



**WOOD BUFFALO  
ENVIRONMENTAL ASSOCIATION**

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**Wood Buffalo Environmental Association**

**JANUARY 2024  
MONTHLY REPORT**

CONTINUOUS MONITORING

February 29, 2024

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





# 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>Leismer</b> .....	<b>501-1</b>
Station Summaries .....	501-2
Station Percentiles.....	501-3
Station Downtime.....	501-4
Data Summaries .....	501-5
<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
<b>Blackgold</b> .....	<b>511-1</b>
Station Summaries .....	511-2
Station Percentiles.....	511-3
Station Downtime.....	511-4
Data Summaries .....	511-5



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February 29, 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 January 2024  
Wood Buffalo Environmental Association**

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Enclosed is the January 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 continuous ambient air quality monitoring network stations are:

AMS01 - Bertha Ganter - Fort McKay	AMS19 - Firebag
AMS02 - Mildred Lake	AMS20 - MacKay River
AMS03 - Lower Camp (Meteorology)	AMS21 - Conklin
AMS04 - Buffalo Viewpoint	AMS22 - Janvier
AMS05 - Mannix	AMS23 - Fort Hills
AMS06 - Patricia McInnes	AMS25 - Waskōw ohci Pimâtisiwin
AMS07 - Athabasca Valley	AMS26 - Christina Lake
AMS08 - Fort Chipewyan	AMS27 - Jackfish 2/3
AMS09 - Barge Landing	AMS29 - Surmont 2
AMS11 - Lower Camp (Air Quality)	AMS30 - Ells River
AMS13 - Fort McKay South	AMS501 - Liesmer
AMS14 - Anzac	AMS505 - Sawbones Bay
AMS17 - Wapasu	AMS507 - Kirby South
AMS18 - Stony Mountain	AMS511 - Blackgold

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):



**Industry Operators**

Athabasca Oil Corporation	289664-00-00; 241311-00-00
Blackgold	246984-01-0
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

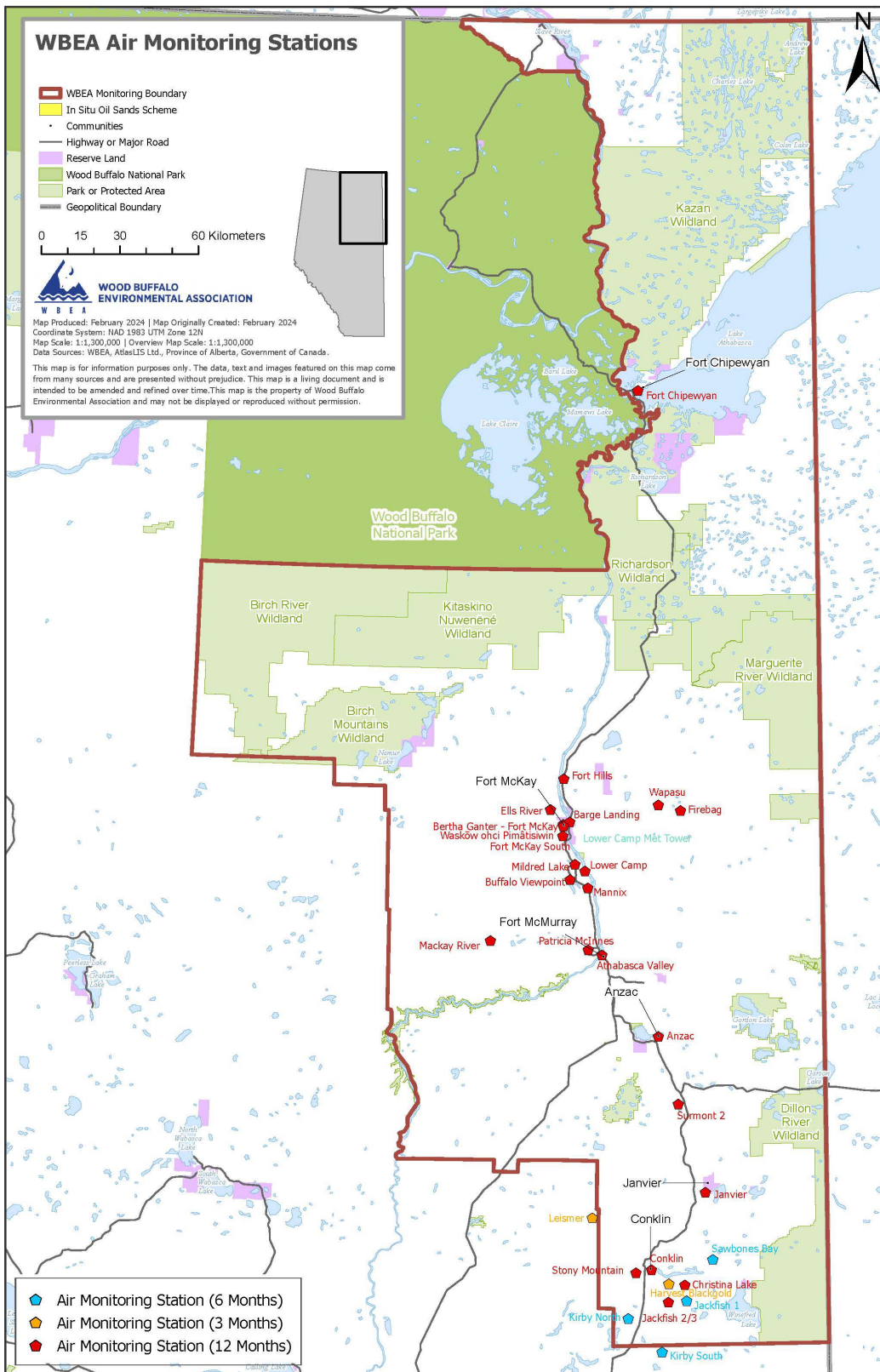


Figure 1: Map of WBEA Continuous Monitoring Network

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, Dustfall NH<sub>3</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, TRS, and TSP.

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

There were six ground-level concentrations in excess of the 24-hour H<sub>2</sub>S objective reported to AEPA; following data validation and processing, five exceedances were confirmed.

Site	Parameter	Date / Time	Reference	Period	Reported	Final	Status*
Mannix	H2S	6Jan24, 01:00	423599	1-hr	11	10.5	exc
Kirby South	H2S	10Jan24, 12:00	423689	1-hr	51	51.0	exc
Kirby South	H2S	10Jan24, 13:00	423695	1-hr	19	18.8	exc
Mildred Lake	H2S	13Jan24, 17:00	423816	1-hr	16	16.3	exc
Mildred Lake	H2S	13Jan24, 18:00	423816	1-hr	13	13.2	exc
Mildred Lake	H2S	13Jan24, 20:00	423820	1-hr	14	14.1	exc
Mildred Lake	H2S	13Jan24, 21:00	423821	1-hr	11	10.6	exc
Mildred Lake	H2S	13Jan24, 24:00	423823	24-hr	6	5.5	exc
Mildred Lake	H2S	14Jan24, 02:00	423826	1-hr	12	12.0	exc
Mildred Lake	H2S	14Jan24, 03:00	423827	1-hr	16	15.6	exc
Mildred Lake	H2S	14Jan24, 04:00	423829	1-hr	12	12.1	exc
Buffalo Viewpoint	H2S	14Jan24, 04:00	423830	1-hr	13	12.7	exc
Mildred Lake	H2S	14Jan24, 05:00	423832	1-hr	10	9.5	nae
Lower Camp	H2S	14Jan24, 17:00	423847	1-hr	10	9.6	nae
Lower Camp	H2S	14Jan24, 18:00	423850	1-hr	10	8.8	nae
Mildred Lake	H2S	14Jan24, 24:00	423853	24-hr	5	4.4	exc
Lower Camp	H2S	14Jan24, 24:00	423854	24-hr	5	4.0	exc
Mildred Lake	H2S	15Jan24, 22:00	423898	1-hr	11	10.8	exc
Mildred Lake	H2S	27Jan24, 24:00	424384	1-hr	18	18.3	exc
Mildred Lake	H2S	28Jan24, 01:00	424385	1-hr	25	25.1	exc
Mildred Lake	H2S	28Jan24, 02:00	424386	1-hr	10	10.2	exc
Mildred Lake	H2S	28Jan24, 03:00	424387	1-hr	26	25.9	exc
Mildred Lake	H2S	28Jan24, 04:00	424388	1-hr	11	11.2	exc

Mildred Lake	H2S	28Jan24, 24:00	424413	24-hr	5	4.4	exc
Mildred Lake	H2S	29Jan24, 22:00	424459	1-hr	11	10.6	exc
Mildred Lake	H2S	29Jan24, 24:00	424459	24-hr	3	2.8	nae
Kirby South	H2S	10Jan24, 24:00	424956	24-hr	3.2	3.2	late

\*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 January 2024, there were four instances that resulted in monitoring instruments operating less than 90% of the time.

1. The CO<sub>2</sub> analyzer at the Fort Chipewyan AMS operated for less than 90% of December 2023, 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 (AEPA) on January 24, 2024 (reference number 424206).

On December 26, an onsite CO<sub>2</sub> calibration failed the AMD criteria due to operator error. This resulted in no valid calibration for the month of December. Prior to this incident, all daily quality assurance checks for the month of December were within AMD criteria. Following this incident, the CO<sub>2</sub> daily span was above the AMD limits. The WBEA conducted a remote investigation and maintenance to correct the linearity of the instrument on January 3. On January 18, an onsite multipoint calibration was conducted, the issue was resolved, and the analyzer returned to normal operation. During the data validation process, the WBEA conservatively invalidated data between December 26 and January 18, resulting in 545 hours of invalid data.

2. The WS/WD/VWS at the 45-meter, 100-meter and 163-meter elevation at Lower Camp Met Tower operated less than 90% of January 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 January 25, 2024 (reference number 424246).

Throughout January 2024, intermittent flat-line periods in the WS/WD/VWS sensors' output signal at all three elevations occurred. Ice fog interfering with the sonic sensors is the most likely cause and the sensor operation returned to normal once weather conditions changed. Also, intermittent periods of data acquisition system failure resulted in additional downtime. During the data validation process, a total of 181, 121, and 143 hours were invalidated at the 45-meter, 100-meter, and 163-meter elevations, respectively.

3. The THC/NMHC/CH<sub>4</sub> analyzer at Anzac AMS operated less than 90% of January 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 February 21, 2024 (reference number 425140).

There were two issues associated with the operation of the THC/NMHC/CH<sub>4</sub> analyzer that resulted in 122 hours of analyzer downtime.

On January 15 and January 24, the instrument's baseline was within acceptable AMD criteria, however, the data appeared noisy, and the baseline was dipping. An investigation, and subsequent maintenance, was conducted to resolve the issue, resulting in 70 hours of invalid data. On January 30, the noisy data and dipping baseline issue persisted, prompting the replacement of the analyzer. The replacement, and subsequent performance verification, resulted in an additional 52 hours of invalid data.

4. The THC/NMHC/CH<sub>4</sub> analyzer at Stony Mountain AMS operated less than 90% of January 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This letter is a follow-up to the verbal report to Alberta Environment and Protected Areas (AEPA) on February 23, 2024 (reference number 425452).

Further details pertaining to this incident are currently being drafted and will be provided in the 7-day letter to be submitted on March 1, 2024.

### 3.2 Intermittent Monitoring

The results for time-integrated sampling of precipitation, PAH, VOC, 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 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 32 hours this month.

Maintenance to reinitiate the daily QA check on January 12 and 17 interrupted the normal operations of H<sub>2</sub>S and TRS analyzers for 6 hours.

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> on January 22 resulted in 6 hours of downtime.

Intermittent flatlines in the output signal of the wind speed and wind direction all through out the month resulted in 10 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the H<sub>2</sub>S and TRS analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the H<sub>2</sub>S and TRS span was outside of the 10% AMD criteria from January 11 to 17.



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

Cleaning of the sample manifold on January 1 interrupted the normal operations of the H<sub>2</sub>S analyzer for 1 hour.

Unstable operations due to excessive baseline drift in the output signal of the THC/NMHC/CH<sub>4</sub> analyzer on January 1 resulted in 12 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor through out the month resulted in 32 hours of invalid data.

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

Failure to record data for all meteorological sensors between January 7 and 10 resulted in 25 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 45-meter all through out the month resulted in 156 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 100-meter all through out the month resulted in 148 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 163-meter all through out the month resulted in 175 hours of invalid data.

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

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

Flatlines in the output signal of the wind January 11 and 13 resulted in 2 hours of invalid data.

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

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

Failure to record data for all meteorological sensors on January 3 resulted in 7 hours of invalid data.

Maintenance to reinitiate the daily QA check on January 5 and 8 interrupted the normal operations of H<sub>2</sub>S analyzer for 4 hours.

Maintenance to replace sample pump and subsequent stabilization of the H<sub>2</sub>S analyzer on January 9 and 10 resulted in 28 hours of downtime.

Flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 45-meter on January 25 and January 27 resulted in 50 hours of invalid data.

Flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 75-meter on January 3 and January 25 to January 27 resulted in 50 hours of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 90-meter all throughout the month resulted in 60 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the H<sub>2</sub>S analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the H<sub>2</sub>S span was outside of the 10% AMD criteria from January 5 to 14.

### ***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.

An internal audit on January 22 and 23 interrupted the normal operations of all air quality analyzers for 2 to 8 hours.

Unstable operations of the NH<sub>3</sub> analyzer due to noisy baseline signal on January 11 resulted in 1 hour of invalid data.

Flatlines in the output signal of the wind January 25 resulted in 3 hours of invalid data.

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

Station power failure on January 20 interrupted the normal operations of all air quality analyzers for 2 hours.

Unstable operations due to flatline in analyzer output signal of THC/NMHC/CH<sub>4</sub> analyzer on January 2 and 8 resulted in 39 hours of invalid data. Subsequent maintenance to reboot the analyzer on January 9 resulted in a further 1 hour of downtime.

Maintenance to reset station logger/modem on January 12 interrupted the normal operations of O<sub>3</sub> analyzer and barometric pressure sensor for 1 hour.

Flatline in the output signal of the barometric pressure sensor on January 20 and 22 resulted in 41 hours of invalid data. Subsequent maintenance to reboot the sensor on January 22 resulted in a further 1 hour of downtime.

Automated daily zero-response checks of the O<sub>3</sub> analyzer did not meet WBEA's QC acceptance criteria for the month of December. Therefore, the calibrator zeros from the December, January and February multipoint calibrations were used to validate the analyzer baseline response.

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

Unstable operations due to flatline in analyzer output signal of SO<sub>2</sub> analyzer on January 7 and 8 resulted in 26 hours of invalid data.

Maintenance to replace the sample pump interrupted the normal operation of SO<sub>2</sub> analyzer on January 31 for 4 hours.

Maintenance to adjust linearity interrupted the normal operation of CO<sub>2</sub> analyzer on January 3 for 3 hours.

Unstable operation due to CO<sub>2</sub> analyzer performance within non-compliance of AMD on January 1 to January 18 resulted in 414 hours of invalid data.

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

Station power failure on January 31 interrupted the normal operations of all air quality analyzers for 1 hour.

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

Note: The WBEA installed the wind speed and direction sensor at a height of 10 meters on December 1, 2023, at this site. Data reporting began on January 1, 2024. The calibration report of this sensor upon installation is attached in the January 2024 calibration report.

Intermittent flatlines in the output signal of the wind sensors at 10-meter all through out the month resulted in 45 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensors at 20-meter all through out the month resulted in 15 hours of invalid data.

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

Unstable operations of THC/NMHC/CH<sub>4</sub> analyzer due to excessive baseline drift on January 13 and 14 resulted in 10 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensors throughout the month resulted in 18 hours of invalid data.

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

Intermittent flatlines in the output signal of the wind sensors throughout the month resulted in 32 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the TRS analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the TRS span was outside of the 10% AMD criteria from January 12 to 16.

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

Maintenance to reinitiate the daily QA check on January 13 interrupted the normal operations of TRS analyzer for 1 hour.

Unstable operations due to excessive baseline drift in the output signal of the THC/NMHC/CH<sub>4</sub> analyzer on January 15 and 16 resulted in 33 hours of invalid data. Subsequent maintenance to adjust the retention timing of the THC/NMHC/CH<sub>4</sub> analyzer on January 16 resulted in additional 3 hours of downtime.

Unstable operations due to excessive baseline drift in the output signal of the THC/NMHC/CH<sub>4</sub> analyzer on January 23 and 24 resulted in 30 hours of invalid data. Subsequent maintenance to adjust the retention timing of the THC/NMHC/CH<sub>4</sub> analyzer on January 24 resulted in additional 4 hours of downtime.

Unstable operations due to flatline in the output signal of PM<sub>2.5</sub> analyzer on January 25 and 26 resulted in 22 hours of invalid data.

Analyzer failure due to excessive baseline drift and inconsistency QA response of the THC/NMHC/CH<sub>4</sub> on January 29 and 30 resulted in 28 hours of invalid data. Subsequent maintenance to conduct field repairs and replace the THC/NMHC/CH<sub>4</sub> analyzer on January 30 and 31 resulted in additional 24 hours of downtime.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the TRS analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the TRS span was outside of the 10% AMD criteria from January 10 to 16.

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

Intermittent flatlines in the output signal of the wind sensors throughout the month resulted in 6 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the H<sub>2</sub>S analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the H<sub>2</sub>S span was outside of the 10% AMD criteria from January 10 to 17.

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

Station temperature fluctuations on January 1 through 9 affected the normal operations of CO, SO<sub>2</sub>, and THC/NMHC/CH<sub>4</sub> analyzers for 63 to 90 hours.

Unstable operations due to excessive baseline drift and noise in the output signal of the THC/NMHC/CH<sub>4</sub> analyzer on January 21 through 23 resulted in 54 hours of invalid data. Subsequent maintenance to adjust the retention timing of the THC/NMHC/CH<sub>4</sub> analyzer on January 22 and replace the THC/NMHC/CH<sub>4</sub> analyzer on January 23 resulted in additional 9 hours of downtime.

Unstable operations due to inconsistent response of the THC/NMHC/CH<sub>4</sub> analyzer on January 23 to 31 resulted in 199 hours of invalid data.

Flatlines in the output signal of the wind January 12 and 13 resulted in 12 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the TRS analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the TRS span was outside of the 10% AMD criteria from January 11 to 16.

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

Unstable operations due to flatline in the output signal of THC analyzer throughout the month resulted in 26 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 4 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the H<sub>2</sub>S analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the H<sub>2</sub>S span was outside of the 10% AMD criteria from January 12 to 15.

The daily span check for the THC analyzer was outside the 10% AMD criteria on January 14 due to instrument being frozen.

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

Preventative maintenance to address drifting issue of NO<sub>2</sub> analyzer and a subsequent stabilization on January 4 and 5 resulted in 19 hours of downtime.

Preventative maintenance to address drifting issue of NO<sub>2</sub> analyzer and a subsequent stabilization on January 24 and 25 resulted in 28 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 4 hours of invalid data.

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the H<sub>2</sub>S analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the H<sub>2</sub>S span was outside of the 10% AMD criteria from January 14.

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

Analyzer failure due to sample pump failure of the O<sub>3</sub> analyzer on January 11 and 12 resulted in 34 hours of invalid data. Subsequent maintenance to replace the sample pump of O<sub>3</sub> analyzer on January 12 resulted in additional 1 hour of downtime.

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> on January 25 resulted in 3 hours of downtime.

Flat lines in the output signal of the wind sensors on January 13 and 23 resulted in 3 hours of invalid data.

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

Relative humidity and temperatures can affect the performance of the SO<sub>x</sub> scrubbers in the TRS analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the TRS span was outside of the 10% AMD criteria from January 10 to 16.

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

Note: The WBEA installed the wind speed and direction sensor at a height of 10 meters on November 16, 2023, at this site. Data reporting began on January 1, 2024. The calibration report of this sensor upon installation is attached in the January 2024 calibration report.

Unstable operations due to excessive baseline drift in the output signal of the THC/NMHC/CH<sub>4</sub> analyzer on January 10 resulted in 7 hours of invalid data.

Cleaning of the manifold on January 17 interrupted the normal operations of NO<sub>2</sub>, O<sub>3</sub>, SO<sub>2</sub> and TRS analyzers for 1 hour.

Analyzer failure due to excessive baseline drift and inconsistency QA response of the THC/NMHC/CH<sub>4</sub> on January 15 through 17 resulted in 56 hours of invalid data. Subsequent maintenance to replace the THC/NMHC/CH<sub>4</sub> analyzer on January 17 resulted in additional 4 hours of downtime.

Station operator activities on January 24 and 25 interrupted the normal operations of the PM<sub>2.5</sub> analyzer for 17 hours.

Maintenance to perform an operational verification check of the PM<sub>2.5</sub> analyzer on January 31 resulted in 2 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor at the 20-meter elevation throughout the month resulted in 28 hours of invalid data.

The daily span check for the TRS analyzer was outside the 10% AMD criteria on January 25 and 26 due to an interruption in the station calibrator configuration.

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

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 2 hours of invalid data.

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

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 6 hours of invalid data.

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

A flatline in the output signal of the wind sensor on January 2 resulted in 4 hours of invalid data.

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

Analyzer failure due to communication error of the SO<sub>2</sub> analyzer on January 25 through 27 resulted in 58 hours of invalid data. Subsequent maintenance to replace the SO<sub>2</sub> analyzer on January 27 resulted in additional 2 hours of downtime.

Failure to record data for H<sub>2</sub>S and NO<sub>2</sub> analyzer on January 26 resulted in 1 hour of invalid data.

Maintenance to reset logger/modem on January 26 and 27 interrupted the normal operations of all parameters, except SO<sub>2</sub> analyzer, for 3 hours.

A flatline in the output signal of the wind sensor on January 12 and 13 resulted in 3 hours of invalid data.

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

Cleaning of the sample manifold on January 5 interrupted the normal operation of H<sub>2</sub>S and NO<sub>2</sub> analyzers for 1 hour.

Station power failure on January 28 through 31 interrupted the normal operations of all air quality analyzers for 68 hours.

Station power failure on January 30 and 31 interrupted the normal operations of all air meteorological sensors for 19 hours.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 20 hours of invalid data.

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

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 13 hours of invalid data.

### ***Station 501, Leismer***

Maintenance to reset logger/modem on January 12 interrupted the normal operations of all parameters for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 17 hours of invalid data.

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

Analyzer failure due to sample pump failure of the H<sub>2</sub>S analyzer on January 6 through 8 resulted in 58 hours of invalid data. Subsequent maintenance to replace the sample pump of H<sub>2</sub>S analyzer on January 8 resulted in additional 2 hours of downtime.

The relative humidity sensor operated out of range throughout the month resulting in 43 hours of invalid data.

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

***Station 507, Kirby South***

Stabilization post maintenance of the SO<sub>2</sub> analyzer resulted on January 16 and 17 resulted in 22 hours of downtime to the SO<sub>2</sub> and THC analyzers.

Maintenance to reinitiate the daily QA check on January 18 interrupted the normal operations of H<sub>2</sub>S analyzer for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 20 hours of invalid data.

A flatline in the output signal of the wind sensor on January 12 and 13 resulted in 3 hours of invalid data.

***Station 511, Blackgold***

Station temperature fluctuations on January 13 to 15 affected the normal operations of all gaseous analyzers for 29 to 45 hours.

Unstable operations of the SO<sub>2</sub> analyzer due to excessive baseline drift throughout the month resulted in 18 hours of invalid data.

A flatline in the output signal of the wind sensor on January 25 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.

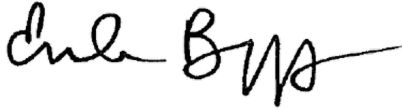
Level one (L1) data review was completed by the Field Technicians responsible for each respective air monitoring station. Level two (L2) data validation, report preparation, and submission were completed by Asad Hidayat and Denny Estador of WBEA. The WBEA has retained the services of Whiteley Enterprises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

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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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WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

January 2024

Page 1 of 3

Created: February 29, 2024 09:25:00

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	1	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00							
149968-01-00							
237382-00-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
48522-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
240008-00-00	SO2(ppb)	1	100	23	0	3.1	0
48263-01-00	SO2(ppb)	2	100	43.8	0	12.5	0
224816-00-00	SO2(ppb)	4	100	39.9	0	4.0	0
151469-01-00	SO2(ppb)	5	100	38.2	0	11.7	0
189942-00-00	SO2(ppb)	6	100	32.4	0	6.9	0
206355-00-00	SO2(ppb)	7	100	6.3	0	1.9	0
46586-00-00	SO2(ppb)	8	96	9.2	0	3.8	0
73203-02-00	SO2(ppb)	9	100	12.1	0	3.9	0
216466-01-00	SO2(ppb)	11	100	33.8	0	5.6	0
137467-01-00	SO2(ppb)	13	100	25.1	0	3.3	0
236394-00-00	SO2(ppb)	14	100	20.4	0	3.8	0
254465-00-00	SO2(ppb)	17	100	19.4	0	5.0	0
094-03-00	SO2(ppb)	18	92	11.9	0	2.4	0
80105-01-00	SO2(ppb)	19	100	26.0	0	5.9	0
305529-00-00	SO2(ppb)	20	100	24.0	0	4.6	0
318401-00-00	SO2(ppb)	21	100	5.9	0	1.2	0
026-03-00	SO2(ppb)	22	100	10.3	0	4.6	0
364232-00-00	SO2(ppb)	23	100	20.8	0	3.6	0
228044-00-00	SO2(ppb)	25	100	20.0	0	2.8	0
247548-00-00	SO2(ppb)	26	100	13.7	0	3.2	0
231302-00-00	SO2(ppb)	27	92	11.4	0	2.6	0
246984-01-00	SO2(ppb)	29	91	12.9	0	2.9	0
153125-01-00	SO2(ppb)	30	100	13.5	0	2.5	0
	SO2(ppb)	501	100	20.6	0	5.3	0
	SO2(ppb)	505	100	14.6	0	3.8	0
	SO2(ppb)	507	97	12.4	0	3.3	0
	SO2(ppb)	511	91	19.2	0	4.9	0
	H2S(ppb)	1	99	6.8	0	1.6	0
	H2S(ppb)	2	100	25.9	14	5.5	3
	H2S(ppb)	4	100	12.7	1	1.6	0
	H2S(ppb)	5	96	10.5	1	2.5	0
	H2S(ppb)	11	100	9.6	0	4.0	1
	H2S(ppb)	17	100	1.2	0	0.3	0
	H2S(ppb)	19	100	1.4	0	0.3	0
	H2S(ppb)	20	100	1.3	0	0.4	0
	H2S(ppb)	25	100	2.8	0	1.4	0
	H2S(ppb)	26	100	0.9	0	0.4	0
	H2S(ppb)	27	99	0.9	0	0.4	0
	H2S(ppb)	29	91	0.7	0	0.2	0
	H2S(ppb)	501	100	0.6	0	0.2	0
	H2S(ppb)	505	92	1.8	0	0.5	0
	H2S(ppb)	507	100	51.0	2	3.2	1
	H2S(ppb)	511	97	2.0	0	0.3	0
	TRS(ppb)	1	99	8.2	0	2.1	0
	TRS(ppb)	6	100	2.2	0	1.4	0
	TRS(ppb)	7	100	2.6	0	0.8	0
	TRS(ppb)	8	100	0.8	0	0.5	0
	TRS(ppb)	9	100	7.1	0	2.7	0
	TRS(ppb)	13	100	5.5	0	1.9	0
	TRS(ppb)	14	100	5.4	0	0.8	0
	TRS(ppb)	18	100	0.4	0	0.3	0
	TRS(ppb)	21	100	0.6	0	0.5	0
	TRS(ppb)	22	100	0.7	0	0.5	0
	TRS(ppb)	23	100	3.6	0	1.6	0
	TRS(ppb)	30	100	3.9	0	1.1	0
	THC(ppm)	1	99	4.0	-	3.0	-
	THC(ppm)	2	98	13.8	-	4.3	-
	THC(ppm)	4	100	8.5	-	2.5	-
	THC(ppm)	5	100	7.5	-	2.9	-
	THC(ppm)	6	100	2.9	-	2.3	-
	THC(ppm)	7	94	2.8	-	2.3	-
	THC(ppm)	9	100	3.3	-	2.7	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

January 2024

Page 2 of 3

Created: February 29, 2024 09:25:00

APPROVAL NUMBERS	REPORT DATE		CONTINUOUS AMBIENT MONITORING				
	MONTH	YEAR	% TIME OPERATIONAL	ONE-HOUR AVERAGE		24-HOUR AVERAGE	
	1	2024		MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
289664-00-00	THC(ppm)	11	99	3.1	-	2.7	-
241311-00-00	THC(ppm)	13	100	4.3	-	2.9	-
20809-02-00	THC(ppm)	14	84	2.5	-	2.3	-
149968-01-00	THC(ppm)	17	100	3.3	-	2.6	-
237382-00-00	THC(ppm)	18	53	2.4	-	2.1	-
48522-01-00	THC(ppm)	19	97	3.4	-	2.5	-
240008-00-00	THC(ppm)	20	100	3.1	-	2.7	-
48263-01-00	THC(ppm)	21	100	2.9	-	2.6	-
224816-00-00	THC(ppm)	22	91	2.5	-	2.3	-
151469-01-00	THC(ppm)	23	100	9.0	-	3.4	-
189942-00-00	THC(ppm)	29	91	2.4	-	2.3	-
206355-00-00	THC(ppm)	30	100	5.8	-	2.6	-
46586-00-00	THC(ppm)	507	97	23.0	-	3.8	-
73203-02-00	THC(ppm)	511	93	2.8	-	2.7	-
216466-01-00	O3(ppb)	1	100	39.5	0	24.9	-
137467-01-00	O3(ppb)	4	100	48.3	0	37.2	-
236394-00-00	O3(ppb)	6	100	47.8	0	37.0	-
254465-00-00	O3(ppb)	7	100	46.3	0	30.8	-
094-03-00	O3(ppb)	8	100	40.7	0	36.8	-
80105-01-00	O3(ppb)	13	100	42.7	0	26.1	-
305529-00-00	O3(ppb)	14	100	46.8	0	38.2	-
318401-00-00	O3(ppb)	17	100	45.2	0	37.6	-
026-03-00	O3(ppb)	18	100	46.4	0	40.0	-
364232-00-00	O3(ppb)	21	95	48.8	0	36.7	-
228044-00-00	O3(ppb)	22	100	52.7	0	42.9	-
247548-00-00	NO2(ppb)	1	100	36.1	0	24.9	-
231302-00-00	NO2(ppb)	4	100	34.1	0	21.5	-
246984-01-00	NO2(ppb)	6	99	31.0	0	15.3	-
153125-01-00	NO2(ppb)	7	100	34.1	0	17.2	-
	NO2(ppb)	8	99	29.1	0	13.5	-
	NO2(ppb)	9	100	43.0	0	29.3	-
	NO2(ppb)	13	100	36.8	0	22.9	-
	NO2(ppb)	14	100	31.3	0	11.3	-
	NO2(ppb)	17	100	29.6	0	11.8	-
	NO2(ppb)	18	100	16.0	0	5.0	-
	NO2(ppb)	19	100	35.9	0	17.1	-
	NO2(ppb)	20	94	32.5	0	15.4	-
	NO2(ppb)	21	100	17.1	0	8.0	-
	NO2(ppb)	22	100	19.1	0	6.2	-
	NO2(ppb)	23	100	56.6	0	27.0	-
	NO2(ppb)	26	100	24.5	0	10.8	-
	NO2(ppb)	27	99	14.7	0	5.2	-
	NO2(ppb)	29	91	21.0	0	9.4	-
	NO2(ppb)	30	100	35.1	0	23.5	-
	NO2(ppb)	501	100	15.4	0	6.0	-
	NO2(ppb)	505	100	32.7	0	13.4	-
	NO2(ppb)	507	100	49.9	0	29.8	-
	NO2(ppb)	511	97	16.2	0	7.6	-
	CO(ppm)	1	100	0.4	0	0.3	-
	CO(ppm)	7	100	0.4	0	0.3	-
	CO(ppm)	8	100	0.1	0	0.1	-
	CO(ppm)	18	92	0.3	0	0.2	-
	CO2(ppm)	1	100	459.8	-	442.8	-
	CO2(ppm)	8	44	443.5	-	432.0	-
	CO2(ppm)	18	100	452.9	-	445.9	-
	NH3(ppb)	1	96	0.0	0	0.0	-
	NH3(ppb)	6	95	0.0	0	0.0	-
	PM2.5(ug/m3)	1	100	31.2	0	17.7	0
	PM2.5(ug/m3)	4	100	48.2	0	17.4	0
	PM2.5(ug/m3)	6	100	32.0	0	19.0	0
	PM2.5(ug/m3)	7	100	30.9	0	21.2	0
	PM2.5(ug/m3)	8	100	30.5	0	10.6	0
	PM2.5(ug/m3)	9	100	38.9	0	22.8	0
	PM2.5(ug/m3)	13	100	33.3	0	18.7	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

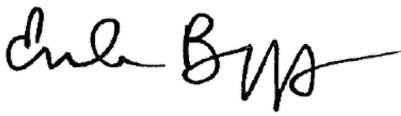
January 2024

Page 3 of 3

Created: February 29, 2024 09:25:00

REPORT DATE	
MONTH	YEAR
1	2024

CONTINUOUS AMBIENT MONITORING

APPROVAL NUMBERS	PARAMETER	STN. NO.	% TIME OPERATIONAL	ONE-HOUR AVERAGE		24-HOUR AVERAGE	
				MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
289664-00-00	PM2.5(ug/m3)	14	97	59.2	0	14.3	0
241311-00-00	PM2.5(ug/m3)	17	100	31.2	0	16.9	0
20809-02-00	PM2.5(ug/m3)	18	100	36.8	0	20.1	0
149968-01-00	PM2.5(ug/m3)	21	100	45.8	0	23.8	0
237382-00-00	PM2.5(ug/m3)	22	97	38.2	0	18.1	0
48522-01-00	PM2.5(ug/m3)	23	100	41.8	0	17.6	0
240008-00-00	PM2.5(ug/m3)	29	91	25.5	0	14.8	0
48263-01-00	PM2.5(ug/m3)	30	100	26.4	0	16.4	0
224816-00-00	WS(km/h)	1	99	-	-	-	-
151469-01-00	WS(km/h)	2	96	-	-	-	-
189942-00-00	WS(km/h)	4	100	-	-	-	-
206355-00-00	WS(km/h)	5	99	-	-	-	-
46586-00-00	WS(km/h)	6	100	-	-	-	-
73203-02-00	WS(km/h)	7	100	-	-	-	-
216466-01-00	WS(km/h)	8	100	-	-	-	-
137467-01-00	WS(km/h)	9	98	-	-	-	-
236394-00-00	WS(km/h)	11	98	-	-	-	-
254465-00-00	WS(km/h)	13	96	-	-	-	-
094-03-00	WS(km/h)	14	100	-	-	-	-
80105-01-00	WS(km/h)	17	99	-	-	-	-
305529-00-00	WS(km/h)	18	98	-	-	-	-
318401-00-00	WS(km/h)	19	99	-	-	-	-
026-03-00	WS(km/h)	20	99	-	-	-	-
364232-00-00	WS(km/h)	21	100	-	-	-	-
228044-00-00	WS(km/h)	22	96	-	-	-	-
247548-00-00	WS(km/h)	23	100	-	-	-	-
231302-00-00	WS(km/h)	25	99	-	-	-	-
246984-01-00	WS(km/h)	26	99	-	-	-	-
153125-01-00	WS(km/h)	27	99	-	-	-	-
	WS(km/h)	29	95	-	-	-	-
	WS(km/h)	30	98	-	-	-	-
	WS(km/h)	501	98	-	-	-	-
	WS(km/h)	505	97	-	-	-	-
	WS(km/h)	507	100	-	-	-	-
	WS(km/h)	511	100	-	-	-	-
							
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 JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY - BERTHA GANTER (AMS01)  
JANUARY 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	708	36	36	100	23	0	3.1	0
H2S(ppb) Average	700	38	44	99.19	6.8	0	1.6	0
TRS(ppb) Average	701	38	43	99.33	8.2	0	2.1	0
THC(ppm) Average	703	35	41	99.19	4	-	3	-
NMHC(ppm) Average	703	35	41	99.19	0.426	-	0.214	-
CH4(ppm) Average	703	35	41	99.19	3.6	-	2.8	-
O3 (ppb) Average	710	34	34	100	39.5	0	24.9	-
NO2 (ppb) Average	707	37	37	100	36.1	0	24.9	-
NO (ppb) Average	707	37	37	100	75	-	39.6	-
NOX (ppb) Average	707	37	37	100	103.5	-	63.4	-
NH3 (ppb) Average	670	42	74	95.7	0	0	0	-
PM2.5 (ug/m3) Average	741	3	3	100	31.2	0	17.7	0
CO(ppm) Average	708	36	36	100	0.4	0	0.3	0
CO2(ppm) Average	709	35	35	100	459.8	0	442.8	0
Temperature 2 m (C) Average	744	0	0	100	11.1	-	4	-
Temperature 10 m (C) Average	744	0	0	100	11.4	-	4.6	-
Relative Humidity (%) Average	744	0	0	100	96.8	-	91.3	-
Wind Speed 10 m (km/h) Average	734	0	10	98.66	19	-	11	-
Wind Direction 10 m (deg) Average	734	0	10	98.66	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.1	-	4	-
Leaf Wetness (% of range) Average	744	0	0	100	43.1	-	8	-
Global Solar Radiation (W/m2) Average	744	0	0	100	310.8	-	57.3	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT MCKAY (AMS01)  
 JANUARY 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	708	0.89	2	-	0	0	0.1	0.2	0.7	2.5	23
H2S (ppb) Average	700	0.48	0.6	-	0	0.1	0.1	0.2	0.6	1.2	6.8
TRS (ppb) Average	701	0.85	0.8	-	0.3	0.4	0.4	0.5	0.9	1.8	8.2
THC (ppm) Average	703	2.32	0.3	-	1.9	2	2.1	2.2	2.5	2.8	4
NMHC(ppm) Average	703	0.052	0.081	-	0	0	0	0	0.1	0.2	0.426
CH4(ppm) Average	703	2.27	0.3	-	1.9	2	2.1	2.2	2.4	2.7	
O3 (ppb) Average	710	13.05	9.7	-	0	0.9	4	11.8	21.1	26.1	39.5
NO2 (ppb) Average	707	14.81	7.8	-	0	4.5	8.9	14.4	20.8	25.3	36.1
NO (ppb) Average	707	7.36	13.5	-	0	0	0	0.9	7.9	24.5	75
NOX (ppb) Average	707	22.17	18.8	-	0	4.8	9.4	16.8	28.5	48.3	103.5
NH3 (ppb) Average	670	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	741	5.9	4.3	-	0.3	2.5	3	4.4	7.7	11.6	31.2
CO(ppm) Average	708	0.19	0.1	-	0	0.1	0.1	0.2	0.2	0.3	0.4
CO2(ppm) Average	709	432.18	7.8	-	418.2	423.6	426.1	430.4	437.1	444.1	459.8
Temperature 2 m (C) Average	744	-18.33	12.6	-	-43.1	-37.4	-26.3	-18.7	-10.4	-0.1	11.1
Temperature 10 m (C) Average	744	-18.4	12.8	-	-43.3	-37.5	-25.9	-18.9	-10.6	1	11.4
Relative Humidity (%) Average	744	75.48	9	-	44.8	63.9	69.7	75.2	79.9	89	96.8
Wind Speed 10 m (km/h) Average	734	5.5	4	-	0	1	3	5	8	10	19
Wind Direction 10 m (deg) Average	734	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	11.95	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	3.85	3.1	-	1.8	2.8	3.1	3.5	3.7	3.7	43.1
Global Solar Radiation (W/m2) Average	744	22.65	50.7	-	0	0	0	0	16.7	75.4	310.8

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

OPERATIONAL NOTES

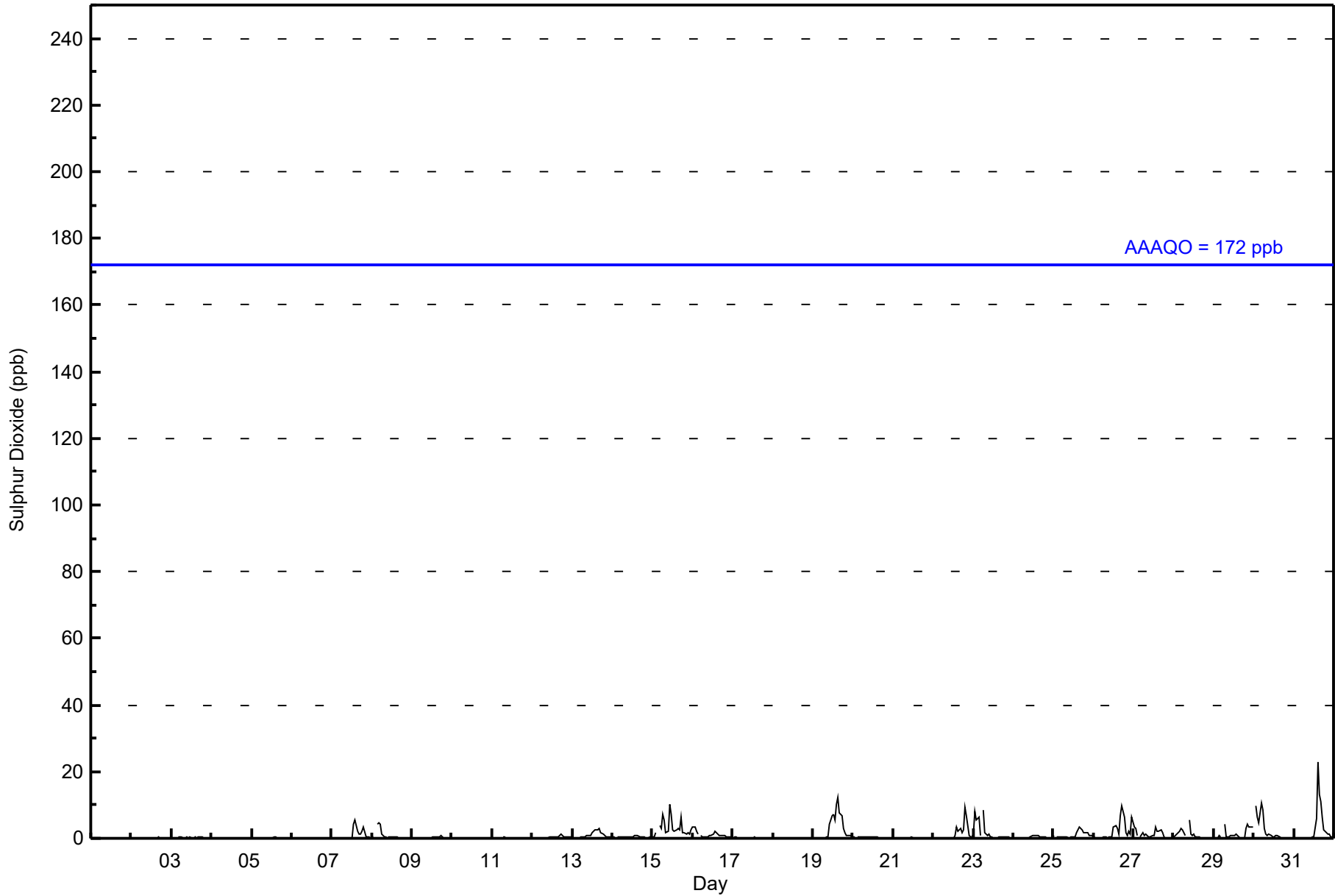
Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, TRS	12 Jan 2024 11:00	12 Jan 2024 14:00	4	Maintenance - verify daily QA response
H2S, TRS	17 Jan 2024 11:00	17 Jan 2024 12:00	2	Maintenance - verify daily QA response
THC/NMHC/CH4	22 Jan 2024 12:00	22 Jan 2024 17:00	6	Maintenance - replaced support gas cylinder
NH3	01 Jan 2024 06:00	31 Jan 2024 06:00	32	Stabilization after daily QA check
Wind Speed, Wind Direction	10 Jan 2024 08:00	10 Jan 2024 08:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	11 Jan 2024 20:00	11 Jan 2024 20:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Jan 2024 04:00	12 Jan 2024 04:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Jan 2024 20:00	12 Jan 2024 20:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 09:00	13 Jan 2024 09:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 19:00	13 Jan 2024 19:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	14 Jan 2024 01:00	14 Jan 2024 01:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	14 Jan 2024 04:00	14 Jan 2024 04:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	14 Jan 2024 20:00	14 Jan 2024 20:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	24 Jan 2024 09:00	24 Jan 2024 09:00	1	Flat line in sensor output signal - Sensor frozen





Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744									
Maximum Value: 23.0 ppb on Jan 31 15:00																			Maximum Daily Average: 3.1 ppb on Jan 15									
Minimum Value: 0.0 ppb on Jan 1 03:00																			Minimum Daily Average: 0.0 ppb on Jan 1									
Maximum Diurnal Average: 2.1 ppb at hour 15																			Minimum Diurnal Average: 0.3 ppb at hour 9									
Monthly Average: 0.89 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> = 0.7 P <sub>90</sub> = 2.5 P <sub>99</sub> = 9.9									
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-Jan	0.1	Z	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
2-Jan	0.1	0.1	Z	0.0	0.1	0.0	0.0	0.1	0.0	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	0.0	0.0	0.1	0.2
3-Jan	0.1	0.1	0.1	Z	0.2	0.5	0.5	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.5
4-Jan	0.1	0.1	0.1	0.1	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
5-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
6-Jan	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2
7-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	4.1	5.6	2.1	1.1	1.3	2.0	3.5	0.5	0.3	0.2	0.2	0.9	0.9	5.6	
8-Jan	0.2	0.3	Z	4.2	4.8	4.3	1.3	0.4	0.2	0.1	0.3	0.4	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.8	4.8	
9-Jan	0.1	0.2	0.1	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.4	0.5	0.4	0.7	0.2	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.7	
10-Jan	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	
11-Jan	0.1	0.2	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	
12-Jan	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.5	0.6	0.5	0.6	0.4	0.5	0.8	1.1	0.7	0.5	0.4	0.3	0.3	0.2	0.4	0.4	1.1	
13-Jan	0.2	Z	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	0.7	0.8	1.6	2.6	2.6	2.5	3.0	1.6	1.3	0.7	0.4	0.3	0.4	0.4	1.0	1.0	3.0	
14-Jan	0.4	0.3	Z	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.4	0.5	0.5	0.9	0.9	0.8	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.4	0.4	0.9	
15-Jan	0.2	0.4	1.8	Z	3.6	2.9	7.2	5.5	1.5	2.1	10.0	7.3	2.5	2.0	2.4	3.1	2.5	6.4	1.7	1.8	1.1	1.8	1.4	2.6	3.1	3.1	10.0	
16-Jan	3.5	3.4	2.2	1.1	Z	0.8	0.6	0.6	0.5	0.5	0.7	0.9	1.1	1.9	1.6	1.3	0.9	0.7	0.8	0.6	0.3	0.3	0.2	0.2	1.1	1.1	3.5	
17-Jan	0.2	0.5	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.5	
18-Jan	Z	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	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.2	
19-Jan	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.2	0.3	0.6	4.0	6.9	7.2	5.6	10.2	12.3	7.5	6.8	2.9	1.6	0.9	0.9	0.8	0.5	3.0	3.0	12.3	
20-Jan	0.5	0.4	Z	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.2	0.5	
21-Jan	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.2	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	
22-Jan	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	1.0	3.4	2.1	3.1	1.6	2.6	9.4	6.7	0.7	0.4	0.4	1.4	1.4	9.4	
23-Jan	1.2	8.1	5.4	6.1	1.0	Z	8.4	1.5	1.0	1.3	0.6	0.4	0.2	0.2	0.5	0.4	0.3	0.6	0.3	0.3	0.3	0.2	0.2	0.1	1.7	1.7	8.4	
24-Jan	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.5	0.7	1.0	1.0	1.1	1.0	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.3	0.3	1.1	
25-Jan	0.7	Z	0.4	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.2	1.6	3.4	2.8	2.6	1.8	1.6	1.8	0.9	0.8	0.7	1.0	1.0	3.4	
26-Jan	0.6	0.6	Z	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.3	0.3	3.2	3.9	2.9	1.1	6.7	9.6	6.5	1.8	1.0	2.0	1.5	6.4	2.2	2.2	9.6	
27-Jan	3.2	3.1	1.0	Z	0.5	1.6	0.7	1.1	0.7	0.5	0.5	0.9	1.0	3.6	2.2	2.3	2.4	1.6	0.4	0.0	0.0	0.0	0.0	0.2	1.2	1.2	3.6	
28-Jan	0.4	1.1	1.5	2.2	3.0	2.6	1.7	0.7	Z	5.4	1.4	0.8	1.2	0.6	0.6	0.4	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	1.0	1.0	5.4	
29-Jan	0.0	0.0	0.1	0.9	0.5	Z	4.2	0.6	0.4	0.4	0.7	0.8	0.9	1.1	0.7	0.4	0.1	0.1	0.1	2.8	4.1	3.4	3.2	3.3	1.3	1.3	4.2	
30-Jan	Z	9.9	6.6	4.5	10.7	8.5	2.8	1.1	1.0	1.2	0.9	0.6	0.6	0.8	0.7	0.5	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	2.2	2.2	10.7	
31-Jan	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	5.9	23.0	13.1	11.2	6.5	2.5	1.8	1.2	1.2	0.5	0.5	3.0	3.0	23.0	
	0.5	1.2	0.8	0.8	1.0	0.9	1.0	0.5	0.3	0.5	0.7	0.8	0.8	1.3	2.1	1.6	1.5	1.4	0.8	0.9	0.7	0.4	0.4	0.5		Diurnal Average		
	3.5	9.9	6.6	6.1	10.7	8.5	8.4	5.5	1.5	5.4	10.0	7.3	7.2	5.9	23.0	13.1	11.2	9.6	6.5	9.4	6.7	3.4	3.2	6.4		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  
Fort McKay - Bertha Ganter - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	703	99.29	99.29
11 - 20	4	0.56	99.86
21 - 60	1	0.14	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: 708

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay - Bertha Ganter - January 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	119	98	34	14	4	3	7	46	133	51	28	37	24	26	35	34	693
11 - 20	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
21 - 60	0	0	0	0	0	0	0	0	1	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>	119	98	34	14	4	3	7	46	138	51	28	37	24	26	35	34	698

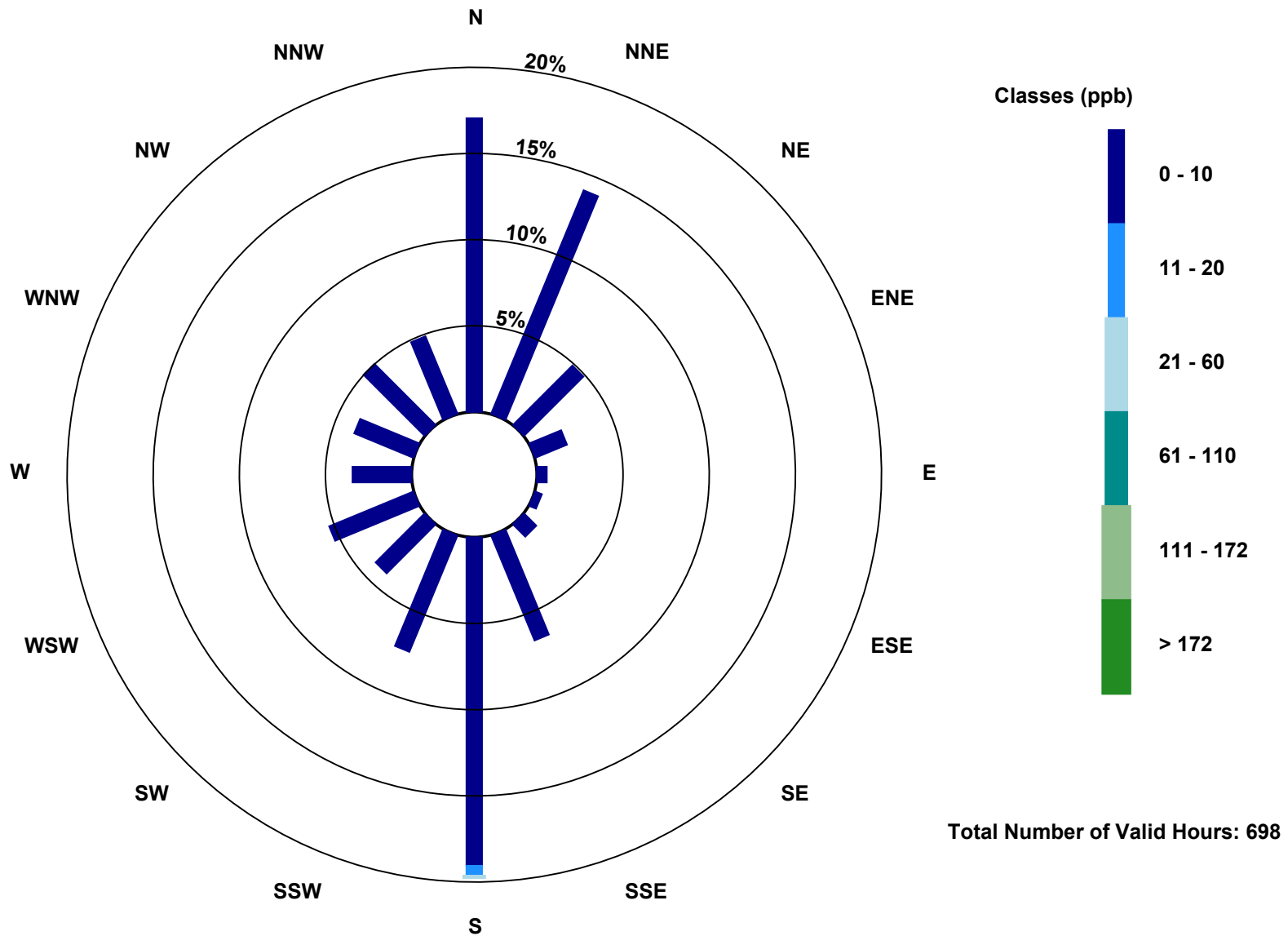
Total Number of Valid Hours: 698

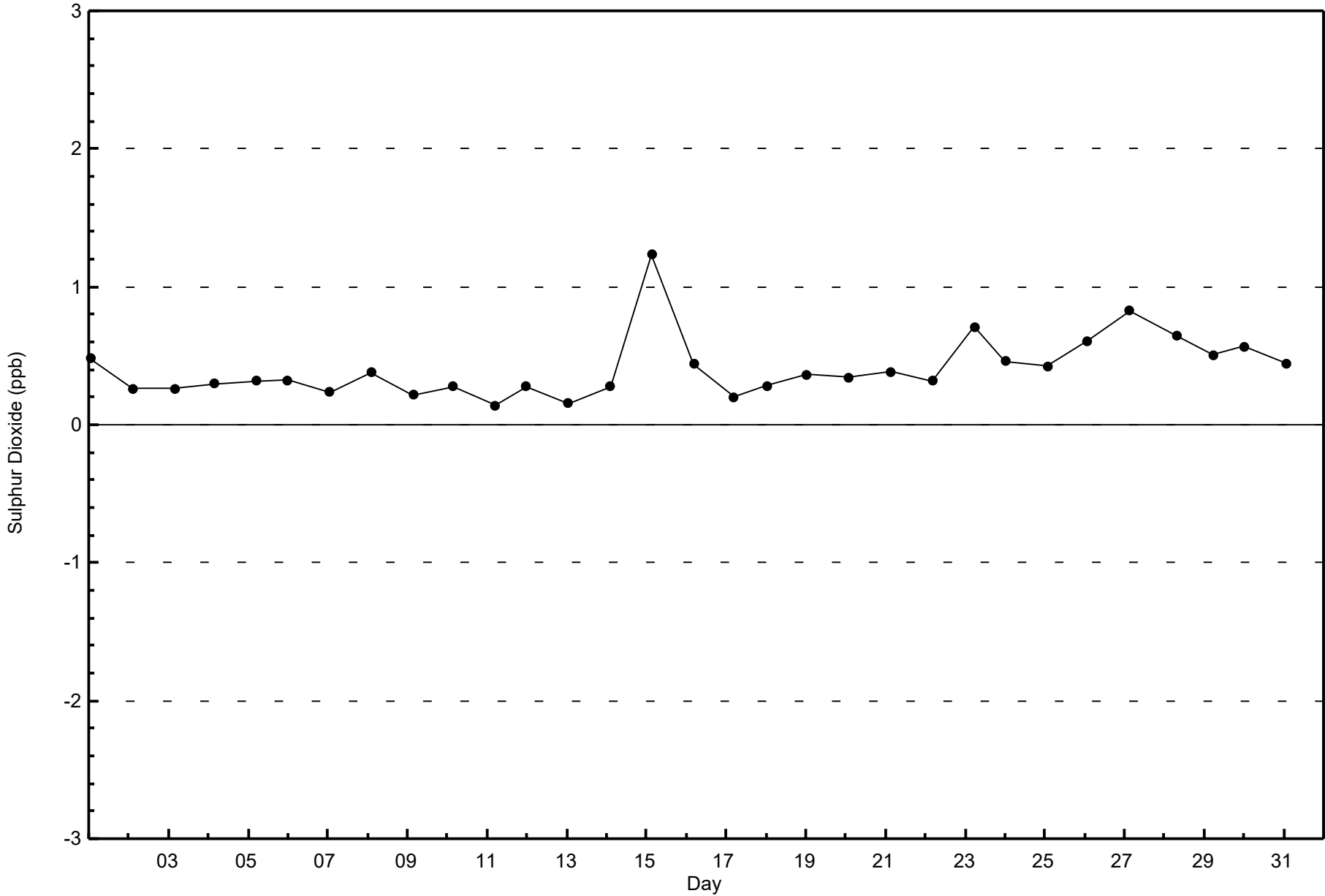
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

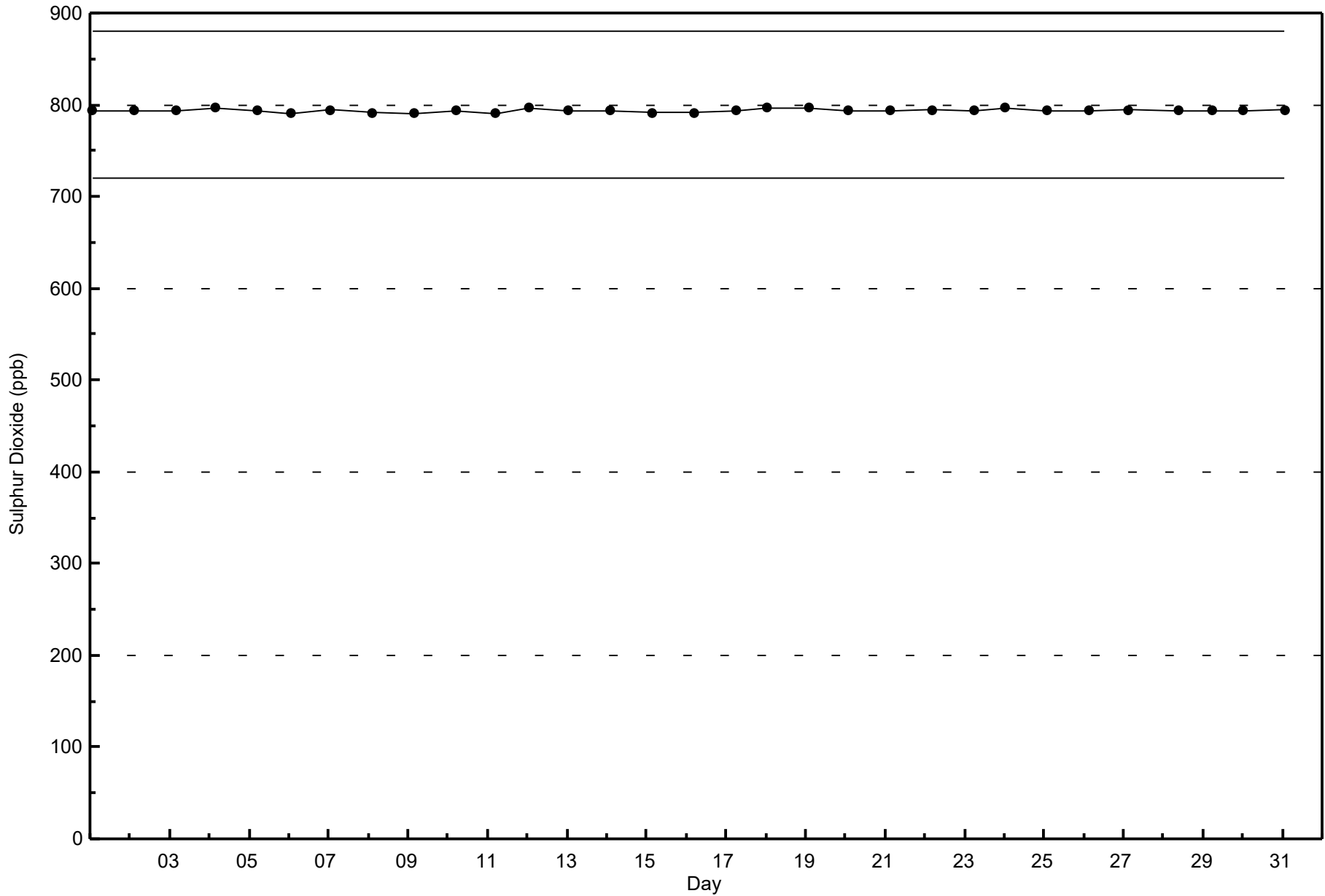






**Wood Buffalo Environmental Association**  
**Span Responses**

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





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

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

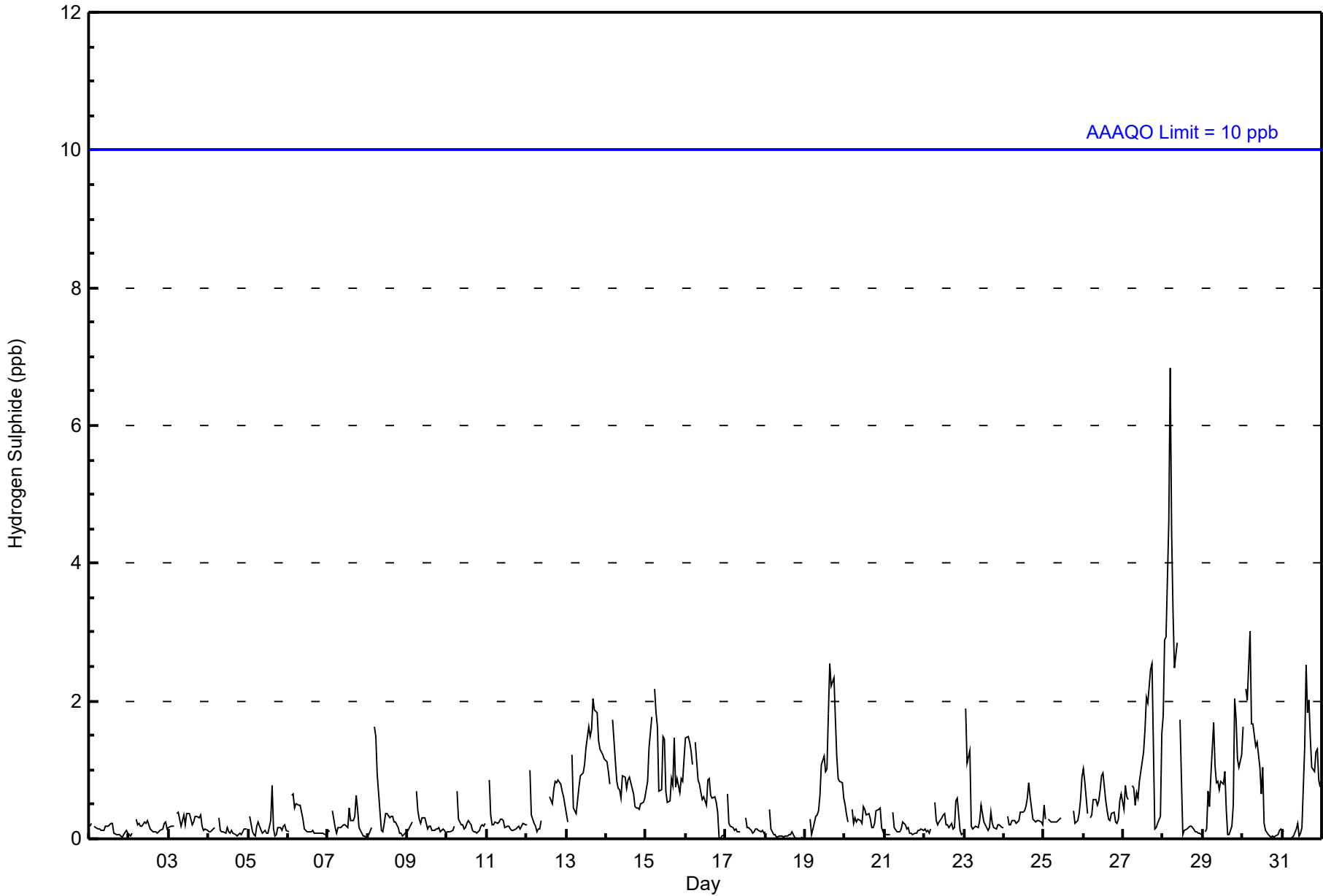
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 6.8 ppb on Jan 28 05:00	Maximum Daily Average: 1.6 ppb on Jan 28
Minimum Value: 0.0 ppb on Jan 18 21:00	Minimum Daily Average: 0.1 ppb on Jan 18
Maximum Diurnal Average: 0.7 ppb at hour 5	Minimum Diurnal Average: 0.3 ppb at hour 23
Monthly Average: 0.48 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> = 0.6 P <sub>90</sub> = 1.2 P <sub>99</sub> = 2.8
	Hours of Data: 700
	Hours of Missing Data: 44
	Hours of Calibration: 38
	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-Jan	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3
2-Jan	0.1	0.0	0.1	Z	0.3	0.2	0.2	0.2	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	0.2	0.2	0.1	0.3	0.4
3-Jan	0.2	0.2	0.2	0.2	Z	0.4	0.4	0.2	0.3	0.3	0.2	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.3	0.4
4-Jan	0.1	0.1	0.1	0.2	0.2	Z	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.4
5-Jan	Z	0.3	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.8	0.1	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.8
6-Jan	0.1	Z	0.6	0.7	0.4	0.5	0.5	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	0.1	0.1	0.1	0.1	0.0	0.7	0.7
7-Jan	0.1	0.1	Z	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.3	0.3	0.3	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.2	0.6	0.6
8-Jan	0.0	0.1	0.2	Z	1.6	1.5	0.9	0.4	0.1	0.1	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.6	1.6
9-Jan	0.1	0.2	0.2	0.2	Z	0.7	0.4	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.7	0.7
10-Jan	0.1	0.1	0.1	0.1	0.2	Z	0.7	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.7	0.7
11-Jan	Z	0.9	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	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	0.9	0.9
12-Jan	0.2	Z	1.0	0.3	0.2	0.2	0.1	0.1	0.1	0.3	M	M	M	M	0.6	0.5	0.7	0.8	0.8	0.8	0.8	0.7	0.6	0.5	1.0	1.0	
13-Jan	0.4	0.3	Z	1.2	0.4	0.4	0.4	0.7	0.9	0.9	0.9	1.1	1.3	1.6	1.5	1.6	2.0	1.9	1.8	1.4	1.3	1.3	1.2	1.2	2.0	2.0	
14-Jan	1.1	1.0	0.8	Z	1.7	1.1	0.8	0.7	0.7	0.6	0.9	0.9	0.7	0.9	0.9	0.8	0.7	0.5	0.5	0.5	0.4	0.5	0.5	0.6	1.7	1.7	
15-Jan	0.7	0.8	1.3	1.8	Z	2.2	1.8	1.6	0.7	0.7	1.5	1.4	0.7	0.5	0.6	0.9	0.8	1.5	0.8	0.9	0.7	0.9	0.8	1.2	2.2	2.2	
16-Jan	1.5	1.5	1.4	1.3	1.1	Z	1.4	0.9	0.8	0.7	0.6	0.6	0.5	0.8	0.9	0.6	0.6	0.6	0.5	0.4	0.0	0.0	0.0	0.1	1.5	1.5	
17-Jan	Z	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	M	M	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.6	
18-Jan	0.1	Z	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	
19-Jan	0.0	0.0	Z	0.3	0.1	0.1	0.3	0.4	0.4	0.6	1.1	1.2	1.0	1.0	1.8	2.6	2.2	2.3	1.7	1.2	0.9	0.8	0.8	0.6	2.6	2.6	
20-Jan	0.5	0.3	0.2	Z	0.4	0.2	0.3	0.3	0.3	0.3	0.2	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.4	0.5	0.2	0.1	0.5	0.5	
21-Jan	0.1	0.1	0.1	0.1	Z	0.4	0.2	0.1	0.1	0.1	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	0.4	0.4	
22-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.5	0.3	0.2	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.1	0.2	0.5	0.6	0.1	0.1	0.1	0.6	0.6	
23-Jan	Z	1.9	1.1	1.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.2	0.2	0.1	0.2	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	1.9	1.9	
24-Jan	0.2	Z	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.6	0.8	0.6	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.8	0.8	
25-Jan	0.5	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	C	C	C	C	C	C	C	0.4	0.2	0.3	0.4	0.6	0.9	0.9	0.9	
26-Jan	1.0	0.8	0.4	Z	0.3	0.3	0.6	0.6	0.5	0.6	0.7	0.9	1.0	0.5	0.4	0.3	0.3	0.4	0.4	0.2	0.2	0.3	0.6	0.6	1.0	1.0	
27-Jan	0.4	0.8	0.6	0.6	Z	0.8	0.7	0.5	0.7	0.6	0.8	1.1	1.3	1.6	2.1	2.0	2.5	2.6	1.3	0.1	0.2	0.2	0.3	1.5	2.6	2.6	
28-Jan	1.8	2.9	2.9	4.6	6.8	4.4	3.3	2.5	2.8	Z	1.7	0.9	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	6.8	6.8	
29-Jan	Z	0.1	0.1	0.7	0.5	0.9	1.7	1.1	0.8	0.8	0.7	0.8	0.8	1.0	0.4	0.1	0.1	0.2	0.5	2.0	1.7	1.2	1.0	1.2	2.0	2.0	
30-Jan	1.6	Z	2.2	2.0	3.0	1.7	1.7	1.5	1.3	1.4	1.0	0.7	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	3.0	3.0	
31-Jan	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.2	1.4	2.5	1.8	2.0	1.5	1.0	1.0	1.3	1.3	0.9	0.8	2.5	2.5	

0.4	0.5	0.6	0.7	0.7	0.6	0.6	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.4	Diurnal Average
1.8	2.9	2.9	4.6	6.8	4.4	3.3	2.5	2.8	1.4	1.7	1.4	1.3	1.6	2.5	2.6	2.5	2.6	1.8	2.0	1.7	1.3	1.2	1.5	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 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	689	98.43	98.43
3 - 4	9	1.29	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: 700

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Fort McKay - Bertha Ganter - January 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	119	97	34	17	4	5	6	41	124	50	28	36	23	27	34	35	680
3 - 4	0	0	0	0	0	0	0	0	8	0	0	1	0	0	0	0	9
5 - 7	0	0	0	0	0	0	0	0	2	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>	119	97	34	17	4	5	6	41	134	50	28	37	23	27	34	35	691

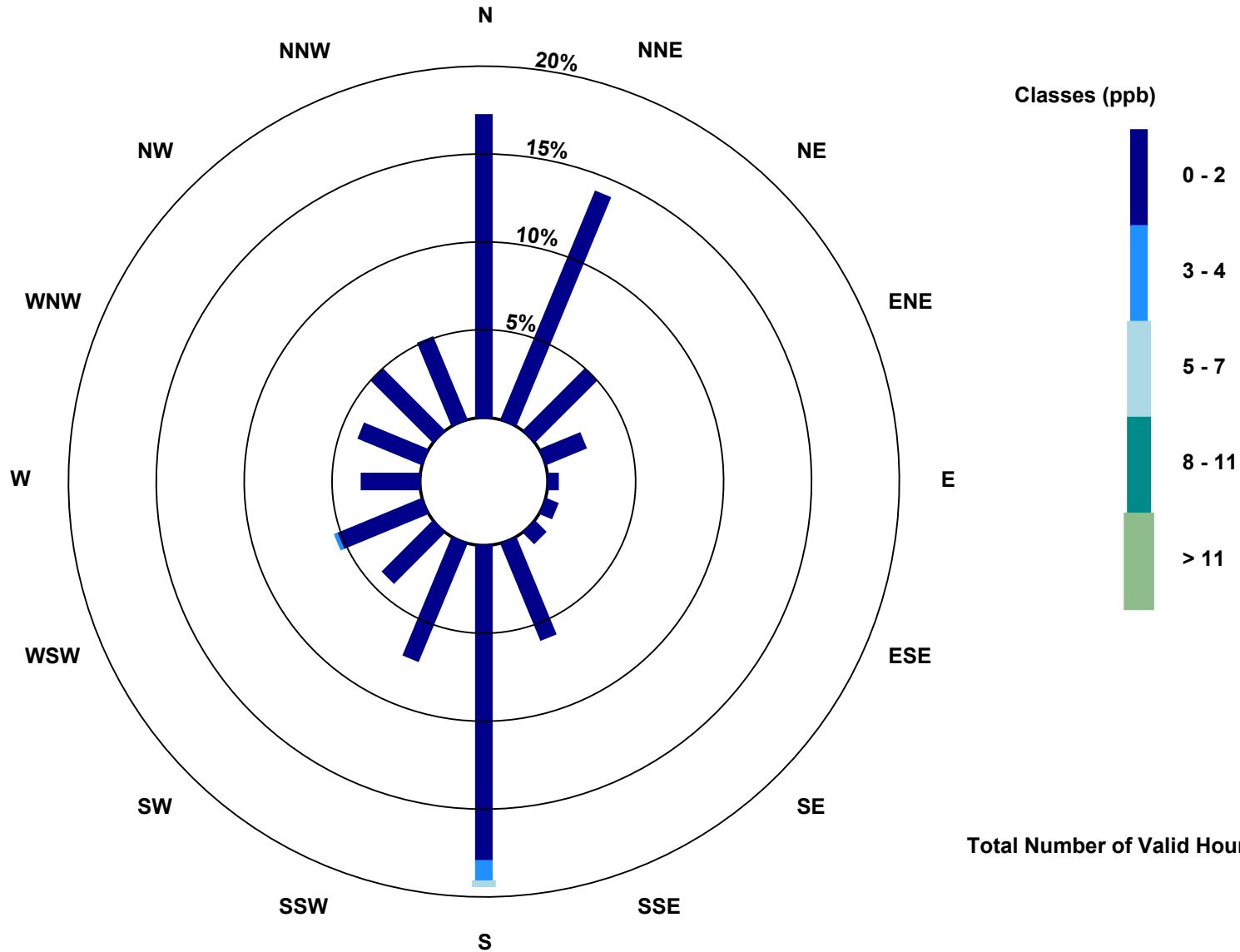
Total Number of Valid Hours: 691

Total Number of Hours: 744

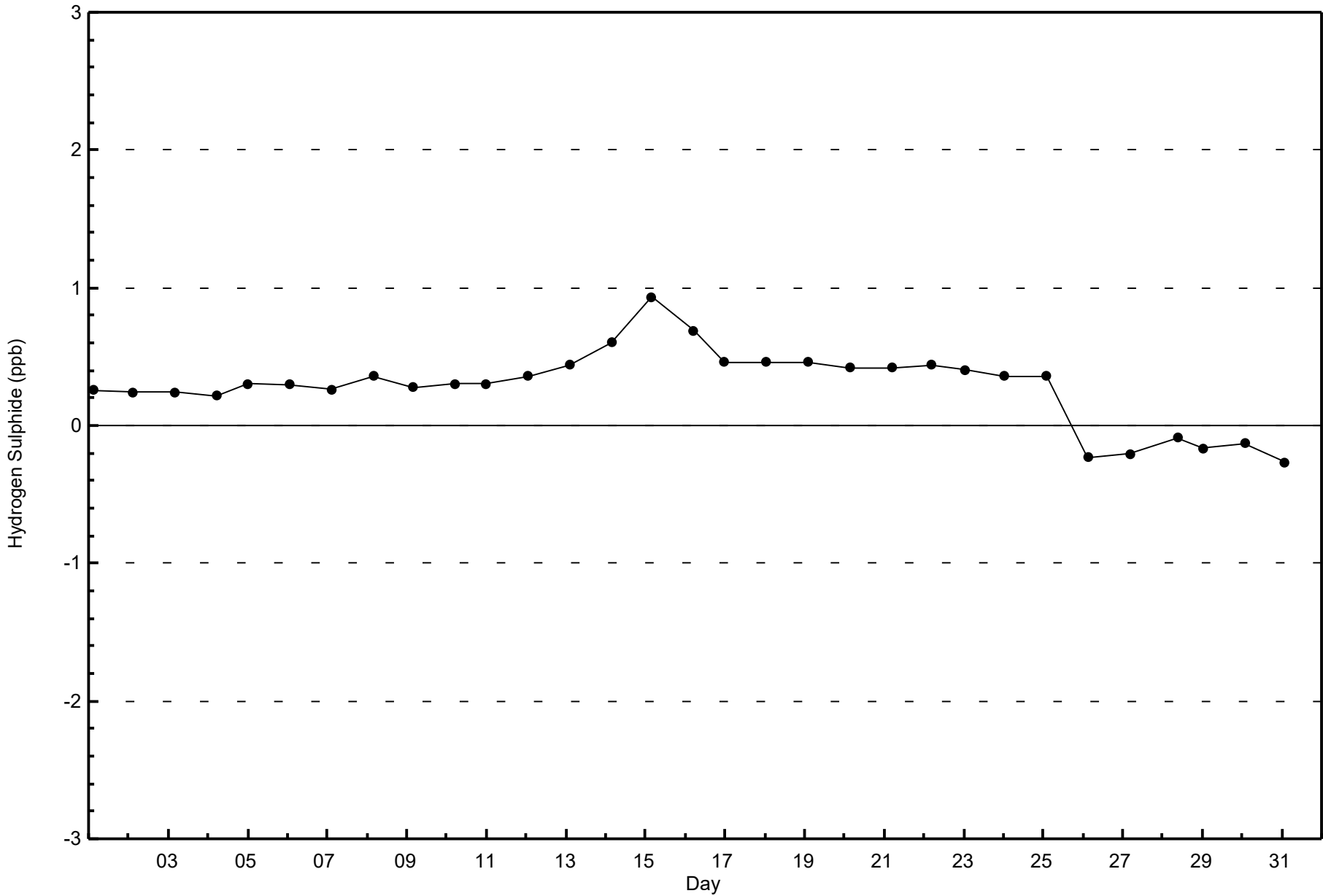


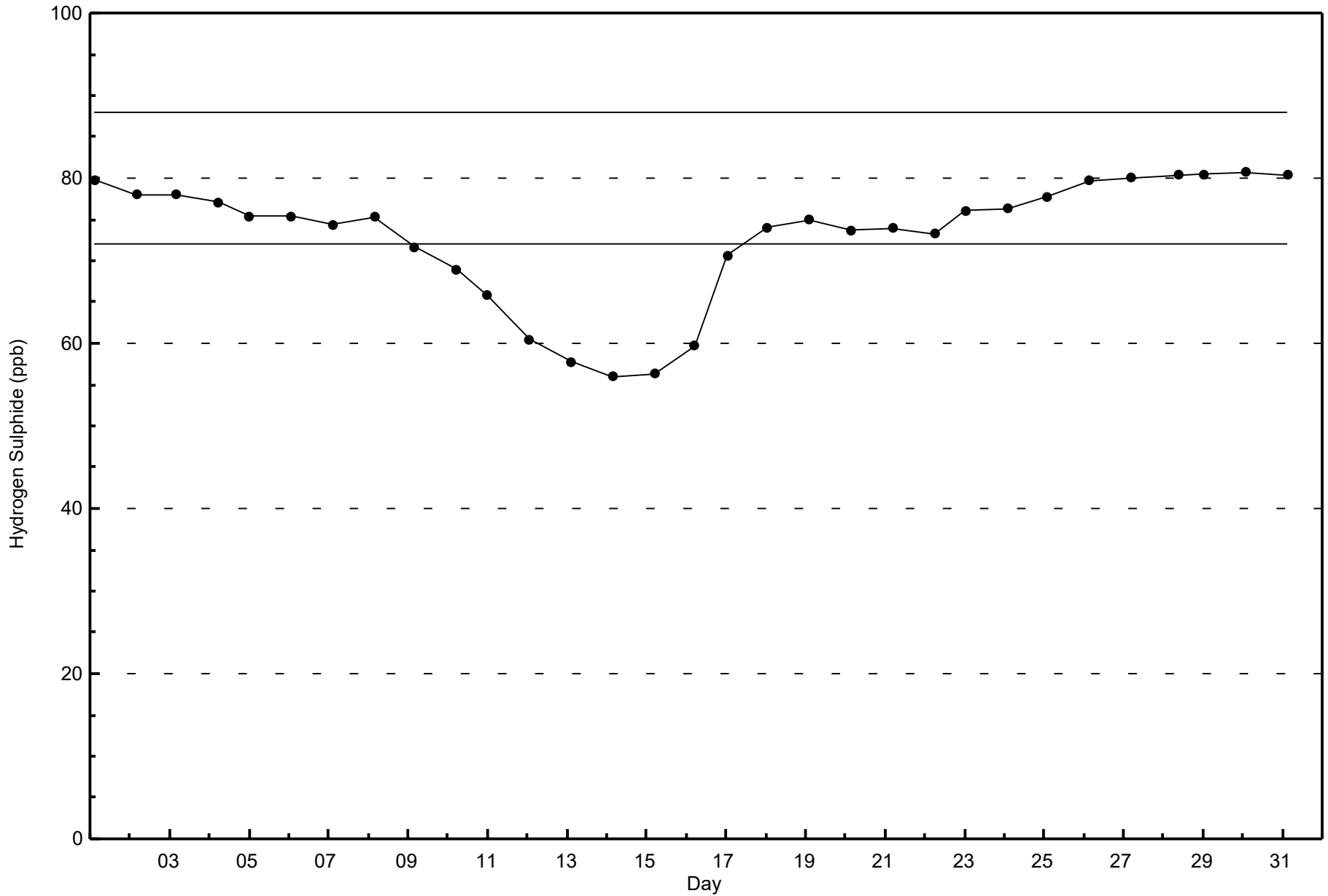
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 691







# Wood Buffalo Environmental Association

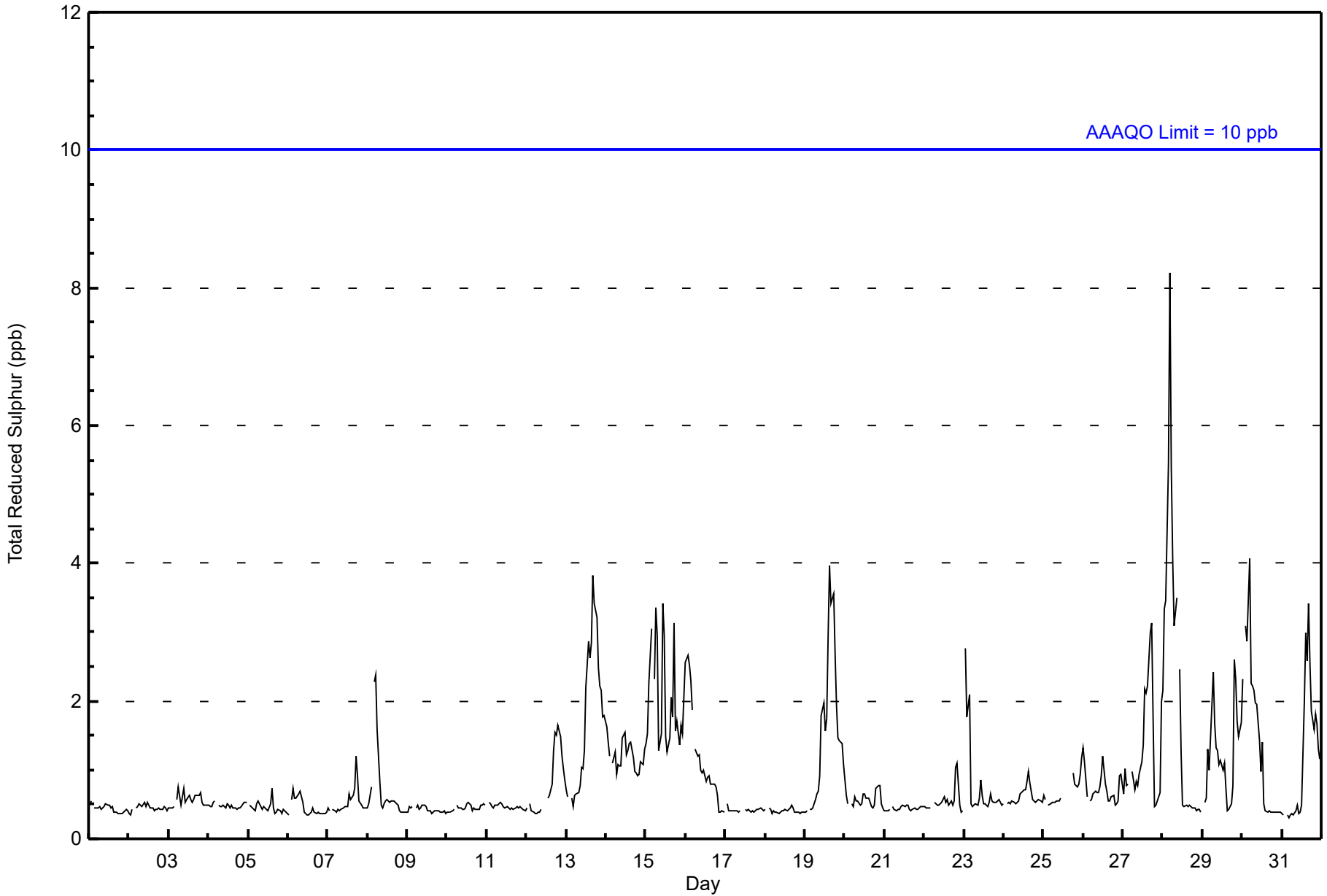
## Summary of Hour Averages

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 8.2 ppb on Jan 28 05:00	Maximum Daily Average: 2.1 ppb on Jan 28
Minimum Value: 0.3 ppb on Jan 31 05:00	Hours of Data: 701
Maximum Diurnal Average: 1.1 ppb at hour 5	Hours of Missing Data: 43
Monthly Average: 0.85 ppb	Hours of Calibration: 38
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> = 0.9 P <sub>90</sub> = 1.8 P <sub>99</sub> = 3.6	Percent Operational Time: 99.3
Minimum Daily Average: 0.4 ppb on Jan 18	
Minimum Diurnal Average: 0.7 ppb at hour 10	

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Jan	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
2-Jan	0.4	0.3	0.4	Z	0.4	0.5	0.5	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	0.5	0.5	0.4	0.4	0.4
3-Jan	0.4	0.4	0.4	0.5	Z	0.6	0.7	0.5	0.6	0.7	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
4-Jan	0.5	0.5	0.5	0.5	0.6	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
5-Jan	Z	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.5	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
6-Jan	0.3	Z	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.5	0.4	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	0.4	0.4	0.4	0.4
7-Jan	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.7	1.2	0.9	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5
8-Jan	0.4	0.5	0.8	Z	2.3	2.4	1.6	0.8	0.5	0.5	0.5	0.5	0.6	0.5	0.5	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
9-Jan	0.4	0.5	0.5	0.5	Z	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
10-Jan	0.4	0.4	0.4	0.4	0.4	Z	0.5	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	0.5	0.5	0.5	0.5	0.5	0.5	0.5
11-Jan	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
12-Jan	0.4	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	M	M	M	0.6	0.6	0.8	1.3	1.6	1.5	1.6	1.5	1.2	1.0	0.9	0.8	0.8	0.8	
13-Jan	0.7	0.6	Z	0.6	0.5	0.6	0.6	0.7	0.8	1.0	1.0	1.3	2.2	2.9	2.6	2.8	3.8	3.4	3.2	2.5	2.2	2.1	1.8	1.8	1.7	1.7	1.7	
14-Jan	1.6	1.4	1.2	Z	1.1	1.3	0.9	1.1	1.1	1.0	1.5	1.6	1.2	1.3	1.4	1.4	1.2	1.0	1.0	0.9	0.9	1.1	1.1	1.1	1.3	1.2	1.2	
15-Jan	1.4	1.5	2.3	3.1	Z	2.3	3.4	2.9	1.3	1.5	3.4	2.9	1.5	1.3	1.5	2.1	1.8	3.1	1.6	1.7	1.4	1.6	1.5	2.1	2.0	2.0	2.0	
16-Jan	2.6	2.7	2.5	2.3	1.9	Z	1.3	1.2	1.2	1.0	1.0	1.0	0.8	0.9	0.9	0.8	0.8	0.8	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
17-Jan	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	M	M	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	0.4	0.4	
18-Jan	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	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
19-Jan	0.4	0.4	Z	0.4	0.4	0.4	0.6	0.6	0.7	0.9	1.8	2.0	1.6	1.8	2.9	4.0	3.4	3.6	2.7	1.9	1.5	1.4	1.4	1.1	1.6	1.6	1.6	
20-Jan	0.9	0.6	0.5	Z	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.7	0.8	0.8	0.5	0.4	0.6	0.6	0.6	
21-Jan	0.4	0.4	0.4	0.4	Z	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	
22-Jan	0.5	0.4	0.5	0.4	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	1.0	1.1	0.5	0.4	0.4	0.5	0.5	0.5	
23-Jan	Z	2.8	1.8	2.1	0.5	0.5	0.5	0.5	0.5	0.6	0.9	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.8	0.8	0.8	
24-Jan	0.5	Z	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	1.0	0.8	0.6	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.6	
25-Jan	0.6	0.6	Z	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	C	C	C	C	C	C	C	1.0	0.8	0.7	0.8	0.9	1.2	--	--	--	
26-Jan	1.3	1.1	0.6	Z	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.9	1.2	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.9	0.9	0.7	0.7	0.7	
27-Jan	0.7	1.0	0.8	0.8	Z	1.0	0.9	0.7	0.8	0.8	0.9	1.1	1.4	2.2	2.1	2.2	3.0	3.1	1.8	0.5	0.5	0.5	0.7	2.0	1.3	1.3	1.3	
28-Jan	2.2	3.3	3.5	5.5	8.2	5.4	4.1	3.1	3.5	Z	2.5	1.3	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	2.1	2.1	2.1	
29-Jan	Z	0.5	0.6	1.3	1.0	1.5	2.4	1.7	1.3	1.3	1.1	1.1	1.0	1.1	0.7	0.4	0.4	0.5	0.8	2.6	2.3	1.7	1.5	1.7	1.2	1.2	1.2	
30-Jan	2.3	Z	3.1	2.9	4.1	2.3	2.2	2.1	2.0	2.0	1.4	1.0	1.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.4	1.4	1.4	
31-Jan	0.4	0.3	Z	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.4	0.4	0.5	2.0	3.0	2.6	3.4	2.5	1.8	1.6	1.8	1.7	1.3	1.2	1.2	1.2	1.2	

0.8	0.9	1.0	1.0	1.1	0.9	0.9	0.8	0.8	0.7	0.9	0.8	0.8	0.8	0.9	0.9	1.0	1.0	0.8	0.8	0.8	0.7	0.7	0.7	Diurnal Average		
2.6	3.3	3.5	5.5	8.2	5.4	4.1	3.1	3.5	2.0	3.4	2.9	2.2	2.9	3.0	4.0	3.8	3.6	3.2	2.6	2.3	2.1	1.8	2.1	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**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	662	94.44	94.44
3 - 4	36	5.14	99.57
5 - 7	2	0.29	99.86
8 - 11	1	0.14	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay - Bertha Ganter - January 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	117	97	34	17	4	5	6	39	107	47	27	36	23	27	34	34	654
3 - 4	2	0	0	0	0	0	0	3	24	3	1	1	0	0	0	1	35
5 - 7	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
8 - 11	0	0	0	0	0	0	0	0	1	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>	119	97	34	17	4	5	6	42	134	50	28	37	23	27	34	35	692

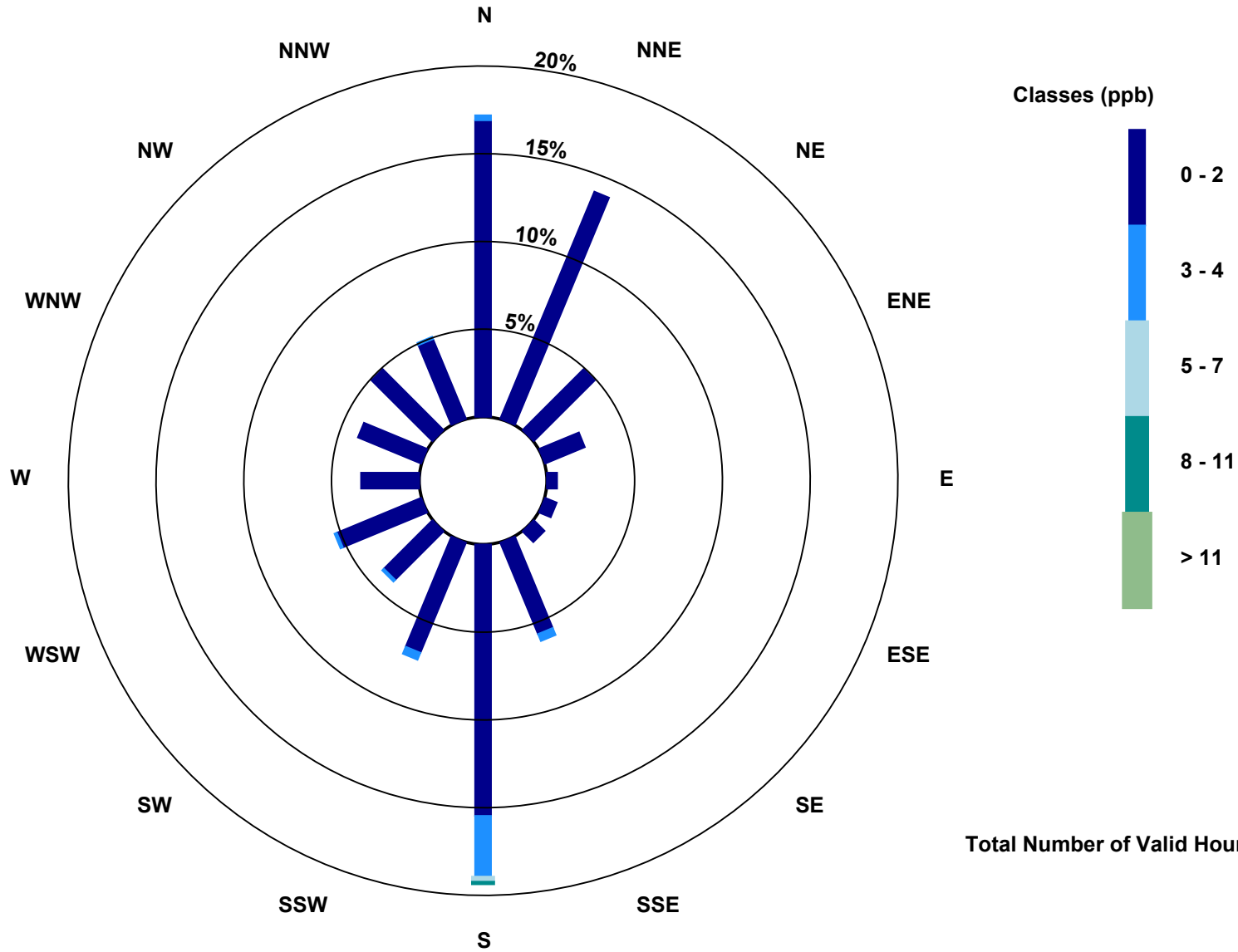
Total Number of Valid Hours: 692

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

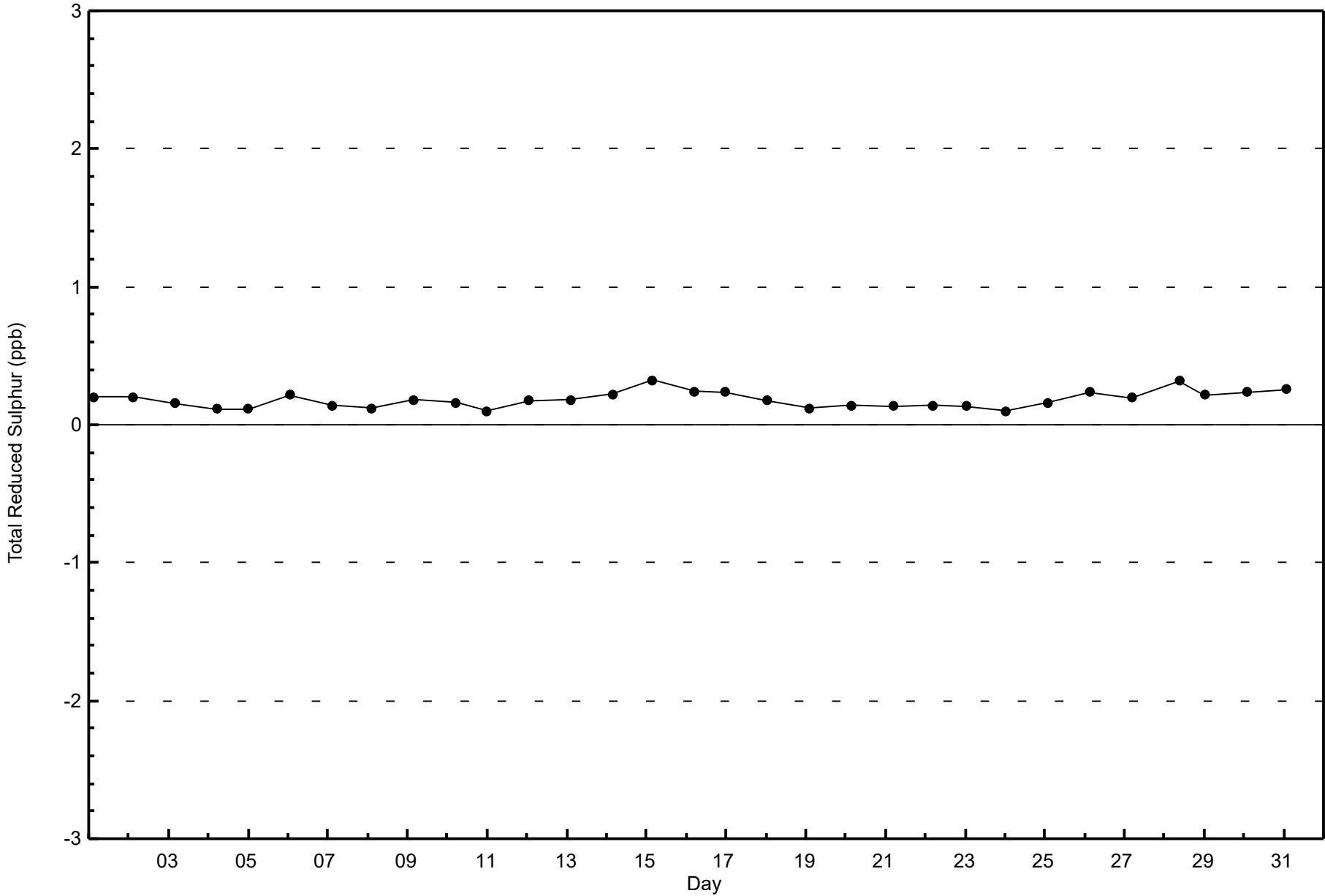


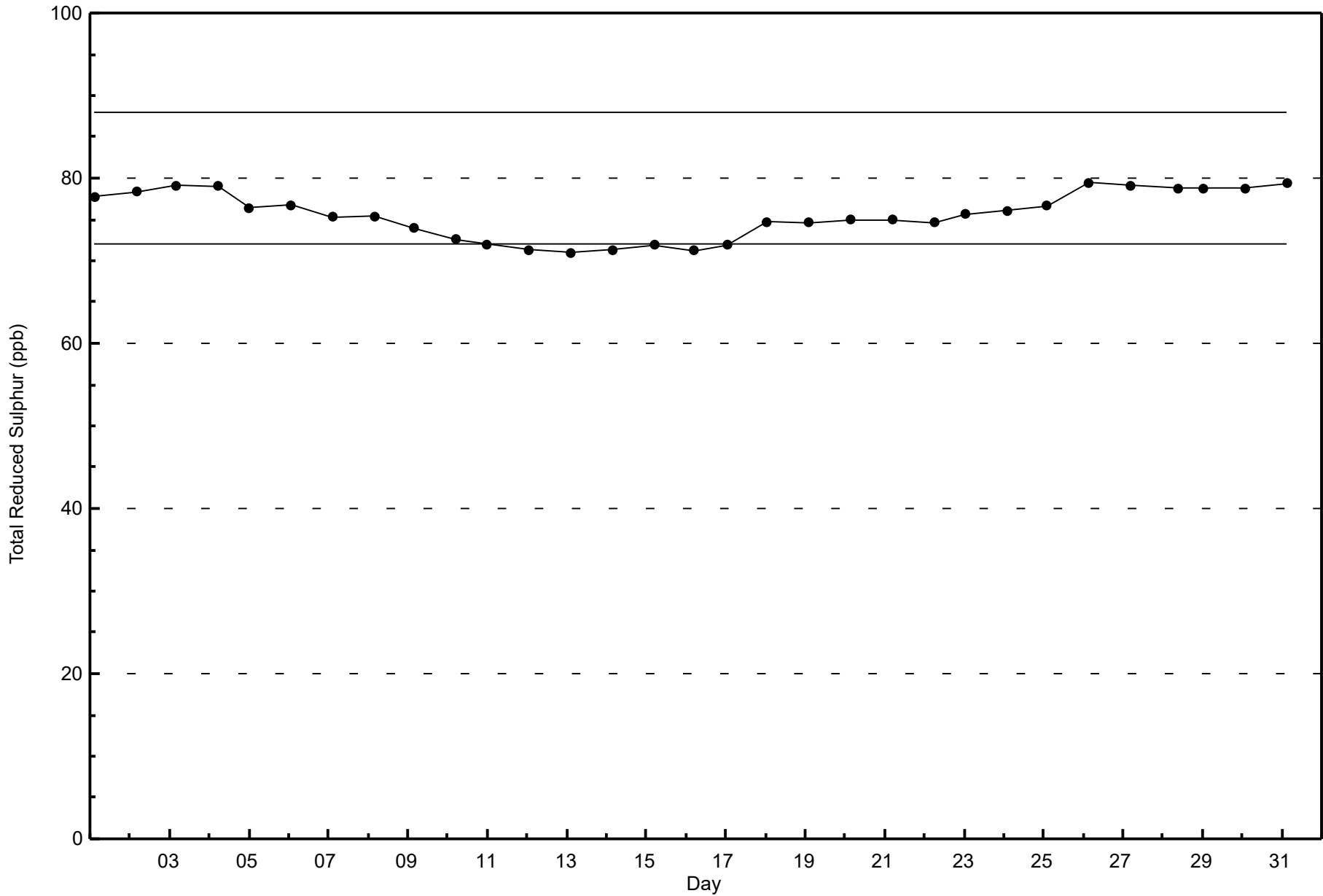
Total Number of Valid Hours: 692



**Wood Buffalo Environmental Association**  
**Zero Responses**

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





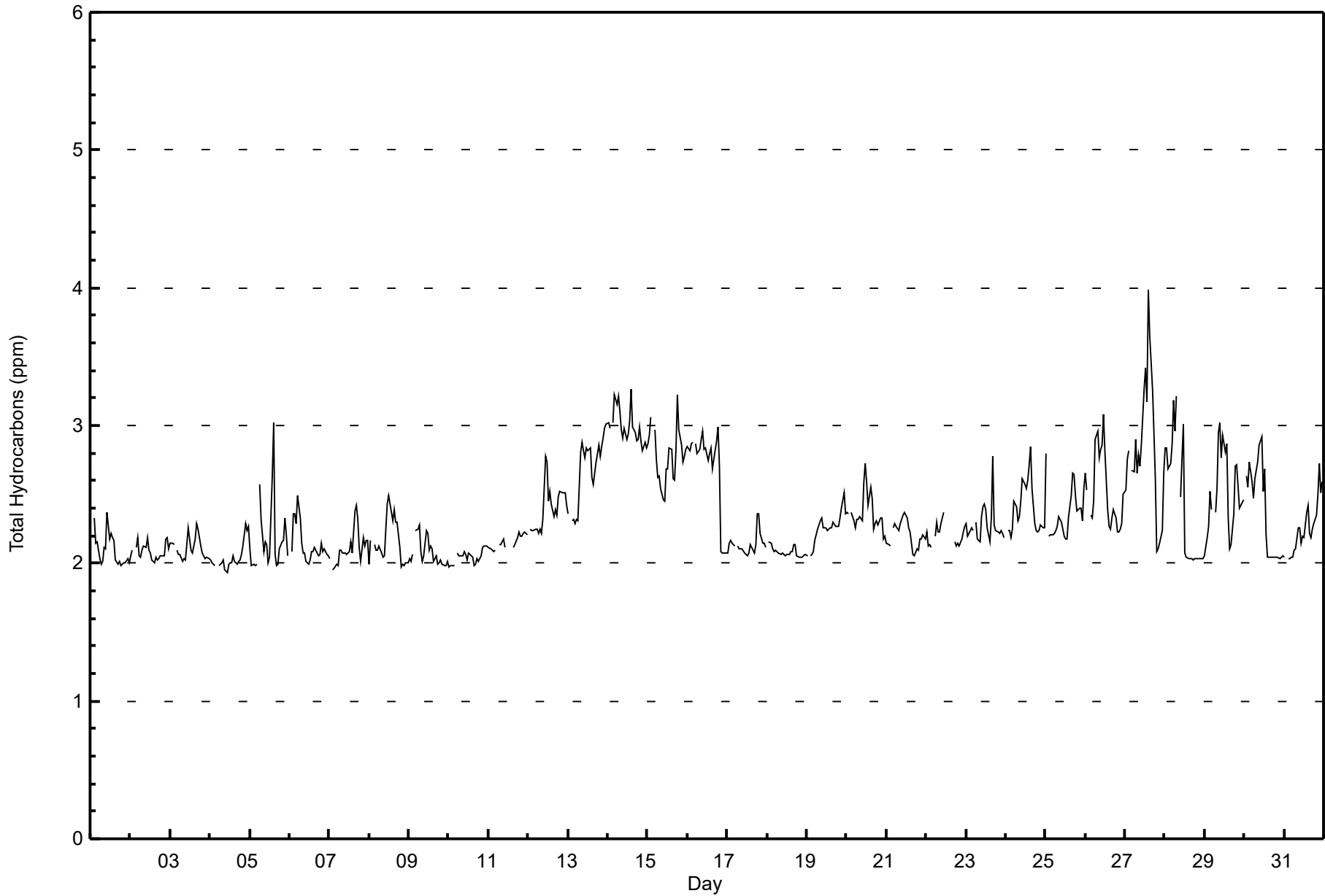


Maximum Value: 4.0 ppm on Jan 27 15:00		Maximum Daily Average: 3.0 ppm on Jan 14		Hours in Service: 744																																												
Minimum Value: 1.9 ppm on Jan 4 11:00		Minimum Daily Average: 2.0 ppm on Jan 4		Hours of Data: 703																																												
Maximum Diurnal Average: 2.4 ppm at hour 12		Minimum Diurnal Average: 2.2 ppm at hour 21		Hours of Missing Data: 41																																												
Monthly Average: 2.32 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.2 Q <sub>3</sub> = 2.5 P <sub>90</sub> = 2.8 P <sub>99</sub> = 3.2		Hours of Calibration: 35																																												
				Percent Operational Time: 99.2																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Jan	2.2	Z	2.3	2.1	2.2	2.0	2.0	2.0	2.1	2.1	2.4	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	2.1	2.4																						
2-Jan	2.1	2.1	Z	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2																						
3-Jan	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.3	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.3																						
4-Jan	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.2	2.3	2.0	2.3																						
5-Jan	2.1	2.0	2.0	2.0	2.0	Z	2.6	2.3	2.1	2.2	2.1	2.0	2.0	2.6	3.0	2.1	2.0	2.0	2.1	2.2	2.2	2.3	2.2	2.0	2.2	3.0																						
6-Jan	Z	2.1	2.4	2.4	2.3	2.5	2.3	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	2.1	2.1	2.5																						
7-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.4	2.4	2.3	2.1	2.0	2.2	2.1	2.2	2.2	2.1	2.4																						
8-Jan	2.0	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.4	2.5	2.4	2.3	2.4	2.3	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.2	2.5																						
9-Jan	2.0	2.0	2.1	Z	2.2	2.2	2.3	2.1	2.0	2.0	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																						
10-Jan	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1																						
11-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.1	C	C	C	C	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
12-Jan	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.8	2.7	2.4	2.5	2.4	2.3	2.4	2.3	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.8																						
13-Jan	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.8	2.9	2.8	2.8	2.8	2.8	2.6	2.6	2.7	2.7	2.9	2.8	2.8	2.9	3.0	3.0	2.7	3.0	3.0																						
14-Jan	3.0	3.0	Z	3.0	3.2	3.2	3.2	3.1	3.0	2.9	3.0	2.9	2.9	3.0	3.3	3.0	3.0	2.9	2.9	3.0	2.9	2.8	2.9	2.8	3.0	3.3																						
15-Jan	2.9	2.9	3.1	Z	3.0	2.8	2.6	2.6	2.5	2.5	2.4	2.7	2.7	2.8	2.8	2.6	2.6	2.8	3.2	3.0	2.9	2.7	2.8	2.8	2.8	3.2																						
16-Jan	2.8	2.8	2.9	2.9	Z	2.9	2.8	2.8	2.9	3.0	2.8	2.8	2.7	2.8	2.8	2.7	2.8	2.9	3.0	2.7	2.1	2.1	2.1	2.1	2.7	3.0																						
17-Jan	2.1	2.1	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	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.4																						
18-Jan	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	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.2																						
19-Jan	2.1	Z	2.1	2.1	2.1	2.2	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	2.4	2.5	2.4	2.3	2.5																						
20-Jan	2.4	2.4	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.6	2.7	2.6	2.4	2.6	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.4	2.7																						
21-Jan	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.4																						
22-Jan	2.2	2.1	2.1	2.1	Z	2.2	2.3	2.2	2.2	2.3	2.4	M	M	M	M	M	M	2.2	2.1	2.1	2.1	2.2	2.2	2.3	--	2.4																						
23-Jan	2.3	2.2	2.2	2.3	2.2	Z	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.2	2.3	2.8	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.8																						
24-Jan	Z	2.2	2.2	2.2	2.2	2.5	2.4	2.3	2.3	2.4	2.6	2.6	2.5	2.6	2.7	2.9	2.5	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.9																						
25-Jan	2.8	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.5	2.7	2.6	2.5	2.4	2.4	2.4	2.3	2.5	2.4	2.8																						
26-Jan	2.7	2.5	Z	2.4	2.3	2.5	2.9	3.0	2.8	2.8	2.9	3.1	2.8	2.4	2.3	2.2	2.3	2.4	2.3	2.2	2.2	2.2	2.3	2.5	2.5	3.1																						
27-Jan	2.5	2.8	2.8	Z	2.7	2.7	2.9	2.7	2.8	2.7	2.9	3.3	3.4	3.2	4.0	3.6	3.3	2.9	2.6	2.1	2.1	2.1	2.2	2.7	2.8	4.0																						
28-Jan	2.8	2.8	2.7	2.7	2.9	3.2	3.0	3.2	Z	2.5	2.8	3.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	3.2																						
29-Jan	2.0	2.2	2.3	2.5	2.4	Z	2.4	2.5	2.9	3.0	2.8	2.9	2.8	2.9	2.3	2.1	2.1	2.4	2.7	2.7	2.6	2.4	2.4	2.5	2.5	3.0																						
30-Jan	Z	2.6	2.6	2.7	2.6	2.5	2.6	2.7	2.7	2.9	2.9	2.5	2.7	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.9																						
31-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.3	2.1	2.2	2.2	2.4	2.4	2.2	2.2	2.2	2.3	2.3	2.5	2.7	2.5	2.6	2.3	2.7																						
																								2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	Diurnal Average
																								3.0	3.0	3.1	3.0	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.3	3.4	3.2	4.0	3.6	3.3	2.9	3.2	3.0	2.9	2.9	3.0	3.0	Diurnal Maximum
Z - zerospan      C - Calibration      M - Maintenance																																																



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	118	16.79	16.79
2.1 - 3.0	569	80.94	97.72
3.1 - 10.0	16	2.28	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort McKay - Bertha Ganter - January 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	17	34	14	10	1	0	0	3	2	2	3	8	10	5	3	6	118
2.1 - 3.0	101	64	19	5	3	3	7	37	129	46	25	27	13	21	31	28	559
3.1 - 10.0	0	0	0	0	0	0	0	2	7	3	0	2	1	0	1	0	16
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	118	98	33	15	4	3	7	42	138	51	28	37	24	26	35	34	693

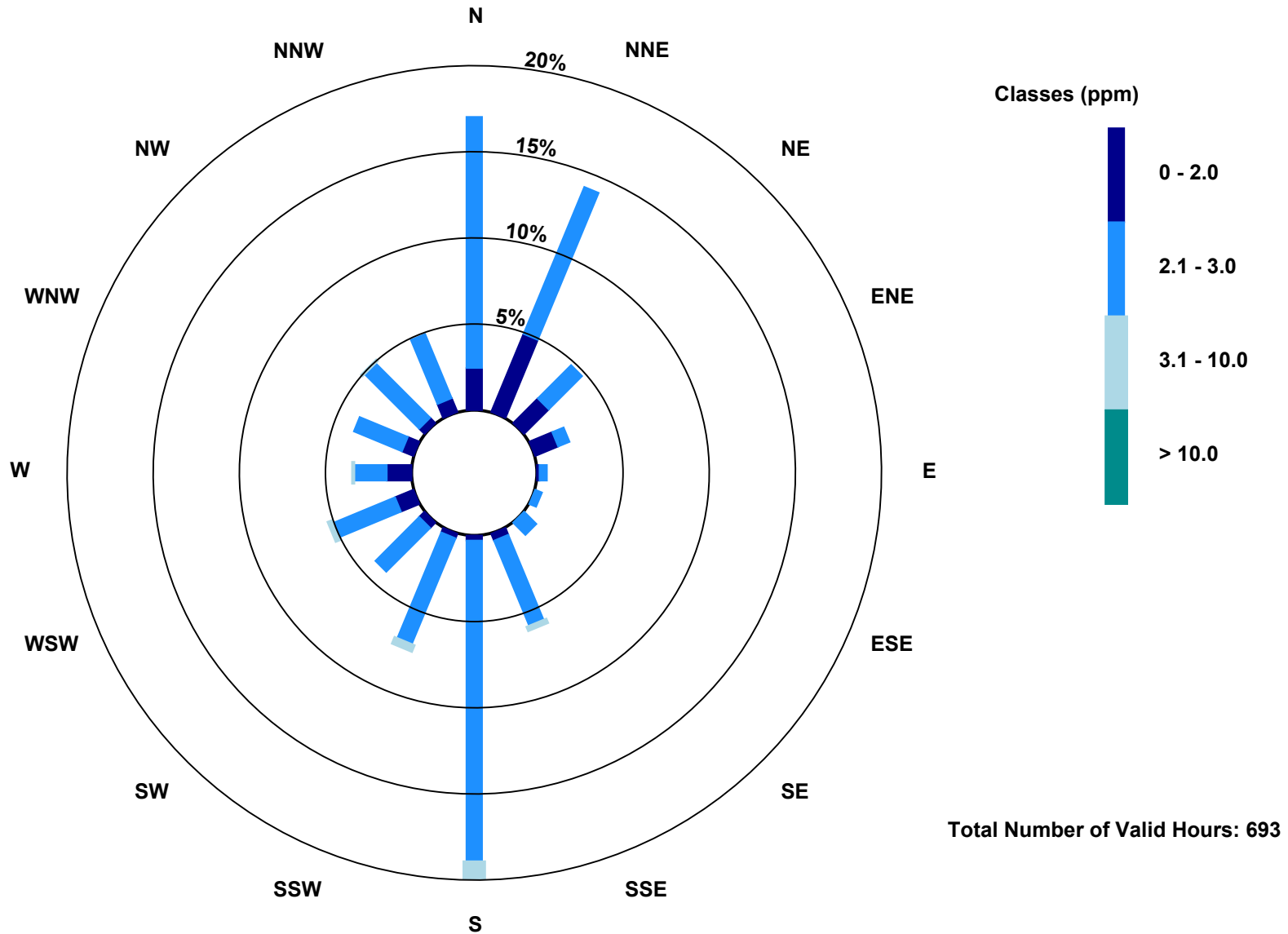
Total Number of Valid Hours: 693

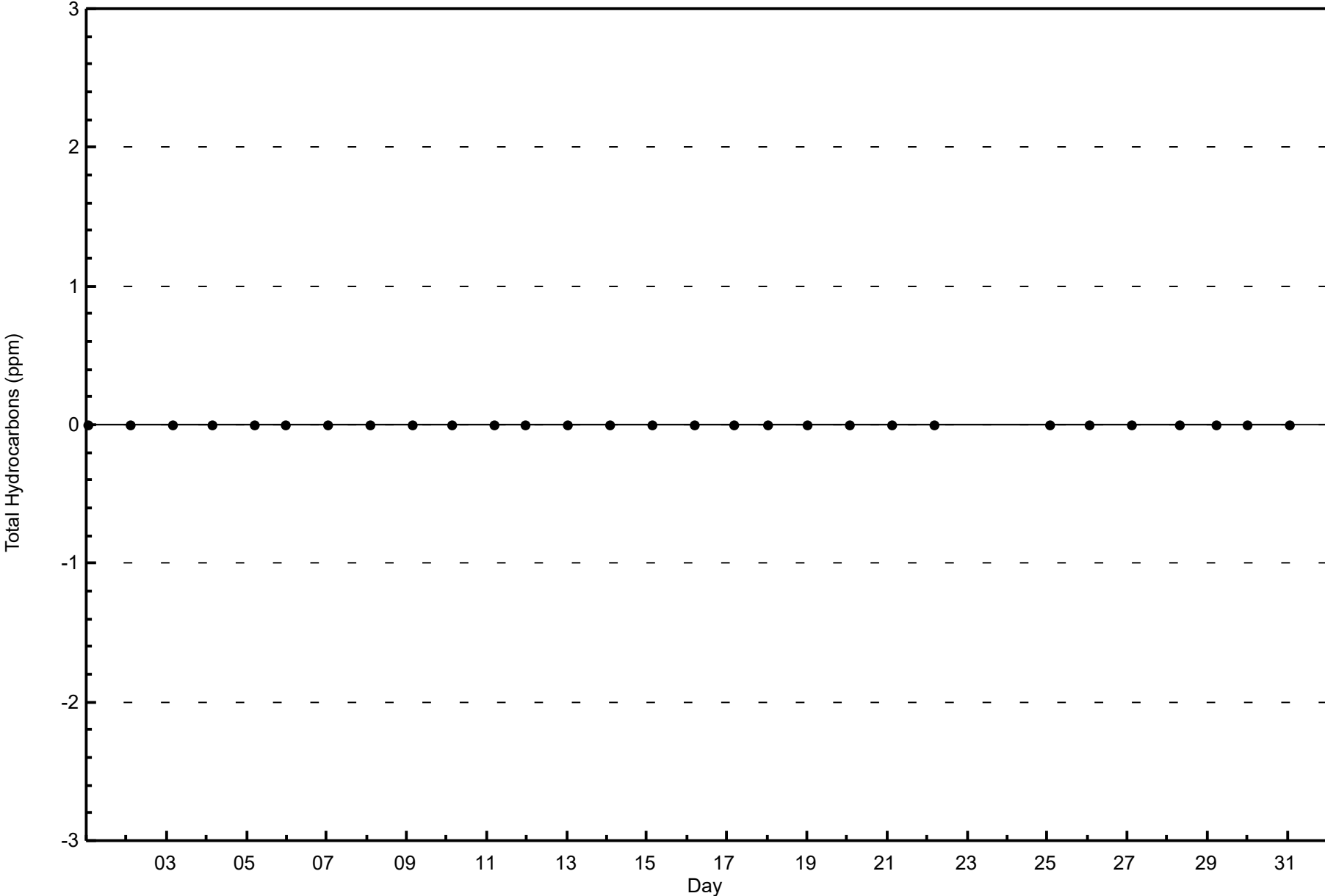
Total Number of Hours: 744

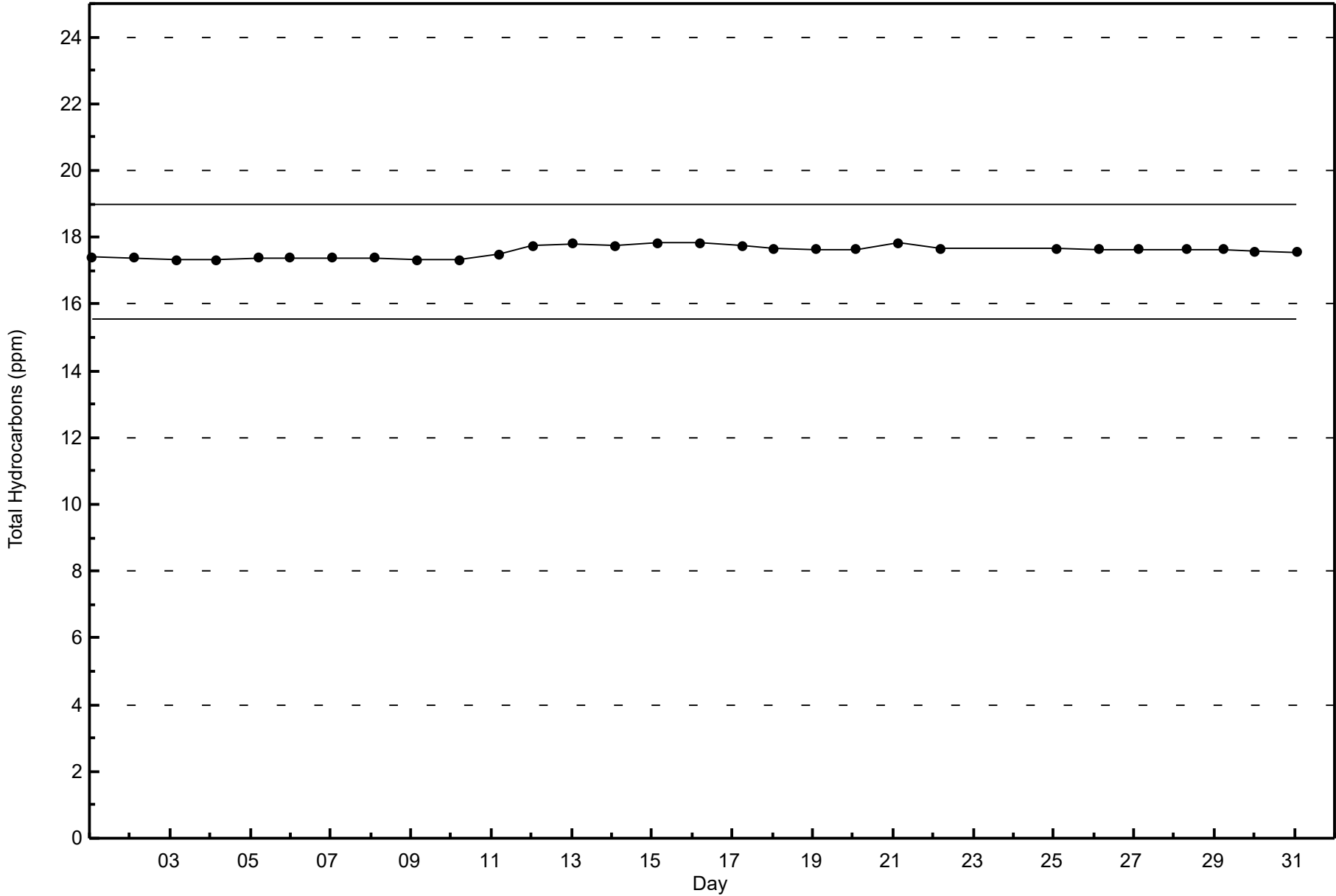


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

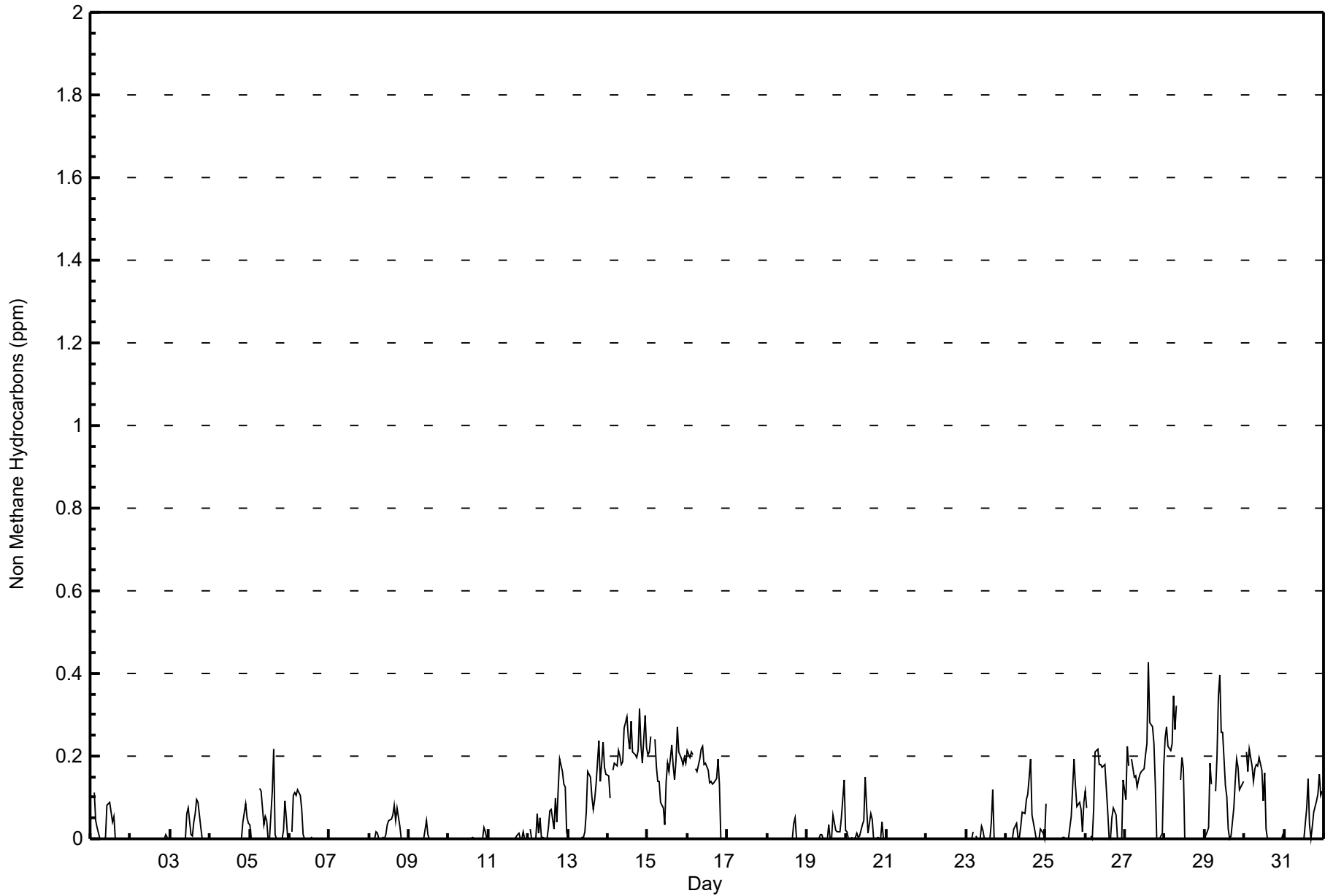
**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort McKay - Bertha Ganter - January 2024**

Maximum Value: 0.426 ppm on Jan 27 15:00      Maximum Daily Average: 0.214 ppm on Jan 14		Hours in Service: 744 Hours of Data: 703 Hours of Missing Data: 41 Hours of Calibration: 35 Percent Operational Time: 99.2																								
Minimum Value: 0.000 ppm on Jan 1 06:00 Maximum Diurnal Average: 0.069 ppm at hour 15 Monthly Average: 0.052 ppm		Minimum Daily Average: 0.000 ppm on Jan 7 Minimum Diurnal Average: 0.039 ppm at hour 21 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> = 0.3																								
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-Jan	0.070	Z	0.111	0.045	0.027	0.000	0.000	0.000	0.001	0.004	0.083	0.088	0.066	0.039	0.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.111
2-Jan	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	0.009	0.004	0.000	0.001	0.009
3-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.001	0.001	0.061	0.075	0.010	0.007	0.039	0.060	0.096	0.090	0.026	0.000	0.000	0.000	0.000	0.000	0.020	0.096
4-Jan	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	0.041	0.084	0.052	0.038	0.009	0.084
5-Jan	0.032	0.000	0.000	0.000	0.000	Z	0.121	0.116	0.035	0.055	0.044	0.001	0.000	0.114	0.218	0.011	0.000	0.000	0.000	0.001	0.022	0.093	0.050	0.000	0.040	0.218
6-Jan	Z	0.016	0.107	0.112	0.105	0.117	0.106	0.071	0.009	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.028	0.117
7-Jan	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
8-Jan	0.000	0.000	Z	0.000	0.017	0.014	0.000	0.000	0.003	0.000	0.010	0.035	0.043	0.048	0.058	0.081	0.046	0.074	0.032	0.000	0.000	0.000	0.000	0.000	0.020	0.081
9-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.042	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	0.002	0.042
10-Jan	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	0.026	0.016	0.000	0.002	0.026
11-Jan	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	0.000	0.000	0.009	0.014	0.000	0.000	0.017	0.000	0.000	0.002	0.017
12-Jan	Z	0.022	0.000	0.000	0.000	0.061	0.014	0.052	0.005	0.005	0.000	0.000	0.026	0.068	0.071	0.024	0.097	0.040	0.121	0.193	0.162	0.133	0.125	0.017	0.054	0.193
13-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.015	0.065	0.164	0.149	0.101	0.073	0.096	0.134	0.238	0.138	0.183	0.234	0.171	0.157	0.084	0.238
14-Jan	0.153	0.100	Z	0.167	0.184	0.176	0.213	0.199	0.179	0.187	0.266	0.294	0.244	0.218	0.283	0.210	0.204	0.198	0.214	0.316	0.226	0.183	0.298	0.220	0.214	0.316
15-Jan	0.202	0.210	0.247	Z	0.241	0.177	0.140	0.141	0.088	0.076	0.034	0.139	0.182	0.161	0.226	0.175	0.142	0.191	0.270	0.209	0.194	0.180	0.196	0.183	0.174	0.270
16-Jan	0.214	0.197	0.210	0.204	Z	0.169	0.163	0.192	0.216	0.223	0.180	0.182	0.166	0.135	0.139	0.131	0.134	0.145	0.193	0.132	0.000	0.000	0.000	0.000	0.145	0.223
17-Jan	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-Jan	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	0.037	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.051
19-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.009	0.000	0.001	0.001	0.034	0.001	0.000	0.058	0.021	0.018	0.016	0.015	0.051	0.141	0.019	0.017	0.141
20-Jan	0.018	0.001	Z	0.003	0.000	0.002	0.014	0.004	0.005	0.035	0.045	0.150	0.079	0.013	0.061	0.047	0.000	0.000	0.000	0.004	0.000	0.042	0.000	0.000	0.023	0.150
21-Jan	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
22-Jan	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.001	0.000	0.000	0.000	M	M	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	0.001
23-Jan	0.000	0.000	0.000	0.000	0.016	Z	0.008	0.000	0.000	0.031	0.020	0.000	0.000	0.000	0.040	0.119	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.119
24-Jan	Z	0.000	0.000	0.000	0.000	0.024	0.037	0.003	0.003	0.032	0.063	0.062	0.096	0.109	0.148	0.194	0.057	0.022	0.000	0.000	0.000	0.024	0.013	0.000	0.038	0.194
25-Jan	0.084	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.004	0.000	0.000	0.054	0.126	0.194	0.127	0.079	0.087	0.071	0.016	0.089	0.041	0.194	
26-Jan	0.114	0.074	Z	0.006	0.000	0.072	0.209	0.219	0.181	0.181	0.174	0.178	0.178	0.067	0.002	0.000	0.051	0.073	0.059	0.000	0.000	0.000	0.000	0.143	0.086	0.219
27-Jan	0.095	0.224	0.176	Z	0.194	0.148	0.153	0.125	0.142	0.155	0.163	0.168	0.204	0.229	0.426	0.283	0.272	0.231	0.130	0.000	0.000	0.000	0.014	0.178	0.161	0.426
28-Jan	0.243	0.272	0.224	0.213	0.230	0.346	0.266	0.323	Z	0.144	0.196	0.169	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.114	0.346
29-Jan	0.000	0.017	0.028	0.183	0.133	Z	0.116	0.201	0.346	0.397	0.258	0.257	0.128	0.103	0.025	0.000	0.008	0.075	0.141	0.194	0.173	0.117	0.126	0.139	0.138	0.397
30-Jan	Z	0.209	0.164	0.218	0.178	0.138	0.171	0.179	0.175	0.195	0.167	0.090	0.160	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.090	0.218
31-Jan	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	0.076	0.146	0.033	0.000	0.030	0.065	0.092	0.110	0.156	0.106	0.114	0.040	0.156
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	404	57.47	57.47
0.006 - 0.05	86	12.23	69.70
0.06 - 0.1	100	14.22	83.93
> 0.1	113	16.07	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay - Bertha Ganter - January 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	69	90	25	14	3	1	4	20	47	16	10	24	17	19	20	20	399
0.006 - 0.05	25	3	5	1	1	1	1	4	19	7	4	3	2	0	6	4	86
0.06 - 0.1	19	5	2	0	0	1	1	7	27	11	5	3	2	6	4	7	100
> 0.1	5	0	1	0	0	0	1	11	45	17	9	7	3	1	5	3	108
<b>Totals</b>	118	98	33	15	4	3	7	42	138	51	28	37	24	26	35	34	693

Total Number of Valid Hours: 693

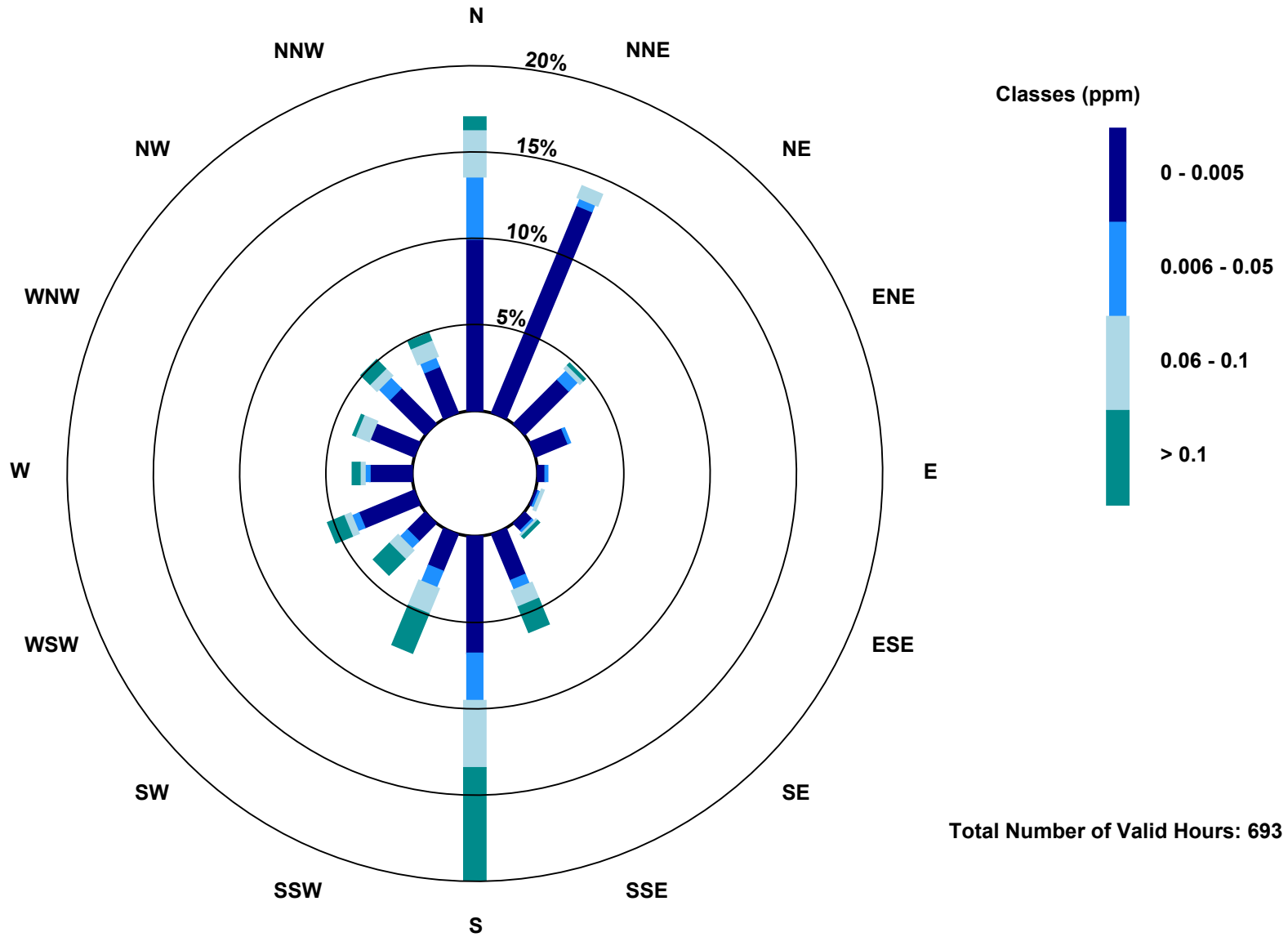
Total Number of Hours: 744

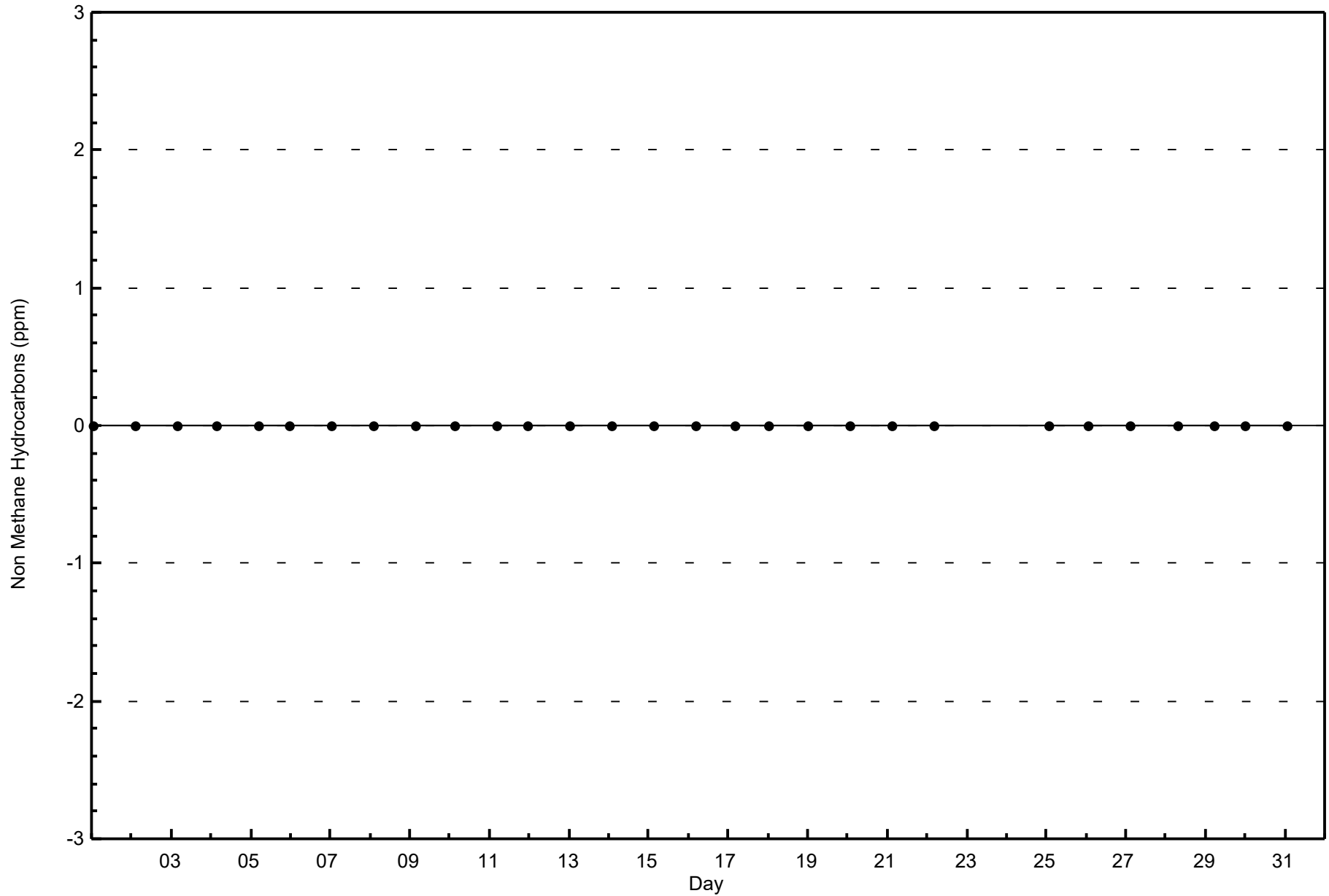


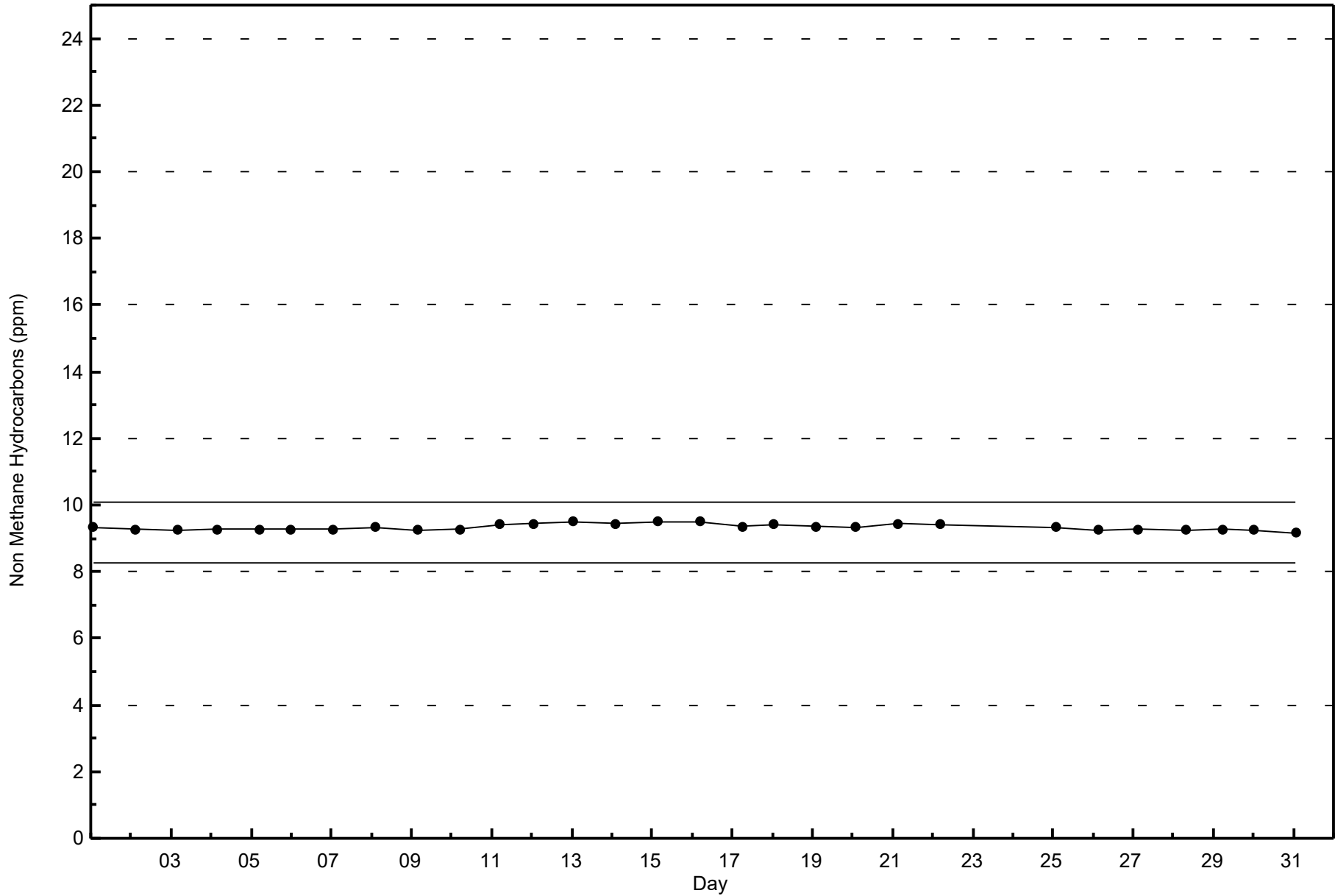


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









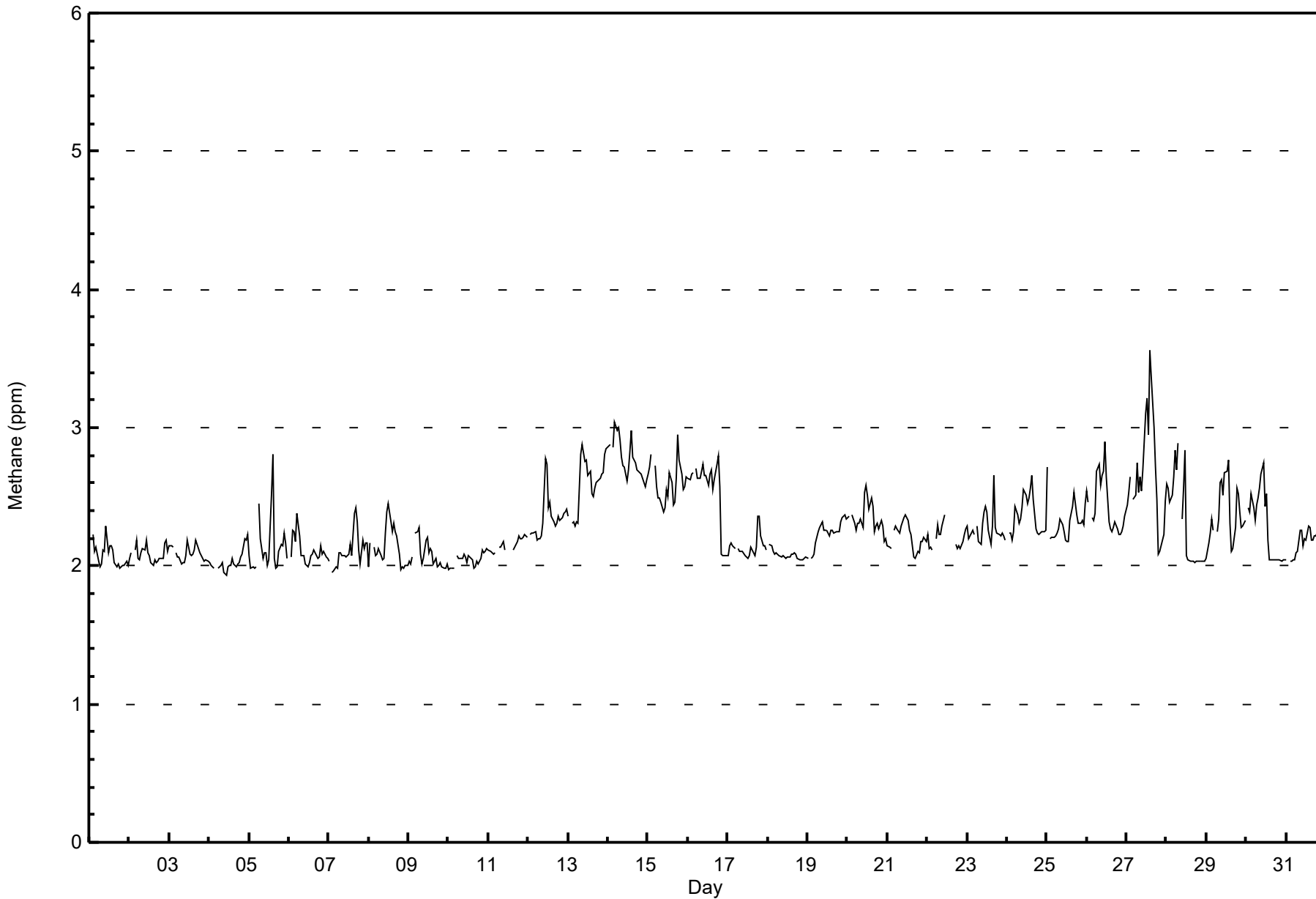
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

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

**Fort McKay - Bertha Ganter - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:		744																																										
Maximum Value: 3.6 ppm on Jan 27 15:00		Maximum Daily Average: 2.8 ppm on Jan 14				Hours of Data:		703																																								
Minimum Value: 1.9 ppm on Jan 4 11:00		Minimum Daily Average: 2.0 ppm on Jan 4				Hours of Missing Data:		41																																								
Maximum Diurnal Average: 2.4 ppm at hour 12		Minimum Diurnal Average: 2.2 ppm at hour 21				Hours of Calibration:		35																																								
Monthly Average: 2.27 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.2 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.0				Percent Operational Time:		99.2																																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Jan	2.1	Z	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																						
2-Jan	2.1	2.1	Z	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2																						
3-Jan	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.2																						
4-Jan	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.0	2.2																						
5-Jan	2.1	2.0	2.0	2.0	2.0	Z	2.5	2.2	2.1	2.1	2.1	2.0	2.0	2.5	2.8	2.1	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.0	2.1	2.8																						
6-Jan	Z	2.1	2.3	2.2	2.2	2.4	2.2	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	2.1	2.4																						
7-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.4	2.4	2.3	2.1	2.0	2.2	2.1	2.2	2.2	2.1	2.4																						
8-Jan	2.0	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.4																						
9-Jan	2.0	2.0	2.1	Z	2.2	2.2	2.3	2.1	2.0	2.0	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																						
10-Jan	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1																						
11-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.1	C	C	C	C	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
12-Jan	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.8	2.7	2.4	2.5	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.3	2.8																						
13-Jan	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.8	2.9	2.8	2.8	2.8	2.7	2.7	2.5	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.6	2.9																						
14-Jan	2.9	2.9	Z	2.9	3.0	3.0	3.0	2.9	2.8	2.7	2.7	2.6	2.7	2.8	3.0	2.8	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6	3.0																						
15-Jan	2.7	2.7	2.8	Z	2.7	2.6	2.5	2.5	2.5	2.4	2.4	2.5	2.5	2.7	2.6	2.4	2.5	2.6	3.0	2.8	2.7	2.6	2.6	2.6	2.6	3.0																						
16-Jan	2.6	2.6	2.7	2.7	Z	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.6	2.7	2.7	2.6	2.6	2.7	2.8	2.6	2.1	2.1	2.1	2.1	2.6	2.8																						
17-Jan	2.1	2.1	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	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.4																						
18-Jan	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	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.2																						
19-Jan	2.1	Z	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.2	2.4																						
20-Jan	2.3	2.4	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.6	2.5	2.4	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.6																						
21-Jan	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.4																						
22-Jan	2.2	2.1	2.1	2.1	Z	2.2	2.3	2.2	2.2	2.2	2.3	2.4	M	M	M	M	M	M	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.4																						
23-Jan	2.3	2.2	2.2	2.3	2.2	Z	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.2	2.3	2.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.7																						
24-Jan	Z	2.2	2.2	2.2	2.2	2.4	2.4	2.3	2.3	2.4	2.6	2.5	2.4	2.5	2.6	2.7	2.5	2.3	2.2	2.2	2.2	2.3	2.2	2.3	2.4	2.7																						
25-Jan	2.7	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.5	2.7																						
26-Jan	2.5	2.5	Z	2.3	2.3	2.4	2.7	2.7	2.6	2.6	2.7	2.9	2.6	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.4	2.9																						
27-Jan	2.4	2.5	2.6	Z	2.5	2.5	2.7	2.5	2.6	2.5	2.7	3.1	3.2	2.9	3.6	3.4	3.0	2.7	2.5	2.1	2.1	2.1	2.2	2.5	2.7	3.6																						
28-Jan	2.6	2.6	2.5	2.5	2.6	2.8	2.7	2.9	Z	2.3	2.6	2.8	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.9																						
29-Jan	2.0	2.2	2.2	2.3	2.3	Z	2.2	2.3	2.6	2.6	2.5	2.7	2.7	2.8	2.3	2.1	2.1	2.3	2.6	2.5	2.4	2.3	2.3	2.3	2.4	2.8																						
30-Jan	Z	2.4	2.4	2.5	2.4	2.3	2.4	2.5	2.6	2.7	2.7	2.4	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.7																						
31-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.3	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.4	2.5	2.2	2.6																						
																								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	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	Diurnal Average
																								2.9	2.9	2.8	2.9	3.0	3.0	3.0	2.9	2.9	2.8	2.8	3.1	3.2	2.9	3.6	3.4	3.0	2.7	3.0	2.8	2.7	2.7	2.8	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 - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	119	16.93	16.93
2.1 - 3.0	580	82.50	99.43
3.1 - 10.0	4	0.57	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort McKay - Bertha Ganter - January 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	17	34	14	10	1	0	0	3	2	2	3	9	10	5	3	6	119
2.1 - 3.0	101	64	19	5	3	3	7	39	133	48	25	28	14	21	32	28	570
3.1 - 10.0	0	0	0	0	0	0	0	0	3	1	0	0	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>	118	98	33	15	4	3	7	42	138	51	28	37	24	26	35	34	693

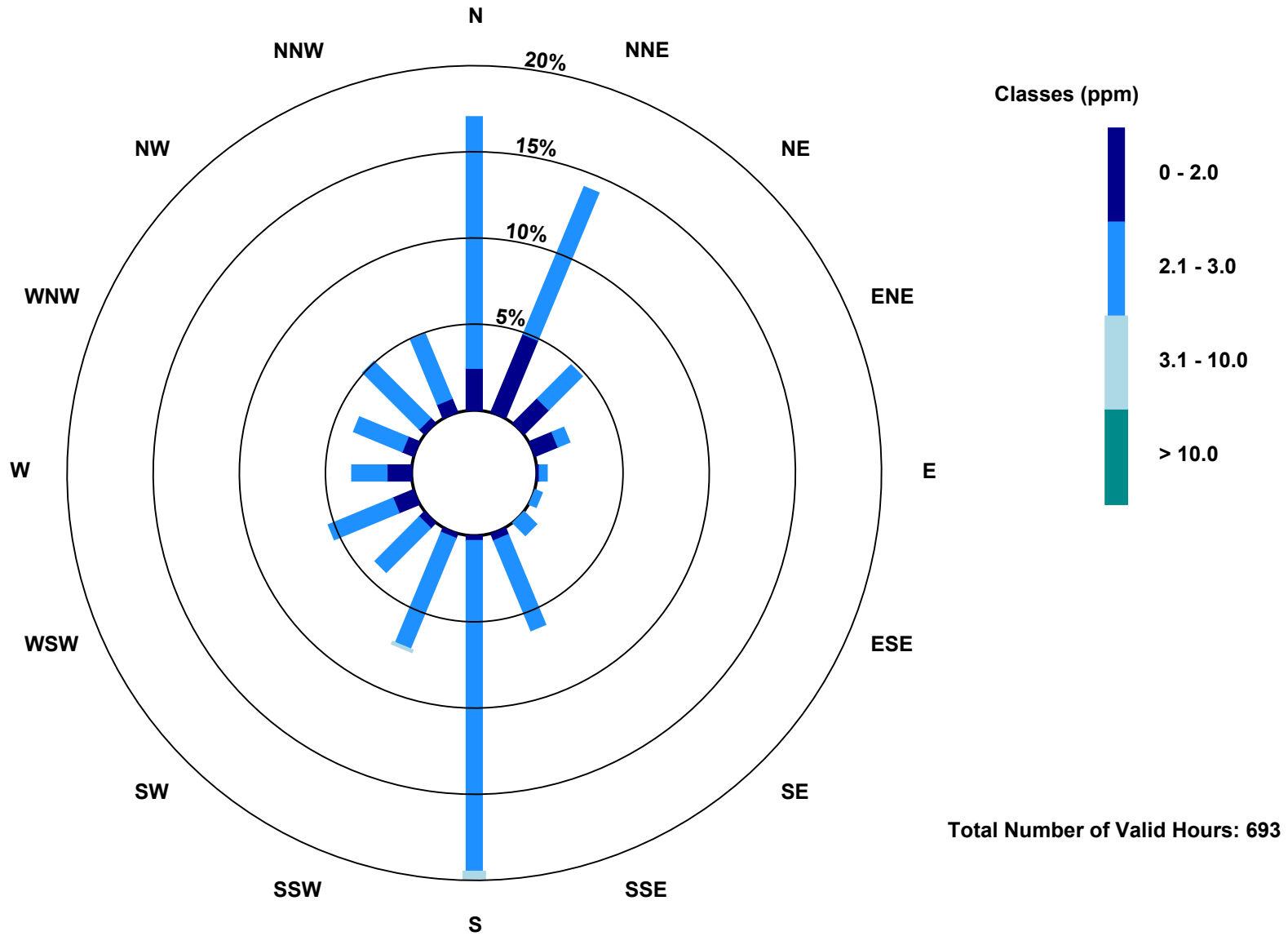
Total Number of Valid Hours: 693

Total Number of Hours: 744

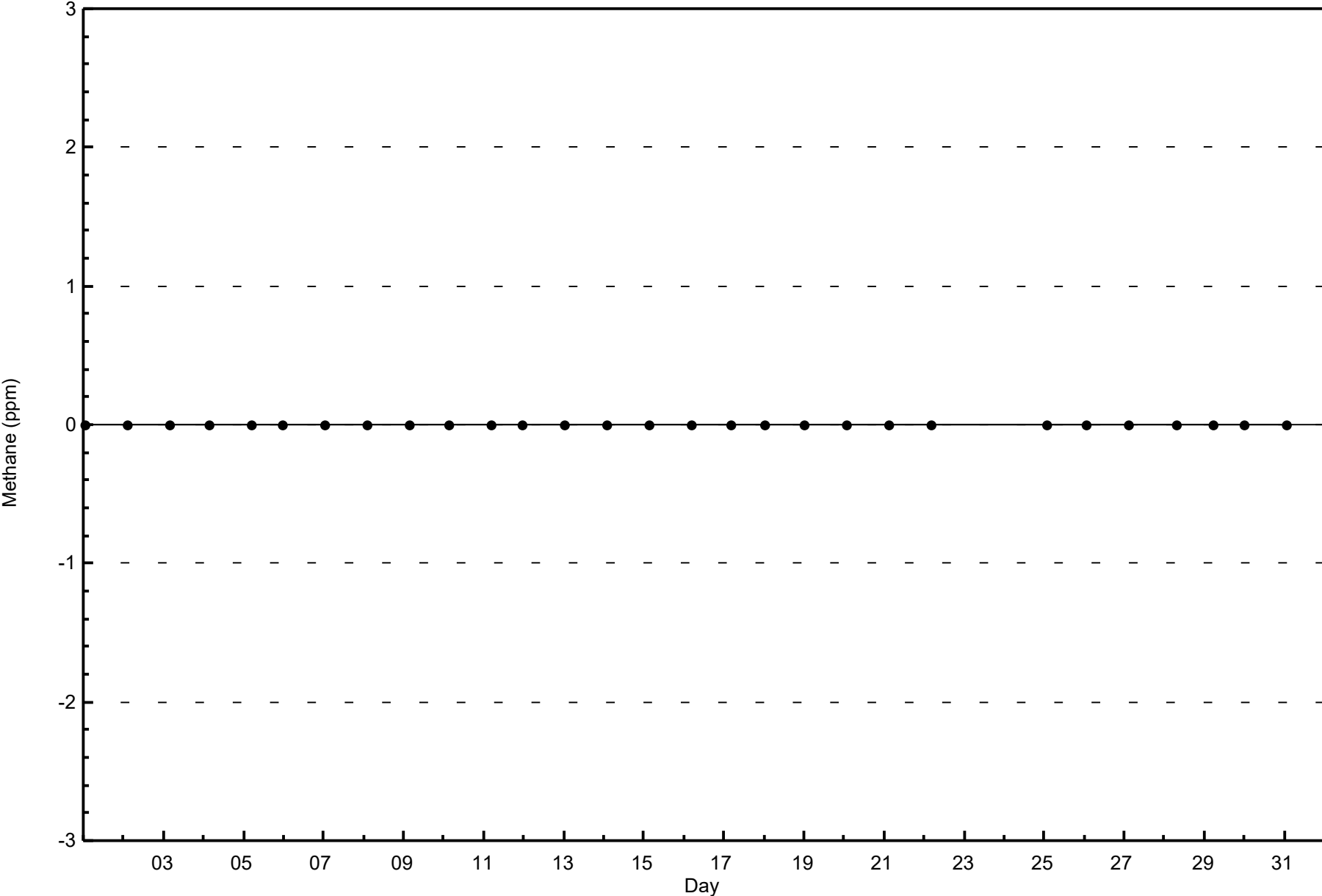


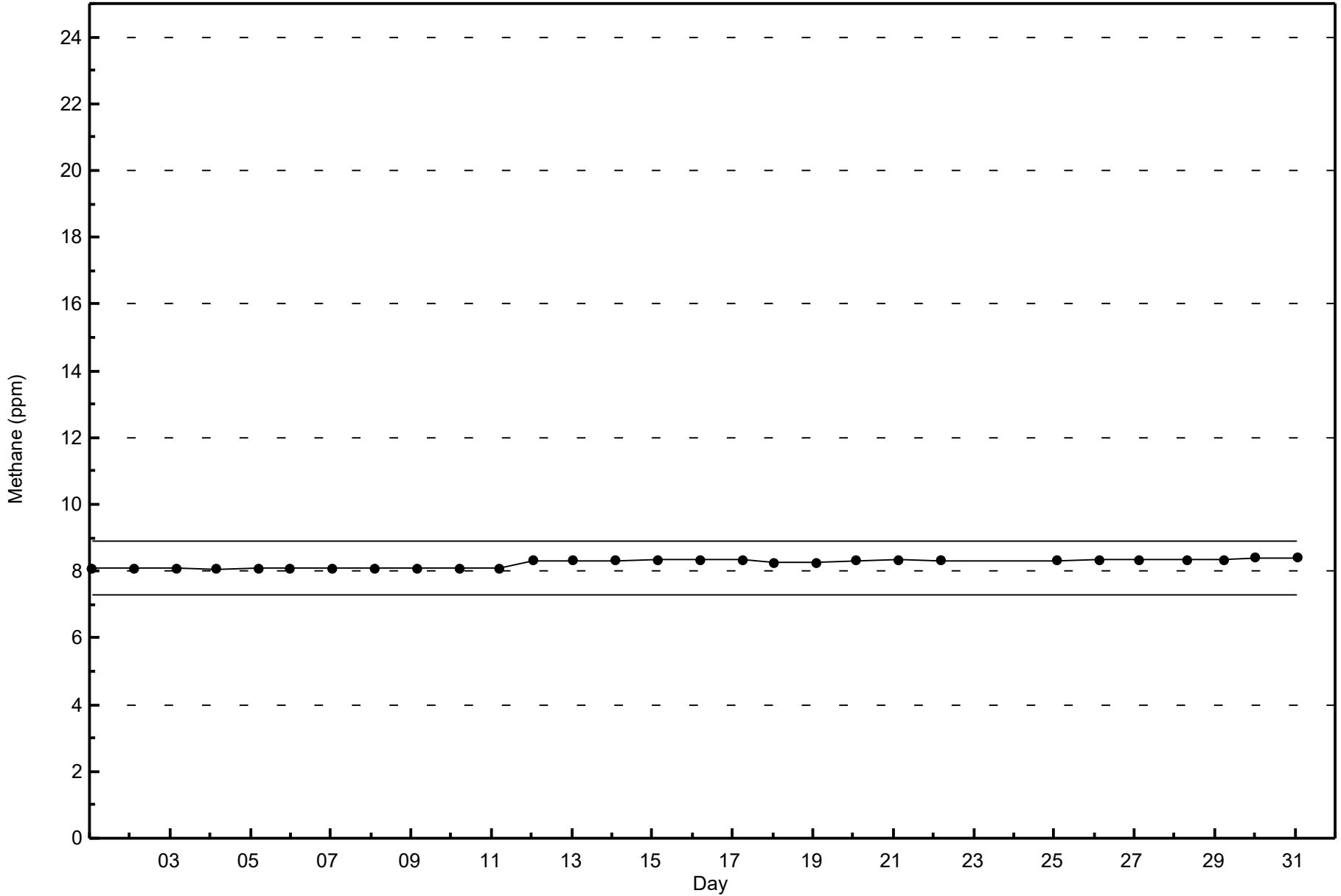
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









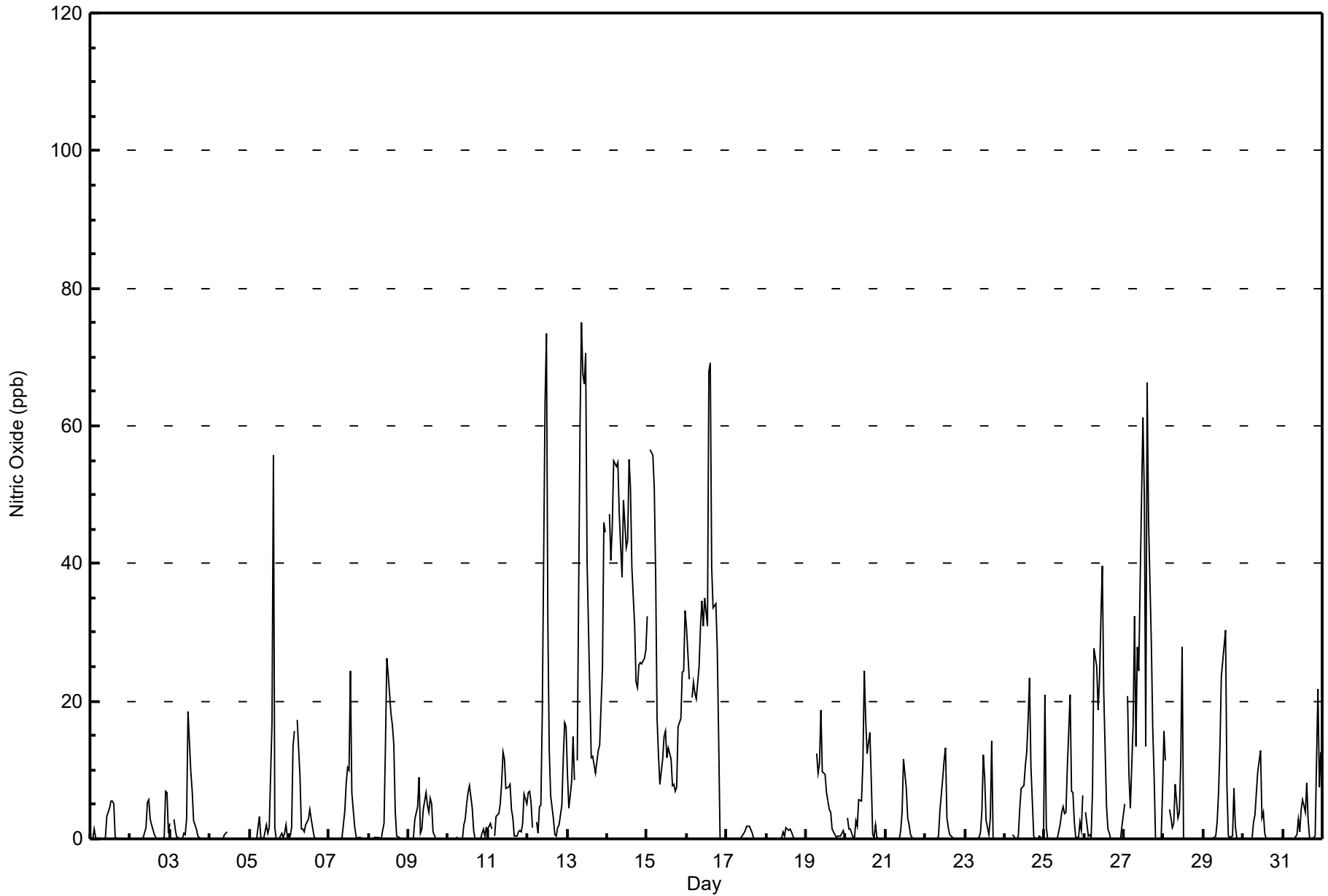


Maximum Value: 75.0 ppb on Jan 13 09:00																				Maximum Daily Average: 39.6 ppb on Jan 14					Hours in Service: 744				
Minimum Value: 0.0 ppb on Jan 1 01:00																				Minimum Daily Average: 0.3 ppb on Jan 18					Hours of Data: 707				
Maximum Diurnal Average: 18.9 ppb at hour 12																				Minimum Diurnal Average: 2.5 ppb at hour 20					Hours of Missing Data: 37				
Monthly Average: 7.36 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.9 Q <sub>3</sub> = 7.9 P <sub>90</sub> = 24.5 P <sub>99</sub> = 66.0					Hours of Calibration: 37				
																				Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Jan	0.0	0.0	1.3	0.2	0.0	Z	0.0	0.0	0.0	0.2	3.3	4.4	5.4	5.5	5.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.5			
2-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7	5.3	5.7	2.9	1.9	0.7	0.2	0.0	0.0	0.0	0.0	0.2	6.9	6.6	0.7	1.4	6.9			
3-Jan	2.2	Z	2.7	1.3	0.3	0.1	0.1	0.1	0.8	0.7	2.9	18.6	9.7	6.8	2.6	2.1	1.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	2.3	18.6			
4-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.1	0.0	0.1	--	1.1			
5-Jan	0.0	0.0	0.0	Z	0.0	1.6	3.3	0.2	0.0	1.1	2.1	0.8	1.6	16.9	55.8	1.7	0.0	0.0	0.0	0.9	0.2	0.7	2.0	0.1	3.9	55.8			
6-Jan	0.5	1.6	13.4	15.6	Z	17.4	8.9	1.3	1.5	0.9	2.0	2.8	4.2	2.8	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	17.4			
7-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	4.1	8.2	10.3	9.9	24.4	6.8	1.8	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.9	24.4			
8-Jan	Z	0.1	0.1	0.2	0.3	0.2	0.1	0.1	1.3	2.2	13.4	26.2	23.7	18.0	16.4	13.7	4.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	5.2	26.2			
9-Jan	0.0	Z	0.0	0.1	2.8	4.7	8.9	0.7	1.4	4.3	6.7	5.0	3.8	5.8	5.2	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	8.9			
10-Jan	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.1	2.0	2.9	5.0	6.7	7.8	4.5	1.2	0.0	0.0	0.0	0.0	0.7	1.4	0.3	1.6	1.5	7.8			
11-Jan	1.4	2.2	1.4	Z	0.4	3.3	3.6	5.0	8.1	12.6	11.6	7.4	7.6	7.9	4.2	3.1	0.5	0.4	1.0	1.3	1.1	2.2	6.6	5.0	4.3	12.6			
12-Jan	6.6	7.0	5.3	1.6	Z	2.4	0.9	4.7	4.9	17.9	63.5	73.5	31.5	12.9	6.4	2.8	0.6	0.4	1.5	2.1	5.0	11.6	16.8	16.2	12.9	73.5			
13-Jan	9.4	4.4	8.4	14.9	8.4	Z	11.3	60.6	75.0	67.5	66.2	70.6	40.5	21.1	11.9	12.0	10.8	9.5	12.7	13.7	19.3	24.8	46.0	44.6	28.9	75.0			
14-Jan	Z	47.2	40.5	45.4	55.0	54.2	54.7	47.2	42.6	38.1	49.3	42.2	43.3	55.1	51.1	39.5	31.0	22.7	22.0	25.2	25.6	25.5	26.2	27.5	39.6	55.1			
15-Jan	32.4	Z	56.5	55.7	51.0	38.3	17.5	12.3	7.9	11.5	14.9	15.6	11.7	13.3	11.6	7.8	7.9	7.0	7.5	16.4	17.4	24.1	24.5	33.2	21.6	56.5			
16-Jan	30.6	23.1	Z	20.6	22.9	21.2	20.3	25.0	30.7	34.6	30.9	35.0	30.9	67.9	69.2	39.5	33.5	34.1	27.4	14.4	0.0	0.0	0.0	0.0	26.6	69.2			
17-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.9	1.3	1.9	1.8	1.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9			
18-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	1.0	0.4	1.7	1.3	1.4	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7			
19-Jan	0.0	0.0	0.0	0.0	0.0	Z	12.5	9.5	10.9	18.7	9.7	9.3	6.8	5.5	4.2	3.8	1.4	0.5	0.2	0.4	0.3	0.4	1.2	0.4	4.2	18.7			
20-Jan	Z	3.1	1.3	1.5	0.3	0.3	2.7	1.8	5.7	5.4	11.1	24.5	17.2	12.3	15.4	8.4	0.6	0.2	2.1	0.1	0.1	0.0	0.0	0.0	5.0	24.5			
21-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	3.8	11.5	7.3	3.0	2.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	11.5			
22-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	4.0	8.8	11.5	13.3	3.0	1.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	13.3			
23-Jan	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.2	1.1	4.1	12.2	8.8	2.6	0.6	3.0	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	14.2			
24-Jan	0.0	0.0	0.0	0.0	Z	0.6	0.1	0.0	0.3	4.3	7.2	7.7	10.6	12.6	17.3	23.3	10.6	0.5	0.0	0.0	0.1	0.5	0.1	0.0	4.2	23.3			
25-Jan	21.0	1.6	0.0	0.0	0.0	Z	0.0	0.0	0.3	2.3	3.9	4.6	3.8	3.8	10.3	21.0	7.0	6.8	2.5	0.2	0.2	2.5	1.1	6.2	4.3	21.0			
26-Jan	Z	3.9	0.4	0.6	0.1	7.2	27.6	25.0	18.6	23.4	32.4	39.7	21.3	4.8	1.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	9.1	39.7			
27-Jan	5.0	Z	20.7	9.3	4.4	16.7	32.4	13.5	27.9	24.5	37.2	61.3	49.9	13.4	66.3	46.2	28.4	16.2	9.0	0.0	0.0	0.0	0.0	6.8	21.3	66.3			
28-Jan	15.7	11.4	Z	4.2	3.1	1.6	2.2	7.9	3.0	3.9	11.0	27.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	27.9			
29-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.5	2.4	6.7	13.5	23.5	28.0	30.3	7.5	0.5	0.1	0.3	7.3	1.8	0.1	0.0	0.0	0.0	5.3	30.3			
30-Jan	0.0	0.0	0.0	0.0	Z	0.2	2.5	3.5	6.7	9.8	12.8	3.1	3.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	12.8			
31-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.5	2.8	1.1	4.3	5.7	3.8	8.2	2.6	0.2	0.0	0.0	0.3	11.5	21.7	7.6	12.6	3.6	21.7			
4.8 4.1 5.8 6.6 5.7 6.8 6.8 7.1 8.1 10.0 14.3 18.9 13.8 12.2 13.0 8.0 5.1 3.2 3.0 2.5 2.6 3.9 4.5 5.1																								Diurnal Average					
32.4 47.2 56.5 55.7 55.0 54.2 54.7 60.6 75.0 67.5 66.2 73.5 49.9 67.9 69.2 46.2 33.5 34.1 27.4 25.2 25.6 25.5 46.0 44.6																								Diurnal Maximum					
Z - zerospan C - Calibration																													



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

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	617	87.27	87.27
21 - 40	59	8.35	95.62
41 - 80	31	4.38	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



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

**Nitric Oxide (NO) - ppb**  
**Fort McKay - Bertha Ganter - January 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	114	92	32	17	4	5	6	30	112	40	22	29	22	27	30	29	611
21 - 40	4	2	1	0	0	0	0	9	17	7	5	4	1	1	5	2	58
11 - 80	0	0	1	0	0	0	1	6	6	6	0	3	2	0	2	2	29
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	94	34	17	4	5	7	45	135	53	27	36	25	28	37	33	698

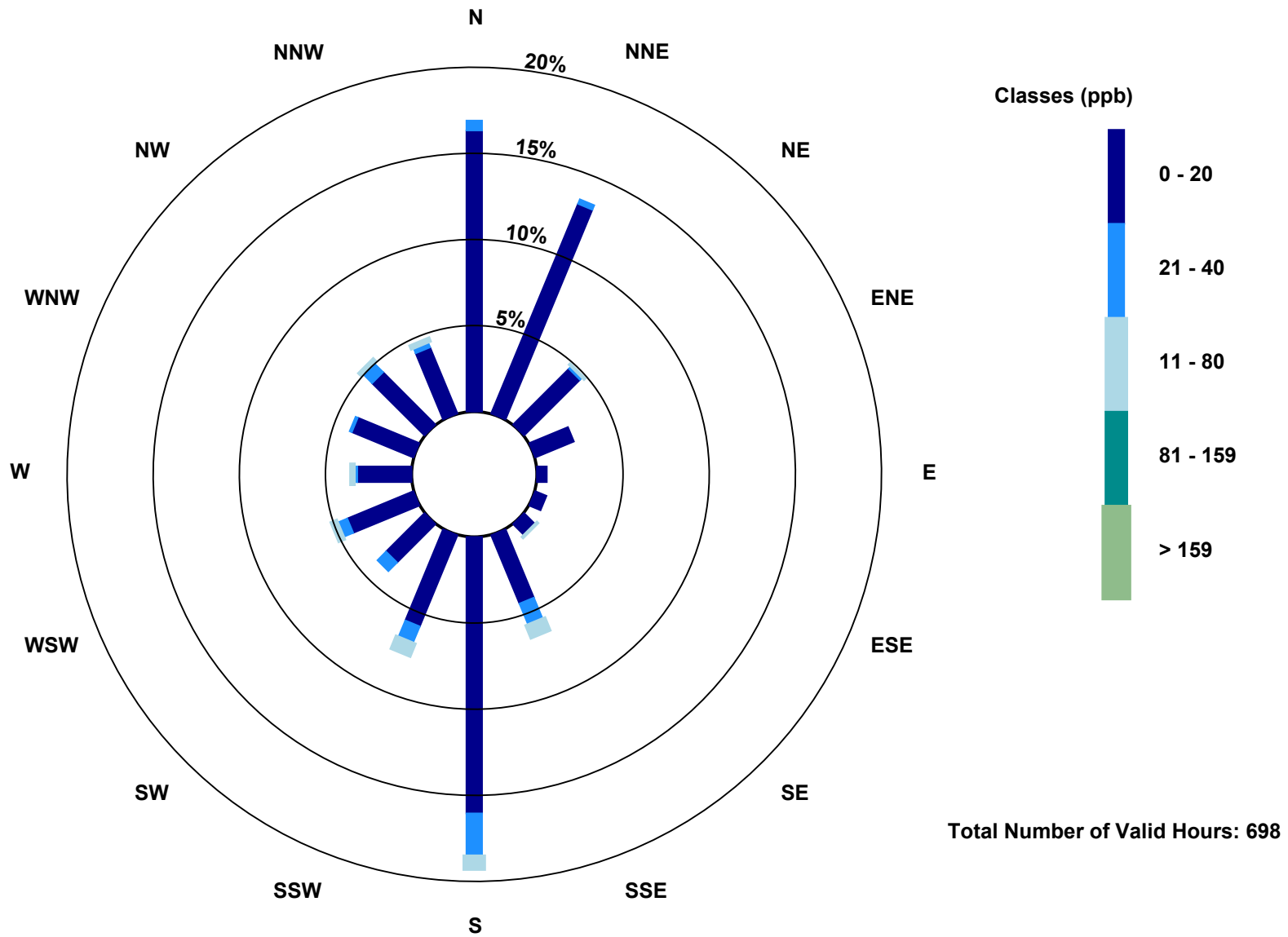
Total Number of Valid Hours: 698

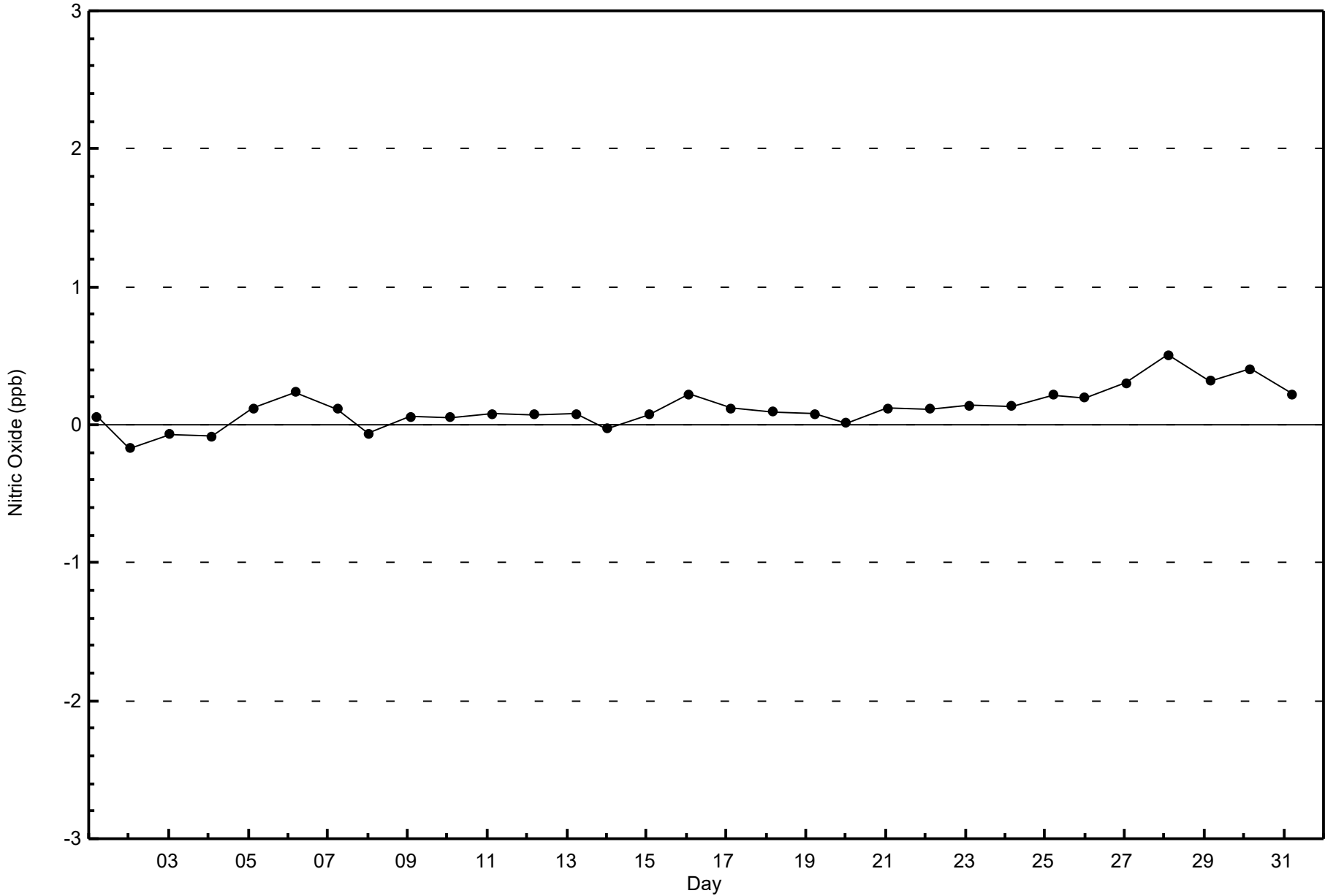
Total Number of Hours: 744



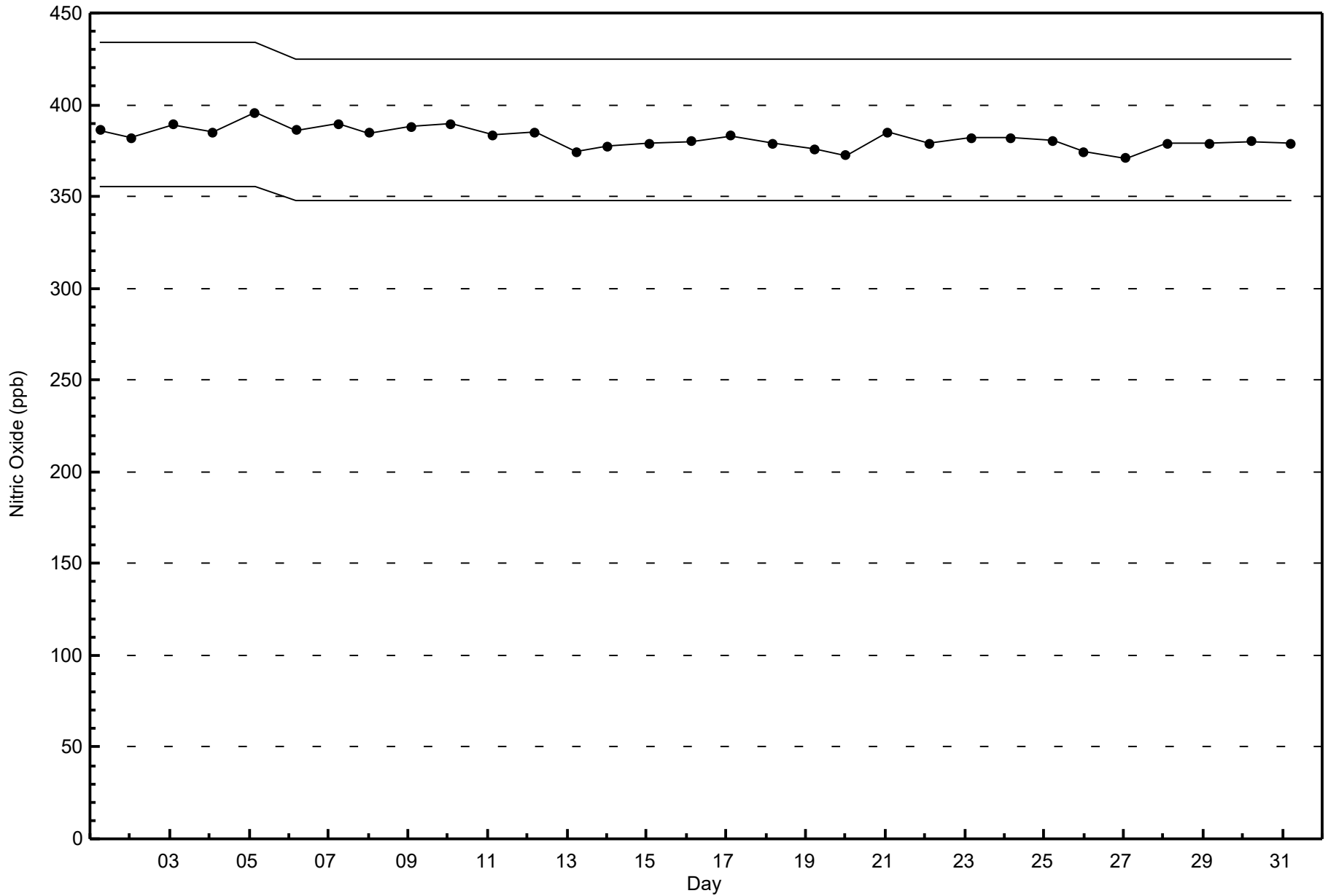
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

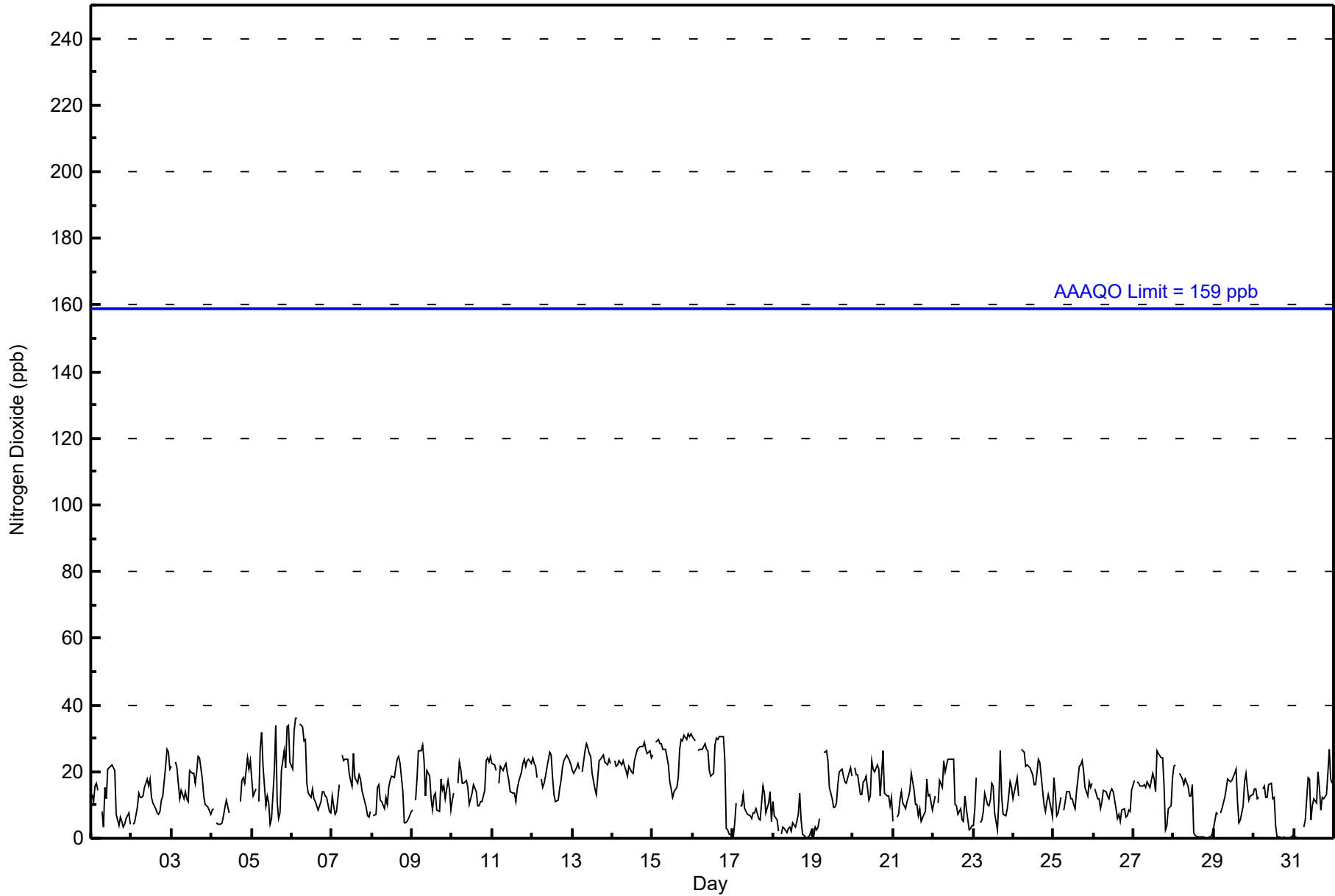
## Fort McKay - Bertha Ganter - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																			Hours in Service:	744																										
Maximum Value: 36.1 ppb on Jan 6 04:00		Maximum Daily Average: 24.9 ppb on Jan 15																				Hours of Data:	707																										
Minimum Value: 0.0 ppb on Jan 30 21:00		Minimum Daily Average: 3.8 ppb on Jan 18																				Hours of Missing Data:	37																										
Maximum Diurnal Average: 17.1 ppb at hour 7		Minimum Diurnal Average: 13.1 ppb at hour 21																				Hours of Calibration:	37																										
Monthly Average: 14.81 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 4.5 Q <sub>1</sub> = 8.9 Median = 14.4 Q <sub>3</sub> = 20.8 P <sub>90</sub> = 25.3 P <sub>99</sub> = 32.1																				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-Jan	13.1	10.9	15.7	16.7	14.2	Z	8.2	3.2	15.1	12.0	20.6	21.8	22.1	21.3	20.3	7.3	3.7	6.4	5.1	3.4	4.1	6.0	7.6	4.2	11.4	22.1																							
2-Jan	Z	4.4	4.8	9.4	13.6	12.3	12.2	12.7	15.3	17.9	15.8	17.9	12.3	10.8	8.9	7.6	7.1	8.2	11.5	12.7	21.5	26.5	26.0	20.8	13.5	26.5																							
3-Jan	21.4	Z	22.7	21.1	16.5	11.9	14.4	11.9	13.8	11.7	11.1	20.2	19.5	19.4	16.4	19.8	24.5	24.2	18.0	12.5	10.3	9.9	9.3	7.1	16.0	24.5																							
4-Jan	8.3	8.8	Z	4.8	4.4	4.2	4.5	6.6	9.3	11.3	7.7	C	C	C	C	C	C	11.2	17.4	18.4	16.6	24.1	20.7	23.2	--	24.1																							
5-Jan	17.7	12.9	15.0	Z	11.1	27.0	31.7	21.6	9.9	12.5	10.7	4.2	6.0	20.5	34.1	11.2	6.1	7.6	20.4	26.3	21.1	33.3	34.0	22.7	18.2	34.1																							
6-Jan	20.9	32.1	35.9	36.1	Z	34.2	33.4	29.4	29.8	16.5	13.6	12.4	14.8	11.7	10.9	9.6	8.3	11.1	14.0	13.9	12.8	12.4	8.0	7.6	18.7	36.1																							
7-Jan	12.9	9.7	7.1	8.1	15.9	Z	24.9	23.1	23.8	23.6	19.7	17.4	15.7	25.3	18.1	16.6	19.1	17.6	14.2	12.9	9.2	6.9	6.4	7.9	15.5	25.3																							
8-Jan	Z	6.9	7.2	15.3	16.3	11.5	11.0	8.9	12.1	10.3	15.1	17.2	18.7	18.3	21.0	23.8	24.7	22.6	13.8	4.7	4.8	5.2	5.8	7.9	13.2	24.7																							
9-Jan	8.3	Z	11.6	17.6	26.1	26.2	27.8	23.2	12.9	20.5	18.7	11.8	8.4	12.5	13.5	8.5	8.1	18.0	14.6	15.7	12.0	17.2	14.8	8.6	15.5	27.8																							
10-Jan	11.4	13.4	Z	16.6	23.0	20.9	16.7	16.4	17.3	15.2	10.3	12.0	13.6	16.3	13.9	9.6	9.8	11.0	11.2	14.4	23.3	24.2	23.0	24.7	16.0	24.7																							
11-Jan	22.5	22.0	20.2	Z	16.5	21.6	20.5	21.6	22.5	19.5	17.3	13.9	13.7	13.4	11.1	14.7	17.0	20.0	22.5	23.7	21.7	23.3	23.8	22.6	19.4	23.8																							
12-Jan	24.1	22.4	21.8	18.1	Z	17.9	15.2	16.6	18.7	21.1	26.0	25.2	18.1	13.0	11.1	11.5	15.0	17.2	21.2	23.5	24.8	24.3	23.1	22.2	19.7	26.0																							
13-Jan	20.5	19.3	21.3	22.3	20.8	Z	20.1	26.2	28.5	27.0	25.4	24.7	19.3	15.0	13.3	18.1	23.3	23.9	24.9	23.0	22.6	21.9	23.6	22.4	22.1	28.5																							
14-Jan	Z	23.1	21.8	22.2	23.5	22.0	23.5	21.5	20.5	18.7	21.4	20.0	19.5	23.4	25.1	26.6	27.6	27.7	27.4	28.7	26.9	25.3	26.1	24.0	23.8	28.7																							
15-Jan	25.2	Z	29.0	29.8	28.3	28.5	26.9	26.7	26.9	21.9	17.0	14.8	12.1	13.9	15.4	18.3	26.7	29.6	29.4	30.8	29.5	31.4	30.5	31.2	24.9	31.4																							
16-Jan	30.6	29.2	Z	26.2	26.6	26.8	26.8	28.4	26.5	26.4	20.3	18.7	19.4	27.9	30.2	29.5	30.6	30.6	30.4	23.2	2.9	2.7	1.3	0.8	22.4	30.6																							
17-Jan	0.6	4.8	10.4	Z	9.9	9.6	13.2	8.9	8.2	7.2	6.8	6.1	7.6	7.8	8.9	6.0	5.6	10.8	15.5	13.4	7.8	10.4	13.9	5.0	8.6	15.5																							
18-Jan	10.9	6.8	5.7	2.3	Z	1.4	3.6	2.8	1.7	3.1	3.2	2.2	4.5	3.3	5.0	7.2	13.5	5.5	1.3	0.3	0.2	0.4	0.8	2.1	3.8	13.5																							
19-Jan	1.0	3.4	2.4	3.2	5.8	Z	26.0	25.9	26.1	23.5	15.1	12.0	9.3	9.3	10.5	16.3	19.8	20.9	18.7	16.9	16.7	18.4	21.1	18.6	14.8	26.1																							
20-Jan	Z	21.2	19.2	19.0	13.1	13.3	16.8	17.3	18.6	11.4	12.6	23.1	20.6	20.0	22.0	20.8	12.9	19.6	26.1	13.6	12.6	12.7	9.9	12.1	16.9	26.1																							
21-Jan	5.2	Z	6.3	7.1	11.5	14.0	10.6	8.9	11.1	12.1	14.4	19.6	14.2	10.3	10.3	6.9	8.9	4.9	7.2	7.9	17.9	12.8	13.2	8.4	10.6	19.6																							
22-Jan	10.7	12.9	Z	10.5	17.4	15.2	23.1	19.9	22.0	23.7	23.8	23.6	23.6	10.1	9.8	7.1	8.9	5.5	4.9	12.8	9.1	2.5	3.0	3.7	13.2	23.8																							
23-Jan	3.7	8.8	18.1	Z	4.8	5.7	8.1	13.4	10.3	9.6	11.6	16.7	15.6	7.7	2.6	11.2	26.2	12.9	7.0	6.8	9.1	12.8	17.1	15.3	11.1	26.2																							
24-Jan	11.9	16.3	18.2	12.8	Z	26.9	25.7	21.5	22.2	21.5	21.1	19.1	16.1	15.9	19.3	23.9	22.9	14.5	10.3	8.1	11.0	13.1	8.9	6.5	16.9	26.9																							
25-Jan	18.2	13.6	6.9	7.8	12.4	Z	8.6	11.1	14.0	13.8	11.7	11.7	10.1	16.1	8.9	14.0	21.5	21.9	23.5	20.4	15.3	12.8	16.8	15.1	16.7	14.2	23.5																						
26-Jan	Z	14.9	12.0	11.9	8.8	11.1	14.4	13.8	12.9	12.0	14.0	14.9	13.8	9.1	6.0	7.0	5.1	8.6	9.1	6.2	6.6	8.4	8.1	14.5	10.6	14.9																							
27-Jan	17.2	Z	16.9	16.5	15.8	15.7	15.9	15.1	16.8	15.9	15.1	19.3	18.0	13.8	26.4	25.4	24.0	24.1	15.6	2.6	3.7	8.8	9.9	18.1	16.1	26.4																							
28-Jan	21.6	21.9	Z	19.5	18.8	17.8	16.1	17.8	15.5	12.9	12.9	16.1	1.9	0.7	0.6	0.5	0.6	0.6	0.3	0.2	0.2	0.3	0.4	1.1	8.6	21.9																							
29-Jan	2.9	7.8	7.4	Z	7.5	9.1	12.2	14.9	17.7	17.3	17.1	17.3	19.6	20.7	11.2	4.8	5.5	9.8	16.9	19.6	15.4	11.4	12.8	13.1	12.7	20.7																							
30-Jan	14.8	14.7	11.7	12.3	Z	14.7	15.8	12.2	12.1	16.0	16.4	11.7	12.3	4.0	0.4	0.3	0.2	0.2	0.3	0.2	0.0	0.1	0.5	1.0	7.5	16.4																							
31-Jan	0.3	0.3	0.2	0.2	0.2	Z	3.4	5.3	18.2	18.0	5.3	9.7	11.8	10.4	20.0	15.3	8.5	12.3	11.8	13.1	19.6	26.6	17.8	16.6	10.6	26.6																							
																								13.7	13.9	14.2	14.9	14.7	16.8	17.1	16.3	17.1	16.3	15.2	15.8	14.4	13.8	14.3	13.6	14.5	14.9	14.9	13.7	13.1	14.5	14.1	13.2	Diurnal Average	
																								30.6	32.1	35.9	36.1	28.3	34.2	33.4	29.4	29.8	27.0	26.0	25.2	23.6	27.9	34.1	29.5	30.6	30.6	30.4	30.8	29.5	33.3	34.0	31.2	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**  
**Fort McKay - Bertha Ganter - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	521	73.69	73.69
21 - 40	186	26.31	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay - Bertha Ganter - January 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	80	87	28	16	2	4	7	34	100	37	22	23	19	20	18	22	519
21 - 40	38	7	6	1	2	1	0	11	35	16	5	13	6	8	19	11	179
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	94	34	17	4	5	7	45	135	53	27	36	25	28	37	33	698

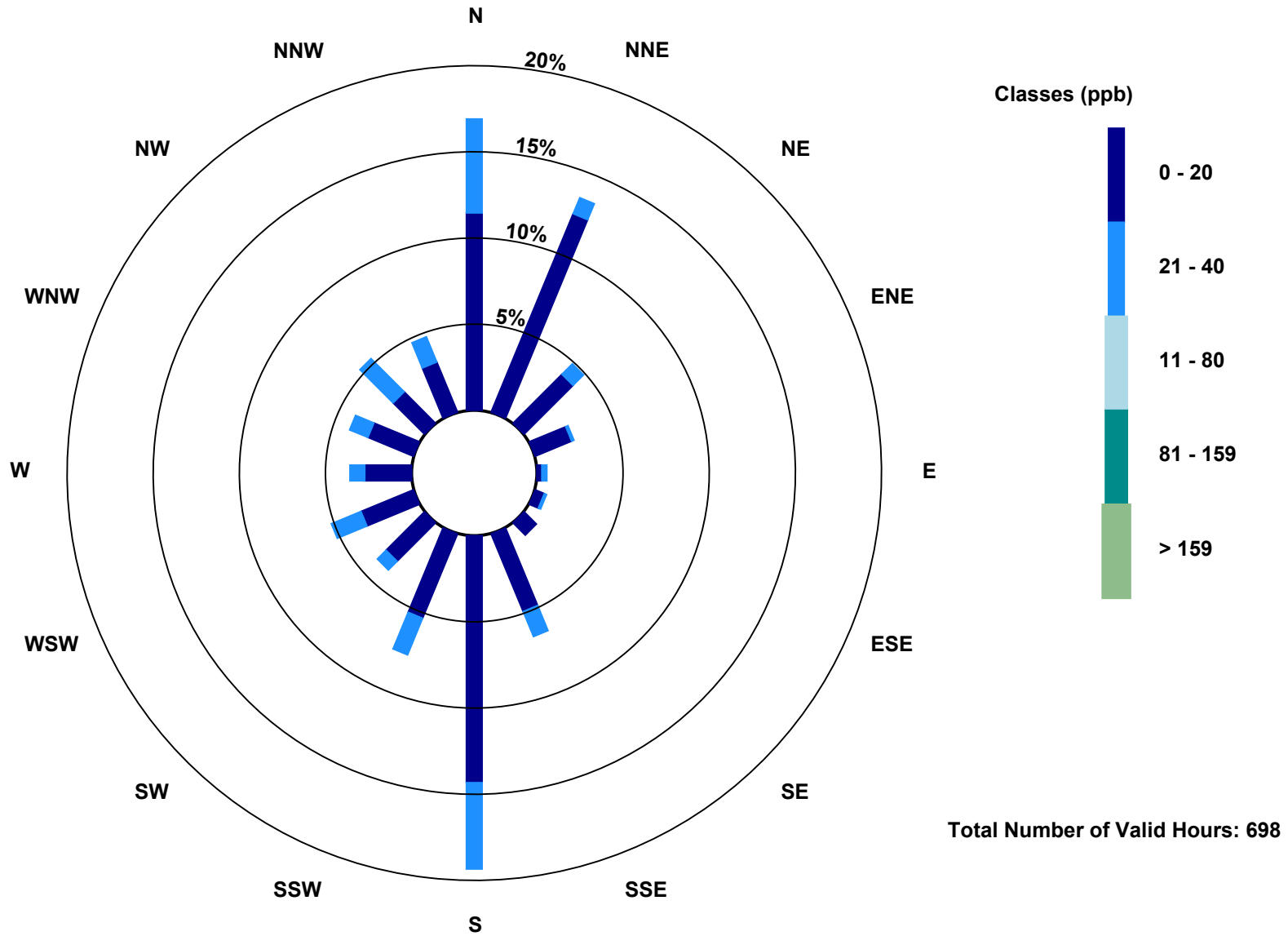
Total Number of Valid Hours: 698

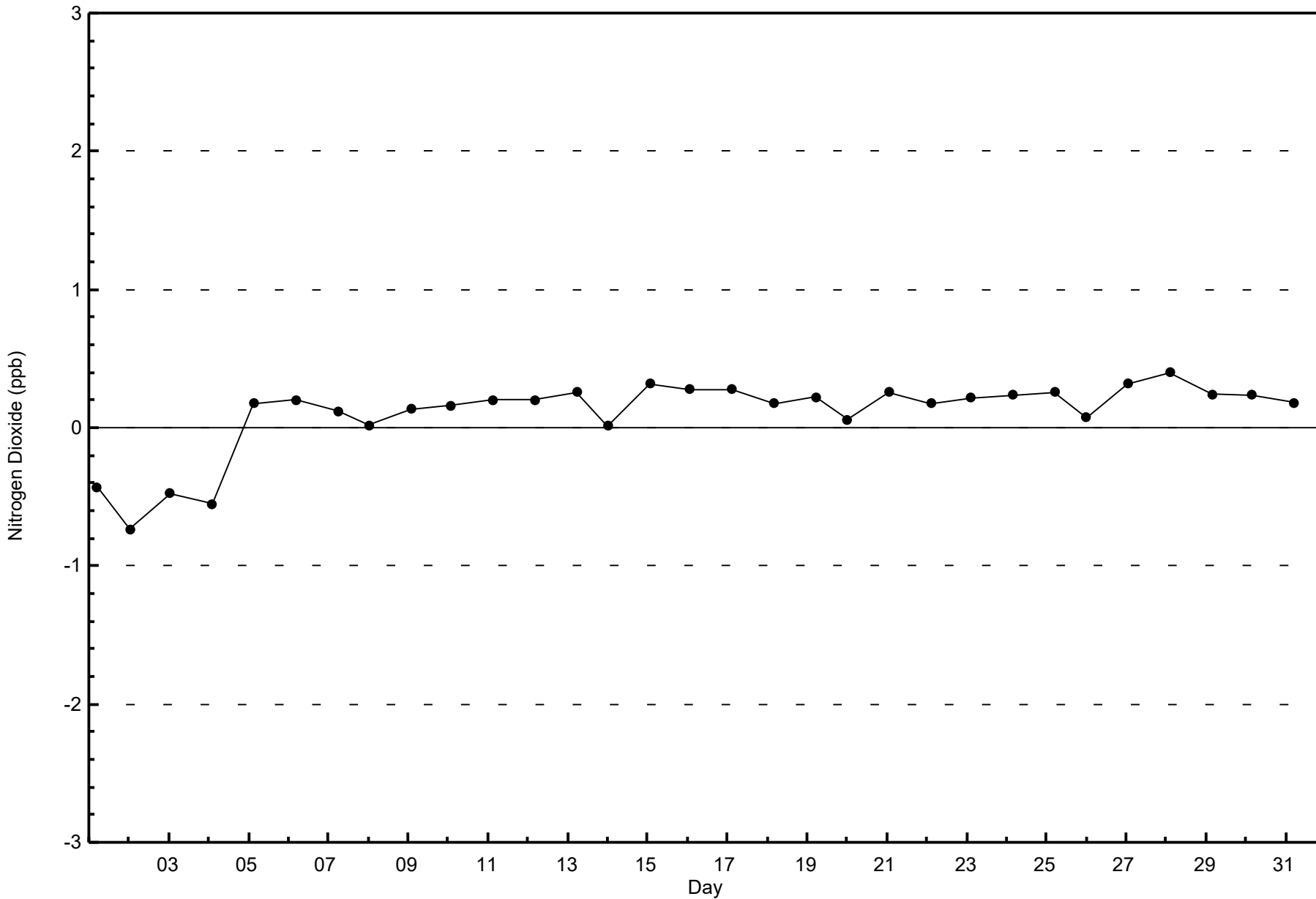
Total Number of Hours: 744

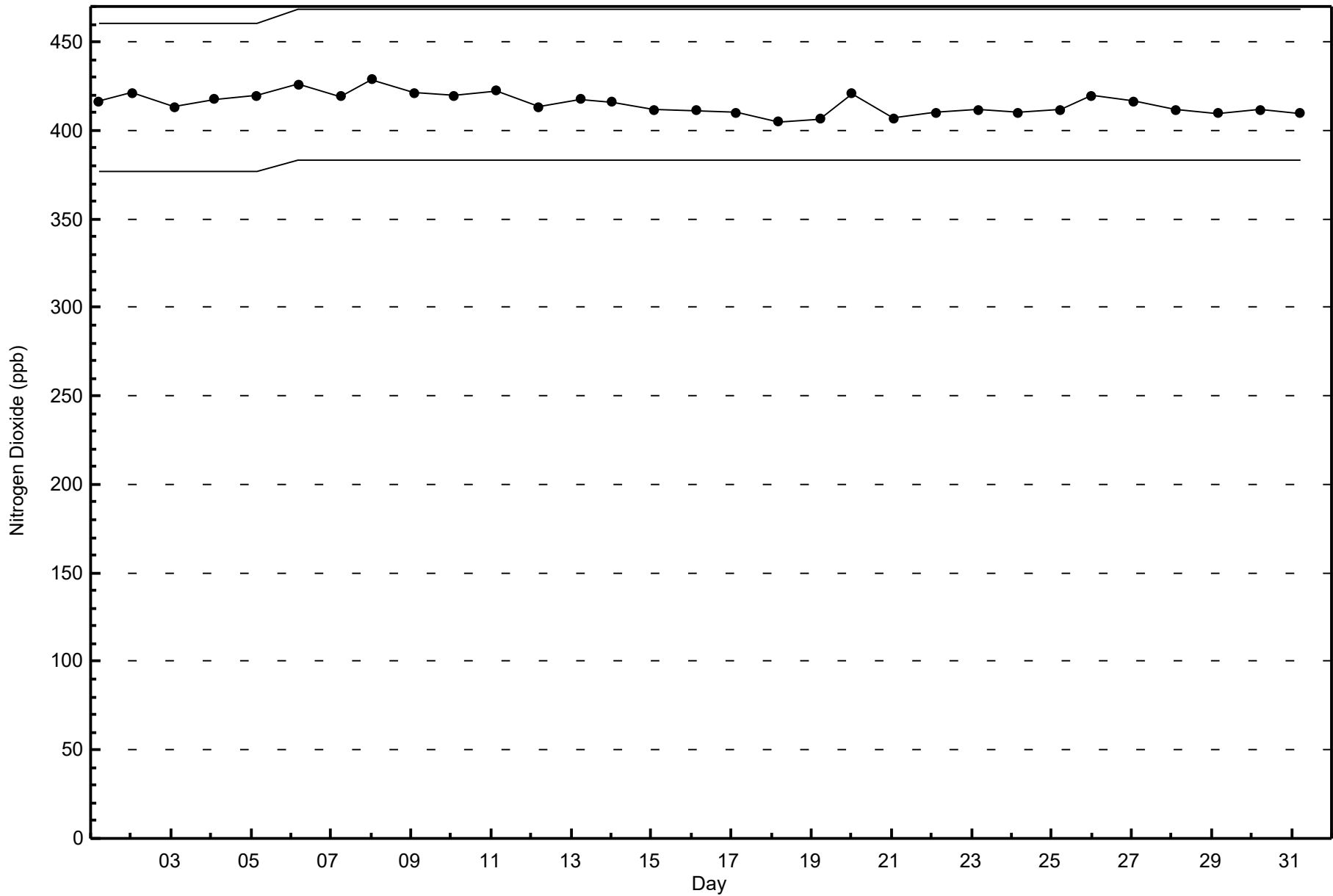


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







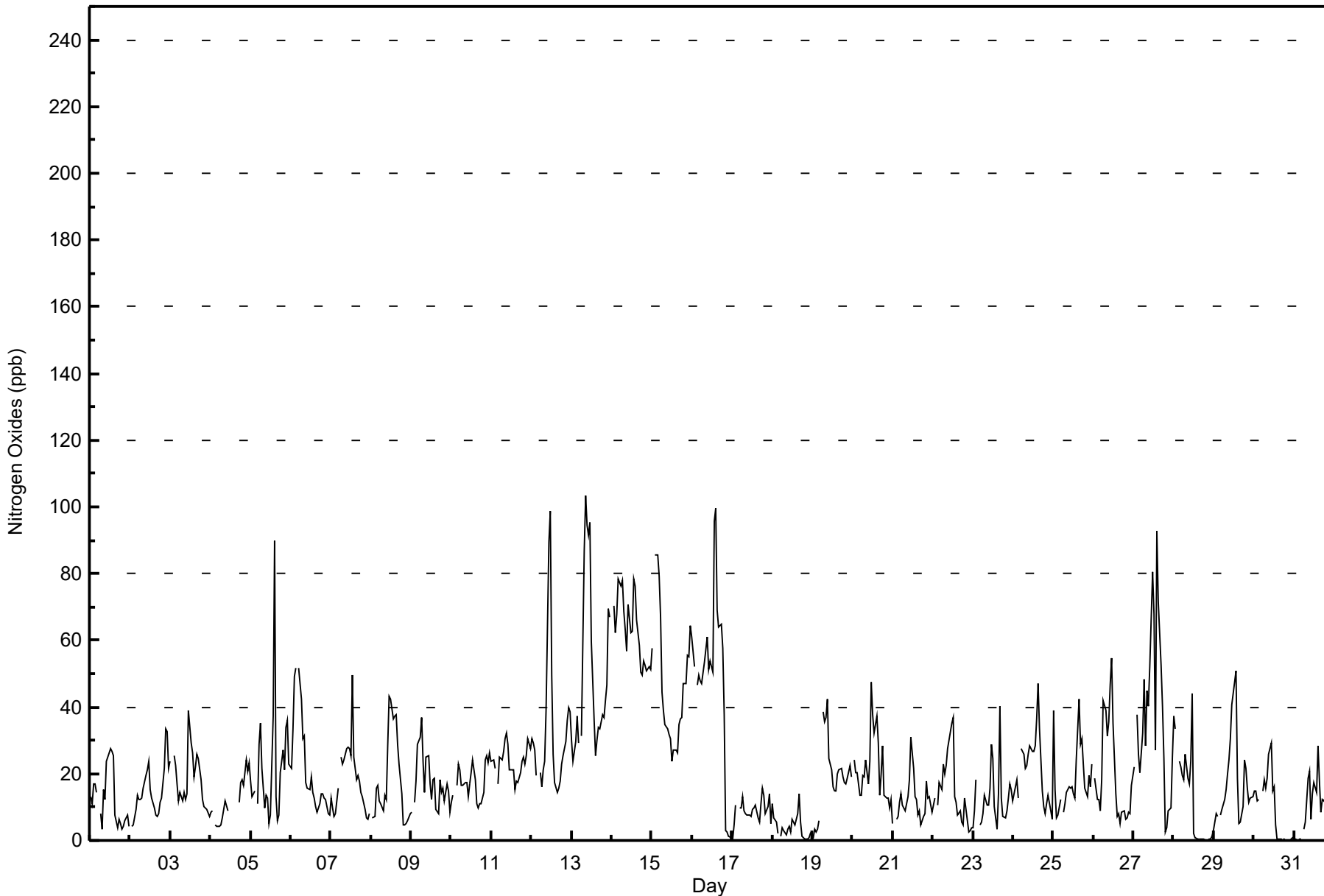




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

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

Maximum Value: 103.5 ppb on Jan 13 09:00		Maximum Daily Average: 63.4 ppb on Jan 14		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Jan 30 21:00		Minimum Daily Average: 4.1 ppb on Jan 18		Hours of Data: 707																							
Maximum Diurnal Average: 34.7 ppb at hour 12		Minimum Diurnal Average: 15.8 ppb at hour 21		Hours of Missing Data: 37																							
Monthly Average: 22.17 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 4.8 Q <sub>1</sub> = 9.4 Median = 16.8 Q <sub>3</sub> = 28.5 P <sub>90</sub> = 48.3 P <sub>99</sub> = 91.5		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Jan	13.1	10.9	17.0	16.9	14.2	Z	8.2	3.2	15.1	12.2	23.9	26.2	27.5	26.8	25.3	7.5	3.7	6.4	5.1	3.4	4.1	6.0	7.6	4.2	12.5	27.5	
2-Jan	Z	4.4	4.8	9.4	13.6	12.3	12.2	12.7	15.5	19.6	21.1	23.6	15.2	12.7	9.6	7.8	7.1	8.2	11.5	12.7	21.7	33.4	32.6	21.5	14.9	33.4	
3-Jan	23.6	Z	25.4	22.4	16.8	12.0	14.5	12.0	14.6	12.4	14.0	38.8	29.2	26.2	19.0	21.9	25.8	24.7	18.1	12.5	10.3	9.9	9.3	7.1	18.3	38.8	
4-Jan	8.3	8.8	Z	4.8	4.4	4.2	4.5	6.6	9.3	11.8	8.8	C	C	C	C	C	C	11.2	17.4	18.4	16.6	24.2	20.7	23.3	--	24.2	
5-Jan	17.7	12.9	15.0	Z	11.1	28.6	35.0	21.8	9.9	13.6	12.8	5.0	7.6	37.4	89.9	12.9	6.1	7.6	20.4	27.2	21.3	34.0	36.0	22.8	22.0	89.9	
6-Jan	21.4	33.7	49.3	51.7	Z	51.6	42.3	30.7	31.3	17.4	15.6	15.2	19.0	14.5	12.5	10.0	8.3	11.1	14.0	13.9	12.8	12.4	8.0	7.6	21.9	51.7	
7-Jan	12.9	9.7	7.1	8.1	15.9	Z	24.9	23.1	23.9	27.7	27.9	27.7	25.6	49.7	24.9	18.4	19.5	17.7	14.3	13.0	9.3	7.0	6.5	8.0	18.4	49.7	
8-Jan	Z	7.0	7.3	15.5	16.6	11.7	11.1	9.0	13.4	12.5	28.5	43.4	42.4	36.3	37.4	37.5	28.8	23.0	13.9	4.7	4.8	5.2	5.8	7.9	18.4	43.4	
9-Jan	8.3	Z	11.6	17.7	28.9	30.9	36.7	23.9	14.3	24.8	25.4	16.8	12.2	18.3	18.7	9.4	8.2	18.0	14.6	15.7	12.0	17.2	14.8	8.6	17.7	36.7	
10-Jan	11.4	13.4	Z	16.6	23.1	21.0	16.7	16.4	17.4	17.2	13.2	17.0	20.3	24.1	18.4	10.8	9.8	11.0	11.2	14.4	24.0	25.6	23.3	26.3	17.5	26.3	
11-Jan	23.9	24.2	21.6	Z	16.9	24.9	24.1	26.6	30.6	32.1	28.9	21.3	21.3	15.3	17.8	17.5	20.4	23.5	25.0	22.8	25.5	30.4	27.6	23.6	32.1		
12-Jan	30.7	29.4	27.1	19.7	Z	20.3	16.1	21.3	23.6	39.0	89.5	98.7	49.6	25.9	17.5	14.3	15.6	17.6	22.7	25.6	29.8	35.9	39.9	38.4	32.5	98.7	
13-Jan	29.9	23.7	29.7	37.2	29.2	Z	31.4	86.8	103.5	94.5	91.6	95.3	59.8	36.1	25.2	30.1	34.1	33.4	37.6	36.7	41.9	46.7	69.6	67.0	50.9	103.5	
14-Jan	Z	70.3	62.3	67.6	78.5	76.2	78.2	68.7	63.1	56.8	70.7	62.2	62.8	78.5	76.2	66.1	58.6	50.4	49.4	53.9	52.5	50.8	52.3	51.5	63.4	78.5	
15-Jan	57.6	Z	85.5	85.5	79.3	66.8	44.4	39.0	34.8	33.4	31.9	30.4	23.8	27.2	27.0	26.1	34.6	36.6	36.9	47.2	46.9	55.5	55.0	64.4	46.5	85.5	
16-Jan	61.2	52.3	Z	46.8	49.5	48.0	47.1	53.4	57.2	61.0	51.2	53.7	50.3	95.8	99.4	69.0	64.1	64.7	57.8	37.6	2.9	2.7	1.3	0.8	49.0	99.4	
17-Jan	0.6	4.8	10.4	Z	9.9	9.6	13.2	8.9	8.2	7.5	7.7	7.4	9.5	9.6	10.6	6.8	5.6	10.8	15.5	13.4	7.8	10.4	13.9	5.0	9.0	15.5	
18-Jan	10.9	6.8	5.7	2.3	Z	1.4	3.6	2.8	1.7	3.3	4.2	2.6	6.2	4.6	6.4	8.1	13.8	5.5	1.3	0.3	0.2	0.4	0.8	2.1	4.1	13.8	
19-Jan	1.0	3.4	2.4	3.2	5.8	Z	38.5	35.4	37.0	42.2	24.8	21.3	16.1	14.8	14.7	20.1	21.2	21.4	18.9	17.3	17.0	18.8	22.3	19.0	19.0	42.2	
20-Jan	Z	24.3	20.5	20.5	13.4	13.6	19.5	19.1	24.3	16.8	23.7	47.6	37.8	32.3	37.4	29.2	13.5	19.8	28.2	13.7	12.7	12.7	9.9	12.1	21.8	47.6	
21-Jan	5.2	Z	6.3	7.1	11.5	14.0	10.6	8.9	11.1	13.2	18.2	31.1	21.5	13.3	12.3	7.4	9.0	4.9	7.2	7.9	17.9	12.8	13.2	8.4	11.9	31.1	
22-Jan	10.7	12.9	Z	10.5	17.4	15.2	23.1	19.9	22.4	27.7	32.6	35.1	36.9	13.1	11.4	7.6	9.0	5.5	4.9	12.8	9.1	2.5	3.0	3.7	15.1	36.9	
23-Jan	3.7	8.8	18.2	Z	4.8	5.7	8.1	13.4	10.5	10.7	15.7	28.9	24.4	10.3	3.2	14.2	40.4	12.9	7.0	6.8	9.1	12.8	17.1	15.3	13.1	40.4	
24-Jan	11.9	16.3	18.2	12.8	Z	27.5	25.8	21.5	22.5	25.8	28.3	26.8	26.7	28.5	36.6	47.2	33.5	15.0	10.3	8.1	11.1	13.6	9.0	6.5	21.0	47.2	
25-Jan	39.2	15.2	6.9	7.8	12.4	Z	8.6	11.1	14.3	16.1	15.6	16.3	13.9	12.7	24.3	42.5	28.9	30.3	22.9	15.5	13.0	19.3	16.2	22.9	18.5	42.5	
26-Jan	Z	18.8	12.4	12.5	8.9	18.3	42.0	38.8	31.5	35.4	46.4	54.6	35.1	13.9	7.4	7.9	5.1	8.6	9.1	6.2	6.6	8.4	8.1	16.4	19.7	54.6	
27-Jan	22.2	Z	37.6	25.8	20.2	32.4	48.3	28.6	44.7	40.4	52.3	80.6	67.9	27.2	92.7	71.6	52.4	40.3	24.6	2.6	3.7	8.8	9.9	24.9	37.4	92.7	
28-Jan	37.3	33.3	Z	23.7	21.9	19.4	18.3	25.7	18.5	16.8	23.9	44.0	2.1	0.7	0.6	0.5	0.6	0.6	0.3	0.2	0.2	0.3	0.4	1.1	12.6	44.0	
29-Jan	2.9	7.8	7.4	Z	7.5	9.1	12.3	15.4	20.1	24.0	30.6	40.8	47.6	51.0	18.7	5.3	5.6	10.1	24.2	21.4	15.5	11.4	12.8	13.1	18.0	51.0	
30-Jan	14.8	14.7	11.7	12.3	Z	14.9	18.3	15.7	18.8	25.8	29.2	14.8	16.2	4.7	0.4	0.3	0.2	0.2	0.3	0.2	0.0	0.1	0.5	1.0	9.3	29.2	
31-Jan	0.3	0.3	0.2	0.2	0.2	Z	3.4	5.3	18.7	20.8	6.4	14.0	17.5	14.2	28.2	17.9	8.7	12.3	11.8	13.4	31.1	48.3	25.4	29.2	14.3	48.3	
		18.5	18.0	20.1	21.5	20.5	23.6	23.9	23.4	25.2	26.2	29.5	34.7	28.2	26.1	27.4	21.5	19.6	18.1	17.9	16.2	15.8	18.5	18.6	18.3	Diurnal Average	
		61.2	70.3	85.5	85.5	79.3	76.2	78.2	86.8	103.5	94.5	91.6	98.7	67.9	95.8	99.4	71.6	64.1	64.7	57.8	53.9	52.5	55.5	69.6	67.0	Diurnal Maximum	
Z - zerospan		C - Calibration																									





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	419	59.26	59.26
21 - 40	195	27.58	86.85
41 - 80	79	11.17	98.02
81 - 159	13	1.84	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay - Bertha Ganter - January 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	70	81	25	14	2	2	4	24	68	24	14	19	17	18	15	20	417
21 - 40	39	12	7	3	2	3	2	7	42	18	9	10	4	9	15	9	191
11 - 80	9	1	1	0	0	0	1	11	23	7	4	6	3	1	6	4	77
81 - 159	0	0	1	0	0	0	0	3	1	4	0	1	1	0	1	0	12
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	118	94	34	17	4	5	7	45	134	53	27	36	25	28	37	33	697

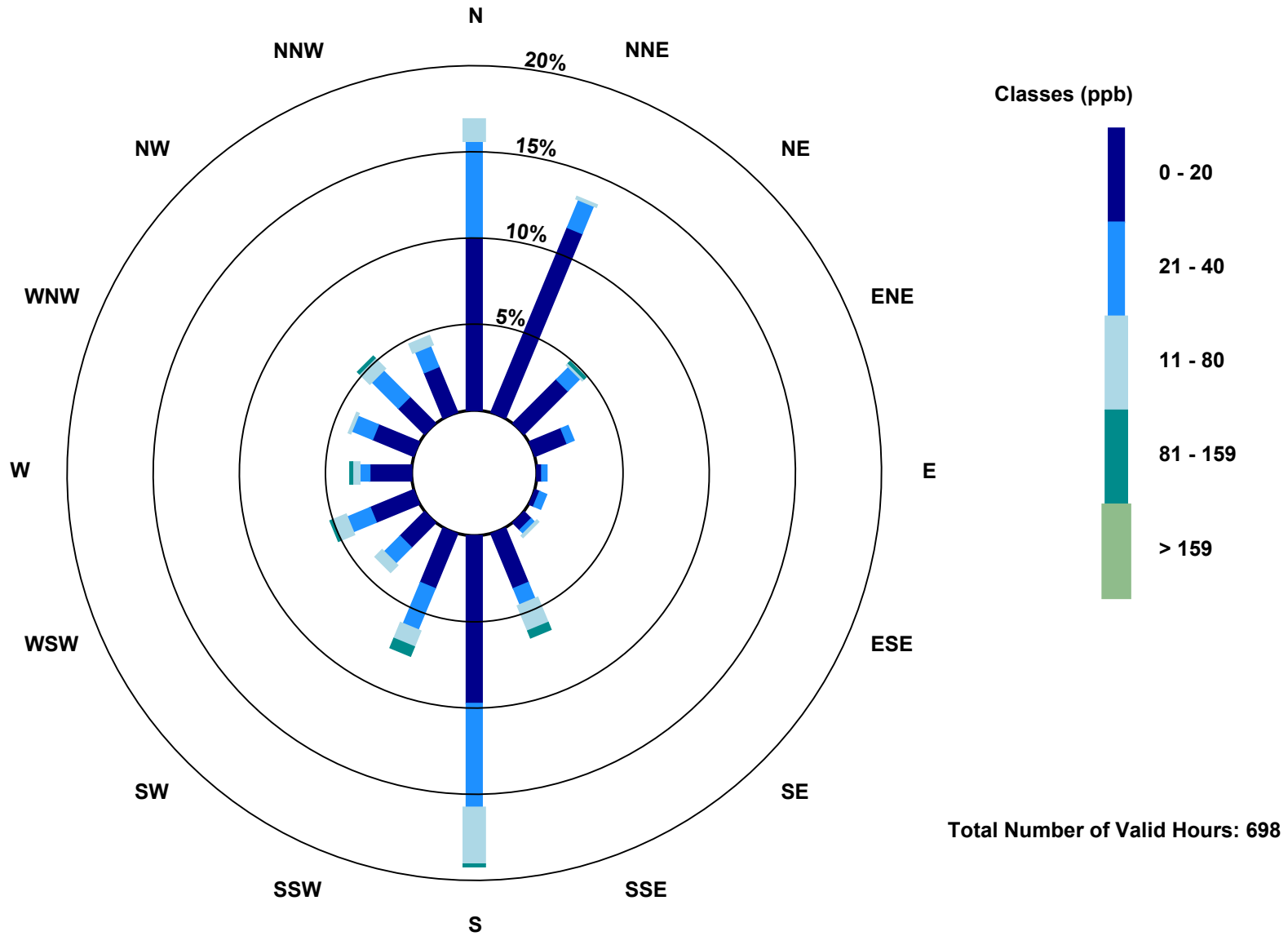
Total Number of Valid Hours: 698

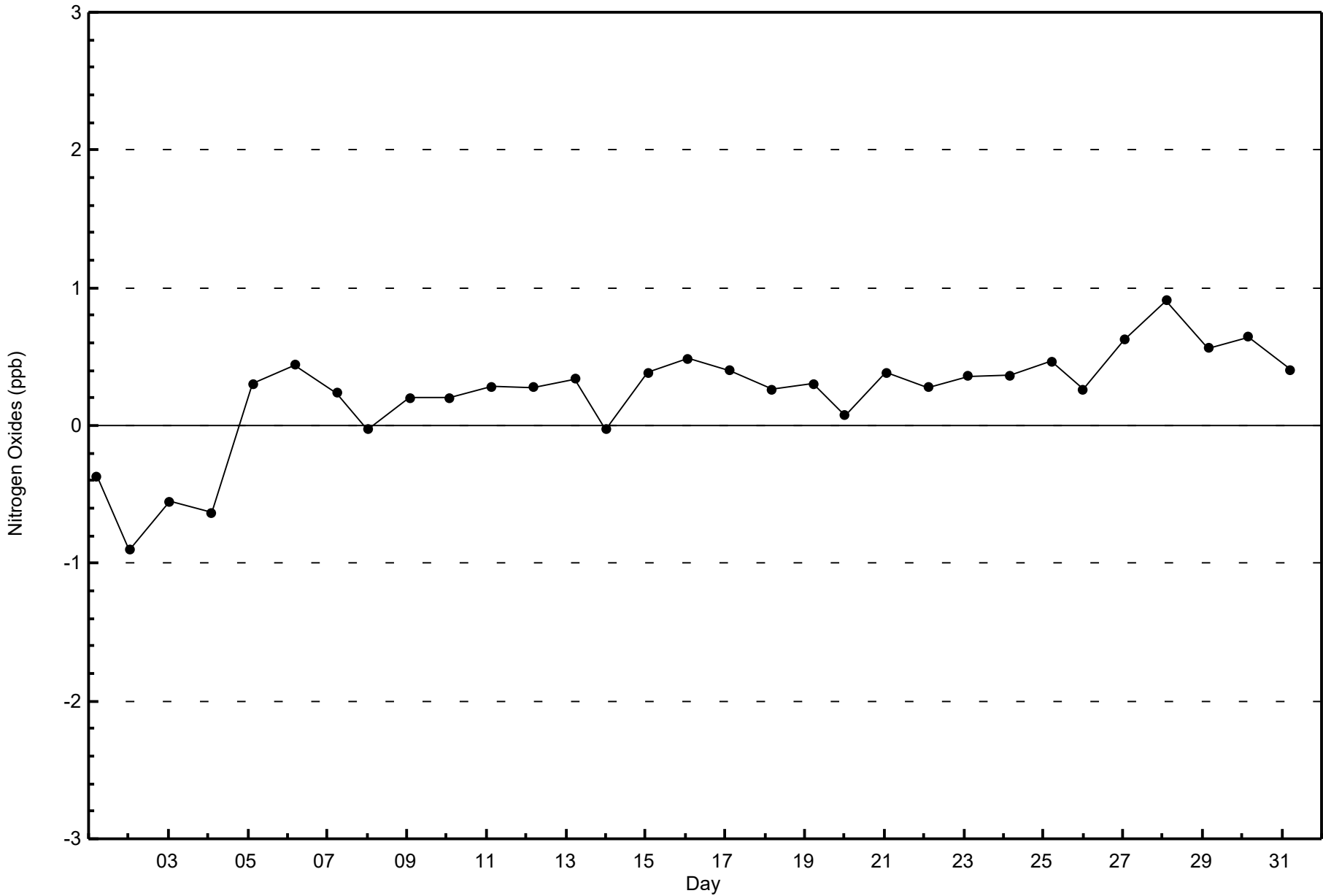
Total Number of Hours: 744

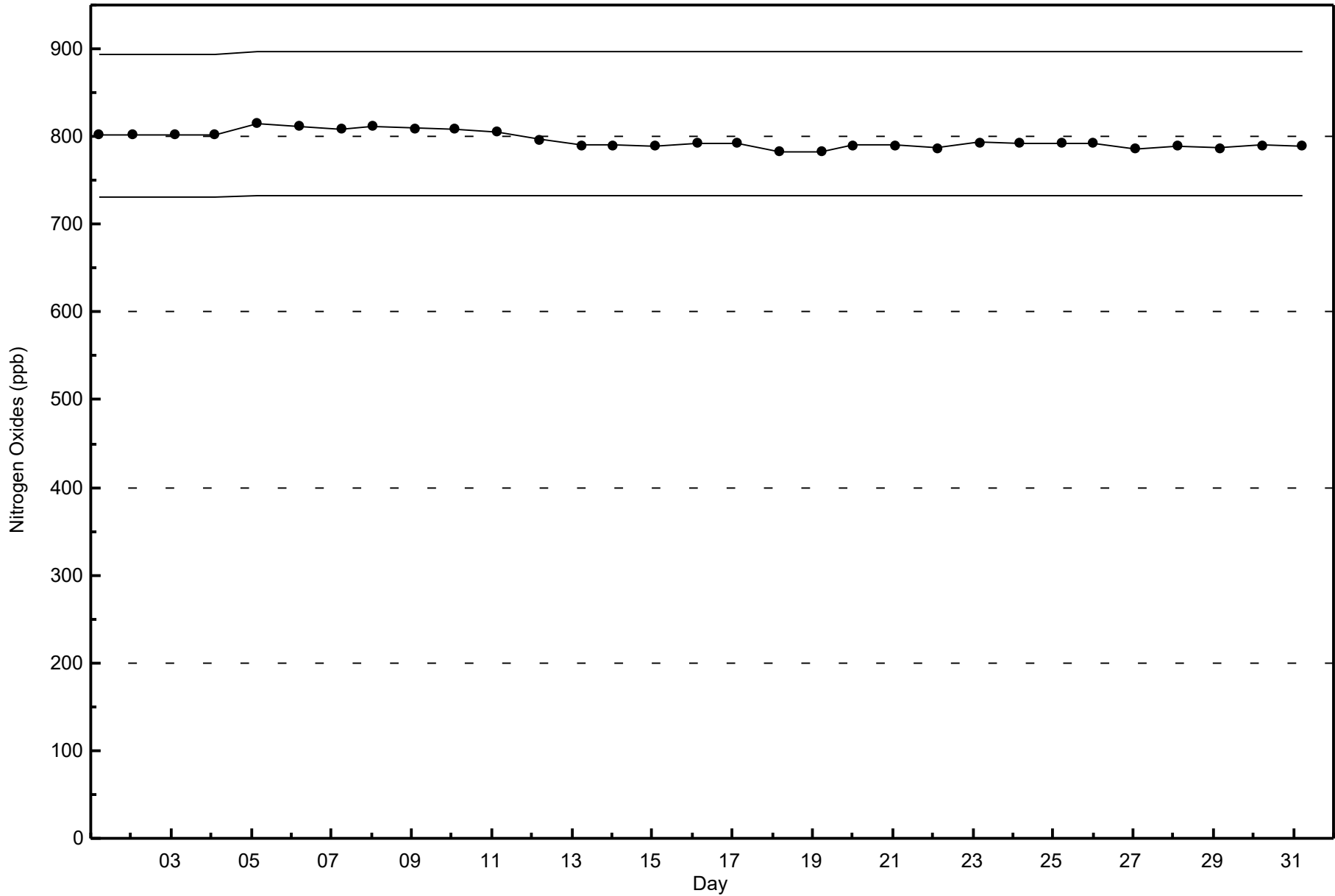


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

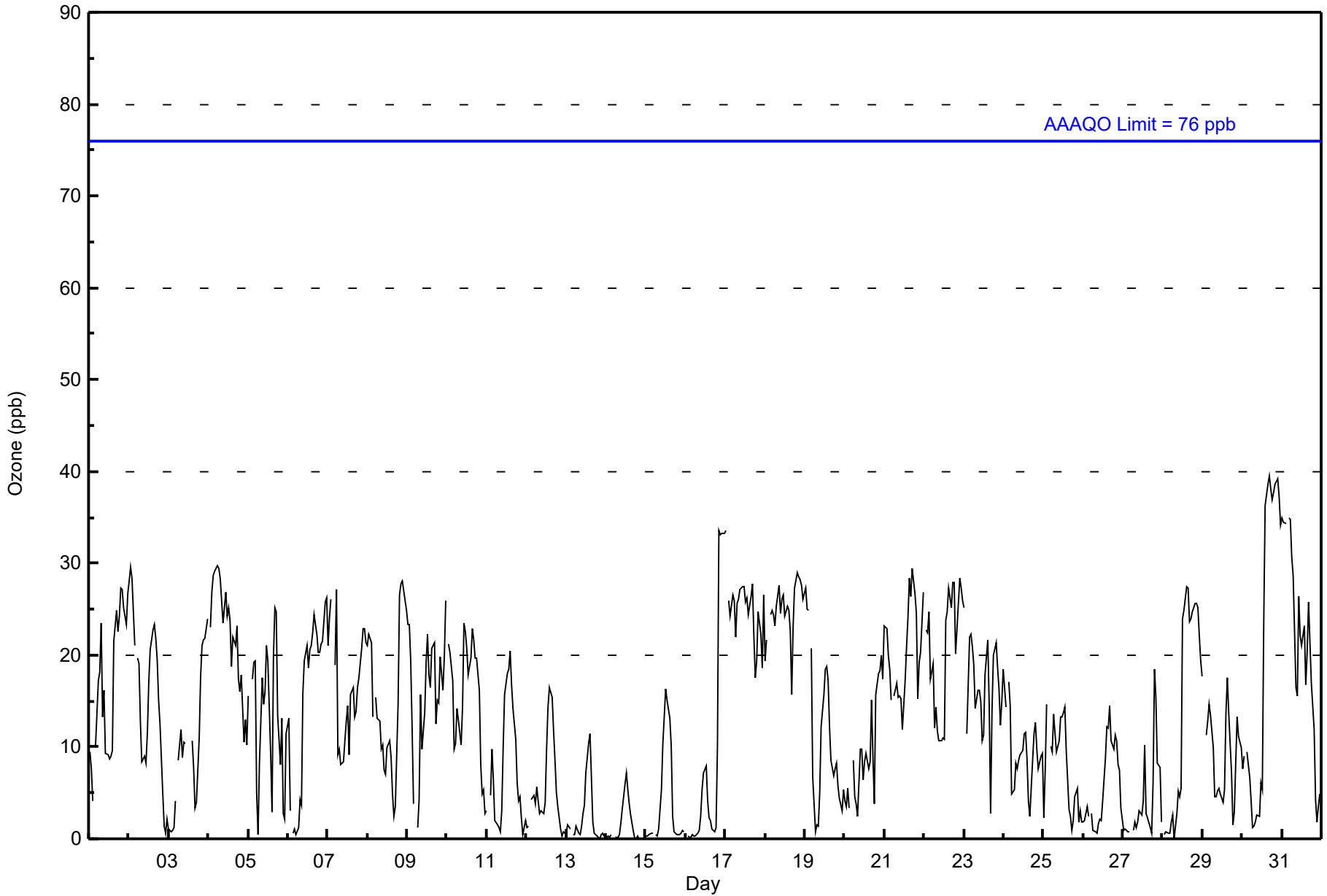
Fort McKay - Bertha Ganter - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 39.5 ppb on Jan 30 17:00	Maximum Daily Average: 24.9 ppb on Jan 17
Minimum Value: 0.0 ppb on Jan 13 21:00	Minimum Daily Average: 1.4 ppb on Jan 14
Maximum Diurnal Average: 16.1 ppb at hour 16	Minimum Diurnal Average: 8.8 ppb at hour 9
Monthly Average: 13.05 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 4.0 Median = 11.8 Q <sub>3</sub> = 21.1 P <sub>90</sub> = 26.1 P <sub>99</sub> = 36.9
	Hours of Data: 710
	Hours of Missing Data: 34
	Hours of Calibration: 34
	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	9.5	7.7	4.2	Z	10.2	17.2	18.1	23.6	13.3	16.2	9.4	9.1	8.7	9.0	9.6	21.6	24.9	22.7	24.3	27.4	27.1	25.1	23.3	26.7	16.9	27.4
2-Jan	28.0	29.6	28.4	21.1	Z	19.6	19.0	12.8	8.3	8.9	8.3	11.6	17.1	20.5	22.7	23.3	21.9	19.5	15.1	12.6	4.9	1.4	0.6	2.2	15.5	29.6
3-Jan	1.1	0.8	0.9	1.2	4.1	Z	8.5	11.8	8.8	10.5	10.4	C	C	C	10.6	7.8	3.4	3.9	10.9	17.6	21.0	21.6	21.8	24.0	10.0	24.0
4-Jan	Z	23.0	26.9	28.7	29.2	29.8	29.4	28.3	26.0	23.4	26.8	24.3	25.1	23.8	18.8	22.0	21.1	23.2	17.4	16.1	17.8	10.5	13.0	10.2	22.4	29.8
5-Jan	15.6	Z	17.4	19.2	19.3	5.1	0.4	8.2	17.6	14.6	16.1	21.0	19.4	9.4	2.9	19.8	25.2	24.7	13.4	8.1	13.1	2.8	2.2	11.4	13.3	25.2
6-Jan	13.1	3.1	Z	0.6	1.0	0.4	1.2	4.3	3.6	15.8	19.3	21.0	18.6	20.6	21.0	22.5	24.4	22.3	20.2	20.3	21.2	21.5	25.9	26.2	15.1	26.2
7-Jan	21.1	24.1	26.1	Z	18.9	27.2	9.2	9.8	8.1	8.4	10.7	12.9	14.5	9.1	15.7	16.5	13.3	13.9	16.4	17.5	20.7	22.9	22.9	21.3	16.6	27.2
8-Jan	21.0	22.3	21.3	13.3	Z	15.4	13.1	12.7	9.8	10.2	7.4	7.0	9.9	10.7	8.8	4.8	2.5	3.5	14.7	26.6	27.8	28.1	27.0	24.8	14.9	28.1
9-Jan	23.4	23.4	19.3	12.1	3.7	Z	1.2	4.3	15.7	9.8	13.7	19.3	22.3	17.8	16.5	20.8	21.3	12.5	15.1	14.8	19.8	16.2	19.8	25.9	16.0	25.9
10-Jan	Z	21.1	20.2	17.3	9.8	10.4	14.2	13.0	10.3	14.3	23.5	22.5	20.7	17.8	19.7	22.8	21.7	19.6	19.6	16.1	8.1	4.9	5.3	2.7	15.5	23.5
11-Jan	3.1	Z	4.8	9.8	6.4	2.0	1.6	1.3	0.8	3.0	10.0	15.8	17.9	18.5	20.4	16.8	14.1	10.8	6.1	4.2	4.6	2.3	0.5	2.0	7.7	20.4
12-Jan	1.2	1.3	Z	4.3	4.7	3.8	5.6	4.1	2.8	3.1	2.8	4.0	9.8	14.4	16.5	15.4	11.7	8.6	5.0	3.6	1.1	0.3	0.7	0.6	5.4	16.5
13-Jan	0.7	1.5	1.1	Z	0.4	0.5	1.4	0.6	0.5	1.4	2.7	3.6	7.2	10.4	11.4	6.6	1.8	0.6	0.4	0.2	0.0	0.4	0.6	0.4	2.4	11.4
14-Jan	0.2	0.3	0.2	0.4	Z	0.2	0.1	0.2	0.4	1.7	3.2	5.9	7.2	5.4	3.8	2.6	0.8	0.1	0.0	0.3	0.0	0.1	0.0	0.1	1.4	7.2
15-Jan	0.3	0.3	0.4	0.6	0.6	Z	0.4	0.4	1.0	5.3	10.4	13.3	16.3	15.2	13.1	10.0	2.5	0.8	0.6	0.4	0.5	0.6	0.9	0.8	4.1	16.3
16-Jan	Z	0.3	0.2	0.2	0.4	0.3	0.4	0.7	0.9	2.4	5.4	7.2	8.0	4.1	2.3	2.1	1.0	0.8	1.3	10.2	33.6	33.1	33.2	33.3	7.9	33.6
17-Jan	33.5	Z	26.0	24.2	26.5	26.0	21.9	25.6	26.2	27.2	27.5	27.4	25.7	26.2	24.4	26.3	27.7	22.0	17.5	19.4	24.8	22.3	18.7	26.5	24.9	33.5
18-Jan	19.4	21.6	Z	24.3	24.8	24.4	23.2	25.3	27.6	24.6	26.1	26.5	24.2	25.3	24.9	22.6	15.8	23.1	27.3	29.0	28.6	28.2	27.6	26.1	24.8	29.0
19-Jan	27.3	25.0	24.9	Z	20.7	6.6	0.8	1.5	1.4	5.1	12.2	15.7	18.5	18.8	17.3	12.1	8.6	6.8	7.6	8.3	5.7	4.4	3.0	5.3	11.2	27.3
20-Jan	4.2	3.5	5.5	3.4	Z	8.6	4.6	3.8	2.4	9.8	9.8	6.4	8.4	9.4	7.7	8.4	15.1	8.8	3.7	15.6	18.0	18.4	20.0	17.3	9.2	20.0
21-Jan	23.1	22.9	20.0	18.4	15.1	Z	15.6	17.0	15.4	15.5	15.3	11.9	17.2	20.8	24.1	28.4	26.4	29.4	26.7	24.6	15.3	19.3	20.4	26.9	20.4	29.4
22-Jan	Z	22.8	22.4	24.7	17.4	19.1	12.0	14.4	11.8	10.7	10.7	11.0	10.8	23.7	24.7	27.4	25.2	27.9	27.9	20.1	22.9	28.3	27.3	25.9	20.4	28.3
23-Jan	25.2	Z	11.5	22.0	22.3	20.9	18.9	14.2	16.2	16.2	14.9	10.7	11.3	17.8	21.7	14.4	2.7	13.9	20.0	21.4	18.6	16.3	12.3	14.9	16.5	25.2
24-Jan	18.4	14.3	Z	17.1	14.5	4.8	5.3	8.3	7.6	8.5	9.1	9.6	11.5	11.6	8.7	4.1	2.4	8.6	11.4	12.7	9.8	7.7	9.0	9.3	9.8	18.4
25-Jan	2.3	7.5	14.6	Z	10.1	9.5	13.5	11.4	9.5	10.7	13.3	13.2	13.7	14.4	9.7	3.3	2.5	1.0	2.0	4.6	5.5	1.8	3.1	1.8	7.8	14.6
26-Jan	1.8	2.0	3.5	2.5	Z	2.8	0.9	0.8	0.7	1.7	2.2	2.0	4.1	8.9	12.3	12.1	14.5	10.7	9.7	11.3	10.7	8.1	7.5	3.4	5.8	14.5
27-Jan	1.0	1.1	0.9	0.8	0.8	Z	0.9	1.9	1.3	1.8	3.0	2.6	4.1	10.3	2.8	2.3	1.2	0.6	6.1	18.5	15.4	8.2	7.8	1.8	4.1	18.5
28-Jan	Z	0.5	0.8	0.6	0.7	1.8	2.6	0.0	2.7	5.2	4.6	5.6	23.9	24.9	27.4	27.3	23.6	23.9	24.8	25.7	25.6	25.1	22.2	19.3	13.9	27.4
29-Jan	17.7	Z	11.3	12.8	14.7	13.5	10.0	4.5	4.5	5.2	5.5	5.0	4.0	5.3	13.6	17.5	13.7	7.1	1.5	2.9	8.3	13.2	11.1	9.9	9.2	17.7
30-Jan	7.6	9.0	Z	9.5	6.8	4.1	1.3	1.3	1.8	2.6	2.4	6.1	5.3	23.5	36.4	38.6	39.5	38.1	37.0	37.7	38.5	39.2	37.2	34.2	19.9	39.5
31-Jan	34.9	34.5	34.3	Z	34.9	34.8	30.6	28.6	16.4	15.6	26.4	22.1	21.0	23.2	16.8	20.2	25.7	21.4	16.9	11.8	4.3	1.8	3.5	4.8	21.1	34.9
	13.6	12.4	13.3	11.6	12.2	11.9	9.2	9.5	8.8	10.0	11.7	12.5	14.2	15.7	15.7	16.1	14.7	13.9	13.6	14.8	15.3	14.0	13.8	14.2		Diurnal Average
	34.9	34.5	34.3	28.7	34.9	34.8	30.6	28.6	27.6	27.2	27.5	27.4	25.7	26.2	36.4	38.6	39.5	38.1	37.0	37.7	38.5	39.2	37.2	34.2		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 McKay - Bertha Ganter - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	518	72.96	72.96
21 - 50	192	27.04	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort McKay - Bertha Ganter - January 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	52	22	7	2	5	6	30	119	48	21	20	12	17	30	27	508
21 - 50	26	46	14	10	2	0	1	14	17	6	6	16	11	10	6	7	192
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>	116	98	36	17	4	5	7	44	136	54	27	36	23	27	36	34	700

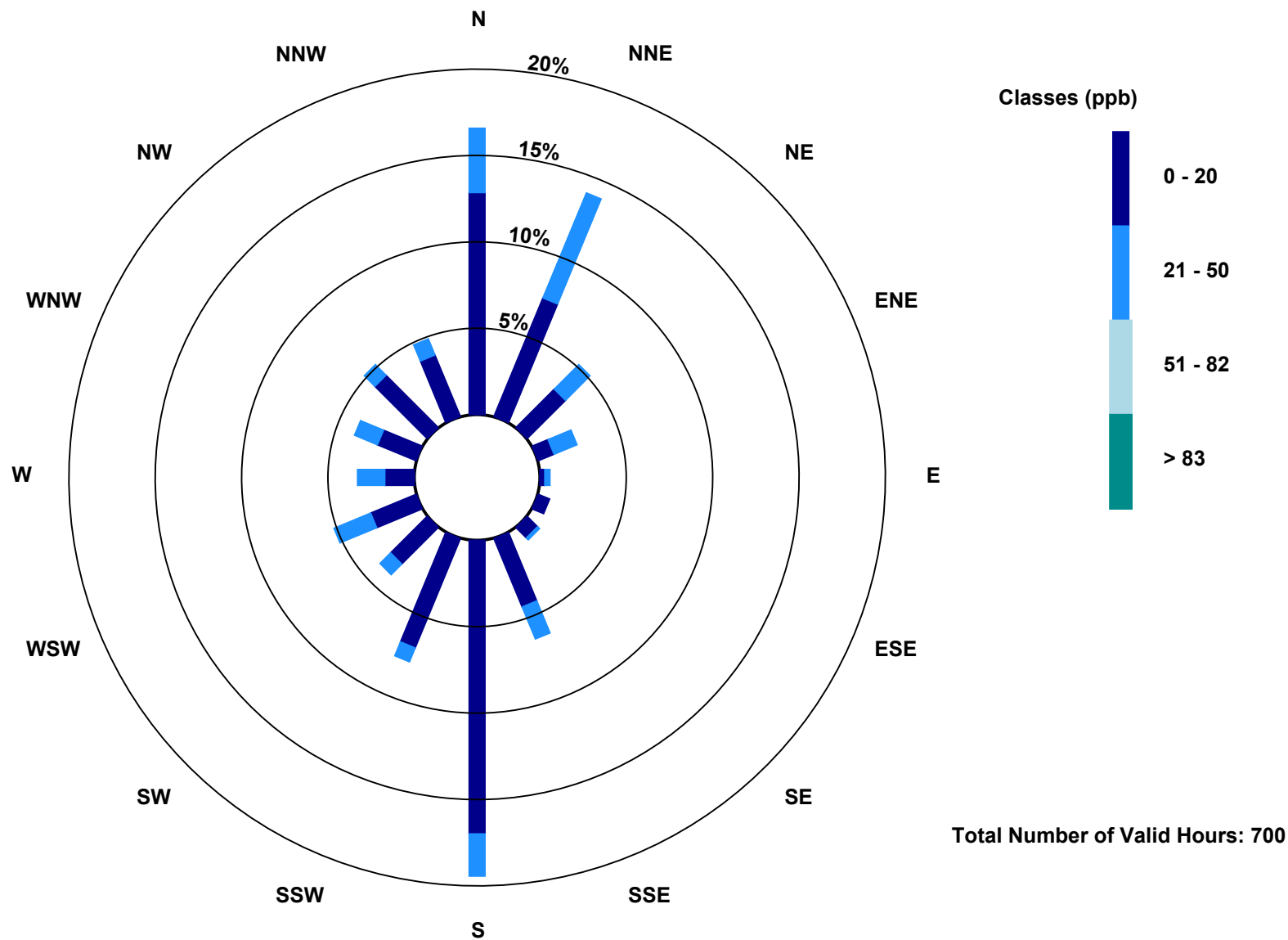
Total Number of Valid Hours: 700

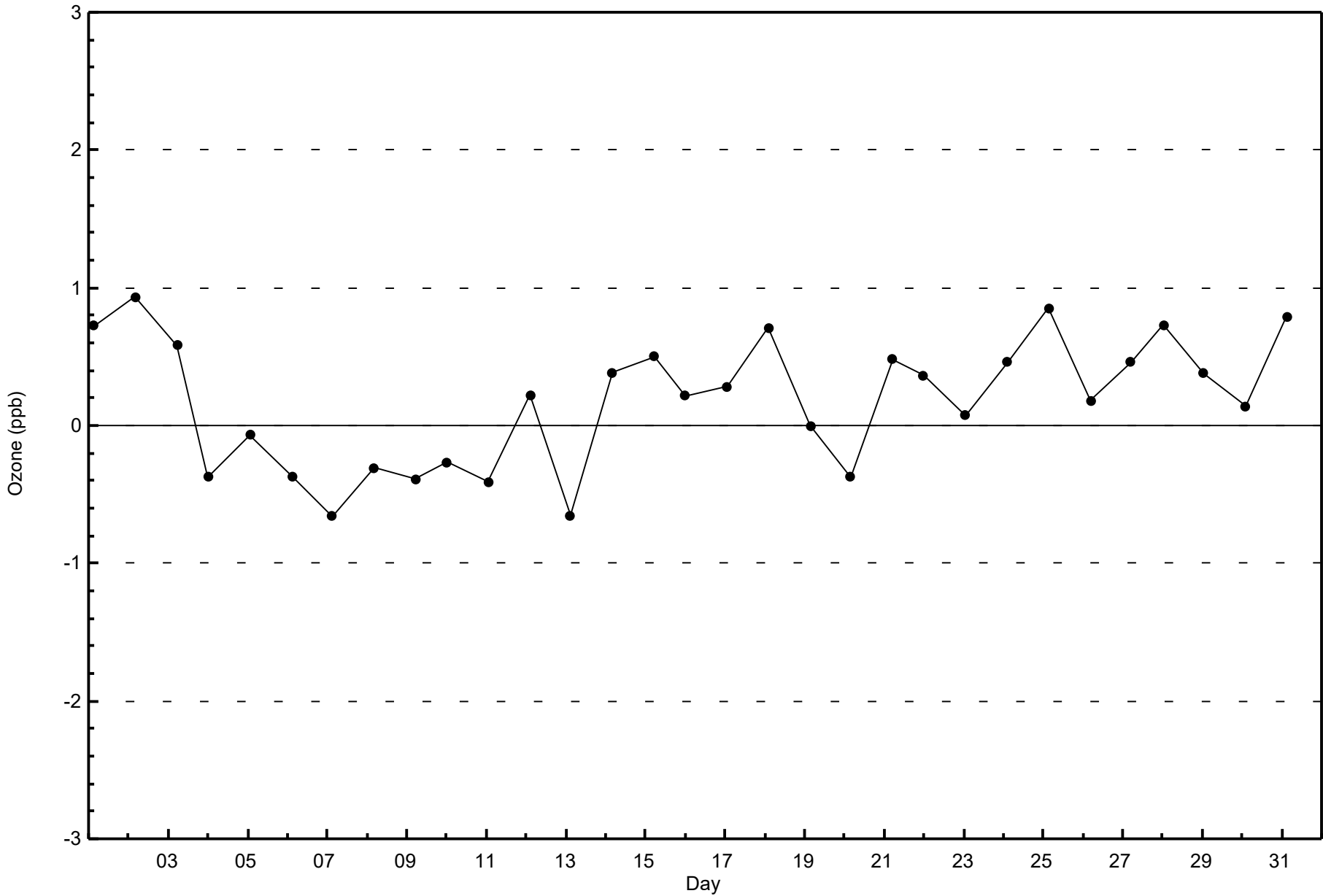
Total Number of Hours: 744

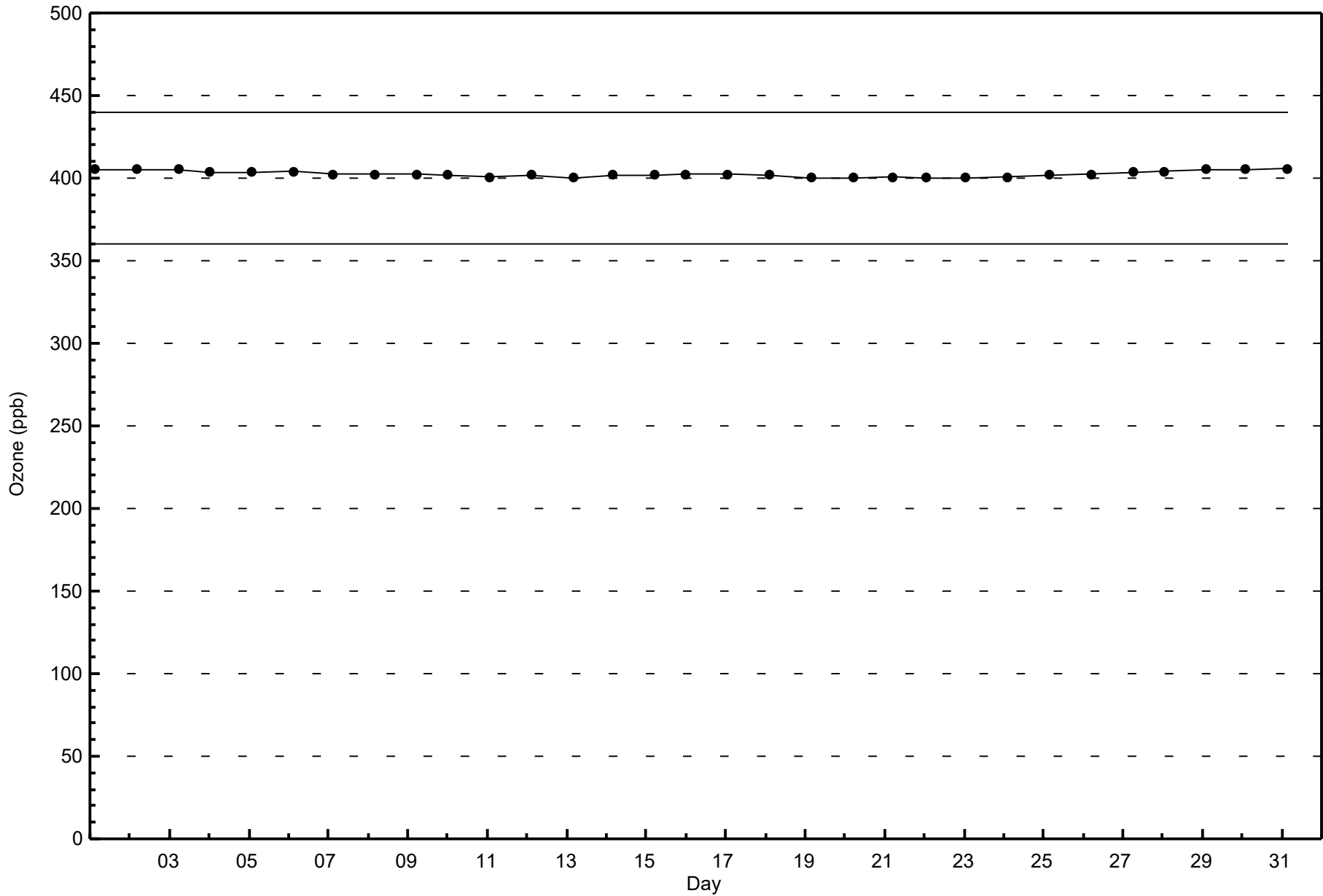


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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 - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744															744																												
Maximum Value: 31.2 µg/m <sup>3</sup> on Jan 26 01:00				Maximum Daily Average: 17.7 µg/m <sup>3</sup> on Jan 26		Hours of Data: 741															741																												
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 30 22:00				Minimum Daily Average: 2.6 µg/m <sup>3</sup> on Jan 31		Hours of Missing Data: 3															3																												
Maximum Diurnal Average: 6.9 µg/m <sup>3</sup> at hour 18				Minimum Diurnal Average: 5.4 µg/m <sup>3</sup> at hour 6		Hours of Calibration: 3															3																												
Monthly Average: 5.90 µg/m <sup>3</sup>				Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 3.0 Median = 4.4 Q <sub>3</sub> = 7.7 P <sub>90</sub> = 11.6 P <sub>99</sub> = 20.3		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-Jan	3.9	4.7	4.7	4.2	3.8	3.2	2.8	1.9	2.0	2.3	2.6	2.6	2.8	3.0	3.2	2.2	2.1	2.3	2.4	2.2	2.2	2.4	2.6	2.4	2.9	4.7																							
2-Jan	2.6	2.6	2.5	2.8	3.3	3.3	3.3	3.3	3.3	3.6	3.6	3.8	3.5	3.5	3.9	4.5	4.1	4.2	4.0	4.1	4.4	5.6	5.5	4.5	3.7	5.6																							
3-Jan	4.5	5.0	5.2	5.3	5.6	6.7	7.9	6.9	7.3	7.4	5.3	6.5	5.7	6.4	6.0	6.2	6.8	7.0	6.0	4.9	3.6	3.3	3.2	3.1	5.7	7.9																							
4-Jan	2.9	3.0	3.1	3.1	3.0	2.7	2.5	2.4	2.3	2.6	2.3	2.5	2.6	2.6	2.6	2.4	2.6	2.4	2.5	2.5	2.5	2.8	2.9	2.8	2.7	3.1																							
5-Jan	2.5	2.1	2.2	2.3	2.3	2.5	2.9	3.0	2.8	3.0	3.3	3.0	2.8	3.5	2.2	2.5	2.1	1.8	2.5	2.7	3.0	3.9	3.6	3.0	2.9	5.2																							
6-Jan	2.7	3.2	3.6	4.3	3.8	4.4	4.3	3.5	3.8	3.5	3.4	3.2	3.6	3.6	3.5	3.1	2.8	3.0	3.1	3.1	3.2	3.1	2.8	2.6	3.4	4.4																							
7-Jan	2.9	2.7	2.5	2.7	2.9	2.1	3.1	2.9	3.1	3.1	3.1	3.1	3.8	5.7	6.4	5.5	5.0	5.7	4.7	3.3	2.9	2.9	2.8	2.8	3.6	6.4																							
8-Jan	2.7	3.0	3.5	7.0	7.6	7.2	5.6	3.5	2.9	2.8	4.1	4.3	3.9	3.9	4.0	3.9	3.6	3.4	3.3	2.8	2.6	2.6	2.6	2.8	3.9	7.6																							
9-Jan	2.7	2.7	2.8	3.0	3.3	3.5	3.6	3.1	2.7	3.2	3.7	3.5	3.1	3.3	3.7	3.6	3.8	3.9	4.1	4.8	3.5	3.1	3.0	2.7	3.3	4.8																							
10-Jan	2.7	2.9	3.0	3.2	3.3	3.1	4.1	3.5	3.2	2.9	3.1	3.8	4.5	4.9	5.0	4.9	4.8	4.4	4.3	4.9	5.8	8.4	4.6	10.6	4.4	10.6																							
11-Jan	5.8	6.5	4.1	4.0	3.2	3.5	3.4	3.5	4.0	4.2	6.6	4.3	4.7	4.8	4.4	4.8	5.0	4.7	5.8	6.7	6.8	7.7	5.6	4.7	4.9	7.7																							
12-Jan	6.6	5.8	3.6	2.9	2.7	3.6	3.4	3.2	6.8	8.8	10.2	9.1	9.4	8.9	8.4	8.4	11.8	13.1	10.8	10.7	14.0	7.7	8.3	10.4	7.9	14.0																							
13-Jan	5.1	3.7	3.6	4.3	4.5	4.9	4.9	5.6	7.4	9.4	10.4	10.6	11.5	12.1	10.3	11.0	15.0	11.9	12.1	8.8	9.9	13.9	13.4	9.7	8.9	15.0																							
14-Jan	5.7	5.1	4.6	5.0	4.8	5.7	5.0	4.6	5.4	5.7	7.9	8.6	9.0	11.3	13.5	10.4	8.5	6.7	7.0	7.1	7.3	7.0	10.3	7.0	7.2	13.5																							
15-Jan	7.6	7.7	12.9	20.5	16.9	11.2	10.9	10.3	5.8	7.0	12.7	13.5	13.3	11.5	10.4	10.0	8.3	14.2	12.8	11.4	10.4	9.3	11.4	11.3	11.3	20.5																							
16-Jan	14.6	12.1	11.1	9.3	8.9	8.8	6.6	13.1	11.5	7.4	6.0	6.3	5.9	6.7	7.6	8.1	9.2	10.9	8.6	5.8	1.6	1.5	1.7	1.6	7.7	14.6																							
17-Jan	1.7	2.3	3.0	3.0	3.4	3.0	3.0	2.8	2.8	2.8	2.7	2.9	3.2	3.0	3.1	2.9	2.7	2.8	3.0	2.9	3.1	3.4	4.0	2.5	2.9	4.0																							
18-Jan	2.8	2.6	2.6	2.3	2.0	2.0	1.9	1.8	2.6	2.0	2.5	2.5	3.1	3.1	3.4	3.2	3.4	9.1	2.5	2.5	2.6	2.8	2.9	3.6	2.9	9.1																							
19-Jan	2.8	4.2	3.6	4.6	3.2	3.9	6.0	10.4	5.3	6.7	7.7	8.6	7.3	8.9	10.8	14.6	13.3	13.6	9.8	7.2	5.6	5.5	8.0	5.0	7.4	14.6																							
20-Jan	4.4	4.9	8.8	6.7	5.4	5.2	4.9	5.9	5.8	5.0	3.7	6.5	6.1	5.5	6.3	6.3	4.8	5.1	5.4	4.7	4.2	4.9	4.3	4.3	5.4	8.8																							
21-Jan	3.8	3.9	4.0	4.0	4.3	4.4	4.5	4.2	4.1	4.2	4.1	4.7	4.2	3.5	2.8	2.4	2.7	2.4	2.6	2.5	3.0	2.8	3.4	3.3	3.6	4.7																							
22-Jan	3.6	3.6	3.7	3.4	3.7	4.0	4.8	4.5	4.3	4.4	4.5	4.4	4.6	4.7	6.4	5.7	5.3	4.0	3.9	5.4	4.9	2.9	3.0	3.5	4.3	6.4																							
23-Jan	4.4	10.3	8.0	8.8	5.9	6.8	6.5	8.3	8.0	11.6	9.7	9.0	8.8	8.4	6.9	7.7	8.9	5.7	5.7	5.3	6.2	7.8	6.1	3.9	7.4	11.6																							
24-Jan	3.5	3.6	3.5	3.7	4.0	4.3	4.4	4.2	4.3	4.4	4.9	5.1	6.5	7.1	8.5	14.3	12.3	9.6	8.6	8.1	9.4	12.5	9.9	8.3	6.9	14.3																							
25-Jan	11.8	13.6	13.0	12.1	9.3	9.5	10.4	9.3	9.9	9.7	9.9	10.3	9.8	10.8	13.3	17.5	18.4	18.8	18.3	17.7	19.4	24.8	25.6	29.8	14.7	29.8																							
26-Jan	31.2	25.8	18.1	18.2	16.1	17.2	18.0	17.3	17.2	17.7	22.4	C	C	C	15.0	13.3	11.3	13.2	12.5	13.5	15.0	20.1	21.1	17.5	17.7	31.2																							
27-Jan	11.8	18.7	13.2	11.7	12.2	10.1	10.0	11.3	9.8	8.8	9.2	9.9	11.4	13.8	14.6	13.1	14.6	12.2	12.4	3.3	3.7	2.5	3.2	6.2	10.3	18.7																							
28-Jan	5.6	6.0	6.6	10.0	15.1	12.4	9.7	8.2	8.7	7.5	9.0	6.9	1.7	1.2	1.2	0.9	0.9	0.7	1.3	0.9	0.6	1.6	3.1	4.2	5.2	15.1																							
29-Jan	2.9	3.1	2.7	4.2	3.3	3.4	5.5	4.8	10.9	7.5	4.9	7.6	4.1	4.4	3.9	2.4	2.6	9.2	7.0	6.0	5.1	5.0	3.8	3.9	4.9	10.9																							
30-Jan	4.9	7.8	6.7	7.3	10.0	5.5	5.9	6.6	9.0	6.4	5.4	4.3	4.9	2.4	0.7	0.9	0.9	0.5	0.7	0.8	0.6	0.3	0.9	2.0	4.0	10.0																							
31-Jan	0.8	0.4	0.4	0.6	0.7	0.8	0.9	0.8	1.4	1.4	1.2	1.4	1.4	3.5	2.7	4.2	8.7	7.0	6.4	3.9	4.2	4.0	3.1	2.9	2.6	8.7																							
																								5.5	5.9	5.5	5.9	5.8	5.4	5.5	5.6	5.8	5.7	6.1	5.8	5.6	5.9	6.4	6.5	6.7	6.9	6.3	5.5	5.5	6.0	6.0	5.9	Diurnal Average	
																								31.2	25.8	18.1	20.5	16.9	17.2	18.0	17.3	17.2	17.7	22.4	13.5	13.3	13.8	15.0	17.5	18.4	18.8	18.3	17.7	19.4	24.8	25.6	29.8	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 McKay - Bertha Ganter - January 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	456	61.54	61.54
6 - 15	259	34.95	96.49
16 - 25	22	2.97	99.46
26 - 80	4	0.54	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**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 - January 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	95	93	33	16	3	3	4	13	46	17	10	25	21	20	25	28	452
6 - 15	28	11	3	1	1	1	3	29	88	31	14	13	4	6	12	8	253
16 - 25	0	0	0	0	0	1	0	2	7	5	3	0	0	3	1	0	22
26 - 80	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	4
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	123	104	36	17	4	5	7	44	142	55	28	38	25	29	38	36	731

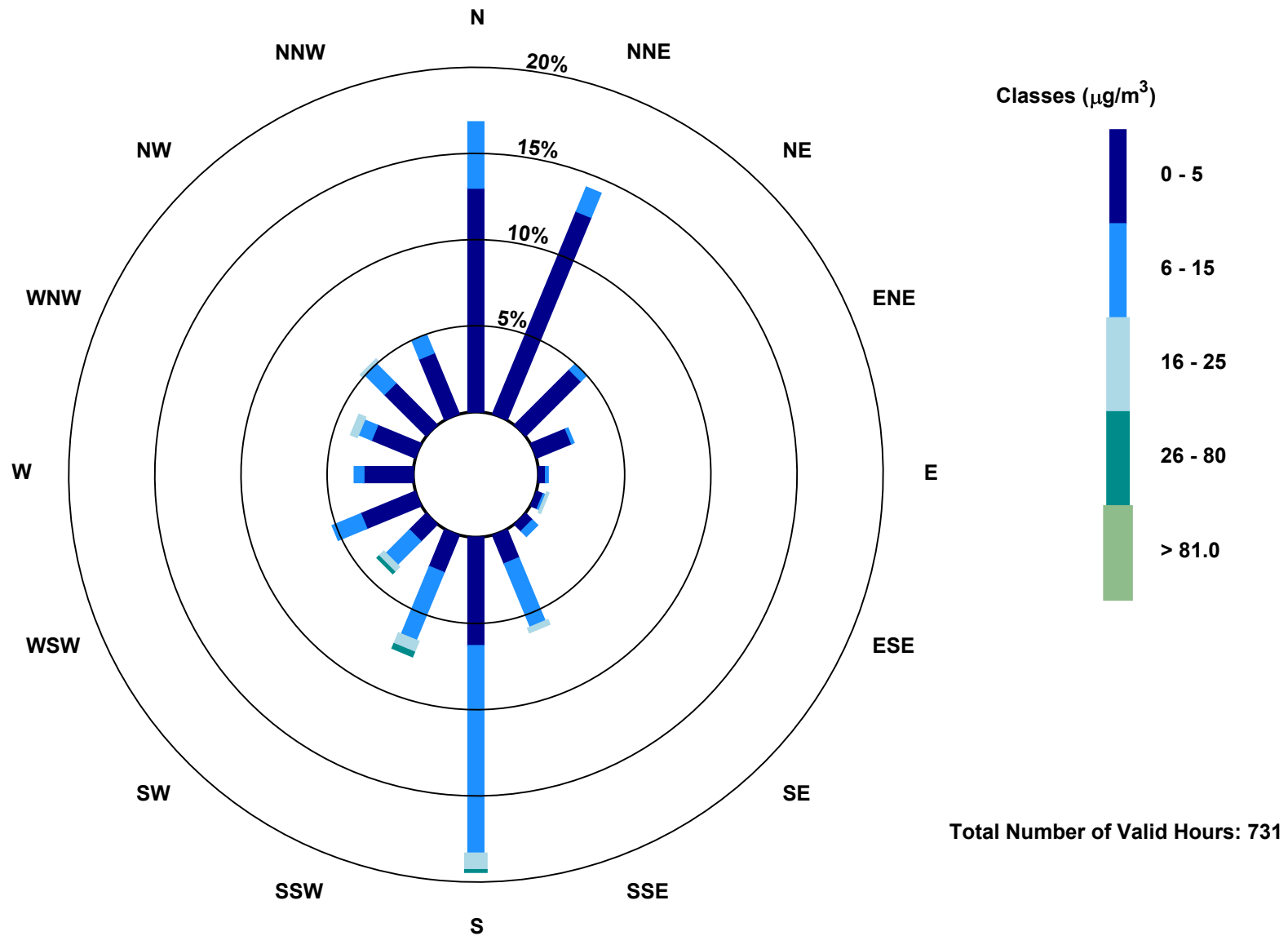
Total Number of Valid Hours: 731

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Carbon Monoxide (CO) - ppm

## Fort McKay - Bertha Ganter - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 0.4 ppm on Jan 16 09:00	Maximum Daily Average: 0.3 ppm on Jan 27		Hours of Data:	708
Minimum Value: 0.0 ppm on Jan 8 08:00	Minimum Daily Average: 0.1 ppm on Jan 18		Hours of Missing Data:	36
Maximum Diurnal Average: 0.2 ppm at hour 9	Minimum Diurnal Average: 0.2 ppm at hour 3		Hours of Calibration:	36
Monthly Average: 0.19 ppm	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> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.4		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-Jan	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	0.2	0.2	0.2	0.2
2-Jan	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	0.2	0.2	0.2	0.2	0.2
3-Jan	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	0.2	0.2	0.2	0.2	0.2
4-Jan	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	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	0.1	0.1	0.1	0.1	0.1
5-Jan	0.0	0.0	0.1	0.0	Z	0.0	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
6-Jan	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	0.1	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	0.1
7-Jan	Z	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	0.1	0.1	0.1	0.1	0.1	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-Jan	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	C	C	C	C	C	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	0.1
9-Jan	0.0	0.0	Z	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	0.1	0.1	0.1	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
10-Jan	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	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2
11-Jan	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	0.2	0.2	0.2	0.2
12-Jan	0.3	0.3	0.2	0.2	0.2	Z	0.3	0.4	0.3	0.3	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	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4
13-Jan	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	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	0.2
14-Jan	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15-Jan	0.3	0.3	Z	0.3	0.3	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	0.3	0.3	0.3	0.3	0.3
16-Jan	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.4	0.3	0.2	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
17-Jan	0.2	0.2	0.2	0.2	Z	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18-Jan	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	0.1	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
19-Jan	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	0.2	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	0.2
20-Jan	0.3	Z	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21-Jan	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	0.2	0.2	0.2	0.2	0.2
22-Jan	0.2	0.2	0.2	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	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
23-Jan	0.2	0.3	0.3	0.3	Z	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24-Jan	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	0.3	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
25-Jan	Z	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
26-Jan	0.3	Z	0.2	0.3	0.3	0.3	0.3	0.3	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27-Jan	0.3	0.3	Z	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
28-Jan	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	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
29-Jan	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	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	0.2
30-Jan	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31-Jan	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	0.1	0.1	0.1	0.1

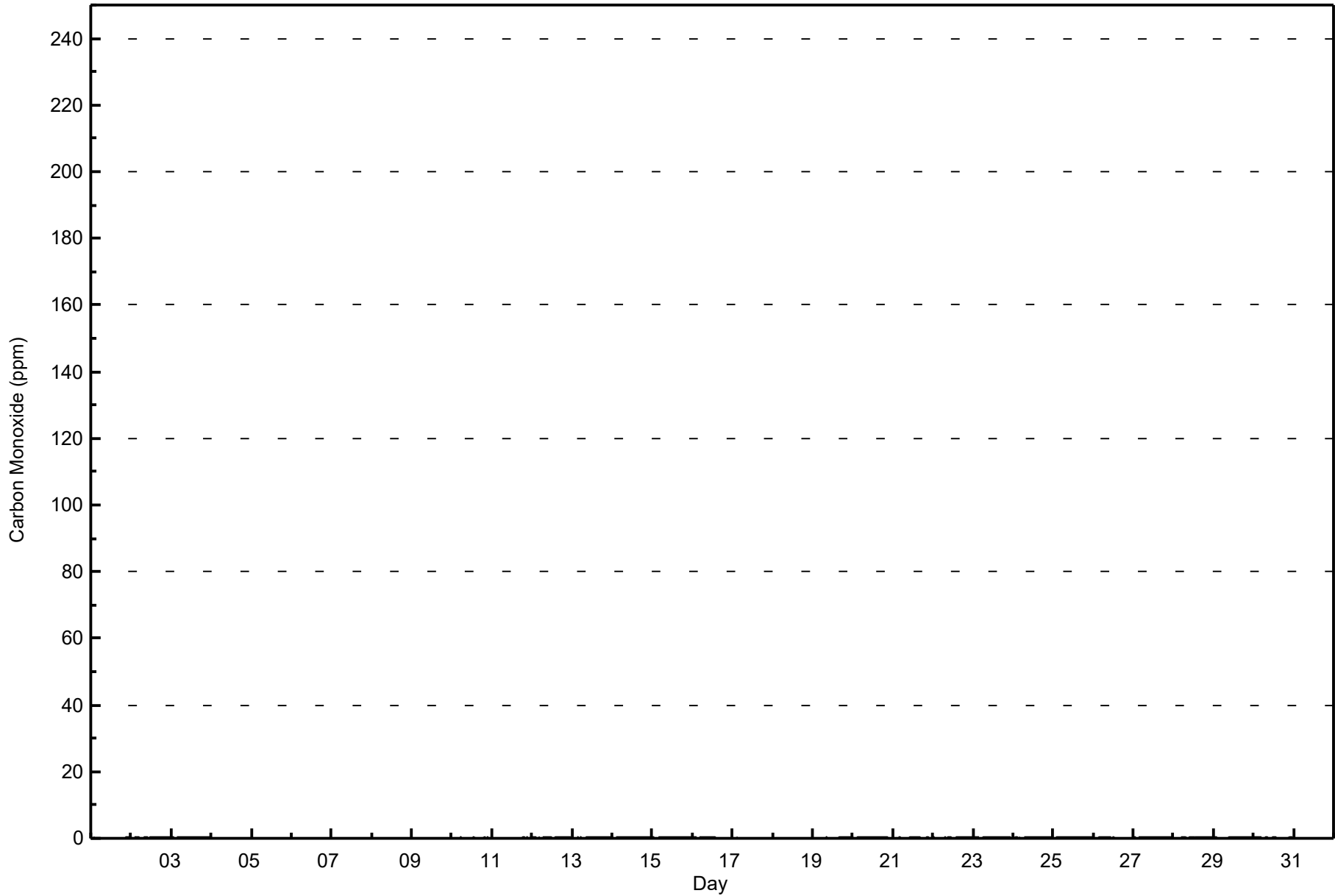
0.2																								Diurnal Average
0.3																								Diurnal Maximum

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 McKay - Bertha Ganter - January 2024**





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	695	98.16	98.16
0.4 - 0.5	13	1.84	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: 708

Total Number of Hours: 744



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

**Carbon Monoxide (CO) - ppm**  
**Fort McKay - Bertha Ganter - January 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	114	98	34	17	4	4	7	42	136	49	25	36	23	28	34	34	685
0.4 - 0.5	0	0	0	0	0	0	0	4	3	3	2	0	0	1	0	0	13
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>	114	98	34	17	4	4	7	46	139	52	27	36	23	29	34	34	698

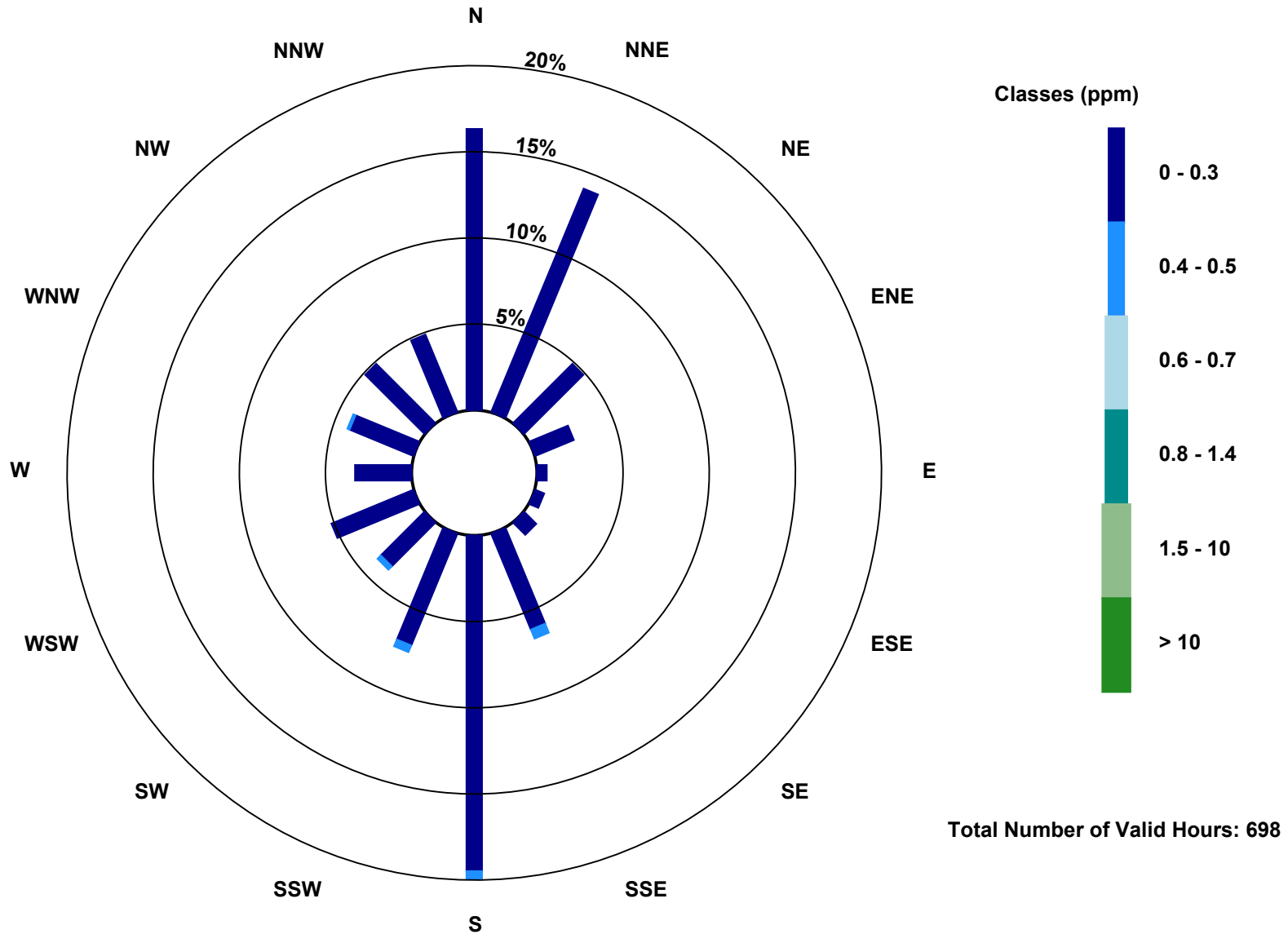
Total Number of Valid Hours: 698

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 459.8 ppm on Jan 16 09:00	Maximum Daily Average: 442.8 ppm on Jan 14		Hours of Data:	709
Minimum Value: 418.2 ppm on Jan 18 20:00	Minimum Daily Average: 422.3 ppm on Jan 18		Hours of Missing Data:	35
Maximum Diurnal Average: 434.8 ppm at hour 9	Minimum Diurnal Average: 430.6 ppm at hour 16		Hours of Calibration:	35
Monthly Average: 432.18 ppm	Percentiles: P <sub>1</sub> = 421.3 P <sub>10</sub> = 423.6 Q <sub>1</sub> = 426.1 Median = 430.4 Q <sub>3</sub> = 437.1 P <sub>90</sub> = 444.1 P <sub>99</sub> = 451.7		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-Jan	Z	431.2	433.3	430.4	429.5	428.1	426.4	425.4	428.3	428.1	428.4	427.6	426.9	427.5	427.5	424.0	423.3	423.2	423.4	421.9	421.8	422.5	422.8	422.1	426.2	433.3
2-Jan	424.4	Z	422.4	423.6	423.6	422.2	422.6	424.6	429.1	429.0	427.7	426.1	424.1	424.1	425.7	426.1	425.9	425.9	426.0	427.0	426.1	427.0	427.6	426.9	425.6	429.1
3-Jan	428.6	427.7	Z	431.8	431.4	431.8	429.3	427.6	428.6	428.2	429.0	431.1	428.7	428.4	428.7	428.9	429.9	431.5	430.0	428.1	427.2	427.4	427.8	427.5	429.1	431.8
4-Jan	426.9	425.7	423.3	Z	422.2	423.3	425.3	426.8	424.6	422.6	423.4	423.8	422.4	424.5	423.1	424.9	424.5	424.5	424.4	424.6	426.4	426.0	427.9	428.5	424.9	428.5
5-Jan	427.2	426.4	426.3	425.8	Z	427.3	429.4	429.9	428.4	430.4	430.5	C	C	C	C	426.4	425.2	426.4	425.8	426.1	425.9	429.0	428.8	426.8	427.5	430.5
6-Jan	426.5	428.1	430.7	431.2	430.5	Z	431.2	429.7	430.0	428.7	428.8	428.6	429.6	433.3	432.7	430.3	427.5	428.0	426.9	426.7	427.3	425.2	423.4	426.5	428.7	433.3
7-Jan	Z	422.2	422.0	422.6	421.9	422.1	423.1	423.7	424.7	427.0	430.3	430.8	429.7	429.9	429.3	428.1	428.8	428.7	431.3	432.0	428.8	427.7	428.0	428.3	427.0	432.0
8-Jan	429.3	Z	430.7	432.5	433.2	432.1	432.1	431.9	436.8	433.2	436.4	437.8	434.6	434.5	434.2	433.4	432.7	434.2	432.1	427.1	426.6	427.0	425.5	426.0	431.9	437.8
9-Jan	427.8	426.9	Z	429.8	431.0	432.4	434.1	432.3	430.2	431.5	432.3	431.4	433.2	429.8	430.0	428.5	430.0	428.8	427.8	427.4	426.0	425.7	424.8	424.1	429.4	434.1
10-Jan	424.2	424.3	424.4	Z	426.2	431.9	429.9	428.8	429.0	428.1	425.2	425.8	426.2	428.8	428.8	424.2	423.6	423.9	423.5	426.9	430.8	437.8	430.1	432.5	427.6	437.8
11-Jan	431.0	434.5	432.8	428.7	Z	429.9	432.5	431.0	431.3	432.8	430.6	427.0	425.4	424.1	430.4	427.3	423.5	429.2	434.2	435.3	433.5	432.9	432.4	432.8	430.6	435.3
12-Jan	439.1	436.9	436.2	436.0	437.3	Z	437.3	437.9	439.4	438.5	432.5	437.1	427.7	426.1	426.2	426.3	429.8	430.4	434.2	438.0	437.1	437.1	438.4	437.9	434.7	439.4
13-Jan	Z	434.8	432.7	433.4	431.4	433.5	431.0	431.2	435.4	436.6	435.8	436.1	435.8	435.2	433.5	435.0	438.6	437.6	446.1	437.7	442.9	448.5	451.5	444.9	437.4	451.5
14-Jan	444.1	Z	439.3	442.7	444.8	448.2	446.5	447.1	450.0	447.0	445.7	443.2	436.1	436.3	438.9	435.8	434.8	435.9	436.2	444.1	444.1	444.0	449.4	445.1	442.8	451.7
15-Jan	446.3	448.3	Z	451.4	453.9	447.1	440.0	438.1	436.9	435.6	433.8	433.7	432.6	433.5	434.7	434.2	437.1	435.9	441.5	441.8	445.2	446.0	446.5	447.6	440.9	453.9
16-Jan	445.1	444.3	443.9	Z	441.8	440.1	441.9	449.9	459.8	459.2	450.4	452.7	444.7	444.3	444.1	441.8	442.9	446.1	446.4	439.2	422.7	423.1	423.5	422.9	442.2	459.8
17-Jan	423.0	424.0	423.7	423.2	Z	423.2	423.9	424.0	424.2	423.8	424.9	425.0	425.2	424.0	424.2	424.0	422.6	423.0	423.4	423.6	423.5	425.2	424.4	421.2	423.8	425.2
18-Jan	422.9	423.8	424.8	423.9	423.3	Z	425.4	422.7	421.3	422.8	423.1	422.2	424.1	423.0	421.2	421.7	426.1	423.9	418.9	418.2	418.5	418.9	419.6	421.7	422.3	426.1
19-Jan	Z	424.3	423.5	424.6	427.1	430.3	431.5	430.9	431.9	433.1	430.5	430.3	430.5	430.4	430.2	432.2	432.4	432.5	432.6	434.5	434.5	433.5	438.4	434.0	431.0	438.4
20-Jan	435.9	Z	436.8	438.6	435.2	438.8	444.9	444.9	439.8	435.5	433.3	436.2	433.2	432.2	432.8	431.2	429.1	429.6	431.7	429.9	428.0	427.5	428.4	427.2	433.9	444.9
21-Jan	427.3	427.5	Z	428.3	428.8	429.1	428.5	428.5	428.0	428.1	428.2	429.4	428.2	431.0	427.9	423.6	423.0	423.1	423.0	423.6	424.0	424.2	426.5	424.8	426.7	431.0
22-Jan	421.7	421.5	421.9	Z	422.0	422.5	423.9	423.8	424.5	425.1	426.3	426.5	427.7	425.8	426.4	425.3	426.9	426.1	426.2	429.0	428.0	426.0	427.6	428.4	425.4	429.0
23-Jan	428.6	432.3	433.1	430.4	Z	433.9	435.3	440.6	437.6	437.7	435.0	432.9	432.0	430.8	429.8	433.2	436.0	430.4	431.3	429.6	428.7	427.7	427.4	427.3	432.2	440.6
24-Jan	425.9	427.4	427.4	426.7	Z	429.1	429.0	429.7	430.2	431.3	431.8	433.3	436.1	438.2	442.3	437.5	435.3	435.6	434.4	439.3	443.1	439.1	435.4	433.3	443.1	443.1
25-Jan	Z	435.8	434.1	432.0	431.6	432.1	431.5	431.5	431.9	431.1	431.6	433.2	434.4	435.2	438.0	441.7	441.2	442.0	442.2	440.6	440.0	439.7	440.6	436.3	442.2	442.2
26-Jan	440.5	Z	439.0	440.4	439.5	440.8	443.4	446.3	448.9	447.9	447.0	446.0	445.2	441.0	436.4	435.6	434.0	438.0	439.2	437.2	437.5	439.0	438.2	440.5	440.9	448.9
27-Jan	440.7	444.0	Z	439.6	440.2	442.6	445.7	443.9	445.7	447.0	448.6	446.3	446.7	445.8	450.4	447.7	450.0	447.8	440.7	426.7	427.7	434.0	430.3	438.9	442.2	450.4
28-Jan	440.4	442.3	443.0	Z	446.7	444.1	444.1	446.5	443.8	445.1	447.3	443.1	425.7	424.6	423.8	423.3	423.8	423.5	423.2	423.4	423.4	423.4	424.2	425.6	433.7	447.3
29-Jan	426.4	429.1	430.3	431.0	Z	434.5	439.8	443.4	442.2	449.0	444.8	449.7	439.8	438.6	433.6	432.4	436.5	437.9	440.2	442.9	441.5	437.2	437.4	438.1	438.1	449.7
30-Jan	439.9	441.1	440.5	439.4	443.7	Z	454.0	457.6	457.4	450.2	448.2	442.5	443.2	431.7	425.6	425.2	425.1	425.2	425.4	425.4	424.5	424.1	425.0	426.6	436.6	457.6
31-Jan	Z	425.6	425.9	425.8	425.9	426.0	427.5	427.4	430.5	430.9	429.1	430.8	431.4	434.6	440.2	435.3	432.9	433.4	435.0	438.7	444.1	446.7	448.8	450.0	433.8	450.0

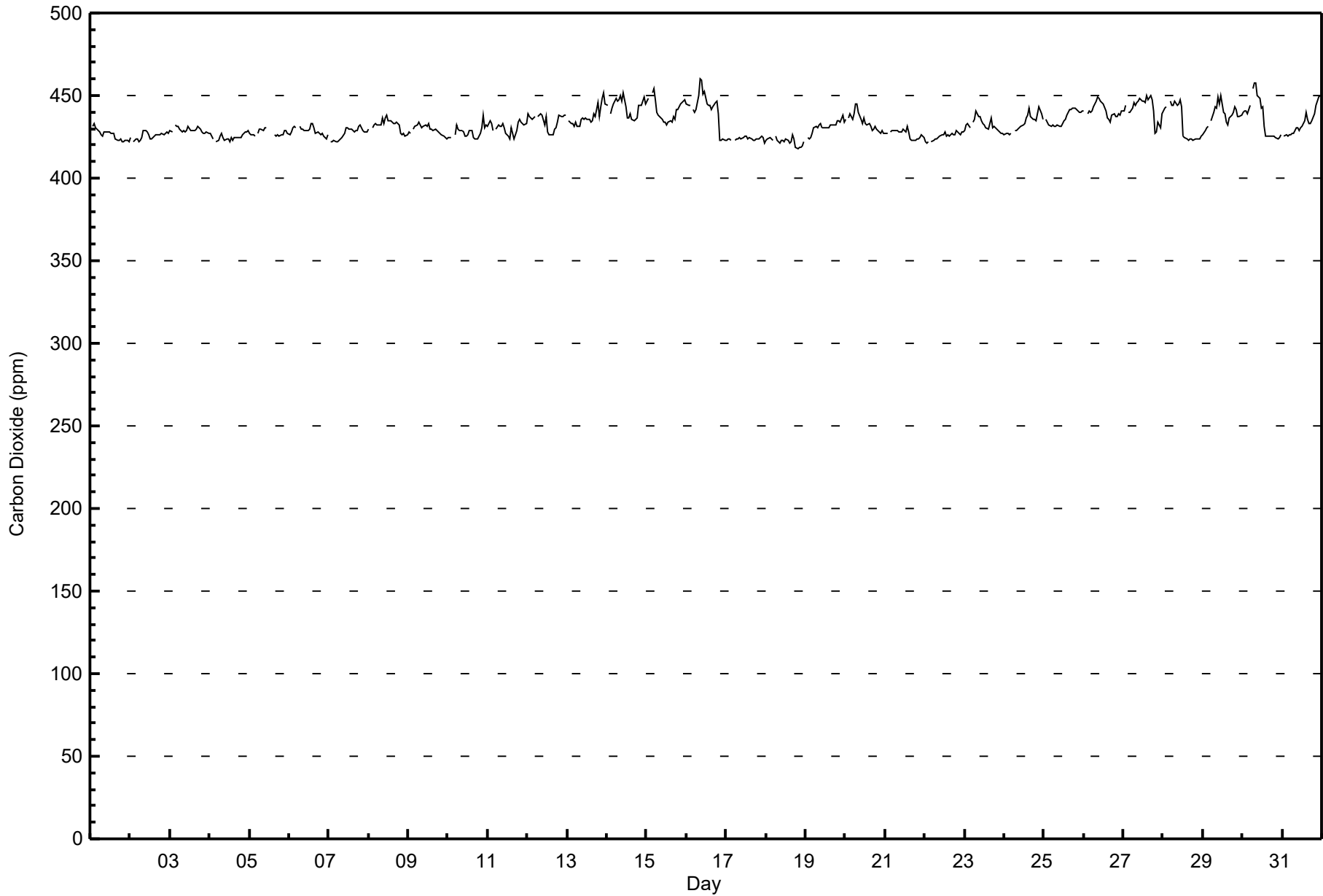
431.8	431.2	430.8	431.7	432.7	432.6	433.6	434.1	434.8	434.6	434.1	434.0	431.9	431.5	431.6	430.6	430.8	431.0	431.6	431.1	430.8	431.6	431.7	431.6	431.6	Diurnal Average
446.3	448.3	443.9	451.4	453.9	448.2	454.0	457.6	459.8	459.2	451.7	452.7	446.7	445.8	450.4	447.7	450.0	447.8	446.4	444.1	445.2	448.5	451.5	450.0	450.0	Diurnal Maximum

Z - zerospan      C - Calibration



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	5	0.71	0.71
420 - 440	588	82.93	83.64
440 - 460	116	16.36	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort McKay - Bertha Ganter - January 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	2	1	2	5
420 - 440	113	98	32	17	4	4	6	33	93	32	17	29	21	25	29	29	582
440 - 460	4	1	0	0	0	0	1	13	46	20	10	7	2	2	4	2	112
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>	117	99	32	17	4	4	7	46	139	52	27	36	23	29	34	33	699

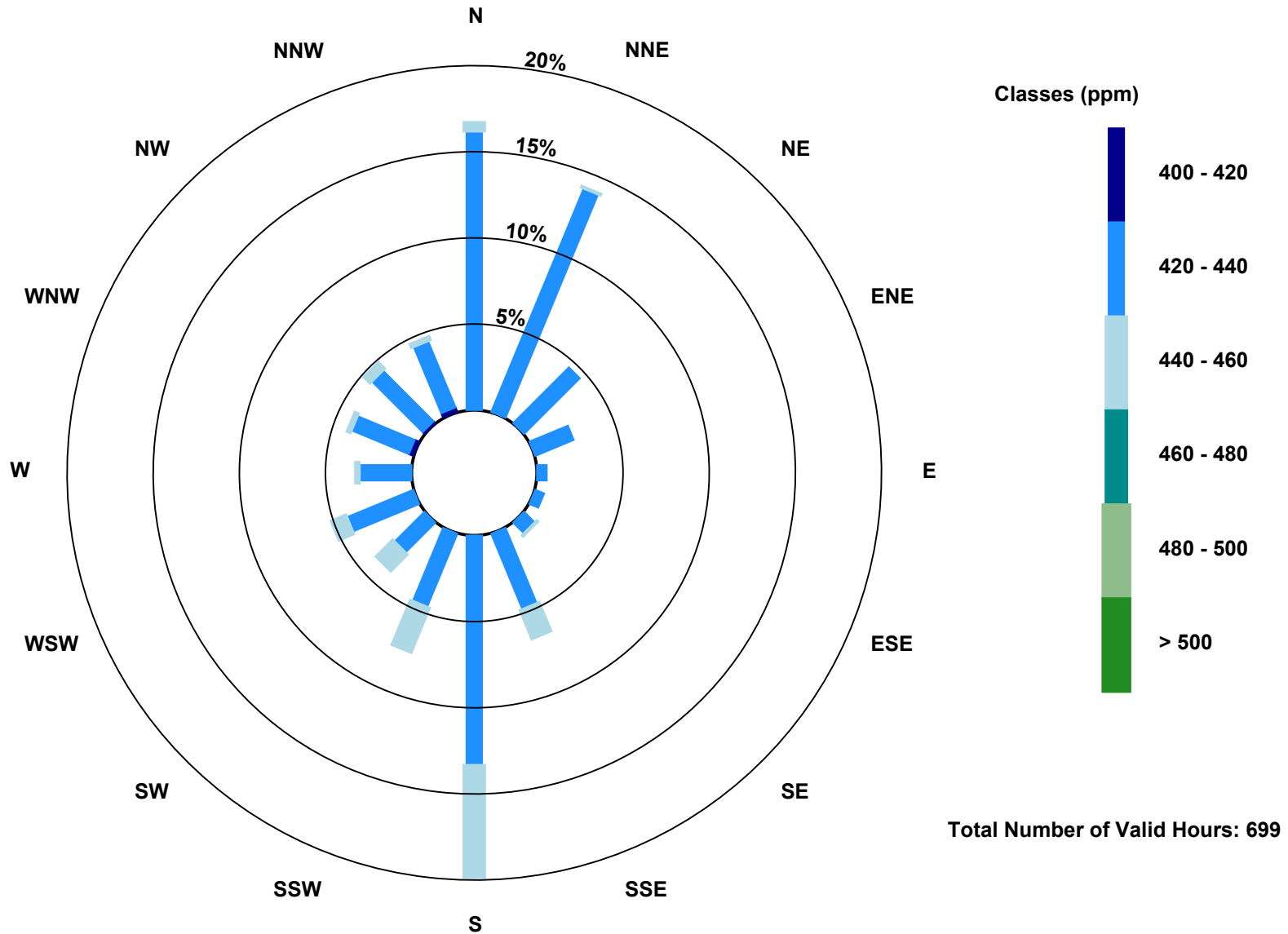
Total Number of Valid Hours: 699

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



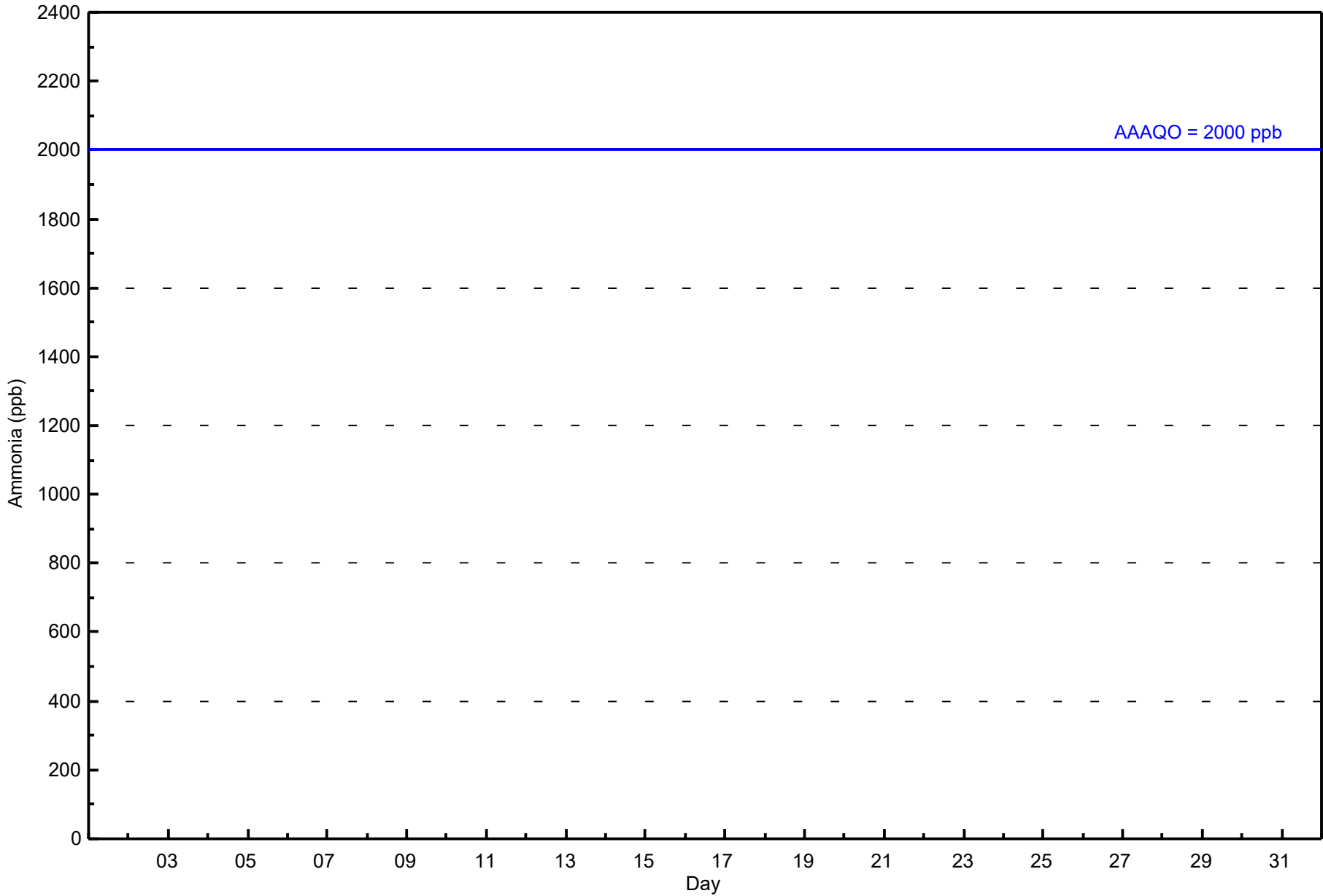


Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744																			Daily Average		Daily Maximum												
Maximum Value: 0.0 ppb on Jan 1 01:00		Maximum Daily Average: 0.0 ppb on Jan 1																			Hours of Data: 670		Daily Maximum												
Minimum Value: 0.0 ppb on Jan 1 01:00		Minimum Daily Average: 0.0 ppb on Jan 1																			Hours of Missing Data: 74		Daily Maximum												
Maximum Diurnal Average: 0.0 ppb at hour 1		Minimum Diurnal Average: 0.0 ppb at hour 1																			Hours of Calibration: 42		Daily Maximum												
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																			Percent Operational Time: 95.7		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-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
2-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
3-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
4-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
5-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
6-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
7-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
8-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
9-Jan	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	--	
10-Jan	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	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	--	
11-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
12-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
13-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
14-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
15-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
16-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
17-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
18-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
19-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
20-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
21-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
22-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
23-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	
24-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31-Jan	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	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									
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 - January 2024**





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	670	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: 670

Total Number of Hours: 744





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

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	111	89	32	13	4	5	7	45	131	52	24	31	24	27	35	31	661
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>	111	89	32	13	4	5	7	45	131	52	24	31	24	27	35	31	661

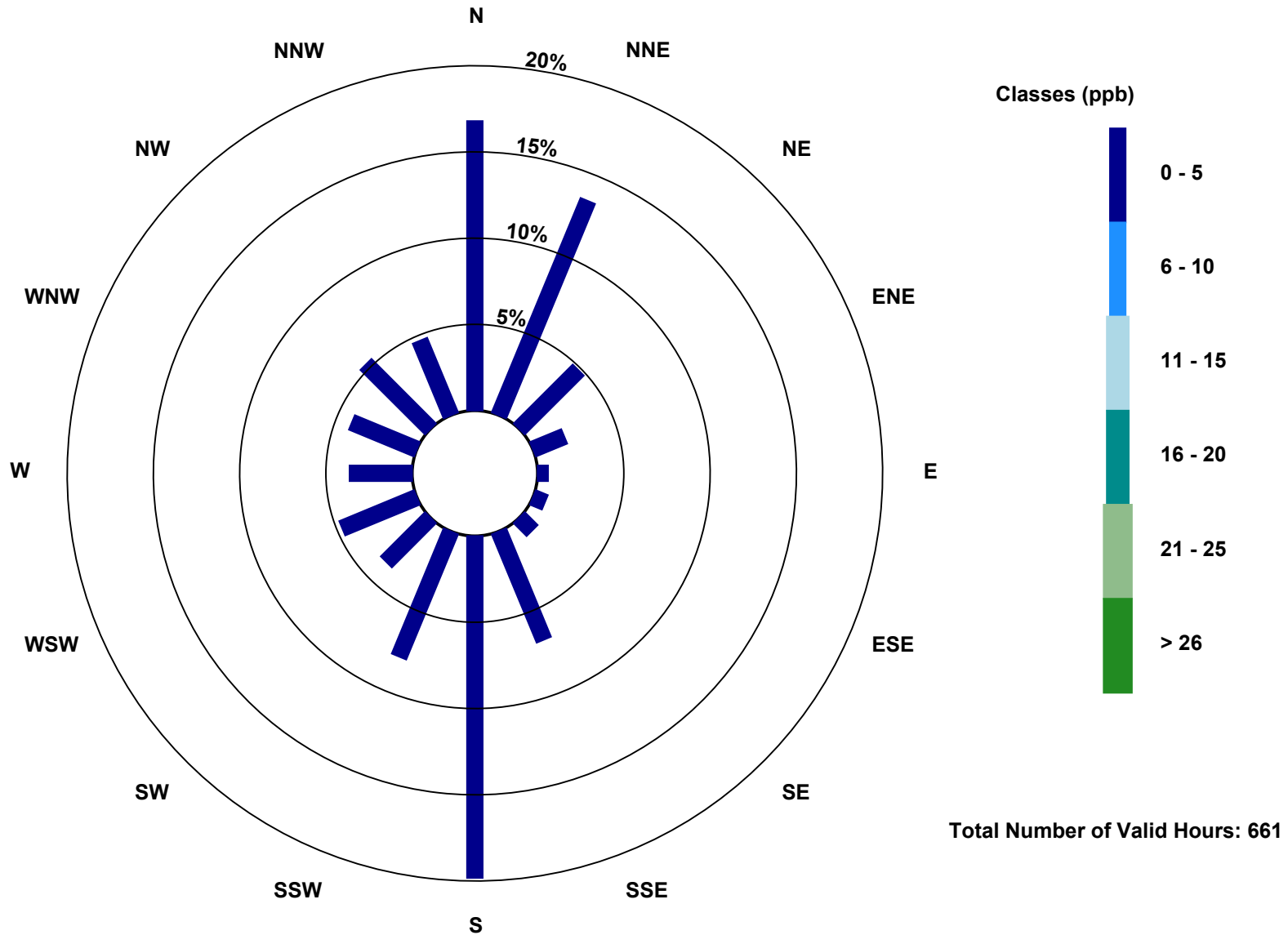
Total Number of Valid Hours: 661

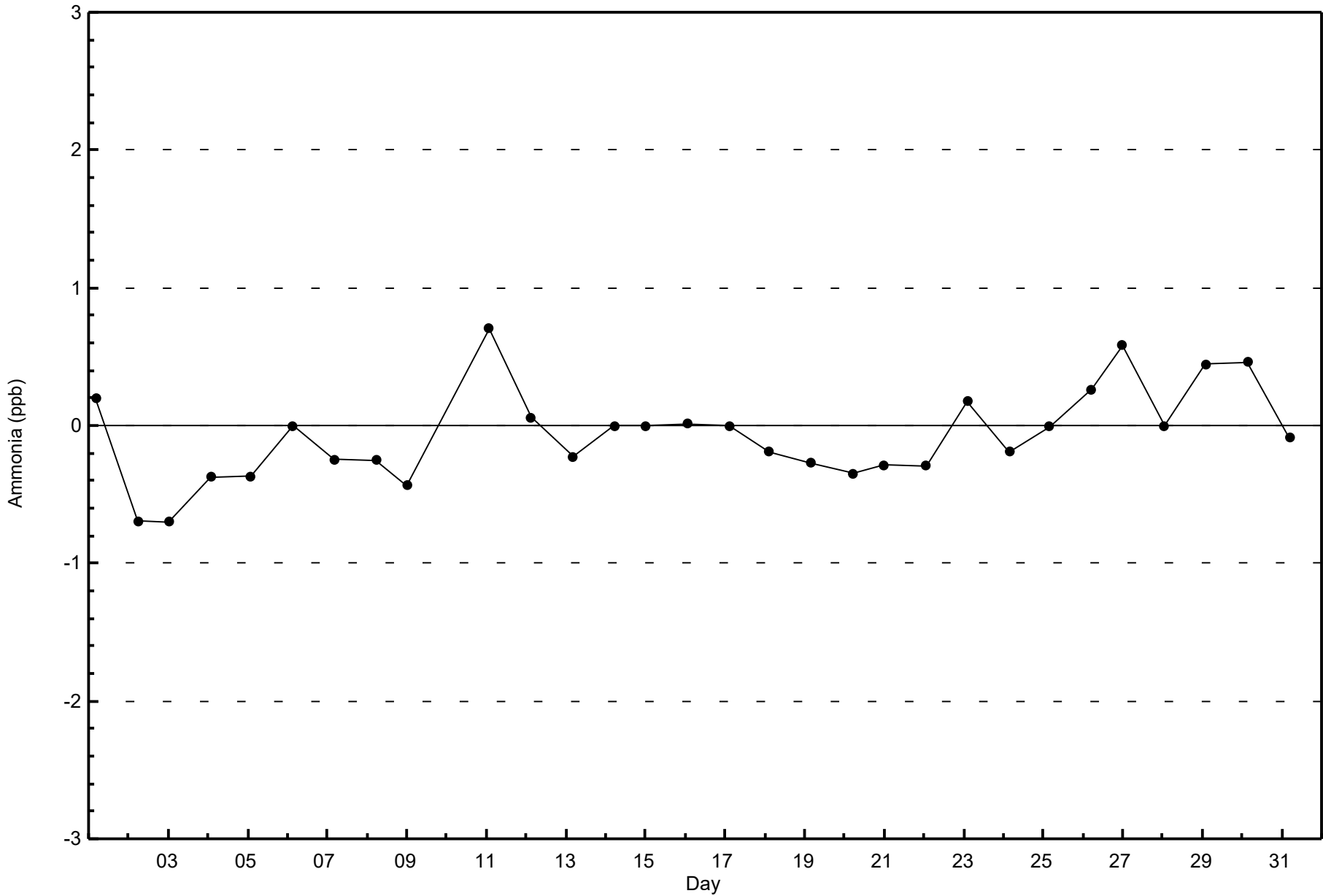
Total Number of Hours: 744

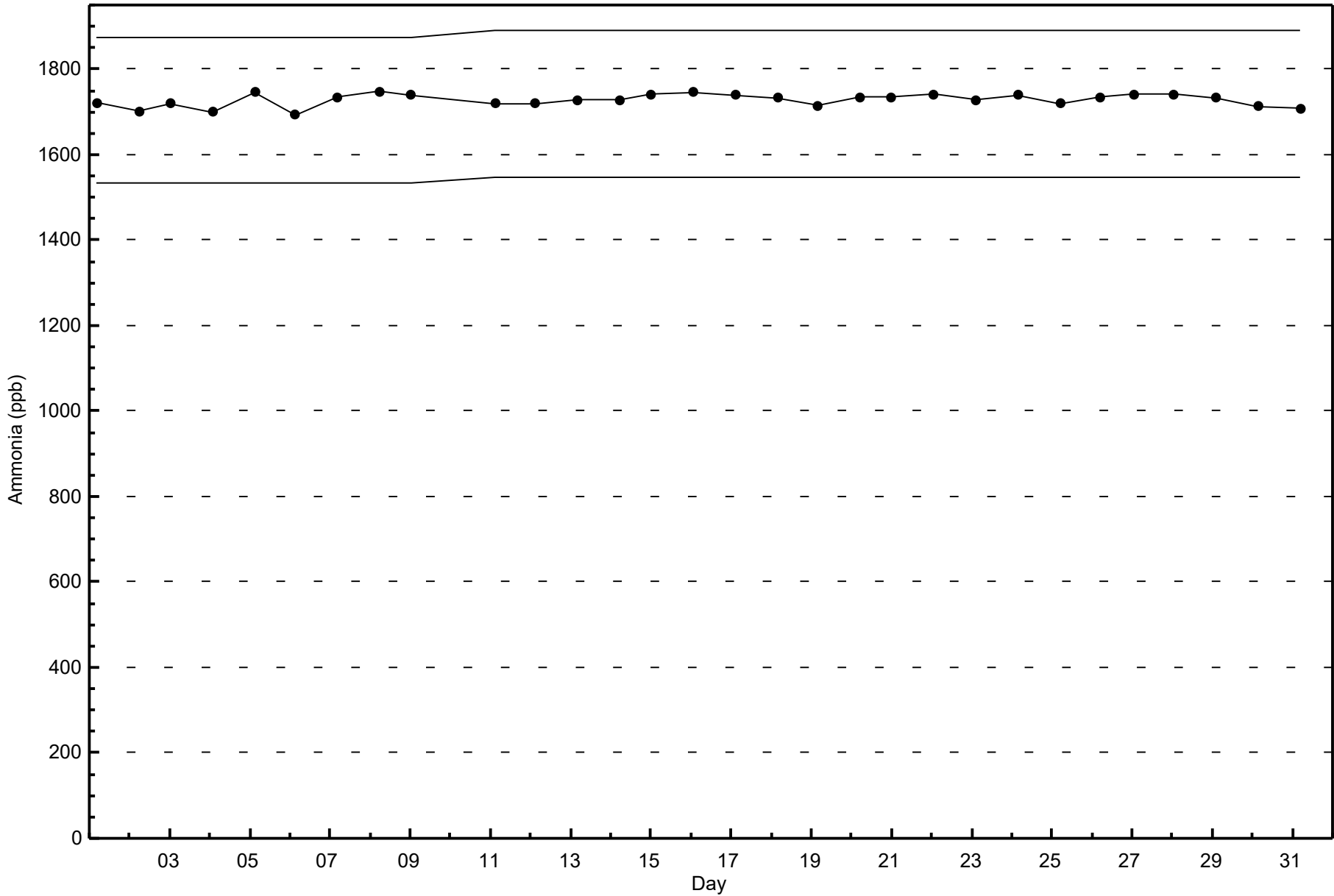


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

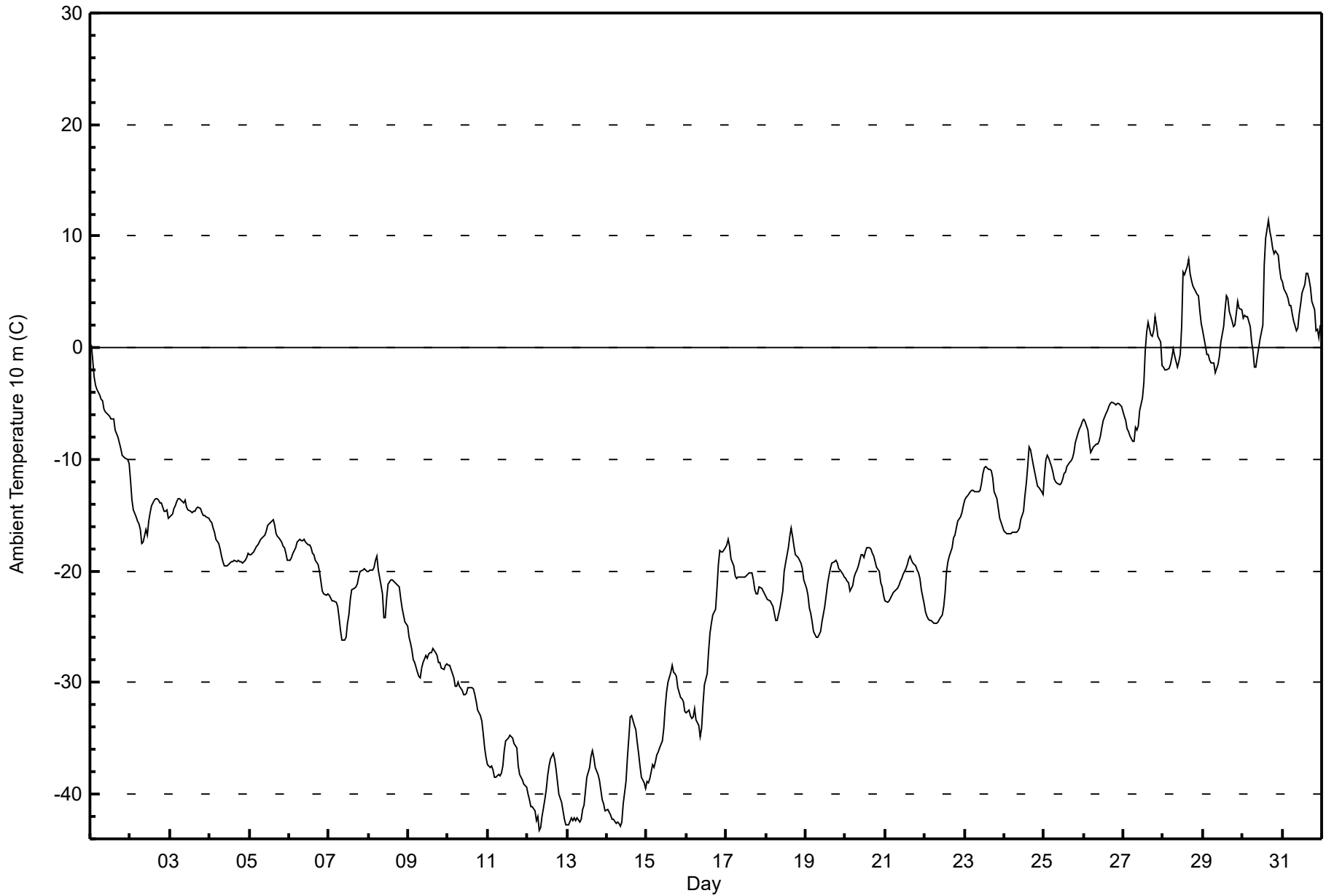
**Ambient Temperature 10 m (AT 10m) - C**  
**Fort McKay - Bertha Ganter - January 2024**

Maximum Value: 11.4 C on Jan 30 16:00		Maximum Daily Average: 4.6 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -43.3 C on Jan 12 08:00		Minimum Daily Average: -40.3 C on Jan 12		Hours of Data: 744																																												
Maximum Diurnal Average: -16.0 C at hour 16		Minimum Diurnal Average: -20.3 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -18.40 C		Percentiles: P <sub>1</sub> = -42.6 P <sub>10</sub> = -37.5 Q <sub>1</sub> = -25.9 Median = -18.9 Q <sub>3</sub> = -10.6 P <sub>90</sub> = 1.0 P <sub>99</sub> = 8.1		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-Jan	0.2	-1.1	-2.6	-3.4	-3.8	-4.2	-4.6	-4.8	-5.4	-5.8	-5.9	-6.1	-6.4	-6.3	-6.4	-7.3	-8.0	-8.5	-9.0	-9.6	-9.8	-9.9	-10.0	-10.4	-6.2	0.2																						
2-Jan	-11.9	-13.6	-14.5	-15.2	-15.5	-15.7	-16.3	-17.5	-17.4	-16.3	-16.8	-15.6	-14.8	-14.2	-13.7	-13.5	-13.7	-13.9	-13.9	-14.7	-14.7	-14.6	-15.2	-14.9	-14.9	-11.9																						
3-Jan	-15.1	-14.9	-14.4	-14.1	-13.7	-13.5	-13.5	-13.8	-13.9	-13.6	-14.3	-14.5	-14.7	-14.7	-14.6	-14.6	-14.4	-14.3	-14.5	-14.7	-15.0	-15.0	-15.1	-15.3	-14.4	-13.5																						
4-Jan	-15.5	-15.6	-16.1	-16.6	-17.1	-17.6	-18.1	-18.7	-19.2	-19.6	-19.5	-19.4	-19.3	-19.2	-19.2	-19.0	-19.2	-19.1	-19.1	-19.3	-19.3	-19.0	-18.8	-18.5	-18.4	-15.5																						
5-Jan	-18.6	-18.5	-18.3	-18.1	-17.8	-17.6	-17.4	-17.1	-16.9	-16.7	-16.4	-15.9	-15.8	-15.5	-15.4	-16.0	-16.6	-16.9	-17.1	-17.4	-17.7	-18.0	-18.4	-19.1	-17.2	-15.4																						
6-Jan	-19.1	-18.8	-18.4	-18.1	-17.9	-17.5	-17.2	-17.3	-17.2	-17.2	-17.5	-17.6	-17.6	-17.9	-18.4	-18.6	-19.0	-19.4	-20.1	-20.9	-21.8	-22.0	-22.1	-22.0	-18.9	-17.2																						
7-Jan	-22.2	-22.5	-22.6	-22.7	-22.8	-23.2	-24.2	-25.3	-26.1	-26.2	-26.0	-24.7	-23.9	-22.5	-21.7	-21.5	-21.4	-21.2	-20.5	-20.0	-19.9	-19.8	-19.9	-20.0	-22.5	-19.8																						
8-Jan	-20.1	-19.9	-20.0	-19.6	-19.0	-18.7	-19.9	-21.3	-22.1	-24.2	-24.2	-22.4	-21.2	-20.8	-20.8	-21.0	-21.1	-21.2	-21.5	-22.4	-23.4	-24.0	-24.6	-25.0	-21.6	-18.7																						
9-Jan	-25.9	-26.5	-27.0	-27.9	-28.2	-29.1	-29.5	-29.5	-28.7	-28.2	-27.6	-27.8	-27.4	-27.3	-27.3	-27.0	-27.3	-27.6	-28.2	-28.2	-28.7	-28.8	-28.5	-28.3	-27.9	-25.9																						
10-Jan	-28.4	-28.5	-28.9	-29.6	-30.3	-30.3	-29.9	-30.3	-30.7	-31.1	-31.1	-30.9	-30.5	-30.5	-30.5	-30.6	-31.1	-31.7	-32.4	-32.9	-33.4	-34.6	-35.9	-36.7	-31.3	-28.4																						
11-Jan	-37.4	-37.6	-37.5	-37.8	-38.4	-38.4	-38.3	-38.3	-38.1	-37.5	-36.1	-35.2	-35.0	-34.7	-34.8	-34.9	-35.5	-35.8	-37.5	-38.2	-38.5	-38.8	-39.2	-39.4	-37.2	-34.7																						
12-Jan	-40.0	-40.5	-41.1	-41.1	-41.4	-42.4	-42.0	-43.3	-43.0	-42.0	-40.5	-39.6	-38.3	-37.5	-36.8	-36.3	-36.8	-37.8	-38.8	-40.0	-40.7	-41.5	-42.2	-42.7	-40.3	-36.3																						
13-Jan	-42.7	-42.7	-42.1	-42.4	-42.1	-42.4	-42.1	-42.5	-42.2	-41.4	-41.0	-39.7	-38.5	-37.6	-36.6	-36.1	-36.7	-37.6	-38.2	-38.7	-39.6	-40.5	-40.9	-41.5	-40.2	-36.1																						
14-Jan	-41.4	-41.7	-41.8	-42.3	-42.2	-42.6	-42.5	-42.6	-42.8	-42.4	-40.8	-38.8	-36.8	-35.0	-33.1	-33.0	-33.9	-34.2	-35.3	-36.3	-37.5	-38.4	-38.9	-39.5	-38.9	-33.0																						
15-Jan	-38.9	-39.0	-38.6	-37.4	-37.6	-37.1	-36.5	-36.2	-35.8	-35.2	-34.0	-32.2	-30.8	-30.0	-29.0	-28.5	-29.0	-29.2	-29.5	-30.4	-31.4	-31.5	-31.7	-32.6	-33.4	-28.5																						
16-Jan	-32.8	-32.5	-33.0	-33.2	-33.1	-32.4	-33.3	-33.9	-34.9	-34.1	-31.9	-30.2	-29.2	-27.2	-25.6	-24.6	-24.0	-23.4	-21.6	-19.4	-18.1	-18.3	-18.3	-17.9	-27.6	-17.9																						
17-Jan	-17.6	-17.2	-17.8	-18.9	-19.5	-20.4	-20.7	-20.5	-20.6	-20.6	-20.5	-20.2	-20.4	-20.3	-20.2	-20.2	-20.8	-21.7	-22.1	-22.0	-21.5	-21.5	-21.8	-22.0	-20.4	-17.2																						
18-Jan	-22.3	-22.5	-22.6	-22.9	-23.2	-23.8	-24.4	-24.5	-23.3	-22.5	-21.8	-20.0	-19.3	-18.0	-16.9	-16.2	-17.0	-17.8	-18.5	-18.8	-19.0	-19.2	-19.7	-20.8	-20.6	-16.2																						
19-Jan	-21.6	-22.1	-23.3	-23.8	-24.5	-25.5	-26.0	-25.9	-25.7	-25.5	-24.6	-23.2	-22.2	-21.1	-20.5	-19.8	-19.3	-19.1	-19.1	-19.3	-19.8	-20.0	-20.3	-20.6	-22.2	-19.1																						
20-Jan	-20.6	-21.0	-21.1	-21.8	-21.3	-20.6	-20.1	-19.9	-19.6	-18.6	-18.5	-18.7	-18.2	-18.0	-17.9	-18.0	-18.4	-18.7	-19.2	-19.6	-20.0	-21.0	-21.5	-22.1	-19.8	-17.9																						
21-Jan	-22.7	-22.8	-22.6	-22.4	-22.2	-21.9	-21.9	-21.6	-21.4	-21.0	-20.7	-20.3	-19.8	-19.5	-18.9	-18.7	-19.1	-19.2	-19.5	-19.9	-20.2	-20.7	-21.7	-22.9	-20.9	-18.7																						
22-Jan	-23.7	-24.1	-24.3	-24.5	-24.4	-24.6	-24.6	-24.7	-24.5	-24.3	-24.0	-23.2	-22.0	-20.0	-19.1	-18.7	-17.9	-17.1	-16.7	-16.2	-15.6	-15.2	-14.7	-14.2	-20.8	-14.2																						
23-Jan	-13.6	-13.4	-13.2	-12.9	-12.7	-12.8	-12.9	-12.9	-12.8	-12.8	-12.1	-11.3	-10.8	-10.6	-10.9	-10.8	-11.0	-11.6	-12.9	-13.6	-14.4	-15.3	-15.6	-16.1	-12.8	-10.6																						
24-Jan	-16.5	-16.6	-16.7	-16.7	-16.6	-16.5	-16.5	-16.5	-16.4	-16.1	-15.5	-14.6	-13.3	-12.2	-10.6	-8.8	-9.1	-10.5	-11.1	-11.8	-12.4	-12.6	-12.9	-13.1	-13.9	-8.8																						
25-Jan	-11.4	-10.0	-9.6	-9.9	-10.6	-11.1	-11.7	-12.0	-12.2	-12.3	-12.2	-11.8	-11.3	-11.1	-10.6	-10.3	-10.1	-9.9	-9.4	-8.5	-7.7	-7.3	-6.9	-6.6	-10.2	-6.6																						
26-Jan	-6.4	-6.7	-7.4	-8.5	-9.4	-9.2	-8.9	-8.6	-8.7	-8.4	-7.9	-7.1	-6.5	-5.8	-5.6	-5.2	-5.0	-4.9	-5.0	-5.1	-5.0	-5.0	-5.1	-5.3	-6.7	-4.9																						
27-Jan	-6.1	-6.5	-7.3	-7.5	-7.8	-8.4	-8.4	-7.2	-7.4	-7.0	-5.6	-4.5	-3.2	-0.2	1.5	2.3	1.1	1.0	1.5	2.7	2.1	1.0	0.5	-1.6	-3.1	2.7																						
28-Jan	-1.8	-2.0	-1.9	-1.8	-1.5	-0.8	-0.1	-0.7	-1.7	-1.2	-0.6	1.9	6.8	6.6	7.4	7.9	6.7	6.0	5.5	5.1	4.8	4.7	3.3	2.2	2.3	7.9																						
29-Jan	1.5	0.1	-0.7	-0.6	-1.2	-1.3	-1.4	-2.2	-1.9	-1.5	-0.7	0.5	1.9	3.5	4.7	4.4	3.3	2.4	1.9	2.0	3.1	4.1	3.5	3.4	1.2	4.7																						
30-Jan	2.6	2.9	2.8	2.7	1.9	0.6	-0.3	-1.7	-1.7	-0.8	0.8	1.4	2.1	7.5	9.9	11.4	10.4	9.8	9.0	8.5	8.7	8.3	7.1	6.2	4.6	11.4																						
31-Jan	6.0	5.3	4.8	4.4	3.8	3.8	3.1	2.5	1.5	1.7	3.1	3.9	4.9	5.6	6.7	6.7	6.1	5.4	4.2	3.4	1.5	1.7	1.0	2.0	3.9	6.7																						
																								-18.8	-19.0	-19.3	-19.5	-19.7	-19.8	-20.0	-20.3	-20.3	-20.1	-19.5	-18.7	-17.8	-16.9	-16.3	-16.0	-16.4	-16.7	-17.0	-17.3	-17.6	-17.8	-18.2	-18.6	Diurnal Average
																								6.0	5.3	4.8	4.4	3.8	3.8	3.1	2.5	1.5	1.7	3.1	3.9	6.8	7.5	9.9	11.4	10.4	9.8	9.0	8.5	8.7	8.3	7.1	6.2	Diurnal Maximum



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	320	43.01	43.01
-20 - 0	342	45.97	88.98
0 - 10	80	10.75	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

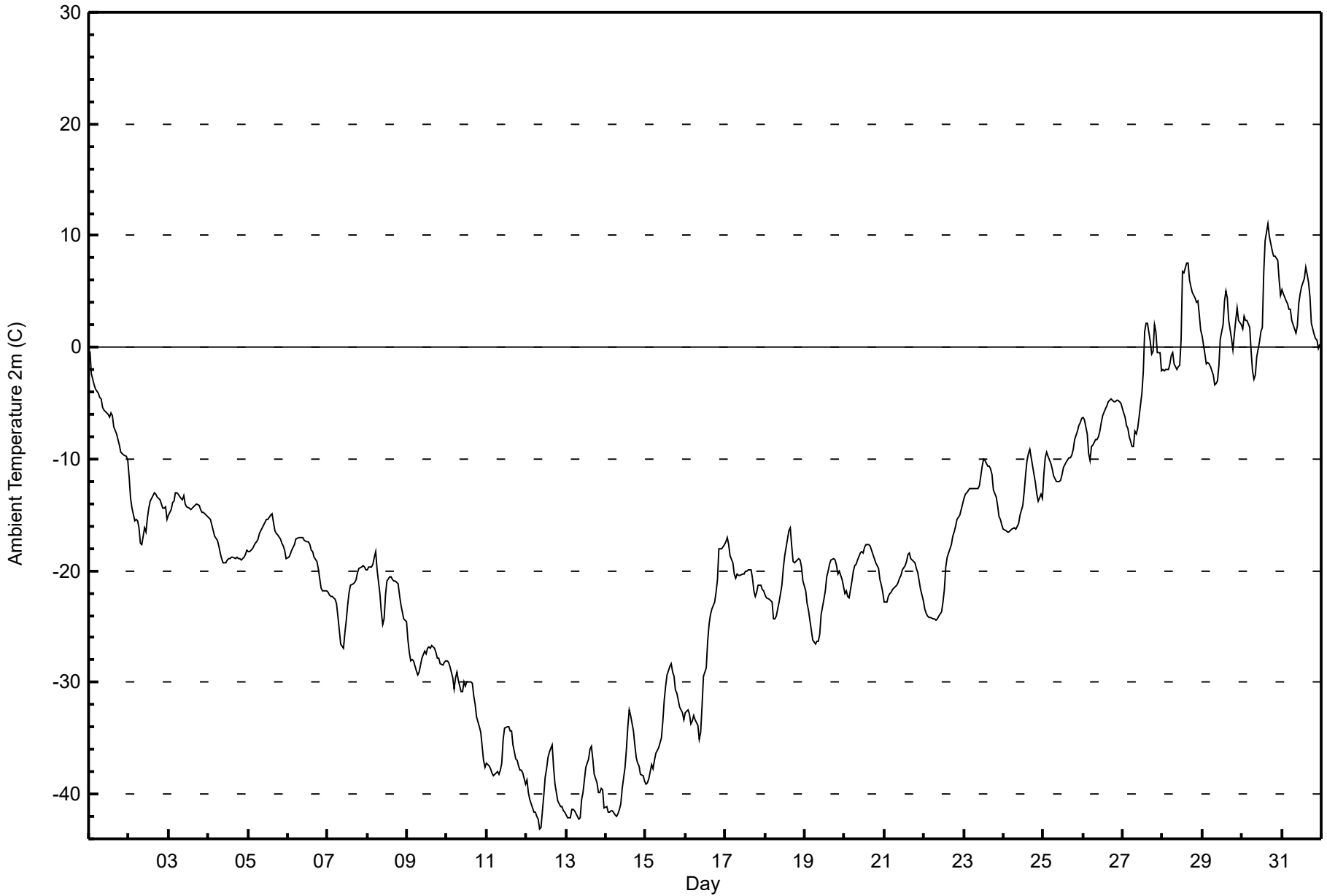
Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 11.1 C on Jan 30 16:00      Maximum Daily Average: 4.0 C on Jan 30																						Hours in Service:	744			
Minimum Value: -43.1 C on Jan 12 09:00      Minimum Daily Average: -40.0 C on Jan 12																						Hours of Data:	744			
Maximum Diurnal Average: -15.8 C at hour 16      Minimum Diurnal Average: -20.3 C at hour 9																						Hours of Missing Data:	0			
Monthly Average: -18.33 C      Percentiles: P <sub>1</sub> = -42.0 P <sub>10</sub> = -37.4 Q <sub>1</sub> = -26.3 Median = -18.7 Q <sub>3</sub> = -10.4 P <sub>90</sub> = -0.1 P <sub>99</sub> = 7.7																						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-Jan	-0.3	-2.3	-2.8	-3.3	-3.7	-4.1	-4.5	-4.7	-5.4	-5.7	-5.7	-6.0	-6.2	-5.9	-6.1	-7.1	-7.8	-8.3	-8.8	-9.3	-9.5	-9.7	-9.7	-10.1	-6.1	-0.3
2-Jan	-11.7	-13.5	-14.5	-15.5	-15.5	-15.5	-16.2	-17.5	-17.6	-16.2	-16.5	-15.3	-14.4	-13.8	-13.2	-13.0	-13.2	-13.4	-13.6	-13.6	-14.4	-14.4	-14.3	-15.4	-14.7	-11.7
3-Jan	-15.0	-14.5	-13.9	-13.8	-13.1	-13.0	-13.2	-13.5	-13.6	-13.2	-14.0	-14.2	-14.4	-14.5	-14.4	-14.3	-14.2	-14.1	-14.2	-14.5	-14.7	-14.8	-14.9	-15.1	-14.1	-13.0
4-Jan	-15.2	-15.4	-15.9	-16.4	-16.9	-17.3	-17.8	-18.4	-18.9	-19.3	-19.2	-19.1	-18.9	-18.9	-18.8	-18.7	-18.9	-18.8	-18.9	-18.9	-19.0	-18.7	-18.5	-18.2	-18.1	-15.2
5-Jan	-18.3	-18.3	-18.0	-17.8	-17.6	-17.4	-17.1	-16.6	-16.1	-15.9	-15.7	-15.4	-15.4	-15.0	-15.0	-15.7	-16.4	-16.6	-16.8	-17.2	-17.5	-17.8	-18.2	-18.9	-16.9	-15.0
6-Jan	-18.8	-18.5	-18.1	-17.9	-17.7	-17.2	-17.0	-17.0	-17.0	-17.0	-17.2	-17.3	-17.4	-17.7	-18.1	-18.3	-18.8	-19.2	-19.8	-20.7	-21.6	-21.8	-21.8	-21.8	-18.7	-17.0
7-Jan	-22.0	-22.2	-22.4	-22.4	-22.5	-22.9	-24.1	-25.3	-26.6	-26.9	-25.6	-24.4	-23.1	-22.0	-21.3	-21.2	-21.1	-20.8	-20.2	-19.7	-19.6	-19.6	-19.7	-19.9	-22.3	-19.6
8-Jan	-19.9	-19.7	-19.7	-19.4	-18.7	-18.3	-19.9	-22.0	-23.7	-24.8	-24.3	-22.2	-20.9	-20.6	-20.5	-20.7	-20.9	-20.9	-21.2	-22.2	-23.1	-23.7	-24.3	-24.5	-21.5	-18.3
9-Jan	-26.2	-27.3	-28.0	-28.0	-28.1	-29.0	-29.4	-29.1	-28.4	-27.9	-27.2	-27.4	-27.0	-26.9	-26.9	-26.7	-26.9	-27.3	-27.9	-27.9	-28.4	-28.5	-28.2	-28.0	-27.8	-26.2
10-Jan	-28.1	-28.2	-28.6	-29.5	-30.5	-29.5	-29.0	-29.9	-30.9	-30.9	-30.0	-30.3	-29.9	-30.0	-29.9	-30.1	-31.3	-32.0	-33.1	-34.0	-34.4	-35.7	-37.0	-37.6	-31.3	-28.1
11-Jan	-37.3	-37.5	-37.7	-38.2	-38.4	-38.3	-38.0	-38.3	-37.9	-37.2	-35.1	-34.1	-34.0	-34.0	-34.4	-34.4	-35.6	-36.8	-37.0	-37.5	-37.8	-37.9	-38.1	-39.1	-36.9	-34.0
12-Jan	-38.7	-39.9	-40.5	-40.9	-41.6	-41.6	-42.0	-42.3	-43.1	-43.0	-40.1	-38.4	-37.7	-36.7	-36.3	-35.6	-37.6	-39.1	-39.9	-40.6	-41.2	-41.1	-41.5	-41.6	-40.0	-35.6
13-Jan	-41.9	-42.2	-42.1	-41.4	-41.3	-41.5	-41.8	-42.2	-42.1	-40.5	-39.9	-38.7	-37.6	-36.8	-36.0	-35.7	-36.8	-38.2	-38.9	-39.8	-39.9	-39.5	-39.6	-41.2	-39.8	-35.7
14-Jan	-41.1	-41.6	-41.7	-41.5	-41.5	-41.9	-42.1	-41.8	-41.3	-40.8	-39.5	-37.6	-36.0	-34.0	-32.5	-33.0	-34.3	-35.6	-36.8	-37.3	-37.5	-38.2	-38.4	-38.9	-38.5	-32.5
15-Jan	-39.1	-39.0	-38.7	-37.3	-37.7	-36.9	-36.3	-36.1	-35.8	-34.9	-33.4	-31.6	-30.3	-29.3	-28.6	-28.4	-29.1	-29.4	-30.7	-30.9	-32.2	-32.4	-32.7	-33.3	-33.5	-28.4
16-Jan	-32.7	-32.5	-32.8	-33.7	-33.5	-32.9	-33.4	-33.9	-35.2	-34.5	-32.1	-29.5	-28.7	-26.3	-24.8	-24.0	-23.4	-22.9	-21.9	-20.8	-18.0	-18.0	-18.1	-17.7	-27.5	-17.7
17-Jan	-17.5	-17.1	-17.6	-18.7	-19.3	-20.3	-20.6	-20.3	-20.4	-20.4	-20.3	-20.3	-20.1	-20.0	-19.9	-20.0	-20.6	-21.8	-22.3	-21.9	-21.3	-21.3	-21.7	-21.8	-20.2	-17.1
18-Jan	-22.1	-22.5	-22.5	-22.7	-22.8	-24.3	-24.4	-24.0	-22.8	-22.0	-21.3	-19.8	-18.7	-17.2	-16.4	-16.2	-17.8	-19.2	-19.3	-19.1	-18.9	-19.0	-19.7	-20.9	-20.6	-16.2
19-Jan	-21.9	-22.9	-23.6	-24.4	-25.3	-26.1	-26.6	-26.4	-26.3	-25.6	-23.9	-22.6	-21.8	-20.6	-20.0	-19.5	-19.1	-18.9	-19.1	-19.5	-20.3	-20.1	-20.8	-21.5	-22.4	-18.9
20-Jan	-22.1	-21.8	-22.3	-22.4	-20.9	-20.1	-19.5	-19.4	-19.1	-18.4	-18.2	-18.4	-17.9	-17.6	-17.6	-17.8	-18.2	-18.5	-18.9	-19.3	-19.8	-20.8	-21.3	-22.0	-19.7	-17.6
21-Jan	-22.8	-22.8	-22.3	-22.0	-22.0	-21.7	-21.6	-21.3	-21.1	-20.7	-20.5	-20.0	-19.5	-19.2	-18.6	-18.4	-18.9	-19.1	-19.4	-19.8	-20.2	-20.9	-21.7	-22.7	-20.7	-18.4
22-Jan	-23.4	-23.8	-24.1	-24.1	-24.1	-24.4	-24.4	-24.4	-24.2	-24.0	-23.6	-22.8	-21.6	-19.7	-18.8	-18.4	-17.7	-16.9	-16.5	-16.0	-15.4	-15.0	-14.6	-14.0	-20.5	-14.0
23-Jan	-13.5	-13.2	-13.0	-12.6	-12.6	-12.6	-12.7	-12.6	-12.6	-12.3	-11.6	-10.6	-10.0	-10.2	-10.7	-10.7	-10.9	-11.4	-12.7	-13.4	-14.2	-15.1	-15.4	-15.9	-12.5	-10.0
24-Jan	-16.2	-16.4	-16.5	-16.5	-16.3	-16.3	-16.2	-16.3	-16.1	-15.8	-15.0	-14.2	-12.9	-11.4	-10.2	-9.5	-9.2	-10.6	-11.4	-12.1	-13.1	-13.7	-13.2	-13.5	-13.9	-9.2
25-Jan	-11.4	-9.8	-9.4	-9.7	-10.4	-10.9	-11.5	-11.8	-12.0	-12.0	-11.9	-11.4	-10.8	-10.5	-10.2	-9.9	-9.9	-9.6	-9.1	-8.3	-7.5	-7.0	-6.7	-6.4	-9.9	-6.4
26-Jan	-6.3	-6.5	-7.7	-9.5	-10.1	-8.9	-8.7	-8.2	-8.2	-8.0	-7.6	-6.7	-6.1	-5.5	-5.3	-4.9	-4.7	-4.7	-4.8	-4.9	-4.8	-4.8	-4.8	-5.0	-6.5	-4.7
27-Jan	-5.8	-6.3	-7.0	-7.3	-8.0	-8.9	-8.9	-7.5	-7.7	-7.2	-6.2	-4.1	-2.3	1.4	2.2	2.1	0.5	-0.6	-0.4	2.1	1.5	-0.4	-0.5	-2.1	-3.4	2.2
28-Jan	-2.0	-2.1	-1.9	-2.0	-1.5	-0.7	-0.5	-1.4	-2.0	-1.7	-1.6	0.6	6.8	6.6	7.5	7.6	6.0	5.4	5.0	4.4	4.1	4.2	2.9	1.5	1.9	7.6
29-Jan	1.0	-0.6	-1.5	-1.3	-1.5	-1.7	-2.4	-3.4	-3.2	-2.9	-1.6	0.8	2.0	4.2	5.0	4.4	2.4	0.8	-0.2	1.1	2.4	3.5	2.4	2.0	0.5	5.0
30-Jan	1.7	2.8	2.4	2.4	1.7	-0.4	-2.2	-2.9	-2.5	-0.8	0.5	1.5	1.8	6.6	9.6	11.1	10.0	9.3	8.6	8.1	8.2	7.8	6.0	4.6	4.0	11.1
31-Jan	5.2	4.8	4.2	3.9	3.5	3.5	2.4	2.1	1.2	1.9	4.0	4.8	5.4	6.2	7.2	6.6	5.8	4.6	2.1	1.1	0.8	0.7	-0.1	0.2	3.4	7.2
																								Diurnal Average		
																								Diurnal Maximum		







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	314	42.20	42.20
-20 - 0	356	47.85	90.05
0 - 10	73	9.81	99.87
10 - 20	1	0.13	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

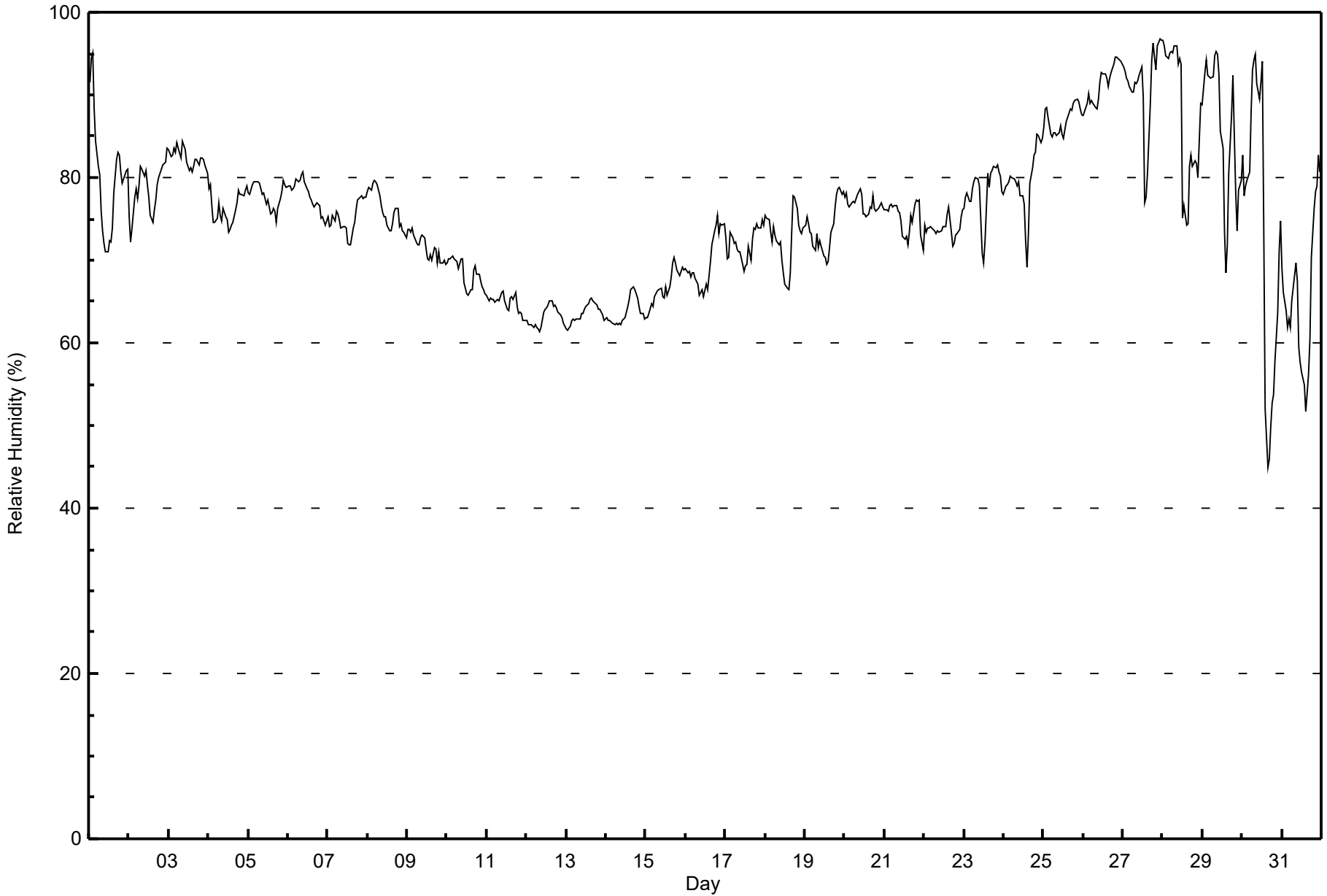
**Fort McKay - Bertha Ganter - January 2024**

Maximum Value: 96.8 % on Jan 27 23:00																						Maximum Daily Average: 91.3 % on Jan 26																						Hours in Service: 744		
Minimum Value: 44.8 % on Jan 30 16:00																						Minimum Daily Average: 63.1 % on Jan 12																						Hours of Data: 744		
Maximum Diurnal Average: 76.7 % at hour 1																						Minimum Diurnal Average: 71.6 % at hour 15																						Hours of Missing Data: 0		
Monthly Average: 75.48 %																						Percentiles: P <sub>1</sub> = 54.4 P <sub>10</sub> = 63.9 Q <sub>1</sub> = 69.7 Median = 75.2 Q <sub>3</sub> = 79.9 P <sub>90</sub> = 89.0 P <sub>99</sub> = 95.6																						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-Jan	91.6	94.5	95.2	88.3	84.5	81.3	80.3	75.9	73.6	72.1	70.9	71.1	72.4	72.3	73.8	78.1	82.3	83.0	82.8	80.7	79.3	79.9	80.8	81.0	80.2	95.2																				
2-Jan	75.2	72.1	73.9	77.6	78.6	77.5	79.0	81.4	81.0	80.2	80.8	79.2	77.7	75.5	74.6	76.1	77.3	79.1	80.0	80.5	81.5	81.6	81.8	83.6	78.6	83.6																				
3-Jan	83.4	82.5	82.7	83.5	83.0	84.3	83.6	82.3	84.4	84.0	83.4	81.9	80.9	81.2	80.7	81.3	82.1	82.2	81.6	82.3	82.3	82.2	81.6	80.5	82.4	84.4																				
4-Jan	78.7	79.1	76.6	74.6	74.6	75.1	76.9	75.4	74.7	76.2	75.3	74.9	73.4	73.8	74.2	74.5	76.1	76.9	78.4	77.9	77.9	77.8	78.5	79.0	76.3	79.1																				
5-Jan	78.1	78.0	79.2	79.4	79.6	79.6	79.6	79.3	77.9	78.1	77.5	76.7	77.3	75.7	75.8	76.3	75.9	74.6	76.2	77.5	78.2	79.7	79.1	78.9	77.8	79.7																				
6-Jan	79.0	78.9	78.5	78.6	79.0	79.8	79.4	79.6	80.3	80.7	79.4	78.6	78.4	77.6	77.2	76.8	76.5	76.9	76.9	76.6	75.2	75.2	74.2	74.8	77.8	80.7																				
7-Jan	75.3	74.0	74.2	75.4	74.8	75.9	75.5	75.0	73.9	74.0	74.1	73.8	72.0	71.8	71.8	73.8	74.6	76.1	77.3	77.4	77.8	77.4	77.7	77.6	75.0	77.8																				
8-Jan	78.3	78.8	78.6	79.4	79.7	79.5	79.1	77.8	76.6	75.8	75.2	75.3	74.2	73.6	73.6	74.5	75.8	76.3	76.4	74.2	74.4	73.5	73.4	72.8	76.1	79.7																				
9-Jan	73.7	73.7	73.4	73.9	73.0	72.3	71.8	71.9	72.8	73.0	72.6	71.4	70.2	70.0	70.7	70.0	71.6	71.3	69.7	71.0	69.7	69.6	70.0	69.5	71.5	73.9																				
10-Jan	69.7	70.2	70.2	70.6	70.2	70.0	69.8	69.0	70.2	70.2	67.3	66.6	66.0	65.8	66.5	66.5	68.8	69.3	68.4	68.3	67.5	66.8	66.4	66.0	68.3	70.6																				
11-Jan	65.7	65.0	65.4	65.3	65.2	64.9	65.3	65.1	65.5	66.1	66.3	65.1	64.1	63.8	65.4	65.6	65.3	66.0	64.4	63.6	63.7	63.6	62.6	62.8	64.8	66.3																				
12-Jan	62.8	62.2	62.2	62.2	61.8	62.1	61.8	61.8	61.3	61.9	63.8	64.0	64.3	64.7	65.2	65.1	64.4	64.6	64.2	63.7	63.5	63.1	62.5	62.1	63.1	65.2																				
13-Jan	61.7	61.6	62.1	62.7	62.9	62.7	62.8	62.8	62.9	63.6	63.6	64.1	64.4	64.8	65.2	65.4	65.1	65.0	64.5	64.1	64.1	63.7	63.3	62.7	63.6	65.4																				
14-Jan	63.1	62.8	62.7	62.5	62.4	62.2	62.4	62.3	62.4	62.2	62.7	63.1	63.7	64.5	65.3	66.5	66.8	66.5	66.0	65.4	64.4	63.6	63.5	62.9	63.7	66.8																				
15-Jan	63.1	63.0	63.6	64.8	64.4	65.6	66.0	66.2	66.4	66.5	65.6	65.5	66.8	65.8	66.8	67.9	69.7	70.4	69.7	68.7	68.1	68.6	69.2	68.8	66.7	70.4																				
16-Jan	69.0	68.5	68.6	68.0	68.5	68.4	67.8	67.1	65.8	66.1	66.4	65.5	67.1	66.4	68.2	69.8	71.9	73.5	74.3	75.4	73.2	74.3	74.2	74.4	69.7	75.4																				
17-Jan	72.8	70.1	70.3	73.4	72.8	72.0	72.3	71.4	71.1	71.0	69.4	68.6	69.3	69.5	71.8	70.0	72.6	73.9	73.7	74.3	73.9	73.9	74.9	74.2	72.0	74.9																				
18-Jan	75.3	75.1	74.9	73.4	72.2	74.1	73.1	72.3	71.8	72.1	70.0	68.4	67.2	66.5	66.5	68.4	73.4	77.9	77.6	76.3	74.2	73.5	73.2	73.9	72.5	77.9																				
19-Jan	74.2	75.3	74.4	73.4	73.2	71.7	71.2	73.2	71.5	72.3	71.8	70.4	70.4	69.5	69.9	71.6	73.3	74.4	76.5	78.0	78.6	78.7	77.9	78.4	73.7	78.7																				
20-Jan	77.6	78.1	76.8	76.4	77.0	77.1	76.9	77.4	78.0	78.6	78.0	75.6	75.5	75.2	75.6	76.5	76.3	77.8	76.3	76.0	76.2	76.6	76.9	76.4	76.8	78.6																				
21-Jan	76.1	76.1	75.9	76.7	76.8	76.5	76.6	76.5	76.0	75.7	74.7	72.9	72.5	72.9	71.8	73.4	75.5	74.6	76.8	77.3	77.1	77.3	73.1	71.2	75.2	77.3																				
22-Jan	74.3	73.4	73.8	73.8	74.1	73.8	73.6	73.1	73.6	73.3	73.6	74.0	74.1	74.1	75.6	76.4	73.4	71.7	72.1	73.0	73.3	73.8	75.3	76.1	73.9	76.4																				
23-Jan	76.2	77.7	78.1	77.2	77.1	78.7	79.5	80.0	79.8	79.0	74.9	70.8	69.7	72.1	80.5	78.9	80.5	80.9	81.4	81.3	81.5	80.7	80.2	78.4	78.1	81.5																				
24-Jan	78.0	78.9	79.1	79.4	80.1	80.0	79.7	79.5	79.0	79.4	77.9	77.7	76.7	72.4	69.2	73.3	79.4	81.2	82.8	83.1	85.3	85.0	84.2	84.8	79.4	85.3																				
25-Jan	86.2	88.4	88.5	87.3	85.3	85.0	85.5	85.5	85.1	85.5	86.3	85.2	84.7	85.7	86.7	87.8	88.4	88.1	89.0	89.3	89.5	89.2	88.3	87.6	87.0	89.5																				
26-Jan	87.5	87.9	88.9	90.2	89.0	89.3	88.9	88.5	88.3	89.4	91.5	92.6	92.6	92.1	91.0	92.0	92.8	93.7	94.5	94.5	94.4	94.3	94.1	91.3	94.5																					
27-Jan	93.3	92.9	92.1	91.7	91.1	90.3	90.3	91.5	91.3	91.7	92.3	93.4	89.7	76.9	77.6	80.6	88.8	94.1	96.2	94.6	93.1	96.0	96.8	96.7	91.0	96.8																				
28-Jan	96.6	95.9	94.7	94.4	95.1	95.3	95.0	95.9	96.0	93.7	94.5	93.7	75.0	76.6	74.3	74.4	81.4	82.7	81.4	82.1	81.6	79.9	84.5	89.0	87.7	96.6																				
29-Jan	88.9	92.7	94.3	92.4	92.3	92.1	92.3	94.7	95.3	94.9	92.5	85.6	83.6	73.4	68.5	71.8	80.6	87.5	92.4	85.1	78.2	73.6	78.5	79.7	85.9	95.3																				
30-Jan	82.8	77.8	79.1	79.6	80.7	87.9	93.1	94.2	94.8	91.4	89.4	91.5	94.1	74.3	52.0	44.8	46.0	49.9	52.7	53.8	57.7	63.8	71.1	74.7	74.1	94.8																				
31-Jan	69.0	66.0	63.9	61.9	62.8	61.8	65.1	66.5	69.7	67.4	59.5	57.6	56.4	55.0	51.7	53.9	56.3	60.5	70.3	76.3	78.4	79.0	82.6	80.8	65.5	82.6																				
																						76.7	76.5	76.5	76.4	76.2	76.3	76.6	76.6	76.5	76.3	75.5	74.7	73.7	72.1	71.6	72.3	74.2	75.5	76.2	76.2	75.9	76.0	76.5	76.5	Diurnal Average
																						96.6	95.9	95.2	94.4	95.1	95.3	95.0	95.9	96.0	94.9	94.5	93.7	94.1	92.6	92.1	91.0	92.0	94.1	96.2	94.6	94.5	96.0	96.8	96.7	Diurnal Maximum



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

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



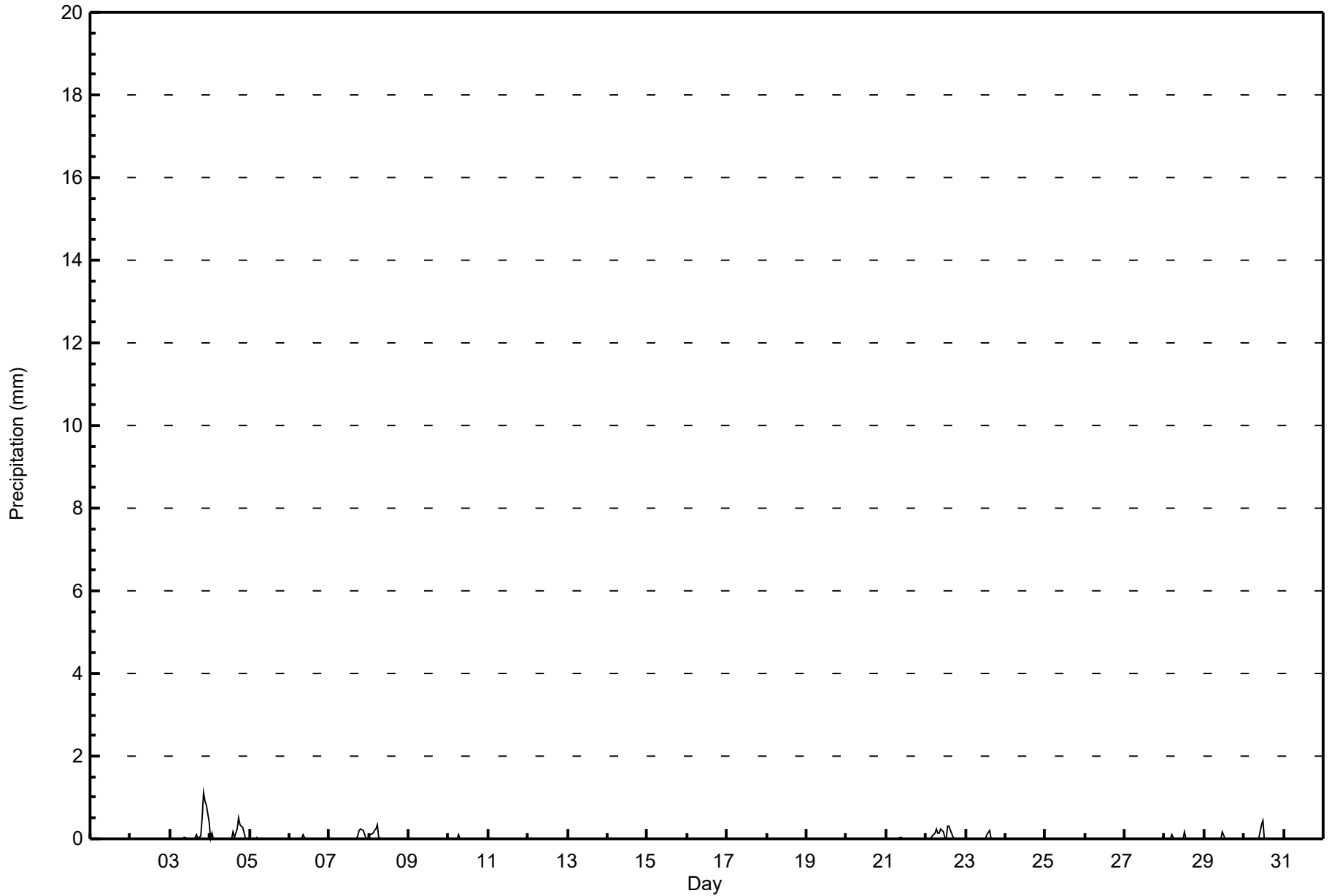


Maximum Value: 1.1 mm on Jan 3 21:00		Maximum Daily Total: 4.0 mm on Jan 3		Hours in Service: 744																												
Minimum Value: 0.0 mm on Jan 1 01:00		Minimum Daily Total: 0.0 mm on Jan 1		Hours of Data: 744																												
Maximum Diurnal Total: 1.6 mm at hour 21		Minimum Diurnal Total: 0.1 mm at hour 1		Hours of Missing Data: 0																												
Monthly Total: 11.95 mm		Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.0$ Median = 0.0 $Q_3 = 0.0$ $P_{90} = 0.0$ $P_{99} = 0.3$		Hours of Calibration: 0																												
				Percent Operational Time: 100.0																												
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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.1	0.0	0.1	0.5	1.1	0.9	0.8	0.4	4.0	4.0	1.1	4.0	1.1	4.0	1.1	
4-Jan	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	0.2	0.1	0.2	0.5	0.3	0.3	0.3	0.0	0.0	0.0	2.0	2.0	0.5	2.0	0.5	2.0	0.5	
5-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
6-Jan	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	0.2	0.2	0.1	0.2	0.1	0.2	0.1	
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.8	0.8	0.2	0.8	0.2	0.8	0.2	
8-Jan	0.1	0.1	0.1	0.2	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	0.0	0.0	1.1	1.1	0.3	1.1	0.3	1.1	0.3	
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
22-Jan	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.0	0.0	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.3	2.0	0.3	2.0	0.3	
23-Jan	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	
29-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
30-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.5	0.8	0.5	0.8	0.5	0.8	
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.4	0.5	0.4	0.1	0.3	0.4	0.5	0.7	0.2	0.4	0.7	0.3	0.4	0.6	0.6	1.0	1.6	1.0	0.8	0.4	Diurnal Average		Diurnal Maximum				
		0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.3	0.5	0.2	0.3	0.3	0.2	0.2	0.5	0.3	0.5	1.1	0.9	0.8	0.4							



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

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





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

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

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	737	99.06	99.06
0.4 - 0.5	4	0.54	99.60
0.6 - 0.7	0	0.00	99.60
0.8 - 1.4	3	0.40	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

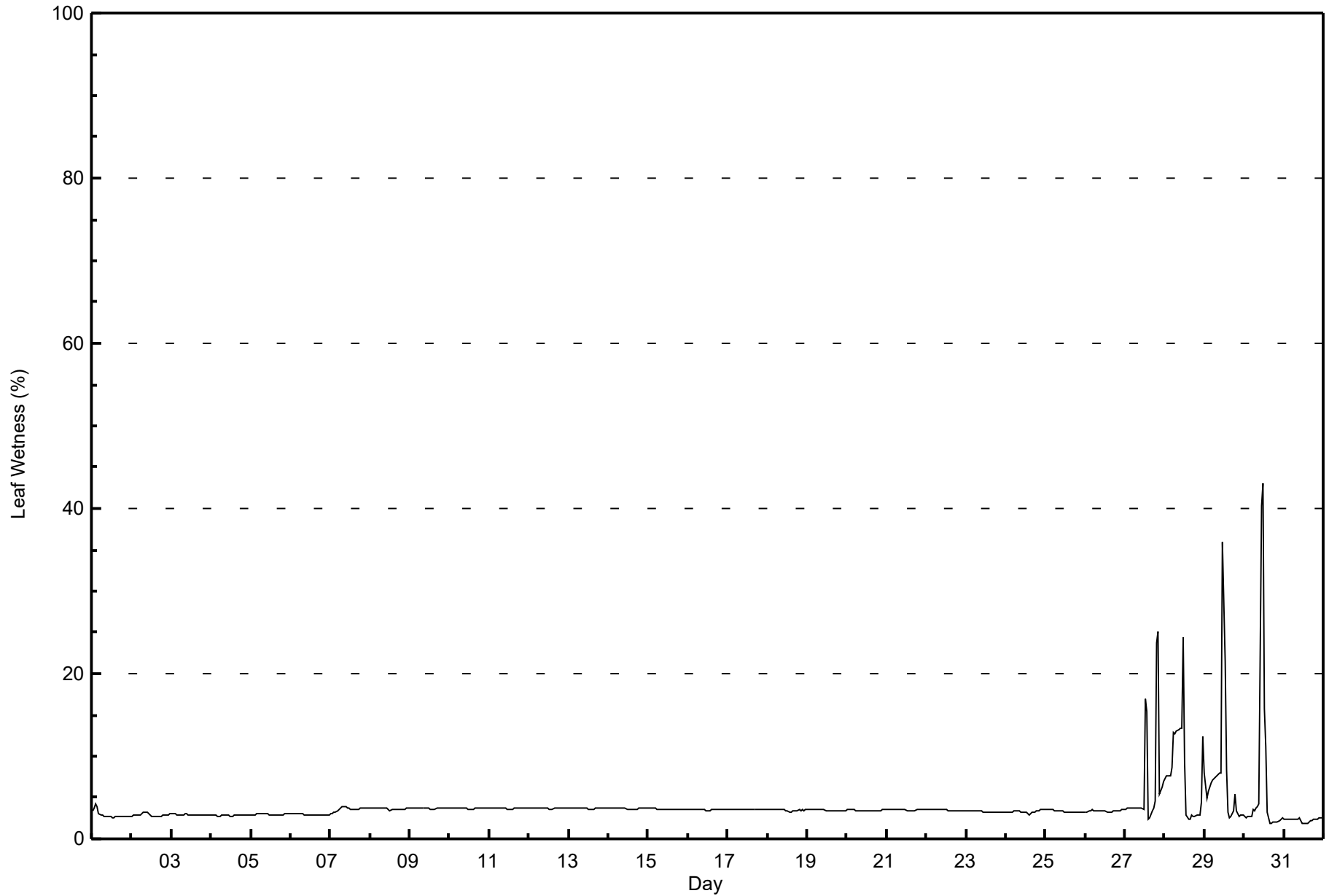
Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 43.1 % on Jan 30 12:00		Maximum Daily Average: 8.0 % on Jan 28		Hours in Service: 744																						
Minimum Value: 1.8 % on Jan 31 15:00		Minimum Daily Average: 2.3 % on Jan 31		Hours of Data: 744																						
Maximum Diurnal Average: 6.3 % at hour 12		Minimum Diurnal Average: 3.1 % at hour 16		Hours of Missing Data: 0																						
Monthly Average: 3.85 %		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.8 Q <sub>1</sub> = 3.1 Median = 3.5 Q <sub>3</sub> = 3.7 P <sub>90</sub> = 3.7 P <sub>99</sub> = 16.4		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-Jan	3.5	3.8	4.2	3.8	3.1	2.8	2.9	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9	4.2
2-Jan	2.7	2.8	2.8	3.0	2.9	2.9	3.1	3.2	3.3	3.3	3.1	3.0	2.8	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0	2.9	3.3
3-Jan	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9	3.0	3.0	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9	3.0
4-Jan	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0	2.8	3.0
5-Jan	3.0	2.9	2.9	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.0	3.0	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.0	3.1
6-Jan	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	2.9	2.9	2.9	2.9	3.1
7-Jan	3.1	3.1	3.2	3.3	3.3	3.6	3.8	3.8	3.8	3.8	3.8	3.7	3.6	3.5	3.5	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.6	3.8
8-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.6	3.7
9-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
10-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
11-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
12-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
13-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
14-Jan	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.6	3.7
15-Jan	3.7	3.7	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.7
16-Jan	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.4	3.5	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.5	3.6	3.6	3.6	3.6
17-Jan	3.6	3.6	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
18-Jan	3.5	3.5	3.6	3.6	3.5	3.6	3.6	3.6	3.5	3.5	3.5	3.4	3.4	3.3	3.2	3.3	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
19-Jan	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.5
20-Jan	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.4	3.5
21-Jan	3.6	3.6	3.5	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6
22-Jan	3.5	3.5	3.5	3.6	3.5	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5
23-Jan	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4
24-Jan	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.0	2.9	3.1	3.2	3.3	3.3	3.4	3.4	3.5	3.5	3.5	3.3	3.5
25-Jan	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.5
26-Jan	3.3	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.4	3.5	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.5	3.6	3.4	3.6
27-Jan	3.6	3.7	3.7	3.7	3.7	3.8	3.8	3.8	3.8	3.8	3.7	3.6	16.9	15.4	2.4	2.6	3.5	3.8	4.6	23.8	25.1	5.4	6.2	6.9	6.7	25.1
28-Jan	7.2	7.6	7.6	7.6	8.7	12.8	12.8	13.1	13.3	13.4	13.4	24.4	9.3	2.9	2.3	2.4	2.8	2.8	2.8	2.8	2.9	2.8	4.5	12.3	8.0	24.4
29-Jan	8.0	5.0	5.7	6.2	6.7	7.1	7.4	7.7	7.9	8.0	8.0	35.9	21.6	8.3	3.3	2.5	2.7	3.4	5.5	3.4	3.0	2.7	2.8	2.8	7.3	35.9
30-Jan	2.8	2.6	2.7	2.7	2.7	3.6	3.4	3.8	3.9	4.2	40.3	43.1	15.8	11.2	3.2	1.8	1.9	2.0	2.0	2.0	2.1	2.2	2.4	2.6	6.9	43.1
31-Jan	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.5	2.3	1.9	1.9	1.9	1.8	2.0	2.1	2.2	2.4	2.5	2.5	2.5	2.6	2.6	2.3	2.6
																								Diurnal Average		
																								Diurnal Maximum		







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

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

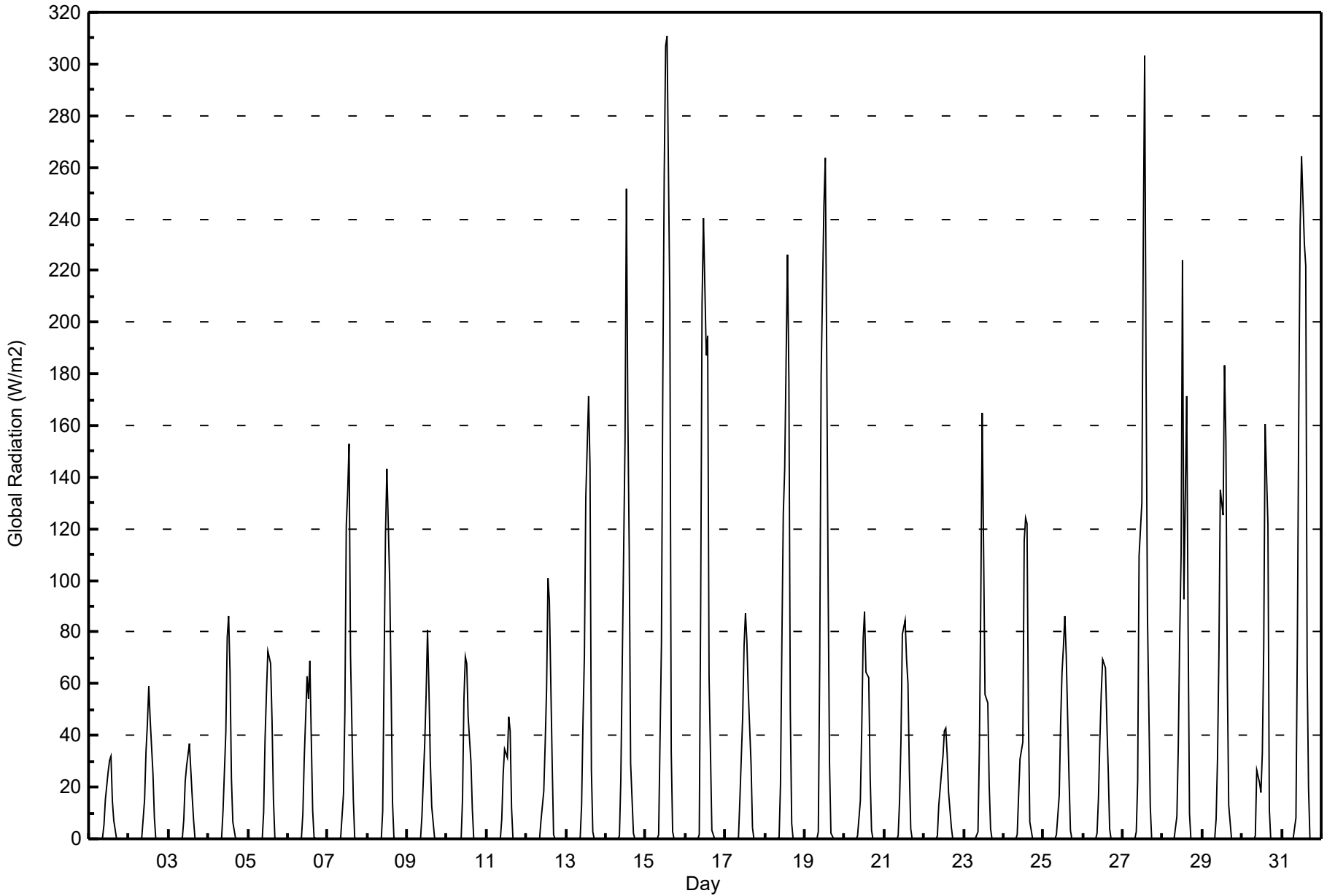
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	0	0.00	0.00
1.5 - 10	726	97.58	97.58
> 10	18	2.42	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 310.8 W/m2 on Jan 15 14:00      Maximum Daily Average: 57.3 W/m2 on Jan 15																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 0.0 W/m2 on Jan 1 01:00      Minimum Daily Average: 5.5 W/m2 on Jan 1 Maximum Diurnal Average: 119.0 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 8 Monthly Average: 22.65 W/m2      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> = 16.7 P <sub>90</sub> = 75.4 P <sub>99</sub> = 243.0																						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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.6	15.1	26.1	30.5	31.9	14.6	7.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	31.9
2-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	14.9	33.6	44.5	59.0	46.1	25.1	8.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	59.0
3-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	7.8	22.4	28.2	37.0	26.5	16.3	7.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	37.0
4-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	10.6	41.1	78.1	86.4	64.7	23.3	6.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	86.4
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	10.1	38.7	56.6	72.9	67.9	45.8	15.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	72.9
6-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	9.8	31.4	62.9	54.4	69.0	39.1	10.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6	69.0
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	17.4	49.4	121.3	134.5	153.0	71.4	15.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	153.0
8-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	66.5	118.5	143.2	99.0	58.6	14.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.3	143.2
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.5	36.7	56.0	80.7	58.8	29.9	12.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	80.7
10-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	54.5	70.6	68.0	47.1	29.7	11.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	70.6
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	7.4	25.2	34.5	31.2	47.0	41.6	11.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	47.0
12-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	6.9	18.7	36.8	58.0	100.9	92.0	29.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.4	100.9
13-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	13.0	45.7	70.9	132.1	171.2	144.5	26.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.3	171.2
14-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	23.0	66.9	153.8	251.6	165.1	111.6	29.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.5	251.6
15-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	75.4	178.6	257.9	307.1	310.8	207.2	33.9	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.3	310.8
16-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	88.8	207.4	240.2	187.0	194.9	62.9	33.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.5	240.2
17-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	15.1	47.0	74.6	87.4	76.5	57.0	28.6	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.3	87.4
18-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	21.0	76.7	126.0	143.3	226.0	176.9	49.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.4	226.0
19-Jan	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.6	67.6	178.9	245.2	263.8	186.9	98.6	29.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.8	263.8
20-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	14.5	42.4	77.3	87.6	64.6	62.2	24.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7	87.6
21-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	14.7	38.2	79.4	84.6	69.6	60.1	26.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	84.6
22-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	13.1	26.0	32.1	41.8	42.7	32.6	17.7	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	42.7
23-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	35.2	92.3	164.7	111.6	56.1	52.4	20.5	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.5	164.7
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	16.7	31.1	37.2	115.5	124.0	122.2	47.3	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	124.0
25-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	16.9	45.2	64.8	74.1	86.0	70.8	23.2	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1	86.0
26-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	15.7	38.2	56.2	69.4	66.1	44.9	25.8	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	69.4
27-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	22.4	109.5	130.1	231.0	303.1	179.7	86.3	12.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	44.9	303.1
28-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	35.7	78.0	109.7	223.8	93.0	171.3	82.9	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9	223.8
29-Jan	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.6	30.8	71.4	135.2	125.2	183.1	153.4	62.8	12.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	32.6	183.1
30-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	26.5	21.9	17.8	33.0	74.1	160.8	121.3	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	160.8
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	75.4	164.5	237.0	264.2	230.3	221.8	66.1	19.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	53.6	264.2
																								Diurnal Average		
																								Diurnal Maximum		





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

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

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	565	75.94	75.94
21 - 100	125	16.80	92.74
101 - 300	51	6.85	99.60
301 - 600	3	0.40	100.00
601 - 900	0	0.00	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 19 km/h on Jan 4 03:00	Maximum Daily Speed Average: 11.3 km/h on Jan 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 14 06:00	Minimum Daily Speed Average: 0.6 km/h on Jan 11	Hours of Data: 734
Maximum Diurnal Speed Average: 1.9 km/h at hour 21	Minimum Diurnal Speed Average: 0.4 km/h at hour 9	Hours of Missing Data: 10
Monthly Average Velocity: 1.0 km/h 359.6 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 3 Median = 5 Q <sub>3</sub> = 8 P <sub>90</sub> = 10 P <sub>99</sub> = 15	Percent Operational Time: 98.7

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-Jan	N2	NNW3	NNE6	NNE8	NNE13	N12	N12	N7	NNE6	NNE4	NNE3	NNE5	NE4	E2	NE3	ENE4	ENE4	NE4	ENE4	E4	ENE3	NE4	NE3	ENE6	NNE4.8	NNE13	
2-Jan	NE8	NE5	NE4	NNE4	NNE2	ENE2	NE2	N1	WSW2	S1	NNE2	NNE2	NE3	N1	S2	SSE3	NE2	NNE3	NNE2	N3	NNE4	ENE1	NE2	NNW3	NE1.9	NE8	
3-Jan	N1	SSE0	ESE1	NNE1	SSW1	S5	S6	SSE1	NNE3	NE1	N8	N9	N11	N11	N8	N10	N10	N10	N11	N12	N13	N14	N15	N15	N6.2	N15	
4-Jan	N14	N17	N19	NNE18	NNE18	NNE18	N14	NNE14	NNE11	NE8	NNE11	NNE9	NNE8	NNE10	NNE9	NNE9	NNE9	NNE8	NNE10	N10	N9	N8	N8	NNW7	NNE11.3	N19	
5-Jan	N9	NNW7	NNW6	NNW6	NW4	NW3	NW1	WNW0	SSE1	SE0	ESE1	NNW2	NE4	NE3	NE5	NE6	NE5	NNE6	N6	N7	N7	N6	N7	N6	N3.8	N9	
6-Jan	N6	N7	N7	N7	N7	N7	N8	N9	N10	N11	N12	N13	N13	N14	N15	N17	N17	N13	NNE11	NNE11	NNE11	NNE10	N12	N9	N10.7	N17	
7-Jan	NNE7	NNE6	NE5	NNE3	NNE6	NE4	N4	NW4	NW4	WNW4	S1	S1	SE4	SSE7	SSE7	S6	S4	S4	S6	S7	S9	S10	S8	S8	SSE2.0	S10	
8-Jan	S7	S6	S4	SSE7	SSE7	SW1	N3	NNW4	WNW5	NW4	N2	NE3	NNE5	N5	N5	N5	N3	NW2	NE4	NE6	ENE5	NE5	ENE3	ENE3	NE1.3	SSE7	
9-Jan	NNE2	NNW2	NNW4	N4	NNE3	N3	N3	NE3	NNE4	N5	N10	N11	N11	NNE12	NNE11	NNE13	NNE9	NNE10	NNE12	NNE8	NNE11	NNE10	NNE10	NNE10	NNE7.4	NNE13	
10-Jan	NNE8	NNE7	NNE6	N4	NW4	S2	SE1	UO	NE1	NE2	E3	NE3	ENE4	NE5	ENE4	ENE2	NW2	NNE1	NNE1	NNE1	E1	SSE0	NW2	NW2	NNE2.2	NNE8	
11-Jan	NW2	WSW2	WSW2	WNW4	NW2	WNW2	W3	WNW2	WNW1	WNW1	SSE1	ESE1	E2	ENE3	NE3	ENE2	ENE1	W3	SW2	UO	WSW1	WSW2	SSW2	NE0	WNW0.6	WNW4	
12-Jan	S2	S2	SW1	UO	SSW1	SSW1	SW1	SSW1	SW1	WSW2	W2	SE3	S6	SSE5	SSE5	S3	SSW1	NW1	NW2	UO	W1	WSW1	SW1	S1	SSW1.5	S6	
13-Jan	WSW1	WSW1	W2	S0	WSW1	SSW0	W2	NW3	UO	SSW1	WSW2	S2	SSE4	S5	S5	S3	S1	NNW2	UO	WNW2	W1	SSW2	SSW1	NNW1	SSW1.2	S5	
14-Jan	UO	NNW1	NW1	UO	WSW0	NW0	WSW1	W0	SSW1	S1	SSE2	SE3	SSE4	SSE3	S0	NW1	N1	WNW1	NW2	UO	WSW2	S1	SSW3	SSW2	SSW0.7	SSE4	
15-Jan	S3	S3	SSW4	S5	S5	S6	S7	S7	S6	S7	S6	S9	S9	S11	S10	S9	S7	S5	SSW5	SSW5	S4	S5	SSW6	S7	S7	S6.3	S11
16-Jan	S6	SW2	N3	N3	N7	NNW3	N2	SSE1	SSE1	SW2	WSW1	SSE4	SSE4	SSE5	SSE4	S3	S3	S2	NW2	WNW4	WNW6	WNW5	WNW7	WNW6	WSW1.0	N7	
17-Jan	NNW9	NNW10	N7	NNE7	NNE9	NE7	NNE6	NNE7	NNE7	NNE8	NNE9	NNE11	NNE9	NNE8	NNE8	NNE9	NNE9	N7	N9	N6	N11	N10	NNW8	NNW7	N7.6	NNE11	
18-Jan	WNW3	WNW3	W3	WSW2	WSW1	NW2	WSW3	WSW2	WSW3	SSW2	SSW2	NW0	SE2	SSE5	SSE6	S4	SSW3	NW4	WNW4	WNW6	NNW3	NW3	NNW1	W2	WSW1.5	SSE6	
19-Jan	WSW2	SSW3	S3	SSW4	SSW3	S3	S3	SSW4	SSW4	S6	S9	S10	SSE11	S10	S6	S6	S5	S3	N2	NNW1	N3	N2	WSW0	NNW4	S3.4	SSE11	
20-Jan	NW3	NW4	WNW2	NW2	NW1	WSW1	S1	SSE3	S2	N4	N6	NNW9	N8	N8	N8	N9	N8	N10	NNE8	NE6	NE9	NE8	NNE7	N6	N4.5	N10	
21-Jan	NNW6	NNW7	NNE2	NNW1	NW4	NW4	NW5	WNW3	NNW5	N6	N7	N6	NNE9	N9	NNE9	NNE10	NNE8	NNE7	NNE4	NNE4	N5	NNE5	N13	N13	N5.9	N13	
22-Jan	NNE9	NNE11	NNE9	N9	N9	N8	NNW8	N6	NNW4	N5	N5	N5	NE3	SSE9	SSE11	SSE10	S8	SSE11	SSE11	S12	S14	S12	S7	S7	SE1.7	S14	
23-Jan	S9	S7	S8	S9	S9	SSW5	S5	S4	S5	S3	S6	SSW6	S3	NNW2	N6	N9	N9	NNE11	N13	NNE11	NNE12	NNE11	NNE10	NNE10	NE1.2	N13	
24-Jan	NNE10	NNE7	N7	N8	N5	N5	NW4	NW3	UO	NW5	NNW2	NNW2	NW2	SE3	SE2	S4	SSW3	SSW2	SW3	WSW1	SW1	S3	NNW2	NNW4	NNW1.9	NNE10	
25-Jan	NNE7	NNE7	NE7	NNE9	NNE9	NNE7	N11	NNE7	N7	N7	N7	N3	SSW0	SE5	SSE7	S7	SSE9	S9	S7	SSW7	SSW6	SSW7	SSW6	SSW7	ENE1.0	N11	
26-Jan	S7	SW3	ESE2	WNW5	WNW4	WNW2	NW3	SW1	SSW2	SSE4	S5	SSE4	S8	SSE10	S10	S8	S9	S9	S9	SSE7	S6	S4	S4	SW5	S4.3	S10	
27-Jan	SW4	SW4	SSW4	SSW4	SSW4	WNW3	SW2	SSW3	S5	SSW3	SSW3	S4	S5	S5	SSW5	S4	SSE4	S5	SSW3	W6	S4	S6	S8	S6	SSW3.9	S8	
28-Jan	S7	S9	S8	S3	S3	S5	WSW2	S2	S7	SSW6	SSW3	SW6	SW9	SW7	WSW5	W6	WSW6	W10	W9	W8	W8	W8	WNW4	SSW3	SW4.7	W10	
29-Jan	SSW5	S6	S7	S7	S8	S7	S5	S4	S3	SW2	SW2	WSW1	W2	WSW3	SSW3	SW2	W1	WNW2	SW3	SSW7	S11	S9	S6	S4	SSW4.3	S11	
30-Jan	S9	S10	S8	S8	S7	W1	WSW2	SW2	S4	S3	S6	S10	S6	SW9	WSW10	WSW12	WSW11	W8	SW9	SW9	WNW15	WNW11	WSW2	WSW5	SW5.6	WNW15	
31-Jan	W8	W8	WSW6	W9	W10	WSW9	SW6	WSW7	S5	SSW5	SSW5	SSE7	SSE8	SSE9	S9	S8	S5	SSE4	SSW1	NNW1	NNE5	N5	NNW5	NW2	SW3.5	W10	

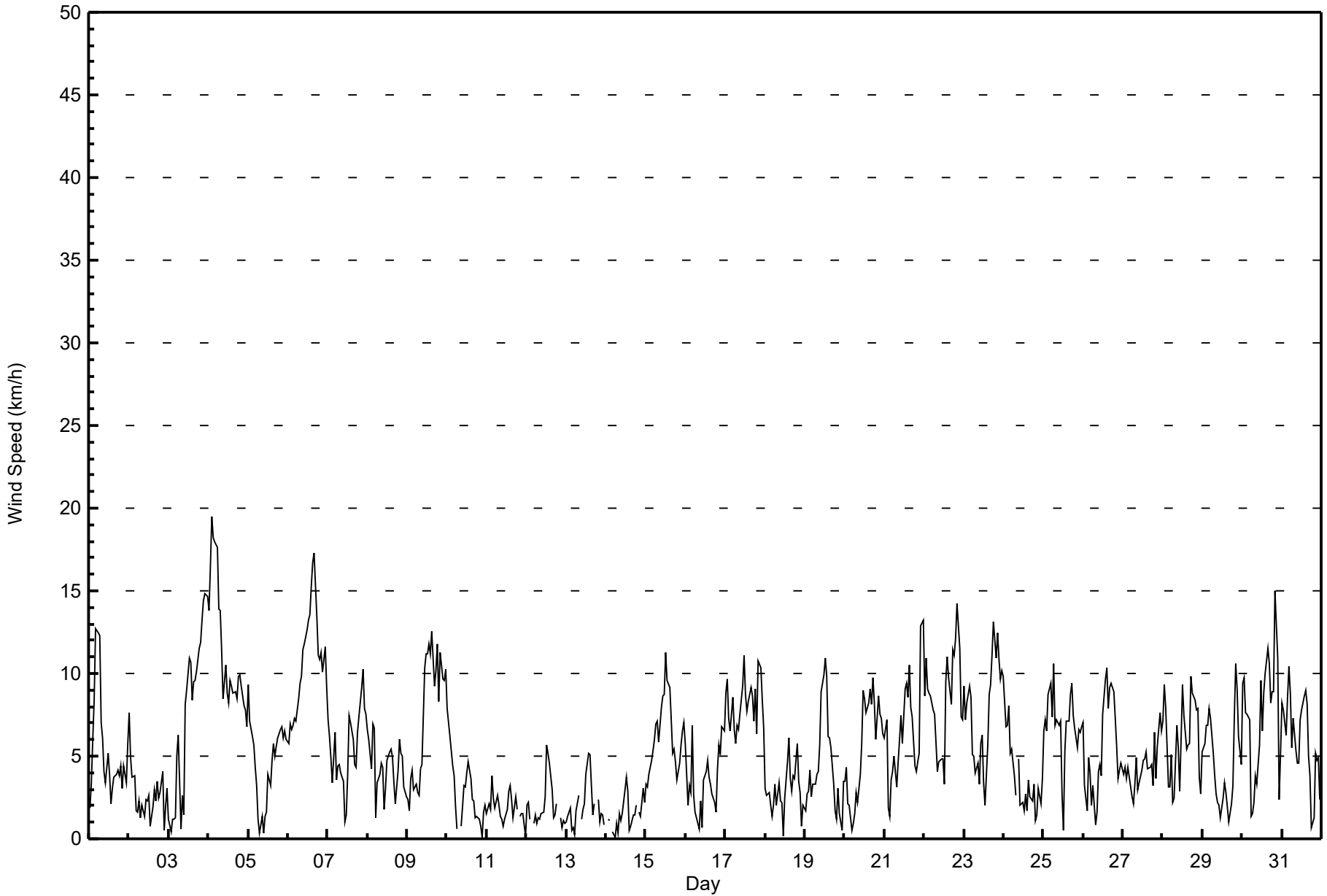
NNW1.1	NNW1.3	N1.2	N1.5	N1.6	NNW1.4	NNW1.5	NNW1.1	NNW0.4	NNW0.7	NNE1.0	NE1.0	E1.0	ESE1.2	ESE0.8	NE0.6	NNE0.9	N1.2	N1.5	N1.4	N1.9	N1.4	N1.6	NNW1.6	Diurnal Average
N14	N17	N19	NNE18	NNE18	NNE18	N14	NNE14	NNE11	N11	N12	N13	N13	N14	N15	N17	N17	N13	N13	S12	WNW15	N14	N15	N15	Diurnal Maximum

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**  
**Fort McKay - Bertha Ganter - January 2024**





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	407	55.45	55.45
6 - 11	290	39.51	94.96
12 - 19	37	5.04	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: 734

Total Number of Hours: 744





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

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

<b>Wind Speed</b> <b>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	33	26	28	16	4	5	7	26	66	46	21	31	13	23	37	25	407
6 - 11	67	69	8	1	0	0	0	20	74	9	7	6	12	5	1	11	290
12 - 19	23	9	0	0	0	0	0	0	3	0	0	1	0	1	0	0	37
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>	123	104	36	17	4	5	7	46	143	55	28	38	25	29	38	36	734

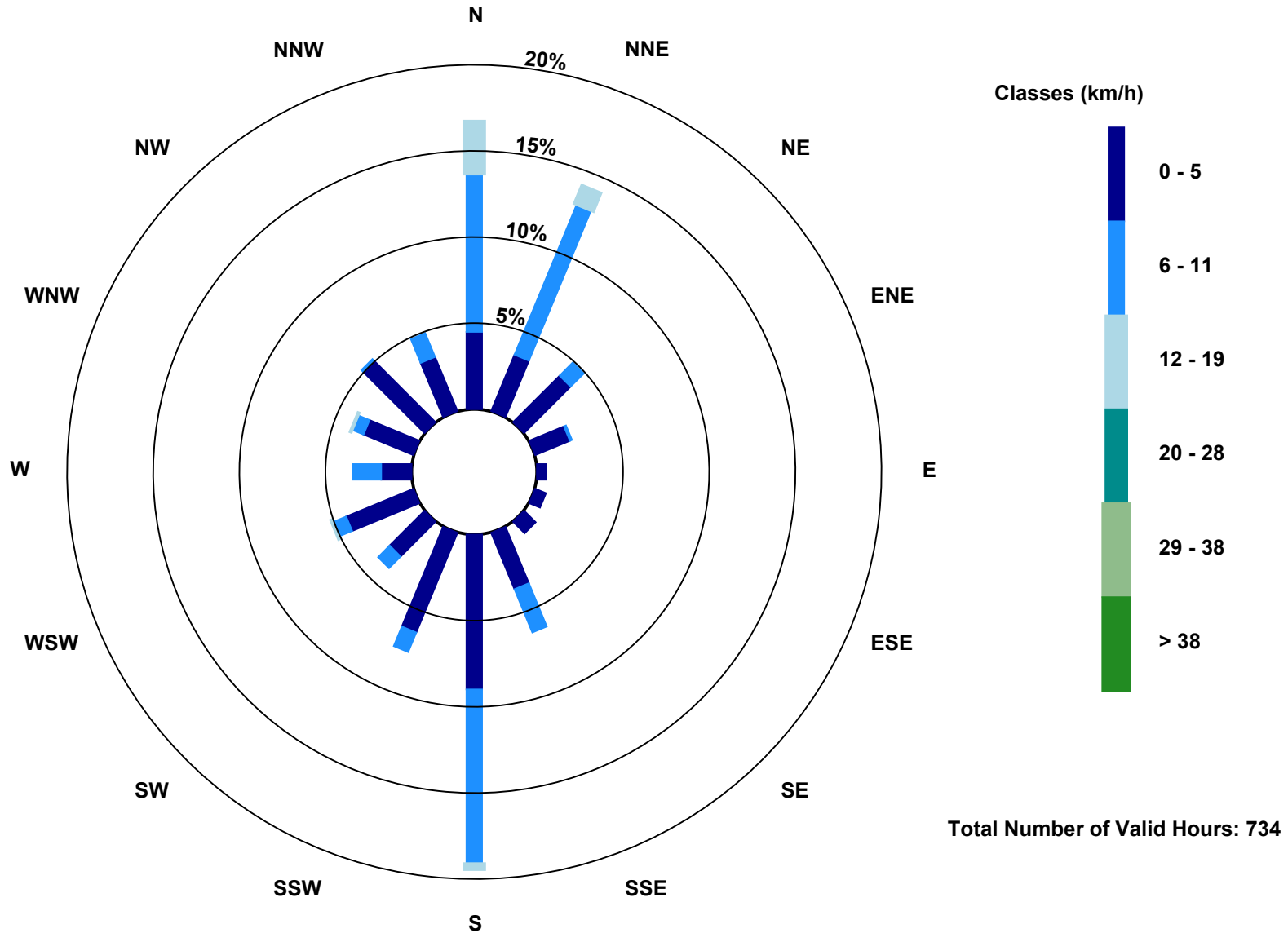
Total Number of Valid Hours: 734

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 22:00 Minimum Value: 0 km/h on Jan 13 18:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 1 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 4																	Hours in Service: 744 Hours of Data: 734 Hours of Missing Data: 10 Hours of Calibration: 0 Percent Operational Time: 98.7									
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-Jan	2	2	2	2	3	3	3	3	2	1	1	2	2	1	1	2	2	2	1	2	2	1	2	2	3	
2-Jan	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	
3-Jan	1	1	1	1	1	2	2	1	1	2	1	2	2	2	2	2	2	2	2	2	3	3	3	3		
4-Jan	3	3	4	5	4	4	3	5	4	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2		
5-Jan	2	2	1	1	1	1	1	1	1	1	1	2	1	1	2	2	2	2	1	1	1	1	1	1		
6-Jan	1	1	1	1	1	1	2	1	2	2	2	2	2	3	3	3	3	3	3	3	2	3	2	2		
7-Jan	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	2	1	1	2	2	2	2	2	1		
8-Jan	1	2	1	1	1	2	1	1	1	2	2	1	2	1	1	1	1	1	2	2	2	2	2	1		
9-Jan	1	1	1	1	1	2	1	1	1	2	3	3	2	3	3	3	3	3	4	3	3	3	2	3		
10-Jan	2	2	2	1	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
11-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	1		
12-Jan	0	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	1		
13-Jan	1	1	1	1	1	1	1	2	UO	1	1	1	1	1	1	1	1	0	UO	1	1	1	1	1		
14-Jan	UO	1	1	UO	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	1		
15-Jan	1	1	1	1	1	1	1	2	1	1	1	2	2	2	2	2	2	1	1	1	2	1	1	1		
16-Jan	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2		
17-Jan	2	3	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	1	1	1	2	2	1	2		
18-Jan	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1		
19-Jan	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	2	1	2	1	1	1	1		
20-Jan	2	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1		
21-Jan	1	1	2	2	2	1	1	1	1	2	2	2	3	2	2	2	2	2	1	1	2	2	3	3		
22-Jan	2	2	2	2	1	1	1	1	1	1	1	1	4	2	3	3	3	3	2	2	3	3	2	2		
23-Jan	2	2	2	3	2	1	1	1	1	1	2	2	1	2	1	2	2	3	3	2	3	3	2	2		
24-Jan	2	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	1	2	1	1	1	2	1	3	2		
25-Jan	3	2	2	3	2	2	2	1	1	1	1	2	1	1	1	2	2	2	2	2	2	2	2	2		
26-Jan	2	2	2	2	2	1	2	1	1	1	1	1	1	2	3	2	2	2	2	1	1	1	1	2		
27-Jan	1	1	1	1	1	2	1	1	2	1	1	1	2	1	1	1	1	1	2	3	2	1	1	2		
28-Jan	1	2	2	1	2	2	1	1	1	2	2	2	4	3	3	2	2	3	3	3	3	3	2	2		
29-Jan	2	1	2	2	2	2	1	1	1	1	1	1	1	1	2	1	2	1	2	2	2	4	2	3		
30-Jan	3	2	1	2	3	2	1	2	2	3	2	2	2	4	5	5	5	4	3	4	6	7	2	2		
31-Jan	3	3	2	3	4	4	2	3	2	1	2	2	1	2	2	2	1	1	1	1	1	1	1	1		
																	Diurnal Maximum									
UO - Unstable Operation																										



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

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

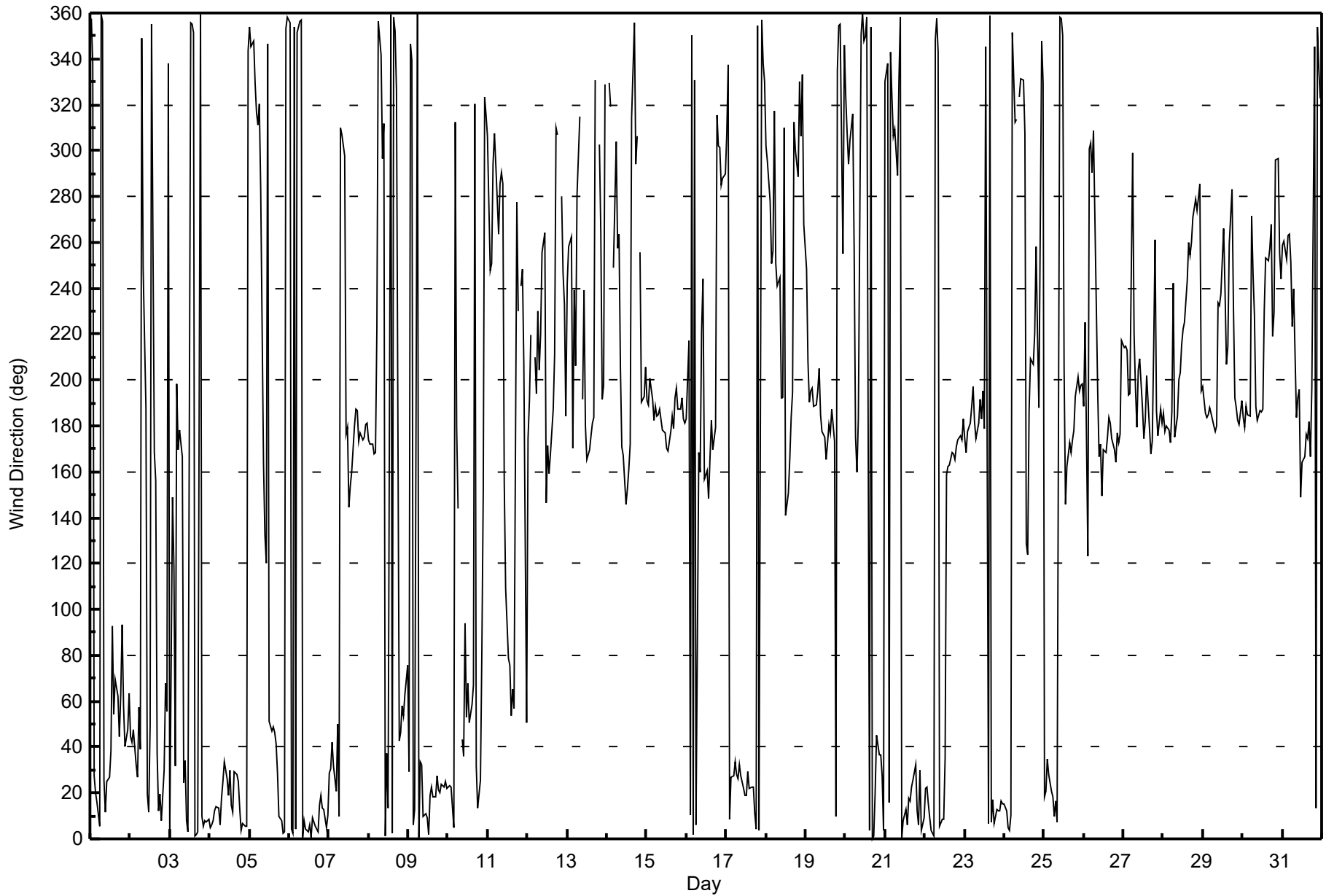
Direction of Maximum Speed: 8 deg on Jan 4 03:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 13.7 deg on Jan 4	Hours of Data: 734
Direction of Minimum Speed: 304 deg on Jan 14 06:00	Hours of Missing Data: 10
Direction of Minimum Daily Speed Average: 0.6 deg on Jan 11	Percent Operational Time: 98.7
Monthly Average Direction: 359.6 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-Jan	357	338	28	20	16	6	359	356	26	12	25	27	39	93	55	70	62	45	63	93	58	40	48	64	27.8
2-Jan	44	42	48	32	27	58	39	349	249	188	20	12	50	355	169	156	37	12	19	8	30	68	56	338	33.8
3-Jan	1	149	118	32	198	170	178	167	24	34	8	3	355	355	351	1	2	3	360	10	5	8	7	9	5.2
4-Jan	5	6	8	12	14	13	6	18	25	34	26	19	30	14	12	29	28	25	13	4	6	6	5	344	13.7
5-Jan	354	345	348	330	317	311	320	283	164	132	120	347	51	47	49	46	41	29	10	8	2	3	353	358	5.4
6-Jan	356	4	2	354	4	351	356	357	1	8	4	3	6	1	9	8	5	3	15	19	14	13	5	10	5.4
7-Jan	29	30	42	32	20	50	10	310	307	298	177	179	144	154	160	180	187	187	173	177	174	175	181	181	158.6
8-Jan	174	172	172	168	168	222	356	342	297	312	1	37	13	360	2	358	352	326	43	46	58	54	63	75	34.5
9-Jan	29	346	339	6	13	360	1	34	32	10	11	9	2	19	22	18	18	27	21	20	24	23	25	22	17.0
10-Jan	23	23	22	5	312	180	144	UO	43	36	94	53	68	50	58	67	320	32	13	25	81	151	323	316	29.5
11-Jan	306	248	251	294	307	294	264	285	290	285	155	109	79	76	54	65	57	278	230	UO	241	248	207	51	288.5
12-Jan	175	191	219	UO	210	194	230	204	220	256	264	146	172	159	168	188	211	310	307	UO	280	247	233	184	195.4
13-Jan	242	258	262	170	239	206	280	315	UO	192	239	180	165	170	176	181	184	331	UO	303	264	192	198	329	211.2
14-Jan	UO	329	319	UO	249	304	257	263	206	171	167	146	152	161	172	314	356	294	306	UO	256	191	193	206	202.2
15-Jan	191	189	201	191	182	188	184	185	188	178	177	177	170	169	178	184	179	192	196	187	187	192	183	181	182.7
16-Jan	183	217	10	350	2	331	6	168	160	222	244	157	160	148	166	182	170	180	315	302	301	285	288	290	257.9
17-Jan	307	338	9	27	27	34	28	26	32	27	22	19	19	29	22	22	22	11	4	354	3	357	338	330	10.2
18-Jan	302	295	278	251	256	317	251	241	245	192	192	310	141	151	166	184	195	312	300	289	330	307	333	268	252.4
19-Jan	248	208	190	195	197	188	189	195	205	185	178	175	165	173	180	177	187	173	10	335	355	355	255	346	184.3
20-Jan	323	307	294	305	316	257	175	160	183	351	360	348	350	358	4	354	0	1	20	45	36	37	28	4	3.6
21-Jan	330	338	16	343	323	306	309	289	331	358	0	8	13	6	18	17	22	26	33	12	6	30	4	9	1.9
22-Jan	22	22	15	9	4	1	348	358	343	6	9	8	36	159	163	163	169	168	165	171	174	176	174	183	126.2
23-Jan	174	169	178	181	189	197	182	174	181	191	183	195	179	345	7	359	7	17	7	13	12	12	16	15	35.2
24-Jan	15	12	5	4	10	352	312	313	UO	324	331	331	308	129	124	187	209	207	220	258	220	188	348	329	344.3
25-Jan	18	21	35	28	20	18	10	17	8	358	357	350	205	146	162	173	168	174	178	193	202	195	198	198	70.0
26-Jan	188	225	123	301	303	291	309	233	195	167	172	149	169	168	175	184	181	174	170	164	177	173	177	217	182.8
27-Jan	214	215	213	194	194	299	220	196	180	204	209	188	174	183	202	190	168	173	213	261	187	176	187	181	196.5
28-Jan	186	178	180	178	173	186	242	175	184	200	203	216	222	225	243	260	255	260	271	279	274	279	285	195	227.7
29-Jan	197	185	184	185	188	185	180	178	180	233	233	237	266	238	207	215	260	283	232	192	188	183	180	191	195.1
30-Jan	184	180	188	185	185	272	247	228	189	182	187	186	188	230	253	252	258	268	219	229	296	296	255	244	227.3
31-Jan	259	261	252	263	264	251	223	240	184	192	196	149	164	167	177	174	182	167	196	345	13	354	335	323	221.1

340.7 340.9 4.1 352.2 349.1 339.2 332.3 329.3 328.1 340.9 17.5 39.8 81.2 114.3 106.6 43.6 15.5 357.3 359.4 349.5 353.8 354.8 355.4 345.0  
 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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 101 deg on Jan 25 13:00 Minimum Value: 8 deg on Jan 11 08:00 Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 13 Q <sub>1</sub> = 15 Median = 20 Q <sub>3</sub> = 37 P <sub>90</sub> = 59 P <sub>99</sub> = 88																			Hours in Service: 744 Hours of Data: 734 Hours of Missing Data: 10 Hours of Calibration: 0 Percent Operational Time: 98.7						
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-Jan	52	31	26	15	14	16	15	20	14	12	19	21	19	19	30	31	29	25	29	28	25	18	36	29	52
2-Jan	27	22	25	21	22	25	30	45	52	83	30	22	43	84	71	34	40	50	51	29	12	56	21	25	84
3-Jan	49	67	38	44	57	25	17	88	25	34	13	12	14	14	12	14	14	14	15	14	15	14	15	15	88
4-Jan	15	15	16	16	16	15	15	16	15	18	17	17	20	16	14	17	16	16	13	15	14	12	16	30	30
5-Jan	15	18	16	11	12	16	22	80	59	57	58	69	22	32	25	24	19	19	14	14	11	10	13	15	80
6-Jan	14	13	14	12	12	12	13	14	13	11	14	13	13	14	14	15	14	15	15	15	14	15	13	14	15
7-Jan	17	17	29	31	15	32	11	17	9	59	75	58	11	9	13	20	15	21	15	14	13	13	14	11	75
8-Jan	11	15	26	12	14	64	19	15	14	17	47	45	20	19	18	25	30	14	34	22	30	31	38	21	64
9-Jan	24	54	31	16	23	29	28	21	19	19	15	16	17	15	16	15	16	15	15	15	16	15	15	16	54
10-Jan	17	17	15	22	27	33	62	UO	34	34	22	26	26	23	33	24	22	52	22	37	56	87	49	25	87
11-Jan	58	30	48	14	20	49	22	8	21	50	80	51	36	24	24	24	42	19	31	UO	50	42	44	84	84
12-Jan	32	12	51	UO	47	29	42	54	53	56	43	30	17	18	20	14	53	17	18	UO	35	76	49	78	78
13-Jan	45	22	38	63	62	82	34	29	UO	52	47	44	14	14	16	18	83	14	UO	10	56	32	50	64	83
14-Jan	UO	25	71	UO	77	72	43	86	24	33	26	16	11	23	86	33	23	35	22	UO	24	69	18	39	86
15-Jan	27	18	17	14	14	14	13	13	15	14	14	16	12	16	12	13	14	18	28	17	16	12	9	15	28
16-Jan	17	79	18	25	14	28	54	67	78	58	88	20	17	14	29	35	17	31	73	24	17	26	24	20	88
17-Jan	13	16	29	16	15	15	18	16	17	16	16	16	19	18	18	16	14	14	14	16	18	17	15	23	29
18-Jan	29	23	38	69	55	41	26	74	53	64	44	87	28	18	15	18	26	38	40	25	36	49	88	66	88
19-Jan	67	35	22	17	38	15	13	17	18	12	12	13	11	13	17	13	17	65	43	79	38	80	86	17	86
20-Jan	17	16	46	48	88	65	45	18	54	29	25	18	16	20	19	18	17	18	16	31	17	20	20	17	88
21-Jan	10	12	37	71	23	18	11	30	13	18	17	22	19	18	20	18	17	14	17	20	25	26	17	17	71
22-Jan	16	15	15	17	17	18	15	19	20	18	19	19	26	27	14	14	16	15	13	13	13	14	14	16	27
23-Jan	13	12	13	16	16	17	15	17	17	18	22	29	64	69	21	17	18	16	16	16	16	17	17	18	69
24-Jan	17	21	18	17	19	20	15	17	UO	18	35	49	81	18	28	44	77	62	54	73	68	38	91	31	91
25-Jan	12	14	16	17	15	15	15	16	17	18	20	42	101	12	13	18	12	12	15	16	21	19	18	21	101
26-Jan	16	53	75	42	19	32	16	74	58	22	19	23	14	14	17	19	15	14	13	12	15	17	20	31	75
27-Jan	30	32	29	20	26	47	50	45	18	33	30	30	23	31	22	17	18	17	56	52	58	13	13	20	58
28-Jan	15	12	16	27	43	34	61	53	14	27	56	22	36	40	60	40	31	27	30	25	28	28	50	64	64
29-Jan	35	13	15	18	14	18	15	16	40	50	56	87	45	58	75	63	77	55	45	20	14	36	19	71	87
30-Jan	39	12	11	14	18	74	90	88	64	85	42	16	15	34	47	43	44	46	29	41	22	27	46	44	90
31-Jan	29	36	39	34	34	44	53	39	24	38	49	20	17	14	16	14	21	13	88	74	16	24	25	61	88
67 79 75 71 88 82 90 88 78 85 88 87 101 84 86 63 83 65 88 79 68 87 91 84																								Diurnal Maximum	
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS02 MILDRED LAKE JANUARY 2024**

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

January 31, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
 JANUARY 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	709	35	35	100	43.8	0	12.5	0
H2S (ppb) Average	706	37	38	99.87	25.9	14	5.5	3
THC (ppm) Average	695	37	49	98.39	13.8	-	4.3	-
NMHC(ppm) Average	695	37	49	98.39	2.798	-	0.488	-
CH4(ppm) Average	695	37	49	98.39	11	-	3.8	-
Temperature (C) Average	744	0	0	100	11.3	-	4.7	-
Relative Humidity (%) Average	744	0	0	100	99.2	-	94.9	-
Wind Speed 10 m (km/h) Average	712	0	32	95.7	22	-	12	-
Wind Direction 10 m (deg) Average	712	0	32	95.7	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
JANUARY 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	709	2.58	5.8	-	0	0	0.1	0.4	1.7	7.9	43.8
H2S (ppb) Average	706	1.02	2.5	-	0	0.1	0.2	0.2	0.5	2.5	25.9
THC (ppm) Average	695	2.46	1.2	-	2	2	2	2.1	2.4	2.9	13.8
NMHC(ppm) Average	695	0.076	0.289	-	0	0	0	0	0	0.1	2.798
CH4(ppm) Average	695	2.39	0.9	-	2	2	2	2.1	2.4	2.8	11
Temperature 2 m (C) Average	744	-17.64	12.5	-	-42.2	-35.7	-24.7	-18.4	-10.4	1.6	11.3
Relative Humidity (%) Average	744	77.41	8.9	-	40.9	67.4	70.8	77.7	82.9	89.9	99.2
Wind Speed 10 m (km/h) Average	712	7.4	4	-	0	3	5	7	9	12	22
Wind Direction 10 m (deg) Average	712	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S	01 Jan 2024 13:00	01 Jan 2024 13:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	01 Jan 2024 01:00	01 Jan 2024 12:00	12	Unstable Operation - excessive baseline drift
WS/WD	08 Jan 2024 08:00	08 Jan 2024 08:00	1	Flat line in sensor output signal
WS/WD	08 Jan 2024 19:00	08 Jan 2024 19:00	1	Flat line in sensor output signal
WS/WD	11 Jan 2024 18:00	11 Jan 2024 22:00	5	Flat line in sensor output signal
WS/WD	13 Jan 2024 09:00	13 Jan 2024 09:00	1	Flat line in sensor output signal
WS/WD	13 Jan 2024 19:00	13 Jan 2024 20:00	2	Flat line in sensor output signal
WS/WD	14 Jan 2024 04:00	14 Jan 2024 06:00	3	Flat line in sensor output signal
WS/WD	14 Jan 2024 08:00	14 Jan 2024 10:00	3	Flat line in sensor output signal
WS/WD	14 Jan 2024 13:00	14 Jan 2024 14:00	2	Flat line in sensor output signal
WS/WD	14 Jan 2024 17:00	14 Jan 2024 18:00	2	Flat line in sensor output signal
WS/WD	14 Jan 2024 21:00	14 Jan 2024 21:00	1	Flat line in sensor output signal
WS/WD	16 Jan 2024 16:00	16 Jan 2024 17:00	2	Flat line in sensor output signal
WS/WD	20 Jan 2024 10:00	20 Jan 2024 10:00	1	Flat line in sensor output signal
WS/WD	23 Jan 2024 14:00	23 Jan 2024 15:00	2	Flat line in sensor output signal
WS/WD	24 Jan 2024 09:00	24 Jan 2024 09:00	1	Flat line in sensor output signal
WS/WD	24 Jan 2024 11:00	24 Jan 2024 12:00	2	Flat line in sensor output signal
WS/WD	25 Jan 2024 14:00	25 Jan 2024 14:00	1	Flat line in sensor output signal
WS/WD	26 Jan 2024 04:00	26 Jan 2024 04:00	1	Flat line in sensor output signal
WS/WD	27 Jan 2024 07:00	27 Jan 2024 07:00	1	Flat line in sensor output signal



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

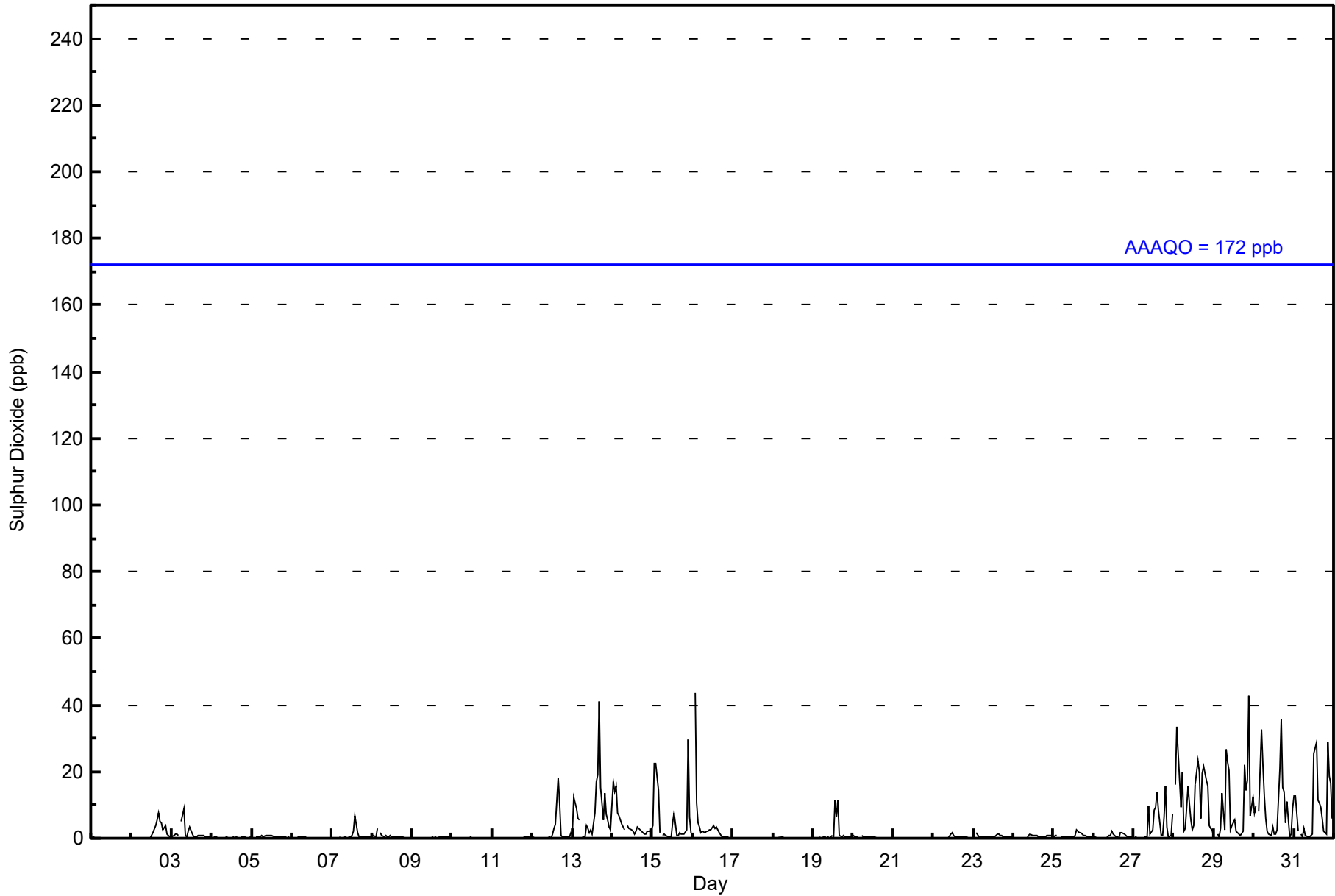
## Mildred Lake - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																									
Maximum Value: 43.8 ppb on Jan 16 02:00		Maximum Daily Average: 12.5 ppb on Jan 28		Hours of Data: 709																	0.1		0.3																									
Minimum Value: 0.0 ppb on Jan 1 18:00		Minimum Daily Average: 0.0 ppb on Jan 21		Hours of Missing Data: 35																	1.7		7.7																									
Maximum Diurnal Average: 5.2 ppb at hour 2		Minimum Diurnal Average: 0.9 ppb at hour 11		Hours of Calibration: 35																	1.4		8.7																									
Monthly Average: 2.58 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.4 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 7.9 P <sub>99</sub> = 29.0		Percent Operational Time: 100.0																	0.2		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-Jan	0.3	0.2	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.2	0.2	C	C	C	C	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																						
2-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.8	4.0	5.5	7.7	5.1	4.5	2.5	3.8	1.2	0.8	0.5	1.7	7.7																						
3-Jan	0.4	0.8	1.2	1.1	0.9	Z	5.1	8.7	0.9	0.6	1.9	3.5	1.4	0.6	0.5	0.6	0.7	0.8	0.8	0.7	0.5	0.5	0.4	0.4	1.4	8.7																						
4-Jan	Z	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.0	0.2	0.4	0.2	0.4																					
5-Jan	0.2	Z	0.3	0.3	0.2	0.4	0.7	0.6	0.7	0.9	0.9	0.9	0.7	0.6	0.4	0.5	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.5	0.9																						
6-Jan	0.1	0.0	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.2	0.1	0.2	0.3																						
7-Jan	0.1	0.1	0.1	Z	0.3	0.1	0.2	0.2	0.2	0.2	0.3	0.4	1.0	2.1	6.8	1.9	0.4	0.6	0.4	0.5	0.3	0.4	0.4	0.4	0.8	6.8																						
8-Jan	0.5	0.7	0.6	3.1	Z	1.9	0.7	0.6	0.7	0.5	0.6	0.8	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.6	3.1																						
9-Jan	0.2	0.1	0.1	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.6	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.6																						
10-Jan	Z	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	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	0.1	0.2																						
11-Jan	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	0.1	0.2	0.2	0.6	0.6	0.4	0.2	0.1	0.6																						
12-Jan	0.2	0.2	Z	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.3	0.1	1.1	2.9	4.2	18.2	10.4	0.8	0.5	0.4	0.3	0.4	0.2	1.5	1.8	18.2																						
13-Jan	1.2	12.1	9.1	5.7	5.6	Z	0.6	0.3	3.8	2.8	1.8	2.6	1.3	7.5	16.8	19.0	41.0	15.3	5.4	13.8	7.4	5.4	3.3	2.7	8.0	41.0																						
14-Jan	16.8	14.0	15.6	7.8	6.7	4.3	3.4	2.5	Z	4.0	2.8	2.7	2.1	1.2	2.0	3.3	2.7	2.0	1.6	1.3	1.2	2.1	2.1	2.4	4.5	16.8																						
15-Jan	3.9	22.4	22.4	14.4	1.7	Z	0.8	1.4	0.7	0.6	0.6	0.5	4.7	7.8	0.9	0.9	1.8	1.1	1.2	1.1	2.4	29.7	6.2	1.7	5.6	29.7																						
16-Jan	Z	43.8	10.5	4.8	3.2	1.7	2.1	1.8	2.3	2.3	2.5	2.7	3.8	2.8	3.4	2.7	1.8	0.6	0.3	0.4	0.3	0.2	0.1	0.1	4.1	43.8																						
17-Jan	0.1	Z	0.2	0.2	0.2	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	0.1	0.0	0.0	0.1	0.2																						
18-Jan	0.0	0.1	Z	0.2	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3																						
19-Jan	0.1	0.0	0.1	Z	0.2	0.1	0.2	0.2	0.1	0.3	0.1	1.0	0.6	11.6	6.5	11.4	0.7	0.6	0.7	0.6	0.6	0.5	0.6	0.8	1.6	11.6																						
20-Jan	0.8	0.6	0.3	0.3	Z	0.7	0.4	0.3	0.3	0.4	0.5	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8																						
21-Jan	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	0.0	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-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.7	0.7	0.5	0.4	0.6	0.5	0.6	0.5	0.4	0.3	0.1	0.2	0.2	0.3	1.7																						
23-Jan	1.4	Z	1.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	1.2	1.1	0.6	0.7	0.4	0.6	0.5	0.4	0.3	0.2	0.6	1.5																						
24-Jan	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.8	1.3	0.9	0.8	0.8	0.7	0.6	0.5	0.4	0.4	0.5	0.8	0.7	0.6	0.5	0.5	1.3																						
25-Jan	0.6	0.8	0.8	Z	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.7	2.4	1.9	1.7	1.4	1.1	0.7	0.6	0.6	0.5	0.4	0.8	2.4																						
26-Jan	0.4	0.4	0.2	0.1	Z	0.2	0.2	0.2	0.6	0.7	0.7	2.1	1.4	0.5	0.2	0.1	1.5	1.8	1.3	0.8	0.4	0.4	0.3	0.2	0.6	2.1																						
27-Jan	0.1	0.2	0.2	0.1	0.2	Z	0.2	0.2	0.2	9.8	1.5	2.4	8.6	9.5	14.1	8.5	1.0	0.9	6.3	15.7	3.4	0.4	0.7	7.2	4.0	15.7																						
28-Jan	Z	15.9	33.7	17.6	9.5	19.8	2.3	3.2	15.7	10.2	5.6	2.4	3.8	16.2	23.2	20.1	5.8	19.4	21.6	17.3	15.6	3.9	3.0	2.4	12.5	33.7																						
29-Jan	0.9	Z	1.5	0.6	3.1	13.7	2.5	26.8	22.7	20.4	2.7	4.0	5.4	2.0	1.5	1.2	0.9	2.0	21.9	14.6	17.2	42.7	6.7	12.4	9.9	42.7																						
30-Jan	7.4	9.5	Z	8.2	32.6	22.0	12.7	5.9	2.1	1.1	0.7	3.5	1.2	1.1	2.7	20.6	35.4	15.1	14.0	4.7	11.0	0.6	1.1	8.8	9.6	35.4																						
31-Jan	12.6	12.6	2.3	Z	1.5	0.6	3.0	0.6	0.5	0.5	0.6	1.2	25.6	28.9	11.6	10.8	9.1	6.1	2.0	1.4	29.0	18.8	16.4	5.9	8.8	29.0																						
																								1.9	5.2	3.9	2.5	2.5	2.7	1.2	1.8	1.8	1.9	0.9	1.2	2.3	3.4	3.5	4.2	4.1	2.5	2.8	2.6	3.1	3.6	1.5	1.6	Diurnal Average
																								16.8	43.8	33.7	17.6	32.6	22.0	12.7	26.8	22.7	20.4	5.6	4.0	25.6	28.9	23.2	20.6	41.0	19.4	21.9	17.3	29.0	42.7	16.4	12.4	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**  
**Mildred Lake - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	651	91.82	91.82
11 - 20	39	5.50	97.32
21 - 60	19	2.68	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Mildred Lake - January 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	159	82	16	2	11	7	38	95	71	23	19	9	10	22	16	41	621
11 - 20	1	0	1	0	0	4	15	2	4	0	0	4	7	0	0	0	38
21 - 60	0	0	0	0	1	2	7	5	0	0	0	1	3	0	0	0	19
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>	<b>160</b>	<b>82</b>	<b>17</b>	<b>2</b>	<b>12</b>	<b>13</b>	<b>60</b>	<b>102</b>	<b>75</b>	<b>23</b>	<b>19</b>	<b>14</b>	<b>20</b>	<b>22</b>	<b>16</b>	<b>41</b>	<b>678</b>

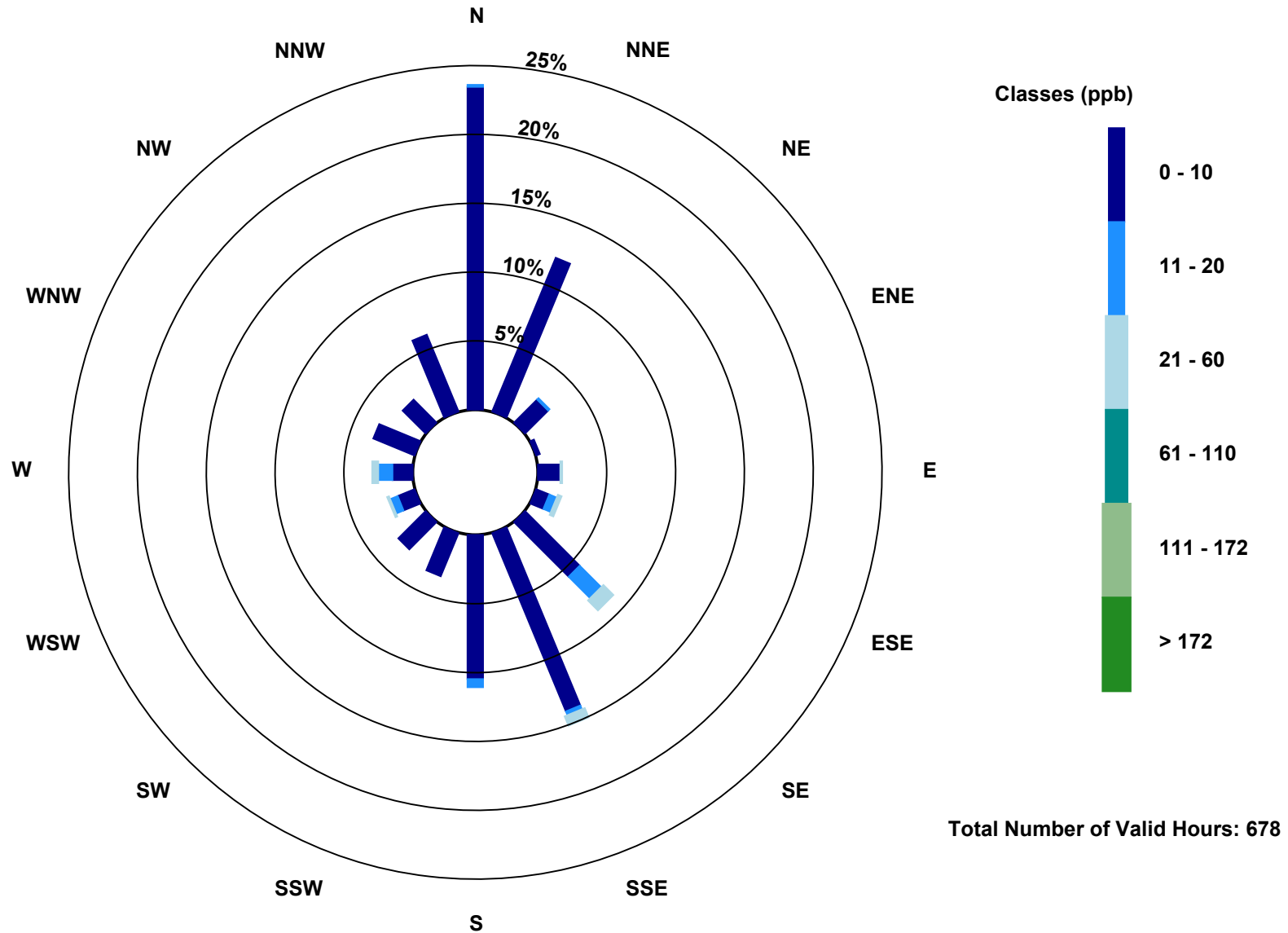
Total Number of Valid Hours: 678

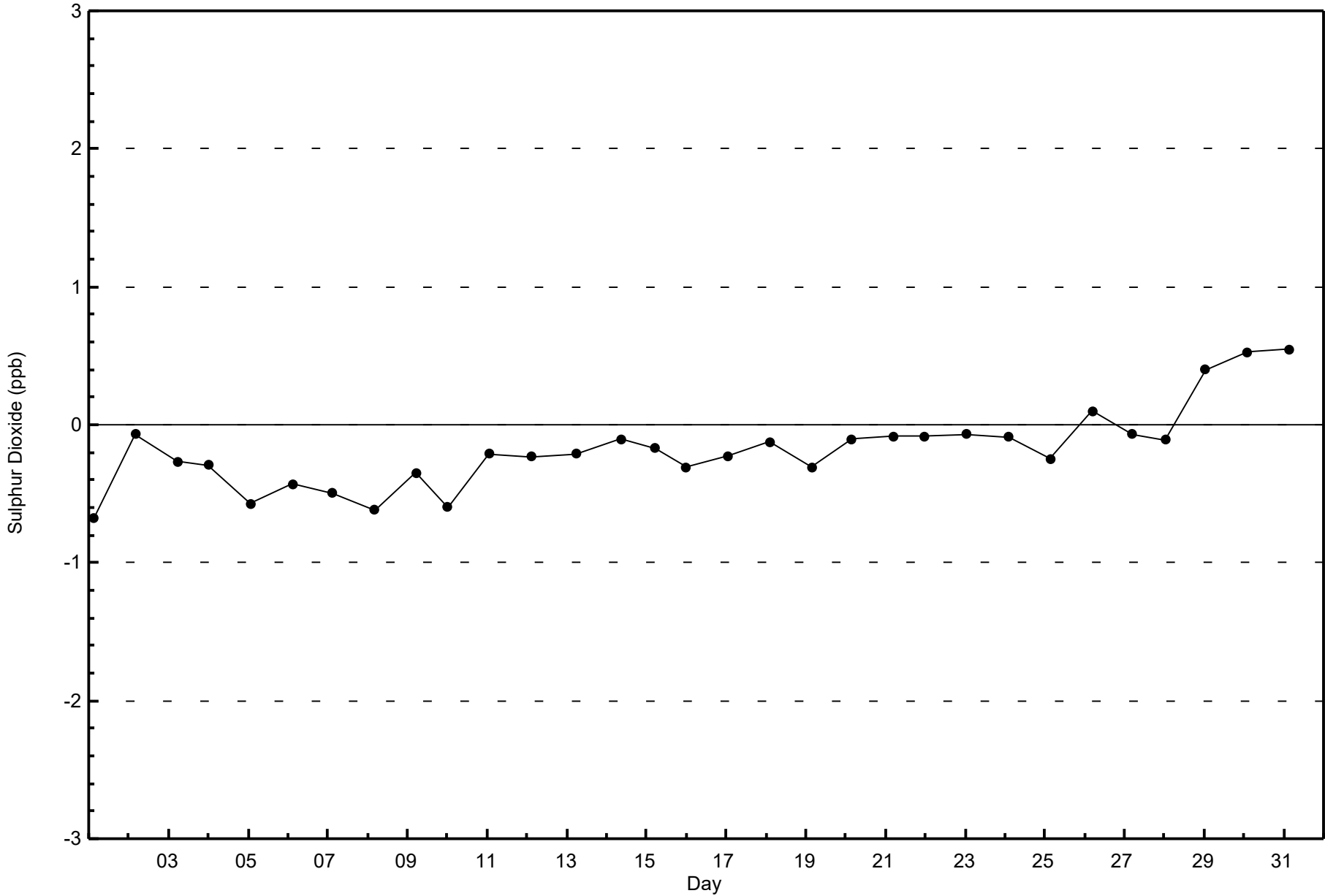
Total Number of Hours: 744



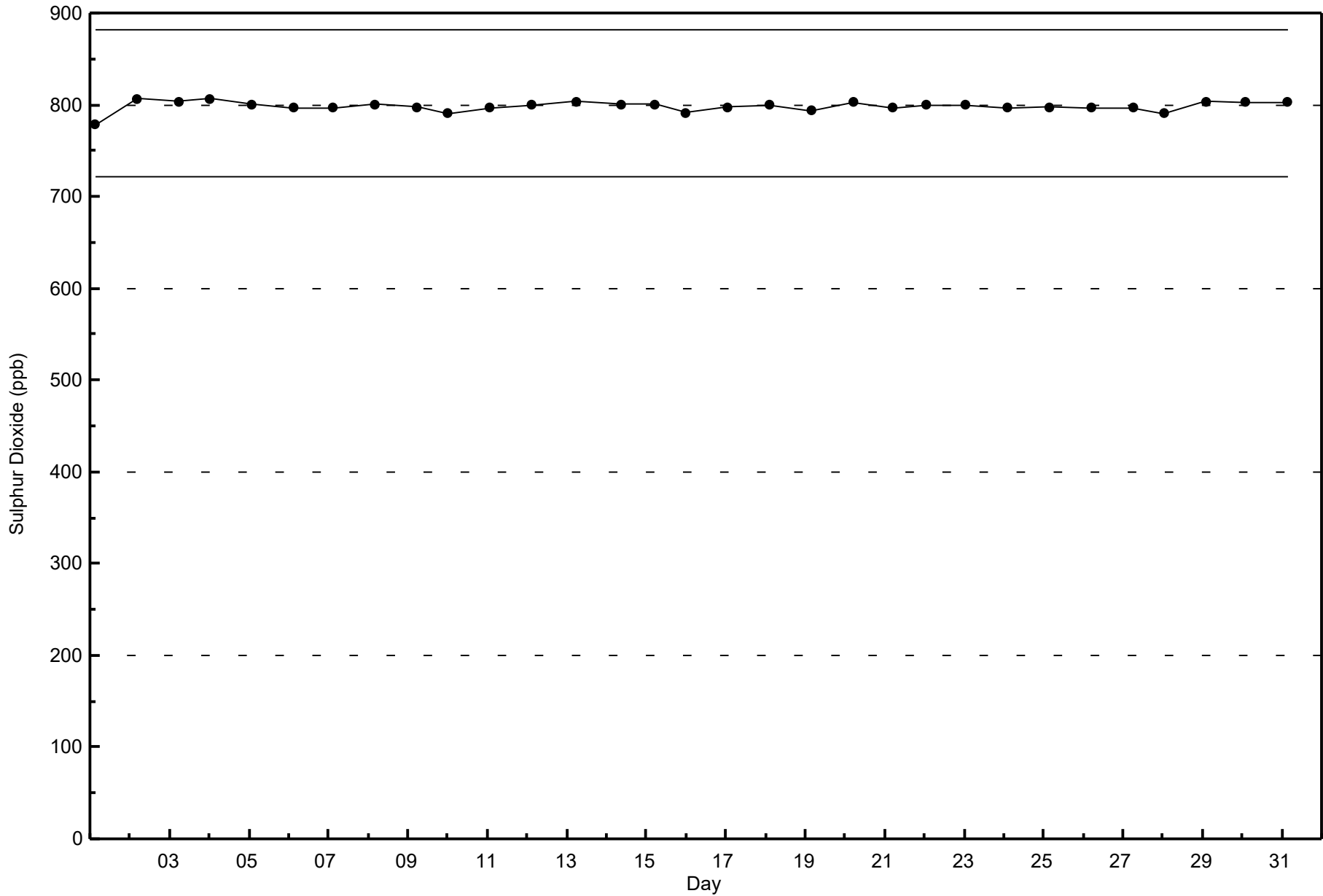
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

