.0	0.1	0.2	0.3	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.4	0.2	0.8																							
11-Apr	0.5	0.4	0.3	0.3	Z	2.6	2.1	0.6	0.6	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.5	2.6																							
12-Apr	0.0	0.1	0.0	0.0	0.0	Z	0.2	0.2	0.2	0.0	0.2	0.1	0.3	0.3	0.4	0.1	0.0	0.6	4.3	0.5	1.4	0.0	0.0	0.2	0.4	4.3																							
13-Apr	Z	0.4	0.3	0.2	0.6	0.4	0.4	0.2	0.3	0.6	0.6	0.4	0.4	0.5	0.5	0.6	0.6	0.3	0.0	0.8	0.5	0.3	0.4	0.9	0.4	0.9																							
14-Apr	1.1	Z	1.4	0.5	1.2	0.5	1.2	1.0	0.4	0.4	0.4	0.5	0.2	0.3	0.4	0.3	0.2	0.6	1.4	5.2	1.3	2.6	2.7	0.8	1.1	5.2																							
15-Apr	0.5	0.7	Z	0.6	0.6	0.8	0.9	1.2	0.8	0.4	0.4	0.3	0.8	0.4	1.0	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2																							
16-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3																							
17-Apr	0.0	0.1	0.0	0.0	Z	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.1	0.3																							
18-Apr	0.0	0.0	0.1	0.3	0.1	Z	0.5	0.2	0.3	0.2	0.4	0.2	C	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	--	0.5																							
19-Apr	Z	0.1	0.0	0.0	3.9	8.3	2.9	0.0	M	M	0.0	0.0	0.0	0.2	0.1	1.0	0.0	0.0	0.1	3.9	2.3	3.6	2.6	1.6	1.5	8.3																							
20-Apr	1.3	Z	1.1	0.3	0.9	0.7	1.0	0.5	0.7	0.5	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	4.3	9.7	6.2	7.1	1.8	1.7	9.7																							
21-Apr	0.6	0.3	Z	3.4	0.4	0.4	0.7	0.6	0.8	0.3	0.1	0.0	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.2	0.7	0.6	0.5	4.7	0.6	4.7																							
22-Apr	0.1	0.2	0.8	Z	2.3	6.5	2.0	1.3	0.7	0.3	0.2	0.0	0.2	0.2	0.2	0.3	0.1	0.3	0.2	1.6	0.8	0.1	0.2	0.4	0.8	6.5																							
23-Apr	0.2	0.3	0.3	0.4	Z	0.7	0.6	0.8	0.5	0.3	0.3	0.4	0.3	0.4	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.8																							
24-Apr	0.0	0.1	0.1	0.2	0.2	Z	0.3	0.5	0.9	0.7	0.3	0.4	0.2	0.3	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.9																							
25-Apr	Z	0.5	0.1	0.3	0.2	0.3	0.4	0.2	0.3	0.7	0.1	0.0	0.1	0.1	0.0	0.0	0.3	0.1	0.1	0.3	0.0	0.0	0.2	0.0	0.2	0.7																							
26-Apr	0.0	Z	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.4																							
27-Apr	0.2	0.3	Z	0.6	0.5	0.6	0.3	0.4	0.4	0.3	0.2	0.2	0.4	0.2	0.0	0.1	0.2	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.2	0.6																							
28-Apr	0.0	0.1	0.1	Z	0.4	0.2	0.2	0.4	0.2	0.3	0.2	0.1	0.0	0.1	0.3	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
29-Apr	0.0	0.2	0.0	0.0	Z	0.4	0.5	1.5	0.8	0.4	0.2	0.3	0.7	0.0	0.1	0.5	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3	1.5																							
30-Apr	0.1	0.0	0.0	0.0	0.1	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																							
																								0.4	0.2	0.3	0.5	0.6	1.2	0.6	0.4	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.4	0.8	0.7	0.5	0.7	0.6	Diurnal Average		
																								5.7	0.9	1.4	4.1	3.9	8.3	2.9	1.5	0.9	1.0	1.3	5.9	0.8	0.8	1.0	1.0	0.6	0.6	4.3	5.2	9.7	6.2	7.1	4.7	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				DF - DAS Failure																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	680	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 680

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	59	67	55	22	16	21	29	34	71	43	37	61	57	40	33	35	680
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	59	67	55	22	16	21	29	34	71	43	37	61	57	40	33	35	680

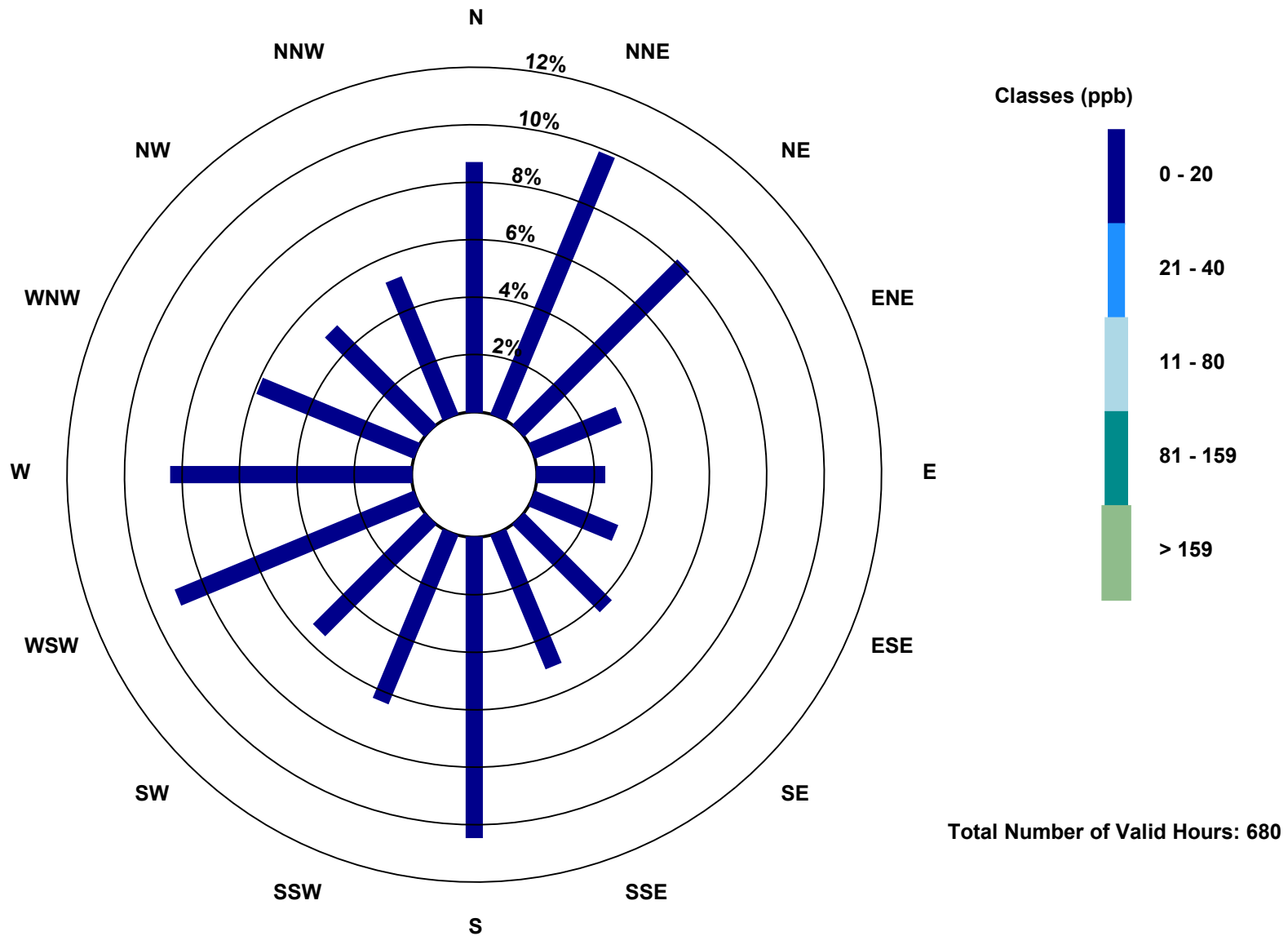
Total Number of Valid Hours: 680

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

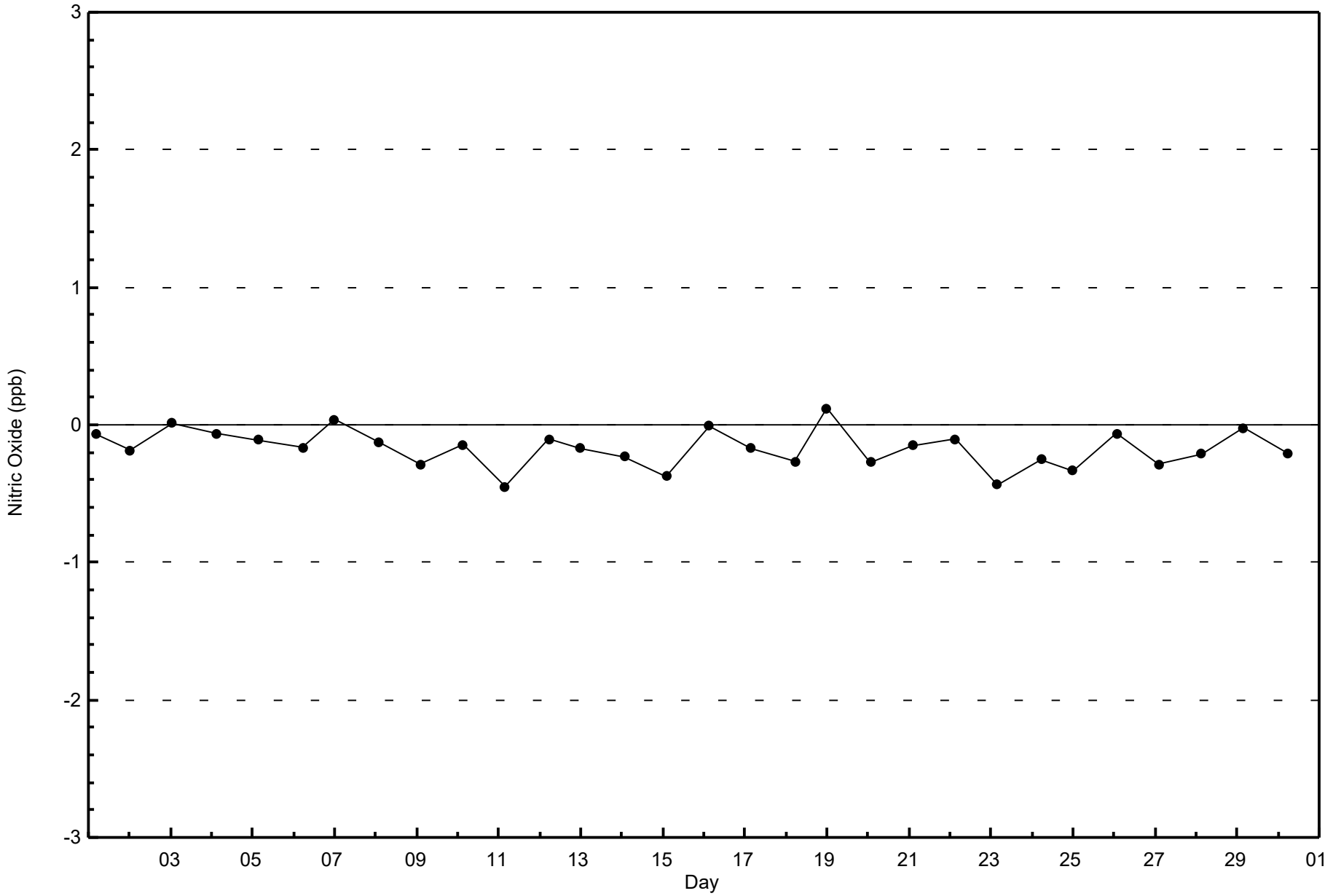
Nitric Oxide (NO) - ppb  
Jackfish 2/3





**Wood Buffalo Environmental Association**  
**Zero Responses**

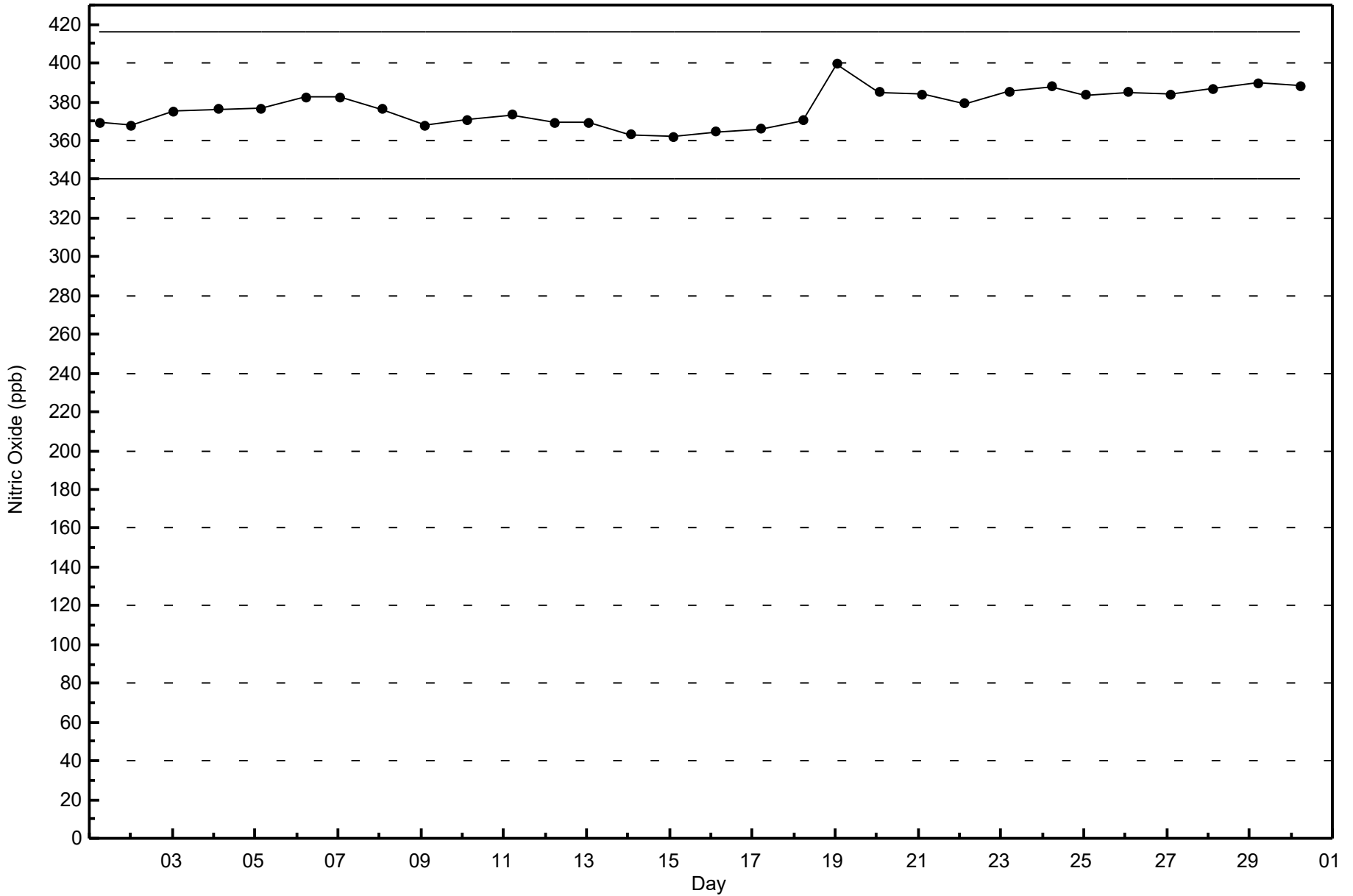
**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - April 2024**





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Jackfish 2/3 - April 2024





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - April 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 19.8 ppb on Apr 14 20:00	Maximum Daily Average: 3.8 ppb on Apr 19		Hours of Data:	680
Minimum Value: 0.0 ppb on Apr 1 01:00	Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Missing Data:	40
Maximum Diurnal Average: 2.9 ppb at hour 20	Minimum Diurnal Average: 0.4 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 1.15 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.4 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 2.9 P <sub>99</sub> = 11.7		Percent Operational Time:	99.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.0	0.2	0.2	0.9	1.3	Z	0.4	0.0	1.3	2.1	2.4	1.2	1.0	0.0	0.5	0.4	1.8	2.0	1.5	0.9	0.0	0.0	0.0	2.5	0.9	2.5	
2-Apr	Z	0.7	0.1	0.0	1.5	0.6	0.0	M	0.9	1.8	1.6	4.8	0.6	0.8	0.3	0.5	0.5	0.7	0.4	0.5	1.5	1.2	1.2	1.1	1.0	4.8	
3-Apr	5.7	Z	1.9	0.3	0.2	1.4	1.4	1.1	0.0	0.0	0.0	1.4	1.5	2.2	0.5	2.3	1.8	2.0	1.0	0.0	0.0	0.1	0.0	1.1	5.7		
4-Apr	0.0	0.0	Z	0.0	0.7	1.6	0.3	0.0	0.0	0.1	0.0	0.0	0.4	1.7	0.9	0.9	2.0	1.9	1.3	0.4	1.0	1.2	0.5	0.4	0.7	2.0	
5-Apr	0.5	0.0	0.1	Z	2.0	1.9	1.8	1.5	1.3	1.3	1.5	1.1	0.4	0.0	0.0	0.0	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.0	
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.6	1.3	1.7	0.7	1.1	2.0	0.0	0.4	1.5	0.8	0.6	1.0	0.0	0.0	0.0	0.0	0.5	2.0	
7-Apr	Z	0.0	0.9	2.6	0.8	1.2	1.1	0.8	0.9	0.9	0.8	1.1	0.7	0.2	0.0	0.0	0.2	0.9	5.0	13.1	9.6	1.8	6.4	9.2	2.5	13.1	
8-Apr	10.0	Z	5.8	11.4	7.1	3.8	2.6	1.6	0.5	0.3	0.8	0.6	0.5	0.4	0.4	0.8	1.2	1.5	1.0	4.1	1.0	0.4	0.7	0.3	2.5	11.4	
9-Apr	1.1	0.7	Z	1.6	3.3	3.4	4.3	3.1	2.0	1.8	2.6	0.6	0.2	0.2	0.5	0.2	0.6	1.2	0.0	0.0	0.0	0.2	0.0	0.0	1.2	4.3	
10-Apr	0.0	0.0	0.0	Z	4.7	5.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	1.6	3.0	6.0	6.2	1.2	1.3	1.3	6.2	
11-Apr	0.7	0.0	0.3	0.0	Z	4.8	2.9	0.8	0.8	1.0	0.3	0.2	0.1	0.1	0.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	4.8	
12-Apr	0.2	0.0	0.0	0.0	0.2	Z	0.2	0.0	0.0	0.0	0.0	0.1	0.6	0.8	2.1	0.3	0.2	0.6	7.6	3.4	3.9	0.0	0.0	0.1	0.9	7.6	
13-Apr	Z	0.3	0.9	0.3	1.2	0.6	0.8	0.1	0.1	1.1	0.9	1.1	1.0	0.7	0.7	1.5	2.3	2.7	0.0	2.2	3.2	0.3	0.4	1.5	1.0	3.2	
14-Apr	1.7	Z	1.5	0.5	2.0	1.5	1.9	1.1	0.5	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.9	4.4	19.8	3.1	5.8	6.3	2.5	2.4	19.8	
15-Apr	2.3	2.3	Z	2.6	3.6	3.7	3.8	5.4	3.4	1.9	1.5	1.1	3.9	1.4	3.1	2.9	1.7	0.1	1.2	1.7	0.0	0.4	0.0	0.0	2.1	5.4	
16-Apr	0.0	0.0	0.0	Z	0.0	0.4	0.2	0.4	0.5	0.6	0.2	0.0	0.1	0.6	0.3	0.1	0.0	0.0	0.0	0.1	1.0	0.9	0.0	0.1	0.2	1.0	
17-Apr	0.0	0.1	0.6	1.0	Z	0.2	0.7	0.7	0.6	0.5	0.5	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	
18-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.1	0.0	0.0	0.0	C	C	C	C	C	C	0.2	0.1	0.1	0.1	0.1	0.0	-	0.2	
19-Apr	Z	0.4	0.4	0.9	7.1	19.5	10.3	0.7	M	M	0.3	0.2	0.9	0.8	0.6	2.2	0.8	0.4	0.8	13.7	5.9	4.9	5.5	3.9	3.8	19.5	
20-Apr	1.9	Z	2.6	0.3	1.3	1.2	1.4	1.0	1.0	0.5	0.6	0.0	0.4	0.3	0.3	0.3	0.1	0.6	0.9	7.7	16.1	12.9	10.5	4.1	2.9	16.1	
21-Apr	3.0	1.2	Z	4.6	2.8	2.4	2.3	1.5	1.8	0.3	0.3	0.0	0.0	0.0	0.0	0.7	0.0	0.0	2.0	1.6	2.6	1.9	12.8	1.8	12.8		
22-Apr	2.4	2.0	3.7	Z	7.2	7.5	4.9	3.6	1.4	0.6	0.0	0.2	0.7	0.0	0.3	0.8	0.1	0.0	0.0	8.9	6.6	2.3	3.6	2.4	2.6	8.9	
23-Apr	2.6	1.7	1.1	0.9	Z	0.2	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.0	2.6	0.6	0.0	0.7	4.0		
24-Apr	2.5	0.1	0.0	1.5	3.2	Z	1.4	1.4	1.9	1.4	0.6	0.4	0.3	0.9	0.1	0.0	0.4	0.3	0.1	0.2	0.6	0.2	0.2	2.6	0.9	3.2	
25-Apr	Z	2.7	1.1	2.2	0.3	0.7	0.3	0.7	0.8	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	4.3	2.3	0.0	3.9	1.6	1.0	4.3	
26-Apr	0.0	Z	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	1.0	1.5	1.6	0.3	0.3	1.6	
27-Apr	0.4	0.7	Z	0.6	0.7	1.7	0.7	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7	
28-Apr	0.0	0.0	0.1	Z	1.4	0.6	0.1	0.5	0.5	0.0	0.0	0.0	0.6	0.3	0.0	0.3	0.7	0.2	0.0	0.9	0.3	0.0	0.1	0.3	0.3	1.4	
29-Apr	0.0	0.7	0.0	0.0	Z	0.5	0.7	1.3	0.3	0.0	0.0	0.2	0.9	0.0	0.3	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3	
30-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

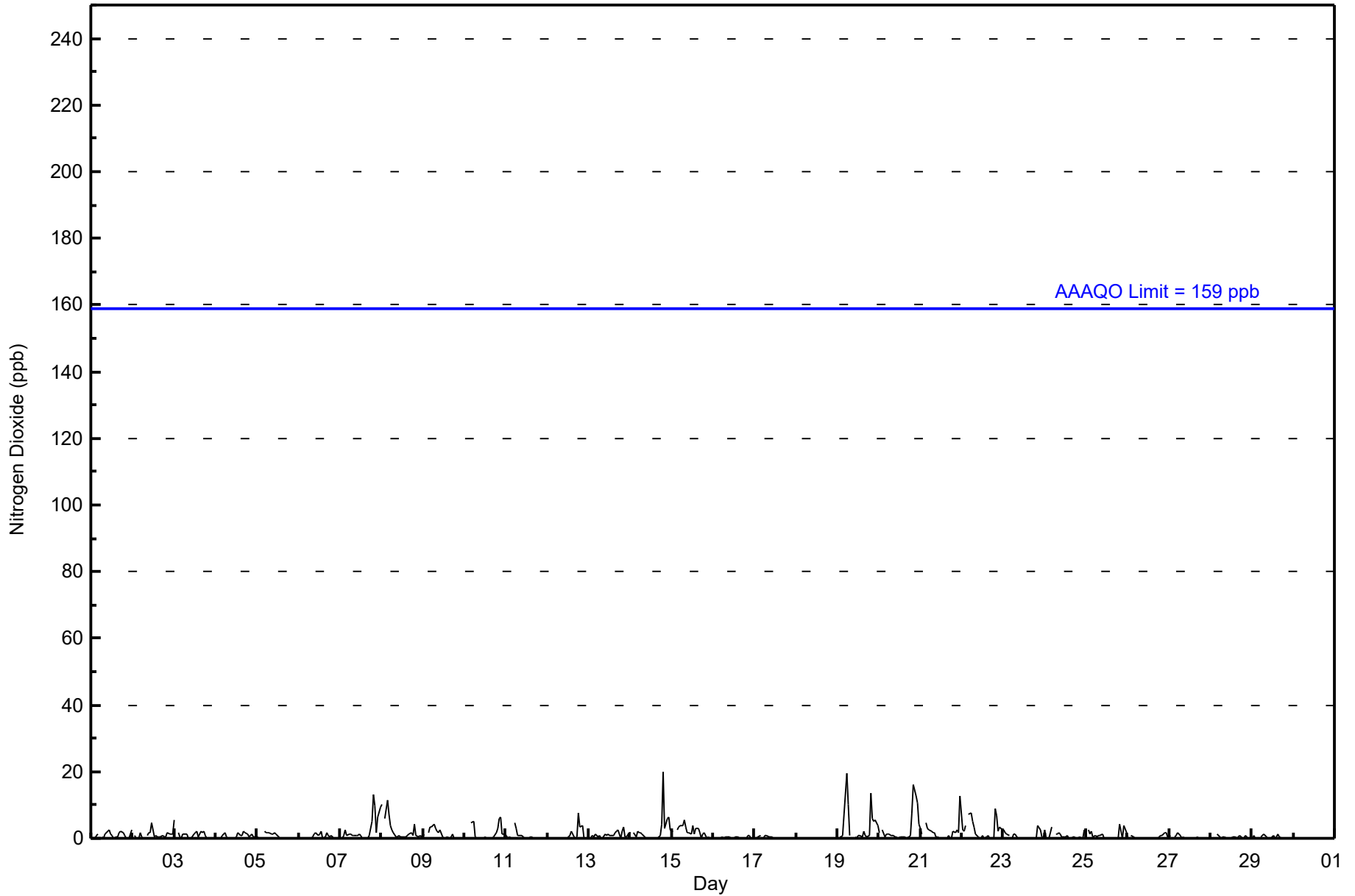
1.4	0.6	0.9	1.3	2.0	2.7	1.5	1.0	0.7	0.7	0.6	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.6	0.9	2.9	2.3	1.5	1.5	1.6	Diurnal Average	
10.0	2.7	5.8	11.4	7.2	19.5	10.3	5.4	3.4	2.1	2.6	4.8	3.9	2.2	3.1	2.9	2.3	2.7	7.6	19.8	16.1	12.9	10.5	12.8	Diurnal Maximum		

Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	680	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 680

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	59	67	55	22	16	21	29	34	71	43	37	61	57	40	33	35	680
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	59	67	55	22	16	21	29	34	71	43	37	61	57	40	33	35	680

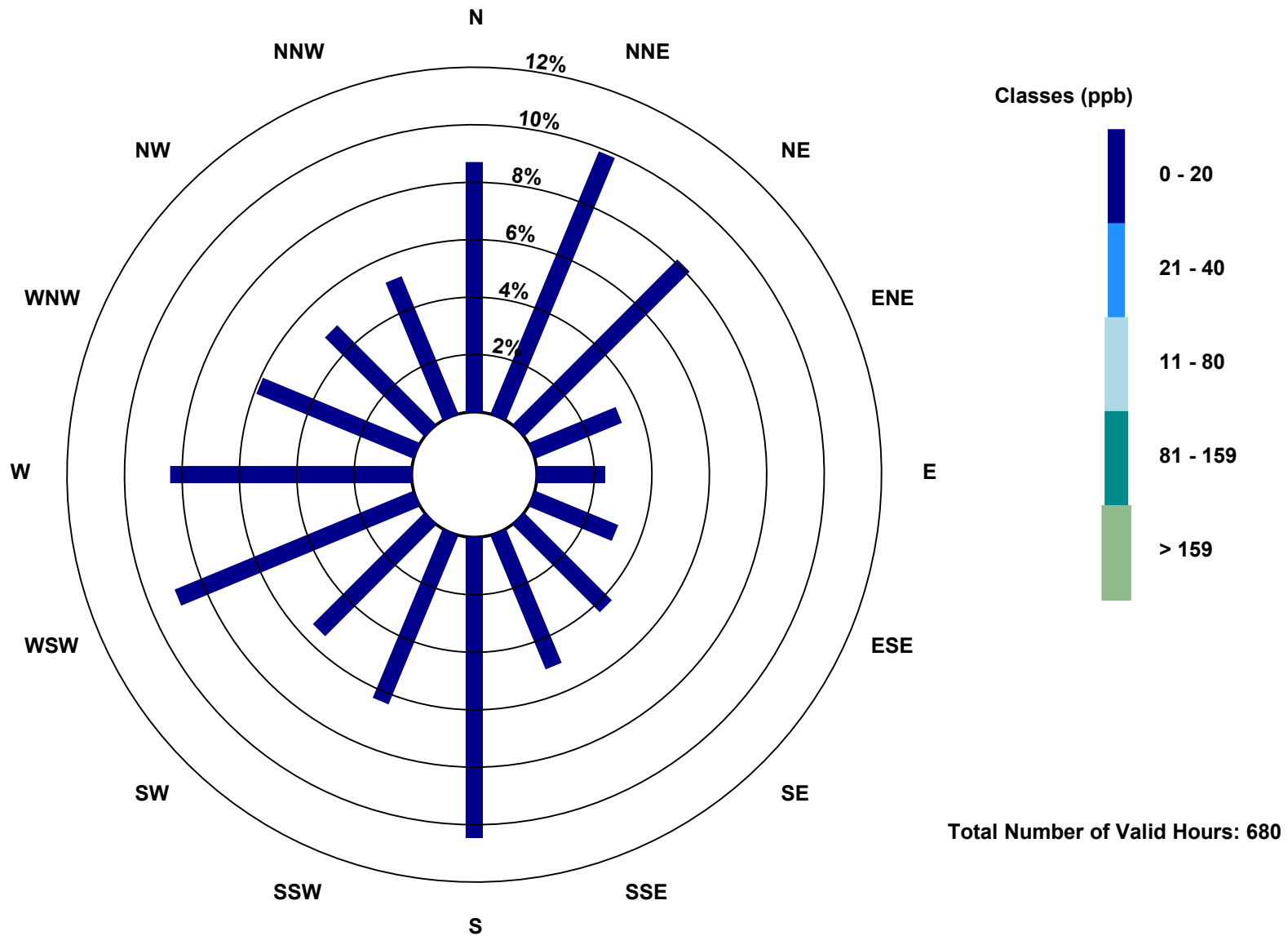
Total Number of Valid Hours: 680

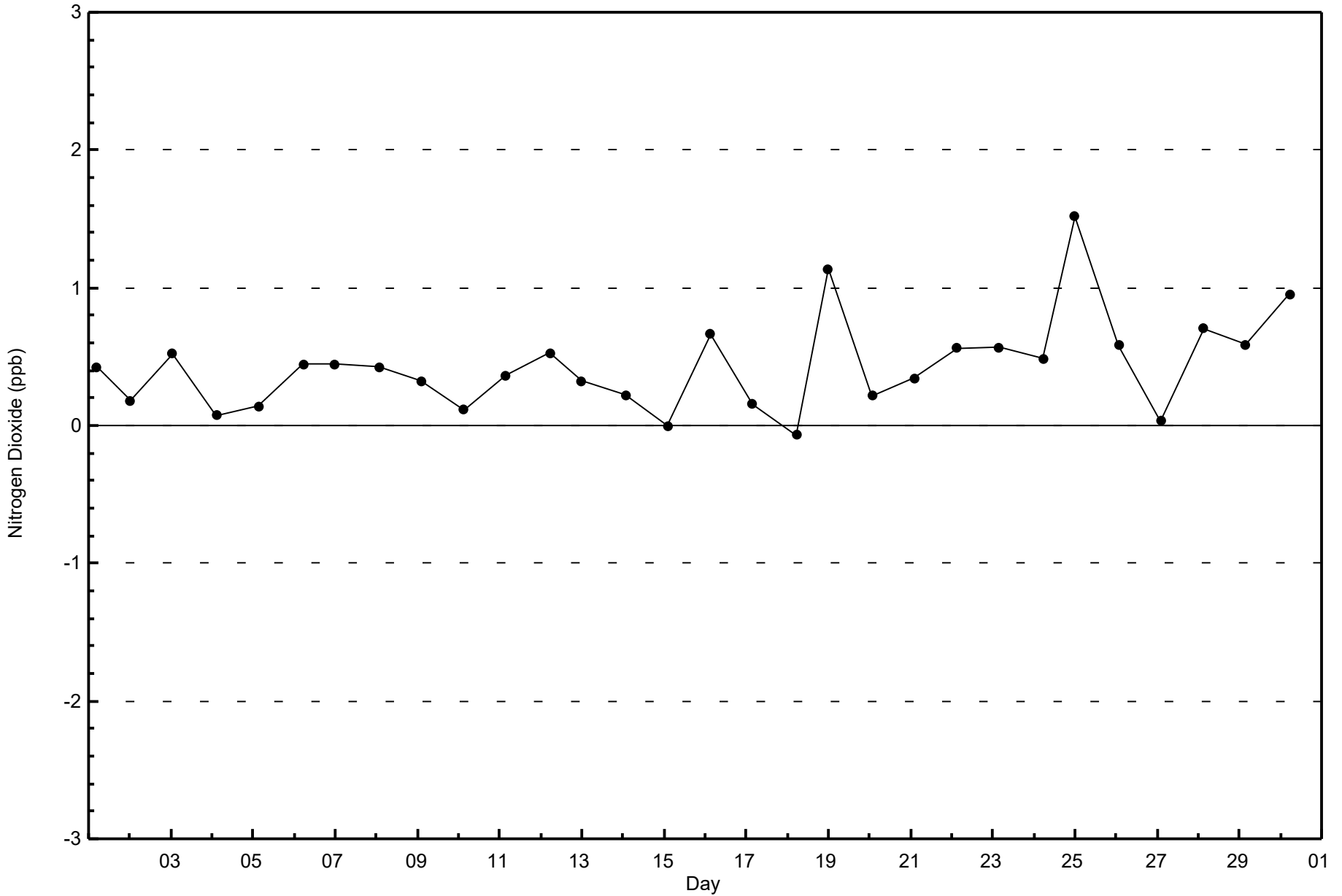
Total Number of Hours: 720

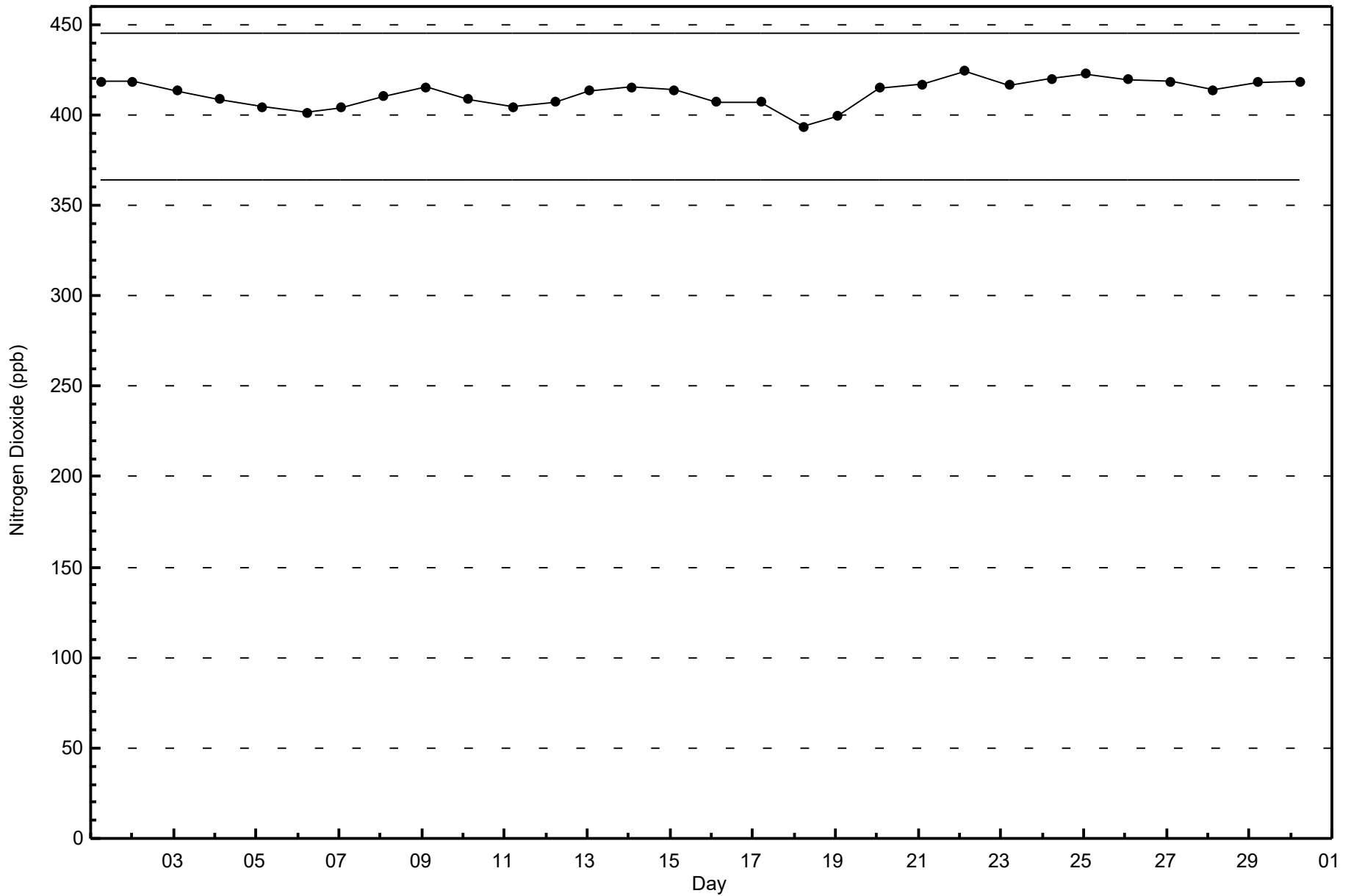


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3









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

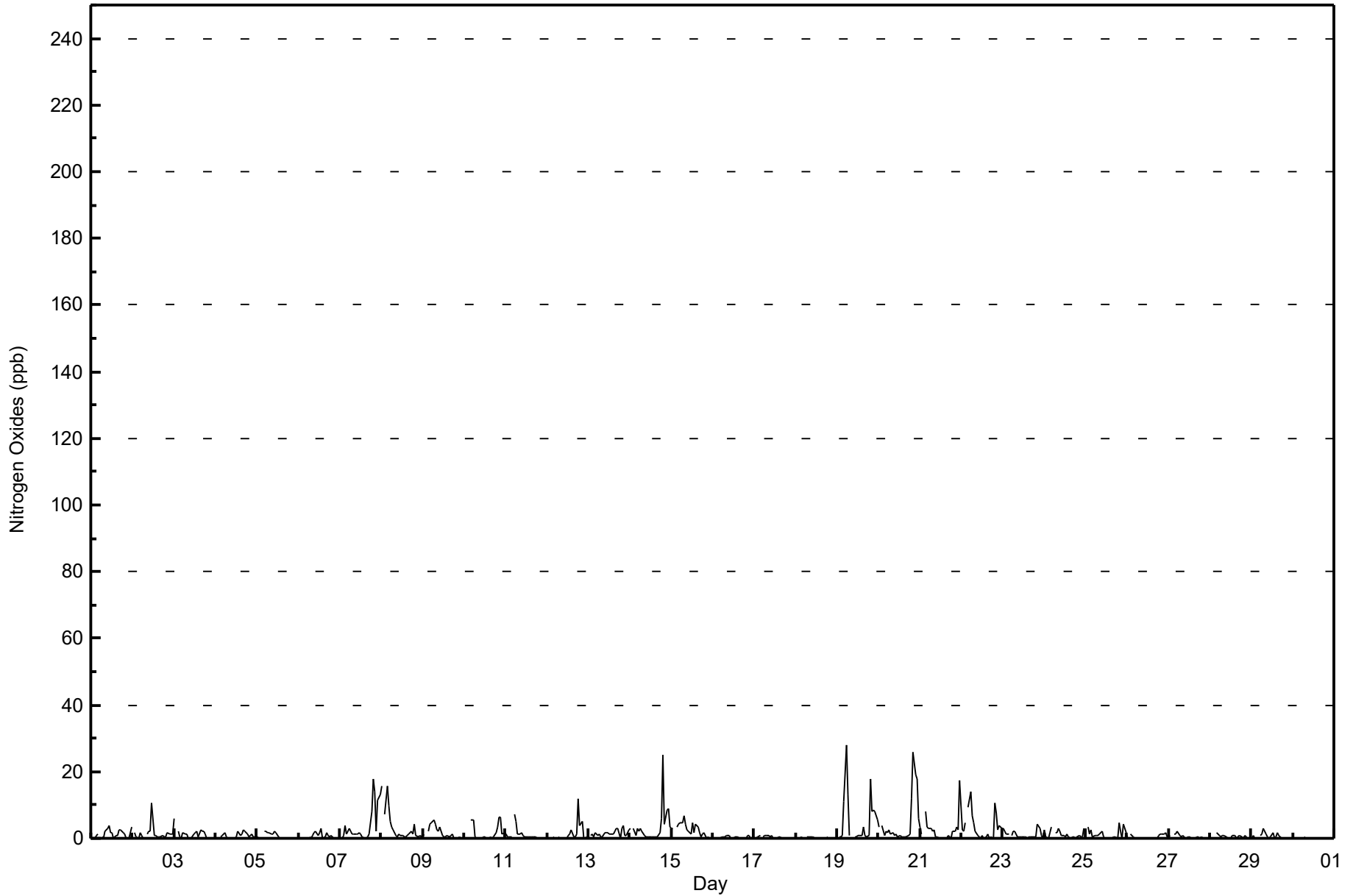
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - April 2024**

Maximum Value: 27.8 ppb on Apr 19 06:00		Maximum Daily Average: 5.3 ppb on Apr 19		Hours in Service: 720																																												
Minimum Value: 0.0 ppb on Apr 1 08:00		Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Data: 680																																												
Maximum Diurnal Average: 3.9 ppb at hour 6		Minimum Diurnal Average: 0.6 ppb at hour 15		Hours of Missing Data: 40																																												
Monthly Average: 1.59 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.6 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 3.6 P <sub>99</sub> = 17.5		Hours of Calibration: 36																																												
				Percent Operational Time: 99.4																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	0.0	0.2	0.2	0.9	1.3	Z	0.6	0.0	1.9	3.1	3.7	1.8	1.5	0.0	0.7	0.7	2.3	2.4	1.7	1.2	0.0	0.0	0.0	3.4	1.2	3.7																						
2-Apr	Z	1.6	0.3	0.0	1.9	0.8	0.2	M	1.3	2.2	2.0	10.7	0.7	0.9	0.5	0.6	0.5	0.8	0.4	0.5	1.5	1.2	1.3	1.1	1.4	10.7																						
3-Apr	6.1	Z	1.9	0.3	0.2	1.6	1.4	1.1	0.0	0.0	0.0	1.5	1.5	2.3	0.5	2.7	2.0	2.2	1.1	0.0	0.0	0.0	0.1	0.0	1.2	6.1																						
4-Apr	0.0	0.0	Z	0.3	0.7	1.7	0.3	0.0	0.1	0.1	0.0	0.0	0.6	2.2	1.0	1.2	2.4	2.1	1.4	0.4	1.0	1.2	0.5	0.5	0.8	2.4																						
5-Apr	0.5	0.0	0.1	Z	2.2	1.9	1.8	1.6	1.4	1.5	2.1	1.6	0.5	0.1	0.1	0.0	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.2																						
6-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.4	0.1	0.8	1.6	2.1	1.0	1.5	2.8	0.0	0.5	1.6	0.8	0.6	1.0	0.0	0.0	0.0	0.0	0.7	2.8																						
7-Apr	Z	0.1	0.9	4.0	1.3	3.0	2.1	1.4	1.2	1.4	1.1	1.6	1.1	0.4	0.0	0.0	0.3	1.3	8.0	17.7	13.8	1.9	11.5	13.1	3.8	17.7																						
8-Apr	15.7	Z	7.0	15.5	9.5	5.3	3.4	2.4	1.0	0.6	1.3	0.7	0.7	0.6	0.5	0.8	1.4	1.9	1.1	4.3	1.0	0.6	0.9	0.4	3.3	15.7																						
9-Apr	1.2	0.8	Z	2.2	4.2	4.6	5.5	4.3	2.5	2.2	3.2	0.9	0.4	0.4	0.8	0.3	0.9	1.4	0.1	0.1	0.0	0.3	0.0	0.0	1.6	5.5																						
10-Apr	0.0	0.0	0.0	Z	5.5	5.6	0.6	0.1	0.2	0.0	0.1	0.2	0.6	0.1	0.2	0.3	0.2	0.4	1.8	3.2	6.3	6.4	1.4	1.7	1.5	6.4																						
11-Apr	1.2	0.4	0.6	0.3	Z	7.4	5.0	1.4	1.4	1.6	0.8	0.5	0.4	0.4	0.6	0.6	0.4	0.4	0.1	0.2	0.0	0.0	0.0	0.0	1.0	7.4																						
12-Apr	0.2	0.1	0.0	0.0	0.2	Z	0.4	0.2	0.2	0.0	0.2	0.2	0.9	1.1	2.5	0.4	0.2	1.2	11.9	3.9	5.3	0.0	0.0	0.3	1.3	11.9																						
13-Apr	Z	0.7	1.2	0.5	1.8	1.0	1.2	0.3	0.4	1.7	1.5	1.5	1.4	1.2	1.2	2.1	2.9	3.0	0.0	3.0	3.7	0.6	0.8	2.4	1.5	3.7																						
14-Apr	2.8	Z	2.9	1.0	3.2	2.0	3.1	2.1	0.9	0.5	0.5	0.5	0.3	0.4	0.5	0.3	0.3	1.5	5.8	25.0	4.4	8.4	9.0	3.3	3.4	25.0																						
15-Apr	2.8	3.0	Z	3.2	4.2	4.5	4.7	6.6	4.2	2.3	1.9	1.4	4.7	1.8	4.1	3.5	1.8	0.2	1.2	1.7	0.0	0.4	0.0	0.0	2.5	6.6																						
16-Apr	0.0	0.0	0.0	Z	0.0	0.5	0.2	0.4	0.8	0.7	0.2	0.0	0.1	0.6	0.3	0.1	0.0	0.0	0.0	0.1	1.0	0.9	0.1	0.2	0.3	1.0																						
17-Apr	0.0	0.2	0.6	1.0	Z	0.4	0.8	1.0	0.7	0.6	0.7	0.2	0.1	0.2	0.4	0.3	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.3	1.0																						
18-Apr	0.0	0.0	0.1	0.3	0.1	Z	0.5	0.4	0.4	0.2	0.4	0.2	C	C	C	C	C	C	0.3	0.1	0.1	0.1	0.1	0.0	-	0.5																						
19-Apr	Z	0.5	0.4	0.9	11.0	27.8	13.2	0.7	M	M	0.3	0.2	0.9	1.0	0.7	3.2	0.8	0.4	0.9	17.6	8.2	8.5	8.1	5.5	5.3	27.8																						
20-Apr	3.2	Z	3.7	0.6	2.2	1.9	2.4	1.5	1.7	1.0	1.2	0.3	0.7	0.6	0.5	0.5	0.3	0.9	1.2	12.0	25.8	19.1	17.6	5.9	4.6	25.8																						
21-Apr	3.6	1.5	Z	8.0	3.2	2.8	3.0	2.1	2.6	0.6	0.4	0.0	0.1	0.1	0.2	0.0	0.8	0.2	0.1	2.2	2.3	3.2	2.4	17.5	2.5	17.5																						
22-Apr	2.5	2.2	4.5	Z	9.5	14.0	6.9	4.9	2.1	0.9	0.2	0.2	0.9	0.2	0.5	1.1	0.2	0.3	0.2	10.5	7.4	2.4	3.8	2.8	3.4	14.0																						
23-Apr	2.8	2.0	1.4	1.3	Z	0.9	1.9	1.9	0.5	0.3	0.3	0.4	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.2	4.3	2.8	0.8	0.2	1.1	4.3																						
24-Apr	2.5	0.2	0.1	1.7	3.4	Z	1.7	1.9	2.8	2.1	0.9	0.8	0.5	1.2	0.4	0.1	0.6	0.4	0.2	0.3	0.7	0.3	0.3	3.1	1.1	3.4																						
25-Apr	Z	3.2	1.2	2.5	0.5	1.0	0.7	0.9	1.1	2.1	0.2	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.1	4.6	2.3	0.0	4.1	1.6	1.2	4.6																						
26-Apr	0.0	Z	1.1	0.5	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.6	1.1	1.1	1.5	1.7	0.4	0.4	1.7																						
27-Apr	0.6	1.0	Z	1.2	1.2	2.3	1.0	0.5	0.7	0.4	0.2	0.2	0.4	0.2	0.0	0.1	0.5	0.3	0.1	0.3	0.1	0.0	0.0	0.0	0.5	2.3																						
28-Apr	0.0	0.1	0.2	Z	1.8	0.8	0.3	0.9	0.7	0.3	0.2	0.1	0.0	0.7	0.6	0.2	0.5	1.0	0.3	0.0	0.9	0.3	0.0	0.1	0.4	1.8																						
29-Apr	0.0	0.9	0.0	0.0	Z	0.9	1.2	2.8	1.1	0.4	0.2	0.5	1.6	0.0	0.4	1.6	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.5	2.8																						
30-Apr	0.1	0.0	0.0	0.0	0.1	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
																								1.8	0.8	1.1	1.8	2.7	3.9	2.2	1.4	1.1	1.0	0.9	0.9	0.8	0.7	0.6	0.7	0.8	0.8	1.3	3.7	3.0	2.0	2.1	2.1	Diurnal Average
																								15.7	3.2	7.0	15.5	11.0	27.8	13.2	6.6	4.2	3.1	3.7	10.7	4.7	2.8	4.1	3.5	2.9	3.0	11.9	25.0	25.8	19.1	17.6	17.5	Diurnal Maximum
Z - zerspan		C - Calibration				M - Maintenance				DF - DAS Failure																																						



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	677	99.56	99.56
21 - 40	3	0.44	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 680

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 2/3 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	59	67	55	22	16	21	29	33	71	42	36	61	57	40	33	35	677
21 - 40	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	59	67	55	22	16	21	29	34	71	43	37	61	57	40	33	35	680

Total Number of Valid Hours: 680

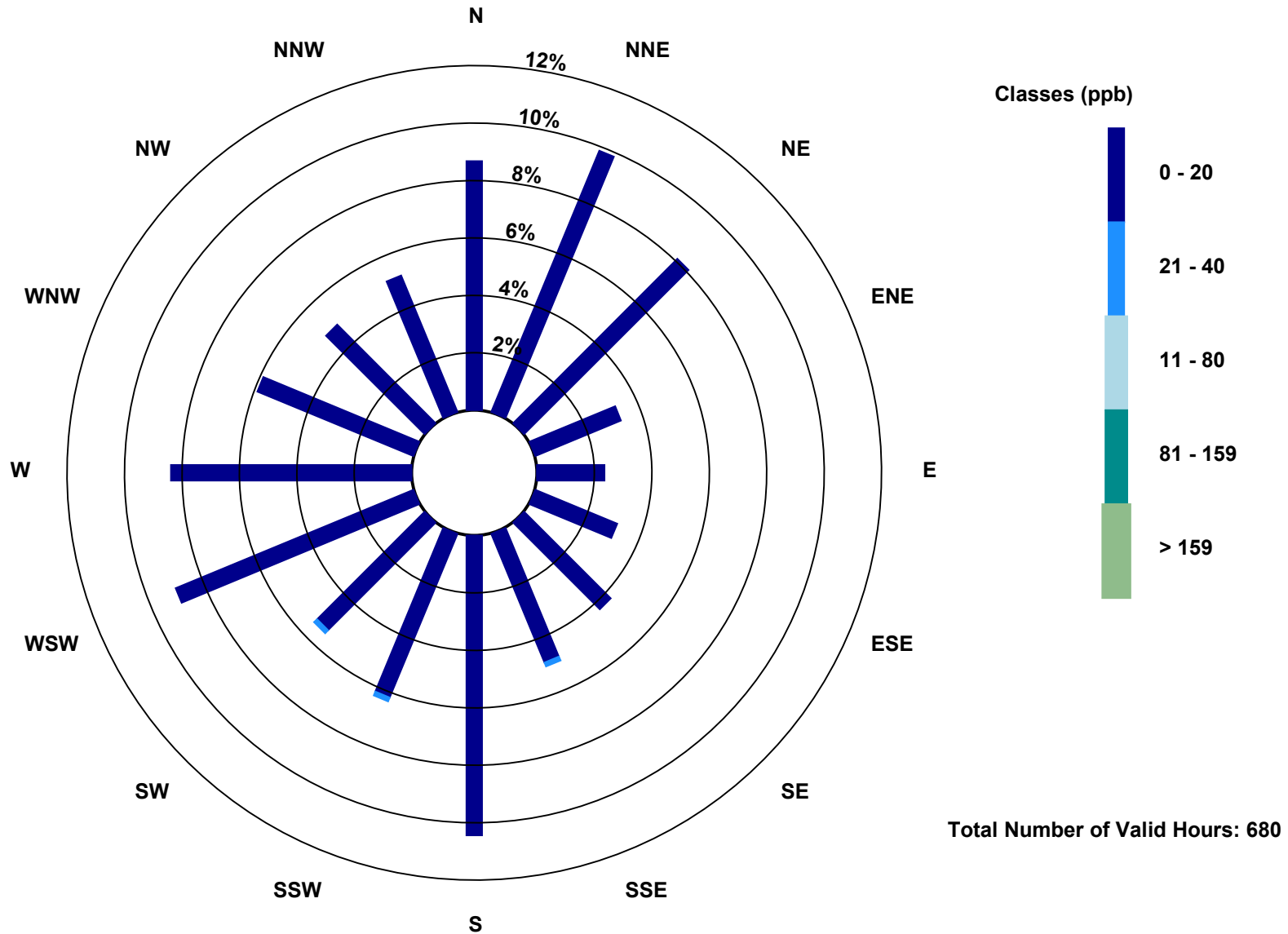
Total Number of Hours: 720

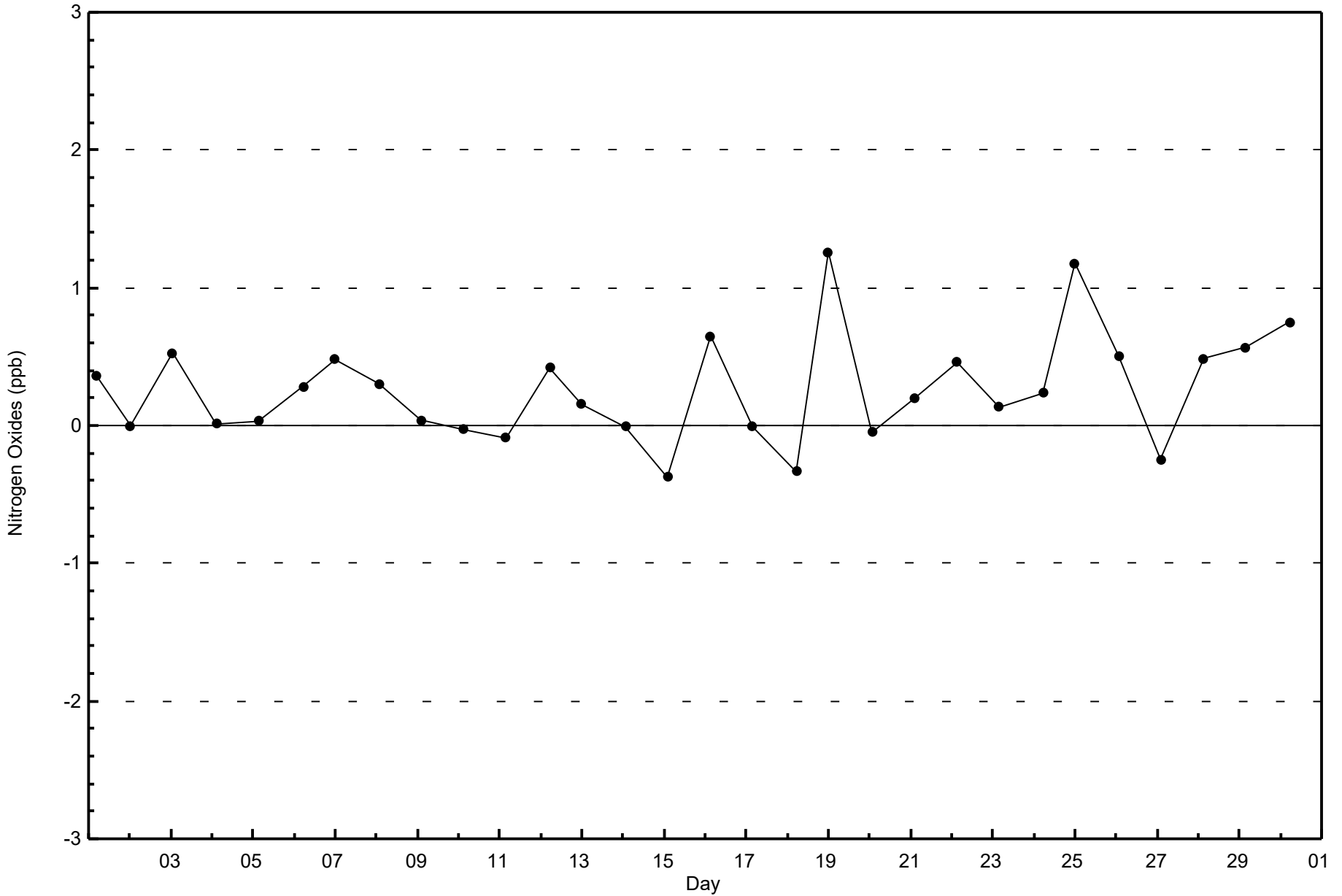


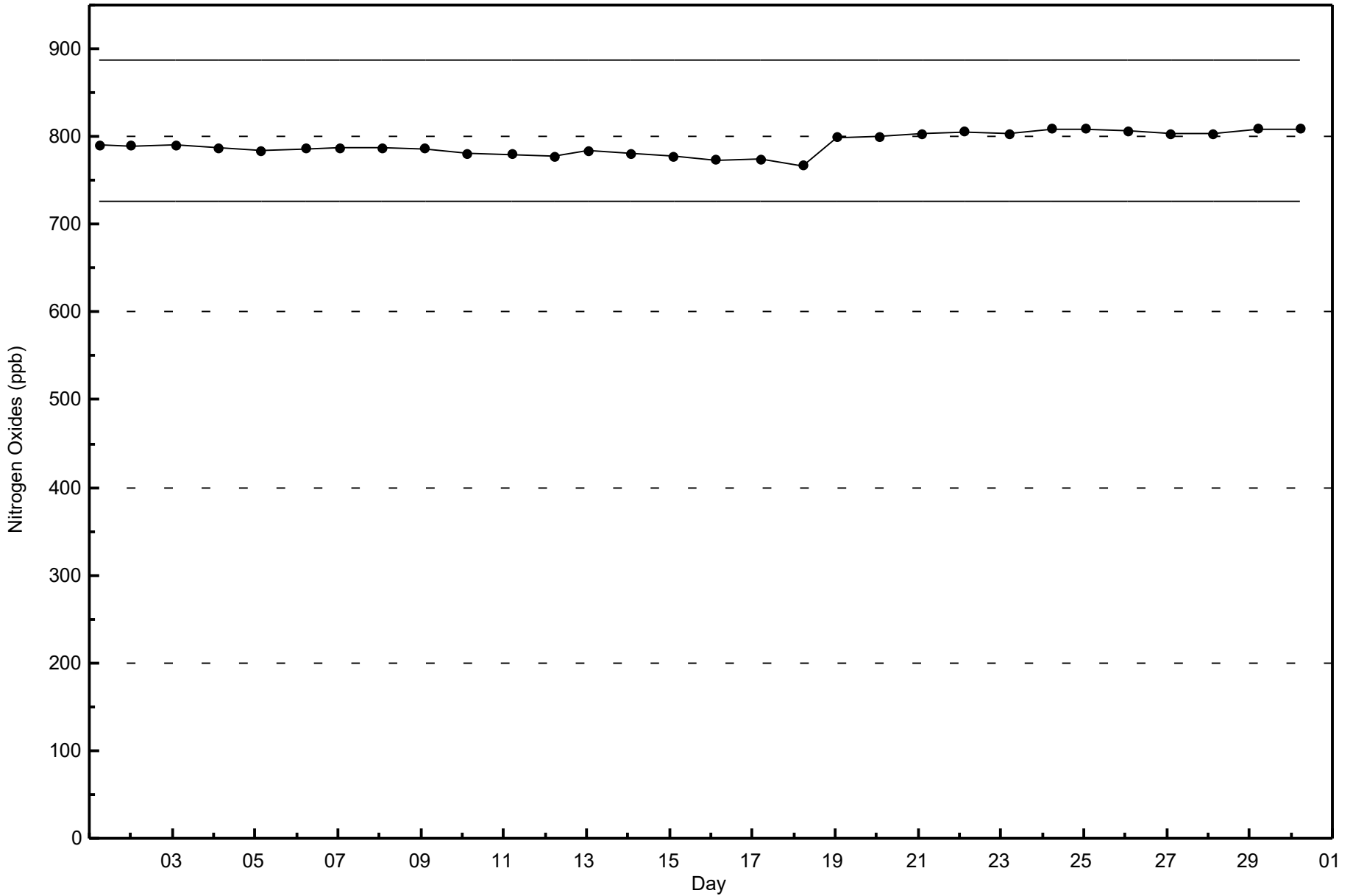


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 2/3









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

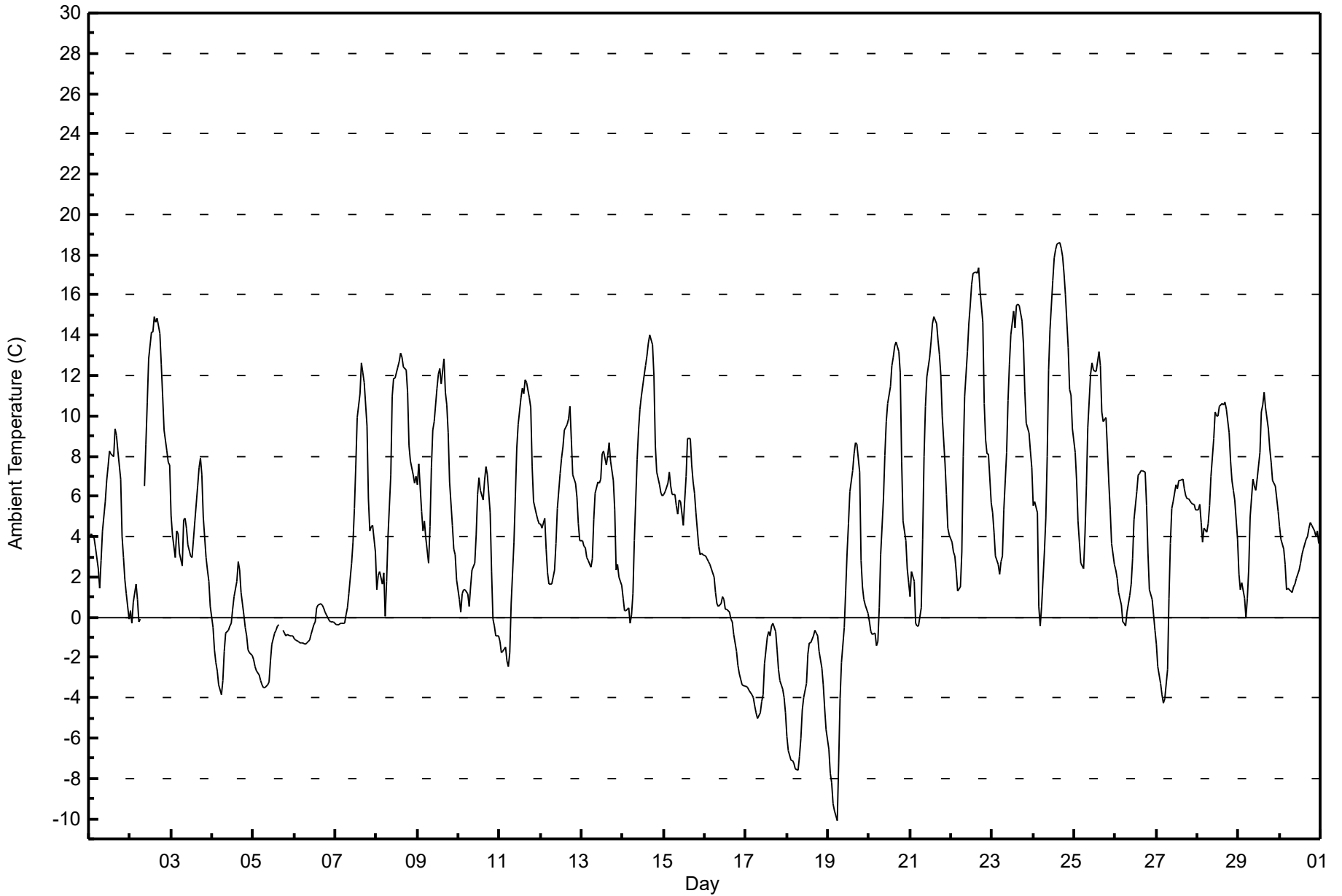
**Ambient Temperature (AT) - C**  
**Jackfish 2/3 - April 2024**

Maximum Value: 18.6 C on Apr 24 16:00		Maximum Daily Average: 11.0 C on Apr 24		Hours in Service: 720																																												
Minimum Value: -10.1 C on Apr 19 06:00		Minimum Daily Average: -4.1 C on Apr 18		Hours of Data: 718																																												
Maximum Diurnal Average: 9.1 C at hour 17		Minimum Diurnal Average: -0.1 C at hour 6		Hours of Missing Data: 2																																												
Monthly Average: 4.40 C		Percentiles: P <sub>1</sub> = -7.2 P <sub>10</sub> = -1.8 Q <sub>1</sub> = 0.3 Median = 4.0 Q <sub>3</sub> = 7.9 P <sub>90</sub> = 12.1 P <sub>99</sub> = 17.1		Hours of Calibration: 0																																												
				Percent Operational Time: 99.7																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	4.0	4.1	4.0	3.9	3.4	2.4	1.4	2.8	4.3	5.7	6.8	7.5	8.3	8.1	8.0	9.4	9.0	8.2	6.9	4.0	2.9	1.9	1.1	-0.1	4.9	9.4																						
2-Apr	0.3	-0.3	0.7	1.7	0.9	-0.2	-0.1	M	6.5	8.6	10.7	12.9	14.1	14.1	14.9	14.6	14.9	14.1	12.5	11.0	9.3	8.3	7.7	7.6	8.0	14.9																						
3-Apr	5.1	4.0	3.0	4.3	4.1	3.2	2.6	4.9	4.9	4.4	3.6	3.0	3.0	3.9	4.7	6.5	7.4	7.9	7.1	5.0	3.0	2.4	1.8	0.5	4.2	7.9																						
4-Apr	-0.5	-1.6	-2.2	-2.6	-3.4	-3.8	-3.1	-1.7	-0.8	-0.6	-0.4	-0.3	0.4	1.0	1.8	2.7	2.4	1.3	0.1	-0.5	-1.0	-1.6	-1.8	-1.9	-0.8	2.7																						
5-Apr	-2.1	-2.4	-2.7	-2.9	-3.2	-3.4	-3.5	-3.5	-3.4	-3.2	-2.2	-1.3	-0.8	-0.6	-0.4	-0.3	DF	-0.6	-0.8	-0.9	-0.9	-0.9	-1.0	-1.0	-1.8	-0.3																						
6-Apr	-1.1	-1.1	-1.2	-1.2	-1.3	-1.3	-1.3	-1.3	-1.2	-1.1	-0.9	-0.4	-0.2	0.4	0.6	0.7	0.6	0.4	0.3	0.1	-0.1	-0.2	-0.2	-0.3	-0.5	0.7																						
7-Apr	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	0.1	0.4	1.2	2.7	3.8	5.4	7.5	9.9	11.1	12.6	12.1	11.7	9.5	5.9	4.3	4.5	4.6	3.3	4.5	12.6																						
8-Apr	1.4	2.0	2.3	1.6	2.2	0.1	1.8	4.0	7.1	11.0	11.9	11.9	12.4	12.7	13.1	12.9	12.4	12.3	11.2	8.5	7.7	7.0	6.6	7.0	7.5	13.1																						
9-Apr	6.6	7.6	5.2	4.3	4.8	3.9	2.7	4.5	7.4	9.3	9.7	11.4	12.1	12.4	11.6	12.8	11.1	10.5	9.2	6.7	4.5	3.4	3.1	1.9	7.4	12.8																						
10-Apr	0.9	0.3	1.1	1.3	1.3	1.2	0.6	1.5	2.3	2.7	4.1	6.1	7.0	6.3	5.8	6.8	7.5	7.0	5.2	2.3	-0.1	-0.4	-0.9	-1.0	2.9	7.5																						
11-Apr	-1.2	-1.8	-1.7	-1.5	-2.2	-2.5	-1.8	0.7	3.7	6.0	8.4	9.6	10.9	11.4	11.1	11.8	11.6	10.9	10.4	7.5	5.8	5.1	4.8	4.7	5.1	11.8																						
12-Apr	4.6	4.4	4.9	3.4	2.2	1.7	1.6	2.0	2.3	3.6	5.4	7.1	7.9	8.4	9.3	9.6	9.8	10.4	8.8	7.1	6.7	5.9	4.6	3.8	5.7	10.4																						
13-Apr	3.8	3.6	3.5	3.0	2.9	2.5	2.9	4.9	6.2	6.7	6.7	6.8	8.1	8.2	7.6	8.1	8.6	7.7	6.8	5.3	2.3	2.6	2.0	1.6	5.1	8.6																						
14-Apr	1.0	0.3	0.4	0.5	-0.3	0.1	1.2	3.8	7.8	9.3	10.3	11.0	12.0	12.5	13.0	13.6	14.0	13.5	12.0	8.5	7.2	6.6	6.2	6.0	7.1	14.0																						
15-Apr	6.1	6.2	6.6	7.2	6.5	6.1	6.1	5.6	5.1	5.8	5.8	4.6	5.8	7.0	8.8	8.9	7.5	6.7	6.2	5.2	3.5	3.1	3.2	3.1	5.9	8.9																						
16-Apr	3.0	2.9	2.8	2.6	2.4	2.0	1.2	0.7	0.5	0.7	1.0	0.8	0.4	0.4	0.3	-0.1	-0.2	-0.8	-1.7	-2.4	-2.8	-3.1	-3.4	-3.4	0.2	3.0																						
17-Apr	-3.4	-3.5	-3.6	-3.8	-4.0	-4.4	-4.7	-5.0	-4.8	-4.2	-3.9	-2.3	-1.0	-0.7	-0.9	-0.4	-0.3	-0.7	-1.6	-2.6	-3.2	-3.6	-4.0	-4.8	-3.0	-0.3																						
18-Apr	-5.9	-6.6	-7.1	-7.1	-7.2	-7.6	-7.6	-6.9	-6.0	-4.6	-4.0	-3.3	-1.8	-1.3	-1.3	-0.9	-0.7	-0.8	-0.9	-1.7	-2.5	-3.3	-4.6	-5.6	-4.1	-0.7																						
19-Apr	-6.6	-7.7	-8.2	-9.3	-9.6	-10.1	-7.2	-4.1	-2.3	-0.5	1.3	3.2	4.6	6.2	7.3	8.1	8.6	8.6	7.2	2.8	1.5	0.9	0.6	0.2	-0.2	8.6																						
20-Apr	-0.3	-0.7	-0.8	-0.8	-1.4	-1.2	0.5	3.1	5.9	8.1	9.7	10.6	11.5	12.5	12.9	13.4	13.7	13.2	12.2	7.8	4.7	3.8	2.4	1.7	5.9	13.7																						
21-Apr	1.0	2.2	1.8	-0.3	-0.4	-0.5	0.4	3.8	8.0	10.5	11.9	12.9	13.7	14.6	15.0	14.6	13.7	13.0	12.0	10.0	7.7	6.1	4.4	4.1	7.5	15.0																						
22-Apr	3.7	3.3	3.0	2.3	1.3	1.5	3.3	8.0	10.9	13.2	14.6	15.5	16.5	17.1	17.1	17.1	17.4	16.2	14.6	10.6	8.8	8.1	8.1	5.7	9.9	17.4																						
23-Apr	5.2	4.2	3.1	2.6	2.1	2.7	3.1	5.3	8.2	10.8	12.6	14.0	15.2	14.4	15.5	15.5	15.4	14.7	13.6	11.2	9.7	9.2	8.2	7.4	9.3	15.5																						
24-Apr	5.5	5.7	5.2	0.5	-0.5	0.6	3.3	4.9	7.9	12.3	14.3	16.7	17.8	18.2	18.5	18.6	18.3	17.9	17.1	16.0	13.4	11.3	11.0	9.3	11.0	18.6																						
25-Apr	8.2	6.8	4.8	3.7	2.7	2.4	4.2	6.5	9.5	12.0	12.6	12.3	12.2	12.2	13.2	12.5	10.2	9.7	9.9	8.4	6.7	5.3	3.6	2.6	8.0	13.2																						
26-Apr	2.3	1.9	1.2	0.6	-0.2	-0.3	-0.4	0.2	1.1	1.6	2.9	4.8	6.2	7.1	7.1	7.3	7.3	7.2	5.5	3.2	1.3	0.9	0.1	-0.6	2.8	7.3																						
27-Apr	-1.4	-2.4	-3.3	-3.9	-4.3	-4.1	-2.6	0.9	3.7	5.4	5.8	6.6	6.4	6.8	6.8	6.9	6.4	6.0	5.9	5.9	5.7	5.6	5.6	5.3	3.1	6.9																						
28-Apr	5.3	5.6	4.7	3.7	4.4	4.2	4.6	5.5	7.0	8.9	10.2	10.0	10.0	10.5	10.6	10.6	10.7	10.3	9.2	7.8	6.8	6.3	5.8	3.9	7.4	10.7																						
29-Apr	2.1	1.3	1.7	0.9	0.0	1.0	2.4	5.0	6.9	6.5	6.3	6.8	8.2	10.2	10.6	11.1	10.4	9.3	8.4	7.7	6.8	6.5	5.9	5.2	5.9	11.1																						
30-Apr	4.5	3.9	3.4	2.6	1.4	1.4	1.3	1.3	1.5	1.6	1.9	2.3	2.7	3.1	3.4	3.9	4.0	4.4	4.7	4.6	4.3	4.0	4.3	3.7	3.1	4.7																						
																								1.7	1.4	1.1	0.6	0.1	-0.1	0.4	2.0	3.7	5.1	6.0	6.9	7.7	8.2	8.6	9.0	9.1	8.3	7.4	5.5	4.1	3.5	3.0	2.3	Diurnal Average
																								8.2	7.6	6.6	7.2	6.5	6.1	6.1	8.0	10.9	13.2	14.6	16.7	17.8	18.2	18.5	18.6	18.3	17.9	17.1	16.0	13.4	11.3	11.0	9.3	Diurnal Maximum
M - Maintenance																								DF - DAS Failure																								



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	168	23.40	23.40
0 - 10	429	59.75	83.15
10 - 20	121	16.85	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

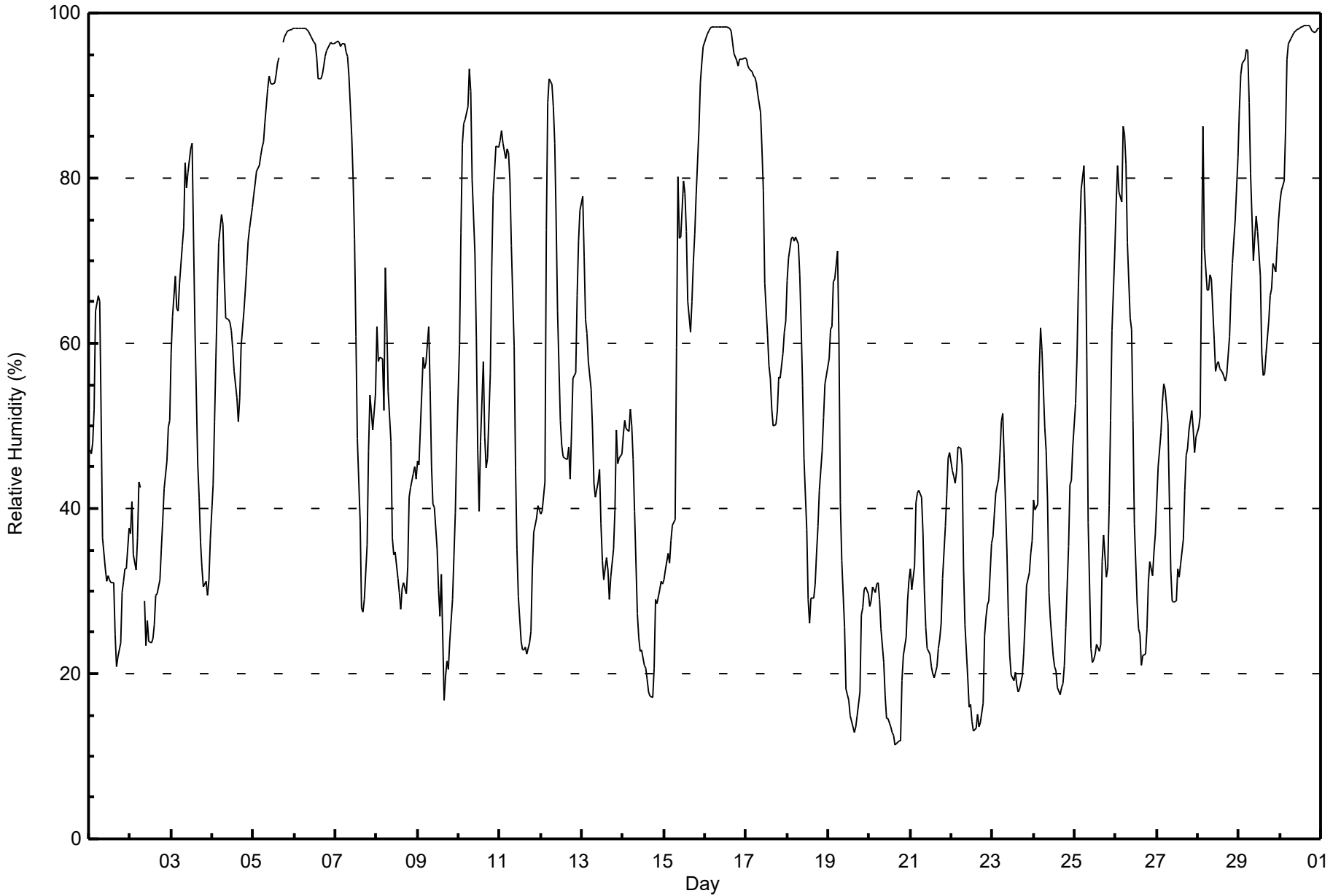
Jackfish 2/3 - April 2024

Maximum Value: 98.5 % on Apr 30 17:00      Maximum Daily Average: 96.9 % on Apr 16																						Hours in Service: 720 Hours of Data: 718				
Minimum Value: 11.3 % on Apr 20 16:00      Minimum Daily Average: 21.4 % on Apr 20 Maximum Diurnal Average: 70.2 % at hour 6      Minimum Diurnal Average: 38.9 % at hour 17 Monthly Average: 54.25 %      Percentiles: P <sub>1</sub> = 13.2 P <sub>10</sub> = 22.4 Q <sub>1</sub> = 31.6 Median = 49.9 Q <sub>3</sub> = 74.8 P <sub>90</sub> = 94.9 P <sub>99</sub> = 98.3																						Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	47.1	46.6	47.9	52.0	64.0	65.8	65.0	51.3	36.4	32.7	31.2	31.8	31.3	31.0	30.9	24.8	20.9	22.1	23.8	29.9	31.2	32.7	32.7	37.6	38.4	65.8
2-Apr	36.9	40.9	34.5	32.6	36.4	43.1	42.5	M	28.8	23.3	26.4	23.9	23.8	24.3	26.0	29.5	29.6	31.4	35.0	38.5	42.3	45.8	49.8	50.6	34.6	50.6
3-Apr	58.7	63.2	68.1	64.3	63.9	67.3	71.9	74.1	81.9	78.8	80.6	83.6	84.2	72.7	62.0	45.5	41.3	36.0	32.8	30.4	31.2	29.5	31.4	36.3	57.9	84.2
4-Apr	42.9	50.5	58.4	65.6	72.2	75.7	74.5	67.8	63.0	63.0	62.6	61.5	59.3	56.6	53.4	50.5	53.3	59.6	63.9	66.4	69.2	72.4	73.9	76.5	63.0	76.5
5-Apr	77.9	79.3	80.8	81.5	82.7	83.7	84.4	86.8	90.8	92.4	91.5	91.4	91.5	92.6	93.9	94.7	DF	96.4	97.1	97.5	97.8	97.9	98.0	98.1	90.4	98.1
6-Apr	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.0	97.7	97.4	97.1	96.5	96.3	94.5	92.1	92.0	92.6	93.6	94.8	95.5	96.1	96.4	96.4	96.3	96.2	98.1
7-Apr	96.4	96.5	96.4	96.0	96.2	96.2	95.2	94.8	92.4	85.1	79.9	72.6	60.9	48.4	38.5	27.9	27.4	29.1	35.6	47.0	53.7	51.8	49.6	53.9	67.6	96.5
8-Apr	62.1	57.8	58.2	58.2	51.9	69.2	62.7	54.2	48.1	36.4	34.4	34.7	31.6	29.8	27.9	30.4	31.0	29.6	32.9	41.4	42.5	44.2	45.1	43.5	44.1	69.2
9-Apr	45.8	45.3	53.8	58.3	57.0	57.6	62.1	54.4	45.0	40.5	40.2	35.1	30.1	26.9	32.1	16.8	19.6	21.6	20.4	23.9	28.9	34.3	39.4	47.8	39.0	62.1
10-Apr	59.9	73.3	84.0	86.6	87.2	88.6	93.2	90.5	79.9	70.8	60.7	47.1	39.6	48.1	57.9	48.7	44.9	46.1	56.4	69.2	78.0	80.9	83.8	83.8	69.1	93.2
11-Apr	84.6	85.7	84.2	82.4	83.6	83.0	79.6	71.9	59.7	44.9	35.1	29.3	23.9	22.9	22.8	23.2	22.4	23.7	25.1	32.7	37.2	38.8	40.4	39.8	49.0	85.7
12-Apr	39.3	39.6	43.1	73.8	89.1	92.0	91.4	88.7	84.3	74.9	63.9	50.7	47.6	46.2	46.2	46.0	47.4	43.6	49.3	55.8	56.4	65.8	72.4	76.1	61.8	92.0
13-Apr	77.8	70.5	62.9	61.3	57.9	54.5	49.5	43.0	41.3	43.2	44.8	38.2	33.7	31.4	34.1	32.6	28.9	31.7	35.2	39.8	49.5	45.4	46.1	46.6	45.8	77.8
14-Apr	48.9	50.6	49.7	49.4	52.1	50.0	46.0	39.6	27.3	24.5	22.7	22.9	21.0	20.7	19.4	17.7	17.2	17.1	20.6	29.0	28.5	30.1	31.3	30.9	32.0	52.1
15-Apr	31.4	32.5	34.6	33.4	36.2	37.9	38.7	59.5	80.2	72.8	72.8	79.7	78.2	73.5	65.1	61.4	65.1	69.8	73.3	77.9	85.9	91.5	93.9	95.9	64.2	95.9
16-Apr	97.0	97.5	97.8	98.1	98.2	98.3	98.3	98.3	98.3	98.3	98.3	98.2	98.2	98.3	98.1	97.8	96.5	95.2	94.3	93.6	94.4	94.4	94.4	94.6	96.9	98.3
17-Apr	94.4	93.6	93.3	92.9	92.4	92.2	91.5	90.2	87.9	83.6	78.5	67.2	61.0	57.2	55.8	52.1	50.0	50.2	51.8	55.8	55.7	58.9	61.4	62.7	72.1	94.4
18-Apr	67.6	70.3	72.8	72.8	72.4	72.9	72.1	68.2	62.1	55.0	46.2	37.4	29.0	26.2	29.2	29.1	30.8	34.6	37.9	42.2	46.9	51.0	55.0	56.1	51.6	72.9
19-Apr	58.1	61.6	62.0	67.5	67.9	71.1	60.4	40.7	33.7	25.5	18.2	17.5	16.9	14.9	13.6	12.9	13.5	14.8	17.7	27.1	28.0	30.2	30.6	29.7	34.8	71.1
20-Apr	28.2	28.8	30.5	29.9	30.8	31.0	28.9	25.4	21.4	17.3	14.6	14.7	13.6	12.9	12.6	11.3	11.5	11.9	11.9	19.2	22.2	24.5	28.8	31.3	21.4	31.3
21-Apr	32.7	30.2	33.0	40.7	41.8	42.3	41.4	37.1	30.3	25.7	23.1	22.4	20.9	20.0	19.5	20.8	23.1	24.3	26.1	31.6	37.8	41.7	46.2	46.8	31.6	46.8
22-Apr	44.6	43.9	43.1	44.4	47.5	47.4	45.2	32.8	25.9	19.5	15.9	16.3	14.2	13.1	13.3	15.1	13.5	14.2	16.4	24.6	26.7	28.2	28.8	35.8	27.9	47.5
23-Apr	36.5	39.3	41.8	43.6	46.6	50.5	51.6	46.0	34.6	27.0	22.2	19.9	19.1	20.2	18.6	17.8	18.1	19.9	22.6	26.5	30.7	32.2	34.6	36.1	31.5	51.6
24-Apr	41.0	39.8	40.5	56.2	61.8	59.1	49.9	46.9	40.9	29.8	26.7	22.3	20.9	20.3	18.4	17.4	18.3	18.8	21.1	25.7	35.4	42.9	43.4	47.4	35.2	61.8
25-Apr	52.6	58.2	66.8	73.0	78.7	81.5	74.2	58.4	38.3	23.1	21.3	21.8	22.4	23.6	22.8	23.5	33.5	36.7	31.7	32.8	40.4	50.6	61.6	71.1	45.8	81.5
26-Apr	77.0	81.5	78.3	77.1	86.2	85.3	81.6	72.3	63.1	61.7	50.7	38.1	28.4	25.4	24.7	20.9	22.2	22.4	25.4	31.0	33.6	31.9	34.8	36.9	49.6	86.2
27-Apr	41.0	45.2	49.1	52.9	55.0	54.4	50.3	41.2	32.6	28.8	28.7	28.8	32.7	31.6	33.2	36.2	42.2	46.5	47.3	49.5	51.9	49.6	46.8	48.6	42.7	55.0
28-Apr	49.9	51.2	69.4	86.2	71.5	66.5	66.4	68.3	67.8	60.4	56.5	57.4	57.8	57.0	56.4	55.9	55.4	56.3	60.8	66.1	69.6	72.4	74.9	82.5	64.0	86.2
29-Apr	88.3	92.5	93.9	94.4	95.5	95.5	89.1	80.5	70.0	72.9	75.5	73.5	68.2	58.8	56.1	56.3	58.6	62.7	65.7	66.6	69.7	68.7	71.9	75.0	75.0	95.5
30-Apr	77.1	78.5	79.6	85.7	94.4	96.2	96.9	97.4	97.6	97.9	98.0	98.2	98.3	98.3	98.4	98.4	98.5	98.4	98.1	97.8	97.7	97.8	98.1	98.1	94.8	98.5
59.8 61.4 63.6 67.0 69.0 70.2 68.4 64.8 58.7 53.6 50.6 47.8 45.2 43.2 42.4 40.2 38.9 41.9 44.2 48.8 52.3 54.4 56.5 58.9																								Diurnal Average		
98.1 98.1 98.1 98.1 98.2 98.3 98.3 98.3 98.3 98.3 98.3 98.2 98.3 98.3 98.4 98.4 98.5 98.4 98.1 97.8 97.8 97.9 98.1 98.1																								Diurnal Maximum		
M - Maintenance      DF - DAS Failure																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Jackfish 2/3 - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Jackfish 2/3 - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	47	6.55	6.55
20 - 40	214	29.81	36.35
40 - 60	177	24.65	61.00
60 - 80	126	17.55	78.55
80 - 100	154	21.45	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



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

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - April 2024**

Maximum Speed: 17 km/h on Apr 1 02:00	Maximum Daily Speed Average: 10.9 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 22 21:00	Minimum Daily Speed Average: 2.1 km/h on Apr 15	Hours of Data: 718
Maximum Diurnal Speed Average: 2.7 km/h at hour 16	Minimum Diurnal Speed Average: 0.5 km/h at hour 20	Hours of Missing Data: 2
Monthly Average Velocity: 1.4 km/h 292.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 7 Q <sub>3</sub> = 10 P <sub>90</sub> = 12 P <sub>99</sub> = 16	Percent Operational Time: 99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SSW16	SW17	WSW15	W11	NW8	W10	W8	W13	WNW16	WNW15	WNW16	NW15	NW15	NW11	WNW10	WNW11	WNW13	WNW11	WNW7	W4	WSW7	W5	W4	SW4	W9.5	SW17
2-Apr	SW5	SSW6	SSW6	SSW7	SSW7	S6	S7	M	S7	SSW11	SSW12	SSW13	SSW13	SW12	SSW11	SSW11	S10	S7	S7	S7	S8	S9	S9	SSW8.4	SSW13	
3-Apr	SE1	SE3	ESE3	SSE4	S4	SW3	NW3	NNW8	NNW10	NW10	NW10	NW9	NW10	WNW11	W11	WNW10	WNW9	WNW7	W6	W7	W6	W6	W5	WNW5.1	W11	
4-Apr	W4	W5	WNW4	W4	WNW4	WNW5	NW5	N6	N9	N8	NNE8	NNE7	NE8	ENE10	ENE10	NE9	NNE8	NNE8	NE8	NE6	ENE6	ENE5	ENE6	NNE4.6	ENE10	
5-Apr	ENE7	NE7	NE9	NE9	NE8	NE9	NE9	NE10	NE8	NE9	NE10	NE10	NE10	NE8	NE7	DF	NNE6	NNE5	NNE5	N4	N4	NNE4	N3	NE7.1	NE10	
6-Apr	NNE5	NNE4	N4	NNE6	NE6	NNE6	NNE6	NNE6	NNE7	NNE7	NNE5	NNE6	NNE6	NNE6	NE6	NNE5	NE6	NE4	NE3	NNE1	NNE2	NE2	NNW1	NNE2	NNE4.5	NNE7
7-Apr	NNW1	N2	WNW3	S2	SW4	SW6	SW6	SW7	WSW8	SW7	WSW9	WSW8	SW7	SW8	WSW9	WNW9	W8	WSW8	SW5	SSW4	SSW4	SW4	WSW4	SSW4	WSW5.1	WNW9
8-Apr	S4	SSW3	SW3	S3	SE4	S5	SSE6	S7	S7	S9	WSW10	WSW10	SW10	SW9	SW10	SSW10	S7	SSW6	SSW4	SSE3	SSW3	SSW4	S5	S5	SSW5.3	SSW10
9-Apr	S6	S6	SSE3	S4	S6	S7	SW5	SW6	W7	WNW8	WNW10	WNW9	W11	W10	W9	W14	W13	WNW12	W10	W8	W6	WSW7	W9	W8	W6.5	W14
10-Apr	W7	W7	W9	W10	WNW11	NW8	NW8	NW10	NW10	NW12	NW11	NW12	NW13	NNW13	NNW11	NNW10	NNE9	NE8	ENE8	ESE3	SE3	S3	S3	S3	NW5.9	NW13
11-Apr	S3	S4	S5	S5	S5	S6	S6	S7	SSW8	SSW9	SSW9	SSW10	SSW9	S10	SSW10	SSW10	SSW10	S8	S6	SE4	SE5	SSE7	SSE7	SSE7	S6.9	SSW10
12-Apr	SSE6	SSE6	S9	S10	SSE9	SE10	SE11	SSE11	SE9	SE11	SE10	S8	S6	WSW6	WNW10	W9	W9	WSW9	SSW3	S4	SSW6	SW9	SW9	SW9	S5.7	SE11
13-Apr	WSW12	WSW10	WSW10	SW10	WSW11	WSW13	WSW13	W14	W14	WNW16	WNW15	WNW14	WNW14	WNW12	WNW12	WNW12	WNW13	WNW11	NW7	WNW4	WSW4	WSW7	WSW7	WSW7	W10.1	WNW16
14-Apr	WSW8	SW8	SW7	SW7	SW8	SW8	SSW7	SW8	WSW10	WSW15	WSW16	WSW15	W13	WSW14	W13	WSW12	WSW10	WSW9	SW4	SSE2	S4	S4	S5	S6	SW8.1	WSW16
15-Apr	S6	S6	SSW5	S6	S5	S5	S5	SSW6	SW5	SSW3	NE4	NE7	NE6	NNE8	NE8	ENE11	E10	E9	ENE8	ENE6	NE4	N3	NNW3	NW3	E2.1	ENE11
16-Apr	NNW3	NNW3	NW3	NW4	NNW4	NNW5	NW6	NW5	NNW6	NNW6	N7	N8	NNE8	N8	N9	N10	N3	N10	N10	N11	N10	N11	N10	N11	N6.9	N11
17-Apr	N11	N10	N9	N10	N9	NNW9	NNW10	NNW9	NNW9	NNE12	N12	N13	NNE13	N14	N12	N11	N14	NNE12	N12	NNE11	NNE12	NNE11	NNE12	NNE10	N10.9	N14
18-Apr	N9	N8	N7	N8	N9	NNE9	NNE8	N8	N9	NNE11	NNE11	N10	N11	N11	NNE13	NNE11	NNE10	NNE11	NNE9	NNE8	NNE6	NNE5	NNE4	NNE4	NNE8.7	NNE13
19-Apr	NNE4	NNE4	NNE3	NNE2	SW1	SW3	W2	N5	NNW5	NW5	NW4	N5	WNW6	NW4	NNW5	NW6	NW6	NNW5	NW3	WSW3	WSW6	WSW6	WSW7	WSW8	NW3.1	WSW8
20-Apr	WSW9	WSW10	WSW10	WSW10	WSW11	WSW10	WSW11	W10	W10	W11	W10	WSW11	WSW13	WSW11	WSW11	WSW11	WSW10	SW9	WSW8	SW5	SSW4	SSW5	SSW5	SSW5	WSW8.8	WSW13
21-Apr	S5	SSW7	SSW6	S5	SSE5	SSE7	SSE7	SSE7	SE7	SE10	SSE12	SSE9	ESE9	SE7	S6	SE5	SSE1	SSW9	SW7	WSW6	WSW7	W5	W4	WSW3	S4.8	SSE12
22-Apr	SW2	SW2	SW2	SW2	WSW3	WSW5	W5	WNW3	N4	NNW5	N8	NNE9	NNE11	N9	NNE11	N9	NNW9	N8	NE5	SE1	NE1	ENE3	E5	E4	N3.2	NNE11
23-Apr	SE3	NE2	SSE1	NE4	NE5	NE7	NE6	ENE9	NE10	ENE11	ENE10	ENE9	NE7	ENE1	ENE6	NE2	SSE4	ESE4	E4	E5	ESE6	ESE7	SE7	SE6	ENE4.8	ENE11
24-Apr	ESE5	SE6	ESE4	NE3	ENE4	ENE5	ENE6	ENE5	ENE7	E10	E12	E14	E14	ESE13	ESE12	SSE10	SSE8	S10	SSW11	SSW10	W13	WSW3	NW2	W3	SE4.5	E14
25-Apr	NW6	WNW6	W6	W7	WSW9	WSW9	W10	W10	W10	NW11	WNW12	W14	W15	WSW16	WSW16	WSW16	WSW16	W12	W9	WNW11	NW8	NW7	WNW7	NW6	W9.9	WSW16
26-Apr	NW7	NNW6	N7	NNW7	NNW6	NNW6	NNW7	NNW7	NNW7	NNW7	NNW9	NW8	NNW8	N9	N8	N8	N7	N6	NE7	ENE6	E6	E7	ESE7	ESE6	N5.1	NNW9
27-Apr	SSE6	SSE6	S8	S8	S7	S8	S8	S9	S11	S12	S12	S12	S11	SSE10	S9	S9	SSE8	SSE7	SE4	SSE6	SE7	SE7	SSE6	E3	SSE7.8	S12
28-Apr	ESE5	SE3	SE2	SE3	SE5	SE6	SSE7	SSE7	SSE7	SSE9	SSE8	SE8	SE7	ESE9	ESE9	ESE7	ESE8	ESE8	E7	E6	E7	ESE6	ESE5	ESE4	SE6.0	ESE9
29-Apr	SE2	SE4	S5	S4	SSW3	W4	NNW2	WNW2	NNE5	NE8	NNE7	NE9	NE10	NE10	NE9	NE10	NE10	NE10	NE10	NNE7	N5	N7	NNE9	NE11	NE5.0	NE11
30-Apr	NE9	NNE10	NNE9	NNE9	N7	NNE9	NNE10	NNE11	NNE11	NE12	NE12	NNE9	NNE9	NNE9	NNE9	N8	N7	N7	N7	N5	NNW5	NNE2	NNE4	NNE6	NNE7.9	NE12

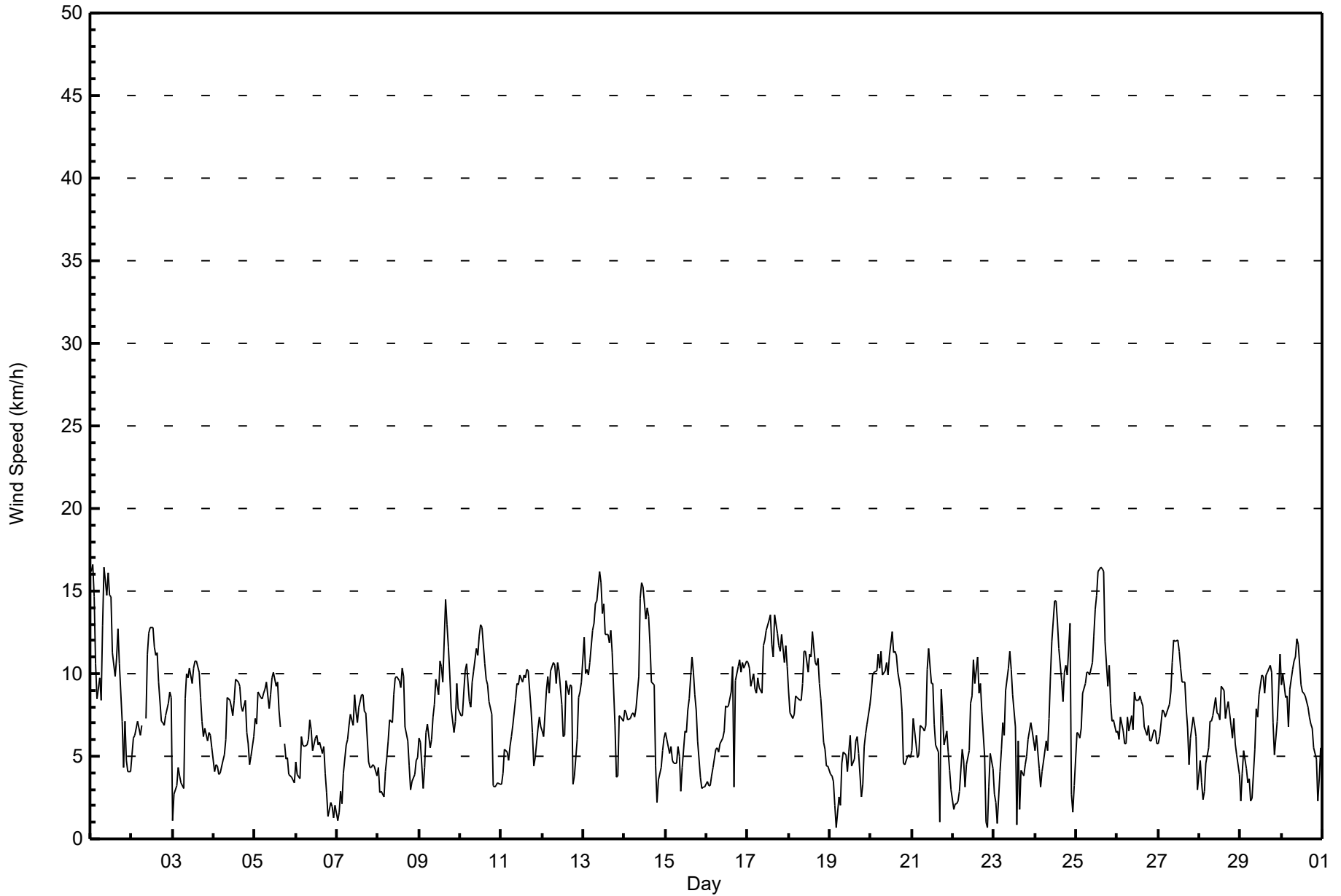
SW1.2	SW1.6	WSW1.8	WSW1.5	WSW1.4	WSW1.7	W1.4	WNW1.8	NW2.3	NW2.0	NW2.4	NW2.6	NW2.6	NW2.4	NW2.3	NW2.7	WNW2.5	NW1.9	NNW1.2	N0.5	W0.5	WSW0.5	SW0.6	SW0.5	Diurnal Average	
SSW16	SW17	WSW15	W11	WSW11	WSW13	WSW13	W14	WNW16	WNW16	WNW16	WSW15	W15	WSW16	WSW16	WSW16	WSW16	NNE12	N12	NNE11	W13	NNE11	NNE12	NE11	Diurnal Maximum	

M - Maintenance      DF - DAS Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	198	27.58	27.58
6 - 11	446	62.12	89.69
12 - 19	74	10.31	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 718

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Jackfish 2/3 - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	12	20	13	6	5	8	16	8	26	16	17	7	13	7	10	14	198
6 - 11	44	49	42	17	8	11	16	26	44	27	21	42	35	20	21	23	446
12 - 19	6	6	2	0	3	2	0	1	3	4	2	14	11	14	5	1	74
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	62	75	57	23	16	21	32	35	73	47	40	63	59	41	36	38	718

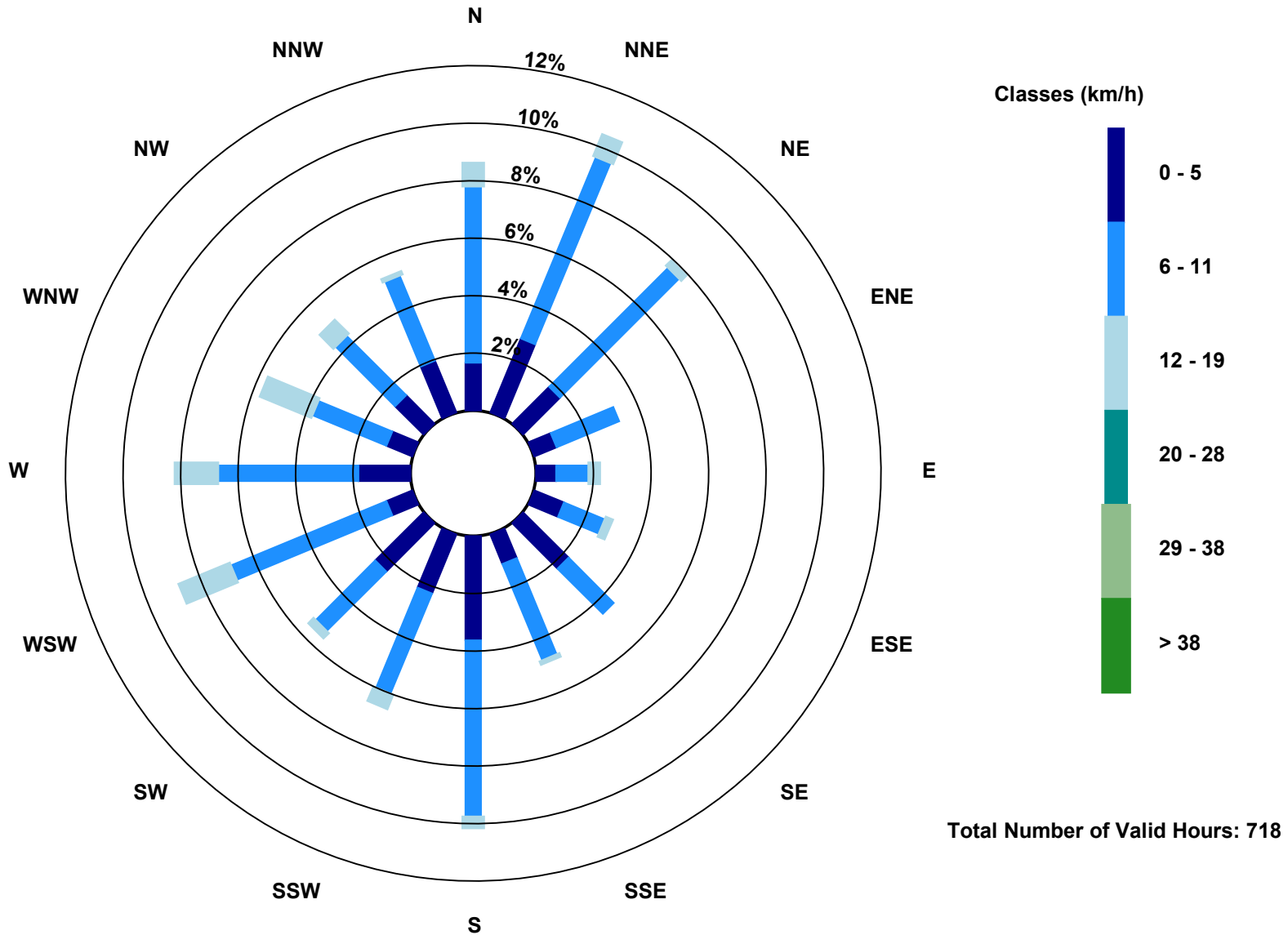
Total Number of Valid Hours: 718

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Jackfish 2/3





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Apr 1 09:00 Minimum Value: 0 km/h on Apr 10 22:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 6																	Hours in Service: 720 Hours of Data: 718 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	5	4	5	4	4	3	5	7	7	6	6	6	5	4	4	5	4	3	1	1	2	1	1	7
2-Apr	1	1	1	2	2	2	2	M	3	4	4	4	5	4	4	4	4	3	3	3	2	3	2	3	5
3-Apr	1	2	1	2	2	2	2	4	4	4	5	4	4	4	4	4	4	3	3	2	2	2	2	5	
4-Apr	2	2	2	1	2	2	2	3	3	3	3	3	3	3	3	4	3	3	3	2	2	1	1	2	4
5-Apr	2	2	3	3	3	3	3	3	2	3	3	3	3	3	3	2	DF	2	2	2	1	1	1	1	3
6-Apr	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	3
7-Apr	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	1	1	1	2	2	1	3
8-Apr	1	1	1	1	1	1	2	2	3	4	4	3	4	4	4	4	3	3	2	1	2	1	2	2	4
9-Apr	2	4	1	1	2	1	2	1	3	3	4	4	4	4	6	6	6	5	4	2	1	2	3	3	6
10-Apr	2	3	4	4	4	4	3	4	4	5	5	5	6	5	5	4	4	3	3	1	1	0	0	1	6
11-Apr	0	1	1	1	1	2	2	2	3	4	4	4	4	4	3	4	4	3	3	2	2	3	3	3	4
12-Apr	3	3	5	5	3	4	4	4	4	5	4	3	3	3	4	3	3	4	1	1	3	3	2	3	5
13-Apr	3	3	2	2	3	3	3	5	6	7	6	5	6	5	5	5	5	5	3	2	2	2	2	1	7
14-Apr	1	1	1	1	2	2	1	2	3	4	5	5	5	6	5	5	4	3	2	0	1	1	2	2	6
15-Apr	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	4	3	2	2	1	1	1	1	4
16-Apr	1	1	2	1	2	2	2	2	2	2	3	3	3	3	4	4	4	6	5	5	4	4	4	4	6
17-Apr	4	5	4	4	4	3	4	4	4	5	5	5	5	5	5	5	6	5	5	5	5	4	5	4	6
18-Apr	4	3	3	3	4	4	3	3	4	5	5	4	5	4	5	4	4	4	4	4	2	2	2	1	5
19-Apr	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	2	2	1	1	1	1	1	3
20-Apr	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4	4	3	3	2	1	1	2	2	2	4
21-Apr	2	2	2	2	2	2	2	2	3	4	5	4	4	4	3	3	2	4	2	1	1	2	2	1	5
22-Apr	1	1	1	1	1	1	1	1	2	2	3	4	4	4	5	4	4	3	3	1	1	1	1	1	5
23-Apr	1	1	1	2	1	2	1	3	3	4	4	3	3	3	4	3	2	1	1	1	2	3	2	4	
24-Apr	2	2	2	1	1	2	2	2	3	3	5	5	5	5	4	4	5	6	6	6	2	3	2	6	
25-Apr	3	2	2	2	2	2	3	3	3	4	4	5	5	5	5	6	7	5	4	4	3	3	3	3	7
26-Apr	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3	2	2	2	2	1	2	4
27-Apr	2	2	2	2	2	3	3	4	4	5	4	4	4	5	4	4	3	3	2	3	3	3	3	1	5
28-Apr	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	3	3	3	2	2	2	2	2	1	4
29-Apr	1	2	2	2	2	2	1	1	2	3	2	3	3	4	4	4	3	4	3	3	2	3	4	4	4
30-Apr	4	4	3	3	3	3	4	4	4	4	4	3	3	3	3	3	3	3	2	2	2	2	1	2	4
																	Diurnal Maximum								
																	5 5 5 5 4 4 4 5 7 7 6 6 6 6 6 6 7 6 6 6 6 4 5 4								
M - Maintenance																	DF - DAS Failure								



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

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - April 2024**

Direction of Maximum Speed: 222 deg on Apr 1 02:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 4.2 deg on Apr 17	Hours of Data: 718
Direction of Minimum Speed: 42 deg on Apr 22 21:00	Direction of Minimum Daily Speed Average: 2.1 deg on Apr 15
Direction of Minimum Speed: 42 deg on Apr 22 21:00	Hours of Missing Data: 2
Monthly Average Direction: 292.6 deg	Percent Operational Time: 99.7

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-Apr	212	222	238	278	307	281	281	280	291	296	292	308	307	319	302	288	296	292	283	265	253	261	262	231	279.3
2-Apr	222	213	197	202	197	185	180	M	184	201	203	206	213	217	195	199	190	188	183	181	171	170	182	184	195.3
3-Apr	130	126	108	156	169	224	325	331	341	324	317	310	306	291	281	292	292	291	277	261	270	275	275	276	294.2
4-Apr	277	272	285	268	284	299	326	349	355	9	32	17	40	65	62	42	22	30	40	45	67	68	56	67	22.9
5-Apr	63	53	45	39	37	43	40	48	36	37	44	47	49	55	49	42	DF	22	18	30	10	359	17	1	40.0
6-Apr	16	20	355	25	35	29	16	15	21	28	28	17	32	28	36	16	35	45	56	14	16	37	342	24	24.9
7-Apr	344	350	291	171	214	228	225	230	240	233	245	238	226	225	242	283	261	255	228	206	204	228	238	206	237.6
8-Apr	187	200	216	186	136	177	168	173	169	183	254	243	235	221	214	201	190	195	201	158	195	196	169	171	199.1
9-Apr	171	185	166	173	179	185	230	229	268	301	297	303	275	264	279	271	277	282	279	263	261	258	261	264	260.8
10-Apr	264	272	281	280	292	305	318	320	318	323	320	319	313	340	343	341	12	39	62	105	144	186	187	187	318.7
11-Apr	185	191	188	187	185	191	185	180	197	200	195	208	195	187	201	192	202	181	181	143	140	148	152	162	185.5
12-Apr	157	168	182	173	150	142	135	147	144	143	143	178	185	245	288	276	267	258	202	190	203	217	224	223	187.2
13-Apr	240	238	244	235	237	245	251	260	275	283	290	299	287	285	290	285	287	302	314	296	245	246	248	241	269.3
14-Apr	243	235	232	226	214	216	204	219	244	242	246	249	260	256	262	246	255	243	233	164	171	174	172	185	236.0
15-Apr	174	187	192	190	186	182	183	203	217	213	36	35	35	29	34	65	80	83	72	69	47	7	336	321	87.0
16-Apr	329	339	326	324	327	328	324	325	335	348	359	7	13	358	5	2	8	360	7	1	356	358	0	4	354.1
17-Apr	5	1	358	351	353	345	347	343	348	16	10	6	13	359	353	358	7	12	9	14	18	19	16	17	4.2
18-Apr	3	2	3	5	9	18	14	5	11	20	20	6	2	1	25	16	16	19	22	32	20	25	18	18	13.5
19-Apr	29	28	16	33	229	234	277	7	337	320	308	9	298	317	330	315	315	332	307	245	254	257	256	249	308.6
20-Apr	240	242	246	256	254	252	254	266	271	268	275	255	250	251	241	247	244	236	244	224	197	205	208	193	247.7
21-Apr	189	208	200	177	165	167	166	165	138	137	154	153	123	124	182	131	149	212	229	252	243	259	278	239	177.2
22-Apr	217	220	220	215	241	245	264	301	7	339	9	21	30	3	15	10	345	9	41	134	42	60	98	92	6.4
23-Apr	126	43	148	35	36	43	51	64	54	61	66	57	42	76	44	153	118	80	91	105	105	133	146	74.3	
24-Apr	106	141	119	44	62	60	78	71	64	94	98	101	97	111	123	159	157	191	209	196	262	246	318	280	123.9
25-Apr	318	292	274	270	257	257	260	268	281	306	282	267	263	252	250	257	258	264	265	292	304	310	289	307	272.2
26-Apr	319	339	349	341	332	331	333	339	332	333	327	323	327	349	360	358	10	3	46	60	82	98	105	116	355.9
27-Apr	147	166	173	175	179	179	179	181	176	178	172	181	176	161	173	176	162	148	137	149	145	145	153	90	167.3
28-Apr	123	135	134	125	130	139	148	153	159	155	154	133	127	110	120	114	104	107	98	88	97	115	116	121	124.8
29-Apr	131	141	179	179	194	259	344	288	21	35	28	47	38	39	38	39	56	41	37	17	357	0	32	34	36.6
30-Apr	35	32	27	24	11	22	23	22	26	37	40	23	27	23	17	5	358	356	357	4	348	31	31	24	21.2

224.6 231.4 242.8 248.3 245.7 247.7 264.9 290.1 311.2 318.9 316.5 317.5 316.6 314.8 313.2 304.6 301.7 314.0 345.8 6.2 270.4 240.4 231.2 227.2

Diurnal Average

M - Maintenance DF - DAS Failure

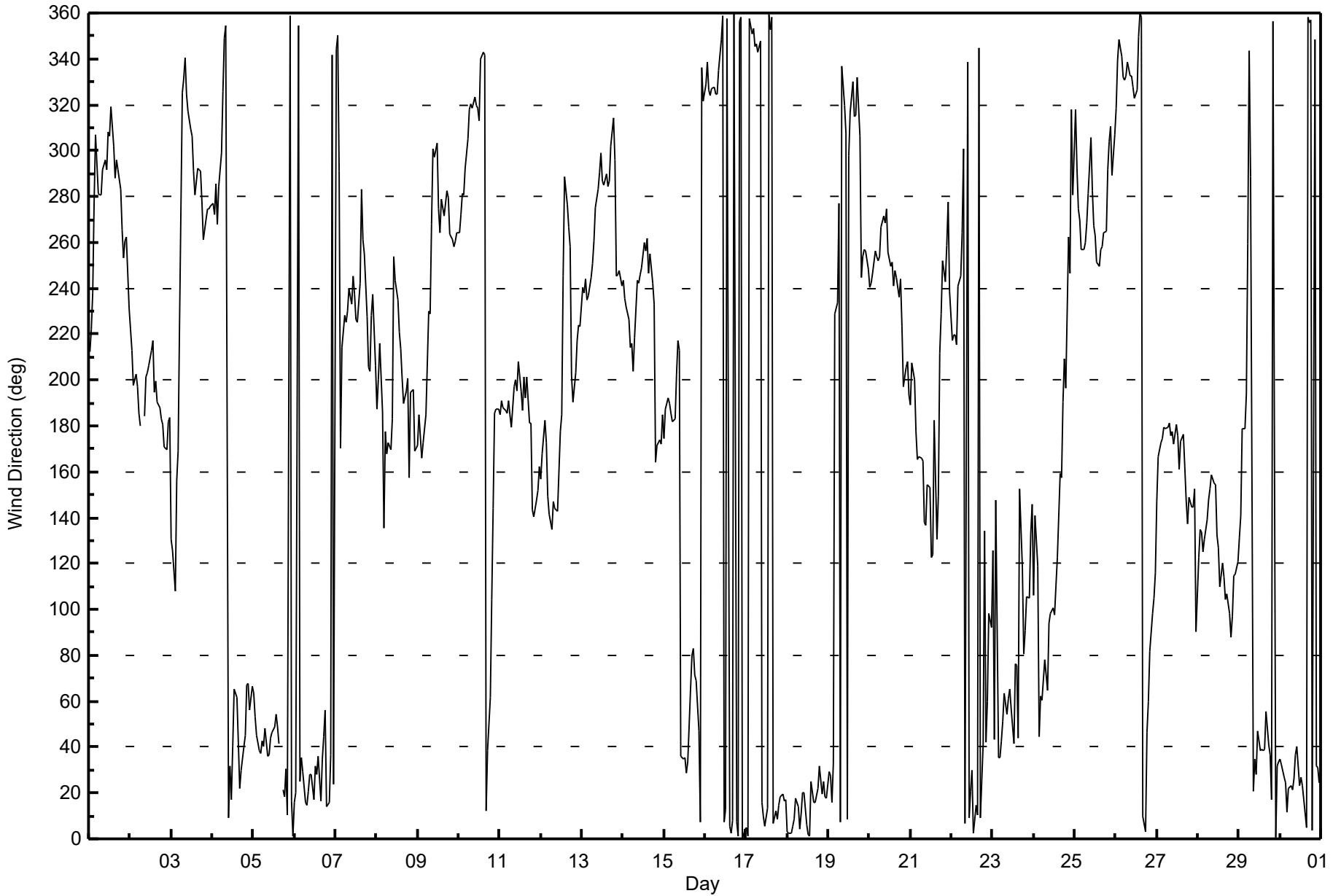
All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 104 deg on Apr 23 14:00 Minimum Value: 7 deg on Apr 10 23:00 Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 18 Q <sub>1</sub> = 27 Median = 37 Q <sub>3</sub> = 44 P <sub>90</sub> = 51 P <sub>99</sub> = 82																			Hours in Service: 720 Hours of Data: 718 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7																								
Day	Hourly Period Ending At (MST)																								Daily Maximum																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																			
1-Apr	26	25	22	42	43	31	30	35	36	38	37	42	41	48	45	43	41	41	31	16	11	20	21	11	48																		
2-Apr	17	16	11	16	19	20	19	M	36	31	31	31	30	30	34	33	38	44	38	35	31	26	22	23	44																		
3-Apr	83	65	30	35	52	51	64	44	43	45	41	40	40	38	40	39	39	44	35	19	21	24	25	22	83																		
4-Apr	23	21	27	31	40	37	42	42	47	47	43	52	47	35	39	38	38	42	29	37	24	22	23	27	52																		
5-Apr	27	24	24	25	26	24	27	24	30	30	26	26	28	28	29	33	DF	42	41	36	48	44	42	38	48																		
6-Apr	41	38	41	38	33	38	41	42	41	38	43	42	37	45	40	41	31	28	31	45	33	41	59	39	59																		
7-Apr	61	58	38	56	40	16	21	19	14	21	18	25	30	36	26	39	30	28	18	17	14	20	16	28	61																		
8-Apr	7	16	23	35	26	17	24	26	34	35	43	31	36	35	33	34	36	36	28	33	38	24	22	28	43																		
9-Apr	33	43	24	15	16	13	32	17	35	37	41	45	37	41	45	33	37	34	36	21	14	13	19	27	45																		
10-Apr	25	26	33	33	34	40	44	43	45	47	48	46	43	45	51	47	49	32	29	30	18	8	7	9	51																		
11-Apr	12	14	15	17	18	19	23	26	31	37	44	39	52	46	37	40	35	41	49	44	54	47	47	46	54																		
12-Apr	45	48	38	38	43	43	40	47	44	44	46	48	50	49	40	38	36	27	29	26	29	22	22	22	50																		
13-Apr	18	19	16	19	19	18	17	25	35	39	39	39	39	40	39	39	40	37	44	46	40	13	14	13	46																		
14-Apr	12	14	15	15	16	17	17	21	25	26	27	28	34	34	31	36	37	25	33	20	14	15	17	31	37																		
15-Apr	18	23	29	28	26	30	31	31	31	57	40	32	35	35	37	32	30	31	26	34	24	48	48	45	57																		
16-Apr	44	54	44	42	46	42	41	51	46	45	42	44	43	42	43	42	30	45	50	45	40	43	40	43	54																		
17-Apr	44	44	43	44	43	43	41	41	48	45	45	47	46	44	51	50	44	44	47	42	41	45	43	43	51																		
18-Apr	42	42	40	40	45	45	44	46	45	43	43	46	48	46	43	46	44	44	41	37	39	35	43	36	48																		
19-Apr	27	33	44	57	104	26	47	42	55	71	82	75	67	76	71	59	59	55	76	30	10	9	9	11	104																		
20-Apr	13	13	13	13	11	11	17	30	31	35	39	34	31	36	33	35	30	30	22	18	17	21	23	24	39																		
21-Apr	26	24	30	29	35	29	33	42	43	41	41	48	50	69	68	64	96	38	26	14	14	17	29	47	96																		
22-Apr	89	73	66	47	19	11	24	56	55	66	52	58	45	53	52	54	50	46	32	66	97	29	19	18	97																		
23-Apr	43	58	81	41	21	17	20	25	28	31	35	43	59	104	66	101	72	51	20	21	19	20	37	38	104																		
24-Apr	25	35	56	16	16	19	28	30	27	31	30	31	34	38	38	43	45	44	47	50	28	58	86	70	86																		
25-Apr	35	34	23	21	14	16	25	36	36	44	39	35	33	27	30	27	27	36	34	36	35	39	33	42	44																		
26-Apr	42	44	43	46	40	42	44	46	48	55	49	57	59	59	56	58	53	49	30	21	21	18	22	33	59																		
27-Apr	42	37	27	25	23	27	27	38	35	38	37	40	41	44	44	46	41	46	47	48	43	45	47	66	66																		
28-Apr	35	60	45	42	38	38	36	39	41	43	49	43	44	41	43	45	38	34	25	24	24	34	32	44	60																		
29-Apr	65	39	30	35	63	71	56	76	53	40	36	33	34	43	46	38	32	35	32	45	39	43	36	38	76																		
30-Apr	34	37	39	38	42	39	36	38	37	32	30	37	35	39	40	41	39	42	41	45	38	61	48	35	61																		
																			89	73	81	57	104	71	64	76	55	71	82	75	67	104	71	101	96	55	76	66	97	61	86	70	
Diurnal Maximum																																											
M - Maintenance      DF - DAS Failure																																											



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS29  
SURMONT 2  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT2 (AMS29)  
 APRIL 2024

MONTHLY SUMMARY

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	683	35	37	99.72	5.7	0	1.3	0
H2S (ppb) Average	683	36	37	99.86	0.7	0	0.1	0
THC(ppm) Average	683	35	37	99.72	3	-	2.5	-
NO2 (ppb) Average	683	35	37	99.72	9.7	0	2.5	-
NO (ppb) Average	683	35	37	99.72	3.4	-	1.1	-
NOX (ppb) Average	683	35	37	99.72	13	-	2.9	-
PM2.5 (ug/m3) Average	717	2	3	99.86	31.5	0	7	0
Temperature 2 m (C) Average	720	0	0	100	17.7	-	8.5	-
Relative Humidity (%) Average	720	0	0	100	99.7	-	95.9	-
Wind Speed 10 m (km/h) Average	691	0	29	95.97	19	-	12	-
Wind Direction 10 m (deg) Average	691	0	29	95.97	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	683	0.27	0.5	-	0	0	0	0.1	0.3	0.7	5.7
H2S (ppb) Average	683	0.06	0.1	-	0	0	0	0.1	0.1	0.1	0.7
THC (ppm) Average	683	2.29	0.1	-	2.1	2.2	2.2	2.3	2.3	2.4	3
NO2 (ppb) Average	683	1.24	1	-	0.2	0.4	0.5	1	1.6	2.4	9.7
NO (ppb) Average	683	0.31	0.4	-	0	0	0	0.1	0.4	0.9	3.4
NOX (ppb) Average	683	1.54	1.3	-	0.3	0.4	0.6	1.2	2	3.2	13
PM2.5 (ug/m3) Average	717	2.98	2.5	-	0.1	1.2	1.7	2.5	3.5	4.8	31.5
Temperature 2 m (C) Average	720	3.86	5.8	-	-13.5	-3	-0.3	3.1	7.7	12.7	17.7
Relative Humidity (%) Average	720	60.72	27	-	11.3	23.6	35.2	63	86.8	95.7	99.7
Wind Speed 10 m (km/h) Average	691	6.6	4	-	0	2	3	6	9	12	19
Wind Direction 10 m (deg) Average	691	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, SO2, THC	15 Apr 2024 13:00	15 Apr 2024 13:00	1	Maintenance - sample manifold cleaned
AIR QUALITY ANALYZERS	17 Apr 2024 14:00	17 Apr 2024 14:00	1	Station power failure
Wind Speed, Wind Direction	16 Apr 2024 13:00	17 Apr 2024 12:00	24	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Apr 2024 02:00	22 Apr 2024 06:00	5	Flat line in sensor output signal

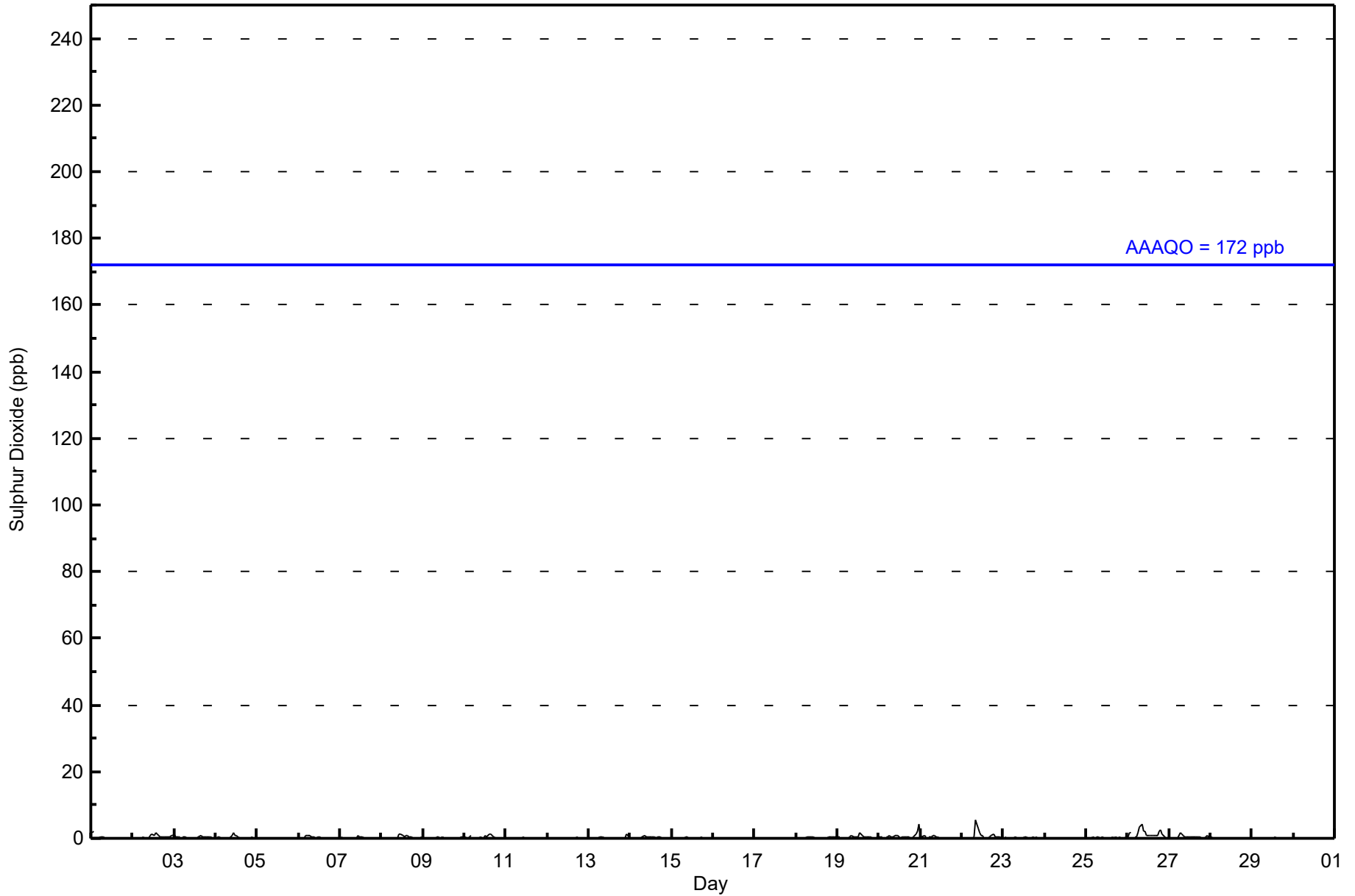


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 720																	Daily Average		Daily Maximum				
Maximum Value: 5.7 ppb on Apr 22 09:00		Maximum Daily Average: 1.3 ppb on Apr 26																	Hours of Data: 683		Hours of Missing Data: 37						
Minimum Value: 0.0 ppb on Apr 1 16:00		Minimum Daily Average: 0.0 ppb on Apr 30																	Hours of Calibration: 35		Percent Operational Time: 99.7						
Maximum Diurnal Average: 0.6 ppb at hour 9		Minimum Diurnal Average: 0.1 ppb at hour 4																									
Monthly Average: 0.27 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 2.2																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	1.7	2.2	Z	0.2	0.2	0.6	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2	
2-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.4	0.1	0.1	0.1	0.8	1.3	0.7	1.7	1.3	0.6	0.4	0.2	0.3	0.4	0.4	0.4	0.6	0.9	0.5	1.7	
3-Apr	1.1	0.3	0.4	0.3	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.6	0.7	0.6	0.5	0.5	0.5	0.4	0.3	0.1	0.2	0.4	1.1	
4-Apr	0.2	0.3	0.4	0.2	0.1	Z	0.0	0.0	0.0	1.0	1.7	0.7	0.8	0.3	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.3	1.7	
5-Apr	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	
6-Apr	0.0	Z	0.0	0.0	0.9	0.8	0.7	0.5	0.3	0.3	0.1	0.4	0.4	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	
7-Apr	0.1	0.3	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.8	0.3	0.6	0.6	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.8	
8-Apr	0.0	0.0	0.0	Z	0.0	0.2	0.0	0.1	0.1	0.1	1.1	1.4	0.7	0.4	0.7	0.7	0.5	0.3	0.2	0.1	0.1	0.0	0.2	0.3	0.3	1.4	
9-Apr	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.3	0.2	0.2	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.1	0.6	
10-Apr	0.2	0.1	0.1	0.3	0.8	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.7	0.5	1.3	1.4	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.3	1.4	
11-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
12-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	
13-Apr	0.0	0.1	Z	0.2	0.2	0.2	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	1.1	0.3	0.2	1.1	
14-Apr	0.2	0.1	0.1	Z	0.2	0.1	0.0	0.5	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.0	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.6	
15-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.2	0.3	0.0	0.0	M	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	
16-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	
17-Apr	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	PF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-Apr	0.0	Z	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.3	0.4	0.5	0.2	0.5	
19-Apr	0.5	0.3	Z	0.1	0.1	0.2	0.1	0.5	0.9	0.5	0.3	0.2	0.6	1.7	0.9	0.6	0.5	0.4	0.4	0.3	0.1	0.1	0.2	0.4	0.4	1.7	
20-Apr	0.4	0.4	0.3	Z	0.3	0.4	0.6	0.6	0.3	1.0	0.7	0.9	0.2	0.2	0.4	0.3	0.3	0.2	0.2	0.1	0.2	1.2	2.0	4.4	0.7	4.4	
21-Apr	0.9	0.4	0.9	0.4	Z	0.2	0.3	0.7	0.9	0.5	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.3	0.9	
22-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.3	5.7	2.9	1.5	1.1	0.7	0.2	0.2	0.2	0.6	1.1	1.4	0.5	0.4	0.3	0.2	0.2	0.8	5.7	
23-Apr	Z	0.4	0.2	0.1	0.2	0.0	0.1	0.4	0.2	0.1	0.0	0.1	0.6	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.2	0.6	
24-Apr	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	
25-Apr	0.1	0.1	Z	0.2	0.3	0.2	0.3	0.5	0.2	0.5	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.1	0.4	0.0	0.0	0.1	0.6	0.2	0.6	
26-Apr	0.5	1.8	1.8	Z	0.3	0.3	1.7	3.5	4.3	2.3	1.9	0.7	0.8	1.0	0.8	0.8	0.8	1.0	2.0	2.5	1.2	0.6	0.1	0.1	1.3	4.3	
27-Apr	0.2	0.1	0.1	0.1	Z	0.2	1.6	1.5	1.0	0.4	0.5	0.5	0.3	0.3	0.4	0.4	0.6	0.3	0.3	0.2	0.2	0.6	0.8	0.3	0.5	1.6	
28-Apr	0.4	0.2	0.1	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.4	
29-Apr	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.5	
30-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
		0.3	0.3	0.2	0.1	0.2	0.2	0.3	0.4	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	Diurnal Average	
		1.7	2.2	1.8	0.4	0.9	0.8	1.7	3.5	5.7	2.9	1.9	1.4	0.8	1.7	1.3	1.4	1.0	1.1	2.0	2.5	1.2	1.2	2.0	4.4	Diurnal Maximum	
Z - zerospan		C - Calibration		M - Maintenance		PF - Power Failure																					
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 172 ppb		24-hr 48 ppb																							



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Surmont 2 - April 2024







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	683	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: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	65	43	11	10	28	47	49	20	18	25	68	50	80	41	36	65	656
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>	65	43	11	10	28	47	49	20	18	25	68	50	80	41	36	65	656

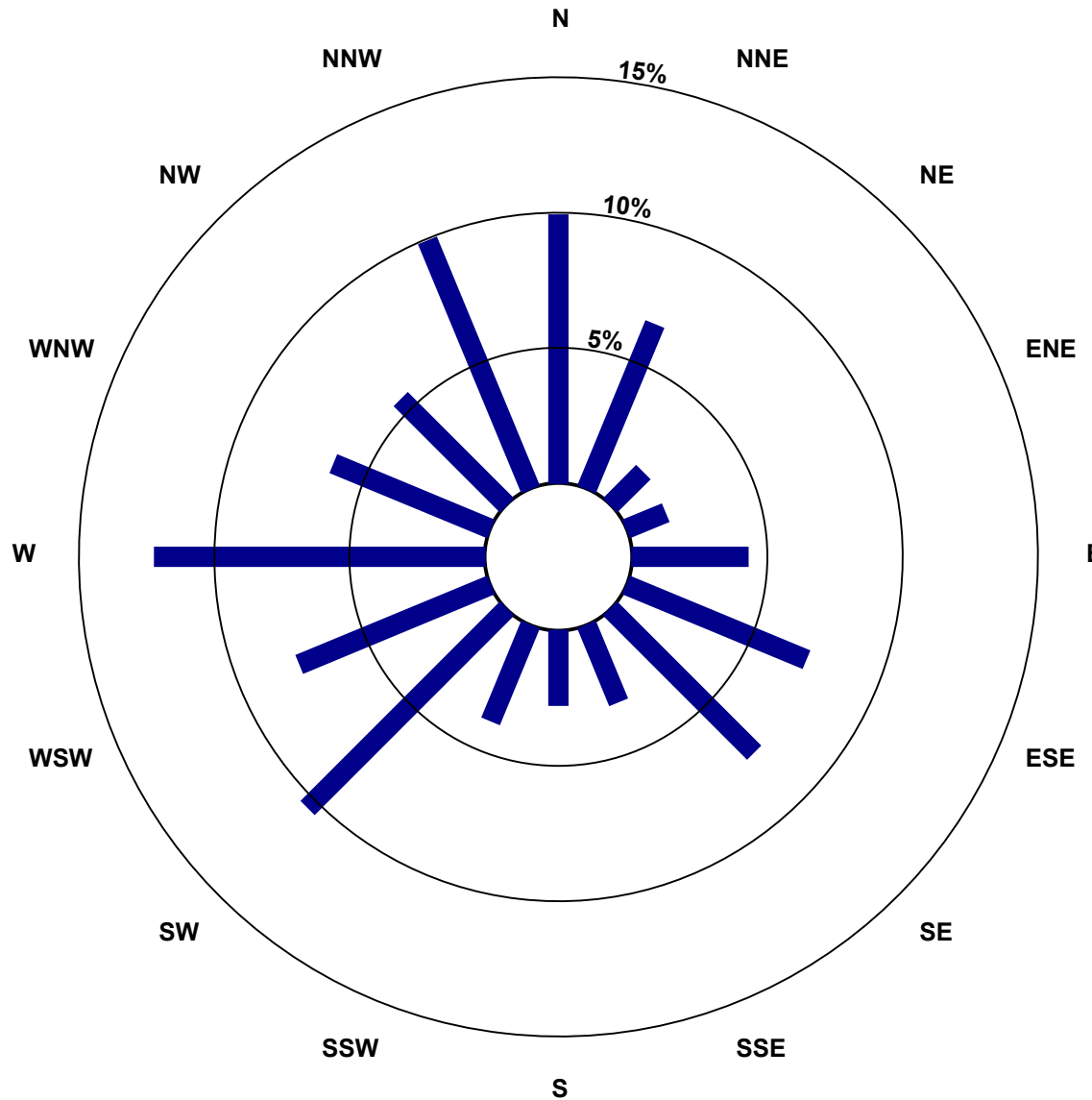
Total Number of Valid Hours: 656

Total Number of Hours: 720

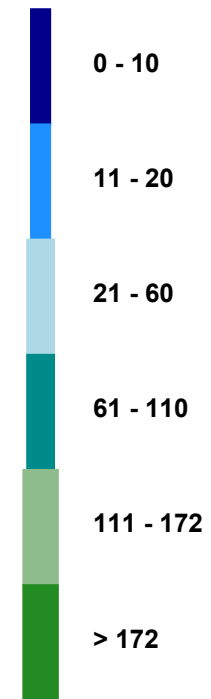


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

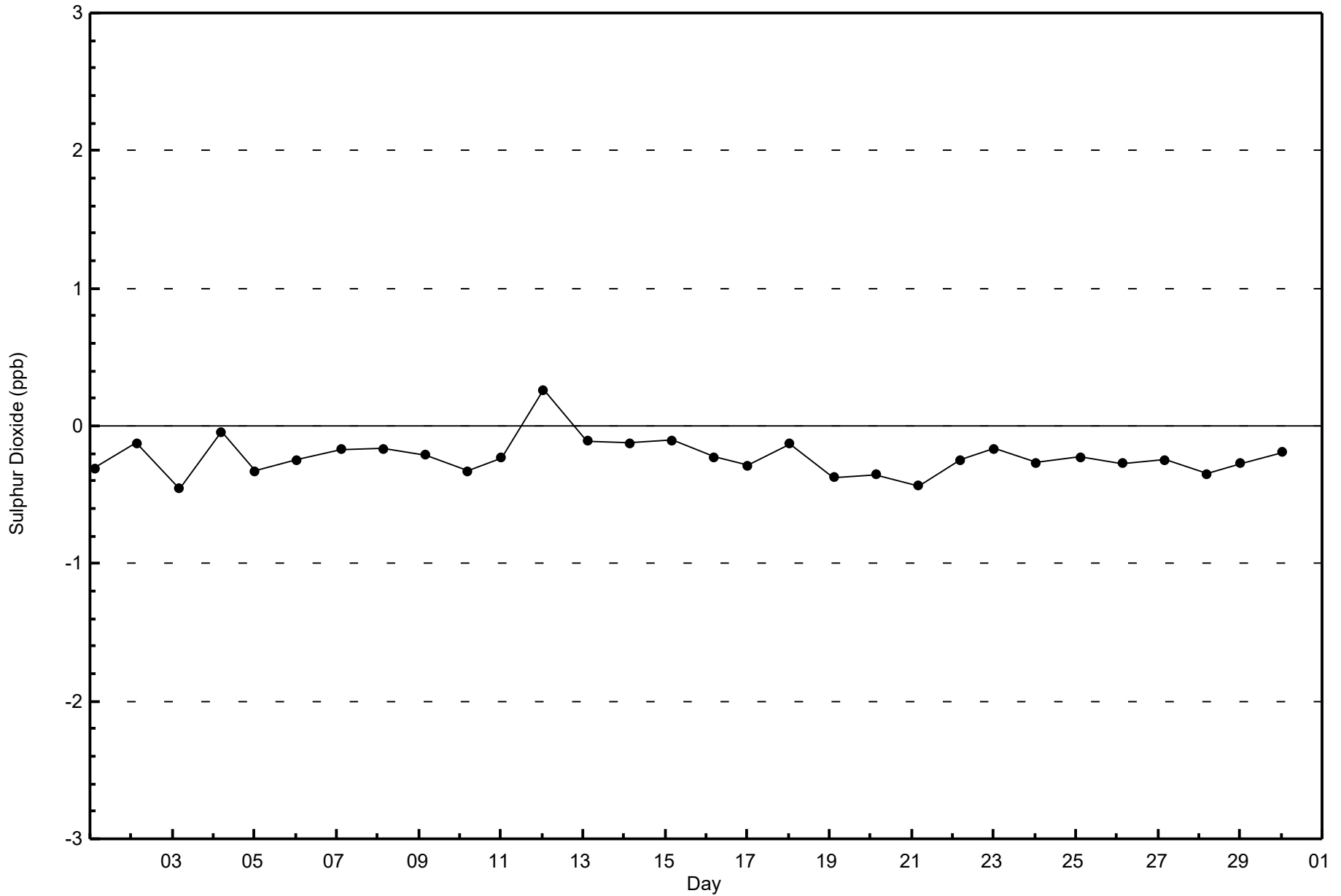
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Surmont 2

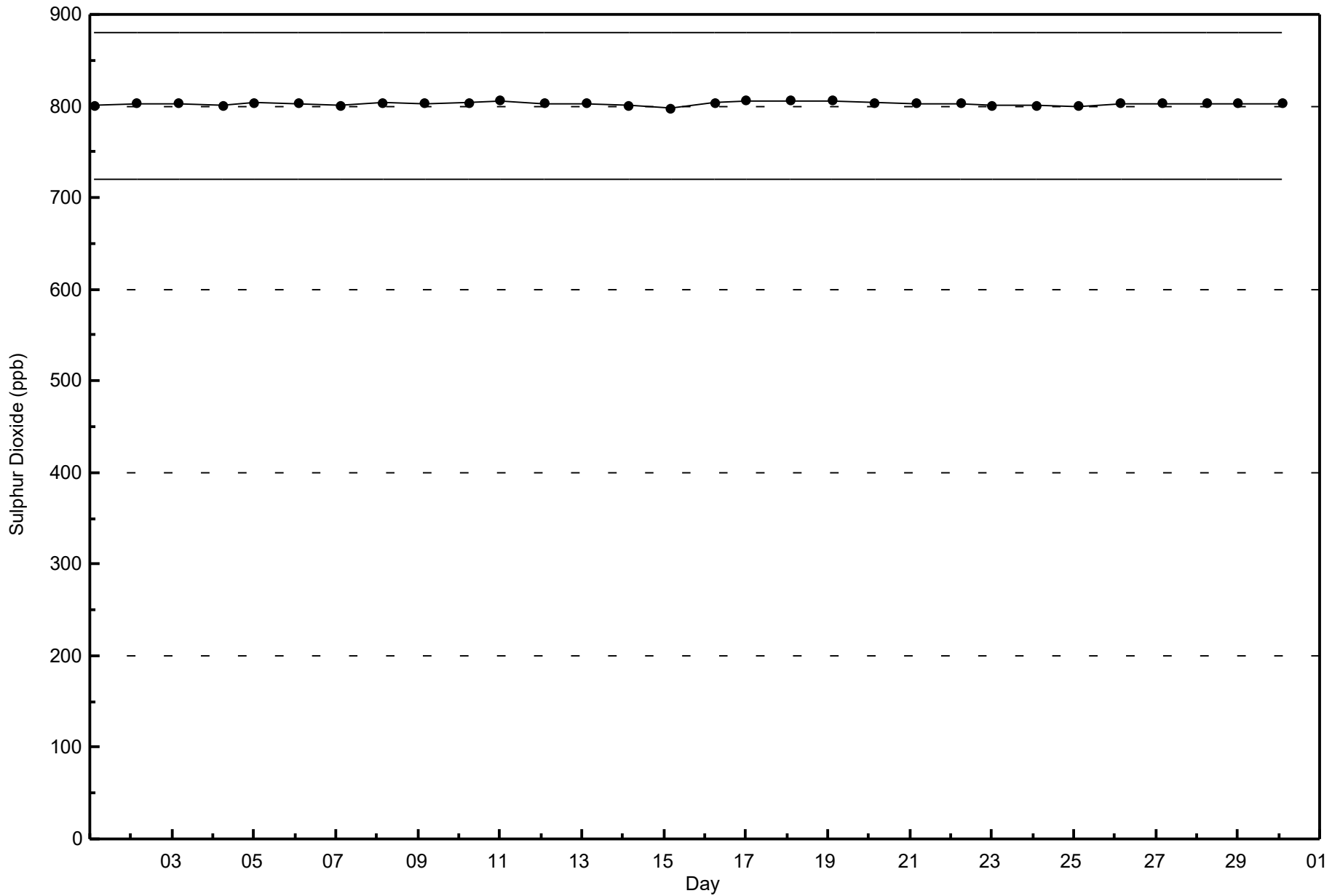


Classes (ppb)



Total Number of Valid Hours: 656



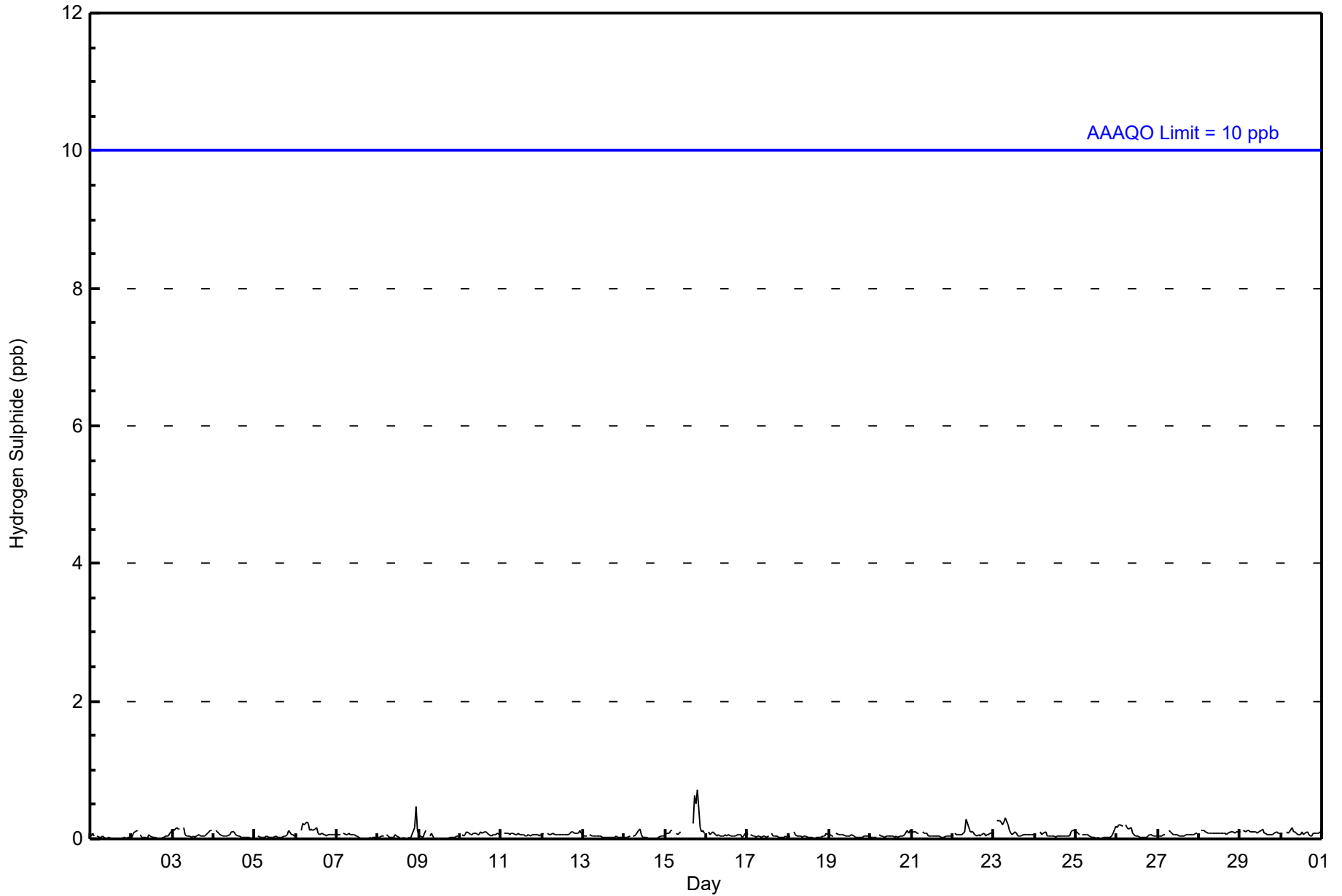






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Surmont 2 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	683	100.00	100.00
3 - 4	0	0.00	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: 683

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Surmont 2 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	65	40	10	10	27	55	51	20	20	23	64	50	78	43	36	63	655
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	65	40	10	10	27	55	51	20	20	23	64	50	78	43	36	63	655

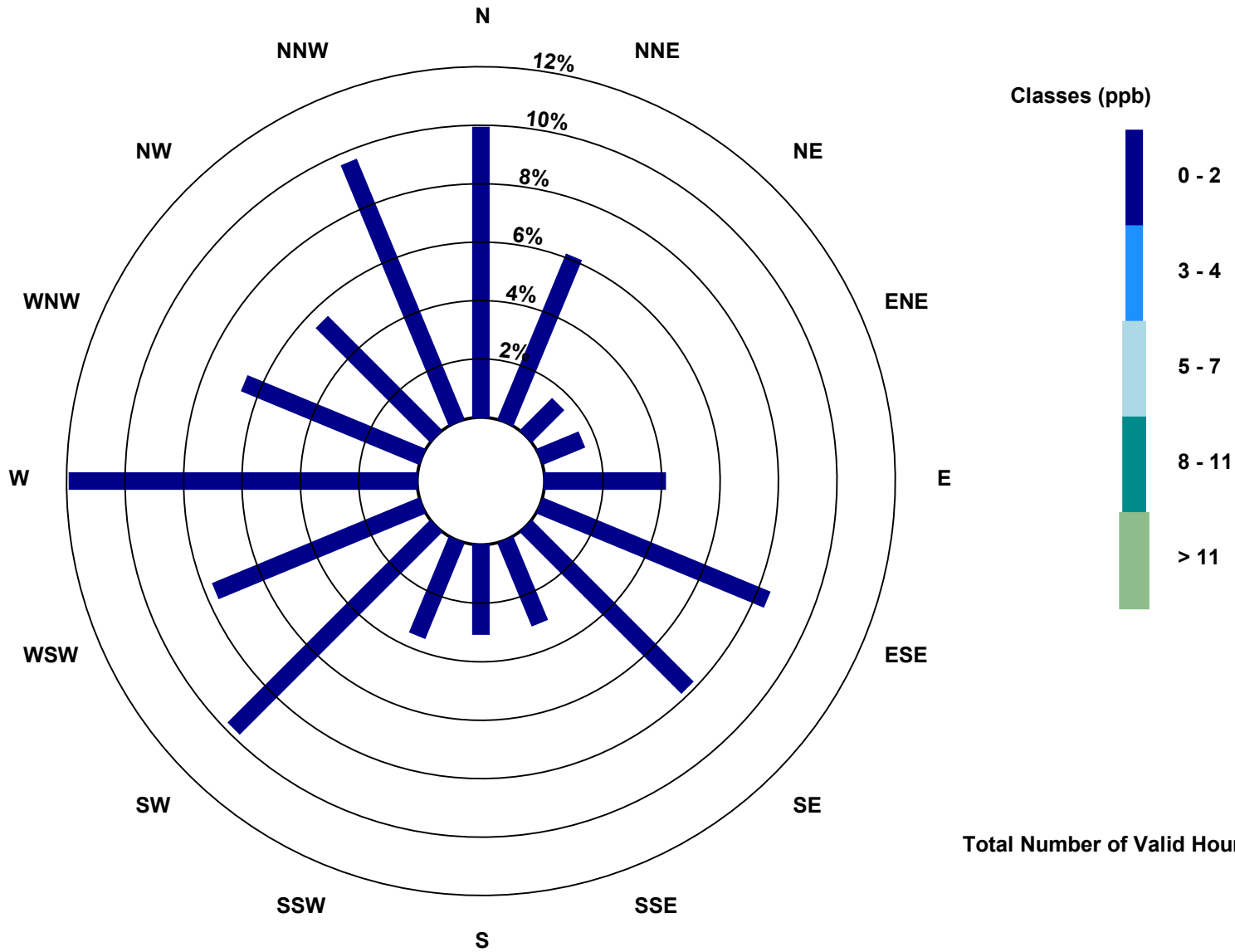
Total Number of Valid Hours: 655

Total Number of Hours: 720

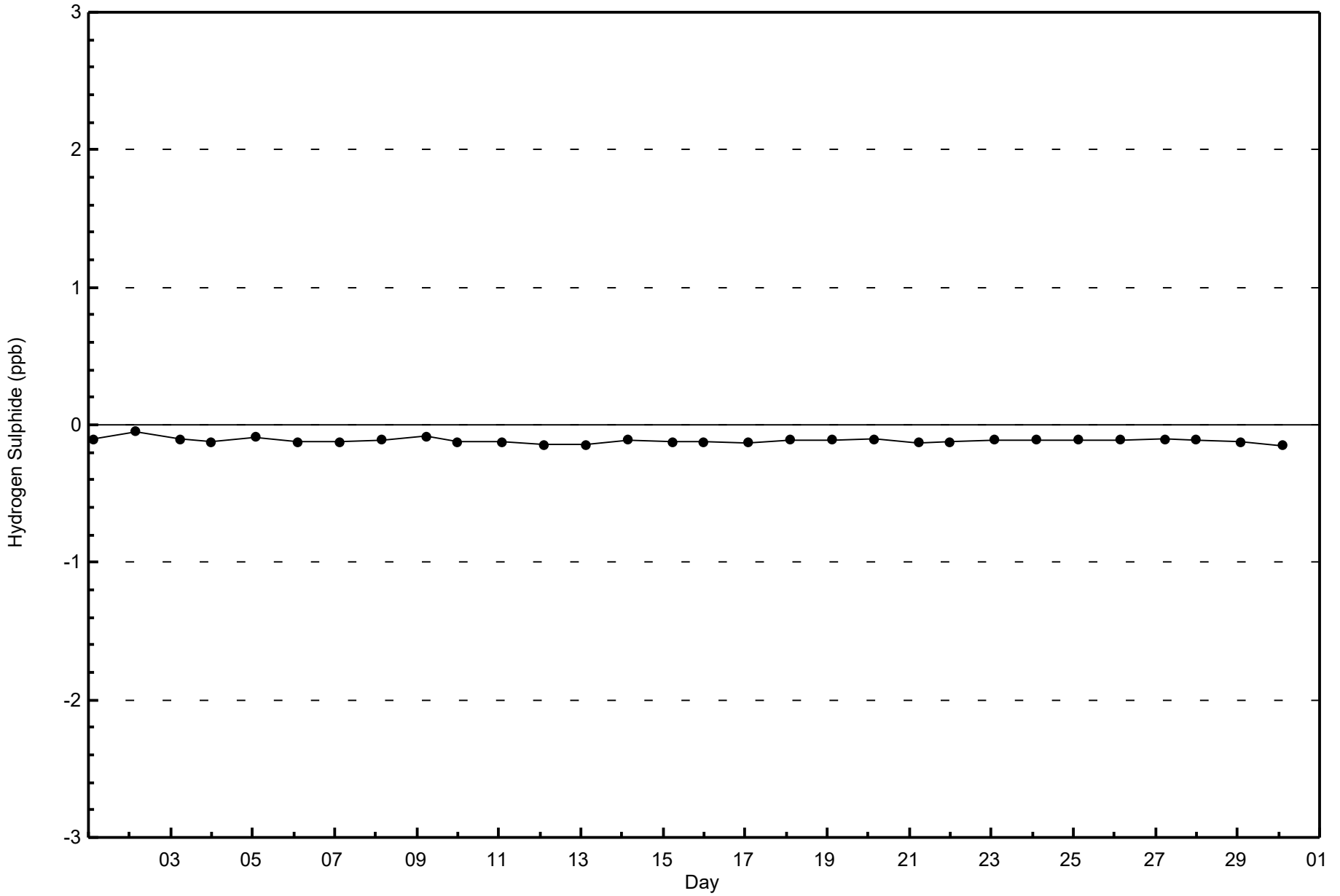


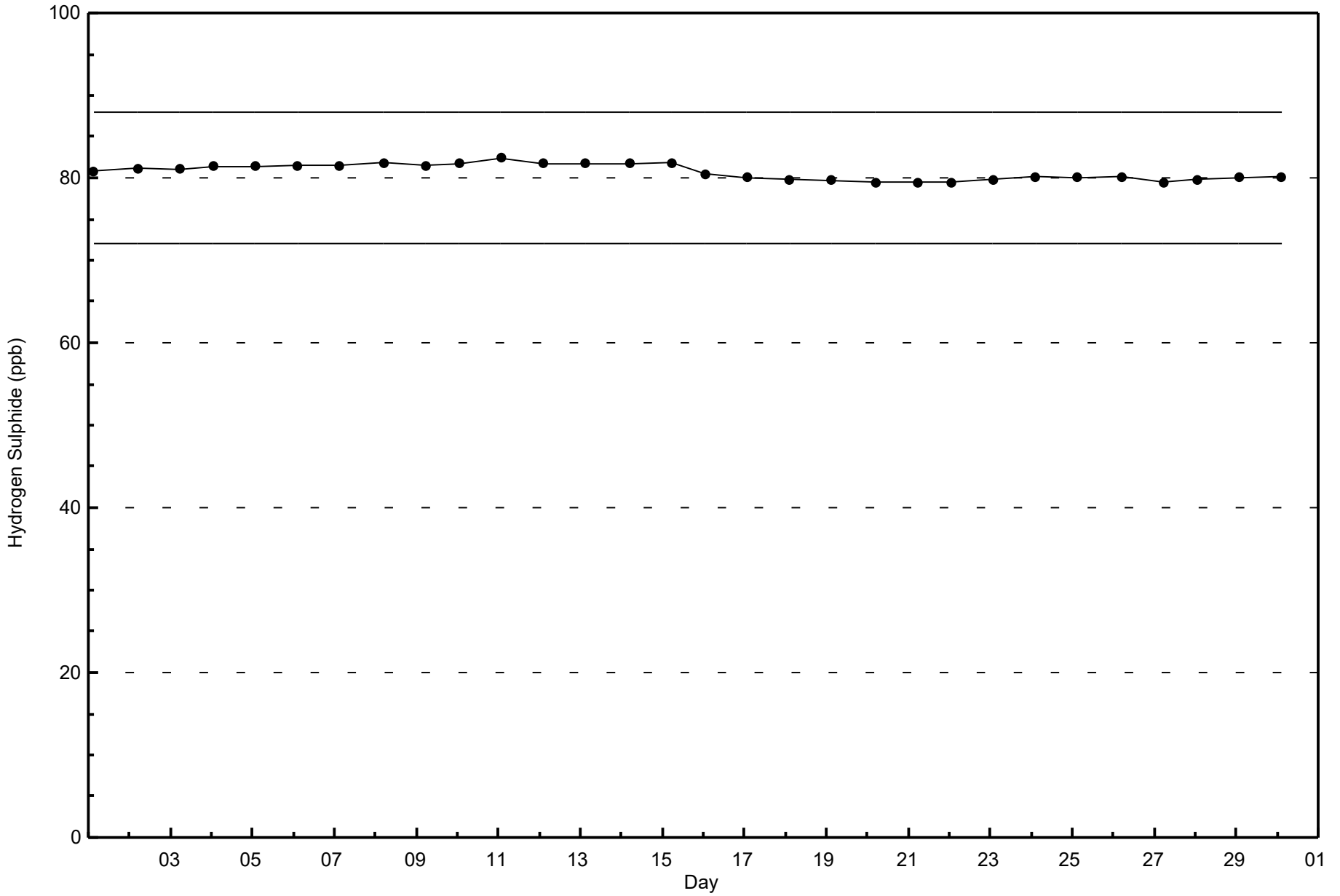
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 655







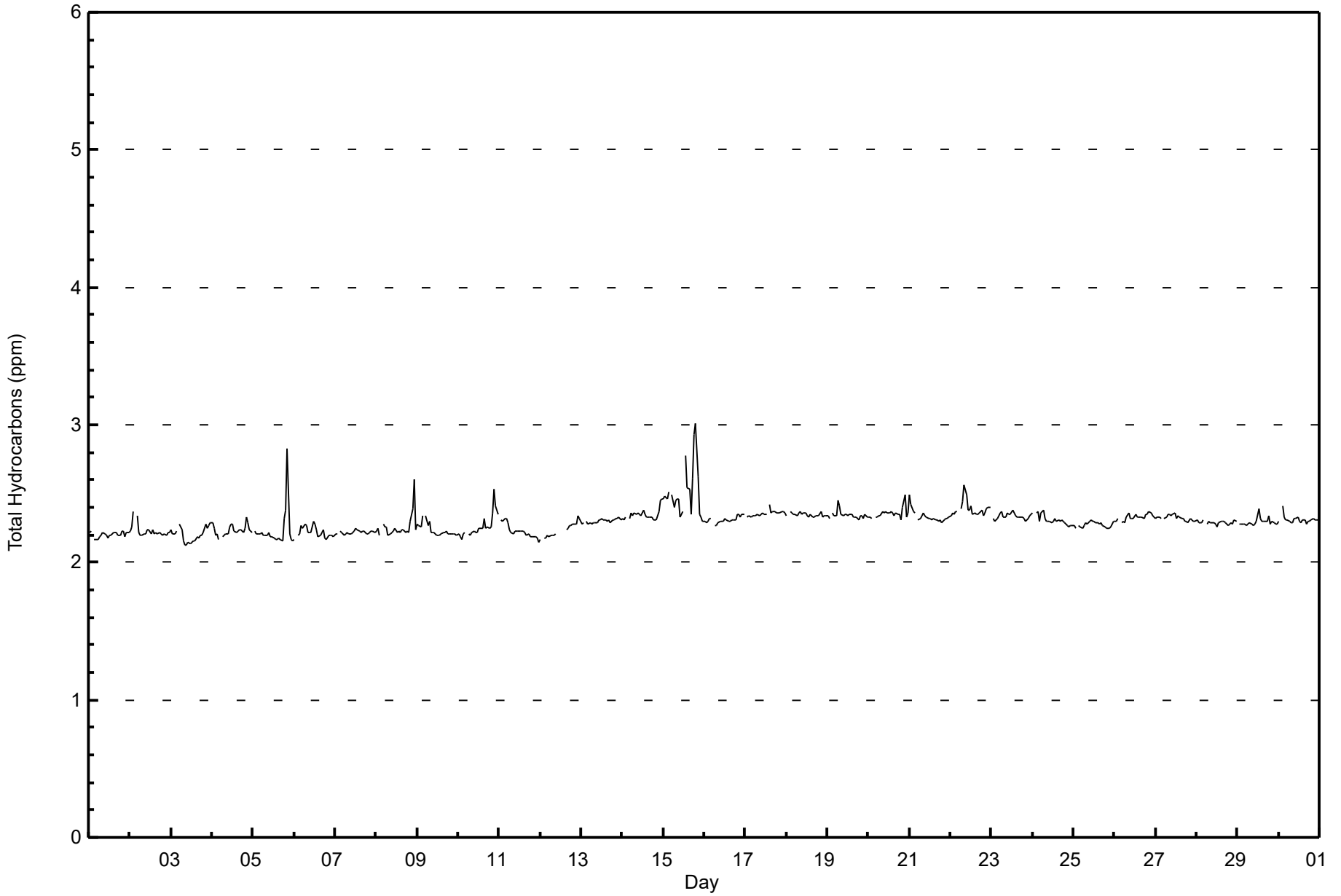
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Surmont 2 - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.0 ppm on Apr 15 20:00 Maximum Daily Average: 2.5 ppm on Apr 15																			Hours in Service: 720 Hours of Data: 683																																
Minimum Value: 2.1 ppm on Apr 3 09:00 Minimum Daily Average: 2.2 ppm on Apr 3 Maximum Diurnal Average: 2.3 ppm at hour 21 Minimum Diurnal Average: 2.3 ppm at hour 17 Monthly Average: 2.29 ppm Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.2 Median = 2.3 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.6																			Hours of Missing Data: 37 Hours of Calibration: 35 Percent Operational Time: 99.7																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																											
1-Apr	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
2-Apr	2.2	2.3	2.4	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
3-Apr	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3																								
4-Apr	2.3	2.3	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2																								
5-Apr	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.8	2.2	2.2	2.2	2.2	2.2	2.2																								
6-Apr	2.2	Z	2.2	2.2	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
7-Apr	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
8-Apr	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.2	2.2	2.2	2.2																								
9-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
10-Apr	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.3	2.3	2.5																								
11-Apr	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3																								
12-Apr	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	C	C	C	C	C	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3																								
13-Apr	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
14-Apr	2.3	2.3	2.3	Z	2.3	2.4	2.3	2.4	2.3	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.3	2.3	2.5																								
15-Apr	2.5	2.5	2.5	2.5	Z	2.5	2.4	2.5	2.5	2.5	2.3	2.4	M	2.8	2.5	2.5	2.4	2.6	2.9	3.0	2.6	2.4	2.3	2.3	2.5	3.0																									
16-Apr	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.4																									
17-Apr	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	PF	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4																								
18-Apr	2.3	Z	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4																								
19-Apr	2.3	2.3	Z	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4																								
20-Apr	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.4	2.5	2.3	2.4	2.4	2.4	2.5																								
21-Apr	2.5	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5																								
22-Apr	2.3	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.6																								
23-Apr	Z	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4																								
24-Apr	2.4	Z	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																								
25-Apr	2.3	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
26-Apr	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4																								
27-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																								
28-Apr	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
29-Apr	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																								
30-Apr	2.3	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																								
																								2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	Dial Average	
																								2.5	2.5	2.5	2.5	2.4	2.5	2.4	2.5	2.6	2.5	2.4	2.4	2.4	2.8	2.5	2.5	2.4	2.6	2.9	3.0	2.8	2.5	2.6	2.5	2.5	2.5	2.5	Dial Maximum
Z - zerspan			C - Calibration			M - Maintenance			PF - Power Failure																																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	0	0.00	0.00
2.1 - 3.0	683	100.00	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - April 2024**

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	65	43	11	10	28	47	49	20	18	25	68	50	80	41	36	65	656
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>	65	43	11	10	28	47	49	20	18	25	68	50	80	41	36	65	656

Total Number of Valid Hours: 656

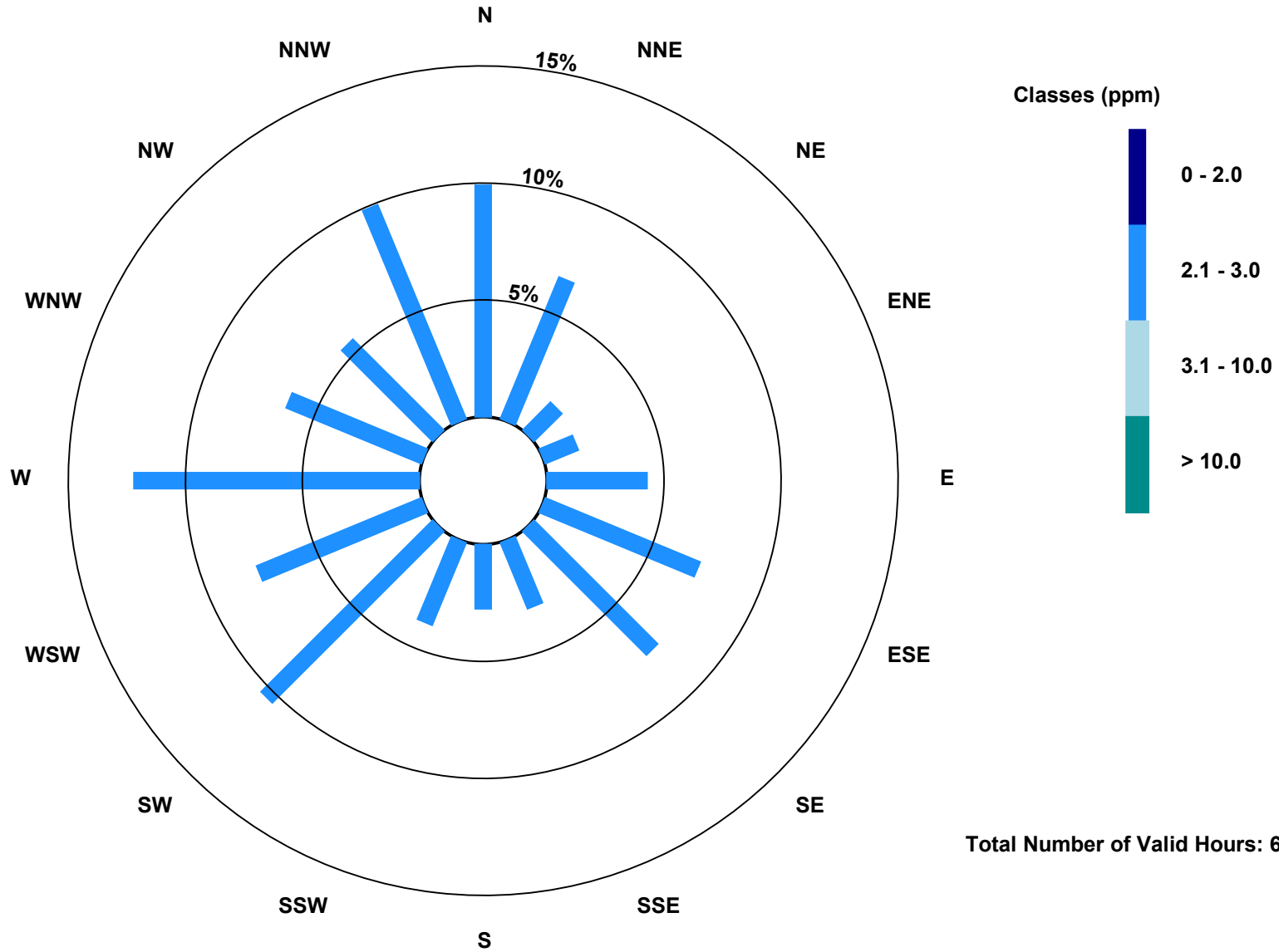
Total Number of Hours: 720

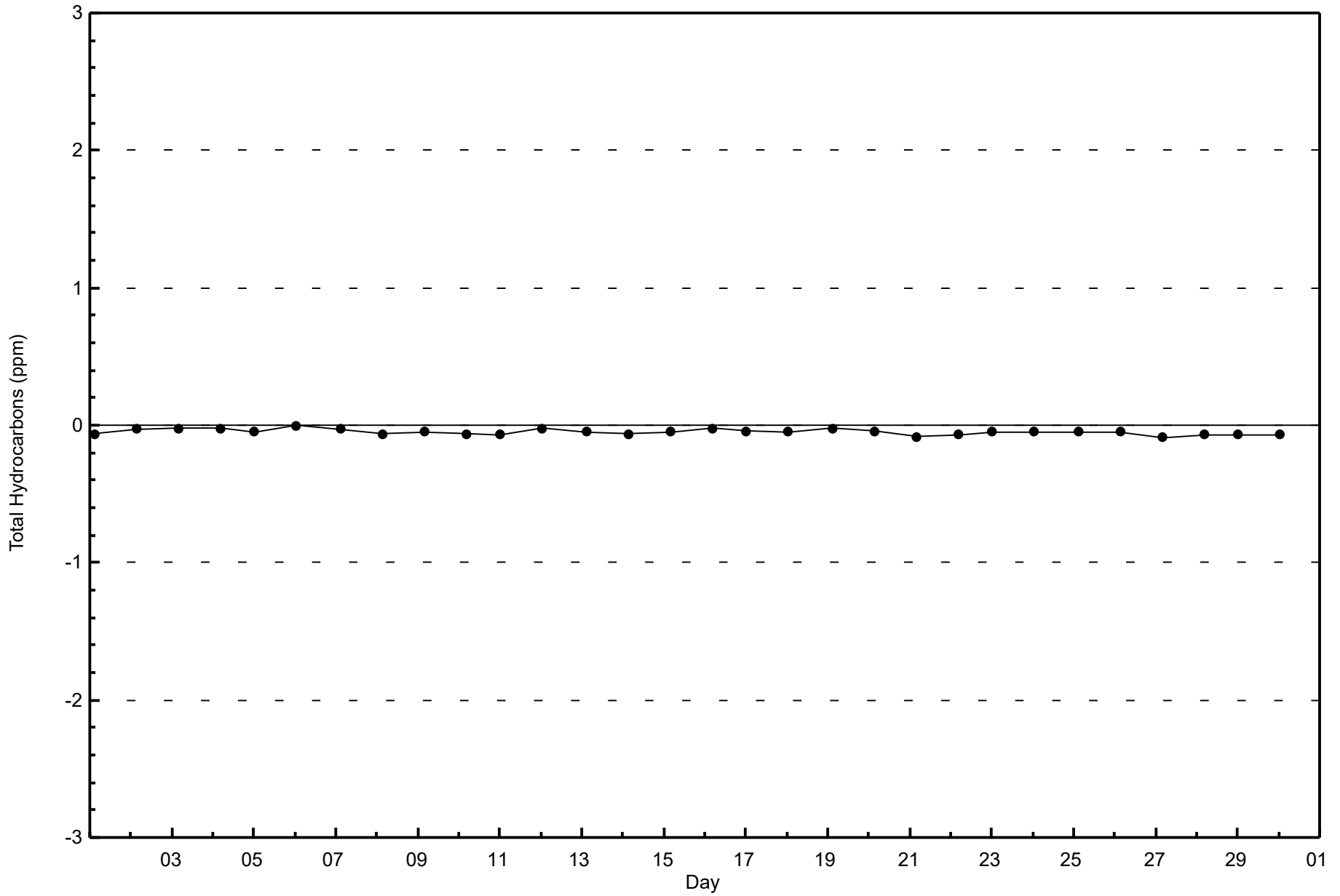


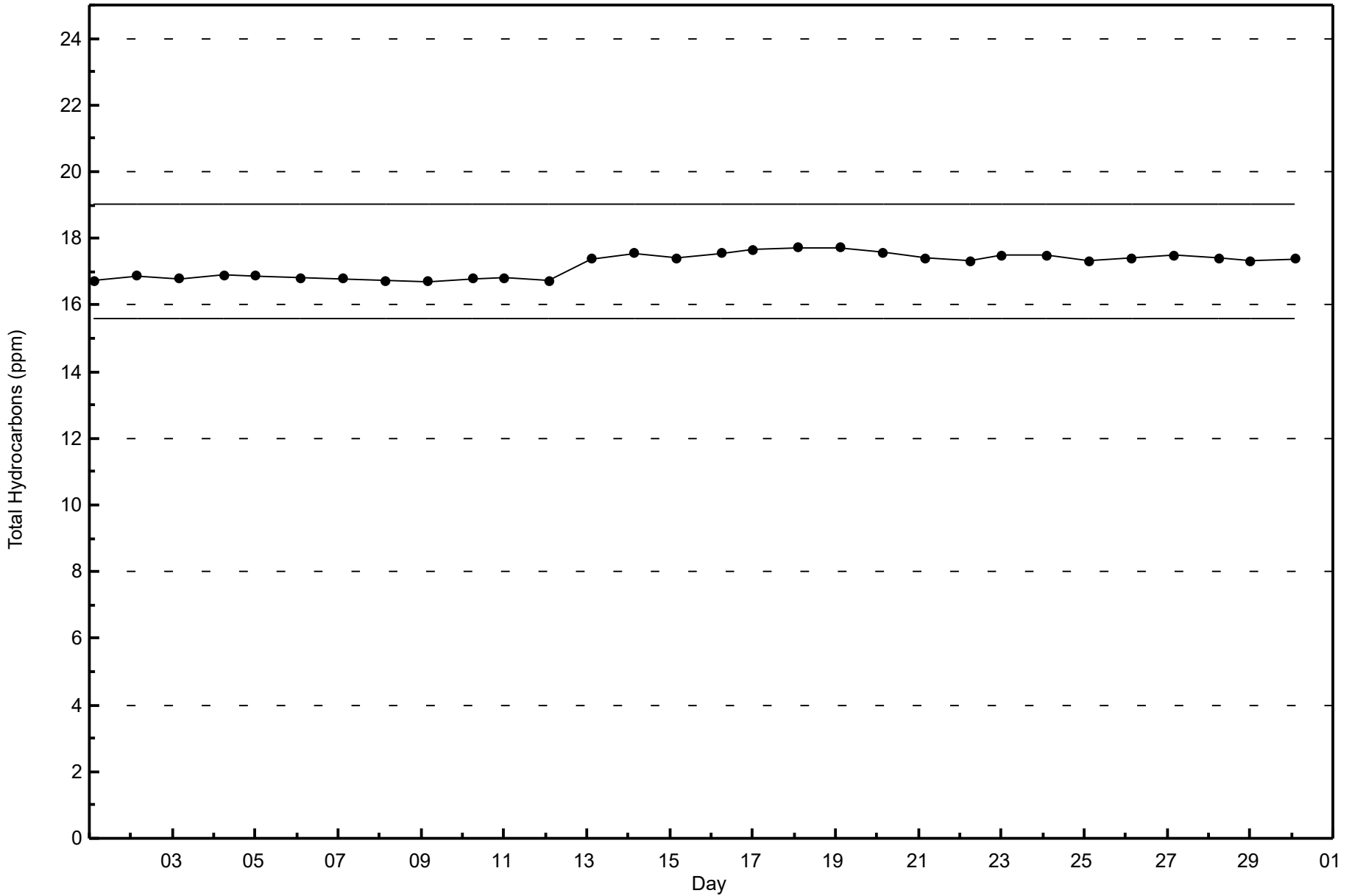


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Surmont 2









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

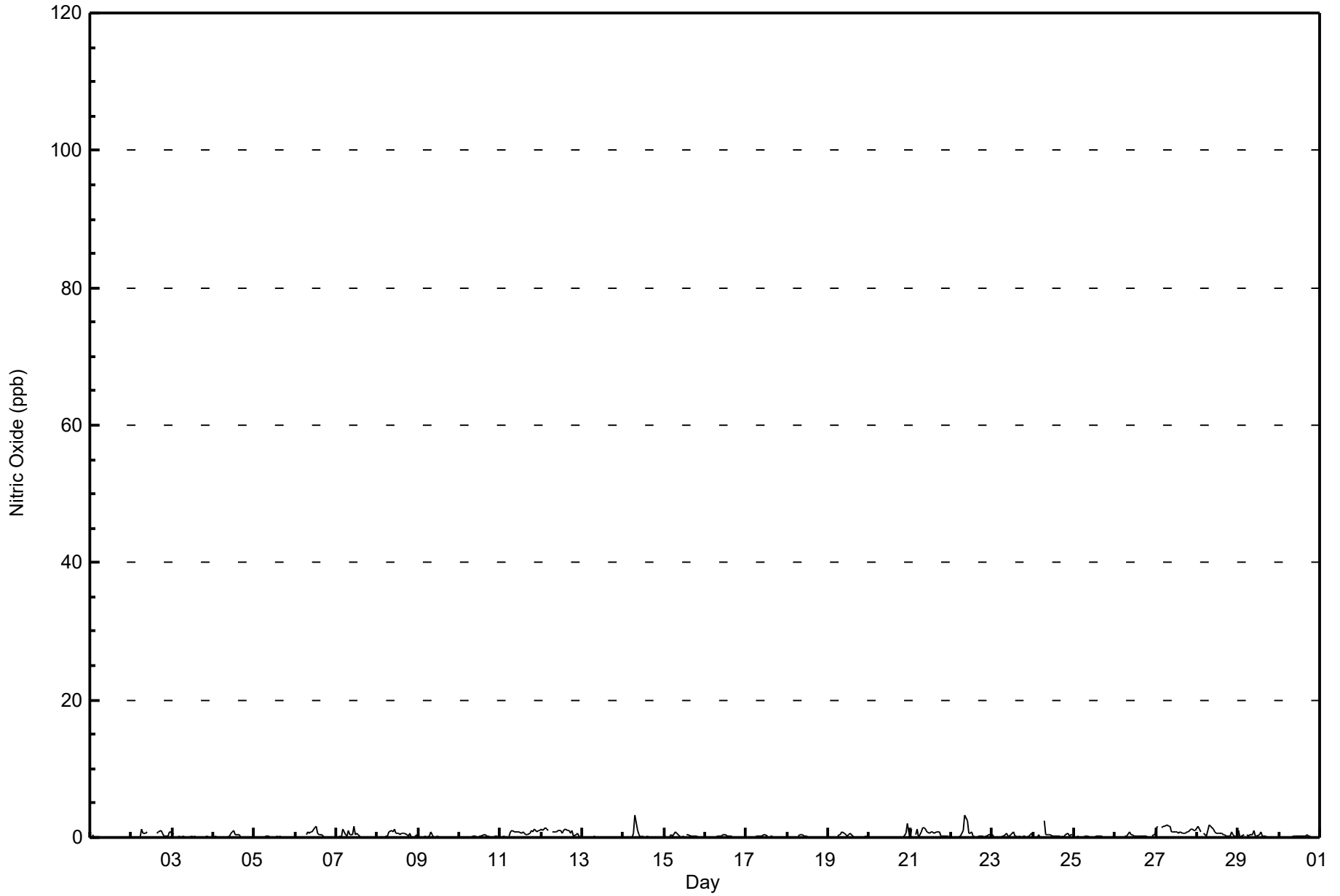
**Nitric Oxide (NO) - ppb**  
**Surmont 2 - April 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720																Daily Average		Daily Maximum																								
Maximum Value: 3.4 ppb on Apr 14 08:00		Maximum Daily Average: 1.1 ppb on Apr 27		Hours of Data: 683																Hours of Missing Data: 37		Hours of Calibration: 35		Percent Operational Time: 99.7																								
Minimum Value: 0.0 ppb on Apr 9 17:00		Minimum Daily Average: 0.0 ppb on Apr 13		Hours of Missing Data: 37																Hours of Calibration: 35		Percent Operational Time: 99.7																										
Maximum Diurnal Average: 0.6 ppb at hour 8		Minimum Diurnal Average: 0.1 ppb at hour 3		Hours of Calibration: 35																Hours of Calibration: 35		Percent Operational Time: 99.7																										
Monthly Average: 0.31 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.9 P <sub>99</sub> = 1.7		Hours of Calibration: 35																Hours of Calibration: 35		Percent Operational Time: 99.7																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Apr	Z	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																						
2-Apr	0.0	Z	0.1	0.1	0.1	0.1	1.1	0.6	0.7	0.9	C	C	C	C	C	0.6	0.8	1.0	0.6	0.3	0.1	0.2	0.9	0.8	0.5	1.1																						
3-Apr	0.5	0.6	Z	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.6																						
4-Apr	0.0	0.2	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.7	1.0	0.4	0.5	0.3	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	1.0																						
5-Apr	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.2																						
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.7	0.5	0.7	0.7	1.3	1.6	0.6	0.4	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.4	1.6																						
7-Apr	Z	0.1	0.2	0.1	1.2	0.4	0.2	1.0	0.5	0.4	1.7	0.5	0.6	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7																						
8-Apr	0.0	Z	0.0	0.1	0.0	0.3	0.3	0.9	1.0	0.9	1.2	0.7	0.5	0.3	0.6	0.6	0.5	0.5	0.2	0.6	0.0	0.1	0.3	0.4	0.4	1.2																						
9-Apr	0.0	0.0	Z	0.0	0.1	0.1	0.2	0.8	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																						
10-Apr	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
11-Apr	0.1	0.1	0.1	0.1	Z	0.2	0.7	1.1	0.9	0.8	0.8	0.9	0.7	0.8	0.7	0.5	0.4	0.6	1.1	0.8	1.2	0.9	1.1	1.0	0.7	1.2																						
12-Apr	1.2	1.0	1.5	1.2	1.0	Z	0.8	0.8	0.7	0.9	1.0	1.0	0.7	1.0	1.1	1.0	1.0	0.7	1.0	0.2	0.3	0.5	0.1	0.1	0.8	1.5																						
13-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
14-Apr	0.1	Z	0.0	0.0	0.0	0.0	0.7	3.4	1.1	0.4	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.3	3.4																						
15-Apr	0.0	0.2	Z	0.3	0.3	0.1	0.8	0.7	0.5	0.3	0.1	0.2	M	0.3	0.4	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.3	0.8																						
16-Apr	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.5	0.4	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																						
17-Apr	0.0	0.0	0.0	0.1	Z	0.0	0.1	0.2	0.3	0.2	0.4	0.5	0.2	PF	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.5																						
18-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.5	0.5	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																						
19-Apr	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.8	0.5	0.3	0.1	0.4	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.8																						
20-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.5	2.1	0.7	0.2	2.1																						
21-Apr	0.0	1.2	Z	0.4	1.1	0.0	0.8	1.4	1.4	1.2	0.8	0.7	0.9	0.7	0.7	0.8	0.7	0.7	0.2	0.2	0.2	0.2	0.1	0.0	0.6	1.4																						
22-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.6	1.0	3.3	2.5	0.7	0.6	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.3	0.4	0.5	3.3																						
23-Apr	0.5	0.0	0.0	0.0	Z	0.1	0.2	0.3	0.7	0.3	0.3	0.4	0.8	0.3	0.3	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.3	0.5	0.2	0.8																						
24-Apr	0.0	0.1	0.1	0.4	0.0	Z	2.4	0.4	0.5	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.3	0.1	0.3	0.6	0.3	0.3	0.4	0.4	2.4																						
25-Apr	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2																						
26-Apr	0.1	Z	0.0	0.0	0.0	0.0	0.2	0.3	0.8	0.5	0.5	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.5	0.3	0.2	0.8																						
27-Apr	1.2	1.6	Z	1.5	1.7	1.6	1.9	1.6	1.6	0.8	0.9	0.9	0.8	0.7	0.7	0.5	0.6	0.5	0.9	0.8	1.1	1.2	1.0	1.1	1.1	1.9																						
28-Apr	1.6	1.2	0.7	Z	0.6	0.2	1.0	1.7	1.7	1.2	0.7	0.6	0.6	0.7	0.6	0.4	0.4	0.3	0.2	0.3	0.8	0.4	0.1	0.1	0.7	1.7																						
29-Apr	1.0	0.1	0.1	0.4	Z	0.3	0.2	0.3	0.4	0.9	0.3	0.3	0.4	0.7	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.0																						
30-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																						
																								0.3	0.3	0.1	0.2	0.3	0.2	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	Dial Average
																								1.6	1.6	1.5	1.5	1.7	1.6	2.4	3.4	3.3	2.5	1.7	1.3	1.6	1.0	1.1	1.0	1.0	1.0	1.1	0.8	1.2	1.2	2.1	1.1	Dial Maximum
Z - zerspan																								C - Calibration				M - Maintenance				PF - Power Failure																



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	683	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	65	43	10	10	29	54	49	19	18	21	65	51	82	39	38	63	656
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	65	43	10	10	29	54	49	19	18	21	65	51	82	39	38	63	656

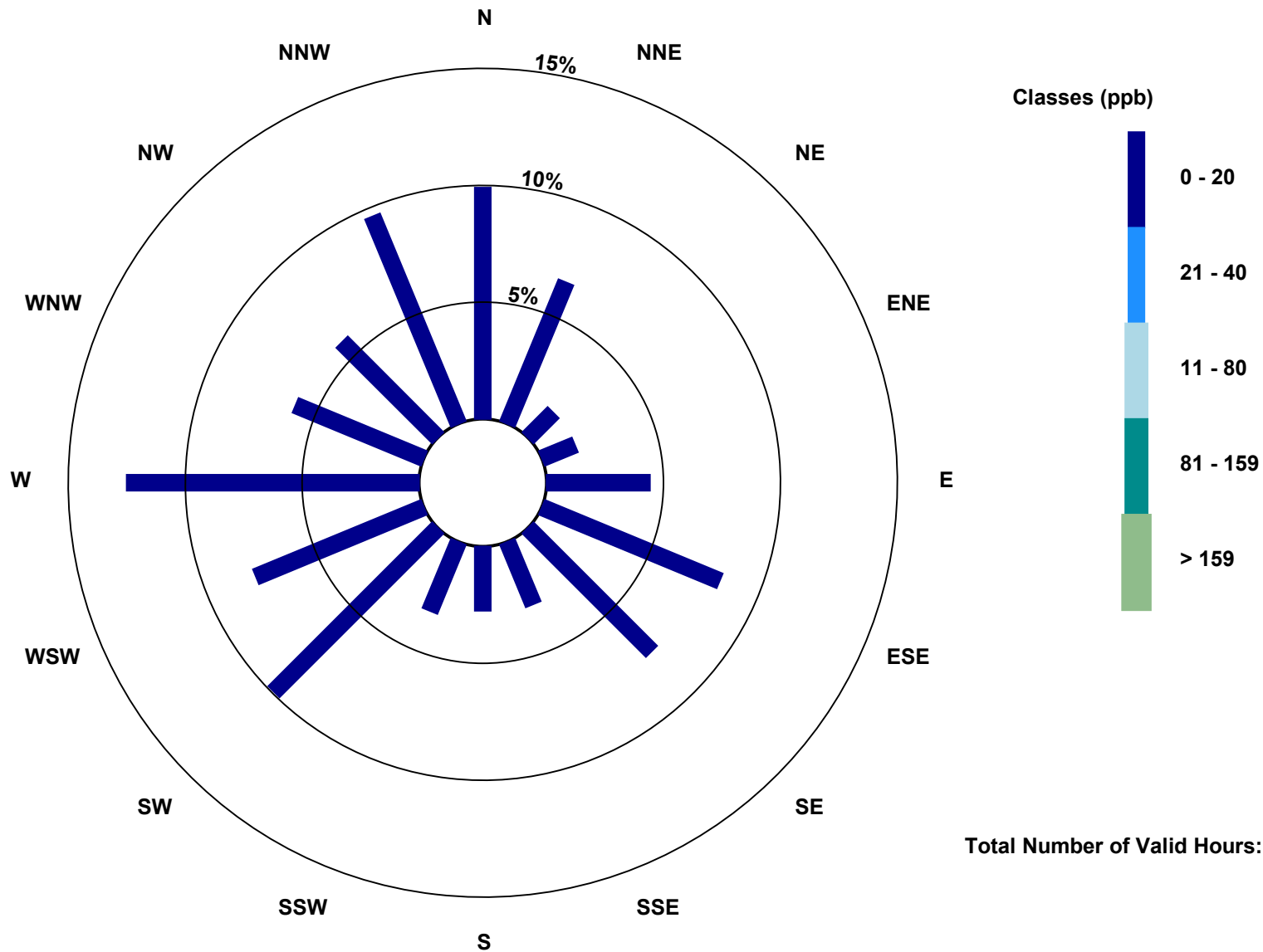
Total Number of Valid Hours: 656

Total Number of Hours: 720



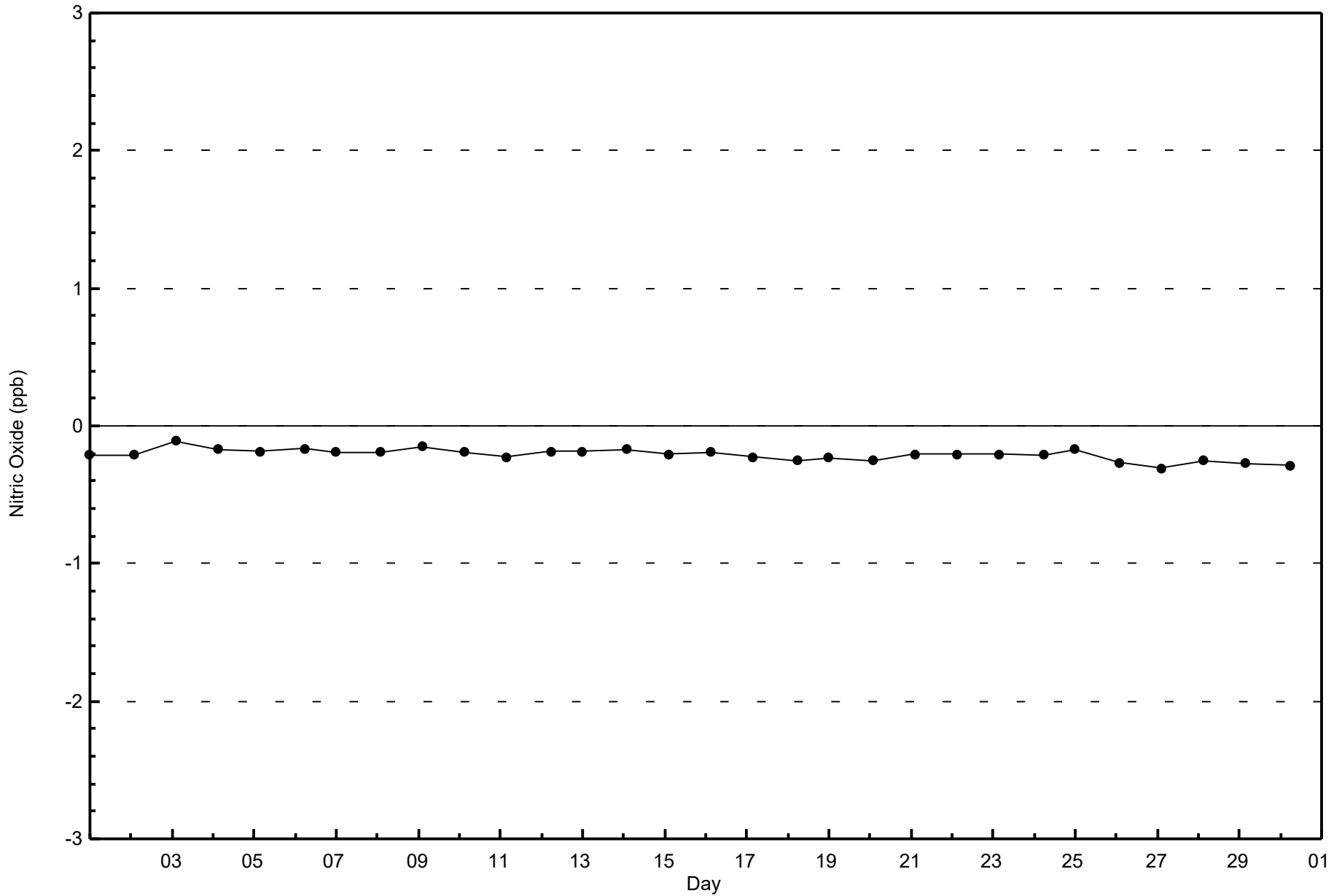
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

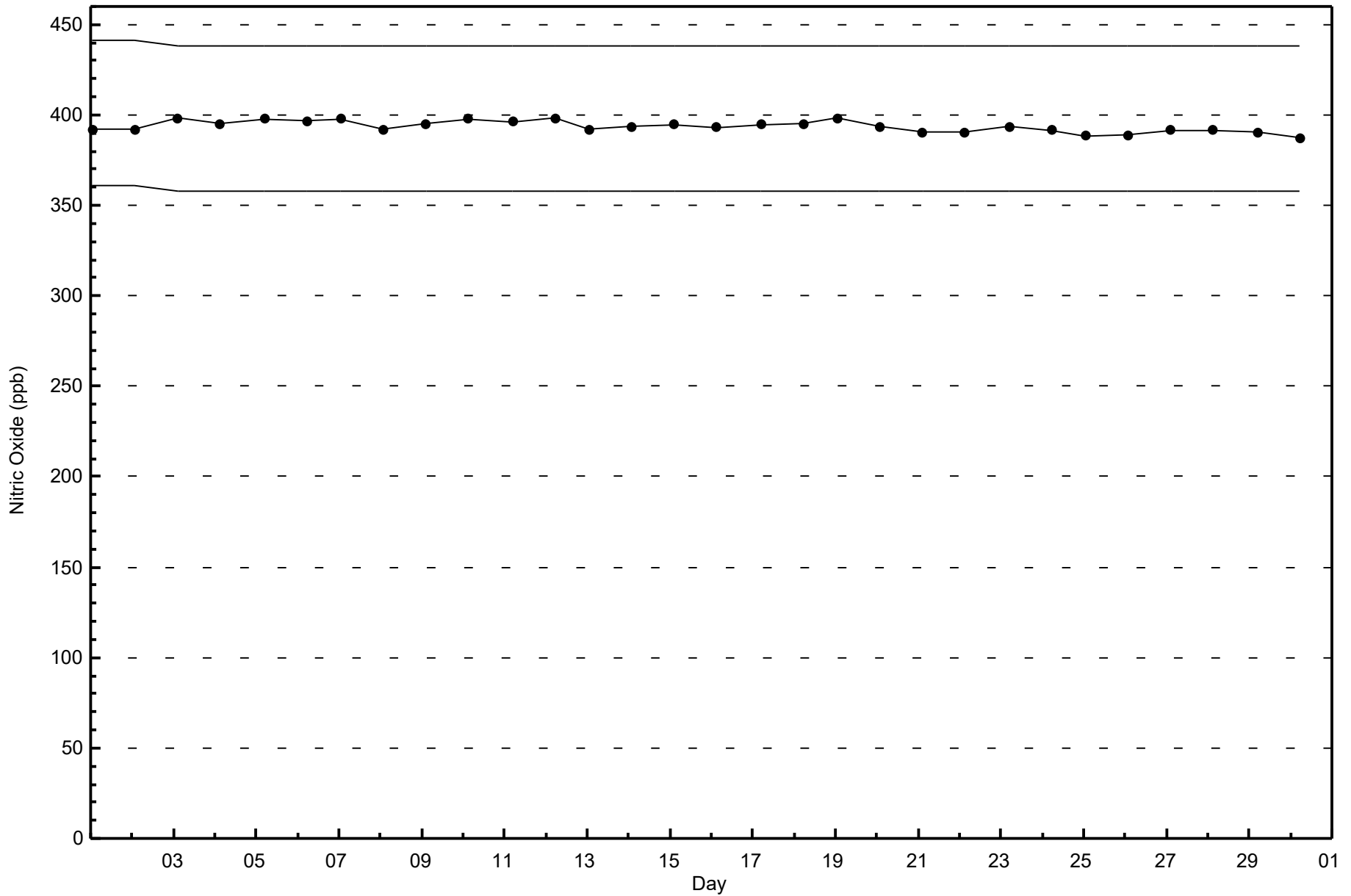
Nitric Oxide (NO) - ppb  
Surmont 2



Total Number of Valid Hours: 656









Wood Buffalo Environmental Association

Summary of Hour Averages

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

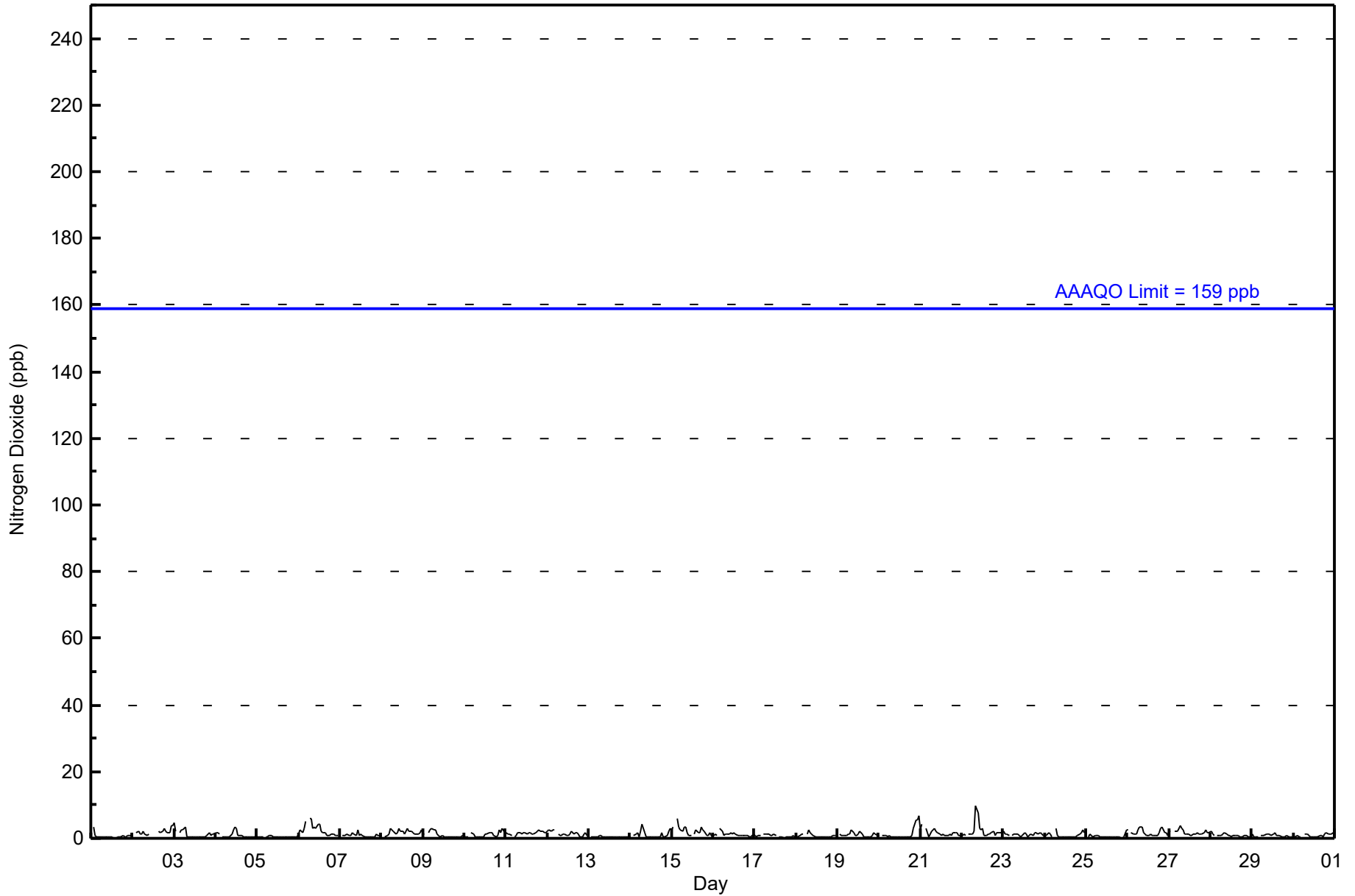
Surmont 2 - April 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720																											
Maximum Value: 9.7 ppb on Apr 22 09:00		Maximum Daily Average: 2.5 ppb on Apr 6																			Hours of Data:	683																											
Minimum Value: 0.2 ppb on Apr 1 14:00		Minimum Daily Average: 0.4 ppb on Apr 13																			Hours of Missing Data:	37																											
Maximum Diurnal Average: 1.7 ppb at hour 8		Minimum Diurnal Average: 0.9 ppb at hour 17																			Hours of Calibration:	35																											
Monthly Average: 1.24 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 1.0 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 2.4 P <sub>99</sub> = 5.5																			Percent Operational Time:	99.7																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	Z	3.5	0.9	0.6	0.5	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.7	0.5	0.4	0.9	0.9	0.9	0.6	3.5																								
2-Apr	0.9	Z	1.8	2.0	1.1	1.4	2.2	1.2	0.7	1.4	C	C	C	C	C	2.1	1.9	2.3	2.8	2.2	1.5	1.5	3.9	3.7	1.9	3.9																							
3-Apr	4.5	2.3	Z	1.6	2.5	2.4	3.3	0.5	0.3	0.3	0.4	0.6	0.4	0.5	0.4	0.5	0.4	0.5	0.4	1.0	1.9	1.0	1.2	1.4	1.2	4.5																							
4-Apr	1.6	1.9	1.2	Z	0.5	0.3	0.3	0.4	0.4	1.3	2.6	3.5	2.8	1.0	0.8	0.8	0.4	0.4	0.3	0.3	0.5	0.4	0.6	0.6	1.0	3.5																							
5-Apr	0.6	0.4	0.6	0.3	Z	0.4	0.4	0.8	1.0	0.5	0.4	0.5	0.3	0.5	0.4	0.5	0.3	0.3	0.5	0.5	0.4	0.3	0.5	0.4	0.5	1.0																							
6-Apr	1.4	2.4	1.7	2.8	5.2	Z	6.0	6.0	3.0	3.6	3.0	4.2	4.3	2.2	1.8	1.8	0.9	0.7	0.9	1.2	1.2	1.0	0.8	0.8	2.5	6.0																							
7-Apr	Z	1.0	1.0	0.9	1.1	1.0	0.9	1.7	1.3	1.0	2.6	0.9	1.2	1.0	0.4	0.3	0.5	0.4	0.4	0.5	0.6	1.3	0.9	0.9	0.9	2.6																							
8-Apr	1.0	Z	0.5	1.0	1.4	2.9	2.4	2.3	1.3	1.9	2.8	2.3	2.0	1.4	2.1	2.8	2.1	2.2	1.9	1.2	1.1	1.2	1.5	2.4	1.8	2.9																							
9-Apr	1.4	1.1	Z	1.8	2.7	3.0	2.5	2.6	1.4	0.7	0.5	0.7	0.4	0.4	0.5	0.5	0.3	0.3	0.6	0.3	0.6	0.4	0.6	0.7	1.0	3.0																							
10-Apr	0.5	0.4	0.4	Z	1.5	1.2	0.3	0.3	0.5	0.6	0.3	0.3	1.2	1.1	1.5	1.8	1.5	0.8	0.6	0.9	2.4	1.7	2.8	1.6	1.1	2.8																							
11-Apr	1.7	1.4	1.4	0.9	Z	0.4	1.0	1.5	1.6	1.4	1.9	1.7	1.4	1.6	1.5	1.2	1.3	1.6	2.1	2.4	2.3	2.3	1.6	1.5	1.6	2.4																							
12-Apr	2.3	2.5	2.3	2.7	2.5	Z	1.3	0.8	1.0	1.1	1.2	1.0	0.8	1.3	2.0	1.3	1.6	1.8	1.4	0.5	0.5	1.1	1.7	0.8	1.5	2.7																							
13-Apr	Z	0.6	0.5	0.5	0.4	0.6	0.7	0.7	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.3	0.4	0.3	0.5	0.4	0.5	0.4	0.4	0.7																							
14-Apr	0.5	Z	1.0	1.3	1.7	0.6	2.0	4.4	1.7	0.6	0.5	0.6	0.6	0.4	0.6	0.5	0.3	0.3	1.5	0.5	0.6	1.0	2.0	2.9	1.1	4.4																							
15-Apr	2.7	3.3	Z	5.9	3.5	2.6	2.1	3.5	3.6	1.6	0.7	0.8	M	1.4	2.4	1.6	1.6	3.5	2.7	2.0	1.0	0.8	1.5	0.8	2.3	5.9																							
16-Apr	0.8	1.1	0.9	Z	2.9	2.2	0.9	1.3	1.2	1.2	1.6	1.4	1.6	1.4	0.9	0.9	0.9	0.7	0.7	1.0	0.8	0.4	0.6	1.1	1.2	2.9																							
17-Apr	0.8	0.4	0.9	0.9	Z	1.4	1.3	1.3	1.1	0.9	1.0	1.1	0.7	PF	0.6	0.6	0.3	0.2	0.3	0.3	0.3	0.5	0.8	0.5	0.7	1.4																							
18-Apr	0.4	0.5	0.8	1.1	1.4	Z	1.4	2.4	1.8	1.4	1.0	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.6	0.7	0.8	1.0	0.8	2.4																							
19-Apr	Z	1.1	0.7	0.7	0.7	0.9	1.3	1.3	2.5	1.7	1.0	0.9	1.4	2.0	1.2	0.6	0.6	0.6	0.5	0.5	0.7	1.6	1.3	0.8	1.1	2.5																							
20-Apr	0.7	Z	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.6	0.6	0.7	2.8	5.4	5.7	6.7	1.4	6.7																							
21-Apr	2.5	4.2	Z	2.9	1.9	0.6	2.2	2.4	2.9	2.1	1.5	1.1	0.9	1.1	0.7	0.7	0.8	1.2	1.0	1.7	1.9	1.6	0.9	0.8	1.6	4.2																							
22-Apr	1.0	1.2	1.0	Z	1.3	1.1	1.4	2.3	9.7	7.6	2.8	2.4	3.1	1.0	0.9	1.1	1.4	1.8	2.3	1.0	1.7	1.5	1.9	1.7	2.2	9.7																							
23-Apr	2.0	1.3	1.2	0.8	Z	1.0	1.1	1.2	1.1	0.8	0.5	1.0	1.9	1.1	0.5	0.7	1.2	0.9	1.5	1.9	1.2	1.5	1.2	0.9	1.2	2.0																							
24-Apr	0.9	1.0	1.6	1.3	0.5	Z	3.1	0.8	0.5	0.6	0.5	0.3	0.4	0.6	0.5	0.4	0.6	0.5	0.9	1.1	1.7	2.6	1.7	1.0	3.1																								
25-Apr	Z	0.6	1.3	0.7	0.6	0.9	0.9	1.0	0.6	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.5	0.3	0.3	0.4	0.2	0.2	0.6	2.7	0.6	2.7																							
26-Apr	2.4	Z	1.9	1.4	1.1	1.4	2.4	3.5	3.5	1.5	1.3	0.8	0.9	1.1	0.8	0.9	0.8	1.0	1.9	3.1	3.4	1.9	1.5	0.9	1.7	3.5																							
27-Apr	2.1	2.2	Z	2.1	2.2	2.3	3.7	3.0	2.4	1.3	1.3	1.4	1.0	1.0	1.2	1.2	1.9	1.1	1.2	1.3	1.7	2.5	1.8	1.5	1.8	3.7																							
28-Apr	2.1	1.3	0.8	Z	1.0	0.7	0.9	1.4	1.6	1.3	1.0	0.8	0.6	0.7	0.7	0.7	0.8	0.6	0.5	0.9	1.0	0.9	0.6	0.5	0.9	2.1																							
29-Apr	1.1	0.4	0.6	0.6	Z	0.8	0.7	0.8	1.3	1.4	1.1	0.7	1.3	1.8	0.8	0.7	0.8	0.5	0.5	0.6	0.8	0.4	0.3	0.3	0.8	1.8																							
30-Apr	0.3	0.6	1.0	0.6	0.5	Z	1.3	1.1	1.4	0.8	0.4	0.5	0.6	0.5	0.5	0.7	0.9	0.5	1.2	1.7	1.4	1.2	1.1	1.5	0.9	1.7																							
																								1.4	1.5	1.1	1.4	1.6	1.2	1.6	1.7	1.7	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.2	1.2	1.4	1.4	Diurnal Average	
																								4.5	4.2	2.3	5.9	5.2	3.0	6.0	6.0	9.7	7.6	3.0	4.2	4.3	2.2	2.4	2.8	2.1	3.5	2.8	3.1	3.4	5.4	5.7	6.7	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance      PF - Power Failure																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Surmont 2 - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	683	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Surmont 2 - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	65	43	10	10	29	54	49	19	18	21	65	51	82	39	38	63	656
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	65	43	10	10	29	54	49	19	18	21	65	51	82	39	38	63	656

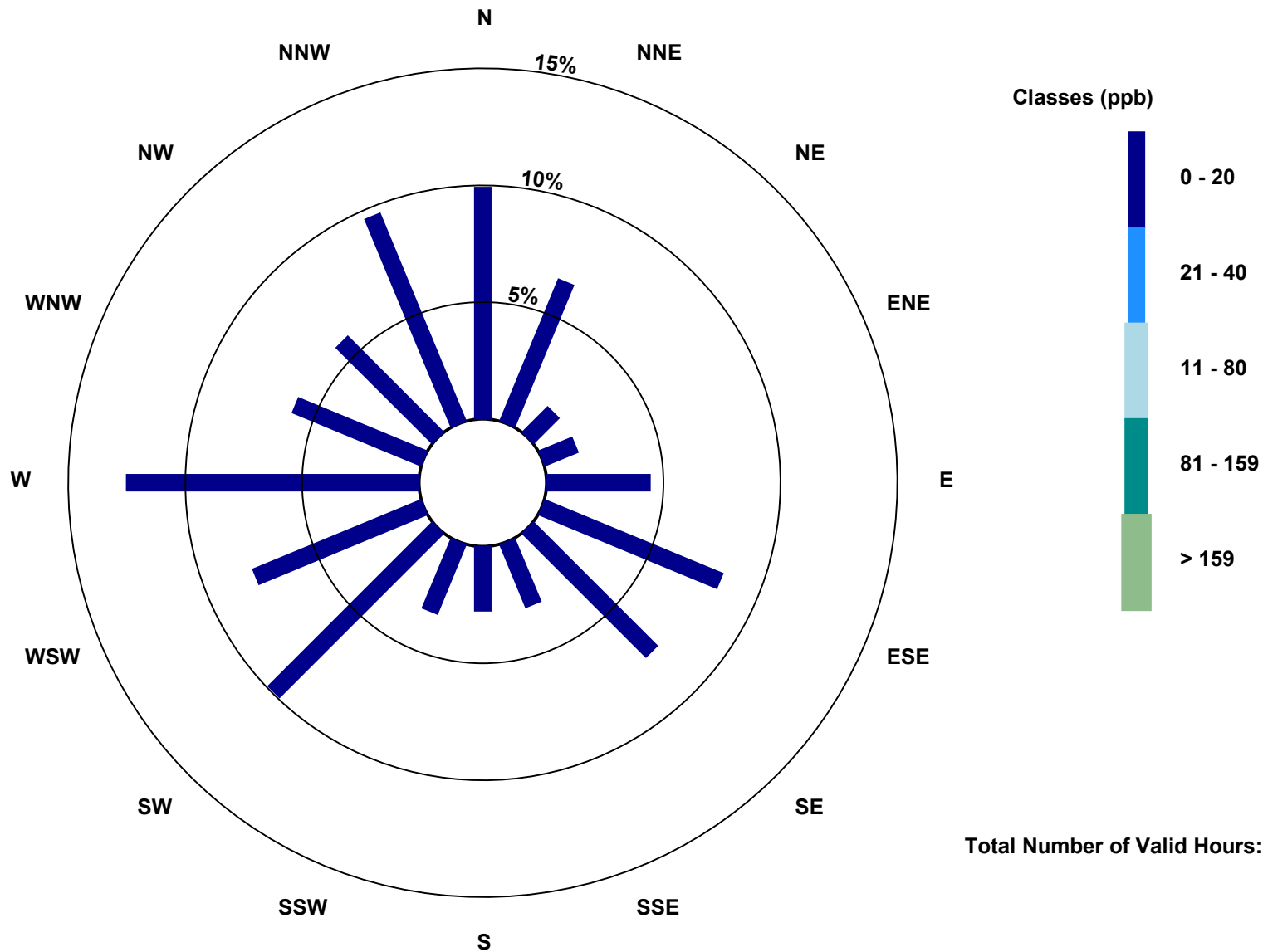
Total Number of Valid Hours: 656

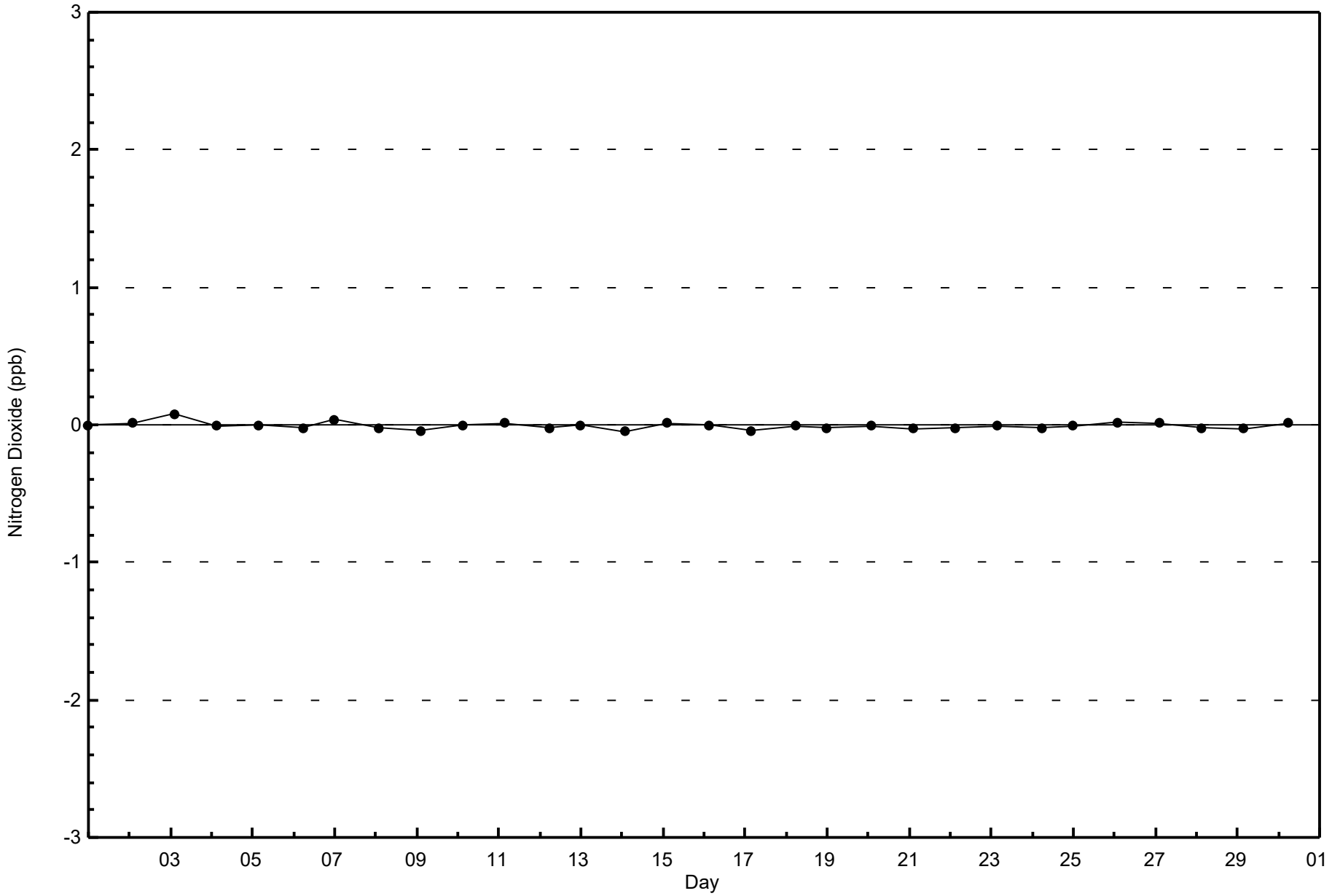
Total Number of Hours: 720



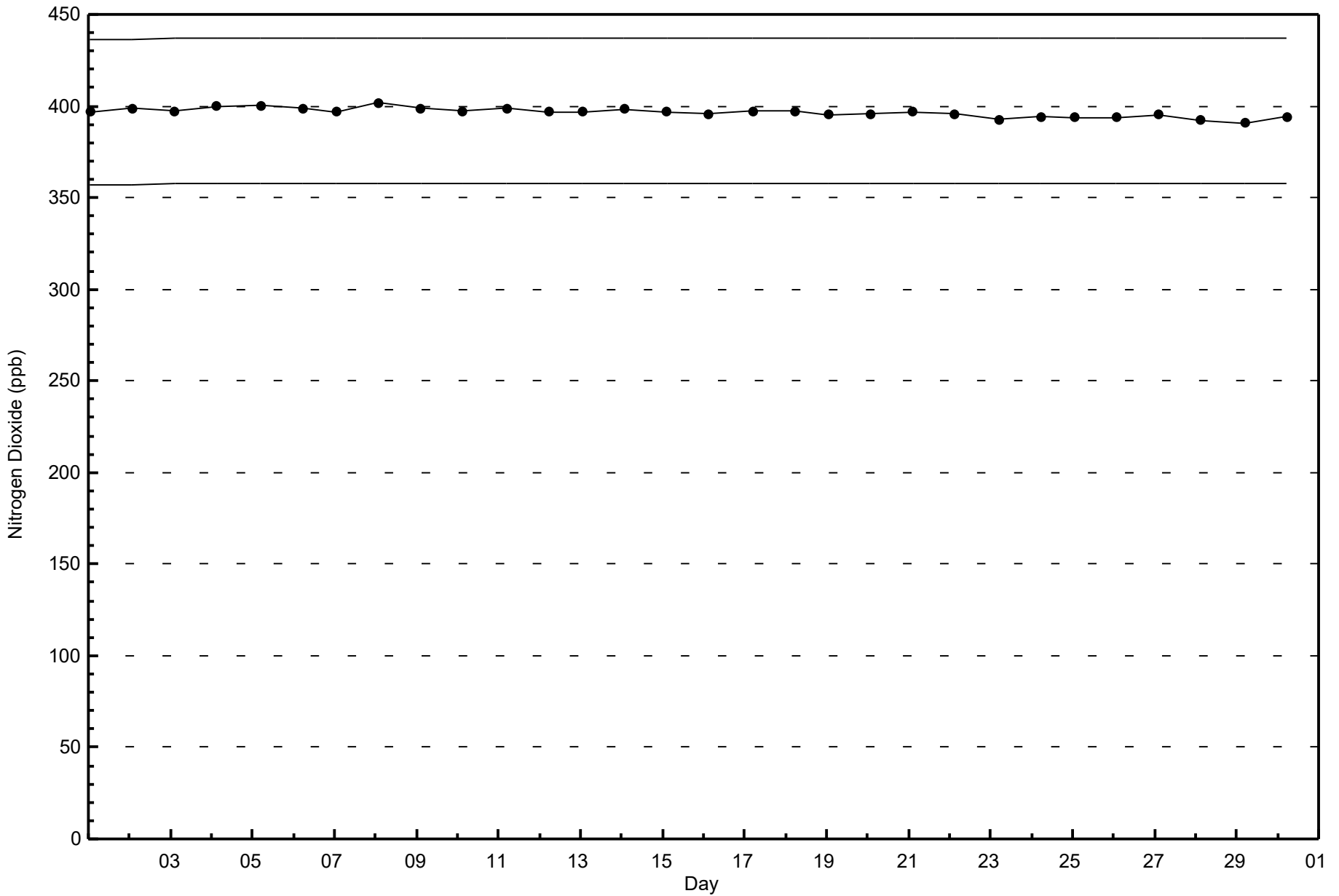
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

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

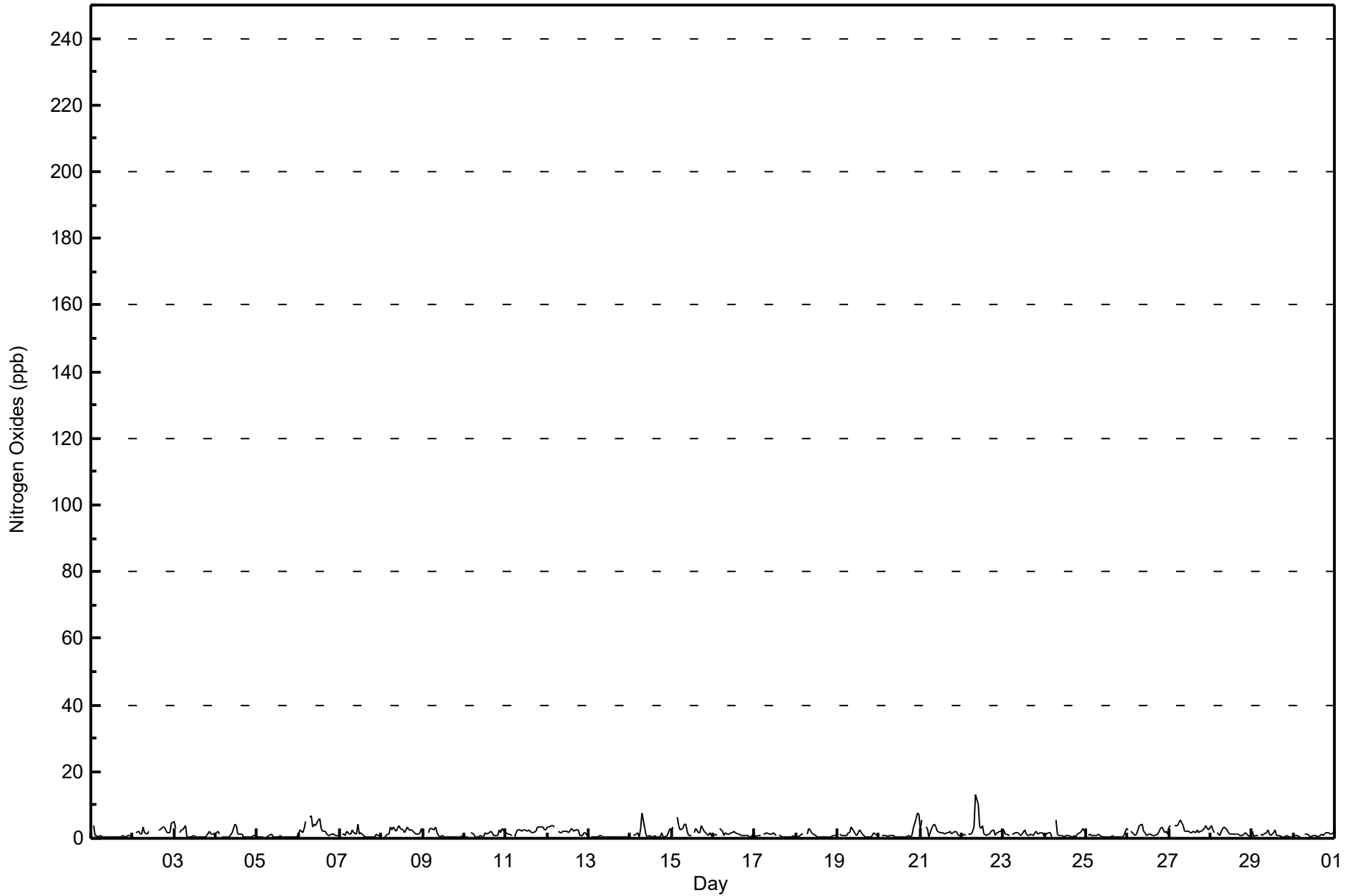
Surmont 2 - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 720														Daily Average		Daily Maximum					
Maximum Value: 13.0 ppb on Apr 22 09:00		Maximum Daily Average: 2.9 ppb on Apr 27		Hours of Data: 683														Hours of Missing Data: 37		Hours of Calibration: 35							
Minimum Value: 0.3 ppb on Apr 1 18:00		Minimum Daily Average: 0.4 ppb on Apr 13		Hours of Calibration: 35														Percent Operational Time: 99.7									
Maximum Diurnal Average: 2.4 ppb at hour 8		Minimum Diurnal Average: 1.1 ppb at hour 17		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.6 Median = 1.2 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 3.2 P <sub>99</sub> = 6.2																							
Monthly Average: 1.54 ppb																											
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-Apr	Z	3.9	1.0	0.7	0.6	0.6	0.4	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.7	0.5	0.4	0.9	0.9	0.9	0.7	3.9	
2-Apr	0.9	Z	1.9	2.1	1.2	1.5	3.3	1.8	1.4	2.3	C	C	C	C	C	2.7	2.7	3.3	3.4	2.5	1.6	1.7	4.8	4.5	2.4	4.8	
3-Apr	5.0	2.9	Z	1.7	2.6	2.5	3.6	0.6	0.4	0.4	0.5	0.7	0.5	0.6	0.5	0.6	0.5	0.5	0.4	1.1	2.1	1.1	1.2	1.5	1.4	5.0	
4-Apr	1.6	2.1	1.2	Z	0.5	0.3	0.3	0.4	0.4	1.6	3.2	4.2	3.8	1.4	1.3	1.1	0.4	0.5	0.3	0.3	0.6	0.5	0.6	0.7	1.2	4.2	
5-Apr	0.6	0.5	0.6	0.3	Z	0.4	0.4	1.0	1.1	0.6	0.5	0.6	0.4	0.7	0.5	0.6	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.4	0.5	1.1	
6-Apr	1.4	2.4	1.7	2.8	5.2	Z	6.3	6.7	3.5	4.3	3.7	5.5	5.9	2.8	2.2	2.3	1.1	0.8	1.0	1.2	1.2	1.0	0.9	0.9	2.8	6.7	
7-Apr	Z	1.1	1.2	1.0	2.3	1.4	1.1	2.7	1.8	1.4	4.3	1.4	1.8	1.3	0.5	0.4	0.6	0.4	0.4	0.5	0.6	1.3	0.9	0.9	1.3	4.3	
8-Apr	1.0	Z	0.5	1.1	1.4	3.2	2.7	3.2	2.3	2.8	4.0	3.0	2.5	1.7	2.7	3.4	2.6	2.7	2.1	1.8	1.1	1.3	1.8	2.8	2.2	4.0	
9-Apr	1.4	1.1	Z	1.8	2.8	3.1	2.7	3.4	1.7	0.8	0.6	0.8	0.5	0.4	0.5	0.5	0.3	0.3	0.6	0.3	0.6	0.4	0.6	0.7	1.1	3.4	
10-Apr	0.5	0.4	0.4	Z	1.6	1.3	0.4	0.4	0.6	0.7	0.4	0.4	1.5	1.4	1.9	2.2	1.8	1.0	0.7	1.0	2.5	1.8	2.9	1.7	1.2	2.9	
11-Apr	1.8	1.5	1.5	1.0	Z	0.6	1.7	2.6	2.5	2.2	2.7	2.6	2.1	2.4	2.2	1.7	1.7	2.2	3.2	3.2	3.5	3.2	2.7	2.5	2.2	3.5	
12-Apr	3.5	3.5	3.8	3.9	3.5	Z	2.1	1.6	1.7	2.0	2.2	2.0	1.5	2.3	3.1	2.3	2.6	2.5	2.4	0.7	0.8	1.6	1.8	0.9	2.3	3.9	
13-Apr	Z	0.6	0.5	0.5	0.4	0.6	0.7	0.8	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.3	0.4	0.3	0.5	0.4	0.5	0.4	0.4	0.8	
14-Apr	0.6	Z	1.0	1.3	1.7	0.6	2.7	7.8	2.8	1.0	0.5	0.8	0.6	0.4	0.8	0.5	0.3	0.3	1.6	0.5	0.6	1.0	2.1	3.0	1.4	7.8	
15-Apr	2.7	3.5	Z	6.2	3.8	2.7	2.9	4.2	4.1	1.9	0.8	1.0	M	1.7	2.8	1.8	1.8	3.7	2.9	2.3	1.1	0.9	1.6	0.9	2.5	6.2	
16-Apr	0.9	1.2	0.9	Z	3.0	2.3	1.0	1.5	1.4	1.4	1.9	1.9	2.0	1.6	1.2	1.1	1.0	0.8	0.7	1.0	0.8	0.4	0.6	1.1	1.3	3.0	
17-Apr	0.8	0.4	0.9	1.0	Z	1.4	1.4	1.5	1.4	1.1	1.4	1.6	0.9	PF	0.9	0.8	0.4	0.3	0.3	0.4	0.4	0.5	0.9	0.5	0.9	1.6	
18-Apr	0.4	0.5	0.8	1.1	1.5	Z	1.5	2.9	2.3	1.8	1.2	0.8	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.6	0.7	0.8	1.0	0.9	2.9	
19-Apr	Z	1.1	0.7	0.7	0.7	1.0	1.7	1.8	3.3	2.2	1.3	1.0	1.8	2.6	1.5	0.7	0.6	0.6	0.5	0.5	0.7	1.7	1.4	0.8	1.3	3.3	
20-Apr	0.7	Z	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.7	0.6	0.7	2.8	5.9	7.8	7.4	1.5	7.8	
21-Apr	2.5	5.4	Z	3.3	3.0	0.6	3.0	3.8	4.3	3.3	2.3	1.8	1.8	1.8	1.4	1.5	1.5	1.9	1.2	1.9	2.1	1.8	1.0	0.8	2.3	5.4	
22-Apr	1.0	1.2	1.0	Z	1.3	1.2	2.0	3.3	13.0	10.1	3.5	3.0	3.9	1.2	1.0	1.2	1.5	1.9	2.4	1.0	1.8	1.7	2.2	2.1	2.7	13.0	
23-Apr	2.5	1.3	1.2	0.8	Z	1.1	1.3	1.5	1.8	1.1	0.8	1.4	2.7	1.4	0.8	0.7	1.3	1.0	1.6	2.0	1.2	1.7	1.5	1.4	1.4	2.7	
24-Apr	0.9	1.1	1.7	1.7	0.5	Z	5.5	1.2	1.0	0.9	0.8	0.5	0.7	0.9	0.7	0.6	0.5	0.9	0.6	1.2	1.7	2.0	2.9	2.1	1.3	5.5	
25-Apr	Z	0.7	1.4	0.7	0.7	1.0	1.0	1.2	0.7	0.5	0.4	0.4	0.3	0.5	0.6	0.6	0.6	0.3	0.3	0.4	0.3	0.3	0.7	2.8	0.7	2.8	
26-Apr	2.5	Z	1.9	1.4	1.1	1.4	2.6	3.8	4.3	2.0	1.8	1.0	1.1	1.4	1.0	1.0	0.9	1.1	2.0	3.1	3.4	1.9	2.0	1.2	1.9	4.3	
27-Apr	3.3	3.8	Z	3.6	3.9	3.9	5.6	4.6	4.0	2.1	2.2	2.3	1.8	1.7	1.9	1.7	2.5	1.6	2.1	2.1	2.8	3.7	2.8	2.6	2.9	5.6	
28-Apr	3.7	2.5	1.5	Z	1.6	0.9	1.9	3.1	3.3	2.5	1.7	1.4	1.2	1.4	1.3	1.1	1.2	0.9	0.7	1.2	1.8	1.3	0.7	0.6	1.6	3.7	
29-Apr	2.1	0.5	0.7	1.0	Z	1.1	0.9	1.1	1.7	2.3	1.4	1.0	1.7	2.5	1.0	0.8	1.0	0.6	0.6	0.6	0.8	0.4	0.3	0.3	1.1	2.5	
30-Apr	0.3	0.6	1.0	0.6	0.5	Z	1.4	1.2	1.5	1.0	0.5	0.7	0.8	0.7	0.6	0.9	1.2	0.6	1.3	1.8	1.5	1.3	1.2	1.6	1.0	1.8	
																								Diurnal Average		Diurnal Maximum	
																								1.7 1.8 1.2 1.6 1.8 1.4 2.1 2.4 2.3 1.9 1.6 1.5 1.6 1.3 1.2 1.1 1.1 1.1 1.2 1.2 1.4 1.4 1.7 1.6			
																								5.0 5.4 3.8 6.2 5.2 3.9 6.3 7.8 13.0 10.1 4.3 5.5 5.9 2.8 3.1 3.4 2.7 3.7 3.4 3.2 3.5 5.9 7.8 7.4			
Z - zerspan			C - Calibration			M - Maintenance			PF - Power Failure																		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Surmont 2 - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	683	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 683  
Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2 - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	65	43	10	10	29	54	49	19	18	21	65	51	82	39	38	63	656
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	65	43	10	10	29	54	49	19	18	21	65	51	82	39	38	63	656