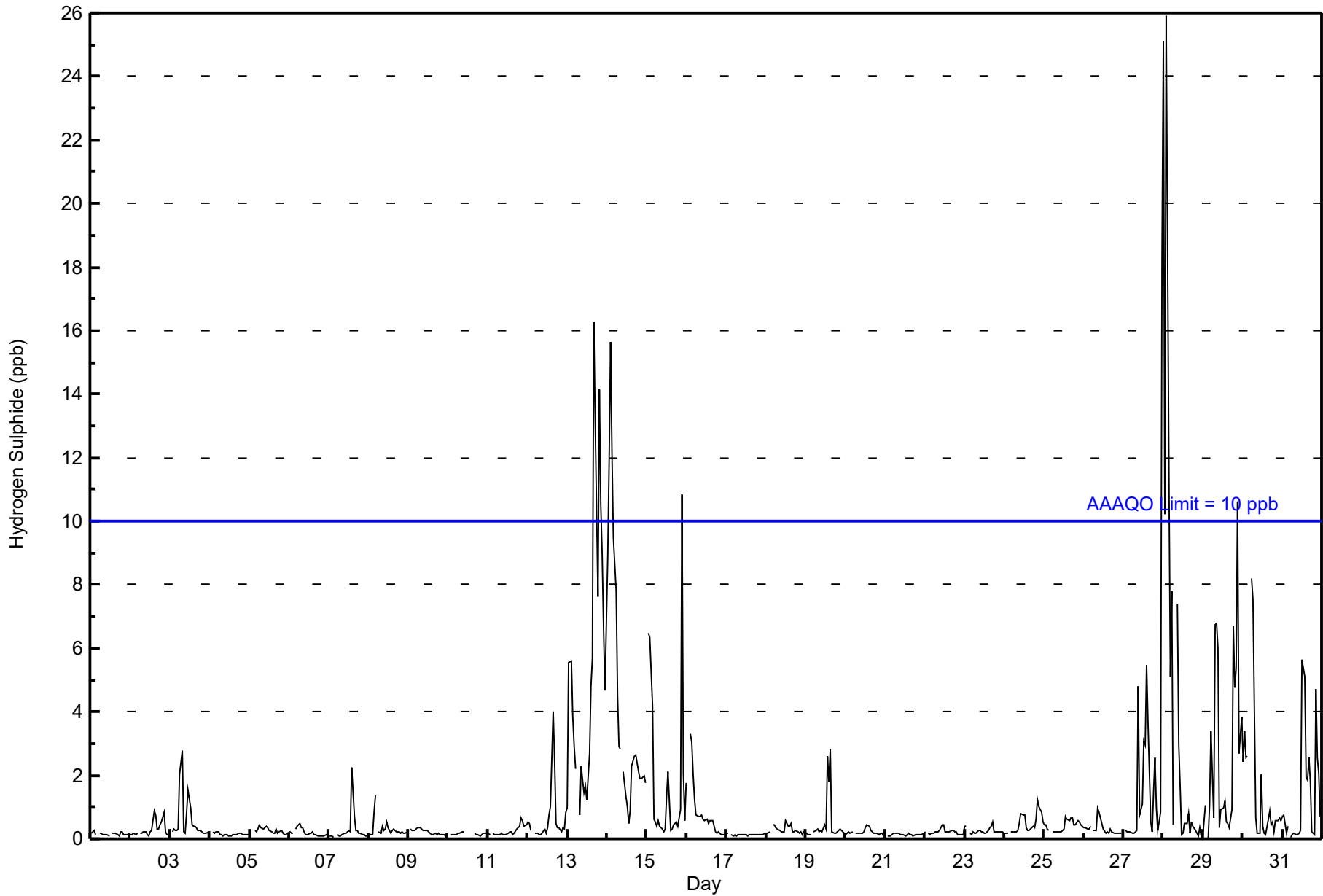














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	634	89.80	89.80
3 - 4	28	3.97	93.77
5 - 7	22	3.12	96.88
8 - 11	9	1.27	98.16
> 11	13	1.84	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mildred Lake - January 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	154	79	14	2	11	3	41	87	65	21	18	15	20	21	17	44	612
3 - 4	1	0	0	0	0	2	9	6	5	0	0	1	0	0	0	0	24
5 - 7	0	1	0	0	0	5	9	6	1	0	0	0	0	0	0	0	22
8 - 11	0	0	1	0	0	0	3	0	2	0	0	0	0	0	0	0	6
> 11	1	1	1	0	1	2	3	2	0	0	0	0	0	0	0	0	11
<b>Totals</b>	156	81	16	2	12	12	65	101	73	21	18	16	20	21	17	44	675

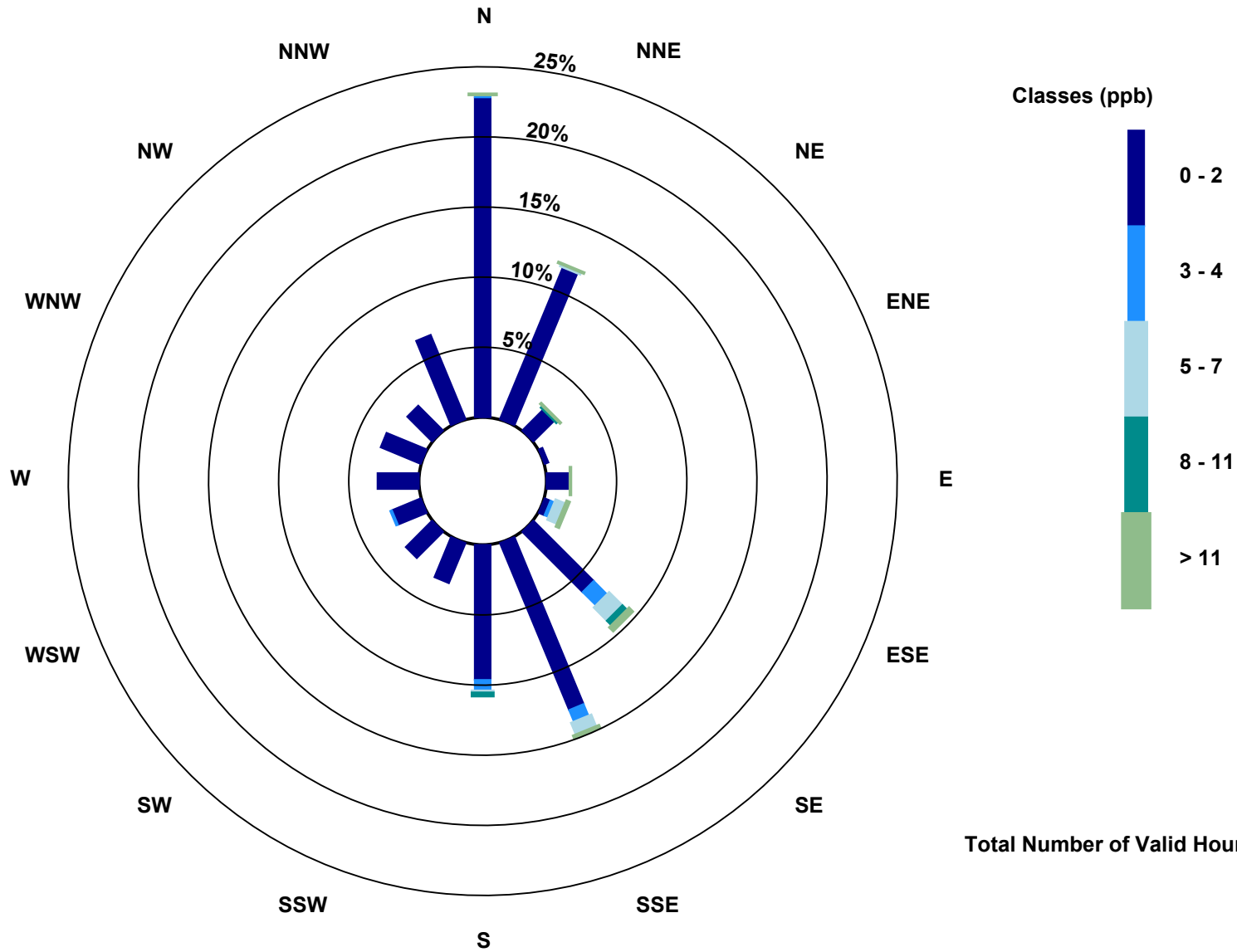
Total Number of Valid Hours: 675

Total Number of Hours: 744

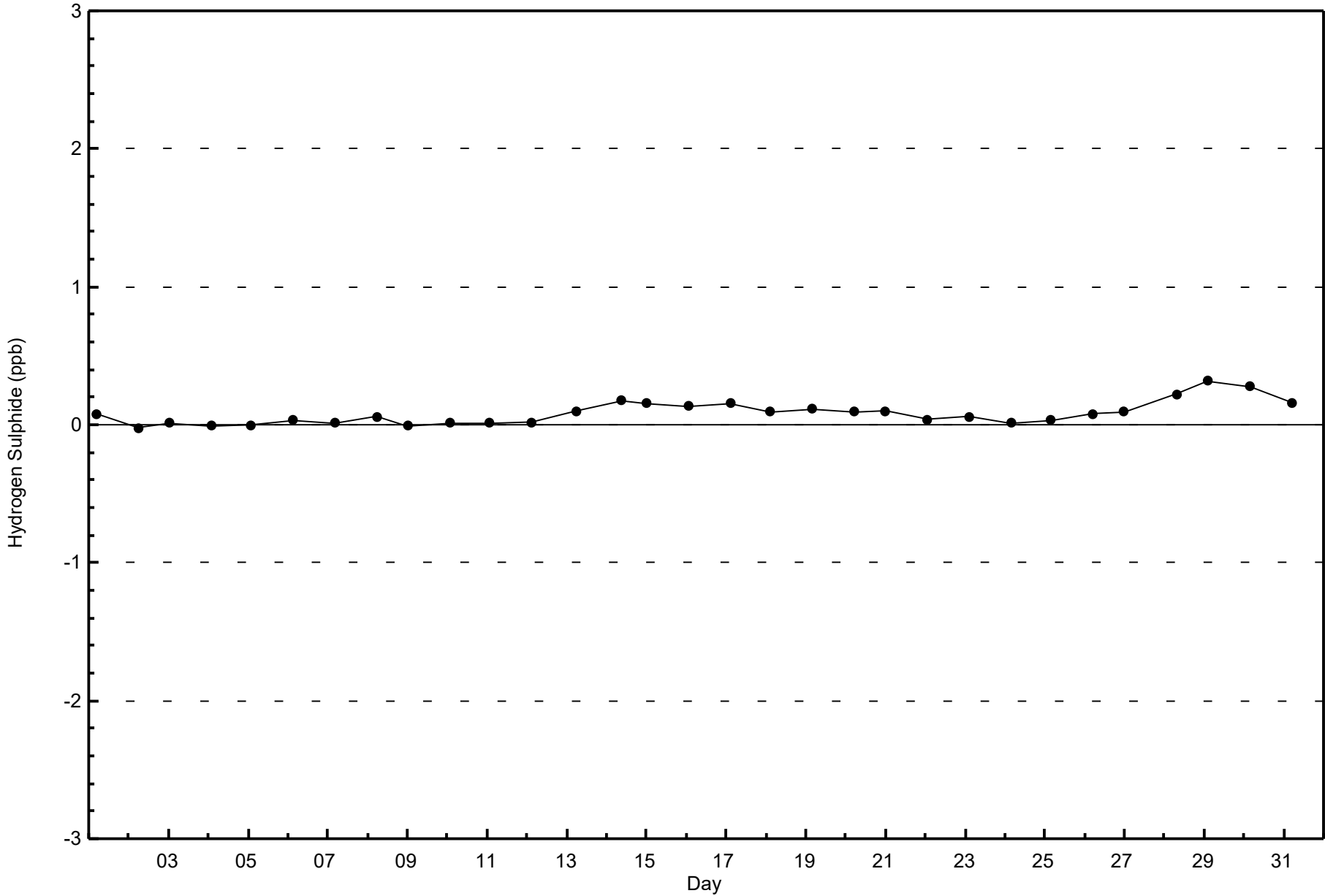


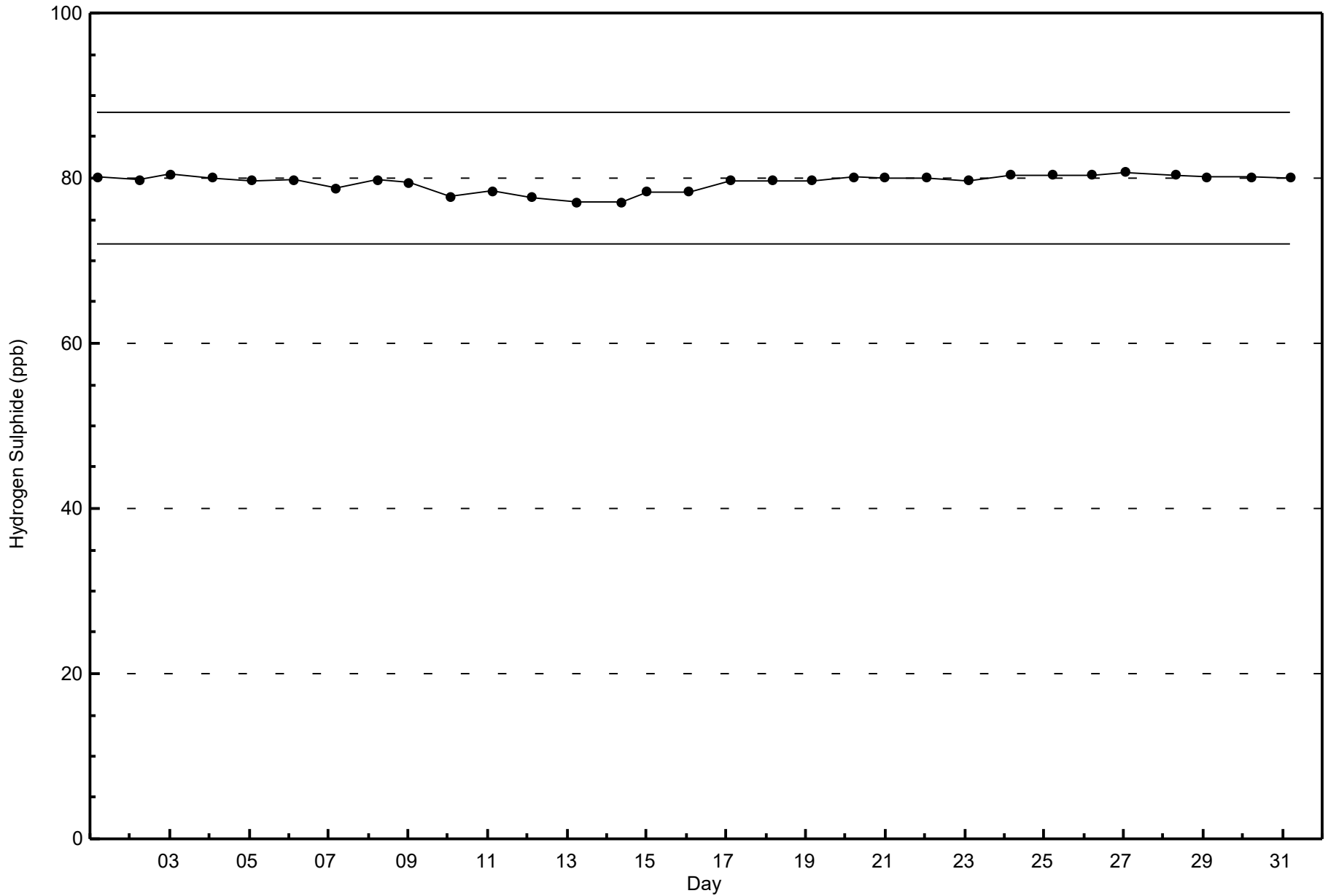
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 675







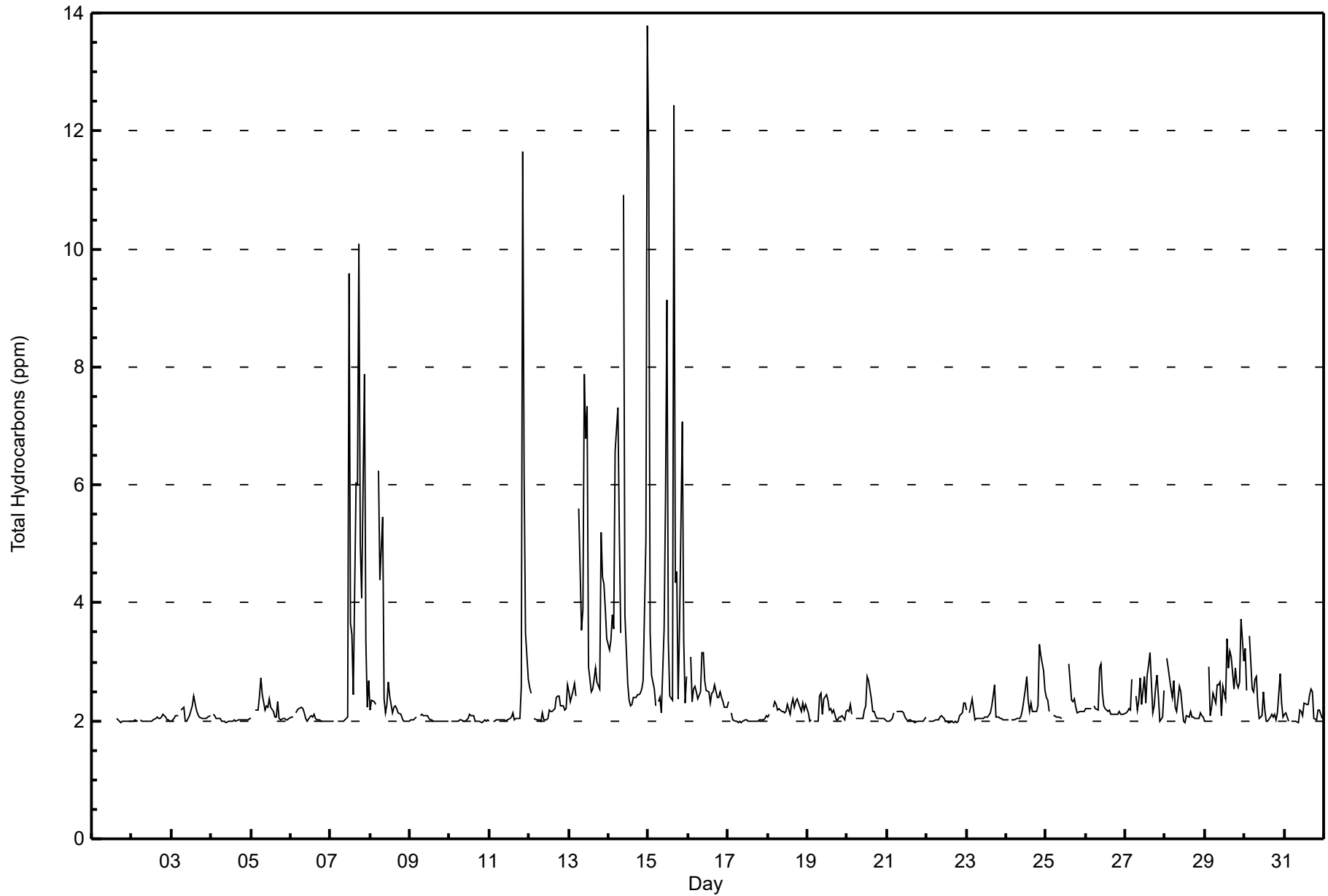


Maximum Value: 13.8 ppm on Jan 15 00:00																				Maximum Daily Average: 4.3 ppm on Jan 15					Hours in Service:	744	
Minimum Value: 2.0 ppm on Jan 22 14:00																				Minimum Daily Average: 2.0 ppm on Jan 10					Hours of Data:	695	
Maximum Diurnal Average: 2.9 ppm at hour 12																				Minimum Diurnal Average: 2.3 ppm at hour 15					Hours of Missing Data:	49	
Monthly Average: 2.46 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> = 2.4 P <sub>90</sub> = 2.9 P <sub>99</sub> = 9.2					Hours of Calibration:	37	
																									Percent Operational Time:	98.4	
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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	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-Jan	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	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1
3-Jan	2.0	2.0	2.1	2.1	2.1	Z	2.2	2.2	2.0	2.0	2.1	2.1	2.3	2.4	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.4
4-Jan	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	2.1	2.1	2.0	2.1
5-Jan	2.0	Z	2.2	2.2	2.2	2.4	2.7	2.5	2.2	2.3	2.2	2.4	2.2	2.2	2.1	2.1	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.7
6-Jan	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.1	2.0	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	2.0	2.0	2.1	2.2
7-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	9.6	3.6	3.5	2.4	6.0	6.0	10.1	5.0	4.1	7.9	3.3	2.2	2.7	3.8	10.1	
8-Jan	2.2	2.3	2.3	2.3	Z	6.2	4.4	5.5	2.4	2.1	2.3	2.7	2.4	2.1	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.6	6.2	
9-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
10-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
11-Jan	2.0	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	2.0	2.0	2.1	2.0	2.6	11.7	6.2	3.5	2.7	2.7	2.7	11.7	
12-Jan	2.6	2.5	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.6	2.2	2.6	
13-Jan	2.5	2.3	2.5	2.6	2.4	Z	5.6	3.5	3.9	7.9	6.8	7.3	2.9	2.5	2.5	2.7	2.9	2.6	2.5	5.2	4.4	4.3	3.9	3.4	3.8	7.9	
14-Jan	3.2	3.4	3.8	3.6	6.6	7.3	5.2	3.5	Z	10.9	3.8	2.6	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.7	5.1	13.8	4.2	13.8	
15-Jan	11.6	3.5	2.8	2.5	2.3	Z	2.3	2.4	2.1	3.6	5.8	9.1	3.4	2.4	2.4	12.4	4.3	4.5	2.4	3.6	7.1	3.4	2.3	2.7	4.3	12.4	
16-Jan	Z	3.1	2.3	2.5	2.6	2.5	2.4	2.5	3.2	3.1	2.7	2.5	2.5	2.3	2.5	2.5	2.6	2.4	2.4	2.5	2.4	2.3	2.2	2.2	2.5	3.2	
17-Jan	2.3	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	2.0	2.3	
18-Jan	2.1	2.1	Z	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.1	2.3	2.4	2.2	2.3	2.4	2.2	2.2	2.3	2.2	2.3	2.2	2.4	
19-Jan	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.4	2.5	2.1	2.4	2.4	2.3	2.2	2.2	2.1	2.2	2.0	2.0	2.1	2.1	2.1	2.0	2.2	2.2	2.5	
20-Jan	2.2	2.2	2.3	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.8	2.7	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.8	
21-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	
22-Jan	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	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.3	2.0	2.3	
23-Jan	2.2	Z	2.1	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.4	2.6	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.6	
24-Jan	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.6	2.8	2.3	2.2	2.3	2.2	2.2	2.1	2.2	3.3	3.1	2.8	2.5	2.3	3.3	
25-Jan	2.4	2.3	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	3.0	2.3	2.3	2.4	2.2	2.1	2.2	2.2	2.2	2.2	2.2	3.0	
26-Jan	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.9	3.0	2.5	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	3.0	
27-Jan	2.1	2.2	2.2	2.2	2.7	Z	2.4	2.2	2.4	2.7	2.3	2.8	2.3	2.8	2.9	3.2	2.1	2.3	2.6	2.8	2.4	2.0	2.1	2.5	2.4	3.2	
28-Jan	Z	3.1	2.9	2.5	2.4	2.7	2.2	2.2	2.6	2.5	2.2	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.3	3.1	
29-Jan	2.0	Z	2.9	2.1	2.2	2.5	2.3	2.6	2.6	2.6	2.1	2.6	2.4	3.4	2.9	3.2	3.1	2.5	2.9	2.6	2.6	2.7	3.7	3.0	2.7	3.7	
30-Jan	3.2	2.5	Z	3.4	2.6	2.5	2.7	2.7	2.3	2.0	2.1	2.5	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.8	2.3	2.1	2.4	3.4	
31-Jan	2.1	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.3	2.3	2.3	2.4	2.5	2.5	2.0	2.0	2.2	2.2	2.1	2.1	2.2	2.5	
																								Diurnal Average			
																								Diurnal Maximum			
2.6 2.3 2.3 2.3 2.3 2.5 2.5 2.4 2.3 2.7 2.5 2.9 2.3 2.3 2.7 2.4 2.5 2.3 2.4 2.9 2.5 2.4 2.6																											
11.6 3.5 3.8 3.6 6.6 7.3 5.6 5.5 3.9 10.9 6.8 9.6 3.6 3.5 3.0 12.4 6.0 10.1 5.0 5.2 11.7 6.2 5.1 13.8																											
Z - zerospan C - Calibration UO - Unstable Operation																											



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	256	36.83	36.83
2.1 - 3.0	375	53.96	90.79
3.1 - 10.0	58	8.35	99.14
> 10.0	6	0.86	100.00

Total Number of Valid Hours: 695

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Mildred Lake - January 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	95	65	14	1	6	1	12	7	16	10	12	1	3	1	0	9	253
2.1 - 3.0	54	13	1	1	6	9	42	70	51	10	7	13	17	20	13	31	358
3.1 - 10.0	1	3	2	0	0	3	6	22	7	3	0	0	0	1	2	0	50
> 10.0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	4
<b>Totals</b>	150	81	17	2	12	13	60	102	75	23	19	14	20	22	15	40	665

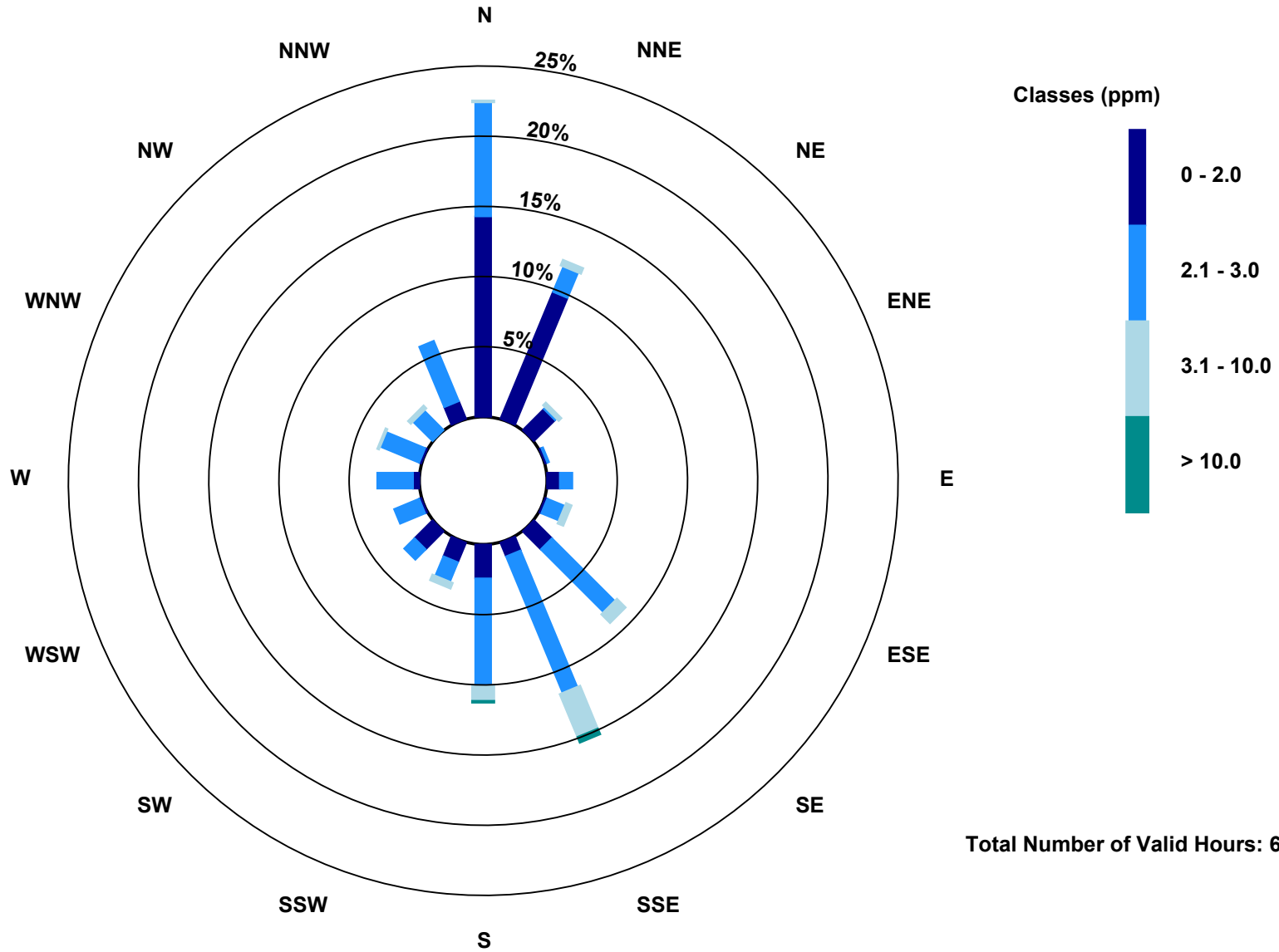
Total Number of Valid Hours: 665

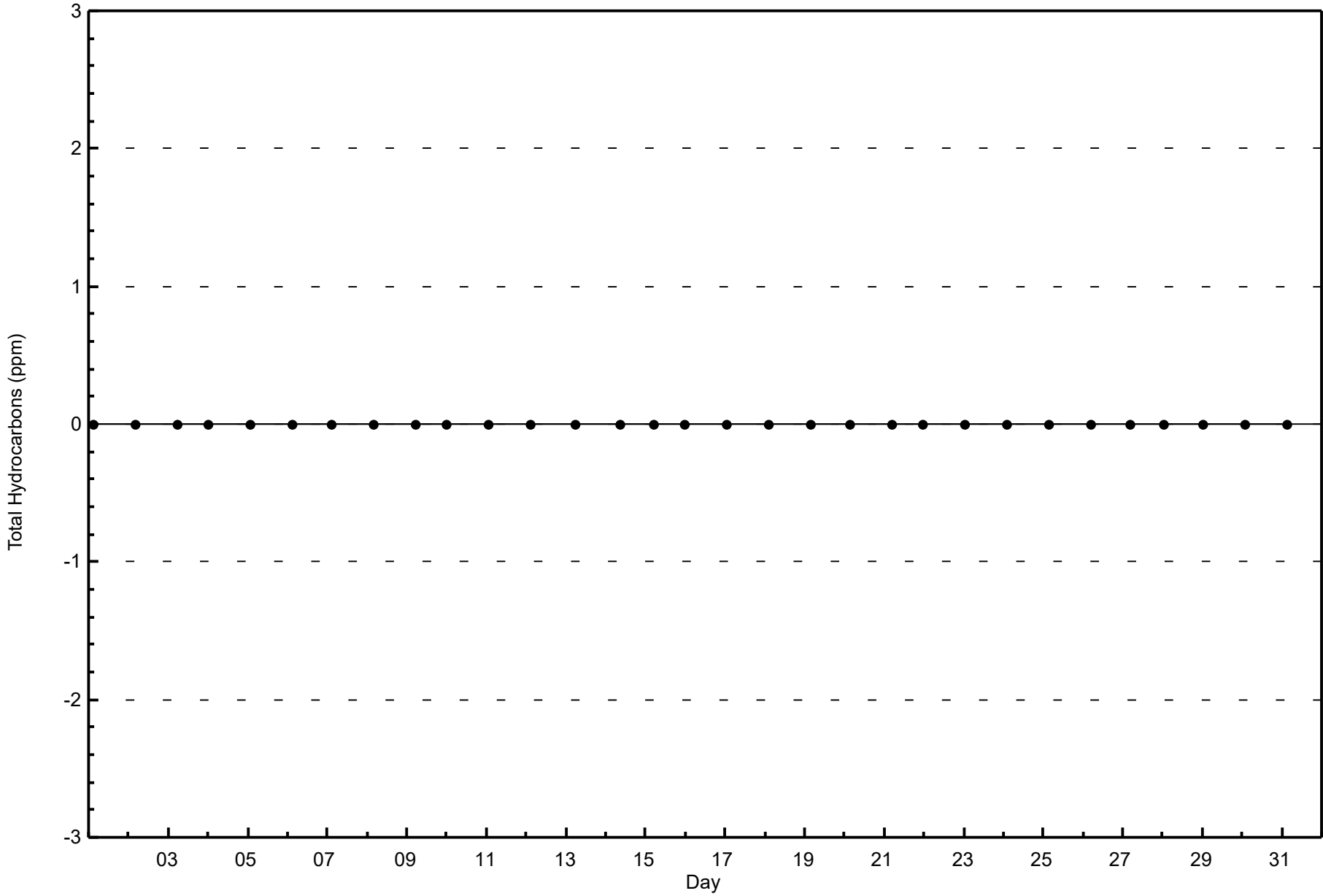
Total Number of Hours: 744

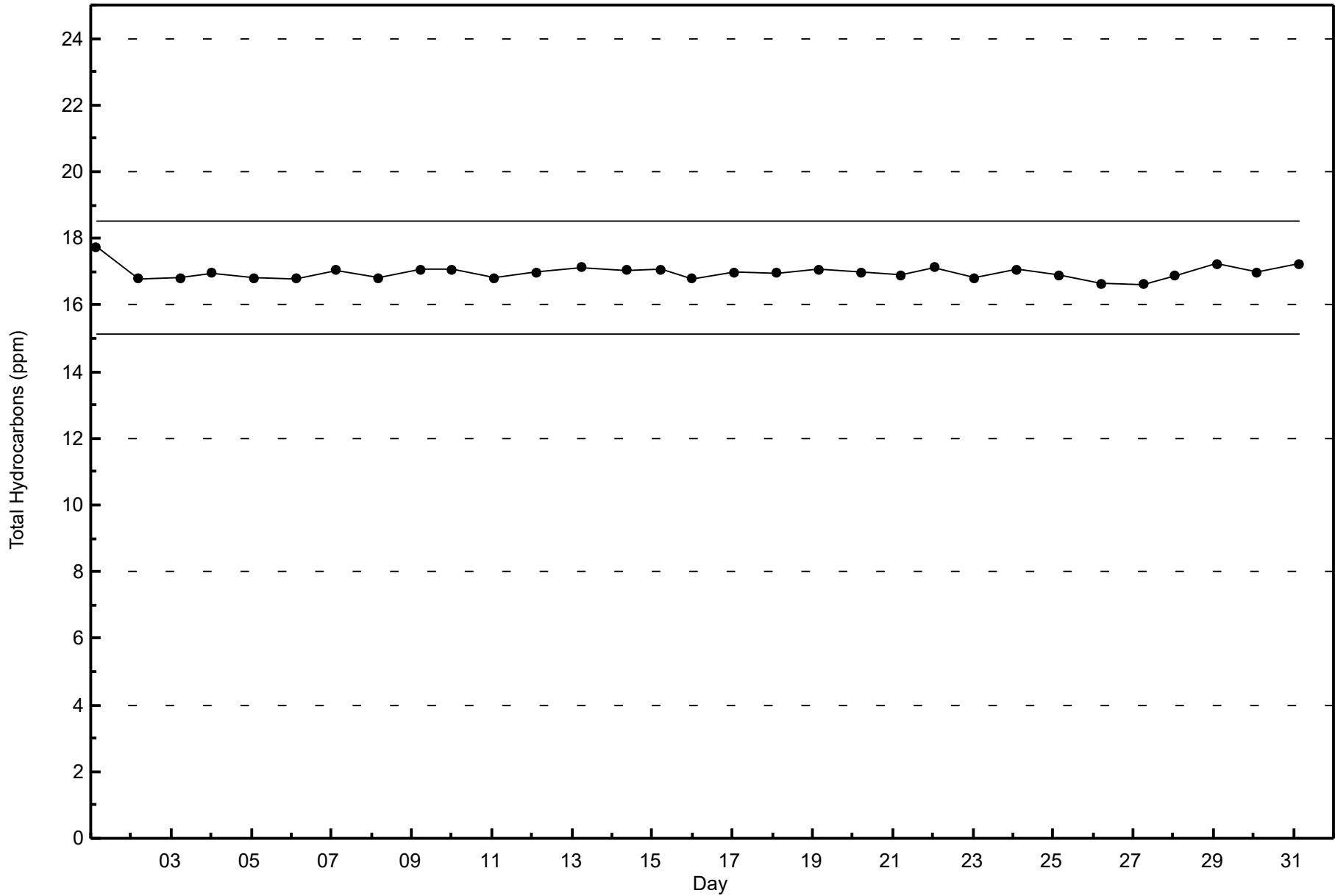


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Mildred Lake



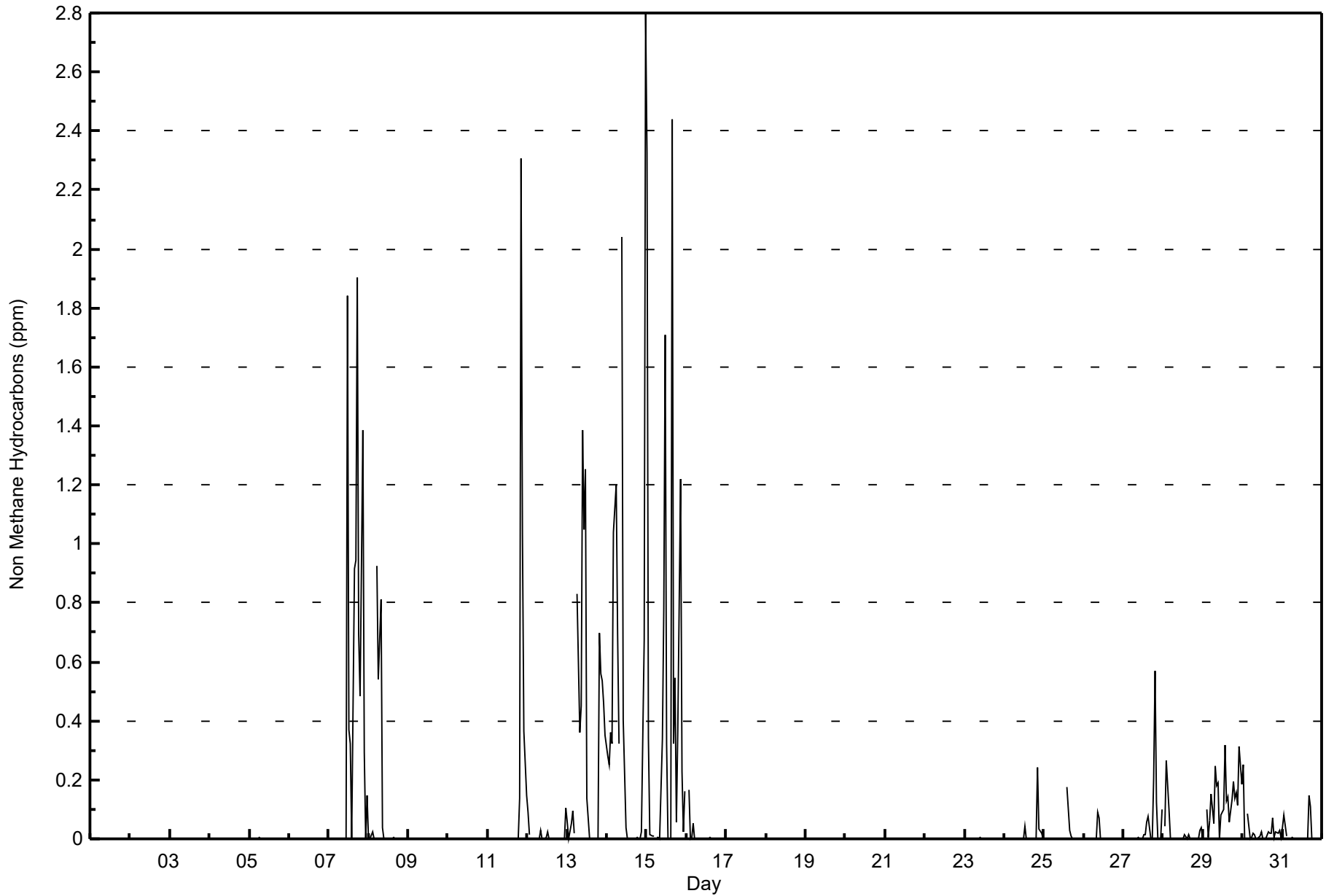






Maximum Value: 2.798 ppm on Jan 15 00:00		Maximum Daily Average: 0.488 ppm on Jan 15		Hours in Service: 744																																													
Minimum Value: 0.000 ppm on Jan 1 16:00		Minimum Daily Average: 0.000 ppm on Jan 2		Hours of Data: 695																																													
Maximum Diurnal Average: 0.194 ppm at hour 21		Minimum Diurnal Average: 0.012 ppm at hour 15		Hours of Missing Data: 49																																													
Monthly Average: 0.076 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> = 1.7		Hours of Calibration: 37																																													
				Percent Operational Time: 98.4																																													
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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	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																						
2-Jan	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																						
3-Jan	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																						
4-Jan	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																						
5-Jan	0.000	Z	0.000	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.007																						
6-Jan	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																						
7-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.843	0.371	0.325	0.000	0.915	0.945	1.904	0.694	0.484	1.386	0.297	0.000	0.149	0.405	1.904																							
8-Jan	0.000	0.000	0.023	0.000	Z	0.927	0.540	0.809	0.036	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	0.102	0.927																							
9-Jan	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																							
10-Jan	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																						
11-Jan	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	0.002	0.000	0.000	0.000	0.000	0.000	0.138	2.309	1.034	0.366	0.146	0.174	2.309																							
12-Jan	0.089	0.012	Z	0.001	0.000	0.000	0.000	0.000	0.027	0.000	0.000	0.003	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104	0.011	0.104																							
13-Jan	0.059	0.000	0.054	0.096	0.018	Z	0.830	0.362	0.452	1.385	1.049	1.253	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.697	0.560	0.537	0.460	0.352	0.361	1.385																							
14-Jan	0.281	0.251	0.362	0.325	1.040	1.201	0.693	0.320	Z	2.041	0.406	0.036	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.023	0.676	2.798	0.455	2.798																							
15-Jan	2.326	0.341	0.015	0.009	0.009	Z	0.004	0.007	0.000	0.335	0.777	1.710	0.322	0.002	0.000	2.438	0.324	0.546	0.056	0.368	1.217	0.228	0.024	0.161	0.488	2.438																							
16-Jan	Z	0.164	0.000	0.006	0.054	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	0.010	0.164																							
17-Jan	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																						
18-Jan	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	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000																						
19-Jan	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	0.002																						
20-Jan	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																						
21-Jan	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																						
22-Jan	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																						
23-Jan	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	0.000	0.003	0.000																						
24-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.242	0.031	0.020	0.000	0.015	0.242	0.000																						
25-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	C	0.178	0.028	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.178	0.000																						
26-Jan	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.091	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.091	0.000																						
27-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.003	0.000	0.000	0.015	0.012	0.055	0.075	0.002	0.000	0.202	0.570	0.124	0.000	0.000	0.100	0.050	0.570	0.000																						
28-Jan	Z	0.042	0.265	0.096	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.038	0.022	0.265																						
29-Jan	0.000	Z	0.099	0.004	0.063	0.152	0.052	0.245	0.182	0.192	0.000	0.082	0.098	0.316	0.127	0.143	0.058	0.134	0.194	0.137	0.156	0.112	0.312	0.184	0.132	0.316	0.000																						
30-Jan	0.251	0.000	Z	0.086	0.000	0.003	0.017	0.016	0.000	0.000	0.008	0.023	0.000	0.000	0.000	0.023	0.019	0.019	0.073	0.005	0.024	0.020	0.030	0.007	0.027	0.251	0.000																						
31-Jan	0.038	0.079	0.008	Z	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.148	0.110	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.148	0.000	0.000																						
																								0.122	0.035	0.033	0.024	0.046	0.095	0.072	0.059	0.027	0.134	0.077	0.171	0.035	0.023	0.012	0.117	0.049	0.088	0.039	0.077	0.194	0.074	0.062	0.130	Diurnal Average	
																								2.326	0.341	0.362	0.325	1.040	1.201	0.830	0.809	0.452	2.041	1.049	1.843	0.371	0.325	0.178	2.438	0.945	1.904	0.694	0.697	2.309	1.034	0.676	2.798	Diurnal Maximum	
Z - zerospan																								C - Calibration				UO - Unstable Operation																					







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	553	79.57	79.57
0.006 - 0.05	44	6.33	85.90
0.06 - 0.1	30	4.32	90.22
> 0.1	68	9.78	100.00

Total Number of Valid Hours: 695

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Mildred Lake - January 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	148	78	15	2	12	8	37	61	50	17	15	5	14	21	13	38	534
0.006 - 0.05	1	1	0	0	0	1	4	6	13	1	2	5	6	0	2	2	44
0.06 - 0.1	0	0	0	0	0	2	9	10	2	2	2	2	0	0	0	0	29
> 0.1	1	2	2	0	0	2	10	25	10	3	0	2	0	1	0	0	58
<b>Totals</b>	<b>150</b>	<b>81</b>	<b>17</b>	<b>2</b>	<b>12</b>	<b>13</b>	<b>60</b>	<b>102</b>	<b>75</b>	<b>23</b>	<b>19</b>	<b>14</b>	<b>20</b>	<b>22</b>	<b>15</b>	<b>40</b>	<b>665</b>

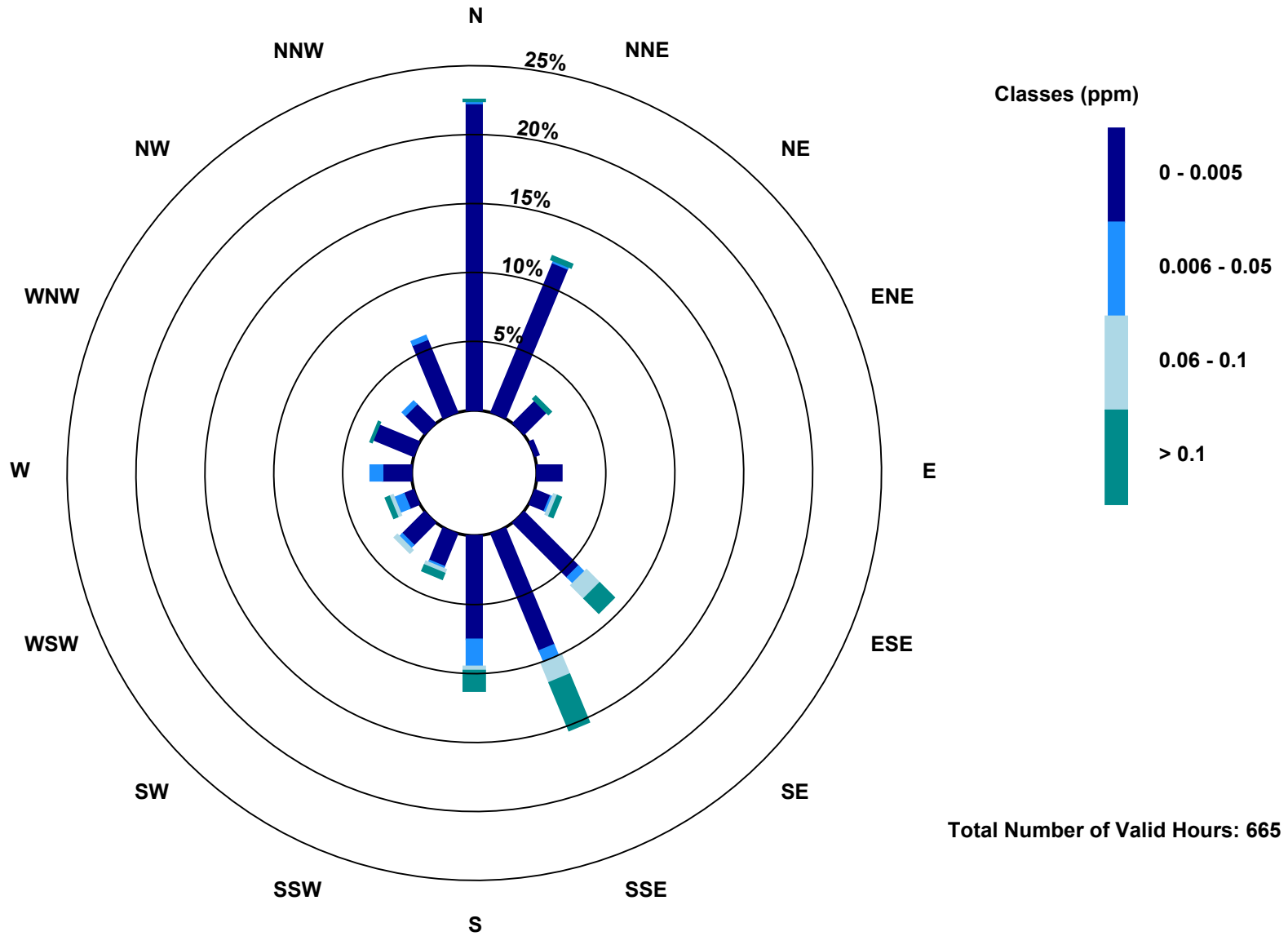
Total Number of Valid Hours: 665

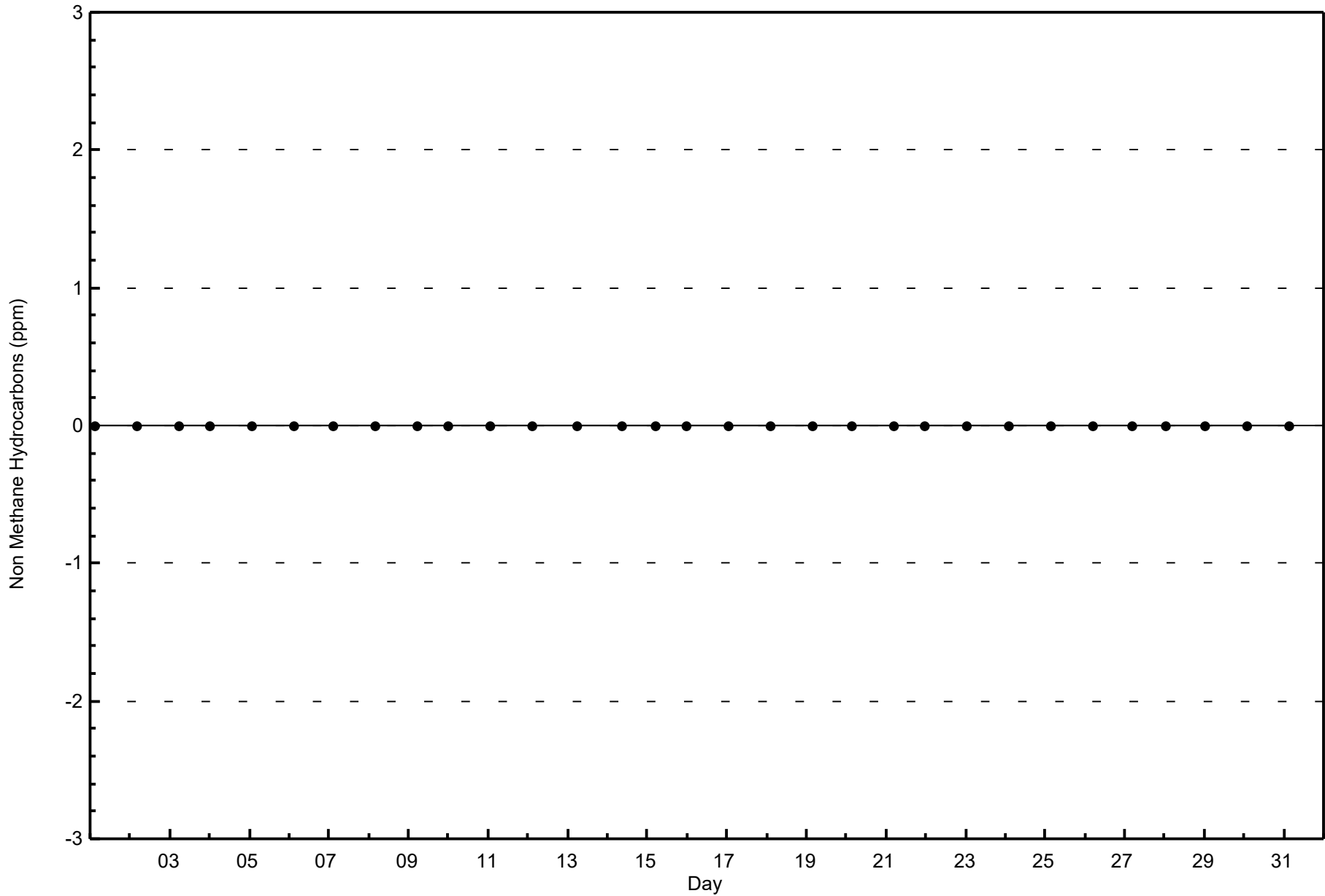
Total Number of Hours: 744

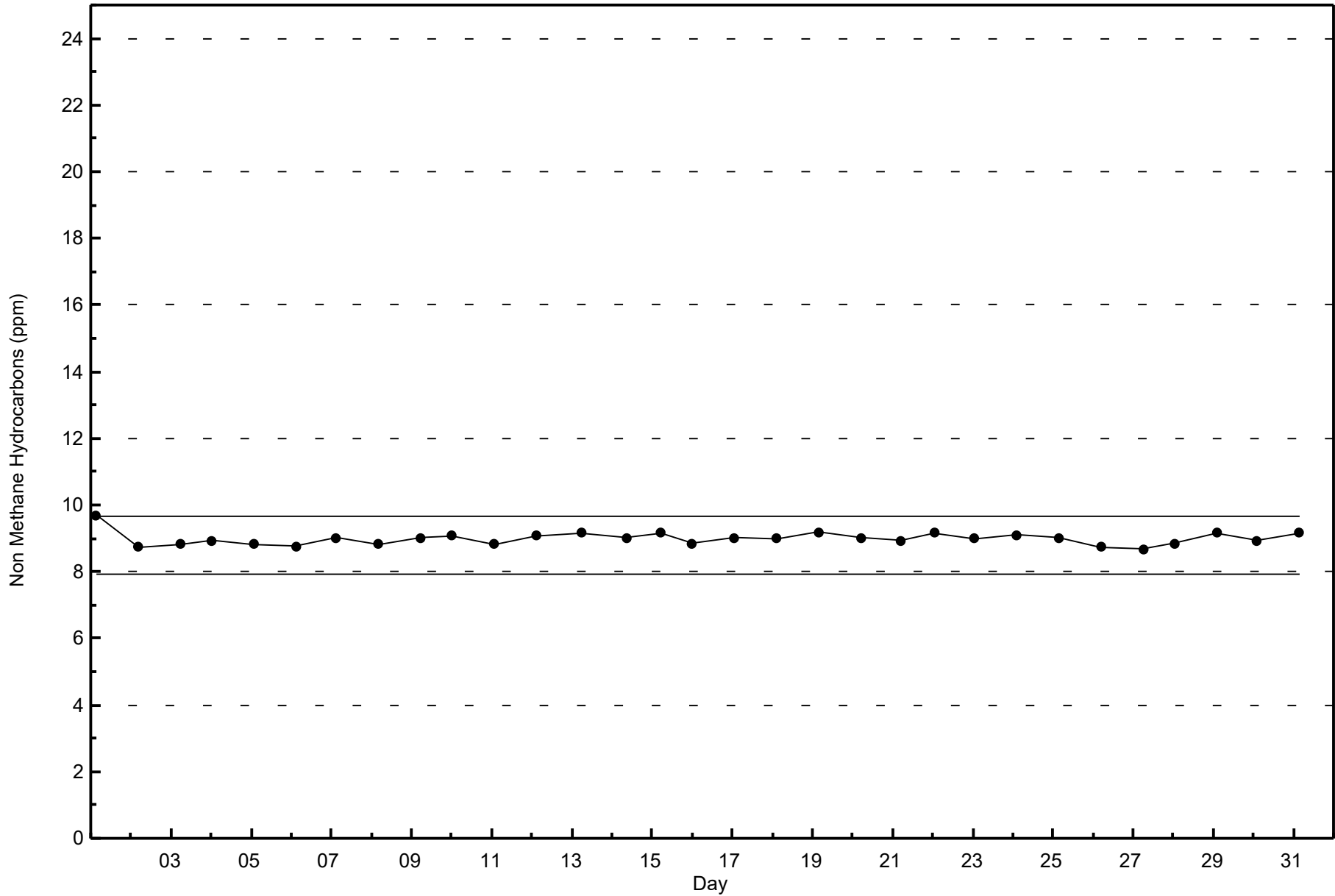


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mildred Lake







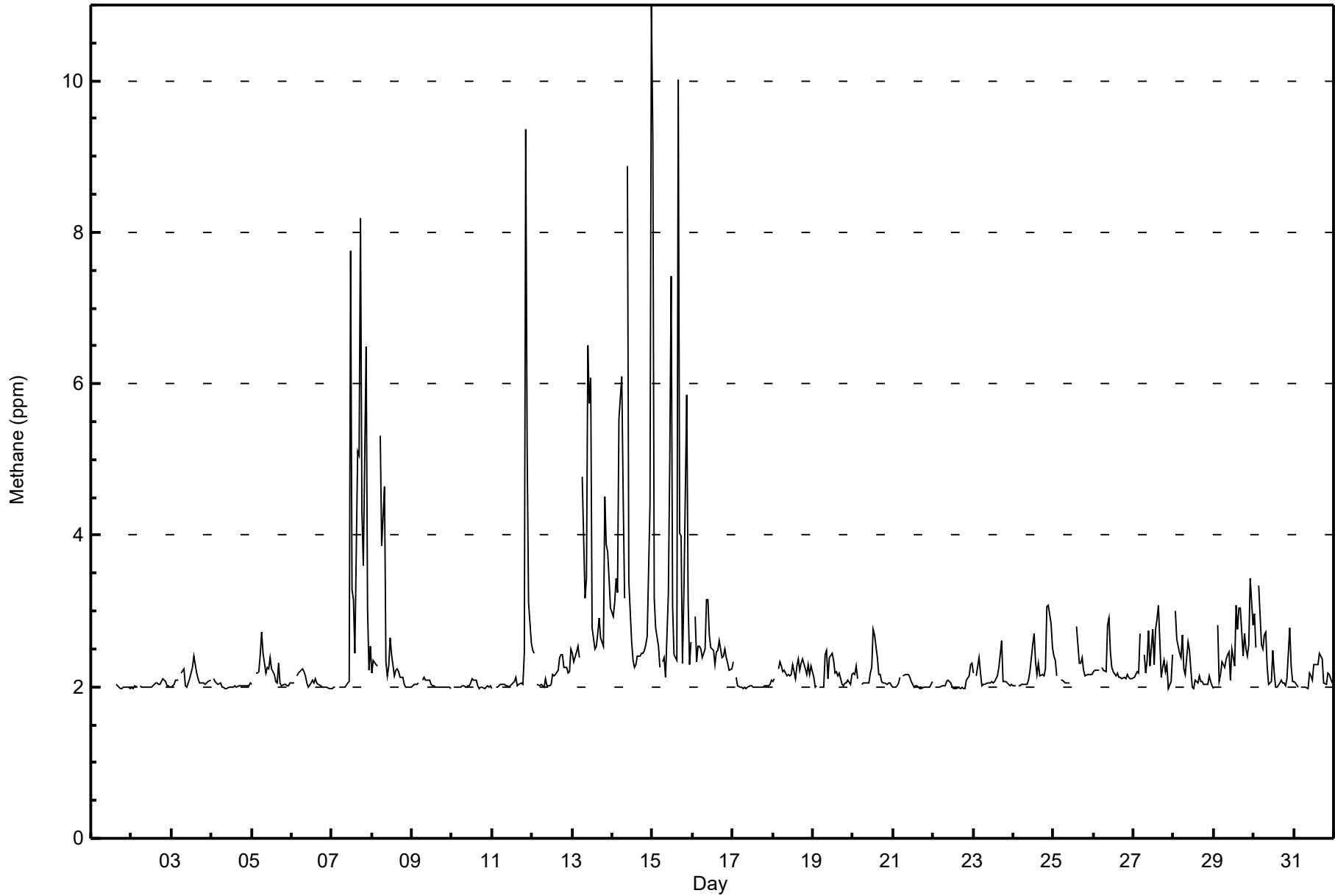


Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.0 ppm on Jan 15 00:00	Maximum Daily Average: 3.8 ppm on Jan 15		Hours of Data:	695
Minimum Value: 2.0 ppm on Jan 22 14:00	Minimum Daily Average: 2.0 ppm on Jan 10		Hours of Missing Data:	49
Maximum Diurnal Average: 2.7 ppm at hour 12	Minimum Diurnal Average: 2.2 ppm at hour 19		Hours of Calibration:	37
Monthly Average: 2.39 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> = 2.4 P <sub>90</sub> = 2.8 P <sub>99</sub> = 7.4		Percent Operational Time:	98.4

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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	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-Jan	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	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1
3-Jan	2.0	2.0	2.1	2.1	2.1	Z	2.2	2.2	2.0	2.0	2.1	2.1	2.3	2.4	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.4
4-Jan	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	2.1	2.0	2.1	2.1
5-Jan	2.0	Z	2.2	2.2	2.2	2.4	2.7	2.5	2.2	2.3	2.2	2.4	2.2	2.2	2.1	2.1	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.7	2.7
6-Jan	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.1	2.0	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	2.0	2.1	2.2	2.2
7-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	7.7	3.3	3.1	2.4	5.1	5.1	8.2	4.3	3.6	6.5	3.0	2.2	2.5	3.4	8.2	8.2
8-Jan	2.2	2.3	2.3	2.3	Z	5.3	3.9	4.6	2.3	2.1	2.3	2.7	2.4	2.1	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.5	5.3	5.3
9-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
10-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
11-Jan	2.0	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	2.0	2.0	2.1	2.0	2.4	9.4	5.2	3.1	2.6	2.6	9.4	9.4	
12-Jan	2.5	2.4	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.5	2.2	2.5	2.5
13-Jan	2.4	2.3	2.5	2.5	2.4	Z	4.8	3.2	3.4	6.5	5.7	6.1	2.8	2.5	2.5	2.7	2.9	2.6	2.5	4.5	3.9	3.8	3.4	3.0	3.4	6.5	6.5
14-Jan	2.9	3.1	3.4	3.2	5.5	6.1	4.5	3.2	Z	8.9	3.4	2.6	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.7	4.4	11.0	3.8	11.0	11.0
15-Jan	9.2	3.2	2.8	2.5	2.3	Z	2.3	2.4	2.1	3.2	5.0	7.4	3.1	2.4	2.4	10.0	4.0	4.0	2.3	3.2	5.9	3.1	2.3	2.6	3.8	10.0	10.0
16-Jan	Z	2.9	2.3	2.5	2.5	2.5	2.4	2.5	3.2	3.1	2.7	2.5	2.5	2.3	2.5	2.5	2.6	2.4	2.4	2.5	2.4	2.3	2.2	2.2	2.5	3.2	3.2
17-Jan	2.3	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	2.0	2.3	2.3
18-Jan	2.1	2.1	Z	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.1	2.3	2.4	2.2	2.3	2.4	2.2	2.2	2.3	2.2	2.3	2.2	2.4	2.4
19-Jan	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.4	2.5	2.1	2.4	2.4	2.3	2.2	2.2	2.1	2.2	2.0	2.0	2.1	2.1	2.1	2.0	2.2	2.1	2.5	2.5
20-Jan	2.2	2.2	2.3	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.8	2.7	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.8	2.8
21-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	2.2
22-Jan	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	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.3	2.0	2.3	2.3
23-Jan	2.2	Z	2.1	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.4	2.6	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.6	2.6
24-Jan	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.6	2.7	2.3	2.2	2.3	2.2	2.2	2.1	2.2	3.1	3.1	2.8	2.5	2.3	3.1	3.1
25-Jan	2.4	2.3	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.8	2.3	2.3	2.4	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.8	2.8
26-Jan	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.8	2.9	2.5	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.9	2.9
27-Jan	2.1	2.2	2.2	2.2	2.7	Z	2.4	2.2	2.4	2.7	2.3	2.8	2.3	2.8	2.9	3.1	2.1	2.3	2.4	2.2	2.3	2.0	2.1	2.4	2.4	3.1	3.1
28-Jan	Z	3.0	2.6	2.5	2.4	2.7	2.2	2.2	2.6	2.5	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.2	3.0	3.0
29-Jan	2.0	Z	2.8	2.1	2.2	2.3	2.3	2.4	2.4	2.5	2.1	2.5	2.3	3.1	2.8	3.0	3.0	2.4	2.7	2.5	2.4	2.5	3.4	2.8	2.5	3.4	3.4
30-Jan	3.0	2.5	Z	3.3	2.6	2.5	2.7	2.7	2.3	2.0	2.1	2.5	2.2	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.8	2.3	2.1	2.3	3.3	3.3
31-Jan	2.1	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.3	2.3	2.3	2.4	2.4	2.4	2.0	2.0	2.2	2.2	2.1	2.1	2.1	2.4	2.4

2.5	2.3	2.2	2.3	2.3	2.5	2.4	2.3	2.2	2.6	2.4	2.7	2.3	2.3	2.2	2.6	2.4	2.4	2.2	2.3	2.7	2.4	2.3	2.5	Diurnal Average	
9.2	3.2	3.4	3.3	5.5	6.1	4.8	4.6	3.4	8.9	5.7	7.7	3.3	3.1	2.9	10.0	5.1	8.2	4.3	4.5	9.4	5.2	4.4	11.0	Diurnal Maximum	

Z - zerospan                      C - Calibration                      UO - Unstable Operation







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	259	37.27	37.27
2.1 - 3.0	380	54.68	91.94
3.1 - 10.0	55	7.91	99.86
> 10.0	1	0.14	100.00

Total Number of Valid Hours: 695

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mildred Lake - January 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	95	65	14	1	6	1	12	7	16	10	13	3	3	1	0	9	256
2.1 - 3.0	54	13	1	1	6	10	44	74	52	10	6	11	17	20	13	31	363
3.1 - 10.0	1	3	2	0	0	2	4	21	6	3	0	0	0	1	2	0	45
> 10.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
<b>Totals</b>	150	81	17	2	12	13	60	102	75	23	19	14	20	22	15	40	665

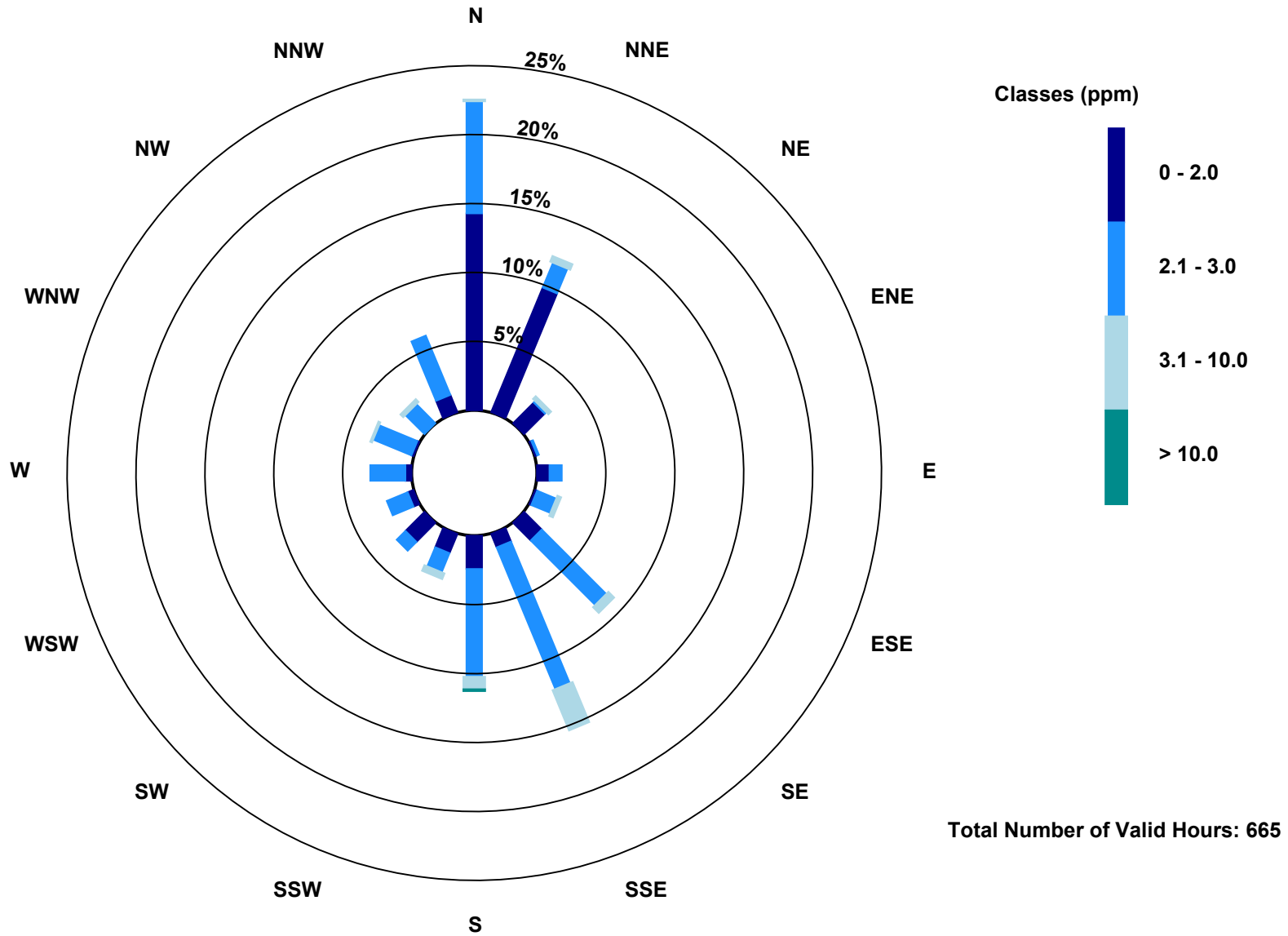
Total Number of Valid Hours: 665

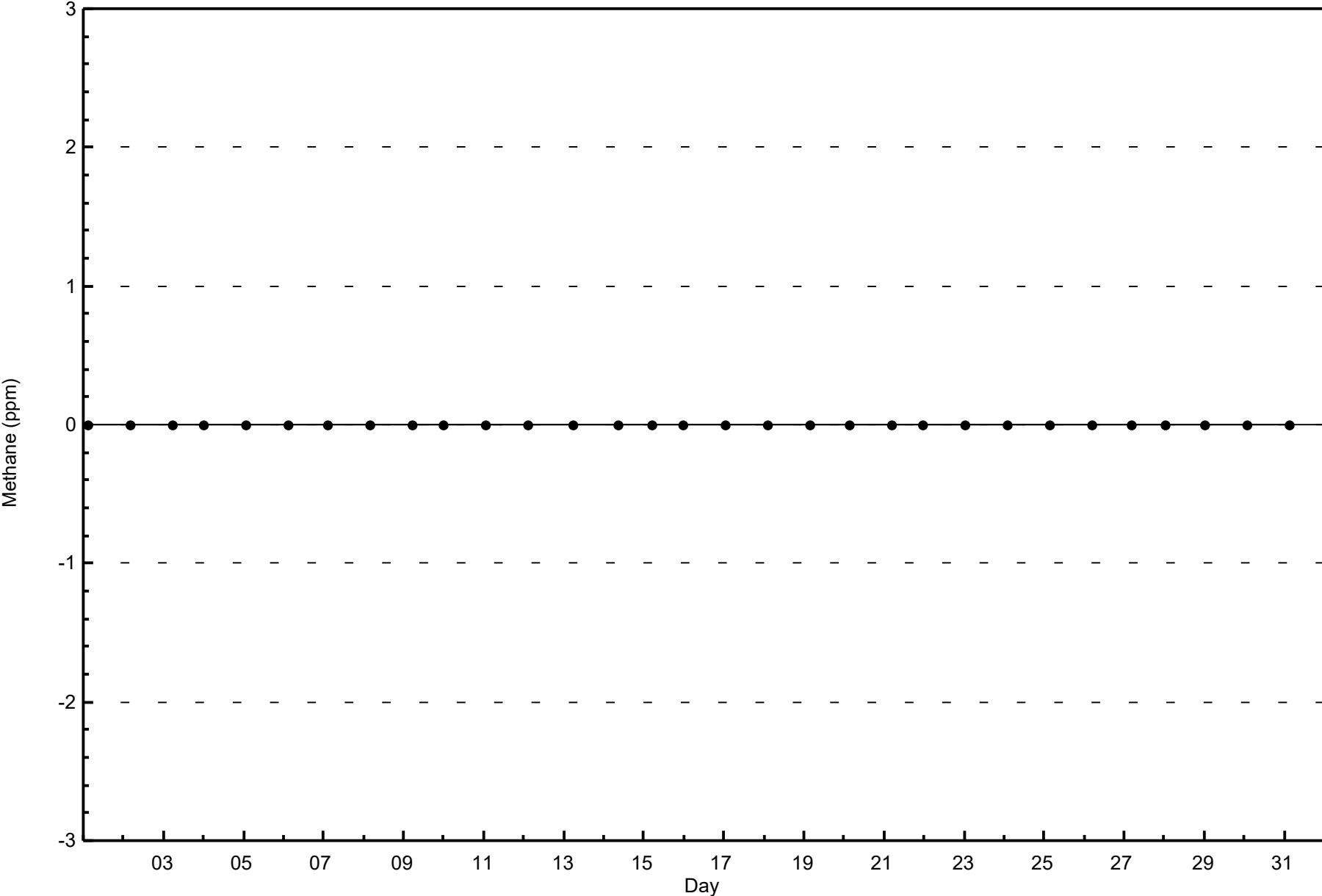
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

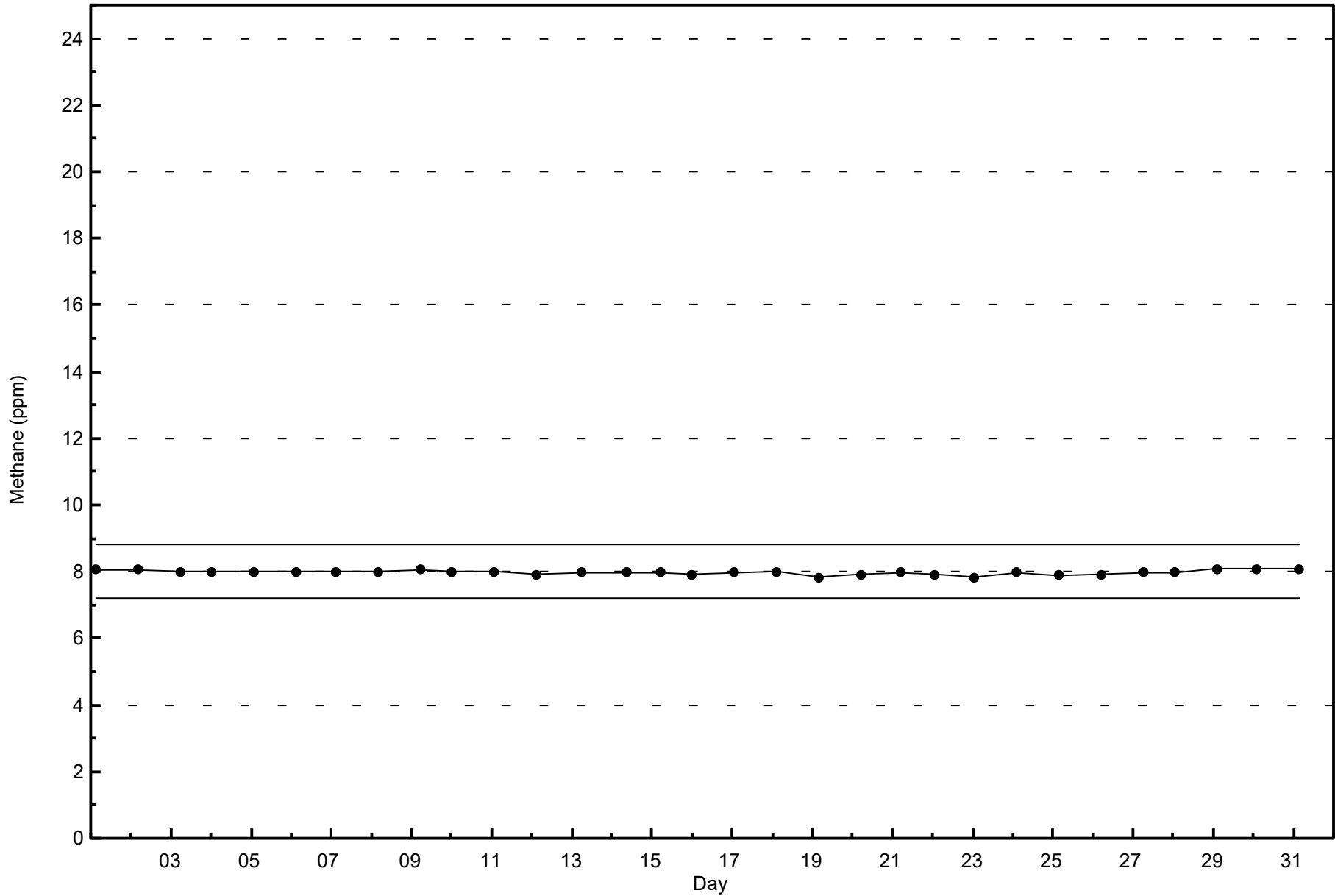






**Wood Buffalo Environmental Association**  
**Span Responses**

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





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

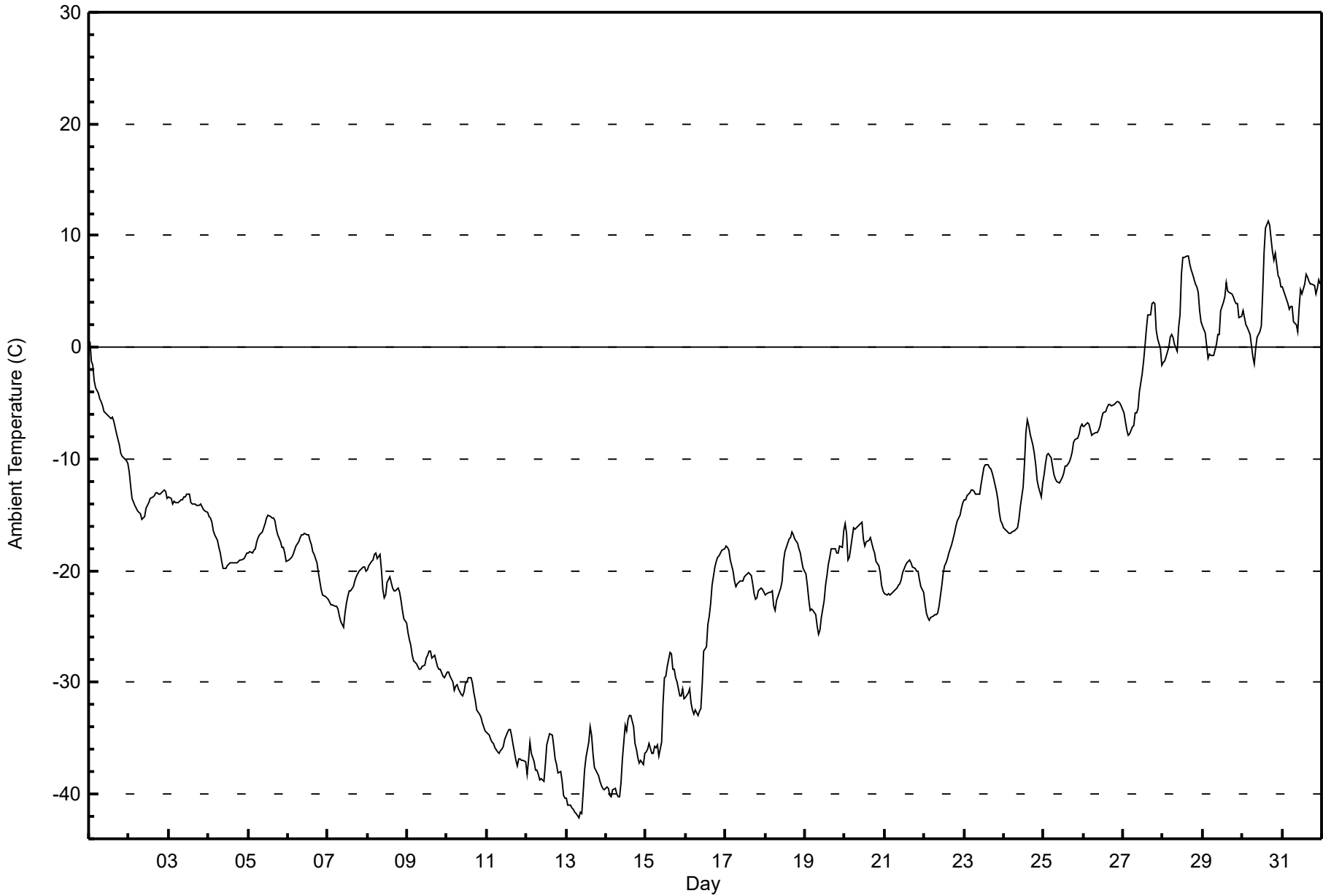
**Ambient Temperature (AT) - C**  
**Mildred Lake - January 2024**

Maximum Value: 11.3 C on Jan 30 16:00																								Maximum Daily Average: 4.7 C on Jan 30																								Hours in Service: 744	
Minimum Value: -42.2 C on Jan 13 08:00																								Minimum Daily Average: -39.2 C on Jan 13																								Hours of Data: 744	
Maximum Diurnal Average: -15.6 C at hour 15																								Minimum Diurnal Average: -19.3 C at hour 9																								Hours of Missing Data: 0	
Monthly Average: -17.64 C																								Percentiles: P <sub>1</sub> = -41.0 P <sub>10</sub> = -35.7 Q <sub>1</sub> = -24.7 Median = -18.4 Q <sub>3</sub> = -10.4 P <sub>90</sub> = 1.6 P <sub>99</sub> = 8.2																								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-Jan	0.5	-1.3	-1.6	-3.0	-3.6	-4.1	-4.6	-4.9	-5.2	-5.7	-5.8	-6.1	-6.2	-6.3	-6.6	-7.7	-8.3	-8.8	-9.5	-9.8	-9.9	-10.1	-10.4	-6.1	0.5																								
2-Jan	-11.1	-12.3	-13.5	-14.1	-14.4	-14.7	-14.8	-14.9	-15.4	-15.2	-14.5	-14.1	-13.9	-13.6	-13.4	-13.2	-13.0	-13.2	-13.1	-12.9	-12.8	-12.9	-13.5	-13.6	-11.1																								
3-Jan	-13.4	-13.5	-14.0	-13.8	-13.9	-13.9	-13.9	-13.6	-13.6	-13.4	-13.4	-13.2	-13.1	-13.9	-14.1	-14.0	-14.0	-14.2	-14.1	-14.1	-14.3	-14.5	-14.8	-13.9	-13.1																								
4-Jan	-15.1	-15.3	-15.7	-16.4	-16.7	-17.2	-17.9	-18.4	-19.2	-19.8	-19.8	-19.6	-19.4	-19.3	-19.2	-19.4	-19.3	-19.2	-19.1	-19.1	-18.9	-18.7	-18.4	-18.4	-15.1																								
5-Jan	-18.4	-18.2	-18.4	-18.2	-18.0	-17.4	-17.1	-16.8	-16.6	-16.2	-15.7	-15.3	-15.1	-15.1	-15.3	-15.2	-15.6	-16.3	-16.8	-17.5	-18.0	-17.9	-18.4	-19.1	-16.9																								
6-Jan	-19.0	-18.9	-18.8	-18.5	-18.1	-17.8	-17.4	-17.0	-16.8	-16.8	-16.7	-16.8	-16.7	-17.2	-17.6	-18.3	-18.6	-19.3	-20.2	-21.0	-21.7	-22.2	-22.3	-22.5	-18.8																								
7-Jan	-22.6	-22.8	-23.1	-23.1	-23.1	-23.2	-23.5	-24.0	-24.5	-25.1	-23.8	-22.9	-22.3	-21.8	-21.8	-21.5	-20.9	-20.5	-20.3	-20.0	-19.8	-19.6	-19.7	-20.1	-22.1																								
8-Jan	-19.9	-19.5	-19.2	-19.0	-18.6	-18.4	-18.9	-18.6	-19.9	-21.7	-22.5	-22.2	-21.1	-20.6	-21.1	-21.5	-21.8	-21.8	-21.6	-21.9	-22.7	-23.5	-24.3	-24.7	-21.0																								
9-Jan	-25.5	-26.2	-26.7	-27.5	-28.1	-28.3	-28.6	-28.8	-28.8	-28.6	-28.4	-27.8	-27.6	-27.2	-27.2	-27.8	-27.6	-28.1	-28.6	-28.8	-28.9	-29.5	-29.6	-29.3	-28.1																								
10-Jan	-29.1	-29.1	-29.5	-30.0	-30.7	-30.4	-30.3	-30.5	-31.1	-31.2	-30.9	-30.1	-30.0	-29.6	-29.6	-30.1	-30.9	-31.6	-32.4	-32.9	-33.1	-33.6	-34.0	-34.4	-31.0																								
11-Jan	-34.5	-34.7	-35.1	-35.3	-35.5	-35.8	-36.3	-36.3	-36.1	-36.0	-35.7	-35.1	-34.5	-34.2	-34.3	-34.8	-35.6	-37.0	-37.5	-36.9	-36.9	-37.0	-37.0	-37.1	-35.8																								
12-Jan	-38.2	-37.0	-35.4	-36.3	-37.1	-37.8	-37.9	-38.2	-38.7	-38.7	-38.8	-37.4	-35.6	-35.1	-34.6	-34.7	-35.7	-36.8	-37.4	-38.1	-37.9	-38.9	-40.1	-40.4	-37.4																								
13-Jan	-40.4	-41.0	-41.0	-41.2	-41.4	-41.6	-41.7	-42.2	-41.7	-41.7	-39.9	-37.9	-36.8	-35.3	-33.9	-34.8	-36.3	-37.6	-38.1	-38.4	-38.9	-39.2	-39.5	-39.6	-39.2																								
14-Jan	-39.4	-39.4	-40.1	-40.3	-39.6	-39.5	-40.0	-40.3	-40.2	-39.0	-36.8	-33.9	-34.3	-33.3	-33.0	-32.9	-34.0	-35.5	-36.0	-36.7	-37.3	-36.9	-37.3	-36.3	-37.2																								
15-Jan	-36.3	-36.0	-35.5	-36.4	-36.4	-35.7	-35.8	-35.6	-36.6	-35.3	-31.9	-29.6	-29.5	-28.5	-27.3	-27.4	-28.8	-28.8	-29.6	-29.9	-31.2	-31.2	-30.6	-31.5	-32.3																								
16-Jan	-31.3	-31.0	-30.6	-31.9	-32.5	-32.8	-32.5	-33.0	-32.6	-32.4	-30.1	-27.2	-26.8	-24.8	-24.1	-23.0	-21.3	-19.7	-19.1	-18.8	-18.6	-18.4	-18.2	-18.0	-26.2																								
17-Jan	-17.8	-17.9	-18.1	-19.0	-20.0	-20.9	-21.4	-21.1	-21.0	-21.0	-20.9	-20.6	-20.5	-20.4	-20.2	-20.4	-21.2	-22.0	-22.5	-22.5	-21.9	-21.6	-21.7	-21.9	-20.7																								
18-Jan	-22.2	-22.0	-22.0	-21.9	-21.9	-23.2	-23.5	-22.7	-21.9	-21.5	-20.9	-19.2	-18.3	-17.5	-17.2	-17.0	-16.5	-16.8	-17.2	-17.6	-18.1	-18.5	-19.2	-19.8	-19.8																								
19-Jan	-20.3	-21.3	-22.5	-23.6	-23.5	-23.5	-24.0	-25.0	-25.6	-25.3	-24.2	-22.7	-21.3	-20.4	-19.4	-18.8	-18.1	-18.1	-18.0	-18.5	-18.4	-17.7	-17.9	-16.4	-21.0																								
20-Jan	-15.8	-16.7	-19.0	-18.8	-17.0	-16.2	-16.3	-16.2	-16.0	-15.7	-15.6	-17.2	-17.8	-17.4	-17.3	-17.1	-17.6	-18.0	-18.5	-19.1	-19.6	-20.1	-21.2	-21.7	-17.7																								
21-Jan	-22.0	-22.1	-22.0	-22.1	-22.1	-21.9	-21.8	-21.6	-21.3	-21.2	-20.8	-20.2	-19.6	-19.3	-19.2	-19.1	-19.3	-19.7	-19.8	-20.0	-20.0	-20.8	-21.4	-21.9	-20.8																								
22-Jan	-22.9	-23.8	-24.2	-24.4	-24.2	-24.1	-24.0	-23.9	-23.8	-23.2	-21.2	-20.2	-19.6	-19.3	-19.0	-18.4	-17.6	-17.1	-16.7	-16.0	-15.5	-15.0	-14.4	-13.9	-20.1																								
23-Jan	-13.7	-13.6	-13.3	-13.0	-12.8	-12.8	-12.9	-13.1	-13.1	-13.1	-12.2	-11.6	-10.7	-10.5	-10.8	-10.9	-11.3	-11.8	-12.9	-13.6	-14.7	-15.5	-15.7	-12.7	-10.5																								
24-Jan	-16.2	-16.4	-16.5	-16.7	-16.6	-16.5	-16.5	-16.3	-16.1	-15.4	-14.2	-12.5	-10.4	-7.7	-6.5	-7.1	-7.7	-8.7	-9.5	-10.5	-11.9	-12.6	-13.4	-12.1	-12.8																								
25-Jan	-11.4	-10.4	-9.7	-9.6	-9.9	-10.6	-11.4	-11.8	-12.0	-12.1	-11.9	-11.7	-11.3	-10.7	-10.6	-10.2	-9.9	-9.3	-8.5	-8.3	-8.2	-7.8	-7.2	-6.8	-10.1																								
26-Jan	-7.1	-7.0	-6.8	-6.9	-7.4	-7.9	-7.8	-7.7	-7.6	-7.4	-7.0	-6.4	-5.9	-5.8	-5.3	-5.1	-5.1	-5.2	-5.1	-5.0	-4.9	-4.9	-5.0	-5.3	-6.2																								
27-Jan	-5.9	-6.6	-7.3	-7.9	-7.8	-7.1	-7.0	-5.9	-5.9	-5.5	-4.0	-2.4	-1.2	0.2	1.6	2.9	2.9	3.9	4.0	3.9	1.6	0.8	-0.1	-1.6	-2.3																								
28-Jan	-1.4	-1.2	-0.8	0.0	0.9	1.2	0.9	0.3	-0.4	1.8	3.0	6.5	8.0	8.1	8.2	8.2	7.4	6.9	6.5	5.7	5.4	4.9	3.3	2.3	3.6																								
29-Jan	1.9	1.3	0.1	-0.9	-0.7	-0.8	-0.7	-0.2	0.3	1.1	1.1	3.2	4.0	4.5	5.8	5.0	4.9	4.7	4.5	4.2	4.0	4.0	2.7	2.8	2.4																								
30-Jan	3.3	2.7	2.1	1.8	1.1	0.2	-0.9	-1.5	0.0	0.9	1.4	1.9	4.9	8.5	10.7	11.3	10.9	9.7	8.6	7.8	8.4	6.5	6.1	5.4	4.7																								
31-Jan	5.4	5.0	4.2	3.9	3.5	3.6	3.6	2.3	2.0	1.4	3.5	5.2	4.8	5.7	6.5	6.3	5.9	5.7	5.7	5.6	4.8	5.3	6.0	5.6	4.7																								
																								-18.1	-18.3	-18.5	-18.8	-18.9	-19.0	-19.2	-19.3	-19.3	-19.1	-18.3	-17.3	-16.7	-16.1	-15.6	-15.7	-15.9	-16.2	-16.5	-16.8	-17.1	-17.3	-17.6	-17.8	Diurnal Average	
																								5.4	5.0	4.2	3.9	3.5	3.6	3.6	2.3	2.0	1.8	3.5	6.5	8.0	8.5	10.7	11.3	10.9	9.7	8.6	7.8	8.4	6.5	6.1	5.6	Diurnal Maximum	



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	303	40.73	40.73
-20 - 0	348	46.77	87.50
0 - 10	90	12.10	99.60
10 - 20	3	0.40	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





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

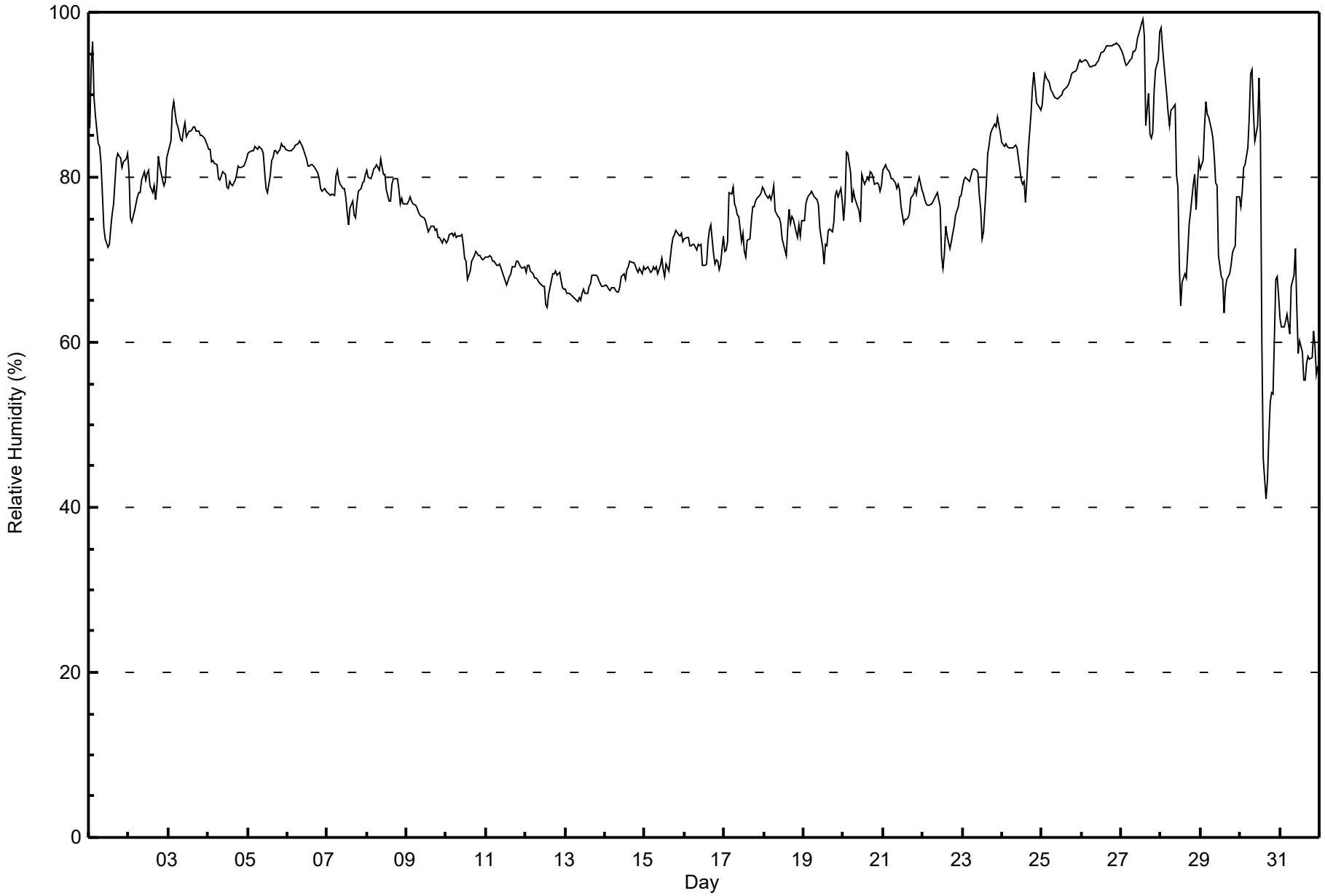
**Relative Humidity (RH) - %**  
**Mildred Lake - January 2024**

Maximum Value: 99.2 % on Jan 27 14:00      Maximum Daily Average: 94.9 % on Jan 26																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 40.9 % on Jan 30 16:00      Minimum Daily Average: 60.9 % on Jan 31 Maximum Diurnal Average: 79.5 % at hour 3      Minimum Diurnal Average: 74.4 % at hour 14 Monthly Average: 77.41 %      Percentiles: P <sub>1</sub> = 55.4 P <sub>10</sub> = 67.4 Q <sub>1</sub> = 70.8 Median = 77.7 Q <sub>3</sub> = 82.9 P <sub>90</sub> = 89.9 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-Jan	86.0	93.3	96.4	89.7	87.4	84.1	83.7	81.7	77.9	74.0	72.5	71.6	71.9	73.9	75.5	76.8	82.2	82.8	82.6	82.3	81.2	81.8	82.2	82.8	81.4	96.4
2-Jan	80.7	75.2	74.5	75.9	76.7	77.7	78.1	78.2	79.7	80.7	79.7	80.5	80.8	78.9	78.1	79.0	77.3	79.0	82.6	81.3	79.7	79.0	79.6	82.3	79.0	82.6
3-Jan	83.1	84.5	88.2	89.1	87.8	86.7	86.1	84.6	84.4	85.8	86.6	85.0	85.6	85.5	85.7	86.2	86.0	85.6	85.6	85.1	85.0	84.9	84.7	84.0	85.7	89.1
4-Jan	83.4	83.3	81.9	82.1	81.7	81.4	79.9	79.6	80.1	80.7	80.3	78.8	78.7	79.5	79.1	79.1	79.7	80.4	81.4	81.2	81.3	81.7	82.1	80.8	83.4	
5-Jan	82.8	83.0	83.2	83.3	83.8	83.6	83.3	83.7	83.4	82.9	80.6	78.7	78.1	80.1	82.0	82.3	83.2	83.2	82.9	83.4	84.0	83.8	83.8	83.4	82.6	84.0
6-Jan	83.3	83.3	83.3	83.4	83.5	83.9	84.1	84.4	84.1	83.7	83.2	82.2	81.4	81.4	81.5	81.6	81.4	80.9	80.5	79.8	78.7	78.4	78.6	78.4	81.9	84.4
7-Jan	78.2	77.9	77.8	77.9	77.7	80.1	80.9	79.6	79.1	78.6	78.7	77.7	75.7	74.2	76.2	77.1	75.4	75.0	76.9	78.3	78.6	79.4	79.5	80.3	78.0	80.9
8-Jan	80.8	80.1	79.8	80.3	81.1	81.3	81.6	80.9	82.2	81.3	80.4	80.4	78.5	77.2	77.2	79.2	79.8	79.8	79.8	78.5	76.7	77.4	76.7	76.8	79.5	82.2
9-Jan	76.8	77.2	77.6	77.2	76.7	76.6	76.2	75.7	75.5	75.2	75.0	74.8	74.2	73.4	73.7	74.0	74.0	73.6	73.7	72.8	72.8	72.1	72.6	72.3	74.7	77.6
10-Jan	72.0	72.4	73.0	73.2	73.0	73.2	72.8	72.8	72.9	73.0	71.9	70.2	69.8	67.6	68.7	69.8	70.1	70.6	71.0	70.6	70.5	70.2	70.0	70.2	71.2	73.2
11-Jan	70.4	70.3	70.6	70.3	69.9	69.8	69.3	69.3	69.4	69.0	68.4	68.0	67.0	67.5	68.0	68.3	69.1	69.1	69.8	69.8	69.6	69.2	69.0	69.2	69.2	70.6
12-Jan	68.4	69.3	69.3	68.7	68.2	67.8	67.8	67.6	67.2	67.1	66.7	66.7	64.5	64.3	65.8	67.4	68.3	68.2	68.7	68.2	68.4	67.4	66.6	66.4	67.5	69.3
13-Jan	66.4	65.9	65.9	65.7	65.6	65.4	65.2	64.9	65.3	65.1	66.0	66.5	65.9	65.9	66.7	67.2	68.1	68.2	68.1	67.9	67.4	67.1	66.8	66.8	66.4	68.2
14-Jan	66.9	66.9	66.4	66.2	66.6	66.6	66.2	66.1	66.1	66.8	67.9	68.4	67.7	68.9	69.1	69.9	69.7	69.6	69.4	68.9	68.5	69.0	68.4	69.1	67.9	69.9
15-Jan	68.8	69.0	69.2	68.4	68.6	69.2	68.9	69.2	68.3	69.4	70.2	68.9	67.9	69.5	68.7	70.2	71.7	72.6	73.1	73.6	73.0	72.8	73.3	72.2	70.3	73.6
16-Jan	72.6	72.7	72.6	71.7	71.8	71.8	71.9	71.2	71.9	71.6	71.8	69.4	69.3	69.5	72.2	73.6	74.3	70.7	69.5	70.0	69.7	68.8	69.4	72.8	71.3	74.3
17-Jan	71.1	71.1	72.3	78.2	77.9	78.8	76.7	76.2	75.4	75.2	72.3	73.2	71.1	70.3	72.4	72.6	74.8	76.5	76.4	77.2	77.4	77.7	78.1	78.9	75.1	78.9
18-Jan	78.4	77.9	77.4	77.9	77.4	78.0	78.9	76.0	75.2	75.0	74.4	72.5	71.8	70.5	73.8	76.1	74.4	75.2	75.0	73.4	72.8	74.3	73.0	74.7	75.2	78.9
19-Jan	74.8	76.8	77.4	77.8	78.0	78.2	77.7	77.5	77.3	76.6	73.7	71.5	69.5	71.8	71.6	73.6	73.7	73.4	74.6	77.7	78.3	77.6	78.6	77.2	75.6	78.6
20-Jan	74.8	77.2	83.1	82.9	80.4	76.9	78.4	77.5	77.0	75.9	74.6	80.3	79.7	79.2	80.0	79.6	80.7	80.5	80.1	79.2	79.3	79.2	78.4	79.0	78.9	83.1
21-Jan	80.8	81.5	81.0	80.8	80.6	79.9	79.9	79.3	78.7	79.1	78.4	76.5	74.4	74.9	74.9	75.1	75.5	77.4	78.0	78.6	78.0	79.3	80.0	78.5	78.4	81.5
22-Jan	78.1	77.2	76.9	76.7	76.7	76.8	77.1	77.5	77.8	78.2	76.4	70.6	69.1	70.7	74.1	72.8	71.3	72.3	73.3	74.1	75.5	76.5	77.6	77.8	75.2	78.2
23-Jan	78.9	79.6	80.0	79.7	79.5	80.1	80.8	80.9	80.9	80.5	77.8	76.1	72.6	73.4	79.1	82.9	83.9	85.2	85.8	86.5	86.1	87.3	86.2	85.4	81.2	87.3
24-Jan	84.2	83.7	84.0	83.8	83.5	83.6	83.6	83.7	83.8	83.5	82.3	79.7	79.1	79.4	76.9	79.6	83.3	87.7	90.9	92.7	90.8	89.0	88.5	88.2	84.4	92.7
25-Jan	88.8	91.3	92.5	92.0	91.6	90.8	90.3	89.9	89.7	89.5	89.6	89.8	90.0	90.5	90.6	91.1	91.4	91.9	92.6	92.8	92.9	93.3	93.8	94.2	91.3	94.2
26-Jan	94.0	94.1	94.3	94.1	93.8	93.4	93.5	93.5	93.6	93.8	94.1	94.6	95.1	95.2	95.6	95.9	96.0	95.9	96.0	96.1	96.2	96.2	96.1	95.9	94.9	96.2
27-Jan	95.3	94.7	94.0	93.6	93.7	94.3	94.4	95.3	95.3	95.6	96.8	98.0	98.6	99.2	97.1	86.3	90.1	85.2	84.7	85.5	90.5	93.1	94.2	97.7	93.5	99.2
28-Jan	98.2	95.8	93.8	90.0	87.8	86.2	88.2	88.3	88.8	80.4	78.8	69.3	64.4	67.3	68.3	67.8	70.8	74.3	75.8	79.1	80.3	76.1	79.3	82.0	80.5	98.2
29-Jan	81.0	82.0	86.1	89.2	87.6	87.2	85.7	84.7	82.6	79.4	78.9	70.5	68.0	67.7	63.5	66.6	67.6	68.3	69.3	70.8	71.4	71.8	77.6	77.6	76.5	89.2
30-Jan	76.4	78.3	81.2	81.6	83.6	87.3	92.6	93.0	87.8	84.5	86.4	92.0	85.1	60.4	45.9	40.9	43.2	48.5	52.7	53.9	53.8	67.6	67.9	65.6	71.2	93.0
31-Jan	62.9	61.9	61.9	62.5	63.4	62.2	61.0	66.8	68.2	71.3	64.3	58.7	60.1	58.9	55.4	55.4	57.5	58.3	58.0	58.2	61.3	59.5	56.2	57.1	60.9	71.3
78.6 78.9 79.5 79.5 79.2 79.1 79.2 79.0 78.7 78.2 77.4 76.2 75.0 74.4 74.4 74.8 75.6 76.1 76.7 77.0 77.1 77.4 77.7 78.0																								Diurnal Average		
98.2 95.8 96.4 94.1 93.8 94.3 94.4 95.3 95.3 95.6 96.8 98.0 98.6 99.2 97.1 95.9 96.0 95.9 96.0 96.1 96.2 96.2 96.1 97.7																								Diurnal Maximum		



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

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





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Mildred Lake - January 2024

Maximum Speed: 22 km/h on Jan 30 16:00	Maximum Daily Speed Average: 11.7 km/h on Jan 6	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 26 08:00	Minimum Daily Speed Average: 0.7 km/h on Jan 24	Hours of Data: 712
Maximum Diurnal Speed Average: 1.9 km/h at hour 5	Minimum Diurnal Speed Average: 0.4 km/h at hour 17	Hours of Missing Data: 32
Monthly Average Velocity: 1.1 km/h 13.8 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 7 Q <sub>3</sub> = 9 P <sub>90</sub> = 12 P <sub>99</sub> = 18	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-Jan	N4	N6	N8	NNE11	N12	N13	N13	N9	N7	N6	NNE6	N7	N7	NNW7	NNW5	NNE7	NE8	NNE8	NNE10	NE7	NNE7	NNE6	NNE8	NNE8	NNE7.6	N13	
2-Jan	NNE9	NNE8	NNE8	NNE7	NNE8	NE7	NE7	NE7	NNE3	E4	E5	E5	ENE5	E4	E3	SSE6	SSE5	E3	E5	E4	SSE4	SSE3	S7	SSE5	ENE3.5	NNE9	
3-Jan	S4	SSW4	S4	SE3	E4	SE3	ESE5	S9	S7	SSE5	ENE5	NNE5	N9	NNW11	N10	N9	N10	N9	N13	N11	N14	N14	N16	N16	N4.6	N16	
4-Jan	N14	N14	N17	N15	N14	N15	N14	N13	N12	N10	NNE11	NNE9	NNE9	N10	N9	NNE10	NNE9	N8	N9	N10	N9	N8	N10	N7	N11.0	N17	
5-Jan	N11	N9	NNW8	NNW8	NNW8	NW6	NW5	W3	WSW3	W4	W4	NW4	NNW4	NNE4	NE4	NNE4	NNE5	NNE6	N6	N6	N6	N6	N9	N8	NNW4.8	N11	
6-Jan	N8	N10	N9	N9	N10	N10	N11	N11	N11	N12	N13	N15	N15	N14	N15	N15	N13	N12	N13	N13	N11	N10	N11	N10	N11.7	N15	
7-Jan	N9	N9	N7	NNE6	NNE5	NNE6	NNE5	NNE5	N4	NNW4	NNE3	S4	SSW5	SSE5	ESE6	SSE7	SSE10	SSE10	S10	SSE10	SSE10	SSE11	SSE11	SSE8	SE2.6	SSE11	
8-Jan	SSE9	SSE11	SSE9	SE9	SE9	SSE7	SSE4	UO	NNW7	NNW9	NNW8	NNW9	NNW9	NNW8	NW8	NNW6	N6	NNW2	UO	NNE6	NNE6	NE5	N4	N6	NNE2.1	SSE11	
9-Jan	N6	N5	NNE5	N6	N6	N5	NNE5	N8	NNE7	N7	N7	NNW10	N9	N12	N11	N8	N10	NNE11	NNE10	NNE6	NNE8	NNE9	NNE8	NNE10	N7.7	N12	
10-Jan	N9	NNE8	NNE6	N6	N5	N4	N5	N5	N7	N7	N6	N4	N6	N8	N7	NNE7	NE4	NNE6	NNE5	NNE5	NNE6	NE6	NNE6	NNE8	N5.9	N9	
11-Jan	N7	N6	N4	N5	NNE5	NE3	NNE5	NE2	NNE3	NNE4	N6	NNE5	NNW5	N2	NNE3	NE5	NE4	UO	UO	UO	UO	UO	SSW4	SW3	NNE3.5	N7	
12-Jan	SW3	WSW4	WSW4	SSW5	SSW4	SSW5	SSW4	SSW4	S5	S6	S5	S5	SSE5	SE4	SE5	SE5	SE4	SE2	SSE3	SSE3	SSE4	S3	SSE2	SSE2	S3.3	S6	
13-Jan	SE2	ESE3	S3	SSE3	S2	S3	SSW4	SE3	UO	S3	SE4	SSE4	SSE4	SSE3	SSE3	SE2	E2	ESE2	UO	UO	NNE2	NE1	ESE1	ESE2	SSE2.2	SSE4	
14-Jan	S2	NE1	N3	UO	UO	UO	NNE2	UO	UO	UO	SSE2	S3	UO	UO	E3	E3	UO	UO	N2	N3	UO	SSW2	SSE3	S3	---	S3	
15-Jan	SSE3	SSE4	SE4	S5	S5	SSE5	S7	SSE6	S4	SSE3	SSE5	S5	SE6	S5	SSE5	SSE6	SSE6	S7	SSW7	S4	SE5	SSE4	S7	S4	S4.8	S7	
16-Jan	SE4	SSE2	S1	N3	NNW6	NNW6	NNW7	NW6	NW6	NW4	NNE2	SW4	SSW4	SSE1	SSE3	UO	UO	NNW10	NNW10	NNW10	NNW10	NNW10	NNW10	NNW10	NNW10	NNW4.8	NNW14
17-Jan	NNW13	NNW13	NNW10	NNE8	NE8	NNE8	N6	N5	NNE8	NNE9	NNE10	NNE9	NNE9	NNE8	N9	N8	N6	N7	N9	N8	NNW8	N7	NNW7	NNW7	N7.4	NNW13	
18-Jan	NNW7	NW6	NNW5	NNW5	NW3	NNE2	WSW2	W6	W7	W9	W6	NNW8	NW7	NNW5	NNW3	NNW3	NNW9	NNW10	NNW11	NNW12	NNW10	NW8	NNW6	NNW5	NNW6.0	NNW12	
19-Jan	WSW4	SW5	SSW5	SSW7	SSW6	SSW7	S9	SSE8	SSE7	SSE7	SSE8	SE8	SE7	SE7	SSE8	SE7	SSE9	S10	S6	SSW3	S5	S6	S8	SSE11	SSE6.3	SSE11	
20-Jan	SSE11	SSE6	SSW3	SSE4	SSE5	S8	NNW2	SE3	S3	UO	NNW5	N8	NNW9	NNW9	NNW10	NNW7	N8	N9	N10	NNE10	NNE9	NNE9	NNE10	N8	N3.3	SSE11	
21-Jan	N7	N7	N5	NNW5	NNW7	NNW6	NW6	NW5	N5	NNW8	NNW8	N10	N12	N10	N8	NNE8	NNE8	N5	N6	NNW5	NNE5	NNE6	NNE5	N8	N6.6	N12	
22-Jan	N9	N9	N9	N7	N7	N7	N7	N7	N5	NNE3	ESE10	SE16	SE16	SE17	SE16	SE16	SE18	SE18	SE18	SE18	SSE15	SSE14	SSE13	SSE12	SE7.1	SE18	
23-Jan	SE10	SE10	SE11	SSE12	SSE11	SSE8	SSE8	S9	S8	S7	SSE6	S5	S5	UO	UO	N7	N7	N9	N10	N12	N13	N11	N8	N9	ESE2.2	N13	
24-Jan	N9	N8	N8	N8	NNE6	NNW5	NNW5	NE3	UO	NW3	UO	UO	SSE5	SSE10	SSE11	SSE9	SSE8	SSE7	S5	SSW3	NNW3	NNE3	S1	NNW6	NE0.7	SSE11	
25-Jan	N9	N9	N9	N9	NNE10	N11	N11	N9	N8	N8	N7	NW5	NNW3	UO	S4	S4	S5	SSE7	SSE8	S7	S6	S7	S7	S7	NNE2.0	N11	
26-Jan	S9	S2	SE2	UO	NNW6	N4	NNW3	W0	S2	S4	SSE5	SSE5	SSE7	SSE8	SSE8	S8	S8	S8	SSE6	SSE5	SSE3	S4	SSE4	S3	SSE3.8	S9	
27-Jan	S2	SSW2	SSW3	S3	S4	SSE4	UO	S3	S3	SSE4	SSE4	SSE4	SE7	SSE8	ESE6	SSE8	SW8	SW10	WSW10	WSW9	SSW5	SSW5	SSE5	ESE4	S4.1	WSW10	
28-Jan	SE6	SE7	SE7	SE6	SSE5	SE9	S8	SSE8	SE7	S9	S6	SW12	SW16	W18	W17	W15	W17	W16	W14	W13	W14	W15	WSW8	SW6	SW6.8	W18	
29-Jan	SW7	S7	SSE10	S9	SSE7	SE9	SE8	SE10	SE9	SSE10	SSE8	SE15	SE12	SSE10	SSE6	SE9	SSE10	SE8	SSE9	SE9	SE9	SSE8	SSE9	SE7	SSE8.7	SE15	
30-Jan	SSE8	SE5	SE7	ESE7	ESE6	SE2	S4	SSE4	SSE7	S8	S5	S9	SW5	WSW14	SW17	WSW22	W21	W16	WSW13	SW15	W20	NNW12	W7	WSW9	SW6.7	WSW22	
31-Jan	WSW11	WSW11	SW13	WSW14	SW11	SW11	SW9	SW10	SW10	SSW8	SW6	S6	SE9	SE9	SE12	SE9	SE8	SE11	SE16	SE15	ESE7	ESE12	SE14	SE14	S6.9	SE16	

N1.6	N1.9	NNE1.7	NNE1.6	NNE1.9	NNE1.5	N1.6	N0.8	N0.9	NNW0.7	NE1.1	ENE0.5	NE0.9	NNE0.8	ENE0.7	ENE0.7	NNE0.4	NNW0.5	N0.7	N0.9	N1.9	N1.6	NNE0.6	N1.2	Diurnal Average	
N14	N14	N17	N15	N14	N15	N14	N13	N12	N12	N13	SE16	SW16	W18	SW17	WSW22	W21	SE18	SE18	SE18	W20	W15	N16	N16	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**

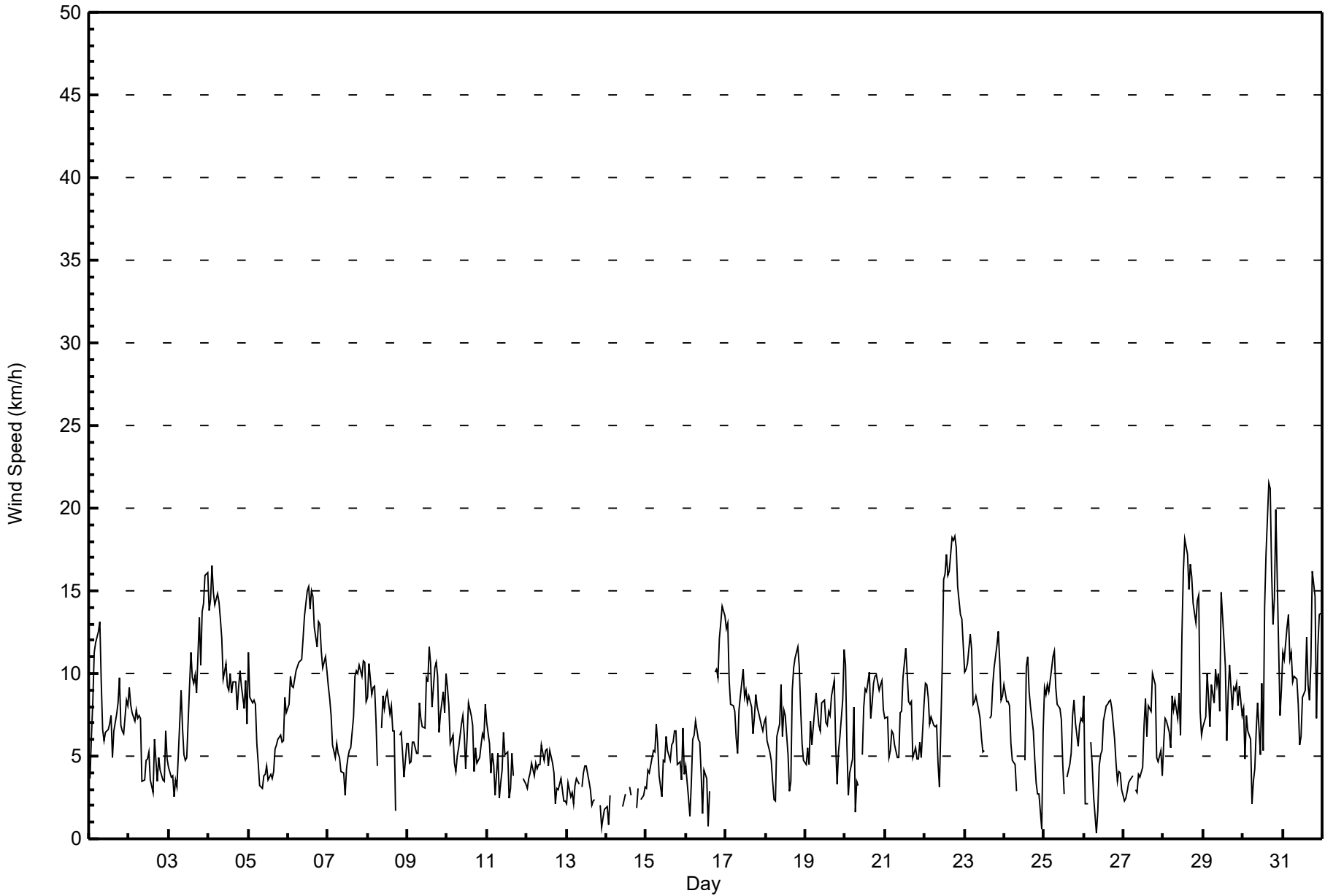
**Wind Speed (WS) - km/h**  
**Mildred Lake - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 16:00 Minimum Value: 0 km/h on Jan 13 21:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 712 Hours of Missing Data: 32 Hours of Calibration: 0 Percent Operational Time: 95.7									
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-Jan	2	1	3	3	3	3	4	2	2	1	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	4
2-Jan	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	1	1	1	1	2	1	2	2	2	2
3-Jan	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	2	2	3	4	3	3	3	3	4	4	
4-Jan	4	4	4	4	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	2	4	
5-Jan	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	
6-Jan	1	2	2	1	1	2	2	2	2	2	3	3	3	3	3	3	3	2	3	3	3	2	2	2	3	
7-Jan	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	
8-Jan	2	3	2	2	2	3	2	UO	1	1	1	2	2	2	1	1	1	2	UO	2	2	1	1	1	3	
9-Jan	2	1	2	1	1	2	1	2	2	1	2	2	2	3	3	2	3	3	3	2	2	3	2	3	3	
10-Jan	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	2	2	
11-Jan	2	2	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1	UO	UO	UO	UO	UO	1	1	2	
12-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	
13-Jan	1	1	1	0	1	1	1	1	1	UO	1	1	1	1	0	1	1	0	UO	UO	0	1	1	1	1	
14-Jan	1	1	1	UO	UO	UO	0	UO	UO	UO	1	1	1	UO	UO	1	1	UO	UO	0	0	UO	1	0	1	
15-Jan	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	2	2	
16-Jan	1	1	2	1	2	1	1	1	1	1	1	1	2	1	1	UO	UO	3	2	2	3	4	4	3	4	
17-Jan	4	3	3	2	2	2	1	1	2	2	3	2	2	2	2	2	1	2	2	2	2	2	2	1	4	
18-Jan	1	1	1	2	1	1	2	2	2	2	2	2	2	1	1	3	2	2	3	3	2	3	2	2	3	
19-Jan	2	2	1	2	1	2	2	2	1	1	2	2	1	2	2	2	2	2	2	2	1	1	1	1	2	
20-Jan	2	3	1	1	2	1	1	1	1	UO	2	2	2	2	2	2	2	2	2	2	3	3	2	3	2	
21-Jan	2	2	1	1	1	1	1	1	1	2	2	3	3	3	2	2	3	1	1	1	2	2	1	3	3	
22-Jan	2	2	2	2	2	2	2	2	1	1	3	4	4	4	4	4	4	4	4	4	4	3	2	2	4	
23-Jan	2	2	2	2	2	2	2	2	2	2	3	1	2	UO	UO	2	2	2	2	3	3	3	2	2	3	
24-Jan	2	2	2	2	1	1	1	1	1	UO	1	UO	UO	2	2	2	2	1	1	1	1	1	1	3	3	
25-Jan	2	2	2	2	3	2	3	2	2	2	2	1	1	UO	1	1	1	1	2	2	1	1	1	2	3	
26-Jan	2	2	1	UO	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	2	
27-Jan	1	1	1	1	1	1	UO	1	1	1	1	1	2	2	2	2	3	3	2	3	2	2	2	2	3	
28-Jan	2	2	2	2	3	4	3	2	3	3	2	4	5	6	5	4	4	4	4	4	4	4	2	2	6	
29-Jan	2	2	2	2	2	2	2	2	2	3	4	3	3	2	1	2	2	2	2	3	2	2	2	2	4	
30-Jan	2	2	1	1	1	1	1	1	2	3	3	3	5	5	5	8	7	6	4	5	7	3	3	3	8	
31-Jan	4	3	4	4	4	3	5	2	3	2	2	2	2	2	3	2	2	4	3	3	2	3	3	3	5	
Diurnal Maximum																										
UO - Unstable Operation																										



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

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





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	246	34.55	34.55
6 - 11	383	53.79	88.34
12 - 19	80	11.24	99.58
20 - 28	3	0.42	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 712

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Mildred Lake - January 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	23	27	10	2	12	6	18	45	43	19	5	5	3	7	7	14	246
6 - 11	116	58	7	0	0	6	32	56	33	5	9	7	5	9	8	32	383
12 - 19	32	0	0	0	0	1	16	5	0	0	5	3	10	6	2	0	80
20 - 28	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
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>	171	85	17	2	12	13	66	106	76	24	19	16	20	22	17	46	712

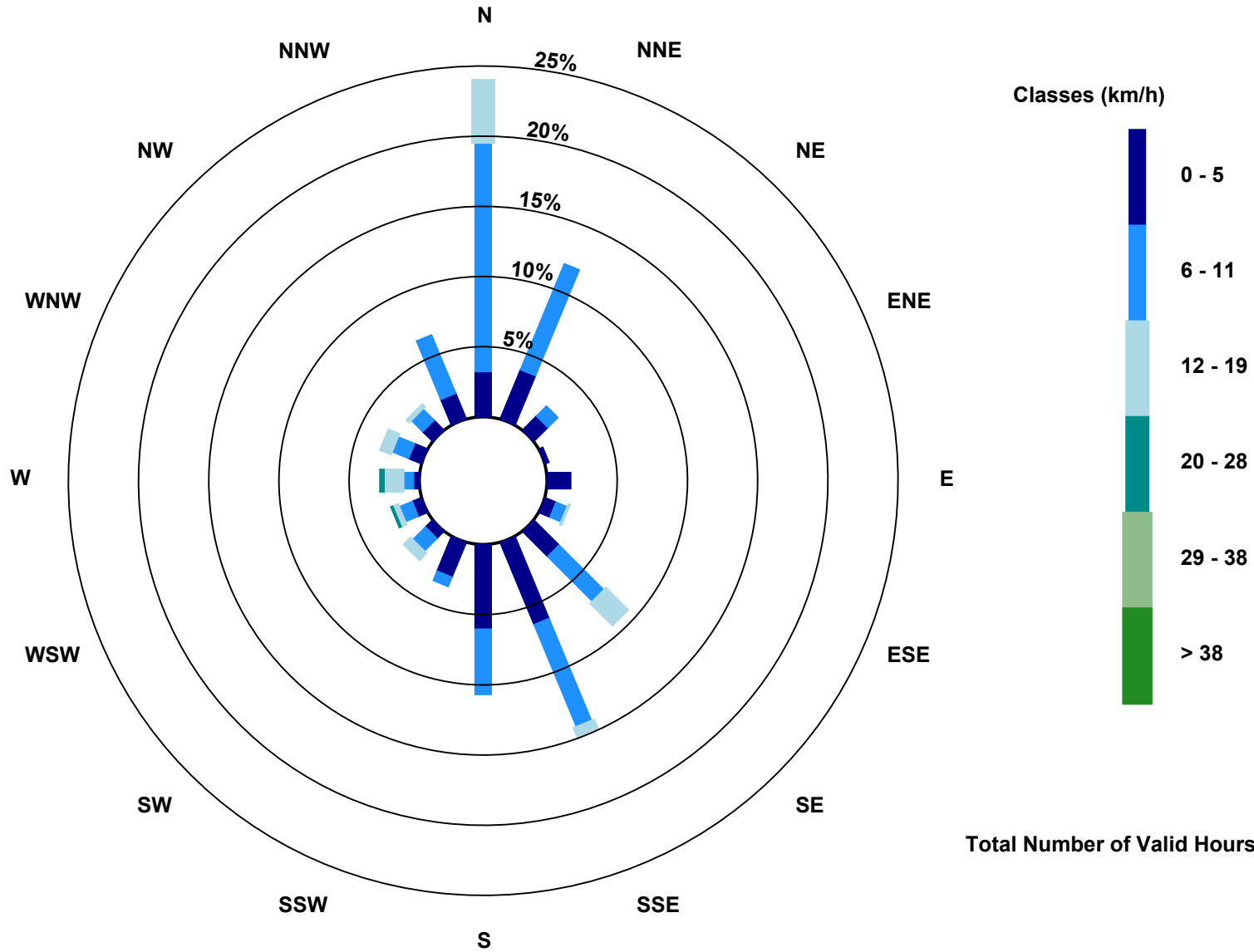
Total Number of Valid Hours: 712

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Mildred Lake



Total Number of Valid Hours: 712





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

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

Direction of Maximum Speed: 255 deg on Jan 30 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 357.2 deg on Jan 6	Hours of Data: 712
Direction of Minimum Speed: 281 deg on Jan 26 08:00	Hours of Missing Data: 32
Direction of Minimum Daily Speed Average: 0.7 deg on Jan 24	Percent Operational Time: 95.7
Monthly Average Direction: 13.8 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-Jan	10	1	7	12	4	6	4	349	4	0	22	6	2	342	348	12	37	30	30	45	23	27	21	23	11.8
2-Jan	32	26	21	18	21	34	46	41	33	86	92	87	68	98	90	159	152	96	92	100	147	149	169	167	69.6
3-Jan	177	202	176	130	88	127	113	177	177	161	72	28	359	347	349	2	360	2	358	10	359	1	358	0	9.2
4-Jan	359	355	357	358	357	359	1	6	3	4	25	16	13	2	10	18	16	7	2	357	5	10	359	358	3.9
5-Jan	352	356	345	334	329	321	317	272	243	268	270	310	334	2	39	32	31	24	9	9	11	7	354	3	348.4
6-Jan	4	357	358	353	353	351	350	357	356	358	358	357	357	352	355	355	355	357	4	6	4	3	356	359	357.2
7-Jan	3	3	11	13	21	31	29	16	360	343	16	181	197	167	122	148	159	168	169	160	163	152	148	155	128.3
8-Jan	147	148	147	140	145	160	164	UO	346	343	337	348	347	339	320	343	355	342	UO	26	29	39	1	355	21.7
9-Jan	10	0	14	10	360	5	12	1	14	1	2	345	353	4	6	351	1	17	18	18	16	13	17	17	6.7
10-Jan	4	14	17	11	355	1	353	351	357	359	7	350	354	350	4	29	42	22	32	23	33	34	22	15	10.2
11-Jan	10	11	5	9	13	46	23	38	30	29	10	15	344	10	29	39	44	UO	UO	UO	UO	UO	213	229	15.7
12-Jan	225	257	257	207	198	210	202	201	187	181	186	182	154	141	131	134	144	136	158	151	154	184	152	147	177.9
13-Jan	126	112	170	156	178	190	210	143	UO	177	146	161	152	149	148	135	89	108	UO	UO	15	38	115	122	147.8
14-Jan	171	45	2	UO	UO	UO	24	UO	UO	UO	157	173	UO	UO	81	97	UO	UO	355	355	UO	202	167	171	-
15-Jan	164	167	144	184	182	158	178	168	180	163	160	171	145	169	151	160	150	184	193	190	139	166	191	189	169.4
16-Jan	135	161	187	353	345	346	335	308	316	310	22	232	212	168	153	UO	UO	287	296	289	283	283	285	287	293.5
17-Jan	295	314	336	25	35	32	11	5	18	23	16	21	25	18	8	9	6	5	6	7	348	358	340	331	1.8
18-Jan	339	319	330	285	316	22	241	269	268	263	266	302	317	330	334	302	293	295	292	288	301	317	300	290	298.3
19-Jan	247	225	204	206	197	192	169	157	148	161	148	146	144	134	148	138	165	172	171	202	173	184	177	153	168.4
20-Jan	152	156	204	162	167	170	283	126	183	UO	288	353	338	343	337	348	352	0	7	20	12	15	15	4	3.4
21-Jan	8	353	10	338	333	334	323	324	355	346	348	355	3	359	7	17	16	11	0	347	17	29	19	350	357.3
22-Jan	10	11	11	9	3	7	358	357	350	12	114	140	141	143	143	142	145	141	142	143	149	152	151	152	127.2
23-Jan	143	142	146	149	152	160	167	170	171	182	155	170	177	UO	UO	349	353	359	7	6	6	8	5	5	108.5
24-Jan	358	5	360	3	16	346	339	40	UO	318	UO	UO	160	158	161	160	159	163	179	202	302	13	187	342	55.5
25-Jan	356	356	7	7	21	8	3	6	1	351	352	325	328	UO	188	176	170	156	169	173	182	177	171	178	13.2
26-Jan	172	182	138	UO	338	349	340	281	176	173	168	160	152	150	159	171	171	175	160	162	158	173	161	186	165.8
27-Jan	190	194	199	191	174	167	UO	189	171	163	168	148	145	151	123	166	220	236	250	248	212	209	165	122	188.1
28-Jan	135	136	125	143	152	143	172	156	138	178	182	219	233	267	268	266	275	269	270	275	276	274	243	229	236.0
29-Jan	230	169	149	171	147	139	146	140	136	149	151	143	146	156	164	144	150	145	154	133	130	149	148	131	148.7
30-Jan	147	134	145	114	116	128	170	167	166	173	190	173	221	241	235	255	262	267	239	234	279	308	264	253	232.3
31-Jan	247	245	232	240	226	236	230	228	225	212	217	182	125	132	145	136	130	134	141	143	119	113	130	133	176.8
4.6   2.6   15.8   15.6   17.8   22.2   1.8   10.8   5.0   337.9   43.4   72.5   43.5   20.2   56.4   65.8   32.5   327.8   357.2   358.9   349.2   7.7   23.3   9.1																									
Diurnal Average																									

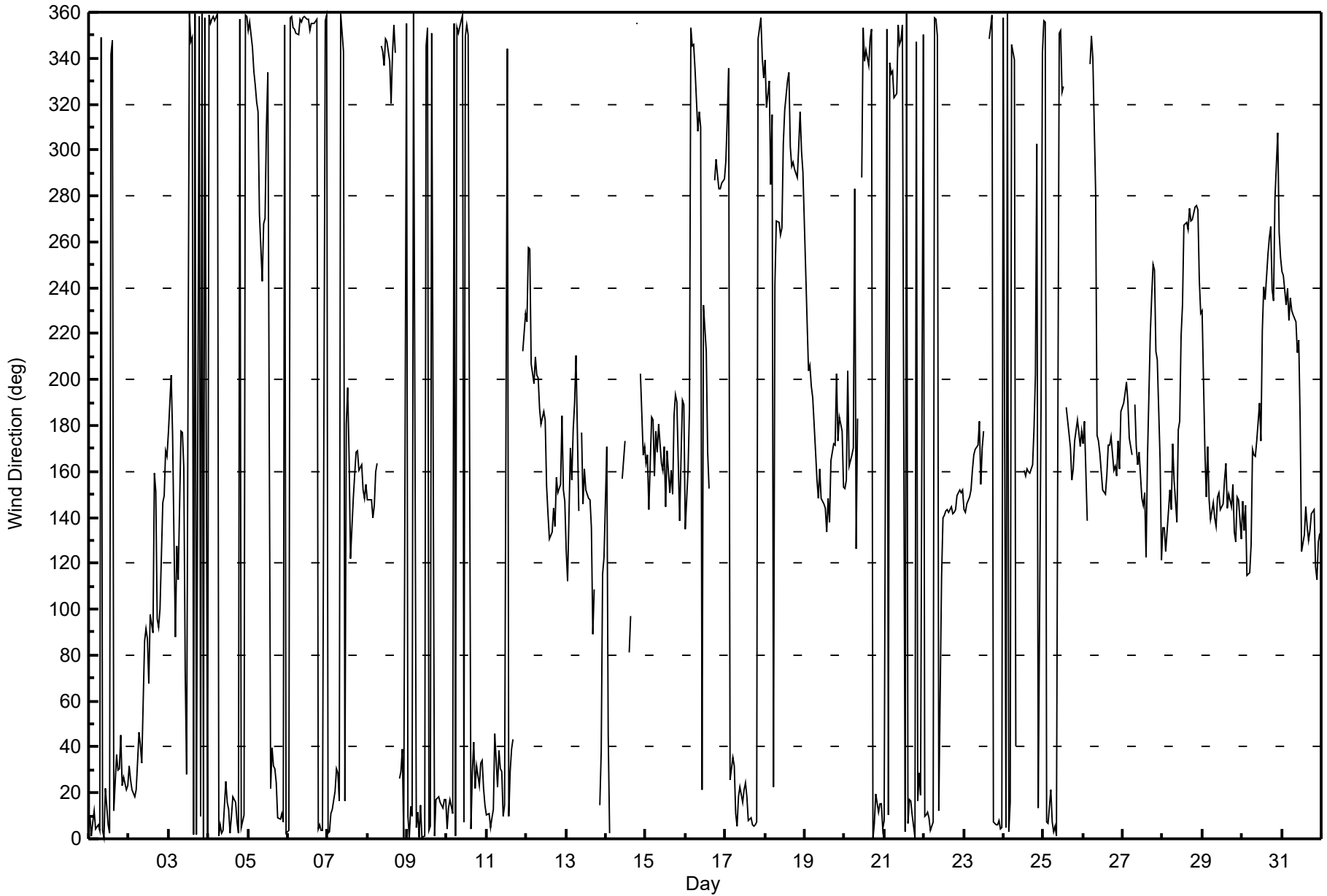
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on Jan 26 02:00		Hours in Service: 744 Hours of Data: 712 Hours of Missing Data: 32 Hours of Calibration: 0 Percent Operational Time: 95.7																							
Minimum Value: 7 deg on Jan 8 15:00																									
Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 12 Q <sub>1</sub> = 15 Median = 17 Q <sub>3</sub> = 22 P <sub>90</sub> = 31 P <sub>99</sub> = 73																									
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-Jan	34	14	31	18	17	17	19	20	26	13	17	17	18	15	16	21	16	17	18	22	17	17	17	17	34
2-Jan	19	22	17	20	20	19	17	19	26	20	15	21	23	31	31	20	19	37	23	18	41	33	20	26	41
3-Jan	30	30	19	38	17	30	26	20	28	25	35	22	17	13	14	14	15	20	15	19	15	17	15	17	38
4-Jan	17	16	18	17	18	17	18	18	18	18	20	23	21	20	20	17	18	17	18	17	13	17	17	15	32
5-Jan	12	13	12	11	11	11	17	40	30	24	32	27	27	33	24	16	18	16	15	16	15	16	11	13	40
6-Jan	13	12	12	10	13	12	12	14	12	13	14	15	14	13	13	14	13	14	16	16	16	15	14	14	16
7-Jan	15	16	17	19	18	18	21	14	14	16	58	22	26	22	20	15	15	14	16	15	15	12	12	12	58
8-Jan	12	12	18	14	14	19	33	UO	13	8	12	13	16	19	7	10	14	73	UO	20	21	19	28	16	73
9-Jan	14	19	34	11	12	23	19	15	20	18	22	16	17	17	18	14	17	19	18	20	17	19	19	18	34
10-Jan	17	19	18	17	17	15	14	11	9	10	15	24	14	17	16	19	19	14	15	14	13	14	16	16	24
11-Jan	16	16	14	14	18	33	16	23	20	21	22	28	22	60	43	17	16	UO	UO	UO	UO	UO	21	26	60
12-Jan	29	21	30	15	15	13	16	17	21	13	20	18	18	19	20	19	14	47	15	12	14	15	13	26	47
13-Jan	18	12	30	23	27	16	23	38	UO	20	20	18	16	14	16	16	12	20	UO	UO	21	30	42	36	42
14-Jan	39	75	18	UO	UO	UO	39	UO	UO	UO	30	18	UO	UO	14	7	UO	UO	29	11	UO	30	24	19	75
15-Jan	18	16	21	16	17	17	13	19	21	29	21	24	17	18	13	17	10	20	9	28	17	32	14	22	32
16-Jan	37	53	76	43	14	16	15	14	14	21	87	30	36	78	38	UO	UO	16	16	17	17	17	16	17	87
17-Jan	18	12	28	19	16	15	16	17	17	18	20	22	21	19	19	20	15	15	15	16	15	18	20	13	28
18-Jan	12	12	10	33	31	32	65	17	21	16	20	19	10	13	31	53	15	15	16	16	21	27	25	14	65
19-Jan	37	19	19	15	17	15	12	10	10	15	12	15	16	19	14	16	16	11	15	32	16	12	13	11	37
20-Jan	11	25	41	11	13	13	65	45	37	UO	32	16	15	16	14	17	15	15	16	19	18	19	20	16	65
21-Jan	16	16	29	26	13	15	12	21	14	14	16	20	17	19	20	20	20	21	14	19	27	15	17	20	29
22-Jan	18	18	18	22	15	17	13	11	18	31	18	14	15	14	14	14	12	13	14	12	11	11	12	11	31
23-Jan	12	12	10	10	11	13	14	15	16	14	47	22	30	UO	UO	15	16	15	19	18	17	18	18	17	47
24-Jan	14	15	15	16	18	20	14	27	UO	46	UO	UO	21	15	16	16	12	10	15	31	63	38	84	54	84
25-Jan	13	12	17	17	20	17	16	16	16	15	13	22	17	UO	26	23	20	15	14	13	24	13	14	15	26
26-Jan	12	96	53	UO	12	11	30	70	41	21	16	20	17	17	17	15	14	13	16	16	15	14	18	22	96
27-Jan	15	18	16	12	14	28	UO	38	54	16	15	20	11	14	22	15	25	25	20	20	34	24	41	27	54
28-Jan	13	16	14	22	38	23	24	17	29	27	32	20	23	22	21	22	18	19	20	21	18	19	23	27	38
29-Jan	26	30	12	18	19	17	15	13	17	19	22	12	14	14	17	12	12	20	11	21	19	30	13	25	30
30-Jan	17	16	21	13	14	75	40	33	22	37	64	25	63	22	22	23	21	22	25	26	23	15	28	24	75
31-Jan	22	21	23	22	29	25	47	20	20	21	33	27	20	17	13	15	18	17	13	14	18	16	19	16	47
	39	96	76	43	38	75	65	70	54	46	87	30	63	78	43	53	25	73	29	32	63	38	84	54	
	Diurnal Maximum																								
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS03 LOWER CAMP METEOROLOGY JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
JANUARY 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	719	0	25	96.64	11	-	5.1	-
Temperature 45 m (C) Average	719	0	25	96.64	11.2	-	5.4	-
Temperature 100 m (C) Average	719	0	25	96.64	11.6	-	6.7	-
Temperature 163 m (C) Average	719	0	25	96.64	11.5	-	7.5	-
Relative Humidity 20 m (%) Average	719	0	25	96.64	96.2	-	92.9	-
Relative Humidity 45 m (%) Average	719	0	25	96.64	97.3	-	94.5	-
Relative Humidity 100 m (%) Average	719	0	25	96.64	93.6	-	91.6	-
Relative Humidity 163 m (%) Average	719	0	25	96.64	96.2	-	92.7	-
Wind Speed 20 m (km/h) Average	719	0	25	96.64	24	-	13.0	-
Wind Speed 45 m (km/h) Average	563	0	181	75.67	36	-	19.0	-
Wind Speed 100 m (km/h) Average	571	0	173	76.75	46	-	26.0	-
Wind Speed 163 m (km/h) Average	545	0	199	73.25	53	-	33.0	-
Wind Direction 20 m (deg) Average	719	0	25	96.64	-	-	-	-
Wind Direction 45 m (deg) Average	563	0	181	75.67	-	-	-	-
Wind Direction 100 m (deg) Average	571	0	173	76.75	-	-	-	-
Wind Direction 163 m (deg) Average	545	0	199	73.25	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	719	0	25	96.64	0.3	-	0.0	-
Vertical Wind Speed 45 m (km/h) Average	563	0	181	75.67	1.4	-	0.5	-
Vertical Wind Speed 100 m (km/h) Average	571	0	173	76.75	3	-	0.8	-
Vertical Wind Speed 163 m (km/h) Average	545	0	199	73.25	5.8	-	1.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
 JANUARY 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	719	-17.15	12.6	-	-42.2	-36.5	-23.1	-17.6	-9.2	1.2	11
Temperature 45 m (C) Average	719	-16.94	12.6	-	-40.9	-35.7	-23.1	-17.5	-9.4	2.2	11.2
Temperature 100 m (C) Average	719	-16.7	12.7	-	-40.6	-34.9	-23.4	-17.8	-9.6	3.7	11.6
Temperature 163 m (C) Average	719	-16.48	12.7	-	-38.7	-34.3	-23.5	-18	-9.4	4.5	11.5
Relative Humidity 20 m (%) Average	719	76.06	8.8	-	40.5	66.7	69.8	76.2	80.9	89.3	96.2
Relative Humidity 45 m (%) Average	719	76.31	9.2	-	40.4	66.5	69.5	76.2	81.6	89	97.3
Relative Humidity 100 m (%) Average	719	73.19	9.2	-	36.2	63.8	67.4	73.8	78.7	83.3	93.6
Relative Humidity 163 m (%) Average	719	74.34	9.6	-	37.4	64.3	68.3	75.4	80.3	85	96.2
Wind Speed 20 m (km/h) Average	719	7.3	5	-	0	2	4	6	11	14	24
Wind Speed 45 m (km/h) Average	563	11.8	7	-	0	4	7	10	16	21	36
Wind Speed 100 m (km/h) Average	571	14.8	9	-	0	5	8	13	20	26	46
Wind Speed 163 m (km/h) Average	545	17.6	10	-	0	7	11	15	23	32	53
Wind Direction 20 m (deg) Average	719	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	563	-	-	-	-	-	-	-	-	-	-
Wind Direction 100 m (deg) Average	571	-	-	-	-	-	-	-	-	-	-
Wind Direction 163 m (deg) Average	545	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	719	-0.18	0.3	-	-1.4	-0.6	-0.3	-0.1	0	0.1	0.3
Vertical Wind Speed 45 m (km/h) Average	563	0.08	0.3	-	-1	-0.2	-0.1	0	0.2	0.5	1.4
Vertical Wind Speed 100 m (km/h) Average	571	0.16	0.5	-	-1.4	-0.4	-0.1	0.1	0.3	0.7	3
Vertical Wind Speed 163 m (km/h) Average	545	0.41	0.8	-	-3.1	-0.2	0.1	0.3	0.7	1.2	5.8

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL METEOROLOGICAL SENSORS	07 Jan 2024 10:00	10 Jan 2024 09:00	25	DAS Failure - data not recorded
Wind Speed, Wind Direction, Vertical Wind Speed 45m	09 Jan 2024 14:00	16 Jan 2024 11:00	156	Intermittent unstable operation
Wind Speed, Wind Direction, Vertical Wind Speed 100m	10 Jan 2024 22:00	27 Jan 2024 12:00	148	Intermittent unstable operation
Wind Speed, Wind Direction, Vertical Wind Speed 163m	07 Jan 2024 09:00	27 Jan 2024 11:00	175	Intermittent unstable operation



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

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

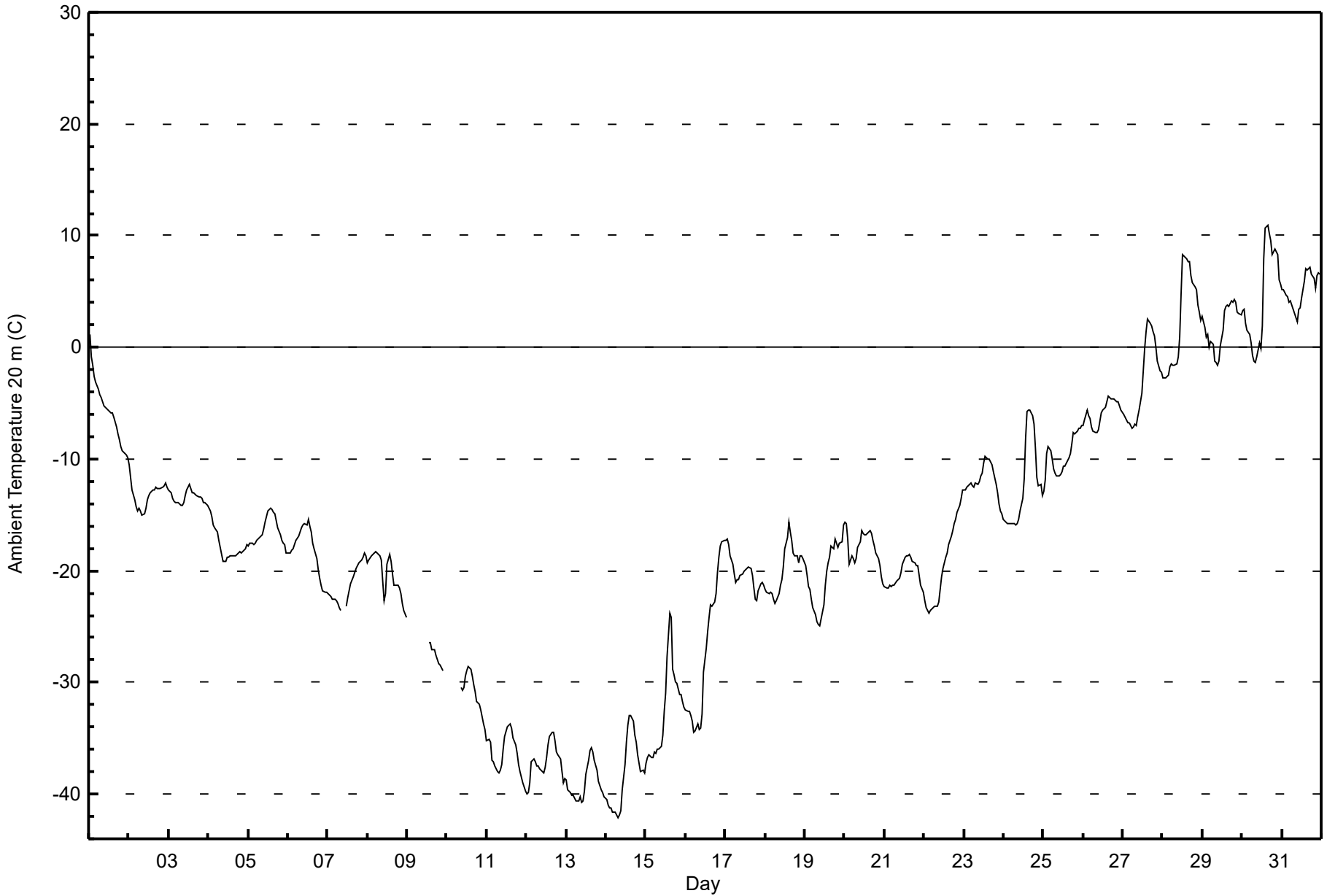
Maximum Value: 11.0 C on Jan 30 16:00																						Maximum Daily Average: 5.1 C on Jan 31																						Hours in Service: 744			
Minimum Value: -42.2 C on Jan 14 08:00																						Minimum Daily Average: -39.1 C on Jan 13																						Hours of Data: 719			
Maximum Diurnal Average: -15.2 C at hour 16																						Minimum Diurnal Average: -19.1 C at hour 9																						Hours of Missing Data: 25			
Monthly Average: -17.15 C																						Percentiles: P <sub>1</sub> = -41.2 P <sub>10</sub> = -36.5 Q <sub>1</sub> = -23.1 Median = -17.6 Q <sub>3</sub> = -9.2 P <sub>90</sub> = 1.2 P <sub>99</sub> = 8.3																						Hours of Calibration: 0			
																						Percent Operational Time: 96.6																									
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-Jan	1.2	-0.8	-1.6	-2.6	-3.2	-3.7	-4.2	-4.5	-4.9	-5.3	-5.4	-5.6	-5.7	-5.9	-5.9	-6.2	-7.2	-7.7	-8.2	-8.8	-9.2	-9.4	-9.6	-9.9	-5.6	1.2																					
2-Jan	-10.5	-11.7	-12.7	-13.7	-14.2	-14.6	-14.5	-14.6	-15.1	-14.9	-14.4	-13.7	-13.3	-13.0	-12.8	-12.8	-12.5	-12.7	-12.7	-12.6	-12.5	-12.4	-12.2	-12.6	-13.2	-10.5																					
3-Jan	-12.7	-13.1	-13.5	-13.7	-13.9	-13.9	-13.9	-14.1	-14.2	-13.9	-13.3	-12.7	-12.3	-12.6	-13.1	-13.1	-13.1	-13.3	-13.4	-13.3	-13.5	-13.9	-13.9	-14.1	-13.4	-12.3																					
4-Jan	-14.4	-14.7	-15.1	-15.9	-16.2	-16.6	-17.3	-17.9	-18.5	-19.2	-19.1	-18.8	-18.8	-18.7	-18.6	-18.7	-18.6	-18.4	-18.3	-18.4	-18.2	-18.1	-17.7	-17.7	-14.4	-14.4																					
5-Jan	-17.8	-17.6	-17.5	-17.7	-17.6	-17.3	-17.2	-17.1	-16.8	-16.2	-15.6	-15.2	-14.7	-14.4	-14.5	-14.8	-14.9	-15.6	-16.1	-16.7	-17.3	-17.5	-17.7	-18.4	-16.5	-14.4																					
6-Jan	-18.4	-18.4	-18.2	-18.0	-17.6	-17.2	-16.9	-16.6	-16.2	-16.0	-15.8	-15.9	-15.5	-16.1	-16.6	-17.5	-18.1	-18.9	-19.9	-20.6	-21.3	-21.8	-21.9	-22.0	-18.1	-15.5																					
7-Jan	-22.0	-22.1	-22.4	-22.5	-22.5	-22.6	-22.9	-23.3	-23.6	DF	DF	-23.2	-22.4	-21.8	-21.2	-20.5	-20.2	-19.8	-19.5	-19.2	-19.1	-18.8	-18.5	-18.7	-21.2	-18.5																					
8-Jan	-19.3	-19.1	-18.7	-18.6	-18.4	-18.3	-18.4	-18.7	-19.1	-21.0	-22.7	-22.1	-19.4	-18.6	-19.2	-20.4	-21.3	-21.3	-21.4	-21.5	-22.0	-22.9	-23.6	-24.2	-20.4	-18.3																					
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-26.5	-26.4	-27.1	-27.0	-27.6	-28.0	-28.4	-28.5	-29.0	DF	DF	--	-26.4																				
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	-30.5	-30.7	-30.4	-29.5	-29.0	-28.6	-28.8	-29.4	-30.3	-30.9	-31.7	-32.0	-32.4	-33.1	-33.7	-34.2	--	-28.6																				
11-Jan	-35.2	-35.1	-35.3	-37.0	-37.1	-37.5	-38.0	-38.1	-37.9	-37.4	-36.0	-34.8	-34.0	-33.8	-33.7	-34.1	-35.0	-35.5	-36.4	-37.4	-38.0	-38.4	-39.0	-39.7	-36.4	-33.7																					
12-Jan	-40.0	-39.8	-38.9	-37.1	-36.8	-37.1	-37.4	-37.5	-37.7	-37.9	-38.1	-37.6	-36.8	-35.6	-34.8	-34.4	-34.5	-35.2	-36.2	-36.5	-36.8	-38.0	-39.0	-38.6	-37.2	-34.4																					
13-Jan	-38.7	-39.6	-39.9	-40.1	-40.2	-40.4	-40.6	-40.6	-40.3	-40.8	-40.6	-39.7	-38.3	-37.0	-36.2	-35.9	-36.3	-36.9	-37.8	-38.9	-39.3	-39.7	-39.9	-40.2	-39.1	-35.9																					
14-Jan	-40.6	-41.0	-41.3	-41.3	-41.6	-41.6	-41.9	-42.2	-41.9	-41.4	-39.7	-37.4	-35.3	-33.8	-33.0	-32.9	-33.5	-34.7	-35.4	-36.5	-37.2	-38.0	-37.9	-38.1	-38.3	-32.9																					
15-Jan	-37.2	-36.7	-36.5	-36.7	-36.7	-36.2	-36.4	-36.0	-36.0	-35.8	-34.7	-32.6	-30.9	-27.7	-23.8	-24.2	-28.8	-29.4	-29.9	-30.1	-31.1	-31.1	-31.7	-32.2	-32.6	-23.8																					
16-Jan	-32.5	-32.6	-32.6	-33.0	-33.5	-34.4	-34.3	-33.8	-34.2	-34.1	-32.8	-29.1	-26.9	-25.4	-24.2	-23.0	-23.2	-22.9	-22.0	-20.2	-18.8	-17.8	-17.4	-17.3	-27.3	-17.3																					
17-Jan	-17.3	-17.2	-17.7	-18.7	-19.5	-20.3	-21.0	-20.8	-20.8	-20.4	-20.3	-20.1	-20.0	-19.7	-19.7	-19.8	-20.5	-21.6	-22.5	-22.6	-21.9	-21.1	-21.1	-21.3	-20.2	-17.2																					
18-Jan	-21.6	-22.0	-22.1	-21.9	-22.0	-22.6	-22.9	-22.7	-22.0	-21.2	-20.8	-19.6	-18.1	-17.0	-15.7	-16.5	-17.3	-18.5	-18.7	-18.7	-19.3	-18.7	-18.9	-19.9	-19.9	-15.7																					
19-Jan	-19.5	-20.4	-21.4	-21.7	-22.5	-23.3	-24.0	-24.6	-24.8	-24.9	-24.3	-23.0	-21.2	-20.0	-19.3	-18.8	-17.8	-18.0	-17.2	-17.6	-18.0	-17.5	-17.4	-15.9	-20.5	-15.9																					
20-Jan	-15.7	-15.8	-17.2	-19.4	-18.6	-19.0	-19.3	-18.9	-17.9	-17.4	-16.4	-16.7	-16.7	-16.8	-16.5	-16.4	-16.7	-17.3	-17.8	-18.5	-18.9	-19.5	-20.5	-21.2	-17.9	-15.7																					
21-Jan	-21.4	-21.5	-21.5	-21.3	-21.5	-21.3	-21.2	-21.0	-20.8	-20.6	-20.1	-19.4	-18.8	-18.6	-18.6	-18.5	-18.7	-19.2	-19.2	-19.5	-19.6	-20.4	-21.3	-21.9	-20.3	-18.5																					
22-Jan	-22.6	-23.3	-23.6	-23.8	-23.6	-23.3	-23.2	-23.2	-23.2	-22.8	-20.5	-19.8	-19.3	-18.7	-18.4	-17.7	-16.9	-16.4	-15.8	-15.5	-14.7	-14.1	-13.5	-12.8	-19.4	-12.8																					
23-Jan	-12.7	-12.7	-12.5	-12.3	-12.1	-12.3	-12.5	-12.2	-12.3	-12.1	-11.5	-11.2	-10.4	-9.7	-10.0	-10.1	-10.2	-10.5	-11.1	-12.2	-13.0	-14.0	-14.6	-15.0	-12.0	-9.7																					
24-Jan	-15.4	-15.6	-15.7	-15.8	-15.8	-15.7	-15.8	-15.7	-15.8	-15.7	-15.4	-14.7	-13.5	-11.8	-8.2	-5.7	-5.7	-6.1	-6.9	-9.0	-11.7	-12.4	-12.3	-13.3	-12.2	-5.7																					
25-Jan	-12.9	-11.9	-9.5	-8.9	-9.2	-10.0	-10.8	-11.3	-11.5	-11.5	-11.4	-11.2	-10.7	-10.7	-10.4	-9.9	-9.4	-8.6	-7.7	-7.8	-7.5	-7.2	-7.2	-7.0	-9.8	-7.0																					
26-Jan	-7.0	-6.5	-5.7	-6.1	-6.4	-7.1	-7.6	-7.6	-7.7	-7.4	-6.6	-5.9	-5.6	-5.3	-4.8	-4.4	-4.5	-4.7	-4.7	-4.7	-4.9	-4.9	-5.3	-5.6	-5.9	-4.4																					
27-Jan	-6.1	-6.2	-6.6	-6.7	-6.8	-7.2	-7.2	-6.8	-7.1	-6.3	-5.6	-4.2	-2.1	-0.1	1.5	2.5	2.2	2.0	1.4	1.0	0.0	-1.2	-2.1	-2.2	-3.1	2.5																					
28-Jan	-2.8	-2.8	-2.8	-2.5	-1.7	-1.5	-1.7	-1.6	-1.5	-0.9	1.0	4.8	8.3	8.1	7.9	7.7	7.7	6.5	5.8	5.4	5.2	3.8	3.1	2.4	2.4	8.3																					
29-Jan	2.8	1.8	0.9	1.2	0.0	0.5	0.3	-1.2	-1.4	-1.6	-1.3	0.2	1.5	3.3	3.7	3.8	3.6	4.2	4.1	4.3	4.1	3.2	3.1	2.8	1.8	4.3																					
30-Jan	3.3	3.5	2.2	1.6	1.2	0.4	-0.7	-1.2	-1.4	-0.9	0.4	-0.1	2.0	8.0	10.6	11.0	10.2	9.6	8.3	8.5	8.8	8.3	6.1	5.7	4.4	11.0																					
31-Jan	5.2	5.1	4.7	4.5	4.0	4.2	3.8	3.4	2.6	2.2	3.4	3.5	4.4	5.9	7.1	7.0	7.0	7.2	6.6	6.2	5.3	6.4	6.7	6.6	5.1	7.2																					
																						-17.3	-17.5	-17.7	-17.9	-18.1	-18.3	-18.5	-18.6	-19.1	-18.8	-18.2	-17.5	-16.4	-15.8	-15.2	-15.2	-15.5	-15.9	-16.2	-16.5	-16.8	-17.1	-17.0	-17.2	Diurnal Average	
																						5.2	5.1	4.7	4.5	4.0	4.2	3.8	3.4	2.6	2.2	3.4	4.8	8.3	8.1	10.6	11.0	10.2	9.6	8.3	8.5	8.8	8.3	6.7	6.6	Diurnal Maximum	
DF - DAS Failure																																															





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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	262	36.44	36.44
-20 - 0	373	51.88	88.32
0 - 10	81	11.27	99.58
10 - 20	3	0.42	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 744



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

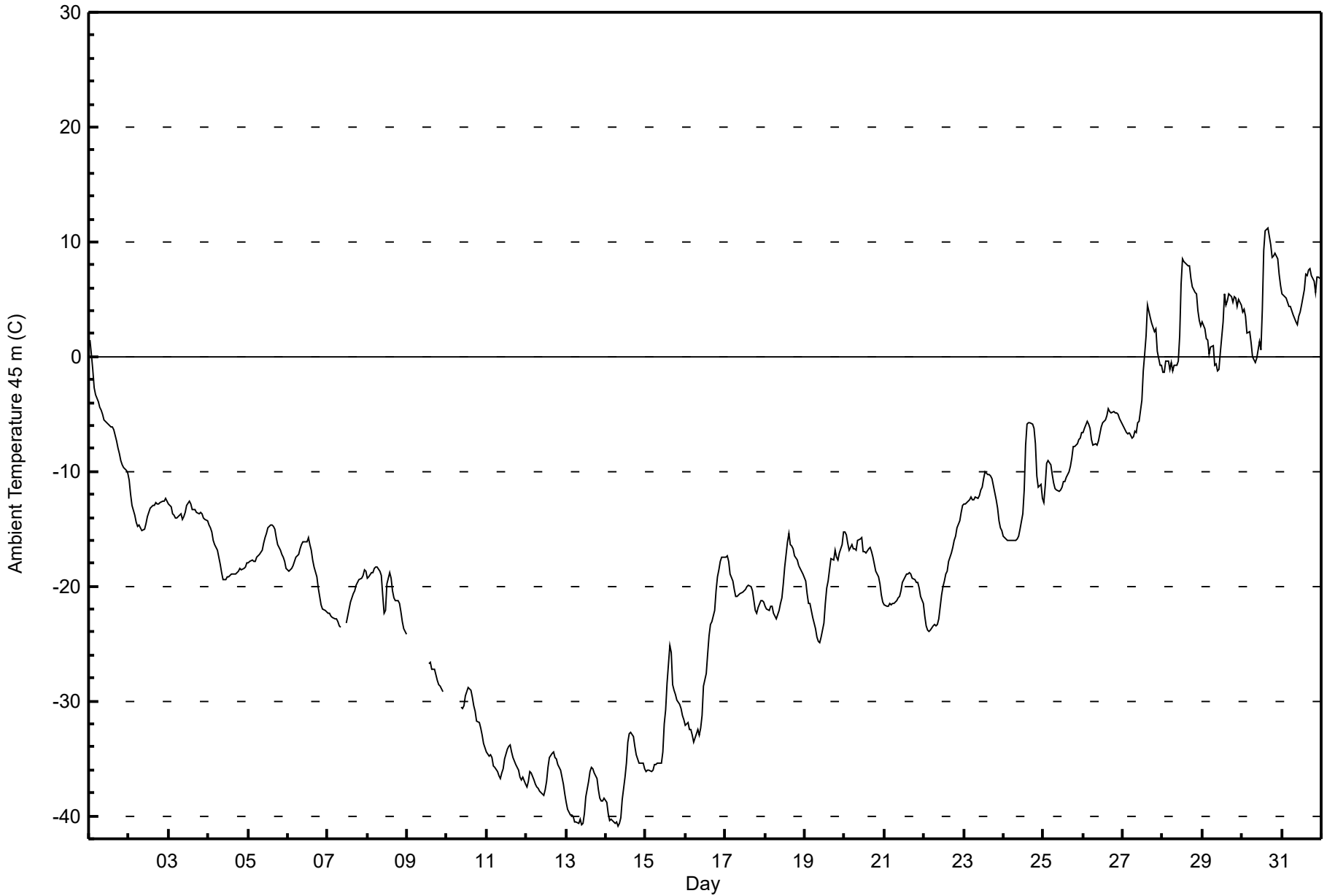
**Ambient Temperature 45 m (AT45m) - C**  
**Lower Camp Met Tower - January 2024**

Maximum Value: 11.2 C on Jan 30 16:00																								Hours in Service: 744			
Maximum Daily Average: 5.4 C on Jan 31																								Hours of Data: 719			
Minimum Value: -40.9 C on Jan 14 08:00																								Hours of Missing Data: 25			
Minimum Daily Average: -38.7 C on Jan 13																								Hours of Calibration: 0			
Maximum Diurnal Average: -15.2 C at hour 16																								Percent Operational Time: 96.6			
Minimum Diurnal Average: -18.8 C at hour 9																											
Monthly Average: -16.94 C																											
Percentiles: P <sub>1</sub> = -40.5 P <sub>10</sub> = -35.7 Q <sub>1</sub> = -23.1 Median = -17.5 Q <sub>3</sub> = -9.4 P <sub>90</sub> = 2.2 P <sub>99</sub> = 8.7																											
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-Jan	1.4	0.2	-1.1	-2.7	-3.3	-3.9	-4.4	-4.7	-5.1	-5.5	-5.6	-5.9	-6.0	-6.1	-6.1	-6.4	-7.4	-8.0	-8.5	-9.1	-9.4	-9.6	-9.9	-10.1	-5.7	1.4	
2-Jan	-10.8	-12.0	-13.0	-13.9	-14.5	-14.7	-14.6	-14.8	-15.2	-15.0	-14.6	-13.9	-13.5	-13.2	-13.0	-13.0	-12.7	-12.8	-12.9	-12.7	-12.6	-12.5	-12.4	-12.6	-13.4	-10.8	
3-Jan	-12.8	-13.1	-13.6	-13.9	-14.1	-14.1	-14.0	-13.7	-14.2	-14.0	-13.6	-13.0	-12.6	-12.9	-13.3	-13.3	-13.3	-13.5	-13.7	-13.6	-13.7	-14.1	-14.1	-14.3	-13.6	-12.6	
4-Jan	-14.7	-14.9	-15.3	-16.1	-16.4	-16.8	-17.5	-18.1	-18.8	-19.4	-19.4	-19.2	-19.2	-19.0	-19.0	-19.0	-18.9	-18.8	-18.7	-18.5	-18.6	-18.4	-18.3	-18.0	-17.9	-14.7	
5-Jan	-18.0	-17.8	-17.8	-17.9	-17.8	-17.5	-17.4	-17.2	-16.8	-16.3	-15.8	-15.4	-14.9	-14.7	-14.7	-14.8	-15.0	-15.7	-16.3	-16.8	-17.2	-17.5	-17.8	-18.4	-16.6	-14.7	
6-Jan	-18.7	-18.6	-18.4	-18.2	-17.9	-17.5	-17.2	-16.8	-16.4	-16.1	-16.1	-16.2	-15.8	-16.3	-16.8	-17.7	-18.3	-19.1	-20.2	-20.9	-21.6	-22.0	-22.1	-22.2	-18.4	-15.8	
7-Jan	-22.3	-22.4	-22.6	-22.7	-22.8	-22.9	-23.1	-23.4	-23.6	DF	DF	-23.2	-22.6	-22.0	-21.3	-20.7	-20.4	-20.0	-19.7	-19.4	-19.3	-19.0	-18.6	-18.7	-21.4	-18.6	
8-Jan	-19.3	-19.2	-18.9	-18.8	-18.4	-18.3	-18.4	-18.6	-19.1	-20.8	-22.3	-22.1	-19.8	-18.8	-19.3	-20.4	-21.0	-21.3	-21.2	-21.6	-22.2	-23.1	-23.7	-24.2	-20.4	-18.3	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-26.8	-26.7	-27.3	-27.2	-27.8	-28.2	-28.6	-28.7	-29.2	DF	DF	--	-26.7
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	-30.5	-30.7	-30.4	-29.6	-29.2	-28.9	-29.1	-29.7	-30.4	-30.8	-31.7	-31.9	-32.3	-33.0	-33.7	-34.0	--	-28.9
11-Jan	-34.5	-34.8	-34.7	-34.9	-35.6	-35.8	-36.2	-36.5	-36.8	-36.2	-35.9	-35.1	-34.2	-33.9	-33.8	-34.4	-34.9	-35.5	-35.7	-36.0	-36.6	-36.9	-36.7	-37.2	-35.5	-33.8	
12-Jan	-37.4	-37.0	-36.2	-36.3	-36.9	-37.2	-37.5	-37.6	-37.9	-37.9	-38.2	-37.7	-37.0	-35.8	-35.0	-34.5	-34.5	-34.9	-35.1	-35.5	-36.0	-36.6	-37.2	-38.1	-36.6	-34.5	
13-Jan	-38.8	-39.4	-39.9	-40.0	-40.1	-40.5	-40.5	-40.6	-40.3	-40.7	-40.6	-39.7	-38.3	-37.0	-36.2	-35.8	-35.8	-36.2	-36.7	-37.7	-38.4	-38.7	-38.7	-38.4	-38.7	-35.8	
14-Jan	-38.8	-39.8	-40.4	-40.3	-40.5	-40.6	-40.6	-40.9	-40.7	-40.1	-38.6	-36.7	-35.4	-33.6	-32.8	-32.8	-33.1	-33.9	-34.6	-35.1	-35.4	-35.4	-35.4	-35.9	-37.1	-32.8	
15-Jan	-36.1	-36.0	-36.0	-36.1	-36.0	-35.6	-35.5	-35.4	-35.4	-35.5	-34.4	-32.1	-30.8	-28.4	-25.2	-25.7	-28.5	-29.1	-29.5	-29.9	-30.2	-30.6	-31.3	-31.6	-32.3	-25.2	
16-Jan	-32.1	-31.9	-32.4	-32.5	-33.0	-33.5	-33.2	-32.5	-32.9	-32.4	-31.3	-28.7	-27.7	-25.8	-24.3	-23.4	-23.0	-22.1	-20.3	-19.1	-18.5	-17.8	-17.5	-17.5	-26.8	-17.5	
17-Jan	-17.4	-17.4	-17.9	-18.9	-19.6	-20.3	-20.9	-20.9	-20.8	-20.6	-20.5	-20.4	-20.3	-20.0	-19.9	-20.0	-20.5	-21.2	-22.2	-22.4	-21.9	-21.3	-21.3	-21.4	-20.3	-17.4	
18-Jan	-21.8	-22.0	-22.1	-21.7	-21.8	-22.4	-22.6	-22.8	-22.1	-21.4	-21.1	-19.8	-18.3	-16.2	-15.3	-16.3	-16.5	-16.8	-17.3	-17.7	-18.2	-18.5	-18.7	-19.0	-19.6	-15.3	
19-Jan	-19.6	-20.6	-21.5	-21.4	-22.1	-22.7	-23.7	-24.5	-24.8	-24.9	-24.4	-23.2	-21.5	-20.2	-19.5	-18.6	-17.6	-17.8	-16.8	-17.5	-17.7	-17.0	-16.4	-15.2	-20.4	-15.2	
20-Jan	-15.3	-15.5	-16.3	-16.8	-16.3	-16.7	-16.8	-16.9	-16.1	-15.9	-15.7	-16.9	-17.0	-17.1	-16.8	-16.6	-16.9	-17.5	-18.1	-18.7	-19.1	-19.7	-20.8	-21.4	-17.3	-15.3	
21-Jan	-21.6	-21.7	-21.7	-21.5	-21.7	-21.5	-21.4	-21.2	-21.0	-20.9	-20.4	-19.7	-19.2	-19.0	-18.9	-18.8	-18.9	-19.3	-19.4	-19.7	-19.7	-20.2	-20.9	-21.5	-20.4	-18.8	
22-Jan	-22.6	-23.5	-23.8	-23.9	-23.8	-23.5	-23.4	-23.4	-23.4	-22.8	-20.8	-20.0	-19.6	-19.0	-18.6	-17.9	-17.1	-16.6	-16.0	-15.6	-14.9	-14.3	-13.6	-12.9	-19.6	-12.9	
23-Jan	-12.9	-12.9	-12.7	-12.4	-12.2	-12.5	-12.5	-12.3	-12.3	-12.1	-11.6	-11.4	-10.6	-10.0	-10.3	-10.3	-10.5	-10.7	-11.3	-12.5	-13.2	-14.3	-14.9	-15.2	-12.1	-10.0	
24-Jan	-15.7	-15.9	-15.9	-16.1	-16.1	-16.0	-16.0	-16.0	-15.9	-15.6	-15.0	-13.7	-11.6	-11.6	-11.6	-7.7	-5.8	-5.7	-5.9	-6.2	-7.6	-10.4	-11.4	-11.1	-12.3	-12.1	-5.7
25-Jan	-12.8	-11.2	-9.3	-9.0	-9.4	-10.3	-11.0	-11.5	-11.7	-11.7	-11.6	-11.4	-10.9	-10.9	-10.5	-10.0	-9.6	-8.7	-7.8	-7.8	-7.6	-7.2	-7.1	-6.6	-9.8	-6.6	
26-Jan	-6.6	-6.2	-5.7	-5.8	-6.3	-7.2	-7.7	-7.6	-7.7	-7.4	-6.7	-6.1	-5.8	-5.6	-5.1	-4.6	-4.7	-4.9	-4.8	-4.9	-4.9	-5.0	-5.3	-5.6	-5.9	-4.6	
27-Jan	-6.1	-6.3	-6.6	-6.8	-6.6	-7.1	-7.0	-6.5	-6.7	-5.8	-5.6	-3.9	-1.2	0.2	1.9	4.5	3.5	2.9	2.5	2.1	2.4	0.4	-0.8	-0.8	-2.4	4.5	
28-Jan	-1.3	-1.3	-0.4	-0.4	-1.1	-0.5	-1.2	-0.7	-0.8	-0.3	1.8	6.3	8.5	8.2	8.0	7.9	7.9	6.8	6.1	5.6	5.5	4.1	3.2	2.7	3.1	8.5	
29-Jan	3.1	2.4	1.6	1.4	0.2	0.9	0.9	-0.8	-0.7	-1.2	-1.1	0.4	3.0	5.5	4.5	4.9	5.5	5.3	4.7	5.2	5.1	4.3	5.0	4.5	2.7	5.5	
30-Jan	3.9	4.1	3.5	2.1	2.2	1.2	0.0	-0.3	-0.5	-0.1	1.3	0.6	4.2	9.2	10.9	11.2	10.5	9.8	8.7	8.7	9.0	8.5	7.2	6.2	5.1	11.2	
31-Jan	5.5	5.3	5.1	4.7	4.4	4.4	4.0	3.7	3.0	2.7	3.6	3.9	4.5	5.8	7.1	7.1	7.5	7.6	7.0	6.5	5.7	6.9	6.9	6.8	5.4	7.6	
																								Diurnal Average			
																								Diurnal Maximum			
-17.0 -17.2 -17.4 -17.6 -17.8 -18.0 -18.3 -18.4 -18.8 -18.6 -18.1 -17.5 -16.4 -15.8 -15.3 -15.2 -15.4 -15.7 -15.9 -16.2 -16.5 -16.8 -16.5 -16.8																											
5.5 5.3 5.1 4.7 4.4 4.4 4.0 3.7 3.0 2.7 3.6 6.3 8.5 9.2 10.9 11.2 10.5 9.8 8.7 8.7 9.0 8.5 7.2 6.8																											
DF - DAS Failure																											



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	267	37.13	37.13
-20 - 0	363	50.49	87.62
0 - 10	86	11.96	99.58
10 - 20	3	0.42	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 744

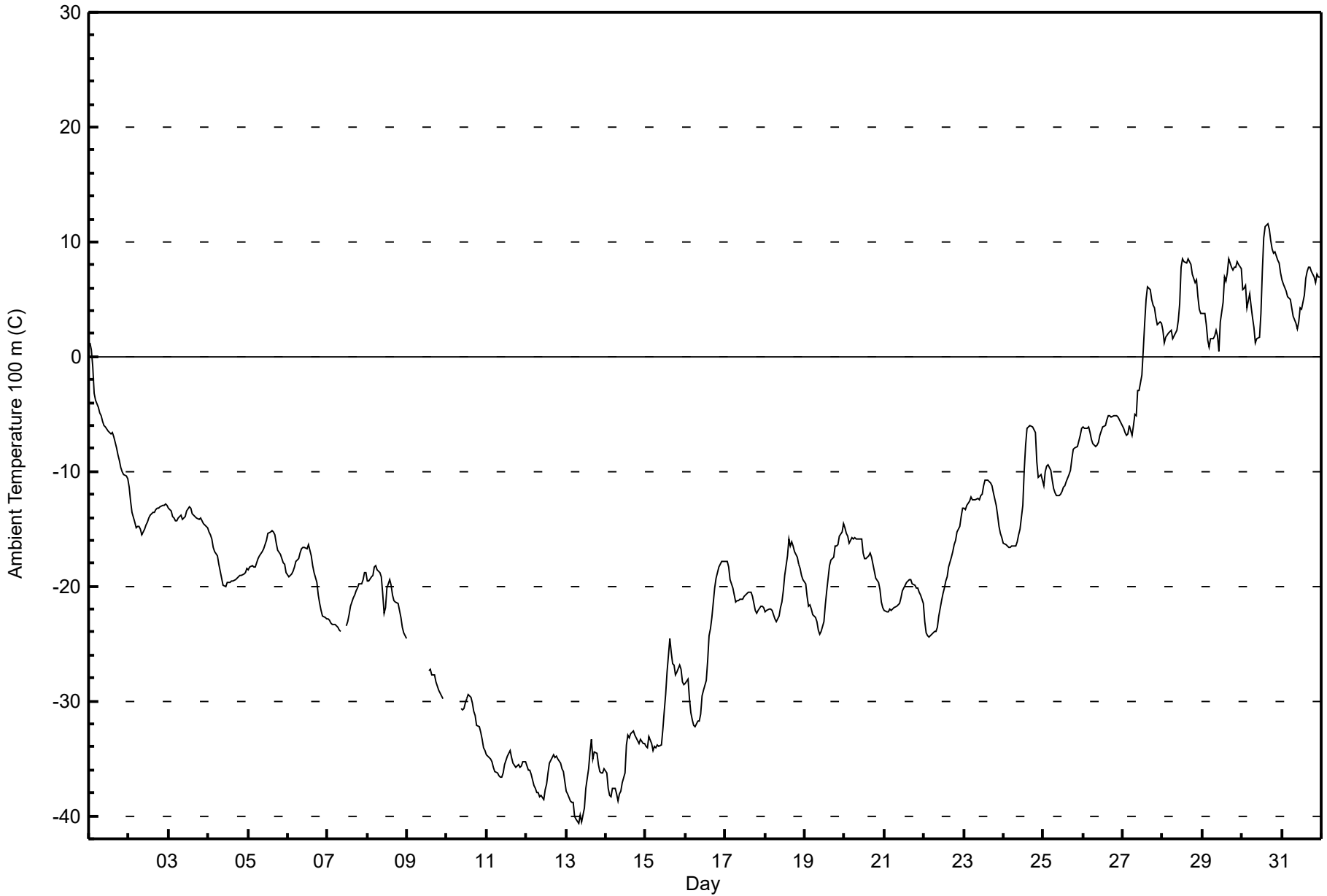


Maximum Value: 11.6 C on Jan 30 16:00      Maximum Daily Average: 6.7 C on Jan 30																						Hours in Service:	744				
Minimum Value: -40.6 C on Jan 13 08:00      Minimum Daily Average: -37.5 C on Jan 13																						Hours of Data:	719				
Maximum Diurnal Average: -15.3 C at hour 16      Minimum Diurnal Average: -18.5 C at hour 9																						Hours of Missing Data:	25				
Monthly Average: -16.70 C      Percentiles: P <sub>1</sub> = -38.9 P <sub>10</sub> = -34.9 Q <sub>1</sub> = -23.4 Median = -17.8 Q <sub>3</sub> = -9.6 P <sub>90</sub> = 3.7 P <sub>99</sub> = 8.9																						Hours of Calibration:	0				
																						Percent Operational Time:	96.6				
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-Jan	1.2	0.6	-0.9	-3.2	-3.8	-4.5	-4.9	-5.2	-5.6	-6.0	-6.1	-6.4	-6.6	-6.7	-6.6	-7.0	-7.9	-8.5	-9.0	-9.6	-10.0	-10.2	-10.4	-10.7	-6.2	1.2	
2-Jan	-11.3	-12.5	-13.5	-14.4	-14.9	-14.8	-14.8	-15.1	-15.5	-15.0	-14.7	-14.5	-14.1	-13.8	-13.5	-13.5	-13.3	-13.2	-13.2	-13.1	-13.0	-13.0	-12.9	-13.0	-13.8	-11.3	
3-Jan	-13.2	-13.5	-13.9	-14.1	-14.3	-14.3	-14.1	-13.8	-14.2	-14.1	-13.9	-13.5	-13.1	-13.2	-13.7	-13.8	-13.9	-14.1	-14.2	-14.1	-14.3	-14.6	-14.6	-14.9	-14.0	-13.1	
4-Jan	-15.2	-15.5	-15.9	-16.6	-17.0	-17.4	-18.1	-18.7	-19.3	-20.0	-20.0	-19.7	-19.7	-19.6	-19.5	-19.6	-19.4	-19.3	-19.1	-19.0	-19.1	-18.9	-18.8	-18.5	-18.5	-15.2	
5-Jan	-18.5	-18.3	-18.2	-18.3	-18.3	-18.0	-17.6	-17.3	-17.0	-16.7	-16.0	-16.0	-15.4	-15.2	-15.2	-15.3	-15.5	-16.2	-16.8	-17.3	-17.6	-17.9	-18.1	-18.8	-17.1	-15.2	
6-Jan	-19.2	-19.1	-19.0	-18.7	-18.3	-17.9	-17.6	-17.2	-16.7	-16.6	-16.6	-16.7	-16.3	-16.9	-17.4	-18.3	-18.8	-19.7	-20.7	-21.4	-22.1	-22.6	-22.7	-22.8	-18.9	-16.3	
7-Jan	-22.8	-22.9	-23.2	-23.3	-23.3	-23.4	-23.6	-23.9	-23.9	DF	DF	-23.4	-23.1	-22.5	-21.8	-21.1	-20.8	-20.4	-20.1	-19.8	-19.8	-19.5	-18.8	-18.8	-21.8	-18.8	
8-Jan	-19.5	-19.5	-19.2	-19.1	-18.4	-18.2	-18.6	-18.8	-19.2	-20.6	-22.4	-21.9	-20.2	-19.4	-19.9	-20.8	-21.2	-21.4	-21.5	-22.1	-22.8	-23.6	-24.1	-24.5	-20.7	-18.2	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-27.4	-27.2	-27.8	-27.7	-28.3	-28.7	-29.1	-29.3	-29.8	DF	DF	--	-27.2
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	-30.7	-30.8	-30.7	-30.2	-29.7	-29.4	-29.6	-30.2	-30.9	-31.3	-32.2	-32.2	-32.7	-33.3	-34.0	-34.4	--	-29.4
11-Jan	-34.6	-34.9	-35.1	-35.3	-35.8	-36.1	-36.3	-36.5	-36.6	-36.6	-36.2	-35.6	-34.8	-34.5	-34.4	-34.9	-35.4	-35.7	-35.7	-35.5	-35.8	-35.6	-35.3	-35.3	-35.5	-34.4	
12-Jan	-35.6	-36.0	-36.1	-36.4	-37.4	-37.6	-37.9	-38.0	-38.3	-38.2	-38.5	-37.8	-37.3	-36.2	-35.4	-34.9	-34.7	-35.0	-34.8	-35.0	-35.4	-35.9	-36.2	-37.0	-36.5	-34.7	
13-Jan	-37.9	-38.1	-38.8	-38.9	-38.9	-40.0	-40.3	-40.6	-40.0	-40.5	-39.9	-39.3	-37.7	-35.9	-34.4	-33.4	-35.1	-34.5	-34.6	-35.5	-36.1	-36.3	-36.3	-35.9	-37.5	-33.4	
14-Jan	-36.2	-37.6	-38.2	-38.3	-37.7	-37.6	-38.1	-38.7	-38.1	-37.9	-37.1	-36.3	-33.9	-33.0	-33.2	-32.9	-32.6	-32.9	-33.3	-33.5	-33.7	-33.4	-33.7	-33.7	-35.5	-32.6	
15-Jan	-34.0	-34.0	-33.1	-33.7	-34.3	-33.9	-34.1	-33.8	-34.0	-33.8	-32.5	-31.0	-29.5	-27.4	-24.5	-25.8	-26.8	-26.8	-27.7	-27.5	-26.8	-27.3	-28.4	-28.5	-30.4	-24.5	
16-Jan	-28.5	-28.0	-29.7	-31.1	-31.7	-32.1	-32.2	-31.8	-31.7	-31.1	-29.6	-29.0	-28.2	-26.5	-24.4	-23.7	-22.8	-20.2	-19.3	-18.8	-18.4	-18.1	-17.8	-17.9	-25.9	-17.8	
17-Jan	-17.9	-17.8	-18.4	-19.4	-20.1	-20.8	-21.3	-21.3	-21.2	-21.2	-21.1	-20.9	-20.8	-20.6	-20.5	-20.5	-20.9	-21.5	-22.1	-22.4	-22.1	-21.8	-21.8	-21.9	-20.8	-17.8	
18-Jan	-22.2	-22.2	-21.9	-21.9	-22.1	-22.5	-22.9	-23.1	-22.6	-21.8	-21.4	-20.4	-19.1	-17.3	-15.8	-16.5	-16.1	-16.5	-17.0	-17.4	-18.1	-18.5	-19.0	-19.4	-19.8	-15.8	
19-Jan	-19.8	-20.8	-21.7	-21.7	-22.0	-22.4	-22.7	-23.1	-23.8	-24.2	-24.0	-23.0	-21.6	-20.4	-19.3	-18.2	-17.7	-17.4	-16.5	-16.5	-16.4	-15.7	-15.2	-14.6	-20.0	-14.6	
20-Jan	-14.9	-15.4	-15.7	-16.2	-15.7	-15.9	-15.8	-15.9	-15.9	-15.8	-15.8	-17.2	-17.6	-17.6	-17.3	-17.2	-17.5	-18.0	-18.6	-19.3	-19.7	-20.3	-21.3	-21.9	-17.4	-14.9	
21-Jan	-22.2	-22.3	-22.2	-22.0	-22.1	-22.0	-21.9	-21.7	-21.6	-21.5	-21.0	-20.4	-19.9	-19.6	-19.5	-19.4	-19.5	-19.8	-19.9	-20.1	-20.2	-20.5	-20.8	-21.5	-20.9	-19.4	
22-Jan	-23.1	-24.1	-24.3	-24.4	-24.4	-24.1	-23.9	-23.9	-23.6	-22.6	-21.3	-20.6	-20.1	-19.5	-19.2	-18.4	-17.5	-17.0	-16.4	-16.0	-15.3	-14.7	-13.9	-13.3	-20.1	-13.3	
23-Jan	-13.3	-13.3	-13.0	-12.6	-12.3	-12.5	-12.5	-12.5	-12.4	-12.4	-12.2	-11.9	-11.2	-10.7	-10.8	-10.9	-11.0	-11.2	-11.8	-13.0	-13.8	-14.8	-15.4	-15.7	-12.5	-10.7	
24-Jan	-16.2	-16.4	-16.5	-16.6	-16.6	-16.5	-16.6	-16.5	-16.1	-15.5	-15.0	-12.9	-10.7	-10.7	-7.7	-6.3	-6.1	-6.0	-6.1	-6.3	-6.6	-9.1	-10.6	-10.3	-10.7	-12.0	-6.0
25-Jan	-11.2	-10.0	-9.5	-9.4	-9.9	-10.7	-11.4	-11.8	-12.1	-12.1	-12.0	-11.8	-11.4	-11.2	-10.9	-10.3	-9.8	-9.0	-8.0	-8.0	-7.8	-7.4	-6.9	-6.3	-10.0	-6.3	
26-Jan	-6.1	-6.3	-6.2	-6.2	-6.6	-7.2	-7.6	-7.8	-7.8	-7.5	-6.9	-6.4	-6.2	-6.0	-5.5	-5.1	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2	-5.5	-5.7	-6.2	-5.1	
27-Jan	-6.3	-6.6	-6.9	-6.7	-6.0	-6.8	-6.1	-5.1	-5.2	-3.0	-2.9	-1.6	0.6	2.9	5.0	6.1	5.8	5.0	4.5	4.2	3.4	2.8	3.0	2.9	-0.7	6.1	
28-Jan	2.3	1.3	1.7	2.0	2.2	2.4	1.6	1.8	2.3	3.1	4.6	7.7	8.5	8.2	8.1	8.5	8.3	8.0	7.1	6.5	6.7	5.2	4.1	3.8	4.8	8.5	
29-Jan	3.7	3.8	2.7	1.4	0.8	1.5	1.5	1.8	2.3	1.8	0.5	3.1	4.8	6.9	6.6	7.3	8.5	7.8	7.6	7.8	7.8	8.3	8.1	7.7	4.8	8.5	
30-Jan	5.9	5.9	6.2	4.3	5.5	4.3	3.4	2.5	1.1	1.6	1.7	3.8	7.4	10.4	11.3	11.6	11.1	10.1	9.3	9.0	9.1	8.5	8.1	7.3	6.7	11.6	
31-Jan	6.7	6.3	5.7	5.3	5.1	5.0	4.3	3.5	2.9	2.4	3.0	4.2	4.2	5.4	6.8	7.4	7.8	7.8	7.5	6.9	6.4	7.2	7.0	7.0	5.7	7.8	
																						Diurnal Average					
																						Diurnal Maximum					
-16.6 -16.8 -17.1 -17.4 -17.5 -17.7 -17.9 -18.0 -18.5 -18.2 -17.9 -17.3 -16.4 -16.0 -15.4 -15.3 -15.4 -15.5 -15.7 -15.9 -16.2 -16.4 -16.1 -16.2																											
6.7 6.3 6.2 5.3 5.5 5.0 4.3 3.5 2.9 3.1 4.6 7.7 8.5 10.4 11.3 11.6 11.1 10.1 9.3 9.0 9.1 8.5 8.1 7.7																											
DF - DAS Failure																											



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	278	38.66	38.66
-20 - 0	331	46.04	84.70
0 - 10	105	14.60	99.30
10 - 20	5	0.70	100.00
> 20	0	0.00	100.00

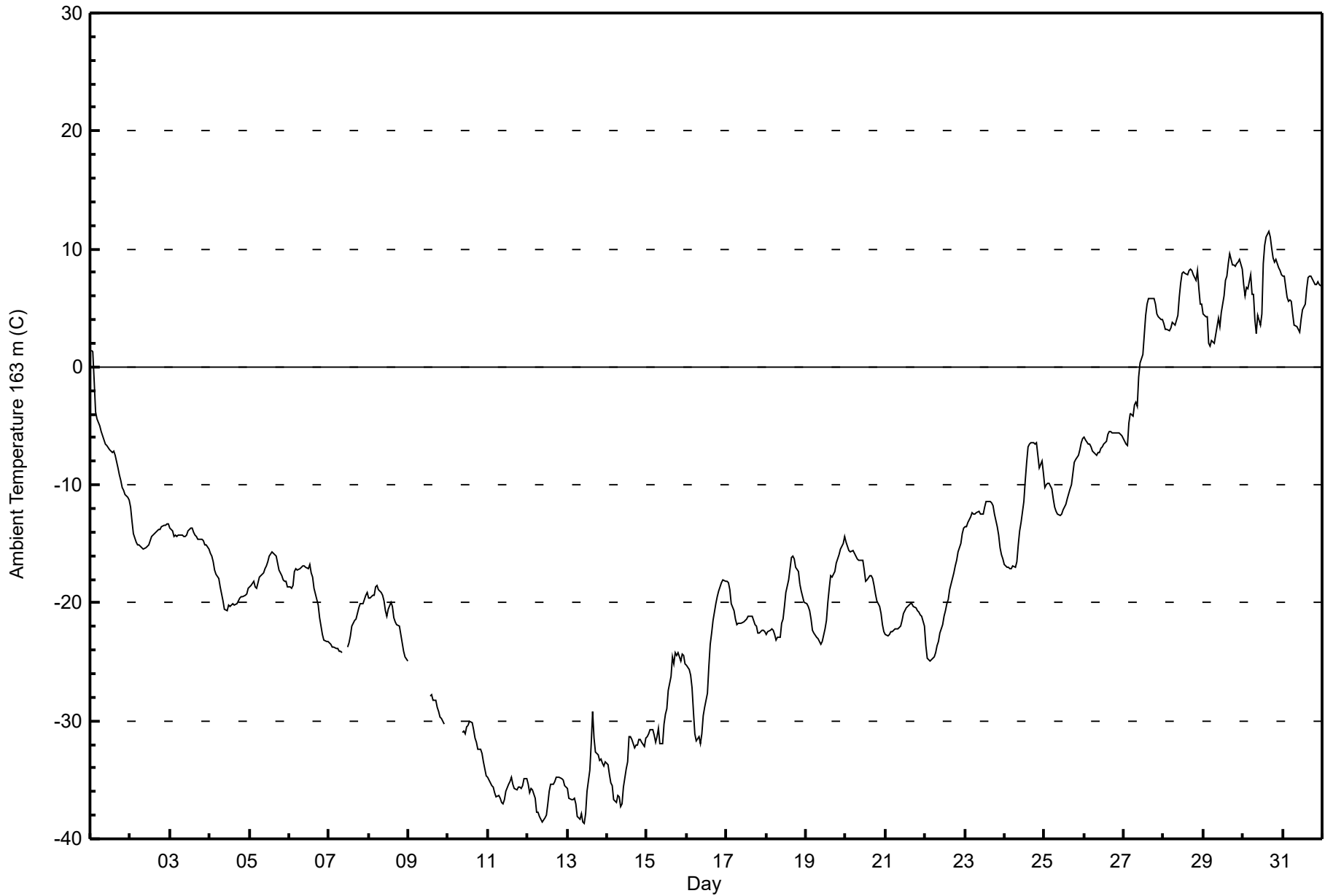
Total Number of Valid Hours: 719

Total Number of Hours: 744





Maximum Value: 11.5 C on Jan 30 16:00		Maximum Daily Average: 7.5 C on Jan 30		Hours in Service: 744																																													
Minimum Value: -38.7 C on Jan 13 11:00		Minimum Daily Average: -36.3 C on Jan 12		Hours of Data: 719																																													
Maximum Diurnal Average: -15.3 C at hour 16		Minimum Diurnal Average: -18.2 C at hour 9		Hours of Missing Data: 25																																													
Monthly Average: -16.48 C		Percentiles: P <sub>1</sub> = -38.1 P <sub>10</sub> = -34.3 Q <sub>1</sub> = -23.5 Median = -18.0 Q <sub>3</sub> = -9.4 P <sub>90</sub> = 4.5 P <sub>99</sub> = 9.1		Hours of Calibration: 0																																													
				Percent Operational Time: 96.6																																													
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-Jan	1.4	1.2	-1.2	-3.8	-4.4	-5.1	-5.5	-5.8	-6.1	-6.5	-6.7	-7.0	-7.2	-7.3	-7.2	-7.5	-8.5	-9.1	-9.6	-10.3	-10.5	-10.8	-11.0	-11.3	-6.7	1.4																							
2-Jan	-11.9	-13.1	-14.1	-14.8	-15.1	-15.1	-15.2	-15.3	-15.5	-15.3	-15.2	-15.0	-14.7	-14.4	-14.2	-14.1	-13.8	-13.8	-13.7	-13.5	-13.4	-13.4	-13.3	-13.3	-14.2	-11.9																							
3-Jan	-13.7	-13.8	-14.3	-14.3	-14.3	-14.2	-14.2	-14.3	-14.4	-14.3	-14.2	-13.9	-13.6	-13.6	-14.0	-14.2	-14.4	-14.6	-14.6	-14.6	-14.7	-15.1	-15.1	-15.4	-14.3	-13.6																							
4-Jan	-15.8	-16.0	-16.5	-17.2	-17.6	-18.0	-18.7	-19.3	-19.9	-20.5	-20.6	-20.2	-20.3	-20.2	-20.1	-20.0	-19.8	-19.6	-19.5	-19.5	-19.4	-19.2	-18.8	-18.8	-19.0	-15.8																							
5-Jan	-18.6	-18.5	-18.2	-18.6	-18.7	-18.3	-17.9	-17.7	-17.4	-17.1	-16.9	-16.5	-16.0	-15.7	-15.7	-15.9	-16.1	-16.7	-17.3	-17.7	-18.0	-18.2	-18.2	-18.6	-17.4	-15.7																							
6-Jan	-18.7	-18.7	-18.5	-17.3	-17.1	-17.2	-17.1	-17.0	-16.8	-16.9	-17.0	-17.1	-16.7	-17.4	-17.8	-18.7	-19.3	-20.2	-21.3	-22.0	-22.6	-23.1	-23.2	-23.3	-19.0	-16.7																							
7-Jan	-23.4	-23.5	-23.7	-23.8	-23.9	-23.9	-24.1	-24.2	-24.2	DF	DF	-23.7	-23.4	-22.8	-22.0	-21.5	-21.4	-20.9	-20.5	-20.1	-20.1	-19.7	-19.3	-19.1	-22.2	-19.1																							
8-Jan	-19.6	-19.6	-19.3	-19.3	-18.6	-18.5	-18.9	-19.1	-19.4	-19.9	-20.6	-21.1	-20.5	-20.0	-20.3	-21.2	-21.7	-21.8	-22.0	-22.6	-23.3	-24.1	-24.5	-24.9	-20.9	-18.5																							
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-27.9	-27.8	-28.3	-28.3	-28.8	-29.2	-29.7	-29.8	-30.3	DF	DF	--	-27.8																						
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	-30.9	-30.9	-31.1	-30.5	-30.4	-30.0	-30.2	-30.7	-31.5	-31.8	-32.4	-32.4	-32.7	-33.5	-34.1	-34.6	--	-30.0																						
11-Jan	-34.8	-35.2	-35.5	-35.6	-36.1	-36.5	-36.3	-36.6	-36.9	-37.0	-36.7	-36.0	-35.4	-35.1	-34.7	-35.4	-35.8	-35.8	-35.6	-35.7	-35.8	-35.5	-34.9	-34.9	-35.7	-34.7																							
12-Jan	-35.4	-36.1	-35.7	-35.8	-36.6	-37.7	-37.8	-38.1	-38.4	-38.6	-38.2	-38.0	-37.0	-35.9	-35.4	-35.3	-35.1	-34.8	-34.8	-34.8	-34.8	-35.0	-35.5	-35.6	-36.3	-34.8																							
13-Jan	-35.7	-36.6	-36.6	-36.7	-36.6	-37.0	-38.1	-38.4	-37.8	-38.6	-38.7	-37.8	-35.9	-34.2	-32.0	-29.2	-31.5	-32.6	-32.9	-33.3	-33.2	-33.6	-33.9	-33.5	-35.2	-29.2																							
14-Jan	-33.8	-34.5	-35.2	-35.5	-36.6	-36.9	-36.4	-36.4	-37.2	-37.1	-35.6	-34.1	-33.4	-31.3	-31.4	-31.5	-32.3	-32.1	-32.1	-31.6	-31.6	-31.8	-32.2	-31.5	-33.8	-31.3																							
15-Jan	-31.3	-31.0	-30.8	-30.7	-31.2	-31.8	-31.3	-30.6	-31.9	-32.0	-30.2	-29.4	-29.0	-27.4	-26.3	-24.6	-25.2	-24.2	-24.4	-24.3	-24.9	-24.3	-24.4	-25.2	-28.2	-24.2																							
16-Jan	-25.3	-25.6	-26.2	-27.2	-29.2	-31.1	-31.7	-31.4	-32.0	-31.1	-29.6	-28.8	-27.7	-25.4	-23.5	-22.6	-21.5	-20.1	-19.5	-19.0	-18.6	-18.3	-18.0	-18.2	-25.1	-18.0																							
17-Jan	-18.2	-18.3	-18.9	-20.0	-20.7	-21.4	-21.8	-21.8	-21.7	-21.8	-21.7	-21.5	-21.4	-21.2	-21.1	-21.1	-21.5	-21.8	-22.0	-22.5	-22.5	-22.3	-22.3	-22.4	-21.2	-18.2																							
18-Jan	-22.6	-22.5	-22.3	-22.2	-22.3	-22.7	-23.2	-22.9	-22.9	-21.7	-21.4	-20.4	-19.1	-18.1	-17.2	-16.1	-16.1	-16.3	-17.0	-17.4	-18.4	-19.0	-19.5	-19.9	-20.0	-16.1																							
19-Jan	-20.1	-20.3	-20.6	-21.4	-22.3	-22.6	-22.9	-23.1	-23.3	-23.5	-23.3	-22.2	-21.5	-19.9	-18.7	-17.7	-17.8	-17.4	-16.7	-16.3	-15.9	-15.4	-15.0	-14.4	-19.7	-14.4																							
20-Jan	-14.8	-15.2	-15.5	-15.6	-15.6	-15.8	-16.1	-16.3	-16.4	-16.3	-16.4	-17.3	-18.1	-18.0	-17.7	-17.6	-18.0	-18.5	-19.2	-19.8	-20.3	-20.9	-21.9	-22.5	-17.7	-14.8																							
21-Jan	-22.7	-22.8	-22.7	-22.4	-22.4	-22.4	-22.2	-22.2	-22.1	-22.0	-21.5	-20.9	-20.4	-20.3	-20.2	-20.1	-20.1	-20.3	-20.5	-20.6	-20.8	-21.0	-21.1	-21.9	-21.4	-20.1																							
22-Jan	-23.6	-24.6	-24.8	-24.9	-24.8	-24.6	-24.2	-23.7	-23.2	-22.5	-21.9	-21.2	-20.7	-20.1	-19.7	-18.8	-17.9	-17.4	-16.9	-16.4	-15.7	-15.0	-14.1	-13.6	-20.4	-13.6																							
23-Jan	-13.5	-13.5	-13.1	-12.8	-12.4	-12.4	-12.4	-12.3	-12.3	-12.5	-12.5	-11.9	-11.4	-11.4	-11.4	-11.6	-11.8	-12.4	-13.5	-14.3	-15.3	-15.9	-16.2	-12.9	-11.4																								
24-Jan	-16.8	-17.0	-17.0	-17.1	-17.1	-16.9	-17.0	-16.5	-15.1	-13.9	-13.1	-11.4	-9.6	-8.1	-6.8	-6.5	-6.4	-6.4	-6.5	-6.5	-7.5	-8.6	-8.0	-9.0	-11.6	-6.4																							
25-Jan	-10.2	-10.0	-9.8	-9.8	-10.3	-11.2	-11.9	-12.3	-12.5	-12.6	-12.5	-12.1	-11.9	-11.6	-11.1	-10.4	-10.0	-9.0	-8.1	-7.8	-7.5	-7.0	-6.4	-6.1	-10.1	-6.1																							
26-Jan	-6.0	-6.2	-6.6	-6.5	-6.8	-7.2	-7.3	-7.5	-7.2	-7.2	-7.0	-6.8	-6.5	-6.3	-5.8	-5.5	-5.5	-5.6	-5.6	-5.6	-5.6	-5.6	-5.7	-5.8	-6.3	-5.5																							
27-Jan	-6.3	-6.6	-6.6	-4.8	-3.9	-4.1	-3.2	-3.0	-3.4	-0.9	0.3	1.0	2.8	4.4	5.3	5.9	5.9	5.8	5.8	5.3	4.5	4.2	4.0	4.0	0.7	5.9																							
28-Jan	3.7	3.2	3.2	3.1	3.3	3.8	3.6	3.5	4.3	5.9	7.1	7.9	8.1	7.9	7.8	8.2	8.2	8.2	7.9	7.3	8.2	6.6	5.3	5.3	5.9	8.2																							
29-Jan	4.5	4.2	4.2	2.0	1.8	2.2	2.0	2.7	3.4	4.1	3.4	4.6	6.0	7.4	7.6	8.8	9.6	8.7	8.6	8.5	8.7	8.9	9.1	8.3	5.8	9.6																							
30-Jan	7.0	6.1	6.7	6.6	7.8	6.2	6.1	4.1	2.9	4.4	3.6	4.5	8.8	10.4	11.1	11.5	11.0	10.0	9.3	8.8	9.1	8.4	8.2	7.8	7.5	11.5																							
31-Jan	7.7	7.7	5.9	5.5	5.7	5.6	4.5	3.6	3.4	3.2	2.9	4.0	4.9	5.4	6.6	7.6	7.7	7.7	7.5	7.0	7.0	7.3	7.0	6.9	5.9	7.7																							
																								-16.1	-16.5	-16.7	-16.9	-17.1	-17.4	-17.5	-17.6	-18.2	-17.7	-17.4	-17.1	-16.4	-16.1	-15.6	-15.3	-15.4	-15.5	-15.7	-15.8	-16.0	-16.2	-15.8	-15.9	Diurnal Average	
																								7.7	7.7	6.7	6.6	7.8	6.2	6.1	4.1	4.3	5.9	7.1	7.9	8.8	10.4	11.1	11.5	11.0	10.0	9.3	8.8	9.1	8.9	9.1	8.3	Diurnal Maximum	
DF - DAS Failure																																																	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	298	41.45	41.45
-20 - 0	309	42.98	84.42
0 - 10	107	14.88	99.30
10 - 20	5	0.70	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 744



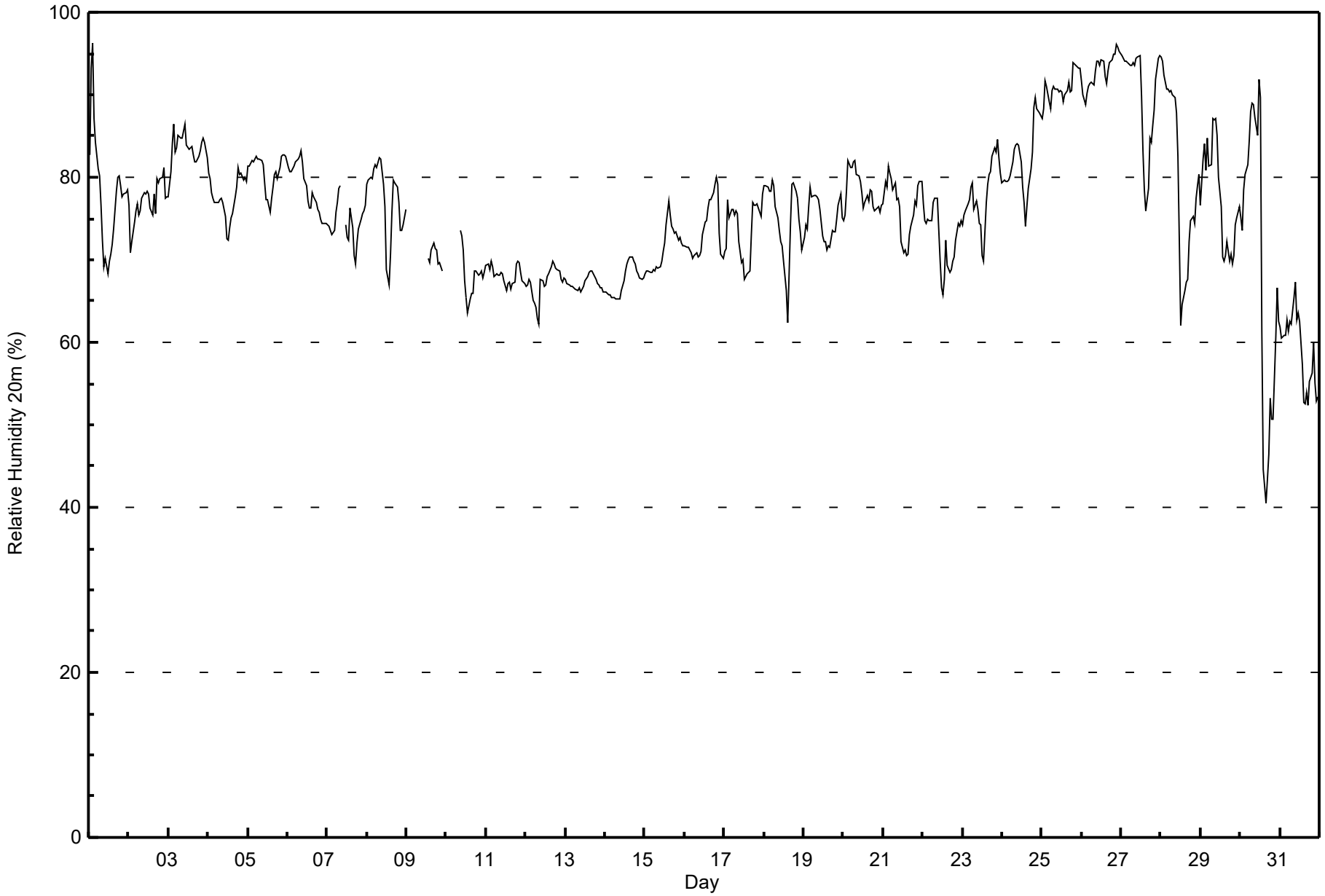
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 20m (RH20m) - %

Lower Camp Met Tower - January 2024

Maximum Value: 96.2 % on Jan 1 03:00																						Maximum Daily Average: 92.9 % on Jan 26																						Hours in Service: 744			
Minimum Value: 40.5 % on Jan 30 16:00																						Minimum Daily Average: 59.0 % on Jan 31																						Hours of Data: 719			
Maximum Diurnal Average: 78.5 % at hour 8																						Minimum Diurnal Average: 72.2 % at hour 15																						Hours of Missing Data: 25			
Monthly Average: 76.06 %																						Percentiles: P <sub>1</sub> = 52.5 P <sub>10</sub> = 66.7 Q <sub>1</sub> = 69.8 Median = 76.2 Q <sub>3</sub> = 80.9 P <sub>90</sub> = 89.3 P <sub>99</sub> = 94.7																						Hours of Calibration: 0			
																						Percent Operational Time: 96.6																									
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-Jan	82.8	93.1	96.2	87.2	84.3	81.0	80.1	76.6	72.4	69.2	70.2	68.3	69.9	70.7	71.8	73.8	78.3	79.9	80.2	79.0	77.5	77.9	78.1	78.4	78.2	96.2																					
2-Jan	76.7	70.9	72.3	74.6	76.0	76.7	75.4	75.9	77.5	78.2	78.0	78.3	78.0	76.3	75.4	77.9	75.5	79.8	79.3	79.8	80.0	81.3	77.5	77.7	77.0	81.3																					
3-Jan	77.6	80.6	84.1	86.4	83.1	83.6	85.1	84.7	84.7	85.6	86.5	83.9	83.4	83.6	83.7	82.7	81.9	81.9	82.5	83.2	84.3	84.7	84.2	82.4	83.5	86.5																					
4-Jan	80.6	79.8	78.2	77.5	76.9	77.0	77.0	77.2	77.5	77.0	75.2	72.4	74.0	75.0	75.6	77.6	78.7	78.7	81.2	80.3	80.4	79.6	80.0	79.6	77.5	81.2																					
5-Jan	81.3	81.4	82.1	81.9	82.2	82.6	82.3	82.2	82.0	81.5	79.4	77.3	77.2	75.8	77.4	78.9	80.3	80.7	79.9	81.2	82.5	82.7	82.6	82.5	80.7	82.7																					
6-Jan	81.2	80.6	80.6	81.0	81.4	81.8	82.3	82.6	83.2	81.9	79.8	78.9	77.0	76.2	76.2	78.1	77.6	76.9	76.2	75.8	74.9	74.4	74.5	74.4	78.6	83.2																					
7-Jan	74.2	74.1	73.5	73.1	73.5	75.8	76.9	78.6	79.0	DF	DF	74.2	72.7	72.3	76.3	73.8	70.5	69.5	72.0	73.7	74.9	75.5	76.0	76.6	74.4	79.0																					
8-Jan	79.2	79.7	80.1	79.9	81.1	81.5	81.2	82.4	82.3	80.7	79.1	76.5	68.7	67.0	70.6	75.8	79.6	79.3	78.8	76.9	73.6	73.6	74.2	76.0	77.4	82.4																					
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	70.1	69.7	71.1	72.0	71.3	71.1	69.5	69.7	68.7	DF	DF	--	72.0																					
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	73.5	72.8	71.1	67.4	65.5	63.5	65.2	65.9	66.0	68.7	68.6	68.1	68.3	68.6	67.8	68.5	--	73.5																				
11-Jan	69.3	69.6	68.8	69.9	69.2	68.0	68.3	68.1	68.2	68.4	68.3	67.4	66.4	67.1	67.2	66.4	67.2	67.3	69.5	69.9	69.7	68.5	67.5	67.1	68.2	69.9																					
12-Jan	66.8	66.9	67.6	67.4	65.2	64.8	64.2	62.9	62.2	67.6	67.4	66.8	67.0	68.0	68.3	69.2	69.9	69.5	69.0	68.8	68.7	67.7	67.2	67.8	67.1	69.9																					
13-Jan	67.6	67.1	66.9	66.8	66.7	66.6	66.4	66.4	66.6	66.2	66.4	66.8	67.4	68.0	68.5	68.7	68.7	68.4	67.7	67.1	67.0	66.7	66.6	66.1	67.1	68.7																					
14-Jan	66.0	65.9	65.8	65.7	65.4	65.5	65.3	65.2	65.3	65.2	66.2	67.5	68.6	69.5	70.0	70.4	70.3	69.8	69.5	68.7	68.3	67.7	67.7	67.7	67.4	70.4																					
15-Jan	68.3	68.6	68.7	68.5	68.4	68.9	68.7	69.1	69.0	69.1	69.8	71.0	72.0	74.3	77.1	75.5	74.0	73.7	73.3	73.4	72.3	72.7	72.0	71.8	71.3	77.1																					
16-Jan	71.7	71.6	71.5	71.2	70.8	70.1	70.6	70.9	70.4	70.4	71.0	73.1	74.5	74.7	76.2	77.2	77.2	78.1	79.1	80.0	79.2	73.2	70.8	70.2	73.5	80.0																					
17-Jan	71.1	71.4	77.3	75.1	76.1	76.1	75.5	75.9	75.6	72.2	69.7	70.0	67.6	67.9	68.4	68.6	73.0	77.0	76.6	76.6	76.7	75.7	75.2	78.0	73.6	78.0																					
18-Jan	78.9	78.9	78.8	78.4	78.2	79.7	79.0	76.4	75.2	73.5	72.2	71.7	69.8	66.2	62.3	68.2	74.4	79.1	79.3	78.2	77.5	74.9	73.5	71.2	74.8	79.7																					
19-Jan	72.8	74.3	73.8	76.5	78.8	77.7	77.8	77.8	77.5	77.2	76.0	72.9	72.2	72.2	71.2	71.6	71.6	73.5	73.3	73.4	75.0	76.7	77.9	75.1	74.9	78.8																					
20-Jan	74.8	75.5	78.2	82.0	81.2	81.1	81.8	82.1	80.4	80.2	79.4	78.2	76.3	76.9	77.7	77.1	78.5	78.4	76.5	76.0	76.4	76.5	75.8	76.6	78.2	82.1																					
21-Jan	76.8	79.5	78.8	81.3	80.5	79.8	78.4	79.2	77.3	77.5	76.4	72.1	70.8	71.2	70.5	70.7	73.0	74.1	75.5	77.1	76.6	78.9	79.5	79.4	76.5	81.3																					
22-Jan	76.8	74.7	74.4	74.9	74.7	74.8	77.0	77.4	77.4	77.5	69.8	66.6	65.7	67.6	72.4	69.3	68.4	68.8	69.8	70.3	72.3	74.3	74.1	74.7	72.7	77.5																					
23-Jan	74.3	75.5	75.9	76.7	77.2	78.8	79.3	76.0	77.1	76.2	74.4	70.6	69.8	77.0	79.1	80.4	80.6	82.5	83.6	83.1	84.6	82.4	80.6	77.9	84.6																						
24-Jan	79.4	79.7	79.5	79.5	79.7	80.1	81.9	83.4	83.9	84.0	83.9	81.9	78.8	77.0	74.1	76.4	78.6	81.0	83.1	88.5	89.7	88.3	87.7	87.4	82.0	89.7																					
25-Jan	87.2	88.3	91.7	91.0	89.2	88.3	90.5	91.1	90.6	90.6	90.4	90.5	90.3	89.1	90.1	90.4	91.6	90.3	90.6	93.9	93.6	93.4	93.2	93.2	90.8	93.9																					
26-Jan	91.7	90.0	88.9	90.2	91.0	91.4	91.5	91.3	92.8	94.0	94.1	93.6	94.2	94.1	92.3	91.3	92.8	93.9	94.3	95.0	94.9	96.1	95.8	95.3	92.9	96.1																					
27-Jan	94.7	94.5	94.1	94.1	94.0	93.6	93.6	93.8	93.5	94.4	94.6	94.7	89.8	83.2	78.4	76.0	78.7	84.8	84.3	86.2	88.2	91.9	94.4	94.7	90.0	94.7																					
28-Jan	94.5	94.0	92.4	90.7	90.6	90.3	90.5	90.0	89.7	87.8	82.6	72.4	62.1	64.6	66.3	67.2	67.6	72.2	74.7	75.3	74.3	77.5	79.0	80.4	80.3	94.5																					
29-Jan	76.6	82.2	84.0	80.9	84.7	81.3	81.5	87.2	87.0	87.1	85.1	80.0	76.4	70.4	69.9	70.4	72.2	69.9	70.7	69.5	70.4	74.2	75.0	76.5	77.6	87.2																					
30-Jan	75.1	73.5	78.5	80.4	81.5	84.4	87.9	89.0	88.8	87.3	85.0	91.9	89.6	61.4	44.6	40.5	43.3	46.4	53.3	50.7	50.7	60.6	66.7	62.6	69.7	91.9																					
31-Jan	61.9	60.5	60.9	60.9	62.7	61.3	62.6	62.2	65.4	67.3	62.6	63.6	62.5	57.2	52.7	52.5	53.9	52.3	55.2	56.4	59.9	55.1	52.9	53.4	59.0	67.3																					
																						76.9	77.3	78.1	78.1	78.1	78.0	78.4	78.5	78.2	78.0	76.7	75.5	73.9	72.3	72.2	72.6	73.7	74.7	75.4	75.7	75.8	76.2	76.3	76.2	Diurnal Average	
																						94.7	94.5	96.2	94.1	94.0	93.6	93.6	93.8	93.5	94.4	94.6	94.7	94.2	94.1	92.3	91.3	92.8	93.9	94.3	95.0	94.9	96.1	95.8	95.3	Diurnal Maximum	
DF - DAS Failure																																															





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

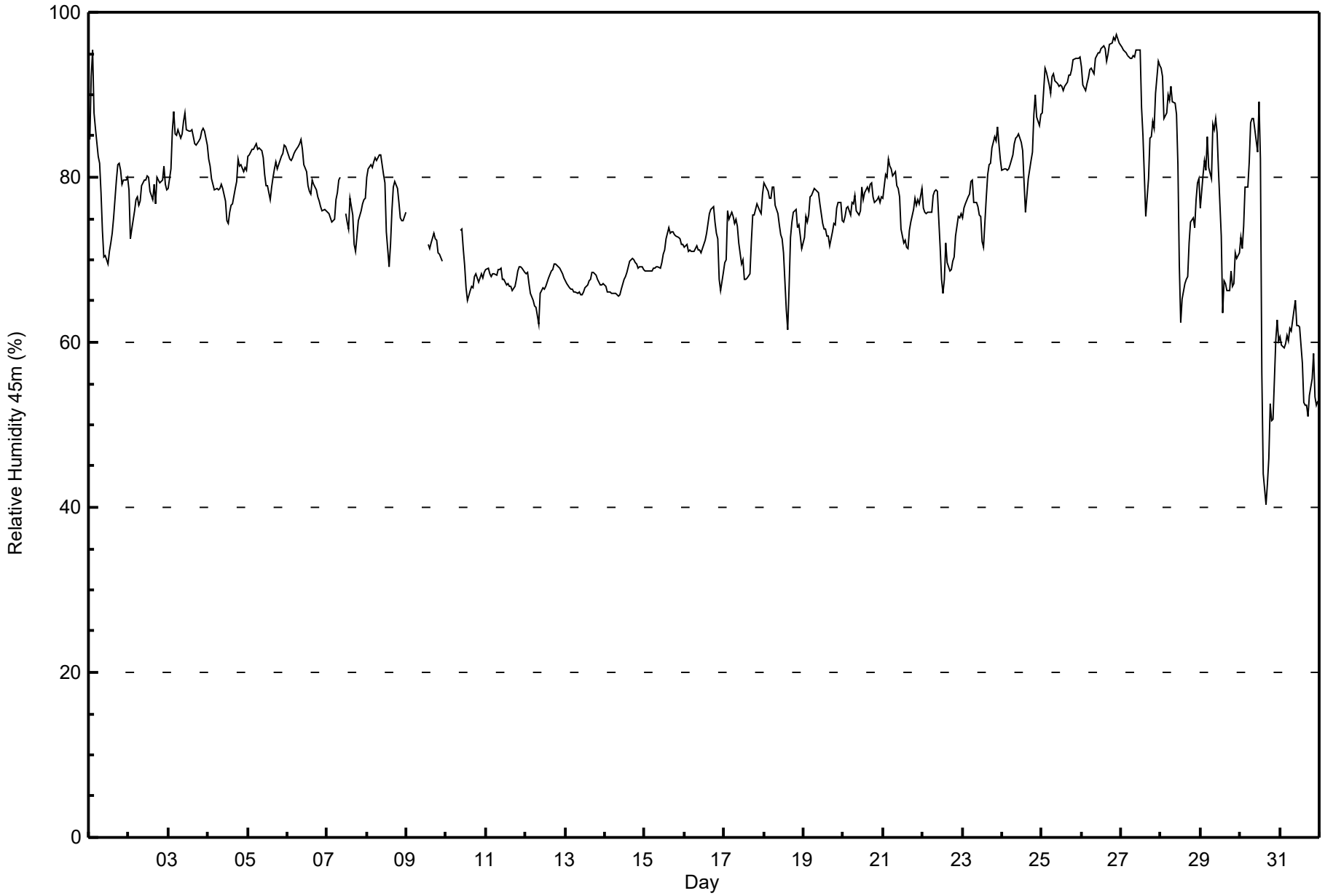
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	18	2.50	2.50
60 - 80	497	69.12	71.63
80 - 100	204	28.37	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 744



Maximum Value: 97.3 % on Jan 26 22:00																						Maximum Daily Average: 94.5 % on Jan 26																						Hours in Service: 744			
Minimum Value: 40.4 % on Jan 30 16:00																						Minimum Daily Average: 57.9 % on Jan 31																						Hours of Data: 719			
Maximum Diurnal Average: 78.8 % at hour 8																						Minimum Diurnal Average: 72.6 % at hour 14																						Hours of Missing Data: 25			
Monthly Average: 76.31 %																						Percentiles: P <sub>1</sub> = 52.3 P <sub>10</sub> = 66.5 Q <sub>1</sub> = 69.5 Median = 76.2 Q <sub>3</sub> = 81.6 P <sub>90</sub> = 89.0 P <sub>99</sub> = 95.9																						Hours of Calibration: 0			
																																												Percent Operational Time: 96.6			
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-Jan	84.6	92.2	95.4	87.8	85.9	82.6	81.7	78.1	73.6	70.4	70.5	69.4	71.1	72.0	73.3	75.0	79.7	81.5	81.7	80.8	79.1	79.6	79.7	80.0	79.4	95.4																					
2-Jan	78.5	72.5	73.8	76.0	77.4	77.7	76.5	77.2	79.0	79.6	79.6	80.2	80.0	78.4	77.2	79.1	76.8	80.0	79.6	79.4	79.6	81.3	79.1	78.4	78.2	81.3																					
3-Jan	78.6	80.9	85.6	87.9	85.3	85.0	85.7	84.8	85.2	86.8	87.7	85.8	85.6	85.8	84.9	84.0	83.9	84.3	84.8	85.6	85.9	85.6	83.9	85.0	87.9																						
4-Jan	82.3	81.4	79.9	79.1	78.6	78.6	78.5	78.6	79.2	78.6	77.2	74.8	74.4	75.8	76.7	76.7	78.6	79.5	82.2	81.4	81.6	80.7	81.2	80.9	79.0	82.3																					
5-Jan	82.5	82.7	83.4	83.3	83.8	84.0	83.4	83.6	83.2	82.4	80.4	78.9	79.0	77.3	78.7	80.0	81.0	81.9	81.0	82.0	82.5	82.9	83.9	83.8	81.9	84.0																					
6-Jan	82.7	82.3	82.1	82.4	82.9	83.2	83.8	84.1	84.5	83.4	81.5	80.7	79.0	78.2	77.9	79.6	79.2	78.5	77.7	77.2	76.4	75.9	76.1	75.9	80.2	84.5																					
7-Jan	75.8	75.6	75.1	74.5	74.9	77.3	78.2	79.7	80.0	DF	DF	75.6	74.6	73.8	77.4	75.4	71.9	70.9	72.9	74.7	76.0	76.7	77.3	77.5	75.7	80.0																					
8-Jan	80.0	81.0	81.5	81.2	81.8	82.4	82.1	82.7	82.8	81.6	80.3	79.4	73.5	69.2	71.8	75.9	78.8	79.5	78.7	76.9	75.0	74.8	74.7	75.8	78.4	82.8																					
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	71.8	71.3	72.0	73.2	72.5	72.4	70.8	70.7	69.8	DF	DF	--	73.2																					
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	73.6	73.7	71.3	69.3	66.6	65.1	66.2	66.9	66.7	68.0	68.3	67.3	67.9	68.3	67.9	68.5	--	73.7																				
11-Jan	68.8	69.1	68.3	68.0	68.3	68.3	68.2	68.9	68.8	68.9	67.7	67.6	67.0	67.1	66.8	66.9	66.3	66.8	67.7	68.6	69.2	69.2	68.9	68.5	68.1	69.2																					
12-Jan	68.3	68.4	67.2	65.9	65.1	64.4	64.2	63.3	62.2	65.9	66.6	66.4	66.8	67.3	67.8	68.6	68.9	69.4	69.5	69.3	69.0	68.6	68.3	67.9	67.1	69.5																					
13-Jan	67.5	67.1	66.7	66.5	66.4	66.2	66.0	65.9	66.1	65.8	65.8	66.2	66.6	67.0	67.4	67.7	68.5	68.4	68.2	67.7	67.2	66.9	66.9	67.1	66.9	68.5																					
14-Jan	66.8	66.2	66.2	66.2	66.0	65.9	65.9	65.7	65.6	65.7	66.5	67.6	68.0	68.5	69.1	69.8	70.2	70.0	69.7	69.5	69.1	69.2	69.1	68.7	67.7	70.2																					
15-Jan	68.6	68.7	68.7	68.7	68.7	69.0	69.0	69.2	69.2	69.0	69.7	70.7	71.2	72.5	73.8	73.3	73.4	73.4	73.1	72.8	72.7	72.5	71.9	71.9	70.9	73.8																					
16-Jan	71.5	71.8	71.1	71.2	71.1	71.0	71.1	71.7	71.1	71.2	70.9	71.3	72.3	73.1	74.5	75.6	76.0	76.4	74.5	73.2	72.5	67.6	66.2	68.4	71.9	76.4																					
17-Jan	69.7	70.1	75.9	75.0	75.7	75.3	74.3	74.9	74.1	72.1	69.4	70.0	67.7	67.6	67.9	68.3	72.1	75.4	75.5	76.1	76.8	76.0	75.6	78.0	73.1	78.0																					
18-Jan	79.3	78.9	78.4	77.5	77.4	78.9	78.8	76.7	75.5	74.3	73.1	72.6	70.8	63.9	61.5	66.9	72.6	74.6	75.8	76.2	73.9	74.2	72.8	71.3	74.0	79.3																					
19-Jan	72.7	75.3	74.7	75.4	77.6	77.9	78.7	78.5	78.3	78.1	76.9	74.3	73.8	73.7	72.8	72.9	71.7	73.5	74.4	74.3	76.3	76.9	76.9	74.7	75.4	78.7																					
20-Jan	74.6	75.2	76.3	76.5	75.5	76.9	76.7	77.8	75.9	75.4	75.9	78.9	77.4	78.1	78.9	78.3	79.2	79.3	77.6	76.9	77.4	77.6	76.9	77.6	77.1	79.3																					
21-Jan	77.5	80.4	80.0	82.2	81.3	81.0	80.2	80.7	79.0	78.6	77.6	73.7	72.1	72.4	71.5	71.4	73.5	74.5	76.1	77.5	76.5	77.3	76.8	78.7	77.1	82.2																					
22-Jan	76.3	75.7	75.5	75.8	75.8	75.8	77.7	78.4	78.5	78.4	71.6	67.7	66.0	67.6	72.0	69.6	68.6	68.9	69.8	70.4	72.9	75.2	75.0	75.5	73.3	78.5																					
23-Jan	75.0	76.2	76.8	77.6	77.9	79.5	79.7	76.9	77.0	76.5	75.5	75.3	72.2	71.5	77.6	80.3	81.5	81.7	83.5	85.0	84.4	86.1	84.1	82.2	78.9	86.1																					
24-Jan	80.8	81.1	81.0	80.9	81.1	81.4	82.8	84.1	84.7	84.9	85.2	84.2	83.1	79.3	75.8	77.7	79.9	82.1	83.1	87.6	90.0	87.2	86.2	87.6	83.0	90.0																					
25-Jan	87.8	90.5	93.2	92.7	91.3	90.1	92.3	92.5	91.7	91.4	91.1	91.3	91.0	90.5	91.0	91.5	92.3	92.4	93.1	94.3	94.4	94.3	94.4	94.6	92.1	94.6																					
26-Jan	93.3	91.1	90.6	91.3	92.1	93.1	93.3	92.5	94.3	94.8	95.1	95.1	95.6	96.0	95.6	94.0	95.0	96.1	96.3	96.9	96.6	97.3	96.9	96.3	94.5	97.3																					
27-Jan	95.8	95.5	95.2	95.1	94.8	94.3	94.4	94.8	94.6	95.5	95.5	95.4	88.4	85.0	80.1	75.2	79.9	84.7	85.0	86.8	85.9	90.2	94.0	93.5	90.4	95.8																					
28-Jan	93.3	92.1	87.2	87.7	90.0	89.4	90.9	89.1	88.9	87.6	81.5	69.2	62.4	65.2	67.1	67.6	68.0	72.1	74.5	75.1	73.8	77.2	79.4	79.9	79.6	93.3																					
29-Jan	76.3	80.3	82.0	80.8	84.8	81.2	79.8	86.5	85.7	87.2	85.4	80.8	72.9	63.5	67.5	67.2	66.3	66.2	68.7	66.8	67.1	70.9	70.1	70.9	75.4	87.2																					
30-Jan	72.8	71.4	74.1	78.7	78.9	81.9	86.7	87.1	87.0	85.7	83.1	89.2	82.3	56.3	44.1	40.4	42.8	45.9	52.5	50.4	50.6	60.4	62.7	60.1	67.7	89.2																					
31-Jan	60.7	59.7	59.3	59.8	60.8	60.1	61.6	61.4	63.9	65.1	62.0	62.0	61.9	57.5	52.7	52.4	52.3	50.9	53.6	55.6	58.7	53.4	52.4	52.9	57.9	65.1																					
																						77.3	77.7	78.1	78.1	78.3	78.4	78.7	78.8	78.4	78.2	77.0	76.1	74.4	72.6	72.6	72.9	73.8	74.8	75.5	75.7	75.8	76.3	76.4	76.4	Diurnal Average	
																						95.8	95.5	95.4	95.1	94.8	94.3	94.4	94.8	94.6	95.5	95.5	95.4	95.6	96.0	95.6	94.0	95.0	96.1	96.3	96.9	96.6	97.3	96.9	96.3	Diurnal Maximum	
DF - DAS Failure																																															







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

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	22	3.06	3.06
60 - 80	474	65.92	68.98
80 - 100	223	31.02	100.00

Total Number of Valid Hours: 719

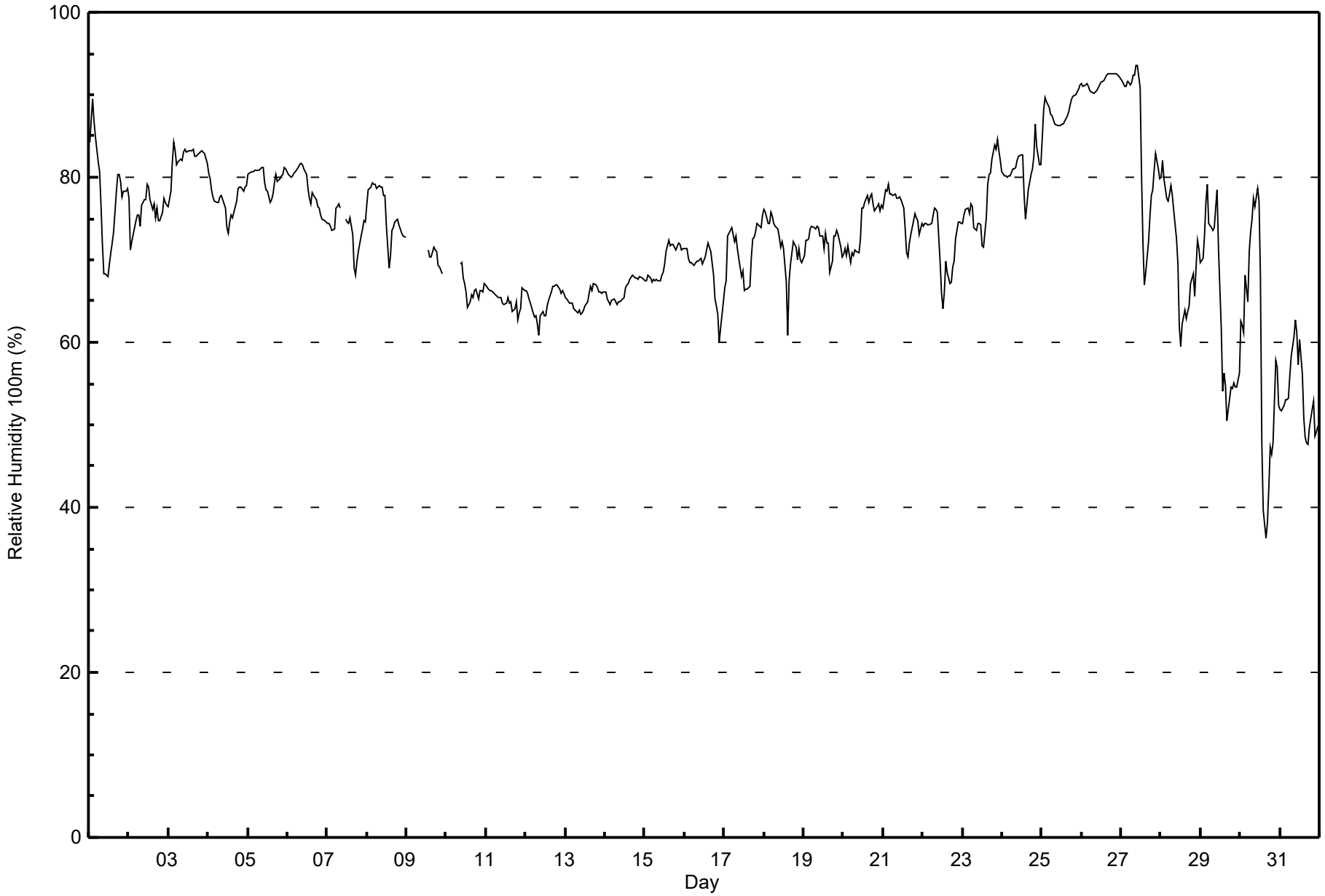
Total Number of Hours: 744



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

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

Maximum Value: 93.6 % on Jan 27 11:00																						Maximum Daily Average: 91.6 % on Jan 26																						Hours in Service: 744			
Minimum Value: 36.2 % on Jan 30 16:00																						Minimum Daily Average: 53.5 % on Jan 31																						Hours of Data: 719			
Maximum Diurnal Average: 75.3 % at hour 4																						Minimum Diurnal Average: 70.1 % at hour 15																						Hours of Missing Data: 25			
Monthly Average: 73.19 %																						Percentiles: P <sub>1</sub> = 47.8 P <sub>10</sub> = 63.8 Q <sub>1</sub> = 67.4 Median = 73.8 Q <sub>3</sub> = 78.7 P <sub>90</sub> = 83.3 P <sub>99</sub> = 92.5																						Hours of Calibration: 0			
																																												Percent Operational Time: 96.6			
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-Jan	84.3	86.9	89.6	86.8	85.0	81.9	80.6	76.6	71.8	68.2	68.4	67.9	69.6	70.8	72.0	73.4	78.3	80.3	80.4	79.4	77.6	78.3	78.4	78.6	77.7	89.6																					
2-Jan	77.4	71.2	72.2	74.0	74.8	75.5	75.4	74.0	76.6	77.2	77.3	79.2	78.9	77.3	76.1	76.7	75.0	76.3	74.8	74.7	75.7	77.5	77.0	76.6	75.9	79.2																					
3-Jan	76.5	78.3	81.9	84.2	83.3	81.6	81.9	82.2	82.1	83.1	83.4	83.1	83.3	83.2	83.3	83.3	82.5	82.5	82.9	83.0	83.2	83.1	82.9	81.7	82.3	84.2																					
4-Jan	80.5	79.8	78.4	77.6	77.1	77.0	77.0	77.6	77.9	77.2	76.2	73.9	73.2	74.6	75.4	75.1	76.5	77.1	78.6	78.8	78.8	78.4	78.9	79.0	77.3	80.5																					
5-Jan	80.3	80.4	80.7	80.7	80.8	80.9	80.9	80.9	81.2	81.1	79.4	78.4	78.2	77.0	77.2	78.0	79.3	80.3	79.5	79.8	80.1	80.3	81.1	81.1	79.9	81.2																					
6-Jan	80.4	80.1	80.0	80.1	80.6	80.8	81.2	81.5	81.6	81.5	81.0	80.4	78.7	77.4	76.8	78.1	77.9	77.3	76.5	76.3	75.4	74.9	74.7	74.6	78.6	81.6																					
7-Jan	74.5	74.4	74.1	73.5	73.7	76.3	76.4	76.7	76.2	DF	DF	74.9	74.5	74.3	75.1	73.0	69.0	68.1	69.9	71.1	72.9	73.7	74.8	74.6	73.7	76.7																					
8-Jan	76.6	78.5	78.9	79.3	79.1	79.1	78.7	79.0	78.8	78.8	77.8	77.7	74.2	69.0	70.5	73.5	73.9	74.6	74.9	74.2	73.7	73.3	72.8	72.7	75.8	79.3																					
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	71.2	70.4	70.3	71.5	71.1	71.0	69.3	69.1	68.4	DF	DF	--	71.5																					
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	69.5	69.6	67.8	67.1	66.0	64.2	64.9	65.7	65.4	66.3	66.4	65.3	66.2	66.3	66.2	67.2	--	69.6																				
11-Jan	66.9	66.5	66.3	66.3	66.1	66.0	65.5	65.5	65.5	65.4	64.8	64.6	64.7	65.4	64.7	64.9	63.8	64.0	64.8	62.7	63.5	64.0	66.5	66.3	65.2	66.9																					
12-Jan	66.3	65.9	65.2	64.7	63.6	63.1	63.2	62.3	60.9	63.2	63.8	63.2	63.2	64.4	65.1	66.1	66.7	66.8	67.0	66.9	66.5	65.9	66.3	66.0	64.8	67.0																					
13-Jan	65.4	65.2	64.8	64.7	64.7	64.1	63.8	63.6	63.9	63.4	63.6	63.9	64.4	65.0	65.9	66.7	66.3	67.1	67.0	66.6	66.1	66.1	66.0	66.0	65.2	67.1																					
14-Jan	66.0	65.2	64.9	64.5	65.2	65.2	64.8	64.5	64.9	65.2	65.4	66.6	67.0	67.0	67.7	68.2	68.0	67.8	67.8	67.6	68.0	67.7	67.6	67.6	66.3	68.2																					
15-Jan	67.4	67.5	68.1	67.7	67.4	67.6	67.5	67.6	67.5	67.5	68.1	68.5	69.4	71.0	72.4	71.6	71.9	71.8	71.5	71.2	72.0	71.9	71.1	71.3	69.6	72.4																					
16-Jan	71.3	71.4	70.1	69.7	69.6	69.4	69.2	69.8	69.8	70.0	70.2	69.6	70.4	71.2	72.0	71.5	71.0	68.1	65.3	64.5	63.3	60.1	61.8	65.0	68.5	72.0																					
17-Jan	66.7	67.5	72.8	73.2	73.8	73.0	72.2	72.8	71.3	70.2	68.0	68.7	66.3	66.5	66.5	66.8	70.3	72.5	72.8	73.3	74.4	74.1	74.0	75.4	71.0	75.4																					
18-Jan	76.2	75.8	74.3	74.4	75.8	75.3	74.4	74.1	73.8	72.7	71.5	72.2	71.3	67.3	60.8	67.5	69.4	70.9	72.2	71.6	70.0	71.3	70.1	69.6	71.8	76.2																					
19-Jan	70.4	72.3	72.3	72.6	73.7	74.1	73.9	73.7	74.0	73.9	72.9	72.9	71.3	73.2	72.0	72.0	68.4	69.9	72.8	72.8	73.5	73.1	71.6	70.3	72.4	74.1																					
20-Jan	70.6	71.4	70.4	71.7	69.7	70.8	70.5	71.2	71.1	70.8	72.5	76.2	76.3	77.0	77.8	76.9	77.7	78.0	76.8	76.0	76.4	76.8	76.0	76.7	74.1	78.0																					
21-Jan	76.3	78.5	78.3	79.1	78.0	78.0	77.7	78.0	77.4	77.5	77.7	77.4	76.3	73.8	70.9	70.4	72.1	73.1	74.7	75.6	75.0	74.8	73.1	74.3	75.7	79.1																					
22-Jan	74.1	74.4	74.3	74.3	74.3	74.4	75.5	76.3	76.1	75.7	69.7	66.0	64.1	66.2	69.8	68.5	67.2	67.3	69.1	69.8	72.5	74.6	74.5	74.4	71.8	76.3																					
23-Jan	74.4	75.5	76.2	76.2	75.6	76.8	76.5	73.9	73.6	74.4	74.5	74.2	71.6	71.4	75.0	79.1	80.3	80.5	82.3	83.9	83.3	84.6	83.2	82.0	77.5	84.6																					
24-Jan	80.6	80.2	80.1	80.0	80.1	80.2	81.0	81.0	81.1	82.0	82.5	82.7	82.7	78.0	74.8	76.5	78.4	80.3	81.0	82.5	86.4	83.7	81.6	81.6	80.8	86.4																					
25-Jan	84.7	88.1	89.7	89.1	88.5	87.6	87.4	87.0	86.5	86.3	86.2	86.3	86.4	86.4	86.8	87.5	88.0	88.8	89.6	89.8	90.0	90.3	90.7	91.2	88.0	91.2																					
26-Jan	91.3	90.9	91.1	91.3	91.1	90.6	90.3	90.3	90.3	90.5	90.9	91.3	91.5	91.8	92.1	92.5	92.6	92.6	92.6	92.6	92.5	92.5	92.4	92.2	91.6	92.6																					
27-Jan	91.7	91.3	91.1	91.1	91.6	91.2	91.5	92.3	92.4	93.6	93.6	90.8	80.1	72.0	67.0	68.4	72.2	75.3	77.8	78.4	80.9	82.9	81.0	79.9	84.1	93.6																					
28-Jan	80.1	82.0	79.8	77.4	77.1	77.9	79.0	77.8	74.3	72.5	69.5	61.8	59.4	62.2	63.9	62.9	63.8	64.5	67.2	68.4	65.6	69.1	72.4	71.4	70.8	82.0																					
29-Jan	69.6	70.2	72.9	77.0	79.1	74.5	73.8	73.5	73.9	76.3	78.5	71.4	61.7	54.1	56.3	54.8	50.4	53.2	54.5	54.4	55.1	54.5	54.6	56.3	64.6	79.1																					
30-Jan	62.6	62.0	61.2	68.2	64.9	71.0	73.5	75.0	77.5	76.4	78.7	77.2	67.9	47.8	39.7	36.2	38.1	42.4	47.2	46.4	47.8	57.9	57.0	52.4	59.5	78.7																					
31-Jan	51.9	51.7	52.4	53.1	53.0	53.2	56.0	58.3	60.7	62.8	61.1	57.3	60.3	56.1	50.9	48.6	47.8	47.6	49.7	51.9	52.8	48.7	49.1	49.8	53.5	62.8																					
																						74.3	74.6	74.9	75.3	75.1	75.1	75.1	74.7	74.7	74.3	73.5	72.1	70.5	70.1	70.5	70.8	71.5	72.2	72.2	72.5	72.9	72.9	72.9	Diurnal Average		
																						91.7	91.3	91.1	91.3	91.6	91.2	91.5	92.3	92.4	93.6	93.6	91.3	91.5	91.8	92.1	92.5	92.6	92.6	92.6	92.6	92.5	92.5	92.4	92.2	Diurnal Maximum	
DF - DAS Failure																																															





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	3	0.42	0.42
40 - 60	40	5.56	5.98
60 - 80	524	72.88	78.86
80 - 100	152	21.14	100.00

Total Number of Valid Hours: 719

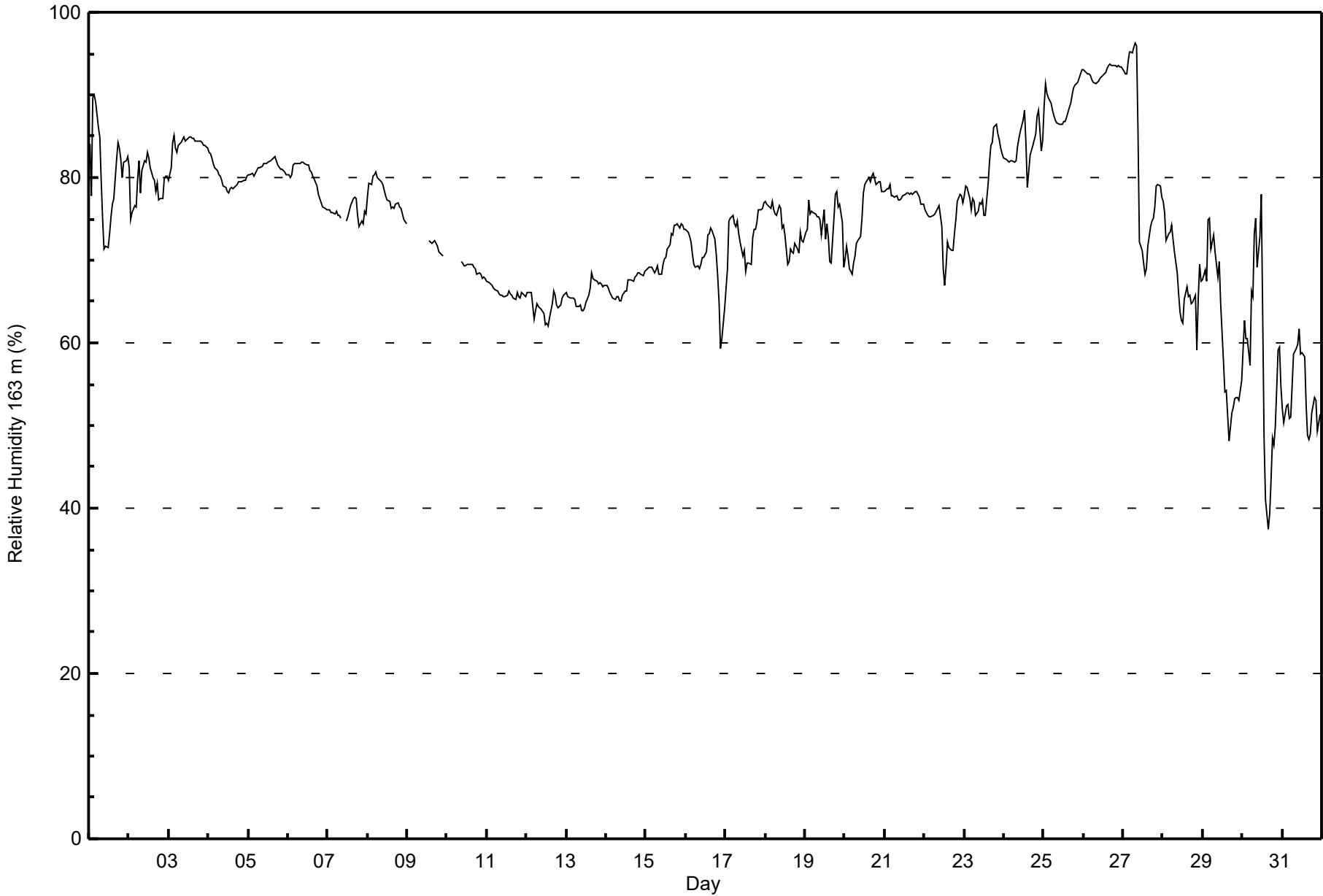
Total Number of Hours: 744



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

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

Maximum Value: 96.2 % on Jan 27 08:00																						Maximum Daily Average: 92.7 % on Jan 26																						Hours in Service: 744			
Minimum Value: 37.4 % on Jan 30 16:00																						Minimum Daily Average: 53.6 % on Jan 31																						Hours of Data: 719			
Maximum Diurnal Average: 76.0 % at hour 4																						Minimum Diurnal Average: 72.6 % at hour 15																						Hours of Missing Data: 25			
Monthly Average: 74.34 %																						Percentiles: P <sub>1</sub> = 48.3 P <sub>10</sub> = 64.3 Q <sub>1</sub> = 68.3 Median = 75.4 Q <sub>3</sub> = 80.3 P <sub>90</sub> = 85.0 P <sub>99</sub> = 93.6																						Hours of Calibration: 0			
																						Percent Operational Time: 96.6																									
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-Jan	84.1	77.8	89.7	90.1	89.1	86.1	84.9	79.7	75.1	71.3	71.6	71.5	73.3	75.2	76.7	77.4	82.1	84.2	83.6	82.2	80.1	81.9	82.1	82.6	80.5	90.1																					
2-Jan	81.1	74.9	75.8	76.6	76.4	79.8	82.0	78.1	80.8	82.0	81.8	83.0	82.4	81.2	80.0	79.6	78.2	79.4	77.2	77.5	77.4	79.8	80.2	80.2	79.4	83.0																					
3-Jan	79.6	81.2	84.3	85.0	83.6	83.0	84.0	84.2	84.6	84.8	84.4	84.6	84.9	85.0	84.8	84.7	84.5	84.4	84.4	84.4	84.2	83.9	83.9	83.5	84.0	85.0																					
4-Jan	83.1	82.9	82.3	81.6	81.3	80.9	80.4	80.2	79.7	79.0	78.7	78.3	78.2	78.6	78.8	78.7	79.0	79.2	79.5	79.6	79.5	79.6	79.7	80.2	80.0	83.1																					
5-Jan	80.3	80.4	80.5	80.2	80.5	80.9	81.1	81.1	81.4	81.7	81.8	81.8	81.9	82.0	82.3	82.4	82.5	82.1	81.5	81.1	81.0	80.8	80.7	80.4	81.3	82.5																					
6-Jan	80.4	80.0	80.4	81.5	81.7	81.6	81.7	81.7	81.9	81.8	81.7	81.4	81.6	80.9	80.6	80.2	79.8	78.9	78.0	77.5	76.9	76.5	76.3	76.2	80.0	81.9																					
7-Jan	76.1	76.0	75.8	75.7	75.6	75.9	75.4	75.4	75.1	DF	DF	74.7	75.3	75.9	76.6	77.4	77.6	77.4	75.4	74.1	74.7	74.5	75.9	75.6	75.7	77.6																					
8-Jan	77.6	79.2	79.1	80.2	80.4	80.6	80.1	79.7	79.5	79.2	78.5	77.7	77.2	77.1	76.4	76.5	76.3	76.9	76.9	76.4	76.2	75.5	75.0	74.4	77.8	80.6																					
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	72.3	72.3	72.0	72.4	72.0	71.7	71.1	70.9	70.5	DF	DF	--	72.4																					
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	69.8	69.7	69.3	69.3	69.4	69.5	69.5	69.4	69.1	69.0	68.4	68.4	68.3	67.8	68.0	67.8	--	69.8																				
11-Jan	67.5	67.2	67.1	66.9	66.6	66.4	66.2	66.0	65.8	65.7	65.5	65.6	65.8	66.3	65.9	65.8	65.4	65.2	66.1	65.6	65.4	66.0	66.0	65.6	66.1	67.5																					
12-Jan	66.2	66.0	66.2	66.1	62.8	63.9	64.7	64.5	64.3	64.0	63.5	62.2	62.4	62.0	63.1	64.7	66.2	65.8	64.6	64.3	64.6	65.4	65.8	66.0	64.5	66.2																					
13-Jan	66.1	65.6	65.5	65.4	65.4	65.2	64.4	64.4	64.6	63.9	63.9	64.3	65.0	65.8	66.7	68.5	67.9	67.7	67.5	67.1	67.3	67.2	66.8	67.0	66.0	68.5																					
14-Jan	66.9	66.5	66.0	65.7	65.4	65.3	65.6	65.7	65.1	65.0	65.7	66.3	67.6	67.6	67.5	68.0	68.2	68.5	68.3	68.3	68.3	68.1	68.1	68.7	66.8	68.7																					
15-Jan	68.8	69.0	69.2	69.2	68.8	68.4	68.8	69.3	68.3	68.2	69.5	70.1	70.3	71.3	71.8	73.2	73.1	74.3	74.2	74.3	73.9	74.4	74.3	73.8	71.1	74.4																					
16-Jan	73.7	73.5	72.9	72.1	70.8	69.5	69.2	69.3	69.0	69.5	70.3	70.3	71.1	73.0	73.2	74.0	73.5	72.6	70.6	68.2	64.9	59.4	60.5	64.2	69.8	74.0																					
17-Jan	66.5	69.0	74.7	75.1	75.4	74.4	74.1	74.8	73.3	72.2	70.5	71.2	68.7	69.6	69.6	69.5	72.7	73.7	73.6	74.6	76.1	76.2	76.3	76.9	72.9	76.9																					
18-Jan	77.1	76.8	76.5	76.3	77.0	76.1	75.6	75.5	76.6	76.3	74.0	74.3	73.1	69.5	69.9	71.4	71.0	70.8	72.0	71.3	70.8	73.3	72.3	72.3	73.7	77.1																					
19-Jan	73.4	73.7	77.3	75.6	75.9	75.8	75.6	75.2	75.2	74.8	73.1	76.2	72.6	74.3	72.8	69.9	69.7	75.1	78.0	78.3	76.4	76.8	74.6	69.1	74.6	78.3																					
20-Jan	70.2	71.7	70.4	69.1	68.3	69.7	70.6	72.0	72.5	72.8	75.1	78.2	79.1	79.5	80.0	79.4	80.1	80.6	79.9	79.2	79.5	79.4	78.4	78.3	75.6	80.6																					
21-Jan	78.3	78.6	78.7	79.2	77.7	77.9	77.7	77.8	77.3	77.3	77.5	77.7	77.9	78.1	78.1	78.0	78.1	78.0	78.3	78.3	78.0	77.6	76.9	76.8	77.9	79.2																					
22-Jan	76.1	75.8	75.5	75.3	75.2	75.4	75.5	75.9	76.3	76.6	74.0	69.0	67.0	69.2	72.3	71.5	71.2	71.2	73.2	74.9	77.1	78.0	77.7	77.0	74.2	78.0																					
23-Jan	77.8	78.9	78.9	77.4	76.1	77.5	77.1	75.4	75.9	77.0	76.8	77.3	75.4	75.4	79.2	81.9	83.9	84.2	86.2	86.4	85.2	84.5	83.5	83.0	79.8	86.4																					
24-Jan	82.4	82.2	82.0	81.9	82.0	82.1	81.9	82.1	83.7	84.8	85.5	87.0	88.2	84.2	78.9	80.6	82.6	83.9	84.6	85.3	87.5	88.1	83.3	84.5	83.7	88.2																					
25-Jan	88.7	91.3	90.2	89.6	88.9	88.1	87.5	86.9	86.6	86.4	86.4	86.5	86.8	86.8	87.4	88.5	88.9	89.9	90.8	91.1	91.5	92.0	92.6	93.0	89.0	93.0																					
26-Jan	93.1	92.9	92.6	92.6	92.3	91.8	91.6	91.4	91.6	91.7	92.1	92.2	92.4	92.7	93.2	93.6	93.7	93.6	93.5	93.5	93.5	93.5	93.4	93.4	92.7	93.7																					
27-Jan	92.9	92.6	92.5	94.1	95.3	95.1	95.8	96.2	95.9	85.5	72.2	71.2	69.6	68.3	69.0	71.7	74.0	74.7	75.1	76.4	79.1	79.1	79.1	77.6	82.2	96.2																					
28-Jan	77.2	75.7	72.4	73.2	73.4	74.2	72.5	71.0	68.5	66.0	63.8	62.8	62.3	65.3	66.7	65.6	65.7	64.7	64.8	65.7	59.2	65.5	69.4	67.4	68.0	77.2																					
29-Jan	67.6	68.7	67.5	74.9	75.1	71.3	73.1	71.0	69.4	68.0	69.8	64.8	57.8	54.0	54.2	51.2	48.2	51.6	52.2	53.2	53.4	53.3	53.0	55.4	61.6	75.1																					
30-Jan	59.2	62.8	60.5	60.5	57.3	66.2	65.6	73.2	75.1	69.2	73.0	78.0	63.3	48.3	41.0	37.4	39.4	43.6	48.5	47.6	49.8	59.2	59.5	54.7	58.0	78.0																					
31-Jan	52.1	50.4	52.4	52.5	50.8	51.0	54.8	58.6	59.3	59.8	61.7	58.6	58.7	58.2	52.5	48.8	48.3	49.0	51.5	53.4	53.1	49.4	50.3	51.4	53.6	61.7																					
																						75.3	75.2	75.8	76.0	75.5	75.7	75.8	75.7	75.4	74.6	74.2	74.2	73.3	72.8	72.6	72.6	73.0	73.6	73.9	73.9	73.7	74.1	74.1	73.9	Diurnal Average	
																						93.1	92.9	92.6	94.1	95.3	95.1	95.8	96.2	95.9	91.7	92.1	92.2	92.4	92.7	93.2	93.6	93.7	93.6	93.5	93.5	93.5	93.5	93.4	93.4	Diurnal Maximum	
DF - DAS Failure																																															





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	2	0.28	0.28
40 - 60	48	6.68	6.95
60 - 80	475	66.06	73.02
80 - 100	194	26.98	100.00

Total Number of Valid Hours: 719

Total Number of Hours: 744



Maximum Speed: 24 km/h on Jan 22 19:00	Maximum Daily Speed Average: 12.8 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 14 11:00	Minimum Daily Speed Average: 0.4 km/h on Jan 24	Hours of Data: 719
Maximum Diurnal Speed Average: 1.9 km/h at hour 11	Minimum Diurnal Speed Average: 0.3 km/h at hour 20	Hours of Missing Data: 25
Monthly Average Velocity: 0.8 km/h 98.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 11 P <sub>90</sub> = 14 P <sub>99</sub> = 19	Percent Operational Time: 96.6

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-Jan	NW3	NNW2	NW5	N11	N10	N12	N13	NNW10	N7	NNW6	N5	N6	N5	N7	NNW4	NNE5	NNE6	N5	NNE7	NNE4	N6	N6	N8	N9	N6.5	N13	
2-Jan	N9	N8	N6	NNW7	N5	NNE4	NE6	NE6	NNW1	N2	ESE1	E1	NE2	E0	N1	SE4	S2	E3	E3	E2	ENE1	ENE1	S5	SE4	NE2.0	N9	
3-Jan	S3	SSE3	SSW4	E1	ESE2	SE4	SE5	SE10	SE4	ENE2	ENE2	NNW3	N8	NNW7	NNW7	NNW9	NNW9	NNW6	NNW7	NNW8	NNW8	NNW9	NNW10	NNW12	N3.1	NNW12	
4-Jan	NNW10	NNW12	NNW15	NNW13	NNW14	N14	N13	N15	N11	N10	N8	N10	N11	N10	N9	N10	N8	N6	NNW5	NNW5	NNW6	NNW6	NNW5	NNW5	N9.5	NNW15	
5-Jan	NNW7	NNW4	NW4	NW7	NW7	NNW3	N3	N2	ENE1	WNW1	W3	WSW4	ENE1	N3	NNW2	N4	NNE3	N4	NNW5	NNW4	N4	NNW4	NNW5	NNW5	NNW3.3	NNW7	
6-Jan	NNW5	N8	NNW5	NNW4	NNW5	NNW5	NNW6	NNW5	NNW6	NNW8	NNW11	NNW13	NNW13	N13	N15	NNW14	N14	N12	N17	N16	N15	N14	NNW12	NNW10	NNW10.2	N17	
7-Jan	N9	N9	N8	N6	N6	N6	N7	NNW4	N2	DF	DF	WSW1	WSW1	S1	SSE2	SSE9	SSE13	S16	S16	S18	SSE18	SSE20	SSE17	SSE13	SSE4.1	SSE20	
8-Jan	E1	SE3	E1	SE6	SE11	SE8	SSW2	N3	N5	NNW8	NNW5	NNW6	NNW6	NNW7	NW5	NNW5	NNW3	WNW3	NNW3	N5	NNE5	N4	NNW5	N6	N2.2	SE11	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	N12	N12	NNW8	NNW9	NNW10	N9	N8	N8	N10	DF	DF	---	NNW12	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	NNW4	NW2	WNW1	NW2	NNW5	N6	N6	NNE5	NNE5	N4	N2	NNW4	N4	NNW4	NNW4	NNW5	---	N6
11-Jan	NNW4	WNW2	WNW3	NW3	WNW3	NNW3	NW2	N3	NNW2	NW1	NW2	NNW4	NNW3	SW1	N2	NNE5	NNE3	NE1	NNW2	NW2	NW3	NW3	NNW2	NNW3	NNW2.3	NNE5	
12-Jan	NNW2	WNW1	NW2	SW1	WSW4	W4	WSW5	SW5	SSW6	SE8	SSE7	SE7	SE7	ESE4	SE5	SSE6	SSE7	WSW1	NW2	SW1	SSW2	W1	WSW1	SE6	S2.4	SE8	
13-Jan	SSE9	SE10	SE9	SE9	SSE8	SSE8	SE5	SE6	SE5	SE9	SE9	SE6	SE6	SE4	SE3	SE3	SE2	SW1	NW1	NNW3	WNW2	NW1	SW1	W0	SE4.3	SE10	
14-Jan	NNW2	NW3	NW3	NW3	NW2	NW2	NW3	NW2	W2	NW1	SW0	SE3	SE2	ESE1	S1	ENE0	NNW2	NW3	NW3	NNW2	NW1	WSW1	SSE1	SSE1	NW1.2	NW3	
15-Jan	SE4	SE6	SE12	SE12	SE7	SE10	SE13	SE14	SE9	SE7	SSE6	SE6	SE9	SE3	SE2	SE3	SSE4	SE4	SE4	SE7	SE5	SSE6	SSE8	SE7	SE6.9	SE14	
16-Jan	SE10	SE11	SE5	NNW1	NW3	NNW3	NW4	NNW5	NW5	NNW4	W2	WSW3	WNW3	N2	SSE1	W1	NE2	NNE2	N4	NNW6	NNW5	NNW12	NNW15	NNW17	NW2.5	WNW17	
17-Jan	WNW11	NW8	N5	NNE8	NNE7	NNE8	NNW5	NNW3	N6	N8	N10	NNE9	NNE11	N9	N10	N9	N7	NNW6	NNW6	NNW5	NNW6	NNW7	NNW6	NW7	N6.7	WNW11	
18-Jan	NNW5	NW3	NNW3	NW2	NW2	NNW3	W3	W4	WNW4	WSW6	W4	NW2	N2	NE1	S1	SW3	W4	E1	W1	N2	NNW4	NNW4	NW4	WNW6	WNW2.4	WSW6	
19-Jan	WNW4	WSW4	WSW4	SSE4	SSE6	SE14	SE14	SE14	SE11	SE12	SE11	SE11	SE7	SE8	SE7	SE12	SE8	SE8	SE11	SE3	S1	NNE1	SE3	SE15	SE7.2	SE15	
20-Jan	SE8	SE6	NW1	NNW4	NE1	NW3	NW2	WNW1	NW1	NW1	NW2	N10	NNW7	NW6	NNW8	NW7	NNW6	NNW7	N10	N10	N10	N11	N9	N7	NNW4.5	N11	
21-Jan	N8	NNW5	N4	NNW4	NNW4	NNW5	NW4	NW4	NNW4	NNW6	NNW5	N8	N9	N11	N9	N9	N8	N5	NNW3	NW3	NNW4	N4	N2	N3	N5.3	N11	
22-Jan	N6	N8	N7	NNW5	NNW5	NNW4	NNW4	NNW4	NW4	N3	ESE15	SE16	SE16	SE16	SE17	SE18	SE18	SE19	SE24	SE19	SE20	SSE16	SE18	SE18	SE8.6	SE24	
23-Jan	SE18	SE13	SE14	SE16	SE17	SE13	SE11	SSE13	SE12	SSE10	SSE10	SSE7	S4	NNW2	N4	NNW5	NNW6	N8	N10	N12	N14	N13	N8	N9	ESE3.6	SE18	
24-Jan	N11	N8	NNW7	N7	N5	NW4	NW4	N2	NNW2	NNW4	NNW4	NNW4	NNW3	SSE7	S20	SSE15	SSE13	SSE10	SSW6	WNW3	NW4	WNW4	WNW2	NW3	WNW0.4	S20	
25-Jan	NNW2	NW3	NNW6	N8	N12	NNW12	N13	N11	NNW6	NNW6	NNW5	NW4	N1	SW4	WSW3	ESE3	SSE6	SSE14	SSE14	SSE10	S8	SSE7	SE6	SE9	NNE0.7	SSE14	
26-Jan	SE14	SE8	SSE3	SE6	NNW5	NNW3	NNW4	N2	N2	ESE2	SSE6	S8	SSE11	SSE14	SSE15	SSE16	S19	S14	SSE9	SSE8	SE2	SSE9	SE7	SSE7	SSE6.6	S19	
27-Jan	SE6	SSE5	SSE4	SE7	SE8	SE7	SE6	SE6	ESE1	SE11	SE12	SE12	SE17	SE12	SE13	SE14	SE8	SE5	SSE8	SSE12	SE14	SE16	SE14	SE15	SE9.6	SE17	
28-Jan	SE16	SE14	SE16	SE16	SE12	SE12	SE10	SE14	SE11	SE10	ESE12	S7WSW19	W18WSW13	WSW13	W15	W18	W14	W14	W16	W8	WNW4	WSW7	WSW7	WSW7	SSW6.1	WSW19	
29-Jan	SW7	SE12	SE13	SE11	SE8	SE13	SE13	SE12	SE12	SE10	SSE8	SSE9	SE12	SE19	SE15	SE16	SE17	SE15	SE16	SE16	SE12	SE14	SE19	SE15	SE12.8	SE19	
30-Jan	SE13	SE13	SE15	SE9	SE13	SE9	SE10	SE10	SE8	SE9	SE5	SE15	SE12	WSW11	WSW20	WSW22	WSW18	W14	WSW11	WSW11	W19	NW11	WSW9	W16	SSW5.9	WSW22	
31-Jan	W17	W19	W17	W18	WSW20	WSW14	SW9	SSE7	SE9	SE8	SE6	SE12	SE11	SE10	SE11	SE8	SE12	SE17	SE13	SE9	SE9	ESE15	ESE18	ESE12	S6.6	WSW20	

E0.4 ESE0.9 SE18 W19 W17 W18 WSW20 WSW14 SE14 N15 SE12 SE12 ESE15 ESE16 WSW19 SE19 WSW20 WSW22 S19 SE19 SE24 SE19 SE20 SSE20 SE19 SE18	E0.5 ENE0.9 ENE0.6 ENE1.0 ENE1.0 ESE1.4 E1.0 ESE1.3 ESE1.9 ESE1.8 ESE1.6 ENE0.4 SSE0.6 SE1.1 SE1.1 SE0.9 ESE0.8 NE0.3 NNW1.1 NNE1.0 ESE0.7 SE0.5	Diurnal Average
		Diurnal Maximum

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

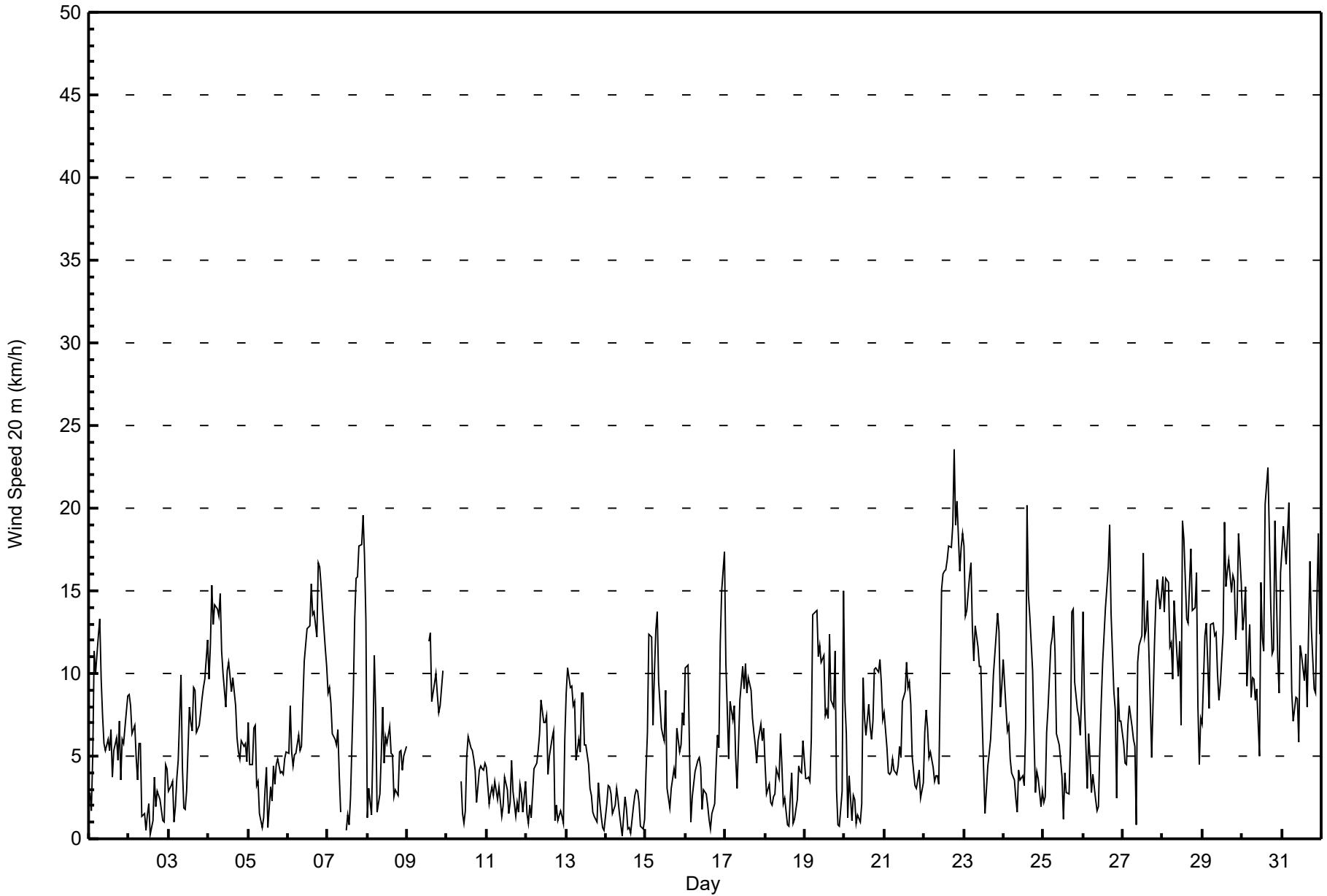




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 14:00														Hours in Service: 744 Hours of Data: 719 Hours of Missing Data: 25 Hours of Calibration: 0 Percent Operational Time: 96.6											
Minimum Value: 0 km/h on Jan 14 10:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 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-Jan	2	1	3	4	4	5	4	4	3	2	2	2	2	2	1	2	3	2	2	3	2	2	3	3	5
2-Jan	3	3	2	2	3	2	3	3	1	1	1	1	1	1	1	2	2	2	1	1	1	1	2	2	3
3-Jan	2	1	1	1	1	1	2	2	3	1	1	2	3	3	3	3	3	3	3	3	3	3	4	4	4
4-Jan	4	4	5	5	4	5	5	4	3	3	3	4	3	3	3	3	3	2	2	2	2	2	2	2	5
5-Jan	2	2	2	2	2	1	1	1	1	1	1	2	1	2	1	1	1	1	2	1	2	1	2	2	2
6-Jan	2	2	2	2	2	2	2	2	2	3	4	4	4	4	4	5	4	4	5	4	4	4	3	3	5
7-Jan	3	3	3	2	2	2	2	1	1	DF	DF	1	1	1	1	4	2	2	2	3	3	3	4	4	4
8-Jan	2	3	2	4	4	5	1	1	2	3	4	3	3	3	2	2	1	1	2	2	2	2	1	2	5
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	4	4	4	4	3	3	3	3	4	DF	DF	4
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	2	1	1	1	2	2	2	2	1	1	1	1	1	2	2	2
11-Jan	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	2
12-Jan	1	1	1	1	2	2	2	1	2	2	2	1	2	2	2	1	1	1	1	0	1	1	1	3	3
13-Jan	1	2	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3
14-Jan	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
15-Jan	1	1	3	3	2	2	2	3	2	1	2	2	2	2	1	1	1	1	1	1	2	1	2	2	3
16-Jan	3	4	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	5	7	7
17-Jan	5	3	2	3	2	2	2	1	2	3	4	4	4	3	3	3	2	2	2	2	2	3	2	2	5
18-Jan	2	1	1	1	1	1	2	2	2	3	2	2	1	1	1	2	2	1	1	2	1	2	2	2	3
19-Jan	2	2	3	2	3	2	2	3	2	2	3	4	2	3	4	3	4	4	3	2	1	1	4	4	4
20-Jan	6	3	2	1	1	1	1	1	1	1	2	3	3	2	3	3	2	3	3	3	3	3	3	3	6
21-Jan	2	2	2	2	2	2	2	2	2	2	2	3	4	4	3	4	3	2	1	1	1	1	2	2	4
22-Jan	3	3	3	2	2	2	2	2	2	2	5	6	6	6	5	6	5	6	7	6	5	3	4	3	7
23-Jan	4	4	4	3	3	3	3	3	3	2	2	2	2	1	1	2	2	3	3	4	4	4	3	3	4
24-Jan	3	2	3	2	2	1	2	1	1	2	2	2	1	6	5	5	3	3	2	2	2	1	1	2	6
25-Jan	1	2	2	2	4	4	4	3	2	2	2	2	1	1	1	2	2	3	2	2	2	2	2	4	4
26-Jan	4	3	2	2	3	2	2	1	1	1	3	2	3	4	4	3	3	4	3	2	2	2	2	2	4
27-Jan	2	1	2	3	2	3	3	3	2	4	3	4	5	5	3	3	2	3	2	2	2	2	2	2	5
28-Jan	3	2	4	3	3	3	3	4	4	4	4	6	4	6	4	4	5	5	5	6	5	7	3	4	7
29-Jan	5	3	4	4	4	3	3	3	2	3	2	2	3	3	4	2	4	4	3	4	4	5	4	5	5
30-Jan	4	2	3	3	3	4	4	3	2	4	5	4	7	7	6	7	5	5	3	5	7	5	3	5	7
31-Jan	5	5	5	5	4	6	4	3	3	3	2	2	3	3	4	2	4	4	4	3	2	5	5	5	6
Diurnal Maximum																									
6 5 5 5 4 6 5 5 4 4 5 6 7 7 6 7 5 6 7 6 7 7 7 5 7																									
DF - DAS Failure																									





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	313	43.53	43.53
6 - 11	251	34.91	78.44
12 - 19	148	20.58	99.03
20 - 28	7	0.97	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

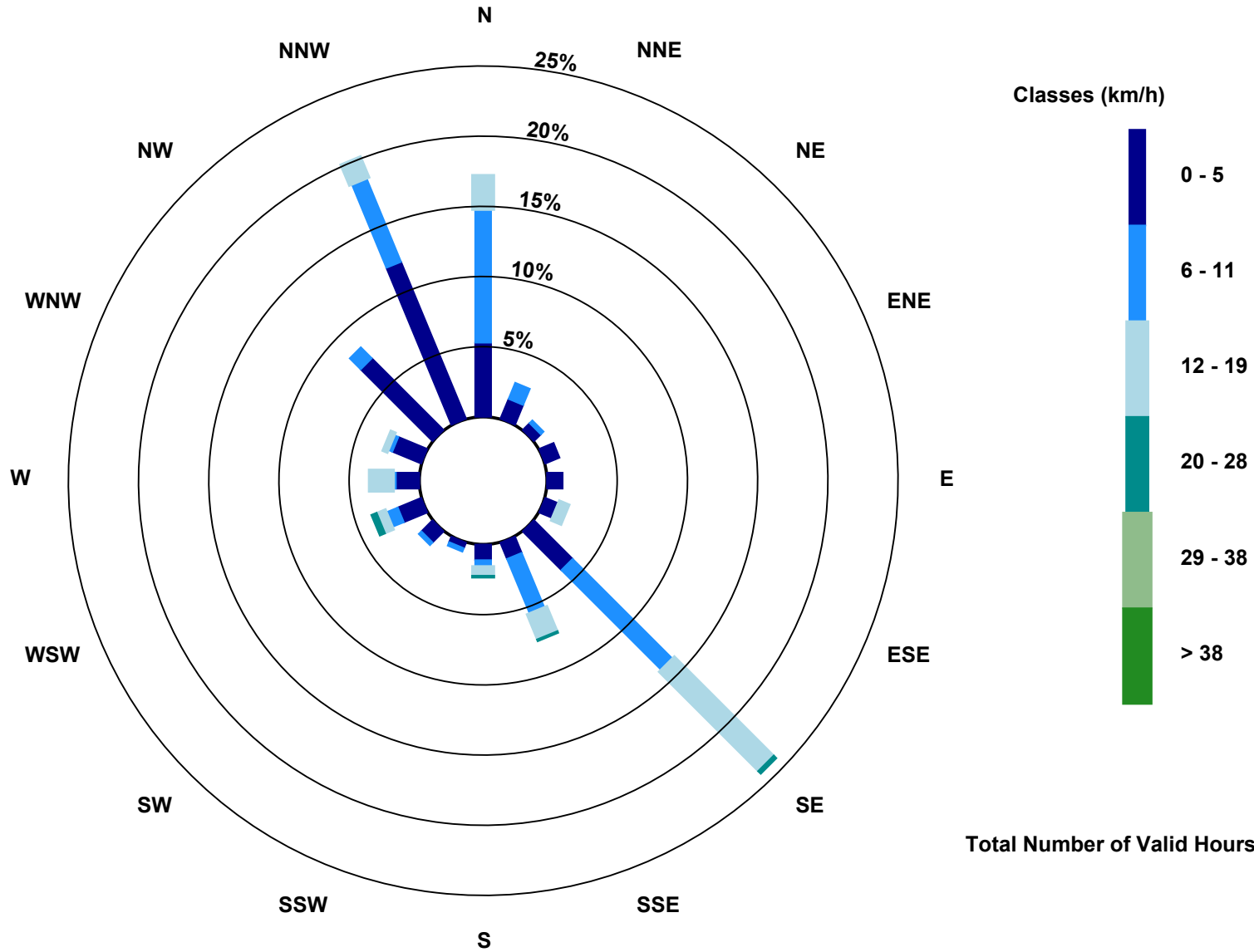
Total Number of Valid Hours: 719

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 719



Maximum Speed: 36 km/h on Jan 22 19:00	Maximum Daily Speed Average: 16.4 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 2 14:00	Minimum Daily Speed Average: 0.6 km/h on Jan 24	Hours of Data: 563
Maximum Diurnal Speed Average: 2.7 km/h at hour 7	Minimum Diurnal Speed Average: 0.2 km/h at hour 24	Hours of Missing Data: 181
Monthly Average Velocity: 1.1 km/h 56.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 16 P <sub>90</sub> = 21 P <sub>99</sub> = 30	Percent Operational Time: 75.7

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-Jan	NNW6	NNW7	NNW8	N16	N16	N18	N21	NNW15	N12	NNW9	N9	N10	N9	N10	N6	NNE8	NNE9	N7	NNE11	NNE6	N8	N8	N11	N13	N10.3	N21
2-Jan	N13	N13	N9	N9	N7	NE9	NE11	NE12	N2	NNW2	ESE1	E2	NE3	ESE0	N1	SE4	S3	E4	E4	ESE3	ESE2	ESE2	S5	SSE7	NE3.3	N13
3-Jan	S4	SSE4	SW3	ESE1	ESE3	SE4	ESE6	SSE9	SE5	ENE2	ENE4	N4	N12	NNW10	NNW10	N13	NNW13	NNW10	NNW11	N12	NNW14	NNW14	NNW15	NNW18	N5.2	NNW18
4-Jan	NNW15	NNW18	NNW22	NNW20	N20	N21	N21	N23	N17	N15	N12	N13	N15	N13	N15	N13	N9	NNW9	NNW8	NNW9	NNW9	NNW9	NNW9	NNW7	N14.3	N23
5-Jan	NNW11	NNW8	NNW7	NW10	NW10	NW5	N5	NNW2	WSW7	W4	WSW5	WSW5	ENE1	N5	NNW3	NNE6	NNE5	N6	N7	NNW7	N7	NNW7	NNW8	NNW8	NNW5.0	NNW11
6-Jan	NNW9	N11	NNW8	NNW7	NNW8	NNW9	NNW11	NNW9	NNW10	NNW14	NNW16	NNW18	N18	N18	N23	N20	N21	N19	N24	N25	N23	N19	NNW16	NNW15	N15.3	N25
7-Jan	N13	N14	N13	N10	N9	N8	N11	NNW7	NNW4	DF	DF	NW1	W2	S1	SE4	SSE11	SSE16	S17	S18	SSE20	SSE20	SSE22	SSE21	SSE17	SE3.9	SSE22
8-Jan	ESE4	ESE6	ESE5	SE11	SE17	SE11	S3	NNE3	NNW7	NNW11	NNW9	NNW9	NNW9	NNW9	NW7	NNW9	N6	NNW4	NNW5	NNE8	NNE8	NNE7	NNW8	NNW9	N3.5	SE17
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	---	---
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	WSW4	W5	NNW3	SE1	WNW1	N1	NW5	NW8	NW11	NNW11	NNW21	NNW23	NNW27	---	NNW27
17-Jan	NNW17	NW12	N8	NNE12	NNE11	NNE12	N10	NNW6	N10	N12	N15	NNE14	NNE15	N13	N15	N15	N12	NNW11	NNW13	NNW10	NNW11	NNW11	NNW10	NNW10	N10.9	NNW17
18-Jan	NNW8	NNW5	NNW5	W4	NNW3	NNW4	WNW4	W8	W6	WSW9	WSW8	WNW3	N2	NNW1	NE0	WSW3	W5	NNW8	NNW7	NNW8	NNW10	NNW7	NW6	WNW9	NW4.6	NNW10
19-Jan	W6	WSW7	WSW6	S5	SE7	SE12	SE17	SE19	SE15	SE15	SE17	SE15	SE10	SE12	SE14	SE17	SSE10	SE10	SE16	SE6	SSE3	SE3	SE8	SE21	SE10.1	SE21
20-Jan	SE15	SE12	SE5	W2	SSE5	SE6	S1	ESE3	SE4	ESE3	WNW2	NNW13	NNW10	NNW8	NNW12	NNW9	NNW9	NNW11	N16	N16	N15	N16	N14	N11	N4.9	N16
21-Jan	N11	NNW8	N6	NNW6	NNW6	NNW7	NW6	NW6	NNW6	NNW9	NNW8	N12	N13	N16	N15	N15	N13	NNE8	NNW5	NNW6	NNW6	NNE8	N7	N7	N8.4	N16
22-Jan	N11	N11	N10	NNW9	NNW8	NNW7	NNW5	NNW6	NNW5	N3	ESE22	SE25	SE26	SE26	SE28	SE30	SE28	SE31	SE36	SE31	SE27	SE20	SE23	SE23	SE13.3	SE36
23-Jan	SE23	SE19	SE21	SE22	SE20	SE17	SE14	SSE16	SSE16	SSE13	SSE11	SSE8	S5	N2	N5	NNW7	NNW10	N12	N16	N18	N21	N20	N12	N13	ESE4.5	SE23
24-Jan	N16	N12	NNW10	N10	N7	NNW5	NW5	N3	NNW2	NNW5	NNW4	NNW4	SSW1	SSE12	SSE22	SE19	SSE18	SSE14	SSE8	WSW5	NNW9	NNW8	WNW4	NW6	N0.6	SSE22
25-Jan	NNW5	NNW9	NNW12	N12	N18	N17	N21	N16	NNW10	NNW9	NNW7	NW5	NNW2	SW4	WSW3	SE4	SE7	SSE16	SSE16	SSE11	S9	SSE9	SE9	SSE12	N2.0	N21
26-Jan	SSE18	SSE10	S5	S4	NNW7	NNW5	NNW5	WNW1	W1	SE2	SSE7	SSE9	SE14	SSE16	SSE17	SSE18	S21	S15	SSE10	SSE9	SSE4	SSE10	SE9	SSE8	SSE7.6	S21
27-Jan	SE7	SSE6	SSE6	SE9	SE10	SE9	SE8	SE7	E3	SE17	SE18	SE20	SE25	SE22	SE17	SSE10	S6	SSW4	SSW7	SSW9	SSE10	SE17	SE17	SE19	SE11.0	SE25
28-Jan	SE20	SE18	SE22	SE17	SE13	SE13	SE11	SE16	SE18	SE18	SE15	SW12	WSW26	W27	WSW20	WSW21	W23	W28	W22	W24	W27	W15	W11	WSW16	SSW9.0	W28
29-Jan	SW13	SE14	SE19	SE14	SE14	SE17	SE16	SE14	SE13	SE12	SE10	SSE11	SE13	SE22	SE17	SE18	SE22	SE19	SE21	SE20	SE22	SE25	SE22	SE23	SE16.4	SE25
30-Jan	SE20	SE19	SE19	SE15	SE19	SE10	SE11	SE11	SE10	SE11	SSE4	SE20	SE11	WSW21	WSW29	WSW34	WSW28	W21	WSW18	WSW18	W28	NW17	WSW14	WSW25	SSW8.6	WSW34
31-Jan	WSW27	WSW30	WSW26	WSW30	WSW30	WSW21	SW13	S9	SSE7	SSE9	SSE6	SE11	SE16	SE14	SE15	SE12	SE18	SE27	SE23	SE14	SE14	SE23	SE29	SE22	S9.9	WSW30

NNW1.3	NNE1.6	NNE1.4	NNE1.8	NE2.0	NE2.4	NNE2.7	ENE2.1	ENE1.6	ENE1.5	E2.4	E2.1	E2.0	ESE0.8	SE1.0	SE1.0	SE1.2	SE1.1	E1.3	N0.6	NNW2.5	NNE2.2	ENE1.0	SW0.2	Diurnal Average	
WSW27	WSW30	WSW26	WSW30	WSW30	N21	N21	N23	SE18	SE18	ESE22	SE25	SE26	W27	WSW29	WSW34	SE28	SE31	SE36	SE31	W28	SE25	SE29	WNW27	Diurnal Maximum	

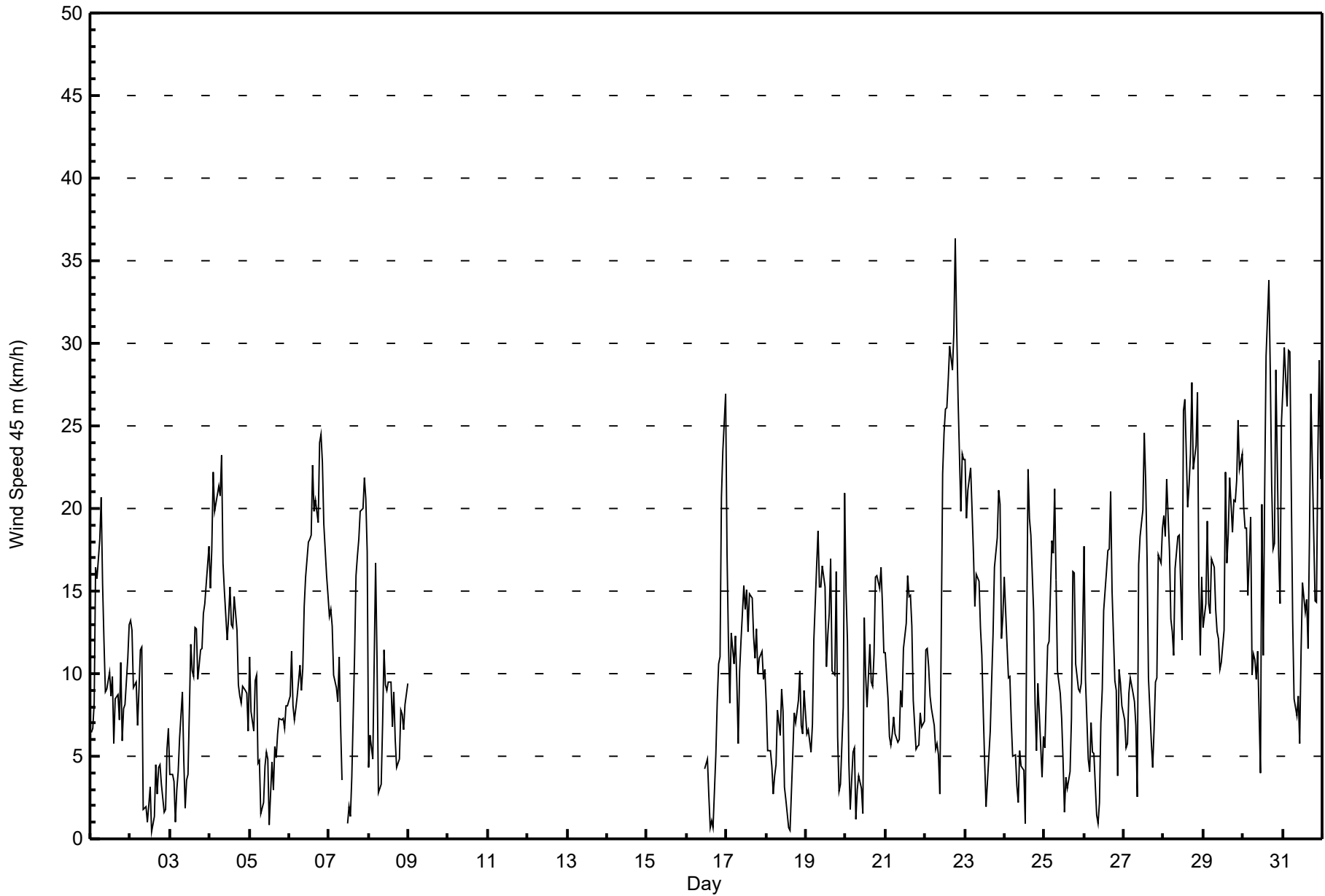
DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Jan 28 22:00 Minimum Value: 1 km/h on Jan 16 15:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 7														Hours in Service: 744 Hours of Data: 563 Hours of Missing Data: 181 Hours of Calibration: 0 Percent Operational Time: 75.7																								
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-Jan	3	2	3	3	4	5	5	4	2	2	2	2	2	2	2	3	2	2	4	3	2	3	2	5														
2-Jan	3	3	2	2	3	3	3	4	2	1	1	1	1	1	1	2	2	2	1	1	1	1	2	3	4													
3-Jan	2	1	1	1	2	2	2	2	4	1	1	2	2	3	3	3	3	4	4	3	3	3	4	3	4													
4-Jan	3	4	5	4	4	5	4	4	5	3	3	3	2	2	2	3	2	2	2	2	2	2	2	3	5													
5-Jan	3	2	2	2	2	1	1	1	2	1	1	2	1	3	1	1	1	1	1	1	1	1	2	2	3													
6-Jan	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	3	3	4	3	4	3	3	2	4													
7-Jan	3	2	3	2	2	1	2	2	1	DF	DF	1	1	1	2	4	3	3	2	3	3	3	3	4	4													
8-Jan	3	4	4	5	3	5	2	2	2	3	3	2	3	2	2	2	1	1	2	2	3	2	1	1	5													
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	--													
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--													
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--													
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--													
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--													
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--													
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--													
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	1	1	1	1	4	2	3	4	5	5	6	6													
17-Jan	5	4	2	3	2	2	3	1	2	3	4	4	3	2	3	3	2	2	2	2	3	2	2	2	5													
18-Jan	2	1	1	1	1	1	2	3	2	3	3	2	1	1	1	4	2	1	3	3	2	3	2	3	4													
19-Jan	2	2	3	2	3	3	2	2	1	2	2	3	2	3	3	1	5	4	2	3	1	1	7	4	7													
20-Jan	4	3	3	1	3	3	1	2	2	1	3	3	3	2	3	3	3	3	3	3	3	3	3	2	4													
21-Jan	2	2	2	2	2	2	2	2	2	2	2	4	4	4	3	3	4	3	1	1	2	1	3	3	4													
22-Jan	3	3	2	3	2	2	1	2	1	3	4	6	5	6	5	5	5	4	5	5	4	3	3	3	6													
23-Jan	3	3	3	2	3	2	5	3	3	2	2	2	2	2	1	2	2	4	3	4	4	4	3	3	5													
24-Jan	3	2	3	2	2	1	1	1	1	2	3	1	2	5	5	3	3	3	2	3	2	1	4	4	5													
25-Jan	2	3	2	2	4	4	4	3	2	2	2	2	1	1	1	3	3	3	3	2	2	2	2	4	4													
26-Jan	2	5	2	2	4	3	1	2	1	1	3	2	2	3	4	3	3	4	3	2	2	2	2	2	5													
27-Jan	2	2	2	2	2	4	2	3	3	3	2	3	3	4	1	2	2	2	3	3	3	2	2	2	4													
28-Jan	3	2	2	3	3	3	3	4	3	3	4	8	4	6	4	3	5	5	6	7	4	9	6	4	9													
29-Jan	8	3	3	3	4	3	2	2	3	2	2	2	4	2	5	2	2	4	3	3	3	3	3	3	8													
30-Jan	4	1	2	3	3	6	5	2	2	4	5	3	7	8	6	7	5	5	4	7	7	6	5	6	8													
31-Jan	4	4	4	4	3	8	6	3	2	3	2	3	2	3	5	2	3	3	4	3	2	4	4	5	8													
														Diurnal Maximum																								
														8	5	5	5	4	8	6	4	5	4	5	8	7	8	6	7	5	5	6	7	7	9	7	6	
DF - DAS Failure														UO - Unstable Operation																								





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	111	19.72	19.72
6 - 11	204	36.23	55.95
12 - 19	162	28.77	84.72
20 - 28	76	13.50	98.22
29 - 38	10	1.78	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 563

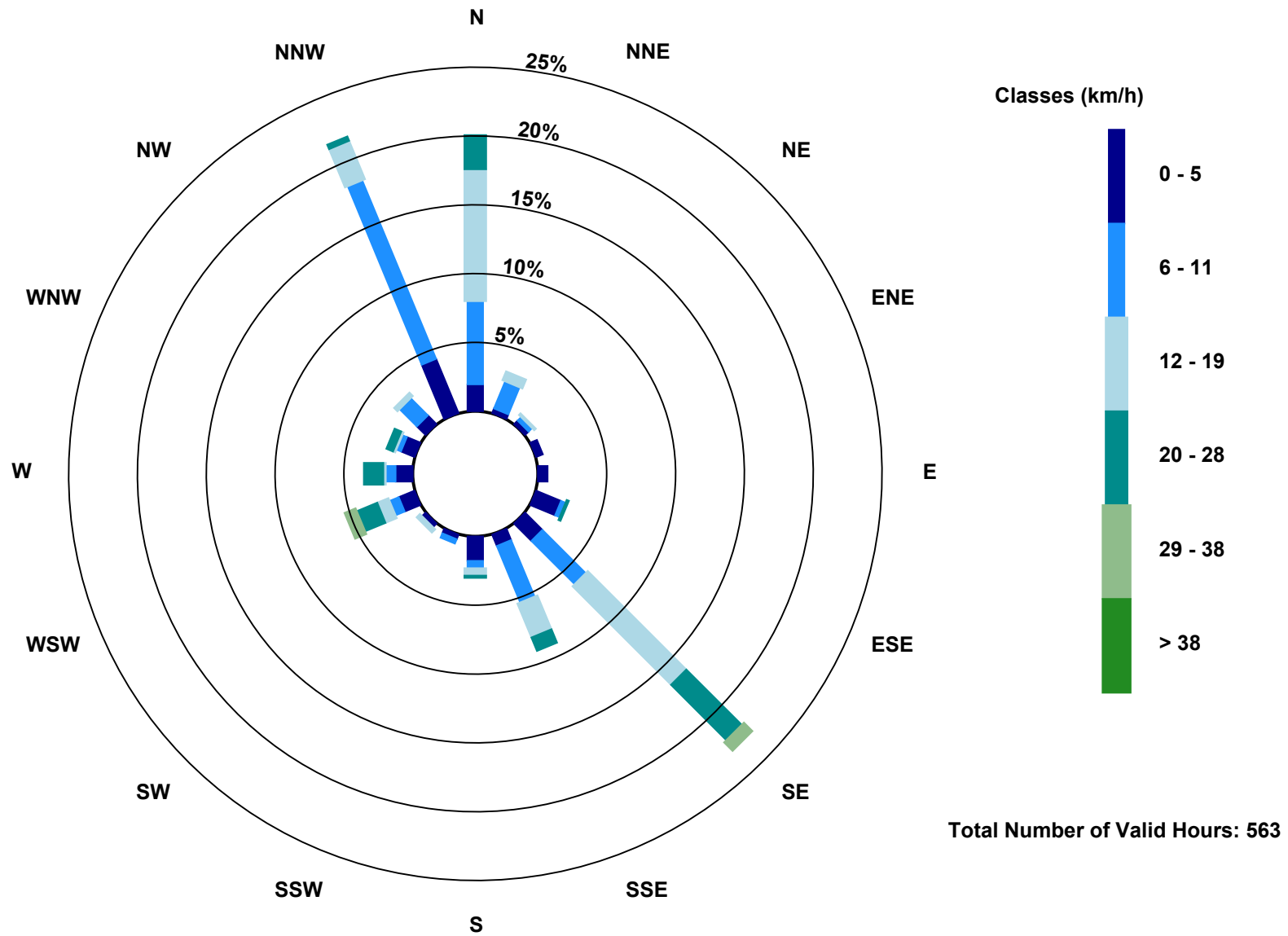
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024

Maximum Speed: 46 km/h on Jan 30 16:00	Maximum Daily Speed Average: 19.5 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 14 14:00	Minimum Daily Speed Average: 2.0 km/h on Jan 24	Hours of Data: 571
Maximum Diurnal Speed Average: 3.6 km/h at hour 21	Minimum Diurnal Speed Average: 0.0 km/h at hour 15	Hours of Missing Data: 173
Monthly Average Velocity: 1.1 km/h 330.9 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 13 Q <sub>3</sub> = 20 P <sub>90</sub> = 26 P <sub>99</sub> = 41	Percent Operational Time: 76.8

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-Jan	NNW6	N10	N12	N18	N18	N20	N24	NNW20	N15	N12	N10	N11	N10	N10	NNW7	NNE9	NE11	NNE9	NNE12	NE9	NNE10	NNE9	NNE13	N14	N12.1	N24	
2-Jan	NNE14	NNE13	N10	N11	NNE10	NNE14	NNE16	NE19	NE4	NNE4	ENE4	E3	NE3	E1	N1	SSE5	S4	SE3	ESE6	SSE6	S4	SSE3	SSE7	S9	NE4.0	NE19	
3-Jan	S5	S4	SSW2	ESE1	ESE3	SE6	SE7	S9	S7	SSW2	E4	NNE5	N13	N14	N13	N14	N15	N13	N16	N15	N18	N19	N21	N22	N6.5	N22	
4-Jan	N20	N22	N27	N26	N25	N27	N24	N25	N19	N18	N13	N14	N15	N14	N13	N15	NNE14	N11	N11	N12	N12	N11	N11	N8	N16.9	N27	
5-Jan	NNW15	N11	NNW9	NNW12	NW13	NW7	NW6	WNW3	WSW8	WSW8	W7	WSW4	N1	N4	N3	NE6	NE5	NNE6	N8	N9	NNE8	N9	N11	N12	NNW6.1	NNW15	
6-Jan	NNW11	N13	N11	N10	N12	N13	NNW14	N12	N15	N18	N19	N21	N20	N21	N25	N24	N23	N21	N26	N26	N24	N21	N18	N16	N18.1	N26	
7-Jan	N15	N15	NNE13	N10	N9	NNE9	N12	N8	NNW5	DF	DF	W2	WSW5	SSE3	SE7	SSE16	SSE22	S21	SSE23	SSE25	SSE26	SSE27	SSE26	SSE24	SE6.2	SSE27	
8-Jan	SE11	SE11	SE10	SE15	SE19	SE15	S5	NNW2	NNW5	NNW15	NNW17	NNW15	N14	NNW11	NNW8	N11	N9	N8	N6	NNE11	NNE8	NNE8	N7	N10	NNE4.0	SE19	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	N19	N20	N16	N18	N18	N17	N15	N15	N19	DF	DF	---	N20	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	N11	N11	N6	NNW4	NNW6	NNW8	N9	NNE8	NNE8	NNE8	NNE6	NNE9	NNE11	UO	UO	UO	---	NNE11
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNW2	N3	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	N3	
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SE6	ESE6	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	ESE6	
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SE5	SSE4	SSE2	UO	UO	UO	UO	UO	UO	UO	UO	---	SE5	
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSW5	S2	NE0	ENE3	ESE4	UO	UO	UO	UO	UO	UO	UO	---	SSW5	
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE7	S6	SSE7	SSE5	SSE6	SSE6	SSE11	S10	SSW8	SSW9	SSE7	SSE12	SSE7	---	SSE12
16-Jan	SSE9	SSE8	SSE3	NNE5	NNW14	NNW14	NNW15	NNW14	NW11	NW13	N10	WNW6	W7	W2	ENE1	NNW3	W6	NNW21	NNW20	NNW20	NNW22	NNW30	NNW32	NNW35	NNW10.7	NNW35	
17-Jan	WNW25	NW17	N11	NNE14	NNE12	NNE15	N12	N9	N13	NNE14	NNE16	NNE15	NNE16	N13	N16	N16	N15	N16	N20	NNW16	NNW18	N16	NNW14	NNW15	N14.1	NNW25	
18-Jan	NNW13	NW11	NW9	W8	WNW4	N5	WNW4	W11	W11	W12	WSW12	W7	NW3	NW4	N2	W6	NW12	NW15	NW13	NW15	NW14	NW11	WNW9	NNW11	WNW8.6	NW15	
19-Jan	W10	WSW12	WSW10	SSW8	SSW6	SSW9	S11	SSE13	SSE14	SSE13	SSE12	SSE13	SSE10	SE15	SE17	SSE19	SSE13	SSE13	SE23	SE14	SE15	SE16	SE18	SSE26	SSE11.9	SSE26	
20-Jan	SSE22	SSE18	SSE15	SSE9	S15	SSE14	S11	S9	SSW7	SSW5	W4	NNW12	NNW11	NNW9	NNW14	NNW11	NNW11	NNW15	N17	N16	N16	N17	N15	N13	N2.3	SSE22	
21-Jan	N13	N11	NNE8	N8	NNW9	NNW11	NNW9	NW8	NNW7	NNW12	NNW11	N13	N15	N18	N16	N16	N16	NNE12	N8	N8	N7	NNE13	NNE13	N13	N11.1	N18	
22-Jan	N14	N13	N12	N10	N10	N9	N8	N8	NNW4	ESE6	SE27	SE30	SE32	SE32	SE33	SE36	SE35	SE38	SE42	SE38	SE31	SSE22	SE27	SSE25	SE16.3	SE42	
23-Jan	SE25	SE23	SE24	SSE25	SSE26	SSE20	SSE19	SSE24	SSE22	S16	S12	S7	S5	NW2	N5	NNW7	NNW13	N16	N18	N21	N22	N21	N14	N14	SE4.9	SSE26	
24-Jan	N18	N13	N13	N10	N8	NNW5	NW6	N3	N1	WNW3	W3	SSW3	SE15	SSE19	SSE26	SE24	SSE23	SSE16	SSE11	S8	NW7	NNW9	NNW6	NNW11	ESE2.0	SSE26	
25-Jan	N15	N14	N15	N14	N19	N20	N22	N17	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	N22	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE27	SSE21	S14	SW12	WSW18	WSW21	WSW23	WSW24	SW16	SSW6	SSE10	SSE13	---	SSE27
28-Jan	SSE16	SSE16	SE20	SSE21	SE18	SE17	SSE16	SSE23	SSE22	SSE20	S15	SW26	WSW33	W35	W30	W33	W36	W41	W35	W36	W40	W28	WSW26	WSW28	SW17.6	W41	
29-Jan	WSW24	SSE13	SSE24	SSE18	SSE17	SSE24	SSE22	SSE23	SE18	SSE12	SSE9	SSE14	SSE20	SSE31	SSE23	SSE22	SSE27	SSE23	SSE21	SSE23	SSE21	SSE22	SSE22	SSE20	SSE19.5	SSE31	
30-Jan	SSE23	SSE17	SSE19	SSE17	SSE22	SE15	SE12	SSE10	SSE10	S17	SSW8	S15	SW20	WSW36	WSW41	WSW46	WSW40	W32	WSW30	WSW29	W39	NW25	W21	WSW36	SW16.7	WSW46	
31-Jan	WSW41	WSW43	WSW37	WSW41	WSW40	WSW34	WSW21	SW14	SW13	SSW13	SSW8	SSE8	SE18	SE17	SE17	SE18	SE25	SE36	SE33	SE24	SE25	SE33	SE39	SE33	S15.3	WSW43	

NNW3.1	NNW2.2	N1.4	N1.6	NNE1.5	NNE2.1	N2.6	N1.1	WSW0.2	NNW1.3	N0.7	NNW0.4	SE1.1	WSW0.2	NNE0.0	W0.3	NNW0.8	NNW1.7	NW1.1	NW2.0	NW3.6	N3.3	NNW0.6	W1.8	Diurnal Average	
WSW41	WSW43	WSW37	WSW41	WSW40	WSW34	N24	N25	SSE22	SSE20	ESE27	SE30	WSW33	WSW36	WSW41	WSW46	WSW40	W41	SE42	SE38	W40	SE33	SE39	WSW36	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**

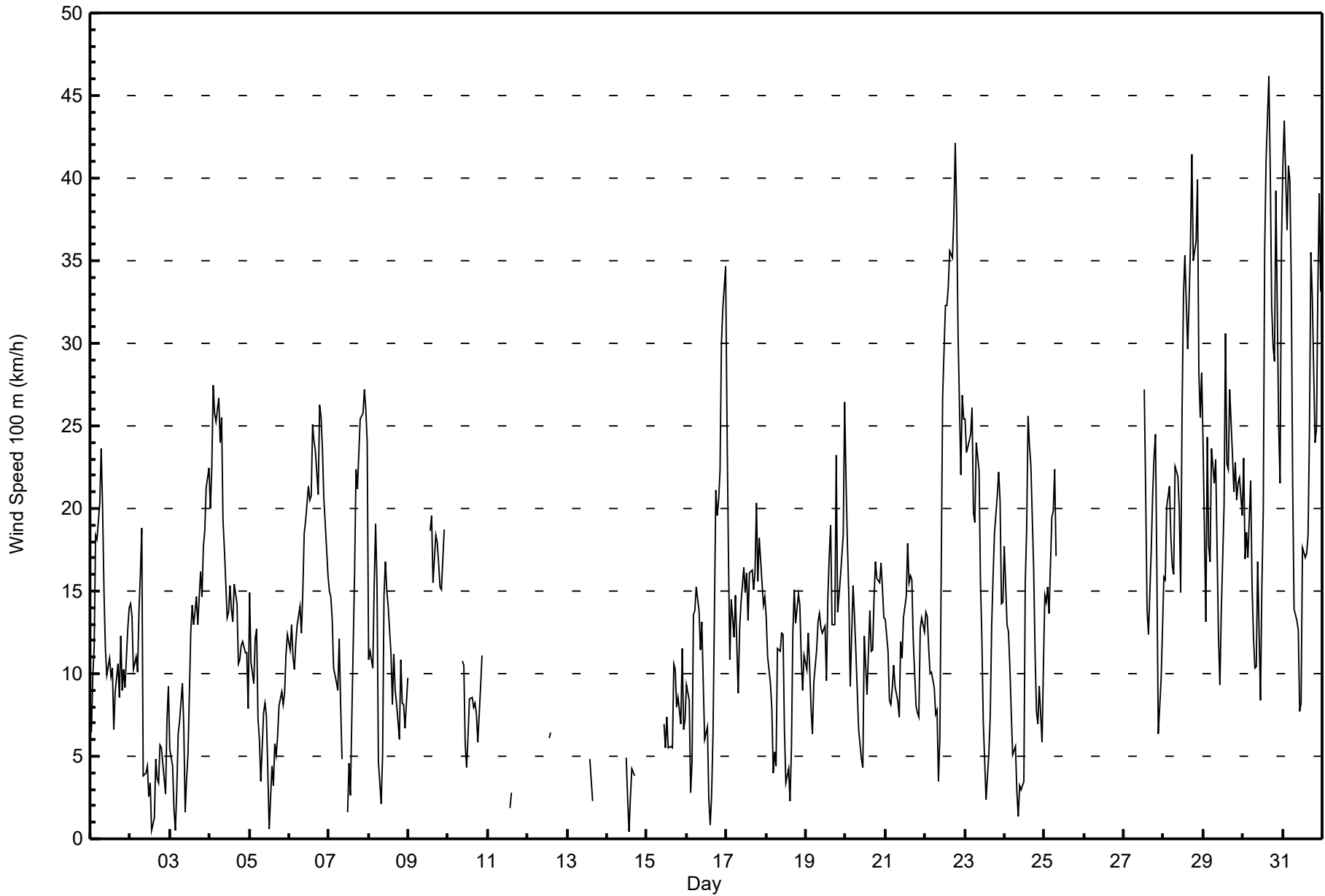
**Wind Speed 100 m (WS100m) - km/h**  
**Lower Camp Met Tower - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on Jan 28 22:00														Hours in Service: 744 Hours of Data: 571 Hours of Missing Data: 173 Hours of Calibration: 0 Percent Operational Time: 76.8												
Minimum Value: 1 km/h on Jan 14 13:00																										
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 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-Jan	3	1	4	3	3	5	4	3	3	2	1	1	1	2	1	2	3	3	3	5	3	2	2	2	5	
2-Jan	4	2	2	2	2	2	2	2	3	2	1	1	1	1	1	2	2	1	1	2	1	1	2	3	4	
3-Jan	2	1	1	1	1	2	2	1	3	2	1	3	2	2	2	2	2	4	4	3	2	2	3	3	4	
4-Jan	3	3	4	3	3	4	3	3	4	3	3	2	2	2	2	2	2	2	1	2	2	1	2	3	4	
5-Jan	2	2	1	2	2	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	2	
6-Jan	1	1	1	1	2	1	1	2	2	2	2	2	2	2	3	4	2	3	4	2	3	3	2	2	4	
7-Jan	2	2	2	2	2	1	2	1	1	DF	DF	1	1	2	2	5	2	2	2	3	3	2	3	4	5	
8-Jan	5	4	6	5	2	5	2	1	1	5	3	2	2	2	2	1	1	2	2	2	2	2	1	1	6	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	2	2	3	3	2	4	3	2	3	DF	DF	4	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	1	1	3	1	2	1	2	1	2	1	2	2	2	UO	UO	UO	3
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1	1	UO	UO	UO	UO	UO	UO	UO	UO	UO	1	
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1	1	1	UO	UO	UO	UO	UO	UO	UO	UO	1	
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1	1	1	1	1	2	UO	UO	UO	UO	UO	2	
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	1	2	2	1	1	3	4	2	2	2	4	2	1	4	
16-Jan	2	3	1	2	2	2	2	3	1	1	3	1	2	1	1	1	3	4	3	3	4	4	4	3	4	
17-Jan	5	4	3	3	3	2	3	1	2	3	3	4	3	2	2	2	2	2	1	2	2	2	2	2	5	
18-Jan	1	2	1	1	1	1	3	3	3	3	2	2	1	2	1	4	4	3	3	3	3	2	3	3	4	
19-Jan	3	2	3	2	2	2	1	1	1	2	1	3	2	2	2	2	7	4	3	6	3	2	4	4	7	
20-Jan	4	3	3	3	3	2	2	1	1	1	2	3	2	2	3	2	3	3	2	2	2	2	3	2	4	
21-Jan	2	2	2	2	1	2	2	2	2	2	2	3	3	3	3	2	4	3	2	2	2	3	4	3	4	
22-Jan	2	2	2	2	1	2	1	2	2	7	3	5	4	5	4	3	4	3	3	3	4	3	3	3	7	
23-Jan	3	2	2	3	3	3	3	3	2	3	2	2	1	1	2	2	3	3	3	2	3	3	2	3	3	
24-Jan	2	2	2	2	2	1	1	1	1	3	1	1	5	3	6	4	3	4	3	2	3	2	2	6	6	
25-Jan	2	1	2	2	4	2	3	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	3	2	1	2	4	6	3	4	3	2	6	
28-Jan	2	2	2	3	3	3	5	4	2	3	5	7	4	5	5	3	4	2	6	7	4	11	4	4	11	
29-Jan	9	5	4	5	2	4	2	2	2	5	3	2	6	2	5	4	2	4	3	3	3	3	2	6	9	
30-Jan	4	2	2	2	3	4	6	3	3	5	4	4	5	6	6	6	5	6	5	8	8	6	7	5	8	
31-Jan	2	3	3	2	2	7	7	5	3	3	4	3	2	3	5	5	2	2	3	4	3	3	3	5	7	
														Diurnal Maximum												
														9 5 6 5 4 7 7 5 4 7 5 7 6 6 6 6 7 6 6 8 8 11 7 6												
DF - DAS Failure UO - Unstable Operation																										



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	69	12.08	12.08
6 - 11	162	28.37	40.46
12 - 19	196	34.33	74.78
20 - 28	101	17.69	92.47
29 - 38	31	5.43	97.90
> 38	12	2.10	100.00

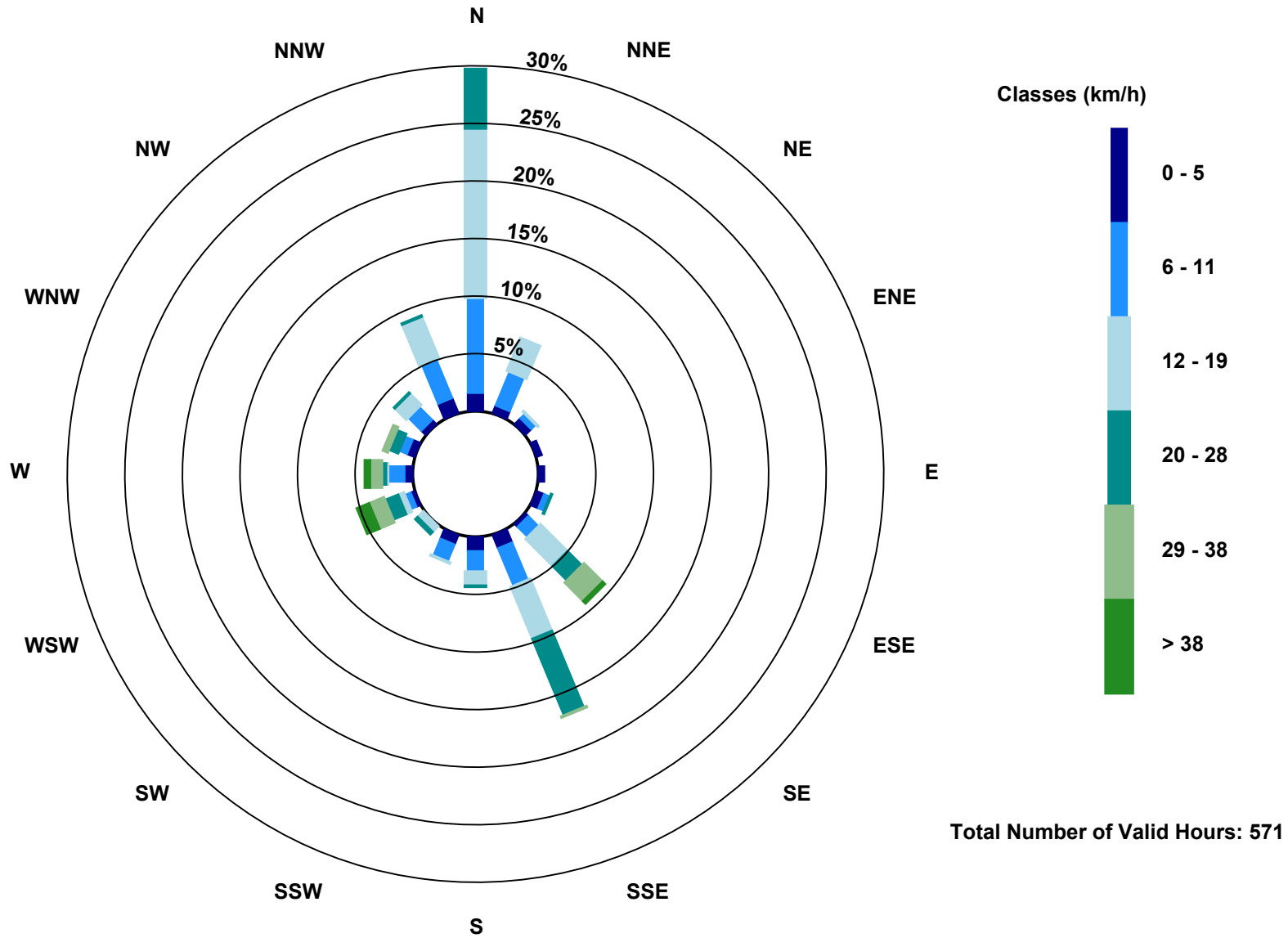
Total Number of Valid Hours: 571

Total Number of Hours: 744



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

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





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 163 m (WS163m) - km/h

## Lower Camp Met Tower - January 2024

Maximum Speed: 53 km/h on Jan 30 16:00	Maximum Daily Speed Average: 25.2 km/h on Jan 28	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 24 08:00	Minimum Daily Speed Average: 0.1 km/h on Jan 20	Hours of Data: 545
Maximum Diurnal Speed Average: 4.4 km/h at hour 21	Minimum Diurnal Speed Average: 0.1 km/h at hour 4	Hours of Missing Data: 199
Monthly Average Velocity: 1.3 km/h 299.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 15 Q <sub>3</sub> = 23 P <sub>90</sub> = 32 P <sub>99</sub> = 47	Percent Operational Time: 73.3

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-Jan	NNW7	NNW14	NNE14	NNE20	N19	N20	N25	N24	N17	N14	NNE10	N12	N10	NNW10	NNW7	NNE9	NE14	NE11	NE16	NE13	NE14	NNE11	NNE14	NNE15	NNE13.3	N25	
2-Jan	NNE15	NNE13	NNE11	NNE13	NNE16	NNE13	NNE13	NNE15	NE11	NNE5	NE5	E3	ENE4	E1	ENE1	S6	S4	SSE4	SE7	SSE8	S7	SSE5	S8	S12	NE4.3	NNE16	
3-Jan	SSW9	S5	SSW2	NE0	E3	SSE4	SSE6	S11	S11	SSW6	ESE4	NE8	NNE13	N15	N13	NNE14	N14	N14	N17	NNE16	N18	N21	N22	N24	NNE6.6	N24	
4-Jan	N21	N24	N28	N27	N28	N28	N24	N26	N19	N18	NNE13	N13	N13	N13	N15	NNE17	NNE13	NNE12	N12	NNE13	NNE12	NNE12	NNE12	NNE8	N17.4	N28	
5-Jan	N13	NNE11	N9	NNW11	NNW13	NW11	NW8	WNW5	W7	W9	W8	WNW4	WNW1	NNE4	NE3	ENE5	ENE6	NE7	NNE8	NNE8	NE10	NE9	NE8	NNE10	N5.5	N13	
6-Jan	NE8	NNE9	NE11	ENE11	NE16	NNE15	NNE15	NNE14	NNE15	NNE18	NNE19	N20	N19	N21	N25	N26	N24	N22	N26	N24	N23	N20	N17	N14	NNE17.4	N26	
7-Jan	NNE15	NNE15	NNE13	NNE11	NNE10	NNE9	NNE11	NNE8	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE26	SSE29	S30	SSE28	SSE27	---	S30	
8-Jan	SSE20	SSE20	SSE18	SE17	SSE21	SE15	SSE7	SW3	NNW5	NNW10	UO	UO	UO	UO	N9	N11	NNE10	NNE8	NNE7	NE13	NE9	NE9	NE6	N6	E4.1	SSE21	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	N17	N18	N15	N17	NNE19	NNE17	NNE17	NNE16	NNE21	DF	DF	---	NNE21	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	NNE8	NNW6	NNW8	N10	NNE9	NE8	NNE10	NNE12	NNE14	NNE18	NNE22	NE18	NNE22	NNE21	---	NNE22
11-Jan	NNE21	NNE17	UO	NNE20	UO	NNE19	UO	UO	UO	UO	UO	N14	N14	NNW7	UO	N7	UO	UO	NNE9	UO	NNE3	NNW2	NNW4	NW5	WNW6	---	NNE21
12-Jan	WNW6	W8	WNW6	WNW7	W9	WSW9	UO	UO	SW2	UO	UO	UO	UO	UO	SSE7	SE10	SSE10	SSE11	SSE12	S13	UO	S14	S10	SSE13	---	S14	
13-Jan	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	---	---
14-Jan	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	---	---
15-Jan	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	---	---
16-Jan	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	---	WNW37
17-Jan	NNW30	NW22	N12	NNE15	NNE15	NNE17	NNE15	NNE12	NNE15	NNE16	NNE18	NNE16	NNE16	N12	N16	NNE17	NNE17	NNE21	NNE29	N21	N21	N18	N16	N17	N16.4	NW30	
18-Jan	NNW13	NNW12	NNW11	WNW8	NW6	NNW6	WNW5	WNW12	W13	W15	W16	WNW13	NW11	NW8	WNW9	WNW14	WNW23	NW28	NW23	WNW25	NW21	NW14	WNW12	WNW13	NW13.2	NW28	
19-Jan	W10	W10	WNW7	SW8	SW11	SW13	SSW13	SSW14	SSW14	S14	S11	SSE12	SSE11	SSE13	SSE16	SSE20	SSE16	SSE16	SSE24	SSE16	SE20	SE19	SSE21	SSE33	S12.4	SSE33	
20-Jan	SSE30	SSE27	SSE23	S22	S21	SSW19	SW13	SW9	SW9	SW7	W7	NW9	NNW10	N9	N14	N11	N12	N14	N16	NNE14	NNE15	N16	NNE16	N15	SSE0.1	SSE30	
21-Jan	NNE16	N13	NNE12	NNE11	N8	N11	NNW8	NNW9	NNW8	N13	N12	N13	N15	N18	N15	N16	NNE18	NNE17	NNE11	NNE10	NNE10	NNE16	NNE17	NNE16	N12.6	NNE18	
22-Jan	NNE15	N13	NNE11	NNE11	N10	NNE9	NNE8	ENE7	ESE6	SE17	SE29	SE33	SE34	SE35	SE36	SE38	SE39	SE41	SE44	SE39	SSE32	SSE25	SSE30	SSE30	SE19.5	SE44	
23-Jan	SSE27	SSE25	SSE27	SSE32	SSE33	SSE28	SSE26	S25	S21	SSW15	SSW10	SSW8	SSW5	W2	NNW5	NNW8	N13	N18	N19	N21	N21	NNE19	NNE14	NNE14	SE5.7	SSE33	
24-Jan	N17	NNE13	N13	NNE10	NNE8	NNE5	NW4	WNW0	ESE11	SSE10	SE11	SE15	SSE22	SSE21	SSE27	SSE23	SSE24	SSE19	SSE16	SSE12	SSW5	NW9	NNW12	N12	SE5.7	SSE27	
25-Jan	NNE20	NNE20	NNE18	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNE20	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	S14	S21	SSW22	SSW15	WSW17	WSW27	WSW35	WSW36	WSW34	WSW29	WSW20	---	WSW36
28-Jan	SSW18	SSW19	S23	SSE29	SSE28	SSE21	SSE28	S32	S27	SSW26	SW30	WSW35	WSW39	W42	W36	W38	W43	W48	W44	W46	W50	W42	W30	W31	WSW25.2	W50	
29-Jan	WSW31	S14	SSE21	S27	S22	S29	S25	S27	SSE31	SSE26	SSE23	SSE25	SSE32	S35	S26	S21	S25	S29	SSW30	S27	SSW20	SSW18	SSW20	SSW17	S23.3	S35	
30-Jan	S26	SSW20	SSW20	S23	SSW22	SSE18	SSE18	SSE14	SSE18	SSE25	SSW17	SW21	SW34	WSW45	WSW48	W53	W47	W41	WSW38	WSW38	WNW49	NW32	W26	W41	WSW23.3	W53	
31-Jan	W47	W47	WSW45	WSW48	W44	WSW41	WSW28	SW24	WSW24	WSW23	WSW17	SSW8	SSE13	SE18	SSE20	SE23	SE32	SE40	SE35	SE27	SE30	SE41	SE43	SE40	SSW17.3	WSW48	

NNW3.8	NNW2.9	NNE1.0	S0.1	SSW1.0	NE0.3	S0.5	SSW1.6	SSW3.2	SSW2.6	SSW1.1	SSW1.0	SSW1.7	SSW2.4	NNW1.5	NW1.7	NW2.5	NW2.7	NW2.6	NW2.1	NW4.4	NNW3.4	NNW1.8	NW1.8	Diurnal Average	
W47	W47	WSW45	WSW48	W44	WSW41	WSW28	S32	SSE31	SSW26	SW30	WSW35	WSW39	WSW45	WSW48	W53	W47	W48	W44	W46	W50	W42	SE43	W41	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**

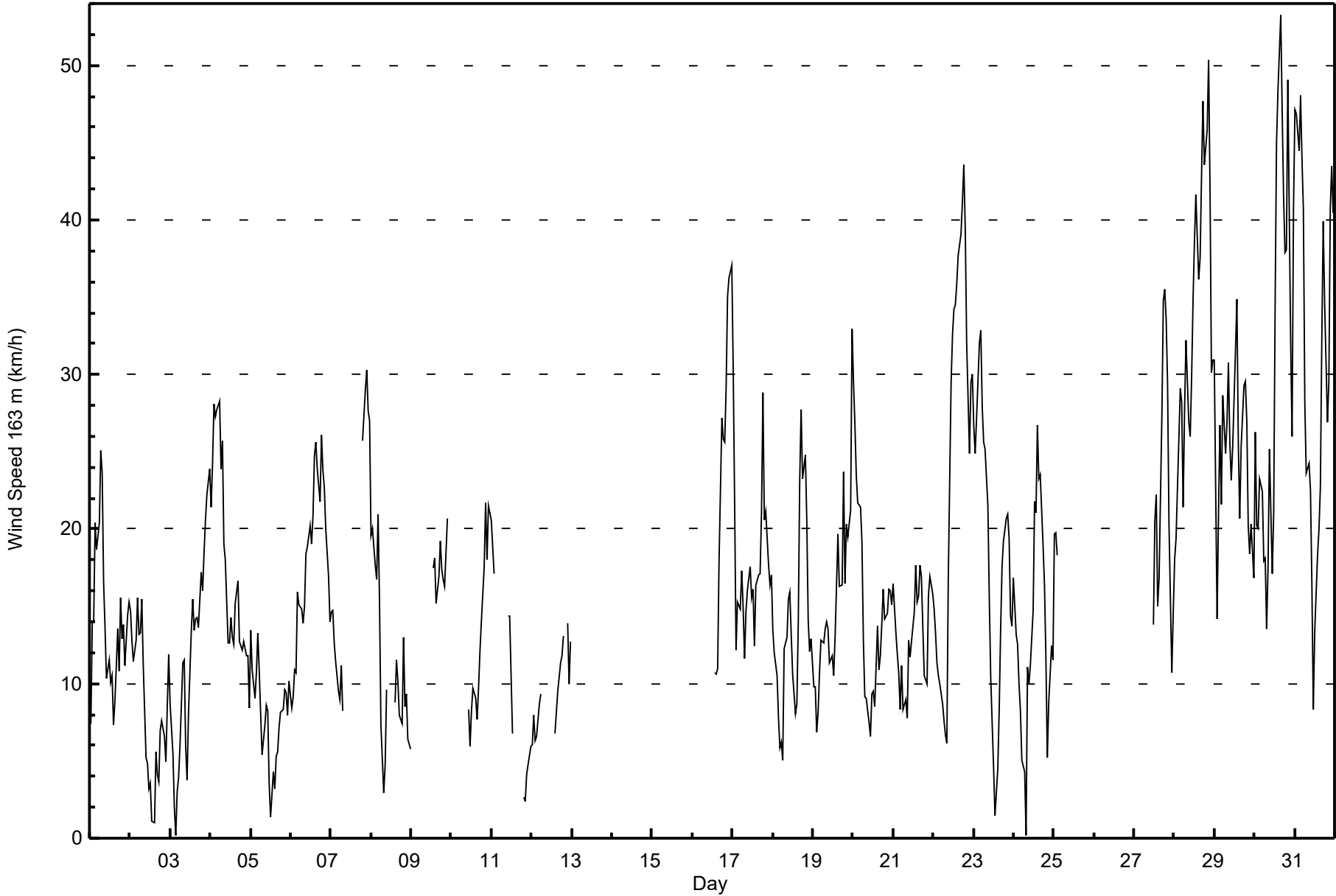
**Wind Speed 163 m (WS163m) - km/h**  
**Lower Camp Met Tower - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 10 km/h on Jan 30 20:00	Hours of Data: 545
Minimum Value: 1 km/h on Jan 24 07:00	Hours of Missing Data: 199
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 7	Hours of Calibration: 0
	Percent Operational Time: 73.3

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

DF - DAS Failure UO - Unstable Operation







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	36	6.61	6.61
6 - 11	132	24.22	30.83
12 - 19	188	34.50	65.32
20 - 28	113	20.73	86.06
29 - 38	47	8.62	94.68
> 38	29	5.32	100.00

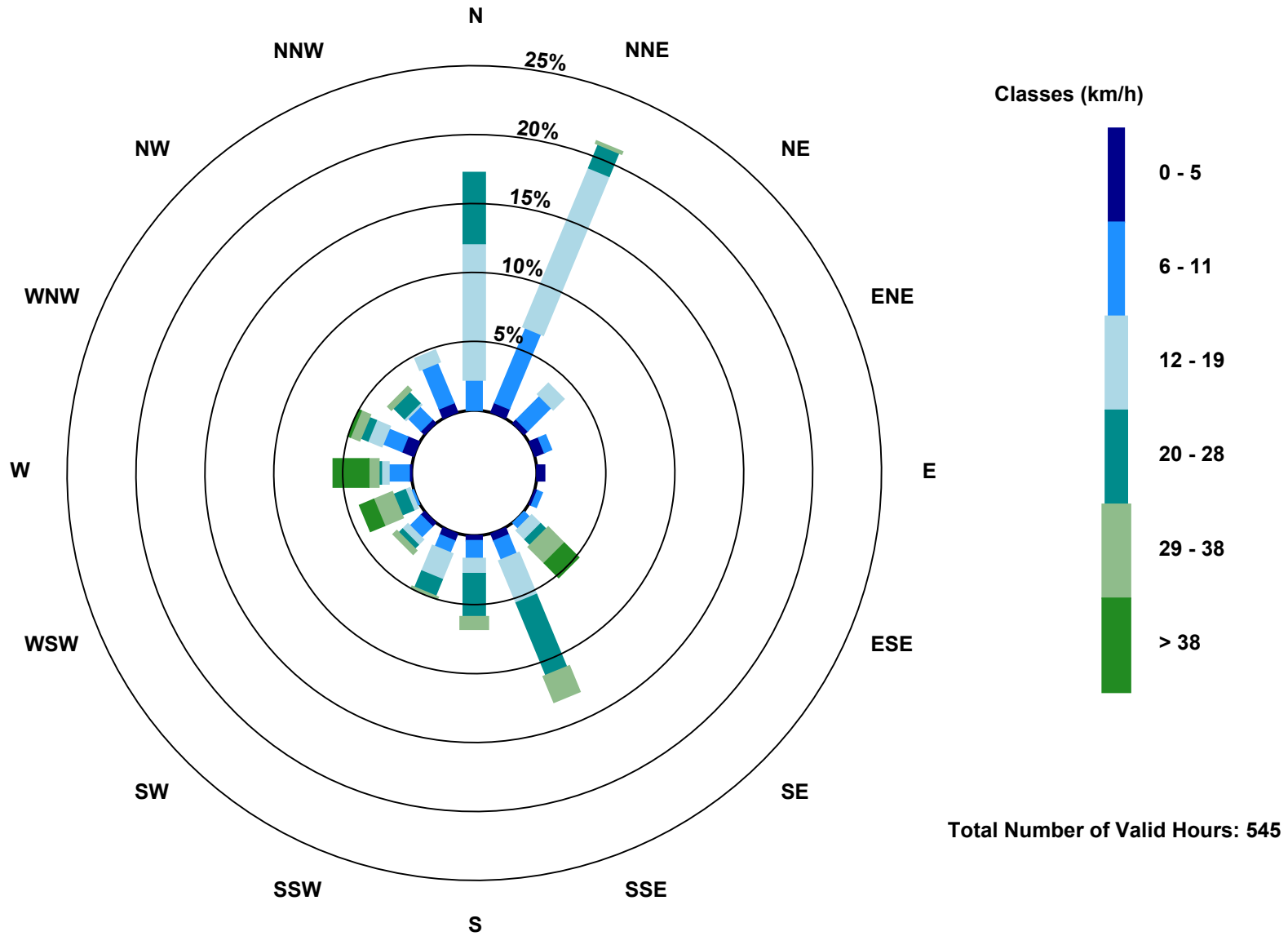
Total Number of Valid Hours: 545

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024**

Direction of Maximum Speed: 135 deg on Jan 22 19:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 139.2 deg on Jan 29	Hours of Data: 719
Direction of Minimum Speed: 234 deg on Jan 14 11:00	Hours of Missing Data: 25
Direction of Minimum Daily Speed Average: 0.4 deg on Jan 24	Percent Operational Time: 96.6
Monthly Average Direction: 98.4 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-Jan	322	347	321	1	353	10	356	347	358	343	6	8	1	356	348	17	28	0	13	20	5	6	11	2	0.4	
2-Jan	8	7	354	346	5	33	40	44	342	355	110	82	47	93	359	140	186	85	81	83	65	75	176	144	34.8	
3-Jan	181	153	213	89	103	137	132	141	126	71	60	345	359	333	330	346	344	338	337	344	337	342	338	344	351.5	
4-Jan	341	342	347	343	346	349	354	360	351	355	5	352	356	352	0	358	6	350	340	332	342	341	338	339	350.2	
5-Jan	331	332	322	324	322	330	3	4	57	289	264	240	71	356	342	358	15	358	348	344	353	346	341	342	336.8	
6-Jan	342	349	338	333	332	330	329	330	332	341	345	344	347	353	350	347	352	359	354	355	354	349	348	344	347.1	
7-Jan	353	6	7	4	1	8	1	331	350	DF	DF	255	239	175	149	157	161	175	172	169	164	158	152	152	153.1	
8-Jan	79	128	98	129	141	145	194	355	351	348	338	345	338	343	308	337	340	291	342	10	18	8	338	351	0.1	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	349	349	338	348	347	354	2	7	3	DF	DF	--	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	331	312	286	305	341	351	9	29	18	352	3	339	349	333	332	336	--
11-Jan	345	300	300	318	300	330	321	350	348	310	306	329	340	228	358	18	22	48	334	326	323	309	328	337	332.9	
12-Jan	327	286	316	236	257	259	242	224	209	142	148	140	143	120	134	147	147	242	326	233	205	277	248	141	173.8	
13-Jan	150	144	142	141	155	153	146	142	145	141	137	137	137	139	145	141	143	225	323	337	303	313	224	271	145.3	
14-Jan	327	325	319	314	318	315	323	309	270	318	234	132	137	119	188	72	338	323	323	323	329	317	252	165	318.1	
15-Jan	138	146	140	142	141	138	134	137	134	155	152	140	138	142	141	140	148	143	122	144	144	154	152	144	141.9	
16-Jan	139	142	140	329	311	334	323	327	326	329	261	254	293	2	158	260	36	13	353	341	330	295	287	288	304.2	
17-Jan	299	324	6	16	22	15	346	334	2	11	10	22	16	356	7	9	1	348	339	318	322	342	328	318	354.1	
18-Jan	329	326	336	317	318	333	273	271	282	257	264	326	354	46	188	226	265	93	281	353	342	339	306	303	303.1	
19-Jan	289	251	254	150	149	135	136	137	134	133	134	140	135	137	136	139	143	133	146	134	172	14	139	142	140.9	
20-Jan	142	139	316	333	37	322	321	288	310	317	313	350	336	324	327	324	328	335	356	354	358	360	358	351	345.7	
21-Jan	353	339	357	335	336	330	324	310	340	331	334	358	6	354	4	6	9	8	344	320	341	6	349	2	350.3	
22-Jan	2	356	355	342	334	337	330	329	326	352	119	124	131	133	131	132	130	130	135	132	145	149	142	145	127.6	
23-Jan	141	137	136	139	145	141	143	160	146	152	163	151	181	347	354	346	335	351	2	355	356	359	355	351	117.4	
24-Jan	350	352	343	352	351	318	319	358	331	336	342	344	340	164	169	153	153	157	195	284	326	289	298	326	281.4	
25-Jan	327	325	338	352	2	348	359	351	341	337	336	315	358	231	242	112	149	161	159	158	178	158	133	145	22.6	
26-Jan	138	138	156	142	345	329	339	357	10	113	160	174	148	160	158	168	172	178	160	161	130	159	137	151	156.9	
27-Jan	129	162	155	143	136	130	125	132	115	141	137	138	139	136	136	136	146	134	149	154	143	137	137	138	139.2	
28-Jan	137	140	139	139	136	135	143	139	137	130	120	191	242	261	256	257	271	263	263	264	263	263	287	255	204.0	
29-Jan	227	137	138	136	136	138	142	135	141	145	152	155	142	136	140	137	136	130	131	133	137	135	139	139	139.2	
30-Jan	132	135	137	132	138	135	138	138	139	138	127	129	125	239	246	257	257	261	239	239	278	308	250	263	201.7	
31-Jan	264	261	262	259	250	246	228	155	144	142	143	140	136	132	145	145	128	125	131	140	134	122	123	123	171.2	

79.9 108.1 84.0 63.7 57.7 74.7 59.7 106.3 95.4 104.3 116.0 109.3 102.1 69.2 146.3 124.5 131.9 141.6 119.6 50.1 338.4 20.3 114.2 143.7  
 Diurnal Average

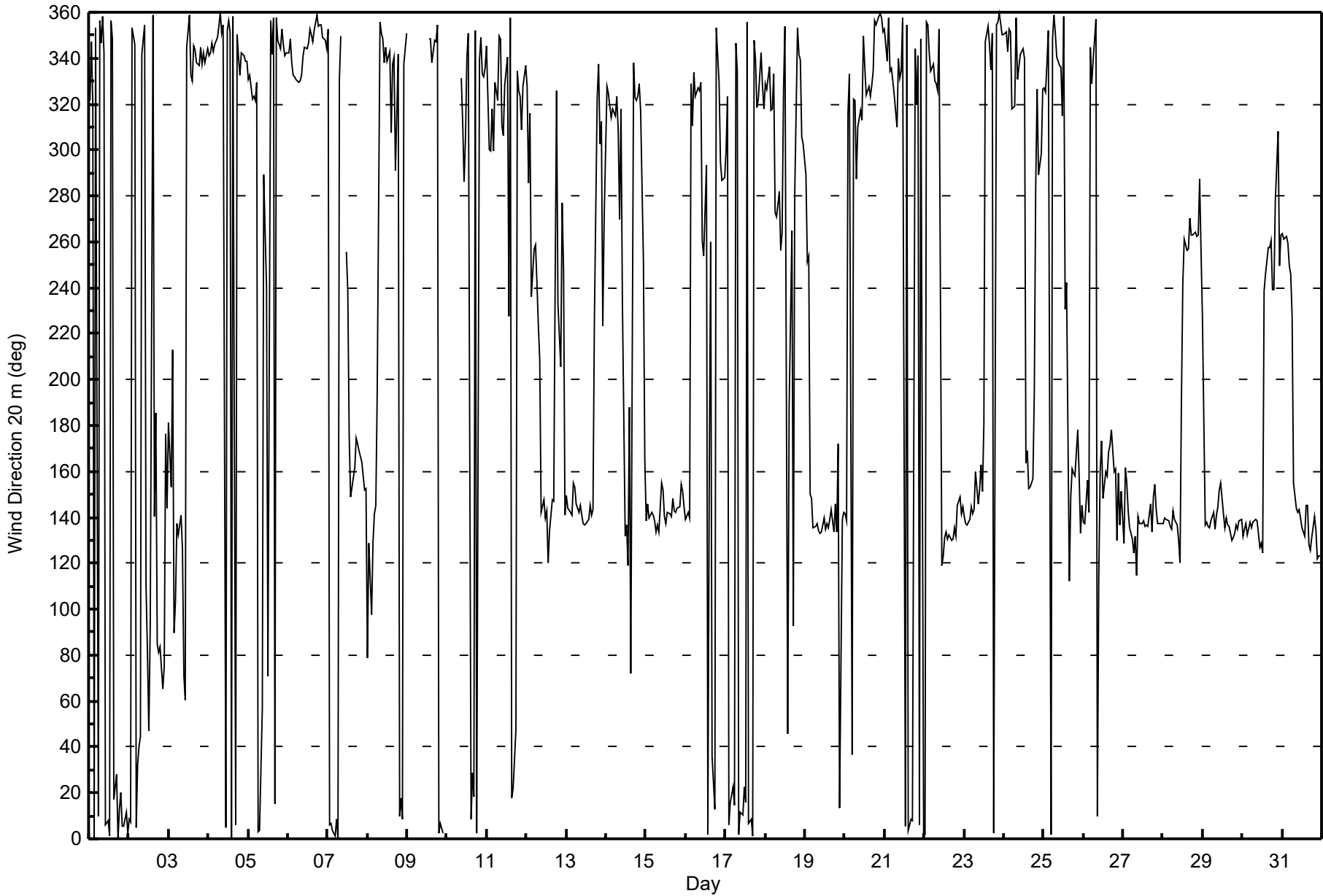
DF - DAS Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 101 deg on Jan 18 15:00 Minimum Value: 4 deg on Jan 19 06:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 10 Q <sub>1</sub> = 14 Median = 18 Q <sub>3</sub> = 28 P <sub>90</sub> = 55 P <sub>99</sub> = 86																	Hours in Service: 744 Hours of Data: 719 Hours of Missing Data: 25 Hours of Calibration: 0 Percent Operational Time: 96.6																								
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-Jan	43	78	40	15	17	18	16	18	19	17	16	19	21	16	26	26	24	30	18	51	20	19	19	17	78																
2-Jan	19	20	19	14	27	56	22	50	62	61	83	72	62	91	64	21	68	30	24	28	73	62	33	65	91																
3-Jan	55	33	18	85	33	29	21	7	57	53	44	24	16	19	17	14	15	23	23	17	19	16	18	15	85																
4-Jan	17	16	15	17	16	16	17	15	16	18	22	16	17	16	18	15	17	19	20	20	18	17	18	35	35																
5-Jan	17	20	20	14	14	20	17	32	70	65	32	19	86	45	27	13	16	19	14	16	19	14	15	16	86																
6-Jan	17	14	21	22	18	17	19	17	18	18	14	14	14	15	14	14	13	15	13	13	14	13	14	13	22																
7-Jan	18	15	18	15	17	17	15	16	32	DF	DF	77	72	75	31	20	8	7	7	7	8	6	9	12	77																
8-Jan	74	69	80	29	14	16	59	42	11	15	31	14	18	18	28	14	37	17	26	17	30	31	15	13	80																
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	14	14	20	19	13	19	17	17	17	DF	DF	20																
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	35	40	67	63	21	15	25	16	18	10	32	16	14	14	23	17	67															
11-Jan	16	44	28	16	24	27	19	17	15	36	33	27	39	74	45	19	17	44	26	34	15	16	34	13	74																
12-Jan	28	38	30	80	26	26	17	14	29	8	7	9	9	25	22	9	10	60	34	29	37	44	48	16	80																
13-Jan	8	10	8	7	18	17	40	12	18	8	9	10	11	15	17	10	37	47	84	11	24	46	83	56	84																
14-Jan	17	26	28	18	49	34	17	27	37	33	84	24	29	71	69	89	58	22	16	20	20	76	93	38	93																
15-Jan	16	8	9	9	11	12	6	8	14	18	14	13	10	28	23	14	15	11	16	9	8	15	9	12	28																
16-Jan	11	14	18	79	30	17	33	22	16	24	60	26	39	74	49	92	46	46	30	18	34	25	18	19	92																
17-Jan	25	18	29	21	15	14	18	20	15	18	19	21	18	18	18	17	16	10	13	18	15	17	15	15	29																
18-Jan	14	33	20	35	45	22	38	37	36	24	39	60	26	87	101	36	50	75	79	66	19	42	27	15	101																
19-Jan	32	35	52	34	21	4	6	8	9	9	13	12	14	24	32	12	21	14	10	60	66	80	90	10	90																
20-Jan	25	18	85	22	73	55	20	70	46	63	30	17	18	17	15	18	18	16	17	17	16	15	18	16	85																
21-Jan	16	20	35	32	22	20	16	22	18	19	24	18	20	17	18	19	17	25	20	24	31	14	56	55	56																
22-Jan	19	20	17	21	20	19	28	25	26	47	16	17	17	17	16	16	16	16	13	16	13	10	11	9	47																
23-Jan	10	13	14	11	9	10	12	10	12	8	9	15	29	78	15	15	17	18	17	16	14	15	16	15	78																
24-Jan	15	16	20	13	17	23	17	26	30	25	28	27	20	84	8	14	13	13	34	70	17	17	44	44	84																
25-Jan	36	23	14	15	17	13	15	13	17	18	20	28	67	17	32	58	33	12	10	18	27	21	17	17	67																
26-Jan	14	18	71	13	69	58	23	42	26	50	29	23	18	19	17	10	10	12	15	15	49	16	14	21	71																
27-Jan	17	19	17	15	10	21	29	49	80	17	15	18	13	23	10	7	8	26	14	13	6	6	7	6	80																
28-Jan	7	7	9	7	10	14	22	10	18	28	12	55	10	18	16	14	17	15	16	18	15	77	60	36	77																
29-Jan	52	11	13	22	41	9	8	10	8	13	16	10	10	7	10	6	9	9	8	12	17	18	10	13	52																
30-Jan	17	6	8	14	9	17	10	17	15	32	77	11	25	40	14	16	15	20	18	30	24	26	14	12	77																
31-Jan	13	14	14	14	10	14	32	23	20	19	18	8	13	14	15	13	9	13	16	12	14	13	14	18	32																
																	74	78	85	85	73	58	59	70	80	65	84	77	86	91	101	92	68	75	84	70	73	80	93	65	
Diurnal Maximum																																									
DF - DAS Failure																																									





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

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

Direction of Maximum Speed: 134 deg on Jan 22 19:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 137.6 deg on Jan 29																						Hours of Data: 563			
Direction of Minimum Speed: 123 deg on Jan 2 14:00											Direction of Minimum Daily Speed Average: 0.6 deg on Jan 24											Hours of Missing Data: 181			
Monthly Average Direction: 56.3 deg																						Percent Operational Time: 75.7			
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-Jan	341	339	336	1	356	9	357	347	358	345	5	9	3	356	350	21	32	7	17	30	8	9	11	6	2.1
2-Jan	9	9	358	349	7	35	40	45	0	348	104	91	53	123	5	143	184	96	89	110	104	107	169	154	39.5
3-Jan	179	164	223	104	108	126	116	152	133	62	71	350	1	339	334	351	348	342	339	349	343	346	342	348	353.5
4-Jan	345	346	348	346	349	353	356	0	354	357	4	356	359	352	1	360	7	354	347	338	348	346	343	342	352.9
5-Jan	333	338	328	324	321	320	353	344	249	259	257	244	64	357	335	15	30	7	352	347	359	346	339	338	335.6
6-Jan	343	350	342	337	338	336	333	335	338	345	348	348	350	353	353	349	354	360	356	356	357	352	348	348	349.5
7-Jan	357	6	7	6	2	10	2	343	336	DF	DF	309	277	181	132	158	163	176	171	166	163	158	151	151	142.5
8-Jan	121	122	117	129	135	140	190	15	343	338	329	332	338	342	320	339	353	328	338	18	20	12	346	347	6.2
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	--
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	252	271	337	128	287	351	309	315	305	303	290	288	287	--
17-Jan	294	318	7	15	19	13	351	341	3	10	11	23	13	359	6	7	1	346	345	328	330	346	334	325	353.7
18-Jan	329	328	331	276	329	342	285	261	265	254	255	302	353	337	46	242	279	340	340	345	346	330	311	296	307.8
19-Jan	275	243	250	173	144	142	134	135	132	133	133	136	131	131	132	140	148	141	140	138	160	140	145	140	141.7
20-Jan	139	135	140	261	147	132	179	119	130	117	303	347	334	329	329	327	331	337	359	357	360	1	1	355	0.0
21-Jan	355	343	3	343	334	328	323	308	337	333	339	357	6	358	4	6	8	12	344	327	345	15	8	353	352.3
22-Jan	6	359	356	348	339	343	338	335	327	5	120	125	127	131	129	131	130	130	134	130	140	143	139	142	123.8
23-Jan	138	134	135	137	146	138	145	161	152	161	166	154	185	349	1	344	338	354	3	356	357	0	358	354	106.7
24-Jan	352	358	345	355	357	329	318	357	329	331	337	327	206	152	165	144	147	148	161	247	332	333	288	324	10.3
25-Jan	333	337	348	357	4	350	360	353	343	337	339	316	345	234	243	134	146	161	159	160	176	164	145	159	4.1
26-Jan	152	160	186	171	333	329	331	290	276	146	157	167	142	156	154	166	169	175	158	163	148	165	136	158	160.9
27-Jan	136	156	147	142	139	133	130	142	94	139	133	136	136	132	130	157	174	203	197	197	166	126	126	128	140.3
28-Jan	129	127	133	134	126	127	143	132	128	126	124	214	239	259	258	257	267	261	261	262	261	261	262	244	213.4
29-Jan	234	136	140	143	134	139	139	125	129	136	140	147	146	140	142	139	139	127	127	128	130	131	139	136	137.6
30-Jan	132	130	134	125	131	124	128	129	129	145	160	131	141	239	242	256	256	260	239	239	276	311	250	256	209.7
31-Jan	258	256	254	254	246	242	236	172	168	167	162	131	129	129	142	135	126	128	129	135	127	125	125	125	173.9
346.7 20.9 25.6 20.9 39.6 42.4 27.5 63.5 62.1 77.0 91.4 89.0 81.8 110.2 137.8 131.8 136.2 139.5 99.4 349.0 335.9 21.9 72.7 214.5																									
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**

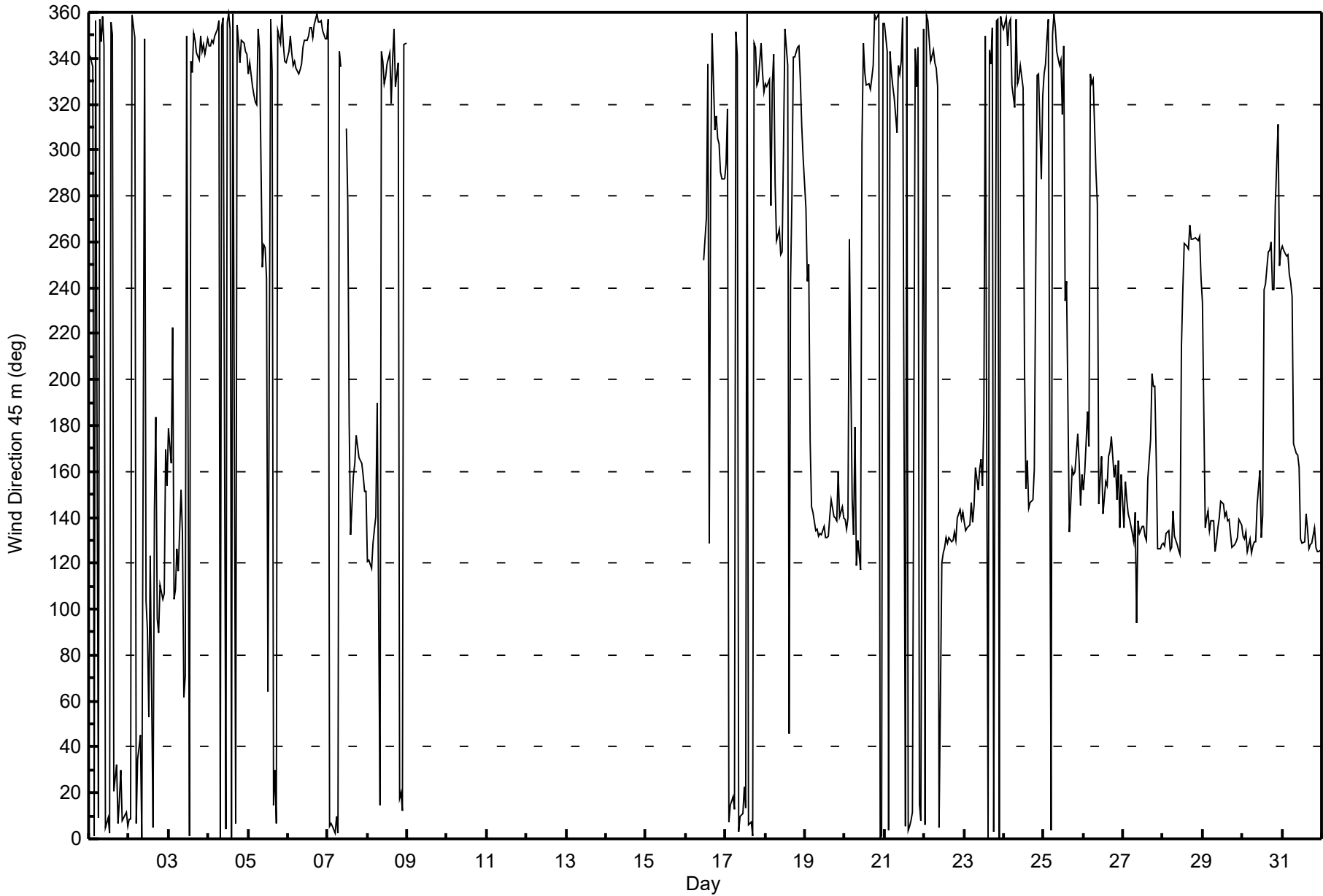
**Wind Direction 45 m (WD45m) - deg**  
**Lower Camp Met Tower - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 98 deg on Jan 2 14:00	Hours of Data: 563
Minimum Value: 3 deg on Jan 28 02:00	Hours of Missing Data: 181
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 9 Median = 12 Q <sub>3</sub> = 18 P <sub>90</sub> = 38 P <sub>99</sub> = 82	Hours of Calibration: 0
	Percent Operational Time: 75.7

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-Jan	13	13	34	10	11	12	8	13	14	10	9	10	12	10	19	22	16	23	14	40	17	14	12	10	40
2-Jan	14	13	15	9	17	14	10	17	57	40	75	53	51	98	59	19	55	18	14	24	63	45	30	37	98
3-Jan	49	24	18	86	28	22	21	15	65	48	23	20	11	12	12	8	9	13	13	11	10	9	11	9	86
4-Jan	10	10	9	11	10	11	10	8	11	10	16	11	10	12	12	8	10	11	13	12	13	11	12	30	30
5-Jan	11	12	15	9	9	10	15	26	72	13	16	15	87	39	17	13	13	14	10	8	8	7	8	9	87
6-Jan	11	7	11	13	12	11	10	10	10	10	8	8	8	9	7	8	7	8	7	7	8	8	9	7	13
7-Jan	12	8	11	10	9	10	6	9	15	DF	DF	56	39	61	26	21	8	6	6	6	7	6	7	10	61
8-Jan	49	26	65	15	6	12	54	54	10	7	10	8	12	12	20	7	10	14	17	12	24	21	10	8	65
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	--
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	18	23	45	68	75	78	44	15	11	24	14	10	10	78
17-Jan	14	14	29	16	9	9	9	12	10	12	11	13	11	11	9	9	10	7	6	9	11	12	10	11	29
18-Jan	8	21	11	28	43	9	32	17	20	14	23	54	30	98	77	75	28	12	18	15	9	21	26	9	98
19-Jan	24	20	31	23	16	8	3	3	4	4	4	7	8	9	10	4	16	13	6	19	33	26	54	6	54
20-Jan	10	7	57	51	37	10	78	30	17	16	83	12	12	14	11	12	12	10	9	8	9	8	12	11	83
21-Jan	8	12	27	25	13	14	11	16	12	11	15	12	13	11	9	10	11	18	15	12	26	13	18	12	27
22-Jan	12	13	8	13	13	12	14	16	18	69	8	9	9	9	7	7	7	7	5	7	10	9	7	7	69
23-Jan	6	7	7	5	8	5	16	9	9	7	8	15	29	72	14	13	11	12	10	10	7	8	11	9	72
24-Jan	8	10	13	8	11	21	11	22	19	20	29	18	86	14	8	13	12	8	26	42	6	10	31	41	86
25-Jan	11	8	11	10	10	8	7	7	11	11	13	21	56	18	20	49	21	8	8	15	24	15	14	15	56
26-Jan	8	24	22	29	41	17	21	77	82	36	26	24	14	19	17	9	8	12	15	13	25	12	14	21	82
27-Jan	14	16	16	8	9	15	12	21	71	7	6	9	4	6	5	10	17	46	29	24	18	6	3	3	71
28-Jan	3	3	5	10	7	11	18	7	6	6	12	43	6	13	11	10	11	8	10	10	8	58	37	10	58
29-Jan	39	16	8	16	14	11	8	6	6	8	13	10	8	9	10	6	6	9	7	6	5	4	7	10	39
30-Jan	7	4	7	7	5	30	22	13	15	25	76	8	41	15	9	10	10	15	14	20	20	15	13	7	76
31-Jan	8	7	8	7	5	9	19	27	25	24	20	8	6	8	12	10	3	6	7	8	10	7	7	10	27
49 26 65 86 43 30 78 77 82 69 83 56 87 98 77 75 78 46 29 42 63 58 54 41																									
Diurnal Maximum																									

DF - DAS Failure      UO - Unstable Operation







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

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

Direction of Maximum Speed: 255 deg on Jan 30 16:00																						Hours in Service: 744					
Direction of Maximum Daily Speed Average: 159.1 deg on Jan 29																						Hours of Data: 571					
Direction of Minimum Speed: 42 deg on Jan 14 14:00											Direction of Minimum Daily Speed Average: 2.0 deg on Jan 24											Hours of Missing Data: 173					
Monthly Average Direction: 330.9 deg																						Percent Operational Time: 76.8					
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-Jan	346	349	358	5	1	7	358	348	359	351	6	7	359	350	347	20	37	19	25	38	18	17	13	10	5.2		
2-Jan	14	12	9	358	14	27	32	39	43	29	59	96	55	88	11	165	187	126	117	152	176	156	168	169	43.8		
3-Jan	187	183	194	109	109	129	133	172	169	207	85	13	6	353	349	359	352	350	350	358	351	355	350	354	358.9		
4-Jan	351	350	351	352	353	355	357	0	357	360	7	357	3	355	2	1	12	6	0	349	358	359	355	360	357.0		
5-Jan	342	350	345	328	322	311	312	290	248	258	260	258	2	4	352	42	44	26	2	360	16	1	351	350	338.2		
6-Jan	348	350	350	349	354	351	348	349	353	354	355	353	356	355	357	352	356	360	356	357	1	358	354	354	354.6		
7-Jan	2	9	12	11	9	17	8	0	348	DF	DF	268	248	165	129	163	167	175	166	163	163	160	151	153	145.5		
8-Jan	146	138	141	135	140	141	178	329	343	335	331	343	353	347	330	354	5	357	8	25	25	23	3	352	20.9		
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	355	354	349	352	358	3	7	7	7	DF	DF	--	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	359	359	3	333	339	346	10	30	16	17	27	20	31	UO	UO	UO	--	
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	347	353	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	134	122	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	140	152	152	UO	UO	UO	UO	UO	UO	UO	UO	--	
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	205	186	42	65	113	108	UO	UO	UO	UO	UO	UO	--	
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	163	173	152	162	162	163	163	175	193	198	164	152	165	171	--		
16-Jan	155	150	159	19	340	339	337	330	318	315	350	284	259	279	72	330	280	289	293	295	288	288	288	288	300.1		
17-Jan	296	314	356	14	15	12	2	355	11	13	12	23	14	0	5	8	6	357	2	347	344	353	343	338	356.1		
18-Jan	334	325	321	280	294	356	294	272	261	263	257	281	318	315	360	278	304	306	310	309	312	313	294	296	299.6		
19-Jan	263	244	251	207	195	192	174	163	156	154	147	150	147	139	146	150	160	161	141	143	141	141	142	150	159.5		
20-Jan	148	151	152	160	169	166	190	184	192	203	267	337	332	337	334	337	340	346	1	2	3	3	7	0	359.8		
21-Jan	2	351	12	357	335	334	330	322	338	340	346	356	6	357	3	4	10	21	357	349	358	24	22	5	357.9		
22-Jan	10	1	2	2	349	357	354	350	345	121	124	128	130	134	133	135	134	134	138	136	144	147	146	149	127.4		
23-Jan	143	140	144	150	151	154	157	160	165	177	177	173	189	321	354	340	346	358	3	360	360	3	4	1	125.5		
24-Jan	355	3	352	360	11	347	314	3	7	293	279	194	143	147	160	146	148	149	151	183	307	338	348	344	117.4		
25-Jan	349	6	6	8	9	355	359	356	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--		
26-Jan	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	--	
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	150	164	175	215	246	249	253	250	235	206	155	162	--
28-Jan	155	147	144	147	145	142	162	156	151	161	190	232	241	260	261	259	264	261	261	263	263	264	252	247	229.5		
29-Jan	241	158	154	164	147	154	154	151	146	153	154	151	160	158	159	159	160	156	165	155	152	154	164	159	159.1		
30-Jan	155	163	161	147	153	141	137	157	167	170	193	183	221	239	240	255	257	261	247	241	277	309	260	254	228.2		
31-Jan	253	253	248	249	246	242	240	218	219	211	208	149	130	133	145	133	128	135	137	141	134	132	133	136	185.5		
306.1 331.8 7.0 1.8 13.5 21.1 357.5 6.2 253.9 300.2 2.8 334.3 135.5 248.1 32.4 267.6 293.1 287.8 313.3 304.9 321.1 354.9 336.2 274.7																											
Diurnal Average																											
DF - DAS Failure UO - Unstable Operation																											
All monthly, daily, and diurnal averages have been calculated using vector methods																											



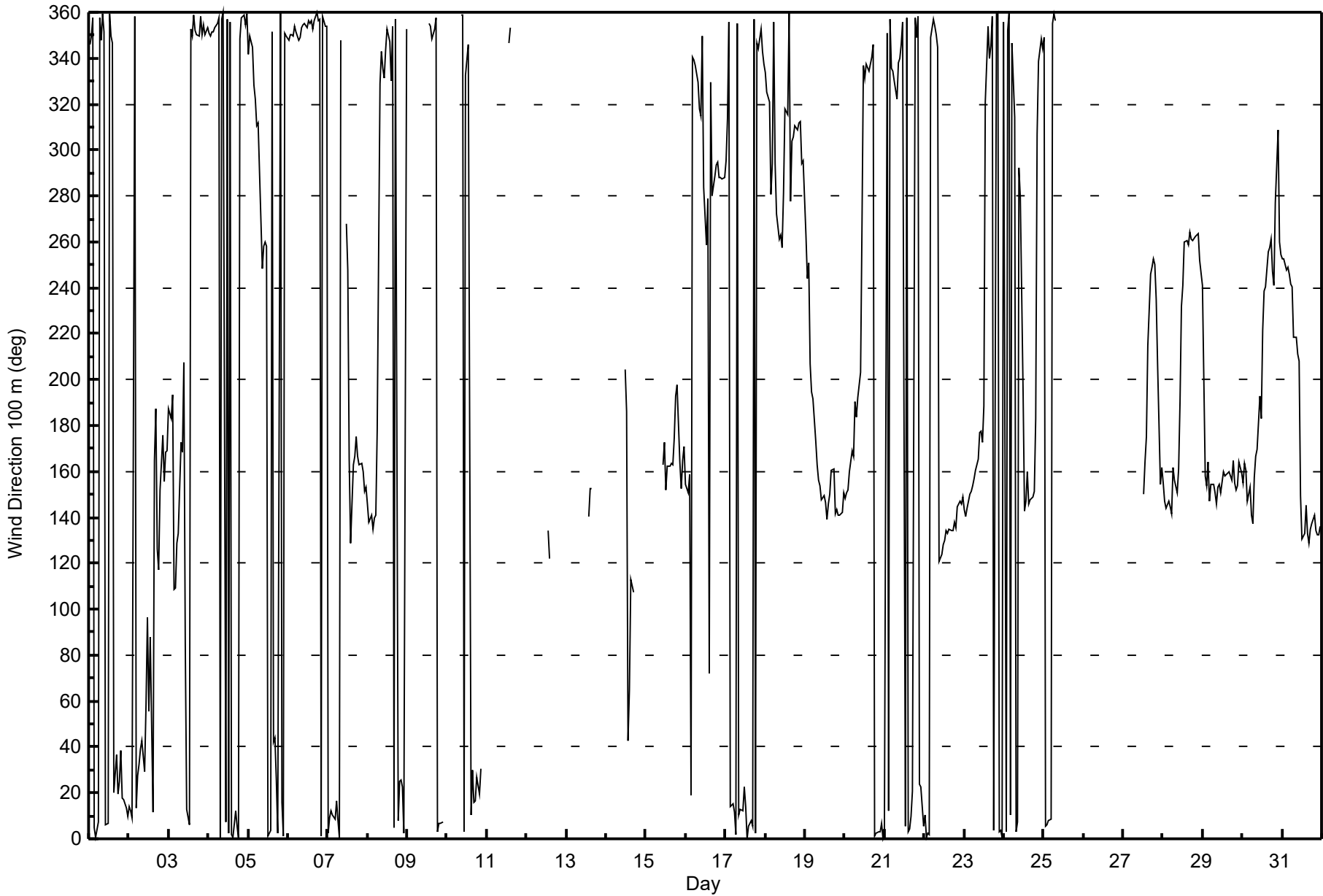
**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 93 deg on Jan 11 14:00	Hours of Data: 571
Minimum Value: 2 deg on Jan 29 00:00	Hours of Missing Data: 173
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 13 P <sub>90</sub> = 23 P <sub>99</sub> = 80	Hours of Calibration: 0
	Percent Operational Time: 76.8

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-Jan	11	9	15	9	8	8	6	8	10	7	9	9	8	11	11	19	12	18	12	23	14	12	9	8	23	
2-Jan	11	11	14	8	11	6	7	3	52	18	24	55	36	85	56	25	40	20	14	14	20	28	27	20	85	
3-Jan	30	19	33	89	22	13	16	14	35	84	11	21	9	7	6	7	6	9	8	9	6	6	5	5	89	
4-Jan	7	6	6	6	7	7	7	5	8	7	12	9	8	9	10	5	9	10	10	6	12	6	9	31	31	
5-Jan	6	6	8	6	5	8	5	23	8	6	10	19	83	17	12	13	14	12	10	6	8	9	3	4	83	
6-Jan	4	3	5	6	6	4	4	5	3	5	5	5	6	7	5	6	5	6	5	5	6	7	6	5	7	
7-Jan	9	6	10	8	8	9	6	8	9	DF	DF	54	12	49	13	14	5	5	4	5	4	5	4	5	54	
8-Jan	18	14	22	7	5	9	20	63	10	4	4	17	10	10	12	10	6	5	11	10	18	15	18	7	63	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	7	6	8	7	5	10	8	6	6	DF	DF	10	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	4	6	13	14	11	8	12	8	10	13	34	19	9	UO	UO	UO	34
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	93	38	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	93
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	17	11	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	17
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	10	10	16	UO	UO	UO	UO	UO	UO	UO	UO	UO	16
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6	14	91	27	10	37	UO	UO	UO	UO	UO	UO	91
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	49	14	15	15	8	8	6	21	13	14	13	18	13	7	49
16-Jan	13	22	52	35	6	19	5	14	8	7	23	29	17	61	59	37	27	6	6	6	9	5	5	4	61	
17-Jan	7	9	24	12	8	7	6	9	9	10	9	11	8	8	6	7	6	5	4	11	6	7	6	7	24	
18-Jan	5	7	5	28	34	8	41	9	10	10	12	14	35	24	36	34	10	9	12	9	8	9	15	8	41	
19-Jan	20	10	14	16	16	13	9	5	5	5	7	9	13	8	8	5	10	9	6	13	9	6	5	5	20	
20-Jan	7	8	9	15	6	8	8	5	10	13	21	11	9	10	8	10	9	6	7	7	8	7	10	8	21	
21-Jan	6	8	21	19	6	9	9	11	9	7	9	10	10	7	6	8	8	12	12	12	24	11	10	11	24	
22-Jan	10	9	8	9	7	9	8	8	55	70	5	6	4	6	4	4	4	4	4	4	8	8	7	7	70	
23-Jan	7	6	7	6	5	7	8	4	6	5	7	17	28	49	12	12	7	7	8	7	6	6	9	8	49	
24-Jan	5	8	8	7	12	22	7	23	42	78	50	26	7	11	7	9	8	7	9	22	25	12	8	26	78	
25-Jan	7	9	9	9	9	6	5	6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9
26-Jan	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	--
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	16	8	7	12	4	7	6	5	10	35	10	8	35
28-Jan	6	8	6	6	9	8	12	7	7	12	21	10	5	8	6	5	5	3	4	5	3	17	8	2	21	
29-Jan	13	19	6	16	9	7	6	6	5	18	20	7	5	6	5	4	3	7	8	8	10	9	8	10	20	
30-Jan	10	7	6	10	9	9	12	12	15	13	34	11	16	6	5	7	5	8	9	12	18	11	14	4	34	
31-Jan	3	3	3	2	2	4	13	21	15	12	16	22	5	7	10	8	3	4	4	5	6	3	4	6	22	
Diurnal Maximum																										
30 22 52 89 34 22 41 63 55 84 50 55 83 93 59 37 40 21 34 23 25 35 27 31																										

DF - DAS Failure      UO - Unstable Operation





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

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

Direction of Maximum Speed: 259 deg on Jan 30 16:00																					Hours in Service: 744						
Direction of Maximum Daily Speed Average: 240.3 deg on Jan 28																					Hours of Data: 545						
Direction of Minimum Speed: 292 deg on Jan 24 08:00										Direction of Minimum Daily Speed Average: 0.1 deg on Jan 20											Hours of Missing Data: 199						
Monthly Average Direction: 299.9 deg																					Percent Operational Time: 73.3						
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-Jan	333	336	12	14	9	9	2	351	1	1	13	9	357	345	331	23	45	37	37	51	34	30	21	19	11.3		
2-Jan	24	25	30	26	27	21	28	30	39	32	56	86	63	93	61	185	189	153	133	159	179	160	171	177	54.2		
3-Jan	196	191	192	40	80	156	153	171	173	196	115	41	17	10	11	17	7	4	5	12	6	9	3	3	15.4		
4-Jan	1	357	359	360	0	1	5	5	5	8	20	4	12	6	9	8	23	23	19	8	14	21	13	31	7.3		
5-Jan	3	16	11	346	336	325	305	286	261	277	273	282	289	23	44	60	57	50	31	24	40	48	42	30	0.2		
6-Jan	41	27	38	59	47	33	19	18	15	14	12	6	8	3	6	2	5	4	1	3	9	8	4	4	12.3		
7-Jan	12	14	20	21	18	29	17	22	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	165	168	169	156	161	--		
8-Jan	156	155	154	146	150	146	163	228	333	339	UO	UO	UO	UO	349	9	15	19	27	34	40	39	44	11	99.6		
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	9	9	2	2	15	16	18	16	16	DF	DF	--		
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	19	344	347	349	16	34	19	28	27	23	31	41	27	17	--	
11-Jan	19	23	UO	14	UO	12	UO	UO	UO	UO	9	360	347	UO	357	UO	UO	29	UO	26	342	330	308	295	--		
12-Jan	292	269	300	293	281	246	UO	UO	223	UO	UO	UO	UO	UO	153	137	149	157	165	170	UO	180	172	163	--		
13-Jan	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	--	
14-Jan	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	--	
15-Jan	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	--	
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	275	338	346	297	298	307	309	299	299	300	300	--		
17-Jan	306	318	354	19	20	17	18	15	21	20	19	28	19	9	9	15	16	12	18	11	359	4	353	351	5.6		
18-Jan	347	345	334	295	306	330	296	299	277	279	274	293	316	315	300	303	302	305	305	303	306	314	295	300	304.4		
19-Jan	279	268	291	234	223	222	210	195	193	181	176	164	163	153	157	166	168	151	147	150	144	146	150	155	171.8		
20-Jan	154	158	161	169	189	192	216	214	221	230	263	308	336	350	353	354	356	4	9	16	14	10	17	9	153.1		
21-Jan	13	7	23	12	354	351	344	337	344	353	1	2	11	3	6	10	16	29	16	20	20	31	32	20	10.4		
22-Jan	20	10	16	22	10	21	33	60	117	126	129	132	134	139	137	140	140	141	143	142	151	156	155	152	132.3		
23-Jan	154	153	155	155	158	159	159	175	190	203	209	198	198	268	344	348	356	8	10	9	9	13	15	13	144.2		
24-Jan	6	14	3	13	33	30	325	292	122	155	140	146	147	148	158	151	150	152	159	165	206	316	332	5	131.4		
25-Jan	24	29	23	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
26-Jan	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	--	
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	182	187	205	211	238	251	253	255	254	248	238	220	221	--
28-Jan	198	192	172	165	164	155	160	180	191	209	222	241	247	265	266	263	270	269	271	272	275	275	269	266	240.3		
29-Jan	253	184	165	190	183	175	179	171	164	152	152	152	167	180	178	183	181	185	195	191	198	195	204	198	181.3		
30-Jan	188	197	192	188	196	153	155	151	156	161	205	226	235	245	246	259	262	266	255	248	282	305	274	269	238.0		
31-Jan	266	269	254	257	259	254	252	236	239	241	243	210	147	142	154	137	131	140	144	145	144	138	141	143	200.6		
315.7 330.1 17.6 190.3 209.7 53.1 174.0 203.3 192.6 205.9 198.5 204.8 195.1 255.7 291.9 309.0 311.9 318.3 324.6 308.9 318.7 346.5 342.5 304.4																											
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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 99 deg on Jan 24 08:00	Hours of Data: 545
Minimum Value: 2 deg on Jan 27 18:00	Hours of Missing Data: 199
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 11 P <sub>90</sub> = 17 P <sub>99</sub> = 66	Hours of Calibration: 0
	Percent Operational Time: 73.3

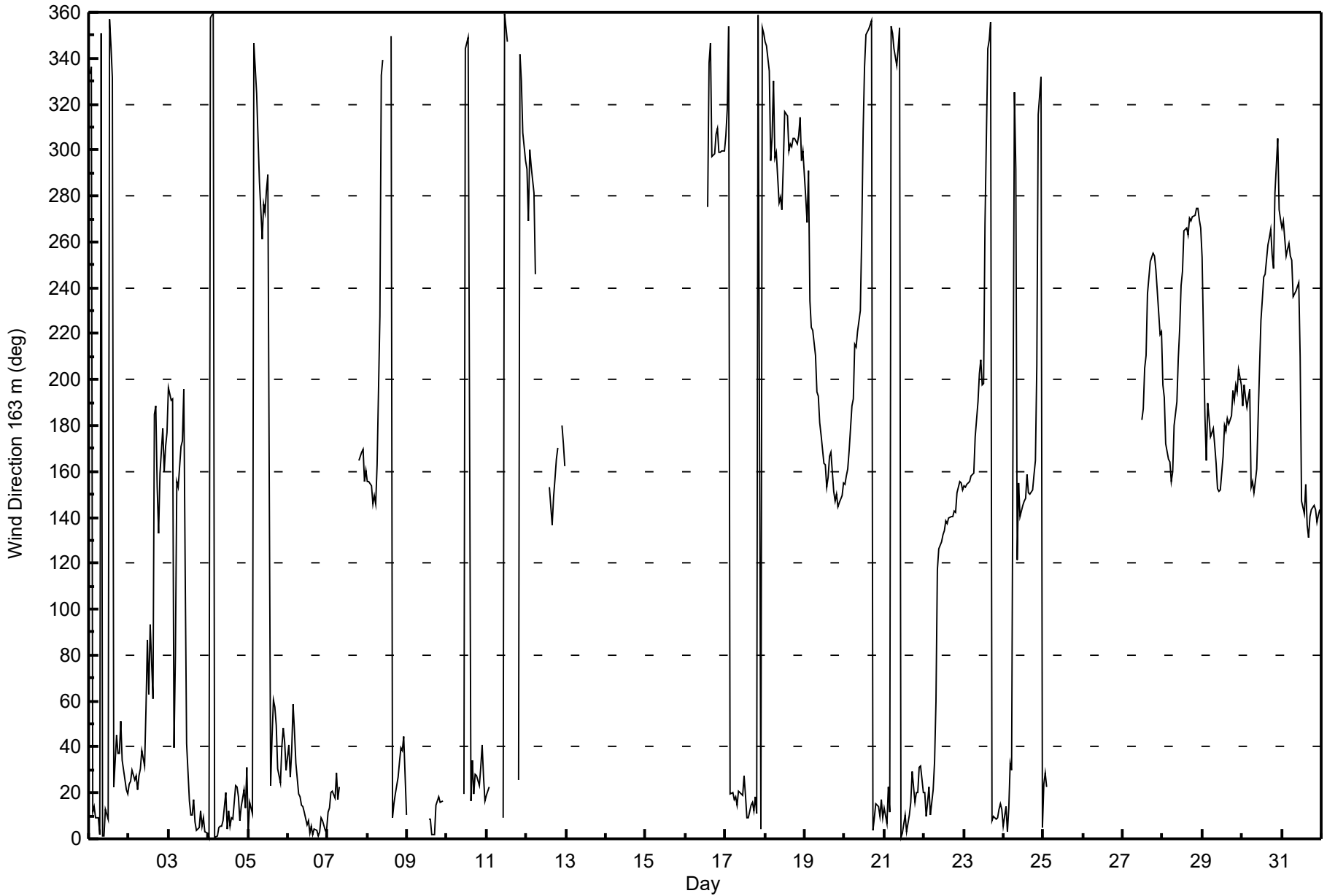
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	19	10	14	8	7	7	5	5	9	6	9	9	7	15	14	16	9	14	12	11	10	11	8	7	19	
2-Jan	10	12	13	8	5	8	8	7	11	14	17	34	30	73	76	26	27	22	10	7	12	21	23	18	76	
3-Jan	16	20	28	96	17	24	27	12	17	20	32	19	8	6	7	5	6	9	7	8	6	6	6	5	96	
4-Jan	6	5	5	6	6	6	8	5	8	7	12	10	8	10	11	7	8	8	5	9	6	10	27	27		
5-Jan	6	8	10	4	8	11	6	14	5	6	10	18	54	15	17	8	10	9	14	7	8	12	13	11	54	
6-Jan	11	16	13	12	6	5	5	5	3	4	5	5	7	7	5	6	5	6	5	6	6	7	7	6	16	
7-Jan	8	5	10	8	10	10	6	9	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	4	4	4	4	10	
8-Jan	9	10	14	9	6	8	9	46	9	9	UO	UO	UO	UO	15	7	4	4	7	8	16	10	17	14	46	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	7	7	9	8	3	9	4	5	5	DF	DF	9	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	15	19	19	7	24	21	12	13	11	7	7	8	9	24	
11-Jan	7	7	UO	6	UO	6	UO	UO	UO	UO	UO	6	6	16	UO	7	UO	UO	13	UO	35	64	20	31	30	64
12-Jan	22	20	17	31	22	17	UO	UO	74	UO	UO	UO	UO	UO	14	11	11	8	7	6	UO	5	5	17	74	
13-Jan	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	--
14-Jan	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	--
15-Jan	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	--
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	23	11	20	4	3	6	6	4	4	4	4	4	23
17-Jan	6	6	21	9	8	6	5	6	7	8	8	10	9	8	5	7	4	4	3	8	4	6	6	5	21	
18-Jan	4	6	7	19	17	13	42	9	8	6	4	11	8	11	14	6	4	4	5	5	6	8	10	8	42	
19-Jan	18	15	16	13	10	7	6	9	6	9	11	7	8	11	8	7	8	6	5	7	6	6	7	4	18	
20-Jan	5	5	5	7	5	7	8	6	7	11	12	16	9	9	6	11	9	6	8	9	9	7	10	7	16	
21-Jan	5	7	15	14	9	6	8	11	7	5	7	11	11	7	7	8	8	8	9	11	15	9	5	9	15	
22-Jan	9	10	10	8	7	13	12	18	34	12	4	4	4	5	4	4	5	4	4	4	7	8	7	6	34	
23-Jan	6	7	6	4	4	4	3	7	5	6	12	14	30	67	14	8	6	6	7	7	6	6	9	8	67	
24-Jan	6	7	7	8	14	27	10	99	10	26	11	9	5	9	6	7	6	6	9	7	49	9	5	13	99	
25-Jan	9	5	7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9
26-Jan	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	--
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	52	10	6	5	8	3	2	4	3	5	5	14	52
28-Jan	8	6	6	8	7	8	6	10	6	8	9	6	5	7	6	4	2	3	3	4	4	6	5	3	10	
29-Jan	12	14	8	12	7	6	6	7	5	5	5	5	4	7	8	11	5	6	4	7	8	11	11	14	14	
30-Jan	12	5	5	7	9	7	5	11	12	8	28	10	8	5	5	6	5	5	7	10	15	7	11	7	28	
31-Jan	5	4	5	4	3	5	12	9	2	4	7	26	11	4	8	9	3	4	4	5	6	3	4	5	26	
Diurnal Maximum																										
22 20 28 96 22 27 42 99 74 26 32 52 54 73 76 26 27 22 14 35 64 21 31 30																										

DF - DAS Failure      UO - Unstable Operation



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

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





Maximum Value: 0.3 km/h on Jan 15 02:00																				Maximum Daily Average: 0.0 km/h on Jan 1					Hours in Service:	744
Minimum Value: -1.4 km/h on Jan 26 17:00																				Minimum Daily Average: -0.6 km/h on Jan 29					Hours of Data:	719
Maximum Diurnal Average: -0.1 km/h at hour 7																				Minimum Diurnal Average: -0.3 km/h at hour 15					Hours of Missing Data:	25
Monthly Average: -0.18 km/h																				Percentiles: P <sub>1</sub> = -1.1 P <sub>10</sub> = -0.6 Q <sub>1</sub> = -0.3 Median = -0.1 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.2					Hours of Calibration:	0
																									Percent Operational Time:	96.6
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-Jan	-0.1	0.0	-0.1	0.0	0.0	0.0	0.1	-0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.0	-0.1	0.1	0.1	0.0	0.2
2-Jan	0.1	0.2	0.1	-0.1	0.0	0.1	0.1	0.1	0.0	0.0	-0.1	-0.1	0.0	-0.1	0.0	-0.2	0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.1	0.0	-0.1
3-Jan	0.0	0.0	0.0	-0.1	0.0	-0.2	-0.2	-0.4	-0.1	0.0	0.1	0.0	-0.1	0.2	0.0	-0.2	-0.3	-0.1	0.1	0.0	0.0	-0.1	-0.2	-0.2	-0.1	0.2
4-Jan	-0.2	-0.2	-0.4	-0.3	-0.4	-0.1	-0.1	-0.1	-0.2	-0.1	0.2	-0.3	-0.1	-0.3	-0.2	0.0	0.1	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1
5-Jan	0.1	0.1	0.0	-0.1	-0.3	0.0	0.1	0.0	0.0	0.0	-0.1	-0.4	0.0	0.1	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.1	0.1	0.1	0.0	0.1
6-Jan	0.1	-0.2	0.0	0.1	-0.1	0.0	0.1	0.1	0.1	0.0	-0.1	-0.3	-0.3	-0.2	-0.2	-0.3	-0.2	0.0	-0.4	-0.2	-0.3	-0.5	-0.3	-0.3	-0.1	0.1
7-Jan	0.0	0.0	0.2	0.2	0.0	0.1	0.0	-0.1	0.0	DF	DF	0.0	-0.2	-0.1	-0.1	-0.3	-0.6	-1.1	-1.1	-1.0	-0.8	-0.9	-0.3	-0.3	-0.3	0.2
8-Jan	0.1	-0.2	-0.1	-0.3	-0.5	-0.4	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	0.2
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-0.4	-0.3	-0.2	-0.2	-0.2	0.1	0.1	0.0	0.0	DF	DF	--	0.1
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	-0.1	0.0	0.0	-0.2	-0.2	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	--	0.0
11-Jan	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.2	-0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
12-Jan	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.1	-0.3	-0.3	-0.2	-0.3	-0.5	-0.1	0.0	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0
13-Jan	-0.4	-0.4	-0.3	-0.5	-0.3	-0.4	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.3	-0.2	-0.3	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-0.2	0.1
14-Jan	0.0	0.0	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	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
15-Jan	0.1	0.3	0.3	0.0	0.2	-0.1	-0.4	-0.4	-0.4	0.0	0.0	0.0	-0.3	-0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.3
16-Jan	0.1	0.2	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.2	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.3	0.0	0.0	-0.3	-0.3	-0.1	0.2
17-Jan	0.0	-0.1	0.1	0.0	0.0	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.1	0.0	0.0	-0.1	-0.1	0.0	-0.1	0.0	-0.2	0.0	0.2
18-Jan	0.0	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	0.0	-0.2	-0.1	-0.1	-0.2	0.1	0.1	0.0	-0.1	0.0	-0.1	-0.3	-0.1	0.1
19-Jan	-0.1	-0.3	-0.4	0.0	0.1	-0.1	-0.3	-0.4	-0.5	-0.5	-0.5	-0.6	-0.4	-0.5	-0.4	-0.5	-0.4	-0.2	-0.3	0.1	0.0	0.0	0.0	-0.6	-0.3	0.1
20-Jan	-0.2	-0.1	0.0	0.1	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	-0.1	-0.2	-0.1	0.0	0.0	0.0	0.1
21-Jan	-0.2	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.2	0.1	-0.1	0.1	-0.2	0.1	0.1	0.2	0.1	0.0	-0.1	0.1	0.1	0.1	0.0	0.0	0.2
22-Jan	0.1	-0.2	0.0	0.0	-0.1	0.2	0.1	0.0	-0.1	-0.1	-0.6	-0.6	-0.4	-0.5	-0.6	-0.5	-0.7	-0.4	-0.8	-0.4	-1.0	-1.1	-1.0	-1.1	-0.4	0.2
23-Jan	-1.0	-0.6	-0.6	-0.8	-0.9	-0.7	-0.5	-0.6	-0.4	-0.2	-0.4	-0.3	-0.3	0.1	-0.2	-0.2	0.1	0.0	-0.1	-0.2	-0.2	0.0	-0.1	-0.3	-0.3	0.1
24-Jan	-0.2	-0.1	0.0	-0.2	0.0	-0.1	0.0	-0.1	0.2	-0.2	0.0	0.0	0.1	-0.2	-1.0	-0.8	-0.7	-0.5	0.0	-0.2	-0.1	-0.1	0.0	-0.1	-0.2	0.2
25-Jan	-0.1	-0.1	0.0	-0.1	-0.1	-0.3	0.0	-0.2	0.0	0.1	0.0	0.0	0.1	-0.3	-0.3	-0.1	-0.2	-0.6	-0.7	-0.4	-0.4	-0.4	-0.1	0.0	-0.2	0.1
26-Jan	-0.3	-0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.1	-0.2	-0.6	-0.6	-0.9	-1.0	-1.2	-1.4	-0.7	-0.5	-0.4	-0.1	-0.4	-0.4	-0.3	-0.4	0.1
27-Jan	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.1	0.1	-0.1	-0.5	-0.5	-0.7	-0.9	-0.4	-0.2	0.0	-0.1	0.1	-0.2	-0.3	-0.4	-0.3	-0.2	-0.3	-0.3	0.1
28-Jan	-0.6	-0.7	-0.6	-0.8	-0.7	-0.8	-0.5	-0.7	-0.6	-0.3	-0.1	-0.2	-1.1	-0.9	-0.6	-0.5	-0.7	-0.8	-0.7	-0.5	-0.7	-0.2	0.0	-0.1	-0.6	0.0
29-Jan	-0.2	-0.4	-0.6	-0.4	-0.2	-0.6	-0.5	-0.8	-0.6	-0.7	-0.5	-0.7	-0.3	-0.7	-0.9	-0.7	-0.6	-0.6	-0.5	-0.7	-0.5	-0.7	-1.0	-0.9	-0.6	-0.2
30-Jan	-0.7	-0.3	-0.4	-0.4	-0.1	-0.7	-0.1	-0.2	0.0	-0.2	-0.2	-0.4	-0.2	-0.5	-1.0	-1.2	-1.0	-0.6	-0.5	-0.5	-0.8	-0.3	-0.3	-0.9	-0.5	0.0
31-Jan	-1.1	-1.0	-0.9	-0.8	-1.1	-0.6	-0.4	-0.3	-0.1	0.1	-0.1	-0.4	-0.6	-0.5	-0.5	-0.3	-0.6	-0.6	-0.3	-0.4	-0.3	-0.6	-0.6	-0.2	-0.5	0.1
																								Diurnal Average		
																								Diurnal Maximum		
DF - DAS Failure																										





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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.9 km/h on Jan 22 19:00		Hours in Service: 744 Hours of Data: 719 Hours of Missing Data: 25 Hours of Calibration: 0 Percent Operational Time: 96.6																							
Minimum Value: 0.1 km/h on Jan 14 00:00																									
Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.6 Median = 1.0 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 2.0 P <sub>99</sub> = 3.4																									
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-Jan	0.4	0.4	0.8	1.8	1.9	2.1	2.2	1.7	1.4	1.0	1.0	1.2	1.1	1.3	0.7	1.1	1.3	1.2	1.5	1.3	1.2	1.1	1.5	1.6	2.2
2-Jan	1.6	1.7	1.3	1.1	1.1	1.1	1.3	1.4	0.5	0.4	0.5	0.7	0.8	0.7	0.6	0.6	0.7	0.6	0.5	0.4	0.3	0.3	0.7	0.6	1.7
3-Jan	1.0	0.4	0.4	0.3	0.5	0.6	0.6	0.9	0.7	0.4	0.6	0.6	1.3	1.3	1.3	1.5	1.5	1.4	1.7	1.4	1.7	1.7	1.9	2.1	2.1
4-Jan	1.9	2.1	2.6	2.4	2.4	2.6	2.4	2.6	2.0	1.7	1.8	1.7	2.0	1.7	1.6	1.6	1.6	1.2	1.1	1.1	1.1	1.1	1.2	0.9	2.6
5-Jan	1.4	1.0	1.0	1.3	1.2	0.6	0.5	0.3	0.3	0.4	0.7	0.7	0.6	0.8	0.5	0.4	0.4	0.7	0.7	0.6	0.5	0.4	0.8	0.8	1.4
6-Jan	1.1	1.2	1.1	1.0	1.1	1.1	1.3	1.1	1.2	1.7	1.8	2.0	2.2	2.1	2.3	2.3	2.1	2.1	2.4	2.4	2.4	2.1	1.8	1.7	2.4
7-Jan	1.6	1.6	1.6	1.2	1.2	1.0	1.1	0.6	0.2	DF	DF	0.3	0.4	0.6	0.5	1.0	1.4	1.2	1.3	1.6	1.7	1.7	1.6	1.3	1.7
8-Jan	0.7	1.0	1.0	1.5	1.6	1.1	0.4	0.4	0.7	0.9	0.9	0.9	1.2	1.3	1.2	0.8	0.3	0.2	0.3	0.9	1.3	0.9	0.7	0.6	1.6
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	1.9	1.8	1.4	1.7	1.5	1.7	1.5	1.5	2.0	DF	DF	2.0
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	0.5	0.3	0.3	0.7	1.0	1.0	1.1	0.9	0.8	0.4	0.5	0.6	0.7	0.5	0.8	0.7	1.1
11-Jan	0.4	0.5	0.4	0.4	0.3	0.5	0.2	0.2	0.2	0.2	0.4	1.1	1.1	1.0	0.7	0.9	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.3	1.1
12-Jan	0.1	0.1	0.2	0.4	0.9	0.7	0.5	0.5	0.7	0.8	0.8	0.9	1.0	1.0	0.9	0.7	0.5	0.2	0.2	0.2	0.2	0.1	0.2	1.0	1.0
13-Jan	0.8	1.1	0.9	0.9	0.8	0.9	0.7	0.7	0.6	0.8	1.1	0.8	0.9	0.8	0.5	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1.1
14-Jan	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.4
15-Jan	0.2	0.4	1.3	1.2	0.7	0.9	0.9	1.2	1.2	0.5	0.6	0.7	1.1	0.7	0.3	0.2	0.2	0.5	0.2	0.3	0.3	0.3	0.5	0.7	1.3
16-Jan	1.1	0.9	0.7	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.3	0.4	0.6	0.7	0.5	0.4	0.4	0.5	0.5	0.8	1.6	2.7	2.7	3.2	3.2
17-Jan	2.4	1.6	1.0	1.6	1.1	1.1	0.8	0.4	0.9	1.6	2.0	1.8	2.0	1.5	1.8	1.8	1.0	0.6	0.9	0.7	1.0	1.3	1.1	1.0	2.4
18-Jan	0.8	0.4	0.3	0.5	0.3	0.1	0.4	1.1	1.0	1.4	1.3	0.9	0.8	0.5	0.3	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.7	0.8	1.4
19-Jan	0.8	1.2	1.1	0.4	0.4	0.8	1.0	1.3	1.1	1.3	1.8	1.7	1.4	1.4	1.6	1.4	1.0	0.9	1.3	0.8	0.2	0.3	0.5	1.4	1.8
20-Jan	1.3	1.0	0.6	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.4	1.6	1.4	1.3	1.6	1.3	1.3	1.4	1.9	1.7	1.7	1.8	1.7	1.3	1.9
21-Jan	1.2	1.1	0.8	0.9	0.8	1.0	0.8	0.8	0.8	1.2	1.2	1.5	1.9	1.9	1.8	1.9	1.6	1.0	0.7	0.5	0.5	0.4	0.4	0.5	1.9
22-Jan	1.3	1.5	1.1	0.9	1.0	1.0	0.8	0.8	0.8	0.9	2.8	3.1	3.4	3.4	3.3	3.7	3.4	3.7	3.9	3.7	2.7	1.8	2.3	2.0	3.9
23-Jan	2.1	2.2	2.3	2.2	1.7	1.7	1.4	1.4	0.9	1.0	1.0	1.1	0.7	0.7	0.9	1.2	1.6	1.9	2.1	2.3	2.1	1.4	1.5	2.3	2.3
24-Jan	1.7	1.5	1.3	1.1	0.9	0.7	0.5	0.5	0.7	0.8	0.8	0.7	1.4	1.7	1.9	1.7	1.0	0.9	0.5	0.5	0.2	0.1	0.4	1.9	1.9
25-Jan	0.3	0.4	1.1	1.3	2.0	1.8	2.3	1.8	1.3	1.2	1.1	1.0	0.7	0.7	0.7	0.8	1.3	1.2	1.0	0.9	0.9	0.9	1.2	2.3	2.3
26-Jan	1.4	1.2	0.6	0.6	0.8	0.6	0.6	0.4	0.2	0.3	0.8	1.1	1.6	1.6	1.9	1.4	1.6	1.4	1.0	1.0	0.4	0.8	1.0	0.7	1.9
27-Jan	0.7	0.5	0.5	0.8	0.9	1.0	0.8	0.8	0.6	1.9	1.9	2.3	2.3	2.5	1.5	1.1	0.7	0.7	1.1	1.4	1.1	0.7	0.8	0.8	2.5
28-Jan	1.3	1.1	1.4	1.1	1.0	1.1	1.3	1.1	1.9	1.7	1.4	1.5	2.0	3.2	2.2	2.0	2.8	2.9	2.5	2.6	2.8	2.0	1.8	1.8	3.2
29-Jan	1.6	0.8	1.6	1.5	1.2	1.3	1.2	1.4	1.1	1.3	0.9	0.8	0.8	1.4	1.6	1.2	1.7	0.9	1.0	1.5	1.7	2.4	1.9	1.9	2.4
30-Jan	1.7	1.0	1.1	1.4	1.2	1.4	0.8	0.7	0.6	1.1	0.9	1.8	1.4	1.9	2.8	3.9	3.2	2.6	1.5	2.1	3.6	1.9	0.9	2.1	3.9
31-Jan	2.7	3.2	2.5	3.1	2.3	2.1	1.2	1.0	1.3	1.3	0.7	1.1	1.5	1.4	1.4	0.9	1.2	2.6	2.2	1.2	1.0	2.0	3.1	2.6	3.2
Diurnal Maximum																									
DF - DAS Failure																									



Maximum Value: 1.4 km/h on Jan 27 10:00      Maximum Daily Average: 0.5 km/h on Jan 22 Minimum Value: -1.0 km/h on Jan 30 21:00      Minimum Daily Average: -0.2 km/h on Jan 6 Maximum Diurnal Average: 0.2 km/h at hour 24      Minimum Diurnal Average: 0.0 km/h at hour 21 Monthly Average: 0.08 km/h      Percentiles: P <sub>1</sub> = -0.7 P <sub>10</sub> = -0.2 Q <sub>1</sub> = -0.1 Median = 0.0 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 1.0																								Hours in Service:	744																								
																								Hours of Data:	563																								
																								Hours of Missing Data:	181																								
																								Hours of Calibration:	0																								
																								Percent Operational Time:	75.7																								
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-Jan	-0.1	0.0	-0.1	-0.1	0.1	0.2	-0.1	-0.1	0.1	-0.1	0.1	0.3	0.1	-0.2	-0.1	0.1	-0.1	0.1	0.1	0.4	0.0	-0.1	-0.1	-0.1	0.0	0.4																							
2-Jan	0.2	0.2	0.0	-0.1	0.1	0.6	0.3	0.3	0.0	-0.1	0.0	-0.2	0.1	-0.1	0.1	0.0	0.5	-0.1	-0.1	0.0	0.0	-0.1	0.2	0.4	0.1	0.6																							
3-Jan	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	-0.1	-0.1	-0.2	-0.1	0.0	0.0	-0.4	-0.2	-0.4	-0.2	0.0	0.3																							
4-Jan	-0.2	-0.3	-0.4	-0.3	-0.3	0.1	0.1	-0.1	-0.2	0.0	0.2	-0.3	-0.1	-0.3	-0.2	-0.1	0.1	0.0	0.0	0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0.2																							
5-Jan	-0.1	0.0	-0.1	-0.4	-0.5	-0.1	0.0	0.0	-0.1	-0.1	0.1	-0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.2																							
6-Jan	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.3	-0.5	-0.1	0.0	-0.3	-0.2	-0.1	-0.2	-0.3	-0.1	-0.2	0.0																							
7-Jan	0.1	0.2	0.3	0.2	0.1	0.0	0.0	-0.1	0.0	DF	DF	-0.1	-0.2	0.0	0.1	0.1	-0.2	-0.3	-0.5	-0.1	-0.1	0.0	1.1	1.0	0.1	1.1																							
8-Jan	0.3	0.1	0.2	0.3	0.5	0.2	0.3	0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.3	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.1	0.1	0.5																							
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	DF	--																							
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--																							
11-Jan	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	--																							
12-Jan	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	--																							
13-Jan	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	--																							
14-Jan	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	--																							
15-Jan	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	--																							
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.1	-0.2	0.0	0.0	0.1	0.0	-0.3	-0.4	-0.7	0.3	0.4	-0.3	-0.4	--	0.4																							
17-Jan	0.2	-0.4	0.2	0.1	0.3	0.1	0.0	-0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	-0.1	-0.1	-0.3	-0.2	0.0	-0.2	-0.2	0.0	0.3																							
18-Jan	-0.2	0.0	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.1	0.1	-0.2	0.1	0.0	0.0	0.0	0.0	-0.2	0.1	0.0	-0.1	0.0	-0.1	-0.3	-0.5	-0.1	0.1																							
19-Jan	-0.2	-0.4	-0.2	0.1	0.4	0.4	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.8	0.0	0.3	0.7	0.4	0.1	0.1	0.5	0.7	0.2	0.8																							
20-Jan	0.8	0.6	0.5	0.1	0.2	0.3	0.0	0.1	0.2	0.1	0.0	-0.4	-0.5	-0.1	-0.2	-0.3	-0.2	-0.2	-0.2	0.1	0.0	0.0	-0.1	-0.1	0.0	0.8																							
21-Jan	-0.2	-0.1	0.0	0.1	-0.1	-0.1	-0.2	0.0	-0.2	-0.1	0.0	-0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	-0.1	0.1	0.2	0.0	0.0	0.2																							
22-Jan	0.3	0.0	0.0	0.0	-0.2	0.1	0.0	-0.1	-0.3	0.0	0.4	0.4	1.1	0.8	0.7	0.8	0.7	0.7	1.3	0.9	1.1	0.7	0.7	0.9	0.5	1.3																							
23-Jan	0.7	0.6	0.7	0.9	1.1	0.6	0.7	0.0	0.3	0.3	0.1	0.0	-0.1	0.2	0.0	-0.1	-0.1	0.0	0.2	-0.1	-0.1	-0.1	0.2	-0.2	0.2	1.1																							
24-Jan	-0.1	0.0	-0.1	-0.1	0.2	0.0	-0.2	0.0	0.1	-0.2	0.0	-0.1	0.1	0.4	0.2	0.8	0.6	0.3	0.5	-0.4	-0.2	-0.1	0.0	-0.2	0.1	0.8																							
25-Jan	-0.1	-0.2	-0.1	0.0	0.0	-0.1	-0.3	-0.3	-0.2	-0.2	-0.1	0.1	0.2	-0.1	-0.2	0.1	0.2	0.3	0.0	0.4	0.2	0.1	0.4	0.6	0.0	0.6																							
26-Jan	0.9	0.7	0.1	0.1	-0.2	-0.1	-0.1	0.1	0.0	0.0	0.1	0.1	0.5	0.2	-0.1	-0.6	-0.6	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.9																							
27-Jan	0.1	0.0	0.1	0.5	0.2	-0.2	0.1	0.5	0.3	1.4	0.7	0.6	0.8	0.9	0.8	0.3	0.1	0.1	0.2	0.2	0.1	0.7	0.6	0.6	0.4	1.4																							
28-Jan	0.2	0.0	0.3	-0.1	-0.2	-0.2	0.3	0.0	0.3	0.9	0.4	0.3	-0.1	-0.6	-0.2	-0.4	-0.8	-0.4	-0.3	0.0	0.0	0.4	0.8	0.9	0.1	0.9																							
29-Jan	0.5	0.3	0.6	0.2	0.7	-0.1	0.2	-0.1	0.0	0.0	-0.1	0.0	0.3	0.6	0.1	0.4	0.7	-0.1	0.2	0.3	0.5	0.7	0.1	0.3	0.3	0.7																							
30-Jan	-0.1	0.6	0.7	0.5	0.9	-0.4	0.5	0.5	0.6	0.3	0.1	0.4	0.3	-0.2	-0.1	-0.6	-0.5	-0.1	-0.1	0.0	-1.0	-0.8	0.1	-0.5	0.1	0.9																							
31-Jan	-0.8	-0.5	-0.7	-0.3	-0.3	0.3	0.1	0.2	0.0	0.4	0.0	0.1	0.2	0.0	0.4	0.5	0.1	0.6	1.0	0.3	0.3	0.2	0.3	1.0	0.1	1.0																							
																								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	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	Diurnal Average		
																								0.9	0.7	0.7	0.9	1.1	0.6	0.7	0.5	0.6	1.4	0.7	0.6	1.1	0.9	0.8	0.8	0.7	0.7	1.3	0.9	1.1	0.7	1.1	1.0	Diurnal Maximum	
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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.6 km/h on Jan 30 21:00 Minimum Value: 0.1 km/h on Jan 18 06:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.1 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 1.8 P <sub>99</sub> = 2.9																				Hours in Service: 744 Hours of Data: 563 Hours of Missing Data: 181 Hours of Calibration: 0 Percent Operational Time: 75.7						
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-Jan	0.4	0.4	0.8	1.7	1.6	1.7	1.6	1.6	1.2	0.9	0.8	1.0	0.9	0.9	0.6	0.9	1.3	1.3	1.4	1.5	1.3	1.2	1.4	1.4	1.7	
2-Jan	1.5	1.7	1.2	0.9	1.0	1.2	1.2	1.3	0.7	0.5	0.5	0.7	0.8	0.7	0.7	0.9	0.4	0.5	0.4	0.3	0.3	0.9	1.0	1.7		
3-Jan	1.3	0.5	0.5	0.2	0.4	0.5	0.4	0.6	0.7	0.4	0.5	0.5	1.1	1.3	1.2	1.1	1.2	1.3	1.7	1.3	1.7	1.6	1.8	1.8		
4-Jan	1.8	2.0	2.2	2.2	2.0	2.3	2.0	1.9	1.6	1.5	1.7	1.3	1.3	1.4	1.2	1.2	1.4	1.1	0.9	1.1	1.0	1.0	0.9	2.3		
5-Jan	1.3	1.0	0.9	1.2	1.0	0.5	0.3	0.3	0.6	0.5	0.9	0.6	0.6	0.5	0.5	0.3	0.4	0.7	0.7	0.6	0.4	0.8	0.8	1.3		
6-Jan	1.0	0.9	1.1	1.0	1.0	1.1	1.3	1.1	1.2	1.5	1.4	1.6	1.6	1.6	1.6	1.8	1.6	1.5	1.8	1.7	2.0	1.7	1.5	1.3	2.0	
7-Jan	1.5	1.3	1.3	1.0	0.9	0.7	0.7	0.5	0.3	DF	DF	0.3	0.5	0.5	0.5	1.1	1.6	1.3	1.3	1.7	1.9	1.8	1.8	1.4	1.9	
8-Jan	1.0	1.0	1.2	1.3	1.2	0.9	0.5	0.3	0.4	0.8	0.9	0.8	1.3	1.3	1.3	0.6	0.3	0.2	0.4	0.9	1.4	1.0	0.5	0.4	1.4	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--
11-Jan	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	--
12-Jan	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	--
13-Jan	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	--
14-Jan	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	--
15-Jan	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	--
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.5	0.7	0.8	0.4	0.5	0.3	1.0	0.9	1.2	2.3	2.8	2.8	2.9	2.9	
17-Jan	2.6	1.8	1.0	1.4	1.0	1.1	0.7	0.5	0.8	1.5	1.8	1.7	1.7	1.2	1.4	1.5	0.7	0.5	0.7	0.8	1.2	1.2	1.1	1.1	2.6	
18-Jan	0.8	0.4	0.2	0.6	0.3	0.1	0.4	1.2	1.2	1.4	1.5	1.0	0.8	0.5	0.4	0.7	0.8	0.8	0.8	1.0	0.8	0.5	0.8	0.7	1.5	
19-Jan	1.0	1.3	1.4	0.7	0.6	0.9	0.6	0.6	0.7	0.8	1.0	1.1	1.0	1.1	1.3	0.9	1.0	0.6	1.1	0.9	0.5	0.6	0.7	1.2	1.4	
20-Jan	1.3	1.0	1.0	0.6	0.7	0.5	0.4	0.3	0.4	0.3	0.4	1.1	1.3	1.3	1.6	1.2	1.2	1.3	1.4	1.2	1.3	1.4	1.5	1.1	1.6	
21-Jan	0.9	1.0	0.9	0.9	0.9	1.1	0.8	1.0	0.7	1.3	1.2	1.4	1.6	1.6	1.4	1.5	1.5	1.0	0.7	0.5	0.5	0.4	0.4	0.7	1.6	
22-Jan	1.3	1.4	0.9	0.7	0.9	0.9	0.8	0.8	0.7	1.0	2.3	2.4	2.9	2.7	2.4	2.4	2.4	2.5	2.3	2.6	2.3	1.6	1.7	1.8	2.9	
23-Jan	1.5	1.7	1.6	1.5	1.5	1.1	1.2	1.6	1.4	1.0	1.0	1.0	1.2	0.9	0.7	0.9	1.2	1.2	1.6	1.6	1.5	1.5	1.2	1.2	1.7	
24-Jan	1.3	1.1	1.1	0.8	0.7	0.8	0.7	0.4	0.4	0.6	0.7	0.7	0.9	1.7	1.9	1.7	1.7	1.2	1.1	0.7	0.6	0.3	0.2	0.5	1.9	
25-Jan	0.4	0.6	1.1	1.1	1.7	1.5	1.5	1.2	1.2	1.2	1.1	1.2	0.7	0.7	0.6	0.7	0.7	1.4	1.3	1.2	1.0	1.0	0.9	1.0	1.7	
26-Jan	1.2	1.3	0.8	0.6	0.7	0.6	0.4	0.4	0.3	0.2	0.7	1.3	1.5	1.6	1.9	1.7	1.7	1.4	1.2	1.1	0.7	1.0	0.8	0.8	1.9	
27-Jan	0.7	0.6	0.7	0.8	1.0	0.9	1.0	0.7	0.6	1.3	1.2	1.2	1.1	1.4	0.7	0.7	0.9	1.2	1.4	1.7	1.3	0.8	0.7	0.7	1.7	
28-Jan	0.7	0.6	1.0	0.8	0.8	0.7	1.0	1.1	1.4	1.2	1.3	1.7	1.7	3.5	2.3	1.9	2.9	2.7	2.3	2.5	2.4	1.8	2.2	1.4	3.5	
29-Jan	1.5	0.7	1.1	1.8	1.1	1.6	1.3	1.0	0.8	1.0	0.8	0.8	0.8	1.0	1.1	0.6	0.7	0.9	0.9	0.9	1.1	1.5	1.6	1.2	1.8	
30-Jan	1.5	0.8	0.7	1.0	0.9	0.8	0.6	0.5	0.5	1.0	0.9	1.2	1.4	2.0	2.6	3.6	3.1	2.9	1.7	2.4	3.6	2.0	0.7	1.5	3.6	
31-Jan	2.3	2.6	2.1	2.3	1.6	1.8	1.4	1.4	1.6	1.6	0.8	0.6	1.0	1.2	1.2	0.8	0.7	2.0	1.9	1.5	1.2	1.6	2.5	2.4	2.6	
Diurnal Maximum																										
DF - DAS Failure                      UO - Unstable Operation																										



Maximum Value: 3.0 km/h on Jan 28 23:00																								Maximum Daily Average: 0.8 km/h on Jan 22																								Hours in Service: 744	
Minimum Value: -1.4 km/h on Jan 31 03:00																								Minimum Daily Average: -0.3 km/h on Jan 30																								Hours of Data: 571	
Maximum Diurnal Average: 0.3 km/h at hour 23																								Minimum Diurnal Average: 0.0 km/h at hour 12																								Hours of Missing Data: 173	
Monthly Average: 0.16 km/h																								Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.4 Q <sub>1</sub> = -0.1 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 1.6																								Hours of Calibration: 0	
																								Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.4 Q <sub>1</sub> = -0.1 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 1.6																								Percent Operational Time: 76.8	
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-Jan	0.1	0.2	0.2	0.1	0.4	0.8	0.0	-0.1	0.2	0.0	0.3	0.4	0.3	-0.1	0.0	0.3	0.3	0.4	0.5	0.6	0.2	0.3	0.0	0.2	0.2	0.8																							
2-Jan	0.6	0.8	0.1	0.2	0.7	1.7	0.9	1.0	0.3	0.0	0.1	-0.1	0.4	-0.2	0.1	-0.1	0.6	-0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.3	1.7																							
3-Jan	0.3	0.1	0.1	0.1	0.1	0.2	0.1	-0.1	0.0	-0.1	0.0	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.3	0.4	0.1	0.3	0.1	0.3	0.2	0.4																							
4-Jan	0.2	0.2	0.2	0.4	0.6	0.7	0.4	0.0	0.3	0.3	1.0	0.0	0.2	0.1	0.1	0.3	0.7	0.3	0.3	0.2	0.1	0.2	0.2	0.0	0.3	1.0																							
5-Jan	-0.1	0.1	0.2	-0.2	-0.4	-0.2	-0.2	-0.2	-0.2	-0.1	0.1	-0.2	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.2																							
6-Jan	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.4	0.3	0.1	0.2	0.0	0.1	0.1	0.3	0.6	0.1	0.1	0.7	0.2	-0.1	0.2	0.7																								
7-Jan	0.5	0.5	0.8	0.5	0.3	0.1	0.3	0.0	0.1	DF	DF	-0.2	-0.3	0.0	0.3	0.1	-0.5	-0.6	-0.7	-0.2	-0.3	-0.1	1.3	1.7	1.7																								
8-Jan	1.3	1.3	0.9	1.0	0.4	0.0	0.0	0.1	0.1	-0.1	-0.2	0.0	0.1	0.0	0.3	0.1	0.3	0.1	0.1	0.3	0.1	0.6	0.0	-0.1	1.3																								
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.1	-0.1	-0.1	0.1	0.2	0.2	0.2	0.3	0.6	DF	DF	0.6																								
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.3	0.5	0.3	-0.1	0.0	0.3	0.5	0.3	0.1	0.0	-0.2	-0.4	0.2	UO	UO	UO	0.5																							
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.7	-0.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.7																							
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.2	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.0																							
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.2	0.1	0.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.2																							
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.0	0.0	0.1	0.1	0.3	-0.4	UO	UO	UO	UO	UO	UO	UO	0.3																							
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.0	-0.1	-0.1	0.0	-0.2	-0.3	-0.5	-0.3	-0.5	-0.2	0.1	0.0	-0.3	0.1																								
16-Jan	0.2	0.4	0.1	0.2	0.1	-0.7	0.4	-0.5	-0.6	-0.4	0.1	-0.3	-0.4	-0.1	0.1	-0.1	-0.3	-0.8	-0.6	-0.9	1.2	0.8	-0.3	-0.2	1.2																								
17-Jan	0.6	-0.5	0.6	0.4	0.8	0.3	0.2	0.1	0.5	0.3	0.4	0.6	0.6	0.5	0.3	0.1	0.2	0.1	0.1	-0.2	-0.2	0.1	-0.1	-0.1	0.8																								
18-Jan	0.0	-0.1	-0.2	-0.1	-0.1	0.2	0.0	0.0	-0.2	0.0	-0.4	-0.1	-0.1	-0.2	0.0	-0.1	-0.3	-0.5	-0.3	-0.5	-0.4	-0.3	-0.2	-0.6	0.2																								
19-Jan	-0.2	-0.8	0.1	-0.5	-0.1	-0.3	-0.3	0.1	0.3	0.4	0.0	-0.1	0.2	0.3	1.3	1.0	-0.1	0.3	1.0	0.7	0.6	0.5	0.9	0.8	1.3																								
20-Jan	1.2	0.5	0.7	0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.3	-0.6	0.1	-0.2	-0.1	0.0	0.1	0.1	0.6	0.6	0.3	0.3	0.3	1.2																								
21-Jan	0.1	0.2	0.5	0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	0.0	0.3	0.8	0.5	0.2	0.2	0.4	0.5	0.3	0.1	0.1	0.3	0.5	0.4	0.8																								
22-Jan	0.9	0.4	0.4	0.2	0.1	0.3	0.3	0.0	-0.1	0.7	0.3	0.3	1.4	1.4	0.7	0.7	0.6	0.5	1.3	1.3	2.2	1.9	1.3	1.4	2.2																								
23-Jan	1.0	0.8	1.0	1.1	1.5	1.1	1.3	0.1	-0.1	0.0	0.0	0.2	0.1	0.7	0.3	0.0	0.0	0.3	0.6	0.4	0.3	0.1	0.5	0.2	1.5																								
24-Jan	0.1	0.5	0.1	0.1	0.4	0.2	-0.3	0.1	0.1	-0.1	-0.2	-0.1	0.4	1.1	1.0	1.9	1.6	0.5	0.4	-0.1	-0.1	0.0	0.0	-0.1	1.9																								
25-Jan	-0.1	0.2	0.1	0.4	0.6	0.2	-0.2	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.6																								
26-Jan	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	--																							
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.6	0.0	-0.1	-0.3	-0.1	0.3	1.1	1.0	-0.1	-0.2	-0.2	-0.2	1.6																							
28-Jan	0.3	0.5	0.7	-0.1	-0.7	0.2	0.3	-0.5	0.7	0.9	-0.5	-0.4	-0.7	-0.9	-0.4	-0.8	-1.2	-0.7	-0.2	0.2	-0.1	1.4	3.0	1.6	3.0																								
29-Jan	0.5	0.3	0.7	-0.1	1.1	-0.7	-0.4	-0.1	-0.2	0.2	0.0	0.2	-0.3	0.2	-0.2	0.2	0.4	-0.9	-0.7	0.0	0.2	0.7	-0.4	0.0	1.1																								
30-Jan	-0.1	0.0	0.3	0.8	1.2	-0.1	0.5	0.2	-0.1	-0.1	-0.3	-0.4	-0.6	-0.7	-0.7	-1.1	-0.7	-0.9	-0.6	-0.4	-1.3	-0.9	-0.1	-1.1	1.2																								
31-Jan	-1.0	-0.8	-1.4	-0.7	-1.1	0.3	-0.1	0.5	-1.0	-0.3	-0.2	-0.2	0.1	0.1	0.3	0.6	0.0	0.5	1.6	0.6	0.4	-0.2	0.1	1.4	1.6																								
																								0.3	0.2	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.3	0.3	0.3	Diurnal Average	
																								1.3	1.3	1.0	1.1	1.5	1.7	1.3	1.0	0.7	0.9	1.0	0.6	1.6	1.4	1.3	1.9	1.6	0.6	1.6	1.3	2.2	1.9	3.0	1.7	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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.5 km/h on Jan 30 21:00  Minimum Value: 0.1 km/h on Jan 14 13:00  Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.0 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 1.9 P <sub>99</sub> = 2.5																				Hours in Service: 744 Hours of Data: 571 Hours of Missing Data: 173 Hours of Calibration: 0 Percent Operational Time: 76.8					
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-Jan	0.4	0.9	1.1	2.0	1.7	1.9	1.7	1.3	1.2	0.8	0.7	0.9	0.7	0.9	0.6	1.1	1.6	1.7	1.7	1.8	1.4	1.4	1.4	1.4	2.0
2-Jan	1.7	2.0	1.5	0.9	1.3	1.1	0.9	1.0	1.0	0.6	0.4	0.8	0.9	0.7	0.7	1.0	0.5	0.3	0.4	0.5	0.4	1.1	1.5	2.0	
3-Jan	1.4	0.5	0.3	0.2	0.3	0.4	0.5	0.8	0.9	0.5	0.4	0.5	1.0	1.1	0.9	0.9	0.9	1.2	1.3	1.2	1.3	1.2	1.4	1.4	
4-Jan	1.5	1.6	1.8	1.9	1.9	2.2	1.8	1.9	1.7	1.6	1.8	1.4	1.4	1.4	1.2	1.1	1.6	1.0	0.7	0.9	0.8	0.7	0.8	0.7	
5-Jan	0.9	0.6	0.6	0.7	0.6	0.4	0.2	0.3	0.5	0.5	0.6	0.6	0.8	0.5	0.3	0.3	0.6	0.7	0.7	0.4	0.6	0.5	0.4	0.5	
6-Jan	0.7	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	1.0	1.1	1.2	1.4	1.6	1.5	1.6	1.4	1.7	1.8	1.7	2.0	1.9	1.4	1.1	
7-Jan	1.5	1.3	1.4	1.1	0.9	0.7	0.6	0.6	0.2	DF	DF	0.4	0.5	0.5	0.8	1.3	0.9	1.1	0.9	1.9	1.6	1.3	1.8	1.6	
8-Jan	1.8	1.7	1.6	1.2	1.3	1.0	0.6	0.5	0.3	0.5	0.6	0.7	1.1	1.2	1.4	0.6	0.3	0.2	0.5	1.3	1.7	1.4	0.6	0.3	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	1.2	1.4	1.1	1.3	1.2	2.0	1.7	1.2	1.7	DF	DF	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.3	0.4	0.4	0.8	0.9	1.0	1.2	0.9	0.8	0.6	1.6	1.4	1.3	UO	UO	
11-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.7	1.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	
12-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.9	0.6	UO	UO	UO	UO	UO	UO	UO	UO	UO	
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.3	0.2	0.2	UO	UO	UO	UO	UO	UO	UO	UO	
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.6	0.1	0.2	0.4	1.4	UO	UO	UO	UO	UO	UO	UO	
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.5	0.4	0.5	0.7	0.3	0.2	0.4	0.6	0.6	0.6	0.5	0.6	0.3	
16-Jan	0.8	0.9	0.4	0.3	0.5	1.9	0.7	1.3	0.8	0.6	0.9	0.5	0.7	0.5	0.2	0.5	0.6	1.3	1.1	1.2	2.5	2.0	1.8	1.9	
17-Jan	2.0	1.6	1.2	1.5	1.2	1.4	0.9	0.6	1.0	1.6	1.9	2.2	2.0	1.2	1.6	1.4	0.8	0.5	0.7	0.5	0.8	1.0	0.9	0.9	
18-Jan	0.6	0.3	0.2	0.5	0.3	0.2	0.3	0.9	1.2	1.1	1.3	0.9	0.5	0.6	0.5	0.8	1.1	1.4	1.4	1.7	1.3	0.7	1.0	0.7	
19-Jan	0.9	1.4	1.8	1.3	0.8	0.8	0.7	0.7	0.6	0.8	0.8	1.0	0.7	1.0	0.9	1.4	1.3	1.0	1.5	1.2	0.7	0.9	1.0	1.8	
20-Jan	1.9	1.8	1.5	1.3	0.9	0.8	0.6	0.3	0.5	0.4	0.7	0.9	1.1	1.2	1.3	1.0	0.9	0.8	1.3	1.3	1.4	1.4	1.6	1.1	
21-Jan	1.0	0.9	1.1	1.1	0.6	0.8	0.5	0.6	0.5	1.0	1.0	1.3	1.6	1.5	1.4	1.5	1.7	1.2	0.9	0.5	0.7	0.5	0.5	0.9	
22-Jan	1.5	1.6	1.0	0.6	0.7	0.8	0.7	0.7	0.7	2.0	2.1	2.4	2.3	2.6	2.2	2.1	2.2	2.3	2.5	2.3	2.6	2.3	2.3	2.7	
23-Jan	2.0	1.8	1.9	2.1	1.8	1.6	1.7	1.2	1.0	0.9	1.0	1.1	1.5	1.1	0.8	0.9	0.8	1.3	1.7	1.7	1.4	1.4	1.3	1.2	
24-Jan	1.1	1.0	0.9	0.7	0.7	0.6	0.4	0.3	0.4	0.5	0.4	0.5	1.3	2.4	2.1	1.8	2.1	1.4	1.4	0.5	0.4	0.2	0.2	0.5	
25-Jan	0.5	0.9	1.4	1.4	1.9	1.4	1.4	1.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1	1.3	0.7	0.5	0.5	0.9	1.1	1.2	0.7	1.0	0.9	1.0
28-Jan	0.8	0.6	1.0	1.3	1.4	0.8	1.6	1.7	1.9	1.7	2.0	1.8	1.8	2.8	2.2	1.2	2.3	1.4	1.6	1.7	1.5	2.1	1.8	0.6	
29-Jan	1.2	0.8	1.4	2.4	1.3	2.0	1.7	1.5	1.3	1.0	0.8	1.1	1.0	1.3	1.4	0.8	0.9	1.3	1.2	1.6	1.4	1.9	1.7	1.6	
30-Jan	1.7	1.1	1.0	1.0	1.0	1.2	0.8	0.7	1.0	1.1	1.5	1.2	1.3	1.7	2.2	2.5	2.3	2.9	1.2	2.2	3.5	1.6	0.7	0.7	
31-Jan	1.1	1.3	1.1	1.0	0.7	1.4	1.3	1.8	1.7	1.7	0.9	0.7	1.0	1.3	1.5	1.1	0.8	2.0	1.9	1.7	1.6	1.6	1.9	2.4	
Diurnal Maximum																								2.0	
DF - DAS Failure      UO - Unstable Operation																									



Maximum Value: 5.8 km/h on Jan 28 23:00																				Maximum Daily Average: 1.2 km/h on Jan 28					Hours in Service:	744		
Minimum Value: -3.1 km/h on Jan 11 12:00																				Minimum Daily Average: -0.2 km/h on Jan 29					Hours of Data:	545		
Maximum Diurnal Average: 0.7 km/h at hour 19																				Minimum Diurnal Average: 0.1 km/h at hour 9					Hours of Missing Data:	199		
Monthly Average: 0.41 km/h																				Percentiles: P <sub>1</sub> = -1.7 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> = 3.2					Hours of Calibration:	0		
																									Percent Operational Time:	73.3		
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-Jan	0.3	0.4	0.3	-0.2	0.6	0.8	-0.1	0.3	0.4	0.1	0.3	0.4	0.3	0.1	0.2	0.3	0.3	0.2	0.6	0.8	0.2	0.4	0.1	0.2	0.3	0.8		
2-Jan	0.5	0.8	0.1	0.4	1.3	1.4	0.8	1.1	0.7	0.0	0.1	-0.1	0.2	-0.1	0.0	0.1	0.5	-0.2	-0.1	0.0	0.0	0.1	0.2	0.6	0.4	1.4		
3-Jan	0.5	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.5	0.7	0.5	0.6	0.3	0.4	0.6	0.6	0.4	0.5	0.7	0.6	0.3	0.7		
4-Jan	0.6	0.8	0.8	0.9	1.0	1.1	0.7	0.0	0.4	0.3	1.1	0.2	0.4	0.4	0.1	0.4	0.7	0.7	0.6	0.3	0.2	0.3	0.4	0.0	0.5	1.1		
5-Jan	0.2	0.3	0.3	0.4	0.3	0.1	0.1	0.3	0.5	0.6	0.7	0.2	0.2	0.2	0.1	-0.2	0.1	0.0	0.2	0.4	0.0	-0.2	0.1	0.3	0.2	0.7		
6-Jan	0.1	0.1	0.0	-0.1	0.0	0.3	0.4	0.3	0.5	0.7	0.6	0.4	0.3	0.0	0.2	0.5	0.2	0.5	0.2	0.2	0.5	0.2	0.2	0.3	0.3	0.7		
7-Jan	0.7	0.4	0.8	0.0	0.2	0.0	0.4	0.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.3	-0.4	-0.1	0.6	1.6	--	1.6	
8-Jan	2.9	3.2	2.1	1.0	0.4	0.2	-0.1	0.3	0.1	0.4	UO	UO	UO	UO	UO	UO	0.9	0.4	0.7	0.6	0.5	0.7	0.3	0.2	0.0	0.1	0.8	3.2
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.6	0.1	0.3	0.2	-0.3	0.7	0.8	0.4	0.8	DF	DF	--	0.8		
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	0.2	-0.3	-0.4	-0.1	-0.2	0.0	-0.8	-0.9	-1.2	-1.2	-1.9	-1.2	-0.2	-1.0	--	0.2	
11-Jan	-1.4	0.0	UO	-1.7	UO	-2.6	UO	UO	UO	UO	-2.5	-3.1	-0.5	UO	-2.9	UO	UO	-0.9	UO	-0.9	-0.9	-0.9	-0.9	-1.4	--	0.0		
12-Jan	-0.5	0.0	-0.4	-0.7	-0.5	1.1	UO	UO	-1.6	UO	UO	UO	UO	UO	0.4	1.0	1.0	1.1	1.2	1.9	UO	0.6	0.3	2.0	--	2.0		
13-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--		
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--		
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--		
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.0	0.2	0.5	0.0	-0.3	0.1	-0.1	2.3	2.0	1.0	1.1	--	2.3		
17-Jan	1.7	0.1	0.8	0.4	0.6	0.1	0.6	0.4	0.4	0.4	0.3	0.8	0.5	0.6	0.0	0.0	0.3	0.3	0.6	0.0	0.1	0.2	0.3	0.5	0.4	1.7		
18-Jan	0.4	0.3	0.2	0.3	0.2	0.1	0.2	0.3	0.4	0.3	0.1	0.2	0.0	-0.2	-0.1	0.3	0.5	0.1	-0.1	0.0	0.3	0.1	0.0	-0.2	0.2	0.5		
19-Jan	0.4	0.2	0.7	0.0	0.2	0.2	0.4	0.3	0.0	0.2	-0.1	0.2	0.3	0.7	1.5	0.8	-0.1	0.6	1.5	1.0	0.9	0.8	1.1	1.0	0.5	1.5		
20-Jan	1.6	1.2	1.2	0.4	0.1	0.1	0.5	0.4	0.3	0.1	0.1	0.0	0.2	0.2	0.4	0.3	0.3	0.2	0.0	0.7	0.7	0.3	0.5	0.2	0.4	1.6		
21-Jan	0.0	0.1	0.6	0.3	0.2	0.4	0.3	0.2	0.3	0.3	0.3	0.6	1.0	0.8	0.1	0.0	0.5	0.6	0.4	0.3	0.2	0.3	0.5	0.7	0.4	1.0		
22-Jan	1.2	0.5	0.6	0.4	0.2	0.5	0.5	0.2	-0.1	1.1	-0.4	-0.4	1.5	1.7	1.0	0.7	0.8	0.6	1.2	1.6	2.6	2.2	1.8	1.0	0.9	2.6		
23-Jan	1.2	1.2	1.6	1.2	1.1	1.3	1.8	0.6	0.0	0.6	0.6	0.4	0.2	0.8	0.4	0.1	0.3	0.4	0.7	0.3	0.2	0.2	0.6	0.3	0.7	1.8		
24-Jan	0.1	0.7	0.2	0.2	0.5	0.2	0.1	0.1	0.3	0.3	0.2	0.4	0.5	1.8	1.8	2.4	2.0	0.9	0.9	0.7	0.1	0.1	0.3	0.4	0.6	2.4		
25-Jan	0.4	0.5	0.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.5		
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.5	0.0	-0.1	0.3	0.3	1.3	2.6	3.6	3.3	1.3	0.3	0.2	0.3	--	3.6	
28-Jan	-0.2	-0.1	0.5	-0.5	-1.2	0.2	0.8	-1.2	0.0	0.8	0.6	0.9	0.7	1.2	1.1	1.0	1.1	1.6	2.1	2.9	2.6	4.7	5.8	4.1	1.2	5.8		
29-Jan	2.9	0.0	0.7	0.0	0.8	-1.5	-1.3	-0.9	-1.0	0.3	0.3	0.2	-0.4	-0.6	-0.6	-0.4	-0.4	-1.5	-0.8	-0.7	-0.2	0.1	0.1	0.0	-0.2	2.9		
30-Jan	-0.6	0.0	-0.1	0.2	0.6	0.4	0.6	0.3	0.1	0.5	-0.3	0.6	0.7	1.1	1.2	1.6	1.4	1.2	1.2	1.3	0.7	0.2	1.1	0.8	0.6	1.6		
31-Jan	1.2	1.5	0.9	2.4	1.8	3.1	1.8	2.7	-0.7	0.2	0.3	0.0	0.2	0.3	0.4	0.8	-0.6	-0.1	1.1	0.8	0.5	-0.5	0.0	1.2	0.8	3.1		
																								Diurnal Average				
																								Diurnal Maximum				
0.6 0.5 0.6 0.2 0.4 0.3 0.4 0.3 0.1 0.4 0.1 0.1 0.3 0.4 0.3 0.5 0.4 0.3 0.7 0.6 0.4 0.5 0.6 0.6																												
2.9 3.2 2.1 2.4 1.8 3.1 1.8 2.7 0.7 1.1 1.1 0.9 1.5 1.8 1.8 2.4 2.0 2.6 3.6 3.3 2.6 4.7 5.8 4.1																												
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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.2 km/h on Jan 22 22:00 Minimum Value: 0.2 km/h on Jan 3 04:00 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> = 2.1 P <sub>99</sub> = 3.0																						Hours in Service: 744 Hours of Data: 545 Hours of Missing Data: 199 Hours of Calibration: 0 Percent Operational Time: 73.3				
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.8	1.2	1.5	2.2	1.7	2.1	1.8	1.1	1.0	0.9	0.8	0.8	0.6	1.0	0.7	0.9	1.4	1.9	1.6	1.7	1.7	1.4	1.4	1.4	2.2	
2-Jan	1.7	2.1	1.6	1.2	1.2	1.3	1.1	0.9	1.4	0.7	0.3	0.6	1.1	0.9	0.6	0.9	1.0	0.6	0.6	0.6	0.6	0.6	1.0	1.7	2.1	
3-Jan	1.9	0.5	0.3	0.2	0.4	0.3	0.5	0.9	1.0	0.8	0.6	0.6	1.0	1.0	0.8	0.9	0.7	1.0	1.0	1.4	1.0	1.3	1.3	1.6	1.9	
4-Jan	1.5	1.5	1.9	2.0	2.2	2.4	2.2	1.9	1.7	1.7	2.0	1.5	1.4	1.2	1.1	1.7	1.2	0.8	0.7	0.7	0.8	0.6	0.7	2.4		
5-Jan	0.6	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.4	0.6	0.7	0.6	0.3	0.3	0.4	0.6	0.6	0.7	0.5	0.6	0.7	0.6	0.7	0.7	
6-Jan	0.4	0.4	0.4	0.5	0.3	0.4	0.4	0.5	0.5	0.8	0.9	1.0	1.5	1.7	1.4	1.6	1.3	1.6	1.6	1.7	1.8	1.8	1.3	1.1	1.8	
7-Jan	1.3	1.0	1.2	1.2	0.8	0.6	0.4	0.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.1	0.9	0.8	1.5	1.2	1.5	
8-Jan	2.1	2.2	2.1	1.7	1.7	1.1	0.7	0.6	0.3	0.3	UO	UO	UO	UO	1.5	0.6	0.4	0.3	0.6	1.1	1.7	1.1	0.7	0.3	2.2	
9-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	1.3	1.4	1.2	1.0	1.0	2.3	2.3	2.1	1.9	DF	DF	2.3	
10-Jan	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	UO	1.3	1.7	2.0	1.8	2.1	1.7	1.8	2.0	1.9	1.9	1.7	1.4	2.7	2.2	2.7
11-Jan	3.2	1.7	UO	2.4	UO	1.8	UO	UO	UO	UO	2.5	2.3	1.3	UO	1.0	UO	UO	1.4	UO	1.2	1.5	1.3	1.4	1.4	3.2	
12-Jan	1.3	1.6	1.2	1.3	2.0	1.5	UO	UO	1.2	UO	UO	UO	UO	UO	0.6	1.4	1.8	1.5	1.4	1.1	UO	1.8	1.5	1.6	2.0	
13-Jan	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	--
14-Jan	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	--
15-Jan	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	--
16-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.6	0.4	0.6	0.7	0.8	1.1	1.2	1.8	1.5	1.3	1.5	1.8	
17-Jan	1.9	1.4	1.2	1.6	1.7	1.6	0.9	0.7	1.3	1.8	2.0	2.3	2.3	1.3	1.5	1.4	0.8	0.6	0.6	0.5	0.7	1.1	0.9	0.8	2.3	
18-Jan	0.4	0.4	0.4	0.5	0.3	0.3	0.5	0.7	0.9	0.8	0.8	0.8	0.5	0.7	0.8	0.8	0.8	1.0	1.4	1.4	1.5	0.7	1.1	0.7	1.5	
19-Jan	0.9	0.9	1.3	0.9	0.9	0.7	0.8	0.7	0.8	0.9	0.9	1.0	0.8	1.1	1.0	1.1	1.2	1.3	1.8	1.7	1.1	1.2	1.2	1.9	1.9	
20-Jan	1.8	1.7	1.5	1.0	0.6	0.8	0.6	0.5	0.5	0.5	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.6	1.2	1.5	1.4	1.4	1.7	1.3	1.8	
21-Jan	0.9	0.9	1.3	1.1	0.5	0.7	0.6	0.5	0.5	0.7	1.0	1.5	1.7	1.8	1.5	1.6	1.7	1.3	1.0	0.7	1.1	0.5	0.6	1.1	1.8	
22-Jan	1.5	1.6	1.2	0.8	0.5	0.6	0.7	0.6	1.5	2.1	1.5	2.1	2.4	2.8	2.3	2.5	2.7	2.6	3.1	2.9	3.1	3.2	3.1	2.9	3.2	
23-Jan	2.4	2.5	2.5	2.1	1.6	1.4	1.3	1.1	0.7	0.9	0.9	1.1	1.6	1.2	0.9	0.7	0.6	1.3	1.8	1.7	1.5	1.4	1.4	1.4	2.5	
24-Jan	1.1	1.0	0.8	0.6	0.7	0.5	0.3	0.5	0.9	1.1	0.9	1.0	1.3	2.4	2.2	2.2	2.3	1.7	1.8	1.3	0.4	0.3	0.2	0.5	2.4	
25-Jan	0.8	1.1	1.6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.6	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.2	1.2	1.0	0.7	0.8	1.0	0.9	1.0	0.8	0.8	1.3	1.0	1.3
28-Jan	0.8	0.6	1.1	1.4	1.9	1.3	1.8	1.4	1.7	1.7	2.1	1.9	2.2	2.9	2.4	1.5	1.1	0.9	0.7	1.9	1.6	2.1	1.5	0.6	2.9	
29-Jan	1.5	0.8	1.3	3.0	1.4	1.7	1.5	1.3	1.3	1.3	1.2	1.6	1.1	1.2	1.2	1.1	0.6	1.1	0.9	1.3	1.4	2.0	1.9	1.8	3.0	
30-Jan	1.6	0.9	0.9	1.0	0.9	1.1	0.7	0.7	1.0	1.5	2.3	1.9	1.6	1.9	2.4	2.9	2.9	2.3	1.6	2.5	3.2	1.6	1.0	1.1	3.2	
31-Jan	1.1	1.0	1.2	1.1	1.1	1.4	1.6	1.6	1.0	0.9	0.9	0.7	1.2	1.3	1.6	1.0	1.1	2.4	2.6	2.0	2.6	1.6	2.4	2.9	2.9	
Diurnal Maximum																										
DF - DAS Failure      UO - Unstable Operation																										



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS04 BUFFALO VIEWPOINT JANUARY 2024**

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

February 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)

JANUARY 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	709	35	35	100	39.9	0	4	0
H2S (ppb) Average	707	37	37	100	12.7	1	1.6	0
THC (ppm) Average	707	35	37	99.73	8.5	-	2.5	-
NMHC(ppm) Average	707	35	37	99.73	1.138	-	0.117	-
CH4(ppm) Average	707	35	37	99.73	7.4	-	2.4	-
O3(ppb) Average	710	34	34	100	48.3	0	37.2	-
NO2(ppb) Average	708	36	36	100	34.1	0	21.5	-
NO(ppb) Average	708	36	36	100	90.1	-	22.5	-
NOX(ppb) Average	708	36	36	100	109.3	-	44	-
PM2.5(ug/m3) Average	743	1	1	100	48.2	0	17.4	0
Temperature (C) Average	744	0	0	100	11.8	-	5.1	-
Relative Humidity (%) Average	744	0	0	100	96.4	-	93.1	-
Wind Speed 10 m (km/h) Average	742	0	2	99.73	28	-	15	-
Wind Direction 10 m (deg) Average	742	0	2	99.73	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)  
 JANUARY 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	709	0.75	2.6	-	0	0	0.1	0.3	0.5	1	39.9
H2S (ppb) Average	707	0.31	0.7	-	0	0.1	0.1	0.2	0.3	0.6	12.7
THC (ppm) Average	707	2.13	0.4	-	1.9	2	2	2	2.1	2.4	8.5
NMHC(ppm) Average	707	0.024	0.078	-	0	0	0	0	0	0.1	1.138
CH4(ppm) Average	707	2.1	0.3	-	1.9	2	2	2	2.1	2.3	7.4
O3(ppb) Average	710	21.86	10.4	-	0.9	5.3	15.1	23.5	29.2	33.9	48.3
NO2(ppb) Average	708	8.88	7.5	-	0.1	1.5	3.4	6.3	12.4	20.1	34.1
NO(ppb) Average	708	3.33	9.3	-	0	0	0	0.1	1.8	9.4	90.1
NOX(ppb) Average	708	12.21	15.2	-	0.1	1.5	3.5	6.6	14.4	30.2	109.3
PM2.5(ug/m3) Average	743	4.92	5.1	-	0.4	1.7	2.4	3.4	5.2	10.6	48.2
Temperature 2 m (C) Average	744	-17.58	12.6	-	-44.2	-35.1	-25.1	-18.3	-10	1.5	11.8
Relative Humidity (%) Average	744	76.21	9.2	-	38.1	65.1	70.7	76.9	81.7	88.5	96.4
Wind Speed 10 m (km/h) Average	742	7.1	4	-	0	3	4	6	9	12	28
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	26 Jan 2024 10:00	26 Jan 2024 11:00	2	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction	11 Jan 2024 22:00	11 Jan 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 21:00	13 Jan 2024 21:00	1	Flat line in sensor output signal

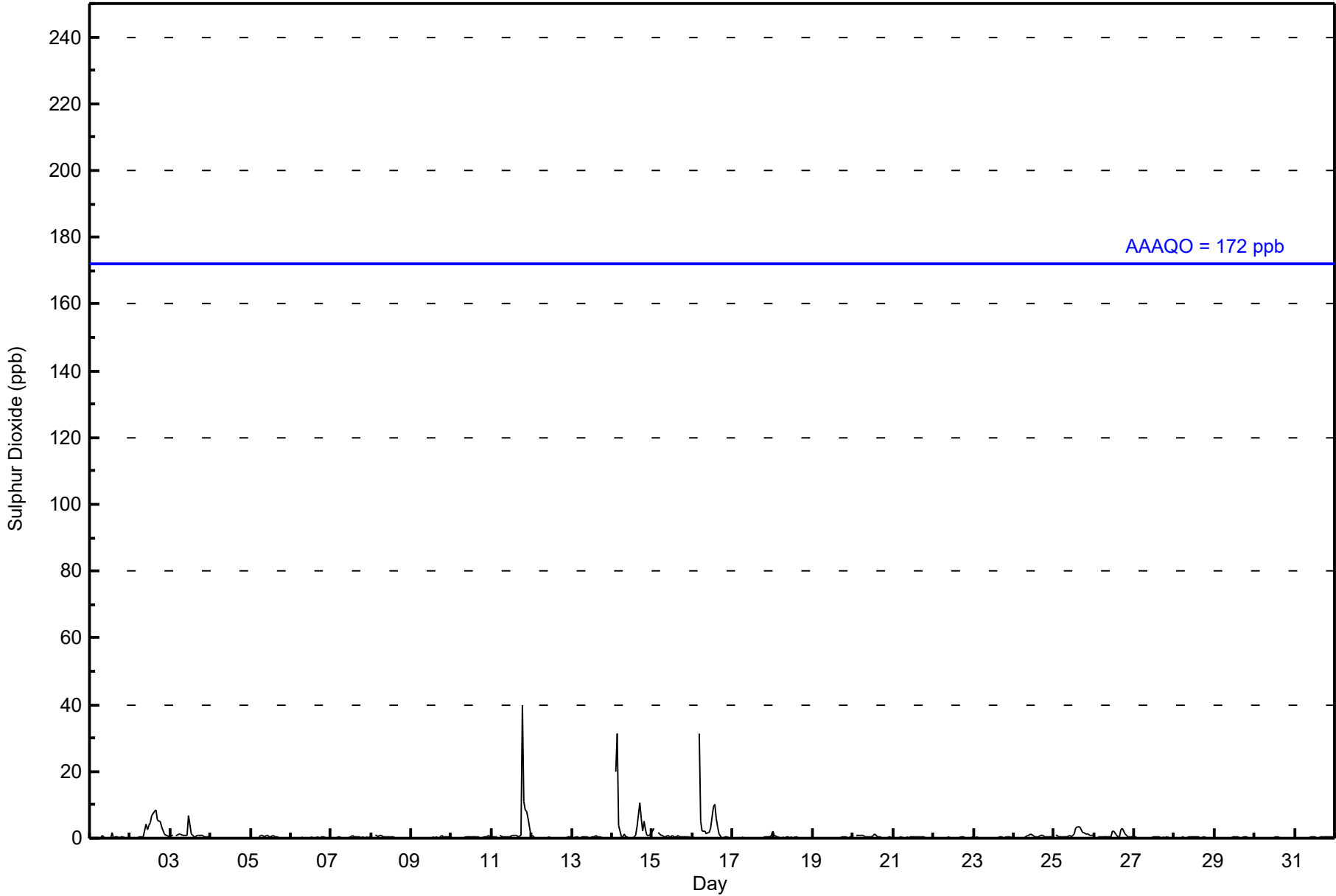


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 39.9 ppb on Jan 11 19:00 Maximum Daily Average: 4.0 ppb on Jan 14																						Hours in Service: 744 Hours of Data: 709				
Minimum Value: 0.0 ppb on Jan 4 05:00 Minimum Daily Average: 0.0 ppb on Jan 4 Maximum Diurnal Average: 1.8 ppb at hour 19 Minimum Diurnal Average: 0.3 ppb at hour 2 Monthly Average: 0.75 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> = 1.0 P <sub>99</sub> = 9.4																						Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.9	0.6	0.1	0.0	0.1	0.0	1.7	0.1	0.3	0.2	0.2	0.4	0.4	0.3	0.2	0.2	0.4	0.3	1.7
2-Jan	0.4	Z	0.1	0.1	0.2	0.4	0.5	0.4	0.3	4.4	2.7	3.7	4.8	6.8	8.0	8.4	5.5	5.2	5.3	3.2	1.5	1.0	0.8	0.6	2.8	8.4
3-Jan	0.8	0.9	Z	0.8	0.9	1.1	1.2	1.0	0.8	0.9	0.7	6.8	1.3	0.8	0.6	0.6	1.0	1.0	0.8	0.9	0.6	0.5	0.4	0.3	1.1	6.8
4-Jan	0.2	0.2	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	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2
5-Jan	0.1	0.1	0.0	0.0	Z	0.3	0.7	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.6	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7
6-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.2	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.0	0.1	0.1	0.3
7-Jan	Z	0.0	0.1	0.2	0.5	0.2	0.2	0.1	0.0	0.1	0.1	0.4	0.6	0.9	0.5	0.5	0.3	0.2	0.2	0.3	0.2	0.3	0.1	0.5	0.3	0.9
8-Jan	0.6	Z	0.8	0.7	0.5	0.7	0.8	0.5	0.4	0.5	0.6	0.6	0.5	0.4	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.4	0.8	
9-Jan	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.5	1.1	0.5	0.5	0.2	0.3	0.1	0.2	1.1
10-Jan	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.1	0.3	0.4	0.5	0.6	0.5	0.3	0.3	0.2	0.5	0.2	0.2	0.6	0.3	0.4	0.8	0.4	0.3	0.8
11-Jan	0.4	0.4	0.5	0.5	Z	0.8	0.5	0.3	0.2	0.4	0.3	0.4	0.9	0.7	0.8	0.7	0.2	1.0	39.9	11.0	8.4	8.2	5.8	0.9	3.6	39.9
12-Jan	0.8	0.3	0.2	0.1	0.1	Z	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.3	0.3	0.3	0.2	0.8
13-Jan	Z	0.2	0.3	0.3	0.0	0.1	0.4	0.2	0.4	0.4	0.2	0.2	0.5	0.6	0.8	0.5	0.6	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.8
14-Jan	0.0	Z	19.7	31.2	3.7	0.6	0.6	1.2	0.4	0.4	0.1	0.0	0.1	0.4	0.7	3.2	10.8	6.1	2.1	5.0	2.7	0.7	0.7	1.5	4.0	31.2
15-Jan	2.2	3.0	Z	1.7	1.2	0.8	0.7	0.5	0.5	0.6	0.4	0.6	0.7	0.5	0.6	0.7	0.5	0.3	0.5	0.3	0.5	0.3	0.4	0.2	0.8	3.0
16-Jan	0.4	0.2	0.2	Z	31.5	5.1	2.3	2.0	1.4	1.7	1.8	2.8	9.4	10.1	6.0	3.4	1.4	0.1	0.1	0.3	0.5	0.2	0.1	0.0	3.5	31.5
17-Jan	0.0	0.0	0.1	0.2	Z	0.0	0.3	C	C	C	C	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.3	0.4	0.4	0.7	0.2	0.7
18-Jan	2.3	0.8	0.4	0.6	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	2.3
19-Jan	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	0.1	0.0	0.3	0.6	0.4	0.2	0.2	0.4	0.7	0.1	0.7
20-Jan	0.7	Z	0.7	0.7	0.7	0.8	0.8	0.4	0.3	0.3	0.2	0.3	0.9	1.3	0.5	0.4	0.3	0.2	0.0	0.1	0.2	0.2	0.2	0.2	0.4	1.3
21-Jan	0.1	0.1	Z	0.2	0.3	0.2	0.0	0.2	0.2	0.1	0.3	0.5	0.2	0.3	0.5	0.4	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.2	0.5
22-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.2	0.1	0.4
23-Jan	0.0	0.2	0.3	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.5	0.6	0.0	0.4	0.5	0.3	0.3	0.1	0.2	0.6
24-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.5	0.7	1.0	1.1	0.7	0.6	0.6	0.5	0.6	0.7	0.9	0.6	0.3	0.3	0.5	0.5	0.4	0.5	1.1
25-Jan	Z	0.7	0.7	0.5	0.3	0.4	0.5	0.4	0.5	0.4	0.8	0.6	0.8	1.2	3.0	3.6	3.4	2.7	1.7	1.5	1.2	1.2	0.9	1.0	1.0	3.6
26-Jan	0.9	Z	0.4	0.4	0.3	0.5	0.3	0.3	0.3	0.4	0.5	2.3	2.0	0.7	0.3	0.2	2.6	2.8	1.4	0.8	0.5	0.5	0.4	0.3	0.8	2.8
27-Jan	0.3	0.2	Z	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.3	0.2	0.5	0.3	0.0	0.1	0.2	0.2	0.5
28-Jan	0.2	0.1	0.0	Z	0.2	0.3	0.0	0.1	0.5	0.4	0.3	0.5	0.4	0.4	0.3	0.1	0.1	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.5
29-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.3	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.3
30-Jan	0.1	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.1	0.0	0.3	0.3	0.4	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.4
31-Jan	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.2	0.4
																						Diurnal Average				
																						Diurnal Maximum				
0.4 0.3 1.0 1.5 1.6 0.5 0.4 0.4 0.3 0.5 0.4 0.8 0.9 1.0 0.9 0.8 1.0 0.8 1.8 0.9 0.6 0.5 0.4 0.3 2.3 3.0 19.7 31.2 31.5 5.1 2.3 2.0 1.4 4.4 2.7 6.8 9.4 10.1 8.0 8.4 10.8 6.1 39.9 11.0 8.4 8.2 5.8 1.5																										
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**  
**Buffalo Viewpoint - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	703	99.15	99.15
11 - 20	3	0.42	99.58
21 - 60	3	0.42	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Buffalo Viewpoint - January 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	139	88	23	9	1	8	59	135	74	11	16	22	39	28	20	29	701
11 - 20	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
21 - 60	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	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>	139	90	23	10	1	8	60	135	74	12	16	22	39	28	21	29	707

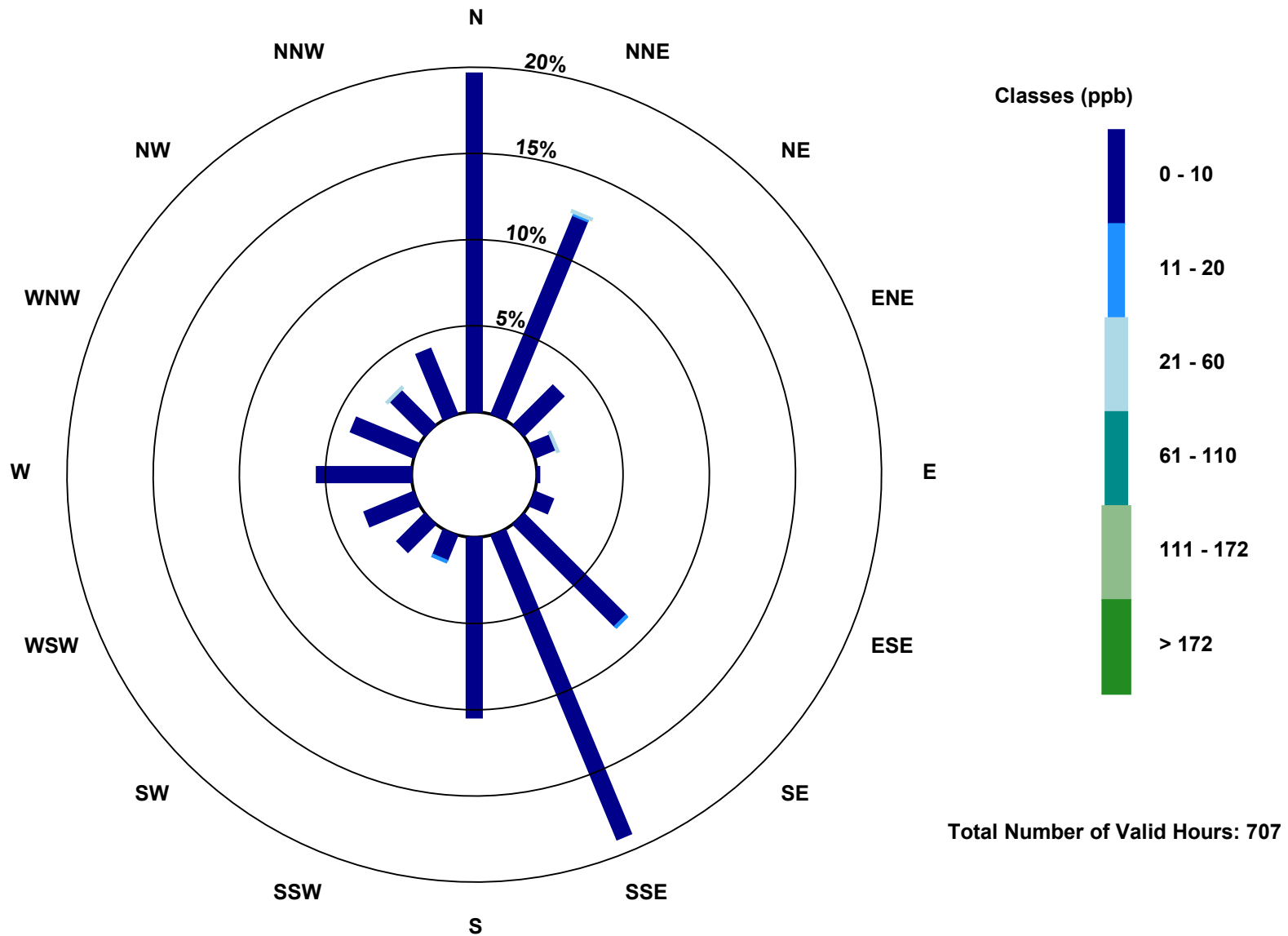
Total Number of Valid Hours: 707

Total Number of Hours: 744

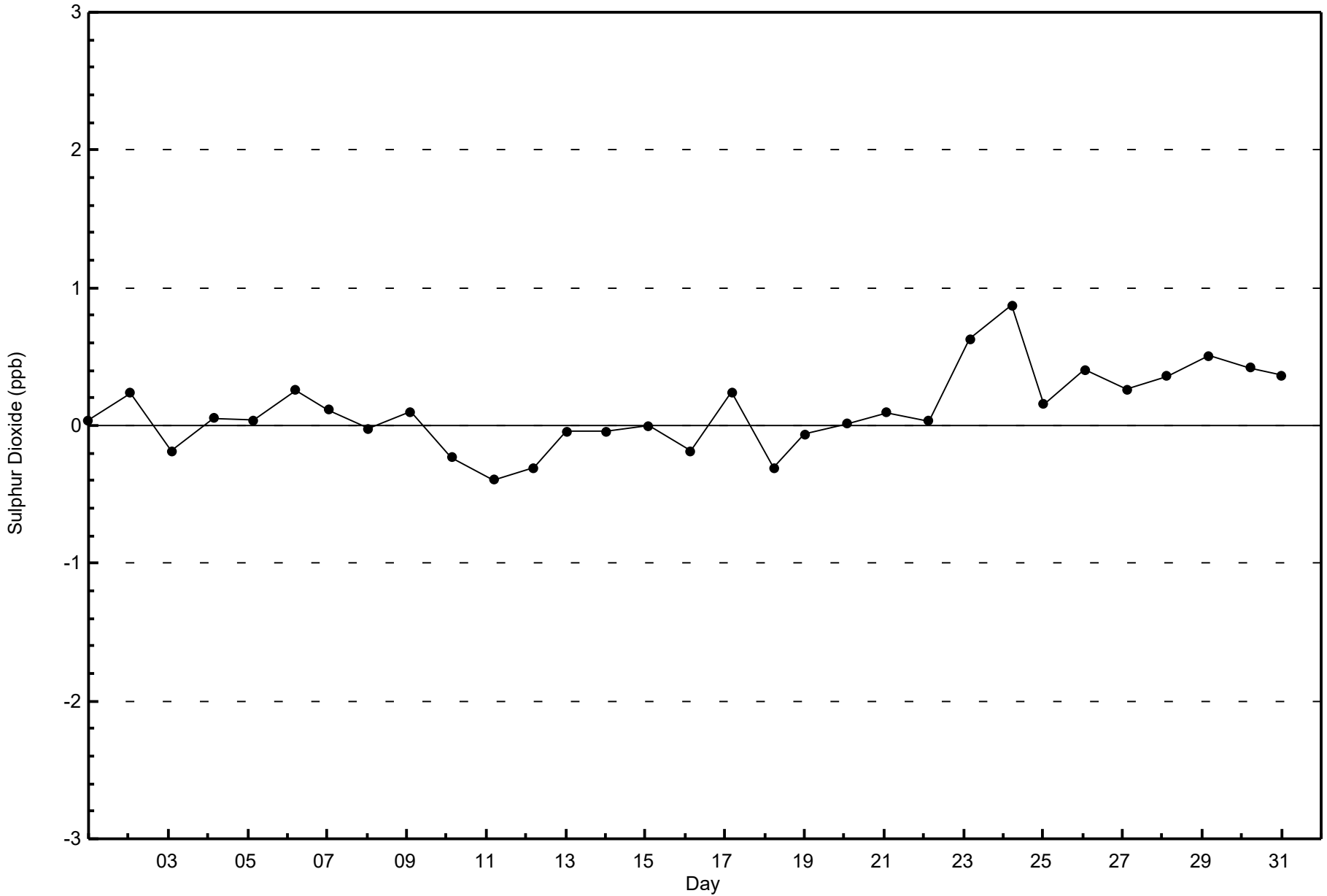


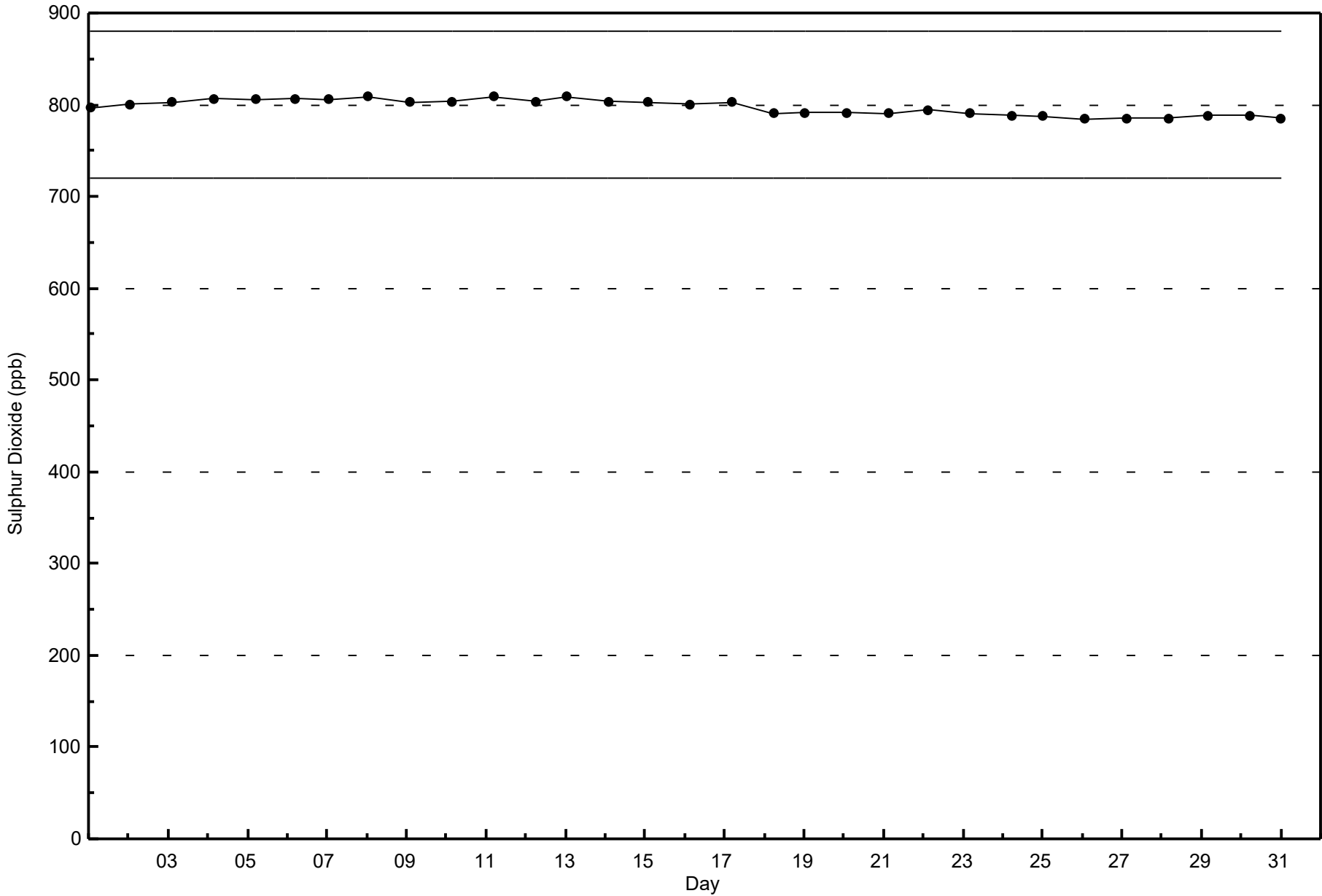
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











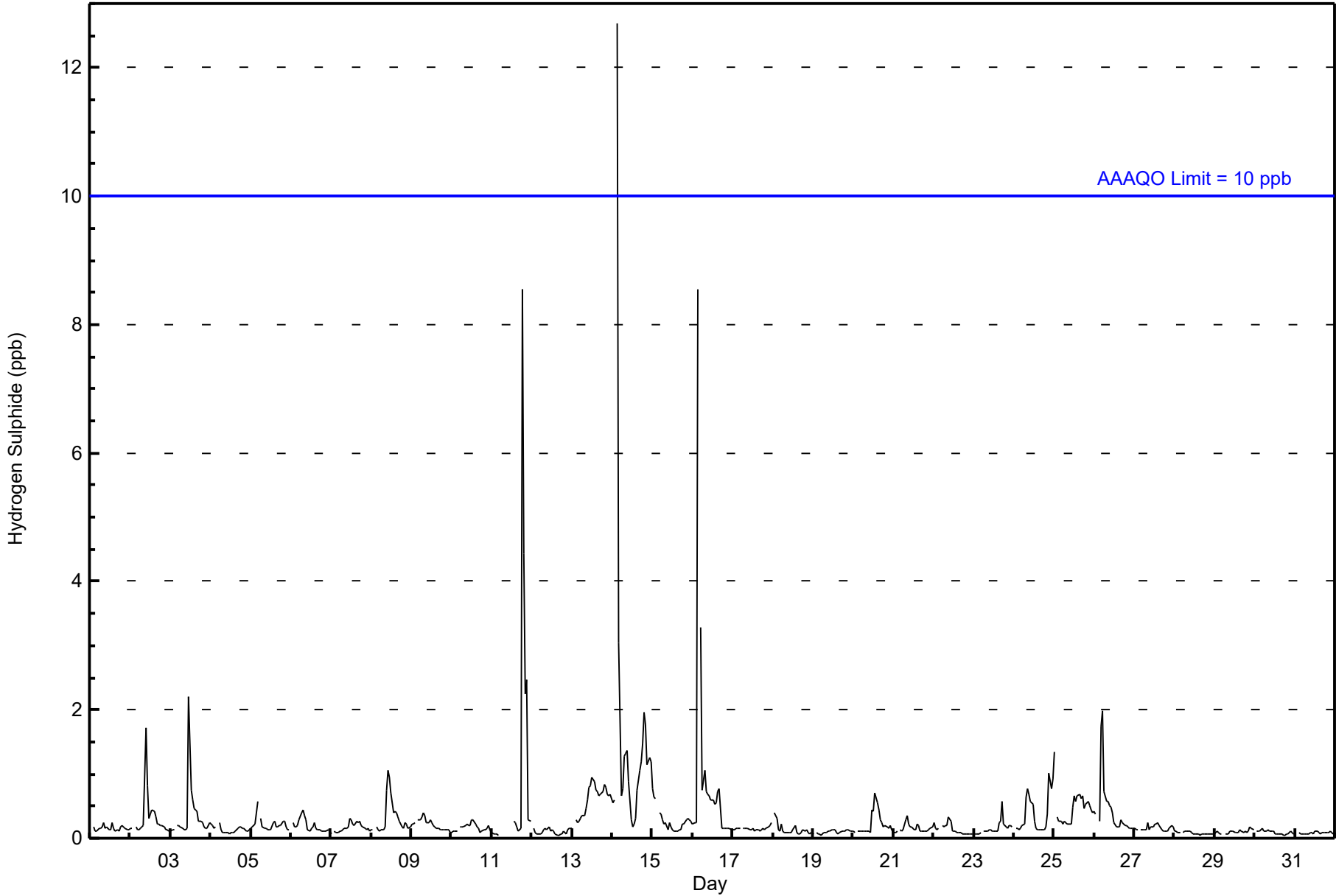
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Buffalo Viewpoint - January 2024

Number of Exceedences (AAAQO): 1-hr: 1 24-hr: 0		Hours in Service: 744																									
Maximum Value: 12.7 ppb on Jan 14 04:00		Maximum Daily Average: 1.6 ppb on Jan 14																									
Minimum Value: 0.0 ppb on Jan 12 17:00		Hours of Data: 707																									
Maximum Diurnal Average: 0.9 ppb at hour 4		Hours of Missing Data: 37																									
Monthly Average: 0.31 ppb		Hours of Calibration: 37																									
Minimum Daily Average: 0.1 ppb on Jan 31		Percent Operational Time: 100.0																									
Minimum Diurnal Average: 0.2 ppb at hour 3																											
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> = 0.3 P <sub>90</sub> = 0.6 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-Jan	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	
2-Jan	0.2	0.1	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	1.7	0.8	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	
3-Jan	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.2	2.2	0.8	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.3	
4-Jan	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	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	
5-Jan	0.2	0.2	0.2	0.4	0.6	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.2	0.6	
6-Jan	Z	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.3	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	0.4	
7-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.3	
8-Jan	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.8	1.1	0.9	0.7	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.1	
9-Jan	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.4	0.4	0.3	0.3	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	0.4	
10-Jan	0.1	0.1	0.1	0.1	Z	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	0.1	0.2	0.2	0.1	0.2	0.3	
11-Jan	0.1	0.1	0.1	0.1	0.0	Z	0.1	C	C	C	C	C	C	0.3	0.2	0.2	0.1	0.1	8.5	4.4	2.3	2.5	0.3	0.3	--	8.5	
12-Jan	Z	0.2	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
13-Jan	0.1	Z	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.8	0.8	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.9
14-Jan	0.6	0.6	Z	12.7	3.0	0.7	0.8	1.3	1.3	1.4	0.9	0.3	0.2	0.2	0.3	0.8	1.1	1.2	1.5	2.0	1.8	1.1	1.3	1.2	1.6	12.7	
15-Jan	0.8	0.6	0.6	Z	0.4	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.8	
16-Jan	0.2	0.3	0.2	8.5	Z	3.3	0.8	1.1	0.7	0.7	0.7	0.6	0.6	0.5	0.6	0.7	0.8	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.9	8.5	
17-Jan	0.1	0.1	0.2	0.2	0.1	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	
18-Jan	Z	0.4	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
19-Jan	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	
20-Jan	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.7	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.7	
21-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	
22-Jan	0.3	0.2	0.1	0.1	Z	0.2	0.2	0.2	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	0.3	
23-Jan	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	0.2	0.3	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	
24-Jan	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.6	0.8	0.7	0.6	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	1.0	0.8	0.9	0.4	1.0	
25-Jan	1.4	Z	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.5	0.7	0.6	0.7	0.6	0.7	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.5	1.4	
26-Jan	0.4	0.4	Z	0.3	1.7	2.0	0.7	0.6	0.6	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.5	2.0	
27-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	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	0.2	0.2	0.2	0.2	
28-Jan	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	
29-Jan	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	0.2	0.2	0.1	0.1	0.2	
30-Jan	Z	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	0.2	
31-Jan	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	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2 0.2 0.2 0.9 0.3 0.4 0.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.5 0.4 0.3 0.3 0.2 0.2			
																								1.4 0.6 0.6 12.7 3.0 3.3 0.8 1.3 1.3 1.7 1.1 2.2 0.9 0.9 0.8 0.8 1.1 1.2 8.5 4.4 2.3 2.5 1.3 1.2			
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  
Buffalo Viewpoint - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	701	99.15	99.15
3 - 4	3	0.42	99.58
5 - 7	0	0.00	99.58
8 - 11	2	0.28	99.86
> 11	1	0.14	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Buffalo Viewpoint - January 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	138	84	23	9	2	8	58	138	72	13	16	21	38	28	21	30	699
3 - 4	1	0	0	0	0	0	0	0	0	1	0	0	1	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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<b>Totals</b>	139	85	23	10	2	8	58	138	72	14	16	21	39	28	22	30	705

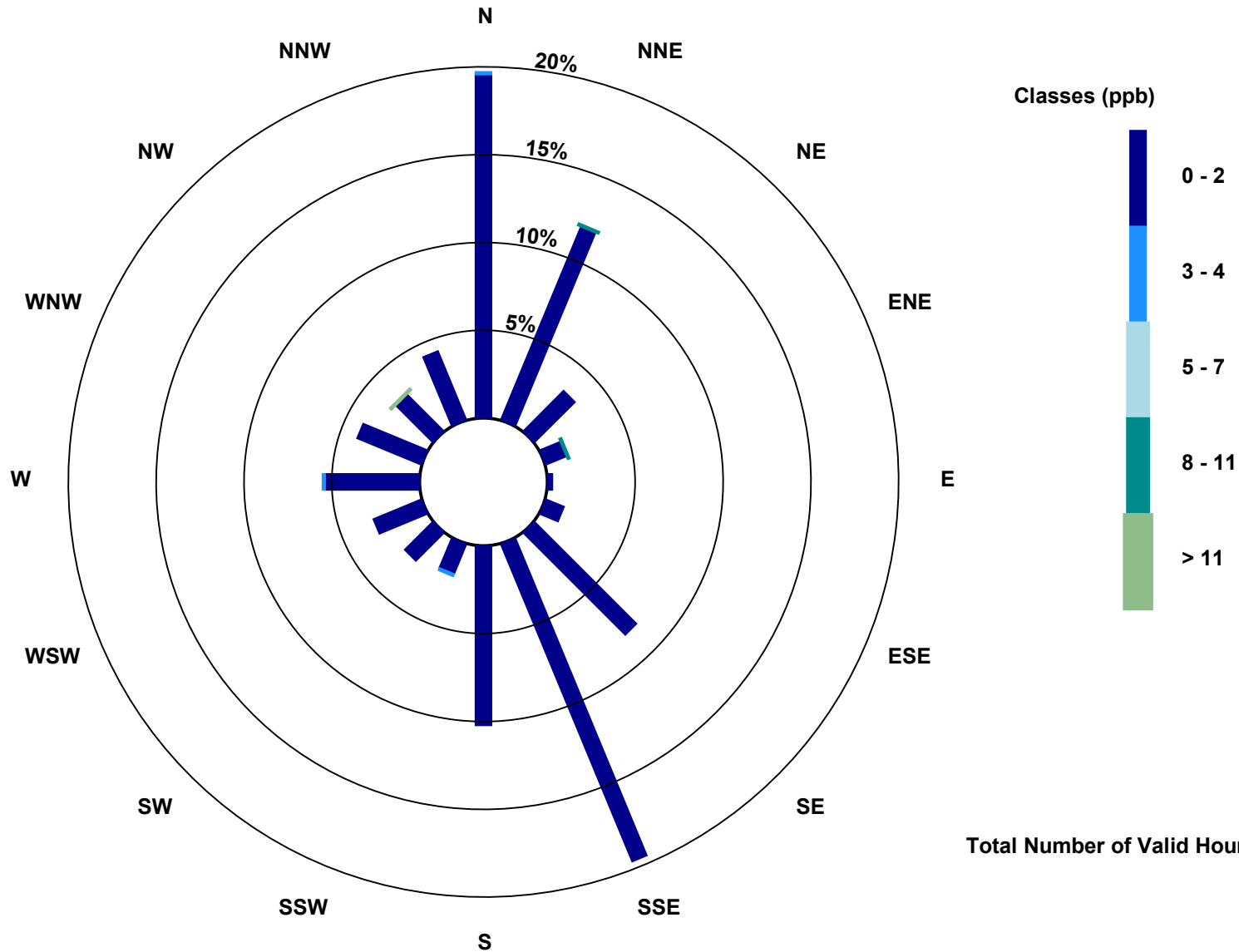
Total Number of Valid Hours: 705

Total Number of Hours: 744

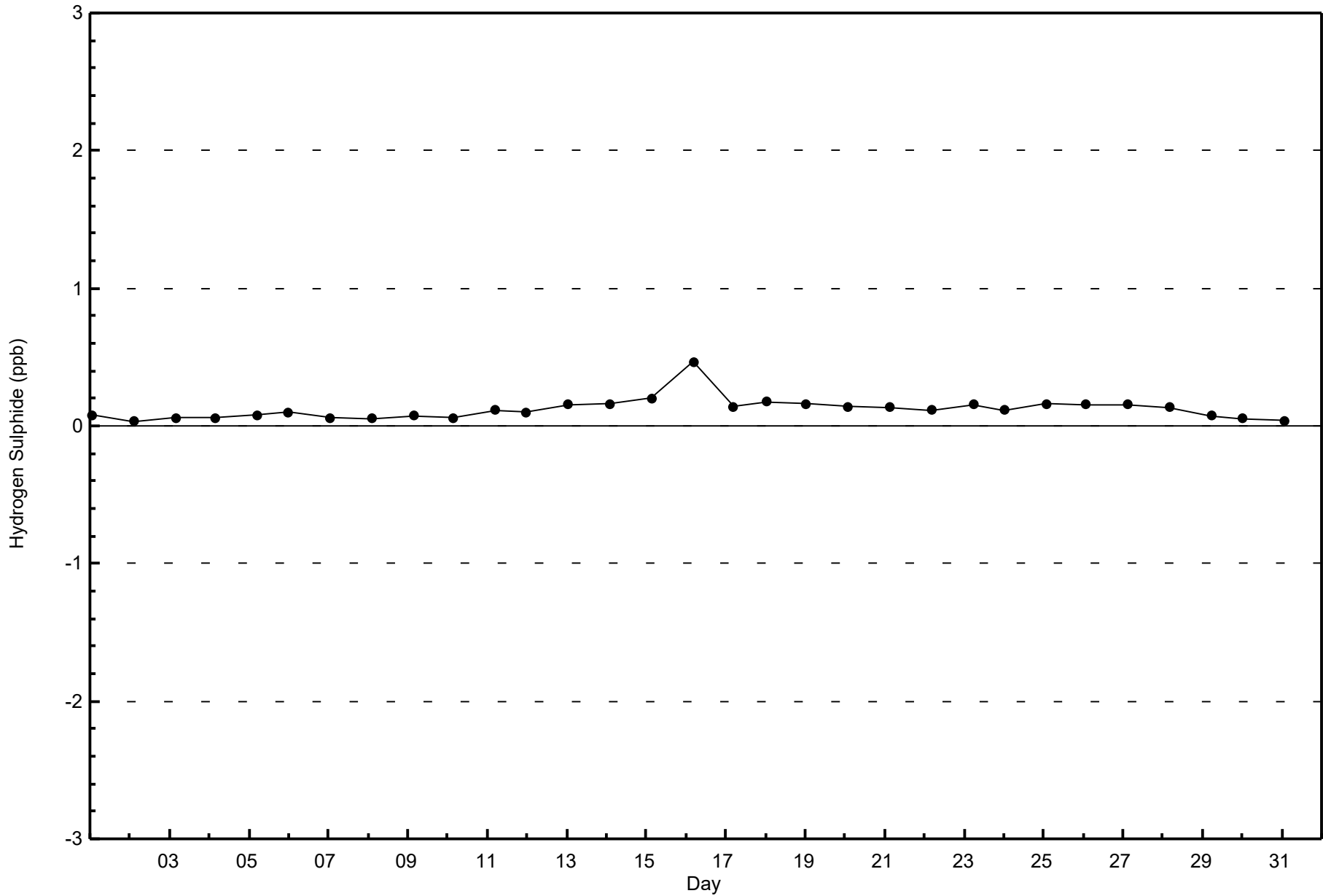


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

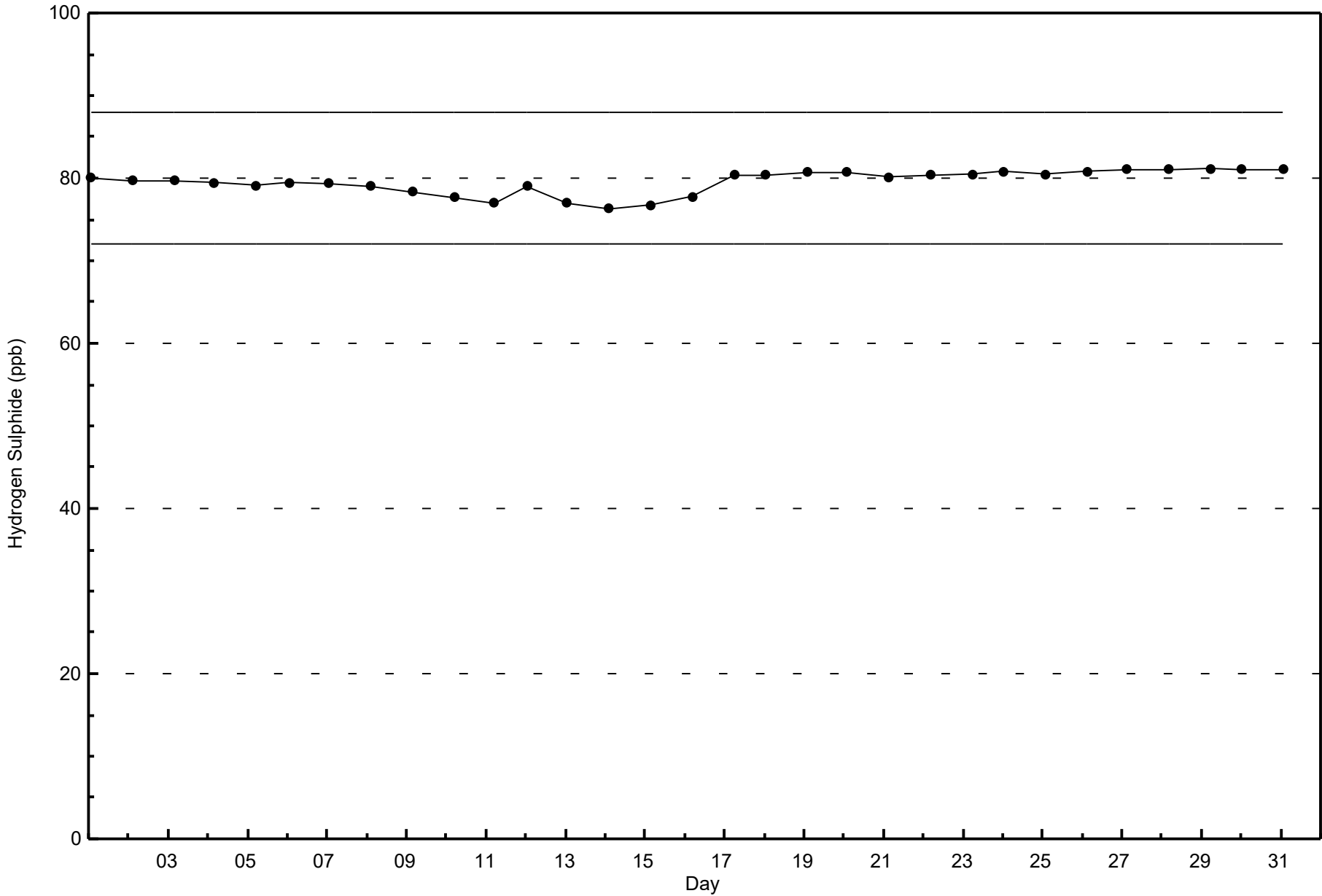
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Buffalo Viewpoint



Total Number of Valid Hours: 705





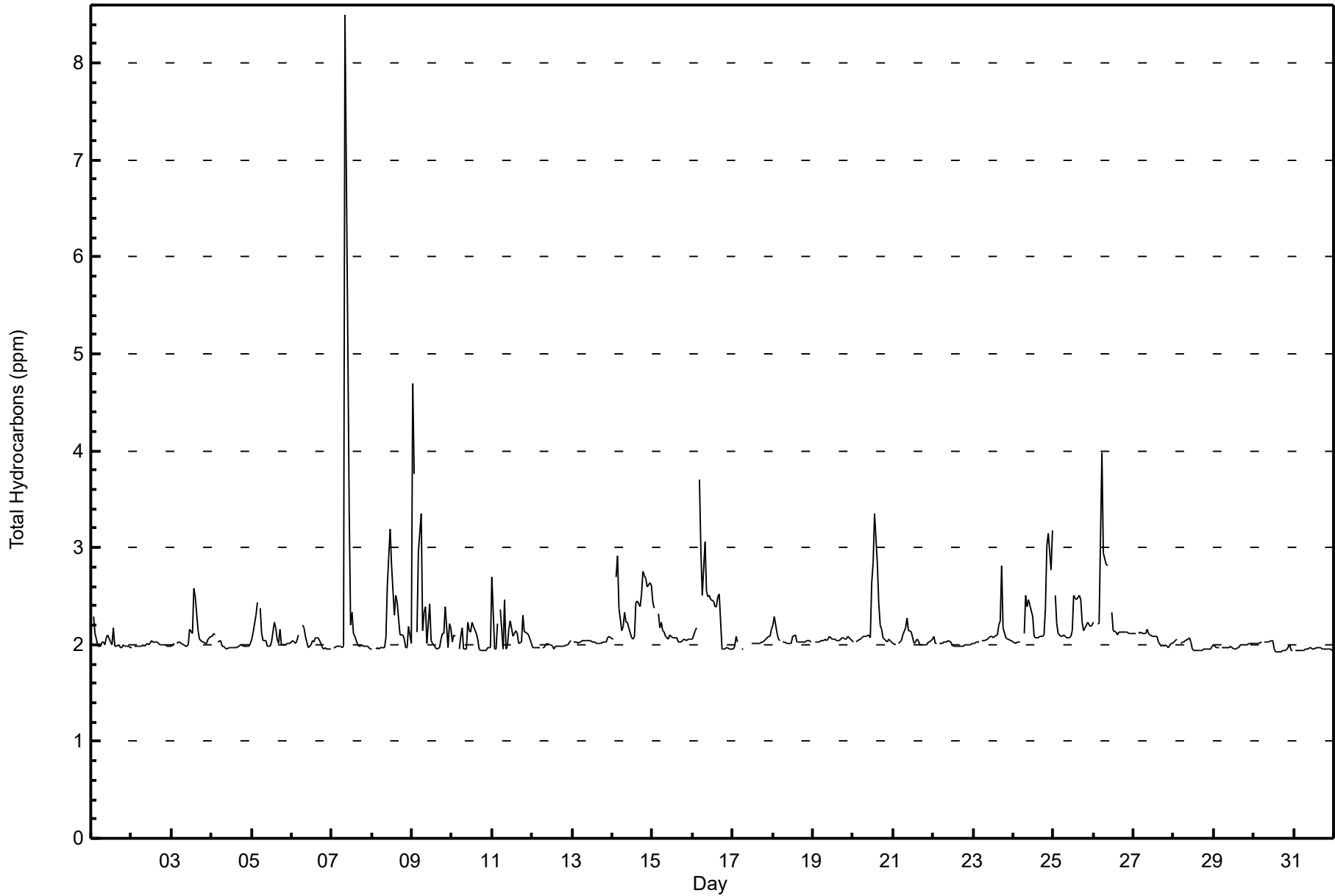






Wood Buffalo Environmental Association  
Hourly Averages

Total Hydrocarbons (THC) - ppm  
Buffalo Viewpoint - January 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	418	59.12	59.12
2.1 - 3.0	275	38.90	98.02
3.1 - 10.0	14	1.98	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Buffalo Viewpoint - January 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	77	55	16	6	1	6	45	87	36	2	11	19	34	15	4	3	417
2.1 - 3.0	61	31	6	4	0	2	15	48	36	10	4	2	5	12	14	24	274
3.1 - 10.0	1	4	1	0	0	0	0	0	0	0	1	1	0	1	3	2	14
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	139	90	23	10	1	8	60	135	72	12	16	22	39	28	21	29	705

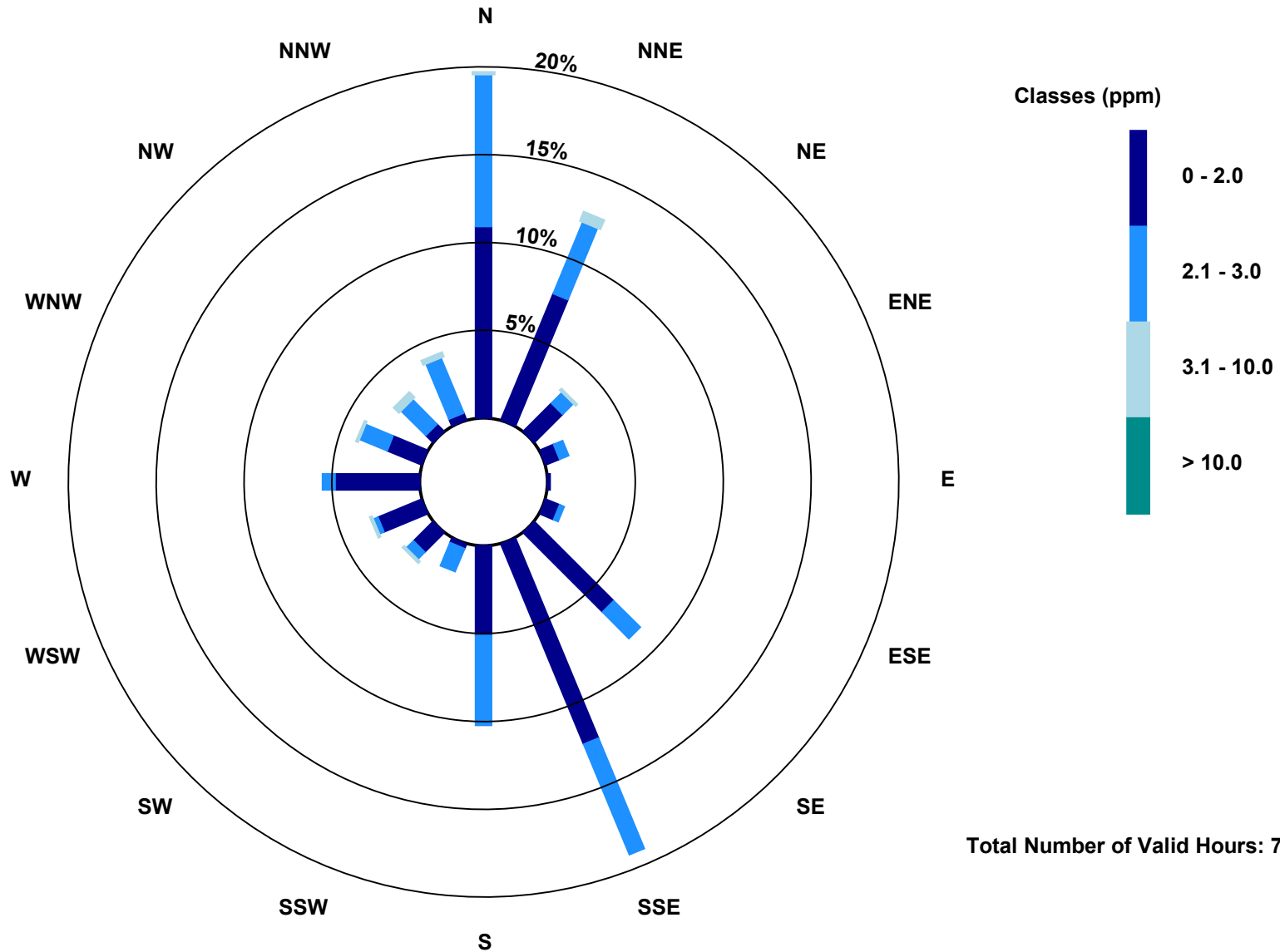
Total Number of Valid Hours: 705

Total Number of Hours: 744

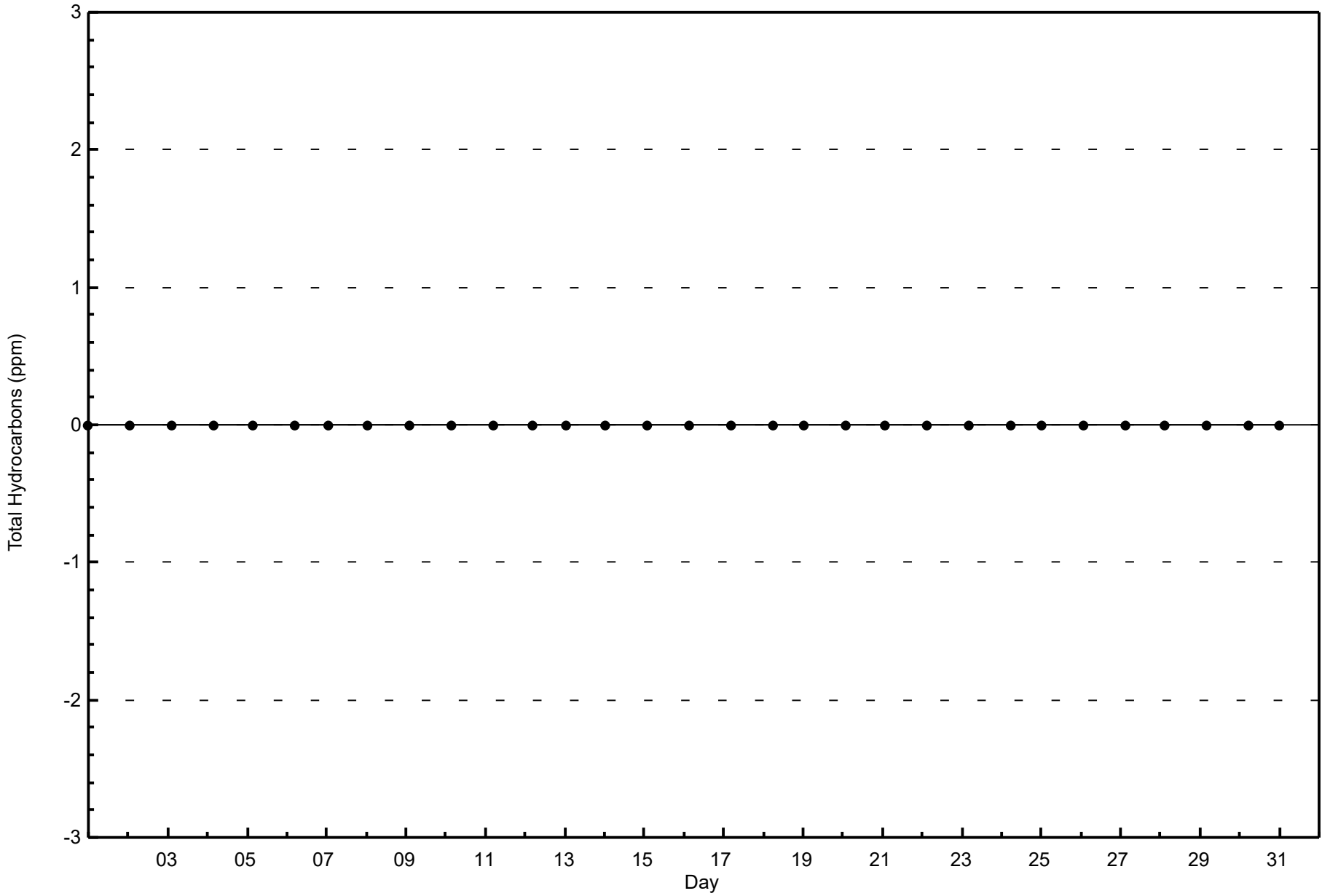


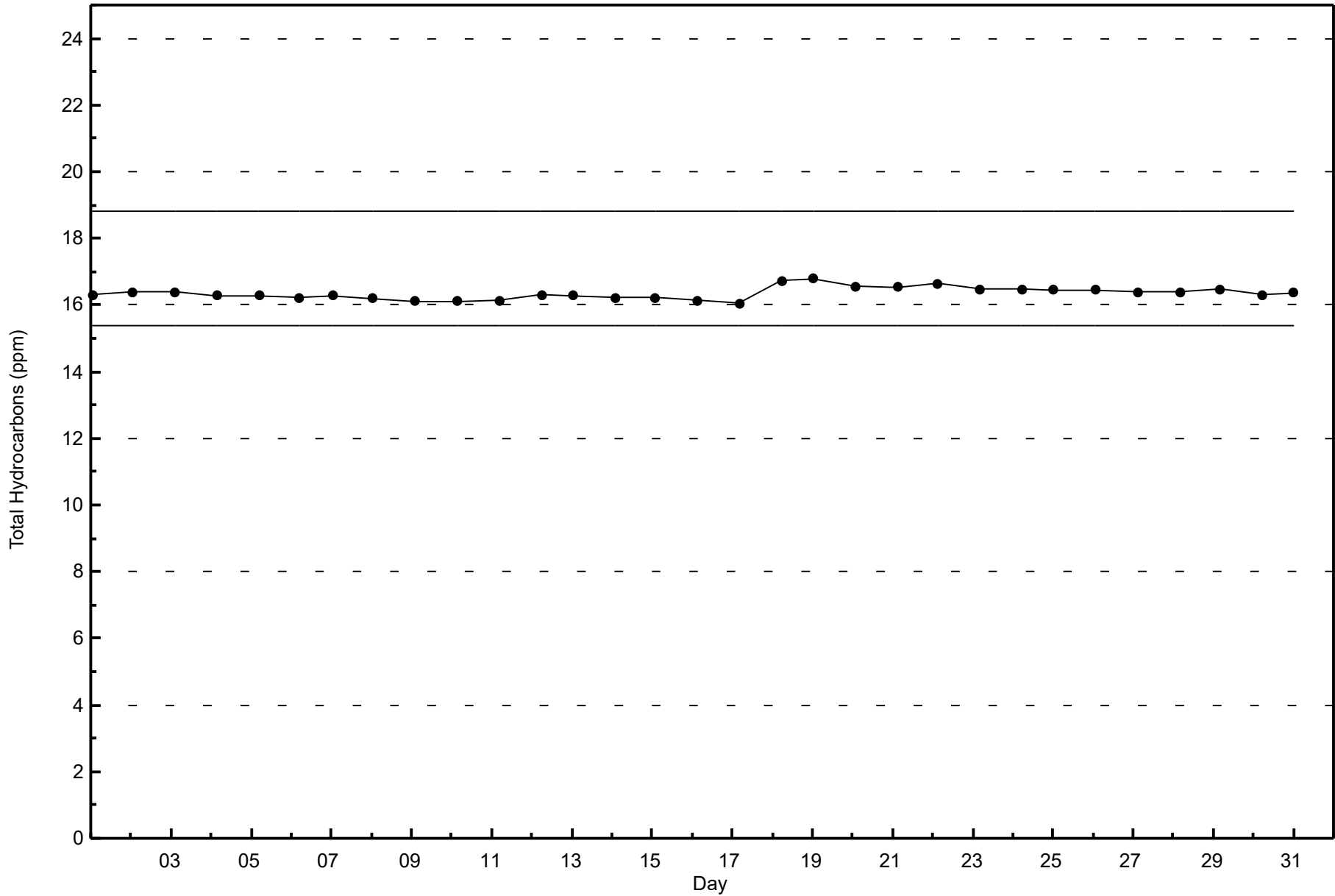
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Buffalo Viewpoint



Total Number of Valid Hours: 705

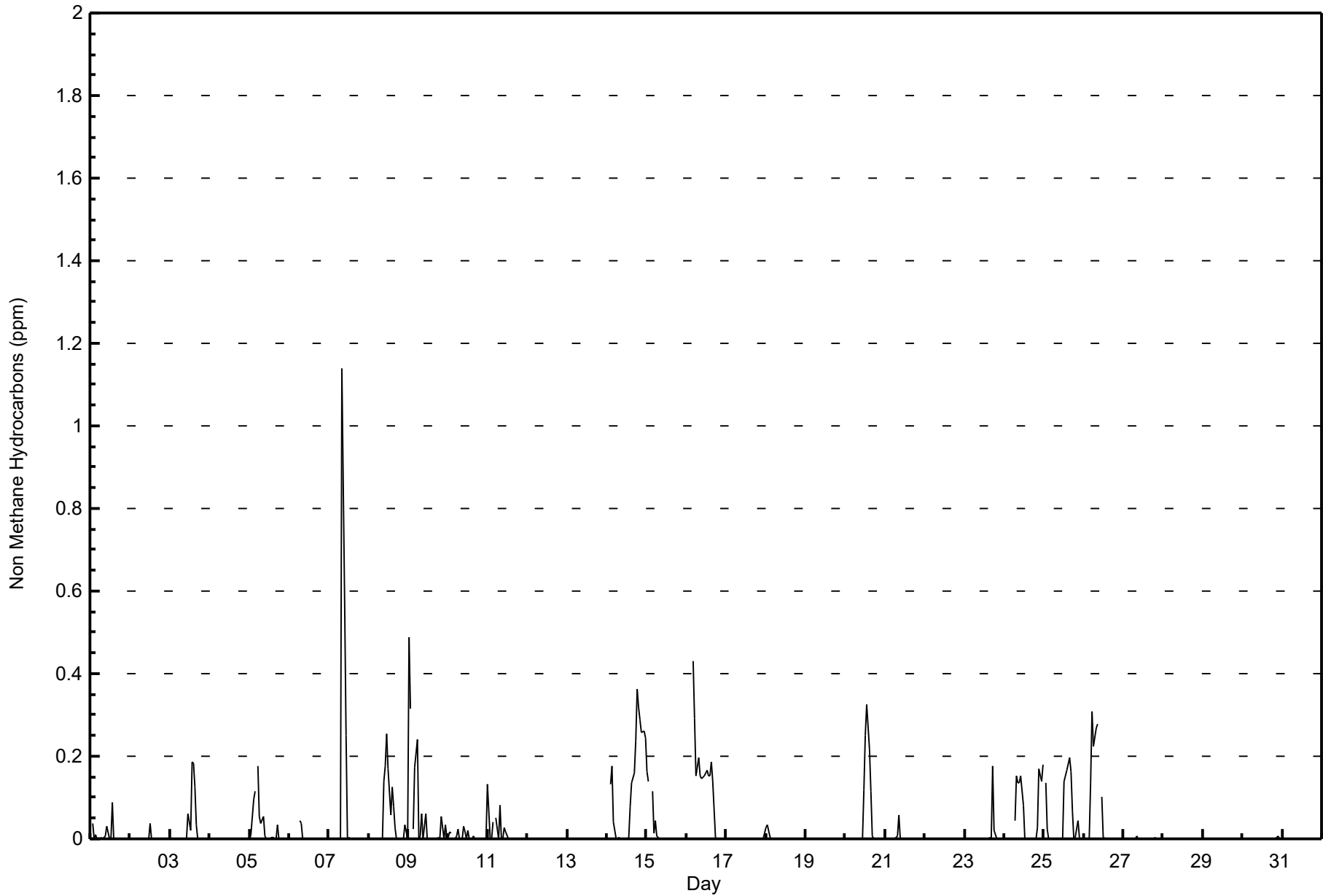








Maximum Value: 1.138 ppm on Jan 7 09:00		Maximum Daily Average: 0.117 ppm on Jan 14		Hours in Service: 744																						
Minimum Value: 0.000 ppm on Jan 1 05:00		Minimum Daily Average: 0.000 ppm on Jan 4		Hours of Data: 707																						
Maximum Diurnal Average: 0.063 ppm at hour 9		Minimum Diurnal Average: 0.010 ppm at hour 3		Hours of Missing Data: 37																						
Monthly Average: 0.024 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> = 0.3		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-Jan	Z	0.036	0.001	0.011	0.000	0.000	0.003	0.001	0.004	0.007	0.029	0.000	0.000	0.089	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.089
2-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.036
3-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.020	0.186	0.183	0.127	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.186
4-Jan	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
5-Jan	0.000	0.011	0.096	0.114	Z	0.177	0.053	0.037	0.055	0.006	0.000	0.000	0.000	0.004	0.005	0.000	0.000	0.035	0.000	0.000	0.000	0.000	0.000	0.026	0.177	
6-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.045	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.045	
7-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.138	0.570	0.251	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	1.138	
8-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.178	0.255	0.170	0.057	0.125	0.077	0.026	0.000	0.000	0.000	0.000	0.000	0.034	0.046	0.255	
9-Jan	0.490	0.316	Z	0.025	0.175	0.242	0.000	0.008	0.063	0.000	0.062	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.001	0.054	0.000	0.033	0.064	0.490	
10-Jan	0.002	0.017	0.014	Z	0.000	0.008	0.022	0.000	0.000	0.031	0.016	0.000	0.021	0.000	0.001	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.031	
11-Jan	0.132	0.000	0.000	0.040	Z	0.052	0.000	0.081	0.000	0.000	0.026	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.132	
12-Jan	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	
13-Jan	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-Jan	0.000	Z	0.132	0.177	0.039	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.004	0.077	0.136	0.161	0.239	0.362	0.317	0.289	0.257	0.262	0.245	0.117	0.362
15-Jan	0.163	0.140	Z	0.114	0.015	0.045	0.006	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	0.021	0.163	
16-Jan	0.000	0.000	0.000	Z	0.432	0.292	0.153	0.198	0.152	0.146	0.150	0.153	0.165	0.153	0.154	0.186	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.107	0.432	
17-Jan	0.000	0.000	0.000	0.000	Z	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	0.012	0.001	0.012	
18-Jan	0.026	0.036	0.003	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	0.003	0.036	
19-Jan	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-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.119	0.251	0.326	0.216	0.115	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.326	
21-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.008	0.057	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.057	
22-Jan	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	
23-Jan	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	0.002	0.000	0.176	0.020	0.000	0.000	0.000	0.000	0.009	0.176	
24-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.044	0.152	0.135	0.136	0.153	0.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.168	0.053	0.180	
25-Jan	Z	0.137	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.139	0.152	0.168	0.197	0.163	0.066	0.000	0.004	0.044	0.003	0.000	0.000	0.048	0.197	
26-Jan	0.000	Z	0.000	0.000	0.136	0.309	0.225	0.269	0.278	M	M	0.102	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.063	0.309	
27-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.008	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	0.001	0.008	
28-Jan	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-Jan	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-Jan	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	0.005	0.000	0.000	0.000	0.005	
31-Jan	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	
0.032 0.027 0.010 0.019 0.031 0.043 0.018 0.027 0.063 0.036 0.030 0.026 0.026 0.031 0.030 0.027 0.017 0.017 0.012 0.011 0.013 0.014 0.015 0.014																								Diurnal Average		
0.490 0.316 0.132 0.177 0.432 0.309 0.225 0.269 1.138 0.570 0.251 0.255 0.251 0.326 0.216 0.197 0.163 0.239 0.362 0.317 0.289 0.257 0.262 0.245																								Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																				





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	577	81.61	81.61
0.006 - 0.05	48	6.79	88.40
0.06 - 0.1	32	4.53	92.93
> 0.1	50	7.07	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint - January 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	112	66	19	8	1	6	58	124	66	9	14	20	32	20	8	12	575
0.006 - 0.05	15	12	2	0	0	1	0	2	3	0	0	0	4	2	2	5	48
0.06 - 0.1	4	4	1	2	0	1	1	3	1	0	0	0	0	3	6	6	32
> 0.1	8	8	1	0	0	0	1	6	2	3	2	2	3	3	5	6	50
<b>Totals</b>	<b>139</b>	<b>90</b>	<b>23</b>	<b>10</b>	<b>1</b>	<b>8</b>	<b>60</b>	<b>135</b>	<b>72</b>	<b>12</b>	<b>16</b>	<b>22</b>	<b>39</b>	<b>28</b>	<b>21</b>	<b>29</b>	<b>705</b>

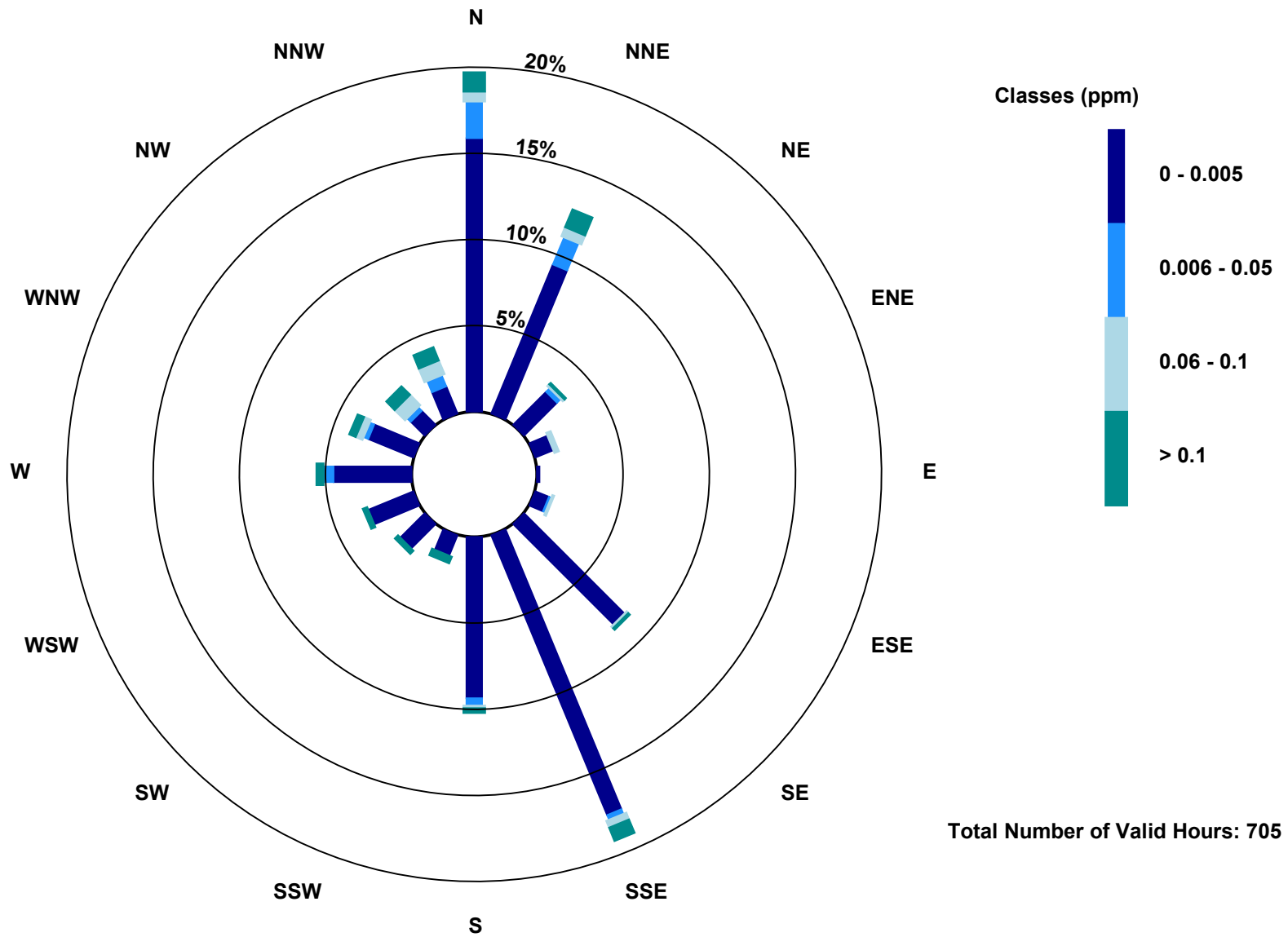
Total Number of Valid Hours: 705

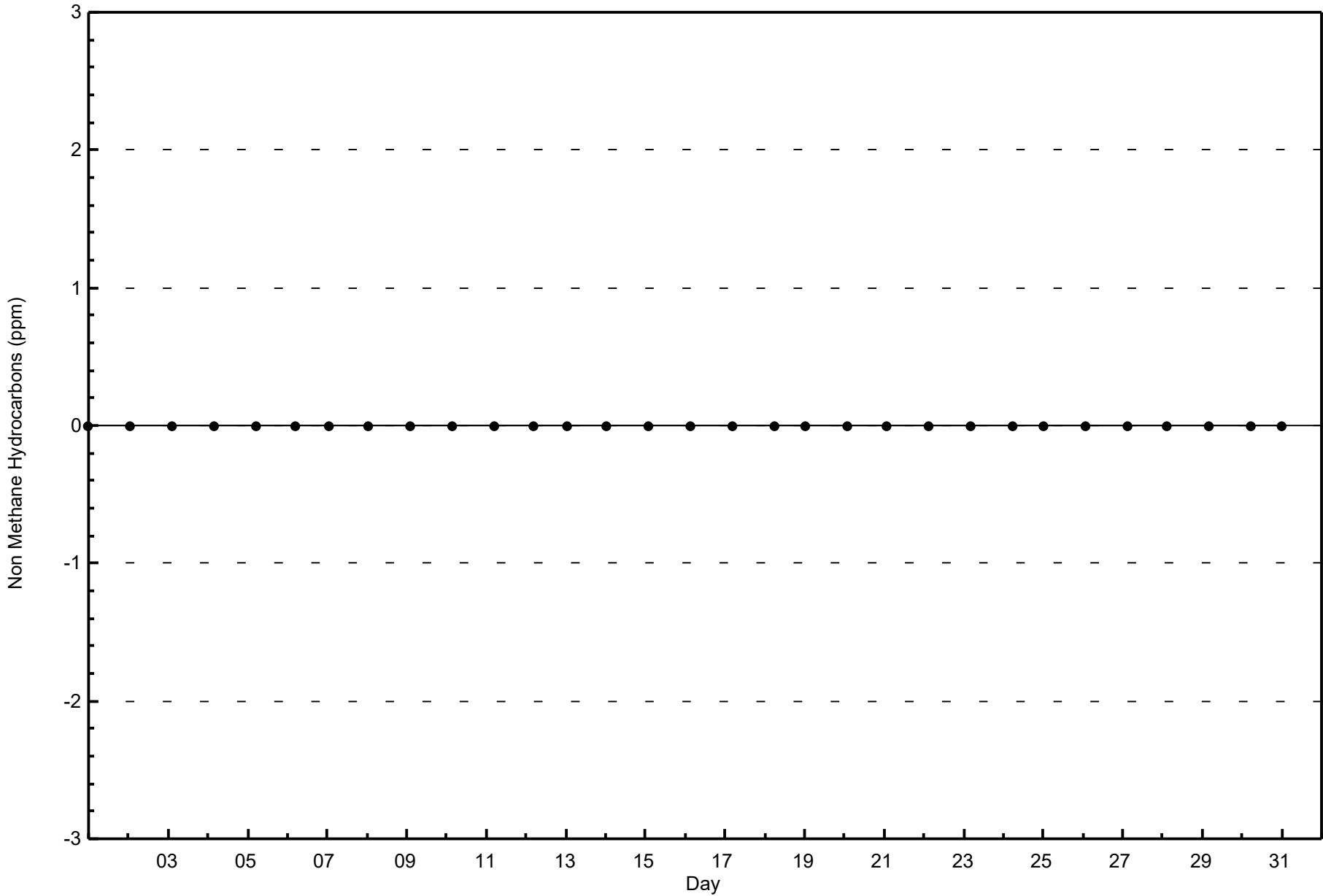
Total Number of Hours: 744

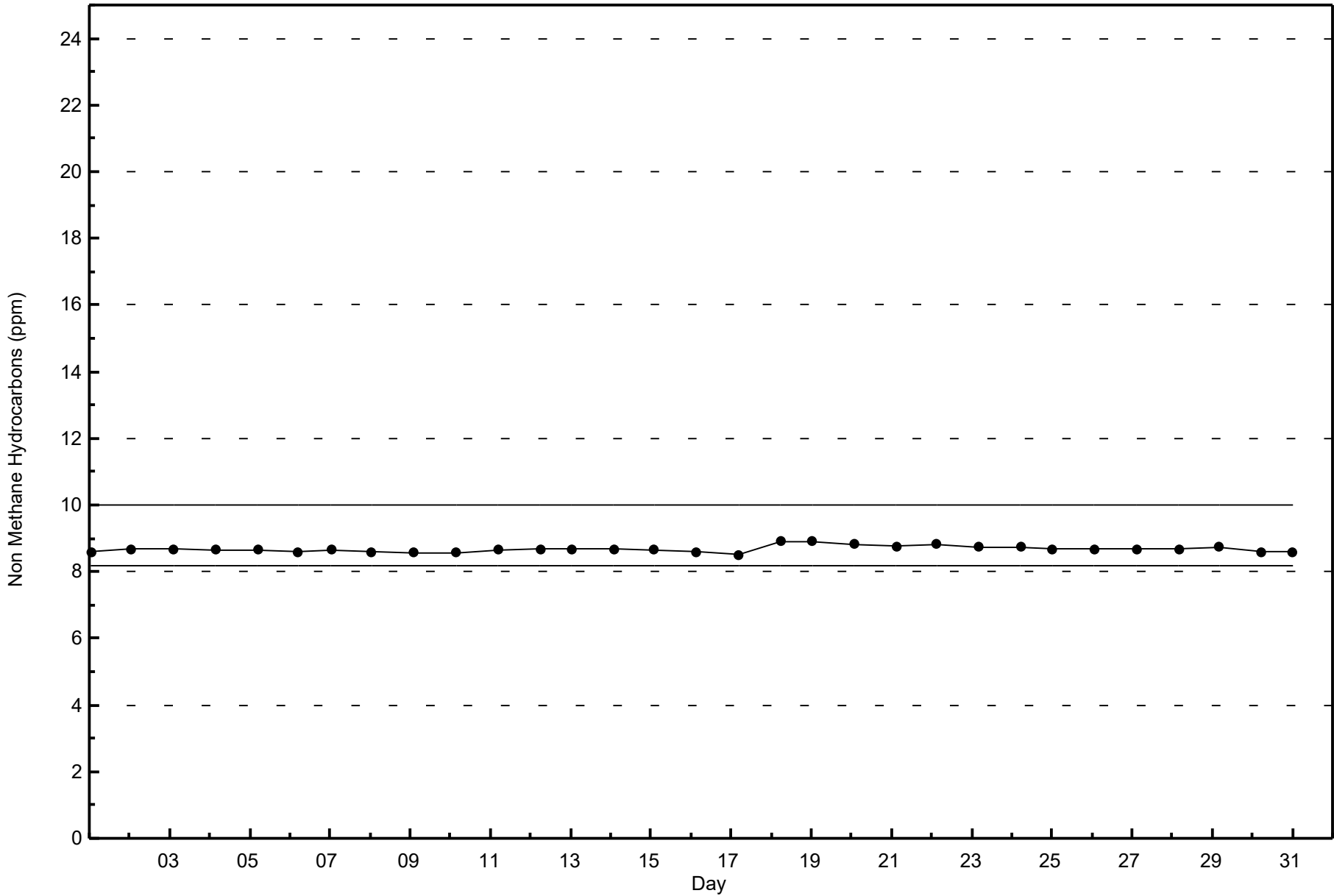


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint

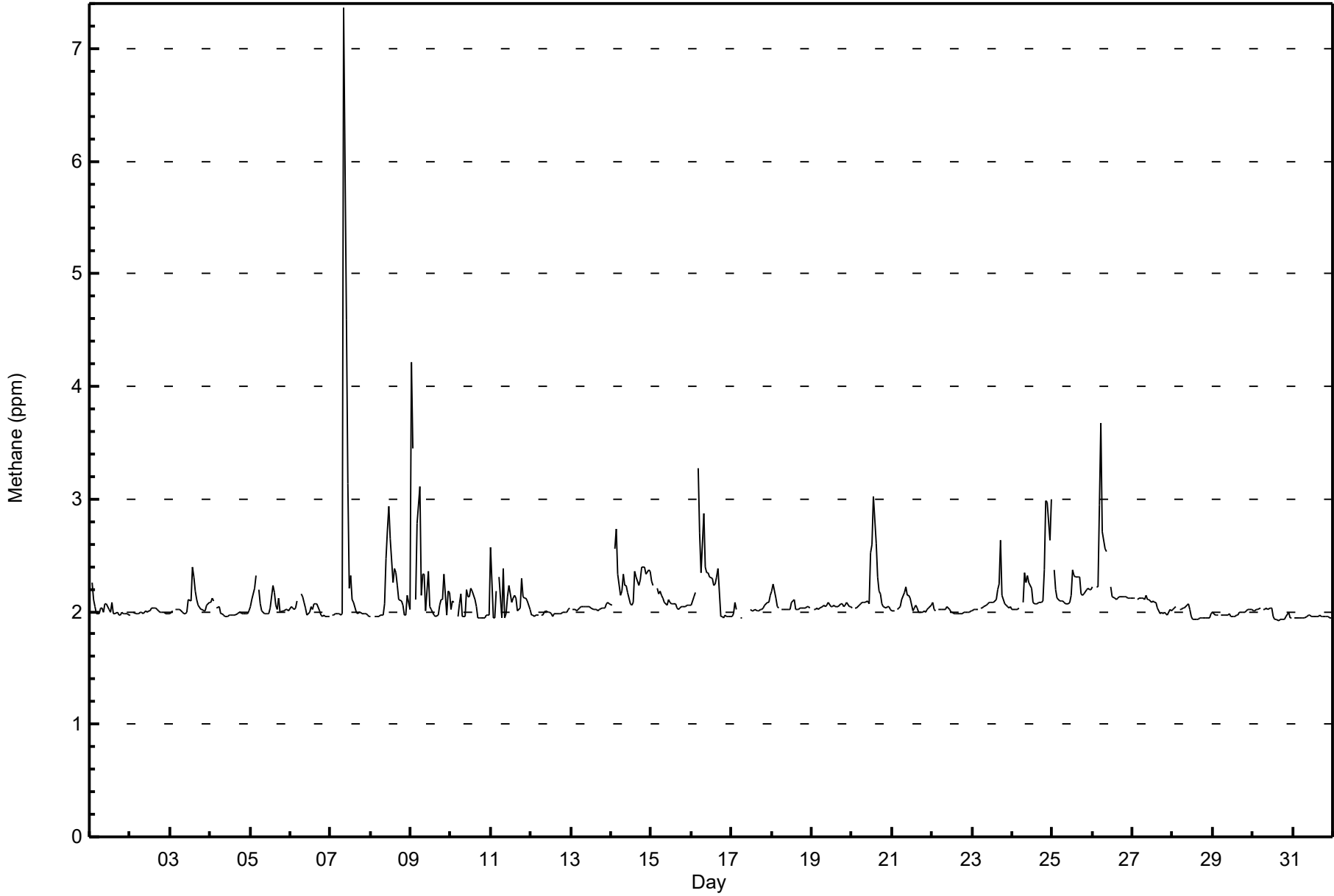














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	419	59.26	59.26
2.1 - 3.0	280	39.60	98.87
3.1 - 10.0	8	1.13	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Buffalo Viewpoint - January 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	77	56	16	6	1	6	45	87	36	2	11	19	34	15	4	3	418
2.1 - 3.0	62	30	6	4	0	2	15	48	36	10	4	2	5	12	17	26	279
3.1 - 10.0	0	4	1	0	0	0	0	0	0	0	0	1	1	0	1	0	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	139	90	23	10	1	8	60	135	72	12	16	22	39	28	21	29	705

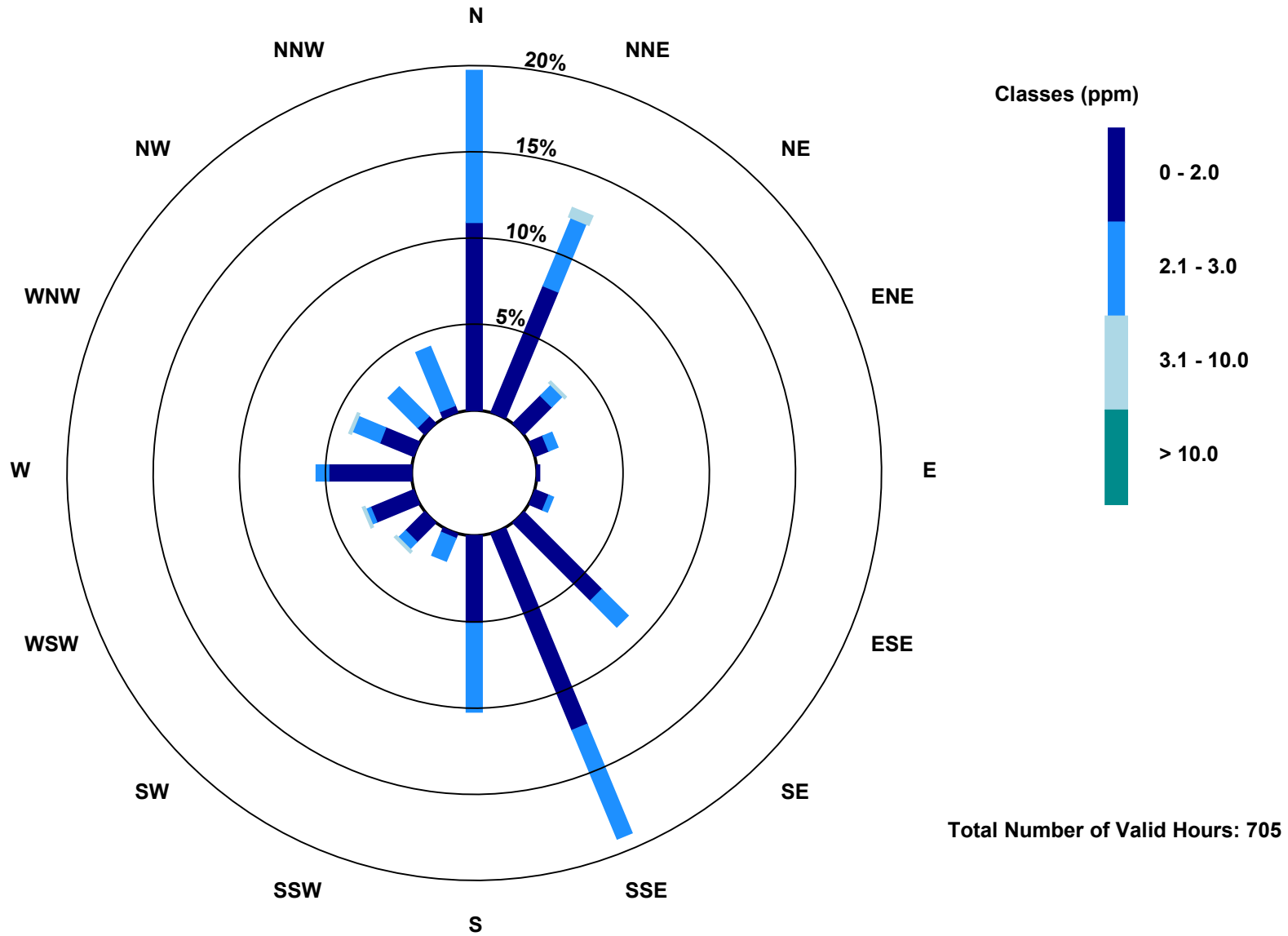
Total Number of Valid Hours: 705

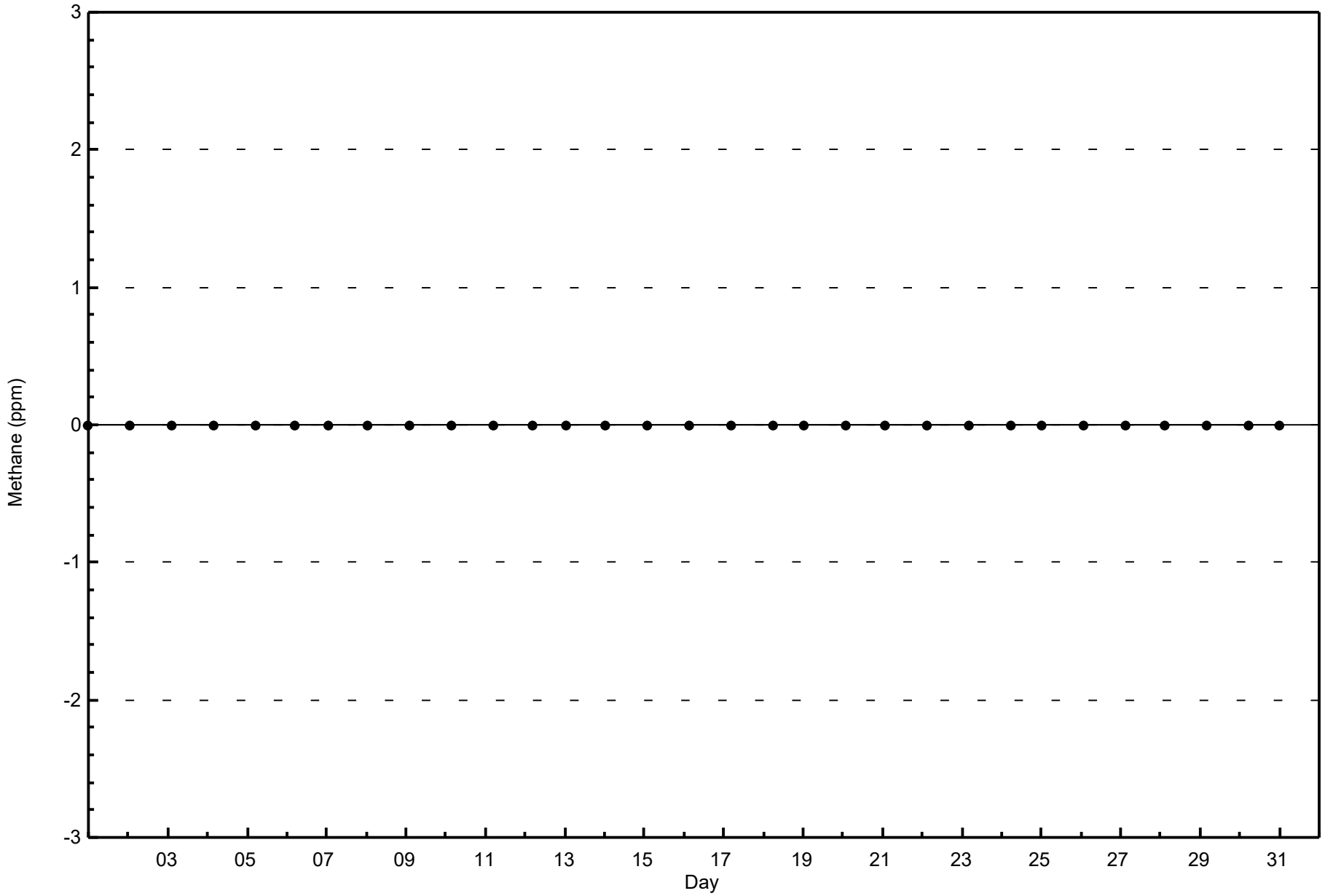
Total Number of Hours: 744

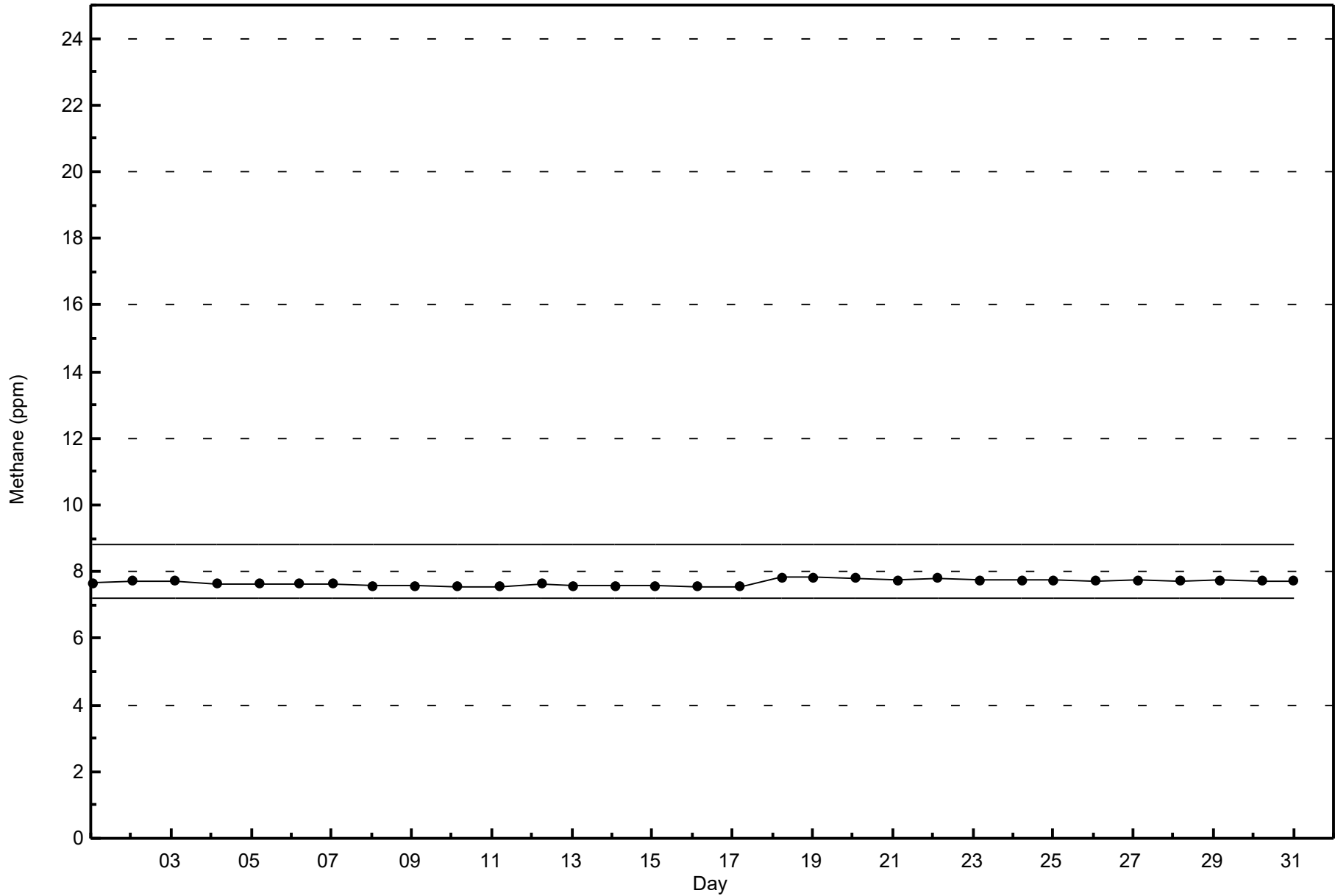


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

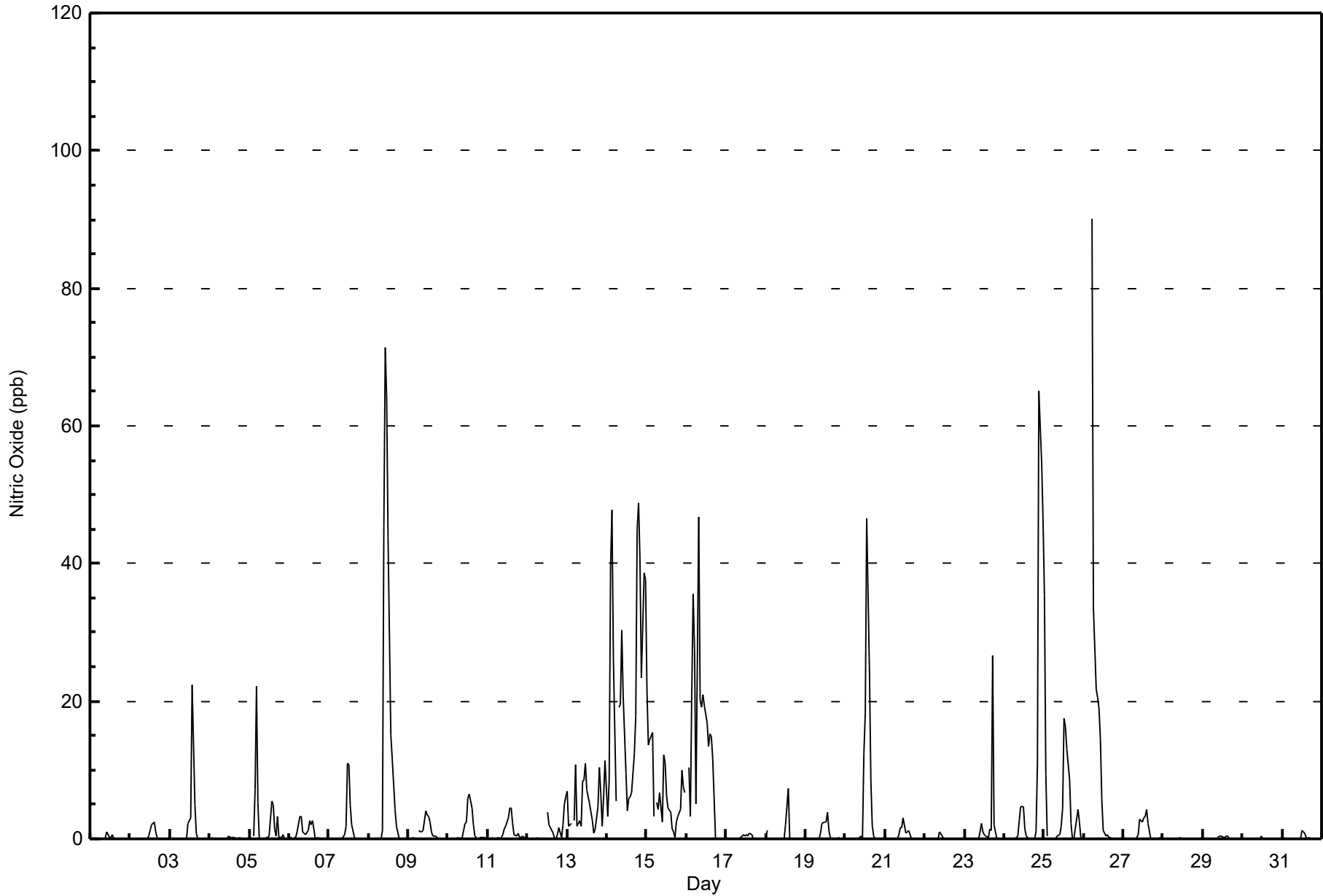








Maximum Value: 90.1 ppb on Jan 26 06:00																								Maximum Daily Average: 22.5 ppb on Jan 14																								Hours in Service: 744	
Minimum Value: 0.0 ppb on Jan 1 01:00																								Minimum Daily Average: 0.0 ppb on Jan 28																								Hours of Data: 708	
Maximum Diurnal Average: 5.9 ppb at hour 11																								Minimum Diurnal Average: 1.3 ppb at hour 17																								Hours of Missing Data: 36	
Monthly Average: 3.33 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> = 1.8 P <sub>90</sub> = 9.4 P <sub>99</sub> = 46.9																								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-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.2	0.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9																								
2-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.3	1.3	2.0	2.5	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5																								
3-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	2.2	3.0	22.4	13.8	5.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.1	22.4																								
4-Jan	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4																								
5-Jan	0.0	Z	0.4	7.1	22.2	5.3	0.1	0.0	0.0	0.0	0.2	0.2	0.5	5.4	5.0	1.5	0.4	3.2	0.1	0.2	0.7	0.0	0.0	2.3	22.2																								
6-Jan	0.2	0.2	Z	0.2	0.1	1.0	3.3	3.2	1.0	0.8	0.5	1.1	2.6	2.1	2.7	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.9	3.3																								
7-Jan	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.7	1.8	11.0	10.8	4.9	2.0	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0	1.4	11.0																								
8-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	1.2	45.4	71.4	64.3	43.8	15.1	11.7	7.9	4.3	1.8	0.1	0.1	0.0	0.0	0.0	11.6	71.4																								
9-Jan	0.0	0.1	0.0	0.2	0.1	Z	1.1	0.9	1.1	1.3	4.1	3.5	3.2	2.5	0.9	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.9	4.1																								
10-Jan	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	1.2	2.2	2.5	5.8	6.6	4.5	2.0	0.4	0.2	0.0	0.2	0.1	0.1	0.2	1.1	6.6																								
11-Jan	0.0	Z	0.1	0.0	0.0	0.0	0.3	0.1	0.2	0.6	1.4	1.8	3.0	4.4	4.5	2.3	0.6	0.4	0.8	0.2	0.2	0.3	0.3	0.9	4.5																								
12-Jan	0.0	0.0	Z	0.1	0.1	0.0	0.1	C	C	C	C	C	3.9	2.0	1.7	0.8	0.0	0.0	0.7	1.5	0.2	2.0	5.2	6.1	6.1																								
13-Jan	6.9	1.9	2.2	Z	2.7	10.7	1.9	2.7	1.9	8.3	8.6	11.0	7.2	5.1	4.0	2.7	0.8	1.3	4.7	10.4	6.7	1.9	5.9	11.4	5.3	11.4																							
14-Jan	3.2	8.6	39.5	47.8	26.2	5.5	Z	19.2	19.5	30.3	20.8	9.5	4.0	6.0	6.2	6.7	12.5	18.0	45.0	48.9	40.7	23.4	38.7	37.7	22.5	48.9																							
15-Jan	21.6	13.6	14.4	15.4	3.2	Z	5.2	4.4	6.6	2.5	12.1	10.9	6.3	4.5	3.9	1.3	1.1	0.3	2.4	3.2	4.2	9.9	7.6	6.7	7.0	21.6																							
16-Jan	Z	10.3	3.2	20.9	35.7	27.5	5.1	46.9	20.1	19.2	21.0	19.4	16.8	13.5	15.2	14.9	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	46.9																							
17-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.5	0.6	0.3	0.7	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.7																							
18-Jan	0.2	1.3	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.0	7.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	7.2																							
19-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.9	2.2	2.5	2.4	3.8	1.1	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.6	3.8																							
20-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	0.1	12.4	18.3	46.6	24.1	8.4	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	4.9	46.6																							
21-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.5	1.6	1.6	3.1	0.8	1.0	1.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.1																							
22-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	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	0.1	1.1																							
23-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.2	1.0	0.6	0.3	0.2	1.4	1.2	26.6	2.1	0.0	0.0	0.0	0.0	0.0	1.6	26.6																							
24-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	2.7	4.7	4.6	1.3	0.5	0.2	0.0	0.0	0.0	0.0	1.0	10.8	65.1	54.6	46.4	8.4	65.1																							
25-Jan	35.4	9.3	0.5	Z	0.0	0.0	0.0	0.0	0.3	0.5	1.8	4.5	17.5	16.2	13.1	8.5	2.3	0.1	0.0	1.3	4.2	2.4	0.3	0.1	5.1	35.4																							
26-Jan	0.1	0.0	0.0	0.0	Z	90.1	33.5	21.7	20.5	18.9	14.5	5.6	1.2	0.4	0.5	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	90.1																							
27-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.6	2.8	2.4	3.0	3.2	4.3	2.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.8	4.3																							
28-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2																						
29-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.5	0.2	0.2	0.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
30-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.1	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	0.3	0.3																						
31-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.2	0.7	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2																							
2.6 1.8 2.3 3.7 3.3 5.4 1.7 3.3 2.5 4.6 5.9 5.9 5.2 5.7 4.0 2.3 1.3 1.7 1.8 2.2 2.2 3.4 3.6 3.5																								Diurnal Average																									
35.4 13.6 39.5 47.8 35.7 90.1 33.5 46.9 20.5 45.4 71.4 64.3 43.8 46.6 24.1 14.9 12.5 26.6 45.0 48.9 40.7 65.1 54.6 46.4																								Diurnal Maximum																									
Z - zerospan C - Calibration																																																	







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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	675	95.34	95.34
21 - 40	19	2.68	98.02
41 - 80	13	1.84	99.86
81 - 159	1	0.14	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

**Nitric Oxide (NO) - ppb**  
**Buffalo Viewpoint - January 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	134	90	21	10	2	8	58	128	69	13	16	22	36	27	14	25	673
21 - 40	4	3	0	0	0	0	0	6	0	1	0	0	2	1	1	1	19
11 - 80	2	0	0	0	0	0	0	0	1	0	0	0	1	0	5	4	13
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	140	93	21	10	2	8	58	134	70	14	16	22	39	29	20	30	706

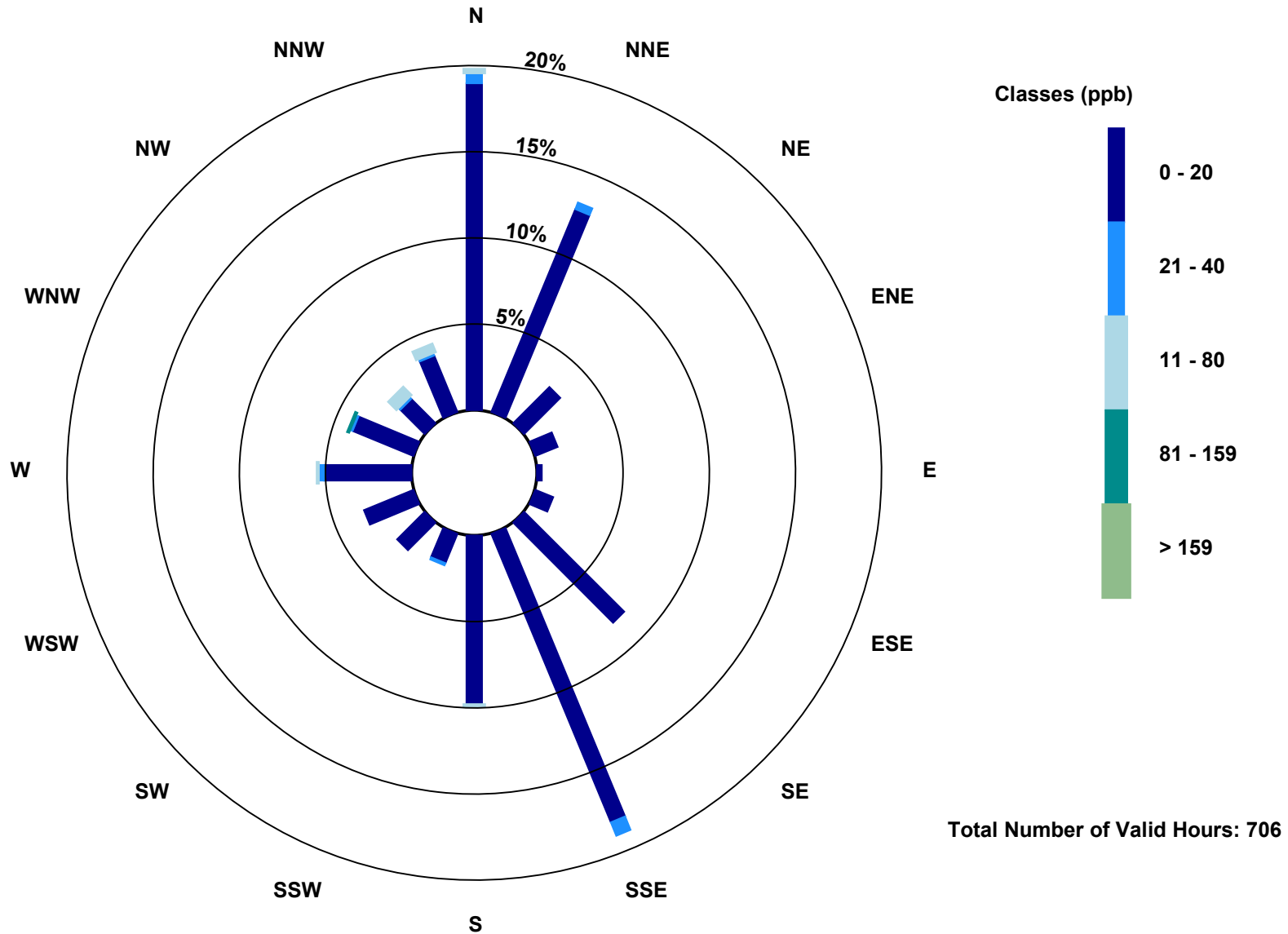
Total Number of Valid Hours: 706

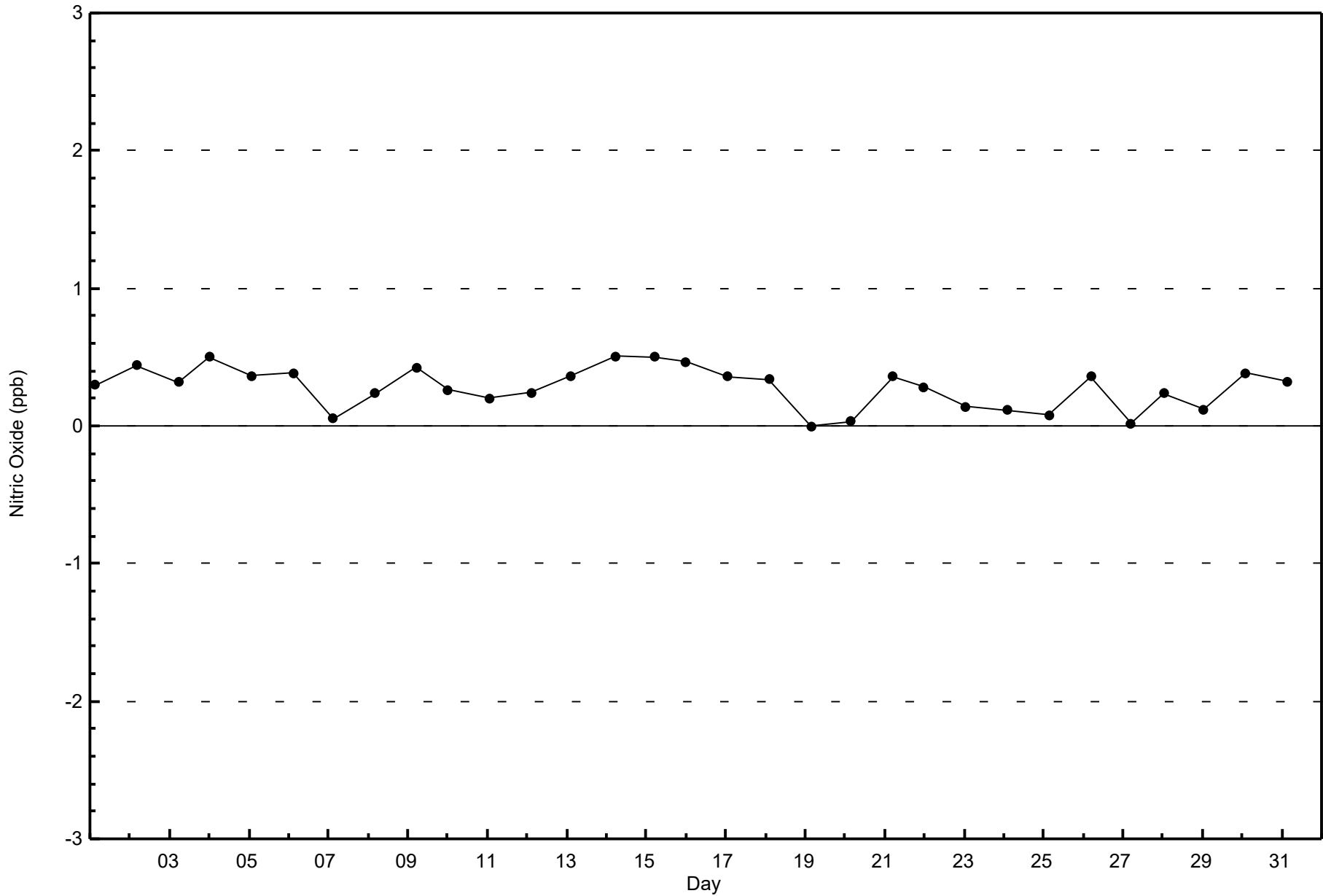
Total Number of Hours: 744

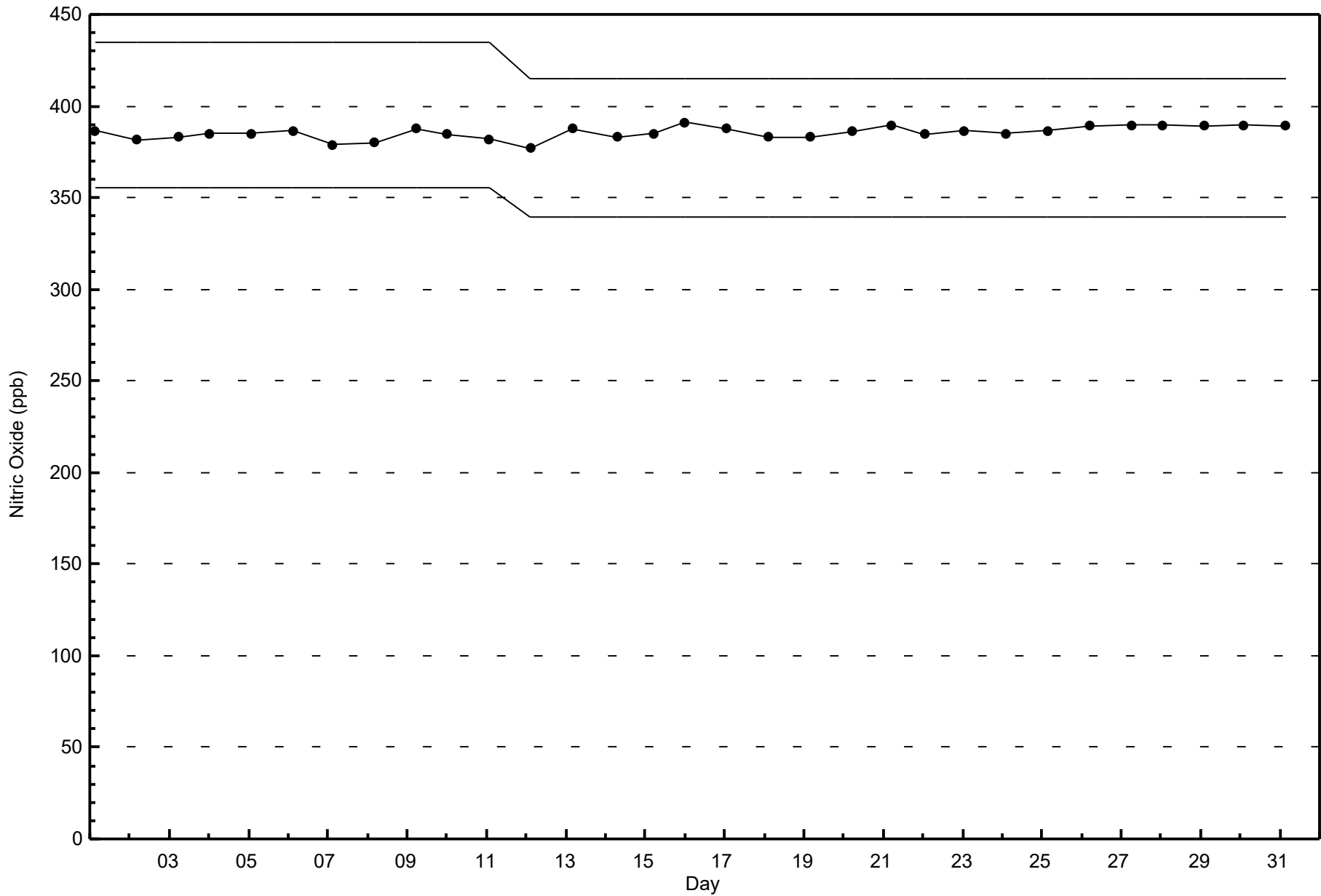


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Buffalo Viewpoint









Wood Buffalo Environmental Association

Summary of Hour Averages

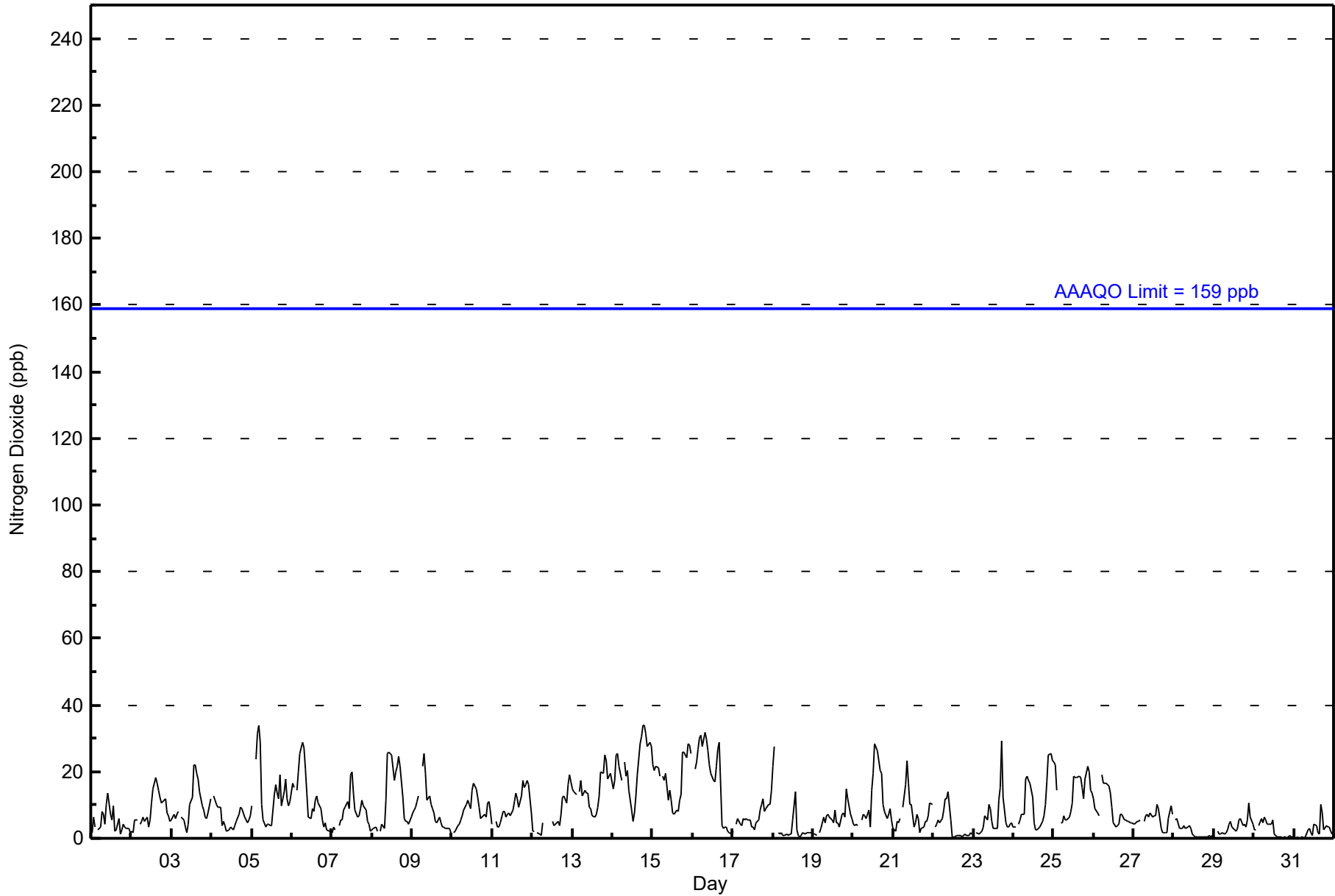
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Buffalo Viewpoint - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 34.1 ppb on Jan 14 20:00 Maximum Daily Average: 21.5 ppb on Jan 14																								Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 36 Percent Operational Time: 100.0		
Minimum Value: 0.1 ppb on Jan 30 21:00 Maximum Diurnal Average: 10.2 ppb at hour 8 Monthly Average: 8.88 ppb												Minimum Daily Average: 1.9 ppb on Jan 28 Minimum Diurnal Average: 7.1 ppb at hour 1 Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 3.4 Median = 6.3 Q <sub>3</sub> = 12.4 P <sub>90</sub> = 20.1 P <sub>99</sub> = 30.3														
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-Jan	1.6	6.2	3.2	Z	2.7	3.2	8.2	7.0	4.1	10.3	13.6	7.2	5.7	9.6	2.3	2.5	5.8	1.2	2.4	4.3	3.5	3.1	2.8	1.7	4.9	13.6
2-Jan	2.1	1.7	5.4	5.3	Z	4.3	5.1	6.2	5.1	6.3	3.2	5.5	10.5	14.8	18.3	16.7	14.3	12.4	10.7	11.2	11.7	7.6	6.8	4.9	8.3	18.3
3-Jan	5.4	7.4	6.0	7.2	8.0	Z	6.3	5.7	3.4	1.9	4.4	10.1	12.3	22.0	22.2	19.6	17.8	13.9	9.8	8.5	6.4	5.8	7.5	11.8	9.7	22.2
4-Jan	Z	12.9	11.4	10.1	9.3	9.5	4.0	4.9	3.7	2.0	2.7	3.5	3.0	2.7	3.9	5.0	7.3	9.3	9.1	7.6	6.4	4.8	5.6	6.9	6.3	12.9
5-Jan	9.7	Z	23.7	31.4	33.7	29.0	10.3	5.6	3.4	4.4	4.4	3.9	3.8	13.0	16.1	13.7	12.0	19.2	9.6	14.1	17.8	12.0	9.7	11.2	13.6	33.7
6-Jan	16.4	15.4	Z	14.3	20.0	25.5	28.7	27.3	20.6	13.5	6.4	6.1	8.9	8.0	11.3	12.8	10.6	9.0	5.6	3.3	4.5	2.6	2.0	2.3	12.0	28.7
7-Jan	1.5	3.5	2.7	Z	3.8	5.3	5.4	8.3	9.4	11.0	9.1	19.0	19.9	13.4	8.5	6.3	6.6	8.7	11.3	9.8	8.4	5.2	4.4	2.1	8.0	19.9
8-Jan	2.4	3.0	3.4	2.1	Z	2.2	4.1	2.9	11.5	25.6	26.0	25.5	24.9	17.2	20.0	21.4	24.6	21.8	12.2	5.8	5.2	5.1	4.1	6.3	12.1	26.0
9-Jan	7.7	8.4	9.2	11.0	12.8	Z	21.4	25.4	19.6	11.6	12.9	10.1	8.9	7.5	5.1	4.6	6.3	4.6	3.3	3.3	2.8	2.9	2.9	1.7	8.9	25.4
10-Jan	Z	1.7	2.0	3.9	4.1	5.5	6.8	8.3	10.1	11.4	10.1	8.9	14.5	16.4	14.8	12.4	9.5	6.1	6.2	7.3	6.3	10.6	11.0	7.9	8.5	16.4
11-Jan	4.4	Z	5.1	3.6	3.5	4.6	8.1	7.9	6.3	7.3	7.6	6.9	8.3	11.0	13.5	12.0	9.4	12.7	17.4	15.1	16.2	17.5	16.2	7.8	9.7	17.5
12-Jan	2.2	2.0	Z	1.6	1.4	1.0	4.8	C	C	C	C	C	4.9	3.9	4.4	4.9	3.7	7.2	12.1	12.5	10.4	16.2	19.2	16.8	7.2	19.2
13-Jan	14.9	13.8	13.0	Z	13.9	17.5	12.9	14.3	13.5	13.6	9.5	8.9	6.7	6.3	7.0	9.4	12.9	20.0	19.7	24.8	23.4	17.9	18.6	19.4	14.4	24.8
14-Jan	15.0	17.4	25.1	25.6	21.4	17.4	Z	22.7	18.5	20.3	14.5	8.6	5.2	7.6	12.8	19.2	28.4	30.3	34.1	34.1	31.5	27.7	28.9	27.5	21.5	34.1
15-Jan	22.1	20.5	21.4	21.0	18.6	Z	18.5	17.4	19.4	11.4	14.2	11.4	7.8	7.4	8.5	8.0	11.3	13.1	26.0	25.8	24.1	28.4	28.0	25.5	17.8	28.4
16-Jan	Z	20.7	22.8	26.7	30.2	30.8	27.6	31.6	29.8	26.2	21.9	19.4	17.3	16.8	21.6	26.5	28.7	3.9	2.9	3.2	3.2	2.1	1.8	1.3	18.1	31.6
17-Jan	2.1	Z	4.4	6.0	4.1	3.9	5.8	5.6	5.9	5.4	5.5	3.6	3.4	2.6	4.7	5.5	8.4	10.1	12.0	8.2	9.0	10.0	10.2	14.5	6.6	14.5
18-Jan	21.4	27.7	Z	1.9	1.1	1.8	0.7	0.9	1.1	0.7	1.3	1.1	5.7	14.0	2.5	1.0	0.6	0.8	1.6	1.3	1.6	1.7	1.8	1.9	4.1	27.7
19-Jan	1.3	1.1	0.8	Z	1.6	3.1	6.2	4.7	6.8	7.4	6.5	5.4	4.5	8.4	4.7	4.5	3.6	7.3	7.8	6.5	14.7	12.0	7.1	6.1	5.7	14.7
20-Jan	4.2	3.8	4.1	4.0	Z	5.7	7.2	6.7	6.1	8.4	3.5	14.5	19.3	28.2	26.3	23.5	20.3	19.4	10.0	8.1	6.1	7.2	9.1	5.4	10.9	28.2
21-Jan	3.1	2.3	5.1	4.5	6.0	Z	9.5	16.1	23.2	16.6	10.3	10.0	3.5	4.7	7.3	6.0	1.5	2.8	3.5	5.0	5.1	6.9	10.6	10.3	7.6	23.2
22-Jan	Z	3.5	4.3	5.5	4.7	5.8	8.4	11.9	12.0	13.8	5.4	0.6	0.5	0.6	0.8	0.8	0.9	0.4	0.9	1.1	0.7	1.0	1.5	1.3	3.8	13.8
23-Jan	1.1	Z	1.6	1.4	1.9	2.0	3.4	6.8	5.5	10.0	8.8	4.9	3.0	3.0	3.1	11.4	15.1	29.2	12.4	4.5	3.4	3.3	4.2	4.8	6.3	29.2
24-Jan	3.4	3.2	Z	4.2	5.4	7.2	7.0	18.0	18.5	17.4	16.6	12.2	4.7	2.5	2.6	2.9	3.6	5.2	6.6	10.0	17.1	25.2	25.3	23.3	10.5	25.3
25-Jan	22.8	22.1	14.5	Z	4.7	4.5	6.8	5.4	5.7	6.3	8.2	10.8	18.5	18.2	18.1	18.8	18.1	15.2	11.7	17.6	21.7	20.0	14.6	13.4	13.8	22.8
26-Jan	11.8	9.1	7.8	6.9	Z	19.2	16.6	16.7	16.1	15.5	13.6	9.4	4.5	3.2	4.0	4.4	7.3	7.3	5.6	5.3	5.0	5.0	4.8	4.5	8.9	19.2
27-Jan	4.4	4.6	5.0	5.2	5.5	Z	5.2	6.8	7.4	6.2	7.8	6.5	6.7	6.8	10.2	8.7	3.1	1.8	1.5	1.6	1.5	6.1	9.6	7.0	5.6	10.2
28-Jan	Z	5.3	5.9	3.1	2.8	2.8	3.9	3.1	3.6	3.7	3.0	1.1	0.9	0.6	0.5	0.5	0.4	0.5	0.3	0.5	0.5	0.7	0.4	0.7	1.9	5.9
29-Jan	0.7	Z	2.1	1.3	1.1	1.9	1.3	1.8	2.6	4.4	5.1	3.5	2.7	2.2	3.0	5.5	5.9	4.0	4.2	3.6	5.4	10.8	6.5	4.2	3.6	10.8
30-Jan	2.7	2.6	Z	3.8	5.8	4.5	6.5	5.7	4.2	4.2	4.2	5.3	1.3	0.8	0.4	0.4	0.4	0.2	0.3	0.3	0.1	0.7	0.3	0.4	2.4	6.5
31-Jan	0.3	0.2	0.5	Z	0.3	0.3	0.2	0.4	2.4	3.1	1.6	0.9	4.4	3.9	1.7	1.3	10.1	7.6	2.4	3.9	3.5	3.3	2.0	1.3	2.4	10.1
7.1 8.5 8.1 8.5 8.5 8.4 8.7 10.2 10.0 10.0 8.7 8.2 7.9 8.9 9.0 9.4 10.0 9.8 8.8 8.7 8.9 9.1 9.0 8.2																								Diurnal Average		
22.8 27.7 25.1 31.4 33.7 30.8 28.7 31.6 29.8 26.2 26.0 25.5 24.9 28.2 26.3 26.5 28.7 30.3 34.1 34.1 31.5 28.4 28.9 27.5																								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**  
**Buffalo Viewpoint - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	639	90.25	90.25
21 - 40	69	9.75	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: 708

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Buffalo Viewpoint - January 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	87	21	10	2	8	56	121	65	13	16	22	37	25	11	19	638
21 - 40	15	6	0	0	0	0	2	13	5	1	0	0	2	4	9	11	68
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>	140	93	21	10	2	8	58	134	70	14	16	22	39	29	20	30	706

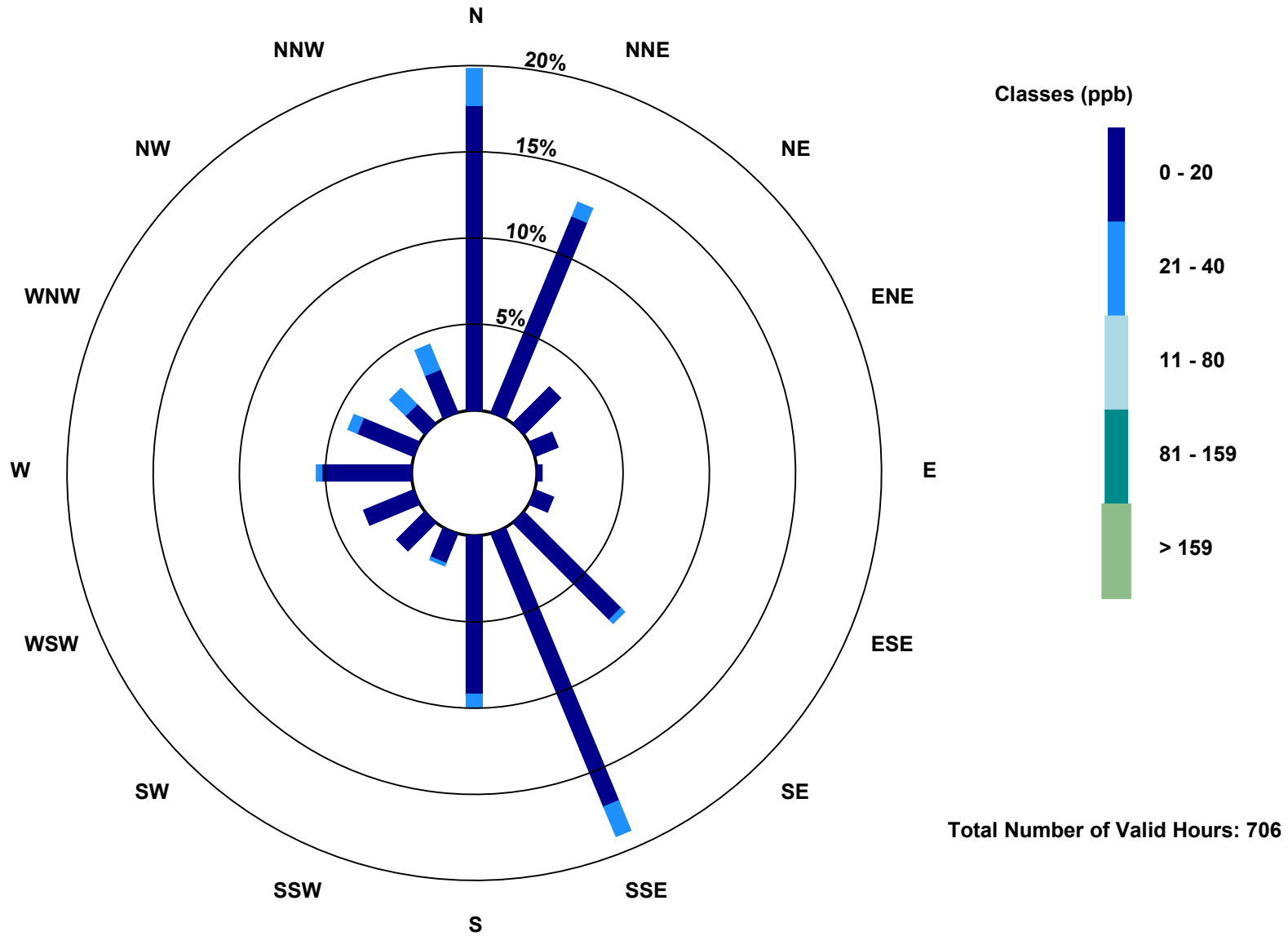
Total Number of Valid Hours: 706

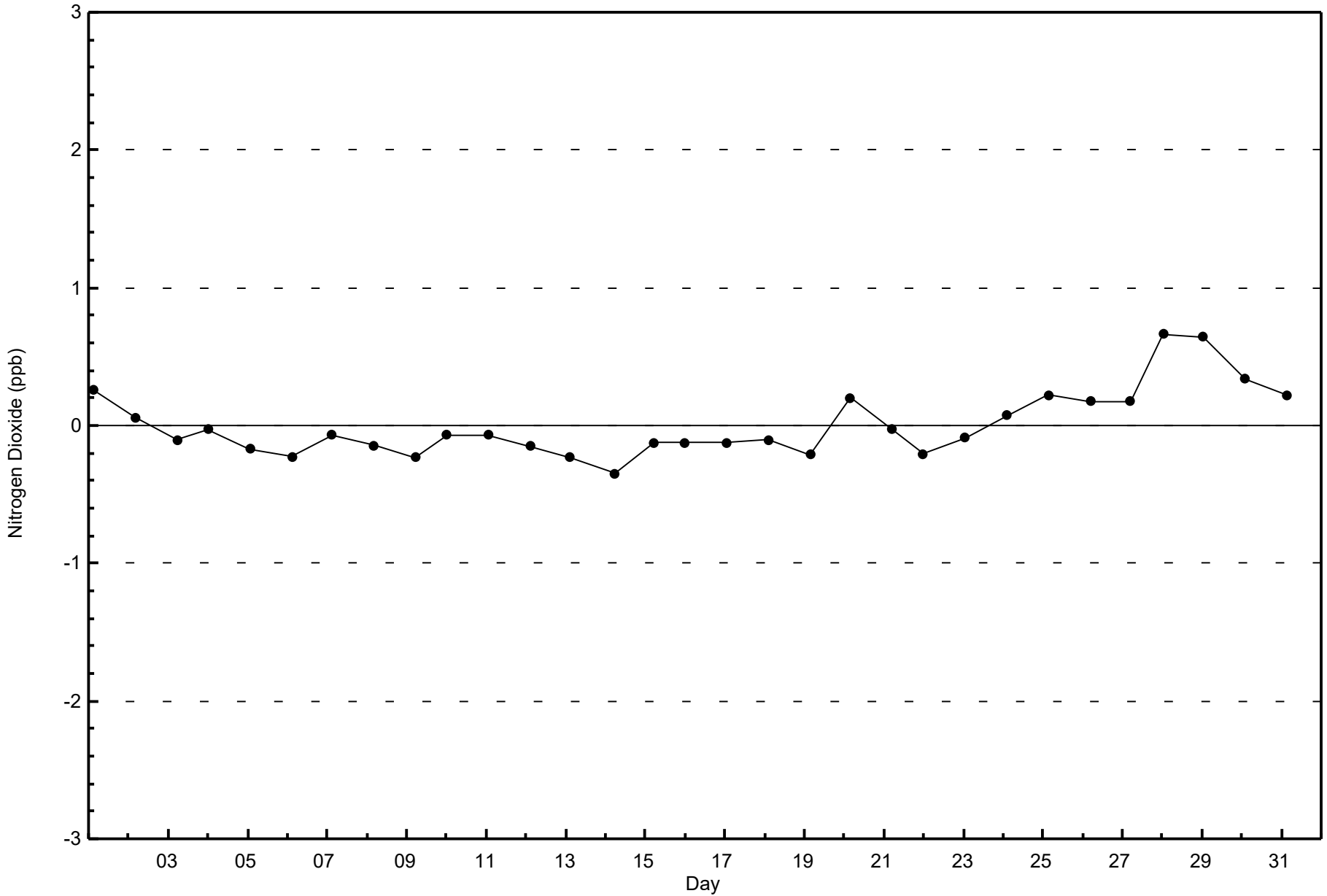
Total Number of Hours: 744

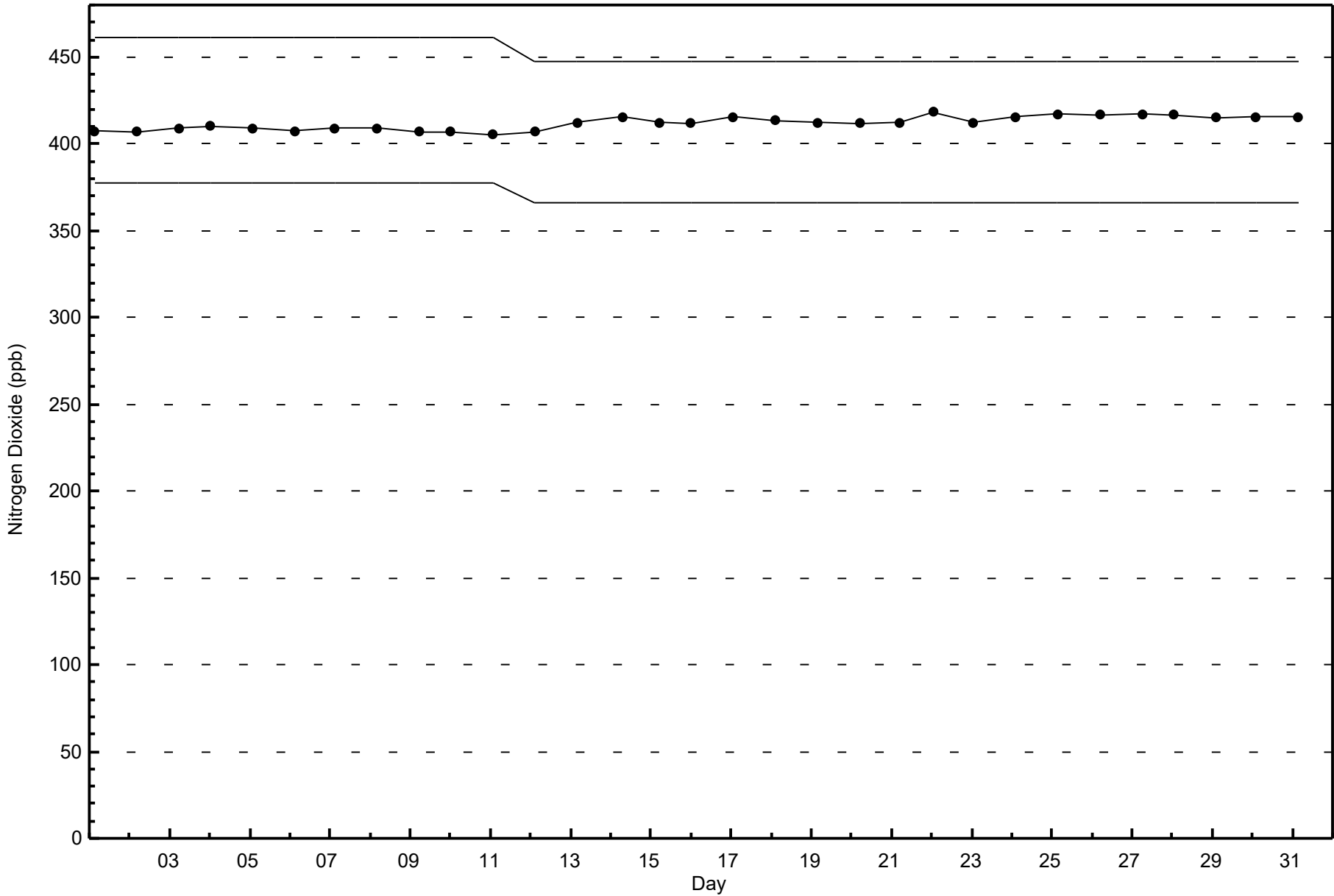


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

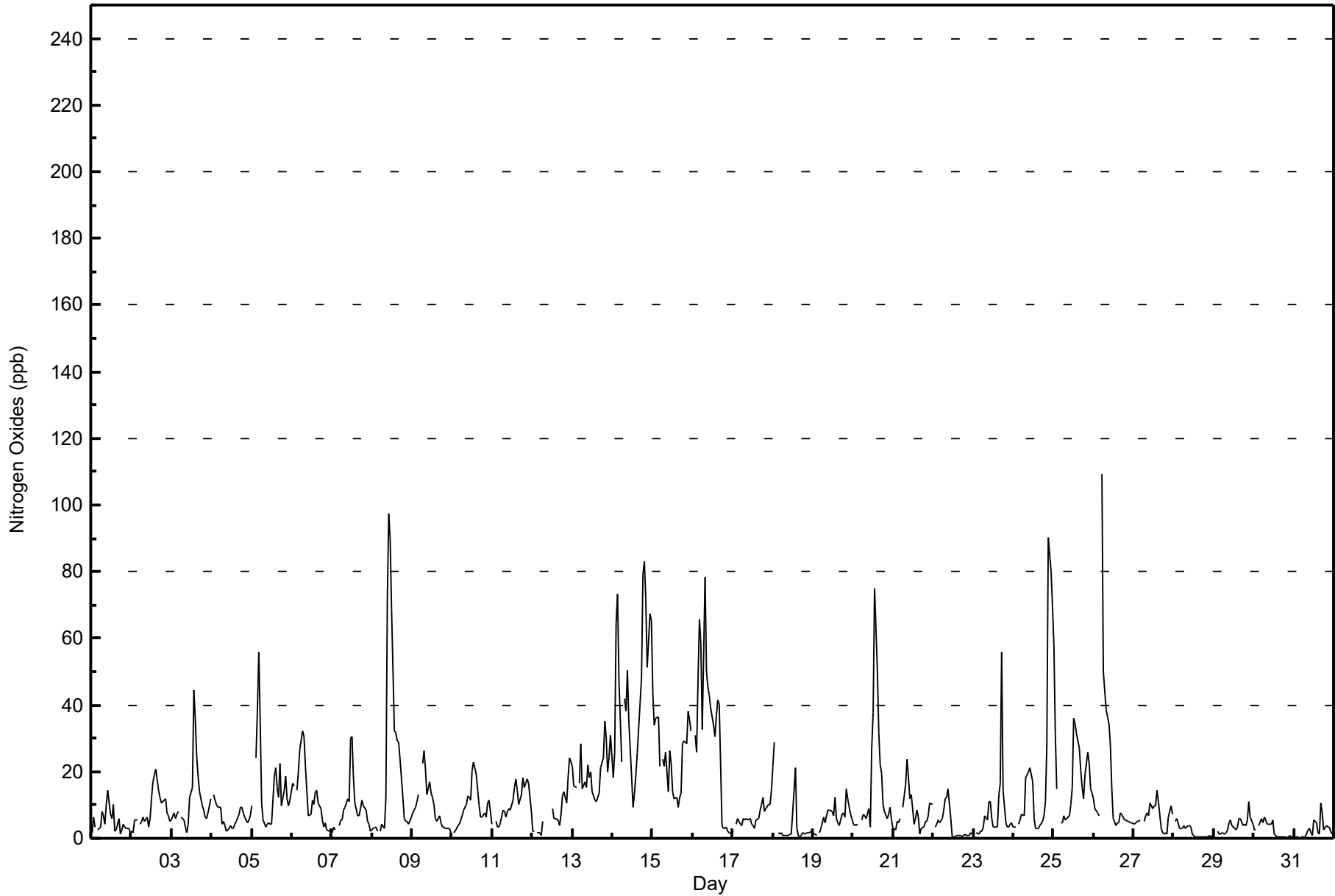
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Buffalo Viewpoint - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 109.3 ppb on Jan 26 06:00		Maximum Daily Average: 44.0 ppb on Jan 14				Hours of Data:		708																		
Minimum Value: 0.1 ppb on Jan 30 21:00		Minimum Daily Average: 2.0 ppb on Jan 28				Hours of Missing Data:		36																		
Maximum Diurnal Average: 14.7 ppb at hour 14		Minimum Diurnal Average: 9.7 ppb at hour 1				Hours of Calibration:		36																		
Monthly Average: 12.21 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 3.5 Median = 6.6 Q <sub>3</sub> = 14.4 P <sub>90</sub> = 30.2 P <sub>99</sub> = 78.2				Percent Operational Time		100.0																		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	1.6	6.2	3.2	Z	2.7	3.2	8.2	7.0	4.1	10.4	14.5	7.4	5.9	10.3	2.3	2.5	5.8	1.2	2.4	4.3	3.5	3.1	2.8	1.7	5.0	14.5
2-Jan	2.1	1.7	5.4	5.3	Z	4.3	5.1	6.2	5.1	6.4	3.2	5.8	11.8	16.8	20.8	17.8	14.4	12.4	10.7	11.2	11.7	7.6	6.8	4.9	8.6	20.8
3-Jan	5.4	7.4	6.0	7.2	8.0	Z	6.4	5.7	3.4	1.9	4.4	12.3	15.3	44.4	36.0	24.6	18.5	13.9	9.8	8.5	6.4	5.8	7.5	11.8	11.8	44.4
4-Jan	Z	13.1	11.4	10.1	9.3	9.5	4.0	4.9	3.7	2.0	2.8	3.9	3.2	3.0	4.2	5.2	7.3	9.3	9.2	7.6	6.4	4.8	5.6	6.9	6.4	13.1
5-Jan	9.7	Z	24.1	38.5	55.9	34.3	10.4	5.6	3.4	4.4	4.6	4.1	4.3	18.4	21.1	15.2	12.4	22.4	9.7	14.3	18.5	12.0	9.7	11.3	15.8	55.9
6-Jan	16.6	15.6	Z	14.5	20.1	26.5	32.0	30.5	21.6	14.3	6.9	7.2	11.5	10.1	14.0	14.3	10.7	9.1	5.6	3.3	4.5	2.6	2.0	2.3	12.9	32.0
7-Jan	1.5	3.5	2.7	Z	3.9	5.3	5.4	8.3	9.5	11.7	10.9	30.0	30.7	18.3	10.5	6.6	6.6	8.7	11.4	9.8	8.5	5.2	4.4	2.1	9.4	30.7
8-Jan	2.4	3.0	3.4	2.1	Z	2.2	4.1	2.9	12.7	71.0	97.4	89.8	68.7	32.3	31.7	29.3	28.9	23.6	12.3	5.9	5.2	5.1	4.1	6.3	23.7	97.4
9-Jan	7.7	8.5	9.2	11.2	12.9	Z	22.5	26.3	20.7	12.9	17.0	13.6	12.1	10.0	6.0	4.9	6.7	4.8	3.4	3.3	2.8	2.9	2.9	1.7	9.7	26.3
10-Jan	Z	1.8	2.0	3.9	4.1	5.5	6.9	8.4	10.3	12.6	12.3	11.4	20.3	23.0	19.3	14.4	9.9	6.3	6.2	7.5	6.4	10.7	11.2	7.9	9.7	23.0
11-Jan	4.4	Z	5.2	3.6	3.5	4.6	8.4	8.0	6.5	7.9	9.0	8.7	11.3	15.4	18.0	14.3	10.0	13.1	18.2	15.3	16.4	17.8	16.5	7.9	10.6	18.2
12-Jan	2.2	2.0	Z	1.7	1.5	1.0	4.9	C	C	C	C	C	8.8	5.9	6.1	5.7	3.7	7.2	12.8	14.0	10.6	18.2	24.4	22.9	8.5	24.4
13-Jan	21.8	15.7	15.2	Z	16.6	28.2	14.8	17.0	15.4	21.9	18.1	19.9	13.9	11.4	11.0	12.1	13.7	21.3	24.4	35.2	30.1	19.8	24.5	30.8	19.7	35.2
14-Jan	18.2	26.0	64.6	73.4	47.6	22.9	Z	41.9	38.0	50.6	35.3	18.1	9.2	13.6	19.0	25.9	40.9	48.3	79.1	83.0	72.2	51.1	67.6	65.2	44.0	83.0
15-Jan	43.7	34.1	35.8	36.4	21.8	Z	23.7	21.8	26.0	13.9	26.3	22.3	14.1	11.9	12.4	9.3	12.4	13.4	28.4	29.0	28.3	38.3	35.6	32.2	24.8	43.7
16-Jan	Z	31.0	26.0	47.6	65.9	58.3	32.7	78.5	49.9	45.4	42.9	38.8	34.1	30.3	36.8	41.4	40.4	3.9	2.9	3.2	3.2	2.1	1.8	1.3	31.2	78.5
17-Jan	2.1	Z	4.4	6.0	4.1	3.9	5.8	5.6	5.9	5.6	6.1	4.1	4.0	2.9	5.4	6.0	8.5	10.1	12.1	8.2	9.0	10.0	10.2	14.5	6.7	14.5
18-Jan	21.6	29.0	Z	1.9	1.1	1.8	0.7	0.9	1.1	0.7	1.3	1.2	7.7	21.2	2.8	1.0	0.6	0.8	1.6	1.3	1.6	1.7	1.8	1.9	4.6	29.0
19-Jan	1.3	1.1	0.8	Z	1.6	3.1	6.2	4.7	6.8	8.3	8.7	7.9	6.9	12.2	5.8	4.8	3.6	7.3	7.8	6.5	14.9	12.0	7.1	6.1	6.3	14.9
20-Jan	4.2	3.8	4.1	4.0	Z	5.7	7.2	6.7	6.1	8.8	3.6	26.9	37.6	74.8	50.4	31.9	22.1	19.7	10.0	8.1	6.1	7.2	9.1	5.4	15.8	74.8
21-Jan	3.1	2.3	5.1	4.5	6.0	Z	9.5	16.1	23.7	18.2	11.9	13.1	4.3	5.7	8.6	6.5	1.5	2.8	3.5	5.0	5.1	6.9	10.6	10.3	8.0	23.7
22-Jan	Z	3.5	4.3	5.5	4.7	5.8	8.4	11.9	12.1	14.9	5.8	0.6	0.5	0.6	0.8	0.8	0.9	0.4	0.9	1.1	0.7	1.0	1.5	1.3	3.8	14.9
23-Jan	1.1	Z	1.6	1.4	1.9	2.0	3.4	6.8	5.5	11.1	11.0	5.9	3.6	3.3	3.3	12.8	16.3	55.8	14.5	4.5	3.4	3.3	4.2	4.8	7.9	55.8
24-Jan	3.4	3.2	Z	4.2	5.4	7.2	7.0	18.1	18.9	20.1	21.3	16.8	6.0	3.0	2.8	2.9	3.6	5.2	6.6	11.0	27.9	90.3	79.9	69.7	18.9	90.3
25-Jan	58.2	31.4	15.0	Z	4.7	4.5	6.8	5.4	6.0	6.8	10.0	15.3	36.0	34.4	31.2	27.3	20.4	15.3	11.7	18.9	25.9	22.4	14.9	13.5	19.0	58.2
26-Jan	11.9	9.1	7.8	6.9	Z	109.3	50.1	38.4	36.6	34.4	28.1	15.0	5.7	3.6	4.5	4.6	7.6	7.3	5.6	5.3	5.0	5.0	4.8	4.5	17.9	109.3
27-Jan	4.4	4.6	5.0	5.2	5.5	Z	5.2	6.8	7.6	6.8	10.6	8.9	9.7	10.0	14.5	10.8	3.1	1.8	1.5	1.6	1.5	6.2	9.8	7.0	6.4	14.5
28-Jan	Z	5.3	5.9	3.1	2.8	2.8	3.9	3.1	3.6	3.8	3.2	1.1	0.9	0.6	0.5	0.5	0.4	0.5	0.3	0.5	0.5	0.7	0.4	0.7	2.0	5.9
29-Jan	0.7	Z	2.1	1.3	1.1	1.9	1.3	1.8	2.6	4.7	5.6	4.0	2.9	2.4	3.3	6.0	6.0	4.0	4.2	3.6	5.4	10.8	6.5	4.2	3.7	10.8
30-Jan	2.7	2.6	Z	3.8	5.8	4.5	6.6	5.7	4.2	4.2	4.2	5.6	1.3	0.8	0.4	0.4	0.4	0.2	0.3	0.3	0.1	0.7	0.3	0.4	2.4	6.6
31-Jan	0.3	0.2	0.5	Z	0.3	0.3	0.2	0.4	2.4	3.1	1.7	0.9	5.6	4.6	1.8	1.3	10.4	7.6	2.4	3.9	3.5	3.3	2.0	1.3	2.5	10.4
																								Diurnal Average		
																								Diurnal Maximum		
9.7 10.2 10.4 12.1 11.8 13.8 10.4 13.5 12.4 14.6 14.6 14.0 13.2 14.7 13.1 11.6 11.2 11.5 10.6 10.8 11.1 12.5 12.6 11.7																										
58.2 34.1 64.6 73.4 65.9 109.3 50.1 78.5 49.9 71.0 97.4 89.8 68.7 74.8 50.4 41.4 40.9 55.8 79.1 83.0 72.2 90.3 79.9 69.7																										
Z - zerospan C - Calibration																										



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	588	83.05	83.05
21 - 40	83	11.72	94.77
41 - 80	32	4.52	99.29
81 - 159	5	0.71	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Buffalo Viewpoint - January 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	85	19	10	1	7	54	111	54	11	15	20	35	23	7	14	587
21 - 40	13	4	2	0	1	1	3	17	15	2	1	2	2	2	6	11	82
11 - 80	5	4	0	0	0	0	1	6	1	1	0	0	2	3	5	4	32
81 - 159	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	5
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	140	93	21	10	2	8	58	134	70	14	16	22	39	29	20	30	706

Total Number of Valid Hours: 706

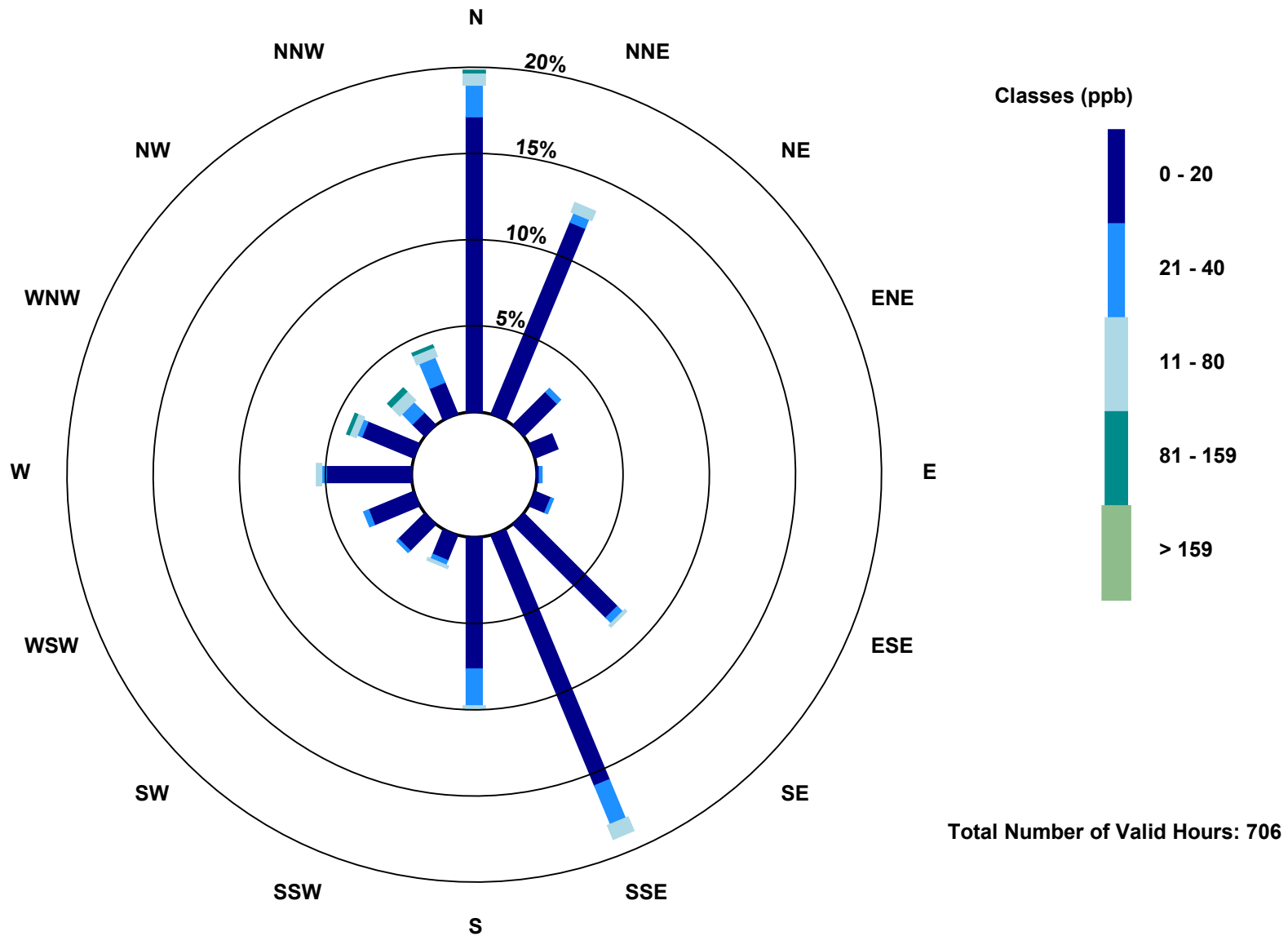
Total Number of Hours: 744

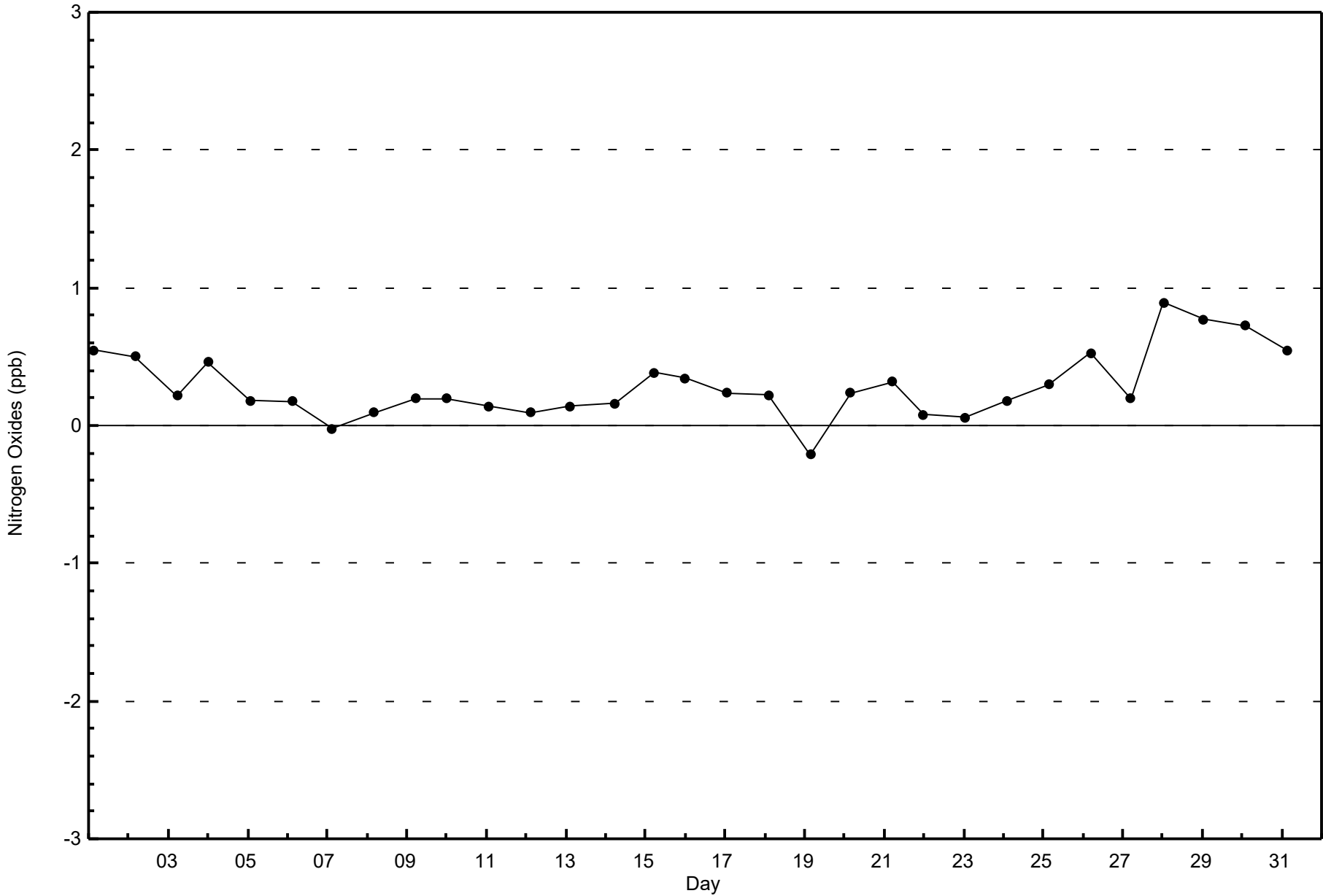


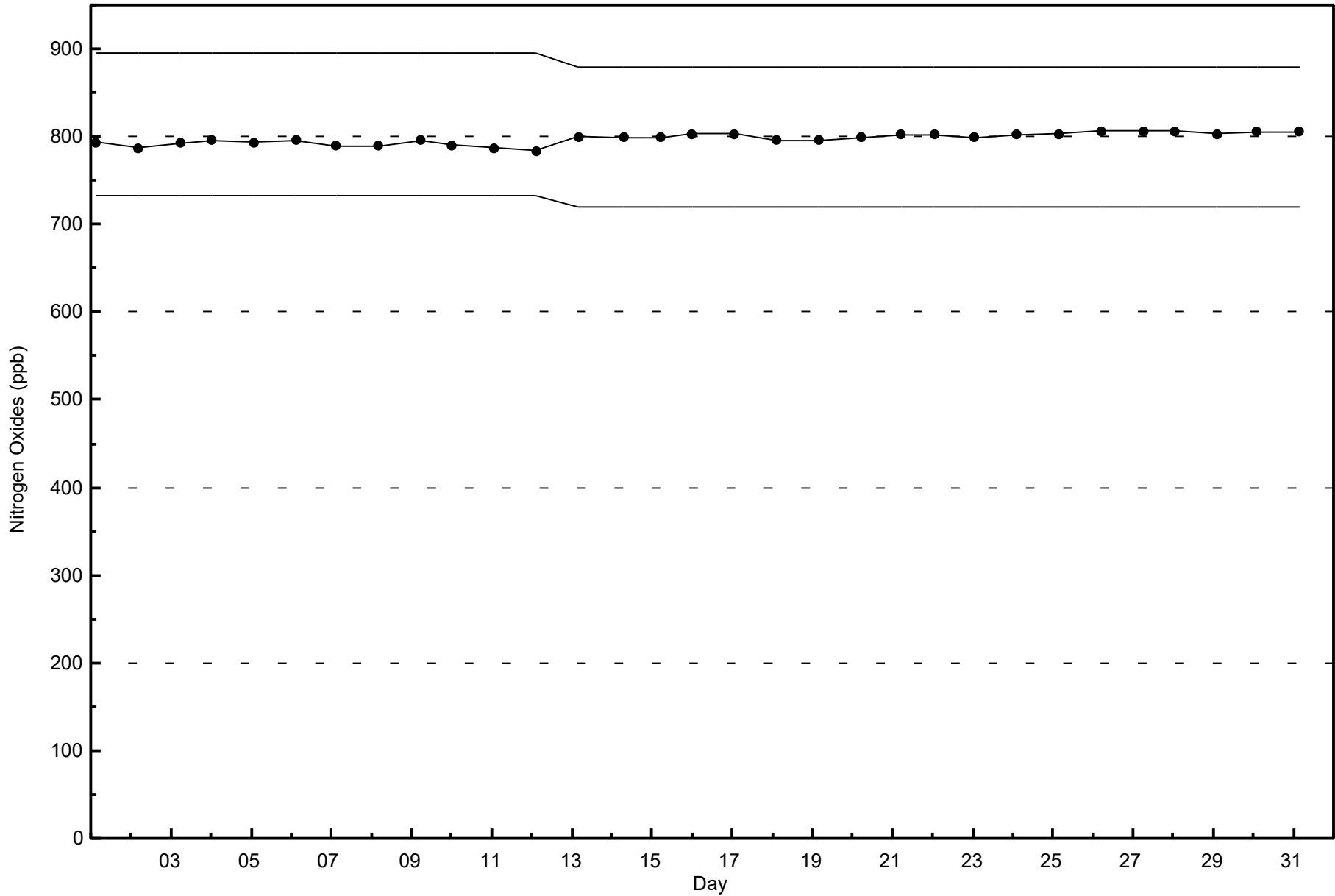


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









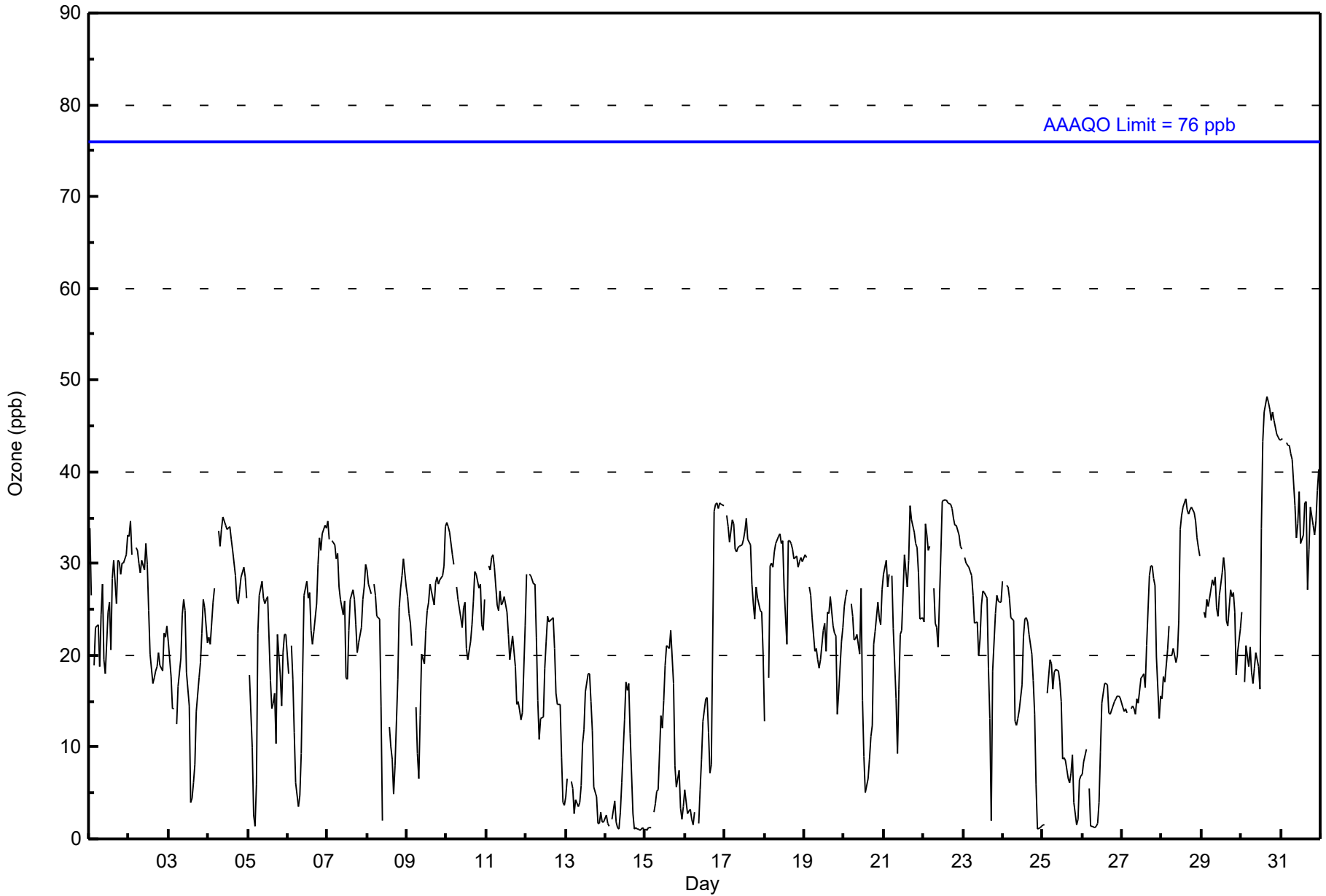
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Buffalo Viewpoint - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 744																																															
Maximum Value: 48.3 ppb on Jan 30 16:00		Maximum Daily Average: 37.2 ppb on Jan 31																																															
Minimum Value: 0.9 ppb on Jan 14 22:00		Hours of Data: 710																																															
Maximum Diurnal Average: 23.7 ppb at hour 13		Hours of Missing Data: 34																																															
Monthly Average: 21.86 ppb		Hours of Calibration: 34																																															
Minimum Daily Average: 4.8 ppb on Jan 14		Percent Operational Time: 100.0																																															
Minimum Diurnal Average: 19.1 ppb at hour 9																																																	
Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 5.3 Q <sub>1</sub> = 15.1 Median = 23.5 Q <sub>3</sub> = 29.2 P <sub>90</sub> = 33.9 P <sub>99</sub> = 44.1																																																	
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-Jan	33.8	26.6	Z	19.0	23.0	23.4	18.8	24.3	27.7	19.5	18.0	24.7	25.8	20.5	28.4	30.3	25.7	30.4	30.2	28.8	30.0	30.0	30.9	33.1	26.2	33.8																							
2-Jan	32.9	34.6	31.0	Z	31.7	31.5	30.0	29.0	30.4	29.2	32.3	29.9	24.9	20.1	16.9	17.6	18.3	18.8	20.2	18.9	18.3	22.4	21.9	23.2	25.4	34.6																							
3-Jan	21.6	17.7	14.2	14.2	Z	12.5	16.6	19.7	24.4	26.0	24.8	18.2	14.5	3.9	4.5	6.1	8.1	13.9	17.6	19.3	22.4	26.2	25.2	21.4	17.1	26.2																							
4-Jan	21.9	21.2	23.5	25.8	27.3	Z	33.5	31.9	33.7	35.0	34.2	33.7	33.9	34.0	32.7	31.5	28.6	26.1	25.7	27.2	28.5	29.6	28.5	26.2	29.3	35.0																							
5-Jan	Z	17.9	9.9	2.6	1.3	5.9	22.4	26.6	28.1	26.2	25.6	26.1	26.4	17.3	14.1	14.8	15.9	10.3	22.3	17.8	14.5	20.3	22.3	22.3	17.9	28.1																							
6-Jan	18.0	Z	21.1	17.4	11.6	6.1	3.5	4.7	9.4	18.2	26.5	28.1	26.2	26.9	22.7	21.3	22.6	25.6	29.8	32.8	31.4	33.2	34.1	33.9	22.0	34.1																							
7-Jan	34.7	32.6	Z	32.5	32.0	30.5	31.1	27.4	26.1	24.4	26.0	17.5	17.3	22.7	26.1	27.1	26.0	23.3	20.2	21.4	23.0	26.1	27.5	29.9	26.3	34.7																							
8-Jan	29.3	27.8	26.7	Z	27.8	26.5	24.3	24.0	14.4	2.0	C	C	C	12.2	10.0	8.7	4.9	7.9	17.4	25.1	27.3	28.7	30.5	27.5	20.2	30.5																							
9-Jan	26.4	24.5	23.5	21.1	Z	14.4	9.4	6.6	13.5	20.1	19.1	22.8	24.9	25.8	27.7	27.0	25.4	27.9	28.5	27.8	28.3	28.7	29.8	34.0	23.3	34.0																							
10-Jan	34.4	34.0	33.3	30.9	29.9	Z	27.4	26.1	24.1	23.1	25.1	25.9	20.7	19.5	21.6	23.4	25.9	29.1	28.8	27.2	27.7	23.3	22.8	26.1	26.5	34.4																							
11-Jan	Z	29.7	29.2	30.7	30.9	29.6	25.5	24.8	27.1	25.5	25.7	26.4	24.7	22.3	19.6	20.9	22.1	18.7	14.6	14.9	14.0	12.9	13.8	23.1	22.9	30.9																							
12-Jan	28.8	Z	28.8	28.6	27.8	27.7	22.0	15.2	10.8	13.1	13.3	18.7	21.6	24.3	23.7	23.9	24.0	20.7	15.9	14.7	14.7	8.8	3.9	3.7	18.9	28.8																							
13-Jan	4.6	6.6	Z	6.3	5.5	2.7	4.3	3.5	3.9	5.7	10.3	11.8	16.0	18.0	14.9	11.8	5.6	4.6	1.6	1.7	2.9	1.9	1.9	7.1	18.0																								
14-Jan	2.5	1.6	1.4	Z	2.1	4.0	1.8	1.2	1.0	3.0	6.1	12.9	17.0	16.2	17.0	11.5	2.7	1.0	1.2	1.1	1.1	0.9	1.2	0.9	4.8	17.0																							
15-Jan	1.0	1.0	1.2	1.2	Z	2.9	3.8	5.2	5.3	13.4	12.0	15.0	19.0	21.0	20.8	22.8	19.8	16.9	7.9	5.6	7.4	3.4	2.2	3.5	9.2	22.8																							
16-Jan	5.4	2.7	3.0	3.2	2.1	1.5	2.8	Z	1.7	5.4	8.8	12.9	15.2	15.5	11.6	7.2	8.0	35.8	36.4	36.6	36.0	36.7	36.5	36.3	15.7	36.7																							
17-Jan	Z	35.2	34.0	32.4	34.7	34.3	31.6	31.2	31.7	31.9	32.0	32.7	33.5	34.9	32.6	32.0	27.8	25.7	24.0	27.4	26.3	24.9	24.8	20.1	30.2	35.2																							
18-Jan	12.8	Z	17.5	29.8	30.0	29.6	31.3	32.2	32.9	33.2	32.2	32.5	27.3	21.2	32.5	32.4	32.1	31.6	30.5	30.8	29.7	30.1	30.7	30.1	29.3	33.2																							
19-Jan	31.0	30.7	Z	27.4	26.6	24.1	20.5	20.7	19.5	18.7	19.5	22.7	23.5	20.4	24.7	24.6	26.3	23.1	22.4	22.2	13.6	16.0	21.6	23.1	22.7	31.0																							
20-Jan	25.4	26.4	27.1	Z	25.7	24.2	21.6	21.9	22.3	20.1	27.3	15.2	9.0	5.1	6.6	8.7	11.1	12.3	21.2	22.6	25.7	24.1	23.3	27.2	19.7	27.3																							
21-Jan	28.8	30.3	27.5	28.9	Z	28.7	22.9	15.3	9.2	16.3	22.3	22.8	31.0	29.1	27.4	30.4	36.3	34.8	33.4	32.2	31.7	29.0	23.9	24.1	26.8	36.3																							
22-Jan	23.7	34.3	33.0	31.4	31.9	Z	27.3	23.5	23.1	20.9	31.0	36.7	36.9	37.0	36.9	36.6	36.4	36.1	35.0	34.1	34.2	33.0	31.8	31.6	32.0	37.0																							
23-Jan	Z	30.7	30.1	29.6	29.2	28.6	26.6	23.5	23.7	20.0	21.8	25.4	26.9	26.9	26.2	18.7	13.2	2.0	18.4	24.6	26.5	25.9	25.8	25.8	23.9	30.7																							
24-Jan	28.0	Z	27.6	27.5	26.3	24.0	23.7	12.9	12.4	13.1	14.0	16.8	22.0	23.9	24.1	23.6	22.3	20.1	17.2	13.6	6.0	1.1	1.2	1.4	17.5	28.0																							
25-Jan	1.5	1.6	Z	15.9	19.5	19.1	16.3	18.1	18.5	18.2	17.0	14.9	8.7	8.9	8.5	6.6	6.1	7.2	9.1	3.9	1.5	2.2	6.4	6.9	10.3	19.5																							
26-Jan	7.0	8.4	9.8	Z	5.5	1.4	1.4	1.3	1.3	1.7	3.9	9.4	14.8	17.0	17.0	16.8	13.7	13.6	14.5	15.0	15.3	15.6	15.5	15.3	10.2	17.0																							
27-Jan	14.4	13.9	14.2	13.7	Z	14.1	14.5	14.2	13.6	15.3	14.8	17.5	17.7	18.0	16.5	21.1	28.7	29.8	29.8	28.3	27.6	19.8	13.1	15.6	18.5	29.8																							
28-Jan	15.2	17.7	17.1	20.7	23.1	Z	20.0	20.7	19.2	20.1	23.9	33.7	35.2	36.1	37.1	35.9	35.3	35.8	36.1	35.5	34.7	32.7	31.8	30.9	28.2	37.1																							
29-Jan	Z	24.7	24.1	26.1	25.3	26.3	28.2	27.6	28.5	25.2	24.2	26.5	29.0	30.7	29.2	23.8	23.3	27.1	26.4	26.9	24.7	17.9	20.3	23.0	25.6	30.7																							
30-Jan	24.7	Z	17.1	21.1	18.8	20.8	18.1	17.0	18.7	20.3	18.8	16.3	33.9	43.4	46.5	48.3	47.6	46.9	45.7	46.6	45.7	44.1	43.8	43.5	32.5	48.3																							
31-Jan	43.4	43.6	Z	43.2	42.9	42.8	41.9	41.4	36.4	32.8	34.3	37.8	32.2	33.1	36.7	36.8	27.2	31.5	36.2	34.2	33.1	34.6	38.0	40.2	37.2	43.6																							
																								21.2	22.1	21.0	22.3	22.8	19.9	20.1	19.7	19.1	19.3	21.5	22.9	23.7	22.8	23.2	22.7	21.8	22.2	23.3	23.2	22.7	22.1	22.1	22.8	Diurnal Average	
																								43.4	43.6	34.0	43.2	42.9	42.8	41.9	41.4	36.4	35.0	34.3	37.8	36.9	43.4	46.5	48.3	47.6	46.9	45.7	46.6	45.7	44.1	43.8	43.5	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  
Buffalo Viewpoint - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	283	39.86	39.86
21 - 50	427	60.14	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Buffalo Viewpoint - January 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	44	20	6	4	1	1	31	67	49	11	4	2	4	10	9	18	281
21 - 50	95	73	18	6	1	7	29	70	24	2	11	20	34	18	8	11	427
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>	139	93	24	10	2	8	60	137	73	13	15	22	38	28	17	29	708

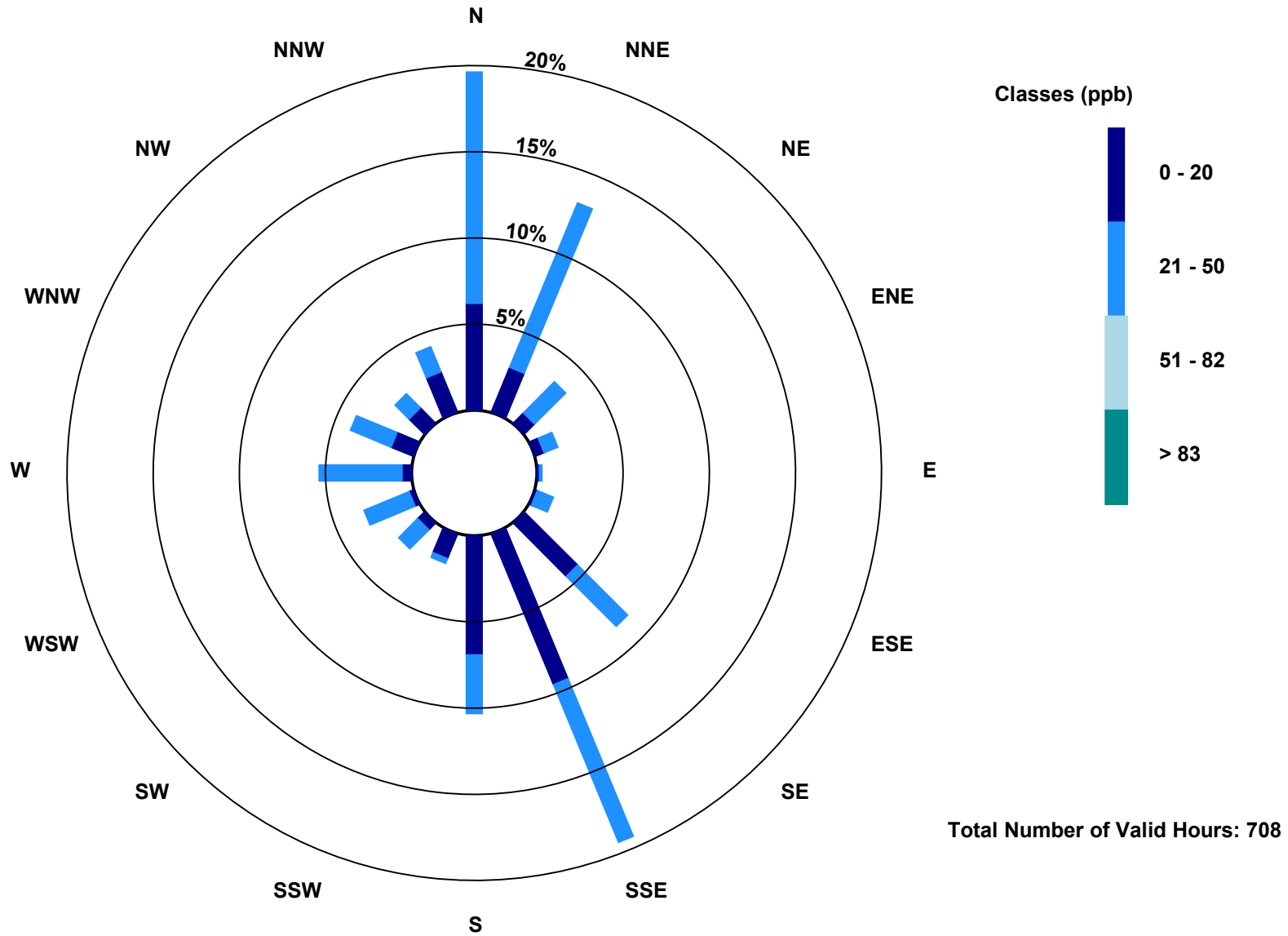
Total Number of Valid Hours: 708

Total Number of Hours: 744

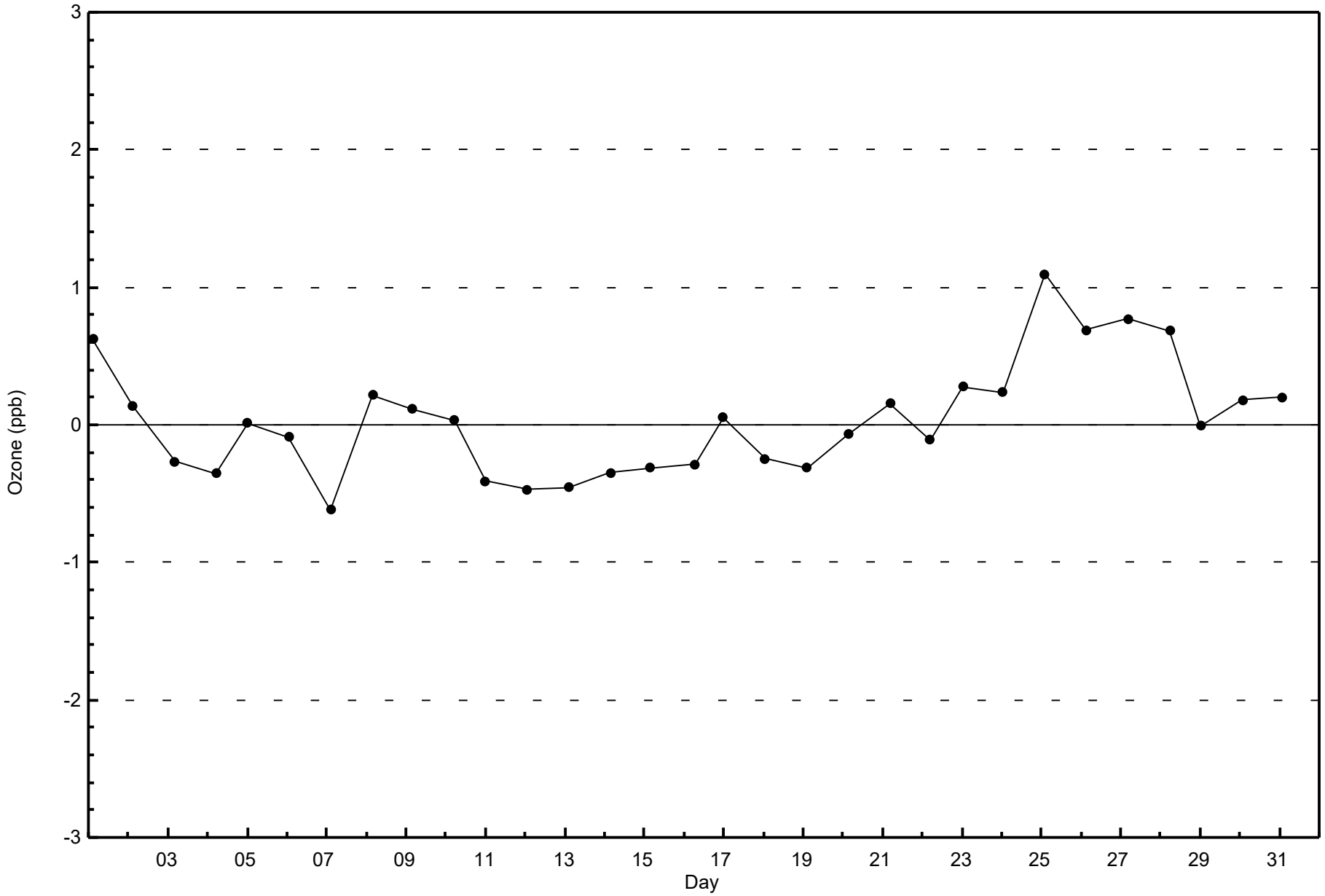


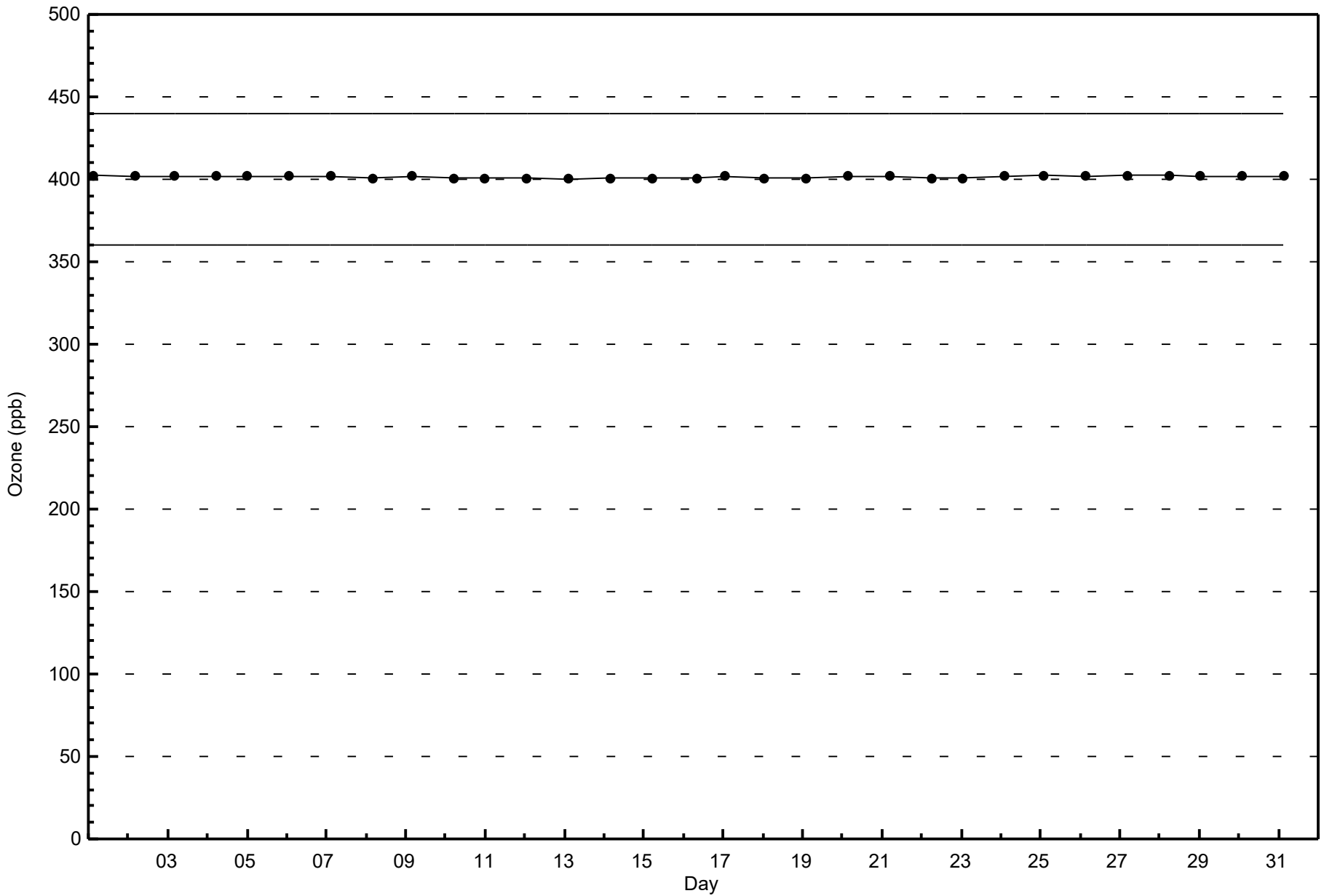
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











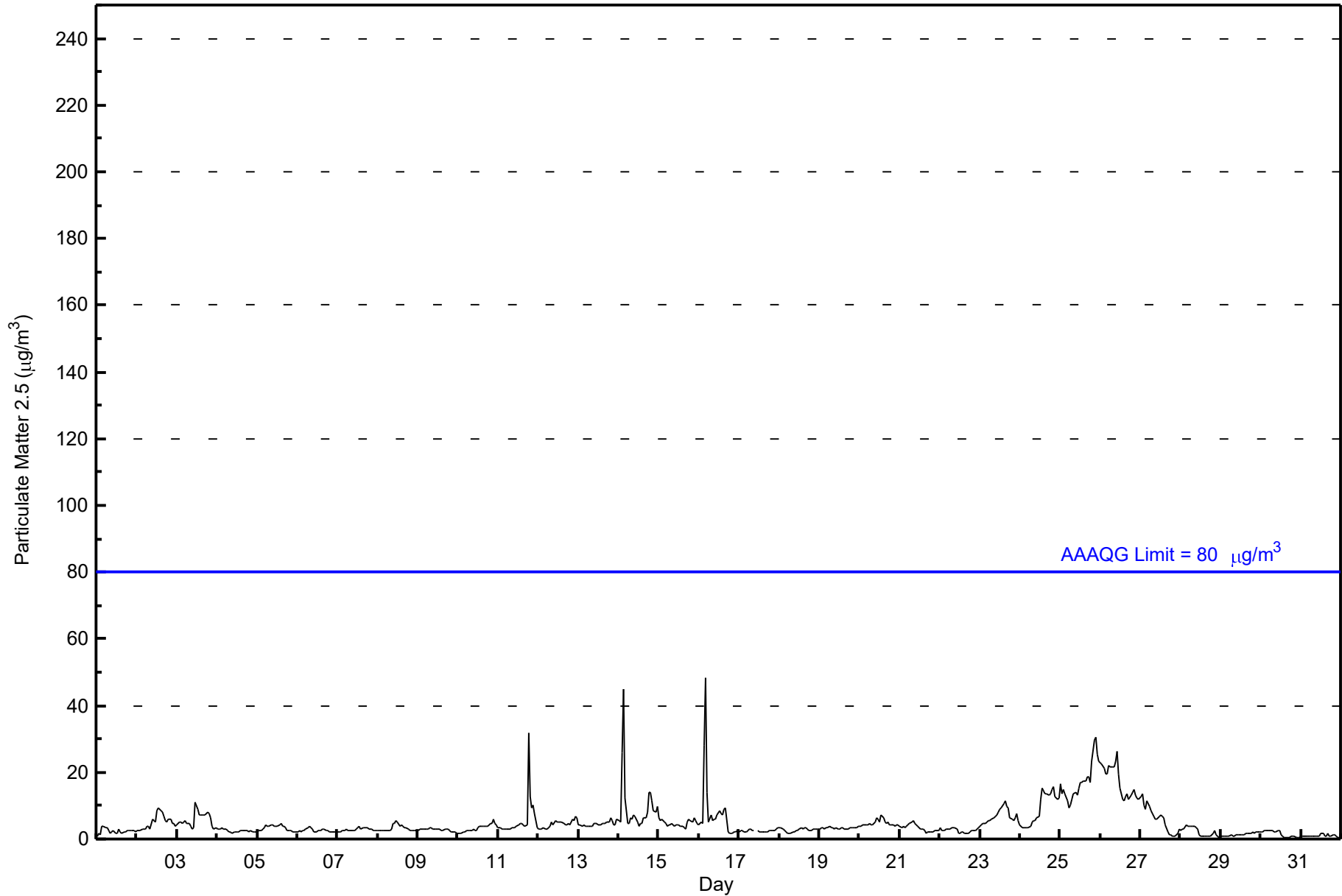
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Buffalo Viewpoint - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 48.2 µg/m <sup>3</sup> on Jan 16 05:00 Maximum Daily Average: 17.4 µg/m <sup>3</sup> on Jan 26																								Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 1 Percent Operational Time: 100.0		
Minimum Value: 0.4 µg/m <sup>3</sup> on Jan 30 23:00 Maximum Diurnal Average: 6.3 µg/m <sup>3</sup> at hour 4 Monthly Average: 4.92 µg/m <sup>3</sup>												Minimum Daily Average: 0.9 µg/m <sup>3</sup> on Jan 31 Minimum Diurnal Average: 4.4 µg/m <sup>3</sup> at hour 7 Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 2.4 Median = 3.4 Q <sub>3</sub> = 5.2 P <sub>90</sub> = 10.6 P <sub>99</sub> = 25.6														
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-Jan	1.0	1.8	1.3	3.8	3.8	3.6	3.4	2.7	1.8	2.1	2.4	1.7	1.5	2.9	2.2	1.7	2.2	2.1	2.6	2.7	2.6	2.5	2.5	2.3	2.4	3.8
2-Jan	2.4	2.4	2.7	2.9	2.8	2.9	3.6	3.8	3.0	6.0	5.5	5.2	8.5	9.3	8.5	8.0	6.9	5.7	5.3	5.8	6.1	4.9	4.6	3.8	5.0	9.3
3-Jan	4.4	5.1	4.9	4.6	5.3	5.5	4.9	4.5	3.7	3.2	3.4	11.1	8.8	7.4	7.2	7.3	7.1	7.4	8.1	7.6	6.2	3.8	3.2	3.3	5.7	11.1
4-Jan	3.1	3.0	2.9	3.2	3.2	3.0	2.5	2.3	2.0	1.8	2.0	2.0	2.1	2.1	2.3	2.4	2.6	2.6	2.4	2.3	2.5	2.0	1.9	1.9	2.4	3.2
5-Jan	2.1	2.4	2.7	3.0	3.5	4.1	3.9	3.9	4.4	4.3	4.0	3.8	3.6	4.2	4.5	3.7	3.7	3.5	2.4	2.7	2.4	2.1	2.0	1.9	3.3	4.5
6-Jan	2.2	2.3	2.2	2.4	2.7	3.0	3.6	3.6	3.4	2.8	2.1	2.1	2.4	2.5	2.6	2.8	2.8	2.7	2.4	1.9	2.1	2.1	2.1	2.1	2.5	3.6
7-Jan	2.0	2.1	2.1	2.4	2.7	2.9	2.5	2.5	2.3	2.4	2.3	3.2	3.4	3.6	2.9	3.2	3.3	3.4	3.4	3.1	2.9	2.7	2.7	2.4	2.8	3.6
8-Jan	2.5	2.5	2.5	2.4	2.6	2.7	2.7	2.5	3.1	4.5	4.8	5.6	4.9	3.7	4.3	3.8	3.5	3.4	3.0	2.7	2.7	2.7	2.5	2.6	3.3	5.6
9-Jan	2.6	2.8	3.0	2.9	3.1	3.0	3.2	3.3	3.2	2.8	3.0	3.1	2.9	2.8	2.6	2.7	2.8	2.9	3.1	2.6	2.3	2.2	1.9	1.5	2.8	3.3
10-Jan	1.5	1.8	1.8	2.0	2.2	2.5	2.6	2.6	2.7	2.8	2.7	2.7	3.2	3.6	3.9	3.9	3.9	4.0	4.0	4.8	4.5	5.7	4.8	4.2	3.3	5.7
11-Jan	3.5	3.2	3.1	2.9	2.9	3.0	3.1	3.1	3.3	3.4	3.6	3.7	4.1	4.6	4.8	4.4	4.0	4.3	31.7	12.8	9.4	10.1	7.6	3.5	5.8	31.7
12-Jan	3.0	3.0	3.0	3.2	3.1	3.1	3.5	3.9	5.0	4.2	5.5	4.9	5.1	5.1	5.3	4.7	4.3	4.4	4.6	4.3	5.9	5.3	6.8	6.5	4.5	6.8
13-Jan	4.3	4.2	4.0	4.1	3.7	4.0	3.8	4.0	3.9	4.8	4.5	4.7	4.4	4.4	4.5	4.6	4.7	5.0	5.2	6.2	5.5	4.4	4.3	5.9	4.6	6.2
14-Jan	5.3	5.2	25.8	44.7	12.3	4.5	4.6	6.6	5.9	7.1	6.8	5.2	4.0	4.6	4.8	6.2	6.5	8.2	14.1	13.9	11.6	8.3	8.3	9.9	9.8	44.7
15-Jan	6.3	5.6	5.8	5.1	4.5	3.9	4.1	4.3	4.8	3.6	4.1	4.2	4.1	3.8	3.8	3.2	3.1	4.9	5.9	5.4	4.9	6.6	5.5	4.8	4.7	6.6
16-Jan	4.0	5.1	4.5	28.0	48.2	13.8	5.2	7.2	5.7	6.0	6.0	7.1	8.5	7.6	7.4	8.7	9.2	2.1	1.9	1.7	1.7	2.1	2.1	2.4	8.2	48.2
17-Jan	2.1	2.4	2.5	2.3	2.2	2.6	2.8	2.8	2.7	2.6	C	2.5	2.3	2.0	2.2	2.3	2.2	2.3	2.4	2.3	2.5	2.7	2.8	3.5	2.5	3.5
18-Jan	3.6	3.5	3.1	2.5	2.2	1.9	1.7	1.8	2.0	2.3	2.6	2.6	3.0	3.5	2.9	3.5	3.4	2.9	2.8	2.7	2.9	2.9	3.0	3.1	2.8	3.6
19-Jan	3.1	3.3	3.3	3.2	3.2	3.5	3.8	3.5	3.6	3.2	3.3	2.9	2.9	3.3	3.2	3.2	2.9	3.1	3.4	3.3	3.4	3.5	3.5	3.6	3.3	3.8
20-Jan	3.9	3.9	4.0	4.0	4.1	4.4	4.4	4.3	4.3	4.9	6.5	5.9	5.1	7.1	6.2	5.3	4.8	4.9	4.2	4.2	4.2	3.8	4.1	4.0	4.7	7.1
21-Jan	3.9	3.5	3.7	3.6	3.8	4.2	4.5	5.1	5.7	4.8	4.4	4.0	3.1	2.9	2.9	2.6	1.8	1.9	2.1	2.2	2.1	2.4	2.5	2.8	3.4	5.7
22-Jan	3.3	2.5	2.6	2.7	2.8	3.0	3.1	3.2	3.2	3.5	2.8	1.7	1.8	2.0	2.1	1.9	1.8	1.9	1.9	2.4	2.4	2.5	2.9	3.4	2.6	3.5
23-Jan	3.9	4.3	4.5	4.7	5.2	5.4	5.6	5.9	6.2	6.7	7.4	7.9	8.8	9.3	10.8	11.5	9.6	9.1	6.4	5.9	5.6	6.3	7.6	5.6	6.8	11.5
24-Jan	4.2	3.4	3.3	3.3	3.3	3.4	3.7	5.2	5.3	5.6	6.3	6.6	11.7	15.4	14.2	13.5	13.4	13.1	13.7	15.0	15.7	12.7	11.9	12.1	9.0	15.7
25-Jan	16.6	13.8	15.0	13.7	11.5	9.5	10.2	11.7	13.5	13.8	13.2	15.3	17.1	16.8	17.4	17.2	18.6	18.7	17.1	23.5	29.7	30.4	25.3	23.3	17.2	30.4
26-Jan	22.9	22.6	21.4	19.6	19.5	22.1	21.7	21.5	21.4	23.2	26.1	19.6	15.2	11.9	11.7	12.6	13.5	12.1	13.3	14.0	14.9	13.0	12.4	11.7	17.4	26.1
27-Jan	12.6	13.6	10.0	8.8	11.5	9.7	8.5	7.4	6.7	6.0	6.0	6.6	7.2	6.8	6.3	4.1	1.9	1.3	1.1	1.1	0.9	0.9	1.9	2.8	6.0	13.6
28-Jan	2.7	2.9	3.1	4.2	3.8	3.6	3.8	3.8	3.9	3.5	2.9	1.3	1.0	0.9	0.7	0.7	0.6	0.7	0.6	1.7	2.4	1.3	0.7	0.6	2.1	4.2
29-Jan	0.7	0.8	0.9	0.9	0.9	0.8	1.4	0.9	1.0	1.2	1.3	1.2	1.2	1.2	1.3	1.6	1.7	1.7	1.7	1.9	1.8	2.1	2.1	2.0	1.3	2.1
30-Jan	2.1	2.1	2.4	2.5	2.5	2.5	2.5	2.4	2.0	2.2	2.5	2.7	1.4	0.7	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.4	0.4	0.6	1.5	2.7
31-Jan	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.8	0.8	0.8	0.8	1.5	1.5	0.8	0.6	1.5	0.9	0.7	1.5	1.5	1.0	0.6	0.4	0.9	1.5
Diurnal Average: 4.4 4.4 4.9 6.3 5.9 4.6 4.4 4.6 4.5 4.7 5.0 4.9 5.0 5.1 5.0 4.9 4.8 4.6 5.6 5.3 5.3 4.9 4.7 4.5 Diurnal Maximum: 22.9 22.6 25.8 44.7 48.2 22.1 21.7 21.5 21.4 23.2 26.1 19.6 17.1 16.8 17.4 17.2 18.6 18.7 31.7 23.5 29.7 30.4 25.3 23.3																								Diurnal Average 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>) -  $\mu\text{g}/\text{m}^3$**   
**Buffalo Viewpoint - January 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	576	77.52	77.52
6 - 15	136	18.30	95.83
16 - 25	23	3.10	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Buffalo Viewpoint - January 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	113	89	23	7	2	5	54	104	43	4	13	22	34	23	15	24	575
6 - 15	34	3	1	2	0	3	7	33	23	8	4	0	3	5	4	5	135
16 - 25	0	0	0	0	0	0	0	6	6	2	0	1	2	2	2	2	23
26 - 80	0	3	0	1	0	0	0	0	3	0	0	0	0	0	1	0	8
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	147	95	24	10	2	8	61	143	75	14	17	23	39	30	22	31	741

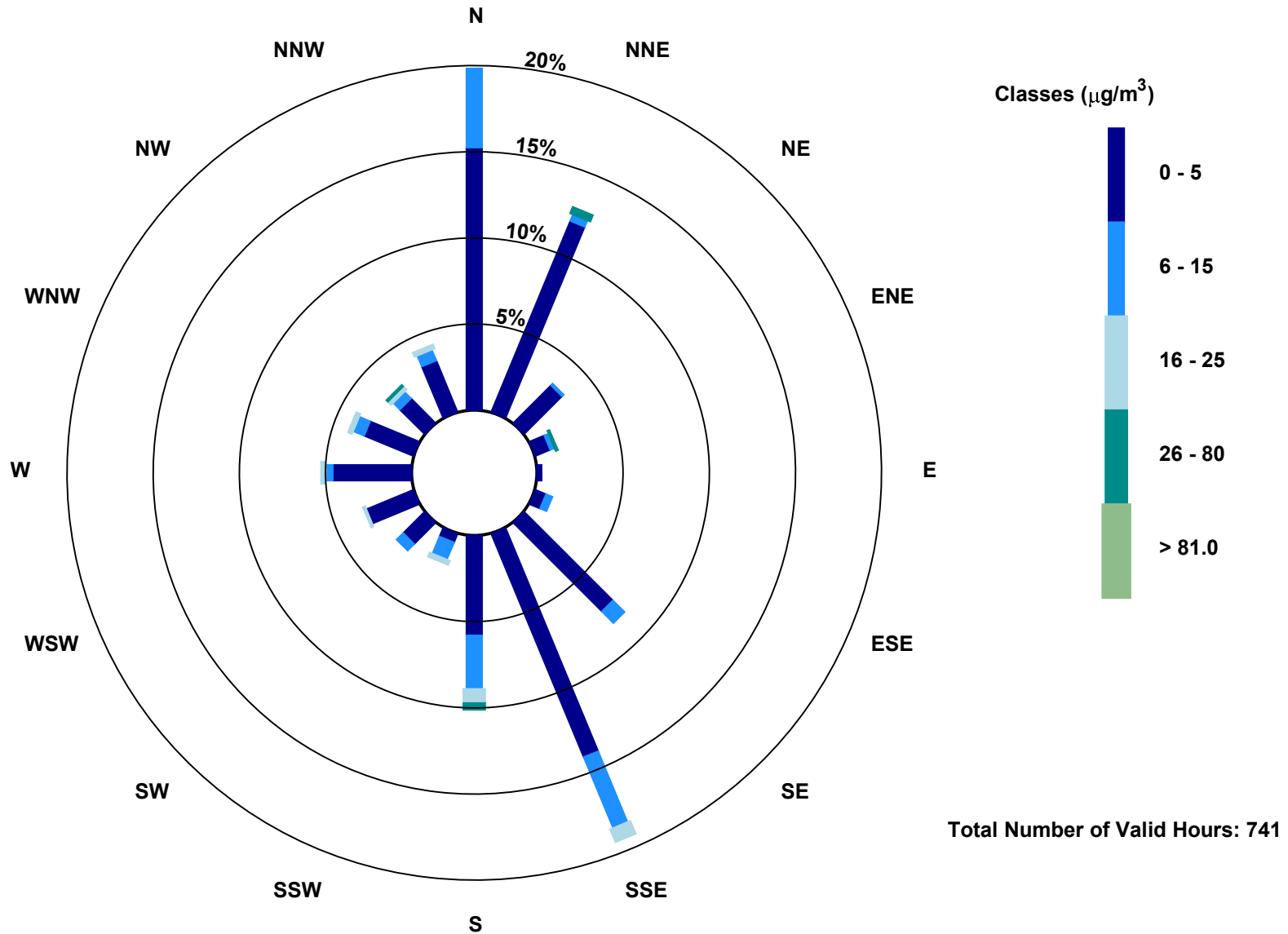
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



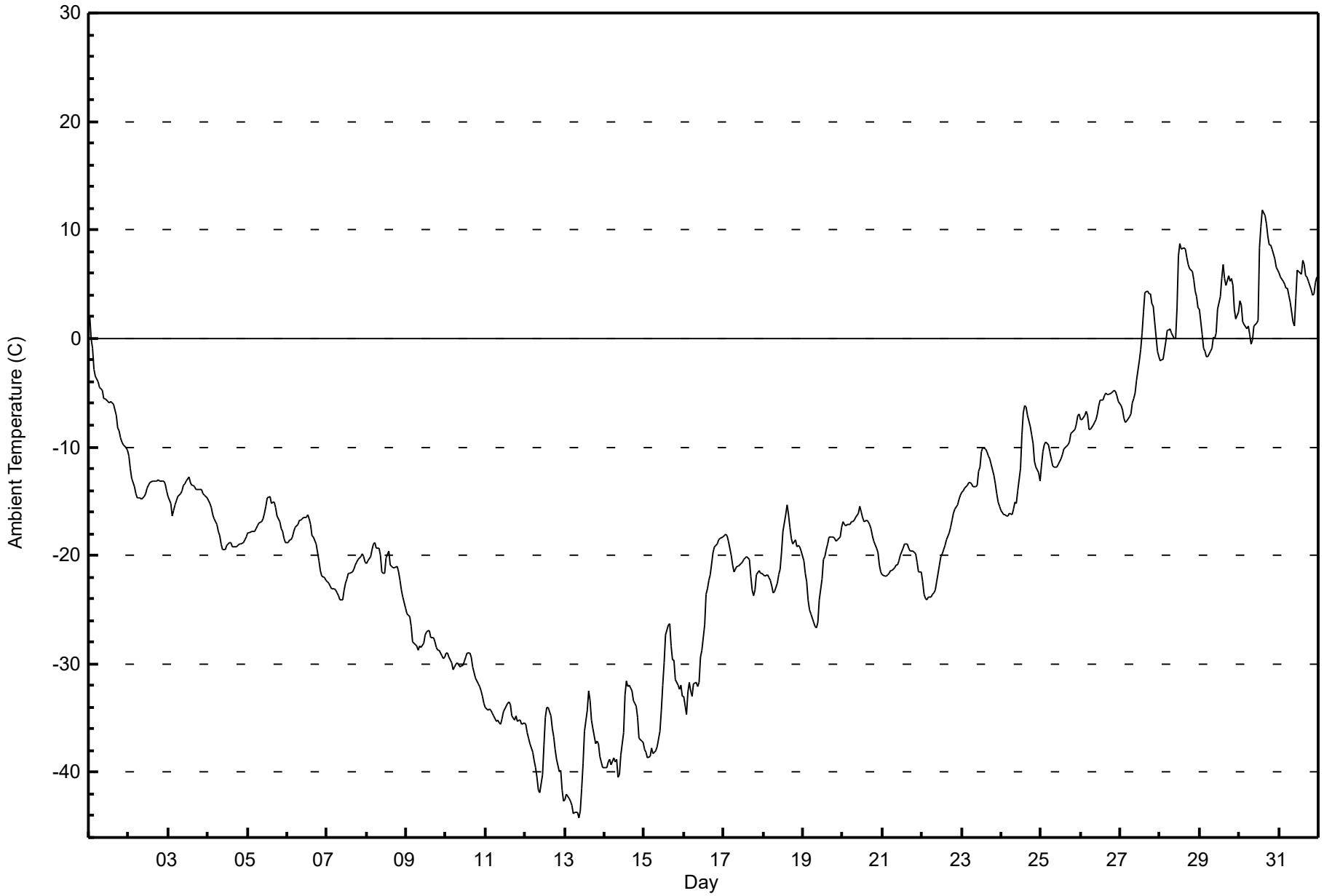


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

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

Maximum Value: 11.8 C on Jan 30 15:00																								Hours in Service:		744	
Maximum Daily Average: 5.1 C on Jan 30																								Hours of Data:		744	
Minimum Value: -44.2 C on Jan 13 09:00																								Hours of Missing Data:		0	
Maximum Diurnal Average: -15.1 C at hour 15																								Hours of Calibration:		0	
Minimum Daily Average: -39.5 C on Jan 13																								Percent Operational Time:		100.0	
Minimum Diurnal Average: -19.5 C at hour 9																											
Monthly Average: -17.58 C																											
Percentiles: P <sub>1</sub> = -42.6 P <sub>10</sub> = -35.1 Q <sub>1</sub> = -25.1 Median = -18.3 Q <sub>3</sub> = -10.0 P <sub>90</sub> = 1.5 P <sub>99</sub> = 8.5																											
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-Jan	2.0	0.0	-0.9	-2.8	-3.5	-4.0	-4.5	-4.7	-4.8	-5.5	-5.6	-5.8	-5.9	-5.8	-5.9	-6.1	-7.1	-8.2	-8.6	-9.1	-9.5	-9.8	-10.0	-10.3	-5.7	2.0	
2-Jan	-10.8	-12.0	-12.9	-13.6	-14.3	-14.7	-14.7	-14.8	-14.8	-14.6	-14.3	-13.8	-13.5	-13.3	-13.2	-13.2	-13.6	-13.6	-13.9	-13.9	-13.9	-14.0	-14.4	-14.5	-14.7	-13.5	-10.8
3-Jan	-14.6	-15.2	-16.4	-15.9	-15.3	-15.0	-14.6	-14.3	-14.0	-13.6	-13.4	-13.1	-12.8	-13.2	-13.6	-13.6	-13.6	-13.9	-13.9	-13.9	-14.0	-14.4	-14.5	-14.7	-14.2	-12.8	
4-Jan	-15.0	-15.3	-15.7	-16.2	-16.7	-17.2	-17.7	-18.2	-18.9	-19.5	-19.4	-19.1	-18.9	-18.8	-18.9	-19.2	-19.3	-19.2	-19.0	-18.9	-18.9	-18.9	-18.6	-18.3	-18.2	-15.0	
5-Jan	-17.9	-17.9	-17.8	-17.8	-17.7	-17.5	-17.3	-17.1	-16.8	-16.6	-16.1	-15.4	-14.6	-14.6	-15.2	-15.1	-15.1	-15.6	-16.3	-16.9	-17.5	-17.9	-18.5	-18.9	-16.8	-14.6	
6-Jan	-18.8	-18.6	-18.5	-18.3	-17.8	-17.5	-17.1	-16.8	-16.7	-16.7	-16.5	-16.5	-16.3	-16.6	-17.2	-18.1	-18.4	-18.9	-19.7	-20.5	-21.4	-21.9	-22.1	-22.3	-18.5	-16.3	
7-Jan	-22.4	-22.6	-22.8	-23.0	-23.1	-23.2	-23.4	-23.7	-24.1	-24.1	-23.2	-22.6	-22.2	-21.6	-21.7	-21.5	-21.2	-20.9	-20.6	-20.3	-20.1	-19.9	-20.1	-20.6	-22.1	-19.9	
8-Jan	-20.7	-20.5	-20.1	-19.4	-19.0	-18.8	-19.3	-19.3	-19.9	-21.5	-21.7	-21.6	-20.3	-19.6	-20.9	-21.0	-21.2	-21.1	-21.0	-21.6	-22.4	-23.2	-23.8	-24.9	-21.0	-18.8	
9-Jan	-25.4	-25.6	-25.6	-26.5	-28.0	-28.2	-28.4	-28.7	-28.3	-28.5	-28.1	-27.3	-27.1	-27.0	-26.9	-27.6	-27.5	-28.0	-28.4	-28.7	-28.7	-29.2	-29.5	-29.3	-27.8	-25.4	
10-Jan	-29.0	-29.0	-29.4	-29.9	-30.6	-30.2	-30.0	-29.9	-30.3	-30.1	-30.1	-29.8	-29.4	-29.0	-29.0	-29.4	-30.3	-30.8	-31.3	-31.8	-32.1	-32.4	-33.0	-33.6	-30.4	-29.0	
11-Jan	-34.0	-34.2	-34.2	-34.3	-34.5	-34.8	-35.3	-35.1	-35.5	-35.6	-35.1	-34.5	-33.9	-33.6	-33.5	-33.7	-34.8	-35.1	-34.8	-35.3	-35.2	-35.1	-35.5	-35.4	-34.7	-33.5	
12-Jan	-35.5	-36.3	-36.9	-37.4	-38.2	-39.0	-39.5	-40.5	-41.6	-41.8	-40.2	-37.5	-35.0	-34.1	-34.0	-34.8	-35.9	-36.7	-37.9	-38.8	-39.9	-39.8	-41.6	-42.6	-38.1	-34.0	
13-Jan	-42.5	-42.0	-42.3	-42.6	-43.1	-43.8	-43.6	-43.7	-44.2	-43.6	-41.5	-39.1	-36.2	-34.3	-32.5	-33.4	-35.2	-36.0	-37.4	-37.1	-37.4	-38.5	-39.0	-39.5	-39.5	-32.5	
14-Jan	-39.6	-39.6	-39.0	-38.8	-39.3	-38.7	-39.1	-38.8	-40.5	-40.2	-38.4	-36.3	-32.8	-31.5	-32.1	-32.0	-32.5	-33.4	-33.6	-33.9	-34.9	-36.8	-37.1	-37.2	-36.5	-31.5	
15-Jan	-37.8	-38.1	-38.7	-38.5	-37.7	-38.3	-38.1	-38.0	-37.7	-36.2	-34.2	-32.0	-29.9	-27.3	-26.5	-26.3	-28.3	-29.6	-29.6	-31.4	-31.9	-32.3	-32.0	-32.9	-33.5	-26.3	
16-Jan	-32.9	-34.7	-32.6	-31.7	-32.5	-32.9	-31.8	-31.7	-32.1	-31.7	-29.4	-28.7	-26.4	-23.6	-23.0	-22.3	-21.8	-19.7	-19.3	-19.1	-18.9	-18.6	-18.4	-18.3	-26.3	-18.3	
17-Jan	-18.2	-18.0	-18.2	-18.7	-20.0	-20.9	-21.5	-21.3	-21.0	-21.0	-20.8	-20.6	-20.3	-20.2	-20.1	-20.4	-21.9	-23.2	-23.7	-23.2	-21.8	-21.4	-21.7	-21.6	-20.8	-18.0	
18-Jan	-21.8	-21.9	-21.8	-22.1	-22.3	-22.9	-23.4	-23.4	-22.5	-21.7	-21.3	-19.8	-17.8	-16.2	-15.3	-16.3	-17.4	-18.4	-19.0	-18.6	-19.2	-19.1	-19.2	-19.6	-20.0	-15.3	
19-Jan	-20.5	-21.7	-22.4	-24.1	-25.0	-25.4	-26.1	-26.5	-26.7	-26.2	-24.1	-22.1	-20.4	-20.1	-19.5	-19.0	-18.3	-18.3	-18.4	-18.5	-18.6	-18.6	-18.3	-17.4	-21.5	-17.4	
20-Jan	-16.9	-17.1	-17.2	-17.1	-17.1	-16.9	-16.9	-16.8	-16.5	-16.1	-15.5	-16.0	-16.5	-16.9	-16.8	-16.8	-17.2	-17.6	-18.1	-18.7	-19.4	-19.7	-20.8	-21.5	-17.5	-15.5	
21-Jan	-21.8	-21.9	-21.9	-21.8	-21.6	-21.4	-21.4	-21.2	-20.9	-20.8	-20.5	-19.9	-19.3	-19.0	-18.9	-19.0	-19.4	-19.6	-19.5	-19.7	-19.9	-20.6	-21.5	-21.5	-20.5	-18.9	
22-Jan	-22.4	-23.5	-24.0	-24.2	-23.9	-23.9	-23.6	-23.4	-23.2	-22.4	-20.9	-20.1	-19.8	-19.4	-19.1	-18.6	-17.9	-17.3	-16.8	-16.2	-15.7	-15.3	-14.9	-14.4	-20.0	-14.4	
23-Jan	-14.2	-14.0	-13.8	-13.5	-13.2	-13.3	-13.5	-13.7	-13.6	-13.5	-12.3	-11.9	-10.5	-10.0	-10.2	-10.4	-10.8	-11.1	-11.6	-12.7	-13.4	-14.3	-15.1	-15.5	-12.7	-10.0	
24-Jan	-15.9	-16.3	-16.2	-16.4	-16.4	-16.2	-16.2	-15.7	-15.1	-15.3	-14.0	-12.0	-8.9	-6.8	-6.1	-6.3	-7.2	-8.1	-8.9	-9.7	-11.3	-11.9	-12.3	-13.2	-12.4	-6.1	
25-Jan	-11.7	-10.5	-9.8	-9.5	-9.8	-10.4	-11.1	-11.7	-11.9	-11.9	-11.6	-11.3	-11.2	-10.7	-10.2	-9.9	-9.8	-9.5	-8.8	-8.6	-8.4	-7.9	-7.1	-7.0	-10.0	-7.0	
26-Jan	-7.5	-7.4	-7.1	-6.7	-7.1	-8.4	-8.3	-8.0	-7.8	-7.5	-7.0	-6.2	-5.7	-5.6	-5.3	-5.1	-5.2	-5.2	-5.0	-4.9	-4.7	-4.9	-5.3	-5.8	-6.3	-4.7	
27-Jan	-6.2	-6.5	-7.3	-7.7	-7.7	-7.2	-7.0	-5.9	-5.5	-5.1	-3.9	-2.1	-1.0	0.5	2.5	4.2	4.4	4.1	4.1	3.2	3.0	1.5	-1.2	-1.7	-2.0	4.4	
28-Jan	-2.0	-2.0	-1.9	-0.3	0.8	0.7	0.9	0.5	0.1	0.0	2.8	7.6	8.8	8.2	8.3	8.3	7.4	6.8	6.5	6.1	5.3	4.4	3.9	2.8	3.5	8.8	
29-Jan	2.7	0.3	-0.9	-1.2	-1.7	-1.7	-1.2	-1.0	0.1	0.0	0.5	2.7	3.9	5.5	6.8	5.5	4.8	5.8	5.3	5.5	4.8	2.7	1.8	2.4	2.2	6.8	
30-Jan	3.4	3.1	1.6	1.3	1.0	1.1	0.4	-0.5	-0.1	1.2	1.4	1.7	8.4	10.2	11.8	11.4	10.5	9.4	8.7	8.6	8.2	7.3	6.6	6.3	5.1	11.8	
31-Jan	6.0	5.7	5.2	5.0	4.6	4.6	3.9	3.3	1.6	1.2	3.7	6.3	6.1	5.9	7.2	6.9	5.8	5.6	5.3	4.5	4.0	4.0	5.2	5.7	4.9	7.2	
-18.1 -18.5 -18.7 -18.8 -19.1 -19.2 -19.3 -19.4 -19.5 -19.3 -18.4 -17.3 -16.1 -15.4 -15.1 -15.3 -15.7 -16.0 -16.3 -16.6 -16.9 -17.3 -17.6 -17.9																								Diurnal Average			
6.0 5.7 5.2 5.0 4.6 4.6 3.9 3.3 1.6 1.2 3.7 7.6 8.8 10.2 11.8 11.4 10.5 9.4 8.7 8.6 8.2 7.3 6.6 6.3																								Diurnal Maximum			







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	303	40.73	40.73
-20 - 0	348	46.77	87.50
0 - 10	89	11.96	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



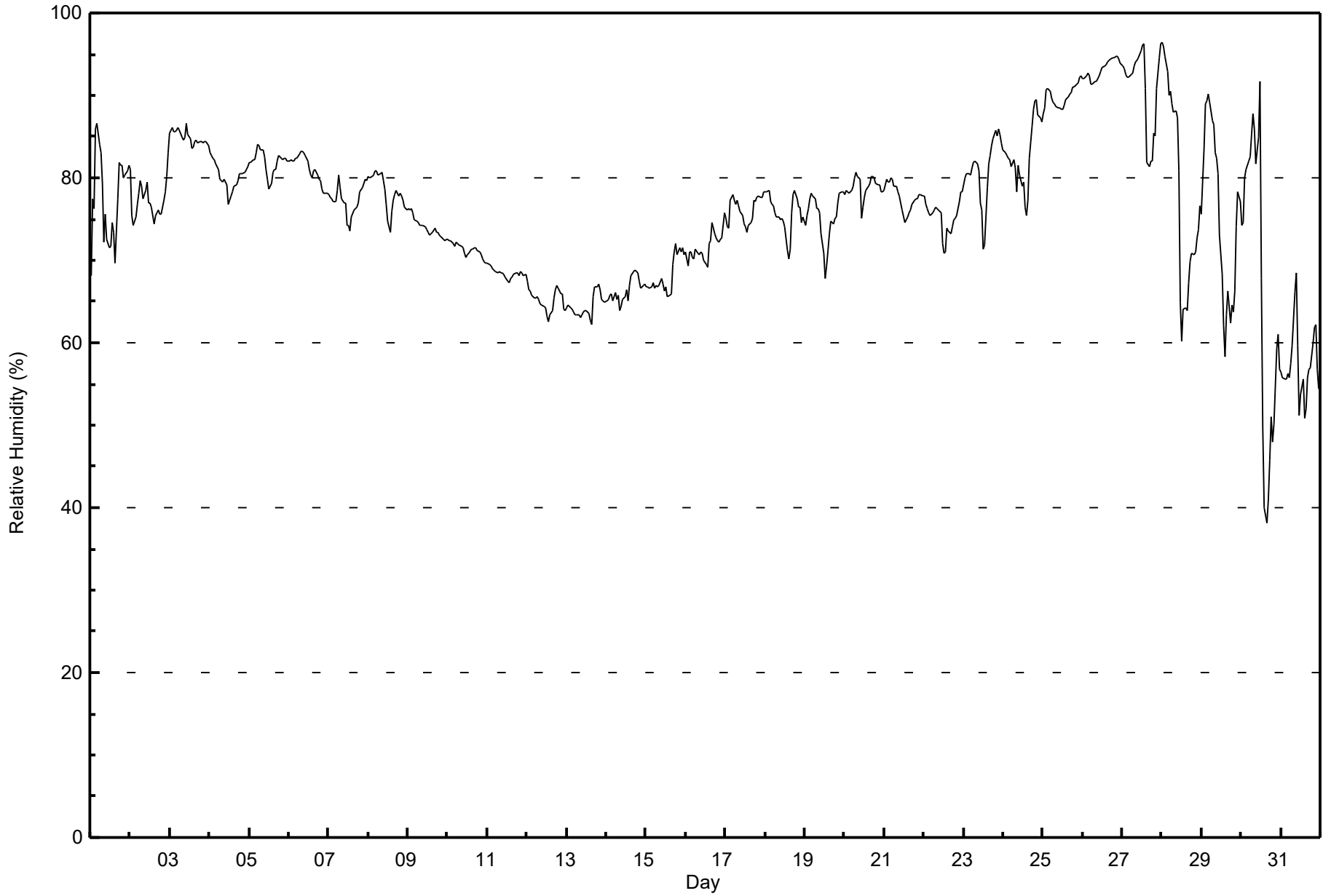
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

Buffalo Viewpoint - January 2024

Maximum Value: 96.4 % on Jan 28 01:00      Maximum Daily Average: 93.1 % on Jan 26																								Hours in Service: 744 Hours of Data: 744		
Minimum Value: 38.1 % on Jan 30 16:00      Minimum Daily Average: 57.3 % on Jan 31 Maximum Diurnal Average: 78.2 % at hour 5      Minimum Diurnal Average: 72.6 % at hour 15 Monthly Average: 76.21 %      Percentiles: P <sub>1</sub> = 51.0 P <sub>10</sub> = 65.1 Q <sub>1</sub> = 70.7 Median = 76.9 Q <sub>3</sub> = 81.7 P <sub>90</sub> = 88.5 P <sub>99</sub> = 94.7																								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-Jan	68.2	77.5	76.3	85.9	86.6	84.0	83.0	79.3	72.2	75.7	72.5	71.6	71.6	74.6	73.4	69.7	77.5	81.8	81.6	81.5	79.9	80.4	80.9	81.5	77.8	86.6
2-Jan	81.1	75.5	74.3	75.2	76.7	78.1	79.6	79.0	77.5	78.4	79.5	77.0	76.9	76.4	74.4	75.4	75.7	76.1	75.7	75.6	77.4	78.3	80.2	83.0	77.4	83.0
3-Jan	85.5	86.1	85.6	85.6	85.8	86.1	85.7	84.8	84.6	84.9	86.7	85.3	84.7	83.6	83.7	84.5	84.5	84.3	84.4	84.5	84.3	84.4	84.4	83.9	84.9	86.7
4-Jan	83.0	82.6	82.4	82.2	81.7	81.1	79.8	79.7	79.5	79.8	79.2	76.8	77.4	77.8	78.3	79.0	79.2	79.7	80.5	80.5	80.5	80.7	81.0	81.4	80.2	83.0
5-Jan	81.9	81.9	82.2	82.1	83.1	84.0	83.8	83.4	83.3	82.6	81.0	79.9	78.7	79.4	80.7	81.0	80.9	82.1	82.8	82.4	82.2	82.3	82.3	82.1	81.9	84.0
6-Jan	82.1	82.2	82.0	82.1	82.3	82.4	82.8	83.3	83.2	83.0	82.8	82.1	81.0	80.3	79.9	80.8	81.1	80.3	79.8	79.6	78.6	78.1	78.1	78.1	81.1	83.3
7-Jan	78.0	77.7	77.5	77.1	77.2	78.6	80.3	78.9	77.5	76.9	77.0	74.3	74.2	73.6	75.3	76.1	76.3	76.5	76.9	78.3	78.8	79.4	79.8	79.7	77.3	80.3
8-Jan	80.1	80.1	80.2	80.4	80.8	80.8	80.4	80.5	80.7	79.6	78.6	76.8	74.8	73.5	75.9	77.4	77.9	78.5	77.8	78.1	77.8	77.3	76.5	76.1	78.4	80.8
9-Jan	76.3	76.1	76.3	75.7	74.8	74.8	74.5	74.3	74.3	74.3	74.1	73.8	73.4	73.0	73.2	73.4	74.0	73.5	73.4	73.0	73.0	72.5	72.4	72.5	74.0	76.3
10-Jan	72.6	72.3	72.3	72.0	71.7	72.3	72.0	71.9	71.8	71.4	70.8	70.4	70.7	70.8	71.4	71.4	71.6	71.5	71.2	71.1	70.6	70.2	69.9	69.7	71.3	72.6
11-Jan	69.6	69.5	69.3	69.1	68.8	68.6	68.4	68.6	68.4	68.4	68.2	68.0	67.4	67.3	67.8	68.0	68.2	68.4	68.5	68.1	68.6	68.2	68.3	68.3	68.4	69.6
12-Jan	67.5	66.5	66.2	65.7	65.4	65.4	65.6	65.3	64.7	64.6	64.4	64.2	63.3	62.6	63.5	63.9	65.4	66.4	66.9	66.5	65.9	65.9	64.1	64.0	65.2	67.5
13-Jan	64.3	64.6	64.3	64.1	63.8	63.3	63.4	63.4	63.0	63.4	63.8	63.9	63.9	63.5	62.8	62.2	65.5	66.8	66.8	67.1	66.4	65.2	65.1	65.0	64.4	67.1
14-Jan	65.1	65.2	65.7	65.9	65.0	66.1	65.3	65.8	63.9	64.4	65.2	65.7	66.4	65.1	66.9	68.1	68.6	68.8	68.6	68.6	67.5	66.6	67.0	67.1	66.4	68.8
15-Jan	66.8	66.8	66.5	66.8	67.3	66.7	66.9	66.8	67.0	67.8	67.1	66.2	66.7	65.5	65.7	66.0	69.4	71.0	72.0	70.7	71.6	71.0	71.5	70.6	68.1	72.0
16-Jan	70.9	69.3	70.9	71.0	70.3	70.2	71.3	70.9	70.6	71.0	70.8	70.1	69.5	69.1	72.0	72.4	74.6	73.3	72.8	72.4	72.2	72.6	72.7	75.8	71.5	75.8
17-Jan	75.0	74.0	73.9	77.3	77.9	77.2	76.8	77.2	76.6	75.9	75.4	74.4	74.0	73.4	74.3	74.6	75.2	77.3	77.2	77.6	77.7	77.7	77.7	78.3	76.1	78.3
18-Jan	78.3	78.3	78.4	77.1	76.8	76.6	75.8	75.3	75.2	75.0	75.1	74.8	74.0	71.3	70.2	71.4	75.8	78.0	78.5	77.4	76.5	76.5	74.5	75.2	75.7	78.5
19-Jan	74.2	75.5	76.2	77.5	78.2	77.8	77.4	76.3	76.3	75.8	73.2	70.8	67.9	69.3	71.1	73.3	74.7	74.5	75.1	75.3	76.9	78.1	78.3	78.3	75.1	78.3
20-Jan	78.0	78.5	78.3	78.2	78.5	79.1	80.0	80.6	80.2	79.9	75.1	76.4	77.6	78.4	79.0	79.2	80.2	80.1	80.0	79.3	79.2	79.2	78.3	78.2	78.8	80.6
21-Jan	78.5	79.8	79.6	79.5	80.0	79.9	79.1	79.0	78.2	77.7	77.0	76.0	74.6	75.0	75.2	75.8	76.2	76.7	77.2	77.5	77.4	78.0	77.9	77.8	77.6	80.0
22-Jan	77.8	76.8	76.2	75.8	75.4	75.8	76.1	76.5	76.3	76.2	75.8	72.1	70.8	71.0	74.0	73.5	73.1	74.0	74.9	75.1	75.5	77.1	78.2	78.2	75.3	78.2
23-Jan	79.1	80.0	80.6	80.6	80.3	81.2	81.9	82.1	81.7	80.8	76.9	76.0	71.4	71.9	78.8	81.7	82.7	83.9	84.8	85.7	85.1	86.0	85.3	84.3	80.9	86.0
24-Jan	83.3	83.1	82.7	82.4	82.2	81.4	82.1	81.2	78.4	81.5	80.3	79.0	79.5	76.5	75.4	77.3	82.3	86.4	88.3	89.4	89.6	87.6	87.3	86.7	82.7	89.6
25-Jan	87.8	88.5	90.7	90.9	90.6	89.7	89.2	88.9	88.7	88.5	88.5	88.4	88.4	88.8	89.4	89.9	90.1	90.3	90.9	91.1	91.3	91.6	92.2	92.3	89.9	92.3
26-Jan	92.0	92.1	92.4	92.7	92.4	91.4	91.4	91.6	91.8	92.1	92.4	93.0	93.4	93.5	93.8	94.1	94.3	94.4	94.5	94.7	94.7	94.7	94.4	94.0	93.1	94.7
27-Jan	93.6	93.3	92.6	92.2	92.3	92.6	92.7	93.6	94.0	94.3	94.6	95.5	96.2	96.3	90.8	81.8	81.3	82.0	82.0	85.4	85.2	90.8	94.6	96.3	91.0	96.3
28-Jan	96.4	95.9	94.8	92.9	89.9	90.5	88.9	88.0	88.2	87.3	80.8	64.9	60.1	64.0	64.3	64.0	67.4	69.9	70.8	70.7	70.9	72.7	73.8	76.7	78.5	96.4
29-Jan	75.6	83.5	89.0	89.4	90.2	89.2	86.9	86.5	83.0	82.4	80.6	73.1	68.3	62.0	58.3	63.4	66.3	62.4	64.5	63.8	66.3	74.1	78.2	77.1	75.6	90.2
30-Jan	74.3	74.6	80.0	81.1	82.1	82.5	85.3	87.8	85.9	81.8	84.9	91.8	67.8	49.7	40.0	38.1	41.1	45.8	51.0	48.0	50.1	59.2	61.0	56.8	66.7	91.8
31-Jan	56.4	55.7	55.5	55.5	56.2	55.8	57.5	59.7	66.2	68.5	59.6	51.1	53.8	55.7	50.9	52.1	55.8	56.7	56.9	59.9	61.9	62.2	56.7	54.5	57.3	68.5
77.2 77.5 77.8 78.2 78.2 78.2 78.2 78.1 77.5 77.5 76.5 74.9 73.5 72.7 72.6 72.9 74.4 75.2 75.7 75.8 75.9 76.7 76.9 76.9																								Diurnal Average		
96.4 95.9 94.8 92.9 92.4 92.6 92.7 93.6 94.0 94.3 94.6 95.5 96.2 96.3 93.8 94.1 94.3 94.4 94.5 94.7 94.7 94.7 94.6 96.3																								Diurnal Maximum		





Maximum Speed: 28 km/h on Jan 30 16:00		Maximum Daily Speed Average: 12.3 km/h on Jan 4		Hours in Service:	744																						
Minimum Speed Value: 0 km/h on Jan 14 14:00		Minimum Daily Speed Average: 0.6 km/h on Jan 14		Hours of Data:	742																						
Maximum Diurnal Speed Average: 2.1 km/h at hour 21		Minimum Diurnal Speed Average: 0.4 km/h at hour 12		Hours of Missing Data:	2																						
Monthly Average Velocity: 1.1 km/h 348.6 deg		Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 12 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-Jan	WNW7	WNW5	WNW6	WNE14	N10	N13	N12	NW15	NW12	N5	NE4	NNE6	NNE6	NNW7	WNW8	NW11	NNE7	NE6	NE8	NE7	NNE5	NNE6	NNE7	NNE7	N6.8	NNW15	
2-Jan	NNE10	NNE12	NNE10	NNE6	NE5	ENE4	NE5	NE6	ENE3	ENE1	ESE3	ESE3	ESE3	SE3	S1	S4	SSE2	SE3	SE3	SSE2	SSE3	S3	SSE3	S4	ENE2.3	NNE12	
3-Jan	S3	SW3	S1	SE1	S2	SSE2	SSE3	S6	S5	S2	E3	ENE3	NNE8	N9	N9	N8	N8	N9	N13	N14	N12	N15	N15	N15	N4.5	N15	
4-Jan	NNW15	NW17	NW16	N16	N17	NW17	N16	N18	N15	N11	NNE10	N10	N10	N10	N9	NNE11	NNE13	NNE10	NNE11	N11	NNE11	NNE11	NNE10	NNE7	N12.3	N18	
5-Jan	N7	N8	N6	NW7	NW8	WNW7	WNW6	W6	W7	W6	W7	W5	NW4	NNE5	NE4	NNE4	ENE3	NE5	NNE7	NNE8	N7	N7	N6	NNE8	NNW4.2	NW8	
6-Jan	NNE9	N9	N9	N8	N9	N9	N10	N10	N10	N11	N13	N13	N14	N15	N15	N14	N14	N15	N14	NNE14	N14	N13	N13	N13	N11.9	N15	
7-Jan	N12	NNE10	N10	NNE10	NNE9	NNE8	NNE9	NNE5	NNE4	SW0	SW2	SW2	NNE2	ENE3	ESE5	SE6	SSE6	SSE6	SSE6	SSE6	SSE7	SSE8	SSE8	SSE7	SSE6	ENE2.2	N12
8-Jan	SSE5	SSE6	S6	SSE7	SSE7	S6	SSE4	SW2	NW4	NW5	NW8	NNW7	NNW5	NW6	NNW5	N6	N3	NNE3	NE7	NNE7	ENE5	N5	N6	N1.4	NW8		
9-Jan	NNE5	NNE5	NNE6	NNE8	NNE7	NE6	N5	NNW6	NNE8	NNE8	NNE7	N8	N10	N12	N10	N10	N12	N12	N11	NNE8	NNE9	N11	N7	NNE10	N8.2	N12	
10-Jan	N9	N9	N7	N7	N7	N5	N6	N5	NNE5	NNE4	NNE4	NNE3	NNE4	N5	NNE5	NNE5	NNE5	NNE6	NE5	NE3	NE4	NE3	NNE3	NE4	NNE5.0	N9	
11-Jan	NNE5	NE4	NE3	NNE5	N5	N5	NNE5	N3	NNE5	NNE5	NNE4	NNE3	NNE2	NNE2	NNE2	NE4	NE4	NE3	ENE1	SSW2	SSW1	UO	SSW3	WSW3	NNE2.6	NNE5	
12-Jan	SW2	SW3	SW3	SW4	SW3	S3	S4	S4	SSE4	SSE3	S3	S3	S2	SSE3	SE3	SE3	SE3	S3	S4	SSE5	SSE5	SSE3	SSE4	SSE5	S3.1	SSE5	
13-Jan	SSE5	SE6	SSE5	S3	S4	SSE4	S4	SSE3	S4	SE4	SSE3	SSE2	SSE2	SSE2	SE1	SE2	SE4	SSE3	S4	SSE2	UO	NW1	SE1	SSE3	SSE3.1	SE6	
14-Jan	SSE3	E1	NNE3	NW2	W2	NNW2	N2	NNW1	S2	SE2	SSE1	S2	SE1	SE0	NE3	ESE2	SE2	SSE2	S1	N1	W1	SSW2	SSE2	SSE3	SE0.6	SSE3	
15-Jan	SSE4	SE5	SSE5	S5	S4	SSE5	SSE5	S4	S4	SSE3	SSE3	S3	SE3	SSE1	SE2	SSE2	SE4	S3	S2	S5	SSE5	SSE4	SSE5	SE5	SSE3.8	SSE5	
16-Jan	SSE6	SSE5	SE3	NNE2	NNE4	N6	NNW7	NW5	NW3	NNW2	SSE1	SW3	SSW3	N0	NNE1	NNE1	WNW4	WNW8	NW10	NNW9	NNW9	NNW10	NNW10	NNW13	NW3.5	WNW13	
17-Jan	WNW13	NW14	NW14	NNE8	NE10	NE9	NNE4	N4	NNE7	NNE8	NNE10	NNE9	NNE8	NNE9	N10	N9	N7	N8	N10	N9	NW11	N9	NNW8	NNW8	N8.1	NW14	
18-Jan	NNW7	NW5	WNW4	W6	WNW4	WNW5	W6	W7	W9	W7	W6	WNW8	NW7	NW6	NNW7	W11	W10	WNW9	WNW9	W9	W8	WNW7	WNW6	W5	WNW6.8	W11	
19-Jan	SW5	WSW7	SW6	S5	SSE7	SSE7	SSE7	SSE6	SSE7	SSE6	SSE5	SE5	SE5	SE6	ESE6	SE5	SSE6	S6	SSE6	SE3	SSE3	S3	S4	SSE8	SSE4.8	SSE8	
20-Jan	SSE8	SSE6	S6	SSE4	SSE5	S4	S4	SSE4	SSE4	SSW3	W5	NW8	NNW8	N6	N6	NNW5	N6	N8	N10	N11	N11	N11	N11	N10	N2.6	N11	
21-Jan	NNE10	N8	N7	N5	N6	N7	N3	NNW4	N4	N8	NNW9	N11	N11	N10	N10	NNE9	NNE7	NNE7	N6	NNE6	NNE6	NNE6	N7	N7.2	N11		
22-Jan	NNE9	NNE13	N8	N7	N7	N7	N6	N5	N2	ENE2	SE8	SE11	SSE11	SSE11	SE11	SE12	SE11	SE12	SSE11	SE10	SSE10	SSE8	SSE8	SSE8	ESE4.3	NNE13	
23-Jan	SSE8	SSE8	SSE8	SSE9	SSE9	SSE8	S7	SSE6	S4	S5	S5	SSE4	S3	SW1	N5	N5	N7	N9	N12	N14	N13	N12	N10	N9	ENE1.0	N14	
24-Jan	N11	N10	N8	N8	N6	NNW3	NW3	NNE2	ENE1	WNW4	NNW0	SE2	SSE9	SSE11	SSE9	SSE8	SSE6	S6	S4	NNW2	NNW5	NNW6	NNW4	NNW3	N0.7	SSE11	
25-Jan	NNW6	N7	N10	N11	N13	N12	N11	N9	N8	N7	N6	NNW3	NW4	WSW2	SSW3	S3	SSE3	SSE6	SSE6	S5	S5	S5	S6	S6	N2.4	N13	
26-Jan	S5	SSE4	SSE4	SSW3	NW6	WNW4	W3	W2	W2	S2	S4	SSE4	S6	SSE6	SSE7	S8	S8	S7	S5	S5	S3	S4	SSW4	SW4	S3.4	S8	
27-Jan	SW3	SSW3	SSW4	SSE4	S5	SSE5	SSE4	S5	S2	S4	S3	SSE4	SE4	SE8	SE8	S6	WSW8	W13	W14	W10	WSW7	S4	SE10	SE11	SSW3.7	W14	
28-Jan	SE10	SE10	SE9	SSE8	SSE8	SSE8	SSE9	SSE10	SSE10	SE12	SSE9	SW10	SW18	W22	W19	W21	W20	W21	W22	W22	W26	W23	W16	W19	W13	WSW9.8	W26
29-Jan	W7	SE9	SE9	SSE10	SE10	SE10	SSE9	SE9	SSE11	SSE9	SSE8	SE9	SSE10	SE9	S6	SE7	SSE7	SSE11	SSE9	SSE10	SSE11	SE12	SE11	SE12	SSE9.0	SE12	
30-Jan	SSE11	SE9	SE11	SE11	SE11	SSE4	SSE6	SSE7	SSE6	S8	S8	SE9	SW10	WSW20	WSW20	WSW20	WSW25	W20	SW10	WSW20	W23	W10	WSW10	WSW18	SW9.5	WSW28	
31-Jan	WSW10	WSW20	WSW10	WSW20	WSW10	WSW10	WSW10	SW7	SSW7	S7	SSW6	S4	ESE8	ESE9	SE9	SE7	SE7	SE10	SSE9	SE6	SSE7	SE8	SE10	SE11	SSW6.6	WSW20	
NNW1.6 N1.7 N1.2 NNE1.5 NNE1.6 NNE1.4 N1.1 N0.8 N0.5 NE0.4 ENE0.4 N0.4 N0.8 NNW1.1 NNW1.0 NNW1.2 NNW1.0 NNW1.2 NNW1.5 NNW1.9 NNW2.1 N2.0 NNW1.1 N1.0 WSW10 WSW20 NNW10 WSW20 WSW18 NNW17 N16 N18 N15 SE12 N13 N10 WSW18 W20 WSW20 WSW20 WSW25 W23 W22 W26 W23 W16 W10 WSW18																								Diurnal Average	Diurnal Maximum		
UO - Unstable Operation All monthly, daily, and diurnal averages have been calculated using vector methods																											



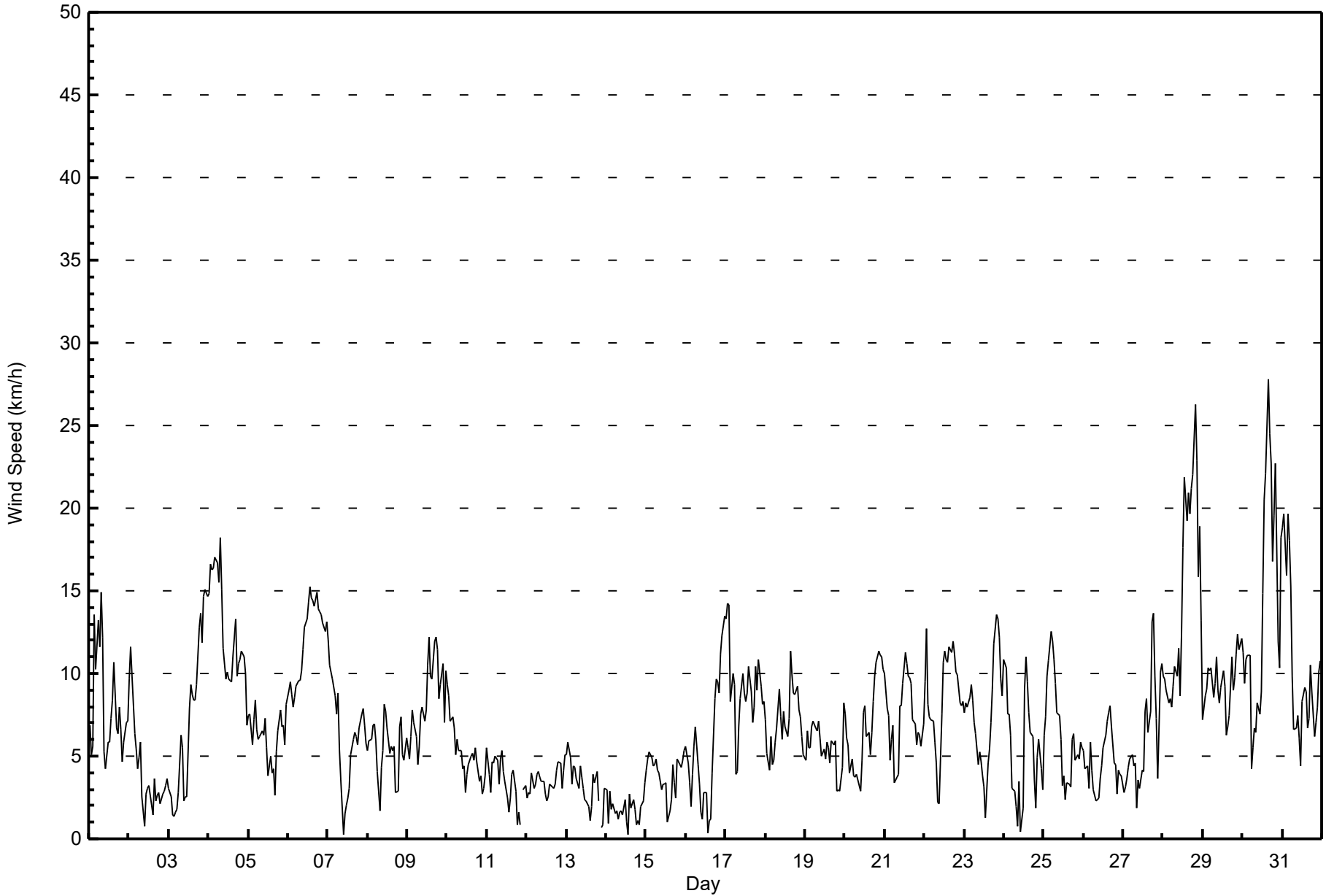
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed (WS) - km/h

Buffalo Viewpoint - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744							
Maximum Value: 8 km/h on Jan 30 15:00																			Hours of Data: 742							
Minimum Value: 0 km/h on Jan 12 20:00																			Hours of Missing Data: 2							
Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 6																			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-Jan	3	2	2	4	3	4	3	4	4	2	2	2	2	2	3	3	3	2	3	2	2	2	2	2	4	
2-Jan	3	3	3	2	2	2	2	2	2	1	1	2	2	2	1	2	2	2	1	1	1	2	1	1	3	
3-Jan	1	1	1	1	1	1	1	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3	3	3	
4-Jan	4	4	4	4	4	4	4	4	4	3	3	3	3	2	2	3	3	3	2	2	2	2	2	2	4	
5-Jan	1	1	2	2	2	2	1	2	2	2	1	2	1	2	1	1	1	2	2	1	1	1	1	2	2	
6-Jan	2	2	2	1	2	2	2	2	2	2	3	3	3	3	4	3	3	3	3	3	4	3	3	3	4	
7-Jan	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	2	
8-Jan	1	2	1	2	2	2	1	1	1	2	2	2	2	2	1	1	2	1	2	2	2	1	1	1	2	
9-Jan	2	2	1	1	1	2	1	2	2	2	2	3	2	3	2	3	3	3	3	2	2	3	2	3	3	
10-Jan	2	2	2	2	2	1	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	2	
11-Jan	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	
12-Jan	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	
13-Jan	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	
14-Jan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	
15-Jan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	
16-Jan	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	4	4	
17-Jan	3	4	3	3	2	2	3	1	2	2	3	3	2	2	3	2	1	2	1	2	2	3	2	2	4	
18-Jan	2	1	1	2	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2	3	3	2	2	1	3	
19-Jan	2	2	1	1	1	1	1	1	1	1	2	1	2	2	1	2	2	2	2	1	1	1	3	3	3	
20-Jan	2	2	2	1	1	1	1	1	1	1	3	2	2	2	2	1	2	2	2	2	2	3	2	3	3	
21-Jan	2	2	3	2	2	2	1	1	2	2	2	3	3	3	2	2	2	2	2	2	3	2	1	3	3	
22-Jan	2	3	3	2	2	2	1	1	1	1	3	4	4	4	4	4	4	4	3	3	3	2	2	3	4	
23-Jan	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	2	2	3	4	3	3	2	2	4	4	
24-Jan	2	2	2	2	2	1	1	1	1	1	1	4	4	3	2	2	1	2	1	2	1	2	2	4	4	
25-Jan	1	2	2	2	3	3	3	2	2	2	1	1	1	1	1	1	2	2	1	2	1	2	2	1	3	
26-Jan	1	1	1	1	3	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	3	
27-Jan	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	3	2	2	2	2	2	2	3	
28-Jan	2	2	2	2	3	2	3	2	2	2	4	6	5	4	4	4	3	4	5	4	4	3	3	6	6	
29-Jan	3	2	2	2	2	2	2	2	3	3	2	3	3	3	2	2	3	2	2	2	2	3	3	3	3	
30-Jan	2	2	2	2	2	1	1	2	2	3	2	3	3	6	8	7	6	5	7	7	7	3	3	4	8	
31-Jan	3	5	4	4	5	4	4	2	1	1	2	2	2	2	3	2	2	3	3	2	2	2	3	3	5	
																			Diurnal Maximum							
UO - Unstable Operation																										





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	306	41.24	41.24
6 - 11	347	46.77	88.01
12 - 19	73	9.84	97.84
20 - 28	16	2.16	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Buffalo Viewpoint - January 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	21	35	16	10	2	5	24	68	57	12	13	4	7	12	9	11	306
6 - 11	90	56	8	0	0	3	33	74	18	2	2	5	16	15	11	14	347
12 - 19	36	5	0	0	0	0	4	1	0	0	2	7	7	3	2	6	73
20 - 28	0	0	0	0	0	0	0	0	0	0	0	7	9	0	0	0	16
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>	147	96	24	10	2	8	61	143	75	14	17	23	39	30	22	31	742

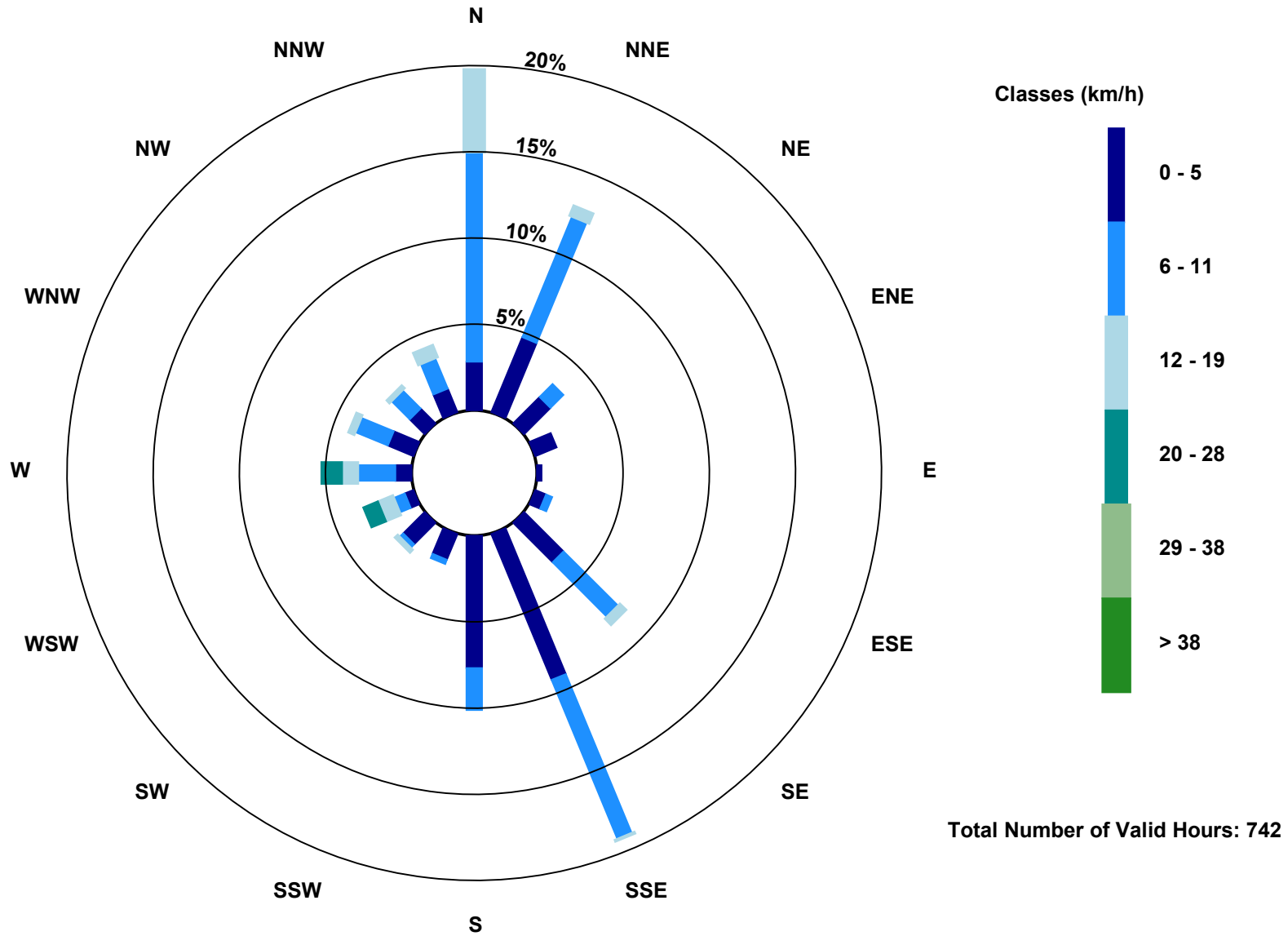
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Buffalo Viewpoint





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction (WD) - deg

Buffalo Viewpoint - January 2024

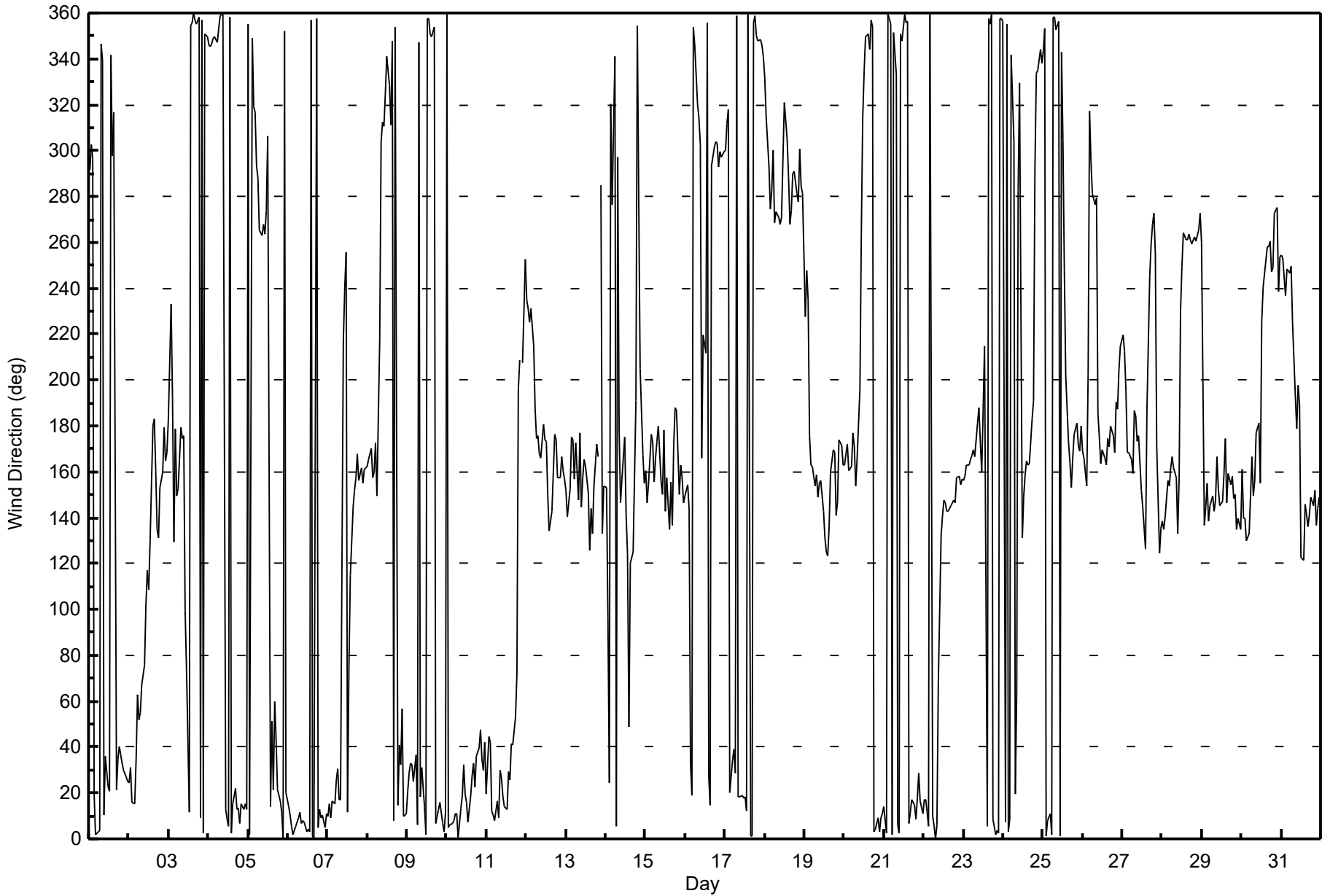
Direction of Maximum Speed: 258 deg on Jan 30 16:00																				Hours in Service: 744									
Direction of Maximum Daily Speed Average: 0.8 deg on Jan 4																				Hours of Data: 742									
Direction of Minimum Speed: 124 deg on Jan 14 14:00										Direction of Minimum Daily Speed Average: 0.6 deg on Jan 14										Hours of Missing Data: 2									
Monthly Average Direction: 348.6 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-Jan	292	303	297	20	2	3	4	347	339	11	36	23	21	342	298	317	21	35	40	37	33	30	27	25	0.2				
2-Jan	25	31	16	15	35	63	52	55	67	75	102	117	109	130	180	183	161	135	131	153	160	179	164	169	69.9				
3-Jan	183	233	191	130	179	149	153	179	175	176	100	74	12	354	356	360	357	355	358	9	357	3	351	350	1.0				
4-Jan	346	345	347	349	350	347	354	359	360	359	13	8	5	358	3	15	22	13	13	7	15	13	15	13	0.8				
5-Jan	355	2	349	319	317	293	288	266	263	268	264	274	307	14	51	21	60	43	21	17	11	0	352	20	337.5				
6-Jan	14	10	5	2	4	5	9	11	6	8	7	3	4	3	357	1	0	358	5	13	9	11	5	11	5.6				
7-Jan	10	15	9	16	15	26	31	17	17	216	240	256	12	74	115	145	152	157	168	156	162	155	161	161	69.9				
8-Jan	163	165	170	157	160	173	149	218	304	313	310	325	341	328	311	348	8	354	15	41	33	57	10	11	357.3				
9-Jan	21	28	33	32	25	37	6	347	19	31	14	2	357	357	351	350	354	7	10	13	16	6	3	12	9.5				
10-Jan	360	5	6	7	8	11	11	1	13	19	33	19	16	8	19	28	33	22	36	39	48	35	30	42	17.1				
11-Jan	20	45	42	12	11	8	16	9	30	26	18	14	13	29	26	42	41	53	72	196	208	UC	207	253	22.4				
12-Jan	235	232	225	231	215	188	174	175	168	166	181	174	174	150	134	143	160	176	174	157	158	166	160	157	175.1				
13-Jan	152	140	152	175	174	157	173	148	177	145	157	166	162	151	126	144	133	154	172	167	UC	285	133	154	157.0				
14-Jan	153	97	24	321	276	341	5	297	178	146	157	175	141	124	49	120	125	158	191	355	279	205	167	155	145.7				
15-Jan	161	146	155	177	173	156	166	173	180	155	150	178	143	157	135	155	137	172	188	187	150	163	158	146	161.2				
16-Jan	149	154	143	33	19	354	346	320	314	303	166	220	212	355	28	15	293	302	304	303	293	299	297	299	304.1				
17-Jan	300	312	318	20	34	39	29	359	18	19	19	18	19	12	359	1	1	355	359	350	348	349	346	341	356.7				
18-Jan	332	315	293	275	282	300	269	273	271	268	271	296	321	305	288	268	274	290	291	281	277	301	284	281	286.3				
19-Jan	228	248	235	176	163	163	154	159	149	155	156	143	131	125	123	136	160	170	168	141	147	174	172	163	162.5				
20-Jan	163	168	172	160	162	177	171	154	166	196	264	314	334	349	351	344	357	354	3	4	9	3	9	11	358.9				
21-Jan	14	3	359	357	355	2	351	333	6	2	351	348	359	356	356	7	12	17	15	9	18	29	17	11	3.9				
22-Jan	17	17	11	5	359	10	6	0	6	69	132	141	147	147	143	143	145	146	148	146	158	158	155	157	121.6				
23-Jan	156	158	163	163	165	167	170	167	181	188	173	160	187	215	6	358	355	359	9	2	4	2	358	358	58.8				
24-Jan	357	7	355	3	9	342	304	19	65	283	329	131	150	158	165	163	163	183	191	292	334	335	344	338	9.4				
25-Jan	344	353	1	8	11	2	358	358	353	357	1	343	304	248	202	173	164	153	166	176	181	171	169	180	359.9				
26-Jan	169	166	154	203	317	296	281	276	279	186	175	163	169	166	163	175	171	180	176	169	190	187	204	215	185.5				
27-Jan	220	213	195	168	169	166	159	187	184	173	176	152	144	135	126	186	245	259	268	272	255	171	124	136	191.7				
28-Jan	139	135	140	156	154	162	167	162	157	133	157	230	249	264	261	261	264	261	260	263	260	263	265	273	236.6				
29-Jan	260	137	144	155	139	145	149	143	148	166	153	145	147	159	174	146	159	154	158	148	150	135	140	135	150.0				
30-Jan	161	140	140	130	133	150	166	150	156	177	181	155	225	240	247	258	258	260	247	249	273	275	239	254	228.4				
31-Jan	254	253	237	248	248	246	250	225	193	179	198	189	122	121	146	142	136	141	149	145	152	137	144	149	199.6				
340.2	2.7	359.7	11.7	13.9	11.7	9.2	354.3	5.3	53.2	64.9	6.5	3.7	341.2	326.4	308.7	328.5	309.5	326.6	329.8	331.2	354.4	348.1	354.8						
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 (WD) - deg**  
**Buffalo Viewpoint - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 88 deg on Jan 13 23:00																				Hours of Data: 742					
Minimum Value: 1 deg on Jan 26 09:00																				Hours of Missing Data: 2					
Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 13 Q <sub>1</sub> = 17 Median = 20 Q <sub>3</sub> = 25 P <sub>90</sub> = 31 P <sub>99</sub> = 72																				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-Jan	32	36	52	18	19	19	18	22	27	20	22	18	19	27	20	21	34	17	19	19	23	19	18	18	52
2-Jan	20	19	20	19	21	19	18	17	24	38	39	28	32	36	37	22	26	21	22	25	19	27	21	16	39
3-Jan	13	25	31	18	22	22	29	20	22	48	20	41	22	19	17	18	18	18	17	18	19	18	17	18	48
4-Jan	18	18	18	18	18	19	20	19	20	20	21	18	21	19	19	18	18	18	18	16	18	16	16	28	28
5-Jan	14	15	15	16	19	23	22	18	16	19	13	21	32	24	22	18	25	16	17	15	16	13	14	15	32
6-Jan	15	15	14	12	15	17	16	15	15	14	17	17	19	19	19	18	20	20	19	18	20	17	18	17	20
7-Jan	17	17	17	17	18	20	16	20	10	86	61	58	36	45	26	29	28	26	29	28	24	26	27	23	86
8-Jan	22	24	24	27	26	25	24	45	20	25	19	19	20	28	17	20	28	27	36	20	19	20	23	18	45
9-Jan	21	23	13	15	13	11	22	20	22	18	20	19	19	20	19	19	17	19	19	19	18	18	17	19	23
10-Jan	18	17	17	15	14	16	19	19	16	18	21	24	20	21	20	21	23	22	20	21	20	18	23	24	24
11-Jan	19	23	29	19	23	21	20	23	23	20	26	23	24	54	19	17	18	19	37	13	44	UO	14	23	54
12-Jan	18	20	21	14	24	11	11	8	24	17	18	20	29	29	25	23	16	13	8	6	4	21	10	8	29
13-Jan	11	9	10	15	12	9	18	39	17	13	18	24	33	29	22	15	6	7	9	19	UO	24	88	10	88
14-Jan	13	70	12	27	24	41	18	35	22	17	26	17	44	81	14	33	17	30	49	40	52	29	21	22	81
15-Jan	15	11	17	16	22	18	15	18	13	20	23	22	29	74	57	15	9	24	18	13	10	23	13	11	74
16-Jan	14	12	16	44	18	15	17	19	21	32	59	17	20	77	37	34	17	19	18	18	18	19	19	19	77
17-Jan	20	19	18	34	18	17	37	28	17	20	19	20	21	18	20	18	12	11	11	15	17	16	18	17	37
18-Jan	17	18	24	17	28	16	20	18	14	16	20	20	20	20	19	14	15	16	16	17	16	20	23	22	28
19-Jan	20	13	18	13	11	7	7	11	12	13	22	26	28	21	20	24	27	27	28	19	30	35	40	25	40
20-Jan	23	20	22	21	17	29	19	12	18	21	36	23	20	26	20	22	19	18	19	20	19	19	20	19	36
21-Jan	17	22	22	34	17	19	31	20	19	18	17	18	19	20	20	19	20	20	18	18	19	19	15	18	34
22-Jan	18	18	22	20	16	18	17	17	30	41	25	27	29	31	30	30	28	29	28	27	28	27	28	26	41
23-Jan	27	24	25	26	25	25	23	26	28	20	27	34	52	74	18	16	25	19	19	19	20	19	19	19	74
24-Jan	17	18	19	18	18	40	19	28	12	33	79	75	28	31	28	29	24	18	63	54	18	20	21	70	79
25-Jan	17	17	18	18	18	19	20	19	17	16	15	37	19	36	30	29	48	26	27	25	29	27	25	25	48
26-Jan	18	28	18	30	24	19	13	13	1	50	31	31	30	29	27	27	26	27	27	29	31	26	19	16	50
27-Jan	14	15	23	22	23	25	24	25	69	29	23	29	26	17	10	27	15	10	13	16	24	42	7	11	69
28-Jan	18	14	17	24	27	28	25	22	17	11	28	20	18	14	13	12	10	9	9	10	10	17	11	15	28
29-Jan	25	27	25	20	16	21	21	21	27	28	27	28	26	30	26	23	25	20	15	18	26	9	15	18	30
30-Jan	13	12	14	13	14	24	23	21	26	32	27	32	16	18	18	13	13	12	18	20	22	17	19	13	32
31-Jan	12	14	17	14	16	16	26	22	25	15	27	41	17	19	26	26	26	24	27	24	26	23	26	27	41
Diurnal Maximum																									
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS05  
MANNIX  
JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
JANUARY 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	709	35	35	100	38.2	0	11.7	0
H2S (ppb) Average	676	36	68	95.7	11	1	2.5	0
THC (ppm) Average	709	35	35	100	7.5	-	2.9	-
NMHC(ppm) Average	709	35	35	100	0.59	-	0.319	-
CH4(ppm) Average	709	35	35	100	7.1	-	2.6	-
Temperature 2 m (C) Average	737	0	7	99.06	10.3	-	4.2	-
Temperature 20 m (C) Average	737	0	7	99.06	11.6	-	5.6	-
Temperature 45 m (C) Average	737	0	7	99.06	11.6	-	6.3	-
Temperature 75 m (C) Average	737	0	7	99.06	11.5	-	7.2	-
Temperature 90 m (C) Average	737	0	7	99.06	11.6	-	7.6	-
Relative Humidity 2 m (%) Average	737	0	7	99.06	96	-	93	-
Relative Humidity 20 m (%) Average	737	0	7	99.06	98	-	94	-
Relative Humidity 45 m (%) Average	737	0	7	99.06	97	-	93	-
Relative Humidity 75 m (%) Average	737	0	7	99.06	100	-	98	-
Relative Humidity 90 m (%) Average	737	0	7	99.06	99	-	94	-
Wind Speed 20 m (km/h) Average	737	0	7	99.06	31	-	17	-
Wind Speed 45 m (km/h) Average	687	0	57	92.34	38	-	25	-
Wind Speed 75 m (km/h) Average	683	0	61	91.8	43	-	30	-
Wind Speed 90 m (km/h) Average	677	0	67	90.99	44	-	31	-
Wind Direction 20 m (deg) Average	737	0	7	99.06	-	-	-	-
Wind Direction 45 m (deg) Average	687	0	57	92.34	-	-	-	-
Wind Direction 75 m (deg) Average	683	0	61	91.8	-	-	-	-
Wind Direction 90 m (deg) Average	677	0	67	90.99	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	737	0	7	99.06	3.2	-	1.2	-
Vertical Wind Speed 45 m (km/h) Average	687	0	57	92.34	1.5	-	0.6	-
Vertical Wind Speed 75 m (km/h) Average	683	0	61	91.8	1.2	-	0.5	-
Vertical Wind Speed 90 m (km/h) Average	677	0	67	90.99	3.3	-	1.5	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
 JANUARY 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	709	2.41	4.8	-	0	0.1	0.2	0.5	1.6	7.6	38.2
H2S (ppb) Average	676	0.67	1	-	0	0.1	0.2	0.3	0.7	1.5	10.5
THC (ppm) Average	709	2.24	0.4	-	2	2	2.1	2.1	2.3	2.6	7.5
NMHC(ppm) Average	709	0.045	0.088	-	0	0	0	0	0.1	0.1	0.59
CH4(ppm) Average	709	2.19	0.3	-	2	2	2.1	2.1	2.2	2.4	7.1
Temperature 2 m (C) Average	737	-17.53	12.3	-	-42.1	-35.5	-25.1	-18.1	-9.7	0.7	10.3
Temperature 20 m (C) Average	737	-17.28	12.5	-	-41.6	-34.9	-24.8	-18.3	-9.6	2.5	11.6
Temperature 45 m (C) Average	737	-17.19	12.6	-	-40.3	-34.7	-24.8	-18.4	-9.6	3.7	11.6
Temperature 75 m (C) Average	737	-17.01	12.7	-	-38.7	-34.3	-24.5	-18.4	-9.8	4.7	11.5
Temperature 90 m (C) Average	737	-16.81	12.7	-	-38.1	-33.9	-24.2	-18.3	-9.8	5	11.6
Relative Humidity 2 m (%) Average	737	76.5	9	-	42	67	71	77	81	89	96
Relative Humidity 20 m (%) Average	737	75.8	9	-	37	65	70	77	82	87	98
Relative Humidity 45 m (%) Average	737	76.4	9	-	36	67	71	77	82	87	97
Relative Humidity 75 m (%) Average	737	77	10	-	36	68	72	77	83	90	100
Relative Humidity 90 m (%) Average	737	75.9	10	-	36	66	71	77	82	87	99
Wind Speed 20 m (km/h) Average	737	9.5	5	-	0	4	6	9	12	16	31
Wind Speed 45 m (km/h) Average	687	13.5	7	-	0	5	9	13	17	23	38
Wind Speed 75 m (km/h) Average	683	15.4	8	-	1	5	10	15	21	27	43
Wind Speed 90 m (km/h) Average	677	16	8	-	0	5	9	15	22	28	44
Wind Direction 20 m (deg) Average	737	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	687	-	-	-	-	-	-	-	-	-	-
Wind Direction 75 m (deg) Average	683	-	-	-	-	-	-	-	-	-	-
Wind Direction 90 m (deg) Average	677	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	737	0.11	0.5	-	-0.9	-0.4	-0.2	0	0.3	0.7	3.2
Vertical Wind Speed 45 m (km/h) Average	687	-0.04	0.4	-	-1.2	-0.5	-0.3	-0.1	0.2	0.5	1.5
Vertical Wind Speed 75 m (km/h) Average	683	0.13	0.3	-	-1.3	-0.2	0	0.1	0.3	0.5	1.2
Vertical Wind Speed 90 m (km/h) Average	677	0.16	0.6	-	-1.4	-0.4	-0.1	0.1	0.4	0.7	3.3



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL METEOROLOGICAL SENSORS	03 Jan 2024 17:00	03 Jan 2024 23:00	7	DAS Failure - data not recorded
H2S	05 Jan 2024 09:00	05 Jan 2024 10:00	2	Maintenance - reinitiated daily QA check
H2S	08 Jan 2024 09:00	08 Jan 2024 10:00	2	Maintenance - reinitiated daily QA check
H2S	09 Jan 2024 11:00	10 Jan 2024 14:00	28	Maintenance - replaced sample pump
Wind Speed, Wind Direction, Vertical Wind Speed 45m	25 Jan 2024 09:00	25 Jan 2024 13:00	5	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	25 Jan 2024 17:00	27 Jan 2024 13:00	45	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 75m	03 Jan 2024 17:00	03 Jan 2024 23:00	7	
Wind Speed, Wind Direction, Vertical Wind Speed 75m	25 Jan 2024 06:00	27 Jan 2024 11:00	54	
Wind Speed, Wind Direction, Vertical Wind Speed 90m	11 Jan 2024 02:00	11 Jan 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	11 Jan 2024 09:00	11 Jan 2024 11:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	11 Jan 2024 23:00	11 Jan 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	12 Jan 2024 01:00	12 Jan 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 90m	25 Jan 2024 05:00	27 Jan 2024 10:00	54	Flat line in sensor output signal

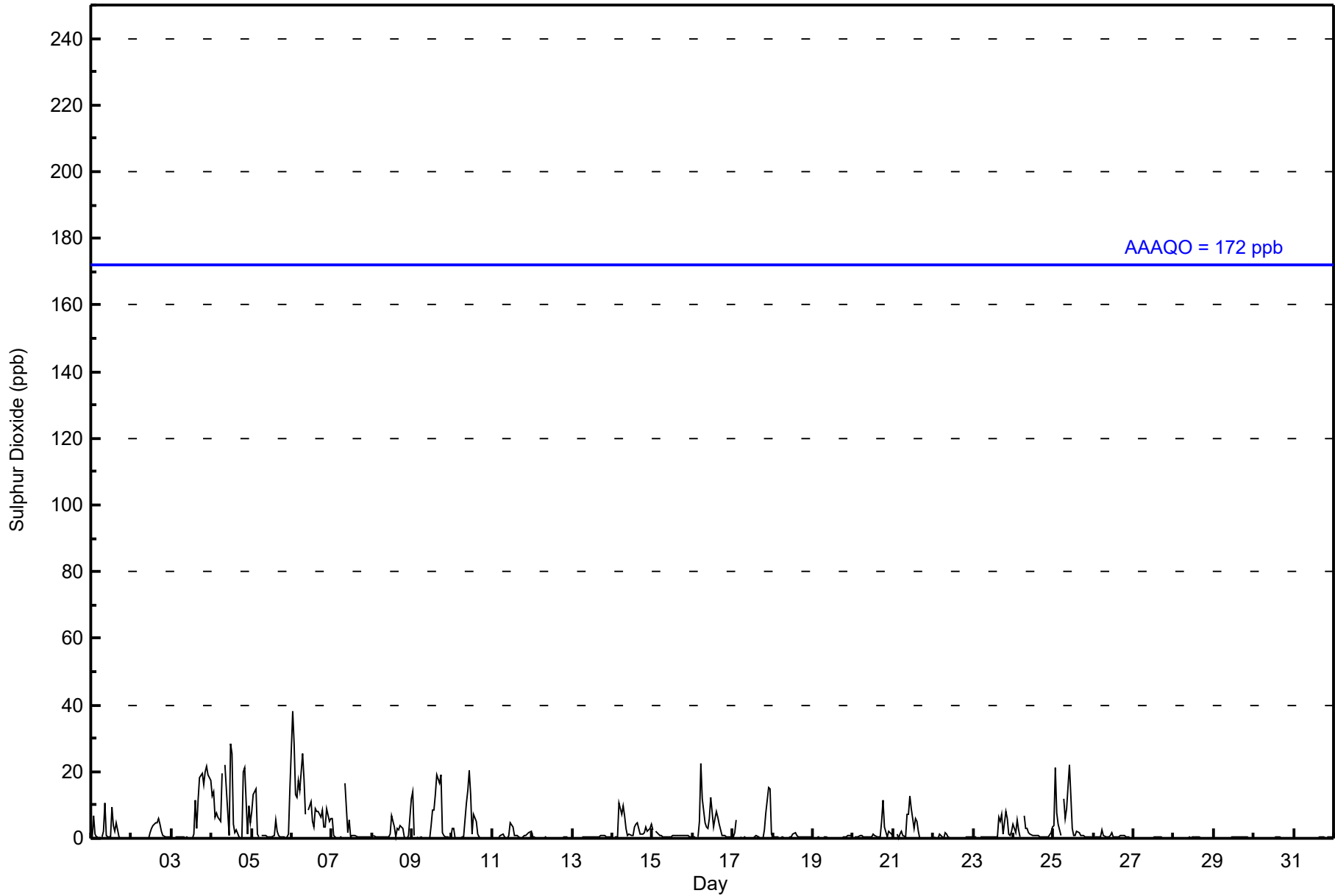


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 38.2 ppb on Jan 6 01:00		Maximum Daily Average: 11.7 ppb on Jan 6				Hours of Data:		709																																									
Minimum Value: 0.0 ppb on Jan 2 03:00		Minimum Daily Average: 0.1 ppb on Jan 30				Hours of Missing Data:		35																																									
Maximum Diurnal Average: 3.7 ppb at hour 1		Minimum Diurnal Average: 1.3 ppb at hour 4				Hours of Calibration:		35																																									
Monthly Average: 2.41 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.5 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 7.6 P <sub>99</sub> = 22.0				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-Jan	0.2	6.9	1.1	0.3	0.3	Z	0.5	2.0	10.4	0.7	0.6	0.3	9.2	3.8	2.3	4.6	0.5	0.1	0.1	0.1	0.1	0.0	0.0	0.0	1.9	10.4																							
2-Jan	Z	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.6	2.8	3.9	4.7	4.8	5.8	4.4	2.1	0.9	0.6	0.4	0.3	0.2	1.4	5.8																							
3-Jan	0.2	Z	0.3	0.4	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.1	1.1	11.6	3.1	11.4	18.1	19.6	16.2	20.1	21.7	19.1	17.4	7.1	21.7																							
4-Jan	12.9	14.0	6.4	7.5	6.4	5.2	19.3	Z	22.2	15.0	1.0	28.3	25.5	4.2	1.5	2.4	0.2	0.2	0.2	20.0	21.1	1.4	9.6	4.7	10.0	28.3																							
5-Jan	8.0	13.2	14.9	1.3	0.6	Z	0.9	0.9	0.7	0.6	0.6	0.5	1.0	5.4	2.0	1.0	0.5	0.6	0.4	0.2	0.4	1.2	14.8	3.1	14.9																								
6-Jan	38.2	28.2	13.0	12.3	17.3	14.5	25.3	18.0	7.3	Z	8.3	11.0	5.2	3.5	8.9	7.9	8.2	6.3	8.4	3.3	3.6	8.8	5.2	6.1	11.7	38.2																							
7-Jan	6.0	0.9	0.3	0.1	0.1	0.3	0.1	Z	16.5	1.5	5.5	0.5	0.9	0.8	0.7	0.6	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.3	1.6	16.5																							
8-Jan	Z	0.6	0.6	0.5	0.4	0.3	0.4	0.5	0.5	0.6	0.5	1.3	6.9	3.4	0.6	3.0	2.5	3.8	3.0	0.3	0.2	0.2	0.8	12.1	1.9	12.1																							
9-Jan	14.1	0.7	Z	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.2	3.8	8.3	8.7	13.0	19.0	16.4	19.1	1.6	0.9	0.4	0.3	0.1	0.3	4.7	19.1																							
10-Jan	2.8	2.9	0.2	Z	0.1	0.1	0.2	0.5	10.6	14.3	20.2	13.2	1.1	7.3	5.1	1.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	3.5	20.2																							
11-Jan	0.1	0.0	0.0	Z	0.5	0.7	1.1	0.3	0.1	0.1	0.7	4.8	3.3	0.9	0.6	0.8	0.2	0.2	0.3	0.9	1.0	1.3	1.9	2.0	0.9	4.8																							
12-Jan	0.6	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.6																							
13-Jan	0.0	0.2	0.1	0.1	0.2	Z	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.6	0.6	0.6	0.8	0.7	0.8	0.6	0.6	0.4	0.5	0.4	0.4	0.8																							
14-Jan	Z	0.3	0.5	0.6	10.4	7.3	9.9	6.8	2.9	0.9	1.4	0.8	0.9	3.2	4.2	4.8	1.2	1.2	1.5	1.9	3.4	2.0	3.0	4.2	3.2	10.4																							
15-Jan	2.4	Z	2.1	1.2	0.7	0.7	0.6	0.6	0.5	0.6	0.6	0.6	0.7	0.8	0.9	0.8	0.8	0.7	0.8	0.8	0.8	0.5	0.5	0.5	0.8	2.4																							
16-Jan	0.6	0.4	Z	0.4	5.1	22.4	11.7	4.7	3.5	3.1	6.0	12.5	3.2	6.1	8.0	6.3	4.2	0.9	0.9	0.9	0.5	0.5	0.5	0.3	4.5	22.4																							
17-Jan	0.3	1.5	5.5	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.9	0.2	0.1	0.1	0.1	2.3	7.6	15.3	14.7	1.1	2.3	15.3																							
18-Jan	0.6	0.4	0.4	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.3	0.3	1.2	1.5	0.7	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.4	1.5																							
19-Jan	0.2	0.2	0.2	0.3	0.3	Z	0.5	0.2	0.3	0.2	C	C	C	C	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.8	0.9	0.8	0.3	0.9																							
20-Jan	Z	0.6	0.5	0.6	0.7	0.7	0.6	0.4	0.4	0.2	0.3	0.3	1.1	1.0	0.6	0.6	0.5	5.0	11.4	3.3	0.6	2.1	1.8	1.3	1.5	11.4																							
21-Jan	0.2	Z	1.1	0.1	1.3	1.9	1.0	0.3	7.3	7.0	12.5	8.8	2.9	5.9	4.9	2.3	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	2.5	12.5																							
22-Jan	0.1	0.3	Z	0.1	1.3	0.6	0.1	1.8	1.4	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.4	1.8																							
23-Jan	0.3	0.3	0.3	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.4	0.5	0.5	6.5	5.0	7.0	1.2	8.0	6.1	1.1	0.9	2.3	1.9	8.0																								
24-Jan	4.2	1.7	5.4	2.5	0.5	Z	7.0	3.1	3.1	1.8	1.3	1.0	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.5	0.5	0.6	1.8	3.5	1.9	7.0																							
25-Jan	3.9	21.3	7.7	4.4	1.0	Z	11.9	5.8	8.9	22.1	12.8	2.9	0.6	0.9	2.2	1.6	1.0	1.0	0.7	0.5	0.4	0.5	0.4	0.3	4.9	22.1																							
26-Jan	Z	0.3	0.3	0.2	0.2	2.4	0.7	0.5	0.4	0.4	1.0	1.8	0.6	0.3	0.2	0.3	1.1	1.0	0.7	0.4	0.3	0.2	0.2	0.1	0.6	2.4																							
27-Jan	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.4	0.6	0.5	0.4	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.6																							
28-Jan	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.5	0.5	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
29-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.3																							
30-Jan	0.1	0.0	0.1	0.0	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.3	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
31-Jan	0.0	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.4																							
																								3.7	3.5	2.3	1.3	1.7	2.5	3.0	1.7	3.2	2.4	2.5	3.2	2.6	2.1	2.6	2.5	2.1	2.3	1.8	2.1	2.3	2.0	2.1	2.4	Diurnal Average	
																								38.2	28.2	14.9	12.3	17.3	22.4	25.3	18.0	22.2	22.1	20.2	28.3	25.5	8.7	13.0	19.0	16.4	19.1	19.6	20.0	21.1	21.7	19.1	17.4	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**  
**Mannix - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	657	92.67	92.67
11 - 20	41	5.78	98.45
21 - 60	11	1.55	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Mannix - January 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	81	94	17	1	5	6	40	152	54	23	9	41	50	24	30	30	657
11 - 20	18	1	0	0	0	0	0	0	0	0	0	0	0	1	1	14	35
21 - 60	7	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	10
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	96	17	1	5	6	40	152	54	23	9	41	50	25	32	45	702

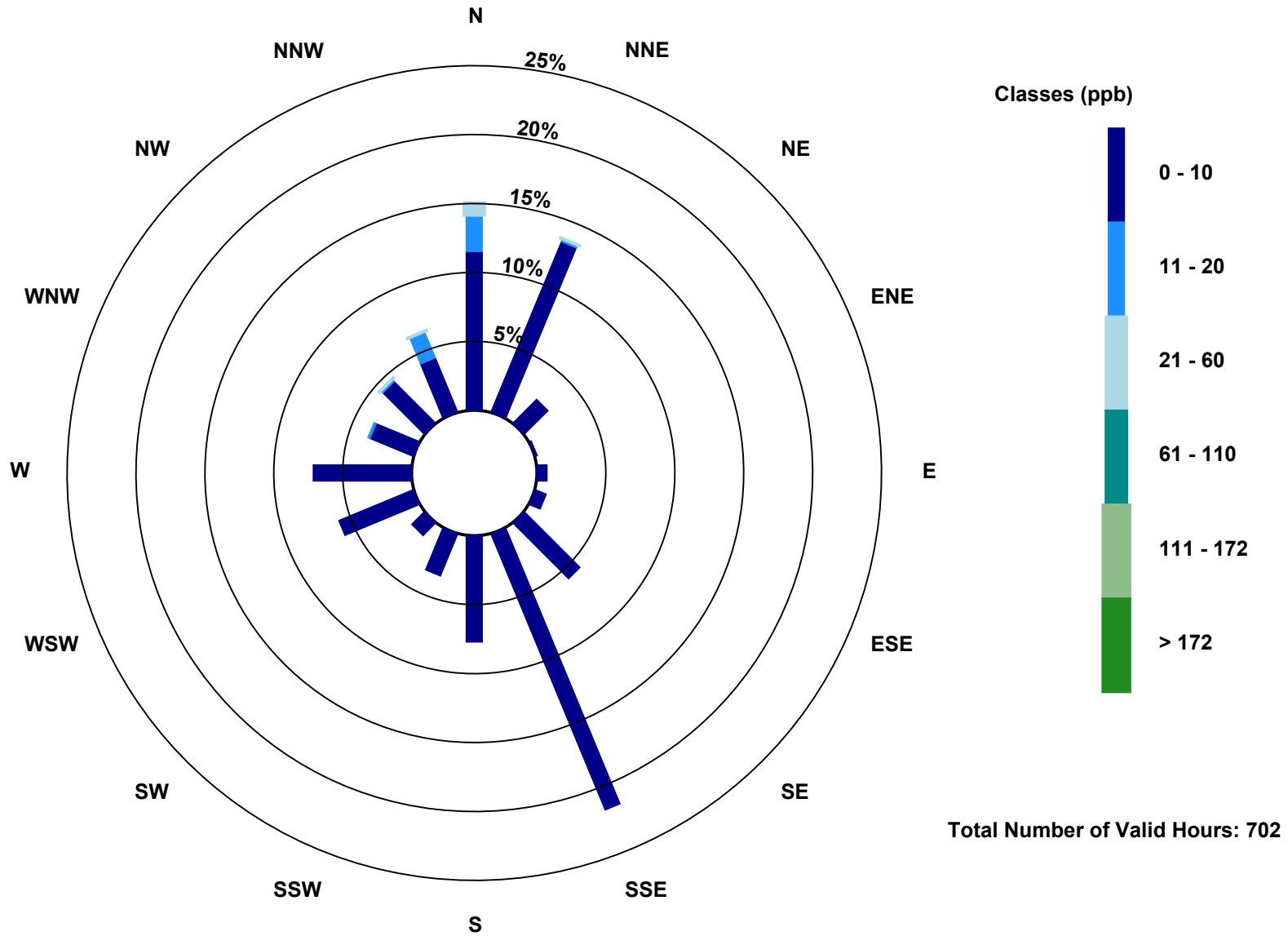
Total Number of Valid Hours: 702

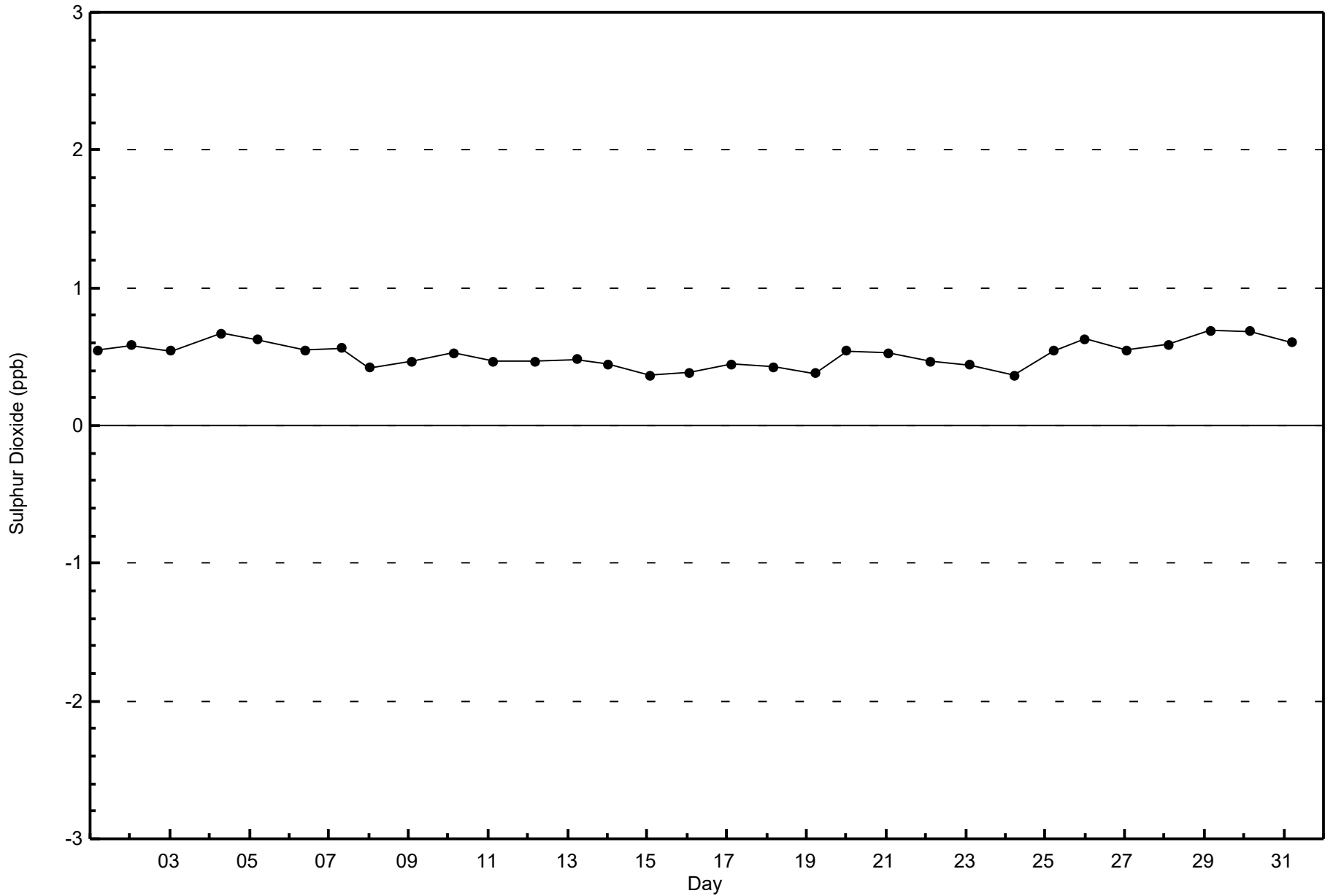
Total Number of Hours: 744

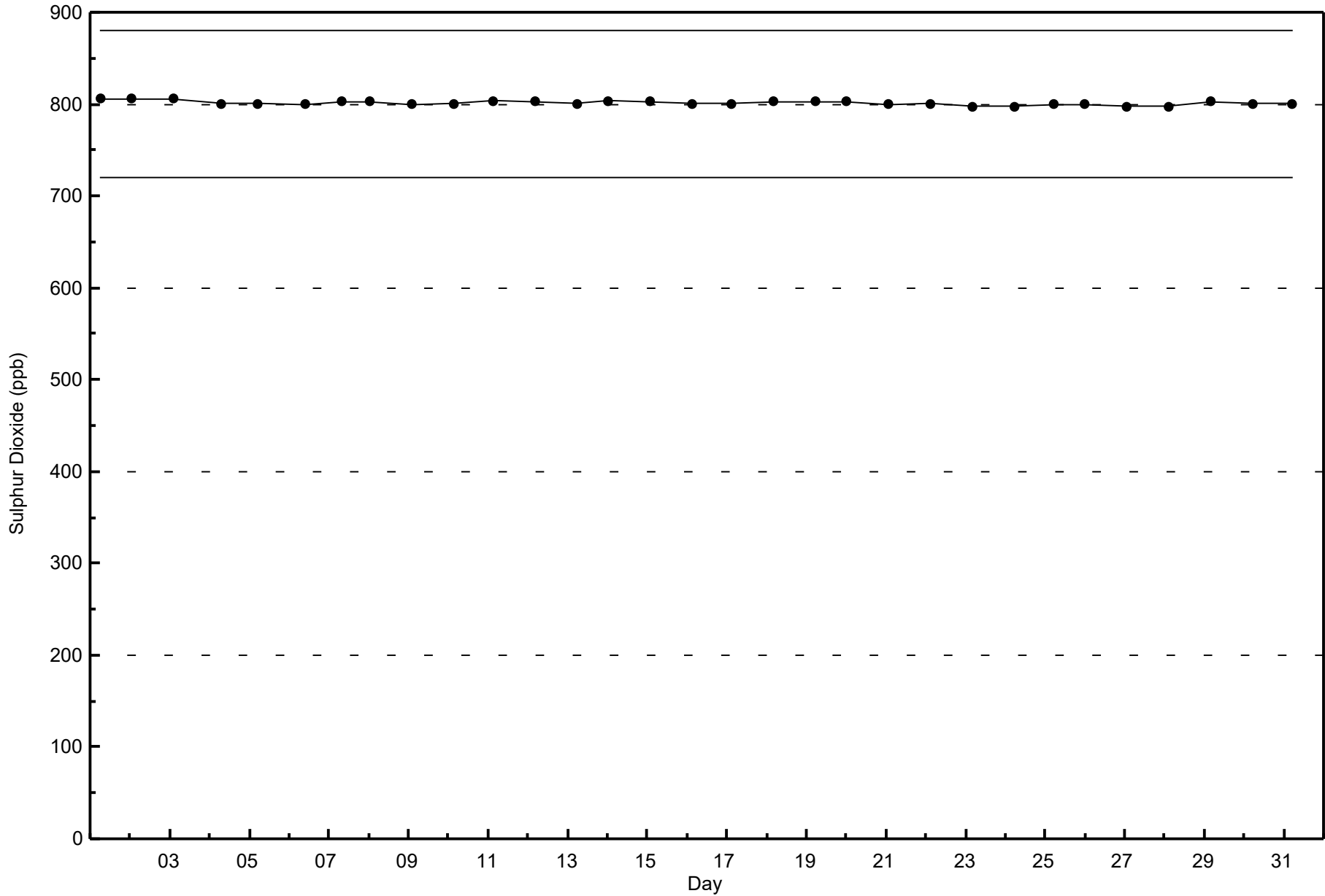


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











Number of Exceedences (AAAQO):	1-hr: 1	24-hr: 0	Hours in Service:	744
Maximum Value: 10.5 ppb on Jan 6 01:00	Maximum Daily Average: 2.5 ppb on Jan 6		Hours of Data:	676
Minimum Value: 0.0 ppb on Jan 4 18:00	Minimum Daily Average: 0.1 ppb on Jan 31		Hours of Missing Data:	68
Maximum Diurnal Average: 1.0 ppb at hour 1	Minimum Diurnal Average: 0.4 ppb at hour 14		Hours of Calibration:	36
Monthly Average: 0.67 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.5 P <sub>99</sub> = 5.1		Percent Operational Time:	95.7

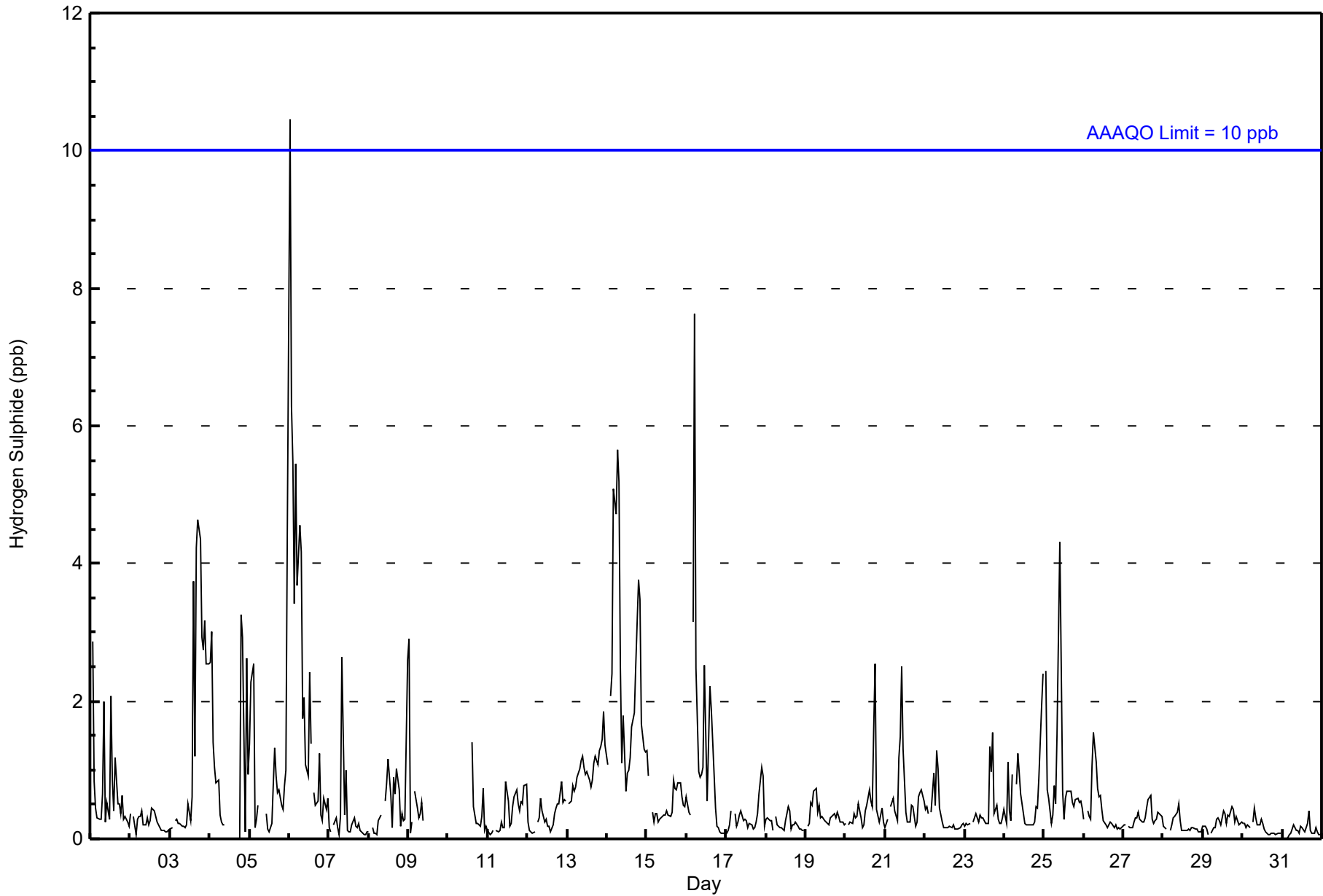
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Jan	Z	2.9	0.8	0.4	0.3	0.3	0.3	0.6	2.0	0.2	0.5	0.3	2.1	0.9	0.4	1.2	0.5	0.5	0.4	0.6	0.3	0.3	0.2	0.2	0.7	2.9																						
2-Jan	0.4	Z	0.3	0.1	0.3	0.3	0.3	0.4	0.2	0.2	0.3	0.2	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4																						
3-Jan	0.1	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.3	0.6	3.7	1.2	4.2	4.6	4.4	2.9	2.7	3.2	2.5	2.5	1.5	4.6																						
4-Jan	2.6	3.0	1.4	1.0	0.8	0.9	0.4	0.2	0.2	0.2	C	C	C	C	C	C	C	0.0	0.0	3.2	2.9	0.1	2.6	0.9	--	3.2																						
5-Jan	1.4	2.3	2.5	0.2	0.3	0.5	Z	0.3	M	M	0.4	0.1	0.1	0.2	0.8	1.3	0.9	0.7	0.5	0.4	0.8	1.0	4.4	0.9	4.4																							
6-Jan	10.5	6.3	5.5	3.4	5.4	3.7	4.6	4.2	1.7	2.1	1.1	0.9	2.4	1.4	Z	0.7	0.5	0.5	1.3	0.3	0.3	0.6	0.4	0.6	2.5	10.5																						
7-Jan	0.2	0.1	Z	0.2	0.3	0.2	0.1	0.3	2.6	0.4	1.0	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	2.6																						
8-Jan	0.1	Z	0.2	0.1	0.1	0.1	0.3	0.3	M	M	0.6	0.8	1.2	0.6	0.2	0.9	0.6	1.0	0.7	0.2	0.4	0.3	0.3	2.6	0.5	2.6																						
9-Jan	2.9	0.1	0.3	Z	0.7	0.4	0.3	0.4	0.5	0.3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	2.9																						
10-Jan	M	M	M	M	M	M	M	M	M	M	M	M	M	M	1.4	0.5	0.4	0.2	0.2	0.2	0.3	0.7	0.1	0.2	--	1.4																						
11-Jan	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.8	0.6	0.2	0.2	0.5	0.6	0.7	0.5	0.4	0.5	0.5	0.8	0.8	0.4	0.8																						
12-Jan	0.2	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.6	0.4	0.2	0.3	0.2	0.2	0.1	0.2	0.4	0.5	0.5	0.5	0.8	0.5	0.6	0.5	0.3	0.8																						
13-Jan	Z	0.5	0.6	0.8	0.7	0.8	0.9	1.0	1.1	1.2	1.0	0.9	1.0	0.9	0.7	0.9	1.1	1.2	1.1	1.3	1.3	1.4	1.8	1.4	1.0	1.8																						
14-Jan	1.1	Z	2.1	2.4	5.1	4.7	5.7	5.2	2.5	1.1	1.8	0.7	0.9	1.0	1.2	1.6	1.8	2.5	3.2	3.8	3.5	1.7	1.3	1.3	2.4	5.7																						
15-Jan	1.3	0.9	Z	0.4	0.2	0.4	0.4	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.9	0.7	0.7	0.8	0.8	0.6	0.5	0.5	0.5	1.3																						
16-Jan	0.6	0.4	0.3	Z	3.2	7.6	2.5	1.0	0.9	0.9	1.0	2.5	0.6	1.4	2.2	1.9	1.4	0.4	0.2	0.2	0.1	0.1	0.1	0.1	1.3	7.6																						
17-Jan	0.1	0.1	0.2	0.4	Z	0.4	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.4	0.7	1.0	0.9	0.2	0.3	1.0																						
18-Jan	0.3	0.3	0.3	0.3	0.1	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.3	0.5	0.4	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.5																						
19-Jan	Z	0.2	0.2	0.5	0.5	0.7	0.7	0.4	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.3	0.7																						
20-Jan	0.2	Z	0.2	0.2	0.2	0.4	0.3	0.3	0.5	0.3	0.2	0.2	0.4	0.5	0.7	0.5	0.5	1.6	2.5	0.4	0.2	0.3	0.5	0.2	0.5	2.5																						
21-Jan	0.2	0.3	Z	0.5	0.5	0.6	0.4	0.3	1.2	1.5	2.5	1.3	0.4	0.2	0.2	0.3	0.5	0.5	0.2	0.2	0.6	0.7	0.7	0.5	0.6	2.5																						
22-Jan	0.4	0.5	0.4	Z	0.4	0.9	0.5	1.3	1.0	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.4	1.3																						
23-Jan	0.2	0.2	0.2	0.2	Z	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	1.3	1.0	1.6	0.4	0.5	0.3	0.2	0.2	0.3	0.4	1.6																							
24-Jan	0.4	0.2	1.1	0.4	0.3	0.9	Z	0.8	1.2	1.0	0.7	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.4	0.9	1.9	2.4	0.7	2.4																						
25-Jan	Z	2.4	0.7	0.6	0.2	0.3	0.8	0.5	1.5	4.3	2.5	0.7	0.3	0.6	0.7	0.7	0.7	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.9	4.3																						
26-Jan	0.3	Z	0.4	0.3	0.3	1.1	1.5	1.1	0.7	0.6	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.4	1.5																						
27-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.4	0.6	0.6	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.6																						
28-Jan	0.2	0.2	0.2	Z	0.1	0.2	0.3	0.3	0.4	0.5	0.3	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	0.2	0.5																						
29-Jan	0.2	0.2	0.1	0.1	Z	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.4	0.2	0.3	0.3	0.5	0.4	0.2	0.3	0.3	0.2	0.2	0.3	0.5																						
30-Jan	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.5	0.3	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	0.2	0.5																						
31-Jan	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
																								1.0	0.9	0.7	0.5	0.8	1.0	0.8	0.7	0.8	0.7	0.6	0.5	0.5	0.4	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.5	0.6	0.7	Diurnal Average
																								10.5	6.3	5.5	3.4	5.4	7.6	5.7	5.2	2.6	4.3	2.5	2.5	2.4	1.4	3.7	1.9	4.2	4.6	4.4	3.8	3.5	3.2	2.6	4.4	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**  
**Mannix - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	633	93.64	93.64
3 - 4	32	4.73	98.37
5 - 7	9	1.33	99.70
8 - 11	2	0.30	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 676

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mannix - January 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	79	82	15	1	5	6	41	158	53	24	8	42	44	23	23	29	633
3 - 4	12	2	0	0	0	0	0	0	0	0	0	0	1	1	3	7	26
5 - 7	4	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	8
8 - 11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	96	85	16	1	5	6	41	158	53	24	8	42	45	26	27	36	669

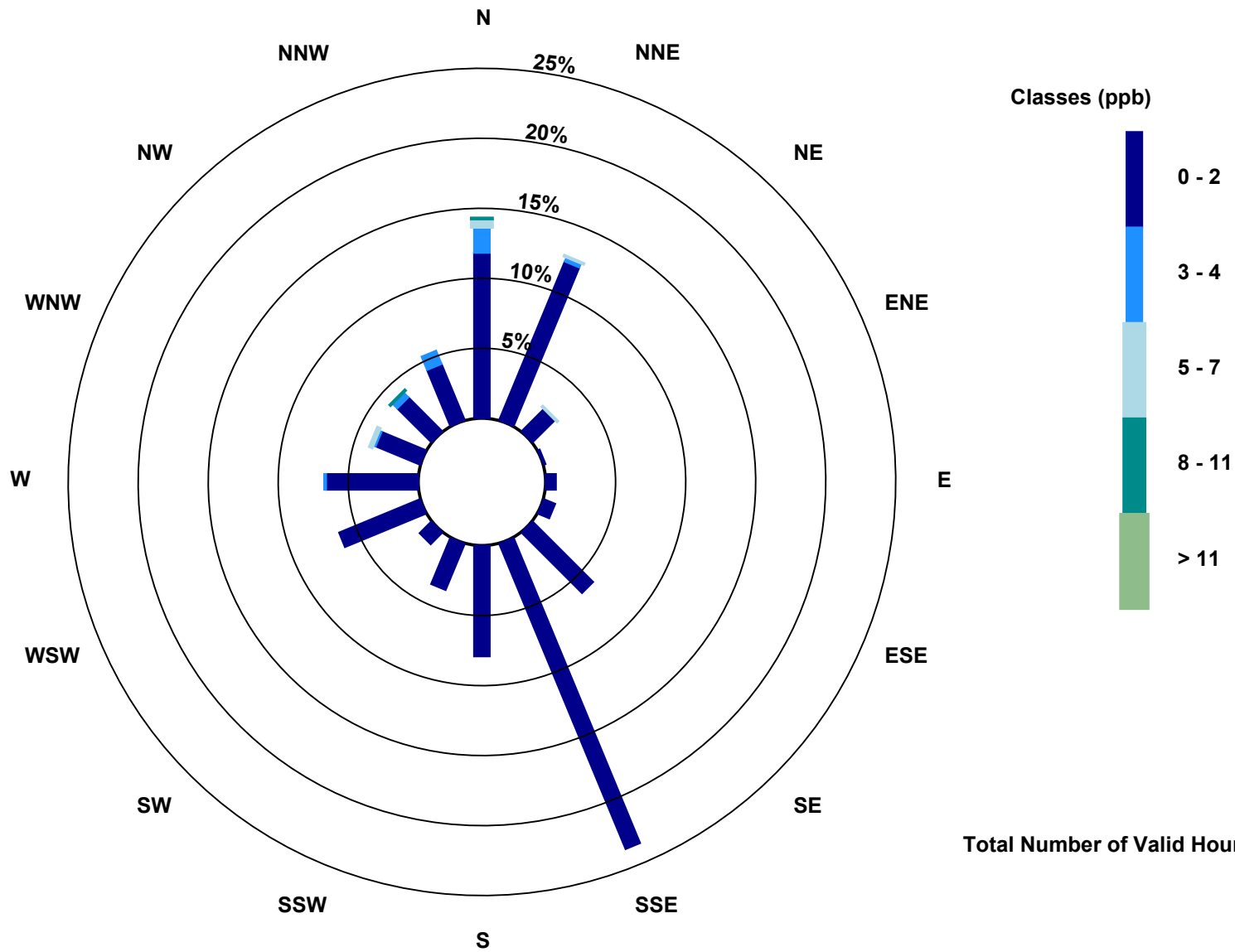
Total Number of Valid Hours: 669

Total Number of Hours: 744

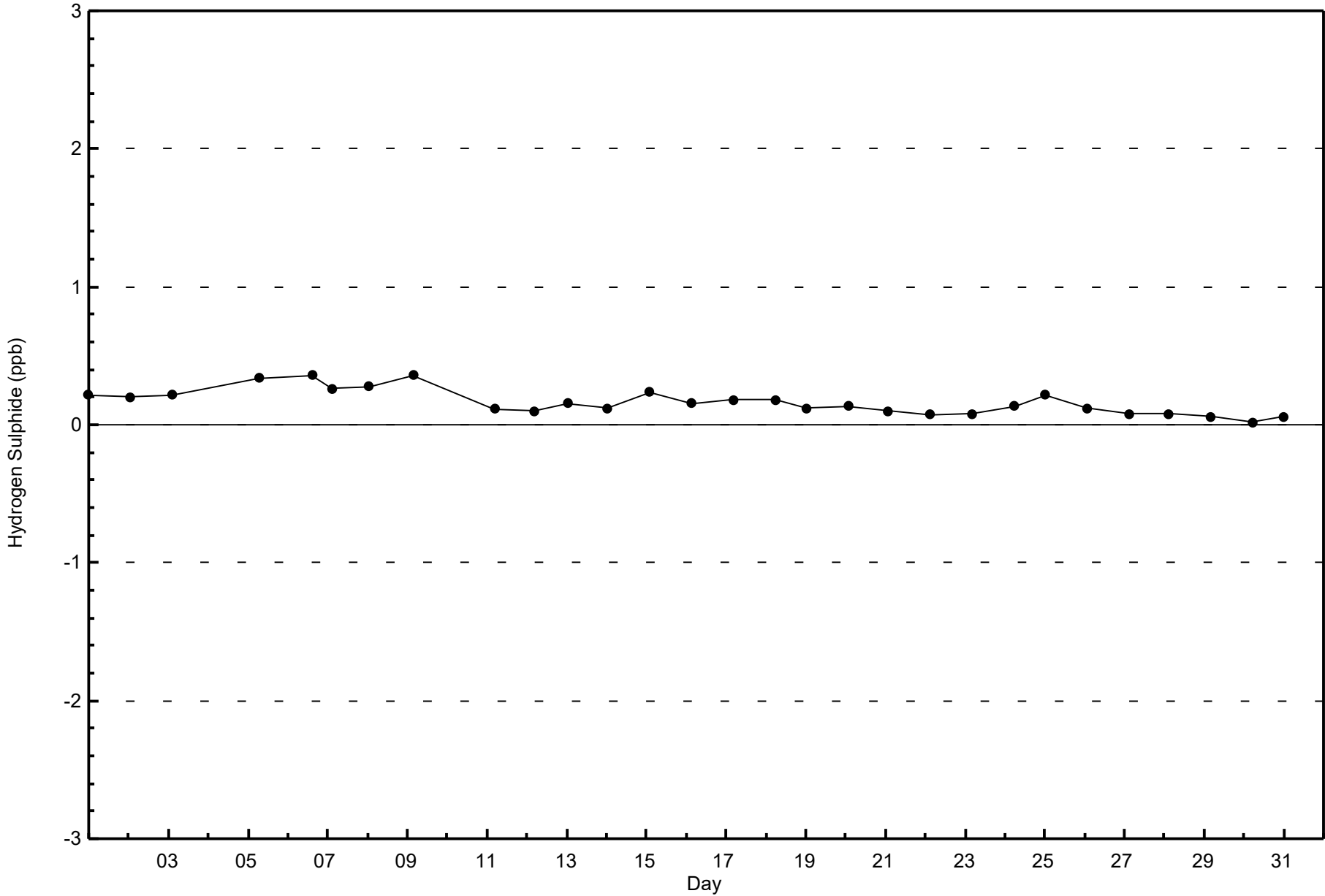


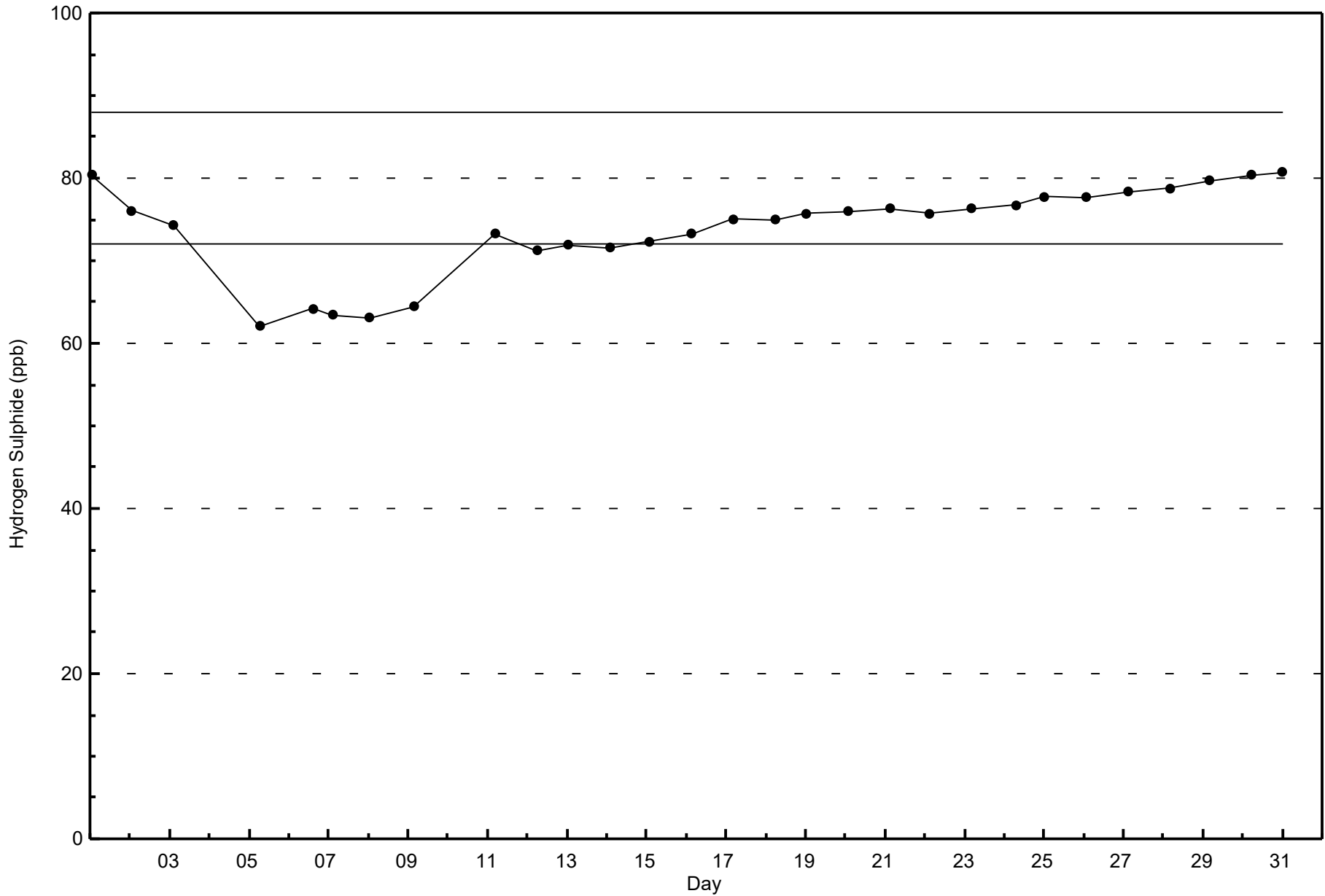
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 669







Wood Buffalo Environmental Association

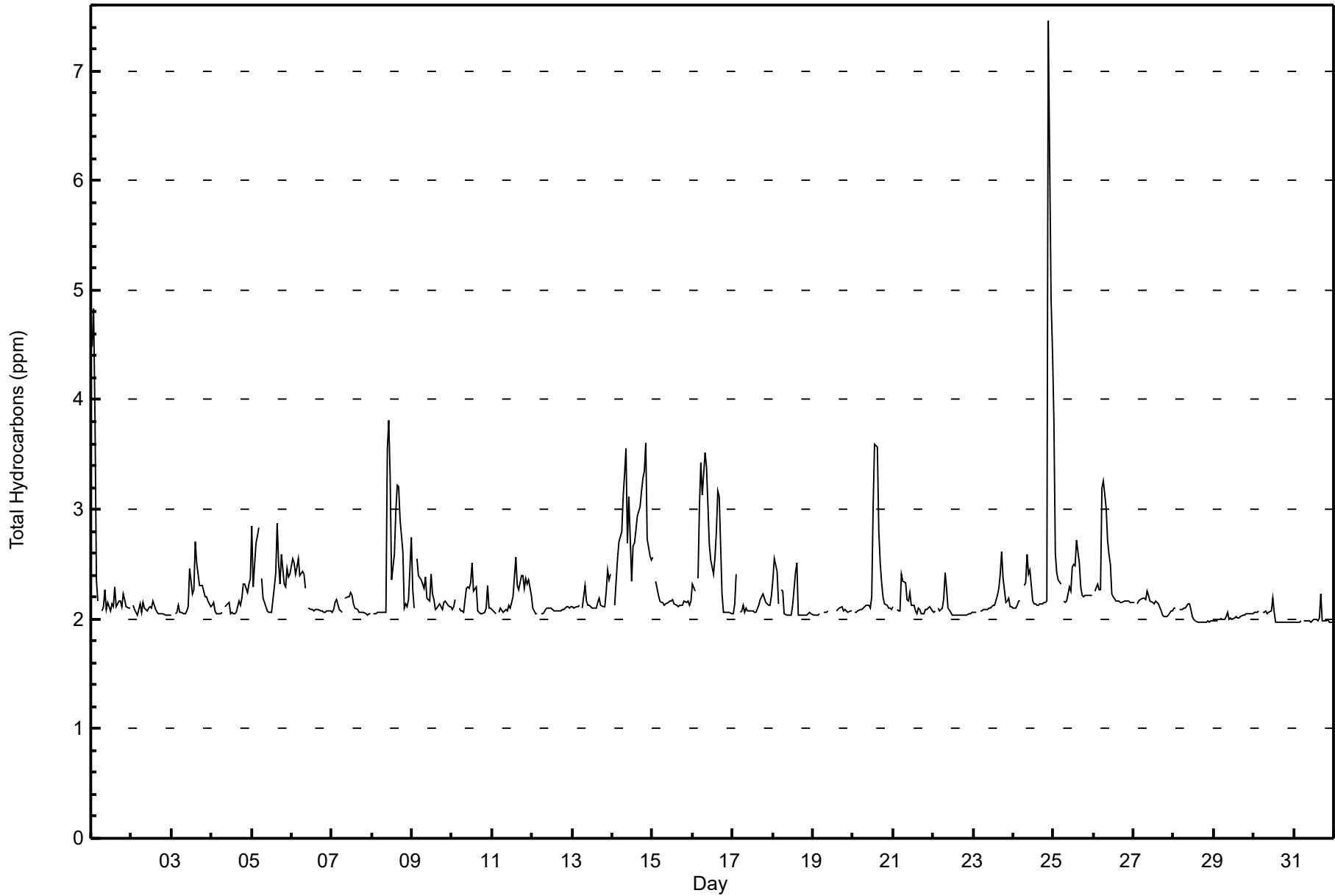
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Mannix - January 2024

Maximum Value: 7.5 ppm on Jan 24 22:00		Maximum Daily Average: 2.9 ppm on Jan 14		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Jan 30 19:00		Minimum Daily Average: 2.0 ppm on Jan 31		Hours of Data: 709																						
Maximum Diurnal Average: 2.3 ppm at hour 1		Minimum Diurnal Average: 2.2 ppm at hour 20		Hours of Missing Data: 35																						
Monthly Average: 2.24 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.6 P <sub>99</sub> = 3.8		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-Jan	4.5	4.8	3.8	2.4	2.2	Z	2.1	2.1	2.3	2.1	2.2	2.1	2.1	2.1	2.3	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.4	4.8
2-Jan	Z	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2
3-Jan	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.5	2.2	2.3	2.7	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.2	2.7	
4-Jan	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.0	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.3	2.3	2.2	2.3	2.4	2.4
5-Jan	2.9	2.3	2.7	2.8	2.8	Z	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.9	2.5	2.3	2.6	2.3	2.3	2.5	2.4	2.4	2.4	2.9
6-Jan	2.6	2.5	2.4	2.5	2.6	2.4	2.4	2.4	2.3	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	2.6
7-Jan	2.1	2.1	2.2	2.2	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2
8-Jan	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.5	3.8	3.3	2.4	2.6	3.0	3.2	3.2	2.9	2.6	2.1	2.1	2.1	2.2	2.7	2.5	3.8
9-Jan	2.3	2.1	Z	2.5	2.4	2.4	2.3	2.3	2.4	2.2	2.2	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.5
10-Jan	2.1	2.1	2.2	Z	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.5	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.2	2.5
11-Jan	2.1	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.6	2.3	2.3	2.4	2.4	2.3	2.4	2.3	2.4	2.2	2.2	2.6
12-Jan	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
13-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.3	2.4	2.4	2.4	2.2	2.4
14-Jan	Z	2.1	2.3	2.5	2.7	2.8	3.1	3.3	3.6	2.7	3.1	2.3	2.7	2.7	2.8	2.9	3.0	3.2	3.3	3.4	3.6	2.7	2.6	2.5	2.9	3.6
15-Jan	2.6	Z	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.2	2.6
16-Jan	2.3	2.3	Z	2.4	3.0	3.4	3.1	3.5	3.4	3.0	2.7	2.5	2.4	2.6	2.8	3.2	3.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.6	3.5
17-Jan	2.1	2.1	2.4	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	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.4
18-Jan	2.4	2.6	2.4	2.1	Z	2.3	2.3	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	2.6
19-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
20-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.0	3.6	3.6	2.8	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.3	3.6
21-Jan	2.1	Z	2.1	2.1	2.1	2.4	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	2.1	2.1	2.1	2.4
22-Jan	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.4	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	2.0	2.1	2.1	2.4
23-Jan	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	2.2	2.3	2.4	2.6	2.4	2.2	2.2	2.2	2.1	2.1	2.2	2.6
24-Jan	2.1	2.1	2.1	2.2	2.2	Z	2.3	2.3	2.6	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	7.5	4.9	4.4	2.7	7.5
25-Jan	3.8	2.6	2.4	2.4	2.3	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.5	2.5	2.5	2.7	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	3.8
26-Jan	Z	2.3	2.3	2.3	2.3	3.2	3.3	3.0	2.7	2.6	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	3.3
27-Jan	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3
28-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
29-Jan	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	2.1	2.1	2.0	2.1	2.0	2.1
30-Jan	2.1	2.1	2.1	2.1	Z	2.1	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	2.2
31-Jan	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	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										







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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	116	16.36	16.36
2.1 - 3.0	563	79.41	95.77
3.1 - 10.0	30	4.23	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Mannix - January 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	2	1	0	0	0	0	22	28	6	7	3	24	21	2	0	0	116
2.1 - 3.0	101	92	17	1	4	6	18	124	48	16	6	17	25	22	18	41	556
3.1 - 10.0	3	3	0	0	1	0	0	0	0	0	0	0	4	1	14	4	30
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	106	96	17	1	5	6	40	152	54	23	9	41	50	25	32	45	702

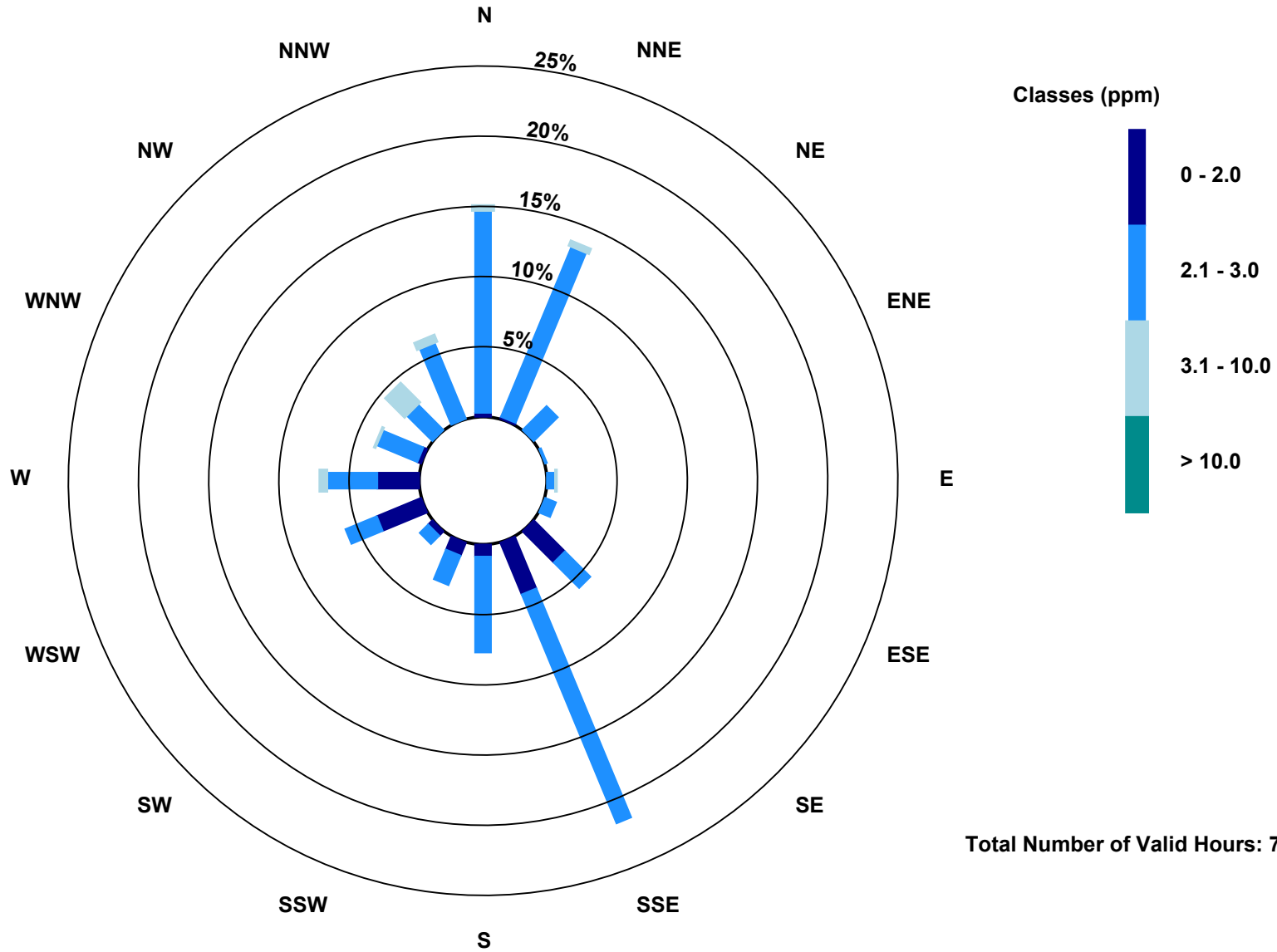
Total Number of Valid Hours: 702

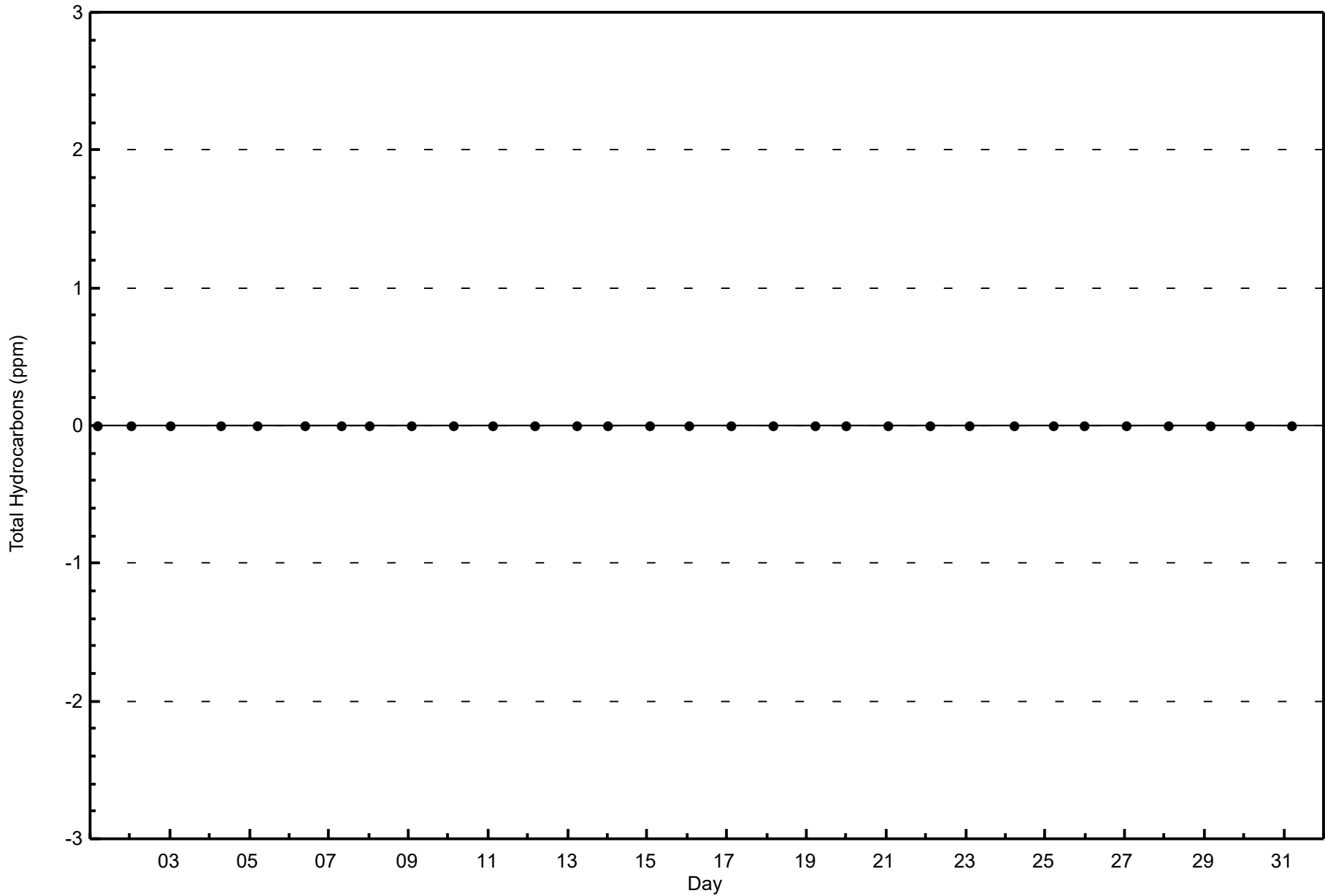
Total Number of Hours: 744

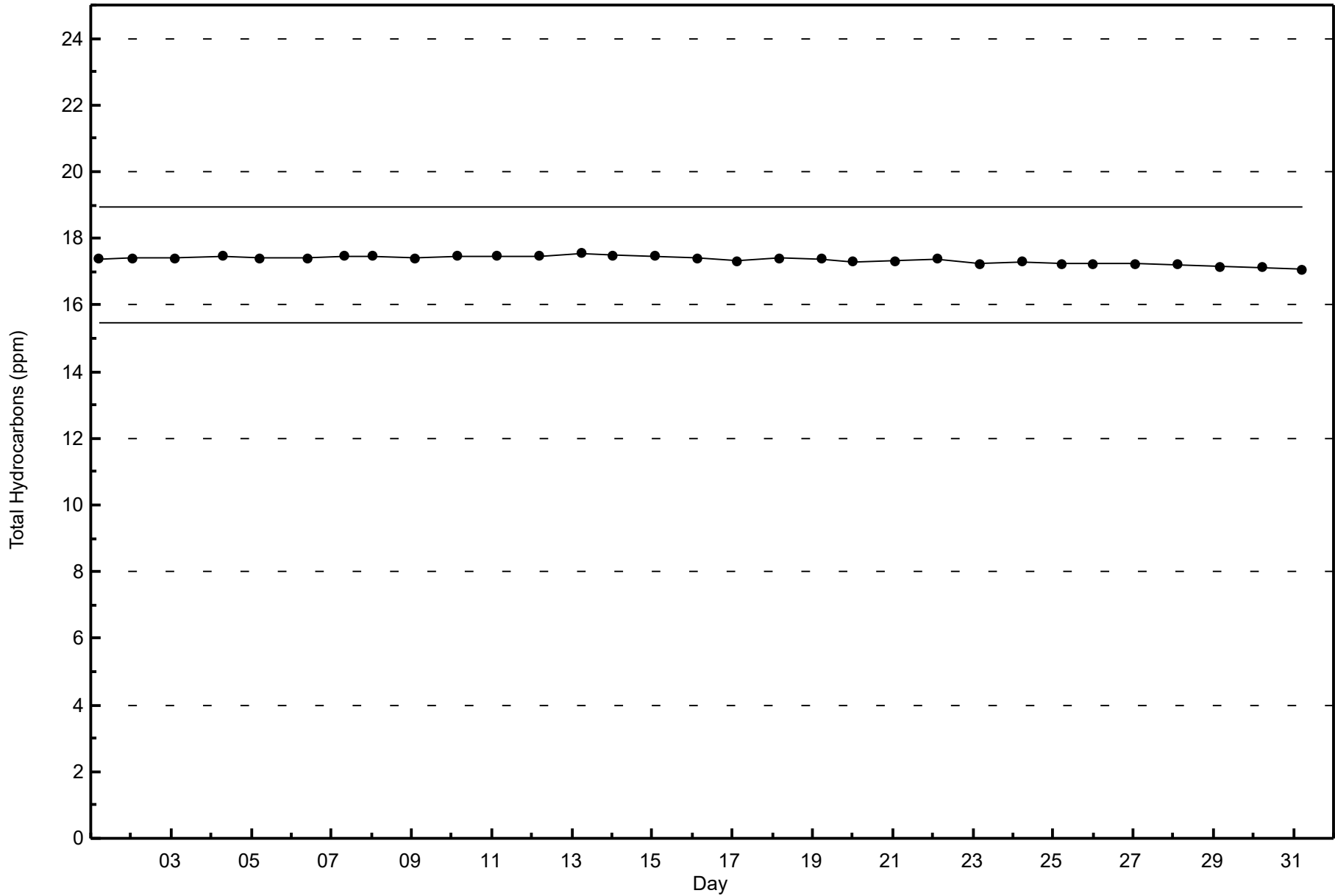


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Mannix





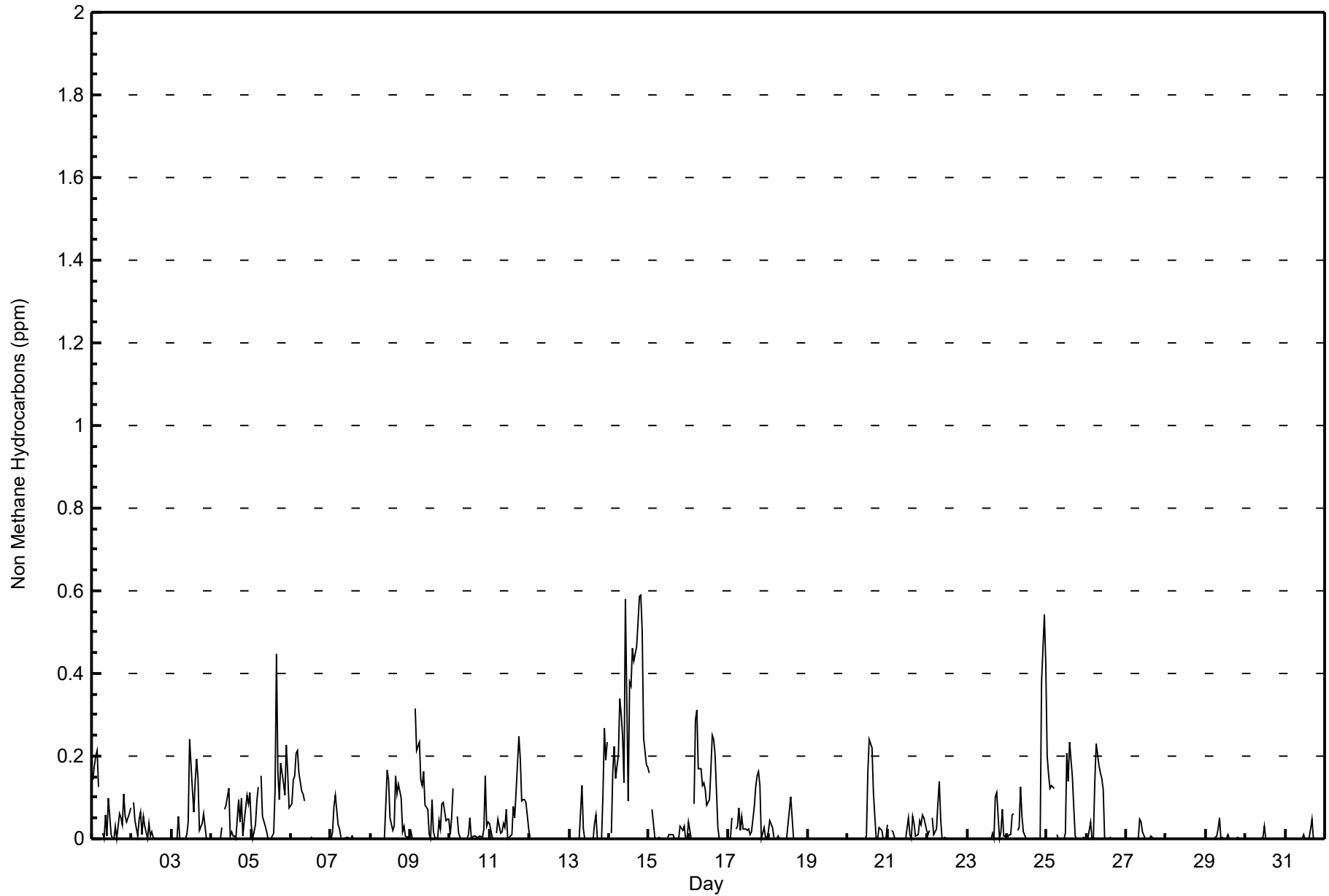




Summary of Hour Averages

Mannix - January 2024

Maximum Value: 0.590 ppm on Jan 14 20:00		Maximum Daily Average: 0.319 ppm on Jan 14		Hours in Service: 744																						
Minimum Value: 0.000 ppm on Jan 1 13:00		Minimum Daily Average: 0.000 ppm on Jan 12		Hours of Data: 709																						
Maximum Diurnal Average: 0.065 ppm at hour 16		Minimum Diurnal Average: 0.023 ppm at hour 12		Hours of Missing Data: 35																						
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> = 0.1 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.5		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-Jan	0.143	0.178	0.199	0.213	0.125	Z	0.014	0.001	0.058	0.008	0.099	0.009	0.000	0.000	0.032	0.001	0.060	0.050	0.033	0.108	0.055	0.042	0.060	0.073	0.068	0.213
2-Jan	Z	0.087	0.043	0.008	0.049	0.063	0.009	0.053	0.031	0.001	0.038	0.008	0.016	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.087
3-Jan	0.000	Z	0.000	0.000	0.053	0.000	0.000	0.000	0.000	0.011	0.041	0.241	0.119	0.066	0.140	0.192	0.146	0.021	0.036	0.061	0.030	0.000	0.000	0.000	0.050	0.241
4-Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.025	Z	0.072	0.080	0.121	0.008	0.018	0.006	0.007	0.002	0.093	0.041	0.098	0.008	0.044	0.104	0.085	0.111	0.040	0.121
5-Jan	0.035	0.000	0.034	0.092	0.127	Z	0.152	0.055	0.030	0.017	0.000	0.000	0.000	0.015	0.120	0.449	0.162	0.096	0.183	0.135	0.107	0.229	0.159	0.076	0.099	0.449
6-Jan	0.086	0.141	0.151	0.208	0.212	0.158	0.115	0.107	0.093	Z	0.001	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.056	0.212
7-Jan	0.000	0.017	0.079	0.105	0.035	0.025	0.002	Z	0.000	0.004	0.003	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.105
8-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	0.165	0.143	0.052	0.019	0.030	0.152	0.109	0.131	0.099	0.018	0.032	0.008	0.004	0.006	0.046	0.165
9-Jan	0.018	0.001	Z	0.316	0.213	0.233	0.144	0.130	0.164	0.080	0.071	0.011	0.000	0.095	0.018	0.005	0.000	0.043	0.025	0.084	0.088	0.044	0.048	0.048	0.082	0.316
10-Jan	0.011	0.049	0.122	Z	0.053	0.013	0.002	0.000	0.000	0.000	0.000	0.011	0.051	0.002	0.007	0.008	0.005	0.003	0.006	0.005	0.023	0.153	0.032	0.042	0.026	0.153
11-Jan	0.039	0.004	0.001	Z	0.015	0.047	0.013	0.016	0.039	0.029	0.071	0.001	0.007	0.010	0.078	0.050	0.117	0.249	0.194	0.090	0.095	0.093	0.089	0.025	0.060	0.249
12-Jan	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
13-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.127	0.024	0.000	0.000	0.000	0.000	0.000	0.037	0.059	0.000	0.000	0.000	0.109	0.268	0.189	0.234	0.046	0.268	
14-Jan	Z	0.012	0.164	0.225	0.144	0.202	0.338	0.301	0.249	0.135	0.580	0.093	0.378	0.368	0.462	0.431	0.466	0.523	0.587	0.590	0.502	0.243	0.178	0.174	0.319	0.590
15-Jan	0.161	Z	0.072	0.003	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.010	0.009	0.011	0.000	0.000	0.000	0.000	0.031	0.019	0.031	0.000	0.000	0.000	0.015	0.161
16-Jan	0.041	0.000	Z	0.084	0.290	0.314	0.169	0.169	0.130	0.135	0.118	0.083	0.096	0.165	0.250	0.241	0.205	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.109	0.314
17-Jan	0.000	0.003	0.052	Z	0.025	0.030	0.075	0.019	0.055	0.022	0.023	0.021	0.025	0.009	0.015	0.078	0.125	0.152	0.163	0.127	0.000	0.028	0.003	0.000	0.046	0.163
18-Jan	0.018	0.043	0.028	0.003	Z	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.035	0.100	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.100
19-Jan	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.159	0.242	0.221	0.112	0.055	0.000	0.000	0.026	0.020	0.000	0.000	0.003	0.037	0.242
21-Jan	0.033	Z	0.020	0.018	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052	0.010	0.000	0.053	0.038	0.008	0.011	0.045	0.034	0.056	0.051	0.022	0.020	0.056
22-Jan	0.009	0.019	Z	0.050	0.009	0.025	0.083	0.138	0.047	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	0.017	0.138
23-Jan	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	0.013	0.000	0.100	0.113	0.001	0.017	0.070	0.008	0.008	0.014	0.113	
24-Jan	0.000	0.009	0.009	0.058	0.060	Z	0.021	0.027	0.125	0.055	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.380	0.543	0.423	0.075	0.543
25-Jan	0.199	0.156	0.121	0.129	0.122	Z	0.011	0.001	0.000	0.000	0.012	0.207	0.140	0.232	0.148	0.076	0.008	0.000	0.001	0.000	0.000	0.003	0.000	0.000	0.068	0.232
26-Jan	Z	0.000	0.040	0.000	0.005	0.138	0.230	0.177	0.158	0.146	0.120	0.003	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.230
27-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.042	0.016	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.048
28-Jan	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
29-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.006	0.024	0.050	0.000	0.005	0.000	0.000	0.010	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.004	0.050
30-Jan	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.002	0.000	0.002	0.004	0.031	0.000	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
31-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.001	0.003	0.024	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.048
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	389	54.87	54.87
0.006 - 0.05	154	21.72	76.59
0.06 - 0.1	96	13.54	90.13
> 0.1	70	9.87	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Mannix - January 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	35	6	0	0	0	0	28	135	46	20	8	34	33	9	5	28	387
0.006 - 0.05	34	50	5	1	0	2	8	12	6	1	0	3	5	6	9	9	151
0.06 - 0.1	25	30	5	0	0	0	3	3	2	0	0	3	6	7	7	3	94
> 0.1	12	10	7	0	5	4	1	2	0	2	1	1	6	3	11	5	70
<b>Totals</b>	106	96	17	1	5	6	40	152	54	23	9	41	50	25	32	45	702

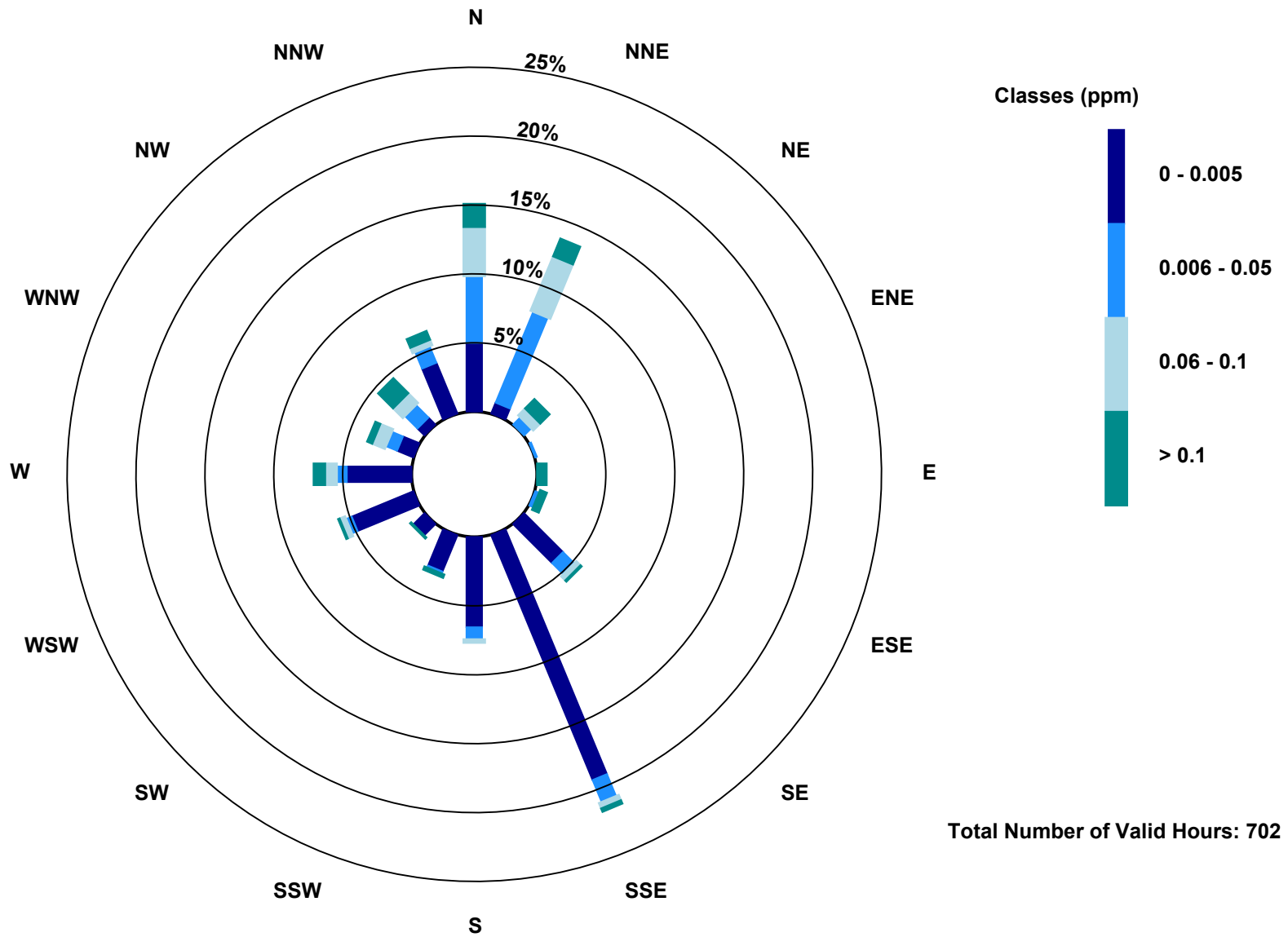
Total Number of Valid Hours: 702

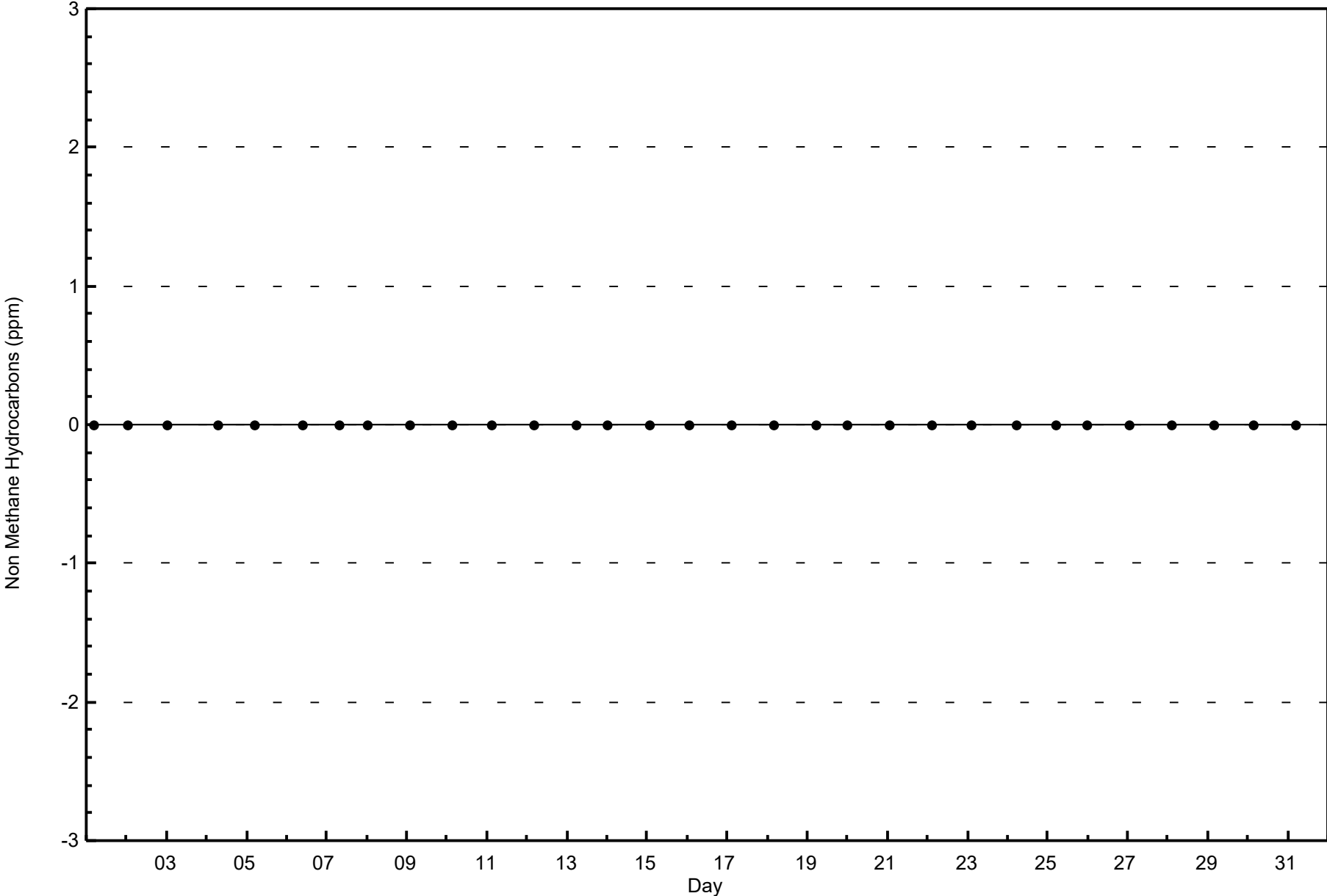
Total Number of Hours: 744

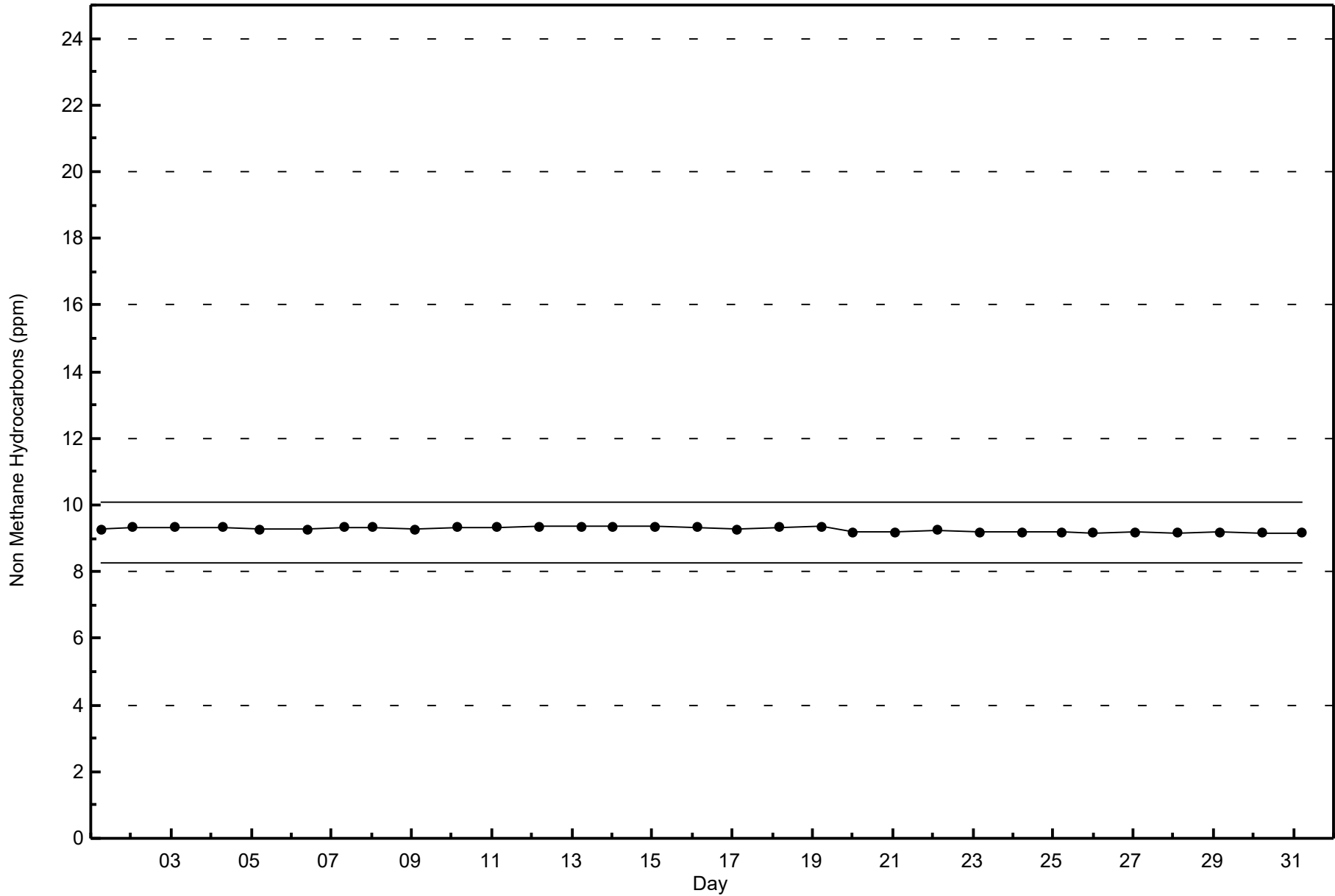


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mannix









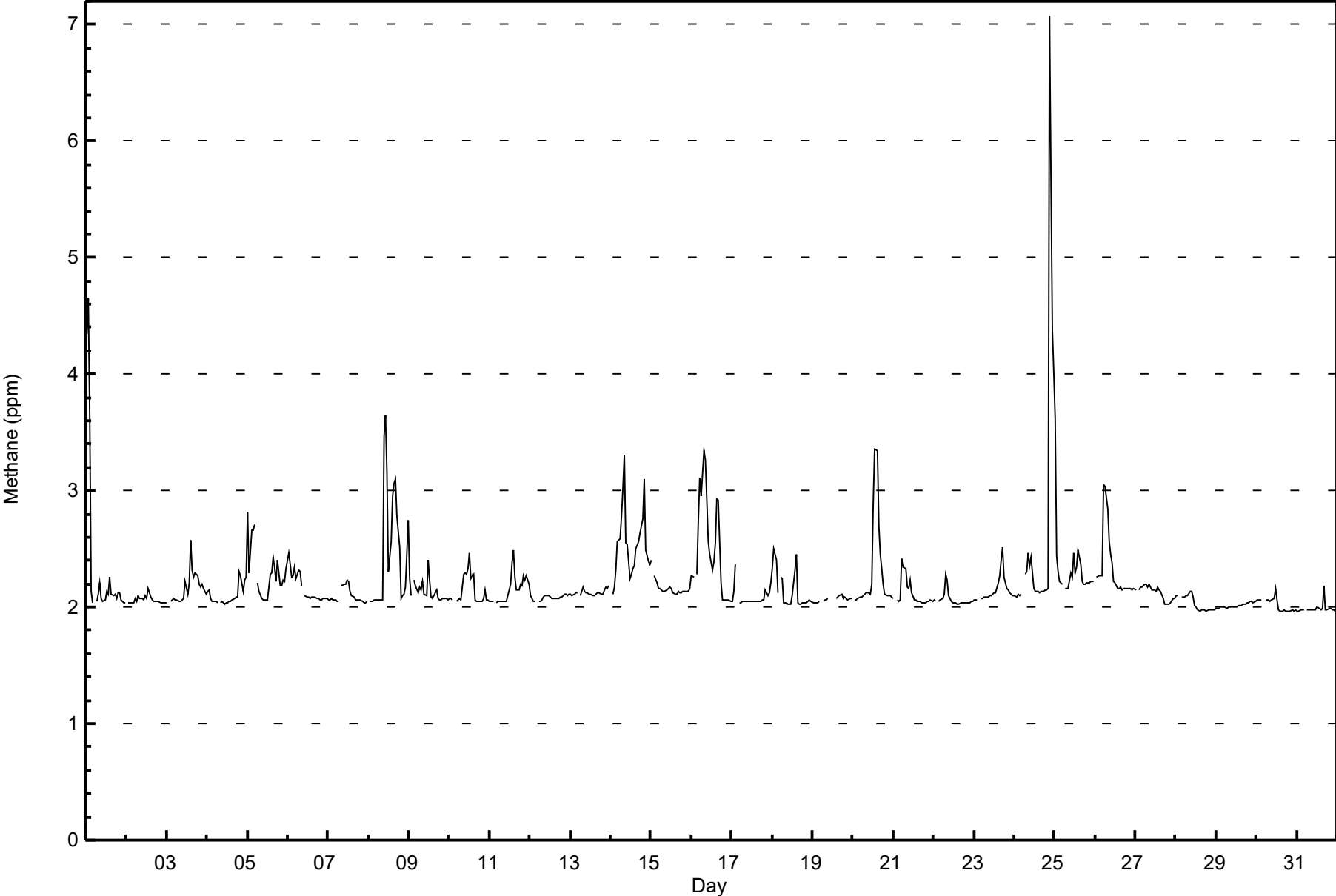
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Mannix - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 7.1 ppm on Jan 24 22:00		Maximum Daily Average: 2.6 ppm on Jan 24				Hours of Data:		709																																								
Minimum Value: 2.0 ppm on Jan 30 19:00		Minimum Daily Average: 2.0 ppm on Jan 31				Hours of Missing Data:		35																																								
Maximum Diurnal Average: 2.3 ppm at hour 1		Minimum Diurnal Average: 2.1 ppm at hour 20				Hours of Calibration:		35																																								
Monthly Average: 2.19 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 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> = 3.6				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-Jan	4.3	4.7	3.6	2.1	2.0	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.4	4.7																						
2-Jan	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2																						
3-Jan	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.1	2.2	2.6	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.6																						
4-Jan	2.1	2.1	2.1	2.1	2.1	2.1	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	2.3	2.3	2.1	2.2	2.3	2.3																						
5-Jan	2.8	2.3	2.7	2.7	2.7	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.4	2.3	2.2	2.4	2.2	2.2	2.2	2.2	2.3	2.3	2.8																						
6-Jan	2.5	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.2	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	2.5																						
7-Jan	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2																						
8-Jan	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.5	3.6	3.2	2.3	2.6	3.0	3.1	3.1	2.8	2.5	2.1	2.1	2.1	2.2	2.7	2.5	3.6																						
9-Jan	2.2	2.1	Z	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.1	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	2.4																						
10-Jan	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.5	2.2	2.3	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.5																						
11-Jan	2.1	2.1	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.5	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.2	2.2	2.5																						
12-Jan	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																						
13-Jan	2.1	2.1	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	2.2	2.2	2.2	2.1	2.2																						
14-Jan	Z	2.1	2.2	2.3	2.6	2.6	2.8	3.0	3.3	2.6	2.5	2.2	2.3	2.3	2.3	2.5	2.6	2.6	2.7	2.8	3.1	2.5	2.4	2.4	2.6	3.3																						
15-Jan	2.4	Z	2.3	2.2	2.2	2.2	2.2	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	2.1	2.1	2.1	2.2	2.2	2.4																						
16-Jan	2.3	2.3	Z	2.3	2.7	3.1	3.0	3.3	3.3	2.9	2.6	2.4	2.3	2.4	2.5	2.9	2.9	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.5	3.3																						
17-Jan	2.1	2.1	2.4	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.4																						
18-Jan	2.3	2.5	2.4	2.1	Z	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.5																						
19-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
20-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.9	3.4	3.3	2.7	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.3	3.4																						
21-Jan	2.1	Z	2.1	2.1	2.1	2.4	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	2.1	2.1	2.1	2.4																						
22-Jan	2.1	2.1	Z	2.1	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	2.1	2.3																						
23-Jan	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	2.2	2.3	2.4	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.5																						
24-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.3	2.3	2.5	2.4	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	7.1	4.4	4.0	2.6	7.1																						
25-Jan	3.6	2.4	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.3	2.5	2.3	2.3	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	3.6																						
26-Jan	Z	2.3	2.3	2.3	2.3	3.1	3.0	2.8	2.6	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	3.1																						
27-Jan	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2																						
28-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
29-Jan	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	2.1	2.0	2.1	2.0	2.1																						
30-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
31-Jan	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	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
																								2.3	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	2.2	2.2	2.2	2.1	2.1	2.1	2.3	2.2	2.2	Diurnal Average
																								4.3	4.7	3.6	2.7	2.7	3.1	3.0	3.3	3.3	3.5	3.6	3.2	2.9	3.4	3.3	3.1	3.1	2.8	2.7	2.8	3.1	7.1	4.4	4.0	Diurnal Maximum
Z - zerospan																								C - Calibration																								





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	152	21.44	21.44
2.1 - 3.0	537	75.74	97.18
3.1 - 10.0	20	2.82	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mannix - January 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	10	27	1	0	0	0	22	29	6	7	3	24	21	2	0	0	152
2.1 - 3.0	94	69	16	1	5	6	18	123	48	16	6	17	28	23	18	42	530
3.1 - 10.0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	14	3	20
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	106	96	17	1	5	6	40	152	54	23	9	41	50	25	32	45	702

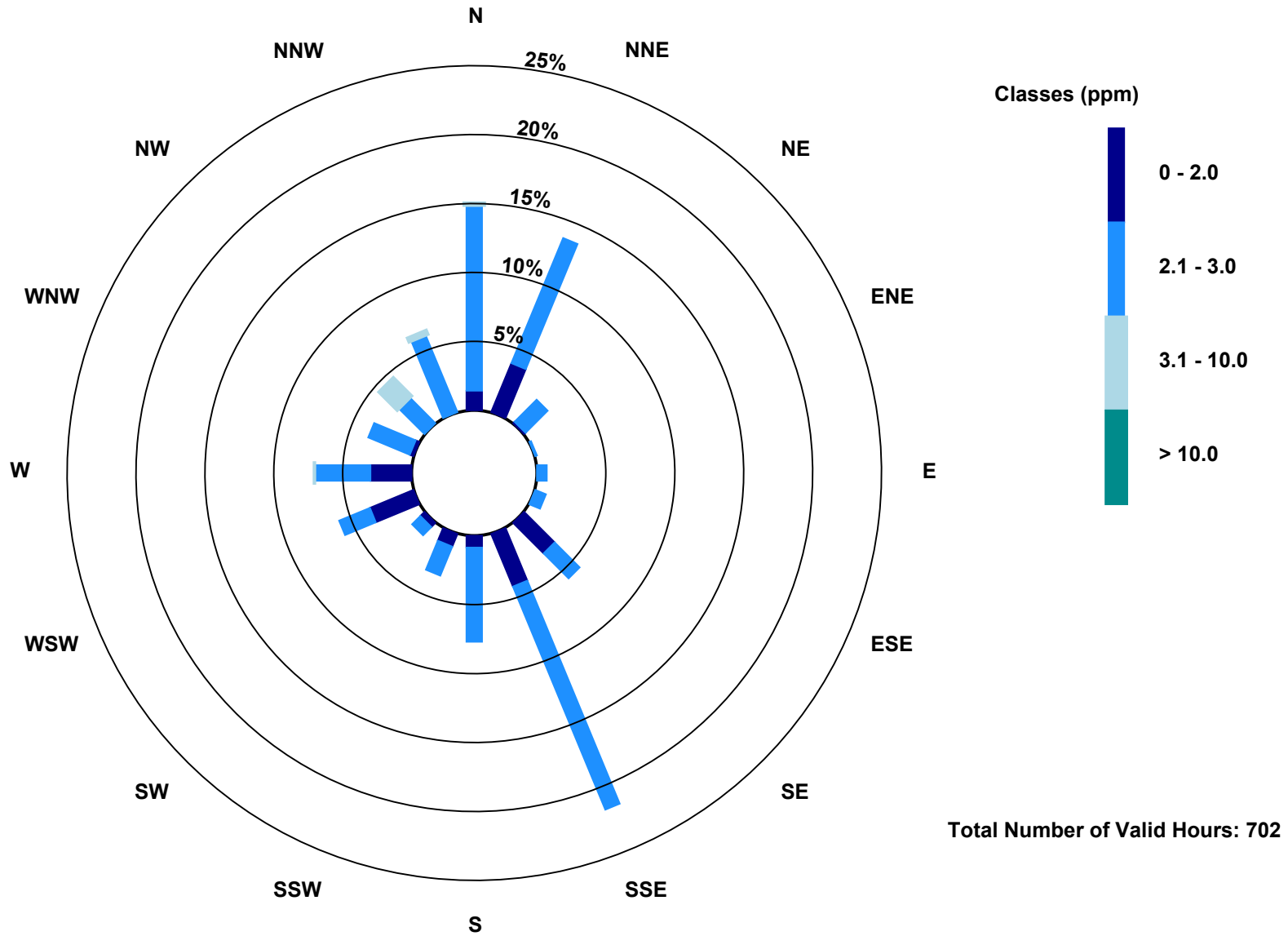
Total Number of Valid Hours: 702

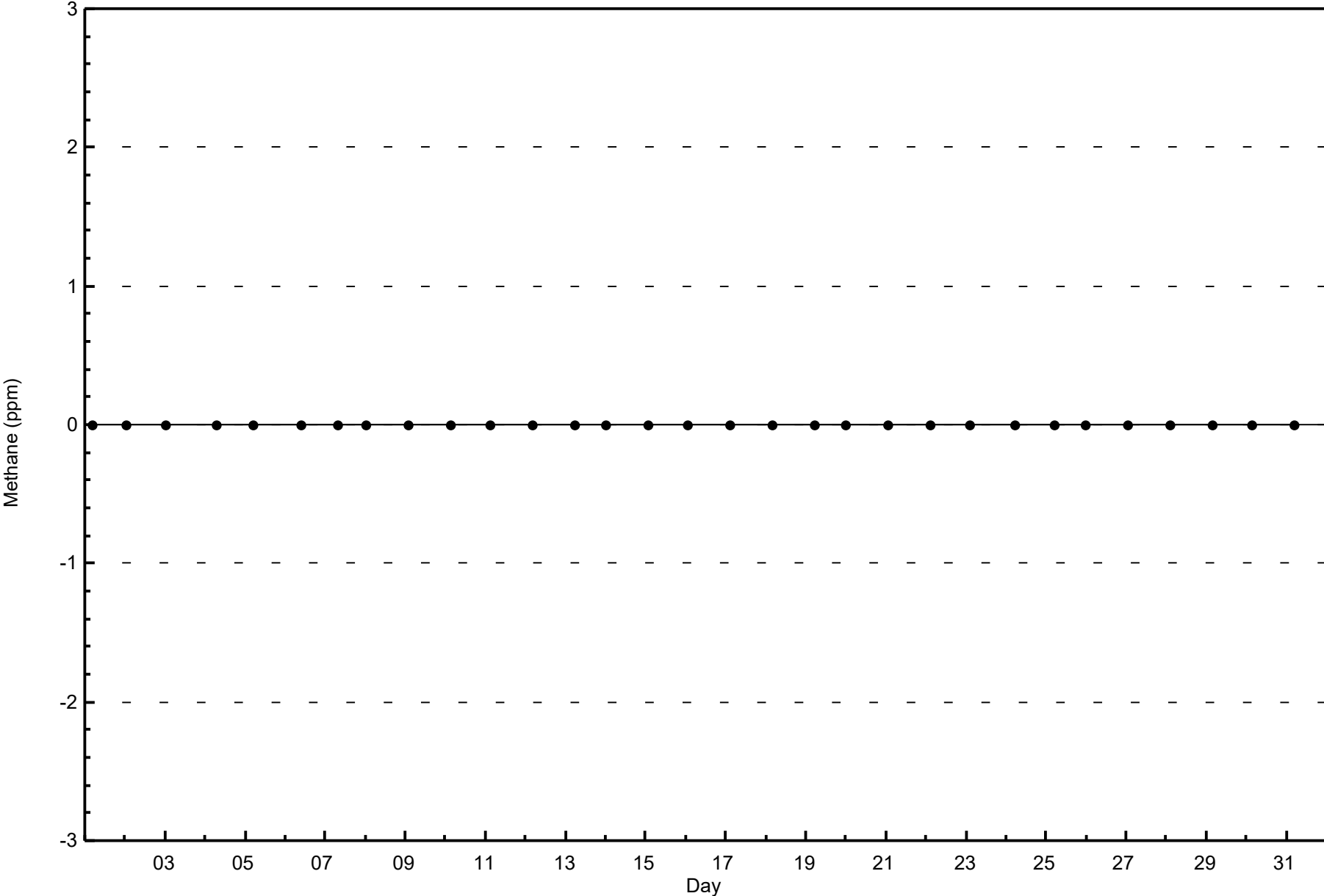
Total Number of Hours: 744

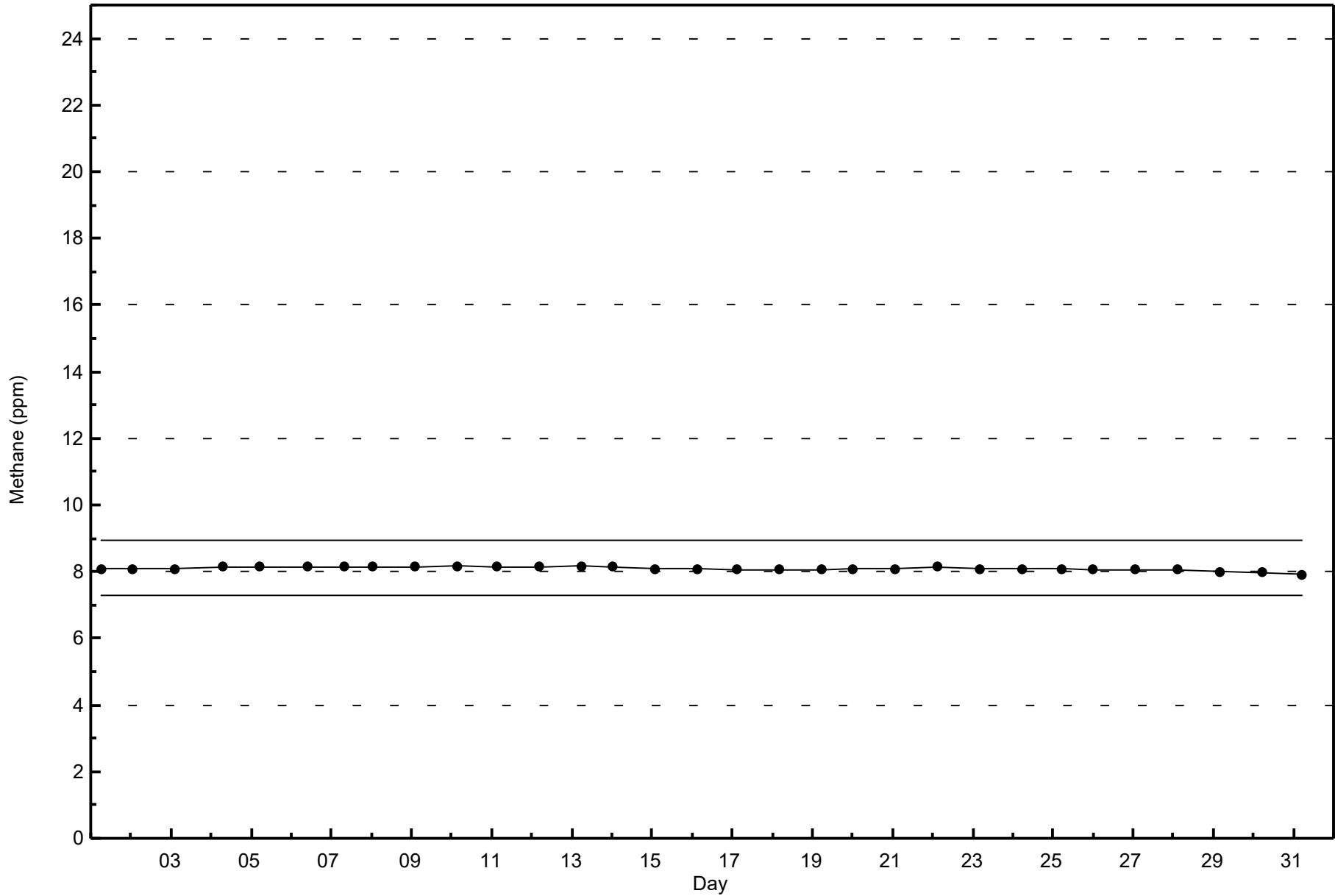


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

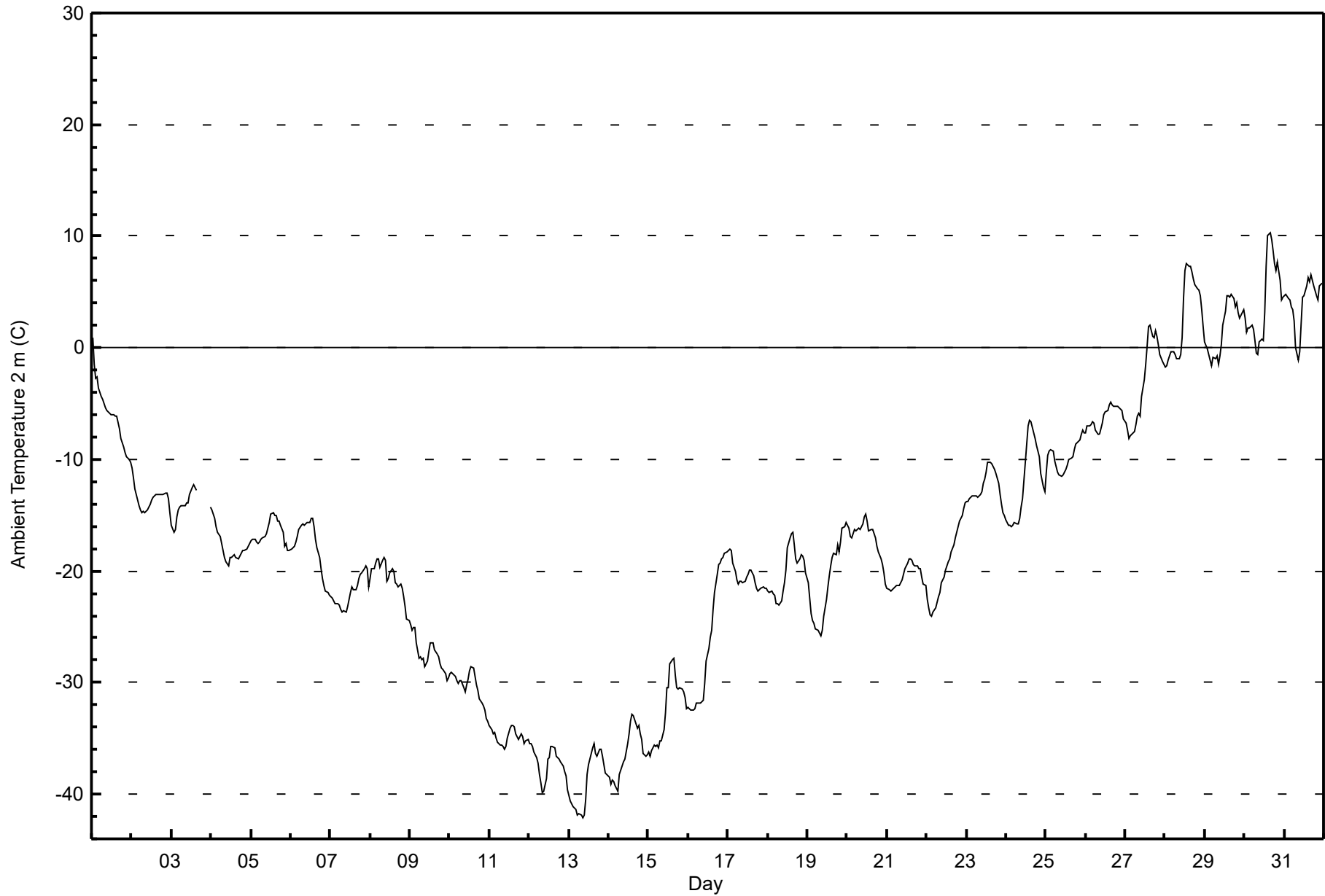








Maximum Value: 10.3 C on Jan 30 16:00		Maximum Daily Average: 4.2 C on Jan 31		Hours in Service: 744																						
Minimum Value: -42.1 C on Jan 13 09:00		Minimum Daily Average: -38.9 C on Jan 13		Hours of Data: 737																						
Maximum Diurnal Average: -15.5 C at hour 15		Minimum Diurnal Average: -19.2 C at hour 9		Hours of Missing Data: 7																						
Monthly Average: -17.53 C		Percentiles: P <sub>1</sub> = -41.0 P <sub>10</sub> = -35.5 Q <sub>1</sub> = -25.1 Median = -18.1 Q <sub>3</sub> = -9.7 P <sub>90</sub> = 0.7 P <sub>99</sub> = 7.3		Hours of Calibration: 0																						
				Percent Operational Time: 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-Jan	0.9	-1.5	-2.7	-2.6	-3.6	-4.3	-4.6	-5.1	-5.3	-5.7	-5.8	-6.0	-6.0	-6.2	-6.1	-7.3	-8.2	-8.5	-8.9	-9.3	-9.7	-10.0	-10.3	-5.9	0.9	
2-Jan	-10.8	-11.7	-12.6	-13.6	-14.1	-14.5	-14.7	-14.6	-14.8	-14.5	-14.3	-14.1	-13.7	-13.4	-13.1	-13.1	-13.2	-13.2	-13.1	-13.0	-13.0	-13.5	-14.8	-13.5	-10.8	
3-Jan	-15.9	-16.5	-16.3	-15.2	-14.5	-14.3	-14.1	-14.2	-14.2	-13.9	-13.9	-13.1	-12.6	-12.3	-12.5	-12.7	DF	DF	DF	DF	DF	DF	DF	-14.2	-	-12.3
4-Jan	-14.6	-14.9	-15.3	-16.0	-16.5	-16.9	-17.5	-18.2	-18.8	-19.2	-19.5	-18.8	-18.8	-18.6	-18.8	-18.9	-18.7	-18.4	-18.2	-18.2	-18.0	-17.8	-17.5	-17.8	-17.8	-14.6
5-Jan	-17.2	-17.2	-17.1	-17.4	-17.6	-17.4	-17.2	-17.0	-16.9	-16.7	-16.2	-15.6	-14.9	-14.7	-15.0	-15.1	-15.5	-15.6	-15.9	-16.6	-17.8	-17.6	-18.2	-18.1	-16.6	-14.7
6-Jan	-18.0	-18.0	-17.8	-17.4	-16.9	-16.3	-15.9	-15.8	-15.9	-15.8	-15.6	-15.7	-15.3	-15.3	-16.0	-17.2	-17.9	-18.8	-19.8	-20.6	-21.3	-21.8	-22.0	-22.1	-17.8	-15.3
7-Jan	-22.4	-22.4	-22.7	-22.9	-22.9	-23.1	-23.4	-23.7	-23.6	-23.7	-23.2	-22.5	-21.9	-21.5	-21.7	-21.7	-21.3	-20.7	-20.3	-20.2	-19.9	-19.6	-19.8	-21.5	-21.9	-19.6
8-Jan	-20.7	-19.7	-19.8	-19.3	-19.0	-18.9	-19.7	-19.1	-18.8	-19.1	-20.9	-20.7	-20.1	-19.9	-20.1	-21.0	-21.2	-21.4	-21.2	-21.6	-22.3	-23.2	-24.3	-24.4	-20.7	-18.8
9-Jan	-24.9	-25.4	-25.1	-25.0	-26.5	-27.8	-27.7	-27.9	-27.8	-28.5	-28.0	-27.2	-26.5	-26.5	-26.5	-27.0	-27.4	-27.7	-28.3	-28.7	-28.9	-29.2	-29.8	-29.6	-27.4	-24.9
10-Jan	-29.2	-29.1	-29.2	-29.5	-29.9	-30.1	-29.8	-29.9	-30.5	-30.8	-30.2	-29.7	-28.9	-28.6	-28.7	-29.4	-30.2	-30.7	-31.5	-31.8	-32.1	-32.5	-33.3	-33.5	-30.4	-28.6
11-Jan	-33.9	-34.3	-34.5	-34.5	-35.0	-35.3	-35.6	-35.6	-35.8	-36.0	-35.7	-35.0	-34.1	-33.8	-33.8	-34.0	-34.6	-35.0	-34.8	-34.6	-34.8	-35.4	-35.2	-35.1	-34.9	-33.8
12-Jan	-35.5	-35.5	-35.7	-36.2	-36.8	-37.3	-38.3	-39.0	-39.8	-39.7	-38.6	-36.9	-36.7	-35.8	-35.7	-35.8	-36.6	-36.8	-36.8	-37.1	-37.5	-38.0	-38.3	-39.6	-37.3	-35.5
13-Jan	-40.1	-40.7	-41.2	-41.3	-41.3	-41.8	-41.7	-41.9	-42.1	-41.8	-40.5	-38.3	-37.4	-36.4	-35.9	-35.5	-36.4	-36.6	-36.0	-36.0	-36.6	-37.4	-38.1	-38.2	-38.9	-35.5
14-Jan	-38.4	-39.0	-38.8	-38.8	-39.3	-39.7	-38.2	-37.8	-37.5	-37.1	-36.8	-35.5	-34.6	-33.4	-32.9	-33.0	-33.7	-34.1	-33.8	-34.5	-35.1	-36.3	-36.6	-36.5	-36.3	-32.9
15-Jan	-36.2	-36.6	-36.1	-35.5	-35.8	-35.6	-35.9	-35.2	-35.2	-34.2	-32.7	-30.5	-30.4	-28.3	-28.0	-27.9	-29.4	-30.4	-30.6	-30.4	-30.6	-30.8	-31.4	-32.3	-32.5	-27.9
16-Jan	-32.2	-32.4	-32.4	-32.5	-32.3	-31.9	-31.9	-31.9	-31.7	-31.5	-30.1	-28.1	-27.0	-25.9	-25.3	-23.4	-21.9	-20.3	-19.4	-19.3	-18.9	-18.8	-18.4	-18.2	-26.5	-18.2
17-Jan	-18.2	-18.1	-18.1	-19.3	-20.1	-20.8	-21.2	-21.0	-21.0	-21.0	-20.9	-20.6	-20.3	-20.0	-19.9	-20.4	-21.0	-21.5	-21.8	-21.7	-21.6	-21.4	-21.6	-21.6	-20.5	-18.1
18-Jan	-21.8	-21.9	-21.7	-22.1	-22.2	-22.9	-23.0	-23.1	-22.6	-21.8	-21.1	-19.9	-17.9	-17.0	-16.6	-16.5	-17.7	-18.9	-19.3	-18.9	-18.6	-18.7	-19.0	-20.2	-20.1	-16.5
19-Jan	-21.0	-22.4	-23.8	-24.4	-24.6	-25.1	-25.4	-25.6	-25.8	-25.4	-24.1	-22.6	-21.5	-20.4	-19.6	-18.8	-18.4	-18.5	-17.6	-18.3	-17.4	-16.2	-16.0	-15.7	-21.2	-15.7
20-Jan	-15.9	-16.1	-16.9	-17.0	-16.3	-16.4	-16.3	-16.1	-16.2	-15.8	-15.1	-15.0	-15.5	-16.4	-16.3	-16.3	-16.6	-17.0	-17.8	-18.3	-18.9	-19.4	-20.2	-21.1	-17.0	-15.0
21-Jan	-21.5	-21.7	-21.8	-21.7	-21.5	-21.4	-21.3	-21.2	-21.0	-20.8	-20.3	-19.8	-19.3	-18.9	-18.9	-19.1	-19.4	-19.5	-19.6	-19.8	-19.8	-20.5	-21.2	-21.3	-20.5	-18.9
22-Jan	-22.5	-23.3	-23.9	-24.1	-23.6	-23.3	-22.8	-22.3	-21.9	-21.1	-20.6	-19.9	-19.6	-19.2	-18.9	-18.3	-17.6	-17.0	-16.6	-16.0	-15.5	-15.1	-14.4	-13.8	-19.6	-13.8
23-Jan	-13.7	-13.8	-13.6	-13.3	-13.3	-13.2	-13.2	-13.4	-13.2	-12.9	-12.1	-11.8	-11.2	-10.3	-10.3	-10.3	-10.6	-10.9	-11.3	-12.2	-13.1	-14.0	-14.8	-15.1	-12.6	-10.3
24-Jan	-15.4	-16.0	-15.9	-16.0	-15.9	-15.7	-15.8	-15.7	-15.2	-14.3	-13.5	-10.2	-8.6	-7.0	-6.5	-6.7	-7.1	-8.1	-8.8	-9.3	-9.8	-11.3	-12.5	-12.9	-12.0	-6.5
25-Jan	-11.1	-9.6	-9.2	-9.1	-9.3	-10.1	-10.6	-11.2	-11.4	-11.5	-11.3	-11.1	-10.9	-10.5	-10.1	-9.8	-9.8	-9.2	-8.6	-8.5	-8.2	-7.8	-7.3	-7.6	-9.7	-7.3
26-Jan	-7.7	-7.0	-6.9	-6.9	-6.6	-6.7	-7.4	-7.8	-7.7	-7.3	-6.8	-6.0	-5.8	-5.6	-5.1	-4.9	-5.2	-5.2	-5.2	-5.2	-5.4	-5.5	-5.6	-6.4	-6.2	-4.9
27-Jan	-6.8	-7.4	-8.1	-7.8	-7.7	-7.6	-6.9	-6.1	-5.9	-6.1	-4.4	-2.9	-1.5	0.1	1.9	2.1	1.0	0.9	1.5	1.1	0.3	-0.6	-1.3	-1.5	-3.1	2.1
28-Jan	-1.7	-1.7	-1.1	-0.4	-0.4	-0.3	-0.7	-1.0	-1.0	-0.6	1.0	4.4	6.9	7.6	7.3	7.4	6.8	6.2	5.6	5.3	5.1	4.6	3.4	1.9	2.7	7.6
29-Jan	0.5	-0.1	-0.6	-1.2	-1.6	-0.8	-1.0	-0.7	-1.5	-0.7	0.3	2.0	3.3	4.7	4.7	4.5	4.8	4.4	3.7	4.0	3.1	2.7	3.0	3.5	1.7	4.8
30-Jan	2.6	1.4	1.7	1.8	2.1	1.7	0.7	-0.5	-0.6	0.5	0.8	0.6	3.1	7.2	10.1	10.3	9.7	8.7	7.6	6.9	7.7	6.0	4.3	4.6	4.1	10.3
31-Jan	4.6	4.7	4.5	4.3	3.7	3.5	2.4	0.1	-1.1	-0.3	2.1	4.6	4.6	5.6	6.3	5.9	6.5	6.1	5.5	4.7	4.3	5.6	5.7	5.9	4.2	6.5
																								Diurnal Average		
																								Diurnal Maximum		
DF - DAS Failure																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	297	40.30	40.30
-20 - 0	358	48.58	88.87
0 - 10	80	10.85	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744

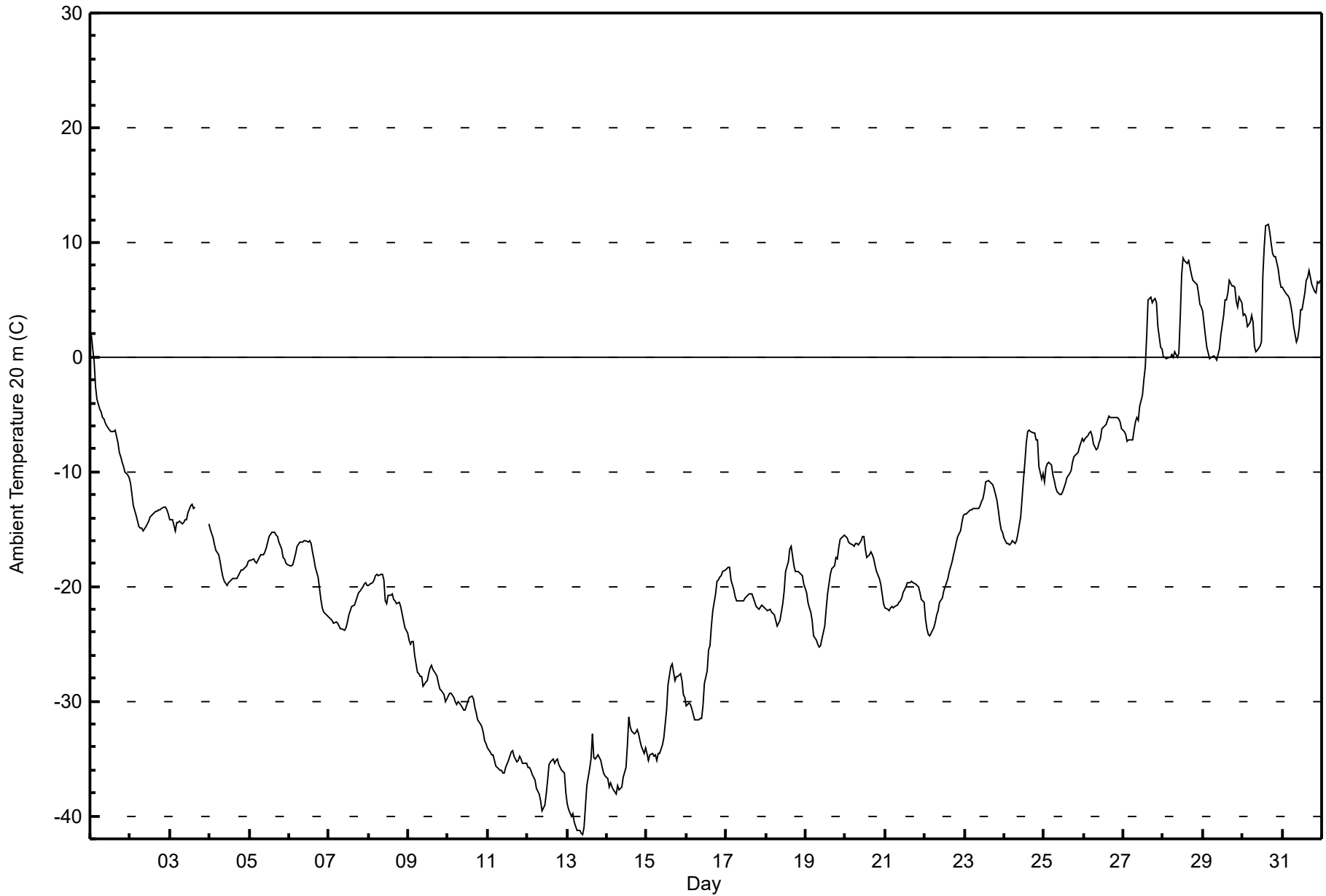


Summary of Hour Averages

Mannix - January 2024

Maximum Value: 11.6 C on Jan 30 16:00      Maximum Daily Average: 5.6 C on Jan 30																						Hours in Service: 744				
Minimum Value: -41.6 C on Jan 13 10:00      Minimum Daily Average: -37.9 C on Jan 13																						Hours of Data: 737				
Maximum Diurnal Average: -15.4 C at hour 16      Minimum Diurnal Average: -19.0 C at hour 9																						Hours of Missing Data: 7				
Monthly Average: -17.28 C      Percentiles: P <sub>1</sub> = -40.0 P <sub>10</sub> = -34.9 Q <sub>1</sub> = -24.8 Median = -18.3 Q <sub>3</sub> = -9.6 P <sub>90</sub> = 2.5 P <sub>99</sub> = 8.7																						Hours of Calibration: 0				
																						Percent Operational Time: 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-Jan	1.9	0.8	-0.3	-2.6	-3.7	-4.5	-4.8	-5.2	-5.4	-5.8	-6.0	-6.3	-6.4	-6.5	-6.5	-6.3	-7.5	-8.3	-8.7	-9.1	-9.6	-10.0	-10.2	-10.5	-5.9	1.9
2-Jan	-11.0	-11.9	-12.9	-13.8	-14.3	-14.8	-15.0	-14.9	-15.1	-14.8	-14.5	-14.3	-14.0	-13.8	-13.6	-13.5	-13.4	-13.3	-13.3	-13.2	-13.1	-13.1	-13.3	-13.7	-11.0	
3-Jan	-14.1	-14.2	-14.7	-15.2	-14.4	-14.4	-14.3	-14.6	-14.5	-14.2	-14.2	-13.6	-13.0	-12.8	-13.1	-13.1	DF	DF	DF	DF	DF	DF	DF	-14.6	-12.8	
4-Jan	-15.0	-15.4	-15.7	-16.4	-16.9	-17.3	-17.8	-18.5	-19.1	-19.5	-19.9	-19.7	-19.6	-19.4	-19.3	-19.4	-19.3	-19.0	-18.8	-18.6	-18.6	-18.3	-18.2	-17.9	-15.0	
5-Jan	-17.7	-17.7	-17.5	-17.9	-18.0	-17.7	-17.5	-17.3	-17.2	-16.9	-16.6	-16.2	-15.6	-15.3	-15.3	-15.3	-15.5	-15.7	-16.1	-16.7	-17.5	-17.6	-17.9	-18.1	-16.9	
6-Jan	-18.2	-18.2	-18.0	-17.6	-17.1	-16.5	-16.2	-16.1	-16.1	-16.0	-16.0	-16.1	-16.1	-16.3	-17.0	-17.6	-18.3	-19.2	-20.2	-21.1	-21.8	-22.3	-22.5	-22.6	-18.2	
7-Jan	-22.7	-22.8	-23.0	-23.2	-23.1	-23.2	-23.5	-23.7	-23.6	-23.9	-23.5	-23.1	-22.5	-22.1	-21.8	-21.6	-21.3	-20.9	-20.5	-20.4	-20.0	-19.7	-19.7	-19.9	-22.1	
8-Jan	-19.9	-19.8	-19.7	-19.5	-19.1	-19.0	-19.0	-18.9	-19.0	-19.4	-21.3	-21.5	-20.8	-20.7	-20.7	-21.1	-21.3	-21.5	-21.4	-21.8	-22.3	-23.0	-23.6	-24.1	-20.8	
9-Jan	-24.7	-25.1	-24.8	-24.8	-26.0	-27.5	-27.6	-27.8	-27.9	-28.7	-28.4	-28.2	-27.6	-27.2	-26.9	-27.2	-27.6	-27.8	-28.4	-28.9	-29.1	-29.5	-30.0	-29.8	-27.6	
10-Jan	-29.5	-29.3	-29.3	-29.6	-30.1	-30.3	-30.0	-30.1	-30.5	-30.7	-30.7	-30.4	-30.0	-29.7	-29.6	-29.8	-30.5	-31.0	-31.6	-31.9	-32.2	-32.7	-33.4	-33.7	-30.7	
11-Jan	-34.1	-34.5	-34.7	-34.7	-35.2	-35.6	-35.9	-36.0	-36.1	-36.3	-36.2	-35.7	-35.2	-34.8	-34.4	-34.3	-34.8	-35.3	-35.1	-34.8	-35.1	-35.4	-35.4	-35.4	-35.2	
12-Jan	-35.8	-35.8	-36.1	-36.3	-36.9	-37.6	-37.8	-38.0	-38.7	-39.5	-39.1	-38.1	-36.9	-35.6	-35.3	-35.0	-35.4	-35.1	-35.1	-35.5	-36.0	-36.2	-36.2	-37.9	-36.7	
13-Jan	-38.9	-39.4	-40.1	-39.8	-40.5	-41.0	-41.2	-41.3	-41.5	-41.6	-41.0	-39.2	-37.3	-35.9	-35.1	-32.8	-34.9	-35.0	-34.6	-34.9	-35.1	-35.8	-36.3	-36.6	-37.9	
14-Jan	-36.7	-37.5	-37.2	-37.4	-37.8	-38.1	-37.4	-37.7	-37.6	-37.4	-36.7	-35.8	-33.8	-31.4	-32.2	-32.6	-32.8	-32.7	-32.5	-32.8	-33.5	-33.9	-34.6	-34.1	-35.2	
15-Jan	-34.6	-35.2	-34.7	-34.6	-34.8	-34.7	-35.1	-34.6	-34.6	-33.8	-33.2	-32.0	-30.7	-28.6	-27.0	-26.7	-27.5	-28.2	-27.9	-27.9	-27.6	-28.2	-29.5	-29.7	-31.3	
16-Jan	-30.4	-30.2	-30.3	-30.6	-31.1	-31.7	-31.7	-31.6	-31.5	-31.5	-30.4	-28.4	-27.4	-25.5	-25.2	-23.4	-22.1	-20.6	-19.6	-19.4	-19.2	-19.1	-18.7	-18.5	-26.2	
17-Jan	-18.4	-18.3	-18.4	-19.5	-20.3	-20.9	-21.3	-21.2	-21.2	-21.3	-21.3	-21.0	-20.9	-20.7	-20.6	-20.7	-21.0	-21.3	-21.7	-21.8	-21.9	-21.7	-21.7	-21.8	-20.8	
18-Jan	-22.0	-22.1	-22.0	-22.2	-22.3	-22.5	-22.9	-23.4	-23.0	-22.2	-21.5	-20.4	-18.7	-17.8	-16.8	-16.5	-17.4	-18.2	-18.7	-18.7	-18.8	-18.9	-19.1	-19.8	-20.2	
19-Jan	-20.5	-21.3	-21.9	-22.2	-23.0	-24.3	-24.6	-25.0	-25.2	-25.2	-24.5	-23.5	-22.0	-20.6	-19.8	-18.9	-18.4	-18.3	-17.5	-17.6	-16.6	-15.9	-15.6	-15.5	-20.7	
20-Jan	-15.7	-15.7	-16.1	-16.2	-16.3	-16.5	-16.3	-16.2	-16.4	-16.0	-15.6	-15.6	-16.7	-17.5	-17.2	-17.0	-17.2	-17.6	-18.3	-18.7	-19.3	-19.8	-20.6	-21.6	-17.3	
21-Jan	-21.9	-22.0	-22.1	-21.9	-21.7	-21.8	-21.7	-21.6	-21.4	-21.3	-21.0	-20.5	-20.0	-19.7	-19.7	-19.6	-19.6	-19.7	-19.8	-20.0	-20.0	-20.6	-21.1	-21.4	-20.8	
22-Jan	-22.8	-23.6	-24.1	-24.3	-24.0	-23.6	-23.1	-22.5	-22.2	-21.4	-21.0	-20.4	-20.1	-19.7	-19.3	-18.6	-17.9	-17.2	-16.7	-16.2	-15.6	-15.1	-14.4	-13.9	-19.9	
23-Jan	-13.7	-13.7	-13.6	-13.3	-13.3	-13.1	-13.2	-13.2	-13.2	-13.0	-12.6	-12.3	-11.7	-10.9	-10.8	-10.8	-11.0	-11.1	-11.5	-12.5	-13.4	-14.3	-15.0	-15.3	-12.8	
24-Jan	-15.8	-16.3	-16.3	-16.4	-16.3	-16.0	-16.2	-16.0	-15.4	-14.6	-14.0	-10.7	-9.1	-7.5	-6.5	-6.4	-6.5	-6.6	-6.6	-7.2	-7.2	-9.6	-10.6	-10.2	-11.6	
25-Jan	-10.9	-9.7	-9.3	-9.2	-9.5	-10.3	-10.8	-11.4	-11.8	-12.0	-11.9	-11.7	-11.4	-11.0	-10.5	-10.1	-9.9	-9.2	-8.7	-8.6	-8.3	-7.9	-7.4	-7.1	-9.9	
26-Jan	-7.3	-7.0	-6.8	-6.6	-6.5	-6.9	-7.6	-8.0	-7.9	-7.5	-7.1	-6.3	-6.1	-5.9	-5.5	-5.1	-5.3	-5.3	-5.3	-5.2	-5.3	-5.3	-5.7	-6.2	-6.3	
27-Jan	-6.5	-6.7	-7.3	-7.2	-7.2	-7.2	-6.4	-5.7	-5.3	-5.5	-4.3	-3.3	-2.0	-0.9	1.8	5.0	5.2	4.7	5.0	5.1	4.7	2.7	0.9	0.7	-1.7	
28-Jan	0.0	0.0	-0.2	0.0	0.0	0.2	0.0	0.4	-0.1	0.4	3.5	7.2	8.6	8.4	8.1	8.4	7.8	7.2	6.7	6.4	6.3	5.6	4.6	4.4	3.9	
29-Jan	4.1	1.9	0.8	0.3	-0.2	0.0	0.1	0.0	-0.3	0.2	0.7	2.0	3.7	5.0	5.0	5.6	6.7	6.3	6.2	6.1	4.8	4.3	5.2	4.7	3.0	
30-Jan	3.7	3.7	3.6	2.6	3.0	3.7	3.0	1.0	0.5	0.6	1.0	1.3	7.1	9.7	11.4	11.6	10.8	9.9	9.1	8.8	8.8	7.7	6.7	6.0	5.6	
31-Jan	6.1	5.9	5.5	5.4	5.0	4.5	3.8	2.6	1.3	1.6	2.5	4.1	4.2	5.6	6.7	6.9	7.5	7.0	6.4	5.7	5.7	6.6	6.5	6.7	5.2	
																								Diurnal Average		
																								Diurnal Maximum		
-17.5 -17.8 -18.0 -18.2 -18.4 -18.7 -18.8 -18.9 -19.0 -18.9 -18.5 -17.7 -16.8 -16.1 -15.7 -15.4 -15.6 -15.8 -15.8 -16.1 -16.2 -16.6 -16.9 -17.0																								Diurnal Average		
																								Diurnal Maximum		
6.1 5.9 5.5 5.4 5.0 4.5 3.8 2.6 1.3 1.6 3.5 7.2 8.6 9.7 11.4 11.6 10.8 9.9 9.1 8.8 8.8 7.7 6.7 6.7																								Diurnal Maximum		
DF - DAS Failure																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

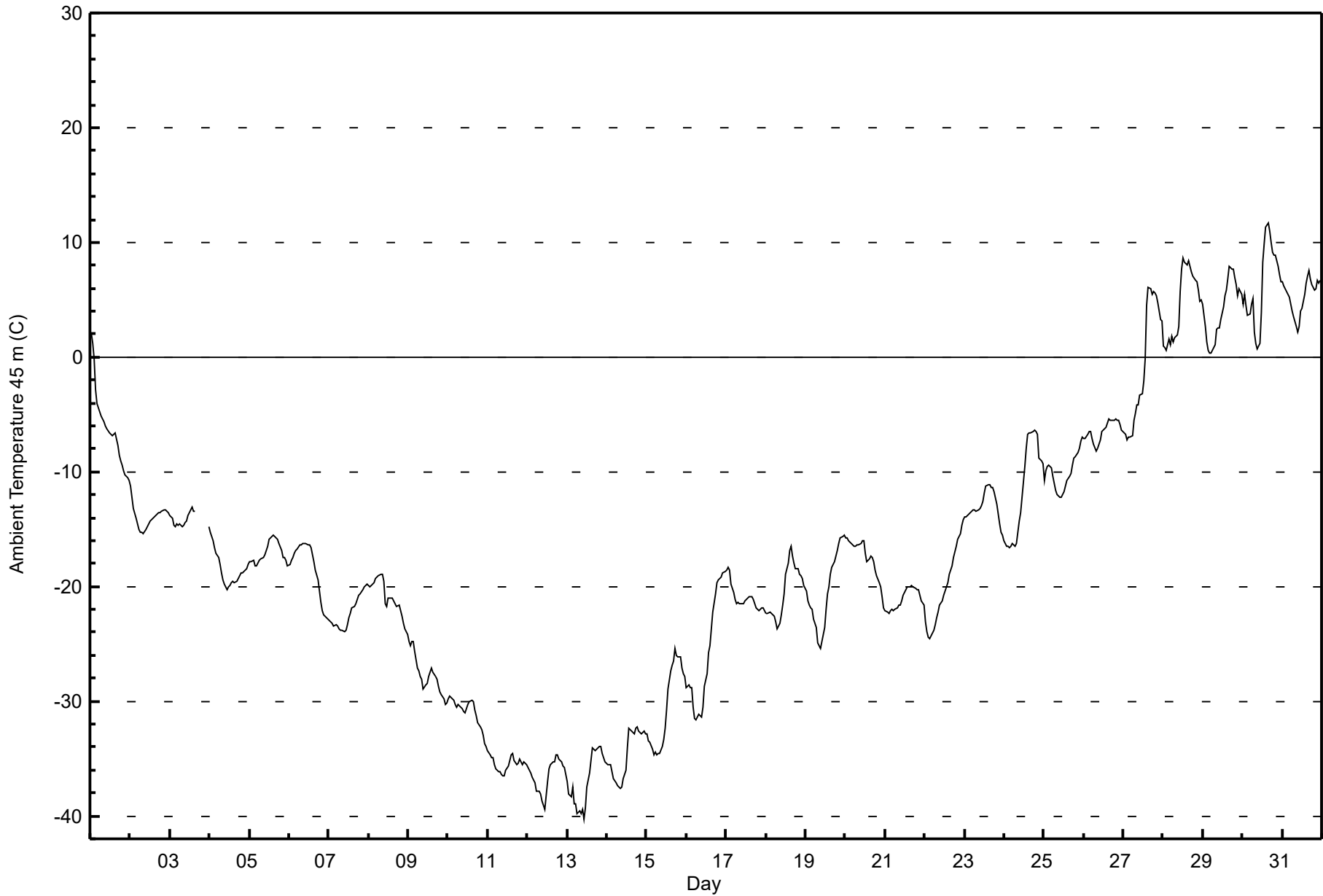
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	305	41.38	41.38
-20 - 0	332	45.05	86.43
0 - 10	97	13.16	99.59
10 - 20	3	0.41	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Value: 11.6 C on Jan 30 16:00      Maximum Daily Average: 6.3 C on Jan 30																								Hours in Service: 744		
Minimum Value: -40.3 C on Jan 13 11:00      Minimum Daily Average: -36.9 C on Jan 13																								Hours of Data: 737		
Maximum Diurnal Average: -15.5 C at hour 16      Minimum Diurnal Average: -18.8 C at hour 8																								Hours of Missing Data: 7		
Monthly Average: -17.19 C      Percentiles: P <sub>1</sub> = -38.9 P <sub>10</sub> = -34.7 Q <sub>1</sub> = -24.8 Median = -18.4 Q <sub>3</sub> = -9.6 P <sub>90</sub> = 3.7 P <sub>99</sub> = 8.8																								Hours of Calibration: 0		
																								Percent Operational Time: 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-Jan	2.1	1.3	-0.1	-2.9	-4.0	-4.8	-5.1	-5.4	-5.7	-6.0	-6.3	-6.6	-6.7	-6.8	-6.7	-6.6	-7.7	-8.6	-9.0	-9.4	-9.9	-10.3	-10.5	-10.8	-6.1	2.1
2-Jan	-11.3	-12.2	-13.2	-14.1	-14.6	-15.1	-15.3	-15.2	-15.4	-15.0	-14.8	-14.6	-14.3	-14.1	-13.9	-13.8	-13.7	-13.6	-13.5	-13.5	-13.4	-13.4	-13.5	-13.5	-14.0	-11.3
3-Jan	-13.9	-14.1	-14.6	-14.8	-14.5	-14.6	-14.6	-14.8	-14.7	-14.4	-14.3	-13.8	-13.3	-13.1	-13.4	-13.4	DF	DF	DF	DF	DF	DF	DF	DF	-	-13.1
4-Jan	-15.2	-15.6	-16.0	-16.6	-17.1	-17.5	-18.1	-18.8	-19.4	-19.8	-20.2	-20.0	-19.9	-19.7	-19.6	-19.7	-19.6	-19.3	-19.0	-18.9	-18.8	-18.6	-18.4	-18.0	-18.5	-15.2
5-Jan	-17.8	-17.8	-17.7	-18.1	-18.2	-18.0	-17.7	-17.6	-17.4	-17.2	-16.9	-16.4	-15.9	-15.6	-15.5	-15.6	-15.7	-15.9	-16.3	-16.8	-17.5	-17.5	-17.7	-18.2	-17.0	-15.5
6-Jan	-18.1	-17.7	-17.5	-17.1	-16.9	-16.7	-16.4	-16.4	-16.3	-16.2	-16.2	-16.4	-16.4	-16.6	-17.3	-17.8	-18.5	-19.5	-20.4	-21.4	-22.1	-22.5	-22.8	-22.8	-18.3	-16.2
7-Jan	-23.0	-23.1	-23.3	-23.5	-23.3	-23.4	-23.7	-23.9	-23.8	-24.0	-23.8	-23.4	-22.8	-22.4	-21.9	-21.7	-21.5	-21.2	-20.8	-20.7	-20.3	-20.0	-19.9	-19.8	-22.3	-19.8
8-Jan	-19.9	-20.0	-19.8	-19.6	-19.3	-19.1	-19.0	-18.9	-19.0	-19.6	-21.4	-21.8	-21.0	-21.0	-21.2	-21.5	-21.7	-21.7	-22.1	-22.6	-23.2	-23.7	-24.2	-20.9	-18.9	
9-Jan	-24.8	-25.1	-24.8	-24.8	-25.6	-27.1	-27.3	-27.8	-28.1	-28.9	-28.6	-28.4	-27.9	-27.5	-27.1	-27.4	-27.8	-28.1	-28.7	-29.2	-29.4	-29.8	-30.3	-30.1	-27.7	-24.8
10-Jan	-29.8	-29.6	-29.6	-29.9	-30.3	-30.6	-30.3	-30.4	-30.7	-30.9	-31.0	-30.7	-30.3	-30.0	-29.9	-30.1	-30.8	-31.2	-31.9	-32.2	-32.5	-32.9	-33.7	-34.0	-31.0	-29.6
11-Jan	-34.3	-34.7	-34.9	-34.9	-35.5	-35.9	-36.2	-36.2	-36.4	-36.6	-36.5	-36.1	-35.6	-35.2	-34.7	-34.6	-35.1	-35.6	-35.4	-35.1	-35.3	-35.5	-35.2	-35.5	-35.5	-34.3
12-Jan	-35.8	-36.0	-36.3	-36.6	-37.1	-37.8	-37.9	-37.9	-38.1	-38.7	-39.4	-38.2	-36.9	-35.9	-35.5	-35.2	-35.2	-34.7	-34.6	-35.1	-35.3	-35.6	-35.8	-36.4	-36.5	-34.6
13-Jan	-37.1	-38.1	-38.4	-37.5	-38.9	-38.9	-39.8	-39.5	-39.7	-39.5	-40.3	-39.3	-37.5	-36.3	-35.1	-34.0	-34.2	-34.3	-34.0	-33.9	-33.9	-34.5	-34.9	-35.3	-36.9	-33.9
14-Jan	-35.6	-35.5	-35.6	-36.2	-36.7	-37.1	-37.3	-37.5	-37.6	-37.5	-36.7	-36.0	-34.1	-32.3	-32.4	-32.7	-32.8	-32.4	-32.2	-32.6	-32.8	-32.8	-32.6	-32.8	-34.7	-32.2
15-Jan	-32.8	-33.5	-33.6	-34.2	-34.7	-34.4	-34.7	-34.5	-34.6	-33.9	-33.4	-32.3	-30.8	-28.9	-27.3	-26.9	-26.5	-25.4	-26.1	-26.2	-26.1	-27.1	-27.6	-27.8	-30.6	-25.4
16-Jan	-28.8	-28.6	-28.8	-28.8	-30.5	-31.5	-31.6	-31.1	-31.3	-31.4	-30.5	-28.7	-27.5	-25.8	-25.1	-23.7	-22.2	-20.6	-19.7	-19.5	-19.3	-19.2	-18.8	-18.6	-25.9	-18.6
17-Jan	-18.6	-18.3	-18.5	-19.8	-20.5	-21.1	-21.5	-21.4	-21.5	-21.6	-21.5	-21.3	-21.1	-21.0	-20.9	-20.9	-21.1	-21.4	-21.9	-22.0	-22.2	-21.9	-21.9	-22.1	-21.0	-18.3
18-Jan	-22.3	-22.4	-22.2	-22.4	-22.5	-22.6	-23.0	-23.7	-23.2	-22.4	-21.7	-20.6	-18.9	-18.0	-16.9	-16.5	-17.4	-18.0	-18.5	-18.5	-18.9	-19.1	-19.3	-19.9	-20.4	-16.5
19-Jan	-20.5	-21.2	-21.6	-21.9	-21.9	-22.9	-23.5	-24.9	-25.2	-25.4	-24.8	-23.6	-21.9	-20.6	-20.0	-19.0	-18.4	-17.9	-17.4	-16.9	-16.3	-15.8	-15.6	-15.5	-20.5	-15.5
20-Jan	-15.8	-15.8	-16.1	-16.1	-16.4	-16.5	-16.5	-16.4	-16.4	-16.2	-16.0	-16.0	-17.1	-17.8	-17.6	-17.3	-17.5	-17.9	-18.5	-19.0	-19.6	-20.1	-20.9	-21.8	-17.5	-15.8
21-Jan	-22.1	-22.3	-22.3	-22.1	-22.0	-22.1	-22.0	-21.9	-21.6	-21.6	-21.3	-20.8	-20.3	-20.0	-20.1	-20.0	-19.9	-20.0	-20.1	-20.2	-20.3	-20.8	-21.3	-21.7	-21.1	-19.9
22-Jan	-23.1	-23.9	-24.4	-24.5	-24.3	-23.9	-23.3	-22.7	-22.2	-21.6	-21.3	-20.8	-20.4	-20.0	-19.6	-19.0	-18.2	-17.5	-17.0	-16.5	-15.9	-15.4	-14.7	-14.1	-20.2	-14.1
23-Jan	-13.9	-13.9	-13.8	-13.5	-13.4	-13.3	-13.3	-13.4	-13.3	-13.2	-12.9	-12.6	-11.9	-11.3	-11.1	-11.1	-11.3	-11.4	-11.8	-12.8	-13.6	-14.5	-15.3	-15.5	-13.0	-11.1
24-Jan	-16.0	-16.5	-16.5	-16.6	-16.5	-16.3	-16.5	-16.3	-15.3	-14.2	-13.6	-10.9	-9.6	-7.9	-6.7	-6.6	-6.6	-6.4	-6.4	-6.5	-6.8	-8.8	-9.1	-9.2	-11.5	-6.4
25-Jan	-10.7	-9.9	-9.5	-9.4	-9.7	-10.4	-11.0	-11.6	-12.0	-12.2	-12.2	-10.9	-11.7	-11.3	-10.8	-10.4	-10.1	-9.4	-8.8	-8.7	-8.4	-7.9	-7.4	-6.9	-10.1	-6.9
26-Jan	-7.1	-7.1	-6.7	-6.5	-6.5	-7.0	-7.6	-8.2	-8.0	-7.6	-7.2	-6.5	-6.4	-6.2	-5.7	-5.3	-5.5	-5.5	-5.5	-5.4	-5.5	-5.5	-5.9	-6.3	-6.4	-5.3
27-Jan	-6.6	-6.8	-7.2	-6.9	-7.0	-6.8	-5.6	-4.9	-4.2	-4.2	-3.3	-3.2	-2.0	-0.1	4.5	6.1	5.9	5.5	5.8	5.6	5.4	4.8	3.3	3.1	-0.8	6.1
28-Jan	1.0	0.8	0.6	1.6	1.1	1.8	1.4	1.6	2.0	2.7	5.7	7.7	8.6	8.3	8.1	8.3	7.9	7.4	7.0	6.7	6.5	5.8	4.9	5.0	4.7	8.6
29-Jan	4.6	2.7	1.3	0.6	0.4	0.4	0.9	1.1	2.5	2.5	2.5	3.3	4.3	5.3	5.8	6.8	7.9	7.6	7.6	6.9	6.3	5.4	5.9	5.4	4.1	7.9
30-Jan	4.6	5.5	4.5	3.6	3.8	4.6	5.1	2.2	1.3	0.8	1.2	3.9	8.3	9.9	11.3	11.6	10.9	9.9	9.2	8.9	8.9	8.0	7.1	6.6	6.3	11.6
31-Jan	6.6	6.2	5.7	5.5	5.2	4.6	4.0	3.5	2.7	2.1	2.6	4.0	4.2	5.4	6.4	7.1	7.5	6.9	6.3	5.8	5.9	6.7	6.5	6.6	5.3	7.5
																								Diurnal Average		
																								Diurnal Maximum		
																								6.6    6.2    5.7    5.5    5.2    4.6    5.1    3.5    2.7    2.7    5.7    7.7    8.6    9.9    11.3    11.6    10.9    9.9    9.2    8.9    8.9    8.0    7.1    6.6		
DF - DAS Failure																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

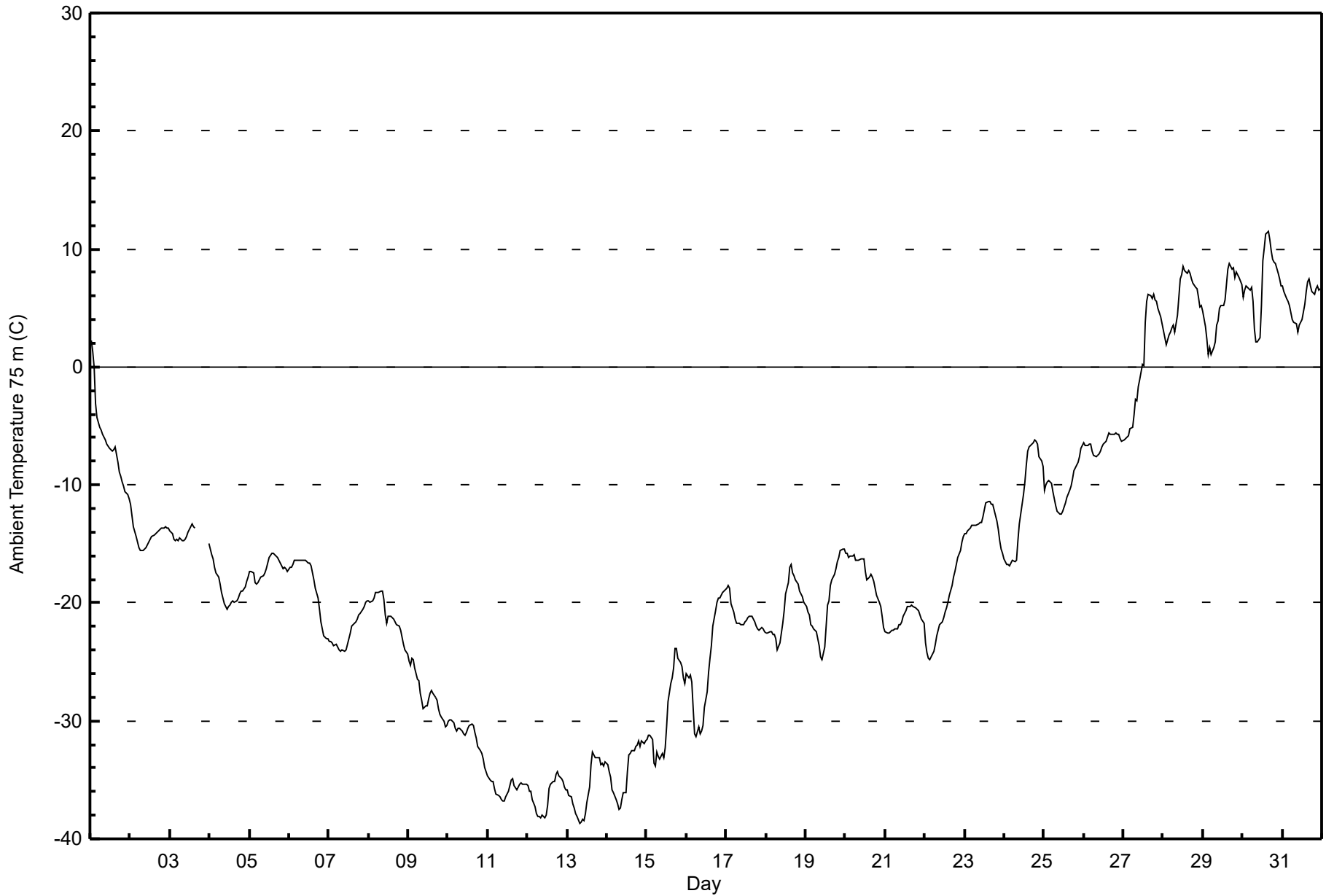
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	316	42.88	42.88
-20 - 0	313	42.47	85.35
0 - 10	105	14.25	99.59
10 - 20	3	0.41	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Value: 11.5 C on Jan 30 16:00		Maximum Daily Average: 7.2 C on Jan 30		Hours in Service: 744																						
Minimum Value: -38.7 C on Jan 13 08:00		Minimum Daily Average: -36.3 C on Jan 12		Hours of Data: 737																						
Maximum Diurnal Average: -15.5 C at hour 16		Minimum Diurnal Average: -18.5 C at hour 8		Hours of Missing Data: 7																						
Monthly Average: -17.01 C		Percentiles: P <sub>1</sub> = -38.1 P <sub>10</sub> = -34.3 Q <sub>1</sub> = -24.5 Median = -18.4 Q <sub>3</sub> = -9.8 P <sub>90</sub> = 4.7 P <sub>99</sub> = 8.9		Hours of Calibration: 0																						
				Percent Operational Time: 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-Jan	2.3	1.3	0.0	-3.1	-4.3	-5.1	-5.4	-5.7	-5.9	-6.2	-6.5	-6.9	-7.0	-7.1	-7.0	-6.8	-8.0	-8.9	-9.3	-9.8	-10.2	-10.6	-10.8	-11.1	-6.3	2.3
2-Jan	-11.6	-12.6	-13.5	-14.3	-14.9	-15.4	-15.5	-15.5	-15.6	-15.3	-15.1	-14.8	-14.6	-14.4	-14.2	-14.1	-14.0	-13.9	-13.8	-13.7	-13.6	-13.6	-13.6	-13.6	-14.2	-11.6
3-Jan	-13.9	-14.2	-14.6	-14.7	-14.6	-14.7	-14.5	-14.7	-14.7	-14.6	-14.3	-14.1	-13.5	-13.4	-13.6	-13.6	DF	DF	DF	DF	DF	DF	DF	DF	-	-13.4
4-Jan	-15.5	-15.9	-16.3	-16.9	-17.4	-17.8	-18.4	-19.1	-19.6	-20.1	-20.5	-20.3	-20.2	-20.0	-19.9	-19.9	-19.9	-19.6	-19.2	-19.0	-19.0	-18.7	-18.2	-17.8	-18.7	-15.5
5-Jan	-17.3	-17.3	-17.4	-18.3	-18.5	-18.2	-18.0	-17.8	-17.7	-17.4	-17.1	-16.7	-16.1	-15.8	-15.7	-15.9	-16.0	-16.2	-16.4	-16.8	-17.1	-17.0	-17.1	-17.4	-17.1	-15.7
6-Jan	-17.0	-16.9	-16.7	-16.4	-16.4	-16.4	-16.4	-16.4	-16.4	-16.4	-16.4	-16.6	-16.6	-16.9	-17.5	-18.0	-18.7	-19.6	-20.6	-21.6	-22.2	-22.8	-23.0	-23.1	-18.3	-16.4
7-Jan	-23.2	-23.3	-23.4	-23.6	-23.5	-23.7	-24.0	-24.1	-24.0	-24.1	-24.0	-23.5	-23.0	-22.6	-22.0	-21.8	-21.6	-21.3	-21.1	-20.9	-20.6	-20.3	-20.0	-19.9	-22.5	-19.9
8-Jan	-19.9	-19.9	-19.8	-19.6	-19.1	-19.2	-19.1	-19.0	-19.0	-19.8	-21.0	-21.7	-21.2	-21.2	-21.2	-21.4	-21.7	-21.8	-21.9	-22.3	-22.9	-23.5	-24.0	-24.3	-21.0	-19.0
9-Jan	-24.9	-25.2	-24.7	-24.8	-25.5	-26.5	-26.6	-27.6	-28.3	-29.0	-28.8	-28.7	-28.2	-27.7	-27.4	-27.7	-28.0	-28.3	-28.9	-29.5	-29.7	-30.1	-30.6	-30.4	-27.8	-24.7
10-Jan	-30.1	-29.9	-29.9	-30.2	-30.6	-30.8	-30.6	-30.7	-30.8	-31.1	-31.2	-31.0	-30.6	-30.3	-30.2	-30.4	-31.0	-31.5	-32.2	-32.5	-32.8	-33.2	-33.9	-34.2	-31.2	-29.9
11-Jan	-34.6	-35.0	-35.2	-35.2	-35.8	-36.2	-36.4	-36.4	-36.7	-36.8	-36.8	-36.4	-35.9	-35.5	-35.1	-34.9	-35.5	-35.8	-35.7	-35.4	-35.3	-35.4	-35.4	-35.4	-35.7	-34.6
12-Jan	-35.5	-36.0	-35.9	-36.7	-37.3	-37.9	-38.2	-38.1	-38.2	-38.0	-38.2	-38.0	-37.2	-35.7	-35.3	-35.1	-35.1	-34.5	-34.3	-34.6	-34.9	-35.1	-35.6	-35.9	-36.3	-34.3
13-Jan	-35.8	-36.3	-36.4	-37.1	-37.3	-37.9	-38.1	-38.7	-38.6	-38.4	-38.4	-37.9	-36.9	-35.6	-33.8	-32.7	-32.9	-33.1	-33.1	-33.1	-33.7	-33.6	-33.8	-33.5	-35.7	-32.7
14-Jan	-33.8	-34.3	-34.8	-35.8	-36.1	-36.6	-37.0	-37.5	-37.4	-36.7	-36.1	-36.1	-34.3	-32.9	-32.7	-32.6	-32.5	-32.1	-32.0	-31.6	-32.1	-31.6	-31.9	-31.7	-34.2	-31.6
15-Jan	-31.6	-31.3	-31.3	-31.6	-33.6	-33.9	-32.6	-33.0	-33.2	-32.8	-33.1	-32.3	-30.5	-28.4	-26.8	-26.3	-25.5	-23.9	-23.8	-24.7	-25.1	-25.4	-26.3	-26.8	-29.3	-23.8
16-Jan	-26.0	-26.3	-26.1	-26.7	-28.9	-31.1	-31.4	-30.5	-31.1	-30.9	-30.4	-28.9	-27.6	-25.9	-24.7	-23.7	-22.0	-20.6	-20.0	-19.6	-19.6	-19.4	-19.1	-18.9	-25.4	-18.9
17-Jan	-18.8	-18.6	-18.7	-20.1	-20.8	-21.3	-21.7	-21.7	-21.8	-21.8	-21.8	-21.6	-21.4	-21.3	-21.2	-21.2	-21.4	-21.6	-22.0	-22.2	-22.4	-22.1	-22.2	-22.4	-21.3	-18.6
18-Jan	-22.5	-22.6	-22.4	-22.4	-22.7	-22.7	-23.0	-23.9	-23.4	-22.6	-21.7	-20.7	-19.2	-18.3	-17.0	-16.7	-17.5	-17.7	-18.1	-18.4	-19.1	-19.2	-19.5	-19.9	-20.5	-16.7
19-Jan	-20.3	-20.7	-21.1	-21.9	-22.0	-22.3	-22.4	-23.1	-23.6	-24.5	-24.8	-23.8	-22.0	-20.2	-19.8	-18.5	-18.0	-17.6	-17.1	-16.5	-16.2	-15.6	-15.5	-15.4	-20.1	-15.4
20-Jan	-15.7	-15.8	-16.1	-16.1	-16.0	-15.9	-16.4	-16.4	-16.4	-16.3	-16.2	-16.3	-17.3	-18.1	-17.8	-17.6	-17.8	-18.1	-18.8	-19.3	-19.9	-20.3	-21.1	-22.1	-17.6	-15.7
21-Jan	-22.4	-22.5	-22.6	-22.4	-22.3	-22.3	-22.2	-22.2	-21.9	-21.8	-21.6	-21.1	-20.6	-20.3	-20.3	-20.3	-20.2	-20.3	-20.4	-20.5	-20.6	-21.1	-21.3	-21.8	-21.4	-20.2
22-Jan	-23.4	-24.2	-24.7	-24.8	-24.5	-24.1	-23.5	-22.9	-22.3	-21.9	-21.6	-21.2	-20.8	-20.4	-20.0	-19.3	-18.5	-17.8	-17.3	-16.8	-16.2	-15.5	-14.8	-14.4	-20.5	-14.4
23-Jan	-14.2	-14.1	-13.9	-13.7	-13.5	-13.5	-13.4	-13.4	-13.3	-13.2	-13.2	-12.8	-12.1	-11.6	-11.4	-11.4	-11.6	-11.6	-12.1	-13.0	-13.8	-14.7	-15.5	-15.8	-13.2	-11.4
24-Jan	-16.3	-16.7	-16.8	-16.8	-16.7	-16.4	-16.6	-16.4	-14.8	-13.3	-12.5	-10.8	-9.8	-8.3	-7.1	-6.8	-6.7	-6.4	-6.2	-6.3	-6.6	-7.7	-7.9	-8.4	-11.3	-6.2
25-Jan	-10.4	-10.0	-9.7	-9.6	-9.9	-10.6	-11.2	-11.8	-12.2	-12.4	-12.4	-12.2	-11.9	-11.5	-11.0	-10.5	-10.1	-9.5	-8.9	-8.6	-8.1	-7.6	-6.9	-6.7	-10.2	-6.7
26-Jan	-6.5	-6.7	-6.6	-6.6	-6.5	-7.2	-7.4	-7.7	-7.5	-7.4	-7.2	-6.7	-6.6	-6.4	-5.9	-5.5	-5.7	-5.7	-5.7	-5.6	-5.7	-5.7	-6.0	-6.3	-6.5	-5.5
27-Jan	-6.2	-6.1	-6.0	-5.8	-5.3	-5.2	-4.0	-2.7	-2.9	-1.6	-1.1	0.2	0.1	3.7	5.6	6.2	6.0	5.8	6.1	5.7	5.5	5.0	4.3	3.7	0.5	6.2
28-Jan	3.1	2.5	1.9	2.7	2.9	3.3	3.6	3.0	4.3	5.9	7.4	8.5	8.2	7.9	8.2	7.9	7.5	7.1	6.7	6.6	5.9	5.1	5.2	5.6	8.5	
29-Jan	4.7	3.5	2.4	1.1	1.7	1.1	1.6	2.1	3.5	3.9	5.0	5.2	5.2	5.6	7.0	8.3	8.7	8.2	8.4	7.6	8.0	7.9	7.5	7.0	5.2	8.7
30-Jan	5.9	6.5	6.9	6.7	6.5	6.7	5.6	3.2	2.2	2.2	2.5	5.2	9.0	10.0	11.3	11.5	10.8	9.9	9.1	8.9	8.8	8.0	7.4	6.9	7.2	11.5
31-Jan	6.8	6.4	5.8	5.6	5.2	4.6	4.0	3.8	3.6	2.9	3.6	3.8	4.1	5.4	6.4	7.3	7.5	6.9	6.4	6.1	6.6	6.8	6.6	6.6	5.5	7.5
																								Diurnal Average		
																								Diurnal Maximum		
-16.9 -17.2 -17.3 -17.7 -18.0 -18.3 -18.4 -18.5 -18.5 -18.4 -18.2 -17.7 -17.0 -16.3 -15.8 -15.5 -15.6 -15.6 -15.7 -15.9 -16.1 -16.2 -16.4 -16.5																								6.8 6.5 6.9 6.7 6.5 6.7 5.6 3.8 4.3 5.9 7.4 7.8 9.0 10.0 11.3 11.5 10.8 9.9 9.1 8.9 8.8 8.0 7.5 7.0		
DF - DAS Failure																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	321	43.55	43.56
-20 - 0	305	41.38	84.94
0 - 10	107	14.52	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