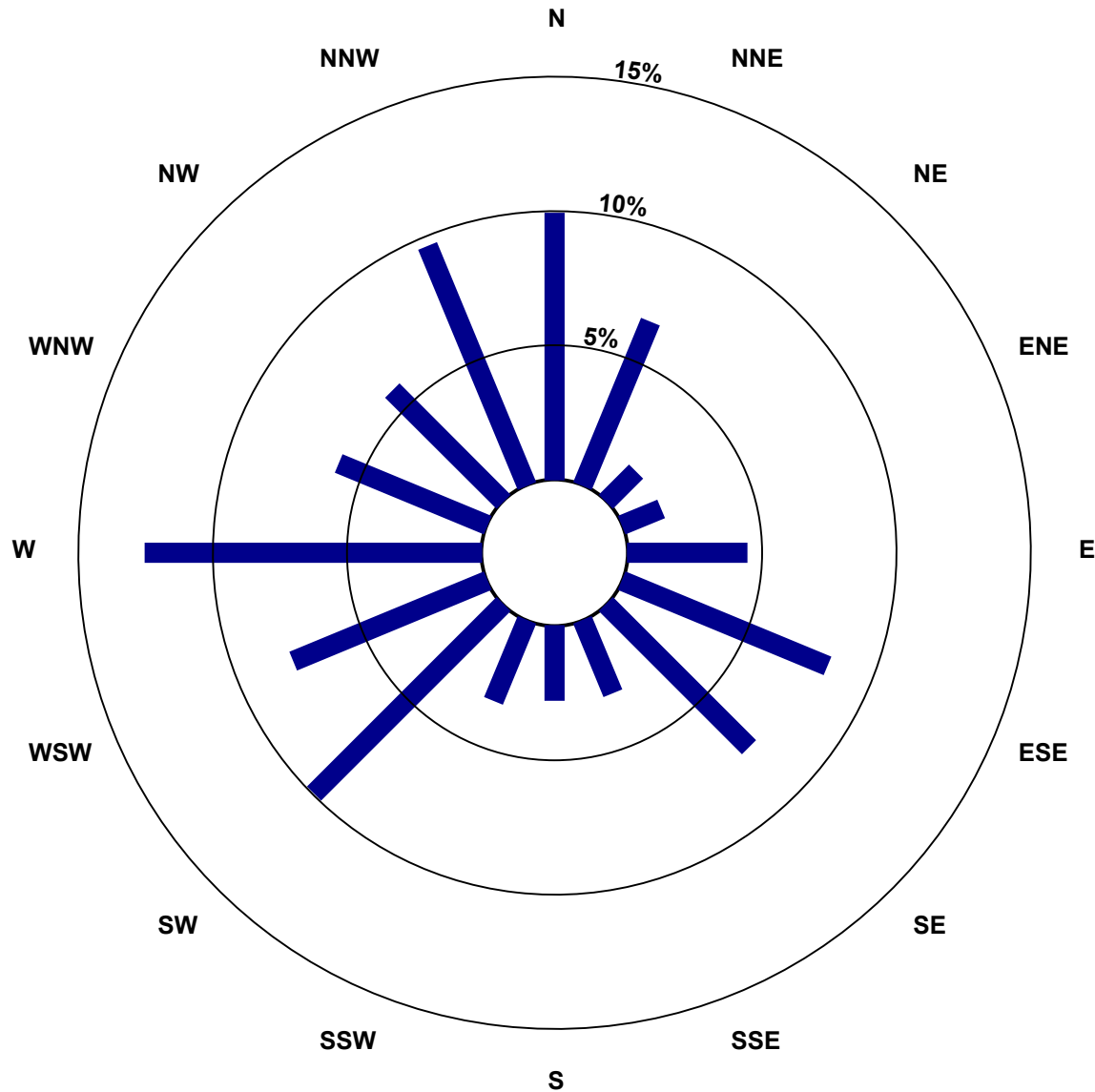
Total Number of Valid Hours: 656

Total Number of Hours: 720

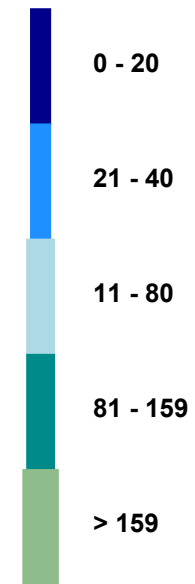


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

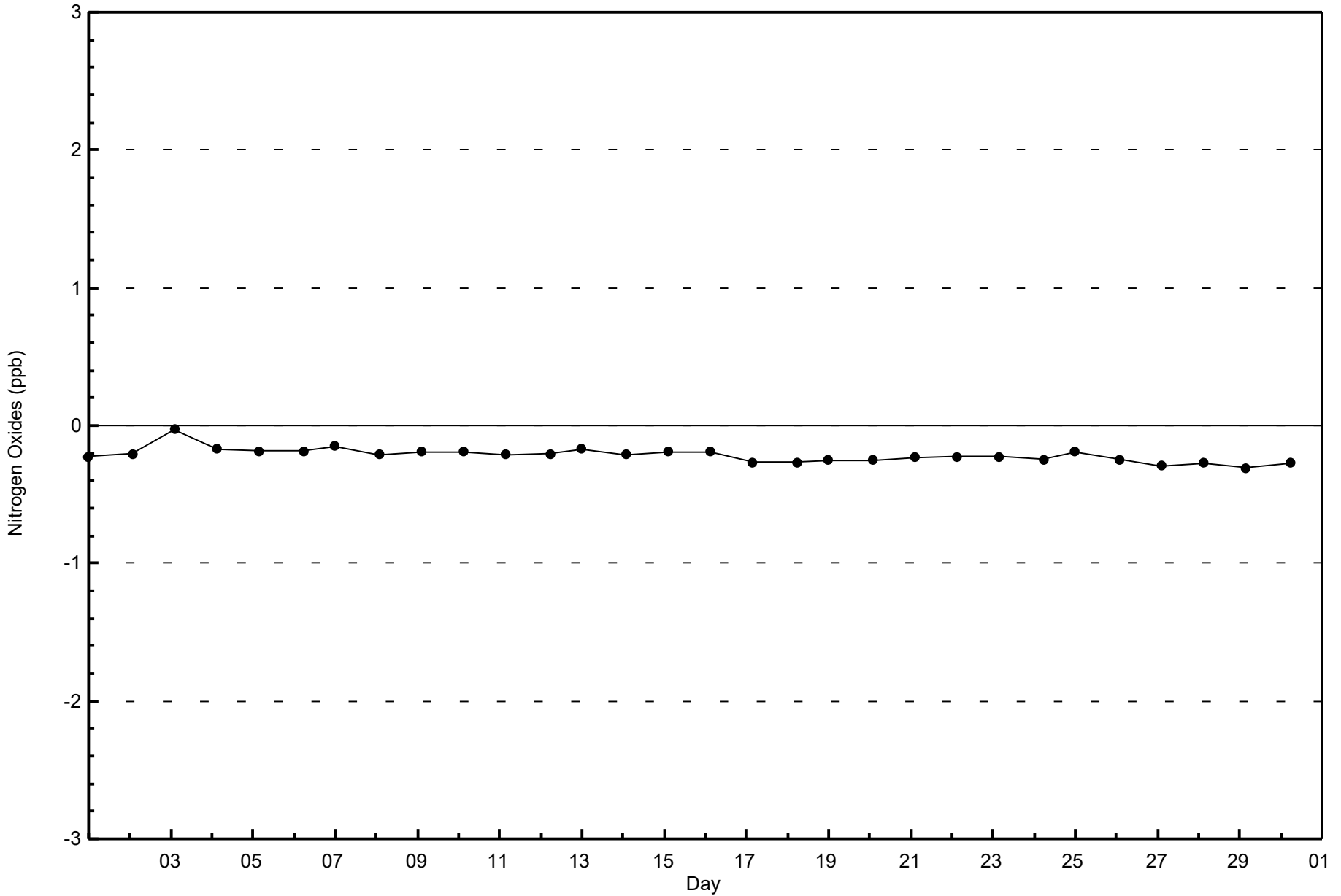
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2

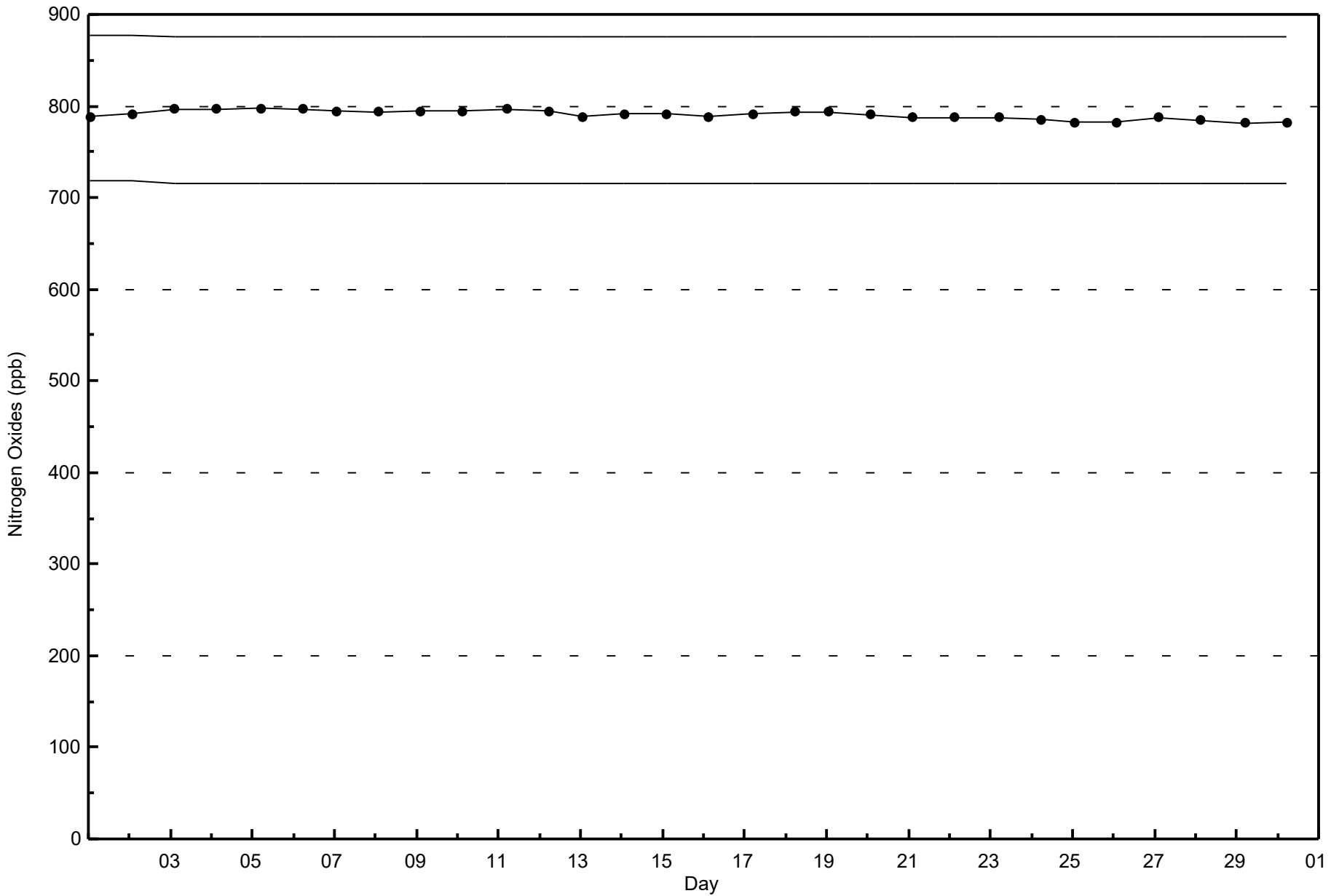


Classes (ppb)



Total Number of Valid Hours: 656





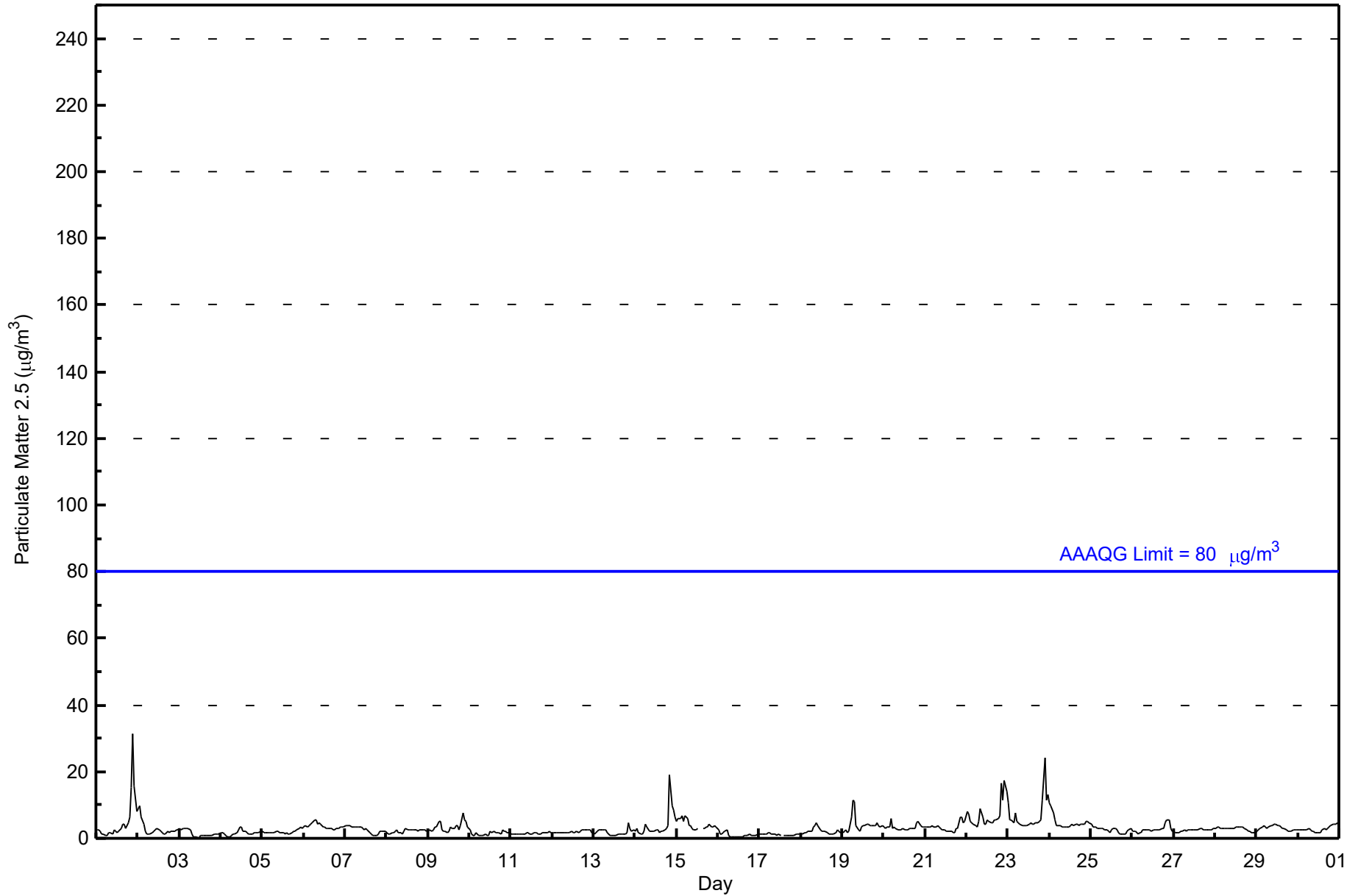




Summary of Hour Averages

Surmont 2 - April 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 31.5 µg/m <sup>3</sup> on Apr 1 22:00 Minimum Value: 0.1 µg/m <sup>3</sup> on Apr 3 12:00 Maximum Diurnal Average: 5.1 µg/m <sup>3</sup> at hour 22 Monthly Average: 2.98 µg/m <sup>3</sup>		Maximum Daily Average: 7.0 µg/m <sup>3</sup> on Apr 22 Minimum Daily Average: 1.0 µg/m <sup>3</sup> on Apr 16 Minimum Diurnal Average: 2.4 µg/m <sup>3</sup> at hour 12 Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 1.7 Median = 2.5 Q <sub>3</sub> = 3.5 P <sub>90</sub> = 4.8 P <sub>99</sub> = 13.7		Hours in Service: 720 Hours of Data: 717 Hours of Missing Data: 3 Hours of Calibration: 2 Percent Operational Time: 99.9																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	2.7	2.7	2.3	1.2	1.2	1.1	1.0	1.5	1.8	1.5	2.4	2.1	1.8	2.3	3.0	4.3	4.4	3.1	4.8	6.4	15.2	31.5	15.8	7.9	5.1	31.5																							
2-Apr	8.8	9.6	6.3	4.2	2.3	1.4	1.3	1.4	1.9	2.0	2.4	2.8	2.7	2.2	1.6	1.2	1.4	2.0	1.9	2.2	2.3	2.3	2.6	2.7	2.9	9.6																							
3-Apr	2.9	2.7	3.0	3.0	2.9	2.9	2.4	1.1	0.6	0.6	0.5	0.1	0.7	1.0	0.9	1.0	0.9	0.9	0.9	1.0	1.1	1.1	1.3	1.4	1.5	3.0																							
4-Apr	1.7	1.5	1.3	0.7	0.5	0.5	0.8	1.2	1.3	1.5	2.7	3.3	3.3	2.2	1.9	1.8	1.5	1.4	1.5	1.5	1.5	1.6	1.8	2.0	1.6	3.3																							
5-Apr	2.0	1.7	1.7	1.5	1.6	1.8	1.8	1.9	2.2	2.2	1.8	1.8	1.5	1.4	1.5	1.4	1.4	1.6	2.0	2.2	2.7	3.1	3.4	2.8	2.0	3.4																							
6-Apr	3.3	3.7	3.4	3.7	4.4	4.7	5.3	5.6	4.1	4.7	4.3	3.5	3.4	2.9	2.8	3.1	2.8	2.7	2.5	2.8	3.1	3.3	3.3	3.5	3.6	5.6																							
7-Apr	3.8	3.8	3.6	3.7	3.5	3.3	3.4	3.4	3.6	3.3	2.8	2.7	2.8	2.7	1.6	1.2	1.0	1.0	1.0	1.4	2.2	2.0	2.0	2.1	2.6	3.8																							
8-Apr	1.8	1.3	1.3	1.7	1.7	2.1	2.6	1.7	1.6	1.4	1.9	3.0	2.6	2.4	2.5	2.5	2.4	2.4	2.2	2.3	2.5	2.6	2.6	2.1	2.1	3.0																							
9-Apr	2.2	2.4	2.0	2.5	3.3	3.4	4.9	4.9	2.5	2.2	2.3	1.7	2.2	3.2	2.9	3.2	4.0	3.9	2.6	3.8	7.6	5.4	5.0	3.6	3.4	7.6																							
10-Apr	2.4	1.3	1.0	0.8	1.8	0.8	0.7	0.7	0.9	1.1	1.0	1.0	2.2	1.6	2.0	1.9	1.9	1.6	1.4	2.7	2.2	1.9	1.8	1.7	1.5	2.7																							
11-Apr	1.4	1.3	1.3	1.2	1.2	1.1	1.3	1.4	1.4	1.6	1.6	1.4	1.5	1.7	1.6	1.6	1.5	1.5	1.7	1.8	1.6	1.8	2.0	1.8	1.5	2.0																							
12-Apr	1.5	1.5	1.5	1.6	1.7	1.6	1.7	1.6	1.9	1.8	1.9	1.9	1.7	1.8	2.1	1.8	2.1	2.4	2.4	2.5	2.5	2.6	2.4	1.8	1.9	2.6																							
13-Apr	1.2	1.6	2.0	2.4	2.6	2.7	2.7	2.5	1.8	1.0	0.6	0.8	0.9	1.0	1.3	1.4	1.1	1.2	1.3	1.7	4.6	3.1	2.2	2.4	1.8	4.6																							
14-Apr	2.2	2.9	1.6	1.2	1.2	2.2	4.2	3.4	2.0	2.2	2.2	2.0	2.7	2.4	1.7	2.0	2.1	2.7	3.0	3.7	19.1	9.6	8.3	6.4	3.8	19.1																							
15-Apr	5.1	6.0	5.7	6.8	5.0	6.8	5.9	3.9	3.6	3.1	2.6	2.6	2.8	C	C	2.9	2.8	3.5	3.6	4.2	3.6	3.6	3.7	3.4	4.2	6.8																							
16-Apr	2.5	1.2	1.5	1.7	2.3	2.5	0.8	0.6	0.3	0.3	0.4	0.4	0.5	0.4	0.6	0.9	0.8	1.0	1.1	0.9	0.7	0.8	1.0	1.1	1.0	2.5																							
17-Apr	1.1	1.2	1.1	1.3	1.3	1.6	1.5	1.3	1.2	1.2	1.0	1.3	0.9	PF	0.8	0.7	0.8	0.8	0.9	0.8	0.9	1.1	1.2	1.4	1.1	1.6																							
18-Apr	1.3	1.2	1.5	1.5	2.0	2.3	1.9	3.5	4.0	4.8	3.7	2.5	2.0	2.1	1.9	1.7	1.3	1.3	1.4	1.4	1.7	2.7	2.1	1.9	2.2	4.8																							
19-Apr	1.7	2.1	2.4	1.8	2.3	6.3	11.3	11.0	3.7	2.5	2.3	3.3	3.9	3.9	4.3	4.2	3.9	3.8	3.8	3.8	4.5	3.9	3.4	3.7	4.1	11.3																							
20-Apr	3.6	3.0	3.2	3.3	6.1	3.0	3.5	3.1	2.5	2.5	2.7	3.1	2.4	2.5	2.4	3.2	2.9	3.1	3.1	4.7	5.1	3.8	3.3	3.4	3.3	6.1																							
21-Apr	3.4	3.3	3.5	3.5	3.6	3.5	3.6	3.7	3.5	2.8	2.5	2.4	2.3	2.2	2.1	2.0	1.8	1.9	3.0	2.9	6.5	6.2	4.8	5.1	3.3	6.5																							
22-Apr	8.0	7.4	4.9	4.6	4.4	3.9	3.6	5.1	8.9	6.5	4.1	4.2	5.4	5.2	4.8	4.8	5.4	5.5	5.9	6.9	16.6	11.5	17.4	13.8	7.0	17.4																							
23-Apr	10.5	5.7	5.4	4.7	7.6	4.9	4.5	4.3	3.7	3.7	3.8	4.0	4.2	4.6	4.2	4.4	4.8	4.7	5.1	5.7	11.3	24.3	11.5	13.2	6.7	24.3																							
24-Apr	10.5	9.9	7.5	5.5	3.7	3.8	3.9	3.5	3.5	3.5	3.6	3.8	4.2	4.0	4.1	4.2	4.0	4.1	4.1	4.4	5.1	5.0	4.6	4.7	4.7	10.5																							
25-Apr	4.1	3.5	3.3	3.3	3.1	2.9	2.8	2.9	2.6	2.6	2.0	1.8	2.6	3.0	3.1	2.6	1.5	1.3	1.4	1.4	1.5	2.0	2.5	3.1	2.5	4.1																							
26-Apr	2.1	2.3	1.9	1.3	1.6	1.8	2.6	2.5	2.5	2.4	2.5	2.3	2.4	2.6	2.6	2.6	2.6	3.0	3.0	4.8	5.5	5.6	2.8	2.0	2.7	5.6																							
27-Apr	1.9	1.9	1.8	1.8	1.9	2.2	2.4	2.1	2.4	2.6	2.8	2.7	2.7	2.6	2.8	3.0	3.1	2.7	2.7	2.6	2.5	2.5	2.7	2.8	2.5	3.1																							
28-Apr	2.9	3.3	3.2	3.1	2.9	2.9	2.9	2.8	2.9	2.9	3.0	3.1	3.3	3.4	3.6	3.5	3.4	3.1	2.6	2.3	2.1	1.9	1.7	1.6	2.9	3.6																							
29-Apr	2.0	2.3	3.0	3.3	3.7	3.3	3.1	3.4	3.7	4.0	4.3	4.1	3.8	3.9	3.2	3.0	2.9	2.4	2.1	2.1	2.3	2.5	2.7	2.6	3.1	4.3																							
30-Apr	2.5	2.5	2.6	2.7	2.7	2.7	2.8	2.6	2.3	2.0	1.5	1.6	1.7	1.6	2.4	2.8	2.4	2.8	3.5	3.9	4.1	4.2	4.4	4.6	2.8	4.6																							
																								3.4	3.2	2.8	2.7	2.8	2.8	3.0	3.0	2.6	2.5	2.4	2.4	2.5	2.5	2.4	2.5	2.4	2.4	2.5	2.9	4.7	5.1	4.2	3.7	Diurnal Average	
																								10.5	9.9	7.5	6.8	7.6	6.8	11.3	11.0	8.9	6.5	4.3	4.2	5.4	5.2	4.8	4.8	5.4	5.5	5.9	6.9	19.1	31.5	17.4	13.8	Diurnal Maximum	
C - Calibration PF - Power Failure Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Surmont 2 - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	667	93.03	93.03
6 - 15	44	6.14	99.16
16 - 25	5	0.70	99.86
26 - 80	1	0.14	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Surmont 2 - April 2024**

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	
0 - 5	62	41	11	9	29	53	53	21	20	25	50	44	78	42	39	62	639
6 - 15	4	1	0	1	0	2	0	0	0	1	16	8	5	1	0	4	43
16 - 25	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	5
26 - 80	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	42	11	10	29	55	53	21	20	26	70	53	84	43	39	66	688

Total Number of Valid Hours: 688

Total Number of Hours: 720





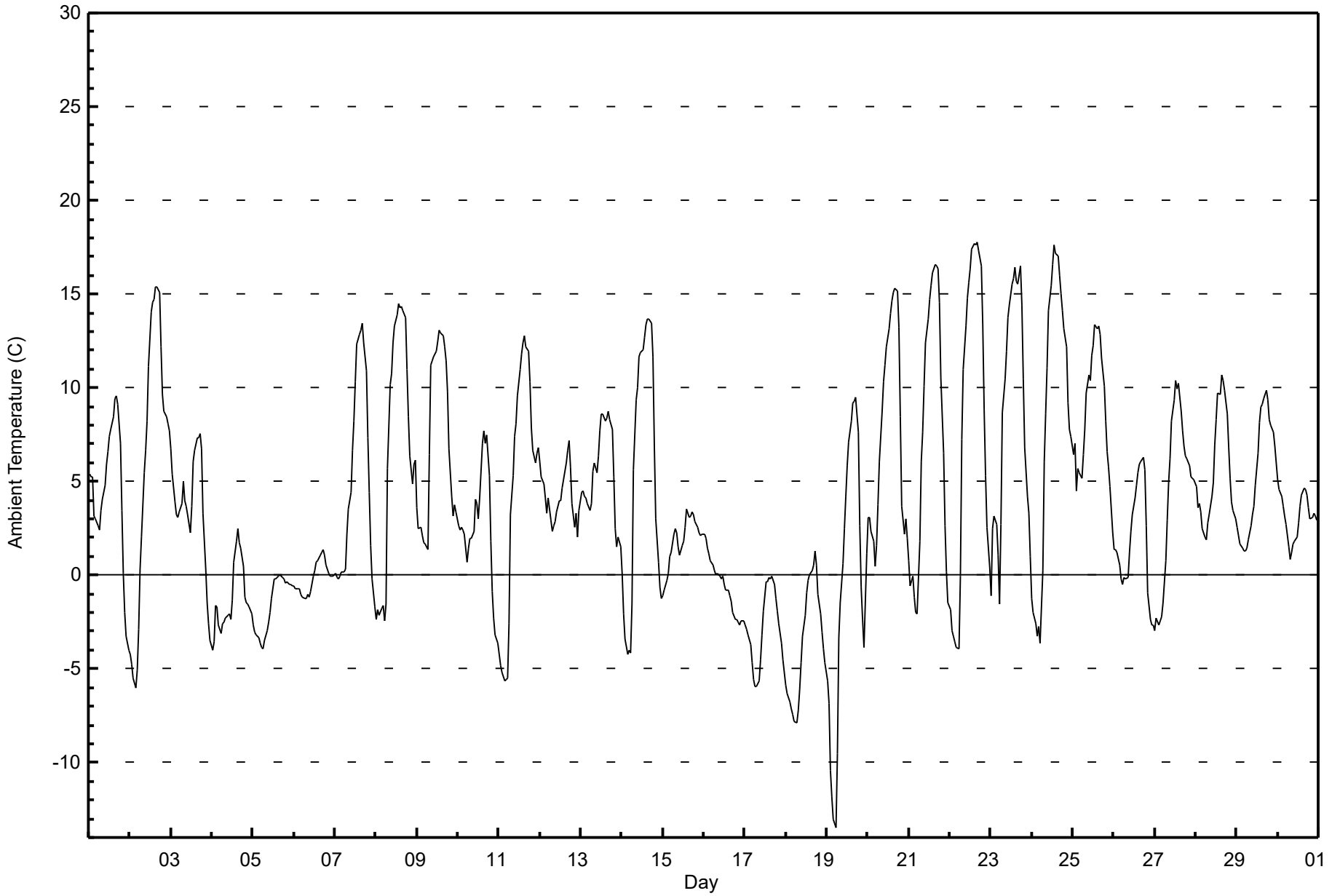
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature (AT) - C**

**Surmont 2 - April 2024**

Maximum Value: 17.7 C on Apr 22 17:00      Maximum Daily Average: 8.5 C on Apr 25																				Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -13.5 C on Apr 19 06:00      Minimum Daily Average: -3.6 C on Apr 18 Maximum Diurnal Average: 9.0 C at hour 16      Minimum Diurnal Average: -1.1 C at hour 6 Monthly Average: 3.86 C      Percentiles: P <sub>1</sub> = -7.4 P <sub>10</sub> = -3.0 Q <sub>1</sub> = -0.3 Median = 3.1 Q <sub>3</sub> = 7.7 P <sub>90</sub> = 12.7 P <sub>99</sub> = 17.0																										
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-Apr	5.4	5.2	5.3	3.2	3.0	2.6	2.4	3.4	4.0	4.8	5.9	6.6	7.4	7.8	8.5	9.4	9.6	9.1	7.0	3.4	0.1	-2.0	-3.3	-4.0	4.4	9.6
2-Apr	-4.2	-4.7	-5.5	-6.0	-5.1	-2.9	0.3	2.0	5.5	6.6	8.2	11.1	14.1	14.6	14.7	15.4	15.4	15.1	12.2	9.6	8.8	8.5	8.0	7.7	6.2	15.4
3-Apr	6.7	5.4	3.9	3.2	3.1	3.4	3.8	5.0	4.0	3.7	3.2	2.3	3.7	6.1	6.6	7.3	7.4	7.6	6.7	3.3	0.3	-1.5	-2.6	-3.5	3.7	7.6
4-Apr	-4.0	-3.6	-1.6	-1.7	-2.7	-3.1	-2.6	-2.5	-2.3	-2.2	-2.0	-2.4	-1.3	0.7	1.8	2.5	1.8	1.4	0.4	-1.2	-1.4	-1.6	-1.7	-2.1	-1.3	2.5
5-Apr	-2.7	-3.0	-3.2	-3.4	-3.6	-3.8	-4.0	-3.5	-3.0	-2.5	-2.0	-1.2	-0.2	-0.2	-0.1	0.0	0.0	-0.1	-0.2	-0.4	-0.4	-0.5	-0.5	-0.6	-1.6	0.0
6-Apr	-0.6	-0.7	-0.7	-0.8	-1.0	-1.1	-1.3	-1.2	-1.0	-1.2	-0.9	-0.1	0.3	0.7	0.8	1.0	1.2	1.4	1.1	0.5	0.1	0.0	-0.1	-0.1	-0.2	1.4
7-Apr	0.1	-0.1	-0.2	-0.1	0.1	0.2	0.3	2.2	3.5	4.4	6.6	8.2	10.3	12.3	12.9	13.1	13.4	12.4	10.9	7.3	4.4	1.6	-0.2	-1.7	5.1	13.4
8-Apr	-2.4	-1.9	-2.1	-1.8	-1.6	-2.4	-1.5	5.7	10.1	10.8	12.4	13.3	13.9	14.5	14.2	14.4	14.1	13.7	11.0	8.5	6.4	4.9	5.9	6.1	6.9	14.5
9-Apr	3.6	2.5	2.6	2.1	1.8	1.6	1.3	6.4	11.2	11.4	11.6	11.9	12.5	13.1	12.9	12.7	12.2	11.4	9.8	6.7	4.2	3.2	3.7	3.4	7.2	13.1
10-Apr	2.6	2.4	2.6	2.4	2.2	0.7	1.4	2.0	1.9	2.3	4.1	3.8	3.0	4.1	7.1	7.7	7.0	7.5	5.3	1.8	-0.9	-2.3	-3.2	-3.6	2.6	7.7
11-Apr	-4.3	-4.9	-5.2	-5.7	-5.6	-5.5	-2.6	3.2	5.3	7.4	8.1	9.6	11.0	11.8	12.4	12.8	12.2	11.9	10.3	7.8	6.6	6.0	6.5	6.8	4.8	12.8
12-Apr	6.1	5.2	4.9	4.1	3.3	4.1	3.0	2.3	2.7	2.9	3.4	4.0	4.0	4.7	5.1	6.0	6.6	7.2	5.8	3.8	2.5	3.3	2.1	3.5	4.2	7.2
13-Apr	4.4	4.5	4.2	4.1	3.8	3.4	3.8	5.5	6.0	5.5	6.4	7.7	8.6	8.6	8.3	8.4	8.7	8.3	7.8	5.2	2.5	1.5	2.0	1.5	5.4	8.7
14-Apr	0.1	-2.1	-3.4	-4.3	-4.0	-4.1	-1.5	5.6	9.3	10.1	11.7	11.9	12.0	12.7	13.4	13.7	13.7	13.4	11.6	6.9	3.0	0.7	-0.7	-1.3	5.3	13.7
15-Apr	-1.1	-0.8	-0.3	0.1	1.0	1.2	2.2	2.5	2.3	1.5	1.1	1.6	1.8	2.6	3.5	3.1	3.2	3.4	3.3	2.9	2.6	2.3	2.1	2.2	1.8	3.5
16-Apr	2.2	1.9	1.5	1.1	0.8	0.6	0.2	0.1	0.1	0.0	-0.2	0.0	-0.5	-0.8	-0.8	-1.1	-1.4	-2.0	-2.4	-2.3	-2.5	-2.6	-2.5	-2.5	-0.5	2.2
17-Apr	-2.6	-2.9	-3.2	-3.7	-4.7	-5.5	-5.9	-6.0	-5.6	-4.5	-3.2	-1.9	-0.4	-0.3	-0.1	-0.2	-0.1	-0.5	-1.3	-1.9	-2.6	-3.6	-4.5	-5.2	-2.9	-0.1
18-Apr	-5.9	-6.4	-6.8	-7.1	-7.5	-7.8	-7.9	-7.2	-6.1	-4.7	-3.3	-2.1	-1.0	-0.3	0.0	0.3	0.5	1.3	0.5	-1.0	-2.1	-3.0	-3.9	-4.7	-3.6	1.3
19-Apr	-5.7	-6.8	-10.4	-11.8	-13.0	-13.5	-9.5	-3.3	-1.5	0.6	2.5	4.2	5.8	7.1	8.2	9.2	9.3	9.5	7.6	2.6	-0.6	-2.4	-3.9	1.1	-0.6	9.5
20-Apr	3.1	3.0	2.4	1.8	0.5	1.6	3.7	6.1	8.7	10.3	11.2	12.1	13.2	14.0	14.6	15.1	15.3	15.1	13.2	8.5	3.7	2.2	3.0	2.0	7.7	15.3
21-Apr	0.8	-0.6	-0.1	-1.2	-2.0	-2.0	1.8	6.1	7.7	10.1	12.4	13.6	14.7	15.5	16.2	16.6	16.5	16.4	14.6	10.6	6.5	2.6	0.2	-1.5	7.3	16.6
22-Apr	-1.9	-3.0	-3.2	-3.5	-3.8	-4.0	-0.1	7.3	11.0	13.3	14.8	15.6	16.3	17.4	17.7	17.6	17.7	17.4	16.5	13.4	8.8	5.3	2.5	0.4	8.1	17.7
23-Apr	-1.1	2.5	3.2	2.7	1.0	-1.5	2.7	8.7	10.5	12.0	13.8	14.4	15.6	15.8	16.4	15.7	15.5	16.5	14.4	10.4	6.8	4.2	3.3	1.0	8.5	16.5
24-Apr	-1.3	-2.0	-2.6	-3.2	-2.7	-3.6	0.3	6.0	8.6	11.0	14.1	15.4	16.6	17.6	17.1	17.1	15.9	15.0	14.1	13.1	12.2	9.2	7.8	7.4	8.5	17.6
25-Apr	6.4	7.0	4.5	5.7	5.4	5.2	6.4	7.8	9.7	10.7	10.4	11.7	12.2	13.4	13.1	13.3	12.9	11.6	10.1	8.2	6.6	5.8	4.7	2.3	8.5	13.4
26-Apr	1.4	1.4	1.2	0.6	-0.2	-0.5	-0.1	-0.2	-0.1	1.2	2.4	3.2	4.1	4.8	5.5	5.9	6.1	6.3	5.6	2.6	-0.9	-2.3	-2.6	-2.6	1.8	6.3
27-Apr	-3.0	-2.3	-2.6	-2.4	-2.2	-1.5	0.7	3.0	4.9	6.2	8.2	9.4	10.4	10.0	10.3	8.7	7.7	6.9	6.3	6.2	5.9	5.2	5.2	5.1	4.4	10.4
28-Apr	4.7	3.6	3.8	3.4	2.5	2.0	1.9	2.8	3.2	4.2	4.9	7.0	8.3	9.7	9.7	10.7	10.4	9.9	8.6	6.8	5.2	3.9	3.5	3.0	5.6	10.7
29-Apr	2.6	2.1	1.7	1.4	1.3	1.3	1.4	1.9	2.7	3.2	3.7	4.8	6.5	8.1	9.0	9.1	9.4	9.9	9.3	8.3	8.0	7.6	6.9	6.0	5.3	9.9
30-Apr	5.1	4.5	4.2	3.7	3.1	2.7	1.5	0.8	1.2	1.6	1.8	2.0	2.8	3.7	4.3	4.7	4.6	4.2	3.6	3.0	3.1	3.3	3.2	2.9	3.2	5.1
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Surmont 2 - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	210	29.17	29.17
0 - 10	386	53.61	82.78
10 - 20	124	17.22	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720





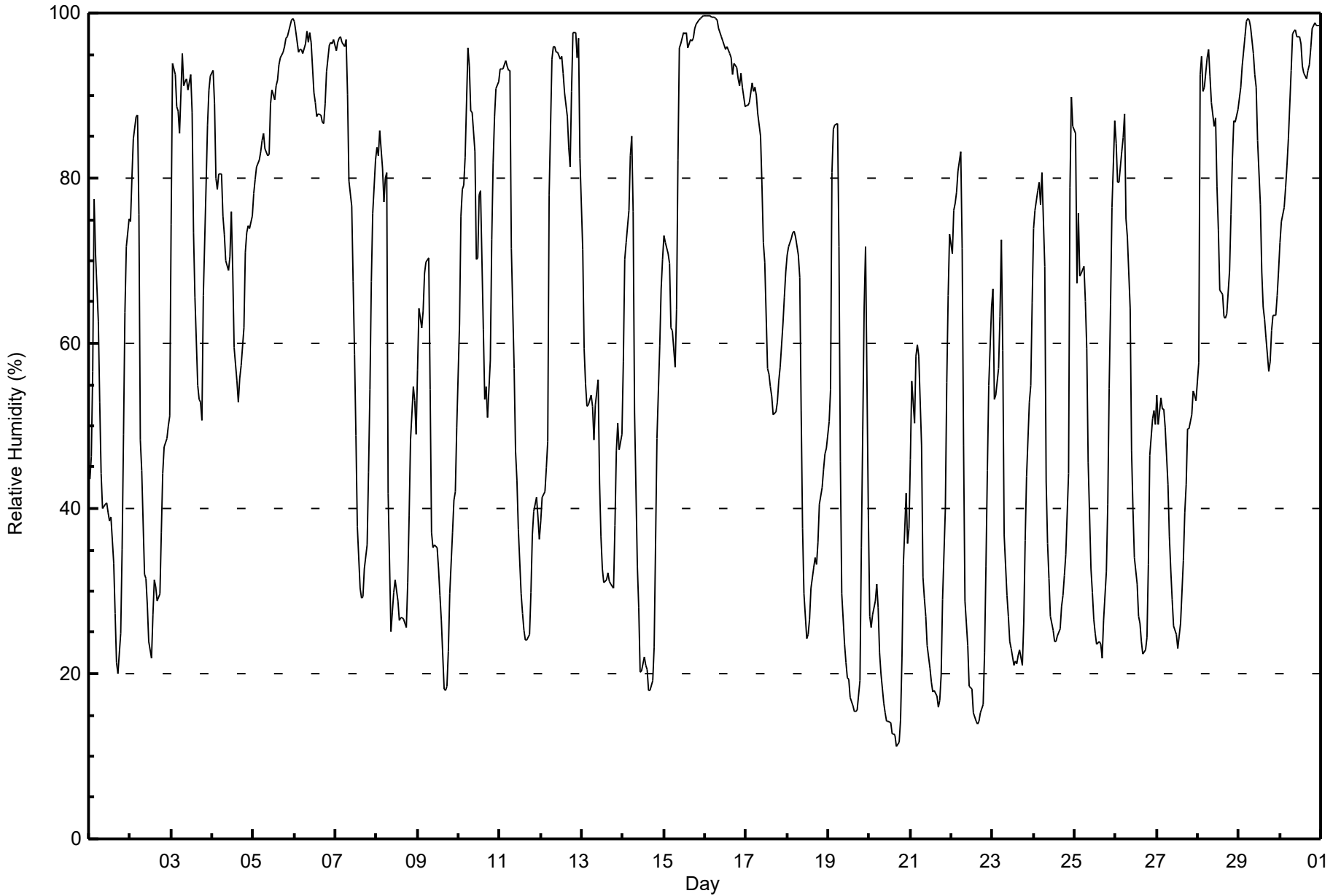
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Surmont 2 - April 2024**

Maximum Value: 99.7 % on Apr 16 01:00		Maximum Daily Average: 95.9 % on Apr 16		Hours in Service: 720																							
Minimum Value: 11.3 % on Apr 20 17:00		Minimum Daily Average: 22.1 % on Apr 20		Hours of Data: 720																							
Maximum Diurnal Average: 78.5 % at hour 6		Minimum Diurnal Average: 43.6 % at hour 17		Hours of Missing Data: 0																							
Monthly Average: 60.72 %		Percentiles: P <sub>1</sub> = 14.2 P <sub>10</sub> = 23.6 Q <sub>1</sub> = 35.2 Median = 63.0 Q <sub>3</sub> = 86.8 P <sub>90</sub> = 95.7 P <sub>99</sub> = 99.5		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	43.6	46.3	56.6	77.4	70.9	62.7	52.9	44.2	40.1	40.5	40.6	39.6	38.5	39.0	33.3	27.3	21.3	20.0	24.8	35.0	49.0	63.7	71.7	75.0	46.4	77.4	
2-Apr	74.8	80.0	84.8	87.5	87.6	75.6	48.4	44.5	32.1	31.5	28.4	23.8	21.8	27.2	31.3	30.6	28.9	29.7	37.1	44.3	47.4	48.5	50.1	51.1	47.8	87.6	
3-Apr	74.4	93.8	92.5	88.7	88.2	85.4	95.1	91.2	91.8	92.0	90.7	92.6	87.9	73.3	65.6	55.0	53.2	52.8	50.6	65.7	79.3	86.4	90.7	92.4	80.4	95.1	
4-Apr	93.0	88.9	80.0	78.6	80.5	80.5	75.5	73.2	70.0	68.9	70.5	75.9	68.8	59.5	55.4	53.0	55.8	57.3	61.8	71.0	73.3	74.2	73.9	75.5	71.5	93.0	
5-Apr	78.1	79.9	81.3	82.1	83.2	84.6	85.4	83.6	82.7	82.8	88.9	90.7	89.4	91.2	91.8	93.8	94.6	95.3	95.9	96.9	97.1	98.4	99.1	99.3	89.4	99.3	
6-Apr	99.1	97.9	95.3	95.5	95.6	95.1	96.3	97.8	96.5	97.6	96.4	90.3	89.1	87.4	87.8	87.6	86.7	86.6	89.1	92.8	96.2	96.5	96.3	96.7	93.6	99.1	
7-Apr	95.4	96.4	97.0	97.2	96.5	96.0	96.8	90.2	79.7	76.6	67.4	58.6	48.9	37.8	30.4	29.2	29.3	32.7	35.7	44.3	54.4	67.4	75.7	82.2	67.3	97.2	
8-Apr	83.8	82.7	85.7	81.2	77.0	80.1	80.8	41.9	25.0	27.4	29.8	31.4	28.9	26.4	26.7	26.8	26.6	25.6	31.0	39.2	48.3	54.8	53.1	48.9	48.5	85.7	
9-Apr	56.7	64.3	61.9	63.9	68.4	69.8	70.3	54.5	37.1	35.2	35.5	35.3	32.8	29.5	26.4	18.2	17.9	18.5	22.7	29.7	37.2	41.1	42.0	49.8	42.4	70.3	
10-Apr	62.3	75.4	78.6	79.2	82.6	95.7	93.6	88.2	87.9	83.3	70.2	70.3	77.9	78.4	61.8	53.2	54.7	51.0	57.9	72.5	81.8	87.4	90.8	91.6	76.1	95.7	
11-Apr	93.2	93.3	93.2	94.2	93.5	93.1	93.0	71.6	57.0	47.0	43.3	37.5	29.7	27.4	25.3	24.0	24.2	24.7	29.9	36.8	39.7	41.3	38.9	36.2	53.7	94.2	
12-Apr	38.4	41.4	42.0	44.9	48.1	77.9	94.4	96.0	96.0	95.2	95.3	94.4	94.7	92.7	90.3	87.5	83.6	81.4	90.5	97.7	97.6	94.6	96.9	82.4	81.4	97.7	
13-Apr	71.3	59.4	55.0	52.3	52.6	53.7	52.4	48.2	52.6	55.5	43.3	36.5	32.7	31.0	31.3	32.2	31.2	30.8	30.4	37.9	46.9	50.4	47.2	49.0	45.2	71.3	
14-Apr	57.8	70.2	72.2	76.0	82.7	85.0	75.9	51.7	33.0	28.0	20.2	20.4	22.0	21.0	20.5	17.9	18.0	19.1	23.2	35.5	48.5	59.7	66.7	70.2	45.6	85.0	
15-Apr	73.1	72.2	70.9	69.6	61.9	61.5	57.2	64.0	82.2	95.7	96.3	97.7	97.5	97.6	95.7	96.7	96.6	96.9	98.1	98.7	99.2	99.3	99.5	99.6	86.6	99.6	
16-Apr	99.7	99.6	99.7	99.6	99.5	99.5	99.4	99.1	98.1	97.1	96.6	96.0	95.6	96.0	95.1	94.6	92.6	94.0	93.5	92.0	91.1	92.7	91.0	88.7	95.9	99.7	
17-Apr	88.8	88.9	89.1	91.6	90.4	91.0	90.0	87.8	85.1	79.1	72.2	69.8	57.0	56.2	54.8	53.6	51.4	51.7	52.8	55.4	57.1	62.4	65.6	68.7	71.3	91.6	
18-Apr	70.6	71.6	72.8	73.4	73.5	72.9	70.7	67.9	51.9	37.7	29.6	24.2	24.7	26.5	30.4	32.8	34.0	33.2	35.9	40.6	42.6	44.8	46.6	47.3	48.2	73.5	
19-Apr	50.6	54.4	80.6	85.9	86.5	86.5	71.7	45.8	29.6	23.5	21.4	19.6	19.3	17.2	16.2	15.4	15.3	15.7	19.2	35.2	49.5	64.4	71.7	39.1	43.1	86.5	
20-Apr	26.9	25.7	27.1	28.9	30.9	28.0	22.6	20.1	16.4	15.2	14.3	14.3	14.1	12.8	12.7	12.5	11.3	11.6	14.4	21.8	33.3	41.8	35.7	37.7	22.1	41.8	
21-Apr	45.9	55.5	50.4	58.5	59.9	58.5	47.6	31.7	29.2	27.0	23.5	20.7	18.9	17.9	17.9	17.3	16.0	16.8	19.8	28.9	39.9	55.2	65.7	73.2	37.3	73.2	
22-Apr	70.8	76.1	77.0	78.3	80.9	83.3	71.5	47.7	28.7	23.3	18.5	18.3	18.2	15.3	14.2	13.9	14.3	15.3	16.3	22.6	33.0	44.6	55.0	64.4	41.7	83.3	
23-Apr	66.6	53.3	53.7	57.0	63.2	72.5	59.1	36.7	29.5	26.9	24.0	23.1	21.1	21.6	21.1	22.2	22.9	21.0	26.3	36.1	43.8	52.8	54.9	64.9	40.6	72.5	
24-Apr	73.9	76.1	78.4	79.5	76.7	80.6	69.4	43.3	35.7	31.5	26.9	25.3	23.8	23.9	24.6	25.5	28.2	29.5	31.8	34.4	44.2	78.9	89.8	86.3	50.8	89.8	
25-Apr	85.4	67.2	75.8	68.1	68.5	69.2	65.0	59.3	45.7	32.7	29.8	26.5	24.9	23.5	23.9	23.6	21.9	26.4	32.3	40.5	54.5	64.7	76.5	86.9	49.7	86.9	
26-Apr	84.2	79.4	79.5	83.3	85.0	87.8	75.1	72.8	64.2	46.9	39.8	34.0	30.8	26.9	26.1	23.9	22.4	22.8	24.4	33.2	46.5	50.9	51.9	50.2	51.8	87.8	
27-Apr	53.6	50.2	53.3	52.0	52.0	49.9	42.9	36.7	32.6	28.9	25.7	24.8	23.1	24.6	26.1	33.8	39.5	42.8	49.7	49.7	51.3	54.3	53.8	53.1	41.8	54.3	
28-Apr	57.6	92.6	94.8	90.6	91.1	94.7	95.7	92.4	89.1	86.4	87.3	79.0	73.8	66.5	65.9	63.3	63.1	63.5	68.9	75.6	82.3	86.9	86.8	88.3	80.7	95.7	
29-Apr	89.6	91.0	93.6	97.1	99.0	99.3	99.2	98.4	95.1	92.5	91.0	84.6	76.7	68.7	64.3	63.0	60.6	56.5	57.8	61.6	63.4	63.3	65.7	68.8	79.2	99.3	
30-Apr	72.3	74.7	76.4	78.7	81.5	84.7	93.1	97.4	97.9	97.9	97.1	97.1	96.3	93.6	92.8	92.0	93.1	93.7	95.8	98.1	98.7	98.5	98.5	98.5	91.6	98.7	
		71.0	73.3	75.0	76.4	76.9	78.5	74.7	65.9	59.7	56.8	53.8	51.7	49.3	47.0	45.3	44.0	43.6	43.9	47.3	54.1	60.9	67.3	70.1	70.5	Diurnal Average	
		99.7	99.6	99.7	99.6	99.5	99.5	99.4	99.1	98.1	97.9	97.1	97.7	97.5	97.6	95.7	96.7	96.6	96.9	98.1	98.7	99.2	99.3	99.5	99.6	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Surmont 2 - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	41	5.69	5.69
20 - 40	172	23.89	29.58
40 - 60	136	18.89	48.47
60 - 80	139	19.31	67.78
80 - 100	232	32.22	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



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

**Wind Speed (WS) - km/h**  
**Surmont 2 - April 2024**

Maximum Speed: 19 km/h on Apr 1 10:00	Maximum Daily Speed Average: 11.3 km/h on Apr 13	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 19 06:00	Minimum Daily Speed Average: 1.5 km/h on Apr 15	Hours of Data: 691
Maximum Diurnal Speed Average: 2.9 km/h at hour 14	Minimum Diurnal Speed Average: 0.9 km/h at hour 20	Hours of Missing Data: 29
Monthly Average Velocity: 1.8 km/h 303.7 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 12 P <sub>99</sub> = 17	Percent Operational Time: 96.0

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-Apr	S11	SW9	W14	NW9	W9	W14	W14	W15	WNW18	WNW19	WNW18	NW15	NW14	WNW14	WNW14	WNW13	WNW13	NW10	WNW5	W4	SW4	SW3	SW2	SW2	W9.8	WNW19
2-Apr	SW2	SSW2	SW1	SSW1	SSW2	SSW2	SSE4	SE4	ESE8	ESE8	SE10	SE10	SSE9	SW7	SW6	S6	SE7	SE6	SE4	S2	SSW4	SSW4	SE4	SE4	SSE4.0	SE10
3-Apr	SSW2	SSE2	S2	SW1	S1	W4	NW2	NW10	NW12	NW11	WNW10	WNW10	WNW9	W12	W12	W12	W10	W8	WSW5	WNW2	WSW3	SW2	SW2	WNW5.3	NW12	
4-Apr	WSW1	WSW5	W7	W7	W5	WNW5	NW8	NW8	NNW8	N9	N9	N7	NNW9	NNE7	NE7	ENE8	NE8	NE5	NNE3	WNW2	N2	ENE4	E6	E8	N3.3	N9
5-Apr	E7	E6	ENE4	ENE4	NE4	NNE4	NNE4	NNE5	NNE5	N6	NNE4	N6	NNE7	NNE5	NNE5	NNE5	NNE5	N4	N4	N3	N2	WNW3	NW4	NW4	NNE3.8	E7
6-Apr	NNW5	NW4	NNW4	NNW4	NNW5	NNW5	NNW5	NNW6	NNW6	NNW7	NNW6	N5	NNE6	N4	NNW6	NNW5	NW4	NNW3	NW3	W2	WSW2	WSW1	NNW1	WSW1	NNW3.9	NNW7
7-Apr	WNW1	S0	ESE1	SSW1	SE3	SE1	E0	ESE1	SW3	SW4	SSE2	WSW5	SW6	WSW8	W10	W8	W9	WSW8	WSW5	WSW3	WSW5	SW3	SW2	SSW1	WSW3.3	W10
8-Apr	SSW1	SSW1	SW1	SW2	SW2	SW3	SW1	SE5	SE9	SE7	S5	SW8	SW7	WSW11	SSW6	SSW6	SSW6	SSW5	S3	SW2	SW2	SW3	SSW4	SSE2	SSW3.6	WSW11
9-Apr	SW2	S2	SW2	SW2	S1	SW1	SW1	E1	W6	WNW10	W11	W11	W11	W12	W13	W15	W15	W12	W9	WSW6	WSW5	WSW5	WSW8	WSW9	W6.7	W15
10-Apr	W9	W10	W9	WNW11	WNW9	WNW6	WNW8	WNW11	NW12	WNW11	NW14	NW13	NW12	NNW11	N12	N9	N8	NNE9	N2	WSW3	SW3	SW3	SW2	SW2	NW6.7	WNW14
11-Apr	SW2	SW2	SW2	SW2	SW2	SSW2	S2	E5	ESE7	ESE10	ESE11	SE10	SE9	SE8	SE11	ESE13	ESE12	SE11	ESE9	ESE7	SE7	ESE6	SSE9	SSE9	SE6.3	ESE13
12-Apr	SE7	ESE6	SE6	ESE5	ESE4	SSE9	SE12	SE12	SE10	SE9	SE8	ESE8	ESE8	SE4	ESE3	ESE4	SE3	SSE3	SSE2	S2	S3	SSW4	S3	WSW8	SE5.2	SE12
13-Apr	WSW10	WSW10	WSW10	WSW11	W10	WSW9	WSW11	W14	W17	WNW17	WNW16	W17	W18	W18	W16	W15	W15	W10	W8	WSW6	WSW5	WSW5	WSW6	WSW6	W11.3	W18
14-Apr	WSW5	WSW5	ESE1	ESE1	SW1	SW2	S0	E2	ESE7	S3	WSW11	SW9	W11	W10	W9	W12	W11	W9	WNW5	WSW3	SW4	SW3	SW2	SW1	WSW4.1	W12
15-Apr	SW1	ESE0	SW2	N1	SE1	W1	NNW1	ENE1	WNW0	NW1	NW3	NE2	NNE4	NNE5	NNE4	NNE5	NNW3	NNW2	NE2	NNE2	NNE3	NW4	WNW4	NW3	N1.5	NNE5
16-Apr	NW3	NNW6	NW4	NNW6	NNW5	NW6	NW7	NW8	NNW8	NNW10	NNW9	NNW10	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNW10
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	N14	N14	N16	N14	N14	N13	N12	NNE10	NNE10	N9	NNW9	NNW8	---	N16
18-Apr	NW7	NW7	NNW8	NNW7	NNW7	NNW8	NNW9	NNW8	NNW11	N12	N12	N12	N11	N11	N10	NNE11	NNE10	N10	NNE8	N6	NNW6	NW4	WNW5	WNW5	N8.0	N12
19-Apr	WNW5	WNW4	WSW2	SW1	SW0	SW0	ENE1	N2	NNW4	N6	N5	N5	N6	NNW4	NW6	NNW7	NW7	WNW6	WNW5	WSW4	SW6	SSW2	SW1	W7	NW2.8	W7
20-Apr	W8	W9	W8	W8	W7	W9	W11	W10	WNW12	W11	WNW12	W10	WSW11	W10	W11	W10	WSW7	WSW5	WSW5	WSW4	SW5	SSW3	SSW3	SSE2	W7.5	WNW12
21-Apr	SW2	S2	SSW1	SE2	SE3	SSW2	ESE3	ESE7	ESE8	SE9	SE12	SE11	SE10	SE9	ESE8	ESE8	SE4	SSE3	NE1	E2	WSW4	SW2	SW2	SW1	SE4.1	SE12
22-Apr	SW2	UO	UO	UO	UO	UO	NE0	NE1	NNW6	NNW8	N10	N10	N11	NNW11	N12	N10	NNW10	N8	N7	NNE3	W3	SW4	SW4	SW2	NNW5.2	N12
23-Apr	W2	W5	WNW5	WNW5	WNW3	SE0	NW1	NNE4	NE4	N5	NE4	NNW5	N6	N5	NNE6	NNE5	NNE5	NNE4	ENE4	ESE2	WSW3	WSW3	WSW4	SW4	NNW2.0	NNE6
24-Apr	SW2	WSW2	WSW1	SW1	SW2	SSW1	ENE1	E6	E9	ESE13	ESE14	E16	E16	E17	E18	E15	E12	E11	E8	SE4	SW4	SSE3	SSW3	ESE7.0	E18	
25-Apr	SW3	W5	W2	W7	W9	W9	WSW11	WSW12	W12	W13	W13	W14	W15	W15	W16	W15	W15	W15	W14	W12	WNW11	WNW10	NNW9	NNW11	W10.4	W16
26-Apr	NNW10	NW7	NW9	NNW9	NNW9	NNW6	NNW7	NNW8	NNW11	NNW13	N13	N11	N12	N11	NNW9	N10	N8	NNE7	NNE6	NNE2	WSW2	SW3	S3	S3	NNW6.8	NNW13
27-Apr	SE4	SSE5	SE4	SE5	SSE5	SSE7	SSE8	SSE8	SE9	SE11	SE11	SE12	SE13	SE11	SSE11	SSE12	S8	ESE9	SE8	ESE7	ESE5	ESE4	ESE5	ESE5	SE7.6	SE13
28-Apr	SE7	SE8	SE4	SE4	SE5	ESE7	ESE5	SE4	ESE4	ESE4	ESE4	E5	E8	ESE11	ESE10	ESE10	ESE12	E11	E10	E7	ESE5	ESE4	E4	ESE5	ESE6.4	ESE12
29-Apr	ESE4	E6	ESE4	ESE5	ESE4	E4	E4	ENE3	ENE4	E4	NNE2	NNE5	NNE7	NNE8	NNE8	NNE8	NNE8	N8	N7	NNW7	NNW5	NNE7	NNE7	NNE7	NE4.3	NNE8
30-Apr	N6	N7	N8	N8	N9	N9	NNW8	NNW8	NNW9	N10	N11	NNW10	N8	N8	N8	NNW9	NW8	NW8	NNW9	NW7	NW6	NW5	NNW6	NNW6	NNW7.6	N11

WSW1.3	WSW1.9	W2.1	WNW2.0	WNW1.8	W2.1	WNW1.8	NW1.8	NW2.4	NW2.6	NW2.8	NW2.7	NNW2.7	NW2.9	NW2.8	NNW2.5	NW2.3	NNW2.1	NNW1.6	NNW0.9	WSW1.7	WSW1.4	WSW1.0	W1.1	Diurnal Average	
S11	WSW10	W14	WNW11	W10	W14	W14	W15	WNW18	WNW19	WNW18	W17	W18	W18	E18	E17	E15	W15	W14	W12	WNW11	WNW10	NNW9	NNW11	Diurnal Maximum	

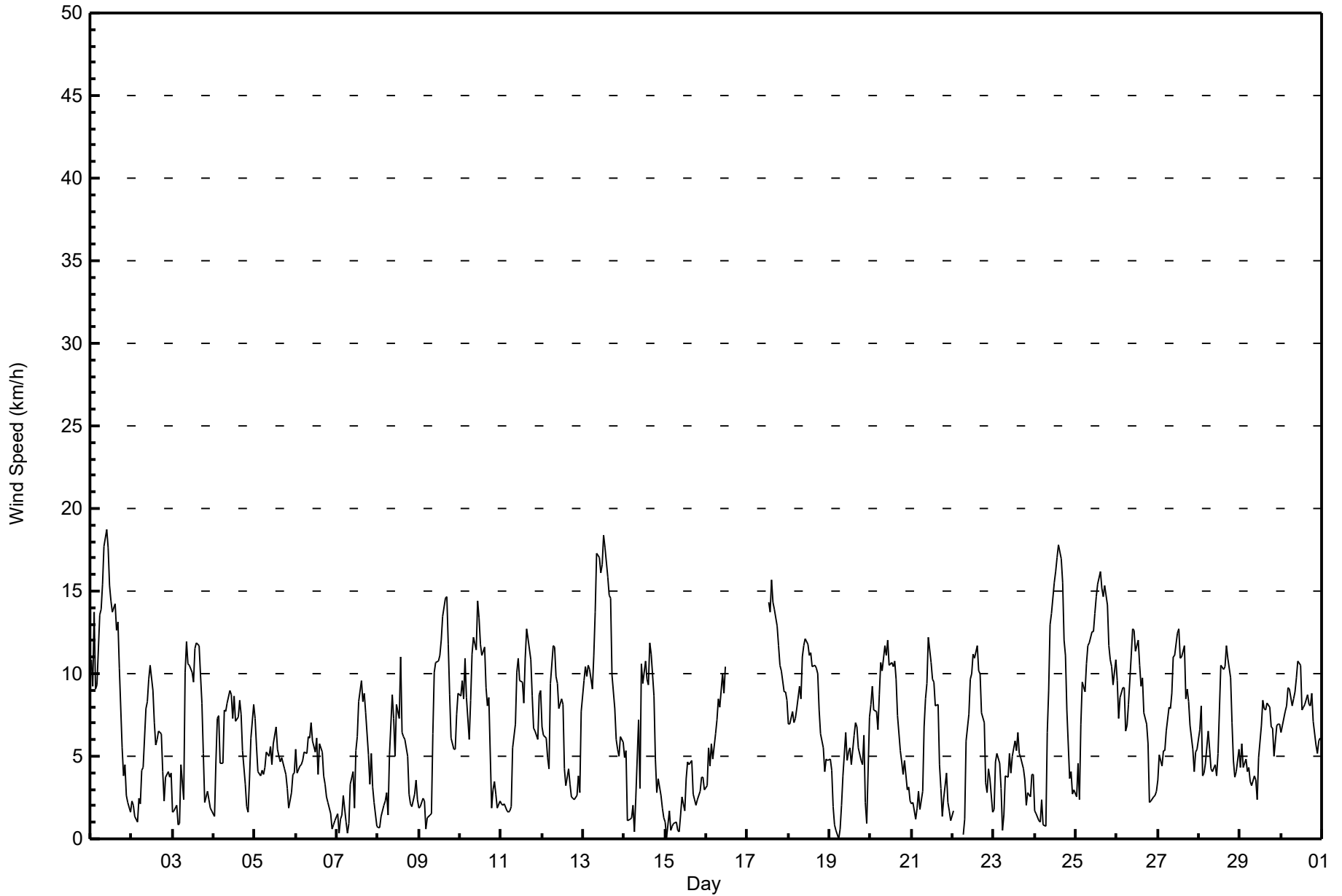
UO - Unstable Operation

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Surmont 2 - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Surmont 2 - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	318	46.02	46.02
6 - 11	288	41.68	87.70
12 - 19	85	12.30	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 691

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Surmont 2 - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	14	24	9	9	10	26	21	12	17	23	62	32	10	18	14	17	318
6 - 11	39	20	2	1	12	24	27	8	3	3	8	20	41	13	19	48	288
12 - 19	14	0	0	0	7	5	5	1	0	0	0	1	33	12	6	1	85
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	67	44	11	10	29	55	53	21	20	26	70	53	84	43	39	66	691

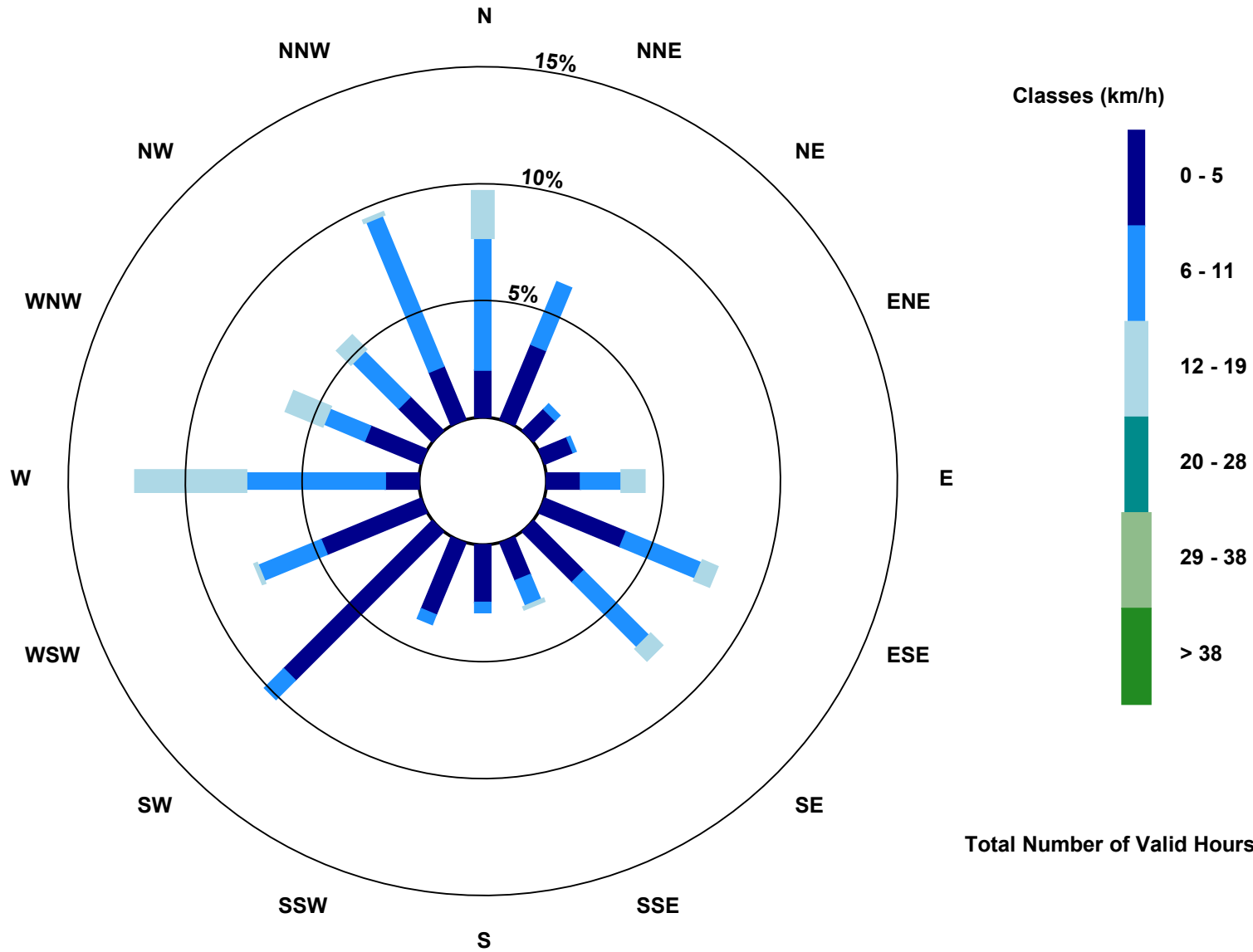
Total Number of Valid Hours: 691

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Surmont 2







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Surmont 2 - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Apr 1 10:00	Hours in Service: 720 Hours of Data: 691 Hours of Missing Data: 29 Hours of Calibration: 0 Percent Operational Time: 96.0
Minimum Value: 0 km/h on Apr 19 06:00	
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 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-Apr	5	4	6	6	3	5	5	6	7	7	7	6	6	5	5	6	5	5	3	1	1	1	1	1	7
2-Apr	1	1	1	1	1	1	2	2	2	2	3	4	4	3	3	3	3	3	2	1	1	2	2	2	4
3-Apr	2	2	1	1	1	3	3	4	5	5	4	3	3	5	4	4	3	3	3	1	2	1	2	1	5
4-Apr	1	3	2	2	2	2	3	3	4	3	3	3	3	3	3	3	3	2	2	1	1	2	2	3	4
5-Apr	3	2	1	1	2	1	1	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1	2	1	3
6-Apr	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	3
7-Apr	1	1	1	1	1	1	1	1	2	2	1	2	3	3	3	3	3	4	2	1	1	1	1	1	4
8-Apr	1	1	1	1	1	1	1	3	3	3	3	4	4	4	3	3	4	3	1	1	1	1	3	1	4
9-Apr	1	1	1	1	1	1	1	1	4	4	4	4	4	5	5	5	5	4	3	2	1	1	2	3	5
10-Apr	3	3	3	4	3	2	3	5	5	5	6	6	5	5	4	4	5	4	1	1	2	1	1	2	6
11-Apr	1	1	1	1	1	1	1	2	2	3	3	4	5	4	4	5	4	4	3	3	3	2	4	4	5
12-Apr	3	2	2	2	2	4	5	4	4	3	3	3	3	2	1	2	2	1	1	1	1	2	1	4	5
13-Apr	4	3	3	3	3	3	4	4	6	6	7	6	7	6	5	5	5	5	4	1	1	2	1	1	7
14-Apr	2	2	1	1	1	1	1	3	4	4	4	4	4	4	4	4	4	3	2	1	2	1	1	1	4
15-Apr	1	1	1	1	2	1	2	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2
16-Apr	1	2	2	2	2	2	3	3	3	4	4	4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6	6	6	6	5	5	5	5	4	4	3	3	6
18-Apr	2	3	3	3	3	3	3	3	4	4	4	5	4	5	4	5	4	4	3	3	2	2	1	1	5
19-Apr	1	1	1	1	1	0	1	2	2	2	3	3	3	3	3	3	3	3	2	1	1	2	2	2	3
20-Apr	2	3	2	2	2	3	4	3	4	3	4	4	4	4	4	4	3	3	2	1	1	1	1	1	4
21-Apr	1	1	1	1	1	1	2	2	3	4	4	4	4	4	4	4	3	2	2	2	1	1	1	1	4
22-Apr	1	UO	UO	UO	UO	UO	1	1	3	3	3	4	5	5	5	5	4	4	3	3	1	1	1	1	5
23-Apr	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	4	2	2	1	1	1	1	1	1	4
24-Apr	1	1	1	1	1	1	1	3	3	4	4	4	5	5	6	6	5	4	3	4	4	4	2	1	6
25-Apr	2	2	2	2	3	3	3	4	4	4	4	4	4	5	5	6	6	5	6	5	4	5	4	5	6
26-Apr	4	3	4	4	4	3	3	3	4	5	5	5	5	4	4	4	4	3	2	2	1	1	1	1	5
27-Apr	2	2	2	2	2	3	4	3	4	4	4	5	5	5	5	5	5	4	3	2	2	2	2	2	5
28-Apr	3	3	2	2	2	2	2	1	1	1	1	2	3	3	3	3	3	4	3	2	2	1	2	2	4
29-Apr	2	2	2	1	1	2	1	1	1	1	1	2	3	3	3	3	3	4	3	3	2	3	3	3	4
30-Apr	3	3	3	3	4	4	3	3	3	4	4	4	3	3	3	3	3	3	4	3	2	2	2	2	4

5	4	6	6	4	5	5	6	7	7	7	7	6	7	6	6	6	5	6	5	5	5	4	4	5	
Diurnal Maximum																									

UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Surmont 2 - April 2024**

Direction of Maximum Speed: 290 deg on Apr 1 10:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 268.9 deg on Apr 13	Hours of Data: 691
Direction of Minimum Speed: 219 deg on Apr 19 06:00	Hours of Missing Data: 29
Direction of Minimum Daily Speed Average: 1.5 deg on Apr 15	Percent Operational Time: 96.0
Monthly Average Direction: 303.7 deg	

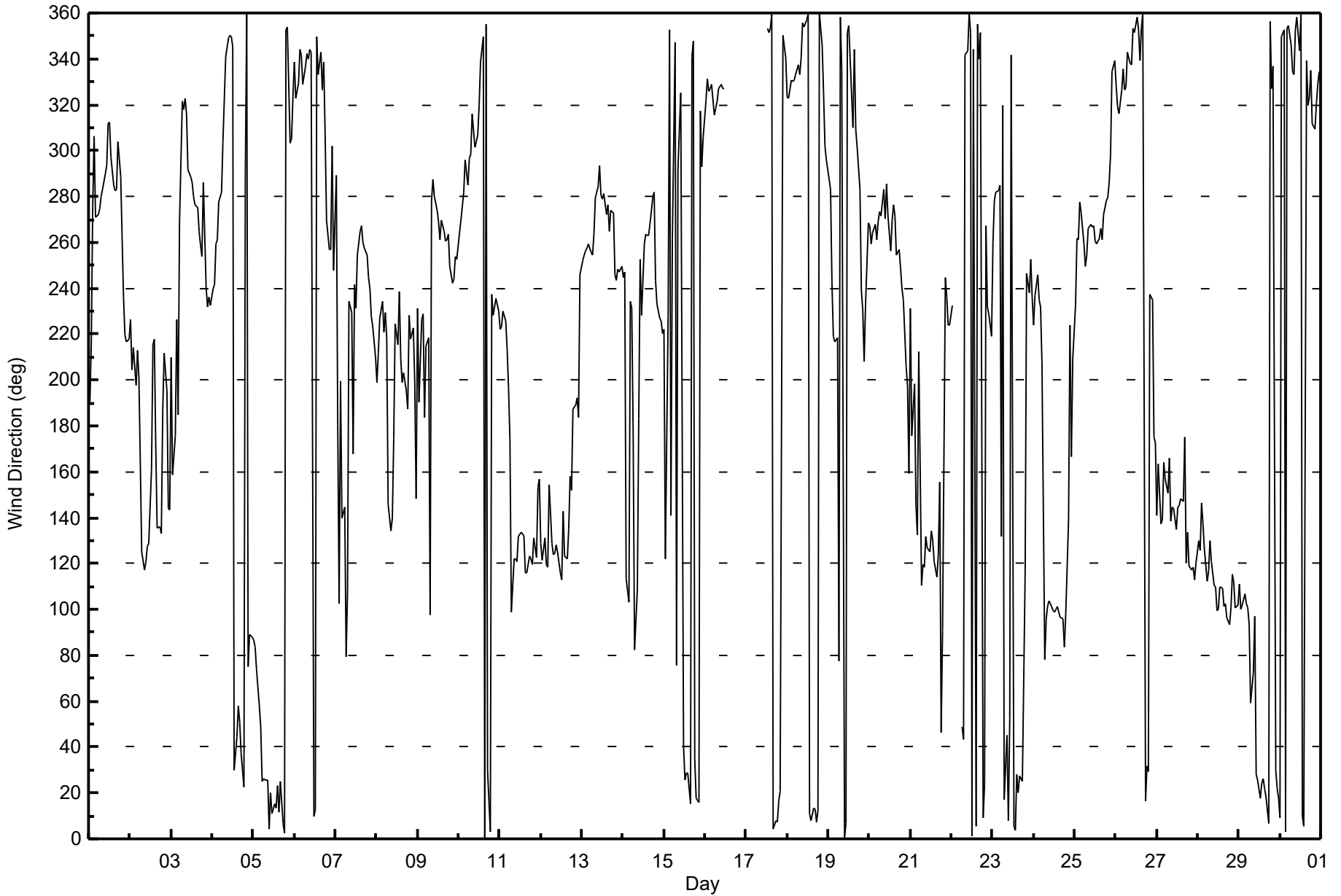
Day	Hourly Period Ending At (MST)																								Daily Average	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	190	216	276	306	271	272	275	280	283	290	294	312	313	297	285	282	283	304	288	262	236	220	216	218	281.3	
2-Apr	226	204	214	198	213	201	164	125	117	121	128	129	161	215	218	172	136	136	133	186	212	195	144	143	156.6	
3-Apr	210	159	176	227	185	269	322	318	323	316	292	289	286	280	277	275	265	259	254	286	241	232	236	233	281.8	
4-Apr	240	242	260	261	278	282	304	323	341	349	351	349	345	30	44	58	51	37	23	290	359	75	89	88	354.8	
5-Apr	86	83	74	58	49	25	26	26	26	4	20	11	15	13	23	12	25	7	3	353	354	303	305	323	22.1	
6-Apr	338	323	329	344	342	329	337	342	340	344	343	10	13	350	333	343	326	339	307	270	257	257	302	248	337.6	
7-Apr	289	180	102	200	140	144	80	108	235	229	168	241	231	254	265	267	260	257	255	245	240	228	224	210	244.5	
8-Apr	199	212	227	234	221	229	219	146	134	140	175	224	215	238	210	199	203	195	187	228	218	223	199	148	198.1	
9-Apr	231	190	226	229	184	215	218	97	279	287	280	274	269	261	270	265	260	261	263	249	242	244	254	252	261.7	
10-Apr	264	270	276	282	296	285	297	299	316	301	304	307	320	339	350	0	355	30	3	238	228	232	235	230	306.7	
11-Apr	222	223	230	226	214	197	174	99	122	122	121	132	134	133	132	116	116	124	122	119	131	122	153	157	131.7	
12-Apr	129	122	131	119	119	154	128	124	124	128	125	116	113	143	123	122	136	158	152	187	189	192	184	246	135.7	
13-Apr	252	255	256	258	259	256	255	263	279	284	294	281	279	281	272	276	265	274	273	246	244	248	247	250	268.9	
14-Apr	245	247	114	103	234	231	177	82	109	183	253	228	259	264	263	268	280	282	244	233	227	226	220	220	250.6	
15-Apr	222	122	228	353	141	261	347	76	292	309	325	40	26	29	29	15	341	348	35	18	16	318	293	306	354.2	
16-Apr	321	331	326	327	329	315	319	322	327	329	327	327	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	353	351	353	360	4	8	8	16	21	350	345	340	--
18-Apr	323	323	331	330	331	333	337	333	341	355	354	357	360	11	8	13	13	7	12	360	346	325	302	296	348.8	
19-Apr	288	283	242	219	217	219	78	358	335	1	7	351	355	340	310	344	310	301	283	239	231	208	233	269	308.3	
20-Apr	268	259	264	268	261	269	273	272	283	270	285	271	256	270	276	272	254	257	249	240	235	205	197	159	265.0	
21-Apr	231	175	198	146	133	212	110	120	118	132	127	125	134	130	121	114	125	155	47	91	245	236	224	224	133.4	
22-Apr	232	UO	UO	UO	UO	UO	49	43	342	344	360	352	1	344	5	355	340	351	9	24	267	232	229	219	348.1	
23-Apr	260	278	282	283	285	132	320	17	45	8	52	342	5	4	28	20	28	25	70	117	246	238	252	236	348.0	
24-Apr	224	237	246	235	232	207	78	96	101	104	103	99	99	100	101	96	96	96	84	98	139	224	167	209	104.0	
25-Apr	233	262	261	278	273	259	250	255	266	266	266	268	261	260	261	266	261	272	278	280	286	298	335	339	271.8	
26-Apr	328	319	316	327	336	327	328	343	338	337	353	351	358	353	339	353	360	16	32	29	237	235	175	173	342.1	
27-Apr	141	163	137	139	164	157	151	166	139	144	144	135	145	145	148	147	175	120	133	119	117	119	113	120	142.1	
28-Apr	130	125	146	137	127	112	117	130	121	110	110	99	100	110	109	102	103	96	93	101	115	112	101	102	110.0	
29-Apr	111	100	102	107	103	101	93	59	73	97	28	26	18	25	26	22	18	7	356	327	337	30	22	18	36.6	
30-Apr	9	350	353	3	353	354	346	334	333	353	358	344	359	10	5	339	320	323	335	312	310	321	329	334	344.0	

253.0 255.1 274.9 289.2 285.2 273.7 289.1 314.8 325.8 324.5 324.9 320.6 327.0 316.6 321.3 330.7 313.4 334.0 343.2 295.2 254.1 253.7 251.3 260.1

Diurnal Average

UO - Unstable Operation

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**  
**Surmont 2 - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 110 deg on Apr 15 06:00	Hours of Data: 691
Minimum Value: 10 deg on Apr 7 21:00	Hours of Missing Data: 29
Percentiles: P <sub>1</sub> = 14 P <sub>10</sub> = 24 Q <sub>1</sub> = 31 Median = 40 Q <sub>3</sub> = 47 P <sub>90</sub> = 64 P <sub>99</sub> = 99	Hours of Calibration: 0
	Percent Operational Time: 96.0

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	58	61	39	40	30	30	30	31	34	33	37	41	42	41	34	37	35	42	38	22	18	22	24	27	61
2-Apr	19	41	31	52	28	31	47	48	29	29	34	36	62	58	59	64	53	54	50	72	48	55	47	51	72
3-Apr	90	96	45	87	80	55	85	40	41	42	30	29	32	31	33	31	30	25	31	81	71	43	45	66	96
4-Apr	77	35	23	25	29	33	44	41	46	42	39	42	42	54	44	43	36	40	41	31	57	29	21	22	77
5-Apr	25	25	27	30	35	37	34	37	39	36	41	37	43	40	43	38	39	42	40	44	55	43	42	37	55
6-Apr	34	43	37	40	41	40	33	30	39	40	35	39	42	58	36	38	54	44	40	25	42	47	69	58	69
7-Apr	69	94	60	62	53	67	91	62	76	60	86	53	59	53	40	43	36	28	25	14	10	19	19	44	94
8-Apr	38	50	21	40	41	32	64	48	45	40	68	58	66	43	72	64	61	62	51	35	29	31	49	43	72
9-Apr	46	41	30	39	82	60	57	34	70	38	33	36	39	37	33	31	30	30	25	20	11	14	22	23	82
10-Apr	25	28	31	29	36	32	38	37	44	38	41	40	42	43	40	45	56	35	64	29	42	24	28	17	64
11-Apr	35	11	17	41	44	36	59	24	36	34	31	42	49	51	39	31	32	38	32	32	41	44	51	52	59
12-Apr	45	38	41	42	45	57	42	33	37	43	35	31	27	50	41	40	62	62	43	46	54	50	42	39	62
13-Apr	33	27	27	28	26	27	27	28	29	30	38	37	33	33	31	35	30	33	30	18	11	13	14	15	38
14-Apr	22	22	56	29	39	14	80	34	39	80	40	55	37	48	59	37	34	33	29	26	19	37	33	33	80
15-Apr	45	101	62	106	108	110	102	100	105	77	56	64	40	31	37	34	71	42	42	58	44	37	31	26	110
16-Apr	39	33	33	38	45	39	39	35	41	42	43	42	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	45
17-Apr	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	40	44	39	42	39	41	46	46	37	40	38	42	46
18-Apr	37	41	38	37	35	33	34	37	36	37	40	42	39	43	43	44	42	40	42	41	47	47	28	27	47
19-Apr	22	23	25	53	39	72	61	64	66	52	76	66	70	75	67	50	52	47	31	14	10	62	88	24	88
20-Apr	24	24	26	23	20	27	27	32	30	32	32	39	38	39	37	37	42	68	33	12	16	45	64	44	68
21-Apr	29	60	99	59	22	28	46	35	32	42	40	46	48	47	51	39	71	67	93	62	17	50	18	64	99
22-Apr	45	UO	UO	UO	UO	UO	83	60	47	43	40	47	50	51	48	53	43	43	42	58	42	29	24	34	83
23-Apr	81	23	23	20	23	80	65	55	67	68	89	78	71	68	52	74	41	63	33	40	48	43	23	21	89
24-Apr	49	74	79	79	37	77	69	26	27	20	23	24	23	19	22	20	24	25	31	78	76	61	60	79	79
25-Apr	64	34	73	30	26	25	25	31	31	30	31	34	34	35	33	36	31	34	31	30	35	36	40	41	73
26-Apr	36	47	42	41	36	43	41	37	39	40	43	46	46	49	55	47	55	46	39	64	44	27	53	51	64
27-Apr	63	44	51	47	49	55	56	46	46	47	51	42	46	53	50	47	62	35	41	35	35	40	29	31	63
28-Apr	44	40	52	48	39	23	29	33	29	23	23	27	26	25	25	24	23	21	19	19	25	30	41	20	52
29-Apr	29	18	35	18	22	20	38	42	41	36	69	47	43	42	43	44	37	42	44	40	47	35	36	39	69
30-Apr	38	41	40	42	38	38	44	33	34	40	39	36	41	39	38	36	40	44	39	46	44	43	35	36	46
	90	101	99	106	108	110	102	100	105	80	89	78	71	75	72	74	71	68	93	81	78	76	88	66	

Diurnal Maximum

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS30  
ELLS RIVER  
APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)

APRIL 2024

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	684	33	36	99.58	21.4	0	4.5	0
TRS (ppb) Average	682	35	38	99.58	2.6	0	1	0
THC (ppm) Average	671	32	49	97.64	3.7	-	2.3	-
NMHC (ppm) Average	671	32	49	97.64	1.101	-	0.138	-
CH4 (ppm) Average	671	32	49	97.64	2.8	-	2.2	-
NO2 (ppb) Average	681	35	39	99.44	32.6	0	11.8	-
NO (ppb) Average	681	35	39	99.44	16.1	-	2.5	-
NOX (ppb) Average	681	35	39	99.44	35.2	-	13.6	-
PM2.5 (ug/m3) Average	716	2	4	99.72	40.2	0	8	0
Temperature 2 m (C) Average	720	0	0	100	18.5	-	10.3	-
Relative Humidity (%) Average	720	0	0	100	95.9	-	88.5	-
Wind Speed 10 m (km/h) Average	701	0	19	97.36	36	-	27	-
Wind Direction 10 m (deg) Average	701	0	19	97.36	-	-	-	-
Global Solar Radiation (W/m2) Average	720	0	0	100	770.7	-	274.8	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	684	0.67	2.2	-	0	0	0	0	0.2	1.3	21.4
TRS (ppb) Average	682	0.51	0.2	-	0.4	0.4	0.4	0.4	0.5	0.6	2.6
THC (ppm) Average	671	2.14	0.2	-	2	2	2	2	2.2	2.4	3.7
NMHC(ppm) Average	671	0.051	0.132	-	0	0	0	0	0	0.2	1.101
CH4(ppm) Average	671	2.09	0.1	-	2	2	2	2	2.1	2.2	2.8
NO2 (ppb) Average	681	5.35	6.2	-	0.1	0.4	0.9	2.9	7.3	14.4	32.6
NO (ppb) Average	681	0.78	1.9	-	0	0	0	0.1	0.6	1.9	16.1
NOX (ppb) Average	681	6.13	7.1	-	0.1	0.4	1	3.3	8.3	17.1	35.2
PM2.5 (ug/m3) Average	716	3.93	3.1	-	0.5	1.2	2.1	3.3	4.9	6.9	40.2
Temperature 2 m (C) Average	720	5.09	5.9	-	-10.6	-1.9	0.3	4.5	9.5	13.7	18.5
Relative Humidity (%) Average	720	53.44	24	-	8.9	22.3	31.6	52.6	73.5	88.6	95.9
Wind Speed 10 m (km/h) Average	701	12.8	8	-	0	4	7	12	18	24	36
Wind Direction 10 m (deg) Average	701	287.5	-	-	-	-	-	-	-	-	-
Global Solar Radiation (W/m2) Average	720	172.63	225	-	0	0	0.1	50.4	297.5	568.8	770.7

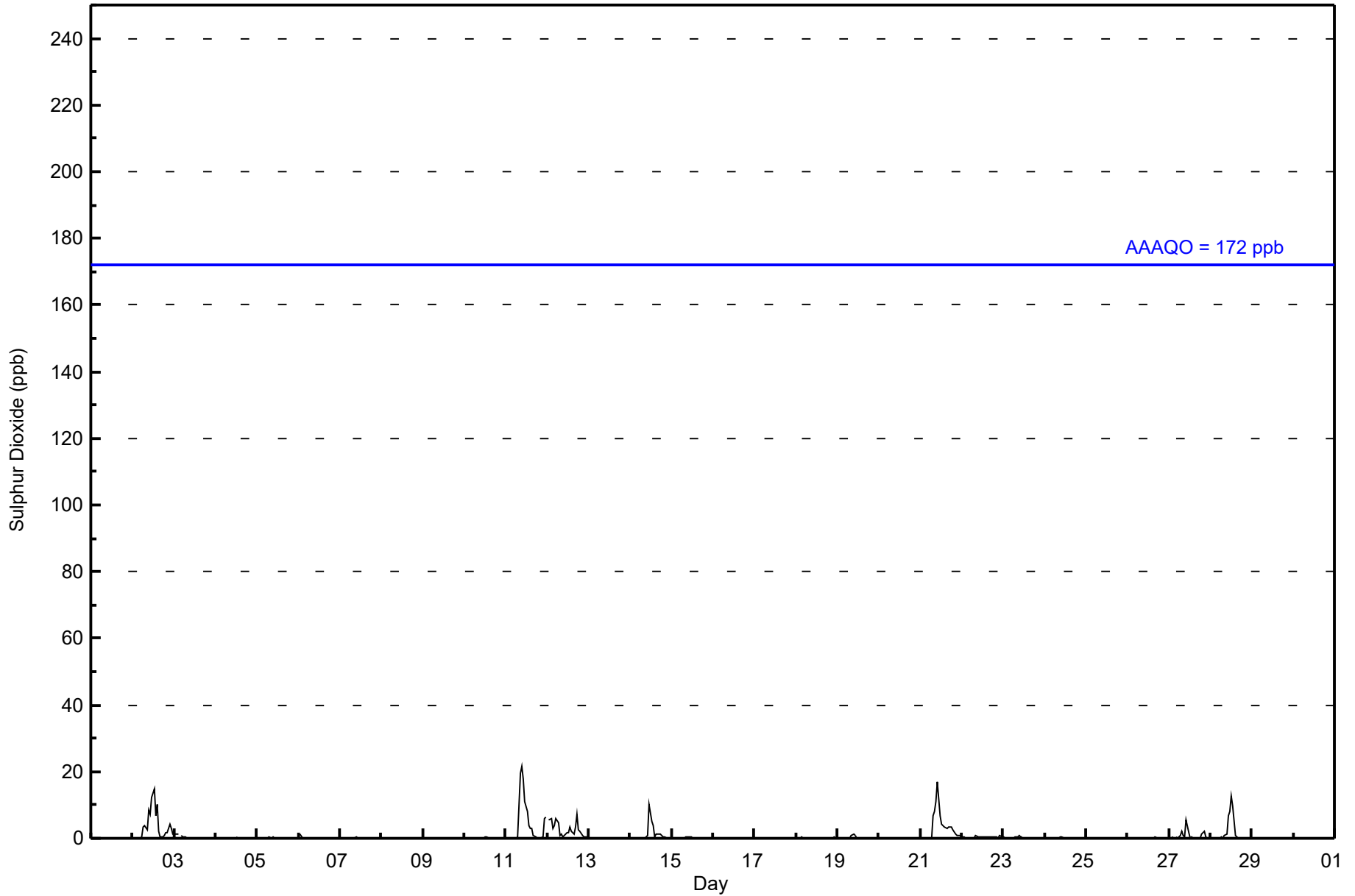
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	03 Apr 2024 09:00	03 Apr 2024 15:00	7	Unstable Operation - flatline in analyzer output signal
THC/NMHC/CH4	03 Apr 2024 16:00	03 Apr 2024 16:00	1	Maintenance - troubleshooting support gas generator
THC/NMHC/CH4	05 Apr 2024 04:00	05 Apr 2024 09:00	6	Unstable Operation - flatline in analyzer output signal
THC/NMHC/CH4	05 Apr 2024 10:00	05 Apr 2024 10:00	1	Maintenance - replaced support gas cylinder
AIR QUALITY ANALYZERS	23 Apr 2024 13:00	23 Apr 2024 15:00	2-4	Maintenance - WBEA internal audit
Wind Speed, Wind Direction	02 Apr 2024 06:00	02 Apr 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	04 Apr 2024 02:00	04 Apr 2024 08:00	7	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Apr 2024 02:00	11 Apr 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Apr 2024 01:00	21 Apr 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Apr 2024 05:00	21 Apr 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Apr 2024 02:00	22 Apr 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Apr 2024 04:00	22 Apr 2024 05:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	23 Apr 2024 04:00	23 Apr 2024 05:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	23 Apr 2024 07:00	23 Apr 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	26 Apr 2024 23:00	26 Apr 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	27 Apr 2024 01:00	27 Apr 2024 01:00	1	Flat line in sensor output signal









**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	675	98.68	98.68
11 - 20	8	1.17	99.85
21 - 60	1	0.15	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: 684

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Ells River - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	121	78	40	18	9	15	47	45	45	38	47	26	31	36	30	32	658
11 - 20	0	0	0	0	0	1	4	3	0	0	0	0	0	0	0	0	8
21 - 60	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
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>	121	78	40	18	9	16	52	48	45	38	47	26	31	36	30	32	667

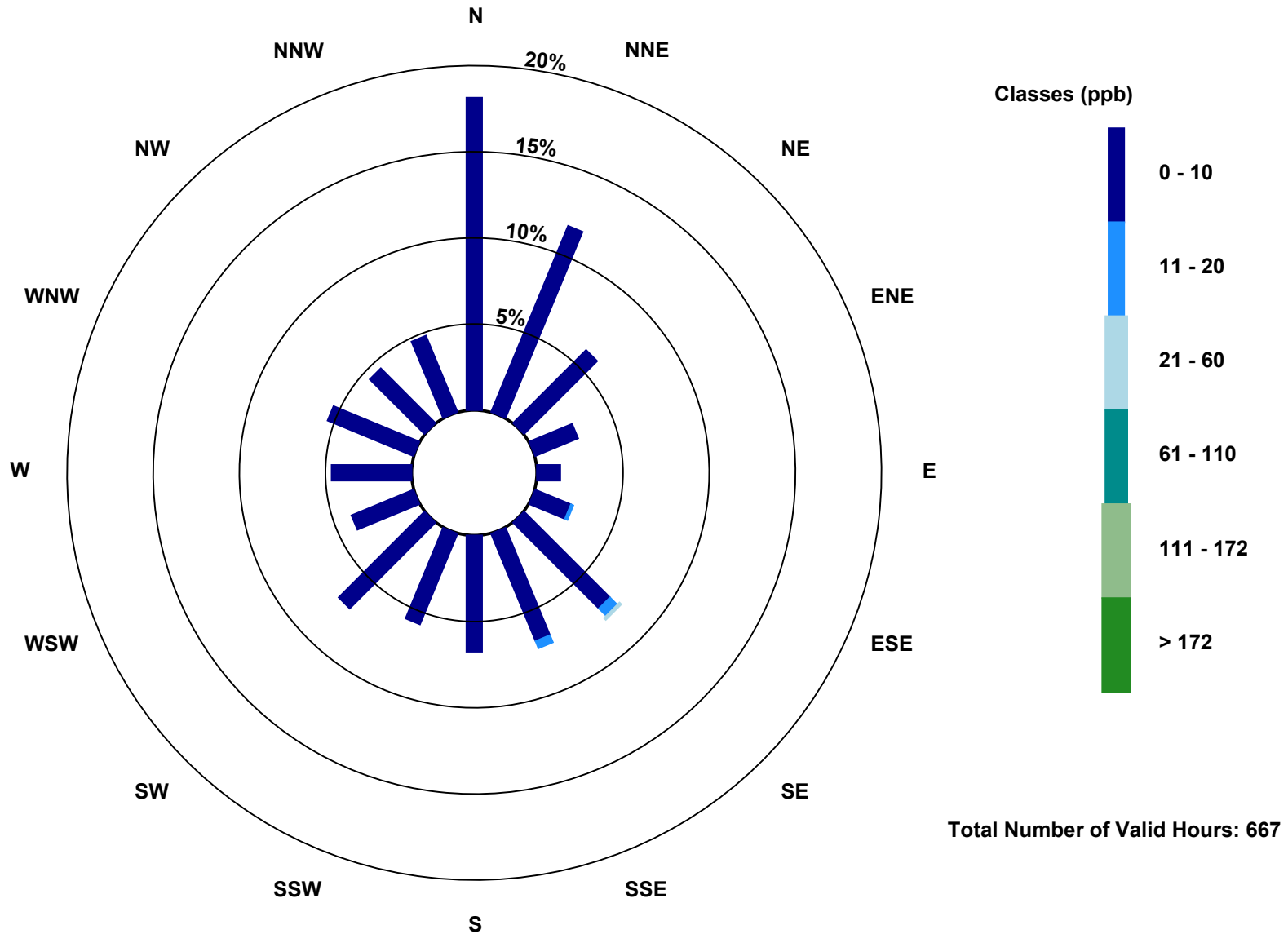
Total Number of Valid Hours: 667

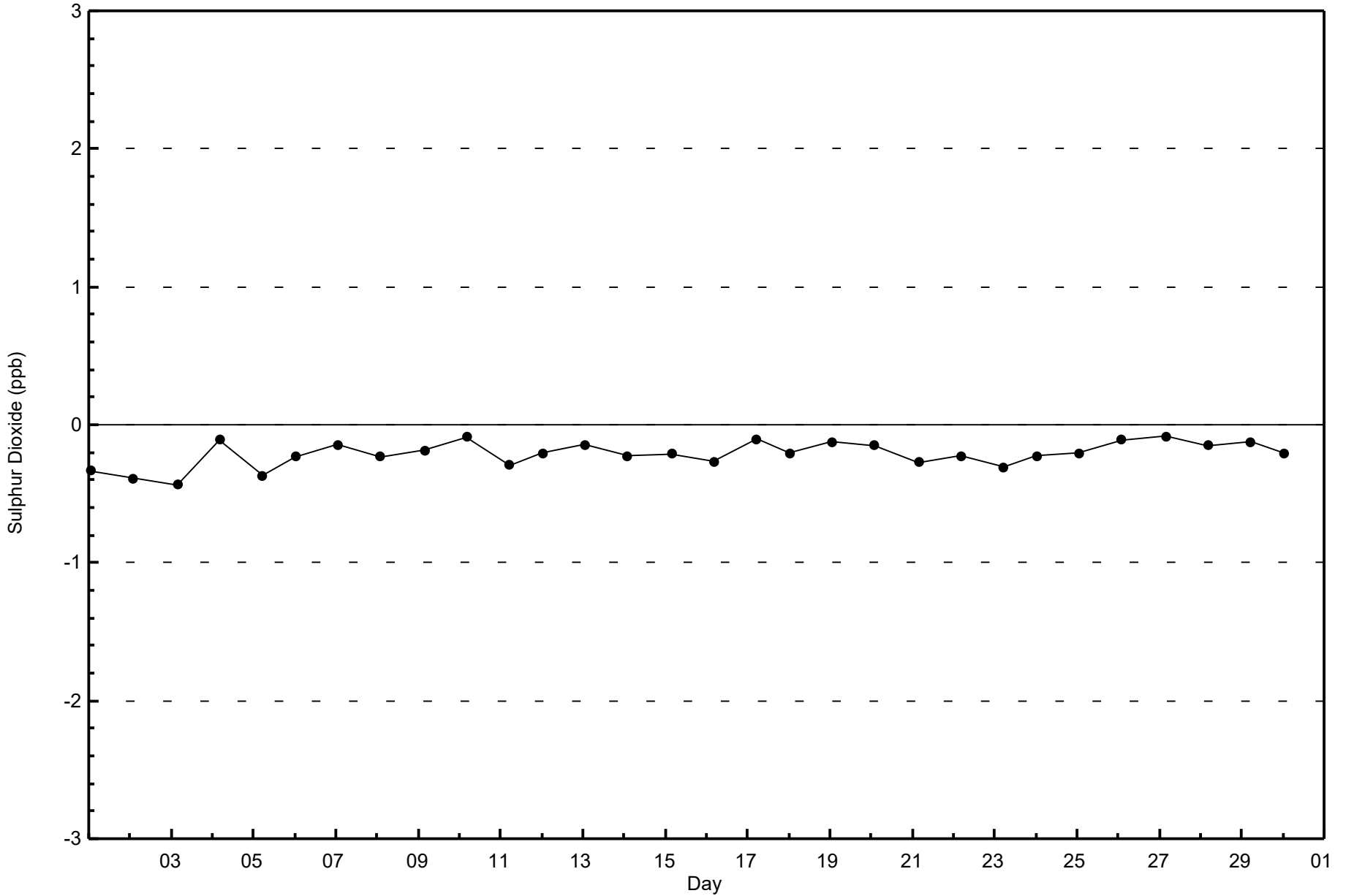
Total Number of Hours: 720

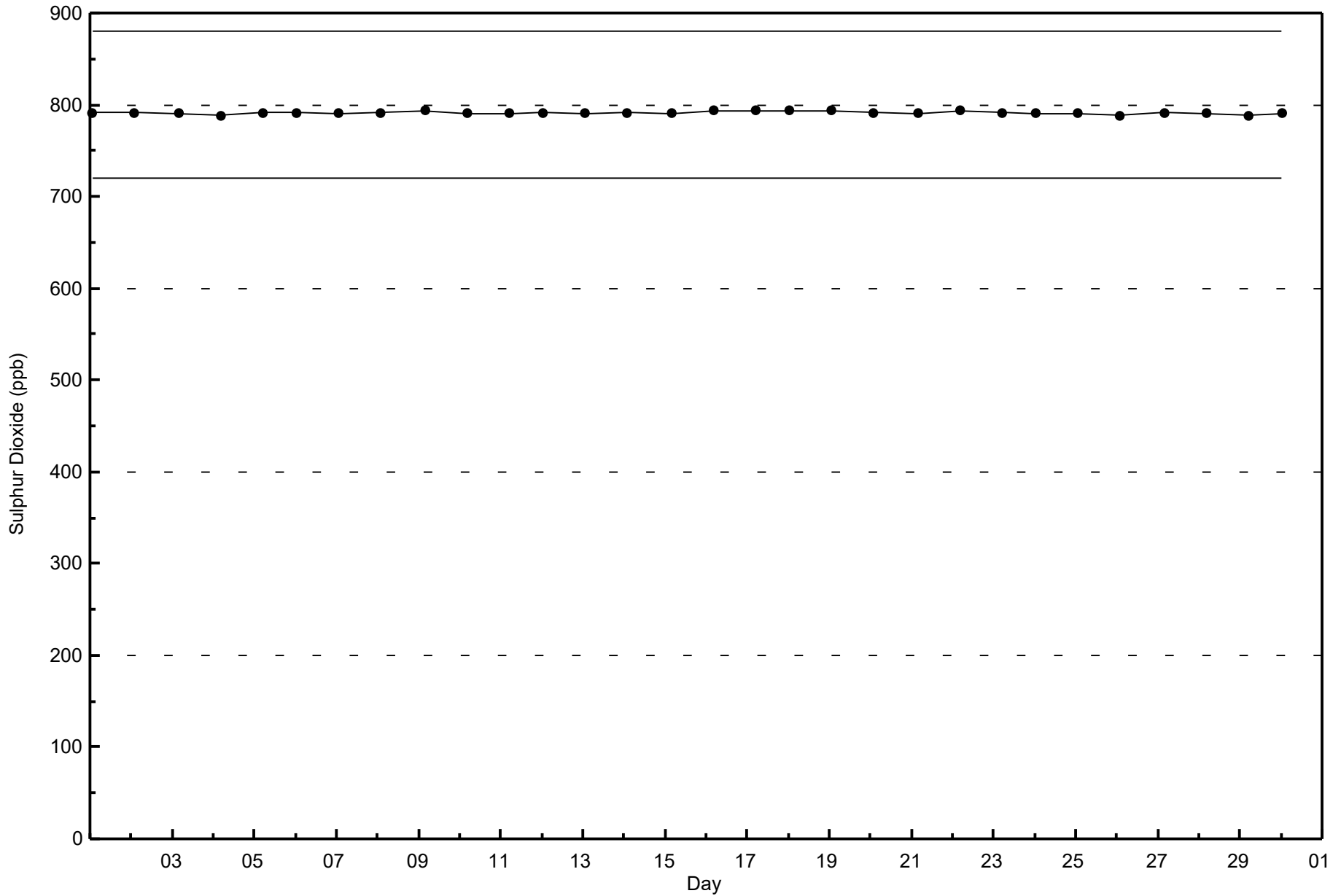


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

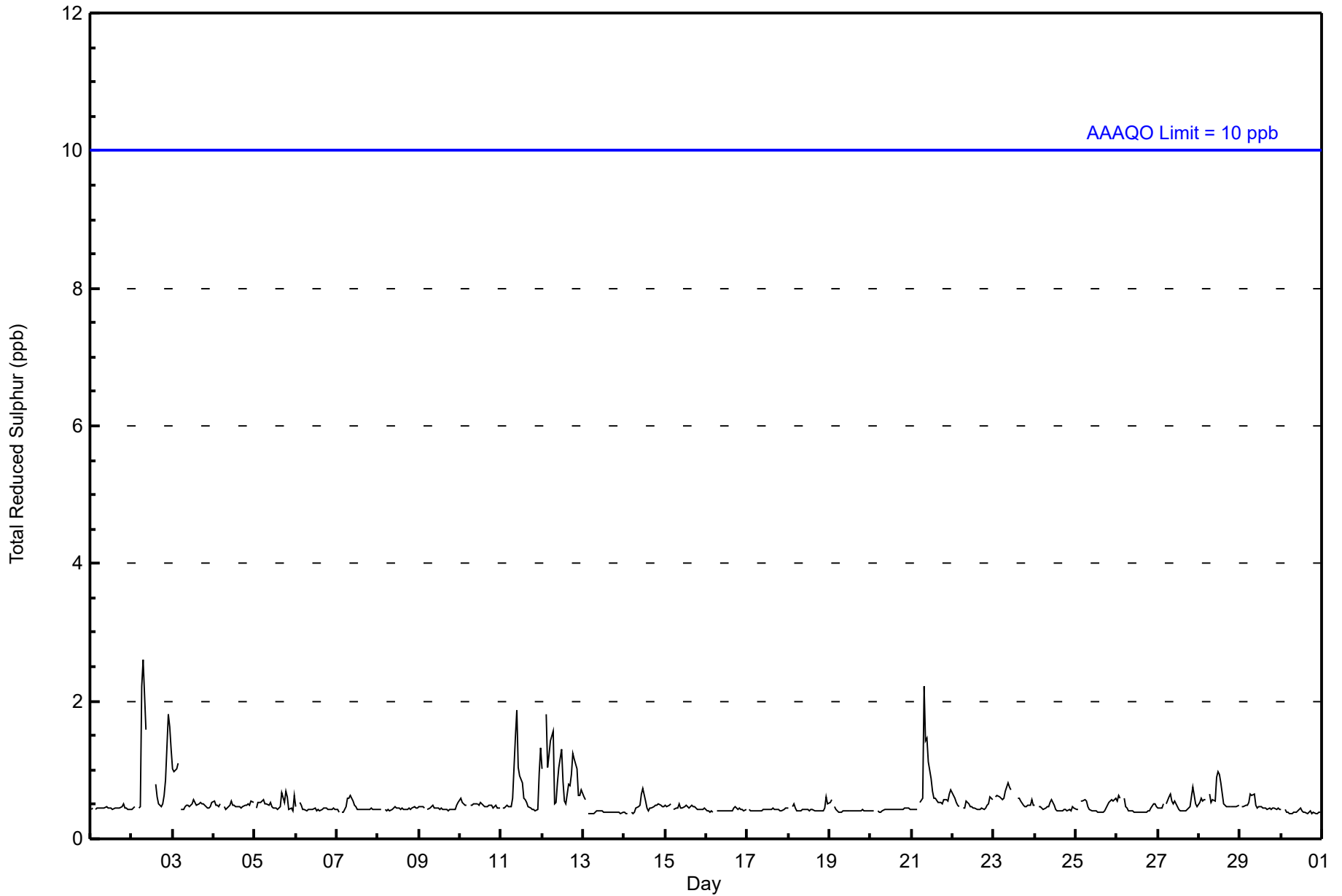
# Total Reduced Sulphur (TRS) - ppb

## Ells River - April 2024

Number of Exceedences (AAAQO):		1-hr: 0    24-hr: 0		Hours in Service:		720																					
Maximum Value: 2.6 ppb on Apr 2 08:00		Maximum Daily Average: 1.0 ppb on Apr 2		Hours of Data:		682																					
Minimum Value: 0.4 ppb on Apr 13 05:00		Minimum Daily Average: 0.4 ppb on Apr 30		Hours of Missing Data:		38																					
Maximum Diurnal Average: 0.6 ppb at hour 8		Minimum Diurnal Average: 0.5 ppb at hour 15		Hours of Calibration:		35																					
Monthly Average: 0.51 ppb		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.4 Median = 0.4 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.6		Percent Operational Time:		99.6																					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
2-Apr	0.4	0.5	0.5	Z	0.4	0.5	2.2	2.6	1.6	C	C	C	C	C	0.8	0.6	0.5	0.5	0.5	0.6	0.9	1.8	1.6	1.3	1.0	2.6	
3-Apr	1.0	1.0	1.0	1.1	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	1.1	
4-Apr	0.5	0.5	0.5	0.5	0.5	Z	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
5-Apr	Z	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.7	0.5	0.7	0.6	0.4	0.4	0.4	0.6	0.5	0.7	
6-Apr	0.5	Z	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
7-Apr	0.4	0.4	Z	0.4	0.4	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6
8-Apr	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5
9-Apr	0.5	0.5	0.5	0.4	Z	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5
10-Apr	0.6	0.5	0.5	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.6
11-Apr	Z	0.4	0.5	0.5	0.5	0.5	0.5	0.6	1.5	1.9	1.0	0.9	0.8	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	0.7	1.9
12-Apr	1.0	Z	1.8	1.0	1.2	1.4	1.6	0.5	0.5	0.8	1.0	1.3	0.8	0.5	0.5	0.8	0.8	0.9	1.2	1.2	1.0	0.6	0.6	0.7	1.0	1.8	
13-Apr	0.6	0.6	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6
14-Apr	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.5	0.5	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7
15-Apr	0.5	0.5	0.5	0.5	Z	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
16-Apr	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
17-Apr	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
18-Apr	0.4	Z	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.6
19-Apr	0.5	0.6	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6
20-Apr	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
21-Apr	0.4	0.4	0.4	0.4	Z	0.5	0.6	2.2	1.4	1.5	1.1	0.9	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7	2.2
22-Apr	0.6	0.6	0.5	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.5	0.6	0.6
23-Apr	Z	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	M	M	M	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.8	
24-Apr	0.5	Z	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.6
25-Apr	0.4	0.4	Z	0.6	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.6
26-Apr	0.6	0.6	0.6	Z	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6
27-Apr	0.4	0.5	0.5	0.5	Z	0.5	0.6	0.7	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.6	0.5	0.5	0.5	0.5	0.7
28-Apr	0.5	0.6	0.6	0.6	0.6	Z	0.7	0.5	0.6	0.6	0.9	1.0	0.9	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
29-Apr	Z	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.7
30-Apr	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
																								Diurnal Average			
																								Diurnal Maximum			

Z - zerspan                    C - Calibration                    M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	681	99.85	99.85
3 - 4	1	0.15	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: 682

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	122	79	41	21	8	16	52	40	47	39	48	26	28	36	28	33	664
3 - 4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	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>	122	79	41	21	8	16	52	41	47	39	48	26	28	36	28	33	665