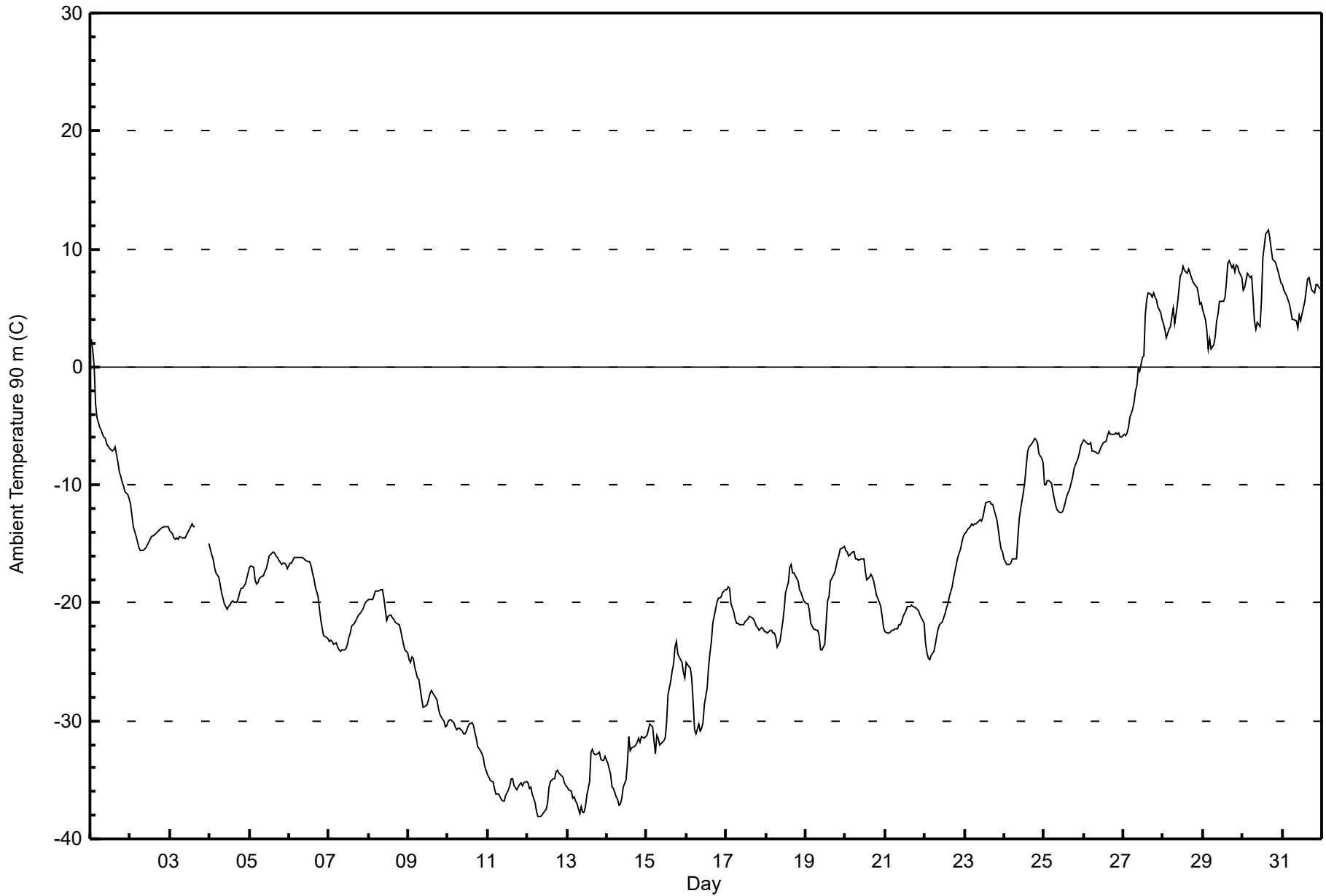
Total Number of Valid Hours: 737

Total Number of Hours: 744





Maximum Value: 11.6 C on Jan 30 16:00		Maximum Daily Average: 7.6 C on Jan 30		Hours in Service: 744																																													
Minimum Value: -38.1 C on Jan 12 09:00		Minimum Daily Average: -36.1 C on Jan 12		Hours of Data: 737																																													
Maximum Diurnal Average: -15.4 C at hour 16		Minimum Diurnal Average: -18.3 C at hour 8		Hours of Missing Data: 7																																													
Monthly Average: -16.81 C		Percentiles: P <sub>1</sub> = -37.6 P <sub>10</sub> = -33.9 Q <sub>1</sub> = -24.2 Median = -18.3 Q <sub>3</sub> = -9.8 P <sub>90</sub> = 5.0 P <sub>99</sub> = 9.0		Hours of Calibration: 0																																													
				Percent Operational Time: 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-Jan	2.4	1.5	0.1	-3.1	-4.3	-5.1	-5.4	-5.7	-5.9	-6.1	-6.5	-6.9	-7.0	-7.1	-7.0	-6.8	-8.1	-8.9	-9.3	-9.8	-10.2	-10.6	-10.9	-11.2	-6.3	2.4																							
2-Jan	-11.6	-12.6	-13.6	-14.3	-14.9	-15.3	-15.5	-15.5	-15.6	-15.3	-15.1	-14.8	-14.6	-14.4	-14.2	-14.1	-14.0	-13.9	-13.8	-13.7	-13.6	-13.5	-13.6	-13.6	-14.2	-11.6																							
3-Jan	-13.9	-14.2	-14.5	-14.6	-14.5	-14.6	-14.4	-14.5	-14.5	-14.5	-14.2	-14.0	-13.5	-13.3	-13.5	-13.6	DF	DF	DF	DF	DF	DF	DF	DF	-15.0	-13.3																							
4-Jan	-15.4	-15.9	-16.3	-16.9	-17.4	-17.8	-18.4	-19.1	-19.6	-20.1	-20.5	-20.3	-20.2	-20.0	-19.9	-19.9	-19.9	-19.6	-19.2	-18.8	-18.8	-18.5	-17.9	-17.5	-18.7	-15.4																							
5-Jan	-17.0	-16.8	-17.0	-18.0	-18.4	-18.2	-18.0	-17.8	-17.6	-17.1	-16.6	-16.1	-15.8	-15.7	-15.8	-16.0	-16.1	-16.3	-16.7	-16.6	-16.6	-16.6	-16.8	-17.1	-16.9	-15.7																							
6-Jan	-16.6	-16.6	-16.4	-16.1	-16.2	-16.1	-16.2	-16.1	-16.1	-16.3	-16.4	-16.5	-16.6	-16.8	-17.4	-17.9	-18.7	-19.5	-20.5	-21.5	-22.2	-22.7	-23.0	-23.1	-18.1	-16.1																							
7-Jan	-23.2	-23.1	-23.3	-23.5	-23.4	-23.7	-24.0	-24.1	-23.9	-24.0	-23.9	-23.5	-22.9	-22.6	-22.0	-21.7	-21.5	-21.2	-21.0	-20.9	-20.6	-20.2	-19.9	-19.8	-22.4	-19.8																							
8-Jan	-19.7	-19.7	-19.7	-19.4	-19.0	-19.1	-19.0	-18.9	-18.9	-19.6	-20.5	-21.5	-21.1	-21.1	-21.2	-21.3	-21.6	-21.8	-21.9	-22.4	-22.9	-23.5	-24.0	-24.3	-20.9	-18.9																							
9-Jan	-24.8	-25.1	-24.6	-24.7	-25.4	-26.4	-26.5	-27.3	-28.1	-28.8	-28.7	-28.6	-28.1	-27.6	-27.4	-27.6	-28.0	-28.2	-28.9	-29.5	-29.7	-30.1	-30.6	-30.4	-27.7	-24.6																							
10-Jan	-30.1	-29.9	-29.9	-30.2	-30.6	-30.8	-30.6	-30.7	-30.8	-31.1	-31.1	-30.9	-30.5	-30.3	-30.2	-30.4	-31.0	-31.5	-32.2	-32.5	-32.8	-33.2	-33.8	-34.2	-31.2	-29.9																							
11-Jan	-34.6	-35.0	-35.1	-35.1	-35.7	-36.2	-36.3	-36.4	-36.7	-36.8	-36.8	-36.3	-35.9	-35.5	-34.9	-34.9	-35.5	-35.8	-35.7	-35.4	-35.3	-35.5	-35.3	-35.1	-35.7	-34.6																							
12-Jan	-35.2	-35.7	-35.7	-36.2	-36.9	-37.6	-38.1	-38.1	-38.1	-37.9	-37.6	-37.5	-36.9	-35.6	-35.1	-34.9	-34.9	-34.4	-34.1	-34.4	-34.7	-34.8	-35.2	-35.5	-36.1	-34.1																							
13-Jan	-35.6	-35.9	-36.0	-36.6	-36.4	-36.8	-37.1	-37.9	-37.3	-37.7	-37.8	-37.3	-36.3	-35.1	-32.6	-32.4	-32.8	-32.8	-32.8	-32.7	-33.2	-33.4	-33.4	-33.0	-35.1	-32.4																							
14-Jan	-33.5	-34.0	-34.6	-35.6	-35.8	-36.4	-36.6	-37.2	-37.0	-36.5	-35.6	-35.0	-33.6	-31.4	-32.5	-32.3	-32.2	-32.0	-31.8	-31.4	-31.8	-31.3	-31.5	-31.3	-33.8	-31.3																							
15-Jan	-31.2	-30.7	-30.2	-30.5	-31.7	-32.8	-31.2	-31.5	-32.1	-31.8	-31.6	-31.5	-30.1	-27.7	-26.6	-25.7	-25.1	-23.7	-23.3	-24.3	-24.8	-25.0	-25.9	-26.3	-28.6	-23.3																							
16-Jan	-25.0	-25.4	-25.5	-26.4	-28.4	-30.8	-31.1	-30.3	-30.8	-30.6	-30.2	-28.6	-27.2	-25.4	-24.2	-23.3	-21.8	-20.5	-20.0	-19.6	-19.6	-19.5	-19.2	-18.9	-25.1	-18.9																							
17-Jan	-18.8	-18.6	-18.7	-20.1	-20.8	-21.4	-21.8	-21.7	-21.8	-21.9	-21.9	-21.6	-21.5	-21.3	-21.2	-21.2	-21.4	-21.7	-21.9	-22.1	-22.3	-22.1	-22.2	-22.4	-21.3	-18.6																							
18-Jan	-22.5	-22.5	-22.4	-22.3	-22.6	-22.5	-22.9	-23.8	-23.3	-22.4	-21.6	-20.6	-19.2	-18.3	-17.0	-16.7	-17.4	-17.4	-17.7	-18.2	-18.9	-19.1	-19.5	-19.8	-20.4	-16.7																							
19-Jan	-20.1	-20.1	-20.6	-21.7	-21.9	-22.2	-22.3	-22.3	-22.8	-23.9	-24.0	-23.5	-21.7	-19.8	-19.5	-18.2	-17.9	-17.4	-17.0	-16.4	-16.1	-15.4	-15.3	-15.1	-19.8	-15.1																							
20-Jan	-15.5	-15.6	-16.0	-15.9	-15.7	-15.7	-16.3	-16.3	-16.3	-16.3	-16.3	-16.3	-17.3	-18.0	-17.9	-17.6	-17.8	-18.1	-18.8	-19.3	-19.9	-20.3	-21.1	-22.1	-17.5	-15.5																							
21-Jan	-22.4	-22.5	-22.6	-22.4	-22.3	-22.3	-22.2	-22.2	-21.9	-21.8	-21.6	-21.1	-20.6	-20.3	-20.3	-20.3	-20.2	-20.3	-20.4	-20.5	-20.6	-21.0	-21.2	-21.7	-21.4	-20.2																							
22-Jan	-23.4	-24.2	-24.7	-24.8	-24.5	-24.1	-23.5	-22.8	-22.2	-21.9	-21.6	-21.2	-20.9	-20.5	-20.1	-19.4	-18.6	-17.9	-17.4	-16.8	-16.2	-15.4	-14.8	-14.3	-20.5	-14.3																							
23-Jan	-14.2	-14.0	-13.8	-13.6	-13.3	-13.4	-13.3	-13.3	-13.1	-13.0	-13.1	-12.7	-11.6	-11.4	-11.4	-11.6	-11.6	-12.1	-13.0	-13.8	-14.7	-15.5	-15.7	-13.1	-11.4																								
24-Jan	-16.2	-16.7	-16.7	-16.8	-16.6	-16.3	-16.3	-16.2	-14.4	-12.8	-11.9	-10.6	-9.7	-8.3	-7.2	-6.7	-6.6	-6.3	-6.0	-6.2	-6.4	-7.4	-7.7	-8.1	-11.2	-6.0																							
25-Jan	-10.0	-10.0	-9.7	-9.6	-9.9	-10.5	-11.2	-11.8	-12.1	-12.4	-12.2	-11.9	-11.5	-11.0	-10.3	-9.9	-9.3	-8.7	-8.3	-7.8	-7.2	-6.6	-6.4	-10.0	-6.4																								
26-Jan	-6.2	-6.3	-6.5	-6.5	-6.4	-7.1	-7.2	-7.3	-7.4	-7.3	-6.9	-6.7	-6.5	-6.3	-5.8	-5.5	-5.7	-5.7	-5.7	-5.6	-5.7	-5.6	-6.0	-6.0	-6.3	-5.5																							
27-Jan	-5.7	-5.8	-5.6	-5.1	-4.3	-3.5	-3.0	-2.0	-1.6	-0.1	-0.3	0.8	0.9	4.4	5.7	6.3	6.1	6.0	6.3	5.9	5.7	5.1	4.6	4.0	1.0	6.3																							
28-Jan	3.7	3.1	2.4	3.1	3.4	4.2	4.9	3.7	5.3	6.5	7.7	8.0	8.6	8.2	7.9	8.2	8.0	7.6	7.3	6.9	6.8	6.1	5.3	5.4	5.9	8.6																							
29-Jan	4.8	4.0	3.0	1.5	2.3	1.5	1.9	2.6	3.9	4.5	5.5	5.5	5.6	5.9	7.2	8.8	9.0	8.5	8.7	8.0	8.7	8.6	8.1	7.6	5.7	9.0																							
30-Jan	6.5	6.8	7.3	8.0	7.6	7.7	5.9	3.9	3.2	3.7	3.4	5.6	9.3	10.1	11.3	11.6	10.9	9.9	9.2	9.0	8.9	8.1	7.6	7.1	7.6	11.6																							
31-Jan	7.0	6.5	6.0	5.7	5.3	4.8	4.1	4.0	3.9	3.3	4.4	3.9	4.5	5.5	6.5	7.4	7.6	7.0	6.5	6.3	7.0	7.0	6.7	6.6	5.7	7.6																							
																								-16.7	-16.9	-17.1	-17.5	-17.7	-18.0	-18.1	-18.3	-18.2	-18.1	-17.9	-17.5	-16.9	-16.2	-15.7	-15.4	-15.6	-15.6	-15.6	-15.8	-15.9	-16.1	-16.3	-16.4	Diurnal Average	
																								7.0	6.8	7.3	8.0	7.6	7.7	5.9	4.0	5.3	6.5	7.7	8.0	9.3	10.1	11.3	11.6	10.9	9.9	9.2	9.0	8.9	8.6	8.1	7.6	Diurnal Maximum	
DF - DAS Failure																																																	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	320	43.42	43.42
-20 - 0	305	41.38	84.80
0 - 10	108	14.65	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



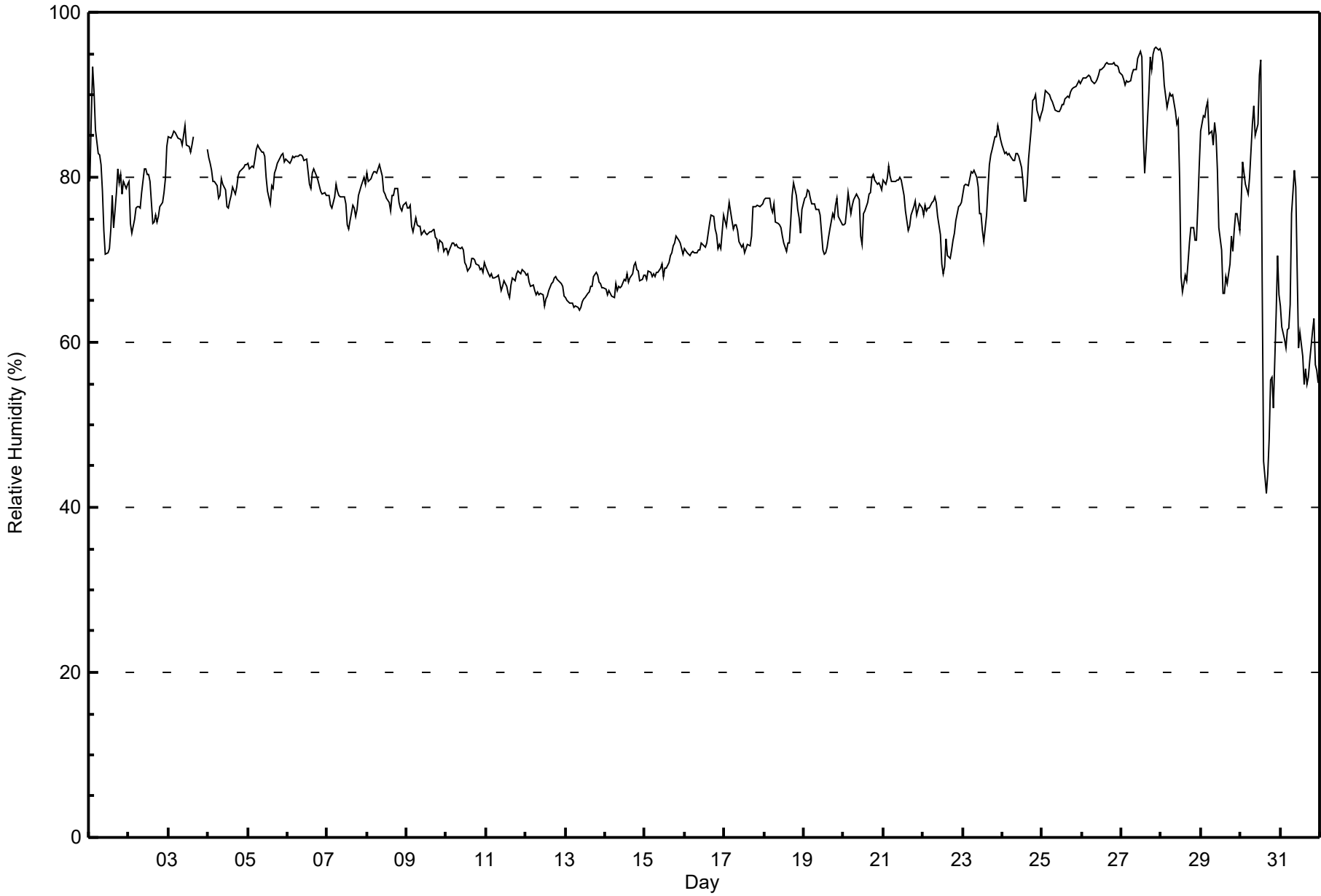
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

Mannix - January 2024

Maximum Value: 96 % on Jan 27 22:00										Maximum Daily Average: 92.8 % on Jan 26										Hours in Service: 744																												
Minimum Value: 42 % on Jan 30 16:00										Minimum Daily Average: 62.1 % on Jan 31										Hours of Data: 737																												
Maximum Diurnal Average: 78.4 % at hour 9										Minimum Diurnal Average: 73.0 % at hour 15										Hours of Missing Data: 7																												
Monthly Average: 76.5 %										Percentiles: P <sub>1</sub> = 55 P <sub>10</sub> = 67 Q <sub>1</sub> = 71 Median = 77 Q <sub>3</sub> = 81 P <sub>90</sub> = 89 P <sub>99</sub> = 95										Hours of Calibration: 0																												
																				Percent Operational Time: 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-Jan	79	87	93	90	86	83	83	81	78	74	71	71	71	74	78	74	78	81	79	80	78	79	79	79	79.5	93																						
2-Jan	80	74	73	75	76	76	76	76	78	81	81	80	80	80	74	75	75	75	75	76	77	78	80	84	77.4	84																						
3-Jan	85	85	85	86	86	85	85	85	84	85	86	84	84	83	84	85	DF	DF	DF	DF	DF	DF	DF	83	--	86																						
4-Jan	82	82	81	80	79	79	77	78	80	79	78	76	76	77	78	79	78	79	80	81	81	81	81	81	79.4	82																						
5-Jan	82	81	81	81	82	83	84	84	83	83	83	80	78	77	79	79	81	81	82	82	83	83	82	82	81.5	84																						
6-Jan	82	82	82	83	82	83	83	83	83	83	82	82	81	79	79	80	81	80	80	79	78	78	78	78	80.8	83																						
7-Jan	78	78	77	76	78	79	78	78	78	78	78	77	74	74	75	77	76	75	76	78	79	80	80	79	77.2	80																						
8-Jan	81	80	80	80	81	81	81	82	81	80	78	78	77	77	76	78	78	79	79	77	76	76	77	77	78.6	82																						
9-Jan	76	76	77	74	73	75	74	74	74	73	74	73	73	73	73	73	74	73	72	71	72	72	71	71	73.5	77																						
10-Jan	71	71	71	72	72	72	72	71	71	71	71	70	69	69	69	70	70	70	70	69	69	69	69	70	70.4	72																						
11-Jan	69	68	68	68	68	68	68	68	67	66	67	68	67	66	65	67	68	67	68	69	68	68	69	69	67.7	69																						
12-Jan	68	68	67	67	67	66	66	66	66	66	66	64	65	66	66	67	67	68	68	68	67	67	67	66	66.6	68																						
13-Jan	65	65	65	65	65	64	64	64	64	64	65	65	65	66	66	67	67	68	68	68	67	67	67	67	65.8	68																						
14-Jan	66	66	66	66	66	65	67	66	67	67	67	68	68	68	67	68	68	69	70	69	69	68	68	68	67.3	70																						
15-Jan	68	68	69	68	68	68	68	68	68	69	70	68	69	69	70	71	71	72	72	73	72	72	71	71	69.7	73																						
16-Jan	71	71	71	70	71	71	71	71	71	71	72	72	71	72	73	74	75	75	74	73	71	72	71	75	72.1	75																						
17-Jan	75	74	76	77	75	74	74	74	74	74	72	72	72	71	71	72	72	73	76	76	77	77	76	77	74.2	77																						
18-Jan	77	77	77	77	76	76	77	75	74	74	74	73	72	71	72	72	75	78	79	78	76	75	73	76	75.2	79																						
19-Jan	77	78	78	78	78	77	77	76	76	76	75	71	71	71	72	73	74	76	75	77	77	75	75	74	75.3	78																						
20-Jan	74	74	76	78	76	77	77	78	78	77	73	72	76	76	77	78	78	80	80	80	79	79	79	78	77.1	80																						
21-Jan	80	79	80	81	80	79	79	80	80	80	80	80	78	76	75	74	74	75	76	77	75	76	77	76	77.8	81																						
22-Jan	75	77	76	76	76	77	77	78	77	75	73	70	68	69	72	70	70	71	72	73	75	76	77	77	74.1	78																						
23-Jan	78	79	79	79	80	81	80	81	80	79	76	76	74	72	75	79	81	83	83	85	85	86	85	85	80.0	86																						
24-Jan	84	83	83	83	83	83	82	82	83	83	83	81	80	77	79	82	86	89	90	90	90	88	87	88	83.5	90																						
25-Jan	88	89	90	90	90	89	89	89	88	88	88	88	89	89	89	90	90	91	91	91	91	91	92	91	89.6	92																						
26-Jan	92	92	92	92	92	92	92	91	92	92	92	93	93	93	94	94	94	94	94	94	94	94	93	93	92.8	94																						
27-Jan	92	92	91	92	92	92	93	93	93	93	94	95	95	85	81	83	90	95	93	95	96	96	95	96	92.1	96																						
28-Jan	95	94	91	88	89	90	90	90	88	86	87	80	68	66	68	68	70	72	74	74	72	72	76	81	80.5	95																						
29-Jan	86	87	87	89	89	85	86	84	87	85	81	74	71	66	66	68	67	70	73	71	74	76	76	74	77.9	89																						
30-Jan	77	82	81	79	78	80	83	86	89	85	87	92	94	67	46	42	44	48	55	56	52	64	70	66	71.0	94																						
31-Jan	64	62	60	59	62	62	65	76	81	79	69	59	61	58	55	57	55	56	58	61	63	57	57	55	62.1	81																						
																								78.0	78.1	78.2	78.1	77.9	77.8	78.0	78.3	78.4	77.9	77.1	75.9	75.2	73.5	73.0	73.6	74.1	75.4	76.1	76.3	76.1	76.4	76.6	77.0	Diurnal Average
																								95	94	93	92	92	92	93	93	93	93	94	95	95	93	94	94	94	95	94	95	96	96	95	96	Diurnal Maximum
DF - DAS Failure																																																





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

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

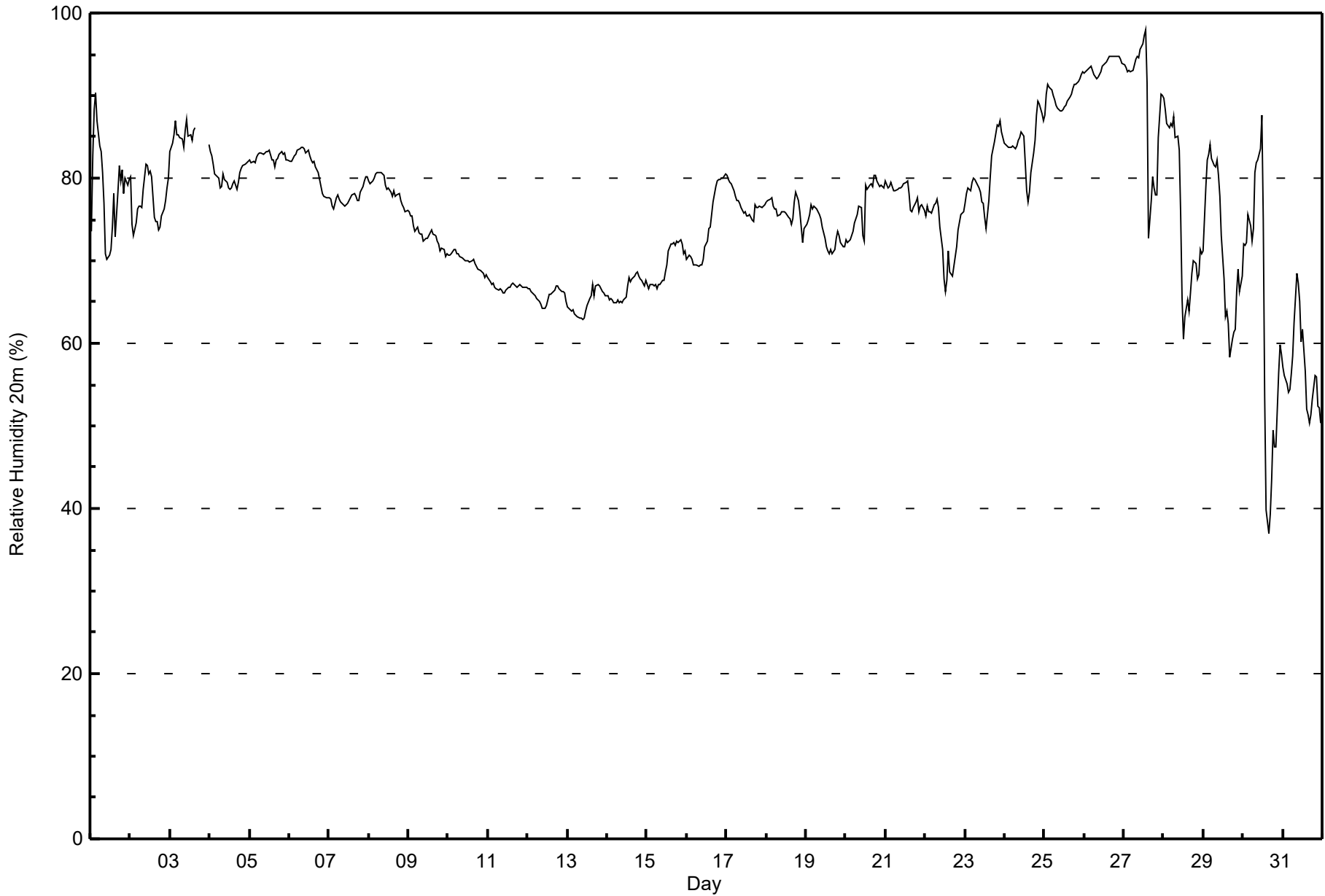
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	18	2.44	2.44
60 - 80	492	66.76	69.20
80 - 100	227	30.80	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Value: 98 % on Jan 27 14:00										Maximum Daily Average: 93.7 % on Jan 26										Hours in Service: 744						
Minimum Value: 37 % on Jan 30 16:00										Minimum Daily Average: 56.6 % on Jan 31										Hours of Data: 737						
Maximum Diurnal Average: 77.4 % at hour 9										Minimum Diurnal Average: 73.1 % at hour 17										Hours of Missing Data: 7						
Monthly Average: 75.8 %										Percentiles: P <sub>1</sub> = 50 P <sub>10</sub> = 65 Q <sub>1</sub> = 70 Median = 77 Q <sub>3</sub> = 82 P <sub>90</sub> = 87 P <sub>99</sub> = 95										Hours of Calibration: 0						
																				Percent Operational Time: 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-Jan	74	83	88	90	87	84	83	81	77	71	70	71	71	74	78	73	78	82	80	81	78	80	79	80	78.9	90
2-Jan	80	74	73	75	76	77	77	76	79	82	81	81	81	80	75	75	75	74	74	75	76	77	79	80	77.2	82
3-Jan	83	84	85	87	85	85	85	85	84	86	87	85	85	85	86	86	DF	DF	DF	DF	DF	DF	DF	84	--	87
4-Jan	83	83	82	81	80	80	80	79	79	80	80	79	79	79	80	79	80	79	81	81	82	82	82	82	80.3	83
5-Jan	82	82	82	82	83	83	83	83	83	83	83	83	83	82	82	81	82	82	83	83	83	83	82	82	82.6	83
6-Jan	82	82	82	83	83	83	84	84	84	84	83	83	83	82	82	82	81	81	80	79	78	78	78	78	81.5	84
7-Jan	78	78	77	76	78	78	78	77	77	77	77	77	77	78	78	78	78	77	77	78	79	80	80	80	77.8	80
8-Jan	80	79	80	80	80	81	81	81	81	80	79	79	79	78	78	78	78	78	78	77	77	76	76	76	78.7	81
9-Jan	76	75	75	74	74	74	73	73	73	72	73	73	73	73	74	73	73	72	72	71	72	71	71	71	73.0	76
10-Jan	71	71	71	71	71	71	71	71	70	70	70	70	70	70	70	70	70	69	69	69	69	69	68	68	69.9	71
11-Jan	68	67	67	67	67	67	67	67	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	67	66.9	68
12-Jan	67	67	66	66	66	65	65	65	65	64	64	65	65	66	66	66	66	67	67	67	66	66	66	65	65.8	67
13-Jan	64	64	64	64	64	63	63	63	63	63	63	64	65	65	66	67	66	67	67	67	67	66	66	66	64.9	67
14-Jan	66	65	65	65	65	65	65	65	65	65	65	66	67	68	67	68	68	68	69	68	68	68	67	68	66.5	69
15-Jan	67	67	67	67	67	67	67	67	67	68	68	69	69	71	72	72	72	72	72	73	72	71	71	71	69.4	73
16-Jan	70	71	70	70	70	69	69	69	70	69	70	72	72	74	74	76	77	79	80	80	80	80	80	80	73.8	80
17-Jan	80	80	80	79	78	78	77	77	77	76	76	76	75	75	76	75	75	77	77	77	77	77	77	77	77.0	80
18-Jan	77	77	77	78	77	76	76	75	76	76	76	76	76	75	75	74	75	77	78	77	76	74	72	74	75.9	78
19-Jan	74	75	76	77	76	77	76	76	76	75	74	73	72	71	71	71	71	71	73	74	73	72	72	72	73.6	77
20-Jan	73	72	72	73	74	75	75	76	77	76	73	72	79	79	79	79	79	80	80	80	79	79	79	79	76.6	80
21-Jan	80	79	79	80	79	79	79	79	79	79	79	79	80	80	78	76	76	76	77	78	76	77	77	76	78.1	80
22-Jan	75	77	76	76	76	77	77	77	76	74	71	68	66	68	71	69	68	69	71	72	74	76	76	76	73.1	77
23-Jan	77	78	79	78	79	80	80	79	79	78	77	77	75	74	77	80	83	84	84	86	86	87	86	85	80.4	87
24-Jan	84	84	84	84	84	84	84	84	84	85	86	85	82	79	77	78	81	83	85	88	89	89	88	87	84.0	89
25-Jan	88	90	91	91	91	90	89	89	88	88	88	88	89	89	89	90	90	91	91	91	92	92	93	93	90.1	93
26-Jan	93	93	93	93	94	93	92	92	92	93	93	94	94	94	94	95	95	95	95	95	95	95	94	94	93.7	95
27-Jan	94	93	93	93	93	93	94	94	95	95	96	96	97	98	92	73	77	80	79	78	78	85	90	90	89.4	98
28-Jan	90	88	87	86	87	86	87	85	85	83	76	65	60	63	65	64	66	69	70	70	68	68	71	71	75.4	90
29-Jan	71	79	82	83	84	82	82	81	82	80	78	73	68	63	64	62	58	60	61	62	66	69	66	68	71.9	84
30-Jan	72	72	72	76	74	72	74	81	82	82	84	88	75	54	40	37	39	44	49	47	47	57	60	59	64.0	88
31-Jan	57	56	55	54	54	56	58	63	68	67	65	60	62	57	52	51	50	51	53	56	56	52	52	50	56.6	68
																								Diurnal Average		
																								Diurnal Maximum		
76.6 76.9 77.1 77.4 77.2 77.1 77.1 77.2 77.4 77.0 76.5 75.8 75.4 74.5 74.0 73.2 73.1 74.1 74.6 74.9 74.8 75.4 75.4 75.7																										
94 93 93 93 94 93 94 94 95 95 96 96 97 98 94 95 95 95 95 95 95 95 94 94																										
DF - DAS Failure																										







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

**Relative Humidity 20m (RH20m) - %**  
**Mannix - January 2024**

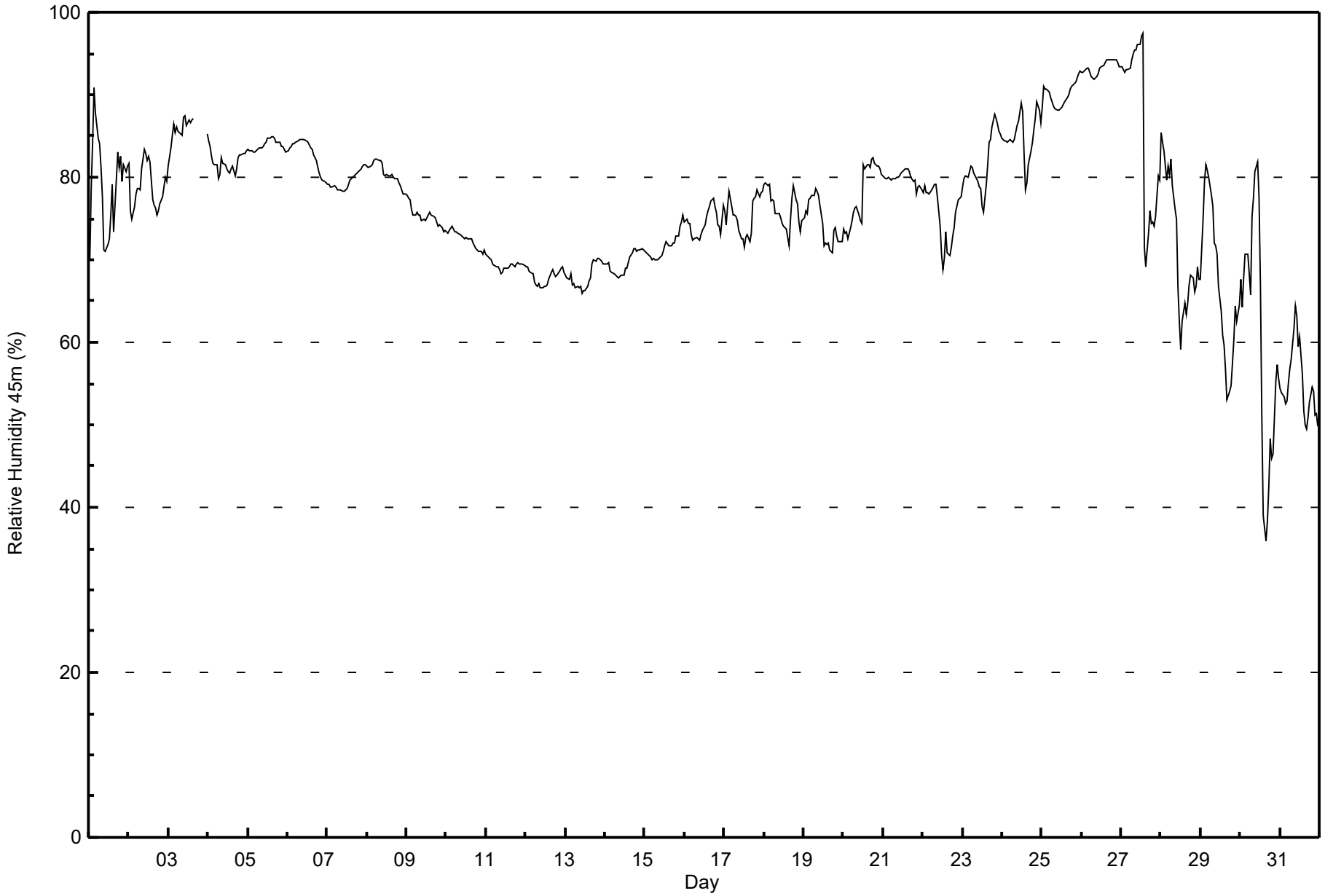
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	3	0.41	0.41
40 - 60	27	3.66	4.07
60 - 80	486	65.94	70.01
80 - 100	221	29.99	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Value: 97 % on Jan 27 14:00														Maximum Daily Average: 93.3 % on Jan 26														Hours in Service: 744	
Minimum Value: 36 % on Jan 30 16:00														Minimum Daily Average: 54.9 % on Jan 31														Hours of Data: 737	
Maximum Diurnal Average: 78.2 % at hour 4														Minimum Diurnal Average: 73.8 % at hour 16														Hours of Missing Data: 7	
Monthly Average: 76.4 %														Percentiles: P <sub>1</sub> = 50 P <sub>10</sub> = 67 Q <sub>1</sub> = 71 Median = 77 Q <sub>3</sub> = 82 P <sub>90</sub> = 87 P <sub>99</sub> = 94														Hours of Calibration: 0	
																												Percent Operational Time: 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-Jan	70	79	84	91	88	85	84	81	78	71	71	72	73	75	79	73	80	83	81	83	80	82	81	81	79.3	91			
2-Jan	82	76	75	76	78	79	79	79	81	83	83	82	83	82	77	77	76	75	76	77	78	79	80	79	78.8	83			
3-Jan	81	84	85	87	85	86	86	85	85	87	87	86	87	87	87	87	DF	DF	DF	DF	DF	DF	DF	85	87				
4-Jan	84	84	83	82	82	81	80	80	82	82	82	81	81	81	81	81	80	81	82	83	83	83	83	83	81.8	84			
5-Jan	83	83	83	83	83	83	83	84	84	84	84	84	84	85	85	85	85	85	84	84	84	84	83	83	83.9	85			
6-Jan	83	83	84	84	84	84	84	85	85	85	85	84	84	84	84	83	83	82	81	81	80	80	79	79	82.9	85			
7-Jan	79	79	79	79	79	79	79	78	78	78	78	79	79	79	80	80	80	80	81	81	81	81	82	82	79.5	82			
8-Jan	81	81	81	82	82	82	82	82	82	82	80	80	80	80	80	80	80	80	80	79	79	79	78	78	80.5	82			
9-Jan	78	77	77	76	75	75	76	75	75	75	75	75	75	75	76	76	75	75	75	74	74	74	73	74	75.3	78			
10-Jan	73	73	74	74	74	73	73	73	73	73	73	73	73	72	73	73	72	72	71	71	71	71	71	71	72.5	74			
11-Jan	71	70	70	70	70	69	69	69	69	68	69	69	69	69	69	70	69	69	69	70	70	69	70	69	69.4	71			
12-Jan	69	69	69	69	68	67	67	67	67	67	67	67	67	67	68	68	69	68	68	68	69	69	69	68	67.9	69			
13-Jan	68	68	68	68	67	67	67	67	67	66	66	66	66	67	68	70	70	70	70	70	70	70	69	69	68.0	70			
14-Jan	70	69	70	69	69	68	68	68	68	68	68	68	69	69	70	71	71	71	71	71	71	71	71	71	69.6	71			
15-Jan	71	71	71	70	70	70	70	70	70	70	71	72	72	72	72	72	72	72	72	73	73	74	75	75	71.6	75			
16-Jan	75	75	74	74	73	72	73	73	73	72	73	74	74	75	76	76	77	77	76	76	74	74	73	77	74.5	77			
17-Jan	76	74	76	78	76	75	75	75	75	74	72	73	72	73	73	72	73	77	77	78	78	78	78	78	75.4	78			
18-Jan	79	79	79	79	77	77	77	76	76	76	75	74	74	74	73	72	75	77	79	77	77	75	73	75	76.0	79			
19-Jan	75	76	76	77	77	78	78	79	78	78	77	74	72	72	72	72	71	71	73	74	73	72	72	72	74.5	79			
20-Jan	74	73	73	73	74	75	76	76	76	75	75	74	82	81	82	82	81	82	82	82	81	81	81	80	78.0	82			
21-Jan	80	80	80	80	80	80	80	80	80	80	80	81	81	81	81	81	81	80	80	80	78	79	79	79	79.9	81			
22-Jan	78	79	78	78	78	78	79	79	79	78	74	71	69	70	73	71	71	72	73	74	76	77	77	78	75.4	79			
23-Jan	79	80	80	80	81	81	81	80	80	79	79	79	76	76	79	82	84	85	86	88	87	86	86	85	81.6	88			
24-Jan	85	84	84	84	84	85	84	85	85	86	87	89	88	83	78	79	82	83	84	86	87	89	88	87	84.9	89			
25-Jan	88	91	91	91	90	90	89	89	88	88	88	88	88	89	89	90	90	91	91	91	92	92	92	93	90.0	93			
26-Jan	93	93	93	93	93	93	92	92	92	92	93	93	93	94	94	94	94	94	94	94	94	94	94	93	93.3	94			
27-Jan	93	93	93	93	93	93	94	95	95	95	96	96	97	97	72	69	73	76	74	75	74	75	80	80	86.4	97			
28-Jan	85	84	83	80	81	80	82	79	76	75	67	63	59	63	65	63	65	67	68	68	66	67	69	68	71.8	85			
29-Jan	68	75	79	82	81	80	78	76	72	72	71	67	64	61	60	57	53	54	55	57	60	64	63	65	67.2	82			
30-Jan	68	64	68	71	71	68	66	75	77	81	82	78	67	51	39	36	38	43	48	46	46	55	57	56	60.4	82			
31-Jan	54	54	53	53	53	55	57	58	62	64	63	59	61	56	52	50	49	51	53	54	54	51	51	50	54.9	64			
														77.2 77.5 77.8 78.2 78.0 77.8 77.7 77.7 77.7 77.6 77.0 76.4 76.0 75.5 74.3 73.8 74.0 74.8 75.2 75.4 75.3 75.9 76.0 76.2														Diurnal Average	
														93 93 93 93 93 93 94 95 95 95 96 96 97 97 94 94 94 94 94 94 94 94 94 94 93														Diurnal Maximum	
DF - DAS Failure																													





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

**Relative Humidity 45m (RH45m) - %**  
**Mannix - January 2024**

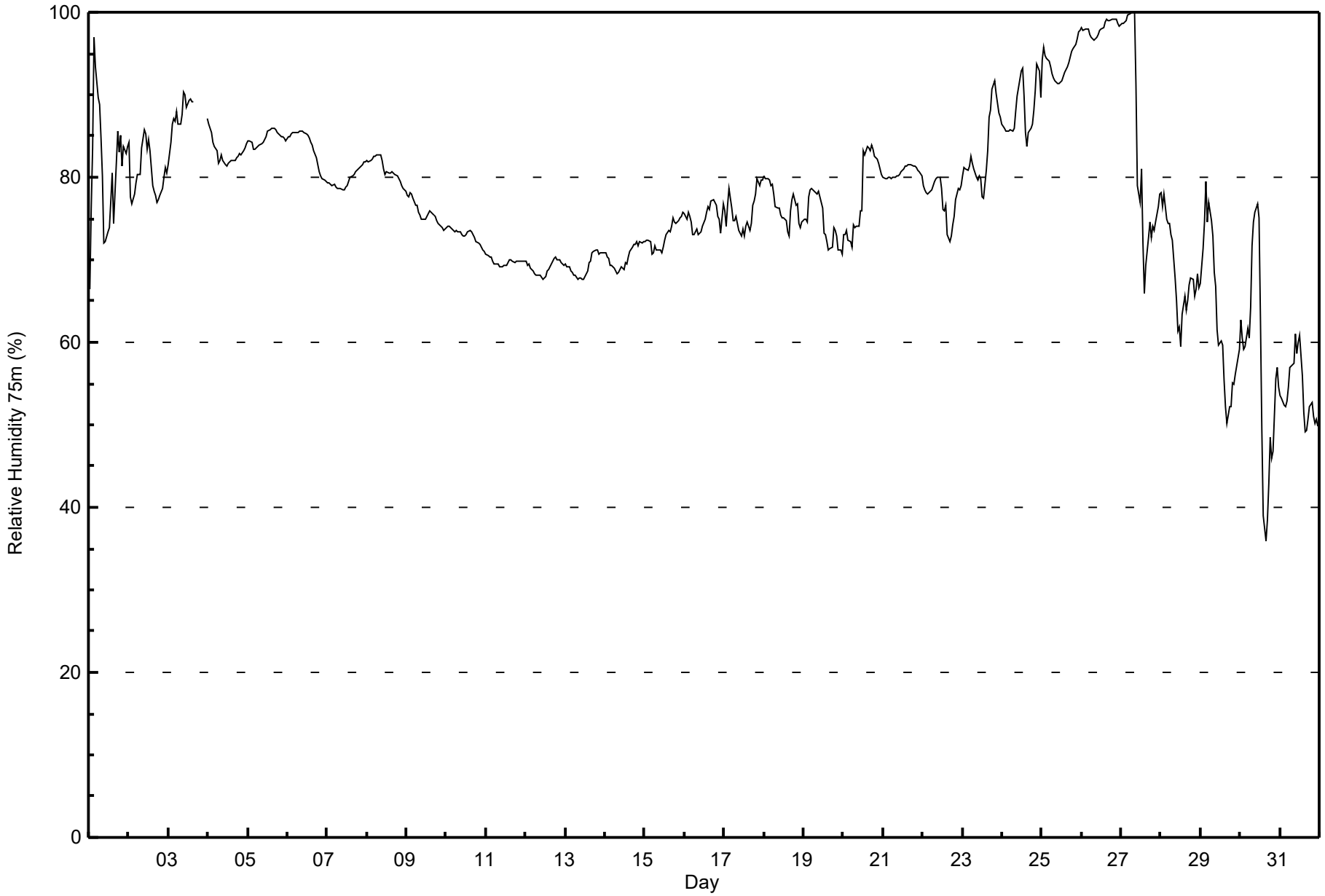
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	3	0.41	0.41
40 - 60	35	4.75	5.16
60 - 80	439	59.57	64.72
80 - 100	260	35.28	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Value: 100 % on Jan 27 07:00      Maximum Daily Average: 98.1 % on Jan 26																			Hours in Service: 744 Hours of Data: 737 Hours of Missing Data: 7 Hours of Calibration: 0 Percent Operational Time: 99.1							
Minimum Value: 36 % on Jan 30 16:00      Minimum Daily Average: 53.9 % on Jan 31 Maximum Diurnal Average: 78.8 % at hour 4      Minimum Diurnal Average: 74.8 % at hour 16 Monthly Average: 77.0 %      Percentiles: P <sub>1</sub> = 49 P <sub>10</sub> = 68 Q <sub>1</sub> = 72 Median = 77 Q <sub>3</sub> = 83 P <sub>90</sub> = 90 P <sub>99</sub> = 99																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	66	76	83	97	93	90	89	85	80	72	72	73	74	77	81	74	82	86	83	85	81	84	83	84	81.3	97
2-Jan	84	78	77	78	79	80	80	80	84	86	85	83	85	83	79	78	78	77	77	78	79	80	81	80	80.4	86
3-Jan	81	84	86	87	87	88	86	86	88	90	90	89	89	89	89	89	DF	DF	DF	DF	DF	DF	DF	87	90	
4-Jan	87	86	85	84	84	83	82	82	83	82	82	81	82	82	82	82	82	82	83	83	83	83	84	84	83.0	87
5-Jan	84	84	84	83	83	84	84	84	84	84	85	85	86	86	86	86	86	86	85	85	85	85	85	84	84.7	86
6-Jan	85	85	85	86	86	86	85	86	86	86	86	85	85	85	84	84	83	82	82	81	80	80	80	79	83.7	86
7-Jan	79	79	79	79	79	79	79	79	79	78	79	79	79	79	80	80	80	81	81	81	81	82	82	82	79.8	82
8-Jan	82	82	82	82	83	83	83	83	83	82	81	80	81	81	81	81	80	80	80	80	79	79	79	78	81.0	83
9-Jan	78	78	78	78	77	77	77	76	75	75	75	75	75	76	76	76	75	75	75	74	74	74	74	74	75.7	78
10-Jan	74	74	74	74	74	73	74	73	73	73	73	73	73	73	73	73	73	72	72	72	72	71	71	71	73.0	74
11-Jan	71	70	70	70	70	70	70	69	69	69	69	69	69	70	70	70	70	70	70	70	70	70	70	70	69.8	71
12-Jan	70	69	70	69	69	68	68	68	68	68	68	68	68	69	69	69	70	70	70	70	70	69	69	69	69.0	70
13-Jan	69	69	69	69	68	68	68	68	68	68	68	68	68	69	70	70	71	71	71	71	71	71	71	71	69.3	71
14-Jan	71	70	70	69	69	69	69	68	68	69	69	69	70	70	71	71	72	72	72	72	72	72	72	72	70.3	72
15-Jan	72	72	72	72	71	71	72	71	71	71	71	71	72	73	73	73	74	75	75	74	75	75	75	76	72.9	76
16-Jan	76	75	76	75	75	73	73	74	73	73	73	74	75	76	76	76	77	77	77	77	75	75	73	77	75.0	77
17-Jan	76	74	77	79	76	75	75	75	74	74	73	74	73	74	75	74	74	77	77	78	80	79	80	80	75.8	80
18-Jan	80	80	80	80	79	79	78	77	76	76	75	75	75	75	73	73	76	77	78	77	77	74	74	75	76.6	80
19-Jan	75	75	75	78	78	79	78	78	78	78	78	76	73	73	72	71	71	72	74	74	73	71	71	71	74.7	79
20-Jan	73	73	74	72	72	71	74	74	74	74	76	76	83	83	84	84	83	84	83	83	82	82	81	80	78.1	84
21-Jan	80	80	80	80	80	80	80	80	80	80	80	81	81	81	81	81	82	81	81	81	81	81	81	80	80.6	82
22-Jan	79	78	78	78	78	78	79	79	80	80	80	80	79	76	76	77	73	72	73	74	75	77	79	79	77.4	80
23-Jan	80	81	81	81	81	83	82	81	80	80	80	80	78	77	81	83	87	88	91	92	90	89	88	87	83.4	92
24-Jan	86	86	86	86	86	86	86	86	88	90	91	93	93	90	85	84	85	86	87	88	90	94	93	90	88.0	94
25-Jan	94	96	95	94	94	93	93	92	92	91	91	91	92	92	93	93	94	95	95	96	96	97	98	98	93.9	98
26-Jan	98	98	98	98	98	97	97	97	97	97	97	98	98	98	99	99	99	99	99	99	99	99	99	98	98.1	99
27-Jan	99	99	99	99	100	100	100	100	100	91	79	77	81	72	66	69	73	75	73	74	74	75	76	78	84.4	100
28-Jan	78	76	78	75	74	74	73	72	68	65	61	62	60	63	66	64	65	67	68	68	66	67	68	67	68.5	78
29-Jan	67	71	75	79	75	77	75	73	68	67	62	60	60	60	55	52	50	52	52	55	55	56	57	59	63.0	79
30-Jan	63	61	59	60	62	60	64	72	75	76	77	75	63	50	39	36	38	43	48	46	47	56	57	55	57.5	77
31-Jan	54	53	52	52	53	55	57	57	57	61	59	60	61	56	52	49	49	51	52	53	51	50	51	50	53.9	61
77.8 77.9 78.3 78.8 78.5 78.3 78.3 78.2 78.0 77.6 76.9 76.7 76.7 76.0 75.4 74.8 75.1 75.9 76.2 76.3 76.2 76.6 76.6 76.9																								Diurnal Average		
99 99 99 99 100 100 100 100 100 97 97 98 98 98 99 99 99 99 99 99 99 99 99 98																								Diurnal Maximum		
DF - DAS Failure																										





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

**Relative Humidity 75m (RH75m) - %**  
**Mannix - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	3	0.41	0.41
40 - 60	44	5.97	6.38
60 - 80	412	55.90	62.28
80 - 100	275	37.31	99.59

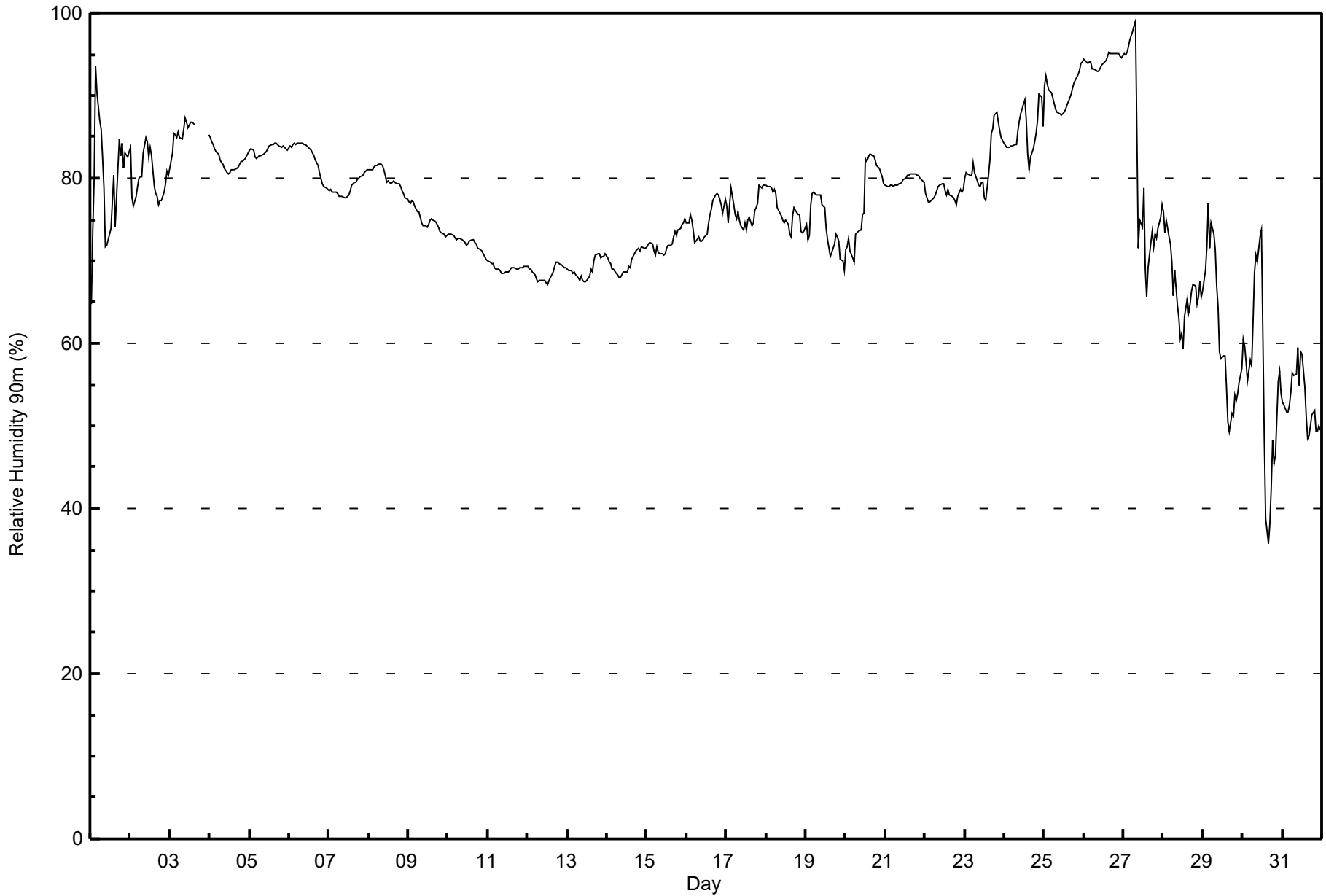
Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Value: 99 % on Jan 27 08:00														Maximum Daily Average: 94.2 % on Jan 26														Hours in Service: 744	
Minimum Value: 36 % on Jan 30 16:00														Minimum Daily Average: 52.9 % on Jan 31														Hours of Data: 737	
Maximum Diurnal Average: 77.5 % at hour 4														Minimum Diurnal Average: 74.0 % at hour 16														Hours of Missing Data: 7	
Monthly Average: 75.9 %														Percentiles: P <sub>1</sub> = 49 P <sub>10</sub> = 66 Q <sub>1</sub> = 71 Median = 77 Q <sub>3</sub> = 82 P <sub>90</sub> = 87 P <sub>99</sub> = 95														Hours of Calibration: 0	
																												Percent Operational Time: 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-Jan	65	74	80	94	90	87	86	83	79	72	72	73	74	77	80	74	81	85	83	84	81	83	83	83	80.1	94			
2-Jan	84	78	77	78	79	80	80	80	83	85	84	83	84	83	79	78	78	77	77	77	78	79	81	80	80.0	85			
3-Jan	81	83	86	85	85	86	85	85	86	87	87	86	87	87	87	87	DF	DF	DF	DF	DF	DF	DF	85	87				
4-Jan	85	84	84	84	83	83	82	82	82	81	81	81	81	81	81	81	81	81	82	82	82	82	83	83	82.1	85			
5-Jan	83	84	83	83	82	83	83	83	83	83	83	84	84	84	84	84	84	84	84	84	84	84	84	83	83.5	84			
6-Jan	84	84	84	84	84	84	84	84	84	84	84	84	84	83	83	83	82	82	81	80	79	79	79	79	82.6	84			
7-Jan	78	79	78	78	78	78	78	78	78	78	78	78	78	78	79	79	80	80	80	80	80	81	81	81	78.9	81			
8-Jan	81	81	81	81	82	82	82	82	82	81	80	80	80	79	80	80	79	79	79	79	78	78	78	77	80.0	82			
9-Jan	77	77	77	77	77	76	76	75	75	74	74	74	74	75	75	75	75	74	74	74	73	73	73	73	74.9	77			
10-Jan	73	73	73	73	73	73	73	73	73	72	72	72	72	72	73	73	72	72	72	71	71	71	70	70	72.2	73			
11-Jan	70	70	70	70	69	69	69	69	69	68	68	69	69	69	69	69	69	69	69	69	69	69	69	69	69.1	70			
12-Jan	69	69	69	69	68	68	68	68	68	68	68	67	67	68	68	69	69	70	70	70	70	69	69	69	68.5	70			
13-Jan	69	69	69	68	69	68	68	68	68	68	67	67	68	68	69	69	70	71	71	71	71	70	71	71	69.0	71			
14-Jan	70	70	70	69	69	68	68	68	68	68	69	69	69	69	70	71	71	71	71	72	71	72	72	72	69.8	72			
15-Jan	72	72	72	72	71	71	72	71	71	71	71	71	72	72	72	72	73	74	73	74	74	74	75	75	72.3	75			
16-Jan	75	75	76	75	74	72	72	73	72	72	72	73	73	75	76	76	77	78	78	78	77	77	76	78	75.0	78			
17-Jan	77	75	77	79	77	76	75	76	75	74	74	75	74	75	74	75	76	76	76	77	79	79	79	79	76.1	79			
18-Jan	79	79	79	79	78	79	78	76	76	76	75	75	75	74	73	73	75	76	76	76	76	74	73	74	76.0	79			
19-Jan	74	73	73	77	78	78	78	78	78	78	77	76	74	73	72	70	71	72	73	73	72	70	70	69	74.0	78			
20-Jan	71	72	73	71	70	70	73	73	74	74	76	76	82	82	83	83	83	83	82	82	81	81	80	79	77.2	83			
21-Jan	79	79	79	79	79	79	79	79	79	79	79	80	80	80	80	80	81	81	80	80	80	80	80	79	79.7	81			
22-Jan	78	78	77	77	77	78	78	79	79	79	79	79	79	78	79	78	78	78	77	77	78	79	78	79	78.1	79			
23-Jan	80	81	80	80	80	82	81	80	79	79	80	79	78	77	80	82	85	86	88	88	87	86	85	85	82.0	88			
24-Jan	84	84	84	84	84	84	84	84	86	87	88	89	90	87	83	81	83	84	84	85	87	90	90	86	85.4	90			
25-Jan	91	92	91	91	90	90	89	88	88	88	88	88	88	88	89	90	90	91	91	92	93	93	94	94	90.3	94			
26-Jan	94	94	94	94	94	93	93	93	93	93	93	94	94	94	95	95	95	95	95	95	95	95	95	95	94.2	95			
27-Jan	95	95	95	96	97	98	98	99	85	71	75	74	79	69	66	69	72	74	72	73	73	74	75	77	81.3	99			
28-Jan	76	73	75	73	72	70	66	69	65	63	61	61	59	63	65	64	65	66	67	67	65	66	67	66	66.8	76			
29-Jan	66	69	72	77	72	75	73	71	67	64	59	58	58	58	55	50	49	51	51	54	53	54	55	57	61.2	77			
30-Jan	60	60	58	55	58	57	63	68	71	70	73	74	61	49	39	36	38	43	48	46	47	55	54	55.8	74				
31-Jan	53	53	52	52	52	54	56	56	56	59	55	59	59	55	51	48	49	50	51	52	49	49	50	49	52.9	59			
																								Diurnal Average					
																								Diurnal Maximum					
76.6 76.6 77.0 77.5 77.2 77.0 77.1 77.1 76.4 75.7 75.5 75.7 75.6 75.0 74.4 74.0 74.3 75.0 75.3 75.3 75.1 75.5 75.7 75.8																													
95 95 95 96 97 98 98 99 93 93 93 94 94 94 95 95 95 95 95 95 95 95 95 95																													
DF - DAS Failure																													







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 90m (RH90m) - %  
Mannix - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	3	0.41	0.41
40 - 60	52	7.06	7.46
60 - 80	437	59.29	66.76
80 - 100	245	33.24	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



Maximum Speed: 31 km/h on Jan 30 16:00	Maximum Daily Speed Average: 13.2 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 14 14:00	Minimum Daily Speed Average: 0.5 km/h on Jan 14	Hours of Data: 737
Maximum Diurnal Speed Average: 1.9 km/h at hour 5	Minimum Diurnal Speed Average: 0.0 km/h at hour 19	Hours of Missing Data: 7
Monthly Average Velocity: 0.2 km/h 348.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 12 P <sub>90</sub> = 16 P <sub>99</sub> = 24	Percent Operational Time: 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-Jan	NW6	NW6	NW7	NNE14	NNE14	NNE16	NNW13	NNW16	N11	N8	NNE5	NNE7	NNW6	NNW7	NW6	NW8	NNE9	NE8	NNE9	NNE8	NNE6	NNE8	NNE9	NNE10	N8.2	NNW16
2-Jan	NNE11	NNE14	NNE12	N10	NNE9	NE10	NNE9	NE9	N5	NNE4	ENE5	ESE5	ESE4	S4	SSW4	SSW5	S5	SSE5	SSE5	SSE7	S5	S6	S6	SSW7	ENE2.5	NNE14
3-Jan	SW5	WSW4	W3	WNW3	SE1	SSW3	S4	S7	S8	S4	SE5	N4	N11	N10	NNW8	N10	DF	DF	DF	DF	DF	DF	DF	NNW12	----	NNW12
4-Jan	NNW12	NNW13	NNW15	NNW17	NNW15	N14	N16	NNE21	N17	N12	NNE11	N9	NNE10	N8	N7	N8	NNE13	N10	N9	N8	N8	N9	N7	NNW4	N11.2	NNE21
5-Jan	NW6	NNW5	NW4	WNW8	WNW11	WNW9	WNW8	W8	W7	W8	WSW6	W5	W3	N4	NE2	NE5	NE5	NNE6	NNE8	NNE8	N6	NNW4	N7	NW4.1	WNW11	
6-Jan	N8	N9	N9	N9	N11	N11	N10	N12	N12	N13	N15	N14	N17	N16	NNW15	N18	N16	N17	N17	N16	NNW16	N11	N11	N13	N13.1	N18
7-Jan	N12	N12	N13	NNE13	NNE11	NNE10	N10	N6	N4	WNW4	W4	WSW2	SW3	SSE5	SSE8	S8	SSE9	S9	SSE11	SSE13	SSE13	SSE12	SSE12	SSE10	ESE1.8	SSE13
8-Jan	SSE12	SSE12	SSE9	SSE11	SSE11	SSE9	SSW3	WSW4	W4	NW6	NW11	NW9	N12	NNW9	NW8	NW6	N6	WNW5	N5	NNE7	NE8	NE5	N4	NNW7	N1.2	SSE12
9-Jan	N8	N4	NNE5	NE9	NNE8	NNE8	NNE10	NNE8	NE11	NNE8	NNE8	NNW9	NNW10	N12	N14	N12	N15	NNE19	NNE18	NNE15	N13	N13	NNE15	NNE13	NNE10.7	NNE19
10-Jan	N8	NNE9	NNE14	NNE13	NNE13	NNE9	N9	N11	NNW6	NNW6	NNW4	NNW4	NW6	NNW7	NNW6	NNE8	NNE9	N9	NNE8	NNE9	NNE9	NNE10	NNE13	NNE14	N8.3	NNE14
11-Jan	NNE13	NNE12	NNE13	NNE14	NNE12	NNE13	N10	N9	NNE8	NNE13	NNE10	NNW5	NW5	NW5	N3	NNE4	NE7	NE7	N2	W3	W4	W3	WSW5	WSW8	N6.1	NNE14
12-Jan	WSW8	WSW9	WSW8	WSW5	WSW6	SW8	SSW6	SSW6	S7	S9	S6	SSE6	SSE4	SSE6	SSE8	SSE7	S7	S8	S7	S7	S6	S6	SSE7	SSE7	S5.6	SSE9
13-Jan	S6	SSE5	S6	SSE8	SSE7	SSE8	SSW7	SE4	S5	S7	S6	S4	SSE3	SSE4	SSE4	SSE1	SE2	S2	SW4	WSW4	NE1	E1	E2	ESE2	S3.7	SSE8
14-Jan	SSW3	W1	NE3	WNW3	WNW4	NE3	NNE2	WNW3	NW2	W2	E1	WSW2	E1	NW0	ESE2	ESE3	ESE3	NNE1	N3	NNE3	W4	WSW7	SSW4	SSE7	W0.5	WSW7
15-Jan	SSE6	SSE7	SE7	SSE11	SSE7	SSE8	SSE9	SSE9	SSW10	SSE10	SSE9	SSE9	SSE9	SSE9	SSE10	S6	SSE5	SSE5	S8	SSW5	SW5	SSE6	S9	S7	SSE7.4	SSE11
16-Jan	SE6	SSE5	S3	NW2	N5	NW8	NNW9	NW12	NW10	WNW9	NNW4	WNW5	W6	E1	SE2	W2	W6	WNW12	WNW15	WNW15	W18	W21	W20	WNW22	WNW7.3	WNW22
17-Jan	WNW19	WNW16	NNW11	NNE14	NNE15	NNE16	NNE14	NNE10	NNE13	NNE15	NNE14	NNE11	NNE10	N9	N9	NNE11	NNE13	NNE15	NNE17	NNE16	NNW10	N13	NNW8	NNW8	N11.0	WNW19
18-Jan	NNW7	NW6	WNW6	W9	W8	NW7	W10	W10	W11	W10	WSW10	W11	WNW9	WNW7	WNW6	W12	W13	W13	W12	W13	W14	WNW12	W12	WSW8	W9.4	W14
19-Jan	WSW9	WSW9	WSW7	S7	S10	SSE11	SSE11	SSE11	SSE10	SSE11	SSE11	SSE10	SE9	SE10	SSE12	SSE11	S7	SSE8	SSE12	SSE10	SSE11	SSE13	SSE11	SSE18	SSE9.2	SSE18
20-Jan	SSE15	SSE15	SSE10	SSE9	SSE10	SSE12	S6	S6	S6	SSW3	WSW4	WNW8	NW9	NW9	NW10	NW8	NW8	NNW8	N9	N10	N11	N11	N9	N11	NW0.8	SSE15
21-Jan	N11	N9	NNE11	NNE12	NNE8	NW6	NW6	NW7	N7	NNW8	NNW7	N10	NNE11	N12	N11	NNE13	NNE11	NNE10	NNE10	NNE9	NE9	NNE10	NE9	NNE11	NNE8.8	NNE13
22-Jan	NNE9	NNE12	NNE11	NNE10	N8	NNE6	N4	S0	S6	SE13	SE17	SE19	SE22	SE19	SE20	SE21	SE22	SE22	SE21	SE20	SE13	SSE14	SE14	SE14	SE10.4	SE22
23-Jan	SE13	SE11	SSE12	SSE12	SSE12	SSE11	SSE11	SSE11	SSE11	SSE9	S7	SSE6	SSE5	S3	N3	N4	NNW8	N11	N12	N14	N17	NNE16	N11	N11	ESE2.8	N17
24-Jan	N10	N11	N6	N7	N6	WNW3	W6	NW2	NNE0	WSW4	WSW2	SSE10	SSE12	SSE13	SSE13	SE12	SSE12	SSE10	SW3	W3	NNW6	NNW5	N5	SE1.6	SSE13	
25-Jan	NNW6	N13	N12	NNE13	NNE13	N15	N13	N11	NNW7	NNW7	NNW6	WNW5	W4	WSW3	SSW4	SSE5	SSE9	SSE12	SSE10	SSE7	S7	SSW6	S7	S7	N1.9	N15
26-Jan	SSE10	S7	S2	SSW4	W3	NW4	W4	W5	SW3	S3	SSE7	SSE6	SSE6	SSE7	SSE8	SSE8	SSE11	SSE8	SSE8	SSE7	S4	SSE5	SSE4	SSE2	S4.6	SSE11
27-Jan	S3	WNW1	WNW2	SSE6	SSE5	SSE7	SSE11	S6	S2	SE9	SE8	SSE12	SSE13	SE8	SSE8	SSW7	WSW9	WSW12	WSW12	SW10	SSW10	SSE14	SSE14	SSE13	S6.6	SSE14
28-Jan	SSE11	SSE12	SE14	SSE14	SSE12	SSE10	S11	SSE15	SSE18	SSE13	SSW14	SW17	WSW21	W27	W21	WSW21	W25	WSW23	WSW20	W21	W23	W24	W16	W14	SW11.9	W27
29-Jan	S8	SSE14	SSE14	SSE12	SSE13	SSE14	SSE13	SSE14	SSE13	SSE14	SSE14	SSE15	SSE11	SSE7	SSE13	SSE15	SSE15	SSE17	SSE13	SSE12	SSE13	SSE13	SSE17	SSE16	SSE13.2	SSE17
30-Jan	SSE14	SSE11	SSE15	SSE15	SSE14	SE13	SSE14	SSE11	S9	S10	S7	SSE10	SW13	WSW20	WSW26	WSW31	WSW26	W25	WSW19	WSW21	W26	W16	WSW13	WSW16	SW11.4	WSW31
31-Jan	WSW18	W19	WSW16	WSW16	WSW16	WSW12	SSW7	SSW10	SSW10	SSW10	SSW8	SE6	SE10	SE10	SSE11	SE10	SE18	SE24	SE20	SE13	SE14	SE20	SE20	SE24	S8.8	SE24

NW0.7	N1.2	N1.5	NE1.9	NE1.9	NE1.7	NNE1.0	NNW0.8	SSE0.3	S0.7	SSE1.0	S1.0	SSW0.4	WSW0.6	SW1.1	WSW0.7	SSW0.4	S0.6	WSW0.0	NW0.7	NNW1.5	NW0.8	SSW0.4	WSW0.1		Diurnal Average
WNW19	W19	WSW16	NNW17	WSW16	NNE16	N16	NNE21	SSE18	NNE15	SE17	SE19	SE22	W27	WSW26	WSW31	WSW26	WSW25	SE21	W21	W26	W24	SE20	SE24		Diurnal Maximum

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

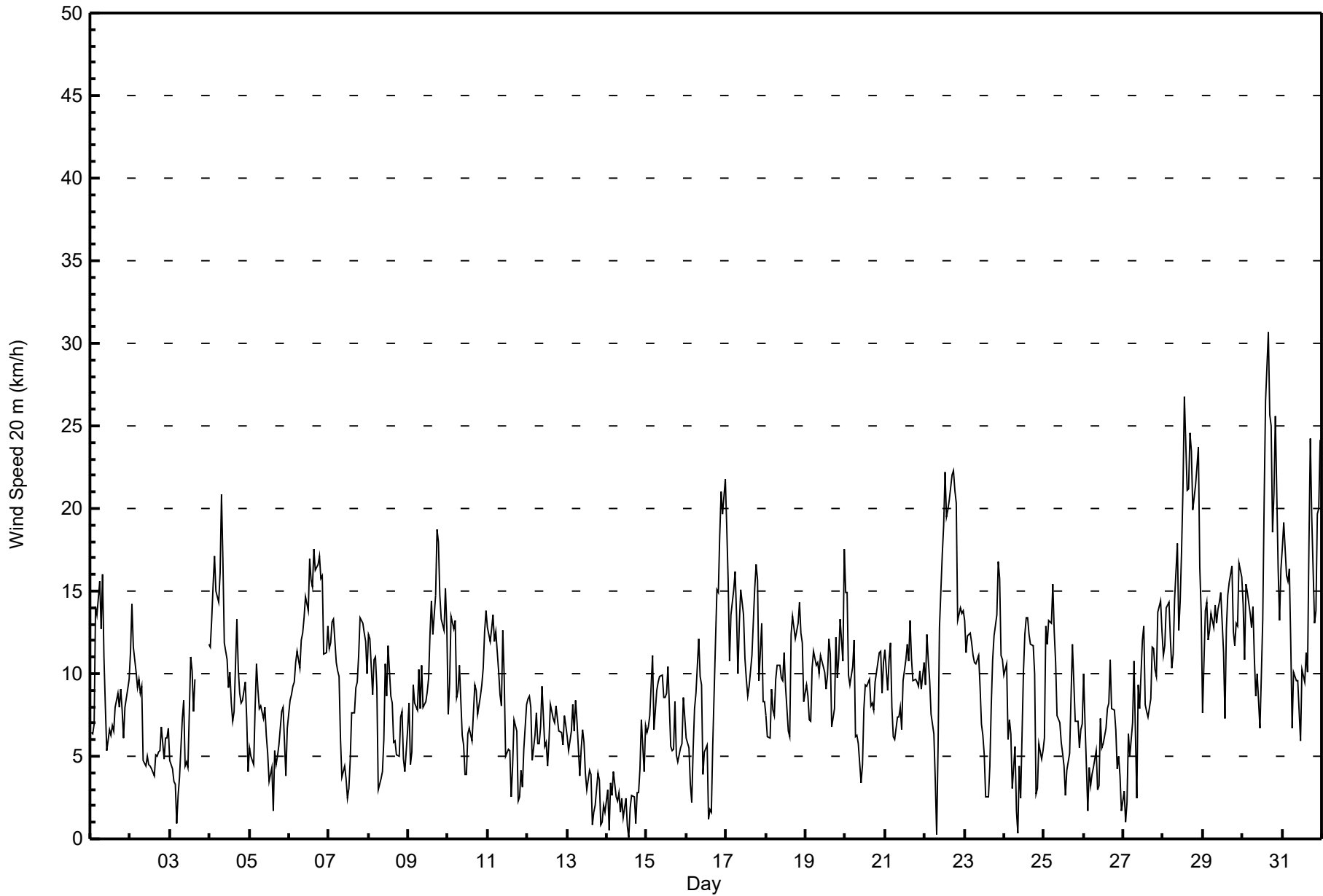


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 16:00 Minimum Value: 0 km/h on Jan 3 02:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 737 Hours of Missing Data: 7 Hours of Calibration: 0 Percent Operational Time: 99.1								
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-Jan	2	2	2	4	4	4	5	5	3	2	2	2	2	2	2	2	3	2	3	3	3	2	3	3	5
2-Jan	3	3	4	2	3	2	2	3	2	2	2	1	2	2	2	2	2	2	2	2	1	2	1	1	4
3-Jan	1	0	1	1	1	1	2	2	3	3	2	2	2	3	2	3	DF	DF	DF	DF	DF	DF	DF	3	
4-Jan	4	4	5	5	5	5	5	6	5	4	4	3	3	2	2	3	2	2	2	2	2	2	3	2	
5-Jan	2	2	2	2	2	2	2	1	1	1	2	2	2	2	1	2	3	2	1	2	1	2	1	3	
6-Jan	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	5	4	4	5	4	3	3	5	
7-Jan	3	3	3	3	3	2	2	2	1	1	2	1	1	2	2	2	2	2	2	3	3	3	2	3	
8-Jan	2	2	3	2	3	3	2	1	1	1	2	2	4	3	2	2	2	1	2	3	2	2	1	4	
9-Jan	2	2	2	2	2	3	3	2	3	2	3	3	3	4	5	4	6	3	3	4	3	4	3	6	
10-Jan	3	4	4	4	4	3	3	3	1	2	1	1	2	2	2	2	3	2	2	2	2	3	3	4	
11-Jan	3	3	3	3	3	3	3	3	3	3	3	2	2	2	1	2	2	2	1	1	1	1	1	3	
12-Jan	1	1	1	2	1	2	2	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	3	
13-Jan	1	1	1	2	2	2	2	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	2	
14-Jan	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	1	3	
15-Jan	1	1	2	2	2	2	3	3	2	3	2	4	4	3	2	1	2	2	2	2	1	2	1	4	
16-Jan	3	2	2	2	2	2	3	2	2	2	3	2	2	2	1	1	3	3	3	3	4	3	3	4	
17-Jan	4	3	3	4	4	4	4	3	4	4	4	3	3	3	3	3	3	3	3	4	3	5	2	5	
18-Jan	2	2	2	1	1	2	3	2	2	2	1	2	2	2	2	3	2	1	1	2	3	2	2	3	
19-Jan	1	1	2	1	2	2	2	2	2	3	3	2	2	2	3	2	3	2	2	2	2	3	3	4	
20-Jan	4	3	3	1	2	3	2	1	1	1	2	2	3	2	3	2	2	2	3	3	3	3	3	4	
21-Jan	3	3	3	4	4	2	1	2	2	3	3	3	3	4	3	4	3	3	2	2	3	3	2	4	
22-Jan	3	3	3	3	2	2	2	1	2	4	5	5	5	5	5	5	5	5	5	5	3	3	4	5	
23-Jan	3	3	3	3	3	2	2	2	2	2	3	2	1	1	1	1	2	4	4	4	4	4	3	4	
24-Jan	3	3	2	2	2	2	1	1	1	2	1	4	3	3	4	3	3	2	2	1	2	1	2	4	
25-Jan	2	3	3	3	3	3	3	3	2	2	2	1	2	1	2	2	3	3	2	2	3	1	2	3	
26-Jan	3	3	2	1	1	2	1	2	1	2	2	3	3	4	4	4	5	4	4	3	2	2	2	5	
27-Jan	2	2	3	5	4	4	4	3	2	3	3	3	3	3	2	2	1	2	2	2	1	2	3	5	
28-Jan	2	3	3	3	4	3	4	4	3	2	3	3	5	6	5	5	4	4	4	4	3	3	3	6	
29-Jan	2	3	2	4	3	3	2	3	2	2	3	3	5	2	3	2	3	2	2	3	2	2	3	5	
30-Jan	3	3	4	4	3	3	3	3	3	3	3	3	4	6	7	8	7	7	5	6	6	3	4	8	
31-Jan	3	3	4	4	3	4	4	2	2	3	3	2	3	3	3	3	5	6	5	4	5	5	5	6	
Diurnal Maximum																									
DF - DAS Failure																									



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

**Wind Speed 20 m (WS20m) - km/h**  
**Mannix - January 2024**





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

**Wind Speed 20 m (WS20m) - km/h**  
**Mannix - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	153	20.76	20.76
6 - 11	358	48.58	69.34
12 - 19	193	26.19	95.52
20 - 28	32	4.34	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 737

Total Number of Hours: 744



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

**Wind Speed 20 m (WS20m) - km/h**  
**Mannix - January 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	15	8	8	1	5	6	5	18	16	11	5	11	17	11	8	8	153
6 - 11	60	53	9	0	0	0	12	85	39	12	2	13	13	10	23	27	358
12 - 19	35	42	0	0	0	0	14	60	0	1	2	10	12	6	1	10	193
20 - 28	0	1	0	0	0	0	12	0	0	0	0	9	9	1	0	0	32
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>	110	104	17	1	5	6	43	163	55	24	9	44	51	28	32	45	737

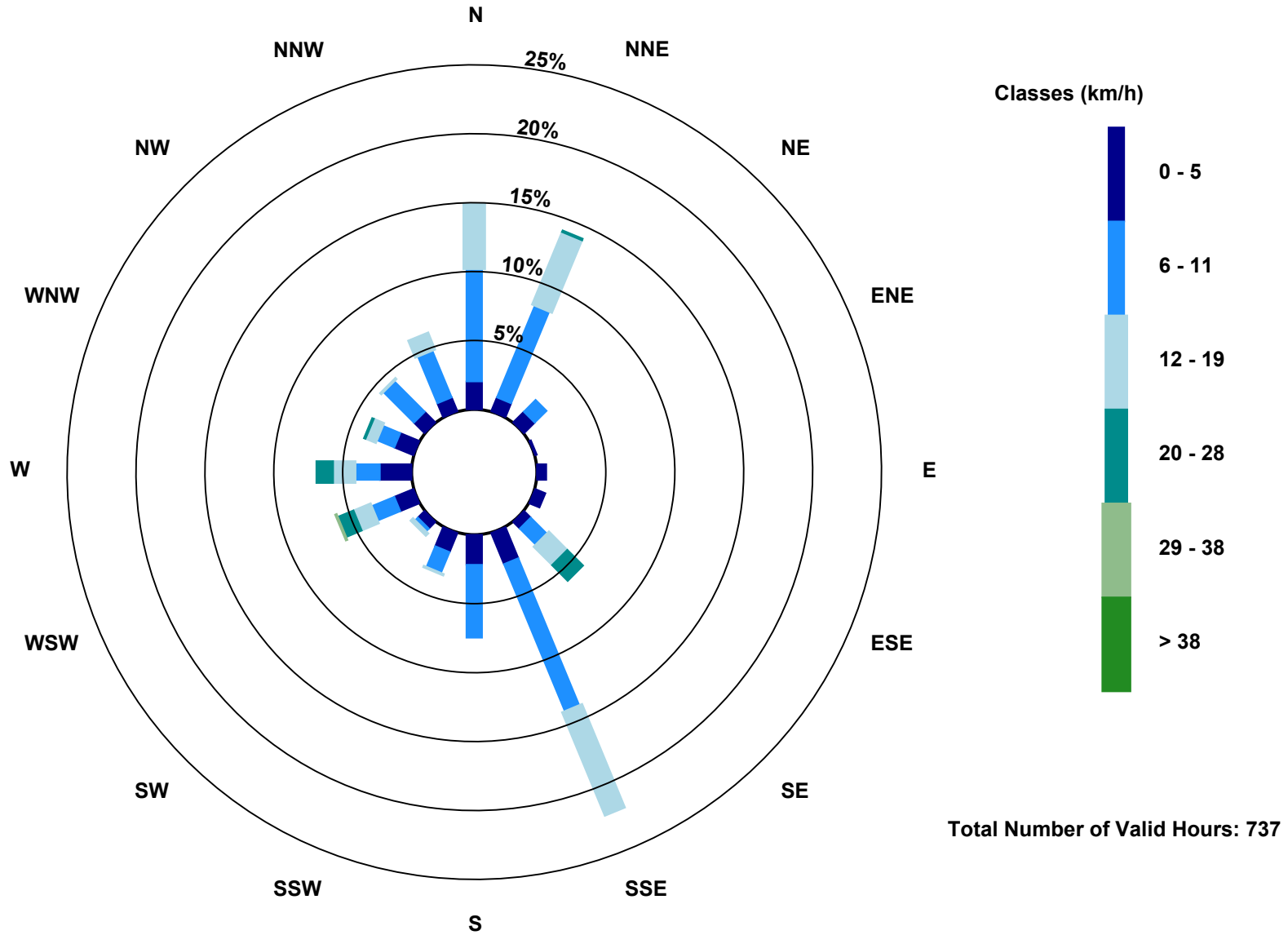
Total Number of Valid Hours: 737

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed 20 m (WS20m) - km/h  
Mannix







Maximum Speed: 38 km/h on Jan 30 16:00	Maximum Daily Speed Average: 21.2 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 16 14:00	Minimum Daily Speed Average: 0.4 km/h on Jan 20	Hours of Data: 687
Maximum Diurnal Speed Average: 2.8 km/h at hour 5	Minimum Diurnal Speed Average: 0.0 km/h at hour 23	Hours of Missing Data: 57
Monthly Average Velocity: 0.2 km/h 28.2 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 9 Median = 13 Q <sub>3</sub> = 17 P <sub>90</sub> = 23 P <sub>99</sub> = 32	Percent Operational Time: 92.3

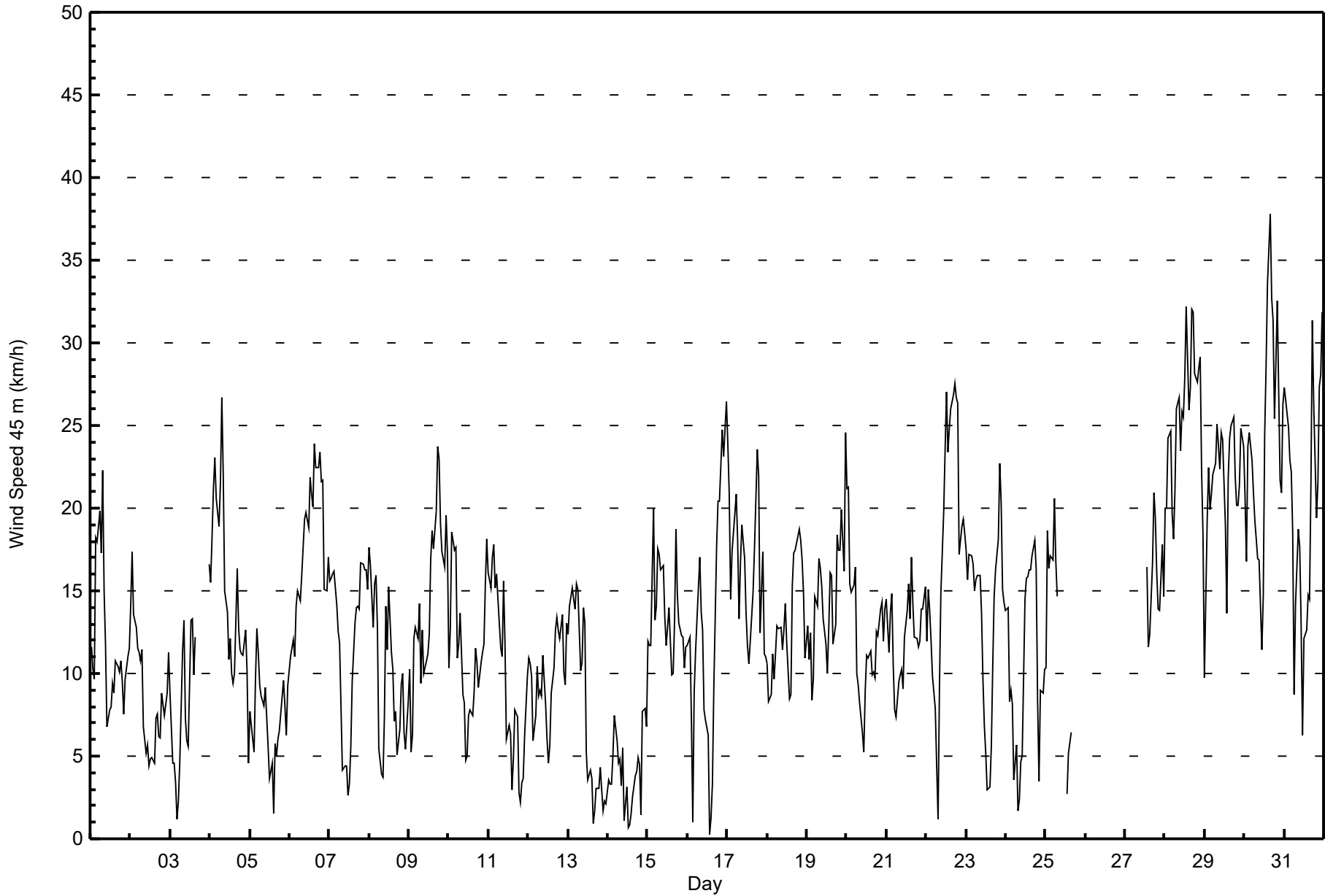
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	WNW12	NW10	NW10	NNE18	NNE18	NNE20	NNW17	NNW22	N15	NNW12	NNE7	NNE8	NNW8	NNW9	WNW9	NW11	NNE10	NNE10	NNE11	NNE10	NNE8	NNE10	NNE11	NNE12		
2-Jan	NNE14	NNE17	NNE14	N13	NNE12	NNE11	NNE11	NNE11	NNE7	NNE5	ENE6	E4	ESE5	SSE5	SSW5	S7	S8	SSE6	SE6	SSE9	S7	SSE8	SSE9	S11		
3-Jan	SSW9	SW5	W5	W3	ENE1	S2	SSE5	S11	S13	S7	SE6	N6	N13	N13	NNW10	N12	DF	DF	DF	DF	DF	DF	DF	NNW17		
4-Jan	NNW15	NNW18	NNW21	NNW23	NNW21	NNW19	N22	N27	N22	N15	NNE14	N11	N12	N10	N9	N10	NNE16	N13	N11	N11	N13	N10	NNW5			
5-Jan	NNW8	NNW7	NW5	WNW10	WNW13	WNW11	WNW9	W9	W8	WSW9	WSW7	W6	W4	N5	NNE1	NE6	NE5	NE3	NNE7	NNE9	NNE10	NNE8	N6	N9		
6-Jan	N11	NNE12	NNE12	NNE11	NNE14	N15	N14	N16	N18	N19	N20	N19	N22	N21	NNW20	N24	N22	N22	N23	N22	NNW22	N15	NNW15	N17		
7-Jan	N16	N16	N16	NNE16	NNE14	NNE13	N12	N8	N4	WNW4	W4	WSW3	SSW3	SSE6	SE9	SSE13	SSE14	SSE14	SSE14	SSE17	SSE17	SSE16	SE16	SSE15		
8-Jan	SE18	SE17	SSE13	SSE15	SE16	SSE13	S5	SSW4	W4	NW7	NW14	NNW11	N15	NNW11	NW10	NNW7	N8	NW5	N7	NNE9	NNE10	NE6	NNE5	N8		
9-Jan	N10	N5	NE6	NE12	NNE13	NNE12	NNE14	NNE9	NE13	NNE10	NNE11	NNW11	NNW12	N17	N19	N18	N20	N24	N23	NNE19	N17	N16	N20	NNE17		
10-Jan	N10	NNE13	NNE19	NNE17	NNE18	NNE11	N12	N14	NNW9	NNW8	NNW5	NNW5	NW7	NNW8	NNW7	NNE9	NNE12	N11	NNE9	NNE11	NNE11	NNE12	NNE15	NNE18		
11-Jan	NNE16	NNE15	N17	N18	N15	N16	N13	N12	NNE11	NNE16	NNE12	NNW6	NW7	NW6	NNW3	NNE5	NE8	NE7	N3	W2	W3	WNW4	WSW6	WSW10		
12-Jan	WSW11	WSW11	WSW10	WSW6	WSW7	SW10	SSW9	SSW9	SSW9	SSE11	SSE8	SSE6	SSE5	SSE6	SE9	SE10	SSE13	SSE13	SSE13	SSE12	SSE14	S10	SSE9	SSE13		
13-Jan	SSE12	SSE14	SSE15	SSE14	SE14	SSE15	S15	SSE10	SSE11	SSE14	SSE13	SSE5	S4	SSE4	SSE4	S1	E2	SE3	SSW3	W4	NW3	N2	NNE2	ESE2		
14-Jan	SSE4	S3	NNW3	NW5	WNW7	NNW6	N5	NW5	WNW3	WNW6	WSW1	SW3	WSW1	WSW1	ESE2	E3	E4	NE4	NNE5	NNE4	NW1	WSW8	SW8	S7		
15-Jan	SSE12	SSE12	SE12	SE20	SSE13	SE14	SSE18	SE17	SSE16	SE17	SSE14	SSE12	SSE13	SSE14	SSE10	SSE10	SSE13	SSE14	SE19	S15	SSW13	S12	SE12	SSE10	SSE12	
16-Jan	SE12	SE12	SSE7	SE1	N9	NNW11	NNW13	NNW17	NW14	NW13	NNW8	NW7	W6	NNW0	E1	NW3	WNW9	WNW18	WNW20	WNW20	W23	W25	W23	W26		
17-Jan	WNW24	WNW21	NNW15	NNE17	NNE20	NNE21	NNE18	NNE13	NNE17	NNE19	NNE17	NNE14	NNE12	N11	N12	NNE15	NNE18	NNE21	NNE24	NNE22	NNW12	N17	NNW11	NW11		
18-Jan	NNW11	NW8	WNW9	W11	W10	NW11	W13	W13	W13	WSW11	WSW13	W14	WNW12	WNW8	WNW9	W15	W17	W17	W18	W19	W18	WNW17	W15	W11		
19-Jan	WSW13	W11	WSW12	SSW8	S10	SSE15	SSE14	SSE17	SSE16	SSE15	SSE13	SE12	SE10	SE13	SE16	SSE16	SSE12	SSE13	SE18	SE17	SE17	SE20	SE16	SE25		
20-Jan	SE21	SE21	SSE15	SSE15	SSE15	SSE16	S10	S9	S8	SSW6	WSW5	WNW9	NW11	NW11	NW11	NW10	NW10	NNW10	NNW13	N12	N14	N14	N12	N14		
21-Jan	N14	N11	NNE14	NNE15	NNE11	NW8	NW7	NW10	N10	NNW10	NNW9	N12	N14	N15	N13	N17	NNE14	NNE12	NNE12	NNE12	NNE12	NNE14	NNE14	NNE15		
22-Jan	NNE12	NNE15	NNE14	NNE12	N10	NNE8	N4	ENE1	SE9	SE15	SE20	SE23	SE27	SE23	SE25	SE26	SE27	SE28	SE27	SE26	SE17	SE19	SE19	SE18		
23-Jan	SE17	SE16	SE17	SE17	SSE17	SSE15	SSE16	SSE16	SSE16	SSE14	S10	SSE7	SSE5	S3	N3	N6	NNW11	N15	N16	N18	N23	N20	N15	N14		
24-Jan	N14	N14	NNW8	N9	N8	NW4	W6	NW2	E2	S5	SSE5	SE15	SE16	SE16	SE16	SE16	SE17	SE18	SSE16	SSE8	SSE3	NNW9	NNW9	N10		
25-Jan	NNW10	N19	N16	N17	N17	N21	N17	N15	UO	UO	UO	UO	UO	UO	WSW3	S5	S6	UO	UO	UO	UO	UO	UO	UO		
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE16	S12	SW12	WSW17	WSW21	WSW19	SW16	SW14	S14	SSE18	S15	
28-Jan	SSE20	SSE20	SE24	SSE25	SSE20	SSE18	SSE21	SSE26	SSE27	S24	SSW26	SW26	WSW28	WSW32	WSW26	WSW27	WSW32	WSW32	WSW28	W28	W28	W29	WSW22	WSW18		
29-Jan	SSW10	SSE19	SSE22	SSE20	SSE21	SSE22	SSE23	SSE25	SE24	SE22	SE25	SSE24	SSE19	SSE14	SSE22	SSE24	SSE25	SSE26	S22	SSE20	SSE20	SSE21	SSE25	SSE24		
30-Jan	SSE21	SSE17	SSE24	SSE25	SSE23	SE21	SE19	SSE18	SSE17	SSE17	S11	S15	SW24	SW29	WSW34	WSW38	WSW33	WSW31	WSW25	SW29	W33	W22	WSW21	WSW26		
31-Jan	WSW27	WSW27	WSW25	WSW23	WSW22	WSW19	SSW9	SW14	SW19	SW18	SW13	SSE6	SE12	SE13	SSE15	SE15	SE21	SE31	SE26	SE19	SE22	SE27	SE28	SE32		

WNW1.0	NNE1.2	NNE1.4	NE2.5	NE2.8	NE2.4	NE1.2	NE0.5	SE1.8	SSE1.6	SSE1.5	S0.9	W0.6	W0.9	SW1.4	WSW0.9	WSW0.4	S0.5	NNW0.4	NNW0.8	NNW1.6	NNW1.2	ENE0.0	NE0.1	Diurnal Average
WSW27	WSW27	WSW25	SSE25	SSE23	SSE22	SSE23	N27	SSE27	S24	SSW26	SW26	WSW28	WSW32	WSW34	WSW38	WSW33	WSW32	WSW28	SW29	W33	W29	SE28	SE32	Diurnal Maximum

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



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 16:00 Minimum Value: 0 km/h on Jan 13 17:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 687 Hours of Missing Data: 57 Hours of Calibration: 0 Percent Operational Time: 92.3								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Jan	2	2	3	4	4	4	6	5	3	2	2	1	2	2	2	2	3	3	3	3	3	2	3	3	6
2-Jan	3	3	4	2	3	2	2	3	2	2	2	1	2	2	1	3	2	2	2	2	1	2	1	1	4
3-Jan	2	1	1	1	1	1	3	2	2	3	3	2	2	3	2	3	DF	DF	DF	DF	DF	DF	DF	3	
4-Jan	4	4	4	5	5	5	6	6	5	4	4	3	3	2	2	3	3	2	2	2	2	2	3	6	
5-Jan	2	2	1	1	2	2	2	1	2	1	2	1	1	1	1	2	2	1	1	1	1	1	2	2	
6-Jan	2	1	1	1	2	2	2	3	2	2	2	3	3	3	4	4	4	4	3	4	4	3	3	4	
7-Jan	3	3	2	3	3	2	2	1	1	1	2	1	1	1	2	1	1	2	2	2	3	2	2	3	
8-Jan	2	2	3	2	2	3	2	1	1	1	2	3	3	3	2	3	2	1	2	3	2	2	2	3	
9-Jan	1	2	4	2	2	2	3	1	3	2	3	3	2	4	5	4	6	2	3	4	3	4	3	6	
10-Jan	3	5	4	4	4	3	3	3	1	2	1	1	2	2	2	1	2	2	2	2	2	4	3	5	
11-Jan	3	3	3	3	3	2	2	3	3	3	3	2	2	1	1	2	2	2	1	1	1	1	2	3	
12-Jan	1	1	1	2	1	2	1	1	2	3	3	1	1	1	2	1	2	1	1	1	1	1	1	3	
13-Jan	1	1	1	1	2	1	2	3	2	1	2	2	1	1	1	1	0	1	1	1	1	1	1	3	
14-Jan	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2	2	1	2	
15-Jan	1	2	3	2	3	3	3	3	2	3	2	4	6	4	2	2	2	1	2	2	2	2	3	6	
16-Jan	2	2	2	1	2	2	5	3	2	2	2	2	1	2	1	2	4	3	3	2	3	3	3	5	
17-Jan	3	3	3	4	4	4	4	3	4	4	4	3	3	2	3	3	3	2	3	4	2	6	3	6	
18-Jan	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	
19-Jan	2	1	3	1	1	2	2	2	2	3	2	2	2	3	3	4	2	4	2	2	2	3	3	4	
20-Jan	4	3	3	1	2	3	2	1	1	2	1	2	2	2	3	2	2	2	3	3	2	2	3	4	
21-Jan	3	2	3	4	4	2	1	2	2	2	3	3	3	4	2	4	4	3	2	2	3	3	2	4	
22-Jan	3	3	3	4	2	2	2	2	3	5	5	5	5	5	5	5	5	5	5	5	3	3	4	5	
23-Jan	3	3	2	3	3	2	2	2	1	2	3	2	1	1	1	2	2	4	3	4	3	4	3	4	
24-Jan	3	3	2	2	2	2	1	1	2	3	3	3	3	3	4	4	3	2	2	1	1	3	2	4	
25-Jan	3	2	3	2	3	3	3	3	UO	UO	UO	UO	UO	UO	1	2	2	UO	UO	UO	UO	UO	UO	3	
26-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	3	1	3	3	2	2	2	3	
28-Jan	2	2	3	4	5	4	4	3	2	2	4	3	5	6	5	5	4	3	4	4	3	3	3	6	
29-Jan	3	4	2	5	3	3	2	2	2	2	3	2	5	3	2	2	2	2	4	4	1	2	2	5	
30-Jan	3	2	4	3	2	2	2	3	3	3	4	6	3	6	7	8	7	7	5	6	6	3	6	8	
31-Jan	3	3	4	4	4	4	5	2	2	2	4	2	3	2	3	3	5	5	5	5	5	5	5	6	
																	Diurnal Maximum								
																	4 5 4 5 5 5 6 6 5 5 5 6 6 6 7 8 7 7 5 6 6 6 6 6								
DF - DAS Failure UO - Unstable Operation																									





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

**Wind Speed 45 m (WS45m) - km/h**  
**Mannix - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	86	12.52	12.52
6 - 11	195	28.38	40.90
12 - 19	281	40.90	81.81
20 - 28	112	16.30	98.11
29 - 38	13	1.89	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 687

Total Number of Hours: 744



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

**Wind Speed 45 m (WS45m) - km/h**  
**Mannix - January 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	8	7	2	2	6	3	2	10	8	4	2	6	8	3	9	6	86
6 - 11	28	31	6	1	0	0	7	19	15	8	2	11	9	11	20	27	195
12 - 19	59	57	2	0	0	0	40	67	8	3	5	7	11	5	3	14	281
20 - 28	18	6	0	0	0	0	25	27	2	1	2	14	7	4	0	6	112
29 - 38	0	0	0	0	0	0	2	0	0	0	2	7	2	0	0	0	13
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	113	101	10	3	6	3	76	123	33	16	13	45	37	23	32	53	687

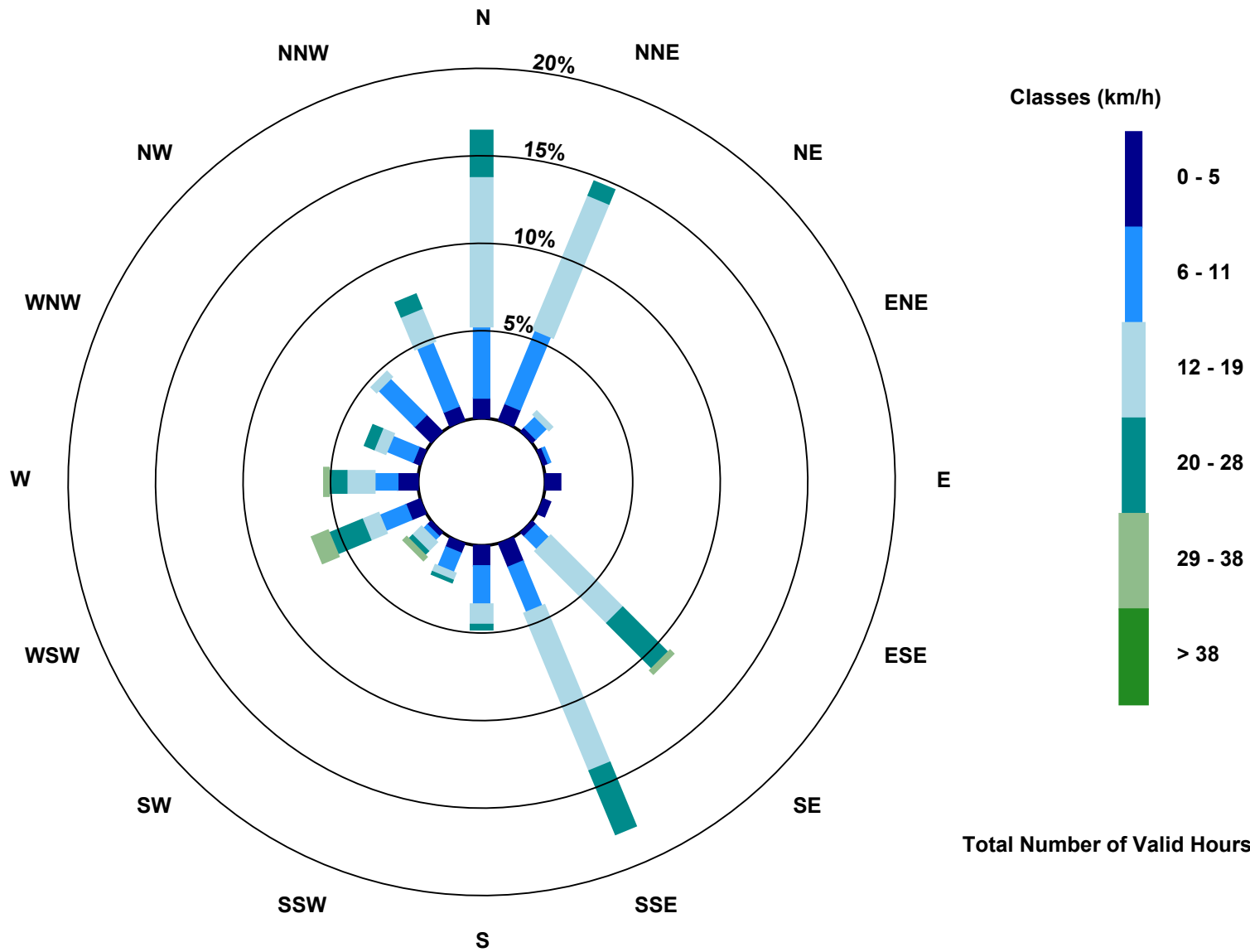
Total Number of Valid Hours: 687

Total Number of Hours: 744



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

**Wind Speed 45 m (WS45m) - km/h**  
**Mannix**



Total Number of Valid Hours: 687



Maximum Speed: 43 km/h on Jan 30 16:00	Maximum Daily Speed Average: 25.0 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 1 km/h on Jan 3 04:00	Minimum Daily Speed Average: 1.2 km/h on Jan 20	Hours of Data: 683
Maximum Diurnal Speed Average: 2.5 km/h at hour 4	Minimum Diurnal Speed Average: 0.2 km/h at hour 23	Hours of Missing Data: 61
Monthly Average Velocity: 0.1 km/h 83.6 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 10 Median = 15 Q <sub>3</sub> = 21 P <sub>90</sub> = 27 P <sub>99</sub> = 35	Percent Operational Time: 91.8

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-Jan	WNW16	NW12	NW12	NNE21	NNE20	NNE23	N20	NNW26	N17	N15	NNE7	NNE8	NNW9	NNW11	WNW10	NW12	NNE11	NE11	NNE12	NNE10	NNE8	NNE11	NNE12	NNE13	N11.9	NNW26		
2-Jan	NNE16	NNE19	NNE15	NNE14	NNE13	NNE13	NNE12	NNE14	NNE8	NE6	ENE6	E4	ESE5	SSE5	SSW5	S8	S9	SSE6	SE6	SSE10	SSE9	SSE10	SSE11	S13	ENE3.8	NNE19		
3-Jan	S10	S6	SW3	WNW1	E1	SSE2	SE5	S14	SSE18	S10	ESE6	NNE6	NNE14	N15	N12	N14	DF	DF	DF	DF	DF	DF	DF	N19	----	N19		
4-Jan	NNW18	NNW21	NNW25	N27	N24	N22	N25	N30	N25	N17	NNE15	N11	NNE13	N10	N10	N11	NNE18	NNE14	NNE13	N13	NNE13	NNE14	NNE11	NE5	N16.4	N30		
5-Jan	N7	N10	N5	WNW10	WNW13	WNW12	WNW9	W9	W9	W11	WSW9	W6	W4	N4	N10	NE1	NE5	NE5	NE5	NE6	NNE7	NE6	NE4	ENE1	NNE6	NW3.8	WNW13	
6-Jan	NE8	NE9	NE10	NE9	NE13	NNE15	NNE16	NNE19	NNE20	N23	N21	N21	N23	N23	N23	N26	N25	N26	N26	N24	N24	N17	N17	N18	N18.3	N26		
7-Jan	N17	N17	NNE18	NNE18	NNE17	NNE14	NNE12	N8	N4	WNW4	WNW5	WSW3	SSW3	SSE5	SE10	SSE17	SSE18	SSE18	SSE17	SSE20	SSE20	SSE19	SE21	SSE19	ESE4.3	SSE21		
8-Jan	SSE23	SE22	SSE17	SSE21	SE22	SE17	SSE7	SSE4	SSW2	NW7	NNW17	NNW14	N17	NNW12	NNW11	NNW8	NNE9	N4	NNE8	NNE10	NNE11	NE7	NNE6	N8	ENE2.8	SSE23		
9-Jan	NNE11	NNE5	ENE6	ENE12	NE11	NE13	NNE16	NE10	NE14	NNE12	NNE13	NNW11	NNW14	N19	N20	N20	N22	NNE25	NNE24	NNE22	NNE20	N18	NNE22	NNE20	NNE15.0	NNE25		
10-Jan	N12	NNE16	NNE22	NNE20	NNE21	NNE13	N13	N15	N9	N10	N5	NNW6	NNW7	NNW8	NNW8	NNE9	NNE12	NNE11	NNE10	NNE12	NNE13	NNE13	NNE18	NNE21	NNE12.2	NNE22		
11-Jan	NNE19	NNE18	NNE19	NNE20	NNE17	NNE18	N15	NNE13	NNE13	NNE19	NNE13	NNW6	NW6	NW6	NNW3	NNE5	NE8	NE7	NNW3	WNW3	WNW3	W3	WSW7	WSW9	N8.7	NNE20		
12-Jan	W11	WSW12	W13	W9	WSW10	WSW11	SW7	SW6	SSW8	S8	S11	SSW6	S5	SSE5	SE8	SE12	SSE15	SSE12	S10	SSE11	SSE15	SSE11	SE9	SE12	S6.9	SSE15		
13-Jan	SE14	SE15	SE14	SE11	SE12	SE11	SSE9	SSE11	SE6	SSE7	SSE10	SE6	SSE7	SSE7	SSE3	WNW2	N3	NE3	NE2	NNE2	NNW3	WNW4	NW3	NNE1	SE5.2	SE15		
14-Jan	S2	WNW3	NNW7	NW7	WNW10	WNW9	NNW9	NW7	NW5	WNW9	WNW6	WSW5	WNW2	NNW1	SE2	SE2	E5	NE5	NE7	NE7	ENE4	S4	SSW8	SSW8	NW2.2	WNW10		
15-Jan	S11	SSW10	S8	SE18	SSE19	SSE19	SSE17	SSE23	SSE22	SSE19	SSE20	SSE15	SSE17	SSE18	SSE16	SSE16	SSE18	SSE22	SSE16	SSE16	SSE15	SE16	SE14	SSE13	SSE16.2	SSE23		
16-Jan	S3	SE5	E2	N5	N12	N14	N17	N21	NNW16	NNW16	NNW12	NNW10	W7	W4	NW4	NNW8	WNW15	WNW23	WNW24	WNW24	W25	W27	W25	WNW29	NW11.8	WNW29		
17-Jan	WNW27	WNW23	NNW17	NNE20	NNE23	NNE24	NNE22	NNE15	NNE19	NNE21	NNE19	NNE15	NNE13	N11	N13	NNE17	NNE20	NNE23	NNE29	NNE27	NNW14	N20	NNW13	NNW13	N16.9	NNE29		
18-Jan	NNW14	NNW10	NW10	WNW13	WNW11	NW13	WNW13	W16	W16	W15	W16	W18	WNW13	WNW9	WNW10	W17	W20	W21	W23	W23	W22	WNW20	WNW17	W13	WNW14.8	W23		
19-Jan	W15	W15	W15	SW8	SSW10	SSW10	SSW10	S14	S15	SSE19	SSE17	SSE13	SSE11	SE16	SSE21	SSE21	SSE16	SE16	SE24	SE22	SE21	SE26	SE21	SE31	SSE13.6	SE31		
20-Jan	SE27	SSE27	SSE20	SSE19	S20	S21	SSW14	SSW10	SSW9	SW8	WSW6	WNW9	NW11	NW11	NW11	NW10	NW11	NNW11	N14	N13	N15	N15	N13	N15	SSW1.2	SSE27		
21-Jan	NNE16	NNE13	NNE16	NNE17	NNE12	NNW8	NNW7	NW10	N11	N11	N10	N13	NNE16	N17	N14	NNE19	NNE17	NNE14	NNE14	NNE13	NNE14	NNE18	NNE19	NNE19	NNE13.5	NNE19		
22-Jan	NNE13	NNE16	NNE16	NNE14	N11	NNE9	NNE5	E3	SE12	SE12	SE15	SE24	SE28	SE24	SE26	SE27	SE27	SE29	SE29	SE29	SE21	SSE24	SE25	SE23	SE14.5	SE29		
23-Jan	SE22	SE21	SSE23	SSE22	SSE21	SSE19	SSE21	SSE20	SSE20	S18	S12	S6	SSE5	SSW3	N3	N6	NNW12	N16	N18	N20	N24	NNE22	N16	N15	ESE5.2	N24		
24-Jan	N15	N15	N9	NNE10	NNE8	N3	WSW4	NNE2	ESE6	SE12	SE13	SE19	SE20	SE18	SE17	SE20	SE22	SE23	SSE22	SSE14	SSE7	NW6	NNW10	N13	SE6.0	SE23		
25-Jan	N14	N21	N19	NNE19	NNE18	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	----	N21	
26-Jan	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	----	----	
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	S22	SSE25	S20	SSW15	SW16	WSW22	WSW27	WSW26	WSW21	SW18	SW14	SSW15	SSW13	----	WSW27
28-Jan	S20	S22	SSE31	SSE31	SSE26	SE23	SSE29	S34	S31	SSW27	SW33	SW30	WSW32	WSW35	WSW29	WSW31	WSW37	WSW38	WSW34	W32	W33	W34	WSW27	WSW24	SW21.9	WSW38		
29-Jan	SW13	SSE20	SSE28	S25	S25	SSE29	SSE29	SSE31	SSE31	SE28	SE34	SSE33	SSE26	SSE20	SSE26	SSE26	SSE30	S29	SSW28	S26	S19	S21	SSE23	SSE22	SSE25.0	SE34		
30-Jan	S24	S15	S22	S27	SSE23	SSE24	SSE18	SE19	SSE22	SSE22	S17	SSW17	SW32	WSW35	WSW39	WSW43	WSW38	WSW35	WSW30	WSW34	W37	W26	WSW26	WSW33	SW20.6	WSW43		
31-Jan	WSW33	WSW33	WSW32	WSW29	WSW27	WSW26	SW11	SW16	SW19	SW21	SW18	S7	SE13	SE16	SSE18	SE14	SE16	SE33	SE30	SE24	SE29	SE30	SE32	SE35	S13.9	SE35		

NW1.4	N1.5	NNE1.5	NE2.5	NE2.4	ENE2.1	NE1.5	E0.8	SE2.0	SSE1.2	SSE1.7	S1.8	S1.2	SW1.3	SW1.6	WSW1.2	WSW0.6	SSW0.5	W0.3	NW0.5	NNW1.3	NNW0.9	ESE0.2	N0.3	Diurnal Average	
WSW33	WSW33	WSW32	SSE31	WSW27	SSE29	SSE29	S34	S31	SE28	SE34	SSE33	SW32	WSW35	WSW39	WSW43	WSW38	WSW38	WSW34	WSW34	W37	W34	SE32	SE35	Diurnal Maximum	

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



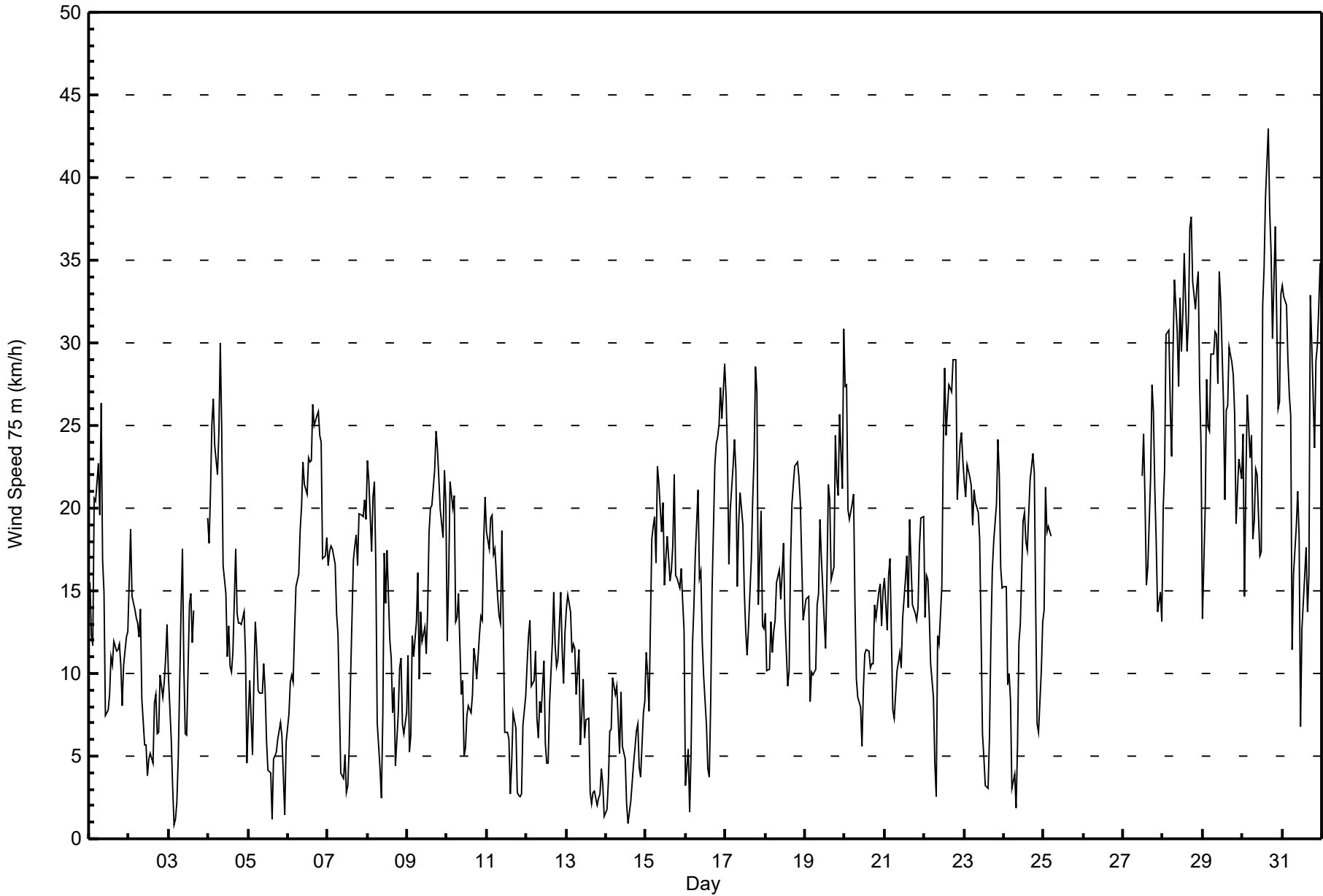
**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 75 m (WS75m) - km/h**

**Mannix - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Jan 30 12:00 Minimum Value: 0 km/h on Jan 13 23:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 7																	Hours in Service: 744 Hours of Data: 683 Hours of Missing Data: 61 Hours of Calibration: 0 Percent Operational Time: 91.8								
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-Jan	2	2	4	4	4	5	6	5	3	2	3	2	3	2	2	3	3	3	2	3	3	2	3	3	6
2-Jan	3	3	4	2	3	2	3	3	3	3	2	1	2	1	1	3	2	2	2	2	1	1	1	1	4
3-Jan	1	2	1	1	1	1	3	3	2	4	3	2	2	3	2	3	DF	DF	DF	DF	DF	DF	DF	4	
4-Jan	4	4	4	5	5	4	6	6	5	4	4	3	3	2	2	3	2	2	2	2	2	1	2	6	
5-Jan	3	1	1	1	2	2	2	1	2	1	2	2	1	1	1	2	2	1	1	1	2	1	1	3	
6-Jan	1	1	1	1	2	1	1	2	1	1	2	2	2	3	3	3	4	4	3	4	4	3	2	4	
7-Jan	2	3	2	2	2	2	2	1	2	2	1	1	1	2	3	1	1	1	3	2	3	2	2	3	
8-Jan	1	1	3	2	2	3	1	1	2	2	3	3	3	3	2	3	2	2	2	2	2	2	2	3	
9-Jan	2	2	4	1	2	2	1	1	2	2	4	4	2	4	5	4	6	2	3	3	3	5	3	6	
10-Jan	3	5	3	4	4	3	3	3	1	2	2	2	2	2	2	1	3	1	2	2	3	4	3	5	
11-Jan	3	3	3	3	3	3	2	3	4	3	4	2	2	1	1	1	2	2	2	2	1	2	3	4	
12-Jan	2	2	1	2	3	4	3	2	3	3	2	2	1	1	2	2	1	1	1	1	1	1	1	4	
13-Jan	1	2	2	1	2	3	2	2	2	1	2	1	1	1	2	1	1	1	1	1	1	1	0	3	
14-Jan	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	
15-Jan	2	2	1	3	2	2	2	3	2	2	2	6	7	5	1	2	2	1	1	1	1	2	2	7	
16-Jan	3	3	2	2	2	3	6	3	2	2	2	2	1	2	2	3	4	2	3	2	3	3	3	6	
17-Jan	3	3	3	4	3	4	4	3	3	4	4	3	3	2	3	2	3	2	2	4	3	6	3	6	
18-Jan	3	2	2	1	2	2	2	2	2	2	1	2	2	2	3	2	2	1	1	1	2	2	3	3	
19-Jan	2	2	2	2	1	1	1	2	2	1	3	2	2	4	2	3	3	3	2	3	1	2	3	4	
20-Jan	3	2	4	1	1	2	2	1	1	1	1	2	2	2	3	2	2	3	3	3	2	2	3	4	
21-Jan	3	3	3	4	5	2	1	2	2	2	4	4	3	4	2	4	3	2	2	2	3	2	1	5	
22-Jan	4	2	2	4	2	2	1	2	4	5	6	6	6	6	5	6	7	6	5	6	3	3	3	7	
23-Jan	3	3	2	2	3	2	2	2	1	2	2	1	2	1	2	2	4	3	4	3	3	2	2	4	
24-Jan	3	3	2	2	2	2	1	1	3	4	4	3	2	3	4	4	3	1	2	2	3	3	3	4	
25-Jan	3	2	2	2	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	
26-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	
28-Jan	4	1	3	2	6	4	4	3	3	2	3	4	5	6	5	4	4	4	5	4	4	3	3	6	
29-Jan	4	7	3	6	3	2	2	1	2	2	3	2	6	3	1	2	1	2	3	4	2	2	3	8	
30-Jan	4	2	5	1	2	3	5	5	2	4	5	9	3	6	8	8	6	7	6	6	6	3	6	9	
31-Jan	3	3	4	5	5	4	6	2	3	2	5	2	3	2	3	5	7	7	6	5	5	6	6	7	
Diurnal Maximum																								8	
DF - DAS Failure UO - Unstable Operation																									







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

**Wind Speed 75 m (WS75m) - km/h**  
**Mannix - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	74	10.83	10.83
6 - 11	166	24.30	35.14
12 - 19	237	34.70	69.84
20 - 28	154	22.55	92.39
29 - 38	50	7.32	99.71
> 38	2	0.29	100.00

Total Number of Valid Hours: 683

Total Number of Hours: 744



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

**Wind Speed 75 m (WS75m) - km/h**  
**Mannix - January 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	9	6	9	2	5	1	4	7	4	4	1	3	3	9	3	4	74
6 - 11	17	23	15	2	0	2	7	17	12	10	5	6	7	10	13	20	166
12 - 19	42	73	3	1	0	0	25	33	10	5	7	1	11	8	4	14	237
20 - 28	25	24	0	0	0	0	26	36	12	2	1	9	9	6	0	4	154
29 - 38	1	1	0	0	0	0	11	9	3	0	3	17	4	1	0	0	50
> 38	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
<b>Totals</b>	94	127	27	5	5	3	73	102	41	21	17	38	34	34	20	42	683

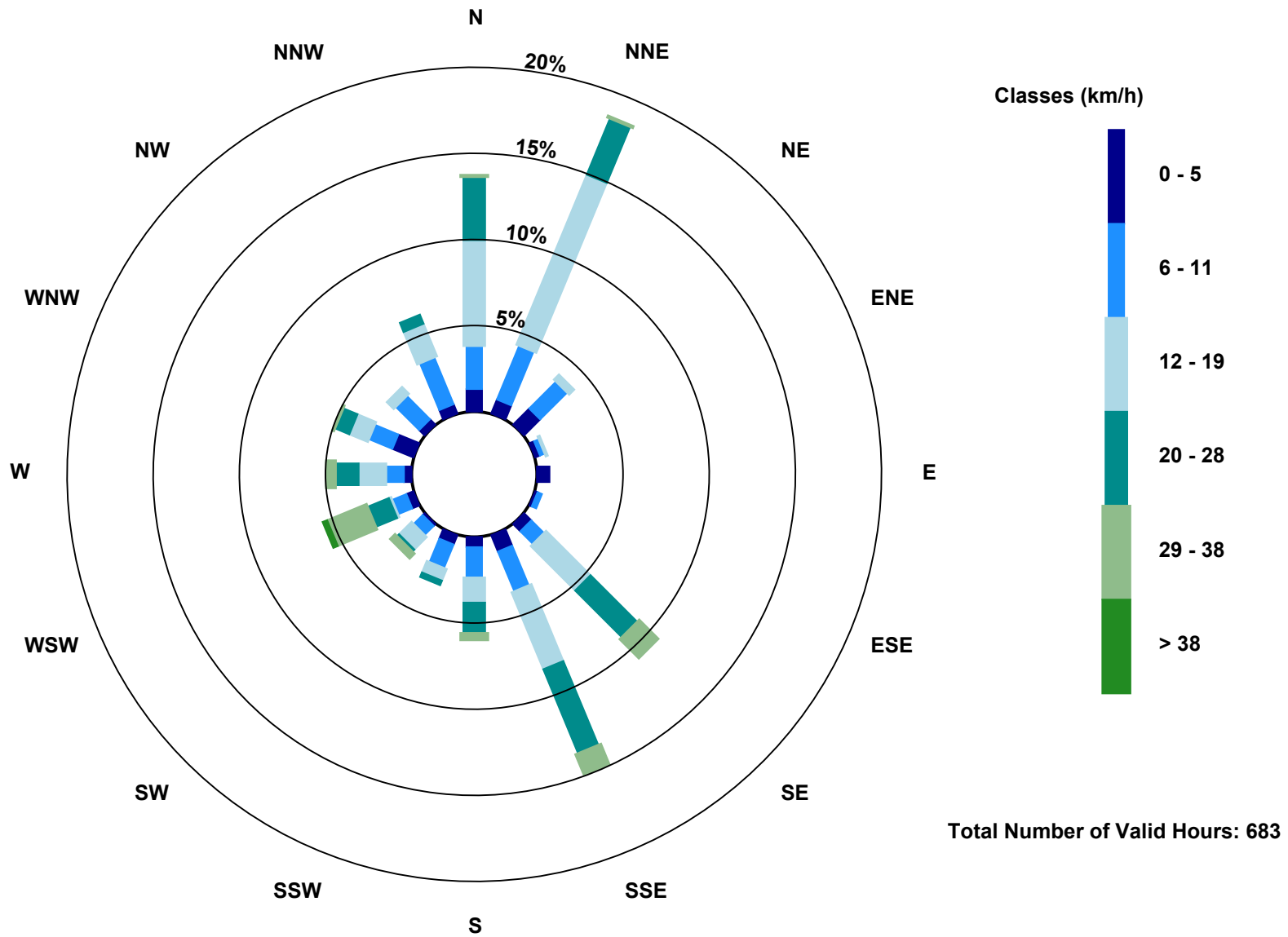
Total Number of Valid Hours: 683

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed 75 m (WS75m) - km/h  
Mannix





Maximum Speed: 44 km/h on Jan 30 16:00	Maximum Daily Speed Average: 24.8 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 14 16:00	Minimum Daily Speed Average: 1.5 km/h on Jan 20	Hours of Data: 677
Maximum Diurnal Speed Average: 2.4 km/h at hour 11	Minimum Diurnal Speed Average: 0.3 km/h at hour 23	Hours of Missing Data: 67
Monthly Average Velocity: 0.6 km/h 306.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 9 Median = 15 Q <sub>3</sub> = 22 P <sub>90</sub> = 28 P <sub>99</sub> = 37	Percent Operational Time: 91.0

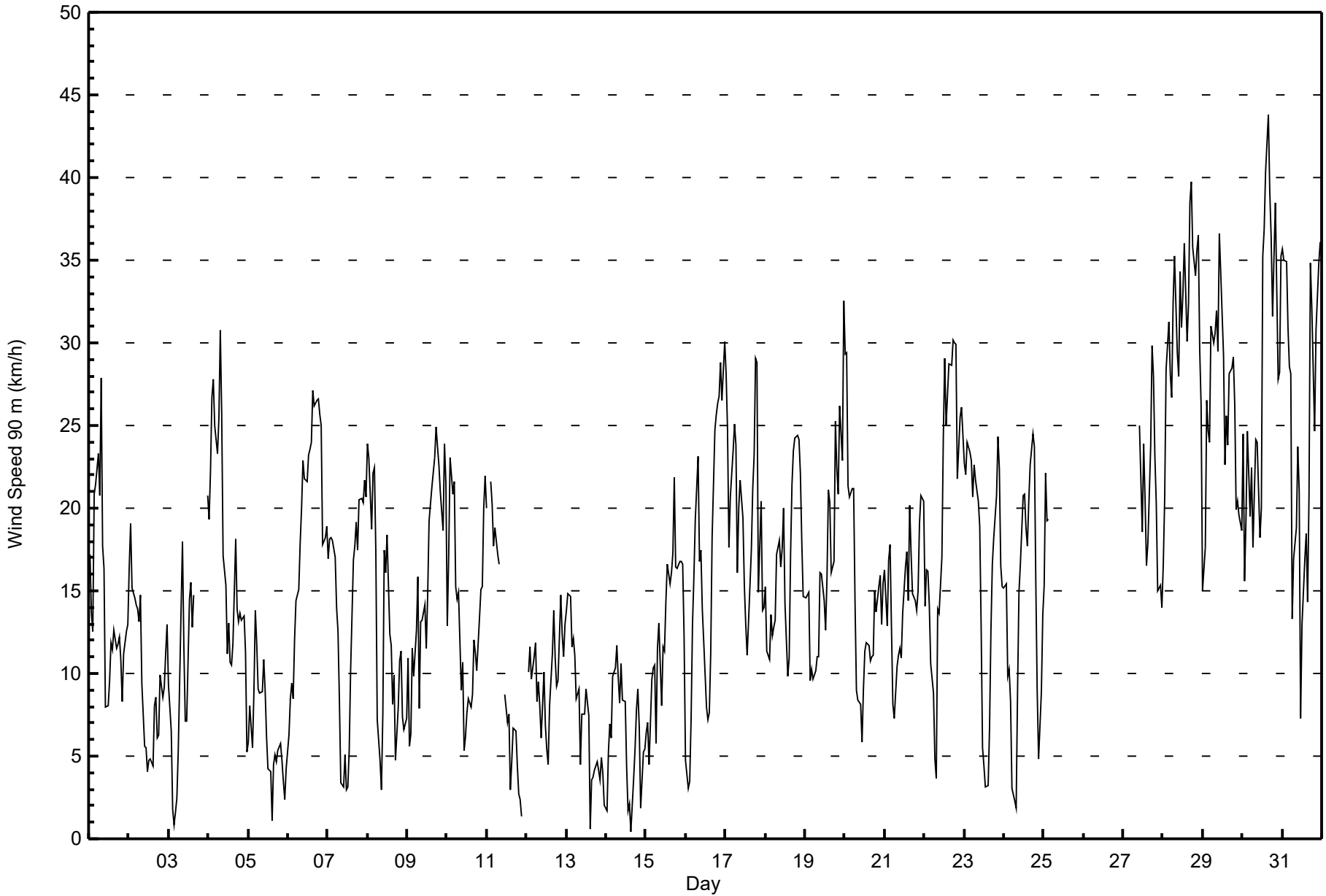
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Jan	WNW17	NW14	NW13	NNE21	NNE21	NNE23	N21	NNW28	N18	N16	N8	NNE8	NNW10	NNW12	WNW11	NW13	NNE12	NE12	NNE12	NNE11	NNE8	NNE11	NNE13	NNE13	N12.6	NNW28	
2-Jan	NNE16	NNE19	NNE15	NNE15	NNE14	NNE14	NNE13	NNE15	NNE9	NE6	ENE6	E4	ESE5	SSE5	SSW4	S8	S9	SSE6	SE6	SSE10	SSE9	SSE9	SSE11	SSE13	ENE4.0	NNE19	
3-Jan	S9	S6	SSW2	NNE1	ESE2	SSE2	SE5	SSE14	SSE18	S12	ESE7	NNE7	NNE15	N16	N13	N15	DF	DF	DF	DF	DF	DF	DF	N21	---	N21	
4-Jan	NNW19	NNW22	NNW27	NNW28	NNW25	NNW23	N25	N31	N26	N17	NNE15	N11	N13	N11	N11	N12	NNE18	NNE14	NNE13	N14	NNE13	NNE13	NNE11	ENE5	N16.9	N31	
5-Jan	NNE6	NNE8	NNE6	NW9	WNW14	WNW12	WNW9	W9	W9	W11	WSW9	W6	W4	NNW4	NE1	NE4	NE5	NE5	NE5	NNE6	ENE5	E3	ESE2	NE4	NW3.2	WNW14	
6-Jan	ENE6	NE8	ENE9	ENE8	NE12	NNE14	NNE15	NNE18	NNE20	N23	N22	N22	N23	N24	N24	N27	N26	N27	N27	N26	N25	N18	N18	N19	N18.2	N27	
7-Jan	N17	N18	NNE18	NNE18	NNE17	NNE14	NNE13	N8	NNE3	WNW3	WNW5	WSW3	SW3	SSE5	SE10	SSE17	SSE18	SSE19	SSE17	SSE20	SSE21	SSE20	SSE22	SSE21	ESE4.5	SSE22	
8-Jan	SSE24	SE23	SSE19	SSE22	SE22	SE17	SSE7	SSE5	S3	NW8	NNW17	NNW16	N18	NNW12	NNW12	N8	NNE10	N5	NNE8	NNE11	NNE11	NE7	NNE7	N7	ENE3.1	SSE24	
9-Jan	NNE11	NE6	E6	ENE12	NE10	NE13	NNE16	NE8	ENE13	NE13	NNE14	NNW11	NNW15	N19	N20	N21	N23	N25	N24	NNE23	N21	N19	NNE24	NNE22	NNE15.2	N25	
10-Jan	N13	NNE17	NNE23	NNE21	NNE22	NNE15	N15	N15	N9	N11	N5	NNW6	NNW8	NNW8	NNW8	NNE9	NNE12	NNE11	NNE10	NNE13	NNE15	NNE15	NNE20	NNE22	N13.2	NNE23	
11-Jan	NNE20	UO	NNE22	N20	N18	N19	N17	N17	UO	UO	UO	NNW9	NW7	NW8	NNW3	NNE5	NE7	NE7	NNE4	NNW3	NNW2	NW1	UO	W6	N9.2	NNE22	
12-Jan	UO	W10	W12	W10	W11	W12	SW8	SW10	SSW8	SSW6	S10	SSW7	SSW5	SSE4	SE8	SE11	SSE14	SSE11	S9	S10	SSE15	SSE12	SSE11	SE13	S6.7	SSE15	
13-Jan	SSE14	SE15	SE15	SSE12	SE12	SE11	SE8	SSE9	SE5	SSE8	SE8	SSE8	SSE9	SSE7	NW1	NW4	NNW4	NNE4	NNE5	N4	NW4	WNW5	NW4	NW2	SE4.6	SE15	
14-Jan	SW2	W5	NW7	NW6	WNW10	NW10	NNW12	NW10	NW8	NW11	WNW8	WNW8	NW4	NNW2	N2	E0	NNE4	NNE5	NNE8	NNE9	NE7	NW2	SW5	SW5	NW4.6	NNW12	
15-Jan	SW6	SW7	SW4	SE10	S10	SSE11	SSW6	SSE12	S13	S8	SSE12	S11	SSE14	SSE17	SSE15	SSE16	SSE17	SSE22	SSE16	S16	SSE17	SE17	SE17	SE17	SSE12.1	SSE22	
16-Jan	WSW5	SE3	NNW3	NNW7	NNW13	N16	N19	N23	NNW17	NNW17	NNW14	NNW12	WNW8	W7	NW8	NNW11	WNW18	WNW25	WNW26	WNW26	WNW27	WNW29	W27	WNW30	NW13.8	WNW30	
17-Jan	WNW28	NNW25	NNW18	NNE21	NNE23	NNE25	NNE24	NNE16	NNE20	NNE22	NNE19	NNE15	NNE13	N11	N13	NNE17	NNE21	NNE23	NNE29	NNE29	N15	N20	NNW14	NNW14	N17.7	NNE29	
18-Jan	NNW15	NNW11	NW11	WNW14	WNW12	NW13	WNW13	W17	W18	W16	W18	W20	WNW14	WNW10	WNW11	W17	W21	WNW23	WNW24	W24	WNW24	WNW22	WNW18	WNW15	WNW16.0	W24	
19-Jan	W15	W15	W15	WSW10	SW10	SSW10	SSW10	SSW11	S11	S16	SSE16	SSE14	SSE13	SSE16	SE21	SSE20	SSE16	SE17	SE25	SE22	SE21	SE26	SE23	SE33	SSE12.9	SE33	
20-Jan	SE29	SSE29	SSE21	SSE21	S21	S21	SSW14	SSW9	SW8	SW8	WSW6	WNW9	NW11	NW12	NW12	NW11	NW11	NNW11	N15	N14	N15	N16	N13	N15	SW1.5	SSE29	
21-Jan	NNE16	N13	NNE17	NNE18	NNE13	NNW8	NNW7	NW10	N11	N12	N11	N14	NNE16	N17	N14	N20	NNE17	NNE15	NNE14	NNE14	NNE15	NNE19	NNE21	NNE20	N14.2	NNE21	
22-Jan	NNE14	NNE16	NNE16	NNE14	N11	NNE9	NE5	E4	SE14	ESE14	SE17	SE24	SE29	SE25	SE27	SE29	SE29	SE30	SE30	SE30	SE22	SE26	SE26	SE24	ESE15.3	SE30	
23-Jan	SE23	SE22	SSE24	SSE23	SSE23	SSE21	SSE23	SSE22	S20	S19	S13	S5	SSE4	SSW3	NNW3	N7	NNW13	N17	N18	N21	N24	NNE22	N17	N15	ESE5.1	N24	
24-Jan	N15	N15	N10	N10	NNE8	N3	SW2	NE2	ESE9	SE15	SE17	SE21	SE21	SE19	SE18	SE20	SE23	SE24	SSE24	SSE16	SSE9	NW5	NNW9	N14	SE7.1	SE24	
25-Jan	N15	N22	N19	NNE19	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	N22	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	S25	S19	S24	SSW21	SW17	WSW18	WSW24	WSW30	WSW28	WSW23	WSW20	SW15	SW15	SW14	---	WSW30
28-Jan	S17	S21	SSE28	SSE31	SSE28	SE27	SSE32	S35	SSW29	SW28	SW34	SW31	WSW33	WSW36	WSW30	WSW32	W38	W40	W36	W34	W36	W37	WSW30	WSW26	SW23.4	W40	
29-Jan	SW15	SSE18	SSE27	S25	S24	S31	S30	SSE31	SSE32	SSE29	SSE37	SSE34	SSE29	SSE23	S26	S24	S28	S28	SSW29	S26	SSW20	SSW20	S20	S19	S24.8	SSE37	
30-Jan	SSW25	SSW16	S19	S25	S20	SSE22	SSE18	SE21	SE24	SE24	S18	SW20	SW35	WSW37	WSW40	WSW44	WSW39	WSW36	WSW32	WSW35	W38	W28	WSW28	WSW35	SW21.7	WSW44	
31-Jan	WSW36	WSW35	WSW35	WSW31	WSW29	WSW28	SW13	WSW17	WSW19	SW24	WSW21	SSW7	SE13	SE17	SSE18	SE14	ESE21	SE35	SE32	SE25	SE31	SE33	SE35	SE36	S14.2	SE36	

NNW2.2	NNW1.8	N2.0	NNE2.3	NNE1.7	NE1.8	NNE1.9	NNE0.7	SSE1.4	SSW1.3	S2.4	SW1.6	SW1.3	WSW1.8	WSW1.8	W1.5	NNW1.0	W0.6	NW0.8	NW1.2	NNW1.8	NNW1.4	N0.3	NW0.9	Diurnal Average
WSW36	WSW35	WSW35	SSE31	WSW29	SSE31	SSE32	S35	SSE32	SSE29	SSE37	SSE34	SW35	WSW37	WSW40	WSW44	WSW39	W40	W36	WSW35	W38	W37	SE35	SE36	Diurnal Maximum

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



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 15 km/h on Jan 11 14:00 Minimum Value: 0 km/h on Jan 13 16:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 7																	Hours in Service: 744 Hours of Data: 677 Hours of Missing Data: 67 Hours of Calibration: 0 Percent Operational Time: 91.0																														
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-Jan	2	2	4	3	4	5	6	5	3	2	3	2	3	2	2	3	3	3	2	3	3	2	3	3	6																						
2-Jan	3	3	4	2	3	2	3	3	3	3	2	1	2	1	2	3	1	2	2	2	1	1	1	1	4																						
3-Jan	1	2	1	1	1	1	2	3	1	4	2	2	1	3	2	3	DF	DF	DF	DF	DF	DF	DF	3	4																						
4-Jan	4	4	4	5	5	5	6	5	5	4	4	3	3	2	2	3	2	2	1	2	1	1	1	4	6																						
5-Jan	3	1	1	2	2	2	2	1	2	1	2	1	1	2	1	2	2	2	1	1	2	1	1	2	3																						
6-Jan	1	1	1	1	2	1	1	1	1	1	2	2	2	2	3	3	3	4	3	3	4	3	2	2	4																						
7-Jan	2	3	2	2	1	2	2	1	2	1	1	1	1	2	3	1	1	1	3	2	2	2	2	2	3																						
8-Jan	1	1	3	2	1	3	2	1	2	2	2	3	3	3	2	3	2	2	2	2	2	2	2	2	3																						
9-Jan	2	2	3	1	2	2	1	2	3	2	4	4	2	4	5	4	5	2	3	3	3	5	5	5	5																						
10-Jan	4	6	3	4	4	3	3	3	2	2	2	2	2	2	2	1	3	2	2	2	3	4	3	3	6																						
11-Jan	4	UO	4	3	3	3	3	5	UO	UO	UO	4	3	15	2	2	2	4	2	3	2	1	UO	2	15																						
12-Jan	UO	2	2	2	2	3	2	1	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	2	3																						
13-Jan	2	2	2	2	1	4	3	2	2	3	2	1	2	1	1	0	1	1	1	1	1	1	1	2	4																						
14-Jan	2	1	1	2	3	2	1	3	4	3	3	2	2	2	2	1	1	2	2	2	2	1	2	2	4																						
15-Jan	1	2	2	4	3	3	2	4	2	2	2	3	4	4	2	1	3	1	2	2	1	1	1	3	4																						
16-Jan	3	1	2	2	2	3	6	3	2	2	2	3	2	3	2	3	4	2	3	2	2	3	3	3	6																						
17-Jan	3	3	3	4	3	4	4	3	3	4	4	3	3	2	3	2	3	2	2	4	3	6	3	3	6																						
18-Jan	2	2	2	1	2	2	2	2	2	1	1	2	2	2	4	2	2	1	2	2	2	2	3	1	4																						
19-Jan	2	2	2	2	1	1	1	1	2	2	1	1	2	4	2	2	3	4	1	3	1	2	2	4	4																						
20-Jan	3	2	4	1	1	1	2	1	1	1	1	2	2	2	3	2	2	3	3	3	2	2	3	2	4																						
21-Jan	3	3	3	4	5	2	2	2	2	2	4	4	4	4	2	4	3	2	2	2	3	2	1	3	5																						
22-Jan	4	2	2	4	2	2	1	3	4	4	5	5	4	5	4	5	5	5	4	4	3	2	2	3	5																						
23-Jan	3	2	2	2	3	2	1	2	1	2	2	1	2	1	2	2	3	3	4	3	3	2	2	4	4																						
24-Jan	3	3	2	1	2	3	1	2	4	4	4	3	2	3	4	4	3	1	2	2	3	3	3	2	4																						
25-Jan	2	2	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2																						
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	3	1	2	3	3	2	3	5	2	2	2	2	5																						
28-Jan	3	1	4	2	6	4	4	3	3	3	3	4	5	6	5	4	4	3	5	4	4	3	3	2	6																						
29-Jan	5	6	4	6	2	2	2	1	1	2	2	2	5	3	1	1	1	2	3	4	3	1	3	8	8																						
30-Jan	3	2	4	2	2	2	4	3	2	3	6	9	3	6	7	7	6	7	6	6	6	3	5	3	9																						
31-Jan	3	3	4	5	5	4	7	2	2	2	5	2	2	2	3	3	6	6	5	4	5	5	5	5	7																						
Diurnal Maximum																								5	6	4	6	6	5	7	5	5	4	6	9	5	15	7	7	6	7	6	6	6	6	5	8
DF - DAS Failure UO - Unstable Operation																																															





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 90 m (WS90m) - km/h  
Mannix - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	75	11.08	11.08
6 - 11	157	23.19	34.27
12 - 19	226	33.38	67.65
20 - 28	157	23.19	90.84
29 - 38	58	8.57	99.41
> 38	4	0.59	100.00

Total Number of Valid Hours: 677

Total Number of Hours: 744





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

**Wind Speed 90 m (WS90m) - km/h**  
**Mannix - January 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	4	8	8	2	4	3	3	6	2	4	6	2	2	3	9	9	75
6 - 11	16	24	9	4	1	2	8	16	10	9	7	3	9	9	16	14	157
12 - 19	48	57	3	2	0	2	15	33	11	2	6	3	10	10	6	18	226
20 - 28	28	26	0	0	0	1	27	24	15	4	3	8	5	10	0	6	157
29 - 38	1	2	0	0	0	0	14	10	2	2	3	16	6	2	0	0	58
> 38	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4
<b>Totals</b>	97	117	20	8	5	8	67	89	40	21	25	35	33	34	31	47	677

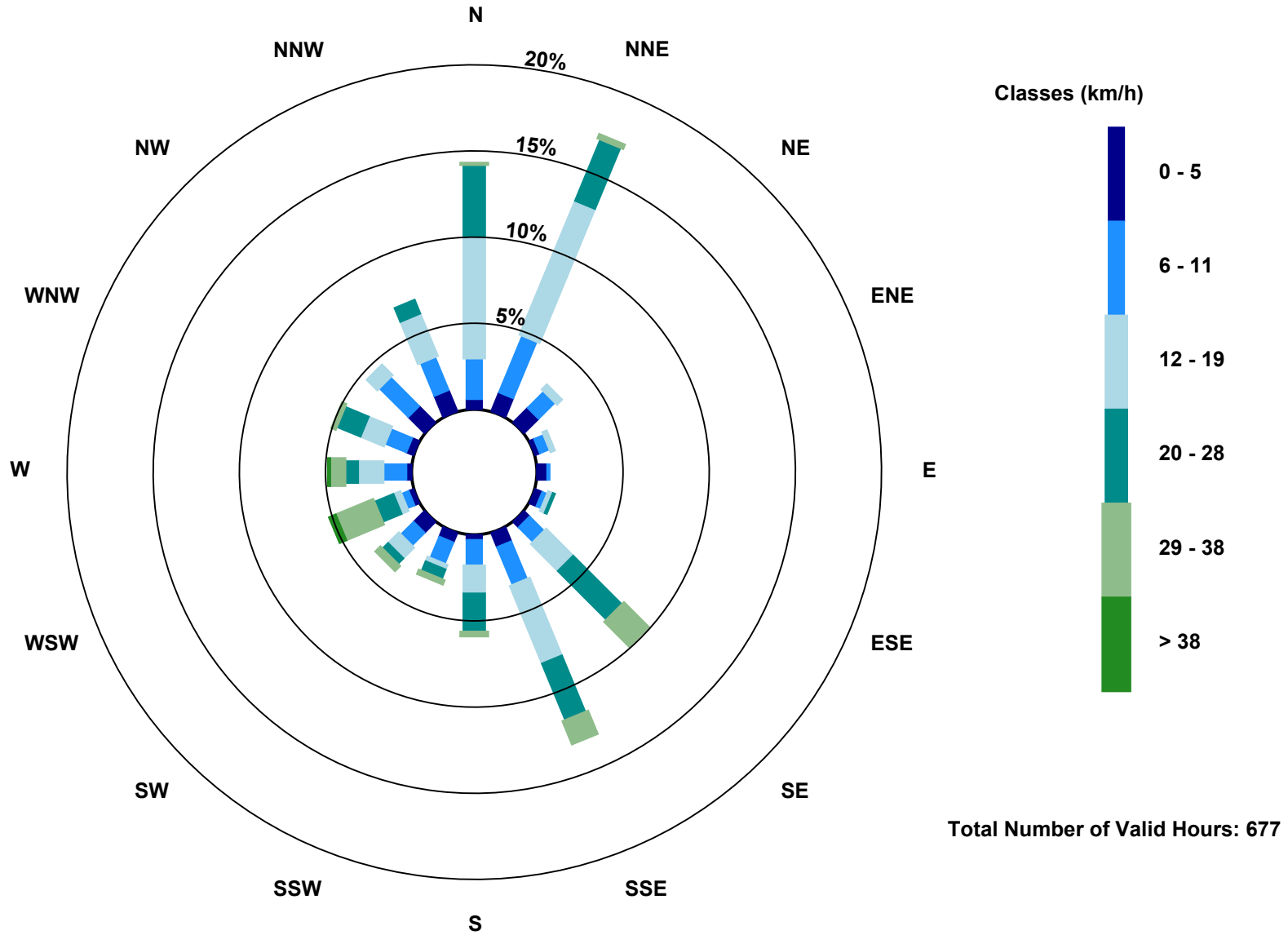
Total Number of Valid Hours: 677

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed 90 m (WS90m) - km/h  
Mannix





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Mannix - January 2024

Direction of Maximum Speed: 256 deg on Jan 30 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 156.8 deg on Jan 29	Hours of Data: 737
Direction of Minimum Speed: 304 deg on Jan 14 14:00	Direction of Minimum Daily Speed Average: 0.5 deg on Jan 14
Direction of Minimum Speed: 304 deg on Jan 14 14:00	Hours of Missing Data: 7
Monthly Average Direction: 348.3 deg	Percent Operational Time: 99.1

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-Jan	309	313	322	20	18	18	348	347	356	351	18	15	347	348	309	322	32	35	29	30	16	21	22	17	3.1
2-Jan	22	21	29	9	26	37	31	34	7	32	72	102	121	174	213	196	188	165	154	160	187	171	169	202	64.2
3-Jan	235	248	261	284	133	194	177	189	176	181	139	5	11	356	344	6	DF	DF	DF	DF	DF	DF	DF	348	--
4-Jan	339	341	343	348	348	349	5	12	10	8	15	355	12	358	359	350	16	10	9	359	9	9	1	337	359.7
5-Jan	324	336	309	296	301	294	288	272	264	261	253	262	266	6	48	41	46	40	16	14	13	6	341	8	320.9
6-Jan	9	8	8	9	10	11	4	10	9	6	7	4	0	353	348	354	354	358	360	352	348	349	349	354	359.7
7-Jan	1	359	11	14	32	21	10	349	350	284	279	256	216	159	148	170	167	172	162	155	165	159	151	160	114.5
8-Jan	150	149	156	151	149	154	194	252	278	321	309	326	351	332	318	320	356	294	2	25	38	44	358	346	350.0
9-Jan	8	352	21	47	21	27	19	16	40	18	20	334	344	10	9	355	355	15	14	21	11	10	13	18	12.4
10-Jan	7	26	20	15	17	12	0	1	333	337	329	329	316	330	340	18	12	9	19	17	30	23	18	16	7.7
11-Jan	21	17	12	13	14	15	11	9	26	24	17	347	315	313	356	32	44	47	351	281	275	277	250	248	5.9
12-Jan	247	247	258	244	246	233	208	199	179	169	174	159	161	160	158	162	170	169	173	170	170	179	156	156	188.2
13-Jan	176	165	183	164	152	168	213	137	171	180	172	171	163	165	162	150	144	170	230	250	54	97	92	102	171.4
14-Jan	205	264	39	302	293	53	21	294	307	279	96	245	94	304	110	109	115	30	3	13	270	253	208	159	267.8
15-Jan	161	166	144	152	162	147	153	147	152	152	154	164	153	161	169	160	168	173	201	214	157	152	171	182	160.8
16-Jan	137	162	183	325	357	325	327	322	307	289	328	289	260	80	128	275	274	284	291	286	279	279	278	283	288.8
17-Jan	287	299	335	30	33	29	21	13	27	31	26	26	22	4	0	20	15	18	17	18	338	8	335	329	7.5
18-Jan	334	314	297	271	280	308	275	266	264	260	253	271	297	303	294	269	264	264	264	271	278	292	280	250	276.8
19-Jan	243	248	249	182	171	163	160	157	157	156	153	147	142	144	149	153	180	166	155	159	149	150	151	152	162.2
20-Jan	149	150	161	158	157	166	173	170	169	196	239	291	318	310	309	313	326	334	349	5	7	4	357	3	316.1
21-Jan	11	11	22	33	29	321	320	315	354	348	344	357	12	3	357	14	32	29	15	15	35	32	34	32	11.7
22-Jan	23	25	26	18	5	12	358	187	175	136	135	138	140	139	137	137	137	137	139	138	145	151	145	144	128.5
23-Jan	139	143	148	149	155	157	154	168	162	165	175	158	152	181	357	357	341	3	11	2	10	13	5	7	103.4
24-Jan	355	5	349	6	8	296	263	306	17	250	245	154	152	151	149	146	148	149	152	222	262	333	331	1	143.9
25-Jan	329	5	2	12	14	7	7	2	341	337	330	294	273	255	196	158	150	156	156	168	174	194	171	178	5.3
26-Jan	168	172	176	198	266	310	260	269	233	183	164	161	158	153	156	168	163	159	148	158	171	154	157	166	172.4
27-Jan	174	283	294	149	155	151	149	170	185	137	141	149	147	145	151	194	246	251	246	225	197	167	162	158	174.1
28-Jan	151	147	143	155	160	160	170	168	160	165	194	222	243	260	259	257	260	258	258	267	277	270	262	268	229.9
29-Jan	183	155	157	168	152	152	150	151	156	161	155	154	168	163	150	156	157	163	167	155	149	150	154	153	156.8
30-Jan	158	149	157	154	148	140	149	163	173	175	184	153	220	238	244	256	255	259	242	238	266	274	249	254	220.3
31-Jan	251	259	251	255	255	252	192	209	210	209	208	146	136	141	164	141	134	137	135	136	136	133	132	136	174.0

308.4 354.3 11.2 39.6 35.5 37.2 16.9 337.7 158.2 169.1 153.6 176.7 198.1 258.7 218.4 245.5 201.9 189.0 258.7 307.8 303.1 324.9 197.8 253.9

Diurnal Average

DF - DAS Failure

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



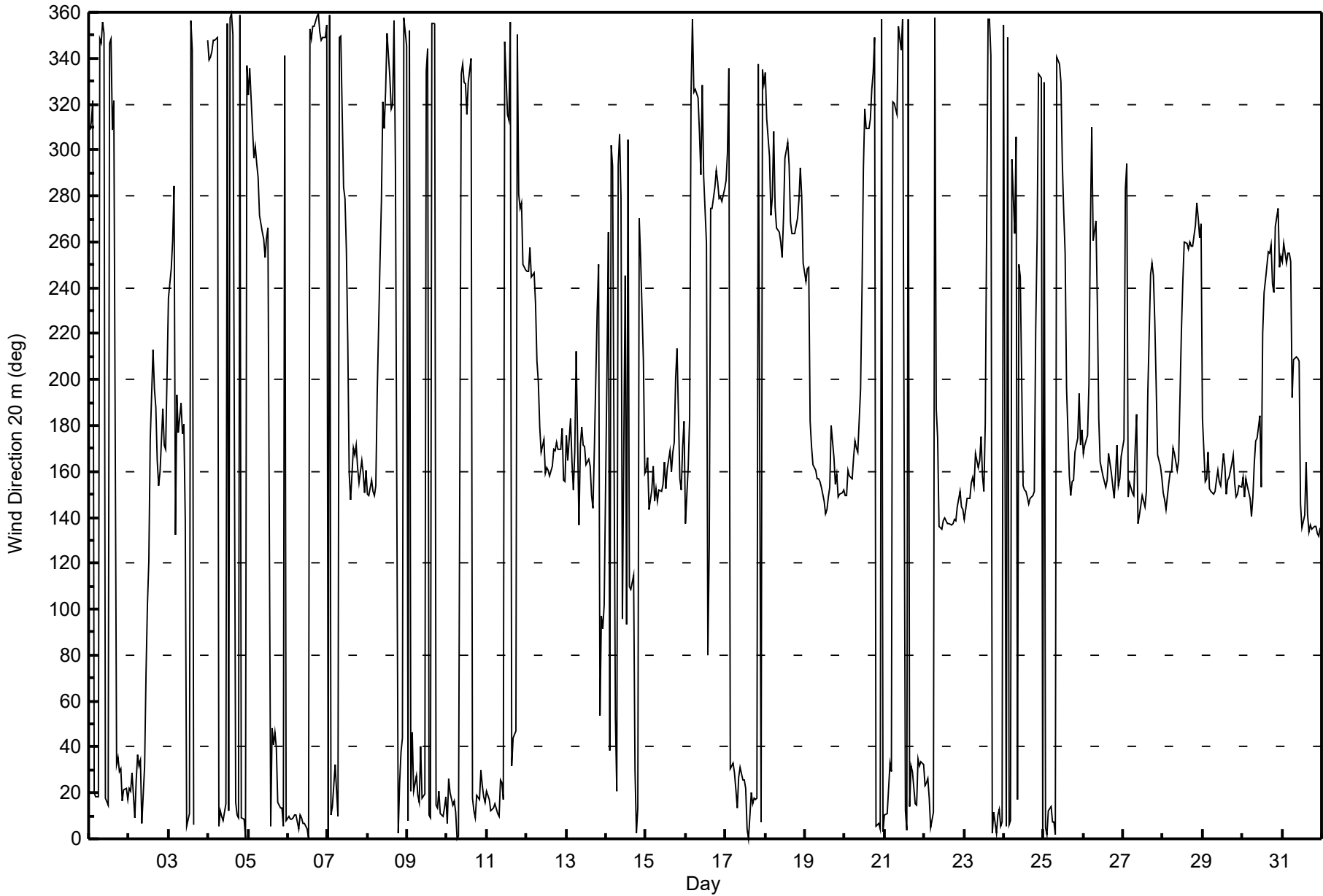
**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 20 m (WD20m) - deg**  
**Mannix - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 115 deg on Jan 27 02:00	Hours of Data: 737
Minimum Value: 5 deg on Jan 28 09:00	Hours of Missing Data: 7
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 8 Q <sub>1</sub> = 10 Median = 13 Q <sub>3</sub> = 19 P <sub>90</sub> = 31 P <sub>99</sub> = 88	Hours of Calibration: 0
	Percent Operational Time: 99.1

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-Jan	16	23	48	10	13	12	16	12	15	15	19	17	20	16	22	40	16	16	14	16	27	15	15	13	48
2-Jan	14	11	13	10	16	11	15	17	34	24	27	12	30	25	28	19	20	17	14	15	19	13	17	21	34
3-Jan	12	7	14	18	73	30	34	14	18	43	26	31	10	20	18	12	DF	DF	DF	DF	DF	DF	DF	15	73
4-Jan	14	12	14	13	14	14	13	10	12	15	13	20	19	21	18	11	10	15	11	15	12	15	52	52	
5-Jan	15	17	33	10	10	11	13	10	7	8	13	16	32	17	46	10	15	11	18	7	9	10	13	13	46
6-Jan	8	9	7	7	7	9	10	10	9	11	10	10	10	10	12	10	10	11	12	11	11	13	11	11	13
7-Jan	13	11	9	10	11	12	9	16	19	18	15	48	36	31	16	12	8	11	10	7	9	8	7	11	48
8-Jan	6	8	11	9	9	13	46	29	25	13	13	18	15	13	14	14	30	21	28	16	15	19	36	17	46
9-Jan	10	23	23	10	16	20	9	9	14	19	16	19	15	15	12	16	16	8	9	13	12	11	12	15	23
10-Jan	21	18	13	14	12	18	14	13	11	16	15	25	14	20	26	14	12	10	13	13	14	14	10	12	26
11-Jan	12	11	11	12	11	10	11	15	16	12	12	30	21	16	39	25	12	13	39	28	10	15	11	11	39
12-Jan	8	7	7	14	17	13	12	14	23	6	22	14	22	13	8	8	9	8	9	8	8	23	9	12	23
13-Jan	11	17	17	16	14	8	17	35	22	12	20	18	20	14	13	41	16	36	12	21	73	66	33	24	73
14-Jan	39	95	17	34	25	25	48	23	33	30	46	48	73	106	22	32	20	59	32	35	30	14	30	10	106
15-Jan	12	15	11	9	29	15	13	13	9	11	12	16	15	9	15	13	19	21	21	29	25	23	9	9	29
16-Jan	15	39	50	62	28	21	28	10	10	11	44	32	14	91	44	64	13	9	9	8	9	7	8	8	91
17-Jan	9	9	32	12	11	12	11	15	12	12	12	14	17	18	16	13	10	8	10	12	15	17	19	16	32
18-Jan	15	17	16	8	9	10	20	9	8	8	8	12	13	14	17	12	5	5	6	7	7	10	16	11	20
19-Jan	7	12	26	13	10	5	7	7	8	8	9	9	11	13	9	12	21	12	7	10	7	8	9	8	26
20-Jan	8	9	18	6	8	6	11	9	12	21	25	22	13	10	13	12	14	12	17	13	11	11	17	12	25
21-Jan	12	15	22	15	29	16	14	19	18	14	16	18	15	15	14	16	13	13	12	11	14	13	11	11	29
22-Jan	18	14	12	16	13	15	24	97	27	12	8	10	9	10	9	9	8	9	9	9	11	8	9	9	97
23-Jan	9	10	8	9	8	8	8	9	7	7	19	10	13	51	37	17	12	17	13	12	10	10	12	10	51
24-Jan	13	12	16	14	14	47	13	49	99	50	39	14	9	10	10	11	6	9	31	33	22	31	36	99	
25-Jan	23	11	11	10	11	9	11	13	13	13	15	20	22	25	33	31	12	9	9	14	26	23	18	19	33
26-Jan	12	17	66	26	43	28	15	13	21	26	18	38	40	45	34	24	22	28	24	24	36	30	57	99	99
27-Jan	83	115	98	73	58	39	13	30	73	13	19	10	10	18	10	20	12	8	9	9	13	9	6	7	115
28-Jan	8	8	8	13	13	16	16	12	5	8	21	10	11	11	10	10	8	8	8	10	8	6	6	6	21
29-Jan	37	9	8	12	7	11	8	7	5	8	7	8	11	18	9	7	7	5	11	17	7	8	6	10	37
30-Jan	7	9	8	8	7	8	10	17	16	23	38	18	13	11	11	11	10	10	15	13	15	8	10	9	38
31-Jan	9	7	10	10	8	13	47	19	9	16	24	16	8	9	10	15	8	8	7	8	8	7	8	8	47
	83	115	98	73	73	47	48	97	99	50	46	48	73	106	46	64	30	59	39	35	73	66	57	99	
	Diurnal Maximum																								

DF - DAS Failure





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 45 m (WD45m) - deg

Mannix - January 2024

Direction of Maximum Speed: 251 deg on Jan 30 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 155.3 deg on Jan 29	Hours of Data: 687
Direction of Minimum Speed: 333 deg on Jan 16 14:00	Hours of Missing Data: 57
Direction of Minimum Daily Speed Average: 0.4 deg on Jan 20	Percent Operational Time: 92.3
Monthly Average Direction: 28.2 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-Jan	302	316	317	15	14	15	346	343	352	348	13	15	341	344	303	316	28	32	26	27	15	19	17	15	357.7	
2-Jan	19	16	24	10	20	31	25	30	12	30	63	94	119	168	204	190	184	163	143	152	176	162	165	177	66.8	
3-Jan	201	216	264	276	67	177	162	181	170	181	127	8	9	356	347	3	DF	DF	DF	DF	DF	DF	DF	348	--	
4-Jan	339	338	340	344	345	346	3	7	5	5	12	351	10	358	355	352	14	9	7	360	7	5	0	340	356.8	
5-Jan	334	347	318	293	297	290	288	268	262	258	251	260	267	356	31	38	49	42	23	15	17	14	358	4	323.6	
6-Jan	7	13	19	24	16	10	2	7	6	2	2	359	357	349	347	351	350	355	356	349	346	349	348	351	358.0	
7-Jan	357	357	11	13	25	19	8	350	355	292	278	249	212	152	139	163	162	166	156	152	159	155	144	150	111.4	
8-Jan	145	144	148	147	142	147	180	209	260	315	312	327	351	331	318	328	1	313	10	23	29	39	12	352	26.0	
9-Jan	9	8	42	49	26	32	20	26	41	21	21	333	341	7	5	354	352	10	9	15	9	6	11	15	11.8	
10-Jan	4	19	15	12	13	13	358	359	340	342	341	327	316	331	338	17	12	9	20	15	27	23	17	12	6.3	
11-Jan	16	16	10	9	10	11	8	8	20	18	14	345	311	309	342	23	38	44	354	278	277	299	237	246	3.3	
12-Jan	252	246	257	246	244	232	210	208	192	161	166	156	166	150	143	146	159	155	161	157	166	176	163	156	182.0	
13-Jan	155	157	166	155	146	153	183	166	162	168	168	168	183	162	150	190	96	133	209	263	307	2	20	109	162.8	
14-Jan	161	181	344	319	303	347	358	325	296	293	250	231	247	258	116	91	85	49	30	31	322	241	227	172	302.7	
15-Jan	167	166	145	146	155	140	149	143	150	145	149	164	149	160	162	162	164	159	189	204	175	140	150	158	157.1	
16-Jan	146	132	147	145	356	337	339	335	318	306	338	307	259	333	96	306	290	282	287	284	276	276	275	279	292.8	
17-Jan	283	295	329	22	24	21	16	13	21	23	20	22	17	3	0	16	13	12	12	12	337	3	335	326	2.5	
18-Jan	331	316	299	273	280	306	276	264	261	257	252	269	293	298	285	265	262	267	269	270	275	290	279	261	276.4	
19-Jan	247	259	255	202	190	166	165	155	154	152	151	144	138	138	144	151	166	148	144	139	137	140	139	145	156.9	
20-Jan	144	145	153	157	155	160	178	175	179	203	237	286	312	307	308	313	322	331	347	2	5	360	356	2	256.7	
21-Jan	9	9	15	24	21	322	319	314	351	347	344	353	10	0	355	10	23	23	13	14	28	24	28	25	7.7	
22-Jan	20	18	21	15	1	13	8	74	143	126	126	133	134	134	133	132	131	132	134	134	138	145	139	139	122.1	
23-Jan	136	138	143	145	150	151	150	161	159	163	171	158	148	181	352	350	336	0	8	360	6	9	4	4	102.3	
24-Jan	354	3	348	5	8	314	262	326	97	178	160	143	142	143	143	138	141	144	148	161	156	328	344	10	120.2	
25-Jan	342	0	359	11	11	3	358	UO	UO	UO	UO	UO	UO	UO	244	188	170	UO	UO	UO	UO	UO	UO	UO	UO	--
26-Jan	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	--
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	155	187	225	244	249	248	235	217	186	168	170	--
28-Jan	154	152	141	147	152	148	164	168	166	175	203	222	240	255	254	253	256	255	255	262	269	264	257	256	218.9	
29-Jan	211	153	155	167	154	153	154	150	143	138	145	149	164	165	151	153	156	164	178	164	154	151	149	150	155.3	
30-Jan	162	157	154	155	147	135	141	147	159	165	181	174	224	235	241	251	250	254	239	235	262	269	247	251	212.7	
31-Jan	248	253	246	249	251	246	202	215	215	214	214	154	132	137	158	137	125	131	130	132	134	128	129	132	175.6	

300.9	14.5	33.2	52.3	41.2	45.8	37.2	54.6	145.1	157.2	158.5	189.2	273.7	260.5	222.4	245.0	246.3	189.9	286.0	299.2	301.5	342.1	78.4	56.0
Diurnal Average																							

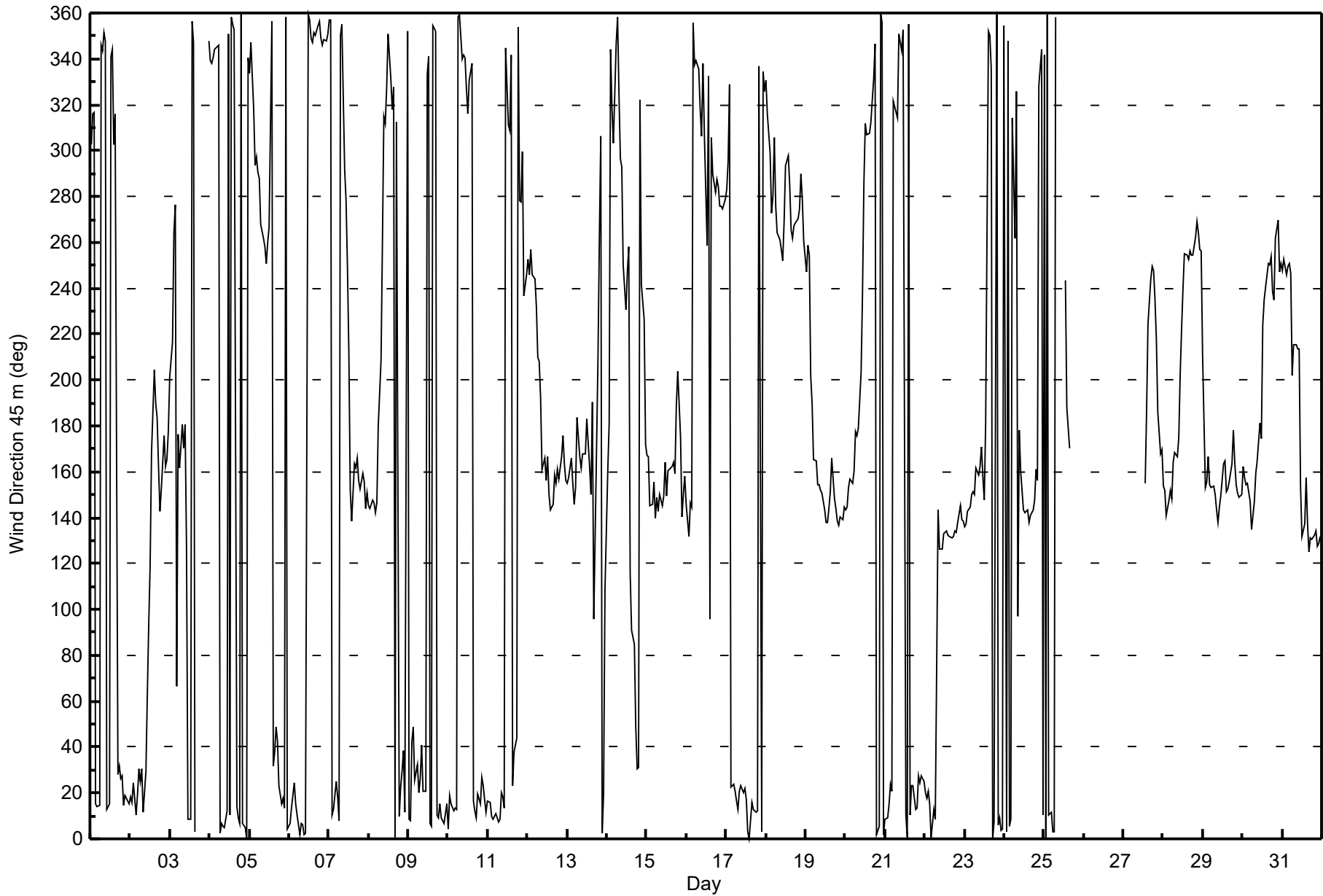
DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



Summary of Hour Standard Deviations

Mannix - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0														Hours in Service: 744												
Maximum Value: 89 deg on Jan 14 13:00														Hours of Data: 687												
Minimum Value: 2 deg on Jan 28 09:00														Hours of Missing Data: 57												
Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 24 P <sub>99</sub> = 65														Hours of Calibration: 0												
														Percent Operational Time: 92.3												
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	13	16	44	7	9	8	15	8	12	10	16	13	17	12	19	38	10	12	10	12	28	10	10	9	44	
2-Jan	10	8	10	7	11	9	11	12	26	16	22	14	30	22	19	13	9	16	12	11	13	11	16	17	30	
3-Jan	4	20	17	38	87	45	26	7	13	31	30	23	8	14	14	8	DF	DF	DF	DF	DF	DF	DF	10	87	
4-Jan	11	10	12	11	12	12	10	7	9	12	10	17	15	15	17	15	8	7	11	7	12	8	12	53	53	
5-Jan	12	13	30	7	8	8	10	9	7	6	10	13	30	15	50	9	11	8	15	6	6	10	9	8	50	
6-Jan	9	8	5	6	5	6	6	7	4	5	5	6	6	7	9	6	6	8	7	7	7	9	8	7	9	
7-Jan	8	8	7	8	7	8	5	12	19	12	13	46	25	25	10	8	4	6	7	6	6	6	6	6	46	
8-Jan	4	5	8	7	6	11	11	33	38	11	10	17	10	12	11	15	28	20	18	11	10	13	30	12	38	
9-Jan	8	19	23	11	8	10	6	7	11	13	15	16	13	10	8	11	14	5	6	9	8	9	8	10	23	
10-Jan	16	13	9	10	9	13	10	9	8	10	11	16	12	18	23	10	9	7	9	10	10	11	8	9	23	
11-Jan	9	9	8	8	8	7	8	9	11	9	10	27	17	12	32	24	9	9	29	30	11	9	7	12	32	
12-Jan	8	5	5	9	11	9	9	7	26	9	15	13	22	12	8	7	6	4	5	4	4	7	6	8	26	
13-Jan	9	3	7	8	7	6	11	25	9	3	6	20	22	29	22	52	14	25	30	13	15	41	31	16	52	
14-Jan	26	44	58	27	12	18	27	18	18	12	64	27	89	81	30	34	11	17	8	20	56	9	8	21	89	
15-Jan	6	9	15	5	17	8	7	10	5	6	9	15	14	7	10	9	9	10	12	7	19	6	6	6	19	
16-Jan	8	10	14	79	25	11	20	8	8	9	29	25	14	88	69	47	11	6	7	6	8	5	6	6	88	
17-Jan	6	8	31	8	7	8	8	11	8	8	8	10	12	15	14	9	7	5	6	9	11	14	16	13	31	
18-Jan	12	14	12	6	6	5	17	8	6	7	6	10	9	10	14	10	4	5	4	5	6	7	14	8	17	
19-Jan	7	6	14	11	12	6	8	4	4	5	7	8	9	10	7	10	15	10	5	3	5	5	7	5	15	
20-Jan	6	6	12	4	5	6	6	5	11	14	18	21	10	7	9	10	12	9	15	11	8	8	13	9	21	
21-Jan	9	12	17	12	24	14	11	17	14	11	13	15	11	11	10	12	10	10	8	8	10	8	7	8	24	
22-Jan	13	11	8	11	9	12	19	76	17	10	7	7	7	8	6	6	6	6	7	7	8	6	7	7	76	
23-Jan	7	7	7	6	5	6	6	6	4	5	10	10	13	45	29	15	9	15	9	8	5	6	7	7	45	
24-Jan	9	7	10	12	9	48	12	43	45	48	26	8	7	8	8	7	7	4	6	9	50	28	5	20	50	
25-Jan	15	6	6	8	7	5	7	8	UO	UO	UO	UO	UO	UO	22	21	23	UO	UO	UO	UO	UO	UO	UO	23	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	13	16	7	8	4	5	6	9	11	5	9	16
28-Jan	4	7	4	7	9	10	11	6	2	9	14	7	9	8	9	8	5	5	5	7	6	5	4	4	14	
29-Jan	27	10	6	6	6	9	5	4	4	9	7	6	7	12	4	4	6	3	6	12	7	6	3	8	27	
30-Jan	7	4	5	6	5	6	7	10	10	17	28	18	5	9	9	9	8	8	12	11	14	6	8	5	28	
31-Jan	6	5	6	7	6	9	46	16	5	11	20	25	7	7	7	14	7	6	5	7	7	4	6	6	46	
														27 44 58 79 87 48 46 76 45 48 64 46 89 88 69 52 28 25 30 30 56 41 31 53												
														Diurnal Maximum												
DF - DAS Failure														UO - Unstable Operation												







Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 75 m (WD75m) - deg

Mannix - January 2024

Direction of Maximum Speed: 252 deg on Jan 30 16:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 166.4 deg on Jan 29		Hours of Data:	683
Direction of Minimum Speed: 296 deg on Jan 3 04:00		Hours of Missing Data:	61
Direction of Minimum Daily Speed Average: 1.2 deg on Jan 20		Percent Operational Time:	91.8
Monthly Average Direction: 83.6 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-Jan	295	309	314	17	17	17	351	348	353	352	14	19	344	345	303	316	30	36	29	33	19	24	22	19	359.1	
2-Jan	22	19	28	19	24	33	28	33	24	36	67	95	120	167	203	187	183	166	143	149	167	160	166	170	71.6	
3-Jan	188	179	229	296	83	166	137	172	163	179	122	23	17	3	360	8	DF	DF	DF	DF	DF	DF	DF	355	--	
4-Jan	347	343	347	349	349	349	6	9	7	9	15	355	13	4	2	1	19	15	15	6	13	16	17	35	2.5	
5-Jan	5	9	354	302	298	294	294	270	265	260	253	261	268	353	41	42	54	54	41	26	47	54	62	28	323.9	
6-Jan	37	42	50	54	39	29	13	14	15	10	8	4	3	355	354	357	355	359	1	354	352	355	354	356	6.1	
7-Jan	0	3	17	19	29	23	15	358	8	296	282	244	213	150	140	162	160	164	157	155	160	157	146	151	118.0	
8-Jan	147	146	148	148	143	144	163	166	204	318	331	342	358	344	328	347	12	349	17	27	30	39	22	3	67.8	
9-Jan	18	30	70	61	38	43	28	44	54	33	31	342	347	9	7	1	357	13	13	16	12	9	14	16	17.6	
10-Jan	7	18	16	15	17	20	4	4	356	351	1	335	330	341	343	20	17	15	26	19	30	28	21	14	11.6	
11-Jan	18	19	15	12	12	12	8	13	20	18	15	348	315	310	339	22	41	53	339	289	299	279	239	250	6.7	
12-Jan	267	256	272	259	252	242	222	214	209	177	175	192	186	150	137	137	152	162	176	161	161	165	142	138	188.3	
13-Jan	142	136	144	143	138	138	155	165	138	154	148	146	158	153	149	299	360	50	44	23	327	303	316	17	143.2	
14-Jan	177	292	327	312	298	317	340	318	305	290	288	246	293	329	137	132	79	49	40	45	64	178	199	196	313.0	
15-Jan	184	195	174	141	161	150	160	151	163	156	153	167	154	162	155	158	152	148	163	179	159	140	145	159	157.8	
16-Jan	173	139	84	353	350	357	357	353	339	330	345	329	279	268	318	327	297	287	292	291	280	281	279	282	307.3	
17-Jan	286	299	333	24	25	21	18	17	23	25	22	25	22	8	7	19	16	15	15	16	347	6	341	331	6.0	
18-Jan	337	329	310	285	289	318	287	271	268	262	262	276	298	300	283	270	266	279	279	277	281	296	287	278	284.0	
19-Jan	261	268	268	227	210	199	195	174	170	163	159	154	150	144	147	158	154	140	141	137	139	138	136	144	161.1	
20-Jan	145	148	153	161	169	176	192	200	206	221	242	284	311	312	315	320	326	340	354	5	10	4	1	7	209.5	
21-Jan	14	13	19	23	19	332	327	320	356	353	354	358	15	4	358	13	24	25	18	18	29	25	29	26	12.0	
22-Jan	24	18	22	20	8	24	32	89	136	126	128	136	137	138	136	135	134	135	137	137	141	147	141	142	124.8	
23-Jan	141	141	147	149	152	153	153	160	165	172	175	171	159	197	351	352	340	5	11	4	10	14	9	6	116.9	
24-Jan	0	7	358	12	17	351	257	28	121	143	139	142	143	144	140	143	145	152	161	163	317	342	8	8	125.4	
25-Jan	359	7	5	16	16	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	169	160	186	213	234	246	250	251	243	233	216	201	201	--
28-Jan	171	173	154	157	151	143	157	176	188	205	218	229	243	257	256	254	258	258	257	263	268	265	257	255	223.6	
29-Jan	228	161	164	178	174	163	166	160	152	142	146	148	160	166	164	168	166	176	192	180	186	181	163	166	166.4	
30-Jan	182	189	176	178	165	154	147	141	147	151	183	212	230	238	242	252	252	255	242	238	264	273	253	254	220.8	
31-Jan	252	254	246	251	251	247	223	230	234	229	235	178	137	140	157	141	126	135	135	139	141	133	135	136	187.1	

304.8	355.1	26.9	52.3	48.6	68.4	51.5	101.2	145.3	167.3	167.2	190.5	190.9	236.0	226.7	252.3	253.9	201.5	279.3	305.0	297.2	339.1	105.3	2.9
Diurnal Average																							

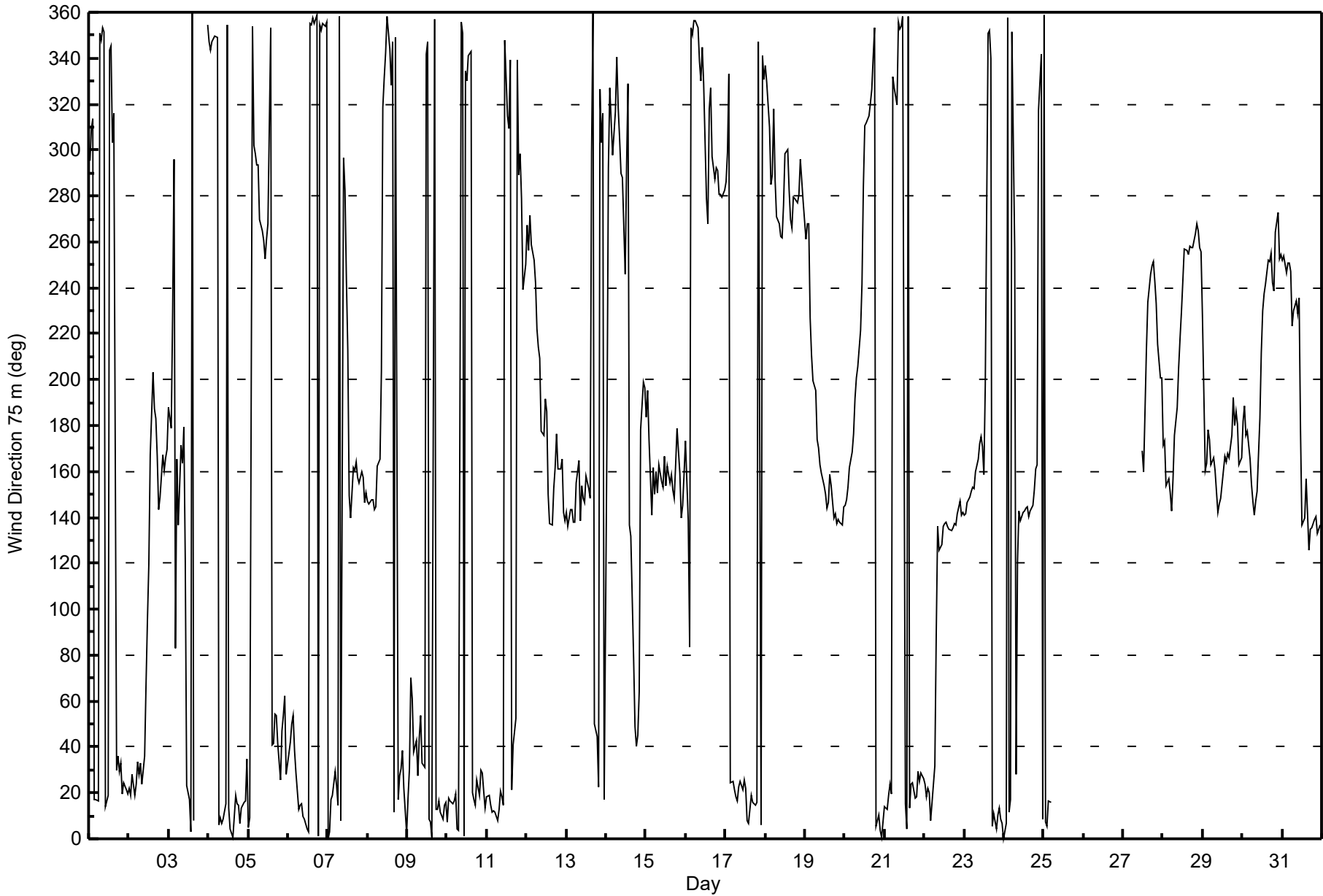
DF - DAS Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



Summary of Hour Standard Deviations

Mannix - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 91 deg on Jan 3 05:00  Minimum Value: 2 deg on Jan 8 01:00  Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 13 P <sub>90</sub> = 21 P <sub>99</sub> = 64														Hours in Service: 744 Hours of Data: 683 Hours of Missing Data: 61 Hours of Calibration: 0 Percent Operational Time: 91.8																								
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-Jan	11	15	39	5	7	7	13	6	11	7	15	11	16	11	19	36	10	9	8	10	21	9	9	9	39													
2-Jan	8	7	8	6	9	9	9	9	19	15	19	16	29	19	16	10	6	13	13	8	12	10	15	15	29													
3-Jan	5	20	12	65	91	38	25	9	11	25	30	18	7	10	10	7	DF	DF	DF	DF	DF	DF	DF	7	91													
4-Jan	9	9	9	9	10	10	8	6	7	11	8	15	13	13	15	11	7	7	10	5	11	8	14	56	56													
5-Jan	16	10	34	5	7	7	11	8	4	4	7	12	27	18	68	11	10	8	15	8	17	27	53	17	68													
6-Jan	15	8	8	4	6	8	6	7	3	3	4	5	5	6	8	5	5	5	6	6	5	8	6	5	15													
7-Jan	6	9	6	7	5	6	5	8	19	19	8	42	24	23	8	5	2	4	6	5	6	5	5	3	42													
8-Jan	2	3	5	4	4	8	10	29	56	13	8	14	9	12	10	16	19	18	12	9	8	12	19	11	56													
9-Jan	5	15	24	11	8	7	6	11	11	10	14	14	12	7	7	9	11	4	5	6	7	8	7	8	24													
10-Jan	12	10	6	8	8	10	9	7	7	6	12	13	14	16	21	8	7	6	7	8	9	9	6	7	21													
11-Jan	8	8	7	6	7	6	7	8	10	6	8	23	16	11	28	19	8	15	67	64	45	61	23	22	67													
12-Jan	15	12	10	15	15	10	17	17	19	23	18	24	23	15	7	5	6	7	7	10	5	7	6	6	24													
13-Jan	4	4	8	9	7	6	20	20	21	16	12	7	7	9	49	25	8	25	32	16	22	15	27	52	52													
14-Jan	50	29	19	15	7	13	13	12	10	4	21	23	60	87	37	41	7	14	8	8	38	22	14	10	87													
15-Jan	8	14	31	5	10	5	6	8	4	7	6	13	10	4	3	3	5	7	10	4	11	6	4	15	31													
16-Jan	72	20	71	27	13	8	11	6	7	9	20	17	23	32	22	15	8	4	5	5	7	5	6	6	72													
17-Jan	5	8	28	6	5	6	5	9	7	6	6	8	9	14	13	6	4	3	3	7	11	12	15	12	28													
18-Jan	10	12	10	6	6	7	14	7	4	5	3	8	8	8	9	11	4	9	4	6	6	4	12	8	14													
19-Jan	9	6	12	10	7	9	11	7	5	3	6	8	9	6	4	7	7	5	4	3	3	2	3	3	12													
20-Jan	4	4	8	4	4	4	5	6	7	10	14	19	8	7	9	10	11	9	14	10	8	5	10	7	19													
21-Jan	7	9	14	10	20	14	13	15	15	11	13	14	10	9	9	11	7	8	7	7	8	6	4	4	20													
22-Jan	12	8	6	10	6	12	12	55	10	13	10	6	6	7	5	6	5	5	5	6	7	5	4	5	55													
23-Jan	5	4	5	4	4	4	4	4	5	4	5	10	15	39	34	15	7	12	7	6	4	5	5	5	39													
24-Jan	6	5	7	9	10	61	25	50	23	12	6	6	5	8	7	6	5	3	4	5	29	21	4	17	61													
25-Jan	9	5	5	7	6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9													
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	13													
28-Jan	5	10	2	5	9	5	6	7	5	7	6	7	8	8	8	8	5	4	4	6	6	4	4	5	10													
29-Jan	23	14	4	6	8	7	3	6	3	4	3	3	7	8	4	5	4	4	3	8	8	9	7	11	23													
30-Jan	12	7	5	5	8	8	11	7	6	14	20	14	4	7	8	8	7	7	11	10	14	6	7	5	20													
31-Jan	5	4	4	5	6	6	39	14	6	9	17	28	7	5	6	15	11	5	4	6	6	4	4	5	39													
														Diurnal Maximum																								
														72	29	71	65	91	61	39	55	56	25	30	42	60	87	68	41	19	25	67	64	45	61	53	56	
DF - DAS Failure UO - Unstable Operation																																						

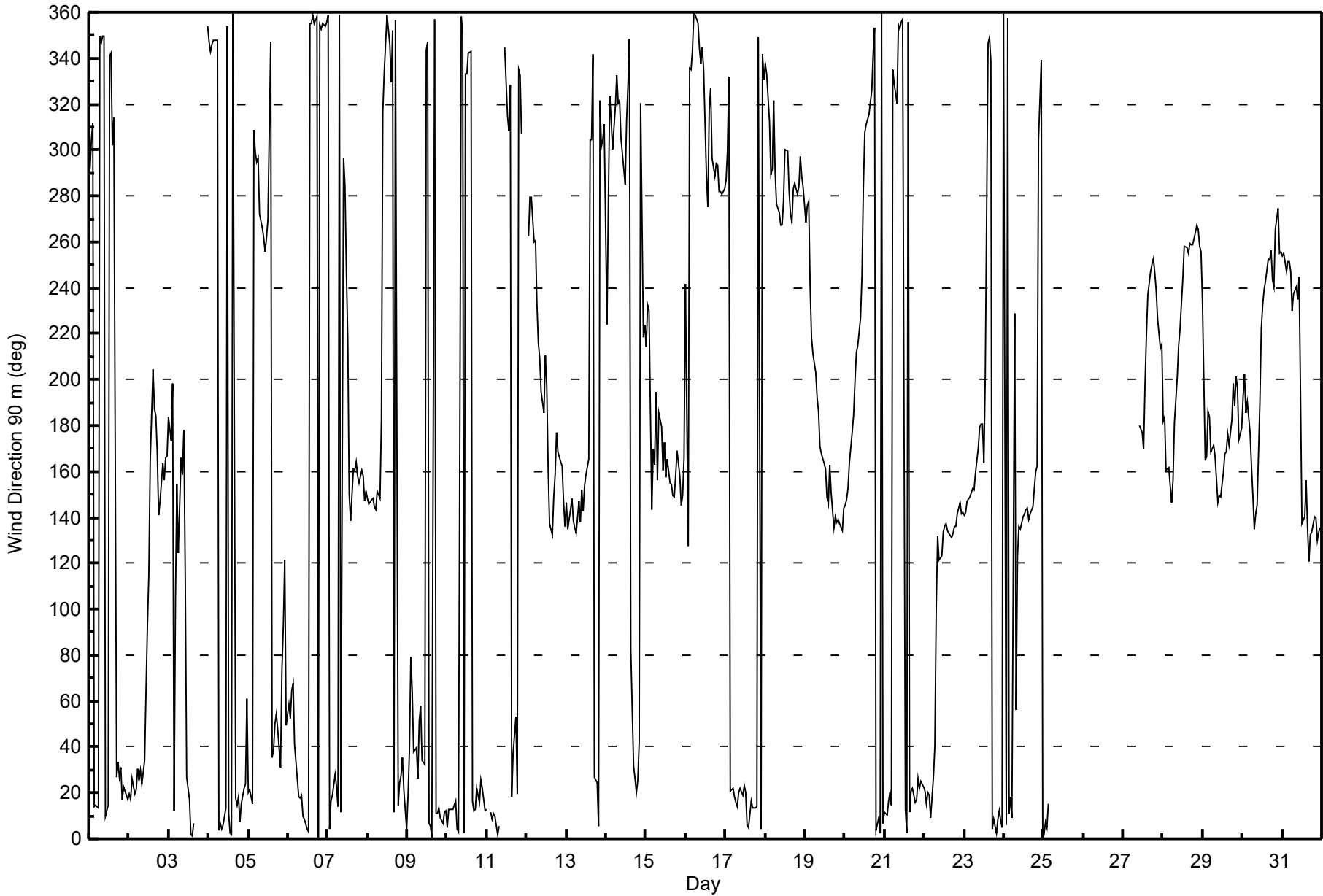




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 90 m (WD90m) - deg**  
**Mannix - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Jan 14 16:00 Minimum Value: 1 deg on Jan 8 01:00 Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 4 Q <sub>1</sub> = 5 Median = 8 Q <sub>3</sub> = 13 P <sub>90</sub> = 21 P <sub>99</sub> = 70																	Hours in Service: 744 Hours of Data: 677 Hours of Missing Data: 67 Hours of Calibration: 0 Percent Operational Time: 91.0									
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-Jan	10	14	36	4	7	7	12	6	10	6	14	10	15	11	17	33	12	9	7	9	19	9	8	9	36	
2-Jan	8	6	8	6	8	8	8	8	16	15	22	15	27	20	18	9	6	13	13	8	12	12	15	14	27	
3-Jan	5	14	28	87	70	38	21	11	12	23	31	16	9	9	6	DF	DF	DF	DF	DF	DF	DF	DF	7	87	
4-Jan	9	8	8	8	10	9	8	5	7	10	7	14	12	14	10	6	7	9	5	11	9	13	80	80		
5-Jan	24	11	27	10	7	6	10	9	4	3	7	12	24	20	67	15	11	11	16	13	27	27	32	29	67	
6-Jan	15	10	11	8	8	6	7	8	5	6	4	4	4	6	7	4	4	4	4	5	5	8	6	5	15	
7-Jan	6	10	6	7	4	5	4	8	22	24	10	38	26	24	8	5	2	3	6	5	5	5	4	3	38	
8-Jan	1	3	5	3	4	6	11	18	57	13	5	11	8	12	9	15	15	15	11	8	7	11	16	11	57	
9-Jan	5	15	22	15	7	6	5	17	13	9	13	13	11	6	6	7	10	4	5	5	6	7	8	7	22	
10-Jan	12	9	5	7	6	10	10	7	10	6	11	12	15	14	19	8	8	7	7	7	9	12	7	6	19	
11-Jan	8	UO	8	7	8	5	7	8	UO	UO	UO	18	18	18	37	27	10	26	42	36	29	43	UO	18	43	
12-Jan	UO	15	11	11	11	13	23	6	14	28	20	13	18	15	6	5	4	7	8	11	4	6	5	4	28	
13-Jan	5	4	6	7	5	12	26	16	32	18	24	5	4	8	96	14	5	15	11	16	16	14	19	48	96	
14-Jan	82	28	18	20	8	12	8	7	14	6	18	14	19	68	81	98	38	27	18	12	24	73	25	18	98	
15-Jan	15	18	48	18	18	15	23	12	10	16	8	14	11	6	2	3	5	7	8	3	9	6	3	28	48	
16-Jan	32	18	64	14	13	7	8	5	6	8	15	13	26	22	12	14	7	3	5	5	6	4	5	5	64	
17-Jan	5	7	26	5	5	5	4	8	6	6	6	8	8	13	13	5	4	2	3	6	10	11	15	11	26	
18-Jan	9	11	9	7	6	10	12	6	4	4	2	7	7	8	8	11	5	9	5	6	6	4	10	6	12	
19-Jan	10	6	12	9	6	8	9	9	10	4	6	10	8	6	3	6	5	4	3	3	3	2	3	3	12	
20-Jan	3	3	7	6	5	4	6	5	6	9	12	17	7	6	8	10	11	10	13	10	7	5	10	6	17	
21-Jan	6	9	13	9	18	13	14	13	15	11	12	13	9	8	9	9	6	7	6	6	7	6	3	4	18	
22-Jan	11	7	5	8	6	12	13	40	9	11	9	6	6	6	5	5	5	5	6	5	7	4	3	4	40	
23-Jan	5	4	4	3	3	4	3	4	6	4	5	12	19	37	35	15	6	12	7	6	4	4	5	5	37	
24-Jan	6	5	6	8	11	66	39	62	14	7	5	5	4	7	7	5	5	3	3	4	17	36	5	15	66	
25-Jan	9	6	5	7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	10	5	10	11	5	5	3	4	4	5	9	7	13	13
28-Jan	7	9	3	6	9	4	5	9	6	6	5	7	7	8	8	7	5	4	4	5	5	4	4	4	9	
29-Jan	19	17	5	10	10	6	3	6	3	4	3	3	6	7	4	7	3	6	3	6	8	10	10	16	19	
30-Jan	13	6	6	4	11	6	14	5	5	11	23	13	4	7	7	8	7	7	10	9	13	6	7	4	23	
31-Jan	5	4	4	5	5	5	34	12	6	6	14	27	6	5	7	15	8	5	4	6	6	4	4	5	34	
Diurnal Maximum																										
DF - DAS Failure      UO - Unstable Operation																										





Maximum Value: 3.2 km/h on Jan 26 17:00      Maximum Daily Average: 1.2 km/h on Jan 27																								Hours in Service: 744 Hours of Data: 737			
Minimum Value: -0.9 km/h on Jan 6 13:00      Minimum Daily Average: -0.5 km/h on Jan 6 Maximum Diurnal Average: 0.2 km/h at hour 11      Minimum Diurnal Average: 0.0 km/h at hour 20 Monthly Average: 0.11 km/h      Percentiles: P <sub>1</sub> = -0.7 P <sub>10</sub> = -0.4 Q <sub>1</sub> = -0.2 Median = 0.0 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 2.4																								Hours of Missing Data: 7 Hours of Calibration: 0 Percent Operational Time: 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-Jan	-0.2	-0.2	-0.2	-0.4	-0.3	-0.6	-0.4	-0.6	-0.5	-0.2	0.1	-0.2	-0.1	-0.1	0.0	-0.2	-0.2	0.0	-0.1	-0.1	-0.2	0.0	-0.1	-0.2	-0.2	0.1	0.1
2-Jan	-0.1	-0.5	-0.2	-0.4	-0.1	-0.1	-0.2	0.0	0.1	-0.1	0.2	0.0	0.4	0.2	0.0	0.1	0.2	0.2	0.4	0.3	0.1	0.3	0.2	0.0	0.0	0.0	0.4
3-Jan	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	-0.1	-0.5	-0.4	-0.1	-0.3	DF	DF	DF	DF	DF	DF	DF	DF	-0.4	0.3	
4-Jan	-0.3	-0.4	-0.3	-0.6	-0.5	-0.5	-0.4	-0.7	-0.5	-0.4	-0.1	-0.3	-0.1	-0.2	0.0	-0.2	-0.4	-0.4	-0.3	-0.3	-0.1	-0.3	-0.2	0.1	-0.3	0.1	
5-Jan	-0.1	-0.2	0.0	-0.1	-0.3	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.3	0.0	-0.1	-0.2	-0.3	-0.2	-0.2	-0.3	-0.1	0.3	
6-Jan	-0.3	-0.4	-0.4	-0.5	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.7	-0.5	-0.9	-0.6	-0.5	-0.8	-0.6	-0.8	-0.6	-0.5	-0.6	-0.4	-0.5	-0.5	-0.5	-0.3	
7-Jan	-0.3	-0.4	-0.5	-0.5	-0.1	-0.2	-0.4	-0.2	-0.1	0.0	0.0	0.1	0.1	0.3	0.4	0.3	0.4	0.3	0.6	0.7	0.7	0.8	0.6	0.5	0.1	0.8	
8-Jan	0.6	0.5	0.4	0.6	0.6	0.4	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.4	-0.1	-0.2	-0.1	-0.2	0.0	0.0	0.2	0.0	0.3	-0.1	-0.2	0.1	0.6	
9-Jan	-0.4	-0.1	-0.1	0.0	-0.2	-0.1	-0.3	-0.2	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	-0.6	-0.4	-0.7	-0.8	-0.7	-0.5	-0.5	-0.5	-0.7	-0.1	-0.3	0.0	
10-Jan	-0.1	0.1	-0.3	-0.3	-0.5	-0.3	-0.4	-0.4	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	-0.2	-0.4	-0.2	-0.2	0.1	0.0	-0.3	-0.3	-0.2	0.1	
11-Jan	-0.6	-0.4	-0.6	-0.5	-0.4	-0.5	-0.4	-0.3	0.2	-0.1	-0.2	-0.3	0.0	-0.2	0.1	0.2	0.0	0.1	0.0	0.0	0.0	-0.1	0.2	0.0	-0.2	0.2	
12-Jan	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.4	0.1	0.3	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.3	0.2	0.4	
13-Jan	0.2	0.2	0.2	0.4	0.3	0.4	-0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.0	0.2	0.1	0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.4	
14-Jan	0.0	-0.1	0.0	-0.1	-0.2	0.0	-0.1	-0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.2	0.2	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.3	0.0	0.3	
15-Jan	0.2	0.3	0.4	0.6	0.4	0.4	0.4	0.6	0.5	0.5	0.4	0.6	0.7	0.5	0.2	0.1	0.2	0.3	0.0	0.0	0.1	0.3	0.3	0.2	0.3	0.7	
16-Jan	0.3	0.1	0.1	0.0	-0.1	-0.2	-0.2	-0.6	-0.4	-0.3	-0.2	-0.1	-0.1	0.1	0.1	0.1	0.0	-0.1	-0.1	-0.2	-0.1	-0.3	-0.1	-0.2	-0.1	0.3	
17-Jan	-0.1	-0.3	-0.1	-0.1	-0.2	-0.3	-0.1	-0.2	-0.2	-0.2	-0.2	0.2	0.0	-0.2	-0.1	-0.2	-0.4	-0.5	-0.6	-0.4	-0.3	-0.4	-0.2	-0.2	-0.2	0.2	
18-Jan	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.1	0.0	-0.1	0.0	-0.1	-0.3	-0.1	-0.1	0.0	0.1	
19-Jan	0.0	0.0	0.1	0.1	0.1	0.4	0.5	0.6	0.5	0.6	0.5	0.5	0.4	0.6	0.7	0.7	0.1	0.3	0.5	0.3	0.5	0.6	0.5	0.9	0.4	0.9	
20-Jan	0.7	0.7	0.5	0.5	0.6	0.5	0.2	0.3	0.2	0.2	0.2	0.0	-0.2	-0.3	-0.1	-0.1	-0.2	-0.2	-0.4	-0.5	-0.5	-0.5	-0.2	-0.4	0.1	0.7	
21-Jan	-0.4	-0.2	-0.1	-0.2	0.0	-0.1	-0.2	-0.1	-0.2	-0.3	-0.1	-0.4	-0.1	-0.2	-0.5	-0.4	-0.1	-0.1	-0.2	-0.3	0.1	-0.1	-0.1	-0.3	-0.2	0.1	
22-Jan	0.0	-0.2	-0.1	-0.1	-0.3	-0.1	0.0	0.1	0.1	1.2	0.9	0.6	0.8	0.7	0.8	0.9	0.7	0.8	0.8	0.8	0.6	0.8	0.8	0.8	0.5	1.2	
23-Jan	0.7	0.7	0.6	0.5	0.6	0.6	0.7	0.5	0.6	0.5	0.3	0.3	0.0	0.2	0.1	0.0	-0.3	-0.3	-0.3	-0.6	-0.7	-0.6	-0.5	-0.4	0.1	0.7	
24-Jan	-0.4	-0.3	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.4	0.5	0.7	0.8	0.6	0.5	0.5	0.5	0.0	0.0	-0.2	-0.2	-0.2	0.1	0.8	
25-Jan	-0.2	-0.4	-0.5	-0.6	-0.4	-0.7	-0.5	-0.3	-0.1	-0.2	0.0	0.1	0.0	-0.1	0.1	0.3	0.6	0.7	0.5	0.2	0.4	0.2	0.5	0.5	0.0	0.7	
26-Jan	0.8	0.4	0.2	0.2	0.1	0.1	-0.1	-0.2	-0.1	0.2	0.5	0.9	2.4	2.3	2.7	3.1	3.2	2.3	1.4	1.2	0.7	1.1	1.6	1.8	1.1	3.2	
27-Jan	2.1	2.4	2.8	1.9	3.1	2.5	2.4	1.2	0.5	1.5	3.0	1.5	1.0	0.9	0.2	0.0	0.0	-0.1	-0.1	-0.1	0.0	0.3	0.5	0.4	1.2	3.1	
28-Jan	0.5	0.6	0.6	0.6	0.6	0.3	0.5	0.8	1.0	0.5	0.1	-0.2	-0.2	-0.3	-0.1	-0.1	-0.2	-0.4	-0.3	-0.2	-0.4	-0.1	-0.1	0.0	0.1	1.0	
29-Jan	0.2	0.7	0.8	0.5	0.8	0.8	0.8	0.7	0.6	0.5	0.6	0.7	0.5	0.4	0.8	0.7	0.9	1.0	0.5	0.6	0.6	0.6	1.0	0.9	0.7	1.0	
30-Jan	0.8	0.5	0.8	0.9	0.7	0.8	0.9	0.5	0.2	0.3	0.1	0.3	0.0	-0.2	-0.2	-0.2	-0.4	-0.3	-0.1	-0.2	-0.3	-0.1	-0.2	-0.3	0.2	0.9	
31-Jan	-0.2	-0.1	-0.3	-0.2	-0.2	-0.1	0.2	0.0	0.0	0.0	0.1	0.5	0.6	0.8	0.4	0.7	0.8	1.4	0.9	0.7	0.9	0.9	0.9	1.3	0.4	1.4	
																								Diurnal Average			
																								Diurnal Maximum			
DF - DAS Failure																											



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.4 km/h on Jan 30 16:00		Hours in Service: 744 Hours of Data: 737 Hours of Missing Data: 7 Hours of Calibration: 0 Percent Operational Time: 99.1																							
Minimum Value: 0.1 km/h on Jan 3 02:00  Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.0 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 1.9 P <sub>99</sub> = 2.5																									
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-Jan	0.6	0.5	0.7	1.7	1.9	2.1	2.0	2.4	1.5	1.1	0.9	0.9	0.9	1.1	0.9	1.1	1.2	1.2	1.2	1.3	0.9	1.1	1.4	1.4	2.4
2-Jan	1.7	1.6	1.4	1.1	1.3	1.3	1.3	1.6	1.0	0.7	0.9	0.7	0.9	0.8	0.8	0.9	0.9	0.7	0.7	0.8	0.7	0.7	0.6	0.5	1.7
3-Jan	0.2	0.1	0.2	0.3	0.4	0.5	0.6	1.2	1.3	1.0	0.8	0.8	1.3	1.4	1.1	1.2	DF	DF	DF	DF	DF	DF	DF	1.9	1.9
4-Jan	1.7	1.9	2.3	2.6	2.2	2.3	2.4	2.5	2.3	1.7	1.7	1.3	1.5	1.3	1.3	1.2	1.7	1.3	1.2	1.2	1.2	1.1	0.9	2.6	
5-Jan	0.7	0.6	0.6	0.8	1.0	1.1	0.9	0.7	0.6	0.7	0.8	0.7	0.8	0.5	0.7	0.8	0.6	0.6	0.5	0.6	0.6	0.3	0.7	1.1	
6-Jan	0.9	0.9	0.9	0.9	1.1	1.2	1.3	1.3	1.5	1.8	1.8	1.9	2.1	2.1	2.0	2.3	2.1	2.3	2.3	2.1	2.1	1.7	1.5	1.7	2.3
7-Jan	1.7	1.5	1.4	1.5	1.5	1.2	1.1	0.6	0.4	0.4	0.5	0.8	0.8	0.8	0.8	0.7	0.8	1.1	1.2	1.2	1.3	1.2	1.1	0.6	1.7
8-Jan	1.0	1.1	0.9	1.1	1.2	1.0	0.3	0.4	0.4	0.6	1.1	1.2	1.7	1.2	1.1	0.6	0.8	0.5	0.9	1.2	1.3	0.9	0.5	0.4	1.7
9-Jan	0.7	0.4	0.5	0.9	0.8	0.8	1.0	0.7	1.3	0.9	1.2	1.2	1.4	1.8	1.7	1.9	2.0	2.0	2.0	2.0	1.9	1.8	2.0	2.1	2.1
10-Jan	1.4	1.7	2.0	1.9	2.0	1.4	1.3	1.4	0.7	0.7	0.6	0.7	0.9	1.0	1.0	1.1	1.1	1.1	1.0	1.2	1.4	1.4	1.4	1.9	2.0
11-Jan	1.7	1.6	1.6	1.8	1.6	1.5	1.3	1.3	1.5	1.8	1.4	1.0	1.0	0.8	0.8	0.9	1.1	1.1	0.6	0.5	0.4	0.3	0.5	0.6	1.8
12-Jan	0.6	0.7	0.7	0.6	0.7	0.8	0.6	0.6	0.5	0.7	1.1	0.8	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.5	1.1
13-Jan	0.5	0.6	0.6	0.6	0.7	0.6	0.7	0.5	0.5	0.8	0.8	0.9	0.9	0.7	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.9
14-Jan	0.3	0.3	0.2	0.3	0.2	0.2	0.4	0.4	0.4	0.5	0.4	0.6	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.6
15-Jan	0.4	0.4	0.7	1.1	0.9	0.9	0.9	1.2	1.0	1.1	1.1	1.2	1.2	1.0	0.8	0.5	0.5	0.6	0.6	0.3	0.4	0.6	0.5	0.4	1.2
16-Jan	0.8	0.6	0.3	0.2	0.4	0.9	1.1	1.0	0.8	0.8	0.9	0.8	0.6	0.6	0.5	0.6	0.6	1.2	1.6	1.5	1.5	1.5	1.5	1.9	1.9
17-Jan	1.8	1.5	1.6	1.8	1.9	2.0	2.0	1.5	1.7	2.0	1.8	1.7	1.5	1.3	1.4	1.6	1.6	1.5	2.0	2.2	1.3	1.8	1.2	1.2	2.2
18-Jan	1.2	0.8	0.7	0.5	0.5	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.0	0.9	0.6	0.9	0.7	0.6	0.6	0.7	1.0	1.2	0.9	0.5	1.2
19-Jan	0.5	0.3	0.4	0.3	0.4	0.6	0.7	0.9	0.9	1.0	1.1	1.1	1.0	1.1	1.3	1.2	0.7	0.5	1.0	0.7	0.8	1.3	1.1	1.7	1.7
20-Jan	1.6	1.6	1.0	0.6	0.8	0.7	0.6	0.5	0.5	0.6	0.8	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.5	1.4	1.3	1.4	1.4	1.5	1.6
21-Jan	1.5	1.3	1.6	1.7	1.4	0.8	0.8	1.0	1.0	1.2	1.1	1.5	1.8	1.8	1.5	1.8	1.6	1.4	1.2	1.1	1.3	1.4	1.2	1.4	1.8
22-Jan	1.4	1.4	1.5	1.3	1.0	0.9	0.7	0.7	0.9	1.8	2.0	2.2	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.3	1.6	1.4	1.7	1.8	2.4
23-Jan	1.6	1.4	1.2	1.4	1.0	0.9	1.0	1.0	0.9	0.8	1.0	0.6	0.8	0.9	0.7	0.8	1.0	1.3	1.6	1.9	2.1	1.8	1.5	1.3	2.1
24-Jan	1.4	1.5	0.9	0.9	0.8	0.7	0.6	0.6	0.5	0.7	0.5	1.2	1.3	1.6	1.5	1.4	1.2	0.9	0.7	0.3	0.2	0.4	0.4	0.4	1.6
25-Jan	0.9	1.8	1.7	1.7	1.7	1.8	1.8	1.6	1.1	1.0	0.9	0.7	0.7	0.7	0.8	0.9	1.0	1.2	0.9	0.9	1.0	0.9	0.9	1.0	1.8
26-Jan	1.2	1.0	0.7	0.6	0.7	0.7	0.6	0.6	0.5	0.7	1.0	1.5	1.7	2.1	2.0	1.8	2.1	2.1	1.7	1.4	1.2	1.2	1.4	1.4	2.1
27-Jan	1.5	1.6	2.3	3.1	2.4	2.0	1.7	1.4	1.3	1.4	1.7	1.3	1.3	1.5	0.7	0.4	0.6	0.9	0.9	0.7	0.6	0.5	0.6	0.4	3.1
28-Jan	0.8	1.0	1.5	1.3	1.1	0.9	0.9	1.3	1.1	0.9	1.4	1.7	2.3	2.5	2.3	2.3	2.3	2.4	2.0	1.5	1.4	1.4	1.1	0.5	2.5
29-Jan	0.6	1.1	1.1	1.3	1.1	1.4	1.2	1.2	0.8	0.9	1.0	1.2	1.0	0.9	1.2	0.9	1.0	0.9	0.9	1.0	1.0	1.2	1.2	1.2	1.4
30-Jan	1.1	0.7	1.2	1.3	1.3	1.2	1.0	0.7	0.9	1.3	1.1	0.7	1.5	2.3	3.3	3.4	3.1	2.6	2.3	2.5	2.6	0.9	1.1	1.6	3.4
31-Jan	1.8	1.7	2.1	1.8	1.5	1.7	1.1	0.7	0.9	1.1	1.1	0.8	1.1	1.1	0.9	1.1	1.9	2.5	2.1	1.4	1.5	2.0	2.1	2.6	2.6
1.8 1.9 2.3 3.1 2.4 2.3 2.4 2.5 2.3 2.0 2.0 2.2 2.3 2.5 3.3 3.4 3.1 2.6 2.4 2.5 2.6 2.0 2.1 2.6 Diurnal Maximum																									
DF - DAS Failure																									



Maximum Value: 1.5 km/h on Jan 22 10:00      Maximum Daily Average: 0.6 km/h on Jan 29																								Hours in Service:	744		
Minimum Value: -1.2 km/h on Jan 30 17:00      Minimum Daily Average: -0.5 km/h on Jan 6																								Hours of Data:	687		
Maximum Diurnal Average: 0.0 km/h at hour 4      Minimum Diurnal Average: -0.1 km/h at hour 20																								Hours of Missing Data:	57		
Monthly Average: -0.04 km/h      Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.5 Q <sub>1</sub> = -0.3 Median = -0.1 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:	92.3		
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-Jan	-0.4	-0.4	-0.2	-0.2	0.1	0.0	-0.3	-0.8	-0.5	-0.2	0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0.1	0.1	0.1	0.0	-0.3	0.2	0.0	-0.1	-0.1	0.2	
2-Jan	0.2	-0.4	0.0	-0.4	-0.3	0.1	0.0	0.0	0.1	-0.1	0.1	-0.2	0.4	0.0	-0.2	0.0	0.0	0.1	0.2	0.1	-0.1	0.1	0.0	0.0	0.0	0.0	
3-Jan	-0.2	-0.1	-0.2	-0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.4	-0.1	-0.3	-0.3	-0.2	-0.2	DF	DF	DF	DF	DF	DF	DF	DF	-0.4	--	
4-Jan	-0.4	-0.6	-0.3	-0.4	-0.2	-0.4	0.0	-0.3	-0.2	-0.1	0.2	-0.5	0.2	0.1	0.0	0.0	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	0.2	-0.2	
5-Jan	-0.2	-0.3	-0.1	-0.2	-0.5	-0.1	-0.2	-0.2	-0.3	-0.3	-0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.1	0.4	0.0	0.0	-0.1	-0.1	0.1	-0.2	-0.3	-0.1	
6-Jan	-0.3	-0.2	-0.1	-0.2	-0.2	-0.3	-0.5	-0.3	-0.4	-0.6	-0.6	-0.5	-0.9	-0.8	-0.4	-1.0	-0.9	-0.8	-0.6	-0.5	-0.6	-0.2	-0.4	-0.6	-0.5	-0.1	
7-Jan	-0.4	-0.4	-0.2	-0.3	-0.1	0.1	-0.4	-0.3	-0.1	-0.1	-0.1	-0.2	-0.1	0.4	0.2	0.1	0.2	0.1	0.6	0.3	0.5	0.7	0.5	0.4	0.1	0.7	
8-Jan	0.6	0.4	0.3	0.4	0.5	0.2	0.0	0.0	-0.1	-0.1	-0.4	-0.3	-0.5	-0.2	-0.2	0.0	-0.2	-0.2	0.3	0.4	0.0	0.4	0.0	-0.2	0.0	0.6	
9-Jan	-0.1	-0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.3	-0.1	-0.1	-0.2	-0.2	-0.1	-0.4	-0.4	-0.6	-0.6	-0.7	-0.3	0.0	-0.2	-0.5	0.2	-0.2	0.3	
10-Jan	0.0	0.2	0.0	0.2	-0.2	-0.2	-0.4	-0.2	-0.1	-0.4	-0.3	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.4	-0.1	-0.1	0.4	0.4	0.0	-0.2	-0.1	0.4	
11-Jan	-0.4	-0.3	-0.7	-0.3	-0.1	-0.5	-0.4	-0.2	0.4	0.0	0.0	-0.4	0.1	-0.4	-0.1	0.4	0.0	0.2	-0.1	-0.1	-0.1	-0.2	0.1	-0.2	-0.1	0.4	
12-Jan	-0.1	-0.3	-0.3	-0.1	0.0	-0.2	-0.3	-0.1	-0.2	0.1	0.2	0.0	-0.1	0.0	0.1	0.1	0.2	0.3	0.1	0.2	0.0	0.0	0.1	0.7	0.0	0.7	
13-Jan	0.4	0.6	0.3	0.4	0.6	0.4	-0.3	0.1	0.2	0.1	0.1	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.1	0.0	-0.1	0.0	0.1	0.6	
14-Jan	0.0	0.0	-0.1	-0.1	-0.3	-0.3	-0.3	-0.2	-0.1	-0.3	0.0	-0.1	-0.1	0.0	0.1	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.1	0.1	-0.1	
15-Jan	0.1	0.2	0.2	0.7	0.4	0.4	0.5	0.7	0.4	0.5	0.4	0.4	0.6	0.3	0.1	0.1	0.2	0.6	-0.1	-0.3	0.0	0.4	0.3	0.3	0.3	0.7	
16-Jan	0.3	0.3	0.2	-0.1	0.0	-0.4	-0.3	-0.9	-0.8	-1.0	-0.9	-0.3	-0.4	0.0	0.0	-0.2	-0.2	-0.4	-0.6	-0.6	-0.5	-0.6	-0.4	-0.8	-0.4	0.3	
17-Jan	-0.4	-0.5	-0.2	0.2	0.0	-0.1	0.1	0.1	0.2	0.3	0.2	0.7	0.3	0.0	0.2	0.0	-0.1	-0.3	-0.3	-0.3	-0.3	-0.4	-0.3	-0.4	-0.1	0.7	
18-Jan	-0.3	-0.2	-0.1	-0.3	-0.3	-0.2	-0.2	-0.5	-0.5	-0.4	-0.6	-0.4	-0.2	-0.3	-0.1	-0.3	-0.5	-0.6	-0.7	-0.6	-0.4	-0.6	-0.4	-0.4	-0.4	-0.1	
19-Jan	-0.4	-0.3	-0.2	-0.2	-0.2	0.0	0.1	0.4	0.4	0.5	0.3	0.2	0.2	0.6	0.5	0.5	0.0	0.2	0.4	0.3	0.4	0.4	0.3	0.7	0.2	0.7	
20-Jan	0.6	0.8	0.5	0.4	0.4	0.4	0.0	0.0	-0.1	-0.1	0.3	-0.2	-0.4	-0.5	0.0	-0.2	-0.3	-0.2	-0.5	-0.7	-0.5	-0.4	-0.1	-0.4	-0.1	0.8	
21-Jan	-0.1	-0.2	-0.1	0.0	0.2	-0.1	-0.4	-0.2	-0.4	-0.4	-0.2	-0.5	0.2	0.0	-0.5	-0.3	0.0	-0.1	-0.1	-0.2	0.0	0.0	-0.1	-0.1	-0.1	0.2	
22-Jan	0.5	0.1	0.1	0.0	-0.3	0.1	0.0	0.2	0.1	1.5	0.4	0.2	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.7	0.4	1.5	
23-Jan	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.1	-0.3	0.2	0.0	-0.2	-0.6	-0.4	-0.1	-0.2	-0.4	-0.4	-0.3	-0.3	0.1	0.6	
24-Jan	-0.3	-0.2	-0.3	-0.1	0.0	-0.1	-0.3	-0.2	0.0	0.0	0.3	0.2	0.4	0.6	0.8	0.4	0.4	0.4	0.4	0.1	0.1	-0.3	-0.3	-0.2	0.1	0.8	
25-Jan	-0.2	-0.4	-0.4	-0.2	-0.2	-0.5	-0.2	-0.2	UO	UO	UO	UO	UO	UO	-0.1	0.0	0.3	UO	UO	UO	UO	UO	UO	UO	UO	--	0.3
26-Jan	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	--	--
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.2	-0.3	-0.5	-0.5	-0.7	-0.6	-0.8	-0.5	-0.2	0.1	0.0	--	0.2
28-Jan	0.4	0.7	0.9	0.9	0.5	0.4	0.5	0.6	0.5	0.1	-0.6	-0.8	-1.0	-0.9	-0.7	-0.7	-0.9	-1.0	-1.0	-0.9	-1.0	-0.8	-0.6	-0.5	-0.2	0.9	
29-Jan	-0.3	0.6	0.8	0.3	0.8	0.6	0.9	0.8	0.7	0.9	0.8	0.5	0.2	0.2	0.7	0.7	0.8	0.8	0.1	0.6	0.5	0.7	0.9	0.9	0.6	0.9	
30-Jan	0.6	0.3	0.9	1.0	0.8	1.0	0.9	0.4	0.3	0.2	0.0	0.0	-0.7	-0.9	-0.9	-1.1	-1.2	-0.9	-1.0	-0.9	-0.9	-0.5	-0.8	-0.9	-0.2	1.0	
31-Jan	-0.8	-0.7	-0.8	-0.8	-0.9	-0.6	-0.2	-0.5	-0.4	-0.5	-0.4	0.3	0.5	0.4	0.2	0.8	0.4	1.1	0.9	0.7	0.8	0.8	1.0	1.1	0.1	1.1	
																								Diurnal Average			
																								Diurnal Maximum			
DF - DAS Failure      UO - Unstable Operation																											





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

**Vertical Wind Speed 45 m (VW45m) - km/h**  
**Mannix - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.8 km/h on Jan 30 16:00 Minimum Value: 0.1 km/h on Jan 13 22:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.6 Median = 1.0 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 2.0 P <sub>99</sub> = 2.9																				Hours in Service: 744 Hours of Data: 687 Hours of Missing Data: 57 Hours of Calibration: 0 Percent Operational Time: 92.3						
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.5	0.4	0.9	1.7	2.0	2.1	2.1	2.4	1.5	1.2	1.1	1.1	1.0	1.2	1.0	1.2	1.3	1.4	1.3	1.4	1.0	1.4	1.5	1.6	2.4	
2-Jan	2.0	1.6	1.5	1.1	1.6	1.4	1.5	1.8	1.2	1.0	1.2	0.8	1.2	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.5	0.6	0.5	0.2	2.0	
3-Jan	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.9	1.1	1.0	0.8	0.8	1.1	1.3	1.0	1.2	DF	DF	DF	DF	DF	DF	DF	2.0	2.0	
4-Jan	1.9	2.3	2.8	2.8	2.7	2.7	2.4	2.4	2.2	1.7	1.8	1.4	1.8	1.5	1.3	1.7	1.1	1.1	1.0	1.0	1.0	0.9	0.8	0.9	2.8	
5-Jan	0.6	0.6	0.5	0.7	1.1	1.1	0.8	0.7	0.6	0.6	0.9	0.7	0.6	0.8	0.5	0.6	0.9	0.5	0.5	0.4	0.4	0.5	0.3	0.5	1.1	
6-Jan	0.6	0.5	0.4	0.4	0.6	0.8	1.0	0.9	1.0	1.3	1.4	1.5	1.7	1.9	2.1	1.9	2.0	2.1	1.9	2.1	1.8	1.9	1.6	1.5	2.1	
7-Jan	1.6	1.3	1.3	1.5	1.5	1.4	0.8	0.5	0.3	0.3	0.3	0.8	0.9	1.2	0.9	0.4	0.6	1.0	1.4	1.3	1.4	1.3	1.2	0.7	1.6	
8-Jan	0.8	1.1	1.0	1.1	1.3	1.0	0.4	0.5	0.3	0.6	1.1	1.3	1.7	1.3	1.2	0.8	0.9	0.5	1.2	1.4	1.3	1.2	0.7	0.3	1.7	
9-Jan	0.7	0.5	0.6	0.8	0.7	0.8	1.0	0.7	1.3	1.0	1.2	1.1	1.6	1.8	1.6	1.9	1.8	1.4	1.5	2.1	2.0	1.7	2.0	2.4	2.4	
10-Jan	1.7	2.0	2.2	2.2	2.1	1.6	1.5	1.4	0.6	0.7	0.5	0.9	1.2	1.2	1.3	1.3	1.1	1.1	1.2	1.5	1.7	1.6	1.7	1.9	2.2	
11-Jan	2.0	2.0	1.7	2.0	1.7	1.5	1.3	1.4	1.9	1.9	1.6	1.1	1.4	0.9	0.9	1.2	1.4	1.4	0.6	0.5	0.3	0.2	0.3	0.5	2.0	
12-Jan	0.2	0.6	0.4	0.6	0.6	0.5	0.4	0.3	0.3	0.5	0.9	0.8	0.9	0.8	0.7	0.7	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.6	0.9	
13-Jan	0.4	0.3	0.5	0.4	0.8	0.4	0.5	0.7	0.5	0.3	0.6	0.7	0.8	0.7	0.4	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.8	
14-Jan	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.2	0.3	0.3	0.4	0.6	0.4	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.6	
15-Jan	0.3	0.3	1.0	0.8	1.0	1.0	0.7	1.3	0.8	1.1	1.0	1.1	1.2	0.9	0.7	0.5	0.4	0.5	0.5	0.3	0.3	1.0	0.3	0.3	1.3	
16-Jan	0.6	0.6	0.4	0.2	0.4	0.8	1.3	1.2	0.8	1.0	1.2	0.9	0.6	0.6	0.4	0.6	0.8	1.1	1.6	1.4	1.5	1.6	1.7	2.0	2.0	
17-Jan	2.0	1.6	1.7	2.0	1.9	1.9	2.1	1.7	1.9	2.1	1.8	2.0	1.7	1.4	1.7	1.6	1.5	1.2	1.9	2.1	1.5	1.7	1.4	1.7	2.1	
18-Jan	1.4	1.0	0.7	0.4	0.5	0.6	0.4	0.9	1.0	1.0	0.9	0.9	1.1	1.0	0.7	0.9	0.8	0.4	0.5	0.6	1.0	1.2	1.0	0.4	1.4	
19-Jan	0.4	0.2	0.3	0.3	0.4	0.6	0.5	0.7	0.8	0.9	1.2	1.2	1.1	1.2	1.4	1.2	0.5	0.4	1.0	0.6	0.7	1.3	1.3	1.8	1.8	
20-Jan	1.7	1.6	1.2	0.5	0.6	0.6	0.5	0.3	0.4	0.4	1.0	1.0	1.2	1.1	1.2	1.1	1.3	1.2	1.5	1.5	1.3	1.4	1.4	1.4	1.7	
21-Jan	1.7	1.5	1.7	1.8	1.5	1.0	0.8	1.1	1.0	1.1	1.2	1.6	2.0	1.9	1.6	1.8	1.7	1.6	1.3	1.2	1.4	1.3	1.2	1.4	2.0	
22-Jan	1.6	1.4	1.5	1.3	0.9	0.9	0.7	0.9	1.3	2.5	2.4	2.3	2.6	2.5	2.5	2.6	2.5	2.6	2.6	2.5	2.0	1.5	2.0	1.9	2.6	
23-Jan	2.0	1.6	1.5	1.5	1.0	1.0	1.2	0.9	0.7	0.7	1.0	0.7	0.9	1.1	0.8	0.8	1.1	1.0	1.4	1.6	1.6	1.5	1.2	1.0	2.0	
24-Jan	1.4	1.3	0.9	0.9	0.7	0.7	0.5	0.4	0.7	1.1	0.8	1.3	1.6	1.9	1.9	1.7	1.5	0.8	0.6	0.3	0.3	0.4	0.3	0.6	1.9	
25-Jan	0.7	1.4	1.4	1.6	1.6	1.3	1.5	1.5	UO	UO	UO	UO	UO	UO	0.8	0.8	1.1	UO	UO	UO	UO	UO	UO	UO	1.6	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.8	0.9	0.7	0.7	1.0	1.0	0.9	0.8	0.9	0.6	0.5	1.0
28-Jan	0.7	0.8	1.2	0.9	1.0	0.6	0.9	1.0	0.6	0.8	1.1	1.6	2.7	3.1	2.7	2.5	2.3	2.1	1.7	1.8	1.7	1.6	1.1	0.8	3.1	
29-Jan	0.7	1.1	0.9	0.9	0.8	1.3	0.9	0.7	0.5	0.7	0.9	0.9	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	1.0	1.1	1.3	
30-Jan	0.9	0.6	0.8	1.0	0.9	0.9	0.6	0.7	0.6	1.0	1.5	1.0	1.3	3.0	3.7	3.8	3.2	2.8	2.5	2.9	3.1	1.1	0.8	1.3	3.8	
31-Jan	1.5	1.6	2.0	2.0	1.6	1.9	1.6	0.5	0.4	0.6	0.8	0.8	1.1	1.2	0.8	1.1	2.2	2.5	1.9	1.3	1.6	1.8	2.1	3.0	3.0	
Diurnal Maximum																										
DF - DAS Failure      UO - Unstable Operation																										



Maximum Value: 1.2 km/h on Jan 22 10:00		Maximum Daily Average: 0.5 km/h on Jan 29		Hours in Service: 744																							
Minimum Value: -1.3 km/h on Jan 12 08:00		Minimum Daily Average: -0.2 km/h on Jan 6		Hours of Data: 683																							
Maximum Diurnal Average: 0.2 km/h at hour 3		Minimum Diurnal Average: 0.0 km/h at hour 18		Hours of Missing Data: 61																							
Monthly Average: 0.13 km/h		Percentiles: P <sub>1</sub> = -0.7 P <sub>10</sub> = -0.2 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.5 P <sub>99</sub> = 0.8		Hours of Calibration: 0																							
				Percent Operational Time: 91.8																							
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-Jan	0.4	0.2	0.3	0.1	0.3	0.2	0.0	-0.5	-0.1	0.4	0.6	0.1	0.0	0.1	0.3	0.4	0.3	0.3	0.2	0.2	-0.2	0.3	0.2	0.1	0.2	0.6	
2-Jan	0.4	-0.3	0.0	-0.3	0.0	0.0	0.0	0.1	0.3	0.1	0.1	-0.2	0.5	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.5	
3-Jan	0.1	0.2	0.1	0.1	0.2	0.1	0.4	0.3	0.3	0.1	0.3	0.2	0.0	0.1	0.1	0.0	DF	DF	DF	DF	DF	DF	DF	DF	--	0.4	
4-Jan	0.1	0.0	0.2	0.4	0.5	0.2	0.5	0.1	0.2	0.4	0.4	0.0	0.4	0.5	0.3	0.2	0.2	0.0	0.1	0.1	0.2	0.2	0.3	0.6	0.3	0.6	
5-Jan	0.2	0.0	0.3	0.4	0.2	0.6	0.2	0.3	0.1	0.1	0.0	0.2	0.2	0.0	0.0	-0.1	0.4	0.1	0.1	0.0	-0.1	0.3	0.2	0.0	0.2	0.6	
6-Jan	0.1	-0.1	0.2	0.2	-0.2	-0.1	-0.3	-0.2	0.0	-0.2	-0.3	-0.3	-0.8	-0.5	0.0	-0.6	-0.6	-0.6	0.0	0.0	-0.2	0.3	0.0	-0.3	-0.2	0.3	
7-Jan	-0.2	0.0	0.0	-0.1	-0.2	0.0	-0.1	0.0	0.3	0.3	0.2	0.0	0.1	0.3	0.0	0.3	0.5	0.4	0.5	0.3	0.5	0.6	0.1	0.3	0.2	0.6	
8-Jan	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.1	0.3	0.2	0.0	-0.1	-0.2	0.1	0.2	0.3	0.0	0.1	0.5	0.5	0.0	0.5	0.2	0.0	0.2	0.5	
9-Jan	0.1	0.2	0.3	0.3	0.0	0.1	0.0	0.0	0.5	-0.2	0.0	0.0	0.0	0.1	-0.3	0.0	-0.3	-0.7	-0.8	-0.3	0.4	-0.1	-0.5	0.3	0.0	0.5	
10-Jan	0.2	0.1	0.1	0.4	0.0	0.0	-0.2	0.0	0.1	-0.2	0.0	0.1	0.2	0.3	0.2	0.0	0.0	-0.4	0.0	-0.3	0.1	0.2	-0.2	-0.4	0.0	0.4	
11-Jan	-0.4	-0.6	-0.8	-0.3	-0.2	-0.3	-0.2	-0.1	0.4	-0.4	-0.1	-0.3	0.5	-0.1	0.1	0.5	-0.3	0.2	0.8	0.5	0.5	0.8	0.6	0.3	0.0	0.8	
12-Jan	0.6	0.6	0.7	0.6	0.3	0.3	-0.4	-1.3	-0.1	0.2	0.4	0.1	0.0	0.1	0.1	0.0	0.4	0.3	0.1	0.3	0.5	0.3	0.2	0.3	0.2	0.7	
13-Jan	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.4	0.1	0.3	0.2	0.3	0.4	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
14-Jan	0.1	0.0	0.0	0.2	0.3	0.1	-0.1	0.0	0.2	-0.1	0.2	0.1	0.0	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.1	0.4	
15-Jan	0.6	0.5	0.2	0.3	0.6	0.4	0.5	0.6	0.2	0.6	0.6	0.5	0.5	0.6	0.7	0.7	0.6	0.4	0.6	0.6	0.2	0.1	0.2	0.3	0.5	0.7	
16-Jan	0.1	0.3	0.1	0.0	0.1	-0.1	0.0	-0.7	-0.5	-0.9	-1.0	0.0	-0.1	0.1	0.0	-0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	-0.1	0.3	
17-Jan	0.4	0.4	0.5	0.2	0.0	-0.2	0.0	0.4	0.2	0.2	0.1	0.9	0.5	0.3	0.8	0.2	0.2	-0.2	-0.2	-0.1	0.1	-0.2	0.1	-0.2	0.2	0.9	
18-Jan	-0.1	0.2	0.5	0.1	0.0	0.1	0.4	0.0	-0.1	0.0	-0.1	0.2	0.3	0.3	0.4	0.2	0.0	0.0	-0.1	0.1	0.3	0.2	0.2	0.0	0.1	0.5	
19-Jan	0.1	0.1	0.3	0.0	-0.1	-0.1	0.0	0.3	0.2	0.6	0.3	0.3	0.1	0.3	0.2	0.5	0.3	0.1	0.0	-0.1	0.0	-0.1	-0.1	0.2	0.1	0.6	
20-Jan	0.2	0.4	0.5	0.6	0.3	0.4	0.1	0.0	-0.1	0.0	0.6	0.3	0.0	-0.1	0.5	0.1	0.1	0.1	0.0	-0.6	-0.2	-0.3	0.3	-0.1	0.1	0.6	
21-Jan	0.2	0.3	-0.1	0.1	0.4	0.3	-0.1	0.2	-0.1	0.0	0.2	0.0	0.7	0.4	-0.3	0.1	-0.1	0.0	0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.7	
22-Jan	0.9	0.2	0.1	0.0	-0.1	0.3	0.3	0.5	-0.1	1.2	-0.3	-0.5	-0.6	-0.2	-0.3	-0.5	-0.5	-0.2	-0.3	-0.2	0.1	0.1	-0.1	0.3	0.0	1.2	
23-Jan	0.2	0.0	0.2	0.3	0.5	0.4	0.4	0.8	0.4	0.3	0.5	0.1	-0.2	0.3	0.0	0.1	-0.4	0.0	0.1	0.3	-0.2	-0.2	-0.1	-0.1	0.1	0.8	
24-Jan	0.0	-0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.4	0.3	0.1	0.0	0.1	0.3	0.5	-0.1	-0.1	0.1	0.5	0.4	0.3	0.2	0.0	0.0	0.1	0.5	
25-Jan	0.2	-0.1	-0.2	0.1	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.2	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.5	0.6	0.1	-0.1	-0.1	0.1	0.0	0.0	-0.3	-0.2	-0.3	-0.1	-0.1	--	0.6
28-Jan	0.2	0.5	1.1	1.0	0.5	0.1	0.9	0.8	0.2	-0.2	-0.3	-0.3	-0.2	0.1	0.1	0.0	0.0	0.0	0.0	-0.2	-0.4	-0.1	0.1	0.0	0.2	1.1	
29-Jan	0.0	0.5	0.8	0.5	0.6	0.7	0.8	0.8	0.6	0.2	0.3	0.2	0.5	0.4	0.8	0.5	0.8	0.7	0.0	0.5	0.2	0.3	0.5	0.6	0.5	0.8	
30-Jan	0.5	0.0	0.6	0.6	0.6	0.6	0.3	0.0	0.4	0.4	0.3	-0.1	-0.2	-0.1	-0.1	0.2	-0.1	0.1	-0.2	0.0	0.3	0.2	0.0	0.1	0.2	0.6	
31-Jan	0.2	0.1	0.2	0.1	-0.4	0.0	-0.2	-0.2	0.1	-0.1	0.0	0.2	0.0	-0.1	0.4	0.3	-0.5	0.0	-0.2	0.0	0.1	-0.4	-0.4	-0.5	-0.1	0.4	
																								Diurnal Average			
																								Diurnal Maximum			
DF - DAS Failure      UO - Unstable Operation																											



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

**Vertical Wind Speed 75 m (VW75m) - km/h**  
**Mannix - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.1 km/h on Jan 30 16:00 Minimum Value: 0.1 km/h on Jan 13 17:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.6 Median = 1.0 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 1.8 P <sub>99</sub> = 3.0																				Hours in Service: 744 Hours of Data: 688 Hours of Missing Data: 61 Hours of Calibration: 0 Percent Operational Time: 91.8					
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-Jan	0.6	0.6	1.0	1.3	1.9	1.8	2.0	2.0	1.3	1.1	1.1	1.2	1.1	1.2	1.0	1.3	1.3	1.5	1.3	1.3	1.0	1.4	1.5	1.6	2.0
2-Jan	1.9	1.4	1.6	1.0	1.5	1.2	1.5	1.7	1.3	1.0	1.5	1.0	1.3	1.0	1.0	0.8	0.7	0.7	0.7	0.7	0.4	0.5	0.3	0.2	1.9
3-Jan	0.1	0.2	0.3	0.2	0.4	0.4	0.7	0.7	0.7	0.9	1.0	0.8	1.0	1.2	0.9	1.0	DF	DF	DF	DF	DF	DF	DF	1.9	1.9
4-Jan	1.8	2.2	2.7	2.8	2.8	2.8	2.2	2.2	2.1	1.7	1.8	1.5	1.8	1.5	1.2	1.5	1.0	0.9	0.9	0.9	0.7	0.8	1.1	2.8	
5-Jan	0.7	0.6	0.5	0.6	1.0	1.0	0.8	0.5	0.4	0.4	0.7	0.7	0.7	0.7	0.5	0.5	0.7	0.5	0.6	0.3	0.4	0.5	0.4	0.6	1.0
6-Jan	0.3	0.4	0.5	0.4	0.5	0.7	0.6	0.5	0.5	0.7	0.9	1.2	1.3	1.6	1.8	1.5	1.6	1.7	1.5	1.8	1.6	1.8	1.5	1.3	1.8
7-Jan	1.4	1.1	1.0	1.1	1.1	1.2	0.8	0.5	0.9	0.7	0.4	0.6	0.8	1.0	0.8	0.2	0.2	0.5	1.3	1.0	1.2	1.1	0.9	0.7	1.4
8-Jan	0.5	0.5	0.9	0.6	0.7	0.6	0.5	0.7	0.4	0.6	1.0	1.3	1.5	1.1	1.3	0.9	0.8	0.5	1.2	1.5	1.1	1.0	0.6	0.3	1.5
9-Jan	0.5	0.5	0.8	0.5	0.3	0.4	0.5	0.6	1.2	0.9	1.0	1.1	1.4	1.5	1.6	1.9	1.6	1.2	1.5	1.8	1.8	1.4	1.8	2.2	2.2
10-Jan	1.7	1.8	1.7	2.1	1.8	1.6	1.7	1.5	0.5	0.6	0.4	0.9	1.2	1.3	1.3	1.4	1.1	1.0	1.1	1.4	1.6	1.7	1.5	1.5	2.1
11-Jan	1.8	2.0	1.7	1.8	1.4	1.2	1.1	1.2	1.8	1.6	1.4	1.0	1.4	1.0	0.8	1.2	1.0	1.4	1.6	1.4	1.2	1.5	1.3	1.5	2.0
12-Jan	1.5	1.4	1.3	1.3	1.4	1.2	1.4	1.0	1.4	1.3	0.8	0.7	0.8	0.6	0.6	0.7	0.5	0.2	0.3	0.3	0.2	0.2	0.2	0.5	1.5
13-Jan	0.3	0.6	0.5	0.6	0.7	0.5	0.4	0.8	0.8	0.5	0.7	0.4	0.4	0.4	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.8
14-Jan	0.3	0.2	0.4	0.3	0.4	0.4	0.5	0.3	0.3	0.2	0.4	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.5
15-Jan	0.3	0.3	0.3	0.5	0.6	0.5	0.5	0.7	0.6	0.6	0.6	0.9	0.8	0.6	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.6	0.2	0.4	0.9
16-Jan	0.4	0.7	0.4	0.2	0.4	1.0	1.7	1.5	0.9	0.9	1.2	1.1	0.6	0.5	0.5	0.6	0.9	1.0	1.4	1.3	1.3	1.5	1.7	2.0	2.0
17-Jan	1.8	1.6	1.7	1.8	1.6	1.7	1.6	1.7	1.7	2.0	1.6	1.9	1.8	1.6	1.9	1.4	1.2	0.7	1.1	1.7	1.6	1.6	1.6	1.9	2.0
18-Jan	1.5	1.0	0.9	0.4	0.4	0.5	0.4	0.8	0.8	0.7	0.5	0.8	1.1	1.0	0.8	1.0	0.7	0.4	0.4	0.6	1.0	1.0	1.0	0.4	1.5
19-Jan	0.3	0.3	0.3	0.3	0.4	0.6	0.5	0.5	0.5	0.7	0.8	0.8	0.8	0.7	0.9	0.7	0.3	0.4	0.7	0.6	0.5	0.8	1.0	1.5	1.5
20-Jan	1.2	1.3	1.0	0.6	0.5	0.6	0.5	0.3	0.3	0.3	1.1	1.2	1.0	1.0	1.2	1.2	1.4	1.1	1.4	1.4	1.1	1.3	1.4	1.4	1.4
21-Jan	1.6	1.6	1.5	2.0	1.4	1.1	0.8	0.9	0.9	1.0	1.4	1.8	2.1	1.8	1.6	1.8	1.4	1.5	1.4	1.1	1.4	1.1	0.7	1.0	2.1
22-Jan	1.7	1.4	1.3	1.2	0.6	0.9	0.7	1.1	1.7	2.9	2.7	2.2	2.3	2.5	2.3	2.4	2.4	2.4	2.5	2.2	1.8	1.3	1.5	1.8	2.9
23-Jan	1.6	1.3	1.0	1.2	0.9	1.0	0.9	0.7	0.7	0.6	0.9	0.5	0.8	1.2	0.6	0.8	0.9	1.0	1.3	1.5	1.2	1.1	0.9	0.9	1.6
24-Jan	1.1	1.0	0.8	0.8	0.6	0.4	0.4	0.5	1.2	1.0	0.8	1.2	1.2	1.9	1.9	1.4	1.3	0.7	0.6	0.4	0.2	0.3	0.2	0.4	1.9
25-Jan	0.7	1.0	1.2	1.5	1.3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.5
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.2
28-Jan	0.7	0.5	0.5	0.7	1.2	0.6	1.0	1.0	0.5	0.9	1.3	2.0	2.9	3.4	2.9	2.6	2.3	2.0	1.7	2.0	1.9	1.8	1.3	1.1	3.4
29-Jan	1.1	0.9	0.7	0.6	0.5	0.9	0.9	0.7	0.6	0.5	0.7	0.8	1.0	1.0	0.5	0.7	0.7	0.7	0.6	0.7	1.1	0.9	1.2	1.2	1.2
30-Jan	0.9	0.7	0.8	0.5	0.5	0.6	0.6	0.7	0.6	1.1	2.0	1.3	1.4	3.0	3.7	4.1	3.5	3.1	2.7	3.1	3.2	1.2	0.6	1.4	4.1
31-Jan	1.5	1.6	1.6	1.9	1.9	1.8	1.8	0.8	0.4	0.4	0.6	0.7	0.9	0.9	0.8	1.2	2.3	2.4	1.7	0.9	1.4	1.8	2.1	2.8	2.8
1.9 2.2 2.7 2.8 2.8 2.8 2.2 2.2 2.1 2.9 2.7 2.2 2.9 3.4 3.7 4.1 3.5 3.1 2.7 3.1 3.2 1.8 2.1 2.8 Diurnal Maximum																									
DF - DAS Failure      UO - Unstable Operation																									



Maximum Value: 3.3 km/h on Jan 15 05:00      Maximum Daily Average: 1.5 km/h on Jan 15																								Hours in Service:	744		
Minimum Value: -1.4 km/h on Jan 12 03:00      Minimum Daily Average: -0.6 km/h on Jan 28																								Hours of Data:	677		
Maximum Diurnal Average: 0.3 km/h at hour 6      Minimum Diurnal Average: 0.0 km/h at hour 18																								Hours of Missing Data:	67		
Monthly Average: 0.16 km/h      Percentiles: P <sub>1</sub> = -1.1 P <sub>10</sub> = -0.4 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> = 2.8																								Hours of Calibration:	0		
																								Percent Operational Time:	91.0		
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-Jan	0.1	0.2	0.2	0.6	0.8	1.0	0.5	-0.1	0.1	0.8	0.9	0.2	0.1	0.1	0.0	0.2	0.5	0.6	0.4	0.4	-0.1	0.4	0.5	0.3	0.4	1.0	
2-Jan	0.8	0.2	0.3	0.0	0.3	0.3	0.3	0.6	0.4	0.2	0.2	-0.3	0.5	0.0	-0.2	-0.1	-0.2	-0.2	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.8	
3-Jan	-0.1	0.0	0.0	0.0	0.1	0.0	0.3	-0.1	0.0	-0.3	0.3	0.3	0.4	0.4	0.2	0.4	DF	DF	DF	DF	DF	DF	DF	DF	0.7	0.7	
4-Jan	0.4	0.4	0.6	1.2	1.1	0.8	1.3	1.1	0.9	0.9	0.8	0.2	0.7	0.6	0.5	0.4	0.6	0.4	0.5	0.4	0.6	0.6	0.6	0.5	0.7	1.3	
5-Jan	0.2	0.2	0.3	0.2	0.0	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	-0.1	0.0	0.5	0.2	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.5	
6-Jan	0.4	0.5	0.7	0.6	0.2	0.4	0.3	0.2	0.5	0.3	0.3	0.2	-0.3	-0.1	0.4	0.0	-0.3	-0.1	0.5	0.5	0.1	0.7	0.2	0.0	0.3	0.7	
7-Jan	0.0	0.4	0.5	0.3	0.0	0.3	0.1	0.0	0.1	0.0	0.0	-0.1	-0.2	0.0	-0.1	-0.1	0.0	-0.1	0.1	-0.1	0.0	0.1	0.1	0.1	0.1	0.5	
8-Jan	0.1	0.2	0.0	0.2	0.5	0.4	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.2	0.4	0.0	0.0	0.4	0.6	0.1	0.6	0.2	0.0	0.2	0.6	
9-Jan	0.1	0.2	0.4	0.6	0.1	0.2	0.1	0.2	1.1	-0.1	0.2	0.1	0.1	0.3	-0.2	0.3	0.0	-0.7	-0.7	-0.2	0.7	0.1	0.1	0.5	0.1	1.1	
10-Jan	0.2	0.4	0.3	0.6	0.7	0.5	0.0	-0.2	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.3	-0.2	-0.1	-0.3	0.1	0.4	0.0	-0.1	0.1	0.7	
11-Jan	0.2	UO	-0.4	-0.5	0.3	0.0	0.8	1.2	UO	UO	UO	0.5	0.6	0.5	-0.2	0.3	0.3	-1.0	-0.3	0.7	0.4	0.0	UO	-0.1	0.2	1.2	
12-Jan	UO	-0.9	-1.4	0.0	-0.5	0.3	-0.1	-0.5	-0.3	0.0	0.1	-0.1	-0.1	0.0	0.2	-0.1	0.6	0.1	0.0	0.2	0.0	0.0	0.3	0.6	-0.1	0.6	
13-Jan	0.3	0.5	0.3	0.5	0.3	1.4	0.8	-0.1	0.5	0.5	0.9	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4	
14-Jan	0.4	-0.1	0.1	0.3	0.5	0.5	0.0	0.6	1.7	1.1	0.5	0.8	0.3	0.6	1.8	1.0	1.7	1.4	1.4	1.0	1.5	2.7	2.6	2.7	1.1	2.7	
15-Jan	3.1	2.2	2.2	2.4	3.3	2.8	2.8	3.3	2.9	3.0	3.2	2.4	1.1	0.5	0.3	0.3	0.3	0.4	0.1	-0.3	-0.1	0.3	0.3	-0.1	1.5	3.3	
16-Jan	-0.2	0.1	0.0	0.0	0.3	0.1	0.4	-0.4	-0.2	-0.6	-0.9	0.1	-0.4	-0.2	-0.1	-0.2	0.0	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3	-0.4	-0.2	0.4	
17-Jan	-0.1	0.1	0.8	0.8	0.7	0.5	0.6	1.0	0.9	0.8	0.6	1.4	0.9	0.6	1.1	0.7	0.7	0.3	0.7	0.7	0.5	0.2	0.2	-0.3	0.6	1.4	
18-Jan	0.0	0.2	0.4	-0.2	-0.3	0.0	0.1	-0.4	-0.5	-0.3	-0.5	-0.2	0.0	0.1	0.1	-0.2	-0.4	-0.4	-0.5	-0.4	-0.1	-0.1	-0.2	-0.3	-0.2	0.4	
19-Jan	-0.2	-0.2	0.0	-0.3	-0.4	-0.4	-0.4	-0.2	-0.2	-0.2	-0.4	0.0	-0.1	0.4	0.3	-0.1	0.0	0.4	0.6	0.7	0.5	0.7	0.5	0.4	0.1	0.7	
20-Jan	0.3	0.4	0.3	-0.1	-0.2	-0.1	-0.4	-0.4	-0.4	-0.3	0.2	0.1	-0.1	-0.3	0.3	0.0	0.1	0.2	0.3	-0.3	0.1	0.0	0.7	0.3	0.0	0.7	
21-Jan	0.7	0.7	0.3	0.5	0.7	0.2	-0.2	0.1	0.0	0.0	0.3	0.2	1.1	0.7	-0.1	0.5	0.1	0.4	0.4	0.1	0.4	0.5	0.7	0.7	0.4	1.1	
22-Jan	1.3	0.5	0.5	0.3	0.1	0.6	0.4	0.5	-0.1	1.0	-0.2	-0.3	-0.2	0.0	0.1	-0.1	-0.2	0.2	0.3	0.3	0.3	0.1	0.3	0.5	0.3	1.3	
23-Jan	0.5	0.2	0.2	0.3	0.2	0.0	0.0	0.2	-0.2	-0.2	0.1	-0.2	-0.4	0.0	-0.2	0.1	-0.4	0.3	0.6	0.8	0.5	0.3	0.2	0.1	0.1	0.8	
24-Jan	0.3	0.2	0.1	0.1	0.4	0.2	-0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.5	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.3	0.2	0.5	
25-Jan	0.5	0.5	0.3	0.5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.5
26-Jan	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	--	--
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.1	-0.2	-0.3	-0.5	-0.6	-0.6	-0.6	-0.7	-0.7	-0.8	-0.7	-0.6	-0.6	--	-0.1	
28-Jan	-0.4	-0.2	0.2	0.0	0.3	0.3	0.3	-0.3	-0.8	-0.8	-1.1	-1.2	-1.2	-0.8	-0.7	-0.8	-0.8	-0.8	-0.7	-0.9	-1.1	-0.9	-0.6	-0.7	-0.6	0.3	
29-Jan	-0.6	-0.1	0.0	-0.4	-0.2	-0.2	-0.2	-0.2	0.1	0.4	0.4	0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	-0.9	-0.3	-0.5	-0.4	-0.3	-0.2	-0.2	0.4	
30-Jan	-0.3	-0.6	-0.2	-0.3	-0.2	0.0	0.0	0.2	0.5	0.4	-0.4	-0.6	-1.1	-1.1	-1.1	-1.1	-1.0	-0.7	-1.1	-0.9	-0.5	-0.3	-0.6	-0.7	-0.5	0.5	
31-Jan	-0.7	-0.6	-0.7	-0.8	-1.1	-0.6	-0.7	-0.7	-0.4	-0.7	-0.5	-0.1	0.2	0.1	-0.1	0.0	-1.0	0.3	0.2	0.5	0.5	-0.4	0.1	0.1	-0.3	0.5	
																								Diurnal Average			
																								Diurnal Maximum			
																								DF - DAS Failure      UO - Unstable Operation			



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

**Vertical Wind Speed 90 m (VW90m) - km/h**  
**Mannix - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7.7 km/h on Jan 11 14:00 Minimum Value: 0.1 km/h on Jan 13 17:00 Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.6 Median = 1.0 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 1.9 P <sub>99</sub> = 3.2																								Hours in Service: 744 Hours of Data: 677 Hours of Missing Data: 67 Hours of Calibration: 0 Percent Operational Time: 91.0		
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-Jan	0.7	0.7	1.1	1.2	1.8	1.8	2.1	1.8	1.3	1.0	1.2	1.2	1.1	1.2	1.0	1.3	1.4	1.5	1.3	1.3	1.0	1.4	1.5	1.5	2.1	
2-Jan	1.9	1.4	1.6	0.9	1.5	1.2	1.4	1.6	1.3	1.0	1.5	0.9	1.4	1.1	1.1	0.7	0.6	0.7	0.7	0.6	0.4	0.4	0.2	0.2	1.9	
3-Jan	0.2	0.1	0.3	0.2	0.3	0.4	0.7	0.5	0.6	0.9	1.1	0.9	0.9	1.1	0.9	0.9	DF	DF	DF	DF	DF	DF	DF	2.0	2.0	
4-Jan	1.8	2.1	2.6	2.9	2.9	2.8	2.4	2.2	2.2	1.8	1.9	1.6	1.8	1.5	1.2	1.4	1.0	0.9	0.9	0.9	0.7	0.8	1.0	2.9		
5-Jan	0.8	0.5	0.6	0.5	1.0	1.0	0.8	0.5	0.3	0.3	0.8	0.6	0.6	0.7	0.5	0.6	0.7	0.5	0.6	0.4	0.4	0.6	0.5	1.0		
6-Jan	0.4	0.5	0.5	0.4	0.6	0.8	0.7	0.5	0.6	1.2	0.8	1.2	1.3	1.5	1.8	1.5	1.5	1.5	1.4	1.7	1.6	1.8	1.4	1.3	1.8	
7-Jan	1.4	1.0	0.9	0.9	0.9	1.1	0.6	0.4	0.4	0.4	0.2	0.6	0.7	0.9	0.6	0.2	0.1	0.4	1.3	0.9	1.2	1.0	0.8	0.7	1.4	
8-Jan	0.3	0.4	0.9	0.6	0.5	0.6	0.5	0.8	0.3	0.5	0.8	1.3	1.4	1.0	1.2	1.0	0.7	0.5	1.2	1.5	1.0	1.0	0.5	0.3	1.5	
9-Jan	0.5	0.5	0.8	0.5	0.3	0.4	0.4	0.5	1.2	0.8	1.0	1.1	1.4	1.6	1.7	2.0	1.8	1.3	1.6	1.7	1.7	1.5	2.9	2.4	2.9	
10-Jan	1.9	2.1	1.7	2.1	2.0	2.2	2.2	1.5	1.0	0.8	0.6	0.8	1.2	1.3	1.3	1.5	1.4	1.2	1.1	1.3	1.9	2.4	1.8	1.6	2.4	
11-Jan	2.0	UO	2.6	2.2	1.8	1.1	1.9	2.2	UO	UO	UO	1.7	2.1	7.7	1.1	1.6	1.6	2.7	1.5	1.5	1.2	0.4	UO	1.0	7.7	
12-Jan	UO	1.1	1.5	0.9	1.2	1.6	1.6	0.5	0.5	1.3	0.7	0.5	0.9	0.4	0.4	0.5	1.1	0.6	0.6	0.6	0.5	0.1	0.3	1.0	1.6	
13-Jan	0.3	1.0	0.5	1.0	0.7	2.3	1.2	0.8	1.3	1.2	1.7	0.7	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	2.3	
14-Jan	1.0	0.4	0.5	1.0	0.9	0.8	0.4	1.3	1.6	1.3	1.7	1.3	1.0	1.1	1.4	1.3	1.4	1.4	1.4	1.3	1.5	0.6	1.2	1.2	1.7	
15-Jan	0.9	1.4	1.3	1.5	0.9	1.1	1.0	0.8	0.8	0.9	0.8	1.3	1.6	1.2	0.4	0.3	0.2	0.3	0.3	0.2	0.3	0.4	0.2	0.5	1.6	
16-Jan	0.3	0.3	0.3	0.3	0.5	1.2	1.9	1.8	1.0	1.0	1.3	1.1	0.7	0.5	0.5	0.6	0.9	0.9	1.3	1.2	1.3	1.5	1.8	2.0	2.0	
17-Jan	1.6	1.5	1.7	1.6	1.5	1.5	1.4	1.7	1.5	1.9	1.7	1.9	1.8	1.6	1.9	1.3	1.0	0.6	0.9	1.3	1.7	1.7	1.5	1.9	1.9	
18-Jan	1.6	1.0	0.9	0.4	0.4	0.5	0.4	0.7	0.7	0.6	0.4	0.8	1.1	1.0	0.9	1.0	0.7	0.4	0.4	0.5	0.8	0.9	0.9	0.4	1.6	
19-Jan	0.3	0.2	0.3	0.3	0.5	0.6	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.5	0.2	0.4	0.7	0.7	0.5	0.7	0.7	1.3	1.3	
20-Jan	0.9	1.0	0.9	0.7	0.4	0.6	0.5	0.3	0.4	0.3	1.1	1.2	0.9	0.9	1.2	1.1	1.3	1.0	1.4	1.4	1.0	1.3	1.4	1.4	1.4	
21-Jan	1.6	1.7	1.5	1.9	1.5	1.1	0.8	0.9	1.0	1.0	1.4	1.8	2.1	1.9	1.6	1.7	1.3	1.3	1.3	1.1	1.3	1.0	0.4	0.8	2.1	
22-Jan	1.7	1.3	1.1	1.1	0.6	0.9	0.8	1.2	1.6	2.9	2.7	2.2	2.2	2.6	2.2	2.2	2.2	2.1	2.3	2.1	1.6	1.2	1.4	1.6	2.9	
23-Jan	1.5	1.2	0.9	1.0	0.8	0.9	0.7	0.6	0.6	0.5	0.8	0.5	0.9	1.2	0.7	0.8	0.9	1.0	1.3	1.4	1.2	1.0	0.8	0.9	1.5	
24-Jan	1.1	1.0	0.6	0.7	0.6	0.4	0.4	0.5	1.3	0.9	0.6	1.1	1.2	1.9	2.0	1.4	1.3	0.7	0.5	0.3	0.2	0.3	0.2	0.4	2.0	
25-Jan	0.8	0.9	1.1	1.6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.6	
26-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.6	0.7	0.5	0.7	1.3	1.2	1.0	1.1	1.2	1.0	1.0	1.3	0.8	0.6	1.3
28-Jan	0.8	0.3	0.5	0.5	1.2	0.7	1.1	1.0	0.5	1.0	1.5	2.1	3.0	3.5	2.9	2.6	2.2	1.9	1.6	2.0	2.0	1.7	1.3	1.2	3.5	
29-Jan	1.2	0.8	0.5	0.6	0.3	0.8	0.7	0.5	0.5	0.5	0.8	0.8	0.9	0.8	0.4	0.6	0.6	0.8	0.6	0.8	1.1	0.9	1.2	1.3	1.3	
30-Jan	0.9	0.8	0.9	0.4	0.4	0.4	0.6	0.6	0.7	1.2	2.4	1.5	1.4	3.0	3.8	4.0	3.6	3.2	2.7	3.2	3.4	1.3	0.6	1.3	4.0	
31-Jan	1.4	1.4	1.5	1.9	1.8	1.8	2.1	1.0	0.4	0.4	0.6	0.7	0.8	0.9	0.8	1.1	2.4	2.3	1.5	0.8	1.3	1.7	2.0	2.8	2.8	
Diurnal Maximum																										
DF - DAS Failure      UO - Unstable Operation																										



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS06**  
**PATRICIA MCINNES**  
**JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
 JANUARY 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	705	37	39	99.73	32.4	0	6.9	0
TRS (ppb) Average	706	36	38	99.73	2.2	0	1.4	0
THC (ppm) Average	705	37	39	99.73	2.9	-	2.3	-
NMHC(ppm) Average	705	37	39	99.73	0.114	-	0.065	-
CH4(ppm) Average	705	37	39	99.73	2.9	-	2.2	-
O3 (ppb) Average	707	35	37	99.73	47.8	0	37	-
NO2 (ppb) Average	703	36	41	99.33	31	0	15.3	-
NO (ppb) Average	703	36	41	99.33	38	-	10.3	-
NOX (ppb) Average	703	36	41	99.33	67.5	-	25.6	-
NH3 (ppb) Average	665	39	79	94.62	0	0	0	-
PM2.5 (ug/m3) Average	740	2	4	99.73	32	0	19	0
Temperature 2 m (C) Average	744	0	0	100	11.3	-	5	-
Relative Humidity (%) Average	744	0	0	100	95.8	-	93.4	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	32	-	15	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
 JANUARY 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	705	1.55	2.9	-	0	0.1	0.2	0.4	1.8	4	32.4
TRS (ppb) Average	706	0.56	0.3	-	0.2	0.3	0.4	0.4	0.6	1	2.2
THC (ppm) Average	705	2.13	0.1	-	2	2	2.1	2.1	2.2	2.3	2.9
NMHC(ppm) Average	705	0.021	0.022	-	0	0	0	0	0	0.1	0.114
CH4(ppm) Average	705	2.11	0.1	-	2	2	2.1	2.1	2.2	2.2	2.9
O3 (ppb) Average	707	20.73	9.9	-	0.8	6.7	13.3	21.7	27.5	32.9	47.8
NO2 (ppb) Average	703	9.35	6.8	-	0	1.9	4.4	7.8	13	19.3	31
NO (ppb) Average	703	2.43	4.1	-	0	0.1	0.4	1.1	2.8	6	38
NOX (ppb) Average	703	11.78	9.8	-	0	2.3	5.2	9.3	16	24.1	67.5
NH3 (ppb) Average	665	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	740	5.42	4.5	-	0.3	2	3	4.2	5.7	10.9	32
Temperature 2 m (C) Average	744	-17.08	12.4	-	-41.9	-34.2	-23.8	-17.7	-9.6	1.4	11.3
Relative Humidity (%) Average	744	76.14	8.8	-	38.3	67	70.3	76.3	81.7	88.4	95.8
Wind Speed 10 m (km/h) Average	741	8.8	5	-	0	3	5	8	12	15	32
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2, THC/NMHC/CH4	22 Jan 2024 14:00	22 Jan 2024 15:00	2	Maintenance - WBEA internal audit
O3, TRS	22 Jan 2024 13:00	22 Jan 2024 14:00	2	Maintenance - WBEA internal audit
NO2	23 Jan 2024 10:00	23 Jan 2024 14:00	5	Maintenance - WBEA internal audit
PM2.5	23 Jan 2024 13:00	23 Jan 2024 14:00	2	Maintenance - WBEA internal audit
NH3	23 Jan 2024 10:00	23 Jan 2024 17:00	8	Maintenance - WBEA internal audit
NH3	11 Jan 2024 20:00	11 Jan 2024 20:00	1	Unstable Operation - excessive baseline noise
NH3	01 Jan 2024 05:00	31 Jan 2024 05:00	31	Stabilization after daily span
Wind Speed, Wind Direction	25 Jan 2024 13:00	25 Jan 2024 15:00	3	Flat line in sensor output signal - Sensor frozen



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

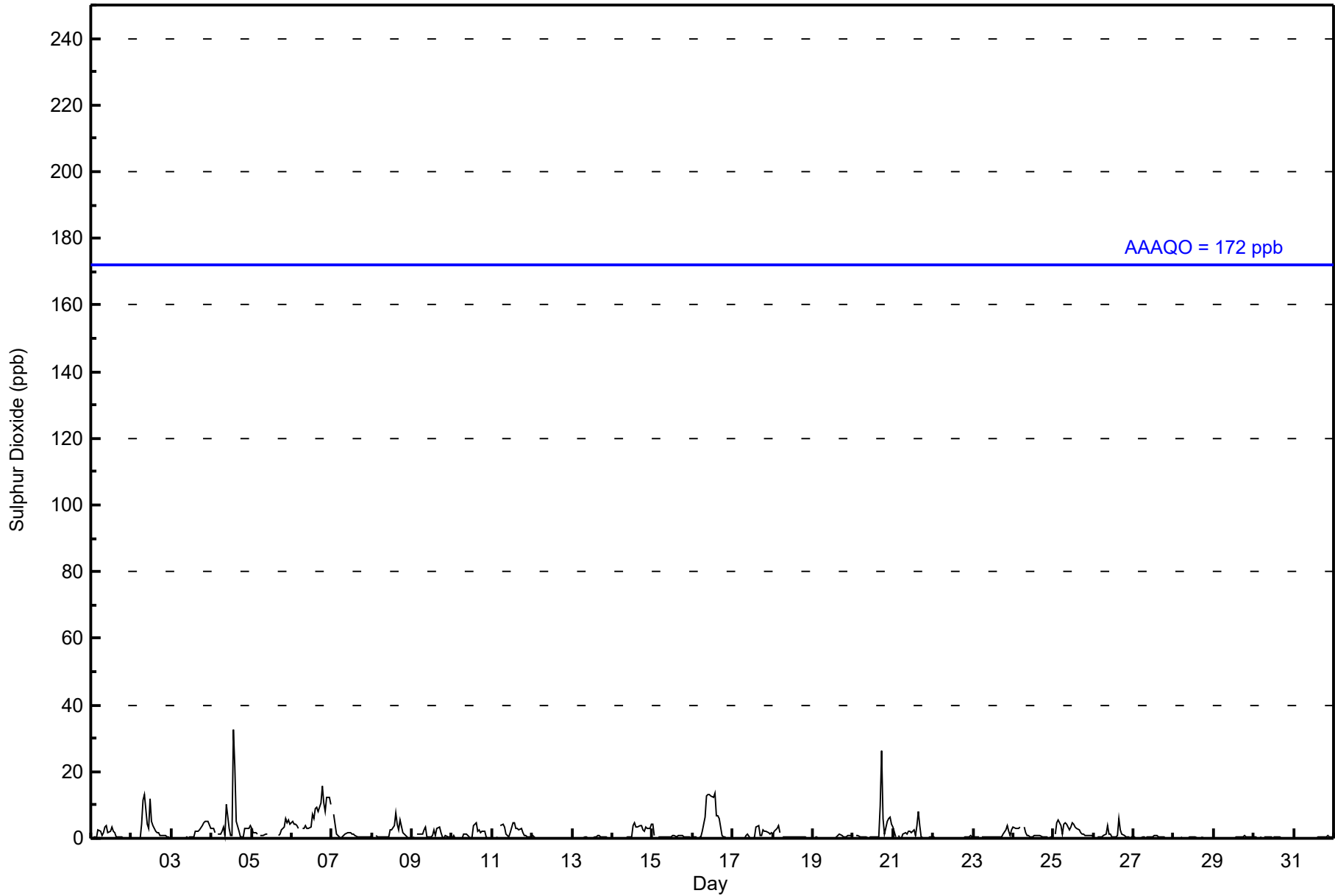
## Patricia McInnes - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 32.4 ppb on Jan 4 14:00		Maximum Daily Average: 6.9 ppb on Jan 6				Hours of Data:		705																																									
Minimum Value: 0.0 ppb on Jan 9 01:00		Minimum Daily Average: 0.1 ppb on Jan 12				Hours of Missing Data:		39																																									
Maximum Diurnal Average: 3.1 ppb at hour 14		Minimum Diurnal Average: 0.6 ppb at hour 6				Hours of Calibration:		37																																									
Monthly Average: 1.55 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 4.0 P <sub>99</sub> = 13.1				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-Jan	Z	0.4	0.2	0.1	2.7	2.1	0.9	1.8	3.4	3.7	1.6	2.2	3.3	2.0	1.8	0.3	0.2	0.3	0.3	0.1	0.1	0.2	0.1	0.1	1.2	3.7																							
2-Jan	0.4	Z	0.0	0.1	0.1	0.2	4.1	11.4	13.1	4.3	2.9	11.8	5.1	3.8	2.3	1.8	1.5	0.8	0.7	0.7	0.7	0.6	0.3	0.1	2.9	13.1																							
3-Jan	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	2.0	1.9	2.1	2.7	3.9	4.6	5.3	5.2	5.2	3.1	1.7	5.3																							
4-Jan	2.8	2.8	1.7	Z	1.3	1.2	2.1	3.3	0.8	10.1	3.0	0.7	0.9	32.4	21.6	4.9	2.2	0.3	0.3	0.4	2.8	3.1	3.1	3.7	4.6	32.4																							
5-Jan	2.8	1.9	1.9	1.5	Z	1.1	0.8	0.9	1.2	1.4	C	C	C	C	C	C	1.0	1.1	2.4	3.3	5.9	4.8	5.4	4.1	--	5.9																							
6-Jan	4.9	4.2	4.4	3.7	3.2	Z	3.2	3.2	3.8	3.1	3.1	3.4	7.1	5.8	9.1	9.3	7.8	10.7	15.5	10.6	7.9	12.4	12.3	10.3	6.9	15.5																							
7-Jan	Z	7.3	4.2	1.3	0.5	0.2	0.3	1.1	1.2	1.7	1.5	1.5	1.2	1.1	0.7	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4	1.2	7.3																							
8-Jan	0.6	Z	0.8	0.6	0.5	0.5	0.5	0.6	0.6	0.4	0.4	2.3	2.7	3.7	7.8	4.2	2.7	5.4	1.6	1.2	0.6	0.3	0.1	0.1	1.7	7.8																							
9-Jan	0.0	0.6	Z	1.5	1.4	1.1	1.1	2.7	3.3	0.5	0.3	0.4	1.0	2.7	0.8	2.8	3.4	1.6	0.6	0.2	0.9	0.3	0.2	0.1	1.2	3.4																							
10-Jan	0.1	0.9	0.2	Z	0.0	0.0	0.1	1.4	1.4	0.9	0.3	0.2	0.3	3.9	4.7	2.0	2.5	1.9	2.0	2.3	0.3	0.0	0.0	0.0	1.1	4.7																							
11-Jan	0.0	0.0	0.0	0.3	Z	3.7	4.3	3.2	1.3	1.0	0.5	1.5	4.6	4.6	3.0	3.1	2.7	2.9	1.7	0.7	0.9	0.5	0.5	0.5	1.8	4.6																							
12-Jan	0.7	0.2	0.1	0.1	0.2	Z	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7																							
13-Jan	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.3	0.3	0.9	0.9	0.4	0.3	0.2	0.2	0.2	0.1	0.0	0.2	0.9																							
14-Jan	0.1	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.3	0.5	3.7	4.7	3.4	3.4	3.7	3.7	2.6	2.3	3.3	2.9	3.0	4.2	1.8	4.7																							
15-Jan	4.1	0.8	Z	0.4	0.3	0.4	0.5	0.3	0.3	0.2	0.4	0.5	0.7	0.8	0.6	0.8	0.8	0.8	0.6	0.5	0.4	0.3	0.2	0.2	0.7	4.1																							
16-Jan	0.2	0.3	0.2	Z	0.3	0.3	2.0	6.5	12.9	13.1	13.2	12.6	12.3	13.6	6.9	6.6	6.0	0.8	0.3	0.3	0.2	0.2	0.2	0.1	4.7	13.6																							
17-Jan	0.1	0.1	0.1	0.1	Z	0.0	0.1	0.0	0.8	1.2	0.2	0.1	0.2	0.3	3.3	3.6	0.8	0.7	2.4	2.3	2.1	1.8	1.4	1.5	1.0	3.6																							
18-Jan	1.2	2.0	2.8	3.7	1.7	Z	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.7	3.7																							
19-Jan	Z	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.8	1.2	0.9	0.4	0.5	0.6	0.9	1.0	1.0	0.4	1.2																							
20-Jan	0.8	Z	0.7	0.8	0.6	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.4	9.8	26.5	6.1	1.1	5.0	5.9	6.5	4.1	3.1	26.5																							
21-Jan	3.2	0.5	Z	0.7	0.1	0.1	1.2	1.6	1.2	2.0	2.3	1.8	2.7	1.1	4.0	8.1	4.0	0.3	0.2	0.2	0.2	0.2	0.3	0.3	1.6	8.1																							
22-Jan	0.3	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	M	M	0.2	0.1	0.2	0.1	0.2	0.4	0.5	0.6	0.5	0.2	0.6																							
23-Jan	0.4	0.4	0.4	0.4	Z	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.6	1.3	2.7	3.6	2.2	0.9	2.5	0.9	3.6																							
24-Jan	3.2	3.2	3.0	3.1	3.2	Z	3.2	1.9	1.0	0.6	0.6	0.6	0.8	0.8	0.9	0.8	0.7	0.6	0.4	0.4	0.3	0.2	0.3	0.4	1.3	3.2																							
25-Jan	Z	1.4	4.5	5.5	3.8	1.4	4.2	4.5	4.2	2.6	3.5	4.8	4.3	3.4	2.8	2.4	1.7	1.2	1.1	0.9	0.9	0.8	0.8	0.6	2.7	5.5																							
26-Jan	0.5	Z	0.5	0.5	0.5	0.5	0.7	1.1	3.7	1.4	1.1	0.6	0.4	0.4	0.7	5.8	2.5	1.2	0.7	0.5	0.4	0.3	0.2	0.3	1.1	5.8																							
27-Jan	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.8	0.8	0.7	0.5	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.0	0.3	0.8																							
28-Jan	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
29-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.5	0.6	0.5	0.5	0.4	0.3	0.2	0.6																							
30-Jan	0.3	0.3	0.1	0.2	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.5																						
31-Jan	Z	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.5	0.4	0.3	0.3	0.5	0.6	0.5	0.6	0.4	0.3	0.6																							
																								1.1	1.1	1.0	1.0	0.8	0.6	1.0	1.5	1.8	1.6	1.3	1.6	1.8	3.1	2.8	2.2	2.0	2.2	1.5	1.2	1.4	1.5	1.4	1.3	Diurnal Average	
																								4.9	7.3	4.5	5.5	3.8	3.7	4.3	11.4	13.1	13.1	13.2	12.6	12.3	32.4	21.6	9.3	9.8	26.5	15.5	10.6	7.9	12.4	12.3	10.3	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**  
**Patricia McInnes - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	688	97.59	97.59
11 - 20	14	1.99	99.57
21 - 60	3	0.43	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Patricia McInnes - January 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	133	34	6	3	11	31	83	48	38	34	48	42	29	29	24	92	685
11 - 20	4	0	0	1	0	1	0	0	0	0	0	0	0	1	2	5	14
21 - 60	3	0	0	0	0	0	0	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>	<b>140</b>	<b>34</b>	<b>6</b>	<b>4</b>	<b>11</b>	<b>32</b>	<b>83</b>	<b>48</b>	<b>38</b>	<b>34</b>	<b>48</b>	<b>42</b>	<b>29</b>	<b>30</b>	<b>26</b>	<b>97</b>	<b>702</b>

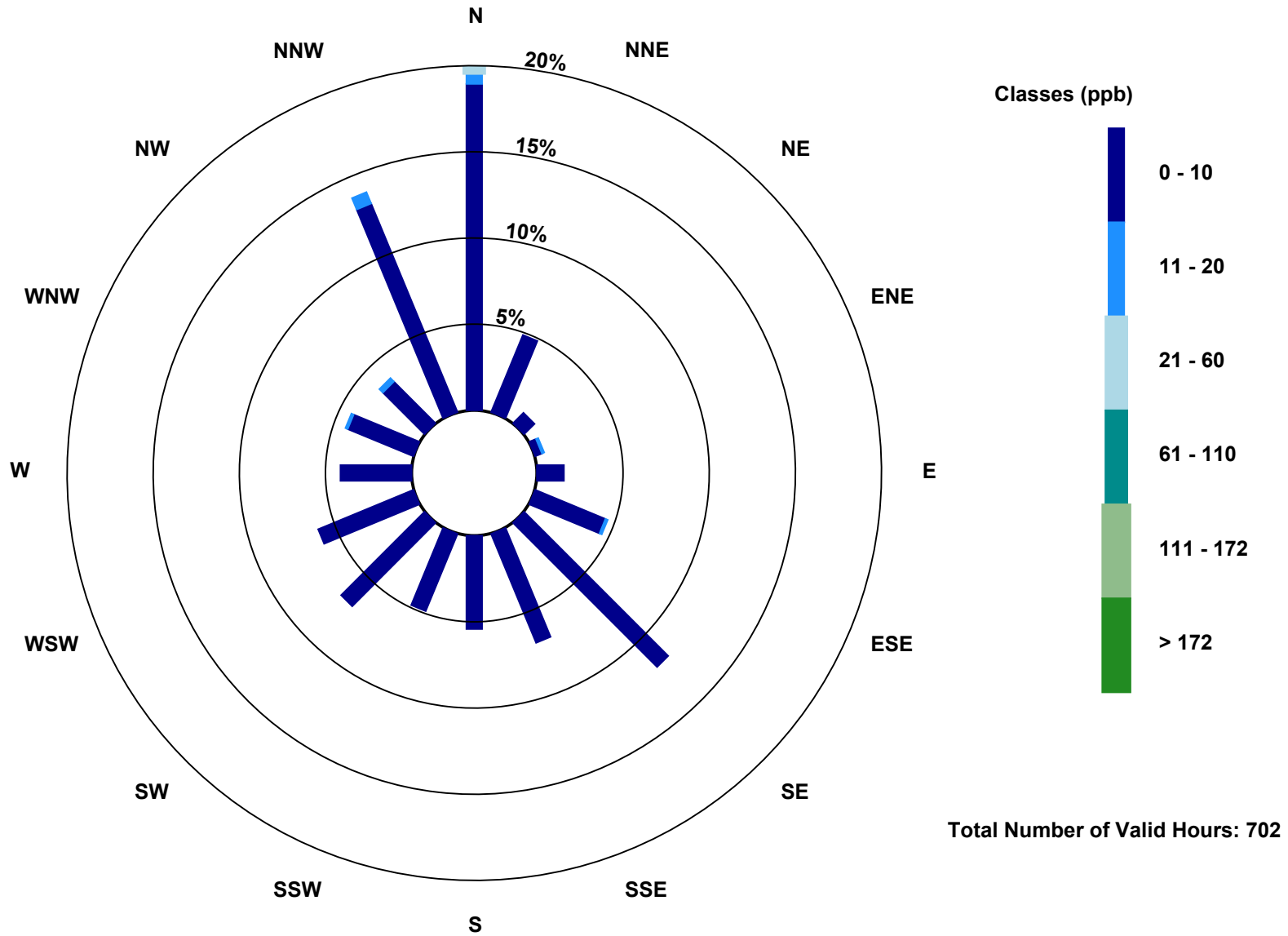
Total Number of Valid Hours: 702

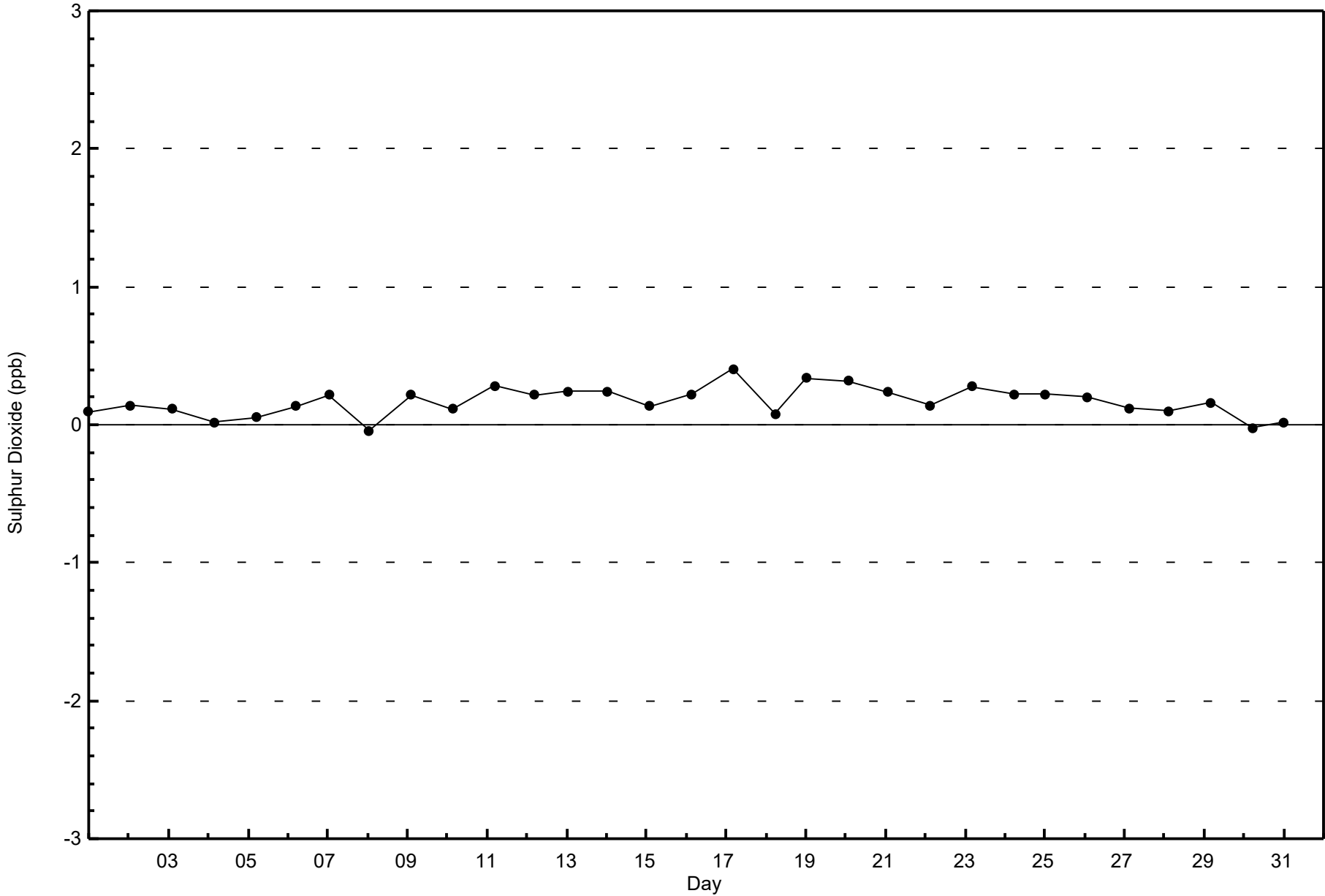
Total Number of Hours: 744

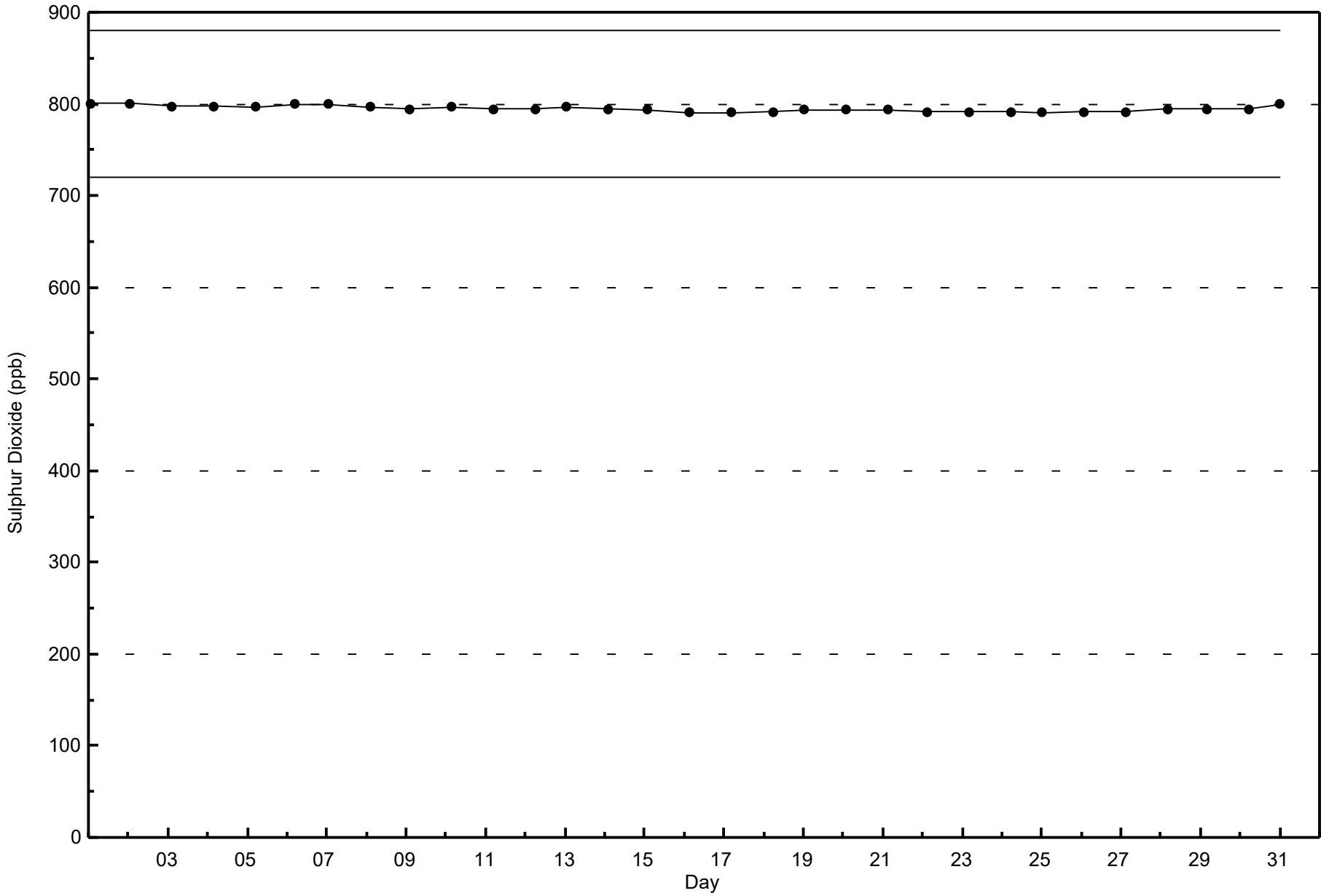


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











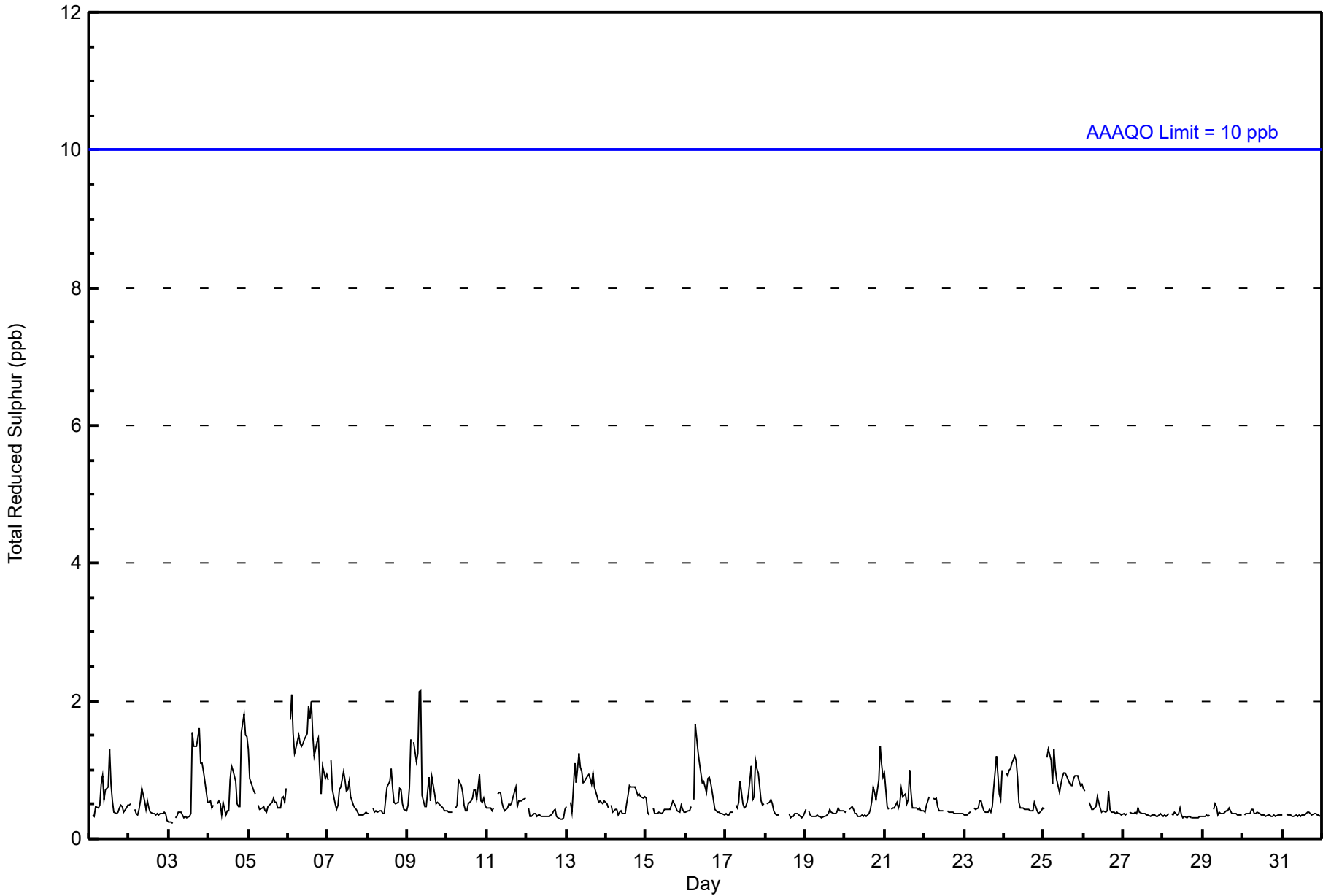
# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Total Reduced Sulphur (TRS) - ppb

## Patricia McInnes - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744							
Maximum Value: 2.2 ppb on Jan 9 09:00		Maximum Daily Average: 1.4 ppb on Jan 6														Hours of Data:		706									
Minimum Value: 0.2 ppb on Jan 3 03:00		Minimum Daily Average: 0.3 ppb on Jan 28														Hours of Missing Data:		38									
Maximum Diurnal Average: 0.6 ppb at hour 8		Minimum Diurnal Average: 0.5 ppb at hour 1														Hours of Calibration:		36									
Monthly Average: 0.56 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.4 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.0 P <sub>99</sub> = 1.7														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-Jan	0.3	Z	0.4	0.3	0.5	0.4	0.5	0.8	0.9	0.6	0.7	0.8	1.3	0.8	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5	1.3	
2-Jan	0.5	0.5	Z	0.4	0.4	0.3	0.4	0.5	0.7	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.7	
3-Jan	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	1.5	1.3	1.3	1.3	1.6	1.1	1.1	1.0	0.8	0.5	0.7	1.6	
4-Jan	0.5	0.6	0.4	0.5	Z	0.5	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.9	1.0	1.0	0.8	0.5	0.5	0.5	1.5	1.8	1.5	1.5	0.7	1.8	
5-Jan	1.3	0.9	0.7	0.7	0.7	Z	0.5	0.4	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.6	0.6	0.5	0.7	0.6	1.3	
6-Jan	Z	1.7	2.1	1.5	1.2	1.3	1.5	1.4	1.4	1.4	1.5	1.5	1.9	1.8	2.0	1.5	1.2	1.4	1.5	1.0	0.6	1.1	0.9	0.9	1.4	2.1	
7-Jan	0.9	Z	1.1	0.7	0.5	0.4	0.5	0.7	0.7	1.0	0.9	0.7	0.7	0.8	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.6	1.1	
8-Jan	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.8	0.8	1.0	0.7	0.5	0.5	0.5	0.7	0.7	0.5	0.4	0.4	1.0	
9-Jan	0.5	0.8	1.4	Z	1.4	1.1	1.2	2.1	2.2	0.6	0.5	0.5	0.7	0.9	0.5	0.9	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.8	2.2	
10-Jan	0.4	0.4	0.4	0.4	Z	0.4	0.5	0.9	0.8	0.7	0.5	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.6	0.9	0.5	0.5	0.6	0.5	0.6	0.9	
11-Jan	0.5	0.4	0.4	0.4	0.4	Z	0.6	0.7	0.7	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.6	0.8	0.5	0.6	0.5	0.5	0.6	0.6	0.5	0.8	
12-Jan	Z	0.5	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	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.5	
13-Jan	0.5	Z	0.5	0.4	0.7	1.1	0.8	1.2	1.0	1.0	0.8	0.8	0.9	0.9	0.9	0.8	1.0	0.8	0.6	0.5	0.5	0.5	0.5	0.5	0.8	1.2	
14-Jan	0.5	0.5	Z	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.8	0.7	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.8	
15-Jan	0.6	0.4	0.3	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	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.6	
16-Jan	0.4	0.4	0.4	0.5	Z	0.6	1.7	1.3	1.1	1.0	0.8	0.8	0.7	0.9	0.9	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.7	1.7	
17-Jan	0.4	0.3	0.3	0.4	0.4	Z	0.5	0.4	0.5	0.8	0.5	0.5	0.5	0.5	0.7	1.1	0.6	0.6	1.1	1.0	1.0	0.6	0.5	0.5	0.6	1.1	
18-Jan	Z	0.5	0.5	0.6	0.5	0.4	0.4	0.3	0.3	C	C	C	C	C	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.6	
19-Jan	0.4	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	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5	
20-Jan	0.4	0.4	Z	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.7	0.7	0.6	0.9	1.3	1.1	0.9	0.5	1.3	
21-Jan	1.0	0.5	0.4	Z	0.4	0.4	0.5	0.5	0.4	0.5	0.7	0.6	0.7	0.5	0.6	1.0	0.7	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.5	1.0	
22-Jan	0.4	0.5	0.5	0.6	Z	0.6	0.6	0.6	0.5	0.4	0.4	0.4	M	M	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	
23-Jan	0.4	0.3	0.3	0.4	0.4	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.7	1.2	0.9	0.6	0.6	1.0	0.5	1.2	
24-Jan	Z	1.0	0.9	1.0	1.0	1.1	1.2	1.1	0.9	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	0.6	1.2	
25-Jan	0.4	Z	1.2	1.3	1.1	0.8	1.3	1.0	0.9	0.7	0.8	0.9	1.0	1.0	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.9	1.3	
26-Jan	0.7	0.7	Z	0.5	0.5	0.4	0.4	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	
27-Jan	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.5	
28-Jan	0.3	0.3	0.3	0.4	Z	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	0.4	
29-Jan	0.3	0.3	0.3	0.3	0.3	Z	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	0.3	0.4	0.3	0.4	0.5	
30-Jan	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	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	0.4	0.4	0.4	
31-Jan	0.4	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	
																								Diurnal Average		0.5	
																								Diurnal Maximum		1.3	
																								Diurnal Average		0.5	
																								Diurnal Maximum		1.3	
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**

**Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	706	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes - January 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	139	33	9	4	13	32	81	49	38	36	47	42	29	30	24	97	703
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>	139	33	9	4	13	32	81	49	38	36	47	42	29	30	24	97	703

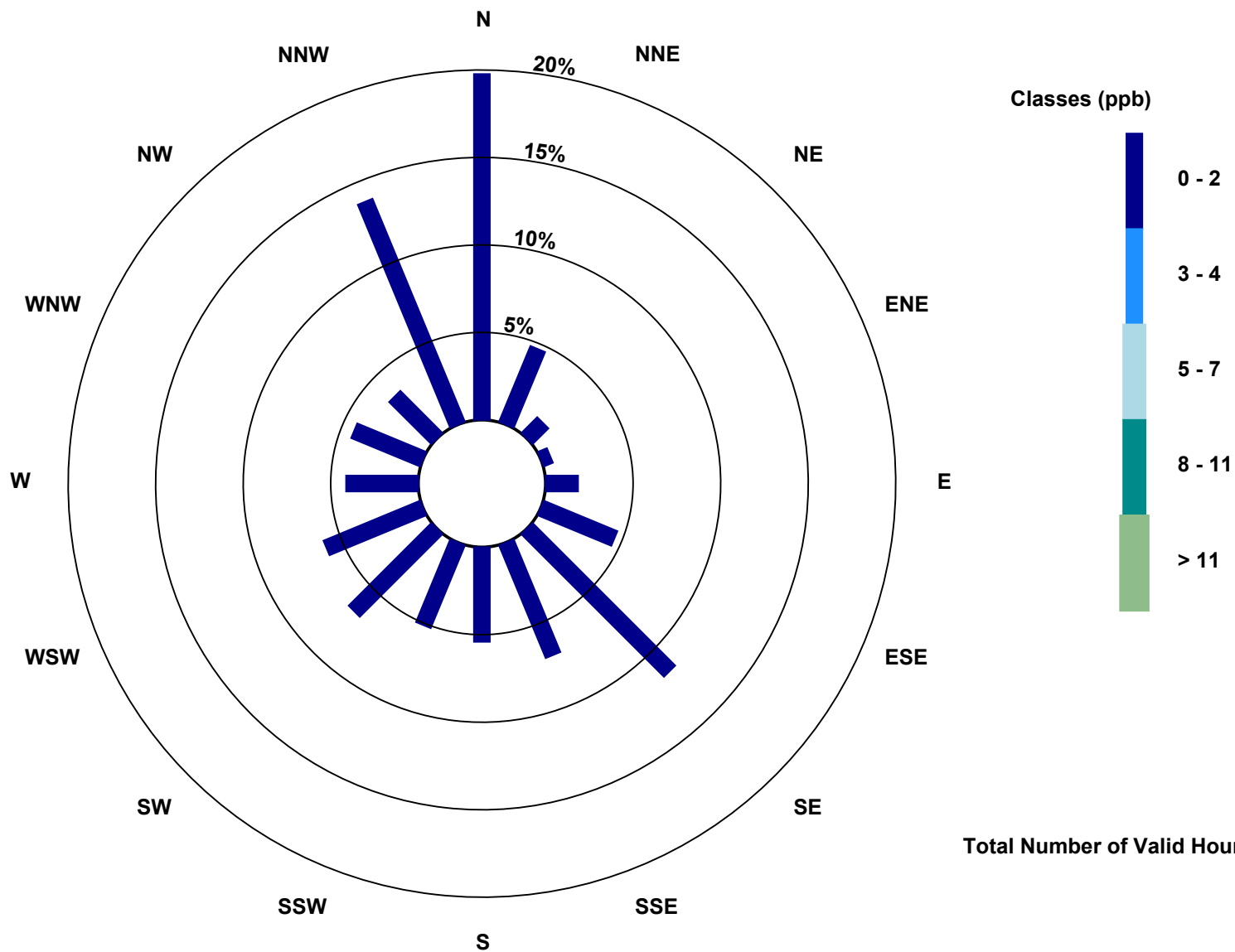
Total Number of Valid Hours: 703

Total Number of Hours: 744

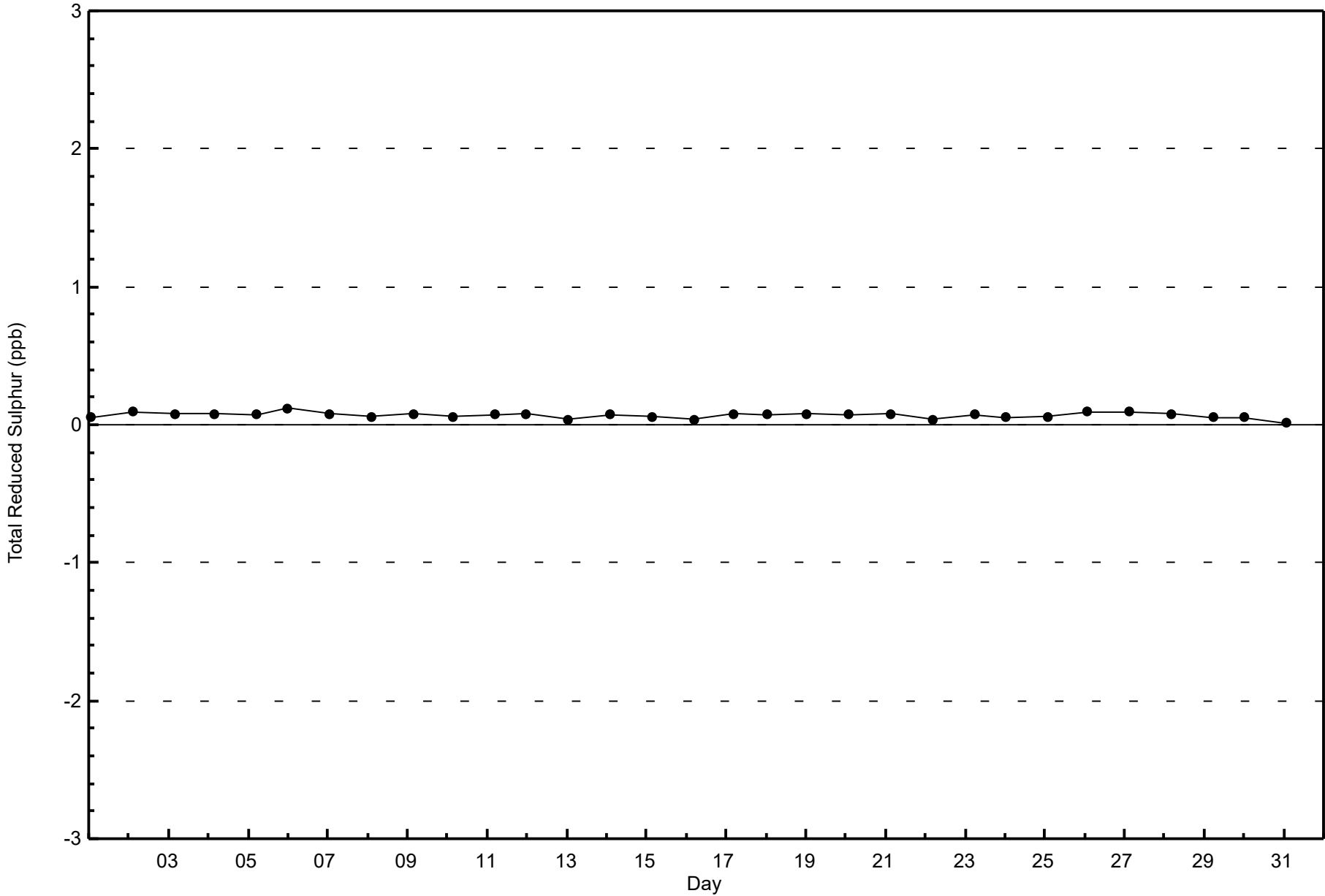


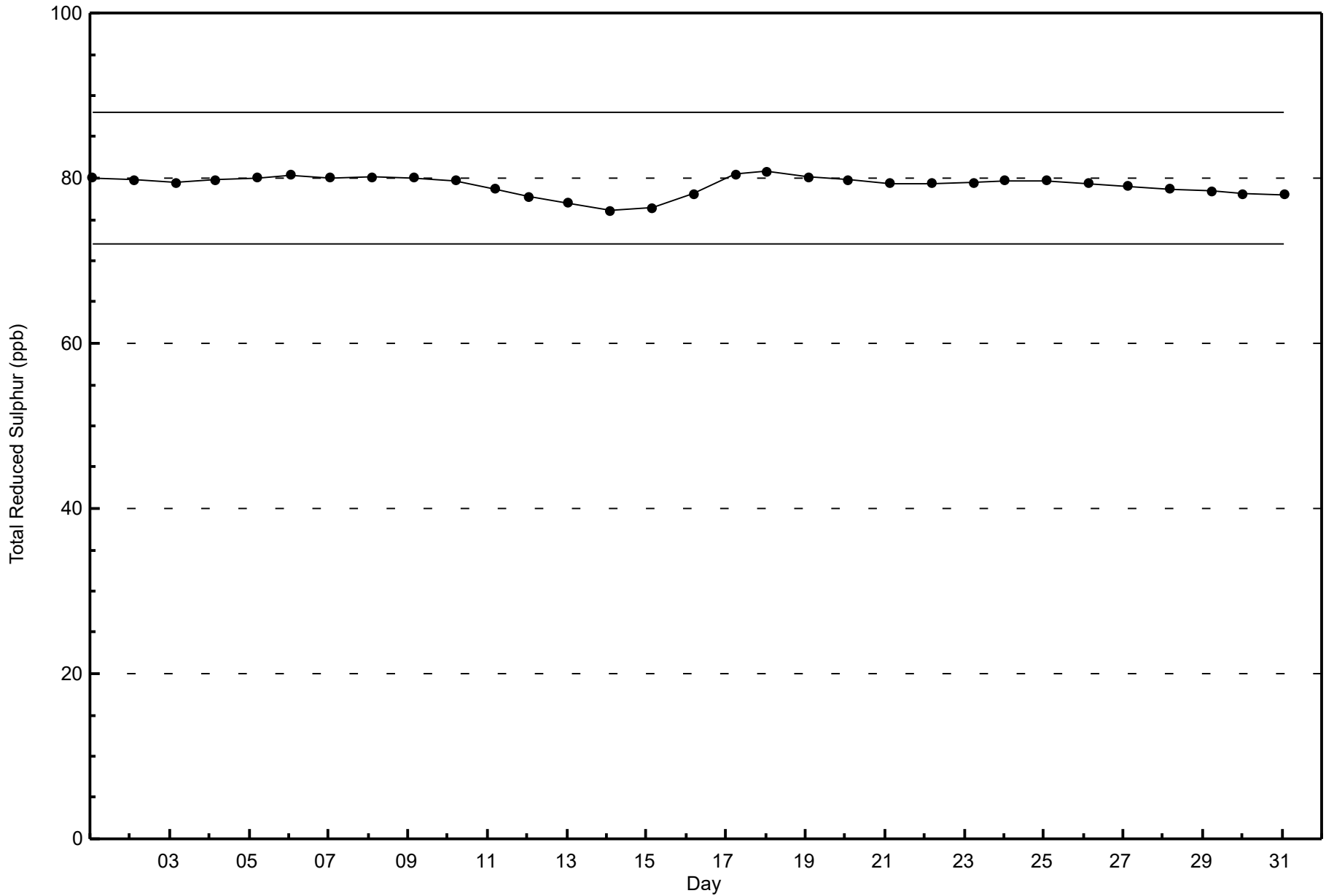
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes



Total Number of Valid Hours: 703





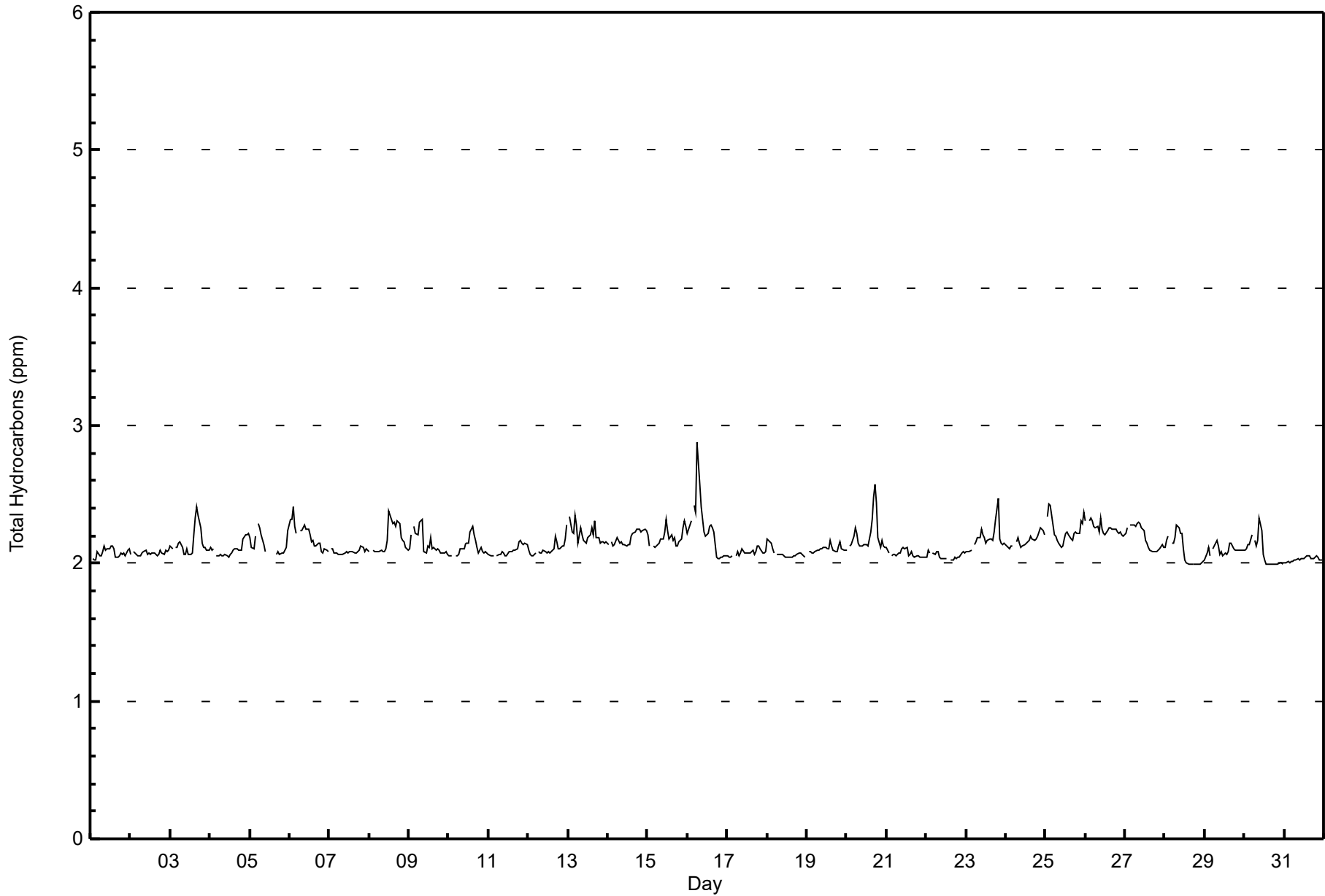






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	85	12.06	12.06
2.1 - 3.0	620	87.94	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Patricia McInnes - January 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	3	2	3	0	0	10	9	0	1	2	6	18	13	10	5	3	85
2.1 - 3.0	137	32	3	4	11	22	74	48	37	32	42	24	16	20	21	94	617
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>	140	34	6	4	11	32	83	48	38	34	48	42	29	30	26	97	702

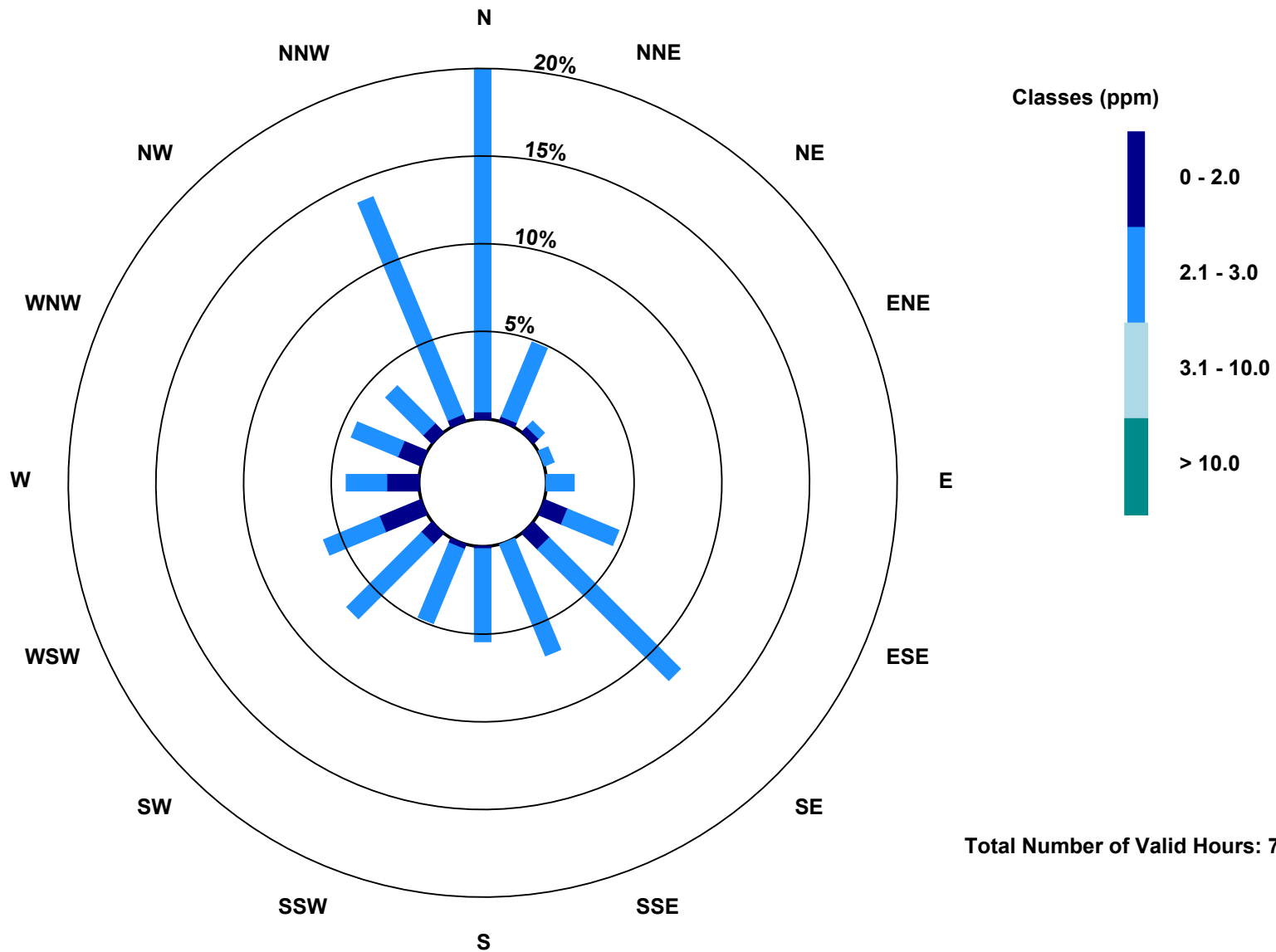
Total Number of Valid Hours: 702

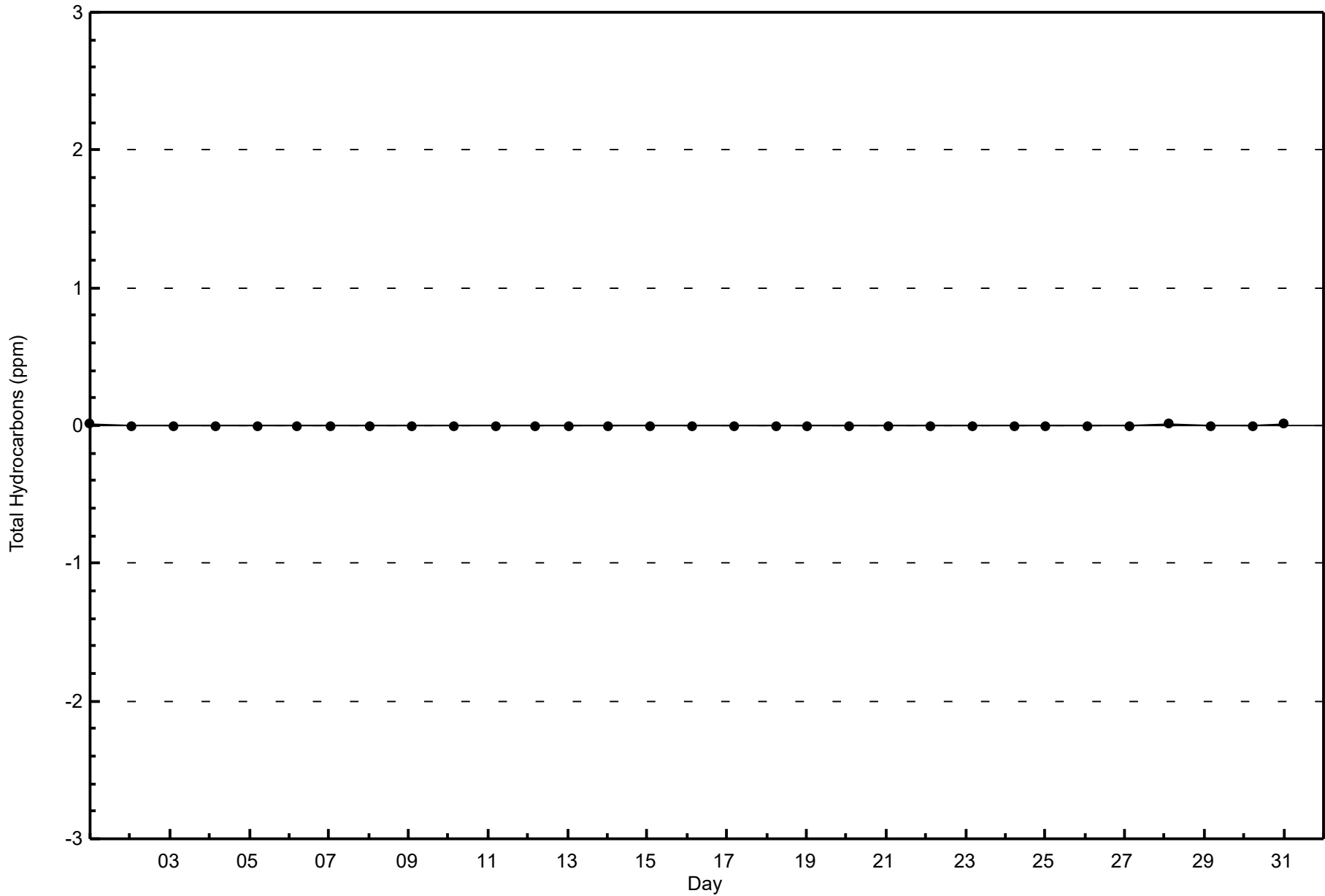
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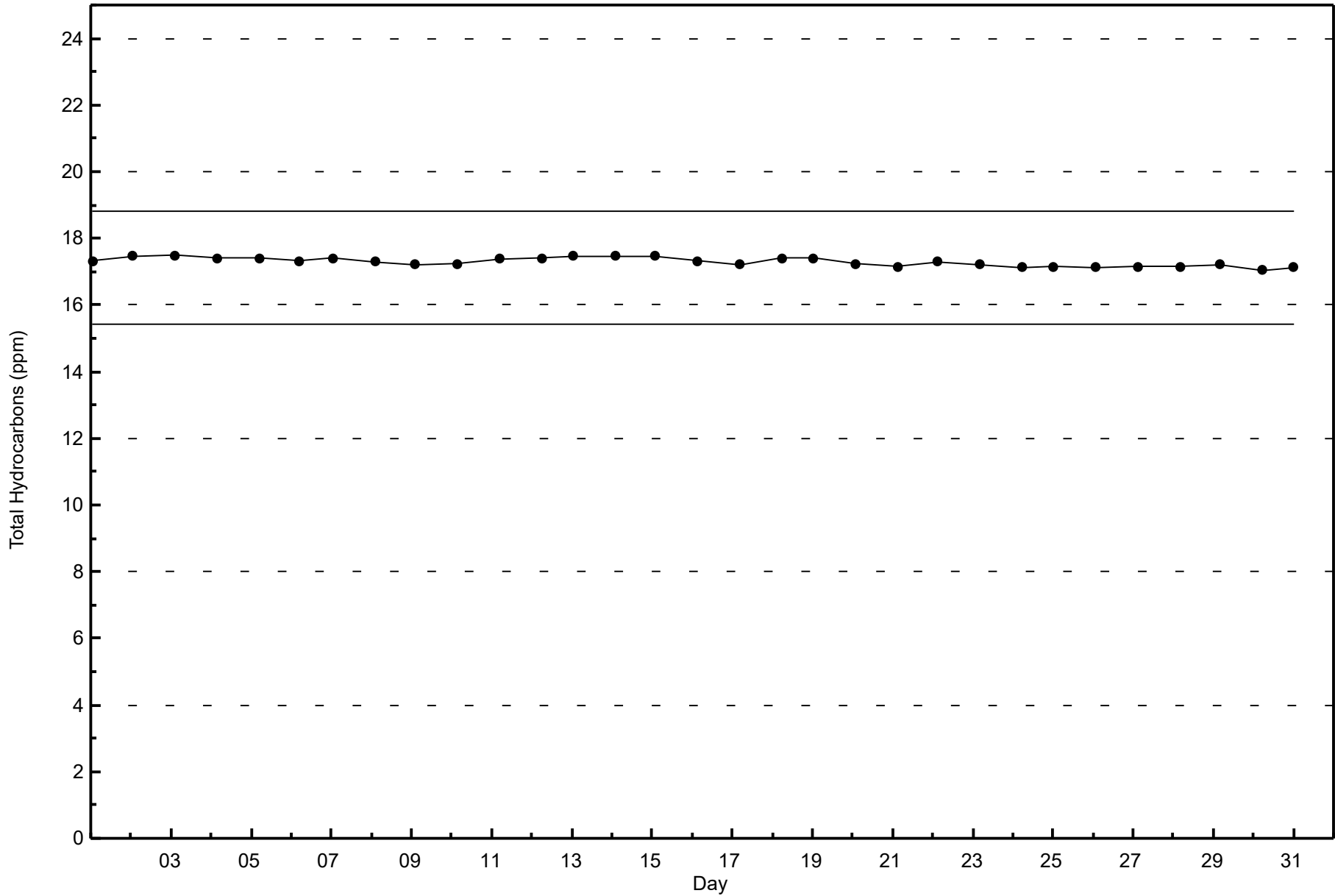


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Patricia McInnes





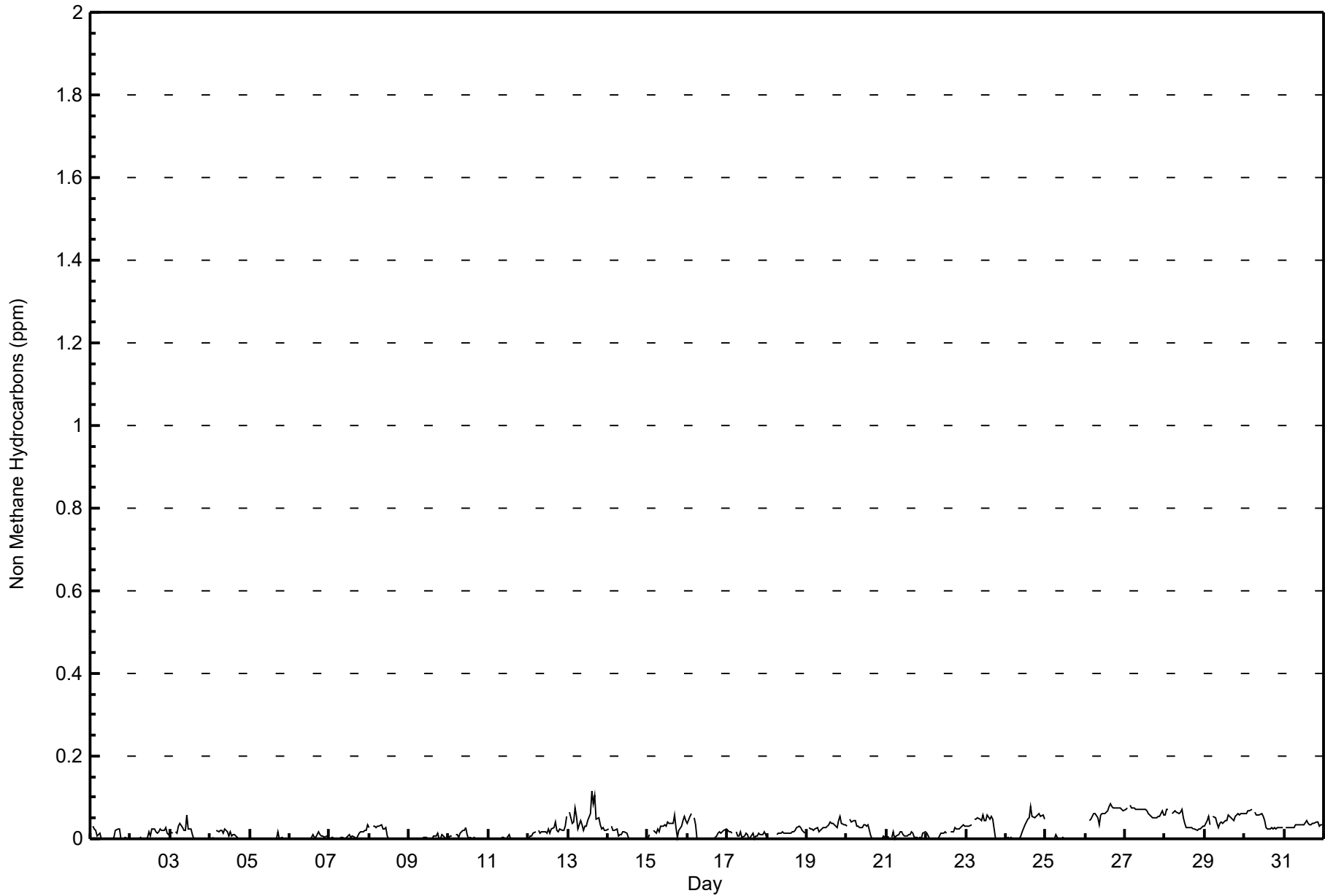




Summary of Hour Averages

Patricia McInnes - January 2024

Maximum Value: 0.114 ppm on Jan 13 15:00		Maximum Daily Average: 0.065 ppm on Jan 27		Hours in Service:	744																						
Minimum Value: 0.000 ppm on Jan 1 10:00		Minimum Daily Average: 0.001 ppm on Jan 11		Hours of Data:	705																						
Maximum Diurnal Average: 0.025 ppm at hour 11		Minimum Diurnal Average: 0.017 ppm at hour 1		Hours of Missing Data:	39																						
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> = 0.1 P <sub>99</sub> = 0.1		Hours of Calibration:	37																						
				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-Jan	Z	0.032	0.025	0.022	0.007	0.014	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.021	0.023	0.024	0.000	0.000	0.000	0.002	0.000	0.000	0.008	0.032		
2-Jan	0.000	Z	0.000	0.000	0.000	0.001	0.004	0.002	0.000	0.000	0.002	0.018	0.008	0.023	0.023	0.018	0.012	0.018	0.023	0.020	0.019	0.028	0.014	0.012	0.011	0.028	
3-Jan	0.016	0.012	Z	0.018	0.015	0.031	0.037	0.028	0.020	0.020	0.057	0.024	0.023	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.014	0.057	
4-Jan	0.001	0.001	0.002	Z	0.019	0.018	0.020	0.020	0.013	0.023	0.016	0.008	0.016	0.007	0.010	0.011	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.008	0.023	
5-Jan	0.000	0.001	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	C	0.002	0.015	0.002	0.003	0.002	0.001	0.000	0.000	--	0.015	
6-Jan	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	0.002	0.010	0.002	0.003	0.016	0.010	0.006	0.006	0.004	0.006	0.002	0.003	0.016	
7-Jan	Z	0.003	0.003	0.001	0.000	0.001	0.000	0.002	0.002	0.001	0.005	0.008	0.009	0.004	0.006	0.002	0.001	0.007	0.014	0.017	0.018	0.022	0.022	0.033	0.008	0.033	
8-Jan	0.027	Z	0.032	0.031	0.028	0.032	0.031	0.032	0.024	0.025	0.027	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.032	
9-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.000	0.001	0.000	0.006	0.007	0.012	0.001	0.001	0.010	0.003	0.000	0.001	0.002	0.012	
10-Jan	0.002	0.008	0.006	Z	0.011	0.009	0.002	0.013	0.020	0.020	0.027	0.009	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.027	
11-Jan	0.000	0.000	0.000	0.000	Z	0.001	0.000	0.000	0.002	0.002	0.000	0.000	0.010	0.001	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.010	
12-Jan	0.001	0.006	0.007	0.013	0.016	Z	0.019	0.013	0.017	0.018	0.016	0.014	0.023	0.015	0.022	0.028	0.040	0.021	0.018	0.023	0.020	0.019	0.031	0.056	0.020	0.056	
13-Jan	Z	0.064	0.037	0.040	0.073	0.055	0.024	0.043	0.033	0.021	0.030	0.031	0.043	0.060	0.114	0.085	0.104	0.046	0.049	0.032	0.025	0.026	0.020	0.020	0.047	0.114	
14-Jan	0.023	Z	0.030	0.021	0.020	0.025	0.008	0.011	0.010	0.018	0.018	0.013	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.030	
15-Jan	0.000	0.010	Z	0.020	0.017	0.013	0.023	0.016	0.030	0.031	0.036	0.030	0.041	0.037	0.037	0.038	0.057	0.026	0.004	0.021	0.030	0.045	0.054	0.044	0.029	0.057	
16-Jan	0.039	0.053	0.062	Z	0.052	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.013	0.016	0.015	0.018	0.021	0.022	0.015	0.062	
17-Jan	0.022	0.018	0.017	0.014	Z	0.018	0.006	0.006	0.017	0.002	0.007	0.013	0.011	0.000	0.005	0.013	0.001	0.006	0.005	0.013	0.012	0.009	0.016	0.010	0.010	0.022	
18-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.010	0.012	0.015	0.017	0.013	0.012	0.012	0.014	0.015	0.016	0.018	0.019	0.027	0.029	0.028	0.022	0.018	0.013	0.014	0.029	
19-Jan	Z	0.026	0.024	0.024	0.020	0.023	0.026	0.017	0.022	0.023	0.027	0.029	0.031	0.033	0.041	0.038	0.036	0.032	0.028	0.043	0.054	0.037	0.035	0.033	0.030	0.054	
20-Jan	0.032	Z	0.046	0.042	0.045	0.043	0.032	0.029	0.029	0.029	0.033	0.033	0.031	0.033	0.008	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.007	0.004	0.021	0.046	
21-Jan	0.007	0.005	Z	0.004	0.018	0.001	0.007	0.011	0.018	0.015	0.012	0.006	0.006	0.010	0.011	0.016	0.012	0.002	0.002	0.001	0.004	0.001	0.012	0.018	0.009	0.018	
22-Jan	0.014	0.006	0.000	Z	0.000	0.001	0.001	0.000	0.006	0.014	0.015	0.017	0.015	M	M	0.017	0.016	0.028	0.022	0.025	0.024	0.032	0.032	0.030	0.015	0.032	
23-Jan	0.030	0.031	0.031	0.033	Z	0.047	0.047	0.050	0.047	0.045	0.059	0.043	0.044	0.058	0.049	0.053	0.046	0.025	0.001	0.000	0.000	0.000	0.000	0.001	0.032	0.059	
24-Jan	0.000	0.002	0.002	0.003	0.001	Z	0.000	0.000	0.000	0.005	0.017	0.034	0.040	0.047	0.052	0.079	0.056	0.051	0.054	0.058	0.061	0.053	0.059	0.047	0.031	0.079	
25-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.012	0.005	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.001	0.012	
26-Jan	0.000	Z	0.044	0.049	0.053	0.060	0.061	0.049	0.035	0.057	0.061	0.060	0.061	0.069	0.078	0.085	0.077	0.076	0.075	0.074	0.073	0.076	0.072	0.069	0.062	0.085	
27-Jan	0.070	0.073	Z	0.080	0.076	0.073	0.071	0.071	0.071	0.071	0.070	0.072	0.071	0.068	0.061	0.057	0.051	0.052	0.052	0.052	0.055	0.056	0.068	0.058	0.065	0.080	
28-Jan	0.058	0.070	0.071	Z	0.061	0.064	0.068	0.065	0.061	0.065	0.072	0.051	0.036	0.029	0.026	0.026	0.027	0.025	0.025	0.021	0.024	0.024	0.027	0.031	0.045	0.072	
29-Jan	0.031	0.045	0.053	0.033	Z	0.053	0.051	0.038	0.026	0.036	0.039	0.036	0.043	0.046	0.056	0.053	0.052	0.046	0.054	0.058	0.061	0.058	0.060	0.060	0.047	0.061	
30-Jan	0.060	0.062	0.069	0.068	0.072	Z	0.065	0.057	0.056	0.056	0.060	0.053	0.046	0.029	0.025	0.025	0.026	0.024	0.026	0.025	0.026	0.029	0.026	0.026	0.044	0.072	
31-Jan	Z	0.028	0.028	0.027	0.028	0.028	0.029	0.033	0.035	0.032	0.033	0.036	0.033	0.043	0.037	0.034	0.036	0.038	0.037	0.042	0.039	0.031	0.035	0.034	0.034	0.043	
		0.017	0.021	0.023	0.021	0.024	0.025	0.021	0.020	0.020	0.021	0.025	0.022	0.022	0.024	0.024	0.023	0.020	0.017	0.019	0.020	0.019	0.021	0.020	Diurnal Average		
		0.070	0.073	0.071	0.080	0.076	0.073	0.071	0.071	0.071	0.071	0.072	0.072	0.071	0.069	0.114	0.085	0.104	0.076	0.075	0.074	0.073	0.076	0.072	0.069	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					







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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	254	36.03	36.03
0.006 - 0.05	373	52.91	88.94
0.06 - 0.1	78	11.06	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes - January 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	98	27	2	1	8	5	5	5	4	3	2	3	3	5	13	67	251
0.006 - 0.05	41	7	4	2	2	26	60	31	19	21	30	37	26	24	13	30	373
0.06 - 0.1	1	0	0	1	1	1	18	12	15	10	16	2	0	1	0	0	78
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>140</b>	<b>34</b>	<b>6</b>	<b>4</b>	<b>11</b>	<b>32</b>	<b>83</b>	<b>48</b>	<b>38</b>	<b>34</b>	<b>48</b>	<b>42</b>	<b>29</b>	<b>30</b>	<b>26</b>	<b>97</b>	<b>702</b>

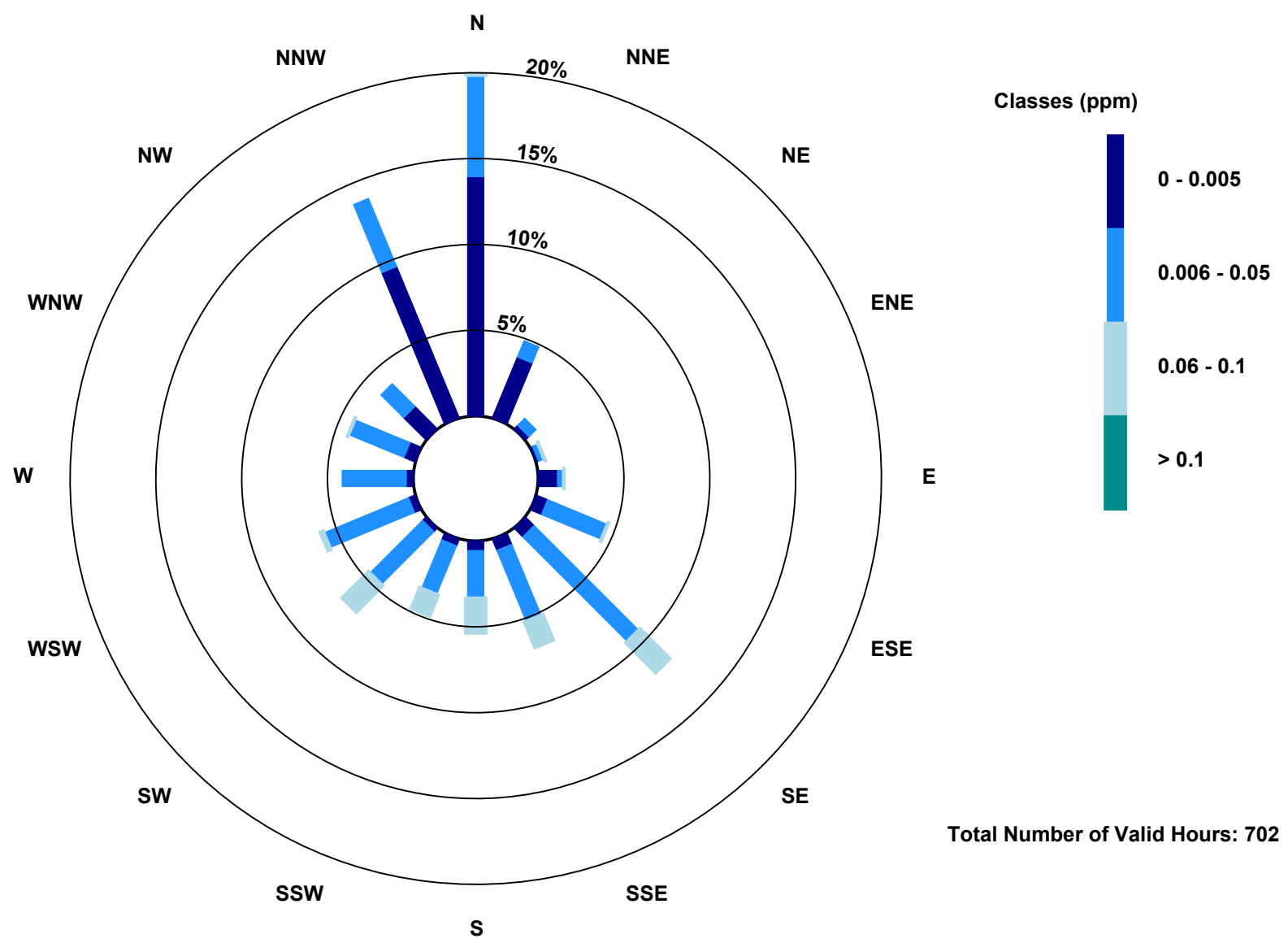
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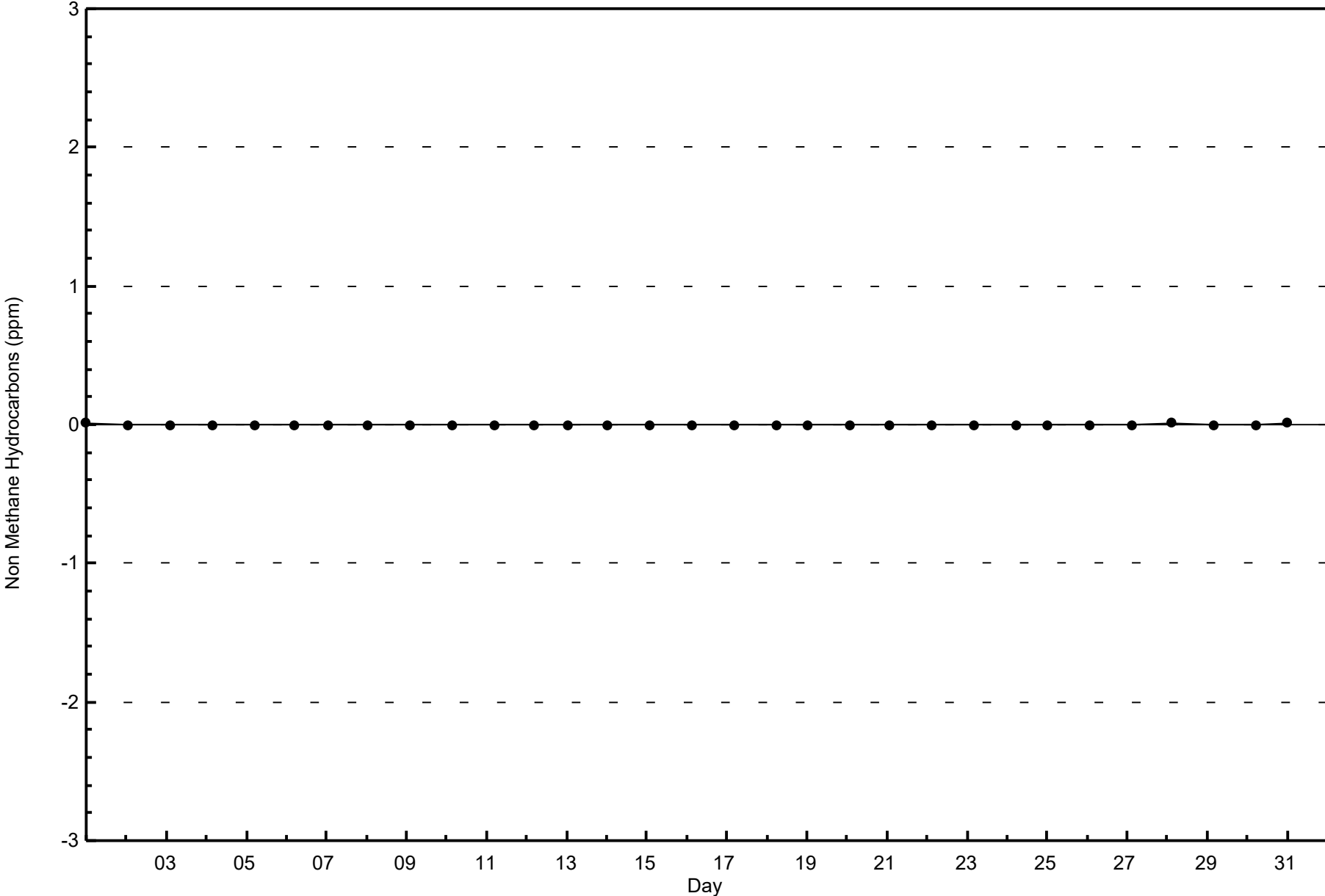
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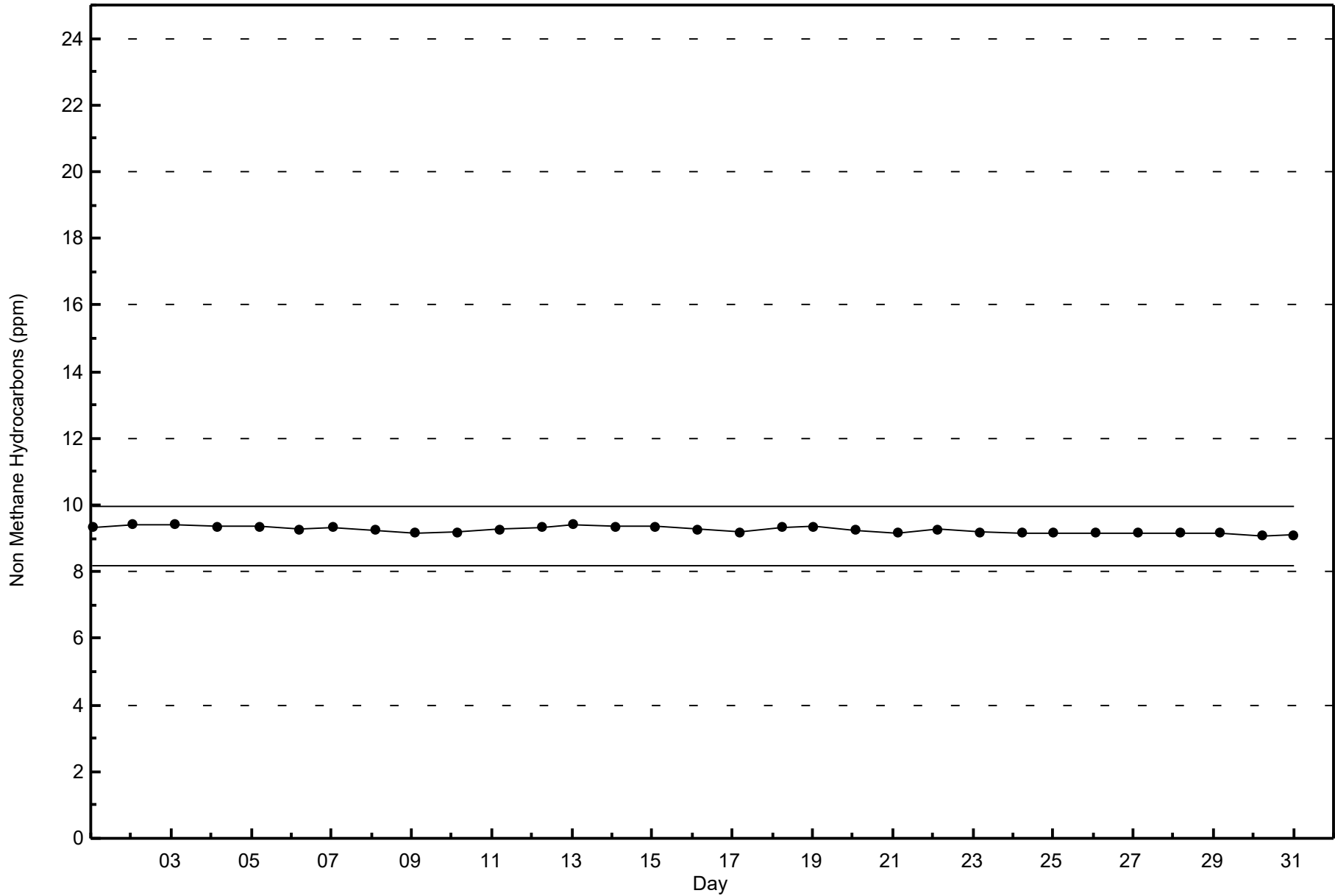


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes







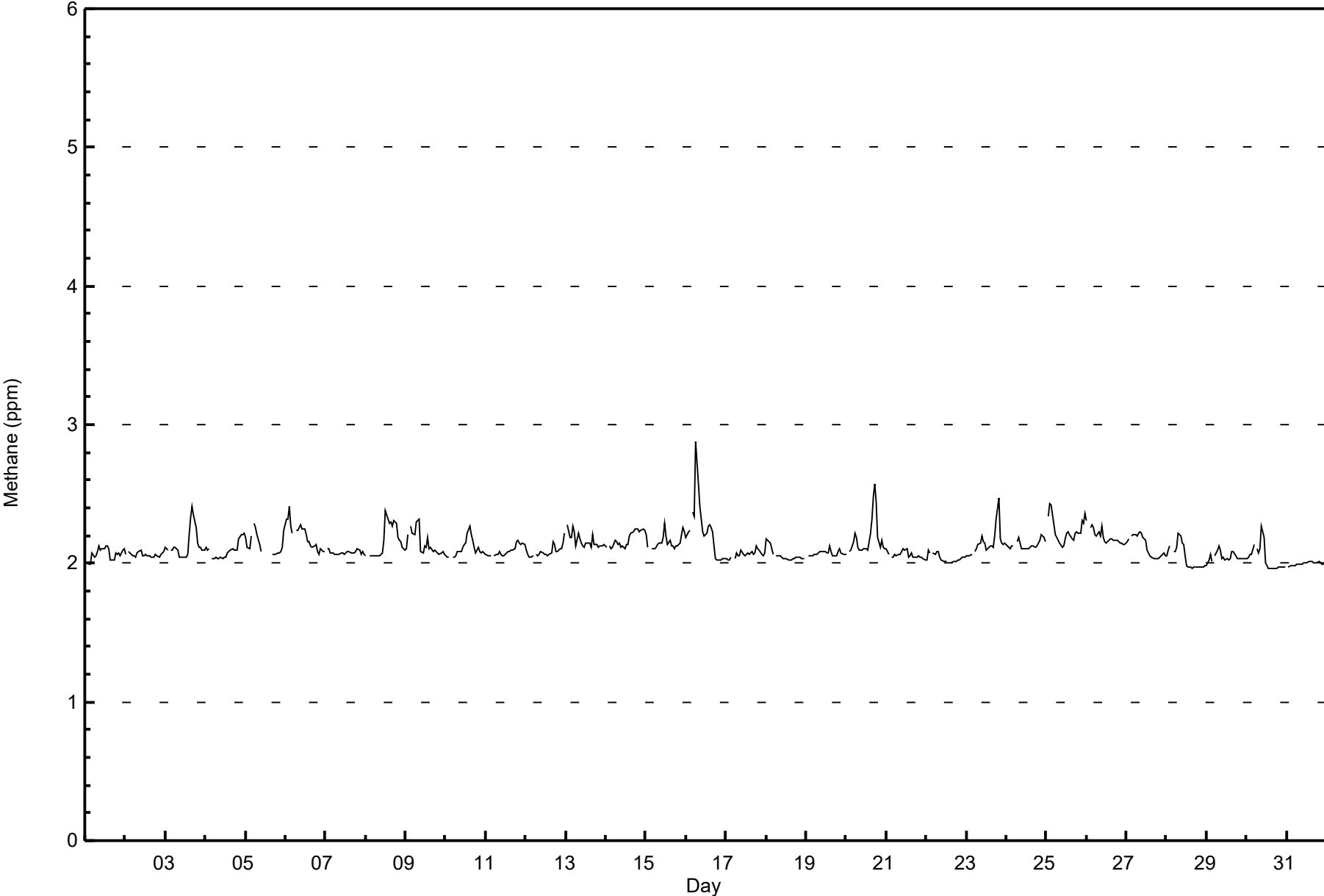


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

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

**Patricia McInnes - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.9 ppm on Jan 16 07:00      Maximum Daily Average: 2.2 ppm on Jan 16		Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 37 Percent Operational Time: 99.7																										
Minimum Value: 2.0 ppm on Jan 30 14:00 Maximum Diurnal Average: 2.1 ppm at hour 7 Monthly Average: 2.11 ppm		Minimum Daily Average: 2.0 ppm on Jan 31 Minimum Diurnal Average: 2.1 ppm at hour 21 Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.4																										
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-Jan	Z	2.0	2.0	2.0	2.1	2.0	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	2.1	2.1	2.1
2-Jan	2.1	Z	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	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
3-Jan	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
4-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2
5-Jan	2.2	2.1	2.1	2.2	Z	2.3	2.3	2.2	2.1	2.1	C	C	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	--	2.3	
6-Jan	2.3	2.3	2.4	2.3	2.2	Z	2.2	2.2	2.3	2.3	2.3	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	2.4	
7-Jan	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	
8-Jan	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.4	
9-Jan	2.1	2.2	Z	2.3	2.2	2.2	2.3	2.3	2.3	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	2.3	
10-Jan	2.1	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	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	2.3	
11-Jan	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	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
12-Jan	2.1	2.1	2.0	2.0	2.1	Z	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	2.1	2.1	2.1	2.1	2.2	2.1	2.2	
13-Jan	Z	2.3	2.2	2.2	2.3	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	
14-Jan	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
15-Jan	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.3	
16-Jan	2.2	2.2	2.2	Z	2.4	2.3	2.9	2.6	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.9	
17-Jan	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
18-Jan	2.2	2.2	2.2	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	2.0	2.0	2.0	2.1	2.2	
19-Jan	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	
20-Jan	2.1	Z	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	2.3	2.5	2.6	2.4	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.6	
21-Jan	2.1	2.1	Z	2.0	2.0	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	2.0	2.0	2.0	2.0	2.0	2.1	2.1	
22-Jan	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	M	M	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-Jan	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.5	
24-Jan	2.1	2.1	2.1	2.1	2.1	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	2.2	2.2	2.2	2.2	2.2	2.1	2.2	
25-Jan	Z	2.3	2.4	2.4	2.3	2.2	2.2	2.2	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	2.3	2.4	2.4	2.2	2.4	
26-Jan	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.3	
27-Jan	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	
28-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	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	2.0	2.0	2.0	2.2	
29-Jan	2.0	2.0	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
30-Jan	2.0	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.1	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	2.0	2.0	2.0	2.3	
31-Jan	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	
																								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 - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	155	21.99	21.99
2.1 - 3.0	550	78.01	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Patricia McInnes - January 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	16	6	3	1	0	11	19	6	5	2	14	28	18	15	6	5	155
2.1 - 3.0	124	28	3	3	11	21	64	42	33	32	34	14	11	15	20	92	547
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>140</b>	<b>34</b>	<b>6</b>	<b>4</b>	<b>11</b>	<b>32</b>	<b>83</b>	<b>48</b>	<b>38</b>	<b>34</b>	<b>48</b>	<b>42</b>	<b>29</b>	<b>30</b>	<b>26</b>	<b>97</b>	<b>702</b>

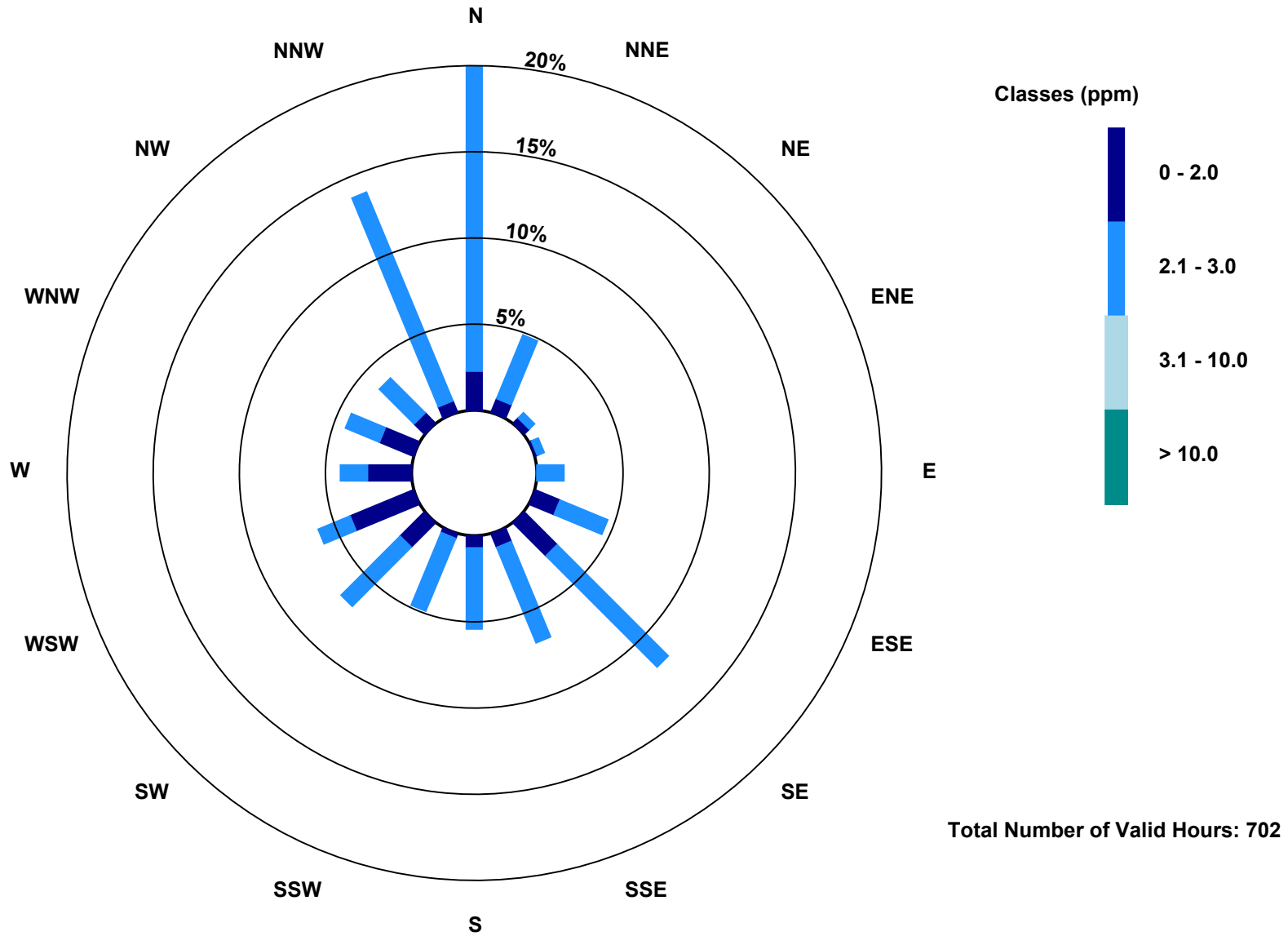
Total Number of Valid Hours: 702

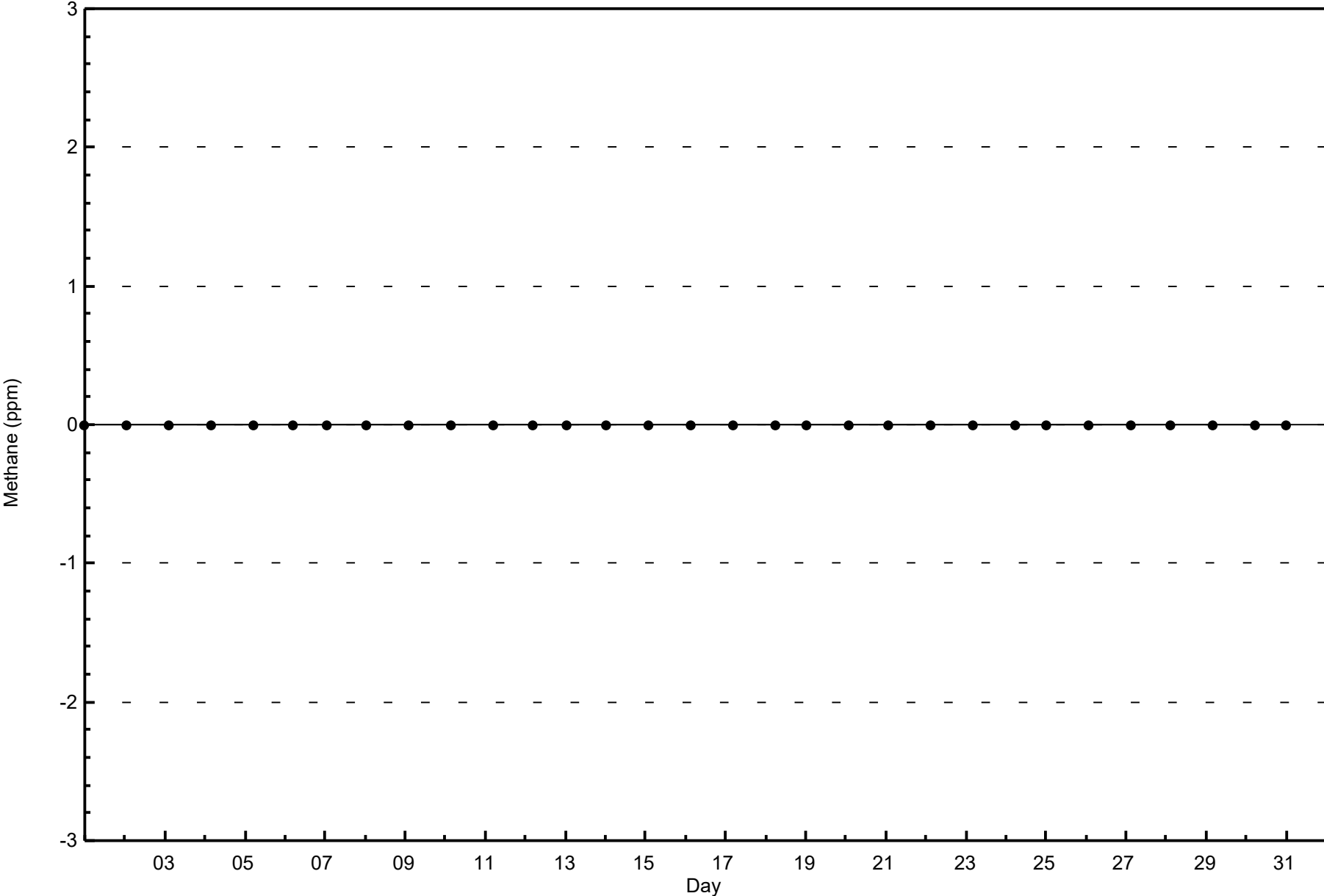
Total Number of Hours: 744

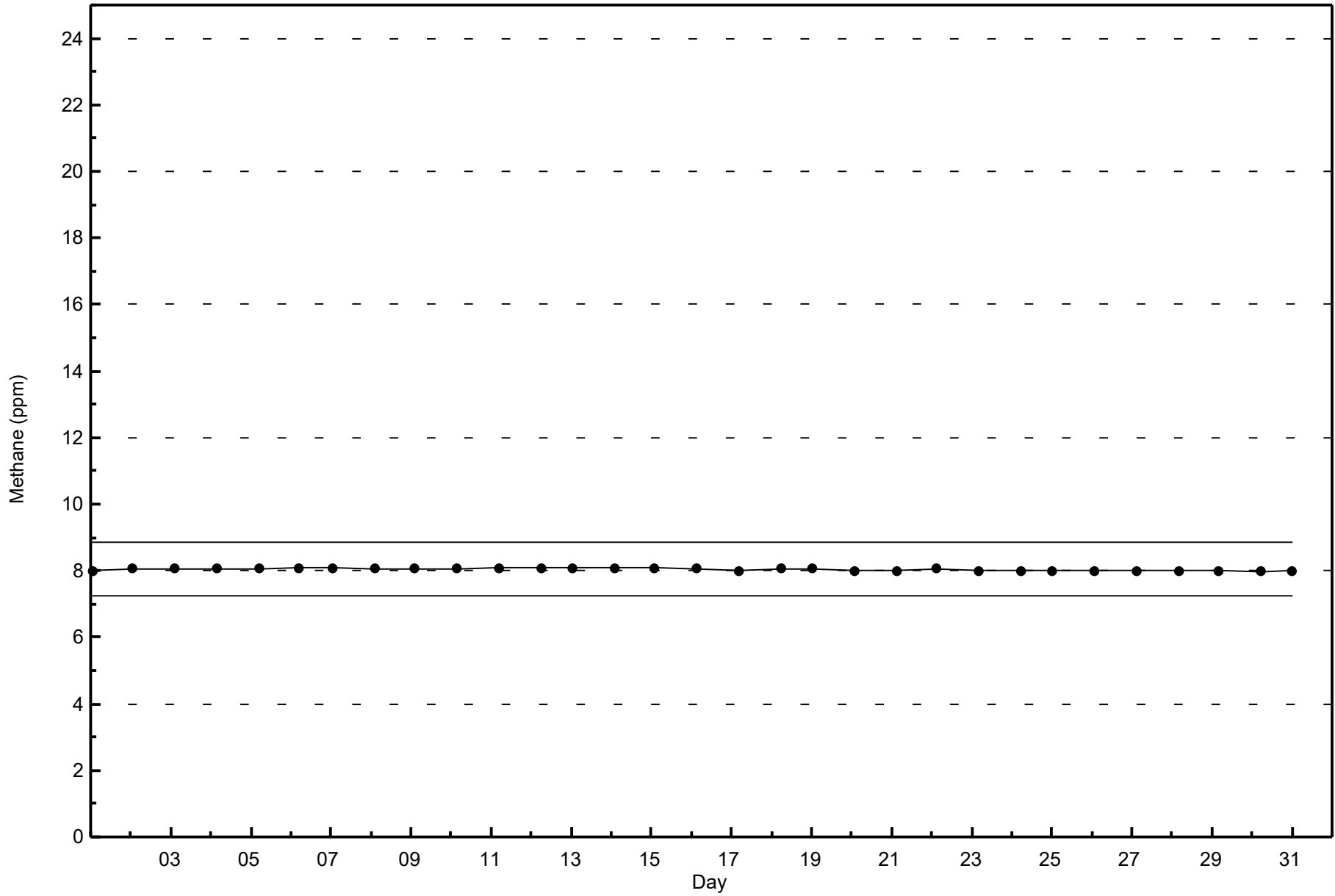


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

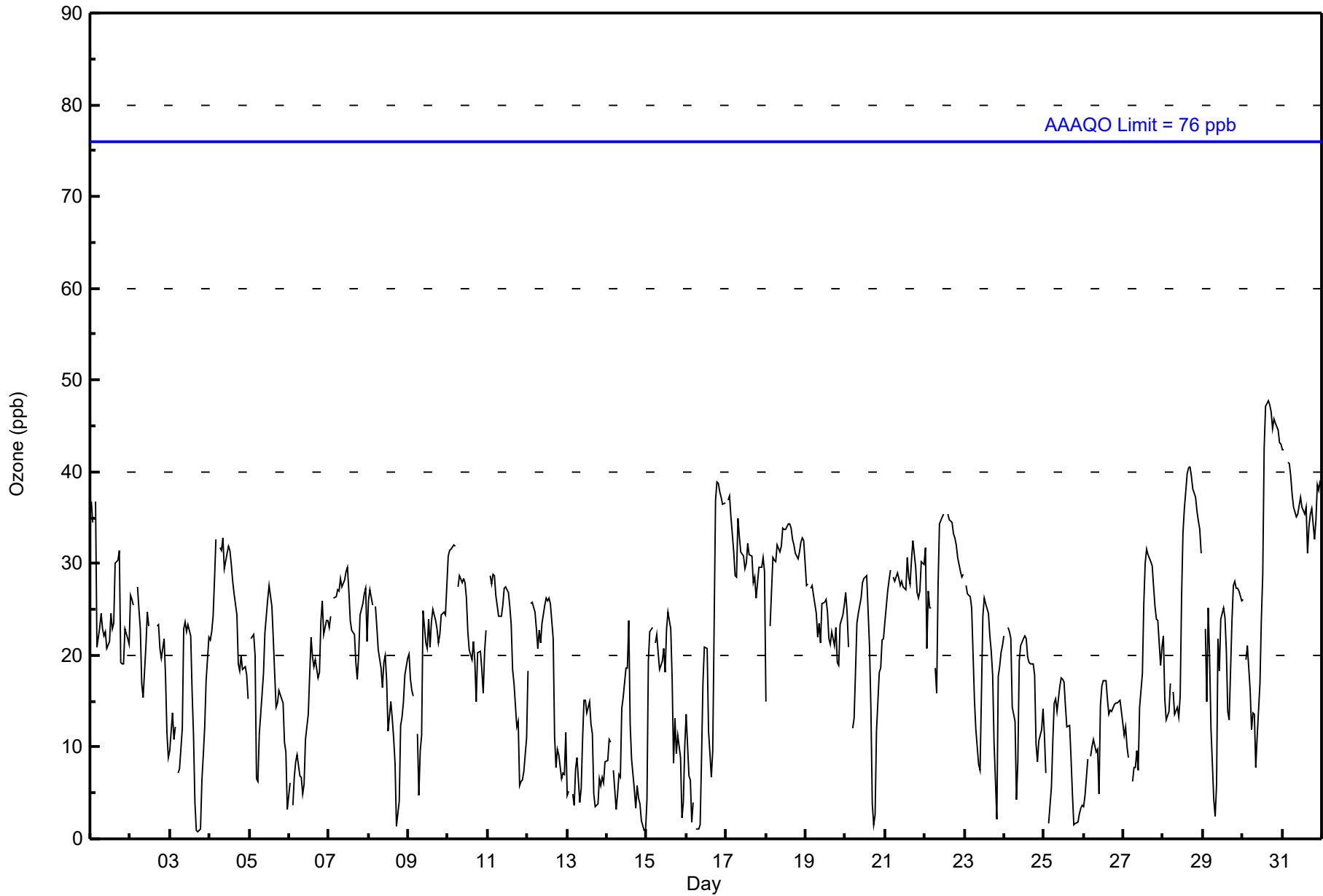
Patricia McInnes - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744										
Maximum Value: 47.8 ppb on Jan 30 16:00		Maximum Daily Average: 37.0 ppb on Jan 31																	Hours of Data: 707												
Minimum Value: 0.8 ppb on Jan 3 18:00		Minimum Daily Average: 8.0 ppb on Jan 13																	Hours of Missing Data: 37												
Maximum Diurnal Average: 24.8 ppb at hour 14		Minimum Diurnal Average: 17.4 ppb at hour 8																	Hours of Calibration: 35												
Monthly Average: 20.73 ppb		Percentiles: P <sub>1</sub> = 1.4 P <sub>10</sub> = 6.7 Q <sub>1</sub> = 13.3 Median = 21.7 Q <sub>3</sub> = 27.5 P <sub>90</sub> = 32.9 P <sub>99</sub> = 44.5																	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-Jan	36.8	34.4	Z	36.8	20.9	23.0	24.6	22.9	22.1	22.5	20.7	21.5	24.5	22.9	23.4	30.0	30.3	31.4	19.2	19.1	19.0	22.9	21.8	21.2	24.9	36.8					
2-Jan	26.6	26.0	25.5	Z	27.5	25.0	22.9	16.9	15.4	21.0	24.7	23.2	C	C	C	C	23.2	23.4	20.8	19.6	21.7	17.8	11.6	8.9	21.1	27.5					
3-Jan	9.6	13.8	10.8	12.2	Z	7.2	7.7	12.0	22.8	23.6	22.5	23.3	22.1	16.0	11.3	4.0	0.9	0.8	1.1	6.4	9.2	12.2	17.2	22.0	12.6	23.6					
4-Jan	21.7	22.5	24.2	28.2	32.6	Z	31.7	31.4	32.7	29.5	31.1	31.8	31.5	29.9	28.0	26.6	24.4	19.0	18.3	20.0	18.4	18.8	17.9	15.3	25.5	32.7					
5-Jan	Z	21.9	22.3	20.0	6.6	6.2	11.4	13.5	18.0	22.4	24.2	26.1	27.6	25.3	21.8	18.0	14.3	14.8	16.1	15.3	14.9	10.6	9.4	3.2	16.7	27.6					
6-Jan	6.0	Z	3.6	6.8	8.3	9.2	6.9	6.7	4.9	6.0	10.9	13.6	17.9	21.9	19.9	18.8	19.5	17.5	18.2	23.6	26.0	22.3	23.8	23.9	14.6	26.0					
7-Jan	23.0	24.3	Z	26.2	26.3	27.2	26.9	28.4	27.4	28.2	29.2	29.6	27.0	23.7	22.7	22.2	19.1	17.4	20.0	24.3	25.6	26.7	27.3	21.5	25.0	29.6					
8-Jan	25.9	27.1	25.5	Z	25.3	23.1	20.6	18.7	16.4	19.2	20.0	17.3	11.7	14.9	13.1	11.0	8.2	1.4	4.2	12.3	13.3	14.9	17.9	19.6	16.6	27.1					
9-Jan	20.1	17.5	16.1	15.5	Z	11.4	4.8	9.7	11.3	24.8	21.4	20.8	23.9	20.9	23.6	25.0	23.7	22.8	21.3	22.2	24.4	24.7	24.4	27.5	19.9	27.5					
10-Jan	30.9	31.4	31.6	32.1	31.9	Z	27.5	28.7	27.9	28.4	27.9	26.3	22.6	20.6	19.6	21.6	19.4	14.9	20.3	20.5	18.4	15.8	20.4	22.8	24.4	32.1					
11-Jan	Z	28.7	27.7	28.8	28.6	26.6	24.3	24.2	24.2	25.4	27.2	27.5	26.8	25.3	23.3	18.4	16.9	12.2	12.9	5.8	6.3	6.4	7.3	11.0	20.3	28.8					
12-Jan	18.4	Z	25.7	25.8	24.7	22.9	20.7	22.7	21.4	23.5	25.5	26.3	25.9	26.3	25.7	21.8	11.2	7.8	9.7	9.2	6.5	7.2	7.0	11.5	18.6	26.3					
13-Jan	4.8	5.1	Z	4.9	3.6	7.7	8.9	4.0	5.6	10.9	15.1	15.1	13.7	14.9	12.4	11.4	4.8	3.5	3.8	6.5	5.9	6.7	6.0	8.4	8.0	15.1					
14-Jan	8.5	10.8	10.5	Z	7.6	3.2	4.9	7.1	6.7	14.2	15.5	18.6	18.6	23.7	12.6	8.7	5.4	3.3	5.8	4.5	3.8	2.0	1.0	0.8	8.6	23.7					
15-Jan	4.2	19.3	22.5	23.0	Z	21.3	22.2	20.2	18.5	19.4	20.7	18.2	22.8	24.7	22.9	17.4	8.3	13.1	9.2	11.2	8.8	2.4	3.9	10.1	15.8	24.7					
16-Jan	13.5	6.9	6.5	1.8	4.0	Z	1.1	1.0	1.6	8.8	16.9	20.9	20.7	11.7	9.2	6.7	9.6	36.9	38.9	38.7	37.8	37.3	36.5	36.5	17.5	38.9					
17-Jan	Z	36.9	37.4	35.1	31.3	28.7	28.5	34.9	33.0	31.3	30.8	29.4	30.0	32.2	30.9	30.8	27.9	28.5	26.3	27.9	29.5	29.6	30.7	29.2	30.9	37.4					
18-Jan	14.9	Z	23.2	26.9	30.6	30.3	30.3	32.0	31.2	31.9	33.8	33.7	33.8	34.3	34.3	33.9	32.6	32.0	31.1	30.5	31.3	32.3	32.8	32.5	30.9	34.3					
19-Jan	27.6	27.8	Z	27.4	27.5	26.5	24.6	22.0	23.6	21.4	25.6	25.9	26.1	24.7	21.8	21.3	22.6	21.0	23.1	19.2	18.9	23.4	24.4	25.4	24.0	27.8					
20-Jan	26.9	24.8	20.9	Z	12.0	13.2	18.2	23.4	24.6	26.2	28.0	28.4	28.6	28.6	21.1	14.4	3.8	1.6	2.6	11.8	18.1	18.7	21.7	21.9	19.1	28.6					
21-Jan	23.6	27.0	28.2	29.3	Z	28.5	28.1	28.9	28.4	27.6	28.1	27.5	27.2	30.6	28.6	27.8	30.4	32.5	29.6	26.9	26.2	27.0	30.3	30.0	28.3	32.5					
22-Jan	31.8	20.8	27.0	25.1	25.2	Z	18.7	15.9	27.6	34.3	35.2	35.4	M	M	35.3	34.8	34.5	33.3	32.8	32.0	30.6	29.2	28.5	28.8	29.4	35.4					
23-Jan	Z	27.5	26.7	26.4	25.1	20.1	15.1	11.9	8.1	7.4	15.9	24.3	26.3	25.6	24.6	22.1	20.5	17.8	10.6	2.2	17.7	18.8	20.3	21.0	19.0	27.5					
24-Jan	22.1	Z	23.0	22.5	21.8	14.3	12.9	4.3	8.4	19.3	21.0	21.8	22.1	21.8	19.9	19.2	19.0	19.0	17.9	10.4	8.4	10.7	11.9	14.2	16.8	23.0					
25-Jan	11.3	7.2	Z	1.7	5.6	10.7	14.8	15.3	13.9	16.7	17.6	17.3	17.2	14.6	12.3	12.3	8.8	4.8	1.6	1.7	1.9	2.8	3.3	3.7	9.4	17.6					
26-Jan	3.6	4.7	8.7	Z	9.1	10.0	10.8	9.4	9.8	4.8	14.6	16.7	17.2	17.3	15.3	13.5	14.0	13.8	14.6	14.8	14.8	15.0	15.2	13.9	12.2	17.3					
27-Jan	11.3	12.3	10.0	8.8	Z	6.3	7.8	7.9	9.5	7.4	14.3	18.0	25.6	30.1	31.6	30.9	30.3	29.8	27.4	25.3	24.0	23.8	19.0	20.9	18.8	31.6					
28-Jan	22.1	15.2	12.9	13.9	17.0	Z	16.0	13.6	14.4	13.3	15.5	26.4	33.4	36.1	39.8	40.4	40.6	39.5	38.1	37.2	35.6	34.6	33.7	31.1	27.0	40.6					
29-Jan	Z	22.8	15.0	25.2	19.9	12.0	4.3	2.4	5.9	21.7	18.3	23.9	25.2	24.1	20.4	13.9	13.0	23.8	27.6	28.0	27.3	27.3	26.9	25.9	19.8	28.0					
30-Jan	26.0	Z	19.5	21.0	16.2	11.9	13.8	13.6	7.8	11.2	16.9	24.0	28.8	42.5	47.1	47.8	47.2	46.6	44.7	45.7	45.3	44.6	43.2	43.1	30.8	47.8					
31-Jan	42.4	42.4	Z	41.0	40.9	39.4	37.5	36.2	35.0	35.4	36.3	37.2	36.1	35.5	36.2	31.2	34.0	35.4	35.9	32.6	34.9	38.6	38.0	39.1	37.0	42.4					
		19.8	21.5	20.2	21.8	20.4	17.9	17.7	17.4	18.0	20.6	22.8	24.2	24.7	24.8	23.6	21.9	20.0	20.0	19.5	19.5	20.1	20.2	20.4	20.8	Diurnal Average					
		42.4	42.4	37.4	41.0	40.9	39.4	37.5	36.2	35.0	35.4	36.3	37.2	36.1	42.5	47.1	47.8	47.2	46.6	44.7	45.7	45.3	44.6	43.2	43.1	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**  
**Patricia McInnes - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	320	45.26	45.26
21 - 50	387	54.74	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Patricia McInnes - January 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	57	15	3	2	10	12	38	33	28	21	15	7	8	9	14	45	317
21 - 50	82	20	6	2	3	17	45	16	10	14	33	35	22	19	12	51	387
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>	<b>139</b>	<b>35</b>	<b>9</b>	<b>4</b>	<b>13</b>	<b>29</b>	<b>83</b>	<b>49</b>	<b>38</b>	<b>35</b>	<b>48</b>	<b>42</b>	<b>30</b>	<b>28</b>	<b>26</b>	<b>96</b>	<b>704</b>

Total Number of Valid Hours: 704

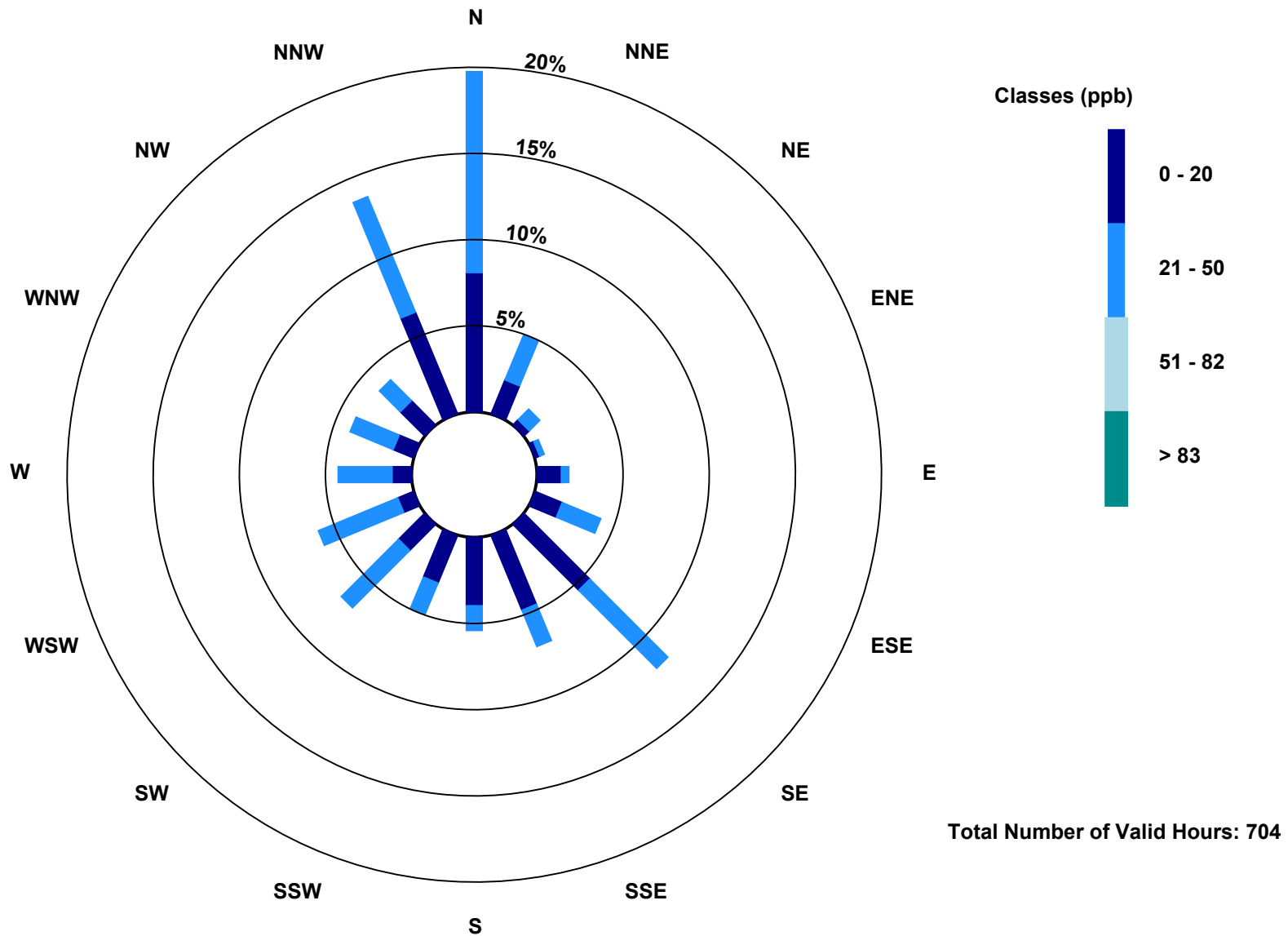
Total Number of Hours: 744

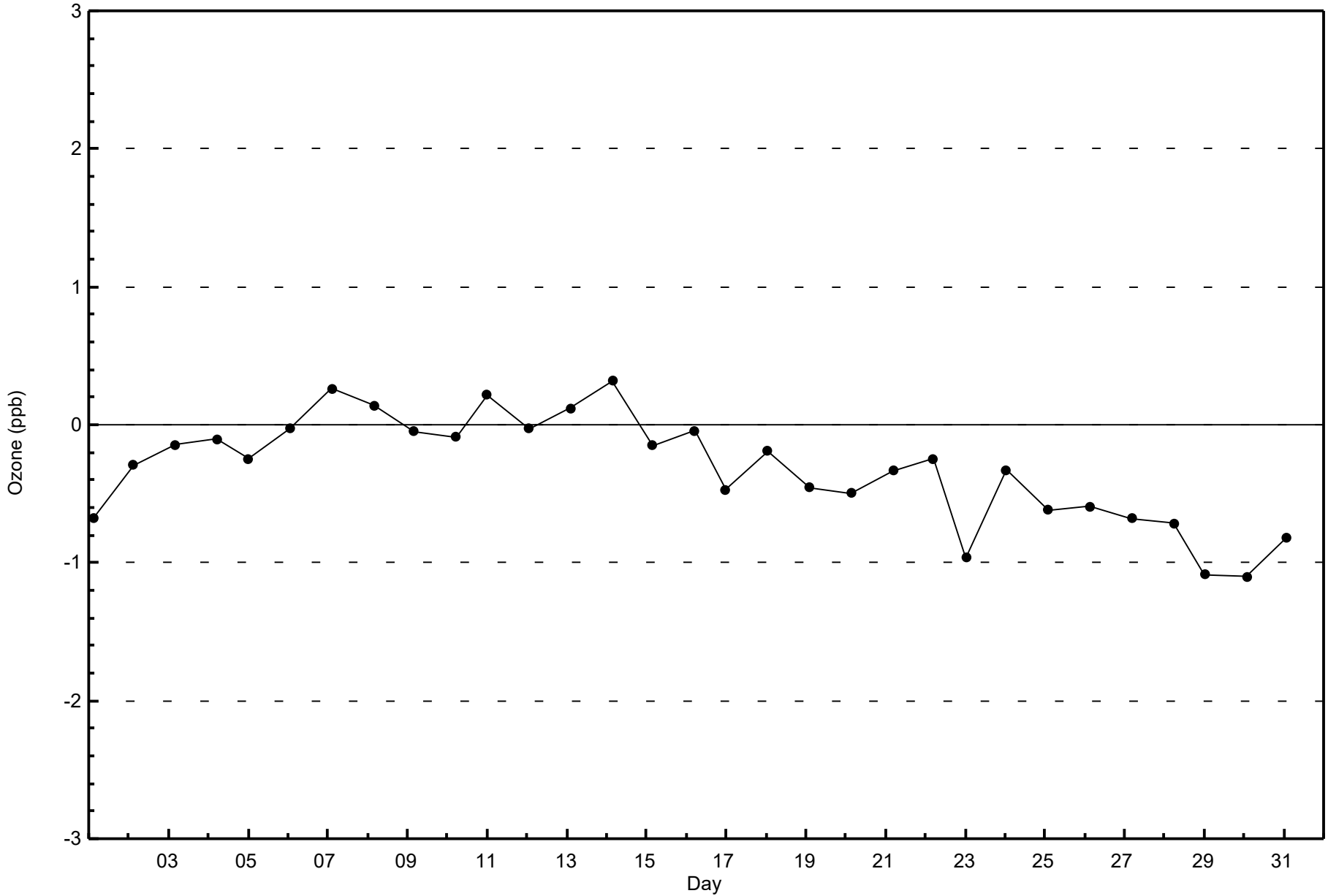


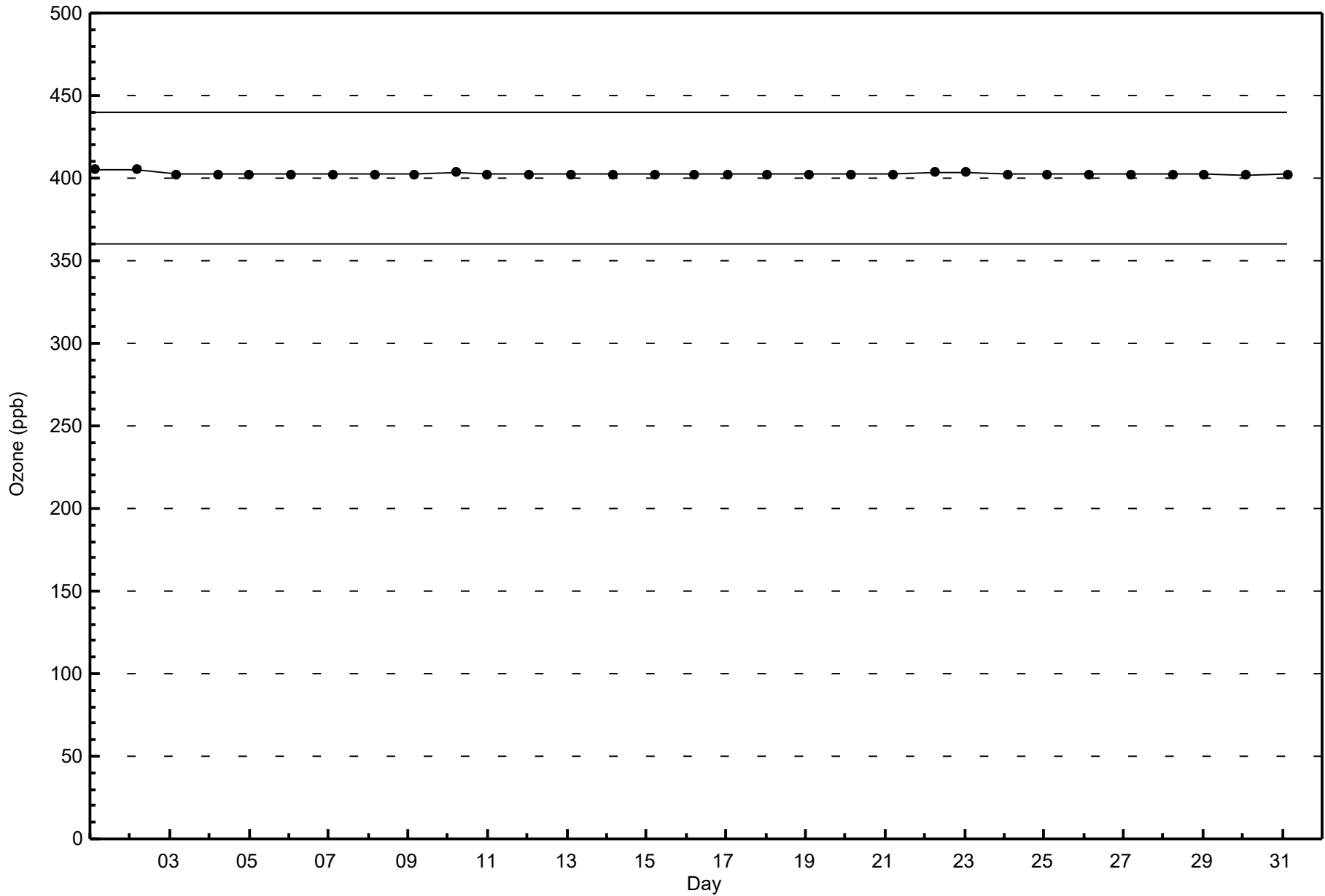


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







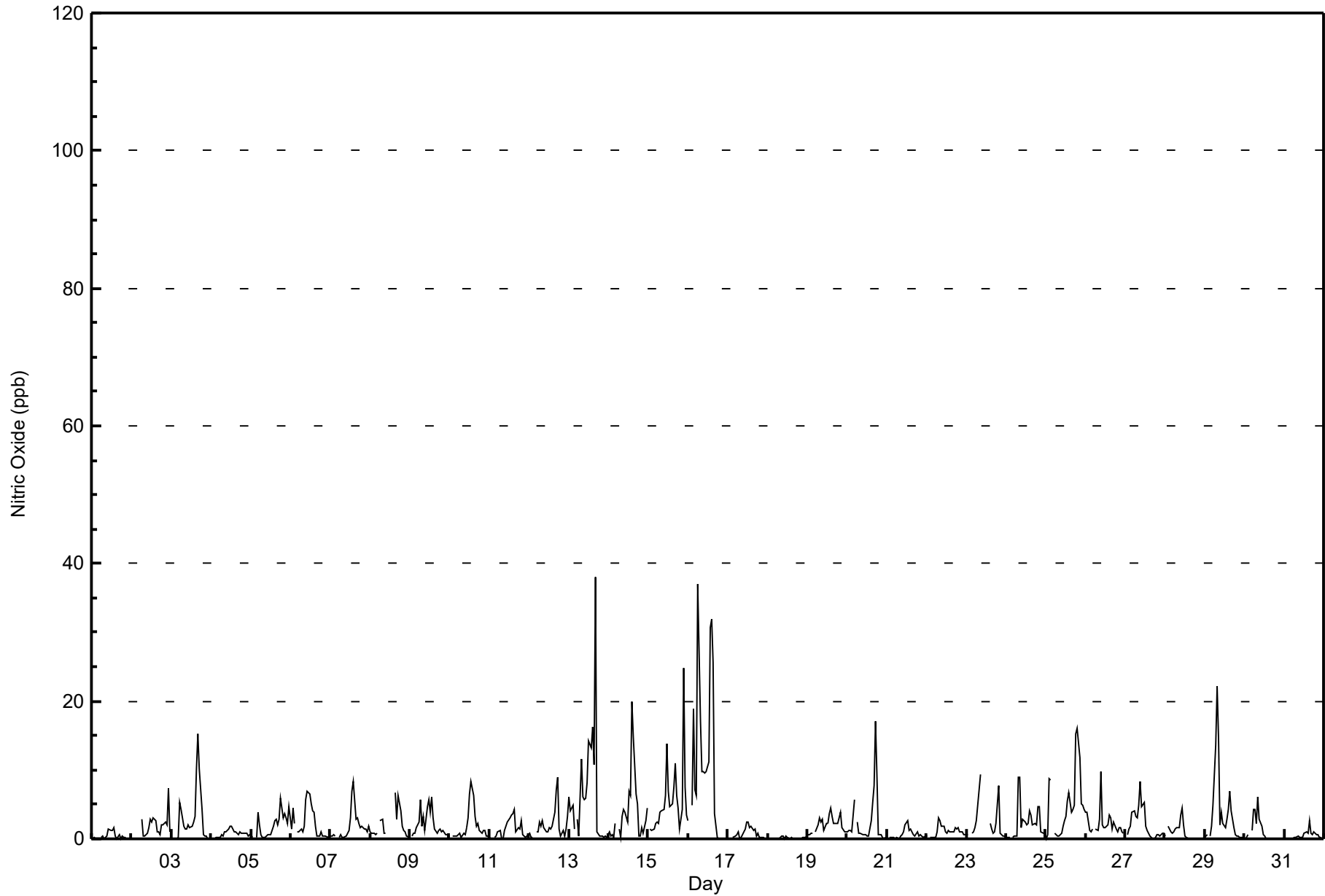


Maximum Value: 38.0 ppb on Jan 13 17:00																				Maximum Daily Average: 10.3 ppb on Jan 16					Hours in Service: 744	
Minimum Value: 0.0 ppb on Jan 1 03:00																				Minimum Daily Average: 0.1 ppb on Jan 18					Hours of Data: 703	
Maximum Diurnal Average: 4.8 ppb at hour 15																				Minimum Diurnal Average: 0.8 ppb at hour 2					Hours of Missing Data: 41	
Monthly Average: 2.43 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.4 Median = 1.1 Q <sub>3</sub> = 2.8 P <sub>90</sub> = 6.0 P <sub>99</sub> = 20.0					Hours of Calibration: 36	
																									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-Jan	0.1	0.2	0.0	0.0	Z	0.2	0.3	0.1	0.3	0.4	1.4	1.1	1.2	1.6	0.5	0.0	0.7	0.0	0.4	0.3	0.2	0.0	0.0	0.0	0.4	1.6
2-Jan	0.1	0.0	0.0	0.0	0.1	Z	2.8	0.5	0.3	0.9	1.7	2.9	2.4	3.0	2.6	1.1	1.0	0.6	2.0	2.1	2.5	2.1	7.3	1.1	1.6	7.3
3-Jan	Z	0.0	0.0	0.0	0.2	5.2	4.3	1.9	1.5	1.4	2.0	1.5	1.8	2.5	3.2	10.1	15.2	10.2	4.4	0.7	0.4	0.3	0.1	0.0	2.9	15.2
4-Jan	0.0	Z	0.0	0.1	0.1	0.2	0.6	0.3	0.9	1.0	1.4	1.9	1.9	1.5	1.1	1.0	0.6	1.0	0.9	0.8	0.8	0.8	0.3	0.6	0.8	1.9
5-Jan	0.7	0.2	Z	0.3	4.0	1.9	0.6	0.1	0.2	0.3	0.6	0.6	0.5	1.8	2.6	2.8	2.0	2.9	6.0	3.0	3.7	3.0	2.2	4.7	1.9	6.0
6-Jan	1.4	4.4	2.2	Z	1.0	1.0	1.5	1.0	1.8	5.7	6.9	6.4	5.2	4.1	4.0	1.8	0.5	0.5	0.9	0.5	0.4	0.4	0.1	0.5	2.3	6.9
7-Jan	0.4	0.3	0.6	0.5	Z	0.3	0.7	0.2	0.2	0.4	0.8	1.2	3.1	6.9	8.4	2.8	3.0	2.2	1.7	1.7	1.4	1.4	1.1	1.9	1.8	8.4
8-Jan	1.1	0.9	0.8	0.7	0.7	Z	2.6	2.8	0.9	0.7	C	C	C	C	C	6.7	2.8	6.3	4.0	1.9	1.1	1.0	0.4	0.3	2.0	6.7
9-Jan	Z	0.5	0.8	0.8	1.6	2.4	5.7	1.8	3.3	1.3	4.7	5.7	3.9	6.1	3.1	1.3	0.8	1.1	1.4	1.1	1.2	0.7	0.6	0.4	2.2	6.1
10-Jan	0.4	Z	0.4	0.3	0.4	0.6	0.8	0.2	0.8	0.7	1.5	3.0	6.4	8.3	6.4	3.2	1.9	2.2	1.3	0.9	1.2	1.3	0.3	0.4	1.9	8.3
11-Jan	0.2	0.1	Z	0.2	0.4	1.0	1.2	0.1	0.0	1.2	1.8	2.4	3.0	3.5	3.6	4.2	1.0	1.6	1.4	2.7	0.6	0.4	0.3	0.5	1.4	4.2
12-Jan	0.8	0.3	0.2	Z	1.0	1.1	2.4	1.9	2.6	1.7	1.0	1.0	1.6	1.3	1.9	3.9	7.1	8.9	1.4	0.4	1.1	0.5	1.5	3.2	2.0	8.9
13-Jan	6.0	4.1	4.8	1.3	Z	2.8	0.3	11.6	6.1	5.8	6.0	8.2	14.3	13.1	16.2	10.8	38.0	1.1	0.4	0.3	0.4	0.3	0.4	0.3	6.6	38.0
14-Jan	1.1	0.4	0.6	0.3	2.3	Z	1.5	0.1	3.2	4.3	3.9	2.5	6.9	6.3	20.0	14.9	6.5	5.0	0.4	0.3	1.6	0.8	2.6	4.6	3.9	20.0
15-Jan	Z	1.5	1.2	1.5	2.2	2.5	2.3	3.9	4.0	4.3	6.2	13.8	7.0	4.6	5.2	7.5	11.0	6.2	4.4	1.5	4.2	24.7	7.6	3.4	5.7	24.7
16-Jan	2.7	Z	4.9	19.0	7.0	6.2	37.0	17.1	9.8	9.9	9.6	9.8	11.2	30.7	31.9	25.7	3.7	0.3	0.0	0.1	0.1	0.1	0.1	0.1	10.3	37.0
17-Jan	0.0	0.0	Z	0.1	0.5	0.6	1.1	0.0	0.2	0.7	1.4	2.4	2.4	1.5	1.9	1.2	1.4	0.4	0.7	0.1	0.1	0.1	0.0	0.0	0.7	2.4
18-Jan	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.5	0.4	0.0	0.4	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	0.5
19-Jan	0.6	0.6	0.8	0.7	Z	1.0	2.0	3.1	2.4	2.9	1.1	2.3	2.2	3.6	4.5	3.3	2.2	2.3	2.2	3.0	3.8	1.6	1.1	1.0	2.1	4.5
20-Jan	1.0	1.2	1.3	1.0	5.6	Z	2.5	0.8	0.9	0.6	0.5	0.5	0.4	0.5	2.7	5.2	7.8	17.1	9.3	0.7	0.7	0.1	0.1	0.1	2.6	17.1
21-Jan	Z	0.2	0.1	0.2	0.2	0.1	0.3	0.0	0.3	0.6	1.1	2.0	2.7	1.1	1.4	1.1	0.6	0.5	0.9	0.4	0.5	0.5	0.3	0.4	0.7	2.7
22-Jan	0.4	Z	0.2	0.3	0.3	0.3	0.9	3.0	2.6	1.7	1.8	0.9	0.9	1.3	1.0	1.0	1.0	1.7	1.5	1.5	1.0	1.1	0.7	0.7	1.1	3.0
23-Jan	0.7	0.6	Z	0.8	1.1	1.6	2.6	5.0	9.3	M	M	M	M	M	2.3	1.5	0.9	1.1	2.1	7.8	0.9	0.7	0.3	0.3	2.2	9.3
24-Jan	0.2	0.2	0.2	Z	0.3	0.4	0.4	8.9	9.0	1.7	2.9	2.5	2.0	2.3	4.0	3.5	2.0	2.2	2.1	4.6	4.6	1.0	0.9	0.7	2.5	9.0
25-Jan	0.0	0.6	8.7	8.6	Z	0.8	0.6	0.3	0.5	0.9	1.9	2.7	3.2	5.4	6.6	3.9	4.2	4.9	15.2	16.0	11.8	5.2	5.0	4.3	4.8	16.0
26-Jan	3.8	3.9	1.2	1.1	1.5	Z	1.5	1.3	2.8	9.9	2.1	1.6	1.7	2.0	3.5	3.1	1.4	2.5	1.5	1.0	1.7	1.7	1.0	0.7	2.3	9.9
27-Jan	Z	0.7	1.4	1.8	3.9	4.1	3.2	3.1	4.9	8.4	4.8	5.3	1.9	1.2	0.8	0.4	0.1	0.0	0.2	0.6	0.5	0.4	0.9	0.8	2.2	8.4
28-Jan	0.3	Z	1.8	1.1	0.7	0.9	1.4	1.7	1.6	3.4	4.4	2.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	4.4
29-Jan	0.2	0.7	Z	0.4	1.9	4.9	13.5	22.2	14.7	2.1	3.8	2.2	1.6	2.9	4.3	7.0	4.0	1.6	0.6	0.4	0.4	0.3	0.3	0.2	3.9	22.2
30-Jan	0.1	0.1	0.7	Z	1.3	4.3	4.4	2.3	6.1	2.8	1.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.1	6.1
31-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.4	0.3	0.2	0.1	0.8	1.0	0.9	2.7	0.8	0.7	1.0	0.7	0.6	0.3	0.2	0.1	0.5	2.7
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Nitric Oxide (NO) - ppb**  
**Patricia McInnes - January 2024**





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

**Nitric Oxide (NO) - ppb**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	696	99.00	99.00
21 - 40	7	1.00	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: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Patricia McInnes - January 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	140	31	8	4	12	33	82	45	36	34	48	43	29	30	24	94	693
21 - 40	0	2	0	0	1	1	0	2	0	0	0	0	0	0	0	1	7
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>	140	33	8	4	13	34	82	47	36	34	48	43	29	30	24	95	700

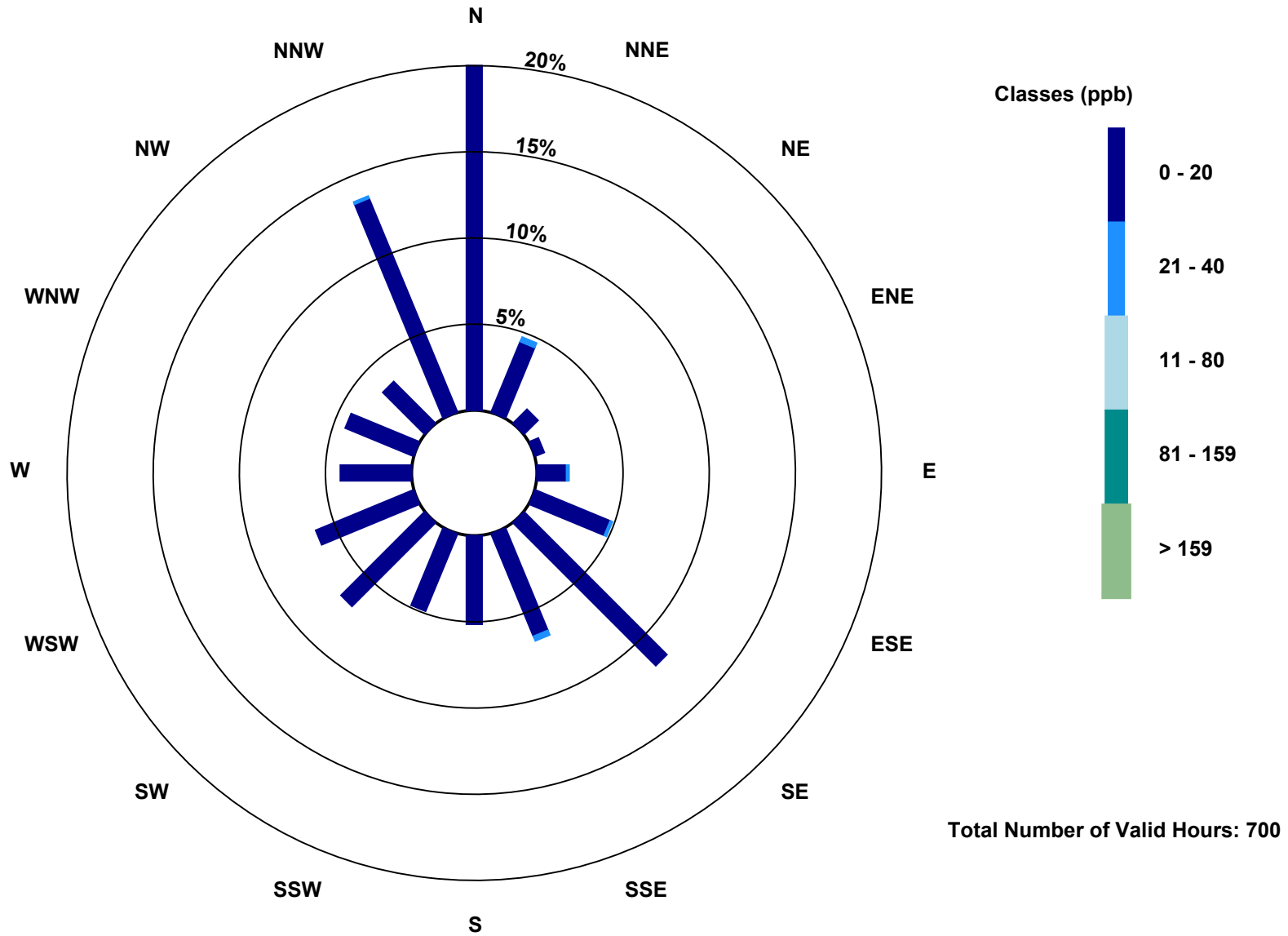
Total Number of Valid Hours: 700

Total Number of Hours: 744

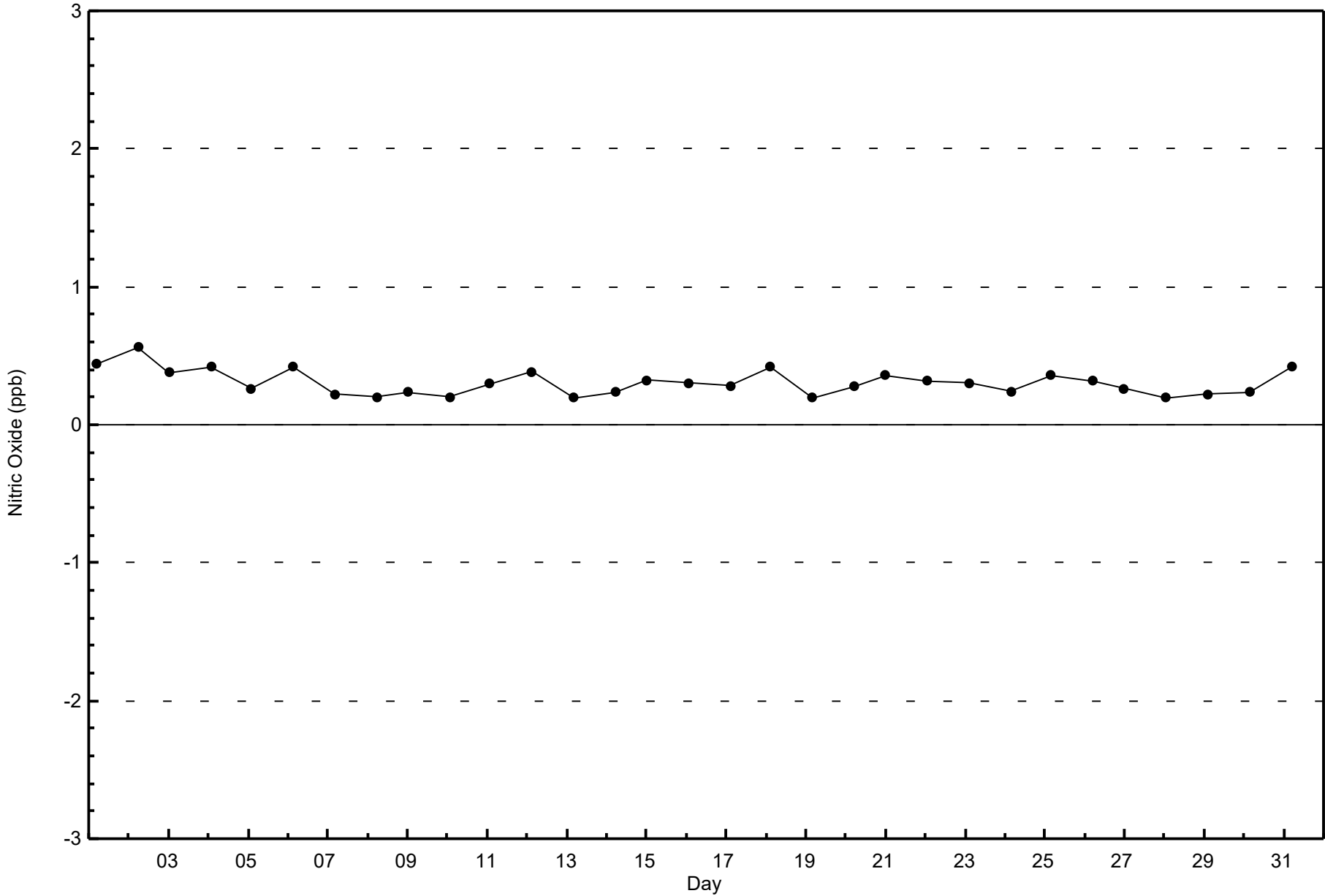


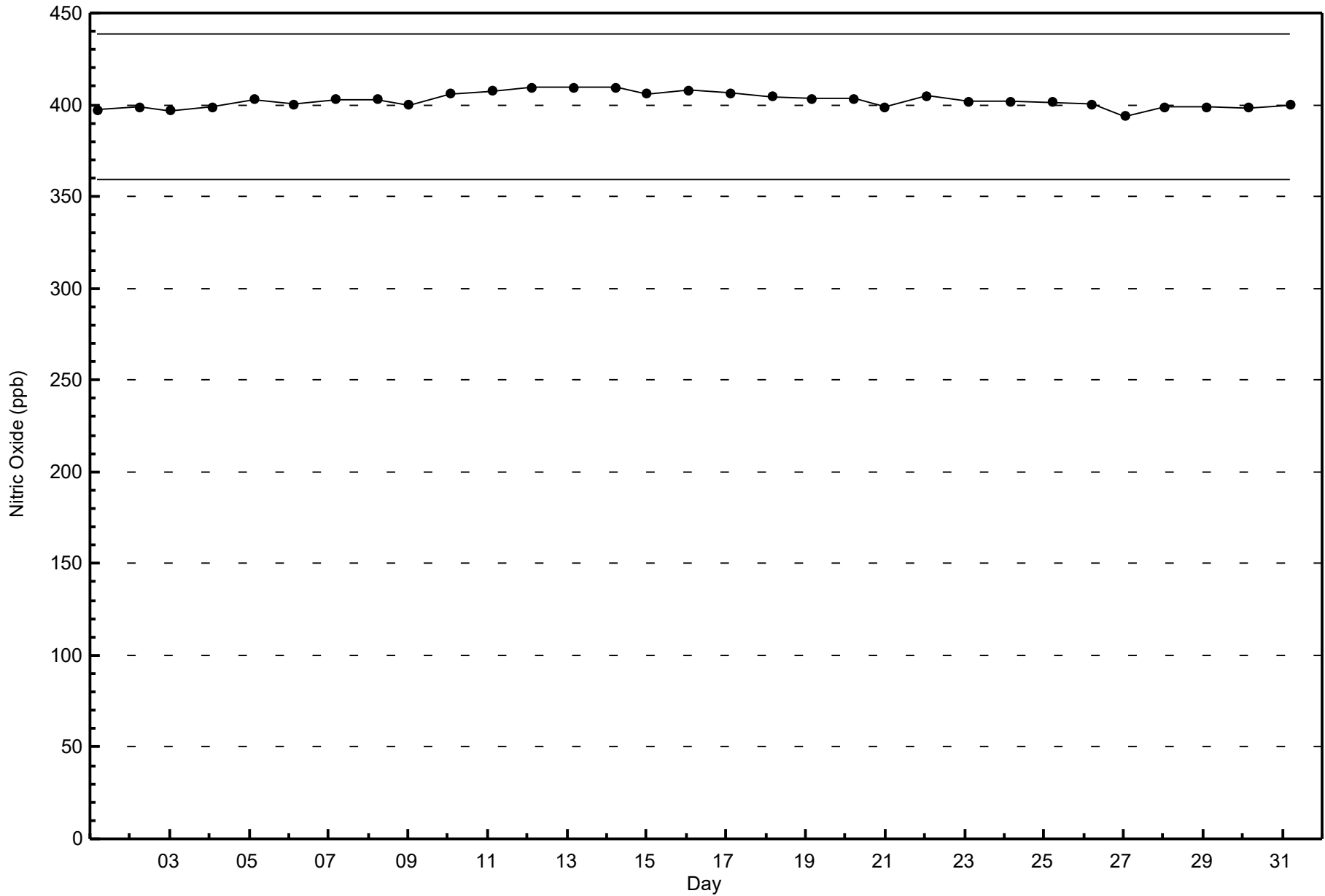
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Patricia McInnes











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

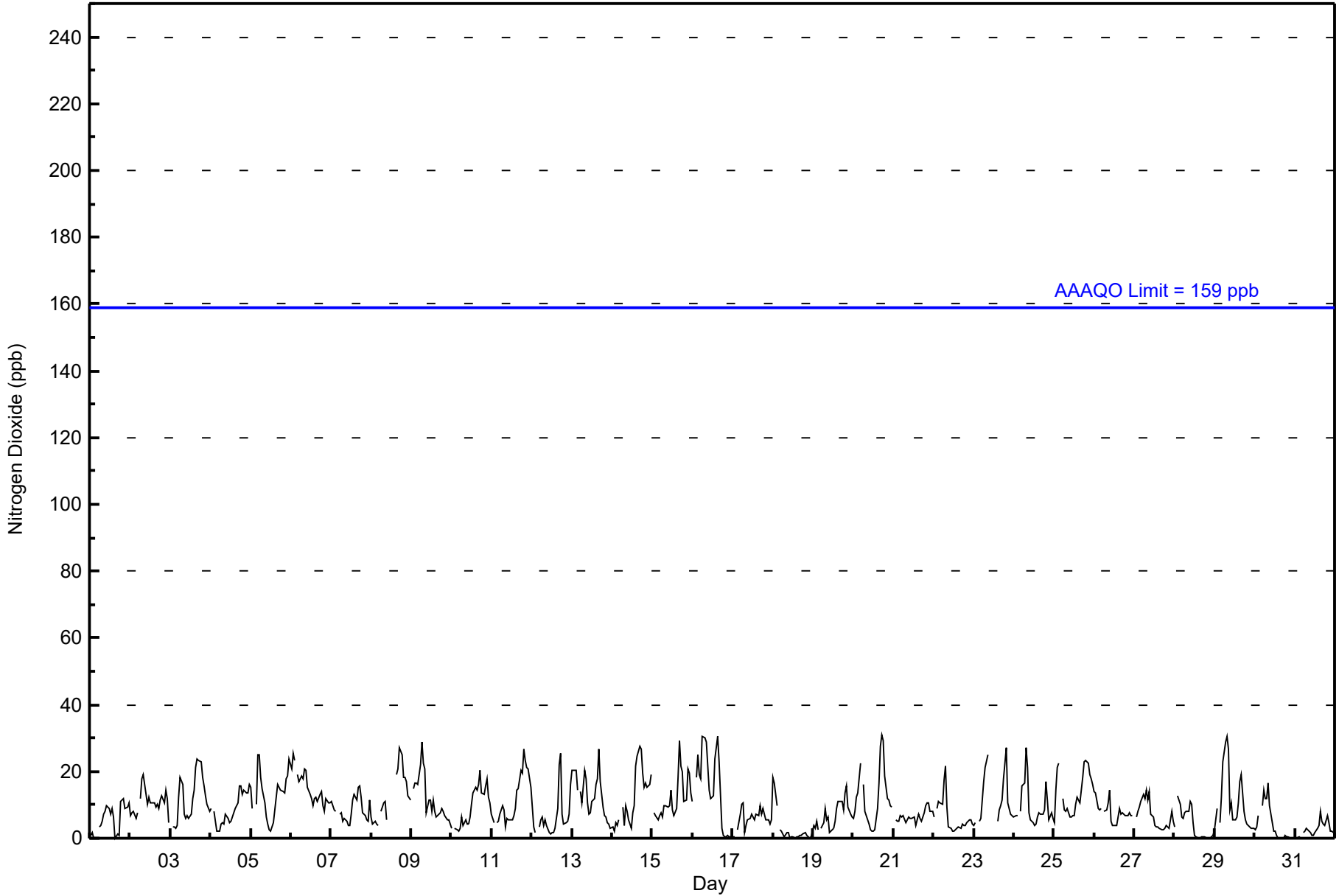
## Patricia McInnes - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 31.0 ppb on Jan 20 18:00		Maximum Daily Average: 15.3 ppb on Jan 16																	Hours of Data: 703																														
Minimum Value: 0.0 ppb on Jan 1 03:00		Minimum Daily Average: 2.6 ppb on Jan 31																	Hours of Missing Data: 41																														
Maximum Diurnal Average: 12.9 ppb at hour 17		Minimum Diurnal Average: 5.7 ppb at hour 13																	Hours of Calibration: 36																														
Monthly Average: 9.35 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 4.4 Median = 7.8 Q <sub>3</sub> = 13.0 P <sub>90</sub> = 19.3 P <sub>99</sub> = 28.8																	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-Jan	0.7	1.9	0.0	0.0	Z	3.3	3.8	5.2	7.4	8.2	9.7	9.0	7.1	8.7	6.2	0.0	1.2	0.9	10.9	11.3	11.9	9.0	9.5	10.7	5.9	11.9																							
2-Jan	6.7	7.6	8.2	5.8	7.6	Z	11.9	17.8	18.9	13.1	10.2	12.4	10.7	10.7	10.6	9.4	10.1	8.8	11.6	12.7	10.6	14.3	12.0	4.7	10.7	18.9																							
3-Jan	Z	3.2	3.5	2.8	3.8	12.4	18.3	16.1	7.0	6.1	6.7	5.8	7.0	11.8	14.5	21.0	23.8	23.5	22.8	18.3	15.6	12.9	10.0	8.0	12.0	23.8																							
4-Jan	8.9	Z	8.1	5.1	2.2	2.0	4.4	4.8	4.3	7.4	5.8	4.8	4.9	6.5	7.6	8.8	10.7	15.6	15.5	13.2	14.2	13.5	13.4	15.9	8.6	15.9																							
5-Jan	15.1	9.1	Z	10.0	25.0	25.2	18.2	15.0	10.4	6.4	4.4	2.7	2.0	4.7	8.5	12.3	16.1	15.4	14.2	14.1	13.7	17.9	18.7	23.9	13.2	25.2																							
6-Jan	20.8	25.3	23.5	Z	19.0	17.0	18.7	18.0	20.6	20.2	15.1	13.2	11.9	9.8	11.9	12.4	11.1	13.2	14.1	9.9	8.2	12.0	10.5	10.5	15.1	25.3																							
7-Jan	11.2	9.6	8.4	8.2	Z	7.1	7.5	5.2	6.0	5.1	3.8	3.8	7.0	11.6	13.2	11.4	15.4	15.5	12.3	7.7	6.6	5.6	5.1	11.6	8.6	15.5																							
8-Jan	6.3	4.4	5.1	4.1	3.8	Z	8.2	10.5	10.9	5.7	C	C	C	C	C	19.0	20.7	27.3	25.1	18.2	18.1	16.8	12.8	11.5	12.7	27.3																							
9-Jan	Z	14.9	16.5	16.6	15.9	22.0	28.8	22.6	20.7	7.8	11.3	11.4	7.9	11.3	8.1	6.5	7.2	7.5	8.9	8.2	6.6	5.6	5.4	4.1	12.0	28.8																							
10-Jan	2.8	Z	3.1	2.6	2.2	2.8	6.3	3.8	5.4	4.2	4.4	6.4	10.1	13.7	15.3	14.2	16.3	20.2	13.6	13.1	15.7	17.9	12.4	10.5	9.4	20.2																							
11-Jan	7.0	4.5	Z	4.6	5.0	7.3	9.9	8.3	3.4	6.0	5.4	5.3	5.7	6.8	8.7	14.6	15.0	20.5	19.3	26.8	23.3	21.2	20.7	15.4	11.5	26.8																							
12-Jan	9.4	3.4	1.7	Z	3.6	5.6	6.4	3.9	5.3	3.7	1.6	1.1	1.7	1.5	3.1	8.7	22.2	25.5	7.1	4.1	4.6	5.2	7.3	16.2	6.6	25.5																							
13-Jan	20.4	20.3	20.4	14.2	Z	13.8	10.8	20.3	18.0	10.4	7.4	7.5	11.1	11.8	16.3	17.6	26.6	16.8	9.3	6.7	6.3	4.8	4.2	2.8	12.9	26.6																							
14-Jan	3.6	2.3	4.8	3.8	5.4	Z	9.2	3.8	9.6	8.0	5.5	3.1	7.7	9.6	21.8	24.7	27.4	26.8	19.4	15.1	16.4	15.4	16.0	19.0	12.1	27.4																							
15-Jan	Z	7.6	6.8	5.3	6.6	7.5	6.4	9.6	9.9	9.2	9.8	14.2	8.5	6.9	9.1	18.4	29.4	21.4	19.8	11.0	11.5	20.8	19.3	13.6	12.3	29.4																							
16-Jan	11.0	Z	18.2	25.2	18.9	17.9	30.5	30.2	28.8	21.7	14.2	11.7	12.6	23.8	27.2	30.3	22.7	2.8	0.7	0.6	0.6	0.7	0.6	0.3	15.3	30.5																							
17-Jan	0.3	0.3	Z	2.6	7.4	10.1	10.4	1.9	4.0	5.3	5.9	7.1	6.2	5.3	7.0	6.8	9.7	7.0	9.0	7.0	5.5	5.6	4.1	5.5	5.8	10.4																							
18-Jan	18.3	16.4	9.9	Z	2.4	2.1	1.3	0.5	1.8	1.6	0.0	0.6	0.3	0.0	0.3	0.3	0.7	0.9	1.2	1.6	0.8	0.4	0.2	0.3	2.7	18.3																							
19-Jan	3.7	3.1	5.1	2.5	Z	3.1	4.6	9.0	5.4	6.5	1.9	2.6	2.9	5.0	8.9	11.2	11.0	11.1	8.4	13.4	15.6	9.3	7.2	6.4	6.9	15.6																							
20-Jan	6.1	8.0	12.3	13.4	22.3	Z	15.9	8.2	6.6	4.4	2.7	2.2	2.0	2.4	8.9	16.5	27.6	31.0	29.1	18.5	12.0	11.5	9.7	9.2	12.2	31.0																							
21-Jan	Z	5.6	4.9	5.0	6.6	6.4	6.8	4.5	5.4	6.4	5.8	6.0	6.4	3.7	5.5	7.0	6.0	5.1	7.8	9.8	10.7	10.6	7.9	8.2	6.6	10.7																							
22-Jan	6.2	Z	8.9	11.0	10.7	10.2	17.5	21.4	9.4	3.2	2.8	2.2	2.2	2.4	3.0	3.3	3.1	4.1	3.8	4.0	4.7	5.4	5.3	4.4	6.5	21.4																							
23-Jan	3.8	4.7	Z	5.1	6.0	11.6	17.0	21.3	25.1	M	M	M	M	M	5.2	8.4	9.6	11.5	17.6	27.3	10.5	8.7	7.4	6.7	11.5	27.3																							
24-Jan	6.4	6.7	6.8	Z	8.1	15.6	16.5	27.0	21.3	7.7	5.7	4.5	3.9	4.4	6.5	7.5	7.4	7.3	8.6	17.0	11.4	5.3	7.8	6.0	9.5	27.0																							
25-Jan	4.6	14.6	21.2	22.3	Z	11.9	8.6	7.9	8.9	6.5	6.3	6.6	6.9	10.0	12.4	10.7	14.4	18.4	22.8	23.2	22.3	18.9	17.9	16.2	13.6	23.2																							
26-Jan	13.9	13.7	9.0	8.3	8.8	Z	8.1	8.5	10.4	14.5	4.9	3.7	4.0	4.0	6.3	8.7	7.2	7.5	6.7	6.7	6.9	7.8	6.7	6.9	8.0	14.5																							
27-Jan	Z	6.4	8.2	9.4	11.0	13.1	12.0	14.3	11.6	14.0	7.3	6.4	3.8	3.6	3.2	3.1	2.5	2.4	3.1	3.7	3.6	3.1	7.9	4.9	6.9	14.3																							
28-Jan	3.2	Z	12.7	10.2	6.4	6.0	7.6	7.9	8.0	11.1	10.3	4.6	0.7	0.3	0.2	0.2	0.3	0.5	0.3	0.1	0.2	0.2	0.3	0.7	4.0	12.7																							
29-Jan	2.0	8.9	Z	4.6	12.3	22.8	28.7	30.3	26.5	8.3	10.7	5.6	5.3	6.4	10.5	16.9	19.2	8.2	5.4	4.1	3.9	3.2	2.9	2.9	10.9	30.3																							
30-Jan	2.5	3.4	6.6	Z	9.6	14.3	12.0	11.7	16.7	9.7	4.8	2.3	2.0	0.7	0.2	0.0	0.0	0.0	0.7	0.4	0.5	0.1	0.0	0.0	4.3	16.7																							
31-Jan	0.0	0.1	0.4	0.2	Z	1.5	2.3	2.8	2.3	1.7	1.0	0.8	1.7	3.0	3.7	7.9	4.9	4.2	4.0	6.6	4.5	2.3	2.0	1.6	2.6	7.9																							
																								7.5	7.9	9.0	7.8	9.2	10.5	11.9	12.0	11.3	8.1	6.4	5.8	5.7	6.9	8.8	10.9	12.9	12.3	11.4	10.8	9.6	9.2	8.6	8.3	Diurnal Average	
																								20.8	25.3	23.5	25.2	25.0	25.2	30.5	30.3	28.8	21.7	15.1	14.2	12.6	23.8	27.2	30.3	29.4	31.0	29.1	27.3	23.3	21.2	20.7	23.9	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**  
**Patricia McInnes - January 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	642	91.32	91.32
21 - 40	61	8.68	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: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Patricia McInnes - January 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	127	28	7	4	8	31	77	39	35	34	48	43	29	29	18	82	639
21 - 40	13	5	1	0	5	3	5	8	1	0	0	0	0	1	6	13	61
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>	140	33	8	4	13	34	82	47	36	34	48	43	29	30	24	95	700

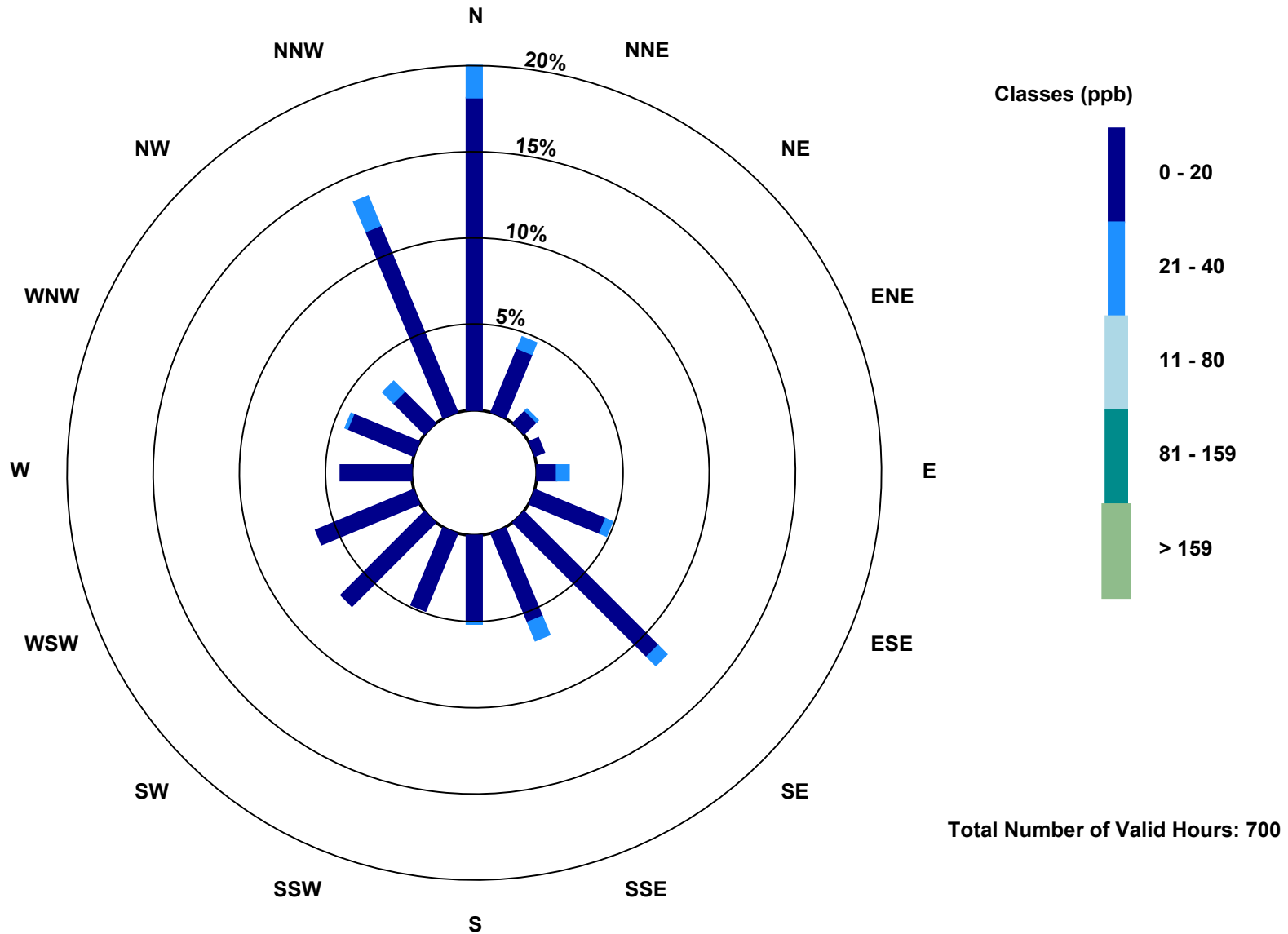
Total Number of Valid Hours: 700

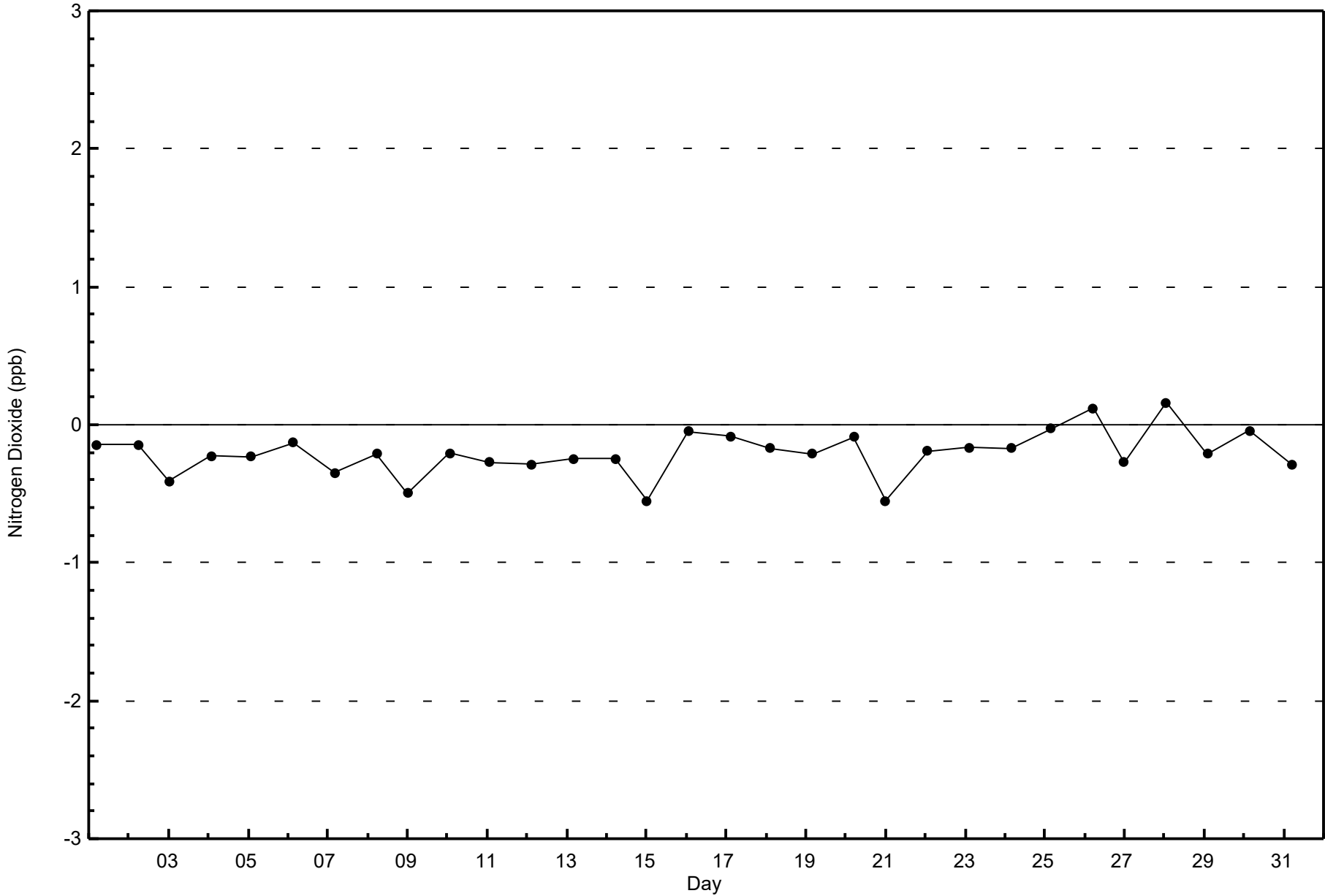
Total Number of Hours: 744



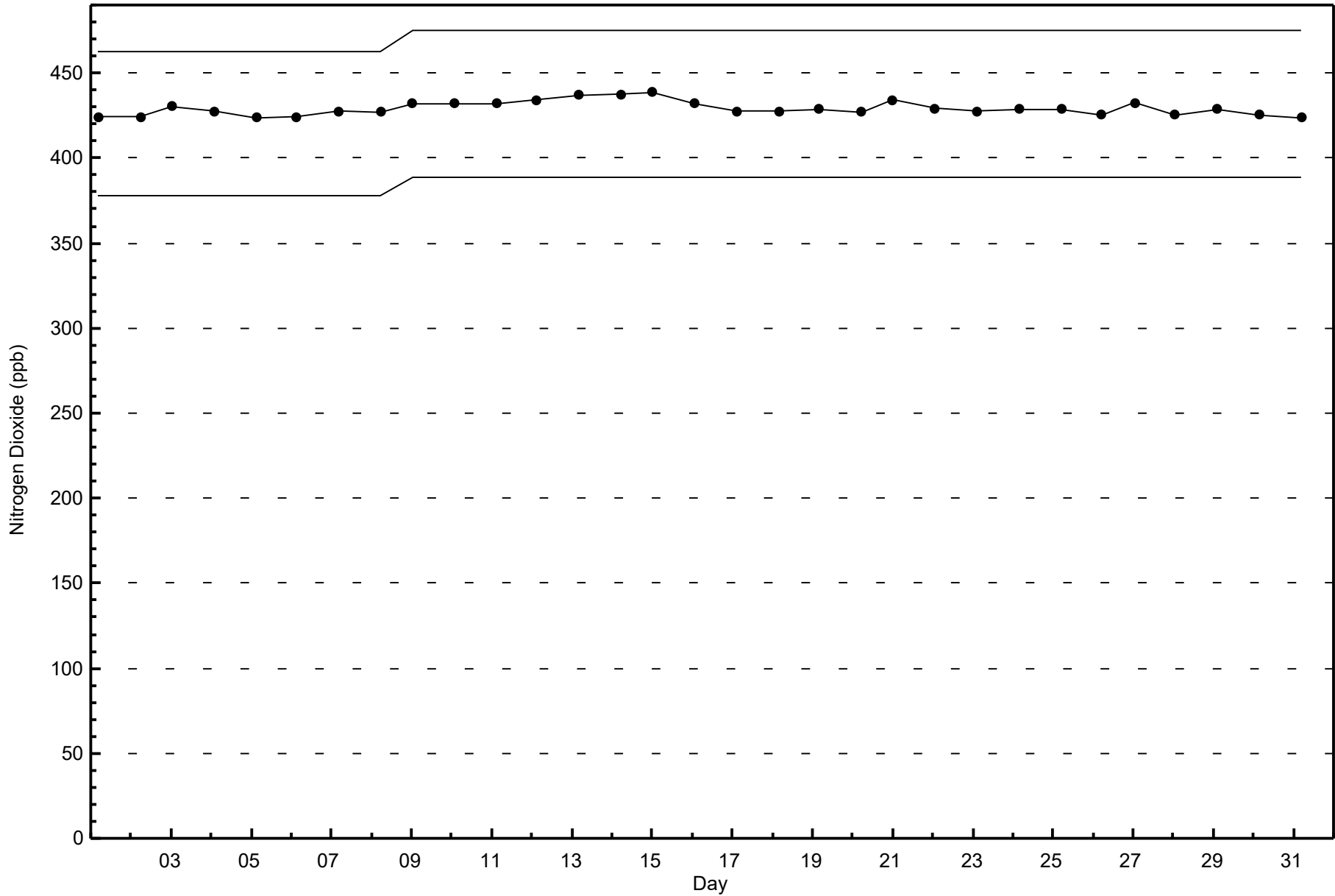
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











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

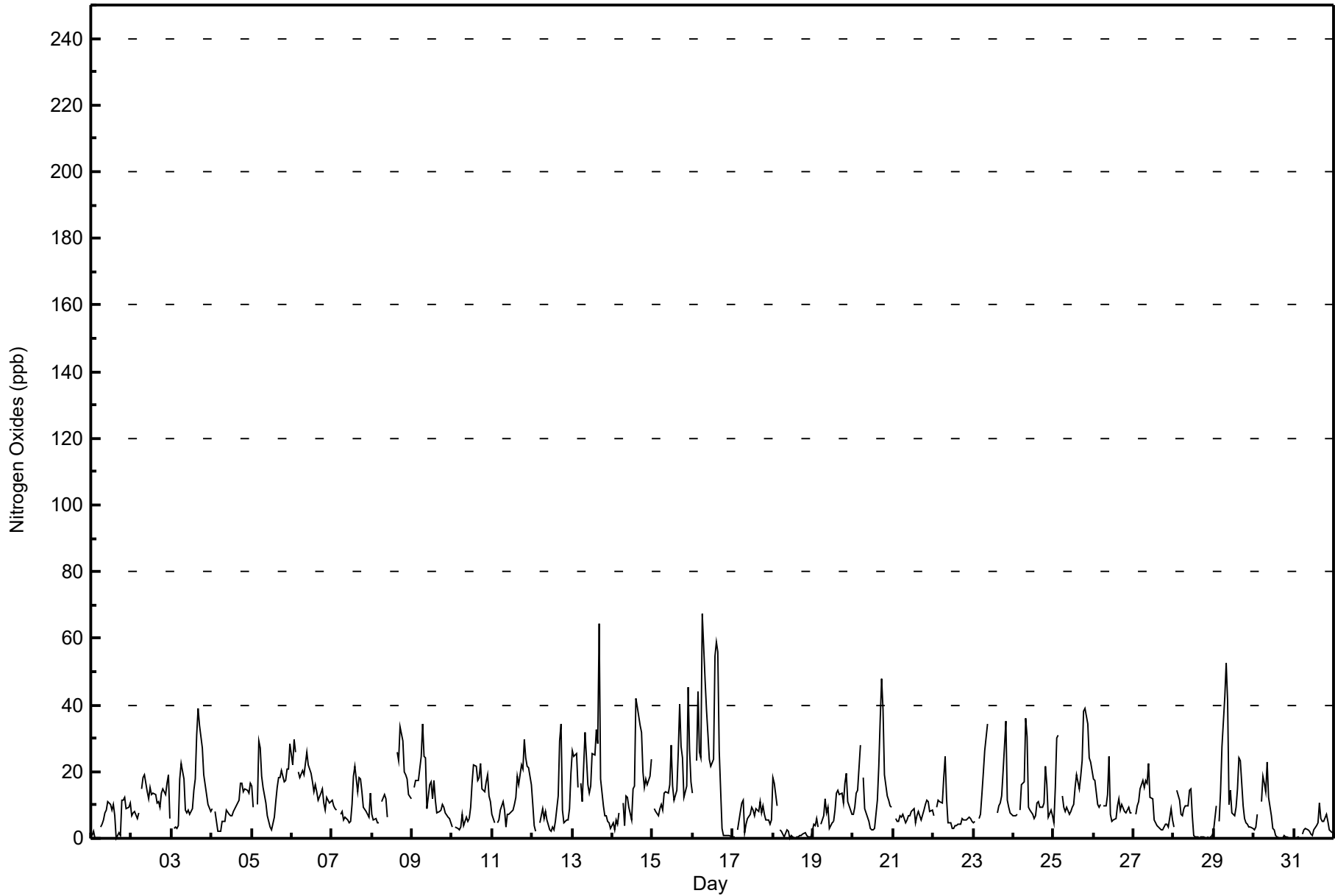
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - January 2024**

Maximum Value: 67.5 ppb on Jan 16 07:00		Maximum Daily Average: 25.6 ppb on Jan 16		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Jan 1 03:00		Minimum Daily Average: 2.8 ppb on Jan 18		Hours of Data: 703																																													
Maximum Diurnal Average: 16.8 ppb at hour 17		Minimum Diurnal Average: 8.3 ppb at hour 1		Hours of Missing Data: 41																																													
Monthly Average: 11.78 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 5.2 Median = 9.3 Q <sub>3</sub> = 16.0 P <sub>90</sub> = 24.1 P <sub>99</sub> = 47.3		Hours of Calibration: 36																																													
				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-Jan	0.8	2.1	0.0	0.0	Z	3.5	4.1	5.3	7.7	8.6	11.1	10.1	8.3	10.3	6.7	0.0	1.9	0.9	11.3	11.6	12.1	9.0	9.5	10.7	6.3	12.1																							
2-Jan	6.8	7.6	8.2	5.8	7.7	Z	14.7	18.3	19.2	14.0	11.9	15.3	13.1	13.7	13.2	10.5	11.1	9.4	13.6	14.8	13.1	16.4	19.3	5.8	12.3	19.3																							
3-Jan	Z	3.2	3.5	2.8	4.0	17.6	22.6	18.0	8.5	7.5	8.7	7.3	8.8	14.3	17.7	31.1	39.0	33.7	27.2	19.0	16.0	13.2	10.1	8.0	14.9	39.0																							
4-Jan	8.9	Z	8.1	5.2	2.3	2.2	5.0	5.1	5.2	8.4	7.2	6.7	6.8	8.0	8.7	9.8	11.3	16.6	16.4	14.0	15.0	14.3	13.7	16.5	9.4	16.6																							
5-Jan	15.8	9.3	Z	10.3	29.0	27.1	18.8	15.1	10.6	6.7	5.0	3.3	2.5	6.5	11.1	15.1	18.1	18.3	20.2	17.1	17.4	20.9	20.9	28.6	15.1	29.0																							
6-Jan	22.2	29.7	25.7	Z	20.0	18.0	20.2	19.0	22.4	25.9	22.0	19.6	17.1	13.9	15.9	14.2	11.6	13.7	15.0	10.4	8.6	12.4	10.6	11.0	17.4	29.7																							
7-Jan	11.6	9.9	9.0	8.7	Z	7.4	8.2	5.4	6.2	5.5	4.6	5.0	10.1	18.5	21.6	14.2	18.4	17.7	14.0	9.4	8.0	7.0	6.2	13.5	10.4	21.6																							
8-Jan	7.4	5.3	5.9	4.8	4.5	Z	10.8	13.3	11.8	6.4	C	C	C	C	C	25.7	23.5	33.6	29.1	20.1	19.2	17.8	13.2	11.8	14.7	33.6																							
9-Jan	Z	15.4	17.3	17.4	17.5	24.4	34.5	24.4	24.0	9.1	16.0	17.1	11.8	17.4	11.2	7.8	8.0	8.6	10.3	9.3	7.8	6.3	6.0	4.5	14.2	34.5																							
10-Jan	3.2	Z	3.5	2.9	2.6	3.4	7.1	4.0	6.2	4.9	5.9	9.4	16.5	22.0	21.7	17.4	18.2	22.4	14.9	14.0	16.9	19.2	12.7	10.9	11.3	22.4																							
11-Jan	7.2	4.6	Z	4.8	5.4	8.3	11.1	8.4	3.4	7.2	7.2	7.7	8.7	10.3	12.3	18.8	16.0	22.1	20.7	29.5	23.9	21.6	21.0	15.9	12.9	29.5																							
12-Jan	10.2	3.7	1.9	Z	4.6	6.7	8.8	5.8	7.9	5.4	2.6	2.1	3.3	2.8	5.0	12.6	29.3	34.4	8.5	4.5	5.7	5.7	8.8	19.4	8.7	34.4																							
13-Jan	26.4	24.4	25.2	15.5	Z	16.6	11.1	31.9	24.1	16.2	13.4	15.7	25.4	24.9	32.5	28.4	64.6	17.9	9.7	7.0	6.7	5.1	4.6	3.1	19.6	64.6																							
14-Jan	4.7	2.7	5.4	4.1	7.7	Z	10.7	3.9	12.8	12.3	9.4	5.6	14.6	15.9	41.8	39.6	33.9	31.8	19.8	15.4	18.0	16.2	18.6	23.6	16.0	41.8																							
15-Jan	Z	9.1	8.0	6.8	8.8	10.0	8.7	13.5	13.9	13.5	16.0	28.0	15.5	11.5	14.3	25.9	40.4	27.6	24.2	12.5	15.7	45.5	26.9	17.0	18.0	45.5																							
16-Jan	13.7	Z	23.1	44.2	25.9	24.1	67.5	47.3	38.6	31.6	23.8	21.5	23.8	54.5	59.1	56.0	26.4	3.1	0.7	0.7	0.7	0.8	0.7	0.4	25.6	67.5																							
17-Jan	0.3	0.3	Z	2.7	7.9	10.7	11.5	1.9	4.2	6.0	7.3	9.5	8.6	6.8	8.9	8.0	11.1	7.4	9.7	7.1	5.6	5.7	4.1	5.5	6.6	11.5																							
18-Jan	18.3	16.4	9.9	Z	2.4	2.2	1.3	0.5	2.3	2.0	0.0	1.0	0.4	0.0	0.4	0.4	0.7	0.9	1.2	1.6	0.9	0.6	0.3	0.4	2.8	18.3																							
19-Jan	4.3	3.7	5.9	3.2	Z	4.1	6.6	12.1	7.8	9.4	3.0	4.9	5.1	8.6	13.4	14.5	13.2	13.4	10.6	16.4	19.4	10.9	8.3	7.4	9.0	19.4																							
20-Jan	7.1	9.2	13.6	14.4	27.9	Z	18.4	9.0	7.5	5.0	3.2	2.7	2.4	2.9	11.6	21.7	35.4	48.1	38.4	19.2	12.7	11.6	9.8	9.3	14.8	48.1																							
21-Jan	Z	5.8	5.0	5.2	6.8	6.5	7.1	4.5	5.7	7.0	6.9	8.0	9.1	4.8	6.9	8.1	6.6	5.6	8.7	10.2	11.2	11.1	8.2	8.6	7.3	11.2																							
22-Jan	6.6	Z	9.1	11.3	11.0	10.5	18.4	24.4	12.0	4.9	4.6	3.1	3.1	3.7	4.0	4.3	4.1	5.8	5.3	5.5	5.7	6.5	6.0	5.1	7.6	24.4																							
23-Jan	4.5	5.3	Z	5.9	7.1	13.2	19.6	26.3	34.4	M	M	M	M	M	7.5	9.9	10.5	12.6	19.7	35.1	11.4	9.4	7.7	7.0	13.7	35.1																							
24-Jan	6.6	6.9	7.0	Z	8.4	16.0	16.9	35.9	30.3	9.4	8.6	7.0	5.9	6.7	10.5	11.0	9.4	9.5	10.7	21.6	16.0	6.3	8.7	6.7	12.0	35.9																							
25-Jan	4.6	15.2	29.9	30.9	Z	12.7	9.2	8.2	9.4	7.4	8.2	9.3	10.1	15.4	19.0	14.6	18.6	23.3	38.0	39.2	34.1	24.1	22.9	20.5	18.5	39.2																							
26-Jan	17.7	17.6	10.2	9.4	10.3	Z	9.6	9.8	13.2	24.4	7.0	5.3	5.7	6.0	9.8	11.8	8.6	10.0	8.2	7.7	8.6	9.5	7.7	7.6	10.2	24.4																							
27-Jan	Z	7.1	9.6	11.2	14.9	17.2	15.2	17.4	16.5	22.4	12.1	11.7	5.7	4.8	4.0	3.5	2.6	2.4	3.3	4.3	4.1	3.5	8.8	5.7	9.0	22.4																							
28-Jan	3.5	Z	14.5	11.3	7.1	6.9	9.0	9.6	9.6	14.5	14.7	6.7	1.0	0.5	0.3	0.2	0.3	0.5	0.3	0.1	0.2	0.2	0.4	0.7	4.9	14.7																							
29-Jan	2.2	9.6	Z	5.0	14.2	27.7	42.2	52.5	41.2	10.4	14.5	7.8	6.9	9.3	14.8	23.9	23.2	9.8	6.0	4.5	4.3	3.5	3.2	3.1	14.8	52.5																							
30-Jan	2.6	3.5	7.3	Z	10.9	18.6	16.4	14.0	22.8	12.5	6.6	2.8	2.4	0.7	0.2	0.0	0.0	0.0	0.8	0.4	0.5	0.1	0.0	0.0	5.4	22.8																							
31-Jan	0.0	0.1	0.4	0.2	Z	1.5	2.4	3.1	2.7	2.0	1.2	0.9	2.5	4.0	4.6	10.6	5.7	4.9	5.0	7.3	5.1	2.6	2.2	1.7	3.1	10.6																							
																								8.3	8.8	10.3	9.4	10.8	12.2	15.1	15.1	14.3	10.7	9.1	8.8	8.8	11.0	13.6	15.2	16.8	15.0	13.6	12.6	11.1	10.9	9.7	9.4	Diurnal Average	
																								26.4	29.7	29.9	44.2	29.0	27.7	67.5	52.5	41.2	31.6	23.8	28.0	25.4	54.5	59.1	56.0	64.6	48.1	38.4	39.2	34.1	45.5	26.9	28.6	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - January 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	600	85.35	85.35
21 - 40	90	12.80	98.15
41 - 80	13	1.85	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Patricia McInnes - January 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	121	28	6	3	7	29	72	32	27	33	47	42	29	27	18	76	597
21 - 40	18	3	1	1	4	4	10	11	9	1	1	1	0	3	6	17	90
11 - 80	1	2	1	0	2	1	0	4	0	0	0	0	0	0	0	2	13
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>	140	33	8	4	13	34	82	47	36	34	48	43	29	30	24	95	700

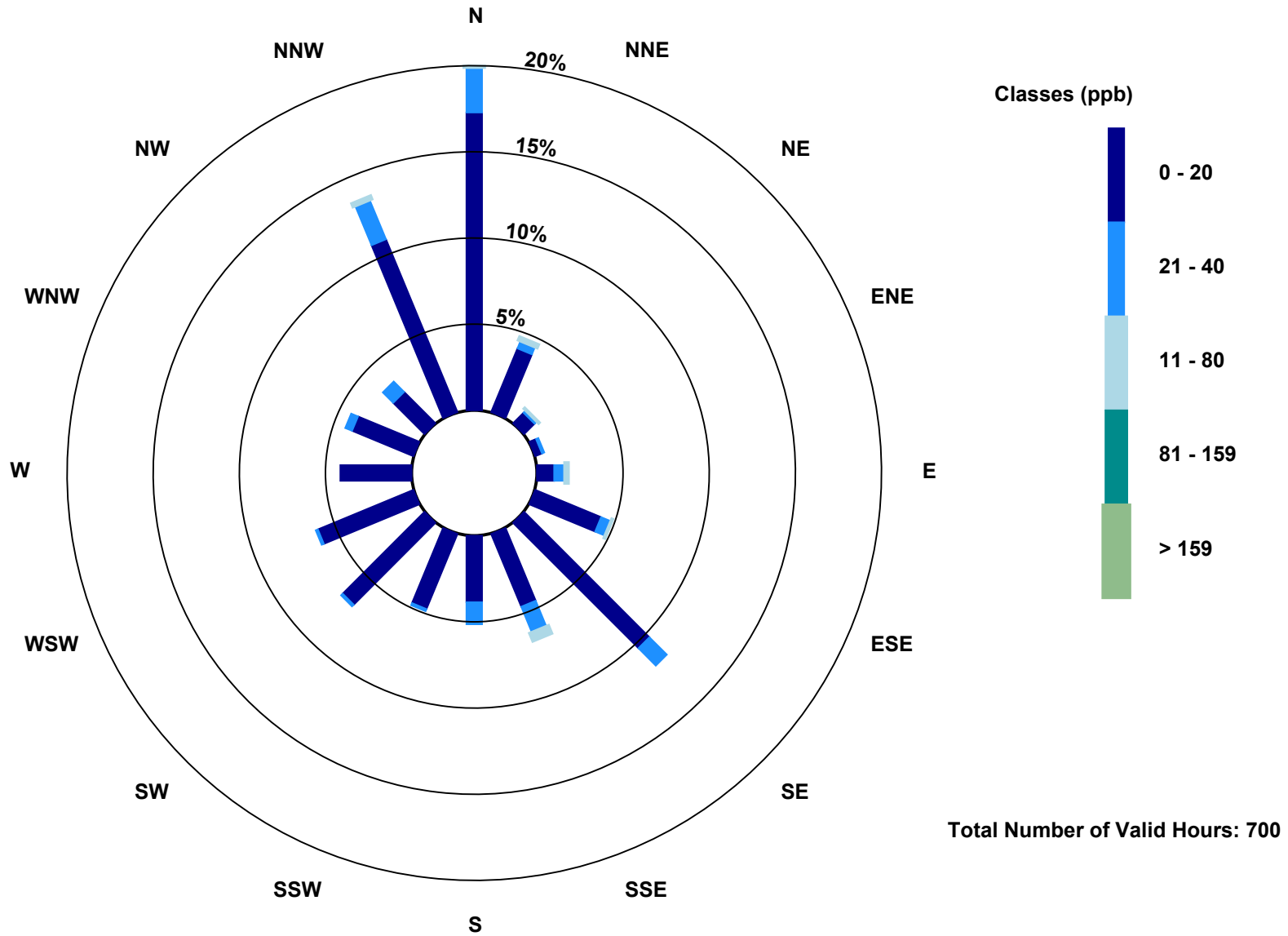
Total Number of Valid Hours: 700

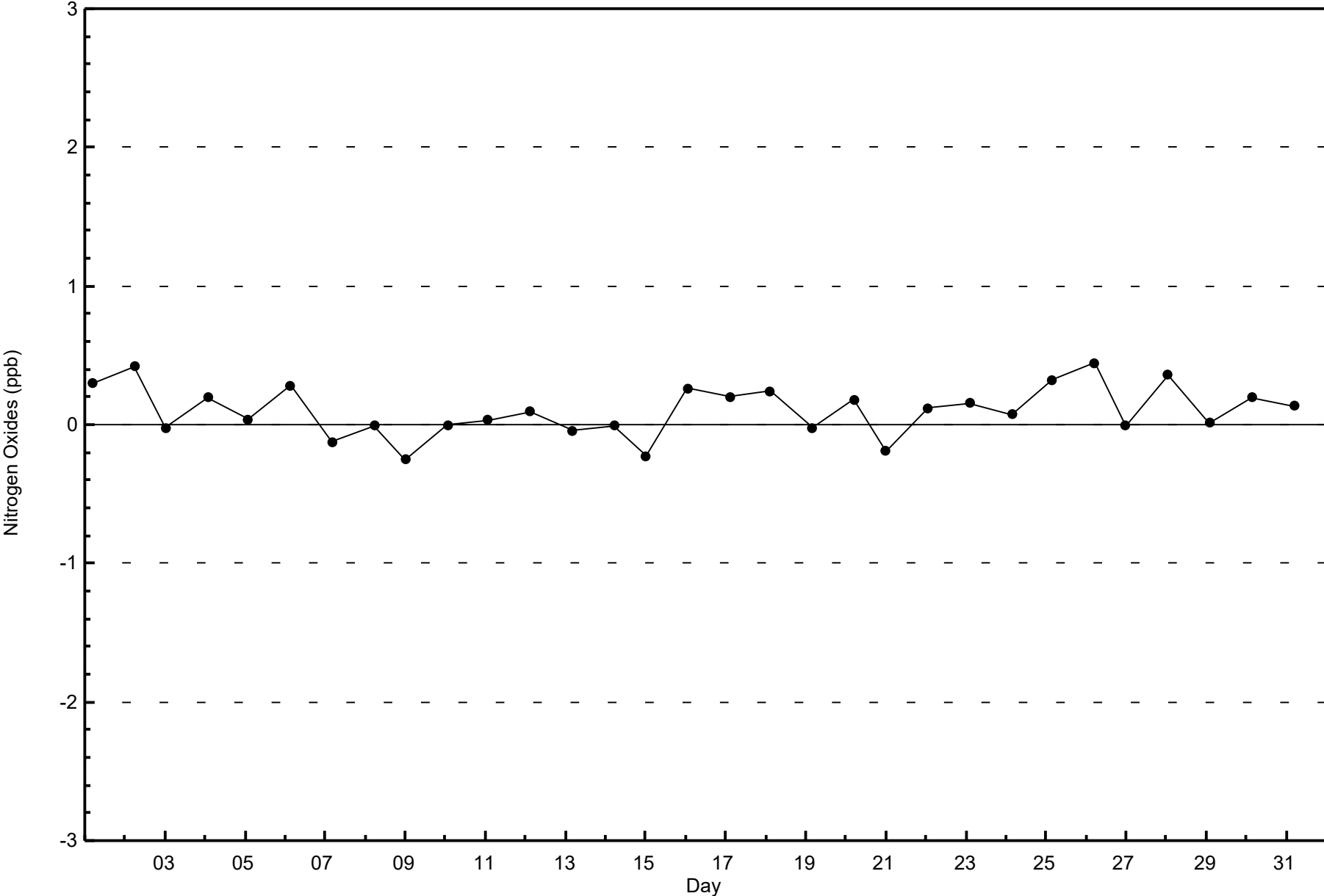
Total Number of Hours: 744

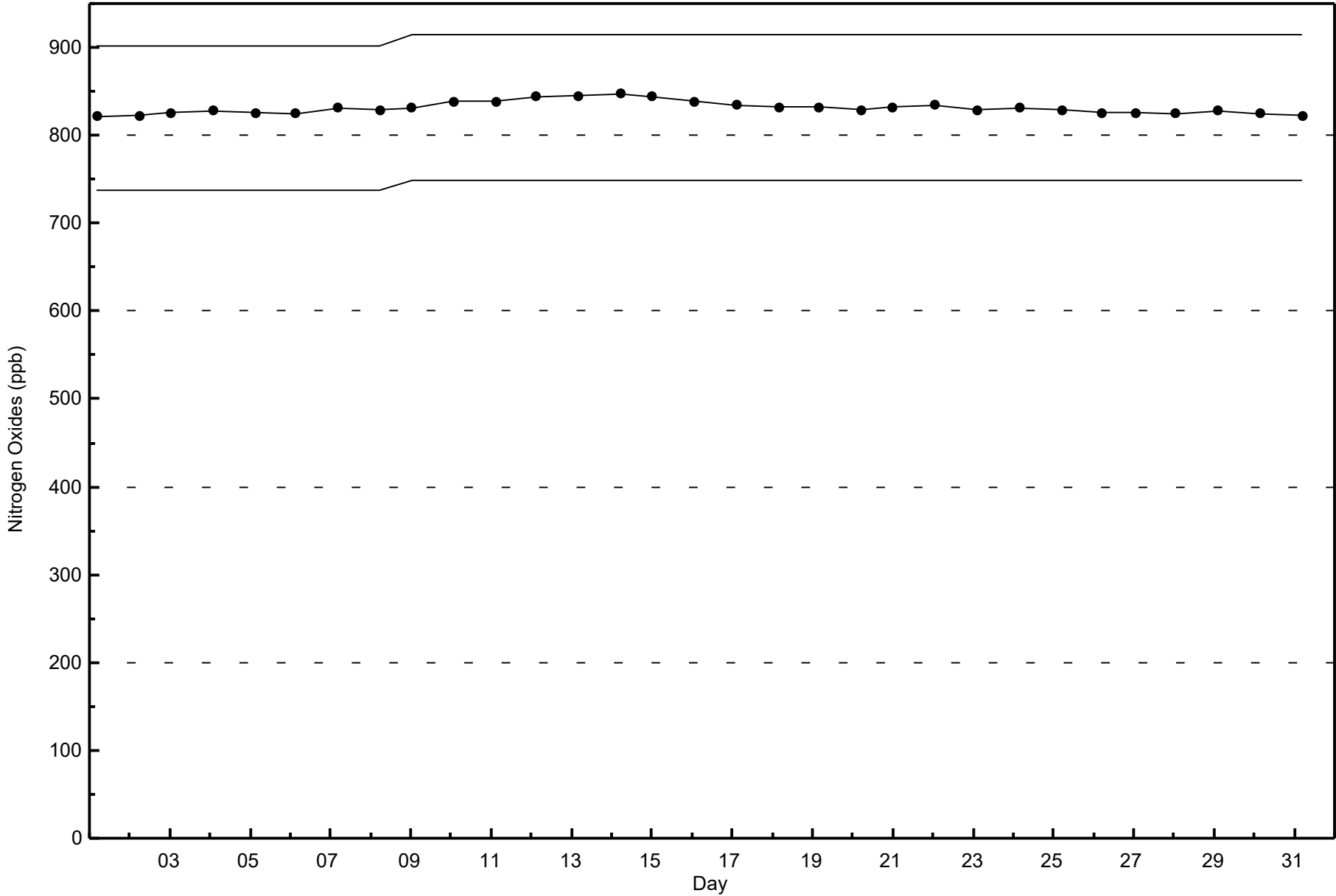


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

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

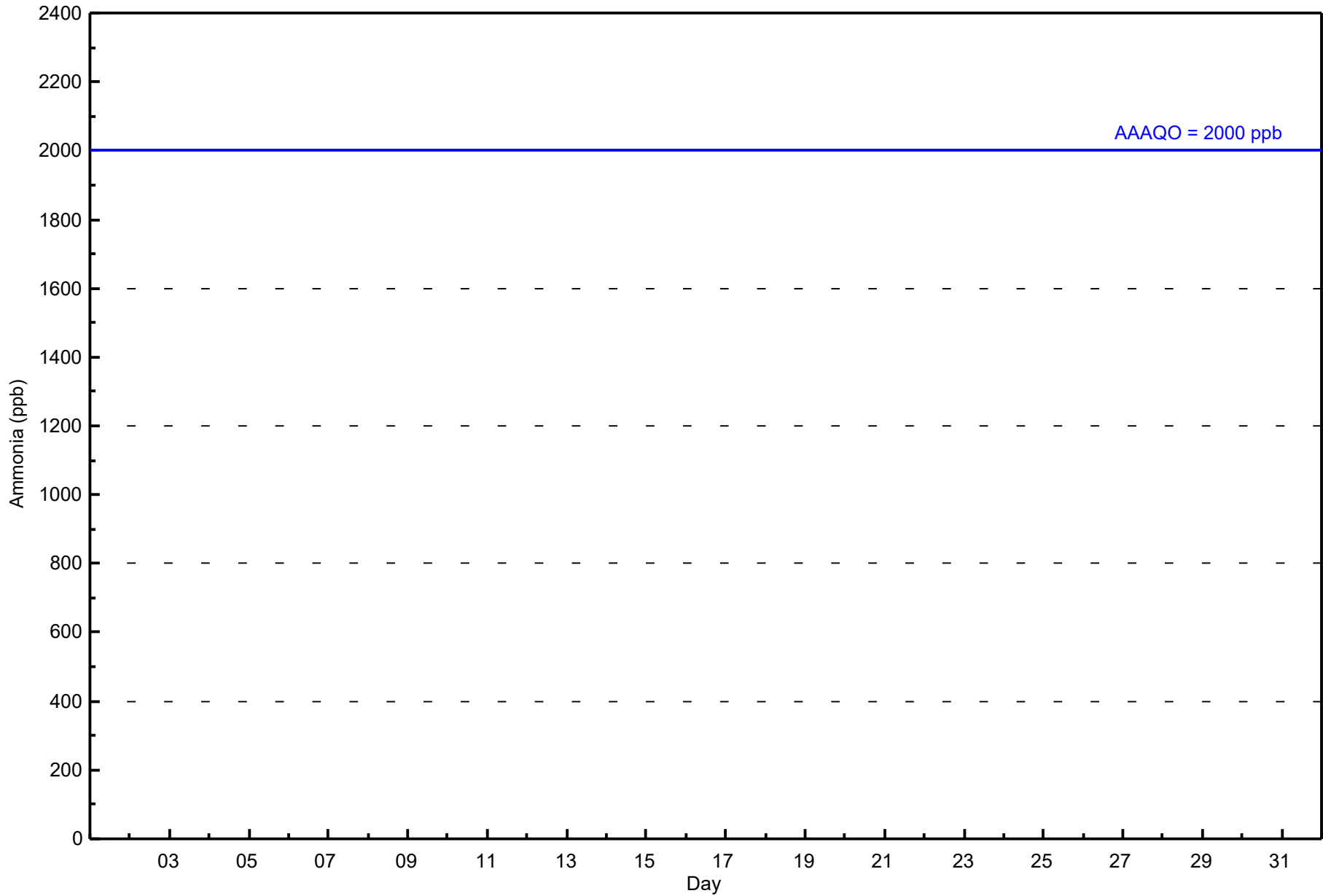
Patricia McInnes - January 2024

Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744																									
Maximum Value: 0.0 ppb on Jan 1 01:00		Maximum Daily Average: 0.0 ppb on Jan 1																									
Minimum Value: 0.0 ppb on Jan 1 01:00		Hours of Data: 665																									
Maximum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 79																									
Monthly Average: 0.00 ppb		Hours of Calibration: 39																									
Minimum Daily Average: 0.0 ppb on Jan 1		Percent Operational Time: 94.6																									
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-Jan	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
2-Jan	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
3-Jan	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
4-Jan	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
5-Jan	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
6-Jan	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
7-Jan	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
8-Jan	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
9-Jan	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
10-Jan	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
11-Jan	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	UO	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-Jan	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
13-Jan	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
14-Jan	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
15-Jan	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
16-Jan	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
17-Jan	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
18-Jan	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
19-Jan	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
20-Jan	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
21-Jan	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
22-Jan	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
23-Jan	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	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
24-Jan	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
25-Jan	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
26-Jan	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
27-Jan	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
28-Jan	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
29-Jan	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
30-Jan	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
31-Jan	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																								Diurnal Average			
0.0																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation 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 - January 2024**





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

**Ammonia (NH<sub>3</sub>) - ppb**  
**Patricia McInnes - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	665	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: 665

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ammonia (NH<sub>3</sub>) - ppb  
Patricia McInnes - January 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 - 5	134	27	7	4	11	33	80	46	31	33	44	41	29	27	23	92	662
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>	<b>134</b>	<b>27</b>	<b>7</b>	<b>4</b>	<b>11</b>	<b>33</b>	<b>80</b>	<b>46</b>	<b>31</b>	<b>33</b>	<b>44</b>	<b>41</b>	<b>29</b>	<b>27</b>	<b>23</b>	<b>92</b>	<b>662</b>

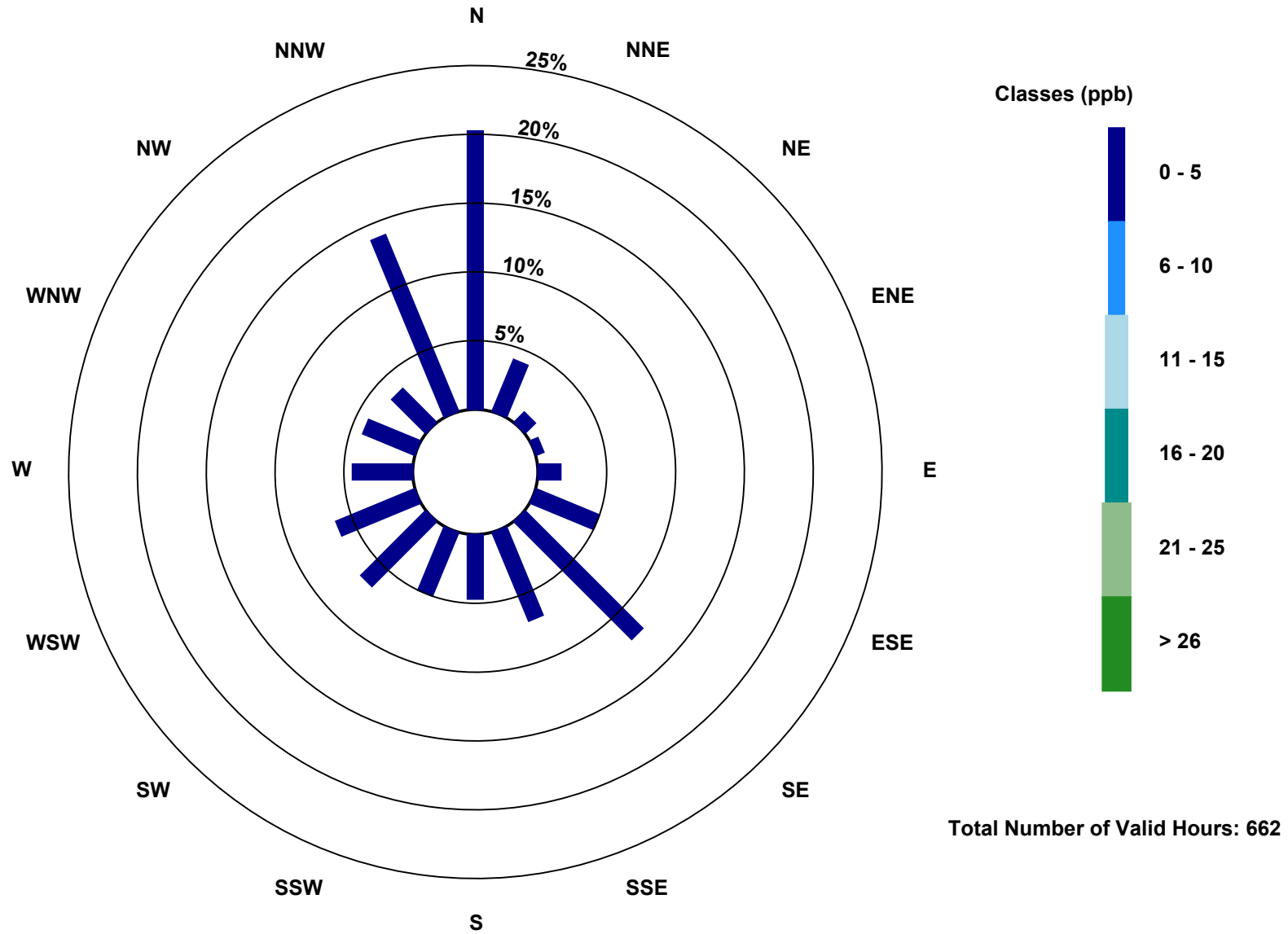
Total Number of Valid Hours: 662

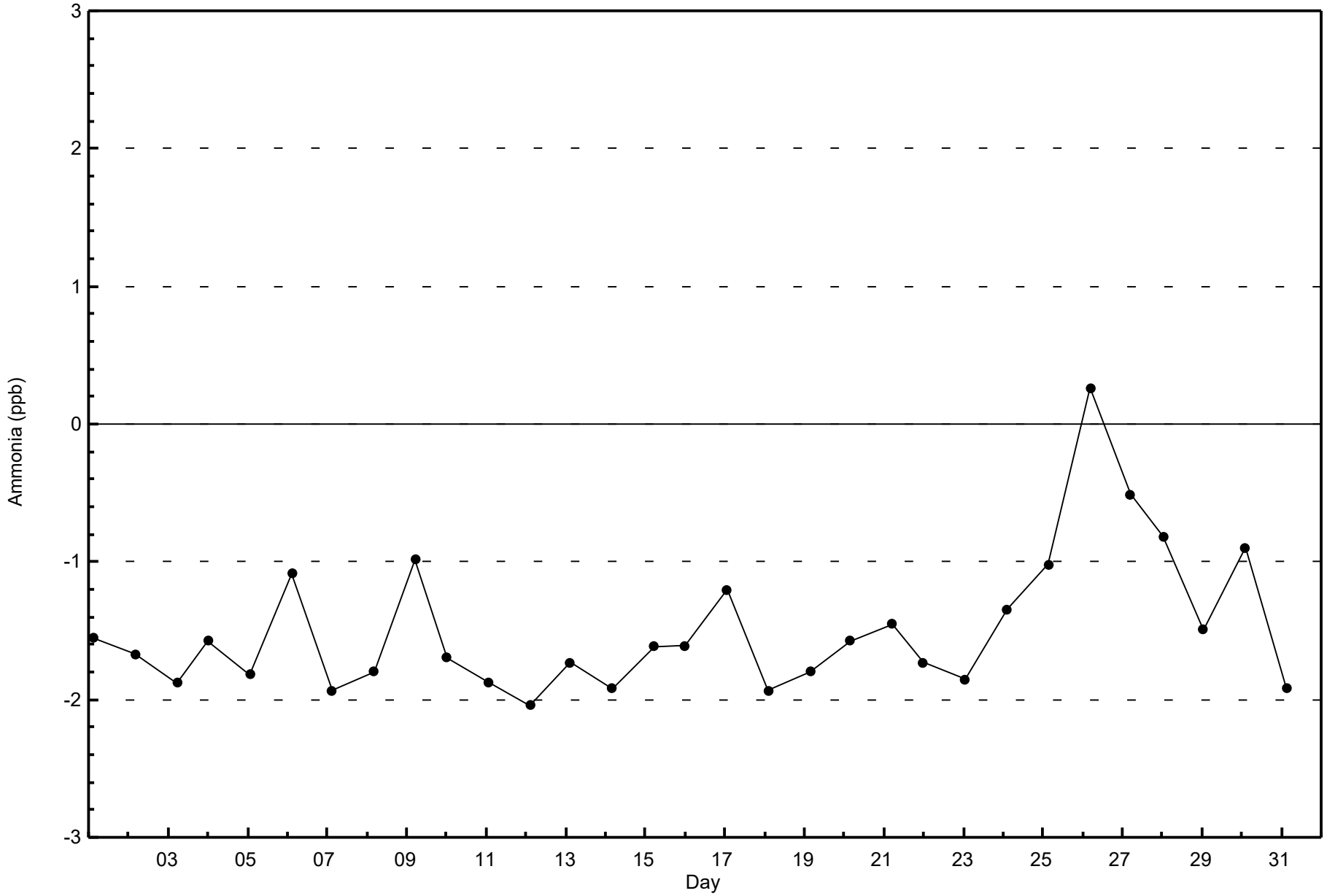
Total Number of Hours: 744

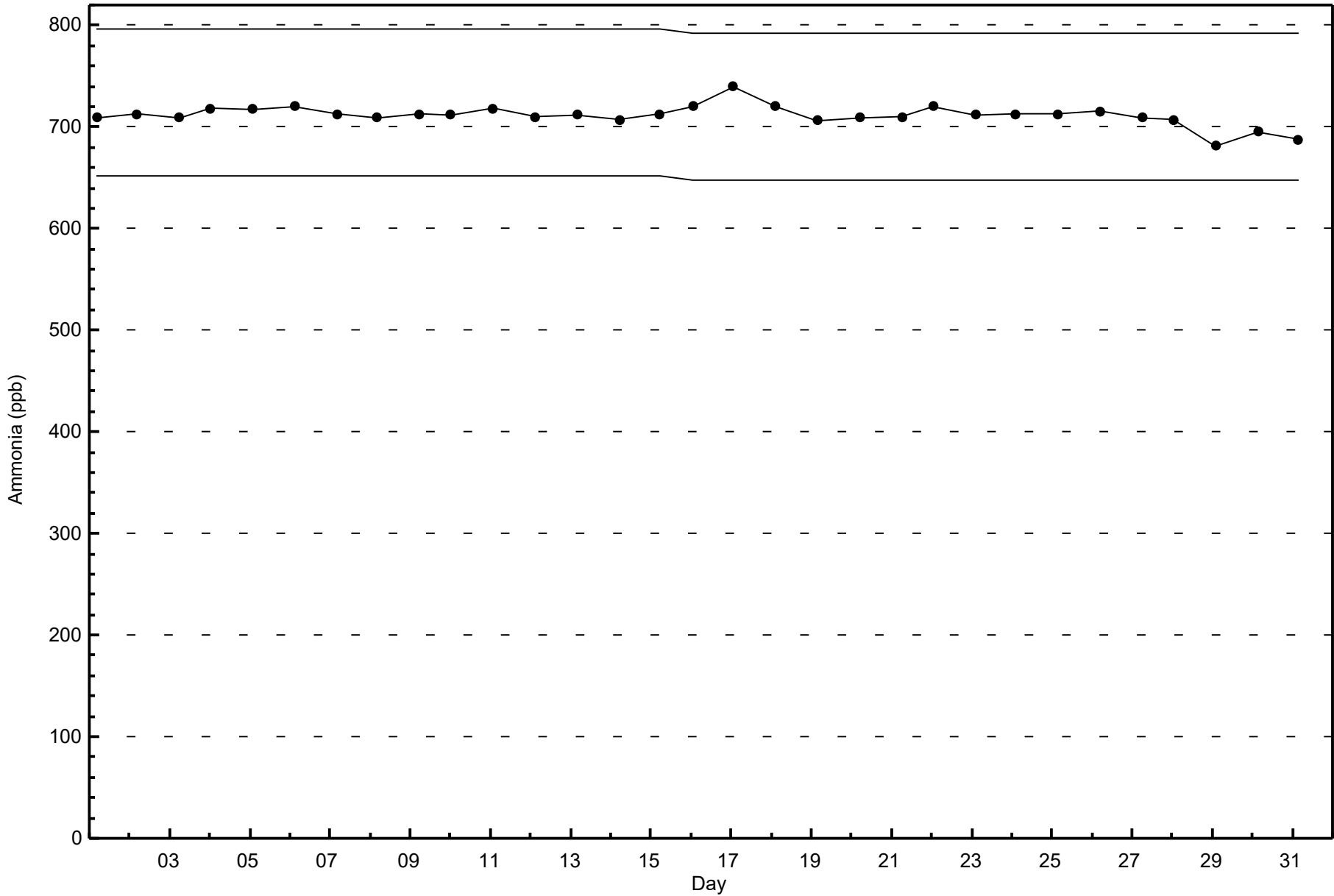


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Ammonia (NH<sub>3</sub>) - ppb  
Patricia McInnes









# Wood Buffalo Environmental Association

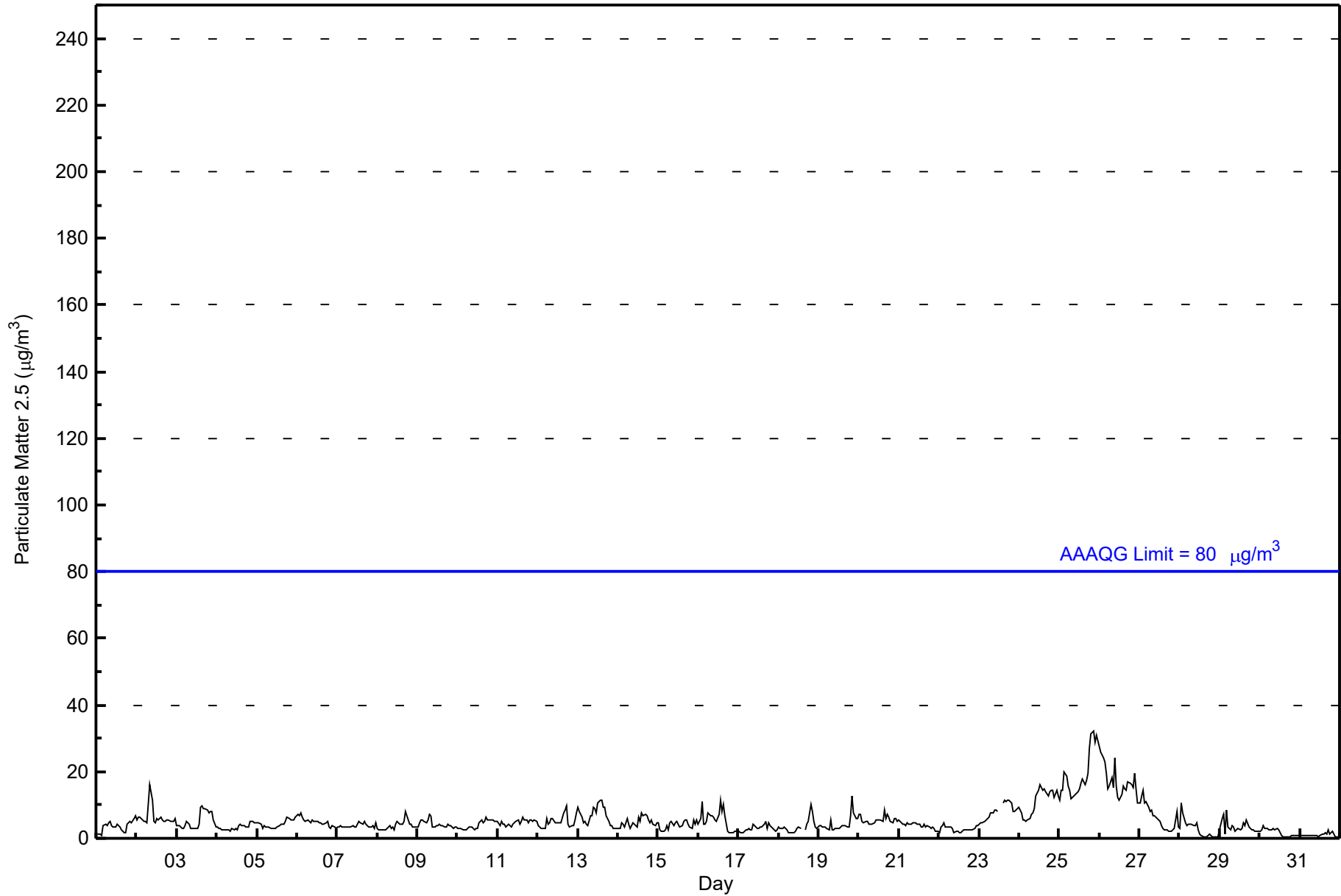
## Summary of Hour Averages

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

## Patricia McInnes - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 32.0 µg/m <sup>3</sup> on Jan 25 21:00		Maximum Daily Average: 19.0 µg/m <sup>3</sup> on Jan 25																	Hours of Data: 740																														
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 30 15:00		Minimum Daily Average: 0.9 µg/m <sup>3</sup> on Jan 31																	Hours of Missing Data: 4																														
Maximum Diurnal Average: 6.1 µg/m <sup>3</sup> at hour 16		Minimum Diurnal Average: 4.7 µg/m <sup>3</sup> at hour 7																	Hours of Calibration: 2																														
Monthly Average: 5.42 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 3.0 Median = 4.2 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 10.9 P <sub>99</sub> = 25.3																	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-Jan	1.3	1.4	1.1	0.9	4.0	4.2	3.6	4.9	5.2	3.6	3.4	3.2	4.2	4.0	3.5	2.4	1.8	1.9	4.2	4.8	4.9	4.6	6.0	6.9	3.6	6.9																							
2-Jan	5.4	6.2	6.2	5.7	5.3	5.1	4.6	10.0	16.2	11.3	4.9	4.8	6.0	5.6	6.4	5.4	5.1	4.9	5.4	5.6	4.9	5.1	4.9	6.0	6.3	16.2																							
3-Jan	3.9	3.7	3.2	3.0	3.1	4.0	4.9	4.3	3.0	2.8	3.0	2.9	3.1	4.4	9.4	9.8	9.0	8.8	8.3	7.7	8.1	7.9	5.4	3.5	5.3	9.8																							
4-Jan	3.4	3.1	2.9	2.7	2.6	2.5	2.6	2.6	2.2	3.0	2.6	2.9	2.6	3.9	4.0	3.9	3.8	3.4	3.4	5.2	5.0	4.5	4.5	4.5	3.4	5.2																							
5-Jan	4.8	4.7	4.2	3.1	3.6	3.5	3.2	3.2	3.1	3.0	3.0	3.1	3.5	3.6	4.4	4.4	4.4	5.3	6.2	5.9	5.6	5.6	5.7	6.3	4.3	6.3																							
6-Jan	7.1	6.9	7.7	6.2	5.5	5.2	5.4	5.2	4.9	5.4	5.2	5.1	5.2	4.5	4.5	4.2	4.0	4.7	5.1	3.2	2.8	3.8	3.4	3.2	4.9	7.7																							
7-Jan	3.3	3.4	3.7	3.5	3.2	3.4	3.6	3.4	3.5	3.9	3.6	3.3	4.4	5.0	4.8	4.1	5.2	4.3	3.7	3.3	3.3	3.7	3.2	4.8	3.8	5.2																							
8-Jan	3.1	2.5	2.6	2.4	2.4	2.5	2.9	3.9	3.1	3.3	2.6	4.4	5.0	4.4	4.1	4.1	4.9	8.2	5.3	4.4	4.2	3.5	3.4	3.5	3.8	8.2																							
9-Jan	3.4	4.7	5.5	5.5	5.1	4.8	5.6	7.4	6.7	3.5	3.3	4.0	3.9	4.3	3.6	3.9	3.4	3.6	4.4	4.0	3.7	3.0	3.3	3.3	4.3	7.4																							
10-Jan	2.8	3.0	3.0	2.6	2.6	2.4	2.9	3.2	3.4	3.0	2.7	2.8	3.1	4.8	5.4	4.9	5.1	6.3	5.3	5.7	5.3	5.3	5.1	5.0	4.0	6.3																							
11-Jan	5.0	3.8	5.1	4.3	4.1	3.6	4.1	3.9	3.4	4.2	4.6	5.2	5.5	4.4	5.2	6.4	5.5	5.7	4.9	5.5	5.4	5.1	5.3	4.9	4.8	6.4																							
12-Jan	4.0	3.3	2.8	3.0	3.0	5.8	4.1	4.6	6.0	5.9	4.8	4.5	4.8	4.8	4.6	7.5	8.7	9.8	4.2	3.5	3.9	3.7	5.6	7.5	5.0	9.8																							
13-Jan	9.3	7.9	6.3	4.6	5.0	4.4	3.9	6.9	6.9	9.3	8.9	7.5	10.6	11.3	11.4	9.3	9.4	6.7	4.9	3.9	3.7	3.0	2.8	2.9	6.7	11.4																							
14-Jan	2.8	2.8	4.8	4.3	3.6	6.1	4.1	2.9	3.9	4.7	4.2	3.4	6.4	5.2	7.7	6.8	7.2	6.6	5.4	4.6	5.3	4.2	4.0	4.8	4.8	7.7																							
15-Jan	4.8	2.4	2.2	2.1	2.7	3.8	2.7	4.7	5.0	3.8	4.7	5.2	4.2	3.5	3.8	5.0	5.6	5.5	4.2	3.2	3.0	5.7	4.4	5.4	4.1	5.7																							
16-Jan	4.1	5.7	11.0	4.3	4.0	5.0	7.5	6.7	6.9	6.2	5.4	5.2	7.2	11.3	7.9	10.2	6.7	2.1	1.5	1.5	1.5	1.8	2.0	2.1	5.3	11.3																							
17-Jan	2.2	1.9	1.6	1.9	2.7	2.5	2.9	2.5	2.7	4.2	3.3	3.1	3.0	3.2	3.5	4.4	5.0	3.0	4.8	3.9	3.4	2.7	2.3	2.5	3.0	5.0																							
18-Jan	3.2	3.1	3.0	3.3	2.8	2.4	1.9	1.7	1.6	1.7	2.0	2.8	3.3	3.0	C	C	2.8	4.1	5.0	10.0	8.2	5.0	3.5	3.1	3.5	10.0																							
19-Jan	3.9	3.8	3.5	3.3	3.3	2.8	2.6	5.6	2.7	2.5	2.8	2.8	3.1	3.3	3.7	3.8	3.8	3.5	3.5	6.7	12.7	7.8	6.0	6.1	4.3	12.7																							
20-Jan	7.1	7.0	5.1	4.6	5.2	4.9	4.1	4.1	4.3	4.7	5.6	5.7	5.6	5.5	5.1	8.4	6.0	7.0	6.5	5.2	4.9	6.0	5.8	5.1	5.6	8.4																							
21-Jan	5.3	4.7	4.2	4.1	3.7	4.6	4.4	4.4	4.7	4.6	4.7	4.3	4.2	3.5	3.4	4.2	3.6	3.7	3.2	3.1	3.6	3.0	2.2	2.0	3.9	5.3																							
22-Jan	1.8	3.2	3.9	4.5	3.5	3.2	3.4	3.6	2.9	1.8	1.9	2.0	1.8	1.9	2.1	2.4	2.4	2.6	2.4	2.4	2.6	3.2	3.6	3.8	2.8	4.5																							
23-Jan	4.3	4.7	4.9	4.9	5.4	5.9	6.5	7.5	7.4	8.5	8.7	8.2	M	M	10.5	11.3	11.1	11.4	11.3	10.4	8.2	7.9	8.5	8.8	8.0	11.4																							
24-Jan	9.5	7.5	5.7	5.3	5.1	5.4	5.9	7.2	7.8	9.1	12.6	14.3	16.1	15.4	14.6	14.8	13.9	12.5	14.2	14.5	14.4	12.3	14.4	12.5	11.0	16.1																							
25-Jan	11.5	14.5	14.6	19.7	18.7	15.7	14.4	12.0	12.3	13.0	13.7	14.1	14.8	16.4	17.8	16.3	17.3	19.6	27.2	31.4	32.0	29.0	31.0	29.4	19.0	32.0																							
26-Jan	27.5	26.0	24.0	22.9	19.5	14.8	15.9	18.2	15.2	24.2	15.9	12.4	11.4	13.0	15.8	14.7	14.5	16.9	16.4	16.0	15.1	19.5	14.9	10.7	17.3	27.5																							
27-Jan	10.6	12.8	14.3	10.8	10.9	9.4	7.9	8.4	6.7	6.8	6.5	5.7	5.1	4.0	3.2	2.7	2.4	2.0	2.0	2.1	2.5	2.9	7.9	3.5	6.3	14.3																							
28-Jan	2.9	10.8	7.7	4.8	3.8	4.4	4.4	4.2	3.7	3.8	4.8	2.7	1.2	0.9	0.6	0.5	0.6	0.9	1.2	0.6	0.6	0.5	0.5	0.5	2.8	10.8																							
29-Jan	2.4	6.0	7.3	1.4	8.3	3.3	2.8	3.7	3.4	1.9	2.5	3.0	2.6	2.9	4.9	3.9	5.4	3.2	3.2	2.4	2.7	2.0	2.0	2.2	3.5	8.3																							
30-Jan	2.3	2.5	4.0	3.1	3.1	2.5	2.7	2.6	3.0	2.7	2.8	2.4	1.8	0.7	0.3	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	0.7	1.8	4.0																							
31-Jan	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.8	1.1	1.2	1.7	1.1	2.6	1.2	2.1	1.1	0.6	0.5	0.5	0.9	2.6																							
																								5.3	5.6	5.7	5.0	5.0	4.8	4.7	5.3	5.2	5.4	5.0	4.9	5.2	5.3	5.9	6.1	5.8	5.8	5.8	5.9	5.9	5.6	5.6	5.4	Diurnal Average	
																								27.5	26.0	24.0	22.9	19.5	15.7	15.9	18.2	16.2	24.2	15.9	14.3	16.1	16.4	17.8	16.3	17.3	19.6	27.2	31.4	32.0	29.0	31.0	29.4	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>) -  $\mu\text{g}/\text{m}^3$**   
**Patricia McInnes - January 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	533	72.03	72.03
6 - 15	177	23.92	95.95
16 - 25	22	2.97	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Patricia McInnes - January 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	113	29	7	2	6	17	54	32	20	26	42	39	28	26	18	74	533
6 - 15	31	6	2	2	7	17	24	13	14	8	6	6	1	4	8	27	176
16 - 25	4	0	0	0	0	0	8	1	2	2	2	0	0	0	0	1	20
26 - 80	0	0	0	0	0	0	0	4	2	2	0	0	0	0	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>	148	35	9	4	13	34	86	50	38	38	50	45	29	30	26	102	737

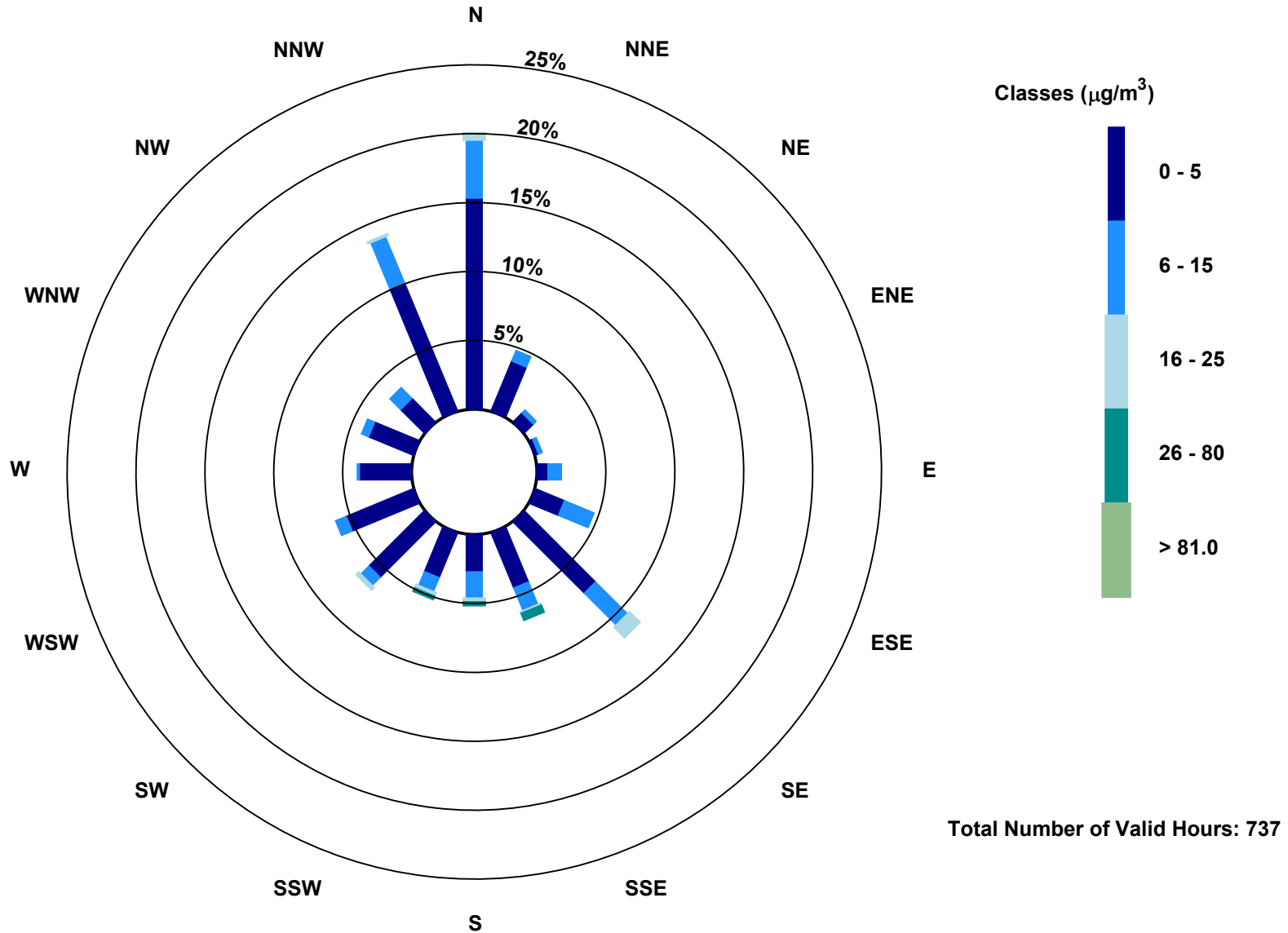
Total Number of Valid Hours: 737

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





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

**Ambient Temperature (AT) - C**  
**Patricia McInnes - January 2024**

<b>Maximum Value: 11.3 C on Jan 30 15:00</b> <b>Maximum Daily Average: 5.0 C on Jan 30</b>																								Hours in Service:	744	
<b>Minimum Value: -41.9 C on Jan 13 07:00</b> <b>Minimum Daily Average: -38.7 C on Jan 13</b>																								Hours of Data:	744	
<b>Maximum Diurnal Average: -14.5 C at hour 15</b> <b>Minimum Diurnal Average: -19.0 C at hour 9</b>																								Hours of Missing Data:	0	
<b>Monthly Average: -17.08 C</b> <b>Percentiles: P<sub>1</sub> = -40.6 P<sub>10</sub> = -34.2 Q<sub>1</sub> = -23.8 Median = -17.7 Q<sub>3</sub> = -9.6 P<sub>90</sub> = 1.4 P<sub>99</sub> = 8.5</b>																								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-Jan	2.9	1.3	0.2	0.3	-1.7	-3.5	-4.5	-4.8	-5.0	-5.1	-5.3	-5.2	-5.4	-5.5	-5.8	-6.1	-6.4	-6.7	-7.3	-7.9	-8.3	-8.7	-9.0	-9.6	-4.9	2.9
2-Jan	-10.0	-10.4	-11.0	-11.7	-12.4	-13.4	-13.7	-14.0	-14.2	-14.2	-14.2	-13.8	-13.6	-13.4	-13.1	-13.1	-13.2	-13.2	-12.9	-12.9	-13.0	-13.4	-16.1	-18.7	-13.3	-10.0
3-Jan	-19.6	-20.0	-18.9	-19.1	-20.1	-17.9	-16.2	-15.4	-15.4	-15.2	-14.9	-14.4	-13.6	-12.7	-12.4	-12.4	-12.6	-12.8	-13.0	-13.4	-13.4	-13.6	-13.9	-14.2	-15.2	-12.4
4-Jan	-14.5	-14.8	-15.1	-15.6	-16.3	-16.7	-17.0	-17.6	-18.3	-18.5	-18.9	-18.8	-18.5	-18.5	-18.5	-18.6	-18.5	-18.6	-18.4	-17.9	-17.8	-17.6	-17.4	-17.0	-17.5	-14.5
5-Jan	-16.4	-16.7	-16.8	-16.6	-16.7	-17.2	-17.1	-16.8	-16.6	-16.4	-16.2	-15.7	-14.9	-14.4	-14.2	-14.5	-14.7	-14.8	-14.8	-14.9	-15.0	-15.2	-15.4	-15.9	-15.7	-14.2
6-Jan	-16.2	-16.5	-16.3	-16.7	-16.6	-16.2	-16.1	-15.9	-15.8	-15.7	-15.6	-15.1	-15.1	-15.3	-15.7	-16.1	-16.9	-17.6	-18.4	-19.5	-20.3	-21.0	-21.5	-21.8	-17.2	-15.1
7-Jan	-22.0	-22.2	-22.1	-22.0	-22.4	-22.7	-22.8	-23.0	-22.8	-22.8	-22.5	-21.9	-21.2	-20.3	-20.3	-20.5	-20.7	-20.5	-20.3	-20.1	-19.7	-19.2	-19.1	-19.8	-21.3	-19.1
8-Jan	-19.9	-19.5	-19.6	-19.6	-19.3	-19.1	-18.9	-18.6	-18.8	-20.1	-19.9	-20.1	-19.5	-19.2	-19.0	-20.4	-22.1	-22.4	-21.5	-21.1	-21.3	-21.7	-22.0	-22.5	-20.3	-18.6
9-Jan	-23.2	-23.7	-24.2	-24.6	-24.8	-24.7	-25.4	-26.1	-27.0	-27.5	-27.4	-27.1	-26.8	-26.6	-26.3	-26.7	-27.2	-27.7	-27.6	-28.2	-28.4	-28.6	-29.2	-29.6	-26.6	-23.2
10-Jan	-29.5	-29.2	-29.1	-29.1	-29.5	-30.0	-30.3	-30.7	-30.2	-30.5	-30.1	-28.4	-28.0	-28.1	-28.5	-28.9	-29.1	-29.5	-30.2	-30.7	-31.2	-31.5	-32.2	-32.6	-29.9	-28.0
11-Jan	-33.5	-33.9	-33.9	-34.1	-34.1	-34.6	-35.1	-35.4	-36.2	-35.7	-35.3	-35.2	-34.5	-33.9	-33.4	-33.7	-33.8	-33.8	-33.9	-34.0	-35.0	-35.3	-35.1	-34.9	-34.5	-33.4
12-Jan	-34.9	-35.4	-35.8	-36.1	-37.6	-38.5	-39.3	-39.8	-40.0	-39.7	-38.8	-36.9	-35.0	-34.1	-33.1	-33.2	-34.7	-35.3	-39.2	-40.2	-40.6	-40.6	-40.7	-38.6	-37.4	-33.1
13-Jan	-39.8	-39.6	-41.0	-41.3	-40.5	-41.2	-41.9	-40.6	-41.1	-41.8	-40.5	-39.2	-37.1	-34.7	-33.2	-32.8	-34.0	-36.2	-37.7	-38.2	-38.5	-38.7	-38.9	-39.1	-38.7	-32.8
14-Jan	-39.1	-39.3	-39.2	-39.2	-39.3	-38.6	-39.2	-39.8	-39.4	-37.8	-36.7	-34.0	-30.8	-29.4	-29.7	-30.8	-31.7	-33.2	-35.2	-36.4	-36.5	-37.3	-37.6	-37.9	-36.2	-29.4
15-Jan	-37.4	-34.5	-33.9	-33.9	-34.2	-33.9	-34.1	-34.5	-33.4	-32.1	-30.2	-28.1	-26.9	-25.3	-25.2	-26.8	-27.1	-30.4	-33.0	-34.0	-33.9	-33.6	-32.8	-31.8	-25.2	-18.6
16-Jan	-31.7	-30.8	-29.5	-30.1	-31.0	-31.0	-31.0	-31.2	-31.0	-30.0	-28.7	-26.5	-23.8	-22.8	-22.1	-21.6	-21.5	-19.4	-19.1	-19.2	-19.3	-19.2	-18.9	-18.6	-25.3	-18.6
17-Jan	-18.6	-18.2	-18.0	-18.2	-19.6	-20.5	-21.1	-21.4	-21.1	-20.9	-20.8	-20.6	-20.3	-20.0	-20.0	-20.3	-21.0	-22.2	-22.7	-22.8	-22.1	-21.8	-21.7	-21.7	-20.7	-18.0
18-Jan	-22.0	-22.2	-22.0	-21.6	-21.5	-21.6	-22.1	-23.0	-23.5	-22.4	-20.4	-19.0	-17.9	-17.0	-16.3	-16.4	-18.0	-19.1	-19.3	-18.6	-18.4	-18.4	-18.6	-19.3	-19.9	-16.3
19-Jan	-21.5	-22.6	-23.3	-23.8	-24.0	-24.4	-24.8	-25.3	-25.7	-25.7	-24.5	-22.0	-19.9	-18.9	-18.6	-18.4	-17.9	-17.6	-17.5	-16.9	-16.5	-16.2	-15.9	-15.8	-20.7	-15.8
20-Jan	-15.7	-16.0	-16.2	-16.6	-17.3	-16.3	-16.3	-16.3	-16.3	-16.4	-15.9	-15.5	-14.9	-13.6	-14.6	-15.0	-15.7	-16.0	-16.7	-17.2	-17.8	-18.2	-18.8	-19.6	-16.4	-13.6
21-Jan	-20.5	-21.2	-21.6	-21.6	-21.5	-21.2	-21.0	-20.9	-20.9	-20.7	-20.4	-20.1	-19.7	-19.3	-19.1	-19.1	-19.2	-19.3	-19.3	-19.3	-19.3	-19.8	-20.2	-20.4	-20.2	-19.1
22-Jan	-20.6	-21.0	-22.4	-23.5	-23.2	-23.0	-22.7	-21.9	-21.3	-21.0	-20.9	-20.5	-20.0	-19.3	-18.6	-17.9	-17.4	-16.9	-16.3	-15.9	-15.5	-15.0	-14.6	-14.5	-19.3	-14.5
23-Jan	-14.2	-14.0	-14.2	-13.9	-13.8	-13.9	-13.9	-13.9	-13.9	-13.7	-12.5	-11.8	-10.3	-9.6	-9.6	-10.0	-10.2	-10.6	-10.9	-11.2	-11.9	-12.9	-13.4	-14.1	-12.4	-9.6
24-Jan	-14.7	-15.2	-15.5	-15.6	-15.6	-15.0	-14.9	-14.5	-13.5	-12.1	-10.5	-9.6	-8.1	-7.0	-6.4	-6.1	-6.1	-5.9	-6.3	-7.1	-11.6	-13.3	-11.9	-11.6	-11.2	-5.9
25-Jan	-14.1	-10.1	-10.1	-9.6	-9.2	-9.1	-9.8	-10.6	-11.1	-11.3	-11.2	-10.8	-10.0	-9.6	-9.6	-9.5	-9.2	-9.0	-8.7	-8.4	-8.0	-7.6	-7.2	-8.3	-9.7	-7.2
26-Jan	-10.9	-8.4	-7.4	-7.5	-7.1	-6.4	-6.1	-6.0	-6.1	-6.1	-6.1	-6.1	-5.8	-5.6	-5.0	-5.0	-4.9	-4.8	-4.7	-4.7	-4.7	-5.0	-5.3	-6.0	-6.1	-4.7
27-Jan	-6.7	-7.8	-8.9	-9.0	-8.8	-7.9	-6.9	-6.2	-6.1	-6.0	-5.1	-2.1	0.8	4.4	5.8	5.5	4.8	4.6	3.6	3.0	2.1	1.4	0.2	0.1	-1.9	5.8
28-Jan	-0.3	-1.2	-1.2	-1.1	-0.6	0.2	-0.1	-0.8	-0.7	0.4	1.4	5.4	7.7	9.0	8.6	8.8	8.3	7.4	6.4	5.5	5.4	5.0	4.1	2.1	3.3	9.0
29-Jan	1.4	-0.1	-1.3	-1.2	-1.6	-1.6	-2.8	-3.3	-2.4	-0.7	-0.4	1.0	2.3	3.8	5.3	5.4	5.4	6.2	6.4	6.1	5.8	5.5	4.9	4.2	2.0	6.4
30-Jan	4.2	3.5	1.8	1.8	1.0	0.1	-0.1	-0.4	-0.5	-0.4	1.5	6.0	7.4	9.9	11.3	11.0	10.1	9.1	8.2	8.0	7.6	7.0	5.9	5.7	5.0	11.3
31-Jan	4.7	4.6	4.0	3.2	3.1	2.4	1.6	1.1	0.3	0.9	2.5	4.6	6.1	7.1	8.2	7.3	6.7	6.1	5.9	5.0	5.1	5.7	4.8	4.6	4.4	8.2
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Patricia McInnes - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	288	38.71	38.71
-20 - 0	366	49.19	87.90
0 - 10	87	11.69	99.60
10 - 20	3	0.40	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

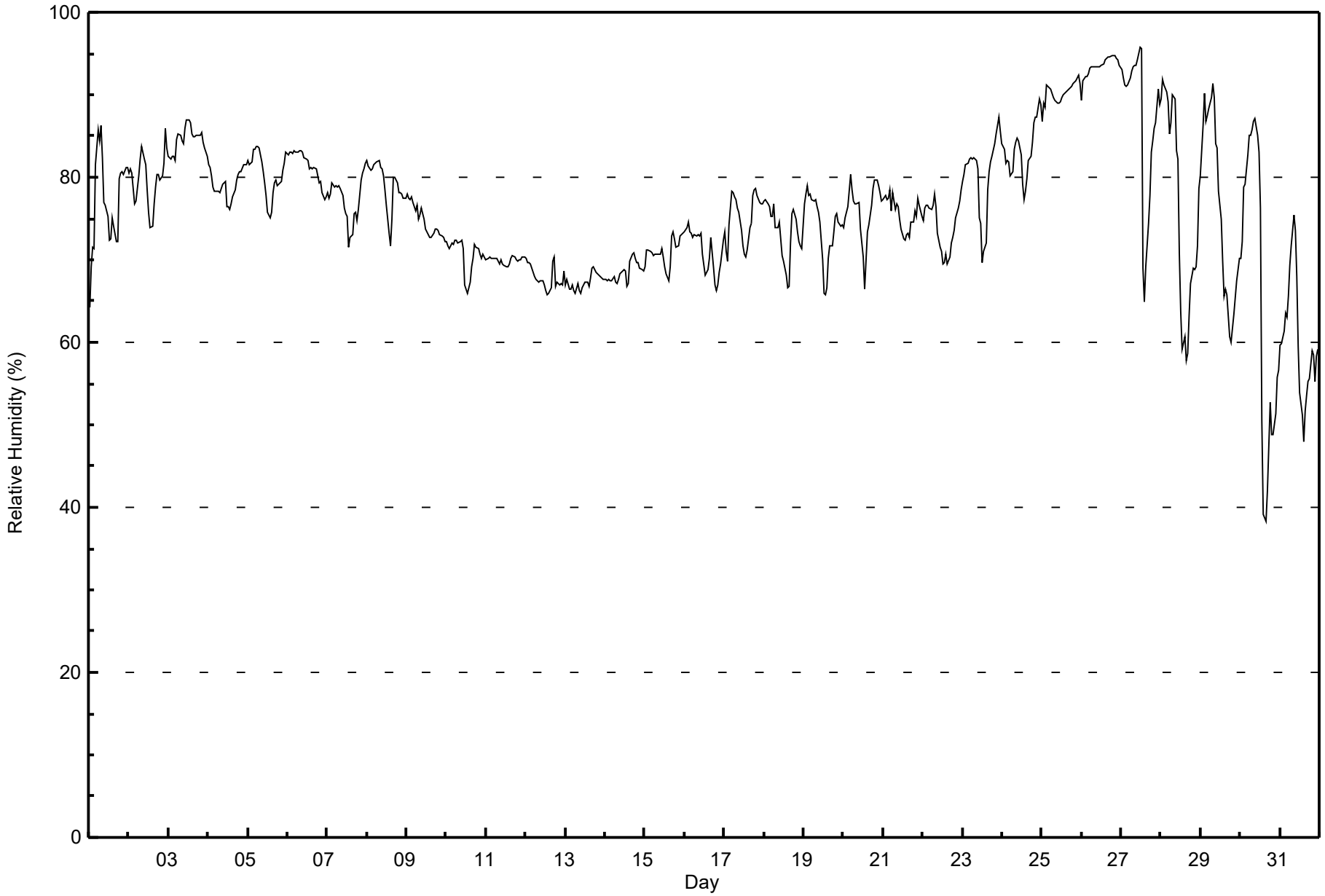
**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Patricia McInnes - January 2024**

Maximum Value: 95.8 % on Jan 27 12:00      Maximum Daily Average: 93.4 % on Jan 26																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 38.3 % on Jan 30 16:00      Minimum Daily Average: 60.4 % on Jan 31 Maximum Diurnal Average: 79.4 % at hour 8      Minimum Diurnal Average: 70.7 % at hour 15 Monthly Average: 76.14 %      Percentiles: P <sub>1</sub> = 50.8 P <sub>10</sub> = 67.0 Q <sub>1</sub> = 70.3 Median = 76.3 Q <sub>3</sub> = 81.7 P <sub>90</sub> = 88.4 P <sub>99</sub> = 94.4																						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-Jan	64.2	69.1	71.6	71.4	81.5	85.8	84.5	86.3	82.5	76.9	76.6	75.3	72.4	72.5	75.1	74.0	72.3	72.2	79.8	80.6	80.6	80.4	81.3	81.1	77.0	86.3
2-Jan	80.6	81.0	80.5	76.8	77.1	78.7	80.1	82.2	83.7	82.2	81.5	78.4	75.7	74.0	74.1	76.7	78.9	80.4	80.3	79.6	80.2	81.7	85.9	83.6	79.7	85.9
3-Jan	82.6	82.2	82.6	82.5	82.0	84.5	85.2	85.0	84.4	84.1	85.9	87.0	87.0	86.7	85.3	84.9	85.0	85.2	85.1	85.1	85.4	84.3	83.6	82.5	84.5	87.0
4-Jan	81.5	81.1	80.2	78.9	78.4	78.3	78.3	78.1	78.6	79.2	79.6	76.5	76.4	76.1	76.8	77.6	78.5	79.6	80.3	80.6	80.8	81.5	81.5	81.5	79.2	81.5
5-Jan	82.1	81.5	81.8	83.3	83.3	83.7	83.7	83.6	81.9	80.6	79.3	77.8	75.8	75.1	75.7	78.1	79.3	79.6	79.0	79.3	79.5	80.9	81.7	83.1	80.4	83.7
6-Jan	82.8	83.0	83.0	82.8	83.2	83.1	83.1	83.2	83.2	83.1	82.3	82.2	82.1	81.1	81.2	81.1	80.1	79.3	79.6	78.1	77.3	77.6			81.4	83.2
7-Jan	78.1	77.4	77.9	79.3	78.8	78.9	78.8	79.0	78.6	77.7	76.3	75.6	75.2	71.6	72.7	73.1	75.6	75.8	74.8	76.1	79.7	80.6	81.0	81.6	77.3	81.6
8-Jan	82.1	81.4	80.8	81.1	81.5	81.7	81.9	82.0	81.3	80.9	80.2	78.5	76.6	73.3	71.8	74.8	80.0	80.0	79.3	78.1	78.2	77.9	77.4	77.5	79.1	82.1
9-Jan	77.9	77.5	77.4	77.7	76.9	76.0	76.6	74.9	75.4	76.3	75.0	73.7	73.4	73.1	72.6	72.7	73.2	73.7	73.7	73.6	73.0	72.9	72.7	72.2	74.7	77.9
10-Jan	72.2	71.7	71.3	72.0	71.8	72.4	72.3	72.1	72.2	72.3	71.3	67.0	66.5	65.9	67.3	69.2	70.2	71.8	71.5	71.3	70.6	70.2	70.7	70.3	70.6	72.4
11-Jan	70.0	70.2	70.3	70.2	70.2	70.1	70.1	69.9	69.5	70.0	69.5	69.3	69.1	69.2	69.4	70.2	70.4	70.3	70.0	69.8	69.9	70.0	70.4	70.3	69.9	70.4
12-Jan	70.2	69.7	69.6	69.4	68.4	68.0	67.7	67.5	67.3	67.4	67.4	66.9	66.3	65.7	65.9	66.6	69.9	70.3	66.7	67.2	67.0	67.0	67.0	68.7	67.8	70.3
13-Jan	67.0	67.5	66.4	66.4	67.0	66.2	66.0	67.1	66.2	65.9	66.5	66.9	67.4	67.3	66.8	67.8	69.1	69.1	68.4	68.4	68.1	68.0	67.8	67.7	67.3	69.1
14-Jan	67.7	67.5	67.6	67.4	67.4	68.0	67.3	67.1	67.5	68.4	68.5	68.9	68.6	66.8	67.1	69.8	70.6	70.9	70.2	69.6	69.6	69.0	68.9	68.6	68.5	70.9
15-Jan	69.1	71.3	71.1	71.0	70.8	70.5	70.8	70.6	70.6	70.7	71.3	70.3	69.2	68.2	67.5	69.1	72.9	73.4	72.5	71.5	71.6	72.9	73.0	73.2	71.0	73.4
16-Jan	73.4	73.9	74.6	73.4	73.3	72.7	73.0	72.8	73.0	72.8	73.2	70.7	68.1	68.4	68.9	70.2	72.6	69.0	67.0	66.3	66.9	68.5	69.5	72.4	71.0	74.6
17-Jan	73.4	71.0	69.9	74.2	78.4	78.2	77.6	77.3	76.3	75.7	73.6	71.7	70.7	70.3	71.3	73.9	74.4	77.8	78.5	78.7	77.8	77.0	76.8	76.7	75.0	78.7
18-Jan	77.2	77.2	76.7	76.4	75.3	75.3	76.8	74.0	73.9	74.6	72.5	70.5	69.8	68.1	66.6	66.8	72.1	75.5	76.2	74.9	73.3	72.2	71.7	71.3	73.3	77.2
19-Jan	76.7	78.0	79.0	77.8	78.0	77.3	77.1	77.2	76.5	75.8	74.6	70.1	65.9	65.8	66.7	70.1	71.7	71.7	73.4	75.3	75.6	74.6	74.1	74.2	74.1	79.0
20-Jan	74.0	75.1	75.8	76.5	80.3	78.5	77.1	76.8	76.8	76.9	73.7	72.0	70.4	66.5	73.4	74.3	75.5	76.6	78.6	79.7	79.6	78.9	78.2	77.1	75.9	80.3
21-Jan	77.3	77.8	77.2	77.5	78.4	76.0	78.1	76.1	76.7	76.4	74.9	73.8	72.5	72.4	73.0	73.3	72.7	74.5	74.6	76.0	75.3	77.4	76.6	75.2	75.6	78.4
22-Jan	74.7	76.3	76.6	76.6	76.3	76.1	76.6	78.0	76.5	73.2	71.6	71.0	69.5	69.6	70.7	69.4	70.4	72.0	72.8	73.6	75.1	76.3	77.1	78.4	74.1	78.4
23-Jan	79.4	80.3	81.6	81.6	82.2	82.4	82.2	82.4	82.0	81.0	75.1	74.5	69.7	70.9	72.0	78.4	80.7	81.9	82.6	84.1	85.2	86.3	87.2	85.6	80.4	87.2
24-Jan	84.0	83.4	81.6	82.0	81.9	80.2	80.6	83.3	84.3	84.7	84.3	82.7	79.1	77.2	78.4	79.8	82.0	82.6	84.2	86.6	87.2	87.3	89.5	88.8	83.2	89.5
25-Jan	86.7	89.0	88.4	91.1	90.8	90.7	90.1	89.6	89.3	88.9	89.0	89.2	89.7	90.0	90.2	90.5	90.6	90.9	91.1	91.4	91.7	92.1	92.3	91.4	90.2	92.3
26-Jan	89.3	91.7	92.2	92.1	92.5	93.2	93.4	93.4	93.4	93.4	93.3	93.4	93.6	93.7	94.2	94.4	94.5	94.7	94.7	94.8	94.7	94.5	94.2	93.6	93.4	94.8
27-Jan	93.0	92.0	91.1	91.1	91.2	92.0	92.8	93.4	93.5	93.5	94.2	95.8	95.6	69.0	65.0	69.1	74.5	77.9	83.0	84.4	86.0	86.7	90.7	88.8	86.8	95.8
28-Jan	89.6	91.9	91.2	90.4	89.1	85.3	86.6	89.9	89.5	83.2	82.3	70.9	63.7	59.2	60.7	57.8	58.6	63.1	67.1	69.0	68.8	69.2	71.7	78.6	76.1	91.9
29-Jan	80.2	86.4	90.2	86.8	87.5	88.2	89.6	91.3	89.6	84.1	83.5	78.3	74.9	69.9	65.7	66.5	65.8	60.8	60.0	61.6	63.4	65.5	67.5	70.1	76.1	91.3
30-Jan	70.1	72.2	78.8	79.2	82.7	85.1	85.2	85.7	86.8	87.2	85.0	83.1	76.3	50.5	39.2	38.3	42.0	47.4	52.7	48.8	48.8	51.3	55.8	56.6	66.2	87.2
31-Jan	59.7	59.9	61.4	63.6	63.1	65.7	69.3	71.6	75.4	73.5	67.9	59.6	54.0	51.2	48.0	51.7	53.6	55.3	55.6	59.0	58.4	55.2	58.4	59.2	60.4	75.4
																								Diurnal Average		
																								Diurnal Maximum		







Maximum Speed: 32 km/h on Jan 30 16:00	Maximum Daily Speed Average: 13.3 km/h on Jan 6	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 3 06:00	Minimum Daily Speed Average: 0.8 km/h on Jan 14	Hours of Data: 741
Maximum Diurnal Speed Average: 3.3 km/h at hour 3	Minimum Diurnal Speed Average: 0.4 km/h at hour 13	Hours of Missing Data: 3
Monthly Average Velocity: 2.1 km/h 327.7 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 8 Q <sub>3</sub> = 12 P <sub>90</sub> = 15 P <sub>99</sub> = 22	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-Jan	WSW11	WSW10	NNW14	NNW13	N16	N17	N14	N13	N11	N10	NNE6	NNE5	NNE9	N9	NNW11	NW11	NNW11	NNW10	NNE9	N9	N8	N9	N9	N9	NNW8.7	N17
2-Jan	N10	N10	N11	N11	N13	NNE13	NNE10	N10	N10	N8	NE8	ENE5	E5	ESE5	ESE3	SE3	S5	S5	ESE4	ESE5	ESE4	SE3	W1	WSW3	NNE4.1	N13
3-Jan	WNW3	WNW2	N1	NNE1	NNW2	E0	SW4	ESE3	S4	SSE4	SE6	SE5	ENE4	N7	N13	N11	NNW7	N10	N11	NNW11	NNW9	NNW14	NNW15	NNW16	N4.5	NNW16
4-Jan	NNW18	NNW16	NNW22	NNW22	NNW19	NNW18	N16	N17	N16	N13	N12	N11	N13	N10	N9	N11	NNE12	NNE9	NNE8	N9	N8	N8	NNW7	N5	N12.7	NNW22
5-Jan	N6	N8	NNW7	NNW7	NNW9	NNW10	NNW8	NW5	WNW6	W5	WSW6	W6	WNW5	NE4	E3	E5	E4	ESE5	ESE5	ESE5	ESE6	E6	NE5	NNE8	N2.8	NNW10
6-Jan	N8	N8	N8	NNW9	N9	N10	N10	N11	N11	N12	N12	N12	N14	N14	NNW14	N17	N16	N17	N18	NNW19	NNW20	NNW18	NNW16	N19	N13.3	NNW20
7-Jan	NNW19	NNW15	NNW14	N14	N13	NNW11	NNW11	NNW9	NNW6	NW6	NNW5	WNW1	SE4	E5	SE8	SE7	SE6	SE6	SSE8	SSE10	SSE9	SSE8	SE8	SE7	NNE2.4	NNW19
8-Jan	SE7	SE9	SE8	SE9	SE8	SE8	SE5	ESE5	NNW3	NW4	NW7	NNW14	NNW13	NNW10	NNW9	NNW9	NW7	NW7	NNW6	NNE8	NNE9	NNE9	N6	N7	NNE3.2	NNW14
9-Jan	N7	N6	NNE8	N6	N6	NNE6	NNE8	N9	N11	NNE11	NNE11	N12	NNE14	N13	N14	NNW12	NNW14	N14	N13	N15	N14	N15	N14	N14	N10.9	N15
10-Jan	N16	N13	N13	N12	N15	N13	NNW9	NNW8	NNW8	NW5	WNW3	NNW4	NNW5	N10	NNW8	NNE8	NNE7	N10	NNW10	N9	N8	N6	NNW7	NNW9	N8.7	N16
11-Jan	NNW9	NNW8	N10	NNW9	N11	N11	N9	NW6	WNW5	N8	N9	N8	NW4	WSW2	SE2	E2	NW2	N4	NNW4	N3	NW4	NW3	WNW3	WSW4	NNW4.9	N11
12-Jan	SW5	WSW5	WSW5	WSW5	SW6	SW4	SW5	SW7	SW5	SW8	SW8	SSW6	SSE5	S5	SSE4	ESE5	ESE4	SE3	SSE1	WSW0	SSE2	W1	SE1	SE4	SSW3.3	SW8
13-Jan	SSE2	SE3	WSW1	S1	SE4	SE2	W3	ESE4	S3	SW3	SSW3	S3	SE3	ESE2	ENE0	WNW0	E1	WNW1	W3	W2	W0	WSW2	SW0	W2	S1.0	SE4
14-Jan	SW2	SSW2	SE1	WNW1	WNW2	NE1	WNW2	W2	SW3	SW3	SSW3	WSW1	ENE0	N3	E4	E3	NNW1	NNW1	NNW3	NW3	WNW3	WSW2	SW2	SSW3	W0.8	E4
15-Jan	SSW4	SW6	SSW5	S6	SSW7	SSW6	SSW6	S7	SSW7	SSE7	SSE7	SSE7	SE7	SSE5	SE6	SSE4	SE5	SE6	S4	SW2	S2	SSE4	S4	SSW4	S4.9	SSE7
16-Jan	SSW3	SSW3	SSE1	NE1	N3	N7	NNW11	NNW11	NW8	NW7	NNW9	NNW8	WNW3	ESE3	NNE2	NNE3	NNW3	NW13	WNW14	WNW14	WNW16	WNW17	WNW17	WNW17	NW6.6	WNW17
17-Jan	WNW16	WNW17	NW17	NNW11	NE12	NNE9	N8	NNW7	NNW9	N9	N11	NNE12	N11	N11	N12	N10	N9	NNW10	N10	NNW9	NNW12	NNW13	NNW11	NNW12	NNW10.0	NW17
18-Jan	NNW11	NNW10	NW9	W7	W5	NNW5	NW4	WNW8	WSW9	WSW7	W9	WNW11	NW10	NW12	WNW14	W12	W11	W11	W13	W11	WNW12	WNW10	NW9	WNW7	WNW8.6	WNW14
19-Jan	SW7	SW9	SW6	SW10	SW11	SW10	SW9	SSW8	SSW10	SSW8	SSW8	S7	SSE7	SSE7	SE6	SE5	SE6	SE9	SE12	SE8	SE6	SE10	SE11	ESE11	S6.3	SE12
20-Jan	SE10	SE7	SSE8	SSE6	S3	SSE5	S5	SSW5	SSW7	SW6	WSW9	WSW8	WSW6	NNW4	N9	N9	NNW10	N9	N11	N12	N12	NNW13	NNW13	NNW14	NNW2.4	NNW14
21-Jan	N14	N14	N12	N12	N11	N8	N7	NNW9	N12	N11	N11	N12	N12	N14	N14	N13	N13	N13	NNE11	NNE8	NNE11	NNE11	NE11	NE9	N10.9	N14
22-Jan	NE7	NNE11	N11	N9	N8	N8	NNE5	E7	ESE11	ESE15	ESE18	ESE17	ESE17	ESE18	ESE15	ESE16	ESE17	ESE16	SE19	SE18	SE15	SE14	SE12	SE12	ESE10.0	SE19
23-Jan	SE12	SE10	SE8	SE9	SE10	SE8	SE7	SE6	SE4	SE6	SSE5	S5	S6	SSE5	E6	NNE6	NNE7	N10	NNW10	NNW12	N14	N14	N13	NNW12	ENE2.7	N14
24-Jan	N13	N13	NNW10	N10	NNW8	N4	NW2	E5	ESE7	SE12	ESE13	ESE13	SE12	ESE12	SE10	SE11	SE10	SE10	SE8	SSE7	WSW2	NNW1	N7	NW5	E3.8	ESE13
25-Jan	NNW5	NNW10	NNW11	NNW11	N11	N13	NNW13	NNW13	NNW11	NNW9	NNW7	NNW6	UO	UO	UO	S4	SE5	SSE6	SSE4	SSE3	SSE4	S3	SSE4	S3	NNW4.0	NNW13
26-Jan	SSW1	SSW4	SSW5	SSW3	SW4	SW4	SW3	N3	NW1	SE3	S5	S6	SSE6	SSE5	SE6	SE6	SE6	SE6	SE6	SE5	SSE4	SE3	SSE4	S4	SSE3.4	S6
27-Jan	SSW2	SSW2	SSW2	SSW2	S2	S3	S4	SSE3	S3	S3	SSW4	S5	SSW12	SW15	SW13	WSW13	WSW13	WSW15	WSW13	WSW12	WSW12	SW10	SW7	SW9	SW7.0	WSW15
28-Jan	SW10	S7	S7	SSE7	SE7	SSE9	S9	SSW8	SSW9	S7	SSW7	SW12	WSW16	W22	W24	W22	W24	W20	W18	W21	W20	W17	WSW14	WSW14	WSW10.8	W24
29-Jan	SSW8	SSE6	SSE7	SSW8	S7	SSE8	SSE6	SSE6	SSE8	SE9	SSE7	SSE9	SSE8	S8	SSE6	SE7	S8	SSW13	SW12	SW14	SW15	SW16	SW16	SW13	S8.0	SW16
30-Jan	SW11	SW10	S10	S10	SE9	SSE5	SE8	SSE7	S4	SSW7	SW14	WSW16	WSW13	WSW24	WSW31	W32	W30	WSW24	WSW18	WSW18	WSW15	W14	WSW16	WSW19	WSW13.0	W32
31-Jan	WSW17	WSW19	WSW16	WSW18	WSW17	WSW15	SW14	SW13	SW14	SW11	SW13	SW10	S8	SE7	SE7	ESE7	ESE13	SE16	SE16	SE10	SE16	SE20	SE20	SE19	S8.0	SE20

NW3.1	NW3.2	NNW3.3	NW3.2	NNW3.2	N2.9	NNW2.4	NNW2.2	NW1.8	NW0.8	NNW0.8	NNW1.0	N0.4	NNW1.3	NNW1.9	NNW2.0	NW1.8	NW1.8	NW1.8	NW2.2	NW2.6	NNW2.6	NNW2.6	NW2.7	Diurnal Average		
NNW19	WSW19	NNW22	NNW22	NNW19	NNW18	N16	N17	N16	ESE15	ESE18	ESE17	ESE17	WSW24	WSW31	W32	W30	WSW24	SE19	W21	W20	SE20	SE20	SE19	Diurnal Maximum		

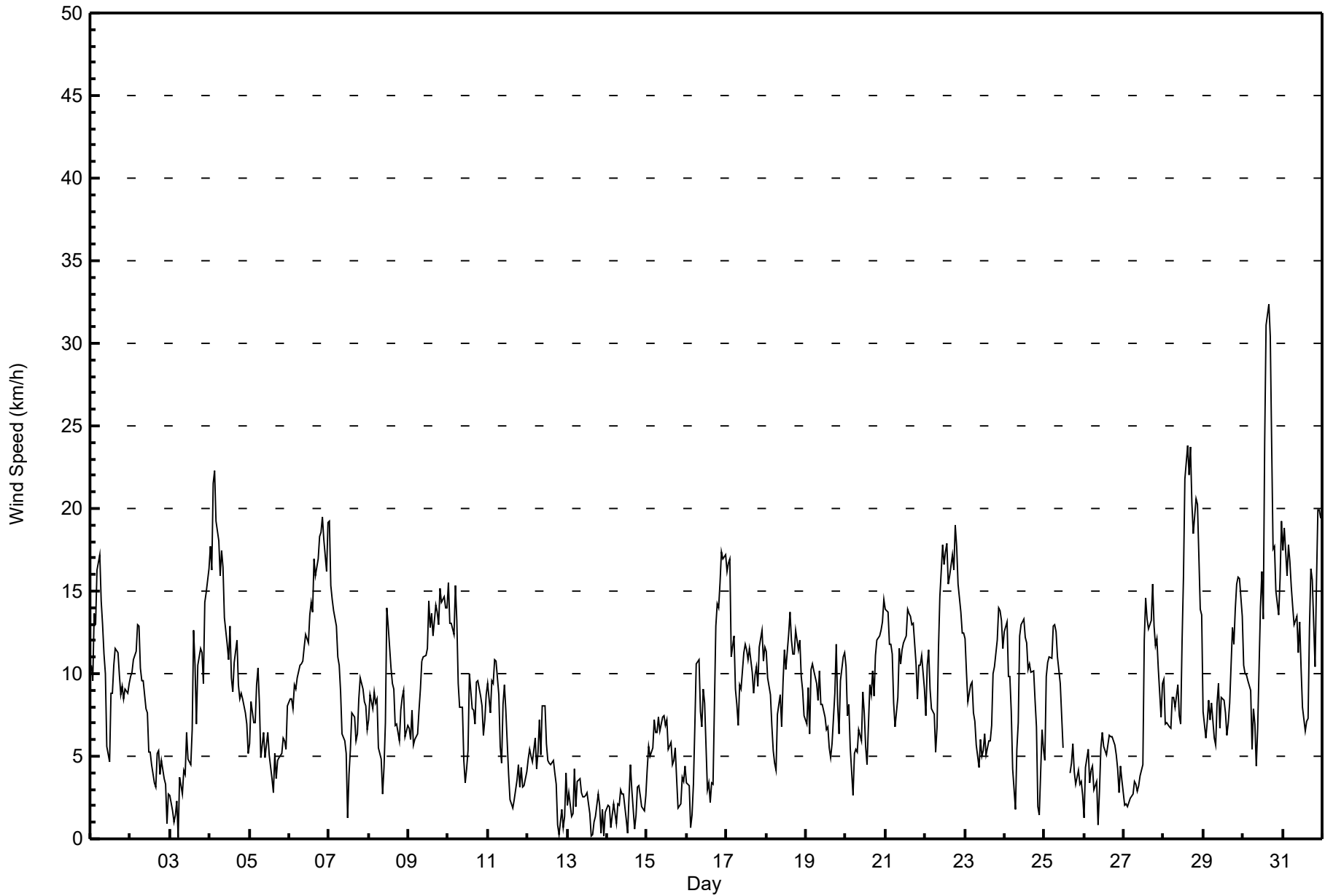
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed (WS) - km/h**  
**Patricia McInnes - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 16:00 Minimum Value: 0 km/h on Jan 27 02:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 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-Jan	2	1	3	4	3	3	3	4	3	2	1	2	2	2	2	2	2	2	2	2	1	1	2	2	4	
2-Jan	2	2	2	2	2	2	2	2	2	1	2	2	2	1	1	1	2	2	1	1	1	1	1	1	2	
3-Jan	1	1	1	1	1	2	2	2	1	1	2	2	3	2	2	2	3	2	3	2	2	2	3	3	3	
4-Jan	4	3	4	4	4	3	4	3	4	3	3	2	3	2	1	2	2	2	2	2	2	1	1	2	4	
5-Jan	1	1	1	1	2	2	2	1	2	1	1	1	2	1	2	1	1	1	1	1	1	2	1	1	2	
6-Jan	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	
7-Jan	3	3	2	2	2	2	2	2	1	1	1	1	1	2	1	1	1	2	2	2	2	2	2	1	3	
8-Jan	2	2	2	2	2	2	1	1	2	1	3	3	2	2	2	2	1	1	1	2	2	1	1	1	3	
9-Jan	1	1	2	1	1	2	2	2	2	2	2	3	3	3	2	2	3	2	3	3	3	3	3	3	3	
10-Jan	3	3	3	3	3	2	2	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	1	1	3	
11-Jan	2	1	2	2	2	2	2	1	0	3	2	2	2	2	2	2	1	1	1	1	1	0	1	1	3	
12-Jan	1	1	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
13-Jan	1	2	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	2	
14-Jan	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15-Jan	1	2	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	
16-Jan	1	1	1	2	1	2	2	2	2	1	2	2	2	1	1	1	1	3	3	2	3	3	3	3	3	
17-Jan	3	3	3	3	2	3	1	1	1	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	3	
18-Jan	2	2	1	1	2	1	2	2	2	2	2	3	2	3	3	2	2	1	1	2	2	2	2	1	3	
19-Jan	2	2	2	3	2	2	2	2	2	1	2	1	2	1	1	1	2	3	3	2	2	2	2	2	3	
20-Jan	2	2	2	3	1	1	1	1	1	1	1	1	2	3	2	2	2	2	2	2	2	2	2	2	3	
21-Jan	2	3	2	2	3	2	2	2	2	2	3	2	3	3	3	3	3	2	2	1	3	2	2	2	3	
22-Jan	1	2	2	2	2	1	1	2	3	3	4	4	4	4	3	4	4	3	5	5	4	3	3	2	5	
23-Jan	3	2	2	2	2	2	1	1	1	1	1	1	1	2	2	1	2	2	2	2	3	3	3	2	3	
24-Jan	2	2	2	2	2	1	1	2	3	3	3	3	2	3	2	2	2	2	2	1	1	1	3	1	3	
25-Jan	1	2	2	2	2	2	2	2	2	2	1	1	UO	UO	UO	1	1	1	1	1	1	1	1	2	2	
26-Jan	2	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2	1	1	1	1	1	1	1	1	2	
27-Jan	1	0	1	0	1	1	1	1	1	1	0	1	4	3	3	2	2	2	2	2	2	2	1	1	4	
28-Jan	2	1	2	1	3	3	2	1	1	2	1	3	4	7	6	4	4	3	3	4	4	3	2	2	7	
29-Jan	2	1	1	2	1	1	1	1	1	2	1	2	2	1	2	1	2	2	2	3	3	3	3	4	4	
30-Jan	3	3	3	2	2	1	2	2	1	3	5	3	3	5	7	8	6	5	4	3	3	2	2	3	8	
31-Jan	3	4	2	3	3	2	2	2	2	2	3	2	2	1	2	2	2	3	3	2	3	4	4	4	4	
																	Diurnal Maximum									
UO - Unstable Operation																										





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

**Wind Speed (WS) - km/h**  
**Patricia McInnes - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	211	28.48	28.48
6 - 11	334	45.07	73.55
12 - 19	179	24.16	97.71
20 - 28	14	1.89	99.60
29 - 38	3	0.40	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Patricia McInnes - January 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	5	4	4	10	16	21	22	25	19	15	12	10	14	12	14	211
6 - 11	81	25	4	0	3	5	49	29	14	17	21	8	6	5	11	56	334
12 - 19	59	5	1	0	0	13	14	0	0	2	14	22	5	12	3	29	179
20 - 28	0	0	0	0	0	0	2	0	0	0	0	2	7	0	0	3	14
29 - 38	0	0	0	0	0	0	0	0	0	0	0	1	2	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>148</b>	<b>35</b>	<b>9</b>	<b>4</b>	<b>13</b>	<b>34</b>	<b>86</b>	<b>51</b>	<b>39</b>	<b>38</b>	<b>50</b>	<b>45</b>	<b>30</b>	<b>31</b>	<b>26</b>	<b>102</b>	<b>741</b>

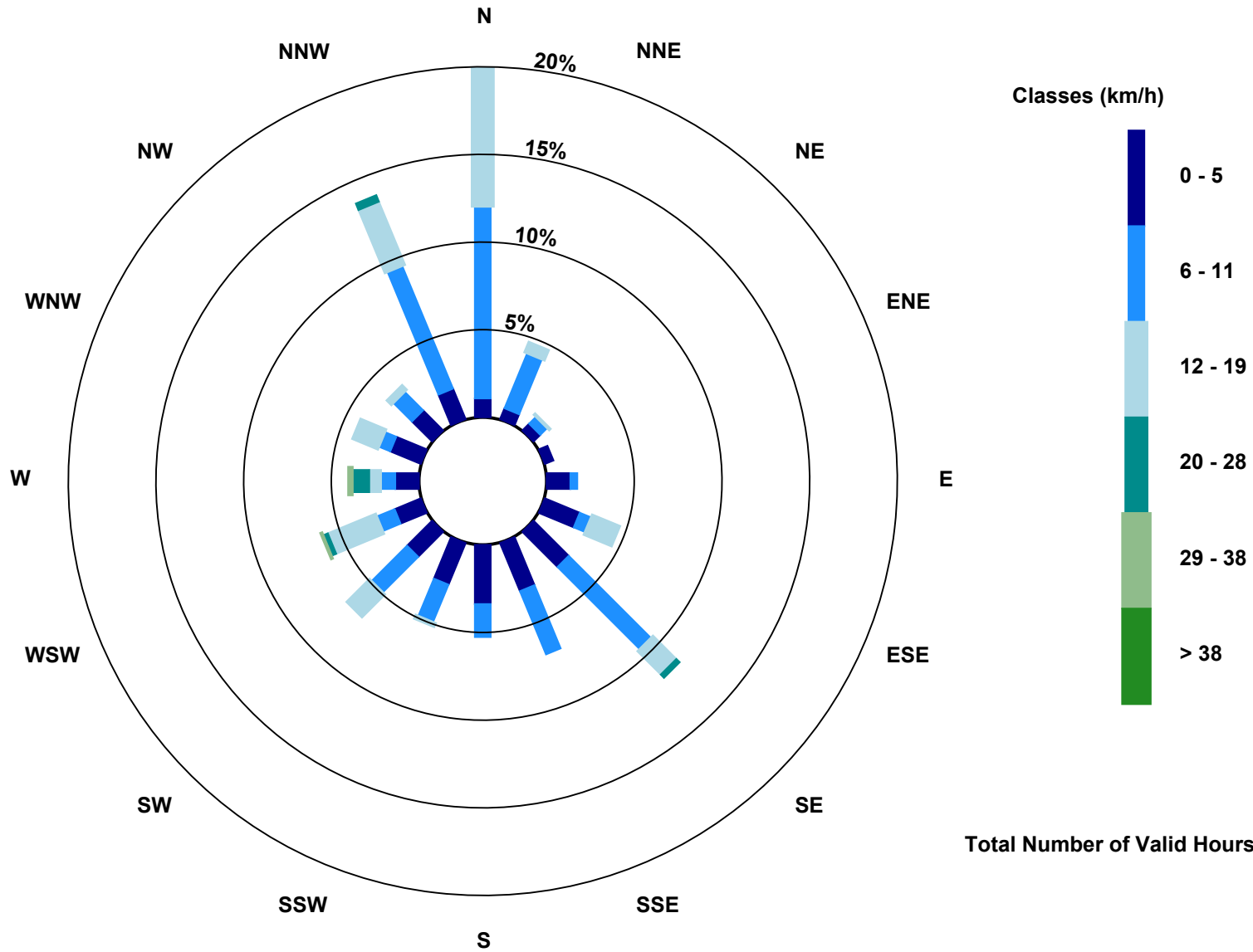
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Patricia McInnes





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

**Wind Direction (WD) - deg**  
**Patricia McInnes - January 2024**

Direction of Maximum Speed: 260 deg on Jan 30 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 352.1 deg on Jan 6	Hours of Data: 741
Direction of Minimum Speed: 98 deg on Jan 3 06:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 0.8 deg on Jan 14	Percent Operational Time: 99.6
Monthly Average Direction: 327.7 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-Jan	248	245	288	303	357	7	8	358	355	5	24	12	19	3	333	320	333	336	13	2	7	357	355	355	345.3
2-Jan	3	1	354	357	8	22	27	11	351	5	35	67	101	112	113	127	178	188	107	110	108	128	263	244	27.6
3-Jan	282	282	349	12	346	98	215	114	176	164	135	133	74	355	358	3	345	6	350	344	342	346	337	338	352.1
4-Jan	339	340	342	345	346	348	353	3	5	7	8	353	11	357	354	6	14	18	12	360	2	3	348	359	355.8
5-Jan	9	357	347	341	341	336	333	322	298	274	255	268	300	45	88	82	80	112	102	113	110	96	55	19	2.2
6-Jan	9	10	1	348	1	357	352	353	354	351	354	359	357	352	347	350	349	352	351	346	347	347	347	349	352.1
7-Jan	346	344	348	352	350	343	345	337	336	326	336	282	130	101	125	135	133	142	158	158	163	147	133	129	18.6
8-Jan	131	132	132	131	132	136	132	113	334	324	323	336	344	337	338	336	312	314	342	23	28	28	2	358	11.7
9-Jan	11	4	14	8	4	13	13	353	6	25	17	5	12	9	5	345	348	352	1	0	359	5	5	359	3.8
10-Jan	5	3	8	360	353	350	346	329	339	305	293	334	348	349	344	19	15	9	348	356	8	355	338	347	353.1
11-Jan	345	338	352	348	352	6	6	324	284	358	358	1	321	245	139	95	315	9	343	9	324	312	292	253	344.8
12-Jan	224	249	247	240	230	231	215	230	220	218	221	204	168	178	157	122	111	125	158	242	148	265	141	126	203.7
13-Jan	168	134	242	169	127	143	269	117	175	219	193	173	128	112	73	302	82	289	264	265	275	252	236	262	182.1
14-Jan	227	213	136	295	282	44	283	268	233	221	207	253	69	357	85	82	341	347	331	311	283	253	216	195	264.9
15-Jan	211	224	202	190	210	192	197	189	193	163	158	160	146	161	140	149	141	146	187	219	171	166	185	199	177.6
16-Jan	194	193	155	52	6	351	336	337	318	319	330	334	286	106	25	28	327	309	295	287	283	285	283	290	306.3
17-Jan	290	301	310	339	35	24	6	327	345	3	8	16	11	359	359	356	356	343	349	338	337	347	335	342	345.7
18-Jan	337	332	306	271	271	327	321	285	245	247	267	293	305	305	292	278	261	260	261	266	283	299	322	285	287.1
19-Jan	222	227	217	220	228	227	223	208	205	193	197	182	166	150	142	138	135	130	138	136	129	125	126	123	175.8
20-Jan	129	136	157	161	169	159	185	201	205	220	244	242	244	342	5	355	346	355	352	353	356	344	345	345	332.4
21-Jan	353	359	4	5	10	357	358	339	4	356	350	356	360	2	360	352	359	10	18	18	20	28	36	52	5.4
22-Jan	52	16	7	356	356	3	23	96	115	121	118	122	121	120	115	117	123	122	132	135	138	138	133	127	111.4
23-Jan	132	125	126	128	137	141	146	137	126	142	152	173	173	163	90	30	23	0	343	348	352	357	355	348	72.5
24-Jan	350	354	348	3	348	352	320	82	104	125	121	123	124	119	125	125	130	133	140	149	247	335	351	322	91.9
25-Jan	330	339	337	342	349	357	348	344	341	341	336	329	UO	UO	UO	170	143	148	154	154	168	172	165	190	344.0
26-Jan	211	200	207	204	224	227	234	360	316	137	184	188	166	166	144	138	128	136	136	142	149	142	154	175	167.2
27-Jan	194	210	199	194	183	184	170	166	190	188	197	188	213	218	235	240	246	248	243	240	238	236	228	221	225.9
28-Jan	225	177	169	164	137	153	170	203	199	191	195	232	247	269	276	269	271	271	264	266	273	272	257	243	247.2
29-Jan	205	163	154	211	184	161	159	163	153	145	161	148	157	172	147	142	171	212	221	225	224	222	223	224	190.0
30-Jan	235	231	190	191	142	155	141	155	184	196	216	240	243	250	251	260	261	257	248	243	254	261	252	254	239.9
31-Jan	251	249	239	248	242	239	223	229	234	230	231	216	180	127	126	113	121	128	128	128	125	125	127	126	187.5

316.9 320.1 326.5 325.6 346.8 353.2 339.9 332.1 312.4 322.8 286.2 293.6 3.8 335.2 338.7 338.5 324.2 322.0 321.1 315.4 321.2 332.0 329.2 320.4  
 Diurnal Average

UO - Unstable Operation

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

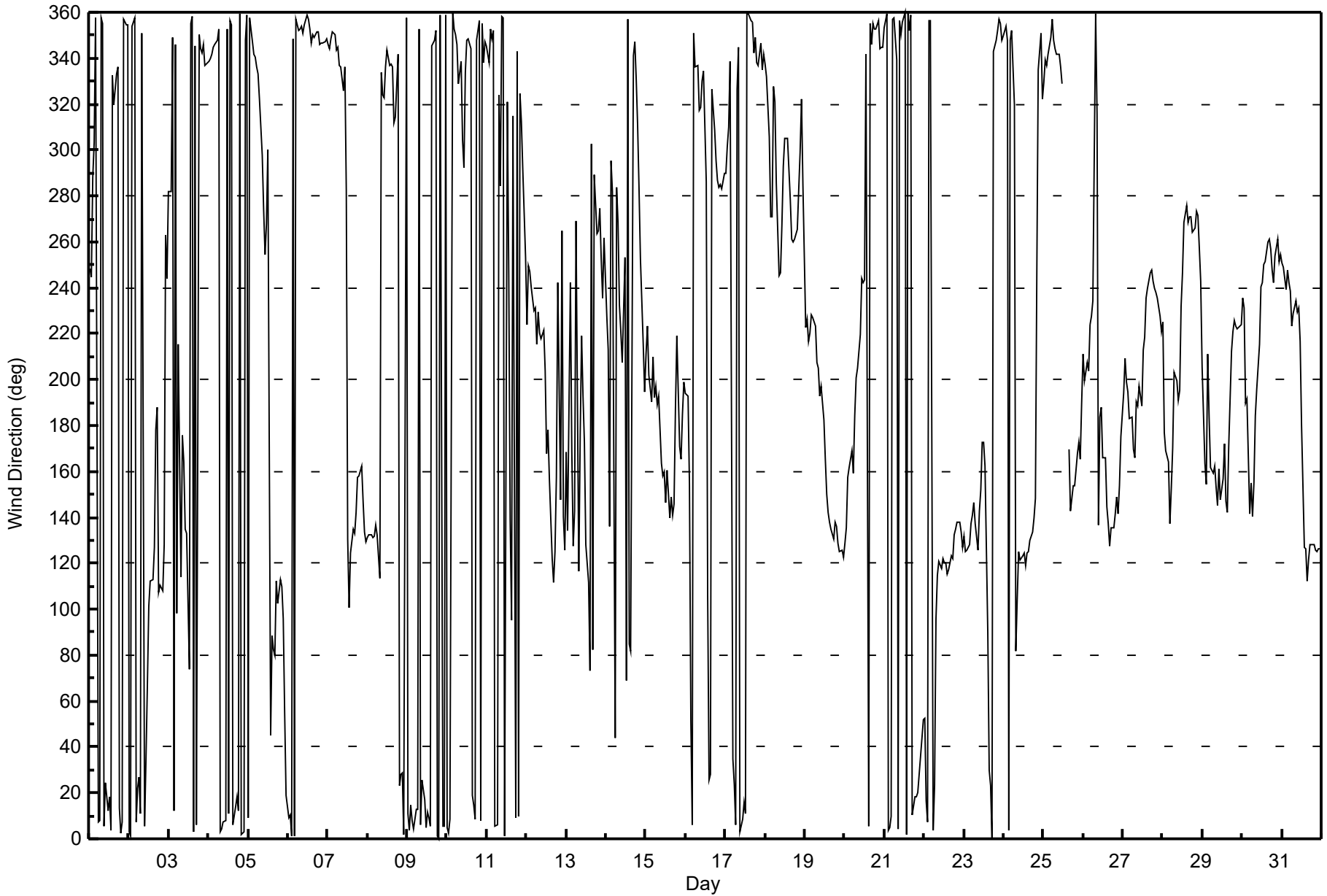




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Patricia McInnes - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0											Hours in Service: 744														
Maximum Value: 99 deg on Jan 3 06:00											Hours of Data: 741														
Minimum Value: 6 deg on Jan 18 18:00											Hours of Missing Data: 3														
Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 10 Q <sub>1</sub> = 12 Median = 14 Q <sub>3</sub> = 18 P <sub>90</sub> = 31 P <sub>99</sub> = 83											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-Jan	14	13	11	9	22	13	13	15	14	17	13	28	15	18	15	12	10	16	14	14	13	13	14	15	28
2-Jan	15	15	15	15	14	12	13	18	15	22	16	27	33	26	28	37	28	25	37	18	27	34	66	31	66
3-Jan	27	48	82	42	49	99	37	83	42	40	15	23	36	34	15	13	22	13	14	12	10	10	10	99	
4-Jan	9	10	10	13	13	13	15	15	14	15	17	14	15	18	18	15	12	13	16	15	19	14	15	29	
5-Jan	27	12	17	8	9	8	9	11	13	16	10	13	30	35	43	15	21	16	17	18	18	19	16	13	43
6-Jan	15	11	15	10	13	12	11	11	12	11	14	13	13	14	10	12	12	14	14	11	11	12	11	12	15
7-Jan	10	10	12	13	12	10	11	9	13	11	15	79	28	20	15	15	16	16	15	13	13	14	15	11	79
8-Jan	12	12	14	13	14	16	17	20	61	19	20	9	12	13	10	11	14	9	22	12	11	11	24	23	61
9-Jan	24	20	19	23	20	17	17	11	17	14	16	16	14	15	16	11	13	14	15	14	16	13	14	14	24
10-Jan	14	14	12	15	13	13	14	8	12	11	22	15	20	15	16	12	12	14	10	15	12	20	10	9	22
11-Jan	11	9	14	12	13	14	15	16	15	24	15	18	24	68	73	83	33	27	17	27	10	11	10	12	83
12-Jan	12	8	10	11	11	14	19	12	19	12	12	22	19	21	22	14	13	17	55	55	35	68	40	15	68
13-Jan	48	24	14	35	15	54	11	41	24	38	35	29	25	45	86	54	66	19	8	16	58	11	86	11	86
14-Jan	29	17	48	32	38	60	32	15	17	23	24	29	84	32	13	20	87	62	10	19	22	42	40	22	87
15-Jan	14	15	15	13	17	18	15	16	16	17	12	16	13	20	16	18	10	17	31	51	45	20	24	23	51
16-Jan	36	26	79	88	36	16	11	11	16	14	15	12	70	40	31	19	22	10	9	11	10	9	10	10	88
17-Jan	10	12	10	34	11	14	15	12	11	18	13	13	15	16	15	14	13	9	10	10	10	11	10	11	34
18-Jan	10	9	12	17	17	22	17	16	11	16	10	12	14	12	14	12	10	6	8	10	12	15	14	23	23
19-Jan	21	11	16	19	9	9	10	15	11	13	13	14	20	15	18	17	16	12	13	12	13	12	12	11	21
20-Jan	12	12	10	36	33	14	12	15	13	18	12	16	19	64	21	16	11	14	13	14	16	10	12	12	64
21-Jan	15	14	18	16	15	17	19	12	15	14	14	16	15	15	16	14	14	13	14	17	18	11	12	18	19
22-Jan	16	15	13	14	15	17	16	21	13	14	13	15	14	12	13	12	13	12	13	14	13	12	12	11	21
23-Jan	12	12	11	13	12	11	10	10	14	8	18	17	16	45	21	12	11	15	11	12	15	16	13	11	45
24-Jan	12	13	15	13	13	21	51	19	21	14	13	13	13	12	12	13	13	12	12	35	70	24	12	12	70
25-Jan	15	10	9	9	14	13	12	11	10	10	12	12	UO	UO	UO	25	16	12	18	25	21	19	27	43	43
26-Jan	74	14	15	19	17	15	30	25	85	20	20	17	20	19	16	15	16	14	14	15	17	23	18	14	85
27-Jan	26	22	25	15	18	18	15	16	18	17	15	14	15	11	15	12	9	9	9	10	9	10	9	16	26
28-Jan	11	18	13	16	33	16	22	12	9	12	12	15	14	15	13	10	9	9	9	9	9	8	8	8	33
29-Jan	26	21	19	15	16	15	12	11	11	15	18	13	17	16	18	15	15	13	9	10	10	10	10	15	26
30-Jan	11	12	12	17	12	36	16	17	30	37	24	12	12	12	11	11	10	11	14	11	16	9	7	9	37
31-Jan	8	9	10	8	10	10	9	9	10	11	11	13	16	25	19	15	12	11	10	11	11	12	12	12	25
											74 48 82 88 49 99 51 83 85 40 35 79 84 68 86 83 87 62 55 55 58 70 86 43														
											Diurnal Maximum														
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS07 ATHABASCA VALLEY JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
 JANUARY 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	705	37	39	99.73	6.3	0	1.9	0
TRS (ppb) Average	705	37	39	99.73	2.6	0	0.8	0
THC (ppm) Average	666	35	78	94.22	2.8	-	2.3	-
NMHC (ppm) Average	666	35	78	94.22	0.304	-	0.089	-
CH4(ppm) Average	666	35	78	94.22	2.6	-	2.3	-
O3 (ppb) Average	707	34	37	99.6	46.3	0	30.8	-
NO2 (ppb) Average	705	37	39	99.73	34.1	0	17.2	-
NO (ppb) Average	705	37	39	99.73	41.6	-	15.6	-
NOX (ppb) Average	705	37	39	99.73	70.5	-	32.8	-
PM2.5 (ug/m3) Average	740	2	4	99.73	30.9	0	21.2	0
CO(ppm) Average	707	35	37	99.73	0.4	0	0.3	-
Temperature 2 m (C) Average	742	0	2	99.73	12.3	-	4.7	-
Relative Humidity (%) Average	742	0	2	99.73	93.1	-	89.8	-
Barometric Pressure (inHg) Average	699	0	45	93.95	29.8	-	29.8	-
Wind Speed 10 m (km/h) Average	744	0	0	100	26	-	15	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
JANUARY 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	705	0.52	0.8	-	0	0.1	0.1	0.2	0.6	1.2	6.3
TRS (ppb) Average	705	0.32	0.3	-	0.1	0.1	0.2	0.2	0.3	0.6	2.6
THC (ppm) Average	666	2.09	0.1	-	1.9	2	2	2.1	2.1	2.2	2.8
NMHC (ppm) Average	666	0.009	0.036	-	0	0	0	0	0	0	0.304
CH4(ppm) Average	666	2.08	0.1	-	1.9	2	2	2.1	2.1	2.2	2.6
O3 (ppb) Average	707	19.09	9.5	-	2.1	6.2	11.8	19.1	26.1	30.9	46.3
NO2 (ppb) Average	705	10.98	6.7	-	0.6	3.5	6.1	9.7	14.8	20.5	34.1
NO (ppb) Average	705	3.95	6.1	-	0	0.1	0.3	1.8	4.6	11.1	41.6
NOX (ppb) Average	705	14.93	11.4	-	0.7	4.2	7.3	11.7	19.1	30.4	70.5
PM2.5 (ug/m3) Average	740	5.53	4.9	-	0.6	2.3	2.9	3.8	5.7	12	30.9
CO(ppm) Average	707	0.17	0	-	0.1	0.1	0.1	0.2	0.2	0.2	0.4
Temperature 2 m (C) Average	742	-17.22	12.3	-	-42.6	-35.5	-24.3	-17.3	-9	-0.8	12.3
Relative Humidity (%) Average	742	72.17	9.3	-	36.4	62.6	65.7	71	77.6	87.8	93.1
Barometric Pressure (inHg) Average	699	29.18	0.3	-	28.5	28.8	28.9	29.1	29.4	29.7	29.8
Wind Speed 10 m (km/h) Average	744	8	5	-	0	2	4	7	11	14	26
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	20 Jan 2024 17:00	20 Jan 2024 18:00	2	Station power failure
THC/NMHC/CH4	02 Jan 2024 16:00	03 Jan 2024 12:00	21	Unstable Operations - flatline in analyzer output signal
THC/NMHC/CH5	08 Jan 2024 17:00	09 Jan 2024 10:00	18	Unstable Operations - flatline in analyzer output signal
THC/NMHC/CH6	09 Jan 2024 11:00	09 Jan 2024 11:00	1	Maintenance - analyzer rebooted
O3, Barometric Pressure	12 Jan 2024 13:00	12 Jan 2024 13:00	1	Maintenance - station logger/modem reset
Barometric Pressure	20 Jan 2024 19:00	22 Jan 2024 11:00	41	Flat line in sensor output signal
Barometric Pressure	22 Jan 2024 12:00	22 Jan 2024 12:00	1	Maintenance - sensor rebooted



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

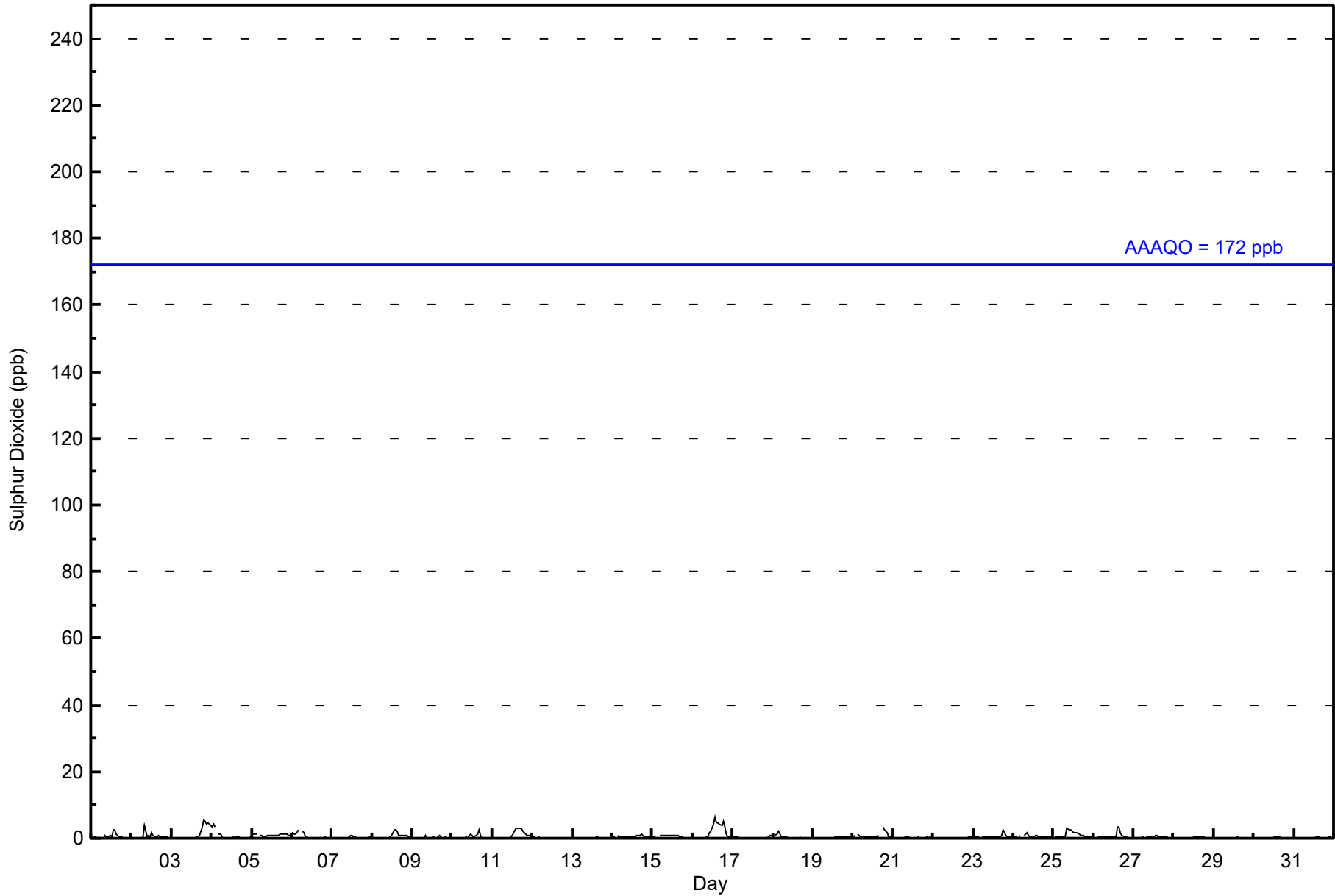
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Athabasca Valley - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 6.3 ppb on Jan 16 14:00		Maximum Daily Average: 1.9 ppb on Jan 16		Hours of Data: 705														705								
Minimum Value: 0.0 ppb on Jan 11 01:00		Minimum Daily Average: 0.1 ppb on Jan 13		Hours of Missing Data: 39														39								
Maximum Diurnal Average: 0.9 ppb at hour 15		Minimum Diurnal Average: 0.3 ppb at hour 6		Hours of Calibration: 37														37								
Monthly Average: 0.52 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> = 0.6 P <sub>90</sub> = 1.2 P <sub>99</sub> = 4.2		Percent Operational Time: 99.7														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-Jan	Z	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.9	0.5	0.5	1.0	0.4	2.4	2.7	1.4	0.6	0.3	0.3	0.1	0.2	0.1	0.1	0.1	0.6	2.7
2-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.4	3.8	0.2	0.7	0.3	1.8	0.6	0.6	0.6	0.7	0.5	0.5	0.4	0.4	0.3	0.1	0.0	0.6	3.8
3-Jan	0.1	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.3	0.4	0.8	3.3	5.3	5.0	4.1	4.7	3.7	1.2	5.3
4-Jan	3.6	4.1	3.4	Z	1.3	1.4	0.5	0.1	0.1	0.1	0.0	0.1	0.1	0.6	0.1	0.4	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.5	0.7	4.1
5-Jan	0.9	1.2	1.3	1.1	Z	0.7	0.7	0.6	0.6	0.7	0.6	0.9	0.8	0.8	0.7	0.8	0.9	1.1	1.2	1.3	1.2	1.3	0.9	0.9	0.9	1.3
6-Jan	1.5	1.2	1.3	1.8	2.4	Z	2.2	1.5	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.1	0.1	0.1	0.6	2.4
7-Jan	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.7	0.7	0.6	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.4	0.2	0.7
8-Jan	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7	2.5	2.6	2.1	0.9	0.7	0.8	0.8	0.8	0.7	0.4	0.1	0.6	2.6
9-Jan	0.0	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.7	0.2	0.2	0.2	0.3	0.6	0.2	0.1	0.8	0.4	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.8
10-Jan	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.3	0.1	0.7	1.1	0.7	0.6	0.8	1.4	2.4	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.4	2.4
11-Jan	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	1.1	2.1	3.1	3.1	2.9	2.9	2.1	1.5	1.2	1.1	0.9	0.7	1.0	3.1
12-Jan	0.5	0.2	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.5
13-Jan	0.0	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2
14-Jan	0.3	0.5	Z	0.8	0.6	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.5	0.6	1.1	0.9	0.9	1.1	0.8	0.6	0.5	0.5	0.4	0.4	0.6	1.1
15-Jan	0.5	0.6	0.7	Z	1.0	0.9	0.7	0.9	0.7	0.8	0.9	1.1	0.9	0.9	0.9	0.8	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.6	1.1
16-Jan	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.3	0.6	1.5	2.3	4.1	6.3	4.7	4.6	4.2	3.8	4.9	3.4	1.1	0.5	0.4	0.3	1.9	6.3
17-Jan	0.3	0.3	0.3	0.2	0.2	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	0.5	1.0	0.8	0.2	1.0
18-Jan	Z	0.6	1.5	2.2	1.4	0.6	0.4	0.4	0.3	0.2	C	C	C	C	C	C	0.2	0.1	0.0	0.0	0.0	0.0	0.1	--	2.2	
19-Jan	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.6	0.6	0.6	0.2	0.6
20-Jan	0.5	0.7	Z	1.3	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.6	PF	PF	3.4	2.5	1.9	0.3	0.3	0.7	0.7	3.4
21-Jan	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.4	0.4	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.4
22-Jan	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	0.3	0.3	0.3	0.1	0.3
23-Jan	0.2	0.2	0.3	0.3	Z	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.7	2.5	0.8	0.4	0.6	0.5	0.3	0.5	2.5
24-Jan	0.3	0.2	0.2	0.2	0.7	Z	0.8	1.5	1.6	1.0	0.5	0.4	0.6	0.7	0.7	0.6	0.5	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.5	1.6
25-Jan	Z	0.3	0.3	0.4	0.5	0.4	0.2	0.3	3.2	2.4	2.3	2.0	1.8	1.5	1.5	1.2	0.8	0.8	0.8	0.6	0.5	0.4	0.4	0.3	1.0	3.2
26-Jan	0.4	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.3	0.3	0.5	3.3	3.6	1.8	0.7	0.4	0.3	0.2	0.2	0.2	0.2	0.7	3.6
27-Jan	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.6	0.7	0.7	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.3	0.7
28-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.6	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.6
29-Jan	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3
30-Jan	0.1	0.1	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5
31-Jan	Z	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	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3
																								Diurnal Average		
																								Diurnal Maximum		
																								0.4 0.4 0.4 0.4 0.4 0.3 0.3 0.3 0.5 0.3 0.4 0.5 0.6 0.8 0.9 0.9 0.7 0.6 0.8 0.7 0.5 0.4 0.4 0.4		
																								3.6 4.1 3.4 2.2 2.4 1.4 2.2 1.5 3.8 2.4 2.3 2.3 4.1 6.3 4.7 4.6 4.2 3.8 4.9 5.3 5.0 4.1 4.7 3.7		
Z - zerospan 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  
Athabasca Valley - January 2024







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	705	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - January 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	57	12	7	13	7	29	96	49	20	47	63	43	20	20	15	207	705
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>	57	12	7	13	7	29	96	49	20	47	63	43	20	20	15	207	705

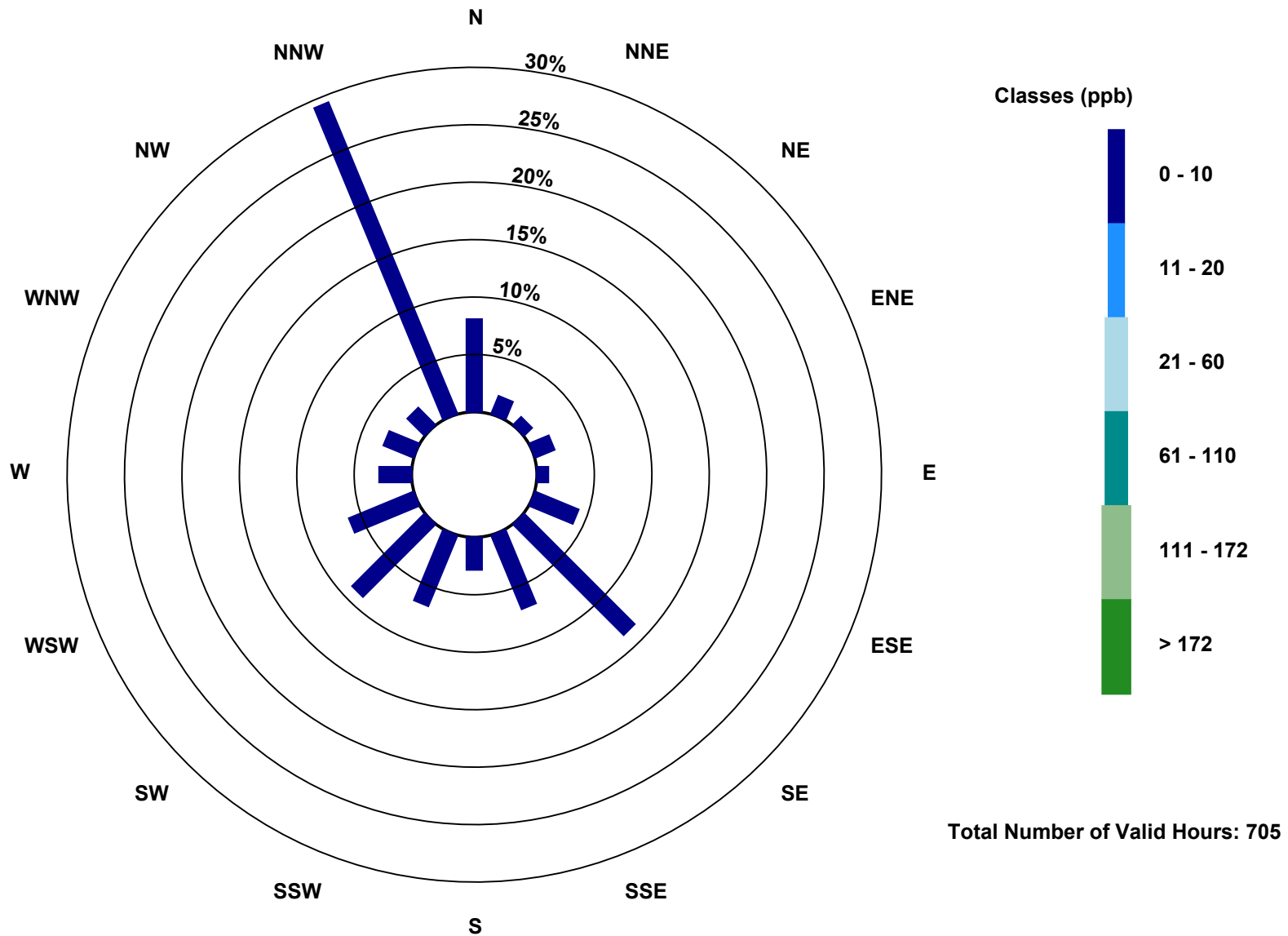
Total Number of Valid Hours: 705

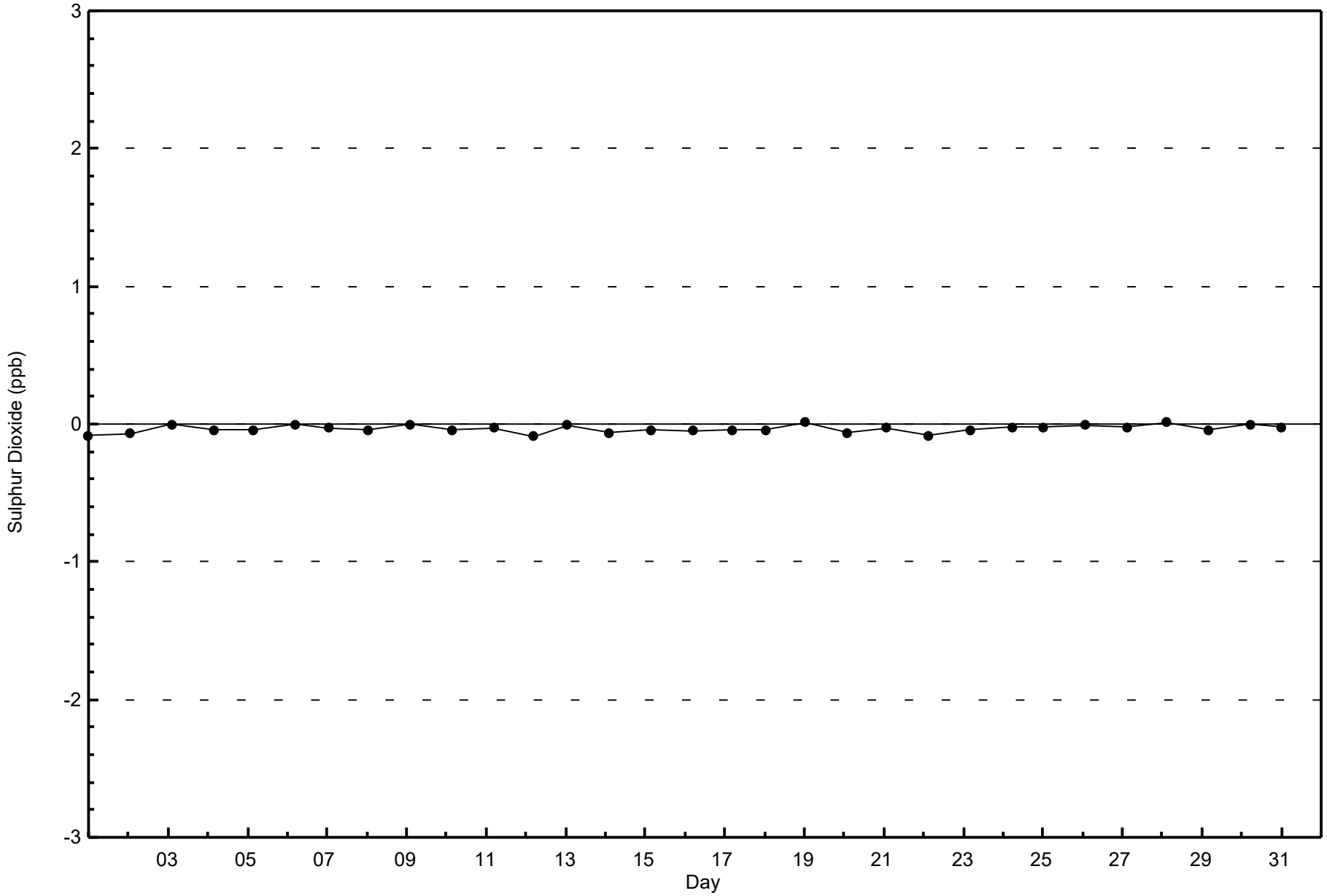
Total Number of Hours: 744

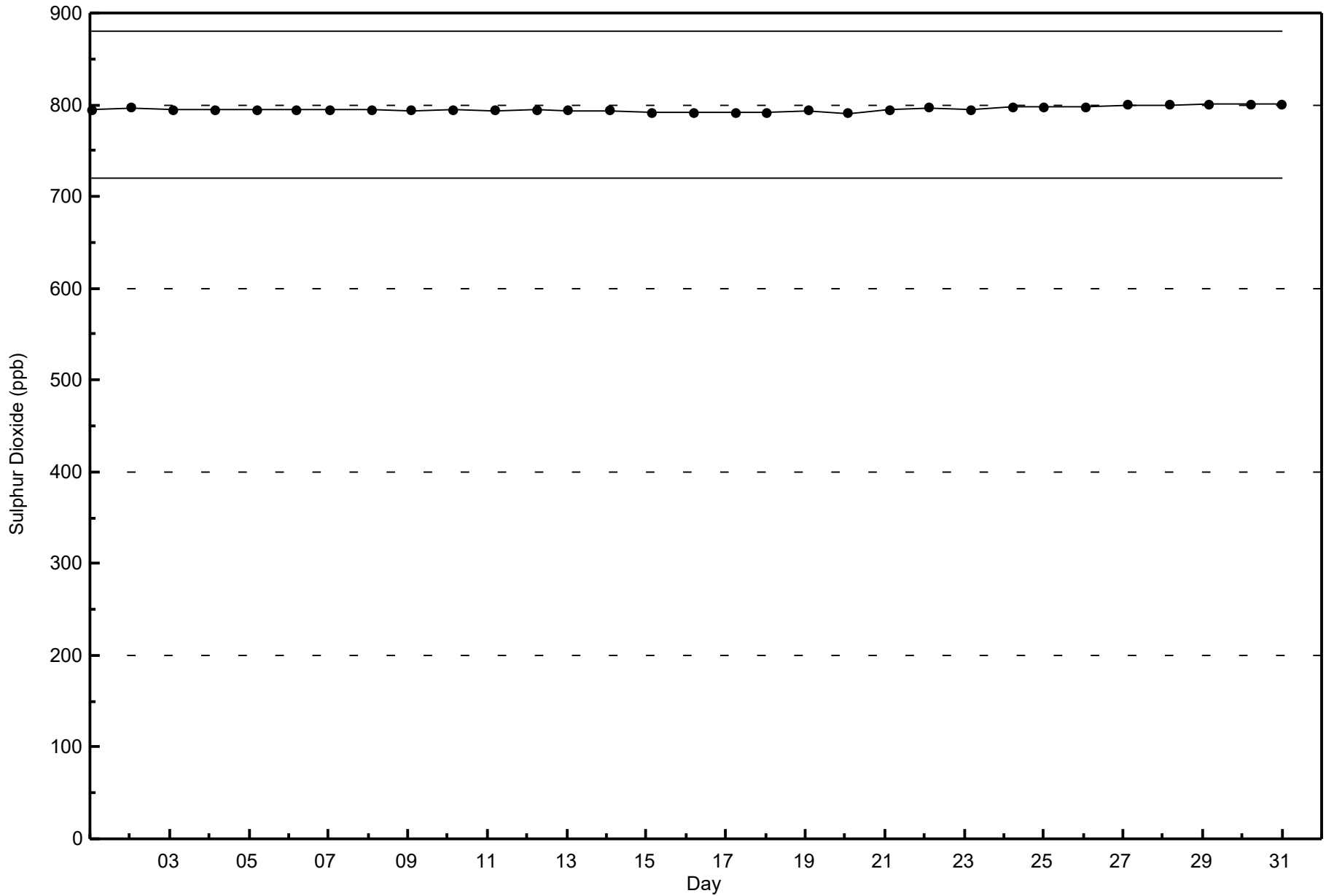


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









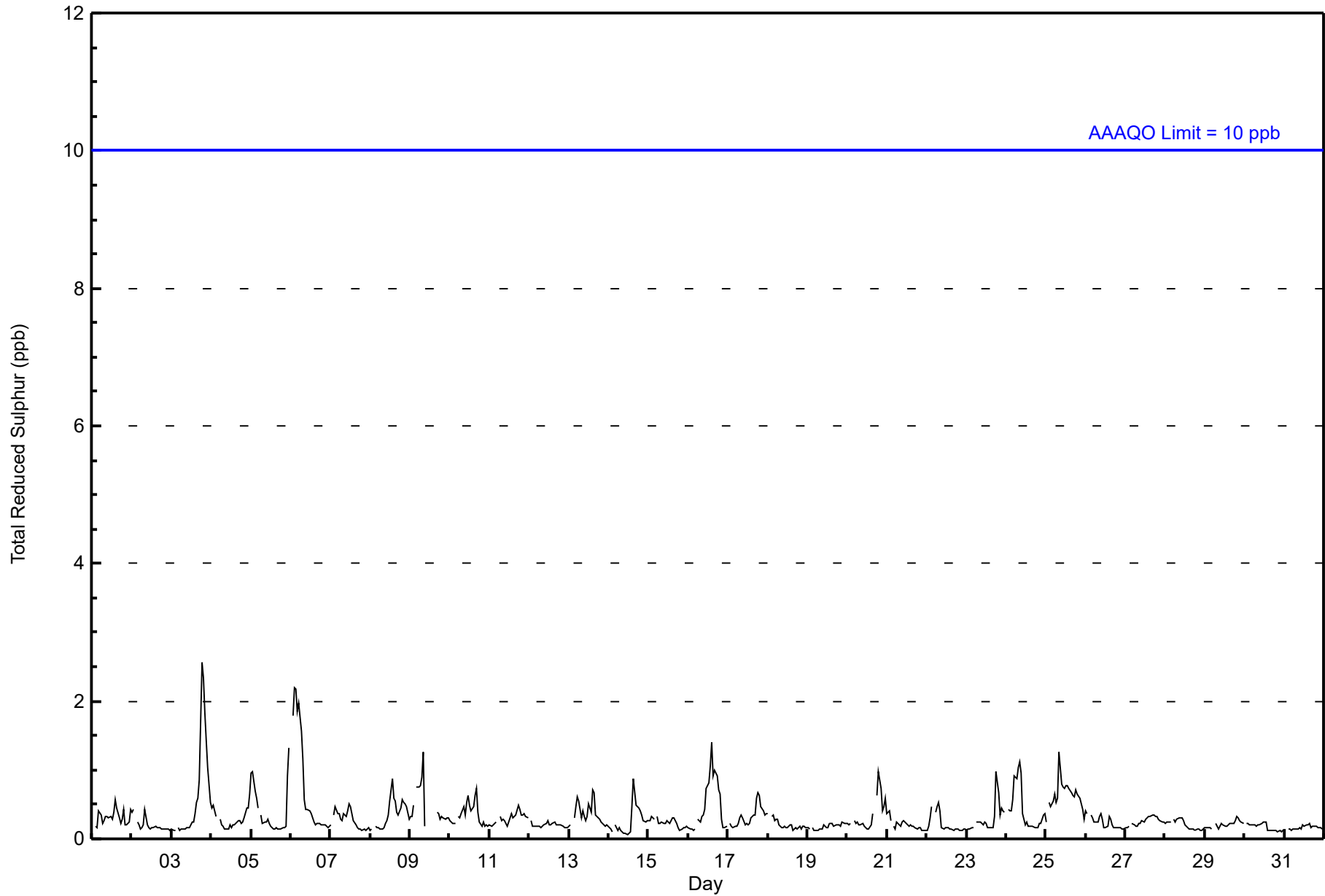
# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Total Reduced Sulphur (TRS) - ppb

## Athabasca Valley - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744																											
Maximum Value: 2.6 ppb on Jan 3 19:00		Maximum Daily Average: 0.8 ppb on Jan 6																	Hours of Data:	705																												
Minimum Value: 0.1 ppb on Jan 14 12:00		Minimum Daily Average: 0.2 ppb on Jan 31																	Hours of Missing Data:	39																												
Maximum Diurnal Average: 0.4 ppb at hour 19		Minimum Diurnal Average: 0.3 ppb at hour 1																	Hours of Calibration:	37																												
Monthly Average: 0.32 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.8																	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-Jan	0.2	Z	0.2	0.2	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.5	0.3	0.2	0.3	0.4	0.2	0.2	0.3	0.4	0.3	0.6																						
2-Jan	0.4	0.4	Z	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	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	0.2	0.4																						
3-Jan	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.9	2.6	2.3	1.8	1.4	1.0	0.5	2.6																							
4-Jan	0.5	0.5	0.4	0.3	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.6	0.6																							
5-Jan	1.0	1.0	0.7	0.6	0.5	Z	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.9	1.3	1.3																							
6-Jan	Z	1.8	2.2	2.2	1.9	2.0	1.6	1.2	0.6	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.2																							
7-Jan	0.2	Z	0.3	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.5																							
8-Jan	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.5	0.9	0.6	0.5	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.3	0.9																							
9-Jan	0.3	0.3	0.5	Z	0.8	0.8	0.8	0.9	1.3	0.2	C	C	C	C	C	C	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	1.3																							
10-Jan	0.3	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.5	0.4	0.5	0.6	0.5	0.4	0.5	0.6	0.7	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.7																							
11-Jan	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.5																							
12-Jan	Z	0.3	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	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3																							
13-Jan	0.2	0.2	Z	0.3	0.5	0.6	0.6	0.3	0.4	0.3	0.3	0.3	0.5	0.4	0.7	0.7	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.7																							
14-Jan	0.2	0.1	0.1	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.9	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.3	0.9																							
15-Jan	0.3	0.3	0.3	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.3																							
16-Jan	0.2	0.1	0.1	0.1	0.2	Z	0.3	0.3	0.3	0.3	0.4	0.7	0.8	1.1	1.4	0.9	1.0	0.9	0.7	0.6	0.3	0.2	0.2	0.2	1.4																							
17-Jan	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.6	0.7	0.6	0.5	0.4	0.3	0.4	0.7																							
18-Jan	0.4	Z	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	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.4																							
19-Jan	0.2	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
20-Jan	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.4	PF	PF	0.6	1.0	0.7	0.4	0.5	0.6	1.0																							
21-Jan	0.4	0.4	0.3	Z	0.2	0.1	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	0.1	0.1	0.1	0.4																							
22-Jan	0.1	0.2	0.3	0.5	Z	0.4	0.5	0.5	0.4	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	0.5																							
23-Jan	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	0.2	0.2	0.3	1.0	0.7	0.4	0.4	0.4	1.0																								
24-Jan	Z	0.4	0.4	0.4	0.6	0.9	0.9	1.0	1.1	1.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	1.1																							
25-Jan	0.2	Z	0.5	0.5	0.6	0.7	0.5	0.6	1.3	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.6	0.6	0.7	0.6	0.6	0.5	0.4	0.3	1.3																							
26-Jan	0.4	0.4	Z	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.4																							
27-Jan	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3																							
28-Jan	0.2	0.3	0.2	0.2	Z	0.3	0.2	0.3	0.3	0.3	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	0.3																							
29-Jan	0.2	0.2	0.2	0.2	0.1	Z	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	0.3	0.3	0.3	0.3	0.2	0.3																							
30-Jan	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
31-Jan	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
																								0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	Diurnal Average
																								1.0	1.8	2.2	2.2	1.9	2.0	1.6	1.2	1.3	1.0	0.7	0.7	0.8	1.1	1.4	0.9	1.0	0.9	2.6	2.3	1.8	1.4	1.0	1.3	Diurnal Maximum
Z - zerospan      C - Calibration      PF - Power Failure																																																
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 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	704	99.86	99.86
3 - 4	1	0.14	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: 705

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley - January 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	56	13	7	15	7	29	97	48	20	47	66	43	20	20	15	201	704
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	56	13	7	15	7	29	97	48	20	47	66	43	20	20	15	202	705

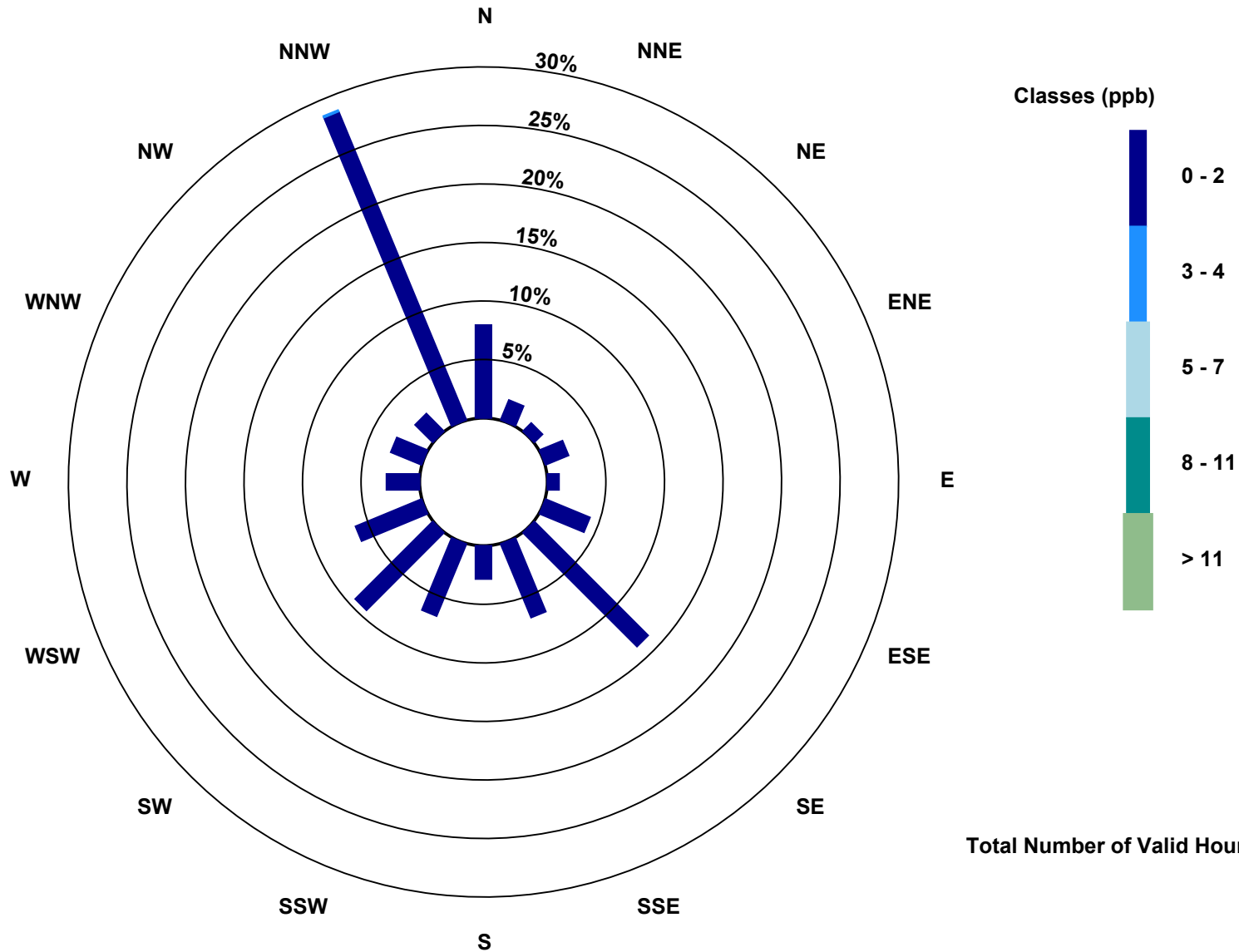
Total Number of Valid Hours: 705

Total Number of Hours: 744

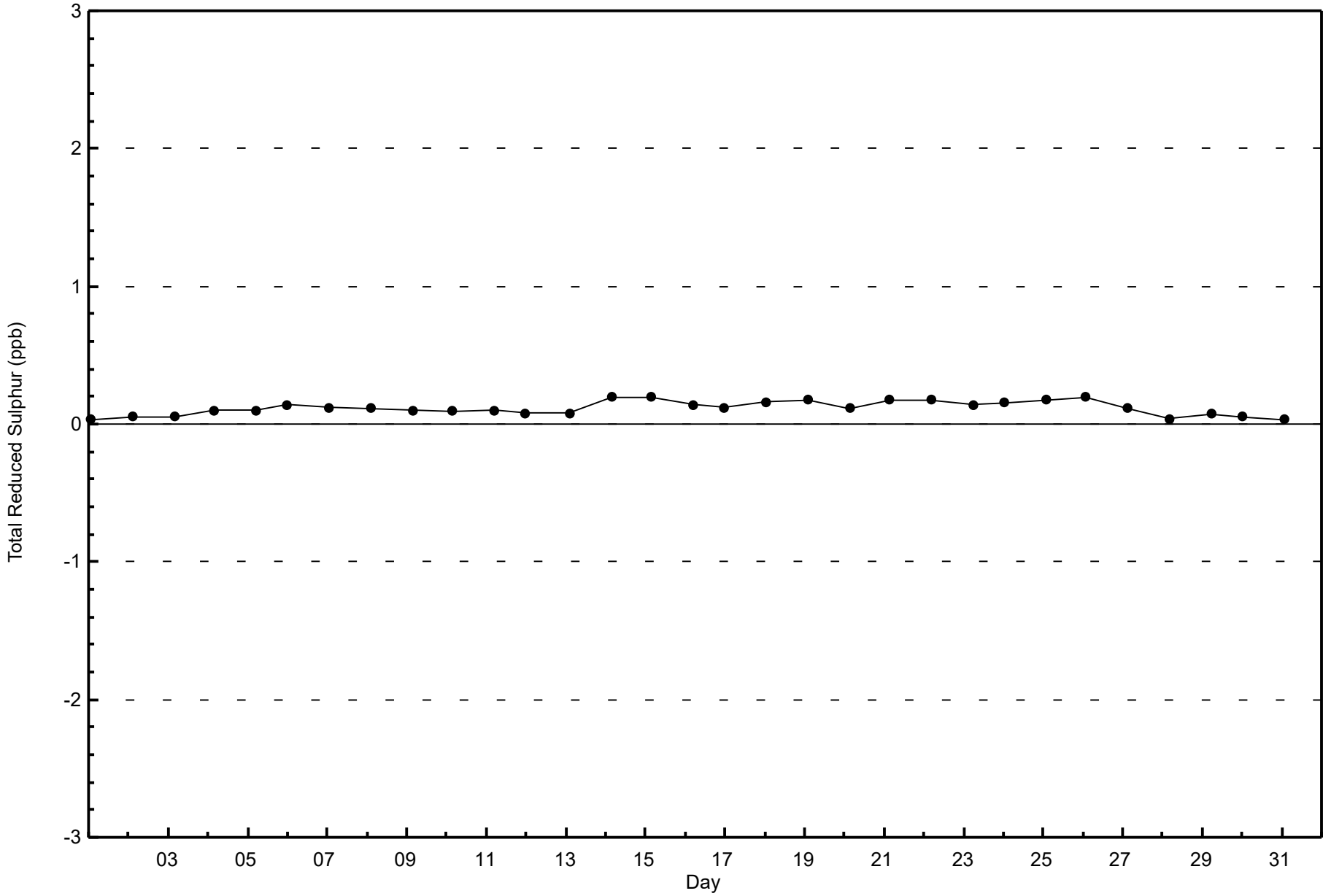


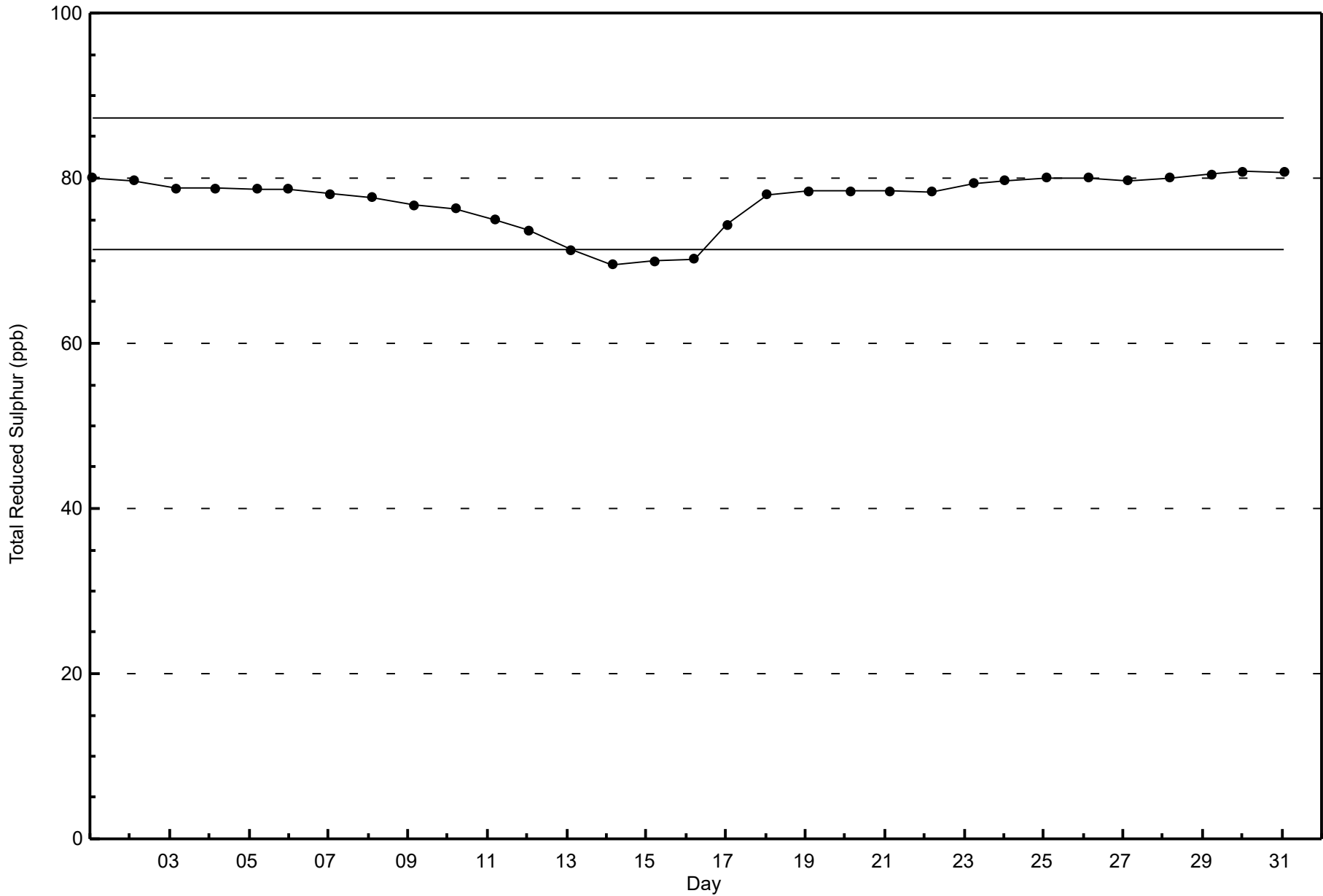
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley



Total Number of Valid Hours: 705







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

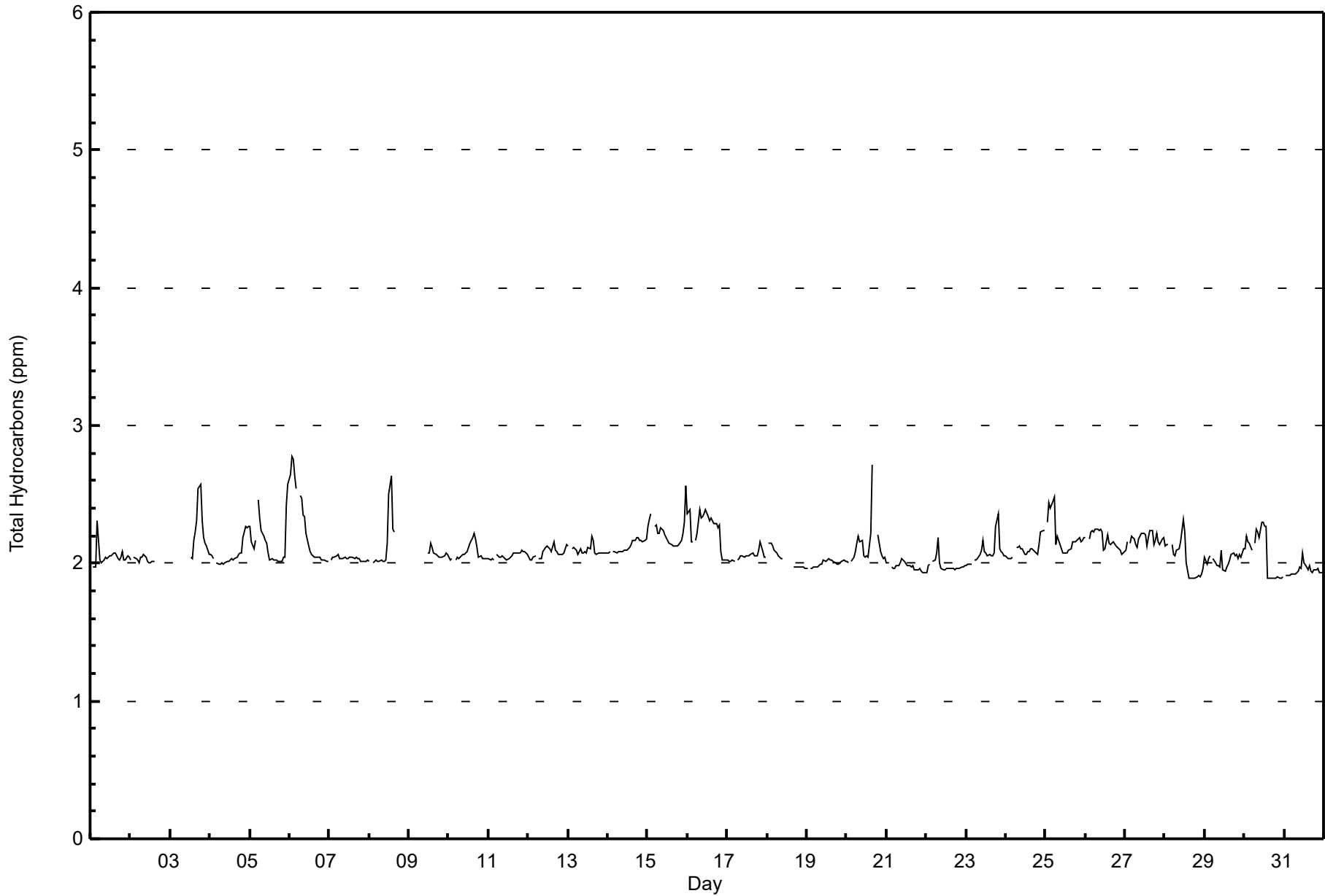
**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - January 2024**

Maximum Value: 2.8 ppm on Jan 6 02:00		Maximum Daily Average: 2.3 ppm on Jan 6		Hours in Service: 744																																																		
Minimum Value: 1.9 ppm on Jan 30 15:00		Minimum Daily Average: 1.9 ppm on Jan 31		Hours of Data: 666																																																		
Maximum Diurnal Average: 2.1 ppm at hour 2		Minimum Diurnal Average: 2.1 ppm at hour 22		Hours of Missing Data: 78																																																		
Monthly Average: 2.09 ppm		Percentiles: P <sub>1</sub> = 1.9 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> = 2.2 P <sub>99</sub> = 2.6		Hours of Calibration: 35																																																		
				Percent Operational Time: 94.2																																																		
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-Jan	Z	2.0	2.0	2.0	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.3	2.3																										
2-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1	2.1																									
3-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.0	2.0	2.2	2.2	2.3	2.5	2.6	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.6																									
4-Jan	2.1	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	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.1	2.3	2.3	2.3																									
5-Jan	2.3	2.2	2.1	2.2	Z	2.5	2.3	2.2	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	2.4	2.6	2.2	2.6	2.6																										
6-Jan	2.6	2.8	2.8	2.6	2.5	Z	2.5	2.5	2.4	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	2.3	2.8																										
7-Jan	Z	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	2.0	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																									
8-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.6	2.3	2.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.6																									
9-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	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	2.1																									
10-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2																									
11-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																									
12-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.0	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	2.1	2.1	2.1	2.1	2.1																									
13-Jan	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	2.2	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	2.2																								
14-Jan	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
15-Jan	2.3	2.3	2.4	Z	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.6	2.2	2.2	2.6	2.6	2.6																									
16-Jan	2.4	2.4	2.2	2.2	Z	2.2	2.2	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.0	2.0	2.0	2.0	2.3	2.4	2.4	2.4																									
17-Jan	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2																								
18-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	C	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	2.0	2.0	2.1																								
19-Jan	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	2.0	2.0																								
20-Jan	2.0	2.0	Z	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.2	2.7	PF	PF	PF	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.7																								
21-Jan	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	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0																								
22-Jan	1.9	2.0	2.0	Z	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2																							
23-Jan	2.0	2.0	2.0	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	2.0	2.1	2.3	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.4																							
24-Jan	2.1	2.0	2.0	2.0	2.0	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	2.2	2.2																							
25-Jan	Z	2.3	2.4	2.4	2.4	2.5	2.1	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.5																							
26-Jan	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	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	2.2	2.2																							
27-Jan	2.1	2.2	Z	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	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																						
28-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	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	1.9	1.9	1.9	1.9	2.0	2.0	2.3	2.3																						
29-Jan	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.1																						
30-Jan	2.1	2.2	2.2	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.3	2.3	2.3	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	2.1	2.3																						
31-Jan	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.1																						
																								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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	
																								2.6	2.8	2.8	2.6	2.5	2.5	2.5	2.5	2.4	2.3	2.4	2.4	2.5	2.6	2.3	2.7	2.3	2.5	2.6	2.4	2.2	2.3	2.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation				PF - Power Failure																		



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

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Athabasca Valley - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	299	44.89	44.89
2.1 - 3.0	367	55.11	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 666

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Athabasca Valley - January 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	22	8	5	4	2	12	54	11	6	18	17	24	13	4	5	94	299
2.1 - 3.0	28	4	2	6	3	17	42	34	14	23	42	18	7	13	10	104	367
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>	50	12	7	10	5	29	96	45	20	41	59	42	20	17	15	198	666

Total Number of Valid Hours: 666

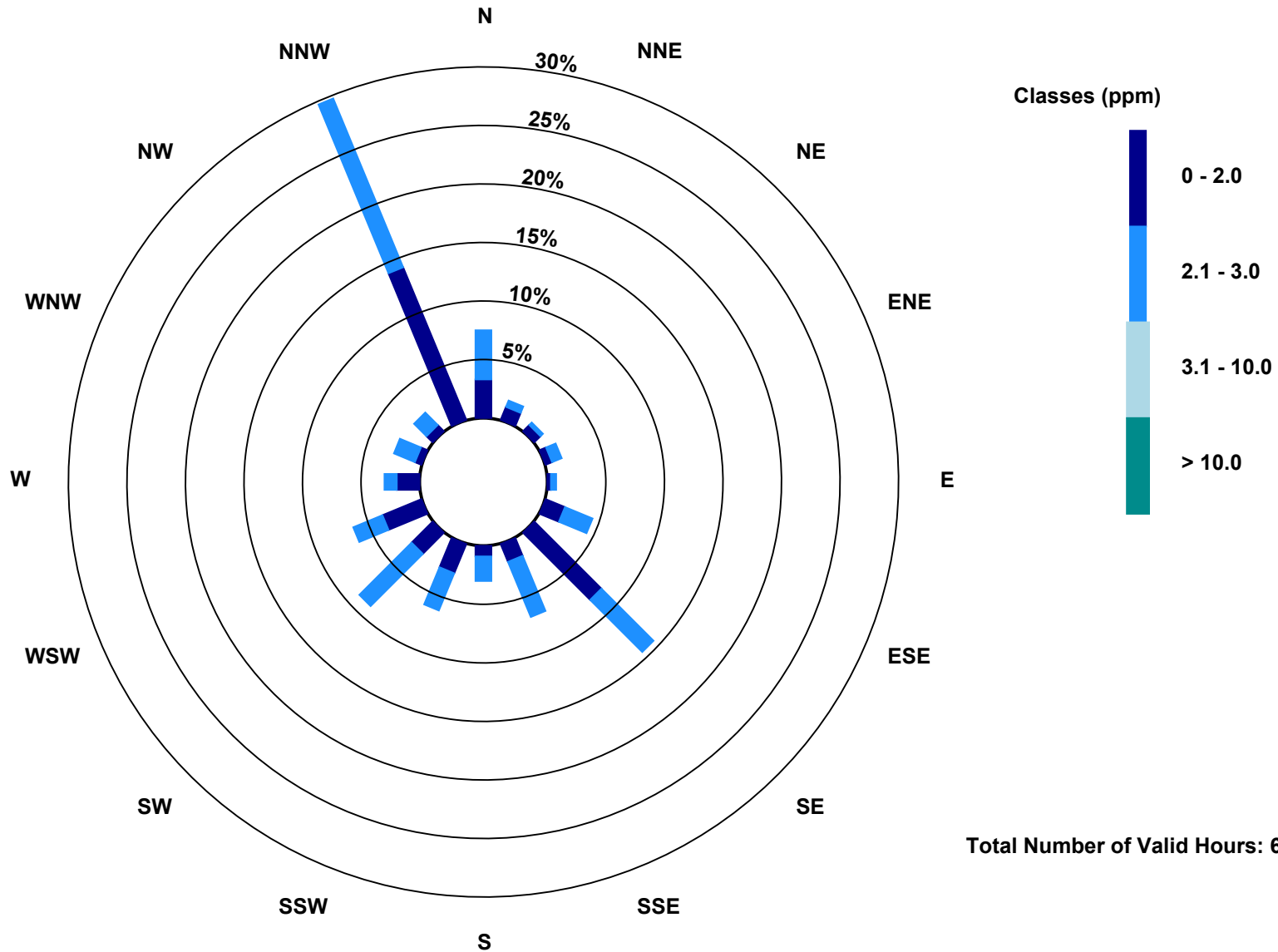
Total Number of Hours: 744

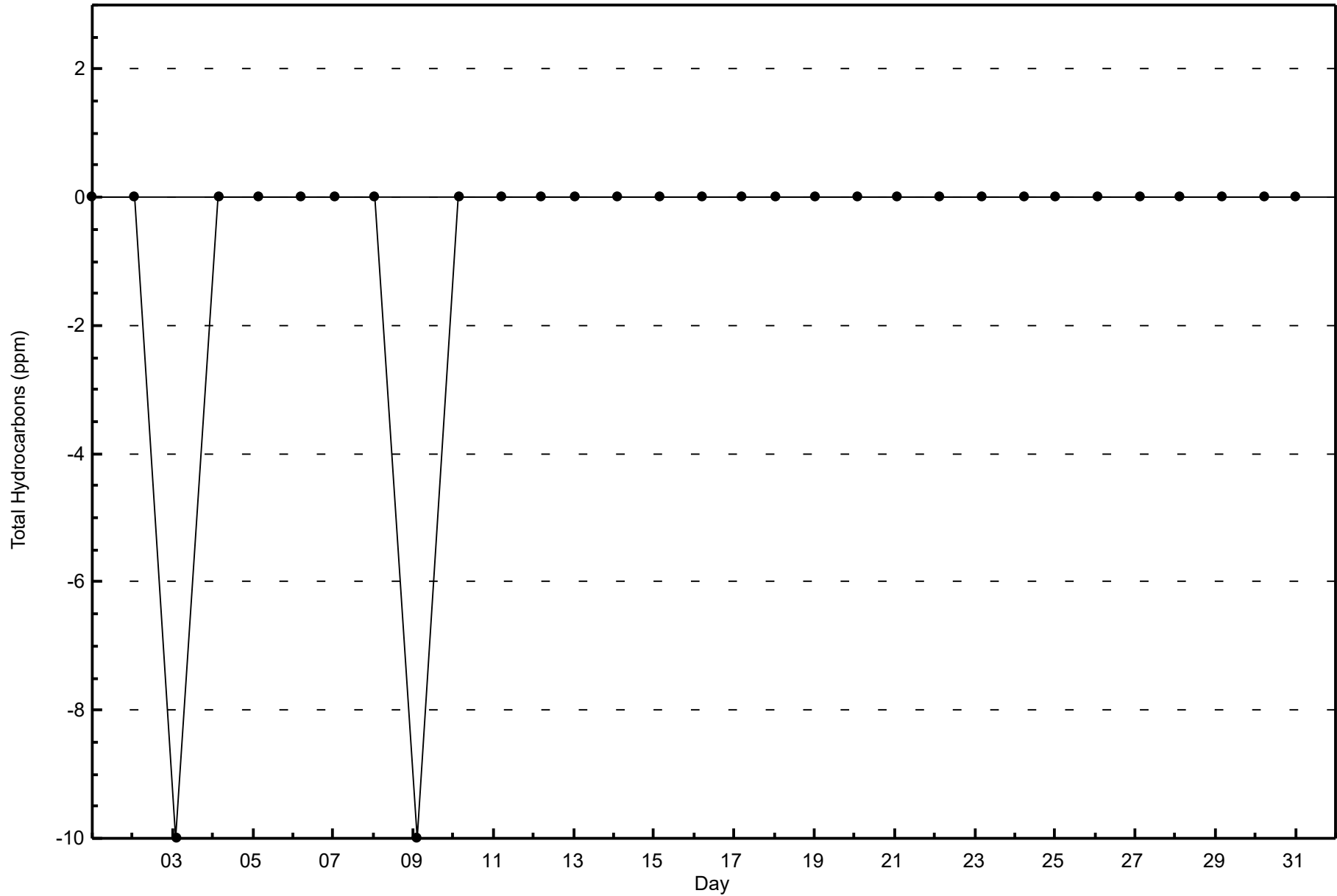


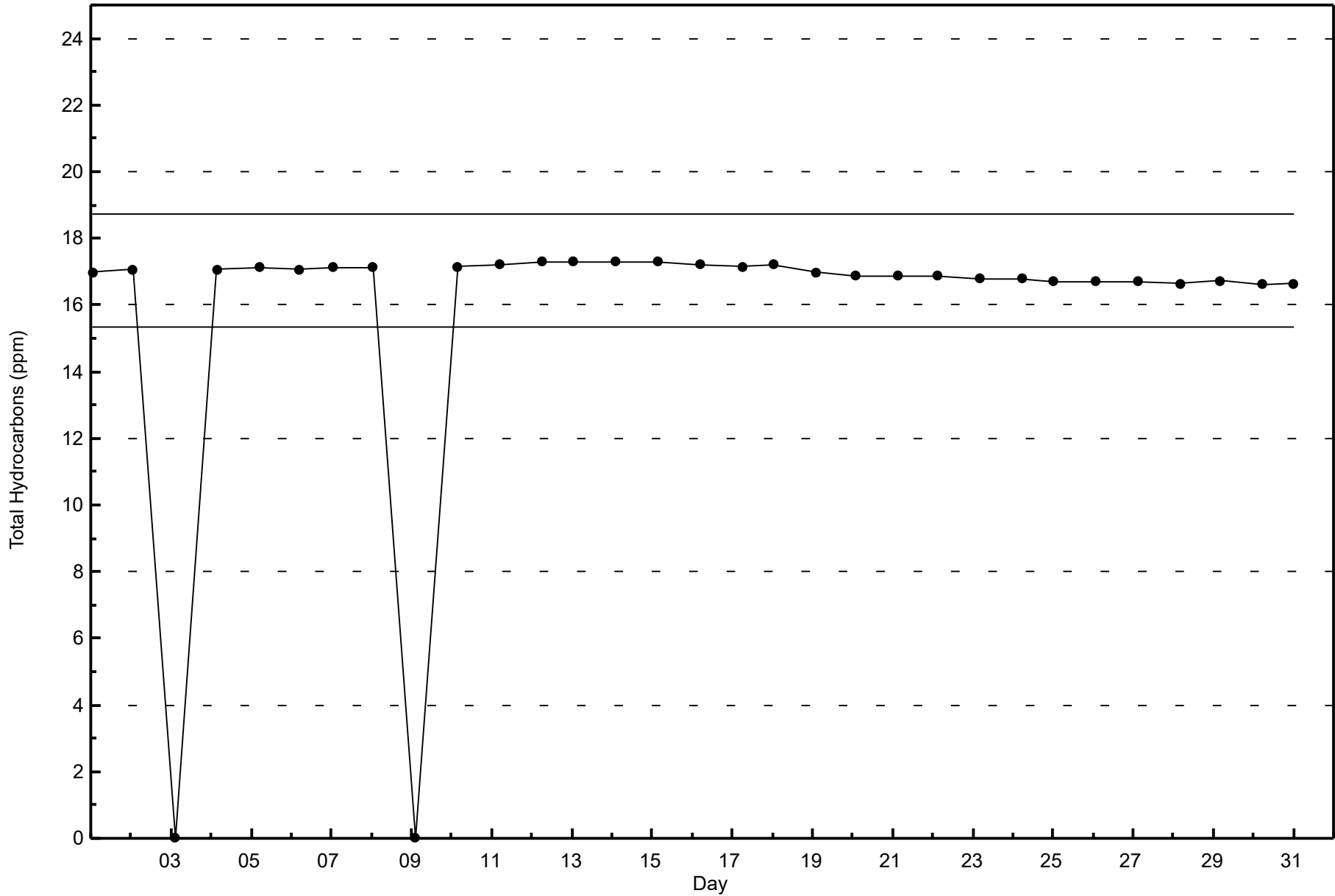


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Athabasca Valley

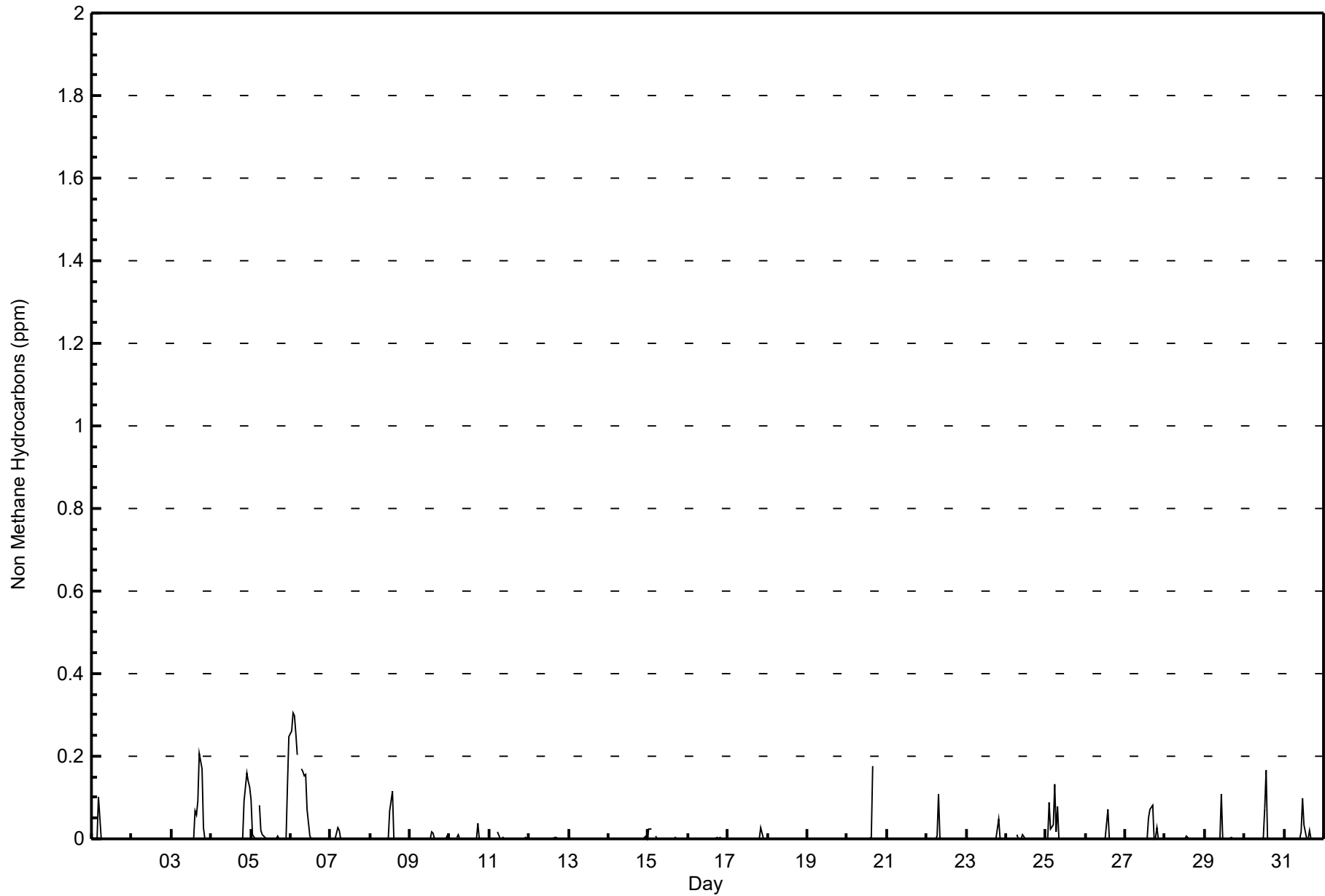








Maximum Value: 0.304 ppm on Jan 6 02:00		Maximum Daily Average: 0.089 ppm on Jan 6		Hours in Service:	744																										
Minimum Value: 0.000 ppm on Jan 1 02:00		Minimum Daily Average: 0.000 ppm on Jan 19		Hours of Data:	666																										
Maximum Diurnal Average: 0.016 ppm at hour 3		Minimum Diurnal Average: 0.004 ppm at hour 20		Hours of Missing Data:	78																										
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> = 0.2		Hours of Calibration:	35																										
				Percent Operational Time:	94.2																										
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-Jan	Z	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.101					
2-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000					
3-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.000	0.000	0.068	0.057	0.093	0.207	0.169	0.028	0.000	0.000	0.000	0.000	--	0.207					
4-Jan	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	0.001	0.000	0.000	0.092	0.159	0.140	0.126	0.023	0.159					
5-Jan	0.094	0.011	0.000	0.000	Z	0.080	0.019	0.009	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.128	0.247	0.026	0.247					
6-Jan	0.261	0.304	0.298	0.253	0.203	Z	0.170	0.163	0.153	0.155	0.073	0.006	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.089	0.304					
7-Jan	Z	0.000	0.001	0.000	0.026	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.026					
8-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069	0.116	0.000	0.000	UO	UO	UO	UO	UO	UO	UO	UO	--	0.116					
9-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	0.000	0.000	0.018	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	--	0.018					
10-Jan	0.000	0.001	0.001	Z	0.002	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.000	0.000	0.000	0.000	0.000	0.002	0.037						
11-Jan	0.000	0.000	0.000	0.000	Z	0.017	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	0.003	0.000	0.001	0.017						
12-Jan	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	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003					
13-Jan	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	0.001	0.001	0.000	0.000	0.001					
14-Jan	0.001	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	0.001	0.008	0.001	0.001	0.008					
15-Jan	0.024	0.023	0.023	Z	0.008	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.024					
16-Jan	0.000	0.000	0.000	0.000	Z	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	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.005					
17-Jan	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	0.027	0.000	0.000	0.000	0.001	0.027					
18-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	0.000					
19-Jan	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-Jan	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	0.177	PF	PF	PF	0.000	0.000	0.000	0.000	0.000	0.009	0.177					
21-Jan	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					
22-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.008	0.107	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	0.005	0.107					
23-Jan	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	0.046	0.000	0.000	0.000	0.000	0.002	0.046					
24-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.010	0.000	0.000	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	0.000	0.001	0.010					
25-Jan	Z	0.000	0.087	0.024	0.032	0.131	0.017	0.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.131					
26-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.072					
27-Jan	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	0.050	0.073	0.080	0.000	0.005	0.027	0.000	0.000	0.000	0.000	0.000	0.010	0.080					
28-Jan	0.000	0.000	0.000	Z	0.000	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	0.000	0.000	0.006					
29-Jan	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.110	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	0.005	0.110					
30-Jan	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.005	0.073	0.165	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.011	0.165					
31-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.099	0.033	0.000	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.099					
																								Diurnal Average							
																								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  
Athabasca Valley - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	596	89.49	89.49
0.006 - 0.05	32	4.80	94.29
0.06 - 0.1	23	3.45	97.75
> 0.1	15	2.25	100.00

Total Number of Valid Hours: 666

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - January 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	42	11	7	10	4	27	92	40	17	38	59	39	19	17	14	160	596
0.006 - 0.05	3	0	0	0	0	2	2	3	2	2	0	2	1	0	0	15	32
0.06 - 0.1	2	1	0	0	1	0	2	2	1	0	0	1	0	0	1	12	23
> 0.1	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	11	15
<b>Totals</b>	50	12	7	10	5	29	96	45	20	41	59	42	20	17	15	198	666

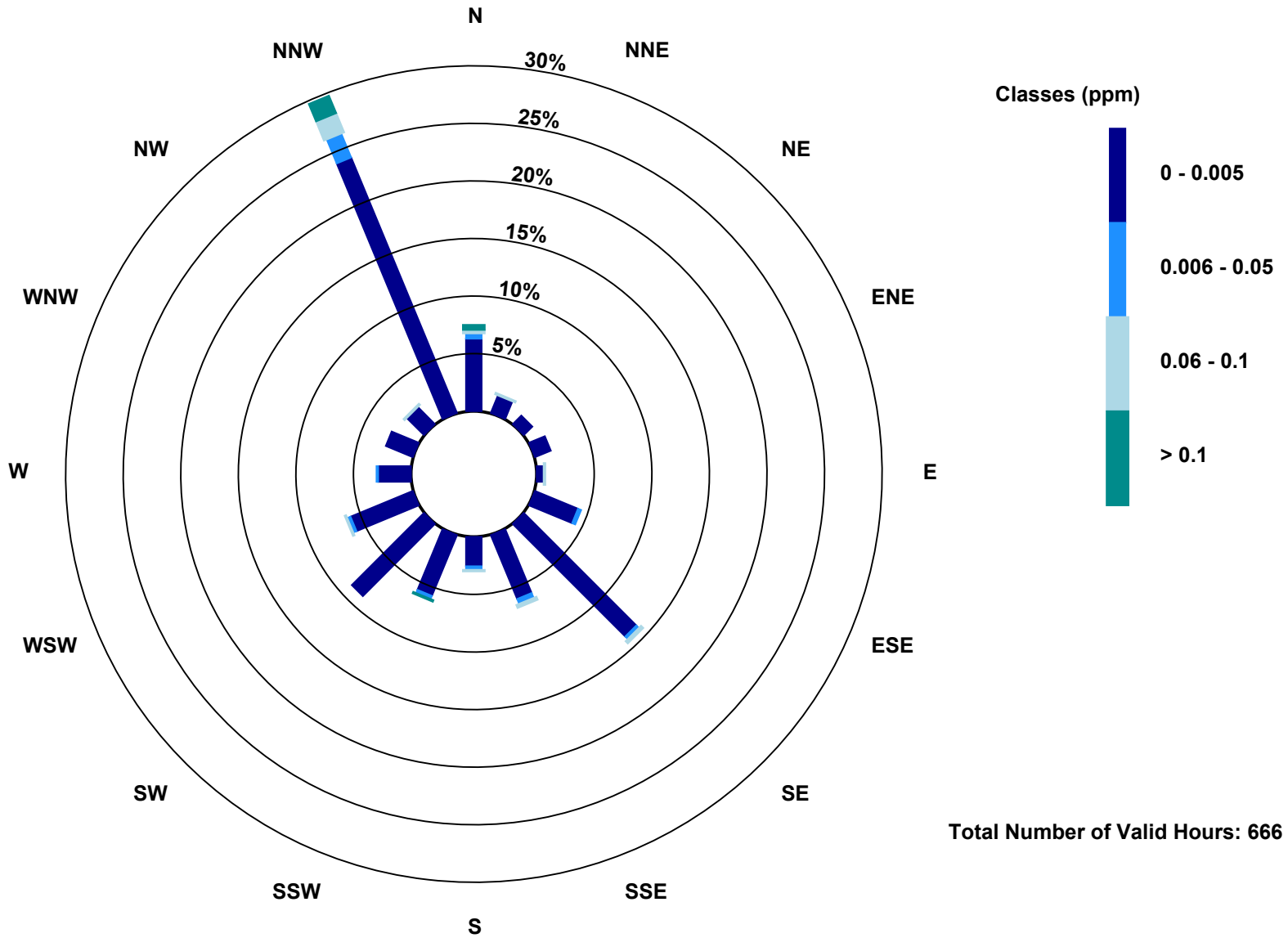
Total Number of Valid Hours: 666

Total Number of Hours: 744

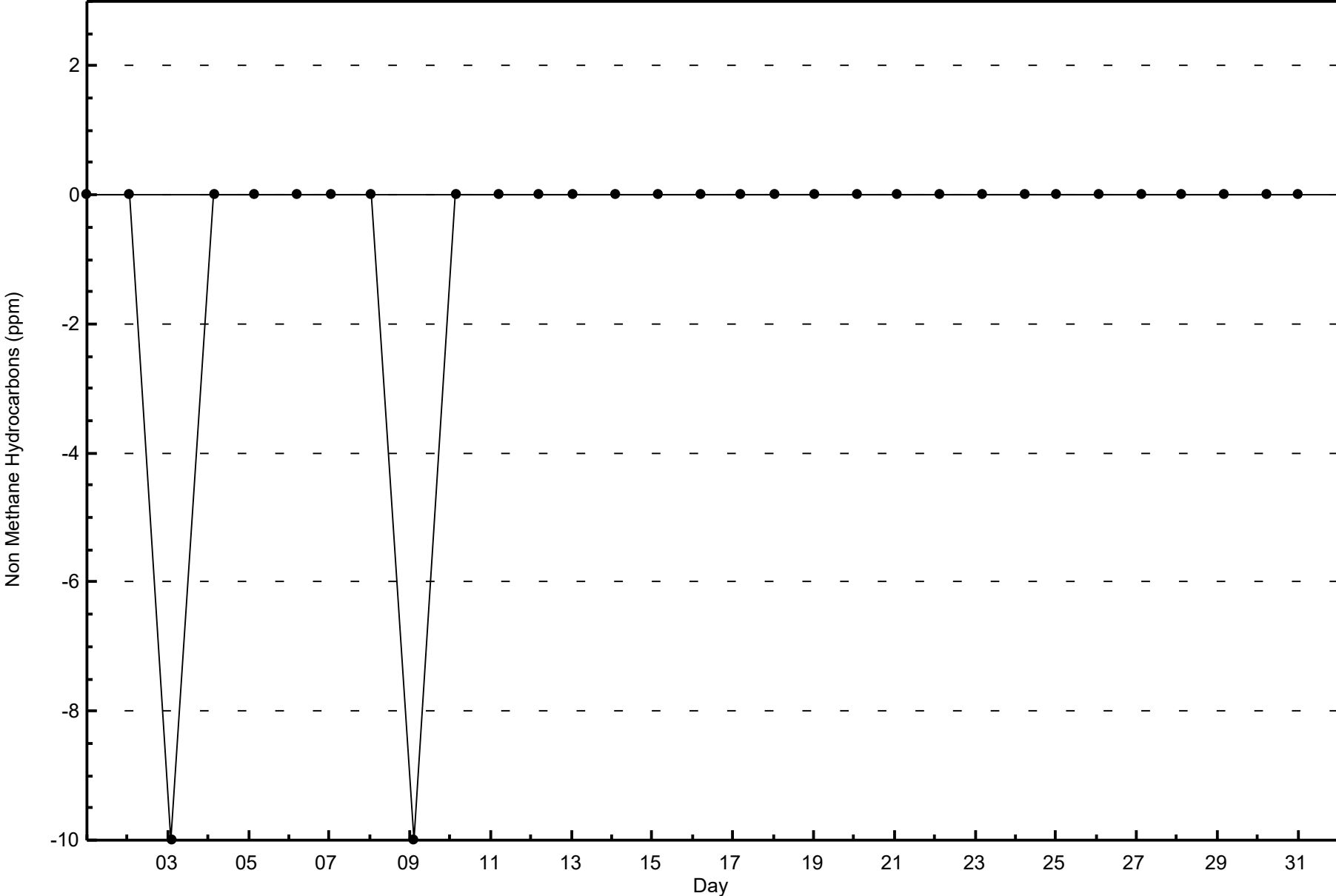


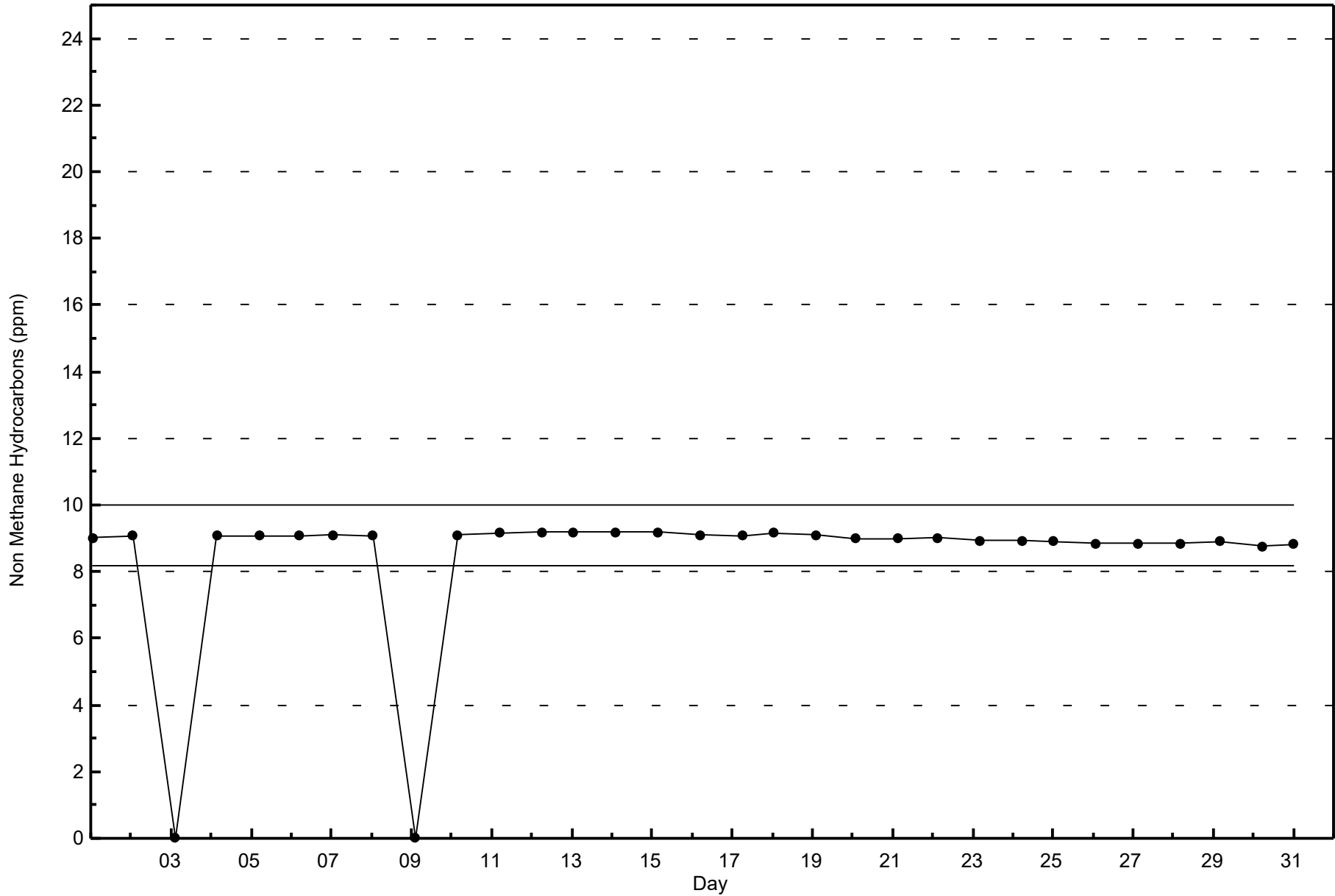
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley



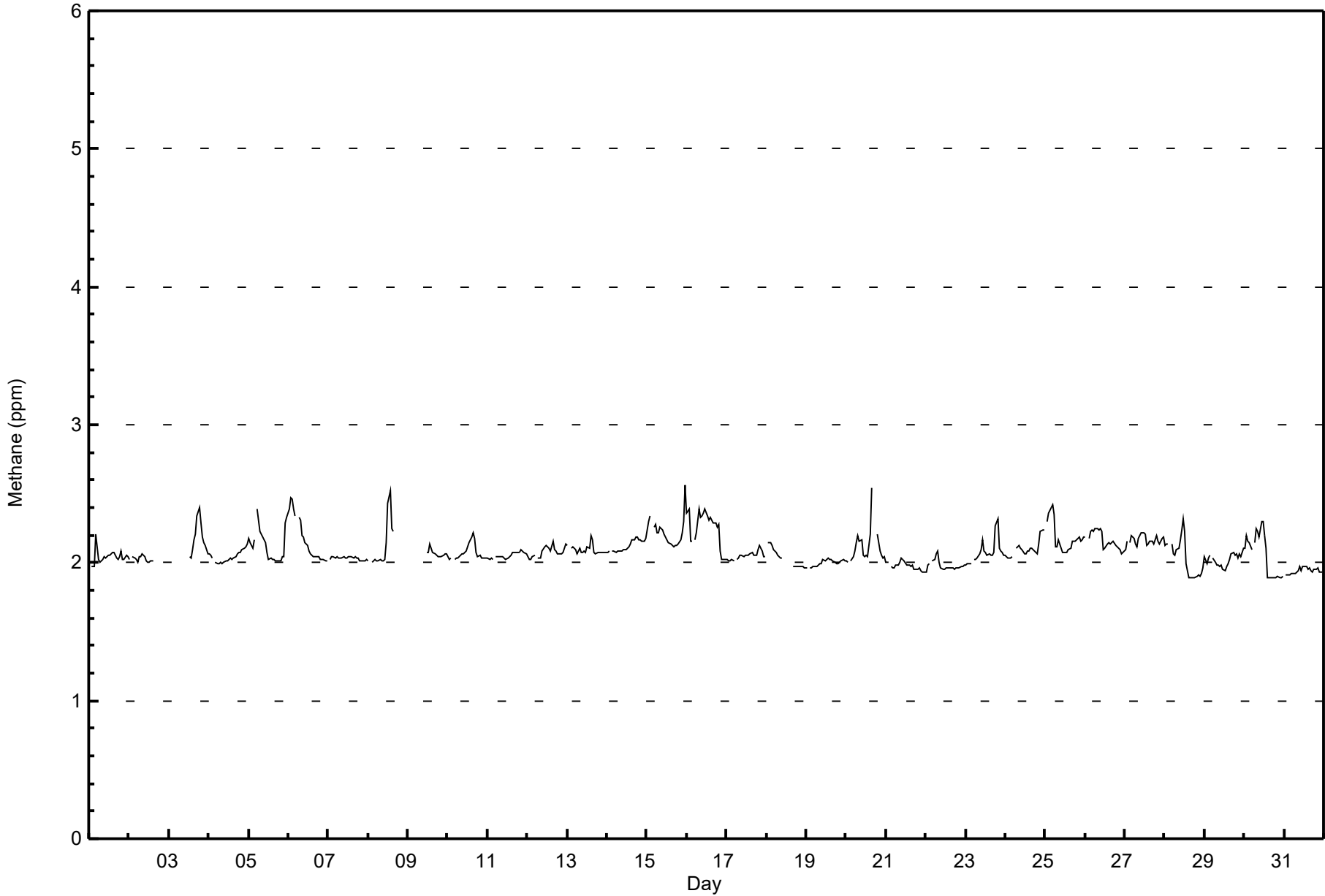








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																										
Maximum Value: 2.6 ppm on Jan 16 00:00		Maximum Daily Average: 2.3 ppm on Jan 16				Hours of Data:		666																																										
Minimum Value: 1.9 ppm on Jan 30 15:00		Minimum Daily Average: 1.9 ppm on Jan 31				Hours of Missing Data:		78																																										
Maximum Diurnal Average: 2.1 ppm at hour 2		Minimum Diurnal Average: 2.1 ppm at hour 22				Hours of Calibration:		35																																										
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 = 2.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.4				Percent Operational Time:		94.2																																										
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-Jan	Z	2.0	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.2	2.2																								
2-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.1																							
3-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.0	2.0	2.1	2.2	2.2	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	--	2.4																							
4-Jan	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1																							
5-Jan	2.2	2.1	2.1	2.2	Z	2.4	2.3	2.2	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	2.3	2.3	2.1	2.4																							
6-Jan	2.4	2.5	2.5	2.4	2.3	Z	2.3	2.3	2.2	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	2.2	2.5																							
7-Jan	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-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.5	2.3	2.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.5																							
9-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	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																							
10-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.2																							
11-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
12-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.0	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	2.1	2.1	2.2																							
13-Jan	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	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
14-Jan	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2																							
15-Jan	2.2	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.6	2.2	2.6																								
16-Jan	2.4	2.4	2.2	2.2	Z	2.2	2.2	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.0	2.0	2.0	2.3	2.4																								
17-Jan	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	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	2.0	2.0	2.0	2.0	2.1																							
18-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	C	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	--	2.1																								
19-Jan	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																							
20-Jan	2.0	2.0	Z	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.2	2.5	PF	PF	PF	2.2	2.1	2.0	2.0	2.0	2.1	2.5																								
21-Jan	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	1.9	1.9	1.9	2.0	2.0																								
22-Jan	1.9	2.0	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
23-Jan	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3																							
24-Jan	2.1	2.0	2.0	2.0	2.0	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	2.2																							
25-Jan	Z	2.3	2.4	2.4	2.4	2.3	2.1	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	2.2	2.2	2.2	2.2	2.2	2.4																							
26-Jan	2.2	Z	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	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2																							
27-Jan	2.1	2.2	Z	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2																							
28-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	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	1.9	2.0	2.3																							
29-Jan	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.1	2.1																							
30-Jan	2.1	2.2	2.2	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.3	2.3	2.2	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3																							
31-Jan	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	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	2.1	2.1	2.1	2.1	Diurnal Average	
																								2.4	2.5	2.5	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.5	2.3	2.5	2.3	2.3	2.4	2.3	2.2	2.2	2.3	2.6	2.1	2.6	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation				PF - Power Failure														





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

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	304	45.65	45.65
2.1 - 3.0	362	54.35	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 666

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Athabasca Valley - January 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	22	8	5	4	2	12	55	11	7	18	17	24	13	4	5	97	304
2.1 - 3.0	28	4	2	6	3	17	41	34	13	23	42	18	7	13	10	101	362
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>	50	12	7	10	5	29	96	45	20	41	59	42	20	17	15	198	666

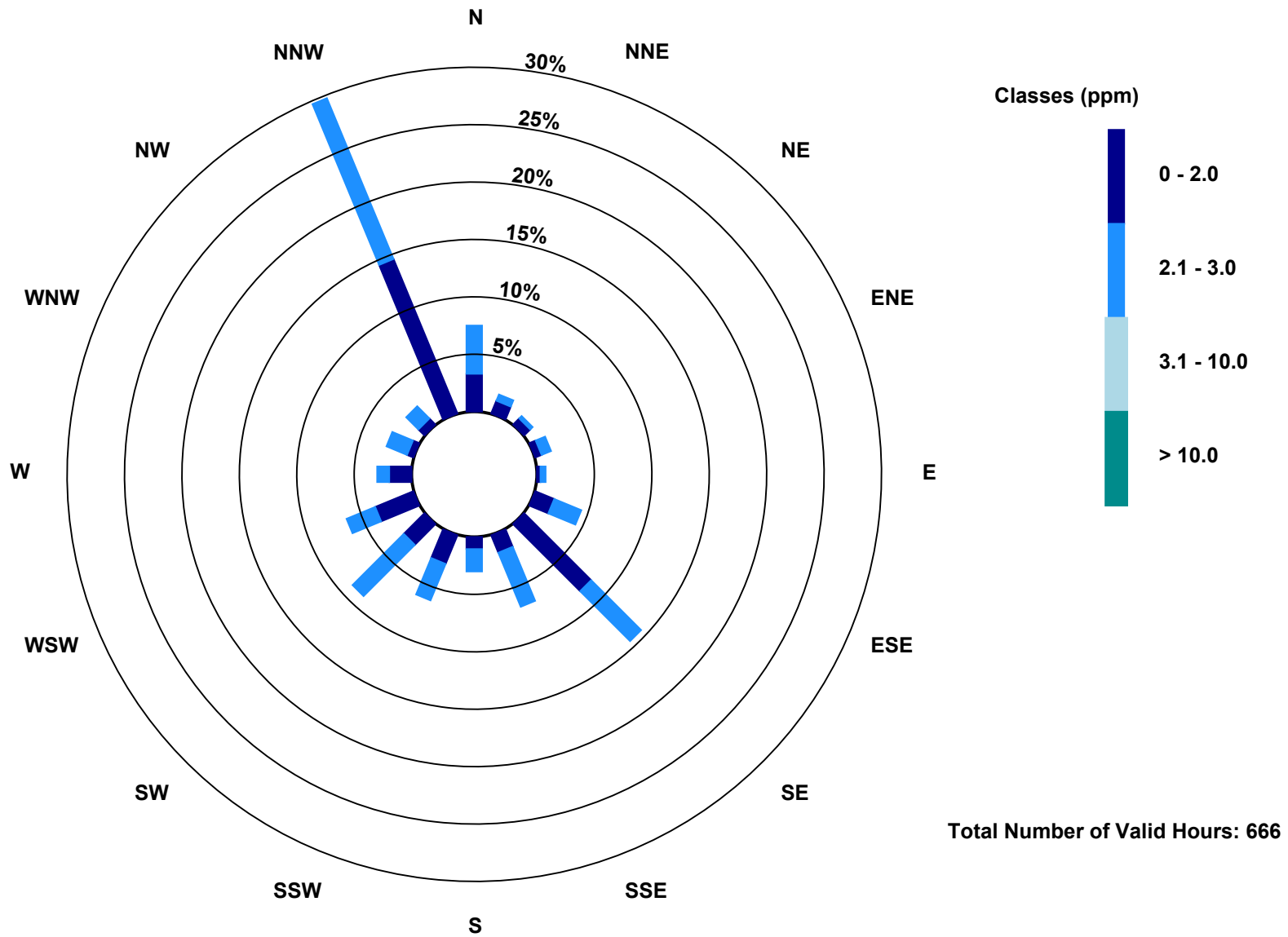
Total Number of Valid Hours: 666

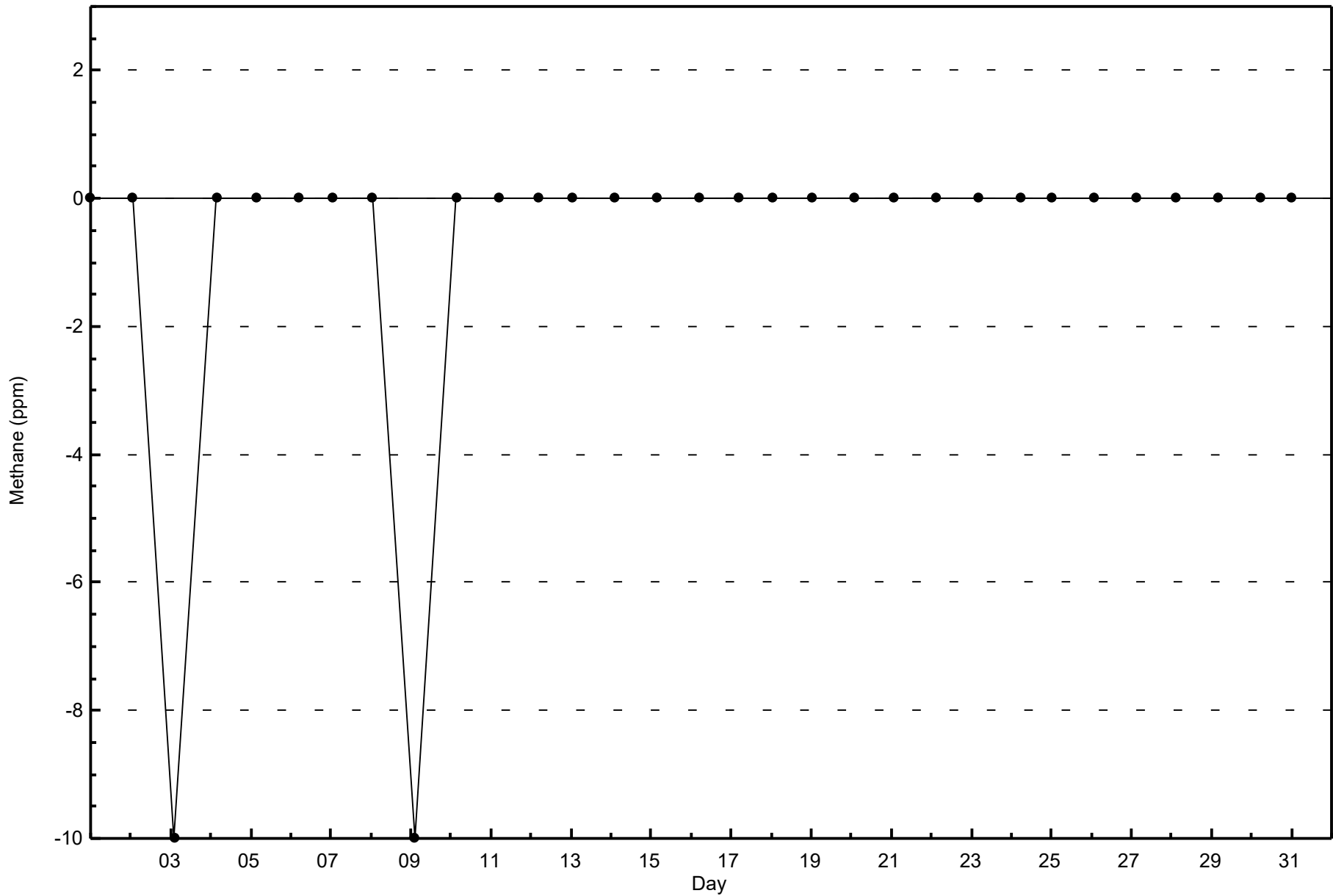
Total Number of Hours: 744



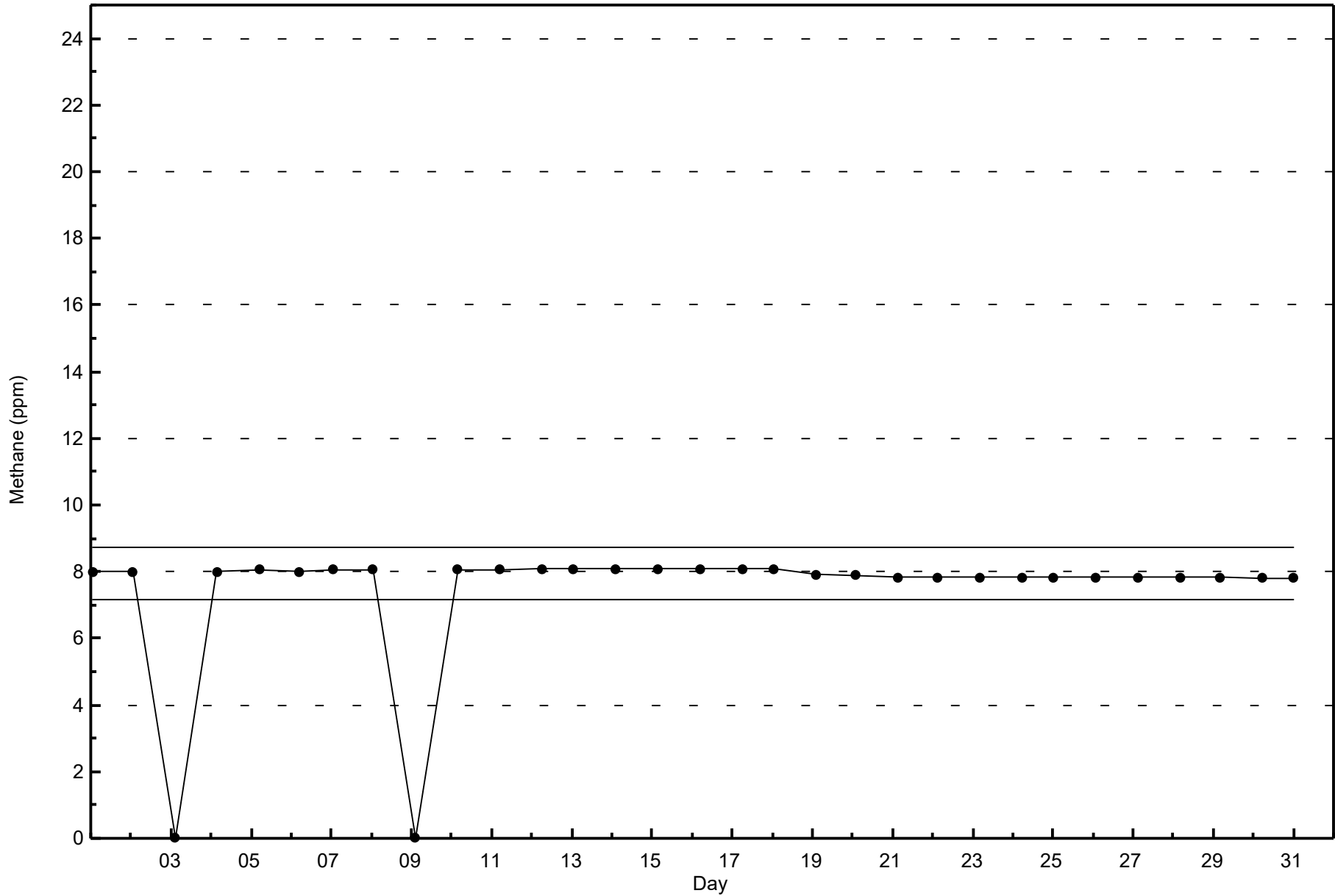
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











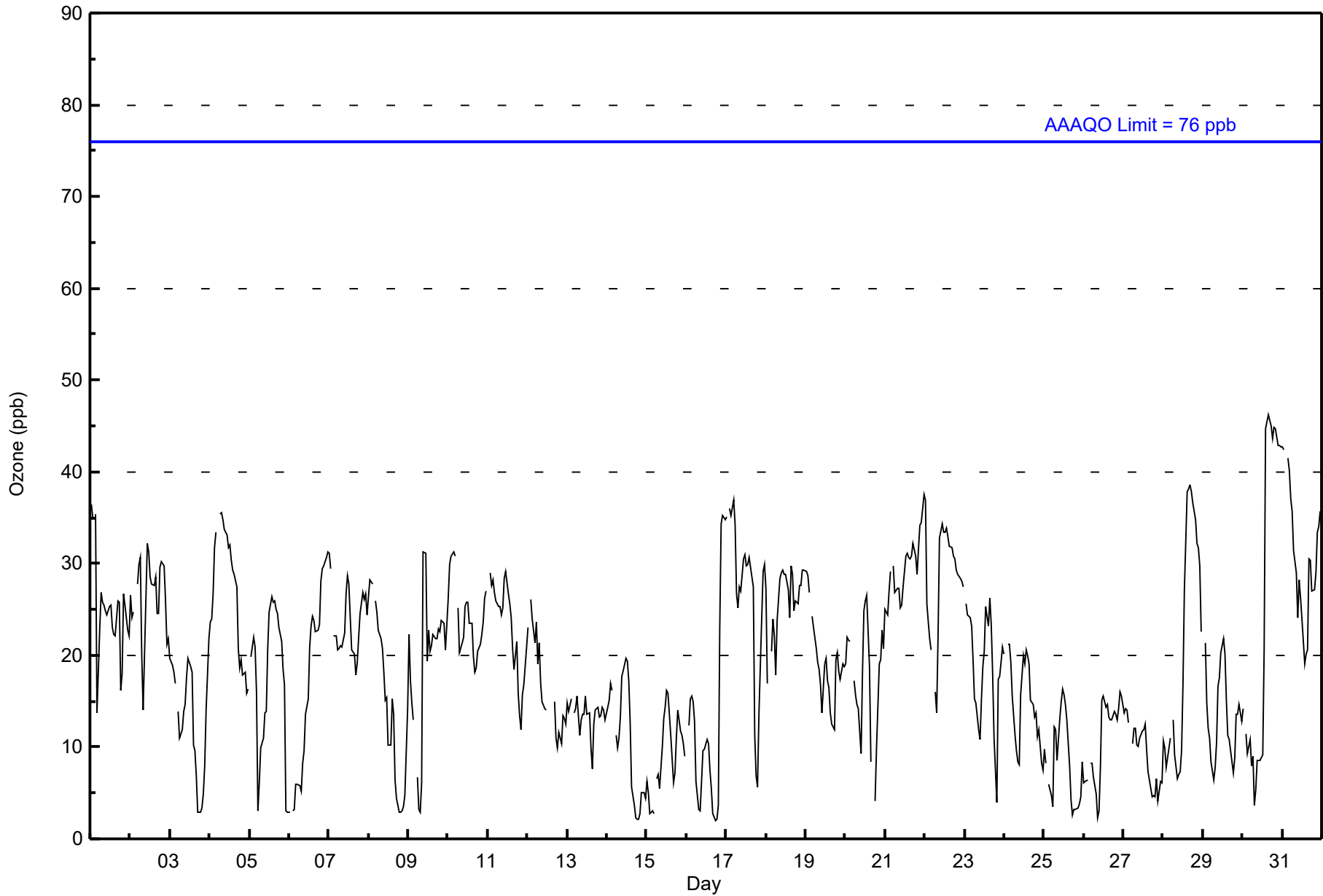
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Athabasca Valley - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744							
Maximum Value: 46.3 ppb on Jan 30 16:00		Maximum Daily Average: 30.8 ppb on Jan 31																			Hours of Data:	707							
Minimum Value: 2.1 ppb on Jan 16 18:00		Minimum Daily Average: 8.4 ppb on Jan 25																			Hours of Missing Data:	37							
Maximum Diurnal Average: 21.7 ppb at hour 14		Minimum Diurnal Average: 15.6 ppb at hour 8																			Hours of Calibration:	34							
Monthly Average: 19.09 ppb		Percentiles: P <sub>1</sub> = 2.8 P <sub>10</sub> = 6.2 Q <sub>1</sub> = 11.8 Median = 19.1 Q <sub>3</sub> = 26.1 P <sub>90</sub> = 30.9 P <sub>99</sub> = 42.9																			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-Jan	36.5	35.1	Z	35.3	13.7	22.8	26.9	25.8	25.4	24.8	24.3	25.3	25.4	23.1	22.2	22.1	26.0	25.8	16.1	18.1	26.7	25.4	22.7	22.2	24.9	36.5			
2-Jan	26.5	24.1	24.7	Z	27.7	29.8	30.7	20.1	14.0	26.3	32.1	31.3	28.6	27.8	27.6	28.6	24.6	24.6	29.6	30.2	29.7	26.0	21.2	21.8	26.4	32.1			
3-Jan	19.6	18.9	18.1	17.0	Z	13.9	11.0	11.9	13.9	14.6	17.5	19.7	18.7	18.1	10.2	9.6	6.8	2.9	3.0	3.4	4.9	8.0	14.0	21.9	12.9	21.9			
4-Jan	23.6	23.9	26.7	31.7	33.4	Z	35.4	35.5	34.8	33.7	33.1	31.7	32.1	30.3	29.3	28.9	27.4	20.7	18.6	19.5	17.8	18.2	15.8	16.4	26.9	35.5			
5-Jan	Z	19.8	22.0	20.9	16.0	3.0	6.2	10.0	11.0	13.7	13.9	20.6	32.7	26.4	25.7	25.9	25.0	24.6	23.0	21.5	18.5	16.8	3.0	3.0	17.2	26.4			
6-Jan	2.9	Z	3.0	3.2	6.0	6.0	5.8	5.2	8.2	9.5	13.5	15.2	20.9	23.1	24.2	23.8	22.6	22.8	23.4	28.0	29.4	29.8	30.7	31.3	16.9	31.3			
7-Jan	31.1	29.5	Z	22.1	22.1	20.7	20.8	21.1	20.9	22.4	26.6	28.6	27.8	24.1	20.5	20.1	17.9	19.3	22.0	24.6	26.8	26.1	26.6	24.4	23.7	31.1			
8-Jan	26.3	28.2	27.7	Z	25.9	24.7	22.8	21.8	20.8	18.2	15.2	15.5	10.3	10.2	15.3	13.6	6.4	4.4	3.0	2.9	3.0	3.5	4.7	14.2	14.7	28.2			
9-Jan	22.3	17.2	14.7	12.9	Z	6.7	3.3	2.8	6.0	31.3	31.1	19.4	22.7	20.5	21.1	22.2	21.9	21.8	22.8	22.6	23.9	23.5	20.6	23.3	18.9	31.3			
10-Jan	26.3	30.0	30.8	31.2	30.8	Z	25.1	20.3	21.4	21.9	25.3	25.8	25.7	23.5	23.4	19.9	18.1	18.5	20.4	21.2	22.2	23.7	26.3	27.0	24.3	31.2			
11-Jan	Z	29.1	27.7	28.2	26.8	26.0	25.3	25.3	24.4	25.2	28.4	29.1	26.7	25.6	24.1	20.7	18.5	21.5	15.9	13.4	11.8	15.7	16.8	20.9	22.9	29.1			
12-Jan	23.0	Z	26.0	23.9	21.3	23.6	19.0	21.3	17.0	15.0	14.2	14.0	M	C	C	C	15.0	11.0	10.0	11.5	10.4	13.4	13.1	12.5	16.6	26.0			
13-Jan	14.8	13.8	15.3	Z	13.8	14.2	15.5	11.3	12.9	13.6	13.5	15.5	13.6	13.8	10.0	7.7	12.5	14.1	14.3	13.2	13.5	14.4	14.1	12.9	13.4	15.5			
14-Jan	14.3	15.1	17.0	16.1	Z	11.3	9.9	10.9	13.3	17.7	18.3	19.7	19.3	17.2	12.7	5.6	3.7	2.3	2.1	2.2	2.8	5.1	5.0	4.5	10.7	19.7			
15-Jan	6.3	5.0	2.8	3.1	2.8	Z	6.5	7.1	5.5	10.0	13.1	14.3	16.1	15.9	11.3	8.6	6.0	7.2	10.9	14.0	11.8	11.3	10.3	9.0	9.1	16.1			
16-Jan	Z	12.4	15.3	15.6	14.9	12.8	6.2	3.2	3.1	6.3	9.6	9.8	10.8	10.4	7.5	5.4	2.8	2.1	2.1	3.7	22.9	34.3	35.2	34.8	12.2	35.2			
17-Jan	35.1	Z	36.0	35.3	36.9	34.2	26.8	25.1	27.4	27.1	30.6	30.9	29.7	29.9	30.6	28.5	27.4	11.2	6.9	5.6	13.6	24.0	29.1	29.8	26.6	36.9			
18-Jan	27.2	16.9	Z	20.5	23.9	22.1	17.9	23.8	28.4	29.0	29.2	28.9	28.8	27.1	24.2	29.7	28.8	24.9	26.0	25.6	27.5	27.7	29.3	29.3	25.9	29.7			
19-Jan	29.2	28.7	26.9	Z	24.2	23.1	20.7	19.2	18.4	16.8	13.7	19.0	19.7	17.3	16.5	13.7	12.5	12.0	19.6	20.3	18.3	17.4	19.1	18.8	19.3	29.2			
20-Jan	19.1	21.9	21.7	21.5	Z	17.2	15.8	14.7	14.2	9.2	18.1	24.8	25.9	26.6	18.8	8.4	PF	PF	4.1	9.7	19.0	19.5	22.7	20.8	17.8	26.6			
21-Jan	25.0	24.3	27.0	29.2	Z	29.7	26.8	27.2	27.3	25.1	25.4	27.4	30.7	31.0	30.7	30.5	30.8	32.1	30.8	28.9	31.5	34.2	34.5	37.5	29.5	37.5			
22-Jan	36.9	25.6	23.7	21.8	20.5	Z	16.1	13.8	22.1	32.9	34.3	33.5	33.4	33.9	32.9	31.9	31.7	30.9	30.5	29.4	28.9	28.3	28.0	27.5	28.2	36.9			
23-Jan	Z	25.7	24.4	24.1	23.2	19.5	15.3	14.8	11.8	10.8	15.2	18.8	20.5	25.3	23.2	26.2	23.4	18.0	11.0	4.0	17.4	17.7	19.2	20.9	18.7	26.2			
24-Jan	20.1	Z	21.2	21.1	19.2	15.6	11.4	9.6	8.5	8.1	15.7	20.1	19.1	20.6	20.0	19.0	15.1	14.7	13.3	13.7	11.1	11.9	8.2	7.5	15.0	21.2			
25-Jan	9.8	8.3	Z	5.9	4.8	3.6	12.2	11.8	8.6	13.1	14.9	16.3	15.6	14.6	13.0	7.9	4.2	2.6	3.2	3.2	3.4	3.8	4.5	8.4	8.4	16.3			
26-Jan	6.0	6.3	6.4	Z	8.2	8.2	6.7	4.8	2.2	3.0	7.8	15.1	15.5	14.3	14.6	13.3	12.9	13.0	13.8	13.5	13.0	14.1	16.0	15.5	10.6	16.0			
27-Jan	13.7	14.2	14.0	12.7	Z	10.3	12.0	12.1	10.3	10.0	11.0	11.8	11.9	12.5	9.8	7.3	5.5	4.6	4.7	4.6	6.5	4.2	6.3	6.0	9.4	14.2			
28-Jan	10.7	9.8	7.7	9.9	11.0	Z	12.9	9.1	6.6	7.0	7.3	9.6	16.9	27.1	37.8	38.2	38.6	37.8	36.7	34.7	32.2	31.8	29.7	22.6	21.1	38.6			
29-Jan	Z	21.4	14.8	12.1	11.0	8.3	6.4	7.7	10.5	16.6	17.6	20.3	21.8	20.1	15.1	11.3	10.8	8.4	7.1	8.8	13.5	13.5	14.7	12.8	13.2	21.8			
30-Jan	14.3	Z	11.4	9.4	10.9	7.9	9.0	3.7	5.3	8.5	8.6	8.8	9.2	20.7	44.7	46.3	45.5	45.0	43.6	44.8	44.8	42.9	42.9	42.8	24.8	46.3			
31-Jan	42.6	42.4	Z	41.5	40.2	37.1	35.7	31.5	29.0	24.1	28.3	26.3	23.9	19.0	20.2	20.6	30.6	30.3	27.0	27.2	29.0	33.4	34.0	35.6	30.8	42.6			
		21.7	21.1	19.5	20.2	19.6	17.4	16.6	15.6	15.6	17.6	19.6	20.9	21.5	21.7	21.2	19.8	19.1	17.6	16.6	16.9	18.9	20.0	19.9	20.5	Diurnal Average			
		42.6	42.4	36.0	41.5	40.2	37.1	35.7	35.5	34.8	33.7	34.3	33.5	33.4	33.9	44.7	46.3	45.5	45.0	43.6	44.8	44.8	42.9	42.9	42.8	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  
Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Athabasca Valley - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	383	54.17	54.17
21 - 50	324	45.83	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Athabasca Valley - January 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	25	5	1	5	5	18	57	41	14	31	45	22	6	16	9	83	383
21 - 50	30	8	6	8	2	12	38	5	6	20	18	21	14	2	6	128	324
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>	55	13	7	13	7	30	95	46	20	51	63	43	20	18	15	211	707

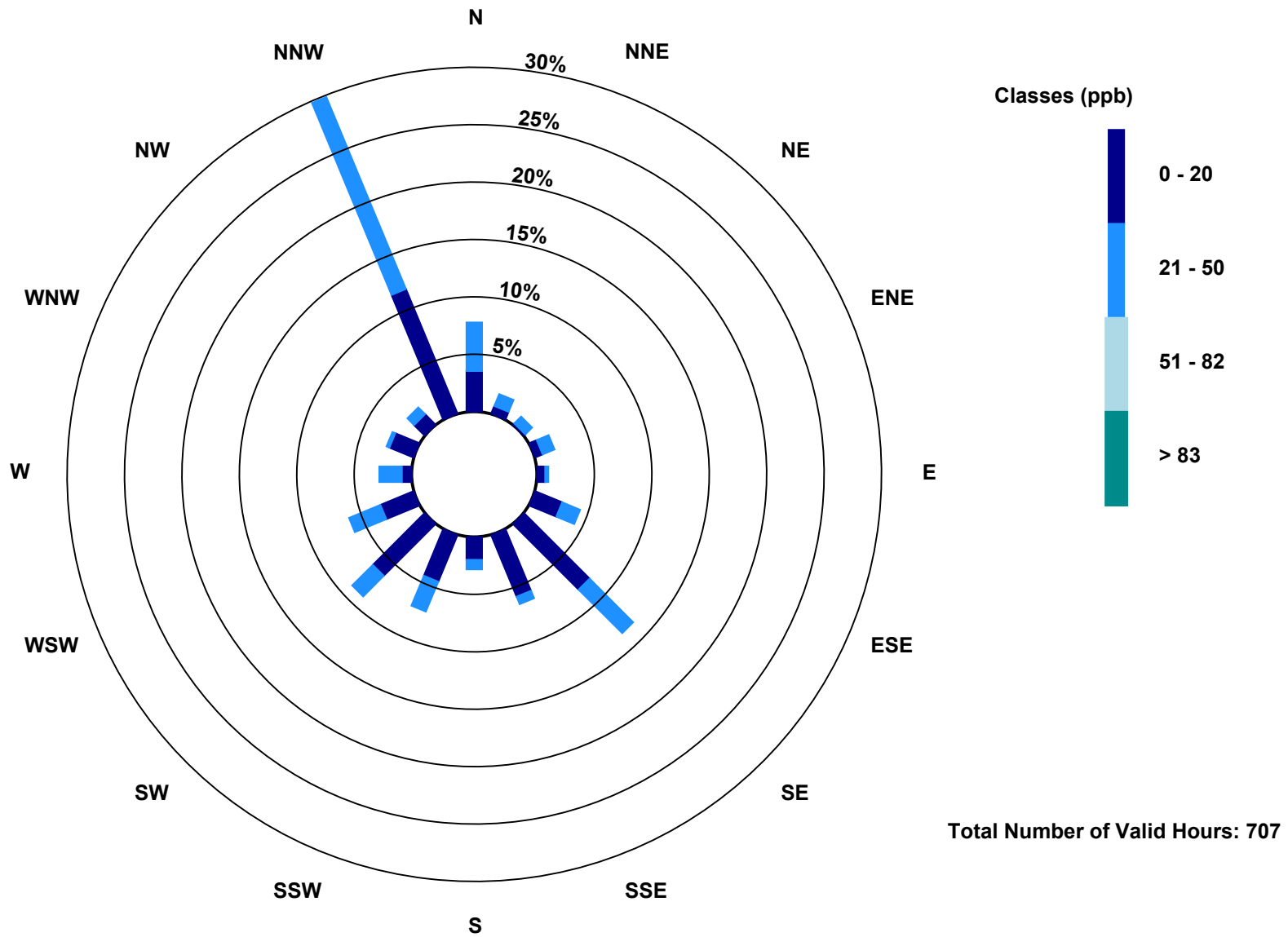
Total Number of Valid Hours: 707

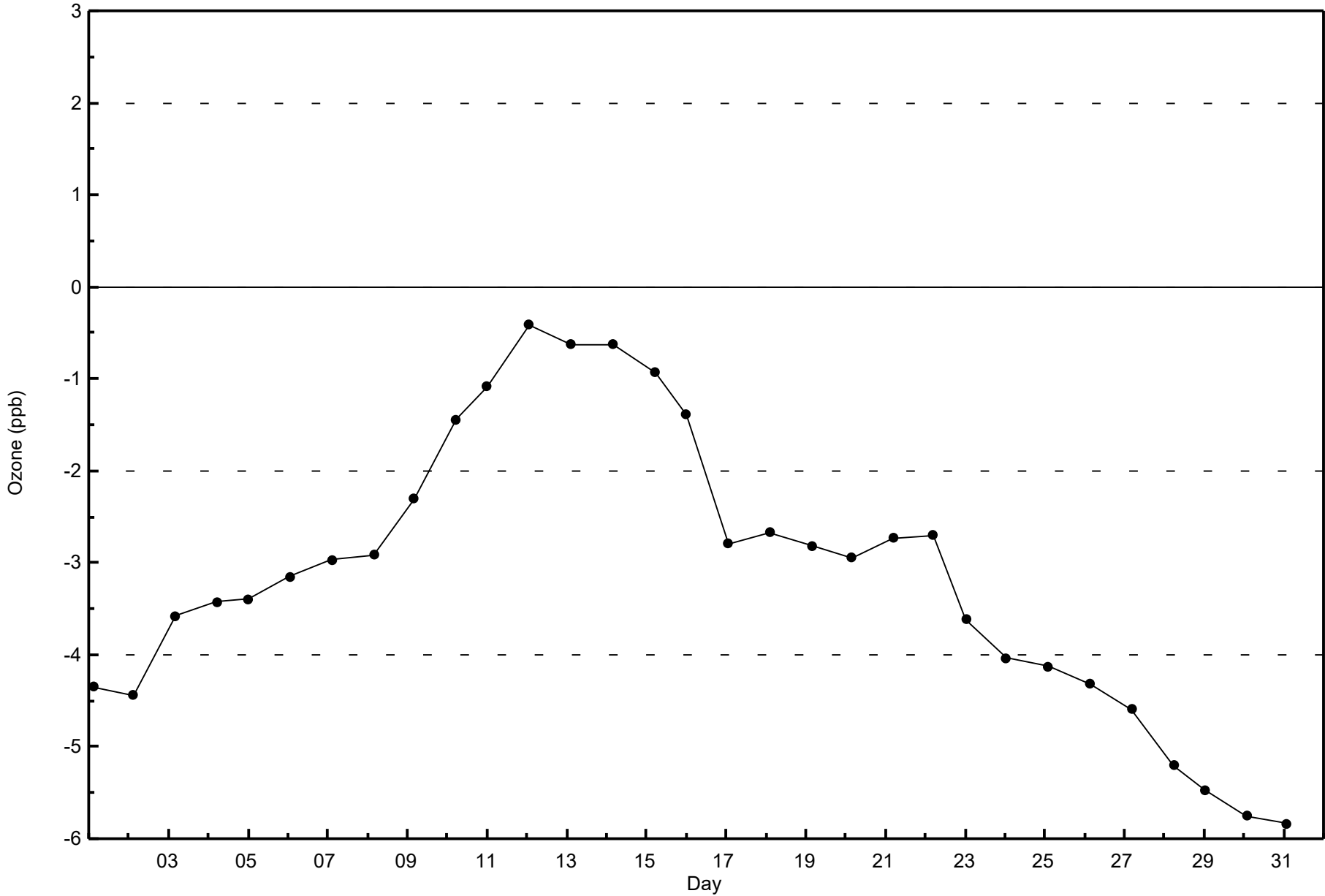
Total Number of Hours: 744

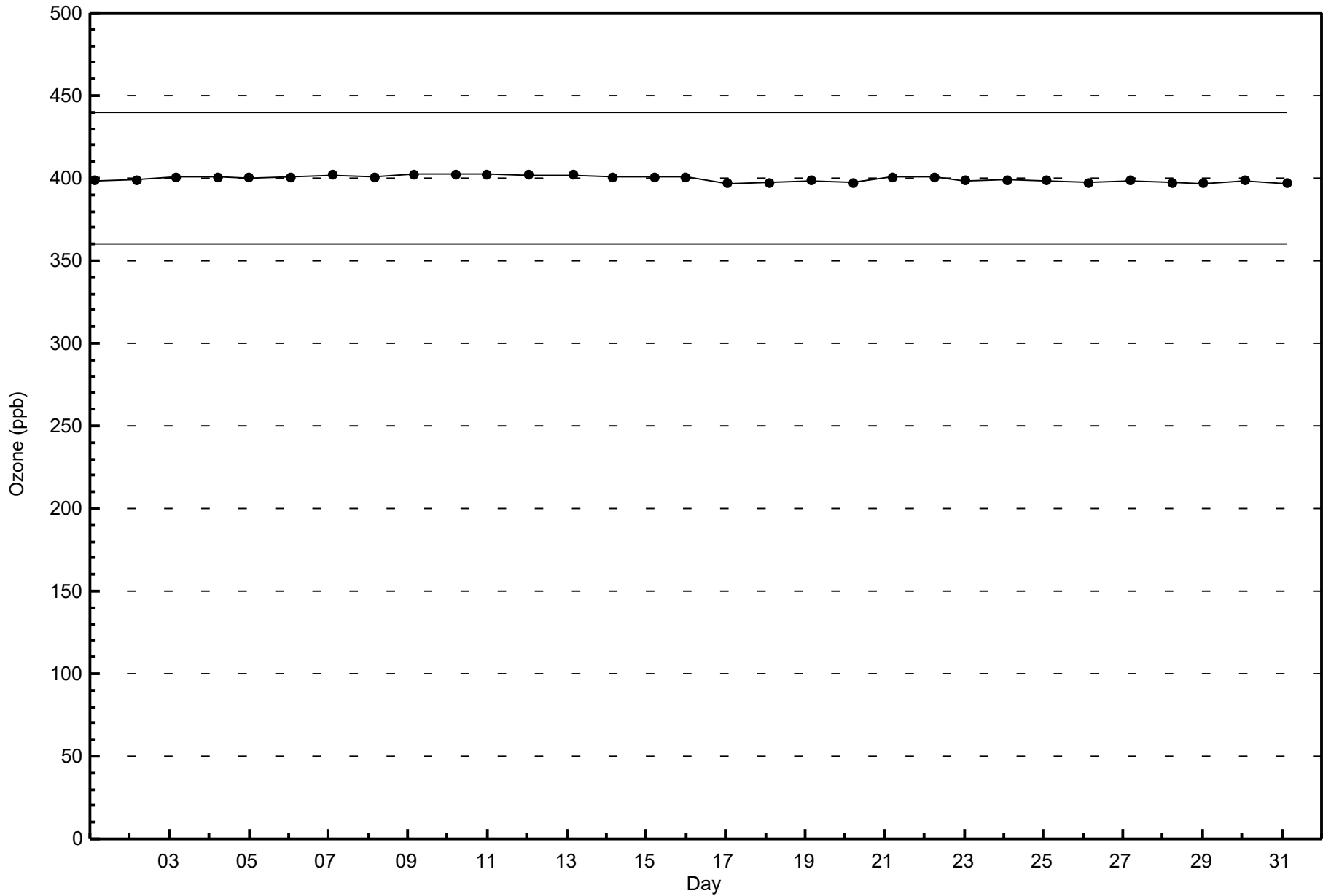


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



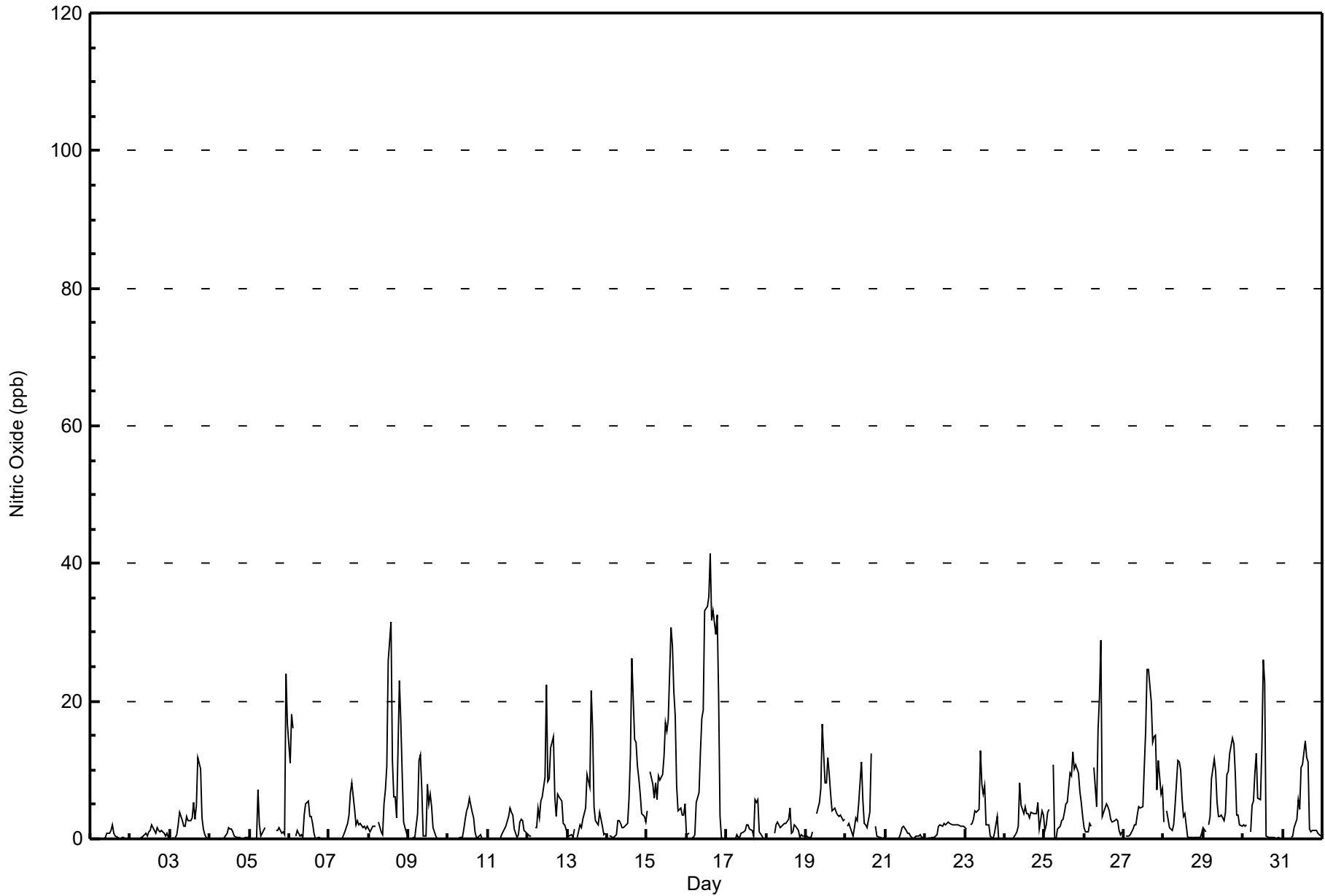








Maximum Value: 41.6 ppb on Jan 16 15:00																				Maximum Daily Average: 15.6 ppb on Jan 16					Hours in Service: 744		
Minimum Value: 0.0 ppb on Jan 1 03:00																				Minimum Daily Average: 0.3 ppb on Jan 1					Hours of Data: 705		
Maximum Diurnal Average: 8.2 ppb at hour 15																				Minimum Diurnal Average: 1.0 ppb at hour 5					Hours of Missing Data: 39		
Monthly Average: 3.95 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.3 Median = 1.8 Q <sub>3</sub> = 4.6 P <sub>90</sub> = 11.1 P <sub>99</sub> = 31.5					Hours of Calibration: 37		
																									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-Jan	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.9	0.8	1.3	2.1	0.8	0.5	0.2	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.3	2.1	
2-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.1	0.3	0.8	0.5	1.1	1.3	2.0	1.2	0.8	1.7	1.2	1.1	1.2	0.7	0.3	0.8	0.2	0.7	2.0	
3-Jan	Z	0.2	0.1	0.3	0.7	2.0	4.0	2.6	1.8	1.8	3.3	2.7	2.6	3.0	5.4	2.9	5.0	11.7	10.2	3.1	1.3	0.6	0.1	0.0	2.8	11.7	
4-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	1.7	1.5	1.4	1.0	0.5	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.3	1.7
5-Jan	0.1	0.0	Z	0.0	0.2	7.2	2.0	0.4	1.3	1.6	C	C	C	C	C	C	1.1	1.2	1.7	0.8	1.1	0.6	23.9	16.6	--	23.9	
6-Jan	10.9	18.1	16.0	Z	0.4	1.3	0.4	0.7	0.3	3.4	5.1	5.5	3.3	3.3	2.2	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	3.1	18.1	
7-Jan	0.0	0.0	0.0	0.1	Z	0.1	0.1	0.0	0.1	1.0	1.6	2.1	3.4	6.7	8.2	4.3	2.1	2.7	2.0	2.1	1.6	1.7	1.4	1.9	1.9	8.2	
8-Jan	1.4	1.0	1.7	1.9	1.8	Z	2.4	1.1	0.6	5.0	7.2	10.7	25.8	31.6	11.4	6.1	6.2	3.1	23.0	17.0	9.4	2.5	1.7	0.2	7.5	31.6	
9-Jan	Z	0.1	0.1	0.2	0.2	3.7	11.4	12.2	7.0	0.4	0.4	8.0	5.1	6.5	4.7	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	12.2	
10-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	1.4	2.8	4.2	4.7	5.8	4.0	3.1	1.1	0.1	0.2	0.6	0.1	0.1	0.1	0.1	1.3	5.8	
11-Jan	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.6	1.1	1.4	1.9	3.3	4.4	3.8	3.4	1.5	0.2	0.7	2.3	2.8	2.6	1.2	0.8	1.4	4.4	
12-Jan	0.6	0.4	0.3	Z	1.6	1.7	4.5	3.1	5.5	6.2	8.9	22.4	8.3	8.7	13.1	14.8	6.1	3.2	6.6	6.2	5.5	2.3	2.1	1.5	5.8	22.4	
13-Jan	0.6	0.5	0.5	0.2	1.4	Z	0.3	2.0	1.6	2.8	3.7	4.5	9.4	7.5	21.7	15.8	4.7	2.7	2.1	3.8	2.9	1.9	0.6	0.8	4.0	21.7	
14-Jan	Z	0.4	0.4	0.3	0.2	0.6	2.6	2.7	2.3	1.6	1.5	2.1	2.3	6.0	12.2	26.3	14.5	14.1	10.6	8.7	6.5	3.6	3.2	2.4	5.4	26.3	
15-Jan	4.0	Z	9.8	7.9	5.8	8.1	5.8	9.1	8.5	9.3	12.1	17.0	15.8	17.2	30.8	28.1	21.4	17.9	7.7	4.1	4.6	3.4	3.4	5.1	11.2	30.8	
16-Jan	0.7	0.8	Z	0.1	0.3	0.6	5.3	6.7	12.5	17.5	18.8	33.2	33.7	35.3	41.6	31.7	33.2	29.7	32.5	20.6	3.2	0.1	0.1	0.0	15.6	41.6	
17-Jan	0.0	0.1	0.1	Z	0.0	0.0	0.5	0.1	0.1	0.8	1.0	1.2	2.0	2.0	1.5	1.2	0.4	5.7	5.2	5.7	0.9	0.3	0.0	0.0	1.3	5.7	
18-Jan	0.0	0.1	0.1	0.1	Z	0.9	2.0	2.4	1.6	1.9	2.1	2.3	2.2	2.9	4.5	0.8	1.1	2.1	1.9	1.3	0.2	0.5	0.3	0.4	1.4	4.5	
19-Jan	0.4	0.2	0.2	0.2	1.0	Z	3.7	4.4	5.3	7.3	16.7	8.2	8.1	11.8	9.3	6.6	4.1	4.4	3.8	3.4	3.2	3.4	2.7	2.9	4.8	16.7	
20-Jan	Z	1.9	2.2	1.7	0.5	1.6	3.0	2.7	5.0	11.2	5.8	2.2	2.0	1.6	3.9	12.4	PF	PF	1.8	0.4	0.1	0.1	0.1	0.2	2.9	12.4	
21-Jan	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.9	1.7	1.9	1.3	0.8	0.7	0.4	0.1	0.1	0.3	0.4	0.4	0.6	0.2	0.2	0.5	1.9	
22-Jan	0.0	Z	0.1	0.1	0.2	0.2	0.4	0.5	1.8	2.0	1.8	2.2	2.0	2.2	2.5	2.3	2.1	2.0	2.1	2.0	2.1	1.8	1.9	1.8	1.5	2.5	
23-Jan	1.6	1.5	Z	2.0	2.2	2.9	4.0	3.8	4.2	12.8	8.0	6.5	7.7	2.0	2.0	0.3	0.2	0.1	0.9	3.2	0.1	0.1	0.0	0.0	2.9	12.8	
24-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.7	0.9	1.9	8.1	4.9	3.7	4.8	3.6	3.6	3.0	3.8	3.6	3.7	3.7	5.2	1.4	4.1	3.4	2.8	8.1	
25-Jan	1.2	2.1	4.0	4.3	Z	10.8	0.1	0.0	1.4	1.8	2.7	2.8	3.9	5.0	5.3	9.5	9.1	12.6	10.1	10.7	9.5	6.8	5.2	3.2	5.3	12.6	
26-Jan	1.6	1.0	1.1	2.2	1.8	Z	10.4	4.8	15.8	20.6	28.8	3.3	3.8	5.2	4.7	4.1	2.9	2.5	2.6	2.8	2.6	1.2	0.6	1.0	5.4	28.8	
27-Jan	Z	0.3	0.4	0.4	0.6	1.4	2.1	2.0	3.4	4.6	4.4	4.7	10.4	15.6	24.6	24.6	19.8	14.0	14.9	15.0	7.2	11.3	6.4	7.4	8.5	24.6	
28-Jan	2.4	Z	4.0	1.6	1.5	1.2	2.0	4.8	11.4	11.1	9.9	5.8	3.2	3.7	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.9	2.9	11.4
29-Jan	1.6	1.1	Z	2.0	3.3	8.7	11.5	9.8	5.3	3.2	3.2	3.4	2.5	3.8	9.3	9.7	12.5	14.6	13.9	9.5	3.5	3.4	2.1	1.9	6.1	14.6	
30-Jan	1.9	1.7	2.1	Z	1.0	4.8	5.6	9.6	12.5	5.8	5.7	13.3	26.0	22.7	0.4	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	5.0	26.0	
31-Jan	0.1	0.0	0.1	0.1	Z	0.3	0.3	1.7	2.8	5.7	4.2	10.3	10.9	14.2	11.7	11.2	1.4	1.0	1.3	1.2	1.2	0.8	0.6	0.5	3.5	14.2	
																								Diurnal Average			
																								Diurnal Maximum			
1.2 1.2 1.7 1.0 1.0 2.2 2.8 2.9 3.7 4.9 5.7 6.3 7.1 7.9 8.2 7.6 5.2 5.0 5.2 4.2 2.5 1.7 2.0 1.7																								10.9 18.1 16.0 7.9 5.8 10.8 11.5 12.2 15.8 20.6 28.8 33.2 33.7 35.3 41.6 31.7 33.2 29.7 32.5 20.6 9.5 11.3 23.9 16.6			
Z - zerospan			C - Calibration			PF - Power Failure																					





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

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	680	96.45	96.45
21 - 40	24	3.40	99.86
41 - 80	1	0.14	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Athabasca Valley - January 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	51	12	5	14	5	28	97	42	16	51	61	44	20	15	14	205	680
21 - 40	2	0	0	0	1	1	0	5	2	1	1	0	0	5	0	6	24
41 - 80	1	0	0	0	0	0	0	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>	54	12	5	14	6	29	97	47	18	52	62	44	20	20	14	211	705

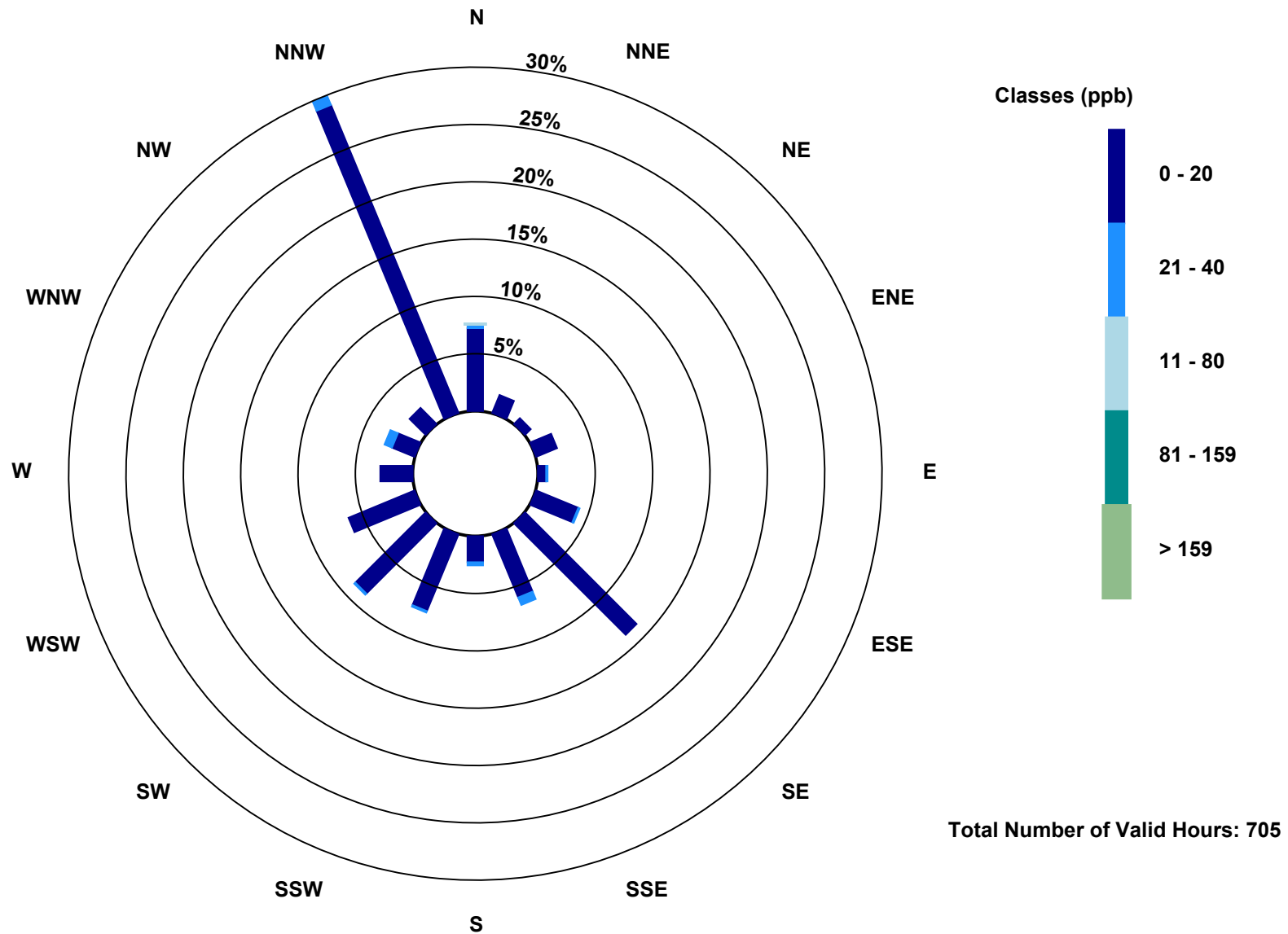
Total Number of Valid Hours: 705

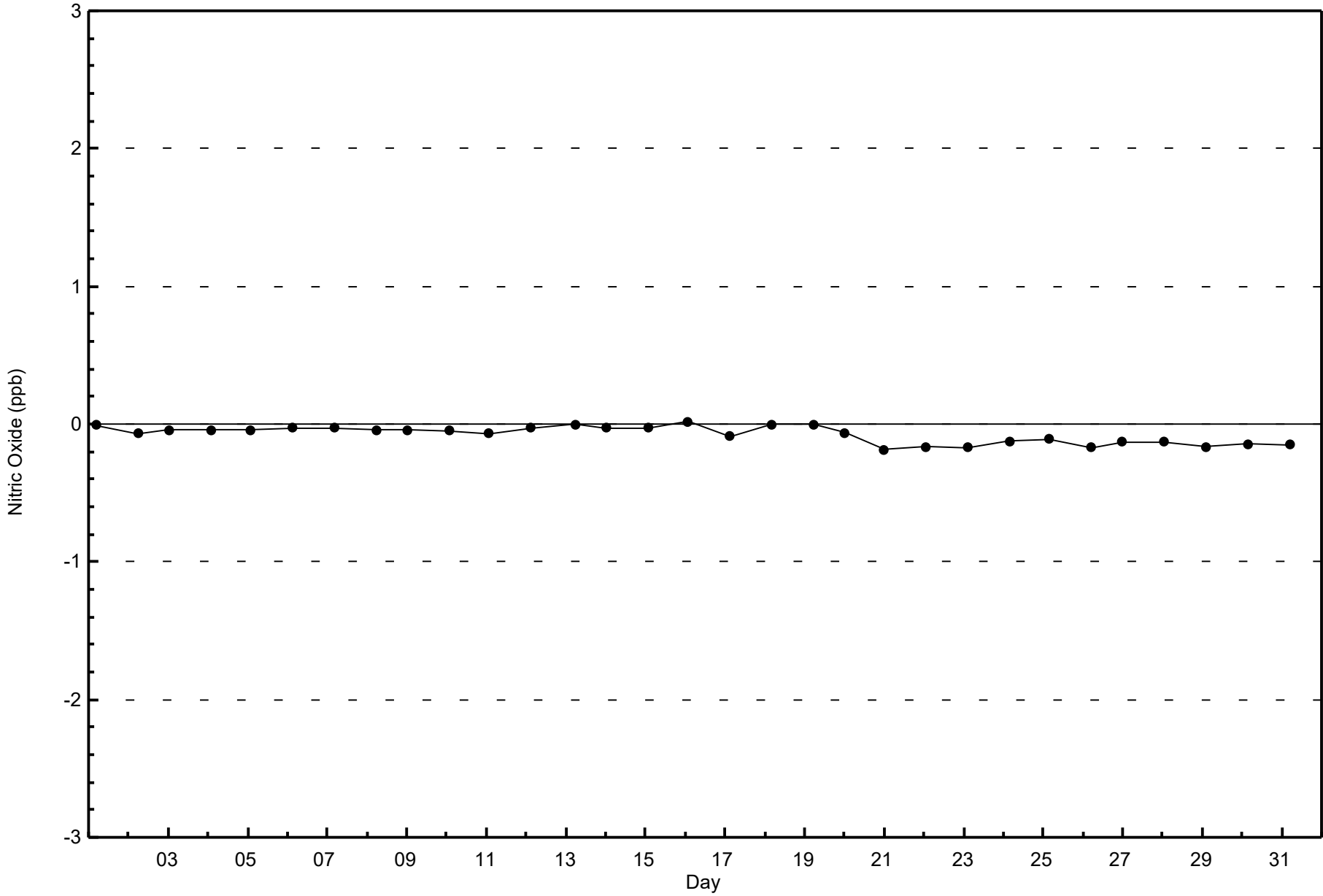
Total Number of Hours: 744

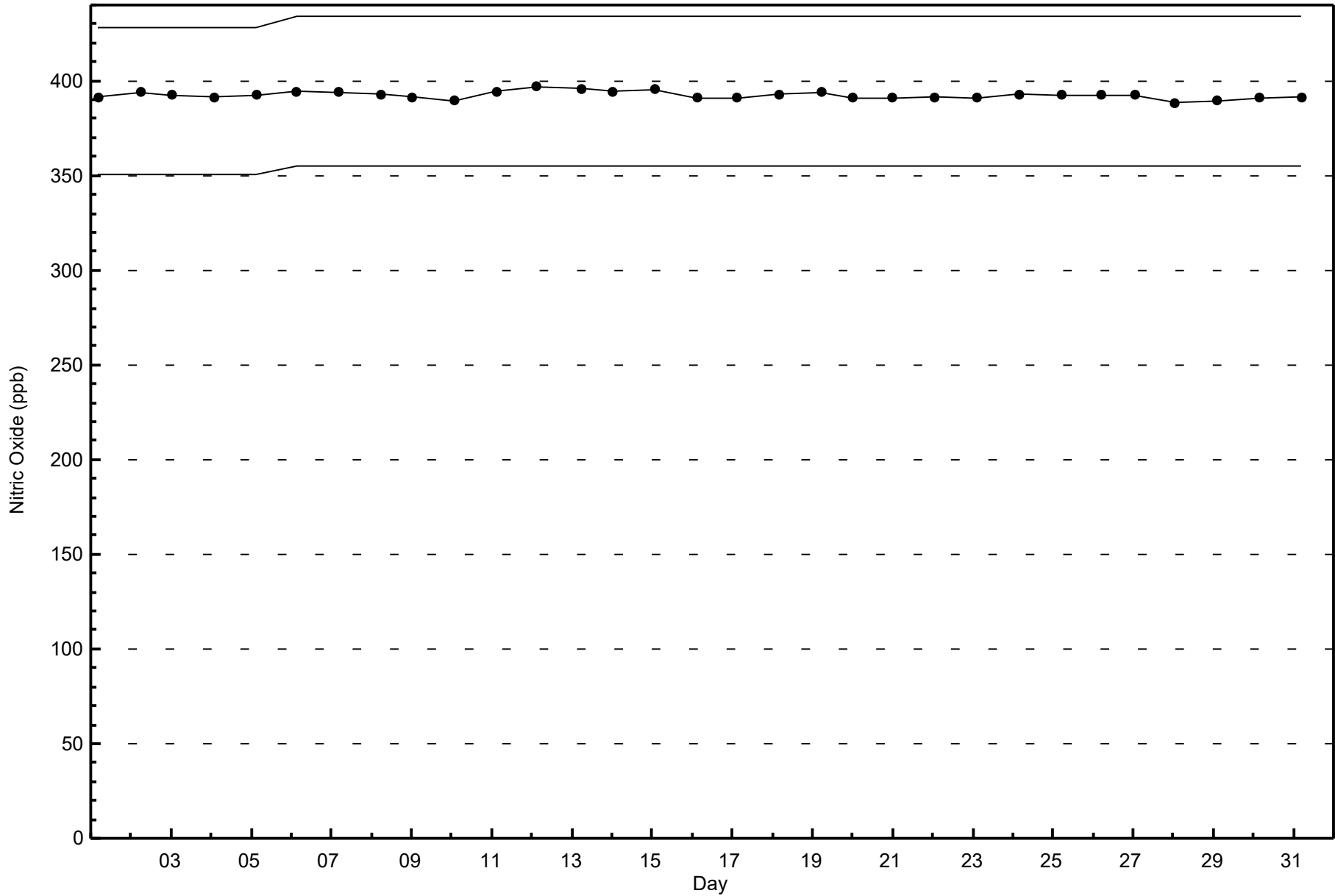


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Athabasca Valley









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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - January 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 34.1 ppb on Jan 16 18:00	Maximum Daily Average: 17.2 ppb on Jan 16		Hours of Data:	705
Minimum Value: 0.6 ppb on Jan 31 03:00	Minimum Daily Average: 5.6 ppb on Jan 21		Hours of Missing Data:	39
Maximum Diurnal Average: 15.0 ppb at hour 19	Minimum Diurnal Average: 8.2 ppb at hour 2		Hours of Calibration:	37
Monthly Average: 10.98 ppb	Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 3.5 Q <sub>1</sub> = 6.1 Median = 9.7 Q <sub>3</sub> = 14.8 P <sub>90</sub> = 20.5 P <sub>99</sub> = 31.6		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-Jan	1.4	1.1	1.7	2.1	Z	5.0	3.2	4.2	6.0	7.7	8.0	7.8	8.1	10.8	10.8	9.8	5.8	7.1	15.8	13.9	6.0	8.0	10.7	11.5	7.2	15.8
2-Jan	8.2	10.5	10.6	8.1	8.8	Z	6.1	16.8	22.7	10.0	4.4	4.9	6.8	8.1	8.0	6.8	10.8	10.1	3.8	3.3	3.3	5.3	8.2	4.1	8.2	22.7
3-Jan	Z	3.2	3.0	3.4	4.0	4.9	10.4	10.0	9.3	11.2	12.0	10.7	10.6	11.7	18.5	17.9	21.1	24.6	24.3	24.7	23.1	19.4	14.3	9.7	13.1	24.7
4-Jan	9.0	Z	7.3	3.3	2.9	3.6	3.0	2.3	3.2	4.2	5.0	6.4	5.8	7.4	8.3	8.3	9.3	15.5	17.3	15.8	16.9	16.1	18.1	16.7	8.9	18.1
5-Jan	16.6	12.3	Z	11.1	16.4	33.0	28.4	22.7	20.5	17.0	C	C	C	C	C	C	5.4	4.6	5.3	5.3	8.8	9.9	28.2	28.6	--	33.0
6-Jan	28.2	28.5	27.6	Z	23.2	23.3	22.6	22.3	18.3	17.9	14.0	12.7	9.8	9.8	9.1	9.4	10.2	10.3	10.8	7.3	6.6	6.5	5.4	4.7	14.7	28.5
7-Jan	5.0	6.6	10.3	13.9	Z	15.1	15.6	15.3	15.2	13.6	8.8	7.0	8.2	12.8	17.2	16.6	17.3	15.4	13.2	11.2	8.8	10.0	9.0	11.2	12.1	17.3
8-Jan	8.9	7.1	7.3	7.4	7.2	Z	9.4	10.2	9.7	12.4	13.5	12.9	19.6	21.2	16.3	18.0	26.9	27.5	29.7	28.5	26.9	26.4	25.8	17.5	17.0	29.7
9-Jan	Z	15.5	19.2	20.7	20.2	28.0	32.8	32.8	28.2	2.2	1.8	14.1	10.0	12.4	12.2	11.0	11.1	10.2	8.5	9.0	8.2	8.0	10.4	8.1	14.5	32.8
10-Jan	7.2	Z	4.7	4.3	5.1	7.3	10.2	15.2	13.3	12.7	9.3	9.7	9.6	12.1	12.6	17.2	18.6	17.7	15.6	14.8	13.8	11.9	9.5	9.0	11.4	18.6
11-Jan	9.4	6.6	Z	6.9	8.2	8.7	9.1	8.9	10.0	8.6	5.7	5.2	7.7	9.2	10.7	14.3	15.9	11.7	15.6	17.0	17.7	12.4	9.2	5.1	10.2	17.7
12-Jan	4.0	1.9	1.4	Z	6.6	3.5	8.1	5.0	9.2	10.2	10.6	15.9	8.7	9.2	15.0	22.3	16.3	16.8	17.0	12.8	12.4	8.6	7.9	7.3	10.0	22.3
13-Jan	5.2	4.5	4.0	3.0	4.9	Z	3.3	4.7	4.5	4.3	3.3	4.0	6.9	6.3	15.6	17.7	8.3	5.6	5.2	6.0	5.5	4.6	3.4	4.1	5.9	17.7
14-Jan	Z	3.5	2.1	1.9	1.8	5.2	6.4	6.0	4.2	2.0	2.0	1.9	2.9	6.3	13.8	24.5	25.3	25.9	24.4	23.3	20.9	16.7	15.5	15.4	11.0	25.9
15-Jan	13.6	Z	18.4	18.5	18.4	17.3	13.9	15.7	16.6	13.0	11.6	13.4	12.6	13.9	23.7	26.5	27.8	23.6	15.9	10.5	13.4	12.3	12.3	14.7	16.4	27.8
16-Jan	10.6	8.3	Z	5.9	6.1	7.5	13.2	15.6	18.6	15.1	13.8	17.9	20.6	24.1	28.9	30.2	33.7	34.1	33.9	33.1	16.1	4.1	2.5	2.4	17.2	34.1
17-Jan	1.9	1.8	2.1	Z	1.7	4.0	11.6	12.9	9.9	9.8	6.0	5.1	6.4	7.3	7.2	9.0	9.9	27.1	31.6	31.6	21.5	11.0	6.5	5.3	10.5	31.6
18-Jan	7.4	17.8	16.2	13.6	Z	9.3	13.4	7.7	4.7	4.3	3.9	4.0	4.1	7.0	10.5	5.4	5.5	9.4	8.1	7.8	5.2	4.9	3.4	2.6	7.7	17.8
19-Jan	1.6	1.1	2.0	1.6	3.2	Z	5.9	7.0	7.7	8.8	13.5	7.4	8.6	13.3	14.0	16.4	17.2	17.8	13.1	12.5	11.1	14.4	12.3	13.5	9.7	17.8
20-Jan	Z	11.2	12.0	11.4	6.3	8.1	9.9	10.9	10.0	16.2	7.4	3.9	3.9	4.1	11.2	22.5	PF	PF	22.7	21.7	11.7	11.7	9.3	10.7	11.3	22.7
21-Jan	Z	8.1	5.9	4.8	4.7	5.6	7.9	6.8	6.2	8.5	8.2	6.6	3.9	3.6	3.6	3.7	4.4	4.7	6.4	8.5	6.2	4.6	4.2	1.3	5.6	8.5
22-Jan	1.5	Z	12.9	15.2	16.5	17.3	20.1	21.9	15.9	5.9	4.5	5.2	5.5	5.2	6.4	7.1	6.9	7.0	6.8	7.6	7.2	7.1	6.5	6.8	9.4	21.9
23-Jan	6.8	7.8	Z	8.6	9.7	13.2	17.8	18.1	20.0	16.9	12.3	12.7	11.5	5.0	7.5	4.1	6.8	11.8	18.3	26.2	11.4	10.3	8.9	7.7	11.9	26.2
24-Jan	8.9	9.0	9.5	Z	11.4	15.0	19.1	20.5	21.7	22.5	13.4	7.6	8.6	7.4	7.9	8.9	13.5	14.0	15.1	14.3	13.2	8.6	11.1	11.8	12.7	22.5
25-Jan	7.2	9.0	13.6	12.3	Z	17.8	11.8	12.1	15.4	11.0	9.6	8.3	9.2	10.3	11.9	17.6	21.7	24.1	22.2	21.3	20.5	18.9	17.4	12.5	14.6	24.1
26-Jan	13.9	11.7	10.7	11.9	8.7	Z	12.1	12.2	15.2	14.7	13.4	6.6	6.8	8.3	8.5	10.0	9.9	10.0	9.3	9.9	10.1	8.2	5.6	5.9	10.2	15.2
27-Jan	Z	4.4	3.8	3.7	4.2	4.5	6.3	7.1	5.2	4.8	3.6	3.1	5.2	11.4	16.2	19.4	21.5	22.6	23.2	22.9	17.3	16.9	13.6	13.3	11.1	23.2
28-Jan	9.0	Z	10.0	7.0	6.9	6.1	8.3	12.1	14.3	11.4	9.0	5.4	4.7	5.5	1.6	2.3	2.5	2.6	2.2	1.9	3.1	1.9	2.8	10.2	6.1	14.3
29-Jan	17.1	10.5	Z	12.4	12.7	15.5	15.1	10.5	8.3	7.9	7.6	7.1	6.8	6.2	10.6	13.6	12.8	16.1	17.4	17.8	13.3	12.9	9.6	10.3	11.8	17.8
30-Jan	8.9	10.6	9.0	Z	5.5	9.7	6.8	12.5	11.2	8.9	9.3	13.0	15.2	14.8	1.7	1.6	1.9	1.8	2.2	1.6	1.6	2.0	1.1	0.8	6.6	15.2
31-Jan	0.8	0.8	0.6	0.6	Z	3.9	4.5	7.5	9.4	13.6	7.8	12.7	15.8	21.5	20.4	19.4	7.8	8.3	10.9	9.8	8.3	6.4	5.2	4.2	8.7	21.5

8.5	8.2	8.7	8.2	8.7	11.2	11.8	12.5	12.4	10.6	8.4	8.4	8.8	10.2	12.0	13.7	13.5	14.6	15.0	14.6	11.9	10.3	9.9	9.3	Diurnal Average	
28.2	28.5	27.6	20.7	23.2	33.0	32.8	32.8	28.2	22.5	14.0	17.9	20.6	24.1	28.9	30.2	33.7	34.1	33.9	33.1	26.9	26.4	28.2	28.6	Diurnal Maximum	

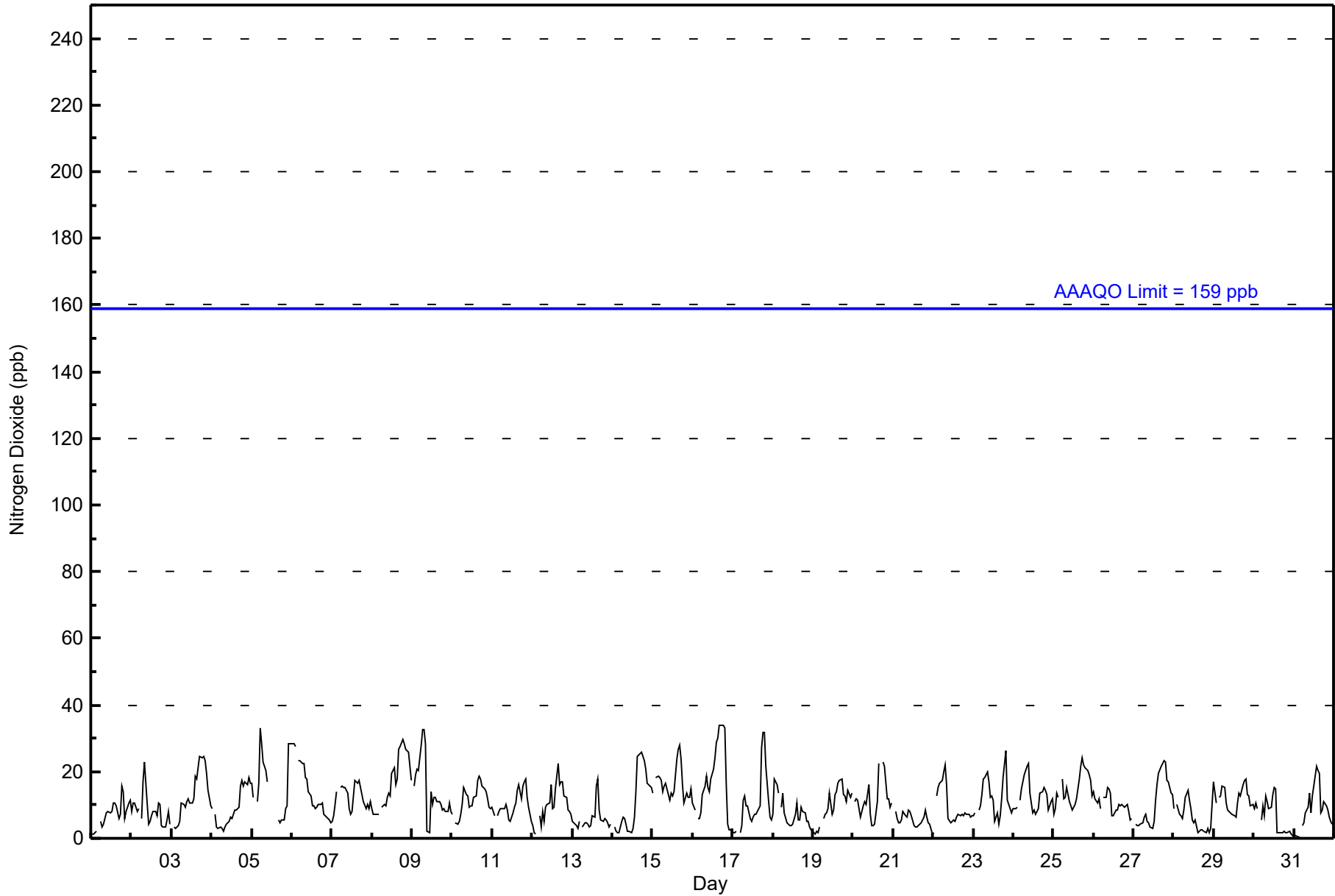
Z - zerospan      C - Calibration      PF - Power Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	632	89.65	89.65
21 - 40	73	10.35	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - January 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	39	11	5	14	5	29	89	44	16	51	61	43	19	14	14	178	632
21 - 40	15	1	0	0	1	0	8	3	2	1	1	1	1	6	0	33	73
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>54</b>	<b>12</b>	<b>5</b>	<b>14</b>	<b>6</b>	<b>29</b>	<b>97</b>	<b>47</b>	<b>18</b>	<b>52</b>	<b>62</b>	<b>44</b>	<b>20</b>	<b>20</b>	<b>14</b>	<b>211</b>	<b>705</b>

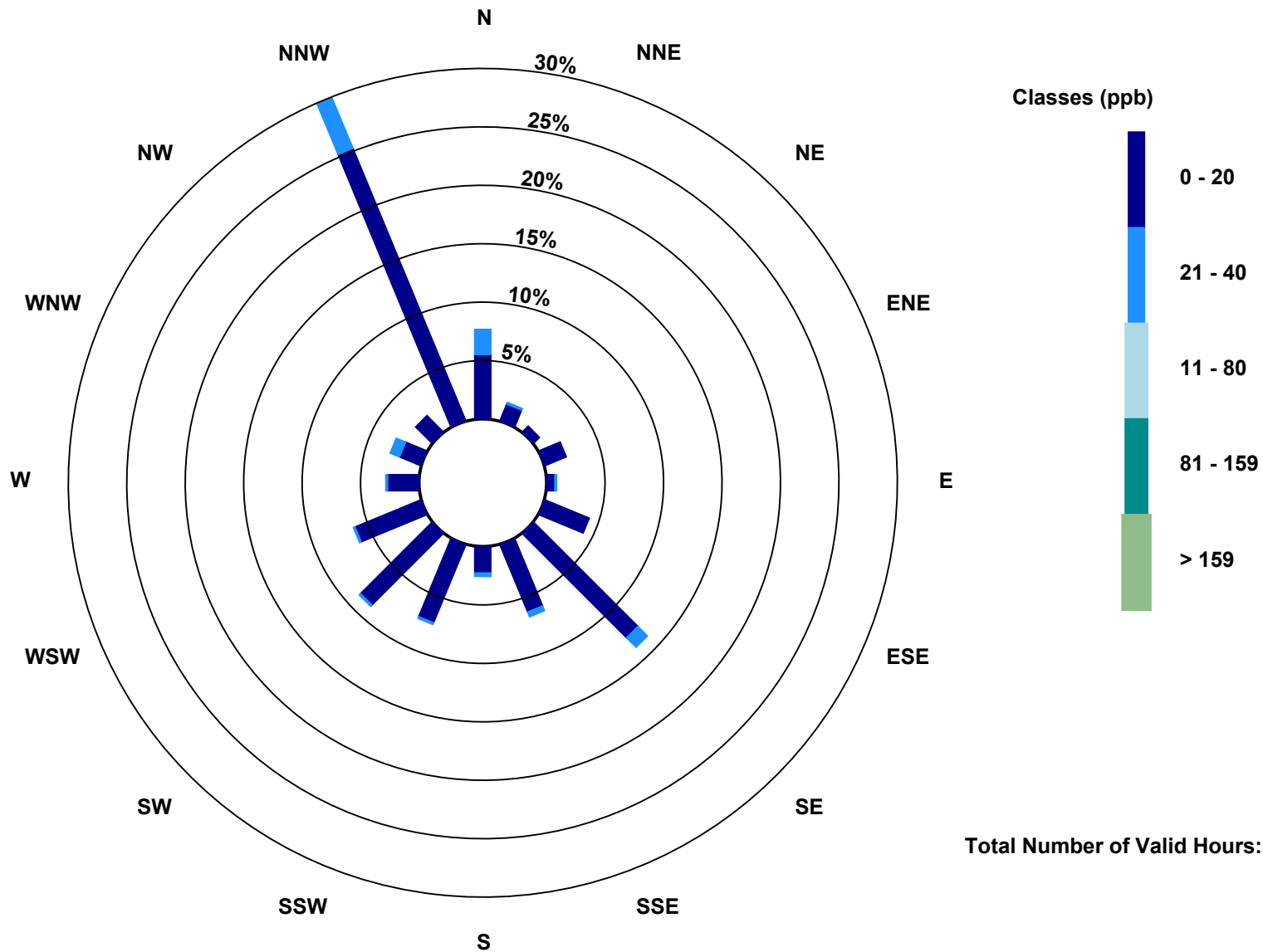
Total Number of Valid Hours: 705

Total Number of Hours: 744

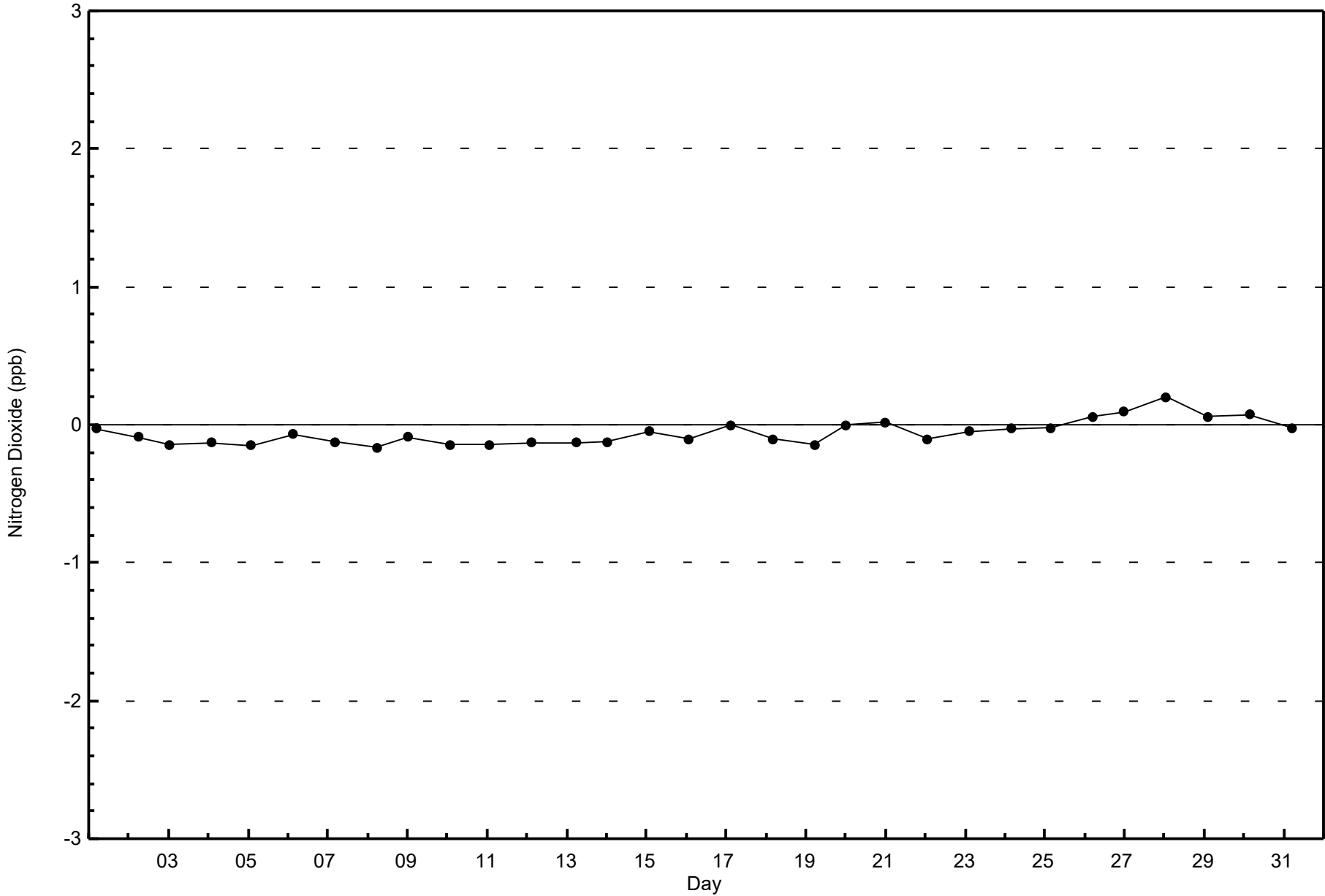


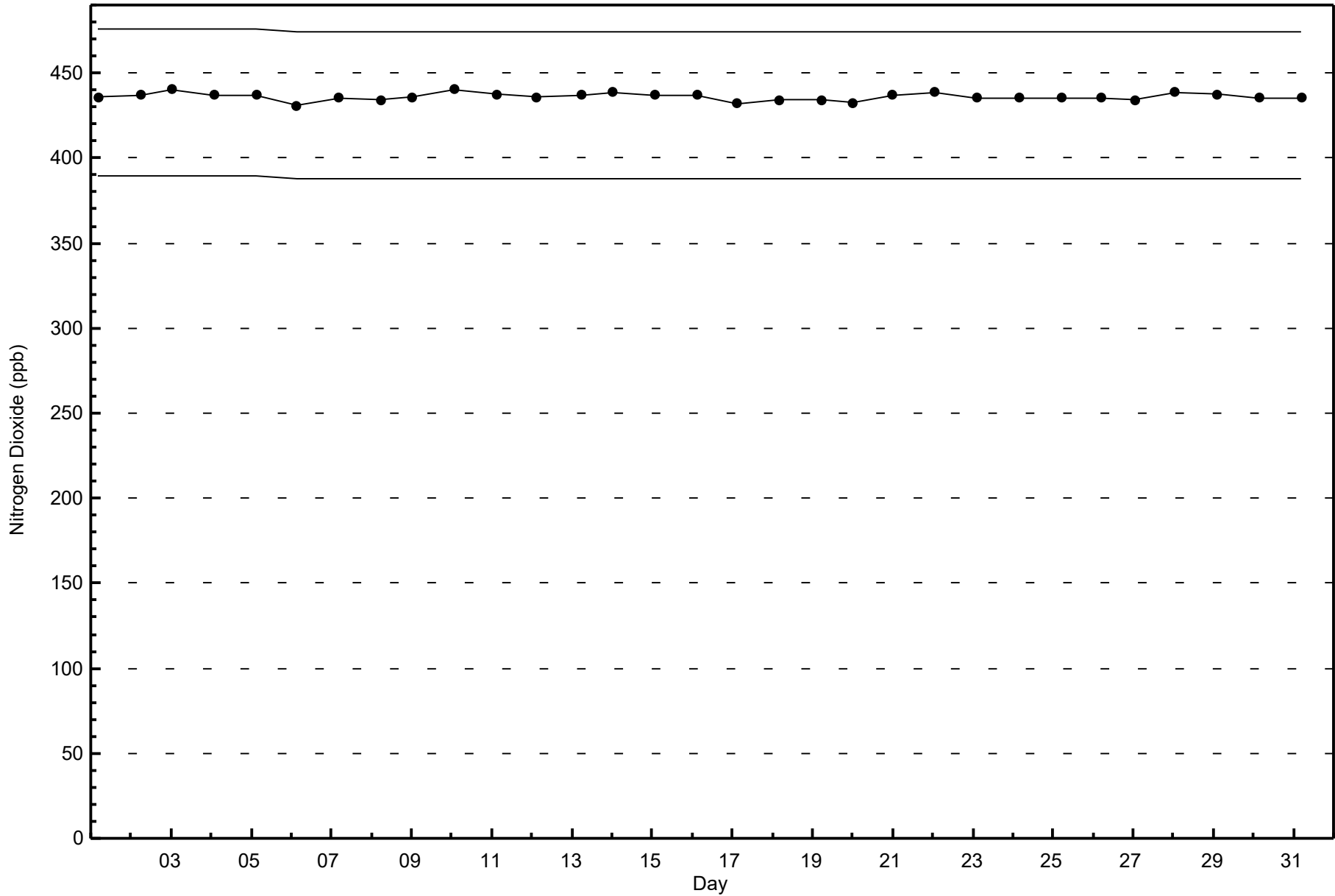
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 705







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

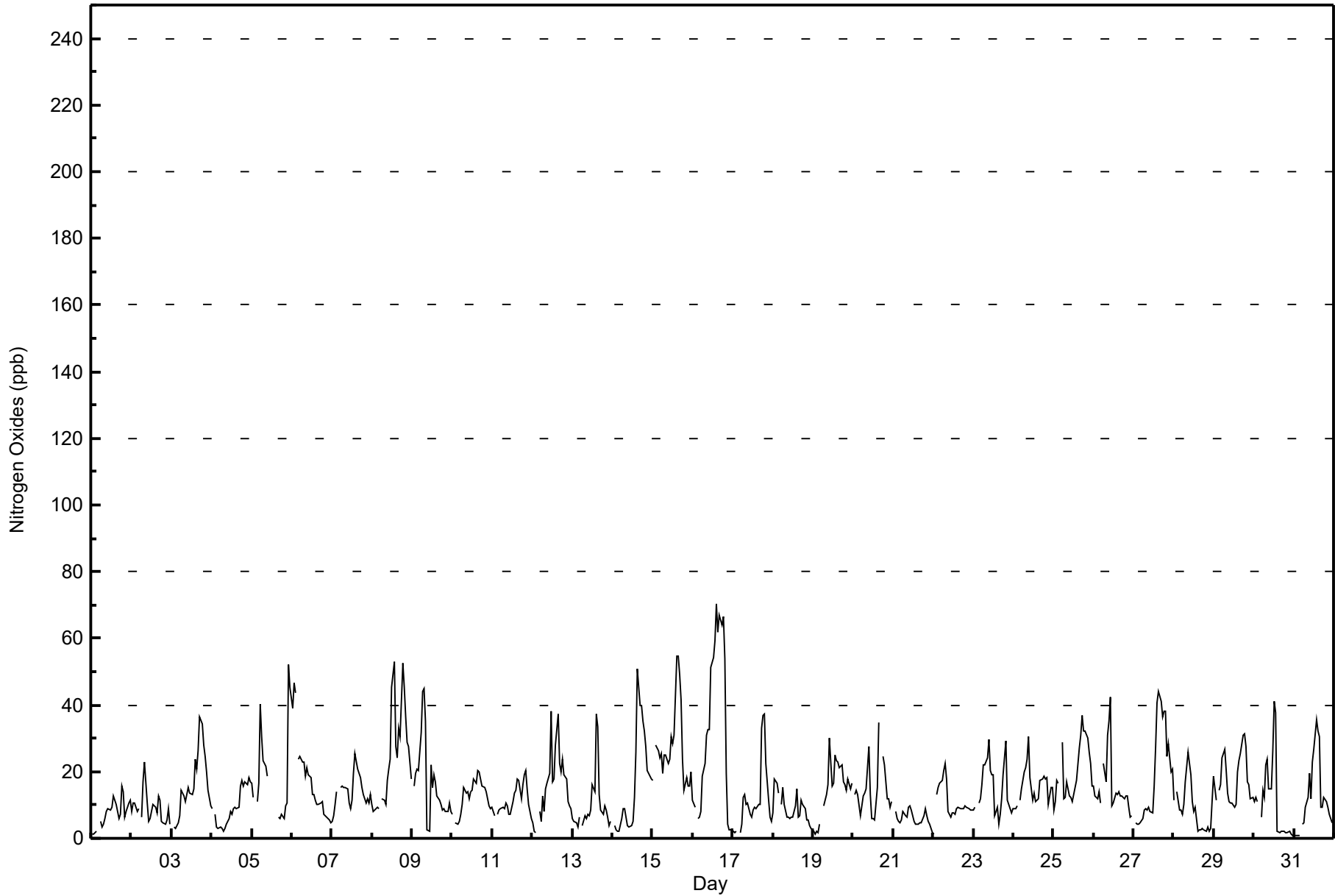
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - January 2024**

Maximum Value: 70.5 ppb on Jan 16 15:00																						Maximum Daily Average: 32.8 ppb on Jan 16																						Hours in Service: 744					
Minimum Value: 0.7 ppb on Jan 31 03:00																						Minimum Daily Average: 6.0 ppb on Jan 21																						Hours of Data: 705					
Maximum Diurnal Average: 21.3 ppb at hour 16																						Minimum Diurnal Average: 9.2 ppb at hour 4																						Hours of Missing Data: 39					
Monthly Average: 14.93 ppb																						Percentiles: P <sub>1</sub> = 1.4 P <sub>10</sub> = 4.2 Q <sub>1</sub> = 7.3 Median = 11.7 Q <sub>3</sub> = 19.1 P <sub>90</sub> = 30.4 P <sub>99</sub> = 54.4																						Hours of Calibration: 37					
																																												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-Jan	1.4	1.2	1.7	2.1	Z	5.0	3.2	4.2	6.0	7.9	8.9	8.6	9.4	12.9	11.6	10.3	6.0	7.1	15.9	14.0	6.3	8.0	10.7	11.5	7.6	15.9																							
2-Jan	8.2	10.5	10.6	8.1	8.8	Z	6.3	16.9	23.0	10.8	4.9	6.0	8.1	10.1	9.2	7.6	12.5	11.3	4.9	4.5	4.0	5.6	9.0	4.3	8.9	23.0																							
3-Jan	Z	3.4	3.1	3.7	4.7	6.9	14.4	12.6	11.1	13.0	15.3	13.4	13.2	14.7	23.9	20.8	26.1	36.3	34.5	27.8	24.4	20.0	14.4	9.7	16.0	36.3																							
4-Jan	9.0	Z	7.3	3.3	2.9	3.6	3.0	2.3	3.2	4.4	5.7	8.1	7.3	8.8	9.3	8.8	9.4	15.6	17.4	15.8	17.0	16.2	18.2	16.8	9.3	18.2																							
5-Jan	16.7	12.3	Z	11.1	16.6	40.2	30.4	23.1	21.8	18.6	C	C	C	C	C	C	6.5	5.8	7.0	6.1	9.9	10.5	52.1	45.2	--	52.1																							
6-Jan	39.1	46.6	43.6	Z	23.6	24.6	23.0	23.0	18.6	21.3	19.1	18.2	13.1	13.1	11.3	10.2	10.3	10.4	10.9	7.3	6.6	6.5	5.4	4.7	17.8	46.6																							
7-Jan	5.0	6.6	10.3	14.0	Z	15.2	15.7	15.3	15.3	14.6	10.4	9.1	11.6	19.5	25.4	20.9	19.4	18.1	15.2	13.3	10.4	11.7	10.4	13.1	13.9	25.4																							
8-Jan	10.3	8.1	9.0	9.3	9.0	Z	11.8	11.3	10.3	17.4	20.7	23.6	45.4	52.8	27.7	24.1	33.1	30.6	52.7	45.5	36.3	28.9	27.5	17.7	24.5	52.8																							
9-Jan	Z	15.6	19.3	20.9	20.4	31.7	44.2	45.0	35.2	2.6	2.2	22.1	15.1	18.9	16.9	12.7	11.5	10.2	8.5	9.0	8.2	8.0	10.4	8.1	17.2	45.0																							
10-Jan	7.2	Z	4.7	4.3	5.1	7.3	10.2	15.4	13.5	14.1	12.1	13.9	14.3	17.9	16.6	20.3	19.7	17.8	15.8	15.4	13.9	12.0	9.6	9.1	12.6	20.3																							
11-Jan	9.5	6.6	Z	7.0	8.3	8.8	9.2	9.0	10.6	9.7	7.1	7.1	11.0	13.6	14.5	17.7	17.4	11.9	16.3	19.3	20.5	15.0	10.4	5.9	11.6	20.5																							
12-Jan	4.6	2.3	1.7	Z	8.2	5.2	12.6	8.1	14.7	16.4	19.5	38.3	17.0	17.9	28.1	37.1	22.4	20.0	23.6	19.0	17.9	10.9	10.0	8.8	15.8	38.3																							
13-Jan	5.8	5.0	4.5	3.2	6.3	Z	3.6	6.7	6.1	7.1	7.0	8.5	16.3	13.8	37.3	33.5	13.0	8.3	7.3	9.8	8.4	6.5	4.0	4.9	9.9	37.3																							
14-Jan	Z	3.9	2.5	2.2	2.0	5.8	9.0	8.7	6.5	3.6	3.5	4.0	5.2	12.3	26.0	50.8	39.8	40.0	35.0	32.0	27.4	20.3	18.7	17.8	16.4	50.8																							
15-Jan	17.6	Z	28.2	26.4	24.2	25.4	19.7	24.8	25.1	22.3	23.7	30.4	28.4	31.1	54.5	54.6	49.2	41.5	23.6	14.6	18.0	15.7	15.7	19.8	27.6	54.6																							
16-Jan	11.3	9.1	Z	6.0	6.4	8.1	18.5	22.3	31.1	32.6	32.6	51.1	54.3	59.4	70.5	61.9	66.9	63.8	66.4	53.7	19.3	4.2	2.6	2.4	32.8	70.5																							
17-Jan	1.9	1.9	2.2	Z	1.7	4.0	12.1	13.0	10.0	10.6	7.0	6.3	8.4	9.3	8.7	10.2	10.3	32.8	36.8	37.3	22.4	11.3	6.5	5.3	11.7	37.3																							
18-Jan	7.4	17.9	16.3	13.7	Z	10.2	15.4	10.1	6.3	6.2	6.0	6.3	6.3	9.9	15.0	6.2	6.6	11.5	10.0	9.1	5.4	5.4	3.7	3.0	9.0	17.9																							
19-Jan	2.0	1.3	2.2	1.8	4.2	Z	9.6	11.4	13.0	16.1	30.2	15.6	16.7	25.1	23.3	23.0	21.3	22.2	16.9	15.9	14.3	17.8	15.0	16.4	14.6	30.2																							
20-Jan	Z	13.1	14.2	13.1	6.8	9.7	12.9	13.6	15.0	27.4	13.2	6.1	5.9	5.7	15.1	34.9	PF	PF	24.5	22.1	11.8	11.8	9.4	10.9	14.1	34.9																							
21-Jan	Z	8.2	6.0	4.9	4.7	5.6	8.0	6.9	6.3	9.4	9.9	8.5	5.2	4.4	4.3	4.1	4.5	4.8	6.7	8.9	6.6	5.2	4.4	1.5	6.0	9.9																							
22-Jan	1.5	Z	13.0	15.3	16.7	17.5	20.5	22.4	17.7	7.9	6.3	7.4	7.5	7.4	8.9	9.4	9.0	9.0	8.9	9.6	9.3	8.9	8.4	8.6	10.9	22.4																							
23-Jan	8.4	9.3	Z	10.6	11.9	16.1	21.8	21.9	24.2	29.7	20.3	19.2	19.2	7.0	9.5	4.4	7.0	11.9	19.2	29.4	11.5	10.4	8.9	7.7	14.8	29.7																							
24-Jan	8.9	9.0	9.5	Z	11.4	15.0	19.8	21.4	23.6	30.6	18.3	11.3	13.4	11.0	11.5	11.9	17.3	17.6	18.8	18.0	18.4	10.0	15.2	15.2	15.5	30.6																							
25-Jan	8.4	11.1	17.6	16.6	Z	28.6	11.9	12.1	16.8	12.8	12.3	11.1	13.1	15.3	17.2	27.1	30.8	36.7	32.3	32.0	30.0	25.7	22.6	15.7	19.9	36.7																							
26-Jan	15.5	12.7	11.8	14.1	10.5	Z	22.5	17.0	31.0	35.3	42.2	9.9	10.6	13.5	13.2	14.1	12.8	12.5	11.9	12.7	12.7	9.4	6.2	6.9	15.6	42.2																							
27-Jan	Z	4.7	4.2	4.1	4.8	5.9	8.4	9.1	8.6	9.4	8.0	7.8	15.6	27.0	40.8	44.0	41.3	36.6	38.1	37.9	24.5	28.2	20.0	20.7	19.6	44.0																							
28-Jan	11.4	Z	14.0	8.6	8.4	7.3	10.3	16.9	25.7	22.5	18.9	11.2	7.9	9.2	1.9	2.6	2.7	2.8	2.4	2.1	3.4	2.1	3.1	11.1	9.0	25.7																							
29-Jan	18.7	11.6	Z	14.4	16.0	24.2	26.6	20.3	13.6	11.1	10.8	10.5	9.3	10.0	19.9	23.3	25.3	30.7	31.3	27.3	16.8	16.3	11.7	12.2	17.9	31.3																							
30-Jan	10.8	12.3	11.1	Z	6.5	14.5	12.4	22.1	23.7	14.7	15.0	26.3	41.2	37.5	2.1	1.8	2.0	2.0	2.3	1.8	1.7	2.1	1.2	0.9	11.6	41.2																							
31-Jan	0.9	0.8	0.7	0.7	Z	4.2	4.8	9.2	12.2	19.3	12.0	23.0	26.7	35.7	32.1	30.6	9.2	9.3	12.2	11.0	9.5	7.2	5.8	4.7	12.3	35.7																							
																								9.7	9.4	10.4	9.2	9.6	13.5	14.6	15.4	16.1	15.5	14.1	14.8	15.9	18.2	20.2	21.3	18.8	19.6	20.2	18.8	14.4	12.0	12.0	11.0	Diurnal Average	
																								39.1	46.6	43.6	26.4	24.2	40.2	44.2	45.0	35.2	35.3	42.2	51.1	54.3	59.4	70.5	61.9	66.9	63.8	66.4	53.7	36.3	28.9	52.1	45.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				PF - Power Failure																					



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - January 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	553	78.44	78.44
21 - 40	123	17.45	95.89
41 - 80	29	4.11	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - January 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	38	11	5	14	4	22	73	29	9	47	57	38	17	10	10	169	553
21 - 40	12	1	0	0	1	7	23	14	7	4	4	6	3	5	4	32	123
41 - 80	4	0	0	0	1	0	1	4	2	1	1	0	0	5	0	10	29
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>	54	12	5	14	6	29	97	47	18	52	62	44	20	20	14	211	705

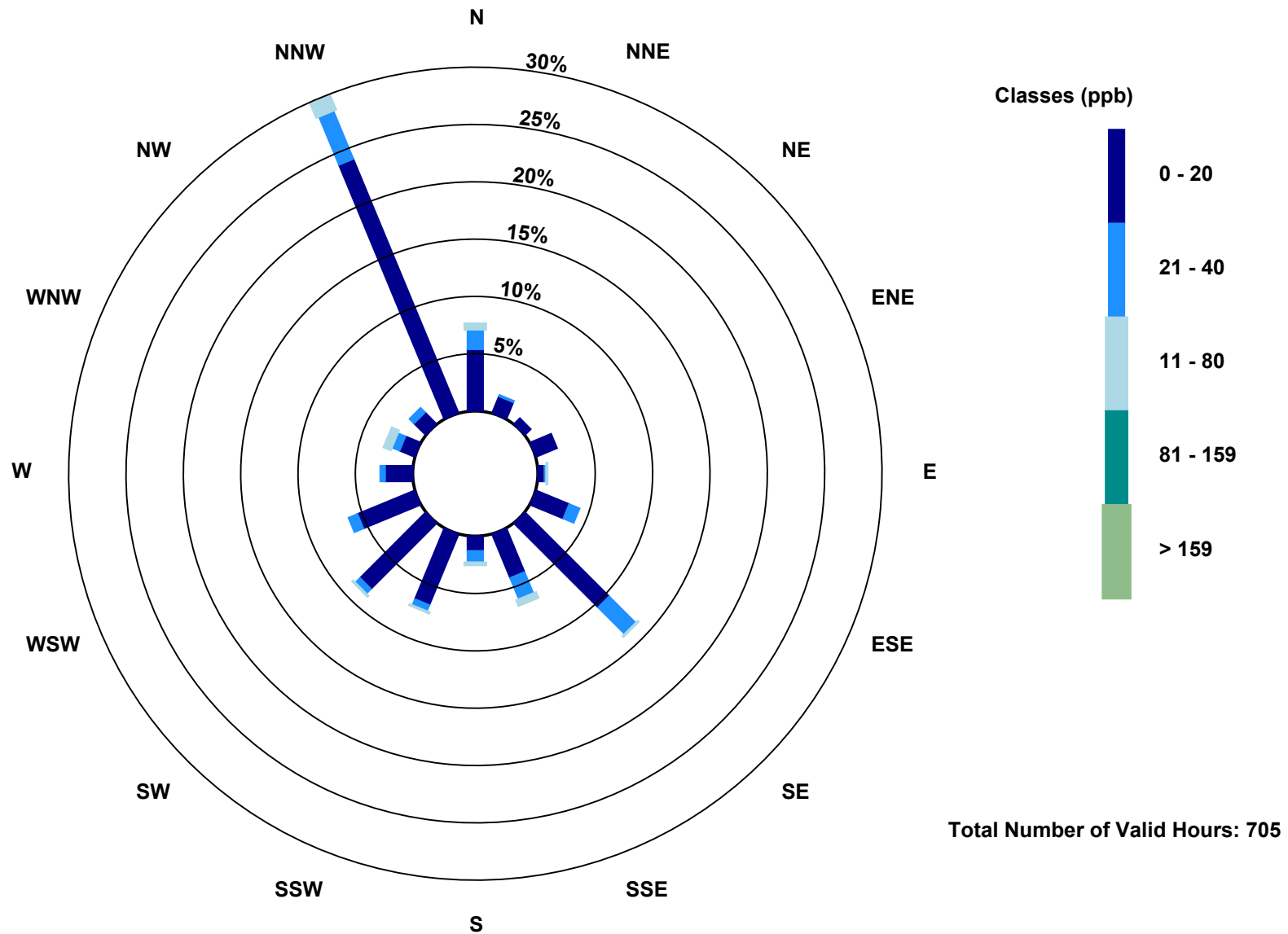
Total Number of Valid Hours: 705

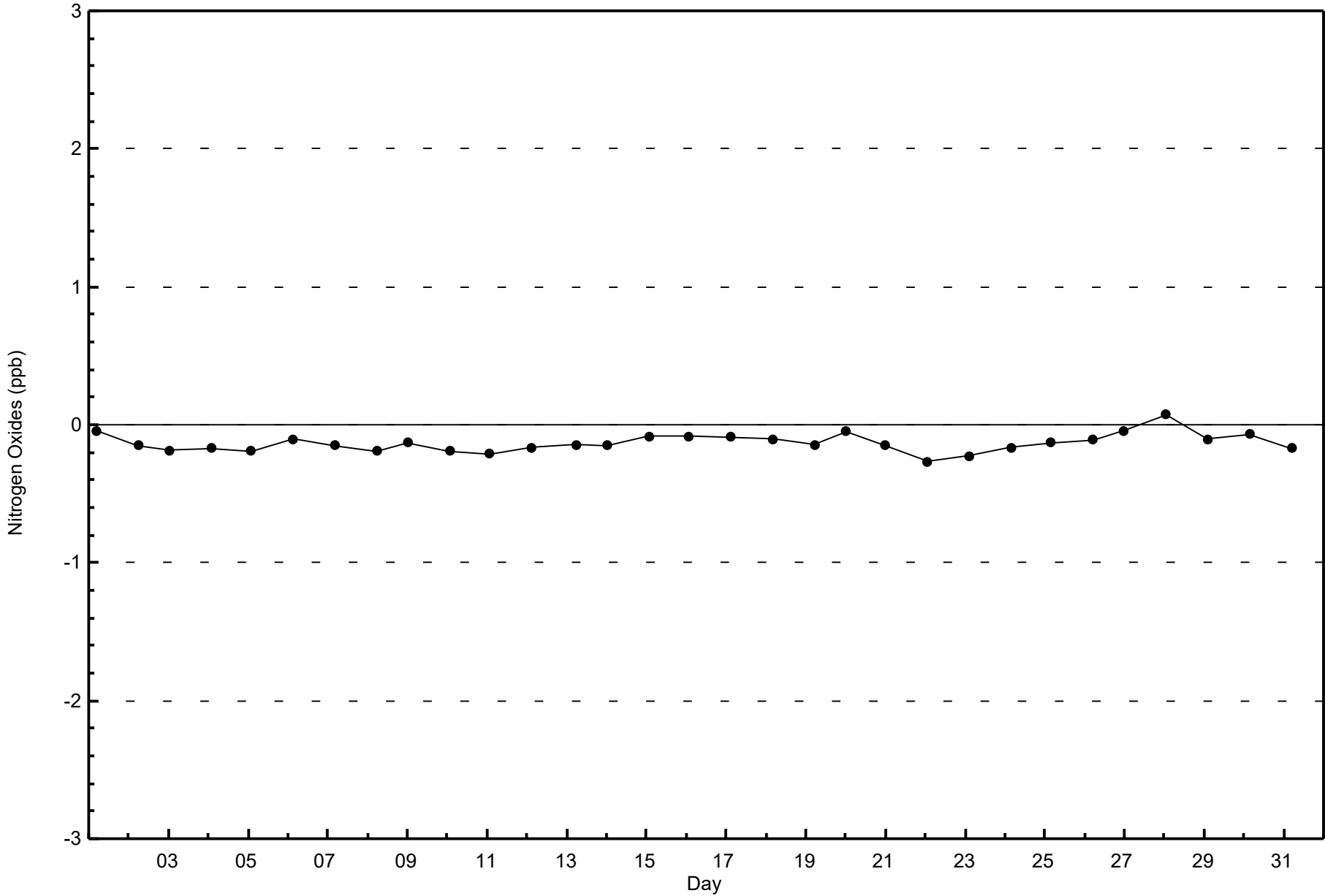
Total Number of Hours: 744

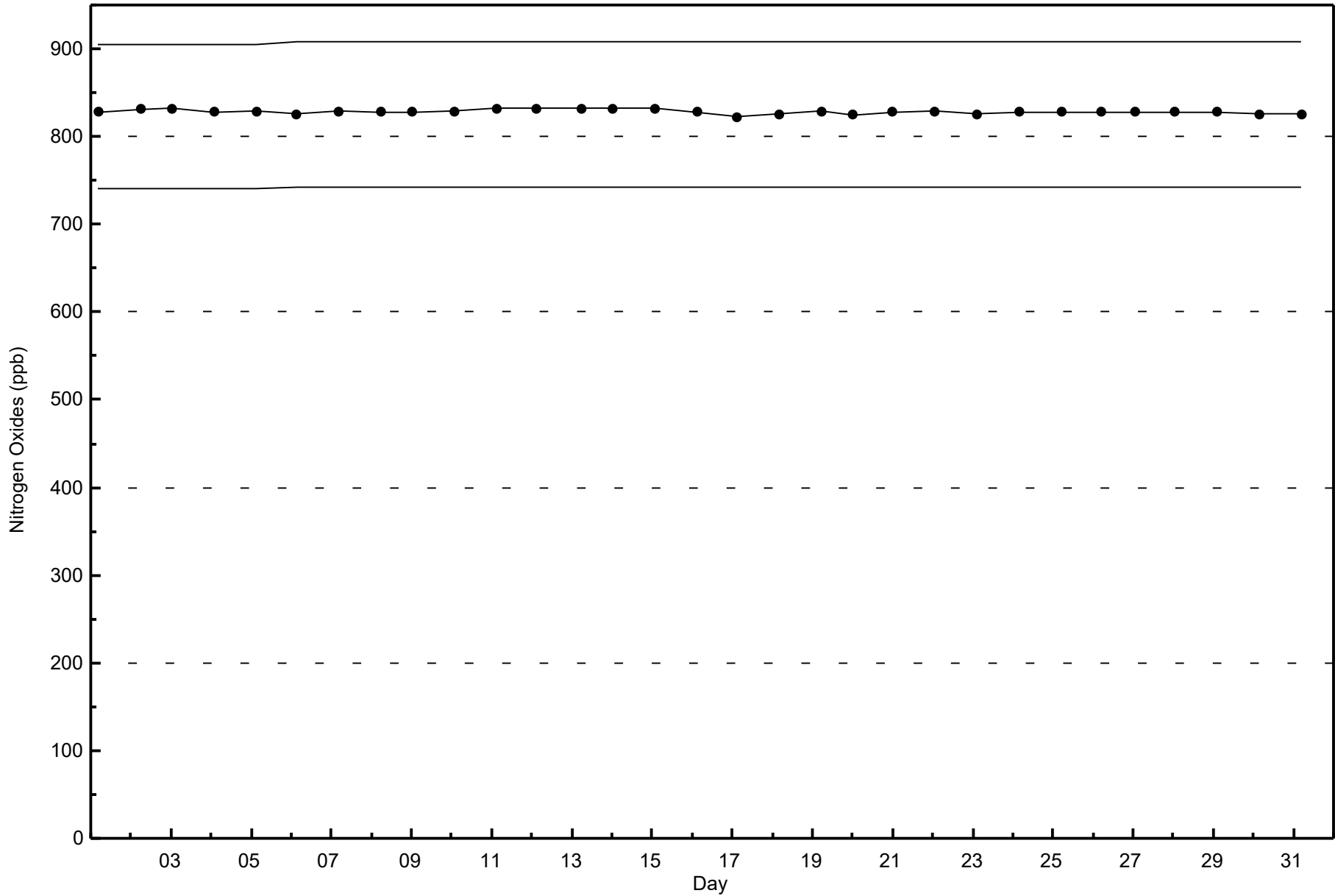


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Athabasca Valley - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 30.9 µg/m <sup>3</sup> on Jan 25 21:00	Maximum Daily Average: 21.2 µg/m <sup>3</sup> on Jan 25		Hours of Data:	740
Minimum Value: 0.6 µg/m <sup>3</sup> on Jan 30 16:00	Minimum Daily Average: 1.6 µg/m <sup>3</sup> on Jan 31		Hours of Missing Data:	4
Maximum Diurnal Average: 6.5 µg/m <sup>3</sup> at hour 19	Minimum Diurnal Average: 4.9 µg/m <sup>3</sup> at hour 3		Hours of Calibration:	2
Monthly Average: 5.53 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 2.9 Median = 3.8 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 12.0 P <sub>99</sub> = 26.3		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-Jan	1.3	1.1	1.1	1.1	4.7	4.1	3.1	3.3	3.0	2.4	2.4	2.8	2.9	3.2	4.3	4.2	3.3	2.5	3.6	3.9	2.9	3.2	4.3	4.9	3.1	4.9
2-Jan	4.6	4.6	4.5	4.6	4.8	4.8	4.6	7.6	11.3	4.9	3.4	3.7	3.8	4.4	4.3	4.0	4.4	4.9	3.5	3.0	2.8	3.6	3.6	3.1	4.5	11.3
3-Jan	3.4	3.1	3.2	3.3	3.5	3.9	4.3	4.1	3.6	3.5	2.7	2.7	3.0	3.8	6.5	6.6	6.7	8.1	10.4	9.2	8.9	8.2	6.9	3.8	5.1	10.4
4-Jan	3.1	3.1	2.9	2.5	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.6	2.6	2.7	2.9	2.9	2.9	3.0	3.2	3.3	3.4	3.3	3.3	3.5	2.8	3.5
5-Jan	4.0	3.6	2.9	3.1	3.2	3.4	3.2	3.3	3.5	3.5	3.6	3.4	3.5	3.5	3.6	3.7	3.7	3.6	3.6	3.8	4.5	4.9	5.4	5.0	3.7	5.4
6-Jan	5.6	6.2	6.6	6.8	6.3	6.2	6.0	5.7	4.8	5.0	5.0	4.8	3.8	3.1	2.8	2.8	3.0	3.0	3.0	3.1	2.9	2.7	2.8	2.9	4.4	6.8
7-Jan	2.8	2.8	3.1	3.3	3.5	3.9	3.7	3.6	3.7	3.9	3.8	4.0	4.0	4.4	4.2	3.6	3.4	3.6	3.5	3.3	2.9	3.0	3.1	2.9	3.5	4.4
8-Jan	2.7	2.1	2.1	1.9	2.0	2.3	2.6	2.7	2.7	2.9	3.1	3.7	4.8	5.3	4.2	3.9	5.8	4.5	5.1	5.2	5.2	4.9	4.5	3.7	3.7	5.8
9-Jan	3.5	3.5	4.5	4.4	4.2	4.7	4.8	5.3	5.9	2.7	2.6	3.2	3.5	4.3	4.2	3.8	3.5	3.5	3.7	3.7	3.8	3.6	3.7	3.5	3.9	5.9
10-Jan	3.3	2.8	2.9	2.7	2.8	3.0	3.3	3.4	3.8	4.5	3.8	4.0	3.9	3.8	4.3	4.8	5.6	5.1	4.7	4.4	4.5	4.4	4.3	4.2	3.9	5.6
11-Jan	4.5	3.9	3.8	3.9	3.9	4.4	4.5	4.3	4.8	4.9	4.3	4.3	5.6	5.9	6.0	6.5	6.1	5.7	5.5	5.2	5.1	4.5	4.1	3.5	4.8	6.5
12-Jan	3.1	2.9	2.7	3.0	3.1	2.8	3.4	4.0	4.6	5.3	6.1	6.9	5.9	5.9	5.7	6.2	6.1	5.2	5.0	4.2	3.9	3.7	3.6	3.5	4.4	6.9
13-Jan	3.5	3.1	3.1	2.9	3.3	3.6	3.2	2.8	3.1	3.2	3.0	3.7	5.6	4.5	8.1	8.5	3.9	3.0	3.0	3.0	3.1	3.0	2.9	2.9	3.8	8.5
14-Jan	2.8	3.0	2.9	2.8	2.6	2.7	2.8	2.8	2.8	2.9	3.0	3.2	3.7	4.8	6.2	7.1	6.4	6.5	6.4	5.5	5.4	4.6	4.2	4.2	4.1	7.1
15-Jan	4.4	4.4	5.2	7.0	7.1	5.2	4.5	4.4	5.2	4.9	4.6	5.1	5.3	4.8	5.1	5.0	4.7	4.0	3.3	2.8	3.1	3.4	3.2	3.5	4.6	7.1
16-Jan	3.8	2.9	2.9	2.4	2.4	2.5	2.7	2.8	3.4	3.5	4.4	6.3	7.3	7.8	8.2	7.9	8.3	8.5	9.3	9.3	4.1	2.5	2.4	2.4	4.9	9.3
17-Jan	2.3	2.2	1.9	1.9	2.2	2.6	2.5	2.7	2.8	3.1	2.8	2.7	2.9	2.8	2.8	3.0	3.2	3.2	3.2	3.7	3.8	3.3	2.6	2.5	2.8	3.8
18-Jan	2.7	3.2	3.0	3.3	2.9	2.8	2.8	2.2	1.8	2.0	2.2	3.4	3.7	3.5	C	C	3.3	4.8	7.6	14.4	12.2	8.6	5.8	5.0	4.6	14.4
19-Jan	4.8	4.4	4.0	3.5	3.4	3.1	3.0	2.9	2.9	2.9	3.6	3.1	3.3	4.2	4.5	4.1	4.0	4.0	4.8	4.5	4.1	5.1	4.7	5.3	3.9	5.3
20-Jan	5.3	5.1	5.0	5.1	3.8	3.8	3.9	3.8	3.7	4.5	4.3	5.8	6.7	6.9	6.7	8.9	PF	PF	8.0	7.1	6.7	6.1	6.1	5.9	5.6	8.9
21-Jan	5.6	5.9	5.5	4.3	3.8	4.0	5.5	5.3	5.2	5.5	5.5	4.8	4.0	3.6	3.3	3.1	3.2	3.0	2.9	2.8	2.6	2.0	2.0	1.8	4.0	5.9
22-Jan	1.8	2.7	3.6	4.6	4.5	4.7	5.2	5.6	3.8	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.6	2.6	2.7	2.9	3.3	3.8	4.5	3.2	5.6
23-Jan	4.8	5.3	5.6	6.1	6.3	6.9	7.0	7.3	7.7	7.4	7.5	9.0	9.9	11.3	12.4	11.9	11.7	13.4	15.9	12.0	7.8	7.8	7.9	10.2	8.9	15.9
24-Jan	10.6	8.4	6.2	5.8	6.1	7.4	7.3	7.8	8.2	8.6	13.0	17.6	19.1	16.7	16.5	15.9	15.8	14.8	13.8	13.6	14.1	13.6	13.0	14.3	12.0	19.1
25-Jan	13.3	13.3	13.8	14.1	15.6	16.9	17.8	19.1	18.4	18.4	20.0	21.8	22.3	20.6	18.9	23.6	25.7	27.9	27.0	29.5	30.9	29.6	27.6	22.5	21.2	30.9
26-Jan	27.0	26.6	25.9	23.6	23.3	21.9	22.2	22.1	23.2	23.8	21.0	13.6	13.7	16.5	15.2	13.6	14.8	17.0	17.7	17.4	16.2	15.5	13.1	13.7	19.1	27.0
27-Jan	13.9	15.9	13.7	15.0	15.2	13.8	10.5	8.6	9.8	9.9	9.7	9.3	9.5	10.1	9.5	10.3	10.6	9.8	12.7	11.4	9.4	8.3	7.4	7.1	10.9	15.9
28-Jan	4.8	4.4	4.4	3.7	3.7	4.0	4.5	4.6	4.5	4.8	4.7	4.7	4.1	3.7	1.4	1.6	1.4	1.5	1.5	0.9	1.2	0.8	0.8	1.6	3.1	4.8
29-Jan	2.9	2.0	1.9	2.9	2.7	2.2	1.8	1.9	1.7	2.2	2.4	2.5	2.4	2.3	2.8	3.0	2.8	2.9	3.8	4.5	3.6	3.2	3.0	3.2	2.7	4.5
30-Jan	3.3	3.2	3.3	2.6	2.1	2.5	2.1	2.8	2.9	2.9	3.0	4.2	6.4	6.9	0.8	0.6	0.8	0.8	0.9	0.8	0.9	1.1	1.0	0.8	2.4	6.9
31-Jan	0.9	0.8	0.8	0.7	0.8	0.8	0.9	1.1	1.1	1.6	1.0	2.4	2.9	3.4	2.9	3.2	1.7	2.0	2.8	2.8	2.1	1.1	0.9	0.9	1.6	3.4

5.2	5.1	4.9	4.9	5.0	5.1	5.0	5.2	5.4	5.2	5.2	5.5	5.9	6.0	6.0	6.2	6.0	6.1	6.5	6.5	6.0	5.6	5.2	5.1	Diurnal Average	
27.0	26.6	25.9	23.6	23.3	21.9	22.2	22.1	23.2	23.8	21.0	21.8	22.3	20.6	18.9	23.6	25.7	27.9	27.0	29.5	30.9	29.6	27.6	22.5	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>) -  $\mu\text{g}/\text{m}^3$   
Athabasca Valley - January 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	542	73.24	73.24
6 - 15	154	20.81	94.05
16 - 25	34	4.59	98.65
26 - 80	10	1.35	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Athabasca Valley - January 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	39	8	4	12	5	19	75	30	13	39	57	38	17	11	9	166	542
6 - 15	18	3	3	3	1	7	17	13	3	11	9	7	3	8	3	45	154
16 - 25	1	1	0	0	0	4	6	4	4	1	0	1	0	1	3	8	34
26 - 80	0	0	0	0	1	0	4	2	0	2	1	0	0	0	0	0	10
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	58	12	7	15	7	30	102	49	20	53	67	46	20	20	15	219	740

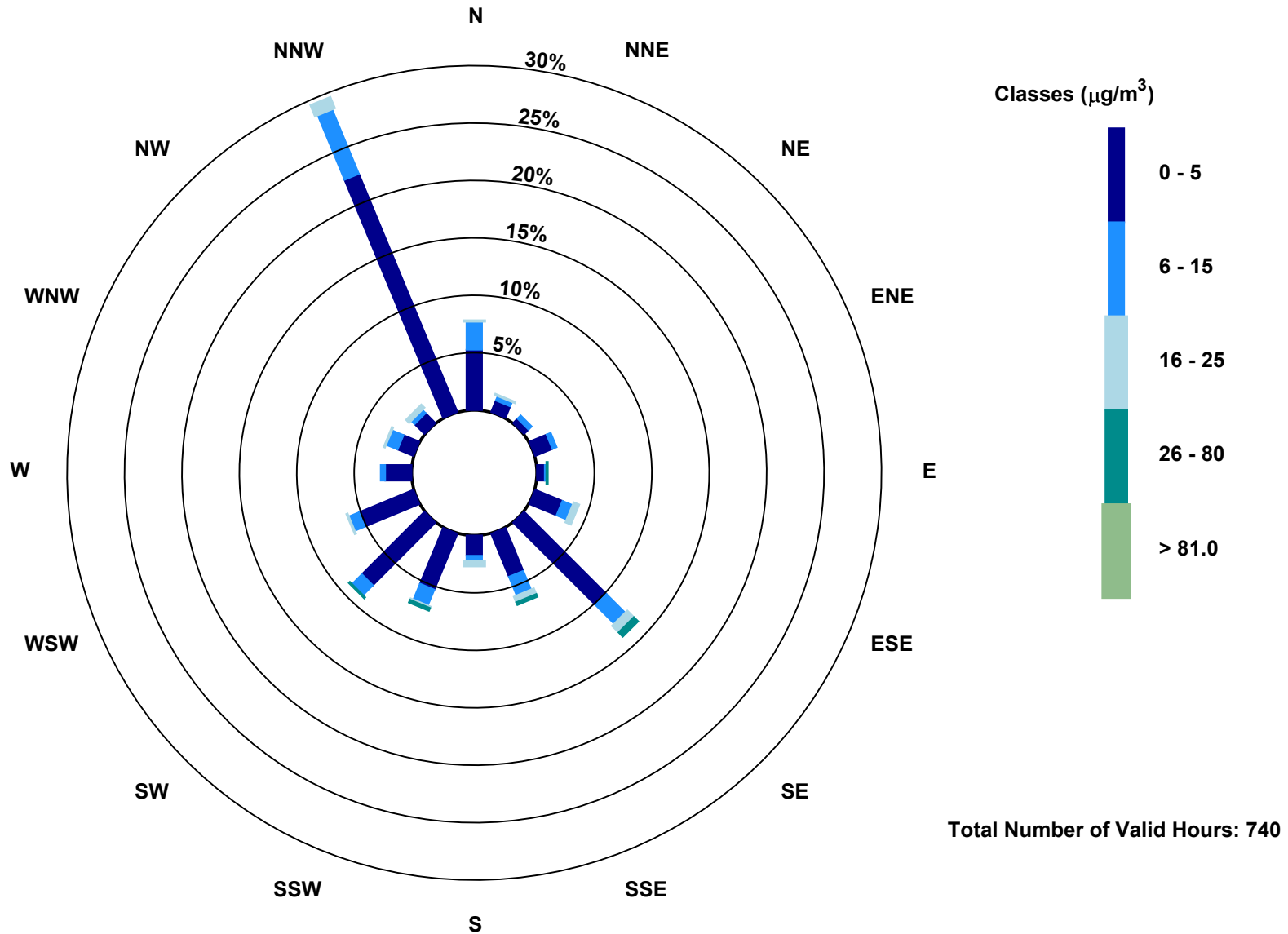
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

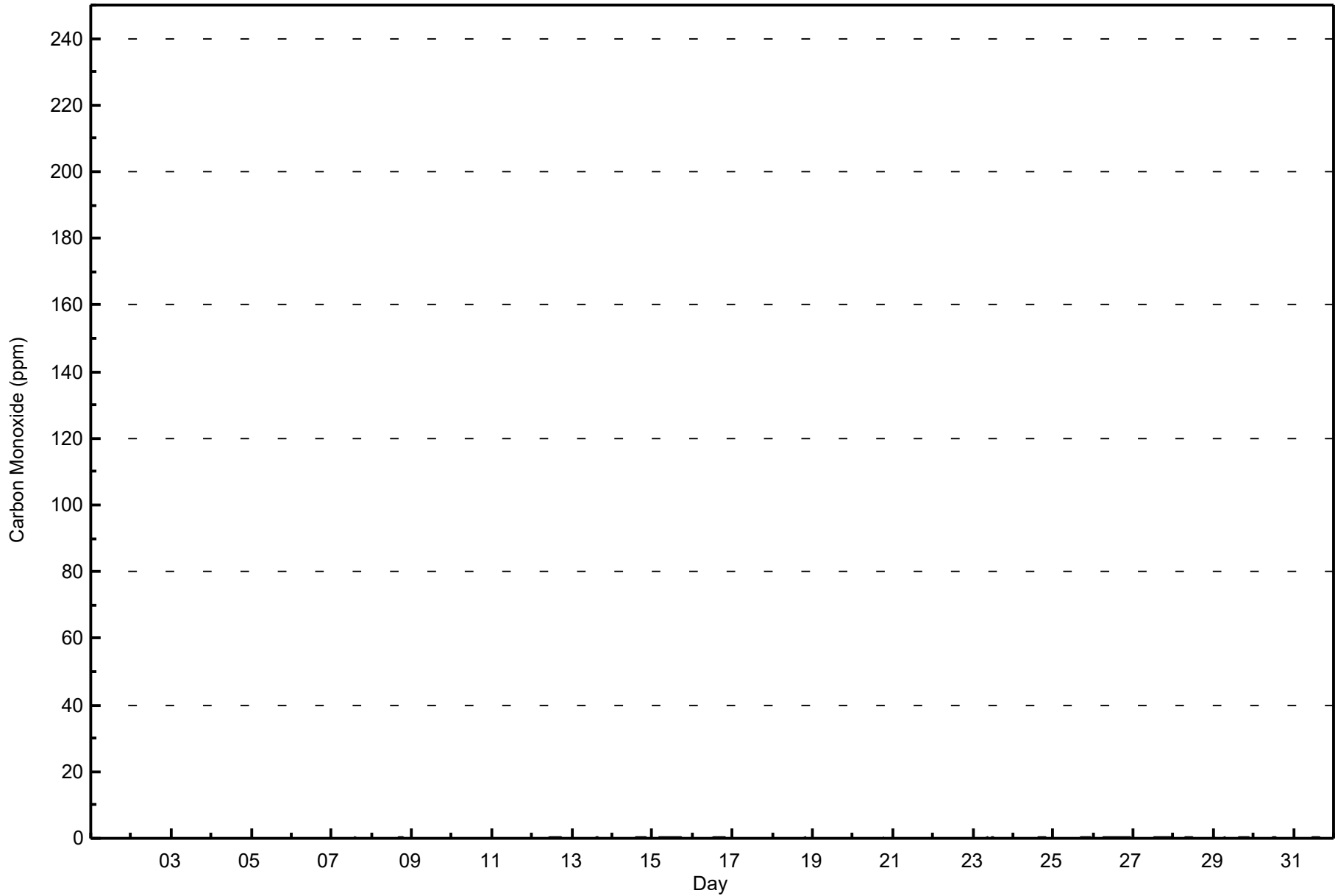






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - January 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	700	99.01	99.01
0.4 - 0.5	7	0.99	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Athabasca Valley - January 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 - 0.3	56	13	7	14	5	30	90	47	18	49	63	46	21	19	13	209	700
0.4 - 0.5	0	0	0	0	0	0	5	1	0	0	0	0	0	1	0	0	7
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>	<b>56</b>	<b>13</b>	<b>7</b>	<b>14</b>	<b>5</b>	<b>30</b>	<b>95</b>	<b>48</b>	<b>18</b>	<b>49</b>	<b>63</b>	<b>46</b>	<b>21</b>	<b>20</b>	<b>13</b>	<b>209</b>	<b>707</b>

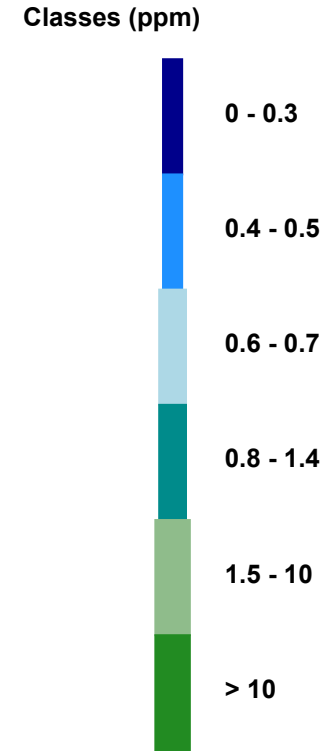
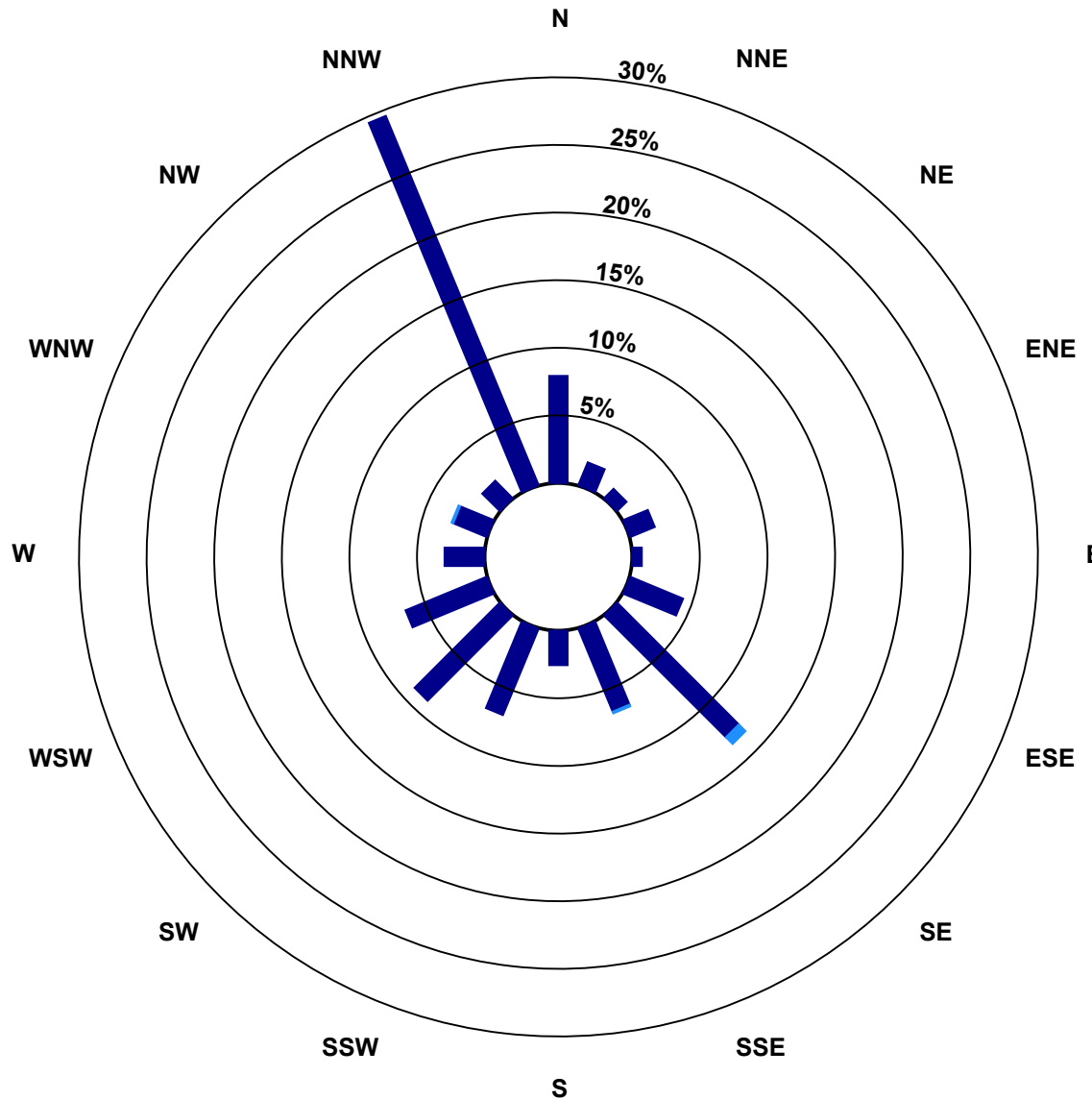
Total Number of Valid Hours: 707

Total Number of Hours: 744

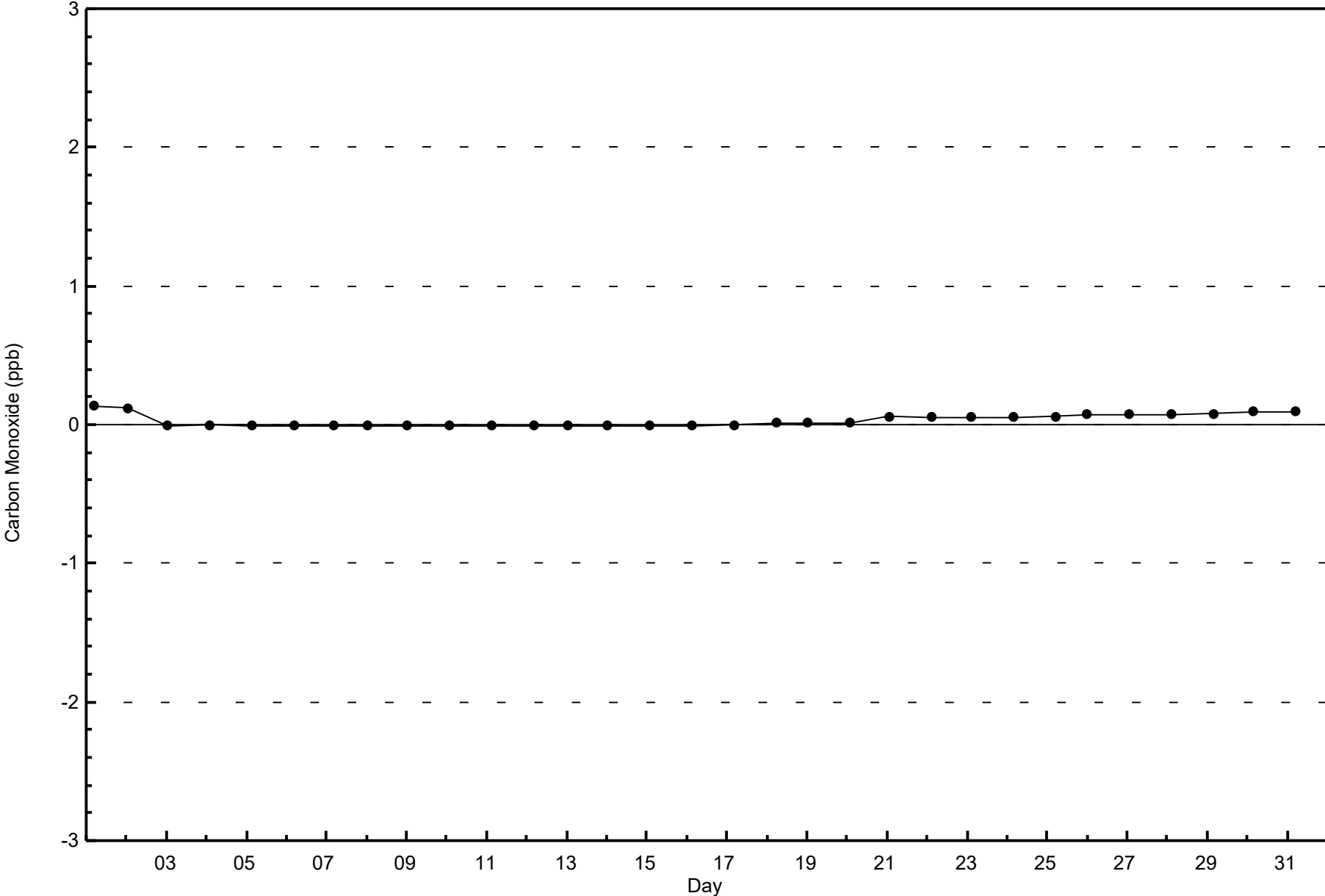


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Carbon Monoxide (CO) - ppm  
Athabasca Valley



Total Number of Valid Hours: 707

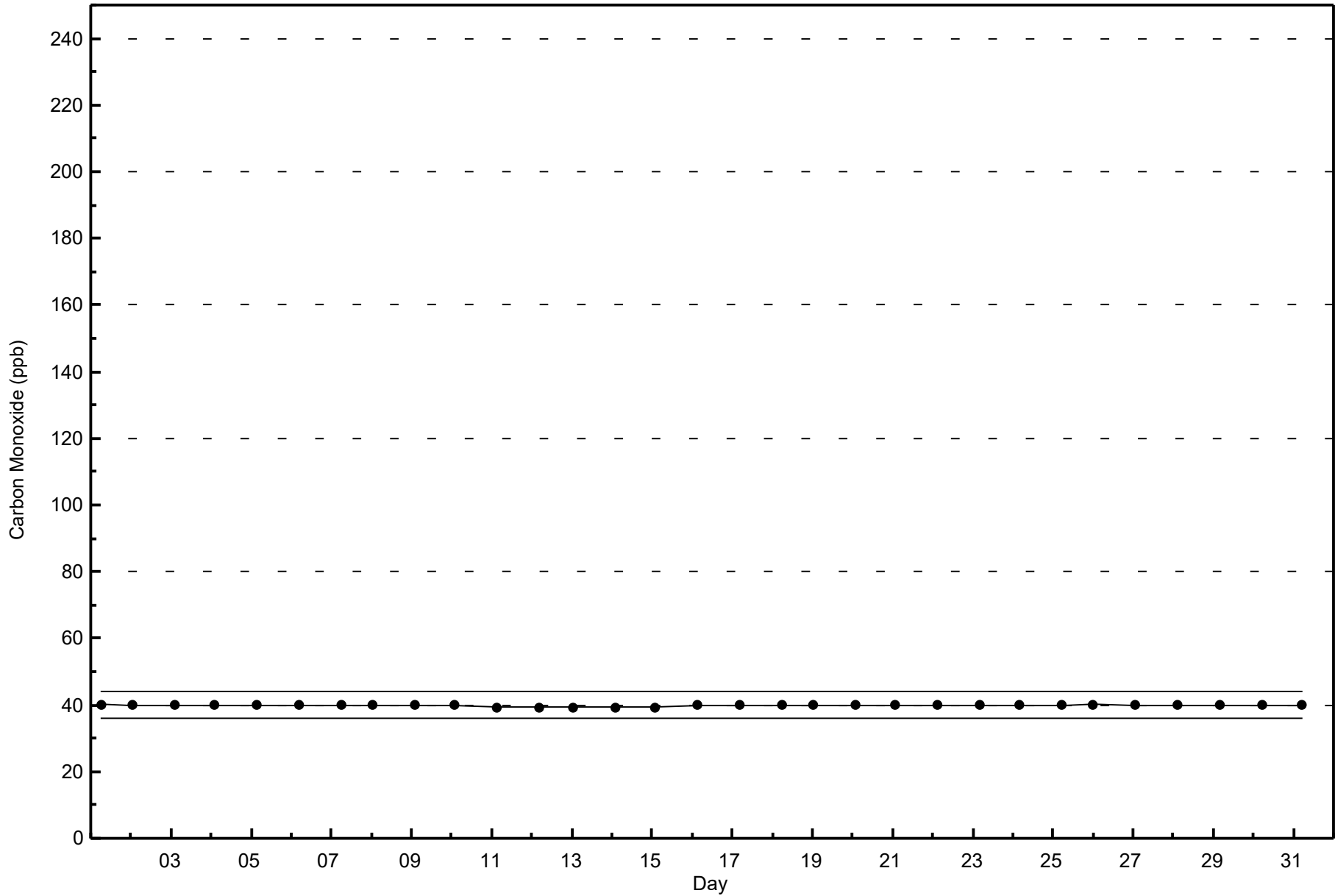






**Wood Buffalo Environmental Association**  
**Span Responses**

**Carbon Monoxide (CO) - ppb**  
**Athabasca Valley - January 2024**





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

**Ambient Temperature (AT) - C**  
**Athabasca Valley - January 2024**

Maximum Value: 12.3 C on Jan 30 15:00      Maximum Daily Average: 4.7 C on Jan 31																						Hours in Service: 744 Hours of Data: 742				
Minimum Value: -42.6 C on Jan 13 09:00      Minimum Daily Average: -39.8 C on Jan 13 Maximum Diurnal Average: -14.7 C at hour 16      Minimum Diurnal Average: -19.4 C at hour 9 Monthly Average: -17.22 C      Percentiles: P <sub>1</sub> = -41.6 P <sub>10</sub> = -35.5 Q <sub>1</sub> = -24.3 Median = -17.3 Q <sub>3</sub> = -9.0 P <sub>90</sub> = -0.8 P <sub>99</sub> = 9.1																						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-Jan	3.5	2.4	1.1	1.0	-1.5	-2.7	-3.5	-4.0	-4.3	-4.4	-4.6	-4.7	-4.8	-4.8	-5.2	-5.4	-5.4	-5.6	-6.3	-6.8	-7.2	-7.6	-8.1	-8.6	-4.1	3.5
2-Jan	-9.0	-9.3	-9.8	-10.7	-11.3	-12.1	-12.6	-13.0	-13.1	-13.2	-13.1	-12.9	-12.6	-12.4	-12.2	-12.0	-12.1	-12.0	-12.1	-12.1	-12.1	-12.6	-14.4	-16.3	-12.2	-9.0
3-Jan	-17.2	-18.4	-18.8	-19.0	-19.6	-19.4	-18.1	-17.4	-16.5	-15.9	-15.1	-14.4	-13.8	-12.8	-12.1	-11.4	-11.6	-11.6	-11.9	-12.1	-12.2	-12.4	-12.7	-13.1	-14.9	-11.4
4-Jan	-13.3	-13.5	-13.9	-14.4	-15.1	-15.5	-16.0	-16.6	-17.5	-17.7	-18.0	-18.0	-17.8	-17.7	-17.6	-17.5	-17.4	-17.6	-17.7	-17.4	-17.2	-17.0	-16.8	-16.5	-16.6	-13.3
5-Jan	-16.2	-16.0	-16.1	-16.0	-16.0	-16.3	-16.3	-16.3	-16.1	-15.9	-15.4	-14.7	-14.0	-13.7	-13.6	-13.7	-13.9	-14.1	-14.3	-14.6	-14.7	-14.9	-15.4	-15.7	-15.2	-13.6
6-Jan	-16.1	-16.2	-16.1	-16.0	-16.0	-15.7	-15.5	-15.2	-15.1	-15.0	-14.9	-14.3	-14.3	-14.4	-14.6	-15.2	-15.9	-16.8	-17.7	-18.7	-19.4	-20.2	-20.7	-20.9	-16.5	-14.3
7-Jan	-21.1	-21.2	-21.3	-20.9	-21.3	-21.7	-21.8	-21.8	-21.9	-21.9	-21.7	-21.5	-20.9	-20.1	-19.6	-19.5	-19.7	-19.5	-19.3	-18.8	-18.5	-18.2	-18.0	-18.3	-20.3	-18.0
8-Jan	-18.9	-19.4	-19.8	-19.8	-19.5	-19.4	-19.3	-19.3	-19.4	-19.7	-20.1	-19.5	-19.7	-19.2	-19.0	-19.9	-20.8	-21.9	-21.8	-21.5	-21.5	-21.5	-21.6	-22.0	-20.2	-18.9
9-Jan	-22.7	-23.3	-23.8	-24.1	-24.4	-24.6	-25.2	-26.1	-26.3	-26.7	-26.7	-26.4	-26.1	-25.8	-25.6	-25.7	-26.0	-26.5	-26.6	-27.2	-27.6	-27.8	-28.1	-28.6	-25.9	-22.7
10-Jan	-28.6	-28.4	-28.2	-28.0	-28.3	-28.9	-29.2	-29.4	-29.4	-29.4	-29.2	-28.7	-28.3	-27.9	-28.0	-28.2	-28.3	-28.7	-29.3	-30.0	-30.5	-30.8	-31.2	-31.7	-29.1	-27.9
11-Jan	-32.4	-32.7	-32.8	-33.0	-33.2	-33.6	-34.2	-34.5	-34.6	-34.7	-34.6	-34.4	-34.2	-33.7	-33.3	-33.2	-33.3	-33.4	-33.6	-34.0	-34.4	-34.8	-35.2	-35.5	-33.9	-32.4
12-Jan	-35.4	-35.7	-36.1	-35.8	-36.3	-37.4	-38.2	-39.1	-39.7	-39.9	-39.3	-37.4	-35.9	-34.7	-33.6	-33.4	-34.7	-36.9	-38.2	-39.0	-40.0	-40.4	-40.8	-41.2	-37.5	-33.4
13-Jan	-41.0	-41.5	-41.2	-41.9	-41.6	-41.8	-42.2	-42.5	-42.6	-42.3	-41.9	-40.4	-38.6	-38.0	-36.5	-36.0	-37.1	-37.9	-38.1	-38.4	-38.3	-38.3	-39.0	-39.0	-39.8	-36.0
14-Jan	-39.2	-38.8	-38.6	-39.2	-39.9	-39.8	-39.9	-40.0	-39.9	-38.7	-37.6	-36.0	-34.3	-33.3	-32.3	-31.7	-32.1	-33.4	-34.8	-36.2	-37.3	-37.6	-38.1	-38.4	-37.0	-31.7
15-Jan	-38.1	-38.2	-38.2	-38.2	-38.3	-37.6	-38.2	-37.3	-38.0	-36.9	-35.4	-32.8	-31.0	-29.5	-28.5	-28.3	-29.0	-30.7	-32.8	-33.3	-33.5	-34.4	-34.9	-34.2	-34.5	-28.3
16-Jan	-34.9	-34.8	-34.6	-34.9	-35.3	-35.2	-36.1	-37.1	-36.3	-35.8	-33.8	-31.2	-28.3	-27.1	-24.7	-23.9	-23.2	-22.8	-22.3	-21.6	-19.2	-18.2	-17.8	-17.7	-28.6	-17.7
17-Jan	-17.4	-17.1	-16.8	-17.4	-18.6	-19.8	-20.4	-20.3	-20.3	-20.1	-19.8	-19.4	-19.2	-19.1	-19.1	-19.5	-20.1	-20.9	-21.9	-22.7	-21.9	-21.2	-20.6	-20.9	-19.8	-16.8
18-Jan	-21.1	-21.3	-20.9	-20.7	-21.3	-21.4	-21.7	-21.9	-22.5	-22.4	-21.6	-20.1	-18.7	-17.3	-16.7	-15.9	-16.7	-17.6	-18.2	-17.6	-17.2	-17.3	-17.7	-18.6	-19.4	-15.9
19-Jan	-20.3	-21.9	-23.1	-24.2	-25.1	-25.7	-26.4	-26.9	-27.1	-27.3	-25.5	-23.8	-21.2	-19.9	-18.9	-19.0	-19.2	-19.0	-17.2	-16.5	-17.8	-16.3	-15.9	-15.4	-21.4	-15.4
20-Jan	-15.2	-15.1	-15.0	-15.5	-18.1	-18.3	-18.2	-18.0	-18.1	-17.4	-16.7	-15.3	-14.4	-13.3	-13.9	-14.7	PF	PF	-15.8	-16.1	-16.7	-17.3	-17.8	-18.4	-16.3	-13.3
21-Jan	-19.4	-20.2	-20.6	-20.7	-20.6	-20.3	-20.2	-20.2	-20.0	-19.9	-19.6	-19.3	-18.9	-18.6	-18.3	-18.2	-18.3	-18.3	-18.2	-18.2	-18.3	-18.7	-19.2	-19.5	-19.3	-18.2
22-Jan	-19.6	-19.8	-21.5	-22.7	-22.7	-22.5	-22.4	-22.2	-20.6	-19.9	-19.8	-19.4	-18.8	-18.2	-17.4	-16.6	-16.1	-15.6	-15.3	-14.9	-14.5	-14.1	-13.8	-13.6	-18.4	-13.6
23-Jan	-13.5	-13.3	-13.0	-12.7	-12.6	-12.7	-12.6	-12.6	-13.2	-14.6	-13.3	-11.3	-9.5	-9.1	-8.8	-9.1	-9.5	-9.7	-9.8	-10.1	-10.9	-11.8	-12.4	-13.2	-11.6	-8.8
24-Jan	-13.7	-14.1	-14.6	-14.7	-14.7	-14.7	-14.6	-14.5	-14.1	-13.0	-9.9	-8.2	-6.9	-5.6	-5.0	-4.6	-4.6	-4.7	-5.2	-5.8	-8.1	-10.8	-12.6	-12.5	-10.3	-4.6
25-Jan	-13.6	-13.0	-12.1	-11.7	-11.2	-9.9	-8.8	-9.3	-10.0	-10.4	-10.2	-9.9	-9.6	-9.4	-9.0	-8.8	-8.8	-8.4	-8.2	-7.8	-7.5	-7.2	-7.0	-7.0	-9.6	-7.0
26-Jan	-8.6	-9.1	-9.0	-8.6	-7.8	-7.1	-6.4	-6.8	-6.9	-6.6	-5.6	-4.9	-4.7	-4.2	-4.0	-3.9	-3.7	-3.5	-3.5	-3.4	-3.6	-3.8	-4.3	-4.5	-5.6	-3.4
27-Jan	-5.8	-6.9	-8.2	-9.1	-9.7	-9.4	-7.6	-6.9	-8.2	-8.3	-7.7	-5.8	-2.9	0.2	1.1	0.4	-0.1	-0.7	-1.7	-2.1	-3.2	-4.7	-5.2	-5.4	-4.9	1.1
28-Jan	-4.3	-5.1	-5.5	-5.0	-3.9	-2.8	-1.5	-2.4	-2.4	-2.7	-2.7	-2.3	1.8	8.0	9.3	9.5	8.9	8.2	7.5	6.1	5.6	4.9	3.9	3.0	1.5	9.5
29-Jan	1.0	1.3	-0.1	-2.8	-3.3	-3.7	-5.0	-5.7	-5.4	-2.5	-1.6	0.1	1.3	2.1	3.0	2.5	1.7	1.8	1.1	1.6	2.0	1.5	0.6	-0.3	-0.4	3.0
30-Jan	-0.1	-1.4	-1.5	-2.6	-3.7	-3.7	-4.7	-5.0	-4.2	-2.7	-1.4	1.5	4.1	8.2	12.3	12.0	11.0	10.1	9.2	9.2	9.0	8.0	7.4	7.1	3.3	12.3
31-Jan	6.6	6.0	5.6	5.0	4.1	3.5	3.0	2.4	1.7	1.8	2.5	4.7	6.0	6.6	7.3	6.7	6.1	5.8	4.8	4.2	4.2	5.3	4.8	4.6	4.7	7.3
																								Diurnal Average		
																								Diurnal Maximum		
PF - Power Failure																										



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

**Ambient Temperature (AT) - C**  
**Athabasca Valley - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Athabasca Valley - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	266	35.85	35.85
-20 - 0	406	54.72	90.57
0 - 10	66	8.89	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



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

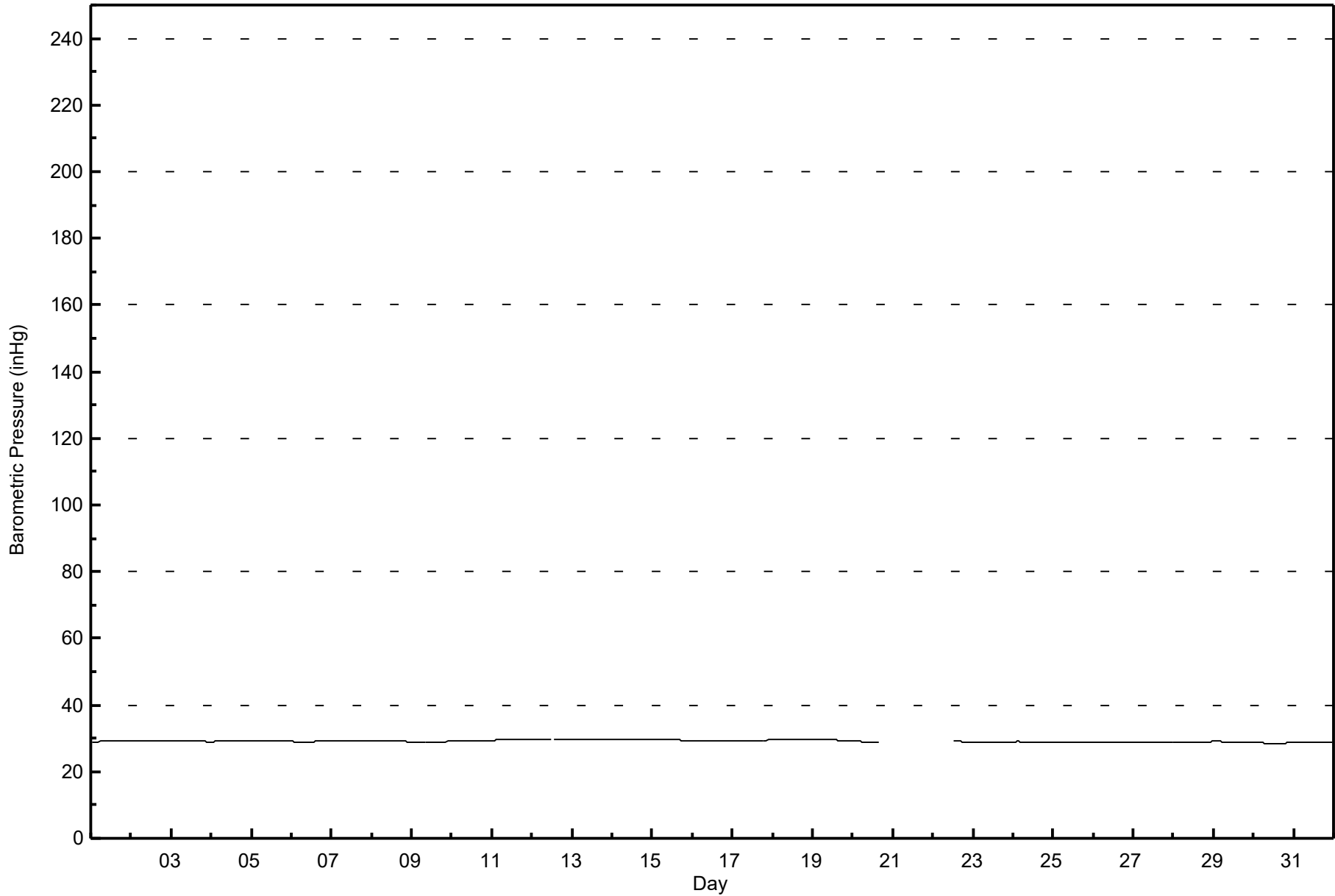
**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - January 2024**

Maximum Value: 29.8 inHg on Jan 14 23:00      Maximum Daily Average: 29.8 inHg on Jan 14																						Hours in Service: 744 Hours of Data: 699																											
Minimum Value: 28.5 inHg on Jan 30 15:00      Minimum Daily Average: 28.6 inHg on Jan 30 Maximum Diurnal Average: 29.2 inHg at hour 11      Minimum Diurnal Average: 29.2 inHg at hour 13 Monthly Average: 29.18 inHg      Percentiles: P <sub>1</sub> = 28.6 P <sub>10</sub> = 28.8 Q <sub>1</sub> = 28.9 Median = 29.1 Q <sub>3</sub> = 29.4 P <sub>90</sub> = 29.7 P <sub>99</sub> = 29.8																						Hours of Missing Data: 45 Hours of Calibration: 0 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-Jan	28.9	28.9	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	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.3																							
2-Jan	29.3	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	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4																						
3-Jan	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.2	29.3																							
4-Jan	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	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2																							
5-Jan	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	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.1	29.1																							
6-Jan	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	29.2	29.2	29.2	29.2	29.2	29.3	29.1	29.3																							
7-Jan	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	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.3	29.4																							
8-Jan	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.0	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.1	29.1	29.2																							
9-Jan	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	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	28.9	29.1																							
10-Jan	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.2	29.2	29.4																							
11-Jan	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.7																							
12-Jan	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	M	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																							
13-Jan	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.8																							
14-Jan	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8																							
15-Jan	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.7	29.7	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	29.6	29.8																							
16-Jan	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	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.3																							
17-Jan	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.5	29.5	29.5	29.2	29.5																							
18-Jan	29.5	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	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.8																							
19-Jan	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	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.5	29.7																							
20-Jan	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	PF	PF	UO	UO	UO	UO	UO	UO	--	29.1																							
21-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	--	29.1																							
23-Jan	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	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	28.9	29.0																							
24-Jan	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0																							
25-Jan	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0																							
26-Jan	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	29.0	29.0	29.0	29.0	29.0																							
27-Jan	29.0	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	28.8	28.9	29.0																							
28-Jan	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	28.8	28.8	28.8	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	28.8	29.0																							
29-Jan	29.1	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.1																							
30-Jan	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.6	28.7																							
31-Jan	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.9																							
																								29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	Diurnal Average		
																								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	Diurnal Maximum	
M - Maintenance      UO - Unstable Operation      PF - Power Failure																																																	



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

**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - January 2024**

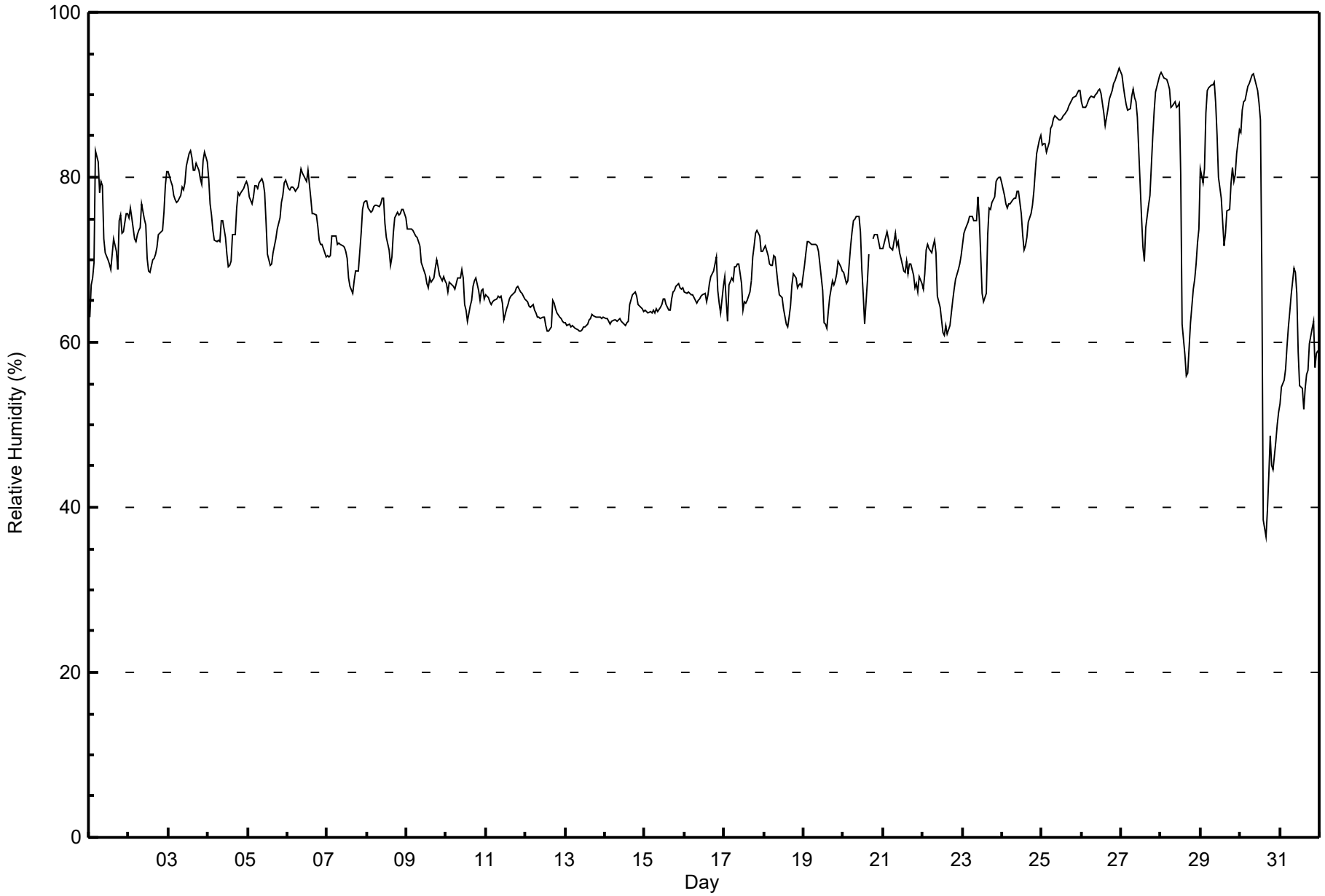




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Athabasca Valley - January 2024**

Maximum Value: 93.1 % on Jan 27 00:00      Maximum Daily Average: 89.8 % on Jan 26																						Hours in Service: 744 Hours of Data: 742				
Minimum Value: 36.4 % on Jan 30 16:00      Minimum Daily Average: 59.1 % on Jan 31																						Hours of Missing Data: 2 Hours of Calibration: 0				
Maximum Diurnal Average: 75.1 % at hour 9      Minimum Diurnal Average: 67.1 % at hour 15																						Percent Operational Time: 99.7				
Monthly Average: 72.17 %      Percentiles: P <sub>1</sub> = 49.2 P <sub>10</sub> = 62.6 Q <sub>1</sub> = 65.7 Median = 71.0 Q <sub>3</sub> = 77.6 P <sub>90</sub> = 87.8 P <sub>99</sub> = 92.3																										
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-Jan	63.0	67.0	67.8	69.6	83.2	81.9	78.1	79.5	78.9	72.6	70.9	70.0	69.5	68.8	70.7	72.5	71.0	68.7	74.8	75.4	73.1	73.4	75.6	75.6	73.0	83.2
2-Jan	75.1	76.2	75.1	72.5	72.2	73.1	73.6	73.9	76.8	74.9	74.3	70.2	68.6	68.4	70.1	70.1	70.6	71.5	73.1	73.2	73.5	75.8	79.0	80.7	73.4	80.7
3-Jan	80.7	79.4	78.9	77.8	77.3	76.9	77.2	77.8	78.9	78.4	79.2	81.3	82.8	83.3	82.3	80.9	80.8	81.6	80.8	79.8	79.2	82.0	83.0	81.9	80.1	83.3
4-Jan	79.8	76.7	75.4	73.6	72.3	72.1	72.4	72.2	74.7	74.8	72.8	70.6	69.1	69.3	69.8	73.0	73.0	76.3	78.1	77.8	78.1	78.7	79.2	79.5	74.6	79.8
5-Jan	79.0	77.6	76.8	77.7	79.0	79.0	78.7	79.4	79.8	79.4	78.2	74.6	70.8	69.3	69.5	70.9	71.6	72.6	73.7	75.1	76.9	77.9	79.4	79.7	76.1	79.8
6-Jan	78.6	78.5	78.8	78.8	78.7	78.3	78.8	79.8	81.0	80.6	80.1	79.4	80.9	79.1	77.4	75.5	75.7	75.5	74.1	72.4	71.9	71.8	70.9	70.4	77.0	81.0
7-Jan	70.5	70.3	70.5	72.9	72.9	72.8	71.8	72.0	71.9	71.7	71.5	71.1	70.1	67.8	66.9	65.9	67.4	68.6	68.6	68.6	73.2	76.1	76.9	77.2	71.1	77.2
8-Jan	77.2	76.3	75.7	75.9	76.4	76.7	76.6	76.4	76.8	77.4	77.4	74.4	72.7	71.2	69.3	70.3	73.1	75.0	75.8	75.4	75.6	76.1	76.0	75.1	75.1	77.4
9-Jan	73.8	73.8	73.7	73.7	73.5	72.8	72.6	72.1	71.8	69.7	68.7	68.1	67.1	66.6	67.8	67.3	67.8	68.9	70.0	69.2	68.2	67.5	67.9	67.5	70.0	73.8
10-Jan	67.1	66.2	67.3	66.9	66.7	66.5	67.1	67.8	67.9	68.8	67.8	64.6	63.9	62.6	64.5	65.2	66.7	67.4	67.8	66.2	65.1	66.3	66.4	65.2	66.3	68.8
11-Jan	65.7	65.5	65.0	64.6	64.9	65.1	65.3	65.6	65.4	65.5	64.8	62.8	64.0	64.6	65.3	65.6	65.8	66.1	66.7	66.8	66.5	66.1	65.9	65.3	65.4	66.8
12-Jan	65.1	64.9	64.3	64.3	64.5	64.0	63.5	63.1	63.1	62.9	63.0	63.1	62.0	61.4	61.4	61.9	65.1	64.7	64.1	63.6	63.0	62.8	62.6	62.3	63.4	65.1
13-Jan	62.4	62.1	62.2	61.8	62.0	61.9	61.7	61.5	61.4	61.4	61.5	61.9	61.9	62.2	62.7	62.8	63.3	63.1	63.1	63.0	63.1	63.0	62.9	63.1	62.3	63.3
14-Jan	62.9	62.9	62.6	62.2	62.5	62.7	62.7	62.6	62.7	62.8	62.5	62.2	62.0	62.4	62.5	64.5	65.8	65.9	66.0	65.6	64.6	64.3	64.0	63.8	63.5	66.0
15-Jan	63.8	63.7	63.6	63.7	63.6	64.0	63.6	64.1	63.8	64.2	64.5	65.2	63.0	64.7	64.0	63.9	65.2	66.0	66.3	66.8	67.0	66.5	66.4	66.6	64.9	67.0
16-Jan	66.1	65.9	66.1	65.9	65.8	65.8	65.4	64.8	65.1	65.2	65.5	65.7	65.9	64.9	65.8	67.1	67.9	68.6	69.5	70.3	66.3	64.7	63.6	66.7	66.2	70.3
17-Jan	67.9	65.0	62.6	67.0	67.8	67.4	69.2	69.1	69.6	69.4	67.1	63.9	65.0	64.8	65.1	66.2	67.5	70.4	71.7	73.1	73.6	72.9	71.0	71.0	68.3	73.6
18-Jan	71.4	71.7	70.5	69.6	69.4	69.3	70.6	70.3	67.1	65.8	65.6	65.4	64.0	62.2	61.9	63.1	64.3	67.0	68.3	67.8	66.6	66.9	67.1	66.7	67.2	71.7
19-Jan	69.3	70.9	72.2	72.3	72.0	71.9	71.8	71.8	71.8	71.0	69.6	66.3	62.4	62.2	61.6	63.7	65.4	67.4	67.0	67.4	68.4	69.9	69.1	68.7	68.5	72.3
20-Jan	68.4	67.8	67.2	67.4	71.7	73.4	74.7	74.9	75.2	75.3	73.3	68.8	65.7	62.2	67.4	70.7	PF	PF	72.5	73.0	73.0	72.2	71.4	71.4	70.8	75.3
21-Jan	71.4	72.7	73.4	72.6	71.6	71.3	71.1	73.3	71.7	72.2	70.8	70.2	68.6	68.6	69.9	68.4	69.4	69.5	68.2	66.6	67.2	66.1	67.9	67.1	70.0	73.4
22-Jan	66.5	68.3	71.2	71.9	71.3	70.9	71.8	72.4	70.8	65.6	64.2	62.8	61.2	60.8	62.0	61.1	62.0	63.6	65.1	66.4	67.6	68.8	69.5	70.5	66.9	72.4
23-Jan	71.9	73.2	73.8	74.6	75.2	75.3	75.2	74.8	74.7	77.6	75.0	70.5	65.9	65.0	65.9	73.1	76.3	76.2	77.0	77.6	79.6	79.9	80.0	80.1	74.5	80.1
24-Jan	79.3	77.8	76.7	76.3	76.7	76.8	77.3	77.5	77.4	78.3	78.2	75.5	73.1	71.2	71.7	72.6	74.6	75.6	76.6	78.3	80.7	82.8	84.5	85.1	77.3	85.1
25-Jan	83.9	84.1	84.0	83.0	84.3	86.0	86.3	87.2	87.5	87.0	86.9	86.9	87.2	87.5	87.7	88.2	88.6	89.0	89.3	89.6	89.9	90.2	90.5	90.5	87.3	90.5
26-Jan	89.2	88.5	88.4	88.8	89.3	89.6	89.9	89.7	90.0	90.2	90.5	90.7	90.2	87.8	86.3	87.3	88.3	89.5	90.5	91.4	91.7	92.2	92.7	93.1	89.8	93.1
27-Jan	92.3	91.1	89.8	88.8	88.2	88.3	89.8	90.7	89.6	89.1	87.3	79.2	75.1	71.6	69.8	74.0	76.6	77.9	81.4	84.9	88.0	90.3	91.7	92.3	84.9	92.3
28-Jan	92.7	92.5	92.0	91.9	91.4	90.7	88.4	88.7	89.1	88.4	88.7	88.9	80.3	62.3	58.5	55.9	56.3	59.3	62.3	66.4	67.7	69.4	72.1	73.7	77.8	92.7
29-Jan	81.1	79.4	81.0	87.9	90.6	90.9	91.1	91.2	91.5	89.0	85.1	79.9	77.5	74.6	71.7	73.2	75.9	76.0	79.4	81.2	79.6	80.4	82.9	85.7	82.4	91.5
30-Jan	85.5	88.1	89.2	89.3	91.0	91.3	91.9	92.4	92.6	91.9	90.6	89.1	87.0	68.8	38.5	36.4	39.6	43.9	48.6	45.1	44.6	48.0	50.0	51.5	70.2	92.6
31-Jan	52.6	54.5	55.5	56.8	59.5	61.9	63.7	65.8	69.0	68.4	66.0	58.8	54.8	54.4	51.9	54.5	56.1	56.5	59.8	61.6	62.5	56.9	58.6	58.9	59.1	69.0
																								Diurnal Average		
																								Diurnal Maximum		
73.4 73.3 73.3 73.6 74.4 74.5 74.6 74.9 75.1 74.5 73.6 71.7 70.1 68.1 67.1 67.9 69.1 70.1 71.3 71.6 71.8 72.3 72.9 73.1 92.7 92.5 92.0 91.9 91.4 91.3 91.9 92.4 92.6 91.9 90.6 90.7 90.2 87.8 87.7 88.2 88.6 89.5 90.5 91.4 91.7 92.2 92.7 93.1																										
PF - Power Failure																										







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

**Wind Speed (WS) - km/h**  
**Athabasca Valley - January 2024**

Maximum Speed: 26 km/h on Jan 28 15:00	Maximum Daily Speed Average: 15.1 km/h on Jan 6	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 23 10:00	Minimum Daily Speed Average: 1.1 km/h on Jan 8	Hours of Data: 744
Maximum Diurnal Speed Average: 3.4 km/h at hour 3	Minimum Diurnal Speed Average: 0.5 km/h at hour 12	Hours of Missing Data: 0
Monthly Average Velocity: 2.0 km/h 316.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 11 P <sub>90</sub> = 14 P <sub>99</sub> = 23	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-Jan	WSW15	WSW17	WSW14	W15	NNW21	NNW20	N12	NNW11	NNW11	NNW9	NNW4	NNW7	NNW10	NNW9	NNW9	NNW7	NNW5	NW11	NNW10	NNW8	NNE6	NNW7	NNW10	NNW11	NNW8.6	NNW21
2-Jan	NNW11	NNW11	NNW13	NNW13	NNW12	N10	N8	N7	NNW9	N7	N5	ENE6	E6	SE4	SE3	E4	SSE4	SSE3	ENE5	ENE5	ENE5	SSW1	SW2	SSW2	N3.8	NNW13
3-Jan	SW3	SSW4	SSW2	SSW5	SW5	SW7	SSW4	WSW3	SSW5	E4	SSE6	SSE4	NNE4	NW5	NNW5	NNW8	NNE6	N8	NNW13	NNW14	NNW9	NNW11	NW13	NW13	NNW3.2	NNW14
4-Jan	NW15	NW14	NW20	NNW23	NNW23	NNW21	NNW19	NNW19	N13	NNW13	NNW13	NNW11	NNW12	NNW11	NNW9	N9	NNW10	NNW7	NNW9	NNW14	NNW13	NNW13	NNW10	NNW7	NNW13.4	NNW23
5-Jan	N10	NNW16	NNW13	NNW12	NNW13	NNW11	NNW9	N4	N3	NNW2	E1	SSW3	W2	NE2	NNE2	NE3	NE2	ENE5	ENE5	NNE3	E3	NE3	NNW7	NNW9	N4.8	NNW16
6-Jan	NNW12	NNW10	NNW10	NNW12	NNW13	NNW13	NNW11	NNW12	NNW11	N11	N11	NNW11	NNW15	NNW16	NNW14	NNW18	NNW20	NNW22	NNW24	NNW21	NNW21	NNW20	NNW18	NNW17	NNW15.1	NNW24
7-Jan	NNW18	NNW21	NNW17	NNW14	NNW17	NNW14	NNW12	NNW9	NNW8	NNW7	N6	N4	ENE4	ESE4	SE7	SSE9	ESE3	SE6	SSE8	SE8	SE10	SE8	ESE10	SE7	N3.4	NNW21
8-Jan	SE8	SE8	SE12	SE12	SE10	SE12	SE8	ESE4	N3	NNW1	WSW4	NNW8	NNW10	NNW9	NNW10	NNW8	WNW5	NNW3	WNW2	WNW3	N2	N4	NNW5	NNW7	NE1.1	SE12
9-Jan	NNW7	N4	NNW9	NNW7	N8	NNW10	NNW9	N10	N7	N7	NNW9	NNW11	NNW13	NNW14	NNW13	NNW10	NNW11	NNW15	NNW14	NNW17	NNW16	NNW16	NNW14	NNW15	NNW10.9	NNW17
10-Jan	NNW14	NNW13	NNW9	NNW11	NNW14	NNW12	NNW8	NW7	NNW5	NNW5	NNW4	N7	N6	N7	NNW7	NNW6	N5	NNW8	NNW9	N6	NNW9	NNW7	NNW9	NNW10	NNW8.0	NNW14
11-Jan	NNW8	NNW10	NNW10	NNW10	NNW8	NNW8	NNW9	NNW7	N6	N6	NNW9	NNW8	NNW6	NE3	NE1	NE2	NNE2	N3	NW1	WNW2	WSW3	SW4	SW4	SW9	NNW4.4	NNW10
12-Jan	SSW6	SSW7	SSW8	S4	S4	SW5	SSW5	SW5	SSW4	W0	ENE1	SSE5	ENE5	ENE5	SE4	SE4	ESE4	NNW2	SW2	SW3	WSW2	SW3	SW3	SW2	S2.5	SSW8
13-Jan	SW1	SW2	SSW1	WSW2	SSE4	ESE2	ENE2	WSW2	NNW1	SW3	SW3	SW3	NNE1	NW2	WNW2	WNW3	WSW4	SW5	SW4	SW6	SW5	SW5	WSW4	SSW1	SW2.1	SW6
14-Jan	SW3	SSW6	SSW5	SW5	W4	WNW2	WSW3	WSW4	WSW4	SW8	SW8	SW7	WNW2	NNW3	NNW3	N3	N3	NNW4	WNW3	W4	WSW4	SW2	SSE0	ESE1	WSW2.6	SW8
15-Jan	SSW3	SSE1	S1	ESE2	ESE2	SSE3	ESE3	SE5	ESE3	SE8	SE7	SE4	ESE4	ESE3	S6	SSE6	S4	SSW2	WSW2	SW4	SSW5	SSE1	SSW4	SSW4	SSE2.9	SE8
16-Jan	SSE1	SSW2	ENE3	ENE3	ENE3	N3	WNW3	W4	SW3	SW3	WSW3	WNW1	NNW1	NNW4	N4	N4	NNW6	WNW2	SW1	WNW0	W8	W10	W11	NNW6	WNW2.2	W11
17-Jan	W10	WNW16	WNW20	N10	N9	NNW8	N6	NNW7	NNW7	NNW10	NNW10	NNW9	NNW11	NNW10	NNW11	NNW11	N7	NNW8	NNW8	NNW6	N7	N7	NNW11	NNW8	NNW8.7	WNW20
18-Jan	NNW8	NNW8	WNW9	W6	SW10	SW7	WSW4	SW9	SW12	SW9	SSW10	SW11	SW7	ENE0	NNE2	W13	WSW9	SSW6	SSW6	SW6	W10	WSW9	WSW7	SSW10	WSW6.3	W13
19-Jan	SW12	SW11	SSW6	SSW6	SW6	SW7	SW7	SW6	SW7	SW5	WSW2	SW5	WSW4	WSW3	SW1	WNW1	W2	SSE1	SE11	SE10	SSE2	SE7	SE10	SE8	SSW4.4	SW12
20-Jan	SE9	SE9	SE10	SSE9	SW4	SW5	SW5	SW2	SW5	SSW2	SSW7	SSW9	SSW8	SW1	NNW9	N11	N10	N8	NNW11	NNW12	NNW12	NNW12	NNW11	NNW12	NW2.0	NNW12
21-Jan	NNW15	NNW15	NNW10	NNW10	N7	NNW7	NNW8	NNW9	NNW10	NNW12	NNW11	NNW13	NNW14	NNW14	NNW13	NNW13	NNW11	NNW11	N8	N7	N8	NNE8	NNE6	NE6	NNW9.9	NNW15
22-Jan	NNE5	N8	NNW13	NNW12	NNW10	NNW10	NNW7	NNW6	ESE7	ESE13	ESE18	ESE16	ESE15	ESE19	ESE13	ESE15	SE17	SE17	SE15	SE12	SE15	SE17	SE16	SE16	ESE8.1	ESE19
23-Jan	SE13	SE11	SE12	SE13	SE13	SE10	SE11	SE9	SE3	NW0	SW1	SSE6	S4	SSW5	N2	N7	NNW9	NNW9	NNW10	NNW14	NNW17	NNW17	NNW16	NNW14	NE1.5	NNW17
24-Jan	N11	NNW12	NNW11	N9	NNW9	N5	N4	N5	N5	NNW3	ESE6	SE11	SE8	SE12	ESE14	ESE12	SE9	SE9	SSE9	SSE7	SSW3	W4	WNW6	WSW7	E1.7	ESE14
25-Jan	WSW5	WSW6	WSW6	WSW6	WSW7	NW7	NNW16	NNW12	NNW12	NNW13	NNW10	NNW7	N4	NNE3	WNW2	NW0	E5	SE6	SE6	SSE6	SE5	SE3	SSE3	S6	NW2.4	NNW16
26-Jan	SW5	SSW6	SSW5	SSE2	S4	S3	S4	NNW2	NW1	ESE1	SSE5	SSE7	SSE8	SSE8	ESE10	ESE9	ESE9	SE9	SE10	SE8	SE8	SE4	SE4	S9	SSE5.0	SE10
27-Jan	SW10	SW10	SSW9	SSW9	SW9	SW8	SSE8	SSE6	SSW8	SSW9	SW11	SW10	SSW7	S6	SSE5	SSE5	SE6	SE7	SE6	SE6	SE6	SSE2	SSE4	SSE3	S6.1	SW11
28-Jan	SE7	SE7	SSE5	SE4	SE8	SE7	SE8	SE7	SSE7	SSE6	S3	SE1	SW4	W14	W26	W23	W23	WSW22	WSW21	WSW12	SW4	WSW14	SW8	SSE6	SW6.4	W26
29-Jan	SE8	SE10	SE7	SE4	SE5	SE5	SSE4	S4	SSE3	SE8	SE9	SE10	SE10	SSE4	SSW2	S4	SSW6	SSW5	SSE5	SE7	SE13	SE11	SE12	SE10	SSE6.5	SE13
30-Jan	SE11	SE6	SE9	SSE4	SE4	SE5	ESE1	SE1	SE2	SSE3	SSE5	S4	E4	SSW6	WSW19	W24	W23	WSW18	WSW14	WSW19	WSW18	WSW13	WSW16	WSW19	SW7.2	W24
31-Jan	WSW22	WSW21	SW23	WSW21	WSW12	SSW6	S5	SSW8	S8	SSW5	SSW6	S6	S5	SSE7	SSE6	SE6	SE12	SE12	SE9	SE8	SE12	SE14	SE14	SE13	S7.1	SW23

WNW2.6	WNW3.3	WNW3.4	NW3.1	NW3.2	NW3.0	NNW2.5	NNW2.5	NW1.9	NNW1.4	NNW0.6	WSW0.5	N1.3	NNW1.5	NW2.1	NW2.4	NW1.9	NW1.6	NW1.4	NW1.6	NW1.6	NW2.0	NW2.1	NNW1.6	Diurnal Average
WSW22	WSW21	SW23	NNW23	NNW23	NNW21	NNW19	NNW19	N13	ESE13	ESE18	ESE16	ESE15	ESE19	W26	W24	W23	NNW22	NNW24	NNW21	NNW21	NNW20	NNW18	WSW19	Diurnal Maximum

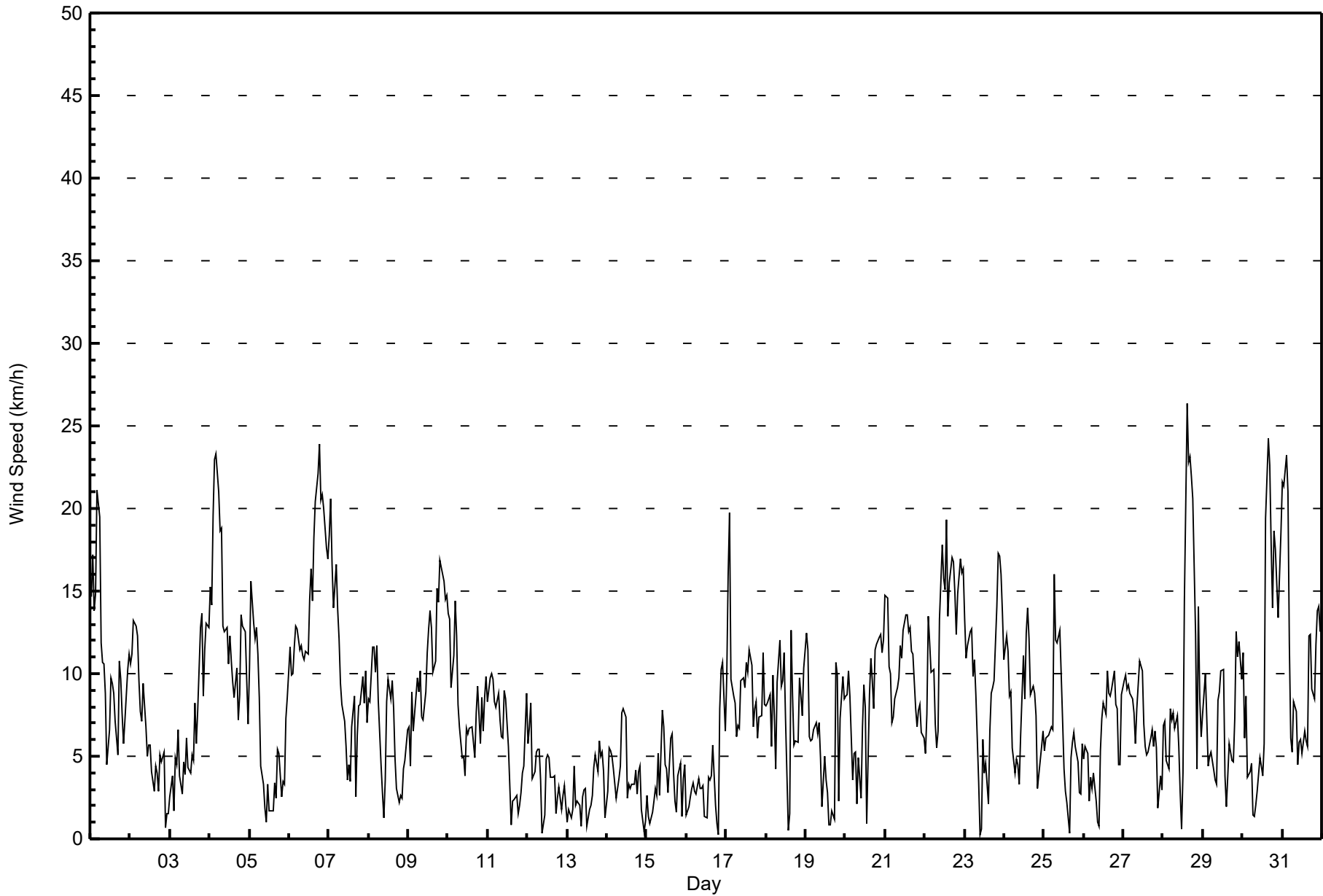
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed (WS) - km/h**  
**Athabasca Valley - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Jan 28 14:00 Minimum Value: 1 km/h on Jan 11 21:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 3 P <sub>99</sub> = 5																		Hours in Service: 744 Hours of Data: 744 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-Jan	2	3	3	3	3	3	3	3	2	3	1	1	2	2	3	3	2	2	1	2	1	3	2	2	3	
2-Jan	2	2	2	2	3	2	2	2	2	2	2	1	2	2	1	2	2	2	1	1	1	1	1	2	3	
3-Jan	2	2	2	2	3	3	2	1	3	1	1	2	2	2	1	2	2	2	3	3	2	2	2	3	3	
4-Jan	2	3	4	5	4	4	4	4	4	3	2	2	2	3	2	2	3	1	3	3	2	3	2	3	2	5
5-Jan	3	2	2	3	2	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	2	2	3	
6-Jan	3	2	2	2	2	2	2	2	2	2	2	3	4	3	3	3	3	4	4	4	4	5	3	4	5	
7-Jan	5	4	3	2	3	2	3	2	1	2	1	1	2	1	1	2	2	2	3	3	2	2	2	2	5	
8-Jan	2	2	2	2	2	2	3	2	1	1	1	5	2	1	2	2	1	1	1	1	1	1	1	2	5	
9-Jan	2	2	3	2	3	2	2	2	2	2	2	2	3	2	3	3	3	3	2	4	3	3	2	2	4	
10-Jan	2	2	2	3	3	2	2	2	1	1	1	1	1	1	2	1	1	2	2	1	2	1	2	3	3	
11-Jan	3	2	2	3	2	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	1	2	2	2	3	
12-Jan	2	3	4	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	4	
13-Jan	1	1	2	2	2	2	1	2	1	2	2	2	1	1	1	1	1	2	1	1	3	2	2	2	3	
14-Jan	2	2	2	2	1	1	1	2	1	2	2	1	1	1	1	1	1	2	1	1	2	2	2	1	2	
15-Jan	1	1	2	1	1	2	2	4	2	3	2	2	1	1	1	1	1	2	2	2	3	2	3	2	4	
16-Jan	2	2	2	2	1	1	1	1	3	2	1	1	2	2	1	2	1	1	1	1	4	3	3	2	4	
17-Jan	3	3	3	3	2	2	2	2	2	3	2	2	2	2	2	2	2	1	1	1	2	2	2	2	3	
18-Jan	2	1	2	3	2	2	2	2	3	2	2	2	3	1	1	3	4	3	2	1	2	2	2	3	4	
19-Jan	2	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3	2	2	2	3	2	3	
20-Jan	2	3	2	3	2	2	2	2	2	2	3	1	1	2	5	2	2	2	3	3	3	3	3	3	5	
21-Jan	3	2	4	3	3	2	2	2	2	2	2	3	2	2	2	3	2	2	2	2	2	2	2	2	4	
22-Jan	1	3	3	3	2	2	2	2	5	4	4	4	4	5	4	4	4	4	4	3	4	4	3	3	5	
23-Jan	3	2	3	2	2	2	2	2	2	1	1	2	1	2	1	2	2	2	2	3	3	2	3	3	3	
24-Jan	2	3	2	2	2	1	1	1	1	1	4	3	3	3	3	3	2	2	2	2	2	2	2	2	4	
25-Jan	1	1	1	1	1	4	3	3	2	2	1	2	1	1	1	1	1	1	1	2	2	1	2	1	4	
26-Jan	1	2	2	2	2	2	1	1	1	1	2	2	2	2	3	2	3	2	2	2	2	3	2	2	3	
27-Jan	1	2	2	2	2	2	3	2	2	3	3	3	2	2	1	2	3	2	2	2	2	1	2	2	3	
28-Jan	2	3	2	1	4	3	3	2	2	2	1	2	2	9	5	4	4	3	3	5	3	3	3	2	9	
29-Jan	2	2	2	2	2	2	2	1	2	3	3	3	2	3	2	1	2	2	2	3	3	2	3	4	4	
30-Jan	3	2	2	2	3	2	3	1	1	2	4	4	2	5	7	7	5	5	3	4	4	2	4	4	7	
31-Jan	4	5	3	3	6	3	3	3	3	2	2	3	1	2	2	3	3	2	2	2	3	3	3	3	6	
																		Diurnal Maximum								





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Athabasca Valley - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	265	35.62	35.62
6 - 11	323	43.41	79.03
12 - 19	131	17.61	96.64
20 - 28	25	3.36	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Athabasca Valley - January 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	21	8	7	14	6	14	20	28	14	27	40	19	7	15	6	19	265
6 - 11	37	5	0	1	1	6	59	21	6	26	24	8	6	3	4	116	323
12 - 19	2	0	0	0	0	10	23	0	0	0	2	14	3	1	4	72	131
20 - 28	0	0	0	0	0	0	0	0	0	0	1	5	5	1	1	12	25
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>	60	13	7	15	7	30	102	49	20	53	67	46	21	20	15	219	744

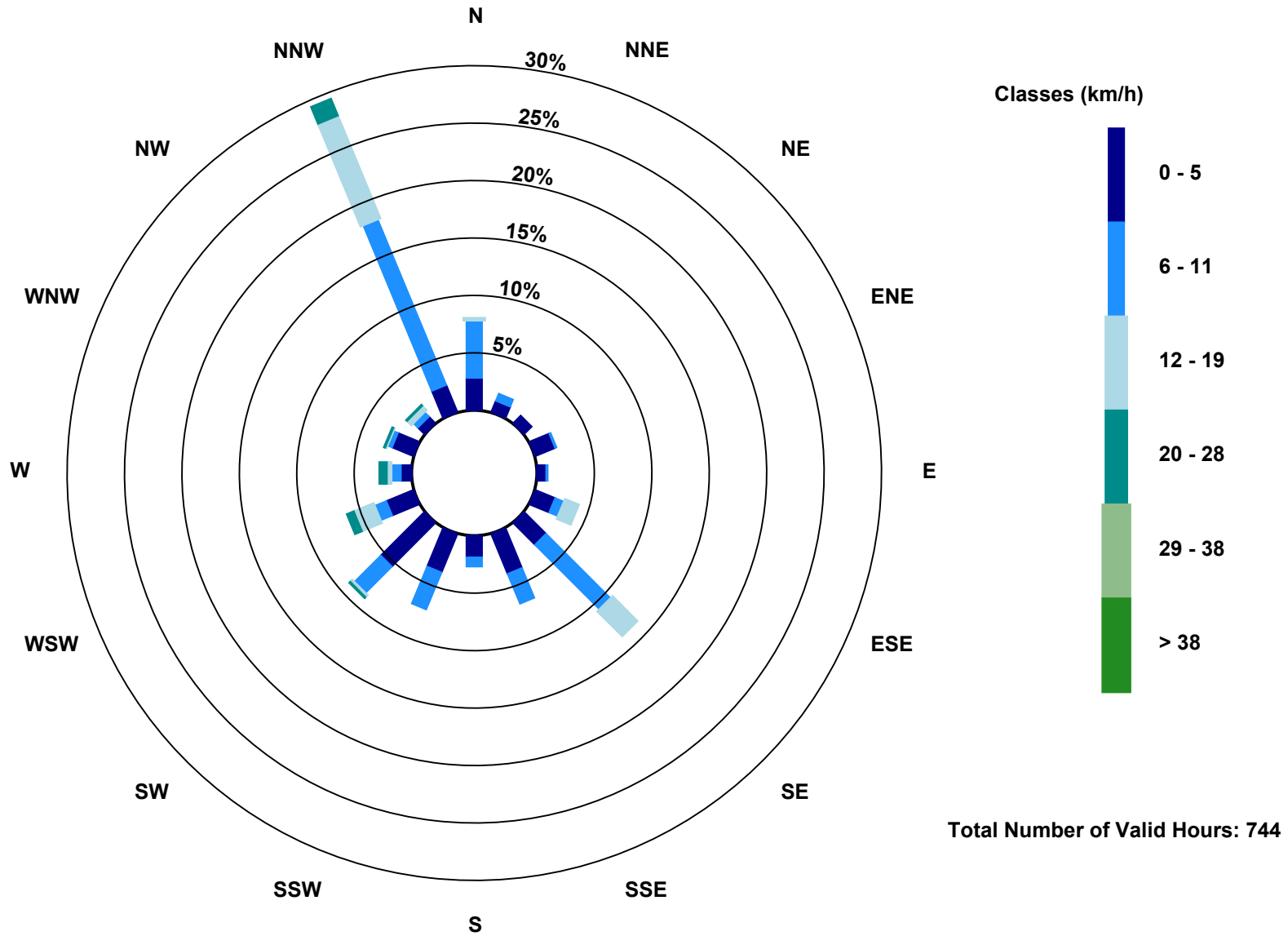
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Athabasca Valley





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

**Wind Direction (WD) - deg**  
**Athabasca Valley - January 2024**

Direction of Maximum Speed: 275 deg on Jan 28 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 341.7 deg on Jan 6	Hours of Data: 744
Direction of Minimum Speed: 305 deg on Jan 23 10:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.1 deg on Jan 8	Percent Operational Time: 100.0
Monthly Average Direction: 316.4 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-Jan	243	244	256	272	332	337	355	346	337	343	338	336	340	339	340	341	333	317	333	341	19	344	338	333	322.2
2-Jan	331	332	333	337	341	351	1	2	334	7	6	69	81	131	128	88	160	149	71	75	76	203	220	198	4.2
3-Jan	231	210	194	213	222	218	203	247	200	99	153	157	19	311	341	342	19	356	340	334	329	336	324	323	318.0
4-Jan	325	321	323	335	334	333	337	340	355	340	333	344	344	339	348	351	339	344	341	341	345	338	337	347	337.4
5-Jan	349	342	337	340	341	339	341	357	4	327	98	202	260	45	21	46	36	78	76	32	86	46	347	341	354.4
6-Jan	347	345	343	345	343	343	344	344	346	354	352	348	344	341	342	336	336	337	336	341	340	339	340	340	341.7
7-Jan	338	336	335	330	332	333	339	341	333	341	4	354	57	117	144	154	118	125	147	138	129	132	123	128	2.3
8-Jan	127	124	132	140	133	137	133	105	4	340	248	333	344	337	327	329	293	333	282	300	354	351	344	345	48.0
9-Jan	339	5	345	341	0	348	347	353	1	11	346	339	340	336	338	346	341	339	337	340	338	336	337	334	342.7
10-Jan	335	334	339	340	337	336	338	315	346	344	332	5	6	355	342	343	359	346	343	1	334	339	339	340	341.3
11-Jan	345	339	339	338	331	347	344	345	355	354	340	348	348	36	35	55	16	351	307	285	257	223	223	214	336.6
12-Jan	199	199	205	174	177	215	203	214	208	273	65	160	73	75	139	135	111	334	228	222	241	227	230	234	187.7
13-Jan	223	232	208	238	151	123	59	257	334	220	223	218	29	309	294	290	246	230	232	228	221	221	239	213	229.0
14-Jan	218	193	213	232	259	283	249	250	249	214	214	219	290	332	329	352	6	337	292	275	237	221	164	120	247.1
15-Jan	201	166	172	106	109	154	123	144	108	128	130	133	123	110	173	166	171	207	254	219	210	162	199	201	158.0
16-Jan	159	203	71	64	57	353	303	268	221	229	240	282	328	332	4	355	336	289	228	295	269	273	280	287	292.6
17-Jan	281	283	296	349	5	347	353	337	345	334	341	344	337	340	341	338	349	339	339	327	358	350	323	343	332.1
18-Jan	338	329	299	265	214	227	237	224	226	220	211	220	214	69	30	272	246	205	202	236	264	241	245	212	240.0
19-Jan	219	221	207	211	217	219	216	218	218	222	237	227	237	241	236	300	266	151	141	144	152	134	133	133	193.9
20-Jan	135	143	141	151	225	220	223	216	216	197	205	212	211	224	342	349	354	359	344	342	341	346	348	348	320.8
21-Jan	340	334	341	339	7	334	330	340	348	336	336	337	338	336	337	341	341	341	355	357	1	12	14	34	344.0
22-Jan	22	358	339	338	340	343	347	346	121	121	122	121	122	121	119	121	124	124	131	125	133	133	131	134	111.9
23-Jan	133	131	136	133	135	135	136	137	126	305	216	153	180	212	352	352	336	339	334	336	336	334	336	341	41.9
24-Jan	350	347	337	351	338	350	358	351	6	334	113	130	138	124	122	122	127	139	154	150	207	264	298	245	82.7
25-Jan	237	254	256	248	253	312	337	343	329	326	329	338	350	12	297	314	95	133	144	149	146	146	152	184	308.1
26-Jan	216	205	202	160	184	178	180	333	317	108	166	166	152	151	123	121	119	128	135	135	146	133	125	183	150.9
27-Jan	215	214	204	206	215	215	164	149	208	213	214	220	213	173	167	153	140	142	137	142	145	165	155	161	188.9
28-Jan	136	140	154	140	127	125	146	127	151	164	187	131	221	260	275	268	266	257	252	250	217	247	215	165	231.3
29-Jan	133	136	141	145	144	146	167	189	159	132	137	145	144	158	192	189	211	196	154	137	134	140	139	130	146.6
30-Jan	134	124	145	148	142	133	109	134	144	148	153	183	95	210	249	262	261	252	251	248	253	251	248	247	234.1
31-Jan	246	247	235	240	239	194	178	196	184	195	204	183	176	160	159	132	124	129	129	127	128	131	136	130	184.5

295.3 292.4 294.2 307.0 322.4 324.7 335.2 327.7 317.9 328.2 281.4 253.0 2.5 347.0 324.4 325.3 322.0 321.8 319.0 317.6 324.1 314.1 313.6 302.1  
 Diurnal Average

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

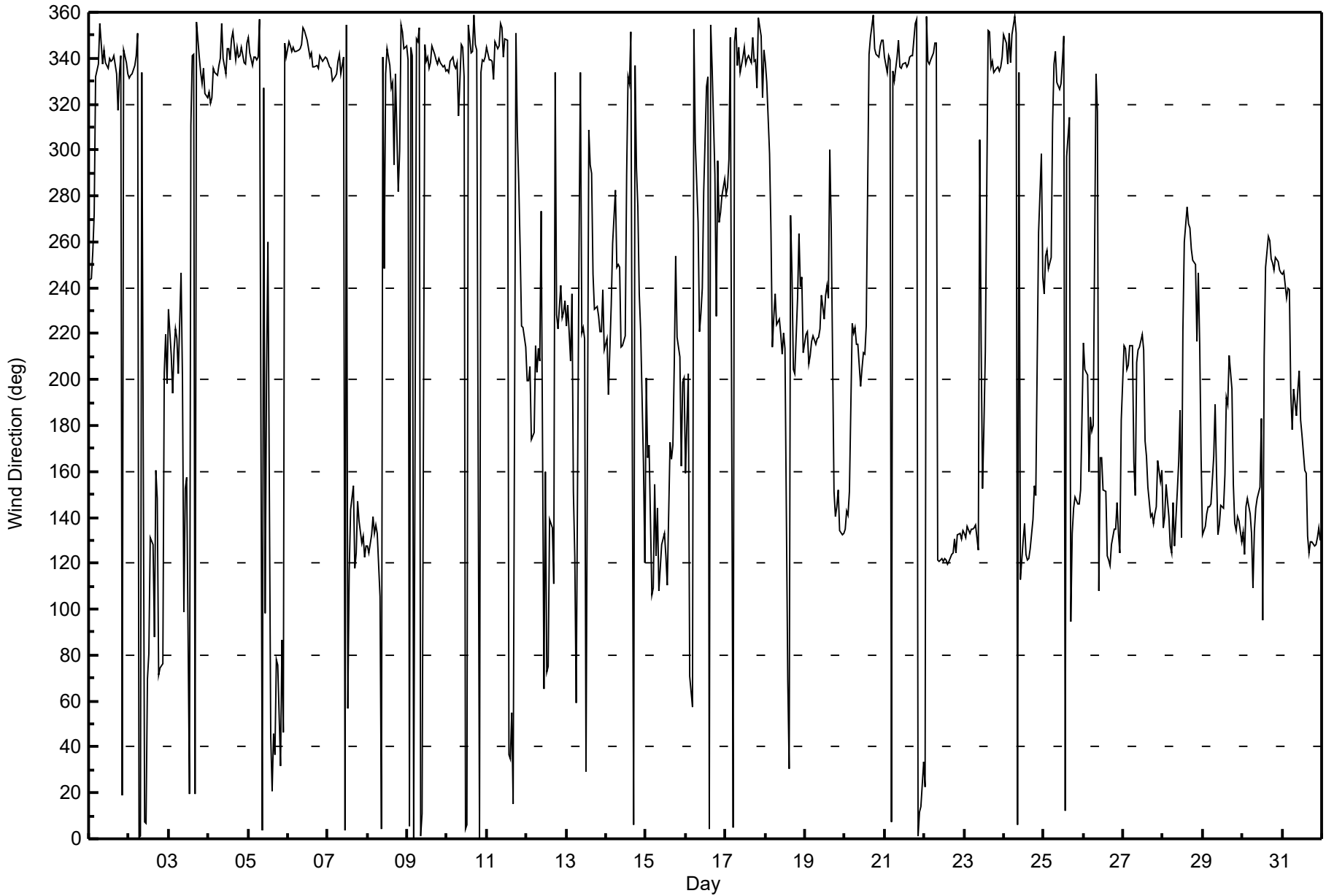


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Athabasca Valley - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744																								
Maximum Value: 104 deg on Jan 16 20:00																			Hours of Data: 744																								
Minimum Value: 5 deg on Jan 12 14:00																			Hours of Missing Data: 0																								
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 13 Median = 18 Q <sub>3</sub> = 34 P <sub>90</sub> = 62 P <sub>99</sub> = 94																			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-Jan	14	9	12	21	7	14	18	17	13	18	28	11	11	14	14	19	31	16	9	17	19	20	12	8	31																		
2-Jan	9	8	9	10	13	17	15	19	16	21	28	29	15	49	50	28	56	58	13	15	9	97	80	94	97																		
3-Jan	88	54	77	58	75	24	40	58	56	38	19	62	44	53	34	18	33	22	13	10	12	10	10	11	88																		
4-Jan	8	9	9	11	9	9	12	14	19	14	14	16	16	18	18	16	17	15	10	14	9	17	31	31	31																		
5-Jan	19	9	8	11	11	13	14	20	22	54	87	60	81	61	54	38	36	8	10	45	57	41	13	11	87																		
6-Jan	12	15	11	11	9	9	11	11	13	16	17	16	15	12	14	9	9	9	9	13	13	12	14	13	17																		
7-Jan	12	9	10	9	8	7	13	14	10	13	19	36	39	54	23	15	89	26	22	23	16	19	13	15	89																		
8-Jan	13	16	12	11	13	12	19	34	38	66	37	27	14	14	14	17	15	24	29	30	41	17	26	22	66																		
9-Jan	16	41	15	16	20	12	12	13	19	23	20	13	14	10	12	16	17	11	10	12	11	9	9	8	41																		
10-Jan	8	7	13	14	11	10	12	13	16	13	22	15	17	16	15	14	15	15	14	17	8	11	11	14	22																		
11-Jan	18	13	16	13	12	16	15	15	16	15	14	17	21	38	86	53	28	18	41	28	13	49	59	7	86																		
12-Jan	18	19	24	30	28	10	21	11	56	89	72	27	7	5	43	35	46	52	22	21	39	24	22	54	89																		
13-Jan	92	67	85	81	50	81	58	71	92	86	69	82	79	21	19	20	13	19	23	13	61	20	34	93	93																		
14-Jan	63	33	28	31	21	22	22	20	16	13	15	9	40	26	32	23	29	26	24	16	15	59	97	68	97																		
15-Jan	58	71	99	76	48	69	57	68	53	24	24	36	36	58	14	14	28	68	74	23	41	64	50	25	99																		
16-Jan	76	87	45	44	29	26	29	25	57	53	27	80	80	34	26	37	12	44	85	104	21	15	17	21	104																		
17-Jan	17	14	10	30	17	18	17	14	15	10	14	17	10	13	13	11	18	11	10	10	22	16	10	16	30																		
18-Jan	11	13	16	34	10	15	36	12	10	12	10	10	19	93	65	11	25	35	35	30	15	14	37	13	93																		
19-Jan	7	11	22	26	22	8	12	16	10	58	86	35	26	68	95	85	61	94	16	16	87	25	22	13	95																		
20-Jan	13	19	14	19	34	26	17	77	22	55	28	10	13	98	69	16	16	16	14	14	13	15	16	17	98																		
21-Jan	16	9	20	14	25	14	10	13	17	9	12	12	10	10	11	14	14	15	22	19	19	16	22	26	26																		
22-Jan	20	22	13	12	13	13	23	28	87	16	13	17	17	13	16	16	16	15	17	19	16	14	14	12	87																		
23-Jan	14	14	13	13	12	14	12	15	46	92	95	27	37	36	59	16	10	13	12	9	9	7	9	13	95																		
24-Jan	18	17	12	18	12	16	16	20	25	32	66	17	21	14	13	14	16	16	15	18	38	31	32	25	66																		
25-Jan	11	16	13	12	13	33	11	14	8	7	9	14	20	37	25	83	24	15	18	21	33	54	61	23	83																		
26-Jan	14	22	40	88	48	63	34	61	70	86	32	20	21	23	17	19	21	18	18	17	20	62	40	21	88																		
27-Jan	8	10	10	11	11	14	36	42	16	12	9	10	19	30	26	35	27	18	30	18	30	74	42	75	75																		
28-Jan	18	19	29	37	37	36	33	29	17	31	54	100	45	26	12	9	9	10	10	30	80	15	32	34	100																		
29-Jan	15	12	20	42	43	36	39	50	62	36	29	19	18	74	77	42	26	41	50	29	14	12	13	34	77																		
30-Jan	15	28	19	49	42	39	91	92	70	82	53	62	53	61	16	12	12	12	12	12	11	9	10	10	92																		
31-Jan	10	10	8	9	26	65	69	20	26	46	25	41	25	13	30	37	14	14	22	21	15	13	14	15	69																		
																			92	87	99	88	75	81	91	92	92	92	95	100	81	98	95	85	89	94	85	104	87	97	97	94	
Diurnal Maximum																																											







## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS08 FORT CHIPEWYAN JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
 JANUARY 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	679	34	65	95.83	9.2	0	3.8	0
TRS (ppb) Average	708	35	36	99.87	0.8	0	0.5	0
O3(ppb) Average	709	34	35	99.87	40.7	0	36.8	-
NO2(ppb) Average	703	36	41	99.33	29.1	0	13.5	-
NO(ppb) Average	703	36	41	99.33	19.8	-	4.4	-
NOX(ppb) Average	703	36	41	99.33	45.8	-	17.9	-
PM2.5(ug/m3) Average	743	0	1	99.87	30.5	0	10.6	0
CO(ppm) Average	709	34	35	99.87	0.1	0	0.1	-
CO2(ppm) Average	309	17	435	43.82	443.5	-	432	-
Temperature 2 m (C) Average	744	0	0	100	7.1	-	3.7	-
Relative Humidity (%) Average	744	0	0	100	99.4	-	95.6	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	31	-	17	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-
PC(mm) Total	744	0	0	100	2.3	-	9.6	-
Leaf Wetness (% of range) Average	744	0	0	100	76.6	-	15.2	-
Global Solar Radiation (W/m2) Average	744	0	0	100	260.7	-	47.4	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)

JANUARY 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	679	0.46	1.2	-	0	0	0	0	0.1	1.5	9.2
TRS (ppb) Average	708	0.19	0.1	-	0.1	0.1	0.1	0.2	0.2	0.3	0.8
O3(ppb) Average	709	28.46	6.8	-	0.9	19	24.4	29.9	34.1	35.8	40.7
NO2(ppb) Average	703	2.41	3.8	-	0	0.2	0.4	0.7	2.4	7.4	29.1
NO(ppb) Average	703	0.29	1.4	-	0	0	0	0	0.1	0.3	19.8
NOX(ppb) Average	703	2.7	4.7	-	0	0.2	0.4	0.8	2.5	7.9	45.8
PM2.5(ug/m3) Average	743	3.96	2.8	-	0.4	1.7	2.4	3.3	4.6	7	30.5
CO(ppm) Average	709	0.04	0	-	0	0	0	0	0.1	0.1	0.1
CO2(ppm) Average	309	426.68	4.8	-	418.2	420.8	423.3	426.1	429.9	433.2	443.5
Temperature 2 m (C) Average	744	-20.69	12.1	-	-42.1	-37.5	-30.6	-21	-14.1	-1.4	7.1
Relative Humidity (%) Average	744	78.56	7.7	-	60.2	68.7	73.1	78.2	82.8	90.4	99.4
Wind Speed 10 m (km/h) Average	741	10.4	6	-	0	4	6	9	13	18	31
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	49.59	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	3.33	5.3	-	1.2	1.8	1.9	2.4	3.1	3.6	76.6
Global Solar Radiation (W/m2) Average	744	22.01	46.1	-	0	0	0	0	20.7	77.4	260.7

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
JANUARY 2024

OPERATIONAL NOTES

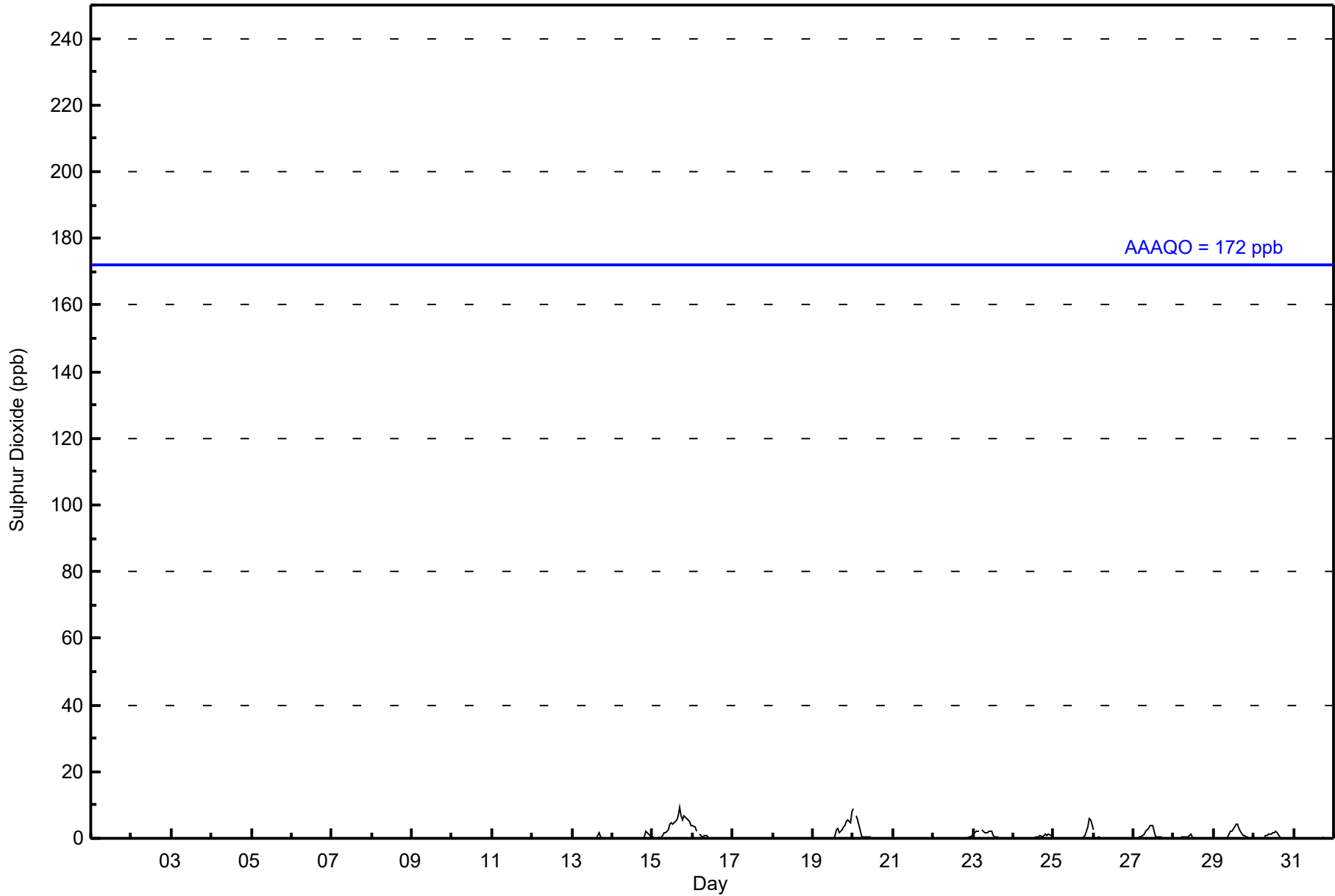
Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	07 Jan 2024 10:00	08 Jan 2024 11:00	26	Unstable Operation - flatline in analyzer output signal
SO2	31 Jan 2024 20:00	31 Jan 2024 23:00	4	Maintenance - replaced sample pump
AIR QUALITY ANALYZERS	31 Jan 2024 13:00	31 Jan 2024 13:00	1	Station power failure
CO2	01 Jan 2024 01:00	03 Jan 2024 09:00	57	Analyzer within non-compliance of AMD
CO2	03 Jan 2024 10:00	03 Jan 2024 12:00	3	Maintenance - linearity adjustment
CO2	03 Jan 2024 13:00	18 Jan 2024 09:00	357	Analyzer within non-compliance of AMD
Wind Speed, Wind Direction	05 Jan 2024 20:00	05 Jan 2024 20:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	07 Jan 2024 09:00	07 Jan 2024 09:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 07:00	12 Jan 2024 07:00	1	Flat line in sensor output signal





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	679	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: 679

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Chipewyan - January 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	22	15	20	55	87	15	13	12	19	16	15	22	58	130	102	75	676
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>	22	15	20	55	87	15	13	12	19	16	15	22	58	130	102	75	676

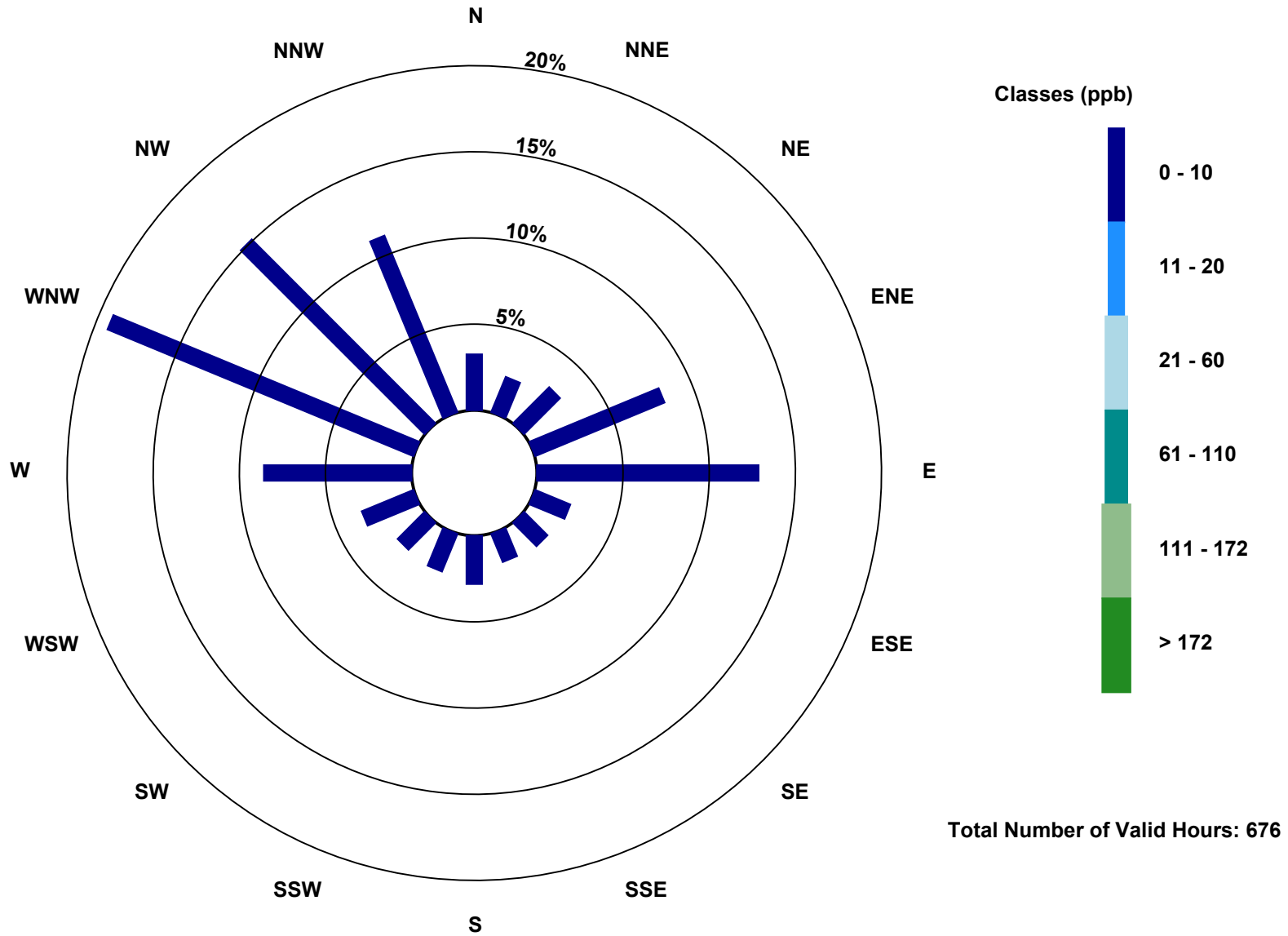
Total Number of Valid Hours: 676

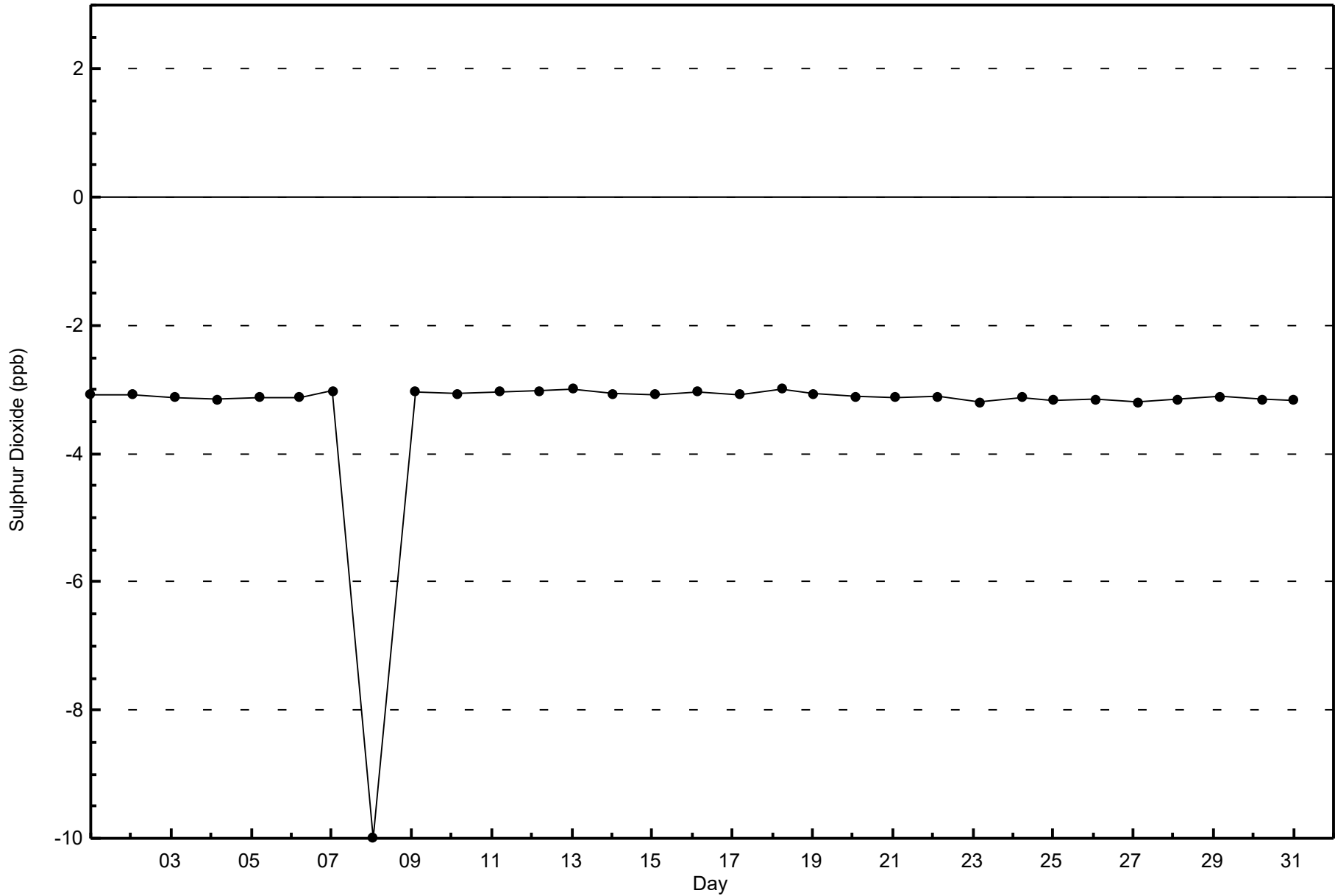
Total Number of Hours: 744

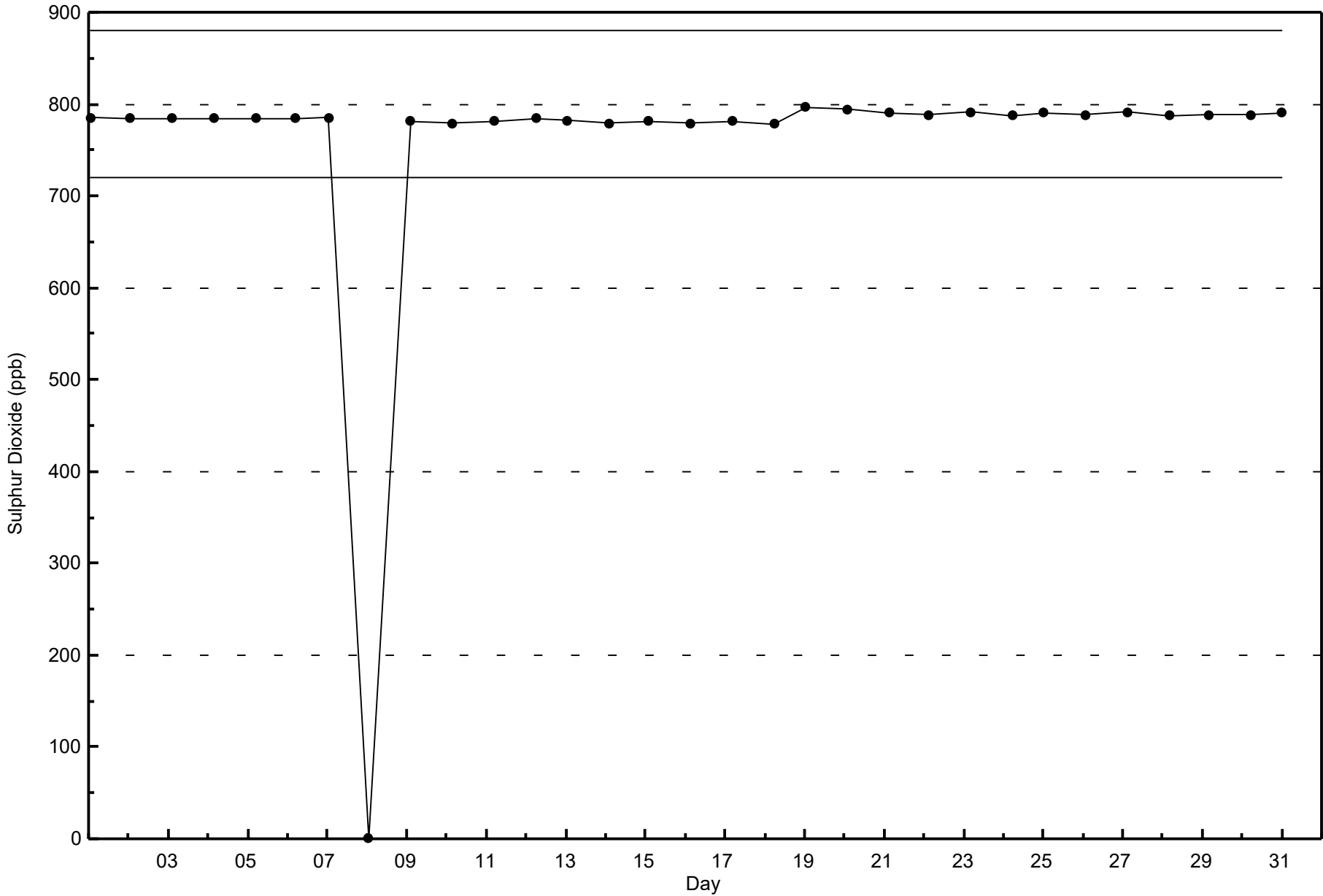


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

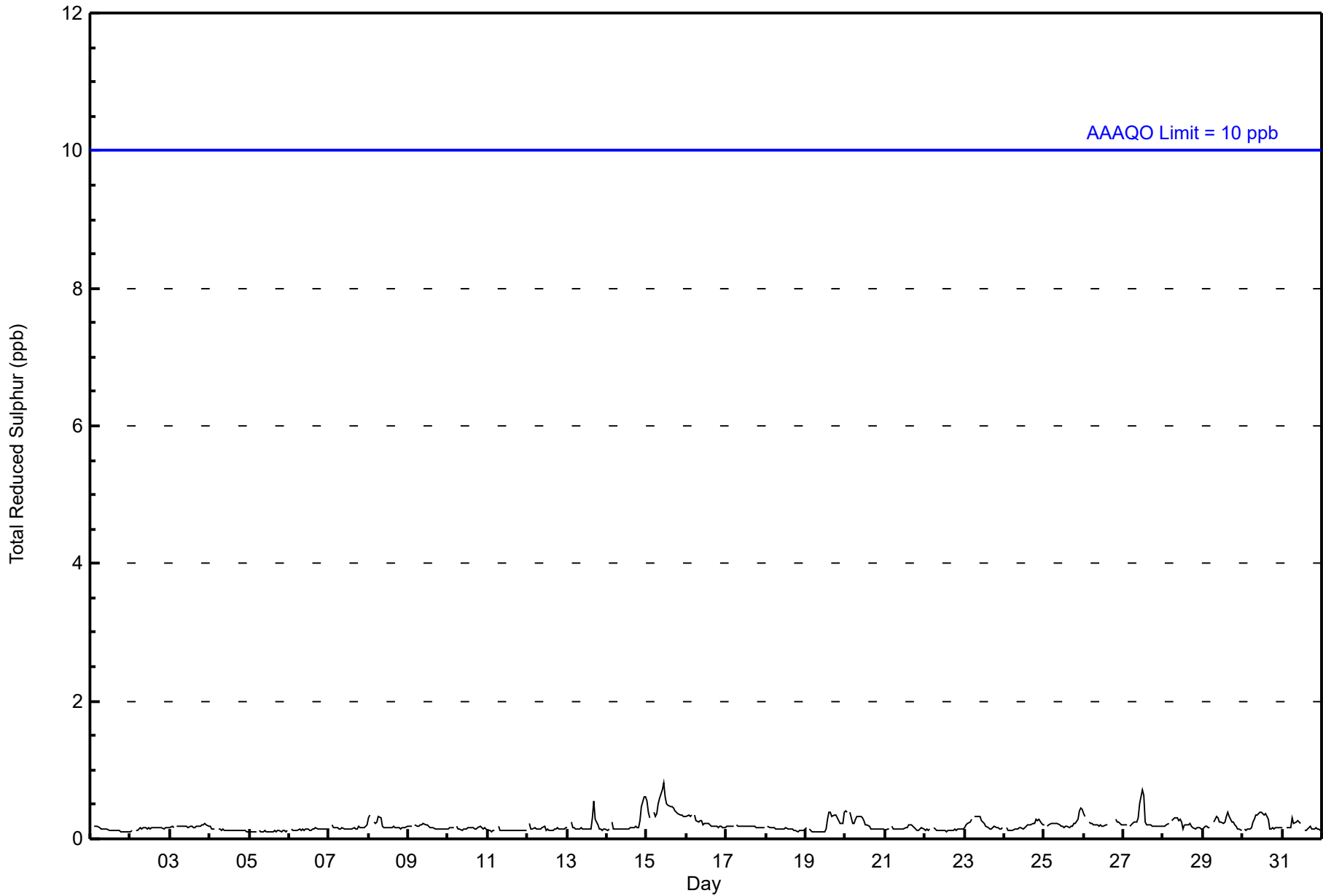
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Chipewyan













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

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort Chipewyan - January 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	21	14	20	52	101	17	14	16	19	18	16	22	58	132	108	77	705
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>	21	14	20	52	101	17	14	16	19	18	16	22	58	132	108	77	705

Total Number of Valid Hours: 705

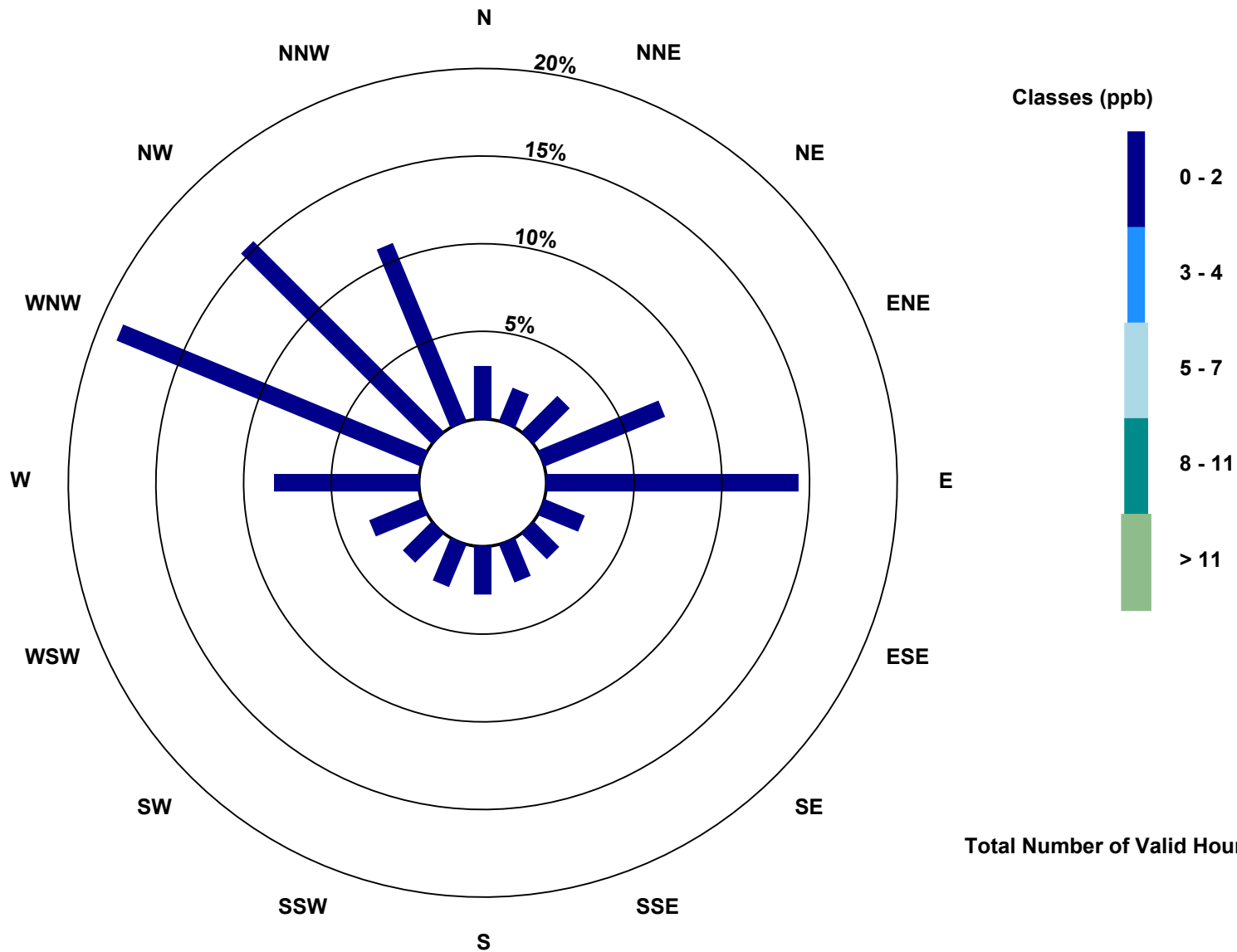
Total Number of Hours: 744



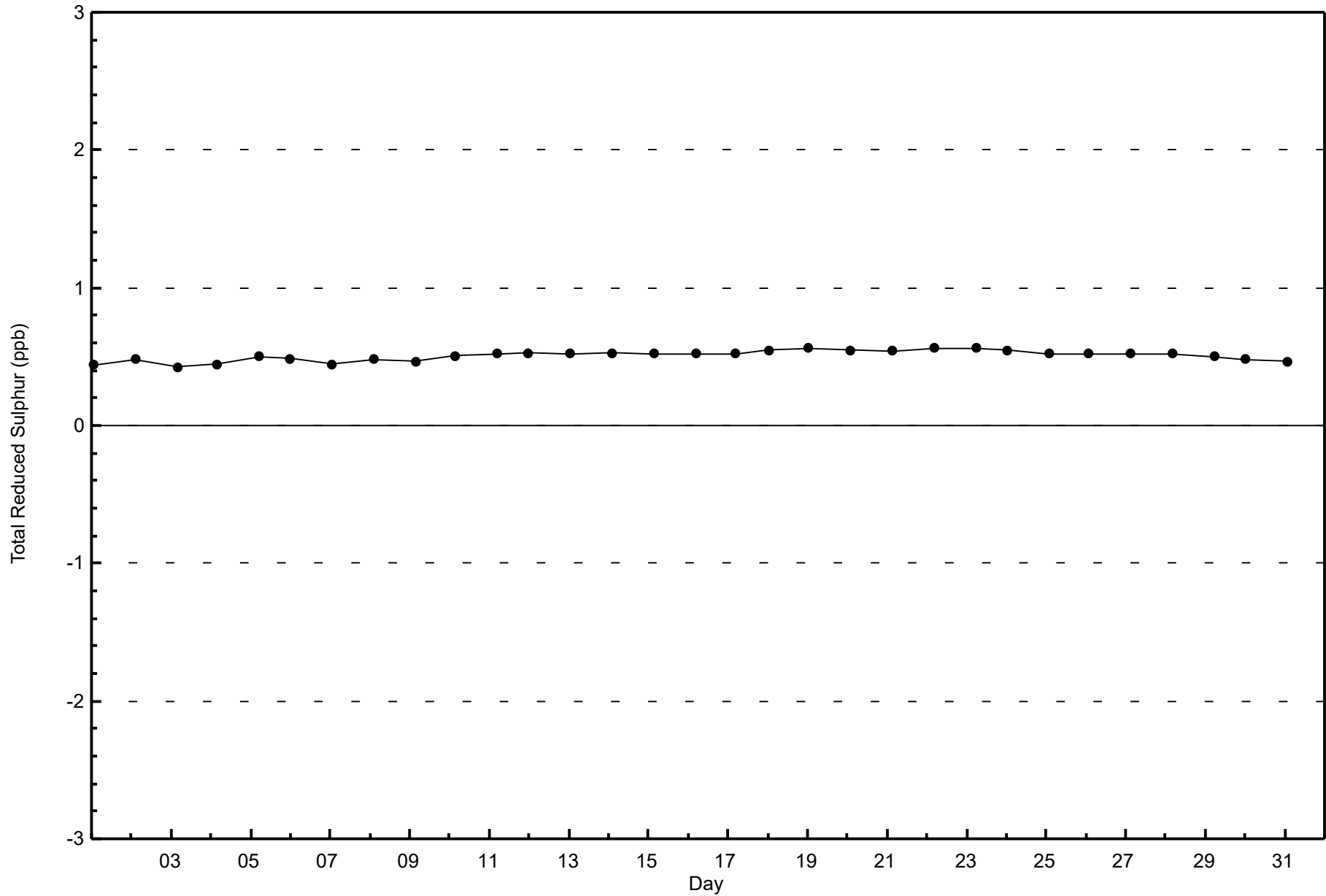


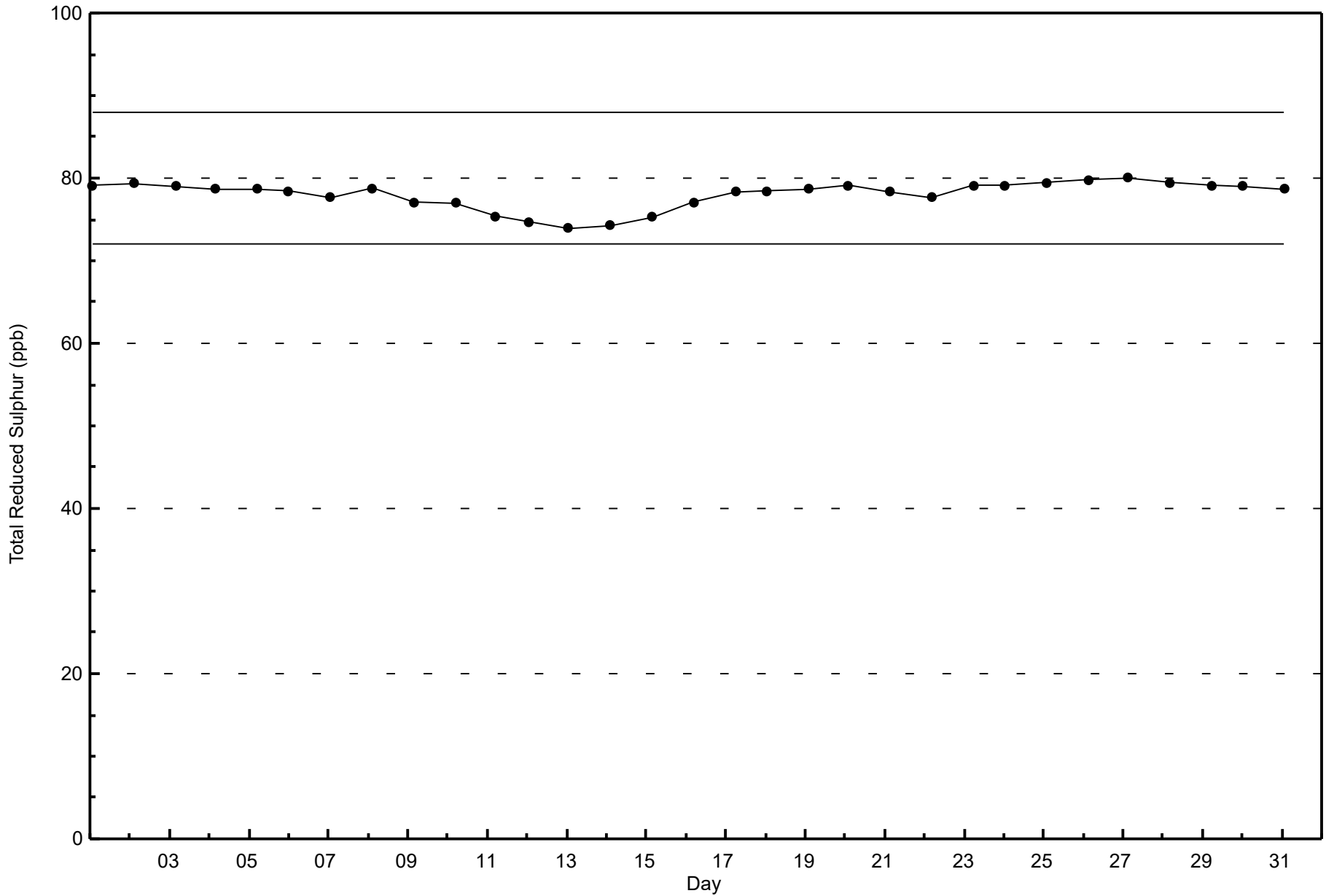
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Fort Chipewyan