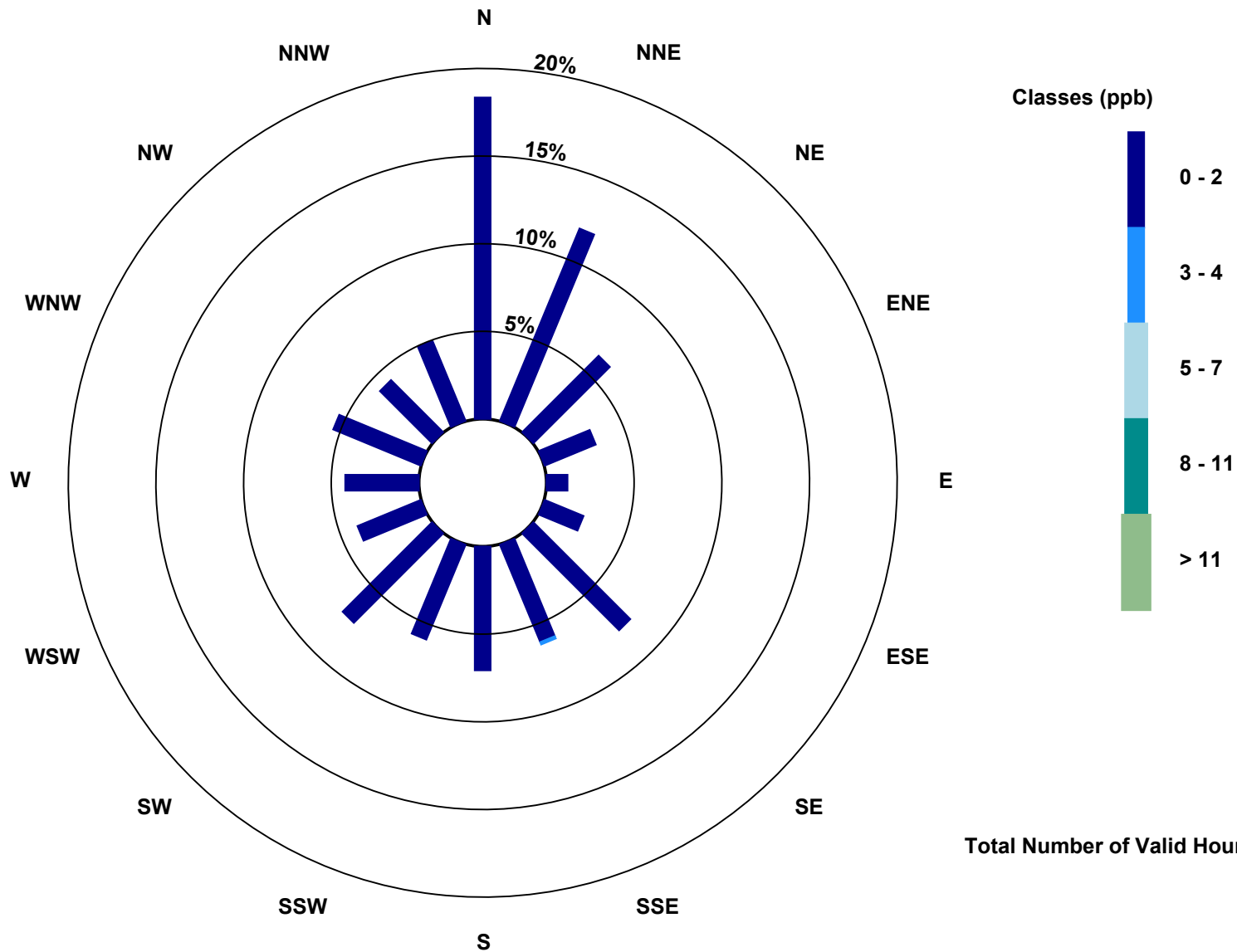
Total Number of Valid Hours: 665

Total Number of Hours: 720

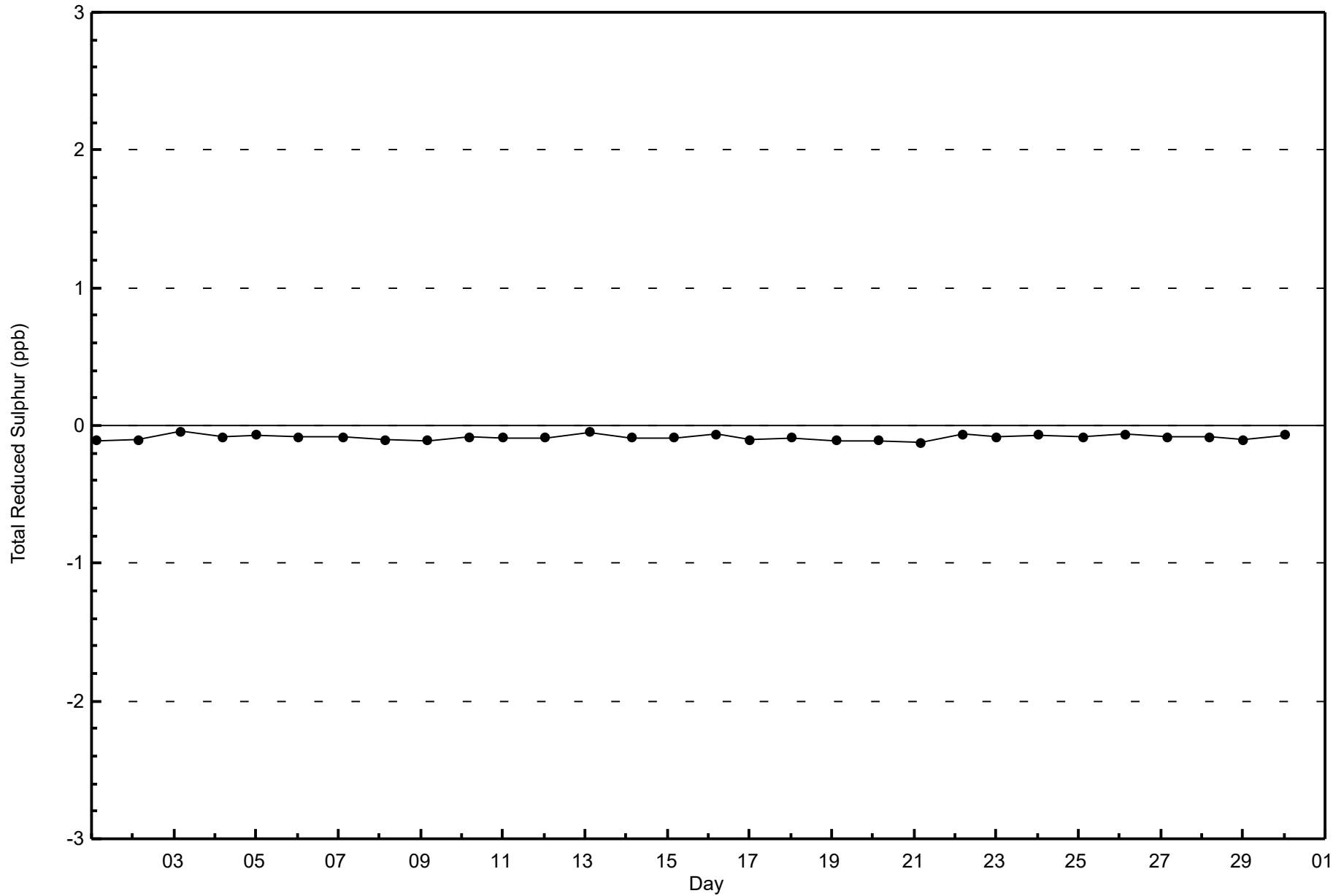


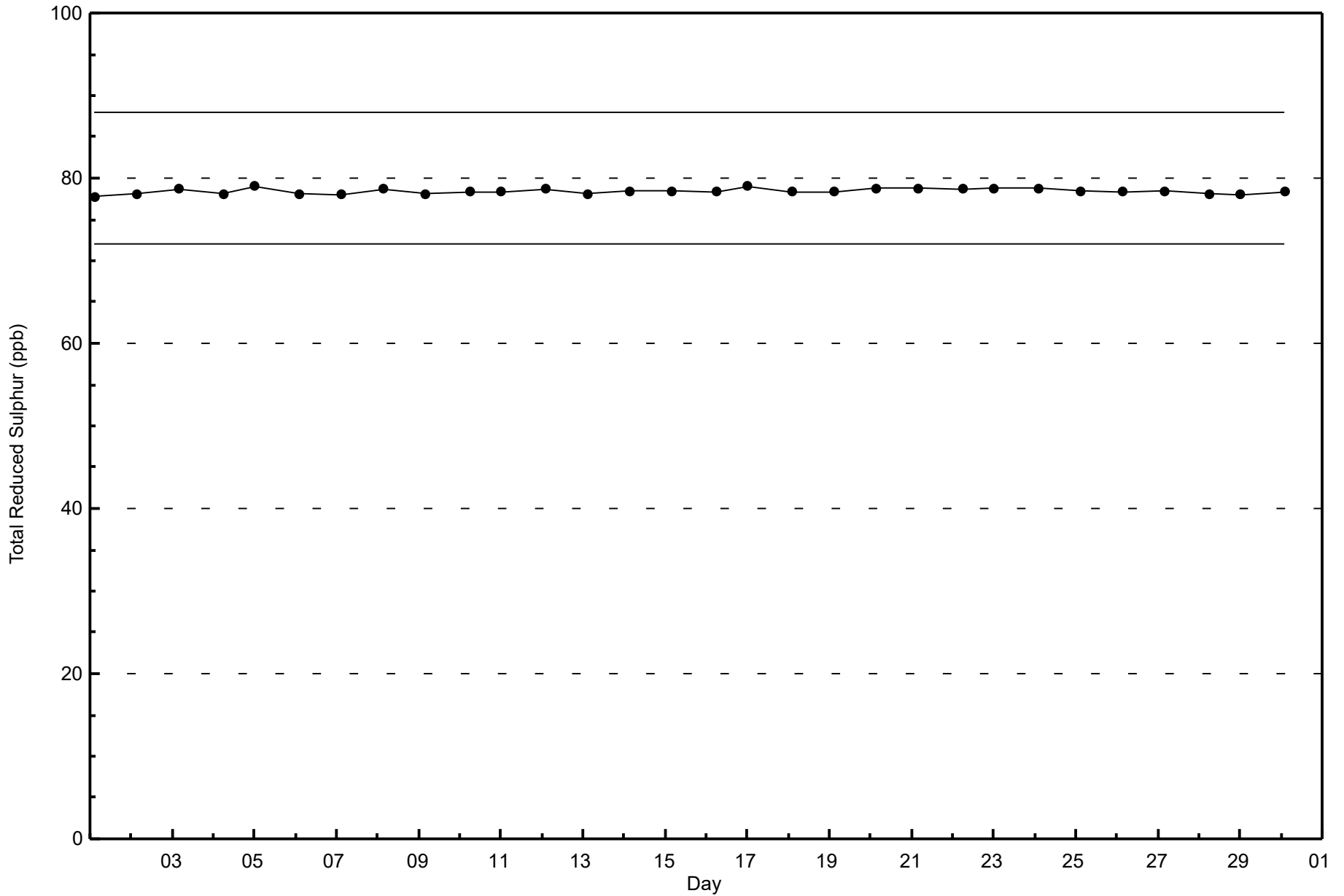
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Reduced Sulphur (TRS) - ppb  
Ells River



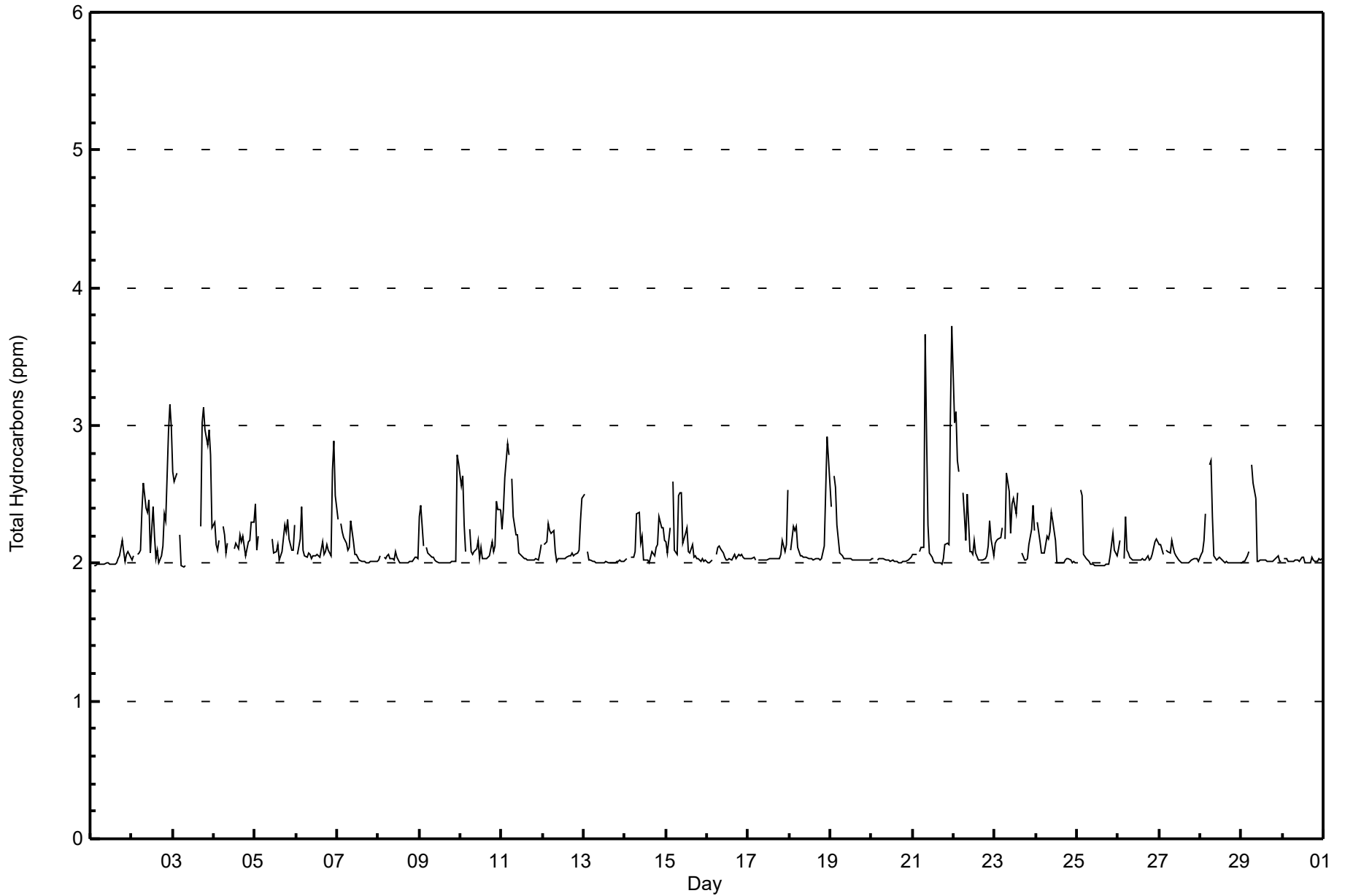
Total Number of Valid Hours: 665







Maximum Value: 3.7 ppm on Apr 22 00:00																	Maximum Daily Average: 2.3 ppm on Apr 2										Hours in Service: 720																						
Minimum Value: 2.0 ppm on Apr 3 07:00																	Minimum Daily Average: 2.0 ppm on Apr 1										Hours of Data: 671																						
Maximum Diurnal Average: 2.3 ppm at hour 23																	Minimum Diurnal Average: 2.0 ppm at hour 15										Hours of Missing Data: 49																						
Monthly Average: 2.14 ppm																	Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.4 P <sub>99</sub> = 3.0										Hours of Calibration: 32																						
																											Percent Operational Time: 97.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	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	2.1	2.2	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.2	2.2																						
2-Apr	2.0	2.1	Z	2.1	2.1	2.1	2.4	2.6	2.4	2.4	2.5	2.1	2.4	2.2	2.0	2.1	2.0	2.1	2.1	2.4	2.3	3.0	3.2	3.0	2.3	3.2	3.2																						
3-Apr	2.7	2.6	2.7	Z	2.2	2.0	2.0	2.0	UO	UO	UO	UO	UO	UO	UO	M	2.3	3.0	3.1	3.0	2.9	3.0	2.8	2.3	--	3.1																							
4-Apr	2.3	2.1	2.1	2.2	Z	2.3	2.2	2.1	2.1	C	C	C	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.3	2.3																						
5-Apr	2.4	2.1	2.2	UO	UO	UO	UO	UO	UO	M	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.2	2.3	2.2	2.1	2.1	2.3	--	2.4																							
6-Apr	Z	2.1	2.2	2.4	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.2	2.1	2.1	2.1	2.1	2.1	2.7	2.9	2.5	2.2	2.9																							
7-Apr	2.3	Z	2.3	2.2	2.2	2.1	2.1	2.1	2.3	2.2	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	2.1	2.3	2.3																						
8-Apr	2.0	2.1	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1																						
9-Apr	2.3	2.4	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	2.8	2.7	2.1	2.8																							
10-Apr	2.6	2.6	2.3	2.1	Z	2.3	2.1	2.1	2.1	2.1	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.4	2.4	2.4	2.2	2.6																							
11-Apr	2.3	2.4	2.6	2.9	2.8	Z	2.6	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.9																							
12-Apr	Z	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.5	2.1	2.5																							
13-Apr	2.5	Z	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	2.0	2.5																							
14-Apr	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.4	2.4	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.2	2.1	2.4																							
15-Apr	2.2	2.1	2.3	Z	2.6	2.1	2.1	2.5	2.5	2.5	2.1	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.6																							
16-Apr	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1																							
17-Apr	2.0	2.0	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	2.1	2.2	2.1	2.1	2.5	2.1	2.5																							
18-Apr	Z	2.1	2.3	2.2	2.3	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	2.0	2.0	2.1	2.5	2.9	2.8	2.2	2.9																							
19-Apr	2.4	Z	2.6	2.6	2.3	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.6																							
20-Apr	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-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	3.7	2.9	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	3.1	3.7	2.3	3.7																							
22-Apr	3.0	3.1	2.8	2.7	Z	2.5	2.4	2.2	2.5	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.2	2.1	2.3	3.1																							
23-Apr	2.1	2.2	2.2	2.2	2.3	Z	2.2	2.7	2.5	2.2	2.4	2.5	2.4	2.5	M	M	2.1	2.0	2.0	2.0	2.1	2.2	2.4	2.2	2.3	2.7																							
24-Apr	Z	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.3	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	2.1	2.4																							
25-Apr	2.0	Z	2.5	2.5	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	2.1	2.1	2.2	2.1	2.1	2.1	2.5																							
26-Apr	2.1	2.2	Z	2.0	2.3	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	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.3																							
27-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	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	2.0	2.0	2.0	2.1	2.2																							
28-Apr	2.1	2.1	2.2	2.4	Z	2.7	2.7	2.3	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	2.1	2.7																							
29-Apr	2.0	2.0	2.0	2.1	2.1	Z	2.7	2.6	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.7																							
30-Apr	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	2.0																							
																								2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.3	Diurnal Average	
																								3.0	3.1	2.8	2.9	2.8	2.7	2.7	3.7	2.9	2.5	2.5	2.5	2.4	2.5	2.1	2.2	2.3	3.0	3.1	3.0	2.9	3.0	3.2	3.7	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Ells River - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	342	50.97	50.97
2.1 - 3.0	323	48.14	99.11
3.1 - 10.0	6	0.89	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 671

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Ells River - April 2024**

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	51	46	10	7	6	15	28	17	16	27	40	20	19	23	9	8	342
2.1 - 3.0	63	28	30	11	3	1	24	30	29	10	5	6	11	12	20	24	307
3.1 - 10.0	0	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	5
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	114	74	40	19	9	16	52	48	45	37	45	26	31	36	30	32	654

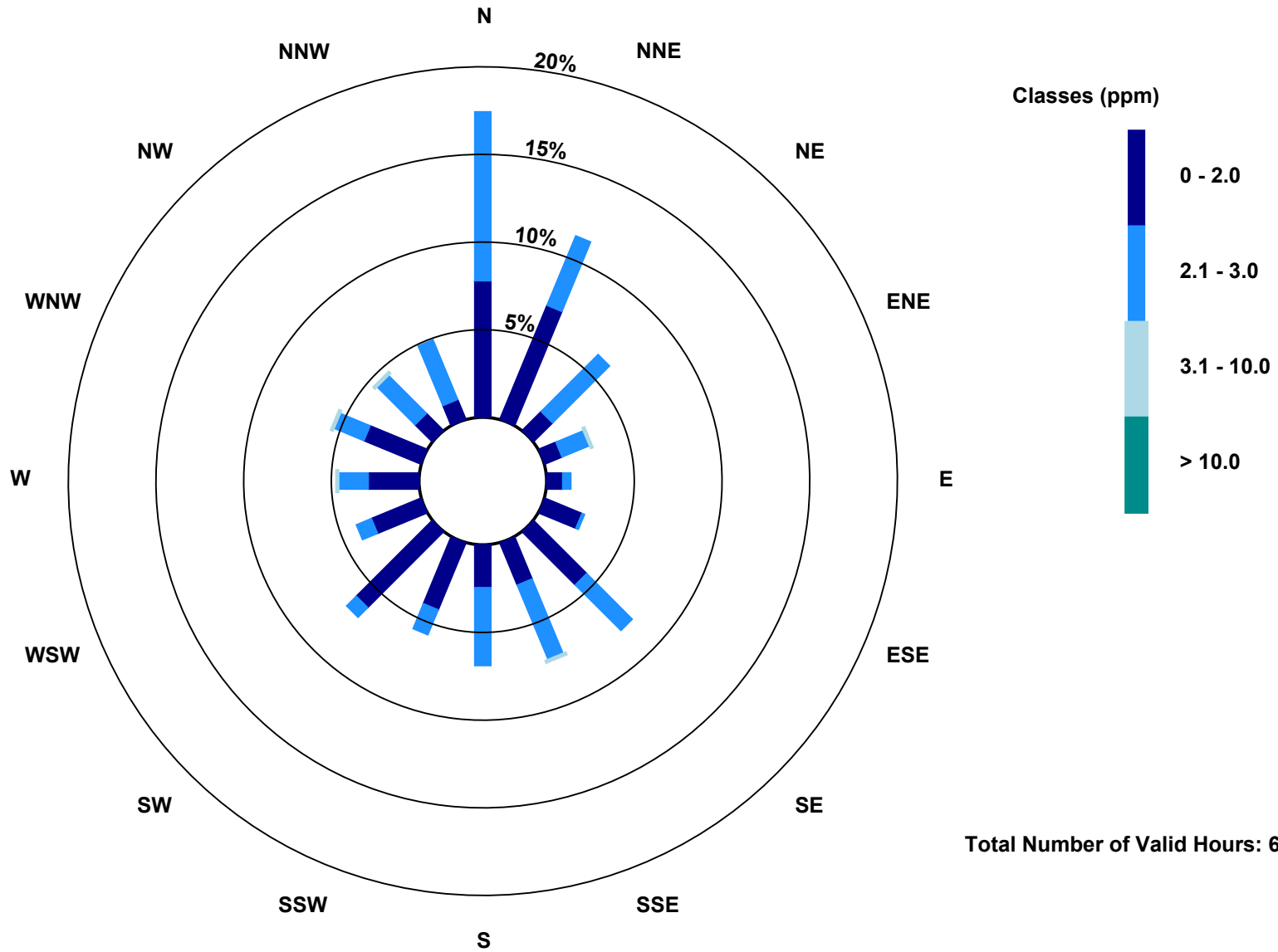
Total Number of Valid Hours: 654

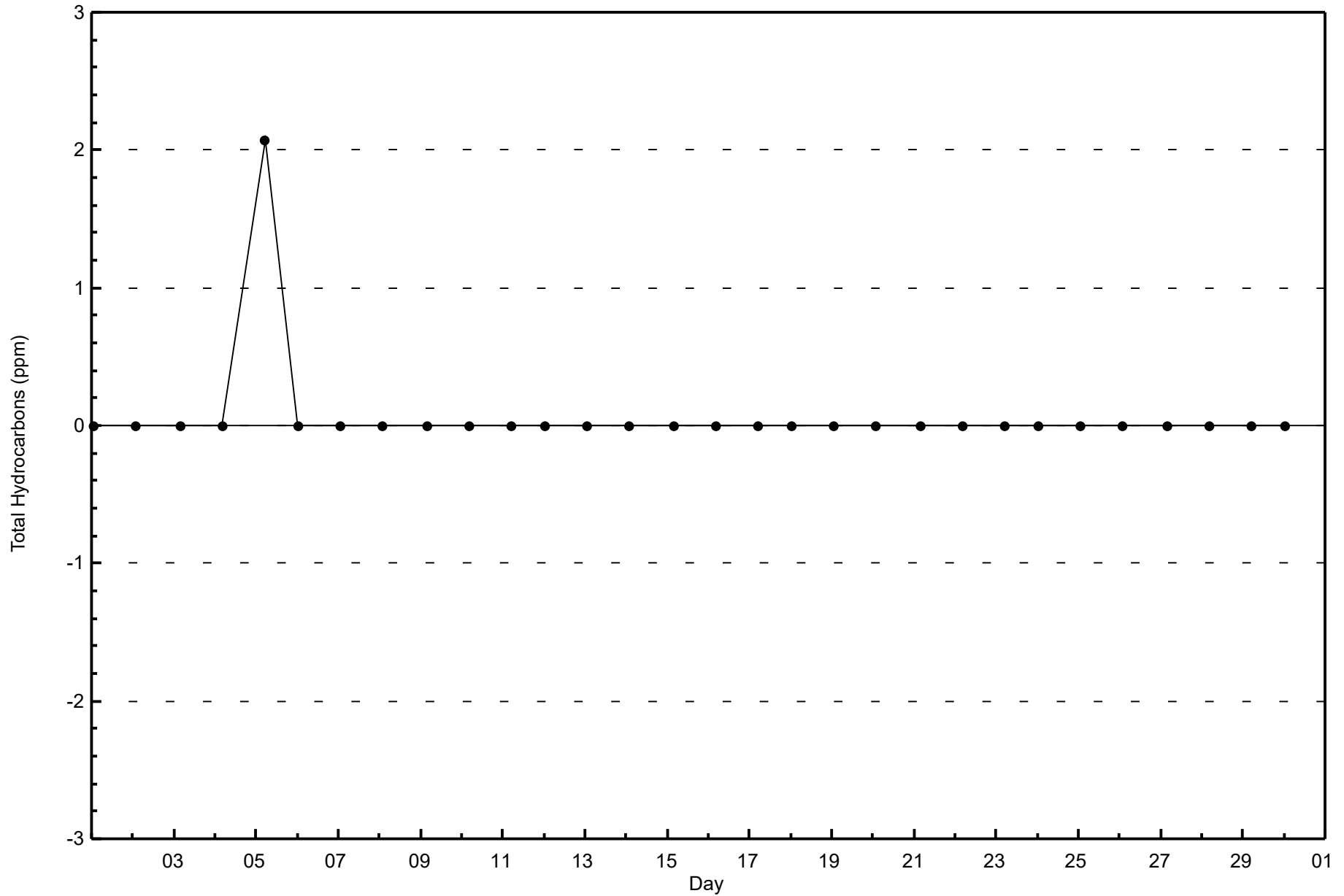
Total Number of Hours: 720

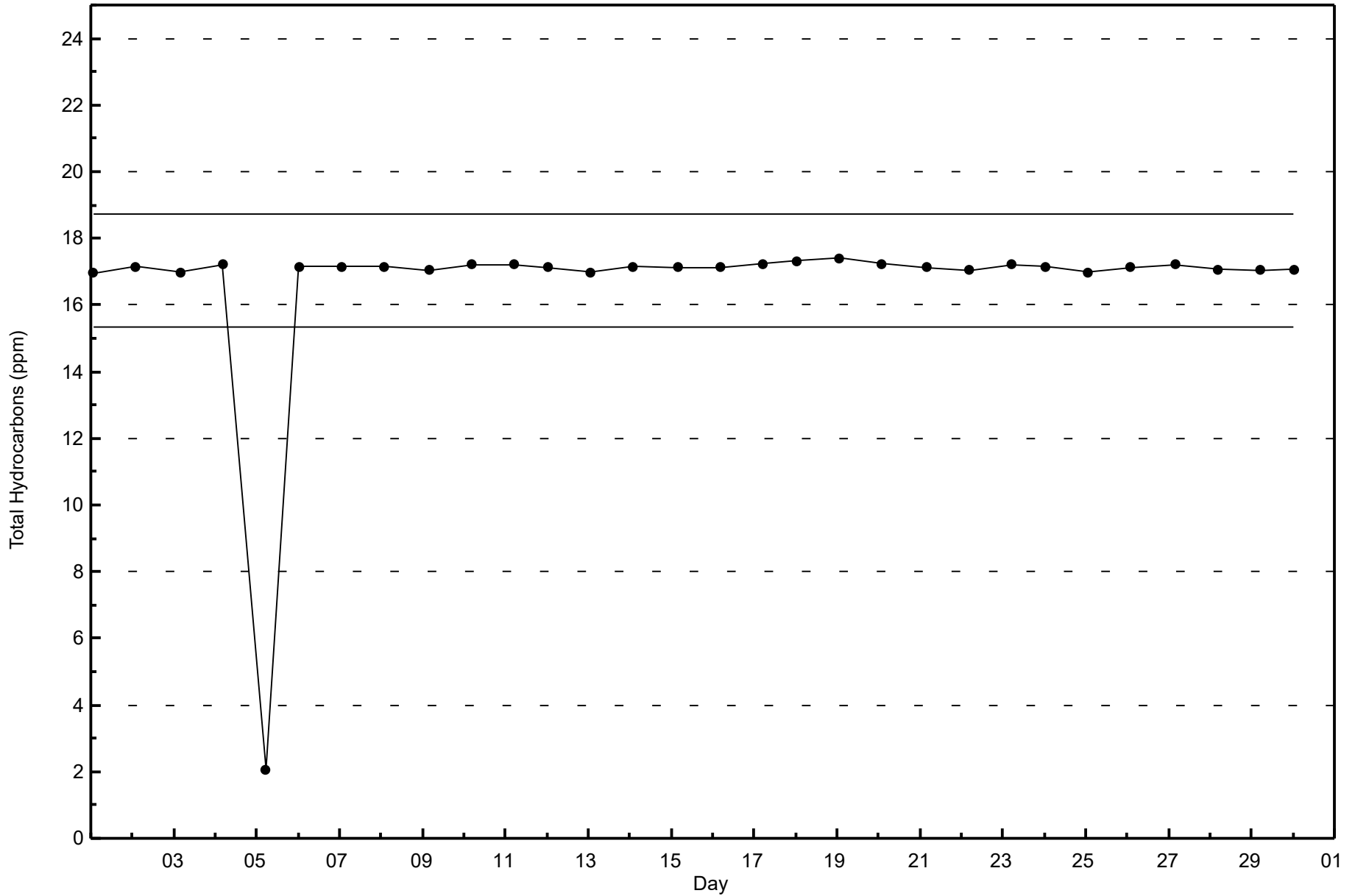


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Ells River





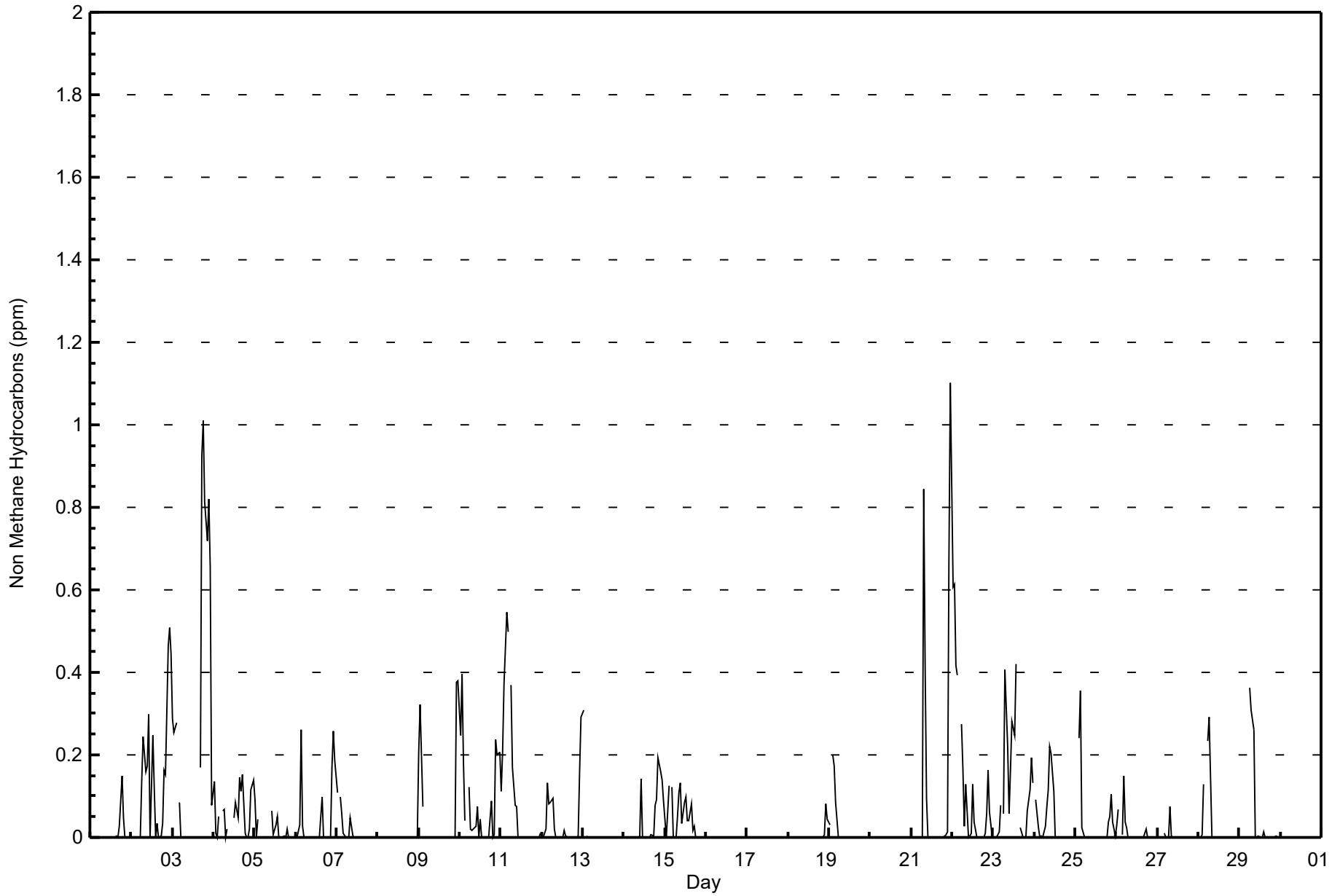




Summary of Hour Averages

Ells River - April 2024

Maximum Value: 1.101 ppm on Apr 22 00:00		Maximum Daily Average: 0.138 ppm on Apr 2		Hours in Service: 720																																													
Minimum Value: 0.000 ppm on Apr 1 01:00		Minimum Daily Average: 0.000 ppm on Apr 8		Hours of Data: 671																																													
Maximum Diurnal Average: 0.115 ppm at hour 23		Minimum Diurnal Average: 0.004 ppm at hour 15		Hours of Missing Data: 49																																													
Monthly Average: 0.051 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> = 0.2 P <sub>99</sub> = 0.7		Hours of Calibration: 32																																													
				Percent Operational Time: 97.6																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	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	0.003	0.000	0.028	0.149	0.049	0.000	0.000	0.000	0.000	0.010	0.149																							
2-Apr	0.000	0.000	Z	0.000	0.000	0.000	0.131	0.243	0.159	0.174	0.297	0.001	0.247	0.117	0.000	0.034	0.000	0.004	0.033	0.161	0.154	0.464	0.509	0.446	0.138	0.509																							
3-Apr	0.287	0.255	0.279	Z	0.086	0.000	0.000	0.000	UO	UO	UO	UO	UO	UO	UO	M	0.168	0.924	1.010	0.815	0.719	0.822	0.655	0.079	--	1.010																							
4-Apr	0.135	0.010	0.000	0.052	Z	0.064	0.068	0.000	0.020	C	C	C	0.049	0.085	0.048	0.145	0.112	0.151	0.010	0.000	0.001	0.019	0.114	0.141	0.061	0.151																							
5-Apr	0.090	0.000	0.043	UO	UO	UO	UO	UO	UO	UO	M	0.063	0.005	0.029	0.051	0.000	0.000	0.000	0.004	0.002	0.019	0.000	0.000	0.000	--	0.090																							
6-Apr	Z	0.000	0.030	0.261	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.099	0.000	0.000	0.000	0.000	0.000	0.169	0.256	0.185	0.045	0.261																							
7-Apr	0.110	Z	0.097	0.058	0.011	0.000	0.000	0.000	0.047	0.002	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	0.014	0.110																							
8-Apr	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																							
9-Apr	0.203	0.323	0.075	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	0.377	0.380	0.059	0.380																						
10-Apr	0.248	0.397	0.183	0.041	Z	0.122	0.019	0.017	0.020	0.028	0.073	0.001	0.044	0.000	0.000	0.000	0.000	0.000	0.089	0.000	0.006	0.236	0.199	0.207	0.084	0.397																							
11-Apr	0.111	0.211	0.374	0.547	0.500	Z	0.369	0.169	0.077	0.074	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	0.012	0.106	0.547																							
12-Apr	Z	0.000	0.022	0.133	0.080	0.083	0.096	0.019	0.000	0.000	0.000	0.000	0.016	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.155	0.290	0.039	0.290																							
13-Apr	0.308	Z	0.002	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	0.013	0.308																							
14-Apr	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.141	0.000	0.000	0.000	0.000	0.006	0.004	0.076	0.092	0.193	0.159	0.141	0.089	0.039	0.193	0.039	0.193																						
15-Apr	0.043	0.000	0.126	Z	0.121	0.000	0.000	0.049	0.108	0.133	0.033	0.084	0.100	0.039	0.040	0.083	0.018	0.026	0.000	0.000	0.001	0.001	0.000	0.000	0.044	0.133																							
16-Apr	0.000	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	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001																						
17-Apr	0.000	0.000	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																						
18-Apr	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	0.008	0.082	0.044	0.006	0.082																							
19-Apr	0.031	Z	0.198	0.174	0.085	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	0.021	0.198																							
20-Apr	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	0.000																						
21-Apr	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.843	0.418	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.007	0.013	0.668	1.101	0.137	1.101																							
22-Apr	0.606	0.614	0.417	0.395	Z	0.274	0.167	0.026	0.129	0.000	0.004	0.010	0.129	0.038	0.000	0.000	0.000	0.000	0.000	0.010	0.058	0.162	0.060	0.000	0.135	0.614																							
23-Apr	0.000	0.000	0.000	0.013	0.077	Z	0.059	0.406	0.220	0.059	0.163	0.281	0.249	0.420	M	M	0.023	0.000	0.000	0.000	0.064	0.116	0.195	0.132	0.118	0.420																							
24-Apr	Z	0.090	0.022	0.000	0.004	0.000	0.028	0.073	0.114	0.221	0.203	0.111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.038	0.221																							
25-Apr	0.000	Z	0.241	0.355	0.023	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	0.037	0.051	0.104	0.038	0.003	0.037	0.355	0.037	0.355																						
26-Apr	0.029	0.068	Z	0.007	0.150	0.036	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.015	0.150																							
27-Apr	0.000	0.000	0.000	Z	0.010	0.002	0.000	0.076	0.003	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	0.004	0.076																							
28-Apr	0.000	0.000	0.006	0.129	Z	0.235	0.291	0.147	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	0.035	0.291																							
29-Apr	0.000	0.000	0.000	0.000	0.000	Z	0.363	0.310	0.260	0.000	0.000	0.002	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.363																							
30-Apr	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	0.000	0.000	0.000																						
																								0.088	0.079	0.085	0.090	0.049	0.033	0.056	0.082	0.056	0.029	0.035	0.018	0.029	0.026	0.004	0.013	0.011	0.039	0.046	0.040	0.042	0.076	0.115	0.104	Diurnal Average	
																								0.606	0.614	0.417	0.547	0.500	0.274	0.369	0.843	0.418	0.221	0.297	0.281	0.249	0.420	0.048	0.145	0.168	0.924	1.010	0.815	0.719	0.822	0.668	1.101	Diurnal Maximum	
Z - zerspan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Ells River - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	468	69.75	69.75
0.006 - 0.05	63	9.39	79.14
0.06 - 0.1	64	9.54	88.67
> 0.1	76	11.33	100.00

Total Number of Valid Hours: 671

Total Number of Hours: 720





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Ells River - April 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	88	56	17	10	8	15	40	28	31	33	43	22	22	24	12	12	461
0.006 - 0.05	8	6	11	2	0	0	2	4	3	0	0	2	0	4	11	7	60
0.06 - 0.1	14	6	6	3	1	1	5	6	4	1	0	0	2	0	3	8	60
> 0.1	4	6	6	4	0	0	5	10	7	3	2	2	7	8	4	5	73
<b>Totals</b>	114	74	40	19	9	16	52	48	45	37	45	26	31	36	30	32	654

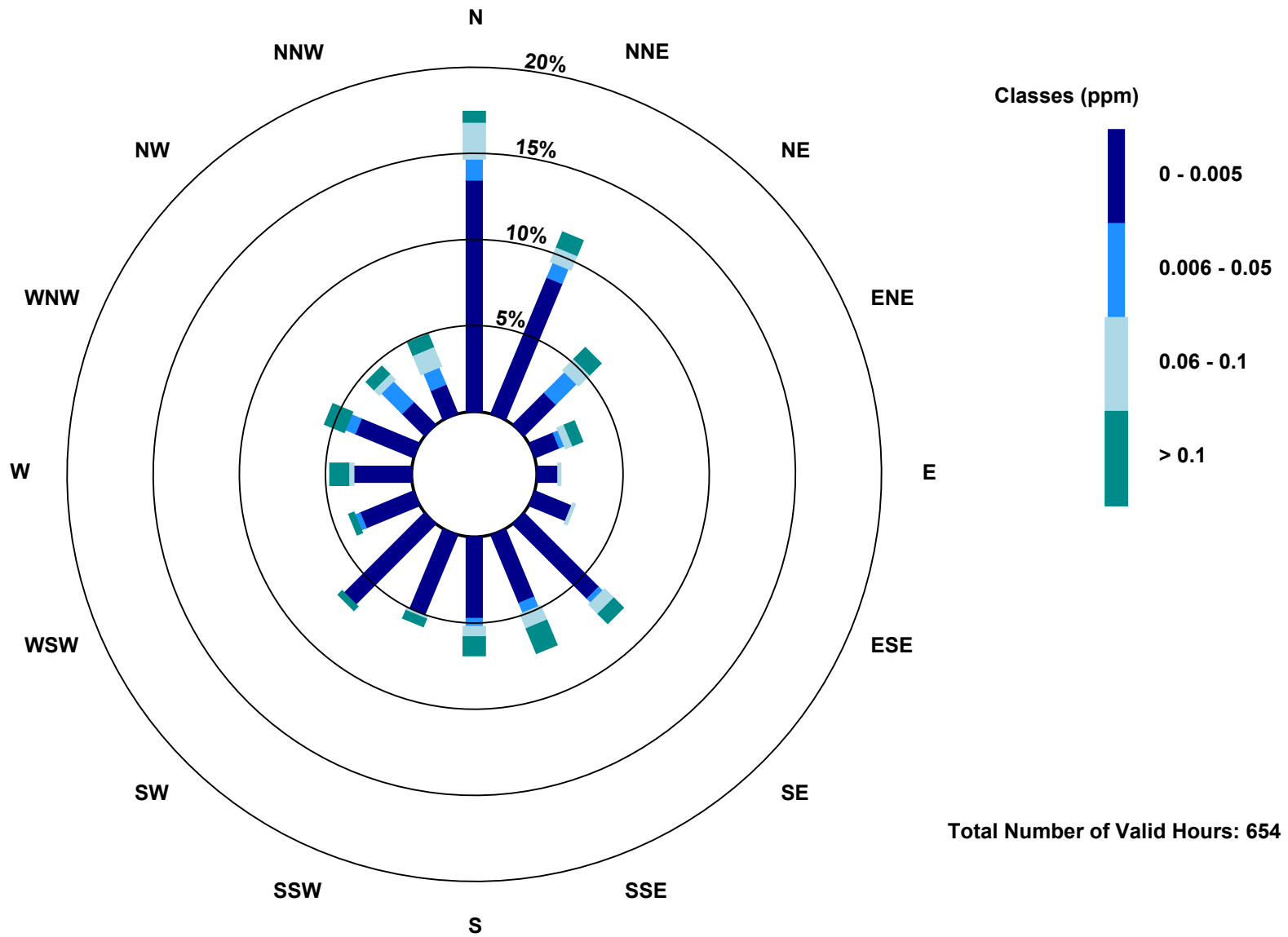
Total Number of Valid Hours: 654

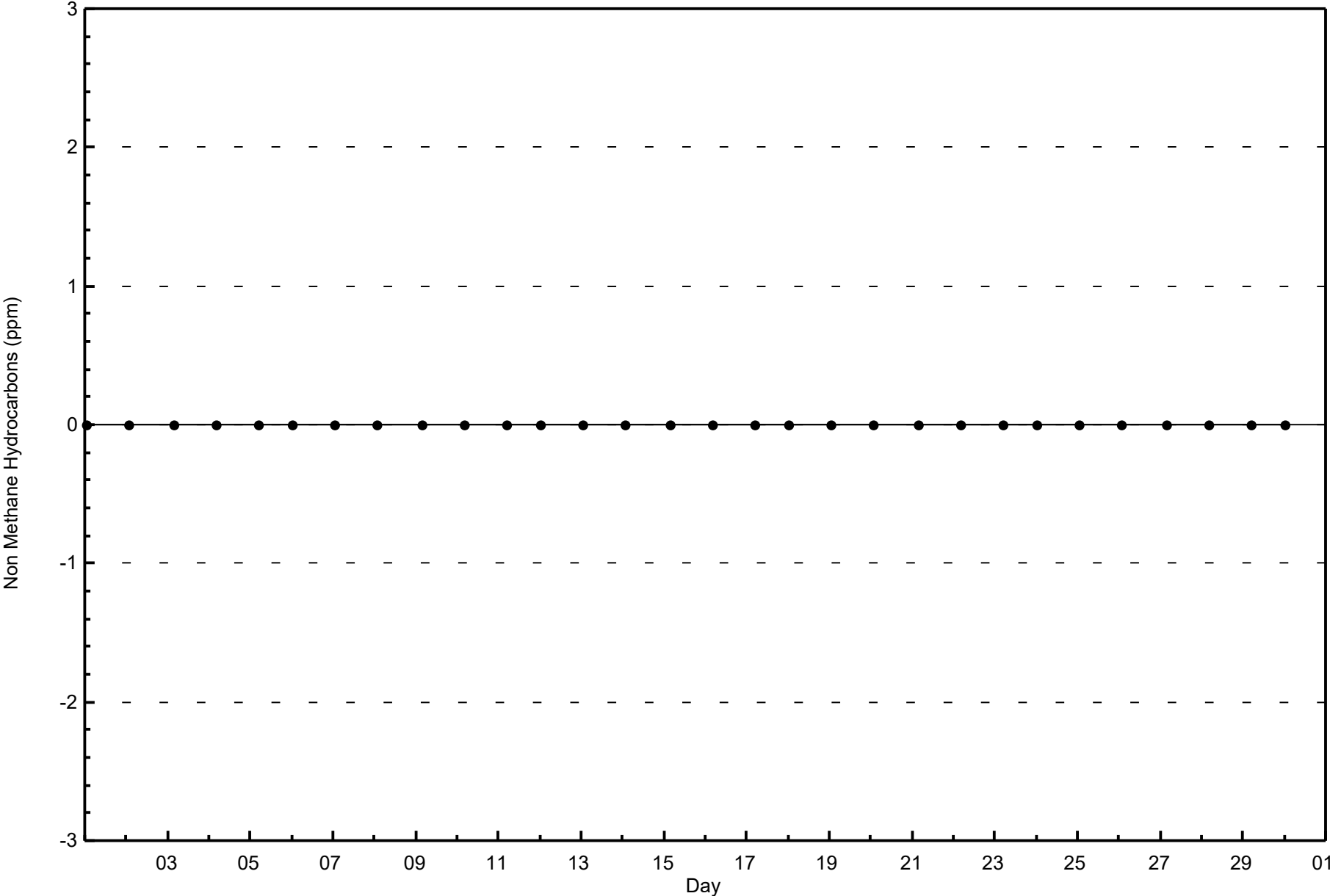
Total Number of Hours: 720

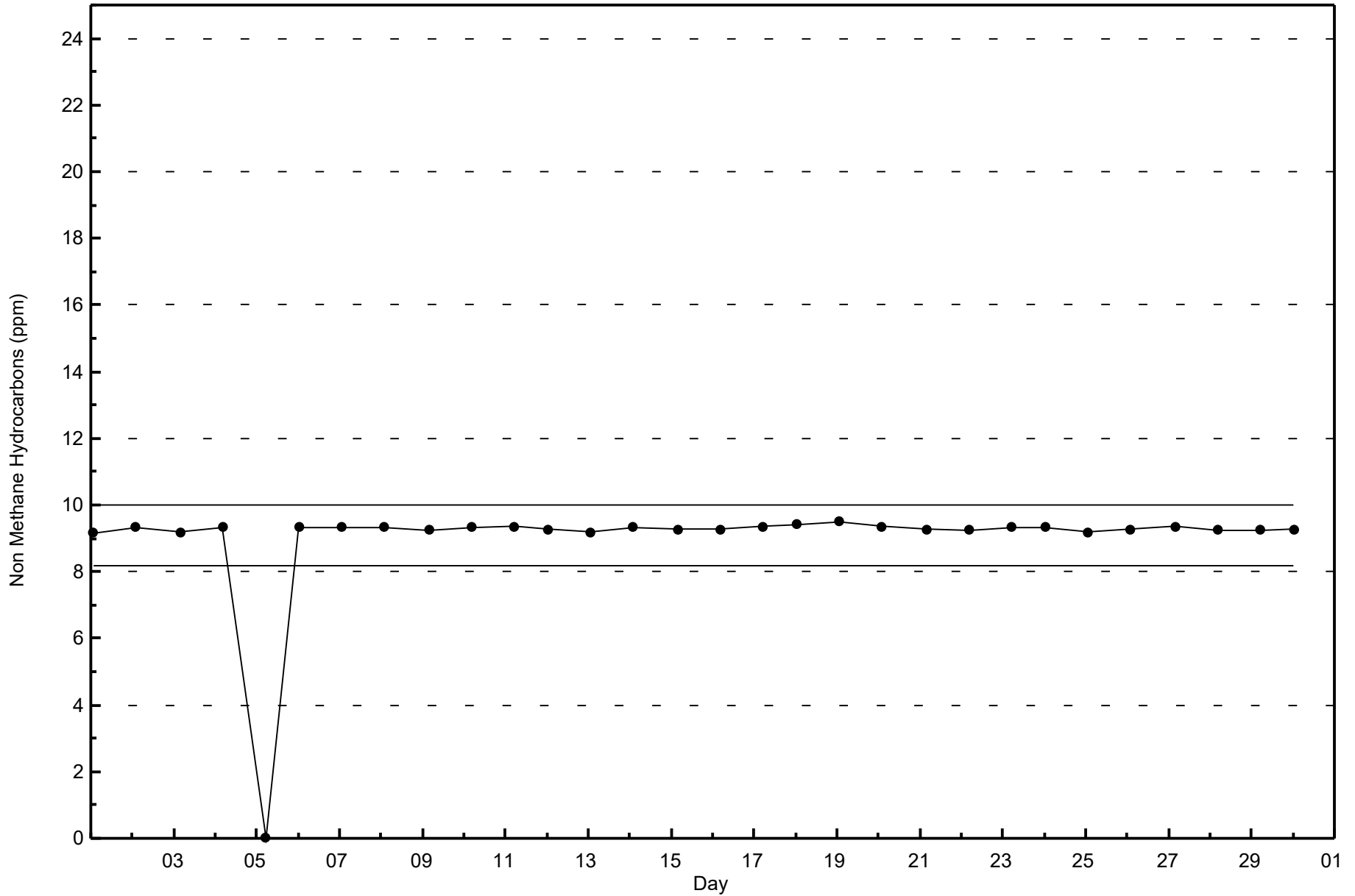


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Ells River









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

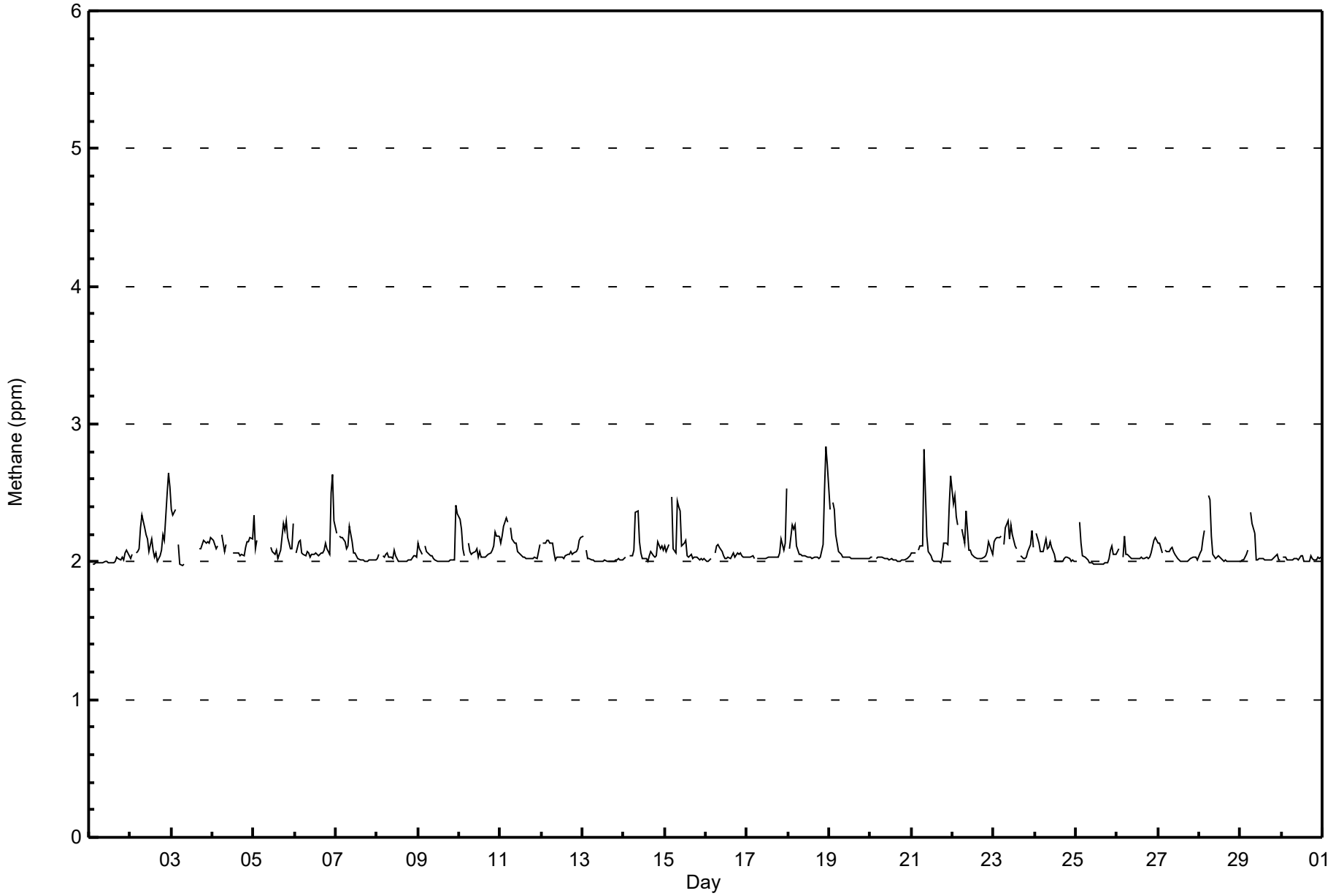
**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.8 ppm on Apr 18 23:00 Minimum Value: 2.0 ppm on Apr 3 07:00 Maximum Diurnal Average: 2.2 ppm at hour 23 Monthly Average: 2.09 ppm		Maximum Daily Average: 2.2 ppm on Apr 2 Minimum Daily Average: 2.0 ppm on Apr 1 Minimum Diurnal Average: 2.0 ppm at hour 15 Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.5		Hours in Service: 720 Hours of Data: 671 Hours of Missing Data: 49 Hours of Calibration: 32 Percent Operational Time: 97.6																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	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	2.1	2.1	2.0	2.0	2.1	2.1																							
2-Apr	2.0	2.1	Z	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.2	2.5	2.6	2.5	2.2	2.6																							
3-Apr	2.4	2.3	2.4	Z	2.1	2.0	2.0	2.0	UO	UO	UO	UO	UO	UO	UO	M	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	--	2.4																							
4-Apr	2.2	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	C	C	C	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.2	2.1	2.2	2.2	2.1	2.2																							
5-Apr	2.3	2.1	2.2	UO	UO	UO	UO	UO	UO	M	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.6	2.3	2.1	2.6																							
6-Apr	Z	2.1	2.1	2.2	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.6	2.3	2.1	2.6																							
7-Apr	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.3	2.2	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	2.1	2.3																							
8-Apr	2.0	2.1	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
9-Apr	2.1	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	2.4	2.3	2.1	2.4																							
10-Apr	2.3	2.2	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.3																							
11-Apr	2.1	2.2	2.3	2.3	2.3	Z	2.2	2.2	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	2.3																							
12-Apr	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2																							
13-Apr	2.2	Z	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	2.0	2.2																							
14-Apr	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.4																							
15-Apr	2.1	2.1	2.1	Z	2.5	2.1	2.1	2.4	2.4	2.4	2.1	2.1	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5																							
16-Apr	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1																							
17-Apr	2.0	2.0	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	2.1	2.2	2.1	2.1	2.5	2.1	2.5																							
18-Apr	Z	2.1	2.3	2.2	2.3	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	2.0	2.0	2.1	2.5	2.8	2.7	2.2	2.8																							
19-Apr	2.4	Z	2.4	2.4	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4																							
20-Apr	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																							
21-Apr	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.8	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.4	2.6	2.2	2.8																							
22-Apr	2.4	2.5	2.3	2.3	Z	2.2	2.2	2.1	2.4	2.1	2.1	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	2.1	2.5																							
23-Apr	2.1	2.2	2.2	2.2	2.2	Z	2.1	2.2	2.3	2.2	2.3	2.2	2.1	2.1	M	M	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.3																							
24-Apr	Z	2.2	2.1	2.1	2.1	2.1	2.2	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	2.0	2.0	2.0	2.1	2.2																							
25-Apr	2.0	Z	2.3	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	2.1	2.1	2.1	2.1	2.0	2.3																							
26-Apr	2.1	2.1	Z	2.0	2.2	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	2.1	2.2	2.2	2.2	2.1	2.2																							
27-Apr	2.1	2.1	2.1	Z	2.1	2.1	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	2.0	2.0	2.0	2.0	2.1																							
28-Apr	2.1	2.1	2.2	2.2	Z	2.5	2.5	2.2	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	2.1	2.5																							
29-Apr	2.0	2.0	2.0	2.1	2.1	Z	2.4	2.3	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	2.1	2.0	2.0	2.1	2.4																							
30-Apr	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	2.0																							
																								2.1	2.1	2.1	2.1	2.1	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	2.1	2.1	2.1	2.2	2.2	Diurnal Average		
																								2.4	2.5	2.4	2.4	2.5	2.5	2.5	2.8	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.3	2.2	2.3	2.2	2.5	2.8	2.7	Diurnal Maximum	
Z - zerspan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	364	54.25	54.25
2.1 - 3.0	307	45.75	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 671

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Ells River - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	51	49	18	11	6	15	28	18	16	27	40	22	19	25	11	8	364
2.1 - 3.0	63	25	22	8	3	1	24	30	29	10	5	4	12	11	19	24	290
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>	114	74	40	19	9	16	52	48	45	37	45	26	31	36	30	32	654

Total Number of Valid Hours: 654

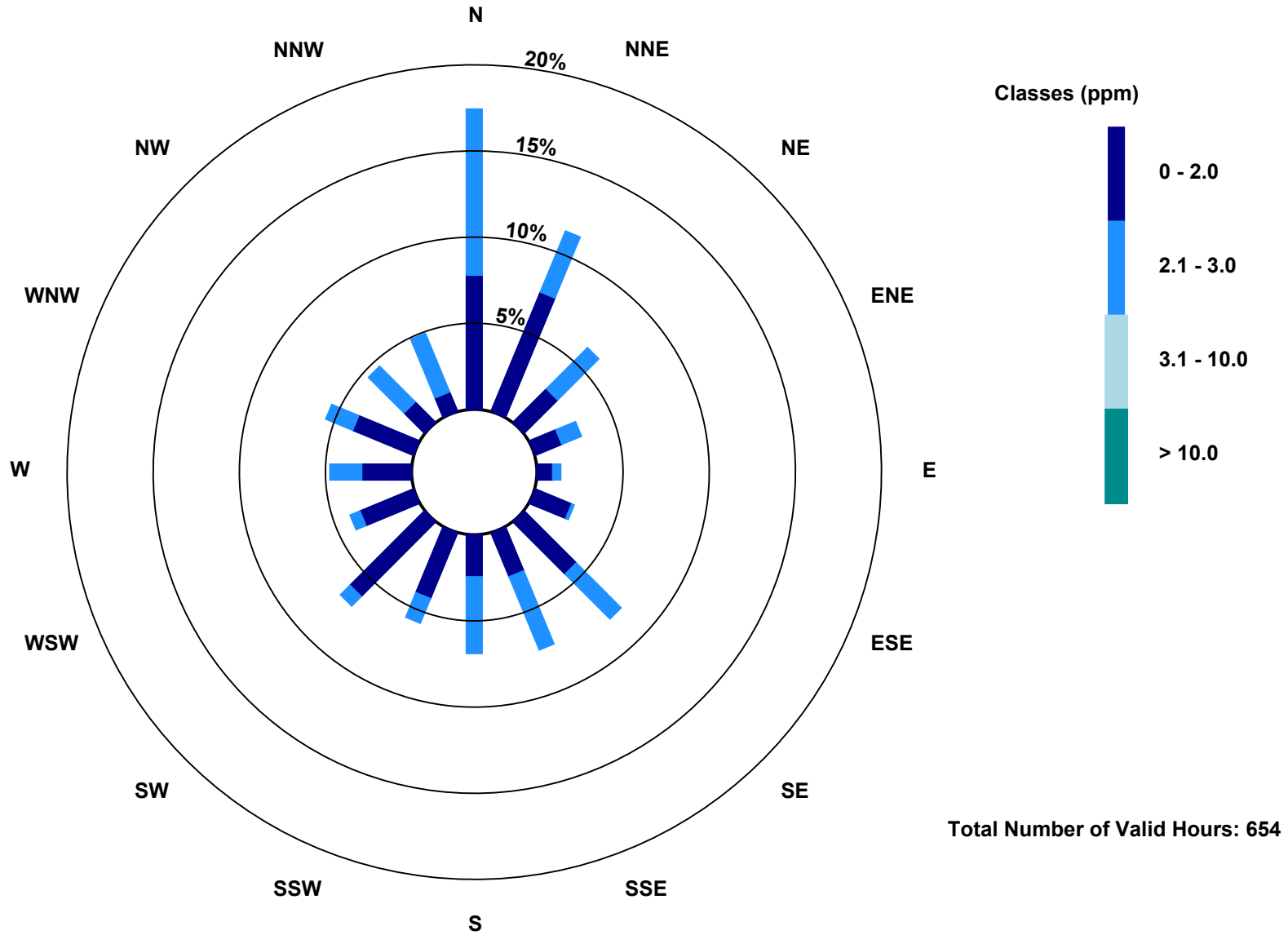
Total Number of Hours: 720

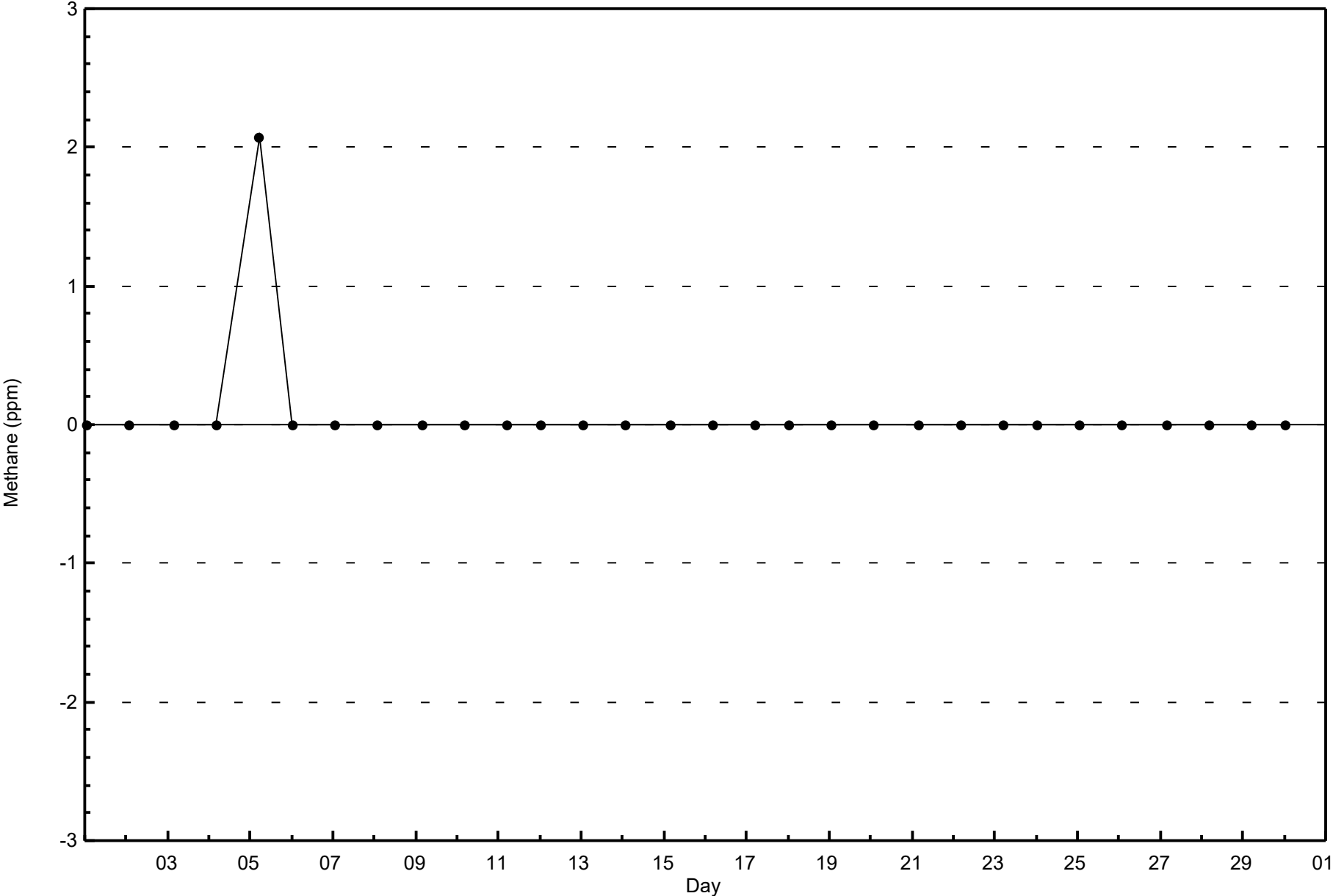


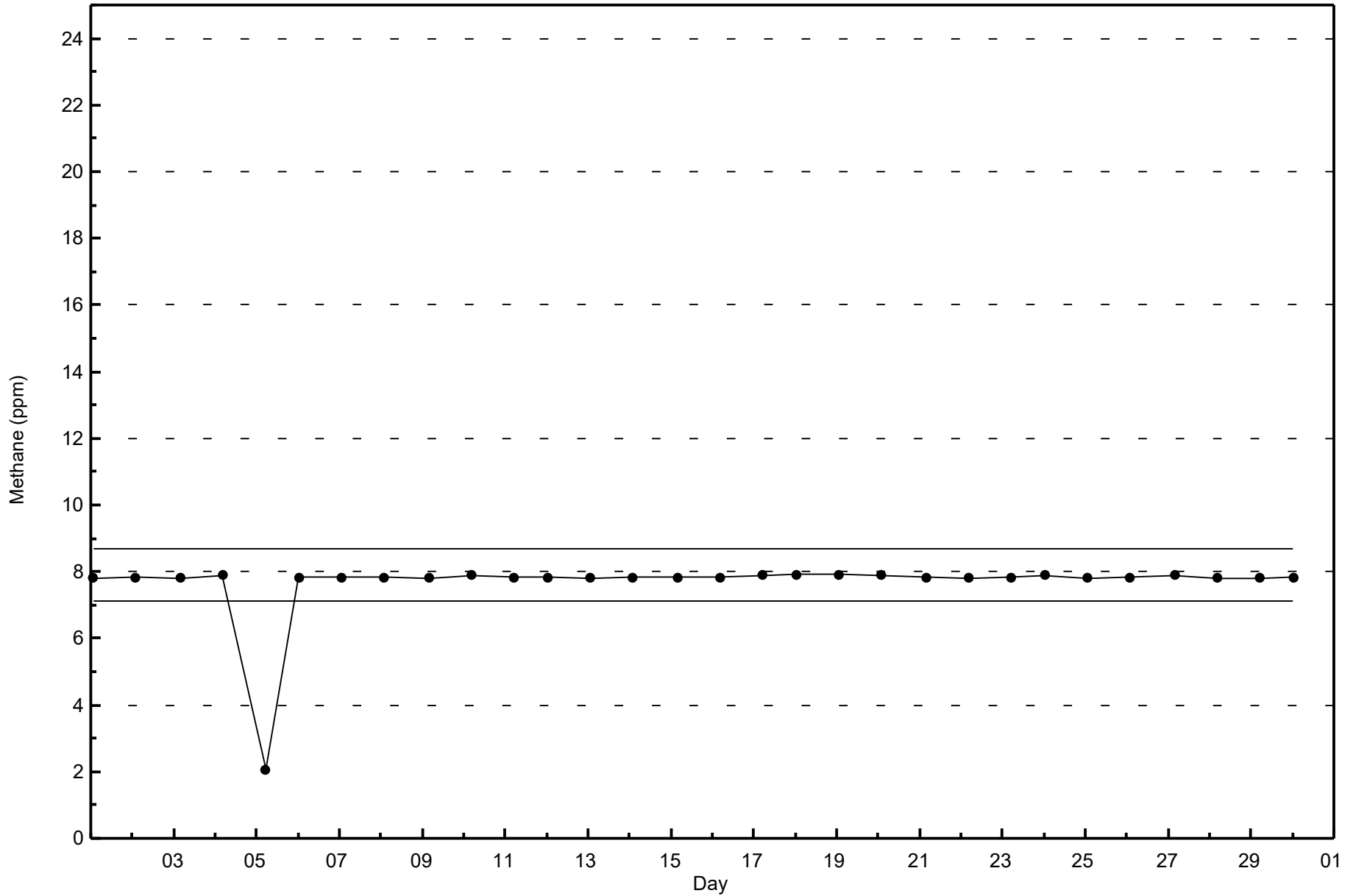


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

**Nitric Oxide (NO) - ppb**  
**Ells River - April 2024**

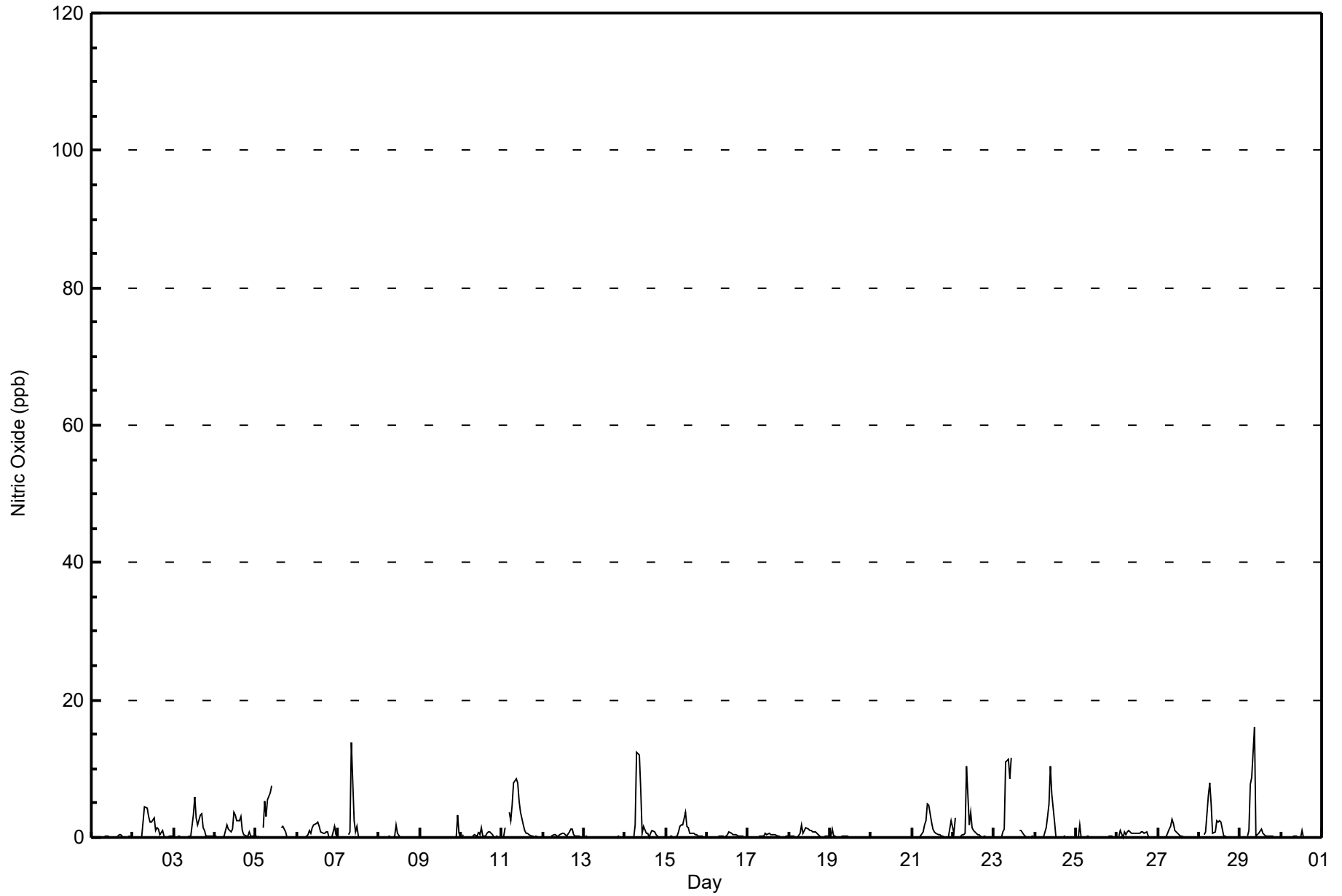
Maximum Value: 16.1 ppb on Apr 29 09:00																					Maximum Daily Average: 2.5 ppb on Apr 23					Hours in Service: 720	
Minimum Value: 0.0 ppb on Apr 1 01:00																					Minimum Daily Average: 0.0 ppb on Apr 20					Hours of Data: 681	
Maximum Diurnal Average: 3.3 ppb at hour 9																					Minimum Diurnal Average: 0.1 ppb at hour 20					Hours of Missing Data: 39	
Monthly Average: 0.78 ppb																					Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.9 P <sub>99</sub> = 10.5					Hours of Calibration: 35	
																					Percent Operational Time: 99.4						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.4	0.4	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.4	
2-Apr	Z	0.1	0.1	0.1	0.0	0.1	2.2	4.5	4.3	3.0	2.3	2.2	2.8	1.1	1.4	1.2	0.5	1.0	0.2	0.1	0.1	0.1	0.1	0.2	1.2	4.5	
3-Apr	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.3	5.9	2.8	1.8	3.2	3.4	1.5	1.1	0.2	0.1	0.1	0.2	0.2	1.1	5.9	
4-Apr	0.1	0.1	Z	0.1	0.1	0.2	0.9	1.8	1.3	0.8	1.1	3.7	3.3	2.5	2.4	3.1	1.1	0.4	0.2	0.1	0.8	0.2	0.1	0.2	1.1	3.7	
5-Apr	0.1	0.0	0.1	Z	1.5	5.3	3.1	5.5	6.6	7.4	C	C	C	C	C	1.4	1.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.9	7.4	
6-Apr	0.0	0.0	0.1	0.1	Z	0.0	0.4	1.0	0.5	1.5	1.8	2.0	2.2	1.6	0.8	0.5	0.6	0.8	0.8	0.0	0.0	0.9	1.6	0.5	0.8	2.2	
7-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.8	13.8	2.4	0.9	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	13.8	
8-Apr	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	1.9	0.6	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.2	1.9	
9-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.5	0.2	3.3	
10-Apr	0.1	0.5	Z	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.7	0.3	1.5	0.2	0.3	0.7	0.7	0.8	0.3	0.1	0.1	0.1	0.1	0.1	0.3	1.5	
11-Apr	0.1	0.2	1.5	Z	3.7	2.4	4.8	8.0	8.5	7.9	5.2	3.7	1.8	1.0	0.6	0.5	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.1	2.2	8.5	
12-Apr	0.0	0.0	0.1	0.1	Z	0.1	0.5	0.4	0.1	0.2	0.3	0.7	0.6	0.4	0.2	0.9	1.3	1.3	0.3	0.2	0.1	0.2	0.0	0.1	0.4	1.3	
13-Apr	0.1	0.2	0.0	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	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	
14-Apr	Z	0.0	0.0	0.0	0.1	0.0	1.8	12.4	12.0	7.0	0.6	1.5	0.7	0.6	0.0	0.6	1.0	0.7	0.4	0.1	0.1	0.0	0.0	0.0	1.7	12.4	
15-Apr	0.0	Z	0.1	0.2	0.1	0.1	0.1	0.8	1.6	1.9	1.7	3.6	1.6	1.4	0.6	0.6	0.7	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.7	3.6	
16-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.1	0.1	0.4	0.7	0.6	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.1	0.0	0.2	0.7	
17-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.3	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.2	0.2	0.6	
18-Apr	0.1	0.2	0.1	0.1	Z	0.0	0.6	1.9	0.6	1.1	1.5	1.3	1.0	1.0	0.8	0.7	0.6	0.3	0.2	0.0	0.0	0.1	0.1	0.2	0.6	1.9	
19-Apr	0.1	1.2	0.3	0.1	0.1	Z	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	
20-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
21-Apr	0.0	Z	0.0	0.0	0.0	0.3	0.9	1.9	2.4	4.9	4.7	2.3	1.2	0.7	0.6	0.4	0.3	0.2	0.1	0.1	0.0	0.0	1.3	2.4	1.1	4.9	
22-Apr	0.5	2.9	Z	0.1	0.0	0.4	0.5	0.7	10.3	1.9	3.7	1.4	1.0	0.7	0.4	0.4	0.2	0.1	0.2	0.1	0.0	0.1	0.0	0.0	1.1	10.3	
23-Apr	0.0	0.0	0.0	Z	0.1	0.7	1.3	11.1	11.5	8.6	11.6	M	M	M	M	0.9	1.0	0.3	0.1	0.1	0.0	0.1	0.1	0.0	2.5	11.6	
24-Apr	0.0	0.0	0.0	0.0	Z	0.1	1.5	3.1	4.9	10.4	6.3	2.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	1.3	10.4	
25-Apr	0.0	0.0	1.8	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.0	0.0	0.1	1.8	
26-Apr	Z	0.1	1.1	0.0	0.8	0.3	0.7	1.0	0.6	0.6	0.7	0.6	0.5	0.5	0.9	0.7	0.6	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.5	1.1	
27-Apr	0.0	Z	0.0	0.0	0.0	0.3	1.2	1.6	2.7	2.1	1.0	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	2.7	
28-Apr	0.1	0.1	Z	0.5	0.8	6.2	7.8	4.9	0.6	0.9	2.4	2.3	2.4	2.3	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	1.4	7.8	
29-Apr	0.0	0.0	0.0	Z	0.2	1.1	7.7	8.8	16.1	0.2	0.3	0.5	1.2	0.7	0.4	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	1.7	16.1	
30-Apr	0.1	0.1	0.1	0.0	Z	0.1	0.1	0.3	0.3	0.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			

Z - zerospan      C - Calibration      M - Maintenance



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Ells River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	681	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	118	77	41	20	8	16	51	47	44	37	49	25	30	37	29	35	664
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	118	77	41	20	8	16	51	47	44	37	49	25	30	37	29	35	664

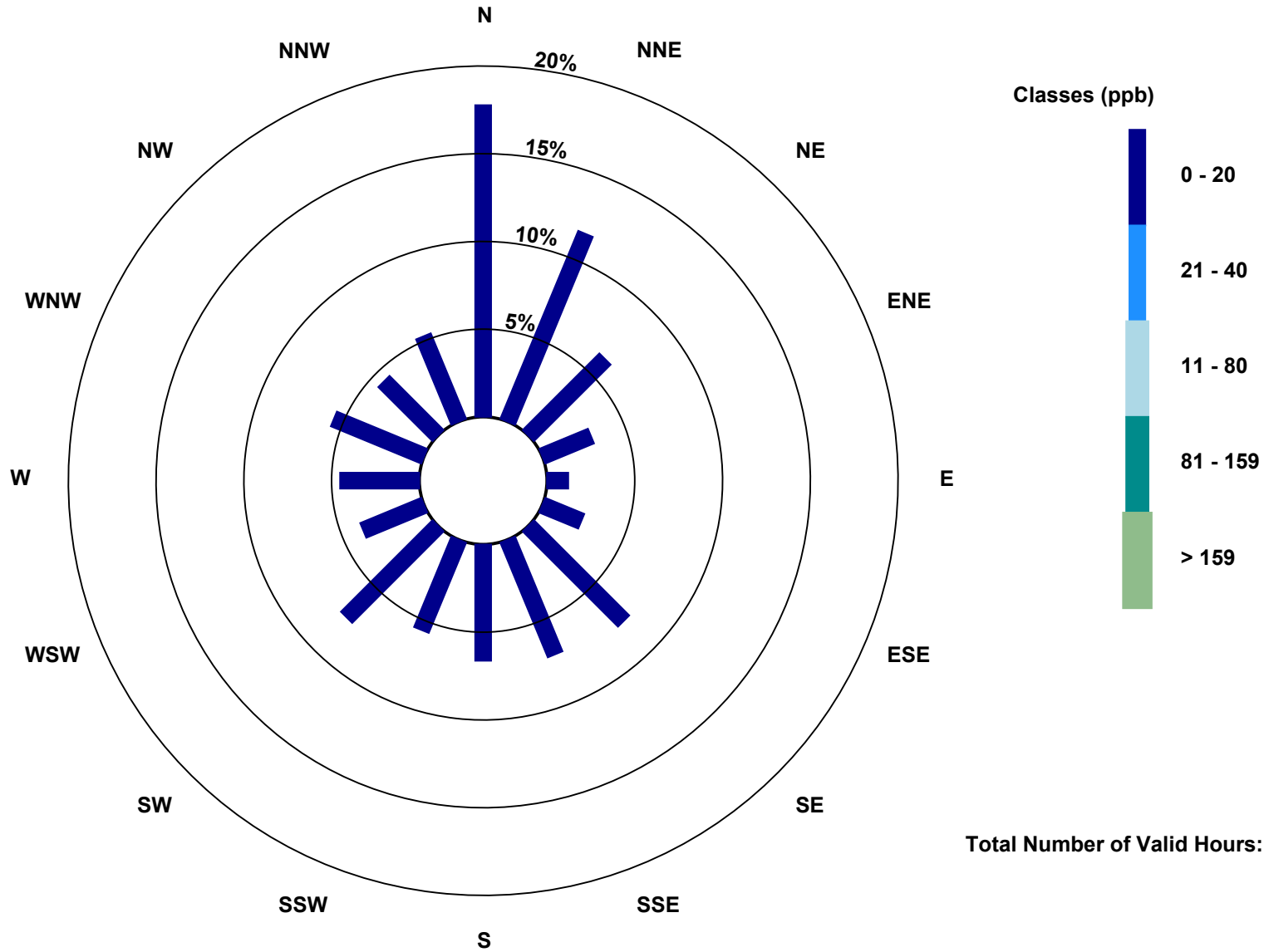
Total Number of Valid Hours: 664

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Ells River



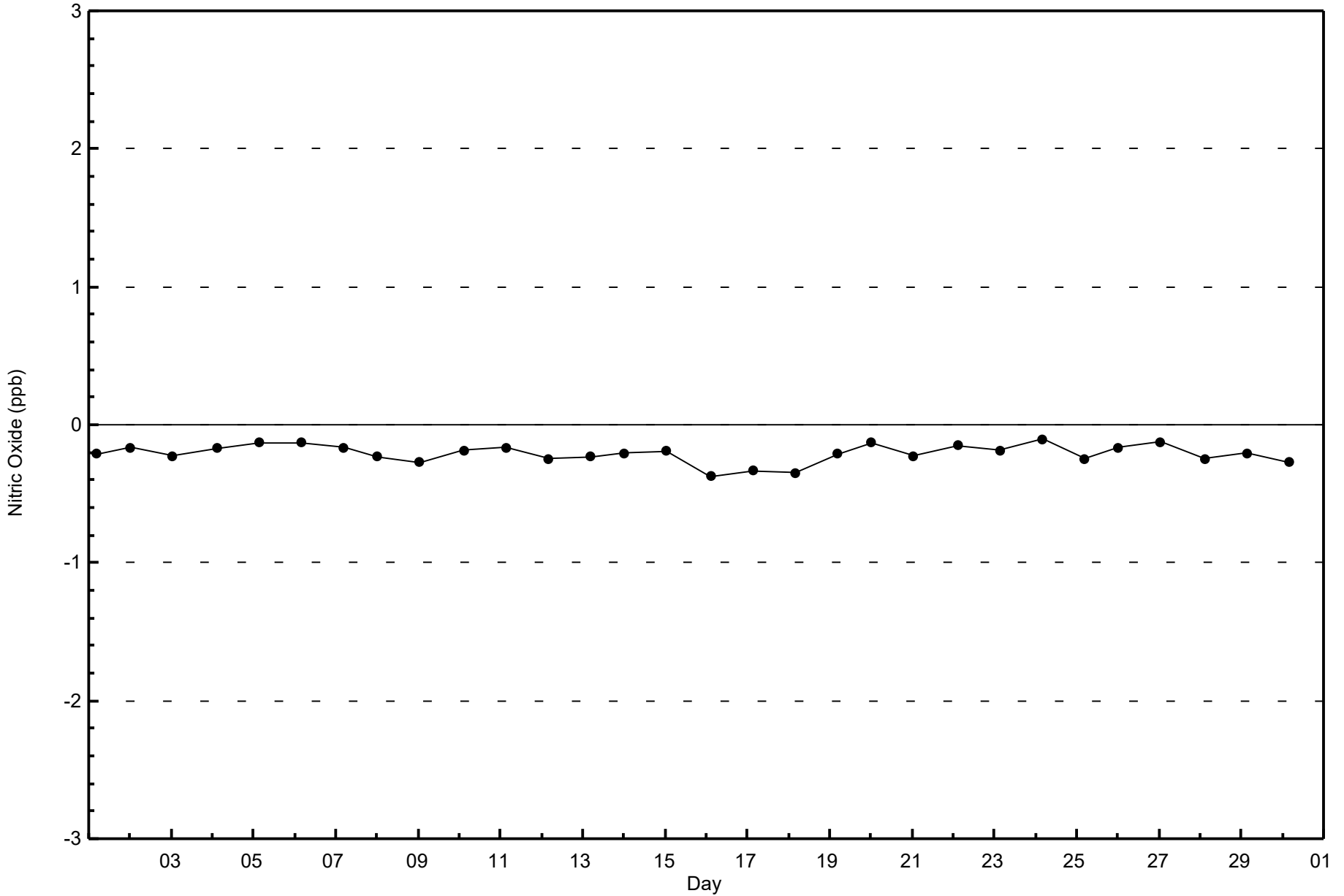
Total Number of Valid Hours: 664

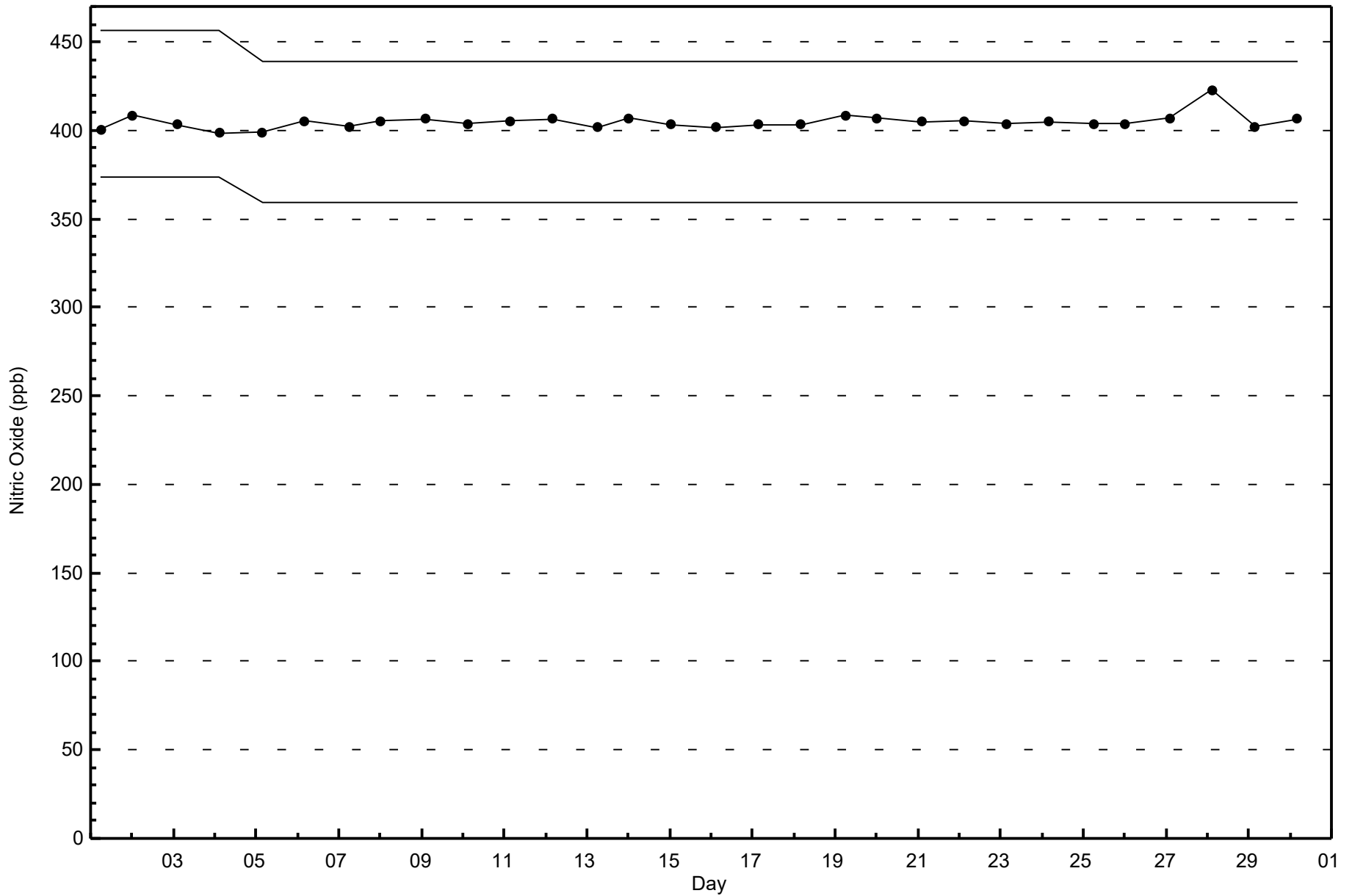




**Wood Buffalo Environmental Association**  
**Zero Responses**

**Nitric Oxide (NO) - ppb**  
**Ells River - April 2024**







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

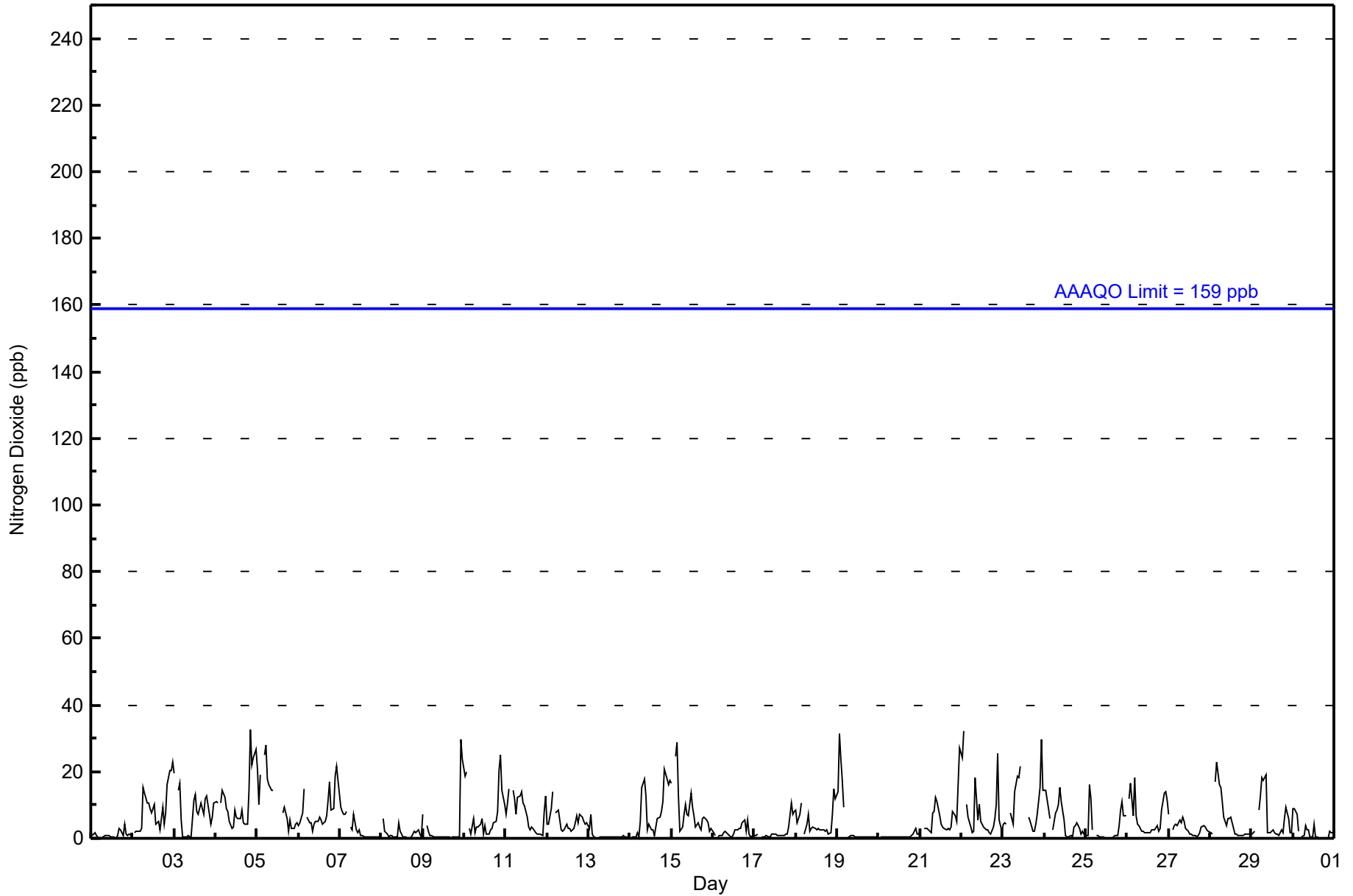
## Ells River - April 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														720																													
Maximum Value: 32.6 ppb on Apr 4 21:00		Maximum Daily Average: 11.8 ppb on Apr 5		Hours of Data:														681																															
Minimum Value: 0.1 ppb on Apr 25 12:00		Minimum Daily Average: 0.7 ppb on Apr 20		Hours of Missing Data:														39																															
Maximum Diurnal Average: 8.7 ppb at hour 23		Minimum Diurnal Average: 1.9 ppb at hour 15		Hours of Calibration:														35																															
Monthly Average: 5.35 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.9 Median = 2.9 Q <sub>3</sub> = 7.3 P <sub>90</sub> = 14.4 P <sub>99</sub> = 27.2		Percent Operational Time:														99.4																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.9	1.2	1.5	0.7	0.4	Z	0.4	0.4	0.9	0.7	0.7	0.4	0.3	0.3	0.2	0.9	2.9	2.4	1.0	4.1	1.1	1.0	1.3	1.0	1.1	4.1																							
2-Apr	Z	1.8	2.1	2.3	2.1	3.0	15.2	13.7	10.8	10.7	9.1	7.6	10.0	4.2	4.7	4.9	2.6	9.3	4.4	7.7	16.0	20.3	20.2	23.0	8.9	23.0																							
3-Apr	19.7	Z	14.2	16.4	5.3	0.4	0.4	0.5	0.7	0.6	0.6	11.5	13.2	8.0	7.2	10.7	8.7	7.0	11.8	12.5	7.3	4.2	6.3	10.7	7.7	19.7																							
4-Apr	11.0	10.5	Z	10.4	14.2	12.4	9.1	8.2	4.9	3.1	3.3	8.4	6.2	5.8	5.8	8.4	4.5	4.2	4.3	14.4	32.6	22.1	24.0	26.5	11.1	32.6																							
5-Apr	20.8	10.0	19.2	Z	25.2	27.8	18.0	16.2	14.3	14.4	C	C	C	C	C	7.6	9.4	5.9	2.3	5.6	2.8	3.1	4.4	4.6	11.8	27.8																							
6-Apr	4.0	4.8	7.8	14.7	Z	6.2	4.6	4.7	2.1	4.2	5.0	5.2	6.2	5.5	4.1	4.9	6.8	11.4	16.8	8.5	9.1	18.7	21.7	17.4	8.5	21.7																							
7-Apr	9.4	7.9	7.1	7.1	8.0	Z	3.3	2.5	7.3	2.6	1.5	2.4	0.9	0.7	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.8	9.4																							
8-Apr	Z	6.0	2.2	1.2	0.5	0.7	1.0	0.4	0.4	0.4	4.7	2.1	0.4	0.3	0.3	0.2	0.2	0.3	1.3	2.2	1.5	2.4	1.2	0.6	1.3	6.0																							
9-Apr	7.2	Z	3.8	2.2	0.9	0.8	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	29.5	23.7	3.2	29.5																							
10-Apr	18.6	19.9	Z	3.0	1.1	5.8	1.6	3.3	3.4	4.1	6.1	1.4	3.8	1.2	1.4	2.7	3.0	4.5	5.0	7.9	20.2	24.8	14.5	10.2	7.3	24.8																							
11-Apr	7.2	10.8	15.0	Z	14.5	11.9	7.4	12.3	12.7	13.9	10.6	9.8	6.3	3.4	2.7	3.2	2.8	1.5	1.2	1.2	1.2	0.9	8.0	12.9	7.5	15.0																							
12-Apr	4.4	4.1	8.7	13.8	Z	7.7	8.5	5.5	2.4	2.2	2.6	4.1	3.0	2.8	2.3	3.1	4.6	6.7	4.5	7.4	6.3	5.0	4.4	4.5	5.2	13.8																							
13-Apr	3.0	7.2	1.2	0.4	0.3	Z	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9	0.5	0.3	0.3	0.8	7.2																							
14-Apr	Z	0.5	0.3	0.3	1.6	0.4	5.0	15.3	18.0	12.7	2.5	4.3	2.5	2.6	0.7	3.2	5.9	6.4	8.0	11.1	20.7	17.6	16.3	17.5	7.5	20.7																							
15-Apr	16.6	Z	24.5	28.8	12.9	2.2	3.2	7.3	10.0	7.3	6.9	13.4	9.5	6.9	3.5	4.7	3.4	2.6	5.9	6.5	5.7	4.6	2.3	3.0	8.3	28.8																							
16-Apr	1.6	0.8	Z	0.6	0.7	0.7	1.6	2.0	1.9	0.8	0.5	0.6	1.4	2.5	2.4	2.9	2.8	4.8	5.7	2.2	5.7	1.3	0.6	0.8	2.0	5.7																							
17-Apr	0.8	0.8	1.1	Z	0.4	0.4	0.6	0.7	0.4	0.6	1.3	1.1	1.4	1.0	1.0	1.0	1.0	1.0	1.4	1.2	3.5	10.6	7.2	7.9	2.0	10.6																							
18-Apr	8.6	4.7	7.2	10.4	Z	1.3	4.4	7.4	2.0	2.8	3.6	3.1	2.7	2.8	2.4	2.5	2.5	2.1	2.4	1.3	1.5	7.1	15.0	11.7	4.8	15.0																							
19-Apr	14.0	31.2	23.6	17.5	9.2	Z	0.6	0.4	0.7	1.0	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	4.6	31.2																							
20-Apr	Z	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.1	2.9	1.3	1.2	0.7	2.9																							
21-Apr	2.1	Z	3.1	3.1	3.1	2.5	1.8	7.6	7.9	12.2	11.2	6.8	4.4	3.3	2.9	2.5	2.8	2.5	3.5	7.9	6.9	5.2	16.0	27.1	6.4	27.1																							
22-Apr	24.2	32.2	Z	10.0	6.4	3.5	1.9	2.3	18.4	5.7	10.1	5.1	4.2	3.5	2.4	2.4	1.8	1.2	3.4	5.8	10.2	25.5	5.7	2.2	8.2	32.2																							
23-Apr	4.1	4.5	4.4	Z	7.5	6.1	4.2	13.8	18.7	18.4	21.7	M	M	M	M	6.5	4.9	2.1	2.2	4.3	7.4	15.3	29.7	14.2	10.0	29.7																							
24-Apr	14.5	14.4	8.9	5.8	Z	2.7	7.5	8.5	10.1	15.4	11.0	5.5	0.7	0.6	0.5	0.7	0.6	3.6	4.0	4.5	3.1	1.1	2.0	1.2	5.5	15.4																							
25-Apr	1.0	0.8	16.2	12.0	2.7	Z	1.0	0.8	0.5	0.5	0.3	0.1	0.2	0.2	0.1	0.2	0.3	0.8	1.0	3.8	8.4	10.9	6.9	6.8	3.3	16.2																							
26-Apr	Z	11.9	16.7	6.8	18.1	6.6	4.1	3.7	2.1	2.0	1.9	1.8	1.8	1.9	2.7	2.6	2.5	3.7	2.3	3.0	8.5	13.6	14.0	11.6	6.3	18.1																							
27-Apr	7.2	Z	2.5	4.0	4.4	3.9	5.6	4.5	6.5	5.1	3.0	2.0	1.4	1.2	0.9	0.7	0.6	0.7	1.5	3.4	3.8	3.6	2.5	2.2	3.1	7.2																							
28-Apr	1.5	1.4	Z	16.9	22.8	16.1	15.1	11.2	6.4	3.8	5.8	6.0	6.5	4.8	1.4	1.4	1.0	0.8	0.7	0.8	1.2	1.1	1.4	1.3	5.6	22.8																							
29-Apr	1.2	1.5	2.2	Z	8.5	12.8	18.4	17.5	19.1	1.8	1.6	1.9	2.5	1.7	1.4	1.1	0.8	2.5	1.9	6.1	9.4	6.1	1.7	1.9	5.4	19.1																							
30-Apr	8.7	8.8	7.2	2.0	Z	0.4	1.0	3.8	2.4	2.4	0.5	0.5	4.1	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	2.2	1.6	1.8	2.1	8.8																							
																								8.5	7.9	8.0	7.6	6.8	5.5	4.9	5.9	6.2	5.0	4.4	3.8	3.4	2.4	1.9	2.7	2.6	3.0	3.3	4.5	6.6	7.8	8.7	8.3	Diurnal Average	
																								24.2	32.2	24.5	28.8	25.2	27.8	18.4	17.5	19.1	18.4	21.7	13.4	13.2	8.0	7.2	10.7	9.4	11.4	16.8	14.4	32.6	25.5	29.7	27.1	Diurnal Maximum	
Z - zerspan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Ells River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	657	96.48	96.48
21 - 40	24	3.52	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Ells River - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	111	71	41	20	8	16	51	47	44	36	48	25	27	37	26	33	641
21 - 40	7	6	0	0	0	0	0	0	0	1	1	0	3	0	3	2	23
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	118	77	41	20	8	16	51	47	44	37	49	25	30	37	29	35	664

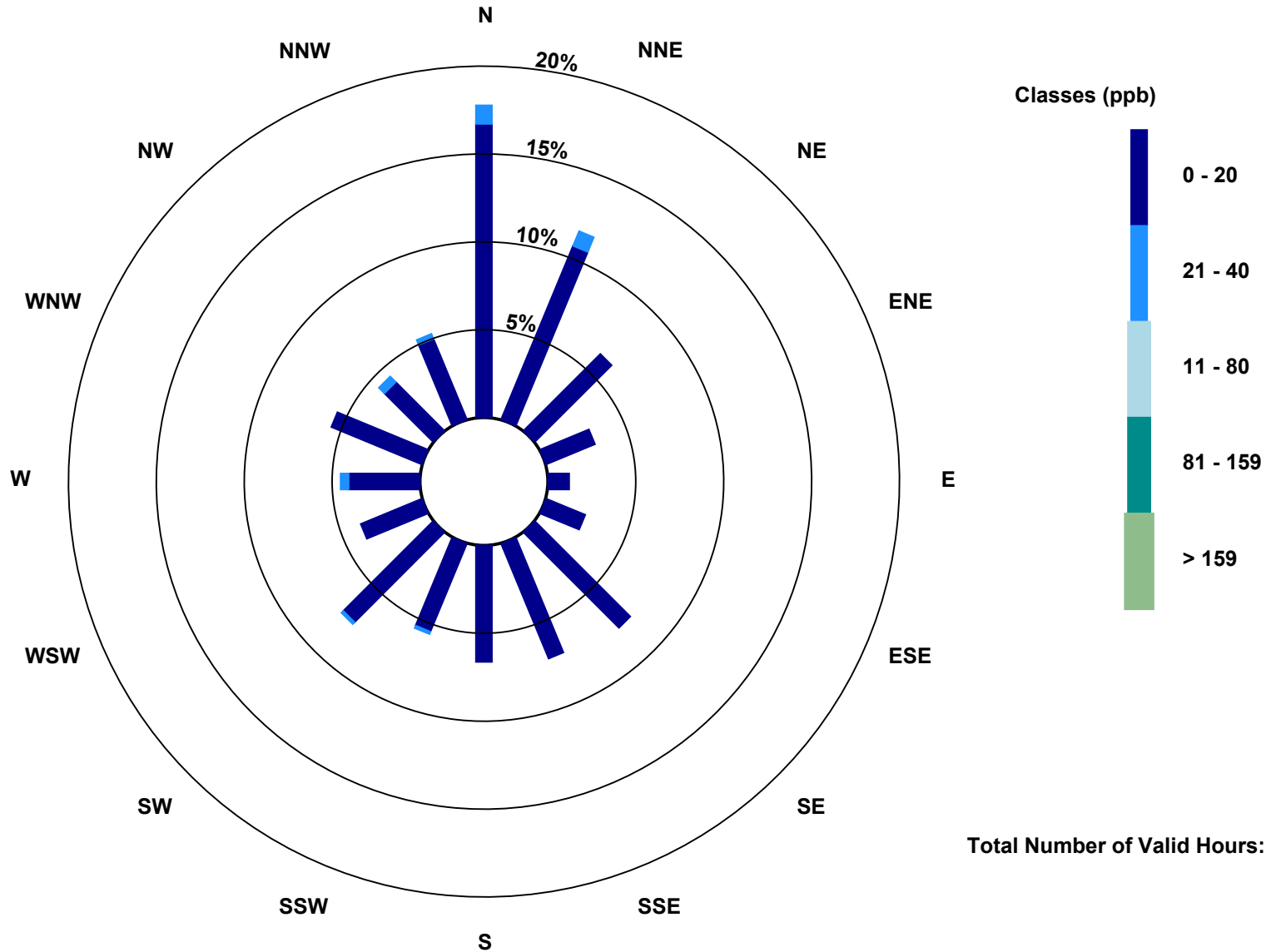
Total Number of Valid Hours: 664

Total Number of Hours: 720

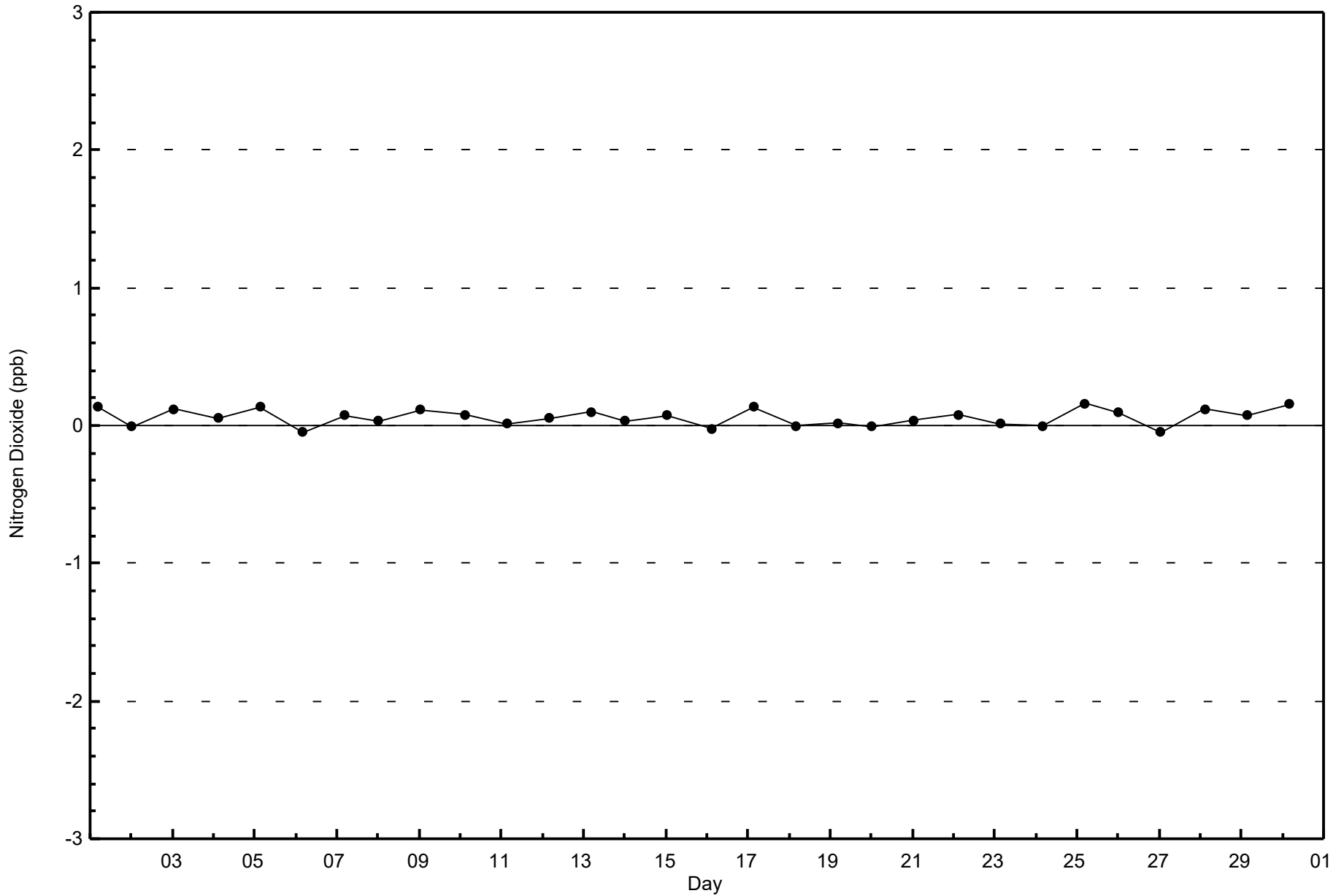


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

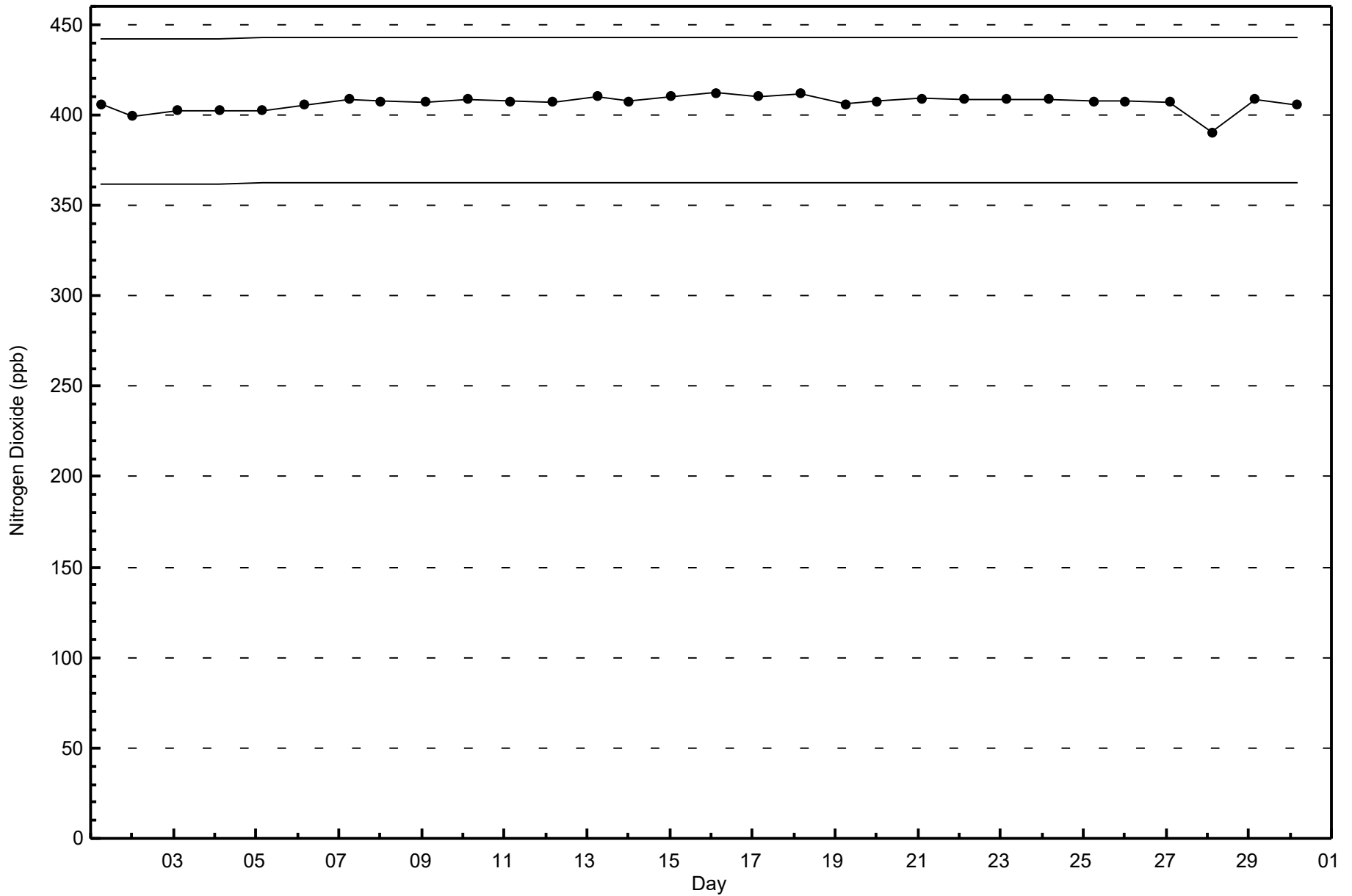
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Ells River