Total Number of Valid Hours: 705







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

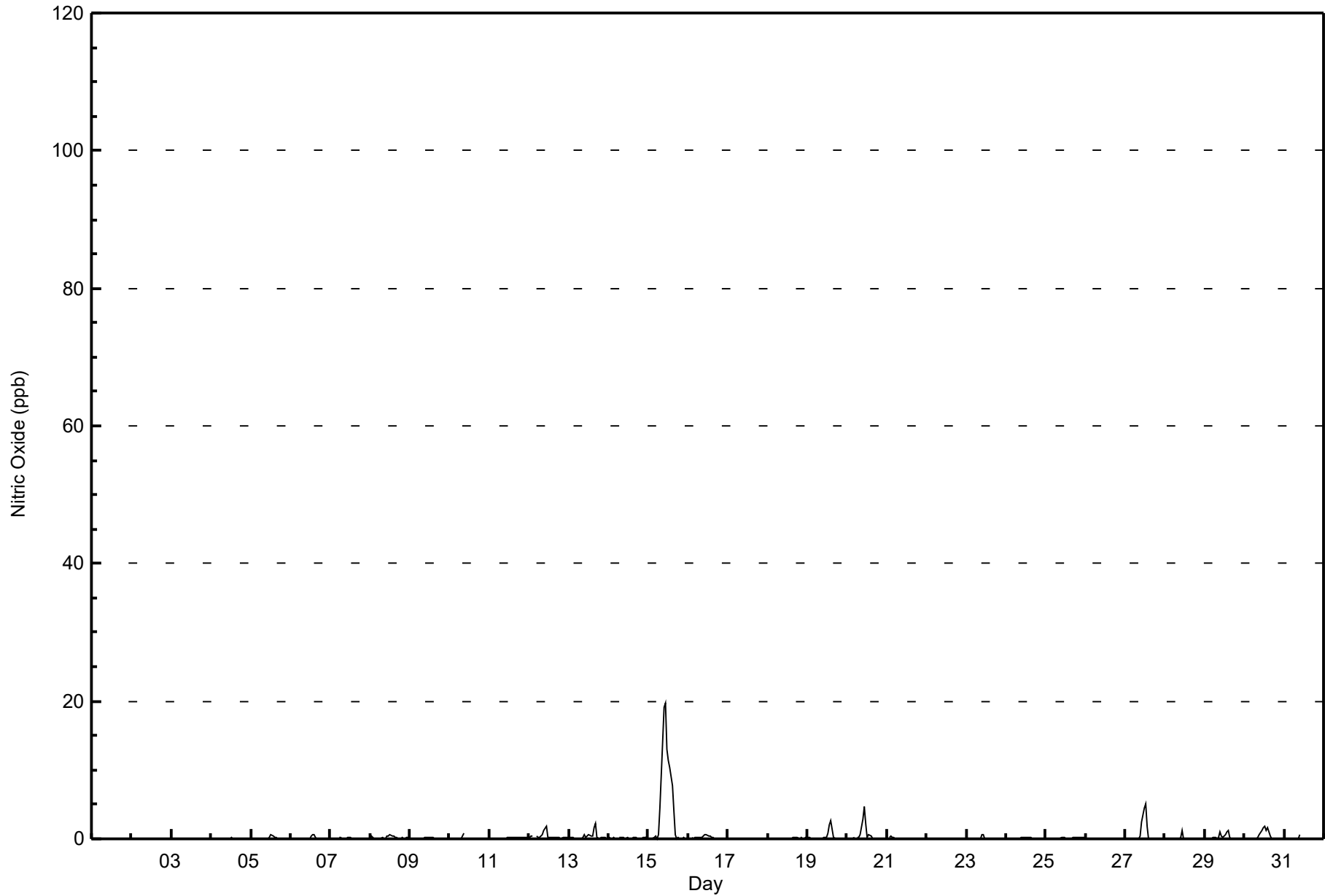
Fort Chipewyan - January 2024

Maximum Value: 19.8 ppb on Jan 15 11:00																				Maximum Daily Average: 4.4 ppb on Jan 15					Hours in Service:	744																																
Minimum Value: 0.0 ppb on Jan 1 01:00																				Minimum Daily Average: 0.0 ppb on Jan 22					Hours of Data:	703																																
Maximum Diurnal Average: 1.2 ppb at hour 11																				Minimum Diurnal Average: 0.0 ppb at hour 20					Hours of Missing Data:	41																																
Monthly Average: 0.29 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> = 0.3 P <sub>99</sub> = 5.0					Hours of Calibration:	36																																
																									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-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.1	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	0.0	0.1	0.1																							
2-Jan	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	0.0	0.0																						
3-Jan	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	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-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.4	0.1	0.2	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	0.1	0.1	0.6																						
6-Jan	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.6	0.7	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	0.1	0.1	0.7																						
7-Jan	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.0	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	0.0	0.0	0.0	0.2	0.2																					
8-Jan	0.0	0.3	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.3	0.3	0.3	0.2	0.1	0.0	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.2	0.5	0.5																						
9-Jan	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	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	0.0	0.0	0.0	0.1	0.2	0.2																						
10-Jan	0.0	Z	0.0	0.1	0.0	0.1	0.1	0.0	0.7	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.7																						
11-Jan	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.0	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	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3																					
12-Jan	0.3	0.5	0.4	Z	0.5	0.2	0.2	0.5	0.6	1.2	1.8	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	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	0.4	1.8	1.8																						
13-Jan	0.1	0.1	0.1	0.1	Z	0.0	0.0	0.1	0.2	0.6	0.2	0.3	0.7	0.3	0.3	1.6	2.2	0.3	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	2.2	2.2																							
14-Jan	0.1	0.1	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.4																						
15-Jan	Z	0.1	0.1	0.1	0.3	0.1	0.6	4.4	9.4	19.1	19.8	13.1	11.4	10.3	7.8	4.1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	4.4	19.8	19.8																							
16-Jan	0.1	Z	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.5	0.5	0.5	0.4	0.3	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	0.0	0.0	0.0	0.0	0.2	0.5	0.5																							
17-Jan	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	0.1	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																						
18-Jan	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	0.1	0.3	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3																						
19-Jan	0.1	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8	1.9	2.7	1.4	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	0.3	2.7	2.7																							
20-Jan	0.0	0.0	0.0	0.0	0.2	Z	0.2	0.1	0.7	2.9	4.8	2.1	0.2	0.7	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	0.1	0.5	4.8	4.8																						
21-Jan	Z	0.2	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	0.0	0.0	0.0	0.0	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																						
22-Jan	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	0.0	0.0	0.0	0.0	0.0	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																						
23-Jan	0.0	0.0	Z	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	0.0	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	0.7																							
24-Jan	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.2	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	0.1	0.3	0.3	0.3																						
25-Jan	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2																						
26-Jan	0.1	0.0	0.1	0.1	0.1	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	0.0	0.0	0.0	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-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.4	4.4	5.0	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	0.0	0.0	0.0	0.0	0.0	0.1	0.6	5.0	5.0																							
28-Jan	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2	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	0.1	1.2	1.2																							
29-Jan	0.0	0.0	Z	0.1	0.1	0.2	0.1	0.0	0.3	1.0	0.4	0.3	0.7	0.9	1.2	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	0.0	0.0	0.0	0.2	1.2	1.2																							
30-Jan	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.7	1.1	1.6	1.9	1.2	1.7	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	0.0	0.0	0.4	1.9	1.9																							
31-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.7	UO	UO	UO	UO	UO	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	0.7	0.7																						
																								Diurnal Average		0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.4	1.0	1.2	0.9	0.8	0.7	0.5	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	0.1	0.1	0.1	0.1	
																								Diurnal Maximum		0.3	0.5	0.4	0.2	0.5	0.2	0.6	4.4	9.4	19.1	19.8	13.1	11.4	10.3	7.8	4.1	2.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Z - zerospan																								C - Calibration				UO - Unstable Operation																														



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

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - January 2024**





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

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	703	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: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Chipewyan - January 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	20	15	20	58	97	18	14	16	18	18	16	19	57	129	107	78	700
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>	20	15	20	58	97	18	14	16	18	18	16	19	57	129	107	78	700

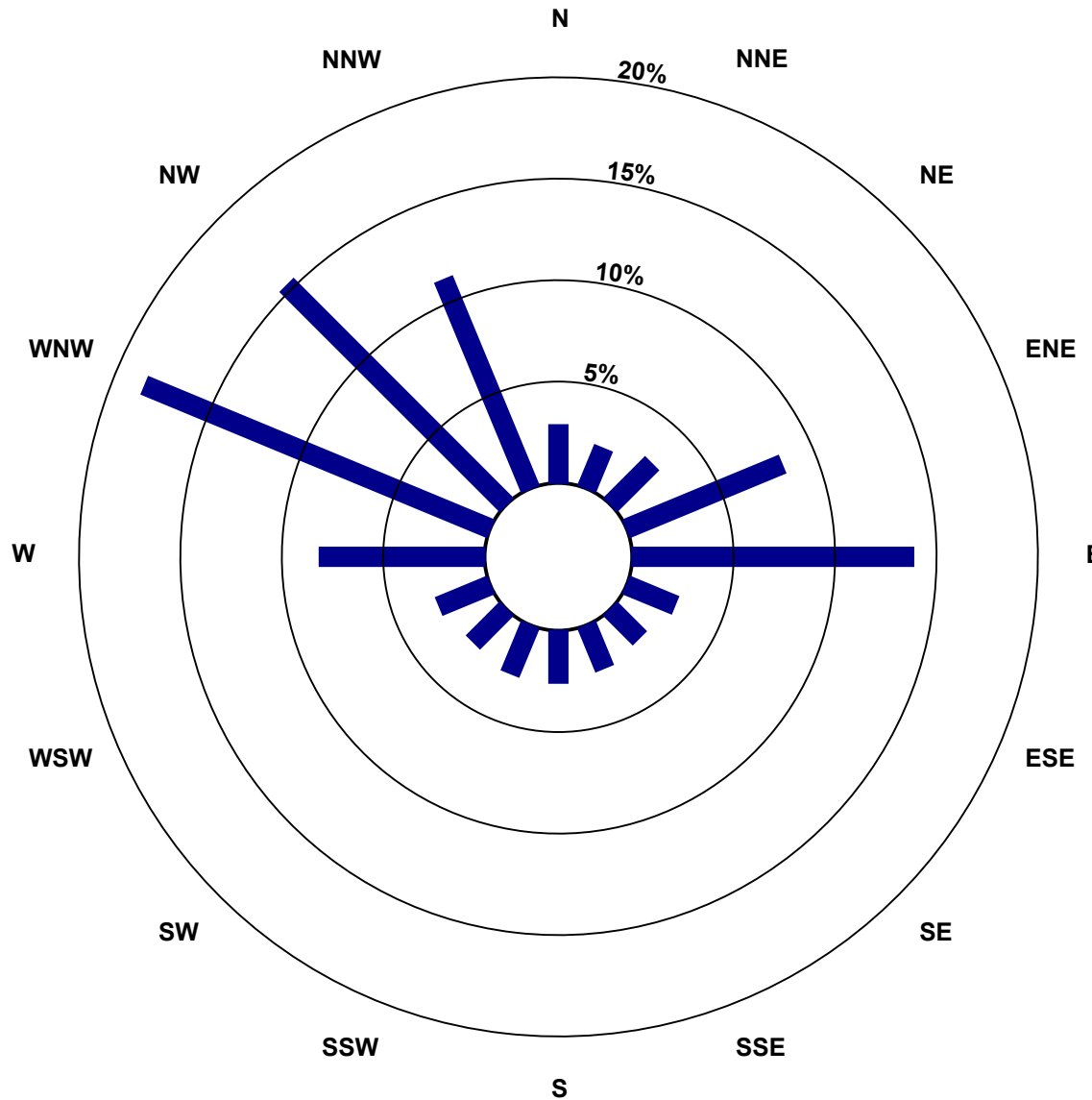
Total Number of Valid Hours: 700

Total Number of Hours: 744

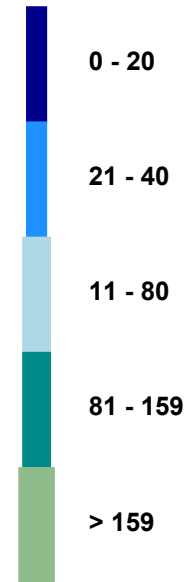


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Fort Chipewyan

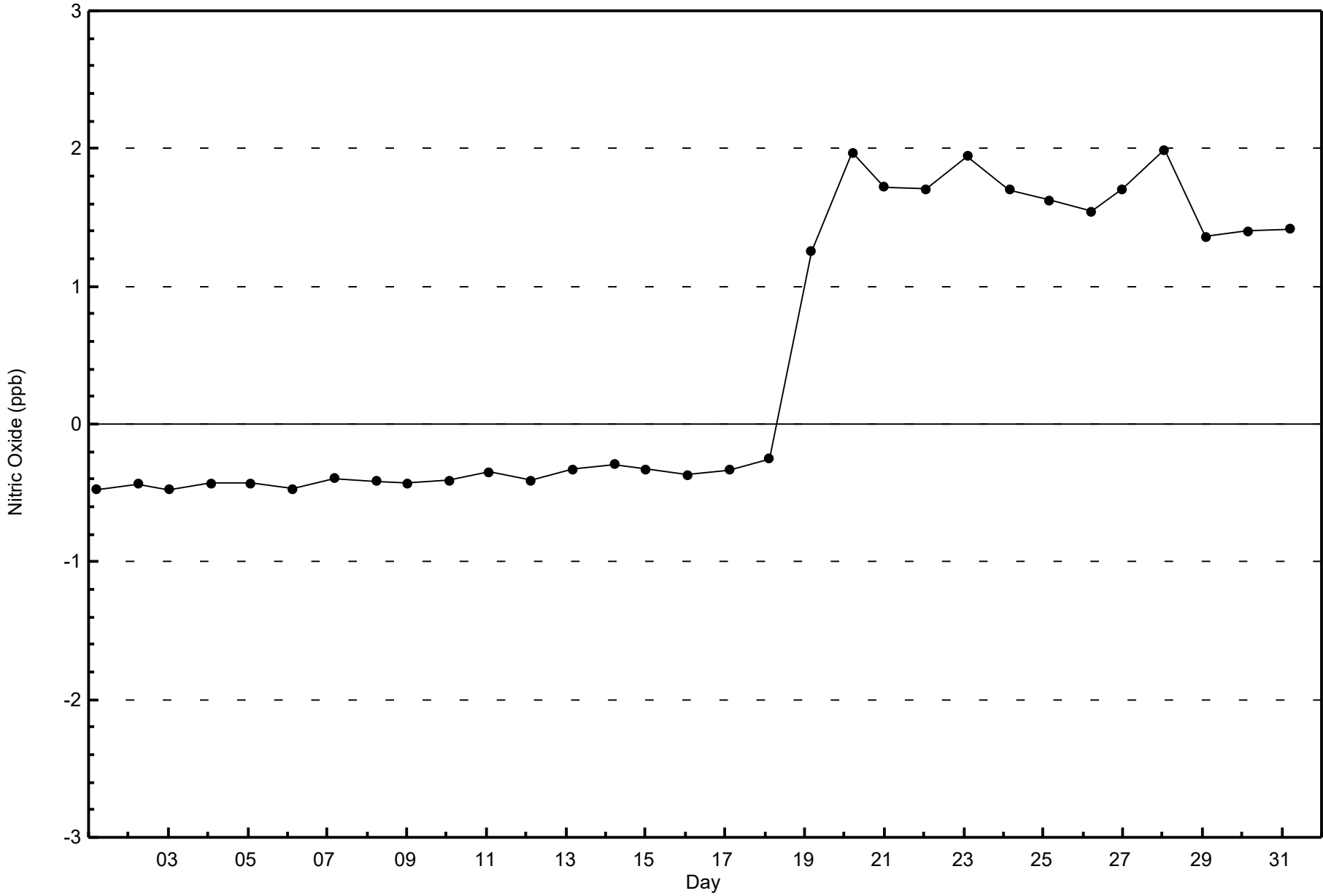


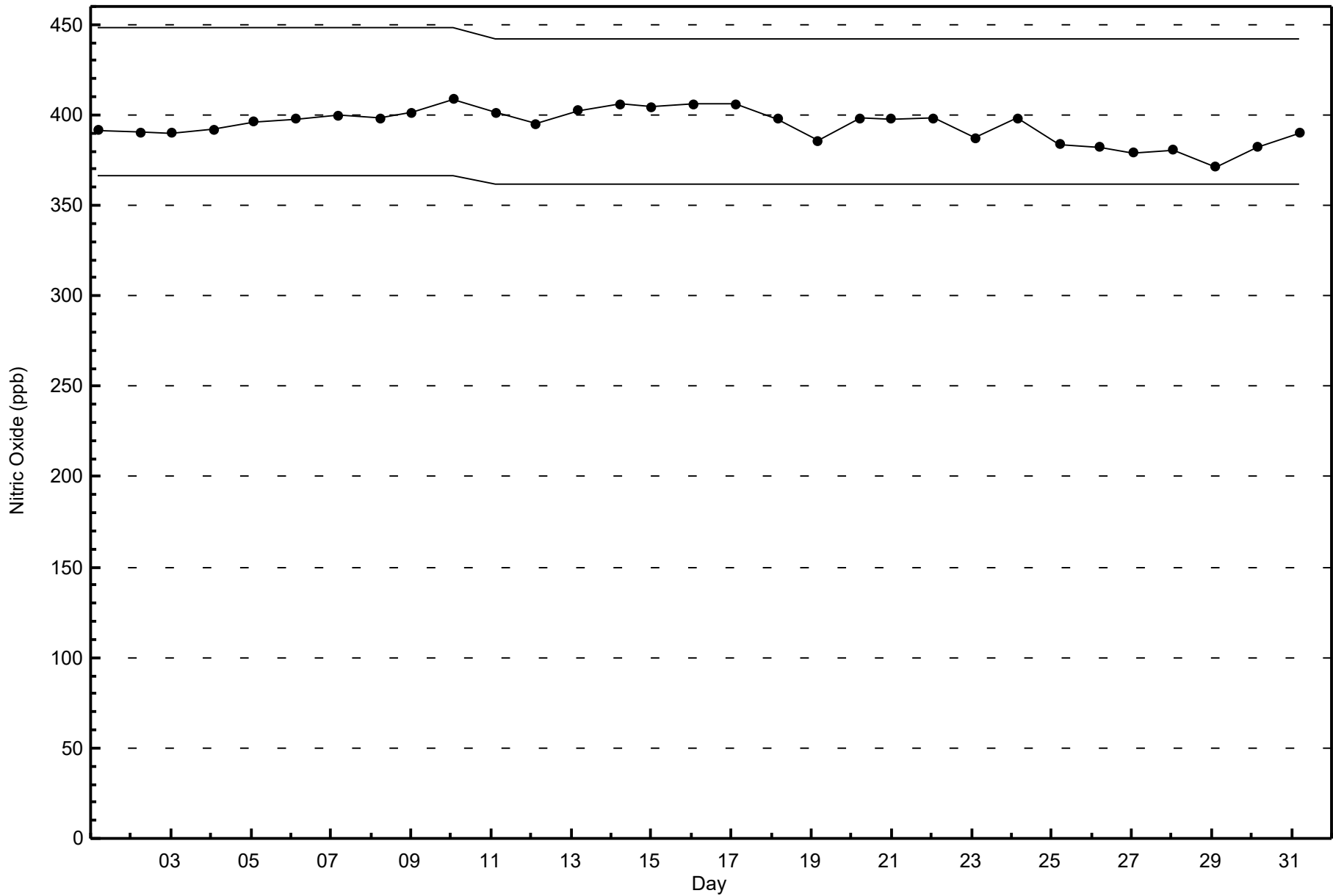
Classes (ppb)



Total Number of Valid Hours: 700









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - January 2024

Number of Exceedences (AAAQO): 1-hr: 0   24-hr: 0 Maximum Value: 29.1 ppb on Jan 15 09:00   Maximum Daily Average: 13.5 ppb on Jan 15  Minimum Value: 0.0 ppb on Jan 18 13:00   Minimum Daily Average: 0.2 ppb on Jan 2 Maximum Diurnal Average: 3.7 ppb at hour 9   Minimum Diurnal Average: 1.8 ppb at hour 14 Monthly Average: 2.41 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> = 7.4 P <sub>99</sub> = 16.5	Hours in Service: 744 Hours of Data: 703 Hours of Missing Data: 41 Hours of Calibration: 36 Percent Operational Time: 99.3
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Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.4	0.4	0.3	0.3	Z	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.5	0.6	0.3	0.2	0.4	0.2	0.3	0.3	0.3	0.6
2-Jan	0.2	0.2	0.4	0.2	0.3	Z	0.3	0.2	0.2	0.3	0.2	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	0.2	0.4
3-Jan	Z	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.9	1.2	1.3	1.2	0.5	0.9	1.6	0.4	0.1	1.6	
4-Jan	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.9	0.6	0.9	1.0	0.7	0.6	0.2	0.3	0.4	0.5	0.4	0.3	1.0	
5-Jan	0.3	0.4	Z	0.5	0.5	0.4	0.5	0.7	0.7	0.7	0.8	1.4	2.2	1.9	1.0	1.4	1.0	3.6	3.6	2.4	1.5	1.4	1.9	6.5	6.5	
6-Jan	2.0	0.6	0.6	Z	1.4	1.7	1.7	1.1	1.1	0.9	0.5	0.3	1.5	2.5	4.2	1.6	1.3	0.9	0.3	0.2	0.3	0.4	0.2	0.3	4.2	
7-Jan	0.2	0.3	0.4	0.6	Z	1.3	2.0	1.8	2.5	1.1	0.8	0.7	0.5	0.4	0.3	0.2	0.2	0.8	2.9	2.6	2.4	1.9	1.9	3.3	3.3	
8-Jan	9.3	11.4	7.5	5.0	5.6	Z	10.3	8.9	2.2	1.3	1.6	1.5	1.3	1.0	1.0	1.2	0.9	0.6	0.6	1.0	0.8	0.6	1.7	1.9	11.4	
9-Jan	Z	0.6	0.4	0.9	0.7	0.5	0.4	0.7	0.7	1.0	0.7	0.5	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.9	0.6	0.5	0.5	0.6	1.0	
10-Jan	0.5	Z	0.4	0.4	0.5	0.5	0.7	0.4	0.6	C	C	C	C	C	0.5	0.5	0.6	0.6	0.4	0.4	0.5	0.5	0.3	0.5	0.7	
11-Jan	0.4	0.5	Z	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.6	0.9	0.9	0.7	0.6	1.1	1.4	0.4	0.5	1.4	
12-Jan	1.3	1.9	2.0	Z	1.3	1.5	1.3	2.4	4.9	7.0	3.6	0.3	0.5	0.4	0.3	0.6	2.3	3.6	4.7	2.6	5.7	4.2	3.6	3.2	7.0	
13-Jan	3.8	6.7	6.1	3.1	Z	2.3	2.0	3.5	6.4	5.0	0.6	0.8	1.1	0.9	1.3	7.6	13.4	6.1	2.9	1.5	1.4	0.7	1.4	1.6	13.4	
14-Jan	1.5	1.1	0.7	0.8	0.4	Z	0.5	0.6	0.6	0.4	0.3	0.3	0.2	0.3	0.3	0.7	1.1	1.3	1.0	1.2	3.9	6.0	6.4	6.5	6.5	
15-Jan	Z	4.9	4.5	5.3	7.7	8.5	16.1	25.8	29.1	26.7	20.8	13.9	11.5	11.7	12.7	14.9	15.5	14.2	13.7	11.1	10.7	11.8	10.2	9.3	29.1	
16-Jan	10.0	Z	10.6	8.7	7.7	5.9	4.5	4.0	5.6	5.0	2.6	1.9	1.7	1.6	1.2	1.2	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4	10.6	
17-Jan	0.4	0.4	Z	0.5	0.4	0.5	0.5	0.8	0.7	0.6	0.4	0.6	0.4	0.5	0.5	1.1	0.4	0.5	0.4	0.4	0.5	0.5	0.7	0.9	1.1	
18-Jan	1.2	0.9	0.5	Z	0.4	0.3	0.3	0.2	0.9	0.5	1.2	0.6	0.0	0.0	0.4	0.5	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.4	1.2	
19-Jan	0.3	0.4	0.3	0.5	Z	0.5	0.4	0.3	0.2	0.3	0.3	0.7	2.4	4.5	7.6	10.4	16.7	11.9	9.9	8.7	7.4	6.9	6.8	11.7	16.7	
20-Jan	12.5	11.3	12.5	11.7	5.7	Z	12.7	14.4	15.5	12.5	9.5	5.8	3.8	4.2	3.3	1.8	1.4	1.3	1.3	0.9	1.4	0.7	0.7	0.8	15.5	
21-Jan	Z	1.2	1.6	1.4	0.7	0.7	0.3	0.8	0.4	0.6	0.6	0.4	0.0	0.0	0.0	0.3	0.3	0.3	0.2	0.2	0.4	0.8	0.9	1.0	1.6	
22-Jan	0.9	Z	0.5	3.0	1.6	0.6	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.9	1.1	1.8	2.2	3.0	
23-Jan	3.9	7.0	Z	9.7	11.7	11.8	11.6	11.4	10.5	9.6	6.0	3.6	2.7	2.2	1.0	0.7	0.5	0.5	0.3	0.4	0.3	0.3	0.2	0.3	11.8	
24-Jan	0.3	2.4	0.3	Z	0.3	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.7	1.1	1.5	2.0	2.2	2.2	4.2	9.3	5.4	4.9	2.3	1.3	9.3	
25-Jan	1.0	0.9	0.8	0.7	Z	0.9	0.6	2.5	2.6	0.8	0.5	0.6	0.7	0.7	0.9	0.8	0.8	1.1	2.0	3.4	6.9	12.6	16.5	20.3	20.3	
26-Jan	17.3	11.6	3.2	1.5	1.0	Z	0.8	0.7	0.6	0.7	0.6	1.1	0.7	0.4	0.3	0.4	1.1	1.0	1.1	1.0	2.4	1.6	0.5	2.2	17.3	
27-Jan	Z	1.4	1.0	1.0	1.2	2.3	3.2	3.4	4.2	5.4	8.5	13.1	10.7	4.0	1.6	1.1	1.2	1.2	1.2	1.2	1.1	4.0	1.8	2.6	13.1	
28-Jan	1.4	Z	2.3	4.6	4.6	4.5	4.9	4.8	4.4	3.9	4.3	4.1	0.5	0.4	0.6	0.4	0.1	0.1	0.1	0.2	0.4	0.5	0.4	0.5	4.9	
29-Jan	0.5	1.0	Z	1.0	0.4	2.3	5.7	8.8	9.0	6.6	3.6	2.6	4.0	4.6	6.3	7.9	7.9	6.1	5.0	4.6	4.2	2.9	1.3	0.8	9.0	
30-Jan	0.5	0.5	0.6	Z	0.6	1.8	5.3	7.3	8.1	7.0	6.7	7.5	6.6	6.7	8.4	6.2	0.4	0.0	0.0	0.1	0.2	0.2	0.2	0.3	8.4	
31-Jan	0.3	0.3	0.3	0.3	Z	0.6	0.4	0.4	1.9	1.2	UO	UO	UO	UO	UO	0.7	1.7	3.6	2.4	1.2	0.9	0.3	0.0	0.1	3.6	

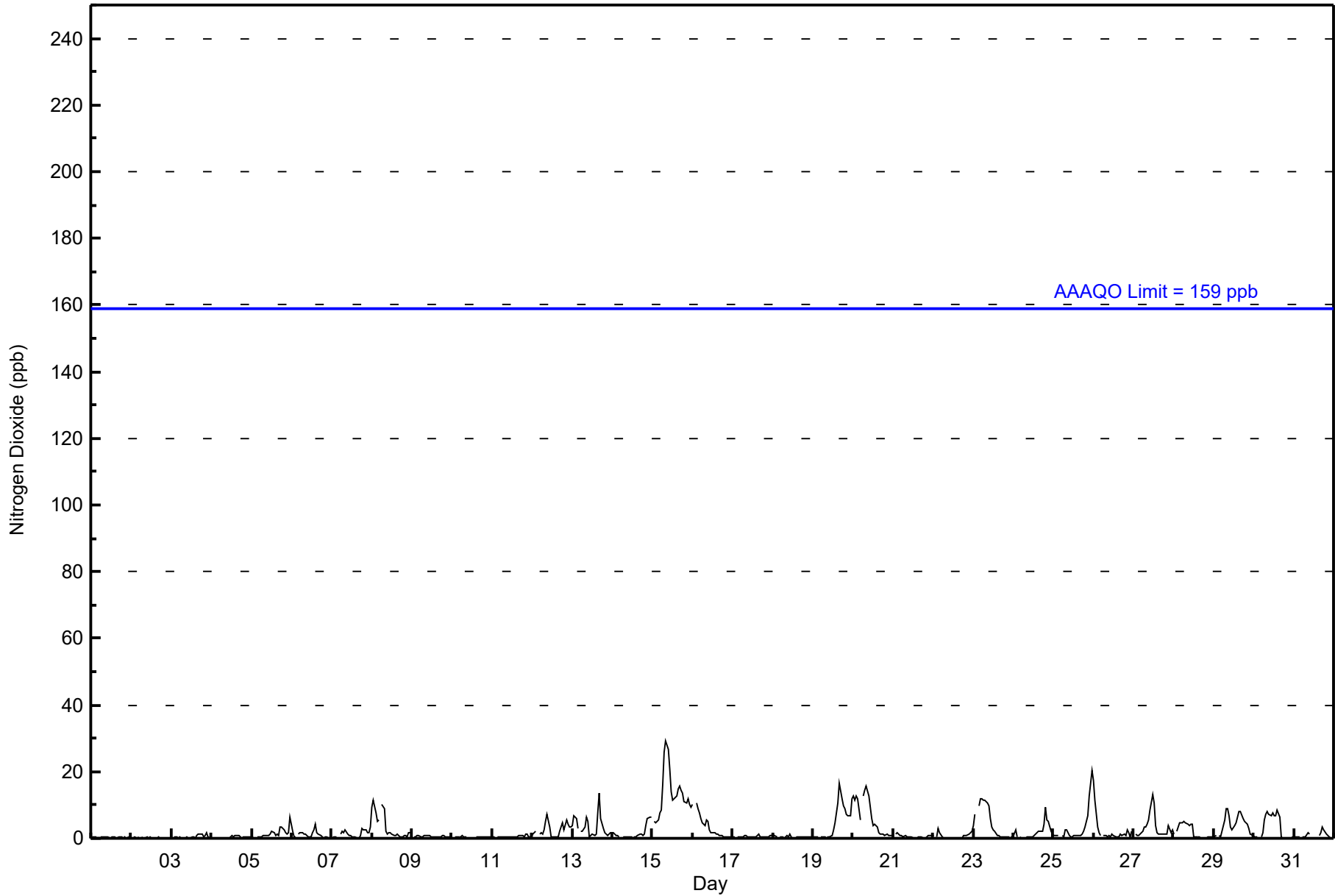
	2.7	2.6	2.2	2.4	2.2	2.0	2.8	3.5	3.7	3.4	2.6	2.2	1.9	1.8	1.9	2.2	2.5	2.2	2.0	1.9	2.1	2.3	2.1	2.6	Diurnal Average
	17.3	11.6	12.5	11.7	11.7	11.8	16.1	25.8	29.1	26.7	20.8	13.9	11.5	11.7	12.7	14.9	16.7	14.2	13.7	11.1	10.7	12.6	16.5	20.3	Diurnal Maximum

Z - zerospan                      C - Calibration                      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**  
**Fort Chipewyan - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	699	99.43	99.43
21 - 40	4	0.57	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: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - January 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	20	15	20	58	94	17	14	16	18	18	16	19	57	129	107	78	696
21 - 40	0	0	0	0	3	1	0	0	0	0	0	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>	20	15	20	58	97	18	14	16	18	18	16	19	57	129	107	78	700

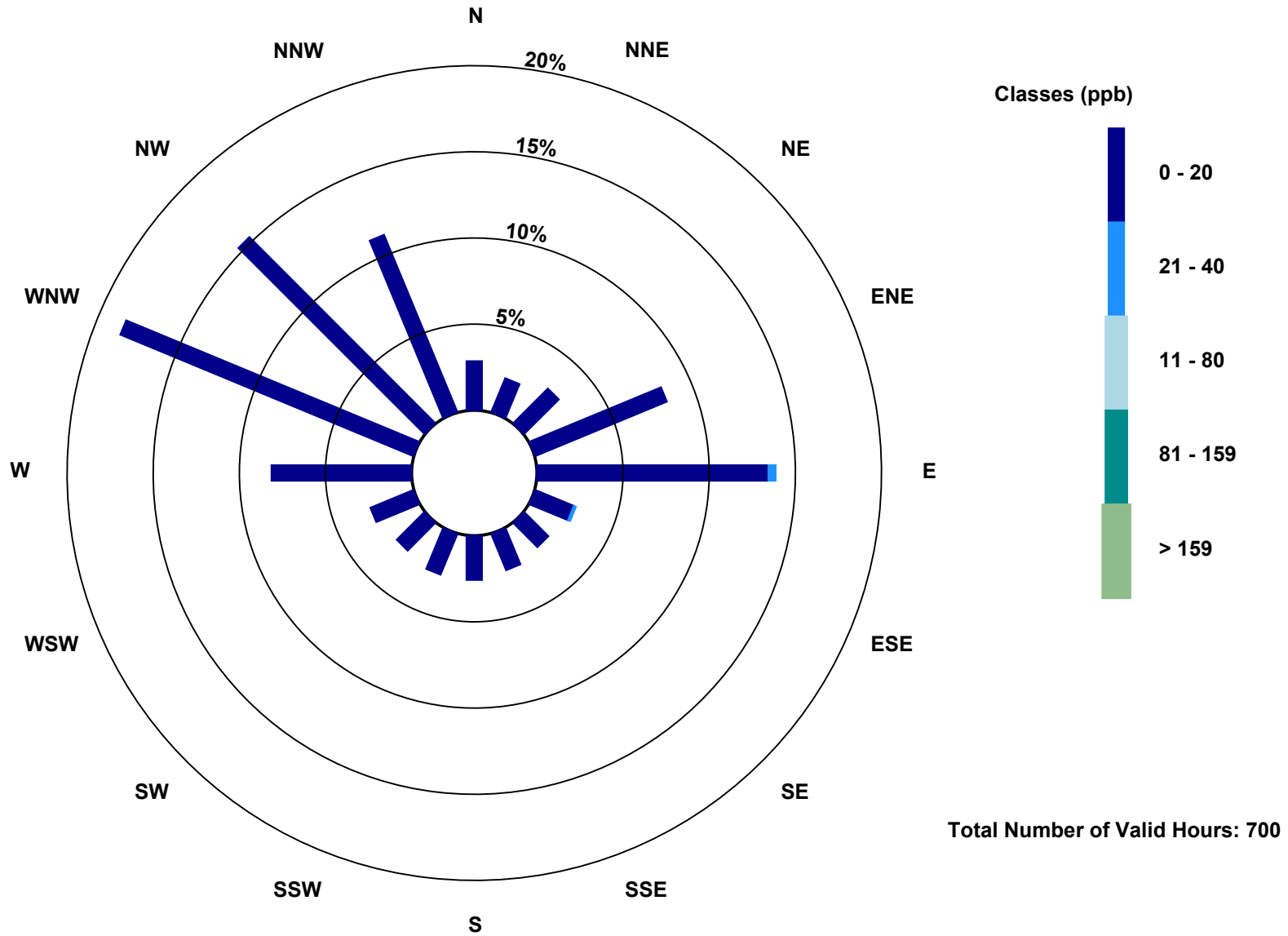
Total Number of Valid Hours: 700

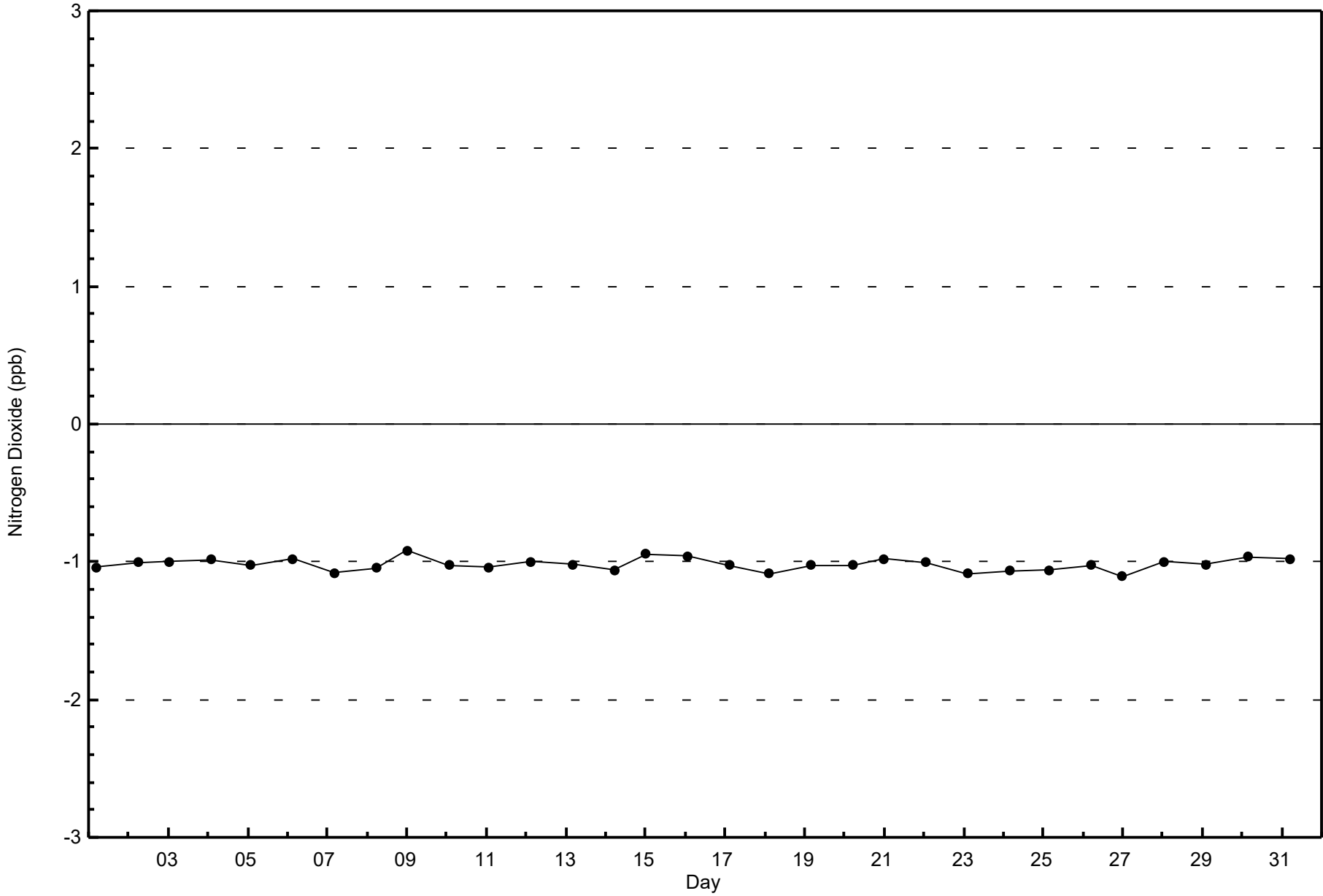
Total Number of Hours: 744



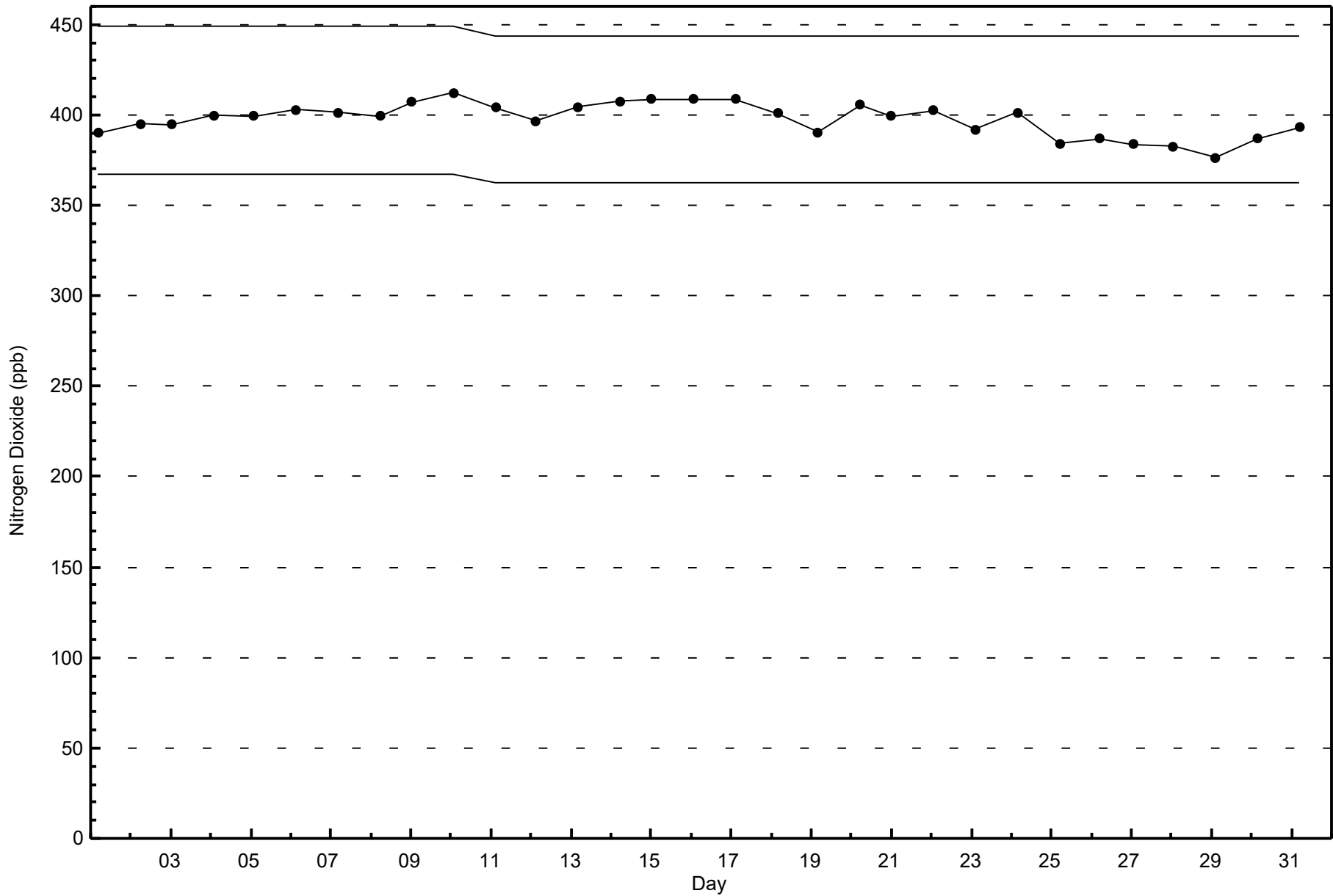
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











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

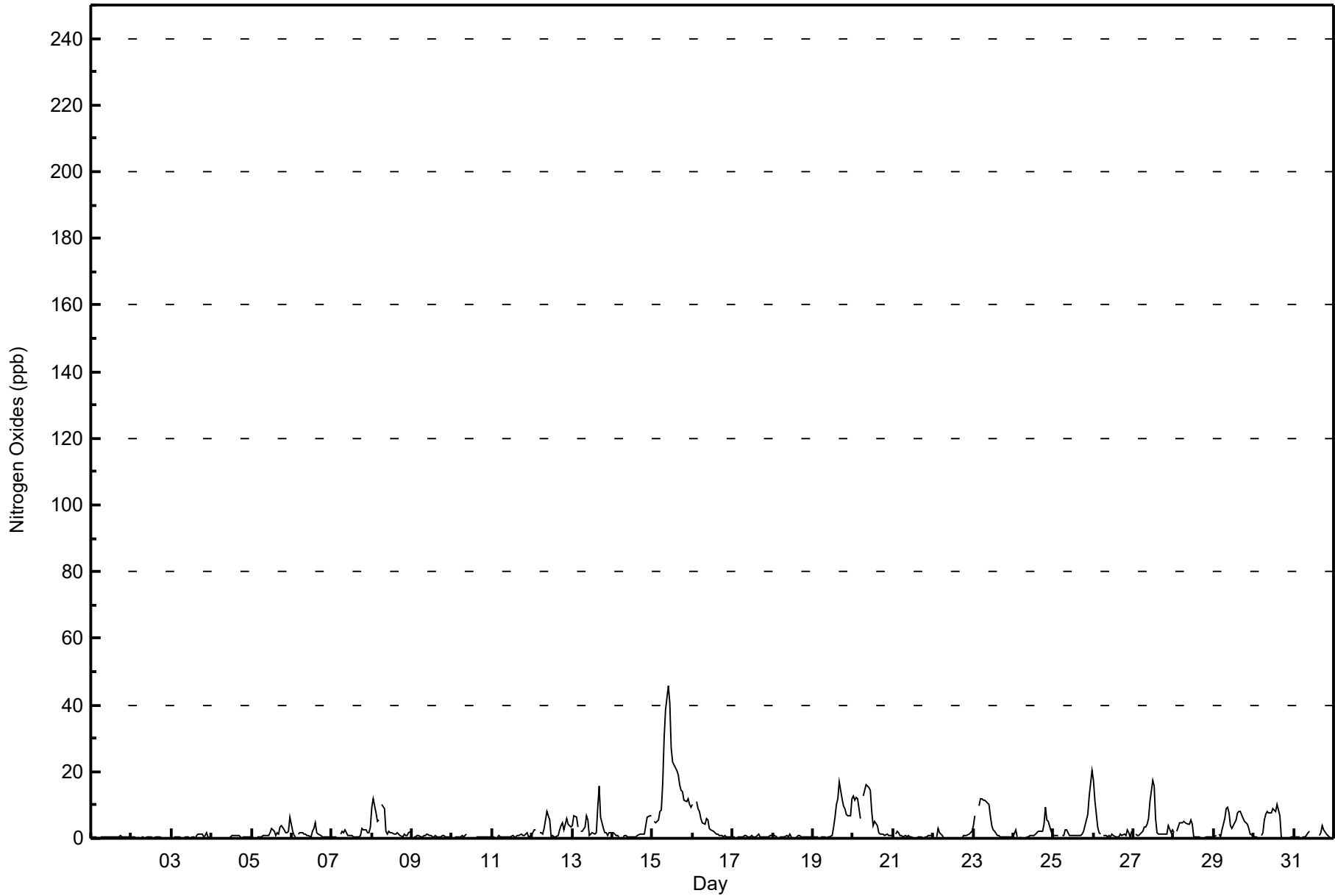
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - January 2024**

Maximum Value: 45.8 ppb on Jan 15 10:00      Maximum Daily Average: 17.9 ppb on Jan 15																				Hours in Service: 744 Hours of Data: 703 Hours of Missing Data: 41 Hours of Calibration: 36 Percent Operational Time: 99.3							
Minimum Value: 0.0 ppb on Jan 18 14:00      Minimum Daily Average: 0.2 ppb on Jan 2 Maximum Diurnal Average: 4.3 ppb at hour 10      Minimum Diurnal Average: 1.9 ppb at hour 20 Monthly Average: 2.70 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> = 2.5 P <sub>90</sub> = 7.9 P <sub>99</sub> = 20.5																											
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-Jan	0.4	0.4	0.3	0.3	Z	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.6	0.6	0.3	0.2	0.4	0.2	0.3	0.3	0.4	0.6	
2-Jan	0.2	0.2	0.4	0.2	0.3	Z	0.3	0.2	0.2	0.3	0.2	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	0.2	0.4	
3-Jan	Z	0.3	0.3	0.3	0.2	0.5	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.9	1.2	1.3	1.2	0.5	0.9	1.6	0.4	0.1	0.5	1.6	
4-Jan	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	1.0	0.7	0.9	1.0	0.7	0.6	0.2	0.3	0.4	0.5	0.4	0.3	0.4	1.0	
5-Jan	0.3	0.4	Z	0.5	0.5	0.4	0.5	0.7	0.7	0.7	0.9	1.7	2.8	2.3	1.1	1.6	1.1	3.6	3.7	2.4	1.5	1.5	2.0	6.6	1.6	6.6	
6-Jan	2.1	0.7	0.6	Z	1.4	1.7	1.7	1.1	1.1	1.0	0.6	0.4	1.9	3.1	4.9	1.7	1.3	1.0	0.3	0.2	0.3	0.4	0.2	0.4	1.2	4.9	
7-Jan	0.2	0.3	0.4	0.6	Z	1.4	2.2	1.8	2.5	1.1	1.0	0.8	0.6	0.4	0.3	0.2	0.2	0.8	2.9	2.6	2.4	1.9	1.9	3.3	1.3	3.3	
8-Jan	9.3	11.7	7.5	5.0	5.6	Z	10.3	9.0	2.3	1.4	2.0	1.9	1.8	1.3	1.3	1.5	1.1	0.7	0.6	1.2	0.8	0.6	1.8	2.1	3.5	11.7	
9-Jan	Z	0.6	0.4	1.0	0.8	0.5	0.4	0.8	0.8	1.1	0.9	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.8	0.9	0.6	0.5	0.5	0.6	0.7	1.1	
10-Jan	0.5	Z	0.4	0.5	0.5	0.6	0.8	0.4	1.3	C	C	C	C	C	0.5	0.5	0.6	0.6	0.4	0.4	0.5	0.5	0.3	0.5	0.6	1.3	
11-Jan	0.4	0.5	Z	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.7	0.5	0.5	0.8	1.1	1.1	0.9	0.8	1.3	1.7	0.6	0.7	0.7	1.7	
12-Jan	1.6	2.4	2.4	Z	1.8	1.7	1.5	2.9	5.5	8.2	5.4	0.5	0.7	0.6	0.4	0.7	2.4	3.8	4.9	2.7	5.9	4.4	3.7	3.3	2.9	8.2	
13-Jan	3.9	6.8	6.2	3.2	Z	2.3	2.0	3.6	6.6	5.6	0.8	1.1	1.8	1.2	1.6	9.2	15.6	6.4	3.0	1.6	1.6	0.8	1.6	1.7	3.8	15.6	
14-Jan	1.6	1.2	0.8	0.9	0.4	Z	0.6	0.7	0.7	0.5	0.4	0.6	0.3	0.3	0.3	0.8	1.2	1.3	1.1	1.3	3.9	6.2	6.7	6.9	1.7	6.9	
15-Jan	Z	5.0	4.6	5.4	8.0	8.6	16.7	30.2	38.5	45.8	40.6	27.0	22.9	22.0	20.5	19.0	16.1	14.3	13.8	11.2	10.8	11.9	10.3	9.3	17.9	45.8	
16-Jan	10.1	Z	10.8	8.8	7.9	6.0	4.7	4.1	5.8	5.5	3.1	2.4	2.1	1.9	1.3	1.4	0.9	0.8	0.6	0.6	0.5	0.5	0.4	0.4	3.5	10.8	
17-Jan	0.4	0.4	Z	0.5	0.4	0.5	0.5	0.8	0.7	0.6	0.4	0.7	0.4	0.5	0.5	1.2	0.4	0.5	0.4	0.4	0.5	0.5	0.7	0.9	0.6	1.2	
18-Jan	1.3	0.9	0.5	Z	0.4	0.3	0.3	0.2	0.9	0.5	1.2	0.6	0.0	0.0	0.5	0.8	0.7	0.5	0.6	0.3	0.5	0.4	0.4	0.5	0.5	1.3	
19-Jan	0.4	0.5	0.4	0.5	Z	0.5	0.4	0.3	0.2	0.3	0.4	0.9	3.2	6.4	10.3	11.8	17.0	11.9	9.9	8.7	7.4	6.9	6.8	11.7	5.1	17.0	
20-Jan	12.5	11.3	12.5	11.7	5.9	Z	12.9	14.5	16.2	15.4	14.3	7.9	4.0	4.9	3.6	1.8	1.4	1.3	1.3	0.9	1.4	0.7	0.7	0.9	6.9	16.2	
21-Jan	Z	1.4	2.0	1.6	0.8	0.7	0.3	0.8	0.4	0.6	0.6	0.4	0.0	0.0	0.0	0.3	0.3	0.3	0.2	0.2	0.4	0.8	0.9	1.0	0.6	2.0	
22-Jan	1.0	Z	0.6	3.0	1.6	0.6	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.9	1.1	1.8	2.2	0.6	3.0	
23-Jan	3.9	7.0	Z	9.7	11.7	11.8	11.6	11.4	10.5	10.2	6.7	3.6	2.7	2.2	1.0	0.7	0.5	0.5	0.3	0.4	0.3	0.3	0.2	0.3	4.7	11.8	
24-Jan	0.3	2.5	0.4	Z	0.3	0.1	0.1	0.2	0.3	0.6	0.7	0.8	1.0	1.4	1.8	2.2	2.2	2.2	4.3	9.3	5.4	4.9	2.3	1.3	1.9	9.3	
25-Jan	1.0	0.9	0.9	0.8	Z	0.9	0.6	2.5	2.7	1.0	0.7	0.8	0.8	0.8	1.0	0.9	0.9	1.3	2.2	3.6	7.1	12.7	16.6	20.5	3.5	20.5	
26-Jan	17.4	11.6	3.3	1.6	1.1	Z	0.8	0.7	0.6	0.8	0.6	1.1	0.7	0.4	0.3	0.4	1.1	1.0	1.1	1.0	2.4	1.6	0.5	2.2	2.3	17.4	
27-Jan	Z	1.4	1.0	1.0	1.2	2.3	3.2	3.4	4.2	5.9	10.9	17.5	15.7	5.8	1.6	1.1	1.2	1.2	1.2	1.2	1.1	4.0	1.8	2.7	3.9	17.5	
28-Jan	1.5	Z	2.3	4.6	4.6	4.5	4.9	4.8	4.4	4.2	5.5	4.1	0.5	0.4	0.6	0.4	0.1	0.1	0.1	0.2	0.4	0.5	0.4	0.5	2.2	5.5	
29-Jan	0.5	1.0	Z	1.1	0.5	2.5	5.8	8.8	9.3	7.6	4.0	2.9	4.7	5.5	7.5	8.1	7.9	6.1	5.0	4.6	4.2	2.9	1.3	0.8	4.5	9.3	
30-Jan	0.5	0.5	0.6	Z	0.7	1.8	5.3	7.4	8.2	7.7	7.8	9.1	8.5	7.9	10.1	6.6	0.4	0.0	0.0	0.1	0.2	0.2	0.2	0.3	3.7	10.1	
31-Jan	0.3	0.3	0.3	0.3	Z	0.6	0.4	0.4	1.9	1.9	UO	UO	UO	UO	UO	0.7	1.7	3.6	2.5	1.2	0.9	0.3	0.0	0.1	1.0	3.6	
																								Diurnal Average			
																								Diurnal Maximum			
2.8   2.7   2.3   2.4   2.3   2.0   2.9   3.7   4.1   4.3   3.8   3.1   2.8   2.5   2.5   2.5   2.6   2.2   2.1   1.9   2.1   2.3   2.1   2.7																											
17.4   11.7   12.5   11.7   11.7   11.8   16.7   30.2   38.5   45.8   40.6   27.0   22.9   22.0   20.5   19.0   17.0   14.3   13.8   11.2   10.8   12.7   16.6   20.5																											
Z - zerospan				C - Calibration				UO - Unstable Operation																			



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	696	99.00	99.00
21 - 40	5	0.71	99.72
41 - 80	2	0.28	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - January 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	20	15	20	58	91	17	14	16	18	18	16	19	57	129	107	78	693
21 - 40	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	5
41 - 80	0	0	0	0	2	0	0	0	0	0	0	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>	20	15	20	58	97	18	14	16	18	18	16	19	57	129	107	78	700

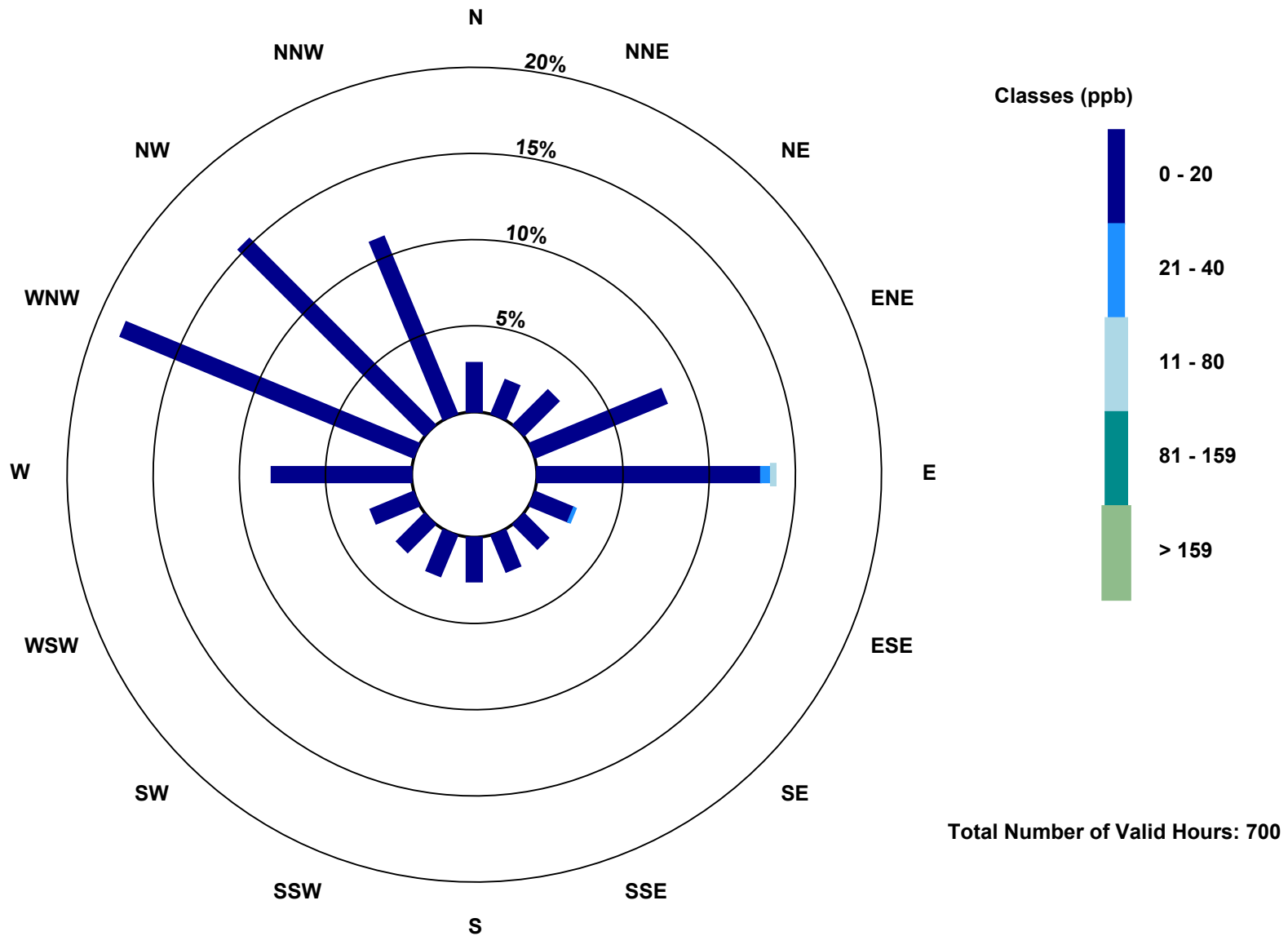
Total Number of Valid Hours: 700

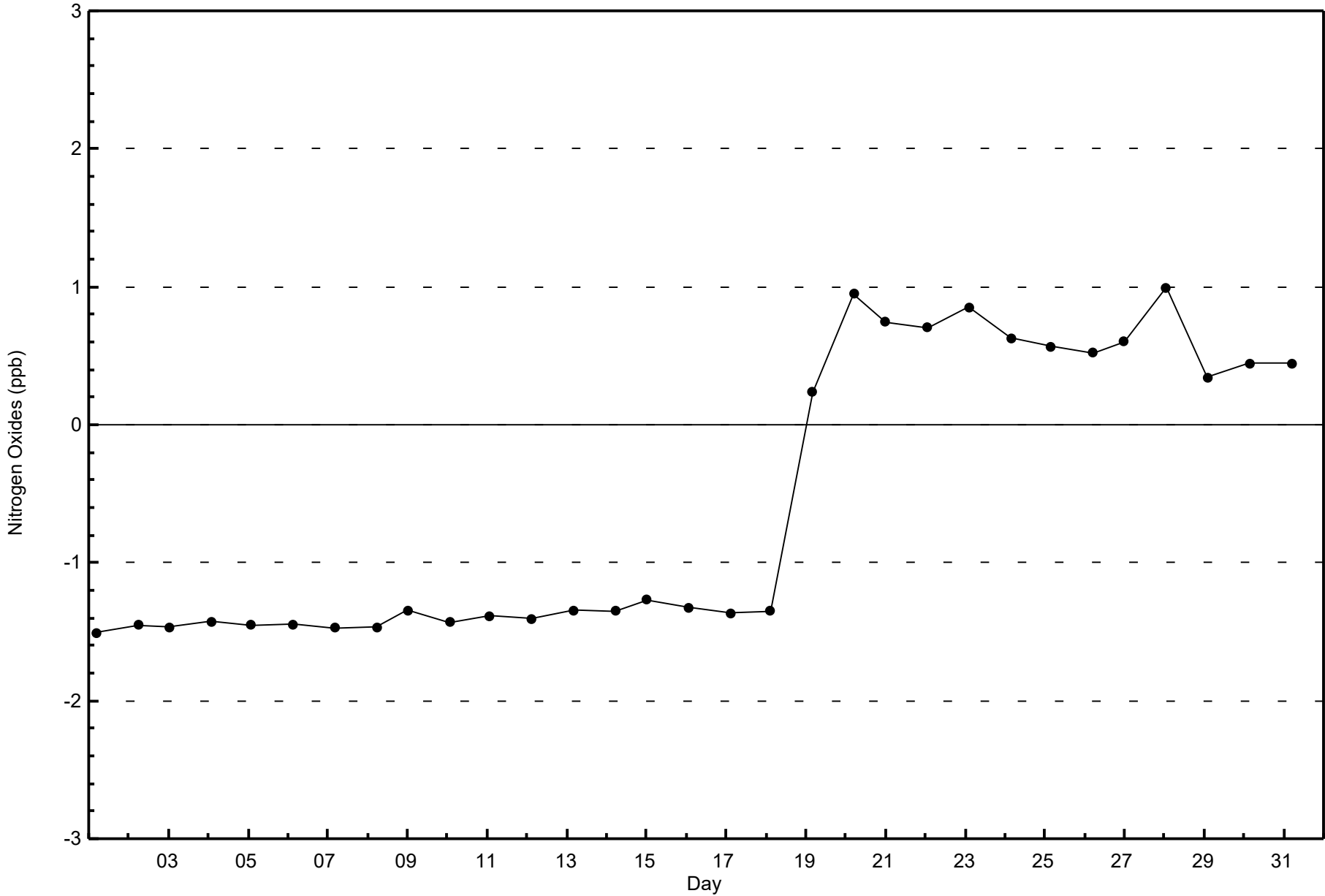
Total Number of Hours: 744

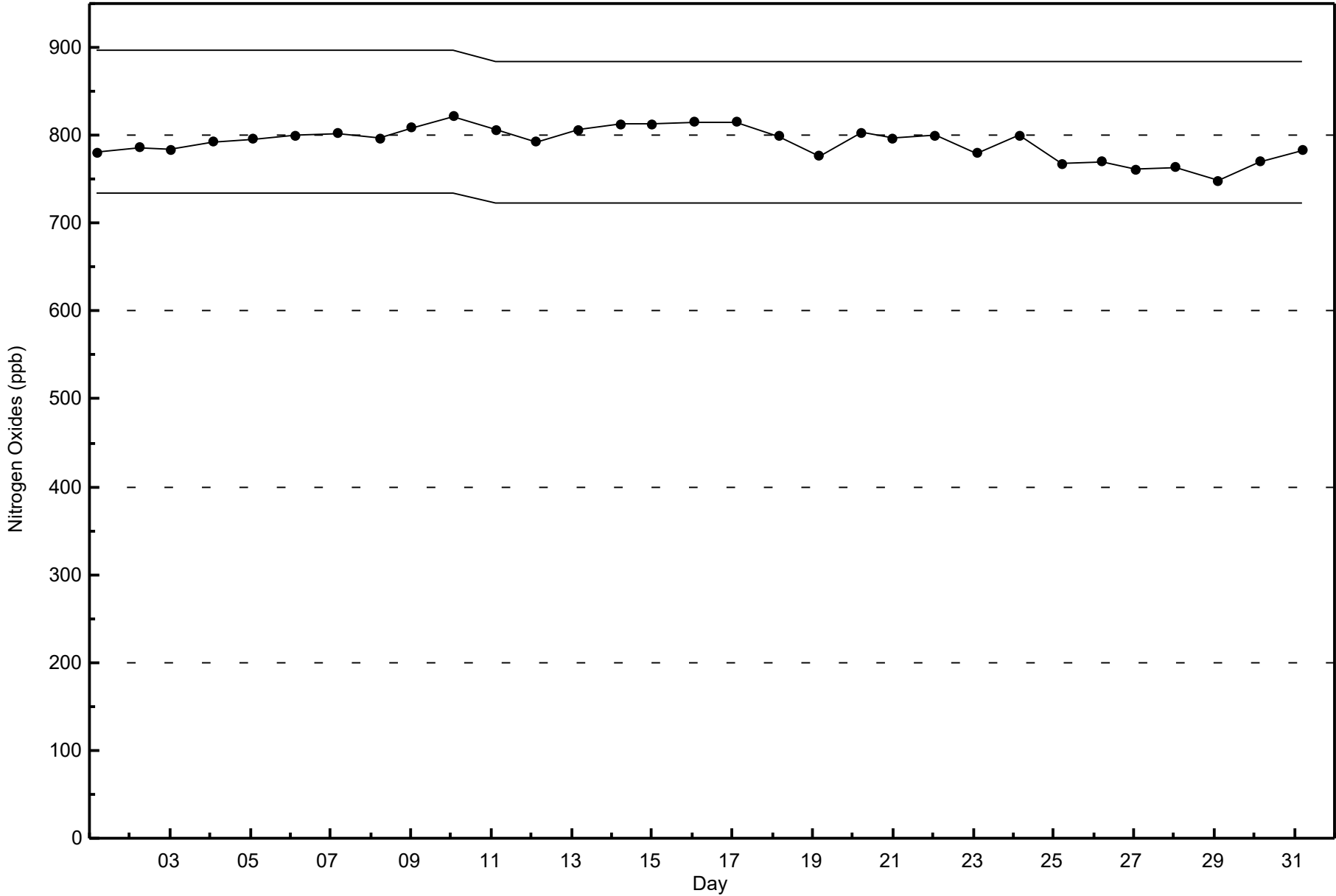


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort Chipewyan - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 40.7 ppb on Jan 30 18:00	Maximum Daily Average: 36.8 ppb on Jan 4		Hours of Data:	709
Minimum Value: 0.9 ppb on Jan 15 09:00	Minimum Daily Average: 15.3 ppb on Jan 15		Hours of Missing Data:	35
Maximum Diurnal Average: 29.8 ppb at hour 18	Minimum Diurnal Average: 26.6 ppb at hour 8		Hours of Calibration:	34
Monthly Average: 28.46 ppb	Percentiles: P <sub>1</sub> = 9.4 P <sub>10</sub> = 19.0 Q <sub>1</sub> = 24.4 Median = 29.9 Q <sub>3</sub> = 34.1 P <sub>90</sub> = 35.8 P <sub>99</sub> = 39.1		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-Jan	25.8	25.9	Z	28.0	29.0	30.0	30.2	33.5	34.8	34.8	35.0	35.6	35.6	35.4	35.0	34.7	34.7	34.5	35.0	35.0	34.7	35.3	35.3	35.2	33.2	35.6
2-Jan	35.2	35.2	35.0	Z	35.1	34.7	35.2	35.9	36.1	36.2	35.5	34.9	35.7	35.5	35.3	35.4	35.2	35.5	35.4	34.9	34.7	34.7	34.8	34.7	35.2	36.2
3-Jan	34.7	34.5	34.2	33.7	Z	33.4	33.4	32.9	32.6	32.5	33.0	33.6	33.7	34.0	35.3	34.8	34.1	34.5	34.2	35.4	34.8	34.0	35.4	35.8	34.1	35.8
4-Jan	35.5	35.6	35.9	35.7	35.4	Z	35.6	35.9	36.0	36.1	36.2	36.3	36.8	37.1	37.1	37.5	38.2	38.4	38.3	38.0	38.1	37.8	37.2	36.9	36.8	38.4
5-Jan	Z	37.6	38.5	39.3	39.5	39.8	39.4	38.9	39.2	39.3	39.1	38.1	37.1	37.0	36.8	35.7	34.4	32.7	32.6	33.8	33.7	34.1	34.0	30.1	36.6	39.8
6-Jan	35.1	Z	37.4	37.3	37.3	37.1	36.5	36.3	35.9	36.0	36.0	35.9	35.1	34.3	32.8	34.7	34.7	33.5	33.2	33.3	33.3	33.2	33.5	32.5	35.0	37.4
7-Jan	32.5	32.9	Z	31.7	30.1	28.0	27.0	28.5	27.7	24.9	26.5	27.7	28.3	29.9	30.0	31.2	32.2	31.8	30.4	30.3	30.5	30.8	30.9	28.2	29.7	32.9
8-Jan	19.8	17.6	22.0	Z	23.5	21.7	15.5	16.2	27.1	28.4	C	C	C	29.9	30.1	29.6	29.1	28.7	28.6	27.4	27.0	26.5	25.0	23.8	24.9	30.1
9-Jan	24.7	25.6	26.0	24.9	Z	25.7	25.3	25.2	25.9	25.1	25.5	25.2	25.1	25.0	25.3	25.6	25.3	27.5	29.0	30.2	30.3	30.7	30.8	30.5	26.7	30.8
10-Jan	30.7	31.4	31.9	31.5	31.3	Z	30.1	30.0	29.7	29.7	31.0	32.1	31.8	31.7	32.1	31.7	31.6	31.3	31.5	31.7	31.4	31.1	31.1	31.0	31.2	32.1
11-Jan	Z	30.7	30.6	30.5	30.3	29.9	29.6	29.9	29.9	30.0	30.3	30.6	30.8	31.0	30.7	30.3	29.7	29.8	29.8	29.4	28.8	28.0	29.3	28.5	29.9	31.0
12-Jan	27.4	Z	25.4	25.2	24.0	24.5	24.5	24.0	22.7	18.4	21.5	25.1	24.5	24.1	25.3	24.8	24.1	23.3	23.2	25.4	22.9	24.3	24.6	24.6	24.1	27.4
13-Jan	24.1	21.2	Z	24.4	24.8	25.3	25.2	23.8	21.5	22.9	25.7	24.6	24.1	24.8	26.3	20.0	15.3	20.7	23.0	24.4	24.8	25.7	24.4	24.2	23.5	26.3
14-Jan	23.6	23.5	24.1	Z	24.1	24.7	25.6	26.2	25.9	25.2	25.7	26.7	26.5	27.4	28.0	26.8	26.2	26.0	26.7	26.8	20.3	15.6	14.3	14.1	24.1	28.0
15-Jan	14.3	15.1	15.4	14.6	Z	13.8	8.6	2.0	0.9	4.8	11.3	17.7	19.3	19.1	18.6	17.1	17.1	17.8	17.7	20.7	21.0	20.6	22.2	22.1	15.3	22.2
16-Jan	20.9	14.0	16.4	18.3	19.6	Z	23.0	25.7	22.9	24.7	30.2	31.3	31.1	32.4	32.6	33.2	34.3	35.0	35.4	35.9	35.2	35.8	36.9	36.8	28.8	36.9
17-Jan	Z	36.9	36.3	36.5	36.4	36.0	35.8	35.6	35.6	35.6	35.9	35.7	35.8	35.8	35.6	34.8	35.1	34.6	34.4	34.2	34.1	33.8	33.2	32.0	35.2	36.9
18-Jan	30.6	Z	30.1	30.0	29.4	29.6	29.8	30.1	30.6	31.3	31.2	31.6	31.8	30.9	31.7	32.2	32.5	33.0	33.5	34.9	34.1	32.1	31.8	31.0	31.5	34.9
19-Jan	31.3	30.8	Z	31.0	31.4	33.1	34.1	35.1	35.0	31.5	31.0	31.0	29.4	26.7	23.7	21.0	14.8	18.5	20.3	21.8	23.2	24.0	23.3	18.1	27.0	35.1
20-Jan	17.2	17.7	16.2	Z	23.3	18.8	13.8	11.5	9.5	11.9	15.3	20.4	23.5	22.4	24.2	27.7	28.7	29.0	27.5	29.2	29.6	30.6	30.4	30.0	22.1	30.6
21-Jan	29.8	29.0	27.9	27.7	Z	27.3	27.3	26.5	26.7	27.0	28.3	32.0	36.9	36.8	35.2	34.4	34.4	35.7	36.8	36.6	36.2	35.5	35.3	34.7	32.1	36.9
22-Jan	34.3	32.8	34.4	31.5	32.9	Z	34.0	34.6	35.1	35.3	35.4	35.3	34.8	34.7	35.1	35.8	36.7	36.9	36.1	35.6	34.6	33.7	32.3	31.6	34.5	36.9
23-Jan	Z	25.4	22.3	21.1	18.2	17.4	16.9	16.3	16.0	17.0	21.3	25.2	27.0	28.1	31.3	32.4	32.8	32.7	32.7	32.5	32.8	32.7	32.6	32.5	26.0	32.8
24-Jan	32.7	Z	32.2	32.5	32.5	32.3	32.1	32.0	31.9	31.9	31.8	30.8	29.3	27.3	26.1	25.2	24.6	24.4	22.2	16.0	19.8	20.5	24.3	26.8	27.8	32.7
25-Jan	27.6	28.3	Z	28.2	28.3	28.4	29.0	27.4	27.4	29.5	30.1	30.0	30.0	29.8	29.4	29.2	28.9	27.0	24.0	21.8	16.2	9.9	5.9	2.4	24.7	30.1
26-Jan	4.7	9.4	19.0	Z	23.6	24.6	26.0	27.0	27.3	27.9	28.3	28.0	28.4	28.9	29.2	29.1	28.2	28.1	27.2	26.6	24.2	25.5	27.0	25.6	25.0	29.2
27-Jan	27.6	26.4	26.7	26.2	Z	21.2	17.1	17.4	17.2	16.8	14.7	10.9	12.0	18.8	22.0	21.8	21.0	21.2	21.0	21.0	21.7	17.9	19.7	20.7	20.0	27.6
28-Jan	22.1	20.9	19.9	17.2	16.7	Z	16.1	16.1	16.5	19.0	20.7	23.7	26.7	24.7	21.7	22.3	23.8	22.7	22.5	21.7	22.6	19.2	18.6	19.1	20.6	26.7
29-Jan	Z	23.3	22.9	23.8	25.3	26.5	20.6	15.2	15.9	21.5	27.5	30.4	29.4	29.3	27.2	25.4	24.6	25.4	25.3	24.9	25.4	27.5	32.2	35.0	25.4	35.0
30-Jan	36.5	Z	37.1	37.0	37.1	31.4	23.4	21.0	19.2	20.7	21.2	19.9	20.3	20.9	16.8	19.7	38.9	40.7	37.1	32.7	27.8	28.4	27.0	30.8	28.1	40.7
31-Jan	32.6	31.1	Z	30.9	30.9	31.9	34.9	34.4	33.4	33.0	32.7	33.3	PF	31.6	32.6	32.3	32.4	32.4	33.9	34.9	34.6	33.5	34.2	35.9	33.1	35.9

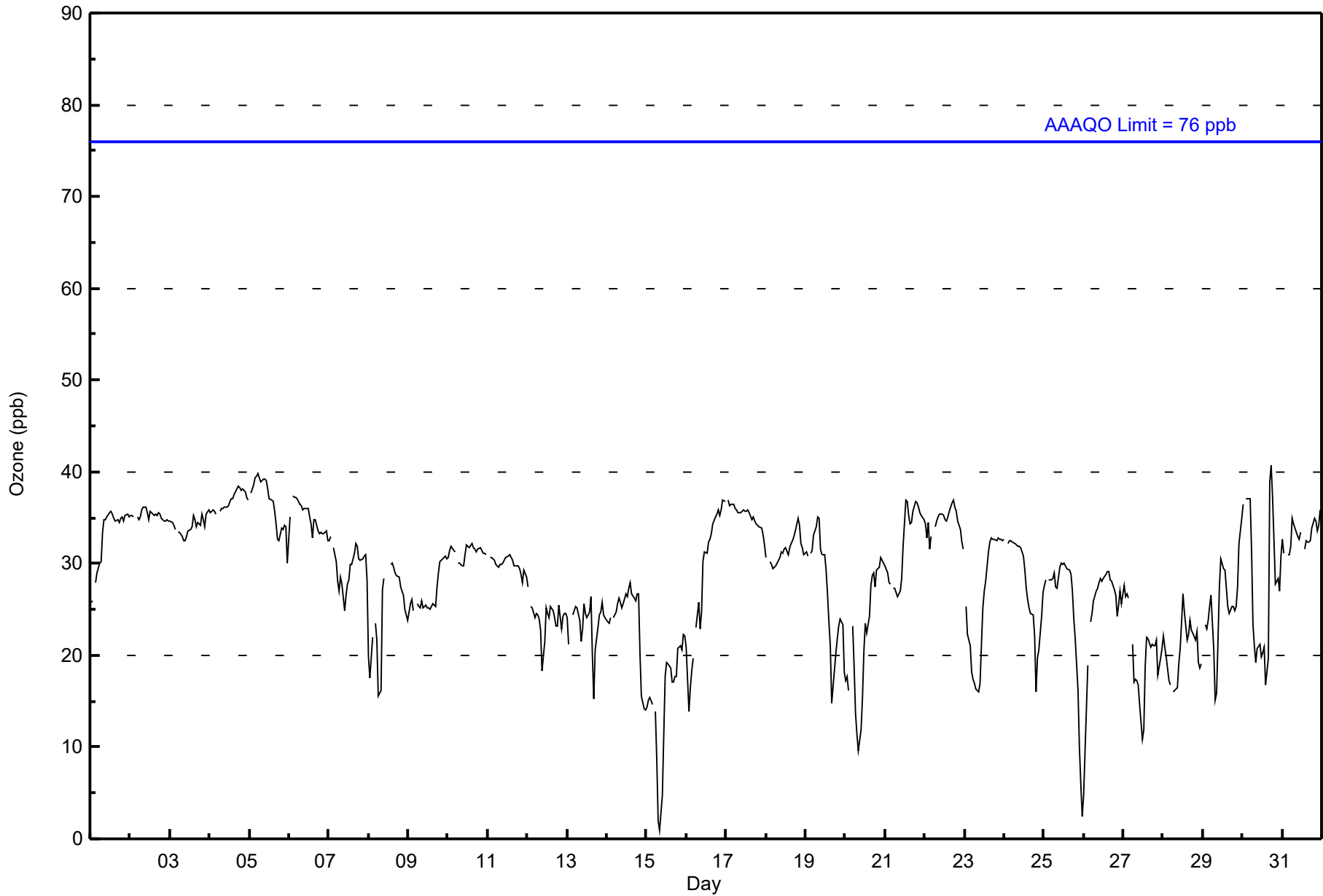
27.4	26.6	27.9	28.8	28.9	28.0	27.0	26.6	26.7	27.1	28.3	29.1	29.3	29.5	29.5	29.2	29.5	29.8	29.6	29.6	29.0	28.5	28.6	28.2	Diurnal Average		
36.5	37.6	38.5	39.3	39.5	39.8	39.4	38.9	39.2	39.3	39.1	38.1	37.1	37.1	37.1	37.1	37.5	38.9	40.7	38.3	38.0	38.1	37.8	37.2	36.9	Diurnal Maximum	

Z - zerospan      C - Calibration      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**  
**Fort Chipewyan - January 2024**





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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	89	12.55	12.55
21 - 50	620	87.45	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - January 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	0	0	0	1	30	4	2	4	2	4	6	7	5	14	8	2	89
21 - 50	20	15	19	57	70	13	12	12	17	14	9	16	54	116	98	75	617
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>	20	15	19	58	100	17	14	16	19	18	15	23	59	130	106	77	706

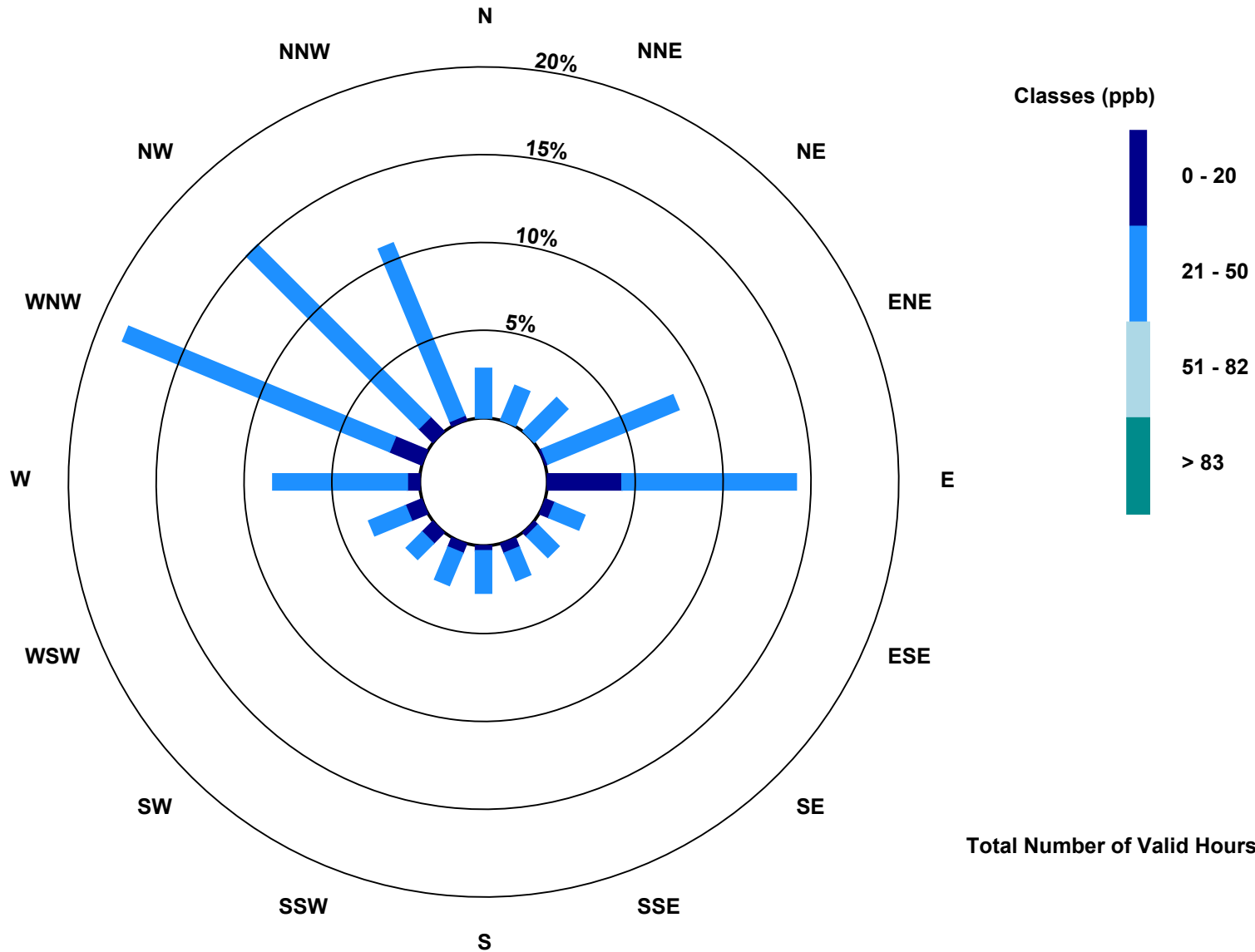
Total Number of Valid Hours: 706

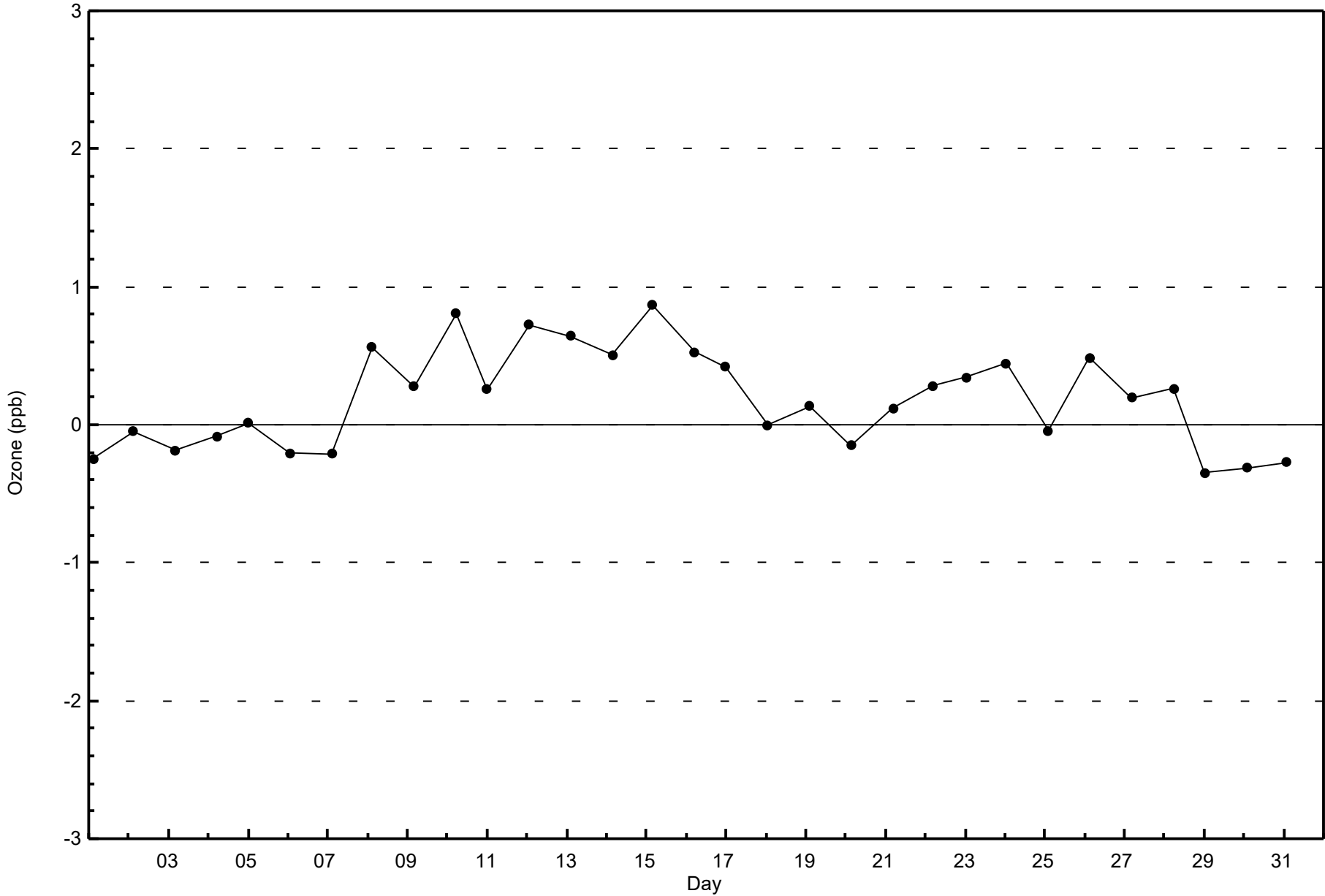
Total Number of Hours: 744

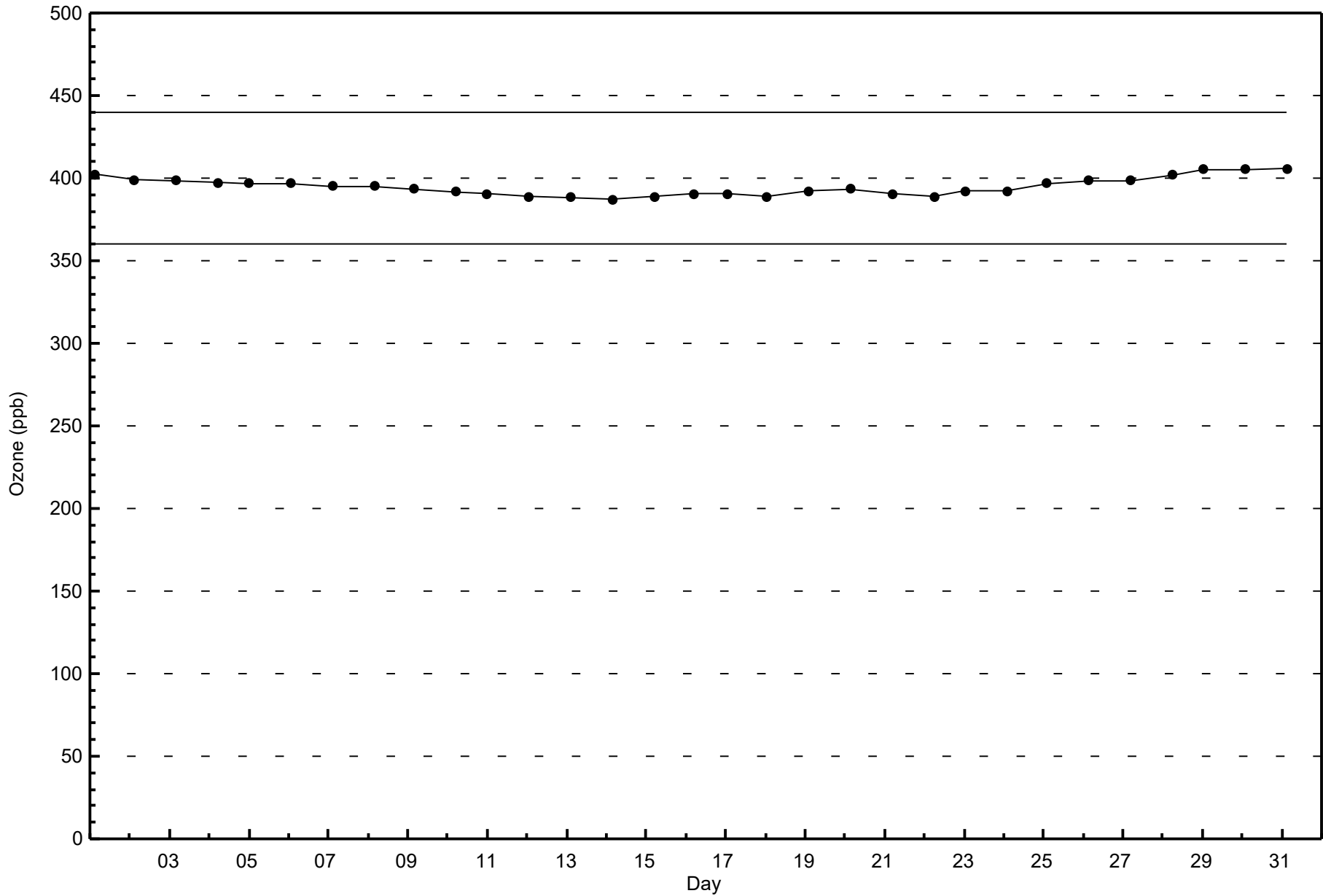


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



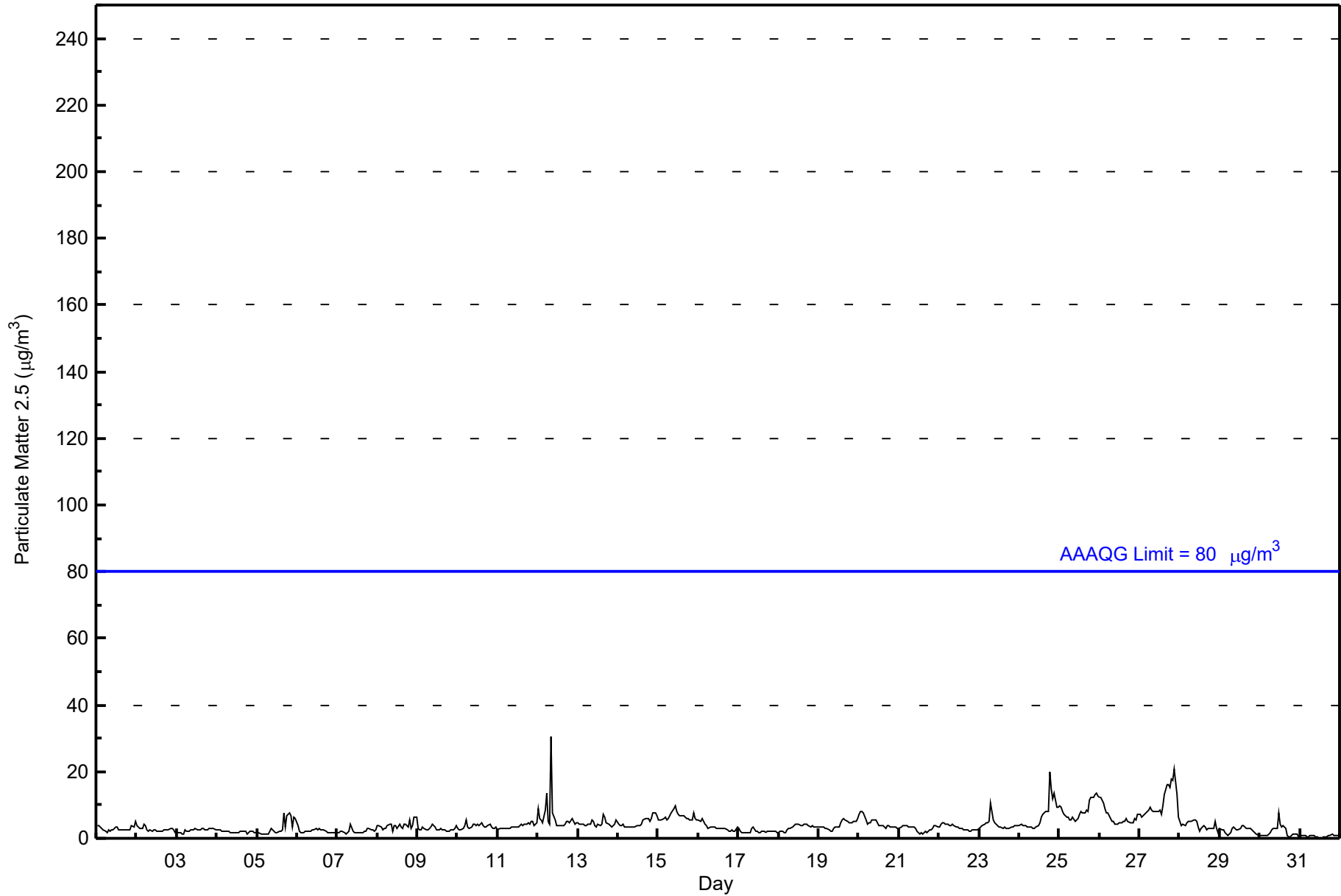






Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 30.5 µg/m <sup>3</sup> on Jan 12 09:00 Minimum Value: 0.4 µg/m <sup>3</sup> on Jan 31 15:00 Maximum Diurnal Average: 4.7 µg/m <sup>3</sup> at hour 22 Monthly Average: 3.96 µg/m <sup>3</sup>		Maximum Daily Average: 10.6 µg/m <sup>3</sup> on Jan 27 Minimum Daily Average: 0.7 µg/m <sup>3</sup> on Jan 31 Minimum Diurnal Average: 3.4 µg/m <sup>3</sup> at hour 7 Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 2.4 Median = 3.3 Q <sub>3</sub> = 4.6 P <sub>90</sub> = 7.0 P <sub>99</sub> = 15.0		Hours in Service: 744 Hours of Data: 743 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-Jan	3.8	3.8	3.3	2.8	2.3	2.0	1.9	2.4	2.3	2.7	2.4	3.4	3.5	2.6	2.4	2.6	2.5	2.7	2.7	2.7	2.7	4.0	3.6	5.0	2.9	5.0
2-Jan	4.0	3.3	2.8	2.9	4.0	3.8	2.7	2.2	2.5	2.1	2.3	2.5	2.2	2.1	2.3	2.3	2.4	2.4	2.4	2.5	2.8	2.9	2.4	1.8	2.6	4.0
3-Jan	1.7	1.5	1.6	1.4	1.2	2.6	2.1	2.1	2.5	2.6	2.6	2.8	2.7	2.7	2.6	2.9	3.0	2.7	2.7	3.0	3.0	3.2	3.0	2.4	2.4	3.2
4-Jan	2.7	2.6	2.4	2.0	2.3	2.1	2.0	2.0	1.8	1.7	1.7	1.7	1.8	2.3	2.2	2.1	2.0	1.4	1.7	1.9	1.9	1.7	1.6	1.6	2.0	2.7
5-Jan	1.5	1.6	1.4	1.3	1.2	1.3	1.5	1.4	3.0	2.4	2.1	1.8	1.6	2.3	2.1	2.5	7.6	3.4	6.9	7.5	6.7	3.5	6.5	6.1	3.2	7.6
6-Jan	3.7	2.1	1.8	1.7	1.6	1.9	2.0	2.1	2.2	2.7	2.7	3.0	2.5	2.8	2.5	2.5	2.4	2.1	1.7	1.7	1.7	1.7	1.7	1.7	2.2	3.7
7-Jan	1.7	1.8	2.0	2.0	1.6	1.5	1.6	2.1	4.3	2.1	1.7	1.6	1.6	1.7	1.6	1.7	2.0	2.3	3.1	3.0	2.5	2.4	2.2	2.4	2.1	4.3
8-Jan	3.7	4.0	3.4	2.7	2.8	3.0	3.7	4.1	4.2	2.3	3.9	3.6	3.1	4.2	3.5	3.0	4.1	4.2	3.3	5.3	3.0	3.6	6.2	6.6	3.8	6.6
9-Jan	2.9	2.6	2.4	3.4	3.0	2.3	2.4	2.8	3.3	4.0	3.2	2.6	2.7	2.7	2.8	2.7	2.5	2.2	2.0	2.3	2.5	2.5	2.8	3.7	2.8	4.0
10-Jan	3.1	2.7	2.7	2.8	3.7	5.6	3.3	3.1	3.6	4.2	4.4	4.0	4.2	3.7	4.8	3.6	3.3	3.5	3.6	4.3	3.6	3.1	3.1	3.2	3.6	5.6
11-Jan	2.7	2.8	3.0	3.0	3.1	3.1	3.1	3.1	3.4	3.4	3.4	3.6	3.6	3.7	4.4	4.0	4.1	4.3	4.7	4.4	4.9	4.9	3.9	4.5	3.7	4.9
12-Jan	8.7	6.0	5.7	4.7	8.5	13.6	5.2	4.3	30.5	7.7	5.5	3.8	3.9	3.8	3.9	3.7	4.1	5.2	5.0	4.5	5.8	5.2	4.4	4.8	6.6	30.5
13-Jan	4.6	4.2	4.2	4.3	4.0	4.0	4.3	4.4	5.3	5.1	3.9	3.5	4.0	3.6	4.2	7.2	6.6	4.8	4.2	3.8	3.5	3.8	4.2	5.4	4.5	7.2
14-Jan	4.1	3.7	3.9	4.3	3.6	3.6	3.4	3.4	3.4	3.4	3.5	4.0	3.8	3.9	4.3	5.3	6.0	5.9	5.8	5.3	5.9	7.8	7.5	6.9	4.7	7.8
15-Jan	5.6	5.6	5.5	5.9	6.3	5.7	5.9	6.6	7.4	8.8	9.8	8.1	7.0	6.8	6.7	6.8	6.3	5.8	5.9	5.3	5.5	7.5	6.1	5.6	6.5	9.8
16-Jan	5.6	5.0	6.1	5.0	4.4	3.7	3.1	3.5	3.6	3.3	3.3	2.8	2.8	3.0	3.0	2.9	2.8	2.4	2.2	2.1	2.6	2.0	1.9	3.3	3.3	6.1
17-Jan	3.0	2.2	1.8	1.6	1.6	1.7	1.7	1.8	2.9	3.2	2.0	2.1	1.8	1.8	1.9	2.0	1.9	1.9	2.0	1.9	2.0	2.2	2.1	1.8	2.0	3.2
18-Jan	1.8	2.0	2.1	1.8	1.7	2.7	3.1	3.2	3.6	4.0	4.2	4.3	4.1	3.8	3.9	4.1	4.3	4.1	3.9	3.2	3.6	3.4	3.3	3.3	3.3	4.3
19-Jan	3.3	3.2	3.2	3.2	3.1	2.9	2.5	1.9	2.1	2.8	3.3	3.2	3.5	4.7	5.6	5.9	5.6	4.9	4.5	4.5	4.6	5.3	5.3	6.1	4.0	6.1
20-Jan	7.2	8.0	8.0	7.5	5.4	4.2	4.6	4.8	5.5	5.4	5.4	4.5	4.0	3.8	3.7	3.2	3.1	3.7	3.9	3.5	3.5	3.5	3.3	3.1	4.7	8.0
21-Jan	3.1	3.4	3.7	3.8	3.9	3.9	3.5	3.6	3.2	3.5	2.9	2.2	1.4	1.5	1.4	1.6	2.0	1.8	2.5	2.7	2.8	3.9	3.6	3.4	2.9	3.9
22-Jan	3.4	4.2	4.5	4.8	4.4	4.0	3.9	3.9	4.1	3.7	3.4	3.3	3.1	2.8	2.8	2.7	2.6	2.3	2.2	2.3	2.3	2.4	2.6	2.7	3.3	4.8
23-Jan	3.0	3.4	3.8	4.1	4.4	4.7	5.0	10.7	5.3	4.8	4.3	4.0	3.6	3.2	3.1	3.3	3.1	3.1	3.1	3.3	3.5	3.8	3.7	3.7	4.1	10.7
24-Jan	3.8	4.1	3.8	3.7	3.6	3.5	3.3	3.2	3.1	3.1	3.3	3.8	4.7	6.3	7.4	7.7	8.0	8.0	20.1	14.8	11.7	13.4	9.2	9.4	6.8	20.1
25-Jan	9.6	9.5	8.2	7.2	6.3	6.3	5.7	5.3	6.2	5.0	5.3	5.9	7.0	7.9	7.5	7.7	8.3	7.9	11.5	12.3	12.1	13.2	13.5	12.8	8.4	13.5
26-Jan	12.1	12.4	10.8	8.9	7.4	7.8	6.6	5.3	4.9	4.3	4.2	4.3	4.7	4.7	5.0	4.9	5.8	5.2	4.6	4.7	4.8	5.9	5.7	7.0	6.3	12.4
27-Jan	7.0	6.5	6.7	7.4	7.7	8.3	9.3	8.6	8.1	8.0	8.2	8.0	8.6	7.3	9.7	12.9	16.0	16.0	15.1	17.8	17.2	20.8	13.3	6.5	10.6	20.8
28-Jan	5.3	3.8	4.1	3.7	4.7	5.2	5.0	5.3	5.4	5.3	5.1	3.5	2.3	2.9	3.7	3.2	2.6	3.0	2.9	2.9	2.9	4.9	2.8	1.5	3.8	5.4
29-Jan	2.8	2.6	2.3	1.8	1.4	0.9	1.9	3.0	3.4	3.0	2.7	2.4	3.0	4.0	4.0	3.6	3.1	2.9	2.8	2.6	1.9	1.6	1.1	0.9	2.5	4.0
30-Jan	0.9	1.0	1.0	0.9	0.9	1.1	1.9	2.5	2.8	2.8	3.1	7.7	4.1	3.6	3.8	2.9	0.9	0.4	0.6	0.9	1.5	1.3	1.1	0.5	2.0	7.7
31-Jan	0.5	0.8	0.8	0.7	0.5	0.5	0.6	0.6	0.8	0.6	0.5	0.4	PF	0.4	0.4	0.5	0.6	0.9	1.1	1.1	0.9	0.9	0.9	0.8	0.7	1.1
4.1 3.9 3.8 3.6 3.6 3.8 3.4 3.7 4.7 3.8 3.7 3.6 3.6 3.6 3.8 3.9 4.2 3.9 4.5 4.5 4.3 4.7 4.3 4.1																								Diurnal Average		
12.1 12.4 10.8 8.9 8.5 13.6 9.3 10.7 30.5 8.8 9.8 8.1 8.6 7.9 9.7 12.9 16.0 16.0 20.1 17.8 17.2 20.8 13.5 12.8																								Diurnal Maximum		
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>) -  $\mu\text{g}/\text{m}^3$**   
**Fort Chipewyan - January 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	615	82.77	82.77
6 - 15	121	16.29	99.06
16 - 25	6	0.81	99.87
26 - 80	1	0.13	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort Chipewyan - January 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	19	13	17	48	73	13	10	12	17	16	13	14	53	121	104	70	613
6 - 15	3	2	3	13	29	5	4	5	3	3	3	7	6	14	11	9	120
16 - 25	0	0	0	0	1	0	0	0	0	0	0	2	2	0	1	0	6
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	22	15	20	61	103	18	14	17	20	19	16	23	61	136	116	79	740

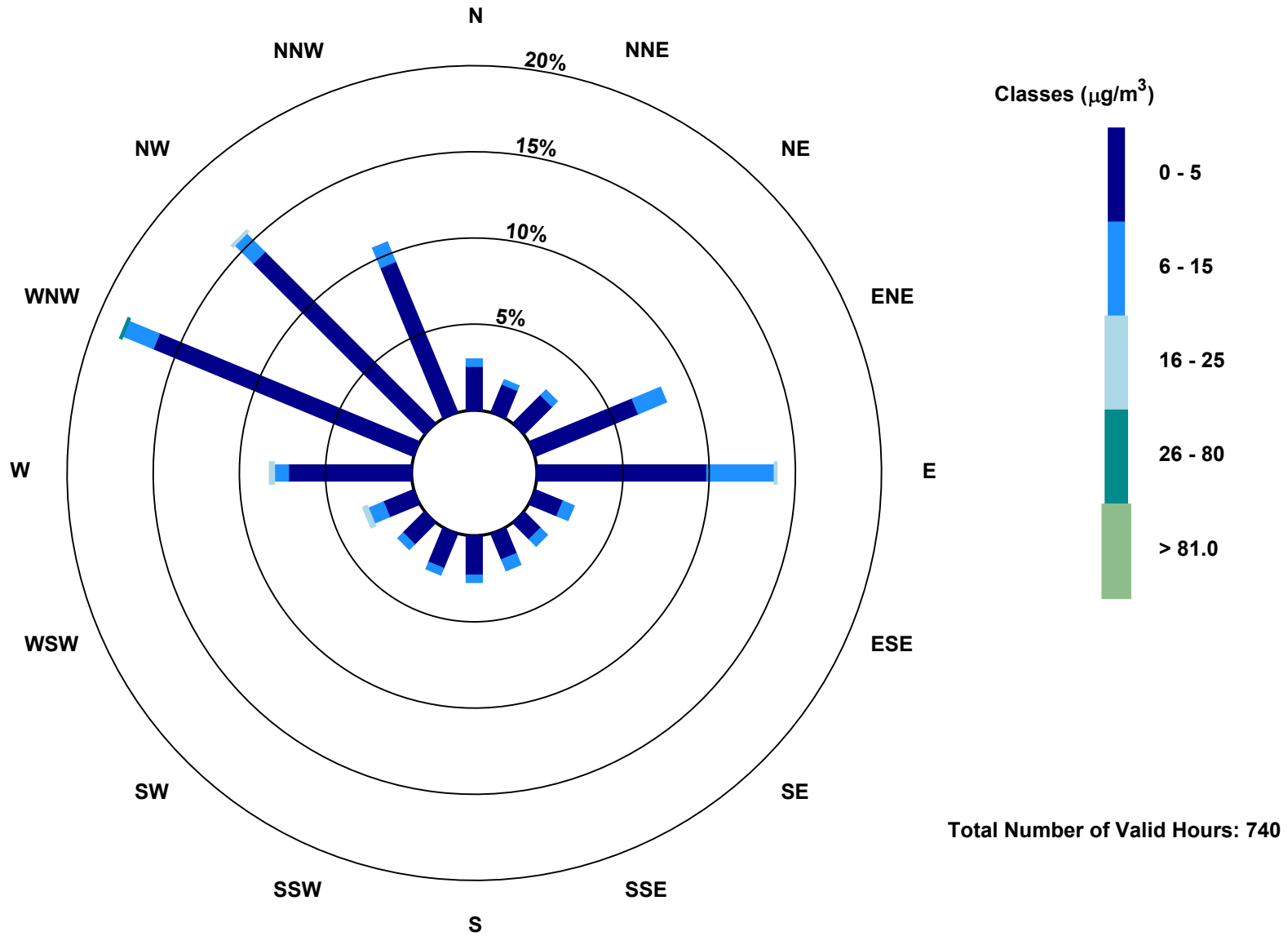
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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

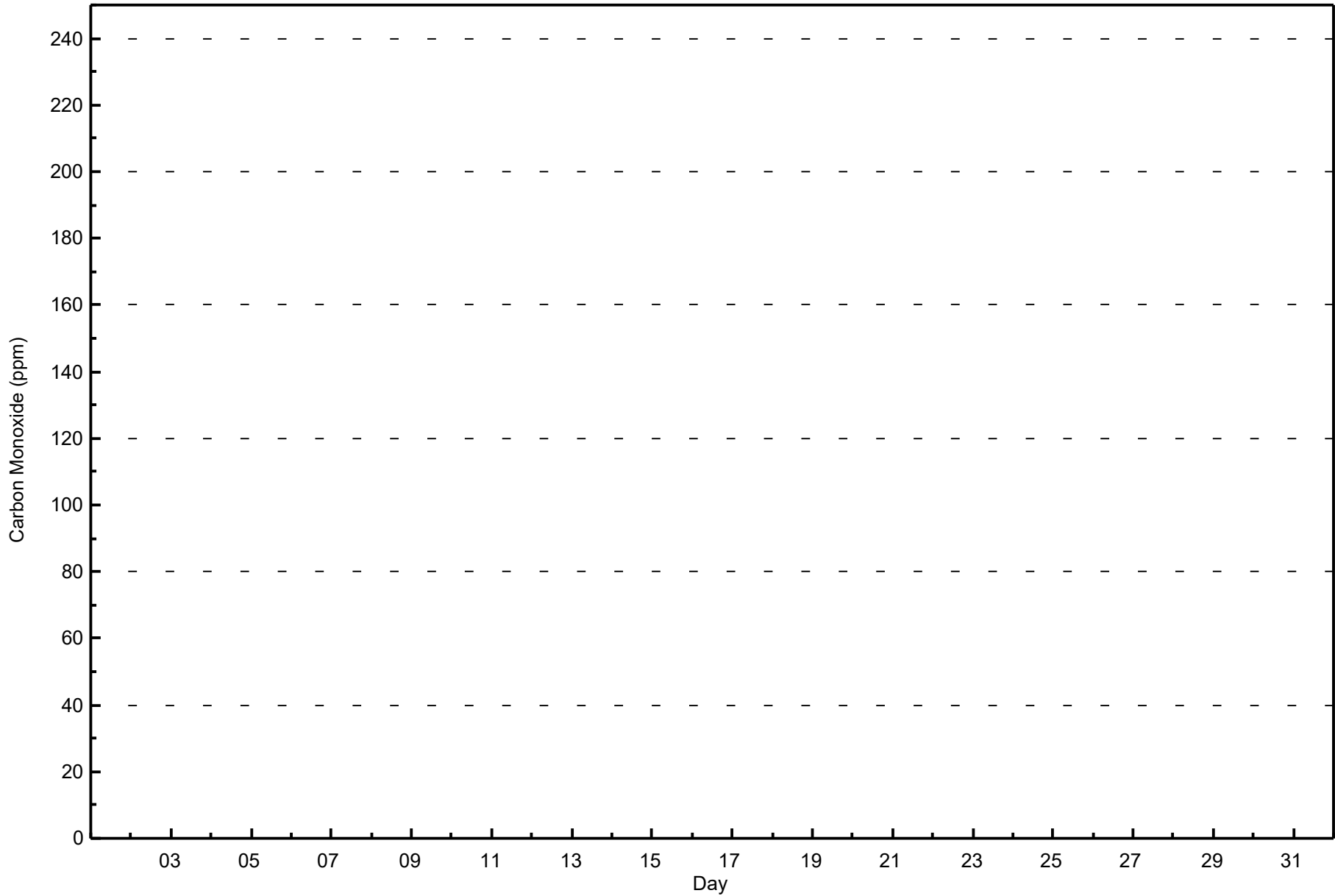
Fort Chipewyan - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																										
Maximum Value: 0.1 ppm on Jan 27 22:00		Maximum Daily Average: 0.1 ppm on Jan 20				Hours of Data:		709																										
Minimum Value: 0.0 ppm on Jan 1 01:00		Minimum Daily Average: 0.0 ppm on Jan 2				Hours of Missing Data:		35																										
Maximum Diurnal Average: 0.0 ppm at hour 10		Minimum Diurnal Average: 0.0 ppm at hour 15				Hours of Calibration:		34																										
Monthly Average: 0.04 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> = 0.1 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.1				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-Jan	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-Jan	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
3-Jan	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	0.0	0.0
4-Jan	0.0	0.0	Z	0.1	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Jan	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	0.1	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
6-Jan	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	0.0
7-Jan	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
8-Jan	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
9-Jan	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	0.0	0.0
10-Jan	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	0.1	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
11-Jan	0.1	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	0.1
12-Jan	0.0	0.1	0.0	0.0	Z	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	0.1	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
13-Jan	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
14-Jan	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	0.1	0.0	0.0	0.0	0.0	0.1
15-Jan	0.1	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	0.0
17-Jan	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	0.0	0.0
18-Jan	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20-Jan	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	0.1	0.1	0.1	0.1	0.1
21-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1
22-Jan	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	0.1	0.1	0.1	0.1	0.1
23-Jan	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	0.1	0.1	0.1	0.1
24-Jan	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	0.0	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
25-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1
26-Jan	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	0.1	0.1	0.1	0.1	0.1
27-Jan	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	0.0	0.0	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	0.1	0.1	0.1	0.1	0.1	0.1
28-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Jan	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	0.0	0.0
30-Jan	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	0.0
31-Jan	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	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	0.0	0.0	0.0	0.0
																								Diurnal Average										
																								Diurnal Maximum										
Z - zerospan      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**  
**Fort Chipewyan - January 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	709	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Fort Chipewyan - January 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 - 0.3	22	14	20	56	100	18	13	16	19	19	15	21	57	127	111	78	706
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>	22	14	20	56	100	18	13	16	19	19	15	21	57	127	111	78	706

Total Number of Valid Hours: 706

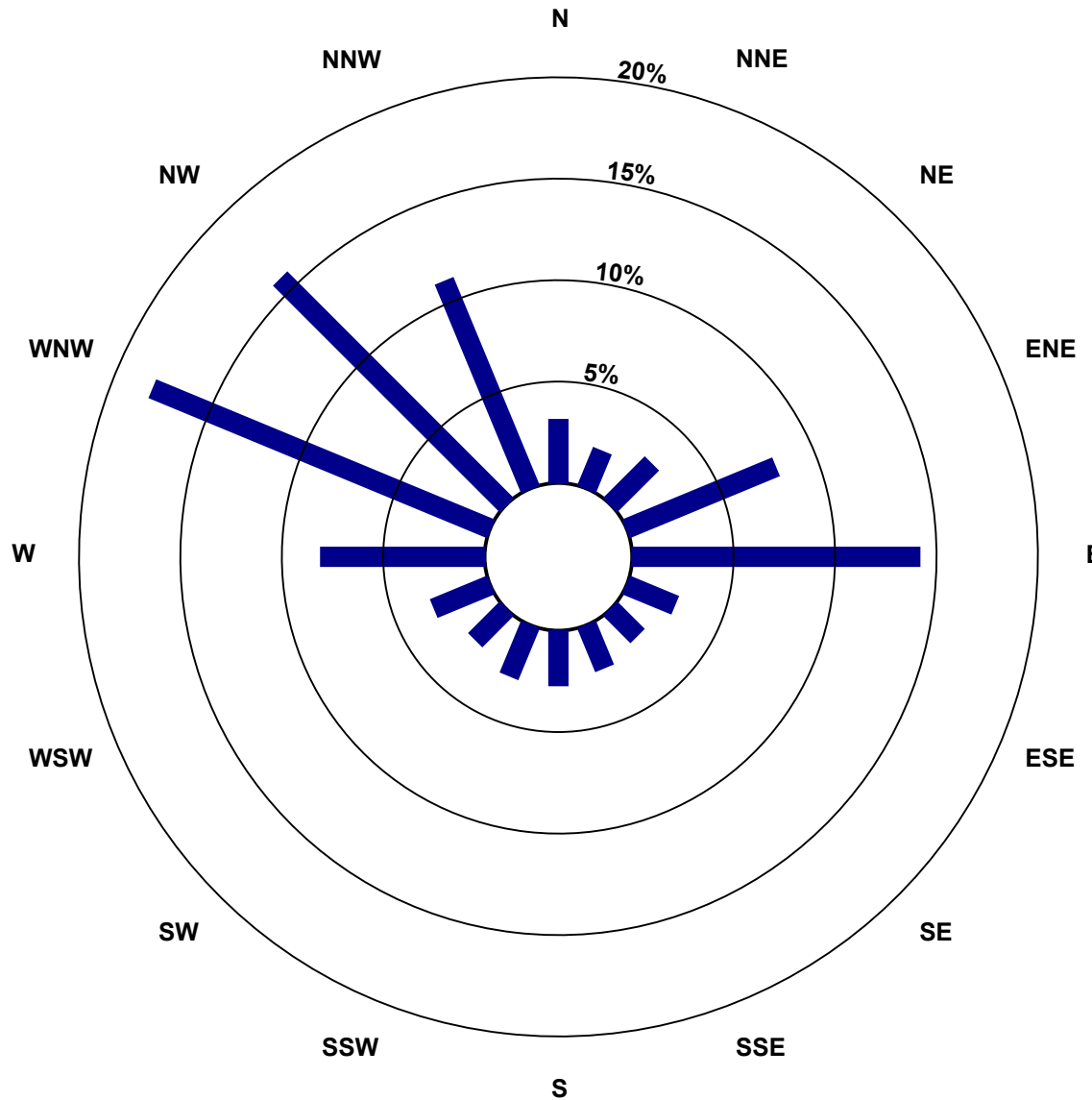
Total Number of Hours: 744



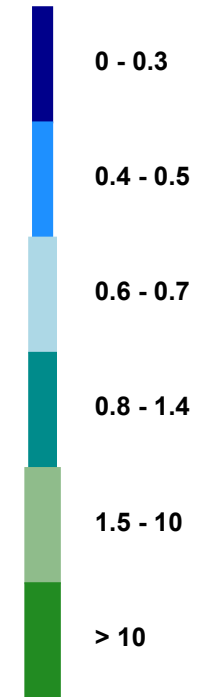


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Carbon Monoxide (CO) - ppm  
Fort Chipewyan



Classes (ppm)



Total Number of Valid Hours: 706

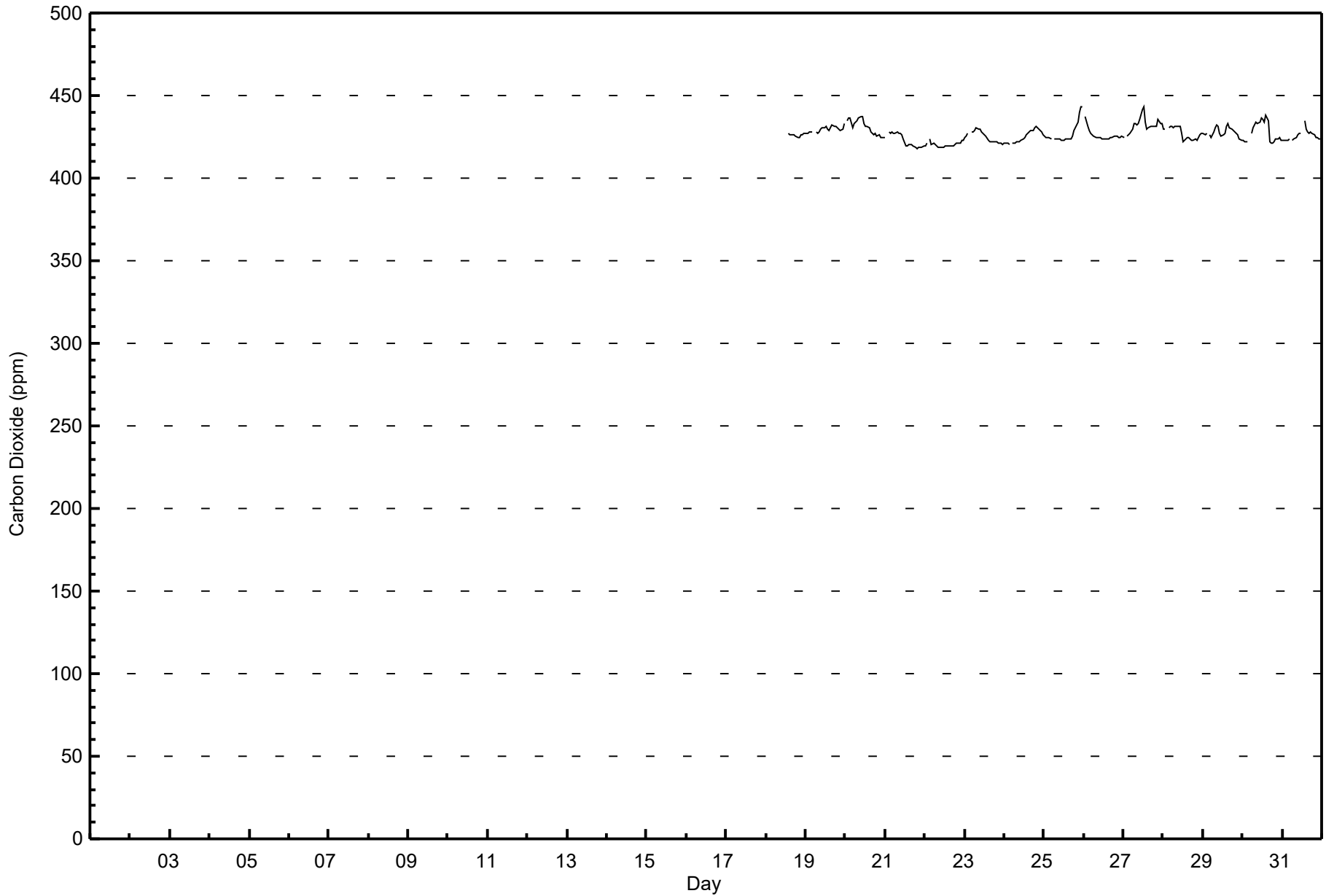


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																			744				
Maximum Value: 443.5 ppm on Jan 26 00:00		Maximum Daily Average: 432.0 ppm on Jan 27																			Hours of Data:		309				
Minimum Value: 418.2 ppm on Jan 21 20:00		Minimum Daily Average: 420.2 ppm on Jan 22																			Hours of Missing Data:		435				
Maximum Diurnal Average: 428.3 ppm at hour 10		Minimum Diurnal Average: 424.4 ppm at hour 1																			Hours of Calibration:		17				
Monthly Average: 426.68 ppm		Percentiles: P <sub>1</sub> = 418.5 P <sub>10</sub> = 420.8 Q <sub>1</sub> = 423.3 Median = 426.1 Q <sub>3</sub> = 429.9 P <sub>90</sub> = 433.2 P <sub>99</sub> = 441.5																			Percent Operational Time:		43.8				
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-Jan	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-Jan	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	--	--
3-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
4-Jan	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-Jan	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-Jan	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-Jan	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-Jan	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-Jan	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	--	--
10-Jan	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	--	--
11-Jan	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	--	--
12-Jan	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	--	--
13-Jan	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	--	--
14-Jan	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	--	--
15-Jan	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	--	--
16-Jan	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	--	--
17-Jan	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	--	--
18-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	426.8	425.9	426.3	426.4	426.0	425.6	424.3	424.5	425.9	426.4	427.1	--	427.1	
19-Jan	427.2	427.5	427.9	428.1	428.2	Z	427.6	427.5	427.9	429.9	430.2	430.1	430.9	429.5	429.0	430.2	431.8	431.5	431.0	430.3	429.4	429.0	429.4	433.1	429.5	433.1	
20-Jan	Z	434.9	436.9	436.6	430.3	433.1	433.8	434.8	436.4	437.4	437.1	433.3	431.0	431.1	430.5	428.1	427.1	426.4	427.0	425.8	425.9	424.7	424.3	424.7	430.9	437.4	
21-Jan	425.0	Z	427.7	427.5	427.6	427.2	427.0	427.6	427.0	426.9	426.0	423.4	419.8	419.5	420.4	420.5	420.6	419.8	418.5	418.2	418.3	419.0	419.0	419.6	422.9	427.7	
22-Jan	419.7	420.9	Z	423.6	420.1	420.9	420.5	419.5	418.7	418.5	418.4	418.7	419.1	419.4	419.2	419.2	419.1	419.6	420.4	420.8	421.0	421.5	422.5	422.9	420.2	423.6	
23-Jan	424.2	425.8	426.9	Z	427.7	428.3	429.1	430.3	429.9	429.4	428.3	427.2	426.1	425.1	423.0	422.3	422.1	422.1	421.8	421.9	421.3	421.1	420.8	420.8	425.0	430.3	
24-Jan	420.8	421.3	421.1	420.6	Z	420.8	421.2	421.7	422.2	422.3	422.6	423.4	424.6	426.2	427.2	428.1	428.5	428.5	430.8	431.8	430.1	429.7	427.8	426.0	425.1	431.8	
25-Jan	425.2	424.6	424.3	424.2	424.0	Z	423.4	423.6	423.8	423.7	423.2	423.1	423.2	423.5	423.7	423.8	424.1	425.8	428.7	430.1	434.0	440.3	442.9	443.5	427.2	443.5	
26-Jan	Z	437.3	431.7	429.0	427.4	426.5	425.5	424.9	424.8	424.5	424.2	424.1	424.1	424.0	424.0	424.1	424.9	425.0	425.4	425.5	425.2	424.9	424.6	425.1	425.9	437.3	
27-Jan	424.7	Z	425.5	425.9	426.8	429.4	432.7	432.7	432.6	432.9	435.8	441.6	443.2	433.6	430.0	430.6	431.0	431.1	431.1	431.3	431.0	436.0	433.3	433.4	432.0	443.2	
28-Jan	429.5	429.8	Z	430.7	431.3	430.9	430.9	431.0	431.3	431.0	431.1	426.7	422.3	423.2	424.8	424.7	423.6	423.2	423.1	423.7	423.1	424.8	425.9	427.0	427.1	431.3	
29-Jan	427.1	426.0	426.9	Z	426.3	424.9	427.5	430.5	432.3	431.3	427.3	425.2	426.4	427.1	431.2	433.2	430.7	429.3	428.9	428.0	427.1	426.0	424.0	422.8	427.8	433.2	
30-Jan	422.6	421.8	421.7	422.2	Z	426.9	430.5	432.0	434.0	433.4	434.0	436.4	436.0	434.0	438.5	434.6	422.3	420.9	421.2	422.2	423.7	423.7	424.2	423.1	427.8	438.5	
31-Jan	422.5	422.8	423.1	423.2	423.5	Z	422.9	423.7	424.7	426.5	427.2	426.8	PF	435.0	429.5	428.1	427.0	427.6	427.2	426.1	424.6	424.2	424.0	423.3	425.6	435.0	
424.4 426.6 426.7 426.5 426.6 426.9 427.1 427.7 428.1 428.3 428.1 427.7 427.2 427.0 426.9 426.7 425.7 425.5 425.8 425.7 425.7 426.5 426.4 426.6																								Diurnal Average			
429.5 437.3 436.9 436.6 431.3 433.1 433.8 434.8 436.4 437.4 437.1 441.6 443.2 435.0 438.5 434.6 431.8 431.5 431.1 431.8 434.0 440.3 442.9 443.5																								Diurnal Maximum			
Z - zerospan		C - Calibration					M - Maintenance					UO - Unstable Operation					PF - Power Failure										



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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - January 2024**





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	24	7.77	7.77
420 - 440	281	90.94	98.71
440 - 460	4	1.29	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: 309

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan - January 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	8	2	2	1	0	0	0	0	0	2	5	4	24
420 - 440	6	4	3	12	56	13	11	10	16	11	11	10	42	31	20	25	281
440 - 460	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4
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>	6	4	3	12	64	15	13	11	16	11	12	13	42	33	25	29	309

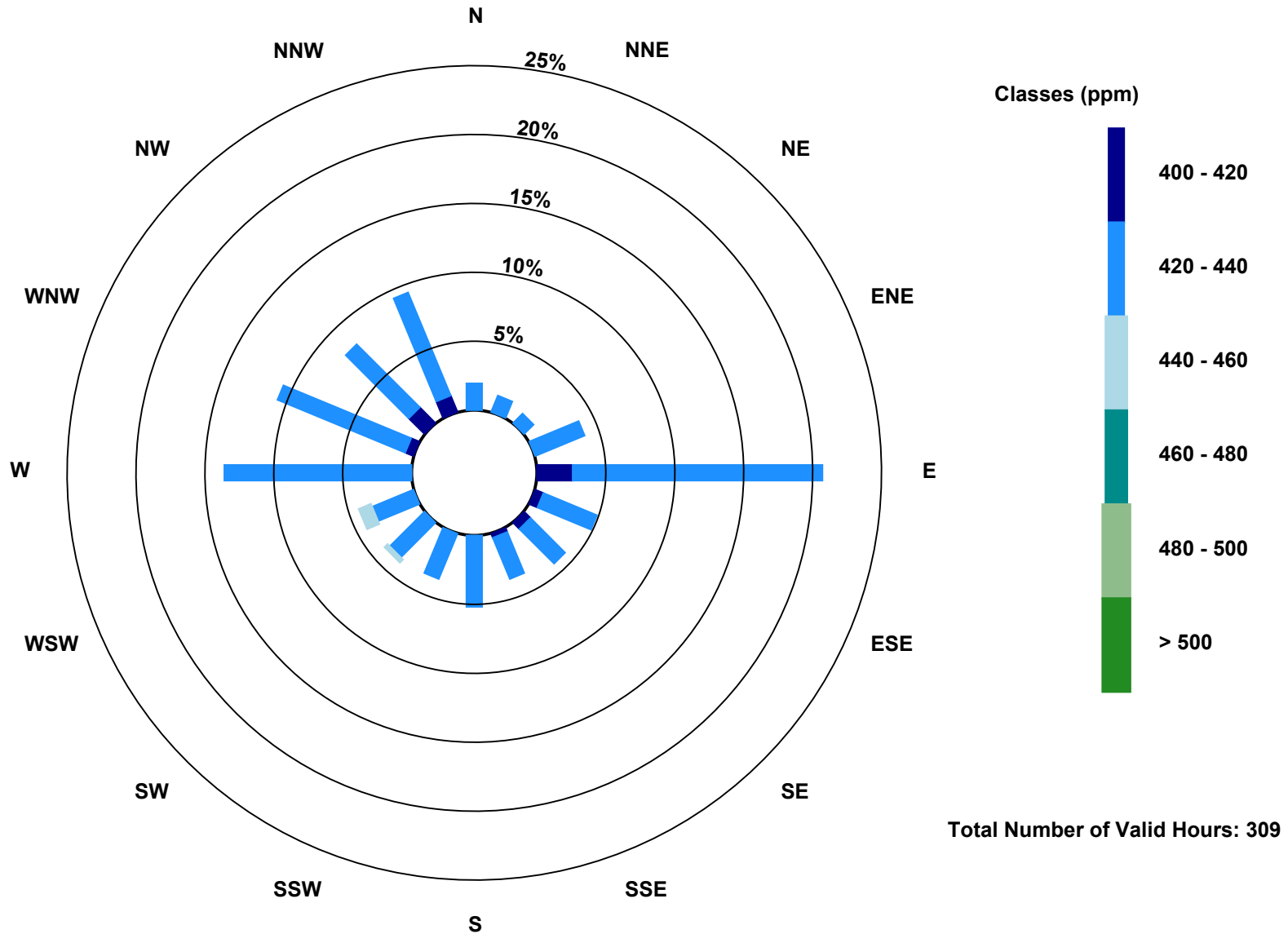
Total Number of Valid Hours: 309

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan

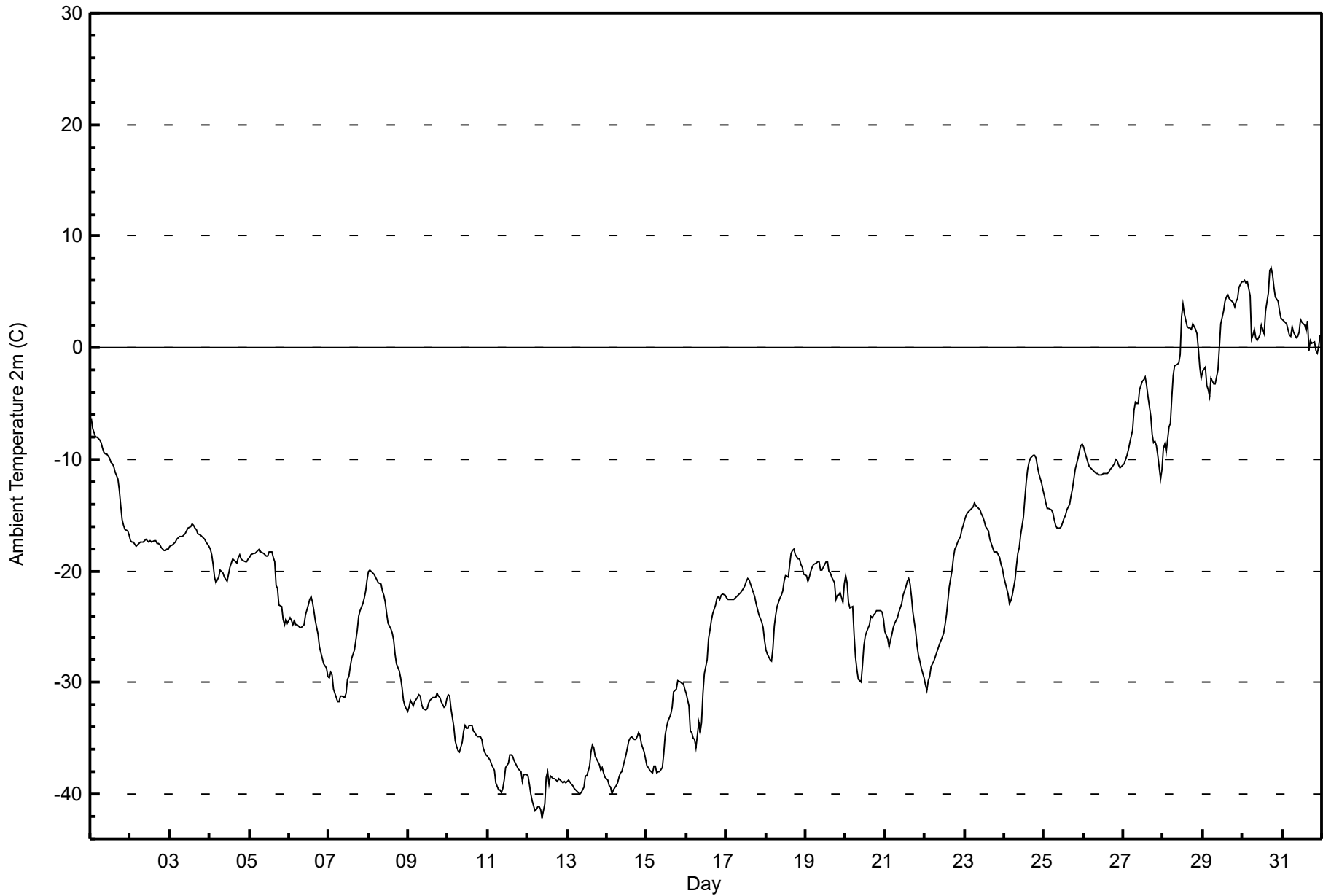




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT 2m) - C**  
**Fort Chipewyan - January 2024**

Maximum Value: 7.1 C on Jan 30 18:00		Maximum Daily Average: 3.7 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -42.1 C on Jan 12 10:00		Minimum Daily Average: -39.6 C on Jan 12		Hours of Data: 744																																												
Maximum Diurnal Average: -19.3 C at hour 16		Minimum Diurnal Average: -21.9 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: -20.69 C		Percentiles: P <sub>1</sub> = -40.3 P <sub>10</sub> = -37.5 Q <sub>1</sub> = -30.6 Median = -21.0 Q <sub>3</sub> = -14.1 P <sub>90</sub> = -1.4 P <sub>99</sub> = 5.7		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-Jan	-6.4	-7.2	-7.6	-8.0	-8.0	-8.2	-8.5	-9.0	-9.4	-9.5	-9.4	-9.9	-10.2	-10.4	-10.6	-11.1	-11.8	-12.8	-14.1	-15.5	-15.9	-16.3	-16.4	-16.8	-11.0	-6.4																						
2-Jan	-17.3	-17.4	-17.5	-17.7	-17.7	-17.5	-17.4	-17.4	-17.4	-17.2	-17.3	-17.4	-17.3	-17.4	-17.3	-17.3	-17.5	-17.5	-17.7	-17.9	-18.2	-18.1	-18.1	-18.0	-17.6	-17.2																						
3-Jan	-17.8	-17.7	-17.5	-17.4	-17.2	-17.0	-16.9	-16.9	-16.7	-16.6	-16.4	-16.2	-16.1	-15.8	-15.9	-16.1	-16.3	-16.6	-16.7	-17.0	-17.0	-17.1	-17.4	-17.7	-16.8	-15.8																						
4-Jan	-18.0	-18.5	-19.5	-20.6	-21.0	-20.5	-20.0	-20.0	-20.2	-20.6	-20.9	-20.3	-19.6	-19.3	-18.9	-19.0	-19.3	-18.9	-18.6	-18.9	-19.0	-19.2	-19.1	-18.9	-19.5	-18.0																						
5-Jan	-18.7	-18.6	-18.5	-18.4	-18.3	-18.1	-18.0	-18.3	-18.4	-18.5	-18.6	-18.3	-18.3	-18.3	-18.8	-19.2	-21.3	-21.5	-23.1	-23.2	-24.2	-24.8	-24.4	-24.6	-20.1	-18.0																						
6-Jan	-24.2	-24.4	-24.8	-24.4	-24.8	-24.8	-25.1	-25.1	-25.0	-24.8	-24.0	-23.1	-22.6	-22.3	-22.8	-23.5	-24.4	-25.7	-26.8	-27.3	-27.9	-28.3	-28.7	-29.5	-25.2	-22.3																						
7-Jan	-29.6	-29.1	-29.4	-30.6	-31.3	-31.7	-31.7	-31.2	-31.2	-31.4	-30.9	-29.7	-29.4	-28.6	-27.9	-27.1	-26.2	-25.3	-24.0	-23.6	-22.9	-22.5	-21.8	-20.8	-27.8	-20.8																						
8-Jan	-20.0	-20.0	-20.2	-20.3	-20.5	-20.8	-21.0	-21.2	-21.8	-22.2	-22.9	-23.8	-24.7	-25.2	-25.5	-26.2	-27.4	-28.3	-29.0	-29.5	-30.4	-31.5	-32.1	-32.6	-24.9	-20.0																						
9-Jan	-32.3	-31.5	-31.9	-32.1	-31.7	-31.3	-31.1	-31.2	-32.0	-32.4	-32.5	-32.3	-31.8	-31.6	-31.4	-31.3	-31.3	-30.9	-31.2	-31.4	-31.7	-32.2	-32.1	-31.5	-31.7	-30.9																						
10-Jan	-31.0	-31.2	-32.4	-34.0	-35.3	-35.7	-36.1	-36.3	-35.3	-34.3	-33.9	-34.1	-34.1	-33.8	-33.9	-34.3	-34.5	-34.7	-34.9	-34.8	-35.1	-35.9	-36.3	-36.5	-34.5	-31.0																						
11-Jan	-36.6	-36.9	-37.4	-37.6	-37.9	-39.0	-39.6	-39.5	-39.8	-39.5	-38.7	-37.6	-37.2	-36.5	-36.4	-36.6	-37.0	-37.5	-37.7	-37.8	-38.0	-38.8	-38.2	-38.2	-37.9	-36.4																						
12-Jan	-38.3	-39.1	-40.0	-40.6	-41.5	-41.4	-41.1	-41.1	-41.4	-42.1	-40.8	-38.5	-38.0	-39.1	-38.4	-38.6	-38.7	-38.7	-38.9	-38.6	-38.9	-39.0	-38.8	-38.9	-39.6	-38.0																						
13-Jan	-38.8	-38.8	-39.1	-39.2	-39.4	-39.6	-39.8	-39.9	-39.9	-39.6	-39.4	-38.4	-38.4	-37.5	-36.2	-35.6	-35.9	-36.5	-37.1	-37.4	-37.8	-37.6	-38.1	-38.4	-38.3	-35.6																						
14-Jan	-38.7	-39.3	-39.3	-40.0	-39.6	-39.2	-39.0	-38.5	-38.1	-38.0	-37.5	-36.5	-35.8	-35.2	-35.0	-34.8	-35.1	-35.1	-34.8	-34.5	-34.7	-35.5	-36.2	-36.8	-37.0	-34.5																						
15-Jan	-37.5	-37.6	-37.8	-38.1	-37.4	-37.5	-38.1	-37.9	-37.9	-37.6	-36.3	-34.7	-34.0	-33.5	-32.9	-32.3	-30.8	-30.7	-30.5	-29.8	-30.0	-30.1	-30.0	-30.6	-34.3	-29.8																						
16-Jan	-30.9	-32.1	-34.4	-34.5	-34.9	-35.1	-35.8	-33.6	-34.5	-33.6	-31.0	-29.2	-28.0	-26.0	-25.3	-24.5	-23.8	-23.1	-22.5	-22.3	-22.6	-22.2	-22.0	-22.2	-28.5	-22.0																						
17-Jan	-22.4	-22.5	-22.6	-22.5	-22.5	-22.4	-22.3	-22.2	-22.1	-21.9	-21.6	-21.2	-21.0	-20.7	-20.7	-21.5	-22.0	-22.3	-23.0	-23.5	-24.0	-24.5	-25.0	-26.2	-22.5	-20.7																						
18-Jan	-27.1	-27.4	-27.9	-28.0	-26.9	-24.9	-24.0	-23.1	-22.5	-22.2	-21.8	-21.0	-20.4	-20.6	-19.4	-18.4	-18.1	-18.1	-18.6	-18.9	-18.9	-19.4	-19.7	-20.3	-22.0	-18.1																						
19-Jan	-20.5	-20.9	-20.6	-20.0	-19.7	-19.4	-19.3	-19.2	-19.1	-20.0	-19.9	-19.4	-19.2	-19.1	-20.1	-20.1	-20.6	-21.1	-22.5	-22.2	-22.2	-21.9	-22.8	-21.2	-20.4	-19.1																						
20-Jan	-20.4	-21.1	-22.8	-23.3	-23.2	-25.7	-27.7	-28.8	-29.7	-30.0	-28.5	-26.7	-25.8	-25.4	-24.9	-24.1	-24.2	-23.9	-23.8	-23.5	-23.6	-23.5	-23.6	-24.3	-24.9	-20.4																						
21-Jan	-25.4	-26.0	-26.8	-26.2	-25.6	-25.1	-24.7	-24.2	-23.6	-23.3	-23.0	-22.2	-21.4	-20.9	-20.7	-21.2	-22.3	-23.7	-25.5	-26.7	-27.6	-28.1	-28.7	-29.6	-24.7	-20.7																						
22-Jan	-30.3	-30.7	-29.8	-29.5	-28.6	-28.1	-27.7	-27.4	-27.0	-26.6	-26.0	-25.5	-24.8	-23.9	-22.7	-21.4	-19.9	-18.8	-18.1	-17.8	-17.4	-17.0	-16.3	-15.9	-23.8	-15.9																						
23-Jan	-15.4	-15.1	-14.8	-14.5	-14.5	-14.2	-13.9	-14.2	-14.4	-14.6	-14.9	-15.1	-15.6	-16.0	-16.4	-17.1	-17.6	-17.9	-18.3	-18.3	-18.5	-18.8	-19.4	-19.8	-16.2	-13.9																						
24-Jan	-20.5	-21.5	-22.1	-22.9	-22.7	-22.1	-20.8	-19.6	-18.4	-17.9	-16.8	-15.1	-13.5	-12.0	-10.9	-10.3	-9.9	-9.7	-9.6	-9.8	-10.6	-11.3	-12.2	-12.7	-15.5	-9.6																						
25-Jan	-13.2	-13.9	-14.4	-14.5	-14.6	-14.7	-15.3	-15.9	-16.1	-16.2	-16.1	-15.7	-15.3	-15.0	-14.5	-14.0	-13.3	-12.7	-11.8	-10.9	-9.9	-9.2	-8.8	-8.7	-13.5	-8.7																						
26-Jan	-8.9	-9.4	-10.3	-10.6	-10.8	-10.9	-11.0	-11.3	-11.3	-11.4	-11.4	-11.4	-11.3	-11.3	-11.1	-10.9	-10.8	-10.4	-10.0	-10.1	-10.5	-10.7	-10.6	-10.7	-10.7	-8.9																						
27-Jan	-10.4	-10.0	-9.6	-9.1	-8.5	-7.3	-5.7	-4.8	-5.0	-3.8	-3.0	-2.9	-2.6	-3.3	-4.4	-6.2	-7.8	-8.5	-8.4	-8.7	-9.7	-11.8	-10.9	-7.0	-2.6																							
28-Jan	-9.0	-8.6	-9.4	-7.2	-6.8	-4.5	-2.4	-1.6	-1.5	-1.4	-0.6	2.8	3.9	3.0	1.9	1.8	1.8	1.7	2.1	1.7	1.2	-0.1	-1.7	-2.7	-1.5	3.9																						
29-Jan	-2.1	-1.7	-3.4	-3.7	-4.4	-2.7	-3.3	-3.2	-2.7	-2.0	0.0	2.2	3.2	4.2	4.5	4.8	4.4	4.2	4.0	3.7	4.1	4.4	5.4	6.0	1.1	6.0																						
30-Jan	6.0	6.0	5.9	5.9	4.6	0.8	1.2	1.7	0.9	0.6	1.1	2.0	1.6	1.3	3.2	4.9	6.9	7.1	6.5	5.5	4.5	4.2	3.3	2.6	3.7	7.1																						
31-Jan	2.6	2.4	2.2	1.6	1.1	1.1	2.0	1.4	0.9	1.1	1.4	2.5	2.2	2.1	1.5	2.4	-0.2	0.6	0.3	0.5	-0.2	-0.5	0.1	1.2	1.3	2.6																						
																								-21.1	-21.3	-21.7	-21.9	-21.9	-21.9	-21.7	-21.6	-21.6	-21.6	-21.0	-20.2	-19.9	-19.6	-19.4	-19.3	-19.5	-19.6	-19.8	-19.9	-20.2	-20.5	-20.7	-20.8	Diurnal Average
																								6.0	6.0	5.9	5.9	4.6	1.1	2.0	1.7	0.9	1.1	1.4	2.8	3.9	4.2	4.5	4.9	6.9	7.1	6.5	5.5	4.5	4.4	5.4	6.0	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Fort Chipewyan - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	402	54.03	54.03
-20 - 0	274	36.83	90.86
0 - 10	68	9.14	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

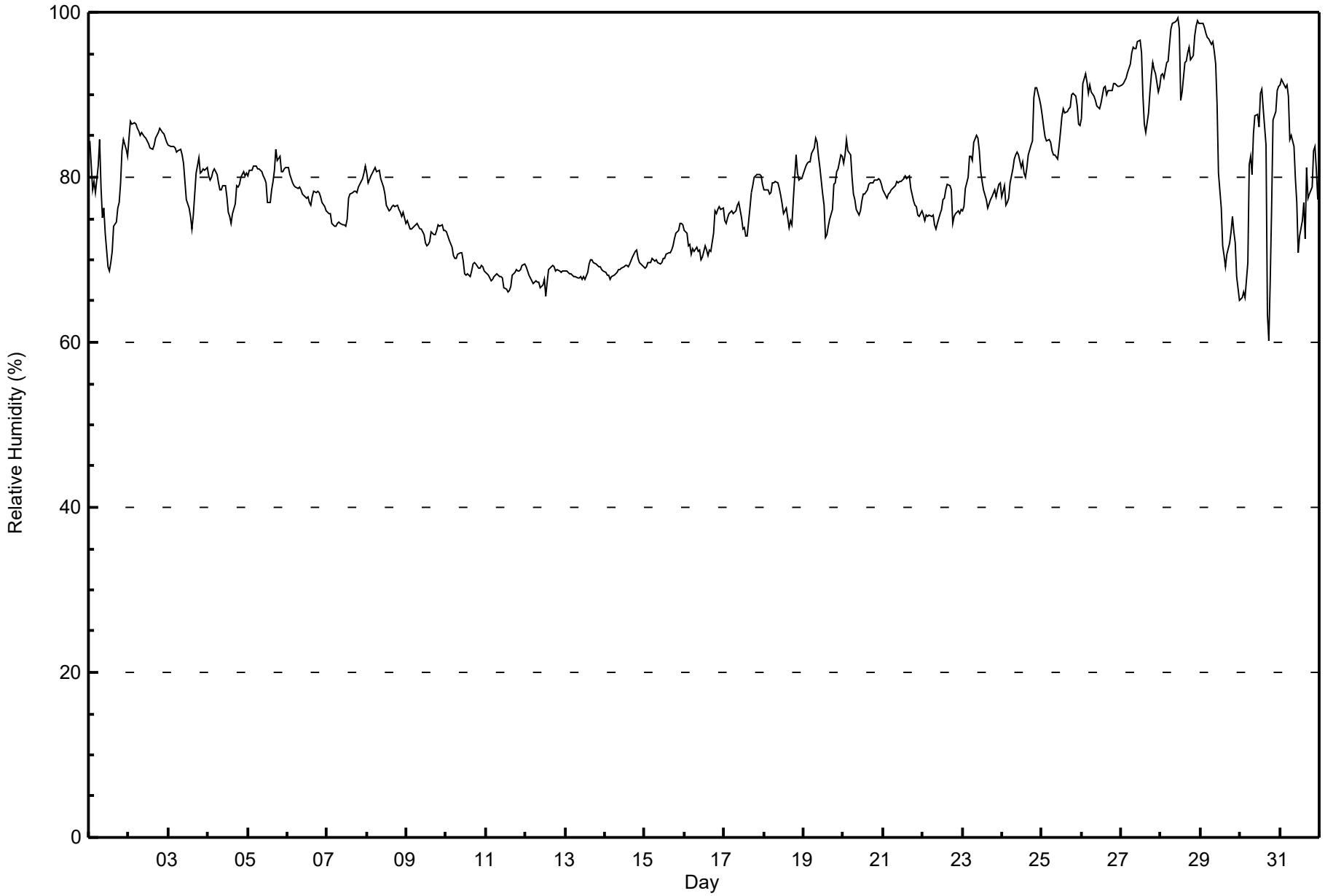
Total Number of Hours: 744



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

**Relative Humidity (RH) - %**  
**Fort Chipewyan - January 2024**

Maximum Value: 99.4 % on Jan 28 11:00      Maximum Daily Average: 95.6 % on Jan 28																						Hours in Service: 744 Hours of Data: 744																								
Minimum Value: 60.2 % on Jan 30 18:00      Minimum Daily Average: 67.9 % on Jan 11 Maximum Diurnal Average: 79.7 % at hour 22      Minimum Diurnal Average: 76.7 % at hour 15 Monthly Average: 78.56 %      Percentiles: P <sub>1</sub> = 66.1 P <sub>10</sub> = 68.7 Q <sub>1</sub> = 73.1 Median = 78.2 Q <sub>3</sub> = 82.8 P <sub>90</sub> = 90.4 P <sub>99</sub> = 98.5																						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-Jan	84.5	81.6	78.5	79.5	78.2	81.3	84.6	78.8	75.0	76.2	73.2	69.2	68.6	69.7	71.1	74.1	74.6	76.3	77.0	79.4	83.2	84.6	83.4	82.6	77.7	84.6																				
2-Jan	84.7	86.8	86.5	86.6	86.5	85.9	85.6	85.1	85.3	85.0	84.7	84.5	84.1	83.6	83.3	83.8	84.8	85.1	85.5	86.0	85.3	85.3	84.7	84.2	85.1	86.8																				
3-Jan	83.9	83.7	83.8	83.7	83.5	83.0	83.2	83.3	82.8	81.7	79.5	77.3	76.3	75.2	73.7	75.4	77.9	80.5	82.4	80.5	80.8	81.0	80.8	81.2	80.6	83.9																				
4-Jan	80.2	79.6	80.1	80.7	80.9	80.4	79.3	78.6	78.5	78.9	79.0	77.5	75.8	75.3	74.4	75.6	76.9	79.0	78.9	79.1	80.1	80.6	80.2	80.5	78.8	80.9																				
5-Jan	80.2	80.8	80.8	81.4	81.4	81.3	81.1	81.0	80.7	80.2	79.8	79.7	77.0	77.0	78.5	79.5	80.9	83.4	82.0	82.6	80.7	80.7	81.1	81.3	80.5	83.4																				
6-Jan	81.2	80.4	79.9	79.3	78.9	78.8	78.6	78.9	78.5	78.0	77.8	77.5	77.6	76.9	76.6	77.6	78.2	78.2	78.3	78.1	77.5	77.0	76.4	75.9	78.2	81.2																				
7-Jan	75.7	75.6	75.6	74.4	74.1	74.0	74.4	74.6	74.4	74.3	74.3	74.1	74.9	77.4	77.9	78.1	78.3	78.4	78.2	78.8	79.4	79.9	80.6	81.4	76.6	81.4																				
8-Jan	80.5	79.4	80.1	80.4	80.8	81.1	80.7	80.9	79.8	79.3	78.8	78.0	76.5	75.9	76.0	76.4	76.7	76.5	76.6	76.1	75.7	75.3	75.7	74.3	78.0	81.1																				
9-Jan	74.7	74.3	73.8	73.7	73.9	74.3	74.3	74.1	73.7	73.7	73.0	72.0	71.7	71.8	72.3	73.4	73.0	73.1	73.5	74.2	74.0	74.2	73.6	73.5	73.5	74.7																				
10-Jan	73.3	73.0	72.4	71.6	70.5	70.2	70.1	70.7	70.8	70.9	69.8	68.4	68.2	68.3	68.0	68.6	69.5	69.7	69.5	69.0	69.0	69.3	69.1	68.7	69.9	73.3																				
11-Jan	68.4	68.2	67.7	67.5	67.6	68.0	68.4	68.1	67.9	67.9	67.8	66.5	66.4	66.1	66.3	66.7	68.1	68.5	68.8	68.6	68.7	68.8	69.3	69.5	67.9	69.5																				
12-Jan	69.2	68.6	68.1	67.8	67.2	67.3	67.4	67.3	67.2	66.6	66.9	67.7	65.7	67.3	68.9	69.2	69.4	69.2	68.7	68.9	68.6	68.5	68.6	68.6	68.0	69.4																				
13-Jan	68.6	68.6	68.4	68.3	68.2	68.0	67.9	67.8	67.8	68.0	67.6	67.9	67.7	68.4	69.4	70.0	70.0	69.7	69.5	69.4	69.1	69.2	68.9	68.7	68.6	70.0																				
14-Jan	68.5	68.2	68.2	67.7	68.0	68.2	68.3	68.6	68.7	68.8	69.0	69.2	69.3	69.3	69.2	69.5	70.3	70.7	71.1	71.1	70.2	69.7	69.3	69.2	69.2	71.1																				
15-Jan	69.0	69.2	69.7	69.6	70.1	70.1	69.8	70.1	69.7	69.5	69.7	70.1	70.2	70.6	70.9	70.8	71.1	71.7	72.5	73.3	73.6	74.4	74.5	74.3	71.0	74.5																				
16-Jan	73.6	73.2	71.7	71.9	70.7	71.3	71.0	71.6	71.0	71.2	70.1	70.4	71.7	71.2	70.5	71.1	71.1	73.1	75.9	75.5	76.2	76.4	76.1	76.3	72.6	76.4																				
17-Jan	74.8	74.4	75.0	75.6	75.9	75.7	75.7	75.9	76.6	76.9	75.1	73.8	73.8	72.9	72.9	76.2	78.2	79.1	79.9	80.2	80.4	80.4	80.1	79.1	76.6	80.4																				
18-Jan	78.5	78.4	78.4	77.9	78.1	79.3	79.3	79.5	79.3	78.7	77.7	76.8	75.6	76.3	75.1	73.9	74.7	74.3	77.3	82.7	80.4	79.6	79.8	79.7	78.0	82.7																				
19-Jan	80.8	81.3	81.8	81.8	81.9	83.0	83.6	84.7	84.2	82.6	81.1	78.0	76.7	72.8	73.1	74.1	74.9	76.1	79.2	79.3	80.6	81.1	82.8	82.5	79.9	84.7																				
20-Jan	81.6	82.7	84.6	83.3	82.8	79.9	78.0	77.3	76.0	75.4	76.0	77.0	77.9	78.0	78.6	79.2	79.3	79.4	79.3	79.7	79.7	79.8	79.6	79.1	79.3	84.6																				
21-Jan	78.4	77.9	77.5	77.9	78.1	78.4	78.7	79.0	79.4	79.4	79.5	79.5	79.7	80.1	79.8	79.9	80.1	78.7	77.0	76.7	76.5	75.4	75.3	75.9	78.3	80.1																				
22-Jan	75.5	74.7	75.4	75.3	75.5	75.3	75.5	74.2	73.8	74.4	75.7	76.0	77.3	77.5	78.5	79.2	79.0	78.5	74.4	75.2	75.6	75.9	75.7	76.1	76.0	79.2																				
23-Jan	75.9	76.4	78.6	80.0	82.6	82.5	82.0	84.2	85.1	84.8	83.3	80.7	79.5	78.5	77.4	76.3	76.8	77.4	77.6	78.5	77.6	78.6	79.2	79.3	79.7	85.1																				
24-Jan	77.6	79.0	76.5	76.9	77.5	79.3	81.0	82.3	82.8	83.0	82.7	81.2	81.8	80.5	80.0	81.2	82.6	84.0	84.5	89.7	90.9	90.8	89.5	88.7	82.7	90.9																				
25-Jan	87.4	86.1	84.9	84.4	84.6	84.2	83.2	82.8	82.7	82.2	83.8	85.5	87.3	88.3	87.8	87.9	88.3	88.5	90.0	90.1	89.9	88.7	86.4	86.2	86.3	90.1																				
26-Jan	87.1	91.3	92.6	91.6	90.2	91.1	90.4	89.9	89.4	88.7	88.5	88.2	89.0	90.8	91.0	90.1	90.6	90.5	90.5	91.4	91.4	91.1	91.0	91.1	90.3	92.6																				
27-Jan	91.2	91.3	91.6	92.1	92.7	93.7	95.1	95.7	95.6	95.6	96.5	96.6	95.0	89.9	86.4	85.5	87.7	90.3	92.3	93.8	93.1	92.5	90.3	91.0	92.3	96.6																				
28-Jan	92.4	92.6	92.0	93.9	94.2	96.2	97.9	98.7	98.9	99.0	99.4	98.0	89.3	90.4	94.0	94.1	95.1	95.7	94.2	94.7	97.1	98.3	99.0	98.6	95.6	99.4																				
29-Jan	98.7	98.7	98.2	97.5	96.9	96.8	96.1	96.4	95.2	93.8	88.9	80.5	76.3	71.6	70.5	69.2	70.6	72.0	73.4	75.3	73.4	72.0	67.9	65.1	83.1	98.7																				
30-Jan	65.2	65.3	66.1	65.4	69.7	81.5	82.5	80.3	85.2	87.4	87.6	86.2	90.2	90.7	88.3	84.0	63.4	60.2	67.4	76.3	87.0	87.9	90.6	91.0	79.1	91.0																				
31-Jan	91.1	91.9	91.2	90.9	91.2	89.8	84.6	85.0	83.7	79.9	77.0	70.9	72.8	74.7	76.9	72.5	81.1	77.5	78.0	78.8	83.2	83.7	80.9	77.2	81.9	91.9																				
																						79.1	79.1	79.0	79.0	79.1	79.7	79.6	79.5	79.4	79.1	78.5	77.4	76.9	76.7	76.7	76.9	77.2	77.6	78.2	79.1	79.6	79.7	79.4	79.1	Diurnal Average
																						98.7	98.7	98.2	97.5	96.9	96.8	97.9	98.7	98.9	99.0	99.4	98.0	95.0	90.8	94.0	94.1	95.1	95.7	94.2	94.7	97.1	98.3	99.0	98.6	Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Fort Chipewyan - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	467	62.77	62.77
80 - 100	277	37.23	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



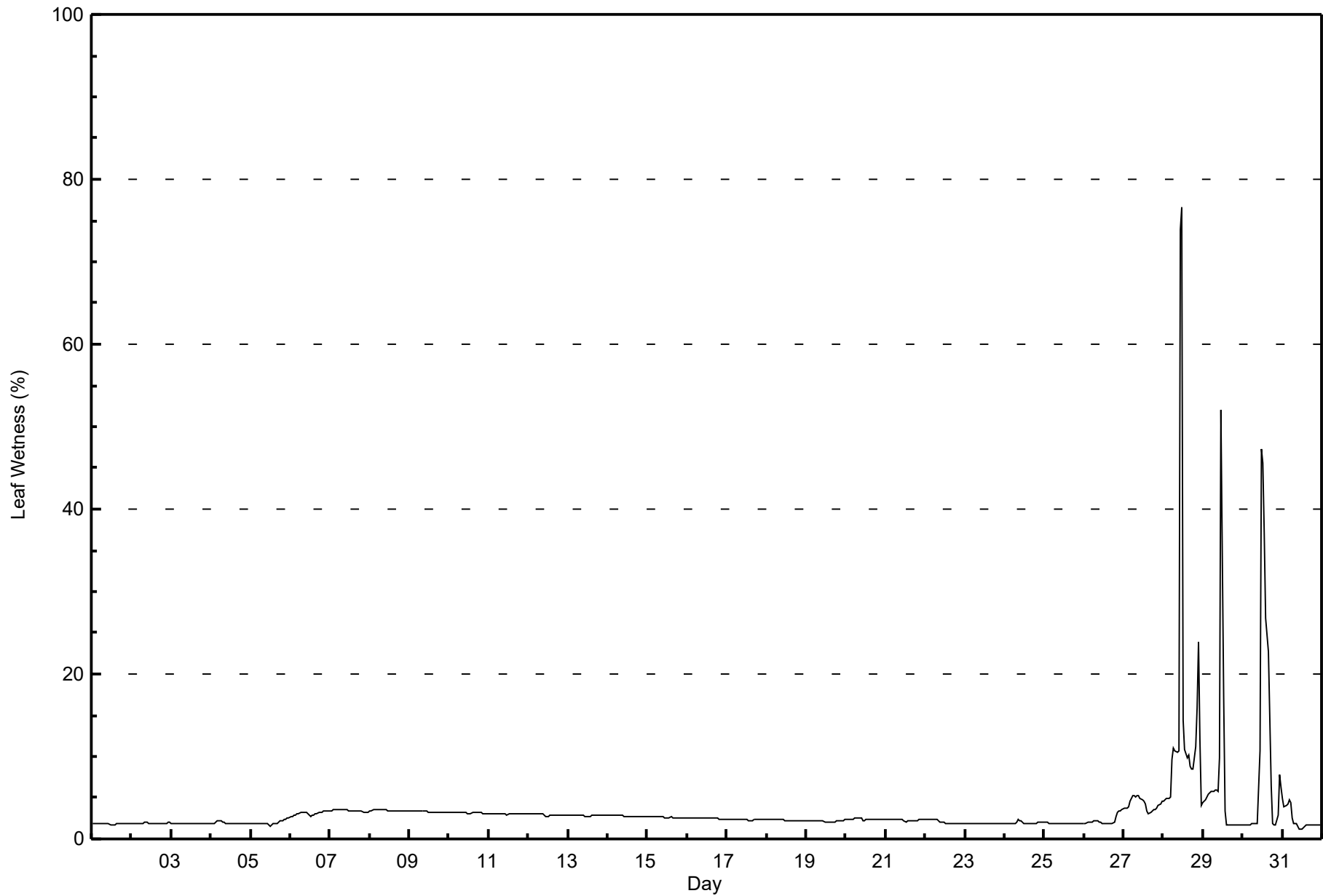
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Leaf Wetness (LW) - %**

**Fort Chipewyan - January 2024**

Maximum Value: 76.6 % on Jan 28 12:00		Maximum Daily Average: 15.2 % on Jan 28		Hours in Service: 744																						
Minimum Value: 1.2 % on Jan 31 13:00		Minimum Daily Average: 1.8 % on Jan 1		Hours of Data: 744																						
Maximum Diurnal Average: 7.9 % at hour 12		Minimum Diurnal Average: 2.6 % at hour 19		Hours of Missing Data: 0																						
Monthly Average: 3.33 %		Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 1.8 Q <sub>1</sub> = 1.9 Median = 2.4 Q <sub>3</sub> = 3.1 P <sub>90</sub> = 3.6 P <sub>99</sub> = 23.4		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-Jan	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.9
2-Jan	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0
3-Jan	1.9	1.9	1.9	1.9	1.9	1.9	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	1.9	1.9	1.9	1.9	1.9
4-Jan	1.9	1.9	1.9	2.1	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2
5-Jan	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.7	1.6	1.8	1.9	1.9	1.9	2.0	2.2	2.3	2.4	2.4	2.5	2.6	2.0	2.6
6-Jan	2.7	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.3	3.2	3.0	2.8	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.3	3.4	3.4	3.1	3.4
7-Jan	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.2	3.4	3.6
8-Jan	3.4	3.4	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.6
9-Jan	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.3	3.4
10-Jan	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.2	3.2
11-Jan	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	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	3.1	3.1
12-Jan	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.8	2.7	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0
13-Jan	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.8	2.7	2.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9
14-Jan	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8
15-Jan	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7
16-Jan	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.6
17-Jan	2.4	2.4	2.4	2.4	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	2.4	2.4	2.4	2.4	2.4	2.4
18-Jan	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	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	2.4
19-Jan	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	2.3	2.3	2.2	2.3
20-Jan	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5
21-Jan	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.1	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
22-Jan	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	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	1.8	2.1	2.4
23-Jan	1.8	1.8	1.8	1.8	1.9	1.9	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	1.9	1.9	1.9	1.9
24-Jan	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.3	2.3	2.1	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	2.1	2.1	2.1	2.0	2.3
25-Jan	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1
26-Jan	1.9	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.8	3.1	3.3	3.4	3.5	2.3	3.5
27-Jan	3.7	3.7	3.7	3.9	4.5	5.3	5.3	5.2	5.3	5.3	4.9	4.7	4.6	4.2	3.4	3.0	3.1	3.4	3.5	3.5	3.8	4.0	4.3	4.5	4.2	5.3
28-Jan	4.6	4.7	4.8	4.8	5.1	9.7	10.9	10.6	10.6	10.6	73.9	76.6	14.4	10.9	9.8	10.2	8.7	8.5	8.5	11.3	16.0	24.0	12.0	4.1	15.2	76.6
29-Jan	4.5	4.8	5.1	5.4	5.6	5.7	5.8	5.9	5.9	5.8	9.8	52.1	17.1	3.4	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	6.4	52.1
30-Jan	1.7	1.7	1.7	1.6	1.7	1.8	1.8	1.8	1.8	1.8	10.7	47.2	45.6	37.1	26.8	22.7	14.5	6.4	1.9	1.7	1.7	2.9	7.7	6.3	10.4	47.2
31-Jan	4.9	3.9	4.1	4.3	4.8	4.4	2.5	1.9	1.9	1.6	1.3	1.2	1.2	1.5	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	2.4	4.9
																								Diurnal Average		
																								Diurnal Maximum		





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

**Leaf Wetness (LW) - %**  
**Fort Chipewyan - January 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	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	3	0.40	0.40
1.5 - 10	719	96.64	97.04
> 10	22	2.96	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

**Fort Chipewyan - January 2024**

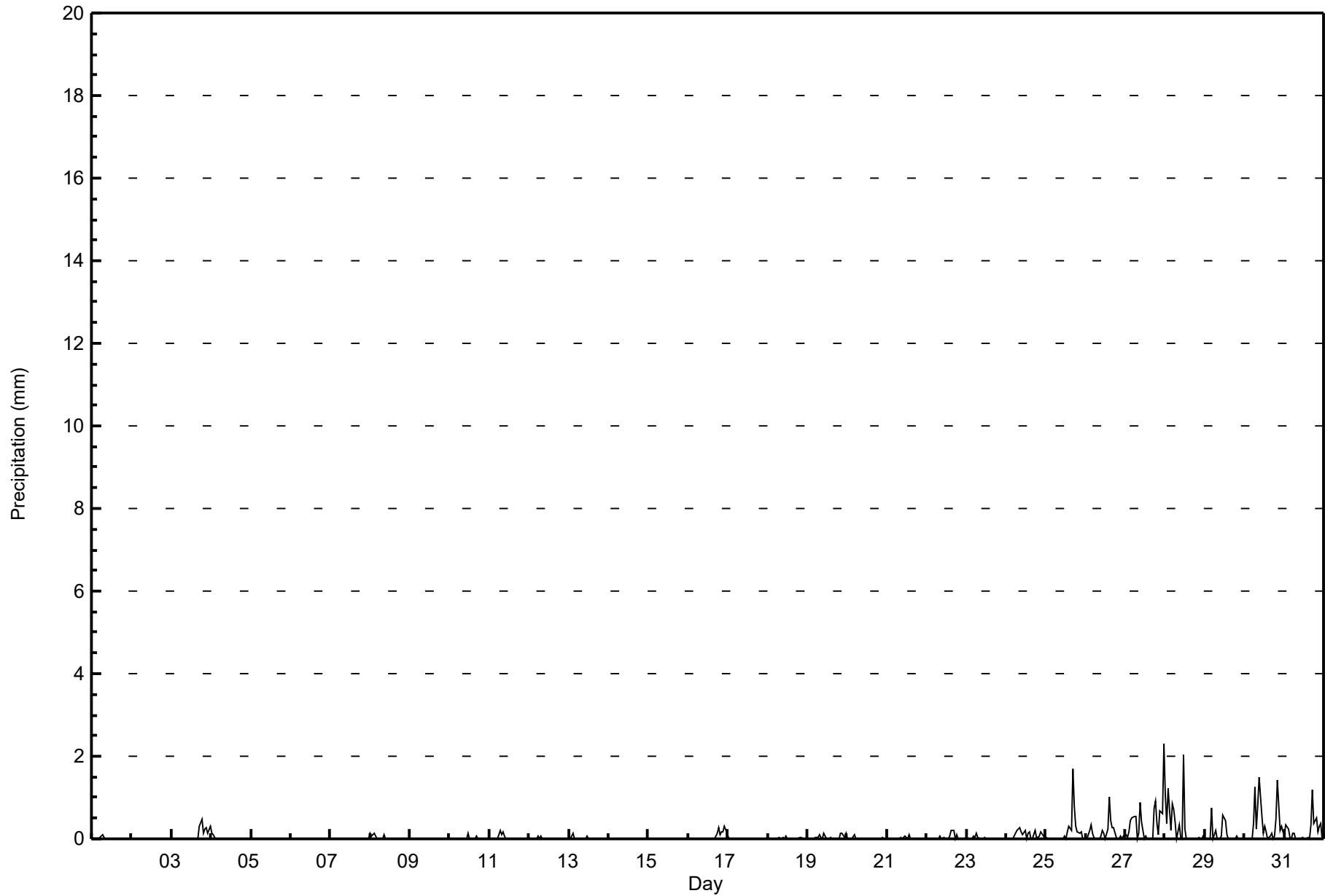
Maximum Value: 2.3 mm on Jan 28 00:00		Maximum Daily Total: 9.6 mm on Jan 27		Hours in Service: 744																							
Minimum Value: 0.0 mm on Jan 1 01:00		Minimum Daily Total: 0.0 mm on Jan 2		Hours of Data: 744																							
Maximum Diurnal Total: 3.6 mm at hour 18		Minimum Diurnal Total: 0.9 mm at hour 14		Hours of Missing Data: 0																							
Monthly Total: 49.59 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> = 0.2 P <sub>99</sub> = 1.1		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-Jan	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	0.0	0.2	0.1	
2-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.1	0.2	0.3	0.2	0.3	1.9	0.5	
4-Jan	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	0.0	0.0	0.3	0.2	
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	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	0.6	0.2	
12-Jan	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
14-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	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	0.1	0.2	0.2	0.3	0.2	1.3	0.3		
17-Jan	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	0.1		
18-Jan	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	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.1		
19-Jan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	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	0.1	0.9	0.2		
20-Jan	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	0.0	0.0	0.1	0.1		
21-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1		
22-Jan	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	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.2		
23-Jan	0.0	0.0	0.0	0.0	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	0.4	0.1		
24-Jan	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.0	0.1	0.2	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.1	2.2	0.3		
25-Jan	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	0.2	0.3	0.2	1.7	0.8	0.3	0.2	0.1	0.2	0.0	4.1	1.7		
26-Jan	0.0	0.0	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.3	1.0	0.4	0.3	0.3	0.1	0.0	0.0	0.1	0.0	3.6	1.0		
27-Jan	0.1	0.1	0.2	0.5	0.5	0.5	0.6	0.0	0.1	0.9	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.9	0.4	0.1	0.7	0.6	9.6	2.3		
28-Jan	1.1	0.4	1.2	0.2	0.8	0.7	0.4	0.0	0.3	0.1	0.0	2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	7.6	2.0		
29-Jan	0.0	0.0	0.0	0.0	0.7	0.0	0.2	0.0	0.0	0.0	0.1	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	2.2	0.7		
30-Jan	0.0	0.0	0.0	0.0	0.0	0.4	1.3	0.2	0.8	1.5	0.5	0.1	0.3	0.2	0.0	0.1	0.2	0.0	0.1	0.5	1.4	0.2	0.3	8.2	1.5		
31-Jan	0.1	0.3	0.2	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.3	1.2	0.4	0.5	0.2	0.3	0.4	4.3	1.2		
																								Diurnal Average			
																								Diurnal Maximum			





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

**Precipitation (PC) - mm**  
**Fort Chipewyan - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Precipitation (PC) - mm  
Fort Chipewyan - January 2024**

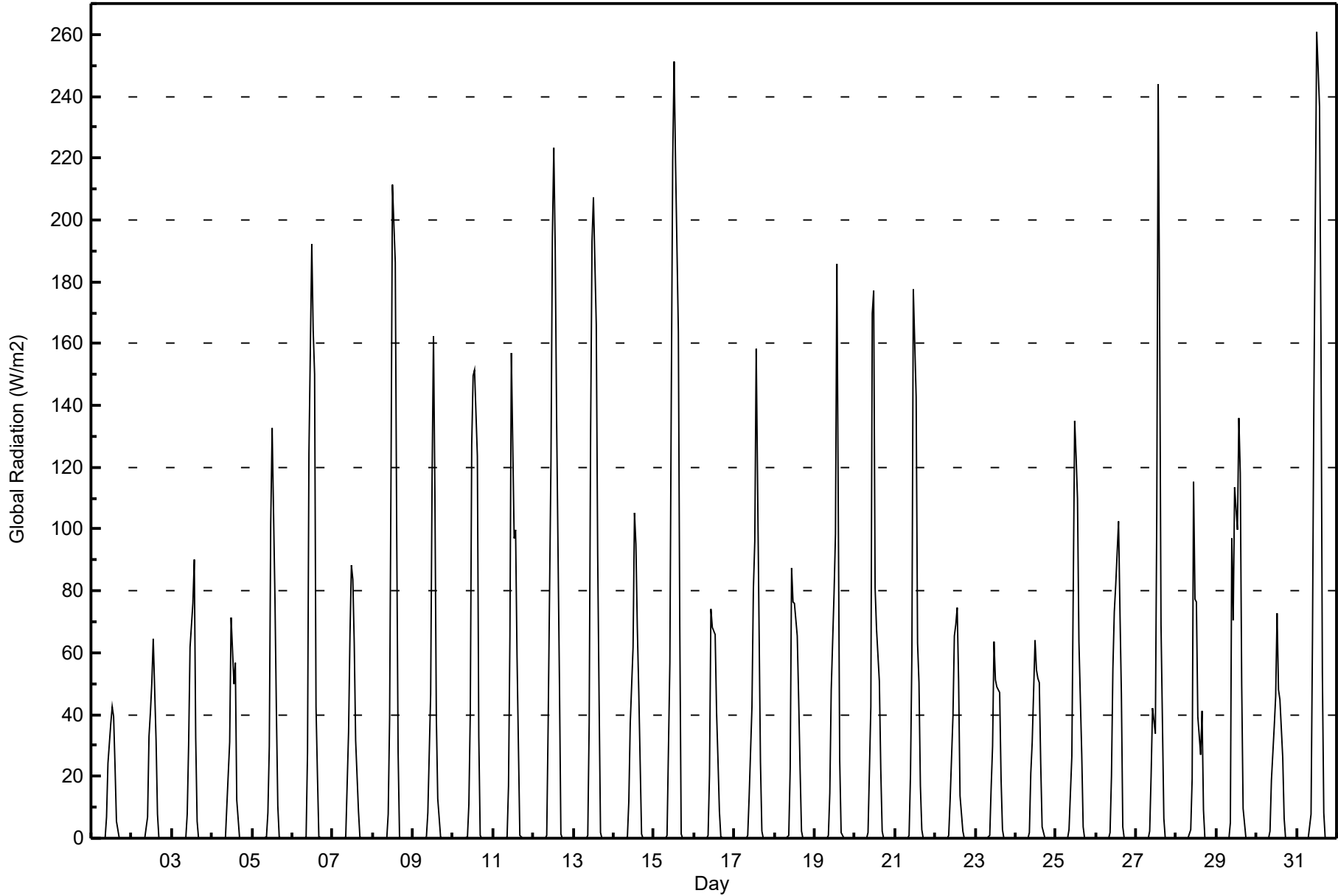
<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	706	94.89	94.89
0.4 - 0.5	16	2.15	97.04
0.6 - 0.7	7	0.94	97.98
0.8 - 1.4	11	1.48	99.46
1.5 - 10	3	0.40	99.87
> 10	0	0.00	99.87

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 260.7 W/m2 on Jan 31 13:00      Maximum Daily Average: 47.4 W/m2 on Jan 31																						Hours in Service:	744			
Minimum Value: 0.0 W/m2 on Jan 1 01:00      Minimum Daily Average: 7.5 W/m2 on Jan 1																						Hours of Data:	744			
Maximum Diurnal Average: 115.3 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 7																						Hours of Missing Data:	0			
Monthly Average: 22.01 W/m2      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> = 20.7 P <sub>90</sub> = 77.4 P <sub>99</sub> = 209.5																						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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	6.7	24.4	37.1	42.4	39.2	23.5	5.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	42.4
2-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	7.1	33.1	40.9	50.2	64.5	31.5	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	64.5
3-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	7.7	30.2	61.9	76.1	90.1	32.3	5.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	90.1
4-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	10.4	31.3	71.3	61.0	49.7	56.7	12.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2	71.3
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.2	29.9	101.6	132.6	77.5	41.0	10.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.8	132.6
6-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	27.9	124.3	192.3	164.3	150.2	42.4	20.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.1	192.3
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	34.5	66.0	88.2	83.9	63.4	31.5	8.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7	88.2
8-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.0	39.0	118.3	211.2	186.1	99.6	28.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.8	211.2
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.4	46.8	116.4	162.5	111.1	39.2	12.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	162.5
10-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.2	40.6	127.3	149.5	151.5	123.7	32.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6	151.5
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	17.0	65.6	157.0	97.2	99.7	59.5	29.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	157.0
12-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	36.8	122.3	194.5	223.4	190.5	135.1	50.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.8	223.4
13-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	37.6	131.0	193.0	207.3	166.1	92.1	44.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4	207.3
14-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	12.1	37.1	61.9	105.4	95.1	68.2	48.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9	105.4
15-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	56.6	142.7	219.4	251.0	218.8	163.9	68.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8	251.0
16-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	20.7	74.0	68.3	66.0	40.7	25.2	8.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	74.0
17-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	13.2	42.7	80.5	96.2	158.3	113.6	24.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	158.3
18-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	22.4	87.3	76.6	76.1	65.3	44.8	22.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	87.3
19-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	14.7	48.1	79.1	98.3	185.9	105.4	25.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3	185.9
20-Jan	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.6	42.7	169.8	177.2	81.1	67.5	50.7	22.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6	177.2
21-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	20.6	60.0	177.6	142.8	63.1	50.3	17.1	2.8	0.0	0.0	0.1	0.1	0.1	0.1	0.0	22.3	177.6
22-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	12.4	39.3	65.5	69.0	74.4	51.0	13.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	74.4
23-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	16.3	30.0	63.6	51.2	49.0	47.2	19.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	63.6
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	21.2	31.3	64.0	54.4	51.9	50.5	24.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	64.0
25-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	26.4	80.8	134.9	123.5	109.7	63.7	27.1	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8	134.9
26-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	20.1	54.9	73.3	82.0	102.5	73.1	46.5	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1	102.5
27-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	20.2	42.0	33.9	104.6	243.9	170.8	68.9	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.9	243.9
28-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	19.2	115.3	77.4	76.6	39.5	27.1	41.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	115.3
29-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	97.2	70.7	113.5	99.8	135.9	118.0	50.0	9.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	29.2	135.9
30-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	18.6	36.1	45.8	73.0	47.9	44.8	26.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	73.0
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	64.2	142.2	200.7	260.7	236.5	162.3	53.5	8.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	47.4	260.7
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Global Radiation (GR) - W/m2  
Fort Chipewyan - January 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	556	74.73	74.73
21 - 100	132	17.74	92.47
101 - 300	56	7.53	100.00
301 - 600	0	0.00	100.00
601 - 900	0	0.00	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

### Wind Speed (WS) - km/h

### Fort Chipewyan - January 2024

Maximum Speed: 31 km/h on Jan 22 15:00	Maximum Daily Speed Average: 14.7 km/h on Jan 1	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 22 03:00	Minimum Daily Speed Average: 2.7 km/h on Jan 31	Hours of Data: 741
Maximum Diurnal Speed Average: 3.9 km/h at hour 2	Minimum Diurnal Speed Average: 1.4 km/h at hour 12	Hours of Missing Data: 3
Monthly Average Velocity: 2.4 km/h 340.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 18 P <sub>99</sub> = 27	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-Jan	NW15	NW17	NW16	NW17	WNW16	WNW17	WNW16	NW17	NW18	NW19	NW16	NW20	NW18	NW14	NW14	NW13	NW12	WNW10	NW12	NW13	WNW11	NW12	NW11	NW11	NW14.7	NW20	
2-Jan	NW9	NW10	NW8	NW8	NW7	NW6	NNW5	N5	NNE4	WNW4	W7	W8	SW6	SW6	W4	WSW5	WSW6	WSW6	SW6	SSW9	SSW9	SSW9	SSW7	S7	W4.2	NW10	
3-Jan	SSE4	SE2	NW2	NW1	NNW2	NW4	NNW4	NNW5	NNW7	NNW7	N5	N5	N4	N5	N4	NNE7	NNE7	NE9	NE8	NE14	NNE11	NNE9	NNE10	N10	NNE5.0	NE14	
4-Jan	N12	N11	NNW12	NNW11	NNW12	NNW13	NNW13	NNW12	NNW10	NNW10	NNW9	N6	NE8	NE4	NE7	NE9	NE13	ENE16	E27	ENE22	ENE22	ENE25	ENE28	ENE10.3	ENE28		
5-Jan	ENE25	ENE23	ENE25	ENE23	ENE23	ENE24	ENE19	ENE17	NE12	NE9	NE9	N4	NNE5	NNW2	WNW5	WNW5	WNW5	NE5	WSW2	UO	WNW3	N2	NE4	ENE5	ENE9.3	ENE25	
6-Jan	ENE11	E7	E10	ENE9	ENE11	ENE8	ENE9	ENE12	ENE14	ENE12	NE11	NE11	NNE6	NNE8	NE9	N5	N7	NNW7	NNW9	NNW9	NNW8	NNW9	NNW11	NNW8	NE7.2	ENE14	
7-Jan	NNW7	N9	N5	NNW5	NW6	NW6	WNW7	NNE1	UO	SSW3	ENE3	S1	E5	ESE9	E11	E13	E15	E15	E18	E21	E21	E22	E20	ESE14	E7.2	E22	
8-Jan	SSE8	SSE9	SSE7	SSE6	SSW3	WSW3	W4	WNW6	NW7	NW8	NW10	NW11	WNW14	NW13	NW13	WNW10	NW14	NNW15	NNW13	NW10	WNW5	WNW3	NW3	WNW5	WNW5.7	NNW15	
9-Jan	WNW6	WNW3	NW2	W3	WNW4	NNW3	WNW3	NW5	NW5	NW6	NNW5	NNW4	NNW4	NNW4	NW6	NW2	NNW6	NNW10	NNW9	NNW11	NNW13	NNW13	NNW11	NW10	NW5.8	NNW13	
10-Jan	WNW7	NW8	NW8	NW9	NW11	NW10	WNW9	WNW10	W10	WNW9	NW10	NW11	WNW10	WNW10	NW12	WNW11	WNW12	WNW11	NW11	NW11	NW10	WNW12	WNW12	NW11	WNW10.0	NW12	
11-Jan	NW14	NW17	NW16	NW16	NW14	WNW12	WNW11	WNW10	WNW10	W9	WNW10	WNW11	WNW12	WNW13	WNW11	WNW11	WNW9	WNW9	WNW9	WNW9	WNW8	WNW8	W8	WNW7	WNW10.8	NW17	
12-Jan	WNW5	NW6	W3	WSW4	WNW7	NW5	UO	WNW2	WNW2	E2	S1	SW4	SSW2	E6	ENE8	E8	E11	ENE10	ENE8	E8	ENE8	ENE9	ENE10	ENE2.9	ENE11		
13-Jan	ENE11	ENE8	ENE10	ENE8	ENE10	ENE9	E7	E5	ENE7	ENE5	E5	E2	ENE2	E2	SW1	WNW3	WNW6	NW5	WNW2	WNW5	NW8	NW7	WNW7	NW6	NE2.9	ENE11	
14-Jan	WNW6	WNW9	WNW5	WNW10	WNW11	WNW10	WNW10	WNW8	WNW7	WNW11	WNW13	WNW12	W10	W12	W13	WNW13	WNW13	WNW11	WNW9	W8	WNW9	WNW10	W7	W7	WNW9.7	WNW13	
15-Jan	W7	WSW6	SSE3	ENE5	E4	E6	E7	ESE10	E8	E11	E14	E15	E10	E14	E19	E21	E17	E18	E20	E17	ENE13	ENE8	ENE7	ENE4	E9.8	E21	
16-Jan	NE4	WNW1	WNW6	NNW4	NW9	NW11	WNW12	NW12	WNW12	W11	WNW16	WNW15	WNW15	WNW19	WNW19	WNW18	NW21	NW19	NW21	WNW21	WNW19	WNW15	NW16	NW15	WNW13.3	WNW21	
17-Jan	NW15	NW16	NW15	NW17	NW14	NW10	NW10	NW9	NW8	NW7	NNW7	NNW7	NNW8	NNW5	NNW5	NW6	NNW9	NNW8	NNW9	NNW8	NNW8	NW3	NW4	NW5	NW8.7	NW17	
18-Jan	NW9	WNW9	WNW8	W8	W10	WNW14	WNW16	WNW16	WNW16	WNW15	WNW12	WNW14	WNW17	W17	WNW15	WNW15	WNW17	NW16	NW15	WNW16	WNW15	W13	W15	W13	WNW13.5	WNW17	
19-Jan	W13	W12	W10	W7	WSW7	W8	W6	WSW7	SW7	SSW10	S11	S16	S17	SSE14	SSE11	SE11	SE11	ESE11	E14	E17	E21	E15	ESE9	SSW8	SSE5.1	E21	
20-Jan	SW11	SW5	E4	SSW2	W9	W6	WNW8	WNW11	WNW6	WNW5	WNW5	NW6	WNW6	W7	W6	WNW6	WNW4	W4	W4	W5	W4	WNW6	NW7	NW6	W5.1	WNW11	
21-Jan	NW6	WNW5	WNW6	WNW4	WNW5	WNW5	W7	WNW7	NW8	WNW7	WNW6	NW8	NW7	NW7	NW7	NW4	NNW5	NNW6	NNW5	NNW4	NNW4	NW4	WNW3	WNW5	NW5.3	NW8	
22-Jan	NW5	NW3	ENE0	ENE2	ESE5	ESE8	SE11	SE12	ESE15	E21	E25	E26	E27	E30	E31	E30	E26	SE20	SSE19	SSE20	S21	S17	S15	S15	ESE13.0	E31	
23-Jan	S16	S11	S10	S9	SSW9	SSW8	W3	NW1	NW3	NNW7	NNW9	NNW9	NNW11	NNW10	NNW13	NW12	NNW10	NNW10	NNW8	NNW7	NNW7	NNW8	NNW6	N7	NW4.0	S16	
24-Jan	NNE6	NE5	E11	E6	E18	E21	E21	E21	E22	E24	E24	ESE23	ESE17	SE15	SSE13	SE8	E5	E6	NW4	NW8	NW10	NNW10	NNW13	ENE3	E24	E9.3	E24
25-Jan	NNW8	NNW9	N8	NNW6	N6	NNE7	NNE7	NNE8	NE7	ENE10	E12	E11	E11	E15	E13	E16	ESE12	ESE13	SSE12	SE11	S9	S10	WSW5	WSW7	E4.9	E16	
26-Jan	WNW10	NW10	NW12	NW9	NW9	NNW7	NNW6	NNW4	NW5	N3	NNE4	E7	ENE9	E17	E24	ENE27	ENE18	ENE18	ENE14	NE9	N4	NNW4	N6	ENE7	NE5.9	ENE27	
27-Jan	E10	ENE10	ENE14	ENE18	ENE23	E22	E21	E15	ESE13	ESE9	SSW6	SW11	WSW9	WSW12	W13	W10	WSW8	W8	W7	WSW6	W3	E4	E9	ENE8	E3.7	ENE23	
28-Jan	E10	E10	E11	E12	E11	E9	E11	E14	E15	E10	SE4	WSW15	WSW20	W27	WNW21	WNW21	WNW17	WNW14	W12	W10	W10	W7	WSW6	SW8	W2.8	W27	
29-Jan	SW12	SE4	E7	E10	ESE8	S9	ESE10	SSE8	SE9	ESE13	SE13	SSE18	SSE15	SSE14	S14	S13	SSW13	SSW18	SSW16	SW12	SW10	SW9	SW8	SW12	S8.4	SSW18	
30-Jan	WSW15	WNW14	WNW12	W11	WSW10	SE4	SSW11	SE3	E9	E13	E12	E7	E8	ESE6	SW3	SW8	WSW23	W24	W26	W25	WNW24	WNW21	W15	W13	W7.4	W26	
31-Jan	W14	W16	W15	W15	W13	W16	W18	W12	W8	WNW6	SSW6	S4	E4	E9	E9	E10	E13	E14	E17	E19	E24	E26	E27	E31	E2.7	E31	

NW3.6	NW3.9	NNW2.9	NNW2.8	NNW3.0	NNW2.5	NNW2.4	N2.7	N2.6	NNE2.3	NNE1.9	NW1.4	NW1.5	NNW1.4	NNW2.3	N2.0	NNW2.8	N2.8	NNW2.1	NNW2.4	NNW2.6	NNW2.5	NNW2.6	NNW2.1	Diurnal Average	
ENE25	ENE23	ENE25	ENE23	ENE23	ENE24	E21	E21	E22	E24	E25	E26	E27	E30	E31	E30	E26	W24	E27	W25	WNW24	E26	E27	E31	Diurnal Maximum	

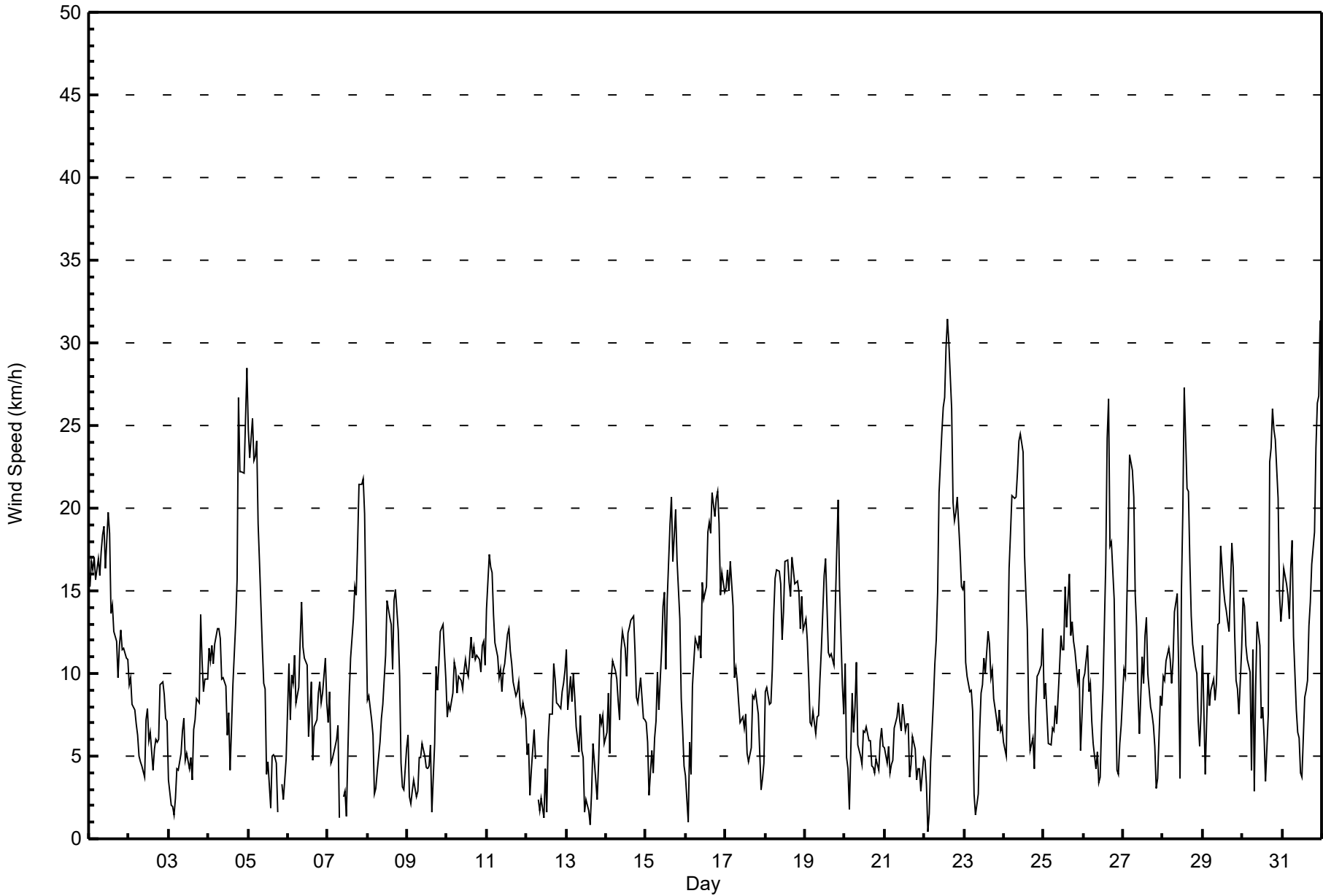
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed (WS) - km/h**  
**Fort Chipewyan - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 28 14:00 Minimum Value: 1 km/h on Jan 12 03:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 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-Jan	5	5	5	5	4	5	5	6	6	5	5	5	5	4	4	4	4	3	4	4	3	3	3	3	6
2-Jan	3	3	2	2	2	2	2	2	3	2	3	2	2	2	1	1	2	2	2	1	1	1	1	1	3
3-Jan	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	3	3
4-Jan	4	3	3	3	3	3	3	3	3	3	3	3	2	1	4	2	2	4	2	3	2	3	3	3	4
5-Jan	4	3	3	3	3	3	3	3	2	2	2	1	1	1	1	2	2	1	2	UO	1	1	1	2	4
6-Jan	1	2	2	3	3	2	2	2	2	2	3	3	2	2	2	2	1	2	2	2	2	2	2	3	3
7-Jan	2	2	2	2	2	1	1	2	UO	1	2	1	3	1	2	1	1	1	2	4	2	2	1	3	4
8-Jan	2	1	1	1	1	1	1	2	2	2	2	2	3	3	2	3	3	4	3	2	2	2	1	1	4
9-Jan	2	2	1	1	2	1	1	1	2	2	2	2	1	2	2	2	2	3	2	3	3	3	3	2	3
10-Jan	2	3	3	2	3	3	2	2	2	2	3	3	3	3	4	3	3	3	3	3	2	3	3	3	4
11-Jan	4	4	4	4	4	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	1	1	1	4
12-Jan	1	1	1	1	2	1	UO	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	2	2
13-Jan	3	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	2	3	2	2	1	3
14-Jan	2	3	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	2	2	2	2	2	2	3
15-Jan	2	2	1	1	1	1	1	1	2	1	1	1	1	2	4	2	2	2	2	3	2	1	2	4	
16-Jan	3	2	3	3	4	3	3	4	4	2	4	4	4	5	4	5	5	5	5	5	4	4	5	4	5
17-Jan	5	5	4	5	4	3	3	3	2	2	3	2	2	2	1	1	2	2	2	2	2	2	1	2	5
18-Jan	2	2	3	2	2	3	3	4	4	4	3	4	4	4	4	4	4	5	4	4	3	3	3	3	5
19-Jan	4	2	2	2	2	2	2	2	3	2	2	2	2	2	1	2	2	1	2	2	2	2	3	2	4
20-Jan	2	3	1	2	2	2	1	2	1	1	1	1	1	2	1	2	1	1	1	1	1	1	2	1	3
21-Jan	1	1	1	1	1	1	2	2	2	1	1	3	3	3	2	1	1	3	2	2	1	1	1	1	3
22-Jan	2	2	1	1	2	1	1	1	3	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	3
23-Jan	2	3	2	2	2	2	1	1	1	2	3	3	3	4	4	4	3	4	3	3	3	3	2	2	4
24-Jan	2	1	2	1	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	3	4	4	4	4
25-Jan	3	3	3	2	2	3	2	2	2	1	1	1	2	2	1	2	3	3	2	2	2	1	2	3	3
26-Jan	2	3	3	3	3	3	2	2	2	2	1	1	3	2	4	3	2	3	5	2	1	1	2	2	5
27-Jan	2	3	2	2	3	2	2	3	2	1	1	2	2	3	3	2	2	2	2	2	1	2	2	1	3
28-Jan	2	1	1	1	1	1	1	2	2	2	2	6	5	8	6	5	4	4	3	3	2	1	2	4	8
29-Jan	2	2	1	2	2	2	1	2	1	2	4	3	3	3	2	2	3	3	3	3	3	3	2	2	4
30-Jan	3	2	2	3	3	2	2	3	1	2	2	2	4	2	2	3	5	6	7	6	5	5	3	3	7
31-Jan	3	3	3	3	4	3	4	2	2	2	2	1	3	2	1	1	1	2	2	3	3	2	2	3	4
Diurnal Maximum																									
UO - Unstable Operation																									







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

**Wind Speed (WS) - km/h**  
**Fort Chipewyan - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	143	19.30	19.30
6 - 11	347	46.83	66.13
12 - 19	191	25.78	91.90
20 - 28	56	7.56	99.46
29 - 38	4	0.54	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Chipewyan - January 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	12	4	5	9	10	1	5	2	3	4	4	5	10	28	21	20	143
6 - 11	9	11	12	27	34	9	5	7	8	12	9	13	28	60	56	47	347
12 - 19	1	0	3	12	31	7	3	7	8	3	3	3	19	42	37	12	191
20 - 28	0	0	0	13	25	1	1	1	1	0	0	2	4	6	2	0	56
29 - 38	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	22	15	20	61	104	18	14	17	20	19	16	23	61	136	116	79	741

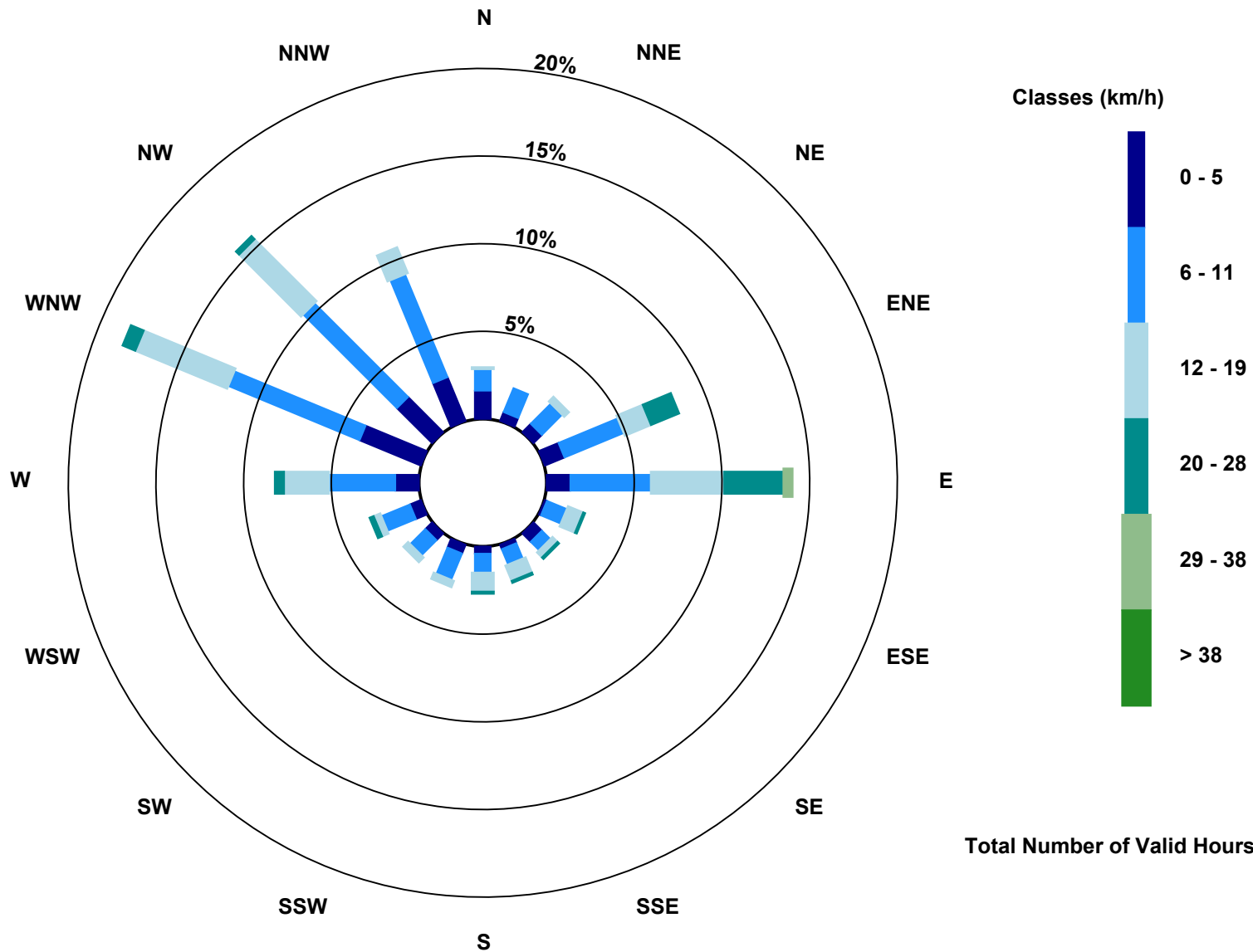
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Fort Chipewyan





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

**Wind Direction (WD) - deg**  
**Fort Chipewyan - January 2024**

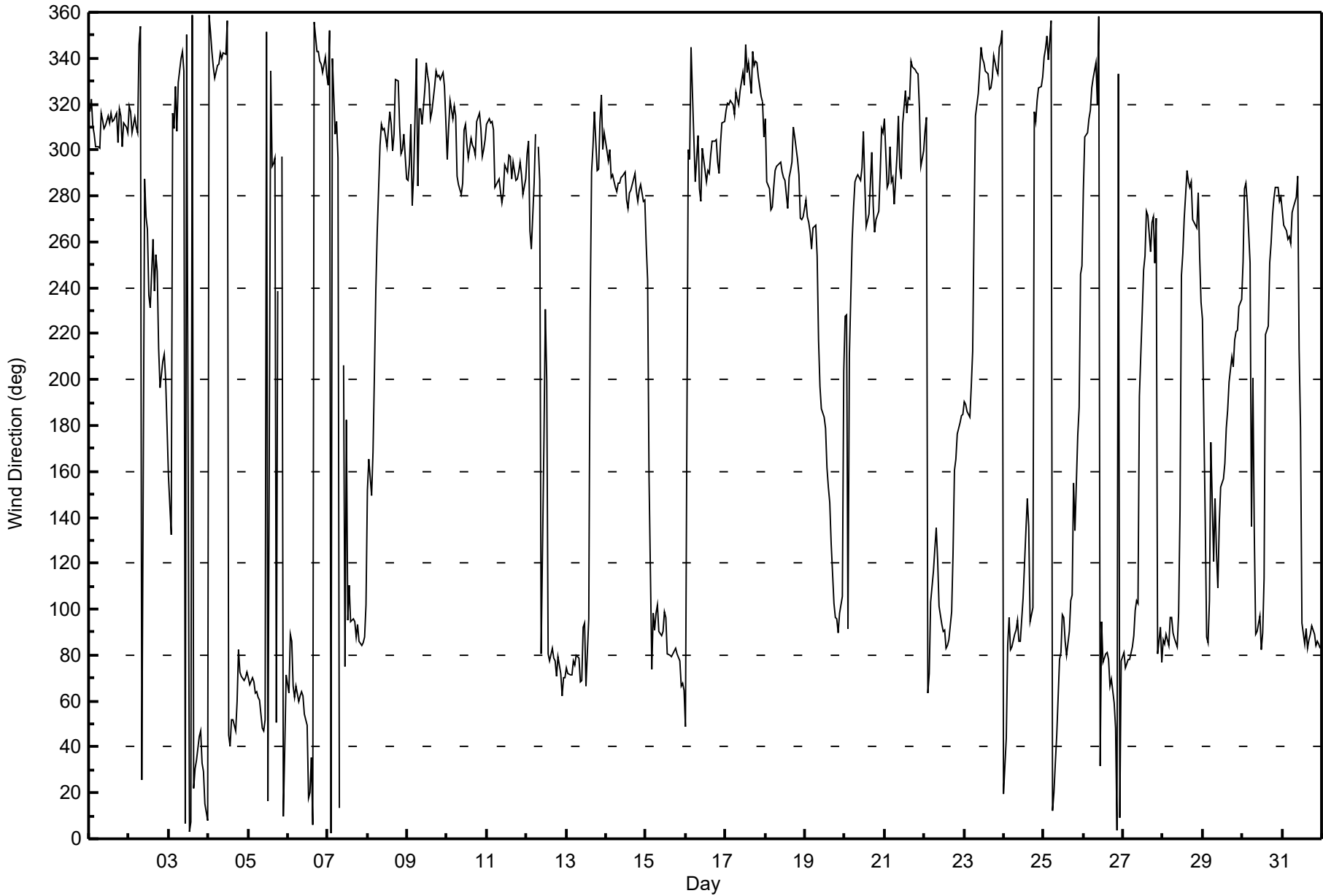
Direction of Maximum Speed: 84 deg on Jan 22 15:00																							Hours in Service: 744		
Direction of Maximum Daily Speed Average: 311.0 deg on Jan 1																							Hours of Data: 741		
Direction of Minimum Speed: 63 deg on Jan 22 03:00											Direction of Minimum Daily Speed Average: 2.7 deg on Jan 31												Hours of Missing Data: 3		
Monthly Average Direction: 340.3 deg																							Percent Operational Time: 99.6		
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-Jan	317	322	311	307	301	302	301	316	313	310	310	315	312	316	312	313	316	303	318	315	301	312	310	307	311.0
2-Jan	319	316	307	315	310	308	346	354	26	287	271	265	236	231	261	239	254	247	214	196	208	211	200	179	263.5
3-Jan	158	133	316	310	328	308	330	340	343	335	6	350	3	7	359	22	31	34	45	47	33	29	15	8	13.5
4-Jan	359	352	343	337	332	337	338	343	340	342	342	356	45	40	52	52	47	60	82	72	71	69	70	73	36.1
5-Jan	70	67	70	68	63	64	62	61	48	47	52	351	16	335	293	294	296	51	238	UO	297	10	39	71	56.4
6-Jan	63	89	86	67	62	67	60	62	64	63	54	50	18	20	35	6	356	343	343	339	337	334	340	332	34.6
7-Jan	328	352	2	340	307	312	297	14	UO	206	75	182	95	110	94	96	95	88	93	86	84	85	88	102	80.0
8-Jan	152	165	149	168	202	238	264	302	311	309	309	306	301	317	311	299	307	331	330	311	298	300	307	288	300.9
9-Jan	287	294	311	276	289	340	284	318	318	311	327	338	332	329	314	316	328	334	332	332	331	334	328	312	322.1
10-Jan	296	310	322	314	319	315	289	285	281	285	309	311	303	297	305	302	301	298	312	316	310	297	301	304	303.5
11-Jan	311	314	312	312	309	284	286	287	282	277	282	293	290	298	297	287	295	286	287	290	295	289	281	288	295.2
12-Jan	298	304	265	257	285	307	UO	301	287	81	173	231	200	80	78	83	79	77	71	79	72	62	70	70	62.4
13-Jan	75	72	71	71	78	76	80	79	68	69	92	94	66	96	229	290	301	317	291	291	312	324	300	308	44.5
14-Jan	300	295	300	288	289	284	282	285	286	288	288	290	278	275	281	282	287	290	282	278	282	285	277	278	285.1
15-Jan	259	243	158	74	98	91	98	102	90	88	90	99	96	81	80	79	80	82	83	80	77	66	68	65	85.3
16-Jan	49	300	296	345	325	305	286	307	283	278	301	296	286	291	290	298	304	304	304	295	290	303	312	313	299.3
17-Jan	317	321	320	321	320	316	326	322	320	326	334	328	346	334	338	324	343	337	339	338	332	323	321	305	326.1
18-Jan	313	286	283	274	275	284	291	293	294	295	291	288	287	275	288	291	295	310	306	296	289	270	270	271	288.6
19-Jan	278	271	269	264	257	266	267	254	217	197	187	184	179	162	153	146	129	103	96	96	90	98	106	204	166.6
20-Jan	228	228	92	210	261	275	286	288	289	287	292	308	286	267	272	285	299	276	264	269	273	290	309	307	277.9
21-Jan	313	284	285	302	286	288	276	298	315	293	287	311	326	316	323	322	339	336	335	334	333	318	293	300	308.5
22-Jan	308	314	63	72	103	117	126	135	121	101	93	90	91	83	84	87	99	124	161	165	176	182	184	185	116.6
23-Jan	190	189	186	184	197	212	267	315	325	334	345	340	338	334	333	326	327	331	341	335	333	345	347	352	312.8
24-Jan	19	44	84	97	82	84	89	91	95	86	86	105	120	134	149	136	95	101	317	313	322	327	328	332	85.8
25-Jan	341	344	350	339	356	12	20	33	45	78	81	98	96	86	80	90	104	106	155	134	176	188	246	249	82.9
26-Jan	282	306	308	314	317	327	331	338	320	358	32	94	77	81	81	78	66	69	59	48	4	333	9	78	40.0
27-Jan	81	74	76	78	78	84	88	100	104	103	193	229	248	254	273	272	256	268	271	251	270	81	92	77	96.1
28-Jan	87	85	89	84	97	96	89	87	84	98	143	245	255	270	291	286	284	286	270	267	266	281	254	233	272.1
29-Jan	226	138	88	86	104	172	121	148	125	109	137	153	157	164	179	187	199	210	206	217	221	221	232	235	173.3
30-Jan	252	283	286	277	251	136	200	133	89	90	97	82	90	114	220	223	251	259	271	279	284	284	278	280	263.7
31-Jan	273	267	265	261	262	259	273	275	280	289	213	179	94	85	91	83	86	89	93	89	84	86	85	83	89.8
310.3	319.1	340.6	343.6	336.8	336.8	332.1	349.5	4.5	14.8	14.5	320.9	318.0	332.6	347.4	356.2	340.4	350.4	344.8	341.9	331.3	338.5	344.1	334.2		
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**  
**Fort Chipewyan - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0														Hours in Service: 744											
Maximum Value: 98 deg on Jan 9 16:00														Hours of Data: 741											
Minimum Value: 3 deg on Jan 12 17:00														Hours of Missing Data: 3											
Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 15 Q <sub>3</sub> = 20 P <sub>90</sub> = 30 P <sub>99</sub> = 67														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-Jan	18	21	19	16	16	15	15	18	17	15	17	16	18	22	20	21	21	17	18	17	16	17	17	16	22
2-Jan	21	18	18	17	19	19	30	28	38	36	27	22	24	31	27	17	20	19	21	12	14	14	14	12	38
3-Jan	32	68	24	42	32	16	20	20	22	23	29	31	32	33	37	19	18	14	15	12	12	16	18	19	68
4-Jan	20	19	15	16	14	14	16	17	20	18	18	29	16	23	16	11	9	14	6	8	7	8	8	7	29
5-Jan	8	8	7	8	9	8	9	10	10	11	12	25	20	40	16	21	34	16	56	UO	27	34	17	14	56
6-Jan	8	26	25	8	8	6	8	9	9	10	14	14	21	15	14	29	15	18	12	14	18	17	15	26	29
7-Jan	25	14	23	27	12	16	7	44	UO	49	16	64	30	10	9	5	7	7	6	5	4	4	4	13	64
8-Jan	13	11	11	9	36	27	15	19	15	14	14	15	15	13	13	14	12	16	18	16	44	37	26	17	44
9-Jan	19	44	45	23	31	45	52	22	20	17	49	30	26	41	42	98	35	17	18	15	15	15	18	17	98
10-Jan	20	20	22	17	17	17	13	13	13	14	17	18	17	17	16	16	15	15	16	19	16	14	15	15	22
11-Jan	13	14	13	14	14	12	14	16	13	14	13	18	15	17	16	13	14	13	13	13	13	10	9	11	18
12-Jan	12	11	9	8	12	9	UO	18	52	30	66	16	61	7	9	6	3	6	10	7	7	7	8	7	66
13-Jan	7	6	6	7	7	5	5	9	10	11	8	45	21	46	75	36	8	17	69	41	22	21	14	16	75
14-Jan	13	17	26	12	11	11	13	13	12	12	13	14	15	14	14	13	12	13	12	12	12	11	13	12	26
15-Jan	11	18	61	12	36	7	7	6	5	5	4	7	8	4	4	4	6	6	7	5	8	13	15	41	61
16-Jan	51	85	37	94	36	19	13	18	13	16	16	19	16	15	14	15	14	14	13	13	14	18	17	18	94
17-Jan	20	18	18	19	19	21	21	18	18	22	28	25	22	29	23	20	16	16	15	18	28	59	27	40	59
18-Jan	10	11	19	12	14	14	13	13	14	15	17	17	15	14	18	16	15	18	17	15	15	15	14	14	19
19-Jan	14	14	12	15	17	16	19	22	26	11	11	7	10	7	6	9	14	9	9	5	4	7	14	22	26
20-Jan	11	28	17	59	16	19	10	9	15	20	18	16	17	16	19	17	22	19	14	14	17	14	16	14	59
21-Jan	14	13	9	16	15	16	12	14	15	14	14	20	25	21	22	22	21	28	24	23	19	16	30	11	30
22-Jan	26	37	71	28	19	8	7	9	9	5	6	4	4	4	5	4	8	18	10	10	8	8	8	8	71
23-Jan	8	10	10	12	10	11	26	33	26	20	19	19	18	21	20	20	22	23	24	27	29	21	23	23	33
24-Jan	22	22	8	4	5	5	5	5	5	5	5	10	6	9	12	13	18	12	41	15	19	23	23	22	41
25-Jan	25	24	25	30	25	21	18	16	11	9	7	8	7	4	7	7	10	7	15	15	21	14	25	25	30
26-Jan	15	15	17	19	18	27	27	28	27	58	35	13	11	9	5	5	7	8	13	11	21	27	26	14	58
27-Jan	7	10	6	5	6	5	5	6	6	8	30	13	15	17	16	15	16	20	16	18	34	50	9	9	50
28-Jan	7	6	6	7	9	10	7	8	7	9	46	18	15	15	16	14	14	13	14	16	14	15	26	32	46
29-Jan	10	52	9	5	32	23	25	28	18	9	33	11	12	14	10	9	13	9	10	12	15	15	19	11	52
30-Jan	15	13	11	15	13	61	12	73	13	6	12	34	53	26	61	13	14	15	14	14	14	14	13	13	73
31-Jan	13	12	13	13	17	12	13	12	15	16	34	30	50	19	10	5	4	10	11	8	5	5	5	5	50
														51 85 71 94 36 61 52 73 52 58 66 64 61 46 75 98 35 28 69 41 44 59 30 41											
														Diurnal Maximum											
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS09 BARGE LANDING JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
JANUARY 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	709	35	35	100	12.1	0	3.9	0
TRS(ppb) Average	708	36	36	100	7.1	0	2.7	0
THC(ppm) Average	709	35	35	100	3.3	-	2.7	-
NMHC(ppm) Average	709	35	35	100	0.374	-	0.07	-
CH4(ppm) Average	709	35	35	100	3.3	-	2.6	-
NO2 (ppb) Average	707	37	37	100	43	0	29.3	-
NO (ppb) Average	707	37	37	100	116.5	-	61.1	-
NOX (ppb) Average	707	37	37	100	159	-	90.4	-
PM2.5(ug/m3) Average	742	2	2	100	38.9	0	22.8	0
Temperature (C) Average	744	0	0	100	11.2	-	4.5	-
Relative Humidity (%) Average	744	0	0	100	97.3	-	93	-
Barometric Pressure (inHg) Average	744	0	0	100	29.7	-	29.6	-
Wind Speed 10 m (km/h) Average	699	0	45	93.95	16	-	8	-
Wind Direction 10 m (deg) Average	699	0	45	93.95	-	-	-	-
Wind Speed 20 m (km/h) Average	729	0	15	97.98	23	-	14	-
Wind Direction 20 m (deg) Average	729	0	15	97.98	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)

JANUARY 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	709	0.74	1.5	-	0	0	0	0.3	0.7	2.1	12.1	
TRS(ppb) Average	708	0.79	0.9	-	0.2	0.3	0.3	0.4	0.8	1.9	7.1	
THC(ppm) Average	709	2.21	0.2	-	1.9	2	2	2.1	2.3	2.5	3.3	
NMHC(ppm) Average	709	0.006	0.031	-	0	0	0	0	0	0	0.374	
CH4(ppm) Average	709	2.2	0.2	-	1.9	2	2	2.1	2.3	2.5	3.3	
NO2 (ppb) Average	707	17.23	9.2	-	0.2	5.2	10.3	16.5	24.1	30.2	43	
NO (ppb) Average	707	12.23	21.3	-	0	0	0.2	2.5	13.8	39.6	116.5	
NOX (ppb) Average	707	29.45	28.3	-	0.2	5.6	11.4	20.1	35.9	68.5	159	
PM2.5(ug/m3) Average	742	6.79	5.3	-	0.3	2.7	3.4	5	8.2	12.7	38.9	
Temperature (C) Average	744	-18.18	12.6	-	-42.4	-36.9	-25.6	-18.6	-10.4	0.3	11.2	
Relative Humidity (%) Average	744	77.82	8.7	-	45	66.7	72.5	78.2	82.1	90.8	97.3	
Barometric Pressure (inHg) Average	744	29.08	0.3	-	28.4	28.7	28.8	29	29.3	29.6	29.7	
Wind Speed 10 m (km/h) Average	699	3.7	2	-	0	1	2	3	5	6	16	
Wind Direction 10 m (deg) Average	699	91.9	-	-	-	-	-	-	-	-	-	
Wind Speed 20 m (km/h) Average	729	7.1	4	-	0	2	4	7	9	13	23	
Wind Direction 20 m (deg) Average	729	277.4	-	-	-	-	-	-	-	-	-	

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
JANUARY 2024

OPERATIONAL NOTES

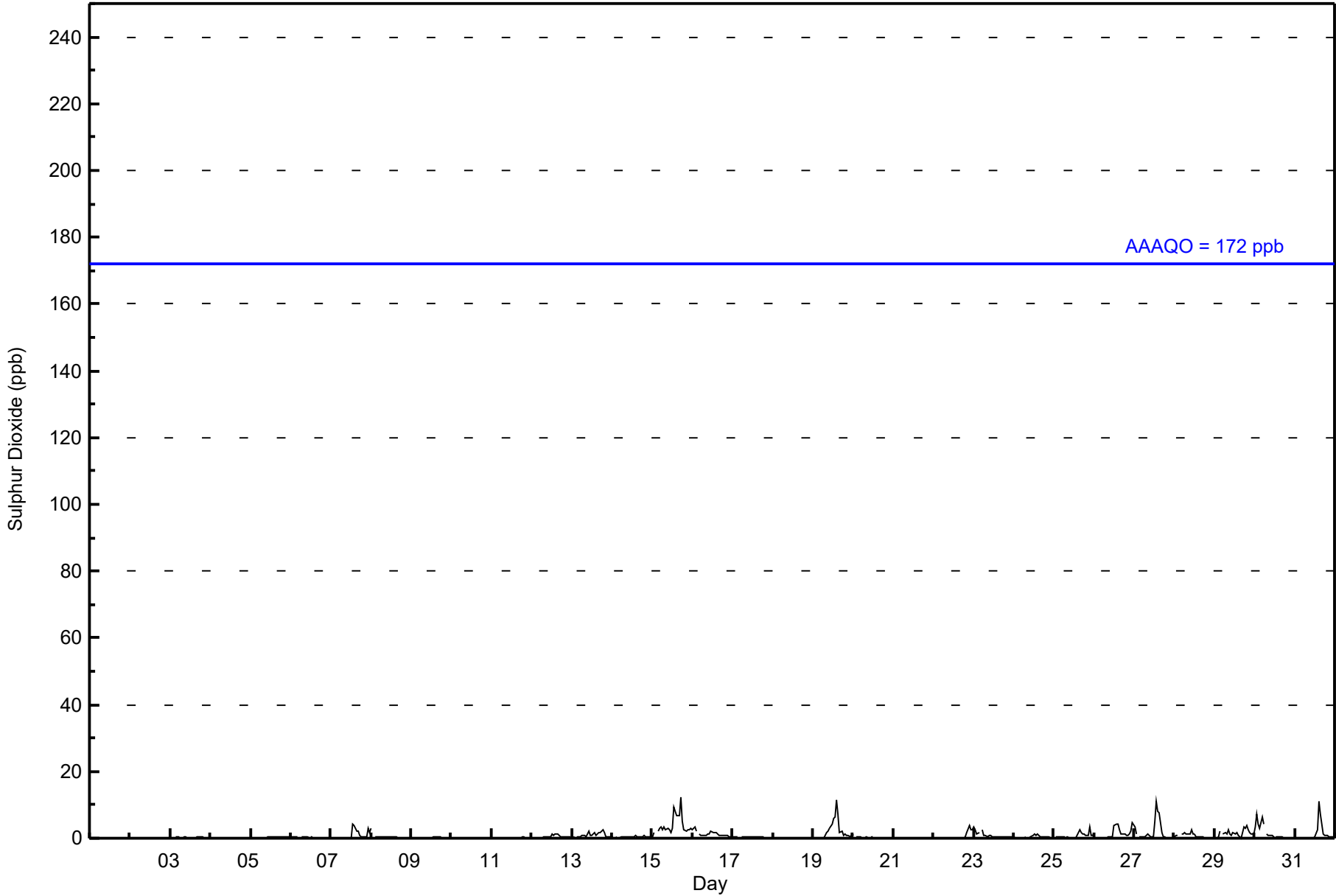
Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction 10m	08 Jan 2024 18:00	29 Jan 2024 17:00	45	Intermittent unstable operation
Wind Speed, Wind Direction 20m	03 Jan 2024 09:00	14 Jan 2024 08:00	15	Intermittent unstable operation





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	705	99.44	99.44
11 - 20	4	0.56	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - January 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	85	68	37	30	11	5	16	115	66	46	42	47	15	15	25	68	691
11 - 20	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4
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>	85	68	37	30	11	5	16	115	69	47	42	47	15	15	25	68	695

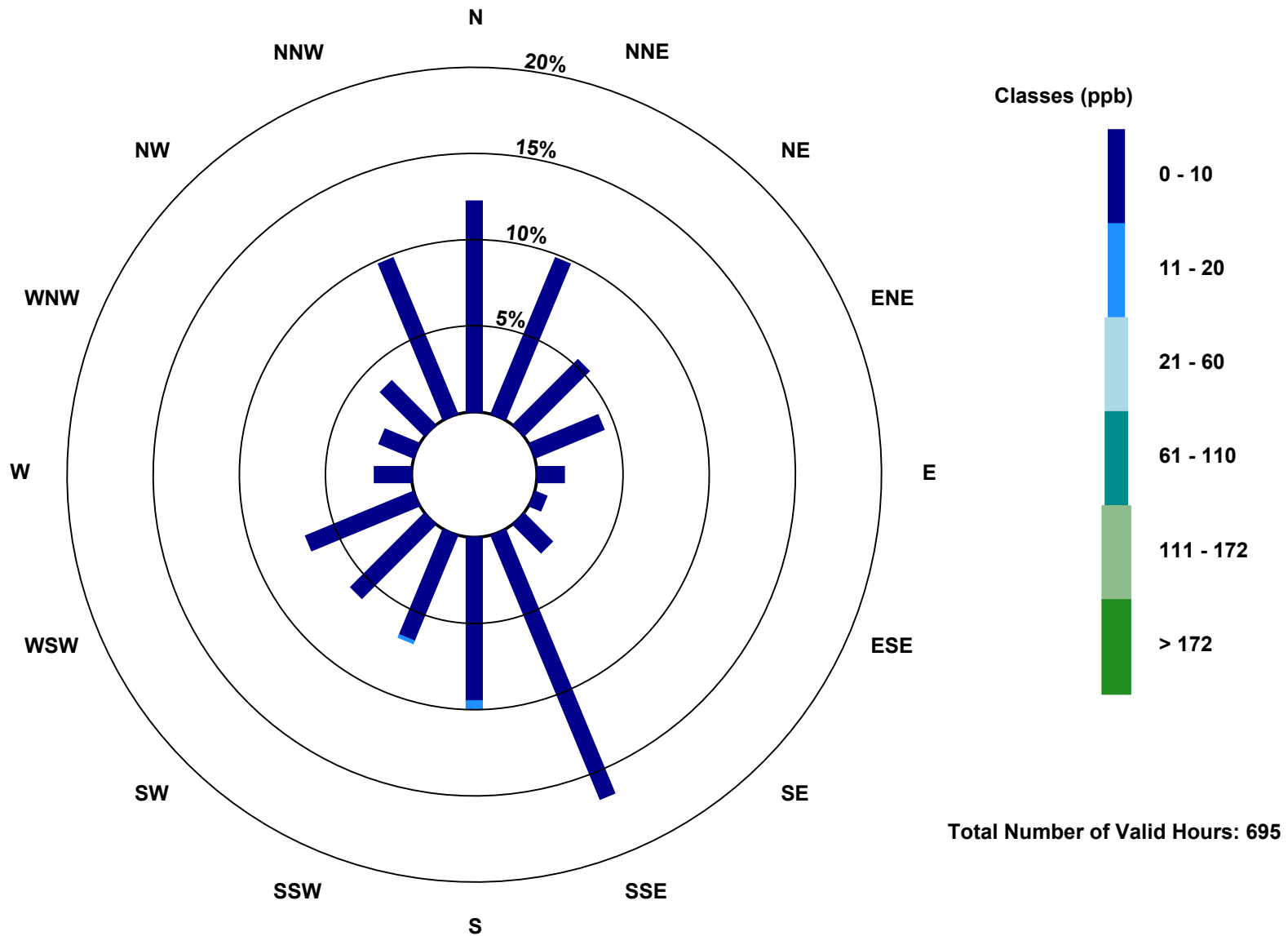
Total Number of Valid Hours: 695

Total Number of Hours: 744

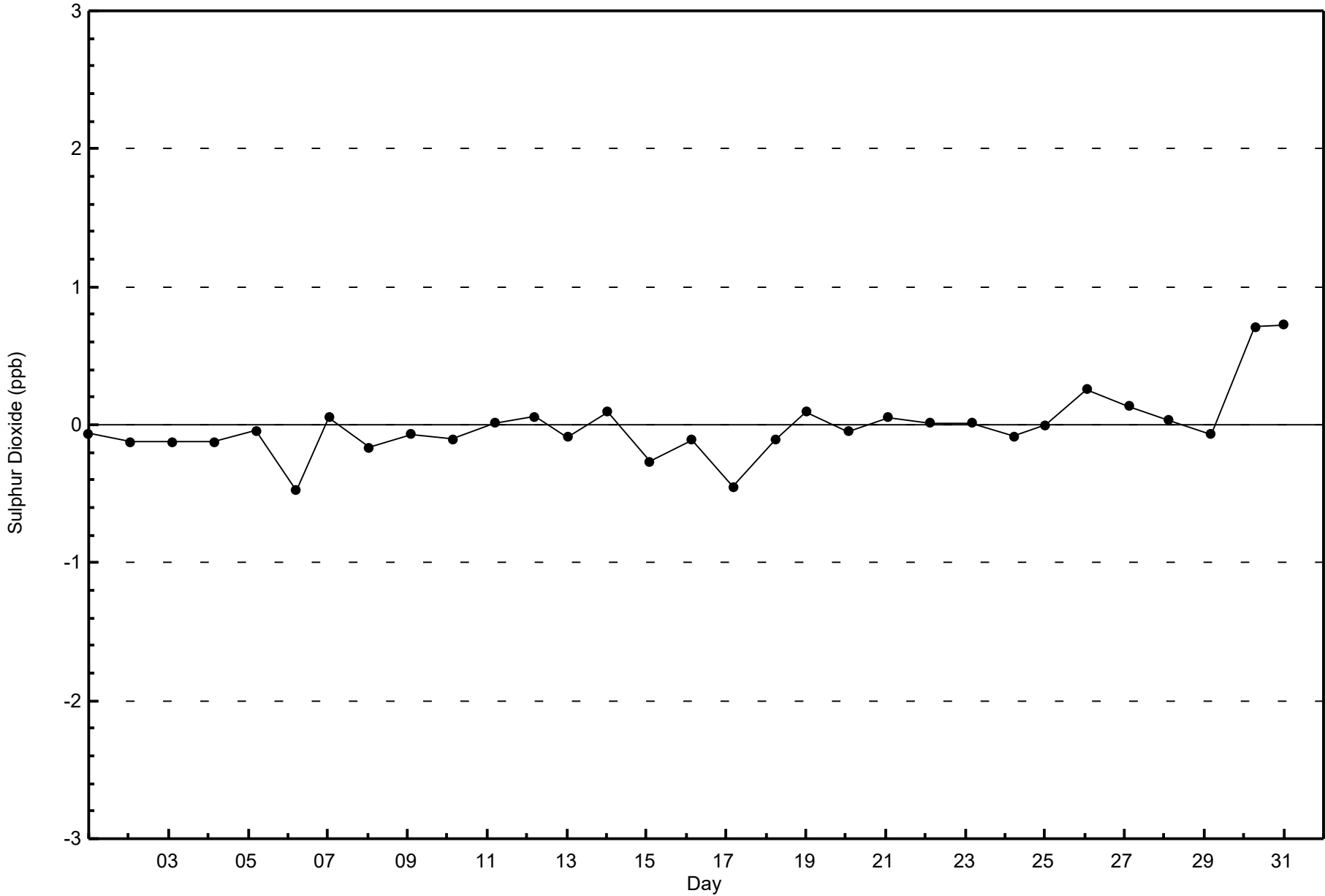


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

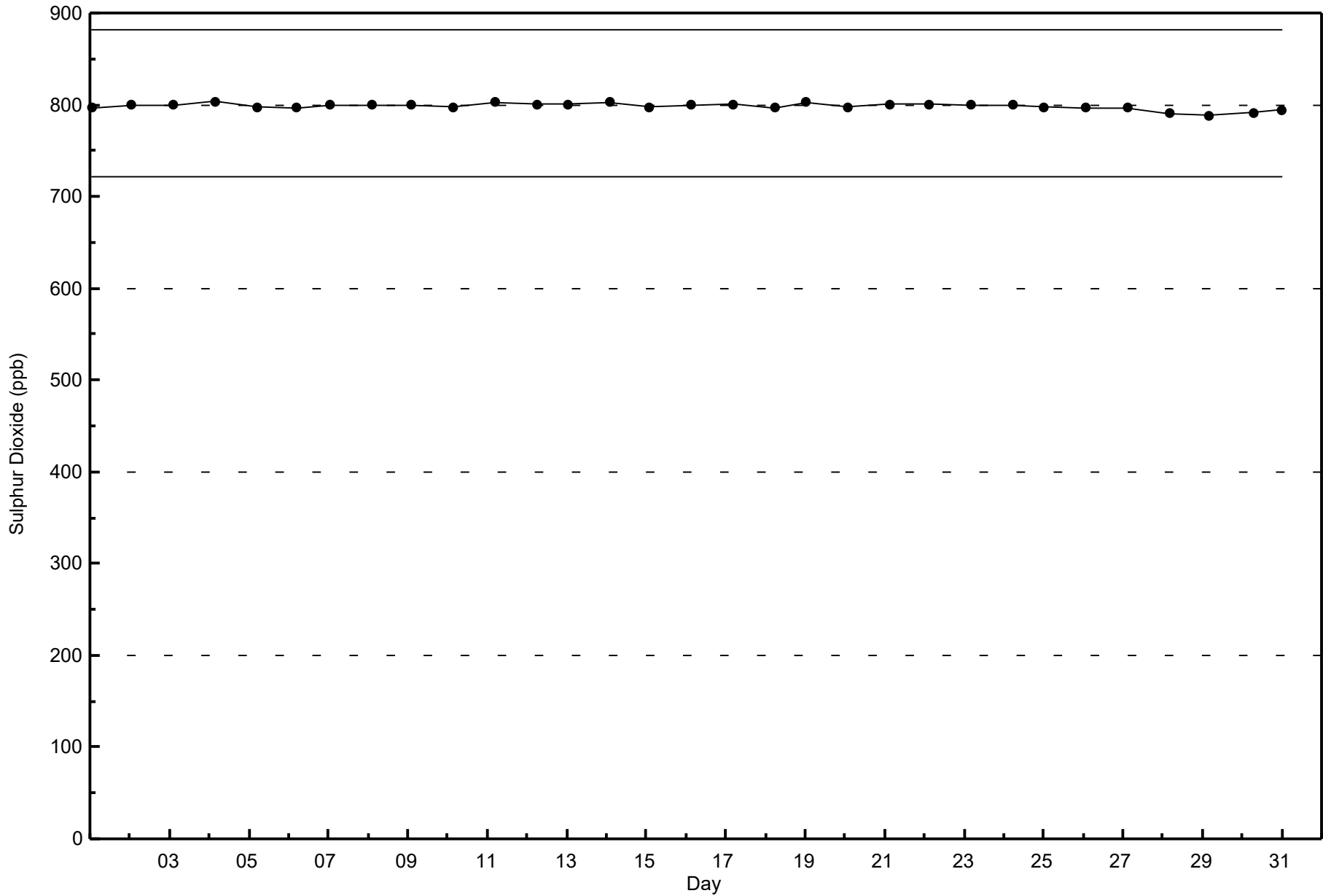
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Barge Landing



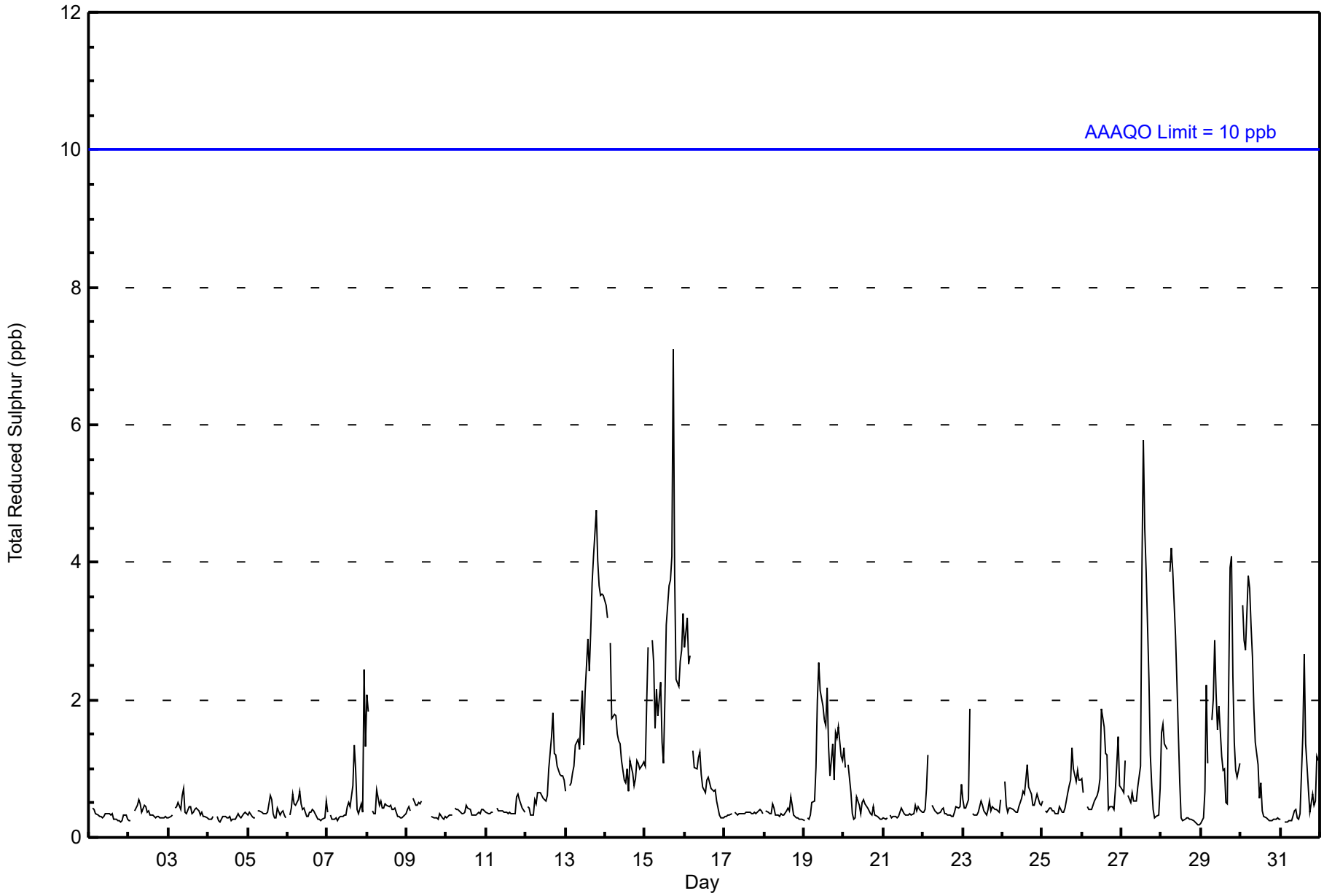
Total Number of Valid Hours: 695













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Barge Landing - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	659	93.08	93.08
3 - 4	46	6.50	99.58
5 - 7	3	0.42	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Barge Landing - January 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	79	71	38	30	11	5	15	90	61	46	40	46	14	13	22	66	647
3 - 4	0	0	0	0	0	0	1	24	7	4	0	1	1	0	2	4	44
5 - 7	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3
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>	79	71	38	30	11	5	16	114	69	51	40	47	15	14	24	70	694

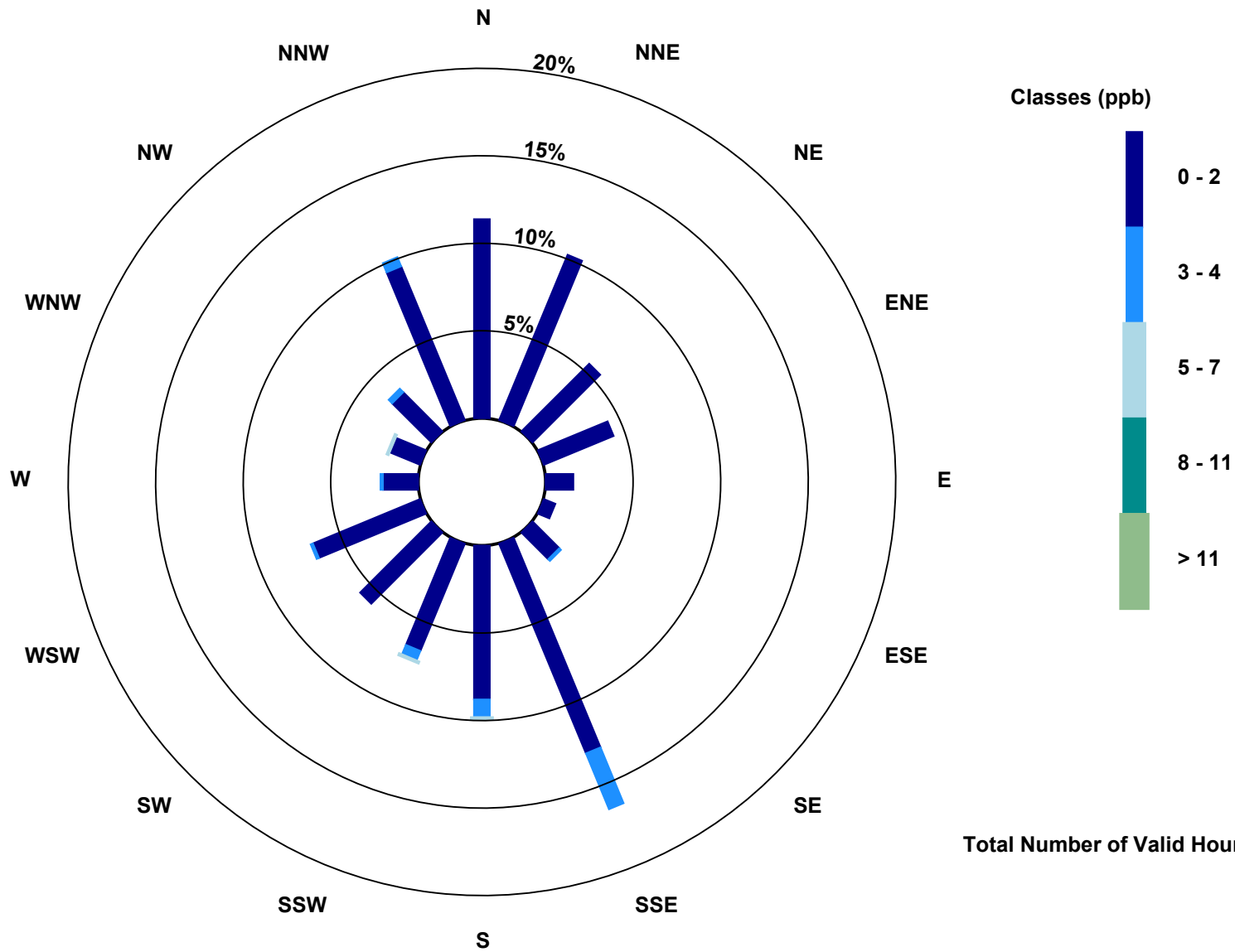
Total Number of Valid Hours: 694

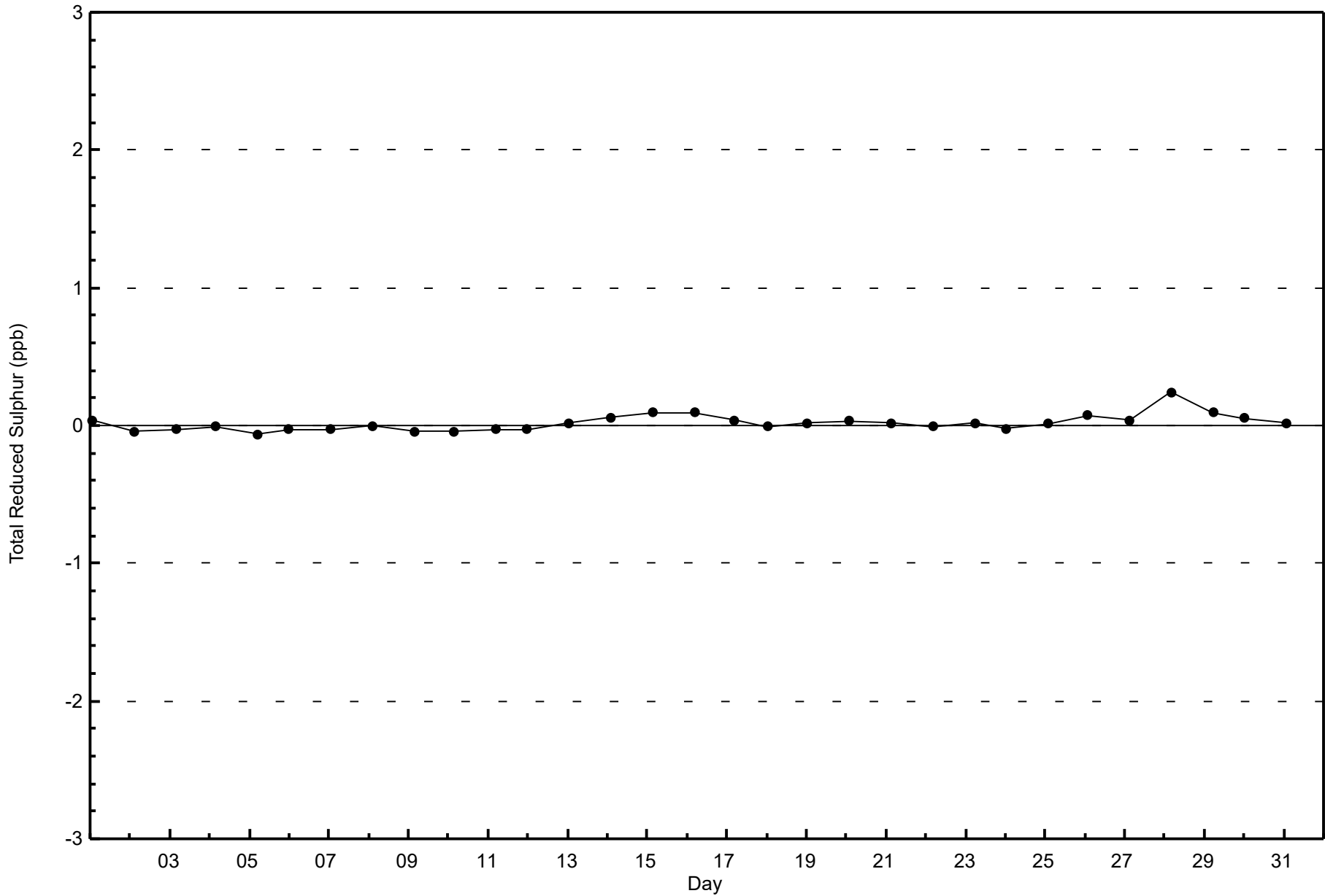
Total Number of Hours: 744

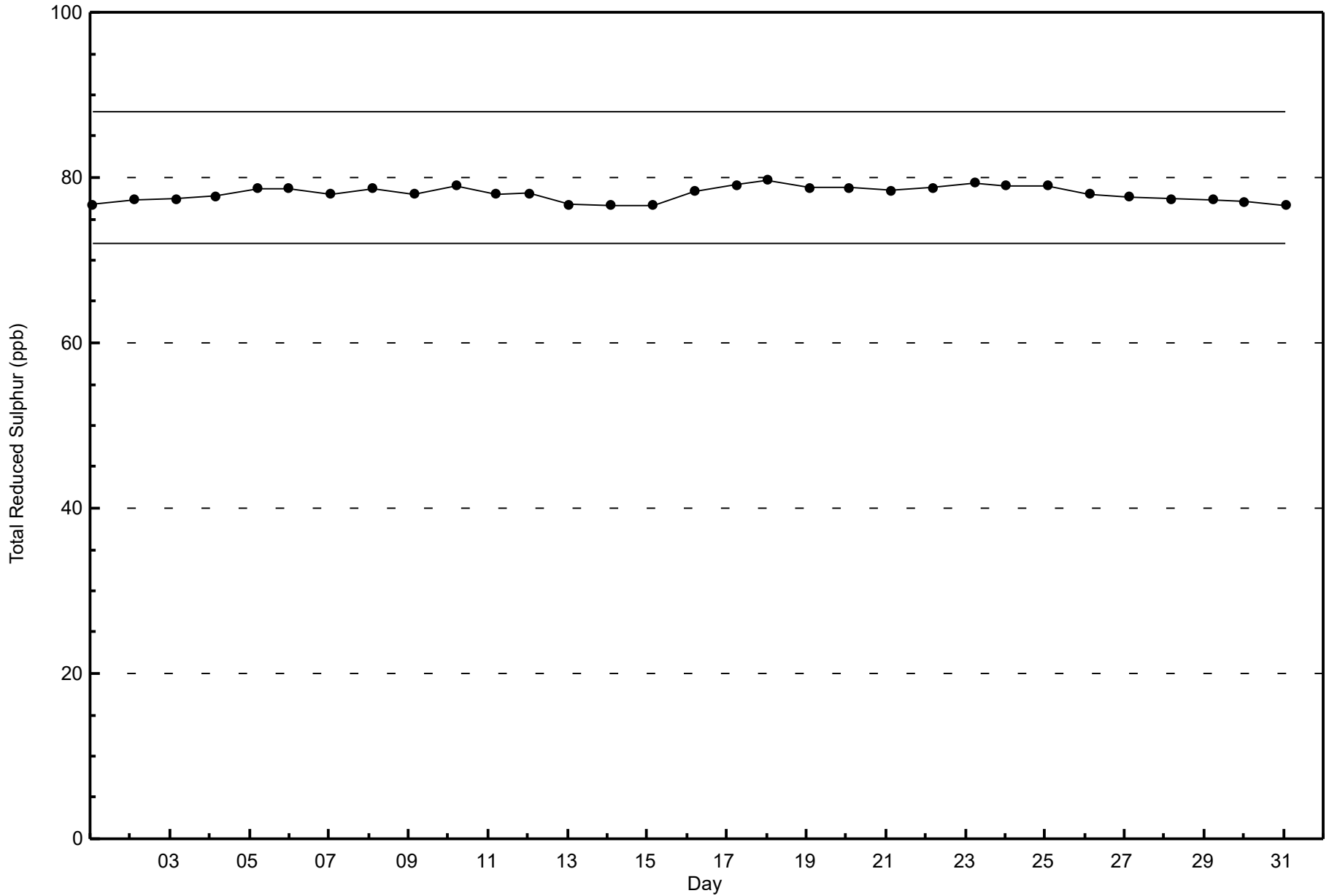


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Barge Landing











# Wood Buffalo Environmental Association Summary of Hour Averages

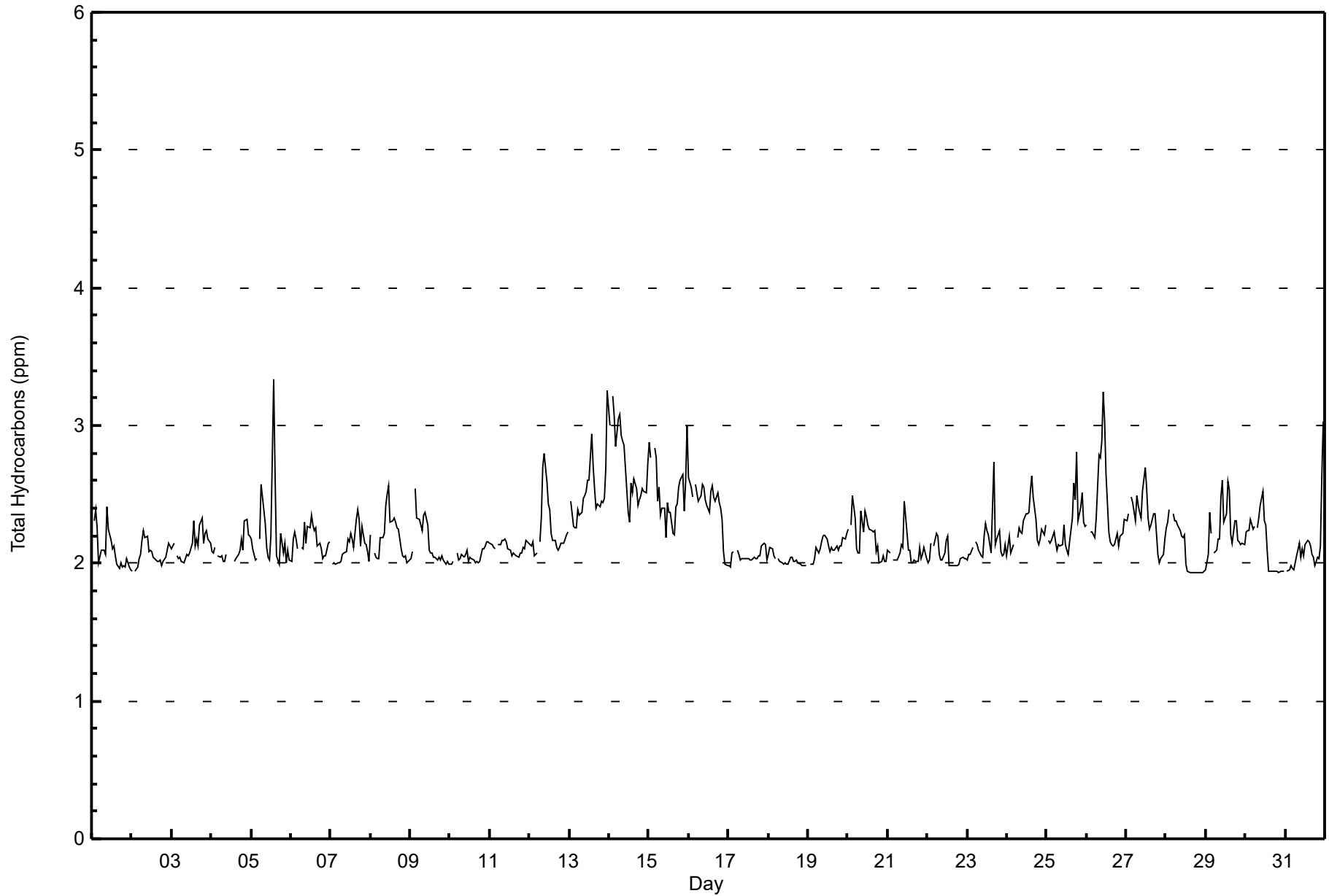
# Total Hydrocarbons (THC) - ppm Barge Landing - January 2024

Maximum Value: 3.3 ppm on Jan 5 14:00	Maximum Daily Average: 2.7 ppm on Jan 14	Hours in Service:	744																												
Minimum Value: 1.9 ppm on Jan 28 19:00	Minimum Daily Average: 2.0 ppm on Jan 18	Hours of Data:	709																												
Maximum Diurnal Average: 2.3 ppm at hour 11	Minimum Diurnal Average: 2.1 ppm at hour 20	Hours of Missing Data:	35																												
Monthly Average: 2.21 ppm	Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.5 P <sub>99</sub> = 3.0	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-Jan	Z	2.3	2.4	2.3	2.0	2.1	2.1	2.1	2.1	2.4	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	2.1	2.1	2.1	2.1	2.2	2.1	2.4
2-Jan	1.9	Z	1.9	2.0	2.0	2.1	2.2	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2
3-Jan	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.1	2.2	2.1	2.3	2.3	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3
4-Jan	2.1	2.1	2.1	Z	2.1	2.0	2.1	2.0	2.0	2.1	C	C	C	C	2.0	2.0	2.1	2.1	2.2	2.1	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.3
5-Jan	2.2	2.1	2.0	2.0	Z	2.2	2.6	2.5	2.3	2.1	2.0	2.0	2.2	3.3	2.6	2.1	2.0	2.0	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.3
6-Jan	2.0	2.2	2.2	2.2	2.1	Z	2.1	2.1	2.3	2.1	2.3	2.3	2.3	2.3	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3
7-Jan	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.3	2.4	2.3	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
8-Jan	2.2	Z	2.1	2.0	2.0	2.0	2.2	2.2	2.2	2.4	2.5	2.6	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.6	2.6
9-Jan	2.0	2.1	Z	2.5	2.3	2.3	2.3	2.2	2.3	2.4	2.3	2.1	2.1	2.1	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	2.5	2.5
10-Jan	2.0	2.0	2.0	Z	2.1	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2
11-Jan	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.2	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	2.2	2.2	2.2
12-Jan	2.1	2.1	2.2	2.1	2.1	Z	2.2	2.3	2.7	2.8	2.6	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.8
13-Jan	Z	2.4	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.5	2.5	2.6	2.6	2.9	2.7	2.5	2.4	2.4	2.4	2.5	2.4	2.5	2.4	2.5	2.4	2.5	2.7	3.3	2.5	3.3	
14-Jan	3.0	Z	3.2	3.1	2.8	3.1	3.1	2.9	2.9	2.9	2.7	2.4	2.3	2.6	2.5	2.6	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	2.7	2.7	3.2
15-Jan	2.9	2.8	Z	2.8	2.8	2.5	2.5	2.4	2.4	2.4	2.2	2.4	2.4	2.4	2.2	2.2	2.4	2.4	2.6	2.6	2.6	2.6	2.4	2.6	3.0	2.5	2.5	2.5	2.5	3.0	3.0
16-Jan	2.6	2.6	2.5	Z	2.6	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.4	2.5	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.1	2.0	2.0	2.4	2.4	2.4	2.4	2.6	2.6
17-Jan	2.0	2.0	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
18-Jan	2.1	2.1	2.1	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
19-Jan	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	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	2.2
20-Jan	2.3	Z	2.3	2.5	2.3	2.1	2.1	2.1	2.4	2.2	2.4	2.3	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	2.2	2.2	2.2	2.2	2.2	2.5
21-Jan	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.5	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.5
22-Jan	2.0	2.0	2.1	Z	2.1	2.2	2.2	2.1	2.0	2.0	2.1	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	2.0	2.0	2.0	2.0	2.0	2.1
23-Jan	2.0	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	2.0	2.2	2.3	2.2	2.2	2.1	2.4	2.7	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
24-Jan	2.1	2.2	2.1	2.1	2.1	Z	2.2	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.5	2.6	2.5	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.6
25-Jan	Z	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.1	2.2	2.3	2.6	2.5	2.8	2.3	2.4	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8
26-Jan	2.3	Z	2.2	2.2	2.2	2.2	2.3	2.8	2.8	2.9	3.2	3.0	2.6	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	3.2
27-Jan	2.3	2.4	Z	2.5	2.4	2.3	2.5	2.4	2.4	2.3	2.5	2.7	2.5	2.3	2.3	2.3	2.4	2.4	2.2	2.1	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.7
28-Jan	2.3	2.3	2.4	Z	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	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	2.1
29-Jan	1.9	2.1	2.4	2.2	Z	2.1	2.1	2.2	2.2	2.5	2.6	2.3	2.4	2.6	2.5	2.2	2.1	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6
30-Jan	2.2	2.2	2.2	2.3	2.2	2.3	Z	2.3	2.3	2.4	2.5	2.3	2.3	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1
31-Jan	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.6	3.0	2.1	2.1	2.1	2.1	2.1	3.0
	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	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	Diurnal Average					
	3.0	2.8	3.2	3.1	2.8	3.1	3.1	2.9	2.9	2.9	3.2	3.0	2.6	3.3	2.7	2.6	2.7	2.5	2.8	2.6	2.6	2.5	2.7	3.3	Diurnal Maximum						
Z - zerospan	C - Calibration																														



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

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	189	26.66	26.66
2.1 - 3.0	513	72.36	99.01
3.1 - 10.0	7	0.99	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Barge Landing - January 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	18	24	23	18	3	0	4	17	6	7	14	25	5	7	4	12	187
2.1 - 3.0	67	43	14	12	8	5	12	96	63	40	28	22	9	8	21	56	504
3.1 - 10.0	0	1	0	0	0	0	0	2	0	0	0	0	1	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>	85	68	37	30	11	5	16	115	69	47	42	47	15	15	25	68	695

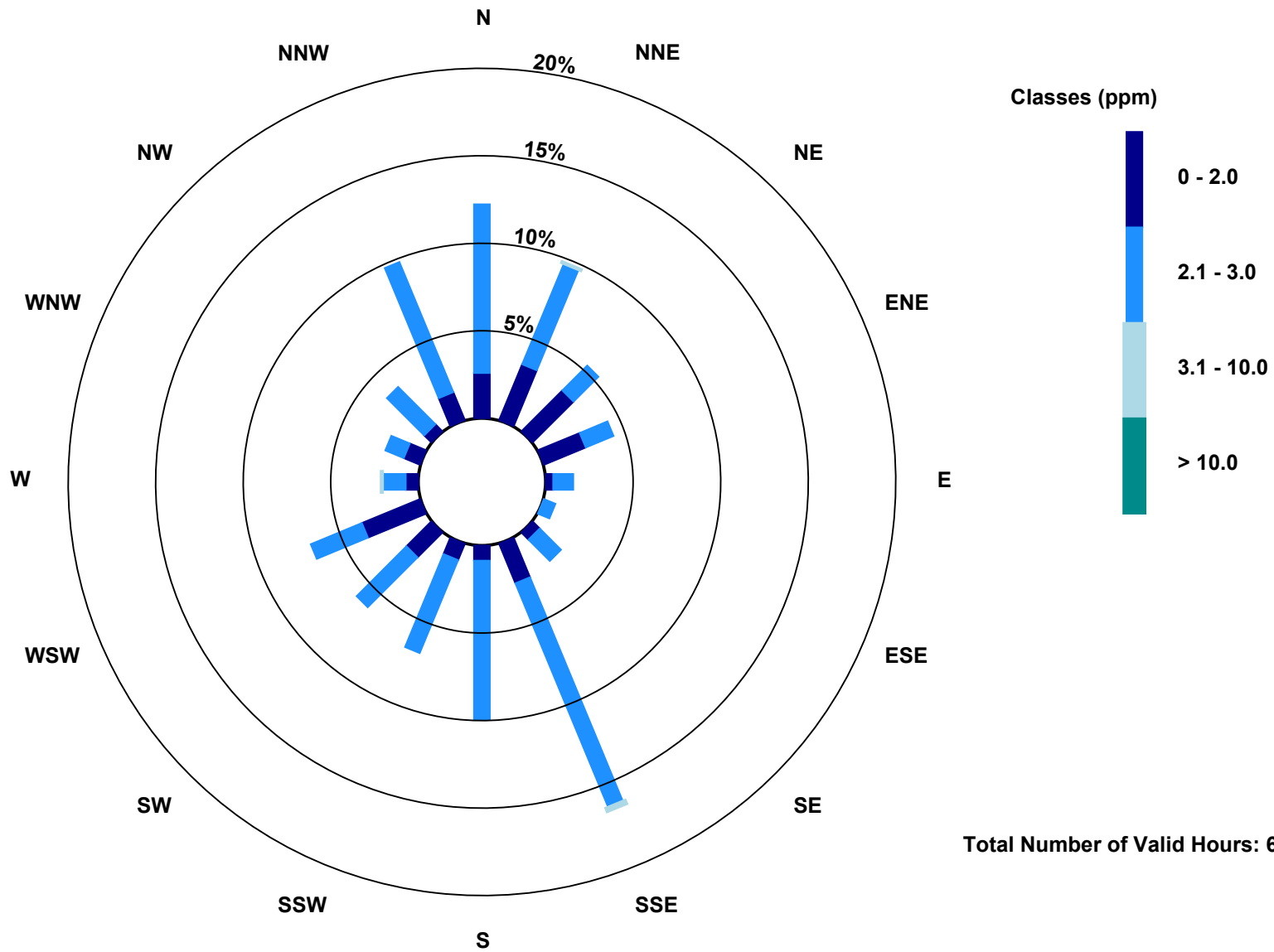
Total Number of Valid Hours: 695

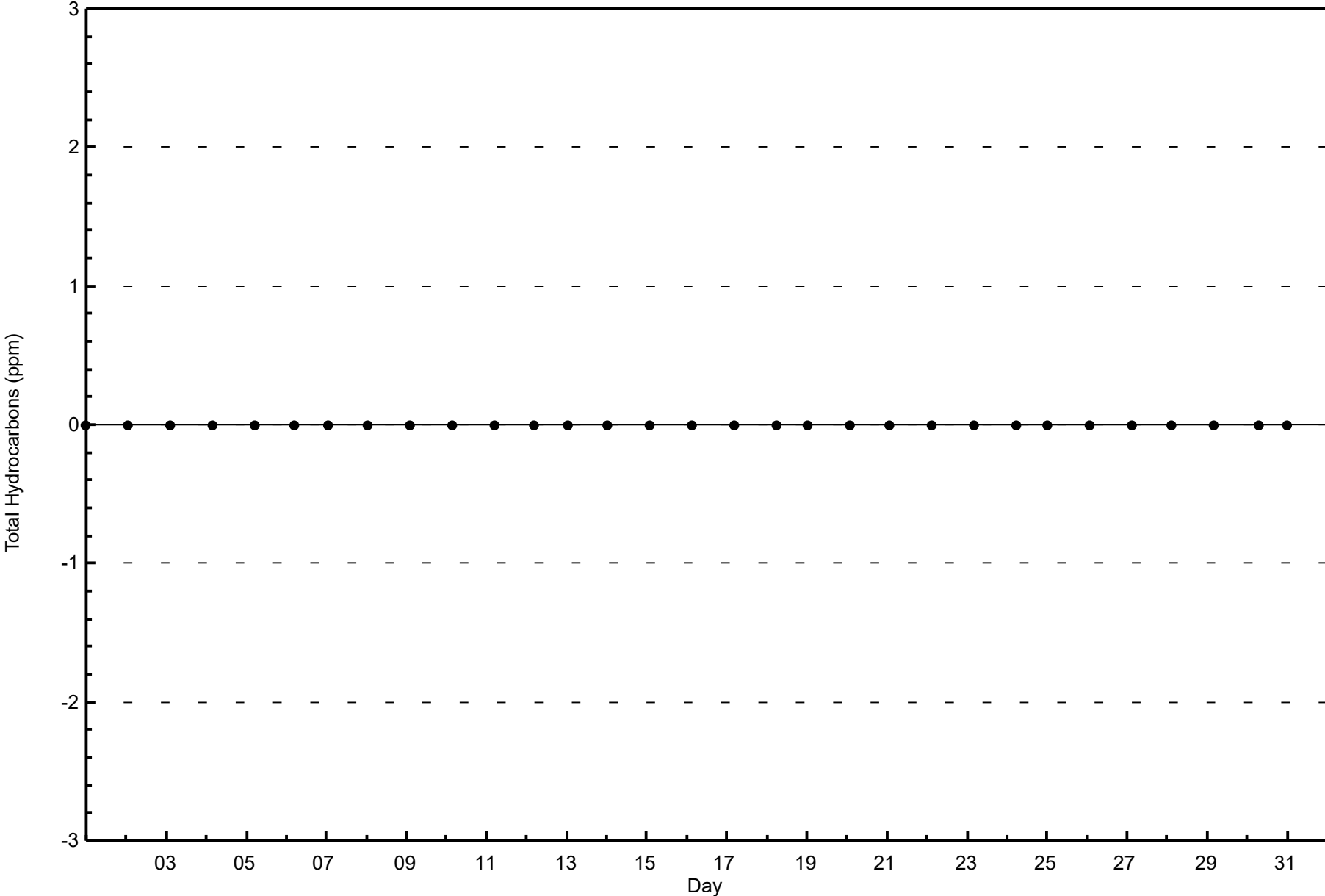
Total Number of Hours: 744

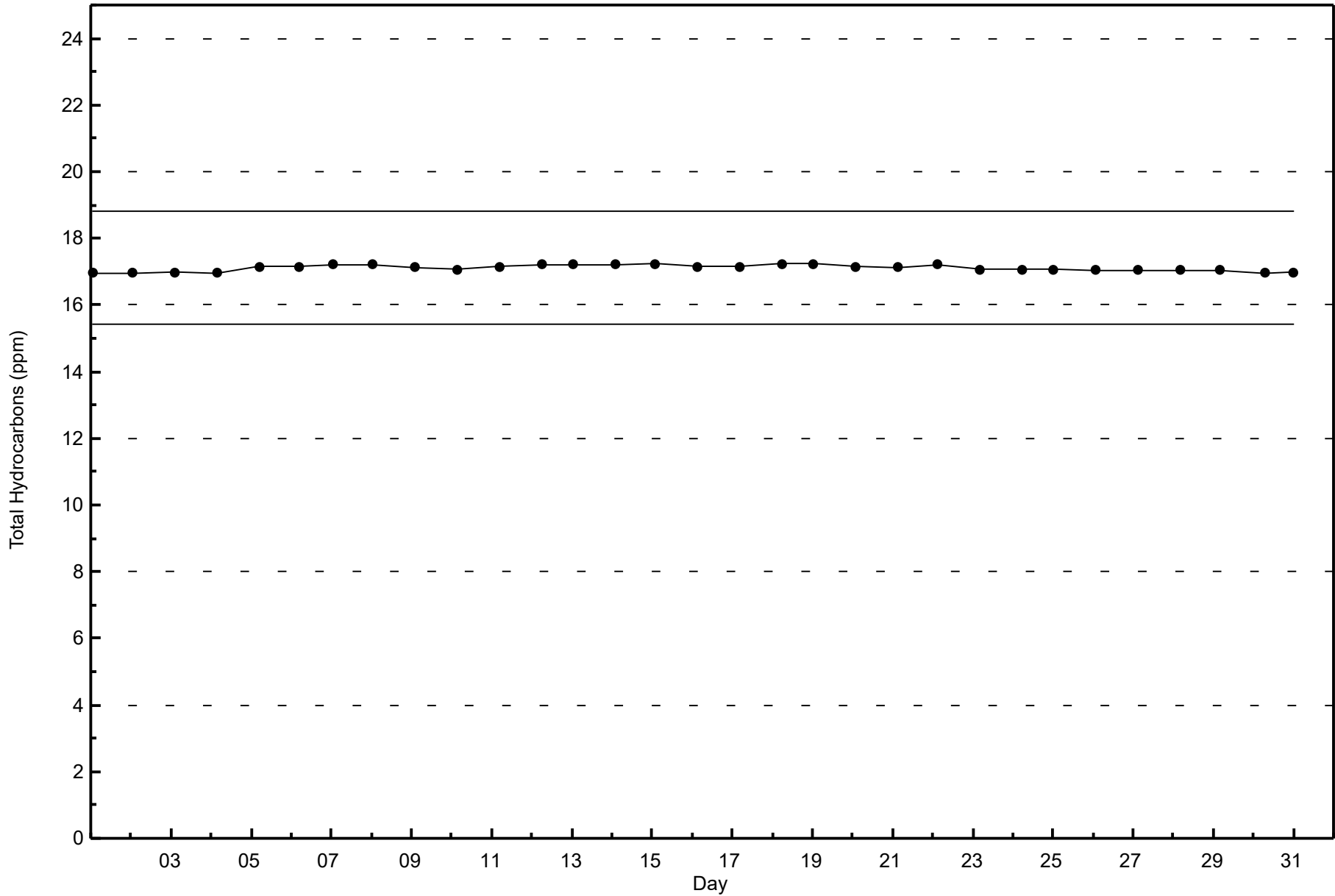


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Barge Landing









Summary of Hour Averages

Barge Landing - January 2024

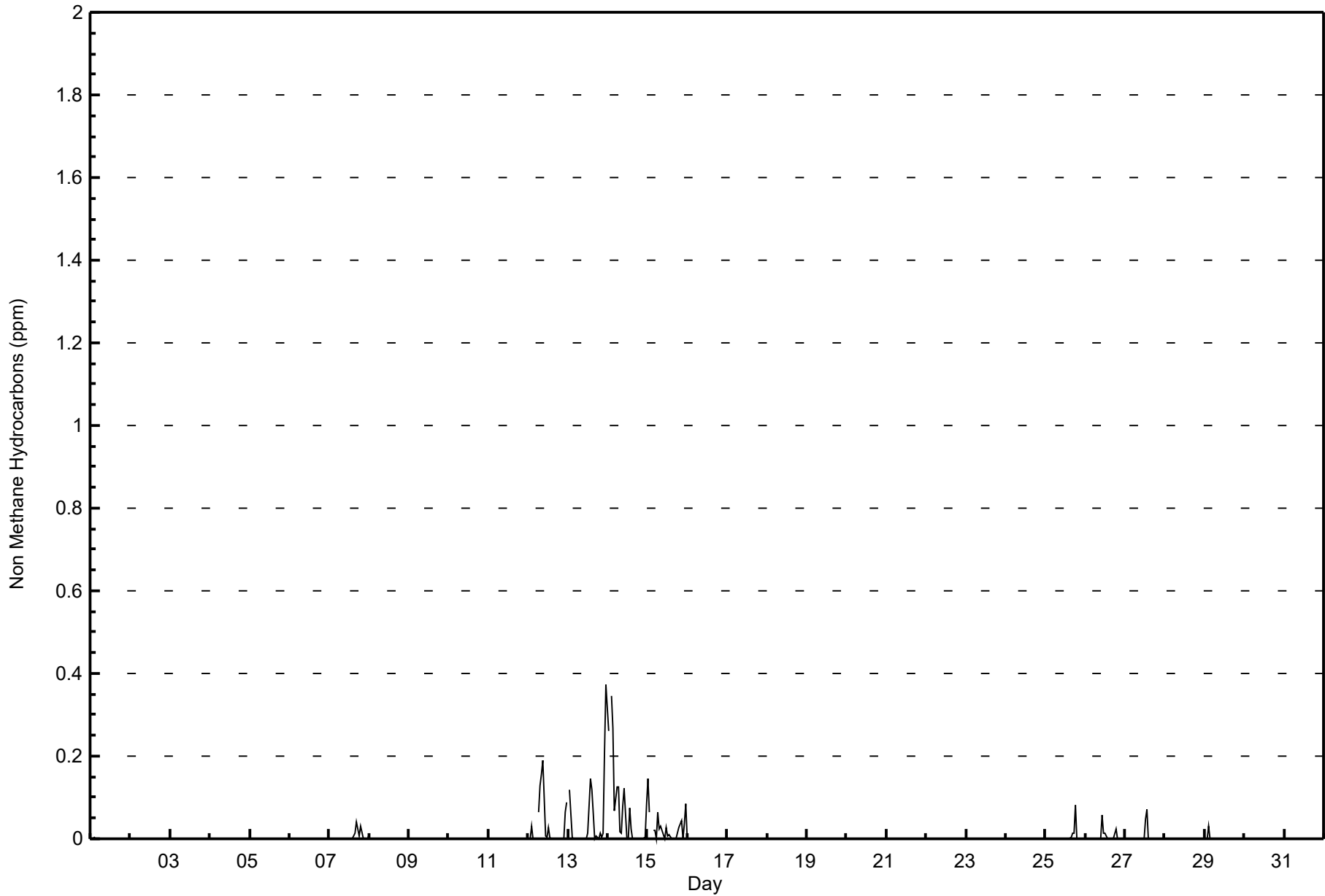
Maximum Value: 0.374 ppm on Jan 14 00:00 Minimum Value: 0.000 ppm on Jan 1 04:00 Maximum Diurnal Average: 0.020 ppm at hour 24 Monthly Average: 0.006 ppm		Maximum Daily Average: 0.070 ppm on Jan 14 Minimum Daily Average: 0.000 ppm on Jan 2 Minimum Diurnal Average: 0.000 ppm at hour 22 Percentiles: P <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 in Service: 744 Hours of Data: 709 Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
1-Jan	Z	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	
2-Jan	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	
3-Jan	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	
4-Jan	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	
5-Jan	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	0.000	0.000	0.000	0.000	
6-Jan	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	0.000	0.000	0.000	0.000	
7-Jan	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	0.015	0.042	0.022	0.008	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.042
8-Jan	0.011	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	0.011	0.011
9-Jan	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
10-Jan	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	0.000
11-Jan	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	0.000	0.000	0.000	0.000	0.000
12-Jan	0.000	0.000	0.031	0.000	0.000	Z	0.065	0.128	0.155	0.190	0.007	0.002	0.028	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	0.064	0.089	0.033	0.190
13-Jan	Z	0.120	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.144	0.118	0.063	0.001	0.008	0.000	0.015	0.004	0.012	0.206	0.374	0.047	0.374	0.070	0.345	0.070	0.345	0.070	0.345		
14-Jan	0.261	Z	0.345	0.269	0.066	0.127	0.125	0.128	0.155	0.190	0.077	0.121	0.000	0.075	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.082	0.070	0.345	0.070	0.345	0.070	0.345	0.070	0.345		
15-Jan	0.147	0.065	Z	0.021	0.020	0.000	0.063	0.024	0.032	0.010	0.000	0.026	0.008	0.009	0.000	0.000	0.001	0.000	0.015	0.027	0.046	0.000	0.038	0.085	0.028	0.147	0.028	0.147	0.028	0.147	0.028	0.147		
16-Jan	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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
17-Jan	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	0.000	0.000	0.000	0.000	0.000
18-Jan	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	0.000	0.000	0.000	0.000	0.000
19-Jan	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
20-Jan	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
21-Jan	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
22-Jan	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	0.000
23-Jan	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	0.000	0.000	0.000	0.000	0.000
24-Jan	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	0.000	0.000	0.000	0.000	0.000
25-Jan	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	0.004	0.012	0.014	0.080	0.000	0.000	0.000	0.000	0.000	0.005	0.080	0.005	0.080	0.005	0.080	0.005	0.080	0.005	0.080
26-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	0.015	0.014	0.000	0.000	0.000	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.005	0.058	0.005	0.058	0.005	0.058	0.005	0.058	0.005	0.058	
27-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.072	0.005	0.072	0.005	0.072	0.005	0.072	0.005	0.072	
28-Jan	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	0.000
29-Jan	0.000	0.000	0.032	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	0.001	0.032	0.001	0.032	0.001	0.032	0.001	0.032	0.001	0.032	
30-Jan	0.000	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	0.000	0.000	0.000	0.000
31-Jan	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
																								Diurnal Average										
																								Diurnal Maximum										
Z - zerospan		C - Calibration																																





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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Barge Landing - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	645	90.97	90.97
0.006 - 0.05	35	4.94	95.91
0.06 - 0.1	22	3.10	99.01
> 0.1	7	0.99	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing - January 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	85	68	37	30	11	4	11	86	59	41	39	46	14	15	24	67	637
0.006 - 0.05	0	0	0	0	0	1	2	18	6	2	2	0	0	0	1	1	33
0.06 - 0.1	0	0	0	0	0	0	3	10	2	3	1	0	0	0	0	0	19
> 0.1	0	0	0	0	0	0	0	1	2	1	0	1	1	0	0	0	6
<b>Totals</b>	85	68	37	30	11	5	16	115	69	47	42	47	15	15	25	68	695

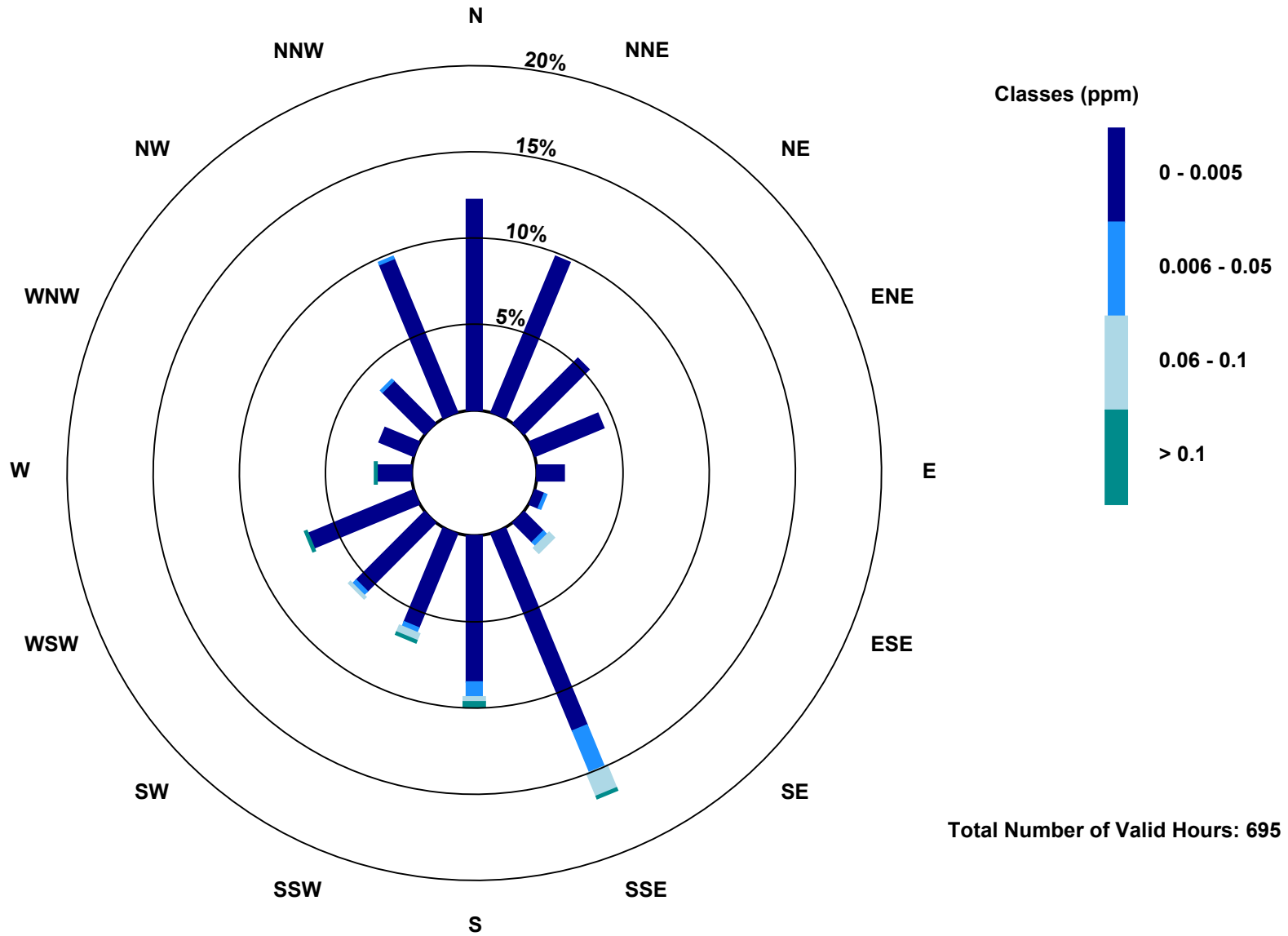
Total Number of Valid Hours: 695

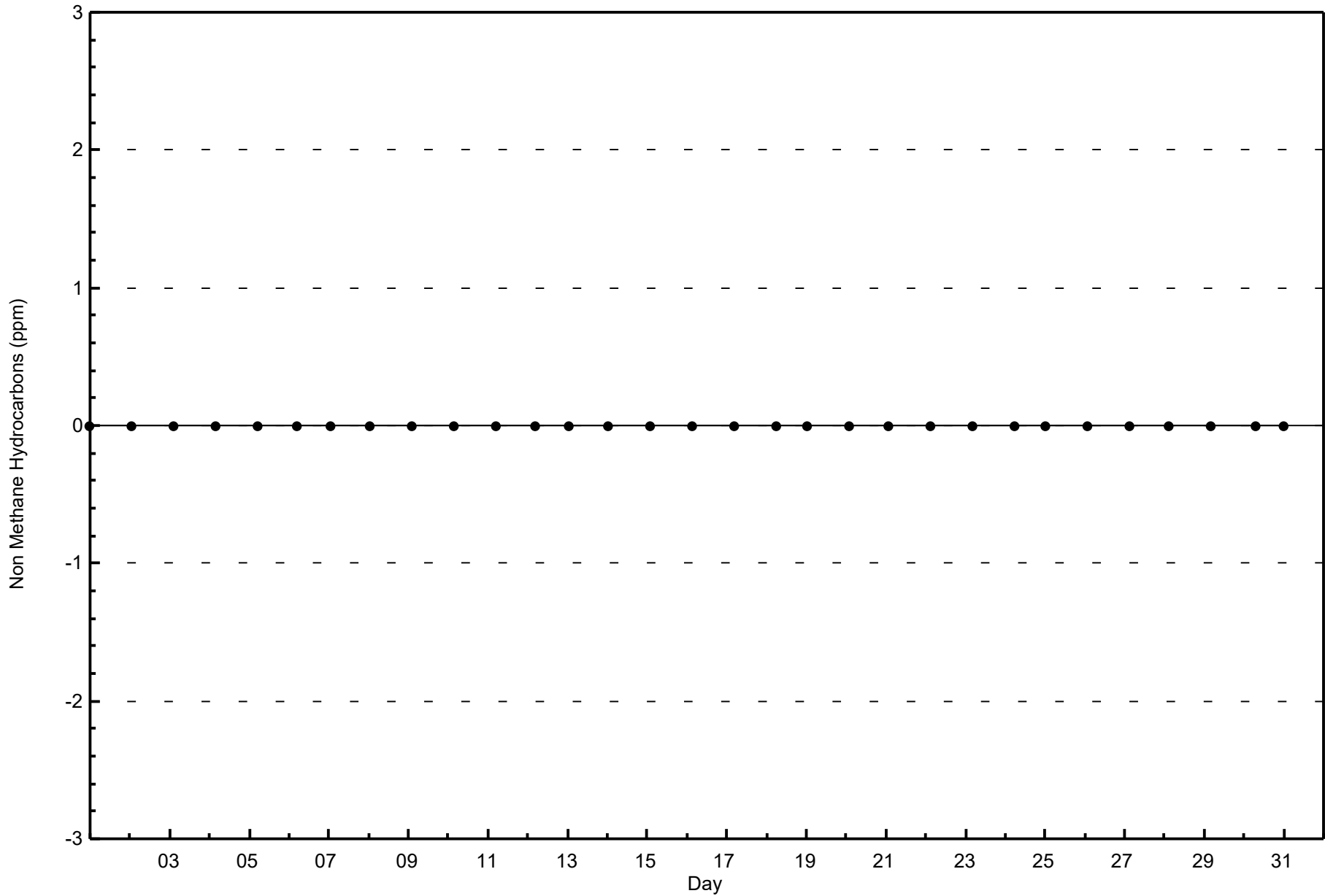
Total Number of Hours: 744

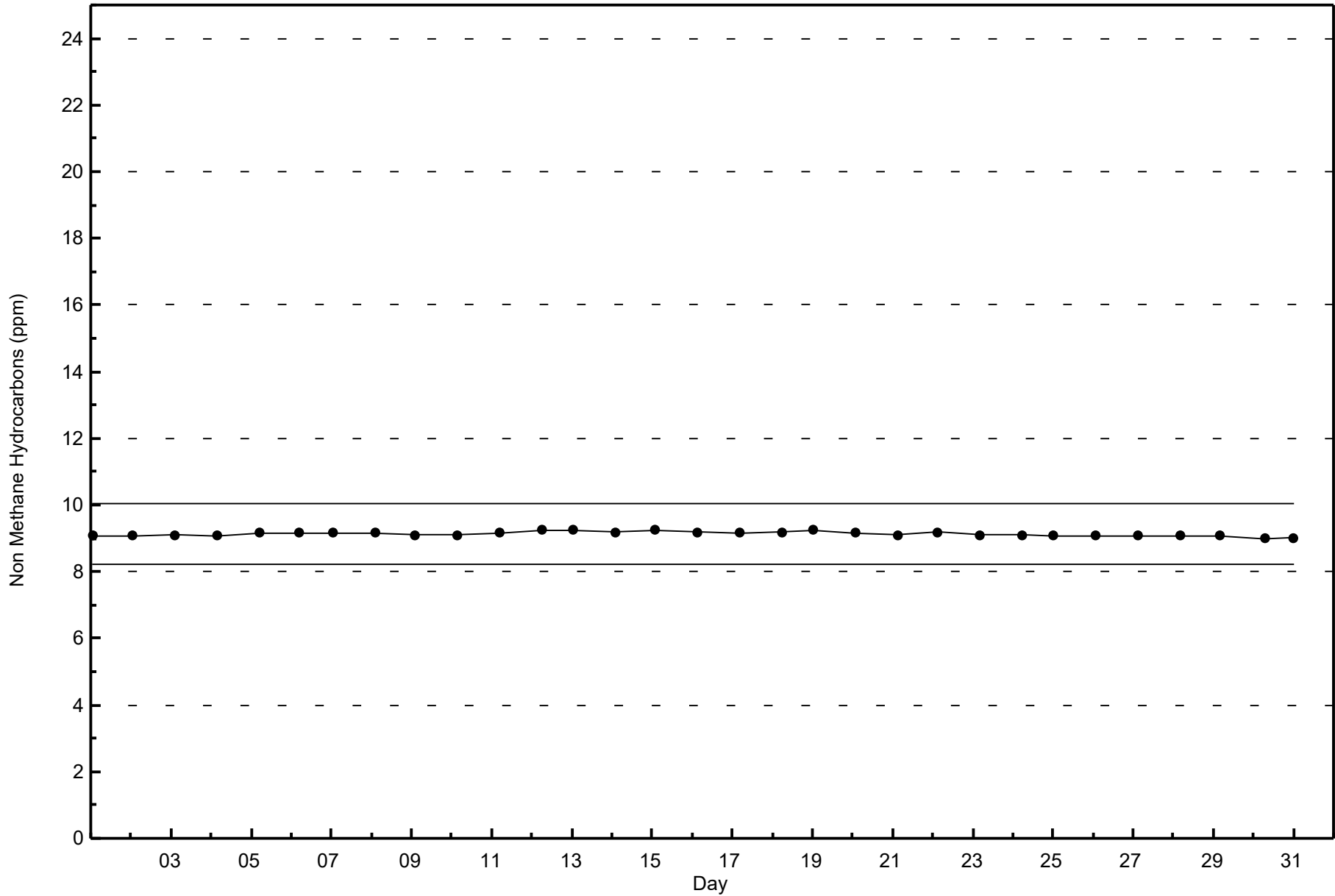


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

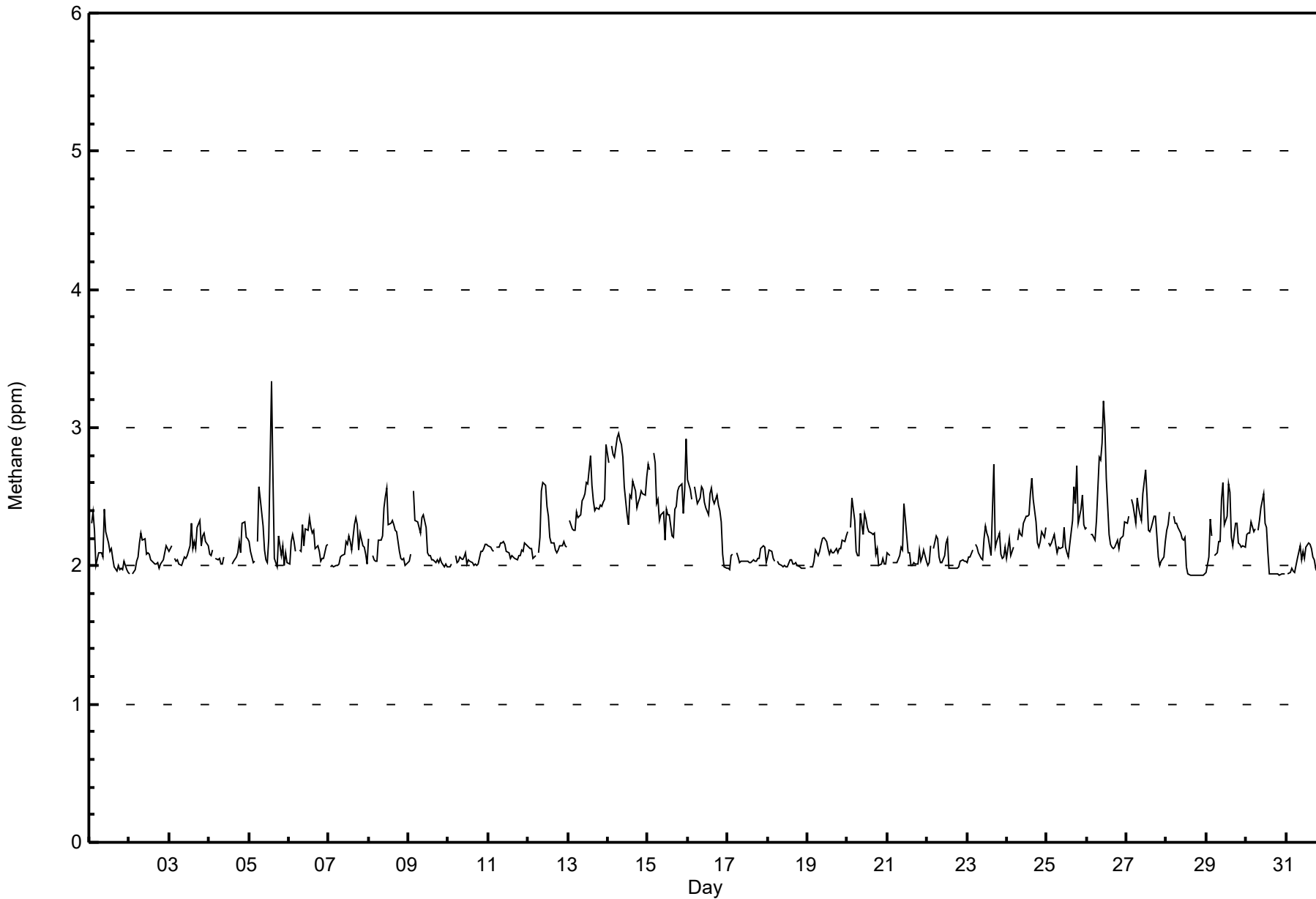
Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing















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

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	189	26.66	26.66
2.1 - 3.0	518	73.06	99.72
3.1 - 10.0	2	0.28	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Barge Landing - January 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	18	24	23	18	3	0	4	17	6	7	14	25	5	7	4	12	187
2.1 - 3.0	67	43	14	12	8	5	12	97	63	40	28	22	10	8	21	56	506
3.1 - 10.0	0	1	0	0	0	0	0	1	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>	85	68	37	30	11	5	16	115	69	47	42	47	15	15	25	68	695

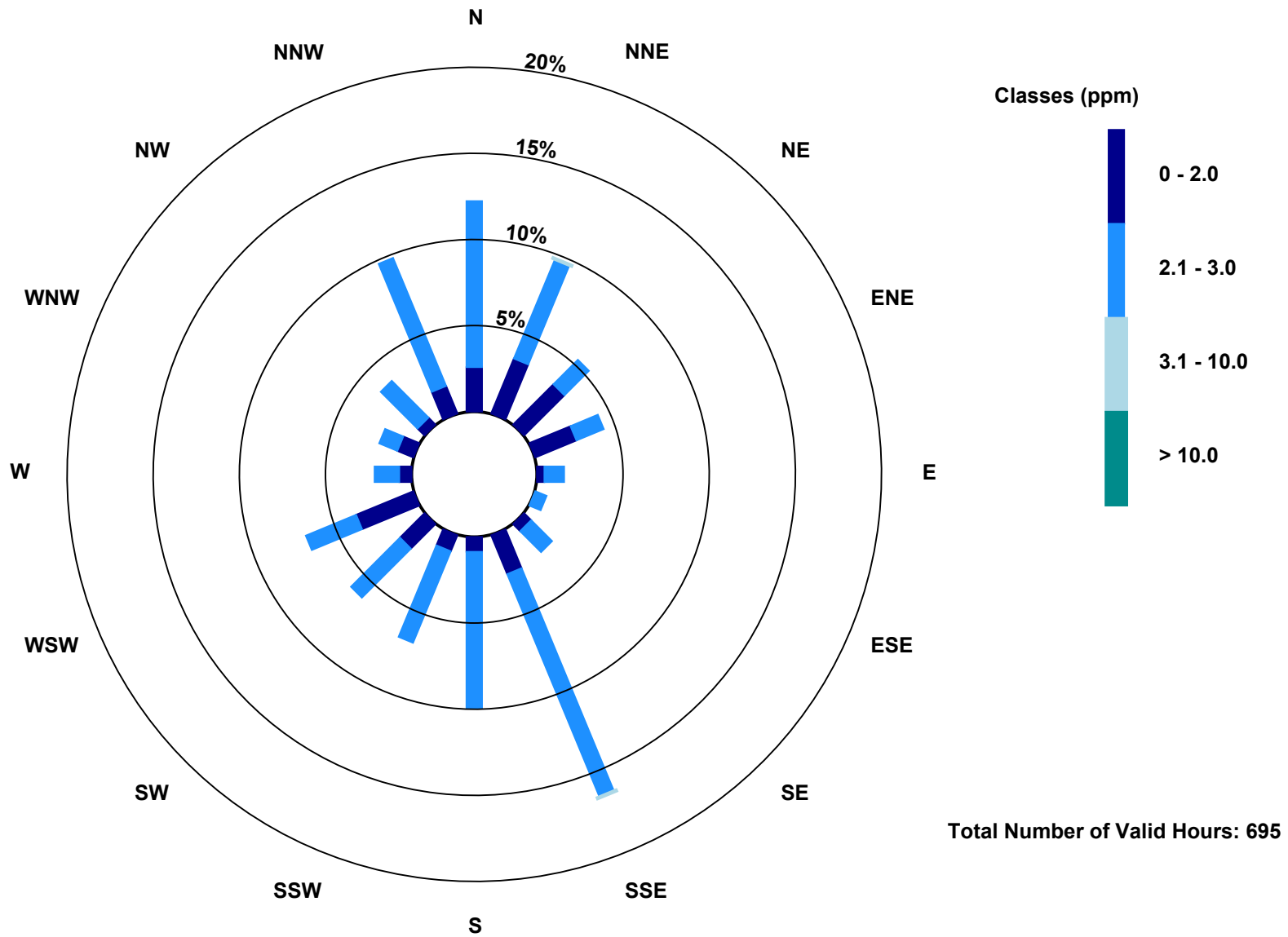
Total Number of Valid Hours: 695

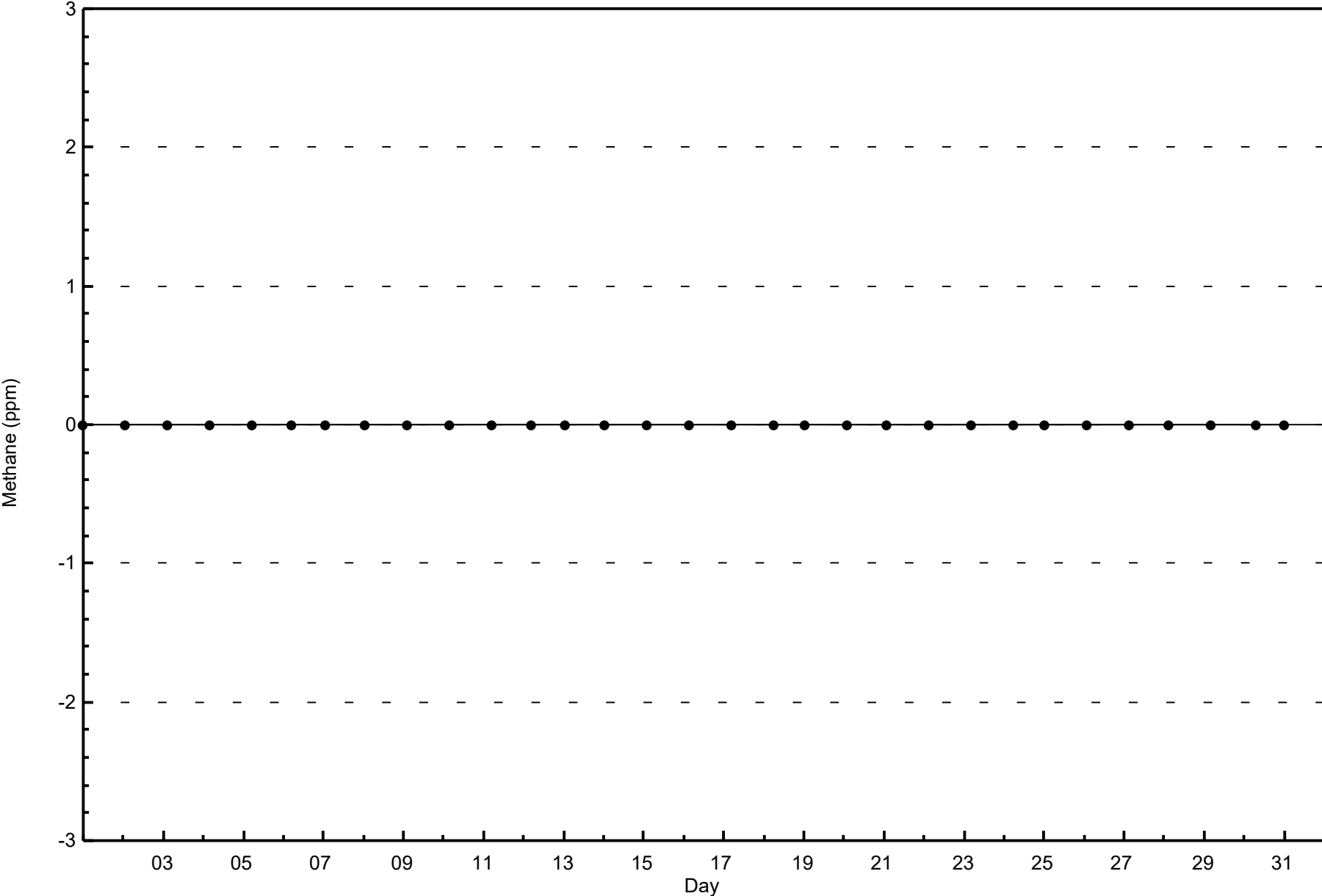
Total Number of Hours: 744

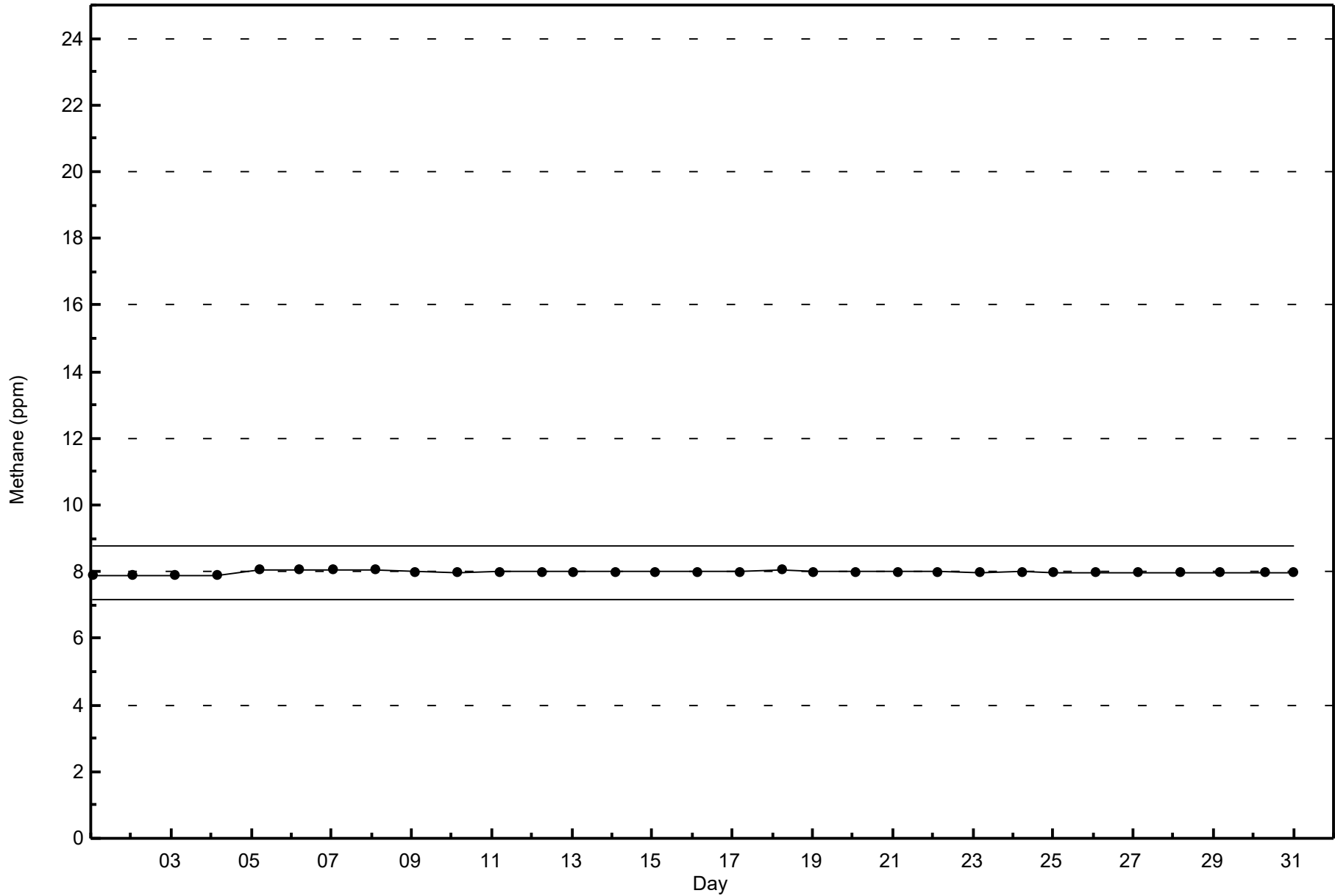


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







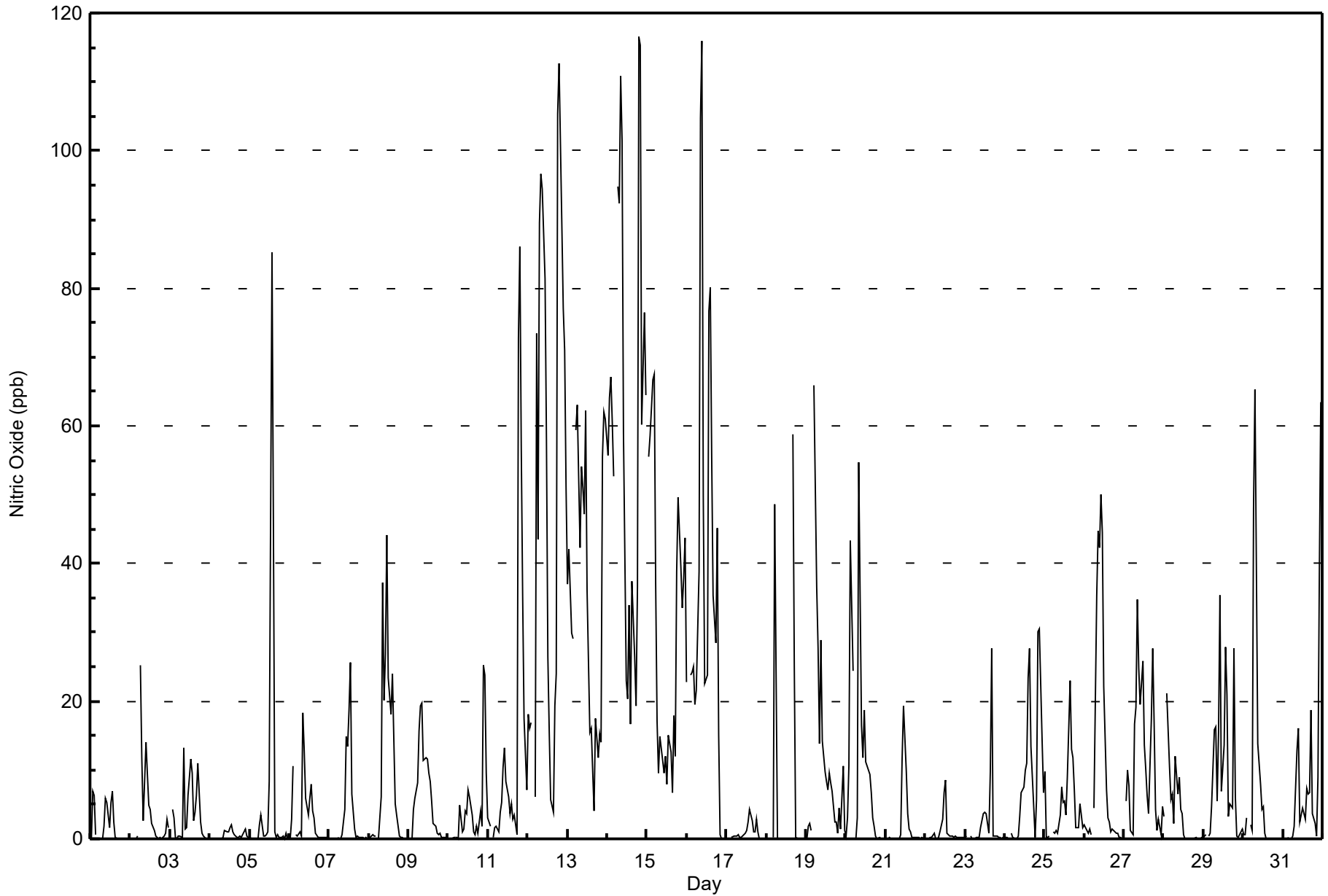


Maximum Value: 116.5 ppb on Jan 14 20:00																								Hours in Service: 744		
Maximum Daily Average: 61.1 ppb on Jan 14																								Hours of Data: 707		
Minimum Value: 0.0 ppb on Jan 2 01:00																								Hours of Missing Data: 37		
Minimum Daily Average: 0.6 ppb on Jan 4																								Hours of Calibration: 37		
Maximum Diurnal Average: 22.5 ppb at hour 9																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 5.9 ppb at hour 1																										
Monthly Average: 12.23 ppb																										
Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 2.5 Q <sub>3</sub> = 13.8 P <sub>90</sub> = 39.6 P <sub>99</sub> = 101.3																										
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-Jan	0.0	7.0	6.2	0.6	Z	0.0	0.0	0.1	1.7	5.8	5.3	1.6	5.3	7.0	2.5	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.9	7.0
2-Jan	0.0	0.0	0.0	0.0	0.4	Z	25.3	11.8	2.6	14.1	9.4	4.8	4.3	2.3	1.2	0.5	0.1	0.1	0.2	0.1	0.4	0.9	2.9	1.5	3.6	25.3
3-Jan	Z	4.3	3.1	0.2	0.1	0.4	0.4	0.1	13.2	1.5	1.6	6.2	11.6	9.6	2.5	3.8	6.3	11.0	2.4	0.8	0.4	0.2	0.1	0.1	3.5	13.2
4-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.1	1.0	0.9	1.6	1.9	1.0	0.6	0.2	0.2	0.4	0.2	0.6	1.4	0.4	0.2	0.6	1.9
5-Jan	0.0	0.2	Z	0.0	0.0	0.0	2.1	3.5	0.5	0.4	0.7	1.0	8.2	85.2	45.3	1.1	0.2	0.6	0.2	0.2	0.5	0.0	0.8	0.0	6.6	85.2
6-Jan	0.0	2.8	10.5	Z	0.7	0.4	0.9	0.4	18.4	12.8	5.9	3.5	5.9	8.0	4.0	3.1	0.8	0.2	0.2	0.2	0.1	0.3	0.1	0.1	3.5	18.4
7-Jan	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.6	4.2	14.8	13.5	18.8	25.6	6.5	1.4	0.2	0.5	0.2	0.3	0.2	0.1	0.1	0.0	3.8	25.6
8-Jan	0.0	0.1	0.6	0.5	0.4	Z	0.1	6.1	37.2	20.2	26.8	44.2	23.3	18.2	24.0	14.5	5.0	3.5	0.4	0.1	0.1	0.0	0.0	0.0	9.8	44.2
9-Jan	Z	0.1	0.1	4.2	5.9	8.0	15.8	19.3	19.7	11.3	11.8	11.5	9.5	8.4	5.5	2.3	1.8	0.9	0.6	0.9	0.2	0.1	0.2	0.1	6.0	19.7
10-Jan	0.1	Z	0.1	0.1	0.3	0.2	0.1	4.9	1.0	1.4	4.1	3.6	7.2	6.0	3.5	1.0	0.6	1.8	0.7	4.0	1.9	25.3	23.7	9.6	4.4	25.3
11-Jan	3.1	1.9	Z	0.3	1.6	1.9	1.0	3.9	5.2	10.3	13.2	8.4	6.2	3.7	5.0	2.8	3.5	0.6	72.9	86.0	56.9	35.4	17.4	7.0	15.1	86.0
12-Jan	18.1	16.0	16.9	Z	6.0	73.3	43.5	89.5	96.7	94.3	81.4	58.0	26.5	15.4	5.7	3.8	19.3	23.9	105.4	112.6	89.1	77.1	71.0	51.0	51.9	112.6
13-Jan	37.1	42.2	29.9	29.1	Z	59.3	63.1	42.3	54.1	51.1	47.2	62.2	36.2	15.4	16.0	9.9	4.1	17.5	11.7	15.2	13.9	55.4	62.1	61.1	36.4	63.1
14-Jan	55.8	64.2	67.2	60.6	52.7	Z	94.8	92.4	110.8	101.6	59.0	23.0	20.3	33.9	16.6	37.3	26.3	19.3	36.6	116.5	115.4	60.2	76.5	64.5	61.1	116.5
15-Jan	Z	55.4	58.5	66.7	67.6	37.0	17.2	9.7	14.9	11.4	9.6	12.0	7.8	15.1	12.6	6.7	17.9	12.0	38.8	49.6	39.4	33.7	37.9	43.6	29.4	67.6
16-Jan	22.7	Z	23.8	24.2	25.0	19.5	21.6	38.8	104.8	116.0	49.7	22.6	23.9	76.8	80.1	55.8	35.3	28.5	45.1	15.1	0.7	0.0	0.0	0.0	36.1	116.0
17-Jan	0.0	0.0	Z	0.3	0.3	0.3	0.3	0.6	0.3	0.3	0.6	0.8	1.1	2.5	4.3	2.7	1.1	1.0	2.9	1.0	0.0	0.0	0.0	0.0	0.9	4.3
18-Jan	0.0	0.0	0.0	Z	0.2	48.7	24.3	0.0	0.0	0.1	C	C	C	C	C	C	58.8	25.3	0.2	0.0	0.0	0.0	0.0	0.0	--	58.8
19-Jan	0.0	1.8	2.3	1.2	Z	66.0	36.6	27.6	13.9	28.9	14.2	9.8	8.3	7.1	9.5	8.0	7.0	2.4	2.4	0.9	4.4	1.5	10.6	1.3	11.5	66.0
20-Jan	0.5	3.0	10.6	43.3	24.5	Z	0.0	3.0	54.7	16.4	11.8	18.6	11.2	10.5	9.4	6.7	3.1	1.8	0.3	0.1	0.2	0.1	0.0	0.0	10.0	54.7
21-Jan	Z	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.6	11.7	19.3	9.8	3.7	1.4	1.0	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	2.1	19.3
22-Jan	0.0	Z	0.1	0.1	0.2	0.8	0.1	0.1	0.1	1.0	2.9	6.6	8.6	0.8	0.6	0.5	0.4	0.3	0.4	0.1	0.1	0.1	0.1	0.3	1.1	8.6
23-Jan	0.2	0.3	Z	0.4	0.1	0.0	0.1	0.1	0.3	1.6	2.6	3.6	3.9	3.6	0.7	9.7	27.7	0.5	0.5	0.3	0.2	0.1	0.1	0.1	2.5	27.7
24-Jan	0.2	0.1	0.1	Z	0.8	0.2	0.1	0.1	0.4	3.2	6.7	7.6	10.0	11.0	23.5	27.6	13.5	4.7	0.1	5.7	30.2	30.5	14.3	6.7	8.6	30.5
25-Jan	9.9	0.2	0.2	0.5	Z	0.9	0.7	1.2	0.8	3.5	7.4	5.2	5.5	3.4	8.8	23.0	13.0	11.9	7.0	1.6	1.7	5.2	3.4	1.5	5.1	23.0
26-Jan	2.0	1.6	0.7	1.3	0.6	Z	4.5	35.4	44.8	42.4	50.1	44.5	22.1	7.0	3.1	2.5	1.1	1.5	0.9	0.8	0.7	0.3	0.2	0.1	11.7	50.1
27-Jan	Z	5.4	10.1	7.7	1.2	0.7	16.7	19.2	34.7	24.8	19.5	25.8	13.7	10.2	6.2	3.7	17.2	27.7	16.8	4.3	1.2	2.8	0.6	4.8	12.0	34.7
28-Jan	3.2	Z	21.1	10.4	5.7	6.5	2.3	12.1	6.5	8.9	4.2	3.7	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	3.7	21.1
29-Jan	0.2	0.6	Z	0.4	0.7	4.7	15.9	16.3	5.6	15.5	35.4	6.9	13.6	27.9	21.0	3.2	5.0	4.4	27.7	6.1	0.3	0.3	0.5	1.4	9.3	35.4
30-Jan	0.7	0.7	3.1	Z	2.1	1.2	48.1	65.2	39.8	13.8	8.0	4.3	4.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	65.2
31-Jan	0.0	0.0	0.0	0.2	Z	0.1	0.3	1.8	12.9	16.1	2.4	3.4	4.4	2.8	7.3	6.4	6.6	18.7	3.6	2.2	0.4	9.0	38.8	63.4	8.7	63.4
5.9 8.0 10.2 9.7 7.9 12.7 14.1 16.3 22.5 20.5 17.3 14.6 11.1 14.1 10.9 8.0 8.9 7.1 12.2 13.7 11.6 11.0 11.7 10.3																								Diurnal Average		
55.8 64.2 67.2 66.7 67.6 73.3 94.8 92.4 110.8 116.0 81.4 62.2 36.2 85.2 80.1 55.8 58.8 28.5 105.4 116.5 115.4 77.1 76.5 64.5																								Diurnal Maximum		
Z - zerospan C - Calibration																										



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

**Nitric Oxide (NO) - ppb**  
**Barge Landing - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Barge Landing - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	577	81.61	81.61
21 - 40	60	8.49	90.10
41 - 80	53	7.50	97.60
81 - 159	16	2.26	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Barge Landing - January 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	81	71	38	27	8	3	11	81	46	31	30	38	12	13	24	59	573
21 - 40	2	1	1	2	1	0	3	15	10	6	4	4	0	1	2	8	60
11 - 80	0	1	0	1	0	1	2	15	11	7	3	4	2	1	0	0	48
81 - 159	0	1	0	0	0	1	0	1	2	3	1	0	1	0	0	1	11
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	83	74	39	30	9	5	16	112	69	47	38	46	15	15	26	68	692

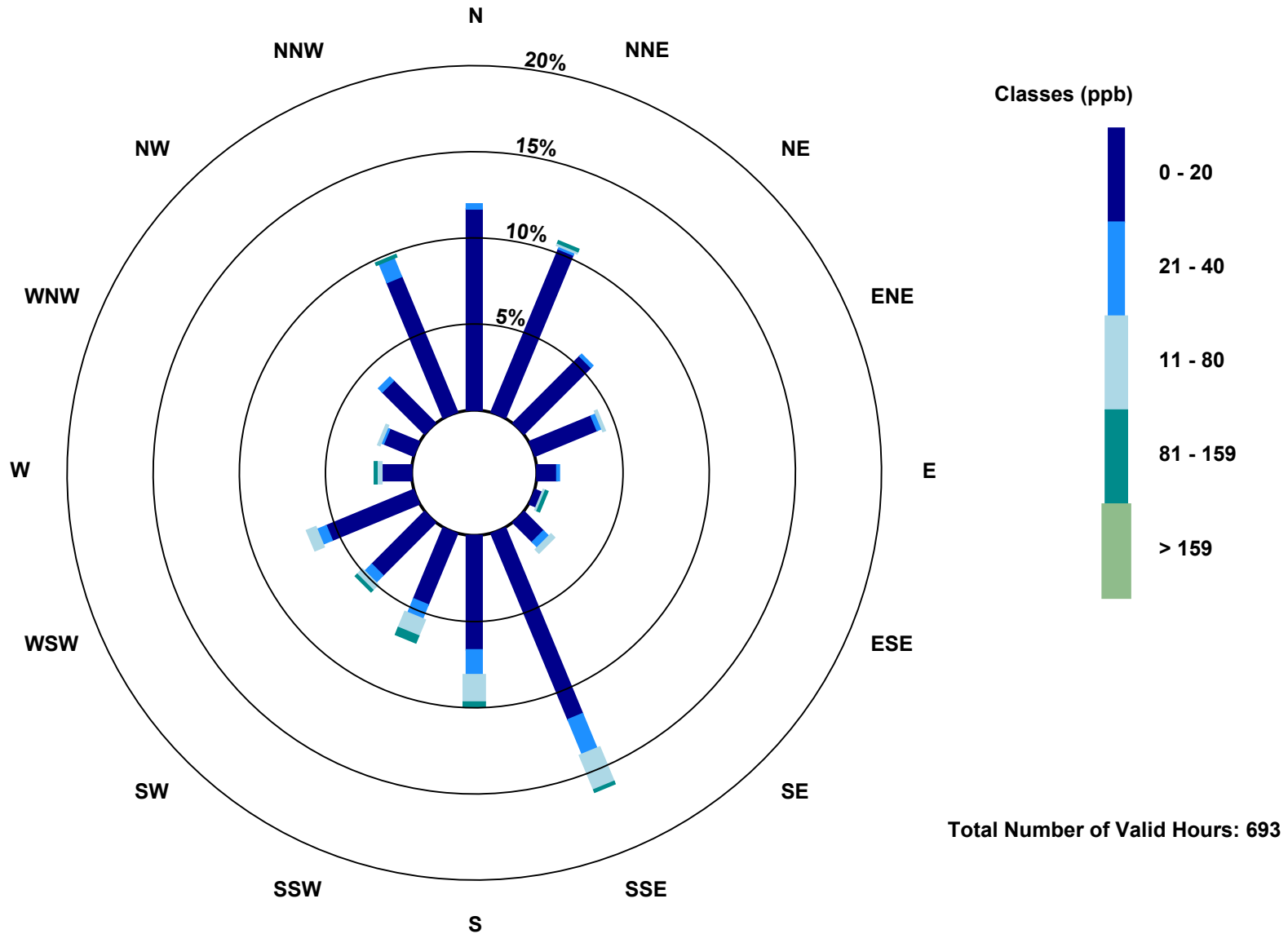
Total Number of Valid Hours: 693

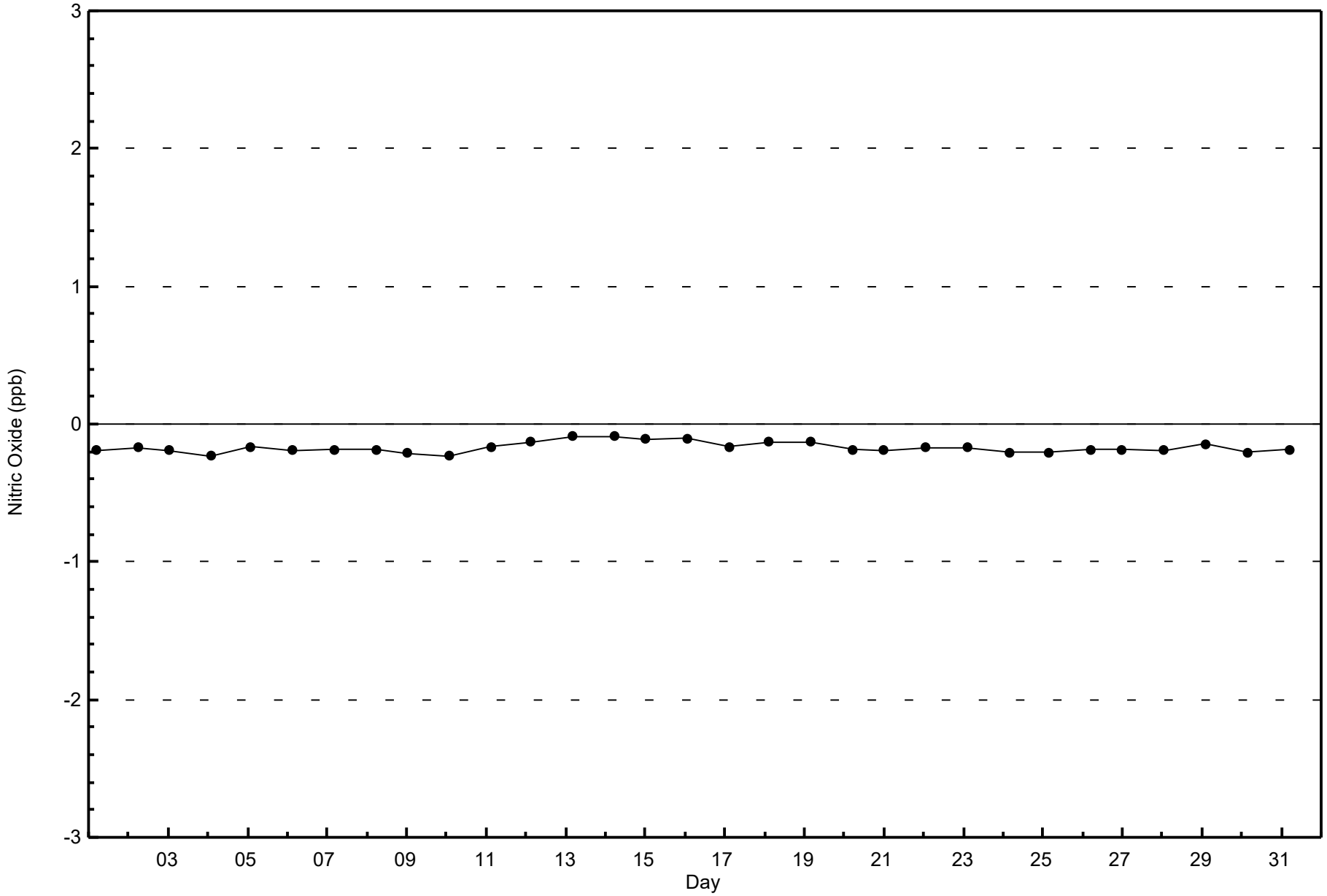
Total Number of Hours: 744

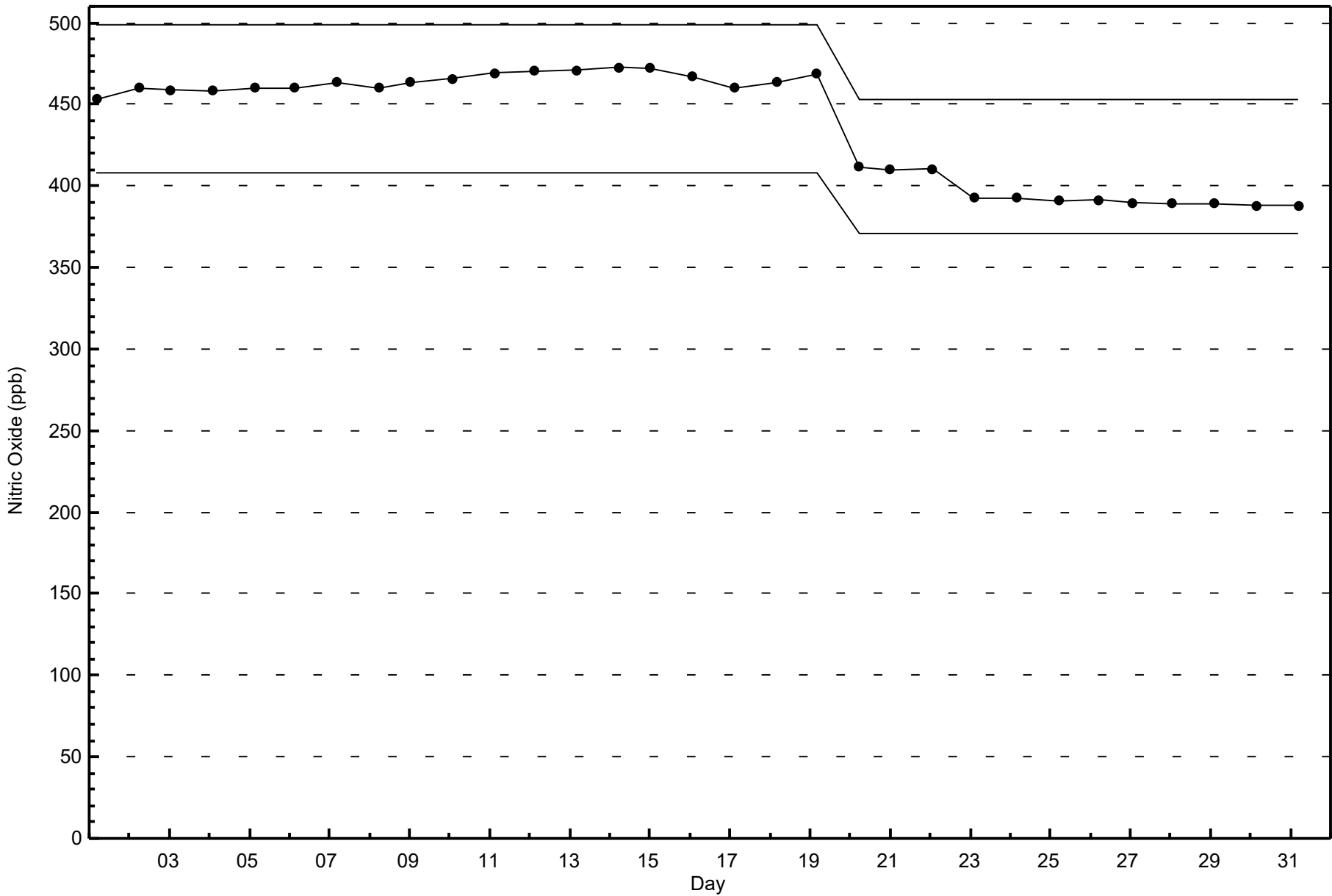


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Barge Landing









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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Barge Landing - January 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 43.0 ppb on Jan 14 21:00	Maximum Daily Average: 29.3 ppb on Jan 14		Hours of Data:	707
Minimum Value: 0.2 ppb on Jan 30 22:00	Minimum Daily Average: 8.5 ppb on Jan 28		Hours of Missing Data:	37
Maximum Diurnal Average: 22.4 ppb at hour 9	Minimum Diurnal Average: 14.0 ppb at hour 1		Hours of Calibration:	37
Monthly Average: 17.23 ppb	Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 5.2 Q <sub>1</sub> = 10.3 Median = 16.5 Q <sub>3</sub> = 24.1 P <sub>90</sub> = 30.2 P <sub>99</sub> = 38.0		Percent Operational Time:	100.0

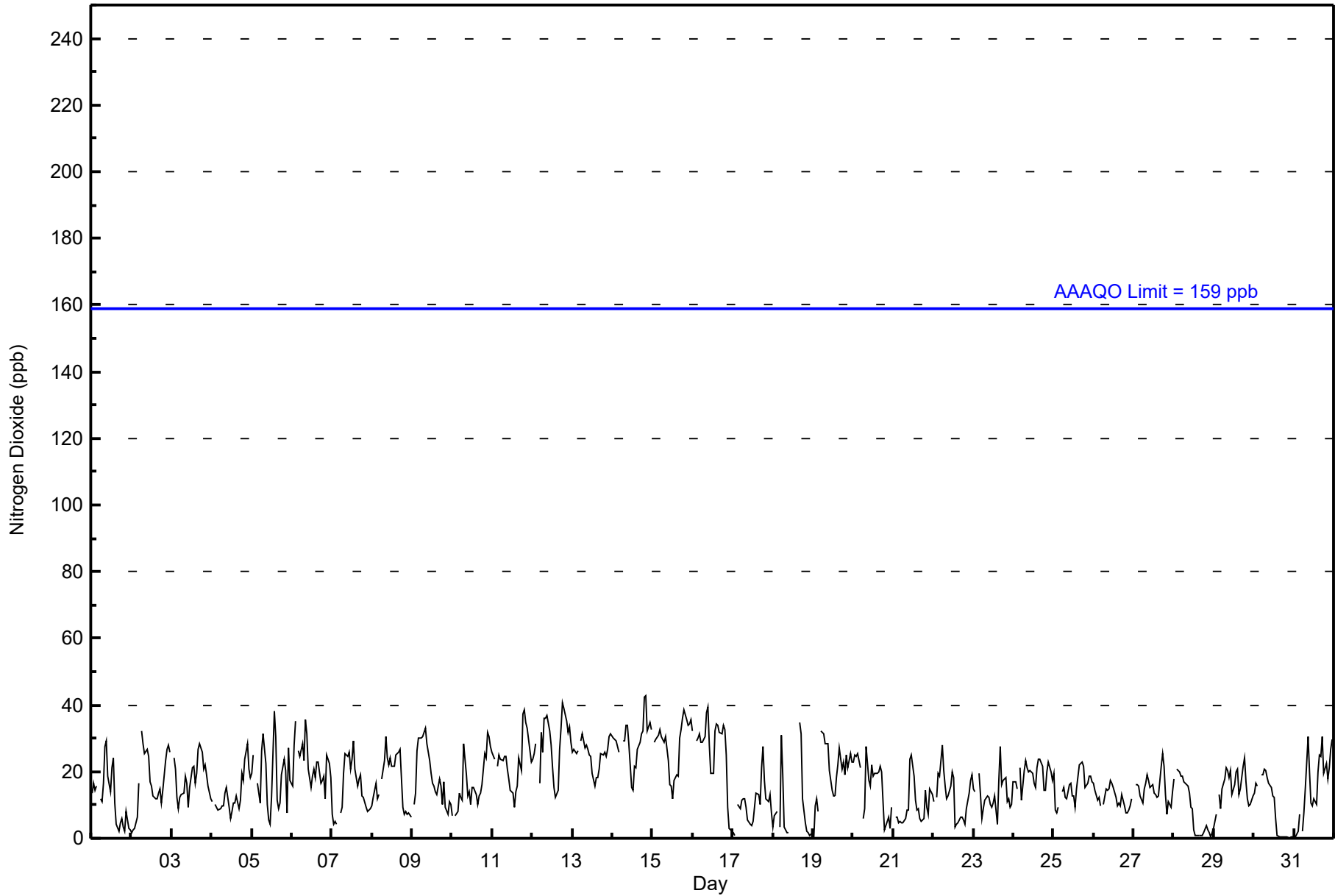
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Jan	13.5	16.7	14.3	15.8	Z	11.7	10.9	16.4	27.4	29.4	18.6	14.0	21.3	24.1	10.7	4.1	2.1	4.7	5.9	3.3	2.0	8.0	3.0	2.4	12.2	29.4																							
2-Jan	1.6	2.7	2.9	6.3	16.5	Z	32.1	28.5	25.5	26.9	24.7	17.0	15.6	12.9	11.9	11.8	13.4	14.8	10.4	14.5	23.5	26.7	28.0	25.8	17.1	32.1																							
3-Jan	Z	24.2	20.9	12.3	8.9	12.1	13.3	13.6	18.8	16.4	9.3	15.2	21.1	21.7	16.7	19.7	26.6	28.6	26.0	20.7	22.0	19.2	15.7	11.7	18.0	28.6																							
4-Jan	11.1	Z	10.3	9.2	8.5	8.7	9.6	9.8	13.4	15.2	9.4	5.9	8.1	10.5	10.8	12.9	9.1	11.6	19.3	17.3	23.7	28.4	20.9	18.2	13.1	28.4																							
5-Jan	19.6	25.1	Z	16.7	13.4	10.5	26.4	31.5	22.3	10.2	5.6	4.4	12.1	38.0	30.3	11.3	9.0	10.4	19.0	23.6	20.4	7.8	27.1	17.4	17.9	38.0																							
6-Jan	15.8	28.0	35.3	Z	26.1	24.5	28.4	23.3	35.7	31.2	20.9	15.2	18.5	20.8	18.2	22.7	22.8	16.4	17.5	18.7	11.7	24.8	22.3	18.3	22.5	35.7																							
7-Jan	7.2	4.3	5.1	4.1	Z	7.6	9.3	19.5	25.5	24.7	25.9	20.8	23.9	29.3	20.6	15.5	17.9	19.0	12.9	12.3	9.2	8.0	8.6	9.0	14.8	29.3																							
8-Jan	9.7	12.2	16.6	12.0	13.1	Z	17.9	23.3	30.7	24.1	22.0	24.3	21.7	21.4	25.2	25.5	25.8	26.5	9.2	7.3	7.9	7.2	7.5	6.5	17.3	30.7																							
9-Jan	Z	10.0	13.7	26.1	30.2	30.1	30.5	31.8	33.0	28.3	23.2	19.6	16.6	15.7	14.1	13.2	17.9	15.6	10.3	17.0	9.5	7.1	11.2	10.0	18.9	33.0																							
10-Jan	6.7	Z	6.7	8.1	13.6	12.3	11.4	28.2	18.9	12.7	13.9	10.3	15.1	15.4	13.0	10.1	12.7	13.6	16.0	25.5	24.1	31.6	30.3	27.4	16.4	31.6																							
11-Jan	25.7	23.7	Z	21.5	24.8	23.6	23.3	24.6	24.5	20.7	17.8	14.6	13.5	9.4	13.9	15.5	24.0	20.5	37.3	38.5	34.9	33.1	29.7	22.9	23.4	38.5																							
12-Jan	23.6	25.4	28.2	Z	16.5	31.9	25.8	36.2	36.2	37.0	32.2	27.8	21.0	15.1	12.1	14.2	26.8	32.9	40.5	38.9	35.0	31.7	33.3	28.7	28.3	40.5																							
13-Jan	26.0	26.9	25.3	26.2	Z	29.3	31.3	27.2	27.8	26.9	24.9	24.7	19.6	15.6	18.2	18.3	20.6	25.6	25.2	26.0	24.4	26.8	30.7	31.5	25.2	31.5																							
14-Jan	30.2	29.7	29.4	27.6	25.7	Z	29.1	29.1	34.1	34.0	28.4	15.3	14.3	21.5	21.0	26.6	28.7	31.3	32.2	42.5	43.0	32.2	34.8	32.6	29.3	43.0																							
15-Jan	Z	28.7	29.5	31.0	32.5	30.6	29.8	28.7	30.6	23.1	15.9	15.8	12.0	17.4	18.9	18.8	29.9	32.7	36.2	38.4	35.4	33.7	34.3	35.4	27.8	38.4																							
16-Jan	32.0	Z	29.3	30.1	31.2	28.9	28.9	30.7	37.8	39.3	28.0	19.3	19.6	32.0	34.5	33.9	31.6	31.4	34.0	32.7	24.9	9.5	3.0	2.0	27.2	39.3																							
17-Jan	1.5	0.9	Z	10.1	8.8	11.3	11.8	11.8	9.3	5.5	4.4	3.8	4.9	9.3	13.6	13.2	10.3	21.1	27.6	17.4	11.9	10.9	13.0	7.5	10.4	27.6																							
18-Jan	3.6	6.7	8.1	Z	3.5	31.0	18.9	3.5	1.8	1.6	C	C	C	C	C	C	34.8	31.5	11.7	4.5	2.1	1.5	0.8	1.2	--	34.8																							
19-Jan	0.6	9.6	11.9	8.1	Z	32.1	31.4	28.6	28.5	28.3	20.4	14.6	12.9	12.8	18.4	22.1	27.3	20.6	23.0	18.9	24.8	21.3	25.3	22.9	20.2	32.1																							
20-Jan	22.8	24.8	24.6	25.5	21.0	Z	6.0	8.7	27.6	17.3	15.7	21.9	18.6	19.4	19.5	19.8	21.7	19.8	11.1	2.6	4.9	6.3	3.0	9.2	16.2	27.6																							
21-Jan	Z	6.4	6.3	4.5	4.9	4.6	4.6	6.0	8.5	8.3	23.8	24.9	18.8	11.5	8.5	8.9	6.0	5.2	5.8	14.3	9.5	7.4	15.0	13.3	9.9	24.9																							
22-Jan	11.2	Z	12.1	19.4	18.8	27.8	20.2	15.5	11.8	12.7	15.6	19.8	18.4	3.6	4.1	4.7	6.5	6.5	5.3	4.4	9.0	13.6	17.4	19.0	12.9	27.8																							
23-Jan	15.0	14.1	Z	19.6	13.0	6.1	8.8	11.4	12.8	12.4	10.0	9.3	10.7	12.5	4.3	17.5	27.5	16.3	17.5	18.4	11.1	11.7	9.4	10.3	13.0	27.5																							
24-Jan	16.8	16.9	15.0	Z	21.1	11.3	20.5	23.2	21.1	19.8	20.4	19.5	16.5	15.4	21.1	23.8	23.7	21.8	14.6	14.3	19.9	22.8	19.9	17.2	19.0	23.8																							
25-Jan	19.5	8.6	7.8	9.5	Z	13.9	15.1	12.4	11.7	15.9	16.5	12.8	12.6	9.3	14.8	21.9	22.6	23.0	21.4	15.1	16.6	18.7	18.7	17.0	15.5	23.0																							
26-Jan	16.5	14.3	11.5	12.1	9.8	Z	10.0	14.9	14.5	14.8	17.5	16.4	15.3	12.1	9.8	10.7	9.8	13.0	9.7	7.7	7.7	8.6	9.8	11.8	12.1	17.5																							
27-Jan	Z	16.1	16.0	15.5	12.8	10.7	14.8	16.7	18.9	17.4	15.4	16.0	13.6	13.2	12.4	12.8	21.7	25.3	21.5	13.0	7.4	11.2	9.3	13.8	15.0	25.3																							
28-Jan	18.0	Z	20.6	20.1	18.6	18.8	16.9	16.6	15.8	13.4	9.4	8.8	2.5	0.9	0.9	0.8	0.9	0.8	1.5	3.9	2.4	1.9	0.6	1.8	8.5	20.6																							
29-Jan	3.0	7.2	Z	13.2	8.7	14.7	17.6	21.2	20.2	18.4	20.3	13.3	16.3	19.9	20.9	13.3	15.0	21.7	24.2	16.9	11.9	9.9	10.1	12.5	15.2	24.2																							
30-Jan	13.6	16.6	15.5	Z	19.1	18.9	20.9	20.4	18.2	16.5	15.4	12.6	12.1	6.0	0.7	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.5	9.1	20.9																							
31-Jan	0.4	0.5	2.3	7.4	Z	2.3	7.6	14.7	30.4	20.0	10.4	9.9	11.9	10.3	19.8	25.0	24.4	30.4	19.3	22.5	17.8	21.1	26.7	29.5	15.9	30.4																							
																								14.0	15.4	16.1	15.8	16.8	17.9	18.8	20.3	22.4	20.1	17.9	15.6	15.3	15.9	15.3	15.6	18.4	19.1	18.3	17.8	16.4	16.2	16.8	15.7	Diurnal Average	
																								32.0	29.7	35.3	31.0	32.5	32.1	32.1	36.2	37.8	39.3	32.2	27.8	23.9	38.0	34.5	33.9	34.8	32.9	40.5	42.5	43.0	33.7	34.8	35.4	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  
Barge Landing - January 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Barge Landing - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	457	64.64	64.64
21 - 40	247	34.94	99.58
41 - 80	3	0.42	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Barge Landing - January 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	55	60	32	24	5	1	8	69	44	27	27	34	9	9	17	34	455
21 - 40	28	14	7	6	4	4	8	43	25	20	12	12	5	6	9	33	236
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	<b>83</b>	<b>74</b>	<b>39</b>	<b>30</b>	<b>9</b>	<b>5</b>	<b>16</b>	<b>112</b>	<b>69</b>	<b>47</b>	<b>39</b>	<b>46</b>	<b>15</b>	<b>15</b>	<b>26</b>	<b>68</b>	<b>693</b>

Total Number of Valid Hours: 693

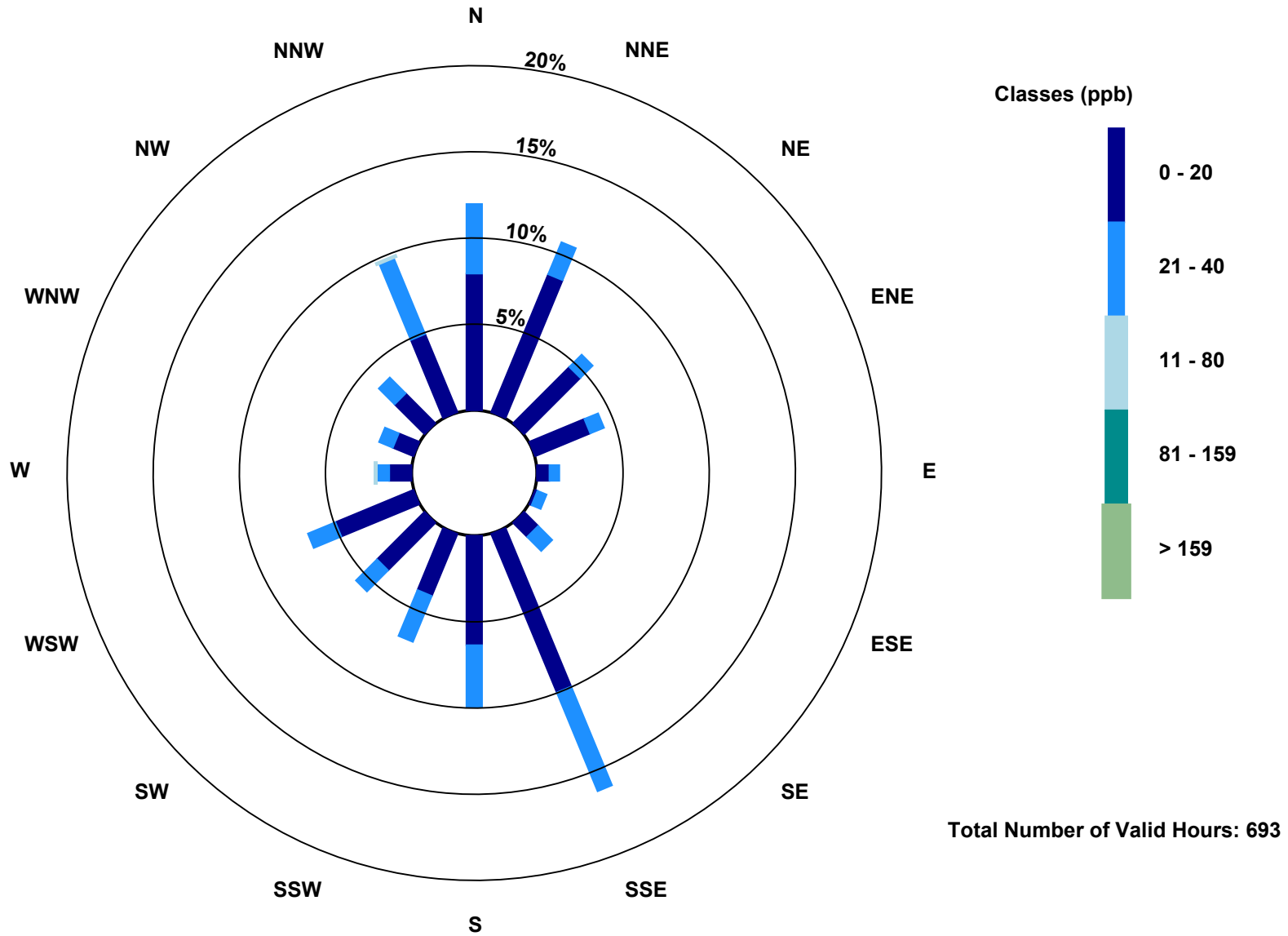
Total Number of Hours: 744

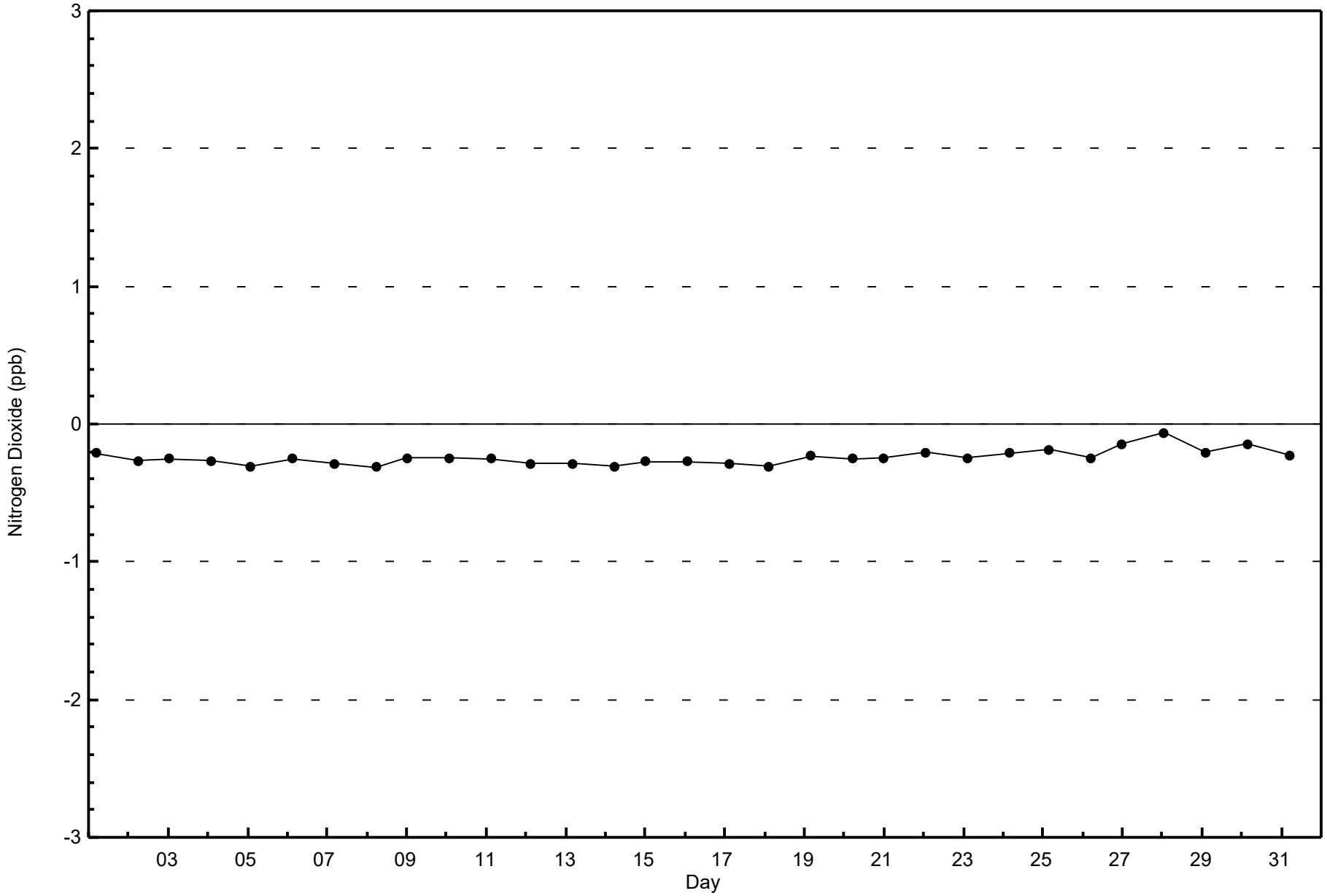


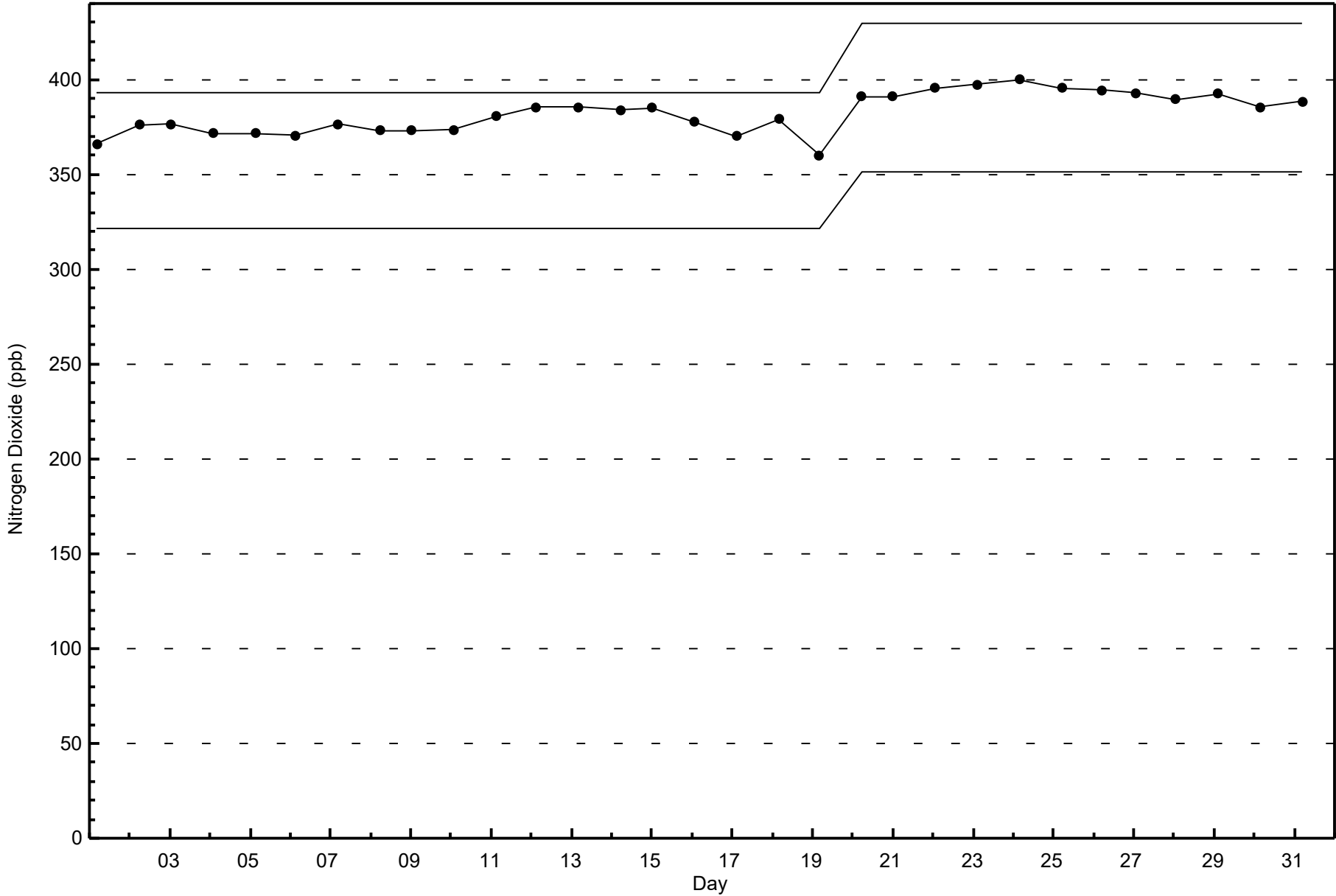


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

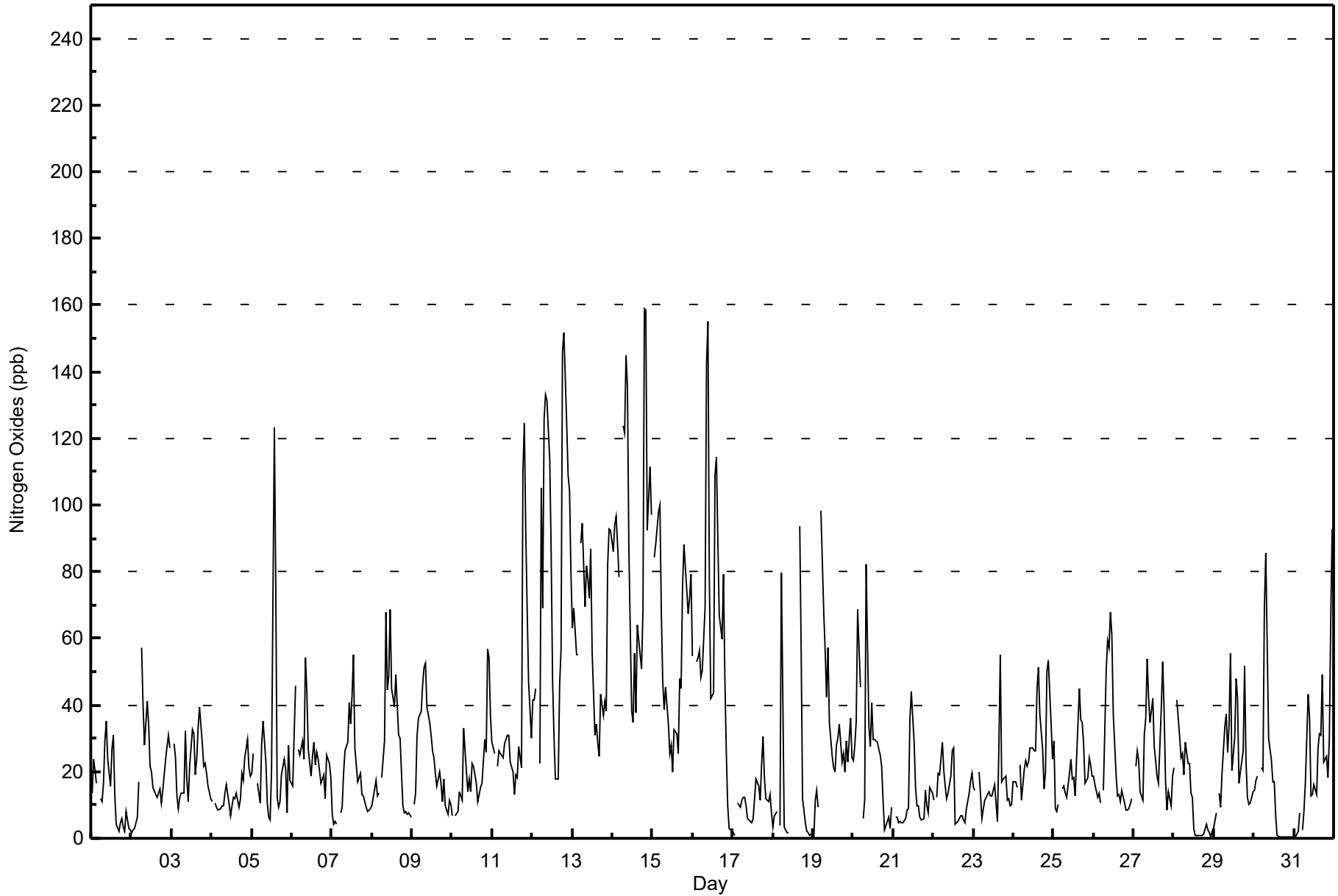
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - January 2024**

Maximum Value: 159.0 ppb on Jan 14 20:00																						Maximum Daily Average: 90.4 ppb on Jan 14																						Hours in Service: 744					
Minimum Value: 0.2 ppb on Jan 30 22:00																						Minimum Daily Average: 11.3 ppb on Jan 17																						Hours of Data: 707					
Maximum Diurnal Average: 44.8 ppb at hour 9																						Minimum Diurnal Average: 20.0 ppb at hour 1																						Hours of Missing Data: 37					
Monthly Average: 29.45 ppb																						Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 5.6 Q <sub>1</sub> = 11.4 Median = 20.1 Q <sub>3</sub> = 35.9 P <sub>90</sub> = 68.5 P <sub>99</sub> = 135.4																						Hours of Calibration: 37					
																																												Percent Operational Time: 100.0					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Jan	13.5	23.7	20.5	16.4	Z	11.7	10.9	16.5	29.1	35.2	23.9	15.6	26.6	31.1	13.2	4.2	2.1	4.7	6.0	3.3	2.0	8.0	3.0	2.4	14.1	35.2																							
2-Jan	1.6	2.7	2.9	6.3	16.9	Z	57.4	40.3	28.1	41.0	34.1	21.8	19.9	15.2	13.1	12.3	13.5	14.9	10.6	14.6	23.9	27.6	30.9	27.3	20.7	57.4																							
3-Jan	Z	28.5	24.0	12.5	9.0	12.5	13.7	13.7	32.0	17.9	10.9	21.4	32.7	31.3	19.2	23.5	32.9	39.6	28.4	21.5	22.4	19.4	15.8	11.8	21.5	39.6																							
4-Jan	11.2	Z	10.4	9.3	8.6	8.8	9.7	9.9	13.7	16.3	10.4	6.8	9.7	12.4	11.8	13.5	9.3	11.8	19.7	17.5	24.3	29.8	21.3	18.4	13.7	29.8																							
5-Jan	19.6	25.3	Z	16.7	13.4	10.5	28.5	35.0	22.8	10.6	6.3	5.4	20.3	123.2	75.6	12.4	9.2	11.0	19.2	23.8	20.9	7.8	27.9	17.4	24.5	123.2																							
6-Jan	15.8	30.8	45.8	Z	26.8	24.9	29.3	23.7	54.1	44.0	26.8	18.7	24.4	28.8	22.2	25.8	23.6	16.6	17.7	18.9	11.8	25.1	22.4	18.4	25.9	54.1																							
7-Jan	7.3	4.3	5.1	4.1	Z	7.7	9.4	19.5	26.1	28.9	40.7	34.3	42.7	54.9	27.1	16.9	18.1	19.5	13.1	12.6	9.4	8.1	8.7	9.0	18.6	54.9																							
8-Jan	9.7	12.3	17.2	12.5	13.5	Z	18.0	29.4	67.9	44.3	48.8	68.5	45.0	39.6	49.2	40.0	30.8	30.0	9.6	7.4	8.0	7.2	7.5	6.5	27.1	68.5																							
9-Jan	Z	10.1	13.8	30.3	36.1	38.1	46.3	51.1	52.7	39.6	35.0	31.1	26.1	24.1	19.6	15.5	19.7	16.5	10.9	17.9	9.7	7.2	11.4	10.1	24.9	52.7																							
10-Jan	6.8	Z	6.8	8.2	13.9	12.5	11.5	33.1	19.9	14.1	18.0	13.9	22.3	21.4	16.5	11.1	13.3	15.4	16.7	29.5	26.0	56.9	54.0	37.0	20.8	56.9																							
11-Jan	28.8	25.6	Z	21.8	26.4	25.5	24.3	28.5	29.7	31.0	31.0	23.0	19.7	13.1	18.9	18.3	27.5	21.1	110.2	124.5	91.8	68.5	47.1	29.9	38.5	124.5																							
12-Jan	41.7	41.4	45.1	Z	22.5	105.2	69.3	125.7	132.9	131.3	113.6	85.8	47.5	30.5	17.8	18.0	46.1	56.8	145.9	151.5	124.1	108.8	104.3	79.7	80.2	151.5																							
13-Jan	63.1	69.1	55.2	55.3	Z	88.6	94.4	69.5	81.9	78.0	72.1	86.9	55.8	31.0	34.2	28.2	24.7	43.1	36.9	41.2	38.3	82.2	92.8	92.5	61.5	94.4																							
14-Jan	86.0	93.9	96.6	88.2	78.4	Z	123.9	121.5	144.9	135.6	87.4	38.3	34.6	55.4	37.6	63.9	55.0	50.6	68.8	159.0	158.4	92.4	111.3	97.1	90.4	159.0																							
15-Jan	Z	84.1	88.0	97.7	100.1	67.6	47.0	38.4	45.5	34.5	25.5	27.8	19.8	32.5	31.5	25.5	47.8	44.7	75.0	88.0	74.8	67.4	72.2	79.0	57.2	100.1																							
16-Jan	54.7	Z	53.1	54.3	56.2	48.4	50.5	69.5	142.6	155.3	77.7	41.9	43.5	108.8	114.6	89.7	66.9	59.9	79.1	47.8	25.6	9.5	3.0	2.0	63.2	155.3																							
17-Jan	1.5	0.9	Z	10.4	9.1	11.6	12.1	12.4	9.6	5.8	5.0	4.6	6.0	11.8	17.9	15.9	11.4	22.1	30.5	18.4	11.9	10.9	13.0	7.5	11.3	30.5																							
18-Jan	3.6	6.7	8.1	Z	3.7	79.7	43.2	3.5	1.8	1.7	C	C	C	C	C	C	93.6	56.8	11.9	4.5	2.1	1.5	0.8	1.2	--	93.6																							
19-Jan	0.6	11.4	14.2	9.3	Z	98.1	68.0	56.2	42.4	57.2	34.6	24.4	21.2	19.9	27.9	30.1	34.3	23.0	25.4	19.8	29.2	22.8	35.9	24.2	31.7	98.1																							
20-Jan	23.3	27.8	35.2	68.8	45.5	Z	6.0	11.7	82.3	33.7	27.5	40.5	29.8	29.9	28.9	26.5	24.8	21.6	11.4	2.7	5.1	6.4	3.0	9.2	26.2	82.3																							
21-Jan	Z	6.4	6.5	4.5	4.9	4.6	4.6	6.0	8.6	8.9	35.5	44.2	28.6	15.2	9.9	9.9	6.2	5.4	5.9	14.4	9.6	7.4	15.1	13.4	12.0	44.2																							
22-Jan	11.2	Z	12.2	19.5	19.0	28.6	20.3	15.6	11.9	13.7	18.5	26.4	27.0	4.4	4.7	5.2	6.9	6.8	5.7	4.5	9.1	13.7	17.5	19.3	14.0	28.6																							
23-Jan	15.2	14.4	Z	20.0	13.1	6.1	8.9	11.5	13.1	14.0	12.6	12.9	14.6	16.1	5.0	27.2	55.2	16.8	18.0	18.7	11.3	11.8	9.5	10.4	15.5	55.2																							
24-Jan	17.0	17.0	15.1	Z	21.9	11.5	20.6	23.3	21.5	23.0	27.1	27.1	26.5	26.4	44.6	51.4	37.2	26.5	14.7	20.0	50.1	53.3	34.2	23.9	27.6	53.3																							
25-Jan	29.4	8.8	8.0	10.0	Z	14.8	15.8	13.6	12.5	19.4	23.9	18.0	18.1	12.7	23.6	44.9	35.6	34.9	28.4	16.7	18.3	23.9	22.1	18.5	20.5	44.9																							
26-Jan	18.5	15.9	12.2	13.4	10.4	Z	14.5	50.3	59.3	57.2	67.6	60.9	37.4	19.1	12.9	13.2	10.9	14.5	10.6	8.5	8.4	8.9	10.0	11.9	23.8	67.6																							
27-Jan	Z	21.5	26.1	23.2	14.0	11.4	31.5	35.9	53.6	42.2	34.9	41.8	27.3	23.4	18.6	16.5	38.9	53.0	38.3	17.3	8.6	14.0	9.9	18.6	27.0	53.6																							
28-Jan	21.2	Z	41.7	30.5	24.3	25.3	19.2	28.7	22.3	22.3	13.6	12.5	3.2	1.0	0.9	0.8	0.9	0.8	1.5	4.2	2.4	1.9	0.6	2.0	12.3	41.7																							
29-Jan	3.2	7.8	Z	13.6	9.4	19.4	33.5	37.5	25.8	33.9	55.7	20.2	29.9	47.8	41.9	16.5	20.0	26.1	51.9	23.0	12.2	10.2	10.6	13.9	24.5	55.7																							
30-Jan	14.3	17.3	18.6	Z	21.2	20.1	69.0	85.6	58.0	30.3	23.4	16.9	16.8	6.9	0.7	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.5	17.5	85.6																							
31-Jan	0.4	0.5	2.3	7.6	Z	2.4	7.9	16.5	43.3	36.1	12.8	13.3	16.3	13.1	27.1	31.4	31.0	49.1	22.9	24.7	18.2	30.1	65.5	92.9	24.6	92.9																							
																								20.0	23.4	26.3	25.5	24.7	30.6	32.9	36.6	44.8	40.5	35.2	30.2	26.4	30.0	26.2	23.6	27.4	26.3	30.5	31.5	28.0	27.2	28.4	26.0	Diurnal Average	
																								86.0	93.9	96.6	97.7	100.1	105.2	123.9	125.7	144.9	155.3	113.6	86.9	55.8	123.2	114.6	89.7	93.6	59.9	145.9	159.0	158.4	108.8	111.3	97.1	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	357	50.50	50.50
21 - 40	194	27.44	77.93
41 - 80	105	14.85	92.79
81 - 159	51	7.21	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - January 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	47	56	30	22	5	0	6	47	23	17	21	29	8	8	11	26	356
21 - 40	30	15	6	5	3	2	3	32	20	11	8	8	4	5	11	28	191
11 - 80	6	2	3	3	1	1	6	21	17	13	6	5	1	2	4	13	104
81 - 159	0	1	0	0	0	2	1	12	9	6	4	4	2	0	0	1	42
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	83	74	39	30	9	5	16	112	69	47	39	46	15	15	26	68	693

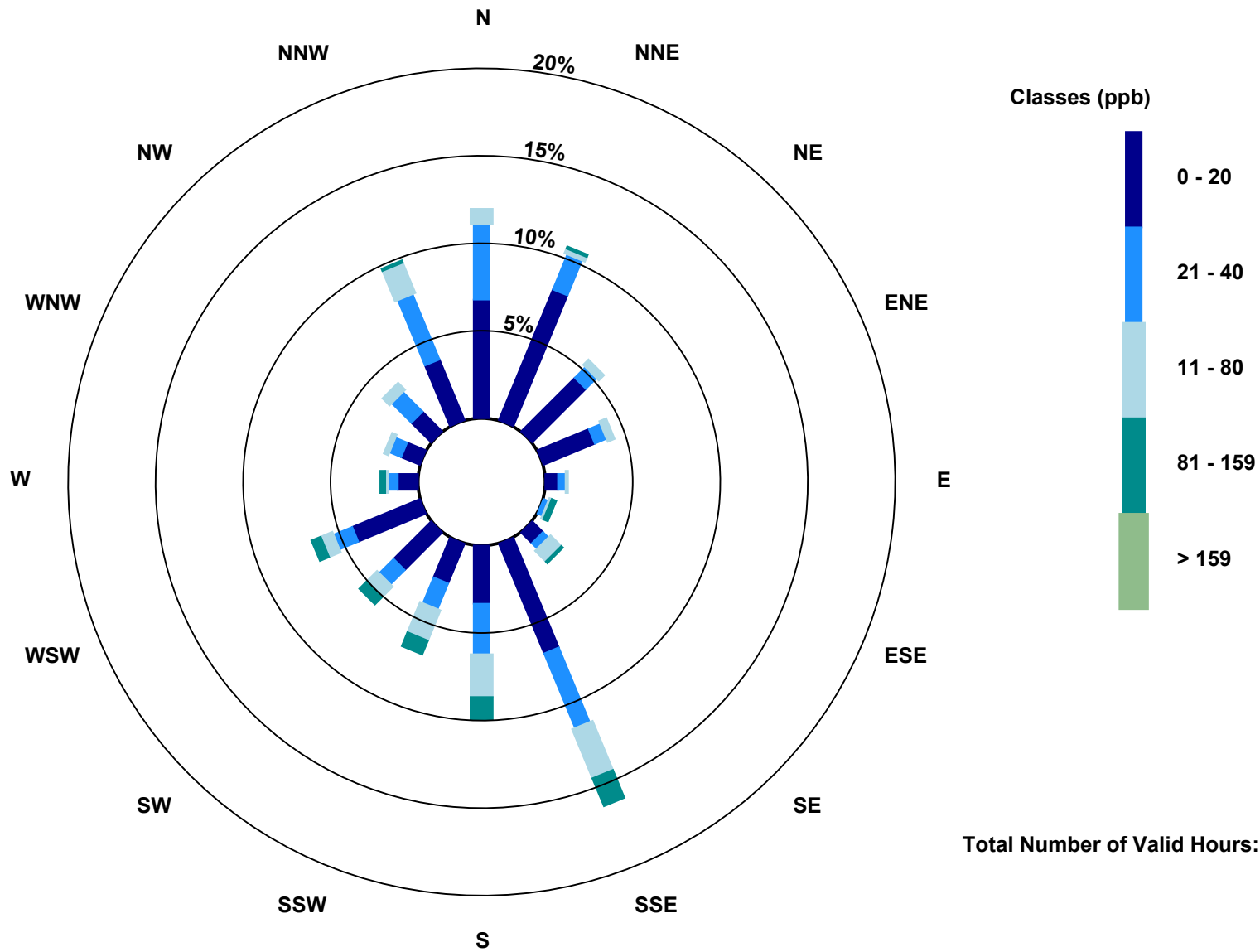
Total Number of Valid Hours: 693

Total Number of Hours: 744

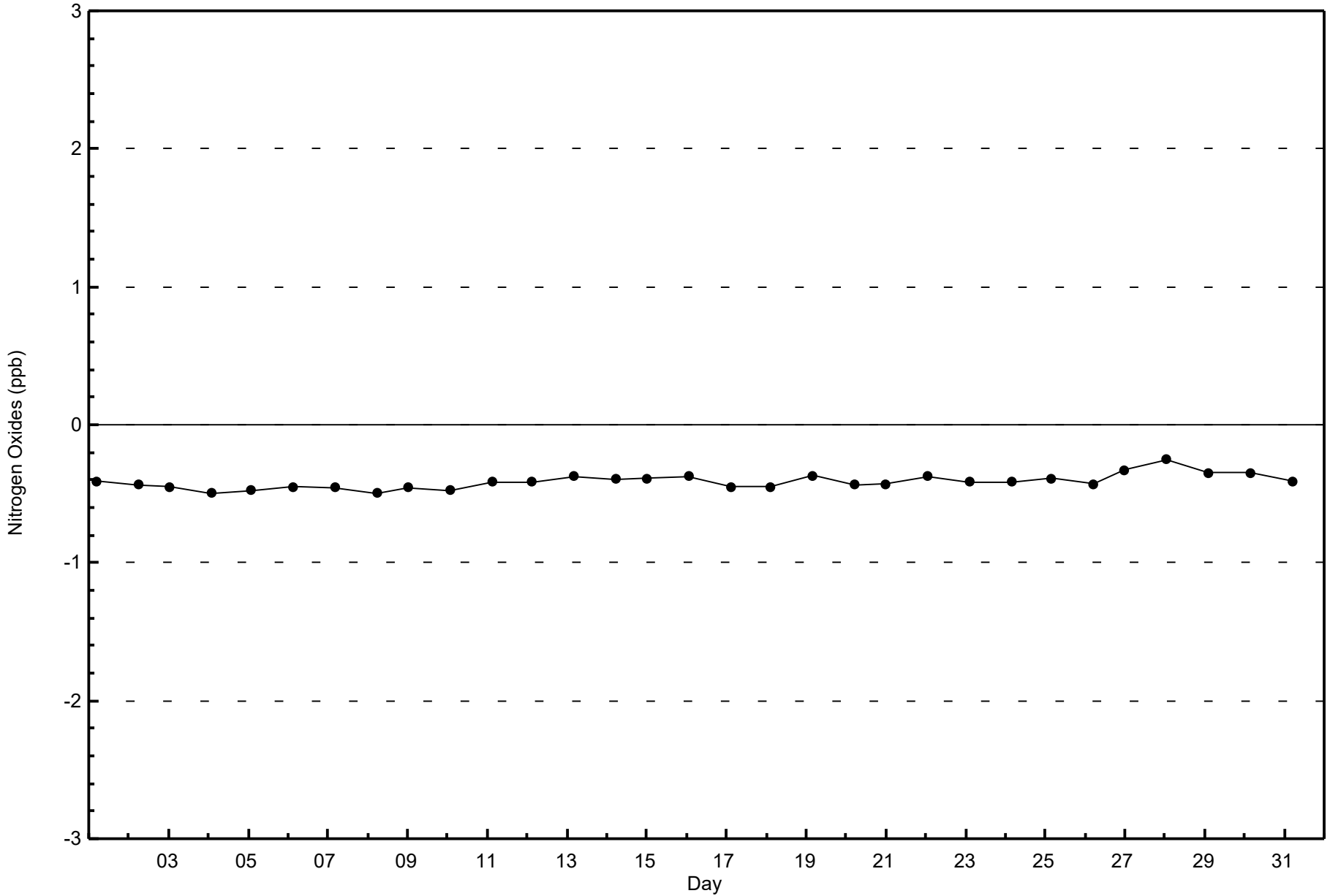


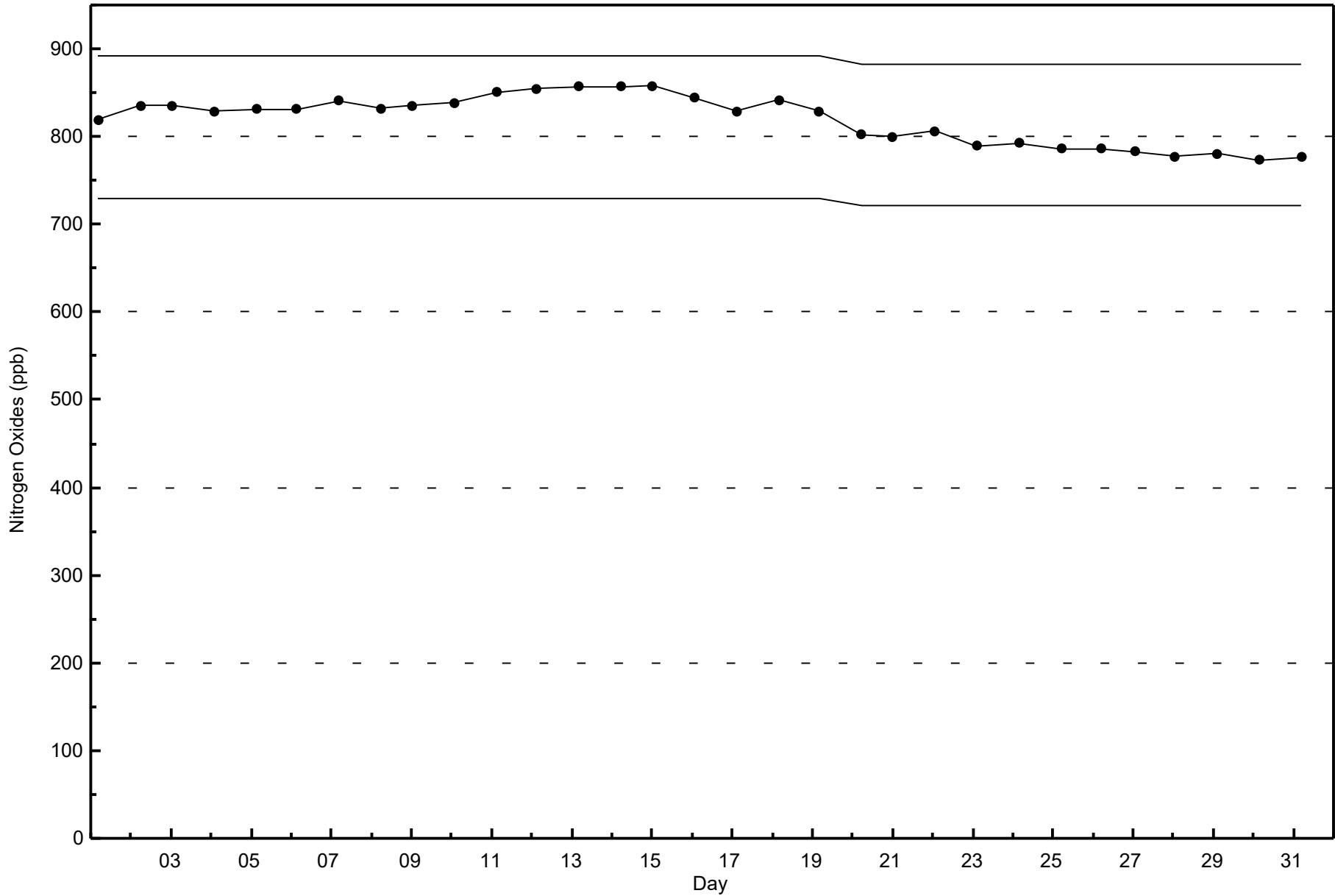
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







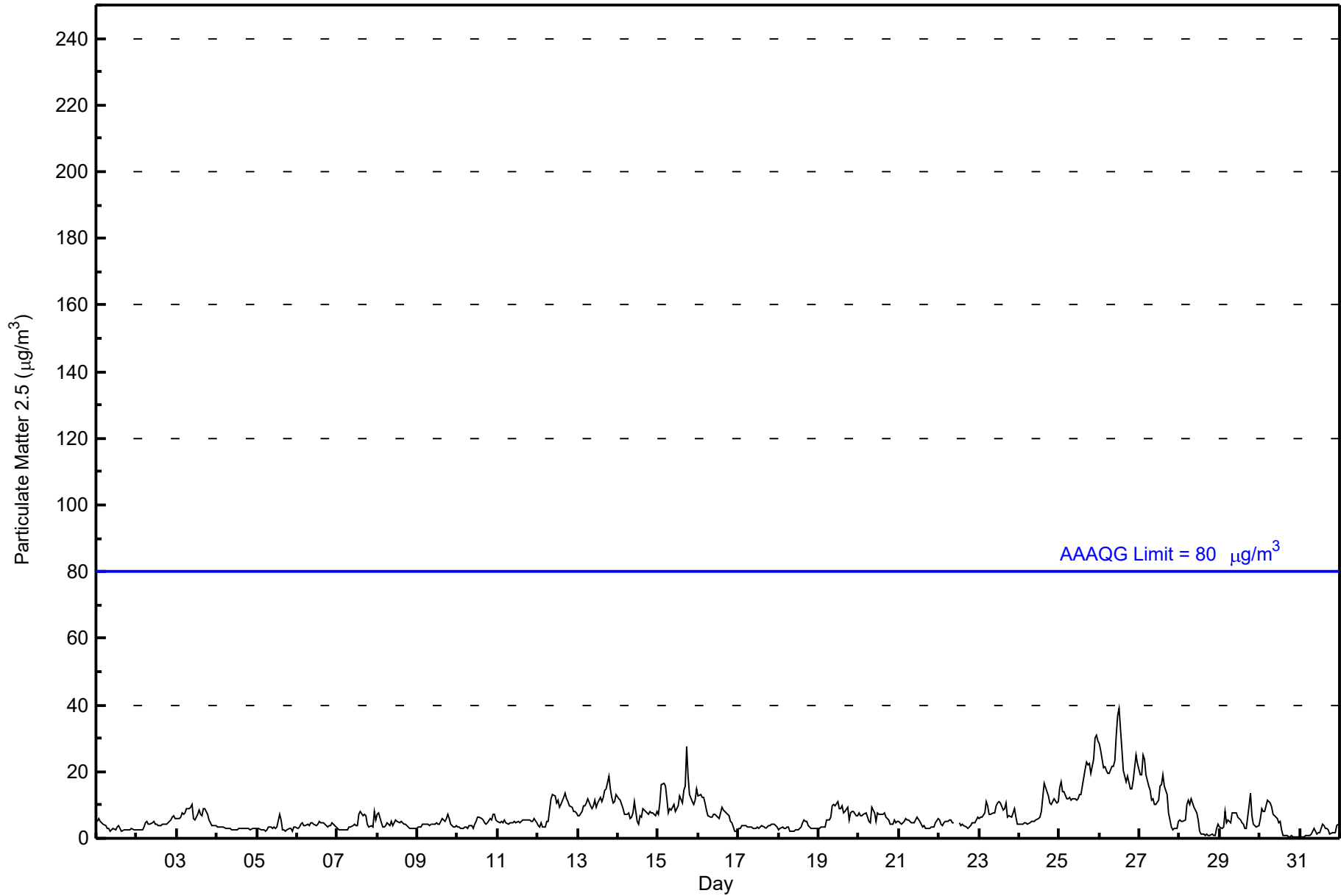




Summary of Hour Averages

Barge Landing - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744															742						
Maximum Value: 38.9 µg/m <sup>3</sup> on Jan 26 13:00		Maximum Daily Average: 22.8 µg/m <sup>3</sup> on Jan 26		Hours of Data: 742															2								
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 30 22:00		Minimum Daily Average: 2.0 µg/m <sup>3</sup> on Jan 31		Hours of Missing Data: 2															2								
Maximum Diurnal Average: 7.5 µg/m <sup>3</sup> at hour 18		Minimum Diurnal Average: 6.0 µg/m <sup>3</sup> at hour 21		Hours of Calibration: 2															100.0								
Monthly Average: 6.79 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 2.7 Q <sub>1</sub> = 3.4 Median = 5.0 Q <sub>3</sub> = 8.2 P <sub>90</sub> = 12.7 P <sub>99</sub> = 27.1																									
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-Jan	4.9	5.7	5.3	4.8	4.2	3.8	3.1	3.2	2.2	2.7	2.9	2.7	3.2	3.7	3.0	2.2	2.4	2.6	2.7	2.4	2.4	2.9	2.5	2.4	3.2	5.7	
2-Jan	2.6	2.7	2.7	2.7	3.4	4.6	5.0	4.2	4.1	4.5	5.3	4.3	4.1	3.8	4.0	4.3	4.4	4.2	4.3	4.5	5.4	6.3	6.6	5.8	4.3	6.6	
3-Jan	5.9	5.9	6.4	7.7	7.3	7.5	9.1	8.8	9.5	10.1	5.8	5.4	7.2	8.5	7.2	6.7	8.9	9.0	7.3	5.6	4.5	4.0	3.8	3.9	6.9	10.1	
4-Jan	3.5	3.4	3.5	3.5	3.4	3.1	3.0	2.9	2.8	2.6	2.5	2.6	2.7	2.9	2.9	2.9	2.8	2.8	3.0	2.8	3.0	2.8	2.8	2.8	3.0	3.5	
5-Jan	3.1	3.0	2.7	2.7	2.6	2.3	2.7	3.3	3.3	3.0	3.3	3.2	3.3	7.0	5.5	2.6	2.4	2.1	2.7	3.0	3.0	2.1	3.5	3.4	3.1	7.0	
6-Jan	3.0	3.6	4.2	4.5	3.8	3.7	4.1	3.7	4.6	4.7	4.4	3.8	4.2	4.9	4.6	4.7	4.5	3.7	3.4	4.0	3.6	4.5	4.0	3.5	4.1	4.9	
7-Jan	2.8	2.5	2.6	2.6	2.7	2.6	2.7	3.3	3.6	4.0	4.2	3.8	3.7	7.3	7.9	6.6	7.4	6.7	4.1	3.6	3.8	3.4	7.8	5.3	4.4	7.9	
8-Jan	7.1	7.6	4.5	3.4	3.5	3.7	4.8	4.0	4.9	4.0	4.6	5.5	5.0	4.7	5.1	4.6	4.4	4.3	3.3	3.1	2.9	3.0	3.1	3.1	4.3	7.6	
9-Jan	3.2	3.2	3.2	4.1	4.1	4.3	4.2	3.8	4.2	4.3	4.2	4.5	4.1	4.2	5.0	5.8	5.0	6.0	7.3	5.8	4.1	3.6	3.5	3.7	4.4	7.3	
10-Jan	3.3	3.4	3.0	3.2	3.2	3.3	3.1	4.0	3.9	3.0	4.1	5.1	6.3	6.4	5.8	5.3	4.8	4.4	4.5	5.9	5.6	7.2	7.2	5.4	4.7	7.2	
11-Jan	4.9	4.6	4.9	4.8	5.6	4.6	4.4	4.6	4.6	4.6	5.0	4.5	4.9	4.6	5.0	5.5	5.6	5.3	5.4	5.6	5.2	5.1	5.9	4.7	5.0	5.9	
12-Jan	3.6	3.4	4.6	3.6	3.5	5.0	5.0	8.3	11.8	13.3	12.7	10.8	11.4	9.5	10.2	12.2	13.7	11.7	11.2	9.7	9.3	8.2	8.0	7.8	8.7	13.7	
13-Jan	6.8	6.8	8.0	9.6	9.9	10.4	11.9	9.8	9.1	9.8	11.5	9.2	10.6	12.3	11.0	12.2	14.2	15.0	18.8	14.9	12.4	10.6	10.9	13.0	11.2	18.8	
14-Jan	11.9	11.3	10.0	8.9	7.4	7.4	7.5	6.0	6.4	7.6	11.1	5.2	4.4	6.9	6.3	9.1	7.9	7.7	7.4	7.9	7.5	7.7	6.8	8.1	7.8	11.9	
15-Jan	7.0	10.7	16.1	16.4	15.5	12.0	7.7	8.8	8.4	10.3	8.2	9.0	9.6	12.5	10.4	14.4	15.5	27.5	18.6	13.0	11.2	10.2	11.5	15.0	12.5	27.5	
16-Jan	12.7	13.3	12.4	12.4	10.7	8.3	7.0	6.4	6.4	7.0	7.0	6.6	6.0	7.8	9.3	8.7	8.2	7.2	6.6	5.1	4.7	3.4	2.1	2.1	7.6	13.3	
17-Jan	2.9	3.0	3.8	3.7	4.0	3.6	3.5	3.3	3.2	2.9	3.1	3.2	3.0	3.4	3.7	3.6	2.8	3.6	4.0	4.0	4.1	4.3	3.9	3.5	3.5	4.3	
18-Jan	2.5	3.1	3.4	3.0	2.8	3.2	3.2	2.1	1.9	2.0	2.4	2.5	2.7	3.6	4.5	5.6	5.1	5.2	3.7	3.0	2.8	2.9	2.8	3.1	3.2	5.6	
19-Jan	3.1	3.2	3.2	3.4	3.5	5.3	5.3	6.4	9.7	10.2	9.8	10.8	9.1	8.8	9.7	7.5	8.3	9.1	5.4	7.7	8.0	7.9	7.0	6.9	7.0	10.8	
20-Jan	7.6	6.6	6.8	7.3	7.7	6.2	5.0	4.6	9.1	7.4	5.0	7.5	7.4	7.2	7.3	7.7	6.5	5.9	5.3	4.3	4.2	5.4	4.7	5.1	6.3	9.1	
21-Jan	4.9	4.3	4.7	5.2	5.8	5.7	5.4	4.5	4.7	4.9	5.5	6.2	5.1	4.3	3.4	3.8	3.1	2.8	2.9	3.4	3.5	3.3	4.5	5.8	4.5	6.2	
22-Jan	5.4	4.3	4.0	4.8	5.1	5.2	5.6	5.5	4.6	4.5	C	C	4.7	3.6	4.1	3.7	3.4	3.1	3.2	3.9	4.8	4.8	5.4	6.2	4.5	6.2	
23-Jan	5.9	6.4	6.5	7.4	11.0	9.6	7.0	7.1	7.6	7.8	9.6	10.6	11.1	10.4	8.5	8.9	10.4	6.5	6.6	6.4	7.7	8.9	6.2	4.2	8.0	11.1	
24-Jan	4.3	4.4	4.1	4.5	4.6	4.1	4.8	5.1	5.1	5.1	5.3	6.0	6.5	8.0	12.3	16.3	15.3	12.8	10.6	10.3	10.8	11.9	10.7	10.8	8.1	16.3	
25-Jan	15.4	16.9	13.8	13.8	11.7	11.9	12.4	11.7	11.9	12.0	11.3	11.8	13.3	13.3	15.5	20.6	22.7	21.9	22.5	19.4	23.7	30.3	31.0	29.4	17.4	31.0	
26-Jan	28.5	26.2	21.0	21.4	20.5	19.7	19.6	21.7	21.6	23.2	30.9	36.7	38.9	26.6	20.4	18.4	16.8	18.8	15.0	14.7	17.3	21.2	25.2	22.6	22.8	38.9	
27-Jan	19.0	19.1	25.0	23.5	18.9	15.8	14.4	11.7	11.7	10.1	10.3	11.6	15.5	16.0	19.1	15.5	12.9	7.8	5.5	3.3	2.5	2.9	2.9	5.2	12.5	25.0	
28-Jan	5.5	5.1	5.2	5.4	10.1	11.4	10.3	12.0	9.2	8.3	7.4	5.7	2.3	1.4	1.2	1.0	1.2	1.1	0.9	1.2	0.8	0.9	2.9	4.4	4.8	12.0	
29-Jan	3.2	3.1	3.5	8.0	4.9	5.6	4.8	7.5	7.6	7.8	7.5	6.6	5.7	4.6	4.1	3.0	3.2	9.9	13.4	6.9	4.3	4.0	3.6	3.9	5.7	13.4	
30-Jan	5.9	9.0	8.1	7.9	11.6	10.8	10.5	9.3	7.1	6.7	5.8	4.7	5.2	2.4	0.9	0.7	0.6	0.6	0.6	0.6	0.8	0.6	0.3	0.4	0.6	4.6	11.6
31-Jan	0.4	0.4	0.6	1.0	1.1	0.9	1.0	1.4	2.8	2.1	1.5	1.6	1.7	4.2	3.8	3.2	3.2	2.6	1.5	1.6	1.6	1.5	3.8	4.4	2.0	4.4	
																								Diurnal Average			
																								Diurnal Maximum			
																								6.5 6.7 6.7 6.9 6.9 6.6 6.4 6.4 6.7 6.8 7.1 7.1 7.2 7.3 7.2 7.3 7.3 7.5 6.8 6.1 6.0 6.3 6.6 6.7			
																								28.5 26.2 25.0 23.5 20.5 19.7 19.6 21.7 21.6 23.2 30.9 36.7 38.9 26.6 20.4 20.6 22.7 27.5 22.5 19.4 23.7 30.3 31.0 29.4			
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>) -  $\mu\text{g}/\text{m}^3$   
Barge Landing - January 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	416	56.06	56.06
6 - 15	277	37.33	93.40
16 - 25	39	5.26	98.65
26 - 80	10	1.35	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Barge Landing - January 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	67	63	38	23	10	2	7	34	17	16	26	35	9	10	15	42	414
6 - 15	20	13	3	7	1	3	8	71	40	26	15	13	5	3	9	27	264
16 - 25	0	1	0	0	0	0	1	11	9	9	1	1	1	2	2	1	39
26 - 80	0	0	0	0	0	0	1	3	5	0	1	0	0	0	0	0	10
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	87	77	41	30	11	5	17	119	71	51	43	49	15	15	26	70	727

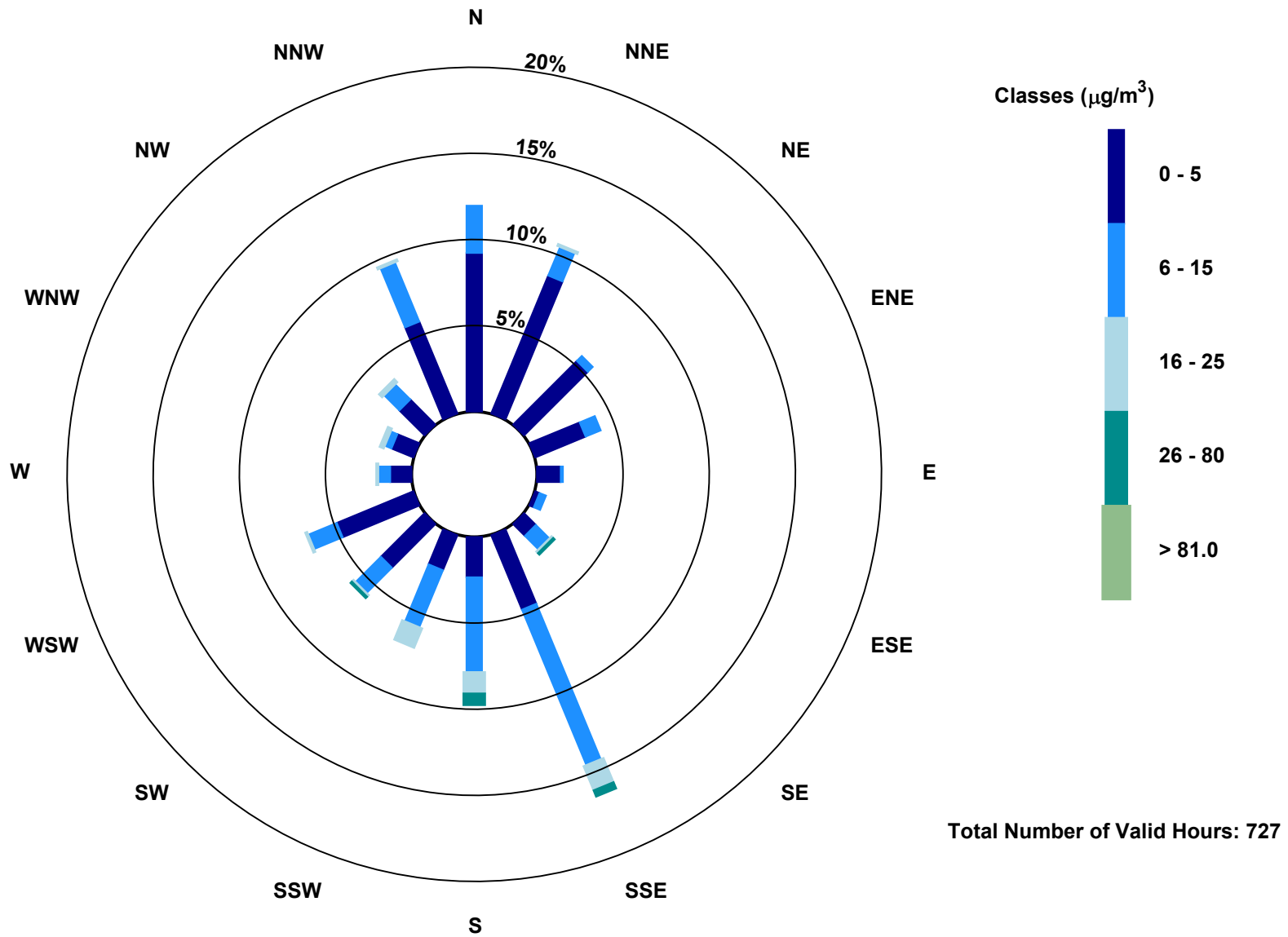
Total Number of Valid Hours: 727

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024**

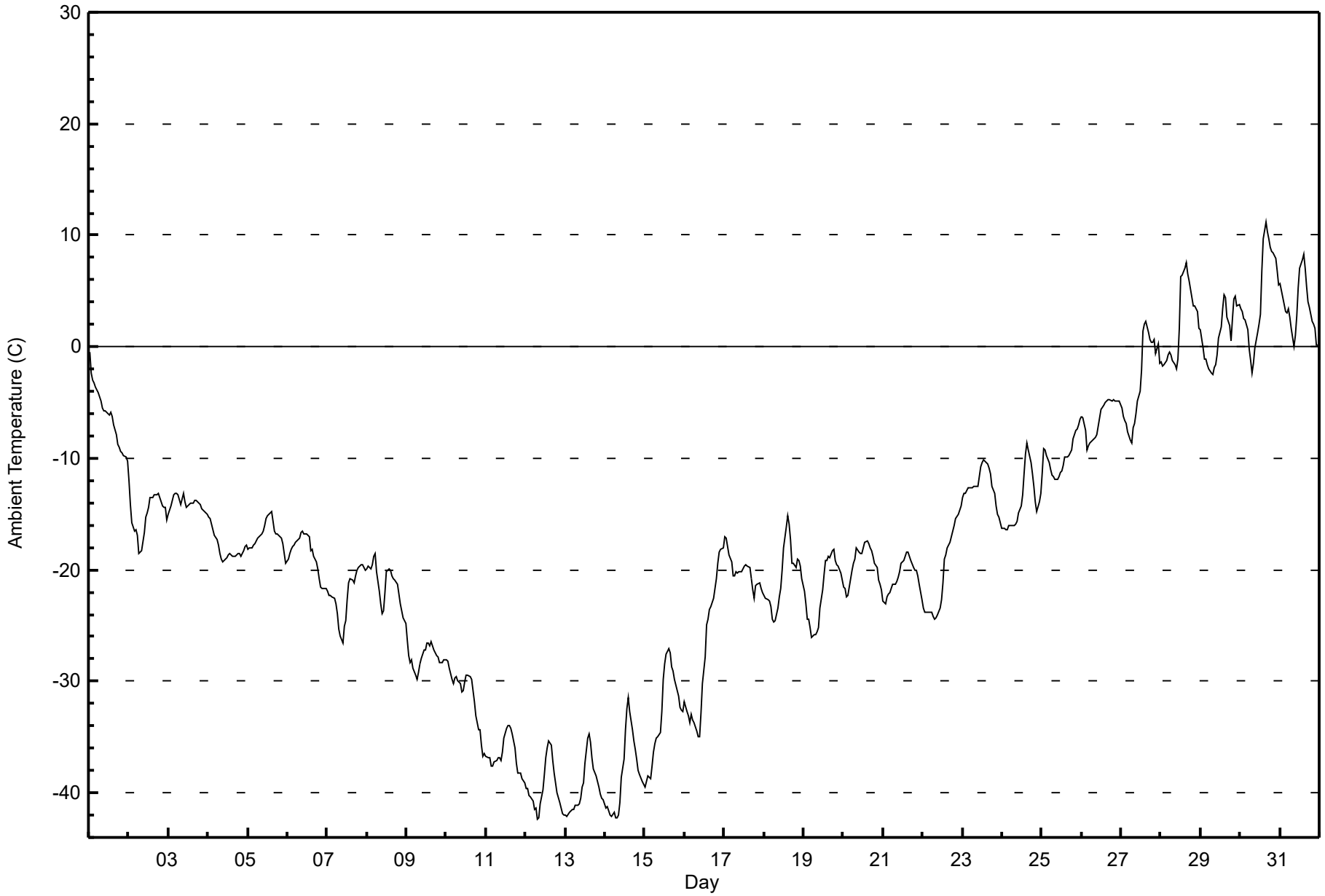
Maximum Value: 11.2 C on Jan 30 16:00		Maximum Daily Average: 4.5 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -42.4 C on Jan 12 08:00		Minimum Daily Average: -39.7 C on Jan 12		Hours of Data: 744																																												
Maximum Diurnal Average: -15.5 C at hour 15		Minimum Diurnal Average: -20.1 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: -18.18 C		Percentiles: P <sub>1</sub> = -42.0 P <sub>10</sub> = -36.9 Q <sub>1</sub> = -25.6 Median = -18.6 Q <sub>3</sub> = -10.4 P <sub>90</sub> = 0.3 P <sub>99</sub> = 8.1		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-Jan	-0.4	-2.3	-2.9	-3.2	-3.6	-4.1	-4.5	-4.9	-5.5	-5.7	-5.8	-6.0	-6.1	-5.9	-6.2	-7.1	-7.9	-8.7	-9.0	-9.4	-9.5	-9.7	-9.8	-10.3	-6.2	-0.4																						
2-Jan	-12.1	-14.1	-15.7	-16.5	-16.5	-17.0	-18.5	-18.5	-18.3	-16.6	-15.3	-14.8	-14.4	-13.5	-13.5	-13.3	-13.3	-13.3	-13.2	-13.6	-14.3	-14.4	-14.4	-15.5	-15.0	-12.1																						
3-Jan	-15.0	-14.3	-13.8	-13.3	-13.1	-13.2	-13.3	-14.1	-13.6	-13.2	-13.9	-14.3	-14.1	-14.0	-14.1	-14.1	-13.8	-13.8	-14.0	-14.2	-14.5	-14.6	-14.7	-15.1	-14.0	-13.1																						
4-Jan	-15.2	-15.4	-15.9	-16.5	-16.9	-17.3	-17.8	-18.5	-19.0	-19.3	-19.1	-18.9	-18.7	-18.5	-18.6	-18.8	-18.8	-18.6	-18.5	-18.6	-18.7	-18.3	-18.0	-17.8	-18.0	-15.2																						
5-Jan	-18.1	-18.0	-18.0	-17.8	-17.7	-17.4	-17.2	-17.0	-16.8	-16.5	-16.0	-15.4	-15.1	-14.9	-14.8	-15.7	-16.5	-16.8	-16.8	-17.0	-17.1	-17.7	-18.5	-19.4	-16.9	-14.8																						
6-Jan	-19.1	-18.6	-18.2	-17.9	-17.8	-17.6	-17.3	-17.1	-16.6	-16.6	-16.7	-16.8	-16.9	-17.1	-18.2	-18.2	-18.8	-19.2	-19.9	-20.8	-21.6	-21.7	-21.7	-21.6	-18.6	-16.6																						
7-Jan	-21.9	-22.3	-22.3	-22.4	-22.6	-23.0	-23.9	-25.3	-26.0	-26.5	-25.0	-24.5	-22.7	-21.2	-20.7	-21.0	-21.2	-20.6	-20.1	-19.7	-19.5	-19.5	-19.8	-20.1	-22.2	-19.5																						
8-Jan	-19.9	-19.6	-20.0	-19.5	-18.8	-18.6	-20.1	-22.0	-23.1	-23.9	-23.7	-22.1	-20.2	-19.9	-20.1	-20.5	-20.8	-21.0	-21.3	-22.2	-23.1	-23.7	-24.3	-24.8	-21.4	-18.6																						
9-Jan	-26.3	-27.7	-28.3	-28.1	-28.8	-29.5	-29.9	-29.2	-28.5	-27.9	-27.2	-27.2	-26.5	-26.5	-26.8	-26.5	-27.2	-27.5	-27.7	-27.8	-28.3	-28.3	-28.1	-28.1	-27.8	-26.3																						
10-Jan	-28.1	-28.2	-28.8	-29.9	-30.2	-29.7	-29.5	-29.9	-30.2	-30.9	-30.8	-30.0	-29.5	-29.5	-29.6	-29.9	-30.8	-31.8	-33.1	-34.3	-34.4	-35.7	-36.7	-36.5	-31.2	-28.1																						
11-Jan	-36.7	-36.8	-36.9	-37.6	-37.6	-37.3	-37.1	-36.8	-36.8	-37.1	-36.3	-35.0	-34.2	-33.9	-34.0	-34.2	-34.7	-35.9	-37.3	-38.2	-38.3	-38.2	-38.8	-39.1	-36.6	-33.9																						
12-Jan	-39.7	-39.6	-40.2	-40.3	-40.8	-41.5	-41.4	-42.4	-42.2	-41.0	-39.7	-38.4	-36.9	-35.9	-35.3	-35.7	-37.1	-38.3	-39.0	-40.0	-40.8	-41.3	-41.9	-42.1	-39.7	-35.3																						
13-Jan	-42.0	-42.1	-41.8	-41.6	-41.5	-41.4	-41.2	-41.2	-41.0	-40.5	-39.4	-39.1	-37.4	-35.1	-34.7	-35.5	-36.8	-37.9	-38.4	-38.9	-39.5	-40.1	-40.4	-40.6	-39.5	-34.7																						
14-Jan	-41.3	-41.2	-41.6	-42.0	-42.1	-41.8	-42.2	-42.2	-41.9	-40.9	-38.6	-36.9	-34.4	-32.4	-31.4	-32.7	-34.4	-35.3	-36.0	-37.0	-38.0	-38.4	-39.0	-39.2	-38.4	-31.4																						
15-Jan	-39.5	-39.0	-38.5	-38.8	-37.6	-36.4	-35.6	-35.1	-34.9	-34.6	-32.7	-29.9	-28.5	-27.5	-27.1	-27.5	-28.7	-29.1	-29.8	-30.3	-31.4	-32.3	-32.6	-32.7	-32.9	-27.1																						
16-Jan	-31.8	-32.7	-33.1	-33.7	-32.9	-33.5	-33.7	-34.5	-35.0	-34.9	-32.9	-30.2	-27.8	-24.9	-24.4	-23.5	-23.3	-22.6	-21.6	-20.7	-19.5	-18.4	-18.2	-18.0	-27.6	-18.0																						
17-Jan	-17.0	-17.2	-17.9	-18.7	-19.3	-20.5	-20.6	-20.2	-20.3	-20.2	-20.2	-19.9	-19.6	-19.6	-19.7	-19.8	-20.7	-21.8	-22.6	-21.4	-21.4	-21.2	-21.6	-22.1	-20.1	-17.0																						
18-Jan	-22.4	-22.6	-22.7	-22.8	-23.3	-24.5	-24.7	-24.5	-23.4	-22.5	-21.6	-20.1	-18.1	-16.1	-15.1	-15.8	-17.3	-19.4	-19.4	-19.8	-19.1	-19.2	-19.7	-20.9	-20.6	-15.1																						
19-Jan	-21.9	-23.0	-24.5	-24.4	-25.2	-26.0	-25.8	-25.8	-25.6	-25.2	-23.5	-21.9	-20.4	-19.1	-19.2	-18.8	-18.9	-18.3	-18.1	-19.1	-19.5	-19.7	-20.3	-20.9	-21.9	-18.1																						
20-Jan	-21.5	-21.7	-22.5	-22.2	-20.8	-20.0	-19.5	-19.0	-18.0	-18.4	-18.6	-18.6	-18.0	-17.6	-17.4	-17.7	-18.0	-18.3	-18.8	-19.4	-19.8	-20.9	-21.3	-21.8	-19.6	-17.4																						
21-Jan	-22.8	-23.0	-22.4	-22.2	-22.0	-21.7	-21.3	-21.2	-21.0	-20.6	-20.1	-19.5	-19.1	-18.7	-18.5	-18.4	-18.8	-19.2	-19.7	-20.0	-20.1	-20.5	-21.3	-22.7	-20.6	-18.4																						
22-Jan	-23.5	-23.8	-23.8	-23.8	-23.8	-24.1	-24.4	-24.3	-24.1	-23.4	-22.7	-21.2	-19.0	-18.6	-18.1	-17.6	-17.1	-16.5	-16.0	-15.4	-15.0	-14.7	-14.3	-20.4	-20.4	-14.3																						
23-Jan	-13.5	-13.2	-13.2	-12.7	-12.6	-12.6	-12.7	-12.5	-12.5	-11.6	-10.8	-10.4	-10.2	-10.4	-10.5	-10.9	-11.4	-12.5	-13.2	-14.2	-15.1	-15.3	-15.8	-12.5	-10.2																							
24-Jan	-16.3	-16.3	-16.4	-16.3	-16.1	-16.0	-16.0	-16.0	-15.9	-15.6	-14.9	-14.3	-13.2	-11.4	-9.7	-8.6	-9.2	-10.3	-11.4	-12.5	-13.9	-14.7	-13.9	-13.2	-13.9	-8.6																						
25-Jan	-11.3	-9.2	-9.3	-9.7	-10.4	-11.0	-11.5	-11.7	-11.9	-11.9	-11.6	-11.3	-11.2	-10.6	-9.9	-9.9	-9.8	-9.5	-9.2	-8.2	-7.5	-7.3	-6.9	-6.5	-9.9	-6.5																						
26-Jan	-6.2	-6.3	-7.5	-9.3	-8.8	-8.6	-8.5	-8.2	-8.2	-7.8	-7.1	-6.4	-5.7	-5.2	-5.0	-4.8	-4.8	-4.7	-4.8	-4.8	-4.8	-4.8	-4.9	-4.9	-6.3	-4.7																						
27-Jan	-5.5	-6.2	-6.6	-6.9	-7.6	-8.4	-8.6	-7.2	-6.9	-6.1	-4.9	-4.0	-2.2	1.4	2.0	2.3	1.3	0.6	0.4	0.4	0.7	-0.6	0.3	-1.5	-3.1	2.3																						
28-Jan	-1.4	-1.7	-1.6	-1.2	-0.7	-0.5	-0.8	-1.2	-1.6	-2.0	-1.1	1.6	6.3	6.4	7.1	7.5	6.6	5.9	5.2	3.7	3.6	3.4	3.2	1.6	2.0	7.5																						
29-Jan	1.5	-0.2	-1.0	-1.1	-1.6	-2.0	-2.4	-2.5	-1.9	-1.6	-0.7	0.8	1.8	3.4	4.7	4.4	2.7	1.9	0.6	2.6	4.3	4.5	3.6	3.8	1.1	4.7																						
30-Jan	3.4	3.2	2.6	2.4	1.5	-0.2	-1.2	-2.3	-1.5	0.0	1.3	2.1	2.9	6.8	9.7	11.2	10.3	9.6	8.9	8.6	8.4	7.9	6.8	5.6	4.5	11.2																						
31-Jan	5.7	5.1	3.8	3.2	3.0	3.4	2.6	1.6	0.0	1.0	2.7	5.3	7.1	7.8	8.3	7.0	5.5	4.0	3.6	2.3	2.0	1.7	0.2	0.2	3.6	8.3																						
																								-18.7	-19.0	-19.3	-19.5	-19.6	-19.7	-19.9	-20.1	-20.1	-19.8	-19.0	-18.0	-16.9	-15.9	-15.5	-15.6	-16.2	-16.7	-17.1	-17.4	-17.6	-17.9	-18.2	-18.5	Diurnal Average
																								5.7	5.1	3.8	3.2	3.0	3.4	2.6	1.6	0.0	1.0	2.7	5.3	7.1	7.8	9.7	11.2	10.3	9.6	8.9	8.6	8.4	7.9	6.8	5.6	Diurnal Maximum





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

**Ambient Temperature (AT) - C**  
**Barge Landing - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Barge Landing - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	310	41.67	41.67
-20 - 0	355	47.72	89.38
0 - 10	77	10.35	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

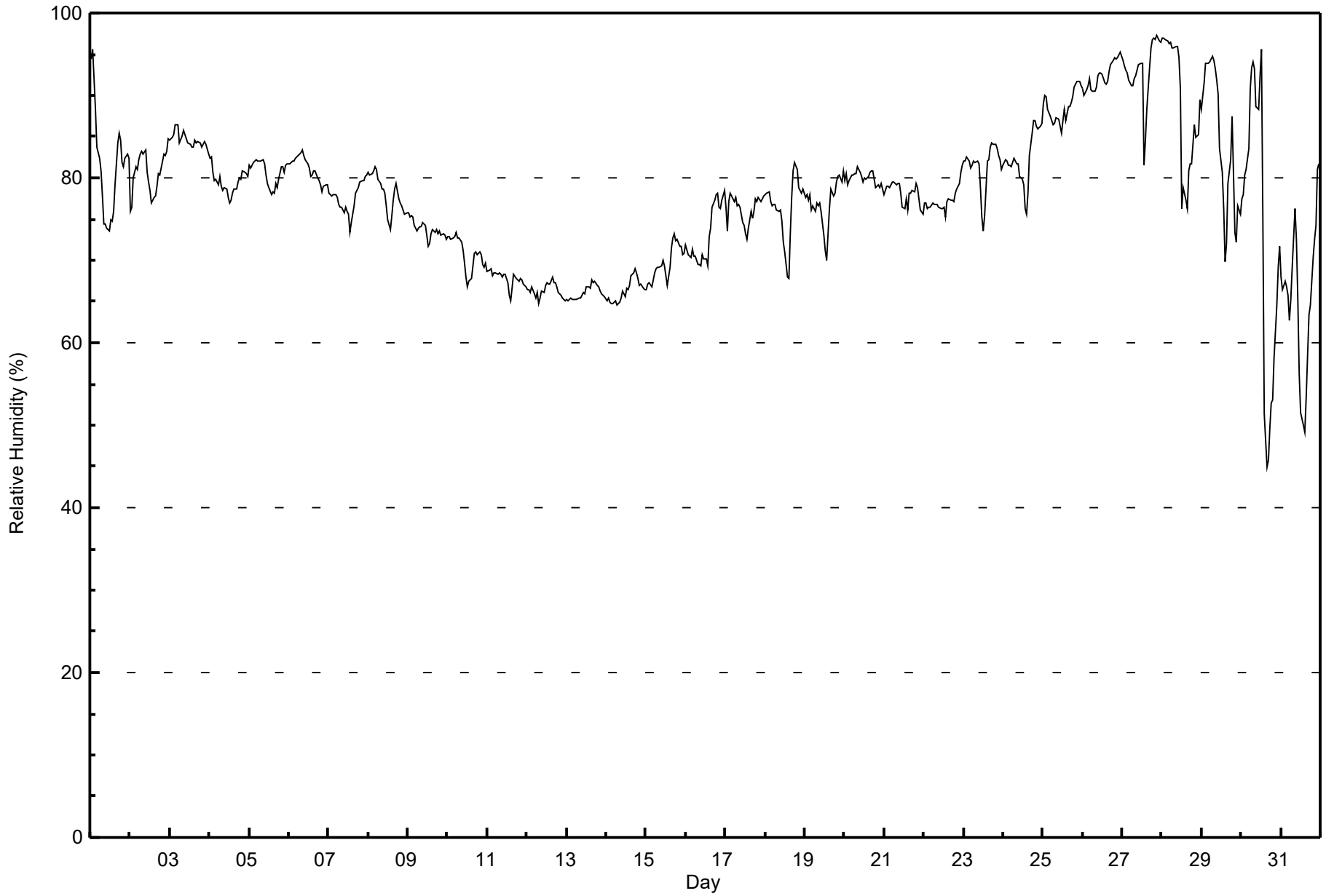
**Relative Humidity (RH) - %**  
**Barge Landing - January 2024**

Maximum Value: 97.3 % on Jan 27 22:00																						Maximum Daily Average: 93.0 % on Jan 27																						Hours in Service: 744			
Minimum Value: 45.0 % on Jan 30 16:00																						Minimum Daily Average: 65.5 % on Jan 31																						Hours of Data: 744			
Maximum Diurnal Average: 79.2 % at hour 3																						Minimum Diurnal Average: 73.9 % at hour 15																						Hours of Missing Data: 0			
Monthly Average: 77.82 %																						Percentiles: P <sub>1</sub> = 52.8 P <sub>10</sub> = 66.7 Q <sub>1</sub> = 72.5 Median = 78.2 Q <sub>3</sub> = 82.1 P <sub>90</sub> = 90.8 P <sub>99</sub> = 96.6																						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-Jan	94.4	95.6	92.1	88.4	83.7	82.3	80.9	77.9	74.4	74.3	73.8	73.6	75.0	74.7	76.0	79.2	84.2	85.4	84.6	81.8	81.3	82.3	82.8	82.4	81.7	95.6																					
2-Jan	76.0	76.4	80.0	81.4	81.0	82.2	82.9	83.2	83.0	83.4	80.8	79.5	78.5	76.9	77.7	77.9	79.0	80.5	80.4	81.2	82.9	82.7	83.2	84.7	80.6	84.7																					
3-Jan	84.7	84.9	85.3	86.5	86.4	86.4	84.3	85.1	85.8	85.2	84.7	84.3	84.1	83.7	83.8	84.7	84.2	84.4	84.3	83.8	84.0	84.3	84.0	82.9	84.7	86.5																					
4-Jan	82.3	82.6	80.7	79.6	79.8	79.2	80.2	79.1	78.5	78.9	78.7	77.5	77.0	77.2	78.2	78.7	78.7	79.4	79.9	79.8	80.8	80.7	80.5	80.2	79.5	82.6																					
5-Jan	81.5	81.2	81.8	82.0	82.2	82.0	82.1	82.1	82.2	81.7	80.4	79.3	78.8	77.9	78.3	78.2	79.3	78.8	79.9	81.3	81.4	80.7	81.6	81.7	80.7	82.2																					
6-Jan	81.7	81.8	82.1	82.1	82.4	82.5	82.9	83.0	83.4	82.7	82.2	81.7	81.2	80.2	80.4	80.8	80.8	80.1	79.6	79.1	78.4	79.0	79.2	79.2	81.1	83.4																					
7-Jan	78.1	78.0	77.9	78.0	77.9	77.6	76.7	76.5	76.5	75.8	76.5	76.0	75.5	73.4	74.6	76.5	78.2	78.4	78.8	79.6	79.7	79.7	80.2	80.3	77.5	80.3																					
8-Jan	80.7	80.4	80.6	80.9	81.4	81.1	79.9	79.3	78.7	78.6	78.2	76.6	74.9	73.7	75.5	77.2	78.7	79.4	77.5	76.9	76.7	76.1	75.6	75.8	78.1	81.4																					
9-Jan	75.8	75.3	75.5	75.3	74.3	73.5	73.9	74.1	74.1	74.6	74.2	73.1	71.7	72.0	73.3	73.7	73.5	73.7	73.3	73.5	73.0	73.3	73.0	72.6	73.8	75.8																					
10-Jan	72.9	72.9	72.6	72.7	72.9	73.4	72.7	72.7	72.2	71.2	69.7	68.0	66.8	67.4	67.7	69.4	70.9	71.0	70.6	71.0	70.7	69.5	69.2	69.7	70.7	73.4																					
11-Jan	68.6	68.9	69.1	68.1	68.5	68.4	68.4	68.5	68.2	68.0	68.4	68.2	67.2	65.7	65.0	66.7	68.3	67.7	67.7	67.4	67.8	67.6	67.1	66.8	67.8	69.1																					
12-Jan	66.4	66.4	66.0	66.7	66.0	65.4	66.0	64.7	65.4	66.2	66.1	66.9	67.3	67.2	67.2	67.9	67.4	67.3	66.8	66.1	65.8	65.4	65.2	65.1	66.3	67.9																					
13-Jan	65.3	65.1	65.3	65.2	65.3	65.3	65.4	65.3	65.8	66.1	66.0	66.8	66.9	66.7	67.6	67.4	67.5	66.9	66.8	66.2	65.9	65.8	65.6	66.1	66.6	67.6																					
14-Jan	65.0	65.4	64.9	64.8	64.8	65.1	64.5	64.7	64.9	65.5	66.2	65.6	66.5	66.5	66.9	68.1	68.5	69.0	68.5	67.7	67.0	67.1	66.6	66.4	66.3	69.0																					
15-Jan	66.5	67.1	67.2	66.7	67.7	68.5	69.0	69.2	69.1	69.3	70.0	69.3	68.1	66.9	69.2	71.5	72.7	73.2	72.3	72.6	71.8	71.7	70.7	70.9	69.6	73.2																					
16-Jan	71.9	70.7	70.4	70.4	71.4	70.6	70.5	69.6	69.5	69.4	70.7	70.2	70.2	69.4	72.8	73.9	76.5	77.3	78.0	78.2	76.5	76.3	77.4	78.4	72.9	78.4																					
17-Jan	76.4	73.6	77.1	78.2	77.4	77.1	77.7	76.6	76.9	76.4	74.6	74.2	73.3	72.6	73.9	76.0	75.1	76.0	77.5	77.1	77.7	77.1	77.5	77.7	76.2	78.2																					
18-Jan	78.0	78.2	78.3	77.1	76.6	76.8	76.9	76.1	76.0	76.1	74.8	72.2	70.9	68.0	67.8	73.3	77.7	80.8	81.9	81.1	78.8	78.5	78.1	78.6	76.4	81.9																					
19-Jan	77.6	78.0	77.3	78.0	76.1	76.6	75.9	77.0	76.6	77.0	75.9	73.1	71.1	69.9	73.3	76.3	78.7	77.7	78.2	79.5	80.2	80.3	79.4	80.8	76.9	80.8																					
20-Jan	79.7	80.5	79.2	79.7	80.3	80.4	80.5	80.5	81.4	80.6	80.1	79.4	80.0	79.8	80.1	80.6	80.8	80.8	79.8	78.8	79.2	78.9	79.3	78.6	80.0	81.4																					
21-Jan	78.0	79.0	78.9	78.8	79.1	79.4	79.6	79.2	79.3	79.3	78.1	76.5	76.3	77.5	76.2	78.2	78.2	78.5	78.3	79.4	78.8	77.5	76.1	75.6	78.2	79.6																					
22-Jan	76.9	76.9	76.3	76.4	76.4	77.0	76.7	76.8	76.8	76.5	76.3	76.3	76.5	75.2	77.1	77.4	77.3	77.3	77.2	78.1	78.7	79.4	80.6	81.5	77.3	81.5																					
23-Jan	82.0	82.0	82.5	82.1	81.2	81.5	82.0	81.9	82.0	81.7	78.9	75.3	73.5	75.5	82.0	82.2	83.8	84.2	84.1	84.1	83.5	82.7	82.2	81.1	81.3	84.2																					
24-Jan	81.5	82.2	82.1	81.5	81.5	81.4	82.3	82.0	81.6	81.6	80.2	79.8	79.2	76.3	75.6	78.2	82.8	85.4	87.0	87.0	86.2	86.0	86.2	86.6	82.3	87.0																					
25-Jan	89.0	90.1	89.8	88.3	87.4	87.0	86.4	86.5	87.3	87.1	86.3	85.5	86.9	88.3	87.0	88.7	88.7	89.2	89.9	91.0	91.8	91.8	91.6	91.2	88.6	91.8																					
26-Jan	90.8	90.0	90.7	91.1	92.0	90.8	90.6	90.5	91.0	92.4	92.7	92.6	91.6	91.4	91.8	92.9	93.8	94.3	94.5	94.4	94.6	94.8	95.3	92.4	95.3																						
27-Jan	94.3	93.6	93.0	92.6	91.9	91.2	91.2	92.1	92.4	93.1	93.7	93.9	94.0	81.5	84.6	88.3	93.5	95.7	96.8	97.0	96.7	97.3	96.7	96.5	93.0	97.3																					
28-Jan	96.9	96.9	96.7	96.6	96.3	96.4	95.8	95.8	96.0	95.9	94.6	90.9	76.3	78.8	77.3	76.2	80.8	81.6	81.7	86.4	84.8	85.0	85.3	89.6	88.9	96.9																					
29-Jan	88.3	91.6	93.9	93.8	94.0	94.1	94.8	94.3	93.2	91.8	90.2	83.6	80.7	76.3	69.9	72.0	79.3	82.3	87.4	80.6	73.4	72.2	76.5	75.6	84.6	94.8																					
30-Jan	77.5	78.0	80.4	81.0	83.6	90.9	93.4	94.0	93.2	88.7	88.3	92.4	95.6	75.3	51.3	45.0	45.7	49.6	52.7	53.0	58.1	64.6	69.2	71.7	73.9	95.6																					
31-Jan	67.9	66.4	67.5	66.7	65.7	62.7	65.3	69.1	76.3	72.6	65.5	56.3	51.6	50.0	49.1	53.4	58.4	63.3	64.6	70.3	72.6	74.3	81.0	81.7	65.5	81.7																					
																						78.9	79.0	79.2	79.1	78.9	78.9	79.0	79.0	79.1	78.7	78.0	76.7	75.7	74.1	73.9	75.1	76.8	77.7	78.1	78.2	78.0	78.1	78.6	78.9	Diurnal Average	
																						96.9	96.9	96.7	96.6	96.3	96.4	95.8	95.8	96.0	95.9	94.6	93.9	95.6	91.6	91.4	91.8	93.5	95.7	96.8	97.0	96.7	97.3	96.7	96.5	Diurnal Maximum	



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

**Relative Humidity (RH) - %**  
**Barge Landing - January 2024**



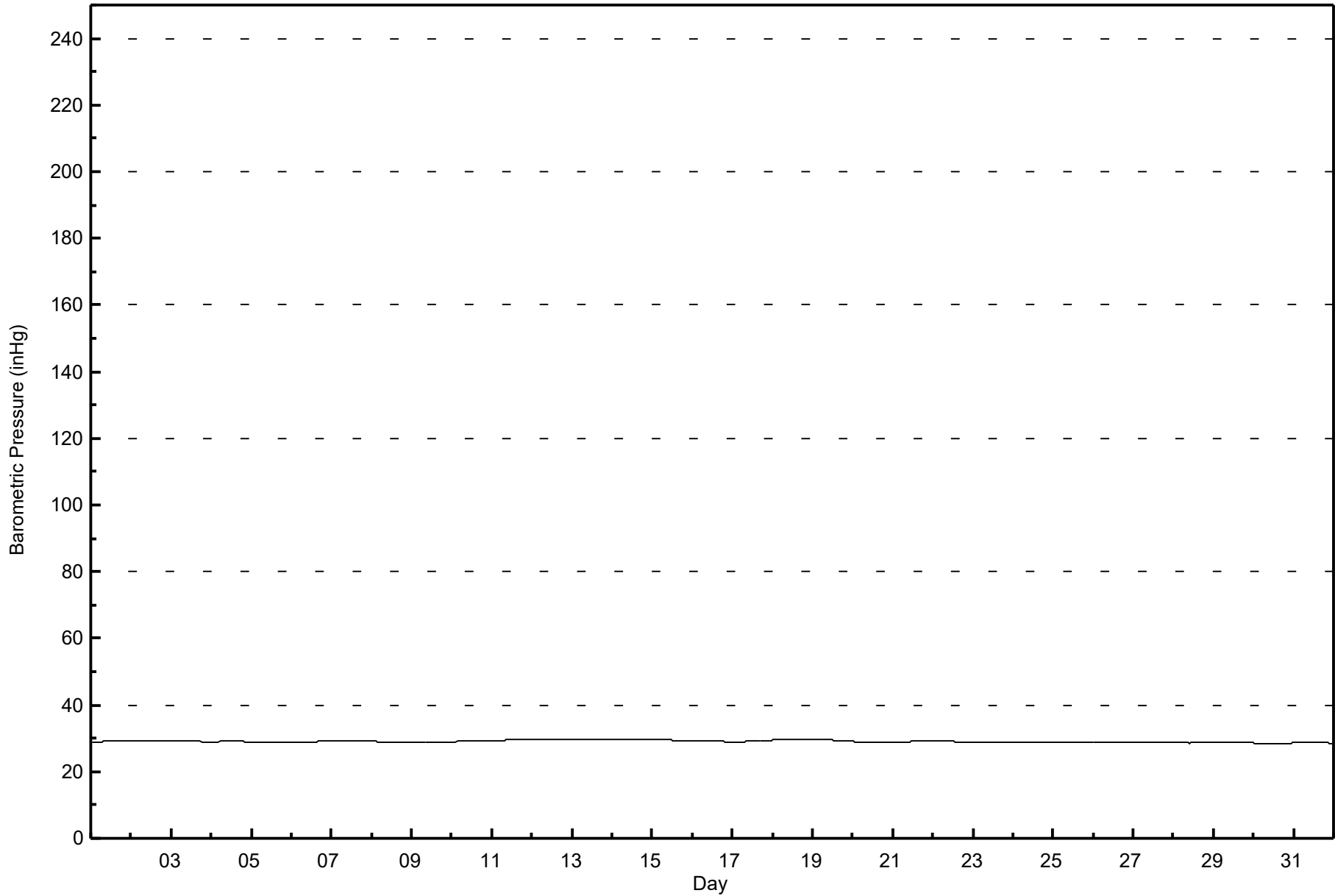


Maximum Value: 29.7 inHg on Jan 14 19:00      Maximum Daily Average: 29.6 inHg on Jan 14																						Hours in Service: 744					
Minimum Value: 28.4 inHg on Jan 30 15:00      Minimum Daily Average: 28.5 inHg on Jan 30																						Hours of Data: 744					
Maximum Diurnal Average: 29.1 inHg at hour 11      Minimum Diurnal Average: 29.1 inHg at hour 23																						Hours of Missing Data: 0					
Monthly Average: 29.08 inHg      Percentiles: P <sub>1</sub> = 28.4 P <sub>10</sub> = 28.7 Q <sub>1</sub> = 28.8 Median = 29.0 Q <sub>3</sub> = 29.3 P <sub>90</sub> = 29.6 P <sub>99</sub> = 29.7																						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-Jan	28.8	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.2
2-Jan	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	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.3	29.3
3-Jan	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	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	28.9	29.0	28.9	29.1	29.2
4-Jan	28.9	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1
5-Jan	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
6-Jan	29.0	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	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.0	29.2
7-Jan	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.2	29.2	29.3
8-Jan	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	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	29.0	29.1
9-Jan	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	28.9	28.9	28.9	28.9	28.9	29.0	29.0	28.9	28.9	29.0
10-Jan	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.2	29.3
11-Jan	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.6
12-Jan	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	29.6
13-Jan	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	29.7
14-Jan	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	29.7
15-Jan	29.7	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	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.4	29.7
16-Jan	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	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.2
17-Jan	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	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.1	29.4
18-Jan	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	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.7
19-Jan	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.1	29.1	29.1	29.4	29.6
20-Jan	29.0	29.0	29.0	29.0	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0
21-Jan	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.0	29.2
22-Jan	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	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	29.0	29.2
23-Jan	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.8	28.9
24-Jan	28.9	28.9	29.0	29.0	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	28.7	28.8	29.0
25-Jan	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
26-Jan	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9
27-Jan	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.9
28-Jan	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	28.6	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9
29-Jan	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	28.6	28.6	28.6	28.6	28.8	28.9
30-Jan	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.5	28.6
31-Jan	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	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.8
																								Diurnal Average			
																								Diurnal Maximum			



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

**Barometric Pressure (BP) - inHg**  
**Barge Landing - January 2024**





Maximum Speed: 16 km/h on Jan 30 16:00	Maximum Daily Speed Average: 6.4 km/h on Jan 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 08:00	Minimum Daily Speed Average: 0.3 km/h on Jan 23	Hours of Data: 699
Maximum Diurnal Speed Average: 0.9 km/h at hour 22	Minimum Diurnal Speed Average: 0.1 km/h at hour 8	Hours of Missing Data: 45
Monthly Average Velocity: 0.3 km/h 34.2 deg	Percentiles: P <sub>1</sub> = 0 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> = 11	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-Jan	NNW1	NNE3	N4	NNE5	N8	N7	NNW7	N4	N3	NNE2	NE3	NNE4	NNE3	ENE2	ENE3	ENE4	ENE4	ENE4	ENE5	ENE5	ENE3	NE3	ENE4	NE5	NNE3.5	N8
2-Jan	NE6	NE4	NNE3	NNE3	ENE4	E4	E2	NE1	WSW2	E1	ESE2	WNW2	NNW1	W1	WSW2	W1	NNW1	NNW2	E2	NNW2	NNW3	WNW1	N1	NNW2	NNE1.1	NE6
3-Jan	NNW1	SE1	SSE1	WSW1	S1	SSE3	SSE4	W1	NNE1	N0	NNW4	NNW5	NNW5	NNW5	NNW4	NNW4	N5	N5	NNW6	N7	N7	N7	N7	N8	NNW2.9	N8
4-Jan	N8	N9	N10	N10	N9	N10	N8	N8	NNE8	NNE7	NE7	NE6	NE5	NNE5	N6	N6	NE6	NNE6	NNE5	N5	N5	NNE4	NNE4	N4	N6.4	N10
5-Jan	NNW4	NNW3	NNW4	NW4	NW4	NW2	W1	SW1	SW1	SSW1	SW1	NW1	NNE3	NNE3	ENE4	ENE4	NE3	N3	N3	N3	NE3	NNW3	NNW3	N1.9	NNW4	
6-Jan	NNW3	NNW4	NNW3	NNW3	NNW4	NNW4	NNW4	NNW4	N5	N6	N5	N6	N5	N6	N8	N7	N8	N7	N7	N8	NNE6	NNE5	N5	NNE5	N5.1	N8
7-Jan	NE4	NE3	ENE3	NE3	ENE4	ENE3	NE2	NNW2	NNW3	NW2	SE1	SW1	SSW2	SSE4	SSE4	SSW4	SSW3	S5	S5	SSE4	SSE5	SSE5	SSE5	SSE4	SE1.5	S5
8-Jan	SSE5	SE3	SE4	SE4	SSE3	NNW0	NNW3	NNW2	NNW1	NNW4	NNW4	N2	NNE4	NNE4	N3	NNW2	N1	UO	ENE4	NE4	ENE4	ENE4	ENE3	ENE3	NE1.5	SSE5
9-Jan	NE3	ENE2	NNE1	N2	NNW1	NNW2	N3	NNE1	ENE2	N2	N5	N6	N5	NNE6	N6	N7	N6	NNE6	NNE7	NNE6	N6	NNE6	NNE7	NNE7	NNE4.3	NNE7
10-Jan	NNE6	NNE5	NNE4	NNE3	NE1	E1	UO	E1	ENE2	ENE3	E3	ENE3	ENE3	ENE3	ENE3	ENE1	NNE2	ENE3	ENE1	ENE2	E1	UO	NNE1	NNE0	NE2.1	NNE6
11-Jan	NNW1	WSW2	UO	NNW1	NNW1	UO	UO	UO	WNW0	WSW1	WSW1	WSW1	ENE1	ENE2	ENE3	E2	E2	UO	SE2	ESE1	UO	UO	WSW1	WSW2	---	ENE3
12-Jan	SW0	UO	SSE1	WSW2	WSW1	S0	SW2	ESE1	SE1	SE1	WSW1	S1	S2	SSW2	SSE2	SSE1	ESE1	UO	UO	UO	UO	UO	ESE2	ESE2	S1.0	SSE2
13-Jan	SE1	ESE2	SSW1	SE1	UO	SSE0	WSW0	NNW0	UO	S1	SSW1	WSW1	SSW1	SSE2	SSE2	UO	UO	UO	UO	NNW1	UO	SE1	SE1	UO	---	SSE2
14-Jan	UO	UO	UO	UO	UO	ESE0	UO	UO	UO	UO	UO	UO	UO	UO	ESE2	UO	UO	N0	UO	UO	UO	SW1	SE2	ESE2	---	ESE2
15-Jan	SE2	ESE3	SE2	SSE2	SE4	SE4	SE5	SSE4	SSE3	SE5	SE5	SSE4	SSE5	SSE5	SSE5	SE4	SSE3	SE3	SSE3	SE3	SE3	SE4	SE3	SE3	SE3.7	SSE5
16-Jan	SE4	WSW0	NNW2	NNW3	N3	NNW1	N1	SE0	ESE2	SSE1	SW1	SW3	S3	SSE2	SSE1	SW1	WSW1	SW1	SE0	NW2	WNW2	W3	WSW3	W3	WSW0.6	SE4
17-Jan	NNW5	NNW7	NNE4	NNE4	NNE5	NNE3	NNE4	NNE4	NNE4	NE4	NE5	NE5	NE5	NNE4	N5	NNE4	NNW4	N4	N4	N6	NNW4	N5	NNW4	NW3	N4.1	NNW7
18-Jan	NW2	WNW1	WSW2	WSW3	UO	E1	SW3	WSW3	SW3	SSW2	S1	SW1	SSW1	S2	SE3	SSE2	SE2	ENE0	WNW2	WNW3	NW4	WSW1	WNW2	WSW3	WSW1.2	NW4
19-Jan	WSW3	SW2	SSW2	SSW3	SSE1	SSE3	SE3	SSE3	SSE3	SSE4	SSE5	S6	SSE5	S5	S4	SSE3	S3	SSE5	SE1	NE1	NNE1	N1	ESE1	S0	SSE2.4	S6
20-Jan	NNW2	NNW3	E1	SE2	SSE2	WSW0	S1	S1	SSE2	NW3	NNW5	NNW5	NNW4	NNW4	NNW4	NNW4	N3	N4	NE5	NE4	NE5	NE5	NE4	N3	N2.2	NE5
21-Jan	NNW2	N2	N2	NW2	NNW3	NW3	NNW2	W2	NNW2	NNW3	N3	N3	N4	NNE4	NNE5	NNE6	NNE5	NNE4	NE3	N2	N4	NNE4	N7	N6	N3.2	N7
22-Jan	N5	N5	NNE5	NNE4	N3	N3	NNW3	NNW3	NW2	NNW2	NNW2	NW3	ENE1	SE7	SSE6	SE5	SE3	SE4	SSE6	SSE7	SSE8	SSE6	SSE3	S4	ESE1.2	SSE8
23-Jan	SSE6	SE5	SSE4	SSE4	S5	S5	S4	S4	S4	S3	SSW4	SSW5	SW3	NW2	NNW3	NNW4	N4	N6	N6	N5	N7	N6	N5	NNE6	ENE0.3	N7
24-Jan	N5	NNE3	N3	N4	NE3	NNE3	NW2	NNW1	N1	NW3	W2	WSW2	WSW3	WSW3	SW3	SW4	SW3	WSW4	SW3	SW2	SSE1	ESE3	NNE2	NNW2	WNW1.0	N5
25-Jan	NNE3	NNE6	NNE6	NNE6	NNE5	NNE5	N5	N4	N4	N3	NNW4	NW3	SW3	SSW3	S3	S4	SSE5	SSE5	S4	S5	S4	S4	S5	S4	E0.6	NNE6
26-Jan	S5	SW4	SSW1	NW1	NNW2	WSW2	NW2	UO	SW1	S3	SSE3	SE3	SSE4	SSE6	SSE6	S5	SSE5	SSE6	SSE6	SE5	SE4	SE3	SSE3	SSW3	SSE2.7	SSE6
27-Jan	SSW4	SW4	SSW3	S3	S3	WNW1	SW2	SSW3	SSE4	S3	S3	SSW3	S4	SSW5	SSW5	S3	S4	S3	S4	SSE3	SSW2	SSE4	SSE5	SE5	S3.1	SSW5
28-Jan	SE5	SE7	SSE5	SSE5	SSE5	SSE4	SSW3	SSE4	SE5	S3	SW4	SSW6	SW10	SW10	SW9	WSW8	WSW9	WSW11	WSW5	SSE2	SW4	NNE1	W6	SW4	SSW4.2	WSW11
29-Jan	SSW5	SE5	SSE6	SSE6	SSE6	SE5	S5	SSE5	S5	SSW2	S0	SW4	SW4	WSW4	SW5	SW2	UO	SSW3	SSE4	SE8	S9	SSE8	SSE7	SE5	S4.1	S9
30-Jan	SSE8	SSE7	SE6	SSE6	SE4	NNW2	ENE1	SE2	SSE4	S4	S5	S8	SSE7	SW9	WSW15	WSW16	WSW15	WSW11	SW11	WSW13	WNW13	W9	WSW7	WSW8	SW5.5	WSW16
31-Jan	WSW9	SW7	SSW4	S4	SSW5	SW9	SSW4	SSE5	SE4	S5	SW5	SSE4	SSE5	S6	SSW4	SSE6	SE3	SE4	SSE3	NNW3	NNE1	ESE3	NW1	NNW3	S3.1	WSW9