Total Number of Valid Hours: 664









Wood Buffalo Environmental Association

Summary of Hour Averages

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

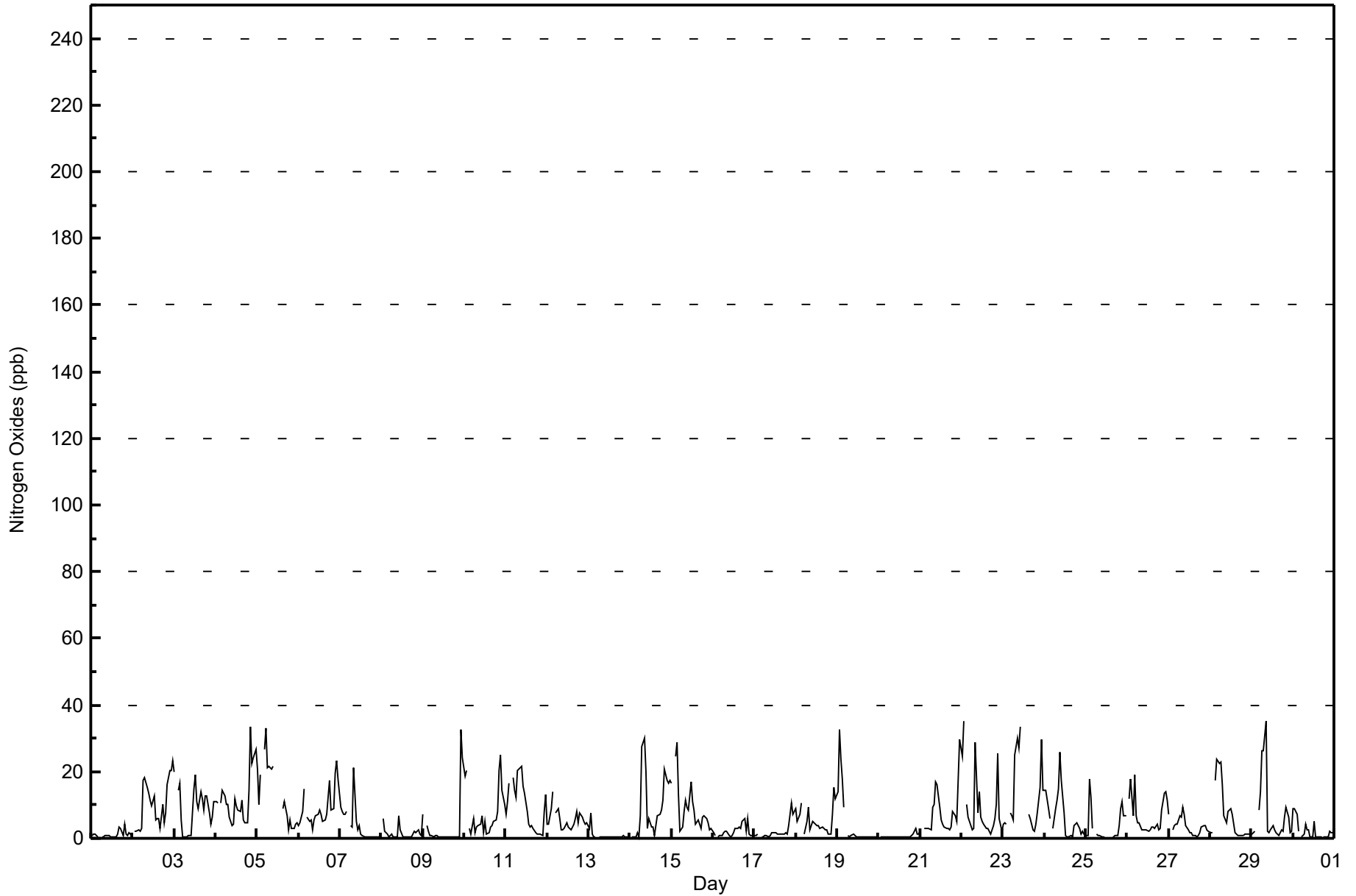
Ells River - April 2024

Maximum Value: 35.2 ppb on Apr 29 09:00																					Maximum Daily Average: 13.6 ppb on Apr 5					Hours in Service: 720																							
Minimum Value: 0.1 ppb on Apr 30 18:00																					Minimum Daily Average: 0.7 ppb on Apr 20					Hours of Data: 681																							
Maximum Diurnal Average: 9.5 ppb at hour 9																					Minimum Diurnal Average: 2.3 ppb at hour 15					Hours of Missing Data: 39																							
Monthly Average: 6.13 ppb																					Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.0 Median = 3.3 Q <sub>3</sub> = 8.3 P <sub>90</sub> = 17.1 P <sub>99</sub> = 30.6					Hours of Calibration: 35																							
																					Percent Operational Time: 99.4																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	0.9	1.2	1.5	0.7	0.4	Z	0.4	0.5	1.0	0.8	0.8	0.5	0.3	0.3	0.3	1.1	3.3	2.8	1.0	4.1	1.1	1.0	1.6	1.0	1.2	4.1																							
2-Apr	Z	1.9	2.2	2.4	2.1	3.1	17.4	18.2	15.1	13.7	11.4	9.8	12.8	5.3	6.1	6.1	3.1	10.3	4.6	7.8	16.1	20.4	20.3	23.2	10.1	23.2																							
3-Apr	19.8	Z	14.3	16.6	5.4	0.5	0.5	0.6	0.8	0.7	0.7	14.8	19.1	10.8	9.0	13.9	12.1	8.5	12.9	12.7	7.4	4.3	6.5	10.9	8.8	19.8																							
4-Apr	11.1	10.6	Z	10.5	14.3	12.6	10.0	10.0	6.2	3.9	4.4	12.1	9.5	8.3	8.2	11.5	5.6	4.6	4.5	14.5	33.4	22.3	24.1	26.7	12.1	33.4																							
5-Apr	20.9	10.0	19.3	Z	26.7	33.1	21.1	21.7	20.9	21.8	C	C	C	C	C	9.0	11.1	6.7	2.3	5.6	2.8	3.1	4.4	4.6	13.6	33.1																							
6-Apr	4.0	4.8	7.9	14.8	Z	6.2	5.0	5.7	2.6	5.7	6.8	7.2	8.4	7.1	4.9	5.4	7.4	12.2	17.6	8.5	9.1	19.6	23.3	17.9	9.2	23.3																							
7-Apr	9.4	7.9	7.1	7.1	8.0	Z	3.6	3.3	21.1	5.0	2.4	4.0	1.1	0.7	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	3.7	21.1																							
8-Apr	Z	6.1	2.3	1.3	0.5	0.8	1.1	0.5	0.5	0.5	6.6	2.7	0.4	0.4	0.3	0.3	0.3	0.3	1.3	2.3	1.5	2.5	1.2	0.7	1.5	6.6																							
9-Apr	7.3	Z	3.9	2.3	1.0	0.9	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	32.8	24.2	3.4	32.8																							
10-Apr	18.7	20.4	Z	3.0	1.1	5.8	1.6	3.5	3.7	4.4	6.8	1.7	5.3	1.4	1.7	3.4	3.7	5.3	5.3	8.0	20.3	24.9	14.6	10.3	7.6	24.9																							
11-Apr	7.3	11.0	16.5	Z	18.2	14.3	12.2	20.3	21.2	21.8	15.8	13.5	8.1	4.4	3.3	3.7	3.1	1.6	1.3	1.3	1.3	0.9	8.1	13.0	9.7	21.8																							
12-Apr	4.4	4.1	8.8	13.9	Z	7.8	9.0	5.9	2.5	2.4	2.9	4.8	3.6	3.2	2.5	4.0	5.9	8.0	4.8	7.6	6.4	5.2	4.4	4.6	5.5	13.9																							
13-Apr	3.1	7.4	1.2	0.4	0.3	Z	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.0	0.5	0.3	0.3	0.8	7.4																							
14-Apr	Z	0.5	0.3	0.3	1.7	0.4	6.8	27.7	30.0	19.7	3.1	5.8	3.2	3.2	0.7	3.8	6.9	7.1	8.4	11.2	20.8	17.6	16.3	17.5	9.3	30.0																							
15-Apr	16.6	Z	24.6	29.0	13.0	2.3	3.3	8.1	11.6	9.2	8.6	17.0	11.1	8.3	4.1	5.3	4.1	2.9	6.2	6.7	5.9	4.8	2.4	3.1	9.1	29.0																							
16-Apr	1.6	0.8	Z	0.6	0.7	0.7	1.7	2.2	2.2	0.9	0.6	0.7	1.8	3.2	3.0	3.3	3.2	5.2	6.0	2.3	5.9	1.4	0.7	0.8	2.1	6.0																							
17-Apr	0.8	0.8	1.1	Z	0.4	0.4	0.7	0.8	0.5	0.9	1.9	1.6	1.9	1.4	1.4	1.3	1.3	1.2	1.6	1.2	3.6	10.7	7.3	8.1	2.2	10.7																							
18-Apr	8.7	4.9	7.3	10.5	Z	1.3	5.0	9.3	2.6	3.9	5.1	4.4	3.7	3.8	3.2	3.2	3.1	2.4	2.6	1.3	1.5	7.2	15.1	11.9	5.3	15.1																							
19-Apr	14.1	32.4	23.9	17.6	9.3	Z	0.7	0.5	0.9	1.3	0.8	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	4.7	32.4																							
20-Apr	Z	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.1	2.9	1.3	1.2	0.7	2.9																						
21-Apr	2.1	Z	3.1	3.1	3.1	2.8	2.7	9.5	10.3	17.1	15.9	9.1	5.6	4.0	3.5	2.9	3.1	2.7	3.6	8.0	6.9	5.2	17.3	29.5	7.4	29.5																							
22-Apr	24.7	35.1	Z	10.1	6.4	3.9	2.4	3.0	28.7	7.6	13.8	6.5	5.2	4.2	2.8	2.8	2.0	1.3	3.6	5.9	10.2	25.6	5.7	2.2	9.3	35.1																							
23-Apr	4.1	4.5	4.4	Z	7.6	6.8	5.5	24.9	30.2	27.0	33.3	M	M	M	M	7.4	5.9	2.4	2.3	4.4	7.4	15.4	29.8	14.2	12.5	33.3																							
24-Apr	14.5	14.4	8.9	5.8	Z	2.8	9.0	11.6	15.0	25.8	17.3	7.8	0.7	0.6	0.5	0.7	0.6	3.7	4.1	4.5	3.1	1.2	2.1	1.2	6.8	25.8																							
25-Apr	1.0	0.8	18.0	12.1	2.8	Z	1.2	0.9	0.6	0.5	0.3	0.1	0.2	0.2	0.1	0.2	0.3	0.8	1.0	3.9	8.7	11.2	6.9	6.8	3.4	18.0																							
26-Apr	Z	12.0	17.8	6.8	18.9	6.9	4.8	4.7	2.7	2.6	2.6	2.4	2.3	2.4	3.6	3.3	3.1	4.4	2.6	3.1	8.5	13.6	14.0	11.6	6.7	18.9																							
27-Apr	7.2	Z	2.5	4.0	4.4	4.2	6.8	6.1	9.2	7.2	4.0	2.5	1.8	1.5	1.0	0.7	0.6	0.7	1.5	3.4	3.8	3.6	2.6	2.3	3.6	9.2																							
28-Apr	1.6	1.5	Z	17.4	23.6	22.3	22.9	16.1	7.0	4.7	8.2	8.3	8.9	7.1	1.6	1.5	1.1	0.9	0.7	0.8	1.3	1.2	1.5	1.4	7.0	23.6																							
29-Apr	1.2	1.5	2.2	Z	8.7	13.9	26.1	26.3	35.2	2.0	1.9	2.4	3.7	2.4	1.8	1.4	0.9	2.7	2.0	6.2	9.5	6.2	1.7	1.9	7.0	35.2																							
30-Apr	8.8	8.9	7.3	2.0	Z	0.5	1.1	4.1	2.7	2.7	0.5	0.5	5.0	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	2.2	1.6	1.8	2.2	8.9																							
																								8.6	8.2	8.3	7.7	7.2	6.2	6.1	8.2	9.5	7.2	6.1	5.1	4.5	3.1	2.3	3.3	3.1	3.4	3.5	4.6	6.7	7.9	9.0	8.5	Diurnal Average	
																								24.7	35.1	24.6	29.0	26.7	33.1	26.1	27.7	35.2	27.0	33.3	17.0	19.1	10.8	9.0	13.9	12.1	12.2	17.6	14.5	33.4	25.6	32.8	29.5	Diurnal Maximum	
Z - zerspan																								C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	638	93.69	93.69
21 - 40	43	6.31	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Ells River - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	105	69	39	20	8	16	49	45	43	36	48	25	27	37	25	30	622
21 - 40	13	8	2	0	0	0	2	2	1	1	1	0	3	0	4	5	42
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	118	77	41	20	8	16	51	47	44	37	49	25	30	37	29	35	664

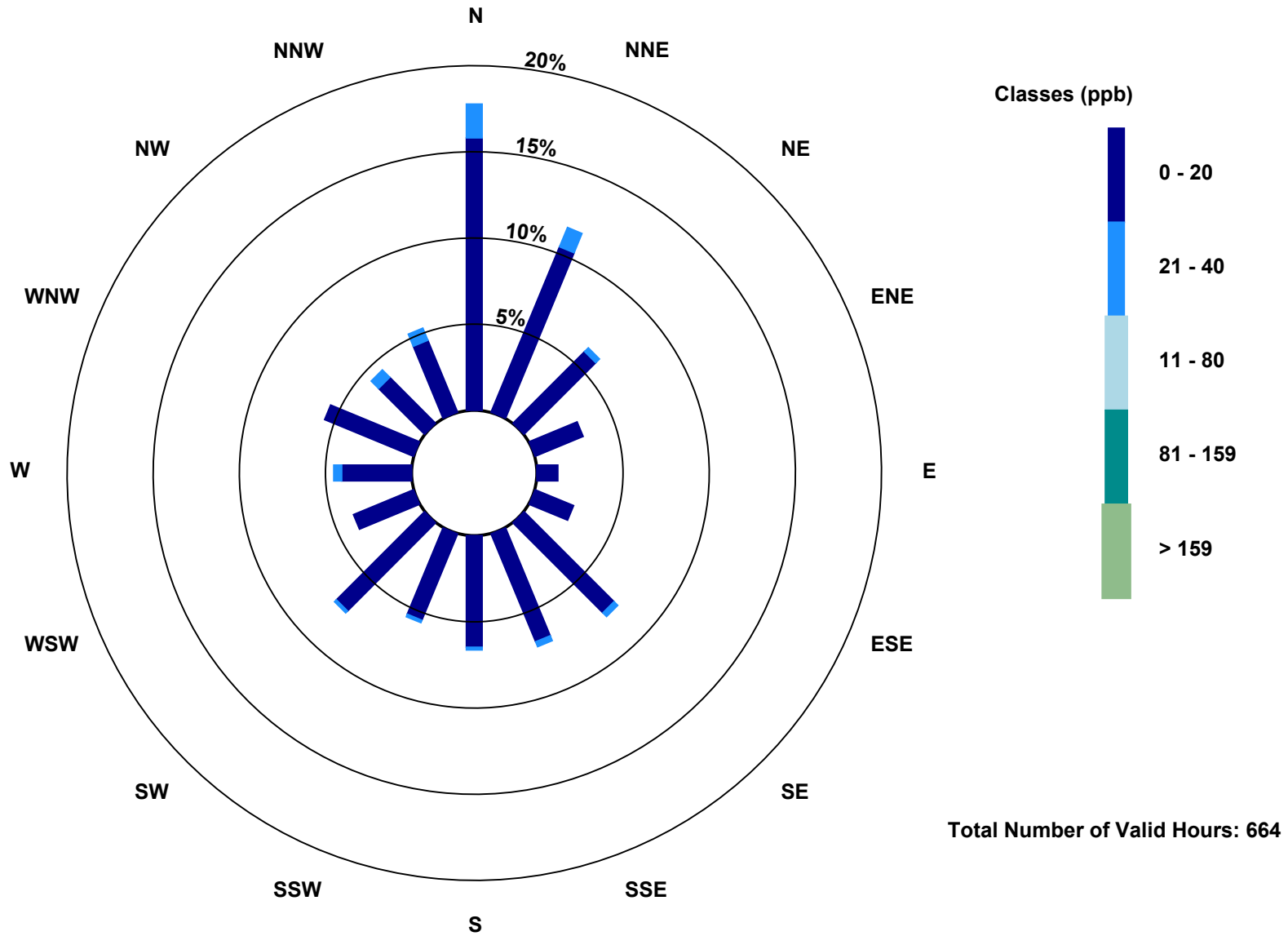
Total Number of Valid Hours: 664

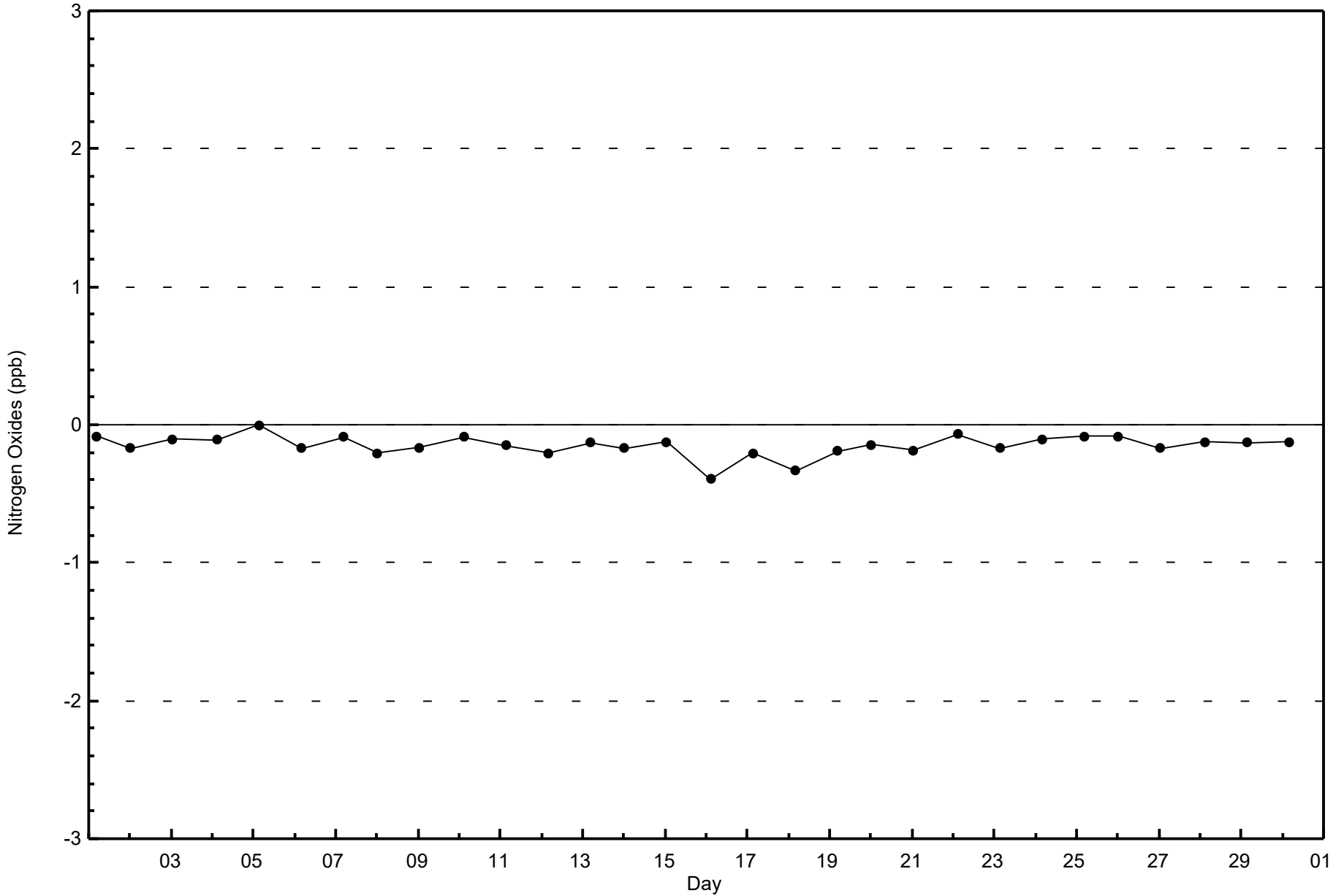
Total Number of Hours: 720

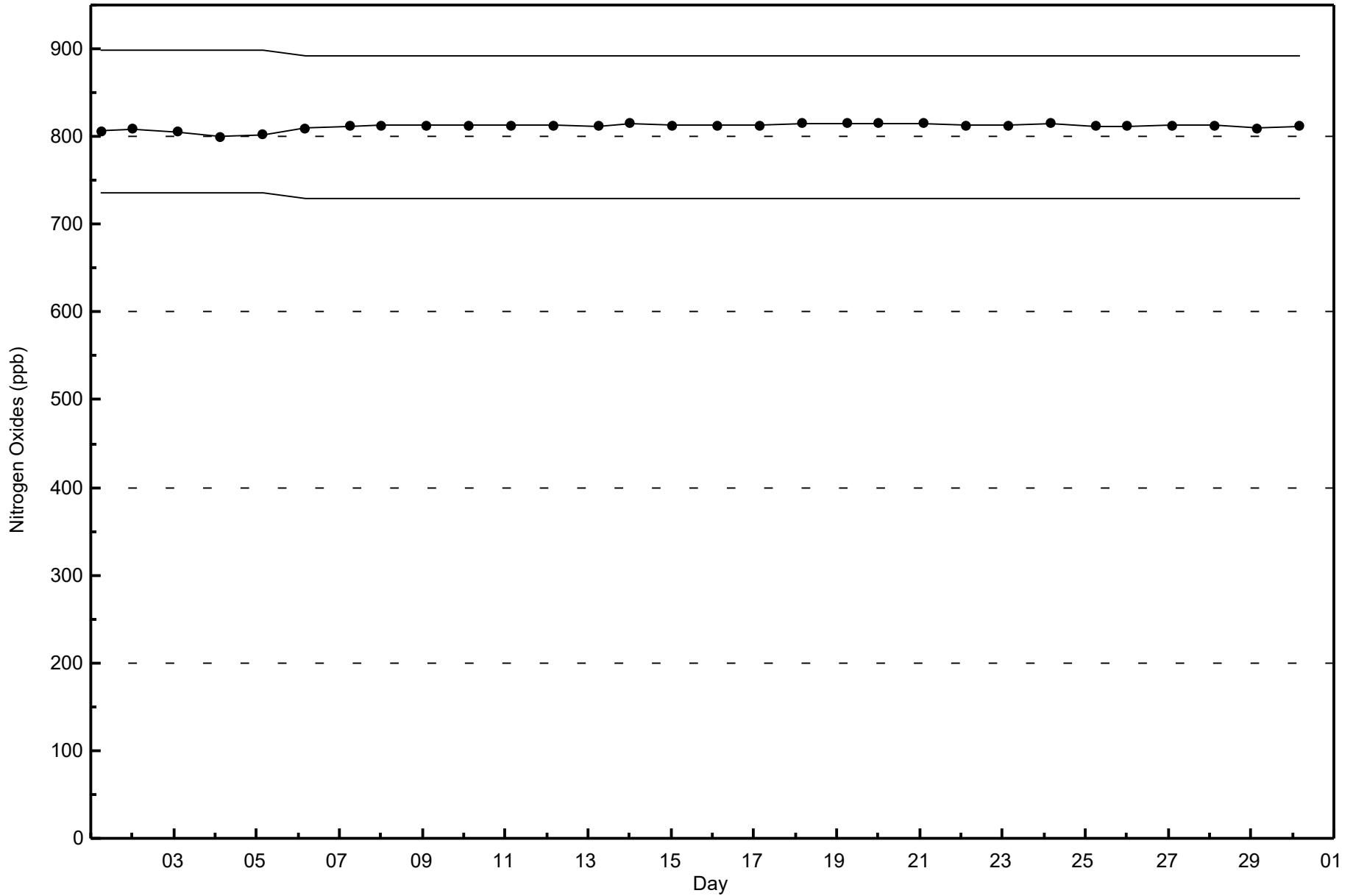


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











Summary of Hour Averages

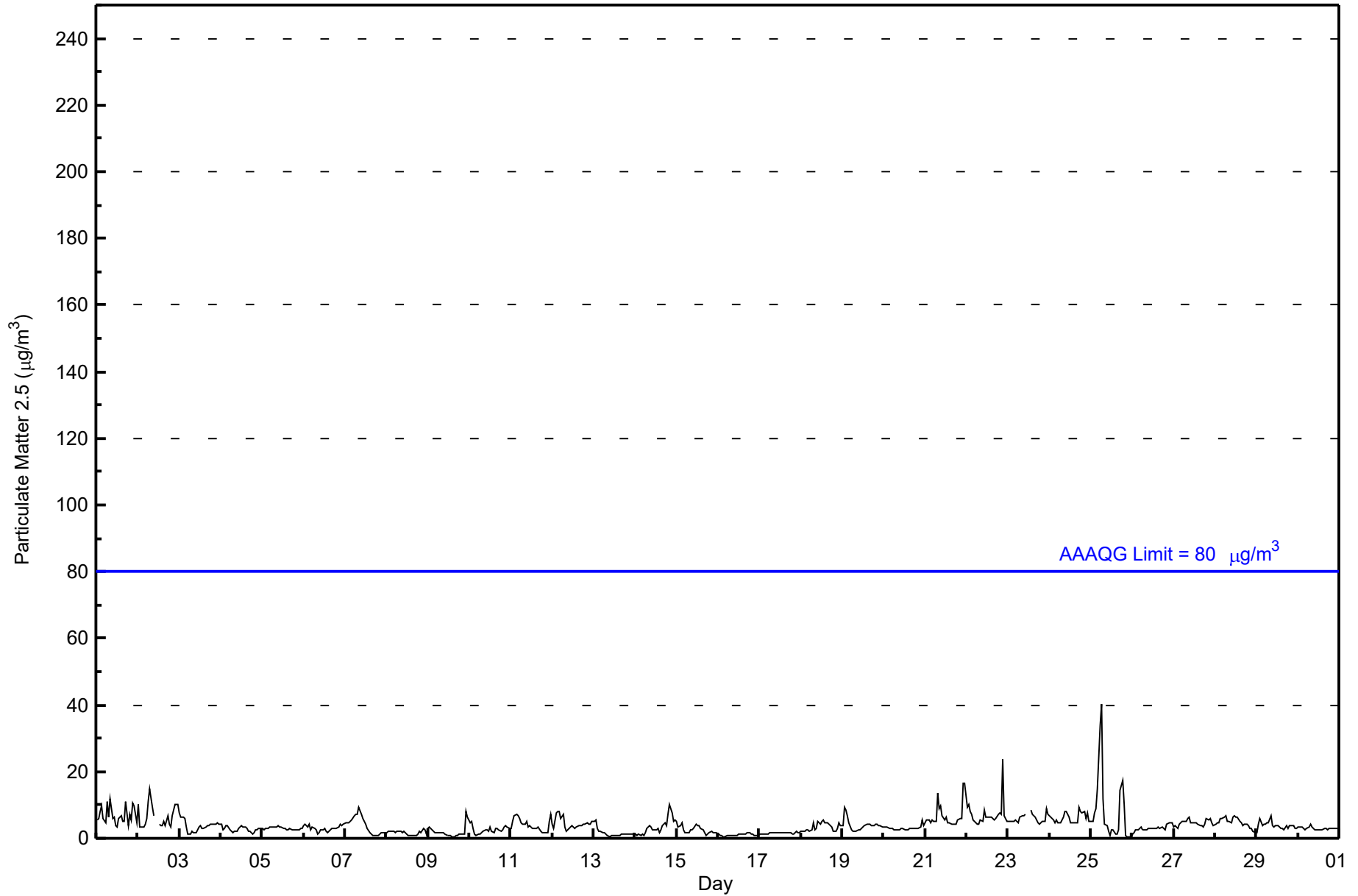
Ells River - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 40.2 µg/m <sup>3</sup> on Apr 25 07:00	Maximum Daily Average: 8.0 µg/m <sup>3</sup> on Apr 25		Hours of Data:	716
Minimum Value: 0.5 µg/m <sup>3</sup> on Apr 16 05:00	Minimum Daily Average: 1.1 µg/m <sup>3</sup> on Apr 16		Hours of Missing Data:	4
Maximum Diurnal Average: 5.1 µg/m <sup>3</sup> at hour 7	Minimum Diurnal Average: 3.1 µg/m <sup>3</sup> at hour 17		Hours of Calibration:	2
Monthly Average: 3.93 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 2.1 Median = 3.3 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 6.9 P <sub>99</sub> = 14.7		Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	5.3	6.0	7.8	9.6	5.8	4.5	10.8	6.3	11.8	6.1	6.5	4.0	3.3	5.8	6.7	5.1	5.2	10.8	4.0	7.4	5.5	10.7	9.8	4.7	6.8	11.8
2-Apr	10.3	3.5	3.3	3.3	4.4	6.1	10.9	14.7	9.5	6.7	C	C	4.1	3.8	4.0	5.0	3.7	6.7	4.1	3.4	7.0	10.0	10.3	10.0	6.6	14.7
3-Apr	7.8	6.3	6.2	5.9	3.2	1.3	1.2	1.9	1.9	1.7	1.5	3.4	3.8	3.0	3.4	3.6	3.9	4.1	4.2	4.4	4.2	4.5	4.3	3.7	7.8	
4-Apr	4.2	2.7	3.1	3.7	3.9	2.7	2.0	1.6	2.1	2.3	2.8	3.4	3.9	3.5	3.2	3.1	2.3	1.9	1.5	1.9	2.6	2.6	2.9	3.1	2.8	4.2
5-Apr	3.0	2.4	2.9	3.2	3.3	3.3	3.4	3.3	3.5	3.7	3.3	3.3	3.0	3.2	2.6	2.7	2.8	2.7	2.5	2.7	2.4	2.7	3.0	3.2	3.0	3.7
6-Apr	3.8	4.1	3.3	4.0	2.7	3.5	2.8	2.4	1.3	1.7	2.3	2.5	2.9	2.1	1.8	2.6	2.9	3.0	3.1	3.1	3.4	4.1	4.0	4.2	3.0	4.2
7-Apr	4.5	4.5	4.7	5.1	5.6	6.6	7.3	7.4	9.2	7.2	5.8	5.2	4.2	2.9	1.5	1.4	1.0	0.7	0.8	0.8	1.4	1.8	1.8	1.8	3.9	9.2
8-Apr	1.7	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	1.6	2.0	1.7	1.0	1.0	0.8	0.8	1.0	0.9	1.1	2.0	1.7	2.8	2.4	1.4	1.6	2.8
9-Apr	3.2	3.4	2.7	2.2	1.5	1.5	1.5	1.5	1.7	1.8	1.1	0.8	0.9	0.7	0.6	0.6	0.7	0.9	1.2	1.3	1.1	1.1	8.0	6.3	1.9	8.0
10-Apr	4.8	5.0	2.8	1.3	0.7	1.2	1.2	1.6	2.1	2.6	2.6	1.9	3.2	2.0	1.9	3.0	3.0	2.6	2.3	2.6	3.5	3.9	3.2	2.9	2.6	5.0
11-Apr	2.9	5.0	6.9	7.3	6.7	5.8	4.8	4.4	4.4	4.9	3.5	3.7	3.1	2.9	2.8	2.9	3.2	2.3	1.8	1.6	1.6	1.8	5.0	7.0	4.0	7.3
12-Apr	4.3	3.1	7.8	8.1	8.3	5.9	7.1	3.4	2.0	2.4	2.8	3.8	3.3	2.8	3.3	3.7	3.7	3.8	4.1	4.4	4.6	4.2	4.3	5.1	4.4	8.3
13-Apr	5.1	5.6	3.0	2.0	1.9	1.9	1.8	1.2	0.7	0.6	0.7	0.9	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.5	1.2	1.1	1.6	5.6	
14-Apr	1.1	1.0	1.1	1.0	1.1	1.0	1.6	2.8	3.6	3.5	2.5	2.7	2.7	2.9	1.8	2.7	3.8	4.5	3.9	7.2	10.0	7.6	5.0	5.6	3.4	10.0
15-Apr	5.0	3.5	3.7	4.8	2.5	1.7	1.7	1.8	2.7	2.4	3.0	4.1	3.9	3.9	2.8	2.5	1.7	1.0	1.1	1.8	2.1	1.8	1.5	1.8	2.6	5.0
16-Apr	1.4	0.9	0.8	0.6	0.5	0.8	0.9	1.0	0.9	1.0	0.9	1.0	1.2	1.1	1.3	1.3	1.5	1.5	1.5	1.3	1.5	1.0	0.9	1.0	1.1	1.5
17-Apr	1.1	1.2	1.2	1.5	1.2	1.2	1.5	1.8	1.8	1.6	1.6	1.7	1.9	1.7	1.9	1.7	1.7	1.5	1.7	1.4	1.4	2.1	1.6	1.7	1.6	2.1
18-Apr	2.0	2.0	2.1	2.6	2.3	2.1	2.6	4.6	2.7	3.2	4.9	4.4	5.0	5.5	4.5	4.6	4.1	3.8	3.2	2.3	2.3	2.9	4.6	3.8	3.4	5.5
19-Apr	4.0	9.4	8.5	6.6	4.6	2.5	2.2	2.1	2.3	2.5	2.6	3.0	3.5	3.9	4.2	4.2	4.2	4.0	3.8	4.1	4.0	3.8	3.7	3.6	4.0	9.4
20-Apr	3.4	3.4	3.2	3.1	3.0	2.8	2.7	2.7	2.6	2.6	2.9	2.8	2.7	2.7	2.7	2.8	2.8	2.9	2.9	3.1	3.1	3.5	5.4	3.8	3.1	5.4
21-Apr	4.5	5.3	5.3	4.9	5.4	5.3	5.1	13.4	9.0	9.6	6.6	5.7	6.2	4.8	4.7	4.4	4.3	4.2	4.4	5.3	5.9	6.0	16.7	16.4	6.8	16.7
22-Apr	9.5	10.3	8.1	7.1	5.7	4.7	4.4	4.4	5.6	5.2	8.4	6.5	6.6	6.3	6.2	6.0	5.7	6.1	7.4	7.6	7.1	23.6	6.8	5.0	7.3	23.6
23-Apr	5.0	4.9	4.9	5.0	5.6	5.1	4.9	6.4	6.8	6.6	7.0	M	M	8.5	7.1	6.9	6.3	4.9	4.2	4.6	5.0	5.3	8.7	7.1	6.0	8.7
24-Apr	6.9	6.3	5.5	4.7	5.4	4.7	4.6	5.7	6.3	7.9	8.0	6.6	4.5	4.8	4.6	4.6	4.5	9.2	7.9	7.6	8.2	5.9	7.7	5.0	6.1	9.2
25-Apr	4.9	5.1	7.5	8.9	14.8	33.8	40.2	12.0	4.4	3.6	2.1	1.0	2.7	2.4	1.4	1.4	2.6	14.5	17.2	10.2	0.7	0.6	0.6	0.6	8.0	40.2
26-Apr	1.1	1.7	2.4	2.4	3.0	3.2	2.6	2.7	2.6	2.8	2.8	2.8	3.0	2.9	3.1	3.4	3.0	3.2	2.8	2.6	4.1	4.9	4.6	4.5	3.0	4.9
27-Apr	3.6	3.7	3.2	4.2	4.5	5.0	5.2	4.9	5.9	6.3	4.5	4.6	4.5	4.6	4.2	3.7	3.6	3.5	4.4	5.7	5.4	5.9	4.6	3.8	4.6	6.3
28-Apr	4.1	4.6	4.7	6.0	6.1	6.2	6.7	5.2	4.9	4.6	6.4	7.0	6.5	6.4	5.1	4.8	4.0	4.3	4.1	3.6	3.0	2.9	1.9	1.7	4.8	7.0
29-Apr	1.7	4.2	5.8	3.7	4.0	4.3	4.6	4.8	6.9	3.7	3.6	3.6	3.8	3.6	3.1	3.1	2.7	3.8	3.1	3.7	3.8	3.7	2.9	2.8	3.8	6.9
30-Apr	3.3	3.6	3.2	2.9	2.7	2.9	3.5	4.1	3.5	2.8	2.5	2.5	2.4	2.5	2.6	2.8	2.9	2.6	2.8	3.0	2.9	2.9	2.8	2.8	2.9	4.1

4.1	4.2	4.3	4.3	4.1	4.4	5.1	4.4	4.2	3.8	3.6	3.4	3.4	3.4	3.1	3.2	3.1	3.9	3.6	3.7	3.7	4.5	4.7	4.2	Diurnal Average	
10.3	10.3	8.5	9.6	14.8	33.8	40.2	14.7	11.8	9.6	8.4	7.0	6.6	8.5	7.1	6.9	6.3	14.5	17.2	10.2	10.0	23.6	16.7	16.4	Diurnal Maximum	

C - Calibration M - Maintenance  
 Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m<sup>3</sup> 24-hr 29 µg/m<sup>3</sup>





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Ells River - April 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	582	81.28	81.28
6 - 15	128	17.88	99.16
16 - 25	4	0.56	99.72
26 - 80	2	0.28	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 716

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Ells River - April 2024**

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	
0 - 5	118	68	36	12	9	12	42	30	40	32	47	24	24	24	24	26	568
6 - 15	9	12	5	10	0	4	10	17	8	8	3	2	8	12	6	9	123
16 - 25	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	4
26 - 80	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	128	80	41	22	9	16	52	47	48	40	51	27	32	38	31	35	697

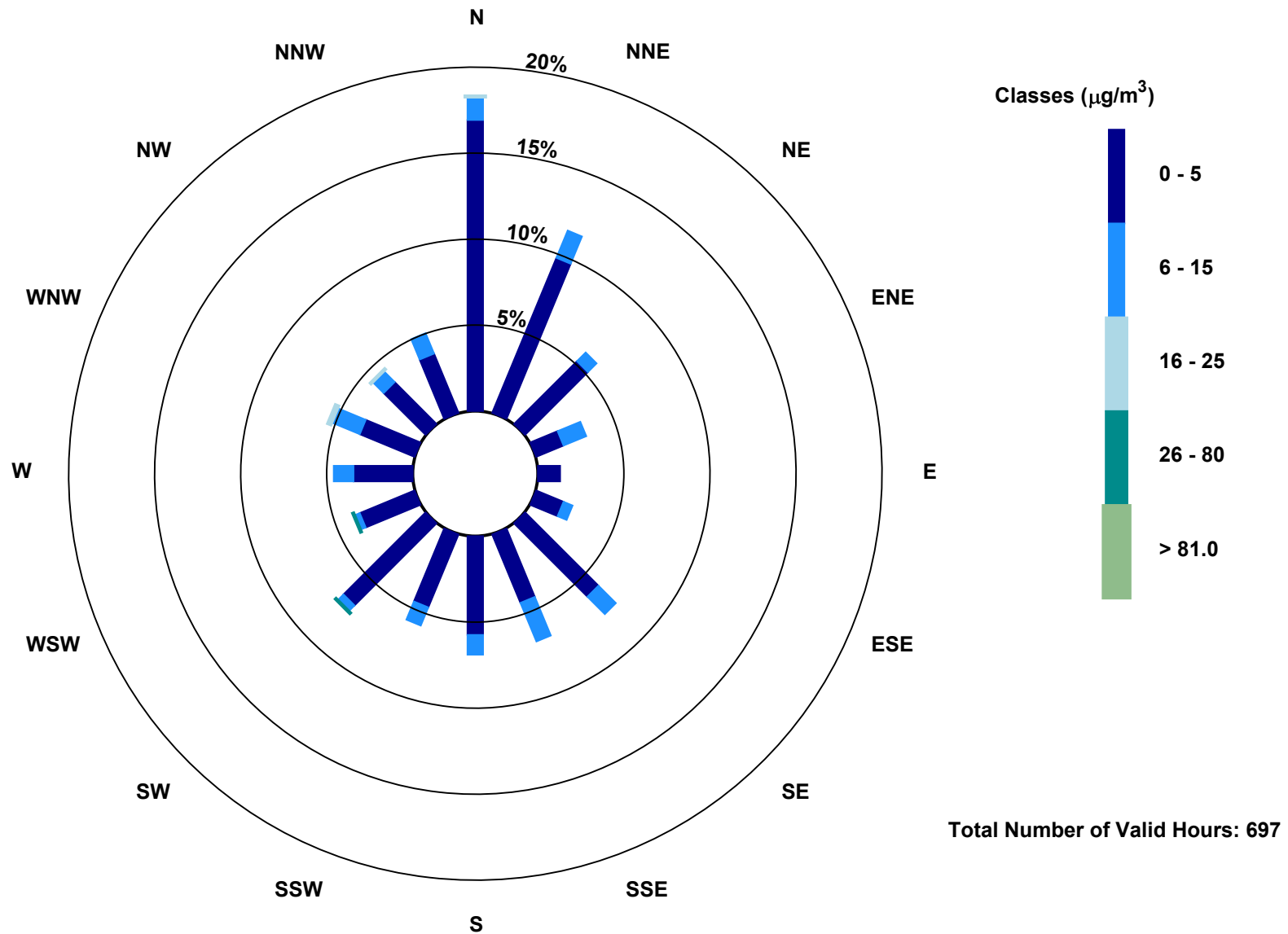
Total Number of Valid Hours: 697

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Ells River

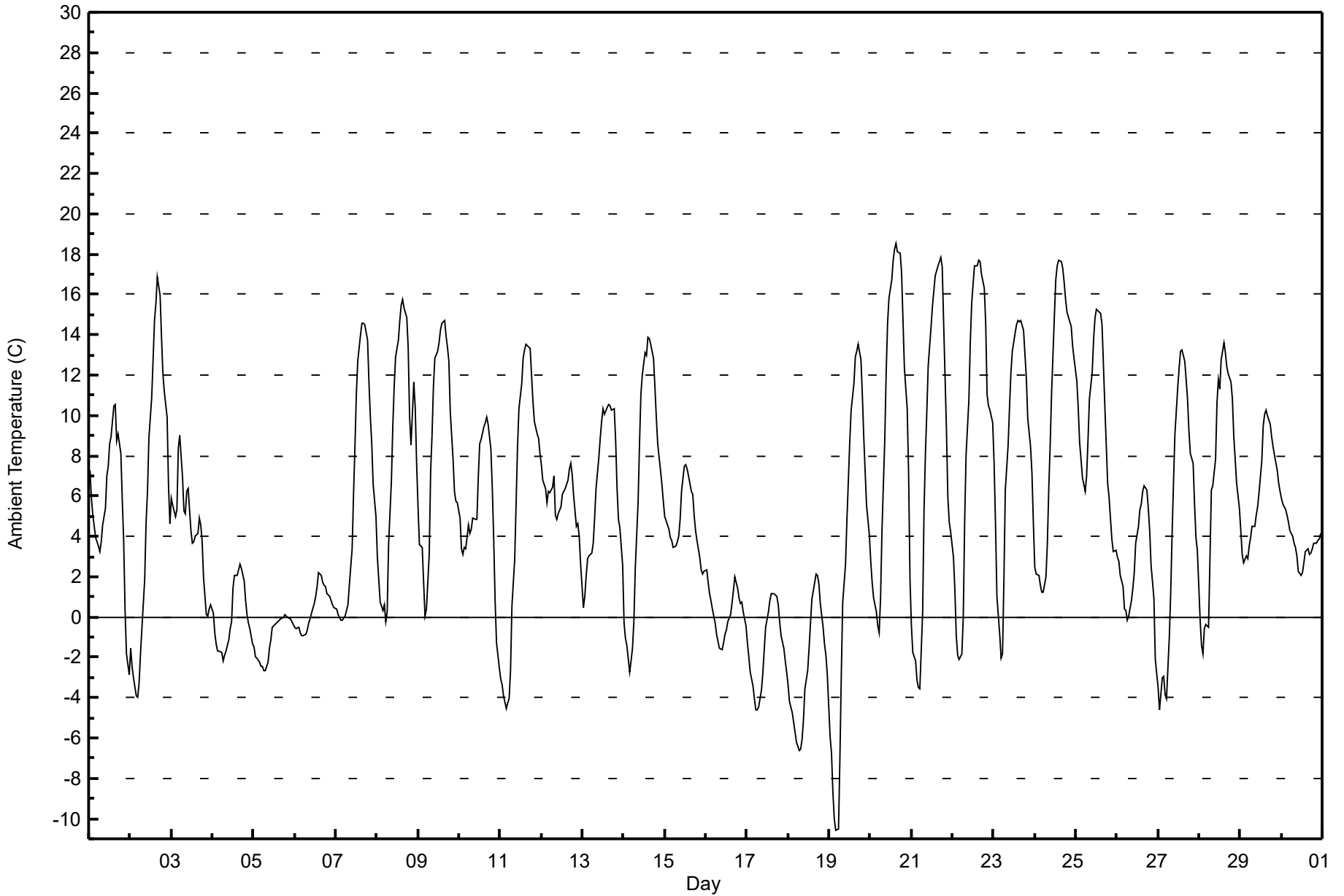




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Ells River - April 2024**

Maximum Value: 18.5 C on Apr 20 16:00      Maximum Daily Average: 10.3 C on Apr 24																						Hours in Service: 720 Hours of Data: 720																											
Minimum Value: -10.6 C on Apr 19 05:00      Minimum Daily Average: -2.5 C on Apr 18 Maximum Diurnal Average: 10.1 C at hour 16      Minimum Diurnal Average: -0.1 C at hour 6 Monthly Average: 5.09 C      Percentiles: P <sub>1</sub> = -6.5 P <sub>10</sub> = -1.9 Q <sub>1</sub> = 0.3 Median = 4.5 Q <sub>3</sub> = 9.5 P <sub>90</sub> = 13.7 P <sub>99</sub> = 17.7																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	7.3	5.9	5.1	4.5	3.9	3.5	3.2	3.7	4.5	5.4	7.0	7.5	8.6	8.9	10.5	10.5	8.8	9.1	8.1	5.8	3.8	0.3	-1.9	-2.9	5.5	10.5																							
2-Apr	-1.6	-2.4	-3.0	-3.9	-4.0	-3.3	-1.8	-0.6	1.8	4.7	6.2	8.9	10.9	12.7	14.7	15.5	16.9	16.0	13.9	12.1	11.2	9.9	6.5	4.6	6.1	16.9																							
3-Apr	5.9	5.6	5.0	5.3	8.4	9.0	6.9	5.3	5.1	6.3	6.4	4.3	3.7	3.7	4.0	4.1	4.9	4.6	3.7	1.9	0.1	0.0	0.4	0.6	4.4	9.0																							
4-Apr	0.2	-0.8	-1.3	-1.7	-1.7	-1.8	-2.2	-1.9	-1.7	-1.1	-0.6	-0.2	1.5	2.1	2.1	2.3	2.6	2.4	1.8	0.8	0.1	-0.3	-0.6	-1.3	-0.1	2.6																							
5-Apr	-1.5	-2.0	-2.0	-2.3	-2.4	-2.5	-2.7	-2.6	-2.3	-1.5	-1.1	-0.5	-0.4	-0.3	-0.2	-0.2	-0.1	0.0	0.1	0.1	0.0	-0.1	-0.2	-0.3	-1.0	0.1																							
6-Apr	-0.5	-0.5	-0.5	-0.8	-0.9	-0.9	-0.9	-0.6	-0.3	-0.1	0.2	0.7	1.0	1.5	2.2	2.0	1.7	1.6	1.5	1.1	1.0	0.8	0.6	0.5	0.4	2.2																							
7-Apr	0.4	0.1	0.0	-0.2	-0.1	0.0	0.3	0.6	1.6	3.4	6.1	8.5	11.0	12.7	14.0	14.6	14.6	14.5	13.7	11.7	9.9	8.6	6.6	5.0	6.6	14.6																							
8-Apr	3.0	1.9	0.7	0.3	0.6	-0.2	0.2	3.6	6.7	9.4	11.4	12.9	13.7	14.7	15.4	15.8	15.3	14.9	13.3	9.9	8.6	11.7	10.4	7.6	8.4	15.8																							
9-Apr	5.5	3.6	3.4	1.7	0.1	0.4	3.1	7.2	9.0	11.5	12.8	13.2	13.6	14.3	14.6	14.7	14.0	13.4	12.7	10.2	7.9	6.2	5.7	5.6	8.5	14.7																							
10-Apr	4.9	3.4	3.1	3.4	3.4	4.6	4.2	4.4	4.9	4.9	4.9	6.9	8.6	8.8	9.4	9.6	9.9	9.5	8.3	6.3	3.9	0.8	-1.3	-2.5	5.2	9.9																							
11-Apr	-3.1	-3.4	-3.9	-4.5	-4.2	-4.1	-2.6	0.5	2.9	5.7	8.5	10.3	11.6	12.8	13.2	13.5	13.4	13.3	12.0	10.7	9.7	9.1	8.9	8.1	5.8	13.5																							
12-Apr	7.5	6.8	6.4	5.7	6.2	6.1	6.4	7.0	5.1	4.9	5.1	5.5	6.1	6.3	6.4	6.8	7.4	7.6	7.1	6.0	4.5	4.6	4.0	2.6	5.9	7.6																							
13-Apr	0.5	1.0	2.0	2.9	3.1	3.2	3.7	4.9	6.3	7.9	8.9	9.7	10.3	10.0	10.4	10.5	10.5	10.2	10.3	8.8	6.4	4.8	4.4	2.6	6.4	10.5																							
14-Apr	-0.3	-1.0	-1.4	-2.7	-2.1	-1.5	-0.2	2.4	5.7	8.5	11.0	12.0	13.1	13.0	13.8	13.8	13.5	12.8	11.4	9.9	8.6	7.3	6.6	5.7	6.7	13.8																							
15-Apr	5.0	4.8	4.4	4.0	3.8	3.4	3.5	3.7	4.0	4.8	6.2	7.5	7.6	7.3	7.0	6.3	6.1	5.0	4.3	3.8	3.0	2.4	2.1	2.3	4.7	7.6																							
16-Apr	2.3	1.7	1.1	0.8	0.4	-0.3	-0.8	-1.2	-1.6	-1.6	-1.3	-0.9	-0.7	-0.3	0.1	0.7	1.3	2.0	1.4	1.0	0.7	0.7	0.2	-0.4	0.2	2.3																							
17-Apr	-1.3	-2.0	-2.7	-3.4	-4.1	-4.6	-4.6	-4.4	-3.7	-2.8	-1.6	-0.5	0.3	0.8	1.2	1.1	1.2	1.0	0.6	-0.2	-0.9	-1.5	-2.1	-2.8	-1.5	1.2																							
18-Apr	-3.4	-4.2	-4.7	-5.2	-5.7	-6.2	-6.6	-6.6	-6.1	-5.1	-3.6	-2.6	-1.6	-0.3	0.9	1.7	2.1	2.0	1.6	0.7	-0.5	-1.4	-1.9	-2.9	-2.5	2.1																							
19-Apr	-5.9	-6.8	-8.7	-10.0	-10.6	-10.5	-7.0	-2.8	0.7	2.6	4.9	6.7	8.6	10.3	11.6	12.9	13.2	13.5	12.8	11.0	9.0	7.2	5.5	4.1	3.0	13.5																							
20-Apr	2.7	1.7	1.0	0.3	-0.5	-0.8	0.9	4.3	8.8	12.1	14.6	15.8	16.7	17.7	18.2	18.5	18.1	18.0	17.1	14.7	12.3	10.3	7.2	1.9	9.7	18.5																							
21-Apr	-0.4	-1.7	-2.2	-3.1	-3.5	-3.5	0.2	5.3	8.1	10.2	12.5	14.4	15.4	16.2	16.9	17.4	17.6	17.8	17.4	14.5	9.3	5.9	4.7	4.2	8.1	17.8																							
22-Apr	3.0	1.3	-0.9	-1.9	-2.1	-1.9	0.0	4.8	8.0	10.7	13.6	15.5	16.5	17.4	17.4	17.7	17.6	17.0	16.3	14.6	11.1	10.4	10.3	9.7	9.4	17.7																							
23-Apr	7.6	4.6	1.0	-0.9	-2.1	-1.8	1.8	6.3	8.5	10.4	12.2	13.2	14.1	14.5	14.7	14.6	14.7	14.2	13.0	11.8	9.9	8.4	7.1	4.7	8.4	14.7																							
24-Apr	2.5	2.1	2.0	1.6	1.2	1.2	2.0	3.7	6.4	8.5	11.1	14.9	16.8	17.4	17.7	17.6	17.3	16.6	15.7	15.1	14.6	14.5	13.5	12.8	10.3	17.7																							
25-Apr	11.7	10.4	8.7	7.9	7.0	6.3	7.0	8.8	10.8	12.2	13.8	14.9	15.3	15.2	15.1	14.5	12.5	10.5	6.6	5.9	4.9	3.9	3.2	3.3	9.6	15.3																							
26-Apr	2.9	2.8	2.1	1.5	0.4	0.4	-0.1	0.1	0.8	1.4	2.2	3.7	4.5	5.3	5.6	6.3	6.5	6.3	5.4	4.3	2.5	0.9	-2.1	-2.8	2.5	6.5																							
27-Apr	-3.5	-4.6	-3.0	-3.0	-3.9	-4.1	-1.0	1.3	4.2	6.7	9.1	11.4	12.4	13.2	13.3	12.7	11.8	10.8	9.2	8.1	7.6	5.6	4.0	3.3	5.1	13.3																							
28-Apr	-0.2	-1.4	-1.8	-0.6	-0.4	-0.5	2.9	6.3	6.5	7.8	10.6	11.8	11.3	12.7	13.6	13.1	12.4	12.0	11.6	10.8	8.9	7.8	6.7	5.4	7.0	13.6																							
29-Apr	4.3	3.1	2.7	3.0	2.9	3.5	4.0	4.5	4.5	5.1	5.4	6.2	7.8	9.5	10.1	10.3	10.0	9.6	8.9	8.5	8.0	7.3	6.6	6.2	6.3	10.3																							
30-Apr	5.9	5.6	5.3	5.1	4.7	4.3	4.0	3.6	3.4	3.0	2.3	2.0	2.2	2.7	3.2	3.4	3.1	3.2	3.4	3.6	3.7	3.8	3.9	4.2	3.7	5.9																							
																								2.0	1.2	0.6	0.1	-0.1	-0.1	0.8	2.4	3.8	5.2	6.6	7.8	8.7	9.4	9.9	10.1	10.0	9.7	8.8	7.5	6.0	5.0	4.0	3.0	Diurnal Average	
																								11.7	10.4	8.7	7.9	8.4	9.0	7.0	8.8	10.8	12.2	14.6	15.8	16.8	17.7	18.2	18.5	18.1	18.0	17.4	15.1	14.6	14.5	13.5	12.8	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Ells River - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	160	22.22	22.22
0 - 10	393	54.58	76.81
10 - 20	167	23.19	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720





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

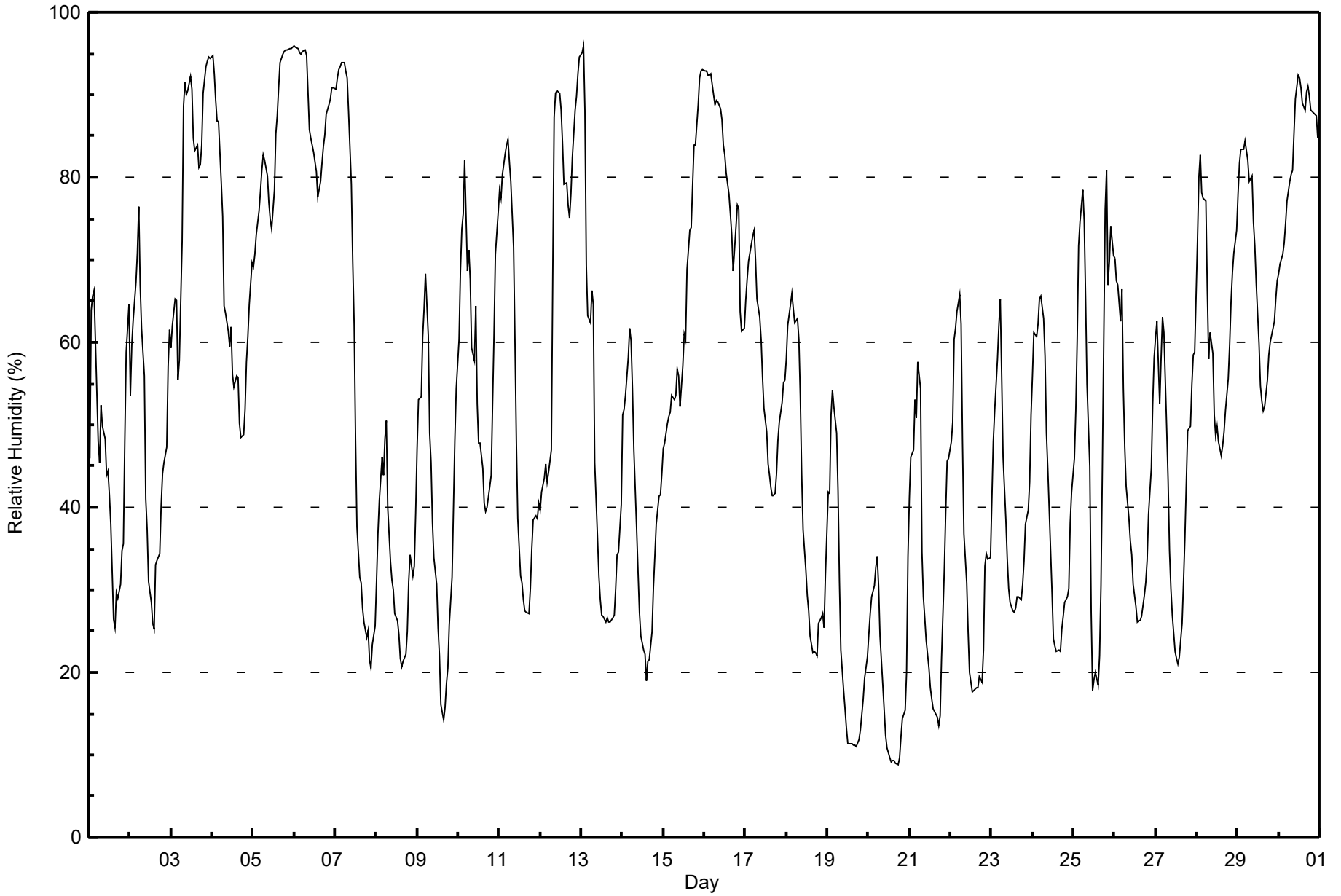
**Relative Humidity (RH) - %**  
**Ells River - April 2024**

<b>Maximum Value: 95.9 % on Apr 13 02:00</b> <b>Maximum Daily Average: 88.5 % on Apr 6</b>																						Hours in Service: 720 Hours of Data: 720																											
<b>Minimum Value: 8.9 % on Apr 20 18:00</b> <b>Minimum Daily Average: 18.8 % on Apr 20</b>																						Hours of Missing Data: 0 Hours of Calibration: 0																											
<b>Maximum Diurnal Average: 67.7 % at hour 5</b> <b>Minimum Diurnal Average: 39.9 % at hour 15</b>																						Percent Operational Time: 100.0																											
<b>Monthly Average: 53.44 %</b> Percentiles: $P_1 = 10.9$ $P_{10} = 22.3$ $Q_1 = 31.6$ Median = 52.6 $Q_3 = 73.5$ $P_{90} = 88.6$ $P_{99} = 95.5$																																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Apr	46.0	63.8	65.6	66.2	60.2	48.0	45.3	52.3	49.8	48.3	43.8	44.3	41.6	37.9	26.4	25.4	29.7	29.1	30.7	34.7	35.6	48.0	58.9	64.6	45.7	66.2																							
2-Apr	53.6	59.7	62.7	67.2	70.8	76.5	67.0	61.7	55.9	41.1	37.3	31.1	28.5	25.9	25.3	33.0	33.6	34.4	40.1	44.1	45.4	47.3	57.1	61.5	48.4	76.5																							
3-Apr	59.4	62.1	65.2	65.0	55.3	57.8	72.3	88.6	91.6	90.0	90.5	92.2	90.8	84.8	83.2	83.8	81.2	81.5	83.9	90.2	93.4	94.0	94.6	94.4	81.1	94.6																							
4-Apr	94.7	92.5	89.4	86.9	86.9	79.4	75.3	64.4	63.5	61.4	59.5	61.8	56.2	54.5	56.0	55.8	50.2	48.4	48.9	51.9	57.6	60.7	64.6	69.6	66.2	94.7																							
5-Apr	69.1	70.6	73.0	75.9	78.2	80.9	82.7	82.0	80.2	77.0	74.9	73.7	78.5	85.3	87.5	90.9	93.9	94.8	95.3	95.5	95.5	95.6	95.7	95.8	84.3	95.8																							
6-Apr	95.9	95.8	95.6	95.1	95.0	95.3	95.4	94.7	90.4	85.8	84.7	83.1	81.9	80.7	77.6	79.4	81.7	83.7	85.0	87.6	88.7	89.5	90.8	90.9	88.5	95.9																							
7-Apr	90.7	92.0	93.1	93.3	93.9	93.8	92.8	92.0	88.0	79.2	69.7	62.0	48.1	37.6	31.5	30.9	27.9	26.0	24.3	25.1	21.5	20.5	23.3	25.5	57.6	93.9																							
8-Apr	31.1	36.8	40.9	46.1	44.0	48.2	50.5	40.0	33.4	31.2	30.0	27.1	26.3	24.6	21.7	20.8	21.3	22.2	24.9	31.0	34.2	31.7	32.9	39.3	32.9	50.5																							
9-Apr	47.1	53.0	53.4	60.6	64.1	68.3	60.8	49.1	45.4	38.1	33.9	30.6	25.4	22.1	16.1	14.2	15.8	18.6	20.6	25.7	31.6	39.9	48.2	54.5	39.0	68.3																							
10-Apr	60.3	68.7	73.7	75.5	82.0	68.7	71.2	67.7	59.3	57.9	64.5	52.6	47.8	47.8	44.8	40.5	39.5	40.0	42.5	43.9	52.7	60.8	70.7	75.7	58.7	82.0																							
11-Apr	78.4	77.4	80.3	82.9	83.9	84.5	81.8	79.5	71.5	59.9	47.8	38.6	31.7	30.8	28.8	27.4	27.3	27.1	30.1	34.8	38.4	39.1	38.7	40.4	52.6	84.5																							
12-Apr	39.6	41.8	43.5	45.2	43.0	44.2	47.0	68.0	87.3	90.2	90.4	90.2	88.2	84.0	79.1	79.3	76.7	75.0	78.0	82.3	88.2	89.8	92.5	94.6	72.4	94.6																							
13-Apr	95.1	95.9	88.2	69.4	63.3	62.4	66.3	64.5	45.4	36.5	31.7	28.8	26.9	26.8	26.2	26.6	26.2	26.0	26.5	26.9	30.2	34.3	34.6	40.3	45.8	95.9																							
14-Apr	51.1	51.8	53.5	58.1	61.7	60.2	54.4	47.0	37.4	32.2	27.2	24.5	22.7	22.3	19.0	21.4	21.5	24.9	30.3	34.0	38.0	41.3	41.5	44.1	38.3	61.7																							
15-Apr	47.0	47.8	50.2	51.0	51.5	53.6	53.0	53.6	56.8	55.9	52.1	57.1	60.9	60.4	68.8	73.5	73.8	79.0	83.9	83.9	88.7	92.1	92.9	93.0	65.9	93.0																							
16-Apr	92.8	92.8	92.4	92.5	92.6	90.1	88.9	89.4	89.2	88.3	86.9	83.9	82.7	80.5	77.9	75.6	73.0	68.6	73.9	76.6	76.0	63.7	61.4	61.8	81.3	92.8																							
17-Apr	65.1	67.6	69.8	71.9	72.9	73.5	70.0	65.2	63.1	60.4	55.7	52.0	49.2	45.2	43.9	42.4	41.4	41.7	44.1	48.1	50.3	52.8	55.0	55.5	56.5	73.5																							
18-Apr	58.0	62.0	64.6	65.9	64.1	62.4	62.9	60.4	53.6	44.0	37.3	32.4	29.4	27.5	24.5	22.3	22.5	22.4	22.1	25.9	26.6	27.2	25.4	31.8	40.6	65.9																							
19-Apr	41.9	41.7	51.3	54.2	52.2	49.0	42.0	31.1	22.6	17.8	15.6	13.3	11.4	11.4	11.4	11.2	11.2	11.1	11.8	13.1	14.9	16.9	19.3	21.9	24.9	54.2																							
20-Apr	24.6	27.1	29.1	30.5	32.6	34.1	30.5	24.5	18.5	15.4	12.4	10.8	9.7	9.1	9.2	9.3	8.9	8.9	9.7	12.2	14.4	15.4	20.0	34.1	18.8	34.1																							
21-Apr	41.1	46.1	46.9	53.0	50.8	57.6	54.4	34.6	29.2	26.6	23.8	20.6	18.2	16.7	15.6	14.9	14.6	13.6	14.7	21.8	32.6	39.6	45.6	46.0	32.4	57.6																							
22-Apr	48.0	50.3	60.4	61.8	63.7	65.8	62.1	47.9	36.7	30.9	25.0	20.0	18.8	17.7	18.0	18.1	18.2	19.6	18.9	22.8	32.9	34.4	33.7	33.8	35.8	65.8																							
23-Apr	41.0	48.0	51.7	58.0	62.1	65.2	56.0	46.1	38.5	33.8	30.2	28.4	27.5	27.2	27.8	29.1	29.1	28.9	30.6	33.5	38.0	39.6	43.0	51.2	40.2	65.2																							
24-Apr	55.9	61.1	60.7	62.2	65.3	65.6	62.8	58.4	49.0	44.6	39.6	29.6	24.1	23.2	22.6	22.6	22.5	25.2	26.7	28.4	29.2	30.1	38.1	41.8	41.2	65.6																							
25-Apr	45.9	51.6	60.4	71.6	74.5	78.5	74.8	65.4	55.0	44.9	27.3	17.8	19.2	20.0	18.5	22.1	30.5	45.0	76.2	80.9	66.9	69.9	74.1	70.4	52.6	80.9																							
26-Apr	70.2	67.4	66.9	62.6	66.5	54.4	47.3	42.5	38.7	35.9	34.2	30.8	27.9	26.1	26.3	26.2	26.7	29.4	30.9	33.6	39.1	44.7	52.6	58.1	43.3	70.2																							
27-Apr	60.6	62.6	52.6	58.2	63.1	61.2	49.5	43.2	34.7	30.2	27.0	22.5	21.8	21.0	21.8	25.9	30.8	36.2	42.8	49.4	49.8	54.9	58.5	58.8	43.2	63.1																							
28-Apr	72.3	80.0	82.7	78.1	77.4	77.2	66.4	57.9	61.1	58.6	51.2	48.7	49.8	47.9	46.3	47.5	49.1	51.6	55.5	59.7	64.9	68.4	70.8	73.5	62.4	82.7																							
29-Apr	78.0	81.7	83.3	83.4	84.4	83.3	82.0	79.5	80.2	74.5	71.7	67.2	59.8	54.8	52.9	51.7	52.2	55.5	58.4	60.0	60.9	62.5	65.3	67.4	68.8	84.4																							
30-Apr	68.4	69.4	70.7	72.0	74.5	77.1	79.6	80.4	80.8	85.2	89.5	92.3	92.0	90.8	89.0	88.2	90.3	91.0	89.9	88.2	87.9	87.6	87.5	84.8	83.6	92.3																							
																								60.8	64.0	65.7	67.1	67.7	67.2	64.8	61.1	56.9	52.5	48.9	45.6	43.2	41.5	39.9	40.3	40.7	42.0	45.0	48.2	50.8	53.1	56.2	59.2	Diurnal Average	
																								95.9	95.9	95.6	95.1	95.0	95.3	95.4	94.7	91.6	90.2	90.5	92.3	92.0	90.8	89.0	90.9	93.9	94.8	95.3	95.5	95.5	95.6	95.7	95.8	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Ells River - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Ells River - April 2024**

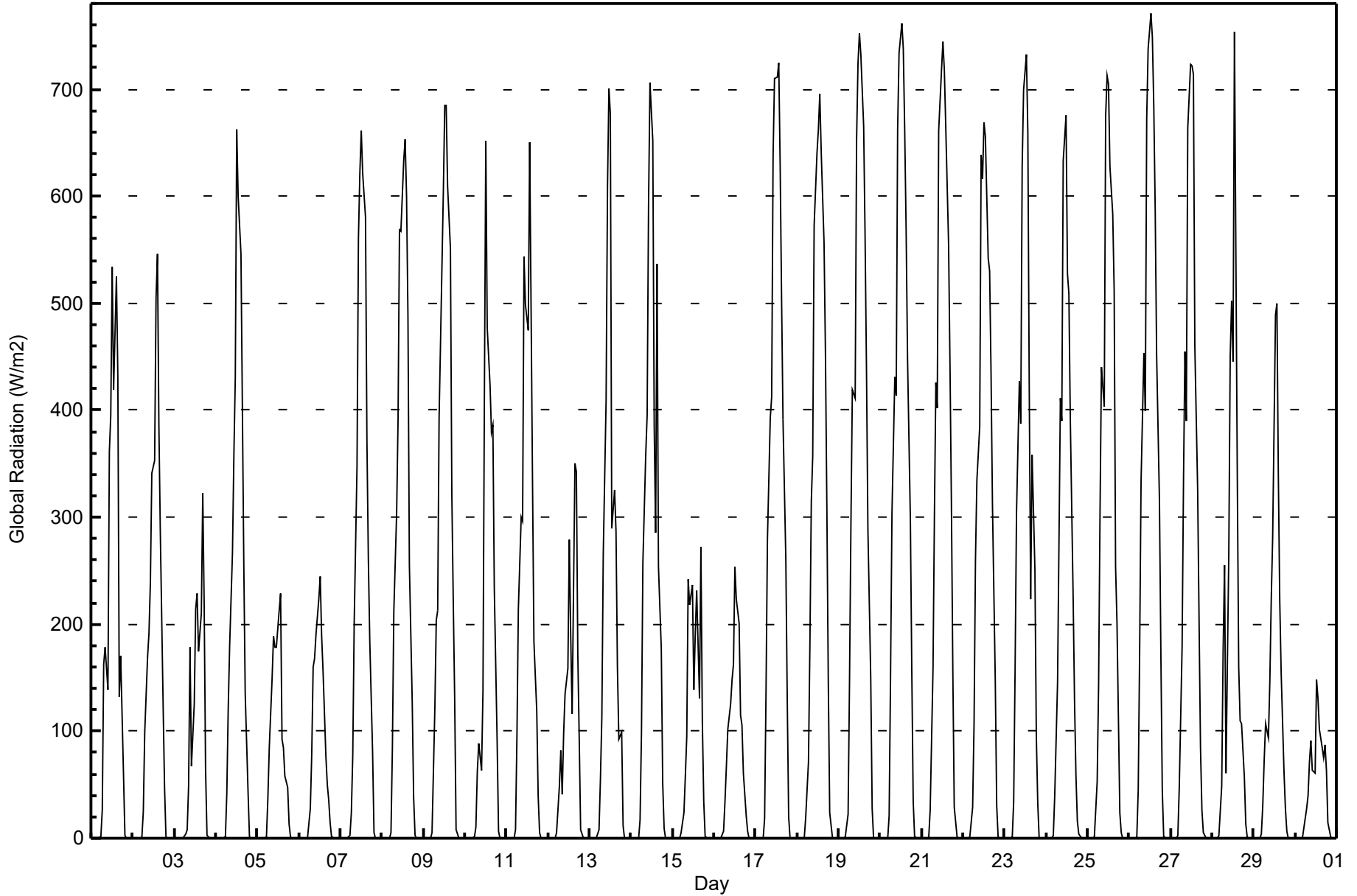
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	51	7.08	7.08
20 - 40	193	26.81	33.89
40 - 60	177	24.58	58.47
60 - 80	164	22.78	81.25
80 - 100	135	18.75	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



Maximum Value: 770.7 W/m2 on Apr 26 13:00      Maximum Daily Average: 274.8 W/m2 on Apr 26																							Hours in Service:	720		
Minimum Value: 0.0 W/m2 on Apr 1 01:00      Minimum Daily Average: 44.6 W/m2 on Apr 30																							Hours of Data:	720		
Maximum Diurnal Average: 538.9 W/m2 at hour 13      Minimum Diurnal Average: 0.1 W/m2 at hour 1																							Hours of Missing Data:	0		
Monthly Average: 172.63 W/m2      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 50.4 Q <sub>3</sub> = 297.5 P <sub>90</sub> = 568.8 P <sub>99</sub> = 736.8																							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-Apr	0.0	0.0	0.0	0.1	0.0	1.0	26.2	162.2	178.8	138.6	360.3	394.8	534.6	419.3	525.4	431.4	131.6	170.2	59.6	2.2	0.2	0.2	0.1	0.1	147.4	534.6
2-Apr	0.0	0.2	0.1	0.0	0.0	1.1	24.8	98.7	169.7	192.2	239.9	341.5	352.5	505.1	546.0	385.7	287.0	124.4	47.8	1.8	0.1	0.2	0.2	0.0	138.3	546.0
3-Apr	0.0	0.0	0.0	0.0	0.0	0.4	4.1	8.0	49.4	178.3	68.0	125.6	213.7	228.3	173.9	209.9	322.4	218.1	63.8	2.7	0.0	0.0	0.0	0.0	77.8	322.4
4-Apr	0.0	0.0	0.0	0.0	0.0	1.3	42.1	121.2	179.5	267.2	358.5	431.5	662.7	600.0	546.4	401.3	256.9	134.8	44.2	1.8	0.0	0.0	0.0	0.0	168.7	662.7
5-Apr	0.0	0.0	0.0	0.0	0.0	1.8	36.8	84.7	150.0	188.4	178.1	179.1	213.3	228.6	93.0	84.5	58.0	47.7	13.4	0.9	0.0	0.0	0.0	0.0	64.9	228.6
6-Apr	0.0	0.0	0.0	0.0	0.0	0.5	27.6	77.9	160.4	168.4	190.9	223.8	244.6	188.9	156.1	76.2	49.8	35.6	14.5	0.8	0.0	0.0	0.0	0.0	67.3	244.6
7-Apr	0.0	0.0	0.0	0.0	0.0	2.2	23.9	78.2	201.6	348.2	559.9	621.0	660.7	621.8	580.3	371.7	262.0	184.6	81.3	4.7	0.3	0.3	0.3	0.3	191.8	660.7
8-Apr	0.2	0.2	0.2	0.2	0.0	5.7	85.2	212.0	303.4	390.8	567.8	566.8	632.6	652.9	599.8	485.9	254.9	127.8	38.9	2.5	0.0	0.0	0.0	0.2	205.3	652.9
9-Apr	0.0	0.0	0.1	0.1	0.0	5.6	121.9	203.7	212.5	393.6	462.9	604.7	684.2	685.0	610.1	551.4	321.5	222.7	130.3	7.9	0.2	0.0	0.0	0.0	217.4	685.0
10-Apr	0.0	0.0	0.0	0.0	0.0	1.1	11.0	62.0	88.6	63.1	137.2	412.7	651.7	477.9	422.5	379.7	385.8	234.0	91.0	6.7	0.2	0.2	0.2	0.1	142.7	651.7
11-Apr	0.1	0.2	0.1	0.1	0.1	8.1	94.8	214.2	299.5	295.9	543.2	498.0	474.3	651.1	494.9	333.9	184.3	118.6	40.0	5.9	0.0	0.0	0.0	0.0	177.4	651.1
12-Apr	0.0	0.0	0.0	0.0	0.0	4.8	48.4	82.0	40.7	97.3	135.1	158.2	279.3	189.1	116.0	350.2	342.5	173.2	93.8	8.1	0.0	0.0	0.0	0.1	88.3	350.2
13-Apr	0.1	0.1	0.0	0.2	0.0	7.9	55.3	113.4	265.5	409.1	609.8	700.8	676.6	289.3	325.3	287.4	160.1	92.7	99.1	11.9	0.2	0.1	0.1	0.1	171.0	700.8
14-Apr	0.2	0.1	0.1	0.1	0.0	16.9	98.8	257.5	357.9	394.8	592.3	706.1	651.9	385.1	285.1	536.2	253.7	177.5	51.0	9.2	0.0	0.0	0.0	0.0	198.9	706.1
15-Apr	0.0	0.0	0.0	0.0	0.0	4.6	23.4	57.9	95.8	242.1	218.7	236.3	139.4	190.1	231.1	131.3	273.0	109.9	35.0	1.7	0.0	0.0	0.0	0.0	82.9	273.0
16-Apr	0.0	0.0	0.0	0.0	0.0	7.1	34.0	67.5	102.3	125.6	148.4	162.4	253.3	223.9	200.7	115.1	105.3	61.0	21.1	6.2	0.0	0.0	0.0	0.0	68.1	253.3
17-Apr	0.0	0.0	0.0	0.0	0.0	18.9	136.8	278.5	392.1	412.8	639.0	710.2	711.8	724.1	628.6	503.9	391.6	260.6	129.8	20.0	0.0	0.0	0.0	0.0	248.3	724.1
18-Apr	0.0	0.0	0.0	0.0	0.1	18.4	71.1	180.2	315.2	357.0	572.6	640.1	662.0	695.8	641.4	556.9	452.7	308.2	146.5	23.4	0.2	0.0	0.0	0.0	235.1	695.8
19-Apr	0.1	0.0	0.2	0.2	0.7	23.0	146.8	293.9	419.2	410.7	652.4	723.9	752.3	732.0	664.7	561.5	436.1	288.8	149.4	28.2	0.6	0.2	0.2	0.2	261.9	752.3
20-Apr	0.2	0.2	0.1	0.2	0.6	20.8	152.9	303.8	430.7	413.2	662.4	734.1	761.0	737.4	661.3	568.4	447.5	296.9	157.7	33.7	0.8	0.2	0.3	0.4	266.0	761.0
21-Apr	0.2	0.1	0.2	0.1	1.0	26.9	158.9	303.4	425.4	401.9	660.6	718.3	744.0	717.4	664.9	554.8	441.7	311.8	156.2	29.5	0.7	0.2	0.0	0.0	263.3	744.0
22-Apr	0.1	0.2	0.2	0.1	1.8	29.1	107.6	261.0	334.6	384.7	638.9	615.9	668.8	655.6	541.6	529.6	434.4	311.5	147.3	30.8	0.7	0.0	0.0	0.0	237.3	668.8
23-Apr	0.0	0.2	0.2	0.2	1.4	34.3	158.6	304.3	427.2	387.4	628.6	699.0	732.0	659.2	418.7	223.3	358.1	251.4	95.2	33.4	0.7	0.0	0.0	0.0	225.6	732.0
24-Apr	0.1	0.0	0.0	0.0	2.3	39.5	145.9	276.9	411.1	390.3	633.3	676.1	528.0	508.8	393.3	226.3	128.3	58.1	16.1	3.6	0.0	0.0	0.0	0.0	184.9	676.1
25-Apr	0.0	0.0	0.0	0.1	1.6	53.2	142.6	302.3	440.1	403.9	675.2	712.2	705.1	628.2	583.7	512.0	254.2	201.4	23.2	5.6	0.1	0.0	0.0	0.0	235.2	712.2
26-Apr	0.0	0.0	0.0	0.0	1.9	45.6	173.9	332.9	453.9	399.0	673.2	737.9	770.7	748.7	683.1	586.9	451.7	314.4	173.3	45.6	1.6	0.2	0.2	0.1	274.8	770.7
27-Apr	0.1	0.2	0.2	0.2	2.8	47.1	177.9	334.6	454.5	389.8	663.9	723.5	722.1	714.2	460.2	325.3	201.9	84.6	25.9	5.2	0.5	0.2	0.2	0.2	222.3	723.5
28-Apr	0.1	0.0	0.0	0.0	2.7	49.3	175.5	255.4	60.2	266.0	450.3	501.8	445.4	753.1	340.2	160.3	109.4	106.7	57.0	13.3	1.0	0.0	0.0	0.0	156.2	753.1
29-Apr	0.1	0.1	0.0	0.0	3.8	30.2	73.2	106.5	93.5	147.3	223.9	281.7	489.2	499.4	340.0	222.2	154.8	61.6	28.1	6.6	0.2	0.0	0.0	0.0	115.1	499.4
30-Apr	0.0	0.0	0.0	0.0	0.5	8.6	28.0	39.5	72.0	91.0	64.0	60.5	147.9	131.4	101.2	84.7	75.6	87.1	63.9	14.3	0.9	0.0	0.0	0.0	44.6	147.9
																							Diurnal Average			
																							Diurnal Maximum			





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

**Wind Speed (WS) - km/h**  
**Ells River - April 2024**

Maximum Speed: 36 km/h on Apr 16 13:00	Maximum Daily Speed Average: 27.1 km/h on Apr 16	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 11 07:00	Minimum Daily Speed Average: 1.9 km/h on Apr 3	Hours of Data: 701
Maximum Diurnal Speed Average: 6.3 km/h at hour 18	Minimum Diurnal Speed Average: 2.7 km/h at hour 12	Hours of Missing Data: 19
Monthly Average Velocity: 3.6 km/h 6.0 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 7 Median = 12 Q <sub>3</sub> = 18 P <sub>90</sub> = 24 P <sub>99</sub> = 32	Percent Operational Time: 97.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	WSW12WNW18WNW11	WSW6	W11	W13	W12WNW21WNW17	NW16	NW19	NW21WNW18WNW14	W21WNW22	NW15	NW14	NW13WNW10	W5	W3	SW4	SSW3	WNW12.4	WNW22								
2-Apr	SSW6	S6	S7	SSE6	S4	UO	SSE5	SSE5	SE2	SSE8	SSE7	SSE12	SSE16	SSE19	SSE22	SSE20	S19	SSE14	SE11	SSE12	SSE13	SSE12	W4	SSW2	SSE9.7	SSE22
3-Apr	SSE10	S5	S2	SSW2	W10	W12WNW14	WNW8	SSW4	SW3	SW7	N10	N13	N12	N7	NNE10	NE12	ENE12	ENE10	NE3	S3	S2	SE2	E4	N1.9	WNW14	
4-Apr	ENE6	UO	UO	UO	UO	UO	UO	UO	NNE7	NE3	N7	NE6	NNE4	NE6	NE12	NE13	ENE10	NE12	NE11	NE8	NNE8	NNE7	NNE7	N6	---	NE13
5-Apr	N8	N6	NNW7	NNE7	NNE4	N6	N10	N11	N11	N13	N12	NNE14	N16	N14	N11	N9	N12	N10	N10	N9	N9	N7	N7	N9.7	N16	
6-Apr	NNE4	NW4	NW4	NNW8	NNE9	NE8	NNE7	N9	N11	NNE10	NNE9	N8	NNE12	NNE12	NE8	NE9	NE10	ENE8	NE6	N7	NNW4	WNW4	W2	W4	NNE6.3	NNE12
7-Apr	S2	S5	S5	S6	S7	SSW6	SSW6	SSE9	S11	SSW14	S12	S13	SSW14	SW15	SW15	SW12	SSW12	SW12	SW12	SW8	SW8	SW8	SSW7	SSW9	SSW9.0	SW15
8-Apr	SSW8	SSW7	SW5	SW6	SSW7	S8	S8	S10	S11	SSW12	S14	SSW15	SSW17	SSW18	SW17	SW15	SW12	SSW7	SSW2	ESE3	SSE6	SE12	W7	WNW5	SSW8.3	SSW18
9-Apr	WNW7	SSE3	S6	SW1	WSW1	SW3	SW3	SSE2	SSW1	SSW9	SW13	SW17WSW15	SW15WSW17WSW17	SW16WSW15	W15	W7	W6	WNW8	WN11	NNW11	WSW7.5	WSW17	NNW9.6	NW23		
10-Apr	NNW10	WNW7	WNW7	WSW6	WNW9	NW20	NW18	NW14	NW16	NW23	NW19	NW17	NNW21	N22	NNE17	NNE16	NE17	NE15	NE14	NE9	NE5	SW1	WNW2	W1	NNW9.6	NW23
11-Apr	W2	UO	SSW2	S3	SE4	S2	SSW0	SE8	SE8	SE4	SE12	SE18	SE17	SE23	SE25	SE24	SE24	SE23	SE21	SE17	SE20	SE21	SE23	SSE19	SE13.6	SE25
12-Apr	SSE16	SSE12	SE10	SE7	SSE11	SSE12	SSE14	S24	SSE23	SSE24	SE22	SE18	SE20	SSE19	SSE17	SE19	SE18	SE17	SE15	SE7	S4	SE7	S7	WSW3	SSE14.0	S24
13-Apr	S5	SSW7	SW9	SW14	SW15	SW15WSW12WNW12WNW19WNW20WNW23WNW25	W25WNW24	W22WNW22WNW19WNW18WNW14	WNW8	W5	W7	WSW7	SW6	W13.1	WNW25											
14-Apr	WSW3	SW6	SW7	SSW5	SSE6	S8	SSE9	SSE10	SE8	SE8	SE12	SSE7	NNE5	SSW5	N11	N10	NNE14	NNE15	NNE16	NNE17	NNE17	N15	N12	NE2.5	NNE17	
15-Apr	N11	N13	N10	N9	N9	N8	NNW4	NNW4	N12	N17	NNE11	N11	NNE17	NE20	ENE21	NE22	NE27	NE29	NE27	NE27	NNE26	NNE24	N29	N31	NNE16.1	N31
16-Apr	N30	N33	N32	N33	N31	N34	N34	N30	N27	N25	N25	N29	NNE36	NNE34	NNE32	NNE30	NNE26	NNE24	NE16	NE15	NNE12	N19	N25	N25	N27.1	NNE36
17-Apr	N23	N24	N24	N22	N24	N23	NNE26	NNE29	NNE26	N25	N26	N30	NNE31	NNE33	NNE31	NNE32	NNE29	NNE28	N25	N19	N15	N11	N9	N11	N23.9	NNE33
18-Apr	N13	N13	NNW16	NNW18	N20	N19	N21	N23	N24	N24	N23	NNE26	NNE27	N24	N26	N23	NNE24	NNE24	N21	N14	N11	N9	NNW10	N8	N18.9	NNE27
19-Apr	NW5	W6	W3	SW1	SSW2	S6	SSW4	SSW5	SW7	SW9	SW7	S7	SSW8	S10	SSW11	SSW12	SSW11	SW11	SSW11	SSW9	SW9	SW9	SW10	SW11	SSW7.1	SSW12
20-Apr	SW12	SW11	SW9	SW10	SW11	SW10	SW11	SW10	SW9WSW11	W12	W12	W11	W9	W5	SW8	S13	SSW11	S12	S10	S9	S10	S8	S4	SW8.7	S13	
21-Apr	UO	SE3	SE1	NW1	UO	W1	S2	SSE9	SE7	ESE5	SE11	SE14	SE14	SE11	SE10	SE9	E6	NNW5	NNW7	NNE3	WNW2	WNW5	WNW7	NW7	SE3.0	SE14
22-Apr	NW5	UO	W4	UO	UO	W2	WSW1	NNW1	NNW4	N10	NNE13	NE15	ENE12	ENE8	NNE14	NE17	NNE21	NNE24	NNE17	NE9	N5	N11	NNW18	N17	NNE9.3	NNE24
23-Apr	N9	NW2	WSW1	UO	UO	WSW1	UO	NNW4	N7	NNW2	N2	NE6	ENE12	ENE15	ENE14	NE13	NE18	NE19	NE17	NNE15	NNE12	NNE11	NNE9	N6	NE8.5	NNE19
24-Apr	NNW4	N6	N6	N7	N7	N9	N9	NNE11	NNE14	NE12	ESE17	ESE18	E21	E19	E20	ENE16	ENE13	ENE10	ESE17	ESE15	ESE12	ENE8.5	E21			
25-Apr	ESE4	ENE3WNW10	WNW7	WSW8	WSW6	SW9	SW10	SW10WSW13WSW17WSW18WSW21WSW19WSW19WSW20	W21WNW27WNW14WNW11	NNW22	NNW16	NW15	NW14	NNW14	NNW13	N11	NE16	ENE15	ENE9	ENE7	NE5	UO	E2	NNW11.8	NNW24	
26-Apr	NW15	NNW15	NW17	NNW18	NNW9	NNW24	NW22	NNW22	NNW20	NW17	NNW15	NW16	NW15	NW14	NNW14	NNW13	N11	NE16	ENE15	ENE9	ENE7	NE5	UO	E2	NNW11.8	NNW24
27-Apr	UO	S4	S12	ENE1	SSE1	S6	S7	SSE9	S10	SSE14	SSE14	SSE18	SSE21	SSE21	S22	S19	S18	S14	S18	SSE12	SE8	ESE6	ESE6	SE5	SSE10.9	S22
28-Apr	W2	WNW5	NW3	NNW5	NNW4	NW5	N5	SE7	SSE7	SE7	SE13	SE16	SSE15	SSE13	SE12	SE15	ESE13	ESE13	ESE11	ESE13	SE15	ESE13	SE12	ESE9	SE7.2	SE16
29-Apr	E4	E4	ENE6	E5	ENE2	NNE4	NE4	NE6	NNE13	NNE17	NNE16	NNE15	NNE14	NNE15	NE19	NE21	NE24	NNE24	N26	N25	N23	NNE22	N24	N21	NNE14.0	N26
30-Apr	N22	NNE23	N23	N25	N27	N26	NNE30	NNE28	NNE29	N26	N23	N19	N25	N29	N30	N29	N22	N22	N19	N22	N20	NNE22	NNE24	NNE20	N24.3	NNE30

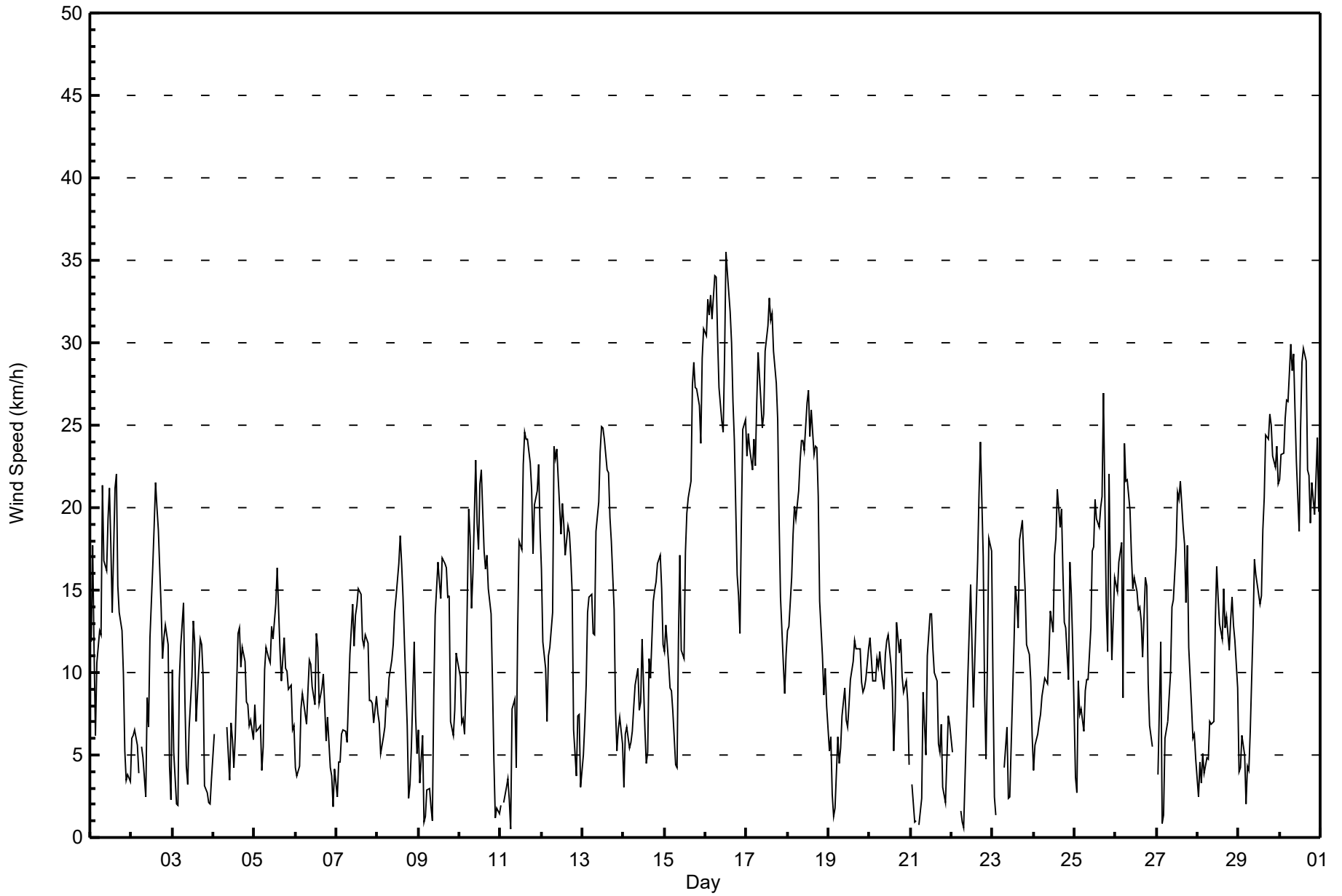
NNW3.6NNW3.4NNW3.4NNW3.9NNW3.7NNW4.4NNW4.2NNW3.4NNW3.9NNW4.0	N3.5	N2.7	NNE2.8	NNE3.4	NE3.4	NE4.2	NE5.1	NNE6.3	NNE5.8	NNE5.5	NNE3.9	NNE3.5	N4.1	N4.4	Diurnal Average										
N30	N33	N32	N33	N31	N34	N34	N30	NNE29	N26	N26	N30	NNE36	NNE34	NNE32	NNE32	NNE29	NE29	NE27	NE27	NNE26	NNE24	N29	N31	Diurnal Maximum	

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Ells River - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Ells River - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	118	16.83	16.83
6 - 11	230	32.81	49.64
12 - 19	211	30.10	79.74
20 - 28	114	16.26	96.01
29 - 38	28	3.99	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Ells River - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	6	5	3	5	3	7	6	14	13	8	6	14	6	8	11	118
6 - 11	49	14	13	9	1	4	17	15	21	19	27	8	8	13	3	9	230
12 - 19	21	26	16	10	1	9	19	20	11	8	16	11	6	11	16	10	211
20 - 28	40	22	7	1	2	0	9	8	2	0	0	2	4	8	4	5	114
29 - 38	15	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	28
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	128	80	42	23	9	16	52	49	48	40	51	27	32	38	31	35	701

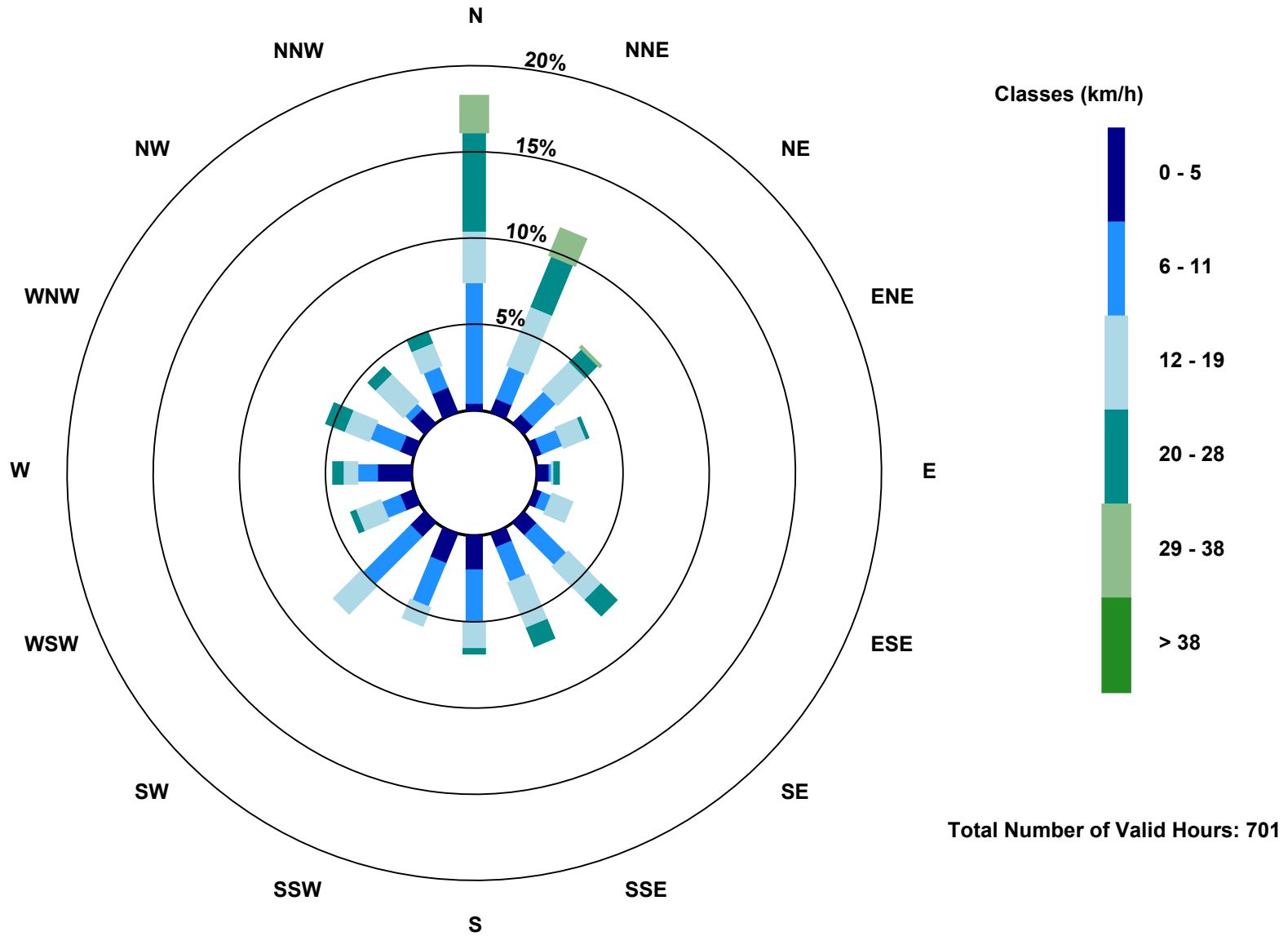
Total Number of Valid Hours: 701

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Ells River





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Ells River - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 9 km/h on Apr 16 10:00	Hours of Data: 701
Minimum Value: 1 km/h on Apr 7 02:00	Hours of Missing Data: 19
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 97.4

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-Apr	6	6	5	2	3	4	5	5	4	5	5	5	5	6	6	6	3	3	2	2	1	1	2	2	6
2-Apr	2	2	1	2	2	UO	1	2	3	3	3	3	4	4	6	5	5	3	1	2	2	2	2	2	6
3-Apr	4	2	3	3	5	4	4	4	2	2	3	2	4	5	2	2	2	2	2	3	2	2	2	3	5
4-Apr	2	UO	UO	UO	UO	UO	UO	UO	2	2	3	4	3	4	4	4	3	2	2	1	1	1	2	2	4
5-Apr	1	1	2	1	1	1	1	1	1	1	2	2	2	3	3	1	1	1	1	1	1	1	1	1	3
6-Apr	2	1	2	2	2	2	1	1	2	2	2	3	3	3	4	3	2	2	1	1	1	2	1	1	4
7-Apr	2	1	1	1	1	1	1	2	2	3	4	4	5	5	5	4	5	4	4	2	1	2	2	1	5
8-Apr	2	1	1	1	2	2	1	2	2	3	4	5	6	5	5	6	3	2	2	1	4	2	3	1	6
9-Apr	1	2	3	1	1	2	2	2	2	5	4	5	5	6	5	5	5	5	5	2	2	2	2	3	6
10-Apr	2	1	2	1	5	5	4	4	4	7	5	4	6	5	6	5	4	3	3	2	3	1	1	1	7
11-Apr	1	UO	2	1	1	2	2	3	3	2	4	3	4	6	4	5	4	5	4	4	4	3	4	3	6
12-Apr	3	2	2	2	2	1	2	6	5	5	4	3	3	4	3	3	3	3	2	3	3	2	3	2	6
13-Apr	2	1	2	4	4	4	4	6	5	6	6	7	7	6	6	6	4	4	3	3	1	1	2	7	
14-Apr	1	1	2	1	1	2	2	2	2	2	3	4	4	3	2	4	3	4	2	2	1	2	2	4	4
15-Apr	1	2	1	2	2	2	2	2	4	3	3	2	4	3	2	4	5	6	7	6	5	5	4	4	7
16-Apr	4	5	5	5	5	6	7	7	7	9	8	9	6	6	5	5	4	4	3	2	1	3	3	4	9
17-Apr	3	4	4	4	4	4	6	4	4	4	5	5	5	5	5	5	5	4	3	4	2	2	1	2	6
18-Apr	2	3	2	2	2	3	3	3	3	4	4	4	5	5	5	5	4	4	3	3	2	1	1	1	5
19-Apr	1	2	2	1	2	1	2	1	3	3	3	3	4	4	4	5	4	3	3	2	2	2	2	2	5
20-Apr	3	3	2	2	2	3	2	2	2	3	4	5	5	5	4	5	4	4	3	1	1	1	1	2	5
21-Apr	UO	1	1	1	UO	1	1	3	2	2	6	4	4	4	5	5	4	2	1	2	2	2	1	2	6
22-Apr	3	UO	2	UO	UO	2	1	1	2	4	3	4	5	5	5	5	4	4	4	3	3	2	5	3	5
23-Apr	3	2	1	UO	UO	1	UO	3	3	1	1	2	4	4	4	3	3	3	3	2	1	2	2	2	4
24-Apr	1	1	3	2	2	1	1	2	2	3	3	4	5	5	5	4	4	4	3	4	2	6	4	4	6
25-Apr	2	2	3	2	2	2	2	2	3	4	5	5	6	6	7	6	6	8	7	6	4	6	2	3	8
26-Apr	3	4	6	5	4	6	5	4	4	5	5	6	6	6	5	6	5	4	3	2	1	3	UO	2	6
27-Apr	UO	2	2	2	3	2	3	2	3	4	5	6	6	6	5	5	5	5	5	2	2	1	1	1	6
28-Apr	2	1	1	1	1	1	1	5	3	4	3	4	3	5	5	3	2	3	2	3	4	2	2	2	5
29-Apr	1	2	2	1	1	1	1	3	2	2	2	3	4	4	4	4	4	4	4	4	4	4	3	3	4
30-Apr	3	4	4	5	5	5	4	4	4	4	4	3	4	4	5	5	4	4	3	3	4	3	4	3	5
	6	6	6	5	5	6	7	7	7	9	8	9	7	6	7	6	6	8	7	6	5	6	5	4	
	Diurnal Maximum																								

UO - Unstable Operation



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

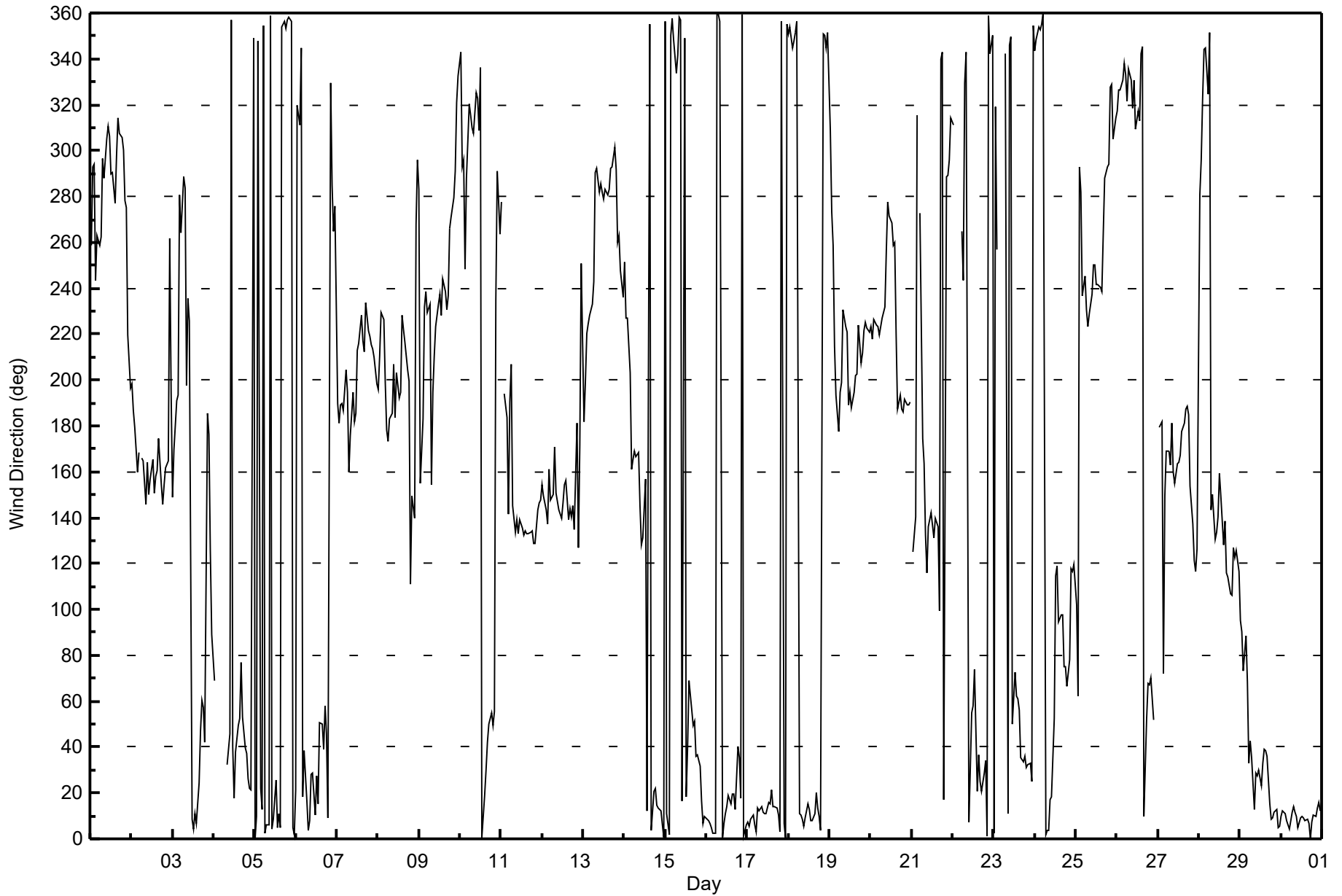
**Wind Direction (WD) - deg**  
**Ells River - April 2024**

Direction of Maximum Speed: 14 deg on Apr 16 13:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 9.1 deg on Apr 16	Hours of Data: 701
Direction of Minimum Speed: 207 deg on Apr 11 07:00	Hours of Missing Data: 19
Direction of Minimum Daily Speed Average: 1.9 deg on Apr 3	Percent Operational Time: 97.4
Monthly Average Direction: 6.0 deg	

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-Apr	258	293	294	244	263	259	262	297	288	305	311	307	290	290	277	298	314	307	306	300	278	275	220	196	289.6
2-Apr	199	187	180	160	169	UO	166	164	146	164	150	157	165	151	158	160	175	154	146	154	162	164	262	194	163.2
3-Apr	149	170	191	194	281	264	288	284	197	236	226	9	5	11	7	25	47	61	57	42	185	176	126	89	358.2
4-Apr	69	UO	UO	UO	UO	UO	UO	UO	33	46	357	41	18	38	49	53	77	53	40	37	26	22	22	349	-
5-Apr	0	10	348	22	13	355	2	6	6	359	4	8	26	5	11	5	354	356	353	357	358	356	5	2	3.8
6-Apr	21	319	311	345	18	39	16	4	8	28	29	10	27	16	51	50	39	58	46	9	330	285	265	276	17.3
7-Apr	190	181	189	190	186	204	194	160	176	195	182	185	213	216	228	217	213	234	221	219	215	214	210	198	204.1
8-Apr	196	210	230	226	199	178	173	183	186	207	184	203	192	194	228	222	217	205	199	111	150	139	268	296	199.9
9-Apr	283	155	183	232	239	229	233	154	194	211	223	233	237	228	244	239	231	237	266	271	279	291	321	333	245.7
10-Apr	343	293	296	249	288	320	316	310	307	325	323	309	336	0	19	30	42	50	55	49	56	235	291	263	342.0
11-Apr	278	UO	194	184	142	190	207	146	134	139	133	139	135	132	135	133	133	134	134	129	129	143	146	148	137.6
12-Apr	154	149	144	137	161	148	150	171	151	147	143	140	146	154	156	139	144	141	145	135	181	127	171	251	149.6
13-Apr	182	200	220	225	228	233	243	290	292	282	286	282	279	283	281	283	292	293	301	291	260	263	248	236	271.7
14-Apr	251	227	227	203	161	166	169	167	168	145	128	131	157	12	198	355	3	21	22	14	13	12	6	1	42.9
15-Apr	356	11	2	350	358	349	334	342	358	357	17	349	19	40	69	56	49	51	36	37	32	16	7	10	23.7
16-Apr	9	8	7	5	2	2	359	360	356	1	7	11	14	19	15	20	20	13	40	35	18	359	1	6	9.1
17-Apr	7	6	9	10	6	3	13	12	14	11	11	11	16	15	21	14	14	14	11	3	357	7	0	355	10.6
18-Apr	351	354	345	348	352	357	11	10	8	5	9	15	13	8	8	11	20	13	10	3	351	350	345	352	4.8
19-Apr	308	273	259	215	193	177	195	199	230	223	221	189	194	188	195	202	203	224	207	212	221	225	223	221	213.2
20-Apr	223	218	226	224	223	220	223	227	232	256	278	272	269	259	260	220	187	193	187	186	191	189	189	190	222.8
21-Apr	UO	125	141	316	UO	273	174	163	133	116	136	142	137	131	140	136	99	340	343	17	289	289	296	314	135.4
22-Apr	311	UO	272	UO	UO	265	244	330	343	7	30	55	58	74	21	37	25	21	29	34	1	359	342	350	18.9
23-Apr	2	319	257	UO	UO	254	UO	343	11	346	350	50	73	63	61	56	35	34	36	31	32	33	25	355	35.1
24-Apr	343	349	354	352	355	360	2	3	3	17	19	53	115	119	95	98	98	75	75	67	78	118	117	120	70.3
25-Apr	102	62	293	282	237	245	231	223	229	237	250	250	242	242	241	239	264	288	293	294	328	329	305	314	267.4
26-Apr	317	327	326	331	338	333	322	335	330	319	331	309	317	313	342	346	10	52	68	67	70	52	UO	90	340.2
27-Apr	UO	180	182	72	150	169	169	163	181	160	155	163	164	167	177	181	187	188	185	154	137	121	116	127	168.0
28-Apr	281	296	323	344	345	324	352	144	150	131	134	141	159	150	128	138	116	114	107	106	127	123	126	116	127.2
29-Apr	95	90	73	88	68	33	43	35	13	28	27	30	23	33	39	38	36	15	9	9	11	13	5	5	23.9
30-Apr	10	12	11	8	6	4	12	14	12	10	5	9	10	9	8	8	7	0	7	10	10	13	16	12	9.4

346.2	339.5	327.7	338.3	332.3	328.1	333.5	342.1	347.6	343.4	354.9	3.6	17.6	31.3	35.6	37.3	41.5	27.7	32.3	32.0	25.3	26.2	359.6	357.6
Diurnal Average																							

UO - Unstable Operation  
 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**  
**Ells River - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 92 deg on Apr 2 09:00	Hours of Data: 701
Minimum Value: 4 deg on Apr 14 22:00	Hours of Missing Data: 19
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 9 Q <sub>1</sub> = 12 Median = 17 Q <sub>3</sub> = 25 P <sub>90</sub> = 43 P <sub>99</sub> = 79	Hours of Calibration: 0
	Percent Operational Time: 97.4

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-Apr	41	18	25	31	18	18	23	14	18	15	14	13	20	26	20	18	11	11	10	12	20	33	59	38	59
2-Apr	24	21	19	12	20	UO	20	23	92	23	40	17	14	16	15	14	18	10	7	8	9	7	47	57	92
3-Apr	13	38	84	89	37	34	17	26	28	32	21	19	11	21	14	11	16	12	9	68	63	46	79	64	89
4-Apr	31	UO	UO	UO	UO	UO	UO	UO	25	43	23	47	41	34	22	22	22	14	8	8	6	7	10	16	47
5-Apr	10	12	17	14	22	20	10	9	11	12	12	18	11	12	10	9	12	12	11	11	11	12	13	23	23
6-Apr	39	17	20	16	21	18	10	11	15	14	23	26	14	18	42	20	14	17	19	10	41	23	72	13	72
7-Apr	52	20	28	18	11	14	21	9	15	21	24	28	29	26	30	28	25	21	18	18	13	13	14	10	52
8-Apr	9	12	21	20	16	7	9	16	21	26	25	30	25	24	26	31	26	19	50	32	27	20	34	25	50
9-Apr	10	41	38	63	52	50	39	67	83	61	28	27	29	32	31	28	23	27	20	19	19	20	11	19	83
10-Apr	21	22	19	20	34	12	11	13	14	18	17	17	22	16	23	16	14	14	12	8	52	62	39	39	62
11-Apr	26	UO	57	16	17	64	68	17	16	35	18	11	14	17	12	11	10	9	8	9	9	9	8	7	68
12-Apr	9	10	9	13	12	7	10	13	10	9	9	8	11	12	11	10	12	11	9	33	52	23	42	59	59
13-Apr	19	15	17	18	18	19	21	25	15	22	21	18	22	20	24	20	14	15	14	15	16	14	16	69	69
14-Apr	49	15	19	19	20	14	13	13	16	24	30	26	69	58	54	51	22	9	7	6	5	4	9	11	69
15-Apr	12	6	11	12	15	17	26	25	14	14	19	13	17	15	14	12	13	13	10	10	9	10	12	9	26
16-Apr	11	12	13	13	14	15	16	15	16	16	14	11	9	8	10	9	8	9	10	8	8	13	13	10	16
17-Apr	10	12	10	10	10	12	10	9	9	12	13	13	13	14	14	12	14	12	10	12	13	9	12	11	14
18-Apr	13	14	9	8	11	13	10	10	11	13	15	15	14	17	14	15	12	11	11	10	13	11	8	10	17
19-Apr	24	12	22	48	60	8	30	25	29	41	50	61	54	50	39	33	36	27	17	15	15	15	14	14	61
20-Apr	16	17	18	15	13	17	16	17	23	26	35	29	45	54	68	59	23	28	14	7	7	8	7	23	68
21-Apr	UO	22	84	32	UO	53	18	12	22	48	45	32	23	35	50	35	64	51	15	30	60	11	12	12	84
22-Apr	20	UO	31	UO	UO	33	49	46	20	21	20	21	38	44	23	22	15	12	9	8	31	17	11	11	49
23-Apr	11	70	43	UO	UO	60	UO	25	23	66	71	44	31	21	18	15	14	10	9	7	8	9	13	28	71
24-Apr	21	17	17	16	14	12	12	12	16	22	21	41	22	18	16	15	17	16	17	14	18	14	18	11	41
25-Apr	68	64	23	31	18	22	18	22	27	33	28	26	27	28	26	25	18	20	30	11	15	9	10	10	68
26-Apr	12	12	12	11	19	11	14	16	20	20	46	26	33	46	27	38	28	18	18	11	14	35	UO	73	73
27-Apr	UO	29	13	88	80	16	11	23	27	21	22	32	19	23	18	24	22	25	14	12	13	7	9	17	88
28-Apr	58	10	33	15	18	23	18	79	40	25	18	19	19	28	28	20	13	13	13	12	10	8	8	16	79
29-Apr	28	27	14	19	45	16	26	30	14	10	12	18	24	21	14	13	12	12	9	11	9	10	11	12	45
30-Apr	8	9	9	11	13	13	10	9	11	12	13	15	9	11	12	11	10	13	11	8	9	8	7	9	15

68	70	84	89	80	64	68	79	92	66	71	61	69	58	68	59	64	51	50	68	63	62	79	73	
Diurnal Maximum																								

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS505**  
**SAWBONES BAY**  
**APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
 APRIL 2024

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	687	33	33	100	15.9	0	2.6	0
H2S (ppb) Average	686	34	34	100	1.6	0	0.3	0
NO2 (ppb) Average	685	35	35	100	24.5	0	6.2	-
NO (ppb) Average	685	35	35	100	14	-	1.5	-
NOX (ppb) Average	685	35	35	100	36	-	7.7	-
Temperature 2 m (C) Average	719	0	1	99.86	18.6	-	10.7	-
Relative Humidity (%) Average	632	0	88	87.78	100	-	90.8	-
Wind Speed 10 m (km/h) Average	720	0	0	100	33	-	21	-
Wind Direction 10 m (deg) Average	720	0	0	100	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	687	0.62	1.7	-	0	0	0	0.2	0.4	1.3	15.9
H2S (ppb) Average	686	0.12	0.2	-	0	0	0	0.1	0.1	0.3	1.6
NO2 (ppb) Average	685	2.11	3.7	-	0	0	0.2	0.7	2.2	5.6	24.5
NO (ppb) Average	685	0.38	1.1	-	0	0	0	0	0.2	1.2	14
NOX (ppb) Average	685	2.5	4.6	-	0	0	0.2	0.8	2.4	6.6	36
Temperature 2 m (C) Average	719	4.32	5.7	-	-11.4	-2.7	0.2	4	8	12.7	18.6
Relative Humidity (%) Average	632	51.36	23.1	-	10.3	22.1	31.8	50.6	68	85.5	100
Wind Speed 10 m (km/h) Average	720	11.9	6	-	0	5	7	11	16	20	33
Wind Direction 10 m (deg) Average	720	30	0	-	0	-	-	-	-	-	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Relative Humidity	05 Apr 2024 16:00	17 Apr 2024 00:00	87	Sensor operated out of range
Relative Humidity, Temperature	17 Apr 2024 12:00	17 Apr 2024 12:00	1	Maintenance - sensor replaced



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 15.9 ppb on Apr 25 06:00	Maximum Daily Average: 2.6 ppb on Apr 20		Hours of Data:	687
Minimum Value: 0.0 ppb on Apr 1 13:00	Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Missing Data:	33
Maximum Diurnal Average: 1.5 ppb at hour 6	Minimum Diurnal Average: 0.3 ppb at hour 10		Hours of Calibration:	33
Monthly Average: 0.62 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 1.3 P <sub>99</sub> = 12.0		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-Apr	0.1	0.4	Z	3.5	0.1	0.2	0.3	0.5	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.3	3.5		
2-Apr	0.2	0.3	0.5	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.5	0.5	0.5	0.5	
3-Apr	0.4	0.2	0.1	0.2	Z	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.5	3.8	0.3	0.2	0.2	0.6	0.7	3.1	0.4	0.3	0.2	0.5	3.8	
4-Apr	1.8	3.2	6.7	0.3	0.1	Z	0.2	0.1	0.2	0.0	0.2	0.0	0.1	1.2	2.2	1.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	6.7	
5-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	
7-Apr	0.3	0.2	Z	0.1	0.2	0.7	0.8	0.4	0.5	0.5	0.8	0.4	0.9	1.3	1.0	1.2	3.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.6	3.3	
8-Apr	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	1.1	2.8	0.9	0.2	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	2.8	
9-Apr	0.0	0.0	0.5	0.6	Z	0.0	0.1	0.1	1.2	0.2	0.0	0.0	0.7	1.9	0.6	0.5	2.2	3.2	0.3	2.0	0.1	0.8	13.5	3.5	1.4	13.5	
10-Apr	11.9	6.5	5.7	3.8	0.2	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.6	0.1	0.2	0.1	0.2	0.0	0.0	1.3	11.9
11-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.5	0.6	0.6	0.5	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.6	
12-Apr	0.1	Z	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	2.5	1.2	0.4	1.8	0.7	0.1	0.1	0.3	0.2	0.1	0.3	2.5	
13-Apr	1.0	0.6	Z	1.1	1.0	2.8	6.8	5.5	4.7	0.5	0.0	0.0	0.1	0.6	1.1	0.3	0.0	0.0	0.0	0.1	1.2	14.3	5.0	2.0	14.3		
14-Apr	14.2	3.9	0.4	Z	0.3	0.1	0.1	1.0	1.5	1.5	2.7	1.5	3.0	2.0	2.7	3.6	2.1	1.7	0.4	0.3	0.2	0.3	0.2	0.2	1.9	14.2	
15-Apr	0.1	0.2	0.3	0.3	Z	0.7	0.6	0.6	0.5	0.5	0.9	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	
16-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	
17-Apr	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-Apr	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	
19-Apr	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.4	1.1	0.7	1.0	0.8	0.4	2.1	1.5	12.5	0.9	12.5	
20-Apr	1.0	0.3	0.7	Z	7.2	15.3	13.5	2.5	0.8	1.8	2.5	1.7	1.5	2.0	2.0	1.2	1.3	2.0	0.6	0.5	0.3	0.3	0.3	0.4	2.6	15.3	
21-Apr	0.4	0.3	0.3	0.3	Z	0.5	0.9	1.2	1.0	0.5	0.4	0.3	0.4	0.3	0.2	0.3	0.2	0.4	0.6	1.1	1.3	0.2	0.1	0.0	0.5	1.3	
22-Apr	0.0	0.1	0.1	0.1	0.1	Z	0.6	0.4	0.5	0.3	0.3	0.5	0.8	0.5	0.5	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.0	0.3	0.8	
23-Apr	Z	0.0	0.0	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.5	0.5	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.5	
24-Apr	0.3	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.3	0.3	0.2	0.3	0.5	
25-Apr	0.2	0.2	Z	0.7	2.9	15.9	8.9	3.1	1.4	0.4	0.4	2.0	1.1	0.4	0.8	3.2	3.9	2.7	2.2	0.1	0.1	0.1	0.0	0.1	2.2	15.9	
26-Apr	0.1	0.6	0.4	Z	1.5	0.9	0.5	1.3	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.7	1.0	1.4	1.8	2.0	1.4	0.7	0.4	0.7	2.0	
27-Apr	0.2	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.3	
28-Apr	0.0	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
29-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	
30-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

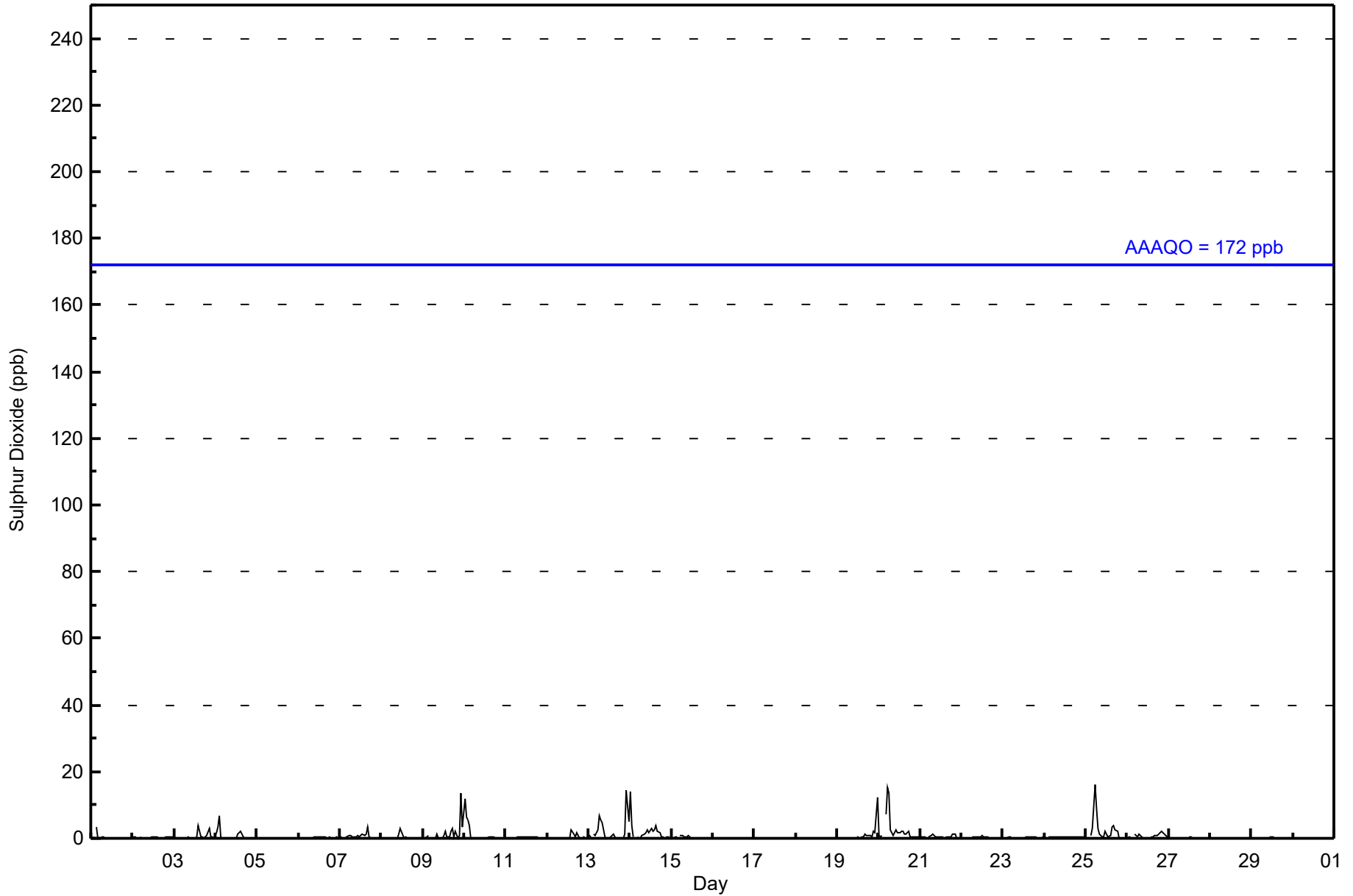
1.3	0.7	0.7	0.5	0.6	1.5	1.2	0.6	0.5	0.3	0.4	0.4	0.4	0.4	0.7	0.6	0.6	0.6	0.6	0.3	0.3	0.3	0.3	1.1	0.8	Diurnal Average	
14.2	6.5	6.7	3.8	7.2	15.9	13.5	5.5	4.7	1.8	2.7	2.8	3.0	2.0	3.8	3.6	3.9	3.2	2.2	2.0	3.1	2.1	14.3	12.5	Diurnal Maximum		

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	679	98.84	98.84
11 - 20	8	1.16	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: 687

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Sawbones Bay - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	114	69	27	9	26	30	52	68	41	20	23	16	40	66	38	40	679
11 - 20	0	0	0	0	0	0	0	0	0	0	0	5	3	0	0	0	8
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>	114	69	27	9	26	30	52	68	41	20	23	21	43	66	38	40	687

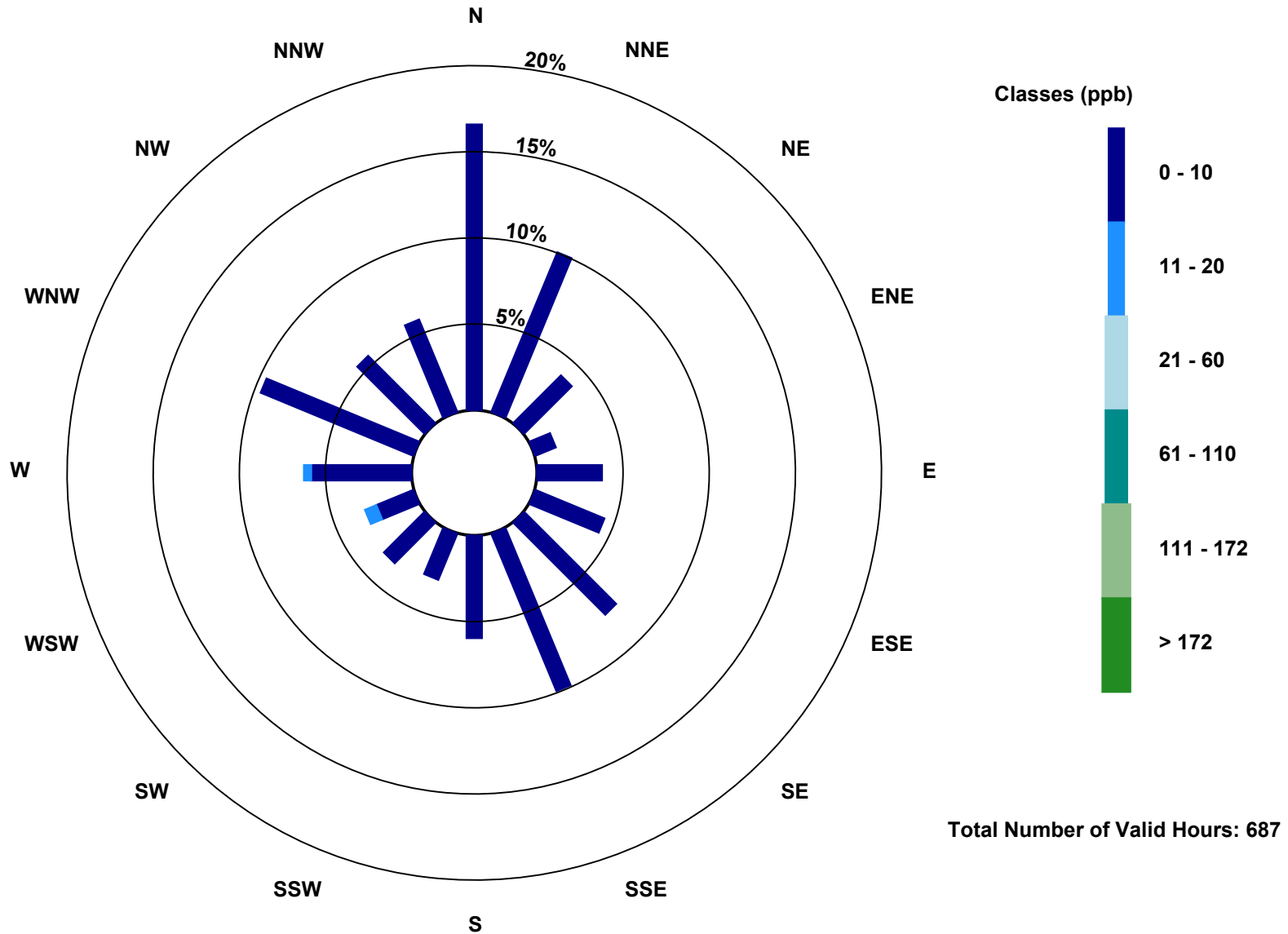
Total Number of Valid Hours: 687

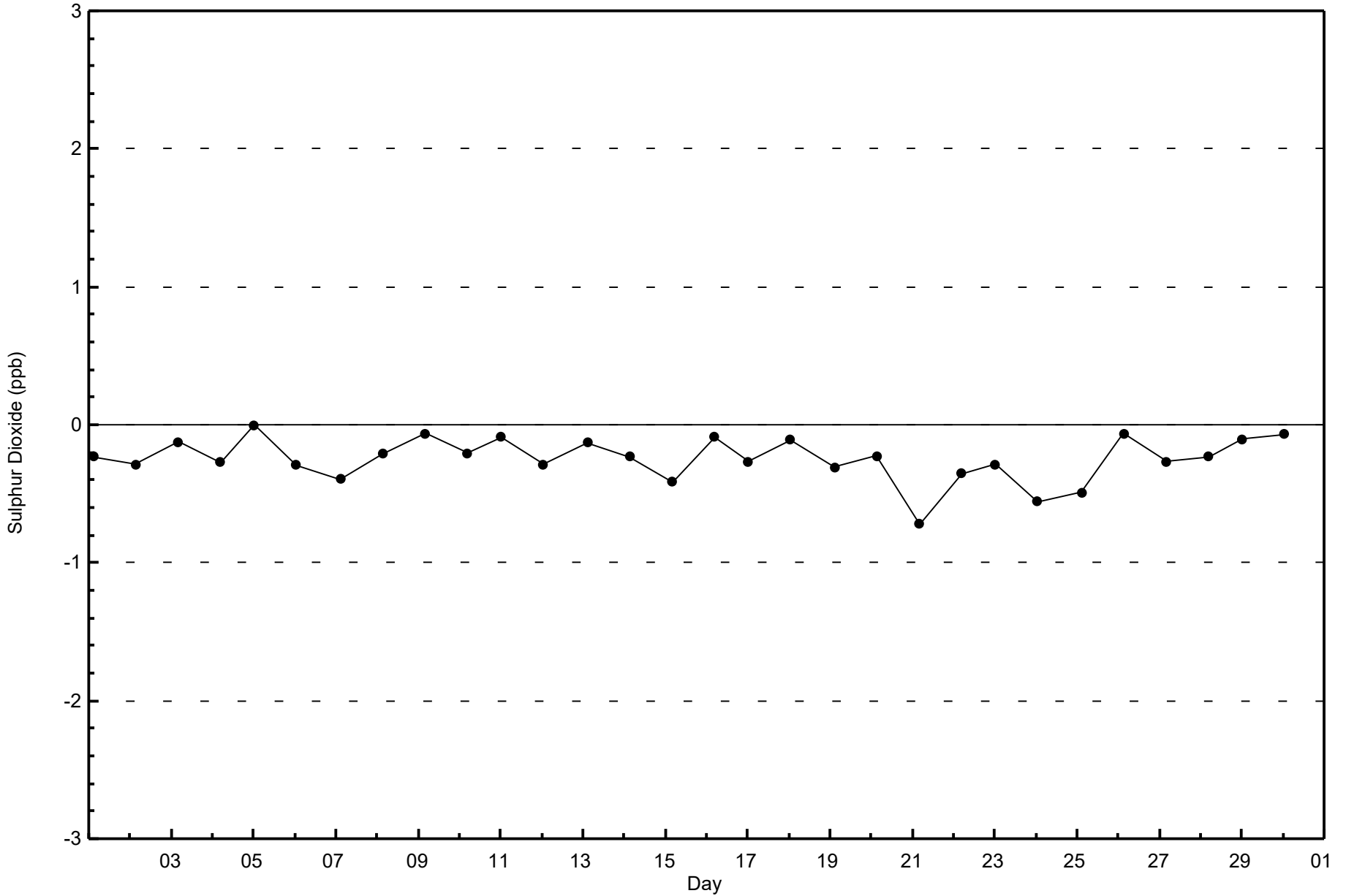
Total Number of Hours: 720



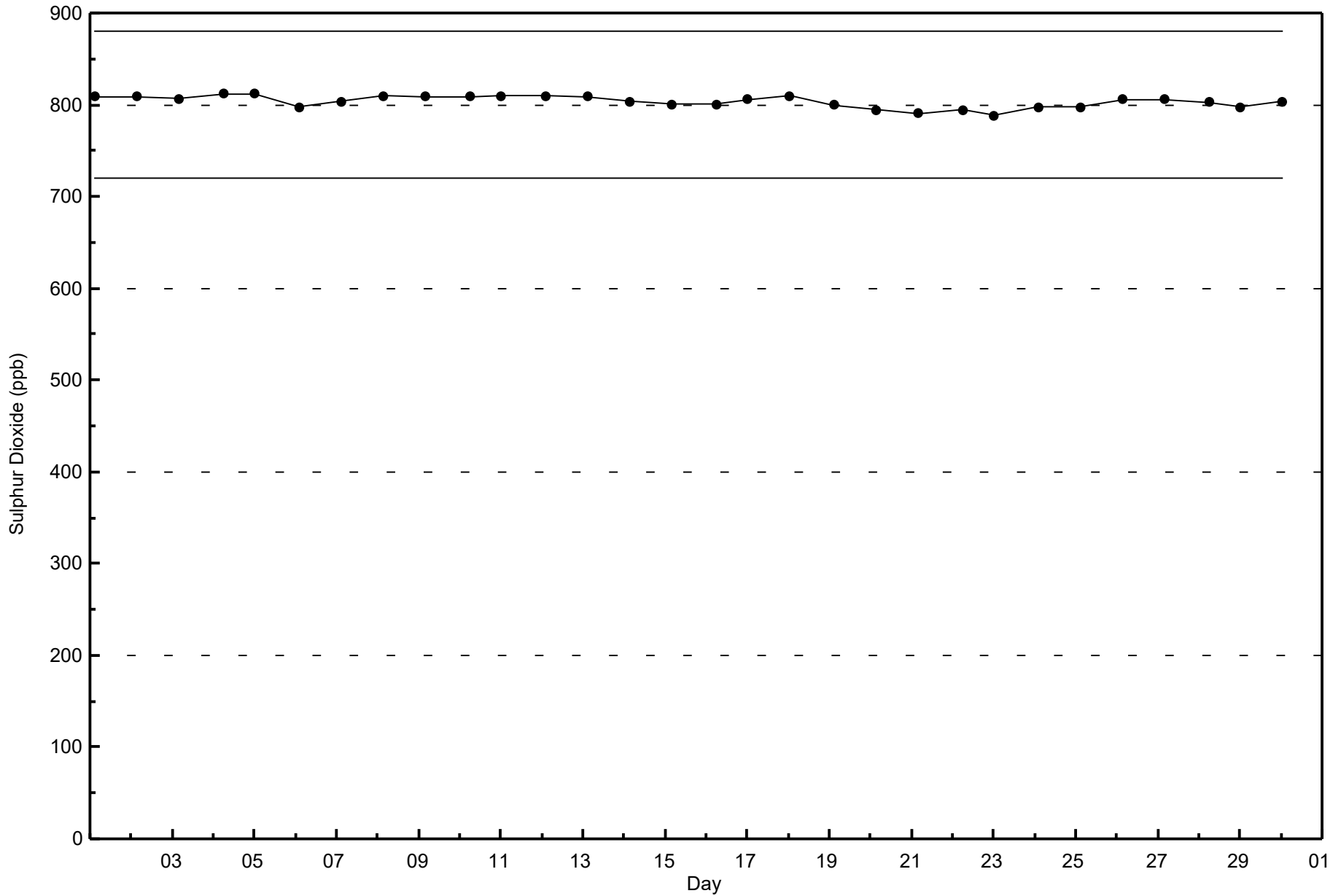
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



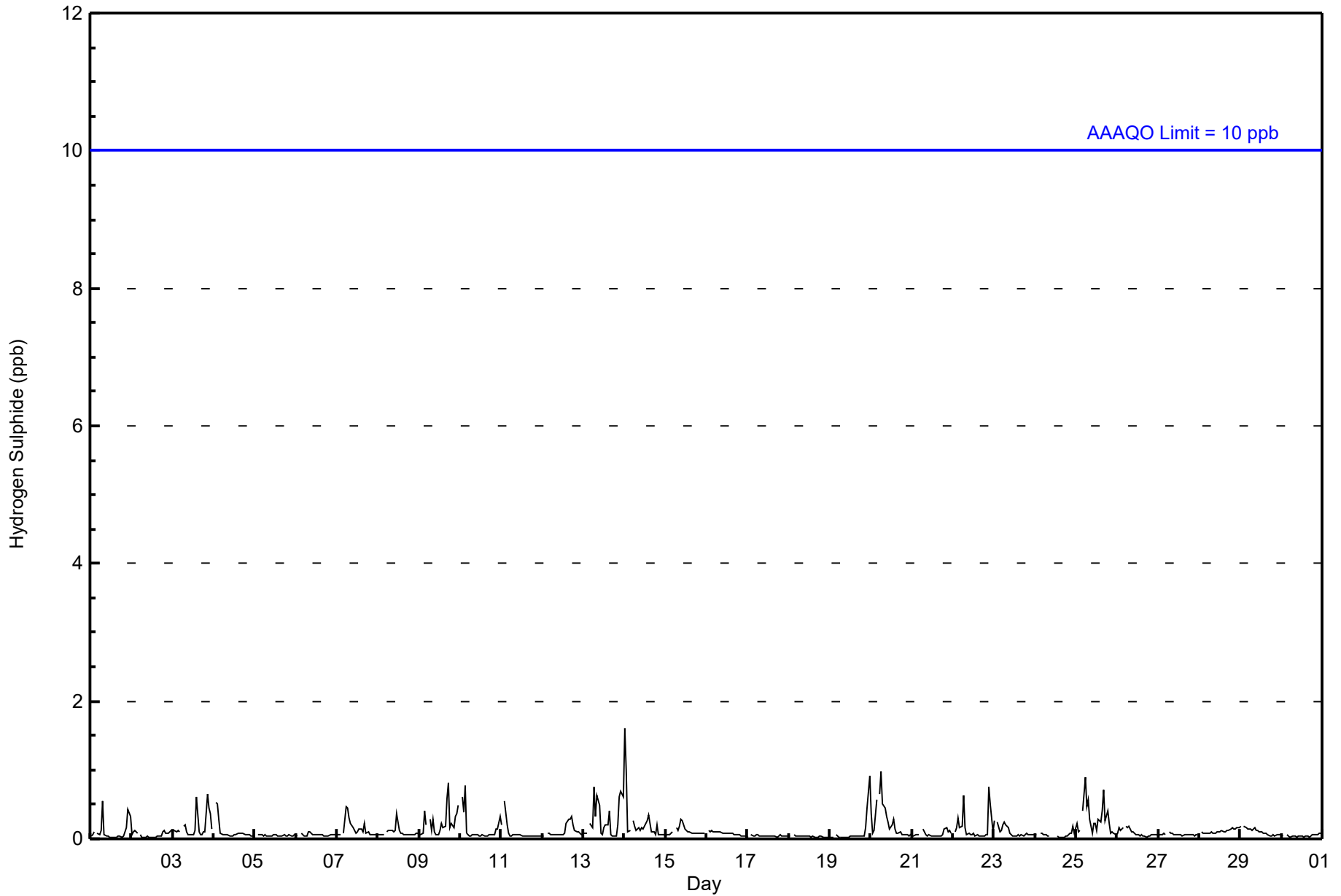








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														720							
Maximum Value: 1.6 ppb on Apr 14 01:00		Maximum Daily Average: 0.3 ppb on Apr 25		Hours of Data:														686									
Minimum Value: 0.0 ppb on Apr 19 00:00		Minimum Daily Average: 0.0 ppb on Apr 18		Hours of Missing Data:														34									
Maximum Diurnal Average: 0.2 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 19		Hours of Calibration:														34									
Monthly Average: 0.12 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.8		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-Apr	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.3	0.1	0.6	
2-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
3-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.4	0.4	0.1	0.2	0.7	
4-Apr	Z	0.5	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.5	
5-Apr	0.0	Z	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	
6-Apr	0.1	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
7-Apr	0.1	0.1	0.1	Z	0.1	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8-Apr	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
9-Apr	0.1	0.1	0.1	0.4	0.2	Z	0.3	0.1	0.3	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.6	0.8	0.2	0.2	0.2	0.3	0.4	0.5	0.2	0.8	
10-Apr	Z	0.6	0.4	0.8	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.8
11-Apr	0.2	Z	0.6	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
12-Apr	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
13-Apr	0.1	0.1	0.1	Z	0.2	0.2	0.7	0.3	0.6	0.5	0.1	0.1	0.2	0.2	0.4	0.1	0.0	0.0	0.0	0.2	0.6	0.7	0.6	0.3	0.7	0.3	0.7
14-Apr	1.6	1.0	0.1	0.1	Z	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	1.6
15-Apr	0.0	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
17-Apr	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18-Apr	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
19-Apr	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.9	0.1	0.9	
20-Apr	0.4	0.1	0.1	0.6	Z	0.6	1.0	0.5	0.4	0.3	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	1.0	
21-Apr	0.0	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2
22-Apr	Z	0.1	0.2	0.3	0.2	0.2	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.5	0.1	0.2	0.7	
23-Apr	0.3	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
24-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
25-Apr	0.2	0.1	0.1	Z	0.4	0.9	0.5	0.6	0.3	0.1	0.2	0.2	0.1	0.3	0.2	0.4	0.7	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.9
26-Apr	0.1	0.2	0.1	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
27-Apr	0.0	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
28-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2
29-Apr	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2
30-Apr	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2 0.1			
																								1.6 0.9			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	686	100.00	100.00
3 - 4	0	0.00	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: 686

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

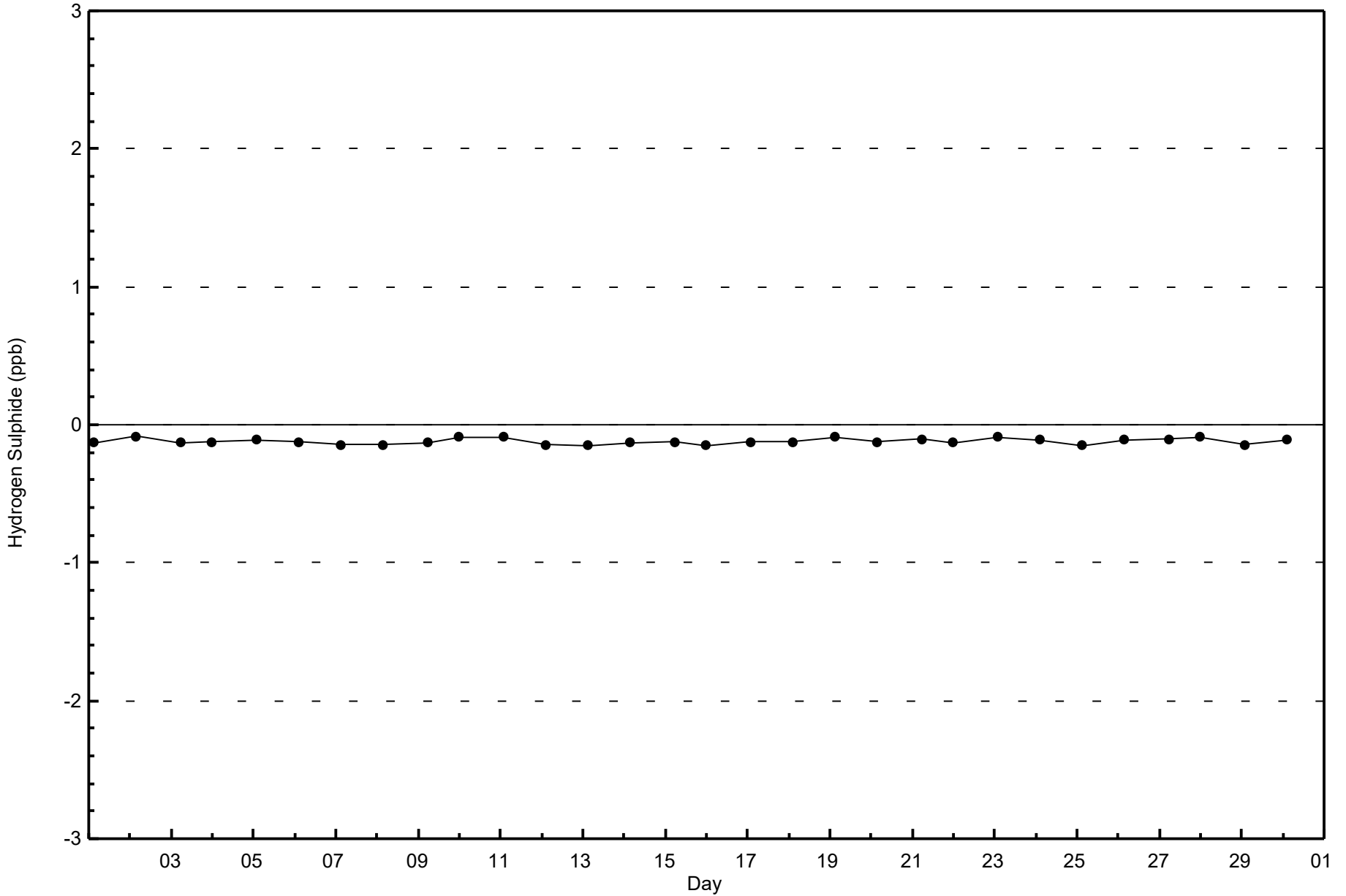
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Sawbones Bay - April 2024**

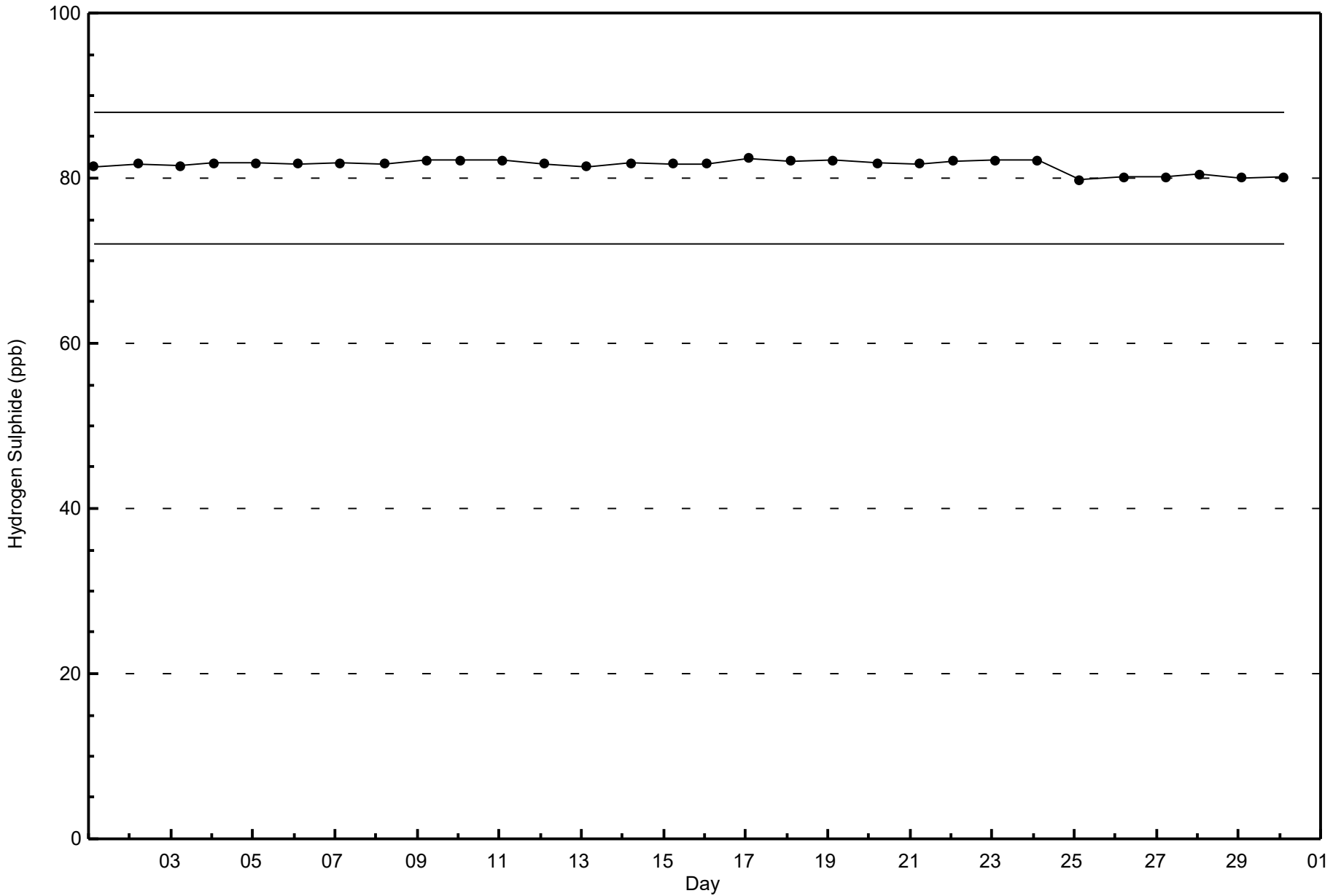
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	115	69	25	9	26	28	56	66	40	20	25	20	41	67	36	43	686
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	115	69	25	9	26	28	56	66	40	20	25	20	41	67	36	43	686

Total Number of Valid Hours: 686

Total Number of Hours: 720











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

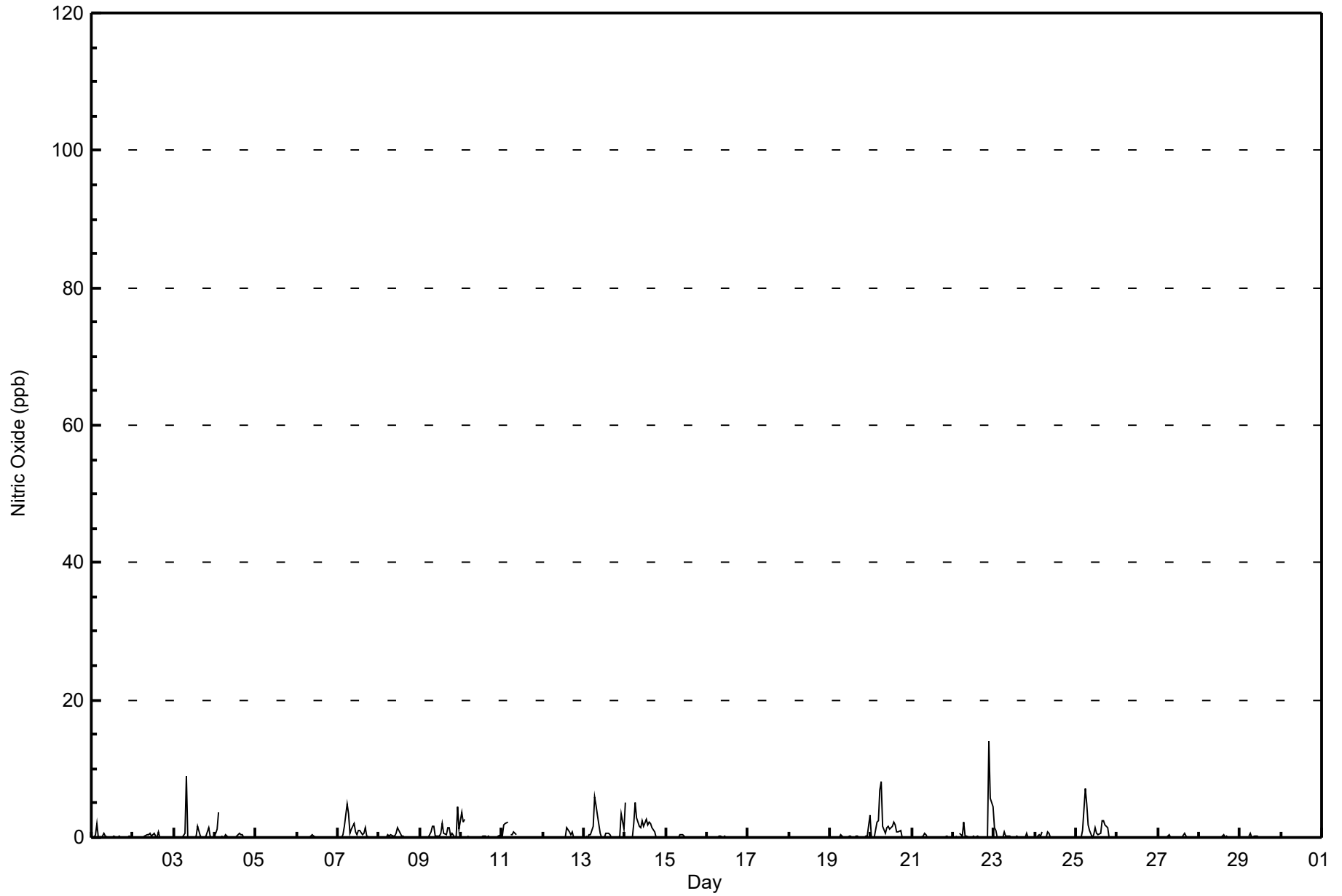
**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - April 2024**

Maximum Value: 14.0 ppb on Apr 22 22:00		Maximum Daily Average: 1.5 ppb on Apr 20		Hours in Service: 720																						
Minimum Value: 0.0 ppb on Apr 1 02:00		Minimum Daily Average: 0.0 ppb on Apr 30		Hours of Data: 685																						
Maximum Diurnal Average: 1.2 ppb at hour 7		Minimum Diurnal Average: 0.0 ppb at hour 20		Hours of Missing Data: 35																						
Monthly Average: 0.38 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 1.2 P <sub>99</sub> = 5.2		Hours of Calibration: 35																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	Z	0.0	0.4	2.1	0.0	0.0	0.1	0.6	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	2.1
2-Apr	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.1	0.6	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
3-Apr	0.1	0.0	Z	0.0	0.0	0.0	0.5	8.9	0.0	0.0	0.0	0.0	0.0	0.2	1.6	0.2	0.1	0.0	0.1	0.1	1.4	0.1	0.0	0.1	8.9	
4-Apr	0.6	1.1	3.6	Z	0.2	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	
5-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
7-Apr	Z	0.0	0.1	0.4	1.6	4.8	3.4	0.6	1.2	2.0	0.8	0.5	1.0	1.1	0.5	0.6	1.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	4.8	
8-Apr	0.1	Z	0.1	0.0	0.0	0.4	0.2	0.4	0.2	0.2	0.7	1.5	0.7	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.5	
9-Apr	0.1	0.1	Z	0.0	0.1	0.1	0.8	1.5	1.7	0.3	0.1	0.1	0.5	2.0	0.5	0.4	1.4	1.4	0.3	0.6	0.1	0.2	4.6	1.3	4.6	
10-Apr	3.8	2.3	2.7	Z	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	3.8	
11-Apr	0.2	1.7	2.1	2.1	Z	0.3	0.5	0.7	0.3	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	
12-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.8	0.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0	1.5	
13-Apr	Z	0.2	0.1	0.3	0.3	1.7	6.0	4.7	3.3	0.7	0.0	0.0	0.1	0.5	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.1	3.5	1.2	6.0	
14-Apr	5.0	Z	0.0	0.0	0.0	1.9	5.1	2.8	1.5	1.5	2.5	1.7	2.6	1.8	2.3	2.0	1.5	0.9	0.1	0.0	0.0	0.0	0.0	0.0	5.1	
15-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.5	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.5	
16-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
17-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
19-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	3.2	3.2	
20-Apr	0.1	Z	0.1	2.1	2.4	6.9	8.2	1.6	0.7	1.4	1.6	1.2	1.6	2.2	1.9	0.9	0.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	
21-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	
22-Apr	0.0	0.0	0.1	Z	0.5	0.2	2.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	14.0	5.6	4.4	14.0	
23-Apr	1.4	0.9	0.0	0.0	Z	0.1	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.4	
24-Apr	0.0	0.0	0.5	0.3	0.8	Z	0.1	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	
25-Apr	Z	0.0	0.0	0.1	1.0	7.1	4.9	1.9	1.1	0.1	0.4	1.4	0.6	0.5	0.6	2.4	2.4	1.8	1.3	0.0	0.0	0.0	0.0	0.0	7.1	
26-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
27-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	
28-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
29-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.5	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
30-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	115	67	28	8	28	28	54	68	34	20	25	21	42	68	38	41	685
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	115	67	28	8	28	28	54	68	34	20	25	21	42	68	38	41	685

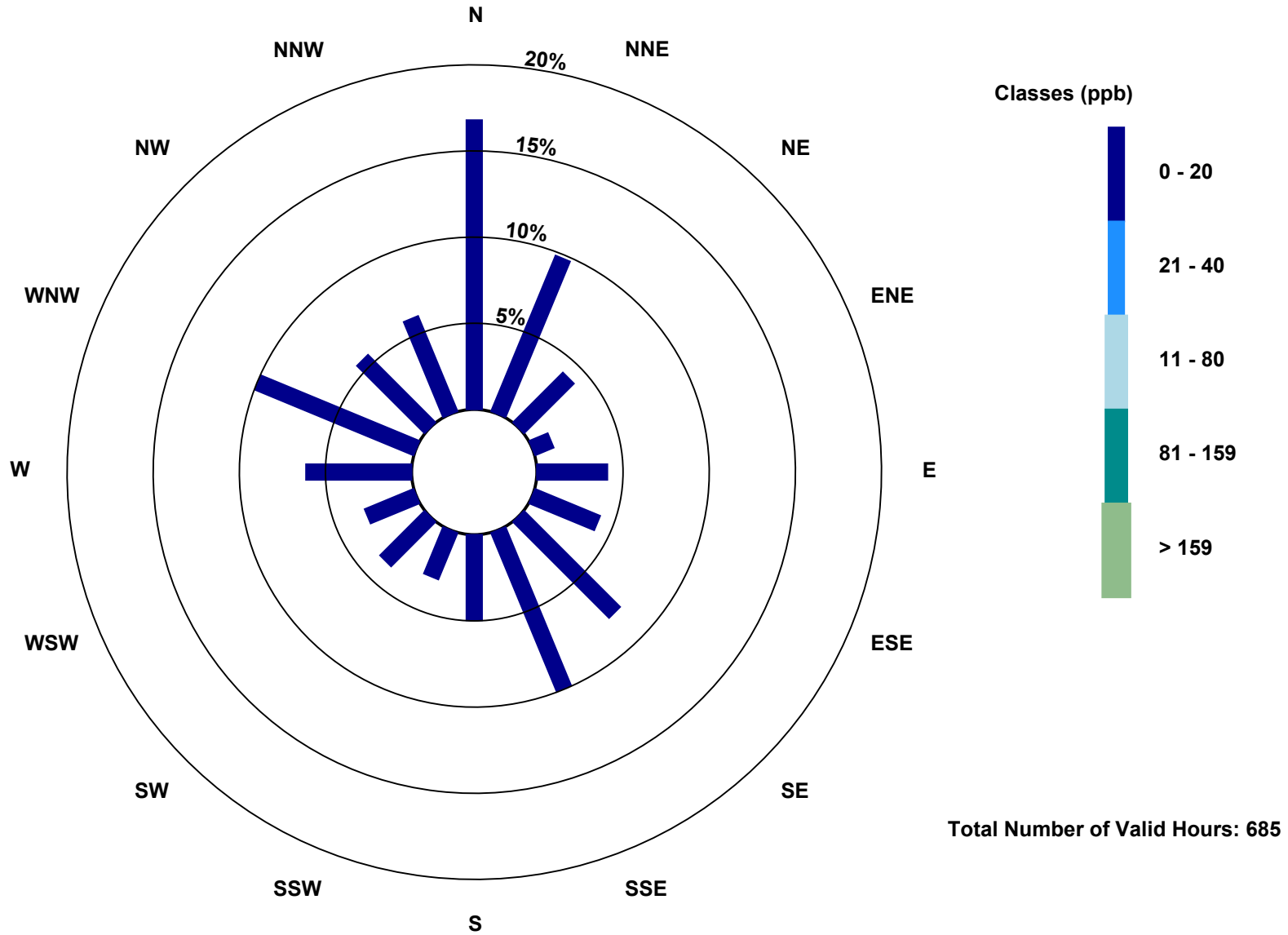
Total Number of Valid Hours: 685

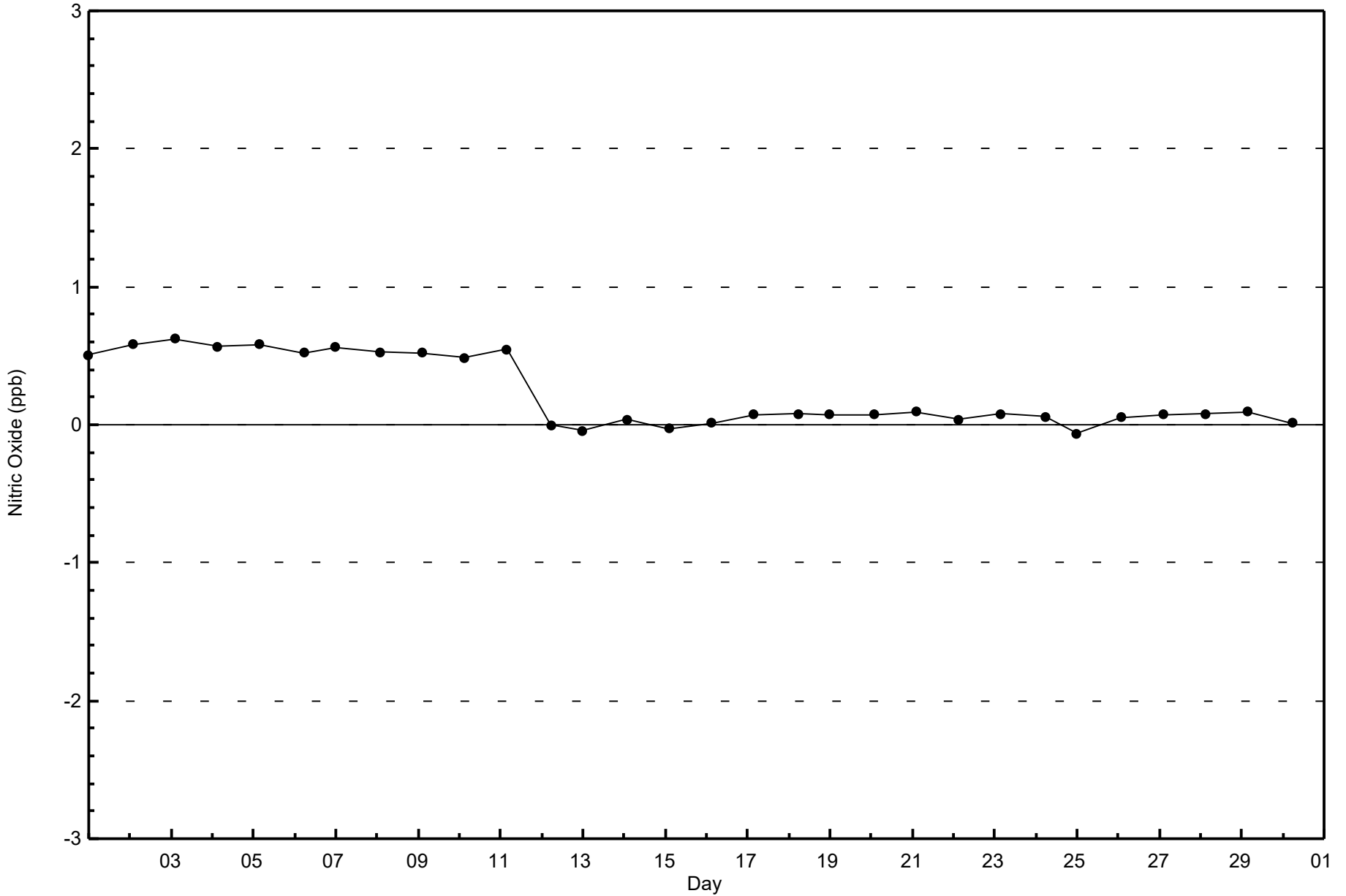
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Sawbones Bay

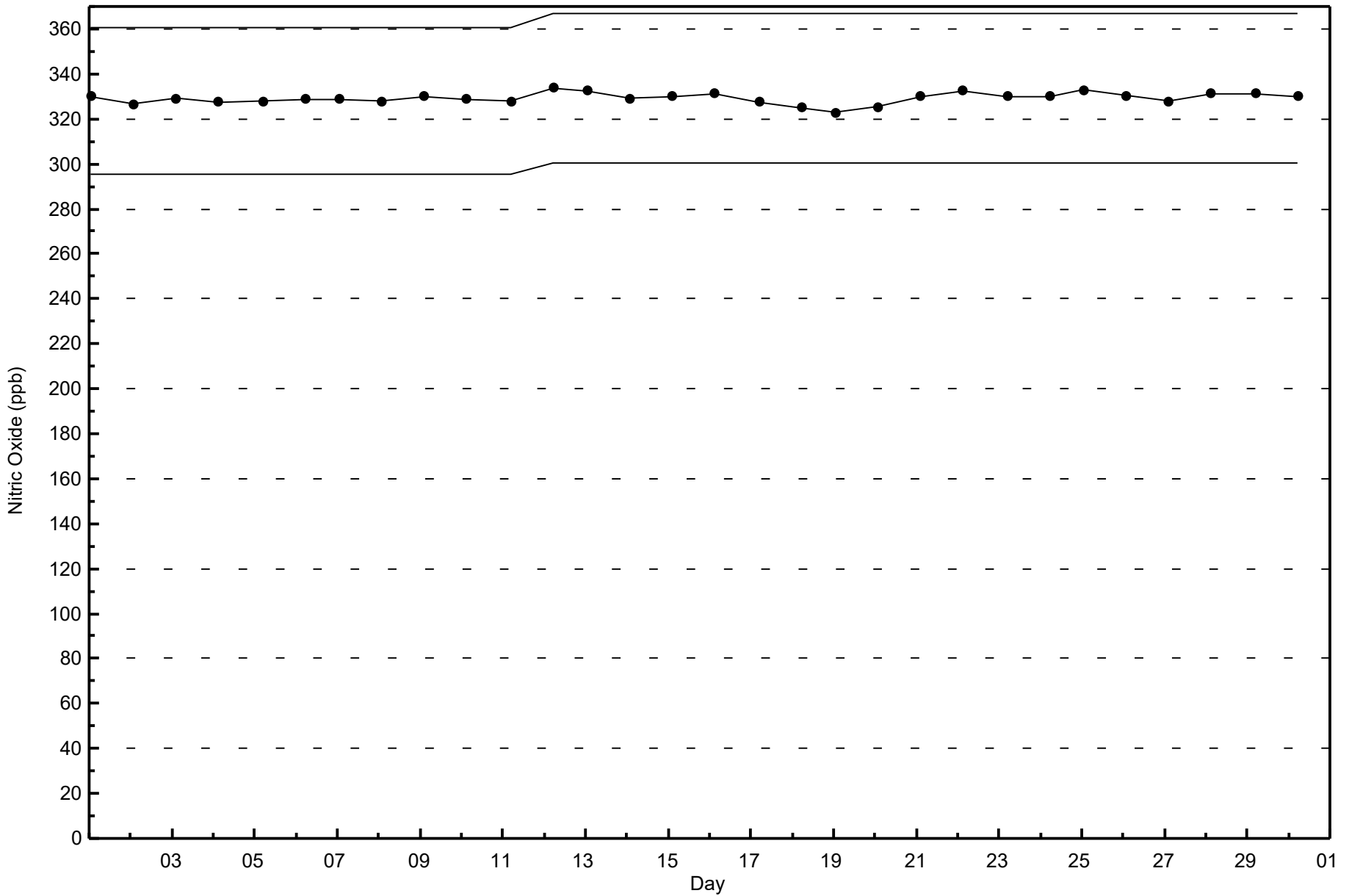






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Sawbones Bay - April 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

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

Sawbones Bay - April 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 24.5 ppb on Apr 23 01:00	Maximum Daily Average: 6.2 ppb on Apr 14		Hours of Data:	685
Minimum Value: 0.0 ppb on Apr 1 11:00	Minimum Daily Average: 0.0 ppb on Apr 5		Hours of Missing Data:	35
Maximum Diurnal Average: 4.8 ppb at hour 6	Minimum Diurnal Average: 0.8 ppb at hour 12		Hours of Calibration:	35
Monthly Average: 2.11 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 0.7 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 5.6 P <sub>99</sub> = 20.1		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-Apr	Z	1.1	5.2	8.0	0.4	0.3	1.2	2.4	0.4	0.1	0.0	0.0	0.0	0.0	0.2	0.5	0.1	0.8	5.3	6.3	7.6	11.8	9.5	2.7	11.8		
2-Apr	5.8	Z	5.6	3.8	4.9	3.3	1.0	1.0	1.1	1.2	1.6	0.8	1.4	1.2	1.0	2.5	1.1	1.0	1.2	1.2	1.4	0.9	1.1	1.5	2.0	5.8	
3-Apr	1.4	1.9	Z	4.7	1.8	3.1	5.9	9.1	1.2	0.3	0.2	0.1	0.3	1.0	6.2	0.8	0.2	0.0	3.1	4.0	8.6	2.3	1.7	1.2	2.6	9.1	
4-Apr	4.2	5.0	10.5	Z	3.7	1.2	2.0	0.4	0.0	0.0	0.0	0.0	0.1	0.5	1.1	1.0	1.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	1.4	10.5	
5-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.8	1.8	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.2	1.8	
7-Apr	Z	0.7	0.3	1.7	3.7	10.9	7.6	3.4	2.6	2.7	2.1	0.7	2.2	2.4	1.1	1.5	5.2	0.6	0.3	0.0	0.1	1.2	1.3	1.9	2.4	10.9	
8-Apr	1.1	Z	3.1	2.7	5.4	5.9	2.2	1.1	0.8	0.4	2.4	5.6	2.8	0.4	0.5	0.4	0.5	0.4	0.7	0.8	0.0	0.9	1.4	1.0	1.8	5.9	
9-Apr	0.2	0.6	Z	3.9	1.6	3.7	8.0	7.8	5.6	0.7	0.0	0.0	0.8	4.0	0.9	0.7	3.3	4.6	1.0	3.1	0.3	1.2	18.0	7.0	3.3	18.0	
10-Apr	17.1	9.9	9.1	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	2.8	1.6	5.7	5.2	11.8	2.8	17.1	
11-Apr	4.9	13.7	15.3	13.4	Z	3.6	1.5	1.9	0.5	C	C	C	C	C	0.5	0.8	0.8	0.8	0.8	0.6	0.3	0.3	0.2	0.2	3.3	15.3	
12-Apr	0.2	0.2	0.3	0.7	1.0	Z	0.6	0.4	0.4	0.5	0.5	0.5	0.4	0.6	5.1	3.1	2.4	3.9	2.1	1.4	2.9	4.7	1.6	1.9	1.5	5.1	
13-Apr	Z	4.3	3.1	4.4	3.6	7.8	18.5	11.4	6.4	1.7	0.4	0.3	0.7	1.5	1.8	1.9	0.4	0.2	0.1	0.3	0.6	1.7	17.0	13.1	4.4	18.5	
14-Apr	22.3	Z	2.8	6.6	7.0	18.0	18.6	9.0	5.3	4.6	5.6	4.0	5.6	4.2	5.4	5.6	5.1	5.1	1.9	1.0	1.2	2.2	1.4	0.8	6.2	22.3	
15-Apr	0.4	1.6	Z	6.0	2.5	1.8	2.9	2.2	6.8	4.6	6.4	1.5	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.2	1.9	6.8	
16-Apr	0.2	0.3	0.4	Z	0.5	0.4	1.5	2.1	1.9	1.1	1.0	0.7	0.8	0.8	0.8	0.7	0.4	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.6	2.1	
17-Apr	0.0	0.0	0.0	0.0	Z	0.5	0.7	0.7	0.6	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
18-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
19-Apr	Z	0.0	0.0	1.3	2.5	2.1	2.6	0.9	0.4	0.3	0.4	0.7	0.9	0.7	0.6	1.2	1.1	0.7	0.5	0.9	1.1	5.4	3.5	21.3	2.1	21.3	
20-Apr	3.5	Z	5.0	14.4	11.1	20.7	20.0	5.1	2.6	3.5	4.0	3.3	4.3	5.7	5.3	3.5	3.8	5.3	1.6	1.8	2.2	2.0	1.8	5.4	5.9	20.7	
21-Apr	2.7	1.3	Z	1.6	1.6	2.1	2.7	3.1	1.9	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.4	0.6	1.6	3.8	3.0	2.0	2.1	1.4	1.5	3.8	
22-Apr	0.5	0.4	6.5	Z	8.4	5.0	7.4	1.6	0.9	0.8	0.7	0.8	1.4	0.9	1.9	0.4	0.4	0.5	0.6	0.7	1.6	22.0	17.9	7.7	3.9	22.0	
23-Apr	24.5	23.7	10.2	1.8	Z	5.2	5.7	2.1	0.9	1.1	0.3	0.3	0.1	1.0	0.9	0.8	0.6	0.2	1.0	7.4	0.8	0.4	0.3	0.2	3.9	24.5	
24-Apr	0.2	0.2	6.5	6.8	12.1	Z	0.8	4.5	2.4	0.4	0.2	0.3	0.2	0.4	0.3	0.4	0.6	0.5	0.3	0.8	1.7	1.6	1.3	1.5	1.9	12.1	
25-Apr	Z	0.7	0.6	2.2	4.4	20.9	11.8	4.6	2.8	0.6	1.2	3.1	1.7	1.5	1.6	5.7	6.6	5.8	5.6	0.3	0.2	0.1	0.2	0.2	3.6	20.9	
26-Apr	0.3	Z	1.7	1.9	1.7	1.2	1.1	1.3	0.5	0.1	0.2	0.1	0.2	0.1	0.1	0.3	0.5	0.7	1.0	1.3	1.7	2.2	4.0	8.7	1.3	8.7	
27-Apr	2.8	2.2	Z	0.9	1.0	0.7	1.1	0.2	0.2	0.1	0.3	0.2	0.2	0.3	0.4	1.5	1.0	0.3	0.2	0.2	0.3	0.4	0.2	0.3	0.7	2.8	
28-Apr	0.8	2.0	1.1	Z	1.0	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.7	0.4	0.5	0.4	0.5	3.3	4.4	4.2	1.0	0.4	1.1	4.4	
29-Apr	0.8	0.5	0.8	1.2	Z	1.0	1.2	0.4	0.7	0.5	0.5	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.5	1.2	
30-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.4	0.9	1.1	0.1	1.1	

3.8	2.8	3.5	3.5	3.2	4.8	4.2	2.6	1.6	0.9	1.0	0.8	0.9	1.0	1.3	1.2	1.2	1.1	0.9	1.4	1.4	2.3	3.1	3.3	Diurnal Average	
24.5	23.7	15.3	14.4	12.1	20.9	20.0	11.4	6.8	4.6	6.4	5.6	5.6	5.7	6.2	5.7	6.6	5.8	5.6	7.4	8.6	22.0	18.0	21.3	Diurnal Maximum	

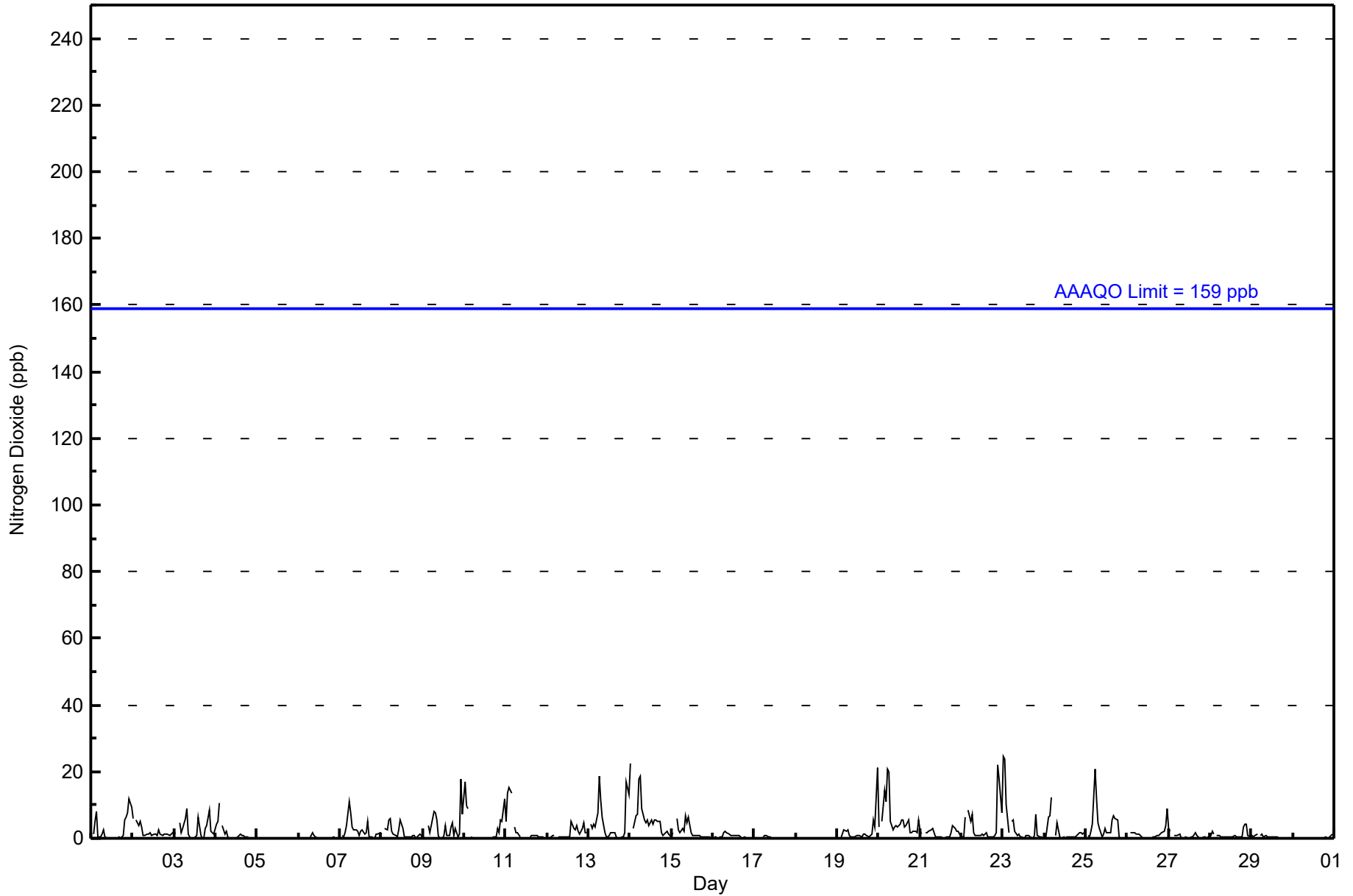
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	678	98.98	98.98
21 - 40	7	1.02	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	115	67	28	7	28	28	54	67	34	20	25	17	42	68	37	41	678
21 - 40	0	0	0	1	0	0	0	1	0	0	0	4	0	0	1	0	7
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	115	67	28	8	28	28	54	68	34	20	25	21	42	68	38	41	685

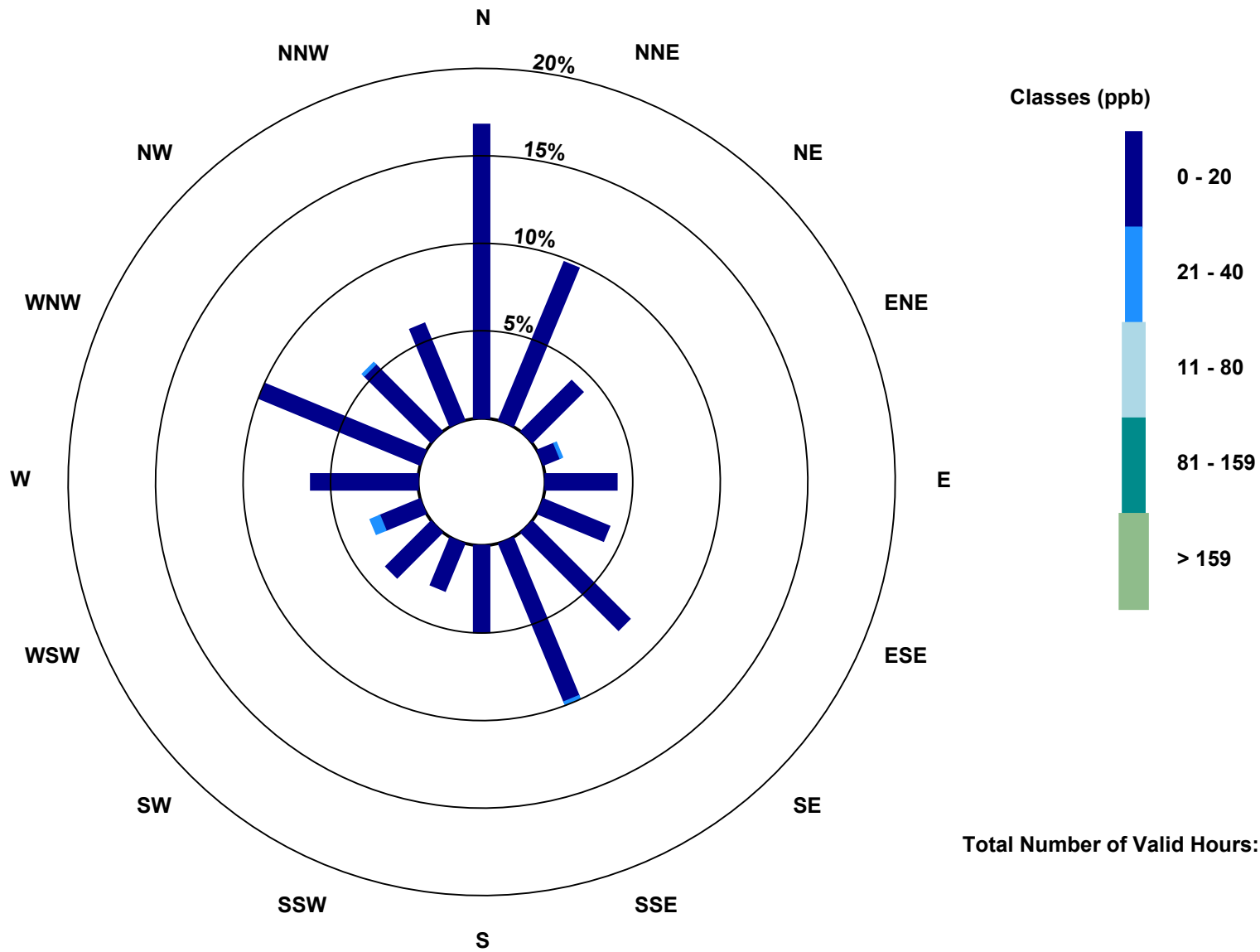
Total Number of Valid Hours: 685

Total Number of Hours: 720

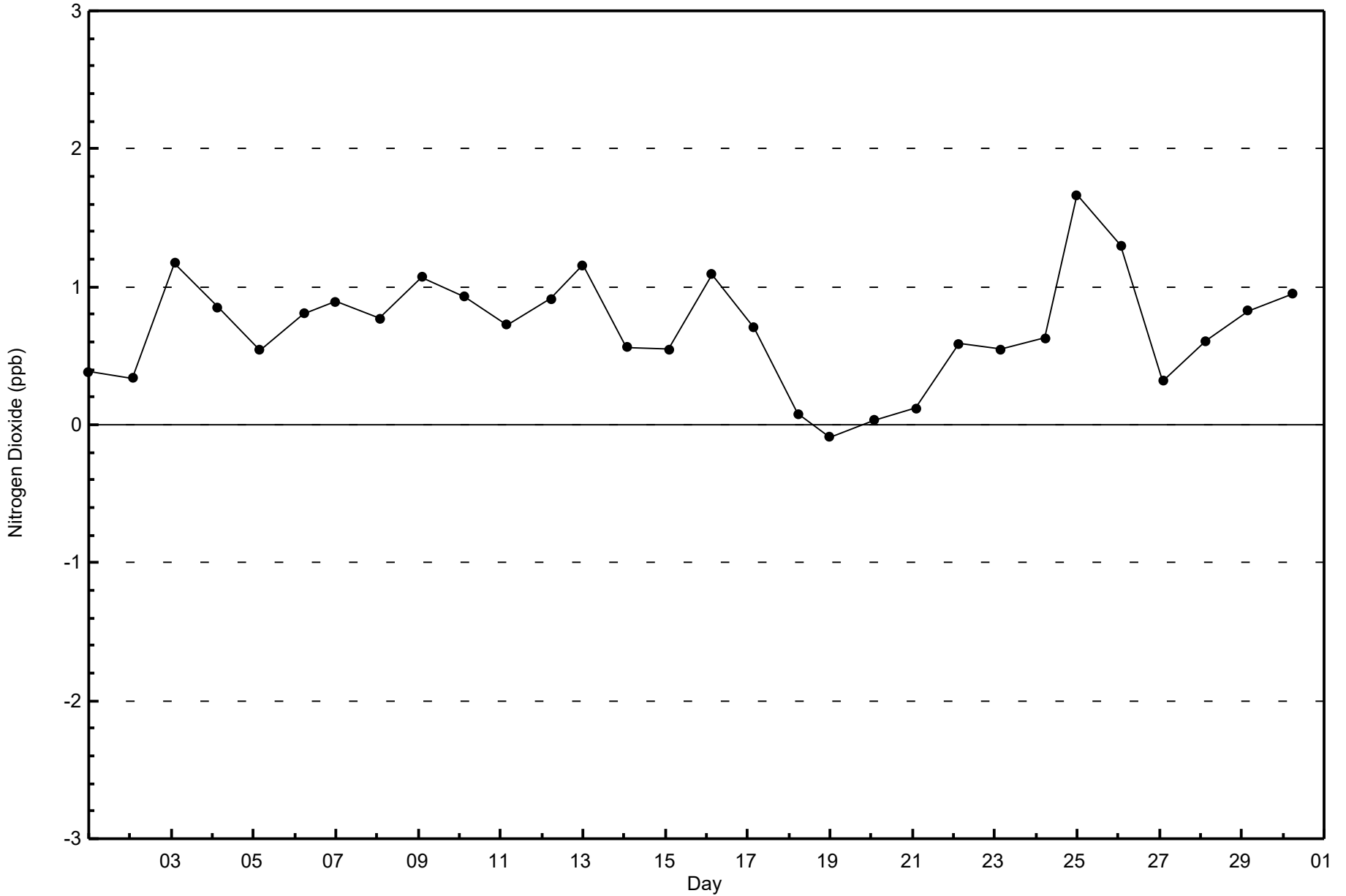


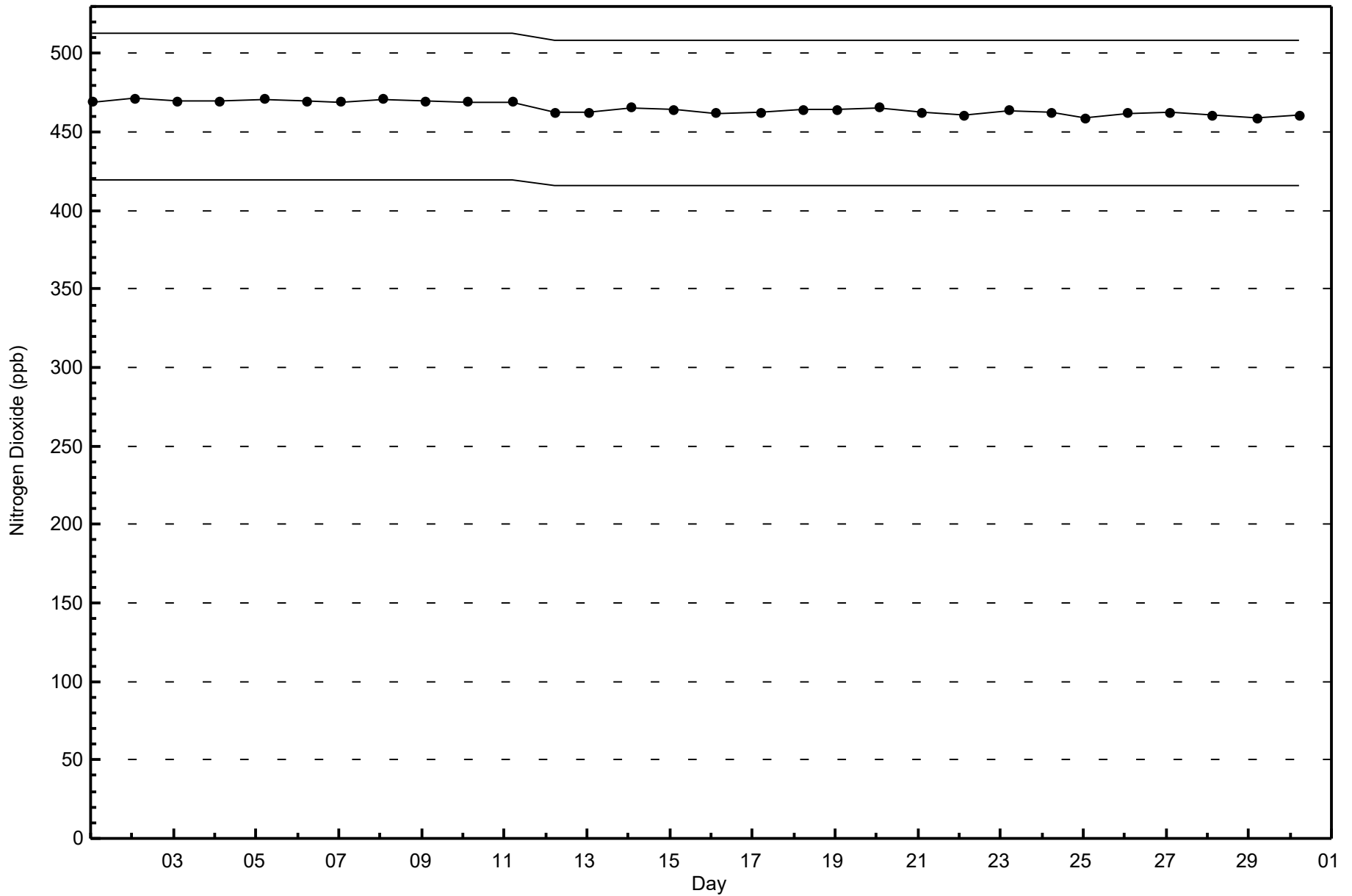
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 685







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

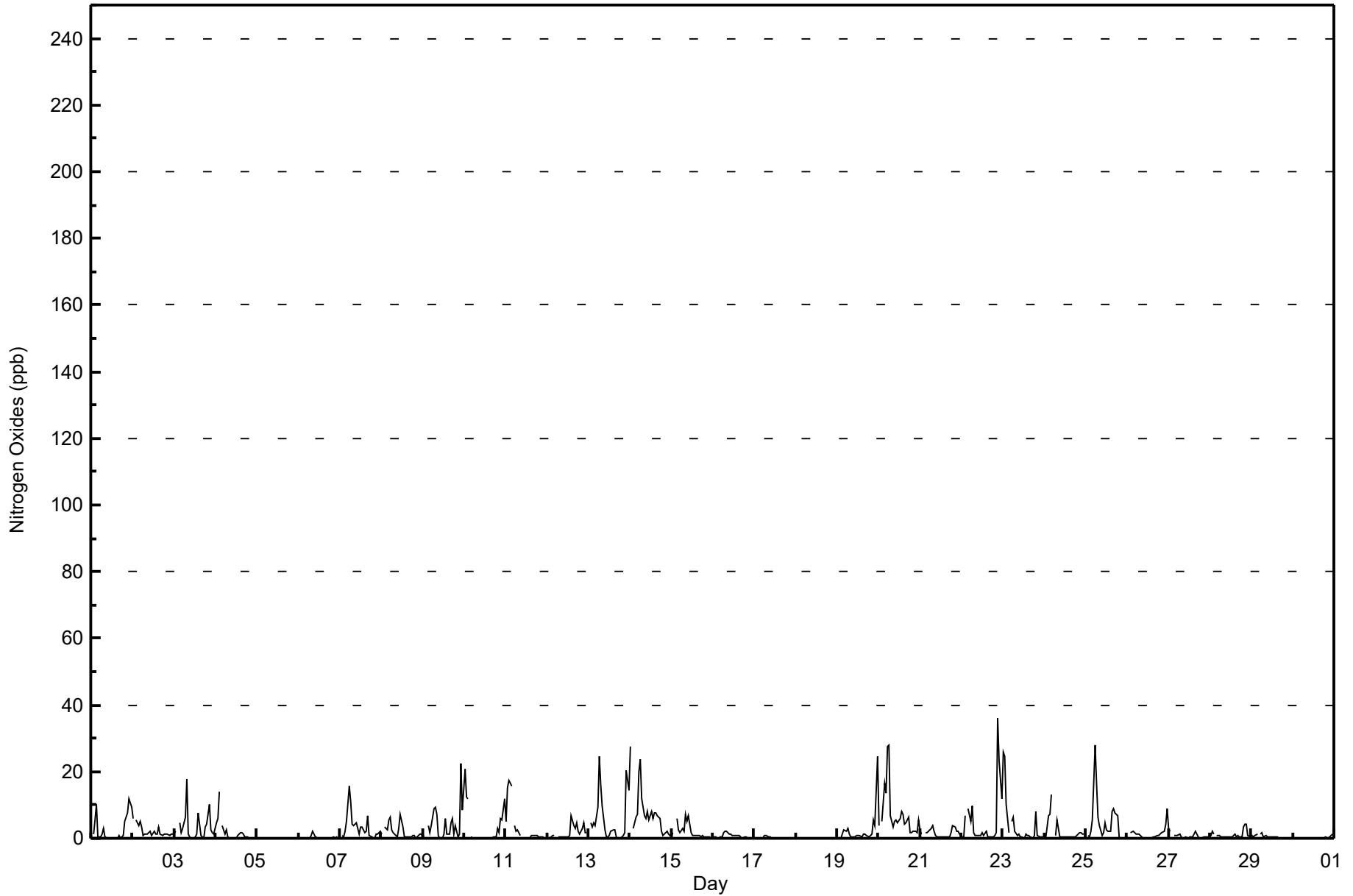
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - April 2024**

Maximum Value: 36.0 ppb on Apr 22 22:00																				Maximum Daily Average: 7.7 ppb on Apr 14					Hours in Service: 720				
Minimum Value: 0.0 ppb on Apr 1 13:00																				Minimum Daily Average: 0.0 ppb on Apr 18					Hours of Data: 685				
Maximum Diurnal Average: 5.8 ppb at hour 6																				Minimum Diurnal Average: 1.0 ppb at hour 19					Hours of Missing Data: 35				
Monthly Average: 2.50 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 0.8 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 6.6 P <sub>99</sub> = 24.5					Hours of Calibration: 35				
																				Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Apr	Z	1.1	5.6	10.1	0.4	0.3	1.3	3.0	0.6	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.7	0.1	0.8	5.3	6.4	7.7	11.9	9.5	2.8	11.9			
2-Apr	5.9	Z	5.6	3.8	4.9	3.3	1.0	1.2	1.4	1.6	2.2	0.9	2.0	1.4	1.1	3.4	1.2	1.0	1.2	1.2	1.4	0.9	1.1	1.5	2.1	5.9			
3-Apr	1.5	1.9	Z	4.7	1.8	3.1	6.4	18.0	1.2	0.3	0.2	0.1	0.3	1.2	7.8	1.0	0.3	0.0	3.2	4.1	10.0	2.4	1.7	1.3	3.1	18.0			
4-Apr	4.8	6.1	14.1	Z	3.9	1.3	2.4	0.5	0.0	0.0	0.0	0.0	0.2	0.8	1.7	1.5	1.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	1.7	14.1			
5-Apr	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.9	2.1	1.2	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.3	0.0	0.2	0.0	0.3	2.1			
7-Apr	Z	0.7	0.4	2.1	5.3	15.7	11.0	4.0	3.8	4.7	2.9	1.2	3.2	3.5	1.6	2.1	6.6	0.8	0.3	0.0	0.1	1.2	1.3	1.9	3.2	15.7			
8-Apr	1.2	Z	3.2	2.7	5.4	6.3	2.4	1.5	1.0	0.6	3.1	7.1	3.5	0.5	0.6	0.5	0.6	0.5	0.7	0.8	0.0	0.9	1.4	1.1	2.0	7.1			
9-Apr	0.3	0.7	Z	3.9	1.7	3.8	8.8	9.3	7.3	1.0	0.1	0.1	1.3	6.0	1.4	1.1	4.7	6.0	1.3	3.7	0.4	1.4	22.6	8.3	4.1	22.6			
10-Apr	20.9	12.2	11.8	Z	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.5	0.3	2.9	1.7	5.8	5.3	12.1	3.3	20.9			
11-Apr	5.1	15.4	17.4	15.5	Z	3.9	2.0	2.6	0.8	C	C	C	C	C	0.5	0.8	0.8	0.8	0.8	0.6	0.3	0.3	0.2	0.2	3.8	17.4			
12-Apr	0.2	0.2	0.3	0.7	1.0	Z	0.6	0.4	0.4	0.5	0.5	0.5	0.4	0.6	6.6	3.9	2.8	4.7	2.2	1.4	2.9	4.7	1.6	1.9	1.7	6.6			
13-Apr	Z	4.5	3.2	4.7	3.9	9.5	24.5	16.1	9.7	2.4	0.4	0.3	0.8	2.0	2.4	2.3	0.4	0.2	0.1	0.3	0.6	1.8	20.5	14.3	5.4	24.5			
14-Apr	27.3	Z	2.8	6.6	7.0	19.9	23.7	11.8	6.8	6.1	8.1	5.7	8.2	6.0	7.7	7.6	6.6	6.0	2.0	1.0	1.2	2.2	1.4	0.8	7.7	27.3			
15-Apr	0.4	1.6	Z	6.0	2.5	1.8	2.9	2.2	7.2	4.9	6.9	1.5	0.9	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.2	2.0	7.2			
16-Apr	0.2	0.3	0.4	Z	0.5	0.4	1.5	2.2	2.0	1.1	1.1	0.8	0.9	0.8	0.9	0.7	0.4	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.6	2.2			
17-Apr	0.0	0.0	0.0	0.0	Z	0.5	0.7	0.7	0.6	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7			
18-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
19-Apr	Z	0.0	0.0	1.3	2.5	2.1	3.0	1.1	0.5	0.3	0.4	0.8	1.0	0.8	0.6	1.3	1.2	0.7	0.5	0.9	1.1	5.6	3.7	24.5	2.3	24.5			
20-Apr	3.6	Z	5.1	16.5	13.5	27.6	28.2	6.7	3.3	4.9	5.6	4.5	5.9	7.9	7.2	4.4	4.5	6.3	1.6	1.8	2.2	2.0	1.8	5.4	7.4	28.2			
21-Apr	2.7	1.3	Z	1.6	1.6	2.1	2.9	3.6	2.3	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.4	0.6	1.6	3.8	3.2	2.0	2.1	1.4	1.5	3.8			
22-Apr	0.5	0.4	6.6	Z	8.9	5.2	9.6	1.8	1.0	0.8	0.8	0.9	1.5	1.0	2.1	0.4	0.4	0.5	0.6	0.7	1.6	36.0	23.5	12.1	5.1	36.0			
23-Apr	25.9	24.6	10.2	1.8	Z	5.3	6.5	2.3	1.0	1.3	0.3	0.3	0.1	1.1	0.9	0.8	0.6	0.2	1.0	7.9	0.8	0.4	0.3	0.2	4.1	25.9			
24-Apr	0.2	0.2	7.0	7.1	12.9	Z	0.9	5.4	2.9	0.4	0.2	0.3	0.2	0.4	0.3	0.4	0.6	0.5	0.3	0.8	1.7	1.6	1.3	1.5	2.0	12.9			
25-Apr	Z	0.7	0.6	2.3	5.4	28.0	16.7	6.5	3.9	0.7	1.6	4.5	2.3	2.0	2.2	8.1	9.0	7.6	6.9	0.3	0.2	0.1	0.2	0.2	4.8	28.0			
26-Apr	0.3	Z	1.7	1.9	1.7	1.2	1.1	1.4	0.5	0.1	0.2	0.1	0.2	0.1	0.1	0.3	0.5	0.7	1.0	1.3	1.7	2.2	4.0	8.7	1.3	8.7			
27-Apr	2.8	2.2	Z	0.9	1.0	0.7	1.4	0.2	0.2	0.1	0.3	0.2	0.2	0.3	0.4	2.2	1.2	0.3	0.2	0.2	0.3	0.4	0.2	0.3	0.7	2.8			
28-Apr	0.8	2.0	1.1	Z	1.0	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.6	1.1	0.4	0.7	0.4	0.5	3.3	4.4	4.2	1.0	0.4	1.1	4.4			
29-Apr	0.8	0.5	0.8	1.2	Z	1.1	1.7	0.4	0.8	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.5	1.7			
30-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.4	0.9	1.1	0.1	1.1			
																								Diurnal Average					
																								Diurnal Maximum					
4.2 3.1 3.9 3.8 3.5 5.8 5.4 3.5 2.1 1.2 1.3 1.1 1.2 1.3 1.6 1.5 1.6 1.3 1.0 1.4 1.4 2.8 3.6 3.6																													
27.3 24.6 17.4 16.5 13.5 28.0 28.2 18.0 9.7 6.1 8.1 7.1 8.2 7.9 7.8 8.1 9.0 7.6 6.9 7.9 10.0 36.0 23.5 24.5																													
Z - zerospan C - Calibration																													



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - April 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	672	98.10	98.10
21 - 40	13	1.90	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Sawbones Bay - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	115	67	27	7	28	28	54	66	34	20	25	15	40	68	37	41	672
21 - 40	0	0	1	1	0	0	0	2	0	0	0	6	2	0	1	0	13
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	115	67	28	8	28	28	54	68	34	20	25	21	42	68	38	41	685

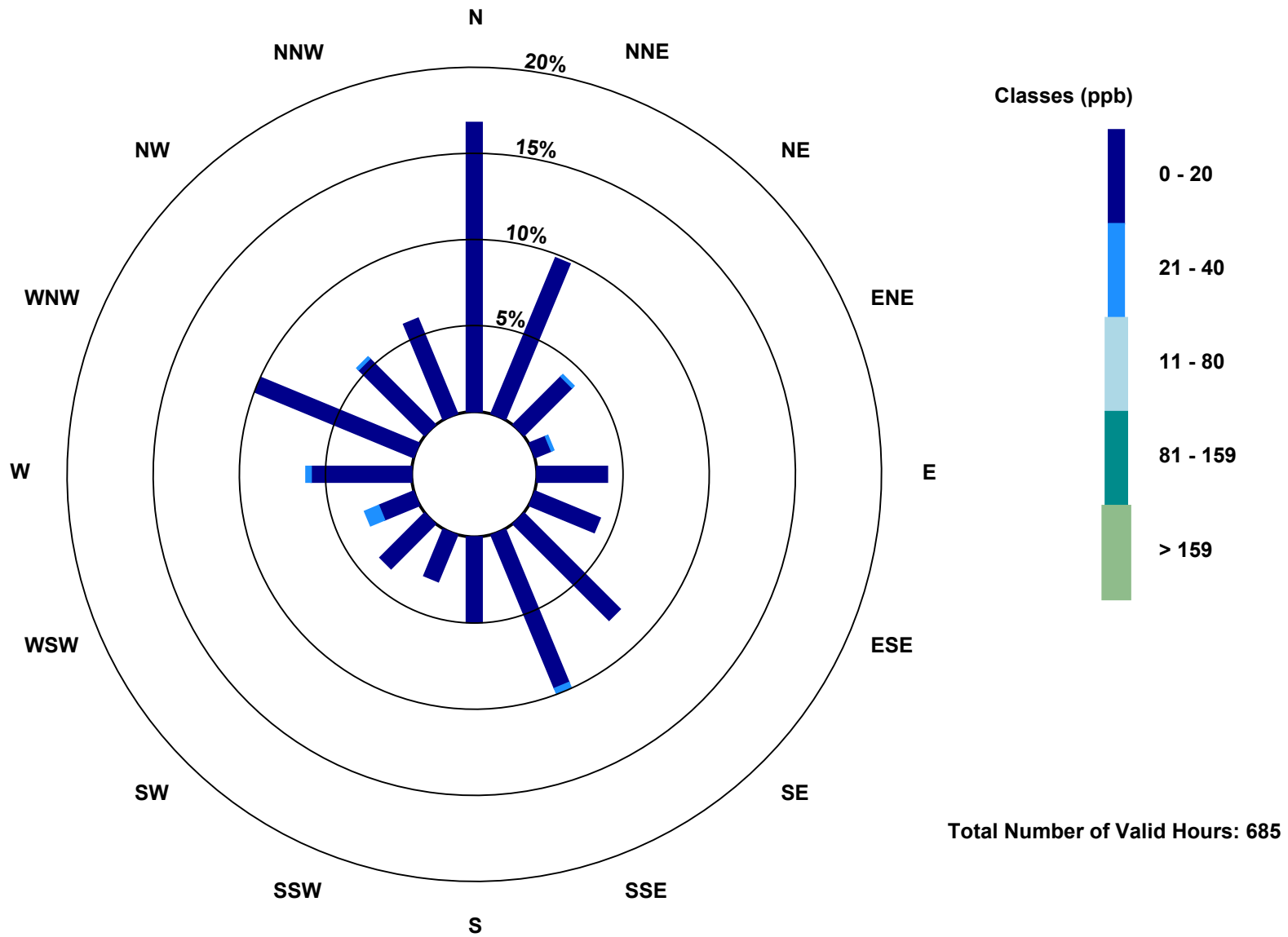
Total Number of Valid Hours: 685

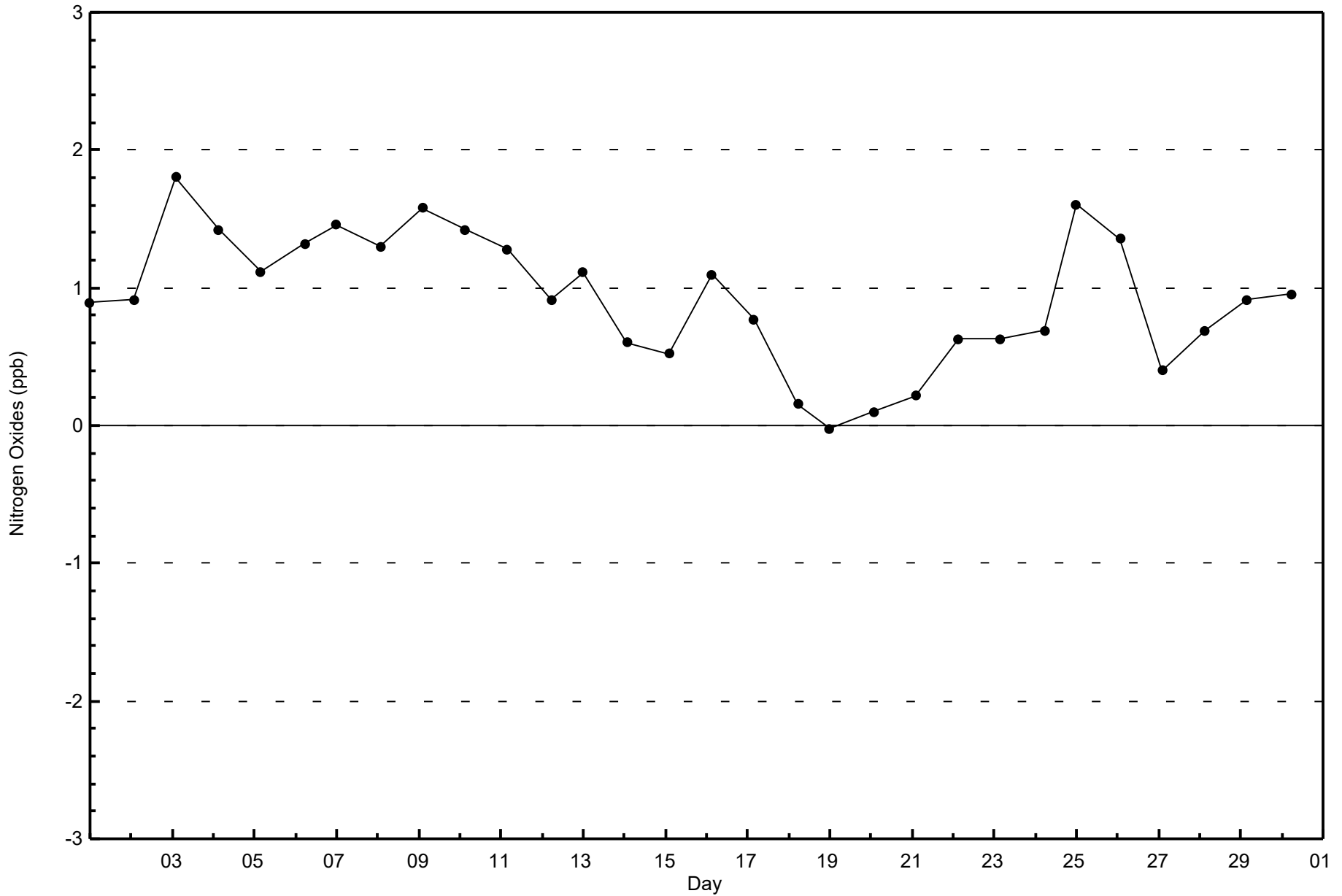
Total Number of Hours: 720

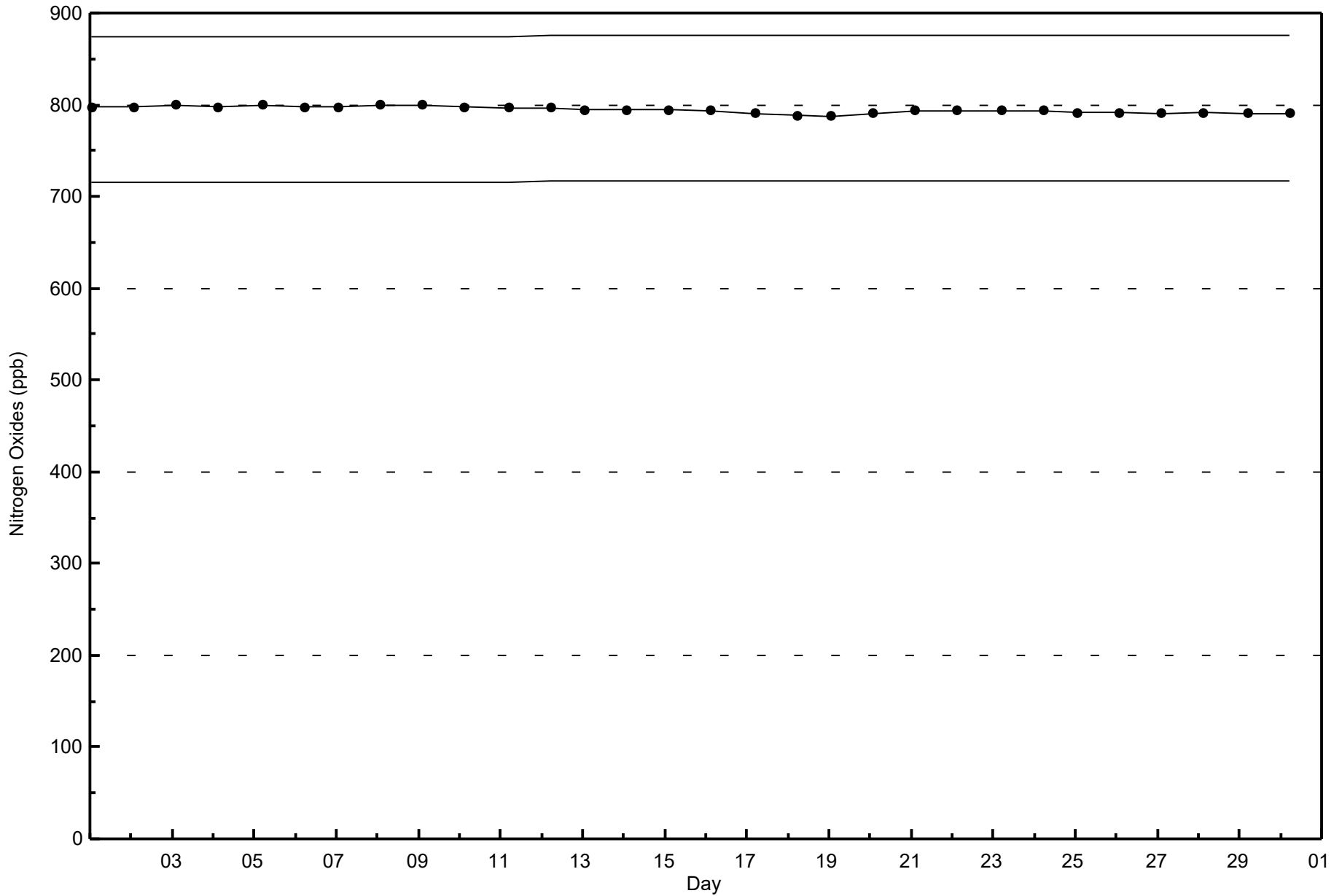


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









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

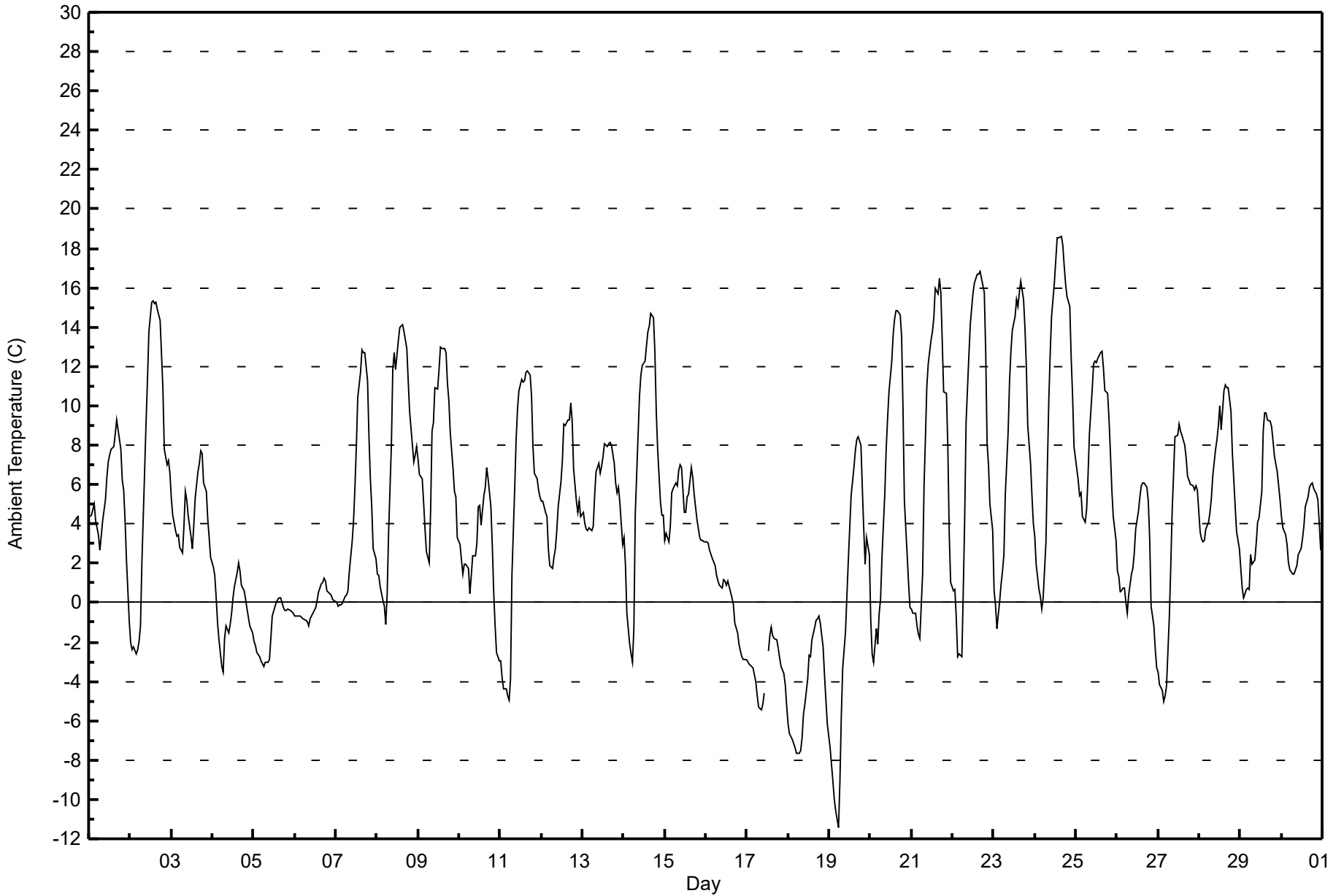
**Ambient Temperature (AT) - C**  
**Sawbones Bay - April 2024**

Maximum Value: 18.6 C on Apr 24 16:00		Maximum Daily Average: 10.7 C on Apr 24		Hours in Service: 720																							
Minimum Value: -11.4 C on Apr 19 06:00		Minimum Daily Average: -4.5 C on Apr 18		Hours of Data: 719																							
Maximum Diurnal Average: 9.0 C at hour 17		Minimum Diurnal Average: -0.5 C at hour 6		Hours of Missing Data: 1																							
Monthly Average: 4.32 C		Percentiles: P <sub>1</sub> = -7.6 P <sub>10</sub> = -2.7 Q <sub>1</sub> = 0.2 Median = 4.0 Q <sub>3</sub> = 8.0 P <sub>90</sub> = 12.7 P <sub>99</sub> = 16.7		Hours of Calibration: 0																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	4.4	4.5	4.7	5.0	4.1	3.4	2.7	3.4	4.2	5.2	6.3	7.1	7.5	7.8	7.9	8.5	9.3	8.8	7.8	6.2	5.7	4.2	2.2	-0.9	5.4	9.3	
2-Apr	-2.1	-2.4	-2.2	-2.6	-2.4	-2.0	-1.1	2.0	6.8	9.2	11.3	13.8	15.3	15.4	15.2	15.3	14.9	14.3	12.7	10.9	7.8	7.0	7.2	6.6	7.1	15.4	
3-Apr	5.3	4.4	3.7	3.4	3.4	2.8	2.5	3.8	5.7	5.2	4.4	3.4	2.8	3.9	5.3	6.6	7.0	7.7	7.6	6.1	5.7	4.3	3.3	2.3	4.6	7.7	
4-Apr	1.8	1.4	0.3	-1.1	-1.9	-3.2	-3.6	-1.8	-1.2	-1.5	-1.1	-0.5	0.2	0.8	1.5	2.0	1.6	0.9	0.6	0.1	-0.3	-0.8	-1.1	-1.5	-0.4	2.0	
5-Apr	-1.9	-2.2	-2.5	-2.8	-2.9	-3.1	-3.2	-3.0	-3.0	-2.9	-1.8	-0.7	-0.2	0.0	0.2	0.3	0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-1.3	0.3	
6-Apr	-0.7	-0.7	-0.6	-0.7	-0.7	-0.8	-0.9	-1.0	-1.2	-0.9	-0.7	-0.4	-0.3	0.1	0.5	1.0	1.1	1.2	1.1	0.6	0.4	0.4	0.2	0.1	-0.1	1.2	
7-Apr	0.0	-0.2	-0.1	-0.1	0.0	0.3	0.4	0.6	1.6	3.1	4.1	5.9	7.9	10.4	11.7	12.8	12.7	12.7	11.3	8.5	6.3	4.9	2.7	2.3	5.0	12.8	
8-Apr	1.5	1.3	0.8	0.1	-0.2	-1.1	0.4	3.5	8.0	11.9	12.7	11.8	13.3	14.0	14.1	14.2	13.8	12.9	11.3	9.7	8.9	7.2	7.5	8.0	7.7	14.2	
9-Apr	7.3	6.5	6.3	5.1	3.7	2.6	2.0	4.8	8.7	9.2	10.9	10.8	11.9	13.0	12.9	12.9	12.7	11.1	10.3	8.7	6.8	5.7	5.4	3.3	8.0	13.0	
10-Apr	3.0	2.1	1.5	2.0	2.0	1.7	0.4	1.4	2.4	2.4	3.0	4.9	5.0	3.9	5.4	5.9	6.9	6.3	4.9	2.9	0.5	-1.2	-2.5	-3.0	2.6	6.9	
11-Apr	-3.0	-3.8	-4.4	-4.4	-4.8	-4.9	-3.9	1.4	5.9	8.3	9.9	10.8	11.3	11.2	11.3	11.7	11.8	11.6	10.5	7.9	6.6	6.3	5.8	5.3	4.9	11.8	
12-Apr	5.1	5.1	4.6	4.4	2.7	1.9	1.8	2.3	2.8	3.7	4.9	6.2	7.2	9.1	9.0	9.3	9.3	10.2	9.2	6.8	5.2	4.6	5.2	4.4	5.6	10.2	
13-Apr	4.6	4.0	3.7	3.7	3.8	3.7	3.9	5.4	6.6	7.0	6.6	6.9	7.4	8.1	7.9	8.1	8.2	8.0	7.1	6.1	5.6	5.9	5.1	3.0	5.8	8.2	
14-Apr	3.3	1.9	-0.5	-2.1	-2.6	-3.1	-1.3	4.5	8.5	10.5	11.6	12.0	12.2	13.0	13.8	14.0	14.7	14.5	12.7	9.6	7.7	5.1	4.5	4.4	7.0	14.7	
15-Apr	3.2	3.5	3.1	3.8	5.6	5.8	6.1	6.0	6.7	7.0	6.8	4.6	4.6	5.3	5.5	6.9	6.3	5.5	4.9	4.2	3.3	3.2	3.2	3.1	4.9	7.0	
16-Apr	3.1	3.0	2.7	2.4	2.2	1.9	1.4	1.1	0.9	0.8	1.2	1.1	0.9	1.1	0.5	0.2	-0.1	-1.0	-1.5	-2.1	-2.4	-2.7	-2.9	-2.9	0.4	3.1	
17-Apr	-3.0	-3.1	-3.2	-3.3	-3.7	-4.0	-4.7	-5.3	-5.5	-5.2	-4.6	M	-2.5	-1.7	-1.2	-1.7	-1.8	-1.9	-2.3	-2.8	-3.2	-3.6	-4.1	-5.2	-3.4	-1.2	
18-Apr	-6.2	-6.7	-7.0	-7.1	-7.4	-7.7	-7.7	-7.5	-6.9	-5.7	-5.2	-3.9	-2.7	-2.7	-1.9	-1.3	-0.9	-0.8	-0.7	-1.1	-2.2	-3.7	-4.9	-6.2	-4.5	-0.7	
19-Apr	-7.4	-8.2	-9.1	-10.0	-10.6	-11.4	-9.1	-5.7	-3.3	-1.5	0.4	2.1	3.8	5.5	6.9	7.7	8.3	8.5	8.0	5.8	3.7	2.0	3.3	2.4	-0.3	8.5	
20-Apr	-0.9	-2.6	-3.0	-1.3	-2.1	-0.5	0.2	2.3	5.5	7.8	9.3	10.7	12.3	13.6	14.4	14.9	14.8	14.6	13.6	9.8	5.2	2.3	0.9	-0.3	5.9	14.9	
21-Apr	-0.3	-0.6	-0.5	-1.2	-1.6	-1.8	1.5	5.9	8.3	11.0	12.2	13.3	13.8	14.4	16.0	15.7	16.4	15.8	13.3	10.7	10.7	7.9	3.4	1.0	7.7	16.4	
22-Apr	0.6	0.7	-0.7	-2.7	-2.6	-2.8	0.6	4.2	9.1	12.6	14.1	15.0	15.7	16.3	16.7	16.7	16.8	16.5	15.8	12.8	8.1	7.0	5.0	3.7	8.3	16.8	
23-Apr	0.6	-0.1	-1.3	0.1	1.0	1.6	2.4	5.5	8.6	11.2	12.8	13.9	14.6	15.4	15.0	15.8	16.4	15.4	14.0	12.0	9.0	7.1	5.5	4.0	8.3	16.4	
24-Apr	3.3	1.9	0.7	0.3	-0.3	0.3	3.1	6.9	10.2	12.6	14.5	16.3	17.4	18.5	18.6	18.6	18.2	17.1	16.2	15.5	15.0	12.4	10.5	7.9	10.7	18.6	
25-Apr	6.8	6.2	5.5	5.6	4.3	4.1	4.8	6.4	8.5	10.9	12.1	12.3	12.2	12.4	12.7	12.8	11.9	10.8	10.6	9.3	7.6	5.7	4.4	3.2	8.4	12.8	
26-Apr	1.6	1.3	0.5	0.7	0.7	0.0	-0.6	0.4	1.5	1.7	2.6	3.8	4.6	5.3	5.9	6.1	6.0	5.9	5.1	3.2	-0.2	-1.2	-2.4	-3.3	2.1	6.1	
27-Apr	-3.5	-4.1	-4.5	-5.0	-4.8	-4.3	-0.8	1.7	4.6	6.5	8.4	8.5	9.1	8.7	8.5	8.0	7.4	6.4	6.2	6.0	5.9	5.7	5.9	5.7	3.6	9.1	
28-Apr	3.6	3.3	3.1	3.2	3.7	4.1	4.6	5.3	6.4	7.8	8.3	9.0	10.0	8.8	10.8	11.1	10.9	10.9	9.7	7.5	6.2	4.9	3.6	2.8	6.6	11.1	
29-Apr	1.7	0.8	0.3	0.7	0.8	0.7	2.5	1.9	2.2	3.0	4.1	4.3	5.7	8.7	9.7	9.6	9.3	9.2	8.9	8.2	7.4	6.7	5.9	5.2	4.9	9.7	
30-Apr	4.4	3.8	3.5	2.9	2.1	1.6	1.4	1.5	1.7	1.9	2.4	2.7	3.2	3.9	4.9	5.4	5.9	6.0	6.1	5.8	5.5	5.3	4.0	2.7	3.7	6.1	
		1.2	0.7	0.2	0.0	-0.3	-0.5	0.2	1.9	3.8	5.1	6.1	7.1	7.5	8.1	8.7	9.0	9.0	8.6	7.8	6.3	4.9	3.7	2.9	1.9	Diurnal Average	
		7.3	6.5	6.3	5.6	5.6	5.8	6.1	6.9	10.2	12.6	14.5	16.3	17.4	18.5	18.6	18.6	18.2	17.1	16.2	15.5	15.0	12.4	10.5	8.0	Diurnal Maximum	
M - Maintenance																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Sawbones Bay - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	172	23.92	23.92
0 - 10	422	58.69	82.61
10 - 20	125	17.39	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 720





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

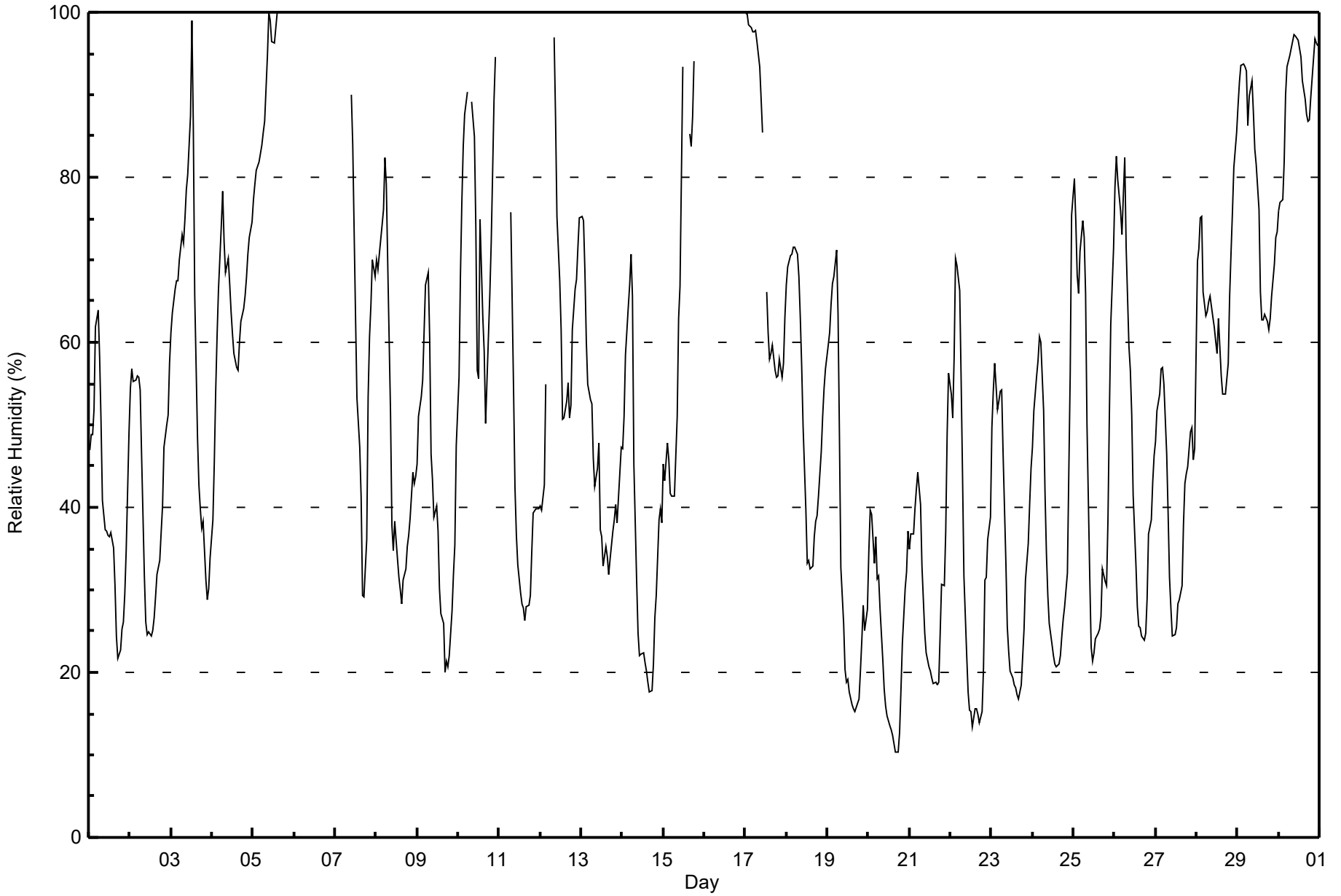
**Relative Humidity (RH) - %**  
**Sawbones Bay - April 2024**