NNE0.4	NE0.7	NE0.9	NE0.6	NE0.9	NNE0.5	NNW0.5	ENE0.1	ESE0.5	NNE0.3	NW0.2	W0.4	SSW0.4	SSW0.5	SW0.5	SW0.3	NNE0.3	NNW0.2	ENE0.6	NE0.7	NNE0.9	ENE0.9	NNE0.6	N0.7	Diurnal Average	
WSW9	N9	N10	N10	N9	N10	N8	N8	NNE8	NNE7	NE7	S8	SW10	SW10	WSW15	WSW16	WSW15	WSW11	SW11	WSW13	WNW13	W9	N7	N8	Diurnal Maximum	

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

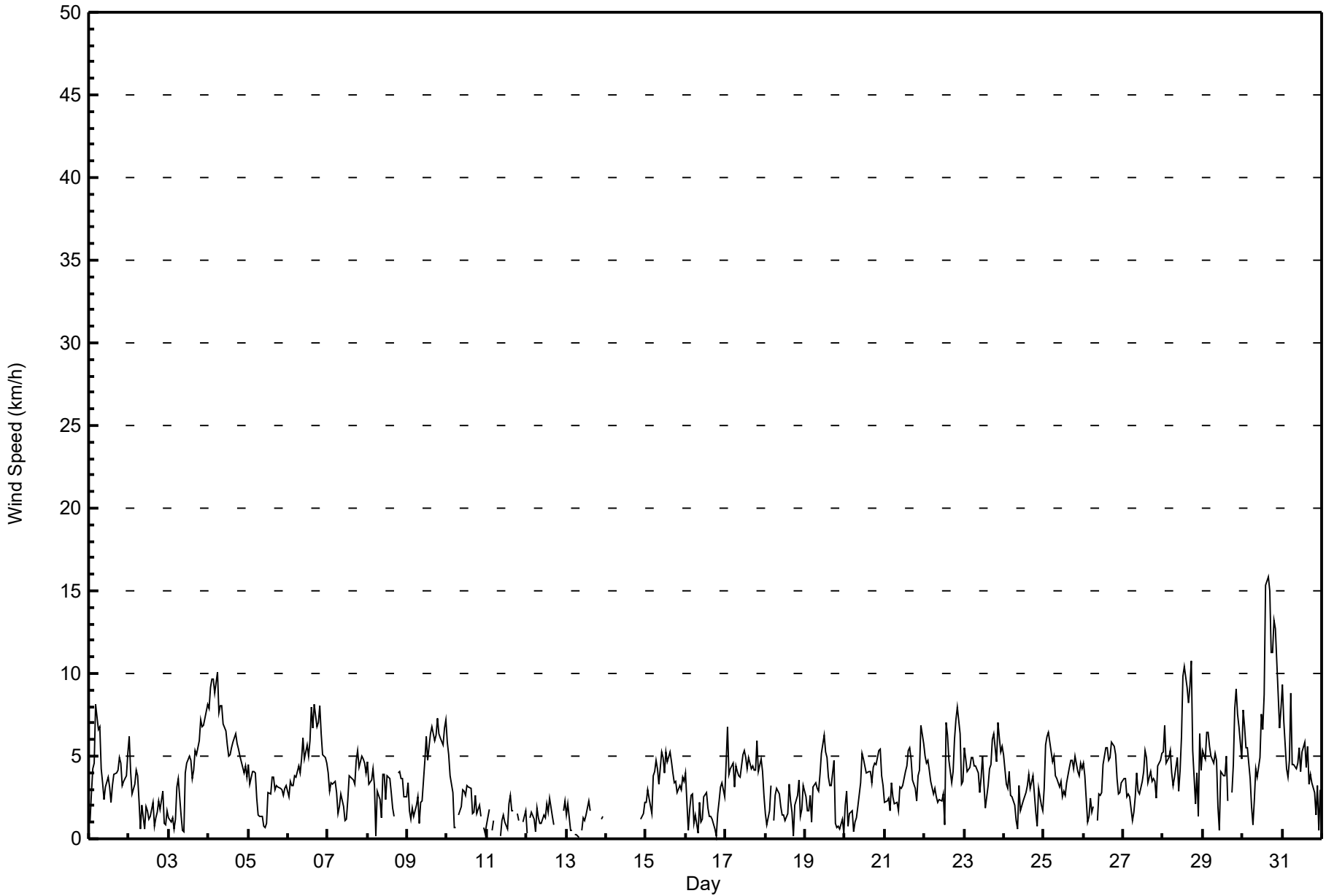


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Barge Landing - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Jan 30 16:00 Minimum Value: 0 km/h on Jan 13 00:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 1 Q <sub>3</sub> = 2 P <sub>90</sub> = 2 P <sub>99</sub> = 4																	Hours in Service: 744 Hours of Data: 699 Hours of Missing Data: 45 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-Jan	1	2	2	1	3	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	3	3
2-Jan	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3-Jan	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	1	2	3	2	2	2	2	3	
4-Jan	2	3	3	3	3	3	2	3	2	2	2	2	2	1	2	2	2	2	2	1	1	1	1	1	3	
5-Jan	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	
6-Jan	1	1	1	1	1	1	1	1	1	2	1	2	2	3	3	2	2	2	2	2	2	2	1	1	3	
7-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	
8-Jan	1	1	2	1	1	1	1	0	1	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	2	
9-Jan	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	UO	2	2	2	2	2	2	2	
10-Jan	2	2	2	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	2	
11-Jan	1	1	UO	1	1	UO	UO	UO	1	1	1	1	1	1	1	1	1	UO	1	1	UO	UO	1	1	1	
12-Jan	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	UO	UO	UO	UO	1	0	1	
13-Jan	1	1	1	1	UO	1	1	0	UO	1	1	1	1	1	1	UO	UO	UO	UO	1	UO	UO	1	UO	1	
14-Jan	UO	UO	UO	UO	UO	1	UO	UO	UO	UO	UO	UO	UO	UO	1	UO	UO	UO	UO	UO	UO	1	1	1	1	
15-Jan	1	0	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	
16-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
17-Jan	2	2	1	1	1	2	2	1	1	2	1	2	2	1	1	1	1	1	1	1	2	1	1	1	2	
18-Jan	1	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	
19-Jan	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	2	1	1	1	1	1	1	2	
20-Jan	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	2	2	2	1	1	2	
21-Jan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	2	2	2	
22-Jan	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	3	3	3	1	1	3	
23-Jan	2	2	1	2	2	2	1	1	1	1	1	2	1	1	1	1	1	2	2	1	2	2	1	2	2	
24-Jan	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	
25-Jan	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	2	1	2	
26-Jan	2	1	1	1	1	1	1	UO	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	2	
27-Jan	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	2	1	2	
28-Jan	1	2	2	2	1	1	2	2	2	1	1	2	4	3	2	2	2	3	3	1	2	1	3	1	4	
29-Jan	2	1	2	2	1	2	1	1	1	1	1	1	1	1	2	1	UO	2	2	2	3	2	2	2	3	
30-Jan	3	2	1	1	2	1	1	1	2	2	2	3	2	5	5	6	6	4	4	4	6	3	2	3	6	
31-Jan	3	2	2	2	2	4	3	1	1	1	2	2	2	2	2	2	1	1	1	1	1	2	1	1	4	
																	Diurnal Maximum									
UO - Unstable Operation																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Barge Landing - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	587	83.98	83.98
6 - 11	107	15.31	99.28
12 - 19	5	0.72	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: 699

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Barge Landing - January 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	58	52	29	37	12	15	52	71	50	33	31	34	8	9	21	75	587
6 - 11	37	18	4	0	0	0	4	21	3	1	7	7	2	0	0	3	107
12 - 19	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	5
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>	95	70	33	37	12	15	56	92	53	34	38	45	10	10	21	78	699

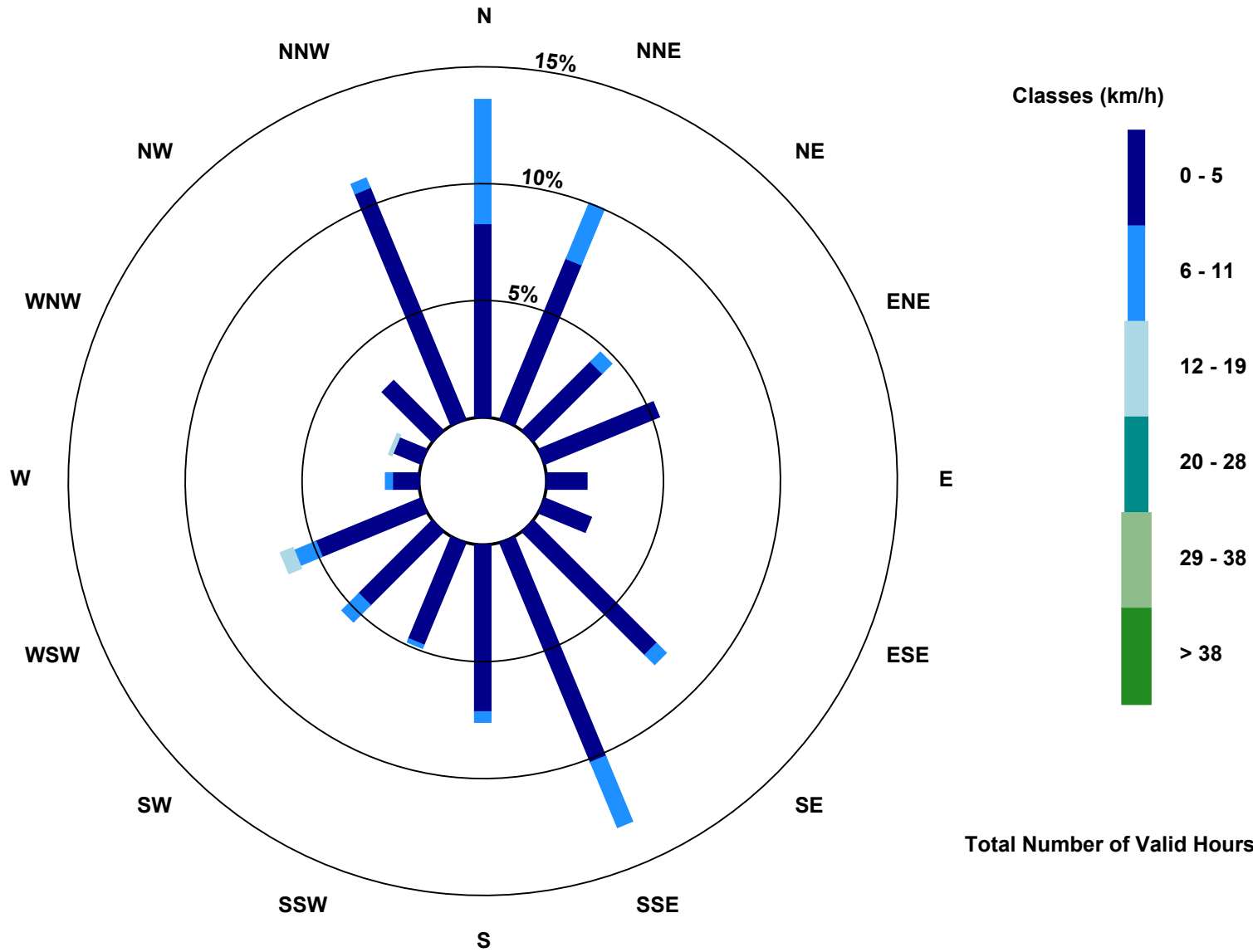
Total Number of Valid Hours: 699

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Barge Landing





# Wood Buffalo Environmental Association

## Summary of Hour Averages

## Wind Direction (WD) - deg Barge Landing - January 2024

Direction of Maximum Speed: 243 deg on Jan 30 16:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 10.5 deg on Jan 4																						Hours of Data: 699			
Direction of Minimum Speed: 337 deg on Jan 13 08:00											Direction of Minimum Daily Speed Average: 0.3 deg on Jan 23											Hours of Missing Data: 45			
Monthly Average Direction: 34.2 deg																						Percent Operational Time: 94.0			
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-Jan	332	23	5	25	8	355	345	357	2	12	47	32	29	58	66	74	68	65	64	78	64	52	61	55	33.7
2-Jan	47	42	21	32	62	98	79	48	238	100	104	286	341	267	241	260	343	339	87	329	337	285	350	334	28.5
3-Jan	341	138	158	246	180	163	159	280	26	350	333	333	333	343	329	343	360	354	347	4	353	353	353	357	348.5
4-Jan	354	353	358	354	357	2	360	5	21	26	38	34	38	24	6	11	38	27	20	3	352	15	18	5	10.5
5-Jan	336	328	327	320	326	309	276	233	215	202	236	317	24	17	66	60	44	6	7	357	40	43	333	346	354.3
6-Jan	338	341	341	327	337	333	333	339	359	4	356	352	351	353	351	355	1	358	9	5	13	12	8	18	355.7
7-Jan	43	53	61	54	41	60	37	336	328	325	125	236	199	151	152	198	192	173	171	159	157	155	157	164	140.1
8-Jan	163	137	139	136	148	337	343	346	339	336	337	5	12	12	352	336	0	UO	57	52	63	63	66	59	44.8
9-Jan	55	67	18	9	335	338	0	28	58	357	3	1	8	14	8	9	5	14	12	13	11	16	16	22	12.7
10-Jan	19	12	26	25	48	100	UO	99	70	60	86	75	69	61	67	73	33	69	74	78	79	UO	24	29	52.4
11-Jan	344	244	UO	335	348	UO	UO	UO	287	251	243	239	64	69	65	80	92	UO	130	118	UO	UO	239	250	--
12-Jan	227	UO	147	243	246	181	226	122	126	125	241	180	189	204	167	159	118	UO	UO	UO	UO	UO	111	115	171.7
13-Jan	127	116	194	131	UO	163	253	337	UO	191	213	255	210	167	159	UO	UO	UO	UO	329	UO	132	130	UO	--
14-Jan	UO	UO	UO	UO	UO	105	UO	UO	UO	UO	UO	UO	UO	UO	123	UO	UO	8	UO	UO	UO	224	146	117	--
15-Jan	124	119	125	155	135	135	139	148	155	129	136	161	160	161	148	150	146	166	144	155	130	130	130	139	143.2
16-Jan	124	237	339	335	360	327	352	140	107	167	236	226	188	153	166	214	241	231	139	319	293	261	238	274	245.1
17-Jan	329	341	28	29	25	26	20	14	28	47	36	36	38	22	7	22	23	352	354	1	343	350	340	324	10.8
18-Jan	319	288	248	245	UO	97	214	238	228	208	190	236	207	190	138	153	145	77	294	302	314	255	289	249	236.9
19-Jan	244	219	195	199	163	148	145	153	163	160	168	174	161	173	177	162	173	166	126	41	25	3	116	180	168.0
20-Jan	327	339	92	125	167	257	188	180	158	326	327	330	328	333	341	331	350	358	35	54	39	43	37	356	0.5
21-Jan	334	351	352	313	327	326	331	269	329	340	349	9	10	14	16	12	32	33	37	4	10	19	0	354	0.7
22-Jan	2	7	23	15	3	5	333	333	319	329	332	323	69	143	147	146	136	133	151	156	160	158	164	175	120.6
23-Jan	147	145	148	166	183	185	176	177	179	199	203	236	321	339	347	359	10	2	2	9	8	11	16	72.3	
24-Jan	2	16	353	357	36	30	310	327	352	313	269	249	242	237	233	217	231	249	236	217	166	109	20	337	299.8
25-Jan	20	32	33	28	27	13	2	9	8	350	336	314	235	213	171	171	149	153	170	181	187	178	179	184	78.9
26-Jan	170	224	208	321	339	243	324	UO	217	179	148	137	160	154	160	172	165	162	151	139	138	144	156	211	166.0
27-Jan	206	219	200	190	181	299	233	213	159	183	187	203	188	203	200	190	176	182	184	168	200	156	168	131	185.9
28-Jan	143	143	151	155	155	150	211	158	143	184	221	210	231	232	236	241	243	249	245	155	228	32	263	236	211.4
29-Jan	209	139	154	161	155	137	176	151	179	197	186	234	231	246	232	233	UO	212	155	145	169	154	147	134	170.8
30-Jan	161	153	146	153	140	338	67	132	159	170	188	174	168	228	249	243	252	255	228	237	288	274	254	243	225.4
31-Jan	246	232	195	187	203	230	198	157	144	184	214	162	154	169	197	151	144	141	151	343	33	121	306	347	188.4
24.7 38.2 54.2 37.2 38.0 22.4 332.3 75.2 110.2 28.3 325.4 264.2 195.8 195.1 215.2 228.3 16.2 333.0 75.2 48.1 11.5 57.3 23.9 6.6																									
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**

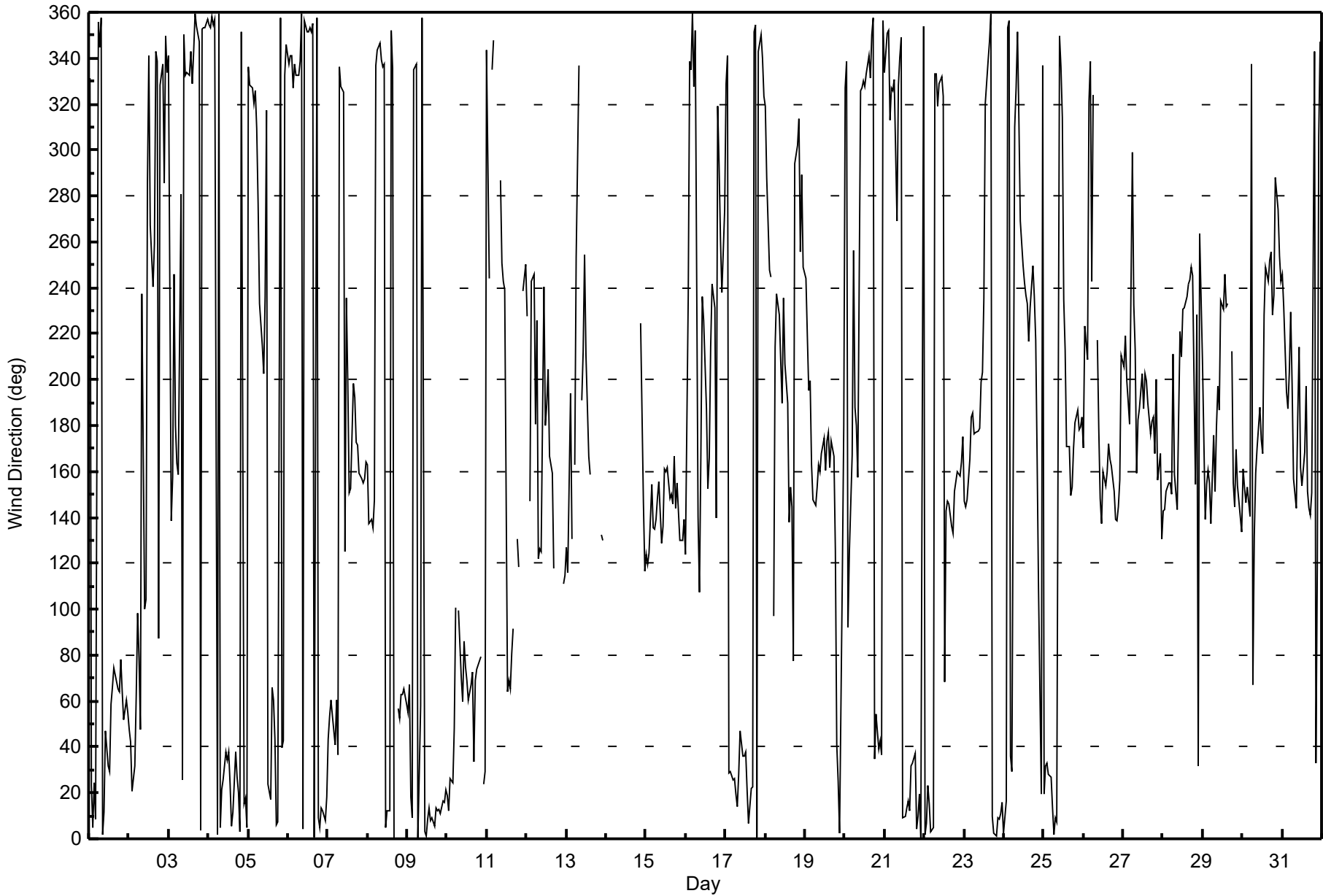
**Wind Direction (WD) - deg**  
**Barge Landing - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 98 deg on Jan 16 19:00	Hours of Data: 699
Minimum Value: 9 deg on Jan 15 02:00	Hours of Missing Data: 45
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 18 Q <sub>1</sub> = 20 Median = 24 Q <sub>3</sub> = 34 P <sub>90</sub> = 54 P <sub>99</sub> = 88	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-Jan	72	35	35	21	19	21	20	21	23	20	24	18	22	31	25	20	22	22	20	20	28	26	22	22	72
2-Jan	21	21	22	18	26	16	17	72	52	71	32	41	82	74	47	63	50	34	37	66	21	44	67	48	82
3-Jan	21	70	37	73	52	37	28	40	51	76	16	16	19	18	19	18	20	20	18	20	19	20	19	20	76
4-Jan	19	19	21	20	23	19	20	21	17	18	19	26	26	23	22	19	20	20	20	22	21	27	25	44	44
5-Jan	23	25	20	18	18	19	35	35	29	69	65	47	29	27	24	31	43	31	27	24	26	26	17	14	69
6-Jan	27	19	20	16	16	18	17	15	18	16	20	18	24	22	21	22	17	23	19	17	19	19	17	20	27
7-Jan	22	25	23	23	23	22	54	15	19	10	56	32	31	32	31	26	24	26	26	29	26	25	26	22	56
8-Jan	22	24	17	15	23	92	16	10	39	10	16	36	23	19	26	27	26	UO	26	25	24	30	34	24	92
9-Jan	16	28	13	39	30	19	28	48	33	31	19	19	21	20	18	20	18	18	19	18	19	20	19	18	48
10-Jan	18	18	27	25	36	45	UO	16	16	19	22	31	23	24	18	16	26	20	17	24	25	UO	21	30	45
11-Jan	43	11	UO	39	17	UO	UO	UO	37	31	12	48	87	20	19	24	17	UO	12	13	UO	UO	13	36	87
12-Jan	57	UO	31	13	35	32	22	41	57	51	19	59	37	42	27	37	12	UO	UO	UO	UO	UO	10	10	59
13-Jan	14	33	69	70	UO	81	81	72	UO	42	31	33	37	30	29	UO	UO	UO	UO	13	UO	60	47	UO	81
14-Jan	UO	UO	UO	UO	UO	34	UO	UO	UO	UO	UO	UO	UO	UO	36	UO	UO	45	UO	UO	39	58	24	58	58
15-Jan	47	9	15	44	17	20	17	19	27	12	20	35	31	34	20	20	21	29	26	26	28	21	20	19	47
16-Jan	12	88	31	20	32	55	27	90	15	59	90	29	27	44	62	61	57	75	98	36	56	33	16	41	98
17-Jan	27	19	26	22	22	19	22	19	22	23	22	23	23	22	20	22	20	14	15	19	21	18	19	22	27
18-Jan	24	13	34	14	UO	31	43	14	32	42	47	65	59	46	23	28	22	97	20	21	16	66	57	17	97
19-Jan	35	58	35	41	44	23	20	24	23	22	29	31	32	31	27	26	22	28	68	73	64	79	67	94	94
20-Jan	22	10	69	43	24	69	33	69	44	24	18	22	20	22	24	22	19	17	25	24	21	21	25	20	69
21-Jan	13	20	25	46	19	19	22	32	33	18	25	27	23	21	19	19	22	22	19	26	21	17	18	22	46
22-Jan	23	19	19	20	21	27	28	25	23	21	19	25	73	23	25	29	29	20	25	24	26	27	25	24	73
23-Jan	21	20	23	28	25	24	24	28	25	30	36	29	44	46	26	20	23	19	19	21	19	19	20	20	46
24-Jan	18	24	20	18	31	28	26	33	53	24	42	34	22	20	22	25	32	18	21	54	73	18	52	40	73
25-Jan	35	23	20	20	20	20	20	20	20	22	22	31	25	39	33	29	24	24	29	27	27	25	26	28	39
26-Jan	24	36	72	72	23	34	19	UO	57	30	35	41	27	28	30	31	32	26	23	19	23	21	32	29	72
27-Jan	24	24	34	32	28	54	53	43	20	33	34	31	33	32	27	25	27	30	31	41	55	24	37	19	55
28-Jan	15	14	27	24	24	48	48	36	27	40	24	27	20	19	17	18	16	19	51	85	65	76	24	32	85
29-Jan	36	25	17	26	21	25	23	18	25	49	95	35	26	41	23	44	UO	54	27	20	22	26	19	38	95
30-Jan	26	19	17	20	60	33	81	63	36	75	47	30	24	31	21	20	21	22	19	20	28	30	18	19	81
31-Jan	21	29	47	52	47	33	49	36	32	29	23	46	31	28	37	22	28	15	17	16	28	33	88	56	88
	72	88	72	73	60	92	81	90	57	76	95	65	87	74	62	63	57	97	98	85	73	79	88	94	

Diurnal Maximum

UO - Unstable Operation





Maximum Speed: 23 km/h on Jan 30 15:00	Maximum Daily Speed Average: 11.9 km/h on Jan 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 09:00	Minimum Daily Speed Average: 0.3 km/h on Jan 11	Hours of Data: 729
Maximum Diurnal Speed Average: 1.5 km/h at hour 5	Minimum Diurnal Speed Average: 0.2 km/h at hour 16	Hours of Missing Data: 15
Monthly Average Velocity: 0.5 km/h 19.6 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 9 P <sub>90</sub> = 13 P <sub>99</sub> = 18	Percent Operational Time: 98.0

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-Jan	NNE2	NNE7	NNE8	NNE9	N15	N11	NNW12	N8	N7	N5	NE6	NNE8	NNE5	NE4	ENE6	ENE8	ENE8	ENE9	ENE10	ENE8	ENE5	NE6	NE7	NE10	NNE6.8	N15
2-Jan	NE13	NE9	NE8	NE9	NE10	E7	E6	NE4	WSW4	SSW2	E3	NW2	N2	WSW1	WSW2	WSW1	N3	NNE3	E4	N2	NNW5	W1	WNW1	NE1	NE2.8	NE13
3-Jan	NW3	SSW3	SSW4	SSW2	SSE2	SSE5	SSE7	WSW3	UO	UO	NNW7	NNW8	NNW9	NNW8	NNW7	NNW7	N9	N8	NNW10	N12	N12	N12	N13	N14	NNW5.3	N14
4-Jan	N14	N16	N16	N17	N15	N18	N13	N14	NNE17	NNE15	NE12	NNE10	NNE9	NNE9	N10	N11	NNE13	NNE12	NNE12	N9	N8	NNE7	NNE8	N6	N11.9	N18
5-Jan	NNW8	NW6	NNW7	NW7	NW7	NW4	W3	WSW2	SW3	SW2	WSW1	NNW1	NNE4	NNE4	ENE7	ENE7	NE6	NNE6	N6	N5	NE6	NE5	NNW6	NNW7	N3.5	NNW8
6-Jan	NNW5	NNW6	NNW6	NNW6	NNW7	NNW7	NNW8	NNW8	N9	N11	N9	N10	N8	N10	N14	N12	N14	N13	N13	N14	NNE12	NNE10	N9	NNE9	N9.3	N14
7-Jan	NE8	NE6	NE7	NE6	NE7	ENE6	NE5	NNW5	NNW7	NW5	ESE0	SSW1	S4	SSE6	SSE6	SSW5	S6	SSE9	S9	SSE9	SSE10	SSE9	SSE9	SSE9	SE2.6	SSE10
8-Jan	SSE10	SE6	SE7	SE7	SSE6	SW1	NNW7	NNW6	NNW6	NNW11	NNW9	NNE5	NNE7	NNE6	N5	NNW3	N3	N1	NE8	NE9	ENE8	NE7	ENE5	NE6	NE2.9	NNW11
9-Jan	NE9	NE6	NE6	NNE7	N4	NNW6	NNW7	N2	NE5	N5	N9	N11	N9	NNE12	N12	N14	N12	NNE14	NNE16	NNE13	NNE13	NNE13	NNE15	NNE18	NNE9.5	NNE18
10-Jan	NNE13	NNE11	NNE9	NNE8	NE3	E1	WSW0	E3	ENE5	NE7	E5	ENE4	ENE5	ENE5	ENE6	ENE4	NE5	ENE7	ENE5	ENE6	ENE5	ENE3	NE3	NE4	NE4.9	NNE13
11-Jan	NNE3	ENE1	E0	NNW2	NNW3	NNE1	UO	NW0	NNE1	NNE1	SW1	WSW1	ENE1	ENE3	ENE5	E3	E4	UO	S2	S3	SW2	WSW2	WSW4	WSW4	NE0.3	ENE5
12-Jan	SW2	SSW2	SSW4	SW4	SW5	SSW3	SW5	SSW3	SSW3	S3	SW1	SSE2	S3	S2	SSE4	SSE3	SE3	SE1	UO	UO	UO	UO	SSE2	SSE3	SSW2.4	SW5
13-Jan	SSE3	SSE5	S3	SSW2	SSW1	S2	SW1	W1	ESE0	S1	SSW1	WSW0	S1	SSE3	SSE2	S1	S0	NW1	WNW1	NNW3	NNW2	UO	S3	SSE1	S1.0	SSE5
14-Jan	WSW0	UO	UO	W1	UO	UO	UO	UO	SW2	SSW1	S0	S1	SE1	SE1	ESE2	NNW0	ENE3	NE2	NNW3	NNW2	W1	WSW3	SSW3	SSE4	SSW0.3	SSE4
15-Jan	SE4	SE5	SSE6	SSE5	SSE8	SSE7	SSE8	SSE8	SSE6	SE7	SSE6	SSE6	SSE9	SSE8	SSE10	SSE9	SSE9	SSE9	S9	SSE8	S7	SSE7	SSE10	SSE10	SSE7.4	SSE10
16-Jan	SE9	SSE2	NNW5	NNW8	N8	NNW4	NNW4	NW1	ESE2	SSE3	S1	SSW3	S4	SSE3	SSE2	SSW2	SSW2	WSW3	WNW3	NW6	WNW6	W6	WSW6	WNW5	WNW1.4	SE9
17-Jan	NNW10	NNW14	NNE10	NNE10	NNE11	NNE9	NNE11	NNE9	NNE9	NE8	NE12	NNE12	NE11	NNE9	N10	NNE9	NNE11	N10	N10	N12	NNW9	N10	NNW9	NW6	NNE9.3	NNW14
18-Jan	NW5	WNW4	W4	WSW6	WSW4	S0	SW6	WSW6	SW5	SSW5	SSW4	WSW2	SSW2	S3	SSE4	SSE4	S4	WNW3	WNW6	WNW6	NW8	W3	WNW5	WSW7	WSW3.1	NW8
19-Jan	WSW6	SW5	SW6	SSW7	S4	SSE8	SSE9	SSE9	S8	SSE9	SSE10	S11	SSE10	S9	S7	SSE6	S7	SSE10	SSE3	WSW2	S2	WSW1	SSE5	S5	S6.0	S11
20-Jan	SW5	NW7	WNW2	SSW3	S3	SW4	SSW4	SSW4	S7	NW7	NW9	NNW9	NW7	NNW7	NNW7	NNW7	N6	N8	NNE10	NE10	NE12	NE12	NE9	N7	N3.8	NE12
21-Jan	NNW6	NNW6	N6	NW3	NNW8	NNW6	NNW5	W4	NNW4	NNW6	NNW6	N6	N8	N9	NNE12	NNE12	NNE12	NNE9	NE8	NNE6	NNE9	NNE11	N13	N12	N7.1	N13
22-Jan	N10	N10	NNE11	NNE9	N7	N6	NNW6	NNW6	NW5	NNW5	NNW4	NW5	ESE2	SSE14	SSE13	SSE9	SE7	SE7	SSE12	SSE16	SSE17	SSE13	SSE8	S8	SE2.4	SSE17
23-Jan	SSE11	SSE9	SSE9	SSE9	S9	S9	S9	S9	S8	S6	S6	SSW7	SW4	NW3	NNW6	NNW8	N9	N13	N12	N10	N15	N13	NNE11	NNE13	ENE1.0	N15
24-Jan	N10	NNE7	N5	N7	NNE5	NNE5	NW4	NW2	NNW1	NW5	WNW2	W3	WSW3	SW4	SW5	SW7	SW7	WSW8	SW6	WSW6	WSW4	SSE3	N4	N6	WNW2.0	N10
25-Jan	NNE8	NNE13	NNE15	NNE15	NNE13	NNE10	N10	N8	N8	N6	NNW6	NW4	SW4	SSW4	S6	S8	SSE9	SSE10	SSE9	S9	S7	S7	S9	S8	ENE1.7	NNE15
26-Jan	S9	SW7	SW2	WNW3	NNW7	WSW3	NW5	NW2	SSW2	S5	SSE4	SE4	SSE7	SSE9	SSE9	S7	SSE8	SSE10	SSE9	SSE7	SE5	SSE4	SSE4	SSW4	S3.9	SSE10
27-Jan	SSW4	SSW4	SSW3	S4	S4	W2	SW3	SSW4	S7	S6	S5	SSW5	S5	SSW8	SSW8	SSW8	SSW8	SSW8	SSW8	SSW7	SW6	S8	S9	SSE11	SSW5.7	SSE11
28-Jan	SSE12	SSE15	SSE10	SSE11	SSE11	SSE9	SSW8	SSE9	SSE12	SSE9	SSW8	SSW13	SW16	SW17	WSW14	WSW13	WSW16	WSW18	WSW11	WSW3	WSW9	WNW2	W11	WSW8	SSW8.3	WSW18
29-Jan	SW10	SSE10	SSE14	SSE13	SSE13	SSE10	S11	SSE12	S11	SSW6	SW3	SW7	SW7	WSW5	SW7	SW4	SW5	S8	SSE12	SSE17	S18	SSE16	SSE15	SSE11	S9.2	S18
30-Jan	SSE15	SSE14	SSE12	SSE12	SSE9	NW4	SSW4	SSE6	S10	S9	SSW10	S14	S13	SW16	WSW23	WSW23	WSW23	W18	SW17	SW20	WNW23	W16	WSW13	WSW15	SW10.3	WSW23
31-Jan	WSW16	WSW13	SSW8	SSW8	SW9	SW14	SW9	S8	S9	SSW9	SSW8	SSE6	SSE8	SSE9	S6	SSE11	SSE8	SE10	SSE7	W2	E4	SE10	SSE8	WSW2	S6.5	WSW16

NNE0.7	NNE1.2	NE1.4	NNE1.0	NNE1.5	N0.8	NNW1.0	SW0.3	SE0.7	NNW0.3	NNW0.6	NNW0.4	S0.3	S0.6	SW0.3	SW0.2	NE0.6	N0.4	NE1.0	NNE0.9	N1.5	NE1.3	N0.6	N0.8		Diurnal Average
WSW16	N16	N16	N17	N15	N18	N13	N14	NNE17	NNE15	NE12	S14	SW16	SW17	WSW23	WSW23	WSW23	WSW18	SW17	SW20	WNW23	W16	SSE15	NNE18		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**

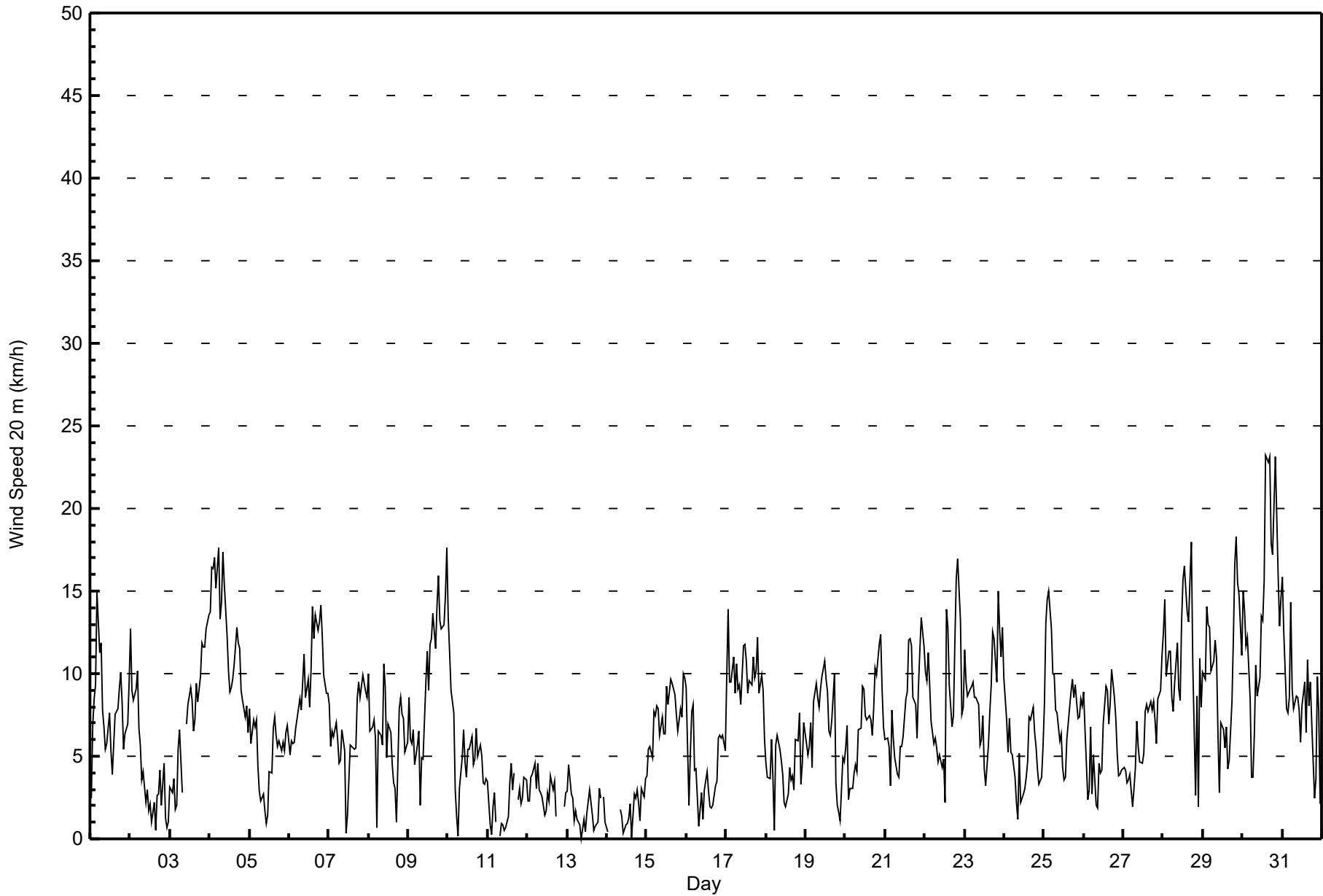
**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 16:00 Minimum Value: 0 km/h on Jan 13 09:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 729 Hours of Missing Data: 15 Hours of Calibration: 0 Percent Operational Time: 98.0								
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-Jan	1	3	2	2	4	4	3	2	2	2	2	2	1	2	1	2	2	2	2	3	2	2	2	3	4
2-Jan	3	2	2	1	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	3
3-Jan	1	1	1	1	0	3	2	2	UO	UO	2	2	2	2	2	1	2	2	2	4	3	3	3	4	
4-Jan	4	5	5	5	5	5	4	4	4	4	3	4	3	3	3	2	3	3	3	2	2	2	3	2	
5-Jan	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	
6-Jan	1	1	1	1	2	2	1	1	2	3	2	3	3	4	4	3	4	3	3	3	4	3	2	2	
7-Jan	2	2	2	1	2	2	2	1	1	2	1	1	1	2	1	1	1	2	2	2	2	2	2	1	
8-Jan	2	2	2	2	1	2	2	1	1	1	2	2	3	2	2	1	1	2	2	2	2	2	2	2	
9-Jan	2	1	2	3	1	1	2	2	3	2	3	3	3	3	3	4	3	4	4	4	3	4	4	4	
10-Jan	4	3	3	3	2	1	1	1	1	1	2	1	1	2	1	1	2	1	1	2	2	1	2	1	
11-Jan	2	1	1	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	UO	0	0	0	0	1	2	
12-Jan	1	1	1	1	1	1	1	1	0	1	1	2	1	1	1	1	0	1	UO	UO	UO	UO	1	0	
13-Jan	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	
14-Jan	1	UO	UO	1	UO	UO	UO	UO	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	
15-Jan	1	1	1	2	1	1	1	2	1	1	2	2	2	2	2	2	1	2	1	1	1	1	2	2	
16-Jan	2	2	1	3	2	2	1	1	1	1	2	1	1	1	1	1	1	1	2	2	2	2	1	1	
17-Jan	4	3	3	3	3	2	3	2	3	3	3	3	3	2	2	2	2	2	2	3	2	2	2	2	
18-Jan	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	0	1	1	2	2	2	2	2	
19-Jan	2	2	1	1	1	1	1	1	1	1	2	3	2	2	2	1	2	3	2	1	2	2	3	2	
20-Jan	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	1	
21-Jan	1	1	2	2	2	1	1	1	1	1	2	2	2	2	3	3	4	3	2	2	2	3	4	4	
22-Jan	3	2	2	2	2	2	2	1	1	1	1	1	5	3	3	3	2	2	3	4	4	4	2	2	
23-Jan	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	3	3	3	3	3	3	3	
24-Jan	2	2	1	2	1	2	1	1	1	2	1	1	1	1	1	2	1	1	1	2	2	1	2	2	
25-Jan	4	4	4	3	3	3	3	2	2	2	2	1	1	1	1	2	2	2	2	2	1	2	2	4	
26-Jan	2	2	1	2	2	1	1	1	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	1	
27-Jan	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	
28-Jan	2	1	2	2	2	2	2	3	3	2	2	3	4	4	3	3	3	4	5	2	3	2	3	2	
29-Jan	3	2	2	2	2	3	1	1	2	1	1	2	2	2	2	1	2	2	3	3	4	3	2	3	
30-Jan	3	2	2	2	3	1	2	1	3	4	3	3	2	6	6	8	7	6	5	5	8	5	2	4	
31-Jan	3	3	3	3	3	5	4	2	2	2	2	2	2	2	2	2	1	1	3	1	2	2	2	2	
Diurnal Maximum																									
UO - Unstable Operation																									



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

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - January 2024**





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

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	274	37.59	37.59
6 - 11	349	47.87	85.46
12 - 19	101	13.85	99.31
20 - 28	5	0.69	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 729

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h  
Barge Landing - January 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	12	12	11	15	9	5	8	26	29	33	24	28	11	11	19	21	274
6 - 11	45	40	26	15	2	0	9	72	39	17	13	10	2	3	8	48	349
12 - 19	30	25	4	0	0	0	0	21	3	1	5	8	2	0	0	2	101
20 - 28	0	0	0	0	0	0	0	0	0	0	1	3	0	1	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>87</b>	<b>77</b>	<b>41</b>	<b>30</b>	<b>11</b>	<b>5</b>	<b>17</b>	<b>119</b>	<b>71</b>	<b>51</b>	<b>43</b>	<b>49</b>	<b>15</b>	<b>15</b>	<b>27</b>	<b>71</b>	<b>729</b>

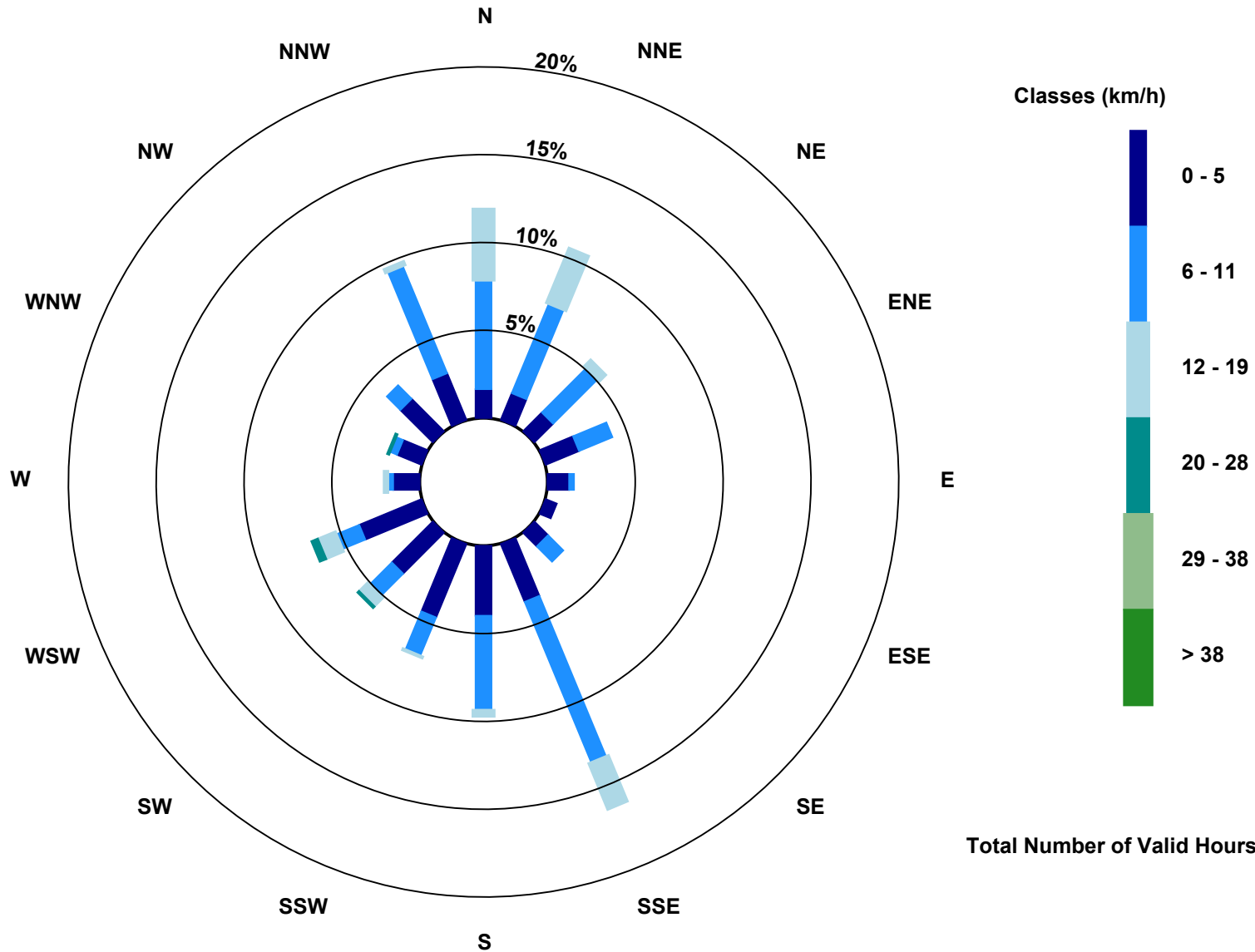
Total Number of Valid Hours: 729

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed 20 m (WS20m) - km/h  
Barge Landing



Total Number of Valid Hours: 729



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Barge Landing - January 2024

Direction of Maximum Speed: 249 deg on Jan 30 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 10.6 deg on Jan 4	Hours of Data: 729
Direction of Minimum Speed: 106 deg on Jan 13 09:00	Hours of Missing Data: 15
Direction of Minimum Daily Speed Average: 0.3 deg on Jan 11	Percent Operational Time: 98.0
Monthly Average Direction: 19.6 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-Jan	28	22	18	19	7	355	344	356	6	11	42	26	27	54	60	70	65	60	59	71	63	48	56	52	32.2
2-Jan	44	47	40	39	55	84	80	52	239	198	90	307	356	254	238	249	355	14	84	353	341	275	288	44	42.9
3-Jan	318	207	200	245	165	164	162	247	UO	UO	335	333	333	343	332	344	2	354	347	5	352	353	353	358	345.1
4-Jan	356	354	359	356	359	2	360	5	20	23	35	30	33	23	7	11	33	25	19	2	350	16	16	4	10.6
5-Jan	336	326	327	320	324	305	271	244	219	219	246	330	26	22	59	57	50	19	10	359	36	38	334	342	355.0
6-Jan	338	343	341	330	337	333	335	341	3	2	354	352	351	355	353	355	0	358	10	6	12	13	9	19	356.3
7-Jan	39	48	55	48	37	61	45	338	333	320	122	194	184	159	158	194	185	168	171	159	158	158	159	166	133.6
8-Jan	164	146	143	144	154	218	342	347	335	332	332	14	12	13	349	344	354	5	53	49	57	51	64	55	33.9
9-Jan	51	56	37	20	355	343	347	8	55	7	2	4	7	12	9	10	8	15	15	14	12	16	14	20	14.2
10-Jan	18	13	22	21	35	84	243	98	65	56	80	74	62	59	63	70	39	65	72	68	69	75	41	40	48.9
11-Jan	27	61	84	329	344	18	UO	320	15	16	236	257	71	69	66	79	89	UO	187	188	227	242	245	253	50.4
12-Jan	232	198	199	234	236	205	220	192	197	183	231	167	175	184	166	155	133	138	UO	UO	UO	UO	168	154	191.8
13-Jan	166	147	185	201	195	188	219	276	106	172	195	240	186	166	162	180	186	323	282	327	333	UO	186	162	188.6
14-Jan	257	UO	UO	265	UO	UO	UO	UO	234	201	175	191	134	126	123	334	64	38	340	333	265	247	209	160	198.7
15-Jan	128	146	151	167	153	149	153	158	164	142	148	165	161	166	153	156	155	169	166	180	157	150	158	160	157.0
16-Jan	141	167	340	333	10	340	348	311	105	155	184	212	187	164	163	195	209	239	301	319	303	274	254	289	285.0
17-Jan	331	339	25	28	22	23	20	15	24	41	34	33	34	21	7	22	21	356	7	5	346	353	341	326	11.4
18-Jan	313	300	267	249	237	172	226	240	230	213	210	253	209	178	151	162	173	284	289	293	309	276	299	252	251.6
19-Jan	253	229	217	206	189	168	164	165	169	166	166	171	163	169	174	162	173	166	150	242	175	242	158	180	176.2
20-Jan	235	315	301	205	183	233	208	204	179	325	326	327	324	331	344	329	354	359	29	50	37	41	35	359	350.5
21-Jan	332	346	353	326	329	329	328	272	328	338	348	8	11	11	15	12	29	32	35	12	16	19	3	356	2.1
22-Jan	3	8	21	16	3	9	331	331	321	330	333	322	123	148	151	149	144	140	154	158	161	160	163	171	126.1
23-Jan	152	149	155	163	177	183	173	173	175	179	188	194	230	320	334	345	1	10	3	3	11	10	12	16	68.4
24-Jan	4	17	353	358	32	26	311	325	341	310	283	267	244	227	219	214	223	242	234	239	243	167	11	4	296.9
25-Jan	28	31	30	27	25	14	5	11	9	349	335	307	229	195	169	172	154	159	168	180	184	179	177	183	61.5
26-Jan	171	220	220	291	343	254	322	322	213	178	158	140	162	156	162	170	166	164	157	147	144	155	163	207	172.0
27-Jan	201	210	199	184	176	275	232	211	177	190	190	196	185	192	195	195	203	210	216	209	222	184	187	149	195.0
28-Jan	157	152	158	166	167	151	210	168	154	168	204	209	231	232	239	249	248	254	254	238	245	292	263	241	210.3
29-Jan	216	151	164	166	163	151	182	166	184	211	218	218	226	240	227	226	217	190	165	154	172	164	161	154	176.9
30-Jan	161	162	160	164	151	315	192	154	170	173	193	176	178	227	249	246	254	259	228	235	283	275	257	243	222.0
31-Jan	250	240	207	208	219	231	217	176	172	195	208	164	159	167	185	155	147	144	157	280	97	129	153	240	189.4

20.2	30.7	46.4	21.1	27.0	2.4	300.5	230.2	144.9	338.3	342.2	303.3	171.9	174.5	214.8	226.9	43.1	6.8	48.1	24.5	357.8	46.2	9.0	5.8
Diurnal Average																							

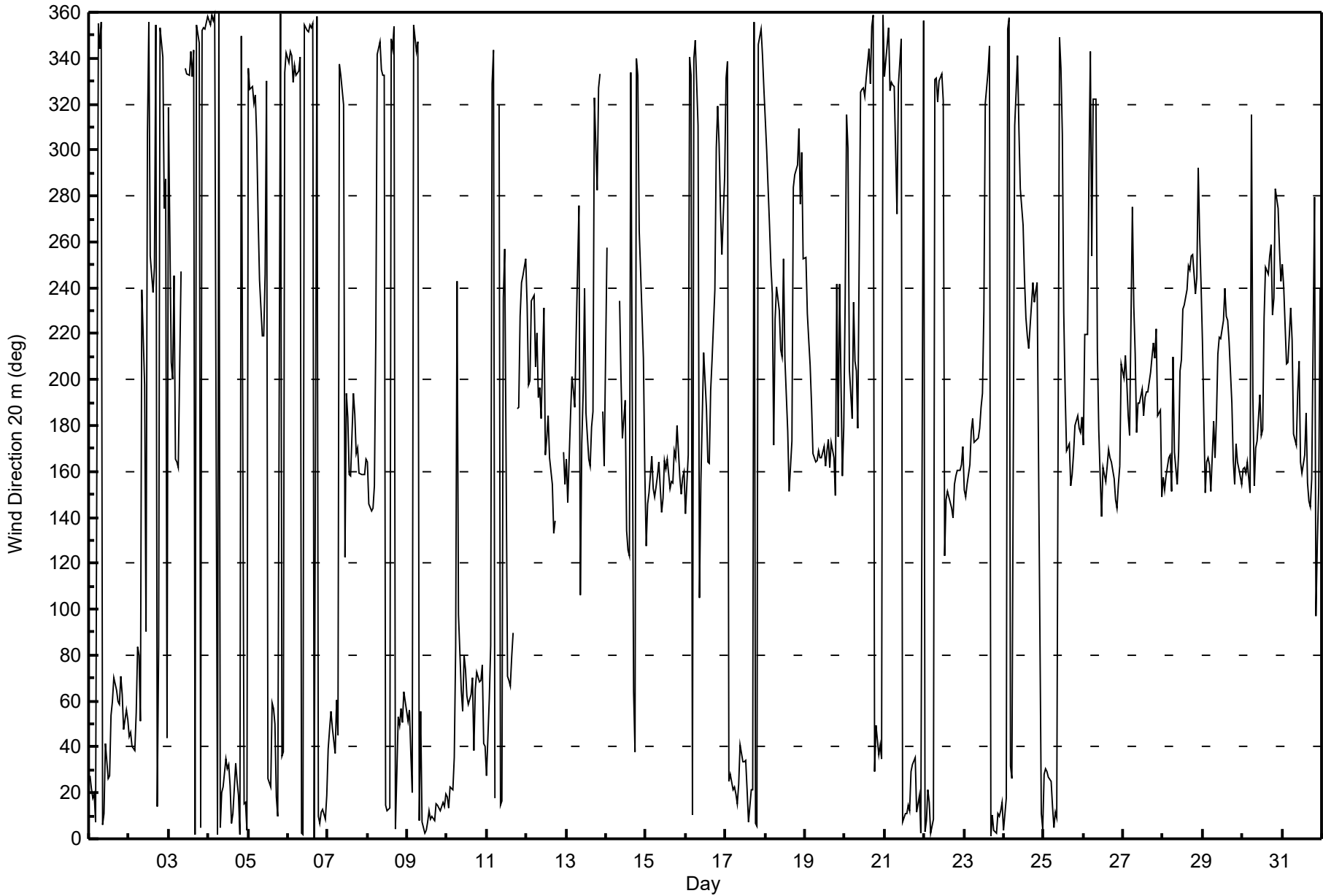
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 20 m (WD20m) - deg**  
**Barge Landing - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 101 deg on Jan 28 22:00 Minimum Value: 4 deg on Jan 8 08:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 23 P <sub>90</sub> = 39 P <sub>99</sub> = 85		Hours in Service: 744 Hours of Data: 729 Hours of Missing Data: 15 Hours of Calibration: 0 Percent Operational Time: 98.0																							
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-Jan	54	29	26	14	15	17	16	17	17	14	19	13	18	29	20	13	15	13	12	14	20	14	16	16	54
2-Jan	13	11	10	9	12	13	14	32	56	53	22	41	63	85	47	86	44	41	26	71	13	68	69	83	86
3-Jan	27	28	20	63	42	27	15	39	UO	UO	12	11	13	15	14	14	17	16	14	16	16	15	15	16	63
4-Jan	16	16	16	18	18	16	16	16	11	12	14	19	20	17	15	16	14	13	14	17	18	21	20	43	43
5-Jan	15	21	13	14	13	13	22	30	19	33	55	42	21	23	17	18	24	24	18	16	18	19	12	11	55
6-Jan	14	14	15	12	10	10	10	11	15	15	15	15	19	17	17	16	17	17	14	13	14	14	14	14	19
7-Jan	15	16	17	15	15	13	34	16	9	8	80	35	23	24	19	18	16	13	13	13	12	14	12	12	80
8-Jan	12	17	9	10	13	71	12	4	12	5	9	27	19	13	21	23	26	31	15	16	16	19	21	18	71
9-Jan	8	17	11	16	22	13	17	42	25	25	16	15	16	13	14	15	14	12	14	13	14	15	14	11	42
10-Jan	13	14	18	15	25	37	92	13	13	12	17	24	16	16	12	9	15	13	10	16	14	15	21	19	92
11-Jan	16	28	51	32	9	27	UO	49	43	44	45	45	74	13	12	18	11	UO	11	12	8	10	8	7	74
12-Jan	14	13	13	7	5	11	10	14	13	13	14	28	31	34	15	21	8	55	UO	UO	UO	UO	10	10	55
13-Jan	13	6	11	13	22	15	57	90	86	30	29	35	31	15	19	25	72	36	24	12	13	UO	12	61	90
14-Jan	34	UO	UO	22	UO	UO	UO	UO	6	15	22	26	44	22	32	83	10	43	14	15	43	10	25	23	83
15-Jan	11	6	10	16	10	11	10	9	13	10	13	19	15	18	11	9	12	18	21	16	20	20	11	11	21
16-Jan	9	70	24	8	18	23	19	56	16	27	66	24	17	30	45	47	35	18	35	11	16	25	11	33	70
17-Jan	21	14	21	14	14	11	14	13	14	16	14	15	16	17	15	15	14	12	12	17	15	15	17	14	21
18-Jan	13	9	24	8	11	86	35	7	17	20	25	51	53	32	20	21	18	60	11	16	13	36	27	14	86
19-Jan	14	20	12	20	14	13	8	9	10	11	12	16	16	20	17	14	12	15	25	63	73	70	26	12	73
20-Jan	21	14	50	23	36	14	12	27	21	24	12	15	15	17	21	17	18	15	18	16	13	14	20	16	50
21-Jan	6	17	16	39	13	14	16	25	17	13	18	20	15	16	12	14	17	15	12	18	16	11	15	19	39
22-Jan	18	16	12	13	18	23	19	16	16	15	13	18	83	13	13	14	21	15	14	12	12	12	12	11	83
23-Jan	10	12	11	14	16	14	13	14	13	15	25	22	49	38	20	17	19	15	16	17	14	14	14	15	49
24-Jan	14	14	17	14	23	20	17	28	19	19	31	31	28	22	23	14	16	8	10	14	37	29	64	27	64
25-Jan	18	15	13	14	13	16	17	14	16	17	18	20	23	33	20	19	12	11	13	15	19	14	15	17	33
26-Jan	12	31	58	58	12	22	17	54	70	20	21	32	16	13	18	20	19	13	12	11	15	12	21	18	70
27-Jan	14	17	24	20	16	53	41	25	13	17	21	20	21	23	15	13	16	15	14	23	39	16	23	13	53
28-Jan	7	7	17	10	13	33	22	20	11	15	14	17	15	13	14	12	10	12	26	99	25	101	15	21	101
29-Jan	24	22	9	15	10	15	11	8	15	24	40	27	26	32	19	27	29	17	12	12	10	16	10	30	40
30-Jan	21	8	9	9	17	40	33	34	20	46	30	21	16	21	15	16	14	14	14	16	18	17	10	14	46
31-Jan	12	17	40	42	28	23	31	32	23	15	17	32	17	13	30	12	16	8	13	52	38	14	14	81	81
Diurnal Maximum																									
54 70 58 63 42 86 92 90 86 53 80 51 83 85 47 86 72 60 35 99 73 101 69 83																									
UO - Unstable Operation																									







## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS11 LOWER CAMP JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
JANUARY 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	709	35	35	100	33.8	0	5.6	0
H2S (ppb) Average	706	38	38	100	9.6	0	4	1
THC (ppm) Average	699	35	45	98.66	3.1	-	2.7	-
CH4(ppm) Average	699	35	45	98.66	3	-	2.6	-
NMHC(ppm) Average	699	35	45	98.66	0.173	-	0.096	-
Temperature (C) Average	744	0	0	100	11.2	-	4.1	-
Relative Humidity (%) Average	744	0	0	100	96.9	-	92.8	-
Barometric Pressure (inHg) Average	744	0	0	100	29.9	-	29.9	-
Wind Speed 10 m (km/h) Average	726	0	18	97.58	25	-	14	-
Wind Direction 10 m (deg) Average	726	0	18	97.58	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
 JANUARY 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	709	1.31	3.5	-	0	0	0.1	0.3	0.7	2.9	33.8
H2S (ppb) Average	706	0.67	1.1	-	0	0.1	0.1	0.3	0.8	1.6	9.6
THC (ppm) Average	699	2.21	0.2	-	2	2	2	2.1	2.3	2.5	3.1
CH4(ppm) Average	699	2.18	0.2	-	2	2	2	2.1	2.3	2.5	3
NMHC(ppm) Average	699	0.021	0.032	-	0	0	0	0	0	0.1	0.173
Temperature 2 m (C) Average	744	-17.87	12.6	-	-42.9	-37	-24.7	-18.1	-9.8	-0.3	11.2
Relative Humidity (%) Average	744	75.99	9	-	43.7	65.2	69.2	75.6	80.6	90.4	96.9
Barometric Pressure (inHg) Average	744	29.28	0.3	-	28.6	28.9	29	29.2	29.5	29.8	29.9
Wind Speed 10 m (km/h) Average	726	7.2	5	-	0	2	4	7	10	13	25
Wind Direction 10 m (deg) Average	726	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
JANUARY 2024

OPERATIONAL NOTES

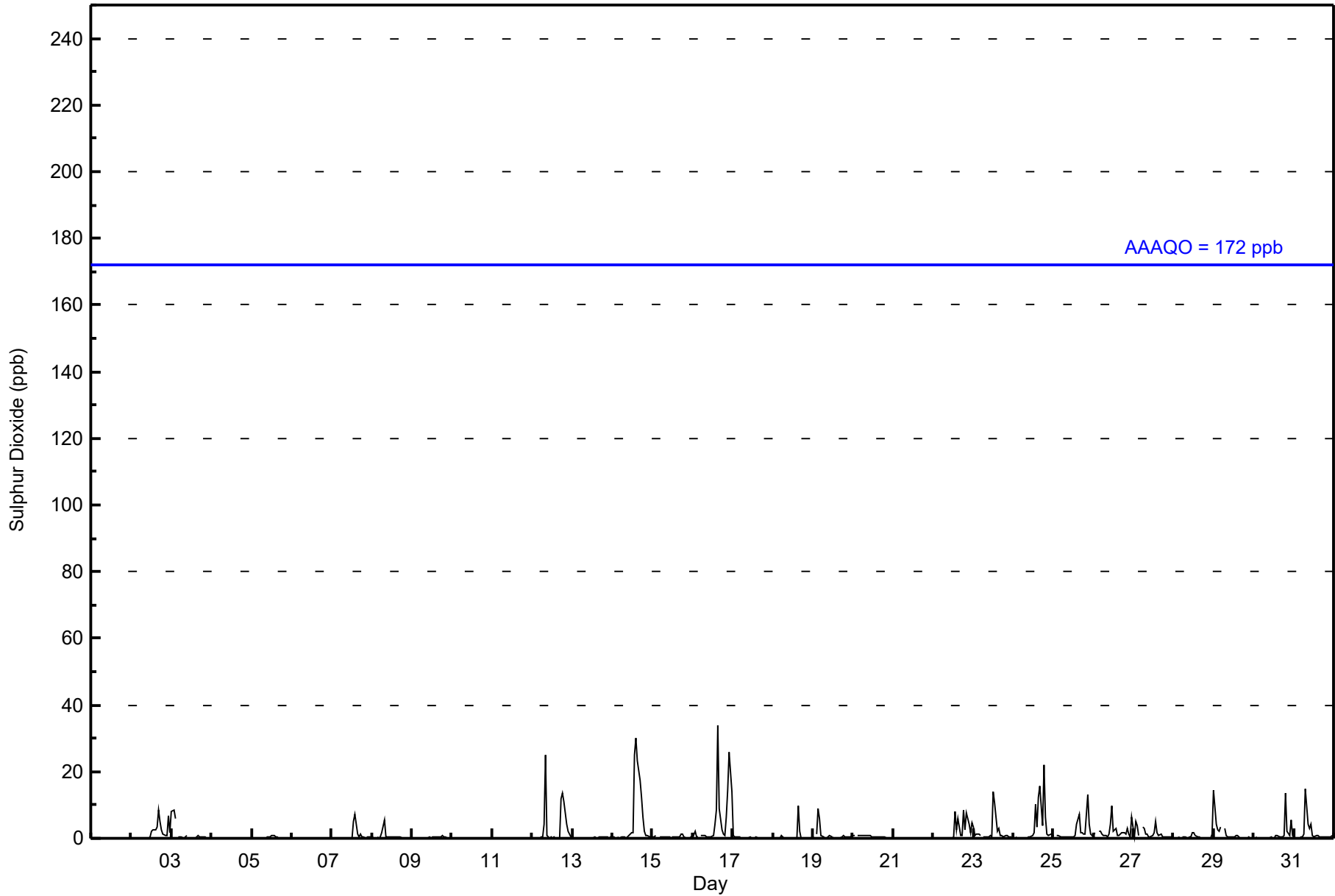
Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	13 Jan 2024 06:00	13 Jan 2024 07:00	2	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	13 Jan 2024 11:00	13 Jan 2024 11:00	1	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	13 Jan 2024 13:00	13 Jan 2024 15:00	3	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	13 Jan 2024 20:00	13 Jan 2024 22:00	3	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	14 Jan 2024 14:00	14 Jan 2024 14:00	1	Unstable Operation - excessive baseline drift
Wind Speed, Wind Direction	15 Jan 2024 15:00	15 Jan 2024 23:00	9	Flat line in sensor output signal
Wind Speed, Wind Direction	16 Jan 2024 15:00	16 Jan 2024 15:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Jan 2024 04:00	18 Jan 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Jan 2024 15:00	18 Jan 2024 15:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Jan 2024 20:00	18 Jan 2024 20:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Jan 2024 21:00	19 Jan 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 Jan 2024 05:00	20 Jan 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 Jan 2024 08:00	20 Jan 2024 10:00	3	Flat line in sensor output signal





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Lower Camp - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Lower Camp - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	687	96.90	96.90
11 - 20	15	2.12	99.01
21 - 60	7	0.99	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Lower Camp - January 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	42	7	3	3	7	143	69	11	2	0	8	31	35	112	101	95	669
11 - 20	1	0	0	0	0	0	4	1	1	0	1	1	5	1	0	0	15
21 - 60	1	0	0	1	0	0	0	1	1	1	0	0	1	1	0	0	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>	44	7	3	4	7	143	73	13	4	1	9	32	41	114	101	95	691

Total Number of Valid Hours: 691

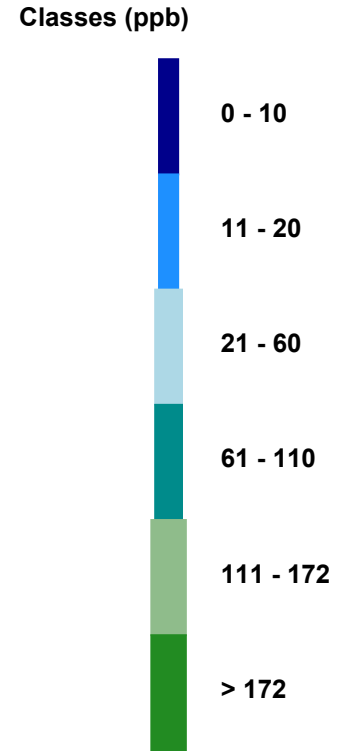
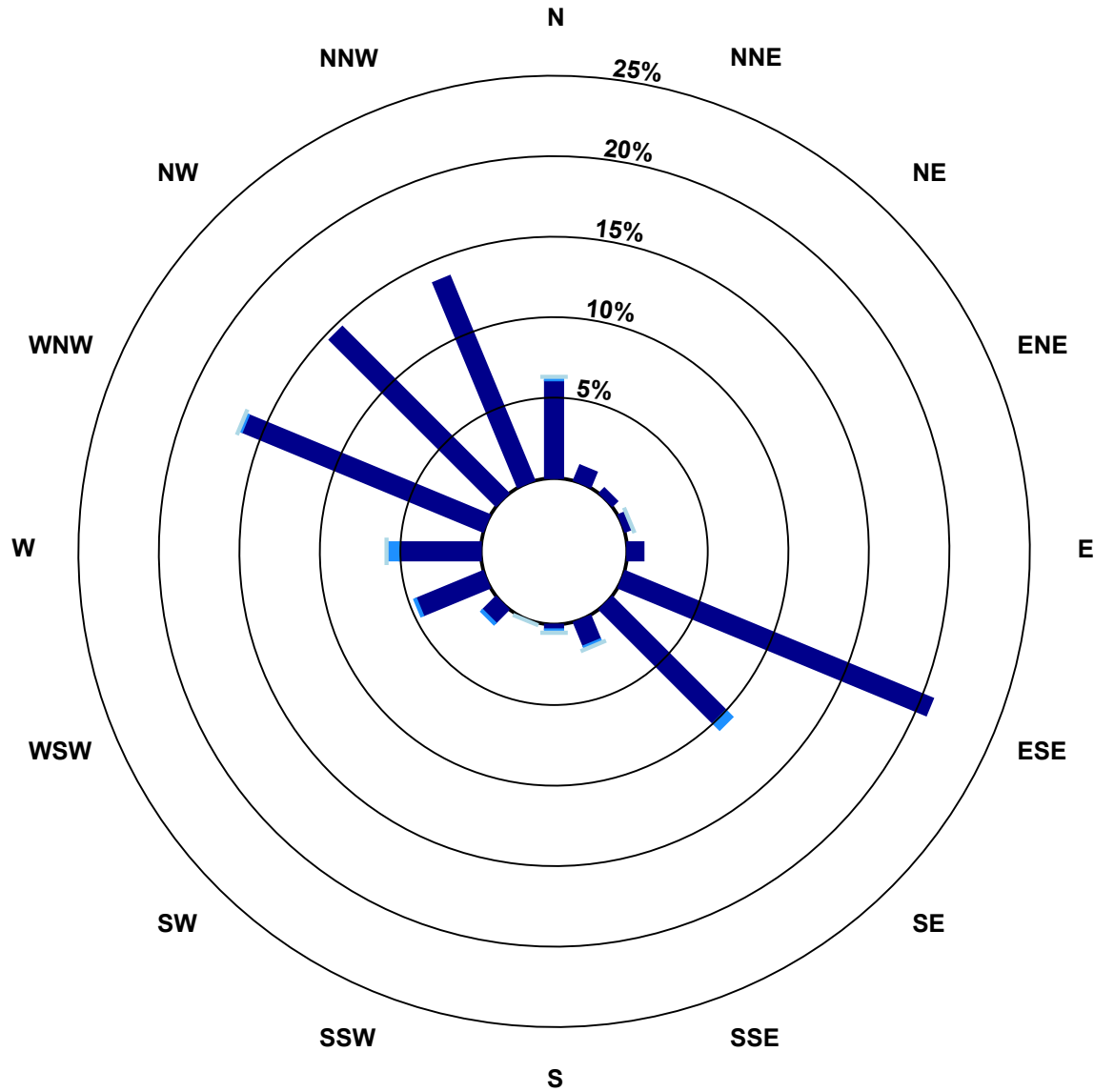
Total Number of Hours: 744



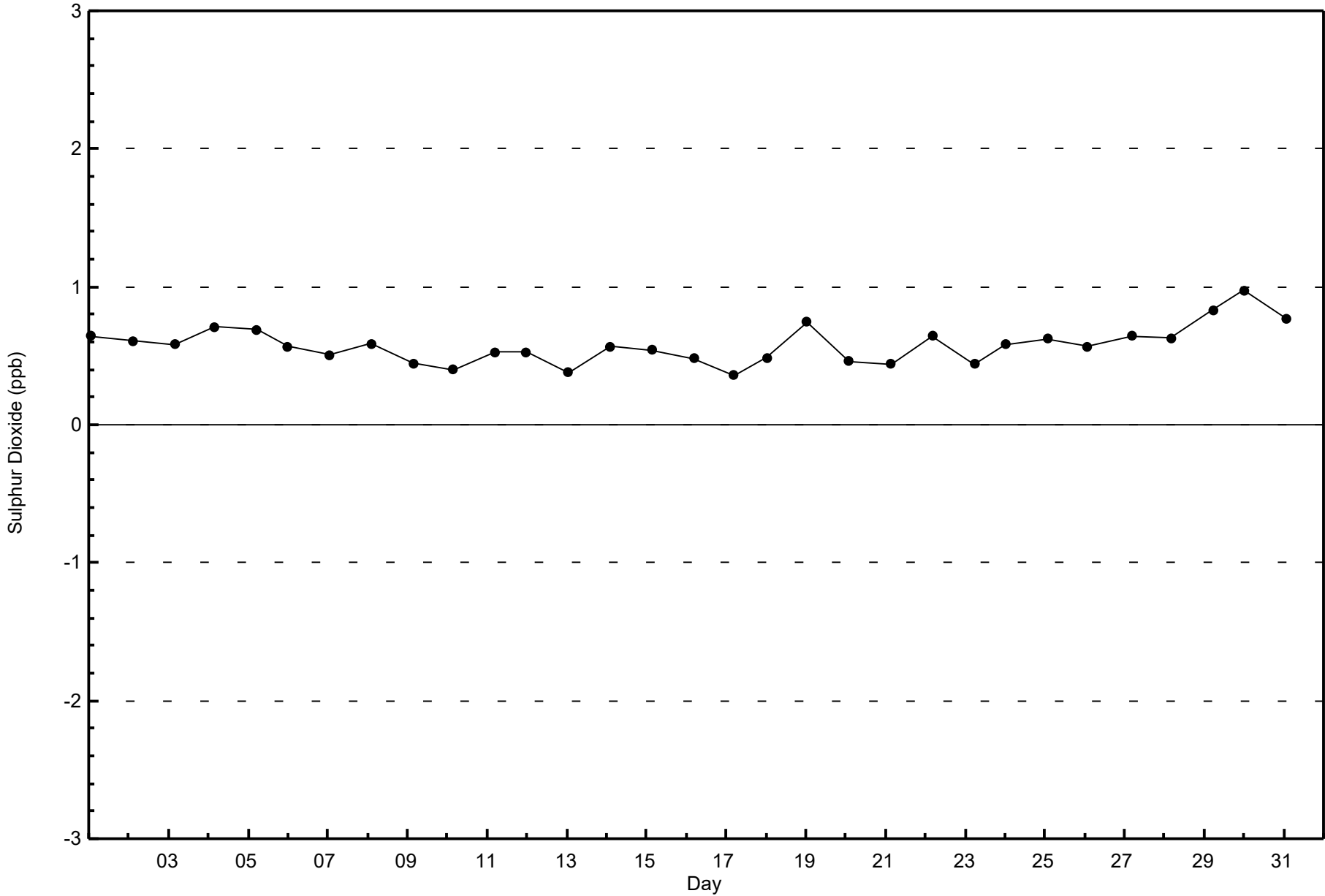


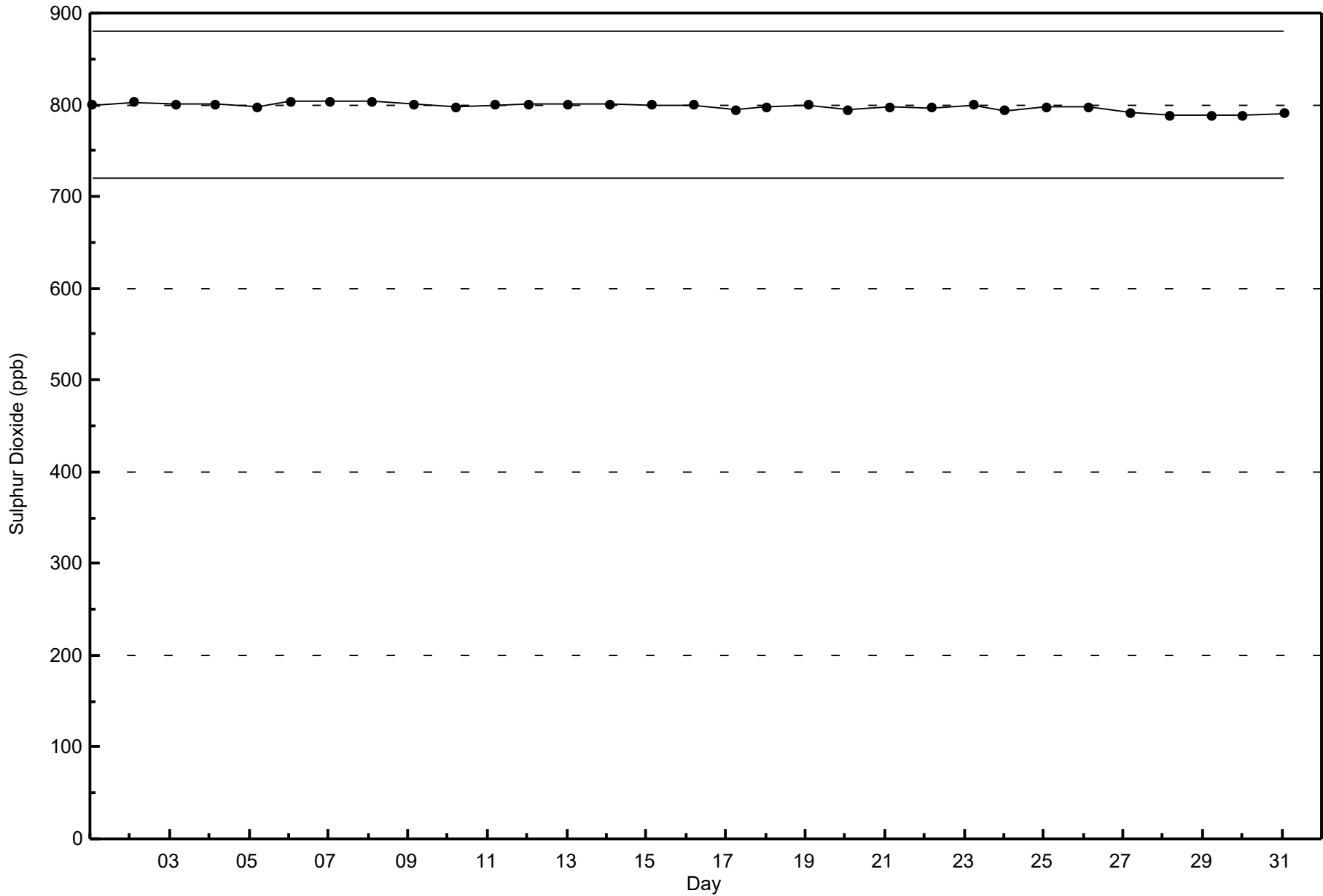
Wood Buffalo Environmental Association  
 Wind Rose Jan 2024

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



Total Number of Valid Hours: 691



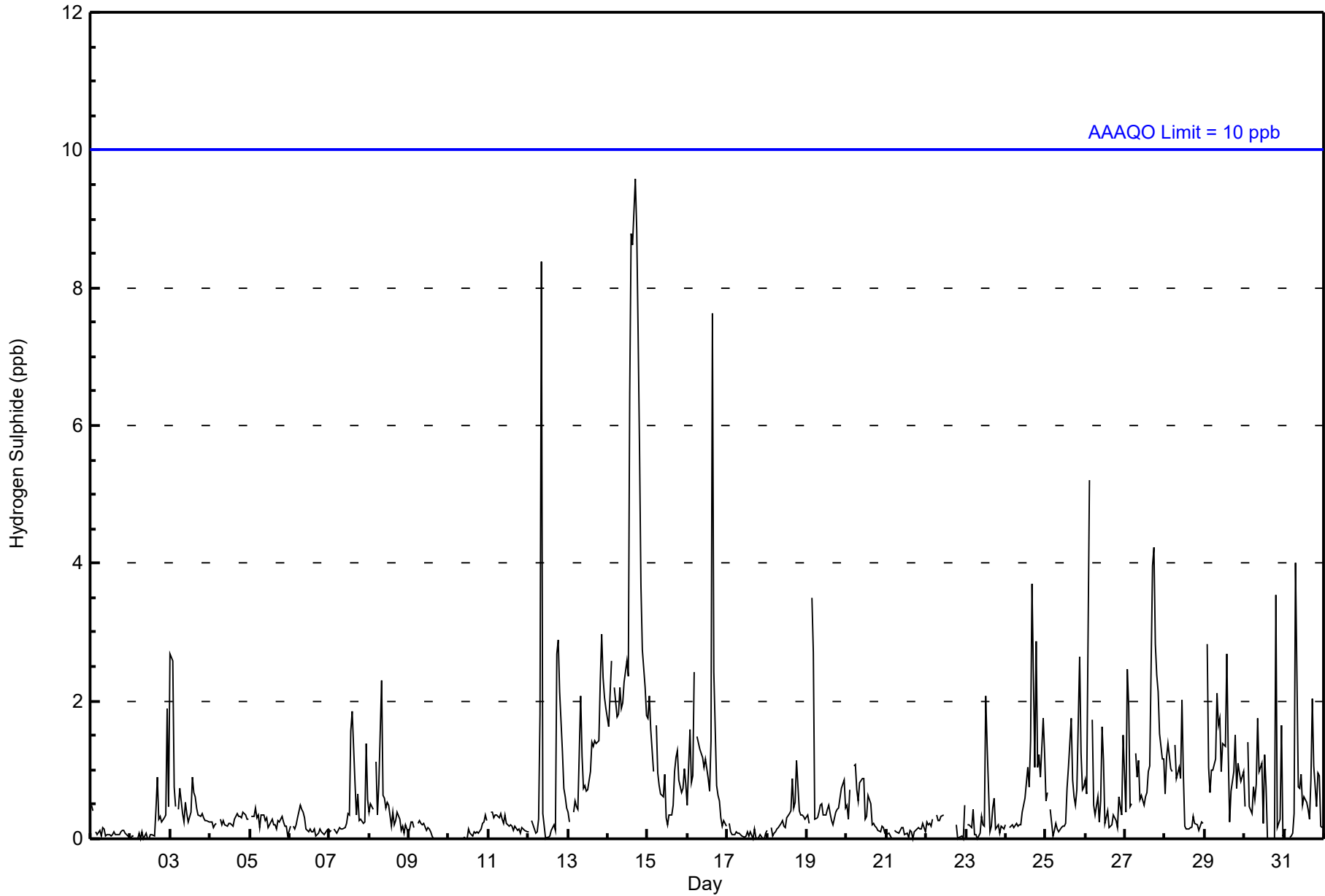




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Lower Camp - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 1																		Hours in Service:	744																											
Maximum Value: 9.6 ppb on Jan 14 17:00		Maximum Daily Average: 4.0 ppb on Jan 14																			Hours of Data:	706																											
Minimum Value: 0.0 ppb on Jan 2 05:00		Minimum Daily Average: 0.1 ppb on Jan 17																			Hours of Missing Data:	38																											
Maximum Diurnal Average: 1.0 ppb at hour 17		Minimum Diurnal Average: 0.4 ppb at hour 6																			Hours of Calibration:	38																											
Monthly Average: 0.67 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 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> = 6.4																			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-Jan	0.5	0.4	Z	0.1	0.1	0.1	0.0	0.2	0.2	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	0.0	0.1	0.5																							
2-Jan	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.4	0.9	0.3	0.3	0.2	0.3	0.3	1.9	0.5	0.2	1.9																							
3-Jan	2.7	2.6	0.8	0.5	Z	0.4	0.7	0.4	0.3	0.5	0.4	0.2	0.4	0.9	0.7	0.6	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.6	2.7																							
4-Jan	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4																						
5-Jan	Z	0.3	0.3	0.5	0.3	Z	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.3	0.5																							
6-Jan	0.2	Z	0.2	0.1	0.2	0.3	0.5	0.4	0.4	0.3	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	0.2	0.2	0.5																						
7-Jan	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.4	0.4	1.6	1.9	0.8	0.3	0.6	0.3	0.3	0.2	0.2	1.4	0.6	0.5	1.9																							
8-Jan	0.4	0.5	0.4	Z	1.1	0.4	0.8	2.3	0.6	0.6	0.4	0.5	0.5	0.2	0.4	0.2	0.3	0.4	0.3	0.1	0.2	0.1	0.2	0.1	0.5	2.3																							
9-Jan	0.1	0.2	0.2	0.2	Z	0.2	0.3	0.2	0.2	0.2	0.1	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	0.1	0.3																							
10-Jan	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	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.1	0.3																							
11-Jan	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.4																							
12-Jan	0.1	Z	0.3	0.2	0.1	0.1	0.3	1.8	8.4	0.4	0.0	0.0	0.0	0.0	0.1	0.2	0.1	2.7	2.9	2.1	1.3	0.7	0.6	0.5	1.0	8.4																							
13-Jan	0.4	0.2	Z	0.4	0.5	0.5	0.4	2.1	1.2	0.7	0.8	0.7	0.7	1.0	1.4	1.3	1.4	1.4	1.4	2.3	3.0	2.3	2.1	1.9	1.2	3.0																							
14-Jan	1.6	2.1	2.6	Z	2.2	1.8	1.8	2.2	1.9	2.0	2.3	2.6	2.4	6.5	8.8	8.6	9.6	8.8	7.3	5.7	3.7	2.7	2.2	1.8	4.0	9.6																							
15-Jan	1.7	2.1	1.6	1.0	Z	1.6	1.0	0.8	0.6	0.6	0.9	0.3	0.2	0.4	0.3	0.5	1.0	1.2	1.3	0.9	0.7	0.7	1.0	0.8	0.9	2.1																							
16-Jan	0.5	1.6	0.8	0.9	2.4	Z	1.5	1.3	1.2	1.2	1.0	1.2	0.9	0.7	1.4	7.6	2.4	0.8	0.6	0.6	0.3	0.2	0.3	0.2	1.3	7.6																							
17-Jan	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2																							
18-Jan	0.1	Z	0.2	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.9	0.4	0.5	1.1	0.4	0.3	0.4	0.3	0.3	0.3	1.1																							
19-Jan	0.3	0.2	Z	3.5	2.7	0.3	0.3	0.4	0.5	0.5	0.3	0.3	0.4	0.5	0.4	0.3	0.2	0.4	0.4	0.5	0.6	0.7	0.8	0.5	0.7	3.5																							
20-Jan	0.5	0.3	0.7	Z	1.1	1.1	0.7	0.6	0.8	0.9	0.9	0.3	0.3	0.6	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.5	1.1																							
21-Jan	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2																							
22-Jan	0.2	0.2	0.2	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.3	C	C	C	C	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.5	0.5																							
23-Jan	Z	0.2	0.2	0.2	0.4	0.1	0.1	0.0	0.1	0.3	0.2	0.2	2.1	1.3	0.1	0.2	0.4	0.6	0.1	0.2	0.1	0.2	0.2	0.1	0.3	2.1																							
24-Jan	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.6	0.8	1.0	0.7	1.4	3.7	1.0	2.9	1.0	1.2	0.9	1.8	1.2	0.9	3.7																							
25-Jan	0.5	0.7	Z	0.4	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.7	1.0	1.7	0.8	0.6	0.5	0.7	2.6	1.2	0.7	0.8	0.6	2.6																							
26-Jan	0.8	0.7	5.2	Z	1.7	0.5	0.4	0.6	0.2	0.5	1.6	1.1	0.2	0.4	0.2	0.2	0.2	0.4	0.3	0.2	0.6	0.5	0.3	1.5	0.8	5.2																							
27-Jan	0.4	2.5	1.9	0.5	0.5	Z	1.2	0.9	1.1	0.6	0.6	0.5	0.6	0.7	1.0	1.1	4.0	4.2	2.8	2.4	2.1	1.5	1.2	1.2	1.5	4.2																							
28-Jan	0.7	1.2	1.4	1.0	1.0	Z	1.4	0.9	1.0	0.9	2.0	0.9	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.6	2.0																							
29-Jan	Z	2.8	1.0	0.7	1.0	1.0	1.2	2.1	1.6	1.7	1.0	1.4	1.3	2.7	1.3	0.2	0.7	1.0	1.5	0.7	1.1	1.0	0.8	1.0	1.3	2.8																							
30-Jan	0.5	Z	1.4	0.5	0.4	0.7	0.6	0.8	1.7	1.0	1.1	0.2	1.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.2	0.3	1.6	0.7	3.5																							
31-Jan	0.1	0.1	Z	0.0	0.0	0.1	0.4	4.0	0.8	0.7	0.9	0.5	0.6	0.5	0.4	0.3	0.8	2.0	1.1	0.5	1.0	0.9	0.2	0.2	0.7	4.0																							
																								0.5	0.8	0.8	0.4	0.6	0.4	0.5	0.8	0.8	0.5	0.6	0.4	0.5	0.7	0.7	0.9	1.0	1.0	0.9	0.8	0.7	0.5	0.6	0.5	Diurnal Average	
																								2.7	2.8	5.2	3.5	2.7	1.8	1.8	4.0	8.4	2.0	2.3	2.6	2.4	6.5	8.8	8.6	9.6	8.8	7.3	5.7	3.7	2.7	2.2	1.9	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  
Lower Camp - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	675	95.61	95.61
3 - 4	21	2.97	98.58
5 - 7	4	0.57	99.15
8 - 11	6	0.85	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp - January 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	44	7	3	4	7	129	69	11	2	0	8	32	40	107	98	96	657
3 - 4	0	0	0	0	0	7	4	1	1	0	1	1	1	4	1	0	21
5 - 7	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	0	4
8 - 11	1	0	0	0	0	0	0	1	0	1	0	0	1	2	0	0	6
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	45	7	3	5	7	136	73	13	4	1	9	33	42	114	100	96	688

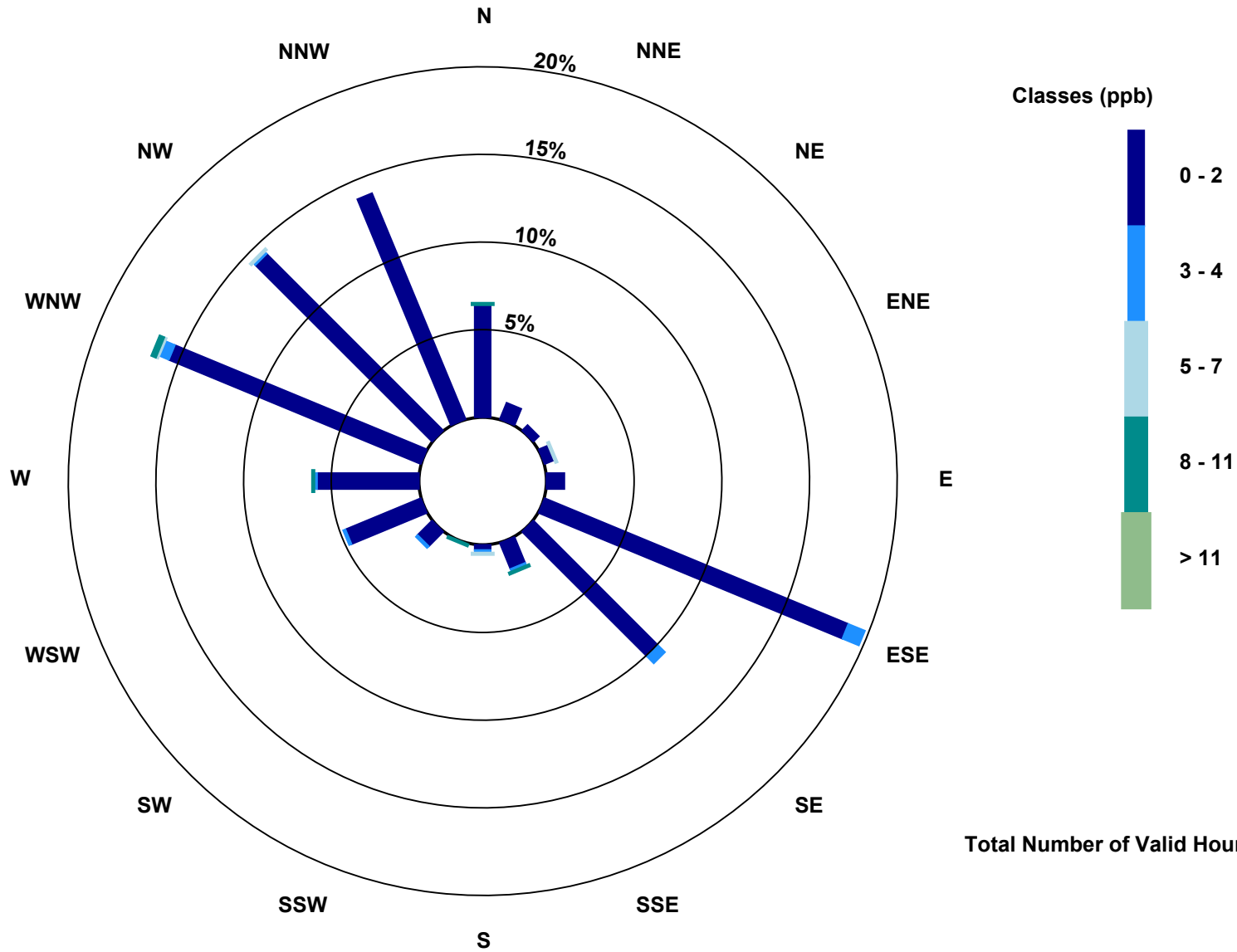
Total Number of Valid Hours: 688

Total Number of Hours: 744



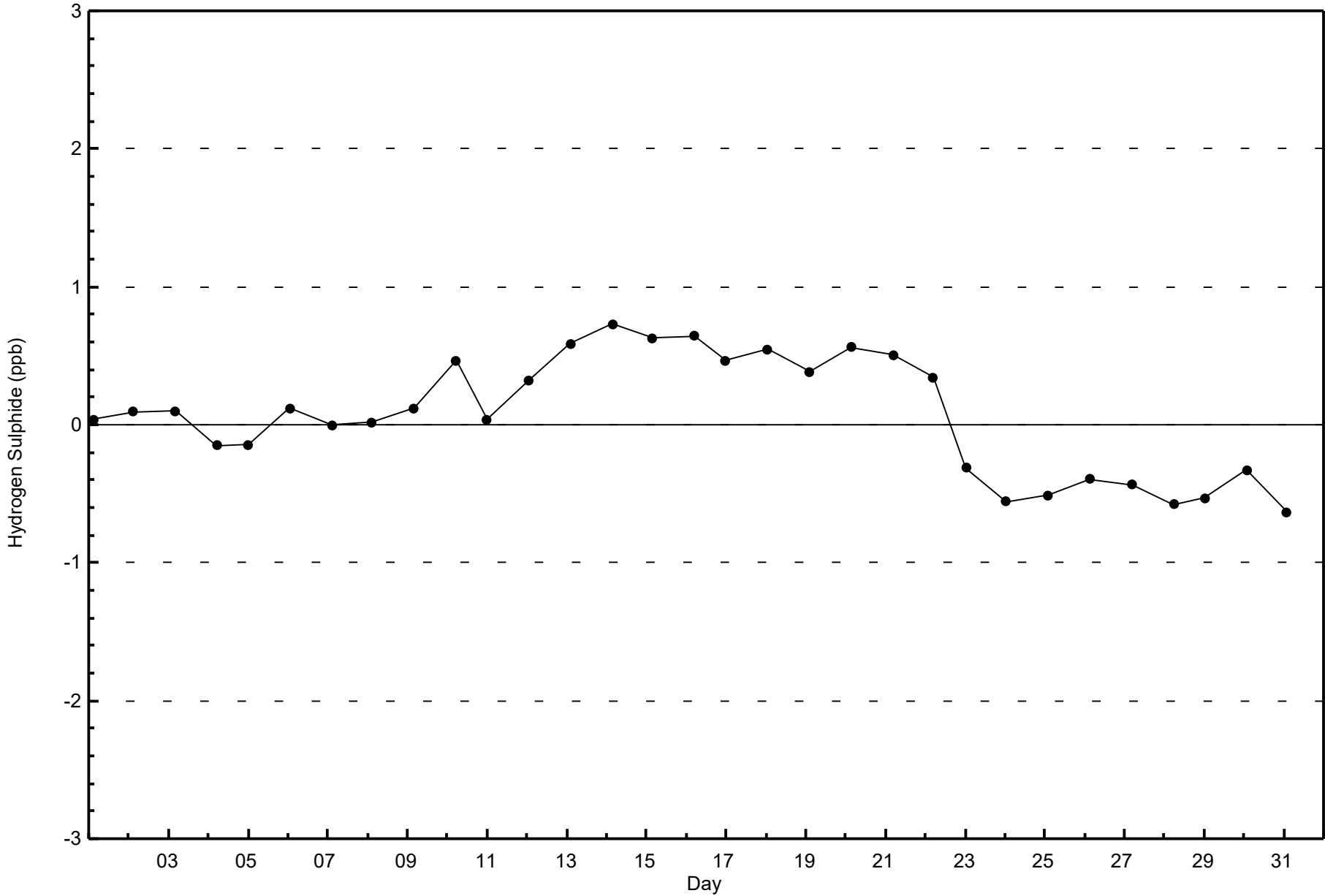
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

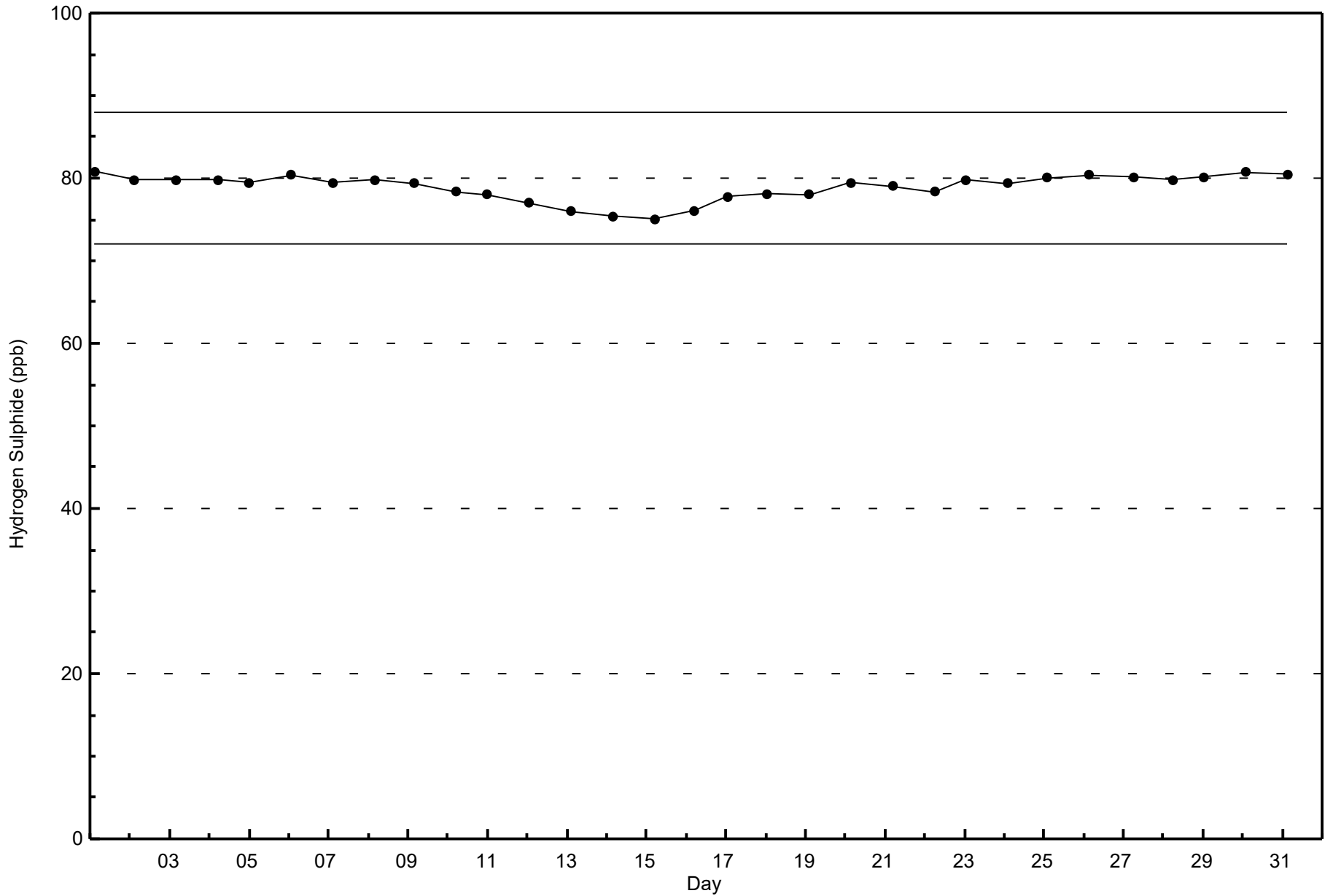
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp



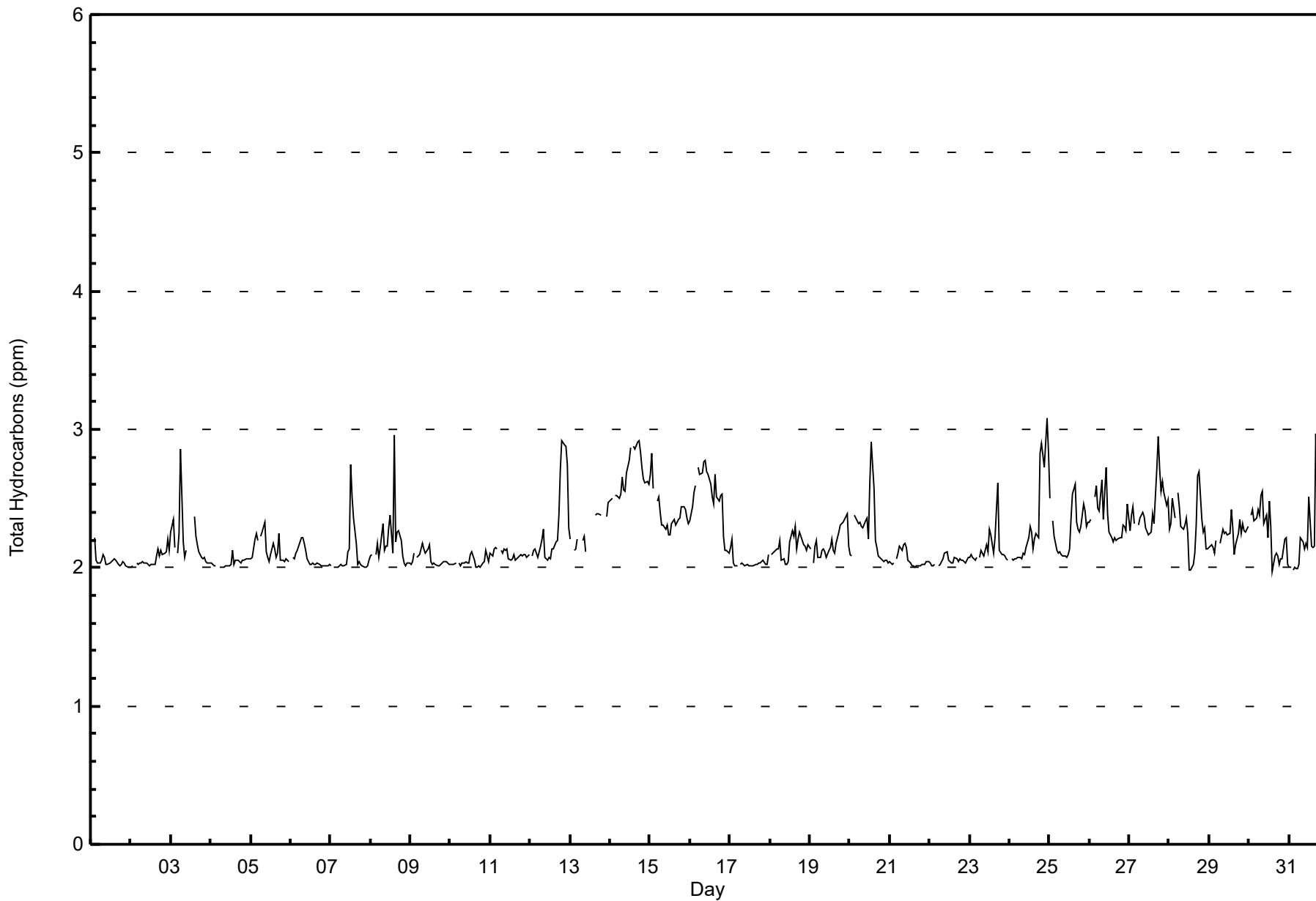
Total Number of Valid Hours: 688













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

**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	181	25.89	25.89
2.1 - 3.0	517	73.96	99.86
3.1 - 10.0	1	0.14	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 699

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Lower Camp - January 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	30	7	0	1	1	6	4	3	1	0	4	10	9	19	29	57	181
2.1 - 3.0	14	0	3	2	6	131	69	10	3	1	5	22	32	92	71	38	499
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	44	7	3	3	7	137	73	13	4	1	9	32	41	112	100	95	681

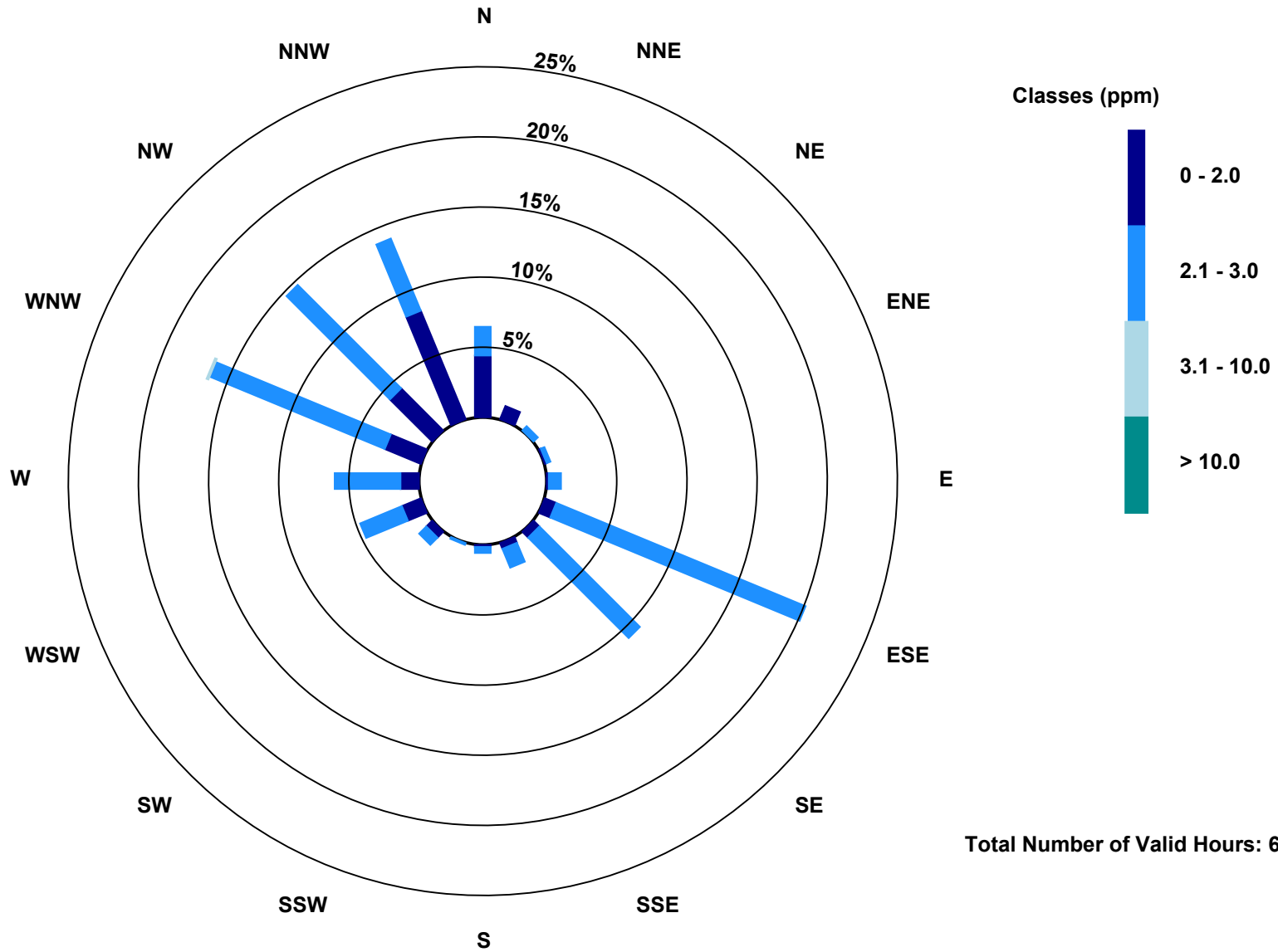
Total Number of Valid Hours: 681

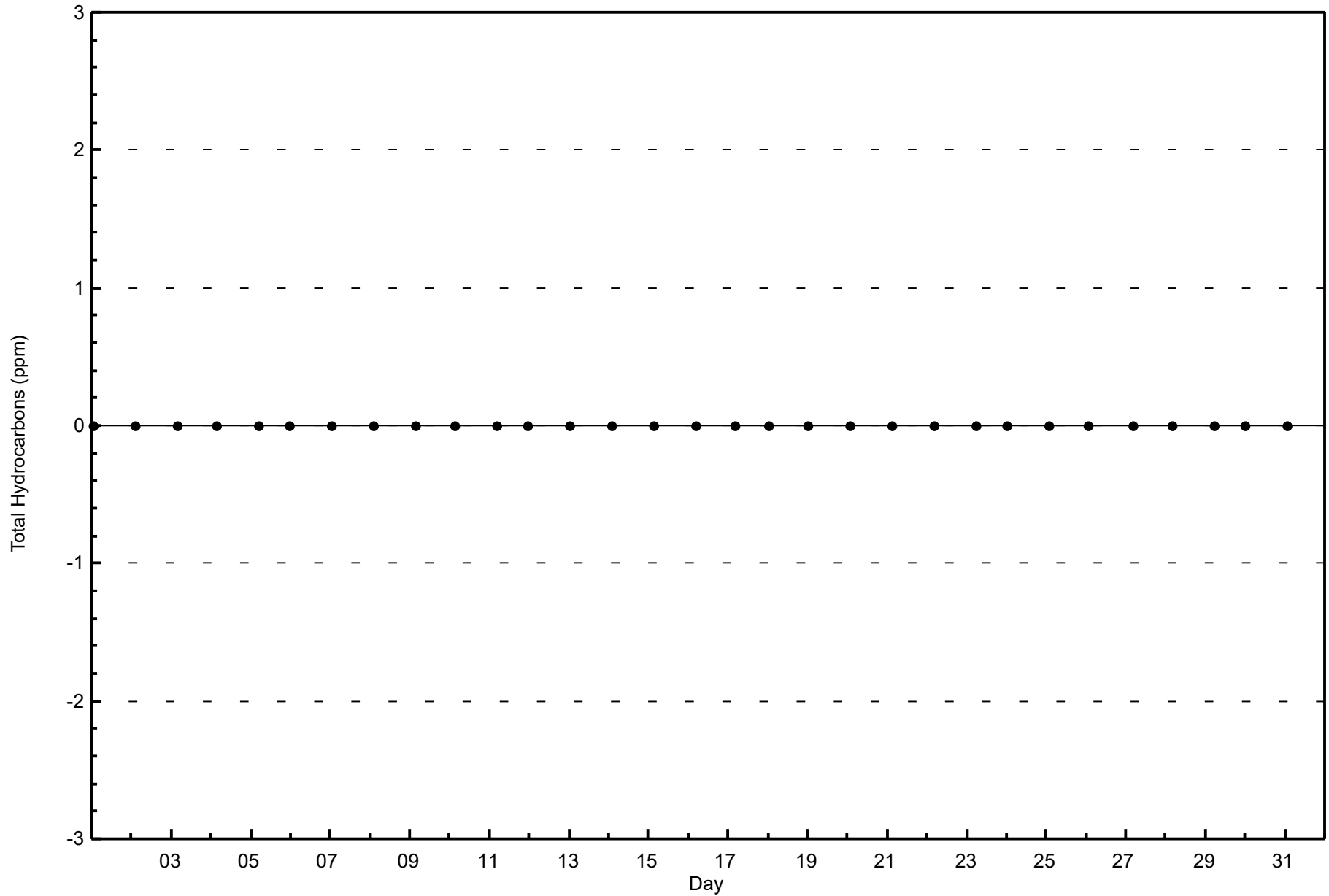
Total Number of Hours: 744



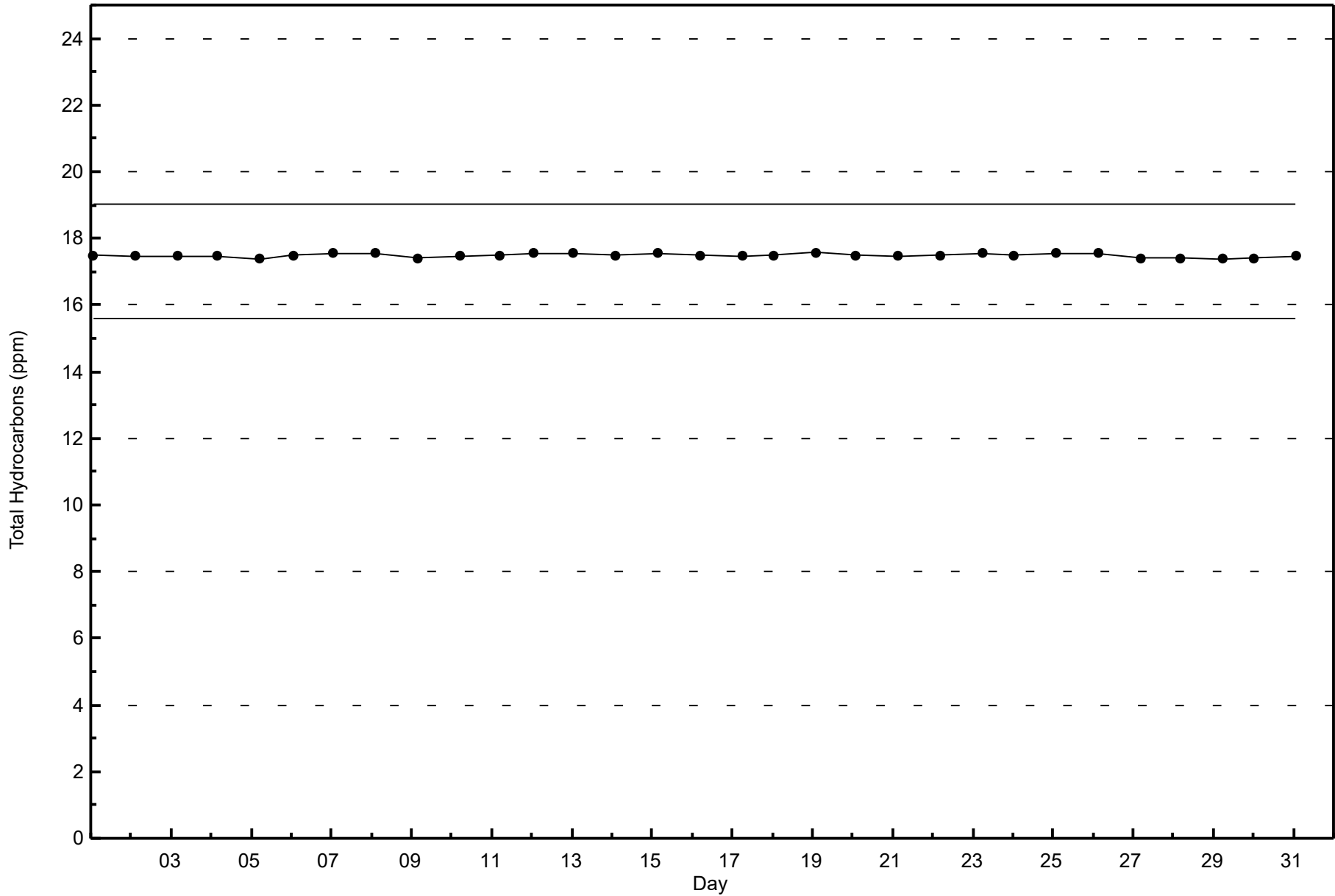
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Lower Camp







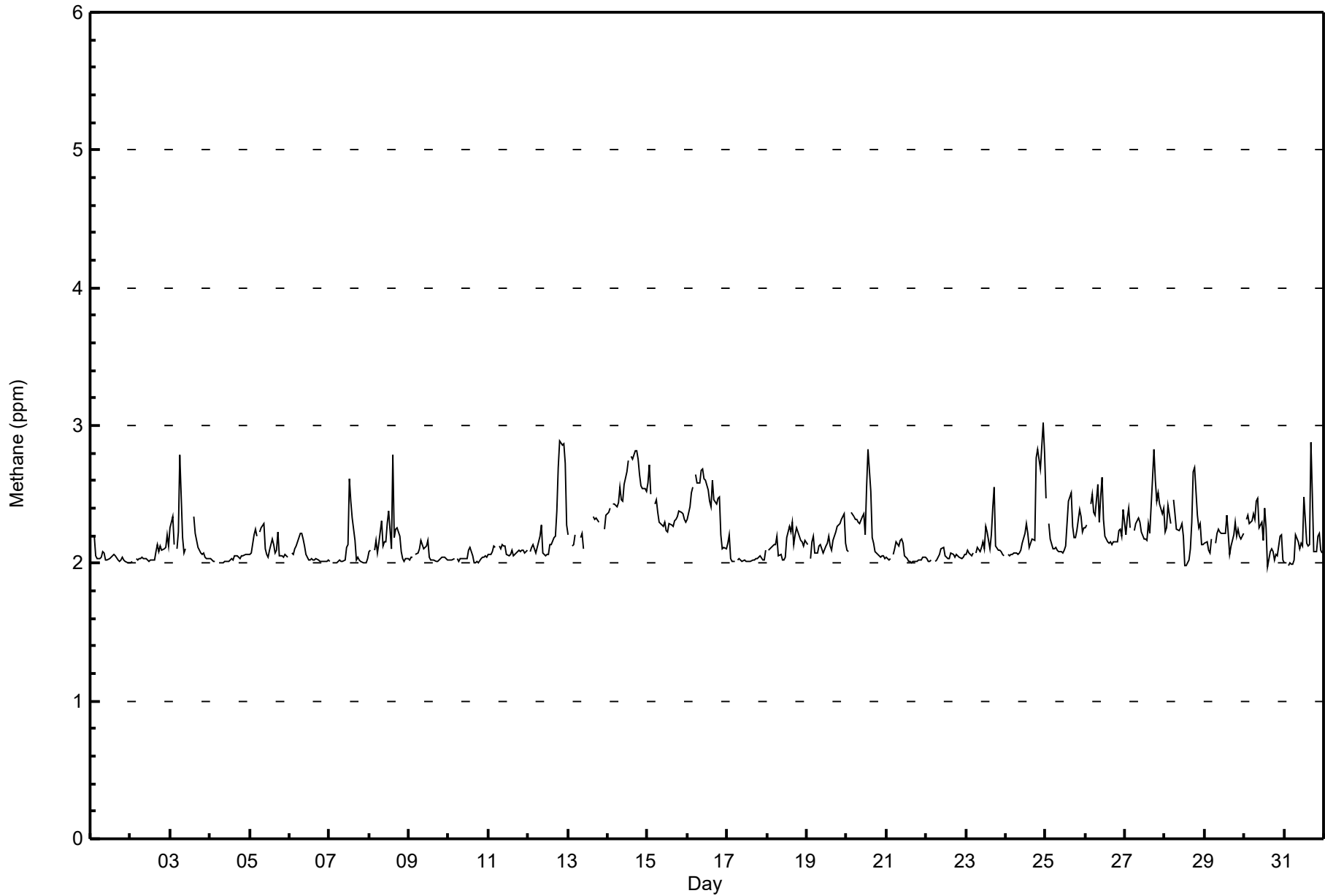




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - January 2024**

Number of Exceedences (AAAQO):	1-hr: 0		24-hr: 0		Hours in Service: 744																		Daily Average		Daily Maximum											
Maximum Value: 3.0 ppm on Jan 24 23:00	Maximum Daily Average: 2.6 ppm on Jan 14		Hours of Data: 699																		Hours of Missing Data: 45		Hours of Calibration: 35		Percent Operational Time: 98.7											
Minimum Value: 2.0 ppm on Jan 30 15:00	Minimum Daily Average: 2.0 ppm on Jan 4		Hours of Missing Data: 45																		Hours of Calibration: 35		Percent Operational Time: 98.7													
Maximum Diurnal Average: 2.2 ppm at hour 18	Minimum Diurnal Average: 2.2 ppm at hour 3		Hours of Calibration: 35																		Hours of Calibration: 35		Percent Operational Time: 98.7													
Monthly Average: 2.18 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> = 2.3 P <sub>90</sub> = 2.5 P <sub>99</sub> = 2.8		Hours of Calibration: 35																		Hours of Calibration: 35		Percent Operational Time: 98.7													
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-Jan	2.2	Z	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.2				
2-Jan	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	2.1	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	2.2		
3-Jan	2.3	2.3	2.1	Z	2.1	2.2	2.8	2.2	2.1	2.1	C	C	C	C	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	2.0	2.0	2.2	2.8		
4-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1		
5-Jan	2.1	2.1	2.2	2.2	2.2	Z	2.2	2.3	2.3	2.1	2.1	2.0	2.1	2.2	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	2.0	2.1	2.1	2.1	2.1	2.1	2.3		
6-Jan	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.6	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	2.0	2.0	2.0	2.0	2.6		
8-Jan	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.3	2.1	2.2	2.2	2.3	2.4	2.1	2.8	2.2	2.2	2.3	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	2.2	2.8		
9-Jan	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Jan	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	2.1	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		
11-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
12-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.7	2.9	2.9	2.9	2.9	2.9	2.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.9		
13-Jan	2.2	Z	2.1	2.1	2.2	UO	UO	2.2	2.2	2.1	UO	2.1	UO	UO	UO	2.3	2.3	2.3	2.3	2.3	UO	UO	UO	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
14-Jan	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.6	2.7	2.7	UO	2.8	2.8	2.8	2.8	2.8	2.8	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.8		
15-Jan	2.6	2.7	2.5	Z	2.4	2.5	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	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7		
16-Jan	2.3	2.4	2.5	2.6	Z	2.6	2.6	2.6	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.6	2.5	2.4	2.5	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7		
17-Jan	2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2		
18-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.2	2.3	2.2	2.3	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.3		
19-Jan	2.1	Z	2.0	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	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4		
20-Jan	2.1	2.1	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.6	2.8	2.5	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	2.8		
21-Jan	2.0	2.0	2.0	Z	2.1	2.1	2.2	2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2		
22-Jan	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	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	2.1		
23-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.2	2.1	2.2	2.4	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6		
24-Jan	Z	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	2.2	2.1	2.1	2.2	2.2	2.8	2.8	2.8	2.8	2.7	3.0	2.8	2.3	2.3	2.3	2.3	2.3	2.3	3.0			
25-Jan	2.5	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	2.2	2.2	2.2	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5		
26-Jan	2.3	2.3	Z	2.4	2.5	2.4	2.3	2.6	2.3	2.5	2.6	2.3	2.2	2.2	2.1	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	2.2	2.2	2.2	2.2	2.2	2.6		
27-Jan	2.2	2.3	2.4	2.3	Z	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.6	2.8	2.6	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.8		
28-Jan	2.2	2.3	2.4	2.3	Z	2.5	2.4	2.2	2.2	2.3	2.3	2.2	2.0	2.0	2.0	2.1	2.3	2.7	2.7	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	2.7		
29-Jan	2.1	2.2	2.1	2.1	2.2	Z	2.1	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.1	2.1	2.2	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	2.4		
30-Jan	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.3	2.3	2.2	2.4	2.3	2.0	2.1	2.1	2.1	2.0	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	2.5		
31-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.1	2.1	2.5	2.1	2.1	2.1	2.9	2.5	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	2.9			
	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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		
	2.6	2.7	2.5	2.6	2.5	2.6	2.8	2.6	2.7	2.7	2.6	2.7	2.7	2.8	2.8	2.8	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	2.8	2.8	2.8	Diurnal Maximum			
	Z - zerospan		C - Calibration					UO - Unstable Operation																												





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

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	188	26.90	26.90
2.1 - 3.0	511	73.10	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 699

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Lower Camp - January 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	30	7	0	1	1	8	5	3	1	0	4	10	10	20	29	59	188
2.1 - 3.0	14	0	3	2	6	129	68	10	3	1	5	22	31	92	71	36	493
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>	44	7	3	3	7	137	73	13	4	1	9	32	41	112	100	95	681

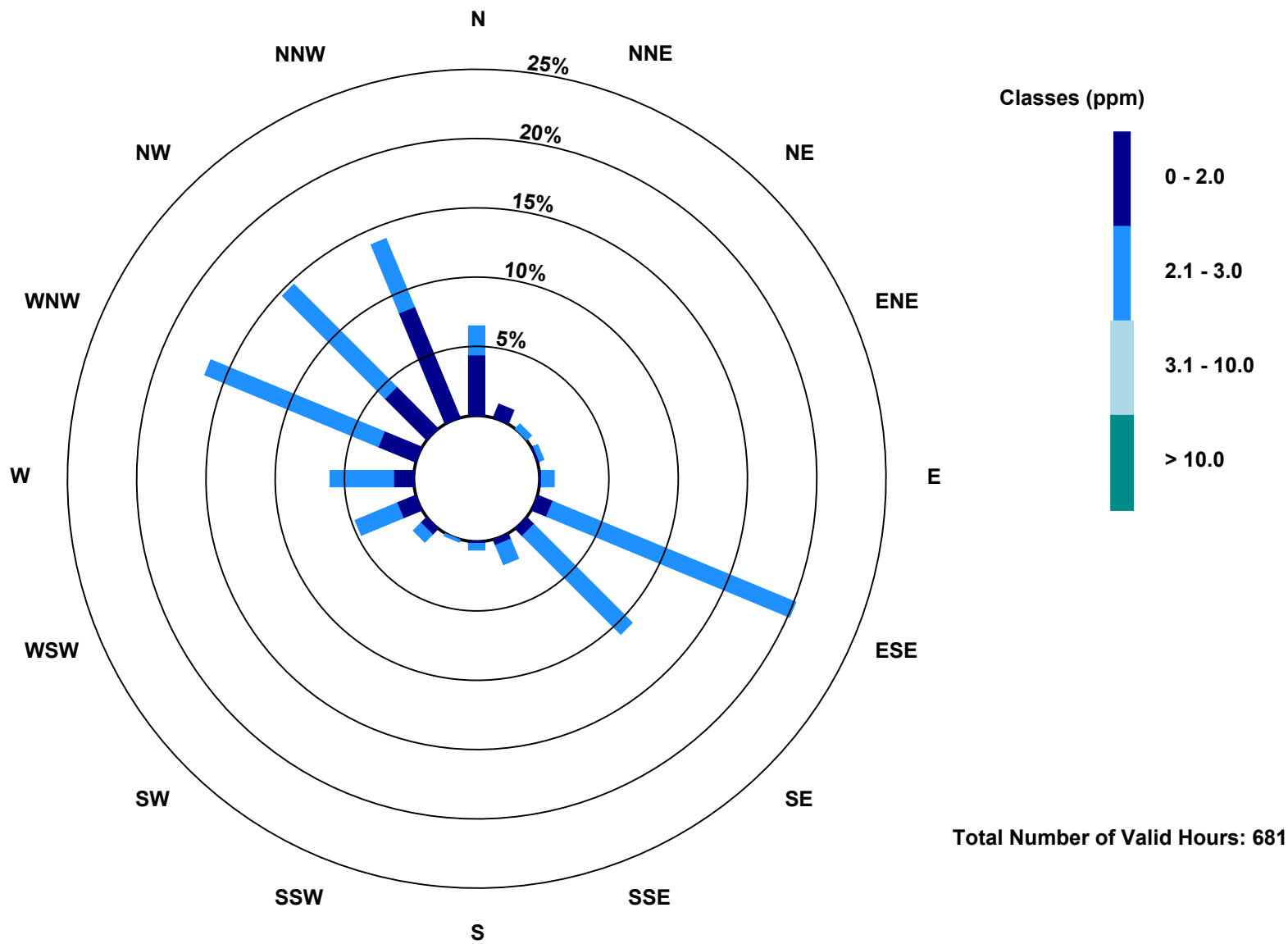
Total Number of Valid Hours: 681

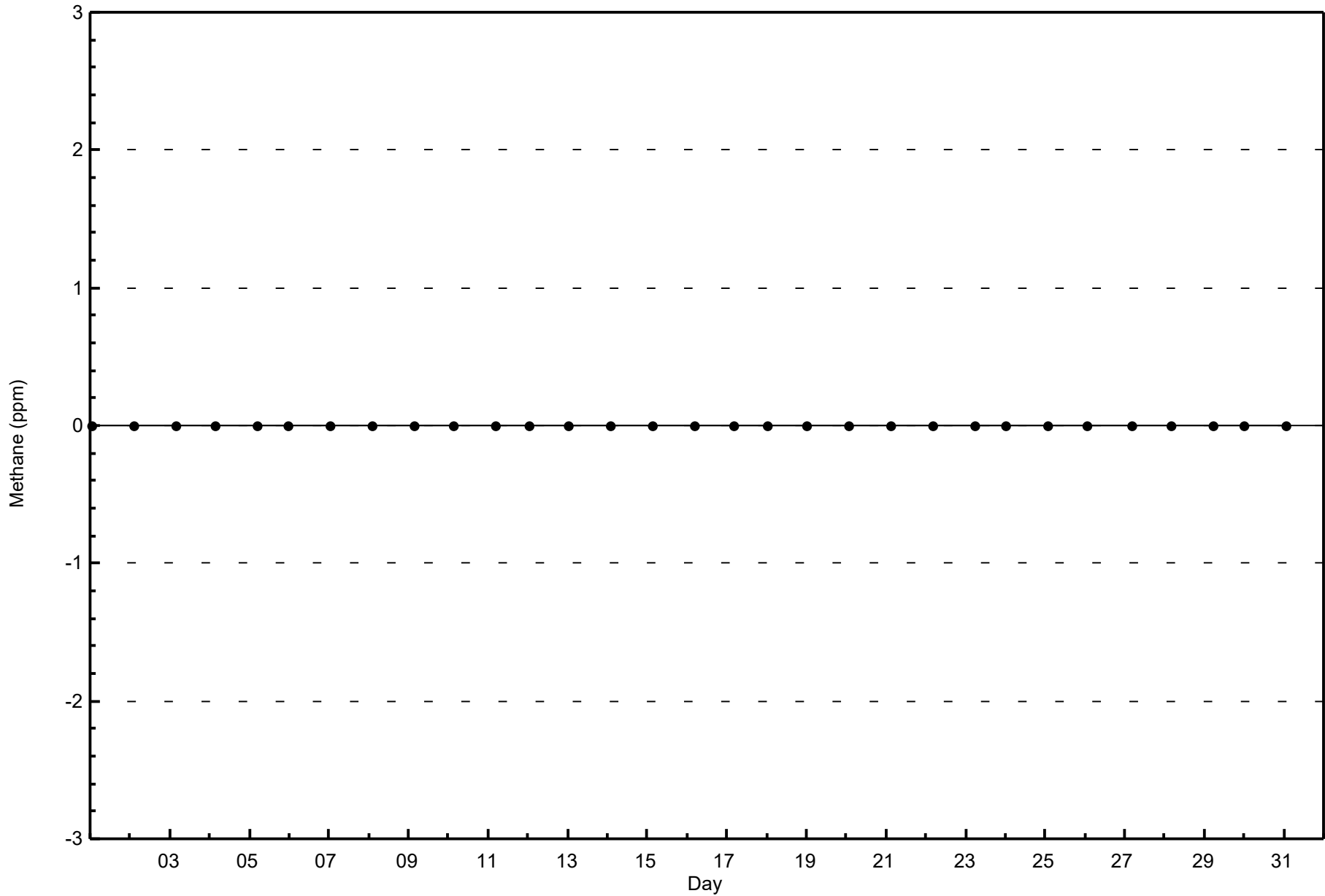
Total Number of Hours: 744

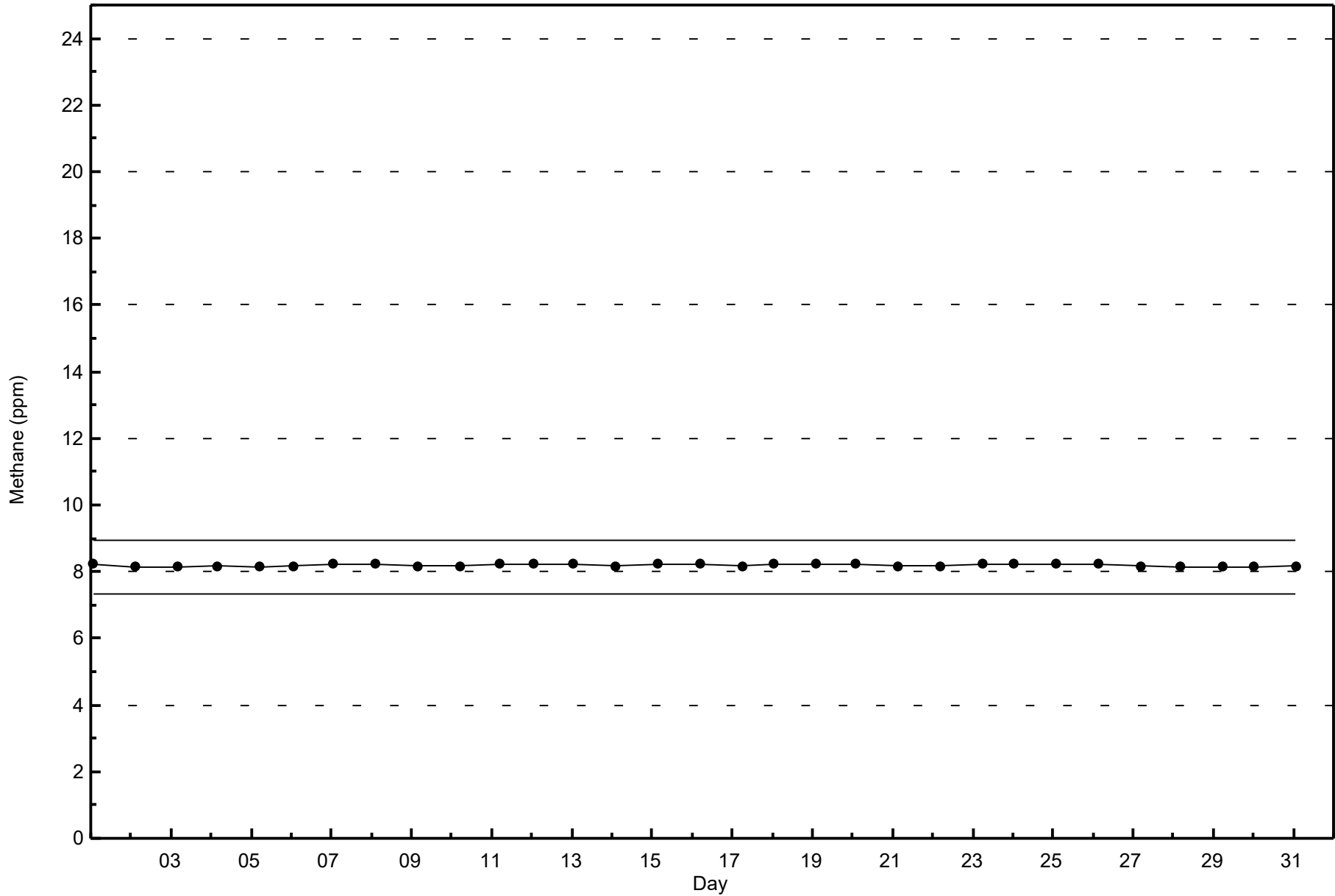


**Wood Buffalo Environmental Association**  
**Wind Rose Jan 2024**

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp**







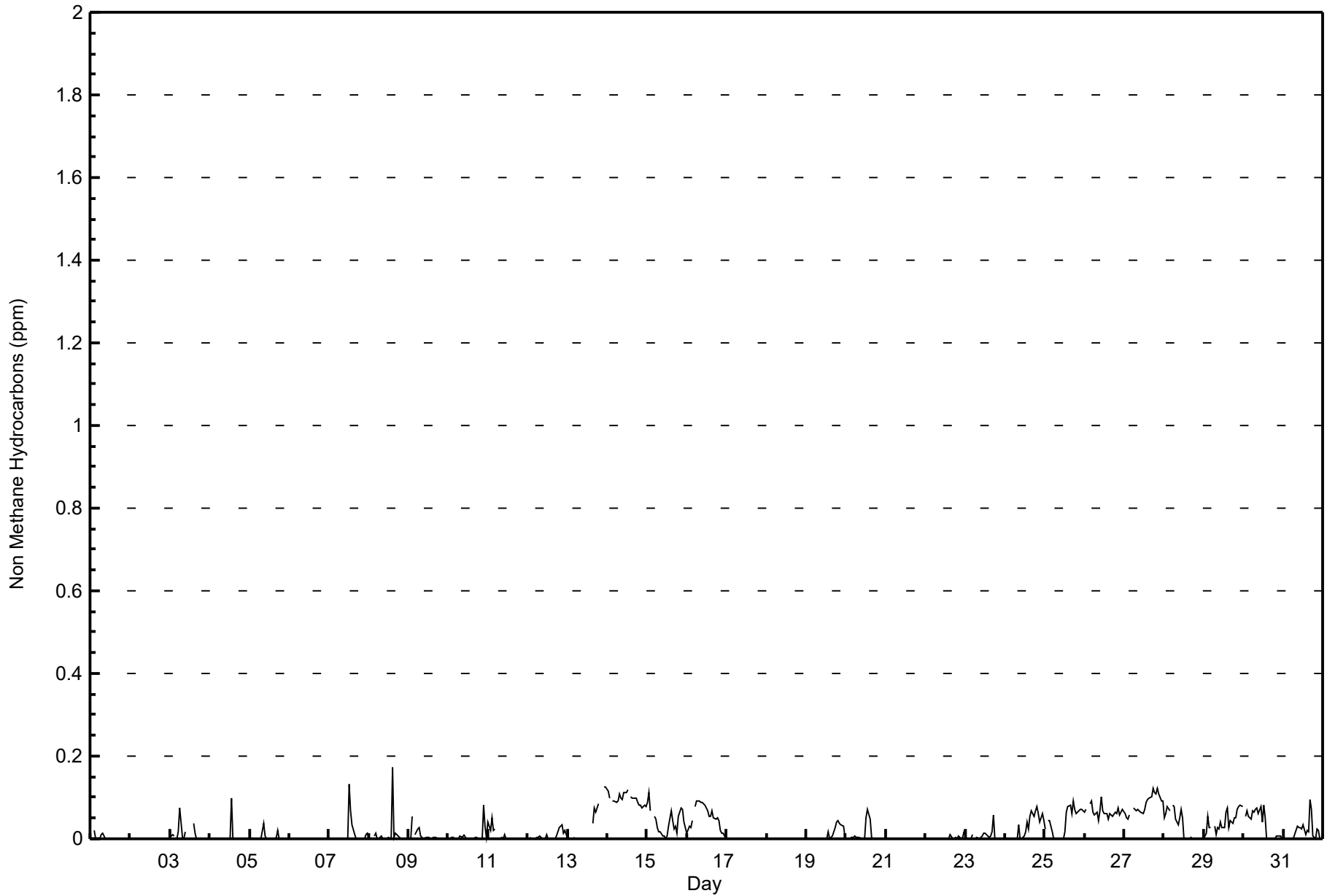




Summary of Hour Averages

Lower Camp - January 2024

Maximum Value: 0.173 ppm on Jan 8 15:00																				Maximum Daily Average: 0.096 ppm on Jan 14					Hours in Service: 744		
Minimum Value: 0.000 ppm on Jan 1 04:00																				Minimum Daily Average: 0.000 ppm on Jan 17					Hours of Data: 699		
Maximum Diurnal Average: 0.029 ppm at hour 15																				Minimum Diurnal Average: 0.015 ppm at hour 5					Hours of Missing Data: 45		
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> = 0.1 P <sub>99</sub> = 0.1					Hours of Calibration: 35		
																									Percent Operational Time: 98.7		
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-Jan	0.003	Z	0.019	0.000	0.000	0.000	0.010	0.013	0.007	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	0.002	0.019
2-Jan	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	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.002
3-Jan	0.002	0.010	0.006	Z	0.000	0.019	0.076	0.004	0.001	0.015	C	C	C	C	0.038	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.076	
4-Jan	0.000	0.000	0.000	0.000	Z	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	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.099	
5-Jan	0.000	0.000	0.001	0.001	0.000	Z	0.000	0.001	0.036	0.006	0.001	0.000	0.000	0.000	0.000	0.000	0.003	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.036	
6-Jan	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
7-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.132	0.069	0.036	0.011	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.013	0.012	0.132	
8-Jan	0.001	0.000	Z	0.006	0.014	0.001	0.001	0.007	0.000	0.000	0.000	0.001	0.004	0.000	0.173	0.003	0.013	0.010	0.004	0.000	0.000	0.000	0.000	0.000	0.010	0.173	
9-Jan	0.000	0.000	0.053	Z	0.010	0.023	0.028	0.008	0.002	0.001	0.003	0.003	0.005	0.001	0.001	0.003	0.002	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.006	0.053	
10-Jan	0.002	0.001	0.004	0.004	Z	0.000	0.002	0.008	0.003	0.009	0.004	0.000	0.001	0.001	0.000	0.000	0.002	0.005	0.000	0.001	0.001	0.080	0.030	0.004	0.007	0.080	
11-Jan	0.040	0.019	0.051	0.021	0.023	Z	0.001	0.000	0.003	0.001	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.002	0.007	0.051	
12-Jan	Z	0.002	0.002	0.000	0.001	0.004	0.004	0.006	0.002	0.000	0.000	0.009	0.000	0.001	0.001	0.001	0.005	0.017	0.026	0.034	0.015	0.019	0.009	0.007	0.034	0.034	
13-Jan	0.000	Z	0.000	0.000	0.002	UO	UO	0.001	0.001	0.001	UO	0.001	UO	UO	UO	0.039	0.074	0.065	0.085	UO	UO	UO	0.127	0.126	-	0.127	
14-Jan	0.115	0.099	Z	0.091	0.093	0.089	0.092	0.110	0.098	0.095	0.111	0.113	0.118	UO	0.101	0.099	0.099	0.098	0.087	0.080	0.081	0.075	0.083	0.079	0.096	0.118	
15-Jan	0.088	0.113	0.069	Z	0.054	0.048	0.027	0.016	0.016	0.007	0.007	0.002	0.006	0.031	0.069	0.044	0.024	0.030	0.015	0.055	0.074	0.070	0.042	0.026	0.040	0.113	
16-Jan	0.014	0.032	0.029	0.044	Z	0.078	0.090	0.093	0.088	0.089	0.086	0.080	0.069	0.056	0.055	0.068	0.052	0.049	0.050	0.043	0.019	0.015	0.013	0.000	0.053	0.093	
17-Jan	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-Jan	Z	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	0.001	
19-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	0.001	0.017	0.002	0.004	0.008	0.026	0.041	0.045	0.038	0.033	0.031	0.004	0.011	0.045	
20-Jan	0.000	0.000	Z	0.005	0.003	0.006	0.003	0.002	0.005	0.001	0.001	0.002	0.052	0.072	0.048	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.072	
21-Jan	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	0.001	
22-Jan	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	0.009	0.000	0.000	0.000	0.004	0.000	0.006	0.001	0.004	0.018	0.002	0.018	
23-Jan	0.005	0.001	0.001	0.000	0.010	Z	0.000	0.003	0.001	0.003	0.008	0.012	0.013	0.010	0.003	0.008	0.018	0.057	0.001	0.001	0.000	0.000	0.000	0.000	0.007	0.057	
24-Jan	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.002	0.000	0.005	0.019	0.039	0.023	0.056	0.067	0.055	0.066	0.077	0.062	0.040	0.061	0.045	0.028	0.077		
25-Jan	0.024	Z	0.046	0.043	0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.016	0.063	0.078	0.082	0.059	0.090	0.071	0.060	0.068	0.072	0.072	0.067	0.041	0.090		
26-Jan	0.065	0.071	Z	0.085	0.090	0.066	0.059	0.064	0.044	0.067	0.101	0.067	0.060	0.060	0.047	0.062	0.057	0.056	0.065	0.062	0.074	0.058	0.064	0.070	0.066	0.101	
27-Jan	0.062	0.051	0.048	0.059	Z	0.076	0.072	0.068	0.071	0.069	0.063	0.062	0.070	0.087	0.095	0.097	0.103	0.122	0.111	0.110	0.121	0.109	0.092	0.092	0.083	0.122	
28-Jan	0.052	0.061	0.078	0.068	Z	0.080	0.079	0.048	0.034	0.049	0.070	0.052	0.000	0.001	0.000	0.001	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029	0.080	
29-Jan	0.000	0.012	0.055	0.027	0.027	Z	0.029	0.012	0.027	0.024	0.041	0.028	0.028	0.066	0.074	0.028	0.044	0.039	0.052	0.051	0.072	0.078	0.080	0.076	0.042	0.080	
30-Jan	Z	0.053	0.069	0.055	0.047	0.066	0.063	0.072	0.075	0.060	0.077	0.042	0.082	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.008	0.008	0.000	0.036	0.082	
31-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.010	0.029	0.028	0.028	0.023	0.034	0.011	0.021	0.016	0.094	0.071	0.006	0.001	0.022	0.022	0.000	0.001	0.018	0.094	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan																											
C - Calibration																											
UO - Unstable Operation																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	417	59.66	59.66
0.006 - 0.05	149	21.32	80.97
0.06 - 0.1	132	18.88	99.86
> 0.1	1	0.14	100.00

Total Number of Valid Hours: 699

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - January 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	37	7	3	3	3	50	15	4	2	0	7	29	20	73	74	83	410
0.006 - 0.05	3	0	0	0	1	45	30	3	1	0	2	3	12	21	14	6	141
0.06 - 0.1	4	0	0	0	3	42	28	6	1	1	0	0	8	18	12	6	129
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<b>Totals</b>	44	7	3	3	7	137	73	13	4	1	9	32	41	112	100	95	681

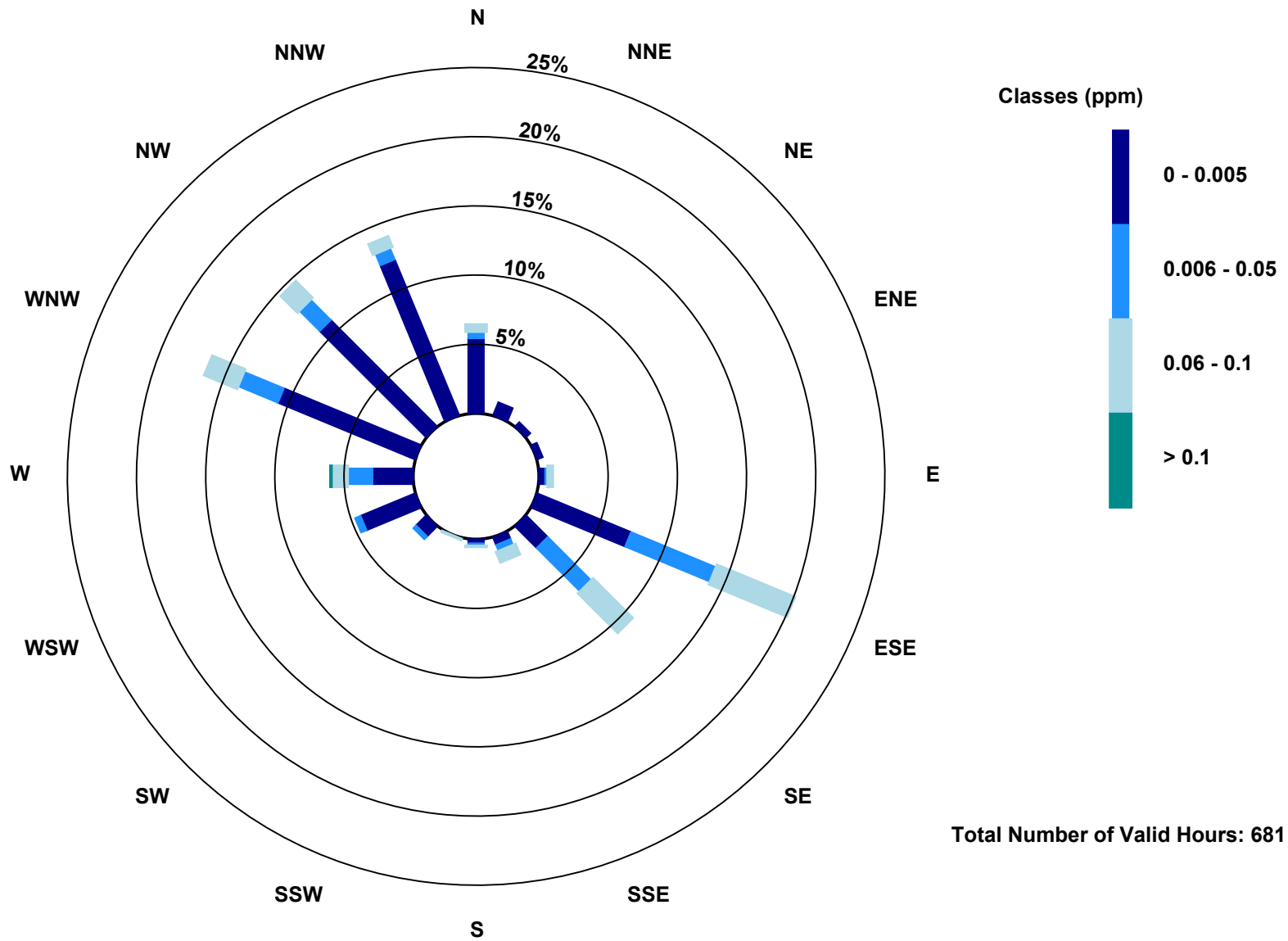
Total Number of Valid Hours: 681

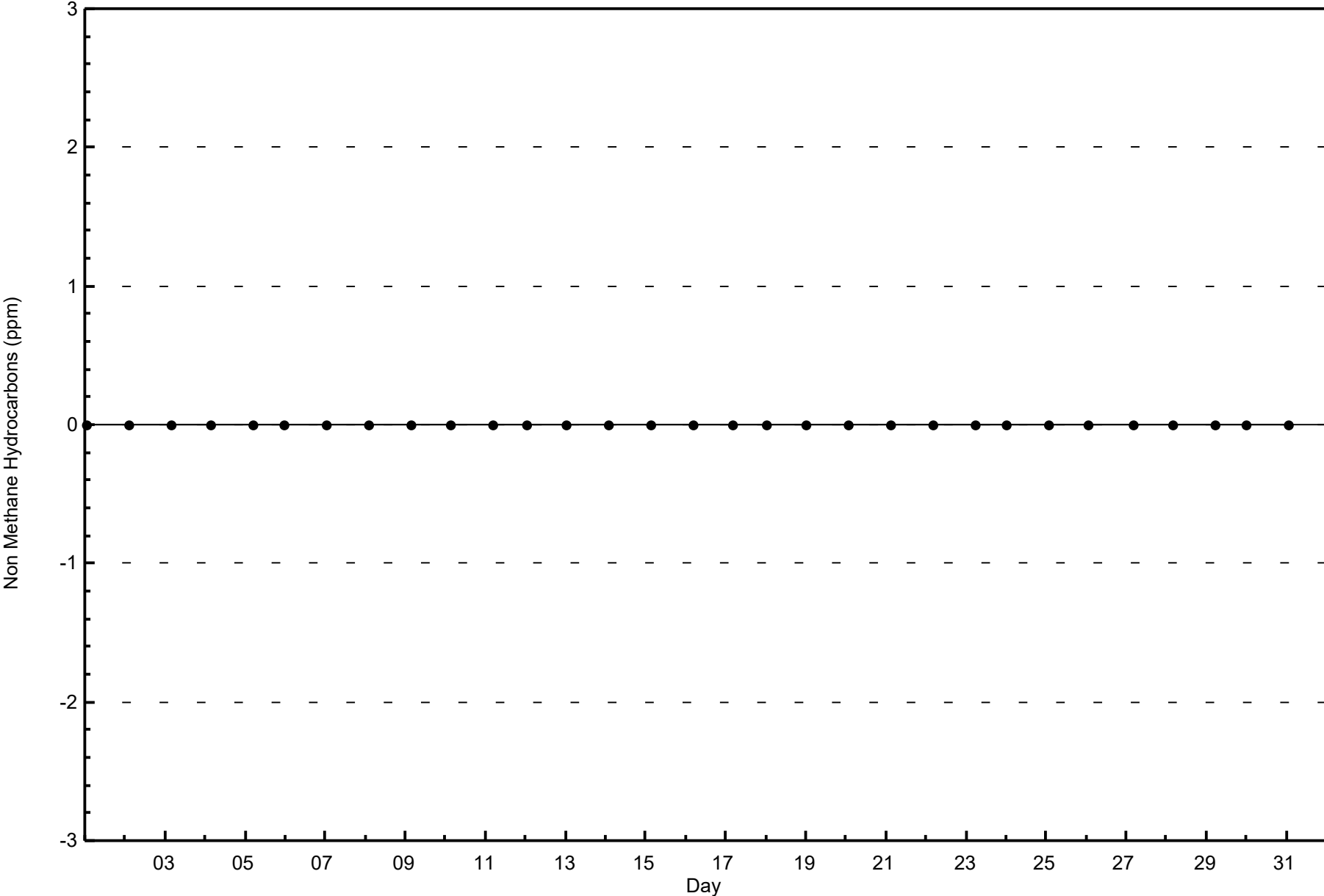
Total Number of Hours: 744

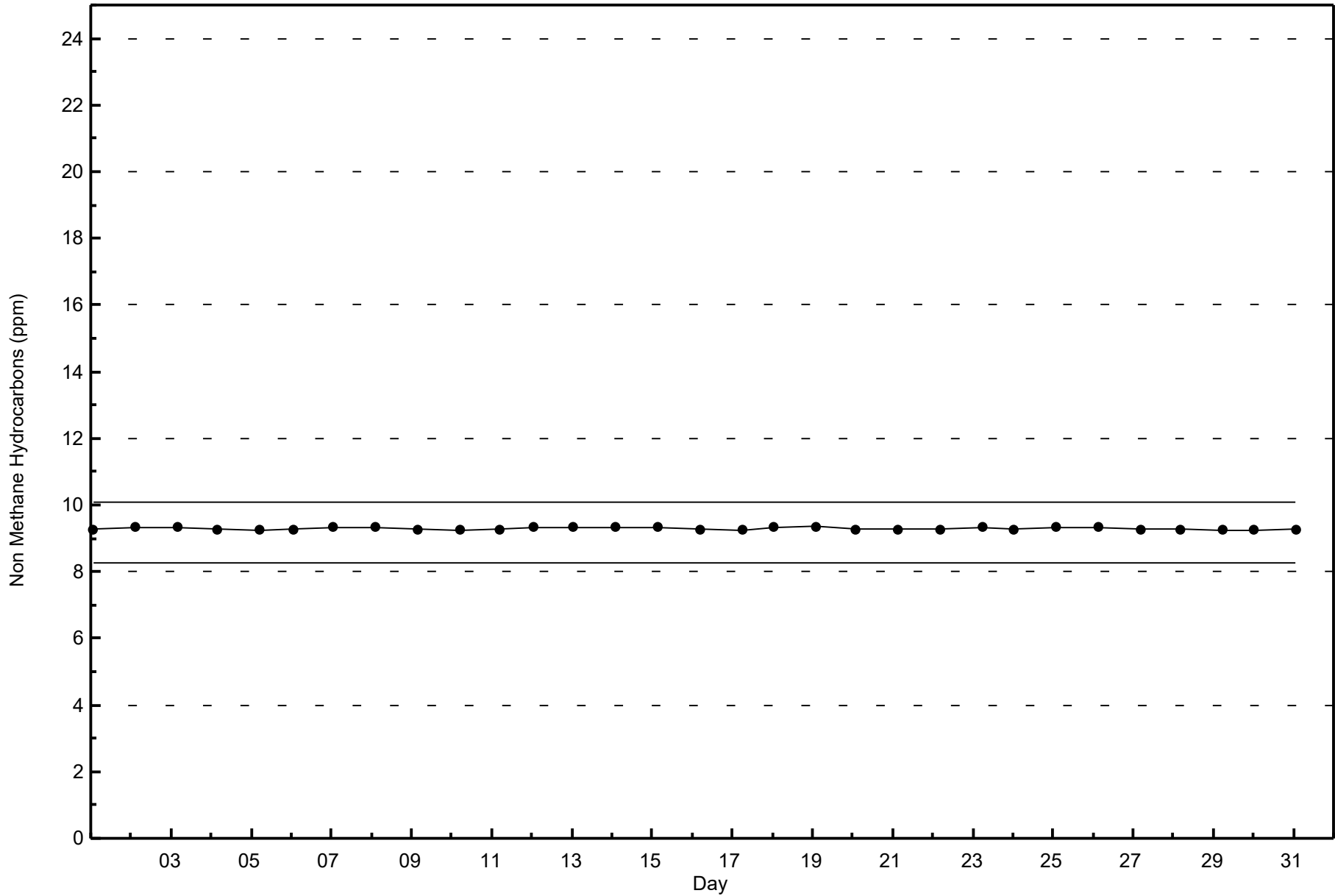


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp









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

**Ambient Temperature (AT) - C**  
**Lower Camp - January 2024**

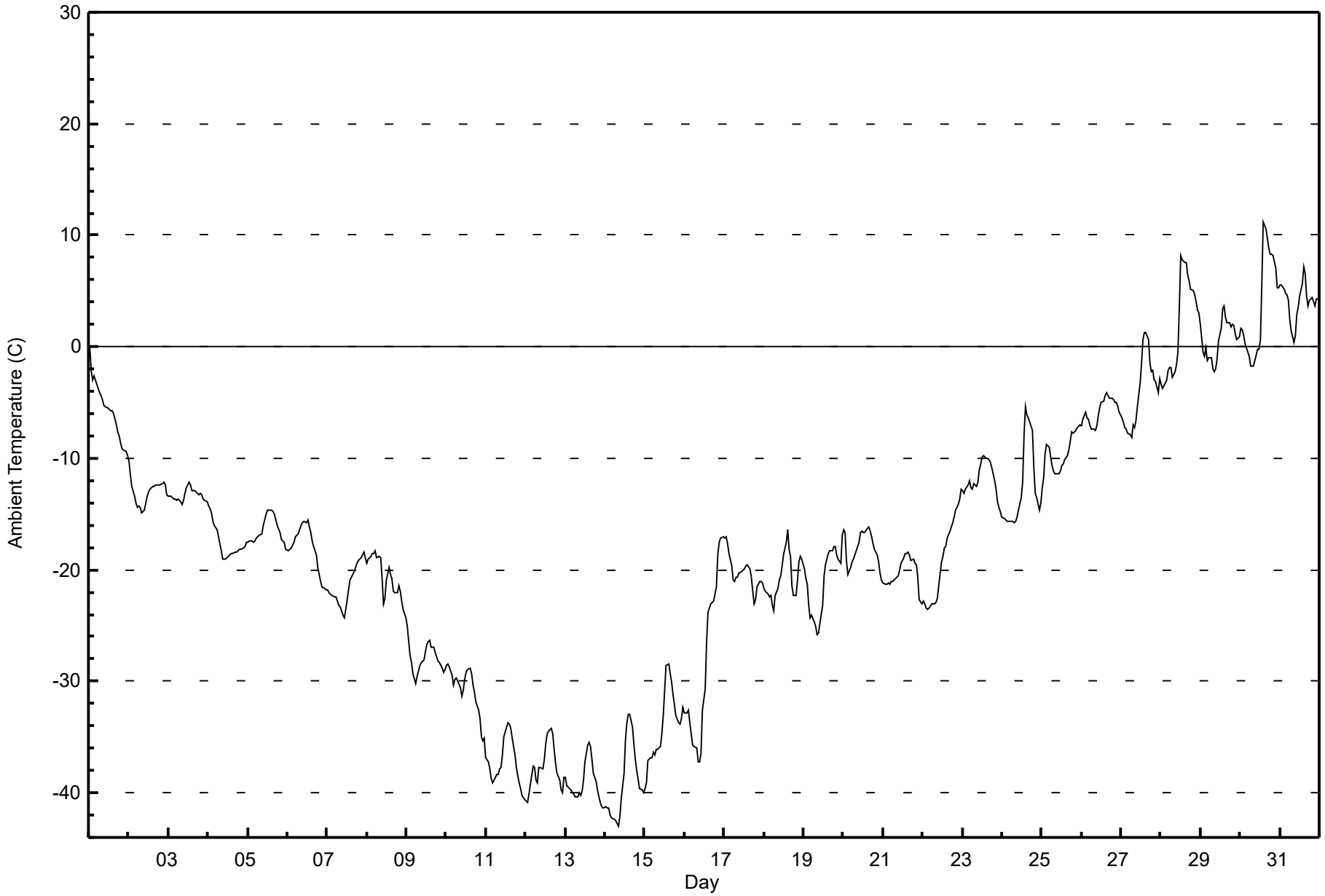
<b>Maximum Value: 11.2 C on Jan 30 15:00</b> <b>Maximum Daily Average: 4.1 C on Jan 31</b>																								<b>Hours in Service: 744</b> <b>Hours of Data: 744</b>		
<b>Minimum Value: -42.9 C on Jan 14 09:00</b> <b>Minimum Daily Average: -39.1 C on Jan 13</b>																								<b>Hours of Missing Data: 0</b> <b>Hours of Calibration: 0</b>		
<b>Maximum Diurnal Average: -15.3 C at hour 15</b> <b>Minimum Diurnal Average: -19.6 C at hour 9</b>																								<b>Percent Operational Time: 100.0</b>		
<b>Monthly Average: -17.87 C</b> <b>Percentiles: P<sub>1</sub> = -41.4 P<sub>10</sub> = -37.0 Q<sub>1</sub> = -24.7 Median = -18.1 Q<sub>3</sub> = -9.8 P<sub>90</sub> = -0.3 P<sub>99</sub> = 8.0</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-Jan	-0.1	-2.1	-2.9	-2.6	-3.0	-3.7	-4.1	-4.4	-4.8	-5.2	-5.3	-5.5	-5.7	-5.8	-6.0	-7.0	-7.6	-8.1	-8.7	-9.1	-9.3	-9.4	-9.7	-5.7	-0.1	
2-Jan	-10.3	-11.5	-12.5	-13.4	-14.0	-14.4	-14.2	-14.4	-14.9	-14.6	-14.1	-13.4	-13.0	-12.8	-12.5	-12.5	-12.4	-12.3	-12.5	-12.3	-12.3	-12.2	-12.4	-13.3	-13.0	-10.3
3-Jan	-13.4	-13.4	-13.5	-13.6	-13.7	-13.8	-13.7	-13.8	-14.2	-13.8	-13.2	-12.7	-12.2	-12.4	-12.9	-12.8	-12.9	-13.0	-13.2	-13.1	-13.3	-13.7	-13.7	-13.9	-13.3	-12.2
4-Jan	-14.2	-14.5	-14.9	-15.7	-16.0	-16.4	-17.1	-17.7	-18.3	-19.0	-19.1	-18.9	-18.8	-18.6	-18.5	-18.6	-18.5	-18.4	-18.3	-18.1	-18.2	-18.0	-17.9	-17.6	-17.5	-14.2
5-Jan	-17.6	-17.5	-17.4	-17.5	-17.4	-17.2	-17.1	-17.0	-16.8	-16.0	-15.5	-15.0	-14.7	-14.6	-14.6	-14.7	-15.1	-15.5	-16.0	-16.6	-17.3	-17.4	-17.6	-18.2	-16.4	-14.6
6-Jan	-18.3	-18.2	-18.1	-17.8	-17.5	-17.1	-16.8	-16.4	-16.1	-15.8	-15.7	-15.8	-15.5	-16.2	-16.6	-17.4	-17.9	-18.7	-19.7	-20.4	-21.1	-21.6	-21.7	-21.7	-18.0	-15.5
7-Jan	-21.8	-22.0	-22.2	-22.3	-22.4	-22.5	-22.8	-23.2	-23.3	-24.0	-24.4	-23.6	-22.7	-21.8	-20.9	-20.4	-20.1	-19.8	-19.4	-19.1	-19.0	-18.7	-18.4	-18.9	-21.4	-18.4
8-Jan	-19.4	-19.1	-18.7	-18.5	-18.5	-18.4	-18.9	-18.8	-18.9	-20.8	-23.0	-22.6	-20.9	-19.7	-20.4	-20.8	-21.9	-22.1	-22.0	-21.4	-21.9	-22.8	-23.5	-24.3	-20.7	-18.4
9-Jan	-25.0	-26.5	-27.7	-28.3	-29.4	-30.2	-29.6	-29.1	-28.6	-28.3	-28.1	-27.4	-26.8	-26.4	-26.3	-27.0	-26.9	-27.4	-27.8	-28.2	-28.3	-28.9	-29.2	-29.0	-27.9	-25.0
10-Jan	-28.6	-28.5	-28.8	-29.5	-30.3	-29.9	-29.7	-30.0	-30.5	-31.4	-30.9	-29.8	-29.3	-28.9	-28.9	-29.4	-30.3	-31.0	-31.8	-32.6	-33.3	-34.9	-35.4	-35.1	-30.8	-28.5
11-Jan	-36.8	-37.3	-37.8	-38.7	-39.1	-38.8	-38.4	-38.4	-37.8	-37.7	-36.6	-34.9	-34.1	-33.7	-33.8	-34.2	-35.1	-36.5	-37.8	-38.5	-39.1	-39.5	-40.2	-40.6	-37.3	-33.7
12-Jan	-40.8	-40.9	-40.1	-39.2	-37.6	-37.7	-38.9	-39.1	-37.7	-37.7	-37.9	-37.0	-35.5	-34.7	-34.4	-34.2	-34.7	-36.1	-37.3	-38.3	-38.8	-39.7	-40.0	-38.7	-37.8	-34.2
13-Jan	-38.6	-39.3	-39.6	-39.7	-40.0	-40.1	-40.4	-40.3	-40.0	-40.2	-39.9	-38.8	-37.2	-35.7	-35.5	-35.8	-37.0	-38.2	-39.0	-39.8	-40.4	-40.9	-41.2	-41.3	-39.1	-35.5
14-Jan	-41.3	-41.3	-41.4	-42.0	-42.2	-42.4	-42.4	-42.7	-42.9	-42.2	-40.4	-38.2	-35.2	-33.7	-33.0	-32.9	-34.0	-35.6	-37.0	-37.9	-38.7	-39.6	-39.7	-40.0	-39.0	-32.9
15-Jan	-39.6	-39.1	-37.1	-36.9	-36.8	-36.4	-36.6	-36.1	-36.1	-35.9	-34.7	-33.0	-30.8	-28.5	-28.4	-29.3	-30.0	-31.2	-32.1	-33.0	-33.7	-33.8	-33.3	-32.4	-34.0	-28.4
16-Jan	-32.8	-32.9	-32.6	-33.7	-34.7	-35.7	-35.8	-36.0	-37.2	-37.2	-36.5	-33.6	-30.7	-26.5	-23.8	-23.4	-23.0	-22.7	-22.1	-21.5	-18.6	-17.5	-17.2	-17.0	-28.4	-17.0
17-Jan	-17.1	-17.1	-17.6	-18.6	-19.6	-20.9	-21.1	-20.7	-20.7	-20.3	-20.2	-20.0	-19.9	-19.7	-19.6	-19.9	-20.7	-22.0	-23.1	-22.6	-21.6	-21.0	-21.0	-21.2	-20.3	-17.1
18-Jan	-21.7	-22.0	-22.2	-22.4	-22.3	-23.2	-23.7	-22.4	-21.6	-21.0	-20.6	-19.7	-18.7	-17.6	-16.4	-18.1	-18.8	-21.4	-22.3	-22.3	-20.9	-19.3	-18.8	-19.1	-20.7	-16.4
19-Jan	-19.9	-20.7	-21.4	-23.2	-24.3	-24.0	-24.7	-25.1	-25.8	-25.7	-24.8	-23.2	-20.6	-19.5	-19.0	-18.5	-18.3	-18.2	-17.9	-18.0	-18.6	-19.0	-19.4	-16.9	-21.1	-16.9
20-Jan	-16.4	-16.7	-19.2	-20.4	-19.8	-19.3	-19.1	-18.7	-18.3	-17.5	-16.6	-16.6	-16.6	-16.7	-16.3	-16.2	-16.5	-17.1	-17.6	-18.2	-18.7	-19.3	-20.3	-21.0	-18.0	-16.2
21-Jan	-21.2	-21.3	-21.4	-21.2	-21.3	-21.1	-21.0	-20.8	-20.6	-20.5	-20.0	-19.4	-18.9	-18.6	-18.6	-18.5	-18.7	-19.2	-19.1	-19.5	-19.5	-20.7	-22.6	-23.0	-20.3	-18.5
22-Jan	-22.8	-23.1	-23.4	-23.6	-23.4	-23.1	-23.0	-23.0	-23.0	-22.5	-20.3	-19.4	-18.7	-18.1	-17.9	-17.2	-16.5	-16.2	-15.7	-15.3	-14.7	-14.1	-13.7	-12.8	-19.2	-12.8
23-Jan	-12.9	-13.1	-12.8	-12.4	-12.0	-12.6	-12.8	-12.2	-12.5	-12.1	-11.0	-10.5	-9.8	-9.8	-10.0	-10.0	-10.1	-10.4	-10.9	-12.1	-12.8	-13.9	-14.5	-14.7	-11.9	-9.8
24-Jan	-15.2	-15.5	-15.5	-15.6	-15.7	-15.6	-15.7	-15.8	-15.7	-15.3	-14.7	-13.6	-12.1	-7.9	-5.4	-6.2	-6.3	-7.1	-7.6	-10.9	-13.1	-13.5	-14.7	-14.0	-12.6	-5.4
25-Jan	-12.7	-11.8	-9.6	-8.7	-9.0	-9.8	-10.7	-11.1	-11.4	-11.5	-11.4	-11.1	-10.7	-10.5	-10.2	-9.8	-9.3	-8.5	-7.7	-7.5	-7.2	-7.2	-7.0	-9.7	-7.0	
26-Jan	-7.2	-6.5	-5.9	-6.4	-6.5	-7.0	-7.4	-7.4	-7.6	-7.2	-6.3	-5.5	-5.0	-4.8	-4.3	-4.1	-4.4	-4.6	-4.6	-4.7	-5.0	-5.0	-5.3	-5.9	-5.8	-4.1
27-Jan	-6.4	-6.8	-7.2	-7.3	-7.7	-7.9	-8.2	-7.0	-7.3	-6.7	-5.4	-3.2	-1.5	0.6	1.2	1.2	0.6	-1.5	-2.3	-2.1	-3.0	-3.1	-4.2	-2.9	-4.1	1.2
28-Jan	-3.4	-3.7	-3.5	-3.0	-2.2	-1.9	-1.9	-2.7	-2.2	-1.6	-0.4	3.4	8.2	7.8	7.6	7.5	6.4	5.9	5.2	5.0	4.7	4.1	3.3	3.0	1.9	8.2
29-Jan	2.1	-0.5	-0.9	-0.1	-1.3	-1.0	-1.0	-2.0	-2.2	-2.0	-1.1	0.5	1.7	3.4	3.7	2.6	2.2	2.2	1.8	2.0	2.0	1.2	0.6	0.8	0.6	3.7
30-Jan	1.7	1.5	1.0	0.3	-0.5	-0.8	-1.7	-1.8	-1.8	-1.2	-0.2	0.6	5.7	11.2	10.5	9.7	8.8	8.3	8.3	8.2	7.1	5.3	5.3	3.6	11.2	
31-Jan	5.6	5.5	5.2	4.8	4.7	4.2	2.4	1.4	0.5	1.1	3.0	3.5	4.5	5.6	7.2	6.6	4.5	3.7	4.1	4.5	4.0	3.7	4.3	4.3	4.1	7.2
																								Diurnal Average		
																								Diurnal Maximum		





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

**Ambient Temperature (AT) - C**  
**Lower Camp - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Lower Camp - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	293	39.38	39.38
-20 - 0	380	51.08	90.46
0 - 10	69	9.27	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

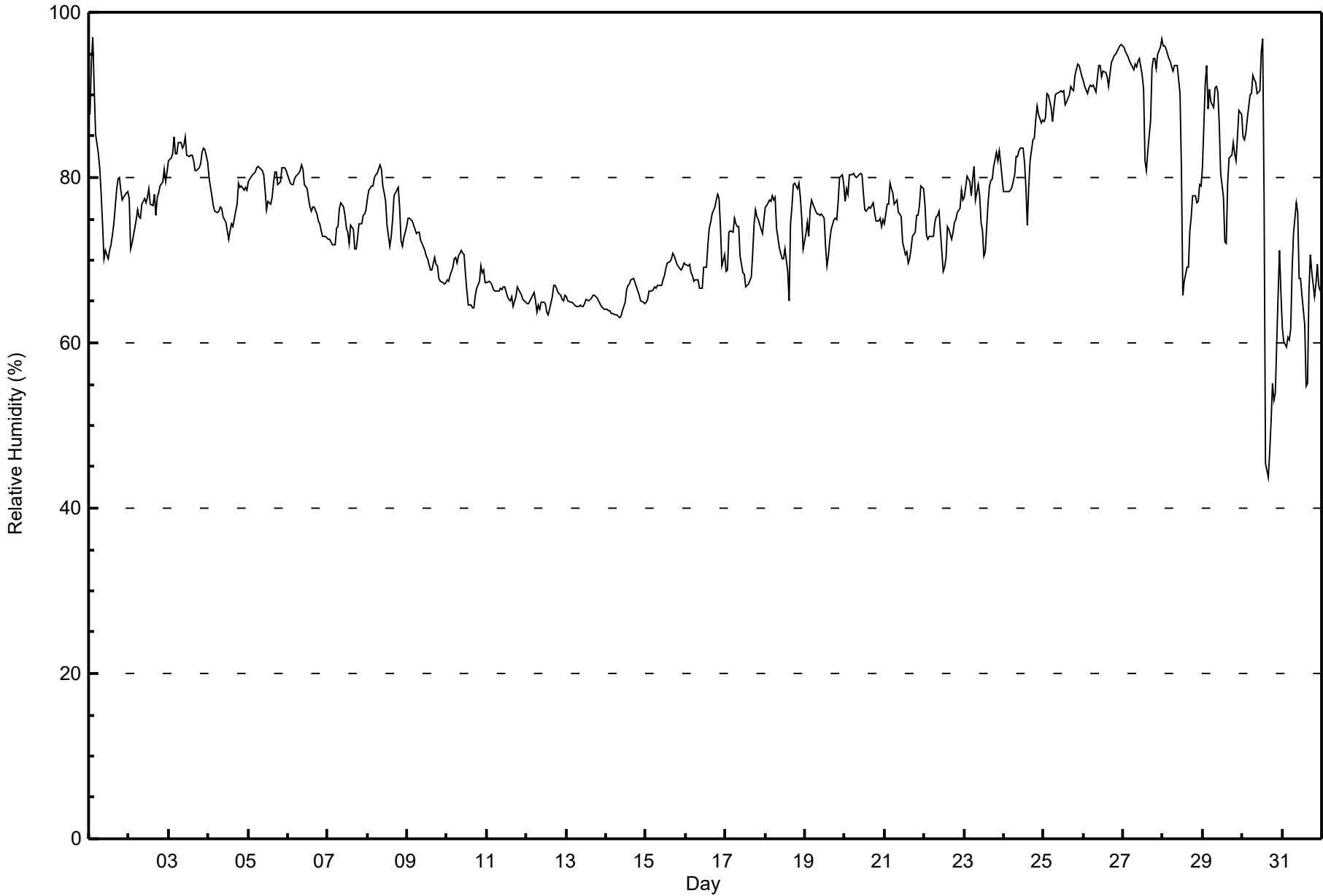
**Relative Humidity (RH) - %**  
**Lower Camp - January 2024**

Maximum Value: 96.9 % on Jan 1 03:00      Maximum Daily Average: 92.8 % on Jan 26																						Hours in Service:	744																								
Minimum Value: 43.7 % on Jan 30 16:00      Minimum Daily Average: 64.9 % on Jan 13																						Hours of Data:	744																								
Maximum Diurnal Average: 77.7 % at hour 8      Minimum Diurnal Average: 71.7 % at hour 15																						Hours of Missing Data:	0																								
Monthly Average: 75.99 %      Percentiles: P <sub>1</sub> = 55.1 P <sub>10</sub> = 65.2 Q <sub>1</sub> = 69.2 Median = 75.6 Q <sub>3</sub> = 80.6 P <sub>90</sub> = 90.4 P <sub>99</sub> = 95.8																						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-Jan	87.6	94.1	96.9	90.8	85.3	82.9	81.0	77.9	74.3	70.3	71.2	70.2	71.2	71.8	73.0	74.5	78.4	79.8	80.0	78.5	77.3	77.7	78.1	78.3	79.2	96.9																					
2-Jan	77.5	71.4	72.1	74.0	74.9	76.1	75.2	75.1	76.7	77.4	76.9	77.6	78.6	76.8	76.6	77.9	75.5	77.7	78.2	79.1	79.5	81.0	79.5	80.7	76.9	81.0																					
3-Jan	82.0	82.4	82.9	84.9	82.9	82.9	84.2	84.2	83.6	83.8	84.8	82.8	82.6	82.7	82.0	80.9	80.8	81.3	81.6	83.1	83.5	83.4	81.9	82.8	84.9	84.9																					
4-Jan	79.9	78.8	77.7	76.5	75.9	75.7	75.9	76.4	76.2	75.3	74.6	73.5	72.6	73.6	74.3	74.1	76.0	76.7	79.4	78.8	78.9	78.4	78.7	78.4	76.5	79.9																					
5-Jan	79.5	79.9	80.3	80.6	80.7	81.2	81.4	81.1	80.9	80.3	78.6	76.2	77.1	76.8	77.6	79.2	80.6	80.7	79.1	79.5	81.1	81.2	81.2	80.9	79.8	81.4																					
6-Jan	79.7	79.3	79.1	79.2	79.7	80.2	80.6	80.9	81.5	81.1	79.2	78.6	77.5	76.4	76.0	76.4	76.4	75.6	74.7	74.4	73.6	72.8	72.8	72.8	77.4	81.5																					
7-Jan	72.6	72.6	72.2	71.9	71.9	73.9	74.1	76.3	76.9	76.5	75.4	73.9	73.4	72.1	74.3	73.8	71.3	71.3	72.8	74.5	74.4	75.5	75.6	76.1	73.9	76.9																					
8-Jan	77.4	78.4	79.0	79.0	80.0	80.4	80.5	81.5	81.0	79.1	78.1	77.1	74.3	71.7	72.8	74.9	77.8	78.2	78.8	76.4	72.3	71.6	72.6	74.0	77.0	81.5																					
9-Jan	75.1	75.0	75.0	74.8	74.2	73.2	73.4	73.4	72.4	72.1	71.2	70.6	70.2	69.5	68.9	68.9	70.4	69.6	69.3	67.7	67.5	67.2	67.0	67.3	71.0	75.1																					
10-Jan	67.6	67.5	68.1	69.1	70.2	70.3	69.7	70.5	71.2	70.8	70.6	68.3	66.3	64.6	64.5	64.2	64.2	65.8	66.6	67.5	69.2	68.4	68.9	67.3	68.0	71.2																					
11-Jan	67.3	67.5	67.3	67.0	66.5	66.3	66.3	66.3	66.6	66.5	66.8	66.7	65.6	65.2	65.1	65.5	64.3	65.5	66.8	66.5	66.1	65.7	65.3	65.0	66.2	67.5																					
12-Jan	64.8	64.7	65.1	65.4	66.1	65.0	63.8	64.6	64.1	65.0	65.0	64.8	63.7	63.4	64.1	65.5	67.0	66.9	66.6	66.1	65.7	65.2	65.0	65.7	65.1	67.0																					
13-Jan	65.5	65.1	65.0	64.9	64.7	64.6	64.5	64.5	64.6	64.4	64.4	64.8	65.2	65.0	65.3	65.5	65.8	65.8	65.5	65.0	64.7	64.4	64.2	64.1	64.9	65.8																					
14-Jan	64.0	64.0	63.9	63.6	63.5	63.4	63.3	63.2	63.0	63.3	63.9	64.9	66.4	66.9	67.2	67.6	67.8	67.4	66.7	66.2	65.8	65.1	65.0	64.8	65.0	67.8																					
15-Jan	65.0	65.2	66.3	66.4	66.4	66.7	66.6	66.9	66.9	67.0	67.6	68.2	69.0	69.6	69.8	70.2	70.9	70.5	70.1	69.4	69.0	68.8	69.2	69.7	68.1	70.9																					
16-Jan	69.4	69.3	69.5	68.5	68.2	67.5	67.7	67.6	66.7	66.7	66.7	66.7	69.2	69.1	71.9	74.0	74.5	75.6	76.4	77.3	78.0	77.5	73.8	69.3	71.0	78.0																					
17-Jan	68.6	68.8	73.3	73.6	73.3	75.0	74.4	74.1	74.1	70.5	68.5	68.3	66.7	66.9	67.2	67.9	70.8	74.5	76.1	75.3	74.8	73.8	73.2	74.9	71.9	76.1																					
18-Jan	76.5	76.6	77.2	77.2	77.8	77.3	77.6	73.9	71.6	70.9	70.2	70.1	71.3	68.6	65.1	74.4	76.4	79.2	79.4	78.6	79.3	77.6	75.1	71.4	74.7	79.4																					
19-Jan	73.3	74.5	72.8	76.1	77.3	76.9	76.0	75.7	75.7	75.5	75.7	75.1	71.8	69.3	70.5	72.5	73.8	75.0	75.1	74.9	77.0	80.0	80.4	79.2	75.2	80.4																					
20-Jan	77.1	78.6	77.9	80.3	80.4	80.5	80.2	80.0	80.2	80.5	80.4	78.1	76.0	76.0	76.5	76.3	76.6	77.0	75.7	74.7	74.8	75.1	74.1	75.0	77.6	80.5																					
21-Jan	74.4	76.8	76.8	79.4	78.7	78.1	76.7	77.2	75.8	75.7	75.2	72.2	70.7	71.1	69.7	70.1	71.4	72.8	73.4	75.4	75.4	76.5	78.9	78.6	75.0	79.4																					
22-Jan	76.6	73.1	72.6	72.9	72.9	72.8	74.5	75.3	75.4	75.9	70.9	68.7	69.2	70.3	74.1	73.8	72.6	73.5	74.6	74.9	75.8	76.3	78.5	77.2	73.8	78.5																					
23-Jan	77.6	78.9	80.1	79.4	77.8	79.8	81.4	77.3	79.1	77.8	74.7	73.6	70.5	71.1	76.9	79.0	79.7	79.8	81.3	83.1	82.0	83.2	81.7	80.0	78.6	83.2																					
24-Jan	78.3	78.4	78.3	78.3	78.5	78.8	80.4	82.5	82.5	83.2	83.5	83.6	81.9	78.9	74.2	78.8	82.1	84.5	84.8	86.9	88.7	87.6	86.6	86.9	82.0	88.7																					
25-Jan	86.8	87.2	90.2	89.9	88.6	86.8	88.5	90.1	90.1	90.3	90.4	90.5	88.8	89.1	90.0	91.1	90.7	90.6	92.4	93.8	93.5	92.9	92.3	90.2	90.2	93.8																					
26-Jan	91.7	91.1	90.1	90.8	91.2	91.0	91.1	90.4	92.0	93.6	93.6	92.2	92.9	92.7	92.3	91.0	92.5	93.9	94.7	95.0	95.2	95.6	95.9	96.1	92.8	96.1																					
27-Jan	95.7	95.3	94.9	94.5	94.0	93.3	93.0	93.7	93.3	94.0	94.3	92.4	90.7	82.1	80.8	83.3	86.9	93.3	94.4	94.5	93.2	94.9	95.8	96.8	92.3	96.8																					
28-Jan	95.9	96.0	95.6	94.5	94.0	93.4	92.9	93.6	93.6	91.9	90.2	81.0	65.8	67.4	69.2	69.2	73.6	75.3	77.8	77.9	76.9	77.0	79.2	79.0	83.4	96.0																					
29-Jan	81.1	91.4	93.5	88.3	90.6	89.1	88.5	90.8	91.0	90.3	86.4	80.6	77.6	72.2	72.1	79.4	82.5	82.6	84.2	82.8	82.0	84.9	88.1	87.7	84.9	93.5																					
30-Jan	84.8	84.6	85.5	87.2	90.0	90.1	92.4	91.9	91.5	90.2	90.4	95.2	96.8	77.3	45.4	43.7	46.7	50.5	55.1	53.1	53.8	65.8	71.2	66.1	75.0	96.8																					
31-Jan	61.8	60.2	59.5	60.7	60.3	61.6	68.8	73.2	76.9	75.7	67.9	67.8	65.8	62.2	54.8	55.1	66.1	70.6	68.7	65.6	67.1	69.6	67.0	66.3	65.6	76.9																					
																						76.6	77.0	77.4	77.4	77.3	77.3	77.6	77.7	77.7	77.3	76.4	75.4	74.2	72.7	71.7	72.9	74.4	75.5	76.1	75.9	76.0	76.5	76.6	76.3	Diurnal Average	
																						95.9	96.0	96.9	94.5	94.0	93.4	93.0	93.7	93.6	94.0	94.3	95.2	96.8	92.7	92.3	91.0	92.5	93.9	94.7	95.0	95.2	95.6	95.9	96.8	Diurnal Maximum	



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

**Relative Humidity (RH) - %**  
**Lower Camp - January 2024**





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - inHg**

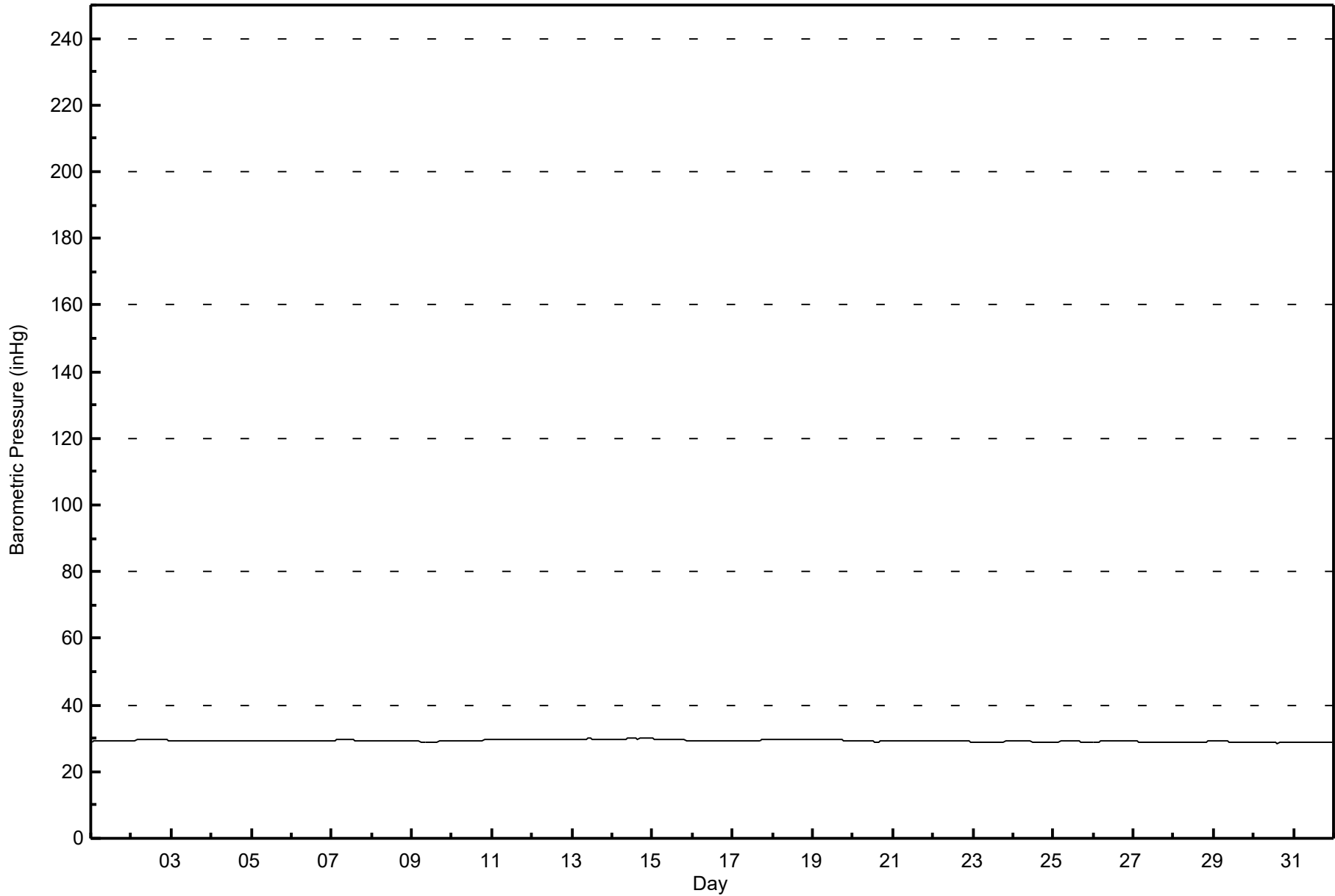
**Lower Camp - January 2024**

Maximum Value: 29.9 inHg on Jan 14 19:00      Maximum Daily Average: 29.9 inHg on Jan 14																						Hours in Service: 744				
Minimum Value: 28.6 inHg on Jan 30 15:00      Minimum Daily Average: 28.7 inHg on Jan 30																						Hours of Data: 744				
Maximum Diurnal Average: 29.3 inHg at hour 11      Minimum Diurnal Average: 29.3 inHg at hour 15																						Hours of Missing Data: 0				
Monthly Average: 29.28 inHg      Percentiles: P <sub>1</sub> = 28.6 P <sub>10</sub> = 28.9 Q <sub>1</sub> = 29.0 Median = 29.2 Q <sub>3</sub> = 29.5 P <sub>90</sub> = 29.8 P <sub>99</sub> = 29.9																						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-Jan	29.0	29.0	29.1	29.1	29.1	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	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.4
2-Jan	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	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.5	29.5
3-Jan	29.4	29.4	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	29.3	29.3	29.2	29.2	29.2	29.1	29.1	29.1	29.3	29.4	
4-Jan	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3
5-Jan	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.2	29.2
6-Jan	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	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.2	29.4
7-Jan	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	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.4	29.5
8-Jan	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.2	29.3	
9-Jan	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	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.1	29.2
10-Jan	29.2	29.2	29.2	29.2	29.3	29.3	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	29.5	29.5	29.5	29.5	29.5	29.4	29.5
11-Jan	29.5	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	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.8
12-Jan	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
13-Jan	29.8	29.8	29.8	29.8	29.8	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.9	29.9
14-Jan	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
15-Jan	29.9	29.9	29.9	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	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.7	29.9
16-Jan	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.4
17-Jan	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.3	29.6
18-Jan	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.9	29.9	29.9	29.9	29.9	29.9	29.8	29.9
19-Jan	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.5	29.5	29.5	29.4	29.4	29.4	29.3	29.3	29.3	29.6	29.8
20-Jan	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.2
21-Jan	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	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.2	29.4
22-Jan	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.2	29.4
23-Jan	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	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.0	29.1
24-Jan	29.1	29.1	29.1	29.1	29.1	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	28.9	28.9	29.0	29.1
25-Jan	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.0	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
26-Jan	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	29.1	29.1	29.1	29.1	29.1	29.1
27-Jan	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	28.9	28.9	28.9	28.9	28.9	29.0
28-Jan	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	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	29.1	28.9	29.1
29-Jan	29.1	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	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	29.0	29.1
30-Jan	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	28.7	28.7	28.7	28.8	28.8	28.7	28.8
31-Jan	28.8	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.7	28.9	29.0
																						Diurnal Average				
																						Diurnal Maximum				



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

**Barometric Pressure (BP) - inHg**  
**Lower Camp - January 2024**





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Lower Camp - January 2024

Maximum Speed: 25 km/h on Jan 22 12:00	Maximum Daily Speed Average: 11.2 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 15 01:00	Minimum Daily Speed Average: 0.6 km/h on Jan 7	Hours of Data: 726
Maximum Diurnal Speed Average: 2.2 km/h at hour 21	Minimum Diurnal Speed Average: 0.2 km/h at hour 18	Hours of Missing Data: 18
Monthly Average Velocity: 0.7 km/h 3.6 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> = 23	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-Jan	WNW4	WSW3	WNW5	NNW12	NNW10	N13	NNW14	NW10	NNW9	NW6	NNW8	N8	NNW7	NNW8	NNW5	N7	NNE8	NNW5	N8	NNE5	NNW6	N7	N8	NNW10	NNW7.2	NNW14	
2-Jan	N10	N11	NNW8	NW6	NNW5	NNE7	NNE7	NNE9	NNW2	NW3	WNW0	E3	ENE3	ESE1	S1	SE4	E2	ENE5	ENE4	NE3	NE2	NE2	SE4	ESE3	NNE2.9	N11	
3-Jan	NW1	SE3	SW2	ESE3	ESE4	SE4	SE5	ESE8	ESE6	E2	ENE1	NW3	NNW8	NW8	WNW8	NW8	NW8	NW8	NW8	NW9	NW9	NW9	NW9	NW9	NNW2.9	NW9	
4-Jan	NW10	NW11	NW13	NW11	NW12	NNW15	NNW15	NNW15	NNW11	NNW11	N12	NNW10	NNW11	NNW10	NNW10	NNW10	N9	NW6	NW6	WNW6	NW7	NW7	NW7	WNW6	NNW9.7	NNW15	
5-Jan	WNW8	WNW6	WNW8	WNW8	WNW8	WNW5	WNW2	NW2	W4	WSW5	WSW5	NW2	NNW4	WNW4	NNW5	N4	NNW5	NW5	NW5	NW3	NW4	WNW4	WNW5	WNW4.3	WNW8		
6-Jan	NW6	NW6	WNW6	WNW6	WNW6	WNW7	WNW7	WNW7	WNW7	NW7	NW8	NW10	NNW12	NNW12	NNW13	NNW12	NNW14	NNW14	NNW15	NNW17	NNW14	NNW12	NW10	NNW8	NW9.4	NNW17	
7-Jan	NNW9	N12	N11	N9	N7	N7	NNW8	WNW5	WNW3	NW5	NW4	WNW2	W3	NW1	SE2	SE5	SE7	SSE7	SSE8	SSE9	SE10	SE11	SE11	SE9	NE0.6	N12	
8-Jan	ESE7	ESE7	SE7	ESE11	ESE12	SE7	SW1	NW2	NW5	NW6	WNW5	NW5	WNW4	NW7	W7	WNW5	W2	WSW3	NW2	N6	N8	NNW6	WNW6	NW5	NNW1.1	ESE12	
9-Jan	NNW5	W4	WNW3	W5	W4	W2	WNW4	NW4	NNW9	NW5	NW8	NW6	NNW9	NNW10	NNW10	NW8	NNW9	NW8	NNW10	NNW9	N9	NNW10	N6	N5	NW6.3	NNW10	
10-Jan	NW6	NNW8	NW6	NW5	W5	W5	WNW5	NW4	W4	WNW2	W3	WNW4	NW5	NNW7	N7	NNE7	N6	NNW4	NNW3	WNW4	WNW3	W3	WNW4	WNW4	NW4.1	NNW8	
11-Jan	WNW2	WNW3	WNW2	WNW3	WNW2	WNW3	WNW3	NW2	WNW2	WNW2	WNW2	WNW5	WNW4	WSW2	NW3	N6	N4	W1	NW1	WNW1	WNW3	WNW2	WNW1	WNW2	WNW2.3	N6	
12-Jan	WNW1	NW1	NW2	W0	WNW4	WSW2	WSW2	W1	SSE3	ESE7	ESE7	ESE7	ESE9	ESE7	ESE7	ESE6	SE5	WSW2	W3	W1	W1	WNW2	WNW1	SE5	SE1.8	ESE9	
13-Jan	SE7	ESE9	ESE8	ESE8	SE7	ESE9	ESE5	ESE6	SE5	ESE8	ESE8	ESE6	ESE5	ESE4	SE3	ESE1	WNW1	NW1	WNW1	WNW1	NW1	NW1	NW1	NW1	ESE3.9	ESE9	
14-Jan	NW1	WNW2	WNW2	NW2	NNW1	NW2	WNW2	WNW2	NNW1	NNW1	N1	ESE1	ESE3	ENE1	SSW0	N1	WNW2	W2	WNW1	NW2	WNW1	WNW0	NW1	NW1	NW0.8	ESE3	
15-Jan	SE0	ESE2	ESE11	SE9	SE5	SE7	ESE10	ESE10	ESE8	SSE3	SE4	SE5	ESE8	ESE4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	ESE11
16-Jan	ESE7	SE5	SE4	NW1	W2	WNW3	W3	WNW4	W3	WNW3	W1	N0	N2	NNW2	UO	WNW1	N1	N1	NW2	NW4	WNW7	W12	W14	W15	W2.5	W15	
17-Jan	W15	WNW9	N7	N9	N8	N8	WNW4	W4	NNW5	N9	N10	NNE12	N11	N10	NNW11	N9	NNW6	WNW5	WNW5	W6	WNW8	NW7	WNW7	WNW7	NNW6.6	W15	
18-Jan	WNW6	WNW4	WNW4	UO	WNW3	W2	WSW3	WSW8	WSW7	WSW8	W5	WNW5	NW3	N3	UO	SW1	WNW4	NW1	W2	UO	WNW3	NW4	W5	WNW8	W3.8	WSW8	
19-Jan	W4	W3	W4	ESE3	ESE4	ESE8	ESE11	ESE12	ESE9	ESE8	ESE11	ESE10	ESE9	ESE11	ESE11	ESE10	ESE6	ESE6	SE10	SE6	UO	NW1	SE2	SE12	ESE6.4	ESE12	
20-Jan	ESE10	ESE7	W1	W2	UO	WNW3	WNW3	UO	UO	UO	WNW2	NNW11	NW9	WNW8	WNW10	WNW9	WNW9	NW8	NNW10	NNW11	NNW11	NNW12	NNW10	NNW8	NW5.6	NNW12	
21-Jan	NNW7	NW6	NNW4	NW5	NW6	WNW6	WNW6	WNW7	NW5	NW8	NW6	NNW8	N13	NNW12	NNW12	N10	N10	NNW5	NW4	WNW5	NW4	NNW3	W2	NNW2	NNW6.0	N13	
22-Jan	N5	NNW9	NNW8	NW6	WNW6	NW6	WNW6	WNW6	WNW5	NW2	E22	ESE25	ESE24	ESE22	ESE23	ESE23	ESE24	ESE24	ESE25	ESE23	ESE16	ESE11	ESE13	SE12	ESE9.9	ESE25	
23-Jan	ESE14	ESE11	ESE12	ESE13	SE12	ESE10	SE9	SE9	SE7	SE8	SE7	ESE7	SE3	N3	NNW5	NNW6	NW7	NNW9	NNW13	NNW13	NNW14	NNW14	NNW10	NNW9	ENE2.7	NNW14	
24-Jan	NNW10	NNW8	NW7	NNW7	NNW6	WNW5	WNW6	NW3	WNW3	NW5	NW5	WNW5	NW5	SE3	SSE9	SE10	SE9	SE9	S3	WNW4	WNW7	W4	WNW2	W4	NW2.1	SE10	
25-Jan	WNW4	W4	WNW7	NNW8	NNW12	NNW11	NNW14	NNW11	NW7	NW8	NW6	WNW6	WNW3	W4	W3	E4	SE5	SSE9	SE8	SE5	SSE4	SE5	SE7	SE8	NW1.9	NNW14	
26-Jan	ESE12	SE8	S2	SE6	NW4	WNW5	NW5	WNW4	NW3	E2	SE5	SE6	ESE10	SE9	SE10	SSE9	SSE9	SSE5	SE5	SE4	SSE2	SE5	ESE6	SE5	SE3.9	ESE12	
27-Jan	SE4	SSE2	SE4	ESE6	ESE6	ESE3	ESE5	SE3	ESE1	ESE10	ESE12	ESE14	ESE16	ESE16	ESE13	ESE11	SE6	ESE6	ESE8	ESE10	SE10	SE11	ESE11	ESE14	ESE8.2	ESE16	
28-Jan	ESE15	ESE12	ESE14	ESE11	ESE11	ESE12	SE9	ESE13	ESE18	ESE14	ESE12	S7	SW17	WSW18	WSW14	WSW13	WSW15	WSW19	WSW13	WSW17	WSW22	WSW13	W8	WSW10	SSW6.3	WSW22	
29-Jan	S2	ESE10	ESE13	ESE10	ESE8	ESE7	ESE10	ESE12	ESE10	SE9	SE7	SE7	SE7	ESE14	ESE11	ESE14	ESE15	ESE11	ESE14	ESE15	ESE15	ESE17	ESE18	ESE16	ESE11.2	ESE18	
30-Jan	ESE16	ESE12	ESE13	ESE12	ESE12	ESE11	ESE8	SE8	SE7	ESE10	E5	ESE16	ESE11	SW7	SW19	WSW22	WSW18	WSW14	SW10	SW13	WSW22	W12	WSW8	WSW14	S5.4	WSW22	
31-Jan	WSW18	WSW20	WSW16	WSW17	SW20	WSW10	WSW2	SE7	ESE9	SE8	ESE7	ESE12	ESE13	ESE11	SE9	SE8	ESE11	ESE13	ESE10	ESE8	ESE8	ESE14	ESE21	ESE13	SSE5.9	ESE21	

NW0.7NNW0.6NNW0.7NNE0.9NNW1.0 N1.0NNW1.4NNE0.4NNE0.4 NE0.4 ENE1.4 ENE1.7 ENE1.6 NNE1.0 N0.3 NE0.8 NNE0.7 NW0.2 N0.6NNW1.0WNW2.2 NW1.7NNW0.5WNW0.4	Diurnal Average
WSW18WSW20WSW16WSW17 SW20NNW15NNW15NNW15 ESE18 ESE14 E22 ESE25 ESE24 ESE22 ESE23 ESE23 ESE24 ESE24 ESE25 ESE23 WSW22 ESE17 ESE21 ESE16	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 - January 2024**

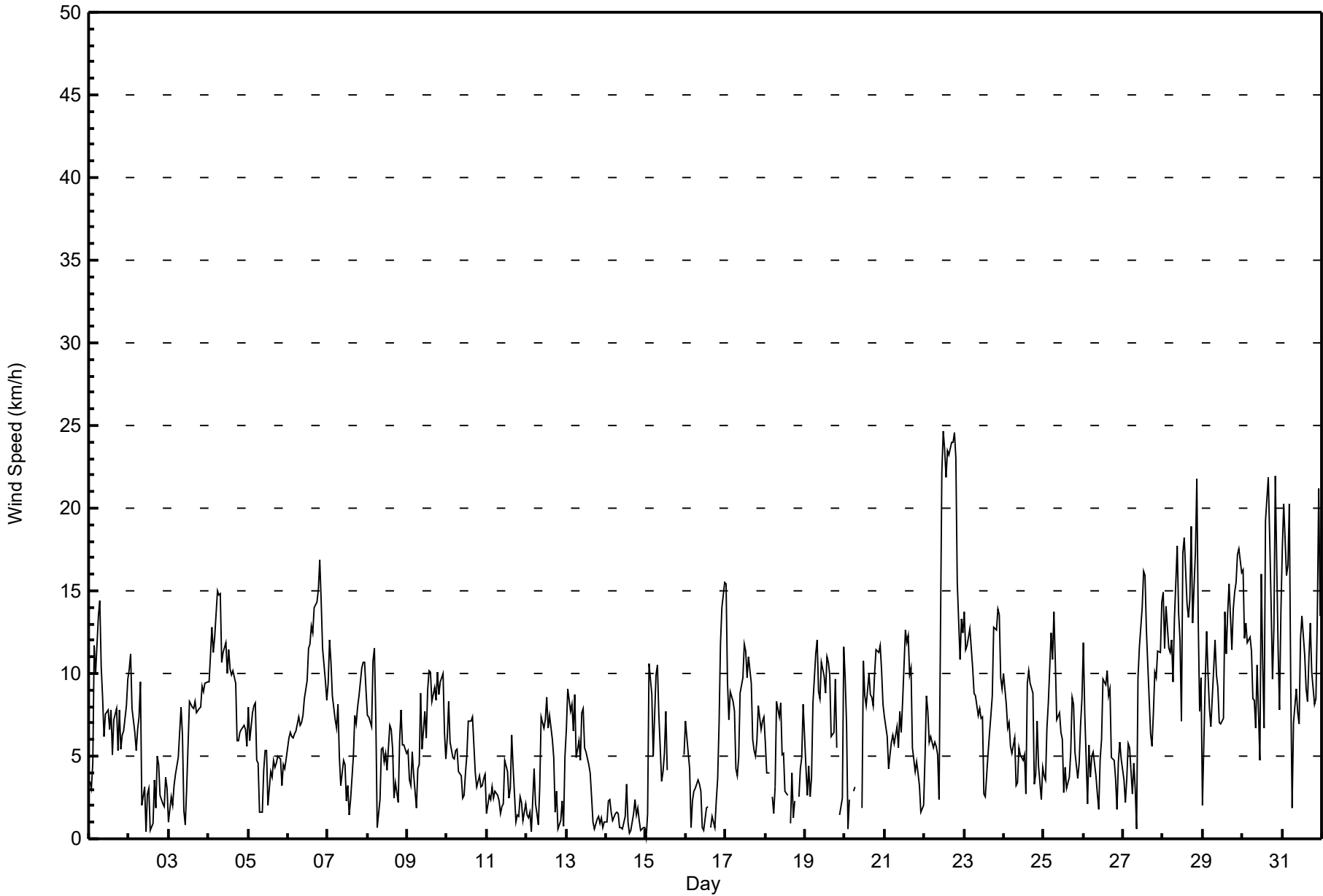
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 31 06:00 Minimum Value: 1 km/h on Jan 14 13:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 5														Hours in Service: 744 Hours of Data: 726 Hours of Missing Data: 18 Hours of Calibration: 0 Percent Operational Time: 97.6											
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-Jan	2	1	2	3	3	3	4	3	2	1	1	2	2	2	1	3	2	2	2	3	1	2	2	2	4
2-Jan	3	3	2	1	1	1	1	2	1	1	1	1	2	1	1	1	2	1	1	2	2	1	2	1	3
3-Jan	1	1	1	1	1	2	1	1	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3
4-Jan	2	3	3	3	3	4	4	4	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	2	4
5-Jan	2	1	2	1	2	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2
6-Jan	1	2	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2	3
7-Jan	2	2	2	2	1	1	2	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	2	3
8-Jan	2	2	3	2	2	4	1	1	1	1	1	2	2	2	1	1	1	1	1	2	2	2	1	1	4
9-Jan	2	2	2	1	1	1	2	3	3	2	3	2	2	2	2	2	3	2	3	2	1	2	2	2	3
10-Jan	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	2
11-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	2
12-Jan	1	1	1	1	2	2	1	1	3	2	2	1	2	1	1	1	1	1	1	1	1	1	1	2	3
13-Jan	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
14-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15-Jan	1	1	4	3	2	2	2	3	2	1	2	1	1	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4
16-Jan	2	3	1	2	1	1	2	1	1	1	1	1	1	1	UO	1	1	1	2	1	2	4	3	3	4
17-Jan	3	2	2	2	2	1	2	1	1	2	2	3	2	2	2	2	1	1	1	1	2	1	1	1	3
18-Jan	1	1	1	UO	2	1	2	2	2	2	2	1	1	2	UO	2	2	1	2	UO	2	1	2	2	2
19-Jan	1	2	3	2	2	2	2	2	1	2	2	3	2	2	2	2	3	3	2	2	UO	2	3	3	3
20-Jan	2	2	2	2	UO	2	1	UO	UO	UO	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3
21-Jan	2	1	2	2	1	2	1	1	1	2	1	2	3	2	2	2	3	1	1	1	1	2	1	2	3
22-Jan	5	2	2	2	1	1	1	1	1	4	3	4	5	4	4	4	4	4	4	4	4	3	3	3	5
23-Jan	3	2	2	2	2	3	3	2	1	2	1	1	1	1	1	1	4	3	3	3	3	2	2	4	
24-Jan	2	2	1	1	1	1	1	1	1	1	1	1	3	4	3	3	3	2	2	1	1	1	3	4	
25-Jan	1	1	1	2	3	3	3	2	1	1	1	1	1	1	1	2	2	3	2	2	3	2	2	3	
26-Jan	2	2	2	2	3	1	1	1	1	1	2	3	3	4	4	3	4	2	3	1	2	2	2	4	
27-Jan	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	1	2	3	2	2	2	2	2	3	
28-Jan	3	2	2	3	3	3	4	3	4	3	3	4	4	5	3	3	3	4	5	7	4	7	3	7	
29-Jan	4	3	2	3	2	2	3	2	2	3	2	2	3	2	4	3	2	2	2	2	2	2	2	4	
30-Jan	4	2	2	2	2	4	4	2	2	4	5	2	4	5	6	5	5	5	3	6	5	5	4	6	
31-Jan	3	4	4	4	4	8	3	2	2	3	2	2	2	1	3	2	3	3	3	2	3	6	3	8	
Diurnal Maximum																									
UO - Unstable Operation																									





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

**Wind Speed (WS) - km/h**  
**Lower Camp - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Lower Camp - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	299	41.18	41.18
6 - 11	311	42.84	84.02
12 - 19	100	13.77	97.80
20 - 28	16	2.20	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 726

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Lower Camp - January 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	12	1	3	5	6	19	31	6	4	1	3	10	39	82	56	21	299
6 - 11	30	5	0	0	0	76	42	7	1	0	2	6	3	38	48	53	311
12 - 19	4	1	0	0	0	45	2	0	0	0	3	14	5	0	2	24	100
20 - 28	0	0	0	0	1	10	0	0	0	0	1	4	0	0	0	0	16
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>	46	7	3	5	7	150	75	13	5	1	9	34	47	120	106	98	726

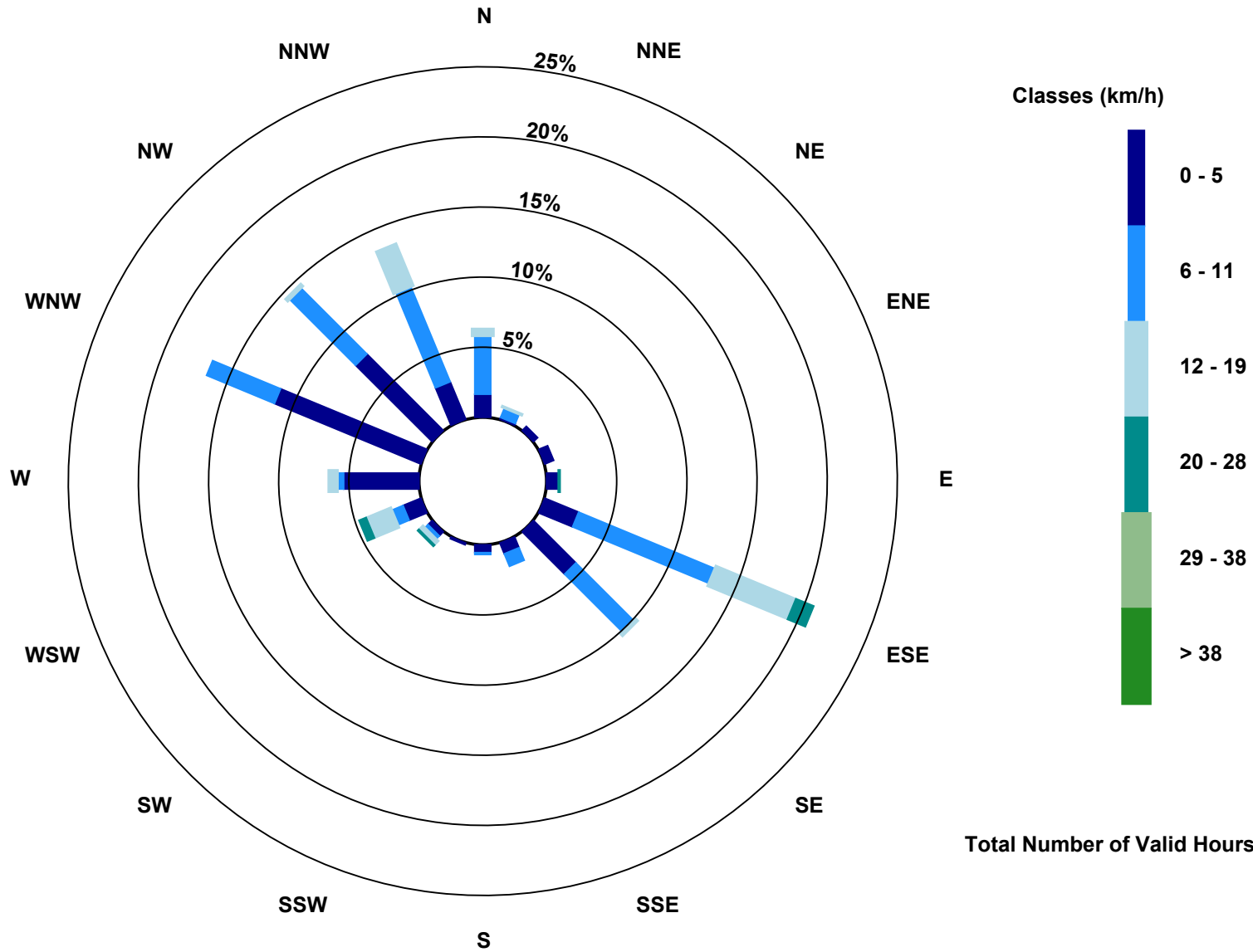
Total Number of Valid Hours: 726

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Lower Camp



Total Number of Valid Hours: 726



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

**Wind Direction (WD) - deg**  
**Lower Camp - January 2024**

Direction of Maximum Speed: 106 deg on Jan 22 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 118.9 deg on Jan 29	Hours of Data: 726
Direction of Minimum Speed: 137 deg on Jan 15 01:00	Hours of Missing Data: 18
Direction of Minimum Daily Speed Average: 0.6 deg on Jan 7	Percent Operational Time: 97.6
Monthly Average Direction: 3.6 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-Jan	285	254	284	340	339	358	339	323	339	316	345	352	342	337	327	359	22	344	0	16	342	353	352	348	342.5
2-Jan	352	356	338	320	337	22	26	33	332	315	287	83	62	122	181	124	95	74	64	54	55	55	135	109	21.8
3-Jan	317	138	214	116	102	124	126	119	118	80	72	310	343	304	302	319	315	309	304	319	307	311	307	320	319.7
4-Jan	313	318	324	317	324	332	341	342	332	337	2	347	340	339	342	337	349	324	309	301	312	310	304	303	330.2
5-Jan	299	296	289	299	296	290	338	287	316	263	252	247	322	340	301	338	354	343	318	309	316	317	298	303	303.5
6-Jan	307	315	303	295	289	288	289	290	290	306	314	319	333	330	331	328	337	341	335	341	338	330	322	327	322.3
7-Jan	336	352	349	356	351	354	339	294	285	321	305	288	273	325	129	134	141	163	164	154	145	142	137	137	54.7
8-Jan	122	117	126	115	123	126	224	305	319	313	291	315	297	313	266	300	259	256	317	350	7	345	303	325	334.8
9-Jan	330	261	299	265	274	272	288	311	336	305	324	310	328	328	327	308	327	325	334	345	350	346	349	352	324.0
10-Jan	324	340	318	306	279	280	296	308	278	291	273	283	308	333	6	24	357	327	341	288	291	281	296	290	315.7
11-Jan	283	288	292	286	292	292	297	306	295	301	292	290	291	256	314	359	360	280	308	299	292	284	300	291	302.2
12-Jan	294	306	324	277	282	241	257	260	157	119	118	119	118	116	120	120	124	241	281	272	270	288	283	125	132.5
13-Jan	127	123	123	123	128	123	123	122	124	120	120	119	122	122	126	104	302	312	300	301	324	325	308	122.0	
14-Jan	321	300	296	310	331	313	299	292	346	336	352	103	119	69	193	1	298	280	289	306	300	300	309	313	309.6
15-Jan	137	103	121	126	128	127	122	120	121	149	131	127	121	116	UO	UO	UO	UO	UO	UO	UO	UO	UO	125	--
16-Jan	122	124	126	305	260	301	273	293	278	282	272	8	352	348	UO	301	357	10	312	315	284	268	265	268	274.9
17-Jan	274	298	354	7	7	2	303	274	337	353	352	12	350	357	347	355	333	303	284	272	287	306	296	288	329.3
18-Jan	292	288	295	UO	288	274	252	246	256	244	275	295	323	350	UO	235	285	309	272	UO	287	314	279	289	278.8
19-Jan	278	267	260	123	120	120	119	120	116	115	116	111	112	114	118	121	123	121	124	131	UO	318	126	125	121.0
20-Jan	122	121	267	279	UO	289	289	UO	UO	UO	291	331	316	303	302	293	297	310	335	343	343	339	340	335	323.6
21-Jan	330	312	340	319	309	302	300	282	313	306	306	342	355	344	347	354	350	346	307	284	310	328	262	332	326.8
22-Jan	351	339	344	315	300	304	298	288	291	307	101	106	109	113	112	113	112	112	115	112	120	123	117	124	107.1
23-Jan	120	116	117	121	128	121	125	143	127	126	129	116	141	6	341	327	309	327	342	341	338	342	342	334	67.8
24-Jan	329	336	315	337	334	294	299	323	288	304	310	307	126	150	125	125	128	117	291	290	269	295	274	304.3	
25-Jan	294	280	297	331	345	329	337	333	312	305	307	290	300	261	276	94	137	148	137	130	150	126	125	130	321.0
26-Jan	123	130	177	125	324	284	309	298	315	90	141	132	118	133	132	152	158	156	130	137	151	138	114	126	135.9
27-Jan	124	155	134	110	102	111	105	125	123	119	119	118	121	118	118	119	125	123	119	122	124	125	121	121	120.0
28-Jan	122	122	114	117	120	122	125	116	120	115	112	171	229	245	242	245	253	243	251	247	244	251	274	254	194.3
29-Jan	189	122	120	112	112	103	121	119	120	125	134	129	130	122	121	117	119	114	113	115	118	115	117	119	118.9
30-Jan	114	119	119	114	114	119	120	127	125	123	93	116	109	227	232	245	244	244	229	231	257	273	242	254	185.8
31-Jan	246	242	248	246	234	250	242	126	120	124	121	120	117	113	126	125	108	107	117	122	122	104	104	104	148.3

317.5 333.8 337.3 13.0 334.8 356.5 345.7 30.1 24.0 45.0 73.9 75.7 56.7 28.9 7.3 41.1 31.2 307.2 2.3 331.6 302.0 322.8 341.9 289.1  
 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**

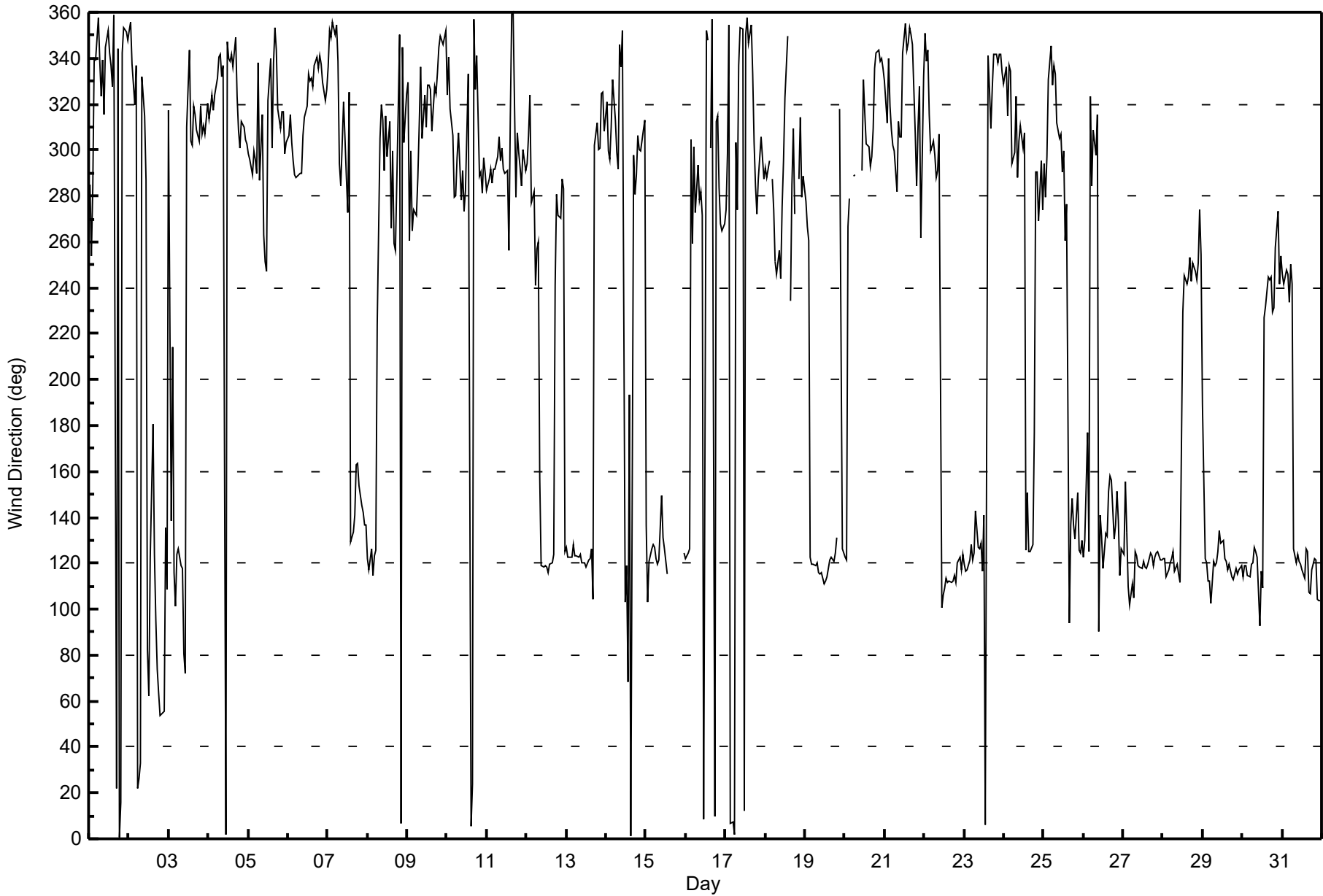
**Wind Direction (WD) - deg**  
**Lower Camp - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 110 deg on Jan 2 14:00 Minimum Value: 5 deg on Jan 31 12:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 10 Q <sub>1</sub> = 14 Median = 18 Q <sub>3</sub> = 28 P <sub>90</sub> = 45 P <sub>99</sub> = 89														Hours in Service: 744 Hours of Data: 726 Hours of Missing Data: 18 Hours of Calibration: 0 Percent Operational Time: 97.6											
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-Jan	28	36	45	16	20	14	15	18	20	17	13	19	17	13	22	26	16	36	19	42	20	21	15	16	45
2-Jan	20	17	17	16	18	18	14	12	59	28	76	67	70	110	77	49	83	24	47	68	92	90	44	55	110
3-Jan	81	43	47	32	34	31	20	10	42	85	86	29	13	20	16	17	15	17	16	19	16	15	14	19	86
4-Jan	16	17	18	18	19	19	18	14	18	15	19	21	14	19	19	15	13	21	20	13	19	15	17	34	34
5-Jan	12	13	11	10	12	17	18	12	27	22	17	14	63	22	18	18	12	22	19	16	24	23	16	20	63
6-Jan	17	19	15	14	15	13	12	13	12	17	16	18	17	17	17	17	14	14	14	14	16	17	17	18	19
7-Jan	17	11	13	15	14	14	12	22	32	19	25	22	27	71	55	28	23	30	30	27	24	21	21	23	71
8-Jan	14	18	30	12	12	51	65	44	19	18	20	21	31	17	25	22	23	17	31	17	24	29	19	19	65
9-Jan	23	21	25	11	19	49	20	29	20	23	23	23	17	17	17	23	24	17	19	13	11	14	17	24	49
10-Jan	26	16	18	18	16	12	11	16	24	24	16	10	21	18	21	18	20	23	32	18	19	15	43	27	43
11-Jan	31	38	35	21	16	30	22	24	14	34	33	15	23	41	27	12	24	31	26	15	18	14	35	21	41
12-Jan	26	25	24	66	18	50	47	56	54	12	14	6	6	7	6	8	14	45	19	35	20	19	49	21	66
13-Jan	13	9	10	9	18	12	19	8	17	9	8	12	10	12	9	23	56	31	42	22	30	35	46	38	56
14-Jan	29	27	33	30	36	36	21	44	39	22	35	75	10	67	72	69	36	22	28	23	37	43	48	39	75
15-Jan	88	60	16	18	20	21	9	9	13	32	29	15	10	26	UO	UO	UO	UO	UO	UO	UO	UO	UO	15	88
16-Jan	16	32	17	71	44	17	38	26	20	34	82	55	18	43	UO	68	18	33	36	17	20	13	13	12	82
17-Jan	12	13	34	18	13	13	28	17	26	14	17	17	13	14	11	14	24	10	13	13	12	15	12	12	34
18-Jan	11	18	17	UO	32	35	35	15	16	16	28	39	33	31	UO	77	25	58	51	UO	23	23	19	12	77
19-Jan	18	38	42	51	21	10	8	8	9	15	11	12	9	8	8	9	31	24	12	21	UO	44	90	11	90
20-Jan	12	17	99	32	UO	28	19	UO	UO	UO	28	16	17	15	11	15	11	13	16	15	14	15	17	18	99
21-Jan	17	18	37	31	17	14	12	11	16	13	18	22	16	16	15	15	13	24	21	15	37	23	39	38	39
22-Jan	56	18	15	21	14	17	13	15	15	61	8	8	9	10	8	8	8	7	9	8	15	17	13	18	61
23-Jan	11	13	11	11	16	12	22	24	16	10	18	12	72	66	16	18	13	18	13	16	13	16	15	18	72
24-Jan	16	18	18	14	16	24	11	26	15	25	16	16	19	101	30	22	27	18	64	47	12	17	27	23	101
25-Jan	16	15	20	17	17	17	15	17	15	14	13	13	39	28	38	60	33	28	23	35	63	30	12	13	63
26-Jan	9	15	66	18	85	24	20	36	21	66	34	39	17	33	34	29	31	47	47	43	59	33	23	24	85
27-Jan	40	53	29	15	26	72	37	58	92	13	9	7	7	6	6	7	21	39	12	8	14	10	10	9	92
28-Jan	8	9	8	10	20	12	38	11	12	8	8	58	12	14	13	13	13	12	18	16	15	34	38	24	58
29-Jan	86	10	9	27	18	35	12	9	11	18	25	16	23	10	18	6	6	10	7	8	8	6	6	7	86
30-Jan	8	6	9	8	8	9	23	16	20	22	78	6	34	82	15	13	13	16	22	29	17	28	33	16	82
31-Jan	14	13	16	14	11	49	89	23	8	25	11	5	6	8	21	13	9	12	18	18	17	13	8	20	89
88 60 99 71 85 72 89 58 92 85 86 75 72 110 77 77 83 58 64 68 92 90 90 55																								Diurnal Maximum	
UO - Unstable Operation																									



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

**Wind Direction (WD) - deg**  
**Lower Camp - January 2024**





## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS13 FORT MCKAY SOUTH JANUARY 2024**

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

February 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)  
JANUARY 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	709	35	35	100	25.1	0	3.3	0
TRS(ppb) Average	707	37	37	100	5.5	0	1.9	0
THC(ppm) Average	709	35	35	100	4.3	-	2.9	-
NMHC(ppm) Average	709	35	35	100	0.249	-	0.032	-
CH4(ppm) Average	709	35	35	100	4.3	-	2.9	-
O3(ppb) Average	709	35	35	100	42.7	0	26.1	-
NO2(ppb) Average	707	37	37	100	36.8	0	22.9	-
NO(ppb) Average	707	37	37	100	116.9	-	37.6	-
NOX(ppb) Average	707	37	37	100	145	-	59.7	-
PM2.5(ug/m3) Average	742	2	2	100	33.3	0	18.7	0
ET(C) Average	744	0	0	100	11.8	-	3.4	-
RH(%) Average	744	0	0	100	97.5	-	92.7	-
WS(km/h) Average	712	0	32	95.7	20	-	12	-
WD(deg) Average	712	0	32	95.7	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
JANUARY 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	709	0.9	1.8	-	0	0.1	0.2	0.4	0.8	1.8	25.1
TRS(ppb) Average	707	0.82	0.7	-	0.4	0.4	0.5	0.6	0.9	1.5	5.5
THC(ppm) Average	709	2.35	0.3	-	2	2.1	2.2	2.3	2.4	2.7	4.3
NMHC(ppm) Average	709	0.003	0.02	-	0	0	0	0	0	0	0.249
CH4(ppm) Average	709	2.34	0.3	-	2	2.1	2.2	2.3	2.4	2.7	4.3
O3(ppb) Average	709	13.46	9.8	-	0.5	1.7	4.7	12.1	20.6	27.8	42.7
NO2(ppb) Average	707	13.85	7.8	-	0	4.1	8.1	13.1	19.3	24.8	36.8
NO(ppb) Average	707	8.2	16.9	-	0	0	0.1	0.9	7.6	24.6	116.9
NOX(ppb) Average	707	22.05	22.1	-	0	4.3	9	15	27.5	48.4	145
PM2.5(ug/m3) Average	742	5.9	4.5	-	0.3	2.5	3.3	4.4	7.2	11.5	33.3
Temperature 2 m (C) Average	744	-18.79	12.9	-	-45	-39	-26.8	-18.6	-10.5	-1.4	11.8
Relative Humidity (%) Average	744	78.21	9	-	42.2	66.8	72.9	78.1	82.4	92.1	97.5
Wind Speed 10 m (km/h) Average	712	5.5	4	-	0	1	2	5	8	10	20
Wind Direction 10 m (deg) Average	712	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)  
JANUARY 2024

OPERATIONAL NOTES

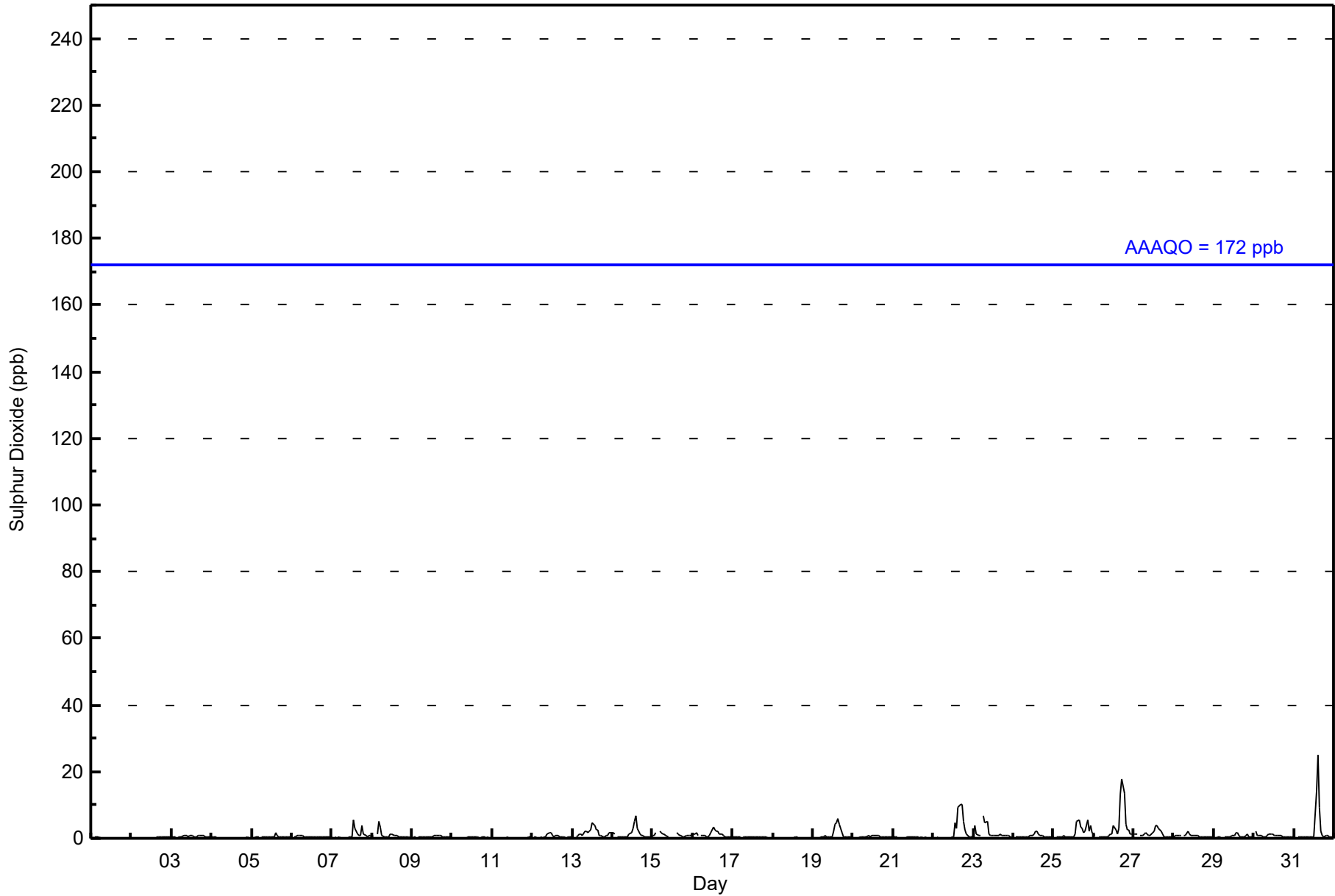
Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	10 Jan 2024 07:00	10 Jan 2024 09:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Jan 2024 18:00	10 Jan 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 05:00	11 Jan 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 08:00	11 Jan 2024 09:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 17:00	11 Jan 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 20:00	11 Jan 2024 20:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 22:00	11 Jan 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 00:00	12 Jan 2024 03:00	4	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 05:00	12 Jan 2024 06:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 18:00	12 Jan 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 04:00	13 Jan 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 18:00	13 Jan 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 20:00	13 Jan 2024 20:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 22:00	13 Jan 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 01:00	14 Jan 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 05:00	14 Jan 2024 06:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 08:00	14 Jan 2024 10:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	15 Jan 2024 00:00	15 Jan 2024 00:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	16 Jan 2024 07:00	16 Jan 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	17 Jan 2024 08:00	17 Jan 2024 08:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	26 Jan 2024 07:00	26 Jan 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	26 Jan 2024 09:00	26 Jan 2024 09:00	1	Flat line in sensor output signal





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	704	99.29	99.29
11 - 20	4	0.56	99.86
21 - 60	1	0.14	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - January 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	155	74	16	5	2	7	14	57	86	38	34	74	25	19	31	36	673
11 - 20	0	0	0	0	0	0	1	2	1	0	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>	155	74	16	5	2	7	15	60	87	38	34	74	25	19	31	36	678

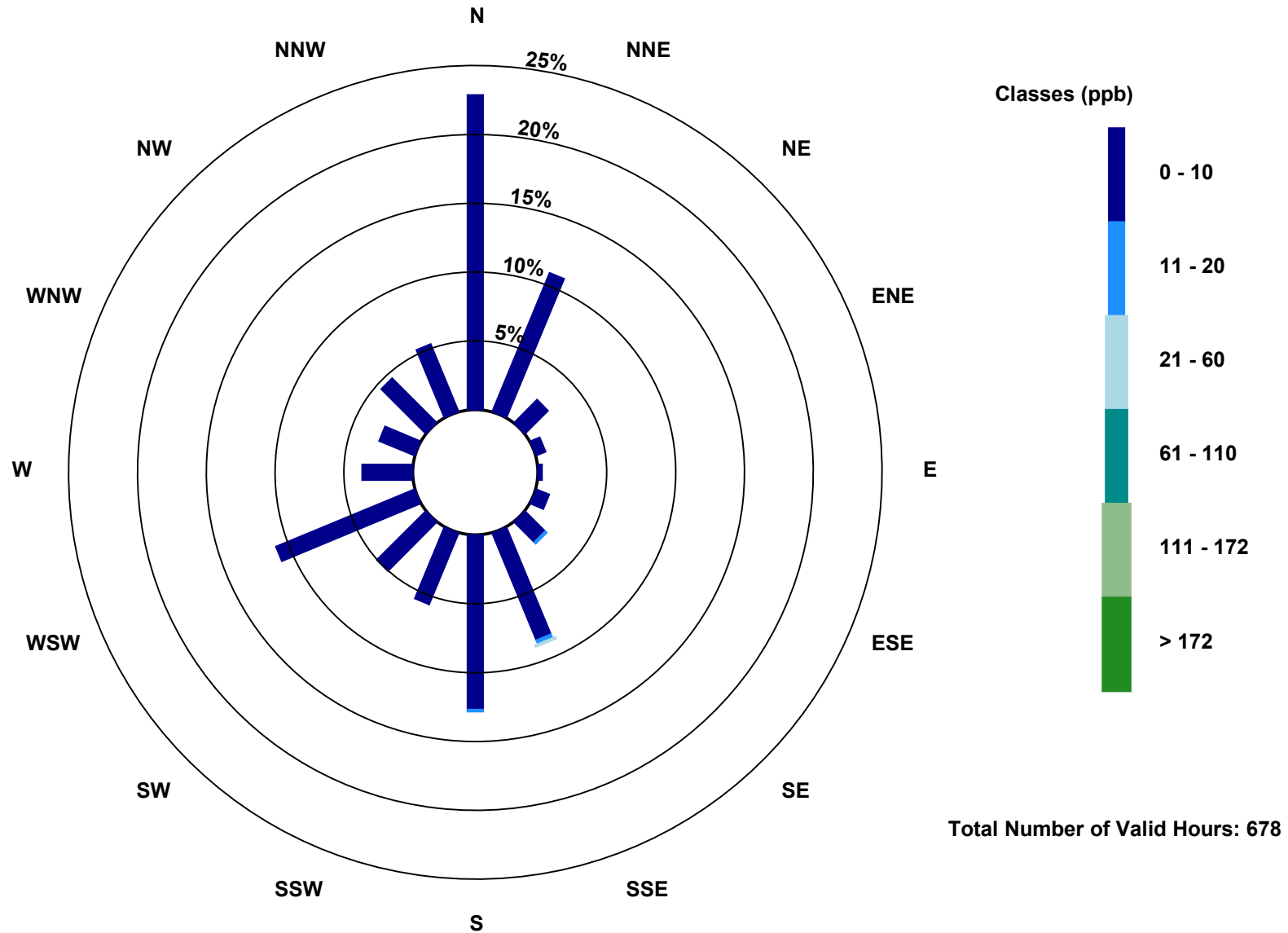
Total Number of Valid Hours: 678

Total Number of Hours: 744

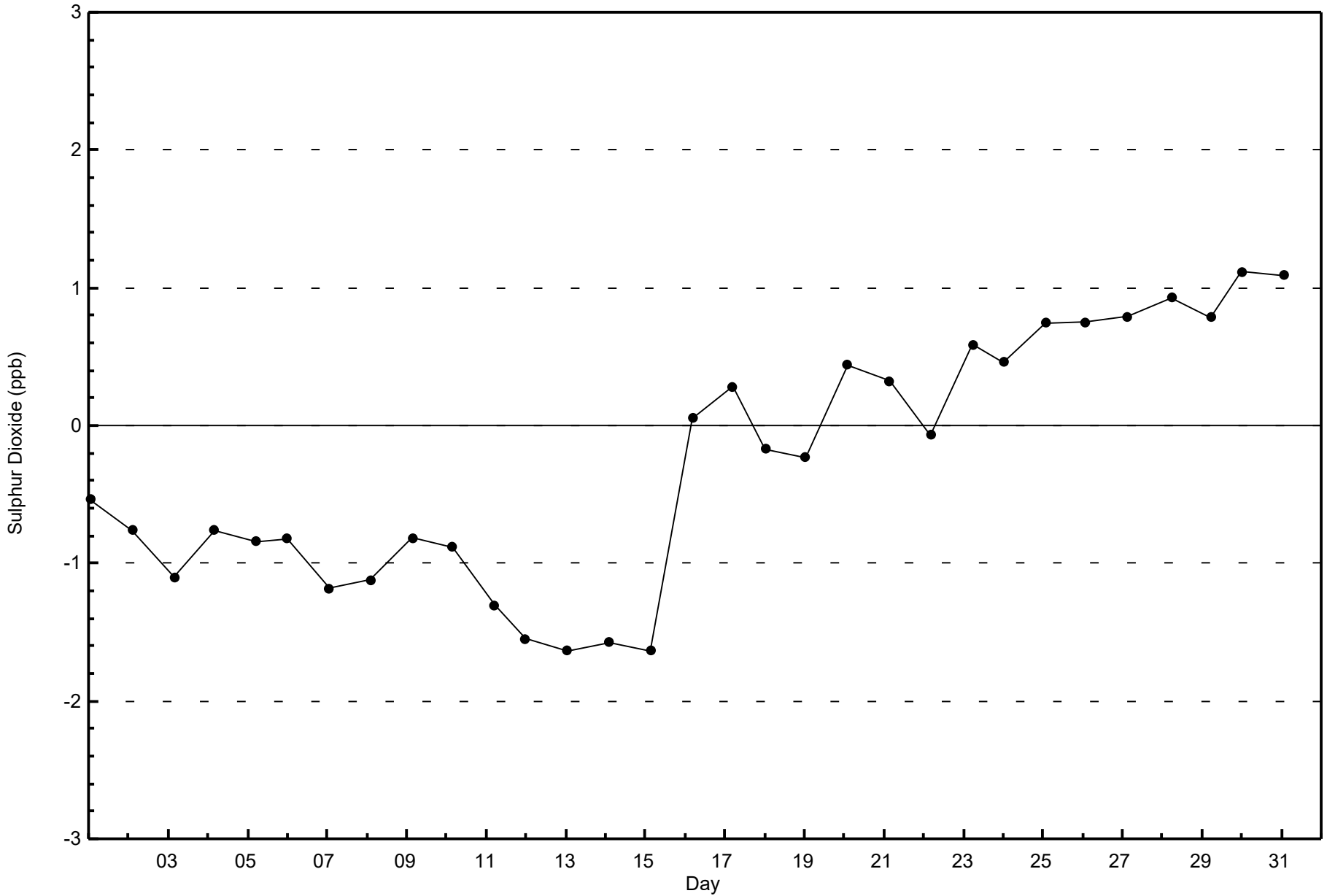


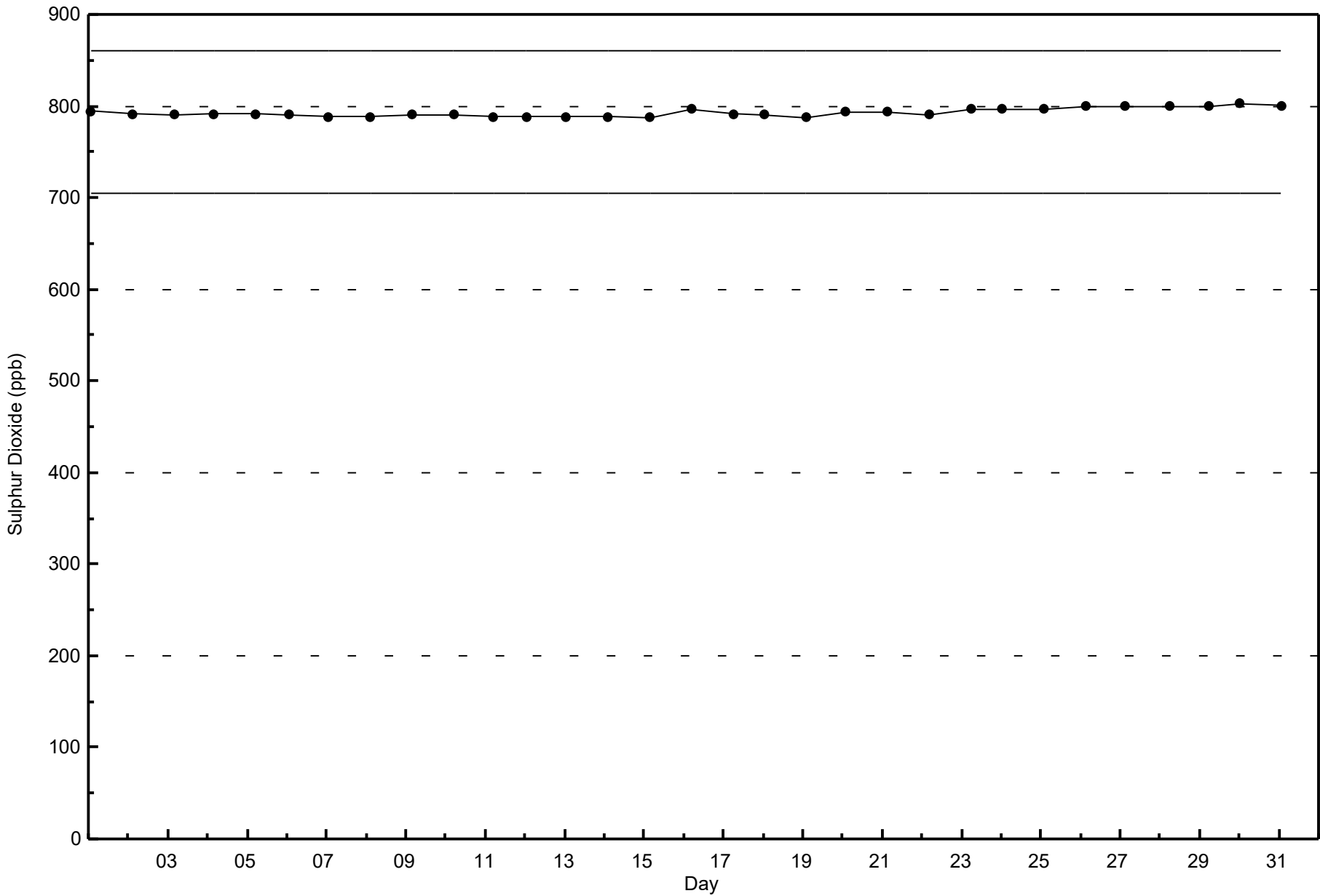
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











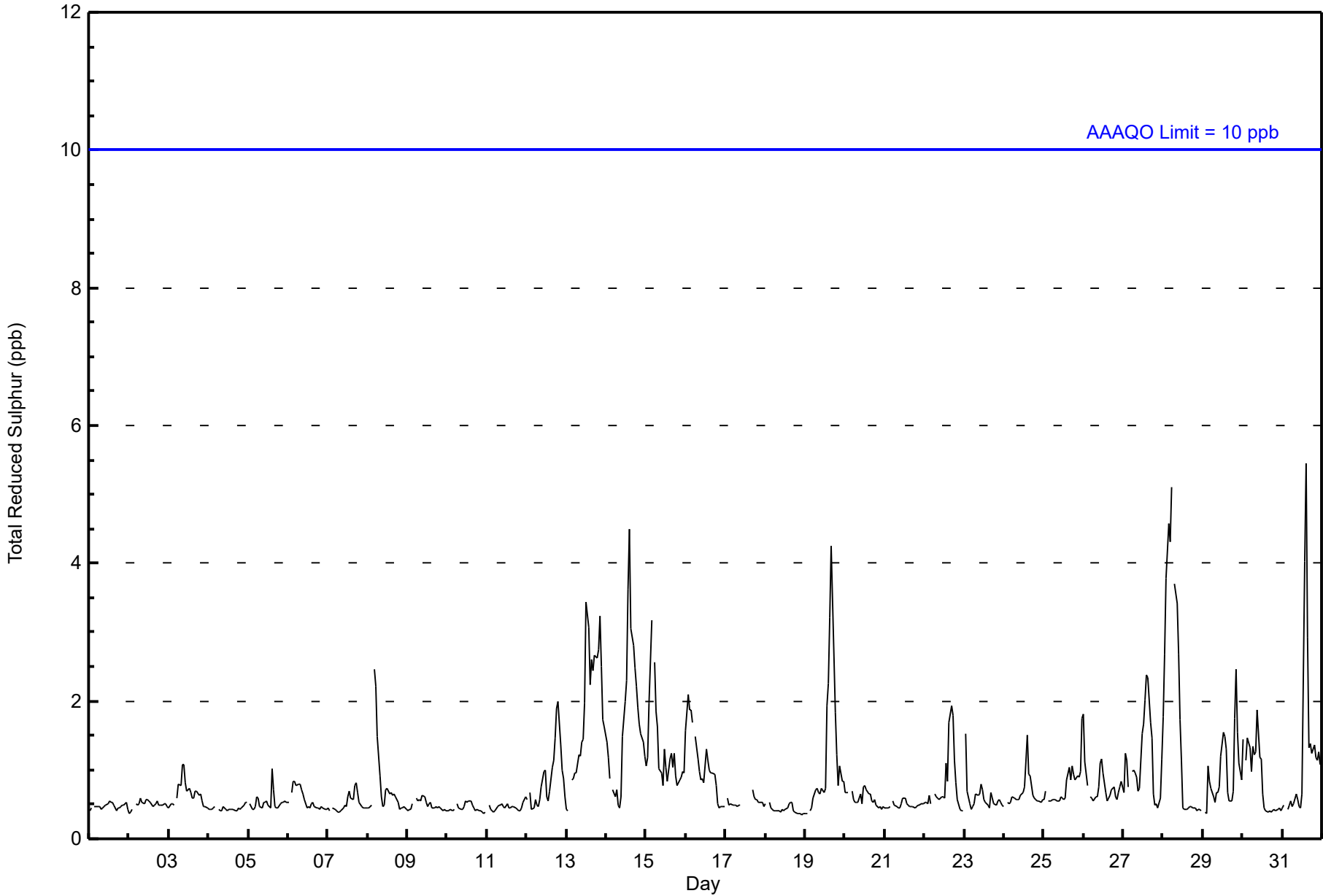
Summary of Hour Averages

Fort McKay South - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service: 744
Maximum Value: 5.5 ppb on Jan 31 15:00	Maximum Daily Average: 1.9 ppb on Jan 13		
Minimum Value: 0.4 ppb on Jan 18 23:00	Minimum Daily Average: 0.4 ppb on Jan 18		Hours of Missing Data: 37
Maximum Diurnal Average: 1.1 ppb at hour 15	Minimum Diurnal Average: 0.7 ppb at hour 23		Hours of Calibration: 37
Monthly Average: 0.82 ppb	Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 0.6 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 1.5 P <sub>99</sub> = 3.8		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-Jan	0.4	0.4	Z	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	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5																							
2-Jan	0.4	0.4	0.4	Z	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																							
3-Jan	0.5	0.5	0.5	0.5	Z	0.6	0.8	0.8	1.1	1.1	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5																							
4-Jan	0.4	0.4	0.4	0.4	0.5	Z	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5																							
5-Jan	Z	0.5	0.4	0.4	0.5	0.6	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.4	1.0	0.7	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5																							
6-Jan	0.5	Z	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.6																							
7-Jan	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.6	0.6	0.8	0.8	0.7	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5																							
8-Jan	0.5	0.5	0.5	Z	2.5	2.2	1.5	0.9	0.6	0.5	0.5	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.8																							
9-Jan	0.4	0.4	0.4	0.5	Z	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5																							
10-Jan	0.4	0.4	0.4	0.4	0.4	Z	0.5	0.4	0.4	0.4	0.5	0.5	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																							
11-Jan	Z	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.6	0.5																							
12-Jan	0.6	Z	0.7	0.4	0.5	0.6	0.5	0.5	0.6	0.8	1.0	1.0	0.6	0.6	0.7	1.0	1.1	1.5	1.9	2.0	1.4	1.0	0.9	0.6	0.6	0.6	0.9																							
13-Jan	0.4	0.4	Z	0.8	0.9	1.0	1.0	1.2	1.2	1.4	1.4	2.0	3.4	3.1	2.2	2.6	2.4	2.7	2.6	2.8	3.2	2.5	1.7	1.6	1.6	1.6	1.9																							
14-Jan	1.4	1.2	0.9	Z	0.7	0.6	0.7	0.5	0.4	0.6	1.5	2.0	2.3	3.6	4.5	3.1	2.8	2.5	2.2	1.9	1.7	1.5	1.4	1.2	1.2	1.2	1.7																							
15-Jan	1.1	1.2	2.0	3.2	Z	2.6	1.8	1.6	1.0	1.0	0.8	1.3	1.0	0.8	1.2	1.2	1.0	1.2	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.3																							
16-Jan	1.6	2.1	1.9	1.9	1.7	Z	1.5	1.2	1.0	0.9	0.9	0.8	1.3	1.1	1.0	1.0	0.9	0.9	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1																							
17-Jan	Z	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	C	C	C	C	C	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.7																							
18-Jan	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	0.5	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																						
19-Jan	0.4	0.4	Z	0.4	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.9	2.3	3.2	4.2	2.6	1.8	1.2	0.8	1.1	0.8	0.8	0.8	0.8	1.2																							
20-Jan	0.7	0.7	0.7	Z	0.7	0.6	0.5	0.5	0.5	0.5	0.7	0.5	0.7	0.8	0.7	0.6	0.7	0.6	0.5	0.6	0.5	0.5	0.4	0.5	0.5	0.5	0.6																							
21-Jan	0.5	0.4	0.4	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																							
22-Jan	0.5	0.5	0.5	0.6	0.5	Z	0.7	0.6	0.6	0.6	0.6	0.6	0.6	1.1	0.8	1.7	1.9	1.8	1.1	0.8	0.6	0.4	0.4	0.4	0.4	0.4	0.8																							
23-Jan	Z	1.5	0.7	0.5	0.4	0.5	0.5	0.6	0.6	0.7	0.8	0.7	0.6	0.5	0.5	0.4	0.7	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.6																							
24-Jan	0.5	Z	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	1.1	1.5	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.7																							
25-Jan	0.6	0.7	Z	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.8	1.0	0.9	1.1	0.9	0.9	0.9	0.9	1.0	1.7	1.7	1.7	0.8																							
26-Jan	1.8	1.1	0.8	Z	0.6	0.6	0.6	0.6	0.6	0.6	0.8	1.1	1.2	1.0	0.7	0.6	0.6	0.6	0.7	0.8	0.6	0.6	0.7	0.8	0.8	0.8	0.8																							
27-Jan	0.7	1.2	1.1	0.8	Z	1.0	1.0	1.0	0.9	0.7	0.7	1.5	1.7	2.0	2.4	2.3	1.7	1.5	0.6	0.5	0.5	0.5	0.6	1.2	1.2	1.2	1.1																							
28-Jan	1.8	2.7	3.8	4.6	4.3	5.1	Z	3.7	3.4	2.7	1.7	1.1	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	1.7																							
29-Jan	Z	0.4	0.4	1.1	0.8	0.7	0.6	0.5	0.7	0.7	0.7	1.2	1.5	1.5	1.3	0.7	0.5	0.5	0.7	1.7	2.5	1.5	1.1	0.9	0.9	1.0	2.5																							
30-Jan	1.4	Z	1.1	1.5	1.3	1.0	1.4	1.2	1.3	1.9	1.2	1.2	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	0.9																							
31-Jan	0.5	0.5	Z	0.4	0.5	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.6	4.0	5.5	2.9	1.3	1.4	1.2	1.4	1.2	1.1	1.3	1.1	1.1	1.1	1.2																							
																								0.7	0.8	0.8	0.9	0.8	0.9	0.7	0.8	0.7	0.7	0.7	0.8	0.9	1.0	1.1	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	
																								1.8	2.7	3.8	4.6	4.3	5.1	1.8	3.7	3.4	2.7	1.7	2.0	3.4	4.0	5.5	3.2	4.2	2.7	2.6	2.8	3.2	2.5	1.7	1.7	1.7	1.7	1.7

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**  
**Fort McKay South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	680	96.18	96.18
3 - 4	24	3.39	99.58
5 - 7	3	0.42	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay South - January 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	153	71	15	4	2	7	11	55	82	32	35	71	26	18	32	37	651
3 - 4	0	0	0	1	0	0	4	4	6	4	1	1	0	1	0	0	22
5 - 7	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
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>	153	71	15	5	2	7	15	60	90	36	36	72	26	19	32	37	676

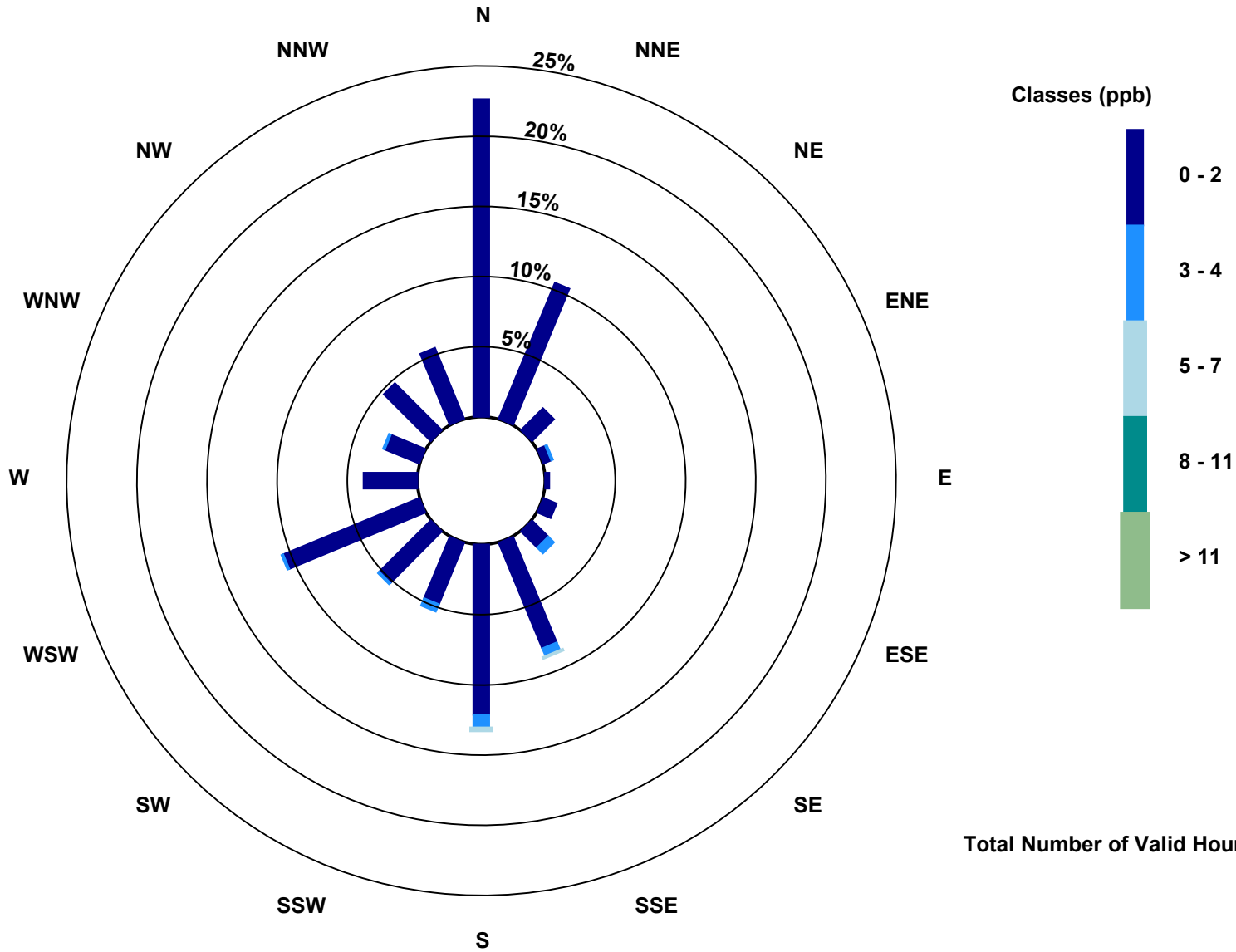
Total Number of Valid Hours: 676

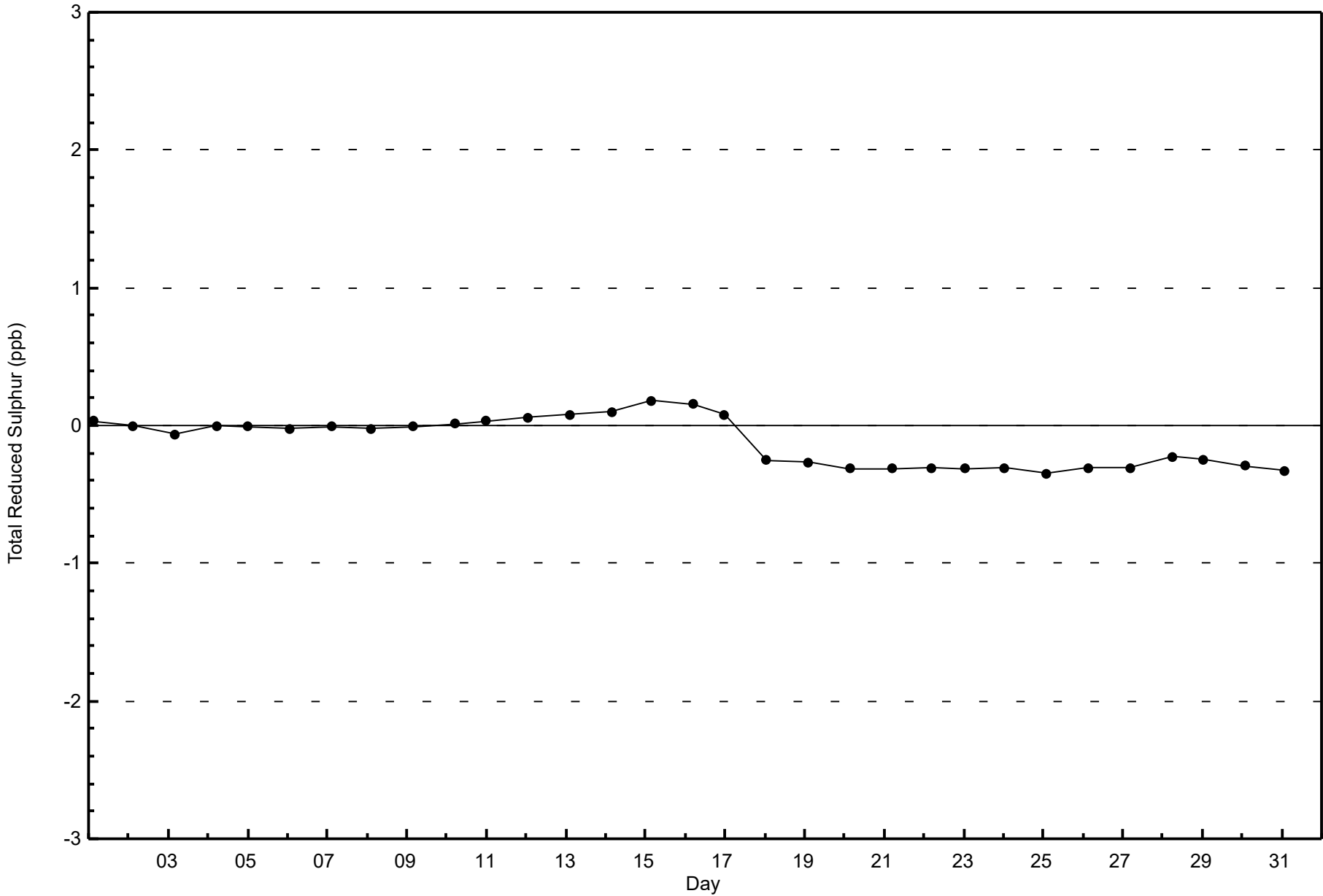
Total Number of Hours: 744



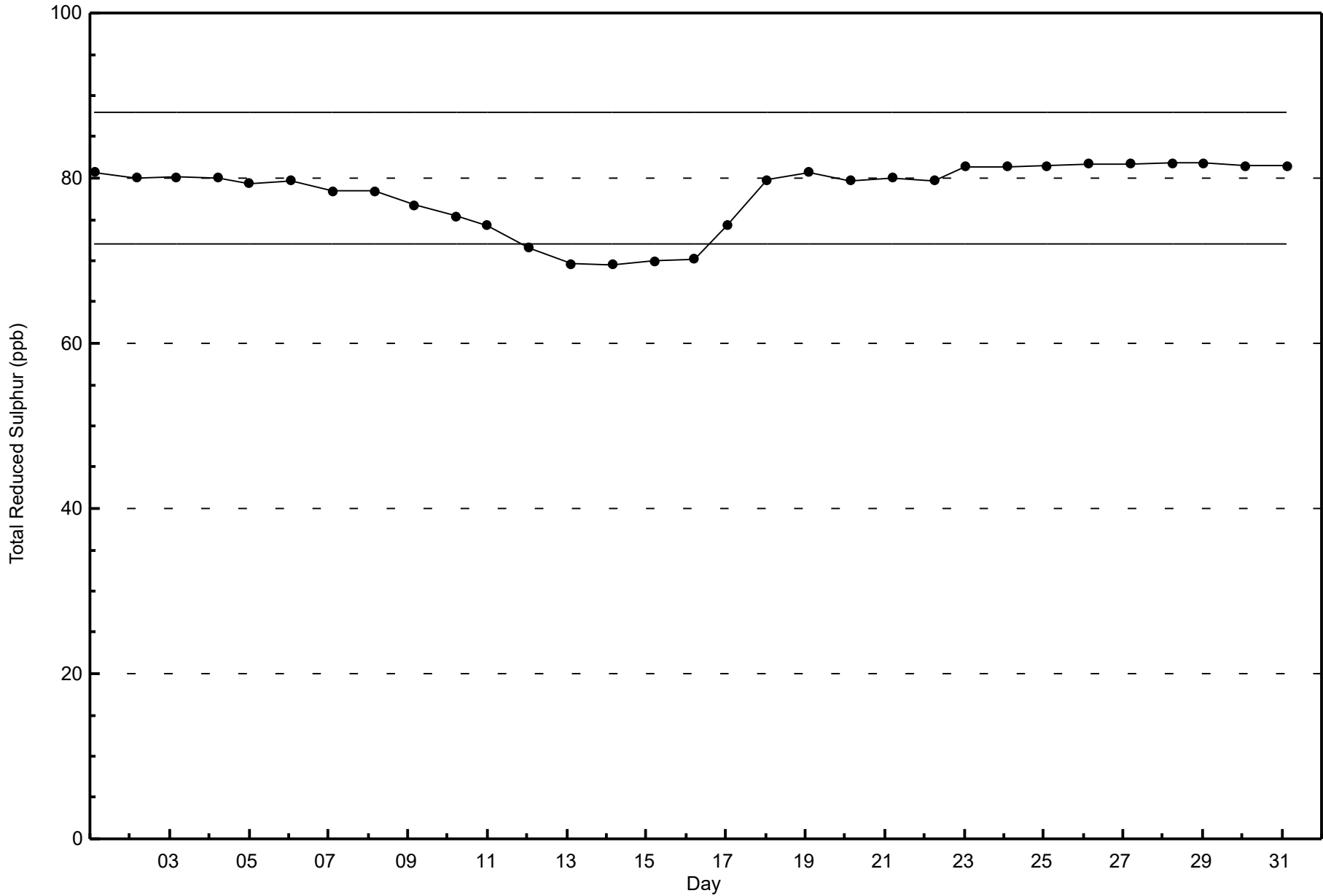
**Wood Buffalo Environmental Association**  
**Wind Rose Jan 2024**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort McKay South**











Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

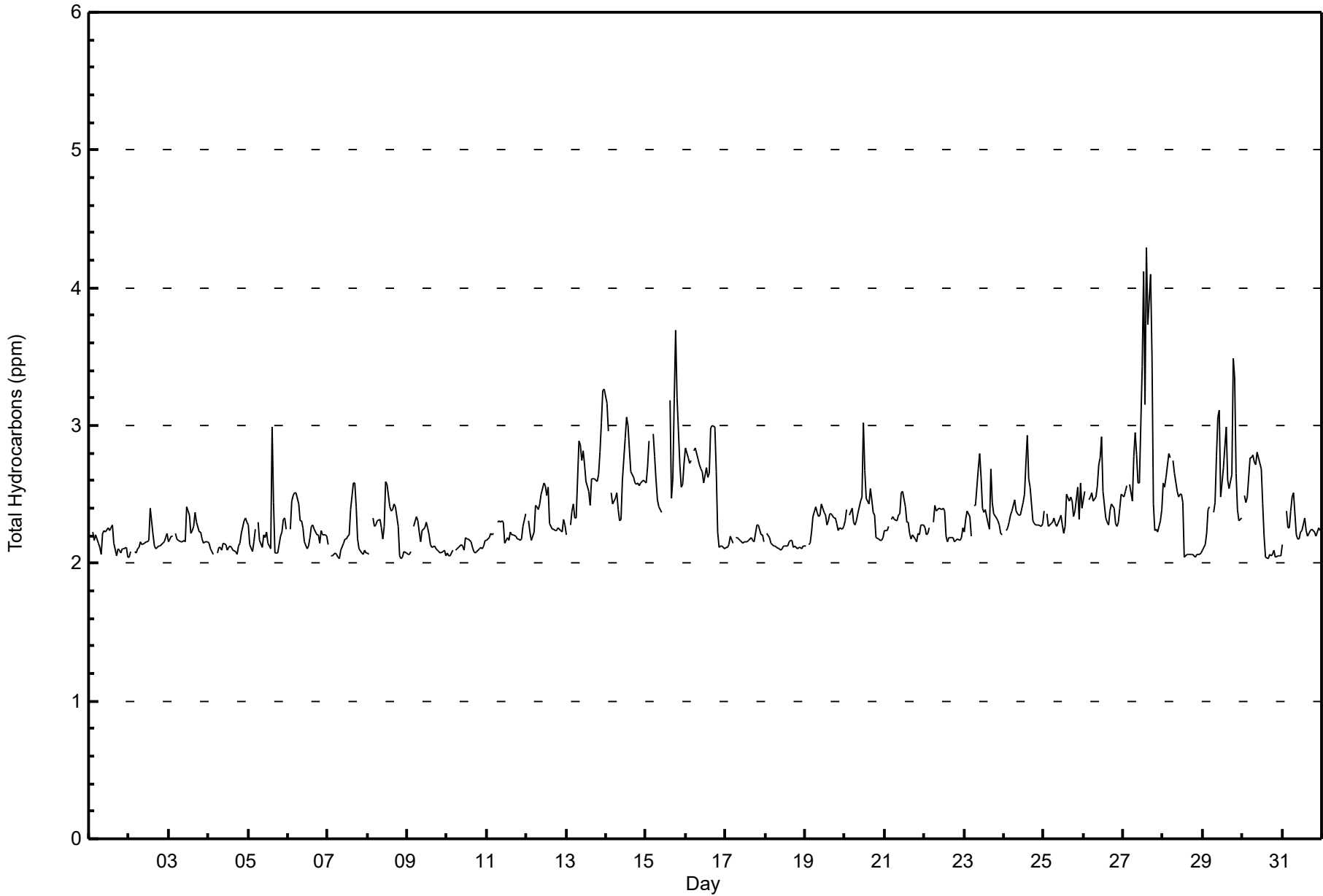
Fort McKay South - January 2024

Maximum Value: 4.3 ppm on Jan 27 15:00																						Maximum Daily Average: 2.9 ppm on Jan 27																						Hours in Service: 744	
Minimum Value: 2.0 ppm on Jan 8 21:00																						Minimum Daily Average: 2.1 ppm on Jan 10																						Hours of Data: 709	
Maximum Diurnal Average: 2.4 ppm at hour 15																						Minimum Diurnal Average: 2.2 ppm at hour 22																						Hours of Missing Data: 35	
Monthly Average: 2.35 ppm																						Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.2 Median = 2.3 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.4																						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-Jan	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.2	2.3																			
2-Jan	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.4																			
3-Jan	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.2	2.2	2.3	2.4	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.4																			
4-Jan	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	2.2	2.3	2.3	2.3	2.1	2.3																			
5-Jan	2.3	2.1	2.1	2.2	2.3	Z	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.1	3.0	2.4	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	3.0																			
6-Jan	Z	2.2	2.5	2.5	2.5	2.5	2.4	2.3	2.3	2.3	2.2	2.1	2.1	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5																			
7-Jan	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.6	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.6																			
8-Jan	2.1	2.1	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.3	2.1	2.0	2.0	2.1	2.1	2.3	2.6																			
9-Jan	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.2	2.2	2.2	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	2.1	2.2	2.3																			
10-Jan	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3																			
11-Jan	2.2	2.2	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.4																			
12-Jan	Z	2.3	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.6																			
13-Jan	2.2	Z	2.3	2.4	2.4	2.3	2.3	2.9	2.9	2.7	2.8	2.7	2.6	2.5	2.4	2.6	2.6	2.6	2.6	2.6	2.8	3.0	3.3	3.3	2.6	3.3																			
14-Jan	3.2	3.0	Z	2.5	2.4	2.5	2.5	2.4	2.3	2.3	2.6	2.9	3.1	3.0	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.2																			
15-Jan	2.6	2.7	2.9	Z	2.9	2.8	2.6	2.5	2.4	2.4	C	C	C	C	3.2	2.5	2.6	3.2	3.7	3.2	2.7	2.5	2.6	2.7	2.8	3.7																			
16-Jan	2.8	2.8	2.7	2.7	Z	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.7	2.6	2.7	3.0	3.0	3.0	2.7	2.2	2.1	2.1	2.1	2.1	2.6	3.0																			
17-Jan	2.1	2.1	2.1	2.2	2.1	Z	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	2.3	2.3	2.2	2.2	2.2	2.3																			
18-Jan	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	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																			
19-Jan	2.1	Z	2.1	2.1	2.2	2.3	2.4	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4																			
20-Jan	2.3	2.4	Z	2.3	2.4	2.3	2.3	2.3	2.4	2.5	3.0	2.7	2.5	2.4	2.5	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.0																			
21-Jan	2.2	2.2	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5																			
22-Jan	2.3	2.2	2.2	2.3	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4																			
23-Jan	2.2	2.3	2.4	2.3	2.2	Z	2.4	2.4	2.7	2.8	2.6	2.4	2.4	2.4	2.3	2.2	2.7	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.4	2.8																			
24-Jan	Z	2.2	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.5	2.7	2.9	2.6	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.9																			
25-Jan	2.4	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.5	2.4	2.5	2.5	2.3	2.4	2.6	2.3	2.6	2.4	2.4	2.6																			
26-Jan	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.8	2.9	2.5	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.5	2.5	2.9																			
27-Jan	2.5	2.5	2.6	Z	2.6	2.4	2.8	2.9	2.8	2.6	2.6	3.4	4.1	3.1	4.3	3.7	4.1	3.5	2.4	2.2	2.2	2.2	2.3	2.4	2.9	4.3																			
28-Jan	2.6	2.6	2.6	2.8	2.8	Z	2.7	2.7	2.5	2.5	2.5	2.5	2.4	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.8																			
29-Jan	2.1	2.1	2.2	2.4	2.4	Z	2.4	2.4	2.8	3.1	3.1	2.5	2.7	2.8	3.0	2.6	2.5	2.6	3.5	3.3	2.7	2.4	2.3	2.3	2.6	3.5																			
30-Jan	Z	2.5	2.4	2.5	2.8	2.8	2.8	2.7	2.7	2.8	2.7	2.7	2.4	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.4	2.8																			
31-Jan	2.1	Z	2.4	2.3	2.3	2.4	2.5	2.5	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	2.3	2.2	2.3	2.5																			
																						Diurnal Average		Diurnal Maximum																					
																						2.3		3.3																					
																						3.2		3.3																					
Z - zerospan																						C - Calibration																							



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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	12	1.69	1.69
2.1 - 3.0	678	95.63	97.32
3.1 - 10.0	19	2.68	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort McKay South - January 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	4	1	0	0	0	0	0	0	0	0	3	1	1	2	0	12
2.1 - 3.0	155	70	15	5	2	6	15	57	81	34	32	71	23	18	29	35	648
3.1 - 10.0	0	0	0	0	0	1	0	3	6	4	2	0	1	0	0	1	18
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	155	74	16	5	2	7	15	60	87	38	34	74	25	19	31	36	678

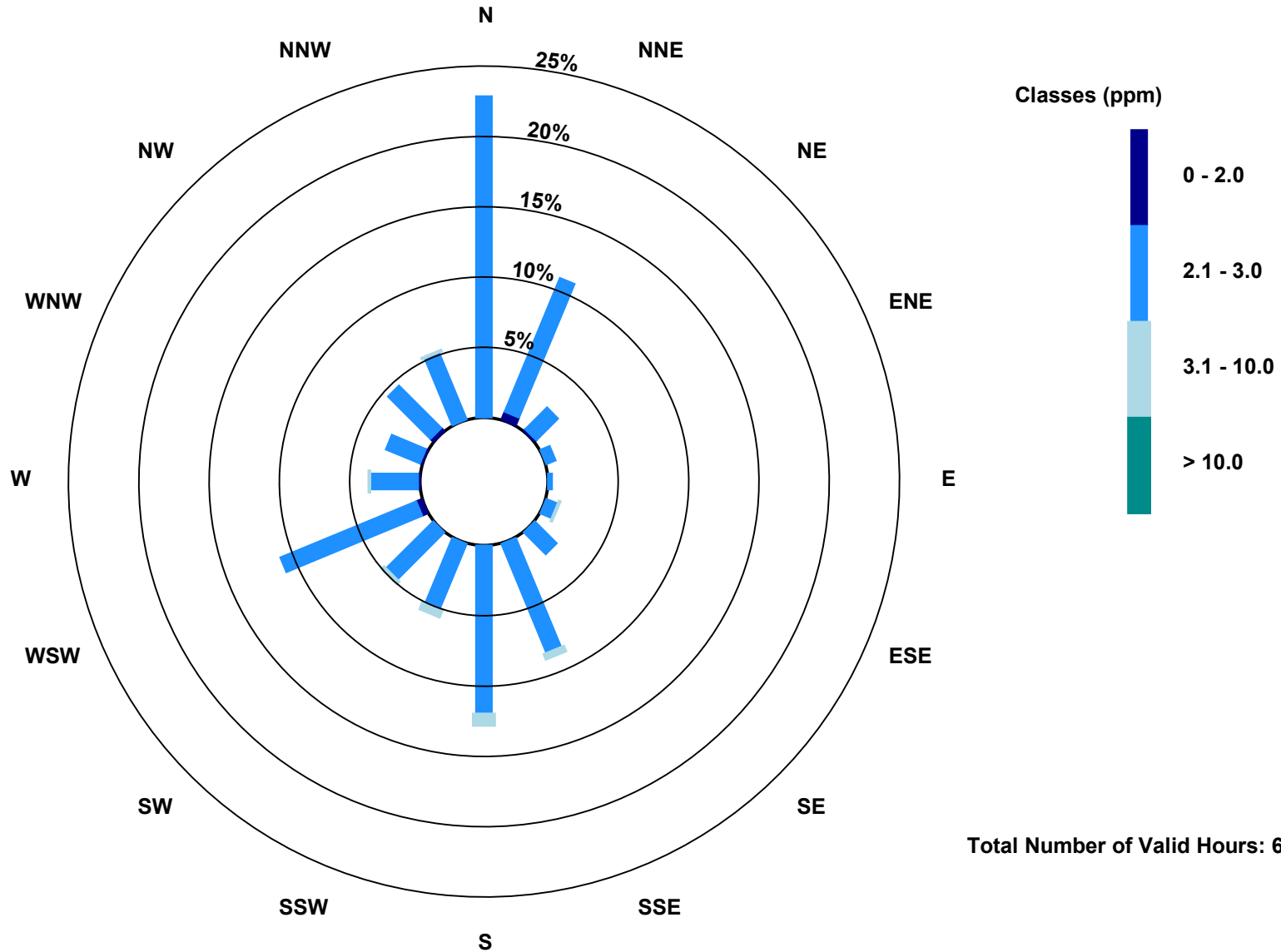
Total Number of Valid Hours: 678

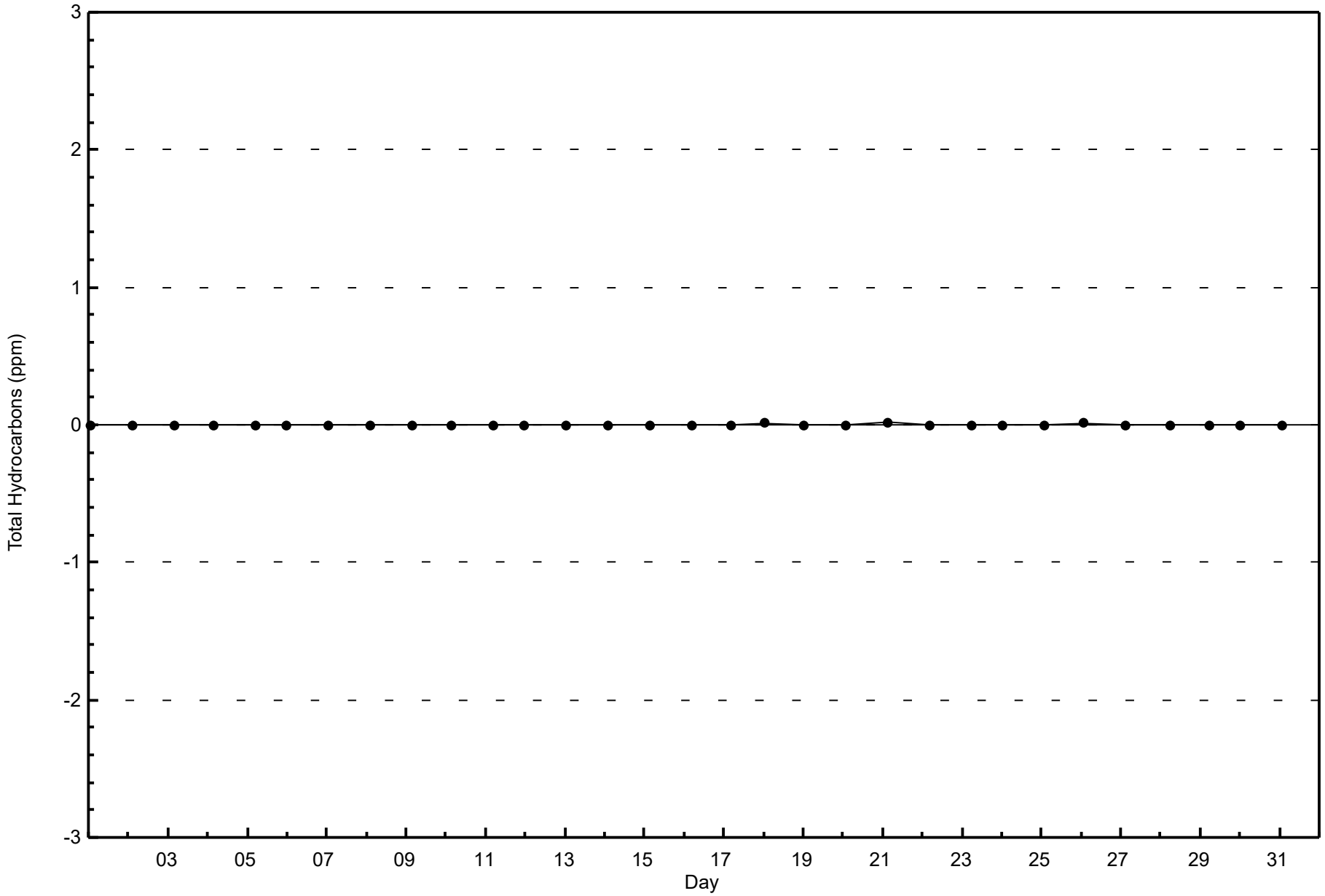
Total Number of Hours: 744

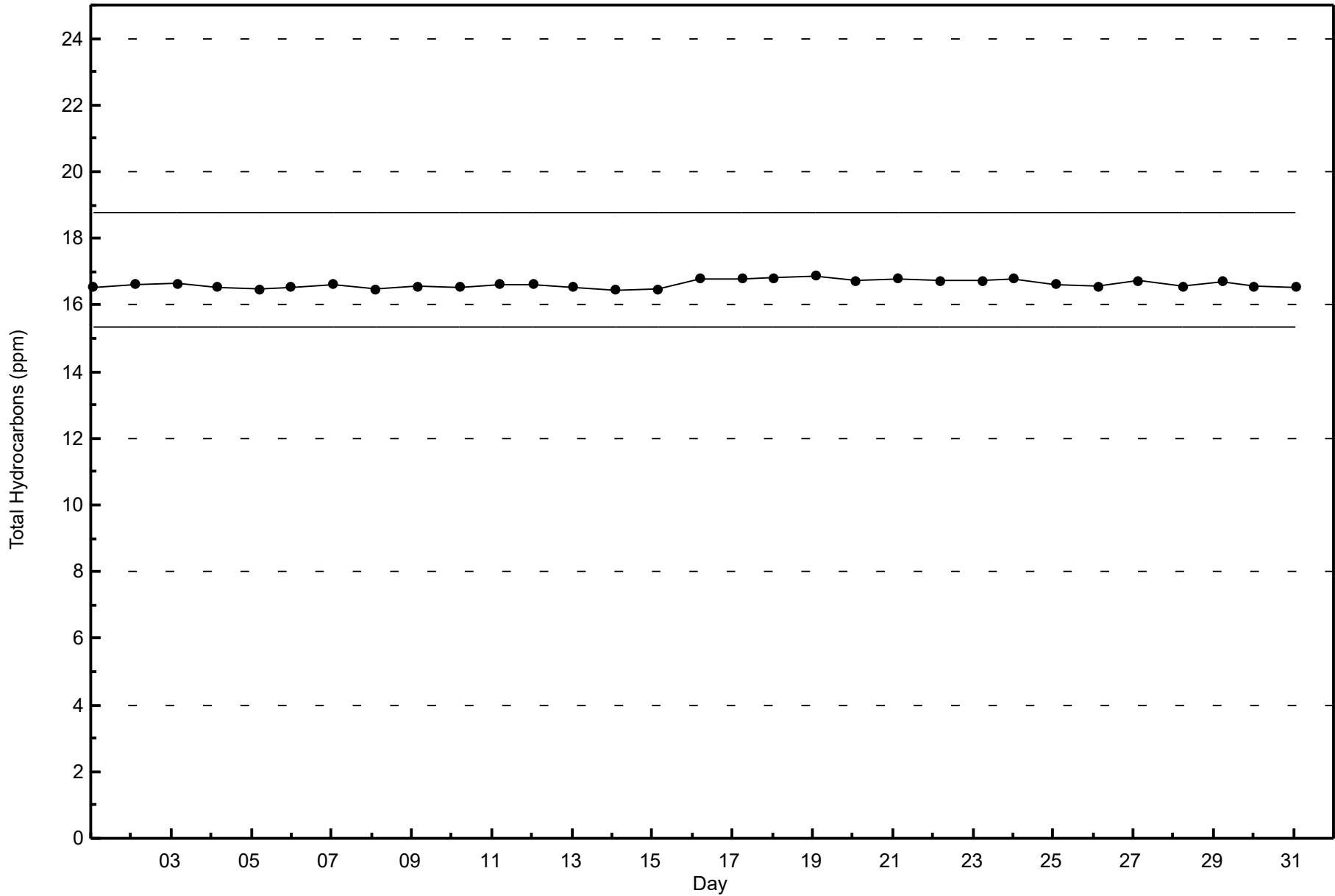


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Fort McKay South

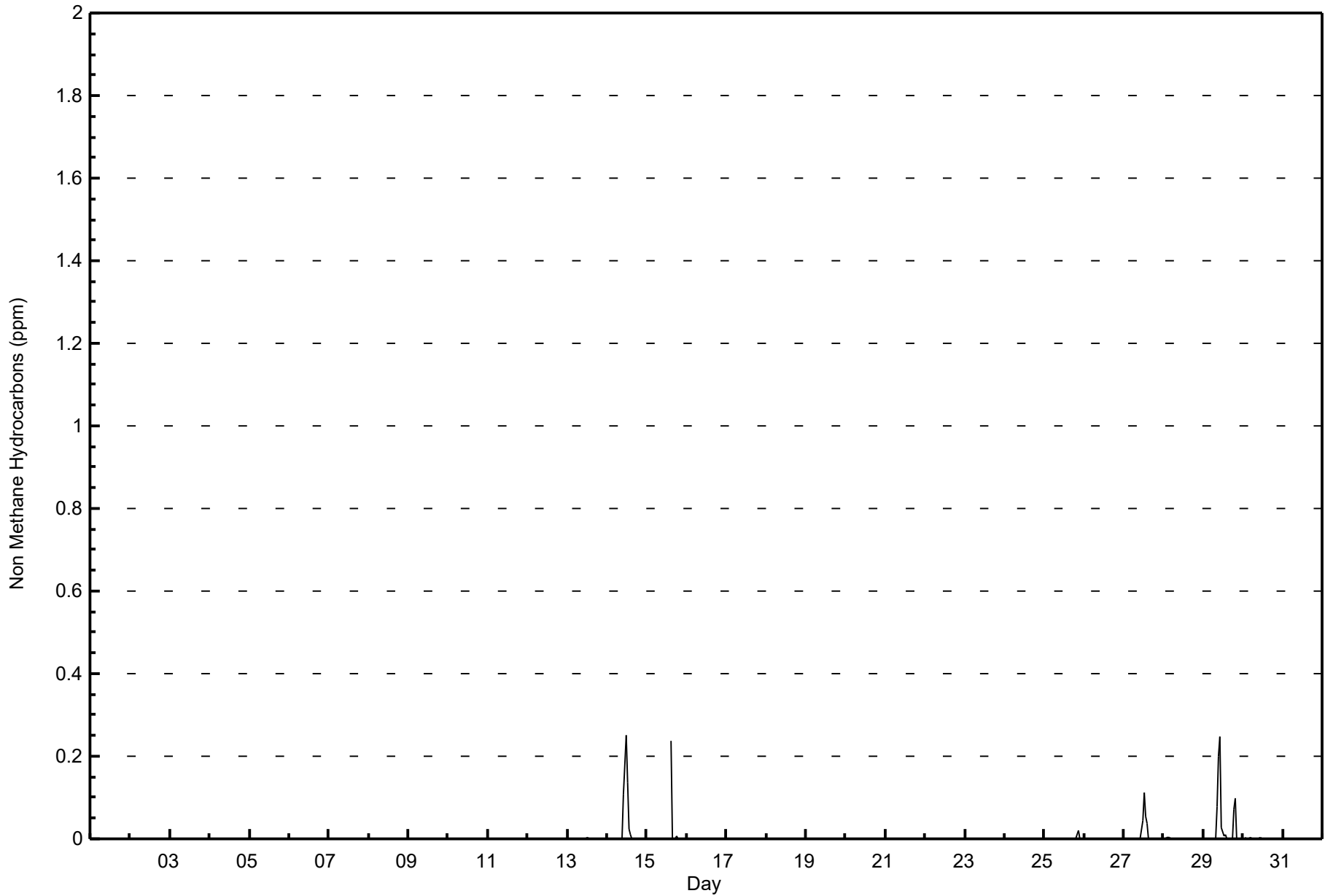














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	689	97.18	97.18
0.006 - 0.05	10	1.41	98.59
0.06 - 0.1	6	0.85	99.44
> 0.1	4	0.56	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort McKay South - January 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	155	73	16	5	2	5	14	55	82	34	33	73	25	19	31	36	658
0.006 - 0.05	0	1	0	0	0	0	1	2	3	2	0	1	0	0	0	0	10
0.06 - 0.1	0	0	0	0	0	1	0	2	2	1	0	0	0	0	0	0	6
> 0.1	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	4
<b>Totals</b>	155	74	16	5	2	7	15	60	87	38	34	74	25	19	31	36	678

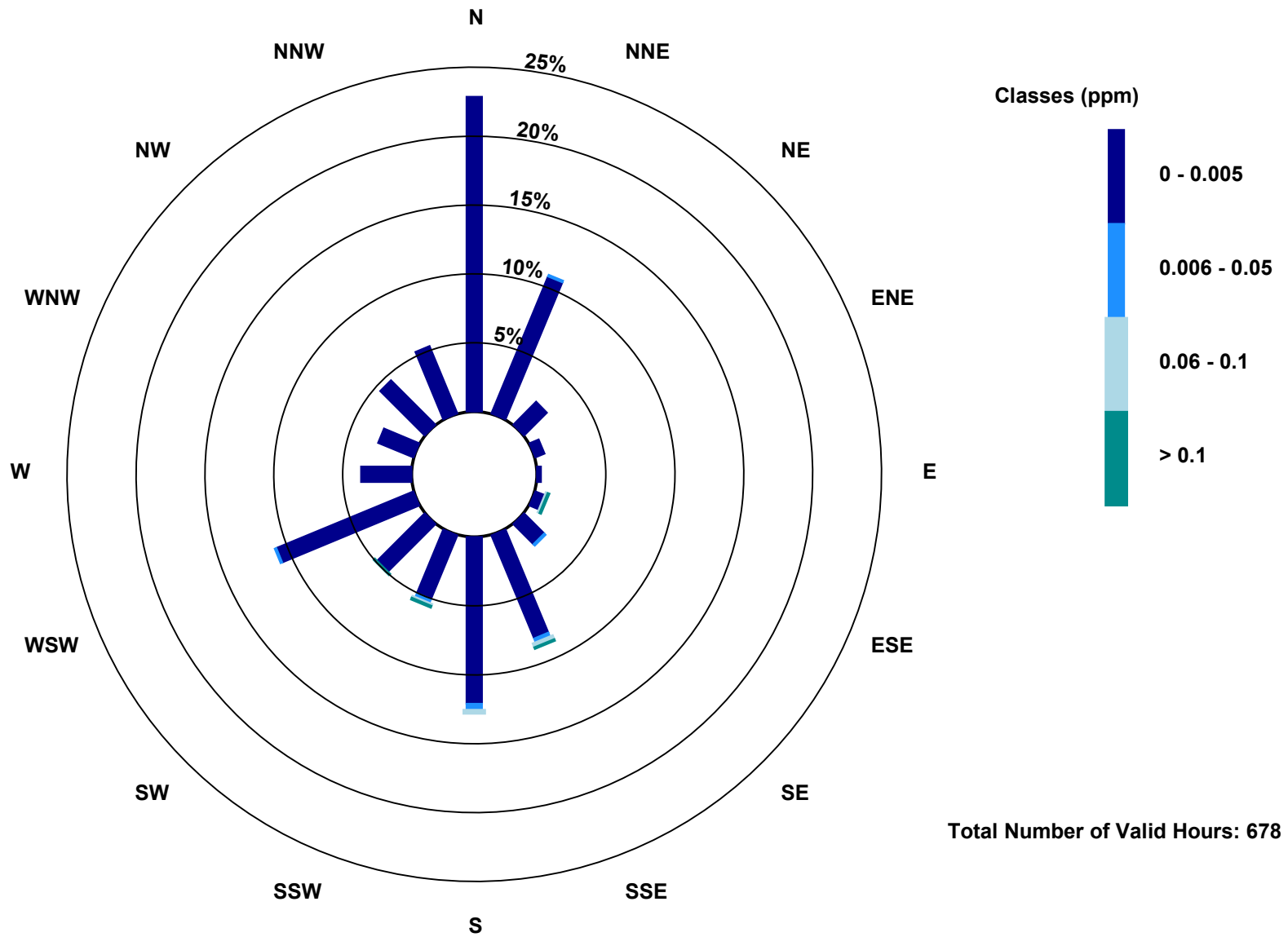
Total Number of Valid Hours: 678

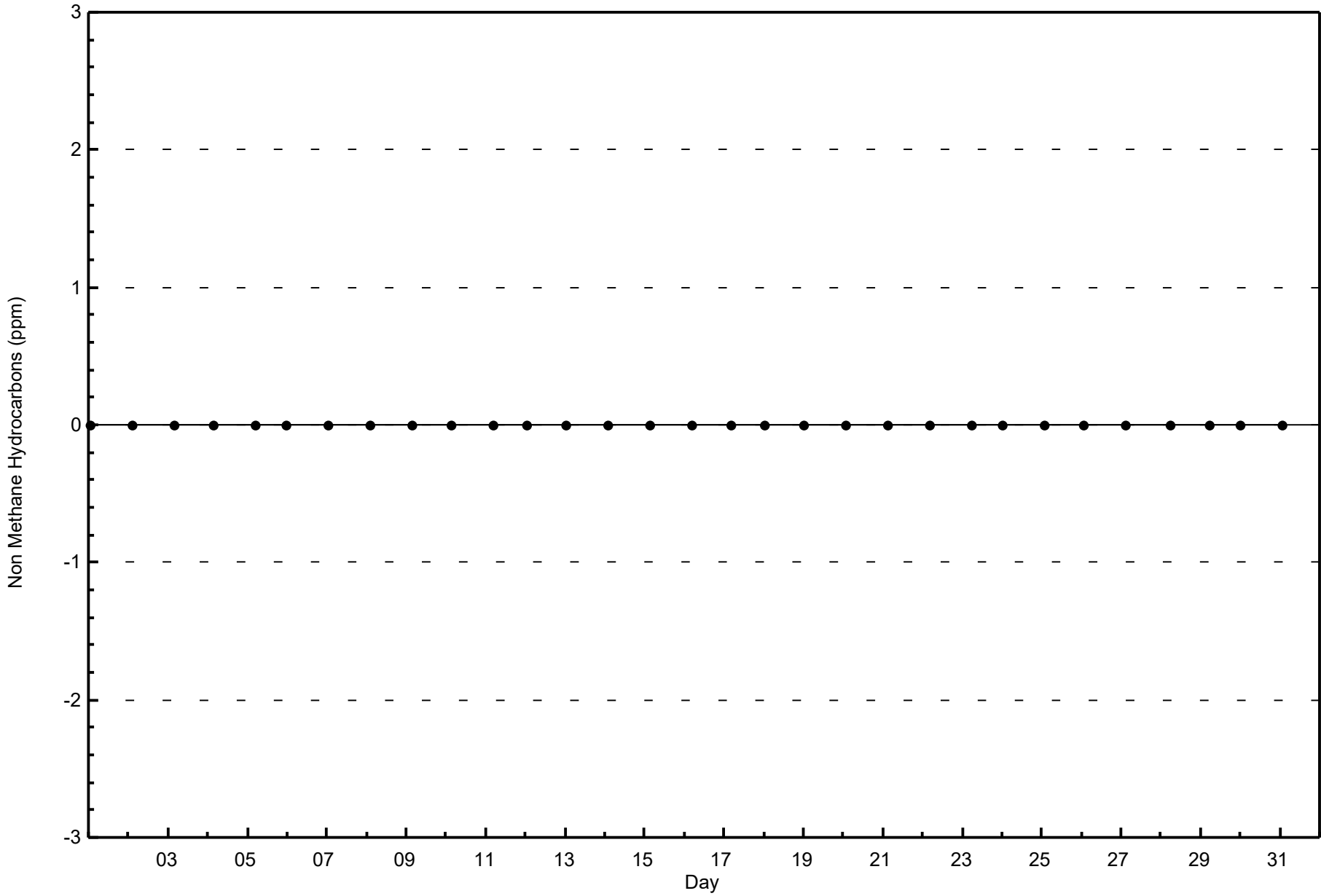
Total Number of Hours: 744

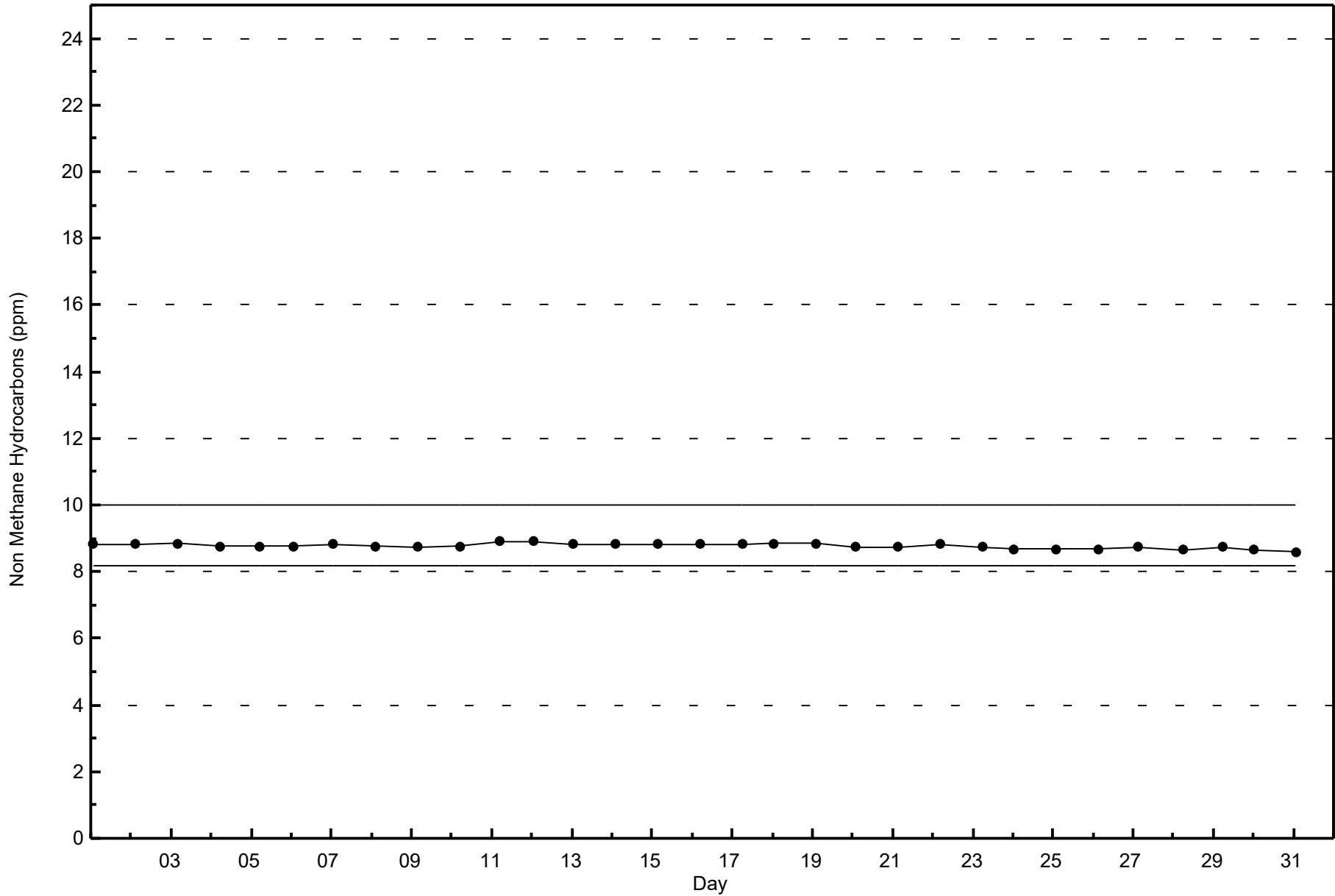


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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 - January 2024

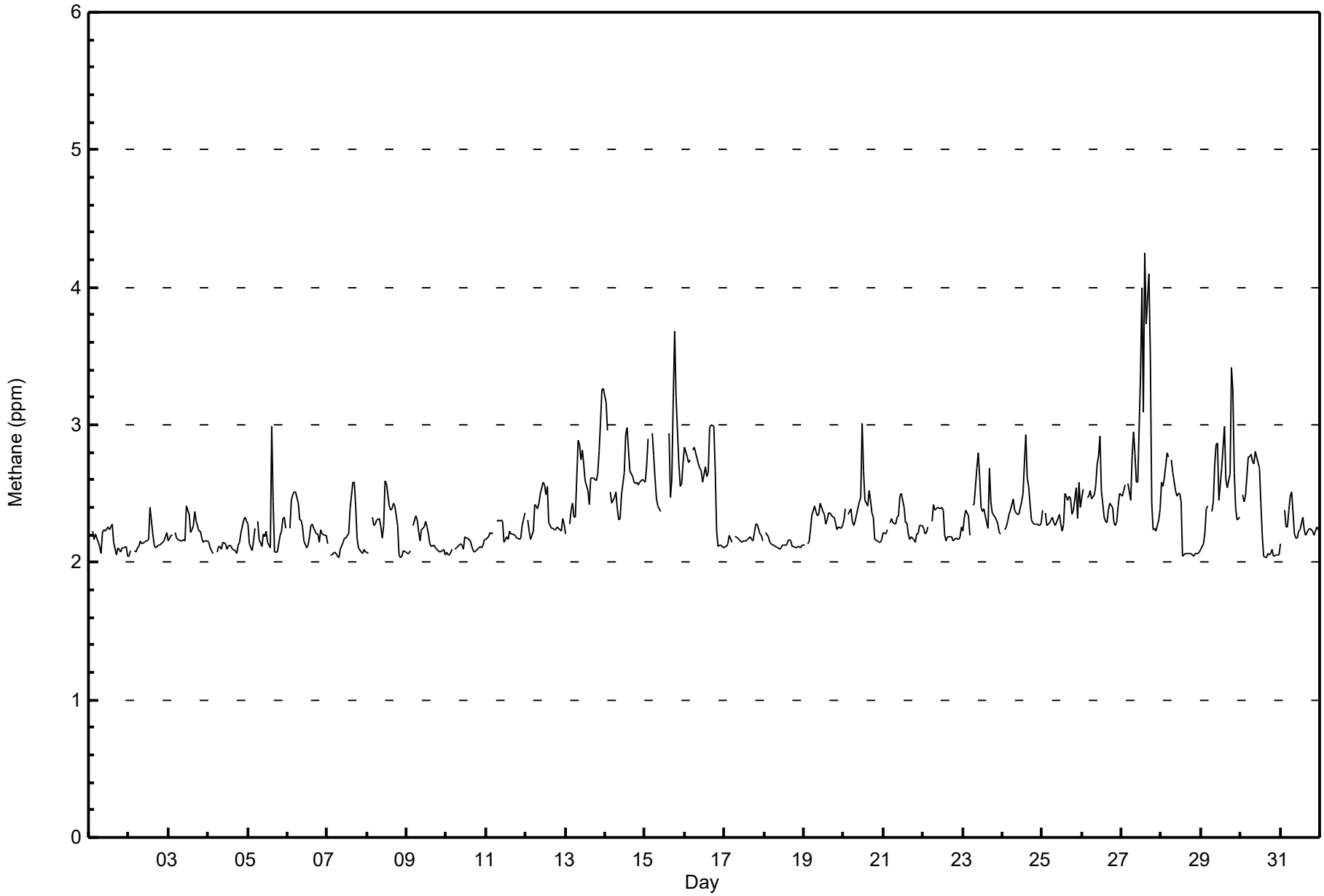
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 744																								
Maximum Value: 4.3 ppm on Jan 27 15:00		Maximum Daily Average: 2.9 ppm on Jan 27																								
Minimum Value: 2.0 ppm on Jan 8 21:00		Hours of Data: 709																								
Maximum Diurnal Average: 2.4 ppm at hour 15		Hours of Missing Data: 35																								
Monthly Average: 2.34 ppm		Hours of Calibration: 35																								
Minimum Daily Average: 2.1 ppm on Jan 10		Percent Operational Time: 100.0																								
Minimum Diurnal Average: 2.2 ppm at hour 22																										
Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.2 Median = 2.3 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.4																										
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-Jan	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.2	2.3
2-Jan	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.4
3-Jan	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.2	2.2	2.3	2.4	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.4
4-Jan	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	2.2	2.3	2.3	2.3	2.1	2.3
5-Jan	2.3	2.1	2.1	2.2	2.3	Z	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.1	3.0	2.4	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	3.0
6-Jan	Z	2.2	2.5	2.5	2.5	2.5	2.4	2.3	2.3	2.3	2.2	2.1	2.1	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5
7-Jan	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.6	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.6
8-Jan	2.1	2.1	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.3	2.1	2.0	2.0	2.1	2.1	2.3	2.6
9-Jan	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.2	2.2	2.2	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	2.1	2.2	2.3
10-Jan	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2
11-Jan	2.2	2.2	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.4
12-Jan	Z	2.3	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.6
13-Jan	2.2	Z	2.3	2.4	2.4	2.3	2.3	2.9	2.9	2.7	2.8	2.7	2.6	2.5	2.4	2.6	2.6	2.6	2.6	2.6	2.8	3.0	3.3	3.3	2.6	3.3
14-Jan	3.2	3.0	Z	2.5	2.4	2.5	2.5	2.4	2.3	2.3	2.5	2.7	2.9	3.0	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.2
15-Jan	2.6	2.7	2.9	Z	2.9	2.8	2.6	2.5	2.4	2.4	C	C	C	C	2.9	2.5	2.6	3.2	3.7	3.2	2.7	2.5	2.6	2.7	2.8	3.7
16-Jan	2.8	2.8	2.7	2.7	Z	2.8	2.8	2.7	2.7	2.7	2.6	2.7	2.6	2.7	3.0	3.0	3.0	3.0	2.7	2.2	2.1	2.1	2.1	2.1	2.6	3.0
17-Jan	2.1	2.1	2.1	2.2	2.1	Z	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	2.3	2.3	2.2	2.2	2.2	2.2	2.3
18-Jan	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	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
19-Jan	2.1	Z	2.1	2.1	2.2	2.3	2.4	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4
20-Jan	2.3	2.4	Z	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.5	3.0	2.7	2.5	2.4	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.2	2.4	3.0
21-Jan	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.5
22-Jan	2.3	2.2	2.2	2.3	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4
23-Jan	2.2	2.3	2.4	2.3	2.2	Z	2.4	2.4	2.7	2.8	2.6	2.4	2.4	2.4	2.3	2.2	2.7	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.4	2.8
24-Jan	Z	2.2	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.5	2.7	2.9	2.6	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.9
25-Jan	2.4	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.5	2.5	2.5	2.5	2.3	2.4	2.5	2.3	2.6	2.4	2.4	2.6
26-Jan	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.8	2.9	2.5	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.5	2.5	2.9
27-Jan	2.5	2.5	2.6	Z	2.6	2.4	2.8	2.9	2.8	2.6	2.6	3.4	4.0	3.1	4.3	3.7	4.1	3.5	2.4	2.2	2.2	2.2	2.3	2.4	2.9	4.3
28-Jan	2.6	2.6	2.6	2.8	2.8	Z	2.7	2.7	2.5	2.5	2.5	2.5	2.4	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.8
29-Jan	2.1	2.1	2.2	2.4	2.4	Z	2.4	2.4	2.7	2.9	2.9	2.5	2.7	2.8	3.0	2.6	2.5	2.6	3.4	3.2	2.7	2.4	2.3	2.3	2.6	3.4
30-Jan	Z	2.5	2.4	2.5	2.8	2.8	2.8	2.7	2.7	2.8	2.7	2.7	2.7	2.4	2.2	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.4	2.8
31-Jan	2.1	Z	2.4	2.3	2.3	2.4	2.5	2.5	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	2.3	2.2	2.3	2.5
																								Diurnal Average		
																								Diurnal Maximum		
2.3 2.3 2.3 2.3 2.3 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 2.3 2.3 2.3 2.2 2.3 2.3 2.3 2.3																										
3.2 3.0 2.9 2.8 2.9 2.8 2.8 2.9 2.9 2.9 2.9 3.4 4.0 3.1 4.3 3.7 4.1 3.5 3.7 3.2 2.8 3.0 3.3 3.3																										
Z - zerospan C - Calibration																										





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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - January 2024**





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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	12	1.69	1.69
2.1 - 3.0	682	96.19	97.88
3.1 - 10.0	15	2.12	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort McKay South - January 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	4	1	0	0	0	0	0	0	0	0	3	1	1	2	0	12
2.1 - 3.0	155	70	15	5	2	7	15	58	81	35	33	71	23	18	29	35	652
3.1 - 10.0	0	0	0	0	0	0	0	2	6	3	1	0	1	0	0	1	14
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	155	74	16	5	2	7	15	60	87	38	34	74	25	19	31	36	678

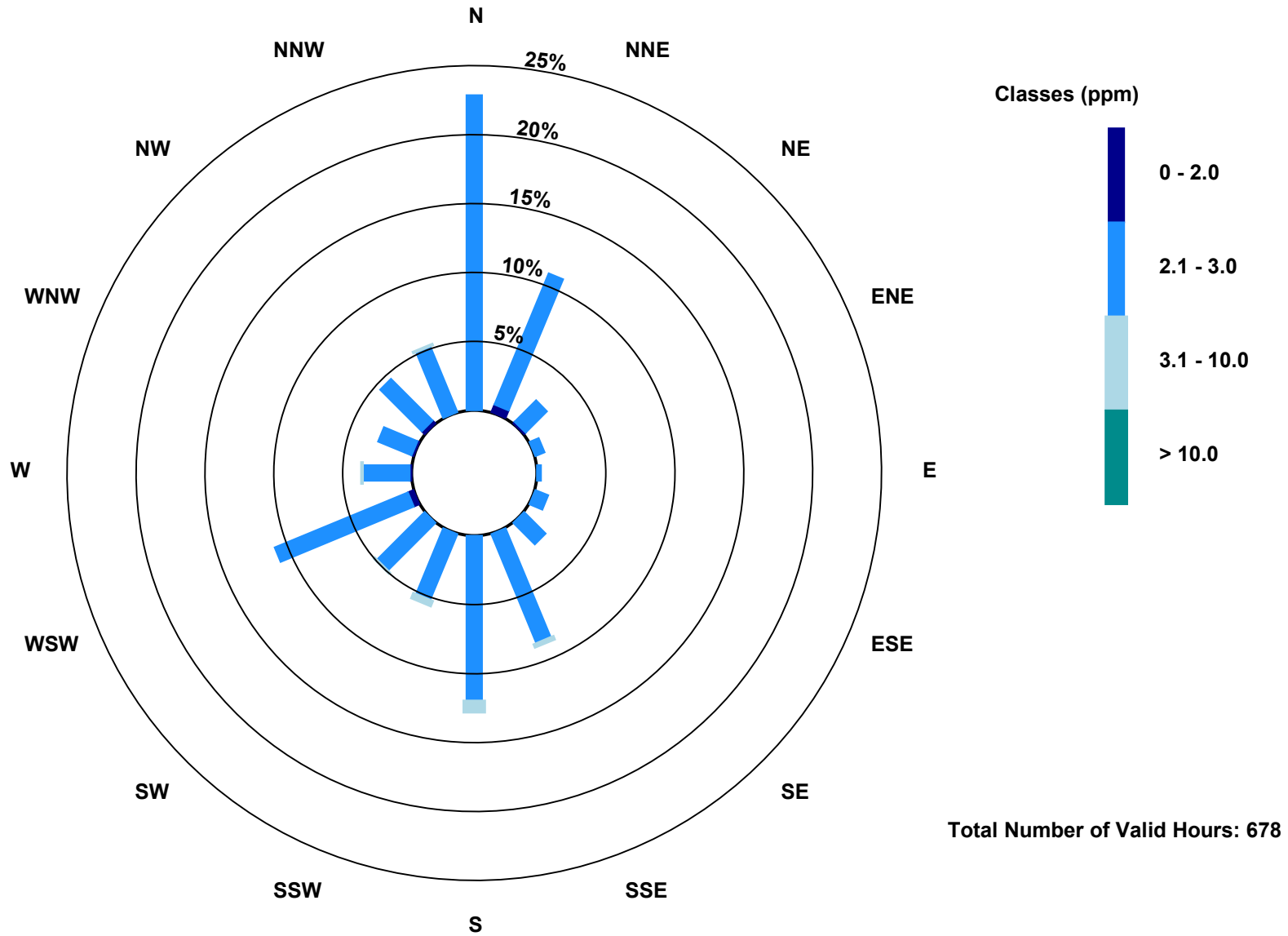
Total Number of Valid Hours: 678

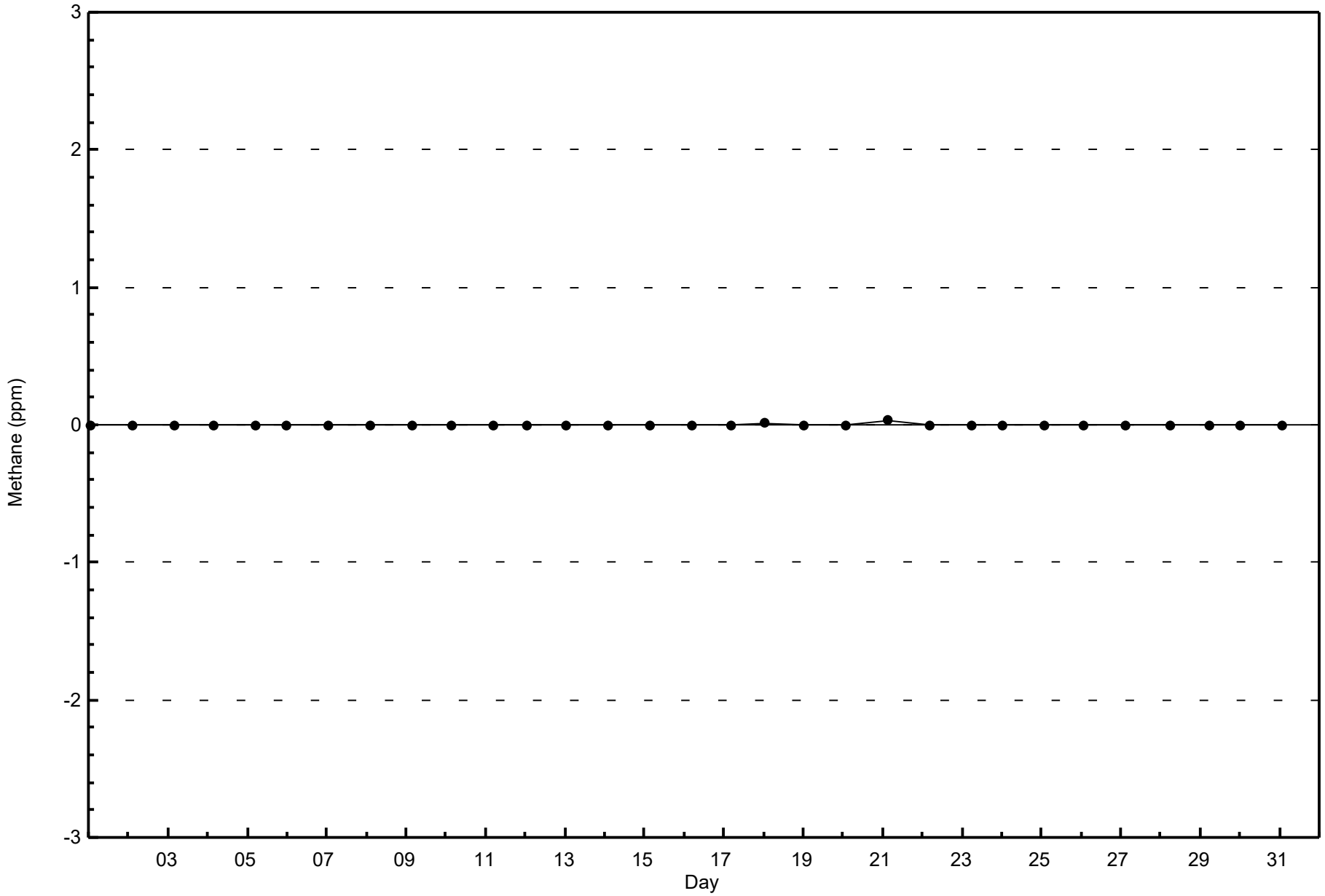
Total Number of Hours: 744

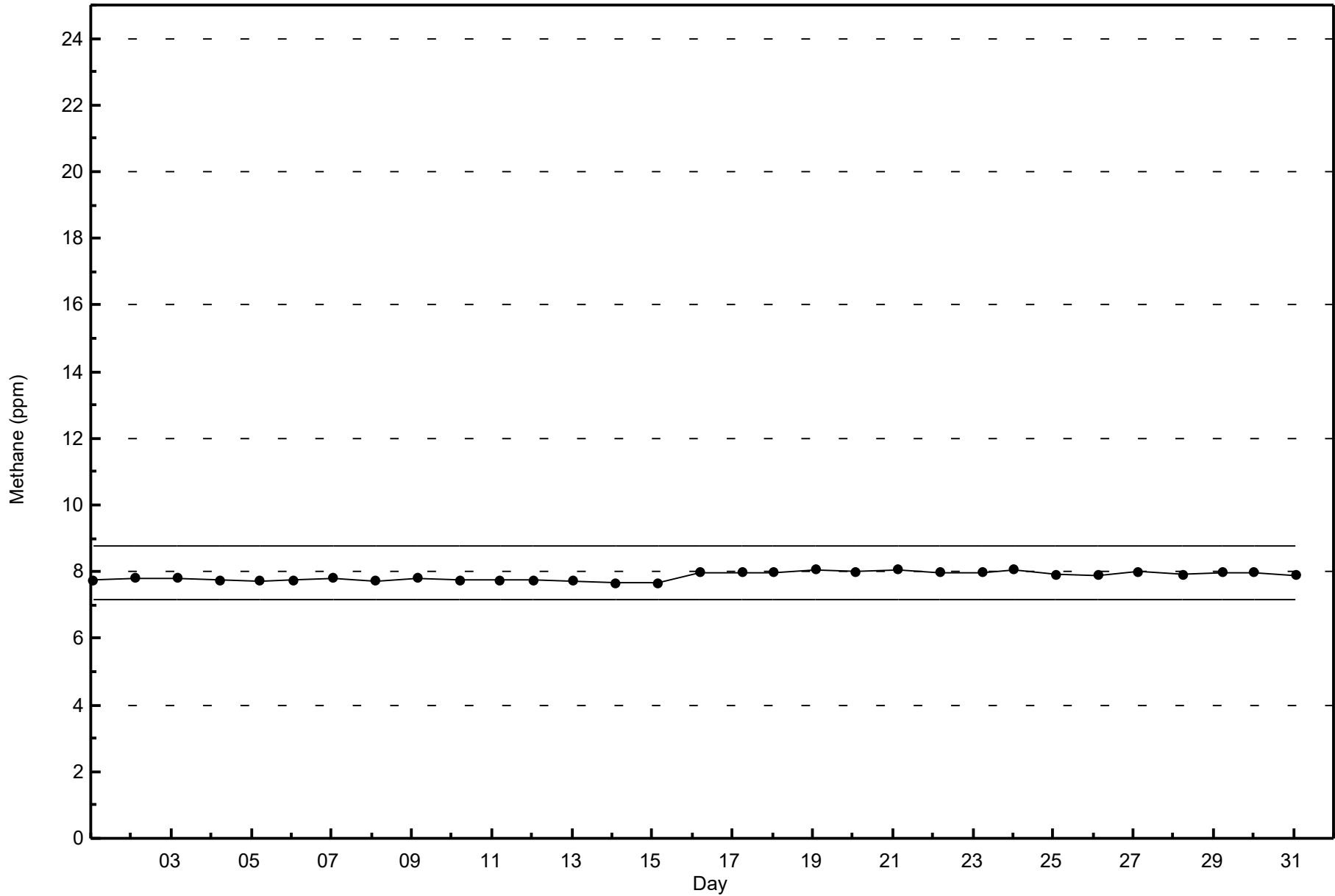


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









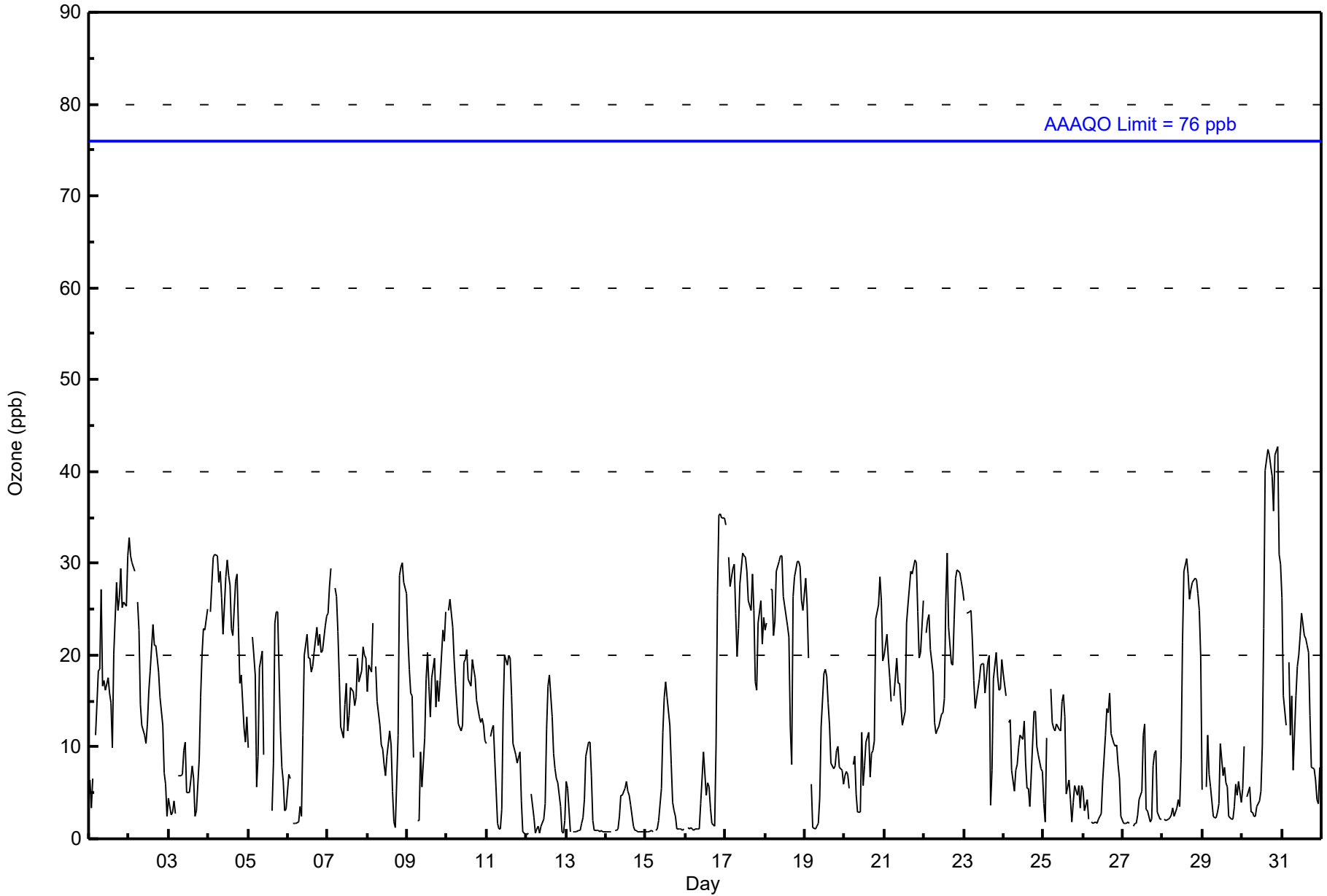
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort McKay South - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 42.7 ppb on Jan 30 22:00 Maximum Daily Average: 26.1 ppb on Jan 17																								Hours in Service: 744 Hours of Data: 709 Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0		
Minimum Value: 0.5 ppb on Jan 12 00:00 Maximum Diurnal Average: 16.4 ppb at hour 21 Monthly Average: 13.46 ppb												Minimum Daily Average: 2.2 ppb on Jan 14 Minimum Diurnal Average: 9.3 ppb at hour 9 Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 4.7 Median = 12.1 Q <sub>3</sub> = 20.6 P <sub>90</sub> = 27.8 P <sub>99</sub> = 35.6														
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-Jan	6.4	3.3	6.6	Z	11.3	18.3	18.4	27.1	16.6	17.2	16.2	17.5	15.9	14.8	9.9	20.1	28.0	24.8	26.3	29.4	25.2	25.8	25.4	30.9	18.9	30.9
2-Jan	32.8	30.8	30.0	29.2	Z	25.8	22.8	14.7	12.4	11.3	10.3	12.5	16.0	18.3	23.4	21.1	21.1	19.6	18.2	15.5	12.4	7.2	6.0	2.4	18.0	32.8
3-Jan	4.5	2.6	2.8	4.1	2.7	Z	6.9	6.9	7.0	9.7	10.5	5.0	5.0	6.5	7.9	6.5	2.4	3.1	8.7	15.4	19.9	22.9	22.7	25.1	9.1	25.1
4-Jan	Z	24.8	27.8	30.7	31.0	30.8	27.9	29.1	26.3	22.3	28.6	30.4	28.6	27.6	22.8	22.1	28.1	28.8	23.0	17.0	17.9	12.1	10.6	13.3	24.4	31.0
5-Jan	9.9	Z	21.9	20.0	17.8	5.6	9.0	18.6	20.5	9.1	C	C	C	C	3.1	8.3	23.5	24.6	24.7	11.7	7.7	6.3	3.0	3.2	13.1	24.7
6-Jan	7.1	6.6	Z	1.7	1.7	1.7	1.8	3.6	2.4	11.3	19.9	22.3	19.7	19.6	18.2	18.8	20.2	23.0	21.1	22.3	20.3	20.4	23.1	24.2	14.4	24.2
7-Jan	24.5	27.5	29.5	Z	27.2	26.3	22.6	17.5	12.3	11.0	14.6	16.9	11.8	13.5	16.5	16.1	14.6	15.4	19.7	17.1	18.3	20.9	19.9	19.7	18.8	29.5
8-Jan	16.0	18.9	18.1	23.4	Z	18.7	14.9	12.4	10.2	9.8	8.1	6.8	9.1	11.7	10.2	5.1	1.9	1.3	11.3	28.7	29.5	30.1	27.9	26.7	15.3	30.1
9-Jan	22.0	18.5	15.8	15.5	8.9	Z	1.9	2.0	9.4	5.6	11.0	17.3	20.2	16.6	13.2	17.6	19.6	14.3	17.2	14.9	17.2	22.7	21.5	24.7	15.1	24.7
10-Jan	Z	24.8	26.2	23.1	19.5	16.8	14.5	12.5	11.8	12.4	19.2	19.6	20.6	17.4	16.6	19.6	18.5	17.5	15.1	13.2	12.7	13.1	12.3	10.7	16.9	26.2
11-Jan	10.4	Z	11.2	11.9	12.3	8.6	1.7	1.0	1.1	3.2	13.9	20.0	18.9	19.9	19.7	15.6	10.4	9.1	8.3	8.8	9.5	4.1	0.7	0.5	9.6	20.0
12-Jan	0.5	0.6	Z	4.9	2.3	0.6	1.1	1.4	0.6	1.4	2.1	3.8	11.9	16.6	17.9	13.2	9.2	7.6	6.5	6.1	3.5	0.8	0.7	2.0	5.0	17.9
13-Jan	6.3	5.5	0.7	Z	0.8	0.8	0.7	0.9	0.9	1.7	2.2	4.3	8.9	10.5	10.6	6.8	2.0	0.9	0.9	0.9	0.8	0.9	0.7	0.8	3.0	10.6
14-Jan	0.8	0.8	0.8	0.8	Z	0.9	0.8	1.1	2.5	4.7	4.7	5.5	6.2	5.1	4.8	3.7	1.3	0.9	0.9	0.8	0.8	0.7	0.8	0.8	2.2	6.2
15-Jan	0.7	0.8	0.8	0.9	0.8	Z	0.9	1.1	2.0	5.5	11.6	15.3	17.0	15.5	12.3	8.1	3.9	3.1	2.5	1.1	1.0	1.1	0.9	1.0	4.7	17.0
16-Jan	Z	1.2	1.0	1.2	1.1	1.0	1.1	1.0	1.1	3.8	6.6	9.5	4.8	6.0	5.7	3.4	1.7	1.3	10.3	26.6	35.2	35.3	35.0	35.0	9.9	35.3
17-Jan	34.2	Z	30.7	27.4	29.4	29.9	24.6	19.8	22.9	27.8	31.2	30.8	30.7	29.1	25.9	24.9	28.9	24.8	17.1	16.1	23.5	25.9	21.2	24.1	26.1	34.2
18-Jan	22.8	23.5	Z	27.1	27.2	22.1	23.7	29.2	30.3	30.9	30.8	26.4	25.4	23.2	22.0	12.3	8.0	26.4	28.6	30.2	30.2	29.6	26.0	24.9	25.3	30.9
19-Jan	28.3	25.4	19.7	Z	6.0	1.2	1.0	1.3	1.7	4.4	12.1	17.9	18.5	17.7	14.9	12.4	8.2	7.6	7.9	9.5	10.1	7.8	7.4	6.0	10.7	28.3
20-Jan	6.9	7.3	7.0	5.5	Z	8.1	9.0	5.0	2.9	2.8	11.6	5.8	7.9	10.6	11.6	6.7	9.3	9.7	10.6	23.9	25.4	28.5	25.9	19.4	11.4	28.5
21-Jan	19.9	22.2	19.7	17.5	15.0	Z	15.6	19.7	17.0	17.0	14.5	12.3	13.8	23.5	25.4	27.3	29.1	28.8	30.4	30.1	24.7	19.6	20.3	25.9	21.3	30.4
22-Jan	Z	22.4	23.8	24.5	20.6	17.9	12.7	11.5	12.0	12.2	13.6	13.8	15.2	25.8	31.1	23.0	19.0	18.9	23.9	28.4	29.2	29.1	28.0	27.1	21.0	31.1
23-Jan	25.9	Z	24.6	24.8	24.9	21.5	17.3	14.2	16.3	17.4	19.0	19.1	19.1	15.9	19.2	20.0	3.7	7.4	17.4	20.3	17.6	16.1	16.3	19.6	18.2	25.9
24-Jan	18.0	15.5	Z	12.7	13.0	7.5	5.2	7.5	8.1	10.0	11.3	10.8	12.8	8.3	5.6	5.5	3.5	10.4	13.9	13.8	10.1	9.2	7.6	7.4	9.9	18.0
25-Jan	3.9	1.8	11.0	Z	16.3	12.7	12.1	11.7	12.5	11.9	11.8	14.9	15.7	13.2	4.9	6.4	4.3	1.9	4.0	5.8	4.8	5.8	3.3	5.8	8.5	16.3
26-Jan	5.3	3.1	4.3	2.1	Z	1.8	1.7	1.8	1.7	2.2	2.4	2.7	6.2	11.3	14.2	13.7	15.9	11.5	10.4	10.1	10.2	8.0	6.6	2.5	6.5	15.9
27-Jan	1.6	1.7	1.7	1.8	1.7	Z	1.4	1.6	1.7	2.6	4.3	5.2	11.3	12.6	3.1	3.1	1.9	2.2	7.9	9.3	9.6	2.9	2.1	2.1	4.1	12.6
28-Jan	Z	2.2	2.0	2.1	2.3	2.5	3.3	2.4	3.4	4.3	3.5	8.6	21.4	29.1	30.5	28.8	26.0	27.1	27.9	28.4	28.2	26.7	24.8	19.9	15.4	30.5
29-Jan	5.3	Z	5.6	11.2	7.0	5.6	2.4	2.2	2.3	2.9	3.8	10.4	6.8	7.8	6.2	5.7	2.4	2.1	2.1	3.6	5.9	4.8	6.3	4.0	5.1	11.2
30-Jan	5.6	10.0	Z	4.6	5.6	2.9	3.0	2.5	2.4	3.6	4.2	5.2	10.2	22.8	40.2	42.4	41.8	40.6	39.4	35.7	41.8	42.7	31.0	29.9	20.4	42.7
31-Jan	26.2	15.5	12.4	Z	19.3	11.3	15.6	7.5	15.5	18.8	19.9	22.2	24.6	22.1	21.8	21.0	20.4	13.4	7.7	7.7	6.4	4.2	3.8	7.8	15.0	26.2
13.3 12.2 13.7 13.1 12.5 11.6 9.5 9.3 9.3 10.0 12.4 13.8 15.1 16.4 15.8 14.8 13.8 13.8 15.0 16.2 16.4 15.7 14.2 14.4																								Diurnal Average		
34.2 30.8 30.7 30.7 31.0 30.8 27.9 29.2 30.3 30.9 31.2 30.8 30.7 29.1 40.2 42.4 41.8 40.6 39.4 35.7 41.8 42.7 35.0 35.0																								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 McKay South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	531	74.89	74.89
21 - 50	178	25.11	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Fort McKay South - January 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	110	28	8	2	1	5	11	49	80	39	28	56	17	14	23	31	502
21 - 50	43	45	7	2	1	1	4	12	9	0	7	18	10	6	7	6	178
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>	<b>153</b>	<b>73</b>	<b>15</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>15</b>	<b>61</b>	<b>89</b>	<b>39</b>	<b>35</b>	<b>74</b>	<b>27</b>	<b>20</b>	<b>30</b>	<b>37</b>	<b>680</b>

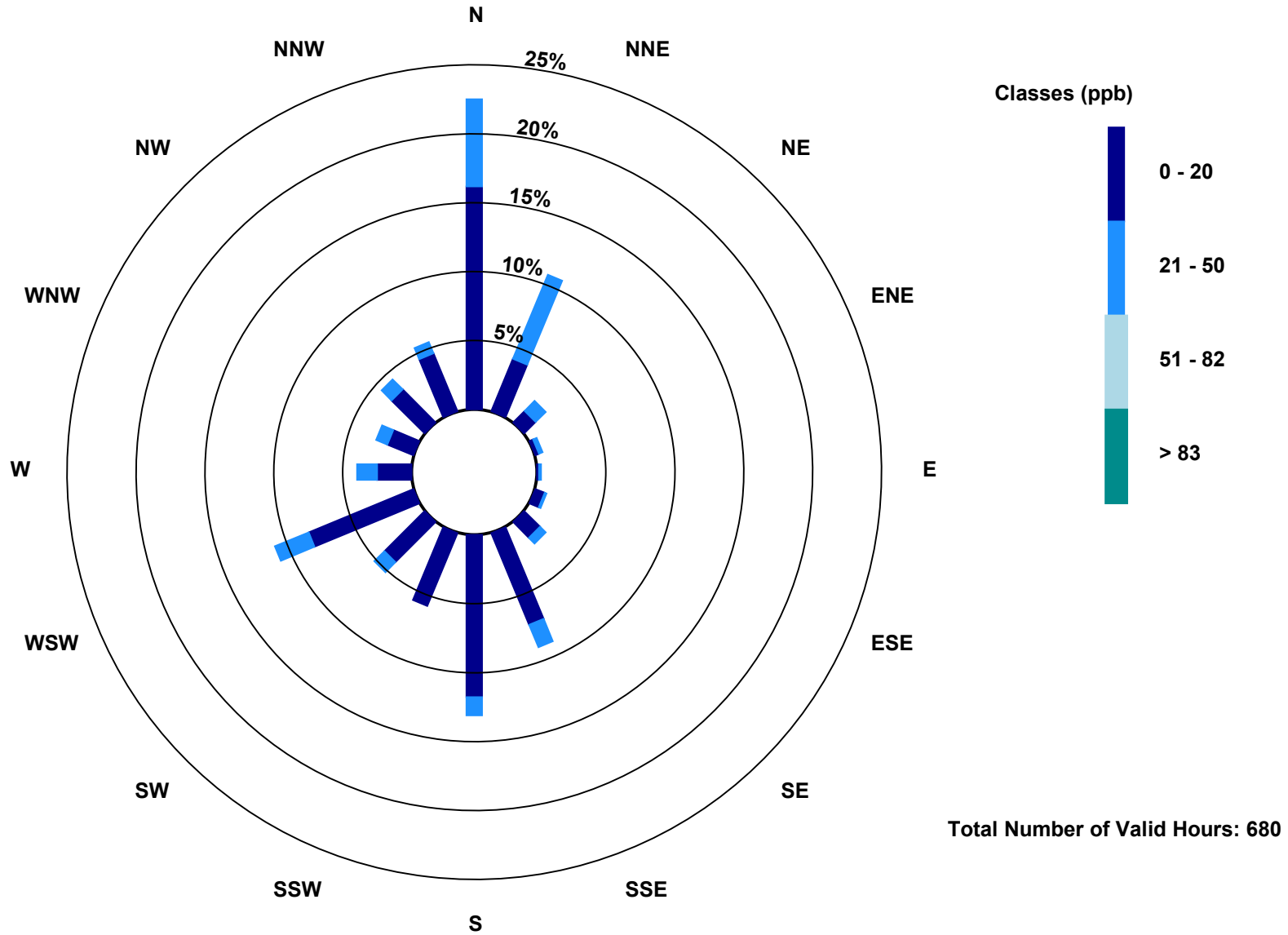
Total Number of Valid Hours: 680

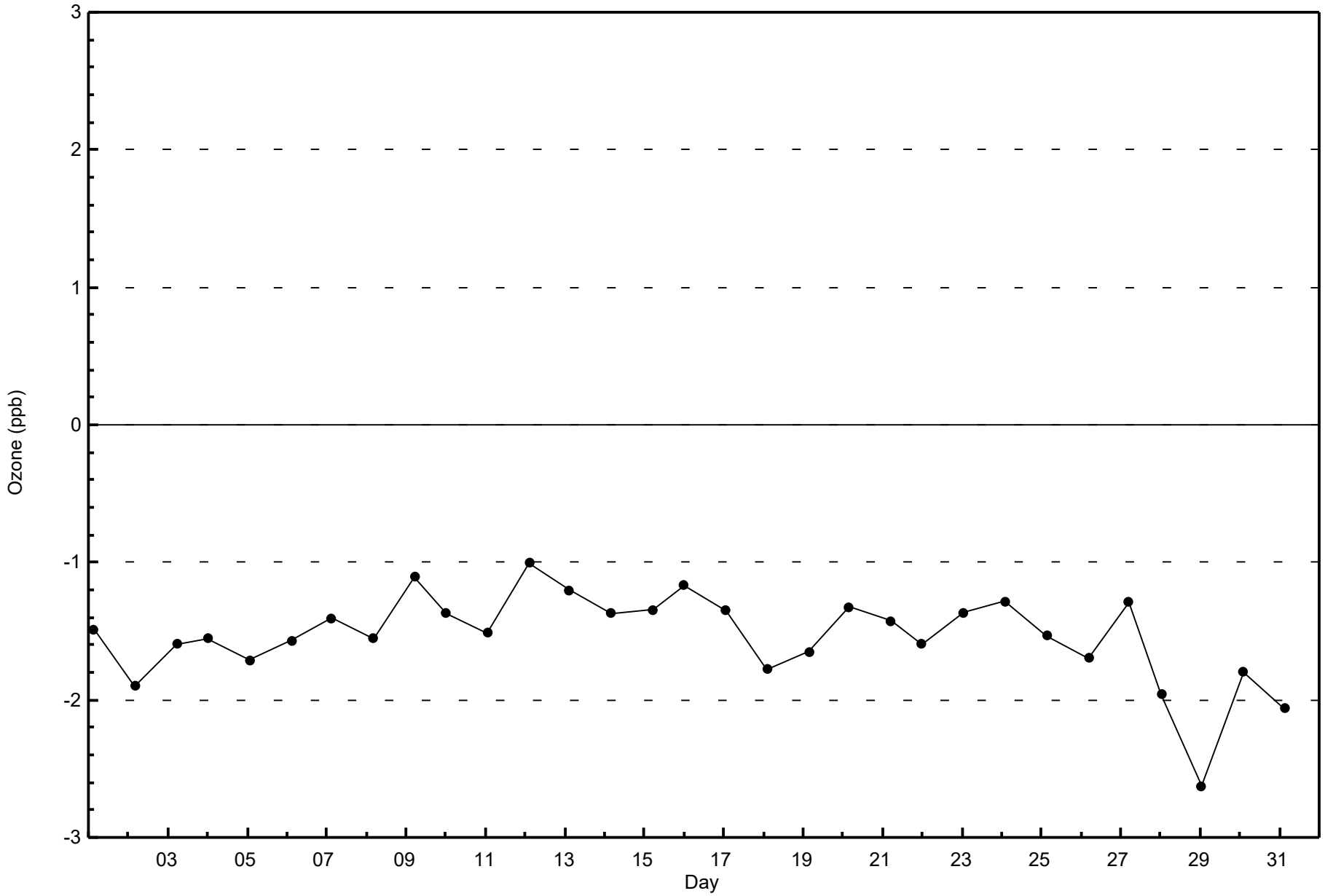
Total Number of Hours: 744

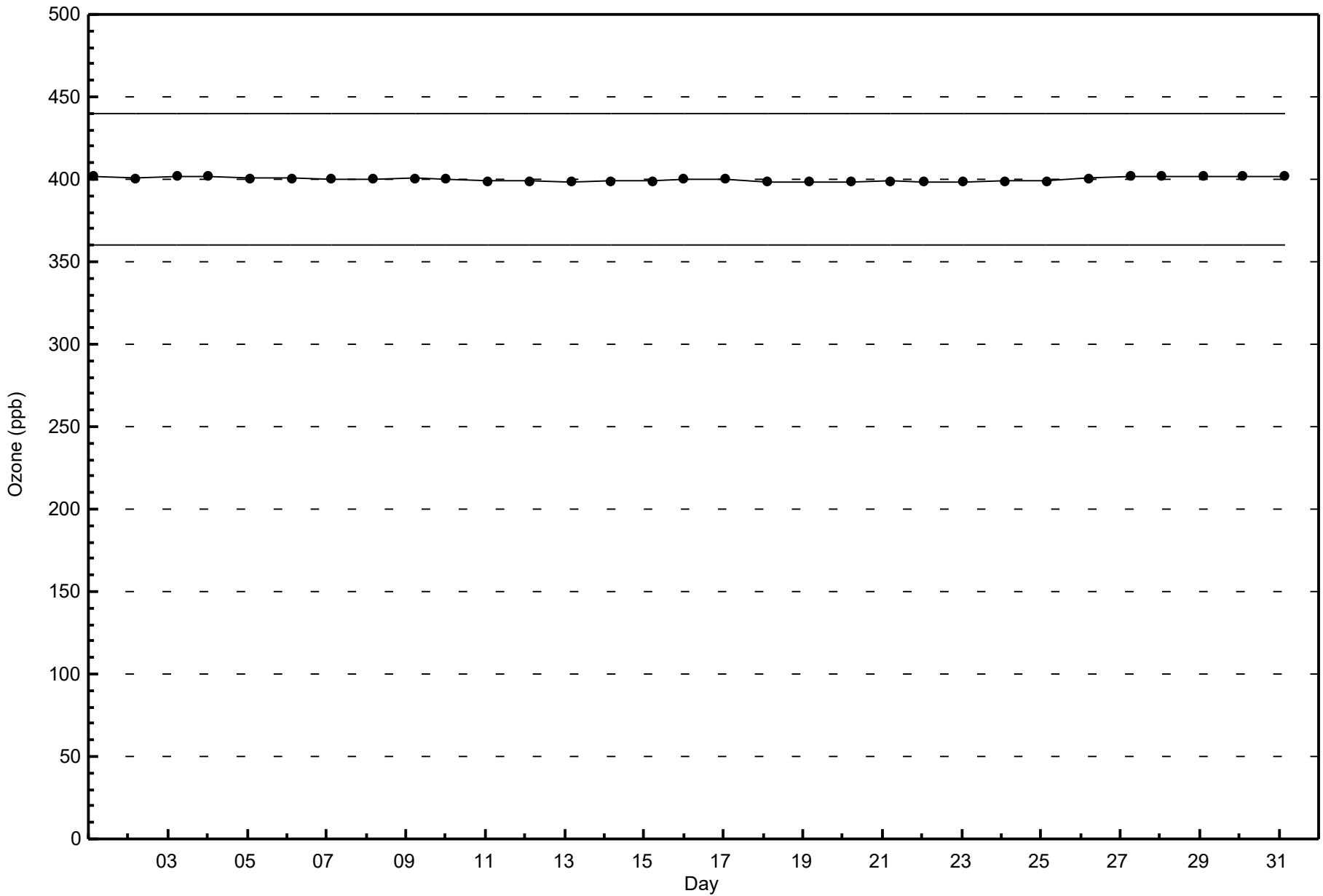


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

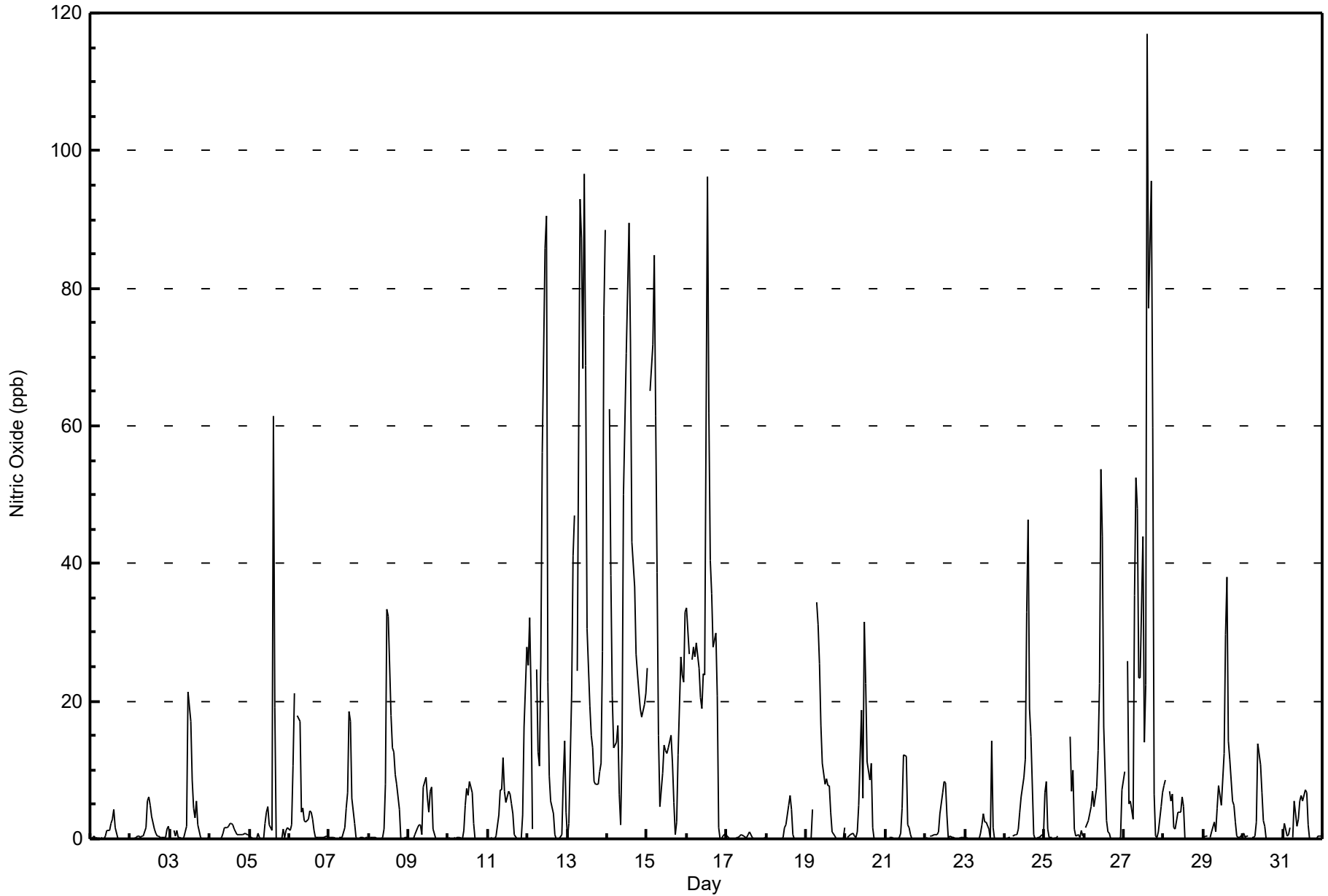
Fort McKay South - January 2024

Maximum Value: 116.9 ppb on Jan 27 15:00																						Maximum Daily Average: 37.6 ppb on Jan 13																						Hours in Service:		744	
Minimum Value: 0.0 ppb on Jan 1 01:00																						Minimum Daily Average: 0.2 ppb on Jan 17																						Hours of Data:		707	
Maximum Diurnal Average: 18.3 ppb at hour 12																						Minimum Diurnal Average: 1.6 ppb at hour 20																						Hours of Missing Data:		37	
Monthly Average: 8.20 ppb																						Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.9 Q <sub>3</sub> = 7.6 P <sub>90</sub> = 24.6 P <sub>99</sub> = 88.4																						Hours of Calibration:		37	
																																												Percent Operational Time:		100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Jan	0.0	0.1	0.4	0.1	0.3	Z	0.1	0.0	0.1	0.3	1.2	1.3	2.3	2.8	4.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	4.2																						
2-Jan	Z	0.0	0.1	0.3	0.3	0.3	0.3	0.4	0.5	1.6	5.6	6.1	5.0	3.3	1.4	0.9	0.4	0.3	0.2	0.2	0.1	0.2	1.4	1.8	1.3	6.1																					
3-Jan	0.3	Z	1.2	0.3	1.2	0.2	0.2	0.0	0.2	1.0	1.9	21.4	17.2	8.5	4.4	3.0	5.5	2.0	0.3	0.0	0.0	0.1	0.1	3.0	21.4																						
4-Jan	0.0	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.8	1.7	1.7	1.8	2.3	2.2	2.0	1.4	0.7	0.6	0.6	0.7	0.6	0.7	0.7	0.5	0.8	2.3																					
5-Jan	0.4	0.1	0.0	Z	0.0	0.7	0.1	0.0	0.0	2.2	3.9	4.8	2.0	1.2	61.5	19.2	0.0	0.0	0.0	0.0	1.4	0.1	1.2	1.6	4.4	61.5																					
6-Jan	1.1	2.1	10.6	21.1	Z	17.8	17.2	3.9	4.6	2.7	2.4	2.8	4.0	3.8	2.8	1.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	4.4	21.1																					
7-Jan	0.2	0.3	0.2	0.2	0.1	Z	0.2	0.2	0.2	1.6	4.5	6.7	18.4	17.1	5.9	2.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	2.6	18.4																					
8-Jan	Z	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2	1.4	7.8	33.3	32.3	17.9	13.1	12.7	9.4	7.9	4.4	0.0	0.0	0.0	0.1	0.1	6.2	33.3																					
9-Jan	0.0	Z	0.1	0.0	0.6	1.6	2.1	2.1	0.6	7.6	9.0	6.0	3.8	6.8	7.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1	9.0																						
10-Jan	0.0	0.1	Z	0.1	0.1	0.2	0.2	0.1	0.1	1.2	4.9	7.4	6.3	8.3	6.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	8.3																						
11-Jan	0.0	0.1	0.1	Z	0.1	0.4	3.5	7.2	7.2	11.7	6.9	5.3	7.0	6.6	5.1	3.7	0.6	0.0	0.0	0.0	0.0	3.4	16.3	27.9	4.9	27.9																					
12-Jan	25.2	32.2	21.3	1.5	Z	24.6	12.7	10.5	26.5	56.2	85.8	90.5	22.7	9.2	5.4	3.6	0.7	0.0	0.0	0.0	0.7	8.5	14.2	3.9	19.8	90.5																					
13-Jan	0.1	2.1	21.1	41.2	46.9	Z	24.3	93.0	87.3	68.3	96.5	68.8	30.6	19.4	15.0	13.2	8.3	7.9	8.0	9.8	10.9	27.3	76.0	88.5	37.6	96.5																					
14-Jan	Z	62.5	38.3	20.7	13.2	14.0	16.4	6.5	2.0	13.6	50.1	70.5	79.9	89.5	72.2	43.2	36.6	26.8	24.0	21.4	18.9	17.7	19.4	21.2	33.9	89.5																					
15-Jan	24.8	Z	65.2	71.8	84.8	61.3	38.7	15.1	4.6	9.6	13.5	12.9	12.3	13.2	15.1	11.1	5.3	0.7	2.5	12.2	26.5	23.7	22.8	33.0	25.3	84.8																					
16-Jan	33.6	26.8	Z	26.1	27.8	26.5	28.4	24.7	20.5	18.9	24.0	23.8	96.2	61.8	40.6	35.7	27.9	29.8	20.8	1.6	0.0	0.0	0.4	0.7	25.9	96.2																					
17-Jan	0.4	0.2	0.0	Z	0.1	0.1	0.2	0.3	0.4	0.7	0.5	0.3	0.2	0.6	1.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	1.0																					
18-Jan	0.0	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.2	1.6	2.0	4.9	6.3	4.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.3																					
19-Jan	0.0	0.0	0.0	0.1	4.4	Z	34.4	31.2	25.5	16.5	11.0	8.0	8.7	7.7	7.6	3.8	1.0	0.4	0.0	0.0	0.0	0.1	0.0	1.7	7.0	34.4																					
20-Jan	Z	0.2	0.4	0.5	0.8	0.3	0.2	0.9	4.9	18.8	6.0	31.6	22.6	11.2	8.6	10.9	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	31.6																					
21-Jan	0.0	Z	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.9	4.5	12.2	12.0	2.1	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	12.2																					
22-Jan	0.1	0.2	Z	0.3	0.4	0.5	0.6	0.6	0.9	3.6	6.7	8.3	8.2	3.5	0.0	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.2	0.2	1.5	8.3																					
23-Jan	0.1	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.7	2.0	3.6	2.5	2.5	1.3	0.0	14.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.3	14.2																					
24-Jan	0.0	0.1	0.1	0.1	Z	0.5	0.5	0.6	1.3	3.8	6.1	8.9	11.6	33.0	46.4	19.0	14.9	0.7	0.0	0.0	0.1	0.3	0.5	0.6	6.5	46.4																					
25-Jan	6.7	8.4	1.4	0.3	0.1	Z	0.2	0.1	0.3	C	C	C	C	C	C	14.8	7.0	9.9	1.4	0.3	0.6	0.1	1.2	0.3	--	14.8																					
26-Jan	Z	1.6	2.6	3.7	4.6	7.0	4.7	7.6	12.8	22.6	53.7	43.9	16.3	2.7	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.2	7.2	8.4	53.7																					
27-Jan	9.8	Z	25.8	5.0	5.6	2.8	35.5	52.5	48.0	23.3	23.4	43.9	14.0	22.4	116.9	77.1	95.6	59.8	6.5	0.3	0.1	1.0	4.6	6.8	29.6	116.9																					
28-Jan	7.7	8.5	Z	6.9	5.6	6.5	1.7	1.5	3.8	3.8	3.9	6.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	8.5																						
29-Jan	0.3	0.4	0.3	Z	0.2	1.1	2.5	1.0	4.4	7.7	6.3	4.8	12.4	29.6	38.1	14.2	11.5	5.5	4.8	2.5	0.5	0.2	0.2	0.7	6.5	38.1																					
30-Jan	0.8	0.3	0.3	0.4	Z	0.3	0.2	0.3	2.5	13.8	10.8	6.7	2.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	13.8																					
31-Jan	0.4	2.3	0.4	0.5	1.5	Z	0.2	5.6	1.8	2.8	5.5	6.3	5.5	7.0	6.8	1.9	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.3	2.2	7.0																					
																						Diurnal Average		4.3	5.7	7.3	7.8	7.7	6.7	7.3	8.6	8.5	10.6	15.3	18.3	15.5	13.4	16.6	9.8	7.8	5.0	2.4	1.6	2.0	2.7	5.2	6.4
																						Diurnal Maximum		33.6	62.5	65.2	71.8	84.8	61.3	38.7	93.0	87.3	68.3	96.5	90.5	96.2	89.5	116.9	77.1	95.6	59.8	24.0	21.4	26.5	27.3	76.0	88.5
Z - zerospan		C - Calibration																																													



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

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort McKay South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	615	86.99	86.99
21 - 40	55	7.78	94.77
41 - 80	26	3.68	98.44
81 - 159	11	1.56	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744





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

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - January 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	146	73	16	4	1	3	11	54	73	26	29	63	20	15	29	31	594
21 - 40	4	0	0	0	1	0	2	3	8	7	2	10	2	3	2	3	47
41 - 80	0	1	0	0	0	4	1	5	5	2	1	3	2	0	1	0	25
81 - 159	0	0	0	0	0	0	1	1	2	1	1	1	2	1	0	1	11
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	150	74	16	4	2	7	15	63	88	36	33	77	26	19	32	35	677

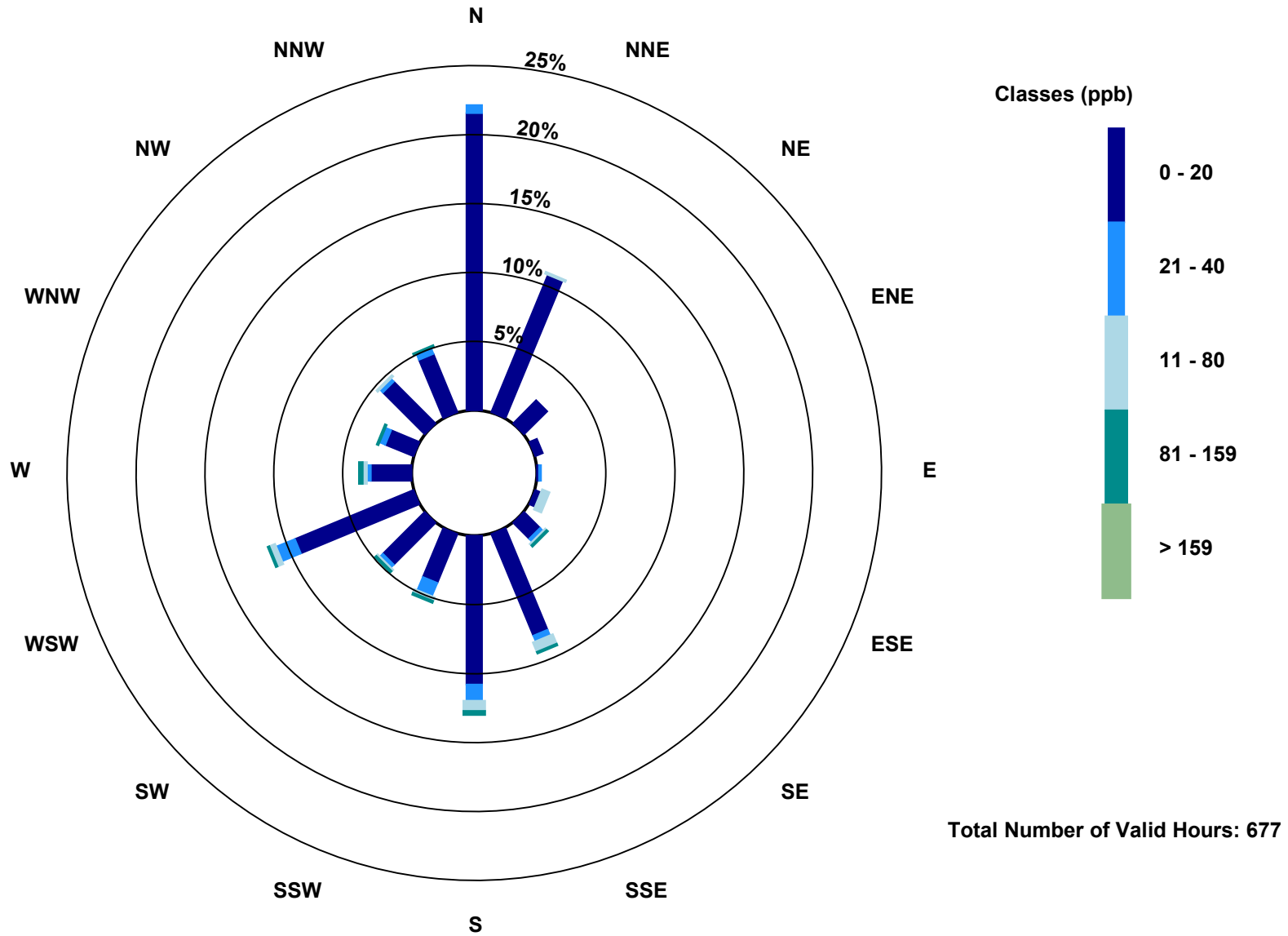
Total Number of Valid Hours: 677

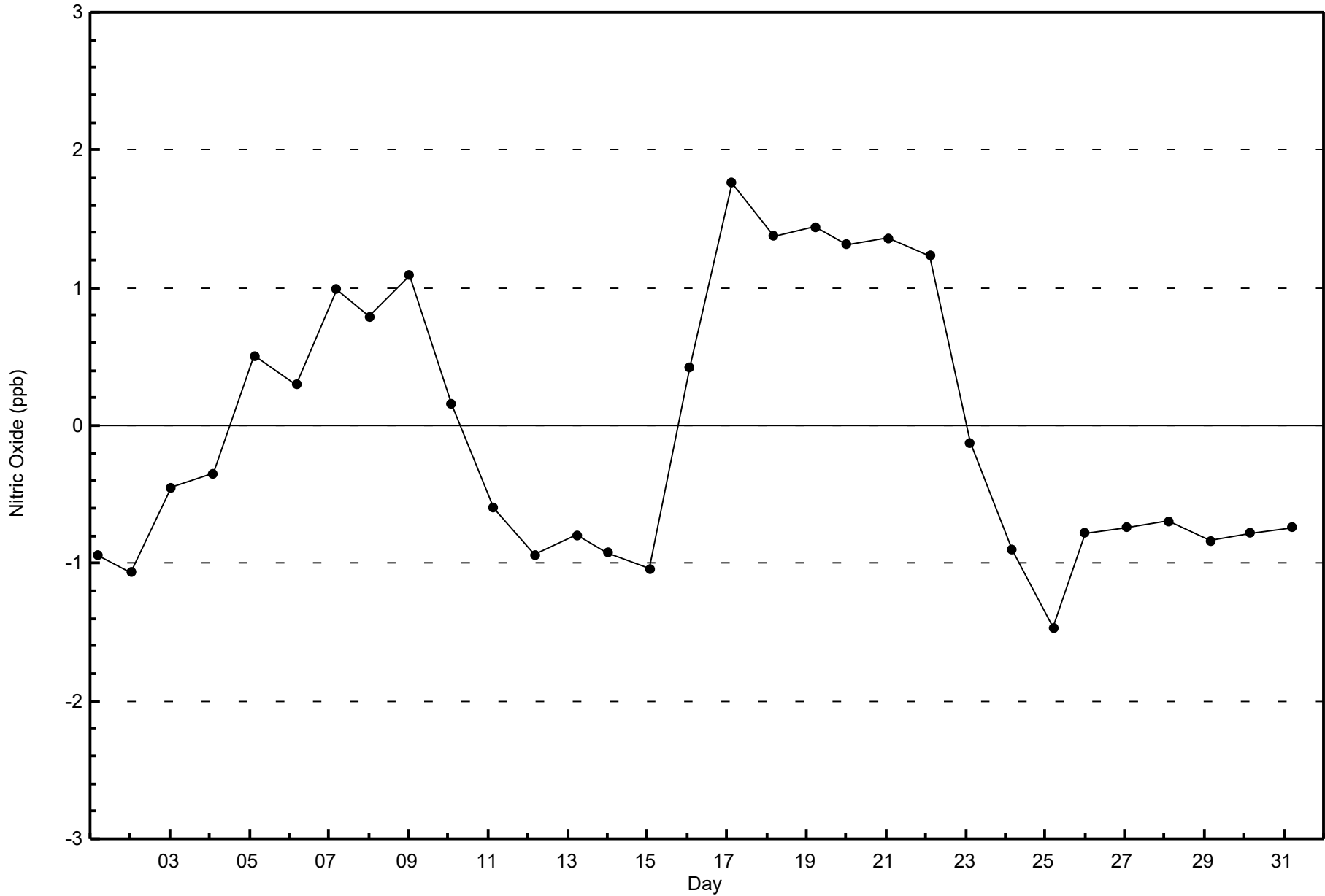
Total Number of Hours: 744

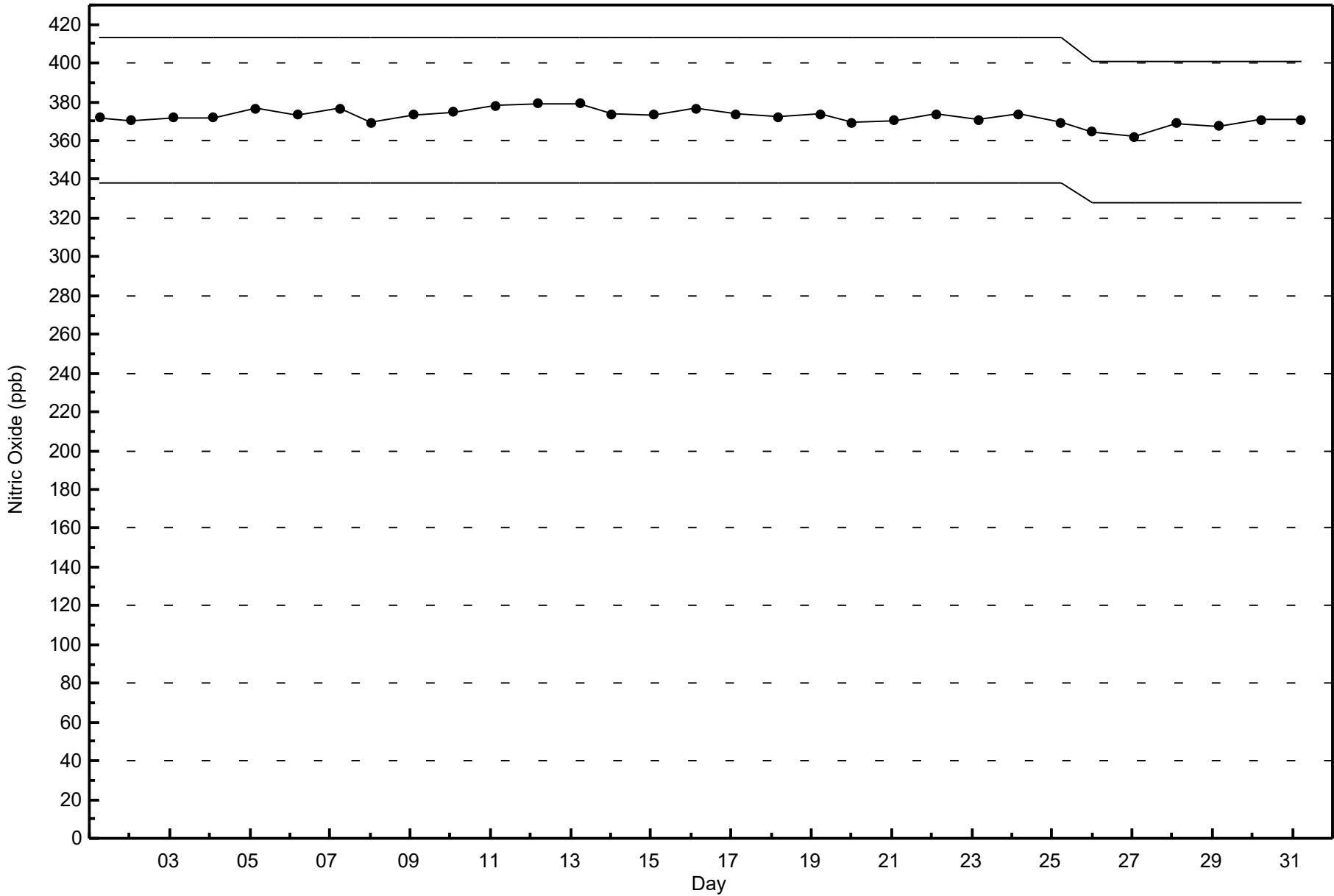


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Fort McKay South









Wood Buffalo Environmental Association

Summary of Hour Averages

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

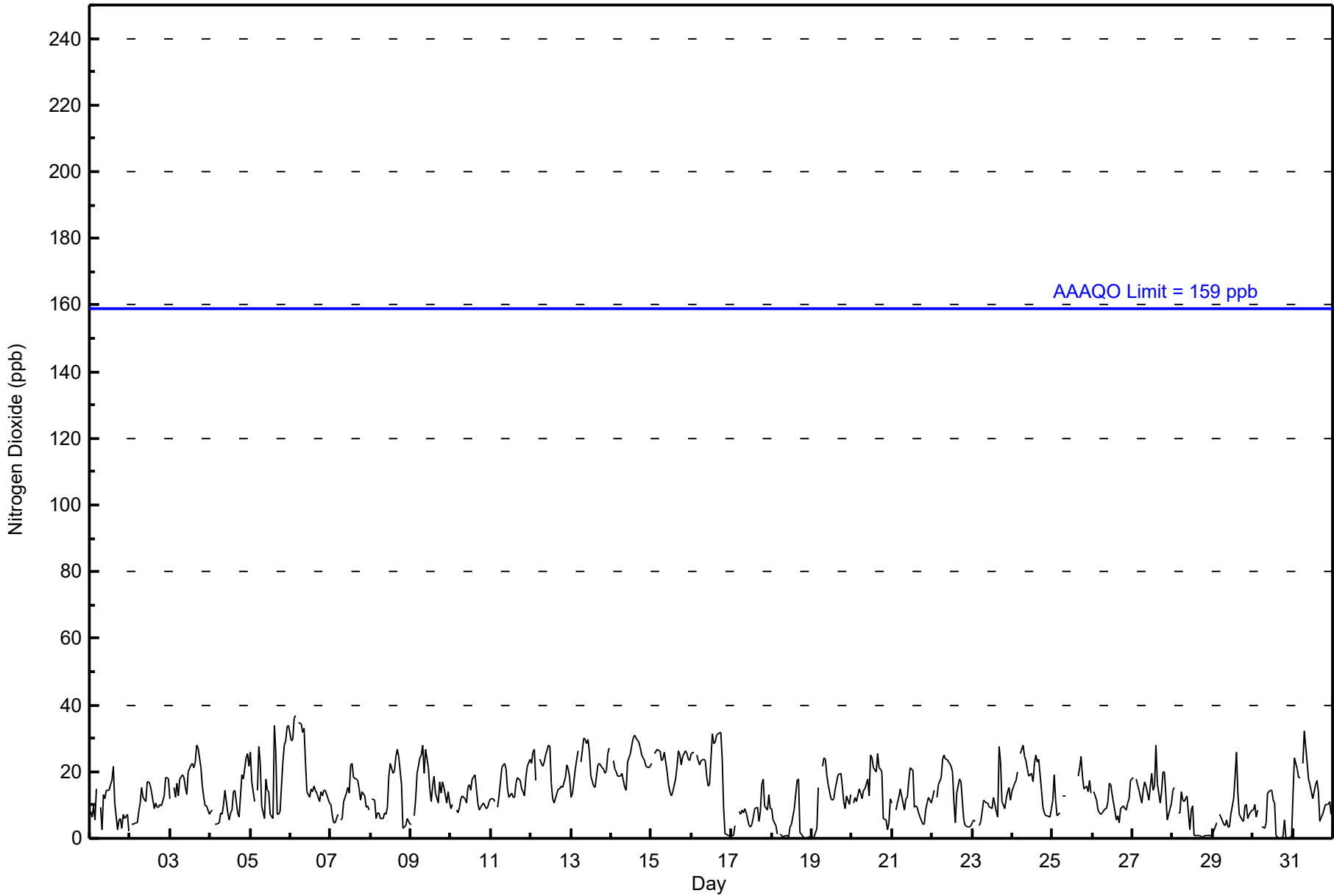
Fort McKay South - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 36.8 ppb on Jan 6 04:00		Maximum Daily Average: 22.9 ppb on Jan 14				Hours of Data:		707																																									
Minimum Value: 0.0 ppb on Jan 30 16:00		Minimum Daily Average: 4.0 ppb on Jan 18				Hours of Missing Data:		37																																									
Maximum Diurnal Average: 16.3 ppb at hour 15		Minimum Diurnal Average: 11.2 ppb at hour 21				Hours of Calibration:		37																																									
Monthly Average: 13.85 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 4.1 Q <sub>1</sub> = 8.1 Median = 13.1 Q <sub>3</sub> = 19.3 P <sub>90</sub> = 24.8 P <sub>99</sub> = 32.9				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-Jan	8.2	6.5	9.8	5.4	14.7	Z	9.3	2.4	13.0	12.0	14.5	14.6	15.9	17.2	21.7	10.7	2.4	5.7	5.8	3.0	7.4	6.0	7.4	2.2	9.4	21.7																							
2-Jan	Z	4.4	4.1	4.5	4.7	8.0	10.6	15.2	12.3	11.2	17.1	17.0	16.3	14.1	8.8	10.4	9.5	9.5	10.3	9.7	12.9	18.3	18.1	17.8	11.5	18.3																							
3-Jan	11.9	Z	15.4	12.2	16.4	12.6	17.6	19.2	18.2	15.2	13.1	19.9	22.0	22.3	21.0	22.8	28.0	27.0	21.3	15.8	12.2	9.9	9.8	7.4	17.0	28.0																							
4-Jan	8.1	8.3	Z	4.1	4.1	4.7	7.6	7.0	10.0	14.2	7.5	5.4	7.5	8.5	13.9	14.6	7.6	6.4	12.5	18.9	17.7	24.1	25.4	21.5	11.3	25.4																							
5-Jan	25.7	17.0	11.1	Z	14.2	27.7	22.6	9.7	6.1	17.9	14.6	13.8	7.4	5.8	34.0	25.8	7.2	7.2	7.9	22.7	27.8	29.3	33.6	33.7	18.4	34.0																							
6-Jan	29.1	29.6	35.9	36.8	Z	34.9	34.5	31.7	33.0	22.8	14.0	12.4	15.0	14.1	15.5	14.4	13.4	11.1	13.8	12.6	14.5	14.5	11.7	10.4	20.7	36.8																							
7-Jan	10.0	6.6	4.5	4.6	7.1	Z	5.5	5.9	11.2	13.5	15.3	13.5	22.1	22.3	18.2	17.8	17.5	14.7	11.4	14.0	12.5	9.5	9.7	8.3	12.0	22.3																							
8-Jan	Z	11.7	11.5	5.8	7.6	7.5	5.9	5.8	7.7	7.4	9.2	18.6	22.5	19.3	20.4	24.5	26.8	24.5	16.0	2.8	3.5	3.9	5.8	4.4	11.9	26.8																							
9-Jan	4.4	Z	6.9	12.0	19.5	24.2	24.9	28.0	19.7	26.6	21.1	15.0	11.1	15.6	18.7	13.4	10.5	17.1	13.6	16.9	15.3	10.4	14.1	11.1	16.1	28.0																							
10-Jan	8.8	10.3	Z	8.5	7.6	9.2	11.8	12.6	11.9	10.7	15.1	16.1	14.4	18.0	18.9	14.7	10.6	8.6	9.4	10.4	9.8	9.1	9.4	10.9	11.6	18.9																							
11-Jan	12.0	11.9	10.9	Z	9.2	12.6	21.1	22.2	22.6	20.6	15.0	12.3	13.7	12.1	12.4	16.4	18.3	17.2	14.7	13.9	12.8	18.3	21.8	23.7	15.9	23.7																							
12-Jan	22.6	25.7	26.8	17.4	Z	23.7	22.5	21.6	22.7	24.9	28.0	27.6	16.7	11.8	10.5	13.4	14.9	14.8	15.5	15.3	18.2	21.9	20.8	18.3	19.8	28.0																							
13-Jan	12.3	13.4	20.9	23.6	26.1	Z	22.9	30.1	29.5	28.3	29.5	25.8	18.8	15.8	15.2	18.5	22.1	22.5	21.3	20.8	19.5	20.2	25.6	27.0	22.2	30.1																							
14-Jan	Z	23.3	20.9	19.8	18.6	18.7	19.3	17.2	15.2	14.3	22.9	25.4	27.8	30.0	31.1	30.0	29.0	27.3	24.9	24.0	23.4	21.5	21.1	21.7	22.9	31.1																							
15-Jan	22.6	Z	25.5	26.9	26.3	26.2	23.5	23.8	25.7	20.1	16.3	14.1	12.8	14.0	17.8	21.5	26.1	25.0	22.2	24.4	26.2	25.4	23.7	23.3	22.3	26.9																							
16-Jan	25.6	25.7	Z	25.1	23.4	22.1	23.3	23.8	23.1	18.7	15.7	16.3	31.4	28.3	28.9	31.1	31.4	31.9	23.6	8.9	1.3	1.3	1.0	0.9	20.1	31.9																							
17-Jan	1.0	1.0	3.7	Z	8.0	7.0	8.5	7.7	9.0	7.7	3.7	3.5	4.3	6.2	9.1	9.3	5.2	7.9	15.9	17.7	9.7	8.3	13.2	8.8	7.7	17.7																							
18-Jan	8.9	5.7	3.7	1.1	Z	1.1	0.8	0.4	0.7	0.7	0.5	3.4	4.2	8.9	13.1	17.2	18.0	1.9	1.4	0.1	0.2	0.2	0.3	0.3	4.0	18.0																							
19-Jan	0.2	0.5	1.8	2.8	15.2	Z	21.5	24.0	23.6	19.0	15.9	12.0	11.5	12.0	14.8	16.8	18.9	19.3	15.7	10.9	8.8	12.7	10.3	13.2	13.1	24.0																							
20-Jan	Z	10.7	12.1	11.1	14.9	13.5	12.0	14.2	14.7	17.6	12.8	24.8	24.1	21.0	19.9	25.3	21.3	20.6	19.8	5.8	5.5	2.7	4.8	11.7	14.8	25.3																							
21-Jan	10.5	Z	8.6	10.5	12.2	14.9	12.9	8.5	11.9	12.1	17.0	21.3	20.3	9.2	9.9	9.5	7.5	6.2	4.1	4.3	8.3	10.7	12.2	10.8	11.0	21.3																							
22-Jan	12.2	14.6	Z	12.1	16.0	18.2	23.9	24.9	23.9	23.6	22.3	21.7	20.1	11.0	4.8	13.7	17.6	17.0	11.0	5.4	3.8	3.3	3.6	4.0	14.3	24.9																							
23-Jan	4.8	5.5	5.2	Z	3.9	5.0	8.0	11.5	10.8	10.7	9.4	9.5	9.0	12.4	8.1	6.3	27.5	22.9	11.1	9.0	12.0	14.0	15.1	11.5	10.6	27.5																							
24-Jan	14.0	16.6	17.4	20.1	Z	25.6	27.9	24.5	23.5	20.7	18.8	19.6	17.1	22.3	25.2	22.9	23.9	14.4	9.2	7.8	6.9	6.6	6.4	8.7	17.4	27.9																							
25-Jan	11.4	19.1	11.4	6.8	7.5	Z	12.5	12.8	12.5	Z	C	C	C	C	C	18.8	21.3	24.4	18.8	14.8	15.8	13.9	17.4	13.6	--	24.4																							
26-Jan	Z	14.0	11.6	8.6	7.7	7.1	7.6	8.9	8.7	11.0	16.4	16.1	13.2	8.1	5.5	6.9	4.6	9.0	9.9	9.0	8.3	10.5	11.8	17.4	10.1	17.4																							
27-Jan	18.3	Z	17.8	16.3	14.2	10.7	14.4	16.8	15.8	13.4	11.4	19.7	14.3	15.8	28.1	16.4	10.6	13.9	19.9	20.0	13.3	5.3	8.7	10.8	15.0	28.1																							
28-Jan	14.6	15.3	Z	7.7	7.6	13.9	11.6	11.2	12.7	7.7	2.7	8.4	9.8	0.9	0.7	0.7	0.7	0.6	0.6	0.8	0.9	1.0	0.9	0.9	5.7	15.3																							
29-Jan	1.1	3.2	4.7	Z	7.2	6.2	4.3	3.7	5.4	3.5	3.2	7.1	11.7	18.4	25.8	13.5	7.1	5.6	5.2	9.8	10.0	5.8	7.3	8.3	7.7	25.8																							
30-Jan	8.5	10.2	6.5	8.6	Z	3.4	3.5	3.0	4.8	13.7	14.6	14.6	11.4	10.6	0.7	0.0	0.0	0.2	0.9	5.4	0.2	0.2	0.3	0.5	5.3	14.6																							
31-Jan	12.7	24.2	20.6	18.3	18.1	Z	22.3	32.1	22.8	18.0	16.0	13.9	11.9	16.2	17.3	14.0	5.0	6.5	7.2	10.3	10.0	10.2	10.9	7.3	15.0	32.1																							
																								12.3	12.9	12.7	12.7	12.8	14.3	15.3	15.5	15.6	15.3	14.5	15.4	15.3	14.7	16.3	15.8	15.0	14.2	12.7	11.8	11.2	11.3	12.3	11.9	Diurnal Average	
																								29.1	29.6	35.9	36.8	26.3	34.9	34.5	32.1	33.0	28.3	29.5	27.6	31.4	30.0	34.0	31.1	31.4	31.9	24.9	24.4	27.8	29.3	33.6	33.7	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 - January 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort McKay South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	549	77.65	77.65
21 - 40	158	22.35	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay South - January 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	108	70	16	4	1	4	11	56	76	22	23	56	20	13	26	25	531
21 - 40	42	4	0	0	1	3	4	7	12	14	10	21	6	6	6	10	146
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>	150	74	16	4	2	7	15	63	88	36	33	77	26	19	32	35	677

Total Number of Valid Hours: 677

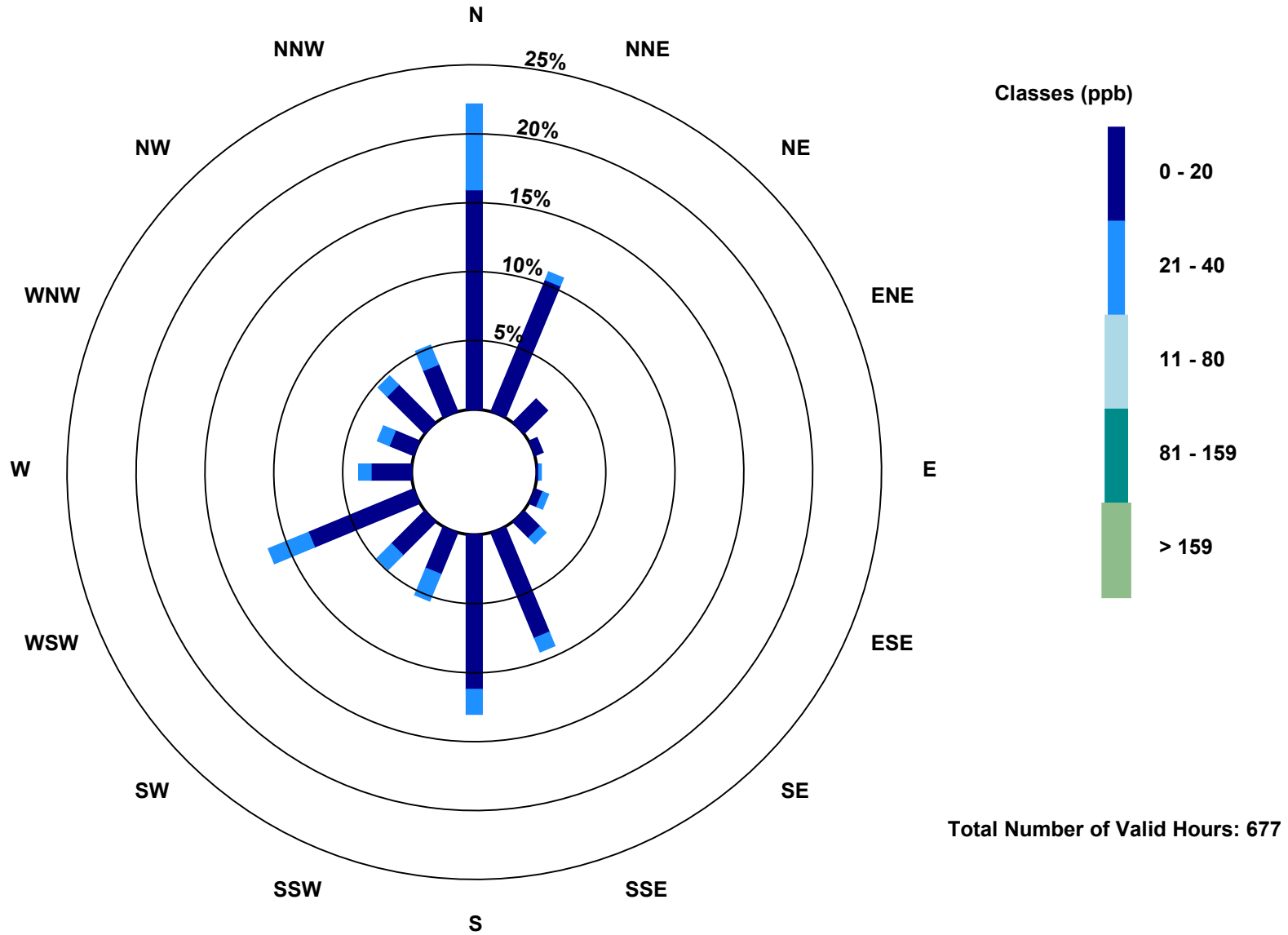
Total Number of Hours: 744

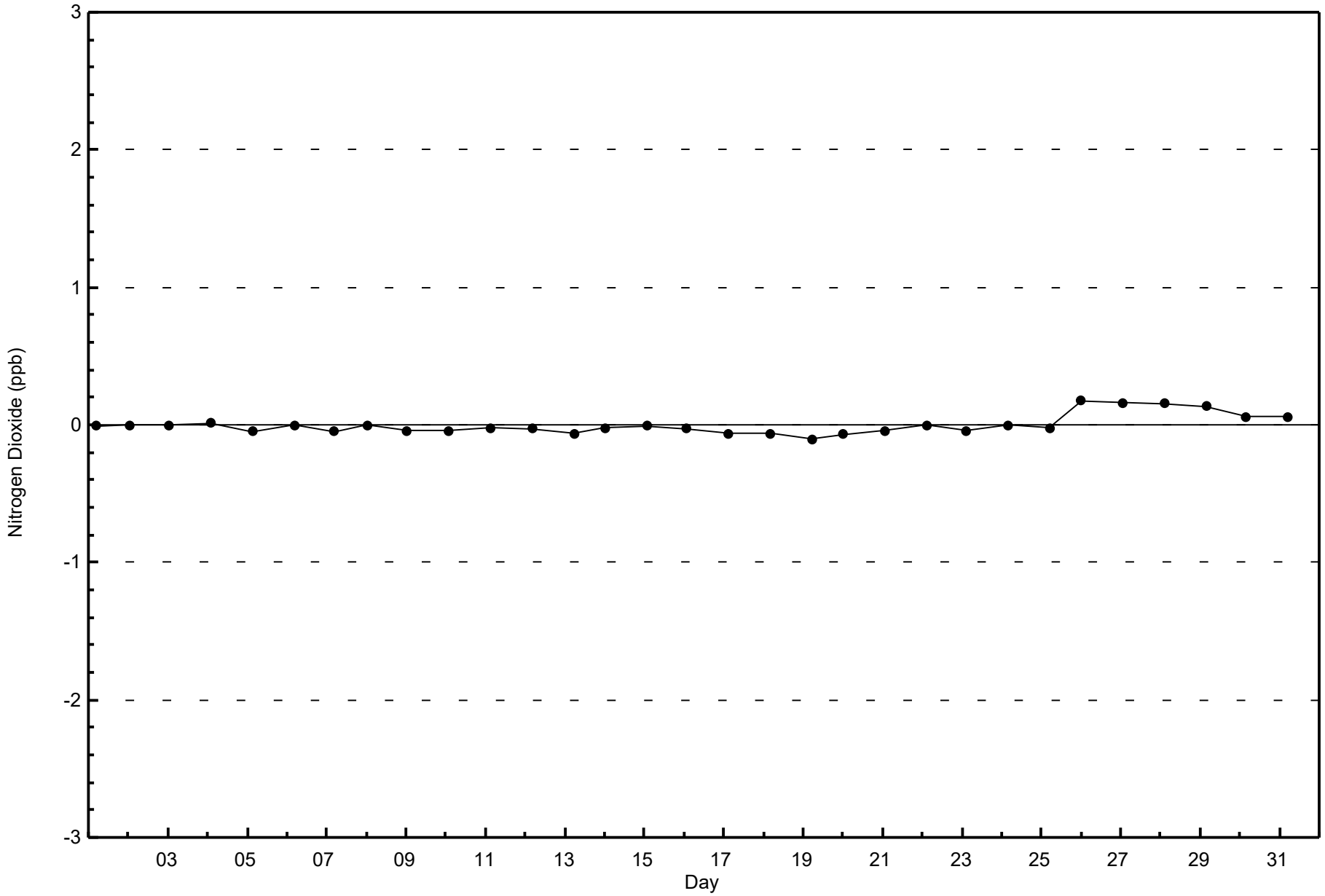


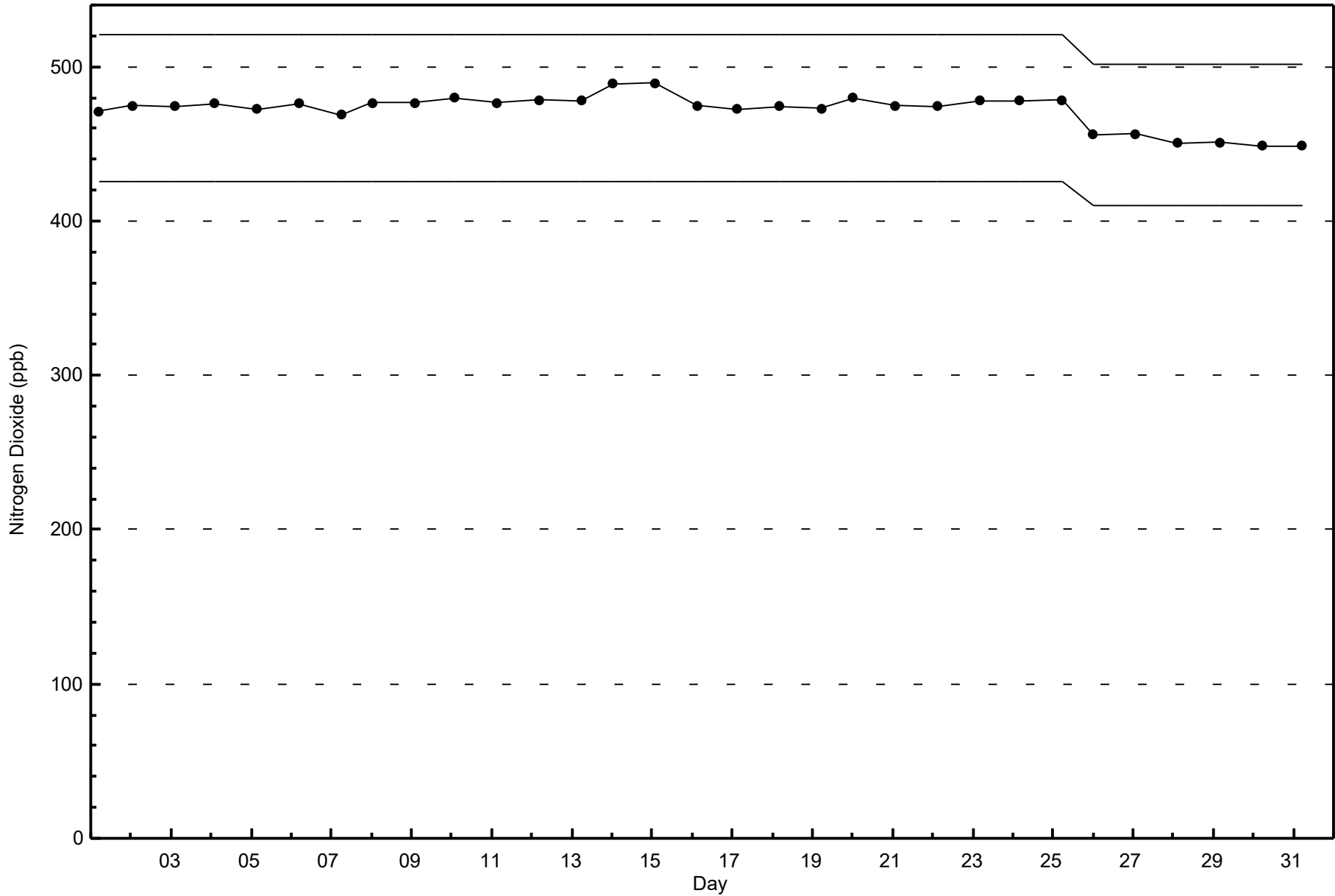


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





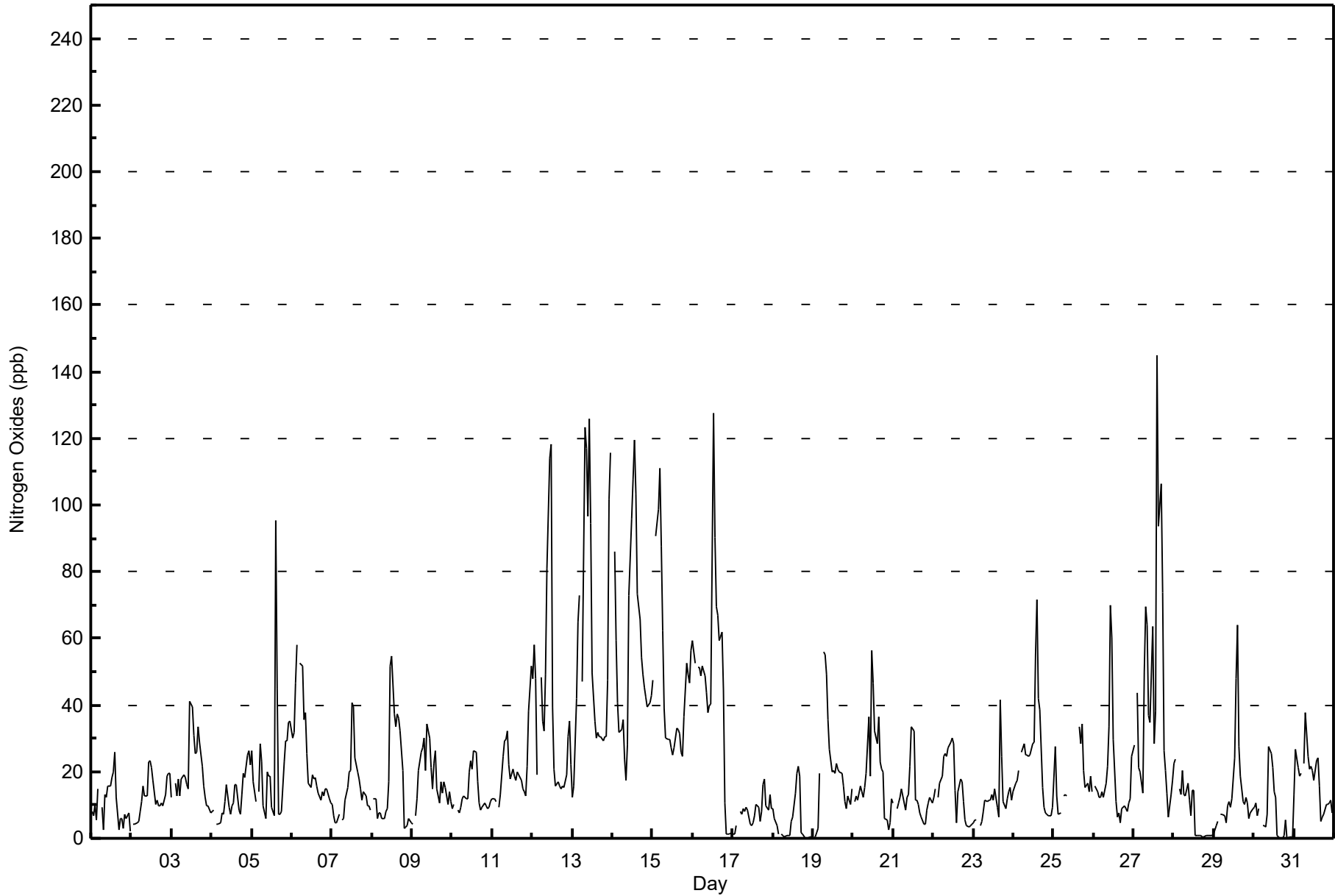




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - January 2024**

Maximum Value: 145.0 ppb on Jan 27 15:00																						Maximum Daily Average: 59.7 ppb on Jan 13																						Hours in Service:		744
Minimum Value: 0.0 ppb on Jan 30 16:00																						Minimum Daily Average: 4.9 ppb on Jan 18																						Hours of Data:		707
Maximum Diurnal Average: 33.8 ppb at hour 12																						Minimum Diurnal Average: 13.2 ppb at hour 21																						Hours of Missing Data:		37
Monthly Average: 22.05 ppb																						Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 4.3 Q <sub>1</sub> = 9.0 Median = 15.0 Q <sub>3</sub> = 27.5 P <sub>90</sub> = 48.4 P <sub>99</sub> = 115.4																						Hours of Calibration:		37
																																												Percent Operational Time:		100.0
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-Jan	8.2	6.6	10.2	5.5	15.0	Z	9.4	2.4	13.1	12.3	15.7	15.9	18.2	20.0	25.9	12.2	2.4	5.7	5.8	3.0	7.4	6.0	7.4	2.3	10.0	25.9																				
2-Jan	Z	4.4	4.2	4.8	5.0	8.3	10.9	15.6	12.8	12.8	22.7	23.1	21.3	17.4	10.2	11.3	9.9	9.8	10.5	9.9	13.0	18.5	19.5	19.6	12.8	23.1																				
3-Jan	12.2	Z	16.6	12.5	17.6	12.8	17.8	19.2	18.4	16.2	15.0	41.3	39.2	30.8	25.4	25.8	33.5	29.0	21.6	15.8	12.2	9.9	9.9	7.5	20.0	41.3																				
4-Jan	8.1	8.4	Z	4.2	4.1	4.8	7.7	7.1	10.8	15.9	9.2	7.2	9.8	10.7	15.9	16.0	8.3	7.0	13.1	19.6	18.3	24.8	26.1	22.0	12.1	26.1																				
5-Jan	26.1	17.1	11.1	Z	14.2	28.4	22.7	9.7	6.1	20.1	18.5	18.6	9.4	7.0	95.5	45.0	7.2	7.2	7.9	22.7	29.2	29.4	34.8	35.3	22.8	95.5																				
6-Jan	30.2	31.7	46.5	57.9	Z	52.7	51.7	35.6	37.6	25.5	16.4	15.2	19.0	17.9	18.3	15.6	13.6	11.3	14.0	12.8	14.8	14.8	12.0	10.7	25.0	57.9																				
7-Jan	10.2	6.9	4.7	4.8	7.2	Z	5.7	6.1	11.4	15.1	19.8	20.2	40.5	39.4	24.1	20.0	17.7	14.8	11.5	14.1	12.6	9.6	9.9	8.5	14.6	40.5																				
8-Jan	Z	11.9	11.7	6.0	7.7	7.5	5.9	5.8	7.9	8.8	17.0	51.9	54.8	37.2	33.5	37.2	36.2	32.4	20.4	2.8	3.5	3.9	5.9	4.5	18.0	54.8																				
9-Jan	4.4	Z	7.0	12.0	20.1	25.8	27.0	30.1	20.3	34.2	30.1	21.0	14.9	22.4	26.2	14.8	10.5	17.1	13.6	16.9	15.3	10.4	14.1	11.2	18.2	34.2																				
10-Jan	8.8	10.4	Z	8.6	7.7	9.4	12.0	12.7	12.0	11.9	20.0	23.5	20.7	26.3	25.7	17.0	10.6	8.6	9.4	10.4	9.8	9.1	9.4	10.9	13.3	26.3																				
11-Jan	12.0	12.0	11.0	Z	9.3	13.0	24.6	29.4	29.8	32.3	21.9	17.6	20.7	18.7	17.5	20.1	18.9	17.2	14.7	13.9	12.8	21.7	38.1	51.6	20.8	51.6																				
12-Jan	47.8	57.9	48.1	18.9	Z	48.3	35.2	32.1	49.2	81.1	113.8	118.1	39.4	21.0	15.9	17.0	15.6	14.8	15.5	15.3	18.9	30.4	35.0	22.2	39.6	118.1																				
13-Jan	12.4	15.5	42.0	64.8	73.0	Z	47.2	123.1	116.8	96.6	126.0	94.6	49.4	35.2	30.2	31.7	30.4	30.4	29.3	30.6	30.4	47.5	101.6	115.5	59.7	126.0																				
14-Jan	Z	85.8	59.2	40.5	31.8	32.7	35.7	23.7	17.2	27.9	73.0	95.9	107.7	119.5	103.3	73.2	65.6	54.1	48.9	45.4	42.3	39.2	40.5	42.9	56.8	119.5																				
15-Jan	47.4	Z	90.7	98.7	111.1	87.5	62.2	38.9	30.3	29.7	29.8	27.0	25.1	27.2	32.9	32.6	31.4	25.7	24.7	36.6	52.7	49.1	46.5	56.3	47.6	111.1																				
16-Jan	59.2	52.5	Z	51.2	51.2	48.6	51.7	48.5	43.6	37.6	39.7	40.1	127.6	90.1	69.5	66.8	59.3	61.7	44.4	10.5	1.3	1.3	1.4	1.6	46.1	127.6																				
17-Jan	1.4	1.2	3.7	Z	8.1	7.1	8.7	8.0	9.4	8.4	4.2	3.8	4.5	6.8	10.1	9.5	5.2	7.9	15.9	17.7	9.7	8.4	13.3	8.9	7.9	17.7																				
18-Jan	8.9	5.8	3.7	1.2	Z	1.2	0.8	0.4	0.7	0.7	0.7	5.0	6.2	13.8	19.4	21.5	18.6	1.9	1.4	0.1	0.2	0.2	0.3	0.3	4.9	21.5																				
19-Jan	0.2	0.5	1.8	2.9	19.6	Z	55.9	55.2	49.1	35.5	26.9	20.0	20.2	19.7	22.4	20.6	19.9	19.7	15.7	10.9	8.8	12.8	10.3	14.9	20.2	55.9																				
20-Jan	Z	10.9	12.5	11.6	15.7	13.8	12.2	15.1	19.6	36.4	18.8	56.4	46.7	32.2	28.5	36.2	23.0	20.6	19.8	5.8	5.5	2.7	4.8	11.7	20.0	56.4																				
21-Jan	10.5	Z	8.7	10.7	12.4	15.0	12.9	8.5	12.1	13.0	21.5	33.5	32.3	11.3	11.6	10.1	7.5	6.2	4.1	4.3	8.3	10.7	12.2	10.8	12.5	33.5																				
22-Jan	12.3	14.8	Z	12.4	16.4	18.7	24.5	25.5	24.8	27.2	29.0	30.0	28.3	14.5	4.8	14.1	17.8	17.1	11.1	5.4	3.8	3.4	3.8	4.2	15.8	30.0																				
23-Jan	4.9	5.6	5.3	Z	3.9	5.0	8.0	11.5	10.8	11.4	11.4	13.1	11.5	14.9	9.4	6.3	41.7	24.5	11.1	9.0	12.0	14.0	15.1	11.5	11.8	41.7																				
24-Jan	14.0	16.7	17.5	20.2	Z	26.1	28.4	25.1	24.8	24.5	24.9	28.5	28.7	55.3	71.6	41.9	38.8	15.1	9.2	7.8	7.0	6.9	6.9	9.3	23.9	71.6																				
25-Jan	18.1	27.5	12.8	7.1	7.6	Z	12.7	12.9	12.8	C	C	C	C	C	C	33.6	28.3	34.3	20.2	15.1	16.4	14.0	18.6	13.9	--	34.3																				
26-Jan	Z	15.6	14.2	12.3	12.3	14.1	12.3	16.5	21.5	33.6	70.1	60.0	29.5	10.8	6.4	7.7	4.6	9.0	9.9	9.0	8.3	10.6	12.0	24.6	18.5	70.1																				
27-Jan	28.1	Z	43.6	21.3	19.8	13.5	49.9	69.3	63.8	36.7	34.8	63.6	28.3	38.2	145.0	93.5	106.2	73.7	26.4	20.3	13.4	6.3	13.3	17.6	44.6	145.0																				
28-Jan	22.3	23.8	Z	14.6	13.2	20.4	13.3	12.7	16.5	11.5	6.6	14.4	14.4	0.9	0.7	0.7	0.7	0.6	0.6	0.8	0.9	1.0	0.9	1.0	8.4	23.8																				
29-Jan	1.4	3.6	5.0	Z	7.4	7.3	6.8	4.7	9.8	11.2	9.5	11.9	24.1	48.0	64.0	27.7	18.6	11.1	10.0	12.3	10.5	6.0	7.5	9.0	14.2	64.0																				
30-Jan	9.3	10.5	6.8	9.0	Z	3.7	3.7	3.3	7.3	27.5	25.4	21.3	14.0	12.4	0.7	0.0	0.0	0.2	0.9	5.4	0.2	0.2	0.3	0.5	7.1	27.5																				
31-Jan	13.1	26.5	21.0	18.8	19.6	Z	22.5	37.7	24.6	20.8	21.5	20.2	17.4	23.2	24.1	15.9	5.0	6.5	7.2	10.3	10.1	10.5	11.3	7.6	17.2	37.7																				
																						Diurnal Average																								
																						Diurnal Maximum																								
Z - zerspan																						C - Calibration																								





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	459	64.92	64.92
21 - 40	153	21.64	86.56
41 - 80	70	9.90	96.46
81 - 159	24	3.39	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay South - January 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	94	62	13	4	1	3	6	36	60	19	19	49	19	12	26	25	448
21 - 40	50	10	3	0	0	0	4	20	17	6	10	12	0	4	3	4	143
11 - 80	6	1	0	0	1	1	4	5	6	8	2	13	5	2	2	5	61
81 - 159	0	1	0	0	0	3	1	2	5	3	2	2	2	1	1	1	24
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	150	74	16	4	2	7	15	63	88	36	33	76	26	19	32	35	676

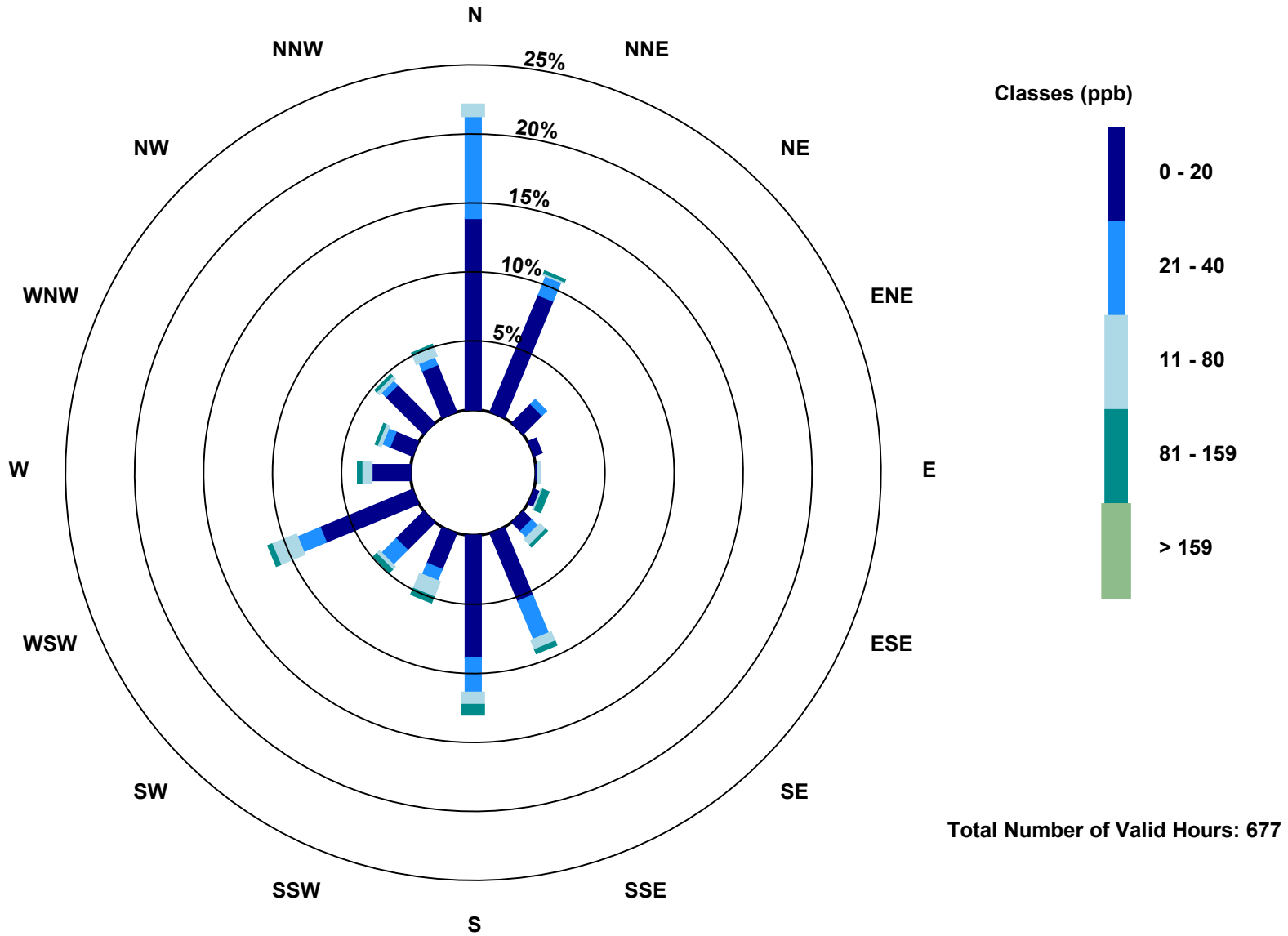
Total Number of Valid Hours: 677

Total Number of Hours: 744

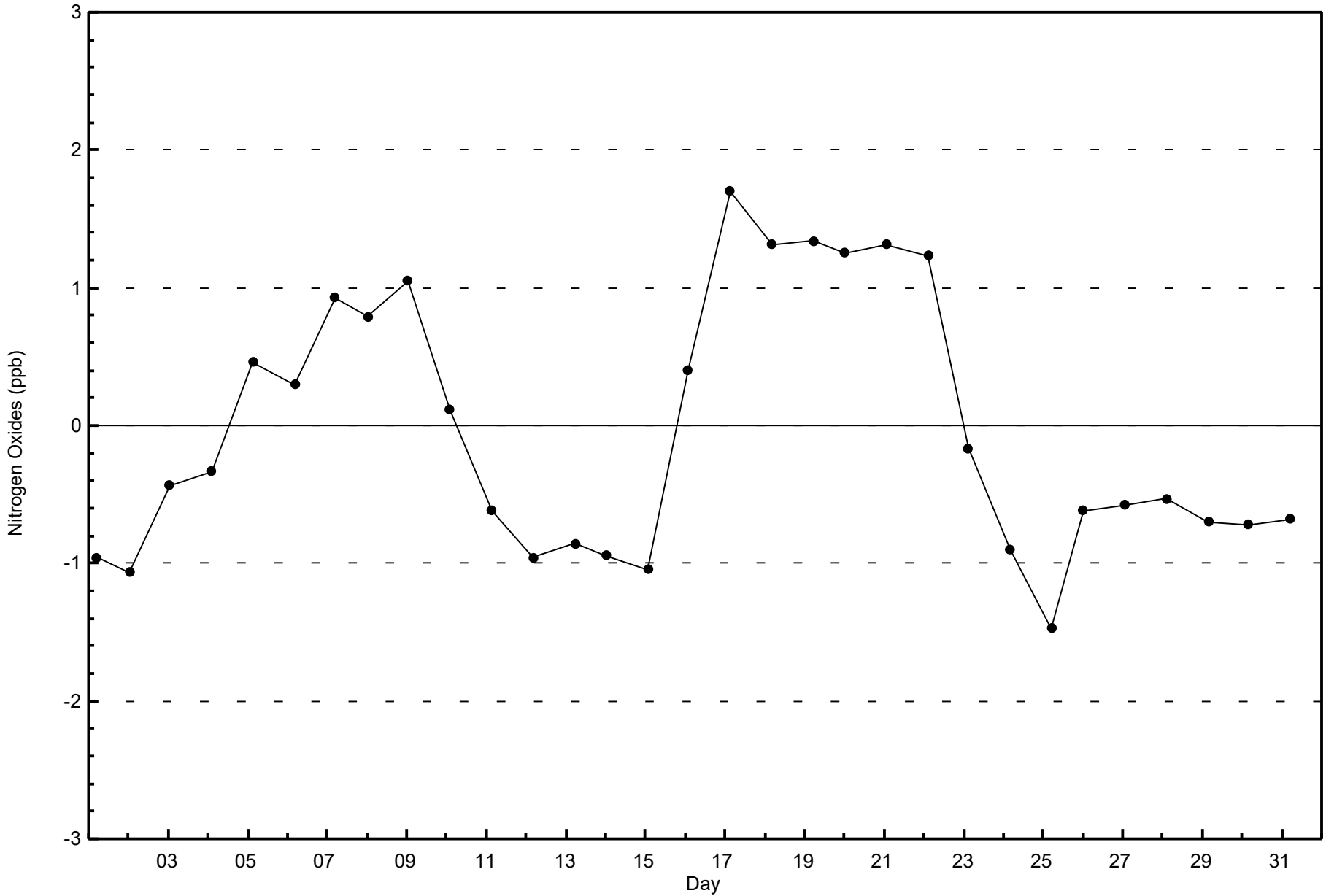


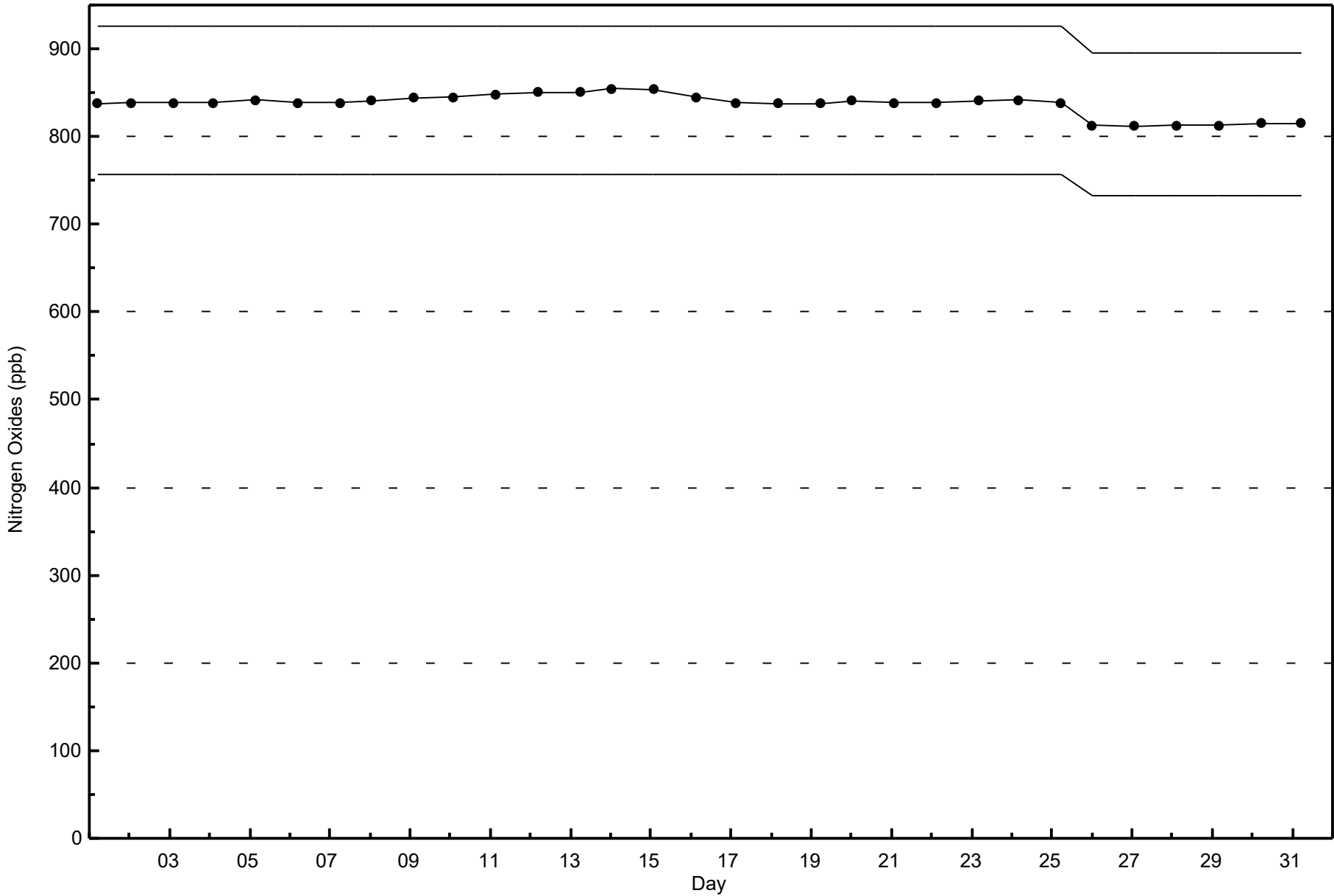
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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>

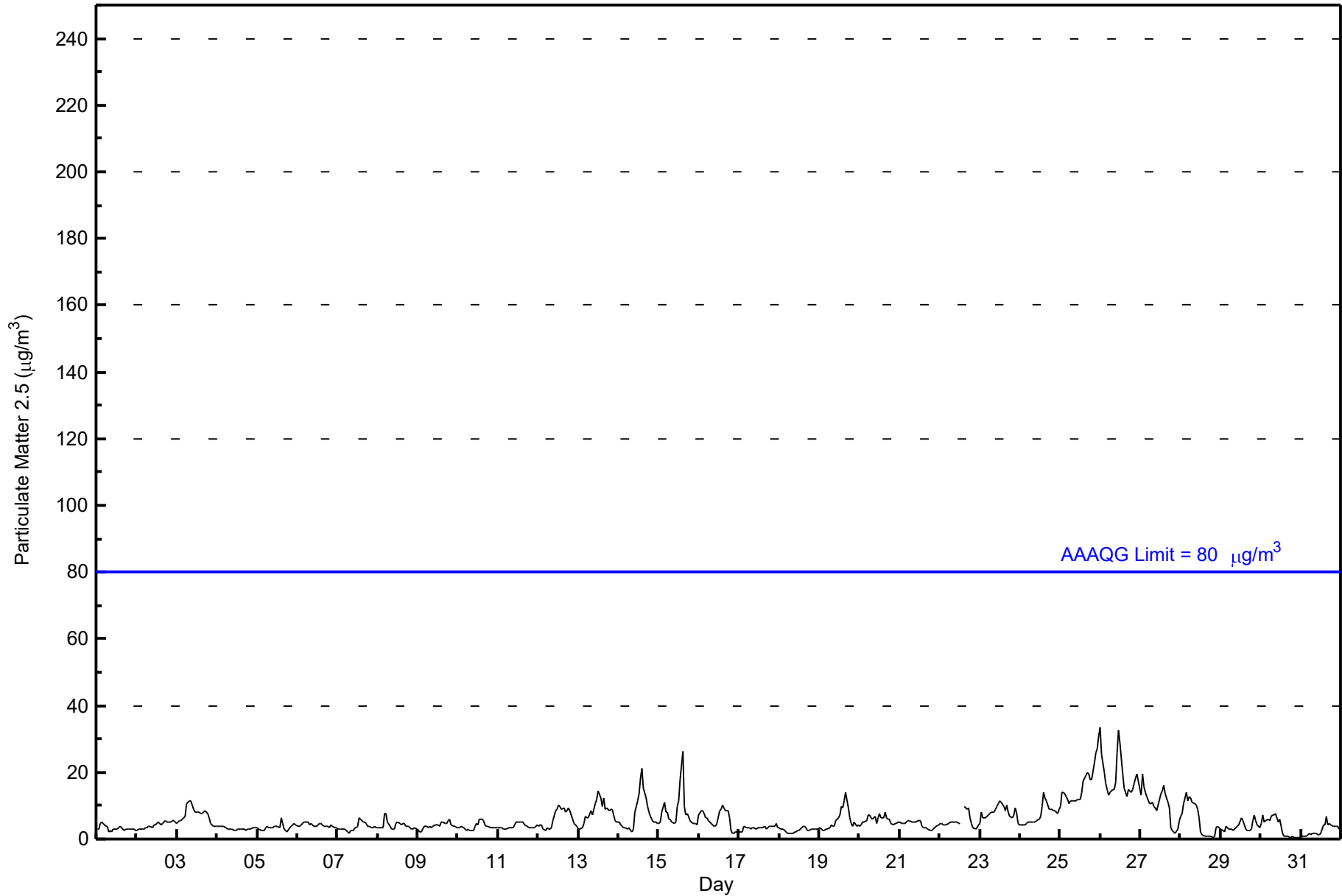
Fort McKay South - January 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 33.3 µg/m <sup>3</sup> on Jan 26 01:00 Maximum Daily Average: 18.7 µg/m <sup>3</sup> on Jan 26																								Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 2 Percent Operational Time: 100.0		
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 30 23:00 Maximum Diurnal Average: 8.1 µg/m <sup>3</sup> at hour 15 Monthly Average: 5.90 µg/m <sup>3</sup>												Minimum Daily Average: 2.6 µg/m <sup>3</sup> on Jan 31 Minimum Diurnal Average: 5.1 µg/m <sup>3</sup> at hour 21 Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 3.3 Median = 4.4 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 11.5 P <sub>99</sub> = 25.6														
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-Jan	2.8	2.9	4.6	5.0	4.7	4.0	3.8	2.1	2.5	2.2	2.9	3.0	3.1	3.6	4.0	3.2	2.4	3.1	3.0	2.9	3.1	3.0	3.0	2.4	3.2	5.0
2-Jan	2.5	2.8	2.8	3.1	3.1	3.3	3.6	4.0	3.7	3.5	4.1	4.4	4.8	5.3	4.4	4.8	4.9	5.6	5.2	5.2	5.4	5.6	5.1	4.3	5.6	
3-Jan	4.8	5.5	5.6	5.9	6.4	6.6	10.7	11.5	11.4	10.3	8.7	8.0	8.0	7.9	7.5	7.6	8.2	8.6	7.6	6.4	4.8	4.2	3.9	3.9	7.3	11.5
4-Jan	3.7	3.7	3.6	3.6	3.6	3.3	3.1	2.9	2.9	2.9	2.5	2.6	2.8	3.0	3.1	3.1	2.8	2.5	2.9	3.0	2.8	3.2	3.4	3.3	3.1	3.7
5-Jan	3.3	2.8	2.4	2.5	2.5	3.3	3.7	3.2	3.2	3.5	3.9	3.9	3.8	3.5	6.2	4.5	2.9	2.5	2.1	3.3	3.8	4.4	4.5	4.3	3.5	6.2
6-Jan	3.9	3.7	4.2	4.7	4.9	5.0	5.0	4.4	4.7	4.4	4.0	3.8	4.4	4.5	4.6	4.1	3.8	3.6	3.6	3.6	4.1	3.9	3.5	3.3	4.2	5.0
7-Jan	3.2	2.8	2.8	3.0	3.0	2.7	2.2	1.9	2.4	2.7	3.3	3.3	3.8	6.3	5.8	5.0	5.3	4.9	4.0	3.7	3.4	3.4	3.7	3.5	3.6	6.3
8-Jan	3.4	3.3	3.4	3.6	7.8	7.4	5.2	3.8	3.1	2.9	3.1	4.9	5.3	4.6	4.4	4.8	4.6	4.0	3.6	3.3	3.1	3.0	3.2	2.9	4.1	7.8
9-Jan	2.5	2.3	2.3	3.1	3.6	3.7	3.5	4.0	3.3	3.9	4.1	4.3	4.2	4.0	4.9	5.2	4.6	4.7	5.4	5.9	4.3	3.9	3.7	3.5	4.0	5.9
10-Jan	3.4	3.5	4.0	3.3	2.8	2.7	2.9	2.7	2.5	2.4	3.7	4.6	4.4	5.7	6.1	5.4	4.2	3.8	3.7	3.5	3.3	3.3	3.3	3.3	3.7	6.1
11-Jan	3.4	3.5	3.2	3.1	2.9	2.8	3.2	3.4	3.6	3.6	4.3	5.3	5.3	5.1	5.0	5.1	4.4	4.0	3.5	3.4	3.4	3.4	3.6	4.2	3.8	5.3
12-Jan	3.8	4.2	4.0	2.9	2.7	3.2	3.1	3.1	3.3	5.3	8.4	8.8	10.2	9.6	8.8	9.2	8.1	8.6	9.3	8.3	5.8	4.8	4.4	3.6	6.0	10.2
13-Jan	3.0	3.0	3.6	4.6	6.8	6.4	6.3	8.3	7.1	9.1	10.6	11.7	14.4	12.1	9.8	12.1	9.0	9.3	8.4	8.8	9.0	7.1	5.5	5.1	8.0	14.4
14-Jan	4.9	4.3	3.7	3.4	3.2	3.0	3.4	2.4	2.2	3.0	8.1	11.7	13.6	18.3	21.2	15.2	12.5	9.6	8.0	6.9	6.0	5.3	5.0	4.6	7.5	21.2
15-Jan	4.7	5.1	7.9	11.1	7.9	7.9	6.1	6.0	5.1	4.7	5.0	9.9	11.5	17.7	26.2	9.6	7.4	7.8	6.8	5.3	4.8	4.8	4.6	4.2	8.0	26.2
16-Jan	7.3	8.4	8.3	7.4	6.4	6.3	5.4	4.7	4.1	3.6	3.6	4.5	8.5	8.8	10.2	9.5	8.5	8.5	6.3	2.5	1.6	1.7	2.1	2.2	5.8	10.2
17-Jan	2.2	2.1	2.3	3.9	3.6	3.6	3.3	3.0	3.3	3.3	3.0	3.3	3.2	3.3	3.6	3.8	3.1	3.2	3.7	3.7	3.7	3.9	4.6	3.5	3.3	4.6
18-Jan	3.2	3.0	2.9	2.5	2.2	1.8	1.6	1.8	1.9	2.0	2.3	2.5	2.7	3.3	4.0	3.8	3.4	2.7	2.7	2.9	3.0	3.0	2.9	2.8	2.7	4.0
19-Jan	3.2	3.1	2.7	2.4	3.0	3.1	3.4	4.0	3.9	3.7	5.6	6.5	7.4	9.9	9.4	11.4	14.1	9.5	6.4	4.8	3.6	5.1	3.9	4.2	5.6	14.1
20-Jan	3.8	4.4	5.0	5.2	5.5	7.4	7.4	6.6	6.1	6.8	4.5	6.6	7.7	6.6	6.4	7.8	6.3	5.9	6.1	4.8	4.2	4.5	4.6	5.1	5.8	7.8
21-Jan	5.0	4.6	4.7	4.8	4.9	5.4	5.4	4.9	5.0	5.0	5.2	5.5	5.5	4.0	3.4	3.3	3.3	2.9	2.5	2.7	3.1	3.3	3.7	4.1	4.3	5.5
22-Jan	4.8	4.6	4.4	4.0	4.1	4.5	5.0	5.2	5.1	5.0	4.9	4.8	4.6	C	C	9.8	9.0	9.5	6.6	4.7	3.6	3.1	3.5	4.1	5.2	9.8
23-Jan	4.7	7.9	6.4	6.4	6.6	7.1	7.6	8.2	8.1	8.9	9.9	10.6	11.3	11.0	9.9	8.5	10.0	8.0	6.6	6.5	7.3	9.4	7.6	4.9	8.1	11.3
24-Jan	4.2	4.4	4.3	4.3	4.6	5.1	5.2	5.0	5.1	5.2	5.6	5.9	6.9	9.6	13.9	12.4	11.5	8.9	9.1	9.0	8.3	8.3	7.8	9.0	7.2	13.9
25-Jan	9.8	13.8	13.9	13.4	12.0	10.8	11.5	11.4	11.6	11.9	12.0	12.0	14.0	17.2	19.1	19.9	19.4	18.0	17.6	23.0	25.7	27.0	30.8	30.8	16.1	30.8
26-Jan	33.3	25.4	19.8	16.7	14.8	13.2	13.8	14.8	14.8	16.9	26.0	32.7	28.8	19.4	15.1	14.1	12.8	14.8	13.8	14.8	16.7	18.4	19.4	17.3	18.7	33.3
27-Jan	13.1	19.6	15.7	13.8	12.7	10.7	10.4	10.8	9.9	9.1	8.4	11.7	13.8	14.5	16.3	13.4	11.2	9.5	3.6	2.4	2.0	1.9	2.9	5.7	10.1	19.6
28-Jan	7.0	7.5	10.5	13.8	11.6	12.9	12.2	11.1	10.6	10.3	9.0	6.4	2.0	1.3	1.0	1.0	1.0	0.8	0.6	0.5	0.8	3.5	3.9	3.4	5.9	13.8
29-Jan	3.1	2.6	2.0	3.9	3.3	3.2	2.9	2.5	3.1	3.3	3.7	4.4	6.3	5.6	4.1	2.9	2.6	2.6	3.1	5.3	7.1	5.7	4.0	3.3	3.8	7.1
30-Jan	4.9	7.3	5.0	5.7	6.1	5.6	6.7	7.1	7.0	7.5	5.1	5.8	4.0	1.9	0.7	0.7	0.6	0.6	1.0	0.6	0.4	0.3	0.3	0.3	3.6	7.5
31-Jan	0.6	0.9	0.9	1.0	1.2	1.7	1.3	1.6	1.6	1.5	1.5	1.5	1.6	4.2	4.4	6.7	4.1	4.5	4.2	4.0	3.9	4.0	3.9	2.8	2.6	6.7
5.3 5.6 5.4 5.6 5.4 5.4 5.4 5.4 5.2 5.4 6.0 6.9 7.3 7.6 8.1 7.3 6.7 6.2 5.5 5.2 5.1 5.3 5.3 5.2 33.3 25.4 19.8 16.7 14.8 13.2 13.8 14.8 14.8 16.9 26.0 32.7 28.8 19.4 26.2 19.1 19.9 19.4 18.0 17.6 23.0 25.7 27.0 30.8																								Diurnal Average 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>) -  $\mu\text{g}/\text{m}^3$**   
**Fort McKay South - January 2024**





**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 - January 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	490	66.04	66.04
6 - 15	222	29.92	95.96
16 - 25	22	2.96	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Fort McKay South - January 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	126	64	12	4	1	3	9	12	36	25	25	55	19	16	27	30	464
6 - 15	35	13	4	1	1	3	5	38	48	11	10	21	8	4	6	8	216
16 - 25	0	0	0	0	0	0	1	8	7	3	1	1	1	0	0	0	22
26 - 80	0	0	0	0	0	1	0	3	3	1	0	0	0	0	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>	161	77	16	5	2	7	15	61	94	40	36	77	28	20	33	38	710

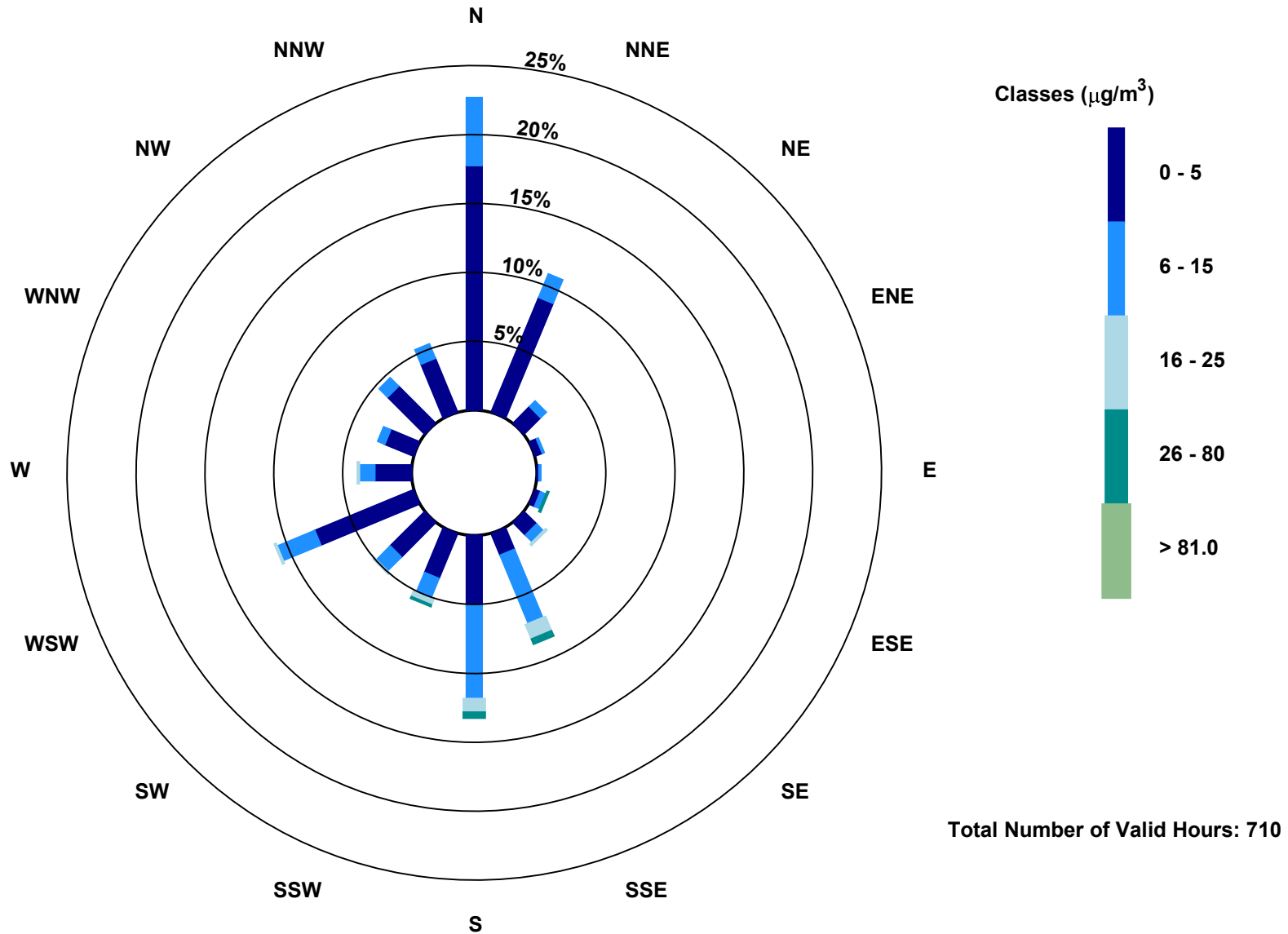
Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024**