Maximum Value: 100.0 % on Apr 5 10:00		Maximum Daily Average: 90.8 % on Apr 30		Hours in Service: 720																							
Minimum Value: 10.3 % on Apr 20 18:00		Minimum Daily Average: 23.7 % on Apr 20		Hours of Data: 632																							
Maximum Diurnal Average: 68.2 % at hour 6		Minimum Diurnal Average: 36.8 % at hour 17		Hours of Missing Data: 88																							
Monthly Average: 51.36 %		Percentiles: P <sub>1</sub> = 13.4 P <sub>10</sub> = 22.1 Q <sub>1</sub> = 31.8 Median = 50.6 Q <sub>3</sub> = 68.0 P <sub>90</sub> = 85.5 P <sub>99</sub> = 98.5		Hours of Calibration: 0																							
				Percent Operational Time: 87.8																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Apr	47.0	48.8	48.8	51.9	61.9	64.0	58.3	50.6	40.8	37.4	37.0	36.6	36.4	37.0	35.0	30.5	24.3	21.7	22.8	25.2	26.0	29.5	34.8	49.0	39.8	64.0	
2-Apr	54.3	56.7	55.2	55.4	55.9	55.7	54.2	46.5	31.8	26.1	24.5	25.0	24.3	25.0	26.6	29.1	31.9	33.5	37.0	40.1	47.3	49.9	51.1	57.5	41.4	57.5	
3-Apr	61.1	63.5	66.4	67.5	67.4	70.1	73.0	72.0	74.9	78.5	80.4	87.5	99.1	86.2	65.8	48.4	42.7	39.9	37.4	38.2	31.1	28.8	30.2	33.9	60.2	99.1	
4-Apr	38.4	45.5	54.1	60.9	66.4	74.1	78.3	72.2	68.4	70.2	67.2	63.8	61.1	58.6	56.9	56.6	60.1	62.5	64.0	65.6	67.9	70.7	72.7	74.5	63.8	78.3	
5-Apr	77.3	79.1	80.8	81.9	82.9	84.0	85.4	86.8	94.7	100.0	99.0	96.5	96.2	98.1	100.0	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	100.0	
6-Apr	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	--	
7-Apr	OR	OR	OR	OR	OR	OR	OR	OR	OR	90.1	83.8	73.4	63.0	53.3	47.3	41.2	29.3	29.2	36.1	53.4	60.6	64.5	69.9	68.0	--	90.1	
8-Apr	70.1	68.8	70.7	74.3	76.0	82.4	79.2	69.7	51.5	37.8	34.8	38.3	33.8	31.5	30.1	28.4	31.2	32.5	35.2	36.6	38.6	44.2	42.9	43.8	49.3	82.4	
9-Apr	45.3	50.9	53.4	55.5	61.2	67.0	68.4	60.6	46.4	43.4	38.8	40.2	37.0	30.1	27.1	26.0	19.9	21.4	20.7	22.0	27.4	31.8	35.3	47.5	40.7	68.4	
10-Apr	55.8	68.1	76.9	83.8	87.7	90.4	OR	OR	89.2	84.9	74.0	56.5	55.6	74.9	63.0	58.8	50.2	55.3	65.8	72.1	80.5	89.3	94.5	OR	72.7	94.5	
11-Apr	OR	OR	OR	OR	OR	OR	OR	75.7	54.1	42.3	36.6	33.1	29.6	28.3	27.7	26.3	28.0	28.2	29.3	34.6	39.3	39.7	39.9	39.8	--	75.7	
12-Apr	40.1	39.7	42.7	55.0	OR	OR	OR	OR	97.0	87.4	75.3	67.5	61.4	50.7	50.9	52.8	55.0	50.9	52.4	61.5	66.4	67.7	71.5	75.2	61.0	97.0	
13-Apr	75.3	74.7	68.6	60.1	55.0	53.0	52.5	46.0	42.6	44.7	47.9	37.3	36.5	32.9	35.2	34.0	31.9	33.7	37.1	38.5	40.4	38.2	41.2	47.3	46.0	75.3	
14-Apr	47.2	51.1	58.5	64.3	66.9	70.7	65.6	45.3	31.0	24.7	22.1	22.3	22.4	21.2	20.2	18.8	17.6	17.8	20.9	26.6	29.4	38.4	39.8	38.1	36.7	70.7	
15-Apr	45.2	43.1	47.8	45.7	41.7	41.3	41.3	46.2	51.0	62.9	66.8	93.4	OR	98.5	OR	85.3	83.7	87.3	94.1	OR	OR	OR	OR	OR	--	98.5	
16-Apr	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	--	
17-Apr	99.8	99.8	98.4	98.2	97.6	97.6	97.7	96.5	93.4	89.5	85.5	M	66.0	61.1	57.9	58.6	59.7	56.6	55.8	55.9	58.0	55.8	57.5	63.1	76.5	99.8	
18-Apr	67.0	69.1	70.4	70.6	71.5	71.4	70.7	68.0	63.1	57.1	49.8	39.6	33.2	33.5	32.6	32.9	36.5	38.3	38.9	41.4	46.8	51.1	54.4	56.8	52.7	71.5	
19-Apr	59.7	61.2	64.5	67.2	67.9	71.1	63.3	48.6	32.7	25.9	20.3	18.8	19.2	17.7	16.1	15.6	15.3	15.8	16.8	20.1	23.9	28.2	25.1	27.6	35.1	71.1	
20-Apr	34.6	39.6	39.1	33.1	36.4	31.4	31.6	27.8	21.5	18.0	16.0	14.7	13.6	13.1	12.4	11.3	10.4	10.3	12.7	18.0	23.5	30.1	32.1	37.1	23.7	39.6	
21-Apr	34.9	36.8	36.7	39.8	42.2	44.3	40.3	32.8	28.8	24.7	22.3	20.7	20.2	19.3	18.6	18.8	18.5	18.8	24.6	30.6	30.5	37.1	48.8	56.3	31.1	56.3	
22-Apr	53.7	50.8	58.1	70.2	69.4	66.2	55.5	44.1	31.8	22.0	17.6	15.5	15.3	13.3	15.6	15.5	14.9	13.9	15.3	20.6	31.2	31.5	36.1	38.8	34.0	70.2	
23-Apr	49.6	54.1	57.5	51.9	52.9	54.1	54.2	46.6	33.3	25.6	22.6	20.2	19.3	18.4	18.1	17.3	16.8	18.4	21.8	25.3	31.2	35.6	40.3	44.7	34.6	57.5	
24-Apr	47.2	51.8	56.0	57.8	60.7	59.9	51.6	41.7	34.4	29.4	26.0	23.3	22.1	21.0	20.7	21.0	22.0	24.4	26.4	28.0	32.0	44.2	56.0	75.5	38.9	75.5	
25-Apr	79.9	74.7	68.1	65.9	71.0	74.7	72.8	66.0	50.0	31.3	23.0	21.4	22.3	24.1	24.8	25.3	26.8	32.6	31.1	30.6	38.5	51.2	62.2	71.3	47.5	79.9	
26-Apr	78.9	82.6	79.6	75.9	73.1	77.7	82.3	71.5	59.5	56.7	51.2	41.5	33.1	28.0	25.6	25.5	24.4	24.0	24.8	29.1	36.9	38.4	43.0	46.2	50.4	82.6	
27-Apr	47.9	51.7	53.8	56.8	56.9	55.0	46.4	39.4	31.5	27.8	24.3	24.5	25.4	28.4	28.8	30.6	37.9	42.9	44.1	44.9	49.2	49.7	45.7	47.1	41.3	56.9	
28-Apr	69.8	71.4	75.1	75.2	66.0	63.2	63.7	64.9	65.6	63.0	61.8	60.1	58.6	62.9	55.9	53.8	53.8	53.7	57.5	65.7	70.8	75.8	81.3	85.5	65.6	85.5	
29-Apr	88.7	91.5	93.5	93.7	93.4	92.9	86.3	89.8	91.8	87.9	83.3	81.4	76.1	66.1	62.7	62.8	63.3	62.5	61.6	62.9	65.6	69.4	72.7	73.5	78.1	93.7	
30-Apr	75.9	77.0	77.4	81.8	90.0	93.3	94.7	95.6	96.5	97.2	97.1	96.7	95.5	94.5	91.7	89.5	87.7	86.7	87.0	89.7	94.4	96.7	96.3	95.9	90.8	97.2	
		59.4	61.6	63.5	65.2	66.9	68.2	65.3	60.2	55.8	53.1	49.6	46.3	43.6	43.8	39.5	37.6	36.8	37.5	39.7	41.4	45.7	49.5	52.9	55.8	Diurnal Average	
		99.8	99.8	98.4	98.2	97.6	97.6	97.7	96.5	97.0	100.0	99.0	96.7	99.1	98.5	100.0	89.5	87.7	87.3	94.1	89.7	94.4	96.7	96.3	95.9	Diurnal Maximum	
M - Maintenance		OR - Out of Range																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Sawbones Bay - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	43	6.80	6.80
20 - 40	200	31.65	38.45
40 - 60	159	25.16	63.61
60 - 80	146	23.10	86.71
80 - 100	82	12.97	99.68

Total Number of Valid Hours: 632

Total Number of Hours: 720



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Sawbones Bay - April 2024

Maximum Speed: 33 km/h on Apr 1 10:00	Maximum Daily Speed Average: 20.9 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 0 km/h on Apr 3 06:00	Minimum Daily Speed Average: 3.5 km/h on Apr 15	Hours of Data: 720
Maximum Diurnal Speed Average: 5.5 km/h at hour 12	Minimum Diurnal Speed Average: 0.5 km/h at hour 1	Hours of Missing Data: 0
Monthly Average Velocity: 2.9 km/h 325.8 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 11 Q <sub>3</sub> = 16 P <sub>90</sub> = 20 P <sub>99</sub> = 27	Percent Operational Time: 100.0

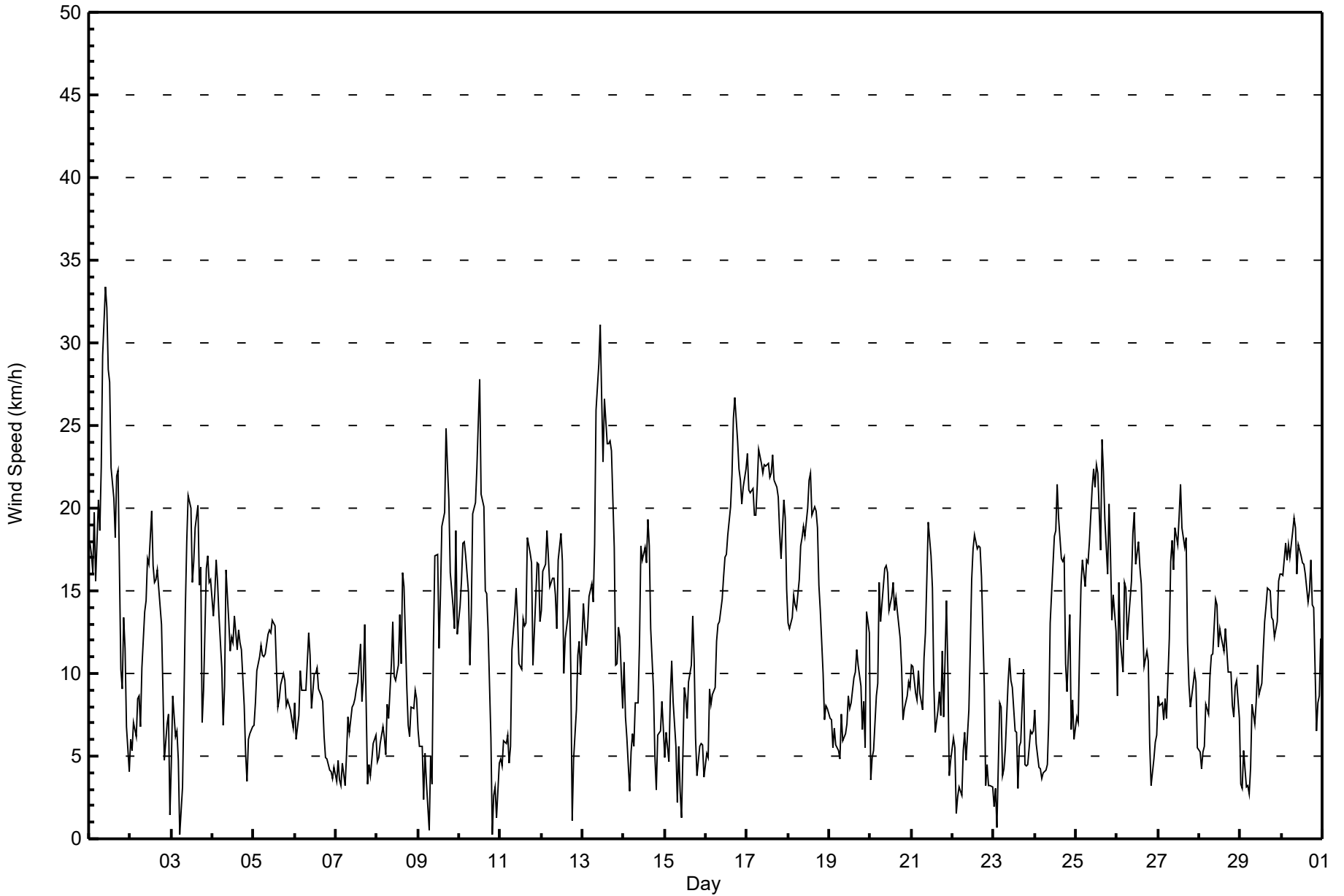
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	S18	SSW17	SW16	WNW20	NW16	WNW21	WNW19	WNW22	WNW29	WNW33	WNW32	NW28	NW28	NW22	WNW21	WNW18	WNW22	WNW22	WNW10	WNW9	WNW13	WNW12	WNW7	SSW4	WNW16.4	WNW33
2-Apr	S6	S5	SSE7	SSE6	SSE8	SSE9	SE7	SSE10	SSE14	SSE14	S17	S17	S20	SSW16	S15	S16	S16	S14	SSE13	SE9	ESE5	ESE7	SE8	ESE1	SSE10.3	S20
3-Apr	NE5	ESE9	ESE6	ESE7	E5	WNW0	NNW3	WNW8	NNW14	NW18	NW21	WNW20	WNW16	WNW17	W19	WNW20	WNW15	WNW16	W7	SW9	W16	WNW17	WNW16	WNW16	WNW9.2	NW21
4-Apr	W13	W15	W17	WNW16	WNW13	WNW10	WNW7	NNW9	NNW16	NNW13	N11	N12	N12	NNE13	NNE11	NNE13	NNE12	NNE11	NNE8	NNE5	NE3	NE6	NE6	NE7	NNW7.8	W17
5-Apr	NE7	NE8	NNE10	NNE11	NNE12	NNE11	NNE11	NNE12	NNE13	NNE12	NNE13	NNE13	NNE10	NE8	NNE8	NNE9	N10	N10	NNE8	N8	N8	N7	NNW7	NNE9.7	NNE13	
6-Apr	N8	N6	N7	N10	NNE9	NNE9	N9	N11	N12	NNE11	N8	N10	NNE10	N10	N9	NNE9	NNE8	N6	NNW5	NNW5	NNW4	NNW4	NNW4	NNW4	N7.7	N12
7-Apr	NNW4	NNW5	NW4	S3	SSW5	WSW3	S5	S7	S6	SSW8	SSW8	SSW8	SW9	SSW9	SSE12	S8	WSW10	WNW13	W3	SE4	SSE4	SSE5	SSE6	S6	SSW4.3	WNW13
8-Apr	SSE5	SSE5	S6	S7	SSE6	ESE5	SE8	SSE7	SSE11	SSE13	SW10	WSW10	SSW11	SSW14	S11	S16	S15	S9	S7	SSE6	SE8	S8	SSE9	SE8	S7.9	S16
9-Apr	SE7	SSE6	S6	NE2	E5	S3	S0	SSE5	WSW3	WNW12	WNW17	WNW17	W12	W15	WNW19	WNW20	W25	W23	WNW20	W16	WNW14	WNW13	W19	W12	W9.8	W25
10-Apr	WSW14	WSW16	WSW18	W18	WNW17	WNW15	NW10	NW14	NW20	NW20	NW22	NW25	NNW28	NNW21	NNW20	NNW15	NNW15	N13	NNE6	S0	SE3	S3	SSE1	SSE5	NW11.2	NNW28
11-Apr	SSE5	SSE4	SSE6	SSE6	SSE6	SE5	SE6	SSE11	SSE14	S15	S13	S11	SSE10	SE13	SE13	SSE13	SE18	SE17	SSE17	SE11	SE13	SE17	SSE17	SE13	SSE11.0	SE18
12-Apr	SSE14	SSE16	SSE17	S19	SSE17	SE15	SE16	SE16	SE15	SE13	SE17	SE18	SE17	SSE10	WSW12	W13	WNW15	W10	W1	SE5	SSE8	SSW11	SSW12	SSW10	SSE9.3	S19
13-Apr	SW14	SW13	SW12	SW13	SW15	SW15	WSW14	WSW18	W26	W29	WNW31	WNW27	WNW23	WNW27	WNW24	WNW24	WNW24	WNW23	WNW18	WNW10	WNW11	W13	W12	SW8	W16.2	WNW31
14-Apr	WSW11	SW7	S6	SE3	SSE5	SSE6	SSE6	SE8	SSW8	SW12	SW18	SW17	WSW18	WSW17	WSW19	W18	SW13	SW9	SSW5	ENE3	ESE6	ESE7	ESE8	ESE7	SW6.6	WSW19
15-Apr	ESE5	SE6	SSE5	SSE9	SSE11	SSE8	SE6	ESE2	S6	SW3	NW1	N9	NNE9	N7	NNE10	E10	E13	E11	ENE6	NE4	NNE6	NNE6	NNE6	N4	E3.5	E13
16-Apr	N5	NNW5	NNW9	NNW8	N9	NW9	NNW12	NNW13	NNW13	N14	N16	N17	N17	N18	N20	N22	N25	N27	N24	N22	N22	N20	N21	N22	N16.2	N27
17-Apr	N23	N21	N21	N21	N20	NNW20	NNW21	N24	N23	N22	N23	N23	N23	N22	N22	N23	N22	N21	N21	N19	N17	N21	N19	N15	N20.9	N24
18-Apr	N13	N13	N13	N15	N14	N14	N16	N18	N18	N19	N18	N20	N22	N22	N20	N20	N20	N19	N15	N14	NNE10	N7	N8	N8	N15.6	N22
19-Apr	N7	N7	NNW6	NW7	NW6	NW5	NW5	N8	NW6	NW6	NNW7	NNW9	WNW8	WNW8	WNW10	NW10	WNW11	NW11	NNW9	NW7	WNW8	WSW6	W14	WSW12	NW6.9	W14
20-Apr	SW4	S5	SSW5	SW9	SW9	WSW16	W13	W14	W16	W17	W16	W14	WSW15	SW16	SW14	SW15	SW14	SW12	SSW10	SSW7	S8	S9	S10	SSE9	SW9.6	W17
21-Apr	SSE11	S10	SSE9	SE8	SE10	ESE9	SE8	SSE11	SE12	SE16	SE19	SE17	SE15	SE9	SSE6	SSE8	S9	SSE7	SSW11	SSW7	W14	WNW10	NW4	NW5	SSE7.3	SE19
22-Apr	N6	NNW6	NW2	S3	WNW3	SW3	W5	WNW6	NW5	NNW8	N12	N16	N18	NNW18	N18	NNE18	N18	N16	NNE9	NNE3	NNE4	ENE3	NE3	NE3	N7.2	NNW18
23-Apr	SSE2	NW3	W1	N8	NNE8	NE4	NE4	NNE5	NE9	NE11	NNE10	NNE9	N7	E6	ENE3	ESE6	E6	NNE10	NE4	E4	ENE4	E7	E6	E7	NE4.9	NE11
24-Apr	E8	E6	NE4	NE4	ENE4	ENE4	NE5	NE7	E13	E15	ESE18	E19	ESE21	ESE19	ESE17	ESE17	E17	ESE11	SSE9	SW14	NW7	NW8	E6	E6	E8.1	ESE21
25-Apr	NW7	NW7	WNW12	W15	W17	WSW15	W17	W17	W18	WNW21	WNW22	W21	WNW23	W22	WNW17	W24	W22	WSW19	W16	WNW20	NW17	NW13	WNW15	NW13	W16.4	W24
26-Apr	NW9	N16	N12	NNW10	NW16	NNW15	NNW12	NW13	NW16	NW19	NNW20	NNW17	N18	N16	NNW15	N13	NE10	NNE11	NNE11	NNE6	NE3	E5	E6	E6	N10.5	NNW20
27-Apr	ESE9	ESE8	ESE8	ESE7	SE8	SSE7	SSE12	SSE17	SSE18	SSE16	SSE19	SSE18	SSE19	SSE21	SSE19	SSE18	S18	SE12	SE9	SE8	SE9	ESE10	SE10	ESE6	SSE12.2	SSE21
28-Apr	NE5	NE4	NE5	E6	ESE8	SE8	SE10	SE11	SE11	SE15	SE14	SE12	ESE13	SE12	SE11	SSE13	SE11	SSE10	SE10	E8	E7	E9	E10	E7	ESE8.8	SE15
29-Apr	ENE3	ENE3	E5	E3	E3	E3	NE4	NNE8	NNE7	NNE8	NNE11	NNE9	NNE9	NNE11	NNE13	NNE14	NNE15	NNE15	N13	N13	N12	N13	NNE16	NNE16	NNE9.0	NNE16
30-Apr	NNE16	NNE16	NNE18	NNE17	N18	N17	N19	N19	N19	NNE16	NNE18	NNE17	NNE17	N17	N16	N14	N15	N17	N14	N14	NNE7	NNE8	N9	N12	N15.2	N19
NNW0.5 NNW0.7 WNW1.0 NW1.9 NW1.6 NW2.0 NNW2.1 NW2.5 NW3.8 NW4.5 NW5.2 NNW5.5 NNW4.9 NW4.2 NW4.5 NW4.2 NW4.1 NNW4.7 NNW3.0 N2.4 NNW2.4 NNW2.0 NNW1.7 N1.6																								Diurnal Average		
N23 N21 N21 N21 N20 WNW21 NNW21 N24 WNW29 WNW33 WNW32 NW28 NNW28 WNW27 WNW24 W24 N25 N27 N24 N22 N22 N21 N21 N22																								Diurnal Maximum		

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Sawbones Bay - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	105	14.58	14.58
6 - 11	267	37.08	51.67
12 - 19	264	36.67	88.33
20 - 28	79	10.97	99.31
29 - 38	5	0.69	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 720

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Sawbones Bay - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2	4	18	9	7	5	5	12	9	4	3	2	4	2	8	11	105
6 - 11	29	42	10	1	17	19	27	36	19	12	8	4	2	15	13	13	267
12 - 19	55	24	0	0	5	5	24	24	13	4	16	15	29	27	10	13	264
20 - 28	34	0	0	0	0	1	0	1	1	0	0	0	7	21	8	6	79
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	120	70	28	10	29	30	56	73	42	20	27	21	43	69	39	43	720

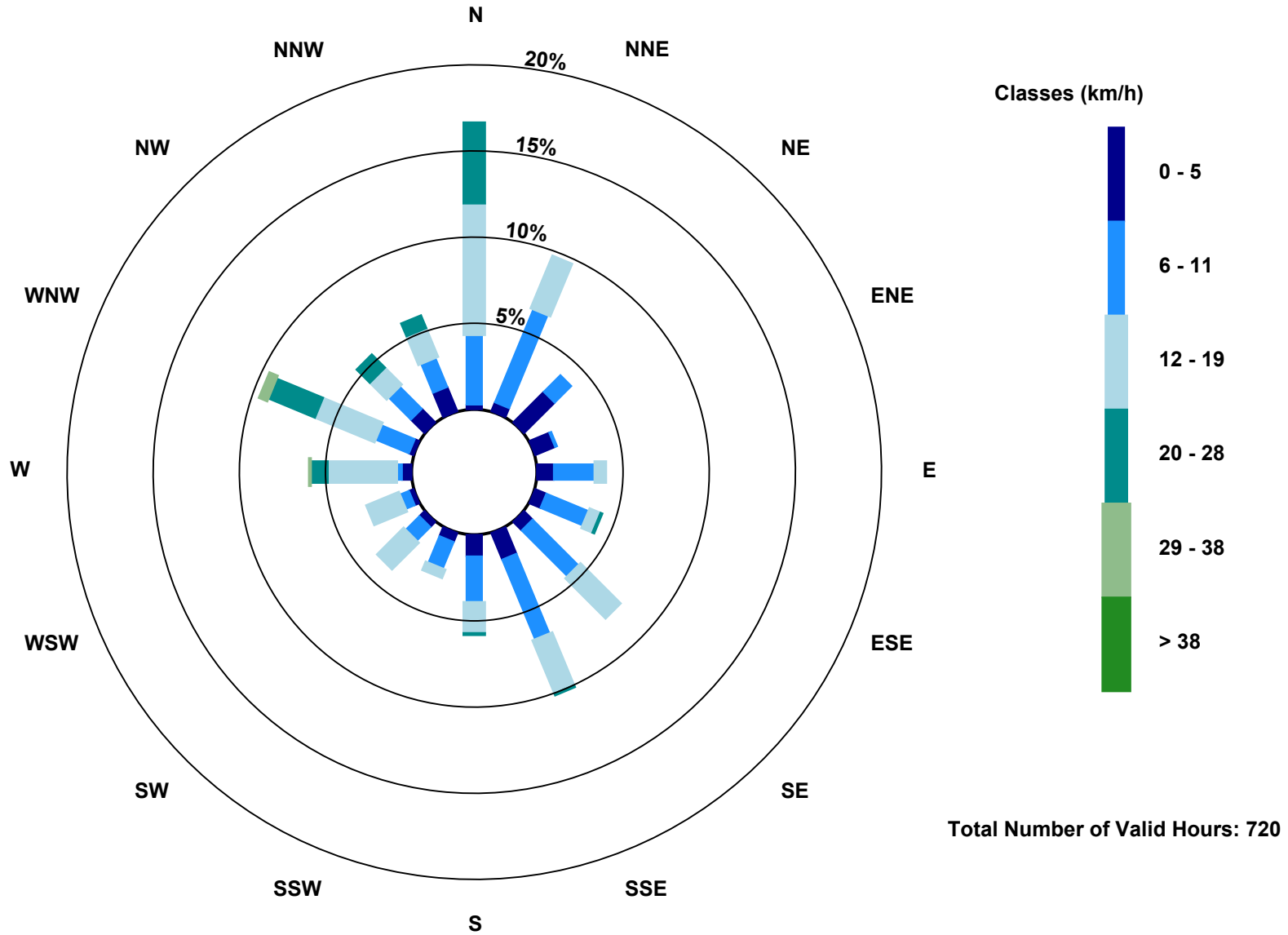
Total Number of Valid Hours: 720

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Sawbones Bay







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Sawbones Bay - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Apr 24 23:00 Minimum Value: 0 km/h on Apr 21 00:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Apr	5	5	4	5	4	6	5	6	6	7	7	6	7	6	6	6	6	6	4	2	2	2	3	2	7
2-Apr	1	1	1	1	1	1	1	3	4	3	4	5	5	5	4	4	4	3	3	2	1	2	2	3	5
3-Apr	2	2	2	2	2	2	3	2	5	5	4	4	4	3	4	5	4	4	2	2	5	3	3	5	
4-Apr	3	3	3	3	2	3	2	3	4	3	3	3	3	3	4	4	4	2	2	2	1	2	2	2	4
5-Apr	2	2	2	2	3	3	2	3	2	3	3	3	3	4	3	2	2	2	2	2	2	2	2	4	
6-Apr	2	1	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	3	
7-Apr	2	2	3	1	1	2	2	2	2	2	3	2	2	3	3	3	4	4	3	2	1	1	2	4	
8-Apr	1	1	2	1	2	2	1	1	2	3	5	3	3	5	3	5	5	3	2	2	1	2	1	5	
9-Apr	2	3	2	2	1	2	2	1	4	3	4	5	5	5	5	6	6	5	5	4	3	3	3	6	
10-Apr	4	5	6	4	4	3	2	3	4	5	5	6	8	5	5	5	4	6	2	1	1	2	1	8	
11-Apr	1	1	1	1	1	1	1	2	3	4	4	5	5	5	5	4	6	5	4	2	3	4	4	6	
12-Apr	4	4	4	5	4	4	5	4	5	4	4	5	4	4	5	4	4	4	3	2	1	2	3	5	
13-Apr	4	3	3	3	3	4	4	5	6	6	7	6	5	7	6	5	5	5	5	2	3	2	3	7	
14-Apr	3	2	2	1	2	1	1	2	3	4	5	6	6	6	6	6	5	4	3	1	2	1	2	6	
15-Apr	2	2	2	3	2	1	2	2	1	3	2	3	2	2	2	4	4	3	3	1	1	1	1	4	
16-Apr	1	2	2	1	2	2	2	3	3	3	3	4	4	4	4	5	6	6	5	5	5	5	4	6	
17-Apr	5	5	5	5	5	4	5	5	5	5	5	5	5	6	5	6	5	5	5	5	4	5	5	6	
18-Apr	3	3	3	3	3	3	4	4	3	4	4	5	5	5	5	5	5	4	4	3	2	1	1	5	
19-Apr	1	1	1	1	1	1	1	2	2	3	3	3	4	4	4	4	4	3	2	1	1	5	4	5	
20-Apr	2	1	1	4	4	5	4	3	4	3	4	4	5	5	4	4	4	3	3	1	1	1	1	5	
21-Apr	1	1	1	1	2	1	2	3	3	5	5	5	5	5	4	5	5	3	4	3	3	2	2	5	
22-Apr	1	1	1	2	1	1	3	2	2	3	4	5	5	6	5	6	4	5	3	2	2	1	1	6	
23-Apr	2	2	2	1	1	1	2	2	2	3	3	4	4	3	2	2	3	3	2	2	1	2	2	4	
24-Apr	2	2	1	1	1	1	2	2	3	5	5	6	5	5	5	4	5	4	6	6	5	9	2	9	
25-Apr	4	1	4	3	3	3	3	4	4	4	5	6	5	6	4	6	7	6	6	5	4	4	3	7	
26-Apr	2	4	3	3	4	4	3	4	4	5	5	5	6	5	5	4	4	3	3	2	1	2	2	6	
27-Apr	1	1	1	1	2	1	3	4	4	4	4	6	5	6	5	5	6	4	2	2	2	2	3	6	
28-Apr	1	1	1	1	1	2	2	3	3	4	4	3	5	3	4	4	3	3	3	2	2	2	2	5	
29-Apr	1	1	1	1	1	2	2	2	2	2	3	2	3	3	3	4	3	3	3	3	2	3	3	4	
30-Apr	3	3	4	4	4	4	5	4	5	4	4	4	4	3	4	3	4	4	4	3	3	3	2	5	
Diurnal Maximum																									



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

**Wind Direction (WD) - deg**  
**Sawbones Bay - April 2024**

Direction of Maximum Speed: 291 deg on Apr 1 10:00 Direction of Maximum Daily Speed Average: 358.8 deg on Apr 17	Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0
Direction of Minimum Speed: 292 deg on Apr 3 06:00 Direction of Minimum Daily Speed Average: 3.5 deg on Apr 15	Percent Operational Time: 100.0
Monthly Average Direction: 325.8 deg	

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-Apr	188	201	217	288	307	288	287	283	291	291	303	309	321	318	297	295	293	293	301	295	288	288	286	196	289.2
2-Apr	174	172	164	154	156	153	133	158	167	162	175	183	185	195	191	180	173	169	162	144	110	117	142	106	167.7
3-Apr	55	108	116	110	94	292	331	299	335	324	308	300	298	285	263	291	300	295	278	221	268	286	285	287	294.1
4-Apr	277	276	267	287	292	296	298	334	343	339	359	8	11	18	28	13	26	22	21	18	41	38	39	36	342.2
5-Apr	46	36	26	28	25	27	22	29	20	22	22	28	28	32	34	24	13	10	10	15	359	354	0	348	21.0
6-Apr	6	7	353	4	20	13	1	357	6	14	357	10	21	7	6	30	21	6	344	335	338	333	342	335	4.7
7-Apr	328	327	326	170	195	249	173	177	188	203	205	207	215	195	158	178	252	289	281	124	151	158	163	172	201.8
8-Apr	166	166	170	170	163	114	126	148	156	160	216	250	205	195	189	190	190	179	171	147	146	171	156	144	174.1
9-Apr	136	167	181	44	98	176	178	160	250	292	298	290	272	261	283	287	273	272	286	273	287	283	259	267	273.2
10-Apr	255	258	255	266	293	300	305	311	313	316	310	326	332	343	347	333	334	4	24	171	136	180	148	165	311.4
11-Apr	166	163	168	157	154	128	133	159	168	173	173	177	167	139	137	157	128	146	156	146	143	146	147	144	152.5
12-Apr	150	148	159	173	161	140	132	132	137	136	142	136	140	164	254	281	284	276	260	128	155	192	211	207	164.0
13-Apr	221	215	218	216	218	223	246	241	268	281	293	297	290	285	285	282	295	297	293	297	285	274	262	235	271.0
14-Apr	250	231	182	137	158	162	157	169	207	223	223	228	250	256	256	260	236	231	210	69	106	104	107	102	220.0
15-Apr	116	130	148	160	154	154	144	112	174	220	313	6	21	0	18	86	93	93	77	49	27	29	26	349	84.6
16-Apr	1	343	338	332	349	323	339	345	346	352	353	356	354	350	356	353	359	359	357	352	355	357	356	358	352.3
17-Apr	359	357	357	355	351	347	348	349	352	358	357	360	358	1	354	3	7	3	9	11	6	5	7	1	358.8
18-Apr	356	355	357	356	356	359	354	350	358	358	351	353	358	0	3	358	360	357	4	9	18	10	354	2	358.4
19-Apr	359	353	337	321	326	304	304	349	322	306	343	347	287	283	303	305	298	320	328	317	301	245	267	255	309.1
20-Apr	216	184	208	236	235	258	261	273	270	271	267	273	258	229	227	222	224	219	211	193	184	170	169	163	235.6
21-Apr	167	169	157	140	124	121	136	152	136	135	132	135	128	132	151	153	175	153	200	208	273	289	314	313	153.4
22-Apr	359	327	312	185	289	226	271	285	309	337	353	8	10	345	359	17	6	3	24	26	26	59	36	43	357.7
23-Apr	153	311	270	359	12	40	34	27	38	44	32	27	6	79	72	109	94	25	35	83	73	87	88	86	46.3
24-Apr	99	92	42	49	55	67	67	54	55	86	98	103	97	109	114	111	110	100	114	153	216	323	307	82	99.7
25-Apr	309	316	294	279	265	257	267	268	272	293	284	278	287	280	282	269	267	239	259	289	304	308	302	305	279.8
26-Apr	308	359	354	329	322	334	336	325	325	325	336	334	355	357	343	6	36	16	26	32	45	91	97	95	349.5
27-Apr	112	116	120	120	137	150	160	159	159	152	166	159	152	160	158	163	172	137	128	130	128	117	131	122	148.3
28-Apr	53	56	56	98	115	130	138	137	133	134	131	134	119	128	139	148	138	152	125	93	92	95	96	101	121.7
29-Apr	76	64	98	79	79	92	37	22	16	12	18	27	27	27	27	18	18	17	5	1	0	10	16	15	21.2
30-Apr	19	14	15	14	2	8	10	9	9	18	23	15	16	5	4	355	357	350	349	359	22	12	7	5	8.1

335.1 328.6 291.9 311.2 323.4 309.7 326.4 316.9 317.9 319.8 317.5 329.1 335.5 324.0 318.4 315.2 320.0 331.7 343.1 352.4 329.7 345.3 334.1 357.3

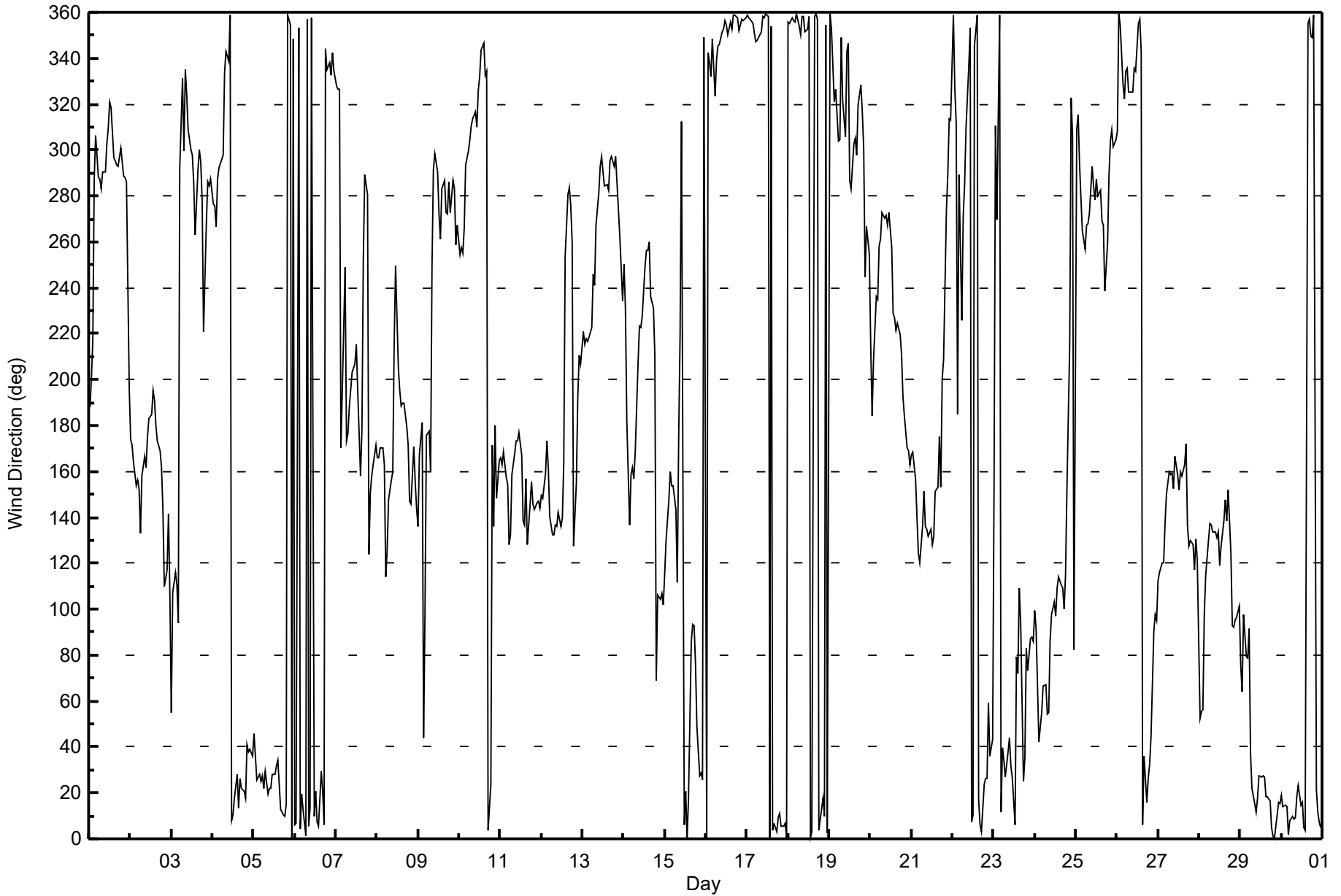
Diurnal Average

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



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Sawbones Bay - April 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Sawbones Bay - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 92 deg on Apr 3 06:00											Hours in Service: 720 Hours of Data: 720 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0														
Minimum Value: 3 deg on Apr 8 04:00																									
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 12 Q <sub>1</sub> = 15 Median = 17 Q <sub>3</sub> = 24 P <sub>90</sub> = 35 P <sub>99</sub> = 85																									
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-Apr	16	17	19	27	18	11	14	17	13	14	17	16	18	21	16	18	14	15	12	9	8	11	16	36	36
2-Apr	14	16	5	12	8	10	15	11	13	14	17	19	17	21	17	16	15	13	11	15	21	18	18	89	89
3-Apr	29	14	17	18	28	92	75	18	21	19	14	13	13	15	13	13	19	14	40	14	21	11	12	11	92
4-Apr	15	15	15	11	10	11	11	19	18	22	29	23	23	22	27	21	24	14	18	35	31	23	24	20	35
5-Apr	27	20	13	16	15	16	13	15	14	13	14	15	15	21	20	15	16	15	15	13	14	15	17	15	27
6-Apr	16	18	14	15	15	15	16	15	17	16	22	19	18	18	21	20	18	22	17	11	13	14	37	13	37
7-Apr	25	26	28	41	29	36	32	22	20	17	19	20	22	22	22	39	29	25	82	30	20	12	17	13	82
8-Apr	15	9	6	3	21	34	12	13	14	17	35	33	25	24	24	19	17	22	15	20	16	13	11	28	35
9-Apr	18	45	37	67	15	66	91	15	72	13	16	27	43	29	21	18	18	17	11	17	12	15	10	19	91
10-Apr	15	17	18	14	13	13	12	13	14	15	14	16	16	17	20	18	21	31	17	91	31	25	56	10	91
11-Apr	7	13	9	9	5	13	14	10	15	19	21	35	41	26	27	26	20	20	14	13	16	15	16	16	41
12-Apr	15	16	14	14	18	18	19	21	20	21	18	20	21	32	35	29	20	28	90	42	10	17	14	14	90
13-Apr	15	14	16	15	14	17	17	20	17	16	13	16	16	18	16	14	15	14	11	9	10	12	15	18	20
14-Apr	16	23	21	36	23	9	10	15	22	24	29	22	30	34	28	25	32	37	44	39	17	10	9	12	44
15-Apr	34	23	16	8	11	15	26	51	18	65	85	19	22	18	13	30	20	21	34	28	13	17	13	16	85
16-Apr	16	13	12	13	14	13	12	13	15	15	17	18	15	16	17	17	18	18	17	16	16	17	17	17	18
17-Apr	18	17	17	18	17	16	16	16	17	17	17	18	17	18	19	18	18	17	17	15	15	16	17	15	19
18-Apr	14	14	15	16	16	15	15	15	16	19	17	19	20	18	18	19	20	19	17	15	11	12	10	9	20
19-Apr	10	7	10	7	7	9	18	19	41	40	50	42	61	54	35	37	25	28	12	11	8	41	13	15	61
20-Apr	51	34	29	26	28	14	17	15	17	20	23	26	33	24	26	22	20	20	14	10	12	6	5	4	51
21-Apr	5	4	6	13	12	11	16	18	20	23	22	25	24	69	70	64	42	49	28	34	16	8	71	17	71
22-Apr	11	14	69	40	13	43	19	16	42	36	32	30	23	22	25	21	21	18	15	19	16	26	16	32	69
23-Apr	87	47	84	11	11	21	36	63	25	32	31	38	65	60	72	38	55	16	24	39	24	26	25	25	87
24-Apr	18	27	32	31	32	33	32	38	33	28	26	20	23	20	19	16	20	35	53	45	69	90	39	39	90
25-Apr	32	16	11	12	12	11	17	15	17	15	17	22	20	19	19	20	22	25	33	12	12	12	11	11	33
26-Apr	25	16	16	16	15	20	15	16	18	17	22	24	23	23	29	33	32	24	17	19	30	33	23	23	33
27-Apr	12	11	12	15	16	11	12	14	15	21	24	21	23	17	19	19	20	18	18	16	17	15	16	40	40
28-Apr	27	33	19	15	13	16	16	17	19	20	20	25	26	23	33	24	26	27	22	19	20	20	17	21	33
29-Apr	38	43	19	26	38	23	26	18	23	24	18	23	20	22	23	18	17	15	16	14	14	16	13	17	43
30-Apr	13	13	14	15	16	15	15	16	17	14	15	15	16	16	17	17	17	16	15	16	38	28	14	15	38
											87 47 84 67 38 92 91 63 72 65 85 42 65 69 72 64 55 49 90 91 45 69 90 89														
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS507**  
**KIRBY SOUTH**  
**APRIL 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

May 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS 507)  
 APRIL 2024

MONTHLY SUMMARY

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	678	34	42	98.89	5.8	0	0.9	0
H2S (ppb) Average	676	36	44	98.89	1.8	0	1	0
THC (ppm) Average	678	34	42	98.89	3	-	2.5	-
NO2 (ppb) Average	675	37	45	98.89	47.3	0	21.6	-
NO (ppb) Average	675	37	45	98.89	154.1	-	53.5	-
NOX (ppb) Average	675	37	45	98.89	200.4	-	75.2	-
Temperature 2 m (C) Average	712	0	8	98.89	18.5	-	11.7	-
Relative Humidity (%) Average	712	0	8	98.89	99.7	-	97	-
Wind Speed 10 m (km/h) Average	711	0	9	98.75	30	-	21	-
Wind Direction 10 m (deg) Average	711	0	9	98.75	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH(AMS507)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	678	0.38	0.5	-	0	0	0.1	0.3	0.5	0.8	5.8
H2S (ppb) Average	676	0.13	0.2	-	0	0	0	0.1	0.1	0.2	1.8
THC (ppm) Average	678	2.34	0.1	-	2.2	2.2	2.3	2.3	2.4	2.5	3
NO2 (ppb) Average	675	2.52	5.4	-	0	0.5	0.7	1.1	1.6	3.3	47.3
NO (ppb) Average	675	3.83	16	-	0	0	0	0	0.1	1.4	154.1
NOX (ppb) Average	675	6.35	21.2	-	0.2	0.5	0.7	1.1	1.8	4.5	200.4
Temperature 2 m (C) Average	712	4.43	5.2	-	-9.3	-1.9	0.5	4.2	7.8	11.5	18.5
Relative Humidity (%) Average	712	53.26	25.4	-	11.1	22.5	31.9	48.8	72.5	94.8	99.7
Wind Speed 10 m (km/h) Average	711	13.1	5	-	1	7	9	12	17	20	30
Wind Direction 10 m (deg) Average	711	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS507)  
APRIL 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	05 Apr 2024 09:00	05 Apr 2024 16:00	8	DAS Failure - data not recorded
Wind Speed, Wind Direction	07 Apr 2024 06:00	07 Apr 2024 06:00	1	DAS Failure - data not recorded



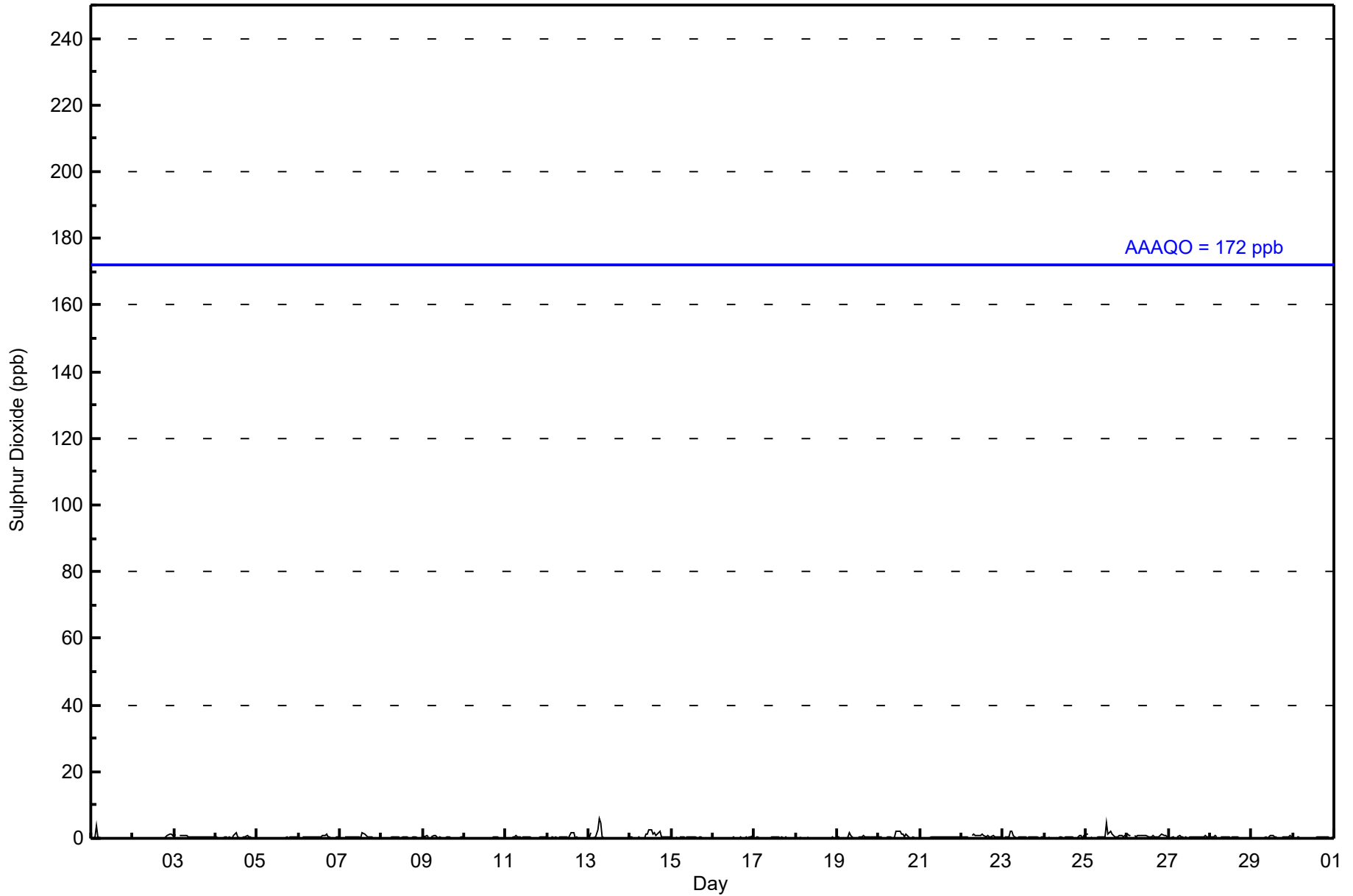


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720																											
Maximum Value: 5.8 ppb on Apr 13 07:00		Maximum Daily Average: 0.9 ppb on Apr 25																			Hours of Data:	678																											
Minimum Value: 0.0 ppb on Apr 1 17:00		Minimum Daily Average: 0.1 ppb on Apr 10																			Hours of Missing Data:	42																											
Maximum Diurnal Average: 0.7 ppb at hour 13		Minimum Diurnal Average: 0.3 ppb at hour 20																			Hours of Calibration:	34																											
Monthly Average: 0.38 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.2																			Percent Operational Time:	98.9																											
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-Apr	Z	0.2	0.3	3.8	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.3	0.3																							
2-Apr	0.2	Z	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.4	0.9	1.2	1.2	0.9	0.3	1.2																							
3-Apr	1.1	1.0	Z	0.6	0.7	0.7	0.7	0.7	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4	1.1																							
4-Apr	0.2	0.1	0.1	Z	0.2	0.3	0.3	0.2	0.3	0.2	0.9	1.1	1.5	0.6	0.2	0.2	0.2	0.5	0.9	0.3	0.2	0.2	0.1	0.1	0.4	1.5																							
5-Apr	0.2	0.2	0.1	0.0	Z	0.0	0.0	0.1	DF	DF	DF	DF	DF	DF	DF	DF	0.1	0.2	0.1	0.3	0.5	0.2	0.4	0.4	--	0.5																							
6-Apr	0.5	Z	0.6	0.6	0.4	0.2	0.2	0.4	0.6	0.5	0.3	0.6	0.6	0.3	0.9	1.0	1.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.5	1.2																							
7-Apr	0.1	0.2	Z	0.3	0.3	0.3	0.4	0.3	0.5	0.3	0.4	0.3	0.2	1.5	1.4	0.7	0.5	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.4	1.5																							
8-Apr	0.1	0.0	0.0	Z	0.1	0.2	0.5	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.4	0.3	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.5																							
9-Apr	0.8	0.6	0.6	0.5	Z	0.6	0.7	0.8	0.5	0.2	0.2	0.1	0.1	0.1	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.3	0.8																							
10-Apr	0.0	0.0	0.0	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	0.1	0.3	0.6	0.6	0.2	0.1	0.1	0.1	0.1	0.6																							
11-Apr	Z	0.1	0.0	0.2	0.2	0.4	0.8	0.5	0.5	0.2	0.2	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.2	0.1	0.4	0.4	0.3	0.3	0.3	0.8																							
12-Apr	0.5	Z	0.5	0.3	0.1	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.7	1.8	1.7	0.2	0.5	0.1	0.1	0.0	0.1	0.0	0.0	0.4	1.8																							
13-Apr	0.5	1.5	Z	0.2	0.1	2.5	5.8	4.8	0.3	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.7	5.8																							
14-Apr	0.2	0.3	0.2	Z	0.1	0.2	0.1	0.2	0.2	1.4	1.4	2.5	2.7	1.3	1.5	0.8	1.3	2.0	0.5	0.3	0.3	0.3	0.4	0.3	0.8	2.7																							
15-Apr	0.3	0.2	0.1	0.3	Z	0.5	0.4	0.3	0.1	0.2	0.3	0.5	0.5	0.3	0.3	0.2	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.5																							
16-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.1	0.1	0.2	0.3	0.2	0.1	0.4	0.1	0.4	0.6	0.7	0.2	0.7																							
17-Apr	Z	0.5	0.6	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.4	0.4	0.3	0.6	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.6																							
18-Apr	0.1	Z	0.4	0.2	0.1	0.0	0.1	0.2	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.1	0.1	0.4	0.4																							
19-Apr	0.3	0.2	Z	0.1	0.2	0.2	0.3	1.6	1.1	0.0	0.0	0.0	0.2	0.2	0.4	0.7	0.6	0.6	0.4	0.4	0.5	0.5	0.5	0.5	0.4	1.6																							
20-Apr	0.4	0.4	0.5	Z	0.1	0.3	0.5	0.3	0.2	0.2	1.9	1.9	2.1	1.3	1.2	0.6	1.1	0.3	0.1	0.1	0.4	0.1	0.2	0.1	0.6	2.1																							
21-Apr	0.0	0.0	0.0	0.0	Z	0.2	0.5	0.5	0.6	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.6																							
22-Apr	0.4	0.4	0.5	0.3	0.4	Z	0.7	1.1	0.8	0.8	1.0	0.8	1.2	0.7	0.6	0.7	0.5	0.6	0.7	0.5	0.3	0.4	0.4	0.4	0.6	1.2																							
23-Apr	Z	0.2	0.3	0.3	2.0	1.9	0.9	0.4	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.4	2.0																							
24-Apr	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.4	0.4	0.2	0.1	0.1	0.9	0.9	0.2	0.6	0.3	0.9																							
25-Apr	1.1	1.4	Z	0.4	0.2	0.2	0.1	0.4	0.5	0.4	0.5	0.6	4.6	1.1	2.0	1.3	0.8	0.3	0.3	0.7	0.6	0.8	0.5	1.1	0.9	4.6																							
26-Apr	1.3	0.7	0.8	Z	1.0	0.4	0.7	1.0	0.6	0.7	0.9	0.7	0.6	0.6	0.5	0.8	0.3	0.4	0.4	0.8	1.1	1.0	1.0	0.5	0.7	1.3																							
27-Apr	0.1	0.1	0.3	0.3	Z	0.3	0.6	0.5	0.5	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.4	0.5	0.4	0.3	0.5	0.7	0.4	0.5	0.4	0.7																							
28-Apr	0.6	0.5	0.6	0.7	0.6	Z	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.4	0.5	0.5	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.7																							
29-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.5	0.8	1.0	0.5	0.6	0.1	0.0	0.1	0.4	0.3	0.5	0.5	0.7	0.2	0.3	1.0																							
30-Apr	0.4	Z	0.5	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.3	0.2	0.4	0.4	0.4	0.2	0.3	0.2	0.1	0.3	0.2	0.5																							
																								0.4	0.4	0.3	0.4	0.3	0.4	0.5	0.5	0.3	0.3	0.4	0.5	0.7	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Diurnal Average
																								1.3	1.5	0.8	3.8	2.0	2.5	5.8	4.8	1.1	1.4	1.9	2.5	4.6	1.5	2.0	1.7	1.3	2.0	0.9	0.8	1.1	1.2	1.2	1.1	0.3	Diurnal Maximum
Z - zerospan      C - Calibration      DF - DAS Failure																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb																																																	



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Kirby South - April 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	678	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: 678

Total Number of Hours: 720



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	34	85	58	25	19	20	28	41	50	58	30	35	36	76	55	27	677
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>	34	85	58	25	19	20	28	41	50	58	30	35	36	76	55	27	677

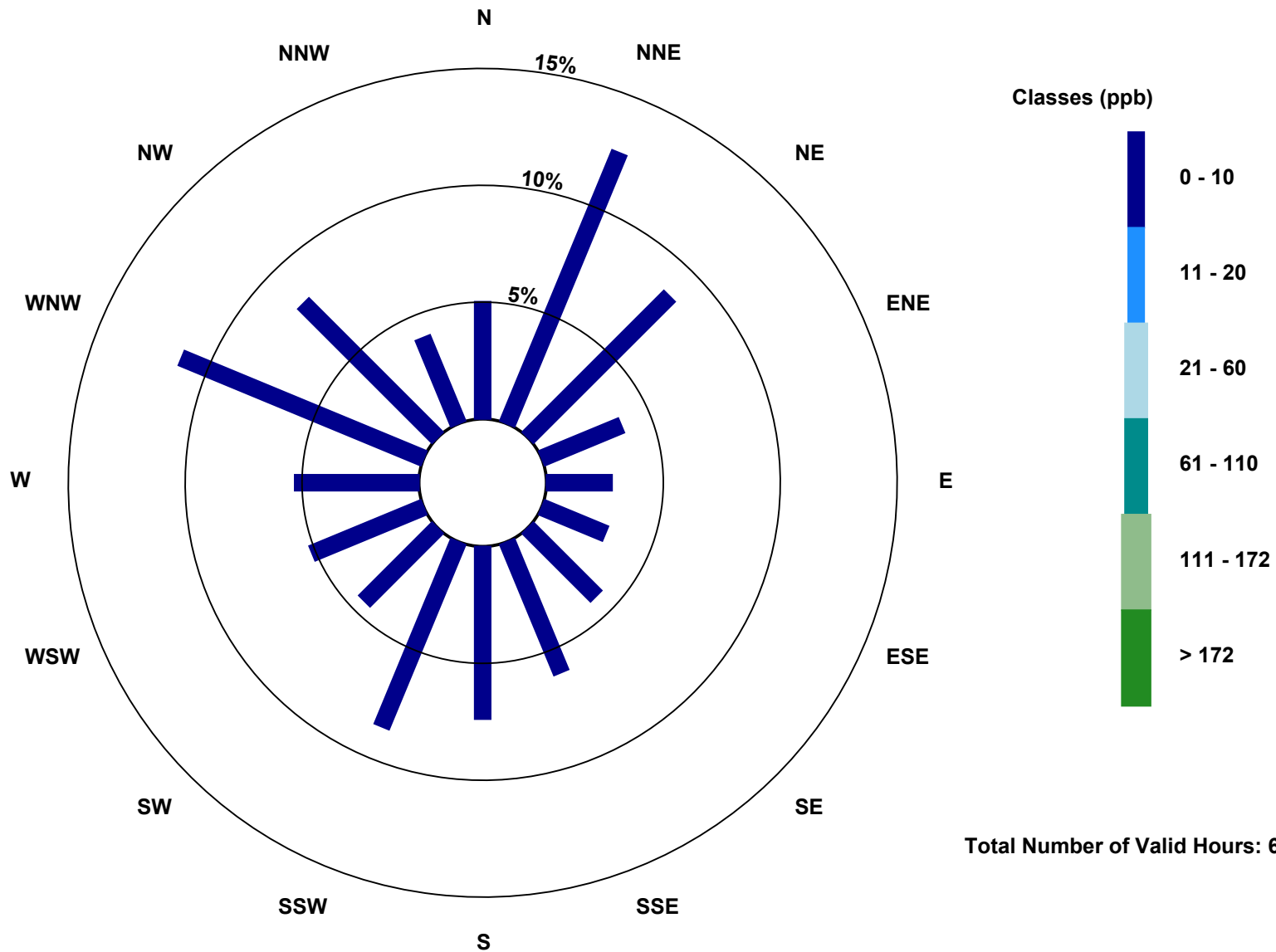
Total Number of Valid Hours: 677

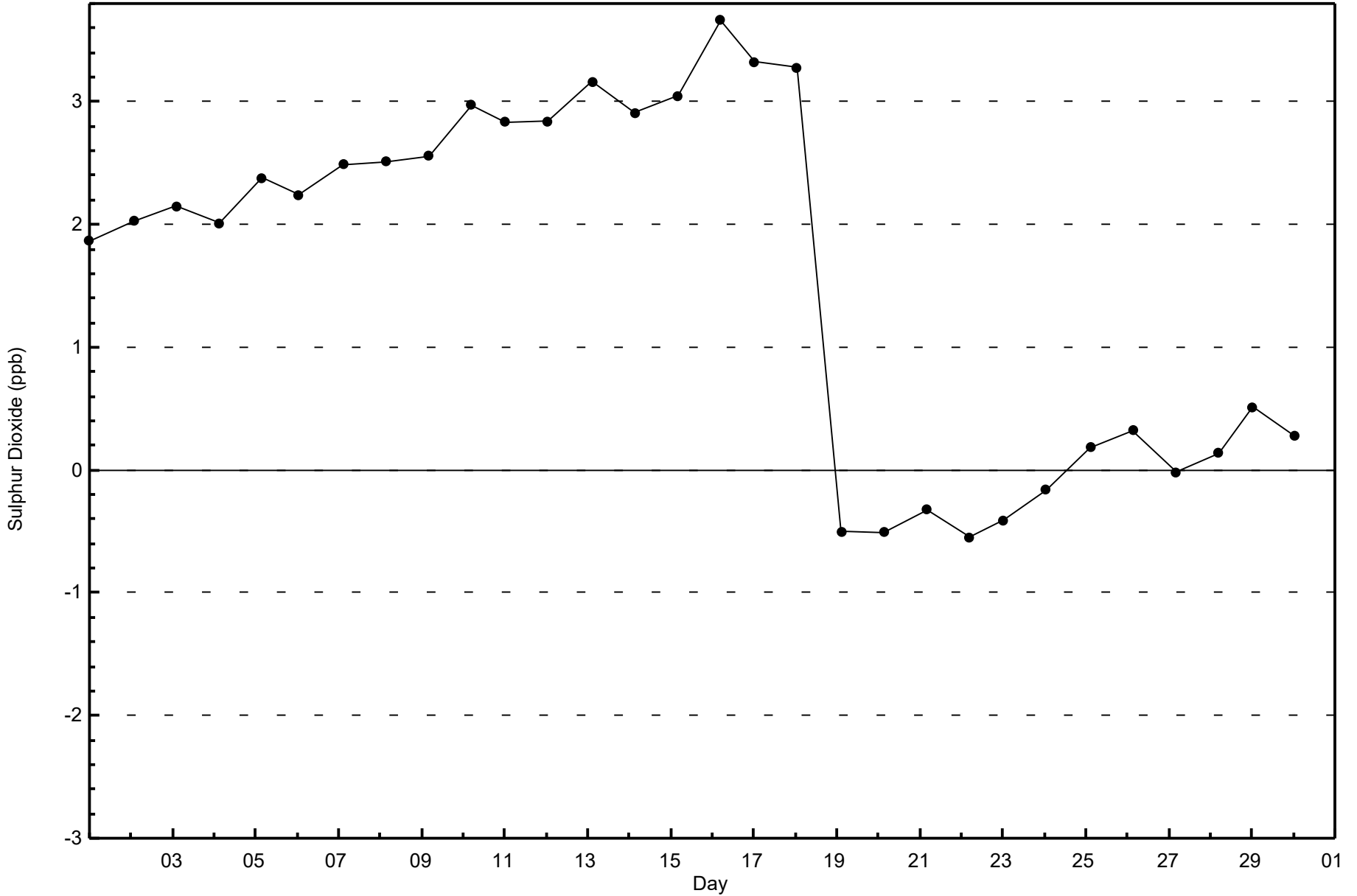
Total Number of Hours: 720

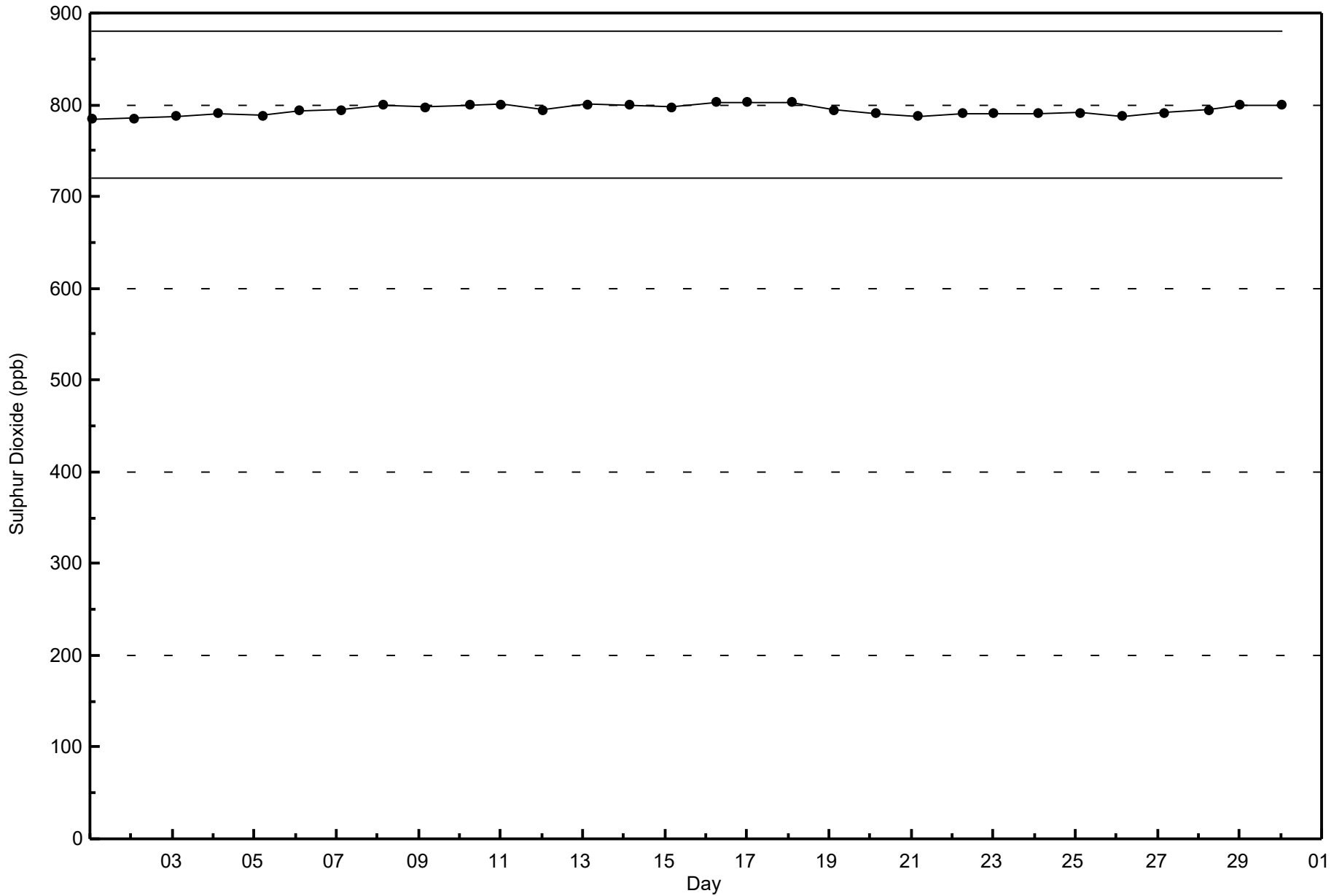


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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









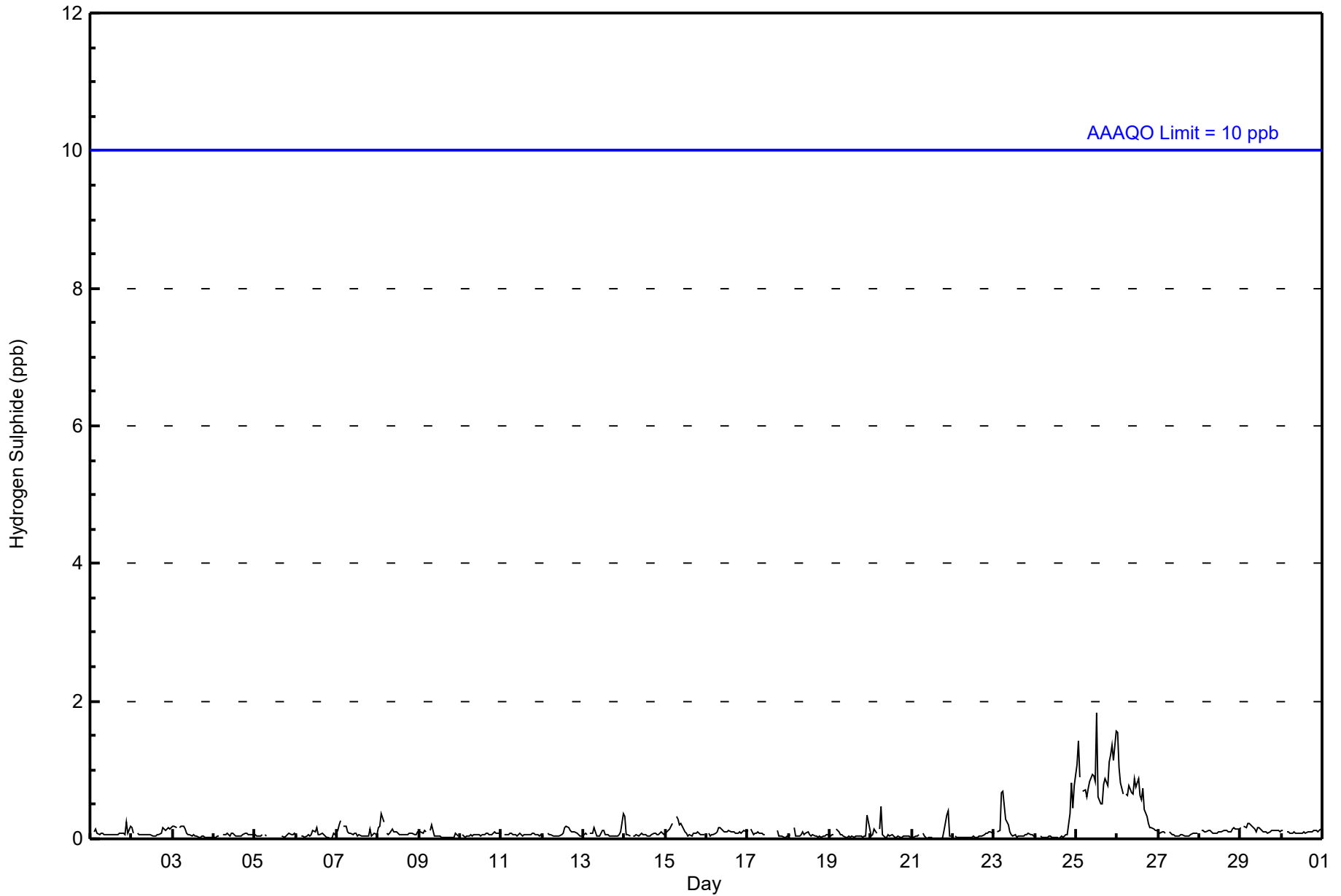
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	720																											
Maximum Value: 1.8 ppb on Apr 25 13:00		Maximum Daily Average: 1.0 ppb on Apr 25																	Hours of Data:	676																													
Minimum Value: 0.0 ppb on Apr 21 13:00		Minimum Daily Average: 0.0 ppb on Apr 22																	Hours of Missing Data:	44																													
Maximum Diurnal Average: 0.2 ppb at hour 1		Minimum Diurnal Average: 0.1 ppb at hour 19																	Hours of Calibration:	36																													
Monthly Average: 0.13 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 1.1																	Percent Operational Time:	98.9																													
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-Apr	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.3																						
2-Apr	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2																						
3-Apr	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2																						
4-Apr	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
5-Apr	0.1	0.0	0.0	0.0	0.1	Z	0.1	0.0	DF	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
6-Apr	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2																						
7-Apr	0.1	0.2	0.3	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.3																						
8-Apr	0.2	0.2	0.4	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
9-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2																							
10-Apr	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
11-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1																						
12-Apr	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2																							
13-Apr	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.4																							
14-Apr	0.3	0.1	0.1	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																						
15-Apr	0.1	0.1	0.1	0.2	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																						
16-Apr	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
17-Apr	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
18-Apr	0.0	0.1	Z	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2																						
19-Apr	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.3																						
20-Apr	0.0	0.1	0.1	0.1	Z	0.1	0.5	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																						
21-Apr	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.0	0.0	0.1	0.4																							
22-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
23-Apr	0.1	Z	0.1	0.1	0.7	0.7	0.5	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.7																							
24-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.8	0.5	0.8	0.8																							
25-Apr	1.1	1.4	0.9	Z	0.7	0.7	0.6	0.7	0.8	0.9	0.9	0.8	1.8	0.6	0.5	0.5	0.8	0.9	0.8	1.1	1.2	1.4	1.1	1.6	1.0	1.8																							
26-Apr	1.5	1.0	0.8	0.6	Z	0.6	0.6	0.8	0.7	0.7	0.9	0.8	0.9	0.6	0.6	0.7	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	1.5																							
27-Apr	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
28-Apr	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2																							
29-Apr	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
30-Apr	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
																								0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	Diurnal Average	
																								1.5	1.4	0.9	0.6	0.7	0.7	0.6	0.8	0.8	0.9	0.9	0.8	1.8	0.6	0.6	0.7	0.8	0.9	0.8	1.1	1.2	1.4	1.1	1.6	Diurnal Maximum	
Z - zerospan      C - Calibration      DF - DAS Failure																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb																																																	





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Kirby South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	676	100.00	100.00
3 - 4	0	0.00	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: 676

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby South - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	34	82	60	24	19	22	27	38	50	58	28	37	37	77	56	26	675
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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>	34	82	60	24	19	22	27	38	50	58	28	37	37	77	56	26	675

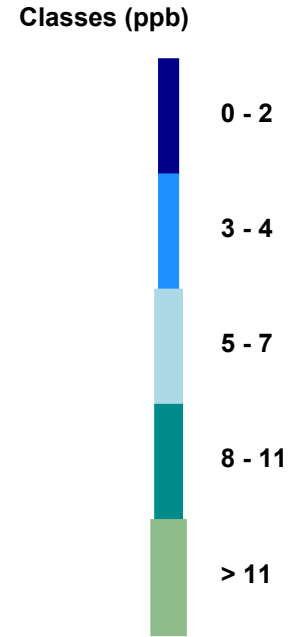
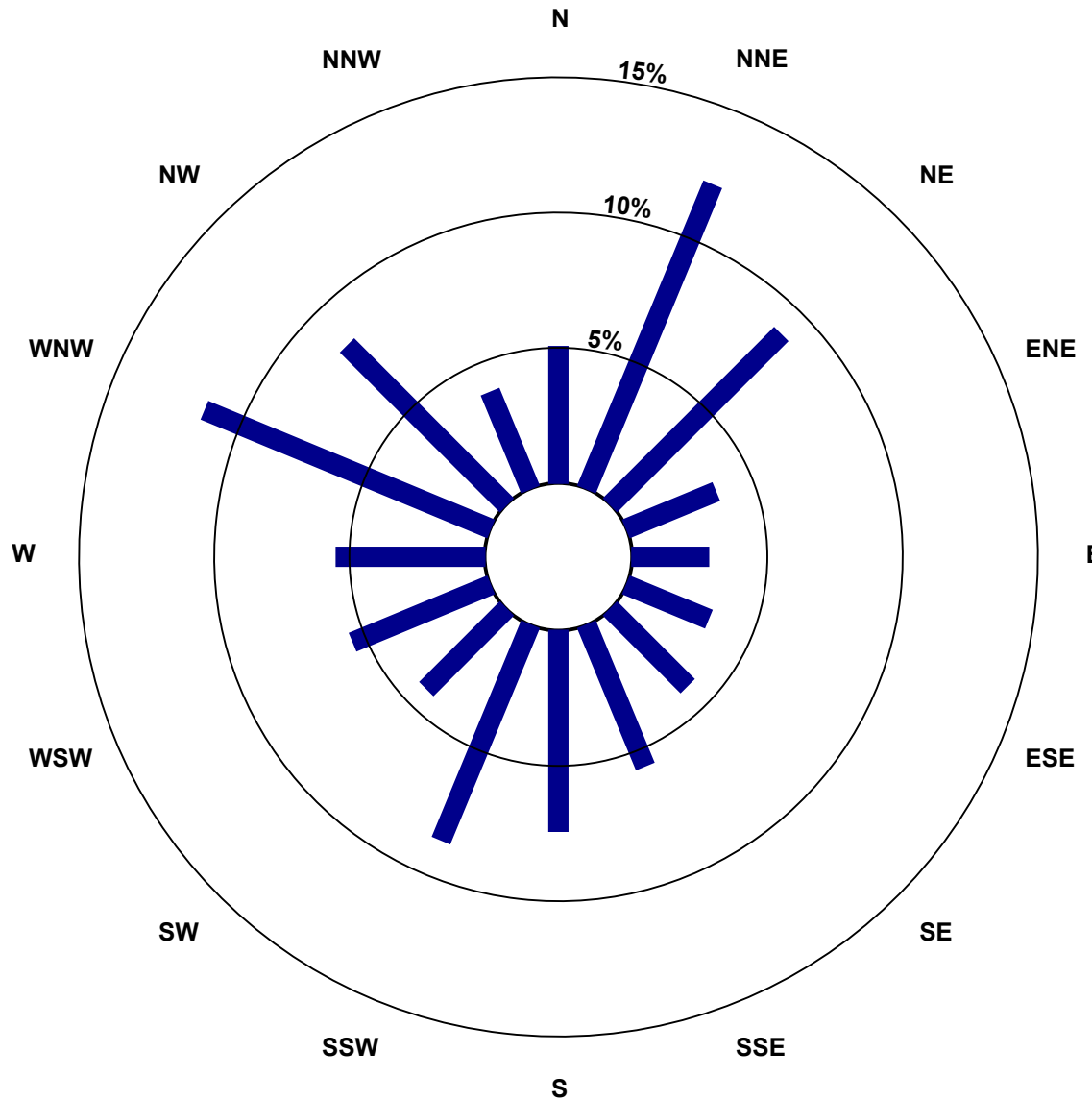
Total Number of Valid Hours: 675

Total Number of Hours: 720

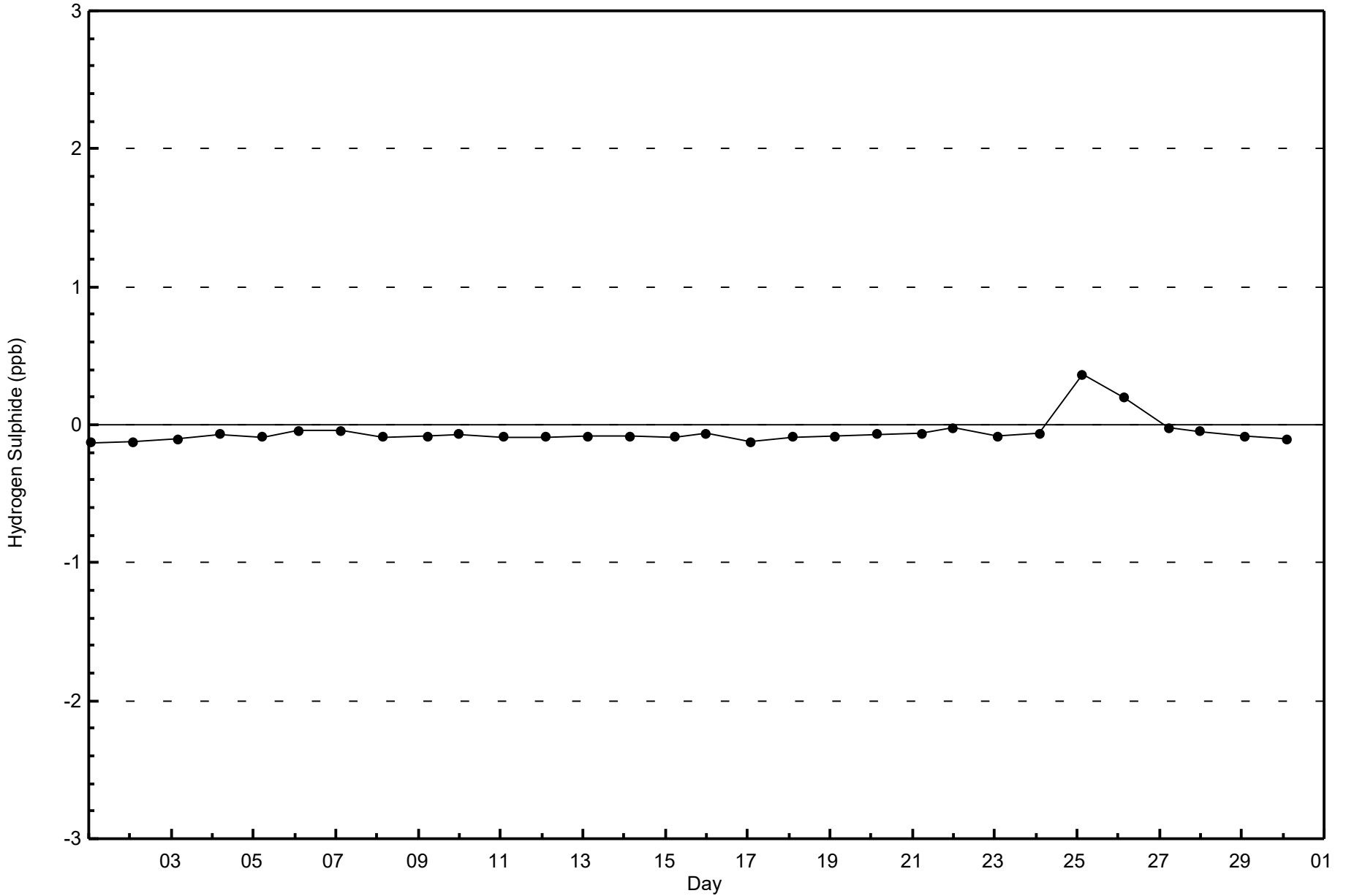


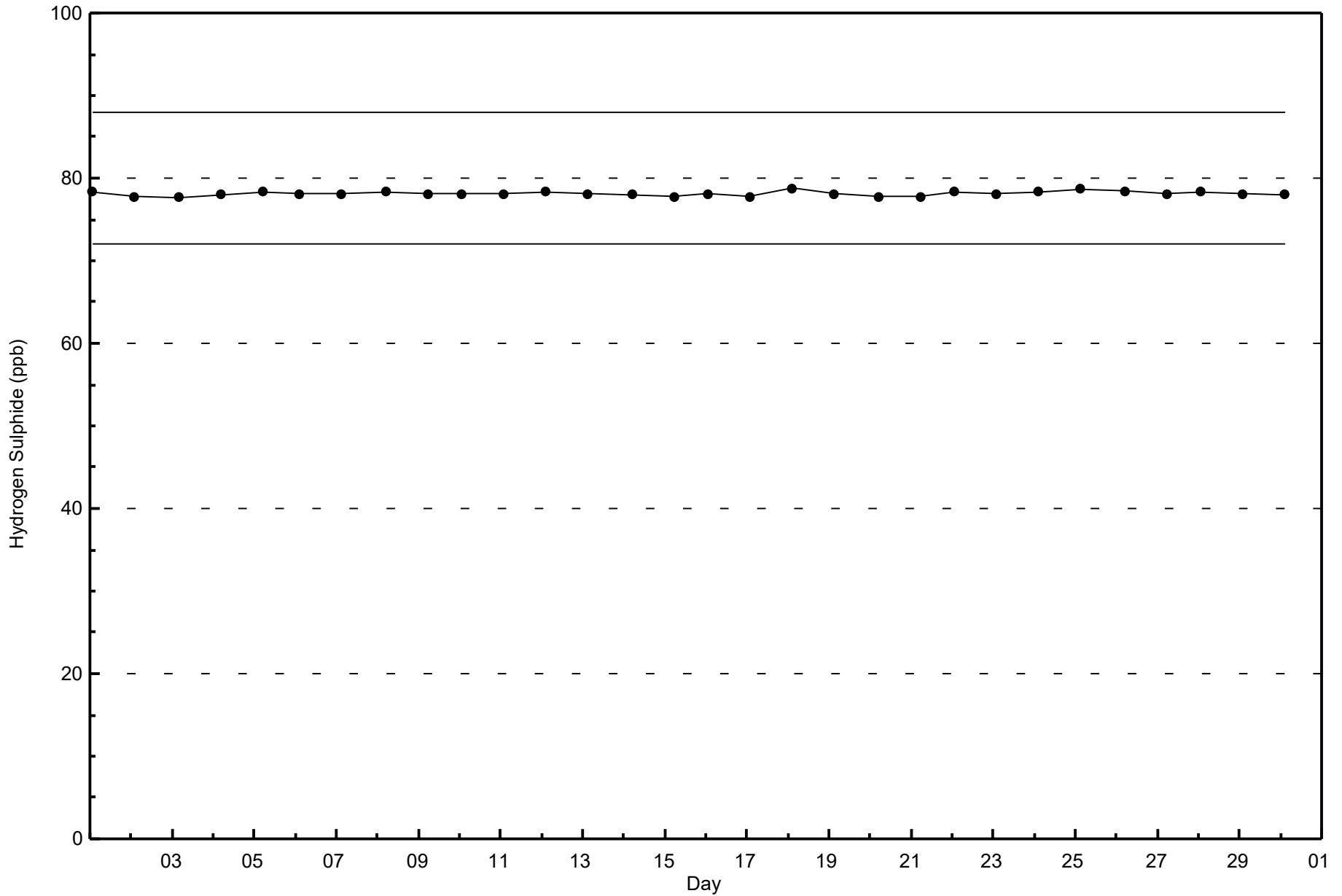
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 675



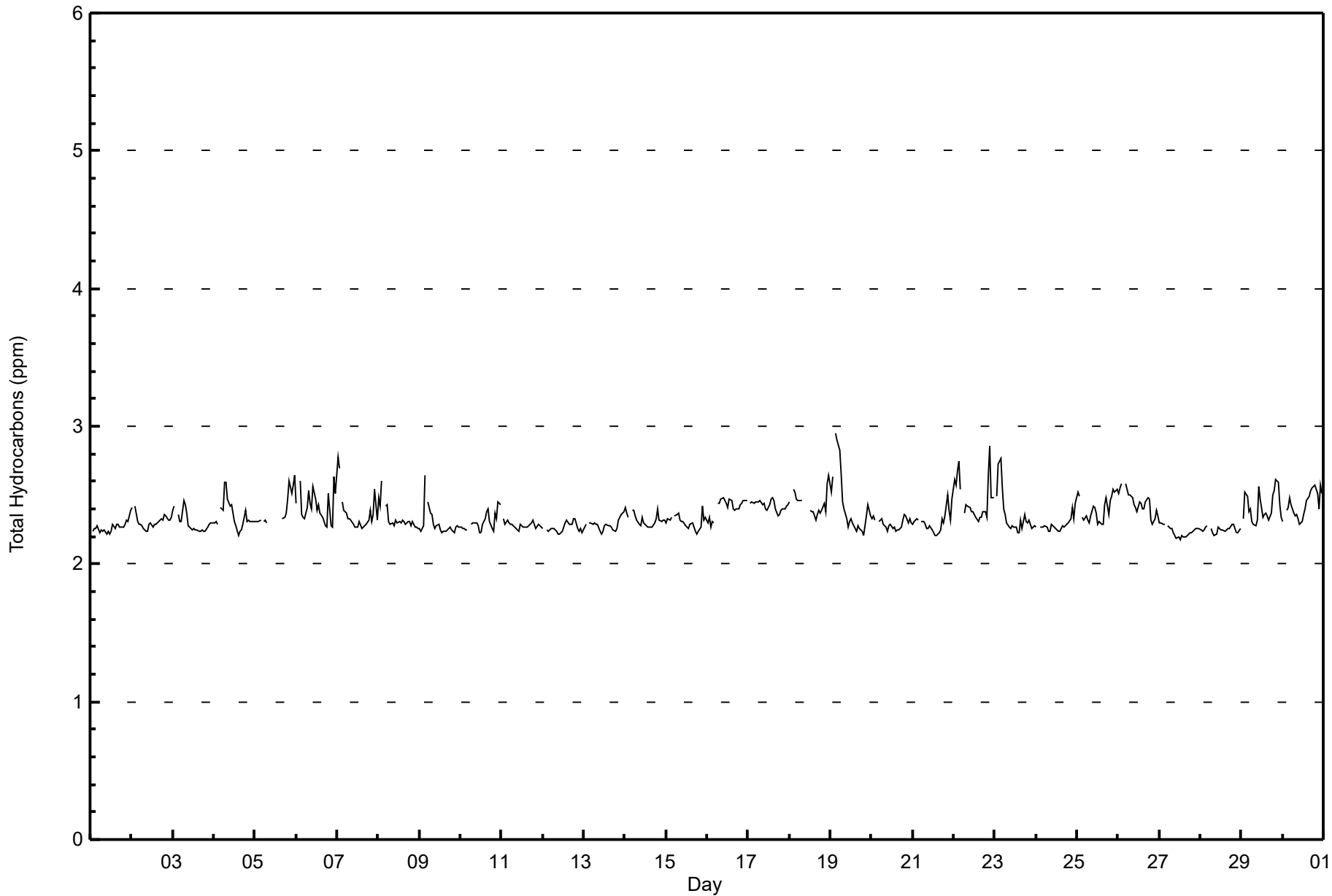




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Total Hydrocarbons (THC) - ppm**  
**Kirby South - April 2024**

Maximum Value: 3.0 ppm on Apr 19 04:00		Maximum Daily Average: 2.5 ppm on Apr 22		Hours in Service: 720																							
Minimum Value: 2.2 ppm on Apr 27 13:00		Minimum Daily Average: 2.2 ppm on Apr 27		Hours of Data: 678																							
Maximum Diurnal Average: 2.4 ppm at hour 4		Minimum Diurnal Average: 2.3 ppm at hour 13		Hours of Missing Data: 42																							
Monthly Average: 2.34 ppm		Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.3 Median = 2.3 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.5 P <sub>99</sub> = 2.7		Hours of Calibration: 34																							
				Percent Operational Time: 98.9																							
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-Apr	Z	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	
2-Apr	2.4	Z	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4
3-Apr	2.4	2.4	Z	2.4	2.3	2.3	2.5	2.4	2.4	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.5	
4-Apr	2.3	2.3	2.3	Z	2.4	2.4	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.6	
5-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	DF	DF	DF	DF	DF	DF	DF	DF	2.3	2.3	2.4	2.5	2.6	2.5	2.6	2.6	--	2.6	
6-Apr	2.4	Z	2.6	2.4	2.3	2.3	2.4	2.5	2.4	2.4	2.6	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.5	2.3	2.3	2.6	2.5	2.4	2.6	
7-Apr	2.8	2.7	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.3	2.4	2.8	
8-Apr	2.5	2.4	2.6	Z	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.6	
9-Apr	2.3	2.2	2.3	2.6	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.6	
10-Apr	2.3	2.3	2.3	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.2	2.4	2.3	2.4	2.4	2.3	2.4	
11-Apr	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
12-Apr	2.3	Z	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.3	2.3	
13-Apr	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.4	
14-Apr	2.4	2.4	2.3	Z	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	
15-Apr	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.4	
16-Apr	2.3	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.5	
17-Apr	Z	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	
18-Apr	2.4	Z	2.5	2.5	2.5	2.5	2.5	2.5	C	C	C	C	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.4	2.6	
19-Apr	2.5	2.6	Z	3.0	2.9	2.8	2.7	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.4	3.0	
20-Apr	2.3	2.4	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	
21-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.4	2.3	2.5	2.3	2.5	2.5	
22-Apr	2.6	2.6	2.7	2.7	2.5	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.6	2.9	2.5	2.5	2.5	2.9	
23-Apr	Z	2.5	2.7	2.8	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8	
24-Apr	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.4	
25-Apr	2.5	2.5	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.5	
26-Apr	2.5	2.6	2.6	Z	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.6	
27-Apr	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	
28-Apr	2.2	2.2	2.3	2.3	2.3	Z	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	
29-Apr	Z	2.3	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.6	2.5	2.3	2.4	2.4	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.4	2.3	2.4	2.6	
30-Apr	2.3	Z	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.4	2.6	2.5	2.4	2.6	
																								Diurnal Average			
																								Diurnal Maximum			
																								2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.4 2.4 2.4 2.4 2.4			
																								2.8 2.7 2.7 3.0 2.9 2.8 2.7 2.6 2.5 2.5 2.6 2.5 2.4 2.5 2.5 2.5 2.5 2.6 2.6 2.6 2.6 2.9 2.6 2.6			
																								Z - zerspan C - Calibration DF - DAS Failure			







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Kirby South - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	0	0.00	0.00
2.1 - 3.0	678	100.00	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 678

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Kirby South - April 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	34	85	58	25	19	20	28	41	50	58	30	35	36	76	55	27	677
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>	34	85	58	25	19	20	28	41	50	58	30	35	36	76	55	27	677

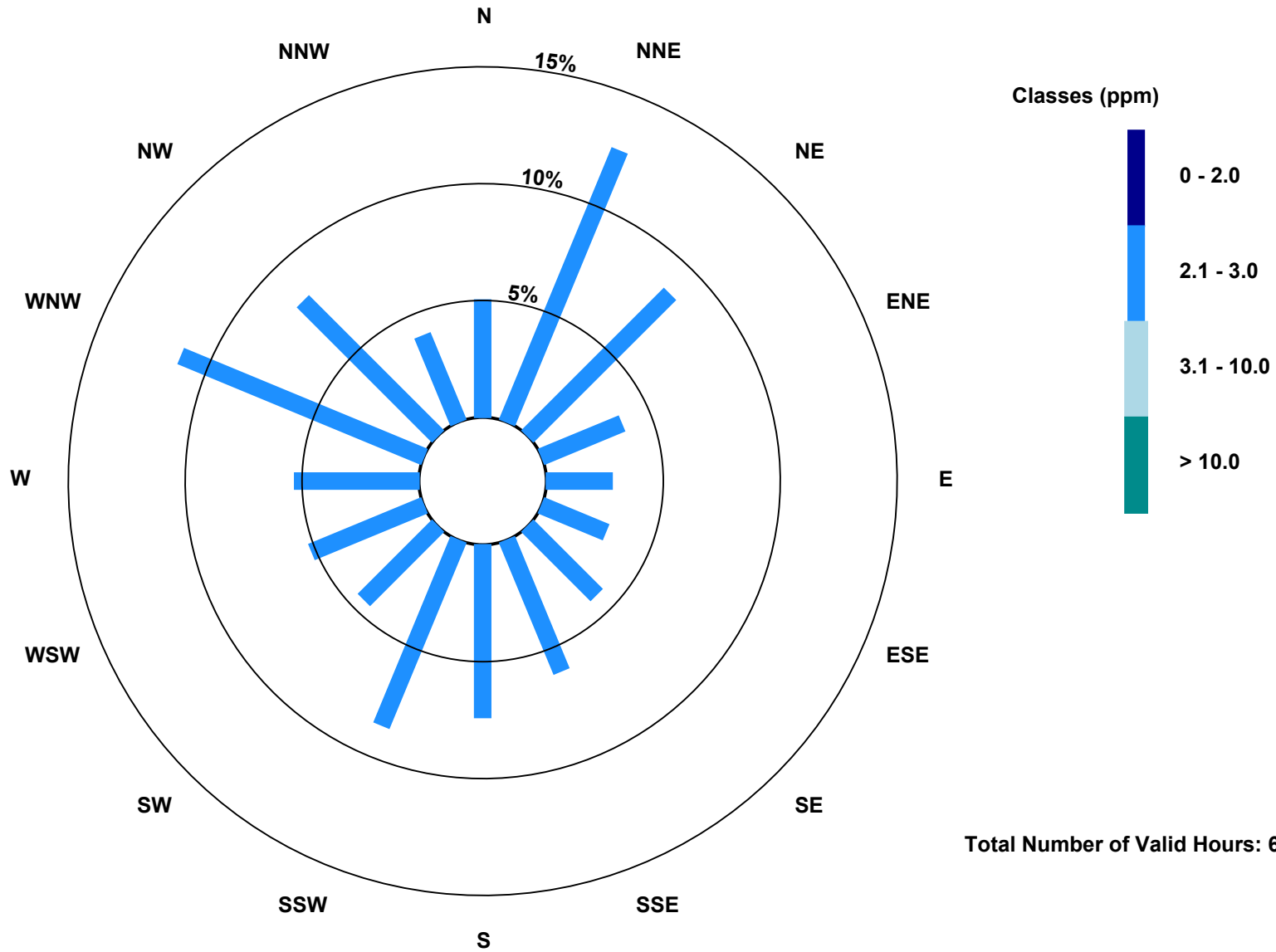
Total Number of Valid Hours: 677

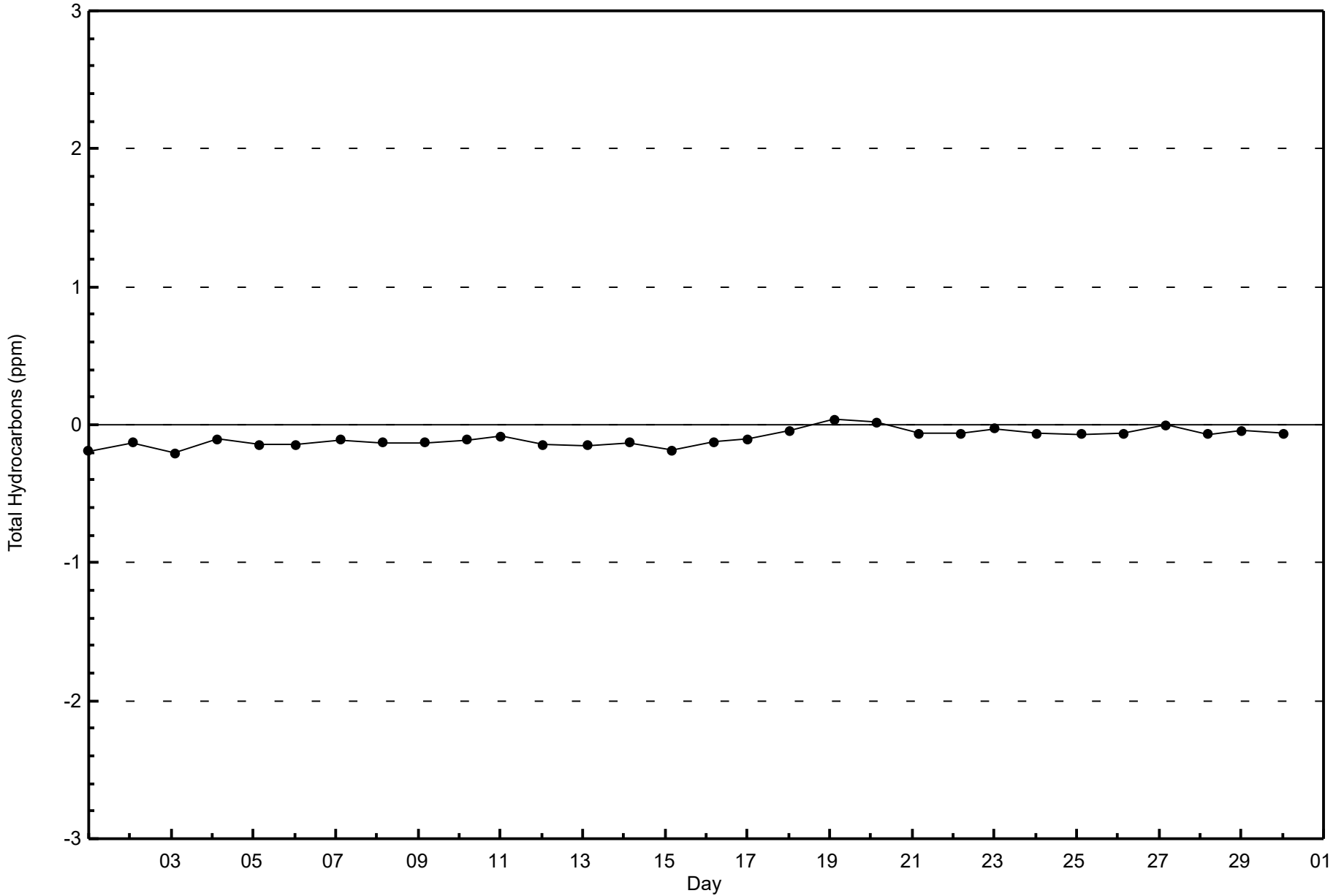
Total Number of Hours: 720

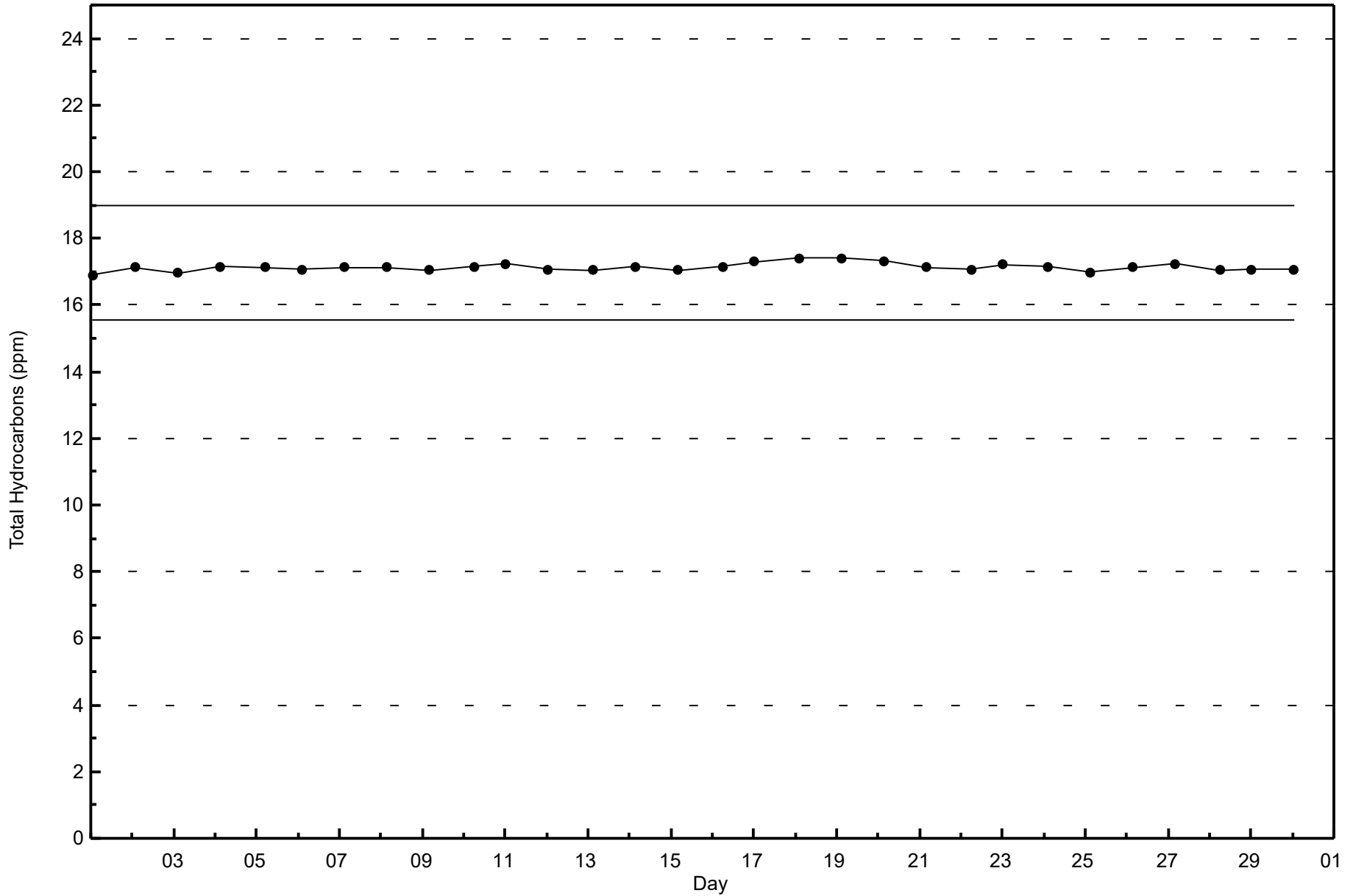


Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Total Hydrocarbons (THC) - ppm  
Kirby South









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

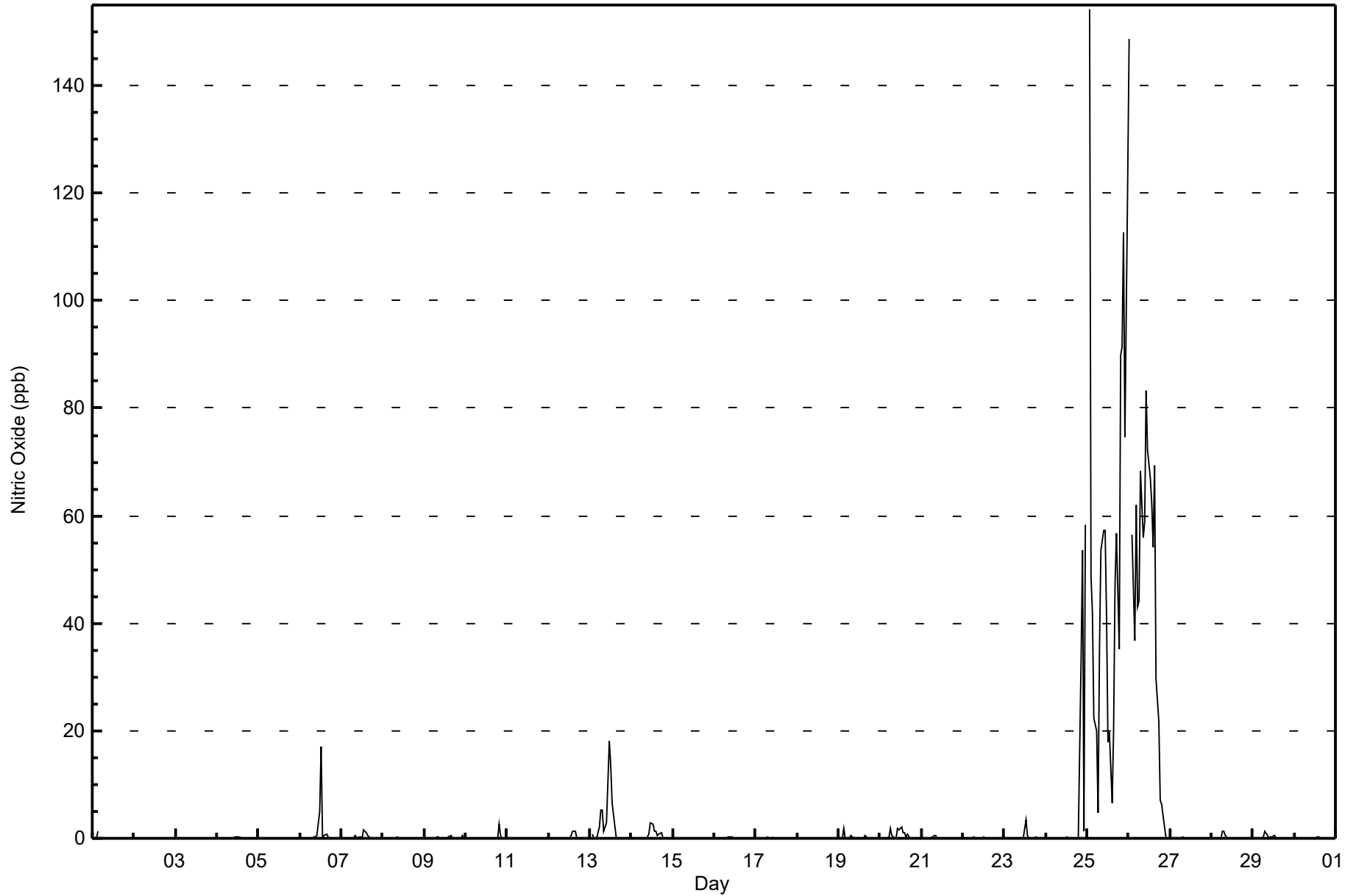
**Nitric Oxide (NO) - ppb**  
**Kirby South - April 2024**

Maximum Value: 154.1 ppb on Apr 25 02:00		Maximum Daily Average: 53.5 ppb on Apr 25		Hours in Service: 720																							
Minimum Value: 0.0 ppb on Apr 1 01:00		Minimum Daily Average: 0.0 ppb on Apr 15		Hours of Data: 675																							
Maximum Diurnal Average: 6.2 ppb at hour 2		Minimum Diurnal Average: 1.4 ppb at hour 19		Hours of Missing Data: 45																							
Monthly Average: 3.83 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 1.4 P <sub>99</sub> = 76.8		Hours of Calibration: 37																							
				Percent Operational Time: 98.9																							
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-Apr	0.0	0.0	0.0	1.4	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	
2-Apr	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
5-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	DF	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	
6-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.4	0.6	5.1	17.2	0.3	0.6	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	17.2	
7-Apr	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.2	0.1	0.0	1.5	1.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5	
8-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
9-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.6	
10-Apr	0.0	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	0.0	0.0	0.0	0.0	0.0	2.5	0.5	0.0	0.0	0.0	0.1	2.5	
11-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
12-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.4	1.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	
13-Apr	Z	0.8	0.0	0.0	0.0	2.1	5.2	5.2	1.4	2.9	10.2	18.0	13.6	6.6	2.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	18.0	
14-Apr	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.7	2.8	2.7	1.3	1.3	0.4	0.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.8	
15-Apr	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
16-Apr	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
17-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.1	0.1	0.2	C	C	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	--	0.2	
18-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
19-Apr	Z	0.0	0.0	1.9	0.1	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	
20-Apr	0.0	Z	0.1	0.0	0.0	0.4	1.8	0.5	0.1	0.0	1.9	1.7	2.0	1.1	0.9	0.2	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.0	
21-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
22-Apr	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
23-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	3.3	0.5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	3.3	
24-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.0	33.6	53.5	1.3	58.2	6.4	58.2	
25-Apr	Z	154.1	48.6	42.1	22.3	20.0	4.8	35.3	53.7	57.3	57.3	41.1	17.8	19.7	6.5	20.2	47.1	56.7	35.3	89.7	91.5	112.8	74.5	123.1	53.5	154.1	
26-Apr	148.6	Z	56.4	36.7	62.0	43.0	44.2	68.2	55.9	59.0	83.4	72.2	67.0	62.2	54.2	69.3	29.8	21.8	7.1	6.3	4.2	0.2	0.0	0.0	45.7	148.6	
27-Apr	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
28-Apr	0.0	0.0	0.0	Z	0.0	0.0	1.2	1.3	0.5	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	
29-Apr	0.0	0.0	0.0	0.0	Z	0.0	0.2	1.4	0.6	0.1	0.3	0.3	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	
30-Apr	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
																								Diurnal Average			
																								Diurnal Maximum			
																								5.9 6.2 4.2 3.2 3.4 2.7 1.9 3.8 3.9 4.2 5.4 5.1 4.5 3.4 2.5 3.4 2.7 2.8 1.4 3.3 4.3 5.6 2.5 6.0			
																								148.6 154.1 56.4 42.1 62.0 43.0 44.2 68.2 55.9 59.0 83.4 72.2 67.0 62.2 54.2 69.3 47.1 56.7 35.3 89.7 91.5 112.8 74.5 123.1			
Z - zerospan C - Calibration DF - DAS Failure																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Kirby South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	638	94.52	94.52
21 - 40	7	1.04	95.56
41 - 80	23	3.41	98.96
81 - 159	7	1.04	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 720





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Kirby South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	27	79	58	24	18	23	27	39	53	56	32	34	37	66	46	18	637
21 - 40	1	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	7
11 - 80	6	0	0	0	0	0	0	0	0	0	0	0	0	8	3	6	23
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	7
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>34</b>	<b>81</b>	<b>58</b>	<b>24</b>	<b>18</b>	<b>23</b>	<b>27</b>	<b>39</b>	<b>53</b>	<b>56</b>	<b>32</b>	<b>34</b>	<b>37</b>	<b>78</b>	<b>55</b>	<b>25</b>	<b>674</b>

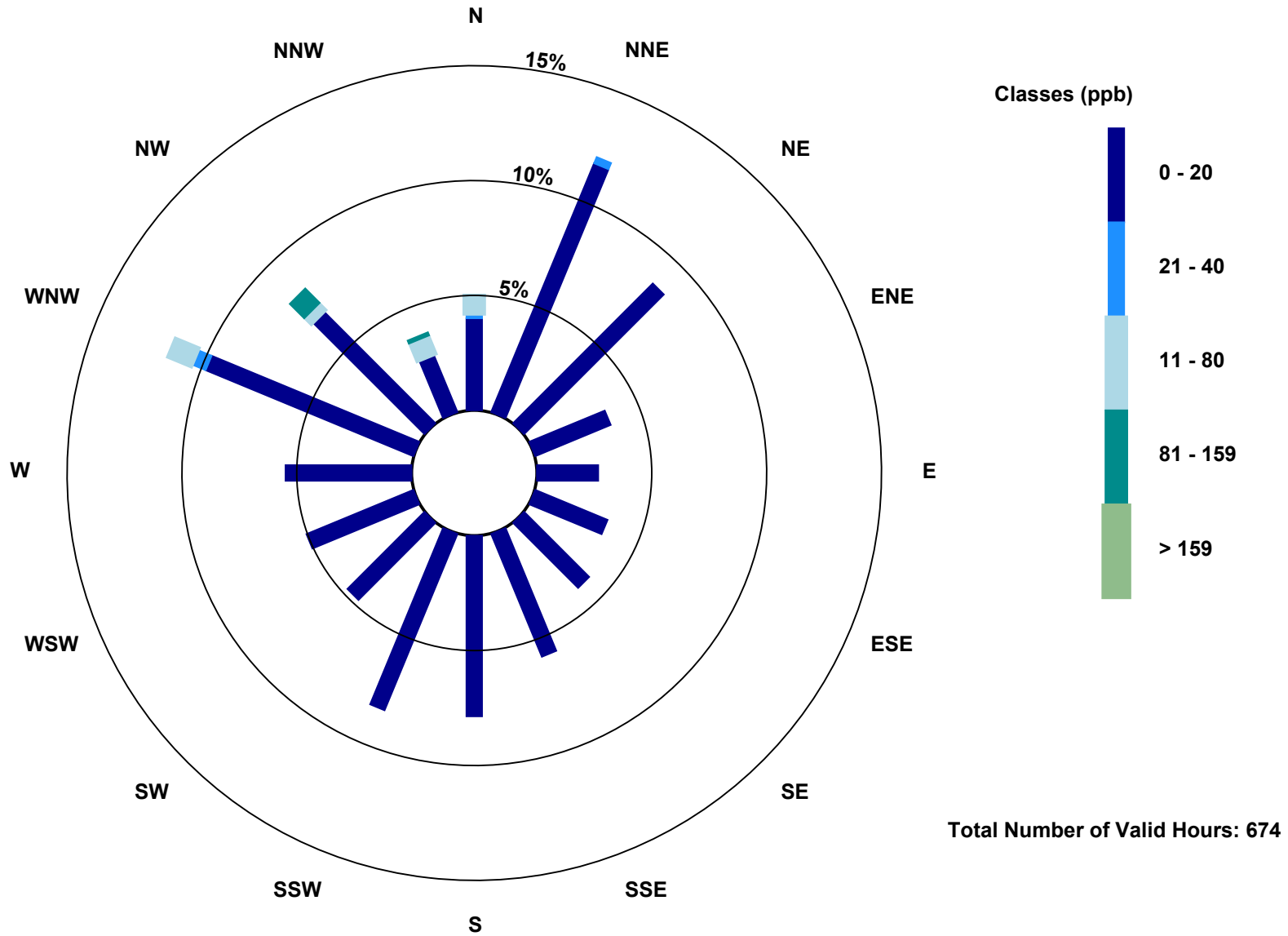
Total Number of Valid Hours: 674

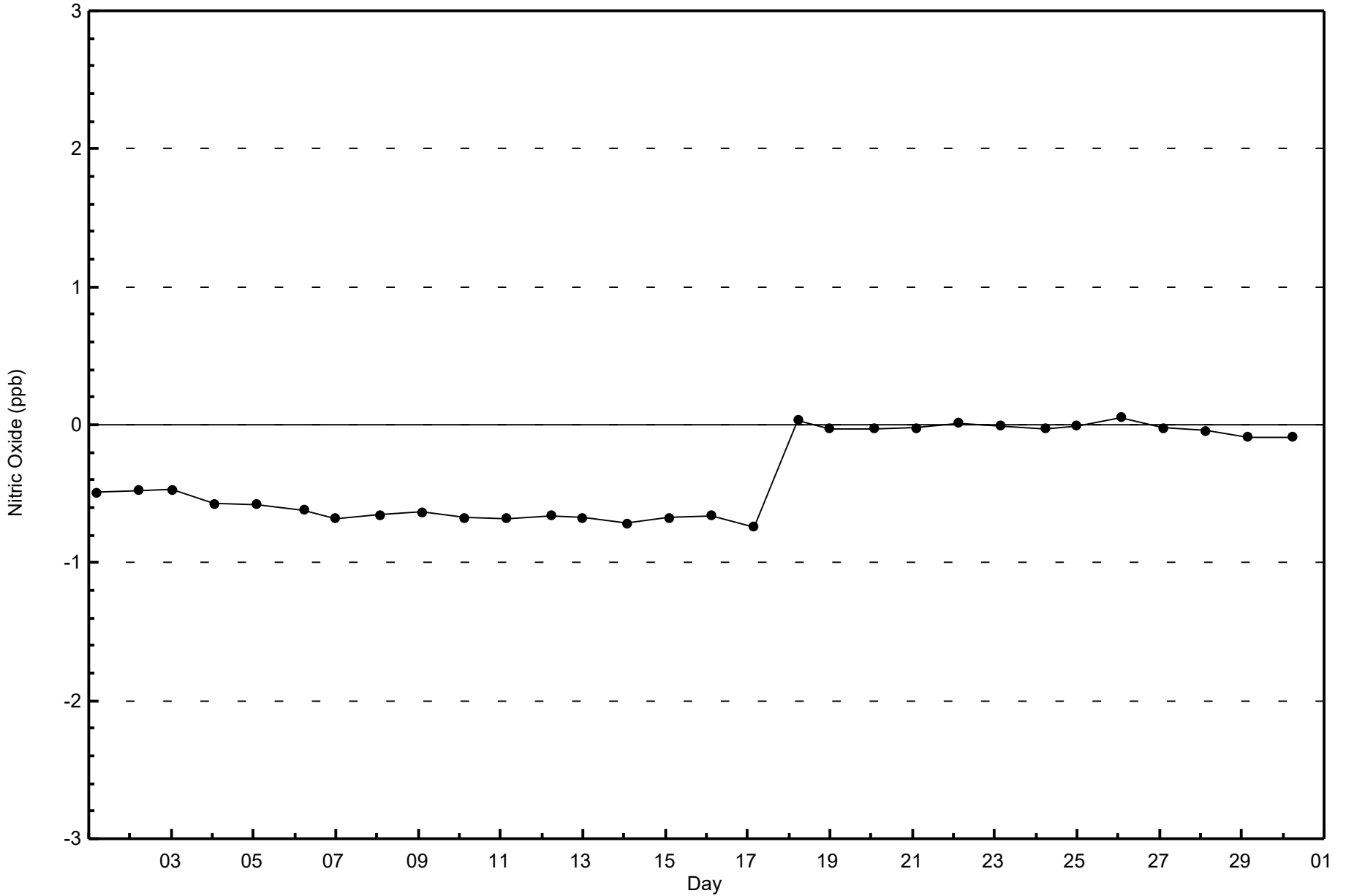
Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Nitric Oxide (NO) - ppb  
Kirby South

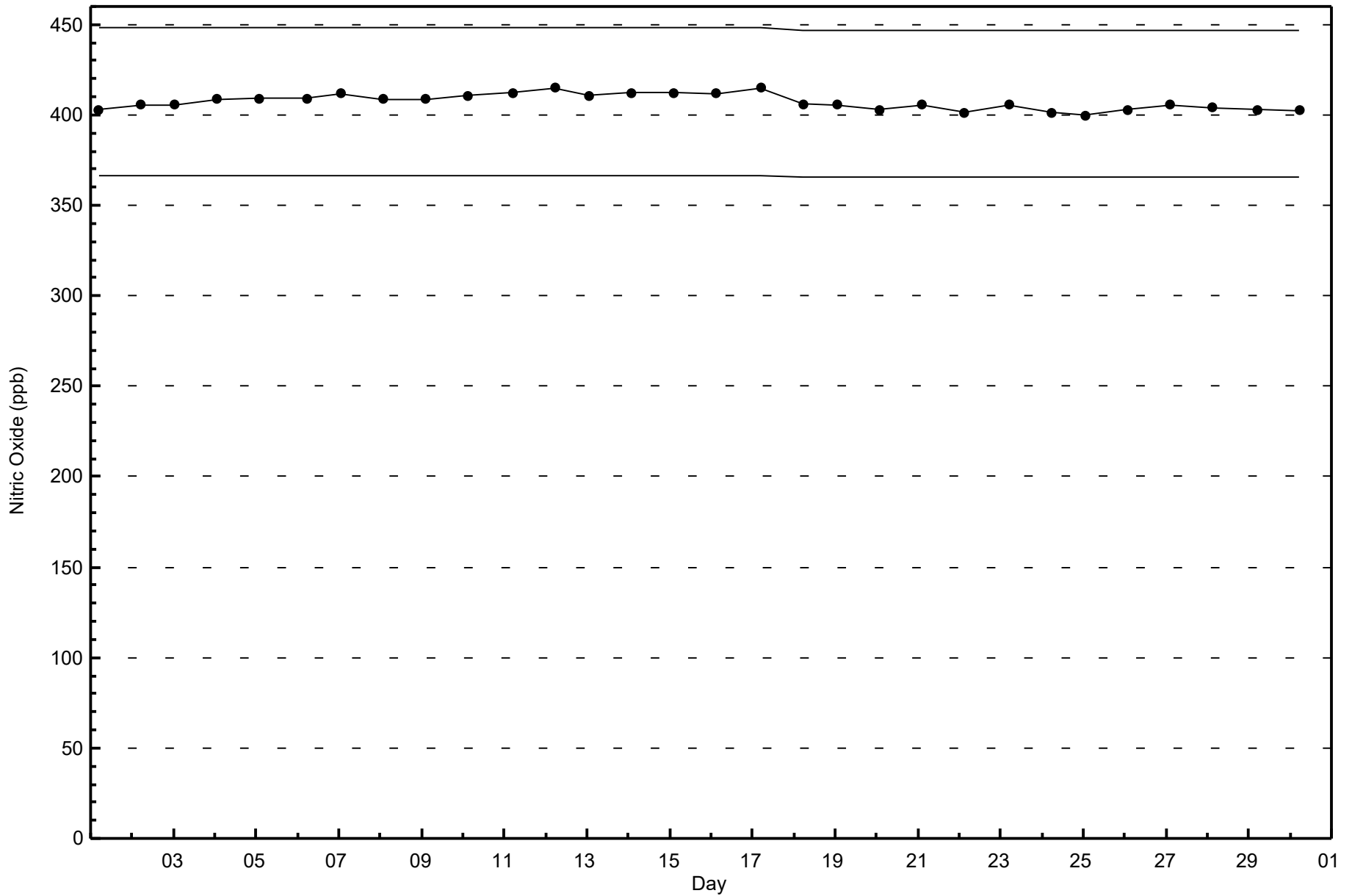






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Kirby South - April 2024





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Kirby South - April 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	720
Maximum Value: 47.3 ppb on Apr 26 01:00	Maximum Daily Average: 21.6 ppb on Apr 25		Hours of Data:	675
Minimum Value: 0.0 ppb on Apr 13 11:00	Minimum Daily Average: 0.7 ppb on Apr 18		Hours of Missing Data:	45
Maximum Diurnal Average: 3.3 ppb at hour 22	Minimum Diurnal Average: 1.7 ppb at hour 19		Hours of Calibration:	37
Monthly Average: 2.52 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.1 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 3.3 P <sub>99</sub> = 29.2		Percent Operational Time:	98.9

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-Apr	0.8	0.8	1.0	5.0	Z	1.1	1.6	0.6	0.7	0.5	0.5	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.9	0.6	0.6	1.9	0.9	1.4	0.9	5.0	
2-Apr	2.0	0.8	0.3	0.3	0.2	Z	0.6	0.4	0.5	0.8	1.2	1.4	1.5	1.3	0.8	1.0	1.2	1.3	1.3	1.8	2.6	2.5	2.5	2.3	1.2	2.6	
3-Apr	Z	2.3	1.9	1.6	1.6	2.1	3.7	3.0	0.7	0.5	0.4	0.5	0.5	0.6	0.5	1.0	0.5	0.6	0.8	0.5	0.9	0.8	1.0	1.6	1.2	3.7	
4-Apr	0.8	Z	0.8	2.4	3.7	1.2	0.7	0.4	0.4	0.6	0.9	1.0	1.5	1.3	0.6	0.5	0.5	0.8	2.0	1.6	1.1	0.9	0.6	0.5	1.1	3.7	
5-Apr	0.4	0.3	Z	0.4	0.3	0.4	0.3	0.2	DF	DF	DF	DF	DF	DF	DF	DF	0.3	0.3	0.3	0.7	1.5	1.1	1.2	1.3	--	1.5	
6-Apr	1.4	2.1	1.6	1.5	1.2	Z	0.9	2.1	2.1	2.2	2.3	3.2	8.8	1.8	2.4	3.0	3.3	1.4	0.9	0.5	0.5	0.7	1.1	1.1	2.0	8.8	
7-Apr	Z	1.1	1.3	1.3	2.1	1.8	1.8	1.3	2.1	1.2	1.7	1.3	1.1	2.9	2.8	2.0	1.4	1.2	1.5	1.1	0.6	0.9	1.2	0.7	1.5	2.9	
8-Apr	1.3	Z	3.6	1.8	1.0	0.7	1.6	1.4	1.7	1.4	1.2	1.1	1.0	1.2	1.5	1.2	0.9	0.8	0.9	0.9	0.9	0.9	1.0	1.1	1.3	3.6	
9-Apr	2.2	1.4	Z	1.8	2.0	2.1	2.4	2.8	1.7	0.8	0.6	0.6	0.5	0.4	0.8	1.4	0.5	0.6	0.6	0.8	0.5	1.2	2.1	1.5	1.3	2.8	
10-Apr	0.9	0.4	0.3	Z	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	1.0	1.2	1.4	2.2	0.9	0.7	0.7	0.7	2.2	
11-Apr	1.0	0.7	0.5	0.7	Z	1.0	1.8	1.2	0.9	0.7	0.8	0.9	0.9	1.2	1.2	0.9	0.8	0.8	0.8	0.7	1.0	1.0	0.6	0.5	0.9	1.8	
12-Apr	0.7	0.8	1.0	0.8	0.6	Z	0.7	0.8	0.9	0.8	0.8	0.9	1.0	2.0	3.5	3.2	0.8	1.3	1.4	1.1	0.7	0.6	0.5	0.5	1.1	3.5	
13-Apr	Z	3.3	0.7	0.7	0.7	5.1	10.1	6.8	1.0	1.8	0.0	2.8	7.8	4.9	2.0	0.8	0.4	0.5	0.5	0.9	0.9	1.1	1.6	1.0	2.4	10.1	
14-Apr	1.3	Z	0.5	0.6	0.5	0.5	0.5	0.6	0.7	1.2	1.6	3.5	3.8	2.0	2.4	1.5	2.2	3.4	1.3	0.8	0.8	0.8	0.7	1.1	1.4	3.8	
15-Apr	1.5	2.0	Z	2.1	1.8	1.7	1.7	2.3	2.0	2.2	1.6	1.6	1.4	1.0	0.8	0.8	1.0	1.2	1.1	1.3	0.9	0.7	1.2	1.1	1.4	2.3	
16-Apr	1.0	1.0	1.0	Z	1.2	1.2	1.4	1.6	1.8	1.8	1.6	1.5	1.6	1.4	1.2	1.2	1.1	1.0	1.0	1.0	0.6	0.9	1.0	1.0	1.2	1.8	
17-Apr	1.0	0.9	1.0	0.6	Z	0.9	1.3	1.4	1.1	1.0	1.1	C	C	C	C	C	C	C	0.5	0.6	0.5	0.4	0.5	0.4	--	1.4	
18-Apr	0.3	0.6	0.6	0.6	0.3	Z	0.3	0.6	0.9	0.7	0.8	0.7	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.7	0.6	0.9	1.0	0.6	1.5	0.7	1.5
19-Apr	Z	1.5	0.7	1.4	1.5	0.8	0.7	2.2	1.3	0.5	0.5	0.5	0.6	0.6	0.8	1.7	1.3	1.1	1.1	1.1	2.3	3.6	2.4	1.5	1.3	3.6	
20-Apr	0.6	Z	1.8	1.5	0.9	5.9	7.7	2.2	0.7	0.6	2.9	3.4	3.9	2.8	2.6	1.5	2.5	1.4	0.7	0.8	1.1	1.0	0.8	1.0	2.1	7.7	
21-Apr	1.1	1.4	Z	1.5	1.6	1.5	2.4	2.6	1.9	1.2	0.9	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.2	2.8	2.1	2.0	2.0	3.2	1.5	3.2	
22-Apr	1.0	0.9	0.8	Z	0.8	4.1	2.8	1.3	1.0	0.7	1.0	1.2	1.8	1.3	0.9	1.4	1.3	1.0	1.0	1.1	1.2	1.4	1.3	1.0	1.3	4.1	
23-Apr	0.7	0.6	0.5	0.5	Z	3.6	2.2	1.0	0.5	0.4	0.3	0.3	1.1	0.7	0.4	0.4	0.5	1.3	0.4	0.5	0.7	1.1	0.4	0.8	0.8	3.6	
24-Apr	0.2	0.3	0.3	0.2	0.5	Z	0.3	1.0	0.5	0.7	0.7	0.7	0.5	0.8	0.9	1.1	1.0	1.0	1.7	1.3	21.0	31.0	5.0	28.8	4.3	31.0	
25-Apr	Z	46.3	29.0	13.1	12.2	15.4	6.8	21.3	18.0	26.5	22.3	17.2	12.7	14.2	9.7	10.9	18.7	29.7	18.5	26.8	36.1	33.9	27.5	30.3	21.6	46.3	
26-Apr	47.3	Z	14.6	18.4	15.6	14.8	13.5	13.1	19.3	24.5	24.2	27.9	15.3	13.8	19.3	24.1	14.1	8.2	4.5	0.1	4.3	1.4	1.4	1.3	14.8	47.3	
27-Apr	0.6	0.4	Z	1.1	0.8	0.6	1.3	1.0	0.8	0.5	0.6	0.5	0.5	0.5	0.8	0.8	0.7	0.9	0.8	0.8	1.2	1.4	1.0	0.9	0.8	1.4	
28-Apr	1.1	1.3	1.7	Z	2.1	1.8	2.3	2.8	1.9	1.2	1.1	1.1	1.0	1.1	1.3	1.3	1.2	1.1	1.1	1.1	0.9	1.1	1.0	0.9	1.4	2.8	
29-Apr	1.0	2.0	1.5	1.2	Z	2.2	2.8	3.2	2.0	1.4	1.8	1.5	1.8	1.4	1.3	0.9	0.7	1.2	1.7	1.5	1.2	1.2	1.6	1.1	1.6	3.2	
30-Apr	1.3	1.9	1.1	1.1	0.6	Z	1.1	1.3	1.0	0.9	0.6	0.5	0.9	1.4	1.6	1.1	1.1	1.0	0.9	1.3	1.3	1.5	1.5	2.5	1.2	2.5	

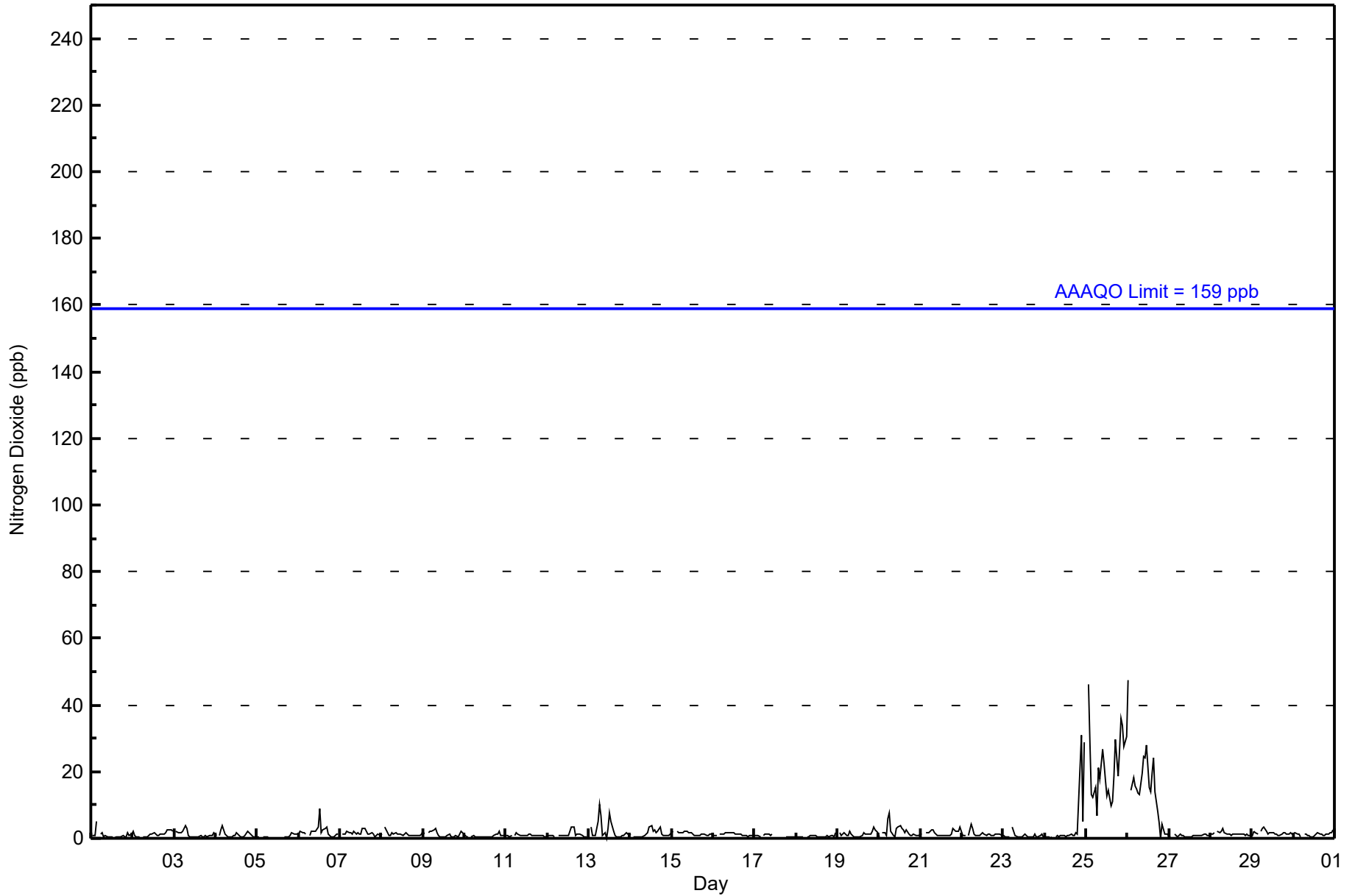
2.9	3.0	2.7	2.4	2.2	3.0	2.5	2.7	2.4	2.7	2.6	2.8	2.6	2.2	2.2	2.4	2.1	2.2	1.7	1.9	3.0	3.3	2.2	3.1	Diurnal Average	
47.3	46.3	29.0	18.4	15.6	15.4	13.5	21.3	19.3	26.5	24.2	27.9	15.3	14.2	19.3	24.1	18.7	29.7	18.5	26.8	36.1	33.9	27.5	30.3	Diurnal Maximum	

Z - zerospan      C - Calibration      DF - DAS Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Kirby South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	656	97.19	97.19
21 - 40	17	2.52	99.70
41 - 80	2	0.30	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	34	81	58	24	18	23	27	39	53	56	32	34	37	72	46	21	655
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7	4	17
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	81	58	24	18	23	27	39	53	56	32	34	37	78	55	25	674

Total Number of Valid Hours: 674

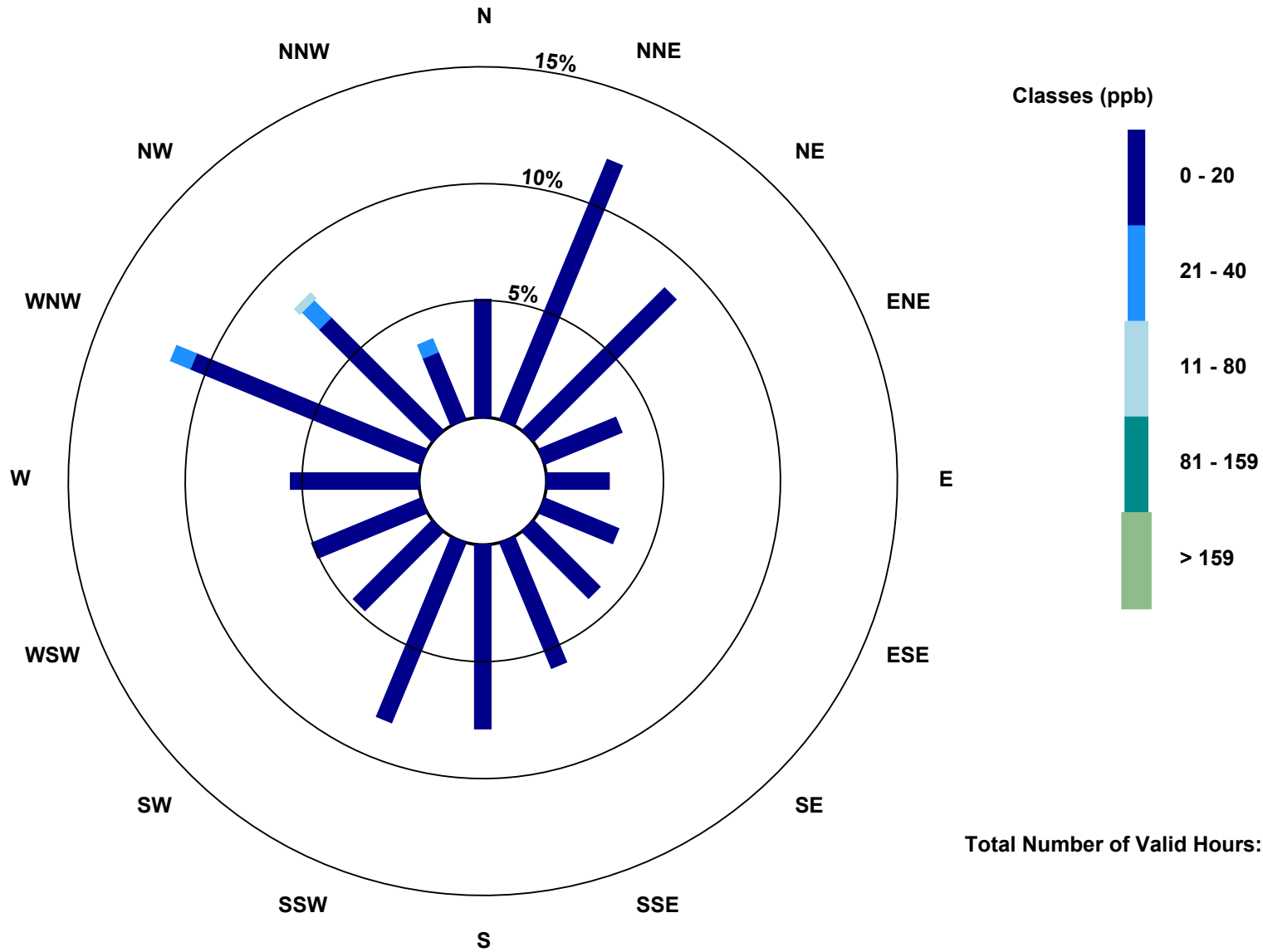
Total Number of Hours: 720



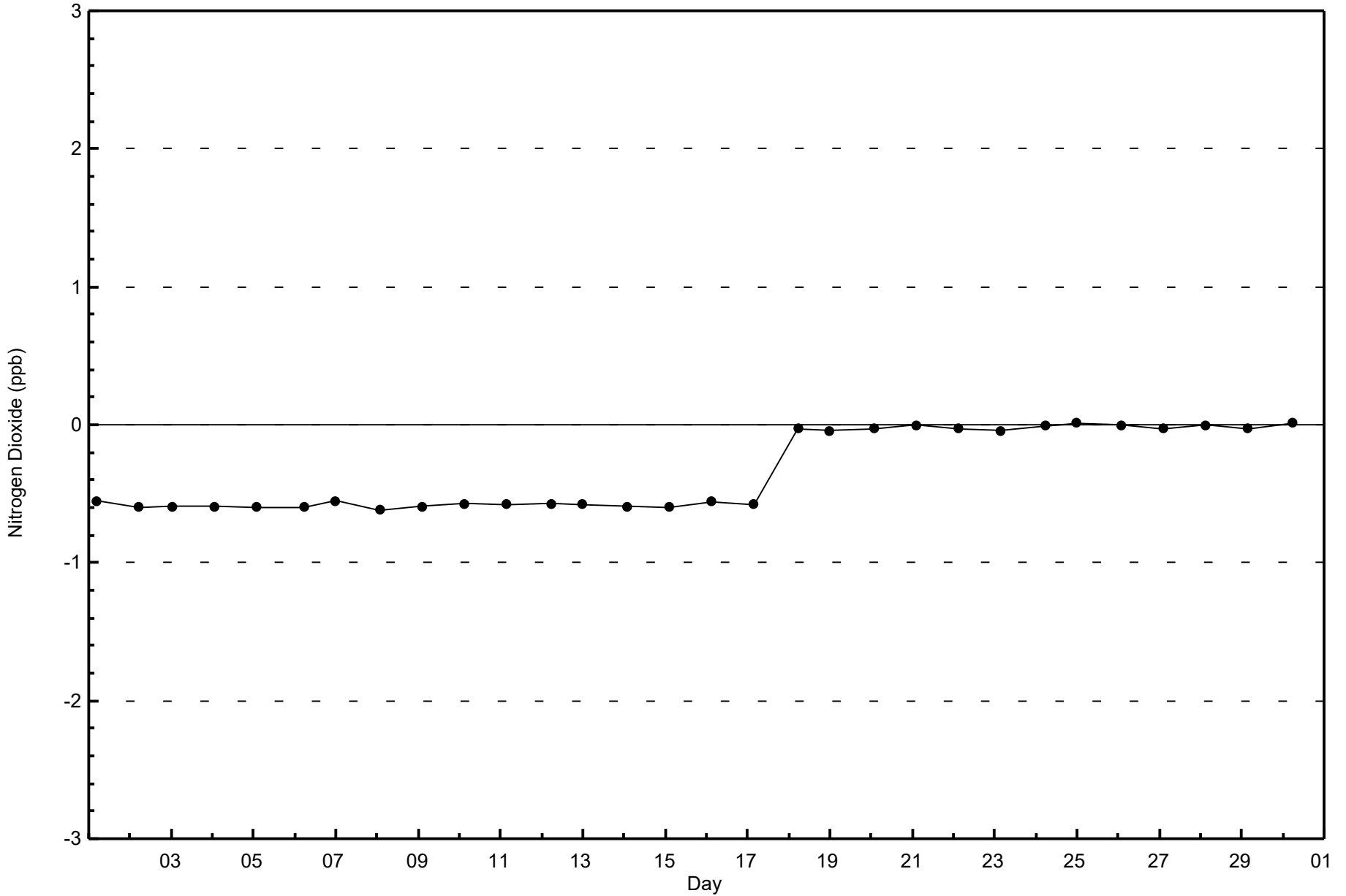


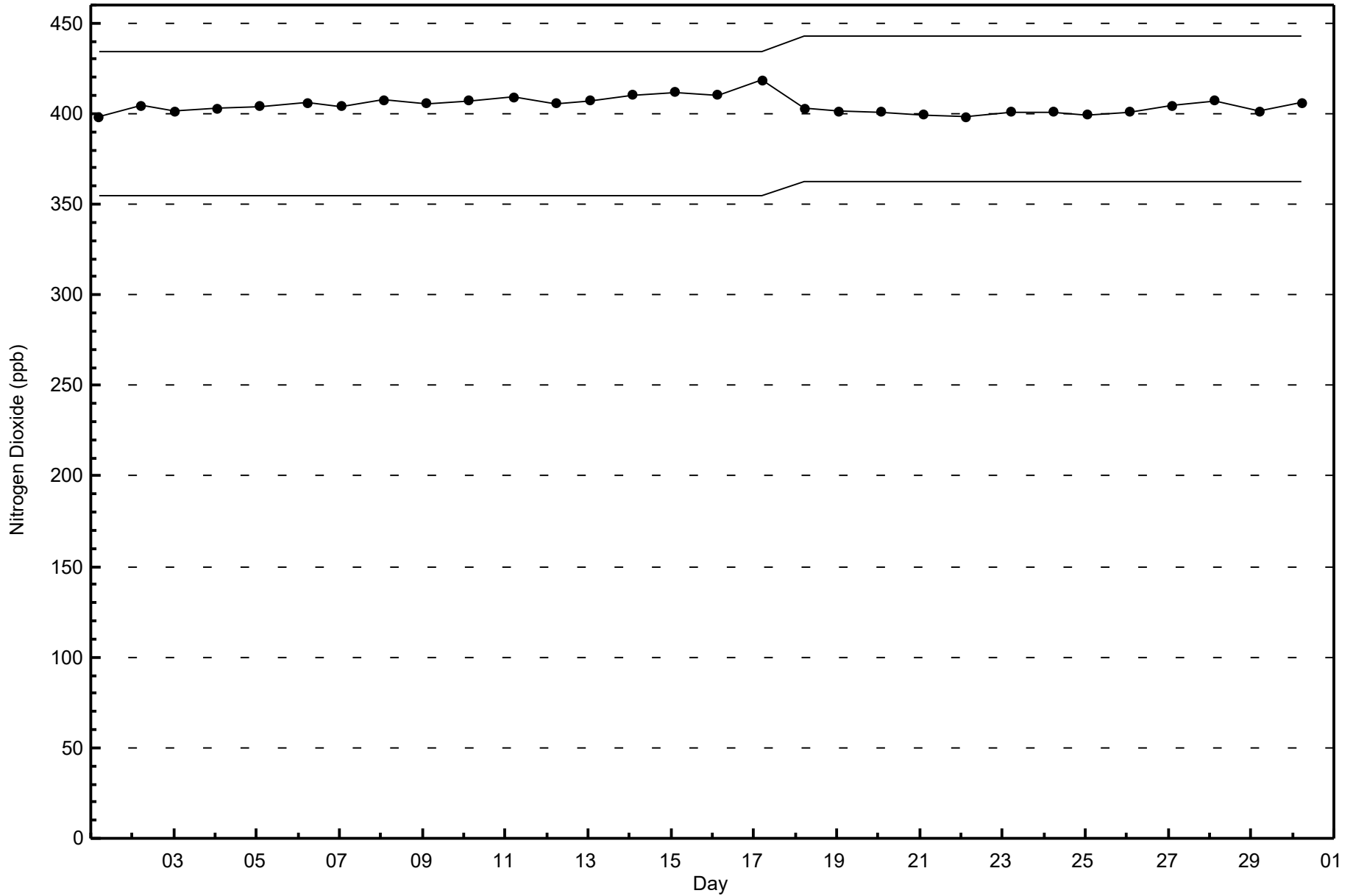
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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



Total Number of Valid Hours: 674







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

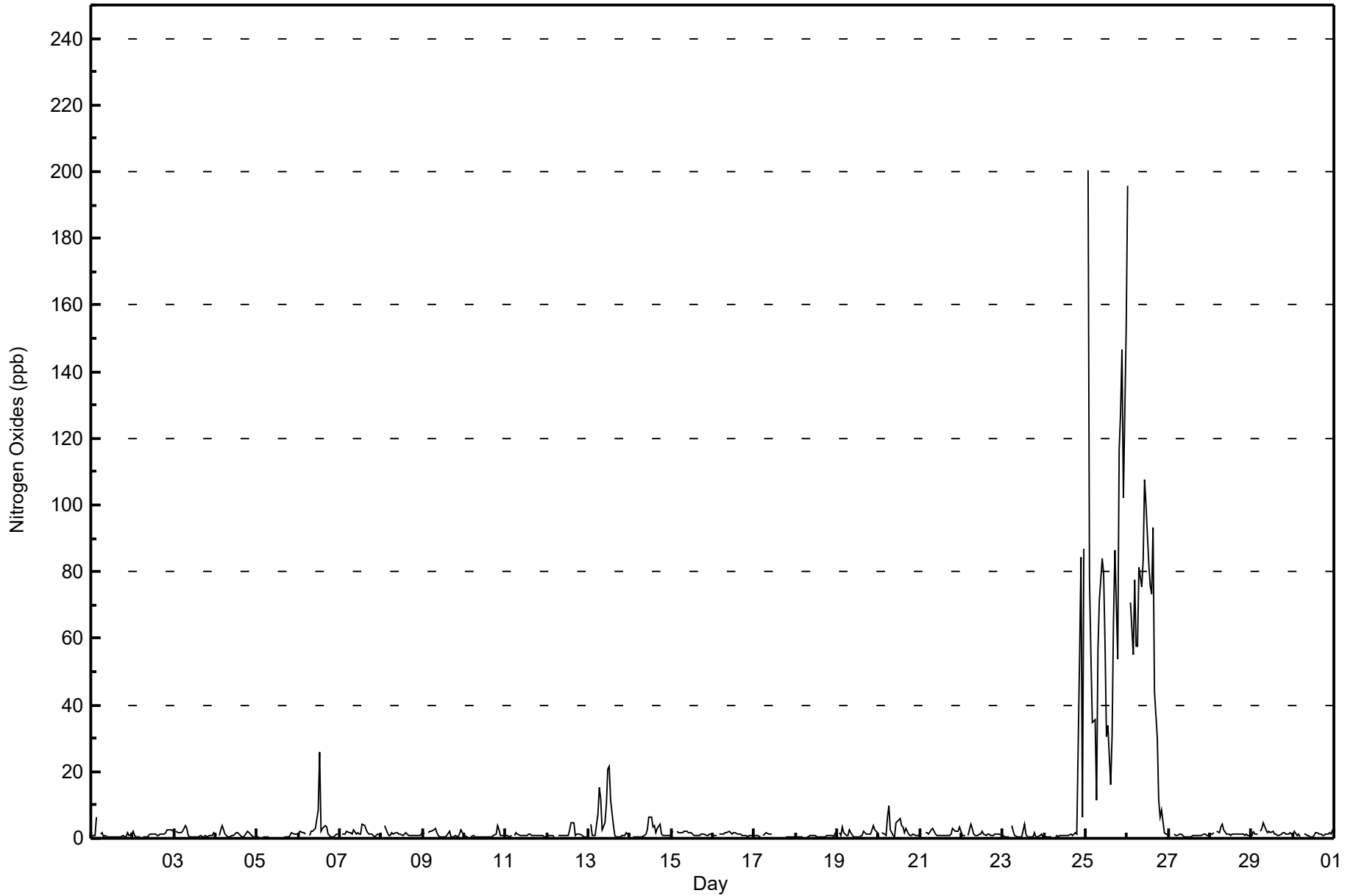
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - April 2024**

Maximum Value: 200.4 ppb on Apr 25 02:00		Maximum Daily Average: 75.2 ppb on Apr 25		Hours in Service: 720																																												
Minimum Value: 0.2 ppb on Apr 24 01:00		Minimum Daily Average: 0.7 ppb on Apr 18		Hours of Data: 675																																												
Maximum Diurnal Average: 9.2 ppb at hour 2		Minimum Diurnal Average: 3.2 ppb at hour 19		Hours of Missing Data: 45																																												
Monthly Average: 6.35 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.1 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 4.5 P <sub>99</sub> = 103.4		Hours of Calibration: 37																																												
				Percent Operational Time: 98.9																																												
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-Apr	0.8	0.8	1.0	6.4	Z	1.1	1.6	0.6	0.7	0.5	0.5	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.9	0.6	0.6	1.9	0.9	1.4	1.0	6.4																						
2-Apr	2.0	0.8	0.3	0.3	0.2	Z	0.6	0.4	0.5	0.8	1.2	1.4	1.5	1.3	0.8	1.0	1.2	1.3	1.3	1.8	2.6	2.5	2.5	2.3	1.2	2.6																						
3-Apr	Z	2.3	1.9	1.6	1.6	2.1	3.7	3.0	0.7	0.5	0.4	0.5	0.5	0.6	0.5	1.0	0.5	0.6	0.8	0.5	0.9	0.8	1.0	1.6	1.2	3.7																						
4-Apr	0.8	Z	0.8	2.4	3.7	1.2	0.7	0.4	0.4	0.6	1.0	1.2	1.8	1.6	0.7	0.5	0.5	0.8	2.0	1.6	1.1	0.9	0.6	0.5	1.1	3.7																						
5-Apr	0.4	0.3	Z	0.4	0.3	0.4	0.3	0.2	DF	DF	DF	DF	DF	DF	DF	DF	0.3	0.3	0.3	0.7	1.5	1.1	1.2	1.3	--	1.5																						
6-Apr	1.4	2.1	1.6	1.5	1.2	Z	0.9	2.1	2.3	2.6	2.9	8.3	26.0	2.1	3.0	3.7	3.6	1.4	0.9	0.5	0.5	0.7	1.1	1.1	3.1	26.0																						
7-Apr	Z	1.1	1.3	1.3	2.1	1.8	1.8	1.4	2.6	1.3	1.9	1.4	1.1	4.4	3.9	2.5	1.6	1.2	1.5	1.1	0.6	0.9	1.2	0.7	1.7	4.4																						
8-Apr	1.3	Z	3.6	1.8	1.0	0.7	1.6	1.4	1.9	1.5	1.2	1.1	1.0	1.2	1.5	1.2	0.9	0.8	0.9	0.9	0.9	0.9	1.0	1.1	1.3	3.6																						
9-Apr	2.2	1.4	Z	1.8	2.0	2.1	2.4	3.1	1.8	0.8	0.6	0.6	0.5	0.4	1.0	2.0	0.5	0.6	0.6	0.8	0.5	1.2	2.6	1.6	1.3	3.1																						
10-Apr	0.9	0.4	0.3	Z	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	1.0	1.2	3.9	2.7	0.9	0.7	0.7	0.8	3.9																						
11-Apr	1.0	0.7	0.5	0.7	Z	1.0	1.8	1.3	0.9	0.7	0.8	0.9	1.0	1.3	1.2	0.9	0.8	0.8	0.8	0.7	1.0	1.0	0.6	0.5	0.9	1.8																						
12-Apr	0.7	0.8	1.0	0.8	0.6	Z	0.7	0.8	0.9	0.8	0.8	0.9	1.0	2.5	4.9	4.6	0.8	1.4	1.4	1.1	0.7	0.6	0.5	0.5	1.3	4.9																						
13-Apr	Z	4.1	0.7	0.7	0.7	7.2	15.3	12.0	2.4	4.7	10.2	20.8	21.4	11.5	4.0	0.9	0.4	0.5	0.5	0.9	0.9	1.1	1.6	1.0	5.4	21.4																						
14-Apr	1.3	Z	0.5	0.6	0.5	0.5	0.5	0.6	0.8	1.4	2.3	6.3	6.5	3.3	3.7	1.9	3.0	4.4	1.3	0.8	0.8	0.8	0.7	1.1	1.9	6.5																						
15-Apr	1.5	2.0	Z	2.1	1.8	1.7	1.7	2.3	2.0	2.2	1.6	1.6	1.4	1.0	0.8	0.8	1.0	1.2	1.1	1.3	0.9	0.7	1.2	1.1	1.4	2.3																						
16-Apr	1.0	1.0	1.0	Z	1.2	1.2	1.4	1.6	1.9	2.0	1.7	1.5	1.6	1.5	1.2	1.2	1.1	1.0	1.0	1.0	0.6	0.9	1.0	1.0	1.2	2.0																						
17-Apr	1.0	0.9	1.0	0.6	Z	0.9	1.3	1.6	1.2	1.1	1.3	C	C	C	C	C	C	C	0.6	0.6	0.5	0.4	0.5	0.4	--	1.6																						
18-Apr	0.3	0.6	0.6	0.6	0.3	Z	0.3	0.6	0.9	0.7	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.7	0.6	0.9	1.0	0.6	1.5	0.7	1.5																					
19-Apr	Z	1.5	0.7	3.3	1.6	0.8	0.7	2.7	1.6	0.5	0.5	0.5	0.6	0.6	0.9	2.2	1.5	1.1	1.1	1.1	2.3	3.6	2.4	1.5	1.5	3.6																						
20-Apr	0.6	Z	1.9	1.5	0.9	6.3	9.5	2.7	0.8	0.6	4.8	5.1	5.9	3.9	3.5	1.7	3.2	1.5	0.7	0.8	1.1	1.0	0.8	1.0	2.6	9.5																						
21-Apr	1.1	1.4	Z	1.5	1.6	1.5	2.6	3.1	2.3	1.3	0.9	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.2	2.8	2.1	2.0	2.0	3.2	1.6	3.2																						
22-Apr	1.0	0.9	0.8	Z	0.8	4.2	3.0	1.4	1.0	0.7	1.1	1.3	2.0	1.3	0.9	1.4	1.3	1.0	1.0	1.1	1.2	1.4	1.3	1.0	1.4	4.2																						
23-Apr	0.7	0.6	0.5	0.5	Z	3.6	2.3	1.0	0.5	0.4	0.3	0.3	4.4	1.2	0.4	0.4	0.4	0.5	1.5	0.4	0.5	0.7	1.1	0.4	1.0	4.4																						
24-Apr	0.2	0.3	0.3	0.2	0.5	Z	0.3	1.0	0.5	0.7	0.7	0.7	0.8	0.8	0.9	1.1	1.0	1.1	1.8	1.3	54.6	84.5	6.3	87.0	10.7	87.0																						
25-Apr	Z	200.4	77.6	55.2	34.5	35.4	11.6	56.6	71.7	83.8	79.6	58.3	30.5	33.9	16.2	31.1	65.9	86.4	53.8	116.6	127.6	146.7	102.0	153.4	75.2	200.4																						
26-Apr	195.9	Z	71.0	55.1	77.6	57.8	57.7	81.3	75.2	83.5	107.6	100.1	82.3	76.0	73.5	93.4	43.9	30.0	11.6	6.4	8.5	1.6	1.4	1.3	60.5	195.9																						
27-Apr	0.6	0.4	Z	1.1	0.8	0.6	1.4	1.2	0.9	0.5	0.6	0.5	0.5	0.5	0.8	0.8	0.7	0.9	0.8	0.8	1.2	1.4	1.0	0.9	0.8	1.4																						
28-Apr	1.1	1.3	1.7	Z	2.1	1.8	3.5	4.1	2.4	1.3	1.1	1.1	1.0	1.2	1.4	1.4	1.3	1.1	1.1	1.1	0.9	1.1	1.0	0.9	1.5	4.1																						
29-Apr	1.0	2.0	1.5	1.2	Z	2.2	3.0	4.6	2.6	1.5	2.1	1.8	2.2	1.5	1.4	0.9	0.7	1.2	1.7	1.5	1.2	1.2	1.6	1.1	1.7	4.6																						
30-Apr	1.3	1.9	1.1	1.1	0.6	Z	1.1	1.3	1.0	0.9	0.6	0.5	1.0	1.6	1.9	1.2	1.1	1.0	0.9	1.3	1.3	1.5	1.5	2.5	1.2	2.5																						
																								8.8	9.2	6.9	5.5	5.6	5.7	4.5	6.5	6.3	6.8	7.9	7.8	7.1	5.6	4.7	5.7	4.8	5.0	3.2	5.2	7.4	8.8	4.7	9.1	Diurnal Average
																								195.9	200.4	77.6	55.2	77.6	57.8	57.7	81.3	75.2	83.8	107.6	100.1	82.3	76.0	73.5	93.4	65.9	86.4	53.8	116.6	127.6	146.7	102.0	153.4	Diurnal Maximum
Z - zerspan																								C - Calibration				DF - DAS Failure																				



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South - April 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	631	93.48	93.48
21 - 40	9	1.33	94.81
41 - 80	18	2.67	97.48
81 - 159	14	2.07	99.56
> 159	2	0.30	99.85

Total Number of Valid Hours: 675

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South - April 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	27	79	57	24	18	23	27	39	53	56	32	34	36	63	44	18	630
21 - 40	0	1	1	0	0	0	0	0	0	0	0	0	1	4	2	0	9
11 - 80	6	1	0	0	0	0	0	0	0	0	0	0	0	8	1	2	18
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	5	14
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
<b>Totals</b>	<b>33</b>	<b>81</b>	<b>58</b>	<b>24</b>	<b>18</b>	<b>23</b>	<b>27</b>	<b>39</b>	<b>53</b>	<b>56</b>	<b>32</b>	<b>34</b>	<b>37</b>	<b>78</b>	<b>55</b>	<b>25</b>	<b>673</b>

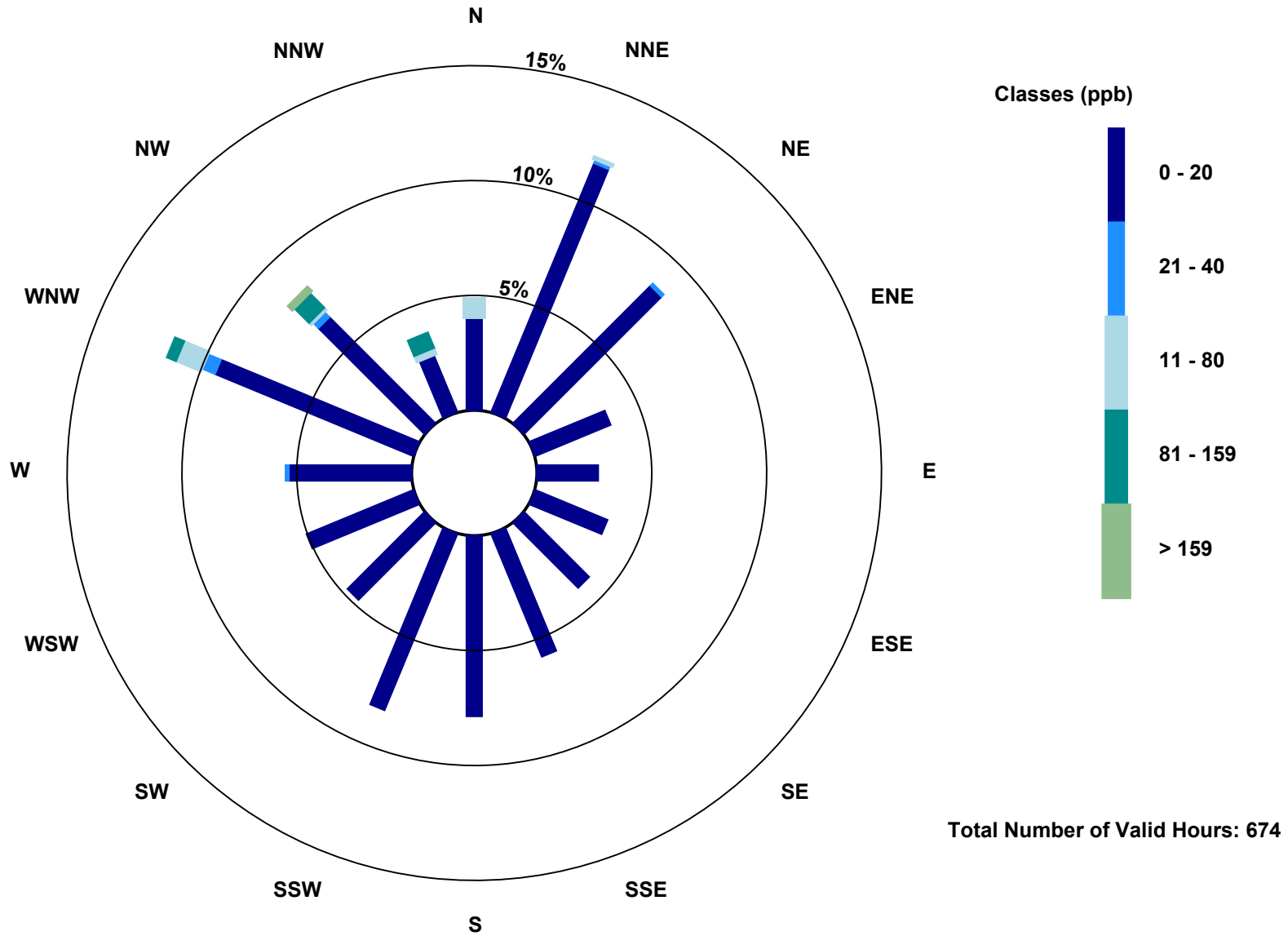
Total Number of Valid Hours: 674

Total Number of Hours: 720

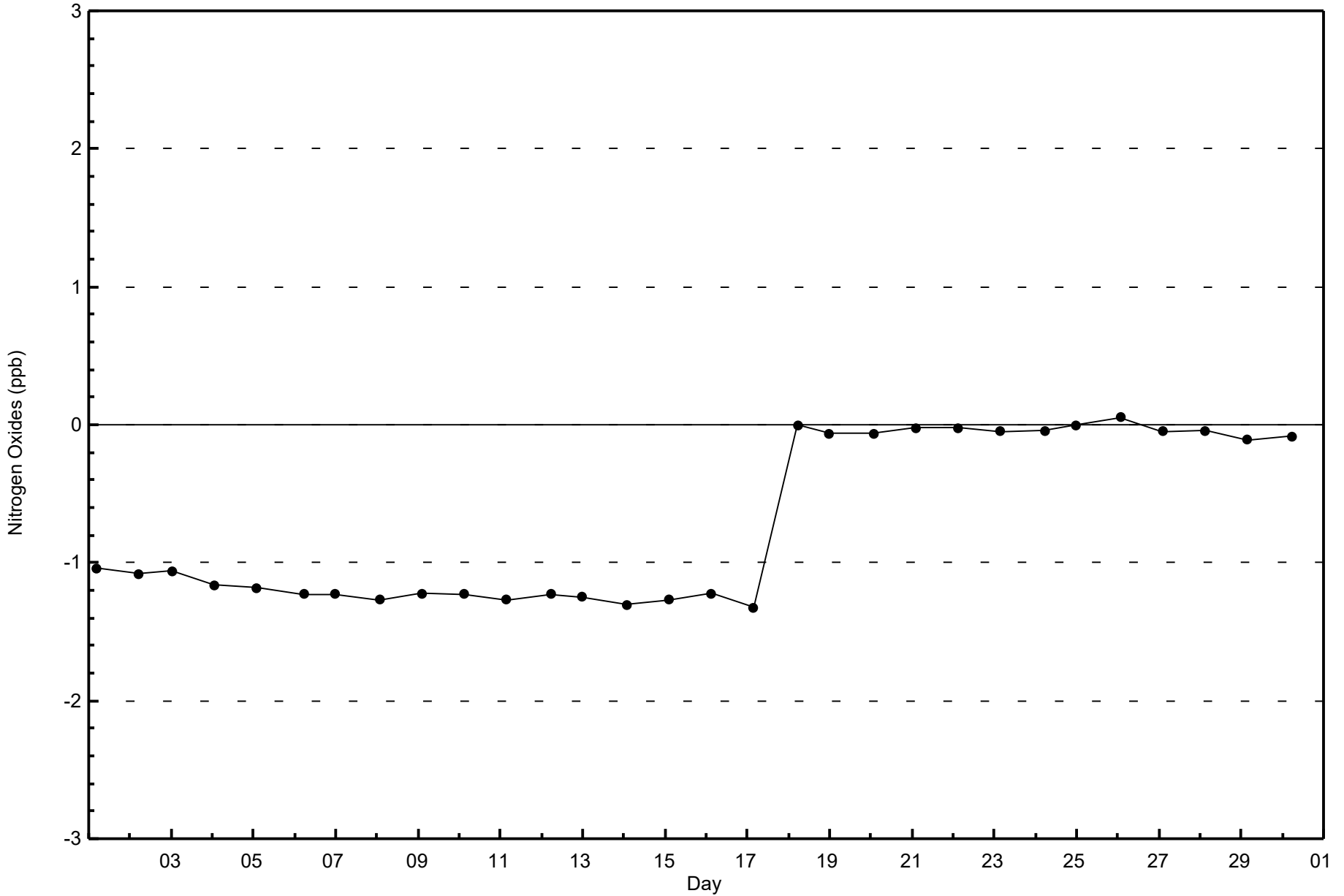


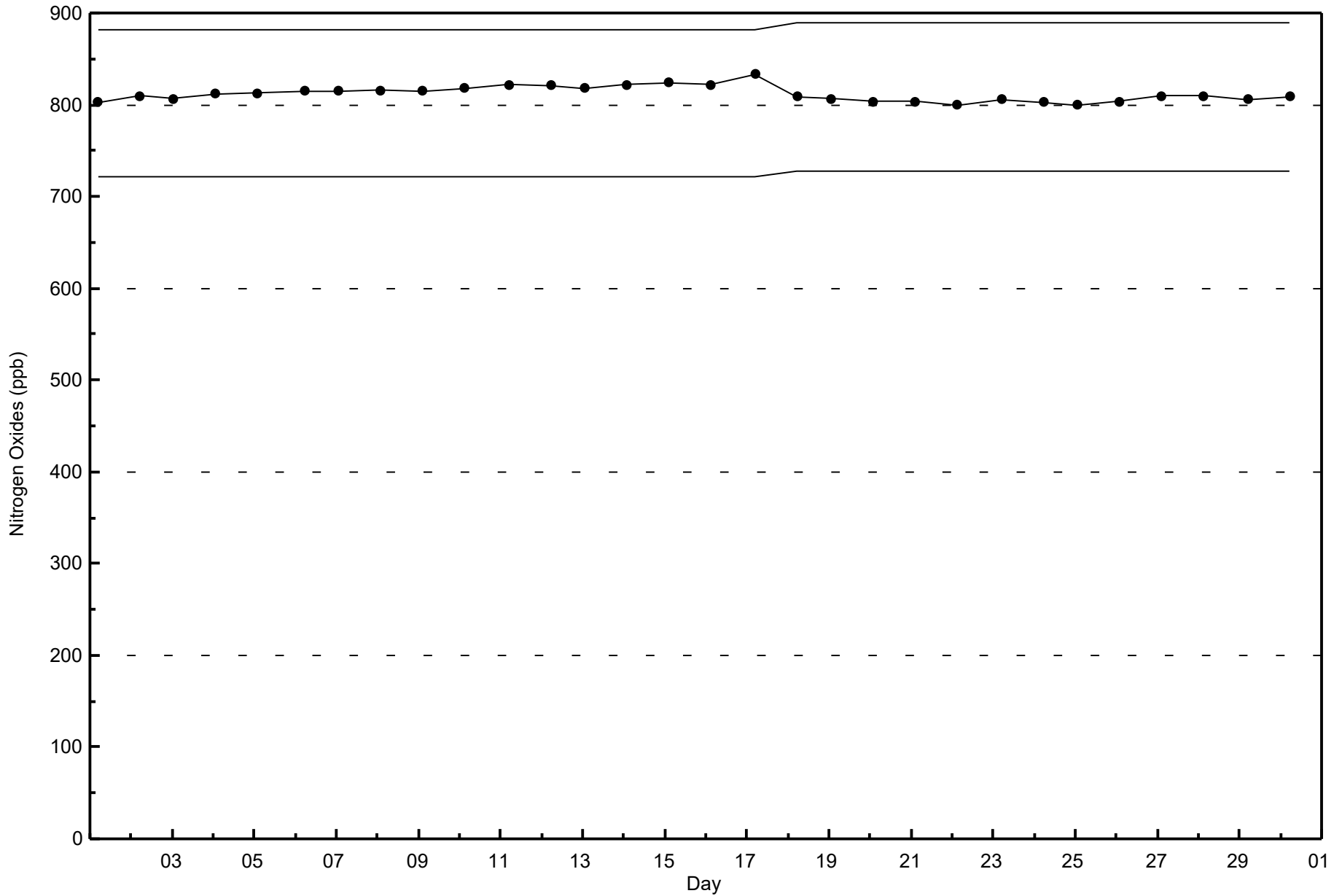
Wood Buffalo Environmental Association  
Wind Rose Apr 2024

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











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

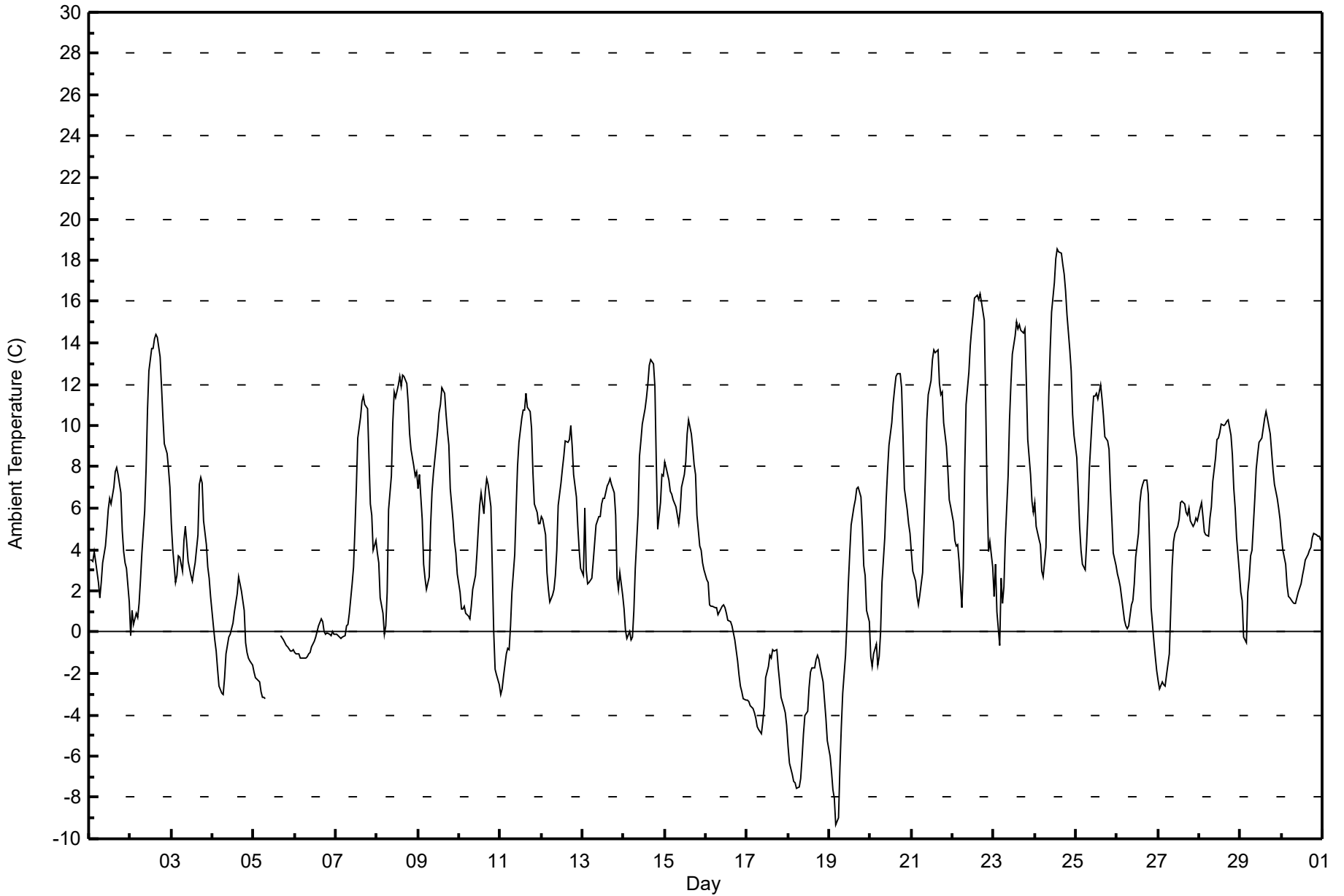
**Ambient Temperature (AT) - C**  
**Kirby South - April 2024**

Maximum Value: 18.5 C on Apr 24 14:00		Maximum Daily Average: 11.7 C on Apr 24		Hours in Service: 720																							
Minimum Value: -9.3 C on Apr 19 05:00		Minimum Daily Average: -4.3 C on Apr 18		Hours of Data: 712																							
Maximum Diurnal Average: 8.7 C at hour 16		Minimum Diurnal Average: 0.3 C at hour 6		Hours of Missing Data: 8																							
Monthly Average: 4.43 C		Percentiles: P <sub>1</sub> = -7.2 P <sub>10</sub> = -1.9 Q <sub>1</sub> = 0.5 Median = 4.2 Q <sub>3</sub> = 7.8 P <sub>90</sub> = 11.5 P <sub>99</sub> = 16.5		Hours of Calibration: 0																							
				Percent Operational Time: 98.9																							
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-Apr	3.5	3.5	3.4	3.9	3.4	2.4	1.7	2.4	3.4	4.2	5.0	5.9	6.4	6.2	7.0	7.8	8.0	7.6	6.8	4.9	3.9	3.3	3.1	1.4	4.5	8.0	
2-Apr	-0.2	1.0	0.4	0.9	0.7	1.4	2.6	3.8	5.8	7.9	10.7	12.6	13.7	13.7	14.2	14.4	14.2	13.3	11.9	10.4	9.1	8.7	7.9	7.0	7.8	14.4	
3-Apr	5.3	4.0	2.4	2.8	3.7	3.7	2.9	4.4	5.1	4.3	3.4	2.7	2.4	2.9	3.3	4.7	7.2	7.5	7.2	5.4	4.2	3.2	2.6	1.7	4.1	7.5	
4-Apr	0.3	-0.4	-0.9	-1.8	-2.6	-3.0	-3.0	-2.2	-1.1	-0.3	-0.1	0.2	0.5	1.0	1.8	2.6	2.4	2.0	1.0	-0.5	-1.0	-1.2	-1.4	-1.6	-0.4	2.6	
5-Apr	-1.9	-2.2	-2.3	-2.4	-2.9	-3.2	-3.1	-3.2	DF	DF	DF	DF	DF	DF	DF	DF	-0.2	-0.4	-0.5	-0.6	-0.7	-0.9	-0.9	-0.9	--	-0.2	
6-Apr	-1.0	-1.0	-1.1	-1.3	-1.2	-1.3	-1.2	-1.2	-1.1	-1.0	-0.7	-0.4	-0.2	0.0	0.3	0.6	0.5	0.0	-0.1	0.0	-0.1	-0.2	0.0	-0.1	-0.5	0.6	
7-Apr	-0.1	-0.1	-0.2	-0.3	-0.2	-0.1	0.3	0.3	0.9	2.3	3.2	5.0	7.0	9.4	10.4	11.1	11.4	11.0	10.8	8.4	6.2	5.7	4.0	4.4	4.6	11.4	
8-Apr	3.9	3.4	1.7	0.9	-0.1	0.3	1.9	5.9	7.6	10.1	11.7	11.3	11.9	12.4	11.9	12.5	12.4	12.1	11.1	9.6	8.8	8.0	7.6	7.8	7.7	12.5	
9-Apr	7.0	7.6	5.5	3.3	2.6	2.1	2.7	5.2	6.8	7.7	8.4	9.7	10.6	11.0	11.8	11.6	10.6	9.7	9.0	7.0	5.4	4.4	3.9	2.8	6.9	11.8	
10-Apr	1.9	1.1	1.1	1.2	0.9	0.8	0.6	1.2	2.1	2.8	3.7	5.0	6.1	6.7	5.7	6.8	7.4	7.2	6.1	3.1	0.0	-1.8	-2.1	-2.5	2.7	7.4	
11-Apr	-3.0	-2.7	-2.2	-1.0	-0.7	-0.9	0.3	2.0	3.8	6.0	8.0	9.2	10.3	10.7	10.8	11.6	10.9	10.7	9.8	7.7	6.2	5.8	5.2	5.3	5.2	11.6	
12-Apr	5.6	5.4	4.7	2.9	2.1	1.5	1.8	2.1	2.8	3.9	6.1	7.2	7.9	8.5	9.3	9.2	9.3	10.0	9.0	7.6	6.5	5.1	4.0	3.1	5.6	10.0	
13-Apr	2.8	6.0	3.0	2.3	2.4	2.6	3.4	4.3	5.2	5.6	5.6	6.2	6.5	6.5	7.1	7.2	7.4	7.1	6.8	5.7	2.6	2.1	2.9	1.8	4.7	7.4	
14-Apr	1.1	0.1	-0.3	0.1	-0.4	-0.3	1.0	3.1	5.7	8.5	9.3	10.1	10.8	11.4	12.0	12.9	13.2	13.0	11.9	8.2	5.0	6.3	7.6	7.6	6.6	13.2	
15-Apr	8.2	8.0	7.3	6.8	6.7	6.4	6.1	5.7	5.2	5.9	7.0	7.6	8.2	9.6	10.2	9.6	8.9	8.1	7.6	5.6	4.2	4.0	3.4	3.0	6.8	10.2	
16-Apr	2.5	2.4	1.3	1.2	1.2	1.2	0.8	1.0	1.2	1.3	1.2	0.9	0.5	0.5	0.3	-0.1	-0.4	-1.4	-2.1	-2.6	-2.9	-3.2	-3.3	0.1	2.5		
17-Apr	-3.3	-3.4	-3.5	-3.7	-3.9	-4.2	-4.6	-4.7	-4.9	-4.3	-3.7	-2.2	-1.7	-1.1	-1.3	-0.8	-0.9	-0.8	-1.7	-2.4	-3.1	-3.6	-3.9	-4.5	-3.0	-0.8	
18-Apr	-5.5	-6.3	-6.9	-7.2	-7.3	-7.5	-7.5	-7.1	-6.1	-4.9	-4.0	-3.9	-2.7	-1.9	-1.7	-1.7	-1.3	-1.1	-1.3	-1.7	-2.4	-3.3	-4.2	-5.2	-4.3	-1.1	
19-Apr	-6.0	-6.8	-7.6	-8.0	-9.3	-9.0	-6.6	-4.6	-2.9	-1.1	0.5	2.3	3.9	5.2	6.0	6.4	6.9	7.0	6.6	5.1	3.2	2.7	1.0	0.5	-0.2	7.0	
20-Apr	-1.2	-1.6	-1.0	-0.6	-1.6	-1.2	0.0	2.4	4.6	6.4	7.9	9.0	10.1	11.1	11.8	12.4	12.5	12.5	11.8	9.5	6.9	5.9	5.3	4.8	5.7	12.5	
21-Apr	3.8	2.9	2.5	1.7	1.3	1.8	2.9	5.2	7.6	10.2	11.5	12.2	13.2	13.6	13.5	13.6	12.1	11.5	11.6	10.1	9.0	7.8	6.4	6.0	8.0	13.6	
22-Apr	5.3	4.4	4.2	4.3	3.4	1.2	3.1	7.8	11.0	12.6	13.9	14.7	15.4	16.2	16.3	16.1	16.4	16.0	15.1	11.1	6.7	3.9	4.4	3.1	9.4	16.4	
23-Apr	1.8	3.3	1.0	-0.6	2.6	1.4	2.2	4.5	7.6	10.2	12.0	13.4	14.3	15.0	14.7	14.9	14.6	14.5	14.7	12.1	9.3	7.6	6.3	5.8	8.5	15.0	
24-Apr	6.3	5.1	4.5	4.3	3.0	2.6	4.1	7.7	11.4	13.6	15.5	16.9	18.1	18.5	18.4	18.4	17.8	17.3	16.5	15.4	13.7	12.6	10.5	9.6	11.7	18.5	
25-Apr	8.4	6.9	5.1	4.0	3.3	3.0	4.3	5.9	8.0	10.4	11.4	11.4	11.5	11.3	12.0	11.3	10.5	9.4	9.2	8.8	6.9	5.4	3.8	3.2	7.7	12.0	
26-Apr	2.8	2.5	2.2	1.2	0.6	0.3	0.2	0.3	1.3	1.5	2.3	3.6	4.7	6.3	6.9	7.2	7.4	7.4	6.7	4.0	1.2	-0.5	-1.2	-1.9	2.8	7.4	
27-Apr	-2.3	-2.7	-2.4	-2.5	-2.6	-2.1	-1.1	1.0	3.2	4.4	4.8	5.1	5.4	6.3	6.3	6.2	5.8	5.7	6.0	5.4	5.1	5.2	5.5	5.4	3.0	6.3	
28-Apr	6.0	6.2	5.6	4.9	4.7	4.7	5.5	6.1	7.3	8.4	9.3	9.4	9.7	10.0	10.0	10.1	10.2	10.3	9.5	8.6	6.9	6.0	4.6	2.9	7.4	10.3	
29-Apr	2.0	1.5	-0.3	-0.5	1.9	2.6	3.7	4.0	6.5	7.9	8.6	9.2	9.4	9.9	10.4	10.7	10.3	9.6	8.7	7.8	7.2	6.5	6.0	5.4	6.2	10.7	
30-Apr	4.6	4.0	3.3	2.2	1.8	1.7	1.5	1.4	1.4	1.6	1.9	2.3	2.7	3.1	3.5	3.8	4.0	4.1	4.6	4.8	4.7	4.7	4.7	4.4	3.2	4.8	
		2.0	1.7	1.0	0.6	0.5	0.3	0.9	2.2	3.8	5.0	6.0	6.8	7.5	8.1	8.4	8.7	8.3	8.1	7.5	6.0	4.4	3.7	3.1	2.6	Diurnal Average	
		8.4	8.0	7.3	6.8	6.7	6.4	6.1	7.8	11.4	13.6	15.5	16.9	18.1	18.5	18.4	18.4	17.8	17.3	16.5	15.4	13.7	12.6	10.5	9.6	Diurnal Maximum	
DF - DAS Failure																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Kirby South - April 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	155	21.77	21.77
0 - 10	440	61.80	83.57
10 - 20	117	16.43	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 712

Total Number of Hours: 720



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

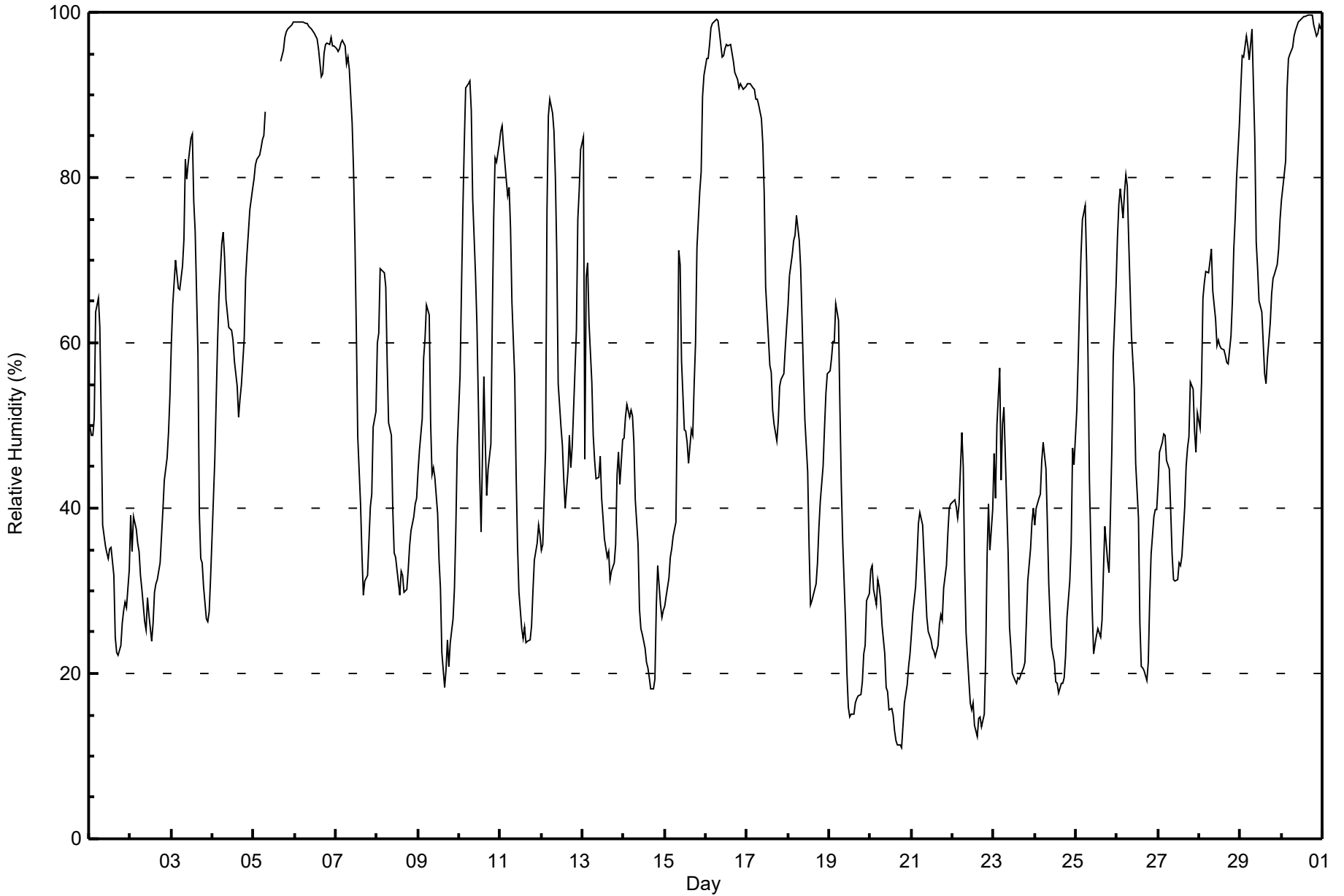
**Relative Humidity (RH) - %**  
**Kirby South - April 2024**

Maximum Value: 99.7 % on Apr 30 18:00		Maximum Daily Average: 97.0 % on Apr 6		Hours in Service: 720																							
Minimum Value: 11.1 % on Apr 20 19:00		Minimum Daily Average: 20.7 % on Apr 20		Hours of Data: 712																							
Maximum Diurnal Average: 68.5 % at hour 6		Minimum Diurnal Average: 39.4 % at hour 16		Hours of Missing Data: 8																							
Monthly Average: 53.26 %		Percentiles: P <sub>1</sub> = 13.7 P <sub>10</sub> = 22.5 Q <sub>1</sub> = 31.9 Median = 48.8 Q <sub>3</sub> = 72.5 P <sub>90</sub> = 94.8 P <sub>99</sub> = 99.1		Hours of Calibration: 0																							
				Percent Operational Time: 98.9																							
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-Apr	49.9	48.8	48.9	50.8	63.8	65.4	61.9	50.6	38.0	35.5	34.6	34.0	35.0	35.3	31.9	24.5	22.5	22.2	23.3	26.0	27.7	28.7	27.9	32.5	38.3	65.4	
2-Apr	39.1	34.8	38.9	37.5	35.8	34.7	31.9	30.1	26.3	25.3	29.2	27.2	23.9	26.1	29.8	30.8	31.3	33.4	36.7	39.8	43.4	46.2	49.2	53.5	34.8	53.5	
3-Apr	59.8	64.5	70.0	68.3	66.6	66.4	69.3	72.6	82.2	79.9	81.7	84.7	85.2	77.2	73.5	58.6	39.3	33.9	33.4	30.4	26.7	26.3	27.4	31.5	58.7	85.2	
4-Apr	40.9	45.8	53.1	60.2	65.6	72.0	73.4	70.3	65.3	61.8	61.6	61.5	60.3	57.9	54.7	51.0	53.2	54.9	60.6	67.8	70.9	73.5	76.1	78.7	62.1	78.7	
5-Apr	79.8	81.6	82.3	82.7	83.6	84.6	85.1	87.9	DF	DF	DF	DF	DF	DF	DF	DF	DF	94.0	95.5	96.9	97.6	98.0	98.3	98.6	98.8	--	98.8
6-Apr	98.8	98.9	98.8	98.8	98.8	98.8	98.7	98.6	98.4	98.2	98.0	97.5	97.1	96.8	95.7	92.2	92.6	95.1	96.0	96.2	96.1	96.9	95.9	95.9	97.0	98.9	
7-Apr	95.7	95.3	95.6	96.4	96.7	95.9	93.7	94.6	93.0	86.7	80.8	72.2	61.3	48.7	40.6	34.4	29.4	31.2	31.8	36.0	40.1	41.6	49.9	51.7	66.4	96.7	
8-Apr	60.0	61.1	68.9	68.7	68.5	66.8	57.6	50.3	48.8	39.8	34.6	34.0	31.0	29.5	32.3	31.9	29.8	30.2	32.5	35.5	37.2	39.0	40.5	41.2	44.6	68.9	
9-Apr	44.5	47.0	50.9	58.2	60.4	64.6	63.4	50.4	44.2	44.9	43.8	39.3	33.7	30.4	22.5	18.3	20.5	24.1	20.8	23.7	26.6	30.3	37.9	47.4	39.5	64.6	
10-Apr	56.1	66.5	76.1	84.0	90.8	91.4	91.7	88.2	77.4	68.3	62.5	53.2	43.9	37.1	56.0	47.8	41.6	44.7	47.8	63.0	75.2	82.3	81.9	84.1	67.1	91.7	
11-Apr	85.7	86.3	83.8	79.7	77.9	78.9	73.9	64.8	55.8	44.1	35.4	29.8	25.4	24.2	25.6	23.8	24.0	24.1	25.7	29.9	33.8	35.8	37.9	36.8	47.6	86.3	
12-Apr	34.9	35.5	47.1	75.9	87.4	89.5	87.9	85.5	79.9	70.7	55.1	49.8	47.7	43.4	40.0	44.5	48.8	44.9	47.4	52.1	61.5	75.0	78.5	83.4	61.1	89.5	
13-Apr	84.9	45.9	67.9	69.7	62.4	55.2	48.8	45.8	43.5	43.8	46.2	41.2	38.8	36.2	34.1	34.7	31.3	32.3	33.4	35.6	44.0	46.8	42.9	48.3	46.4	84.9	
14-Apr	48.5	51.1	52.5	51.0	51.9	51.2	48.0	41.1	35.5	27.8	25.5	24.7	23.1	21.4	20.6	19.5	18.2	18.2	19.3	28.1	33.1	28.4	26.8	27.6	33.0	52.5	
15-Apr	28.2	29.3	31.5	34.0	35.1	36.6	38.2	52.1	71.2	69.4	57.8	49.5	49.4	47.9	45.4	49.5	48.8	54.8	60.0	71.5	78.3	80.6	89.9	92.4	54.2	92.4	
16-Apr	94.4	94.4	96.1	98.1	98.6	98.9	99.1	99.0	97.6	94.6	94.8	95.6	96.2	96.0	96.0	95.0	94.1	92.7	91.8	90.9	91.3	91.1	90.7	91.0	94.9	99.1	
17-Apr	91.4	91.4	91.4	90.9	90.7	89.4	89.6	88.8	87.1	84.0	77.9	66.7	60.4	57.3	56.4	51.9	50.2	48.1	50.5	54.7	55.7	56.2	59.4	62.1	70.9	91.4	
18-Apr	64.5	68.1	70.6	72.4	73.0	75.3	72.4	68.9	62.7	56.3	50.7	44.3	35.4	28.4	28.9	30.1	30.8	33.4	37.6	40.9	45.1	49.7	53.9	56.2	52.1	75.3	
19-Apr	56.6	58.1	60.1	60.1	64.8	62.6	52.2	42.6	35.9	26.3	19.9	15.9	14.8	15.1	15.1	16.5	16.9	17.3	17.5	19.0	22.4	23.4	28.9	29.6	33.0	64.8	
20-Apr	32.5	33.1	30.1	28.3	31.3	30.5	29.0	26.0	22.4	18.4	17.9	15.6	15.8	14.9	13.0	11.8	11.4	11.4	11.1	13.7	16.4	18.6	20.9	22.4	20.7	33.1	
21-Apr	24.8	27.3	30.6	34.1	38.1	39.5	37.9	34.3	30.5	26.7	25.1	24.1	23.0	22.7	22.0	23.3	25.9	27.2	26.4	30.3	33.0	37.0	40.0	40.6	30.2	40.6	
22-Apr	40.8	41.0	40.3	38.9	40.5	49.1	44.9	32.8	24.8	19.1	16.5	15.6	16.4	13.7	12.3	14.5	14.8	13.6	15.1	21.9	34.3	40.6	35.0	39.8	28.2	49.1	
23-Apr	46.6	41.3	50.0	56.9	43.4	50.2	52.2	46.3	34.6	25.7	23.1	20.0	19.1	18.8	19.5	19.3	19.8	20.6	21.4	26.1	31.2	35.1	38.2	40.0	33.3	56.9	
24-Apr	37.9	39.9	41.3	41.7	45.8	48.0	44.8	38.2	30.8	26.6	23.3	21.4	19.0	18.7	17.6	18.8	18.8	19.5	22.2	26.8	31.1	35.8	47.2	45.3	31.7	48.0	
25-Apr	51.8	58.0	64.8	70.7	74.9	76.6	69.7	58.4	43.4	27.7	22.3	23.5	24.6	25.4	24.4	26.4	32.3	37.7	33.6	32.2	39.3	47.0	58.3	66.9	45.4	76.6	
26-Apr	72.6	76.8	78.6	75.2	78.1	80.3	79.0	72.5	60.8	57.8	54.6	45.4	38.8	26.2	20.9	20.7	20.3	19.1	21.3	28.8	34.4	39.0	39.8	39.8	49.2	80.3	
27-Apr	42.9	46.9	48.0	49.0	48.7	45.7	44.7	39.7	34.4	31.4	31.2	31.4	33.3	33.1	34.3	40.1	45.1	47.3	48.7	55.2	54.3	49.4	46.9	51.5	43.1	55.2	
28-Apr	49.7	55.3	65.5	67.3	68.6	68.5	69.9	71.3	66.2	63.0	59.6	60.4	59.7	59.3	59.1	58.4	57.7	57.5	60.9	65.0	71.4	75.2	80.0	86.5	64.8	86.5	
29-Apr	90.9	94.8	94.6	97.1	95.9	94.2	96.0	98.0	84.5	72.3	68.9	65.1	63.7	60.0	56.2	55.0	58.1	62.4	66.0	67.7	68.3	69.5	71.3	75.0	76.1	98.0	
30-Apr	77.2	78.8	82.1	90.6	94.3	95.0	95.8	97.1	97.8	98.4	98.8	99.1	99.3	99.5	99.6	99.6	99.7	99.7	99.7	98.5	97.2	97.5	98.5	98.0	95.5	99.7	
		59.4	59.9	63.7	66.2	67.7	68.5	66.7	63.2	57.7	52.6	49.4	46.3	44.0	41.4	40.6	39.4	40.7	41.6	43.0	46.8	50.6	53.2	55.7	58.3	Diurnal Average	
		98.8	98.9	98.8	98.8	98.8	98.9	99.1	99.0	98.4	98.4	98.8	99.1	99.3	99.5	99.6	99.6	99.7	99.7	99.7	98.5	98.0	98.3	98.6	98.8	Diurnal Maximum	
DF - DAS Failure																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Kirby South - April 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	50	7.02	7.02
20 - 40	223	31.32	38.34
40 - 60	172	24.16	62.50
60 - 80	126	17.70	80.20
80 - 100	141	19.80	100.00

Total Number of Valid Hours: 712

Total Number of Hours: 720





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

**Wind Speed (WS) - km/h**  
**Kirby South - April 2024**

Maximum Speed: 30 km/h on Apr 1 09:00	Maximum Daily Speed Average: 20.7 km/h on Apr 17	Hours in Service: 720
Minimum Speed Value: 1 km/h on Apr 22 20:00	Minimum Daily Speed Average: 4.9 km/h on Apr 15	Hours of Data: 711
Maximum Diurnal Speed Average: 4.8 km/h at hour 14	Minimum Diurnal Speed Average: 0.4 km/h at hour 23	Hours of Missing Data: 9
Monthly Average Velocity: 2.4 km/h 320.9 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 9 Median = 12 Q <sub>3</sub> = 17 P <sub>90</sub> = 20 P <sub>99</sub> = 27	Percent Operational Time: 98.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Apr	SW20	SW17	WSW17	WNW19	NW17	WNW16	WNW16	WNW24	WNW30	WNW29	WNW29	NW28	NW27	NW21	NW20	NW22	NW22	NW20	NW12	WNW8	WNW10	W10	WNW10	W6	WNW16.5	WNW30
2-Apr	WNW6	WSW6	SW4	SW9	SSW8	SSW9	SSW11	SSW15	SSW16	SSW18	SSW18	SSW18	SW18	SW17	SSW18	SSW16	SSW16	S15	S14	S14	S15	S15	S9	S8	SSW12.4	SSW18
3-Apr	SSE5	ESE5	ESE4	ESE6	SSW5	SW4	NW7	NNW13	N18	NNW23	NNW23	NW21	NW20	NW21	NW20	NW11	NW17	NW15	WNW11	WNW12	WNW12	WNW12	WNW10	WNW12	NW10.0	NNW23
4-Apr	NW10	NW9	NW9	WNW8	NW9	NW8	NNW6	NNE11	NNE13	NNE12	NNE12	NE12	ENE12	ENE12	E12	ENE11	ENE11	NE13	NE13	ENE13	ENE13	E11	E12	ENE13	NE7.6	NNE13
5-Apr	ENE13	ENE14	ENE14	ENE14	NE15	ENE14	ENE14	ENE13	DF	DF	DF	DF	DF	DF	DF	DF	DF	NE11	NE9	NE8	NE8	NNE8	NNE8	NNE7	---	NE15
6-Apr	NE9	NE8	NNE8	NE11	NE11	NE11	NE11	NNE12	NE13	NE11	NNE8	NE11	NE11	NE10	NE9	NE11	NE10	NE10	ENE7	NNE5	NE6	ENE5	N4	NNE4	NE8.7	NE13
7-Apr	N3	NNE4	NW5	SSE3	SW3	UO	WSW8	W8	WSW9	WSW8	W10	WSW10	WSW10	W11	WNW11	WNW8	W11	W11	W7	W6	SW6	WSW6	WSW5	SSW8	W6.3	WNW11
8-Apr	SSW4	WSW5	W3	W2	SSE3	SSE6	SSE7	S11	SSW12	SSW15	SW14	SW11	SW14	SW16	SW12	SSW13	SSW12	SW12	SSW9	S8	SSW7	S7	S8	S9	SSW8.5	SW16
9-Apr	S10	S9	SSE5	SSW3	SW6	SW5	SW11	W9	WNW15	NW17	NW19	NW17	NW16	WNW14	WNW20	WNW26	NW22	NW20	WNW19	WNW11	WNW11	W12	W18	WNW16	WNW11.5	WNW26
10-Apr	WNW15	WNW13	WNW15	WNW17	WNW19	NW20	NW19	NNW20	NNW23	NNW24	NNW23	NW23	NW27	NNW26	N26	N19	N17	NE11	ENE8	E7	SSE3	SE3	S3	SW4	NNW12.8	NW27
11-Apr	SSW5	SSW7	SSW7	SSW9	SSW10	SSW9	SSW12	SSW15	SSW18	SSW17	SSW15	SW16	SSW14	SSW16	SSW14	SSW16	S16	S15	S16	S12	SSE12	SSE16	SSE17	SSE16	SSW12.7	SSW18
12-Apr	SSE18	S16	S19	SSE16	SSE19	SE18	SE19	SE20	SSE20	SSE21	SSE21	S17	S12	WSW11	W16	WNW16	WNW18	WNW13	W5	SSW7	SW13	SW11	SW11	SW11	S10.0	SSE21
13-Apr	WSW13	W15	WSW8	WSW11	WSW12	W16	W18	W25	WNW28	WNW27	NW28	NW27	NW27	WNW22	NW23	WNW20	WNW21	NW16	NW14	NW10	WNW5	WNW9	W8	WSW6	WNW15.8	NW28
14-Apr	WSW7	WSW9	SW9	WSW7	SW9	SW9	SW11	WSW10	WSW13	WSW19	WSW24	W21	WNW23	WNW25	W18	W16	WSW17	WSW12	SW7	SSW5	S8	S8	SSE9	S10	WSW10.7	WNW25
15-Apr	SSW10	SSW10	SSW10	SSW10	S11	SSW10	SSW7	WNW8	WSW9	E2	ESE5	SE8	SSE10	SE13	SE15	ESE15	SE16	SE15	SE13	ESE7	ENE6	N5	NW12	NNW11	SSE4.9	SE16
16-Apr	NW8	NW7	WNW12	NW10	WNW12	NW11	NNW11	NNW13	N13	N12	NNE13	NNE14	NNE15	NNE15	NNE15	NNE19	NNE20	NNE23	NNE24	NNE22	NNE20	NNE19	NNE20	NNE20	N13.7	NNE24
17-Apr	NNE21	NNE21	NNE19	NNE20	NNE19	N19	N20	N20	N22	NNE20	NNE23	NNE24	NNE24	NNE21	NNE22	NNE23	NNE23	NNE23	NNE22	NNE20	NNE21	NNE20	NNE17	NNE19	NNE20.7	NNE24
18-Apr	NNE16	NNE16	NNE13	NNE14	NNE16	NNE15	NNE16	NNE17	NNE17	NNE19	NNE21	NNE19	NNE20	NNE21	NNE22	NE23	NE21	NNE17	NE18	NE13	NE10	NE8	NNE7	NNE7	NNE16.0	NE23
19-Apr	NNE9	NNE8	N7	N6	N6	N6	N6	N7	N10	NNE8	NNW8	NNW9	N9	NNW9	NW10	WNW14	WNW13	WNW13	WNW11	WNW8	WNW8	WNW9	W7	W9	NNW7.1	WNW14
20-Apr	WSW12	WSW11	W13	W15	W14	W15	W16	W16	WNW17	WNW17	WNW14	W14	WSW15	WSW15	WSW15	WSW13	WSW13	WSW12	SW9	SW7	SSW9	SSW9	SSW11	SSW11	WSW11.7	WNW17
21-Apr	SSW11	SSW12	SSW14	SSW12	S12	S12	S14	S14	S16	SSE18	SSE21	SSE17	S14	SSE12	S11	SSW13	SSW13	SW12	WSW10	W7	W7	W10	WNW10	NW9	SSW9.6	SSE21
22-Apr	N9	N10	N8	N8	NNW8	WNW9	NW9	NNW8	NNE7	NNE9	NNE13	N16	NNE14	NNE15	N17	NNE16	N17	N14	NE9	NE1	WNW2	N4	NE6	E5	N8.8	N17
23-Apr	ESE5	SSE6	ENE4	NE4	NE9	NE9	ENE9	E12	E14	E17	E14	ENE12	ENE7	E11	ESE9	NE7	ESE9	E3	ENE9	E8	ESE7	ESE7	ESE9	SE12	E8.0	E17
24-Apr	SE12	ESE10	SE10	ESE9	E8	E10	E12	ESE12	ESE15	ESE17	ESE20	SE20	SE20	SE20	SSE20	SSE18	SSE18	S10	SSW16	SSW14	WNW19	WNW10	SSW5	WNW15	SE9.0	ESE20
25-Apr	NNW13	NW11	WNW12	WNW12	WNW12	WNW14	WNW16	WNW15	WNW17	NW19	WNW20	W21	WNW24	W22	WNW22	WNW22	NW19	WNW15	NW16	NW14	NW12	NW10	NW12	WNW15.3	WNW24	
26-Apr	NW11	NNW10	N11	N13	N10	N11	N14	N15	N13	NNW15	NNW16	NNW15	NNW14	NNW15	NNW12	NNW13	NNE13	NNE11	NNE9	E9	E7	E7	ESE8	SE9	N9.0	NNW16
27-Apr	SE10	SE10	SSE13	S13	S14	S15	S17	S18	S17	S18	S18	S20	S19	S18	S20	S17	S17	SSE12	S14	SSE14	SE12	SE11	SSE13	SSE16	S14.8	S20
28-Apr	S17	S16	S14	S11	SSE8	SSE11	SSE13	SSE16	SSE17	S14	SSE14	SE12	SE12	SE11	SE11	SE10	SE10	SSE9	SSE6	ESE7	ESE7	ESE7	SE8	SE4	SSE10.3	SSE17
29-Apr	SSW5	SSE6	ESE3	SW6	W9	WSW7	W7	WNW7	WNW8	NW9	NNE11	NE12	NE15	NE16	NE14	ENE13	ENE13	NE16	NE14	NNE15	NNE14	NNE14	NE15	NE19	NNE6.8	NE19
30-Apr	NE17	NE18	NE19	NE18	NNE19	NE20	NE23	NE21	NE20	NE18	NE16	NE16	NE15	NE14	NNE13	NNE13	NNE14	NNE13	NNE13	NNE11	NNE13	NE11	NNE8	NE10	NE15.4	NE23

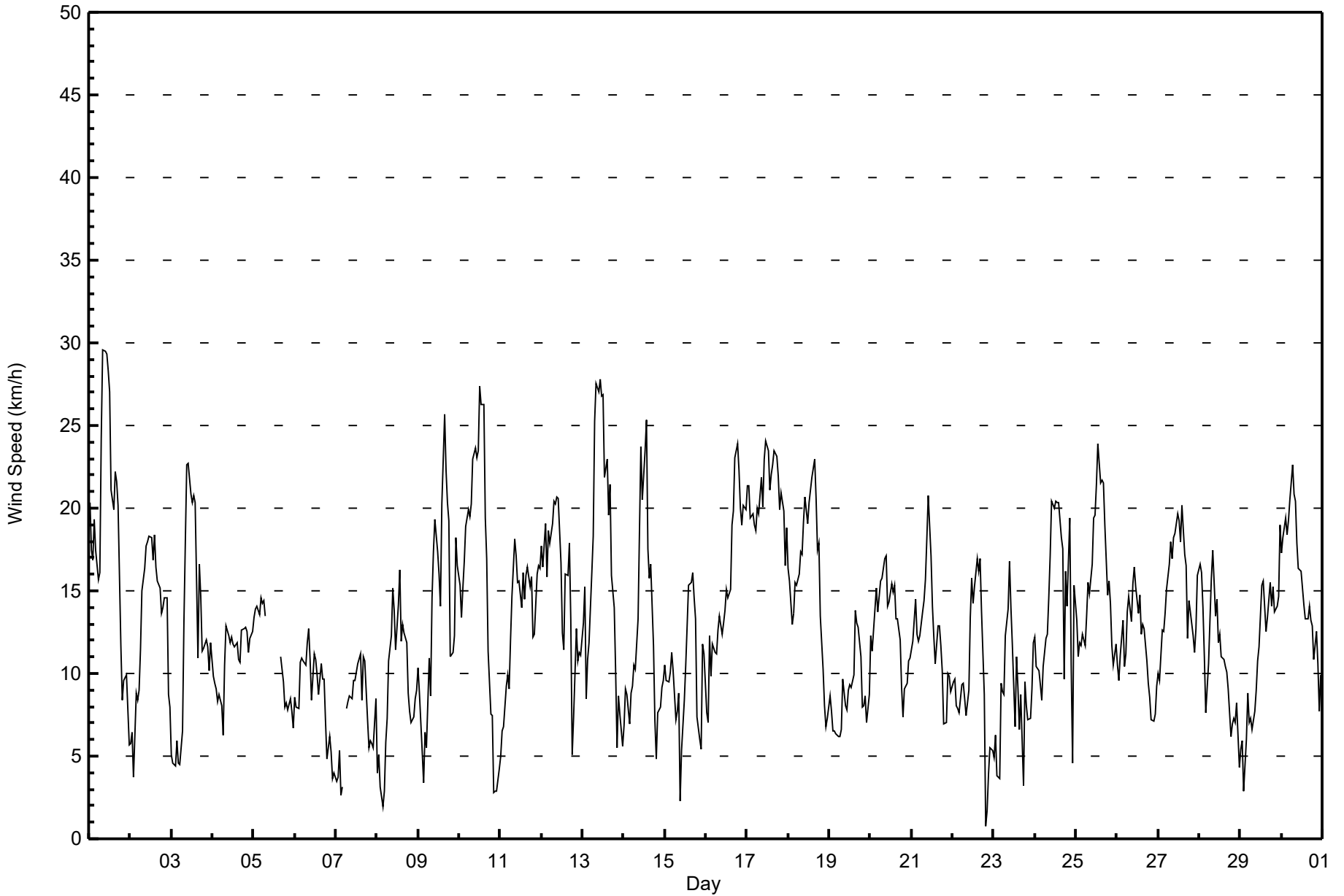
SW1.0	WSW0.9	W1.3	WNW1.8	NW1.7	WNW1.8	NW2.1	NW3.0	NW3.9	NW3.9	NNW4.0	NNW4.4	NW4.3	NW4.8	NW4.5	NW3.8	NNW3.8	NNW4.0	NNW2.2	NNE1.5	N1.4	N1.1	NNW0.4	NNW0.4	Diurnal Average
NNE21	NNE21	NE19	NNE20	NNE19	NE20	NE23	W25	WNW30	WNW29	WNW29	NW28	NW27	NNW26	N26	WNW26	NNE23	NNE23	NNE24	NNE22	NNE21	NNE20	NNE20	NNE20	Diurnal Maximum

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Kirby South - April 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Kirby South - April 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	47	6.61	6.61
6 - 11	256	36.01	42.62
12 - 19	309	43.46	86.08
20 - 28	96	13.50	99.58
29 - 38	3	0.42	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 711

Total Number of Hours: 720



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Kirby South - April 2024**

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	4	3	2	2	3	5	2	5	1	7	5	3	2	2	1	0	47
6 - 11	14	19	29	8	9	13	11	10	16	24	15	20	17	22	19	10	256
12 - 19	14	42	24	15	7	4	12	21	35	29	11	14	15	38	18	10	309
20 - 28	4	27	6	0	0	1	3	6	2	0	1	1	4	14	20	7	96
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	36	91	61	25	19	23	28	42	54	60	32	38	38	79	58	27	711

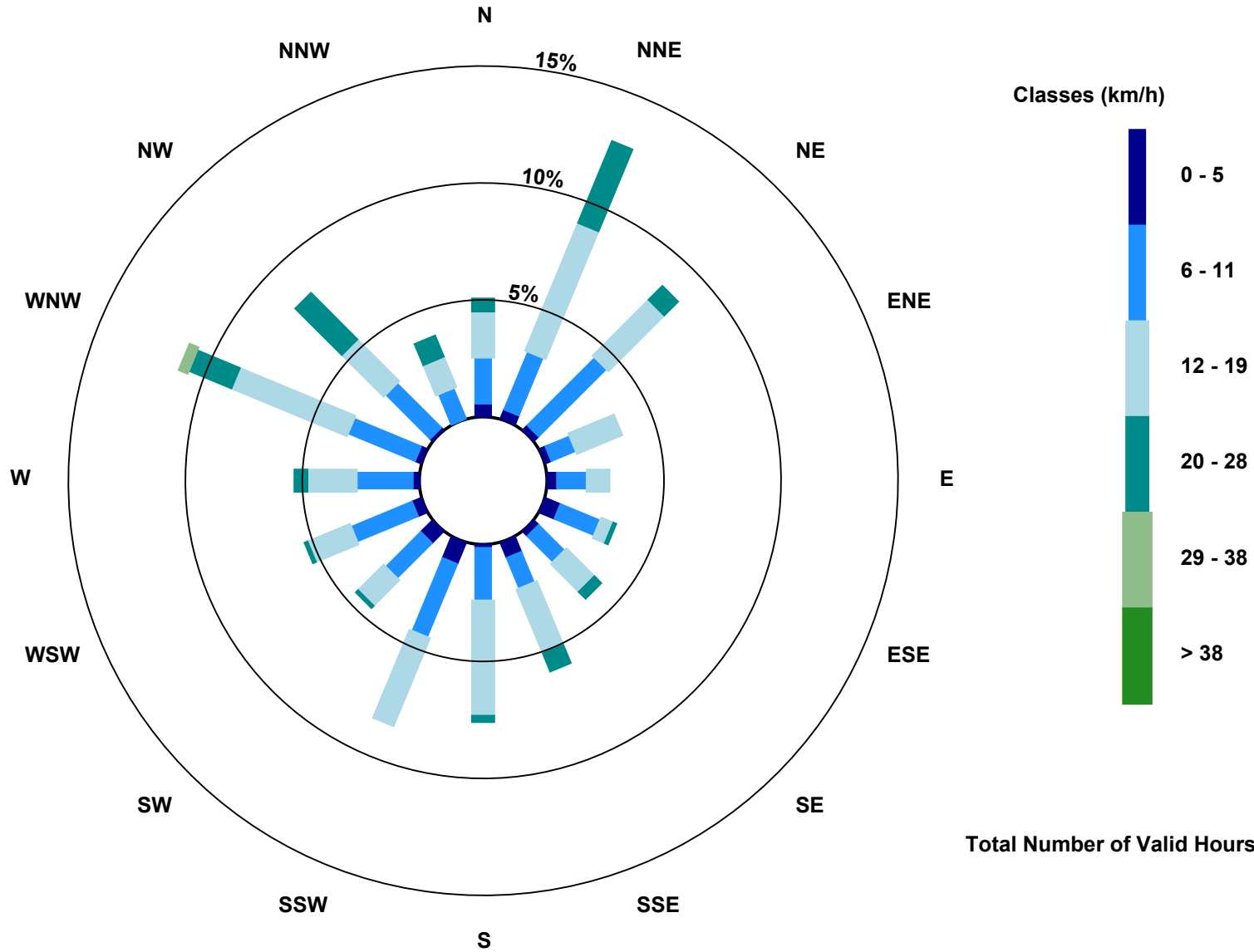
Total Number of Valid Hours: 711

Total Number of Hours: 720



Wood Buffalo Environmental Association  
Wind Rose Apr 2024

Wind Speed (WS) - km/h  
Kirby South





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Kirby South - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 8 km/h on Apr 10 14:00	Hours of Data: 711
Minimum Value: 1 km/h on Apr 11 01:00	Hours of Missing Data: 9
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 98.8

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-Apr	5	4	4	5	4	3	3	7	7	7	7	7	7	5	5	6	5	5	4	1	1	1	1	1	7
2-Apr	1	1	2	1	1	2	3	3	4	4	5	5	5	5	5	5	4	4	3	3	3	4	2	2	5
3-Apr	2	2	1	2	2	3	2	7	6	6	6	5	5	5	6	3	4	4	2	2	2	2	2	2	7
4-Apr	2	2	2	2	2	3	1	5	4	3	3	3	3	4	4	4	3	3	3	3	3	2	2	3	5
5-Apr	3	3	3	3	3	3	3	3	DF	DF	DF	DF	DF	DF	DF	DF	2	2	2	2	2	2	2	2	3
6-Apr	2	2	2	2	3	2	3	3	3	3	2	3	2	3	2	2	2	2	1	1	1	1	1	1	3
7-Apr	1	1	2	2	2	UO	1	2	2	2	2	2	4	4	3	4	3	2	1	2	1	2	2	2	4
8-Apr	2	2	2	2	1	1	1	3	3	3	5	3	4	4	4	4	4	3	3	1	1	1	1	3	5
9-Apr	5	6	1	2	1	2	2	2	4	4	4	4	5	4	8	5	5	4	5	2	2	2	4	4	8
10-Apr	3	2	3	4	4	4	4	5	6	7	7	6	6	8	7	6	5	3	2	3	1	1	1	1	8
11-Apr	1	1	1	1	1	1	3	4	4	4	4	5	5	5	5	5	5	4	4	3	3	4	4	4	5
12-Apr	4	4	6	4	4	4	5	5	5	6	6	5	4	6	5	4	4	3	2	2	5	2	2	2	6
13-Apr	3	5	2	2	2	5	4	5	6	6	7	7	6	5	5	4	5	5	3	4	1	1	2	2	7
14-Apr	2	1	1	2	1	1	2	2	4	4	5	5	6	6	5	6	4	4	2	1	2	1	1	2	6
15-Apr	3	2	2	3	2	3	1	3	4	2	2	2	6	4	4	4	4	4	4	2	1	2	3	3	6
16-Apr	2	2	2	2	3	3	3	3	3	4	3	3	4	4	5	5	6	6	6	6	5	5	6	5	6
17-Apr	6	6	6	6	6	6	6	5	6	6	7	7	7	7	7	6	6	7	6	6	6	6	5	6	7
18-Apr	5	4	3	4	4	4	4	4	5	5	5	5	6	6	5	5	5	5	5	4	2	2	2	1	6
19-Apr	1	2	1	1	1	1	1	2	3	3	3	4	5	4	4	4	4	3	2	1	1	1	2	2	5
20-Apr	2	2	3	2	2	2	2	3	3	4	4	4	5	4	4	4	3	3	2	1	1	1	2	2	5
21-Apr	2	2	3	3	2	3	3	3	4	5	5	5	5	5	4	5	4	3	2	2	2	2	2	2	5
22-Apr	2	2	1	1	2	1	1	2	2	4	4	5	6	5	5	7	5	5	3	1	1	2	1	1	7
23-Apr	1	2	3	3	2	1	1	3	3	4	4	4	4	5	4	3	5	2	2	1	1	1	1	3	5
24-Apr	3	2	1	1	1	2	2	3	3	4	5	5	5	6	5	5	5	6	5	6	6	6	3	3	6
25-Apr	3	2	2	2	2	2	2	3	4	4	5	5	5	5	5	5	6	5	3	6	3	3	2	3	6
26-Apr	2	2	3	4	3	4	4	4	4	4	4	5	4	5	4	5	5	3	3	2	1	1	1	1	5
27-Apr	2	2	3	3	3	3	4	4	5	5	5	5	5	5	6	4	3	4	3	3	3	3	3	4	6
28-Apr	4	4	4	3	2	2	3	5	4	4	4	3	3	3	3	3	3	2	2	1	1	1	2	2	5
29-Apr	2	2	3	2	3	2	2	2	2	2	3	3	4	4	4	3	3	3	3	4	3	3	3	4	4
30-Apr	4	4	5	5	5	5	6	6	5	4	4	4	4	4	4	3	3	4	4	3	3	2	2	3	6
Diurnal Maximum																									

DF - DAS Failure      UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Kirby South - April 2024**

Direction of Maximum Speed: 301 deg on Apr 1 09:00	Hours in Service: 720
Direction of Maximum Daily Speed Average: 18.4 deg on Apr 17	Hours of Data: 711
Direction of Minimum Speed: 49 deg on Apr 22 20:00	Direction of Minimum Daily Speed Average: 4.9 deg on Apr 15
Direction of Minimum Speed: 49 deg on Apr 22 20:00	Hours of Missing Data: 9
Monthly Average Direction: 320.9 deg	Percent Operational Time: 98.8

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-Apr	216	218	237	283	322	299	298	296	301	302	302	321	316	326	310	319	313	310	306	286	287	278	282	259	297.1
2-Apr	284	237	227	220	203	207	201	201	203	202	208	211	224	220	212	199	197	191	190	185	181	181	175	170	202.7
3-Apr	155	112	118	121	200	225	319	344	355	338	331	319	322	307	304	306	321	308	290	286	289	293	293	300	314.0
4-Apr	307	306	310	300	313	320	346	15	18	19	23	39	59	65	89	74	62	54	44	64	75	79	82	76	37.3
5-Apr	78	73	65	57	53	59	59	61	DF	DF	DF	DF	DF	DF	DF	DF	49	50	47	38	24	30	33	27	--
6-Apr	42	39	26	49	50	52	41	32	40	51	26	40	45	38	44	50	56	54	60	33	53	64	9	33	43.8
7-Apr	11	29	314	168	222	UO	250	259	249	264	248	242	280	290	294	268	280	276	262	235	256	238	202	263.0	
8-Apr	213	240	272	276	158	149	159	185	193	198	223	214	223	227	221	209	205	227	211	175	209	189	182	178	205.2
9-Apr	189	173	159	210	214	220	230	262	296	309	318	310	307	301	292	290	308	310	303	297	289	278	281	284	288.4
10-Apr	283	292	289	295	299	312	323	331	336	334	333	325	323	342	355	3	5	51	75	88	147	132	174	216	330.2
11-Apr	193	200	201	203	193	192	200	202	210	208	206	224	208	198	193	205	188	189	185	171	155	155	158	165	191.7
12-Apr	166	172	174	150	150	139	138	146	151	155	165	173	177	256	277	282	296	287	259	206	216	229	225	222	185.4
13-Apr	247	274	246	244	241	263	274	280	288	300	309	312	311	302	306	293	298	315	314	312	293	286	269	251	290.7
14-Apr	250	241	236	242	231	232	232	237	241	244	251	268	283	290	279	260	254	258	235	201	173	174	153	172	247.9
15-Apr	195	212	201	203	189	210	212	297	257	85	109	125	162	137	131	114	134	131	126	114	76	10	322	328	157.7
16-Apr	314	316	300	307	295	306	344	346	355	3	14	12	23	13	18	25	25	20	24	19	15	19	18	19	5.3
17-Apr	21	21	19	14	14	6	4	7	5	15	23	20	18	15	12	16	22	19	25	29	29	29	30	28	18.4
18-Apr	27	24	24	25	28	25	22	20	24	28	29	26	27	21	21	42	34	31	36	37	35	43	26	19	28.0
19-Apr	32	21	9	1	359	356	353	358	359	15	340	340	355	343	306	292	298	296	297	291	298	302	270	266	327.2
20-Apr	242	253	263	277	280	270	273	280	286	303	288	267	253	254	257	249	255	251	231	215	205	210	205	198	258.1
21-Apr	194	198	209	201	186	181	173	173	169	167	162	152	170	165	177	195	205	235	253	272	269	279	297	324	193.6
22-Apr	349	352	349	349	339	301	313	347	14	13	30	9	21	13	3	18	6	10	44	49	296	2	56	95	5.8
23-Apr	121	157	59	38	34	53	65	82	81	81	87	75	65	86	103	48	102	89	75	90	106	109	114	129	85.7
24-Apr	132	110	127	120	97	97	93	110	109	122	114	128	140	143	163	166	161	170	198	207	291	290	192	303	143.0
25-Apr	329	312	294	293	289	286	282	291	298	303	310	301	279	288	264	286	300	314	290	310	312	317	304	316	297.2
26-Apr	321	334	9	7	7	359	352	2	355	347	330	331	337	339	347	327	22	23	32	81	90	98	116	130	0.5
27-Apr	141	141	158	171	173	173	176	181	183	185	170	170	169	181	189	176	169	161	176	151	136	140	158	164	168.9
28-Apr	175	181	184	172	147	154	157	166	166	178	158	136	132	141	128	144	140	157	156	106	103	111	127	146	153.5
29-Apr	202	158	116	234	266	248	276	285	291	317	33	37	50	48	48	64	60	49	36	33	28	28	39	45	33.0
30-Apr	48	44	40	37	31	37	40	44	41	46	52	48	43	38	30	23	19	20	20	16	26	45	18	35	36.5

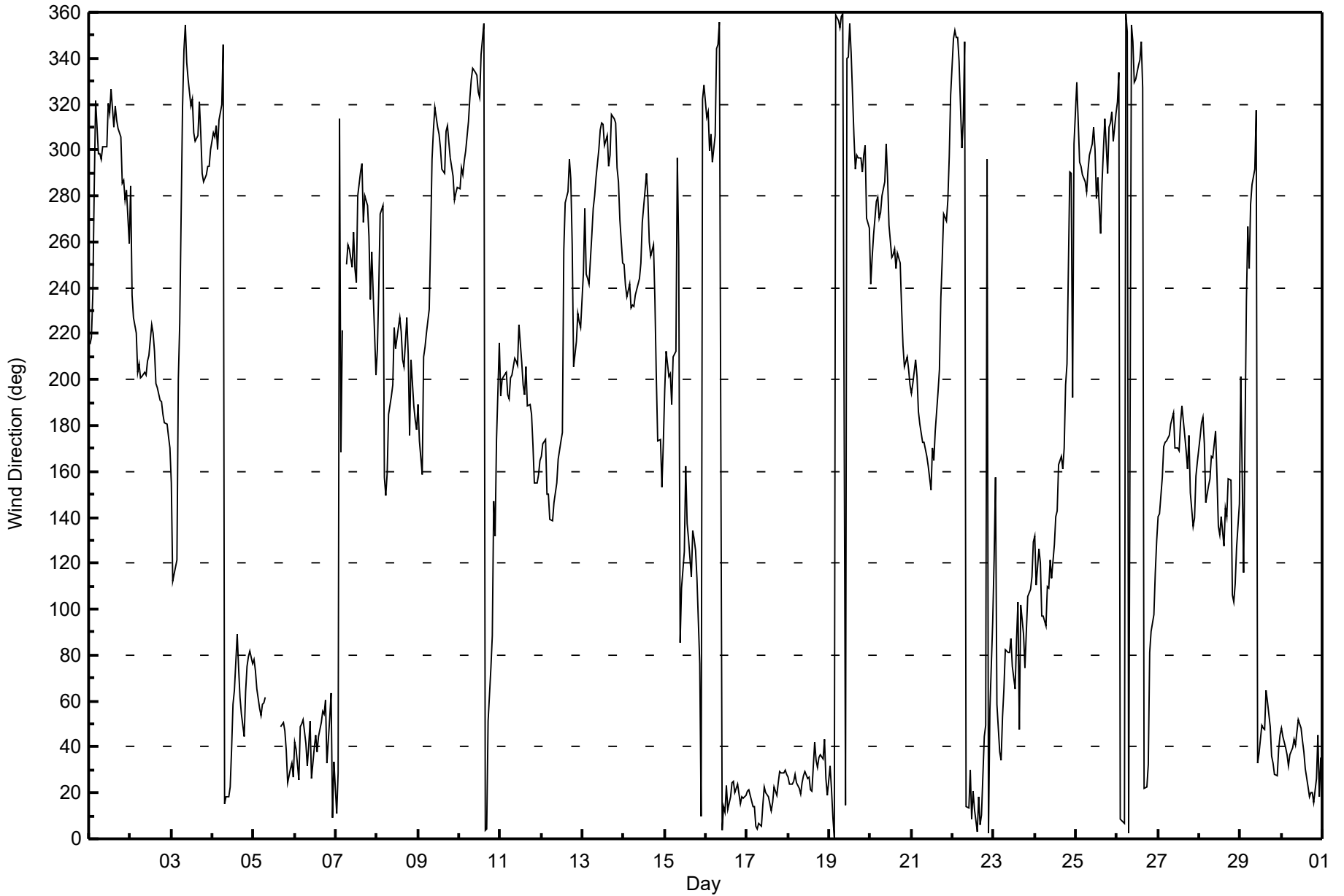
228.5	253.6	274.3	293.8	307.8	301.5	308.3	316.4	314.2	319.8	327.0	329.7	320.8	321.3	311.1	315.8	332.3	338.6	348.2	24.4	354.6	357.1	327.8	337.3
Diurnal Average																							

DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Kirby South - April 2024**







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Kirby South - April 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 720
Maximum Value: 83 deg on Apr 15 10:00	Hours of Data: 711
Minimum Value: 4 deg on Apr 11 03:00	Hours of Missing Data: 9
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 17 Q <sub>3</sub> = 22 P <sub>90</sub> = 29 P <sub>99</sub> = 50	Hours of Calibration: 0
	Percent Operational Time: 98.8

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-Apr	15	16	17	20	15	12	12	12	14	14	15	19	17	18	20	17	17	15	13	8	8	8	17	27	27
2-Apr	17	12	20	8	9	12	13	15	15	16	20	19	22	20	19	19	17	15	14	13	14	15	16	15	22
3-Apr	42	33	16	19	35	46	28	32	23	19	18	14	14	15	16	17	16	12	8	9	10	11	14	46	
4-Apr	13	12	13	12	17	25	23	20	24	26	22	21	27	23	25	30	27	15	17	14	12	11	12	30	
5-Apr	12	12	12	12	12	12	14	13	DF	DF	DF	DF	DF	DF	DF	DF	15	16	14	15	20	17	16	20	
6-Apr	15	19	17	15	14	13	14	15	16	19	20	18	16	23	19	19	16	15	16	25	14	16	26	22	26
7-Apr	28	30	25	50	51	UO	12	12	14	16	16	22	20	37	24	32	29	16	19	12	17	17	26	10	51
8-Apr	32	20	22	41	30	9	13	13	15	17	22	26	24	20	21	27	23	16	15	8	30	15	11	22	41
9-Apr	33	45	13	47	11	20	11	18	18	13	18	18	20	22	19	16	18	15	13	11	8	9	10	10	47
10-Apr	10	11	11	13	14	14	14	16	17	17	19	17	17	23	24	25	24	30	17	18	31	8	46	21	46
11-Apr	9	6	4	8	8	11	14	15	17	17	21	23	31	26	29	24	18	18	17	14	12	13	14	14	31
12-Apr	15	15	16	14	14	14	17	16	15	15	22	23	22	49	26	23	17	16	40	28	18	13	11	11	49
13-Apr	20	20	16	13	14	23	12	12	14	15	17	20	17	17	17	17	16	14	13	11	5	17	10	23	
14-Apr	9	6	7	14	8	8	12	14	15	16	17	24	18	17	21	30	20	28	23	6	10	9	9	12	30
15-Apr	22	26	13	15	15	21	16	42	39	83	36	21	39	23	18	20	17	17	19	25	23	38	14	16	83
16-Apr	16	26	14	12	15	15	17	19	20	20	20	19	17	19	19	17	17	17	17	19	18	18	19	19	26
17-Apr	18	17	18	19	19	20	20	20	21	21	18	21	22	23	23	22	20	21	19	18	18	17	17	18	23
18-Apr	17	16	16	17	17	16	18	18	18	19	19	21	21	22	22	16	20	19	17	15	13	12	16	16	22
19-Apr	11	14	15	16	15	15	20	27	27	42	44	43	49	45	48	24	23	18	12	7	7	7	15	16	49
20-Apr	7	12	13	10	9	8	9	11	13	16	23	26	27	25	28	20	21	27	15	14	7	9	10	12	28
21-Apr	12	13	13	13	13	15	14	16	21	20	23	29	38	38	38	27	26	17	20	19	12	8	11	21	38
22-Apr	17	19	17	17	18	8	15	23	31	40	33	28	33	30	32	32	32	28	17	74	28	33	19	10	74
23-Apr	20	31	38	14	17	12	10	13	17	17	26	29	61	36	36	43	54	60	24	10	8	7	9	15	61
24-Apr	13	11	11	10	13	9	11	15	16	18	19	21	21	23	19	19	31	26	22	22	43	43	18	43	43
25-Apr	18	16	12	9	9	11	11	13	17	19	21	20	19	19	22	18	18	16	14	16	13	13	19	15	22
26-Apr	16	17	23	21	20	22	20	22	25	22	20	25	34	33	38	30	27	29	22	18	10	10	9	11	38
27-Apr	12	12	14	13	14	14	14	17	19	19	18	17	19	18	19	24	19	18	16	17	13	16	17	15	24
28-Apr	15	15	15	17	21	15	15	17	18	22	19	28	27	29	27	29	25	20	19	13	11	11	14	37	37
29-Apr	25	22	61	23	21	12	17	22	24	21	24	27	20	24	23	26	18	16	15	15	15	15	16	15	61
30-Apr	14	13	14	18	14	13	15	15	14	15	14	14	15	15	18	19	18	19	18	18	17	16	29	16	29
	42	45	61	50	51	46	28	42	39	83	44	43	61	49	48	43	54	60	40	74	31	43	46	37	

Diurnal Maximum

DF - DAS Failure

UO - Unstable Operation



End of Report

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

May 31, 2024  
9:14:51 AM  
Request # 4682355

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**Submitted by:** EN6138\_DENNY  
**Submission Date:** May 31, 2024 9:14:06 AM

File Type

Ambient Data

File Name

AMB-WBEA-202404-V00.xml

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

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May 31, 2024  
9:15:27 AM  
Request # 4682356

**Submitted by:** EN6138\_DENNY  
**Submission Date:** May 31, 2024 9:15:18 AM

File Type

Calibration Report

File Name

CAL-WBEA-202404.pdf

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

May 31, 2024  
9:16:15 AM  
Request # 4682357

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**Submitted by:** EN6138\_DENNY  
**Submission Date:** May 31, 2024 9:16:09 AM

File Type  
Airshed Monitoring Report

File Name  
WBEA-202404.pdf

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*