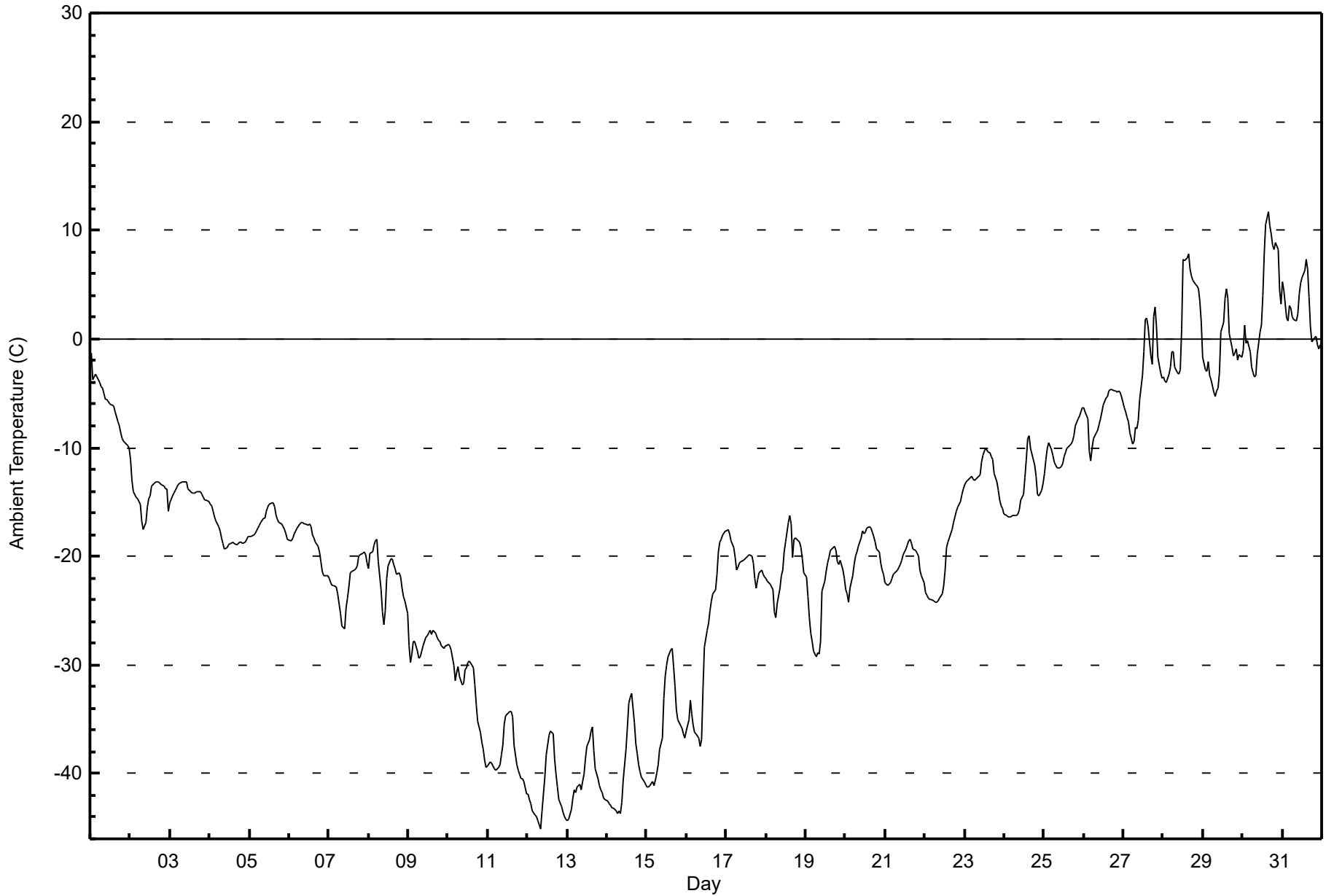
Maximum Value: 11.8 C on Jan 30 16:00																								Hours in Service:		744	
Maximum Daily Average: 3.4 C on Jan 30																								Hours of Data:		744	
Minimum Value: -45.0 C on Jan 12 09:00																								Hours of Missing Data:		0	
Maximum Diurnal Average: -15.8 C at hour 15																								Hours of Calibration:		0	
Monthly Average: -18.79 C																								Percent Operational Time:		100.0	
Minimum Daily Average: -41.6 C on Jan 12																											
Minimum Diurnal Average: -20.9 C at hour 9																											
Percentiles: P <sub>1</sub> = -43.9 P <sub>10</sub> = -39.0 Q <sub>1</sub> = -26.8 Median = -18.6 Q <sub>3</sub> = -10.5 P <sub>90</sub> = -1.4 P <sub>99</sub> = 8.0																											
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-Jan	-1.3	-3.8	-3.4	-3.2	-3.5	-4.0	-4.4	-4.6	-5.1	-5.6	-5.6	-5.9	-6.1	-6.1	-6.1	-6.7	-7.7	-8.0	-8.6	-9.2	-9.4	-9.5	-9.7	-10.1	-6.1	-1.3	
2-Jan	-11.2	-13.0	-14.1	-14.6	-14.7	-14.9	-15.2	-16.8	-17.6	-16.8	-15.4	-14.7	-14.4	-13.6	-13.3	-13.2	-13.2	-13.2	-13.1	-13.3	-13.4	-13.5	-13.8	-13.8	-15.8	-14.3	-11.2
3-Jan	-15.0	-14.5	-14.2	-13.9	-13.6	-13.5	-13.3	-13.2	-13.1	-13.1	-13.1	-13.8	-14.1	-14.2	-14.2	-14.2	-14.0	-14.0	-14.1	-14.3	-14.6	-14.8	-14.8	-15.0	-14.0	-13.1	
4-Jan	-15.2	-15.3	-15.8	-16.3	-16.8	-17.2	-17.6	-18.3	-18.8	-19.4	-19.2	-19.0	-18.8	-18.8	-18.7	-18.8	-18.9	-18.9	-18.7	-18.8	-18.8	-18.7	-18.5	-18.1	-18.1	-15.2	
5-Jan	-18.1	-18.2	-18.1	-17.9	-17.6	-17.4	-17.1	-16.8	-16.5	-16.5	-15.9	-15.5	-15.2	-15.1	-15.1	-15.5	-16.2	-16.7	-16.9	-17.1	-17.3	-17.5	-17.9	-18.4	-16.9	-15.1	
6-Jan	-18.6	-18.5	-18.3	-17.9	-17.6	-17.3	-17.0	-16.8	-16.8	-17.0	-17.1	-17.1	-17.1	-17.3	-18.0	-18.3	-18.7	-19.0	-19.6	-20.5	-21.4	-21.7	-21.8	-21.8	-18.6	-16.8	
7-Jan	-22.0	-22.4	-22.7	-22.7	-22.8	-23.4	-24.3	-25.3	-26.4	-26.7	-24.7	-23.8	-22.8	-21.5	-21.3	-21.3	-21.2	-20.8	-20.0	-19.8	-19.7	-19.6	-19.9	-20.6	-22.3	-19.6	
8-Jan	-21.2	-19.7	-19.5	-18.9	-18.6	-18.4	-20.5	-23.1	-25.2	-26.3	-25.0	-22.1	-20.9	-20.2	-20.3	-20.7	-21.1	-21.6	-21.5	-21.9	-22.9	-23.7	-24.2	-25.2	-21.8	-18.4	
9-Jan	-28.2	-29.8	-29.1	-27.9	-27.9	-28.7	-29.3	-29.2	-28.7	-28.2	-27.4	-27.3	-27.0	-26.8	-27.2	-26.8	-27.1	-27.4	-27.7	-27.8	-28.2	-28.5	-28.2	-28.2	-28.0	-26.8	
10-Jan	-28.1	-28.2	-28.7	-30.1	-31.4	-30.7	-30.2	-31.0	-31.8	-31.7	-30.4	-30.3	-29.8	-29.7	-30.0	-30.3	-31.8	-33.7	-35.1	-36.2	-37.1	-37.8	-38.8	-39.4	-32.2	-28.1	
11-Jan	-39.3	-38.9	-39.0	-39.3	-39.6	-39.7	-39.5	-39.1	-38.3	-37.4	-35.5	-34.6	-34.4	-34.2	-34.3	-34.8	-37.4	-39.2	-39.6	-40.0	-40.5	-40.4	-40.7	-41.9	-38.2	-34.2	
12-Jan	-41.9	-42.4	-42.8	-43.5	-43.9	-44.0	-44.3	-44.8	-45.0	-43.4	-40.3	-38.3	-37.4	-36.5	-36.1	-36.3	-38.6	-40.0	-41.2	-42.4	-43.0	-43.5	-43.9	-44.2	-41.6	-36.1	
13-Jan	-44.3	-44.1	-43.3	-42.2	-41.5	-41.7	-41.3	-41.0	-41.5	-40.7	-40.0	-38.6	-37.5	-36.9	-36.0	-35.7	-37.9	-39.5	-40.4	-41.1	-41.4	-41.8	-42.2	-42.4	-40.6	-35.7	
14-Jan	-42.6	-42.8	-42.9	-43.1	-43.1	-43.4	-43.6	-43.4	-43.7	-42.6	-40.6	-37.7	-35.7	-33.5	-33.0	-32.7	-35.3	-37.3	-38.2	-39.2	-39.9	-40.3	-40.8	-41.0	-39.8	-32.7	
15-Jan	-41.2	-41.3	-41.1	-40.7	-41.1	-40.6	-40.0	-39.2	-37.7	-36.7	-33.1	-31.1	-30.0	-29.2	-28.6	-28.5	-30.1	-32.0	-34.2	-35.0	-35.6	-35.8	-36.4	-36.7	-35.7	-28.5	
16-Jan	-36.1	-35.1	-33.2	-34.5	-35.5	-36.2	-36.3	-36.8	-37.5	-36.8	-32.2	-28.4	-26.8	-26.1	-25.0	-24.2	-23.4	-23.0	-21.7	-19.5	-18.7	-18.4	-18.1	-17.6	-28.4	-17.6	
17-Jan	-17.7	-17.5	-17.9	-18.6	-19.2	-20.1	-21.3	-21.1	-20.6	-20.5	-20.3	-20.2	-20.0	-19.9	-19.9	-19.9	-20.7	-22.0	-22.9	-22.2	-21.5	-21.2	-21.6	-21.9	-20.4	-17.5	
18-Jan	-22.1	-22.2	-22.5	-22.8	-23.1	-25.1	-25.6	-24.3	-23.0	-21.8	-21.2	-19.6	-18.7	-16.9	-16.2	-17.0	-20.1	-18.4	-18.3	-18.6	-18.7	-19.2	-20.3	-21.6	-20.7	-16.2	
19-Jan	-21.9	-23.7	-25.7	-27.0	-27.9	-28.7	-29.2	-28.9	-29.0	-27.8	-23.3	-22.3	-21.3	-20.7	-20.1	-19.5	-19.4	-19.1	-19.5	-20.4	-20.7	-20.4	-21.3	-22.0	-23.3	-19.1	
20-Jan	-23.0	-23.4	-24.3	-23.0	-21.8	-20.7	-20.0	-19.6	-19.1	-18.3	-17.6	-17.9	-17.7	-17.4	-17.3	-17.4	-17.8	-18.2	-18.7	-19.3	-19.7	-20.6	-21.3	-21.6	-19.8	-17.3	
21-Jan	-22.4	-22.7	-22.6	-22.4	-22.1	-21.7	-21.5	-21.3	-21.0	-20.7	-20.4	-19.9	-19.4	-19.0	-18.6	-18.4	-18.8	-19.4	-19.5	-19.7	-20.0	-21.3	-21.7	-22.5	-20.7	-18.4	
22-Jan	-23.3	-23.6	-23.9	-24.0	-24.0	-24.1	-24.2	-24.2	-24.1	-23.8	-23.4	-22.6	-21.3	-19.2	-18.7	-18.3	-17.6	-16.9	-16.4	-15.9	-15.4	-14.9	-14.4	-13.8	-20.3	-13.8	
23-Jan	-13.4	-13.2	-13.0	-12.7	-12.6	-12.9	-13.1	-12.9	-12.6	-12.5	-11.4	-10.7	-10.3	-10.1	-10.5	-10.5	-10.8	-11.1	-12.4	-13.2	-13.9	-14.9	-15.3	-15.6	-12.5	-10.1	
24-Jan	-16.1	-16.3	-16.4	-16.4	-16.3	-16.2	-16.2	-16.2	-16.1	-15.7	-14.9	-14.3	-12.7	-11.1	-9.1	-8.9	-10.0	-11.1	-11.6	-12.6	-14.4	-14.5	-13.9	-13.3	-13.9	-8.9	
25-Jan	-12.4	-11.1	-10.1	-9.6	-10.2	-10.8	-11.3	-11.7	-11.8	-11.9	-11.8	-11.4	-10.8	-10.5	-10.0	-9.8	-9.7	-9.4	-8.9	-8.0	-7.4	-7.1	-6.7	-6.3	-9.9	-6.3	
26-Jan	-6.3	-6.7	-7.3	-10.3	-11.2	-10.1	-9.1	-8.7	-8.3	-7.9	-7.4	-6.8	-6.1	-5.5	-5.3	-4.8	-4.6	-4.6	-4.7	-4.8	-4.8	-4.8	-4.9	-5.4	-6.7	-4.6	
27-Jan	-6.3	-6.8	-7.2	-7.6	-8.7	-9.7	-9.4	-8.1	-8.3	-7.5	-5.6	-3.3	-1.2	1.8	1.9	1.2	-1.5	-2.4	2.0	2.9	1.1	-1.7	-3.1	-3.6	-3.8	2.9	
28-Jan	-3.5	-3.9	-4.0	-3.2	-2.5	-1.2	-1.2	-2.6	-3.2	-3.2	-2.8	0.9	7.3	7.2	7.4	7.8	6.4	5.8	5.4	5.0	4.9	4.6	3.5	1.5	1.5	7.8	
29-Jan	-1.7	-2.9	-2.9	-2.1	-3.4	-3.7	-4.9	-5.3	-4.8	-4.5	-3.1	0.6	1.5	3.7	4.6	3.7	0.5	-0.8	-1.6	-1.3	-0.9	-1.9	-1.5	-1.7	-1.4	4.6	
30-Jan	-1.0	1.3	-0.4	-0.1	-1.1	-2.6	-3.1	-3.6	-3.4	-1.4	0.7	1.3	4.0	7.8	10.5	11.8	10.4	9.6	8.6	8.2	8.9	8.2	4.5	3.2	3.4	11.8	
31-Jan	5.3	4.5	1.9	1.7	3.0	2.8	2.0	1.8	1.6	2.3	4.2	5.1	5.7	6.3	7.3	6.4	3.8	1.2	-0.3	0.1	0.2	-0.6	-0.9	-0.5	2.7	7.3	
-19.7 -19.9 -20.1 -20.1 -20.3 -20.5 -20.7 -20.8 -20.9 -20.5 -19.2 -18.0 -17.1 -16.2 -15.8 -15.9 -16.9 -17.5 -17.7 -17.9 -18.2 -18.6 -19.0 -19.4																								Diurnal Average			
5.3 4.5 1.9 1.7 3.0 2.8 2.0 1.8 1.6 2.3 4.2 5.1 7.3 7.8 10.5 11.8 10.4 9.6 8.6 8.2 8.9 8.2 4.5 3.2																								Diurnal Maximum			





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

**Ambient Temperature (AT) - C**  
**Fort McKay South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Fort McKay South - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	316	42.47	42.47
-20 - 0	368	49.46	91.94
0 - 10	57	7.66	99.60
10 - 20	3	0.40	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

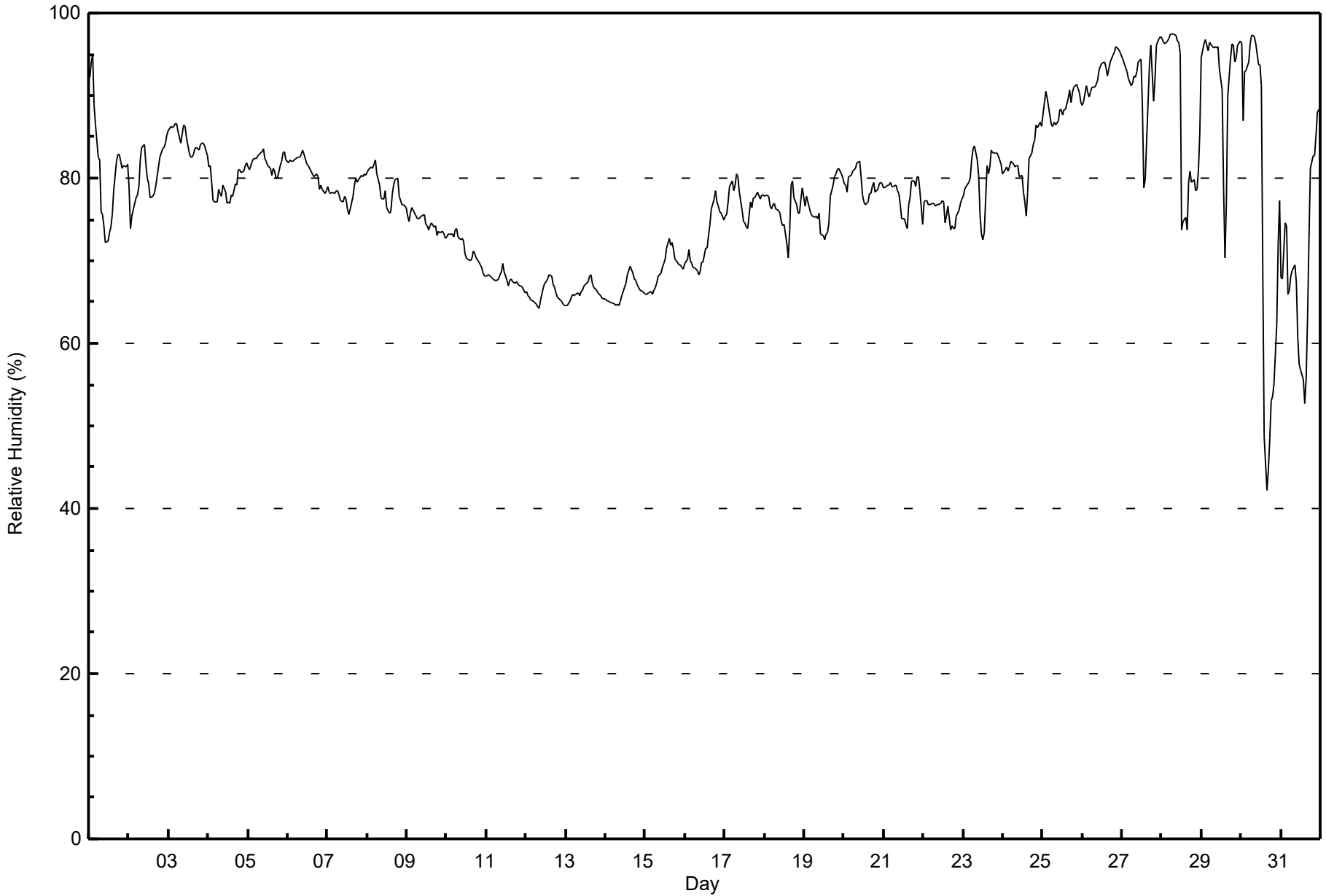
Total Number of Hours: 744



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

**Relative Humidity (RH) - %**  
**Fort McKay South - January 2024**

<b>Maximum Value: 97.5 % on Jan 28 06:00</b> <b>Maximum Daily Average: 92.7 % on Jan 26</b>																								<b>Hours in Service:</b> 744 <b>Hours of Data:</b> 744 <b>Hours of Missing Data:</b> 0 <b>Hours of Calibration:</b> 0 <b>Percent Operational Time:</b> 100.0		
<b>Minimum Value: 42.2 % on Jan 30 16:00</b> <b>Minimum Daily Average: 65.9 % on Jan 12</b> <b>Maximum Diurnal Average: 79.8 % at hour 3</b> <b>Minimum Diurnal Average: 74.2 % at hour 15</b> <b>Monthly Average: 78.21 %</b> <b>Percentiles: P<sub>1</sub> = 55.3 P<sub>10</sub> = 66.8 Q<sub>1</sub> = 72.9 Median = 78.1 Q<sub>3</sub> = 82.4 P<sub>90</sub> = 92.1 P<sub>99</sub> = 97.1</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-Jan	92.2	94.1	95.0	88.8	86.4	82.5	82.3	75.9	75.5	74.2	72.2	72.4	73.4	74.0	75.6	78.5	82.1	83.0	82.9	82.0	81.2	81.6	81.4	81.7	81.2	95.0
2-Jan	78.9	73.9	75.5	77.0	77.7	78.0	78.9	82.1	83.7	84.1	81.8	79.9	79.3	77.6	77.7	78.1	78.9	80.1	81.3	82.6	83.5	83.8	84.2	85.3	80.2	85.3
3-Jan	85.8	86.2	86.1	86.4	86.7	86.6	85.5	84.3	85.4	86.4	86.3	84.9	83.1	82.5	82.5	82.9	83.5	83.8	83.4	84.2	84.3	84.3	83.8	82.7	84.6	86.7
4-Jan	81.3	81.5	79.5	77.4	77.2	77.2	78.6	78.2	77.8	79.2	78.3	77.0	77.1	76.9	77.9	77.8	79.3	79.2	81.1	81.0	80.7	80.8	81.5	81.9	79.1	81.9
5-Jan	81.3	80.9	82.1	82.3	82.4	82.4	82.6	82.8	83.2	83.6	82.4	82.0	81.5	81.1	80.3	81.1	80.8	80.1	80.0	81.6	82.1	83.1	83.2	82.2	81.9	83.6
6-Jan	81.9	82.2	82.0	82.0	82.1	82.4	82.6	82.6	82.9	83.5	82.9	81.6	81.5	81.3	80.9	80.6	80.1	80.4	80.2	78.7	79.1	78.6	78.2	78.5	81.1	83.5
7-Jan	79.1	78.2	78.1	78.3	78.1	78.5	78.0	77.2	77.2	77.9	77.5	76.2	75.5	76.3	77.7	79.2	80.0	79.6	79.9	80.3	80.2	80.5	80.3	78.4	80.5	80.5
8-Jan	80.7	81.0	81.3	81.3	81.7	82.2	80.5	79.1	77.6	77.4	77.4	78.4	76.4	75.7	76.0	77.9	79.2	79.9	79.9	77.7	77.2	76.8	76.8	76.5	78.7	82.2
9-Jan	75.5	74.8	75.8	76.5	76.2	75.5	75.1	75.1	75.3	75.4	75.5	74.4	74.3	73.7	74.2	74.6	74.0	74.2	73.1	73.6	73.4	73.6	73.3	72.7	74.6	76.5
10-Jan	72.8	73.2	73.2	73.3	72.9	73.7	73.8	72.9	72.5	72.7	72.4	70.9	70.4	70.1	70.0	70.4	71.3	70.9	70.3	69.9	69.5	69.2	68.5	68.1	71.4	73.8
11-Jan	68.2	68.3	68.2	67.9	67.7	67.6	67.7	67.8	68.4	68.7	69.6	68.7	67.7	67.0	67.7	67.7	67.4	67.3	67.4	67.3	67.4	67.1	66.9	66.1	67.7	69.6
12-Jan	66.2	65.7	65.6	65.2	65.0	64.9	64.7	64.5	64.3	65.3	66.8	67.2	67.4	67.9	68.3	68.2	67.1	66.8	66.2	65.6	65.3	65.0	64.8	64.6	65.9	68.3
13-Jan	64.5	64.7	65.1	65.6	65.9	65.7	66.0	66.1	65.8	66.3	66.4	67.0	67.1	67.5	68.1	68.3	67.3	66.7	66.4	66.1	65.9	65.7	65.4	65.4	66.2	68.3
14-Jan	65.3	65.2	65.1	64.9	64.9	64.7	64.5	64.7	64.5	65.1	65.8	66.8	67.4	68.2	68.8	69.4	68.4	67.9	67.6	67.1	66.8	66.5	66.3	66.1	66.3	69.4
15-Jan	66.0	65.9	66.0	66.4	66.0	66.4	66.8	67.2	68.1	68.4	69.1	69.7	70.2	71.5	72.8	71.8	72.3	71.4	70.2	70.0	69.6	69.6	69.2	69.0	68.9	72.8
16-Jan	69.6	70.2	71.3	69.9	69.6	69.1	69.1	68.8	68.3	68.6	69.8	69.8	71.5	73.1	74.5	76.2	77.4	78.5	77.2	76.6	75.9	75.8	75.0	72.4	78.5	
17-Jan	75.4	75.5	77.1	79.0	79.7	78.5	79.2	80.5	80.2	78.3	76.2	74.8	74.5	74.1	73.9	77.2	76.4	77.7	77.6	77.9	78.4	77.4	78.0	77.9	77.3	80.5
18-Jan	77.9	77.9	77.8	76.6	76.2	76.8	76.9	76.2	76.0	75.8	74.7	74.3	74.4	72.0	70.4	73.8	79.2	79.7	77.7	76.8	75.8	75.8	77.4	78.8	76.2	79.7
19-Jan	76.7	77.9	77.2	76.4	75.8	75.4	75.2	75.4	75.1	75.7	73.3	73.1	72.6	73.2	73.3	74.5	77.8	79.2	80.1	80.6	81.0	81.2	80.5	80.1	76.7	81.2
20-Jan	79.2	79.1	78.3	80.1	80.3	80.9	81.0	81.2	81.9	82.0	80.1	78.0	77.1	76.8	77.1	78.2	78.1	79.1	79.6	78.3	78.7	79.3	79.6	79.4	79.3	82.0
21-Jan	78.8	79.0	79.1	79.2	79.5	78.9	79.0	79.1	78.4	78.1	76.9	75.0	75.1	74.4	73.9	76.7	77.6	79.6	79.7	79.0	80.2	80.1	78.6	74.5	77.9	80.2
22-Jan	77.2	77.2	77.3	76.7	76.8	77.0	76.9	76.6	76.7	76.8	77.0	77.3	77.1	74.6	75.4	76.5	73.8	74.2	73.9	73.9	75.4	76.1	77.0	77.5	76.2	77.5
23-Jan	77.8	78.6	79.0	79.5	80.1	82.3	83.5	83.8	82.3	80.4	75.6	73.2	72.5	73.3	81.5	80.5	81.3	83.4	83.0	83.0	83.0	82.6	82.2	81.6	80.2	83.8
24-Jan	80.5	81.0	81.3	80.8	81.4	82.1	81.7	81.4	81.5	81.5	80.1	80.3	78.3	77.2	75.4	78.3	82.4	83.0	84.1	84.5	86.4	86.0	86.7	86.3	81.8	86.7
25-Jan	87.8	89.1	90.4	89.7	87.5	86.5	86.2	86.8	86.4	87.0	88.2	88.2	87.6	88.3	88.3	89.7	90.6	89.1	90.4	91.0	91.4	90.9	90.4	89.2	88.8	91.4
26-Jan	88.8	89.3	91.1	90.4	89.8	90.5	91.0	91.0	91.3	91.8	93.1	93.6	93.8	94.1	93.4	92.4	93.2	94.0	94.9	95.3	95.9	95.8	95.7	95.3	92.7	95.9
27-Jan	94.5	93.9	93.4	92.9	92.0	91.3	91.6	92.4	92.3	92.9	94.1	94.4	88.7	78.9	79.8	84.4	93.5	96.1	92.7	89.3	92.1	96.1	97.0	97.1	91.7	97.1
28-Jan	97.0	96.5	96.3	96.7	97.0	97.5	97.5	97.4	97.2	96.6	96.5	95.1	73.7	74.7	75.2	73.8	79.5	80.8	79.5	79.9	78.5	78.6	80.9	85.4	87.6	97.5
29-Jan	94.6	96.2	96.8	96.0	95.4	96.5	95.9	95.7	95.9	95.8	96.0	93.2	90.6	78.7	70.3	77.2	89.9	94.6	96.2	96.1	94.1	94.6	96.1	96.6	92.6	96.8
30-Jan	96.3	86.9	92.8	93.0	94.1	96.3	97.2	97.3	97.1	96.2	93.8	93.8	91.1	68.9	48.6	42.2	44.8	48.5	53.0	53.6	55.0	62.3	72.0	77.4	77.2	97.3
31-Jan	68.0	67.8	74.5	74.2	65.9	66.4	68.2	68.9	69.5	67.4	60.7	57.5	56.7	55.6	52.7	55.8	63.3	72.6	81.2	82.8	82.6	85.0	87.9	88.3	69.7	88.3
<b>79.3 79.1 79.8 79.5 79.1 79.2 79.3 79.2 79.1 79.1 78.4 77.7 76.4 74.7 74.2 75.2 77.0 78.1 78.4 78.3 78.4 78.8 79.3 79.4</b>																								<b>Diurnal Average</b>		
<b>97.0 96.5 96.8 96.7 97.0 97.5 97.5 97.4 97.2 96.6 96.5 95.1 93.8 94.1 93.4 92.4 93.5 96.1 96.2 96.1 95.9 96.1 97.0 97.1</b>																								<b>Diurnal Maximum</b>		





Maximum Speed: 20 km/h on Jan 4 04:00		Maximum Daily Speed Average: 11.4 km/h on Jan 4		Hours in Service:	744																					
Minimum Speed Value: 0 km/h on Jan 24 20:00		Minimum Daily Speed Average: 0.5 km/h on Jan 25		Hours of Data:	712																					
Maximum Diurnal Speed Average: 2.0 km/h at hour 22		Minimum Diurnal Speed Average: 0.6 km/h at hour 16		Hours of Missing Data:	32																					
Monthly Average Velocity: 1.2 km/h 344.7 deg		Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 5 Q <sub>3</sub> = 8 P <sub>90</sub> = 10 P <sub>99</sub> = 16		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-Jan	NW3	W2	N7	NNE8	N11	N12	N11	NNW8	N6	NNW4	NNE4	NNE5	N5	NE3	N3	NNE6	NNE5	NNE5	NE6	ENE4	NE5	NNE5	NNE5	NE6	NNE5.4	N12
2-Jan	NNE9	NNE7	NNE5	N5	N4	NNE5	NNE4	NNW2	WSW3	SSE1	NNE0	NE2	N4	NNW1	ESE0	SE3	NE2	NNE3	N3	NW2	N4	NNW1	NE1	NNW2	NNE2.4	NNE9
3-Jan	NW1	NNW1	SW1	NNW2	WSW1	S3	SSE6	S3	NNE3	NE2	NNE6	N8	N11	N10	NNW8	N10	N9	N10	N12	N11	N13	N14	N14	N15	N6.1	N15
4-Jan	N14	N16	N19	N20	N20	N18	N13	N16	NNE13	NNE9	NNE10	NNE9	NNE9	NNE8	N9	NNE10	NNE9	NNE9	N9	N8	N9	N8	N7	NNW6	N11.4	N20
5-Jan	N8	NNW6	NNW6	NNW5	NW3	NW2	WNW1	WSW0	S1	ESE1	ESE1	ENE2	NE4	NNE5	NNE5	NNE6	NNE7	N7	NNE6	N6	N6	N6	N6	N7	N4.0	NNW8
6-Jan	N6	N6	N6	N6	N7	NNW7	NNW8	N9	N9	N9	N10	N12	N12	N13	N14	N14	N13	N11	N13	N14	N13	N12	N11	N9	N10.0	N14
7-Jan	NNE6	NNE6	NE4	NE4	NE5	ENE1	NNE2	NW3	NW3	WSW1	SE1	SE1	SE4	SSE6	SSE6	SSE5	SSW3	S3	SSE8	S9	S11	SSE9	S7	S7	SSE2.4	S11
8-Jan	S6	S9	S6	S9	SSE7	SSW3	NNW2	NW2	W3	NNW3	NNW4	N6	N7	N6	N6	N4	N3	NNW1	NNE4	NNE8	NNE7	NNE7	NNE5	N3	NNE1.4	S9
9-Jan	NNW3	WNW2	NW2	N6	N4	N3	N2	NNE3	N5	N5	N8	N10	NNE9	N12	N12	N13	N12	N10	N13	N10	N11	N11	N12	N12	N8.0	N13
10-Jan	N10	N9	N8	N2	WSW2	SSW1	UO	UO	UO	NNW2	NNE3	NNE4	NNE5	N6	NNE5	NNE4	NW1	UOWSW2	WSW2	WSW2	WSW2	WSW2	WSW2	WSW1	N2.6	N10
11-Jan	WSW3	WSW2	WSW2	W1	UO	W1	WSW1	UO	UOWSW1	SE0	ENE2	NNE3	NNE3	NE4	NE3	UOWSW2	SW2	UOWSW1	UOWNW1	UO					----	NE4
12-Jan	UO	UO	UO	W1	UO	UOWSW2	SW1	WSW1	WSW1	WSW1	SSE1	SSE5	SSE4	SE3	S1	W1	UOWSW1	WSW1	WSW1	WSW1	WSW2	WSW1	WSW1	WSW1	SSW1.2	SSE5
13-Jan	WSW1	WSW1	WSW1	UO	W1	W1	NNW1	NNW0	W1	WSW1	W1	S0	SE3	SE4	SSE4	S2	WSW1	UOWSW1	UO	SW1	UO	SW1	NNW1	WSW1	SSW0.8	SE4
14-Jan	UO	NW1	W1	WSW0	UO	UOWSW1	UO	UO	UO	SSE2	ESE2	ESE1	SE2	SSE2	S1	NNW1	W1	WSW2	WSW2	W2	SW1	SSW1	UO	WSW1	----	WSW2
15-Jan	WSW2	SW2	SSW3	SSW1	S3	S4	S4	SSW5	S4	S4	S6	SSE7	SSE10	SSE8	SSE8	S6	S6	SSW3	S4	SSW2	SSW3	SSW2	SSW3	S3	S4.1	SSE10
16-Jan	S4	WSW1	N3	NW1	NNW3	S1	UOWSW2	WSW1	WSW2	NNW1	S2	SW4	ESE4	SE3	SSE3	SE2	E0	NNW4	NNW5	W5	W7	W8	NNW8	WSW1	W1.6	NNW8
17-Jan	WNW8	NW7	NNW4	NNE6	NNE7	NNE7	N1	UO	NE2	NNE6	NNE8	NNE10	NNE9	NNE9	N9	NNE9	NNE7	N6	N7	NNW7	NNW8	N10	NNW7	NW6	N6.3	NNE10
18-Jan	NW3	W3	W5	WSW7	NW2	NNW1	WSW4	W3	WSW7	WSW4	NW2	N3	E2	SE4	SE5	SE1	WSW2	W7	NNW6	W7	NW5	NW2	SW2	WSW4	W2.5	W7
19-Jan	W2	S3	SSE3	SW3	SW2	SSW3	SSW4	SSW3	SSW3	S4	SSE6	SSE10	SE9	SSE8	SSE6	SSE4	SSW3	S4	NW1	NNW1	NNW1	NW1	S4	NNW2	S2.9	SSE10
20-Jan	NNW2	NNW2	SW2	WSW1	N2	NNW0	SSE1	NNE0	S3	N2	NNW6	NNW8	NNW9	N8	N9	N8	N7	N10	N10	NNE9	NNE9	NNE10	NNE7	N7	N4.9	NNE10
21-Jan	NNW5	N4	NNW2	NNW2	NW2	NW4	NW3	W2	NNW4	N6	N7	N8	N9	N10	N10	NNE9	NNE8	NNE4	N5	N5	N3	NNE3	N8	N11	N5.4	N11
22-Jan	N11	N10	N9	N9	N8	N7	N6	N6	N4	N5	N5	N5	NNE3	SSE12	SSE14	SSE11	SSE9	SSE10	SSE15	SSE18	SSE15	SSE13	S11	S11	SE2.6	SSE18
23-Jan	SSE12	SSE13	S12	S8	S9	S5	S5	S6	S5	S5	S7	S6	S5	N3	NNE6	N8	N9	N10	N13	N12	N13	N12	N10	N10	ENE0.9	N13
24-Jan	N10	N7	N8	N8	N6	N5	NW3	NW2	N2	NNW4	NNE1	NE3	NE2	SW1	WSW4	WSW8	WSW9	WSW7	WSW6	SW0	S0	SW2	NW2	NNW4	NW2.4	N10
25-Jan	NNW4	N5	NNE6	NNE10	NNE9	NNE10	N11	N7	N7	N7	N7	N3	SW2	SSW4	S6	S9	SSE9	SSE7	S8	S7	S7	S7	S6	SSW8	ENE0.5	N11
26-Jan	S7	S2	WSW2	W2	NW1	S2	UO	SSE2	UO	SSE3	SSE4	ESE3	SSE8	SSE10	SSE12	S10	S11	S10	SSE8	SSE6	SSE5	SSE4	S4	SW5	S5.1	SSE12
27-Jan	SW5	SW4	SSW4	S4	SSW3	WSW1	WSW2	S2	SSE5	S4	S4	SSE4	SSE8	S5	SSW4	S4	S2	W2	WSW8	WSW8	SSW3	SSW1	S3	S5	SSW3.6	WSW8
28-Jan	S4	S5	SSW3	S2	S4	S3	SSW1	ENE0	S5	SSW2	WSW2	SW6	SW10	SW10	WSW8	WSW8	WSW8	WSW12	WSW12	W1	WSW12	W13	W10	SW5	SSW5.9	W14
29-Jan	S3	SSW4	S4	S4	S5	SSW4	SW4	S4	SSW2	SW4	SSW1	SSW4	NNE1	WSW3	SW5	SSW2	SSW1	W2	S2	S5	S6	S7	SSE6	S2	SSW3.1	S7
30-Jan	S8	SSE9	S4	SSE5	S3	NW2	WSW2	SW2	S3	SSE4	S4	SSE7	SSW8	SW10	WSW12	WSW10	WSW12	WSW8	SW10	SW10	NNW14	NW8	SW4	SW7	SSW5.3	WSW16
31-Jan	WSW10	SW8	SSW3	WSW6	SW8	SW10	SW6	SW10	SW10	SW6	SSW4	S6	SSE8	SE9	SSE10	SSE7	S4	S4	S2	NNW1	N3	NNW2	NNW3	SSW2	SSW4.3	SW10
NNW1 NNW1 NNW1.4 N1.6 N1.7 NNW1.6 NNW1.4 NNW1.2 NNW0.9 NNW0.9 NNE1.3 NE1.5 NE1.7 NE0.9 ENE0.6 N0.6 NNW1 NNW1.4 NNW1.4 NNW1.4 NNW2 NNW2 NNW1.5 NNW1.9 N14 N16 N19 N20 N20 N18 N13 N16 NNE13 N9 N10 N12 N12 N13 SSE14 SW16 N10 SW12 SSE15 SSE18 SSE15 N14 N14 N15																								Diurnal Average	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**

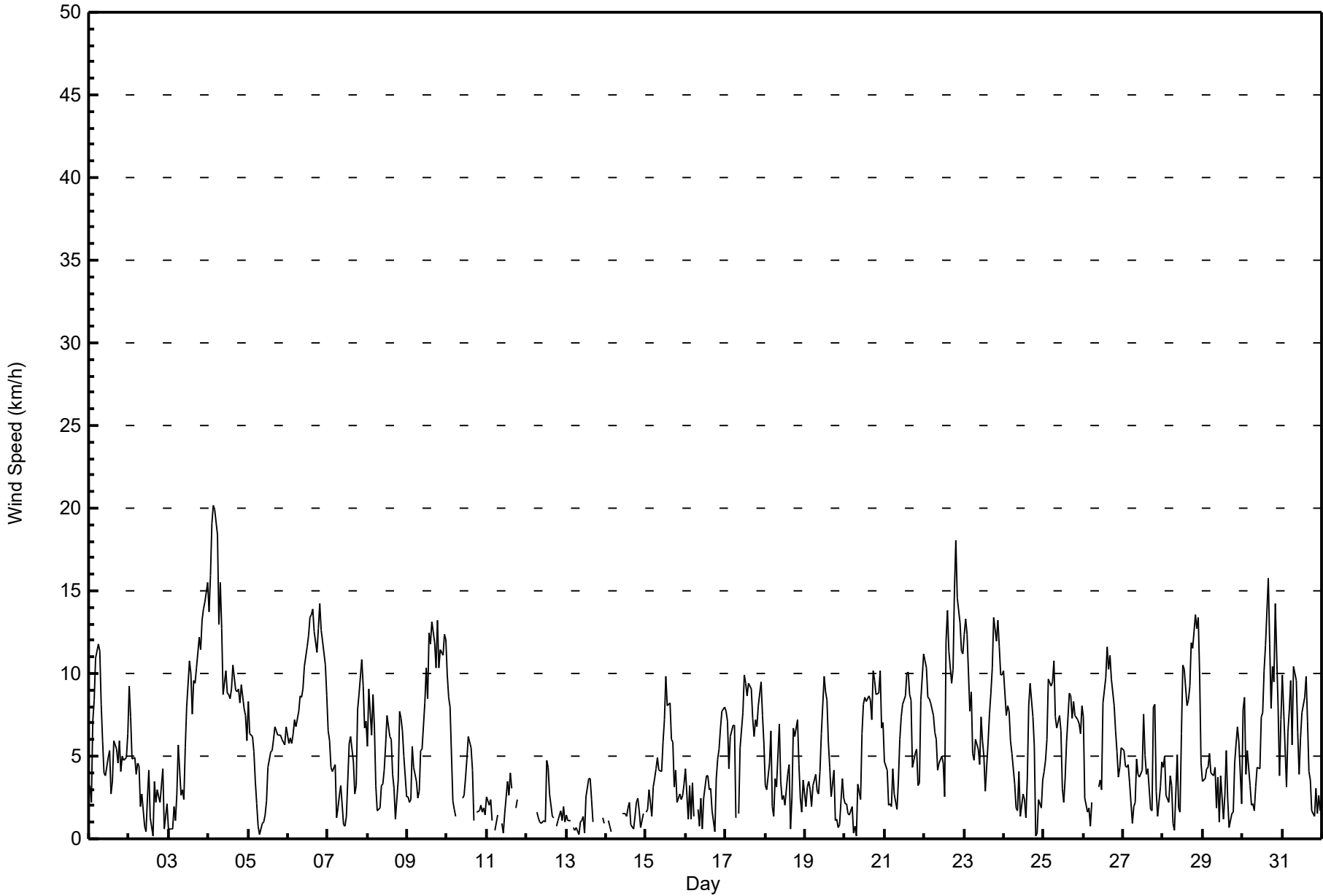
**Wind Speed (WS) - km/h**  
**Fort McKay South - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 16:00																			Hours in Service: 744						
Minimum Value: 0 km/h on Jan 15 02:00																			Hours of Data: 712						
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 1 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 4																			Hours of Missing Data: 32						
																			Hours of Calibration: 0						
																			Percent Operational Time: 95.7						
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-Jan	2	1	3	2	4	3	3	2	2	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	4
2-Jan	3	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	2	1	1	1	1	1	3
3-Jan	1	1	1	1	1	2	2	2	1	1	2	2	2	2	2	2	2	2	3	2	2	3	3	3	3
4-Jan	3	4	4	5	5	5	3	4	4	3	3	3	2	2	2	2	2	3	2	1	2	1	2	2	5
5-Jan	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2
6-Jan	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	3
7-Jan	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2
8-Jan	3	1	2	1	1	2	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	2	1	1	3
9-Jan	1	1	1	1	1	2	1	1	1	1	3	3	3	3	2	3	3	3	3	3	2	2	3	3	3
10-Jan	2	2	3	1	1	1	UO	UO	UO	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	3
11-Jan	1	1	1	1	UO	1	1	UO	UO	1	1	1	1	1	1	1	UO	1	1	UO	1	UO	1	UO	1
12-Jan	UO	UO	UO	1	UO	UO	1	1	1	1	1	2	1	1	1	1	1	UO	1	1	1	1	1	1	2
13-Jan	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	UO	1	UO	1	1	1
14-Jan	UO	1	1	1	UO	UO	1	UO	UO	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1
15-Jan	1	0	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	1	2	1	1	1	1	2
16-Jan	1	1	1	1	1	1	UO	1	1	2	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2
17-Jan	2	2	2	2	2	2	1	UO	1	2	2	2	2	2	2	2	2	2	1	1	2	3	2	2	3
18-Jan	1	1	2	1	1	1	1	2	2	2	1	1	1	1	1	2	1	2	2	2	2	1	1	2	2
19-Jan	2	2	1	1	1	1	1	1	1	2	2	1	2	2	1	1	1	3	1	1	2	2	1	2	3
20-Jan	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	2	2	2	3	2	2	3
21-Jan	2	1	1	2	1	1	1	1	1	1	2	2	2	2	3	3	1	1	2	1	1	1	4	3	4
22-Jan	2	2	2	2	2	2	1	1	1	1	1	1	3	3	2	2	2	5	3	3	2	2	3	5	
23-Jan	2	2	2	2	2	1	1	1	1	1	1	2	2	1	1	2	2	3	3	2	3	3	2	3	3
24-Jan	2	1	2	2	1	1	1	1	1	1	1	1	1	3	2	1	2	2	1	1	1	1	2	1	3
25-Jan	1	1	2	2	2	2	2	2	1	1	2	1	2	1	1	2	2	1	1	2	1	2	2	2	2
26-Jan	1	2	1	1	1	2	UO	1	UO	1	1	1	2	2	3	2	2	2	2	1	1	1	1	2	3
27-Jan	1	1	1	1	1	1	1	2	1	2	1	1	2	2	1	2	1	2	2	2	2	1	1	1	2
28-Jan	1	2	1	1	2	2	1	1	2	2	1	4	3	4	4	3	3	3	4	4	4	4	4	2	4
29-Jan	1	1	2	2	1	1	1	1	1	1	1	2	2	2	2	1	1	1	2	2	2	2	2	1	2
30-Jan	2	2	1	2	3	1	2	2	2	3	2	2	2	4	4	7	5	3	3	4	5	4	1	3	7
31-Jan	2	2	2	2	3	4	3	3	3	4	2	2	2	2	2	1	1	1	1	1	1	1	1	2	4
																			Diurnal Maximum						
UO - Unstable Operation																									



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

**Wind Speed (WS) - km/h**  
**Fort McKay South - January 2024**





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

**Wind Speed (WS) - km/h**  
**Fort McKay South - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	400	56.18	56.18
6 - 11	257	36.10	92.28
12 - 19	53	7.44	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: 712

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort McKay South - January 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	34	33	14	5	2	7	14	22	61	38	23	55	22	16	30	24	400
6 - 11	92	43	2	0	0	0	1	32	32	2	13	16	4	3	3	14	257
12 - 19	33	1	0	0	0	0	0	9	1	0	0	6	2	1	0	0	53
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>	161	77	16	5	2	7	15	63	94	40	36	77	28	20	33	38	712

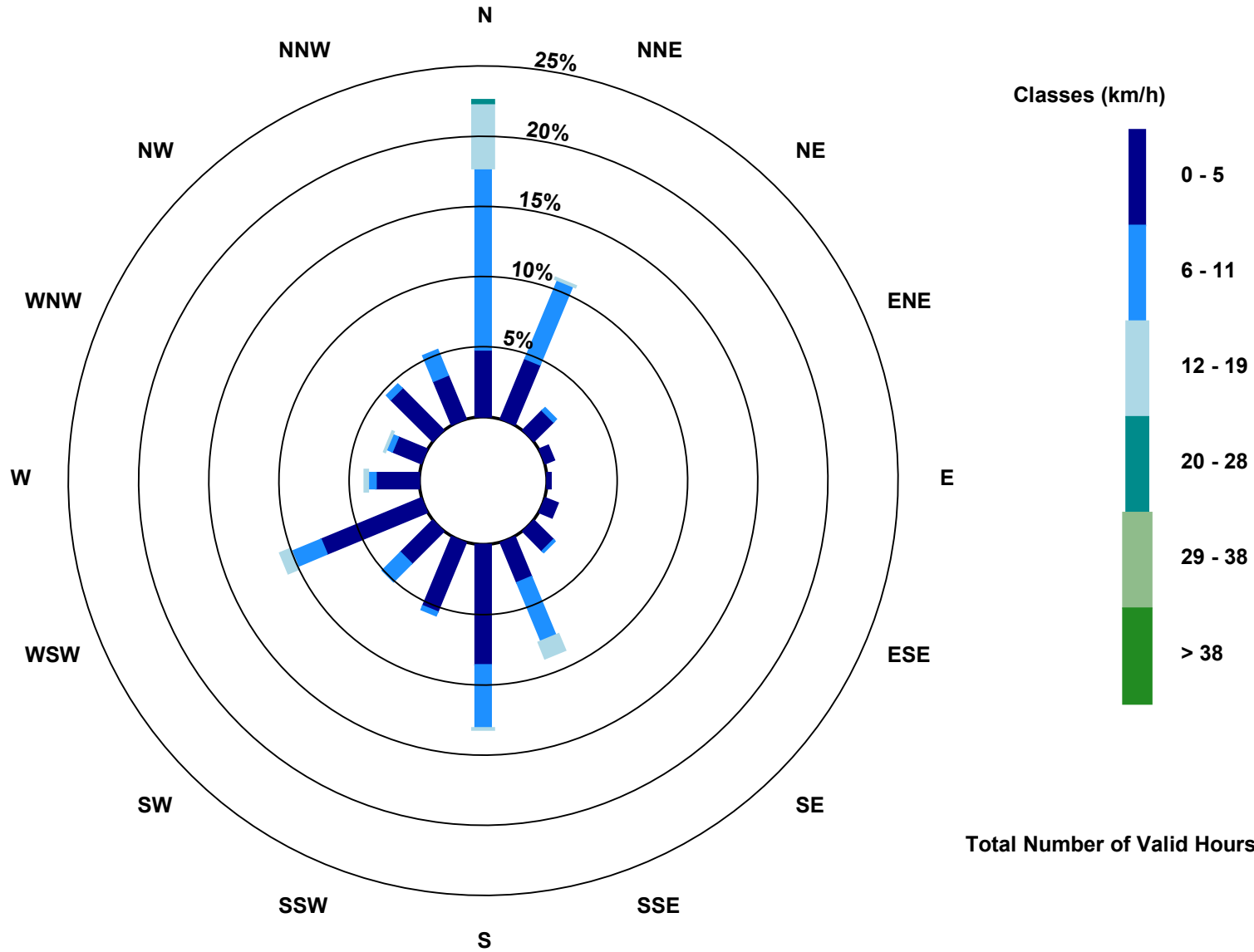
Total Number of Valid Hours: 712

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Fort McKay South





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction (WD) - deg

Fort McKay South - January 2024

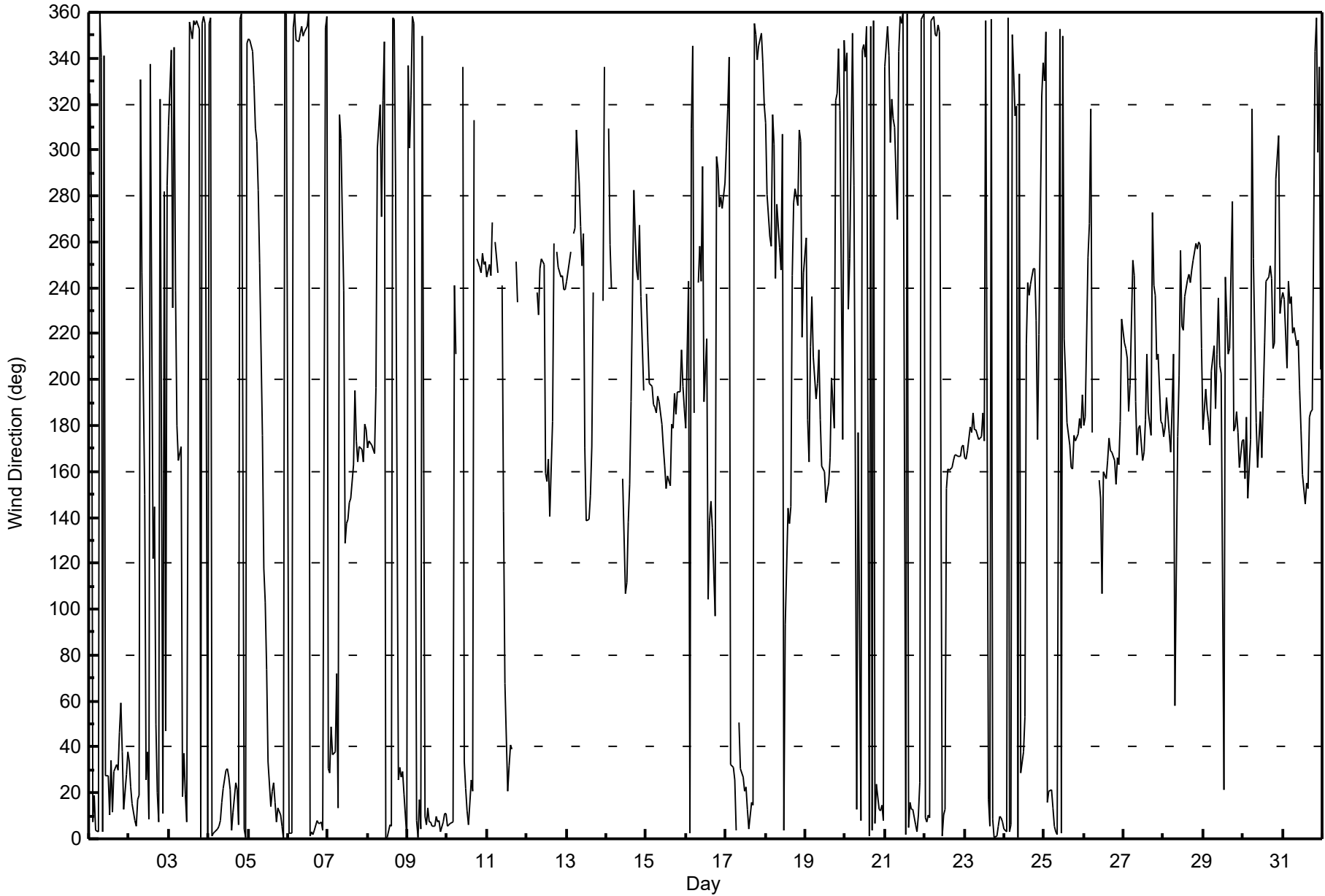
Direction of Maximum Speed: 3 deg on Jan 4 04:00																				Hours in Service: 744									
Direction of Maximum Daily Speed Average: 8.0 deg on Jan 4																				Hours of Data: 712									
Direction of Minimum Speed: 226 deg on Jan 24 20:00										Direction of Minimum Daily Speed Average: 0.5 deg on Jan 25										Hours of Missing Data: 32									
Monthly Average Direction: 344.7 deg																									Percent Operational Time: 95.7				
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-Jan	324	272	7	19	4	3	360	341	3	341	28	27	10	34	11	30	32	30	47	59	38	13	28	38	13.8				
2-Jan	33	22	15	8	6	17	19	331	247	150	26	38	8	337	122	145	50	20	7	322	11	282	47	285	15.0				
3-Jan	311	343	231	345	239	180	165	171	18	37	19	7	356	352	348	356	355	356	353	0	355	358	355	1	357.9				
4-Jan	355	357	1	3	3	4	5	8	16	22	30	31	27	21	4	12	25	22	6	357	360	4	1	347	8.0				
5-Jan	349	348	343	328	309	304	283	251	176	118	103	74	34	14	21	24	16	7	14	11	6	0	360	359	3.3				
6-Jan	2	3	3	353	359	348	347	351	354	350	352	354	360	1	3	2	4	8	7	7	7	4	353	358	359.5				
7-Jan	31	28	49	36	38	72	14	316	305	239	129	137	139	147	148	163	195	173	164	171	170	164	180	178	147.5				
8-Jan	170	173	172	170	168	196	301	320	271	321	347	0	0	6	6	358	357	285	26	31	27	29	20	0	17.1				
9-Jan	337	301	324	358	355	8	0	17	4	350	10	6	13	7	7	5	6	10	7	8	3	8	11	11	5.2				
10-Jan	6	6	6	7	241	211	UO	UO	UO	336	33	22	12	6	25	21	313	UO	253	249	247	255	250	251	357.5				
11-Jan	245	250	245	269	UO	260	246	UO	UO	241	143	68	21	32	41	39	UO	251	234	UO	245	UO	283	UO	--				
12-Jan	UO	UO	UO	262	UO	UO	238	228	248	253	250	159	156	165	140	182	259	UO	256	249	245	245	239	239	204.5				
13-Jan	243	247	256	UO	264	266	309	286	267	249	263	170	138	139	150	171	238	UO	249	UO	233	UO	234	336	207.0				
14-Jan	UO	309	259	240	UO	UO	256	UO	UO	UO	157	107	112	138	154	191	283	263	248	244	267	236	195	UO	--				
15-Jan	237	216	199	197	189	188	186	193	191	180	171	163	152	158	154	181	179	194	185	195	194	213	197	187	178.6				
16-Jan	179	243	2	309	346	185	UO	242	258	243	293	190	218	105	138	147	135	97	297	291	275	279	275	285	261.6				
17-Jan	302	318	340	32	31	25	4	UO	51	30	27	21	23	13	4	16	15	355	350	339	345	351	338	320	1.8				
18-Jan	312	281	262	258	316	302	244	276	258	248	307	4	93	144	137	144	245	277	283	276	309	304	218	246	269.2				
19-Jan	262	182	164	214	236	210	192	198	213	182	162	160	146	151	155	166	201	179	321	324	344	317	174	348	175.6				
20-Jan	335	342	230	253	351	284	164	13	177	8	344	346	341	354	1	354	4	356	7	24	13	12	14	8	359.5				
21-Jan	336	354	341	303	322	314	310	270	343	358	355	360	2	359	5	16	13	13	6	3	10	24	357	359	357.2				
22-Jan	9	7	10	9	356	358	350	350	355	351	1	11	13	152	161	160	162	165	167	167	166	167	171	171	140.4				
23-Jan	166	165	169	179	177	185	178	178	174	175	175	185	174	356	17	6	357	9	1	1	5	10	9	7	71.1				
24-Jan	4	3	358	3	6	350	315	319	1	333	29	38	53	215	242	237	242	249	249	226	174	220	324	338	321.6				
25-Jan	330	351	16	21	21	13	5	3	2	353	3	350	218	201	181	171	161	161	176	173	177	183	179	193	71.5				
26-Jan	180	184	253	268	318	177	UO	162	UO	156	148	107	160	157	165	175	169	169	165	155	166	163	182	226	169.3				
27-Jan	216	214	209	186	197	252	245	190	167	179	180	165	168	183	211	186	176	273	241	237	209	211	182	181	199.6				
28-Jan	175	179	192	176	169	188	211	58	175	202	256	223	221	236	244	246	242	247	252	259	257	260	259	214	235.8				
29-Jan	178	196	187	182	172	204	215	188	211	236	206	202	21	245	227	211	213	277	178	180	186	177	162	173	194.1				
30-Jan	174	157	184	148	174	318	253	217	181	161	186	166	192	216	243	244	249	244	214	216	288	306	229	235	221.6				
31-Jan	238	235	205	243	233	236	220	223	215	217	195	178	159	146	155	152	183	186	186	343	357	299	336	205	206.4				
329.9	333.4	348.3	352.1	355.0	340.2	325.5	308.9	301.4	327.8	16.2	34.0	49.8	63.2	58.7	6.5	338.3	327.8	321.1	325.9	334.2	340.3	334.5	329.1						
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**  
**Fort McKay South - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Jan 24 20:00																						Hours in Service: 744			
Minimum Value: 4 deg on Jan 14 19:00																						Hours of Data: 712			
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 13 Q <sub>1</sub> = 15 Median = 20 Q <sub>3</sub> = 36 P <sub>90</sub> = 63 P <sub>99</sub> = 89																						Hours of Missing Data: 32			
																						Hours of Calibration: 0			
																						Percent Operational Time: 95.7			
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-Jan	42	35	17	16	14	17	17	16	17	15	24	17	18	36	30	18	15	32	23	34	18	20	21	22	42
2-Jan	19	15	19	16	20	17	22	49	10	75	83	41	42	77	90	46	31	48	43	38	16	74	80	34	90
3-Jan	65	31	85	39	85	35	14	40	18	21	15	13	14	14	16	15	14	14	14	16	14	14	15	16	85
4-Jan	15	15	17	17	17	15	16	17	17	17	18	19	17	19	19	15	17	14	17	14	15	13	18	34	34
5-Jan	14	15	13	16	22	34	32	83	77	69	59	26	21	20	18	17	13	14	15	13	14	11	16	15	83
6-Jan	14	14	13	12	12	13	11	12	12	11	13	14	14	15	14	16	14	16	15	15	15	13	14	14	16
7-Jan	23	16	24	21	29	33	31	11	12	71	70	65	22	18	12	19	23	18	11	11	14	20	9	71	
8-Jan	12	9	13	11	11	36	46	39	23	22	25	16	17	18	15	21	30	34	42	17	18	20	18	46	
9-Jan	21	17	35	11	16	54	18	25	18	14	16	16	16	15	14	14	15	16	15	16	14	15	15	54	
10-Jan	15	16	17	29	9	27	UO	UO	UO	28	33	25	16	14	21	14	26	UO	33	31	26	47	21	44	47
11-Jan	19	33	11	40	UO	47	25	UO	UO	21	73	43	51	24	23	17	UO	13	10	UO	44	UO	50	UO	73
12-Jan	UO	UO	UO	55	UO	UO	13	31	52	55	47	72	26	22	28	35	32	UO	45	31	32	43	11	35	72
13-Jan	11	24	41	UO	38	54	34	89	17	44	29	88	25	17	8	17	62	UO	41	UO	43	UO	49	44	89
14-Jan	UO	48	70	64	UO	UO	38	UO	UO	UO	31	27	49	38	31	86	39	30	4	11	49	75	23	UO	86
15-Jan	40	19	13	51	17	13	12	12	15	13	14	14	13	16	11	12	9	19	29	43	30	14	21	18	51
16-Jan	16	59	15	48	17	58	UO	43	37	53	71	38	29	23	24	23	21	68	36	26	23	26	25	24	71
17-Jan	19	17	52	20	21	16	35	UO	55	19	18	18	17	20	15	15	13	12	12	16	16	14	14	19	55
18-Jan	28	32	19	16	54	44	25	65	23	53	64	47	37	20	25	89	37	17	30	23	34	49	66	50	89
19-Jan	86	36	25	25	24	19	14	27	25	13	13	13	11	10	10	20	27	70	67	74	75	84	23	69	86
20-Jan	52	51	50	63	26	64	73	89	11	86	21	20	16	19	16	15	16	14	15	16	15	15	19	16	89
21-Jan	19	19	44	62	60	24	31	66	17	16	15	17	17	17	18	18	16	19	16	17	38	28	19	15	66
22-Jan	14	15	16	15	14	14	13	13	19	18	15	18	40	13	12	13	12	11	11	10	10	10	11	12	40
23-Jan	9	9	10	15	11	14	8	8	8	11	15	28	37	56	15	18	14	15	14	14	15	15	14	15	56
24-Jan	15	13	13	14	17	18	23	31	28	30	59	30	45	93	75	16	11	17	35	100	99	29	74	25	100
25-Jan	16	13	16	16	16	16	14	15	14	13	21	38	67	40	24	13	16	10	11	11	14	13	11	16	67
26-Jan	13	83	71	44	90	58	UO	47	UO	26	20	44	11	13	12	14	12	13	14	11	22	14	33	24	90
27-Jan	22	27	22	12	16	86	63	71	18	29	30	25	12	31	24	10	63	87	23	20	54	48	18	17	87
28-Jan	14	23	19	29	45	75	96	88	19	63	62	38	24	29	36	23	17	16	17	20	18	23	26	46	96
29-Jan	24	15	22	24	20	24	14	49	21	81	47	83	81	31	36	90	68	81	29	18	20	27	73	90	
30-Jan	17	16	38	29	61	59	52	78	44	83	71	14	23	25	33	32	27	36	24	28	32	29	37	23	83
31-Jan	17	19	43	25	21	27	61	17	23	51	54	30	19	15	11	16	22	18	42	80	25	70	52	83	83
Diurnal Maximum																									
86 83 85 64 90 86 96 89 77 86 83 88 83 93 90 89 90 87 81 100 99 84 80 83																									
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS14  
ANZAC  
JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
 JANUARY 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	709	35	35	100	20.4	0	3.8	0
TRS(ppb) Average	707	36	37	99.87	5.4	0	0.8	0
THC(ppm) Average	584	38	160	83.6	2.5	-	2.3	-
NMHC(ppm) Average	584	38	160	83.6	0.206	-	0.04	-
CH4(ppm) Average	584	38	160	83.6	2.5	-	2.3	-
NO2(ppb) Average	707	37	37	100	31.3	0	11.3	-
NO(ppb) Average	707	37	37	100	22.3	-	3.2	-
NOX(ppb) Average	707	37	37	100	53.6	-	14.1	-
O3(ppb) Average	710	34	34	100	46.8	0	38.2	-
PM2.5(ug/m3) Average	722	0	22	97.04	59.2	0	14.3	0
AT 2m(C) Average	744	0	0	100	12.3	-	5.4	-
RH(%) Average	744	0	0	100	96.4	-	93.1	-
WS(km/h) Average	744	0	0	100	35	-	19	-
WD(deg) Average	744	0	0	100	-	-	-	-
Leaf Wetness (% of range) Average	744	0	0	100	16.1	-	3.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
 JANUARY 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	709	1.2	2	-	0	0.1	0.2	0.5	1	2.8	20.4
TRS(ppb) Average	707	0.27	0.3	-	0.1	0.1	0.2	0.2	0.3	0.4	5.4
THC(ppm) Average	584	2.02	0.1	-	1.8	1.9	1.9	2	2	2.2	2.5
NMHC (ppm) Average	584	0.005	0.024	-	0	0	0	0	0	0	0.206
CH4(ppm) Average	584	2.01	0.1	-	1.8	1.9	1.9	2	2	2.1	2.5
NO2(ppb) Average	707	4.82	4.6	-	0.2	0.9	1.9	3.3	6.3	9.9	31.3
NO(ppb) Average	707	0.75	1.6	-	0	0	0	0.2	0.7	2.1	22.3
NOX(ppb) Average	707	5.58	5.6	-	0.2	1	2	3.7	7.5	11.9	53.6
O3(ppb) Average	710	24.65	8.6	-	0	13.6	19.4	25.8	30.4	34.7	46.8
PM2.5(ug/m3) Average	722	4.64	4.5	-	0.5	1.6	2.5	3.5	4.8	8.7	59.2
Temperature 2 m (C) Average	744	-17	12.8	-	-42.6	-34.1	-24.3	-17.8	-9.2	3.3	12.3
Relative Humidity (%) Average	744	74.25	10.7	-	36	63	66.9	74.9	81.3	88	96.4
Wind Speed 20 m (km/h) Average	744	9.1	5	-	1	4	6	8	11	16	35
Wind Direction 20 m (deg) Average	744	205.9	-	-	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	1.09	1.4	-	0	0	0	1.1	1.6	2.5	16.1



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
TRS	13 Jan 2024 11:00	13 Jan 2024 11:00	1	Maintenance - reinitiated daily QA check
THC/NMHC/CH4	15 Jan 2024 03:00	16 Jan 2024 02:00	24	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	16 Jan 2024 04:00	16 Jan 2024 12:00	9	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	16 Jan 2024 13:00	16 Jan 2024 15:00	3	Maintenance - retention time adjusted
THC/NMHC/CH4	23 Jan 2024 05:00	24 Jan 2024 04:00	24	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	24 Jan 2024 06:00	24 Jan 2024 11:00	6	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	24 Jan 2024 12:00	24 Jan 2024 15:00	4	Maintenance - retention time adjusted
THC/NMHC/CH4	29 Jan 2024 06:00	30 Jan 2024 05:00	24	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	30 Jan 2024 07:00	30 Jan 2024 10:00	4	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	30 Jan 2024 11:00	31 Jan 2024 10:00	24	Maintenance - field repairs and analyzer replacement
PM2.5	25 Jan 2024 14:00	26 Jan 2024 11:00	22	Unstable Operation - flatline in analyzer output signal



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

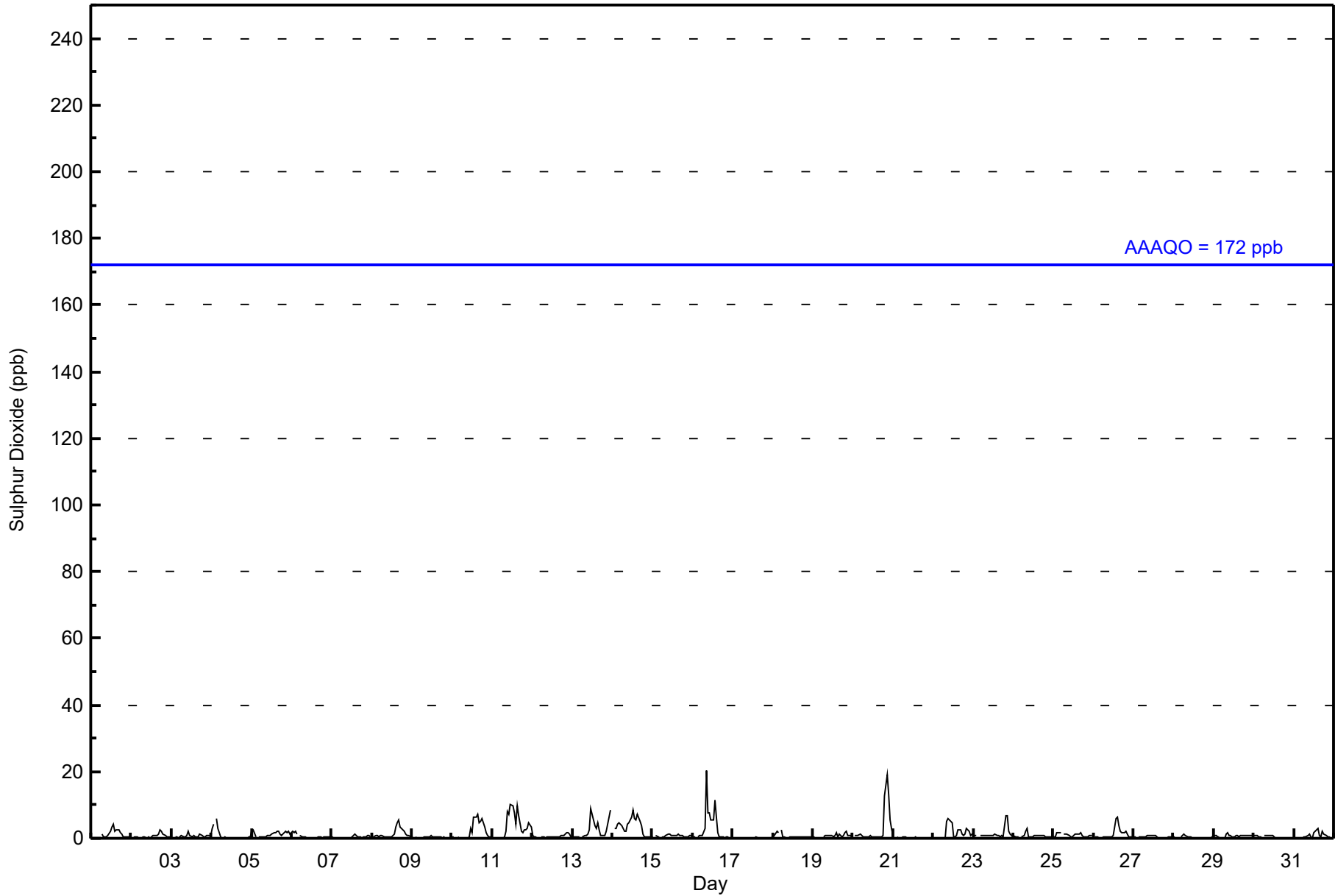
## Anzac - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																					
Maximum Value: 20.4 ppb on Jan 16 09:00		Maximum Daily Average: 3.8 ppb on Jan 11		Hours of Data:		709		Hours of Missing Data: 35																					
Minimum Value: 0.0 ppb on Jan 4 17:00		Minimum Daily Average: 0.1 ppb on Jan 17		Hours of Calibration: 35		Percent Operational Time: 100.0																							
Maximum Diurnal Average: 2.1 ppb at hour 14		Minimum Diurnal Average: 0.6 ppb at hour 7		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.5 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 2.8 P <sub>99</sub> = 9.5																									
Monthly Average: 1.20 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-Jan	0.1	0.2	0.2	0.2	0.1	Z	1.3	0.3	0.3	0.4	0.7	2.1	3.4	4.2	2.2	2.4	2.3	1.6	1.3	0.4	0.5	0.3	0.3	0.2	1.1	4.2			
2-Jan	Z	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.2	0.2	0.3	0.2	0.4	0.6	0.9	0.9	1.1	2.4	2.0	1.1	0.8	0.6	0.5	0.4	0.6	2.4			
3-Jan	0.4	Z	0.3	0.3	0.2	0.6	0.7	0.6	0.6	0.8	2.1	0.8	0.6	0.6	0.5	0.6	0.4	1.1	0.7	0.3	0.3	0.9	1.0	0.7	0.7	2.1			
4-Jan	2.8	4.3	Z	5.8	2.9	0.4	0.2	0.2	0.2	0.2	0.2	C	C	C	C	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.5	1.0	5.8			
5-Jan	2.6	2.7	0.4	Z	0.3	0.3	0.4	0.6	0.6	0.7	0.8	0.9	1.1	1.6	1.8	1.9	2.2	1.4	1.0	1.8	2.0	1.8	1.9	1.5	1.3	2.7			
6-Jan	2.2	1.8	2.0	1.3	Z	0.7	0.6	0.6	0.3	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.3	0.5	2.2			
7-Jan	0.3	0.1	0.0	0.0	0.1	Z	0.1	0.2	0.2	0.1	0.0	0.2	0.5	1.0	1.2	0.4	0.5	0.4	0.2	0.4	0.4	0.7	0.8	0.5	0.4	1.2			
8-Jan	Z	0.5	0.7	0.7	0.5	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	1.1	3.4	4.8	5.6	3.4	2.7	2.2	1.4	1.0	0.8	0.6	1.5	5.6			
9-Jan	0.4	Z	0.3	0.2	0.1	0.1	0.2	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6			
10-Jan	0.4	0.6	Z	0.4	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.4	2.8	1.9	6.2	6.3	7.4	4.8	5.2	6.0	3.5	1.6	0.9	0.3	0.4	2.2	7.4		
11-Jan	0.2	0.0	0.0	Z	0.2	0.1	0.1	0.6	2.2	8.2	7.1	10.1	9.8	7.4	4.3	9.5	6.8	2.2	1.8	2.7	2.6	2.8	4.8	3.5	3.8	10.1			
12-Jan	0.8	0.4	0.3	0.2	Z	0.4	0.3	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.7	0.8	1.0	1.6	1.6	1.1	0.6	0.6	1.6			
13-Jan	0.5	0.4	0.3	0.4	0.4	Z	0.5	1.0	1.1	1.3	2.4	8.9	7.1	3.9	3.1	4.5	2.4	1.0	0.8	0.9	2.2	4.2	6.5	8.3	2.7	8.9			
14-Jan	Z	2.8	3.1	4.1	4.8	3.9	2.8	2.1	2.2	4.3	4.9	6.2	8.7	6.1	5.7	7.0	5.0	3.9	1.2	0.6	0.3	0.3	0.4	0.5	3.5	8.7			
15-Jan	0.6	Z	0.7	0.4	0.2	0.1	0.2	0.4	0.7	1.1	1.4	1.0	0.9	0.7	0.8	1.1	0.6	0.7	0.7	0.5	0.5	0.6	0.8	0.7	0.7	1.4			
16-Jan	0.4	0.4	Z	0.6	1.0	0.9	1.0	3.0	20.4	7.8	7.8	5.3	5.7	11.5	6.2	1.6	0.5	0.4	0.2	0.1	0.2	0.3	0.2	0.2	3.3	20.4			
17-Jan	0.2	0.1	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.3			
18-Jan	0.6	0.9	2.3	1.6	Z	2.5	0.3	0.3	0.2	0.1	0.3	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.5	0.6	2.5			
19-Jan	0.3	0.1	0.0	0.0	0.0	Z	0.4	1.0	1.0	0.7	0.8	0.8	0.6	0.8	1.7	0.2	1.2	0.2	0.9	1.5	2.2	1.0	0.6	0.5	0.7	2.2			
20-Jan	Z	1.0	0.9	0.9	1.2	0.9	0.6	0.5	0.5	0.6	0.9	0.5	0.4	0.3	0.5	0.4	0.3	0.3	1.0	12.8	19.1	13.0	5.7	3.1	2.8	19.1			
21-Jan	0.7	Z	0.5	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.7			
22-Jan	0.1	0.0	Z	0.0	0.0	0.1	0.0	0.2	5.2	5.7	5.0	4.5	0.2	0.3	1.0	2.4	2.7	1.1	0.8	1.2	2.8	2.1	0.9	1.1	1.6	5.7			
23-Jan	1.0	1.0	1.0	Z	0.8	0.8	0.7	0.8	1.0	1.0	0.9	0.9	1.0	1.3	0.9	0.8	0.6	0.7	0.6	7.0	6.7	2.3	1.3	0.8	1.5	7.0			
24-Jan	0.7	0.4	0.5	0.5	Z	0.4	0.8	2.2	3.0	0.5	0.4	0.5	0.7	0.8	0.8	0.9	0.8	0.9	0.6	0.5	0.5	0.6	0.6	0.6	0.8	3.0			
25-Jan	0.5	0.6	1.9	1.8	1.7	Z	1.4	1.3	1.1	0.9	0.6	0.5	0.7	1.1	1.1	1.4	1.5	0.6	0.5	0.4	0.5	0.7	0.6	0.9	1.0	1.9			
26-Jan	Z	0.5	0.4	0.2	0.1	0.1	0.2	0.5	0.4	0.3	0.3	0.4	0.7	6.1	6.2	3.7	2.3	1.5	1.5	1.9	1.3	0.5	0.3	0.3	1.3	6.2			
27-Jan	0.4	0.3	Z	0.4	0.4	0.3	0.4	0.6	0.8	1.0	1.0	1.0	1.0	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.2	0.4	1.0			
28-Jan	0.2	0.2	0.1	Z	0.3	0.9	1.3	0.7	0.6	0.3	0.2	0.1	0.1	0.1	0.2	0.0	0.2	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.3	1.3			
29-Jan	0.8	0.8	0.5	0.5	Z	0.2	0.0	1.4	1.5	1.0	0.7	0.5	0.6	0.7	0.8	0.6	0.7	1.1	1.0	1.0	0.9	0.9	0.6	0.8	0.8	1.5			
30-Jan	0.8	0.8	0.8	0.5	0.4	Z	0.8	0.7	0.8	0.7	0.9	0.7	0.4	0.2	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.9			
31-Jan	Z	0.0	0.1	0.0	0.1	0.1	0.5	0.5	0.8	1.2	0.4	0.1	1.6	2.5	3.1	0.6	0.3	2.0	1.1	0.7	0.3	0.4	0.2	0.0	0.7	3.1			
		0.7	0.8	0.7	0.8	0.6	0.6	0.6	0.7	1.5	1.3	1.3	1.7	1.7	2.1	1.8	1.8	1.4	1.1	0.9	1.4	1.6	1.3	1.0	0.9	Diurnal Average			
		2.8	4.3	3.1	5.8	4.8	3.9	2.8	3.0	20.4	8.2	7.8	10.1	9.8	11.5	6.3	9.5	6.8	5.2	6.0	12.8	19.1	13.0	6.5	8.3	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  
Anzac - January 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	704	99.29	99.29
11 - 20	5	0.71	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - January 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 - 10	7	16	16	40	44	93	62	18	16	18	32	83	120	79	43	17	704
11 - 20	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	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>	<b>7</b>	<b>16</b>	<b>16</b>	<b>40</b>	<b>44</b>	<b>93</b>	<b>62</b>	<b>18</b>	<b>16</b>	<b>18</b>	<b>32</b>	<b>84</b>	<b>121</b>	<b>80</b>	<b>45</b>	<b>17</b>	<b>709</b>

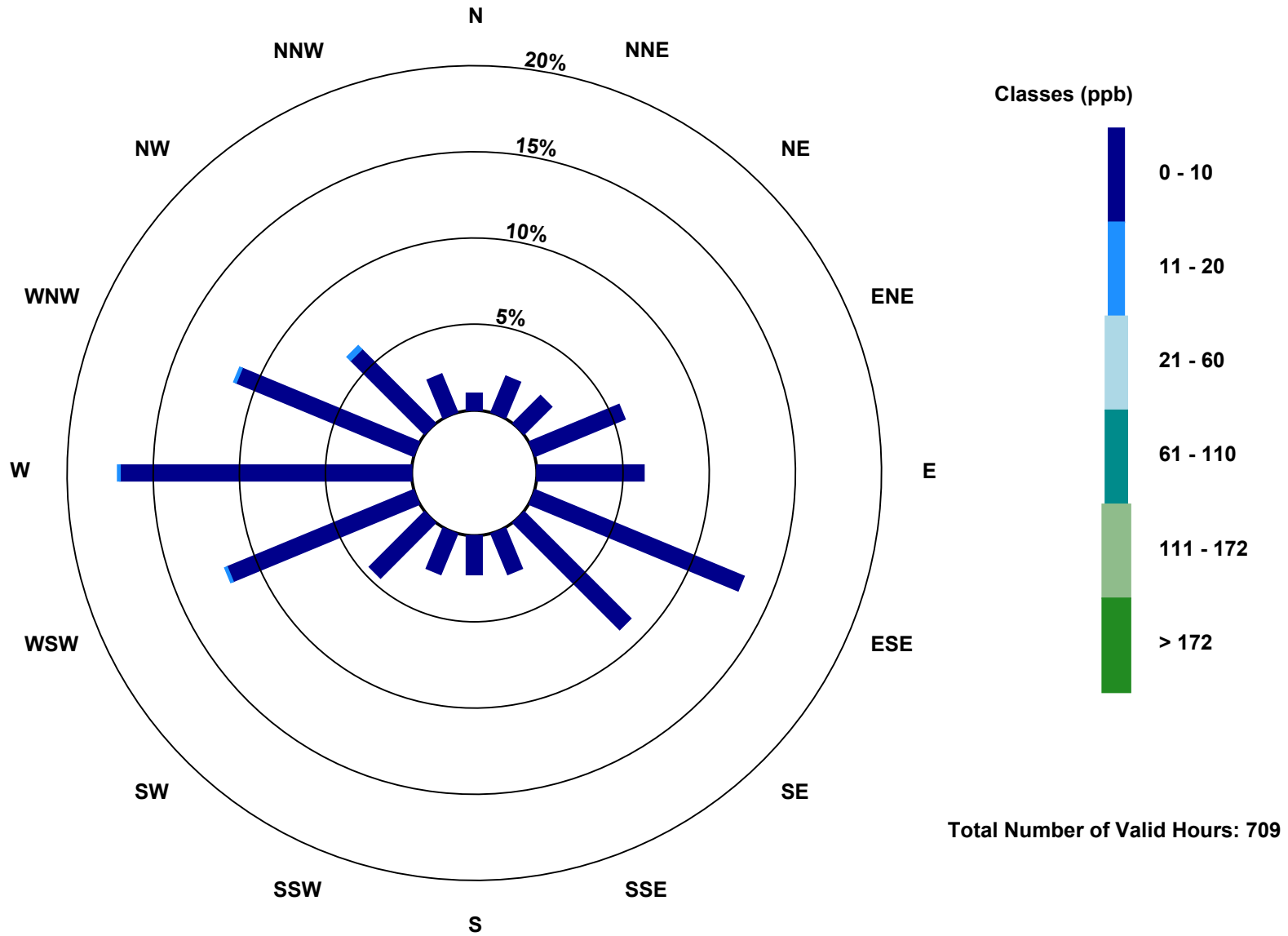
Total Number of Valid Hours: 709

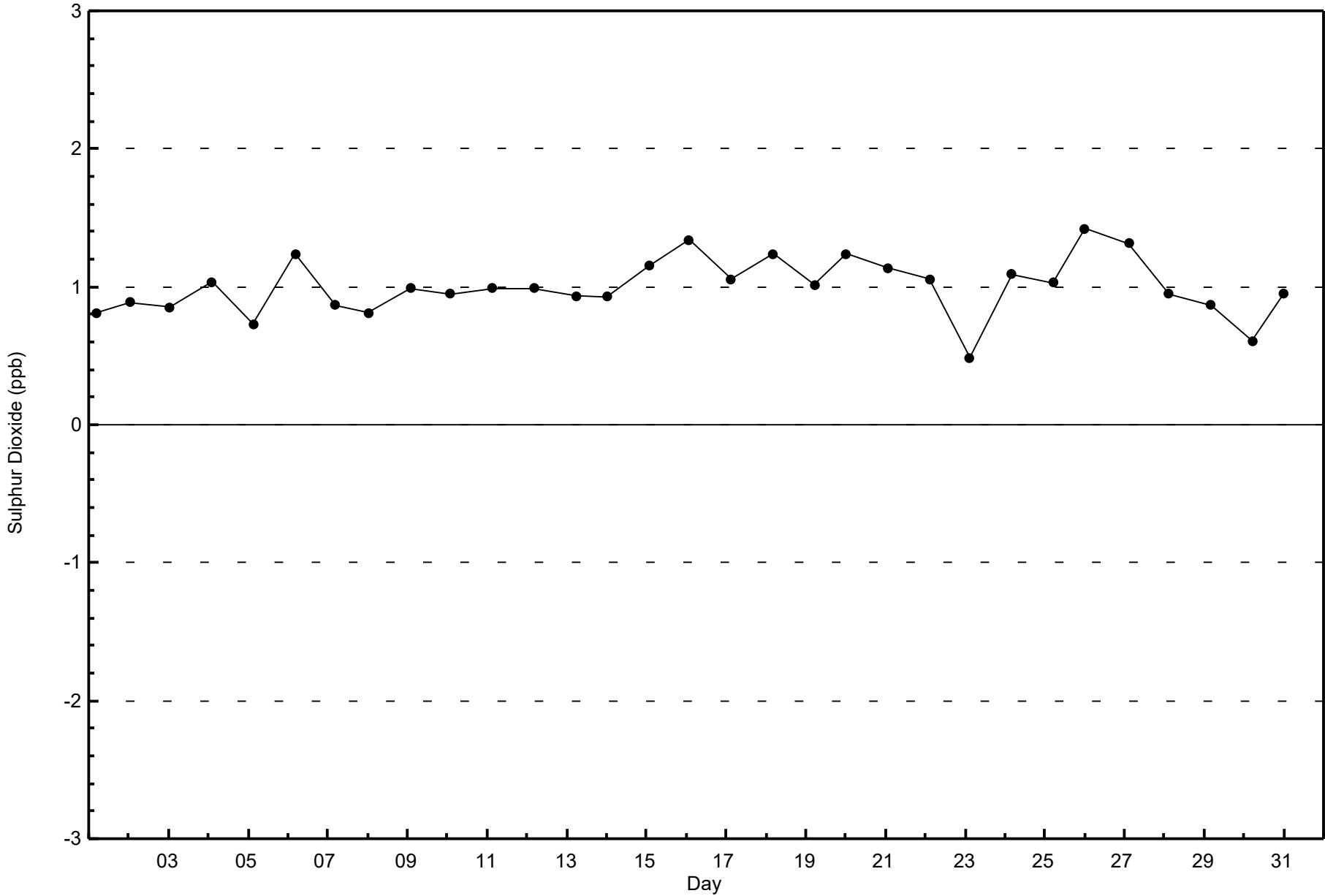
Total Number of Hours: 744

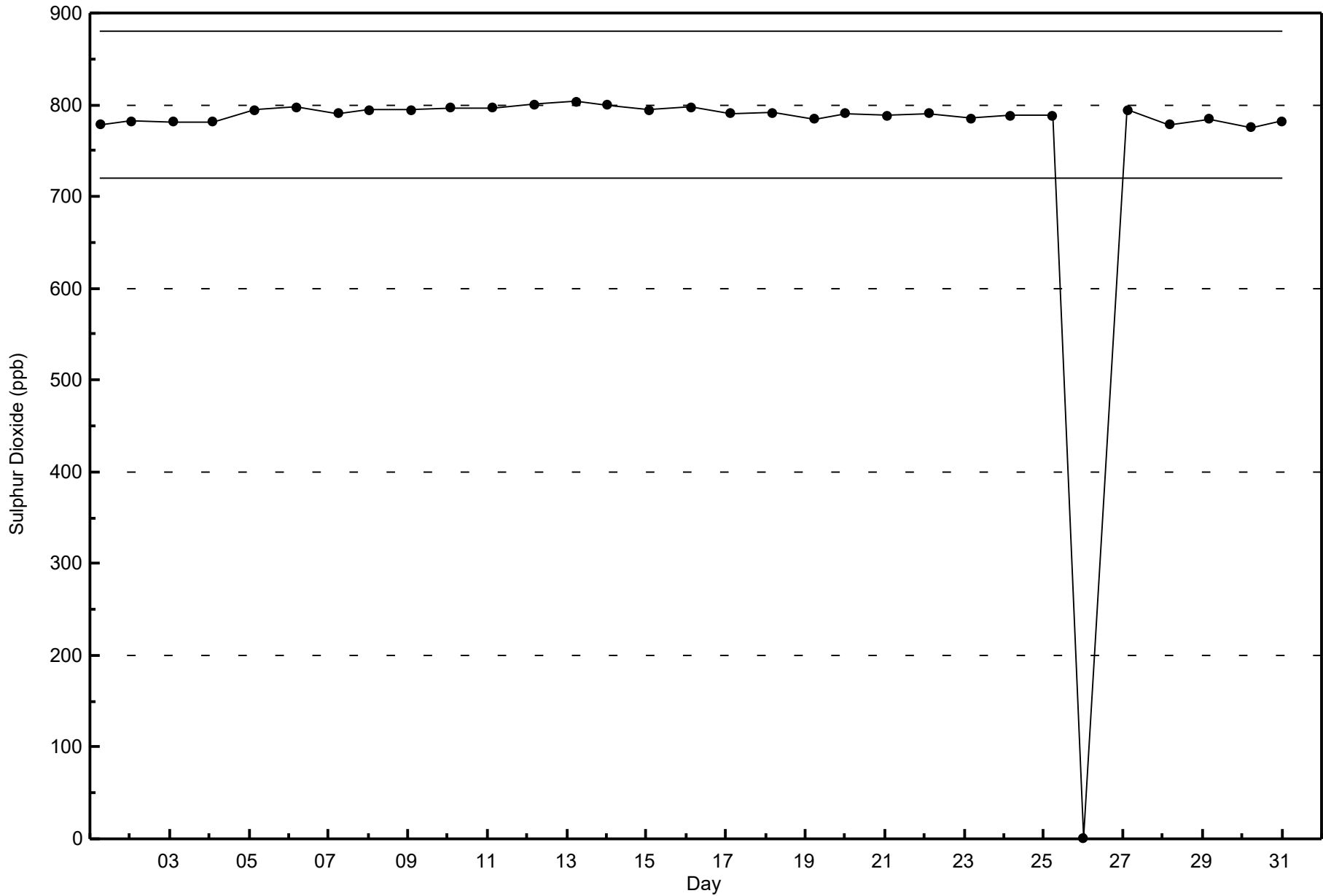


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

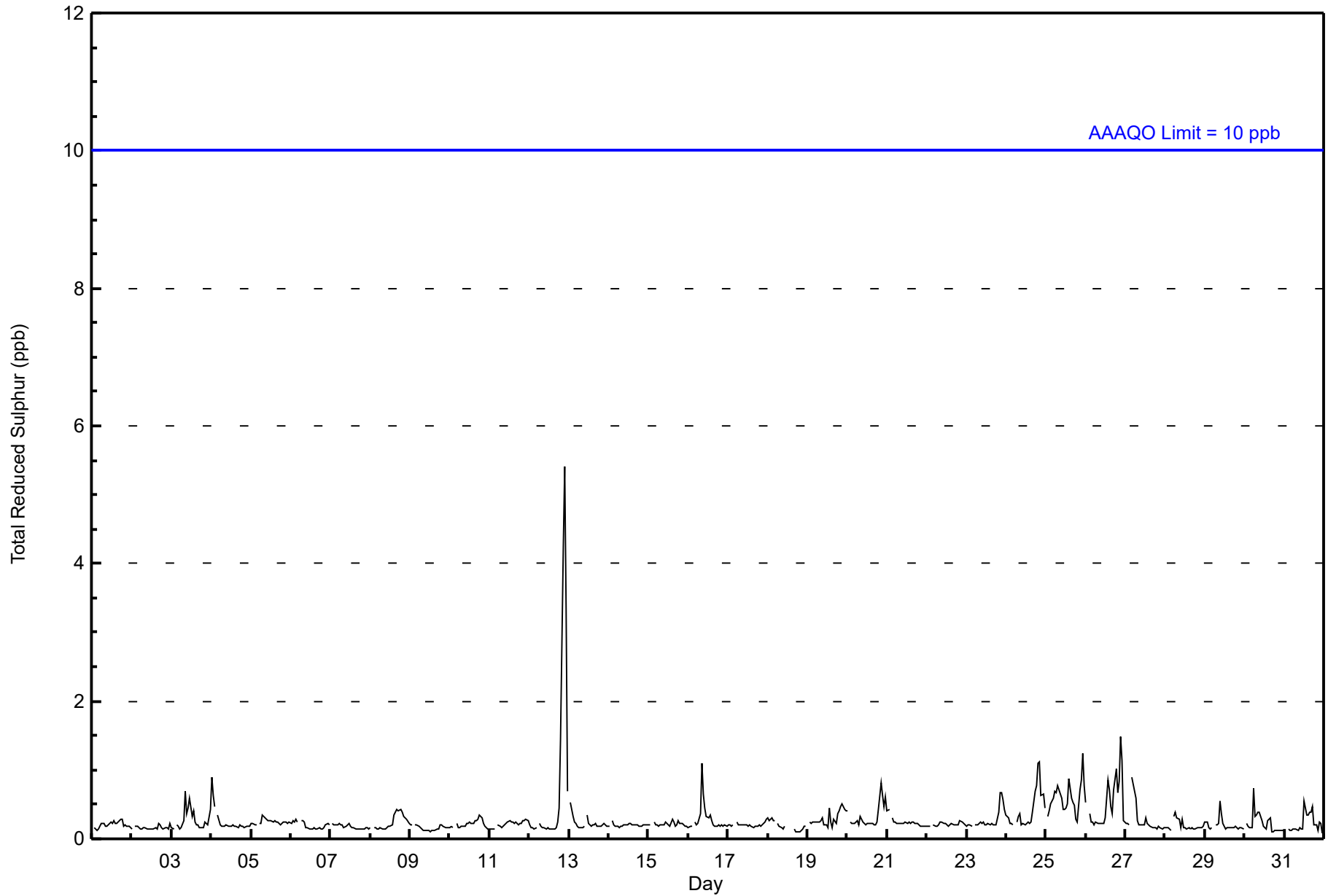














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	704	99.58	99.58
3 - 4	2	0.28	99.86
5 - 7	1	0.14	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



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

**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - January 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	8	16	16	39	47	90	62	18	16	18	31	79	119	83	45	17	704
3 - 4	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
5 - 7	0	0	0	0	0	0	1	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>	8	16	16	39	47	90	65	18	16	18	31	79	119	83	45	17	707

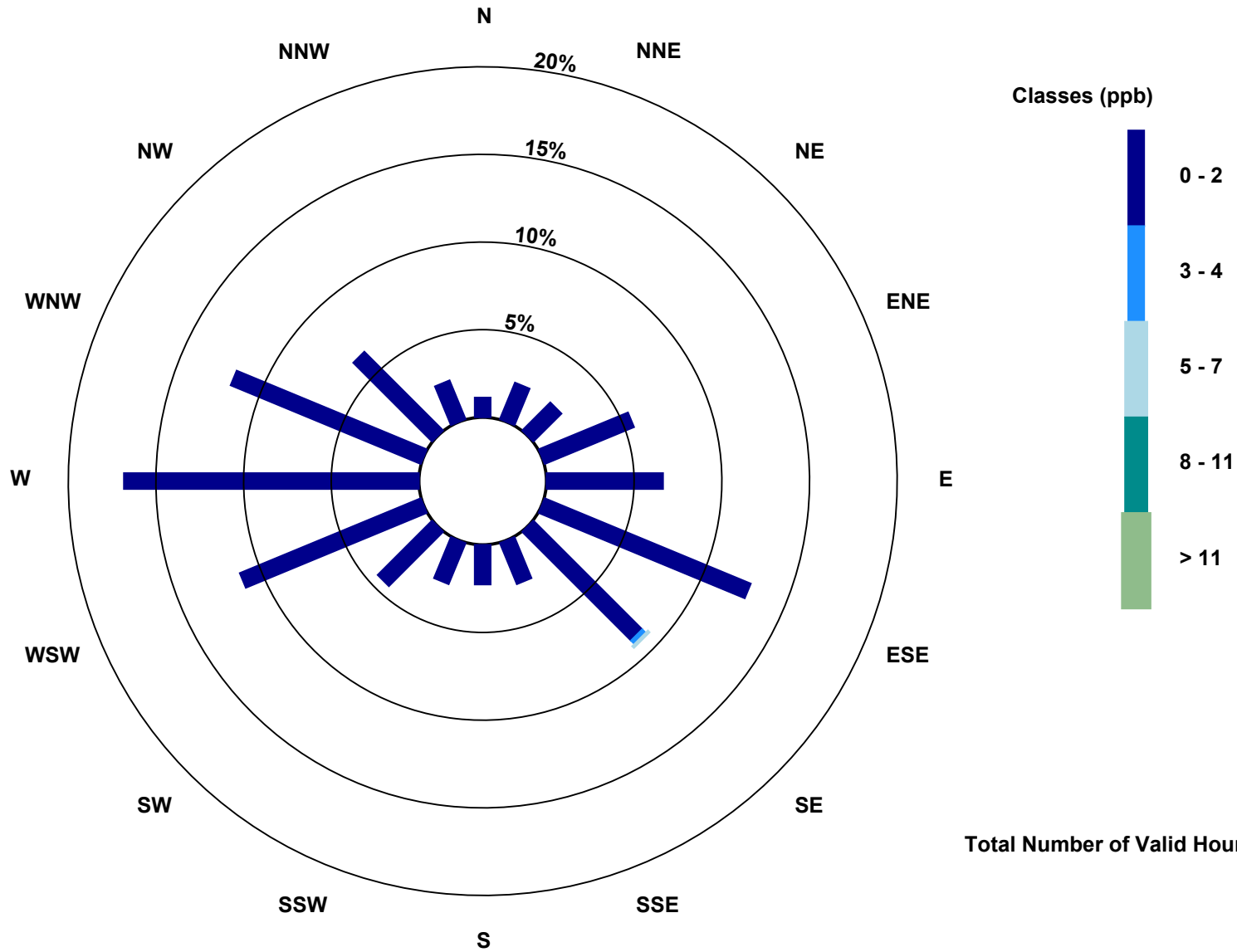
Total Number of Valid Hours: 707

Total Number of Hours: 744

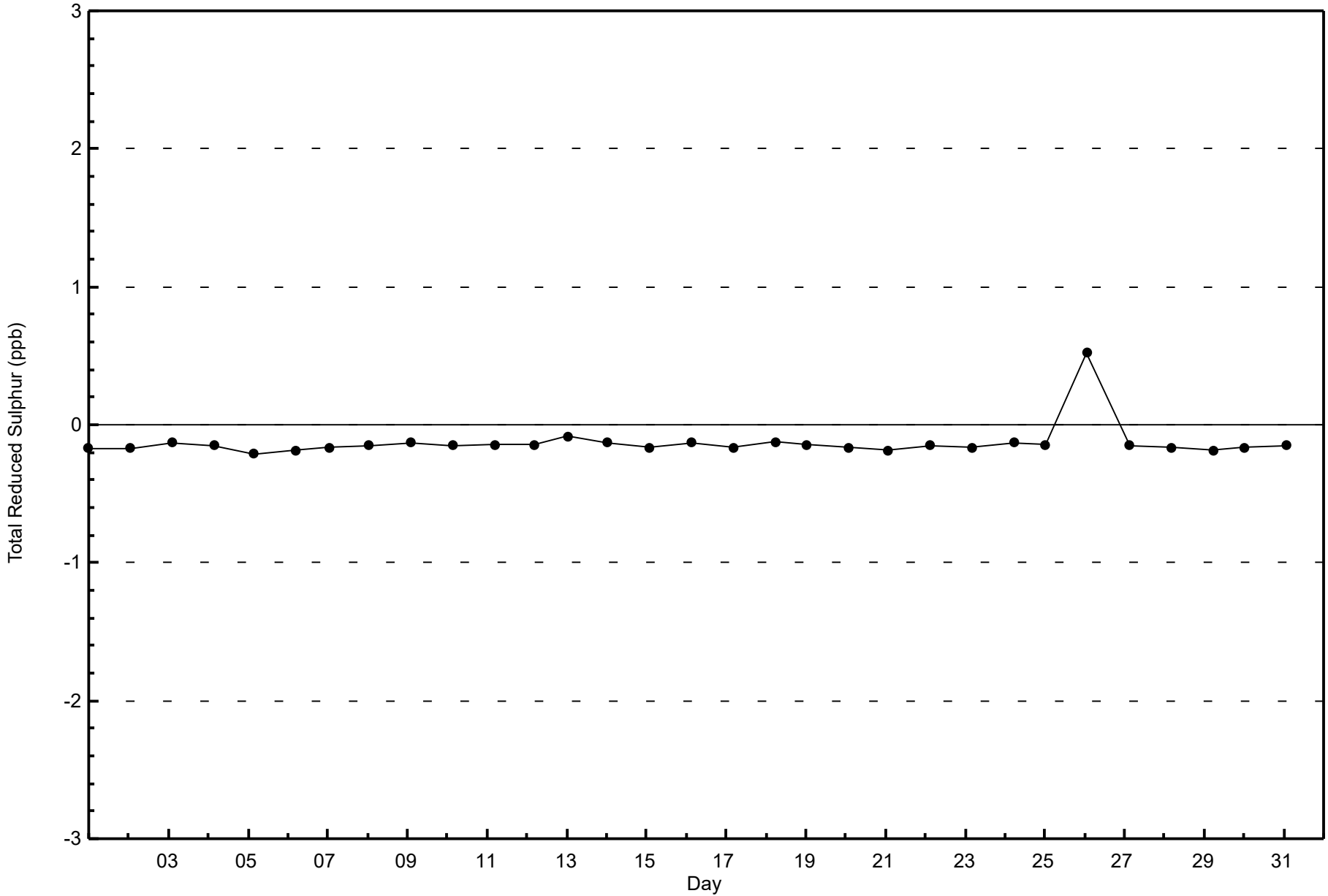


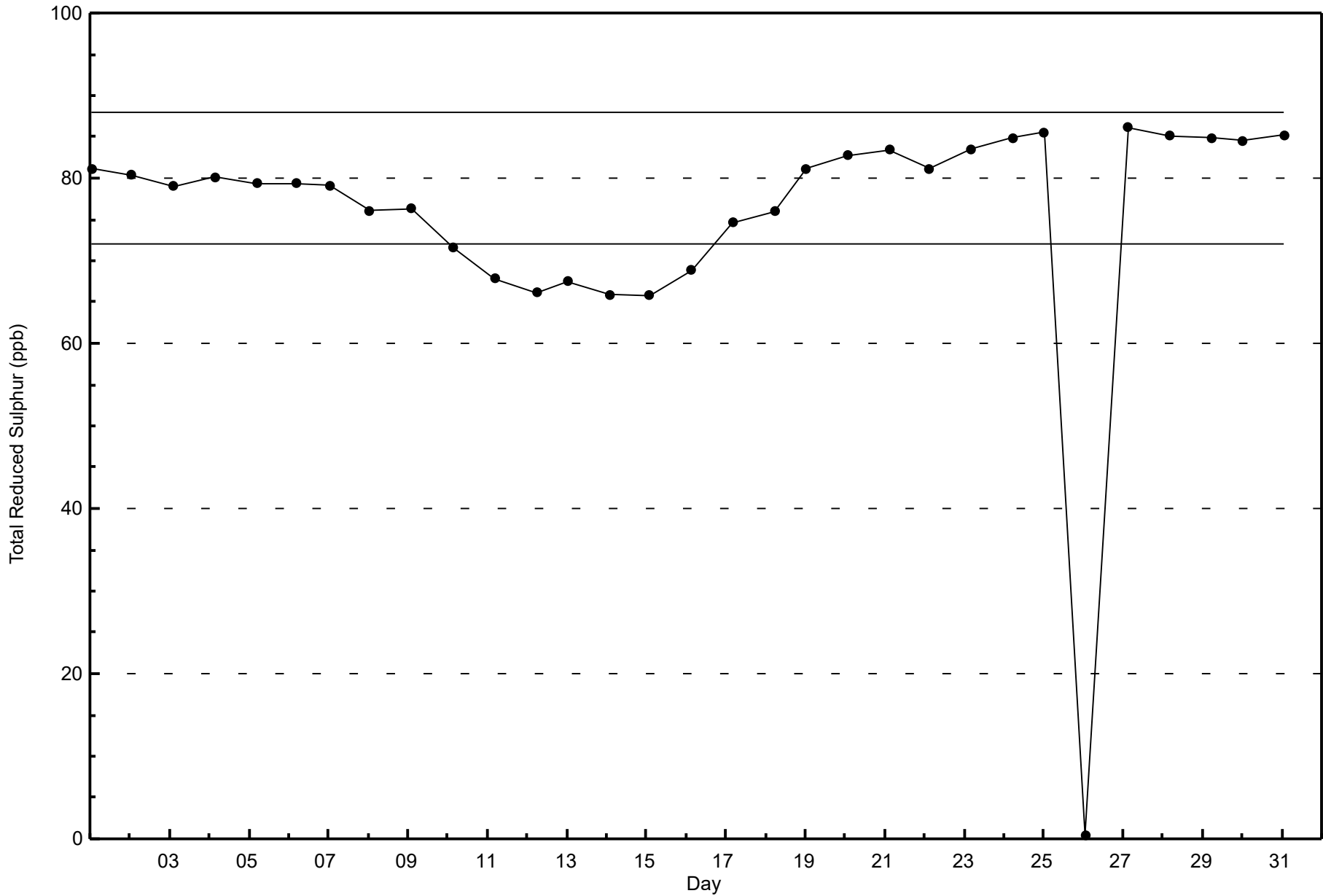
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Anzac



Total Number of Valid Hours: 707

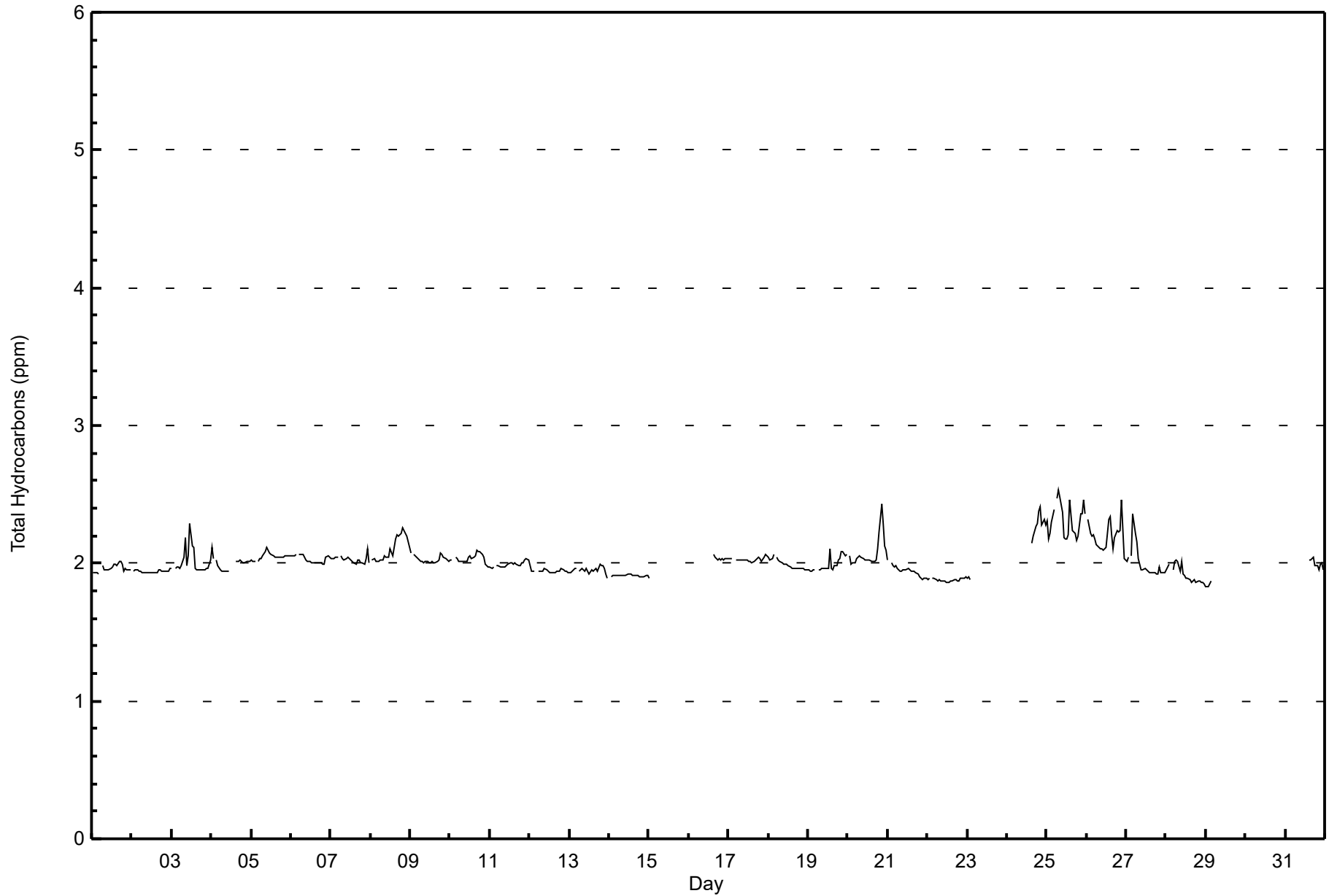






Maximum Value: 2.5 ppm on Jan 25 08:00																				Maximum Daily Average: 2.3 ppm on Jan 25					Hours in Service: 744													
Minimum Value: 1.8 ppm on Jan 29 01:00																				Minimum Daily Average: 1.9 ppm on Jan 22					Hours of Data: 584													
Maximum Diurnal Average: 2.0 ppm at hour 21																				Minimum Diurnal Average: 2.0 ppm at hour 11					Hours of Missing Data: 160													
Monthly Average: 2.02 ppm																				Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.4					Hours of Calibration: 38													
																				Percent Operational Time: 83.6																		
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-Jan	1.9	1.9	1.9	1.9	1.9	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	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0										
2-Jan	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0								
3-Jan	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.1	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	2.0	2.0	2.0	2.0	2.3	2.1							
4-Jan	2.1	2.0	Z	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	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	2.0	2.0	2.0	2.0	2.1	2.1						
5-Jan	2.0	2.0	2.0	Z	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1					
6-Jan	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	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1						
7-Jan	2.0	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	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1				
8-Jan	Z	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	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1				
9-Jan	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	2.0	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	2.0	2.0	2.1	2.1			
10-Jan	2.0	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	2.1	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		
11-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
12-Jan	2.0	1.9	1.9	1.9	Z	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	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
13-Jan	1.9	1.9	2.0	2.0	2.0	Z	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	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	1.9	1.9	1.9	1.9	2.0	
14-Jan	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
15-Jan	1.9	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	
16-Jan	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	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	
17-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
18-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
19-Jan	2.0	1.9	1.9	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
20-Jan	Z	2.1	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	2.2	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
21-Jan	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
22-Jan	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
23-Jan	1.9	1.9	1.9	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
24-Jan	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	2.1	2.2	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	2.3	2.3	2.3	2.3	2.3
25-Jan	2.3	2.2	2.2	2.3	2.4	Z	2.5	2.5	2.5	2.4	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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	2.4	2.4	2.4
26-Jan	Z	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
27-Jan	2.0	2.0	Z	2.1	2.4	2.2	2.2	2.0	2.0	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
28-Jan	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
29-Jan	1.8	1.8	1.8	1.9	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	UO	UO	UO	UO	UO	UO	UO	UO	UO
30-Jan	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	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	M
31-Jan	M	M	M	M	M	M	M	M	M	M	M	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	2.0	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																																						
UO - Unstable Operation																																						







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

**Total Hydrocarbons (THC) - ppm**  
**Anzac - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	463	79.28	79.28
2.1 - 3.0	121	20.72	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 584

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Anzac - January 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	7	14	11	24	29	47	36	8	8	11	17	50	87	62	38	14	463
2.1 - 3.0	0	2	1	10	9	28	10	1	1	1	3	17	23	10	4	1	121
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	7	16	12	34	38	75	46	9	9	12	20	67	110	72	42	15	584

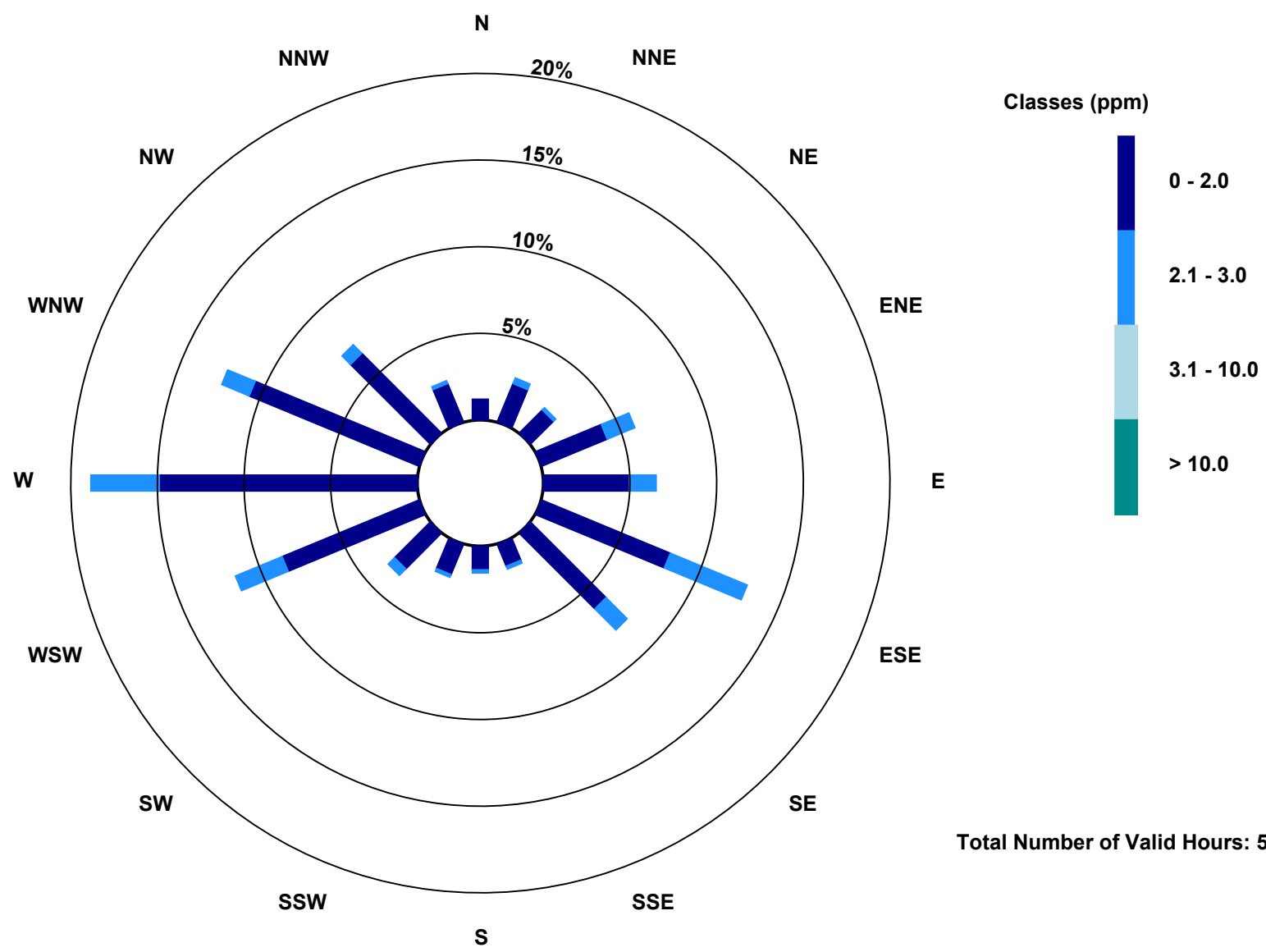
Total Number of Valid Hours: 584

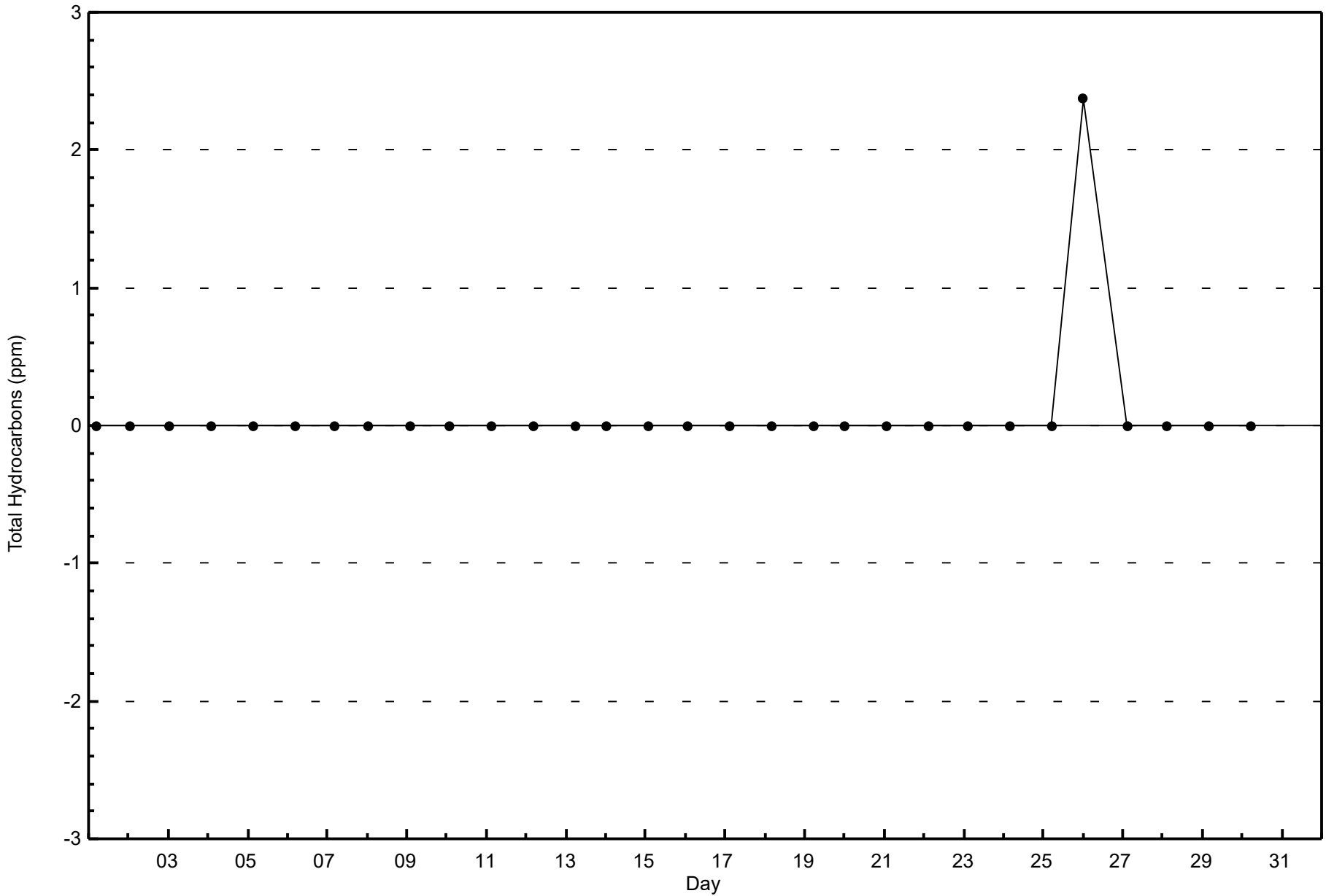
Total Number of Hours: 744

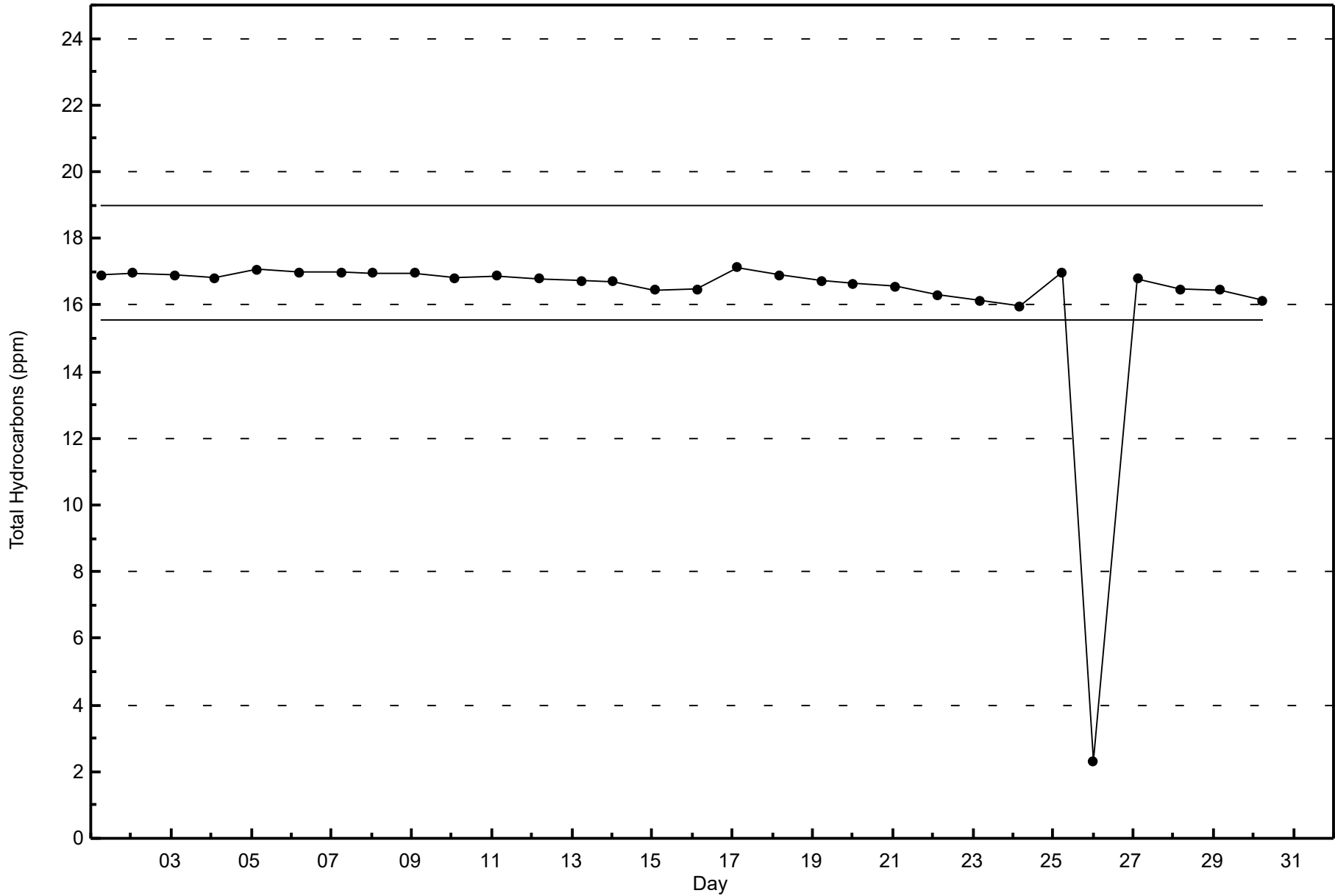


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Anzac









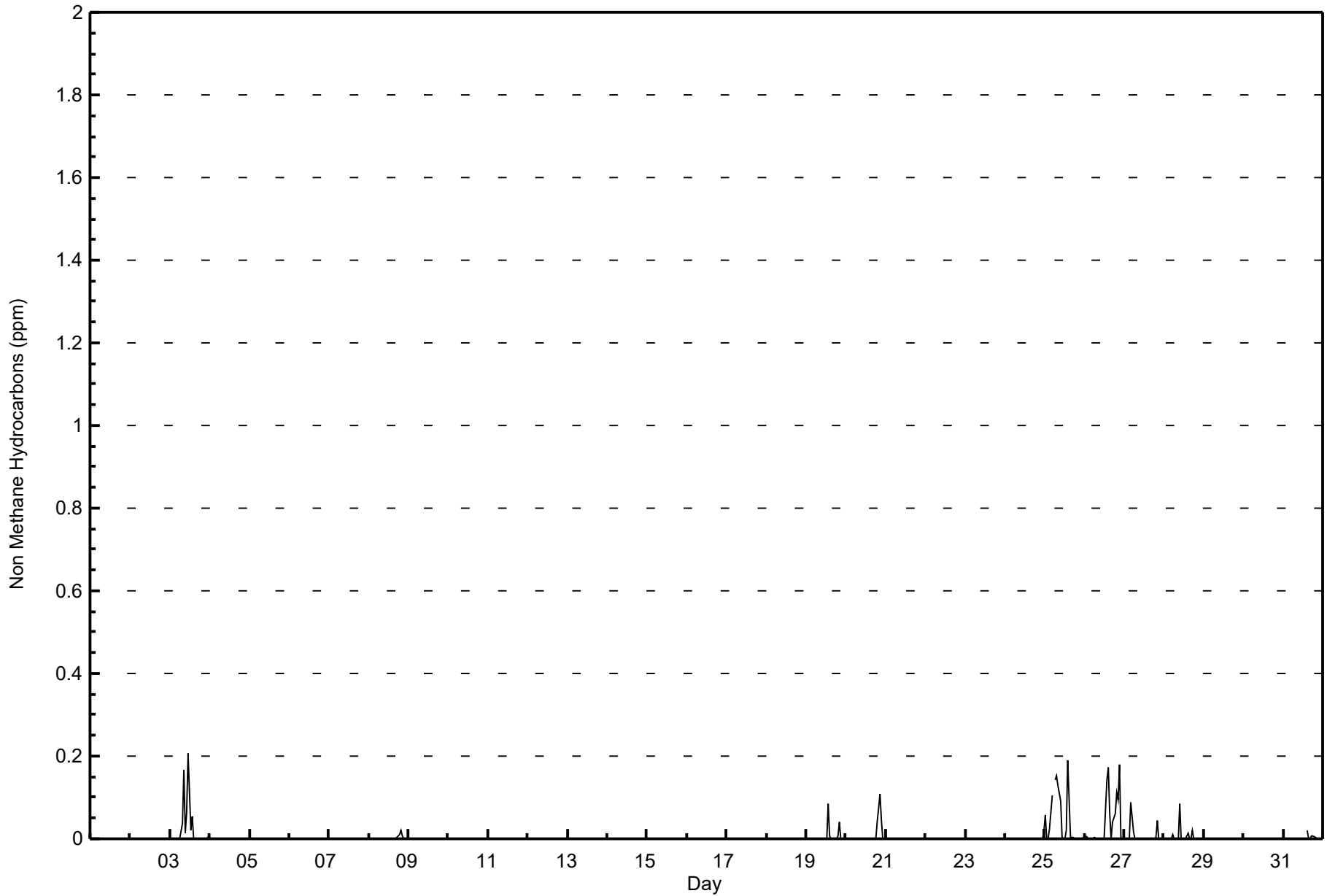
Wood Buffalo Environmental Association

Summary of Hour Averages

Non Methane Hydrocarbons (NMHC) - ppm

Anzac - January 2024

Maximum Value: 0.206 ppm on Jan 3 12:00		Maximum Daily Average: 0.040 ppm on Jan 25		Hours in Service: 744																														
Minimum Value: 0.000 ppm on Jan 1 01:00		Minimum Daily Average: 0.000 ppm on Jan 1		Hours of Data: 584																														
Maximum Diurnal Average: 0.017 ppm at hour 15		Minimum Diurnal Average: 0.000 ppm at hour 3		Hours of Missing Data: 160																														
Monthly Average: 0.005 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: 38																														
				Percent Operational Time: 83.6																														
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-Jan	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	0.000	0.000	0.000		
2-Jan	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		
3-Jan	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.036	0.166	0.015	0.066	0.206	0.019	0.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.206			
4-Jan	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.000			
5-Jan	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			
6-Jan	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	0.000	0.000			
7-Jan	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	0.000	0.000			
8-Jan	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	0.002	0.010	0.019	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
9-Jan	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			
10-Jan	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			
11-Jan	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			
12-Jan	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	0.000	0.000			
13-Jan	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	0.000	0.000			
14-Jan	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			
15-Jan	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	UO	UO	UO	UO	UO	UO	--		
16-Jan	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	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	0.000	0.000	0.000	0.000		
17-Jan	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		
18-Jan	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	0.000	0.000	0.000		
19-Jan	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	0.083	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	0.000	0.000		
20-Jan	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		
21-Jan	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		
22-Jan	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		
23-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
24-Jan	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	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	0.000	0.000	0.000	0.000	0.000	
25-Jan	0.057	0.000	0.000	0.025	0.106	Z	0.144	0.151	0.128	0.090	0.003	0.000	0.000	0.022	0.191	0.002	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	0.000	0.000	0.000	0.000	
26-Jan	Z	0.006	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.144	0.174	0.060	0.000	0.039	0.061	0.112	0.095	0.181	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-Jan	0.000	0.000	Z	0.000	0.087	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.044	0.000	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-Jan	0.000	0.000	0.000	Z	0.001	0.012	0.000	0.000	0.000	0.000	0.086	0.002	0.000	0.000	0.000	0.014	0.000	0.000	0.021	0.000	0.000	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-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.000
30-Jan	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--
31-Jan	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	0.019	0.001	0.000	0.007	0.008	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	
		0.003	0.000	0.000	0.001	0.009	0.001	0.006	0.008	0.012	0.008	0.003	0.009	0.001	0.013	0.017	0.002	0.000	0.003	0.003	0.007	0.011	0.008	0.000	0.001							Diurnal Average		
		0.057	0.006	0.000	0.025	0.106	0.016	0.144	0.151	0.166	0.090	0.066	0.206	0.019	0.144	0.191	0.060	0.004	0.039	0.061	0.112	0.108	0.181	0.000	0.017							Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance				UO - Unstable Operation																								







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Anzac - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	538	92.12	92.12
0.006 - 0.05	25	4.28	96.40
0.06 - 0.1	15	2.57	98.97
> 0.1	6	1.03	100.00

Total Number of Valid Hours: 584

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Anzac - January 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	7	15	12	29	31	69	40	9	9	11	18	57	106	71	39	15	538
0.006 - 0.05	0	1	0	3	3	4	1	0	0	1	1	5	3	1	2	0	25
0.06 - 0.1	0	0	0	1	3	1	3	0	0	0	1	4	1	0	1	0	15
> 0.1	0	0	0	1	1	1	2	0	0	0	0	1	0	0	0	0	6
<b>Totals</b>	<b>7</b>	<b>16</b>	<b>12</b>	<b>34</b>	<b>38</b>	<b>75</b>	<b>46</b>	<b>9</b>	<b>9</b>	<b>12</b>	<b>20</b>	<b>67</b>	<b>110</b>	<b>72</b>	<b>42</b>	<b>15</b>	<b>584</b>

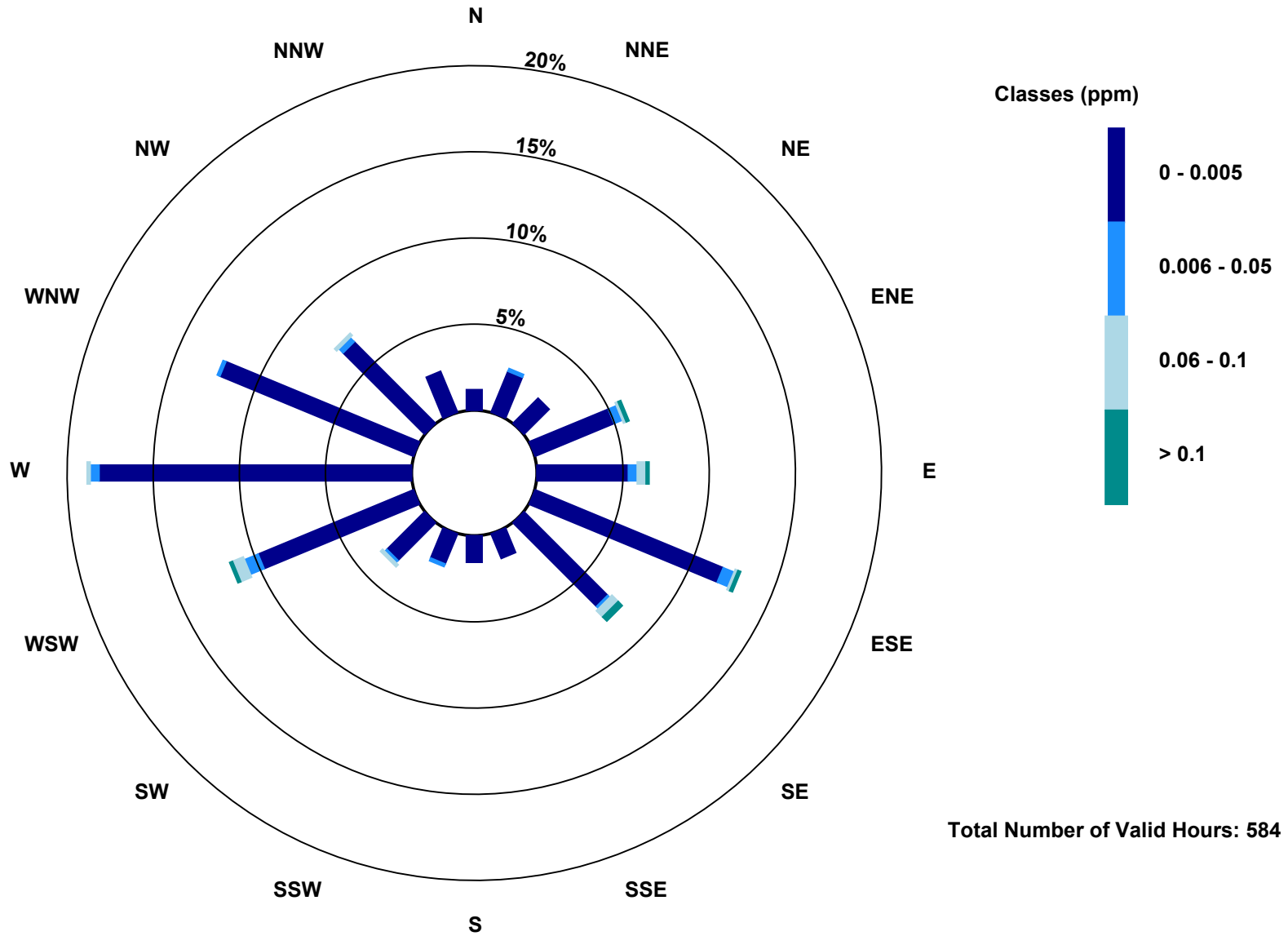
Total Number of Valid Hours: 584

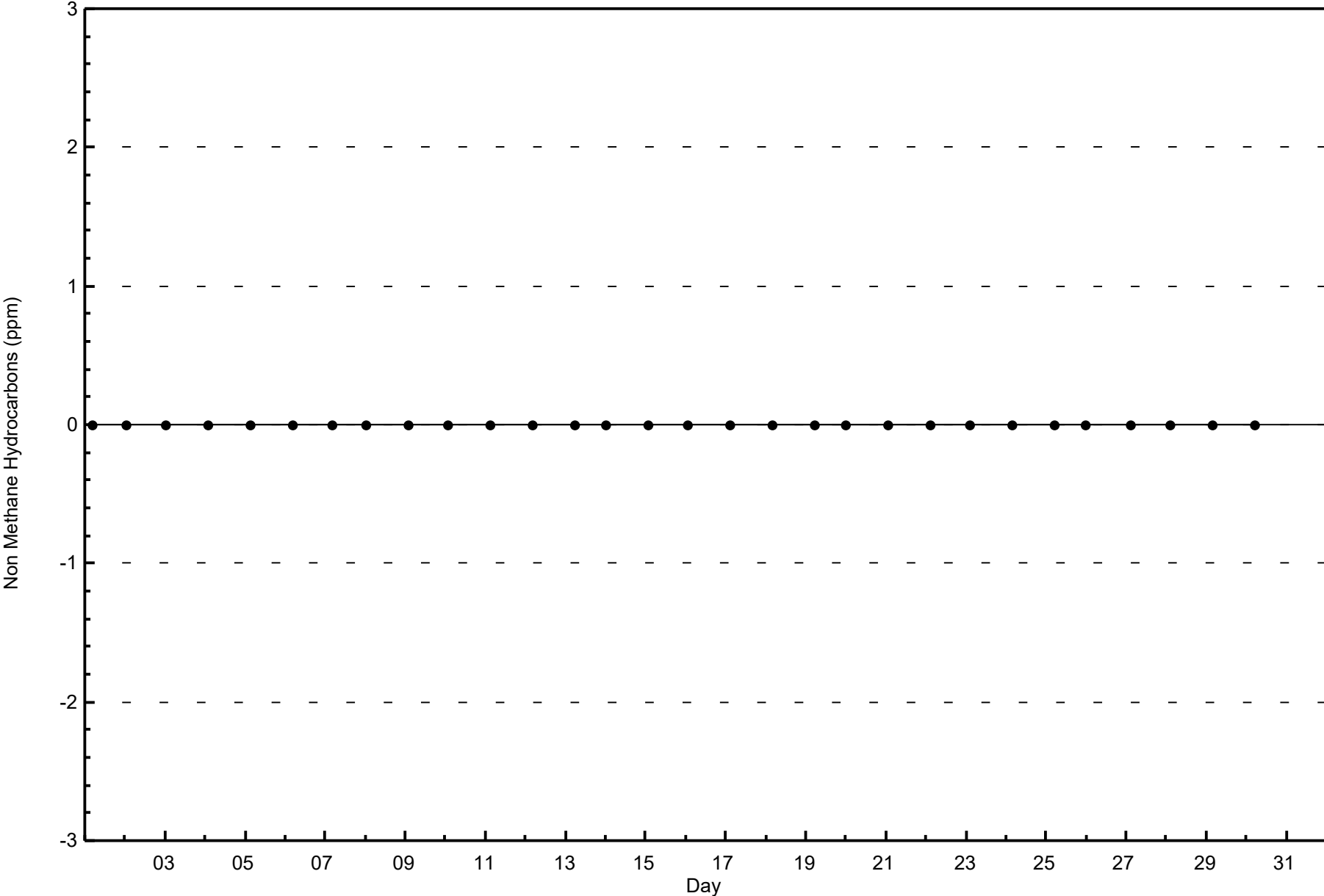
Total Number of Hours: 744

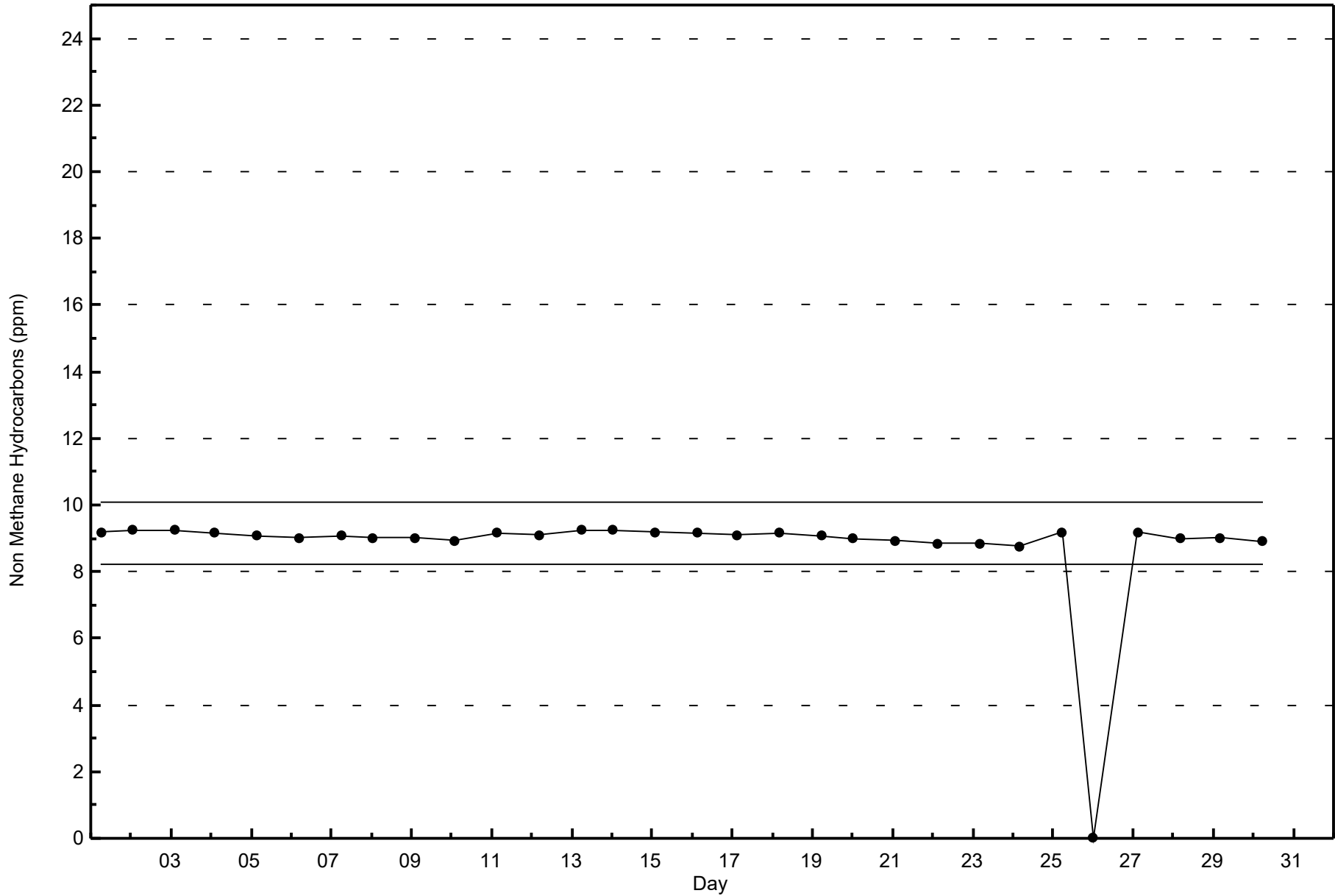


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Anzac





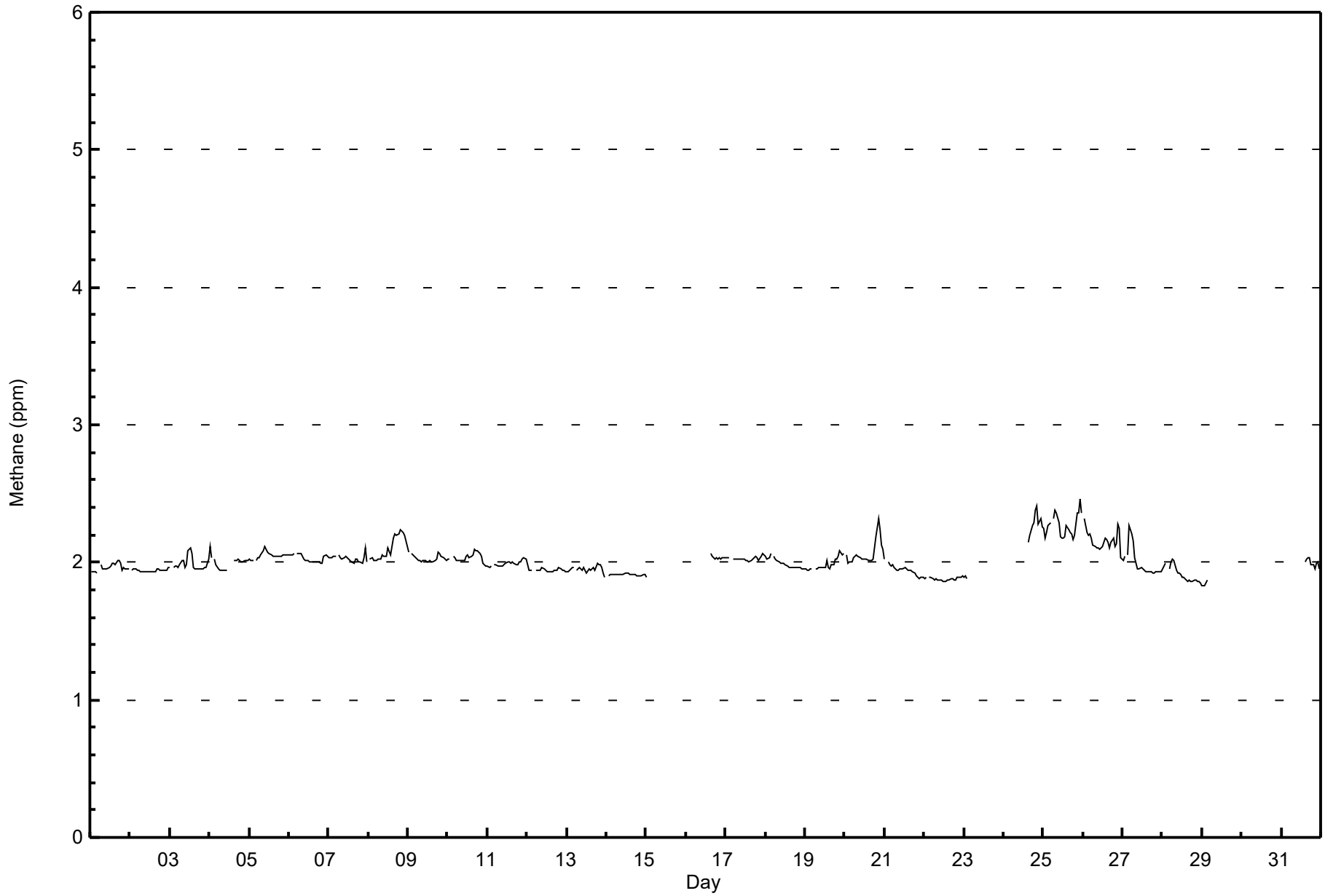






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Anzac - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	467	79.97	79.97
2.1 - 3.0	117	20.03	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 584

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Anzac - January 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	7	14	11	26	30	48	36	8	8	11	17	50	87	62	38	14	467
2.1 - 3.0	0	2	1	8	8	27	10	1	1	1	3	17	23	10	4	1	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>	7	16	12	34	38	75	46	9	9	12	20	67	110	72	42	15	584

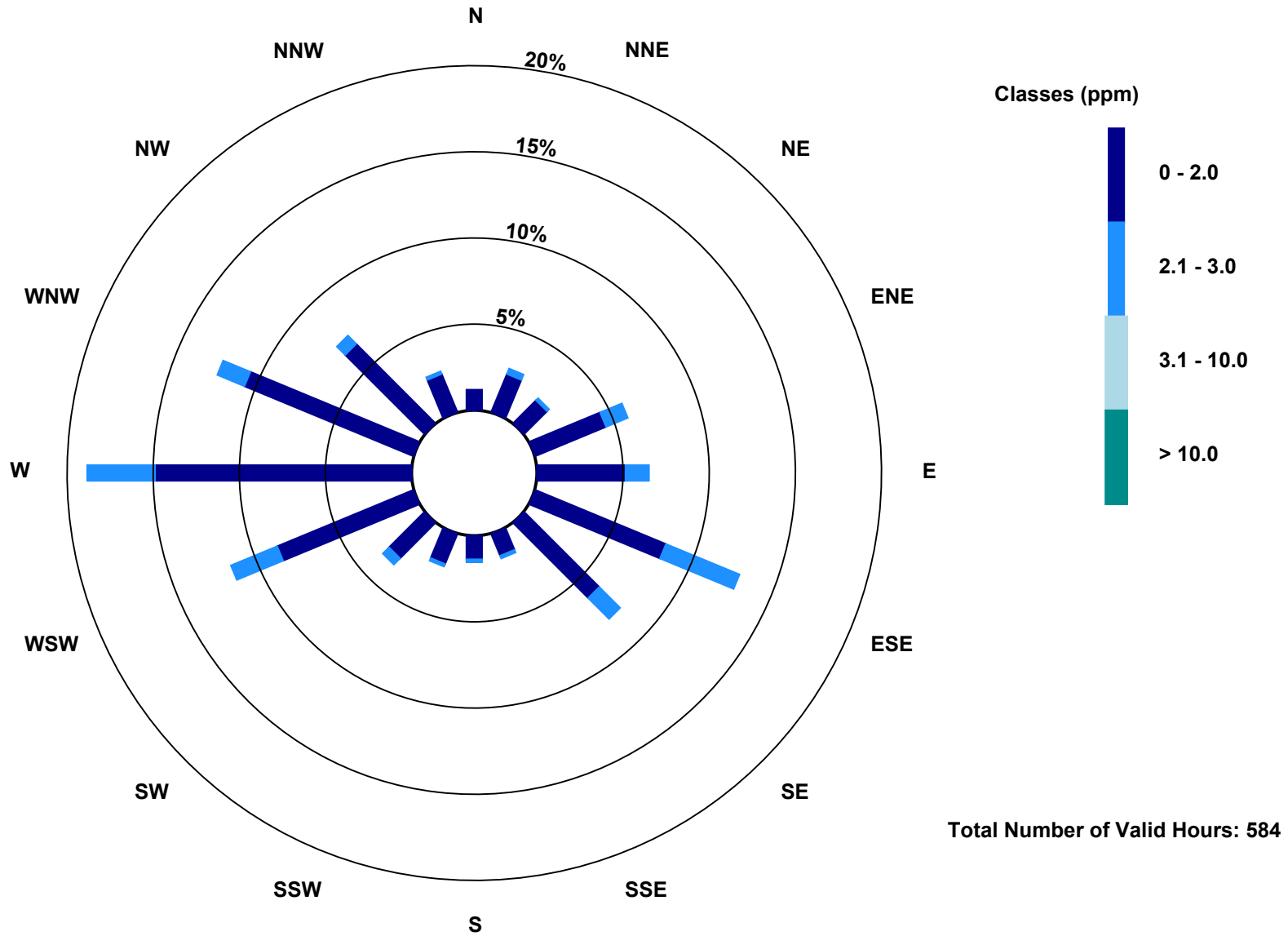
Total Number of Valid Hours: 584

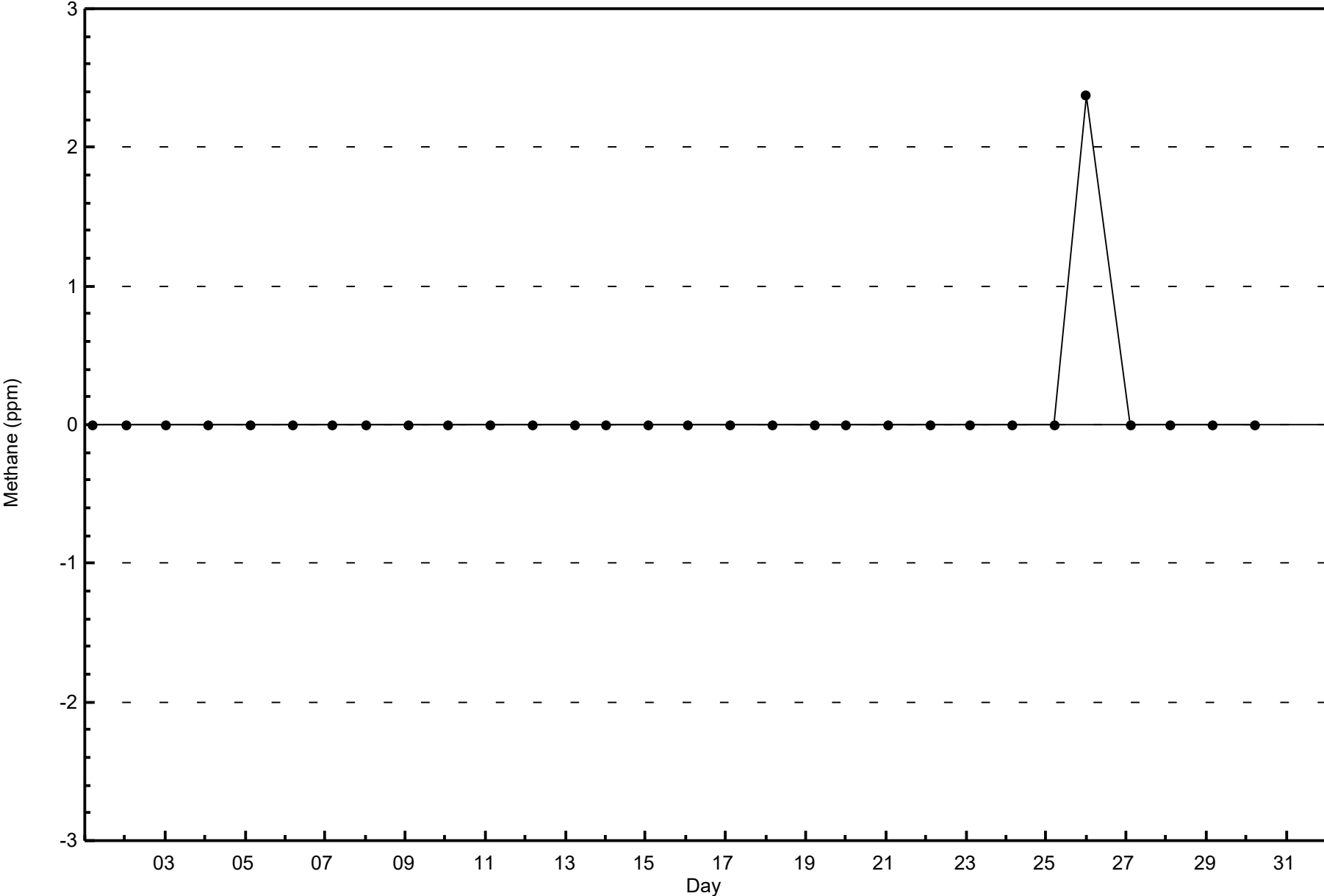
Total Number of Hours: 744

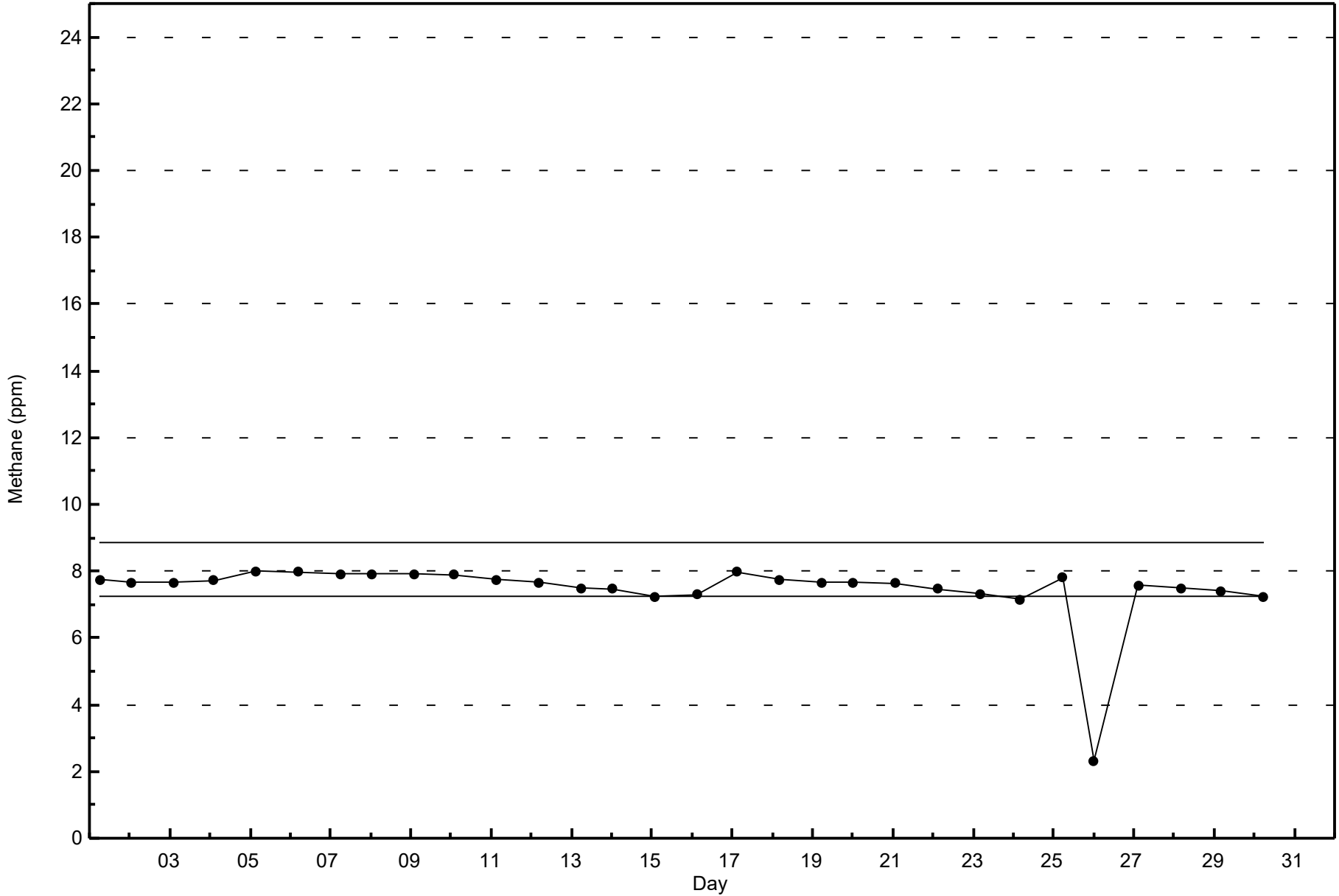


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

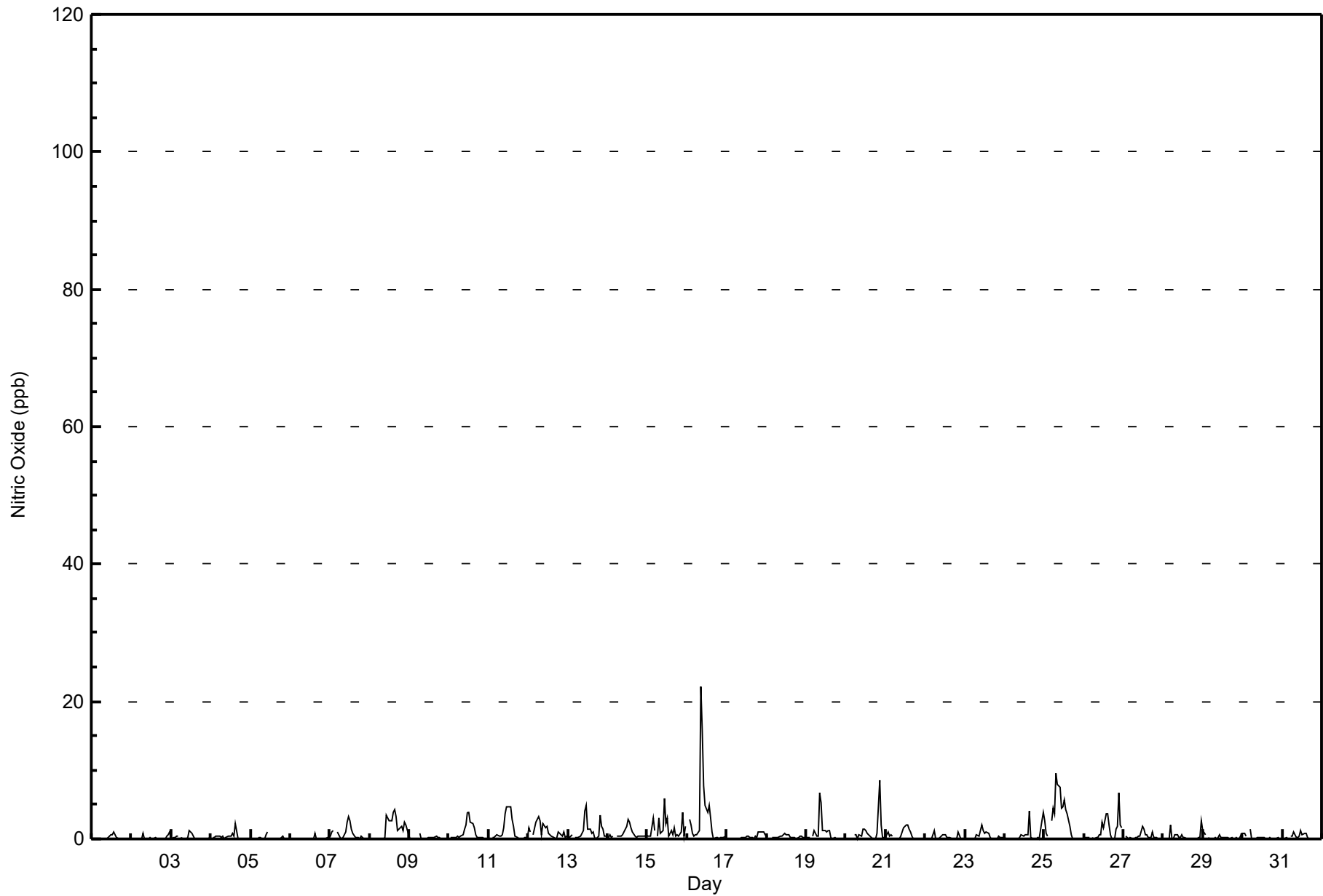
**Nitric Oxide (NO) - ppb**  
**Anzac - January 2024**

Maximum Value: 22.3 ppb on Jan 16 09:00      Maximum Daily Average: 3.2 ppb on Jan 16																				Hours in Service: 744 Hours of Data: 707						
Minimum Value: 0.0 ppb on Jan 1 08:00      Minimum Daily Average: 0.1 ppb on Jan 6 Maximum Diurnal Average: 1.7 ppb at hour 12      Minimum Diurnal Average: 0.2 ppb at hour 18 Monthly Average: 0.75 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> = 0.7 P <sub>90</sub> = 2.1 P <sub>99</sub> = 6.8																				Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.6	1.0	0.6	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.0
2-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.5	1.0	0.1	1.0
3-Jan	0.0	0.1	0.3	0.4	0.4	Z	0.3	0.1	0.0	0.0	0.2	1.2	0.7	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	1.2
4-Jan	Z	0.3	0.1	0.3	0.4	0.5	0.3	0.4	0.0	0.3	0.5	0.5	0.4	0.8	0.4	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3
5-Jan	0.0	Z	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.6	1.0	C	C	C	C	C	C	0.0	0.0	0.5	0.0	0.0	0.0	0.0	--	1.0
6-Jan	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	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.8	
7-Jan	0.4	1.1	1.1	Z	1.0	0.7	0.3	0.1	0.3	1.0	2.4	3.2	2.6	1.4	0.7	0.2	0.2	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.7	3.2
8-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	3.5	3.0	2.6	2.6	3.9	4.3	3.2	1.2	1.7	1.8	1.2	2.4	1.9	0.6	1.5	4.3
9-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.7	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.7
10-Jan	Z	0.1	0.2	0.1	0.3	0.4	0.3	0.4	0.7	1.5	2.0	3.8	3.8	2.5	2.3	1.6	0.5	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.9	3.8
11-Jan	0.1	Z	0.1	0.3	0.3	0.6	0.5	0.4	0.5	1.6	3.7	4.8	4.7	4.6	2.9	1.7	0.4	0.1	0.1	0.0	0.0	0.1	0.2	0.3	1.2	4.8
12-Jan	1.6	1.1	Z	0.7	2.5	2.8	3.3	2.7	0.7	2.2	1.7	1.8	0.7	0.6	0.4	0.1	0.0	0.1	1.1	0.8	0.5	1.1	0.3	0.4	1.2	3.3
13-Jan	0.5	0.2	0.6	Z	0.1	0.2	0.3	0.4	0.8	1.2	4.0	4.8	1.4	1.4	0.9	1.1	0.2	0.1	0.5	3.5	1.8	1.5	0.3	0.4	1.1	4.8
14-Jan	0.3	0.6	0.3	0.3	Z	0.3	0.4	0.3	0.4	0.7	1.0	1.8	2.9	2.5	1.7	1.1	0.4	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.8	2.9
15-Jan	0.5	0.5	0.4	3.1	1.2	Z	0.4	3.1	0.8	1.3	5.9	2.2	3.1	0.4	1.3	0.6	1.7	0.4	0.5	0.5	1.0	3.8	0.3	1.9	1.5	5.9
16-Jan	Z	2.9	2.1	0.8	0.5	0.6	0.5	1.3	22.3	15.9	7.7	4.9	3.8	4.8	3.0	0.9	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	3.2	22.3
17-Jan	0.3	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.4	0.3	0.1	0.1	0.4	0.1	1.0	0.9	1.0	1.0	0.7	0.3	1.0
18-Jan	0.5	0.5	Z	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.7	0.8	0.6	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.3	0.8
19-Jan	0.1	0.2	0.2	Z	0.3	1.2	0.3	0.3	6.8	5.4	1.2	1.3	1.1	1.3	1.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.8
20-Jan	0.0	0.0	0.0	0.1	Z	0.7	0.6	0.0	0.7	0.4	1.5	1.4	1.3	0.8	0.5	0.3	0.1	0.0	0.0	0.8	8.5	2.1	0.3	0.2	0.9	8.5
21-Jan	0.1	0.9	0.3	0.6	0.4	Z	0.0	0.0	0.0	0.4	1.0	1.7	2.1	2.0	1.4	0.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	2.1
22-Jan	Z	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.1	0.2	0.5	0.6	0.7	0.1	0.1	0.2	0.1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.2	1.3
23-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.6	0.4	1.2	2.1	1.2	0.8	0.9	0.9	0.3	0.0	0.0	0.1	0.1	0.4	0.2	0.2	0.1	0.4	2.1
24-Jan	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.3	0.6	0.7	0.7	4.1	0.1	0.0	0.0	0.0	0.2	0.0	2.6	3.8	0.6	4.1
25-Jan	2.7	0.9	0.5	Z	2.5	4.5	3.6	9.6	7.9	7.6	4.5	4.6	5.8	4.3	3.6	1.9	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.1	2.8	9.6
26-Jan	0.1	0.3	0.2	0.2	Z	0.2	0.0	0.2	0.2	0.5	0.7	2.5	1.6	3.7	3.6	2.1	0.7	0.1	0.0	1.3	1.8	6.7	2.0	1.7	1.3	6.7
27-Jan	Z	0.4	0.2	0.0	0.3	0.1	0.1	0.2	0.2	0.5	0.4	1.8	1.5	0.7	0.5	0.2	0.1	1.0	0.1	0.1	0.1	0.0	0.0	0.0	0.4	1.8
28-Jan	0.0	Z	0.1	0.0	2.0	0.0	0.0	0.6	0.6	0.1	0.2	0.5	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.3	0.3	2.6	0.3	2.6
29-Jan	1.1	0.6	Z	0.1	0.0	0.0	0.0	0.2	0.0	0.2	0.6	0.3	0.1	0.3	0.2	0.1	0.1	0.2	0.0	0.1	0.2	0.0	0.0	0.9	0.2	1.1
30-Jan	0.9	0.8	0.4	Z	1.4	0.0	0.0	0.1	0.0	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	0.0	0.0	0.2	1.4
31-Jan	0.0	0.0	0.1	0.0	Z	0.4	0.3	1.0	0.2	0.2	0.3	1.1	0.7	0.7	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1
0.4   0.4   0.3   0.3   0.6   0.5   0.4   0.7   1.4   1.4   1.6   1.7   1.5   1.3   1.1   0.9   0.3   0.2   0.2   0.4   0.6   0.7   0.4   0.5																								Diurnal Average		
2.7   2.9   2.1   3.1   2.5   4.5   3.6   9.6   22.3   15.9   7.7   4.9   5.8   4.8   3.9   4.3   3.2   1.2   1.7   3.5   8.5   6.7   2.6   3.8																								Diurnal Maximum		
Z - zerospan      C - Calibration																										



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

**Nitric Oxide (NO) - ppb**  
**Anzac - January 2024**





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

**Nitric Oxide (NO) - ppb**  
**Anzac - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	99.86	99.86
21 - 40	1	0.14	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Anzac - January 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	8	15	16	40	47	92	63	17	16	18	33	78	120	84	42	17	706
21 - 40	0	0	0	0	0	0	0	0	0	0	0	1	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>	8	15	16	40	47	92	63	17	16	18	33	79	120	84	42	17	707

Total Number of Valid Hours: 707

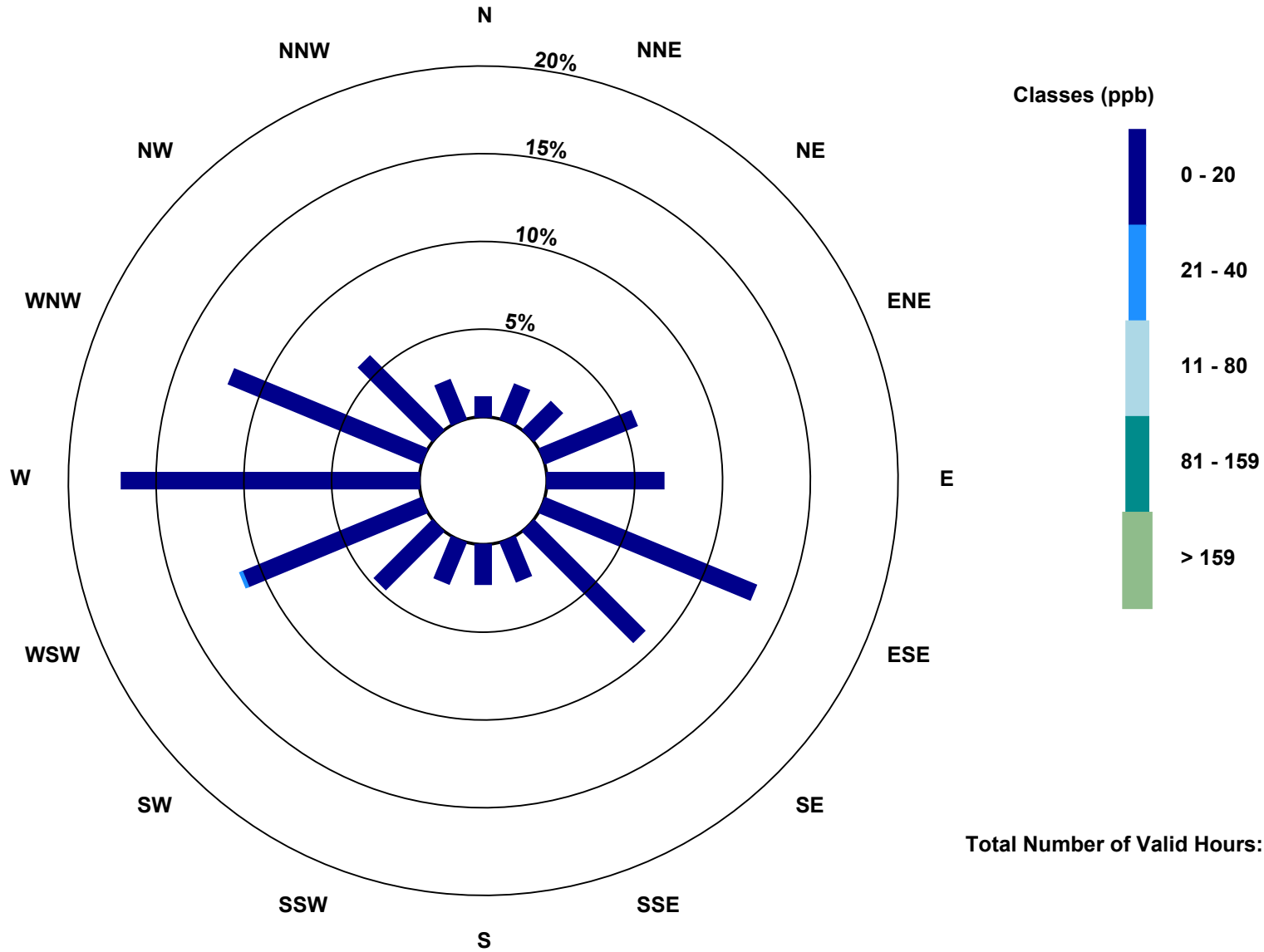
Total Number of Hours: 744



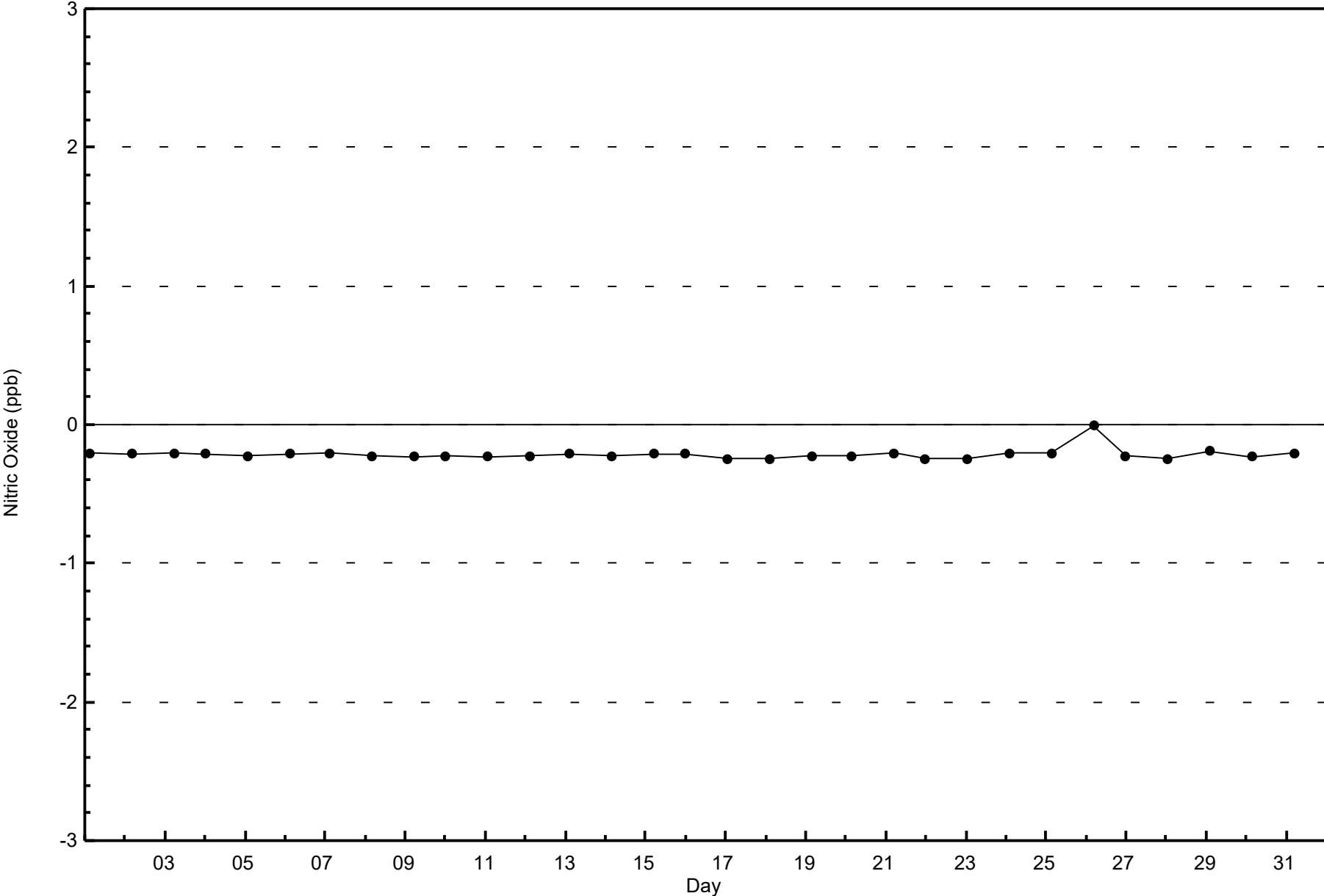


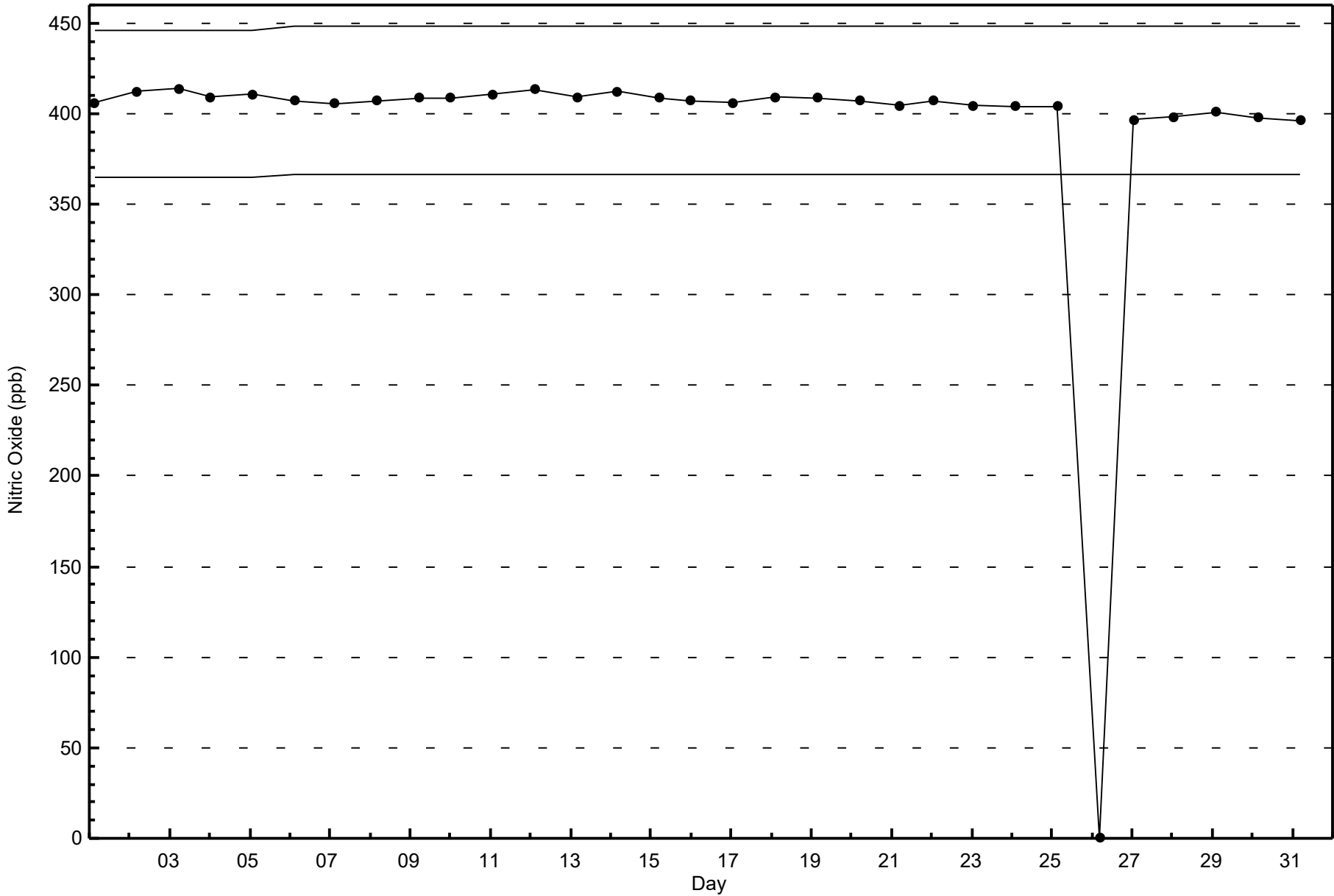
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Anzac



Total Number of Valid Hours: 707







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

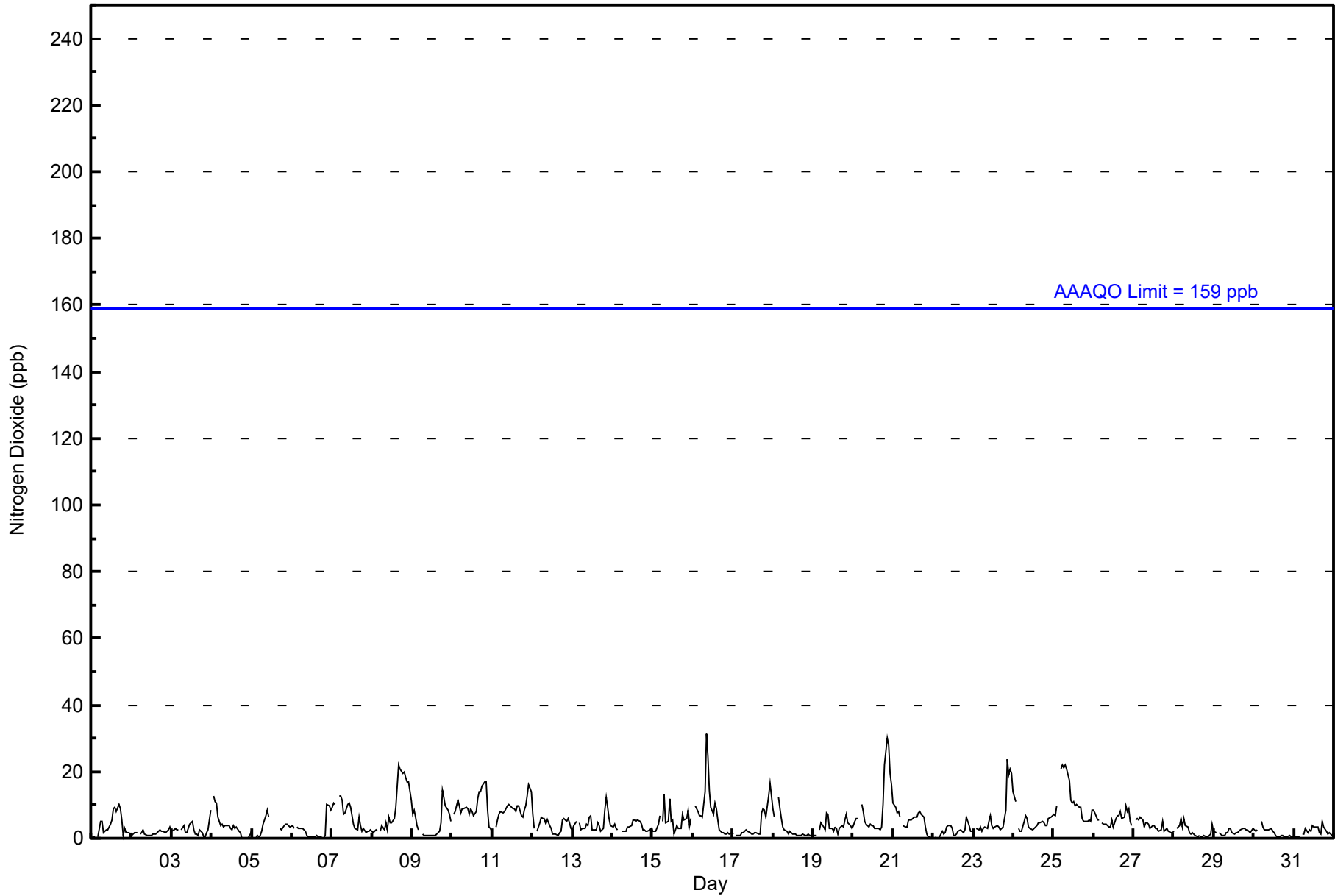
## Anzac - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 31.3 ppb on Jan 16 09:00		Maximum Daily Average: 11.3 ppb on Jan 25																	Hours of Data: 707																														
Minimum Value: 0.2 ppb on Jan 4 19:00		Minimum Daily Average: 1.7 ppb on Jan 30																	Hours of Missing Data: 37																														
Maximum Diurnal Average: 6.3 ppb at hour 21		Minimum Diurnal Average: 3.8 ppb at hour 13																	Hours of Calibration: 37																														
Monthly Average: 4.82 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.9 Median = 3.3 Q <sub>3</sub> = 6.3 P <sub>90</sub> = 9.9 P <sub>99</sub> = 22.0																	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-Jan	0.5	0.5	0.4	Z	0.6	5.1	4.9	1.7	2.2	2.6	2.4	4.3	5.5	8.7	9.5	8.0	10.0	9.0	5.7	1.0	3.0	1.5	1.5	1.1	3.9	10.0																							
2-Jan	1.0	1.3	1.6	1.7	Z	1.4	1.9	2.5	1.4	0.9	0.7	1.0	0.9	1.1	1.4	1.5	2.2	2.4	2.2	2.0	1.9	2.2	2.4	3.6	1.7	3.6																							
3-Jan	2.2	2.7	3.0	2.4	2.7	Z	2.5	3.9	1.5	1.8	2.9	4.3	5.0	2.7	1.3	1.3	0.8	2.6	1.8	0.6	0.5	1.9	2.4	8.5	2.6	8.5																							
4-Jan	Z	12.7	11.0	10.6	6.2	3.8	4.1	3.6	4.0	4.0	3.9	2.9	2.4	3.8	2.9	3.5	2.3	1.7	0.2	0.2	0.2	0.3	1.3	3.7	12.7																								
5-Jan	2.5	Z	0.5	0.8	0.5	0.9	2.2	4.1	6.6	8.6	6.5	C	C	C	C	C	C	3.0	2.4	4.0	4.4	4.4	4.0	3.2	--	8.6																							
6-Jan	3.7	3.1	Z	3.2	3.0	3.0	2.9	2.7	2.0	0.7	0.5	0.4	0.3	0.3	0.3	0.8	0.3	0.2	0.2	0.7	10.2	9.8	8.4	2.5	10.2																								
7-Jan	9.4	10.5	10.3	Z	12.5	12.7	11.5	7.4	7.6	10.0	10.7	9.4	6.9	4.1	3.1	2.4	6.3	4.0	2.2	2.9	1.9	2.2	2.3	2.7	6.7	12.7																							
8-Jan	2.0	1.7	2.7	2.0	Z	2.0	3.7	2.7	4.7	2.4	6.5	4.5	4.7	5.9	9.4	15.7	22.0	20.8	19.5	19.8	18.2	16.9	16.8	11.3	9.4	22.0																							
9-Jan	7.2	8.5	6.3	3.8	2.5	Z	1.4	1.0	0.9	1.0	0.8	0.7	0.7	0.8	0.9	1.3	2.1	4.8	14.4	12.4	9.6	8.4	7.4	5.2	4.4	14.4																							
10-Jan	Z	7.4	8.1	11.4	9.8	7.6	8.7	9.0	9.4	8.8	7.0	8.9	8.1	6.7	7.9	12.0	13.8	14.1	15.6	16.8	17.0	8.5	3.6	2.8	9.7	17.0																							
11-Jan	2.3	Z	3.5	5.6	7.4	8.1	7.8	8.0	9.1	9.9	10.3	9.6	9.0	8.8	8.1	9.9	9.8	6.6	6.2	8.4	9.9	12.7	15.9	14.1	8.7	15.9																							
12-Jan	7.1	3.1	Z	2.1	4.8	6.3	6.0	6.0	4.6	6.0	3.8	3.1	1.4	1.2	1.3	1.0	1.7	2.2	5.3	6.1	4.9	6.0	4.8	2.8	4.0	7.1																							
13-Jan	2.6	3.9	5.2	Z	4.7	2.6	2.8	3.0	4.1	4.0	6.4	6.7	2.6	2.7	2.6	4.8	3.8	2.1	2.9	8.6	12.3	9.5	5.8	3.9	4.7	12.3																							
14-Jan	3.3	4.3	3.1	2.5	Z	2.0	2.0	2.1	2.1	3.3	3.4	4.0	5.7	5.4	4.9	5.5	4.9	4.1	2.7	2.6	2.1	2.2	2.4	2.8	3.4	5.7																							
15-Jan	2.1	2.0	2.3	4.1	6.6	Z	5.0	13.2	4.8	5.2	11.7	4.9	5.3	1.4	3.7	2.9	2.9	3.1	7.4	5.4	6.1	8.3	4.0	5.9	5.1	13.2																							
16-Jan	Z	9.8	8.9	8.2	6.9	6.8	6.3	13.9	31.3	24.4	14.5	9.4	7.2	10.5	8.7	5.3	2.6	1.8	1.6	1.2	1.4	1.5	1.4	1.5	8.0	31.3																							
17-Jan	1.4	Z	0.9	0.8	1.0	1.8	1.6	2.2	2.4	2.1	1.7	1.3	1.4	1.9	1.8	1.2	1.3	7.5	8.7	8.6	6.5	12.9	16.6	12.9	4.3	16.6																							
18-Jan	8.7	6.4	Z	12.3	8.9	6.0	3.2	2.7	2.2	1.4	2.0	1.7	1.2	1.2	0.8	0.7	0.9	0.8	1.1	0.9	1.0	1.2	0.9	0.8	2.9	12.3																							
19-Jan	0.8	0.8	1.0	Z	2.5	4.7	3.4	2.6	7.7	7.1	3.0	2.8	2.1	3.5	2.8	1.2	3.0	4.0	3.6	5.7	7.0	4.5	3.7	3.1	3.5	7.7																							
20-Jan	3.9	5.0	5.9	5.9	Z	10.3	8.1	4.9	4.1	3.2	4.4	4.0	3.7	3.0	2.9	3.0	2.7	3.2	10.1	22.1	30.1	27.9	19.3	15.9	8.9	30.1																							
21-Jan	10.4	9.2	7.8	8.2	6.5	Z	4.0	3.2	3.5	5.3	5.4	5.6	6.2	6.2	6.3	7.6	8.1	7.0	6.3	3.3	1.2	0.3	0.3	0.2	5.3	10.4																							
22-Jan	Z	0.3	0.2	0.2	0.3	2.3	1.4	1.6	3.6	3.9	3.7	3.1	0.7	0.7	1.1	2.1	2.6	2.3	1.9	2.6	6.3	3.7	2.3	2.2	2.1	6.3																							
23-Jan	2.3	Z	2.8	2.7	3.4	2.2	3.0	3.3	2.8	5.0	6.8	3.7	2.9	3.2	3.8	3.2	2.7	3.1	3.6	8.4	23.8	19.1	20.7	19.5	6.6	23.8																							
24-Jan	14.1	11.0	Z	2.8	2.0	2.1	5.0	6.7	5.8	3.2	2.9	2.7	3.0	3.2	3.8	4.7	4.7	5.2	4.6	3.7	3.7	5.8	6.5	6.6	4.9	14.1																							
25-Jan	7.2	6.8	9.7	Z	20.7	22.1	21.1	22.0	20.9	17.3	11.4	10.7	11.1	9.9	10.2	9.4	9.2	5.9	5.1	4.9	5.0	5.4	5.0	8.3	11.3	22.1																							
26-Jan	8.6	7.6	5.6	5.3	Z	4.8	4.1	4.1	3.7	3.6	3.3	5.6	3.5	6.0	6.8	6.9	7.9	6.1	6.3	9.8	8.2	9.1	5.2	3.7	5.9	9.8																							
27-Jan	Z	5.3	6.1	5.5	6.4	5.3	3.5	4.5	4.7	4.2	3.1	4.0	3.7	2.8	2.8	2.2	2.4	5.0	2.3	2.4	2.8	2.0	1.6	1.6	3.7	6.4																							
28-Jan	2.0	Z	2.8	3.7	5.9	3.6	5.8	4.0	3.2	1.7	1.3	1.7	1.1	1.0	0.6	0.7	0.6	0.6	0.9	0.6	0.6	1.0	1.1	4.4	2.1	5.9																							
29-Jan	2.0	1.9	Z	1.5	1.1	0.8	0.8	1.7	1.6	2.8	3.1	1.5	1.3	1.7	1.9	2.1	2.4	2.9	2.8	2.5	2.5	2.2	1.8	2.8	2.0	3.1																							
30-Jan	2.5	2.3	2.5	Z	5.0	3.3	2.5	2.5	2.6	2.5	2.8	2.1	1.8	0.9	0.6	0.6	0.7	0.7	0.5	0.5	0.5	0.7	0.5	0.5	1.7	5.0																							
31-Jan	0.4	0.4	0.6	0.4	Z	1.4	1.3	2.9	1.6	2.6	2.1	3.9	3.2	3.5	3.5	1.7	1.1	5.2	3.4	2.1	1.1	1.7	1.3	0.7	2.0	5.2																							
																								4.2	4.9	4.3	4.3	5.3	4.9	4.6	5.0	5.4	5.1	4.8	4.3	3.8	3.8	3.9	4.1	4.5	4.6	4.9	5.5	6.3	6.3	5.5	5.2	Diurnal Average	
																								14.1	12.7	11.0	12.3	20.7	22.1	21.1	22.0	31.3	24.4	14.5	10.7	11.1	10.5	10.2	15.7	22.0	20.8	19.5	22.1	30.1	27.9	20.7	19.5	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**  
**Anzac - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Anzac - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	693	98.02	98.02
21 - 40	14	1.98	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Anzac - January 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	8	15	16	40	47	92	63	17	16	18	33	74	116	81	40	17	693
21 - 40	0	0	0	0	0	0	0	0	0	0	0	5	4	3	2	0	14
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>8</b>	<b>15</b>	<b>16</b>	<b>40</b>	<b>47</b>	<b>92</b>	<b>63</b>	<b>17</b>	<b>16</b>	<b>18</b>	<b>33</b>	<b>79</b>	<b>120</b>	<b>84</b>	<b>42</b>	<b>17</b>	<b>707</b>

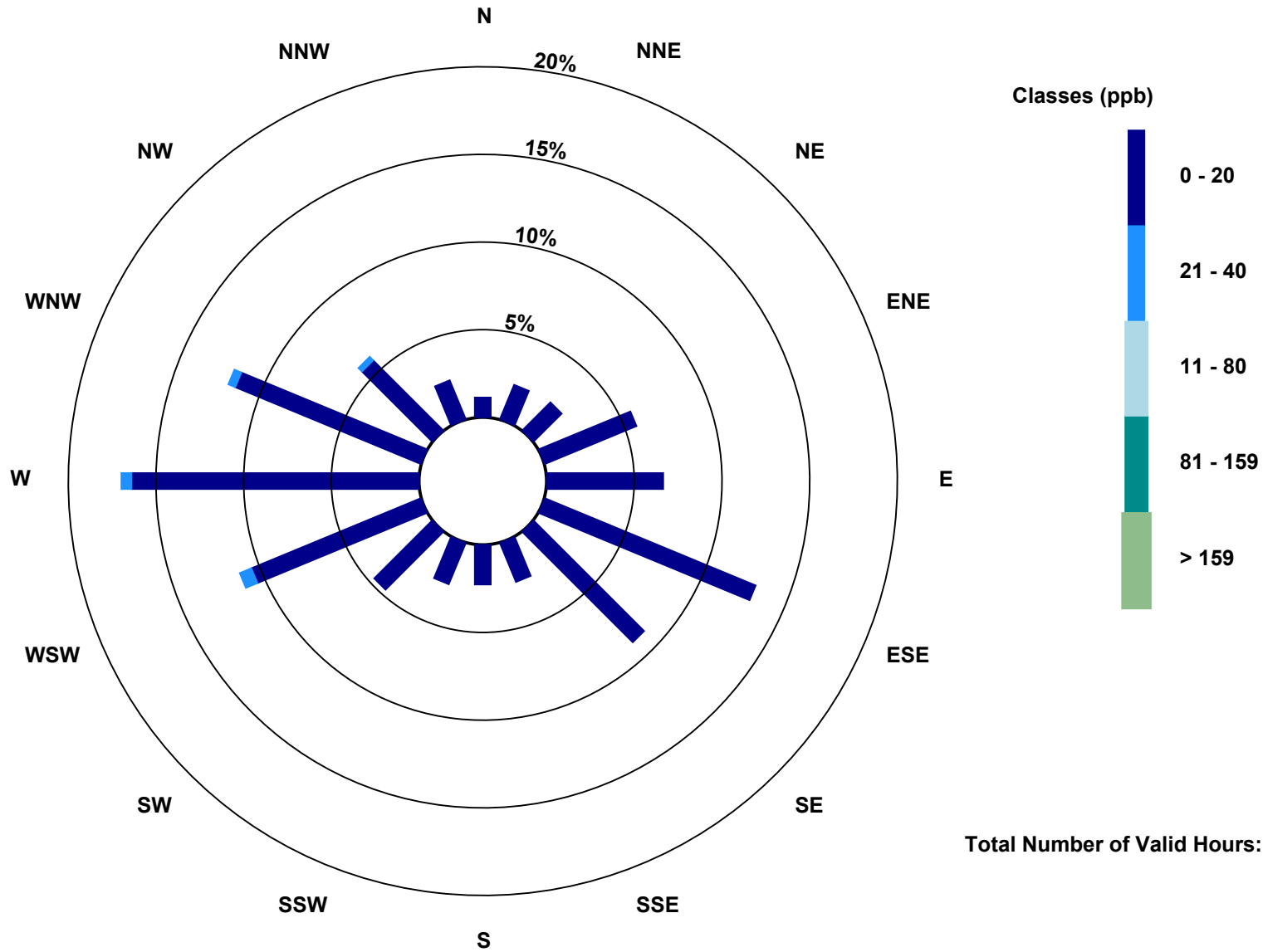
Total Number of Valid Hours: 707

Total Number of Hours: 744

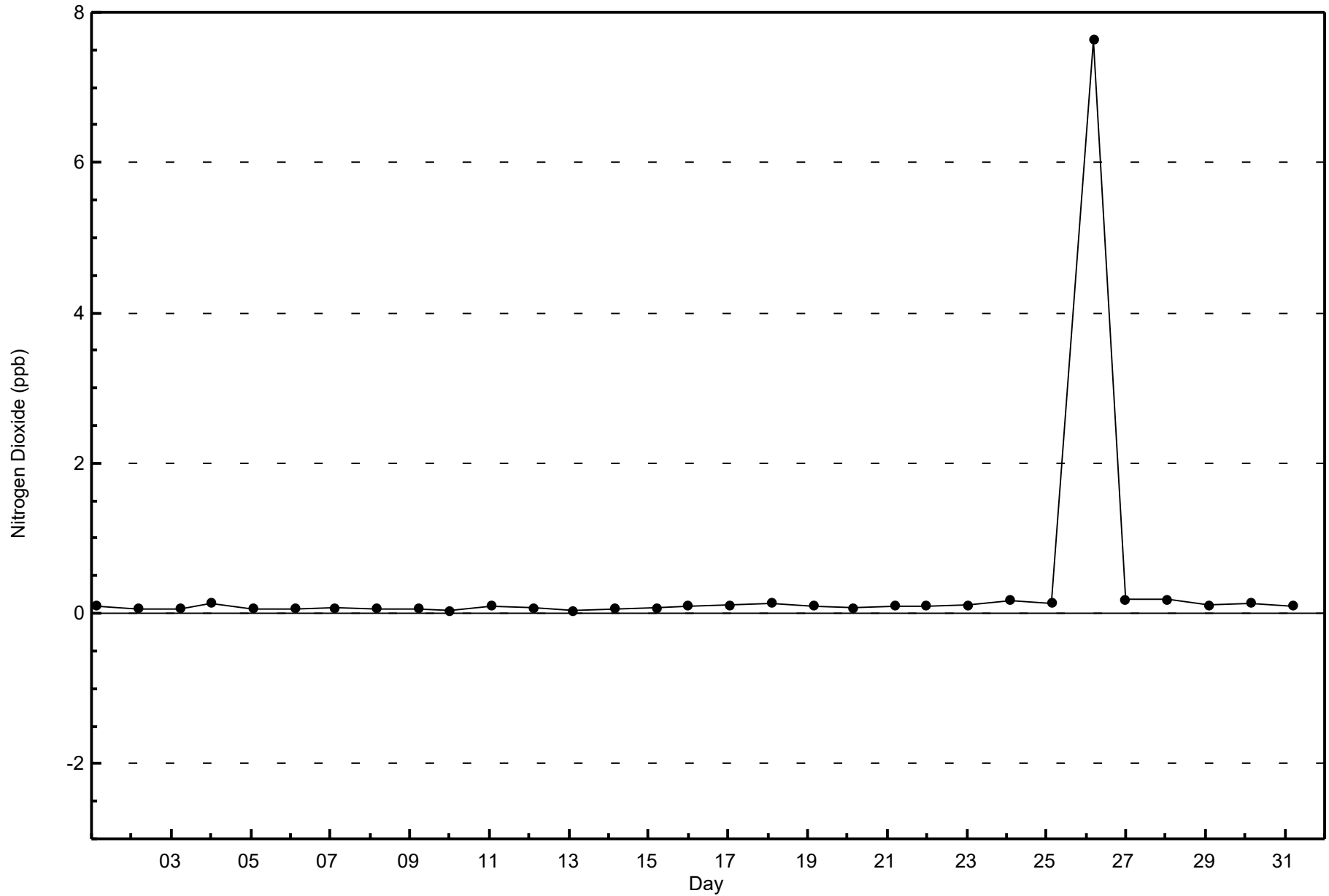


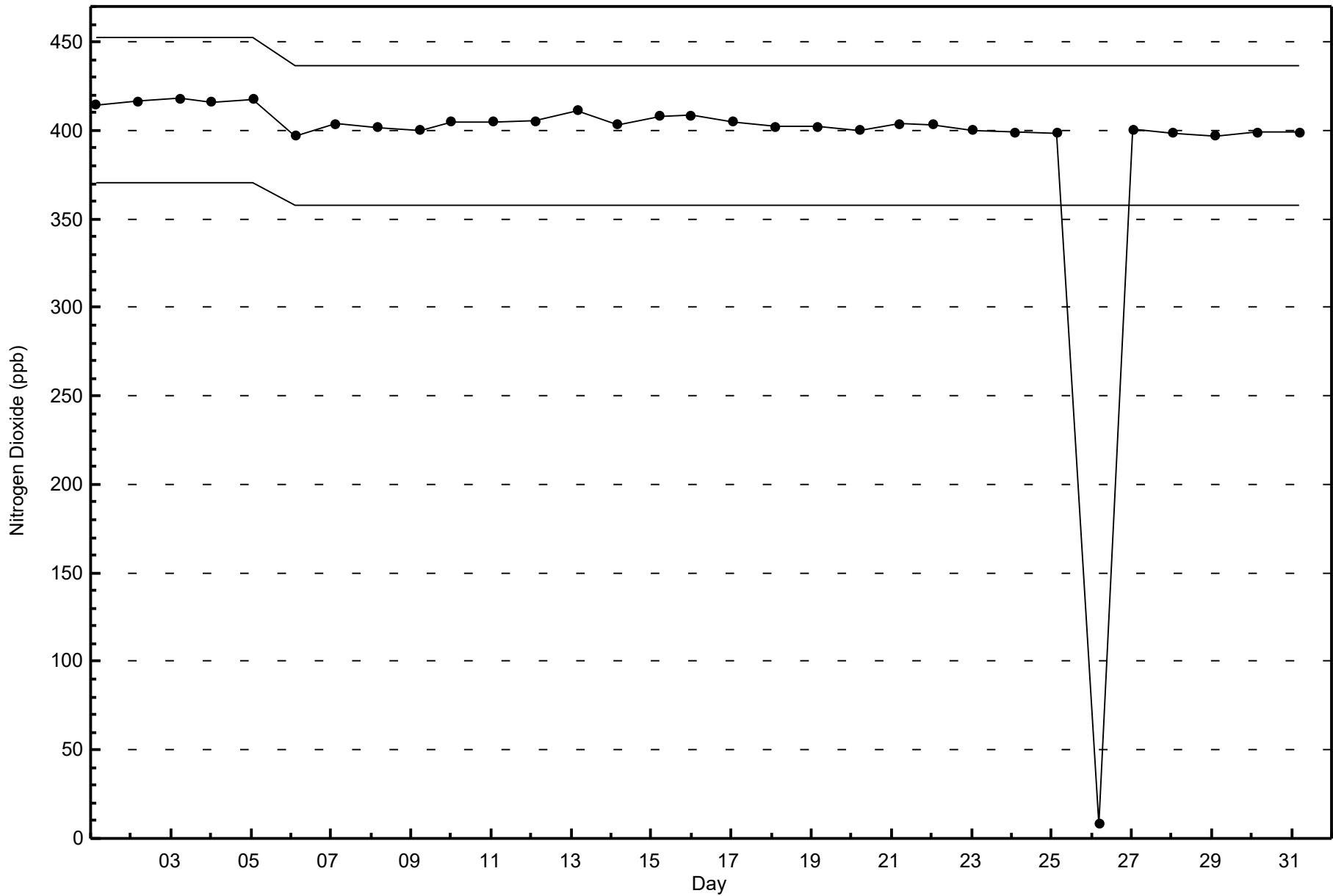
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











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

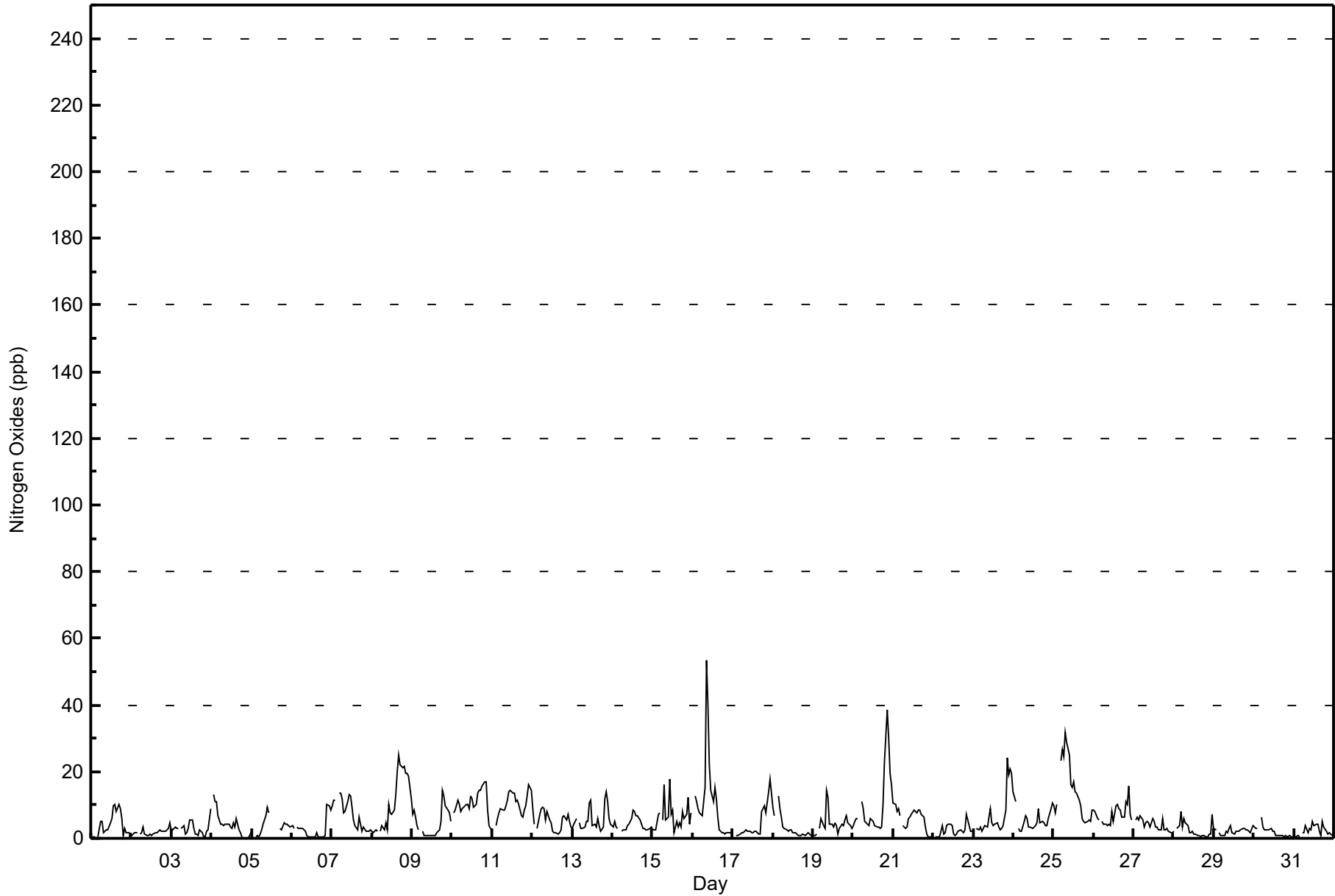
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - January 2024**

Maximum Value: 53.6 ppb on Jan 16 09:00      Maximum Daily Average: 14.1 ppb on Jan 25																				Hours in Service: 744 Hours of Data: 707						
Minimum Value: 0.2 ppb on Jan 4 21:00      Minimum Daily Average: 1.9 ppb on Jan 2 Maximum Diurnal Average: 6.9 ppb at hour 22      Minimum Diurnal Average: 4.6 ppb at hour 1 Monthly Average: 5.58 ppb      Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 2.0 Median = 3.7 Q <sub>3</sub> = 7.5 P <sub>90</sub> = 11.9 P <sub>99</sub> = 25.1																				Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.5	0.5	0.4	Z	0.6	5.1	4.9	1.7	2.2	2.6	2.5	4.8	6.1	9.7	10.1	8.2	10.0	9.1	5.8	1.0	3.0	1.5	1.5	1.1	4.0	10.1
2-Jan	1.0	1.3	1.6	1.7	Z	1.4	1.9	3.4	1.4	0.9	0.7	1.2	1.0	1.1	1.5	1.5	2.2	2.4	2.3	2.0	1.9	2.6	2.9	4.6	1.9	4.6
3-Jan	2.2	2.8	3.3	2.8	3.1	Z	2.8	4.0	1.5	1.8	3.1	5.5	5.7	3.0	1.4	1.4	0.8	2.6	1.8	0.6	0.5	1.9	2.5	8.7	2.8	8.7
4-Jan	Z	13.0	11.1	10.9	6.6	4.3	4.4	4.0	4.0	4.3	4.4	3.4	2.8	4.6	3.3	5.8	2.3	1.7	0.2	0.2	0.2	0.3	1.3	4.0	13.0	
5-Jan	2.5	Z	0.5	0.8	0.5	1.1	2.4	4.2	6.7	9.2	7.5	C	C	C	C	C	C	3.0	2.4	4.5	4.4	4.4	4.0	3.2	--	9.2
6-Jan	3.7	3.1	Z	3.2	3.0	3.0	2.9	2.7	2.0	0.7	0.5	0.4	0.3	0.3	1.6	0.3	0.3	0.2	0.2	0.7	10.2	9.9	8.6	2.5	10.2	
7-Jan	9.8	11.6	11.4	Z	13.5	13.4	11.8	7.5	7.9	11.0	13.1	12.6	9.5	5.5	3.8	2.6	6.5	4.3	2.2	3.2	1.9	2.2	2.3	2.7	7.4	13.5
8-Jan	2.0	1.7	2.7	2.0	Z	2.0	3.7	2.7	4.7	2.6	10.0	7.5	7.3	8.5	13.3	20.0	25.2	22.0	21.2	21.6	19.4	19.3	18.7	11.9	10.9	25.2
9-Jan	7.2	8.5	6.3	3.8	2.5	Z	2.1	1.0	0.9	1.0	0.9	0.9	0.8	1.0	1.0	1.5	2.5	5.0	14.6	12.5	9.7	8.5	7.4	5.3	4.6	14.6
10-Jan	Z	7.5	8.3	11.5	10.1	8.0	9.0	9.4	10.1	10.3	9.0	12.7	11.9	9.2	10.2	13.6	14.3	14.3	15.8	16.9	17.1	8.6	3.6	2.9	10.6	17.1
11-Jan	2.4	Z	3.6	5.9	7.7	8.7	8.3	8.4	9.6	11.5	14.0	14.4	13.7	13.4	11.0	11.6	10.2	6.7	6.3	8.4	9.9	12.8	16.1	14.4	10.0	16.1
12-Jan	8.7	4.2	Z	2.8	7.3	9.1	9.3	8.7	5.3	8.2	5.5	4.9	2.1	1.8	1.7	1.1	1.7	2.3	6.4	6.9	5.4	7.1	5.1	3.2	5.2	9.3
13-Jan	3.1	4.1	5.8	Z	4.8	2.8	3.1	3.4	4.9	5.2	10.4	11.5	4.0	4.1	3.5	5.9	4.0	2.2	3.4	12.1	14.1	11.0	6.1	4.3	5.8	14.1
14-Jan	3.6	4.9	3.4	2.8	Z	2.3	2.4	2.4	2.5	4.0	4.4	5.8	8.6	7.9	6.6	6.6	5.3	4.4	3.1	2.9	2.5	2.6	2.9	3.3	4.1	8.6
15-Jan	2.6	2.5	2.7	7.2	7.8	Z	5.4	16.3	5.6	6.5	17.6	7.1	8.4	1.8	5.0	3.5	4.6	3.5	7.9	5.9	7.1	12.1	4.3	7.8	6.6	17.6
16-Jan	Z	12.7	11.0	9.0	7.4	7.4	6.8	15.2	53.6	40.3	22.2	14.3	11.0	15.3	11.7	6.2	2.7	1.9	1.7	1.3	1.5	1.8	1.7	1.8	11.2	53.6
17-Jan	1.7	Z	1.0	0.9	1.1	1.8	1.6	2.2	2.4	2.2	2.0	1.6	1.7	2.3	2.1	1.3	1.4	7.9	8.8	9.6	7.4	13.9	17.6	13.6	4.6	17.6
18-Jan	9.2	6.9	Z	12.5	9.1	6.2	3.4	2.9	2.6	1.9	2.7	2.5	1.8	1.8	1.1	0.9	1.0	0.9	1.2	1.0	1.3	1.6	1.1	1.0	3.3	12.5
19-Jan	0.9	1.0	1.2	Z	2.8	5.9	3.7	2.9	14.5	12.5	4.2	4.1	3.2	4.8	4.0	1.3	3.1	4.2	3.6	5.7	7.0	4.5	3.7	3.1	4.4	14.5
20-Jan	3.9	5.0	5.9	6.0	Z	11.0	8.7	4.9	4.8	3.6	5.9	5.4	5.0	3.8	3.4	3.3	2.8	3.2	10.1	22.9	38.6	30.0	19.6	16.1	9.7	38.6
21-Jan	10.5	10.1	8.1	8.8	6.9	Z	4.0	3.2	3.5	5.7	6.4	7.3	8.3	8.2	7.7	8.5	8.4	7.1	6.4	3.3	1.2	0.3	0.3	0.2	5.9	10.5
22-Jan	Z	0.3	0.2	0.2	0.3	3.6	1.4	1.6	3.7	4.1	4.2	3.7	1.4	0.8	1.2	2.3	2.7	2.3	1.9	2.6	7.3	3.7	2.3	2.2	2.4	7.3
23-Jan	2.3	Z	2.8	2.7	3.4	2.2	3.0	3.9	3.2	6.2	8.9	4.9	3.7	4.1	4.7	3.5	2.7	3.1	3.7	8.5	24.2	19.3	20.9	19.6	7.0	24.2
24-Jan	14.2	11.0	Z	2.8	2.0	2.1	5.0	6.7	5.9	3.3	3.4	3.0	3.6	3.9	4.5	8.8	4.8	5.2	4.6	3.7	3.9	5.8	9.1	10.4	5.6	14.2
25-Jan	9.9	7.7	10.2	Z	23.2	26.6	24.7	31.6	28.8	24.9	15.9	15.3	16.9	14.2	13.8	11.3	9.7	5.9	5.1	4.9	5.0	5.4	5.0	8.4	14.1	31.6
26-Jan	8.7	7.9	5.8	5.5	Z	5.0	4.1	4.3	3.9	4.1	4.0	8.1	5.1	9.7	10.4	9.0	8.6	6.2	6.3	11.1	10.0	15.8	7.2	5.4	7.2	15.8
27-Jan	Z	5.7	6.3	5.5	6.7	5.4	3.6	4.7	4.9	4.7	3.5	5.8	5.2	3.5	3.3	2.4	2.5	6.0	2.4	2.5	2.9	2.0	1.6	1.6	4.0	6.7
28-Jan	2.0	Z	2.9	3.7	7.9	3.6	5.8	4.6	3.8	1.8	1.5	2.2	1.3	1.2	0.7	0.8	0.6	0.7	0.9	0.6	0.6	1.3	1.4	7.0	2.5	7.9
29-Jan	3.1	2.5	Z	1.6	1.1	0.8	0.8	1.9	1.6	3.0	3.7	1.8	1.4	2.0	2.1	2.2	2.5	3.1	2.8	2.6	2.7	2.2	1.8	3.7	2.2	3.7
30-Jan	3.4	3.1	2.9	Z	6.4	3.3	2.5	2.6	2.6	2.7	3.1	2.3	2.0	1.0	0.7	0.7	0.8	0.8	0.6	0.6	0.6	0.8	0.5	0.5	1.9	6.4
31-Jan	0.4	0.4	0.7	0.4	Z	1.8	1.6	3.9	1.8	2.8	2.4	5.0	3.9	4.2	4.3	1.9	1.1	5.2	3.4	2.1	1.1	1.7	1.3	0.7	2.3	5.2
																								Diurnal Average		
																								Diurnal Maximum		
4.6 5.4 4.6 4.6 5.8 5.5 5.0 5.7 6.8 6.6 6.4 6.0 5.3 5.1 4.9 5.0 4.8 4.8 5.1 5.9 6.9 6.9 5.9 5.8 14.2 13.0 11.4 12.5 23.2 26.6 24.7 31.6 53.6 40.3 22.2 15.3 16.9 15.3 13.8 20.0 25.2 22.0 21.2 22.9 38.6 30.0 20.9 19.6																										
Z - zerospan      C - Calibration																										



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - January 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	689	97.45	97.45
21 - 40	17	2.40	99.86
41 - 80	1	0.14	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Anzac - January 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	8	15	16	40	47	92	63	17	16	18	33	73	113	81	40	17	689
21 - 40	0	0	0	0	0	0	0	0	0	0	0	5	7	3	2	0	17
11 - 80	0	0	0	0	0	0	0	0	0	0	0	1	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>	<b>8</b>	<b>15</b>	<b>16</b>	<b>40</b>	<b>47</b>	<b>92</b>	<b>63</b>	<b>17</b>	<b>16</b>	<b>18</b>	<b>33</b>	<b>79</b>	<b>120</b>	<b>84</b>	<b>42</b>	<b>17</b>	<b>707</b>

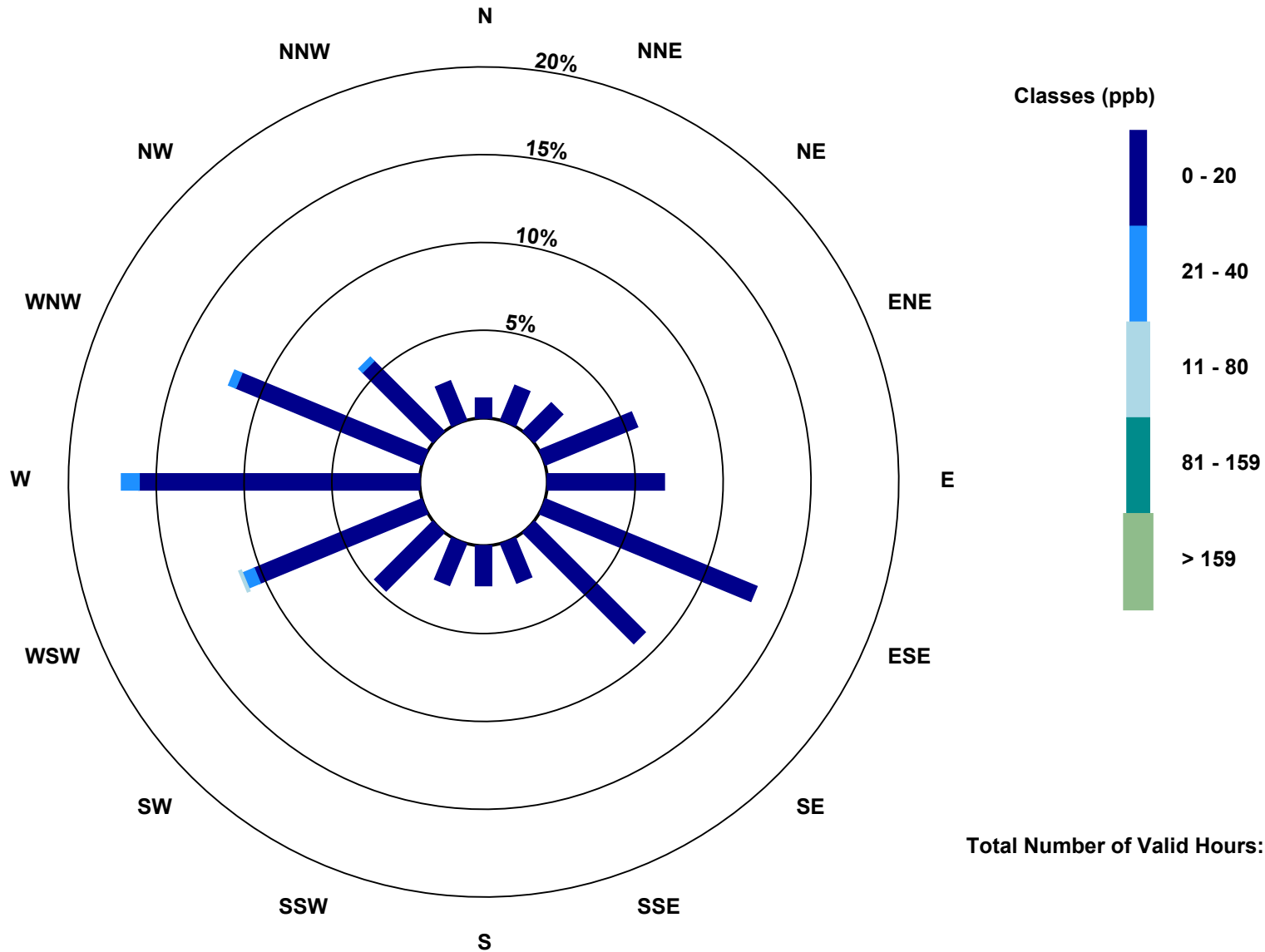
Total Number of Valid Hours: 707

Total Number of Hours: 744

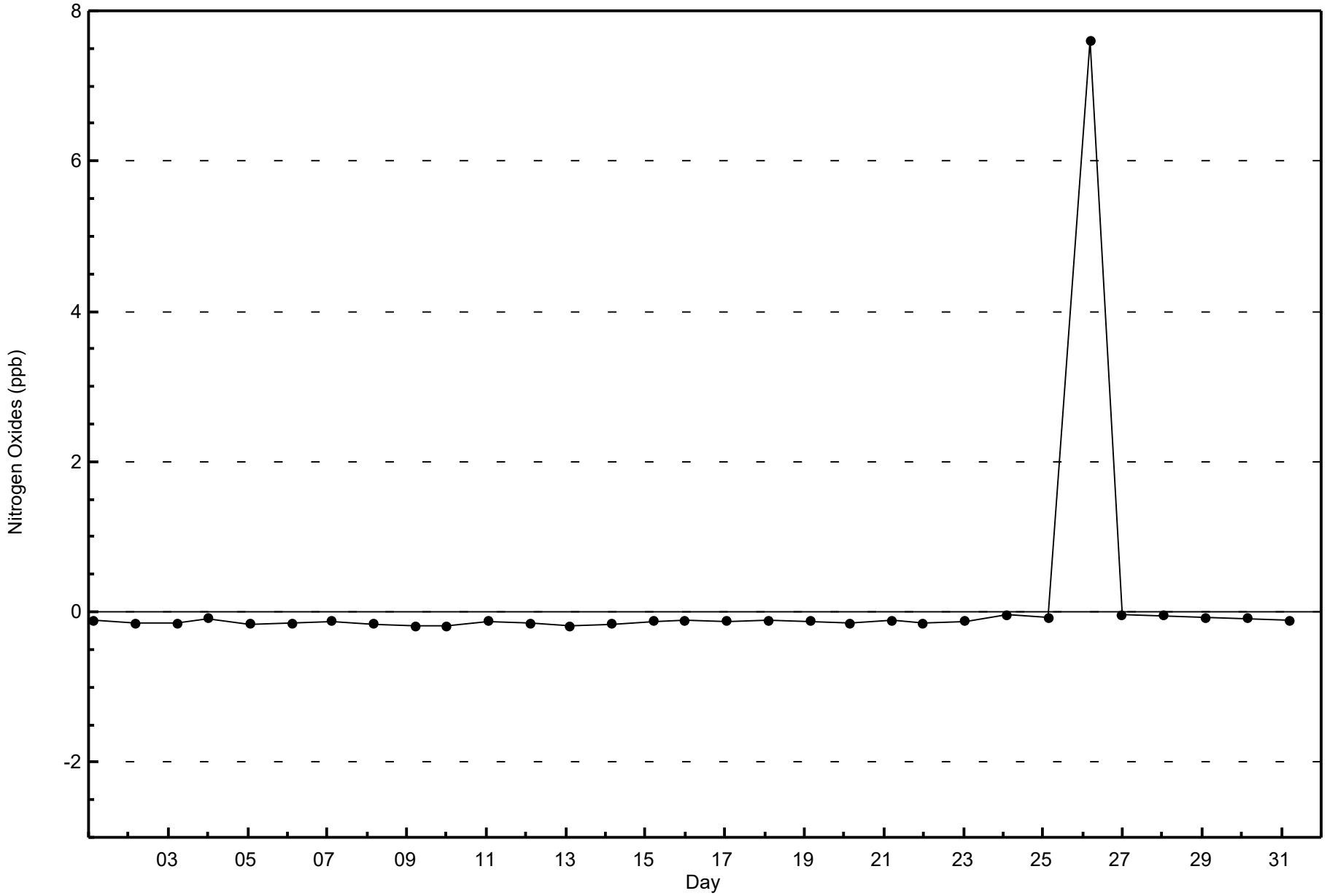


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

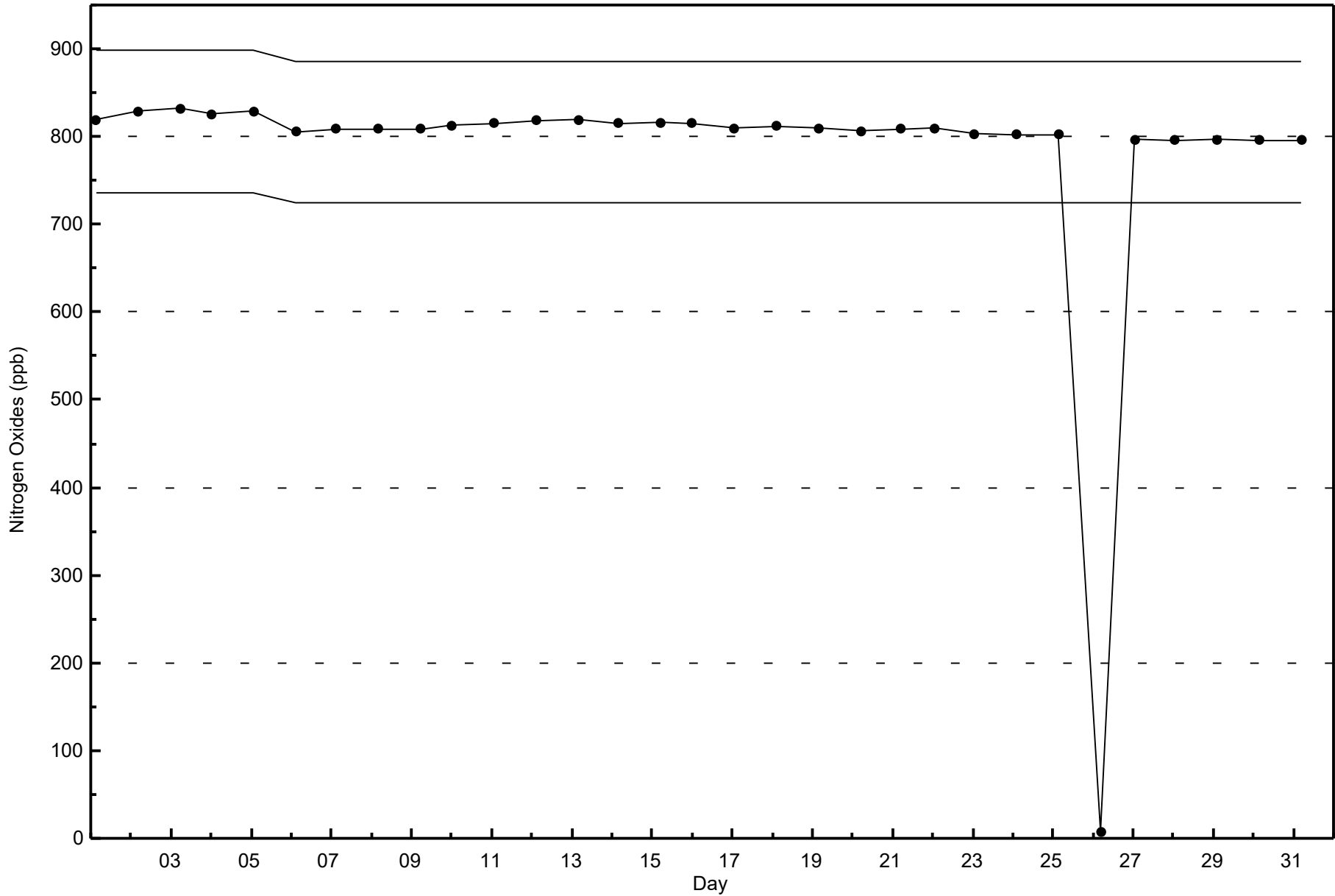
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Anzac



Total Number of Valid Hours: 707









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

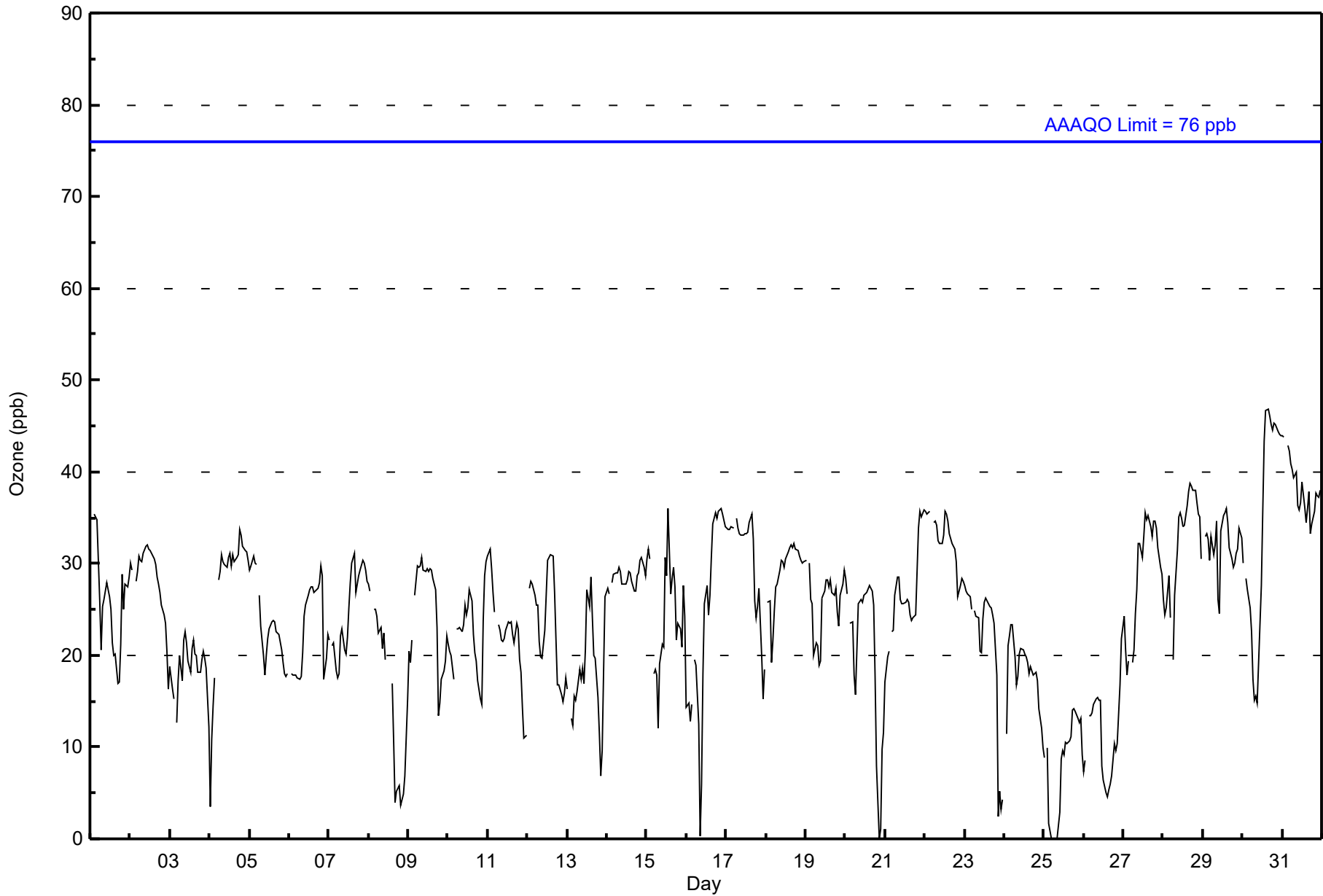
Anzac - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 46.8 ppb on Jan 30 16:00		Maximum Daily Average: 38.2 ppb on Jan 31																	710							
Minimum Value: 0.0 ppb on Jan 20 21:00		Minimum Daily Average: 8.0 ppb on Jan 25																	34							
Maximum Diurnal Average: 27.8 ppb at hour 14		Minimum Diurnal Average: 22.9 ppb at hour 6																	34							
Monthly Average: 24.65 ppb		Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 13.6 Q <sub>1</sub> = 19.4 Median = 25.8 Q <sub>3</sub> = 30.4 P <sub>90</sub> = 34.7 P <sub>99</sub> = 44.4																	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-Jan	34.7	Z	35.4	35.1	34.8	26.0	20.5	25.3	26.1	27.1	28.0	26.4	25.1	21.4	20.0	20.2	16.9	17.1	21.1	28.8	25.1	27.8	27.4	28.5	26.0	35.4
2-Jan	30.0	29.3	Z	28.0	29.1	30.9	30.4	30.3	31.1	31.9	32.1	31.6	31.5	31.2	30.6	29.9	28.6	27.8	26.8	25.5	24.4	23.6	20.5	16.4	28.3	32.1
3-Jan	18.7	16.3	15.3	Z	12.7	17.2	19.9	17.2	21.6	22.5	21.3	19.3	18.1	20.7	21.7	20.1	20.0	18.1	18.1	19.5	20.5	19.7	18.6	12.3	18.7	22.5
4-Jan	3.6	10.8	14.5	17.6	Z	28.3	29.2	31.0	30.2	29.8	29.6	30.6	31.1	29.7	31.0	30.2	30.7	30.9	33.6	33.0	31.8	31.5	31.2	30.4	27.4	33.6
5-Jan	29.3	29.8	30.8	30.0	29.9	Z	26.6	23.1	20.0	17.8	19.9	21.9	22.9	23.7	23.7	22.6	22.4	22.3	20.6	19.1	17.9	17.7	17.9	23.2	30.8	
6-Jan	Z	18.0	17.9	17.8	17.9	17.5	17.8	20.3	24.3	25.4	26.5	27.2	27.5	27.5	26.9	26.9	27.3	27.9	29.8	28.7	17.4	19.7	22.2	23.0	29.8	
7-Jan	21.6	Z	21.0	21.3	18.3	17.6	17.9	22.1	22.9	20.5	20.1	21.9	25.2	28.0	30.1	31.2	26.9	27.7	28.6	29.3	30.3	30.0	29.3	28.0	24.8	31.2
8-Jan	27.7	27.0	Z	25.0	25.1	24.2	22.4	23.1	20.7	22.4	19.5	C	C	C	17.0	10.7	4.0	5.2	5.8	3.7	4.2	4.9	6.8	15.2	15.7	27.7
9-Jan	20.5	19.2	21.7	Z	26.5	29.8	29.6	29.8	30.6	29.2	29.1	29.5	29.1	29.5	29.3	28.4	27.1	23.0	13.4	14.8	17.5	18.3	19.4	22.2	24.7	30.6
10-Jan	21.2	20.4	20.0	17.4	Z	22.9	22.9	23.1	22.6	23.3	25.5	24.4	25.1	27.1	25.9	22.3	20.2	19.4	17.2	15.3	14.7	23.8	28.6	30.1	22.3	30.1
11-Jan	30.8	31.6	29.4	26.9	24.7	Z	23.4	22.7	21.6	21.4	21.8	22.7	23.7	23.4	23.7	22.3	21.4	23.4	22.9	19.5	18.2	14.3	11.0	11.3	22.3	31.6
12-Jan	Z	27.4	28.0	27.8	26.5	25.4	25.5	21.6	19.8	19.7	22.8	26.6	30.3	30.7	31.0	30.8	26.8	21.6	16.8	16.8	15.8	14.9	15.9	17.6	23.5	31.0
13-Jan	16.4	Z	13.2	12.4	15.6	15.0	16.0	18.5	17.4	18.6	16.9	20.5	27.1	25.3	28.5	24.1	20.1	19.7	15.4	11.5	6.9	9.6	18.2	26.4	18.0	28.5
14-Jan	27.2	26.6	Z	28.0	28.9	28.9	29.0	29.7	29.1	27.8	27.7	27.8	28.2	29.2	29.0	28.1	27.0	27.0	28.7	29.0	30.4	30.6	29.5	28.8	28.5	30.6
15-Jan	30.5	31.5	30.4	Z	17.9	18.4	17.8	12.1	19.0	21.2	20.9	30.7	28.6	36.0	26.6	28.3	29.6	27.5	21.6	23.5	22.8	20.9	27.6	24.2	24.7	36.0
16-Jan	14.3	14.8	12.9	14.6	Z	19.6	18.9	12.5	0.3	5.9	18.1	25.6	27.6	24.4	26.6	30.6	34.3	35.5	35.0	35.6	35.9	36.0	35.4	34.1	23.8	36.0
17-Jan	33.8	33.7	33.7	33.9	33.9	Z	34.9	33.9	33.3	33.1	33.1	33.2	33.3	33.5	34.5	35.3	32.7	25.9	24.1	25.3	27.3	19.9	15.2	18.4	30.3	35.3
18-Jan	Z	25.8	25.9	19.3	21.7	24.9	27.5	27.8	29.2	30.4	30.2	29.6	30.5	31.2	31.7	32.1	31.8	32.1	31.6	31.5	30.8	30.4	30.1	30.1	29.0	32.1
19-Jan	30.3	Z	30.1	26.1	25.6	20.0	21.3	21.1	18.8	19.3	26.3	27.0	28.3	28.2	27.5	28.3	26.9	26.5	27.3	24.8	23.1	26.5	27.8	29.3	25.7	30.3
20-Jan	28.4	26.7	Z	23.5	23.7	17.9	15.7	20.6	25.7	26.0	25.8	26.5	26.7	26.8	27.5	27.3	27.0	25.5	17.7	7.9	0.0	1.0	9.7	11.6	20.4	28.4
21-Jan	17.0	19.8	20.5	Z	22.6	22.7	26.5	28.5	28.6	26.0	25.6	25.7	25.8	26.1	25.7	24.4	23.7	24.0	24.5	29.2	33.9	35.6	35.0	35.8	26.4	35.8
22-Jan	35.6	35.4	35.6	35.7	Z	34.5	34.6	34.1	32.4	32.1	32.2	33.1	35.7	35.3	34.6	33.2	32.2	31.8	31.5	30.2	26.4	27.6	28.4	28.0	32.6	35.7
23-Jan	27.6	26.9	26.6	26.3	25.1	Z	24.9	24.2	24.2	20.4	20.4	23.9	25.8	26.2	25.6	25.4	25.2	24.3	23.5	17.9	2.4	5.3	3.2	4.2	20.9	27.6
24-Jan	Z	11.5	21.1	22.2	23.4	23.3	19.9	16.7	17.8	20.2	20.7	20.6	20.2	19.8	19.2	18.0	18.7	17.9	18.0	18.2	17.3	14.2	12.0	10.0	18.3	23.4
25-Jan	8.8	Z	9.9	1.7	0.0	0.0	0.0	0.0	0.0	2.9	8.7	9.6	9.1	10.5	10.3	10.8	11.1	14.1	14.2	13.8	13.1	12.7	13.0	9.1	8.0	14.2
26-Jan	7.3	8.6	Z	13.4	13.5	13.7	14.7	15.2	15.5	15.1	15.2	8.0	6.4	5.0	4.5	5.3	6.0	6.8	10.3	9.6	10.4	13.6	16.8	21.8	11.2	21.8
27-Jan	24.2	20.5	17.9	19.3	Z	19.2	20.6	24.5	27.2	32.2	32.2	30.7	33.0	35.5	34.8	35.2	34.1	33.0	34.6	34.6	33.8	31.7	29.6	28.8	29.0	35.5
28-Jan	26.0	24.4	25.2	28.6	24.1	Z	19.5	26.5	31.4	35.0	35.5	34.9	34.0	34.2	36.3	37.8	38.7	38.4	38.0	38.1	36.7	35.4	35.1	30.5	32.4	38.7
29-Jan	Z	32.9	33.2	32.7	30.4	32.9	30.9	32.1	34.6	26.1	24.5	33.6	35.2	35.5	36.0	34.5	31.7	30.5	29.6	30.0	31.2	31.6	33.8	32.8	32.0	36.0
30-Jan	30.0	Z	28.4	27.1	25.1	22.5	17.3	15.0	15.6	14.8	23.4	27.7	35.6	43.3	46.6	46.8	46.1	45.1	44.6	45.3	45.1	44.4	44.1	43.9	33.8	46.8
31-Jan	43.9	43.8	Z	42.9	42.2	40.9	40.3	39.3	39.9	36.3	35.9	36.6	38.9	36.1	34.5	36.0	37.8	33.3	34.3	35.7	37.7	37.4	37.1	38.0	38.2	43.9
24.6 24.5 23.9 24.2 23.8 22.9 23.1 23.2 23.5 23.7 24.8 26.2 27.3 27.8 27.5 27.0 26.0 25.3 24.5 24.1 23.1 22.9 23.5 23.8																								Diurnal Average		
43.9 43.8 35.6 42.9 42.2 40.9 40.3 39.3 39.9 36.3 35.9 36.6 38.9 43.3 46.6 46.8 46.1 45.1 44.6 45.3 45.1 44.4 44.1 43.9																								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  
Anzac - January 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	215	30.28	30.28
21 - 50	495	69.72	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - January 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	1	2	17	14	34	31	4	3	3	7	24	37	23	10	5	215
21 - 50	8	15	14	23	32	59	33	13	12	15	25	58	82	60	34	12	495
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>	8	16	16	40	46	93	64	17	15	18	32	82	119	83	44	17	710

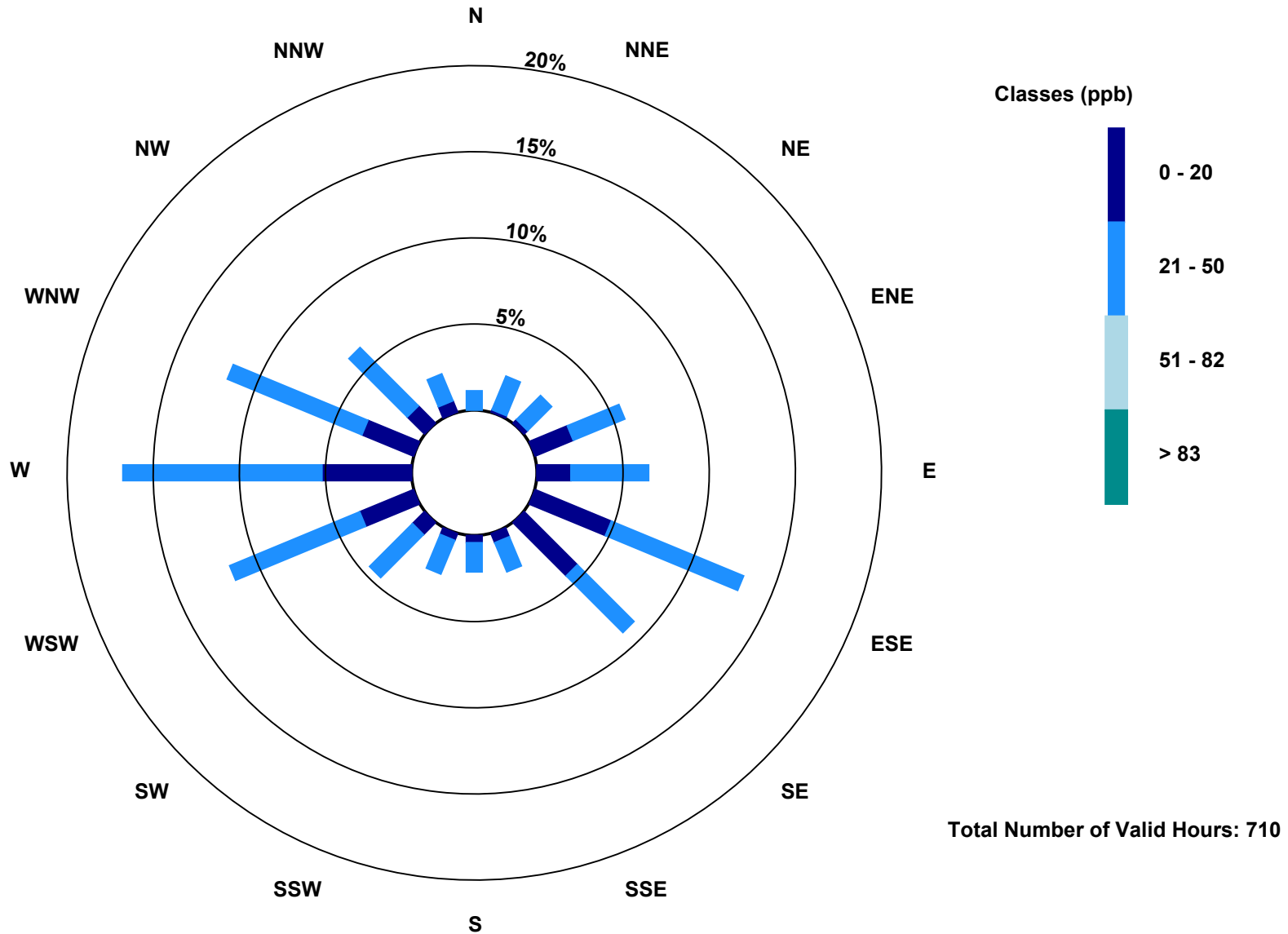
Total Number of Valid Hours: 710

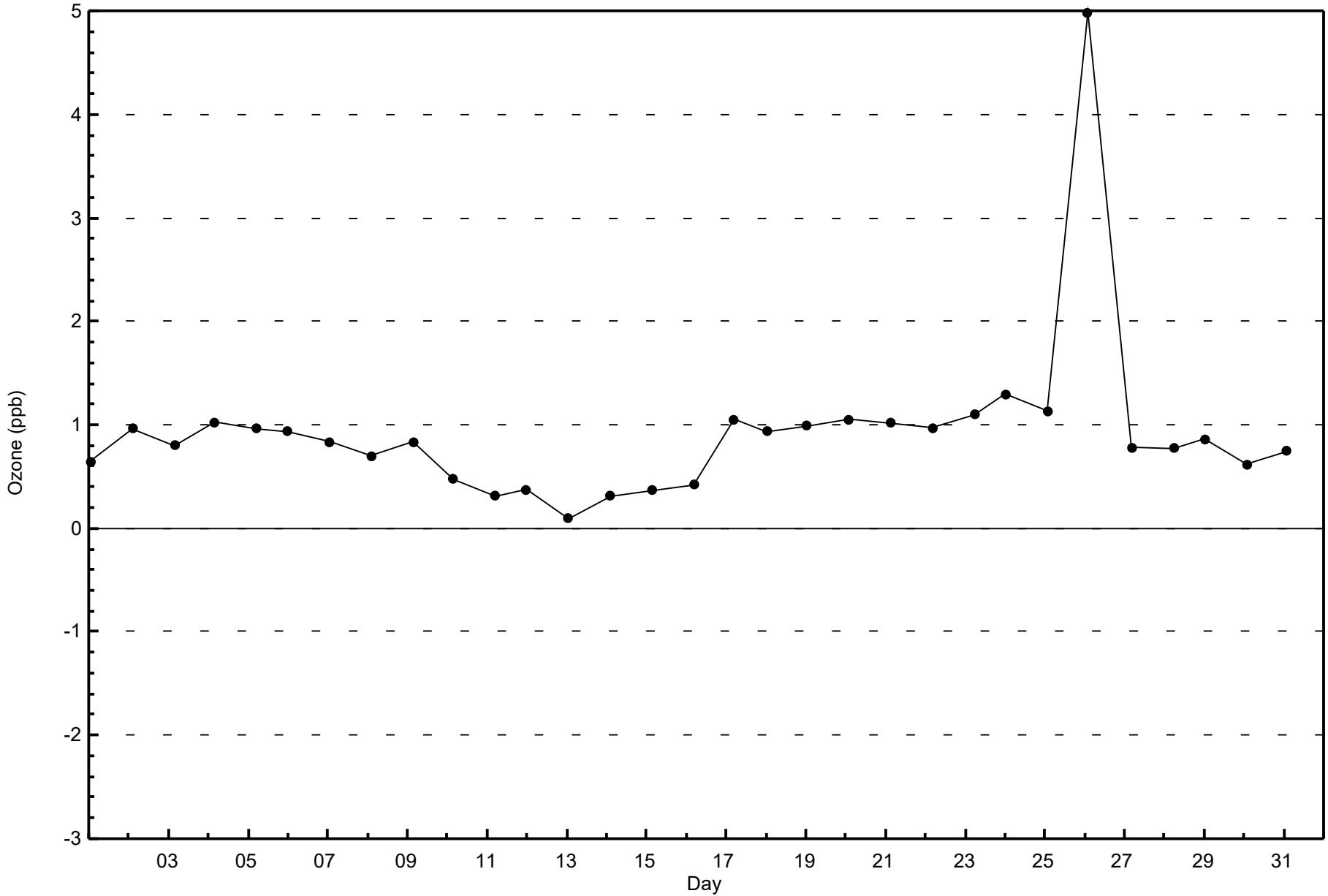
Total Number of Hours: 744

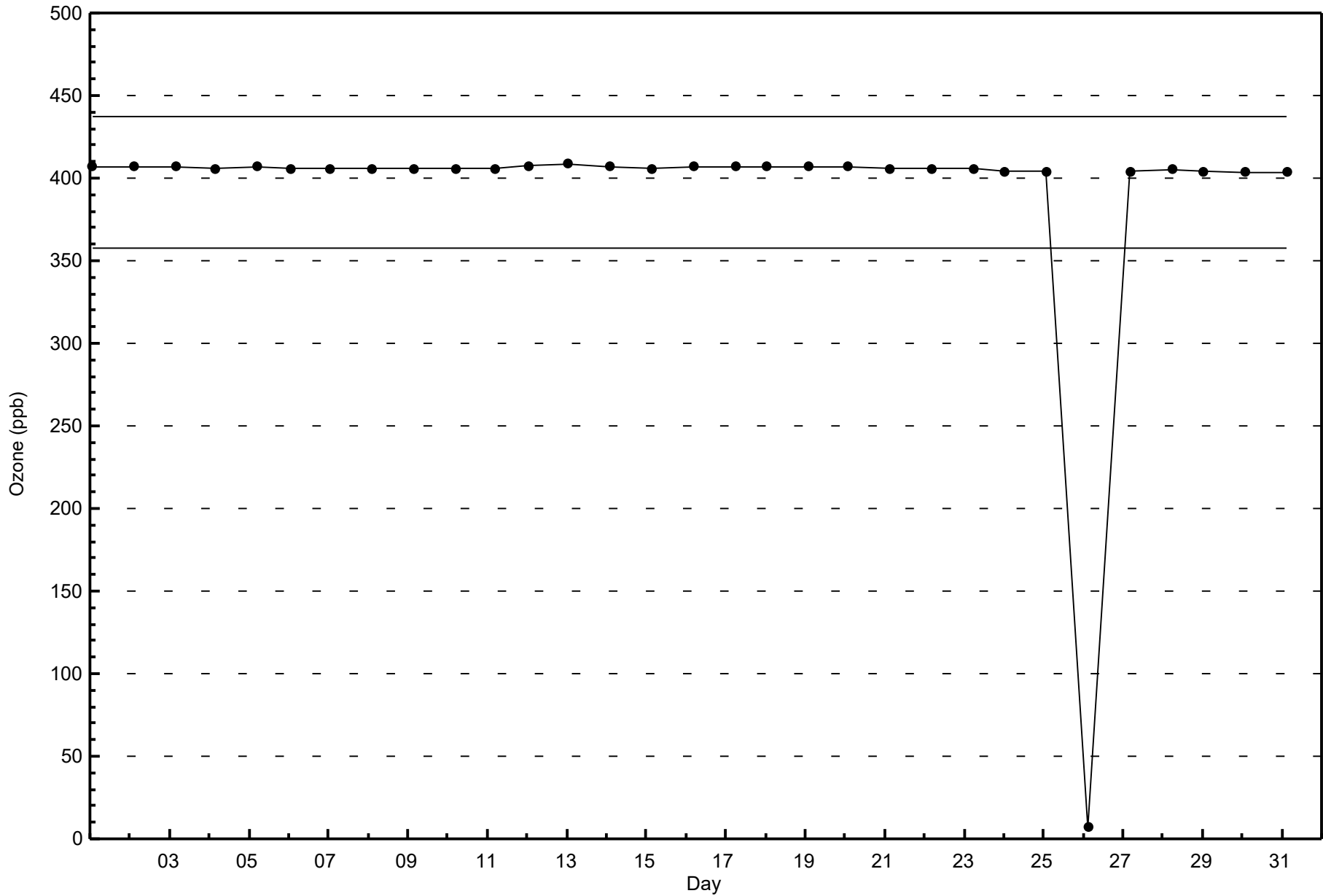


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











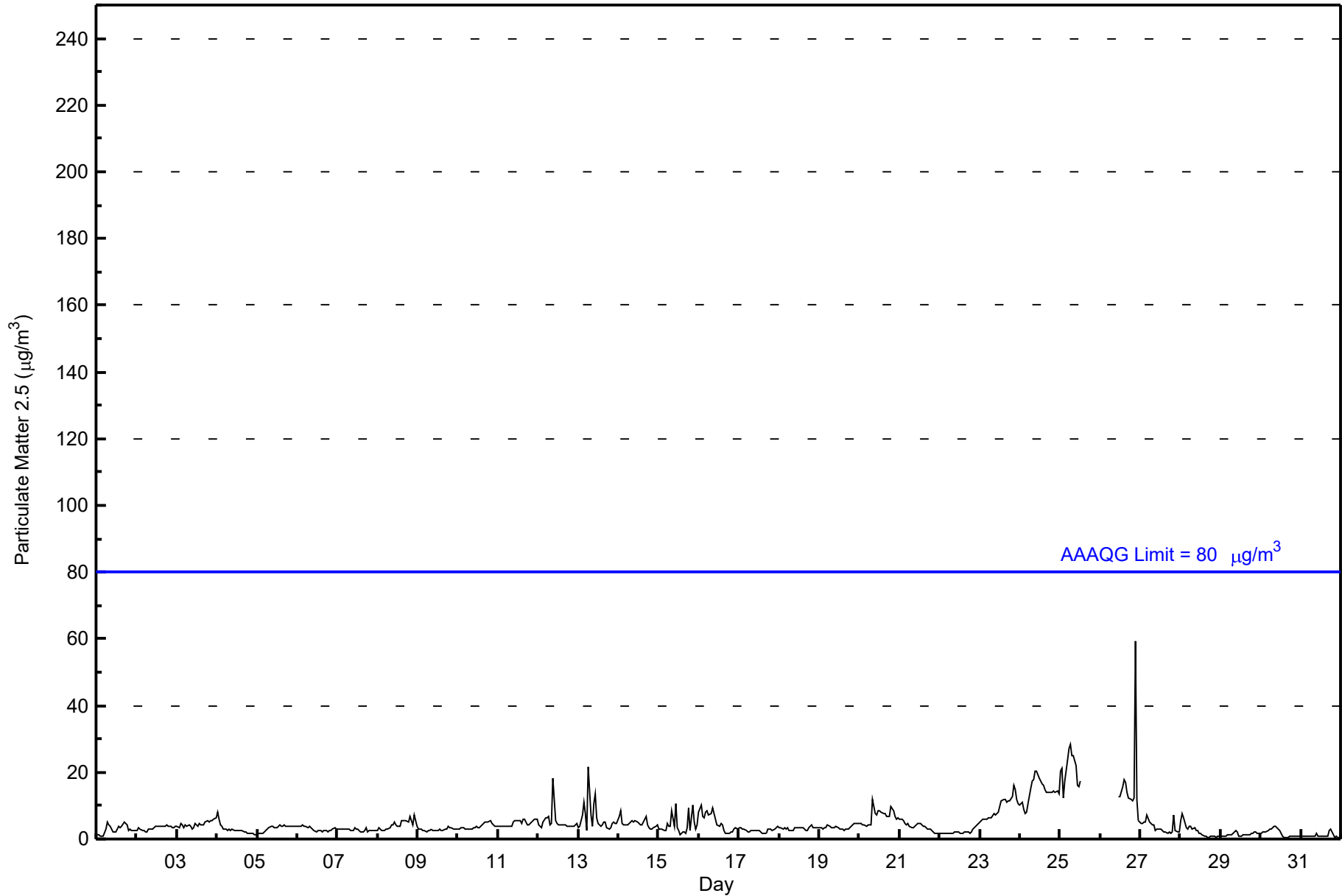
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Anzac - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 59.2 µg/m <sup>3</sup> on Jan 26 22:00		Maximum Daily Average: 14.3 µg/m <sup>3</sup> on Jan 24				Hours of Data:		722																																								
Minimum Value: 0.5 µg/m <sup>3</sup> on Jan 30 16:00		Minimum Daily Average: 1.0 µg/m <sup>3</sup> on Jan 31				Hours of Missing Data:		22																																								
Maximum Diurnal Average: 5.9 µg/m <sup>3</sup> at hour 22		Minimum Diurnal Average: 4.0 µg/m <sup>3</sup> at hour 24				Hours of Calibration:		0																																								
Monthly Average: 4.64 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 2.5 Median = 3.5 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 8.7 P <sub>99</sub> = 21.5				Percent Operational Time:		97.0																																								
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-Jan	1.3	1.4	1.0	0.9	1.0	2.8	5.1	4.1	3.8	2.8	2.0	2.1	3.1	3.6	3.3	3.6	5.1	4.9	4.1	2.7	3.0	2.7	2.6	2.4	2.9	5.1																						
2-Jan	2.5	3.2	2.8	2.7	2.5	2.2	2.2	2.8	3.0	3.2	3.4	3.6	3.9	4.0	3.8	3.8	3.9	4.0	4.3	3.8	3.7	3.5	3.3	4.0	3.3	4.3																						
3-Jan	3.9	3.4	4.6	4.1	3.3	4.4	4.0	4.4	3.6	3.2	3.6	4.5	4.0	4.9	4.1	4.1	4.3	5.1	5.4	5.2	5.4	5.3	6.0	6.2	4.5	6.2																						
4-Jan	8.3	5.9	4.1	3.7	3.1	2.9	2.7	2.8	2.8	2.8	2.6	2.5	2.5	2.6	2.5	2.4	2.2	2.1	1.7	1.6	1.6	1.6	1.4	1.3	2.8	8.3																						
5-Jan	1.4	1.6	1.7	1.8	2.0	2.4	2.9	3.6	3.8	3.7	3.5	3.3	3.3	4.3	3.9	3.8	4.4	4.0	3.7	3.9	3.9	3.8	3.8	3.7	3.3	4.4																						
6-Jan	3.7	3.9	3.9	4.0	4.0	3.7	3.6	3.8	3.4	2.9	2.6	2.3	2.4	2.4	2.2	2.4	2.4	2.2	2.5	2.7	3.1	3.3	3.1	3.0	3.0	4.0																						
7-Jan	3.1	3.0	3.1	3.1	3.0	3.1	3.1	2.8	2.3	2.6	3.3	3.1	2.9	2.5	2.3	2.1	2.5	3.5	2.2	2.6	2.6	2.6	2.5	2.4	2.8	3.5																						
8-Jan	2.5	3.2	2.4	2.6	2.7	2.8	3.1	3.4	4.0	4.3	5.2	4.1	3.9	3.9	5.3	5.5	5.6	5.4	4.9	6.9	5.6	4.2	7.3	3.7	4.3	7.3																						
9-Jan	3.1	2.9	3.0	2.7	2.5	2.3	2.4	2.6	2.8	2.5	2.5	2.5	2.6	2.8	2.7	2.7	2.8	2.9	3.6	3.5	3.2	3.0	3.0	3.0	2.8	3.6																						
10-Jan	3.1	3.2	3.4	3.4	3.0	2.9	3.1	2.9	3.0	3.5	3.6	3.7	3.5	3.5	4.1	4.5	4.9	5.1	5.3	5.5	4.8	4.3	3.9	4.0	3.8	5.5																						
11-Jan	3.8	3.8	3.9	3.9	3.8	3.8	3.9	3.9	4.0	5.3	5.6	5.7	5.4	5.4	4.6	5.8	6.0	4.2	4.2	4.6	5.2	5.6	6.1	5.8	4.8	6.1																						
12-Jan	4.4	3.8	3.3	5.0	6.4	6.5	6.7	4.3	4.7	18.4	5.5	4.8	4.1	4.1	4.2	4.1	4.2	3.9	3.7	4.0	3.8	3.9	4.1	4.5	5.1	18.4																						
13-Jan	3.3	3.7	7.4	11.2	7.8	2.5	21.5	7.3	4.0	10.6	13.6	6.1	4.8	3.9	4.0	5.0	4.9	3.4	3.1	3.5	4.6	4.9	4.5	4.7	6.3	21.5																						
14-Jan	6.6	8.3	4.6	4.4	4.1	4.4	4.6	4.9	5.4	5.0	5.4	5.2	4.5	4.3	4.3	5.2	6.7	4.4	3.2	3.0	3.1	3.5	3.7	4.4	4.7	8.3																						
15-Jan	3.0	3.0	2.8	2.6	2.5	4.5	3.7	3.8	8.3	3.8	10.7	3.2	2.7	1.4	2.0	2.0	1.7	3.4	9.4	2.7	10.4	5.1	2.8	4.3	4.2	10.7																						
16-Jan	8.0	10.0	6.9	6.2	8.3	8.7	7.4	7.5	9.5	7.6	5.8	4.2	3.7	4.5	4.3	2.5	1.6	1.6	1.9	2.1	2.2	2.9	3.4	3.1	5.2	10.0																						
17-Jan	3.2	3.4	3.2	2.9	2.6	2.2	2.3	2.4	2.6	2.5	2.5	2.5	2.2	1.8	1.6	1.8	1.8	2.8	3.1	2.9	2.6	2.9	3.4	3.6	2.6	3.6																						
18-Jan	3.3	3.3	3.1	3.3	3.1	3.2	2.7	2.7	2.7	3.6	3.4	3.3	3.4	3.5	3.2	2.9	2.6	2.7	3.2	4.2	3.4	3.4	3.4	3.6	3.2	4.2																						
19-Jan	3.4	3.2	3.2	3.2	3.6	4.4	3.7	3.5	3.4	3.5	4.0	3.3	2.8	3.0	2.9	2.6	3.1	3.0	3.6	4.0	4.4	4.5	4.5	4.6	3.6	4.6																						
20-Jan	4.6	4.5	4.1	4.1	3.9	4.2	4.1	4.4	11.7	7.8	7.1	8.4	8.7	8.0	7.8	7.6	6.9	6.6	6.8	9.9	8.6	6.7	6.1	6.4	6.6	11.7																						
21-Jan	6.0	5.8	5.4	4.7	4.3	4.5	3.7	3.2	3.2	4.0	4.3	4.6	4.7	4.2	3.8	3.8	3.5	3.0	3.1	2.5	2.2	1.8	1.8	1.8	3.7	6.0																						
22-Jan	1.8	1.6	1.6	1.6	1.5	1.6	1.6	1.7	1.8	2.0	2.0	2.0	1.7	1.8	1.9	2.0	2.2	2.0	1.9	2.2	2.9	3.7	4.4	4.7	2.2	4.7																						
23-Jan	4.9	5.3	5.9	5.8	6.1	6.3	6.5	6.6	7.4	7.1	7.8	8.1	9.8	11.5	12.0	11.9	11.2	11.3	11.6	12.8	16.2	14.8	11.7	10.7	9.3	16.2																						
24-Jan	10.1	11.2	8.8	7.5	7.9	10.5	15.3	17.6	17.8	20.1	20.3	18.2	17.5	16.5	16.1	15.0	13.9	14.1	14.0	14.0	14.3	14.2	14.2	13.7	14.3	20.3																						
25-Jan	20.4	21.3	12.3	17.2	23.9	27.2	28.2	25.1	25.0	22.2	16.0	15.6	17.5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	28.2																						
26-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	12.7	12.9	15.7	18.0	17.0	14.1	12.3	12.0	11.4	12.3	59.2	12.0	5.5	--	59.2																						
27-Jan	4.5	4.8	5.1	5.2	7.3	5.0	4.6	4.1	4.0	2.7	2.8	3.0	3.1	2.5	2.2	2.1	1.7	2.0	1.8	2.1	7.2	2.6	2.0	2.1	3.5	7.3																						
28-Jan	5.3	7.6	6.4	3.6	3.2	3.9	4.0	3.2	3.5	2.4	2.4	1.9	1.5	1.2	0.9	0.7	0.6	0.5	0.6	0.7	0.7	0.6	0.8	0.9	2.4	7.6																						
29-Jan	1.0	1.0	1.0	0.9	1.1	1.3	1.4	1.5	2.1	2.4	2.3	0.9	0.9	1.1	1.2	1.1	1.2	1.4	1.5	1.8	2.0	2.2	1.7	1.7	1.4	2.4																						
30-Jan	1.9	2.0	2.2	2.1	2.5	2.8	3.0	3.3	3.7	3.7	3.0	2.6	1.8	0.9	0.6	0.5	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.8	3.7																						
31-Jan	1.0	0.8	0.7	0.7	0.8	0.8	0.8	1.0	0.7	1.6	1.0	0.7	0.9	0.8	0.8	0.8	0.8	2.4	2.9	1.4	0.6	0.6	0.6	0.5	1.0	2.9																						
																								4.4	4.7	4.1	4.2	4.4	4.6	5.4	4.8	5.3	5.6	5.3	4.8	4.7	4.4	4.4	4.3	4.3	4.2	4.3	4.3	4.8	5.9	4.3	4.0	Diurnal Average
																								20.4	21.3	12.3	17.2	23.9	27.2	28.2	25.1	25.0	22.2	20.3	18.2	17.5	16.5	18.0	17.0	14.1	14.1	14.0	14.0	16.2	59.2	14.2	13.7	Diurnal Maximum
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>) -  $\mu\text{g}/\text{m}^3$**   
**Anzac - January 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	80.61	80.61
6 - 15	113	15.65	96.26
16 - 25	24	3.32	99.58
26 - 80	3	0.42	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 722

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>**  
**Anzac - January 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	8	14	16	39	40	61	52	14	13	16	23	67	96	67	40	16	582
6 - 15	0	2	1	3	3	19	13	2	3	2	6	10	24	18	6	1	113
16 - 25	0	0	0	0	4	7	0	1	0	0	4	6	1	1	0	0	24
26 - 80	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	3
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	8	16	17	42	47	87	66	17	16	18	33	84	122	86	46	17	722

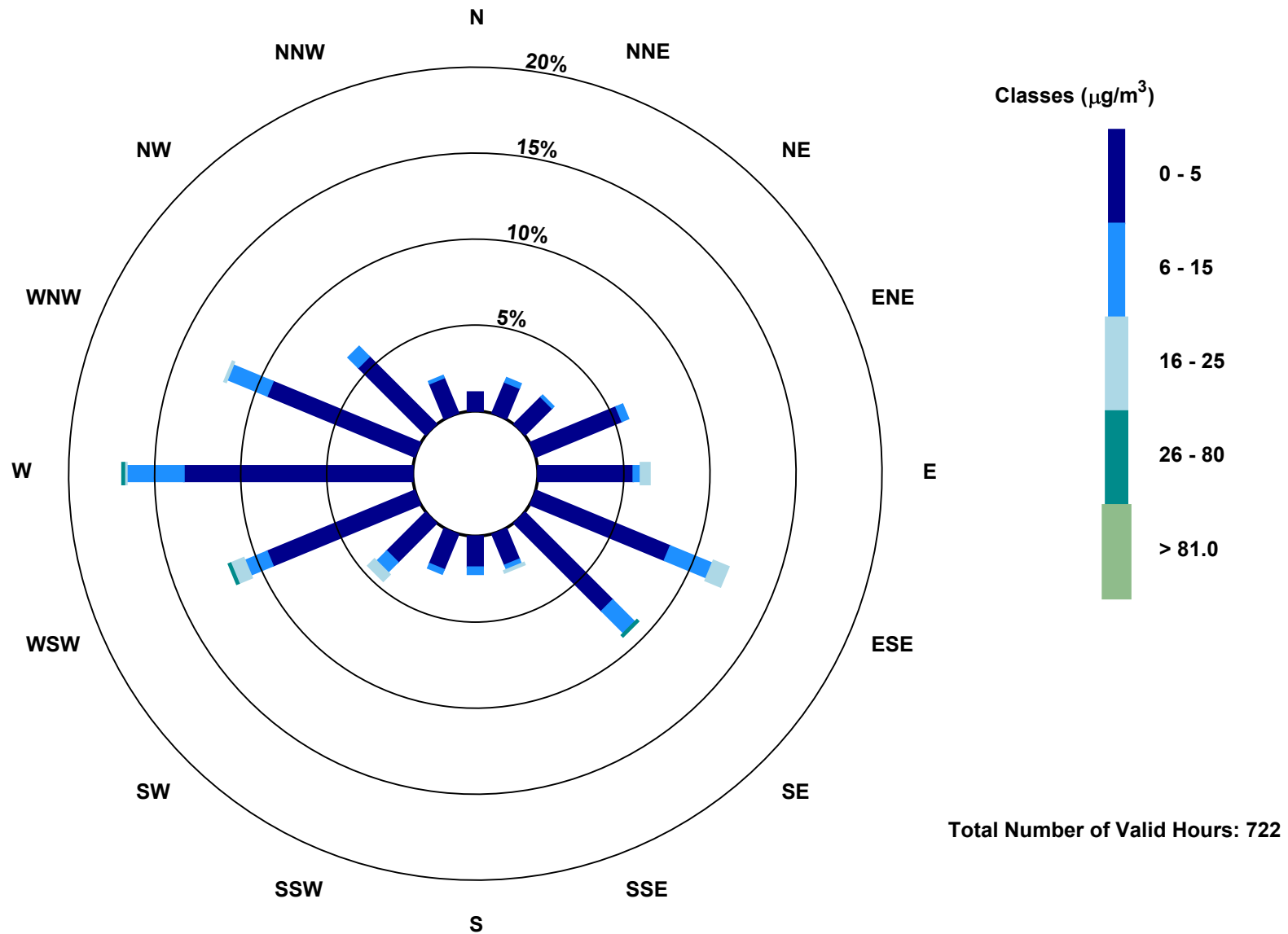
Total Number of Valid Hours: 722

Total Number of Hours: 744



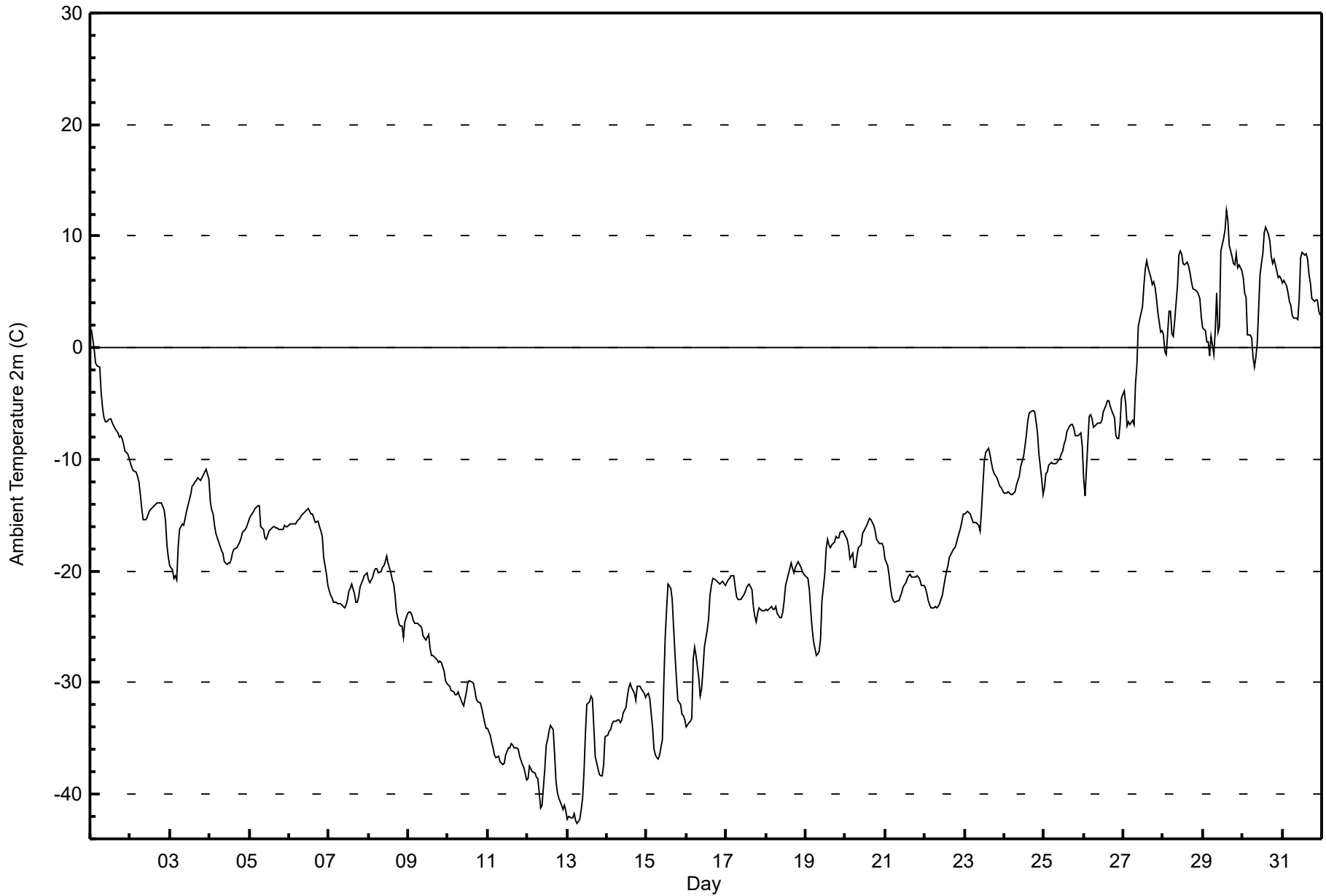
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





Maximum Value: 12.3 C on Jan 29 15:00      Maximum Daily Average: 5.4 C on Jan 30																								Hours in Service:	744		
Minimum Value: -42.6 C on Jan 13 07:00      Minimum Daily Average: -38.4 C on Jan 12																								Hours of Data:	744		
Maximum Diurnal Average: -14.5 C at hour 15      Minimum Diurnal Average: -18.9 C at hour 8																								Hours of Missing Data:	0		
Monthly Average: -17.00 C      Percentiles: P <sub>1</sub> = -41.7 P <sub>10</sub> = -34.1 Q <sub>1</sub> = -24.3 Median = -17.8 Q <sub>3</sub> = -9.2 P <sub>90</sub> = 3.3 P <sub>99</sub> = 9.4																								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-Jan	1.7	0.8	-0.1	-1.3	-1.6	-1.7	-4.0	-5.4	-6.3	-6.6	-6.7	-6.4	-6.4	-6.7	-7.1	-7.3	-7.7	-7.9	-7.9	-8.1	-8.6	-9.2	-9.5	-9.8	-5.6	1.7	
2-Jan	-10.3	-10.7	-11.0	-11.2	-11.5	-12.0	-13.1	-14.4	-15.4	-15.4	-15.2	-14.8	-14.5	-14.4	-14.1	-14.0	-13.9	-13.9	-13.9	-13.9	-14.5	-15.5	-17.7	-18.7	-13.9	-10.3	
3-Jan	-19.5	-19.9	-20.6	-20.5	-20.8	-17.9	-16.3	-15.8	-15.9	-15.3	-14.6	-14.1	-13.2	-12.4	-12.2	-12.0	-11.9	-11.6	-11.9	-11.7	-11.4	-11.1	-10.9	-11.7	-14.7	-10.9	
4-Jan	-13.8	-14.5	-15.0	-15.9	-16.7	-17.4	-17.8	-18.1	-18.5	-19.1	-19.4	-19.3	-19.3	-18.9	-18.3	-18.1	-18.0	-17.7	-17.4	-17.0	-16.6	-16.3	-16.0	-15.6	-17.3	-13.8	
5-Jan	-15.3	-15.0	-14.7	-14.4	-14.2	-14.1	-14.1	-16.0	-16.3	-17.0	-17.1	-16.8	-16.4	-16.2	-16.0	-16.1	-16.2	-16.2	-16.3	-16.3	-16.3	-15.9	-16.0	-16.0	-15.8	-14.1	
6-Jan	-15.8	-15.8	-15.8	-15.8	-15.7	-15.6	-15.3	-15.0	-14.8	-14.8	-14.6	-14.4	-14.6	-14.9	-14.9	-15.3	-15.6	-15.6	-16.0	-16.5	-16.9	-18.7	-20.3	-21.3	-16.0	-14.4	
7-Jan	-21.8	-22.2	-22.5	-22.8	-22.8	-22.9	-23.0	-22.9	-23.0	-23.3	-23.1	-22.6	-21.8	-21.5	-21.1	-22.0	-22.9	-22.8	-22.3	-21.5	-20.8	-20.5	-20.3	-20.2	-22.1	-20.2	
8-Jan	-20.8	-21.0	-20.6	-20.1	-19.8	-19.8	-20.2	-20.0	-19.7	-19.6	-19.2	-18.7	-19.3	-20.2	-20.8	-21.2	-22.1	-23.7	-24.9	-25.0	-25.0	-25.9	-24.6	-23.7	-21.5	-18.7	
9-Jan	-23.7	-23.7	-23.9	-24.4	-24.7	-24.7	-24.8	-24.9	-25.1	-25.8	-26.2	-25.9	-25.7	-27.0	-27.6	-27.5	-27.8	-28.0	-28.2	-28.1	-28.2	-29.0	-29.8	-30.1	-26.4	-23.7	
10-Jan	-30.1	-30.3	-30.6	-30.8	-31.1	-31.1	-30.8	-31.1	-31.9	-32.1	-31.5	-30.8	-29.9	-29.8	-30.0	-30.1	-30.8	-31.4	-31.7	-31.9	-32.3	-33.0	-33.6	-34.0	-31.3	-29.8	
11-Jan	-34.1	-34.7	-35.4	-35.8	-36.4	-36.7	-36.6	-37.1	-37.3	-37.4	-37.2	-36.5	-35.9	-35.9	-35.5	-35.6	-35.9	-35.8	-36.0	-36.6	-37.0	-37.3	-37.6	-38.7	-36.4	-34.1	
12-Jan	-38.6	-37.4	-37.7	-38.0	-38.1	-38.5	-38.6	-39.9	-41.3	-41.0	-37.7	-35.6	-35.1	-34.4	-33.8	-34.2	-36.5	-38.8	-39.8	-40.4	-41.0	-41.3	-41.0	-41.5	-38.4	-33.8	
13-Jan	-42.2	-42.1	-42.1	-42.1	-41.8	-42.4	-42.6	-42.2	-41.3	-40.3	-37.9	-34.6	-32.0	-31.7	-31.2	-31.5	-34.0	-36.6	-37.8	-38.2	-38.4	-38.4	-37.4	-34.8	-38.1	-31.2	
14-Jan	-34.7	-34.4	-34.2	-33.7	-33.5	-33.4	-33.3	-33.4	-33.6	-33.4	-32.8	-32.2	-31.2	-30.5	-30.1	-30.4	-31.0	-31.6	-30.3	-30.4	-30.4	-30.5	-30.9	-31.4	-32.1	-30.1	
15-Jan	-31.1	-30.9	-31.5	-34.1	-35.9	-36.4	-36.7	-36.9	-36.5	-35.0	-30.1	-25.9	-23.4	-21.2	-21.5	-22.5	-25.1	-27.5	-29.5	-31.5	-32.0	-32.8	-33.0	-33.3	-30.6	-21.2	
16-Jan	-34.0	-33.5	-33.5	-33.2	-27.9	-26.8	-27.6	-29.6	-31.2	-30.6	-28.9	-26.9	-25.3	-24.3	-22.1	-21.3	-20.7	-20.7	-20.9	-21.0	-21.2	-21.0	-20.9	-21.3	-26.0	-20.7	
17-Jan	-21.1	-20.7	-20.6	-20.5	-20.5	-21.4	-22.3	-22.6	-22.6	-22.5	-22.2	-21.9	-21.5	-21.3	-21.2	-21.7	-23.2	-24.0	-24.6	-23.7	-23.4	-23.5	-23.5	-23.5	-22.3	-20.5	
18-Jan	-23.5	-23.6	-23.3	-23.2	-23.4	-23.4	-23.2	-23.8	-24.1	-24.2	-23.7	-22.6	-21.3	-20.3	-19.8	-19.3	-19.8	-20.1	-19.6	-19.2	-19.4	-19.6	-20.1	-20.2	-21.7	-19.2	
19-Jan	-20.6	-20.7	-21.7	-23.5	-25.2	-26.4	-27.6	-27.5	-27.1	-26.1	-22.7	-20.2	-18.1	-17.2	-17.6	-17.9	-17.6	-17.4	-16.9	-17.1	-17.1	-16.5	-16.5	-16.7	-20.7	-16.5	
20-Jan	-16.9	-17.1	-17.8	-18.9	-18.4	-19.7	-19.7	-18.7	-17.9	-17.7	-16.7	-16.3	-16.1	-15.9	-15.3	-15.4	-15.6	-15.9	-16.4	-17.1	-17.5	-17.6	-17.5	-18.0	-17.3	-15.3	
21-Jan	-19.0	-19.5	-20.5	-21.5	-22.3	-22.7	-22.8	-22.7	-22.7	-22.4	-21.9	-21.5	-21.0	-20.6	-20.4	-20.4	-20.5	-20.5	-20.5	-20.4	-20.6	-20.8	-21.3	-21.3	-21.2	-19.0	
22-Jan	-21.6	-22.1	-22.7	-23.0	-23.3	-23.3	-23.1	-23.3	-23.2	-22.9	-22.2	-21.5	-20.6	-20.1	-19.5	-18.8	-18.3	-18.1	-17.9	-17.6	-17.0	-16.1	-15.6	-14.9	-20.3	-14.9	
23-Jan	-14.9	-14.8	-14.7	-15.0	-15.3	-15.6	-15.6	-15.7	-16.0	-16.4	-14.5	-12.2	-10.2	-9.4	-9.0	-9.5	-10.2	-10.9	-11.3	-11.6	-12.0	-12.3	-12.5	-12.7	-13.0	-9.0	
24-Jan	-13.0	-13.0	-12.9	-13.0	-13.2	-12.9	-12.3	-11.9	-11.5	-10.6	-9.7	-8.9	-7.9	-6.6	-5.8	-5.7	-5.6	-5.7	-5.6	-5.7	-6.6	-7.7	-9.5	-11.8	-13.2	-10.1	-5.6
25-Jan	-12.5	-11.3	-11.2	-10.6	-10.2	-10.3	-10.4	-10.4	-10.2	-9.9	-9.6	-9.2	-8.6	-8.2	-7.5	-7.1	-6.9	-6.9	-7.3	-7.9	-7.8	-7.8	-7.7	-8.9	-9.1	-6.9	
26-Jan	-11.8	-13.2	-8.4	-6.1	-6.0	-6.3	-7.1	-6.8	-6.7	-6.8	-6.7	-6.5	-5.8	-5.1	-4.7	-4.7	-5.3	-5.6	-6.3	-7.8	-8.1	-8.1	-6.9	-4.5	-6.9	-4.5	
27-Jan	-3.9	-5.0	-7.1	-6.7	-6.9	-6.4	-6.9	-3.2	-1.6	1.9	2.6	3.6	5.6	7.0	7.7	7.2	6.3	5.7	5.9	5.4	4.4	3.1	1.4	1.5	0.9	7.7	
28-Jan	1.1	-0.3	-0.6	3.3	3.2	1.2	1.0	2.4	5.6	8.3	8.6	8.4	7.6	7.4	7.7	7.3	6.6	5.9	5.2	5.2	5.0	4.8	4.4	2.8	4.7	8.6	
29-Jan	1.8	1.6	0.5	0.5	-0.7	1.0	-0.6	1.6	4.9	1.4	1.8	8.7	9.8	10.6	12.3	11.5	9.2	8.2	7.5	7.5	8.4	7.2	7.5	6.9	5.4	12.3	
30-Jan	6.3	4.9	4.6	1.2	1.1	0.9	-0.9	-1.7	-0.8	0.4	6.5	7.6	8.5	10.3	10.8	10.1	9.5	8.2	7.5	7.9	7.4	6.3	6.4	6.2	5.4	10.8	
31-Jan	5.8	6.0	5.6	5.0	4.2	3.8	2.9	2.7	2.7	2.5	4.5	8.1	8.5	8.4	8.4	7.9	6.6	5.7	4.5	4.2	4.2	4.3	3.2	2.9	5.1	8.5	
																								Diurnal Average			
																								Diurnal Maximum			





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Anzac - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	327	43.95	43.95
-20 - 0	311	41.80	85.75
0 - 10	100	13.44	99.19
10 - 20	6	0.81	100.00
> 20	0	0.00	100.00

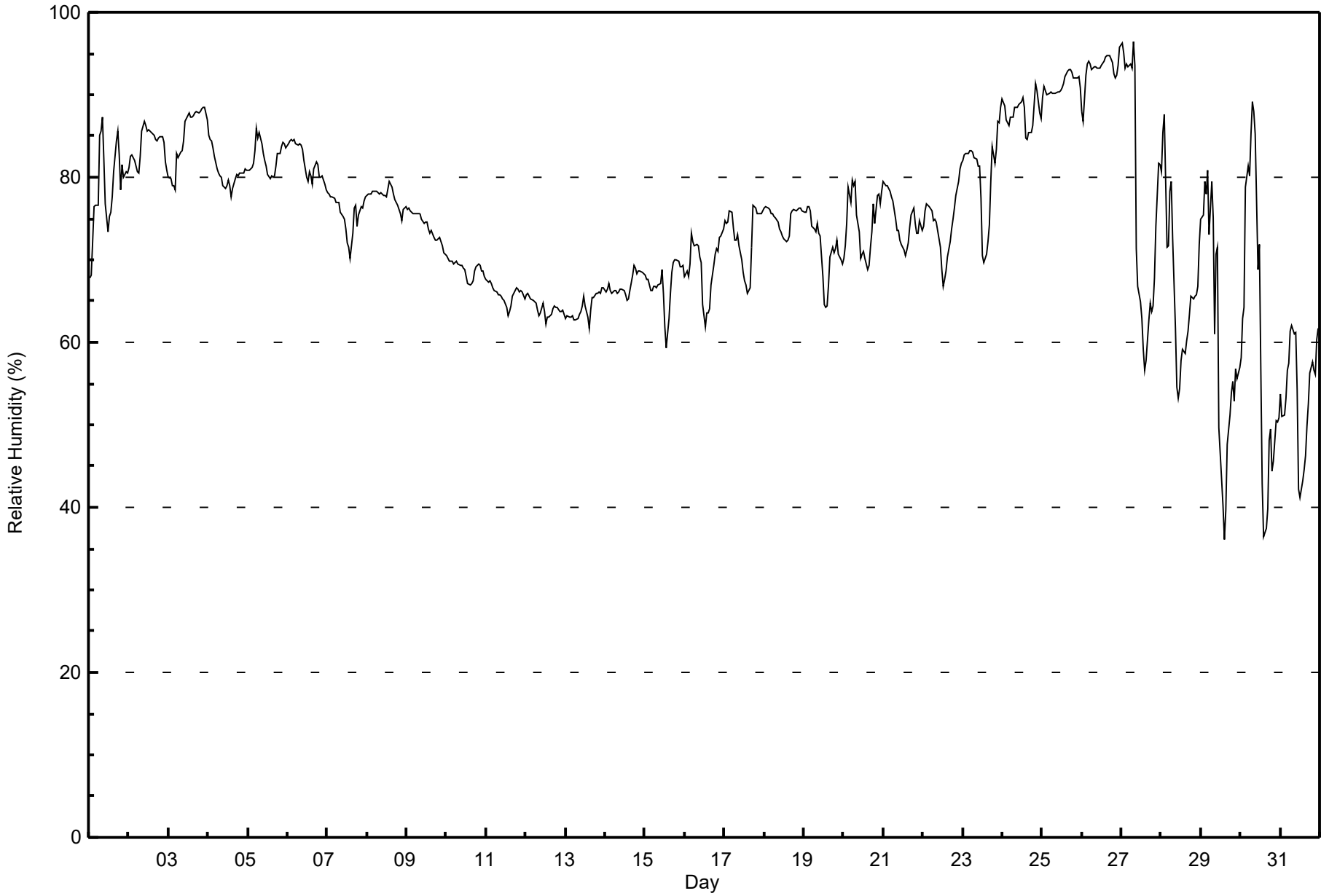
Total Number of Valid Hours: 744

Total Number of Hours: 744





Maximum Value: 96.4 % on Jan 27 08:00      Maximum Daily Average: 93.1 % on Jan 26																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 36.0 % on Jan 29 15:00      Minimum Daily Average: 53.8 % on Jan 31 Maximum Diurnal Average: 77.4 % at hour 7      Minimum Diurnal Average: 69.2 % at hour 15 Monthly Average: 74.25 %      Percentiles: P <sub>1</sub> = 42.5 P <sub>10</sub> = 63.0 Q <sub>1</sub> = 66.9 Median = 74.9 Q <sub>3</sub> = 81.3 P <sub>90</sub> = 88.0 P <sub>99</sub> = 94.3																						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-Jan	67.9	68.2	72.3	76.4	76.6	76.6	85.1	85.6	87.3	82.2	76.7	73.4	75.3	75.7	77.7	80.6	84.5	85.7	82.6	78.6	81.5	80.0	80.7	80.6	78.8	87.3
2-Jan	81.2	82.6	82.7	82.0	81.3	80.7	80.5	82.5	85.5	86.7	86.4	85.6	85.8	85.6	85.3	85.0	84.6	84.4	84.7	85.0	84.9	84.2	81.8	80.8	83.7	86.7
3-Jan	80.0	79.8	79.0	78.9	78.5	82.8	82.4	83.1	83.2	84.4	86.8	87.1	87.7	87.3	87.3	87.4	87.8	88.0	87.7	88.0	88.2	88.5	88.5	87.0	85.0	88.5
4-Jan	85.0	84.6	84.4	83.6	82.5	81.1	80.5	80.1	79.9	78.9	78.6	79.0	79.6	78.9	77.6	78.7	79.8	80.3	80.2	80.5	80.6	80.6	81.0	80.8	80.7	85.0
5-Jan	80.9	80.9	81.3	81.7	83.3	85.9	84.7	85.5	84.1	82.9	82.1	81.3	80.3	79.8	80.2	80.0	80.2	81.4	82.9	82.9	83.8	84.2	84.1	83.6	82.4	85.9
6-Jan	84.1	84.4	84.6	84.4	84.5	84.1	84.0	84.0	83.9	83.3	82.0	80.0	79.4	80.6	80.1	79.2	81.0	81.9	81.5	80.0	80.0	80.2	79.2	78.4	81.9	84.6
7-Jan	78.1	77.9	77.6	77.6	77.4	77.0	76.9	77.0	75.7	75.2	74.9	73.8	72.1	71.5	70.2	73.2	76.3	76.6	74.1	75.5	76.4	76.3	77.0	77.7	75.7	78.1
8-Jan	77.8	78.0	77.9	78.2	78.3	78.4	78.4	78.0	78.1	78.0	77.8	77.8	77.6	79.5	79.2	78.9	77.9	77.3	76.6	76.1	75.5	74.8	76.1	76.4	77.6	79.5
9-Jan	76.1	76.2	76.0	75.8	75.6	75.6	75.6	75.6	75.6	75.0	74.5	74.6	74.5	73.7	73.3	73.5	72.7	72.4	72.4	72.5	72.7	71.8	70.9	70.7	74.1	76.2
10-Jan	70.6	70.2	69.9	69.8	69.5	69.7	69.8	69.5	69.3	69.3	69.0	68.8	68.0	67.2	66.9	67.1	67.5	68.7	69.1	69.5	69.4	68.7	68.7	67.9	68.9	70.6
11-Jan	67.7	67.3	67.5	67.0	66.6	66.2	66.1	65.8	65.8	65.6	65.3	65.1	64.2	63.1	63.8	64.4	65.5	66.3	66.6	66.4	66.1	66.3	66.1	65.2	65.8	67.7
12-Jan	65.7	66.0	65.6	65.3	65.1	64.9	64.7	63.9	63.2	63.5	64.8	63.7	62.2	63.0	63.0	63.4	64.1	64.4	64.2	64.2	63.8	63.7	63.9	63.4	64.2	66.0
13-Jan	62.9	63.2	63.1	63.1	63.2	62.7	62.7	63.0	63.3	63.7	64.5	65.6	64.5	63.1	61.7	63.9	65.5	65.4	65.9	65.9	66.0	66.0	66.6	66.6	64.2	66.6
14-Jan	66.2	66.4	67.1	66.4	66.0	66.4	66.3	65.9	66.1	66.4	66.5	66.2	65.7	65.1	65.2	66.3	68.2	69.2	68.9	68.4	68.6	68.6	68.4	68.3	66.9	69.2
15-Jan	68.2	67.7	67.6	66.3	66.3	66.8	66.8	66.6	66.9	67.2	68.9	66.0	61.9	59.3	62.9	66.0	68.5	69.6	70.0	70.0	69.8	69.2	69.2	69.3	67.1	70.0
16-Jan	68.0	68.6	68.0	69.6	73.2	72.1	71.7	71.9	71.7	70.3	69.6	64.5	61.9	63.6	63.6	64.1	66.9	69.4	70.6	71.4	71.0	72.7	72.9	73.7	69.2	73.7
17-Jan	74.7	74.5	74.6	76.0	75.7	74.0	72.4	72.5	73.1	71.8	70.0	68.5	67.4	66.9	65.9	66.5	71.6	76.6	76.5	76.3	75.7	75.6	75.5	75.9	72.8	76.6
18-Jan	76.2	76.4	76.3	76.1	75.6	75.5	75.3	75.1	74.6	73.7	73.4	72.8	72.5	72.2	72.3	72.9	75.6	76.0	76.1	76.0	76.1	76.3	76.3	75.9	75.0	76.4
19-Jan	75.8	75.7	76.4	76.4	75.9	74.1	73.7	73.4	74.4	73.3	72.9	68.0	64.5	64.3	64.3	66.9	70.3	71.5	70.8	71.4	72.3	70.7	70.0	69.4	71.5	76.4
20-Jan	70.2	71.7	74.4	78.8	77.0	79.6	78.9	79.5	75.4	73.3	70.2	70.7	71.0	70.1	68.8	69.4	71.5	73.4	76.8	74.4	77.8	78.0	76.8	78.3	74.4	79.6
21-Jan	79.4	78.9	78.9	78.6	78.2	77.7	77.1	74.9	73.6	73.5	72.4	71.9	71.1	70.5	71.2	72.0	73.8	75.5	76.3	74.5	73.3	73.3	74.7	73.5	74.8	79.4
22-Jan	74.0	76.0	76.7	76.6	76.4	76.0	74.8	74.9	74.6	73.6	71.5	68.8	66.8	67.6	68.7	70.3	72.2	73.7	75.0	76.3	77.8	79.4	81.1	81.6	74.3	81.6
23-Jan	82.0	82.8	82.9	82.9	83.2	83.3	83.0	82.3	82.3	81.3	81.3	77.5	70.5	69.7	70.8	72.2	74.2	79.5	83.7	81.7	83.4	86.8	86.6	88.4	80.5	88.4
24-Jan	89.5	88.7	87.0	86.6	86.3	87.3	88.5	88.5	88.5	88.8	89.2	89.6	88.5	84.7	84.5	85.4	85.5	86.3	88.7	91.3	90.5	87.9	87.2	87.8	87.8	91.3
25-Jan	89.7	91.0	90.5	90.0	90.2	90.3	90.1	90.1	90.1	90.3	90.4	90.9	91.3	92.3	93.0	93.1	93.1	92.7	92.1	92.1	92.1	92.1	92.2	90.8	91.2	93.1
26-Jan	88.0	86.8	92.3	93.8	94.0	93.8	93.1	93.4	93.4	93.2	93.1	93.3	93.6	94.1	94.5	94.8	94.8	94.7	93.9	92.5	92.1	92.3	93.5	95.8	93.1	95.8
27-Jan	96.2	95.1	93.2	93.7	93.4	93.7	93.3	96.4	93.6	71.3	66.9	65.0	62.9	59.2	56.6	57.8	62.7	64.7	63.7	64.4	67.8	74.1	81.7	81.5	77.0	96.4
28-Jan	80.6	85.4	87.5	71.5	71.6	78.3	79.5	72.5	61.7	54.7	53.2	54.4	57.7	59.1	58.6	60.1	61.4	63.4	65.6	65.3	65.6	65.7	66.7	71.9	67.2	87.5
29-Jan	75.0	75.4	79.5	78.0	80.9	73.0	79.5	75.0	61.0	70.7	71.6	49.7	43.4	40.2	36.0	39.7	47.6	51.2	53.9	55.2	52.8	56.7	55.6	56.9	60.8	80.9
30-Jan	58.1	62.8	64.2	78.8	81.4	80.2	85.3	89.2	87.9	85.3	68.9	71.9	57.2	42.9	36.5	37.5	39.8	48.1	49.5	44.3	45.6	50.4	50.3	50.9	61.1	89.2
31-Jan	53.7	51.0	51.1	53.2	56.6	57.4	61.4	62.0	61.1	61.2	54.3	42.2	41.3	43.3	44.7	46.3	49.8	52.6	56.3	57.6	56.6	56.1	60.3	61.6	53.8	62.0
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Anzac - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	5	0.67	0.67
40 - 60	49	6.59	7.26
60 - 80	465	62.50	69.76
80 - 100	225	30.24	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

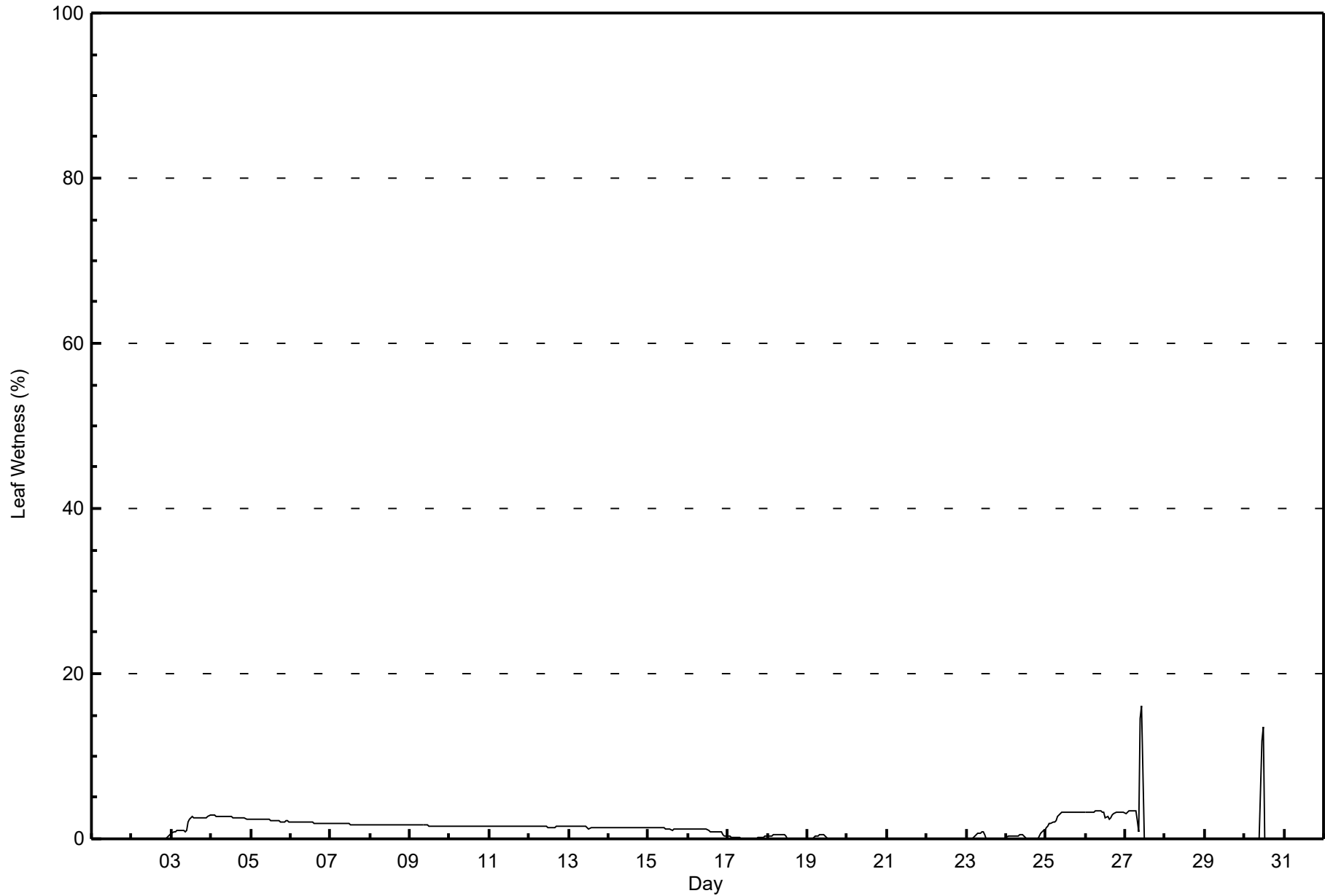


Maximum Value: 16.1 % on Jan 27 11:00      Maximum Daily Average: 3.1 % on Jan 26																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																	
Minimum Value: 0.0 % on Jan 1 01:00      Minimum Daily Average: 0.0 % on Jan 1 Maximum Diurnal Average: 2.0 % at hour 11      Minimum Diurnal Average: 0.9 % at hour 15 Monthly Average: 1.09 %      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 1.1 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 2.5 P <sub>99</sub> = 3.4																																					
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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
3-Jan	0.7	0.8	0.9	1.0	1.0	1.0	1.0	0.9	0.9	1.1	2.1	2.3	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.7	2.8	1.9	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8			
4-Jan	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8			
5-Jan	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	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	2.2	2.4	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8			
6-Jan	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8			
7-Jan	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.9	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8			
8-Jan	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.7	1.9	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8		
9-Jan	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
10-Jan	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
11-Jan	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
12-Jan	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
13-Jan	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.2	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
14-Jan	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
15-Jan	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
16-Jan	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.1	1.0	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.8	0.6	0.4	0.4	1.0	1.3	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8		
17-Jan	0.3	0.3	0.2	0.2	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	0.1	0.2	0.2	0.3	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
18-Jan	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	
19-Jan	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.4	0.5	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	
20-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.2	0.4	0.5	0.6	0.7	0.8	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	
24-Jan	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	0.9	1.1	0.3	1.1	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8
25-Jan	1.3	1.6	1.8	1.9	2.0	2.1	2.3	2.7	2.9	3.1	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.2	3.2	2.8	3.3	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	
26-Jan	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2	2.6	2.6	2.3	2.5	3.0	3.1	3.2	3.2	3.3	3.3	3.3	3.2	3.1	3.3	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	
27-Jan	3.1	3.3	3.4	3.4	3.4	3.4	3.4	2.2	0.9	14.5	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	16.1	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8
28-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	13.5	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	2.6	2.8	
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.5 2.0 1.5 1.0 0.9 0.9 0.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																								Diurnal Average													
3.2 3.3 3.4 3.4 3.4 3.4 3.4 3.3 3.3 14.5 16.1 13.5 3.3 3.3 3.2 3.2 3.2 3.2 3.2 3.2 3.3 3.3 3.3 3.2																								Diurnal Maximum													



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

**Leaf Wetness (LW) - %**  
**Anzac - January 2024**





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

**Leaf Wetness (LW) - %**  
**Anzac - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	315	42.34	42.34
0.4 - 0.5	25	3.36	45.70
0.6 - 0.7	7	0.94	46.64
0.8 - 1.4	103	13.84	60.48
1.5 - 10	277	37.23	97.72
> 10	4	0.54	98.25

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

### Wind Speed (WS) - km/h

### Anzac - January 2024

Maximum Speed: 35 km/h on Jan 30 21:00	Maximum Daily Speed Average: 16.6 km/h on Jan 18	Hours in Service: 744
Minimum Speed Value: 1 km/h on Jan 25 13:00	Minimum Daily Speed Average: 0.7 km/h on Jan 5	Hours of Data: 744
Maximum Diurnal Speed Average: 4.1 km/h at hour 1	Minimum Diurnal Speed Average: 1.6 km/h at hour 7	Hours of Missing Data: 0
Monthly Average Velocity: 2.7 km/h 247.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 11 P <sub>90</sub> = 16 P <sub>99</sub> = 26	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-Jan	WSW19	WSW16	WSW16	WSW12	W11	NNW19	NW19	NW17	NW21	NW14	NW14	WNW11	WNW15	NW14	WNW12	NW12	NNW10	WNW8	WNW8	WNW11	NW9	NNW8	NNW7	NW10	WNW11.7	NW21
2-Jan	NW10	NW10	NW7	WNW10	NW9	NW10	NNW11	NNW10	NW7	NW6	NNW4	N2	NE4	NE5	ENE3	ENE4	E4	ESE5	SE7	ESE5	ENE6	E6	E5	SE7	N2.9	NNW11
3-Jan	SE6	SE5	SE5	SE4	SE5	SE5	SE4	ENE3	ENE4	ENE3	E4	ESE5	ESE3	NNE3	ENE5	ENE4	ENE5	E6	ENE7	NE5	ENE4	E4	WSW1	W7	E3.2	ENE7
4-Jan	W7	W8	W10	W12	W13	WNW12	WNW11	W10	W10	W10	WNW7	WNW7	WNW6	WNW4	N2	NNE4	NE5	ENE6	ENE8	ENE7	E10	E10	E10	WNW2.9	W13	
5-Jan	ESE11	ESE11	ESE10	ESE9	ESE8	SE5	WSW5	W10	W10	W10	WSW11	WSW10	W9	W7	W6	NW4	NW3	NNE2	NE2	E4	E5	E6	ENE6	E7	S0.7	ESE11
6-Jan	E6	ENE7	ENE7	ENE7	NE7	ENE8	ENE6	ENE6	ENE7	NE7	NE7	NE8	NNE9	NNE9	NNE8	NNE8	N7	N6	N7	N9	N7	NW10	W8	W9	NNE5.3	NW10
7-Jan	W8	W7	W6	WSW8	WSW6	WSW5	W3	WNW4	WSW5	WSW5	WSW5	SW3	SSE2	ESE6	SE8	ESE6	ESE8	SE7	SE8	ESE9	ESE9	ESE11	ESE9	ESE7	S2.6	ESE11
8-Jan	E7	ESE7	ESE8	ESE8	ESE9	ESE7	ESE7	ESE6	ESE6	SE4	WSW5	WSW9	WSW9	W12	W9	W9	W6	W7	W6	W4	NW4	NNW3	NNE1	SE1	SSW1.1	W12
9-Jan	E3	E3	NE5	NE6	ENE5	ENE4	ENE6	ENE6	NE6	NNE5	N5	NNE5	NNW6	NNW6	NW7	WNW5	W5	WNW7	WNW7	NW6	NW7	NW8	NW8	WNW8	NNW3.5	WNW8
10-Jan	WNW8	WNW8	WNW7	WNW8	WNW7	W6	WNW7	W7	W7	WSW7	W6	W8	WNW9	WNW9	WNW10	WNW11	WNW8	WNW8	WNW8	WNW9	WNW9	WNW8	NW6	WNW7	WNW7.6	WNW11
11-Jan	WNW8	NW9	WNW8	WNW8	W8	W7	W6	W7	W6	WNW8	WNW9	WNW9	WNW11	W9	W9	W9	WNW7	WNW6	WNW6	NW6	NW6	WNW4	WNW5	W4	WNW7.0	WNW11
12-Jan	WSW6	WSW7	WSW8	WSW9	WSW8	WSW7	WSW6	SW3	SW3	SW4	SSW2	WSW1	W3	W3	WNW3	NNE3	ENE5	E4	SE4	SE4	SE4	SE3	SE4	ESE4	SW2.1	WSW9
13-Jan	SE4	SE4	SW2	SSW3	SE4	SE4	SSE3	ESE3	SE5	SE3	SW2	NNE1	NNE1	NE3	NW2	WNW2	NNW3	NNW3	W3	WSW4	WSW5	W6	W8	W8	SW1.3	W8
14-Jan	W7	WSW8	W8	W10	W12	W11	W10	W11	W12	W10	W9	W9	W9	W9	W9	WNW8	W10	W11	W12	W10	W10	W9	W9	W9	W9.6	W12
15-Jan	W10	WSW9	SW5	SSE4	SE4	ESE4	SE3	S4	SE4	ESE5	ESE5	ESE5	SE5	SE4	ENE4	E4	ENE7	E6	SE8	SE5	SSE3	NE2	NE3	NNW3	SE2.3	W10
16-Jan	WSW3	S1	SW5	W8	W10	W10	W11	W11	WSW15	WSW16	W13	W18	W20	W15	W17	W19	W19	W19	W19	W20	W22	W23	WSW24	WSW23	W14.8	WSW24
17-Jan	WSW22	W22	W19	W16	WNW14	NW12	NW12	WNW10	NW11	NW10	NNW10	NNW9	NW8	NW7	NW8	NW8	NW7	WNW9	WNW9	WNW7	W8	W7	WSW9	W10	WNW10.0	WSW22
18-Jan	W13	W13	W13	W15	W14	W15	W16	W17	WSW18	WSW20	WSW22	WSW23	W19	W17	W17	WSW17	W16	WSW17	WSW19	W19	WSW17	WSW15	W14	W12	W16.6	WSW23
19-Jan	WSW13	WSW11	W8	WSW5	SW3	SSW5	SSW2	SE6	SE8	SE7	SE6	SE4	ESE4	ENE6	ENE7	E8	E9	ESE10	E12	E12	ESE12	ESE11	ESE12	ESE13	ESE4.5	WSW13
20-Jan	ESE16	ESE10	ESE5	SE6	SE7	SE6	SE6	S6	S7	S4	SW6	WSW13	W9	W10	W10	W10	WNW12	WNW10	WNW9	NW11	NW9	WNW7	W8	W9	WSW3.3	ESE16
21-Jan	W10	W8	WNW12	WNW9	WNW8	WNW11	WNW12	NW9	WNW11	WNW9	WNW10	WNW12	WNW11	WNW12	WNW11	W10	WNW11	WNW10	WNW11	NW10	NW9	NNW9	NNW6	NNE7	WNW9.2	WNW12
22-Jan	NNE7	NNE9	NE10	ENE10	ENE10	E11	E13	E12	E15	ESE18	E19	ESE21	ESE18	ESE16	E16	ESE16	E17	E15	E14	E12	E10	ESE11	ESE10	ESE9	E12.3	ESE21
23-Jan	ESE8	ESE8	ESE11	ESE11	ESE11	ESE11	ESE10	SE8	SE6	SE5	ESE5	SE4	SW2	W7	WNW6	NW8	NW8	NW6	WNW7	WNW9	WNW9	WNW9	WNW7	WNW7	ESE0.7	ESE11
24-Jan	WNW5	NNW3	NE5	ENE5	ENE8	ENE9	E8	E12	ESE14	ESE14	ESE15	ESE14	ESE13	ESE15	ESE15	ESE14	ESE13	ESE11	ESE10	ESE7	E5	E4	WSW3	E8.7	ESE15	
25-Jan	WSW8	SW6	W6	WSW5	WSW5	W4	WSW4	WSW5	W4	WSW4	WSW4	SW2	SW1	SSW1	SE2	ESE4	ESE4	ESE5	ESE6	ESE6	ESE6	ESE6	ESE4	ESE4	SSW1.7	WSW8
26-Jan	SSE2	WSW3	W7	W9	W11	W12	W7	WSW6	WSW5	WSW3	SSE3	SE6	ESE5	E5	E5	E5	ESE5	ESE5	SE4	ESE4	SE4	SE6	SE6	SSE6	S2.0	W12
27-Jan	SE7	SE8	SE6	ESE6	SE8	SE9	SE10	SE16	SE15	S11	S12	S8	S10	SSW14	SSW13	SW15	SW12	SW11	SW13	SW11	SW9	SSW9	SSE7	SSE9	S8.5	SE16
28-Jan	SE10	SE8	SE10	SE12	ESE8	ENE9	ESE7	S10	SSW10	SW14	SW17	SW23	SW22	WSW24	WSW27	WSW23	WSW23	WSW18	WSW16	WSW17	WSW20	WSW18	WSW15	SSW10	SW11.4	WSW27
29-Jan	SSW9	S8	SSE8	SSW9	SE6	SSE9	SE9	SSE12	SE13	ESE8	SE10	SSE17	SSE13	SE11	SSE9	S7	S10	S13	SSW13	SSW13	SSW12	SW6	SW9	SSW11	S8.9	SSE17
30-Jan	SSW11	S8	SE9	SSE6	SE8	E7	NE7	ENE7	ENE8	S2	WSW23	SW25	WSW19	SW24	SW30	SW33	SW31	SW27	WSW23	SW31	WSW35	WSW28	WSW23	SW22	SW15.1	WSW35
31-Jan	WSW24	WSW26	WSW23	WSW18	WSW15	SW12	WSW9	WSW11	WSW12	SSW5	SSE5	ESE3	E9	E10	E10	E10	ESE14	ESE15	E13	ESE14	ESE21	ESE20	ESE20	ESE22	SSE5.0	WSW26

WSW4.1	WSW3.6	WSW3.1	WSW2.9	WSW2.1	WSW1.7	W1.6	WSW2.0	WSW2.1	WSW2.5	WSW3.2	WSW3.7	WSW3.5	W3.3	WSW3.4	W3.1	W2.2	WSW2.5	WSW2.5	WSW2.7	WSW2.7	WSW2.0	WSW2.1	SW2.7	Diurnal Average	
WSW24	WSW26	WSW23	WSW18	WSW15	NNW19	NW19	W17	NW21	WSW20	WSW23	SW25	SW22	SW24	SW30	SW33	SW31	SW27	WSW23	WSW31	WSW35	WSW28	WSW24	WSW23	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**  
**Anzac - January 2024**

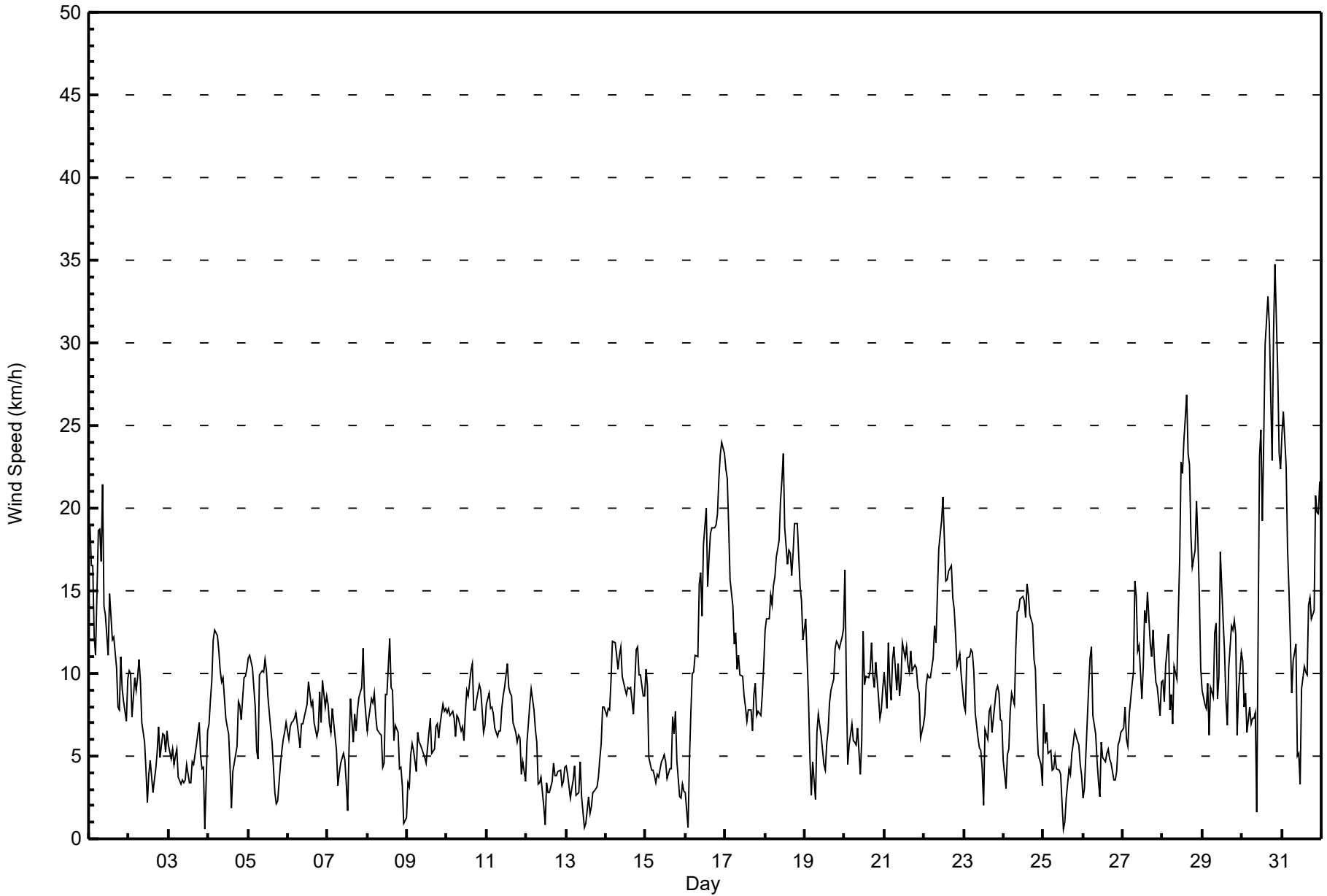
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 12 km/h on Jan 30 11:00 Minimum Value: 0 km/h on Jan 12 22:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 7																	Hours in Service: 744 Hours of Data: 744 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-Jan	5	4	4	3	3	5	5	4	5	4	3	3	3	3	3	3	3	2	2	2	2	2	1	2	5
2-Jan	2	2	2	2	2	2	2	3	2	1	2	1	2	1	1	1	1	1	2	1	1	1	1	1	3
3-Jan	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
4-Jan	2	2	2	3	3	3	3	2	3	2	2	1	1	1	1	1	2	1	2	2	2	2	3	2	3
5-Jan	3	3	2	2	2	1	5	2	3	2	2	2	2	2	1	1	1	1	1	1	1	1	2	5	
6-Jan	1	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7-Jan	2	1	1	2	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	2	2	2	2	2	2
8-Jan	1	1	2	2	2	2	1	1	1	2	3	2	2	3	2	2	1	1	2	1	1	1	1	1	3
9-Jan	1	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	2	2	1	1	2	2	2	2
10-Jan	2	2	2	1	1	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	1	1	1	2
11-Jan	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2
12-Jan	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	2
13-Jan	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1
14-Jan	1	1	1	2	3	3	2	2	3	3	3	2	2	2	2	2	1	2	3	3	2	2	2	2	3
15-Jan	2	3	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	3
16-Jan	1	1	2	3	2	2	2	3	4	4	4	5	5	4	5	5	5	4	5	4	5	6	6	6	6
17-Jan	5	5	4	4	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	5
18-Jan	3	3	3	3	3	3	3	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	3	5
19-Jan	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	2	2	2	3	3
20-Jan	4	3	1	2	1	1	1	1	1	1	2	3	2	2	3	2	2	2	3	3	2	2	2	2	4
21-Jan	2	2	3	3	2	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	3
22-Jan	2	2	2	2	2	3	3	3	5	4	4	4	5	4	4	4	4	4	3	3	2	3	2	2	5
23-Jan	2	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	1	2	2
24-Jan	1	1	2	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	1	1	1	2	3
25-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26-Jan	1	2	1	2	2	3	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
27-Jan	1	1	1	1	3	1	3	2	4	3	3	2	3	3	4	4	3	3	3	2	2	2	1	1	4
28-Jan	1	1	3	2	3	4	3	2	3	4	5	6	6	6	7	6	5	5	4	4	5	5	4	1	7
29-Jan	1	1	1	2	4	4	2	3	4	2	4	4	4	4	2	2	3	3	3	3	4	3	2	2	4
30-Jan	3	2	1	2	1	2	1	2	2	3	12	7	5	7	10	10	9	7	7	9	8	8	6	7	12
31-Jan	6	7	6	5	4	3	2	2	2	2	2	2	2	2	2	3	3	3	2	4	4	4	4	4	7
Diurnal Maximum																									





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

**Wind Speed (WS) - km/h**  
**Anzac - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Anzac - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	184	24.73	24.73
6 - 11	392	52.69	77.42
12 - 19	128	17.20	94.62
20 - 28	35	4.70	99.33
29 - 38	5	0.67	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Anzac - January 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	9	10	14	15	25	28	9	4	6	12	22	8	9	4	6	184
6 - 11	5	7	7	28	19	45	35	7	10	7	7	23	81	67	33	11	392
12 - 19	0	0	0	0	13	21	4	3	2	6	5	23	33	10	8	0	128
20 - 28	0	0	0	0	0	5	0	0	0	0	6	18	5	0	1	0	35
29 - 38	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	8	16	17	42	47	96	67	19	16	19	33	88	127	86	46	17	744

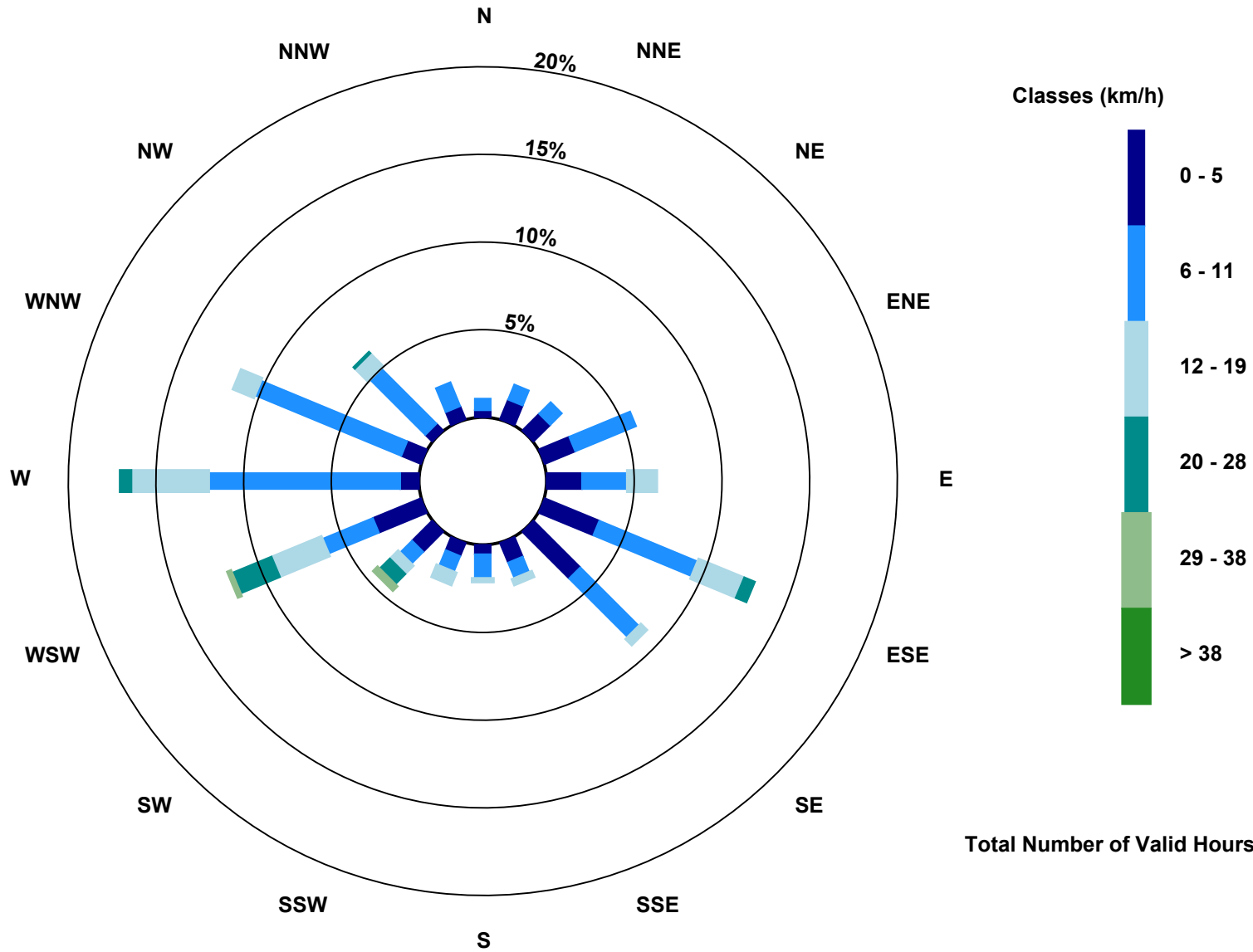
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Anzac





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

**Wind Direction (WD) - deg**  
**Anzac - January 2024**

Direction of Maximum Speed: 239 deg on Jan 30 21:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 260.5 deg on Jan 18																						Hours of Data: 744			
Direction of Minimum Speed: 229 deg on Jan 25 13:00											Direction of Minimum Daily Speed Average: 0.7 deg on Jan 5											Hours of Missing Data: 0			
Monthly Average Direction: 247.6 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-Jan	251	251	253	254	263	295	321	306	312	306	311	301	298	314	302	312	328	300	287	283	317	336	336	325	296.5
2-Jan	315	317	313	303	309	318	337	343	324	323	348	9	35	37	70	65	101	120	138	113	69	81	99	133	355.5
3-Jan	139	137	140	131	144	137	132	69	72	71	84	113	118	28	76	61	66	90	75	51	72	100	250	275	98.0
4-Jan	265	260	268	276	281	282	289	281	280	275	283	283	302	285	352	33	54	75	78	77	78	81	87	95	300.4
5-Jan	103	106	106	108	117	130	240	272	272	264	254	255	259	262	271	314	313	20	51	81	93	83	76	72	173.3
6-Jan	84	60	62	63	56	62	68	67	63	54	49	42	26	22	23	13	10	358	0	6	354	306	274	259	28.0
7-Jan	260	262	261	253	258	247	274	292	248	244	248	235	153	113	138	117	115	140	132	119	116	120	118	112	170.1
8-Jan	100	111	112	113	116	111	109	115	123	128	239	258	256	273	275	277	261	276	276	273	324	348	31	128	206.7
9-Jan	100	91	53	51	64	73	65	60	46	25	7	16	346	328	317	299	281	290	302	312	305	304	313	298	347.0
10-Jan	291	292	289	295	291	278	282	273	262	257	266	278	282	287	287	296	287	291	292	303	303	302	306	301	288.0
11-Jan	301	305	291	283	276	261	268	272	272	286	296	287	288	274	269	281	288	288	292	315	313	299	294	261	286.0
12-Jan	248	252	256	258	249	246	243	223	218	222	200	250	261	277	287	28	67	97	124	124	133	135	127	122	225.9
13-Jan	139	146	214	207	136	136	149	120	140	146	215	33	16	34	314	296	335	333	260	243	248	259	265	264	220.9
14-Jan	265	257	270	265	262	261	262	266	265	262	264	264	279	265	270	267	286	277	267	265	270	263	265	261	266.2
15-Jan	259	255	231	154	139	121	132	187	140	104	114	120	143	132	58	86	76	101	142	142	155	45	34	334	133.8
16-Jan	243	182	222	280	271	274	273	262	253	256	266	277	279	273	269	277	277	268	267	270	261	261	258	258	266.5
17-Jan	257	263	269	272	294	324	312	292	310	323	328	327	317	319	322	322	310	291	299	290	270	264	257	266	290.9
18-Jan	265	275	272	268	266	262	266	264	256	254	256	255	260	262	259	256	260	257	256	260	258	257	259	262	260.5
19-Jan	252	251	262	248	214	212	207	138	138	131	133	129	115	75	67	80	89	103	97	95	109	103	104	105	120.2
20-Jan	111	110	107	129	131	125	146	176	182	183	231	250	260	270	273	279	287	292	300	305	313	296	281	279	254.7
21-Jan	275	270	297	290	292	292	295	305	303	292	284	284	290	296	294	275	289	290	295	316	315	345	348	18	297.4
22-Jan	21	24	37	60	69	86	89	95	100	103	100	102	111	106	100	102	101	89	86	82	88	104	110	117	91.8
23-Jan	116	108	103	115	119	121	123	127	127	124	116	131	229	274	283	320	321	306	301	292	292	298	294	302	120.6
24-Jan	298	338	43	68	58	76	85	96	104	112	114	108	108	104	106	108	107	106	107	113	112	87	101	241	100.6
25-Jan	241	228	262	251	251	264	251	249	267	243	241	219	229	201	131	112	112	109	111	108	104	109	115	108	193.5
26-Jan	155	253	262	261	260	262	268	252	256	240	161	126	111	92	99	96	104	120	126	123	134	141	137	151	189.4
27-Jan	140	139	141	114	125	125	136	142	144	179	177	175	191	203	195	222	214	219	223	228	217	195	156	159	178.2
28-Jan	143	143	145	128	111	75	109	176	205	223	223	231	234	241	251	253	250	255	252	253	251	253	243	212	229.0
29-Jan	199	187	163	193	143	156	139	151	129	106	127	152	156	137	159	183	183	188	192	202	203	214	230	207	170.6
30-Jan	197	191	145	158	136	99	50	62	73	183	244	236	245	234	228	229	234	236	241	236	239	248	240	232	230.0
31-Jan	248	239	241	249	247	234	243	250	252	211	163	113	97	84	98	94	102	103	88	103	116	102	108	113	161.1
237.7	241.3	245.8	244.7	242.5	248.4	274.2	240.5	237.8	238.6	239.7	239.1	254.6	262.8	256.3	266.8	261.5	247.8	247.8	256.4	248.9	254.1	238.3	226.9		
Diurnal Average																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



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

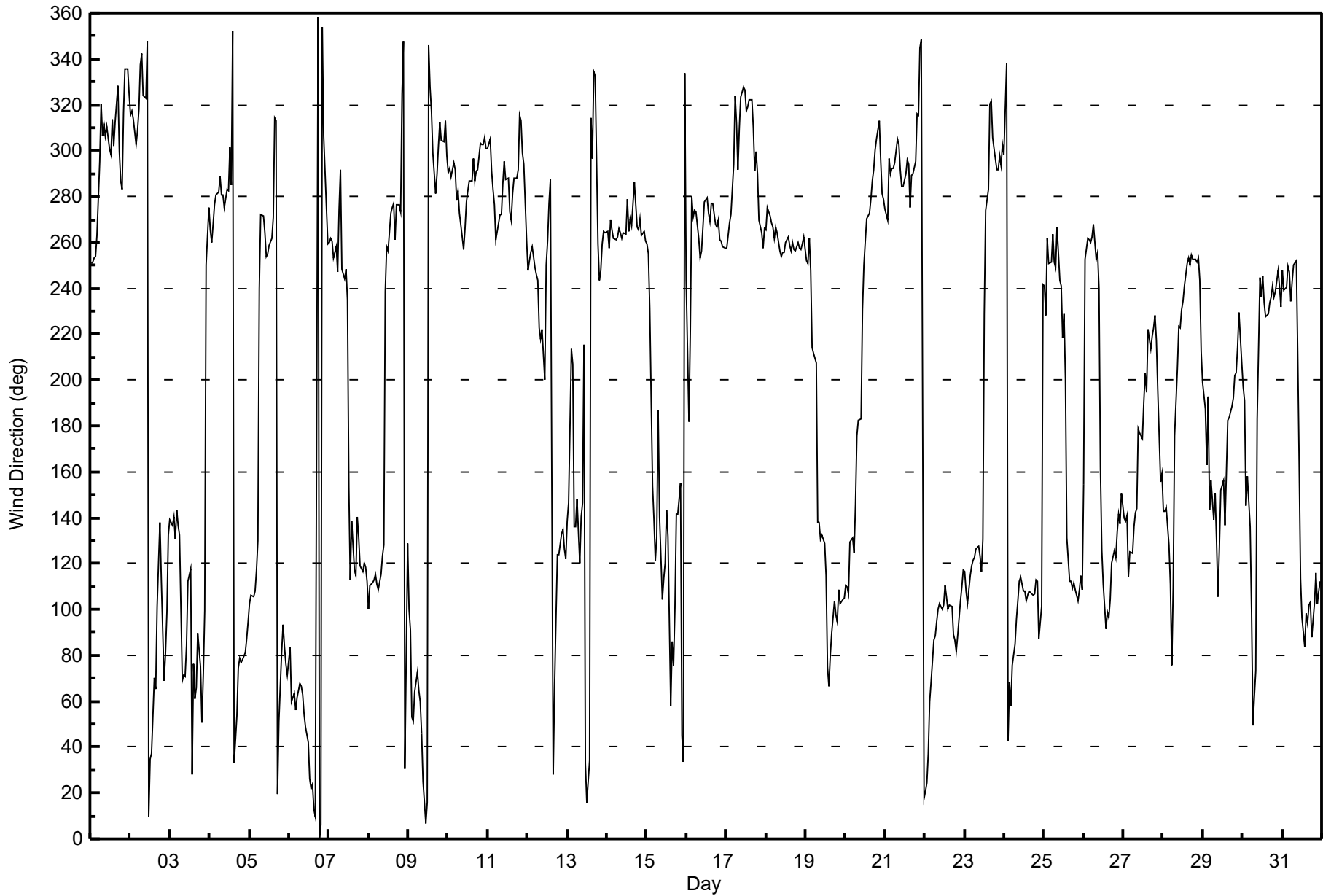
**Wind Direction (WD) - deg**  
**Anzac - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 89 deg on Jan 16 02:00 Minimum Value: 5 deg on Jan 19 08:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 15 Q <sub>3</sub> = 17 P <sub>90</sub> = 24 P <sub>99</sub> = 61														Hours in Service: 744 Hours of Data: 744 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-Jan	17	16	16	17	16	21	17	14	13	13	13	15	13	12	14	12	14	16	12	16	25	12	14	12	25
2-Jan	13	13	16	12	12	13	17	20	17	21	30	53	31	24	44	22	20	19	18	34	17	16	16	11	53
3-Jan	6	10	6	9	7	11	23	49	28	31	22	22	28	32	32	19	16	15	13	21	27	19	84	15	84
4-Jan	13	15	16	15	14	13	14	13	14	15	17	15	17	23	72	29	22	15	14	14	17	13	15	15	72
5-Jan	15	15	13	15	13	18	44	15	15	17	14	16	17	17	21	20	36	34	50	25	18	18	14	15	50
6-Jan	19	14	16	15	15	15	16	15	16	15	16	15	14	14	18	14	13	15	14	15	21	11	24	14	24
7-Jan	14	14	13	13	15	16	30	22	19	15	19	31	69	29	13	17	11	9	11	11	12	11	12	14	69
8-Jan	12	12	12	12	12	13	12	12	12	11	43	16	18	17	16	15	16	12	14	17	14	23	61	48	61
9-Jan	20	17	15	16	16	17	15	15	18	25	15	21	19	12	12	13	12	13	13	13	12	13	12	13	25
10-Jan	12	13	13	12	14	15	13	14	15	15	17	15	17	14	14	13	11	9	10	11	11	11	14	11	17
11-Jan	15	12	11	12	12	13	13	15	15	14	13	14	15	17	15	15	9	11	14	10	9	11	12	13	17
12-Jan	12	12	13	12	12	11	12	8	18	16	32	53	24	31	27	25	12	17	8	6	5	9	7	7	53
13-Jan	7	7	14	12	27	14	26	24	5	14	41	60	62	24	55	24	16	11	18	9	9	9	10	11	62
14-Jan	9	12	13	12	14	13	13	14	14	15	15	15	17	19	14	16	27	20	13	14	13	14	13	12	27
15-Jan	14	15	25	23	12	12	17	26	16	17	14	19	13	17	26	14	12	16	9	15	54	11	23	42	54
16-Jan	24	89	34	15	17	14	13	16	14	15	17	15	17	17	15	14	15	15	15	16	15	15	15	15	89
17-Jan	15	15	14	15	17	12	13	12	12	13	13	15	17	20	15	10	15	9	8	11	18	15	14	16	20
18-Jan	14	14	13	14	14	14	13	13	15	14	14	14	14	14	15	15	15	14	14	15	15	15	15	16	16
19-Jan	16	14	15	17	39	13	31	5	8	10	16	28	28	15	14	13	18	13	14	14	14	11	12	12	39
20-Jan	11	12	14	12	15	9	11	10	14	19	24	17	17	14	21	16	11	14	14	12	15	18	16	14	24
21-Jan	14	17	15	14	16	12	13	13	14	16	17	13	17	14	17	14	12	14	17	13	21	14	17	16	21
22-Jan	17	13	12	14	15	15	15	14	15	14	14	14	14	15	14	15	15	15	15	14	15	15	14	12	17
23-Jan	12	14	14	11	10	9	9	6	5	12	12	18	67	24	28	24	13	16	14	13	12	13	12	12	67
24-Jan	17	28	21	15	14	14	14	15	14	14	13	13	14	15	14	13	14	13	13	11	18	13	19	53	53
25-Jan	11	13	16	14	16	16	17	15	13	13	17	41	9	60	47	24	25	17	14	14	15	15	20	26	60
26-Jan	33	14	13	14	14	17	18	16	22	17	48	18	23	32	20	19	21	18	23	18	8	7	7	9	48
27-Jan	11	5	9	14	15	8	11	7	17	17	14	17	17	15	22	16	15	17	16	15	19	12	13	10	22
28-Jan	10	7	7	13	28	19	37	24	21	17	18	19	18	17	18	16	16	16	16	15	15	16	15	11	37
29-Jan	9	18	9	17	29	26	11	13	15	19	20	15	21	21	24	17	14	14	15	14	15	40	18	19	40
30-Jan	11	23	13	14	12	21	13	17	15	77	20	18	18	18	17	17	18	17	17	17	16	16	17	18	77
31-Jan	17	17	18	19	16	16	17	12	12	39	22	38	18	14	17	15	13	13	11	15	11	13	13	11	39
	33	89	34	23	39	26	44	49	28	77	48	60	69	60	72	29	36	34	50	34	54	40	84	53	
Diurnal Maximum																									



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

**Wind Direction (WD) - deg**  
**Anzac - January 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS17  
WAPASU  
JANUARY 2024**

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

February 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
 JANUARY 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	709	35	35	100	19.4	0	5	0
H2S (ppb) Average	708	36	36	100	1.2	0	0.3	0
THC (ppm) Average	709	35	35	100	3.3	-	2.6	-
O3 (ppb) Average	709	35	35	100	45.2	0	37.6	-
NO2 (ppb) Average	708	36	36	100	29.6	0	11.8	-
NO (ppb) Average	708	36	36	100	34.9	-	3.2	-
NOX (ppb) Average	708	36	36	100	62.7	-	12.8	-
PM2.5 (ug/m3) Average	743	1	1	100	31.2	0	16.9	0
Temperature 2 m (C) Average	744	0	0	100	8.7	-	5.8	-
Relative Humidity (%) Average	744	0	0	100	98.4	-	95.3	-
Wind Speed 10 m (km/h) Average	738	0	6	99.19	23	-	12	-
Wind Direction 10 m (deg) Average	738	0	6	99.19	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.4	-	4.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
 JANUARY 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	709	0.97	2.2	-	0	0	0	0.2	0.7	2.9	19.4
H2S (ppb) Average	708	0.12	0.1	-	0	0	0	0.1	0.2	0.3	1.2
THC (ppm) Average	709	2.39	0.2	-	2.2	2.2	2.3	2.3	2.5	2.6	3.3
O3 (ppb) Average	709	27.16	8.3	-	0.7	15.5	22.6	28.8	33.1	36	45.2
NO2 (ppb) Average	708	4.77	5	-	0.1	0.5	1.2	3.2	6.5	11.1	29.6
NO (ppb) Average	708	0.68	2.7	-	0	0	0	0	0.2	1.5	34.9
NOX (ppb) Average	708	5.45	6.9	-	0.1	0.5	1.2	3.3	7.3	11.7	62.7
PM2.5 (ug/m3) Average	743	4.22	4	-	0.3	1.6	2.2	3.1	4.4	7.9	31.2
Temperature 2 m (C) Average	744	-18.01	13	-	-42.9	-36.6	-25.2	-18.5	-10.3	2.7	8.7
Relative Humidity (%) Average	744	78.86	9.6	-	43	66.8	72.2	80.1	84.9	90.2	98.4
Wind Speed 10 m (km/h) Average	738	7	4	-	0	3	4	6	9	13	23
Wind Direction 10 m (deg) Average	738	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	12.08	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	07 Jan 2024 07:00	07 Jan 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	07 Jan 2024 10:00	07 Jan 2024 10:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 21:00	11 Jan 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 17:00	13 Jan 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 08:00	14 Jan 2024 08:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 22:00	14 Jan 2024 22:00	1	Flat line in sensor output signal



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 19.4 ppb on Jan 31 12:00	Maximum Daily Average: 5.0 ppb on Jan 15		Hours of Data:	709
Minimum Value: 0.0 ppb on Jan 2 00:00	Minimum Daily Average: 0.0 ppb on Jan 21		Hours of Missing Data:	35
Maximum Diurnal Average: 2.1 ppb at hour 13	Minimum Diurnal Average: 0.4 ppb at hour 20		Hours of Calibration:	35
Monthly Average: 0.97 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> = 0.7 P <sub>90</sub> = 2.9 P <sub>99</sub> = 10.9		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-Jan	0.2	0.1	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	
2-Jan	Z	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.6	1.3	3.1	2.9	0.4	3.1	
3-Jan	1.0	Z	6.3	11.1	4.0	0.7	0.9	0.9	2.4	2.2	3.2	7.9	8.7	7.2	7.4	7.5	6.1	5.6	2.6	0.7	0.6	0.8	1.8	1.1	3.9	11.1	
4-Jan	0.6	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	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.6	
5-Jan	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.2	0.1	0.4	
6-Jan	0.4	0.5	0.6	0.7	Z	0.7	1.0	1.0	0.4	0.2	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	0.3	1.0	
7-Jan	0.0	0.0	0.0	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	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	
8-Jan	Z	0.3	0.2	0.3	0.2	0.4	0.3	0.3	0.3	0.6	0.6	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	
9-Jan	0.0	Z	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
10-Jan	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	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.2	
11-Jan	0.2	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
12-Jan	0.0	0.0	0.0	0.0	Z	0.2	0.5	1.6	2.1	1.0	1.1	1.5	5.5	5.6	2.0	0.5	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	1.0	5.6	
13-Jan	0.1	0.1	0.1	0.0	0.1	Z	0.0	0.1	0.0	0.1	0.0	5.1	7.9	8.2	3.5	1.3	0.5	0.2	0.1	0.1	0.2	0.3	0.1	0.2	1.2	8.2	
14-Jan	Z	0.2	0.2	0.2	0.5	0.3	0.2	0.2	1.5	0.8	0.3	0.1	0.3	0.3	0.3	0.3	0.1	0.3	0.6	0.4	0.1	0.0	0.0	0.0	0.3	1.5	
15-Jan	0.0	Z	5.1	7.8	8.5	8.8	12.8	13.5	14.2	16.7	3.0	0.5	0.4	0.4	0.3	0.2	0.2	0.3	0.4	0.8	1.4	4.3	6.4	8.4	5.0	16.7	
16-Jan	4.2	0.8	Z	0.5	1.6	2.9	3.4	5.0	5.7	4.0	2.1	1.1	0.6	0.6	0.5	0.6	0.6	0.6	0.4	0.4	0.3	0.2	0.2	0.2	1.6	5.7	
17-Jan	0.1	0.1	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.1	0.2	
18-Jan	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
19-Jan	0.0	0.0	0.0	0.0	0.0	Z	1.7	2.3	0.7	0.1	0.1	0.0	0.0	0.0	0.3	0.5	0.5	0.5	0.7	0.5	1.0	1.0	0.8	0.6	0.5	2.3	
20-Jan	Z	0.6	0.7	0.8	1.0	1.0	1.7	3.8	2.4	3.1	2.4	0.9	0.7	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.9	3.8	
21-Jan	0.1	Z	0.2	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	0.0	0.0	0.0	0.2	
22-Jan	0.0	0.0	Z	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.5	
23-Jan	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.5	5.0	6.0	5.1	3.5	1.7	1.3	1.5	0.6	1.0	1.1	0.9	0.7	0.6	0.4	1.4	6.0	
24-Jan	0.3	0.3	0.4	0.3	Z	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.3	0.8	0.5	0.8	
25-Jan	1.3	1.8	1.5	0.9	0.9	Z	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.6	0.6	0.5	1.1	1.1	1.0	1.0	0.8	0.7	0.5	0.7	0.9	1.8	
26-Jan	Z	4.3	7.1	3.8	2.5	1.5	1.3	0.9	1.4	0.9	1.5	2.5	3.8	3.7	1.9	0.9	0.6	0.5	0.4	0.2	0.1	0.1	0.0	1.8	7.1		
27-Jan	0.1	Z	0.0	0.0	0.2	0.3	0.4	0.4	0.4	0.4	0.4	2.0	1.8	3.6	5.7	4.2	3.1	2.6	3.1	2.7	1.4	1.2	1.4	0.8	1.6	5.7	
28-Jan	1.0	0.5	Z	0.2	0.4	0.4	0.5	0.5	0.5	0.9	5.7	5.6	4.3	1.0	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	1.0	5.7	
29-Jan	0.2	1.0	4.4	Z	0.4	0.3	0.6	0.6	0.8	1.1	1.2	1.1	0.8	0.7	0.7	0.5	0.6	0.5	0.5	0.9	1.7	1.9	2.2	4.0	1.2	4.4	
30-Jan	4.4	1.9	1.8	3.5	Z	0.5	0.9	0.7	0.6	0.8	3.6	5.5	8.0	3.4	2.4	0.6	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	1.7	8.0	
31-Jan	0.0	0.0	0.0	1.8	5.6	Z	6.9	6.8	5.9	7.7	13.2	19.4	13.6	5.6	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.0	3.9	19.4	

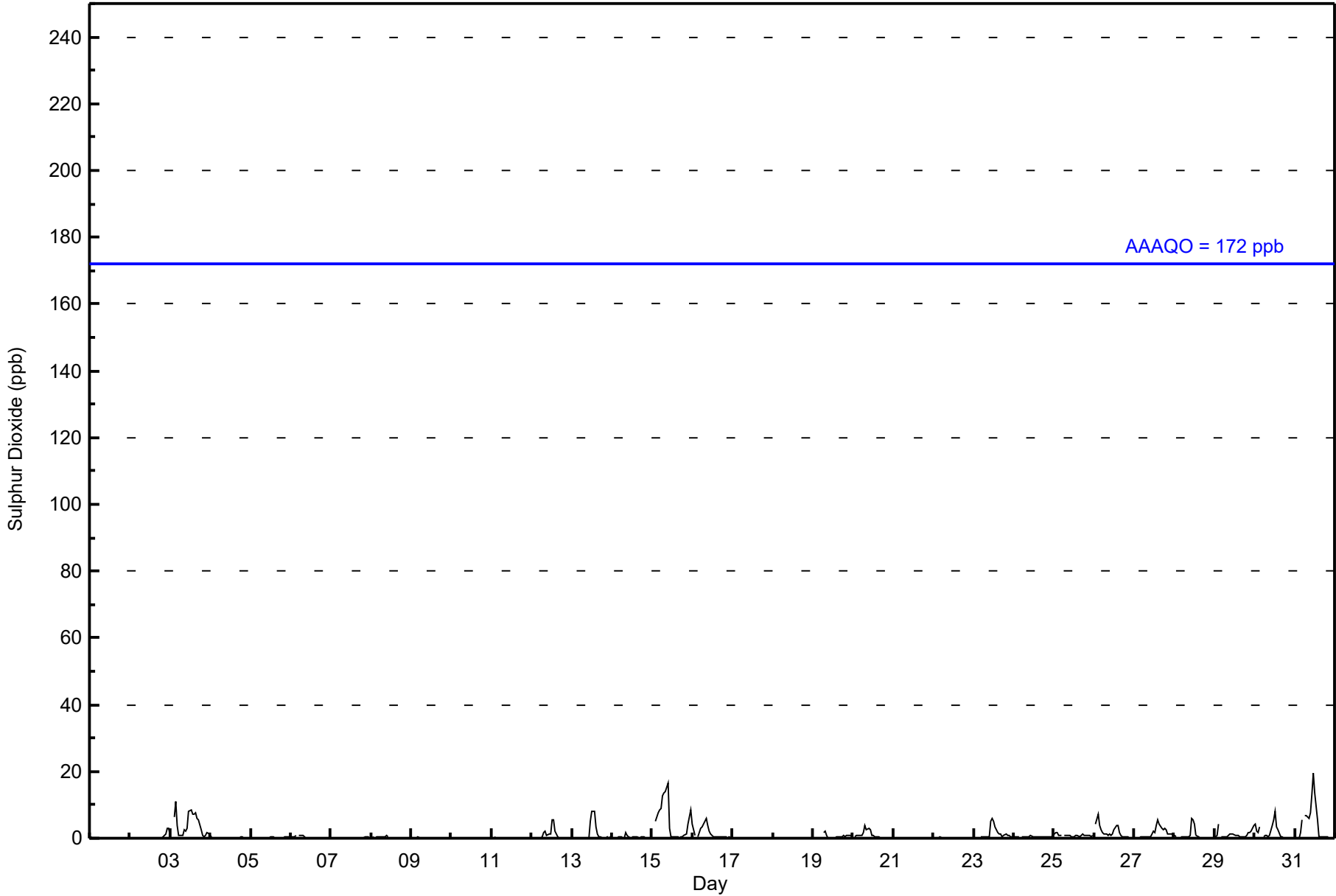
0.6	0.5	1.1	1.2	1.1	0.8	1.1	1.3	1.3	1.4	1.4	2.0	2.1	1.6	1.1	0.7	0.5	0.5	0.4	0.4	0.4	0.5	0.6	0.7	Diurnal Average	
4.4	4.3	7.1	11.1	8.5	8.8	12.8	13.5	14.2	16.7	13.2	19.4	13.6	8.2	7.4	7.5	6.1	5.6	3.1	2.7	1.7	4.3	6.4	8.4	Diurnal Maximum	

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  
Wapasu - January 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	701	98.87	98.87
11 - 20	8	1.13	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Wapasu - January 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	119	105	28	14	14	14	33	123	92	31	32	17	9	11	11	42	695
11 - 20	0	0	0	0	0	0	0	5	3	0	0	0	0	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>	119	105	28	14	14	14	33	128	95	31	32	17	9	11	11	42	703

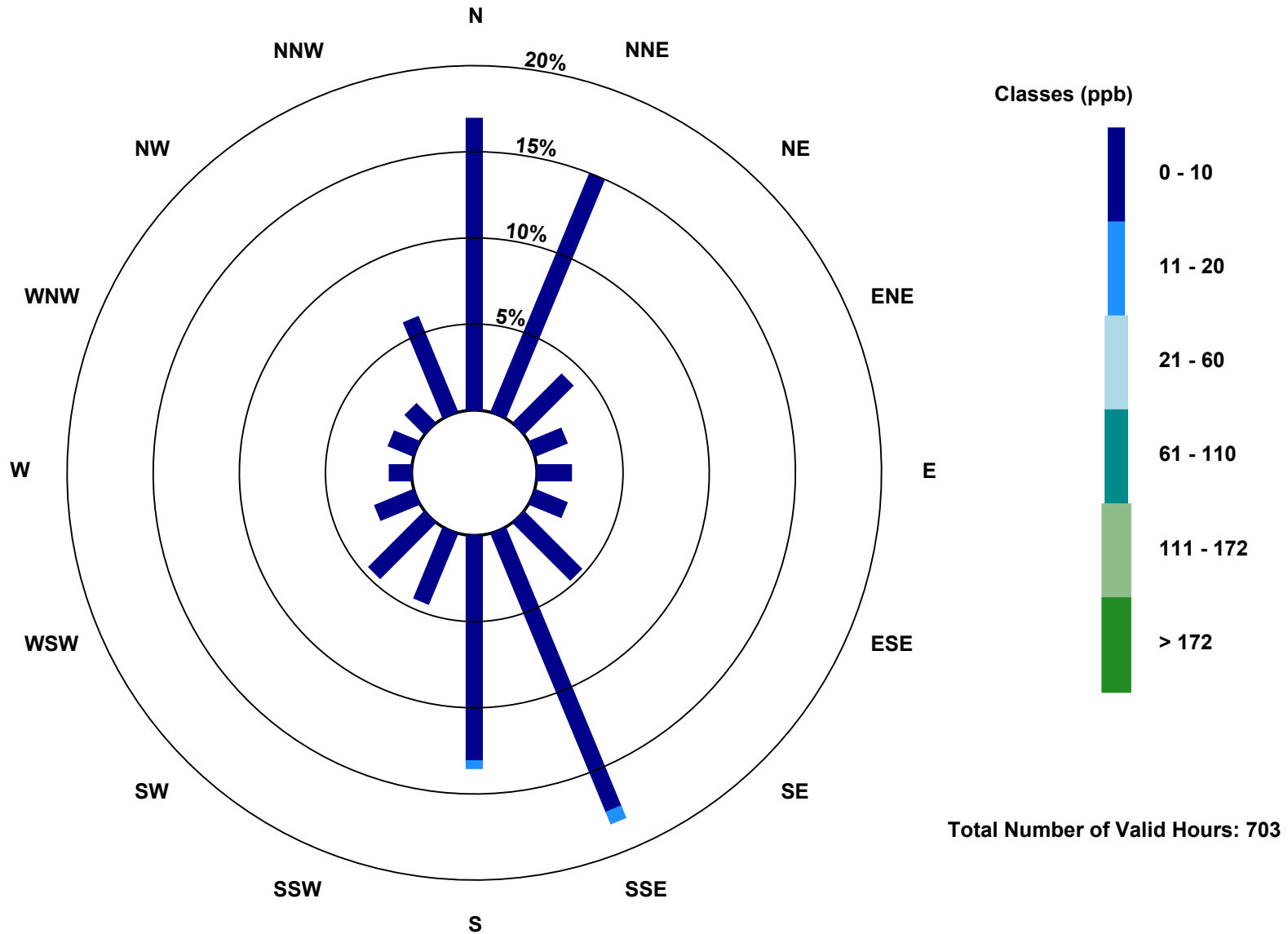
Total Number of Valid Hours: 703

Total Number of Hours: 744

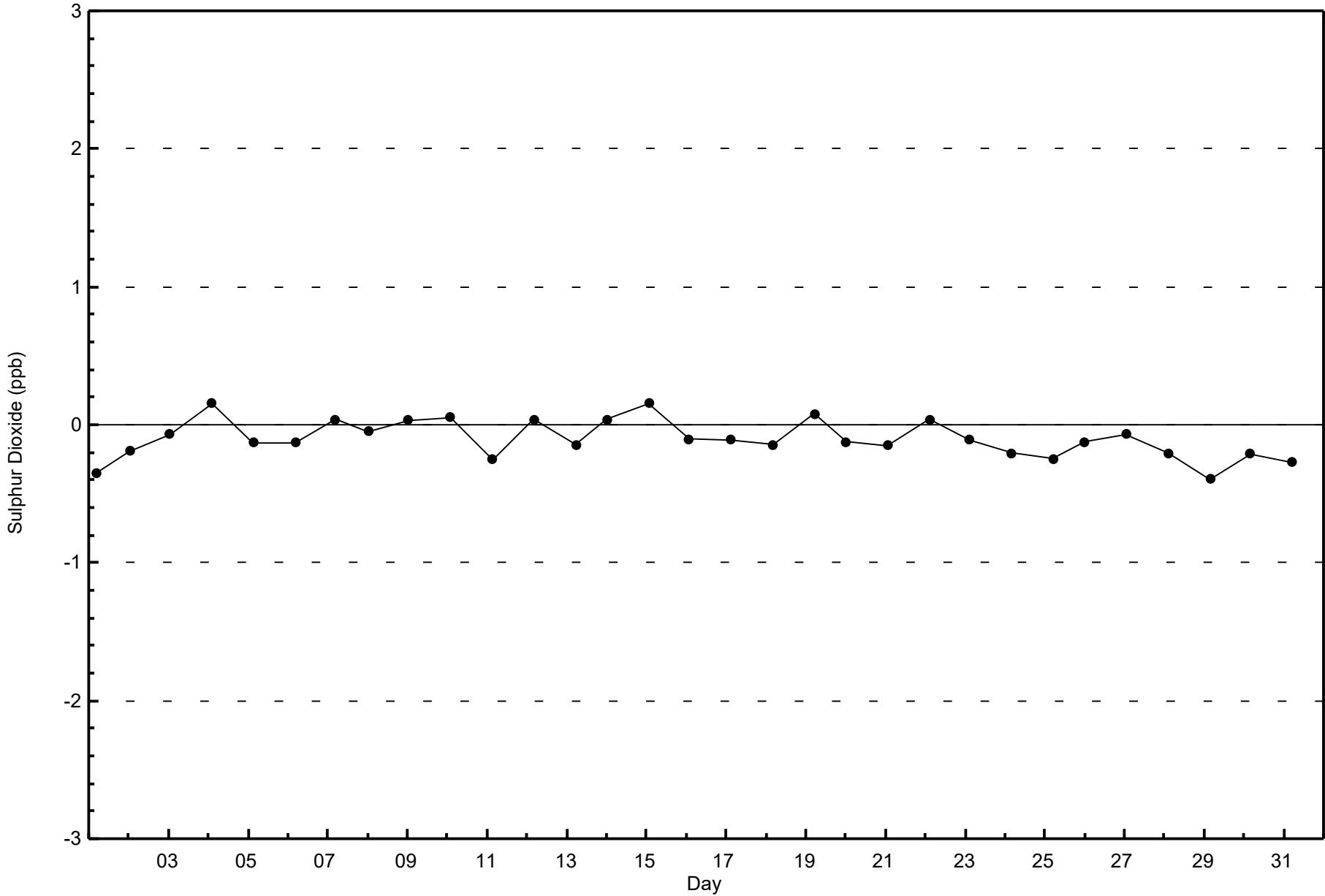


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



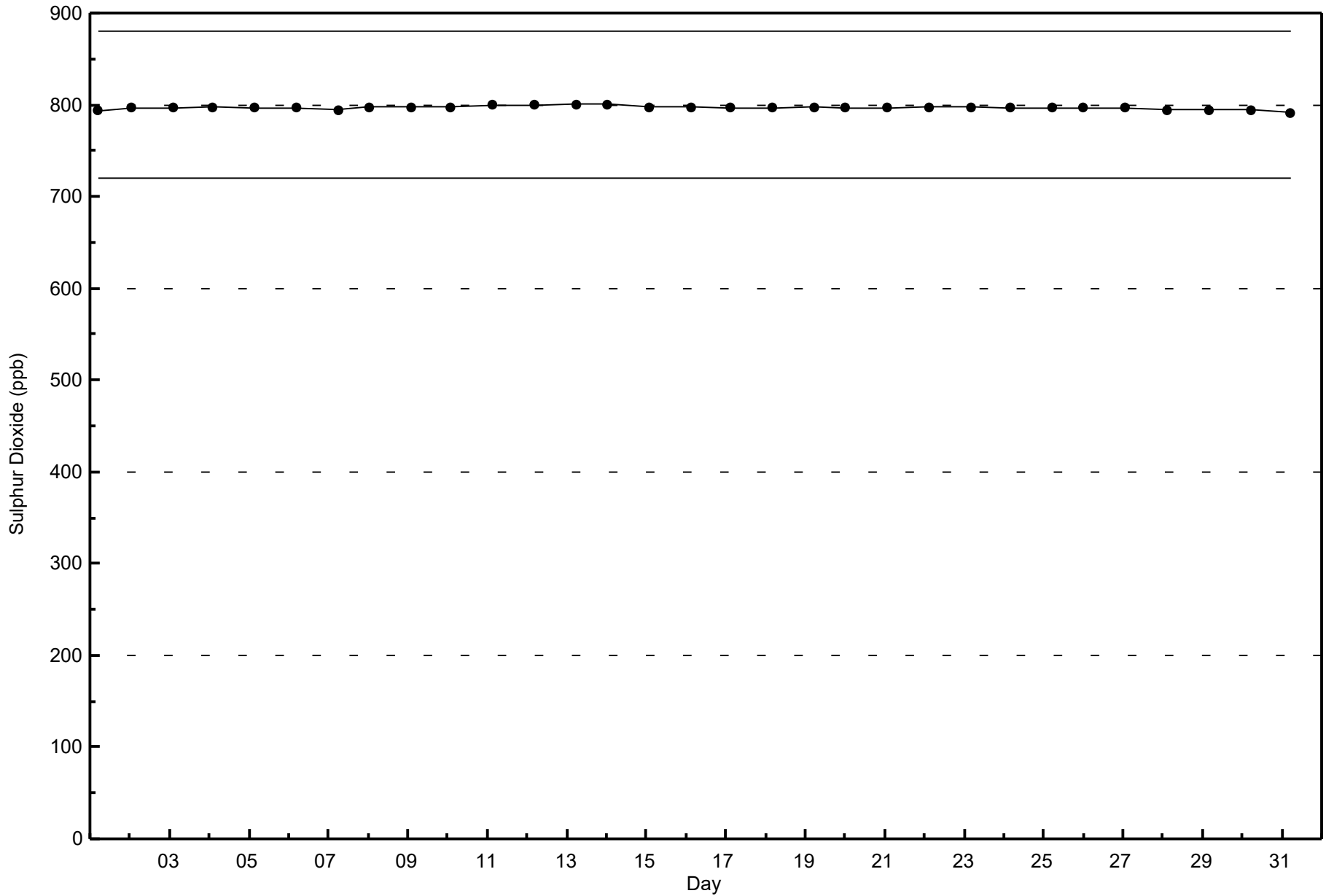






**Wood Buffalo Environmental Association**  
**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - January 2024**





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

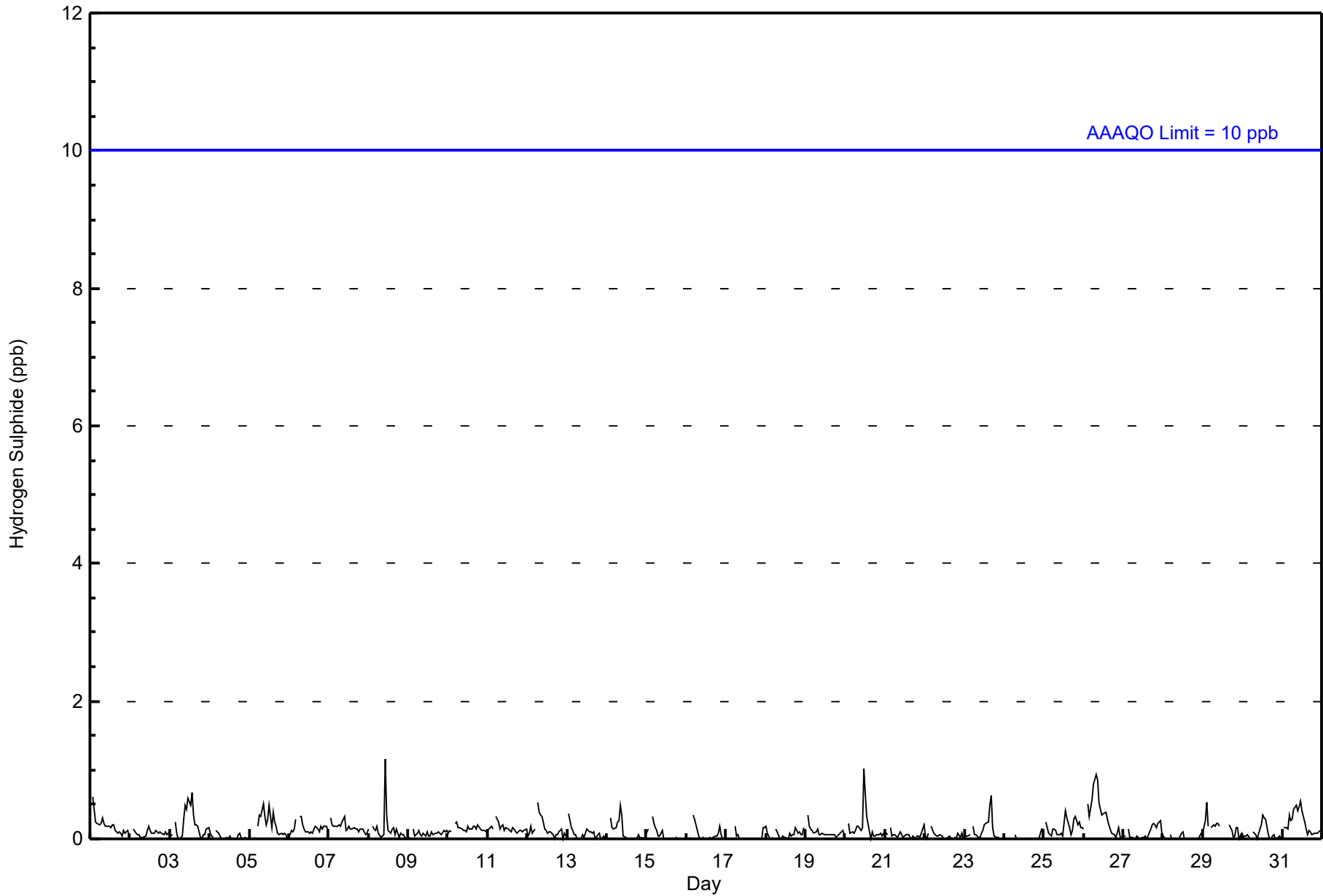
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Wapasu - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 1.2 ppb on Jan 8 11:00		Maximum Daily Average: 0.3 ppb on Jan 26																	Hours of Data:	708																												
Minimum Value: 0.0 ppb on Jan 3 06:00		Minimum Daily Average: 0.0 ppb on Jan 24																	Hours of Missing Data:	36																												
Maximum Diurnal Average: 0.2 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 1																	Hours of Calibration:	36																												
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> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.6																	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-Jan	Z	0.6	0.4	0.2	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	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.6																						
2-Jan	0.1	Z	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																					
3-Jan	0.0	0.1	Z	0.3	0.1	0.0	0.0	0.0	0.3	0.5	0.4	0.6	0.5	0.7	0.3	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.7																						
4-Jan	0.1	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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
5-Jan	0.0	0.0	0.0	0.0	Z	0.2	0.3	0.3	0.5	0.3	0.2	0.3	0.5	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.5																						
6-Jan	0.1	0.1	0.1	0.1	0.3	Z	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.3																						
7-Jan	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	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	0.3																						
8-Jan	0.1	Z	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.1	1.2	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	1.2																						
9-Jan	0.0	0.0	Z	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
10-Jan	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2																						
11-Jan	0.1	0.2	0.2	0.2	Z	0.3	0.2	0.1	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	0.3																						
12-Jan	0.0	0.1	0.2	0.1	0.1	Z	0.5	0.4	0.3	0.3	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	0.0	0.1	0.5																						
13-Jan	Z	0.4	0.2	0.1	0.1	0.1	0.0	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	0.0	0.0	0.0	0.0	0.0	0.4																						
14-Jan	0.0	Z	0.3	0.2	0.1	0.2	0.3	0.3	0.5	0.3	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	0.5																						
15-Jan	0.1	0.2	Z	0.3	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	0.0	0.0	0.0	0.0	0.3																						
16-Jan	0.0	0.0	0.0	Z	0.3	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	0.2	0.1	0.0	0.0	0.1	0.3																						
17-Jan	0.0	0.0	0.0	0.0	Z	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	0.0	0.2	0.2	0.0	0.2																						
18-Jan	0.2	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
19-Jan	Z	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	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3																						
20-Jan	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	1.0	0.7	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	1.0																						
21-Jan	0.1	0.1	Z	0.2	0.0	0.1	0.1	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	0.1	0.2	0.1	0.2																						
22-Jan	0.1	0.0	0.1	Z	0.2	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	0.1	0.0	0.1	0.0	0.0	0.2																						
23-Jan	0.0	0.0	0.0	0.1	Z	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.5	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6																						
24-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1																						
25-Jan	Z	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.4	0.3	0.2	0.1	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4																						
26-Jan	0.1	Z	0.5	0.3	0.5	0.6	0.8	0.9	0.9	0.5	0.4	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.3	0.9																						
27-Jan	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	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.3																						
28-Jan	0.0	0.0	0.0	Z	0.1	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	0.1	0.0	0.1																						
29-Jan	0.1	0.3	0.5	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	C	C	C	C	C	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.1	0.2	0.5																						
30-Jan	0.0	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.0	0.2	0.2	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3																						
31-Jan	Z	0.2	0.2	0.1	0.3	0.3	0.3	0.4	0.5	0.4	0.5	0.5	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	0.5																						
																								0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average
																								0.2	0.6	0.5	0.3	0.5	0.6	0.8	0.9	0.9	0.5	1.2	1.0	0.7	0.7	0.4	0.5	0.6	0.2	0.3	0.3	0.2	0.2	0.3	0.2	Diurnal Maximum
Z - zerospan      C - Calibration																																																
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**  
**Wapasu - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Wapasu - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Wapasu - January 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	107	27	15	13	14	34	129	89	33	31	16	9	11	10	42	702
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>	122	107	27	15	13	14	34	129	89	33	31	16	9	11	10	42	702

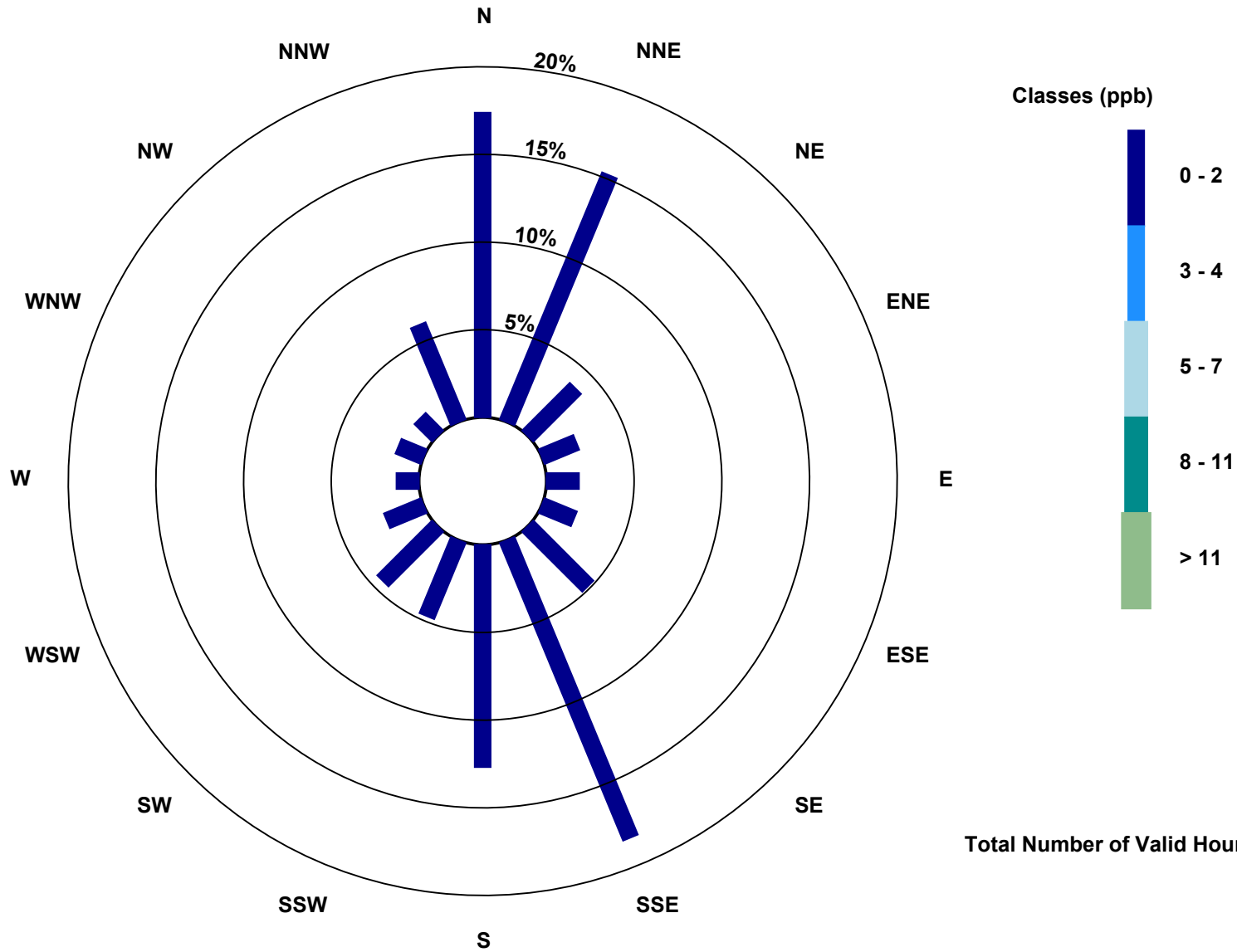
Total Number of Valid Hours: 702

Total Number of Hours: 744

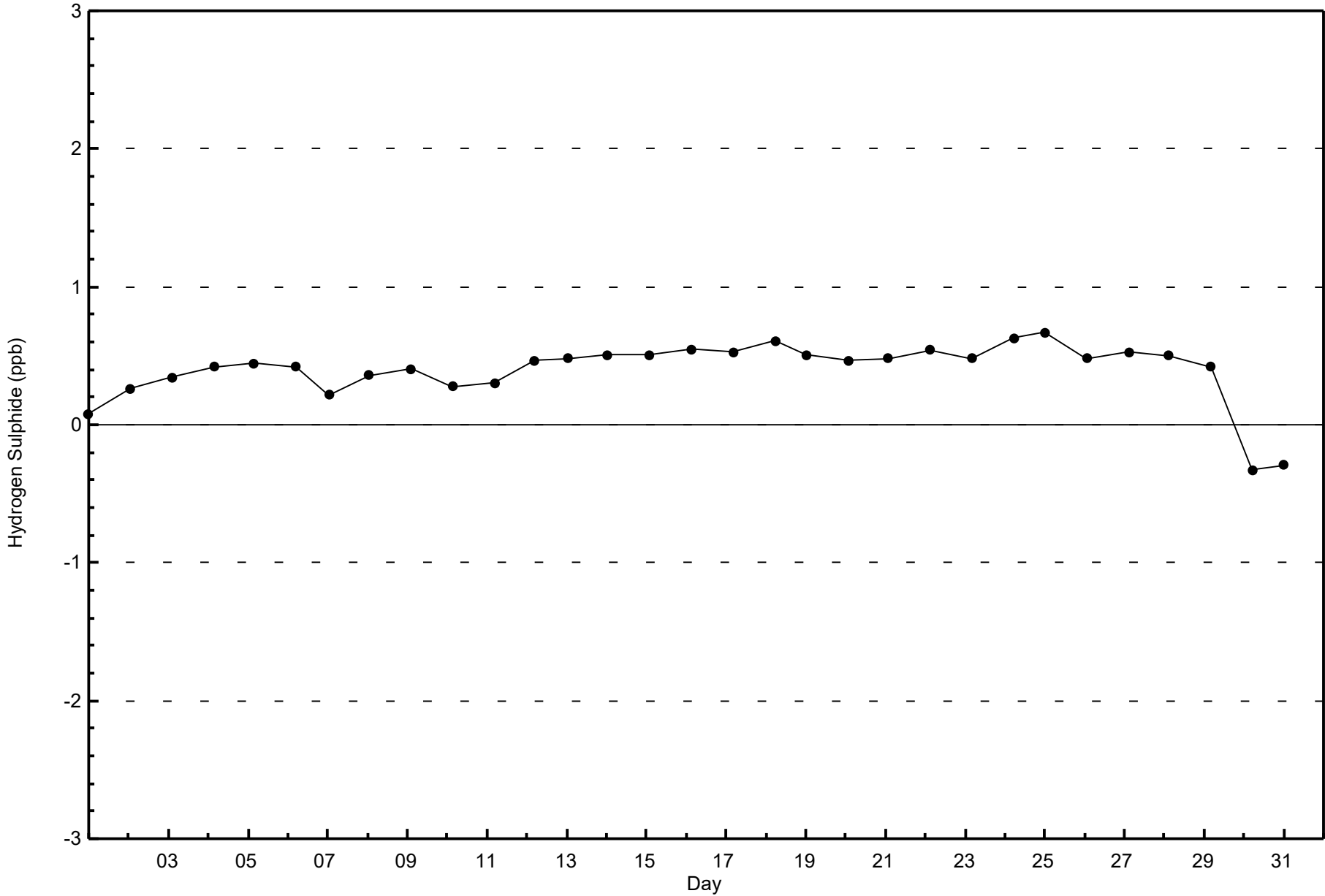


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

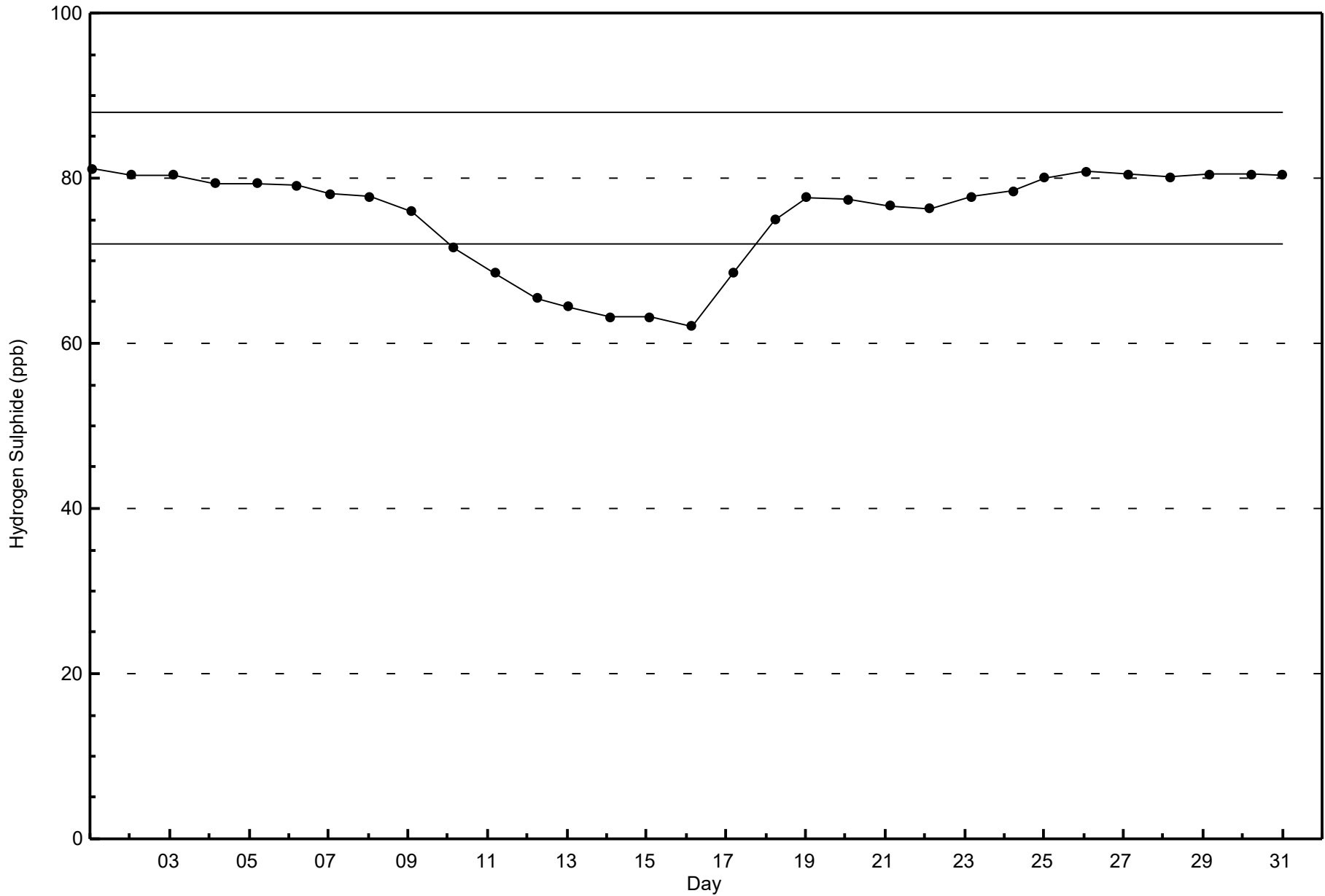
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Wapasu



Total Number of Valid Hours: 702









# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Total Hydrocarbons (THC) - ppm

## Wapasu - January 2024

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
	<p>Maximum Value: 3.3 ppm on Jan 20 12:00      Maximum Daily Average: 2.6 ppm on Jan 16</p> <p>Minimum Value: 2.2 ppm on Jan 30 19:00      Minimum Daily Average: 2.2 ppm on Jan 29</p> <p>Maximum Diurnal Average: 2.4 ppm at hour 13      Minimum Diurnal Average: 2.4 ppm at hour 5</p> <p>Monthly Average: 2.39 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> = 2.5 P<sub>90</sub> = 2.6 P<sub>99</sub> = 2.8</p>																									

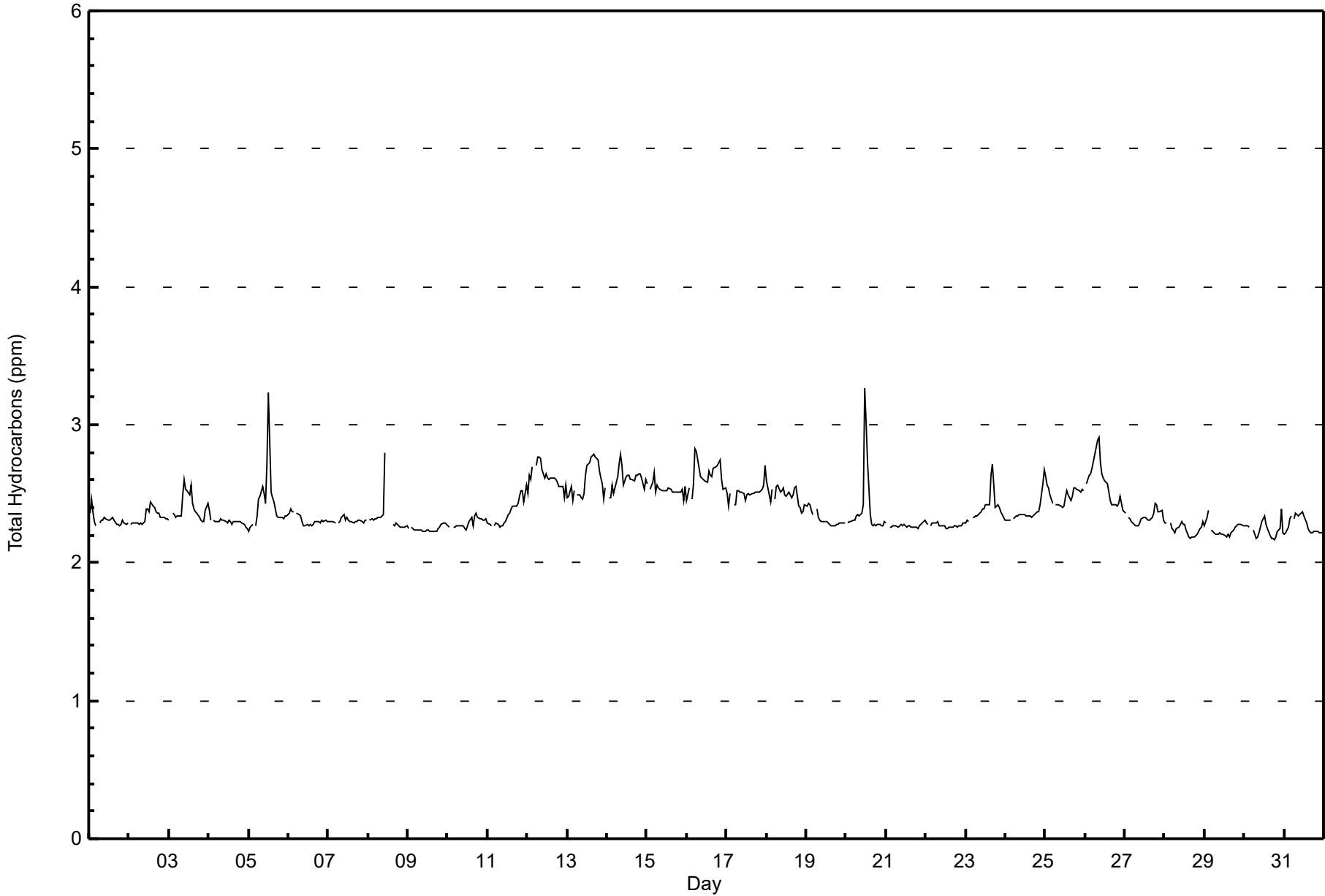
  

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Average	Daily Maximum
1-Jan	2.4	2.5	2.4	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
2-Jan	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
3-Jan	2.3	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.5	2.6	2.5	2.5	2.5	2.6	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.6
4-Jan	2.4	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	2.2	2.3	2.4
5-Jan	2.2	2.3	2.3	Z	2.3	2.3	2.5	2.5	2.5	2.5	2.4	2.7	3.2	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	3.2
6-Jan	2.4	2.4	2.4	2.4	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	2.4
7-Jan	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
8-Jan	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8	C	C	C	C	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8
9-Jan	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	2.3	2.3	2.3	2.3	2.3	2.2	2.3
10-Jan	2.3	2.3	Z	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	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
11-Jan	2.3	2.3	2.3	Z	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	2.4	2.4	2.5	2.5	2.5	2.4	2.6	2.4	2.6
12-Jan	2.5	2.6	2.6	2.7	Z	2.7	2.8	2.8	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.5	2.6	2.6	2.8
13-Jan	2.5	2.5	2.6	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.6	2.8
14-Jan	Z	2.5	2.5	2.6	2.5	2.6	2.6	2.7	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.8
15-Jan	2.6	Z	2.5	2.6	2.7	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.5	2.7
16-Jan	2.4	2.5	Z	2.5	2.6	2.8	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.6	2.5	2.5	2.6	2.8
17-Jan	2.5	2.4	2.5	Z	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.5	2.7
18-Jan	2.6	2.5	2.4	2.5	Z	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.4	2.4	2.4	2.4	2.4	2.5	2.6
19-Jan	2.4	2.4	2.4	2.4	2.4	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	2.4
20-Jan	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	3.3	3.0	2.7	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	3.3
21-Jan	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
22-Jan	2.3	2.3	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
23-Jan	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	2.6	2.7	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.7
24-Jan	2.3	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	2.4	2.4	2.4	2.4	2.6	2.7	2.4	2.7
25-Jan	2.6	2.6	2.5	2.5	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6
26-Jan	Z	2.6	2.6	2.6	2.7	2.7	2.8	2.9	2.9	2.7	2.6	2.6	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.6	2.9
27-Jan	2.4	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	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4
28-Jan	2.3	2.3	Z	2.3	2.2	2.2	2.2	2.2	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	2.2	2.3
29-Jan	2.3	2.3	2.4	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	2.3	2.3	2.3	2.3	2.2	2.4
30-Jan	2.3	2.3	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	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	2.2	2.2	2.4
31-Jan	2.2	2.2	2.3	2.3	2.3	Z	2.3	2.4	2.3	2.3	2.4	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	2.3	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	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	Diurnal Average
	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.9	2.9	2.7	2.8	3.3	3.2	2.7	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.7	2.7	Diurnal Maximum
Z - zerospan	C - Calibration																									



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

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - January 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	707	99.72	99.72
3.1 - 10.0	2	0.28	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Wapasu - January 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	118	105	28	14	14	14	33	128	95	31	32	17	9	11	10	42	701
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	119	105	28	14	14	14	33	128	95	31	32	17	9	11	11	42	703

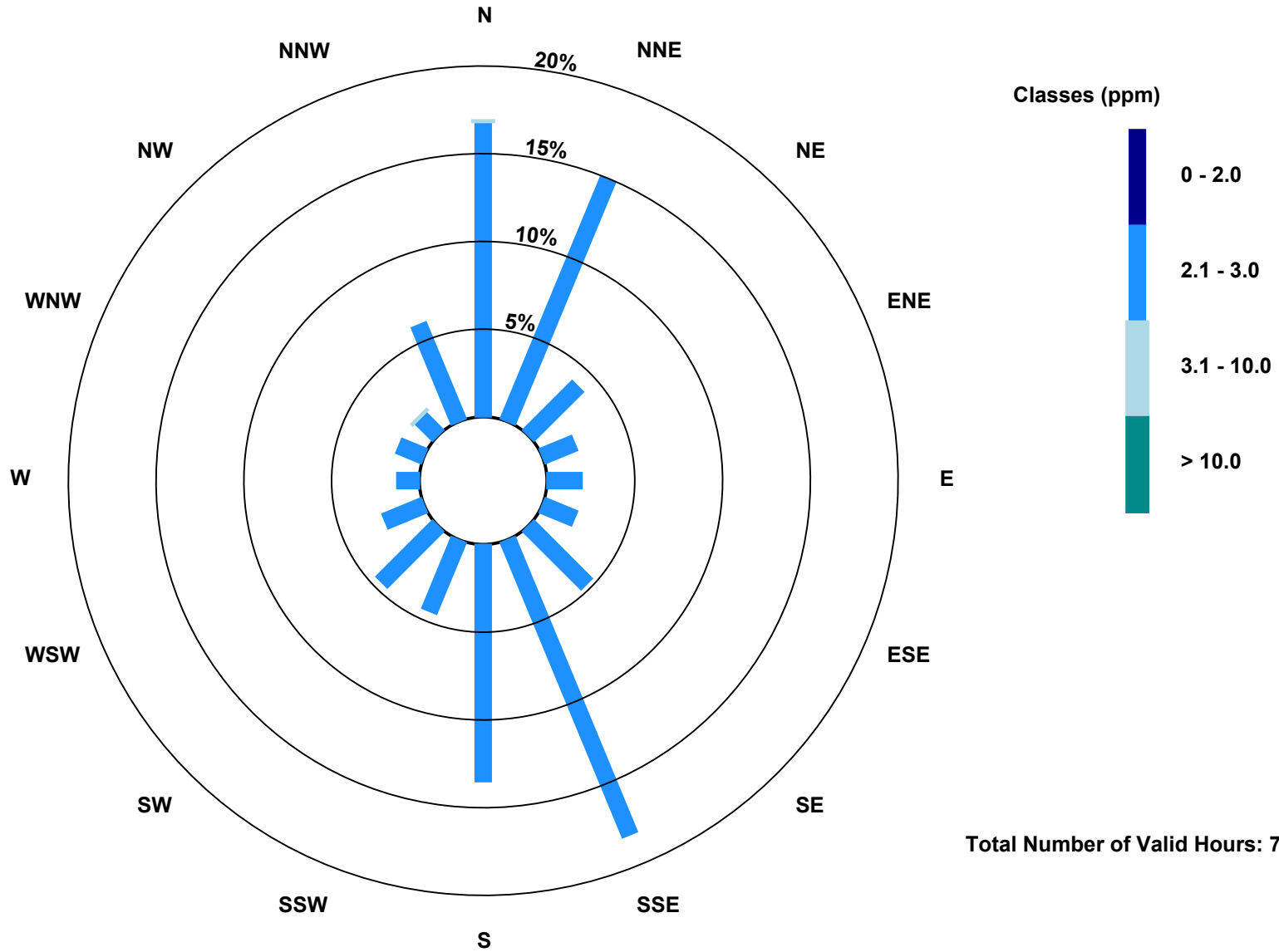
Total Number of Valid Hours: 703

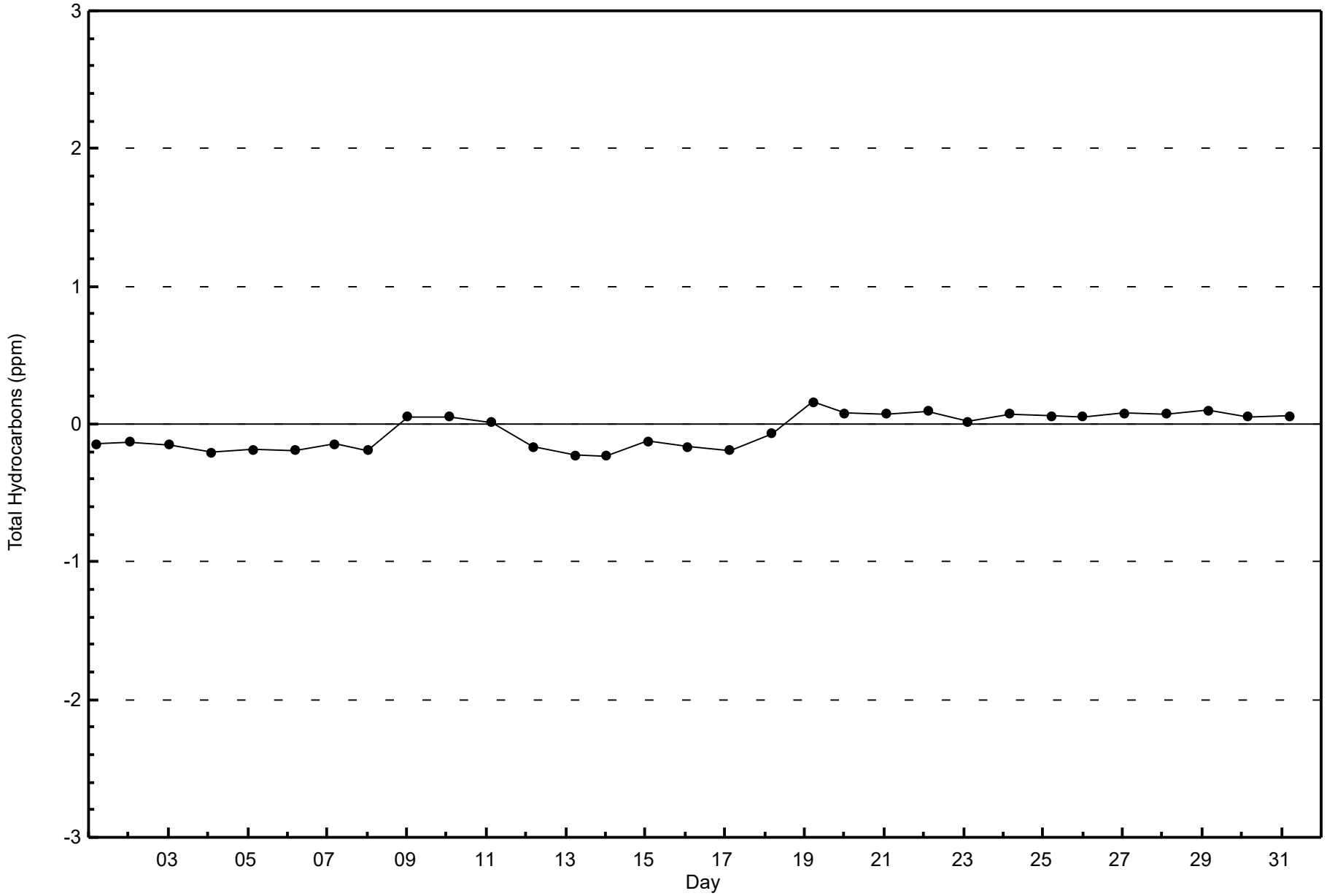
Total Number of Hours: 744

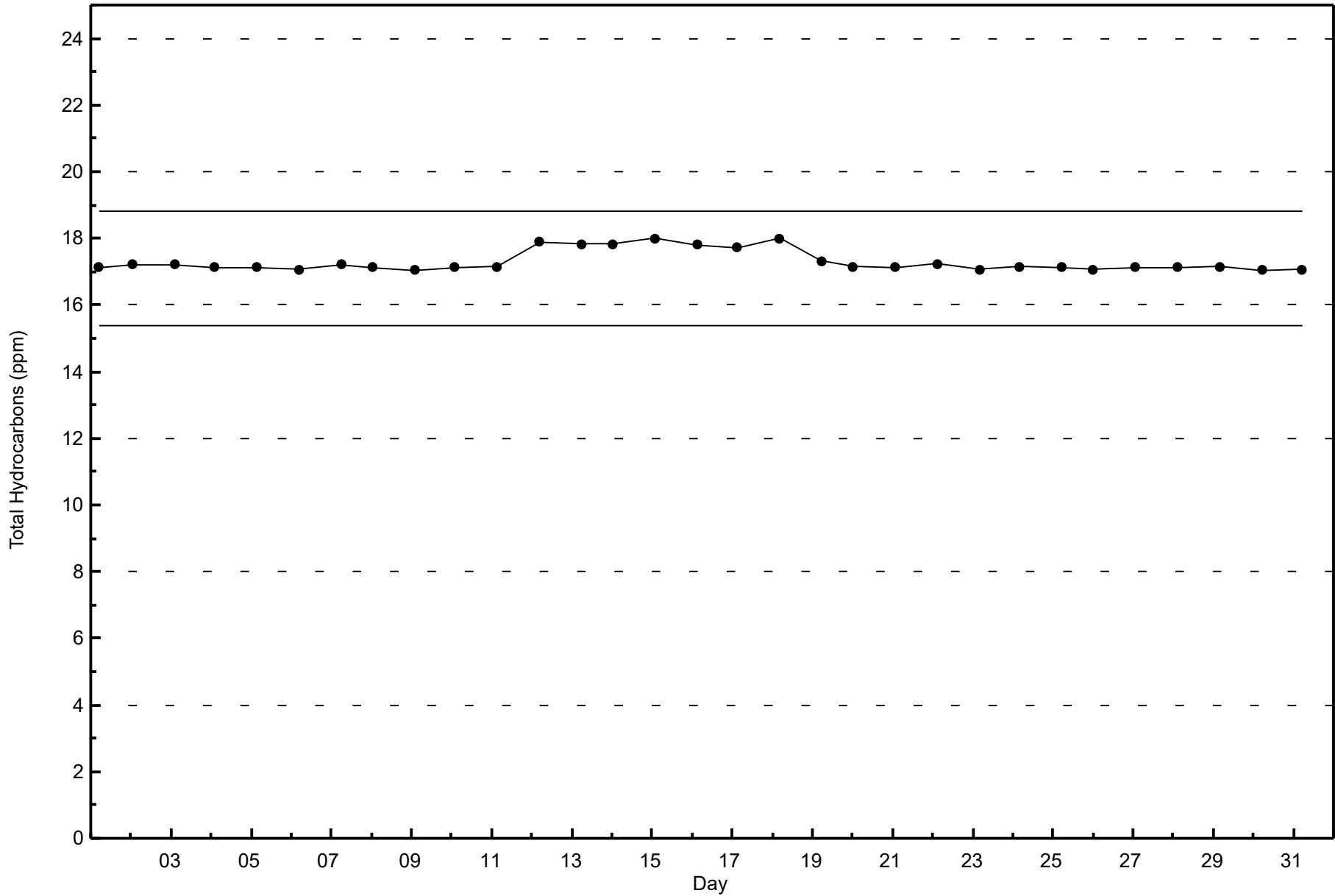


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Wapasu











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Wapasu - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 45.2 ppb on Feb 1 00:00	Maximum Daily Average: 37.6 ppb on Jan 31		Hours of Data:	709
Minimum Value: 0.7 ppb on Jan 14 09:00	Minimum Daily Average: 13.2 ppb on Jan 26		Hours of Missing Data:	35
Maximum Diurnal Average: 28.9 ppb at hour 20	Minimum Diurnal Average: 25.6 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 27.16 ppb	Percentiles: P <sub>1</sub> = 3.4 P <sub>10</sub> = 15.5 Q <sub>1</sub> = 22.6 Median = 28.8 Q <sub>3</sub> = 33.1 P <sub>90</sub> = 36.0 P <sub>99</sub> = 42.8		Percent Operational Time:	100.0

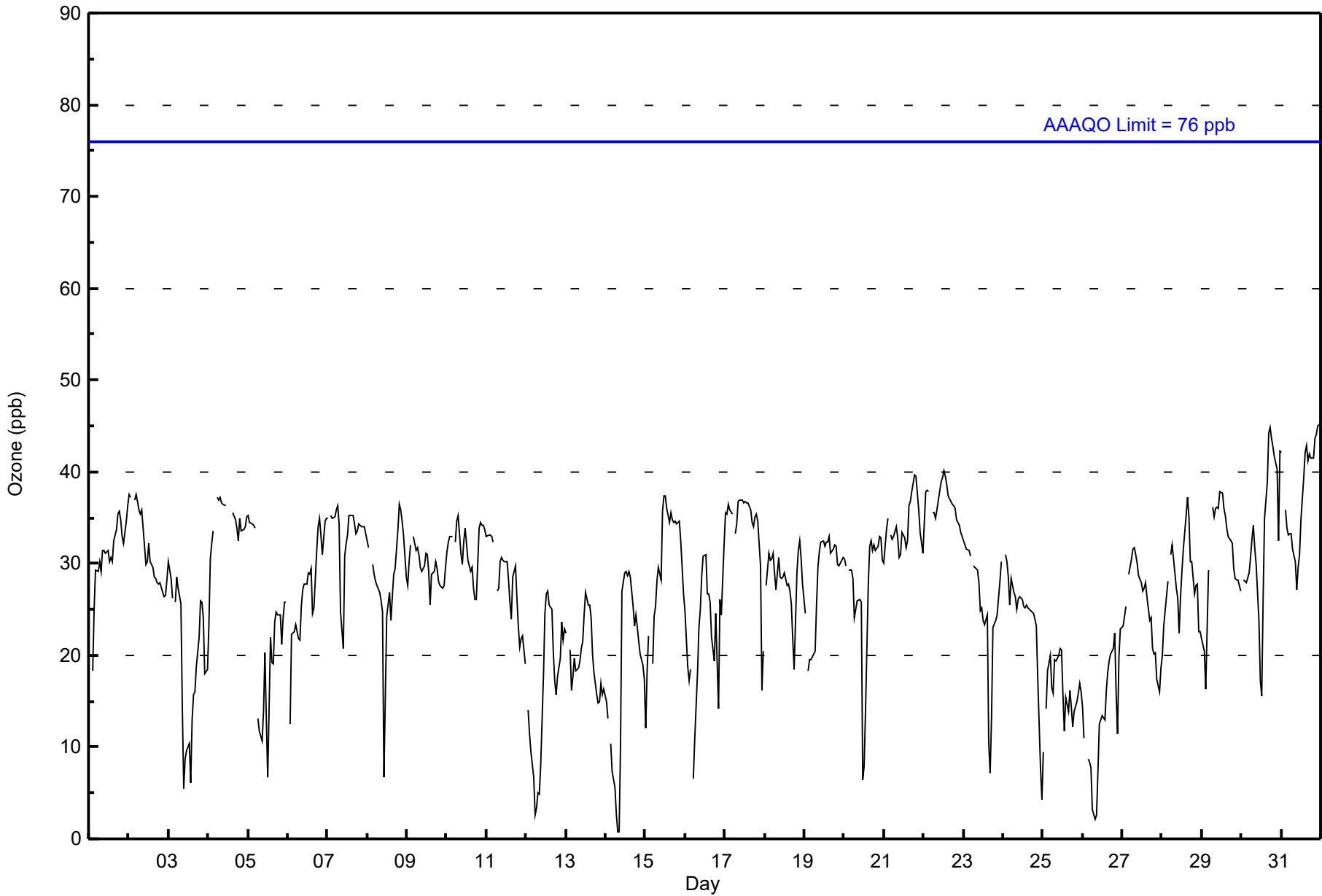
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Jan	17.5	Z	18.3	25.0	29.3	29.1	30.2	29.1	31.4	31.4	31.0	31.5	30.3	30.7	30.1	32.5	33.7	35.5	35.7	34.8	32.9	32.2	34.6	36.3	30.6	36.3																							
2-Jan	37.5	37.3	Z	36.9	37.5	36.8	35.9	35.4	35.9	31.8	29.9	30.2	32.2	30.2	29.5	28.6	28.3	27.8	27.8	27.9	26.8	26.5	26.6	28.2	31.5	37.5																							
3-Jan	30.2	28.3	26.3	Z	25.8	28.5	27.3	25.7	14.3	5.5	8.8	9.7	10.4	6.1	12.9	15.8	16.0	18.7	21.9	26.0	25.8	24.2	17.9	18.4	19.3	30.2																							
4-Jan	23.4	30.5	32.1	33.5	Z	37.2	36.9	37.3	36.5	36.4	36.4	36.4	C	C	C	C	35.5	34.8	33.9	32.4	35.0	33.6	33.7	34.0	35.1	34.1	37.3																						
5-Jan	35.2	34.5	34.4	34.1	33.9	Z	13.2	11.7	10.6	13.9	20.2	13.1	6.7	22.0	19.2	19.0	23.6	24.7	24.4	24.4	21.2	24.1	25.8	25.8	22.4	35.2																							
6-Jan	Z	12.6	22.3	22.4	22.6	23.3	21.8	21.6	25.3	27.2	27.8	27.8	29.0	28.8	29.4	24.6	25.1	31.4	34.0	35.0	33.0	30.9	34.7	35.0	27.2	35.0																							
7-Jan	34.9	Z	35.3	35.0	35.0	35.8	36.4	34.4	24.7	20.7	30.9	32.2	33.2	35.2	35.2	35.3	34.4	33.2	33.6	34.4	34.1	34.0	34.0	33.2	33.3	36.4																							
8-Jan	32.5	31.7	Z	29.9	28.9	28.0	27.6	26.9	26.0	24.8	6.7	15.3	24.2	26.8	23.8	26.3	28.8	29.5	33.6	36.5	35.9	34.6	33.0	28.5	27.8	36.5																							
9-Jan	27.6	30.2	32.0	Z	33.0	31.4	31.7	31.0	29.6	29.1	29.8	31.1	30.9	29.1	25.5	28.8	29.2	30.2	29.5	28.1	27.7	27.3	27.6	29.6	29.6	33.0																							
10-Jan	31.3	32.4	33.0	32.9	Z	32.3	34.7	35.3	31.1	29.9	32.3	33.8	32.2	30.3	29.2	29.6	27.3	26.0	26.0	33.9	34.4	34.2	34.1	33.8	31.7	35.3																							
11-Jan	33.0	33.2	33.2	32.9	32.4	Z	26.9	27.3	30.2	30.6	30.4	30.2	30.1	28.3	25.8	24.0	28.6	29.7	26.3	23.1	20.8	21.8	22.1	19.0	27.8	33.2																							
12-Jan	Z	14.0	11.5	9.4	6.7	2.6	3.4	5.0	4.8	8.1	18.1	24.5	26.7	27.0	25.5	25.1	20.2	17.2	15.8	17.6	19.6	23.6	21.7	22.9	16.1	27.0																							
13-Jan	22.4	Z	20.6	16.2	17.7	19.7	18.2	18.6	19.4	20.7	21.5	24.4	26.9	25.4	25.5	24.0	20.1	18.1	15.8	14.7	15.0	17.0	15.7	16.4	19.7	26.9																							
14-Jan	15.0	13.1	Z	10.4	7.4	5.7	2.7	0.7	10.3	27.1	29.0	29.1	28.7	29.2	28.5	25.3	23.2	24.4	23.0	21.5	20.2	19.0	17.4	17.9	29.2	29.2																							
15-Jan	12.1	18.3	22.1	Z	19.1	24.3	25.3	28.1	29.7	28.3	35.8	37.4	37.3	36.0	34.4	35.5	34.7	34.5	34.6	34.4	34.6	32.6	29.5	26.7	29.8	37.4																							
16-Jan	24.8	18.7	17.2	18.4	Z	6.6	10.8	18.2	23.1	25.0	28.7	30.8	31.0	26.7	26.6	25.8	22.0	19.4	24.6	19.3	14.1	26.1	24.5	32.1	22.4	32.1																							
17-Jan	35.6	35.5	36.4	35.9	35.4	Z	33.3	34.4	36.7	36.9	36.9	36.5	36.7	36.7	36.6	35.9	34.4	34.0	35.1	35.3	34.6	29.7	16.2	20.4	33.9	36.9																							
18-Jan	Z	27.6	31.2	30.4	30.6	31.1	29.1	27.1	30.7	28.6	28.4	28.5	28.9	27.7	27.8	27.0	25.7	21.9	18.4	29.0	31.4	32.6	30.5	27.7	28.3	32.6																							
19-Jan	24.6	Z	18.4	19.6	19.5	19.8	20.4	25.5	29.6	31.2	32.3	32.6	31.9	32.3	32.3	33.0	31.1	31.6	32.1	31.8	29.9	29.7	30.3	30.7	28.3	33.0																							
20-Jan	30.5	29.8	Z	29.3	29.3	28.4	24.2	25.0	26.0	26.1	25.8	6.3	8.0	14.1	28.0	31.9	32.5	31.4	32.0	31.4	31.8	33.0	32.9	30.3	26.9	33.0																							
21-Jan	30.0	33.7	34.9	Z	33.2	32.6	32.9	34.0	32.9	30.7	30.9	33.4	32.9	31.8	32.6	36.2	36.7	37.8	39.7	39.5	37.7	35.9	33.4	31.1	34.1	39.7																							
22-Jan	34.5	37.9	37.9	37.8	Z	35.5	35.6	34.9	35.9	37.0	38.9	39.3	40.1	39.6	38.6	37.4	36.7	36.5	36.3	35.9	34.8	34.1	33.3	33.0	36.6	40.1																							
23-Jan	32.5	32.1	31.6	31.4	30.9	Z	29.8	29.6	29.3	27.8	24.9	25.2	23.8	23.3	24.3	10.5	7.2	13.1	23.0	23.8	24.4	26.2	28.1	30.2	25.3	32.5																							
24-Jan	Z	31.0	30.2	28.6	25.5	28.4	26.9	26.4	24.9	26.1	26.4	26.0	25.3	25.2	25.5	25.2	25.1	24.8	24.5	23.9	23.2	17.5	7.6	4.3	24.0	31.0																							
25-Jan	9.5	Z	14.2	18.3	19.9	16.4	15.9	19.6	19.4	20.0	20.8	20.5	15.7	11.7	15.5	13.9	16.1	14.3	12.2	13.9	14.9	15.8	16.9	15.9	16.1	20.8																							
26-Jan	14.4	11.0	Z	8.6	8.3	7.7	3.2	2.2	2.6	7.3	12.5	12.9	13.5	13.0	16.2	18.1	19.4	20.1	20.7	22.4	15.9	11.4	19.8	22.8	13.2	22.8																							
27-Jan	23.1	24.2	25.3	Z	28.8	30.5	31.6	31.7	31.0	30.1	28.7	28.0	26.9	27.3	27.8	26.5	23.8	24.1	20.7	20.1	20.3	17.4	16.0	18.6	25.3	31.7																							
28-Jan	20.1	23.2	24.9	28.1	Z	31.0	32.1	30.6	27.4	26.2	22.4	26.5	29.2	31.6	35.3	37.3	35.1	30.2	30.2	26.7	27.7	27.7	22.5	22.5	28.2	37.3																							
29-Jan	21.7	20.4	16.3	22.9	29.3	Z	36.1	35.0	36.1	36.2	36.0	37.8	37.7	36.0	35.2	33.9	33.0	32.6	32.1	29.5	28.4	28.2	28.3	26.9	30.9	37.8																							
30-Jan	Z	28.2	28.1	27.8	29.1	30.7	32.7	34.2	31.7	29.9	23.8	17.2	15.5	26.2	34.9	38.8	44.2	44.8	43.7	42.7	41.7	40.2	32.4	42.3	33.1	44.8																							
31-Jan	42.1	Z	35.9	33.8	33.1	33.3	33.3	31.5	30.2	27.1	29.6	31.0	34.8	39.3	42.1	42.9	41.2	42.0	41.5	41.6	43.6	44.2	45.0	45.2	37.6	45.2																							
																								26.8	26.8	27.1	26.5	26.2	25.6	25.8	26.1	25.7	25.6	26.9	26.8	27.0	27.6	28.5	28.6	28.2	28.1	28.5	28.9	28.1	28.0	26.7	27.1	Diurnal Average	
																								42.1	37.9	37.9	37.8	37.5	37.2	36.9	37.3	36.7	37.0	38.9	39.3	40.1	39.6	42.1	42.9	44.2	44.8	43.7	42.7	43.6	44.2	45.0	45.2	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 - January 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	148	20.87	20.87
21 - 50	561	79.13	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - January 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	16	15	5	6	4	6	11	33	11	11	6	2	0	4	4	11	145
21 - 50	107	86	22	9	10	8	23	98	82	22	24	13	9	7	7	31	558
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>	123	101	27	15	14	14	34	131	93	33	30	15	9	11	11	42	703

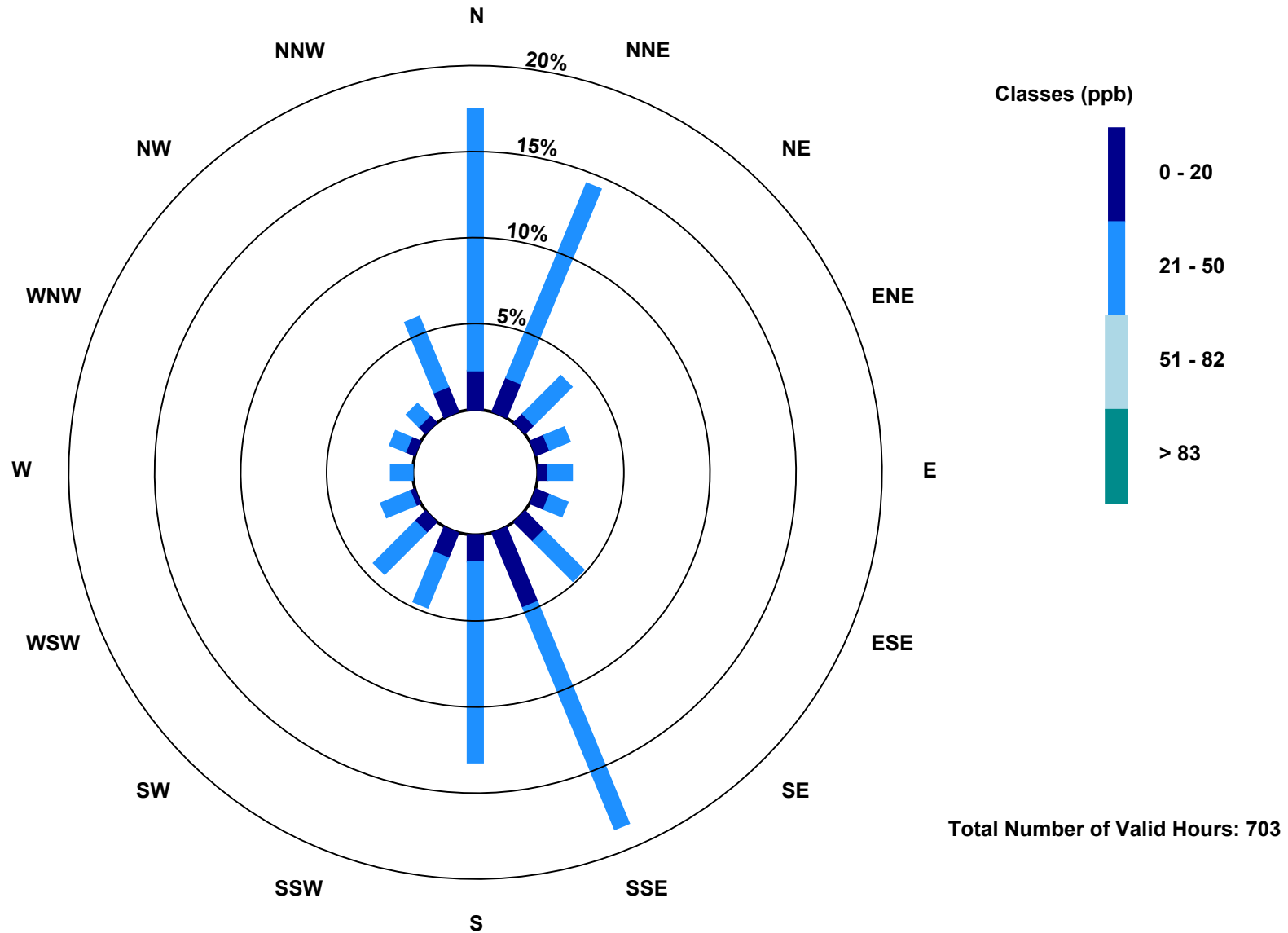
Total Number of Valid Hours: 703

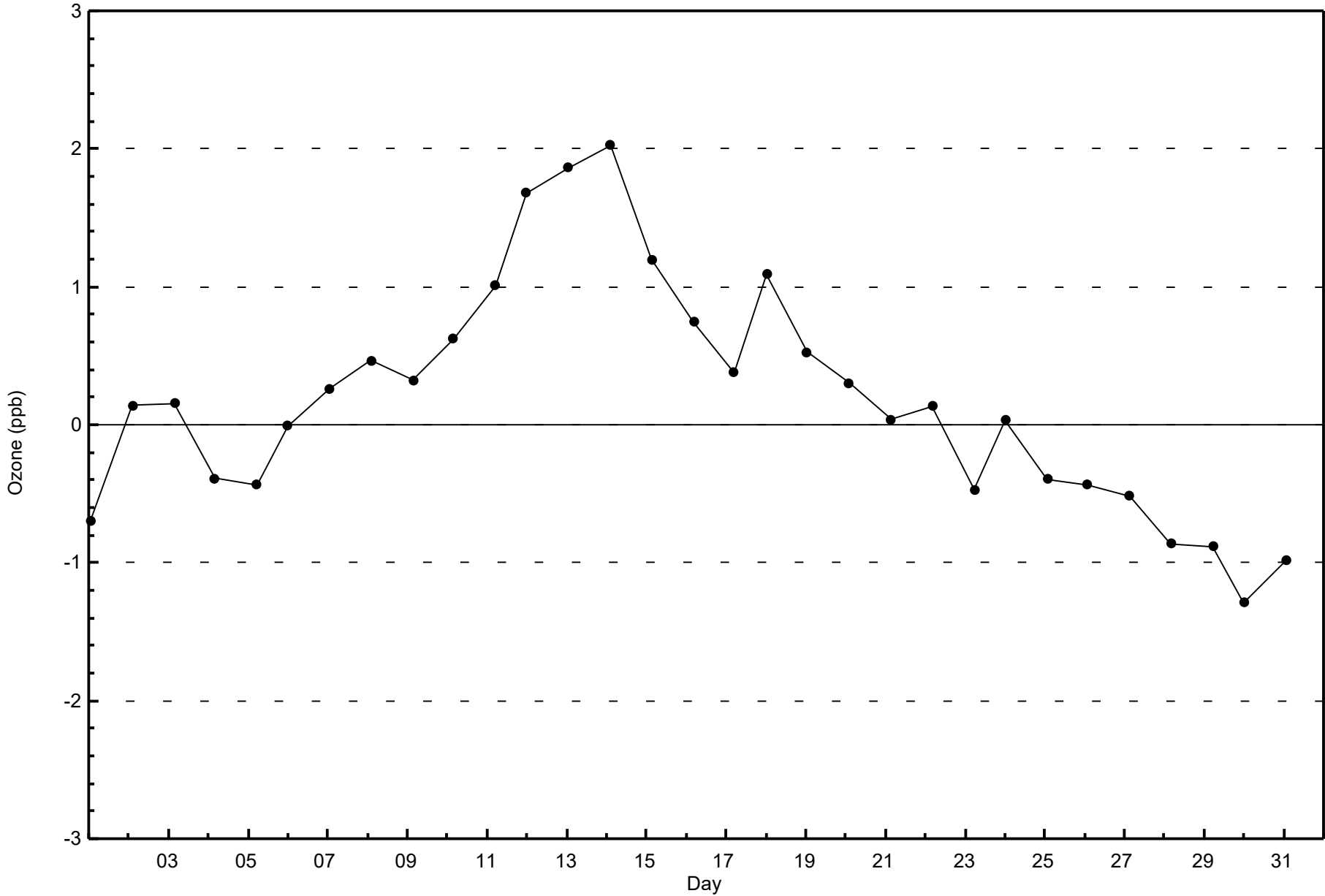
Total Number of Hours: 744

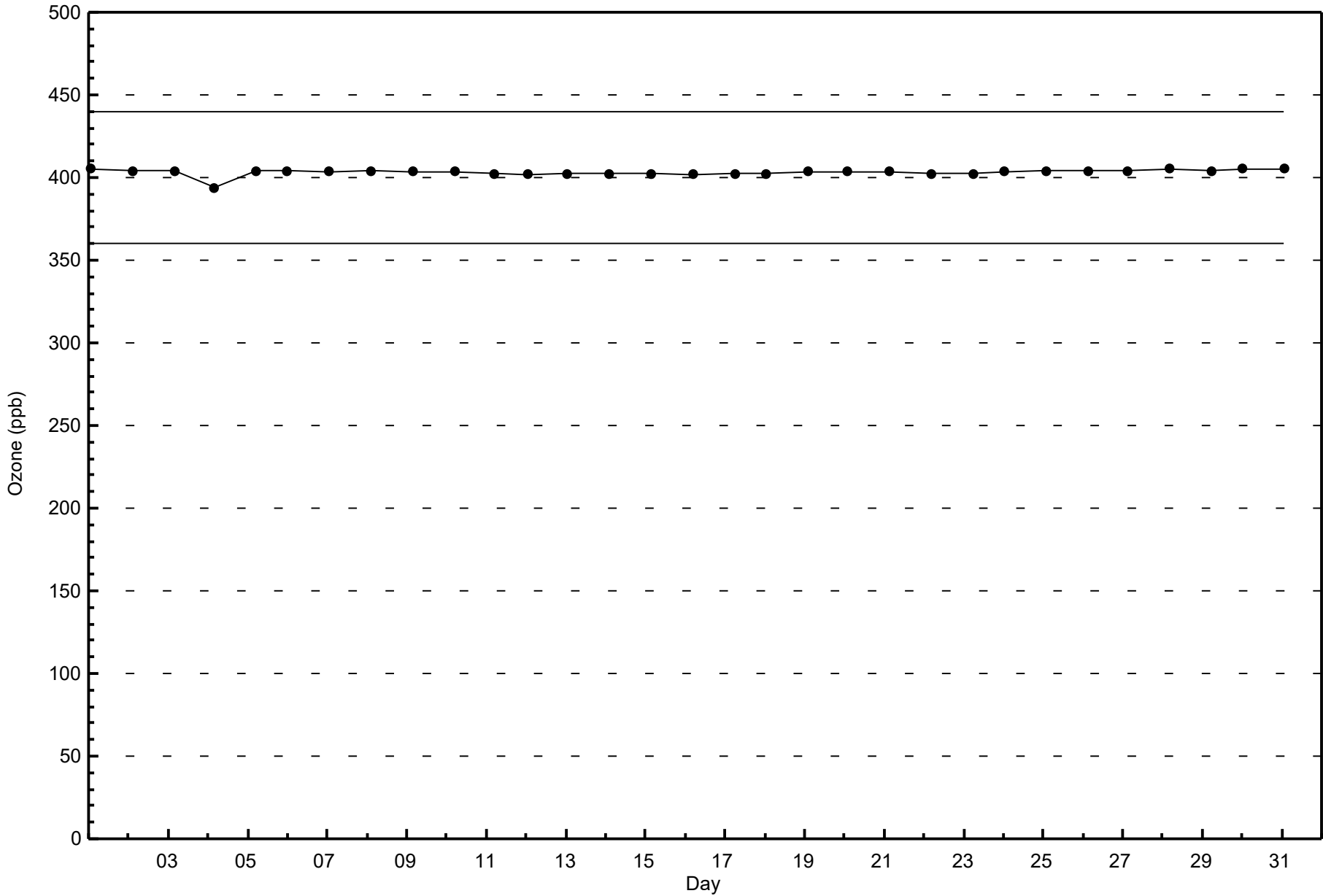


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

Wapasu - January 2024

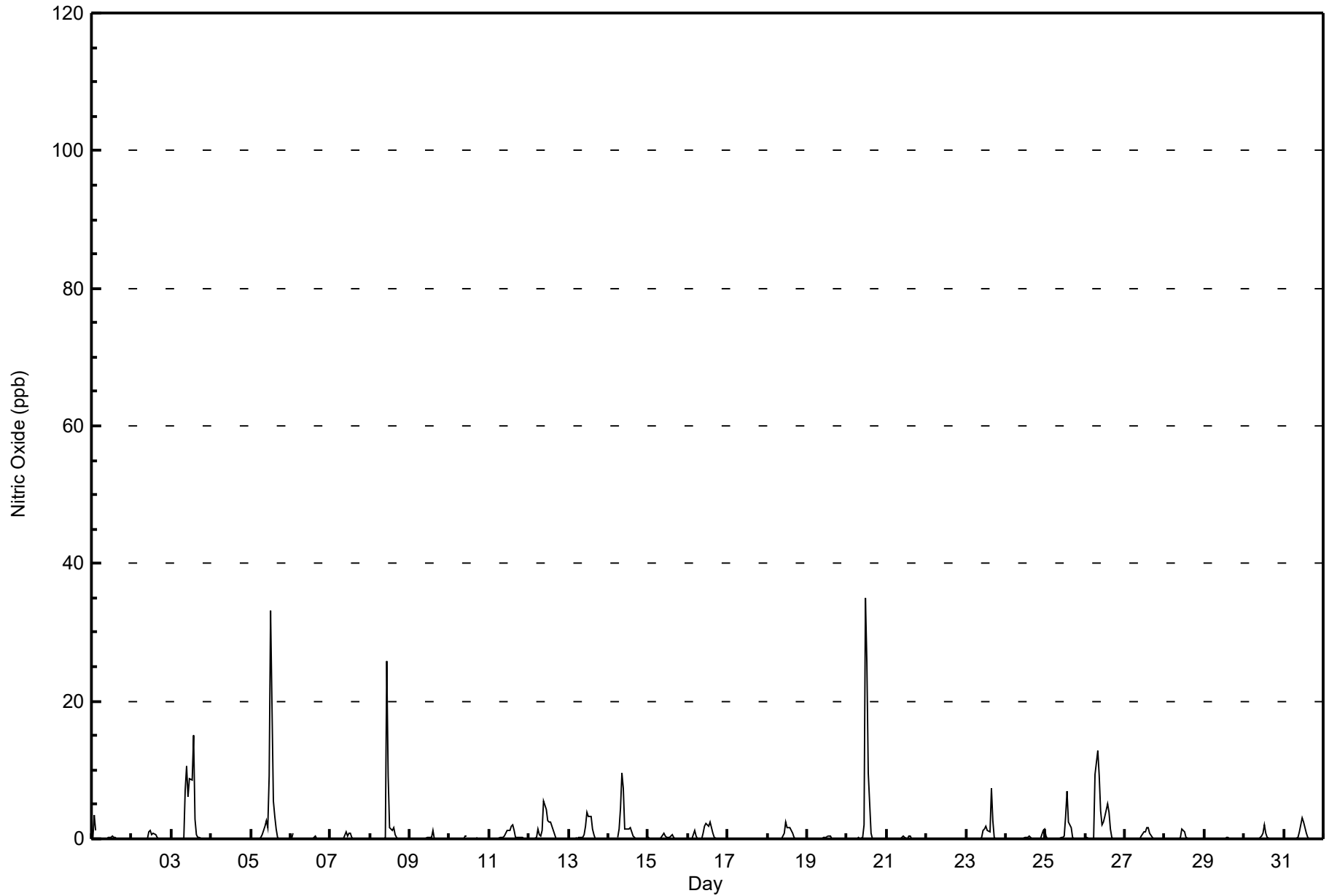
Maximum Value: 34.9 ppb on Jan 20 12:00																				Maximum Daily Average: 3.2 ppb on Jan 20					Hours in Service: 744	
Minimum Value: 0.0 ppb on Jan 1 06:00																				Minimum Daily Average: 0.0 ppb on Jan 22					Hours of Data: 708	
Maximum Diurnal Average: 3.3 ppb at hour 13																				Minimum Diurnal Average: 0.0 ppb at hour 20					Hours of Missing Data: 36	
Monthly Average: 0.68 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> = 1.5 P <sub>99</sub> = 9.7					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-Jan	0.1	3.5	1.2	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.5
2-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.9	1.1	0.7	0.8	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
3-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	7.2	10.6	6.2	8.7	8.6	15.0	2.8	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	2.6	15.0
4-Jan	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
5-Jan	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.7	1.9	2.6	1.6	9.2	33.1	5.5	3.3	1.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	2.6	33.1
6-Jan	0.0	0.9	Z	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
7-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	1.0	0.4	0.9	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0
8-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	25.9	9.1	1.6	1.1	1.6	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.8	25.9
9-Jan	0.1	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
10-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
11-Jan	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.8	1.1	1.3	1.8	2.0	1.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.4	2.0
12-Jan	0.0	0.0	Z	0.0	0.1	1.5	0.6	0.4	1.2	5.5	4.2	2.7	2.4	2.4	1.8	0.6	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	1.0	5.5
13-Jan	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.2	0.6	1.8	3.8	3.2	3.3	1.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.8
14-Jan	0.0	0.0	0.1	0.1	Z	0.3	1.3	4.4	9.7	7.2	1.4	1.5	1.5	1.5	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	9.7
15-Jan	0.3	0.1	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.9	0.4	0.2	0.3	0.3	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9
16-Jan	Z	0.0	0.0	0.5	1.2	0.5	0.1	0.0	0.1	0.8	1.8	2.2	1.8	2.4	1.7	0.8	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.6	2.4
17-Jan	0.0	Z	0.1	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	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
18-Jan	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	2.5	1.6	1.6	1.2	0.8	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	2.5
19-Jan	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
20-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.3	2.1	34.9	25.6	9.6	0.8	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	3.2	34.9
21-Jan	0.0	0.1	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.2	0.4	0.2	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
22-Jan	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
23-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	1.4	1.9	1.3	1.0	7.3	2.6	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7	7.3
24-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	1.1	1.4	0.2
25-Jan	0.3	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	3.2	7.0	2.4	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.0
26-Jan	0.0	0.2	0.1	0.0	Z	0.0	9.3	12.9	9.1	4.0	2.1	2.4	3.2	5.1	3.9	1.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.9
27-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	1.0	1.1	1.6	1.6	0.8	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.6
28-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.2	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5
29-Jan	0.0	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
30-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	2.0	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0
31-Jan	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.2	1.1	2.1	3.0	2.4	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.0
																								Diurnal Average		
																								Diurnal Maximum		
0.0 0.2 0.1 0.0 0.1 0.1 0.4 0.6 1.0 1.2 1.9 3.0 3.3 2.1 1.0 0.7 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1																										
0.3 3.5 1.2 0.5 1.2 1.5 9.3 12.9 9.7 10.6 25.9 34.9 33.1 15.0 3.9 7.3 2.6 0.1 0.2 0.1 0.1 0.1 1.1 1.4																										
Z - zerospan C - Calibration																										





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

**Nitric Oxide (NO) - ppb**  
**Wapasu - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Wapasu - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	704	99.44	99.44
21 - 40	4	0.56	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Wapasu - January 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	104	29	16	14	13	35	124	97	33	31	17	9	11	9	41	698
21 - 40	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	118	104	29	16	14	13	35	124	97	33	31	17	9	11	10	41	702

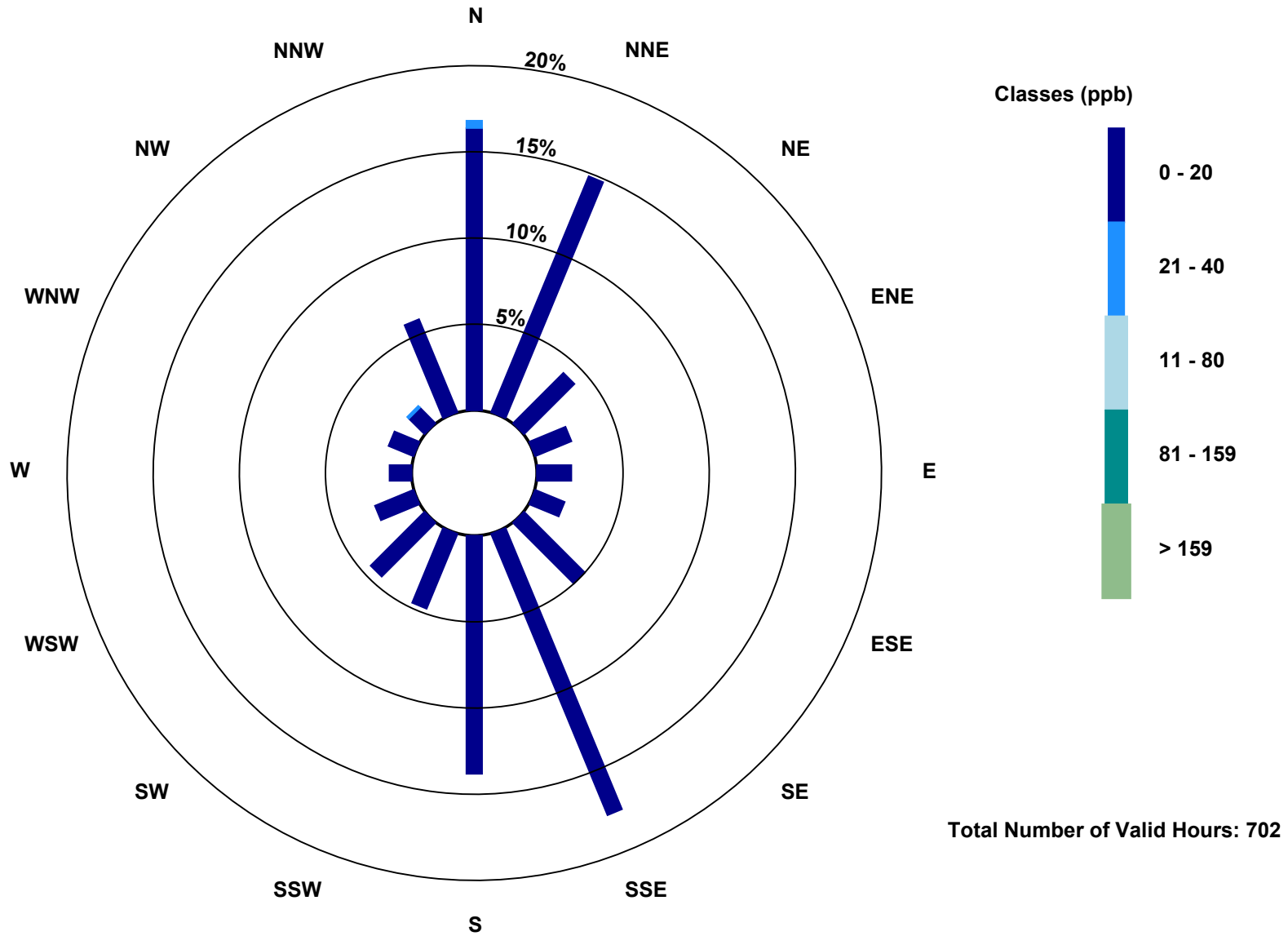
Total Number of Valid Hours: 702

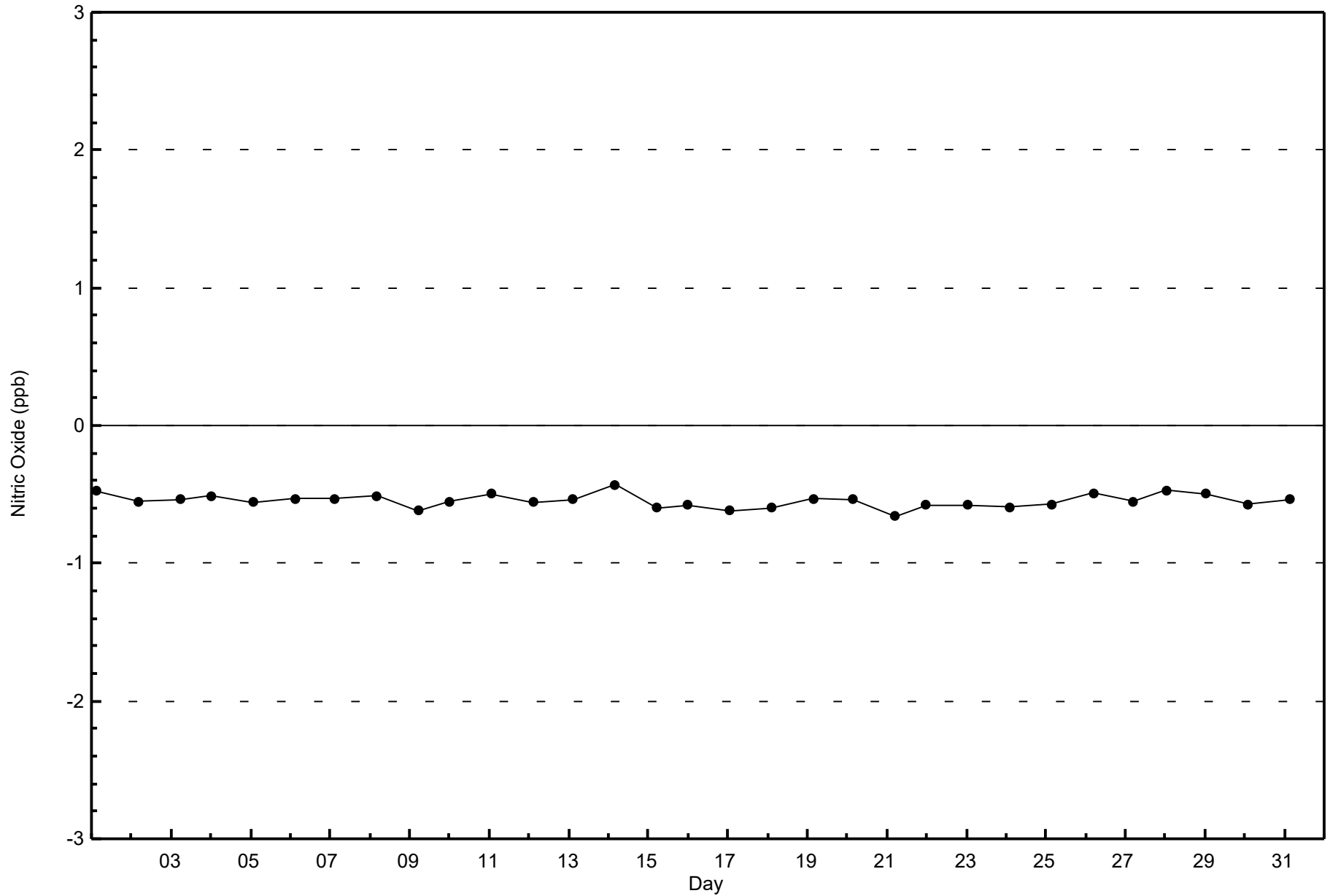
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Wapasu

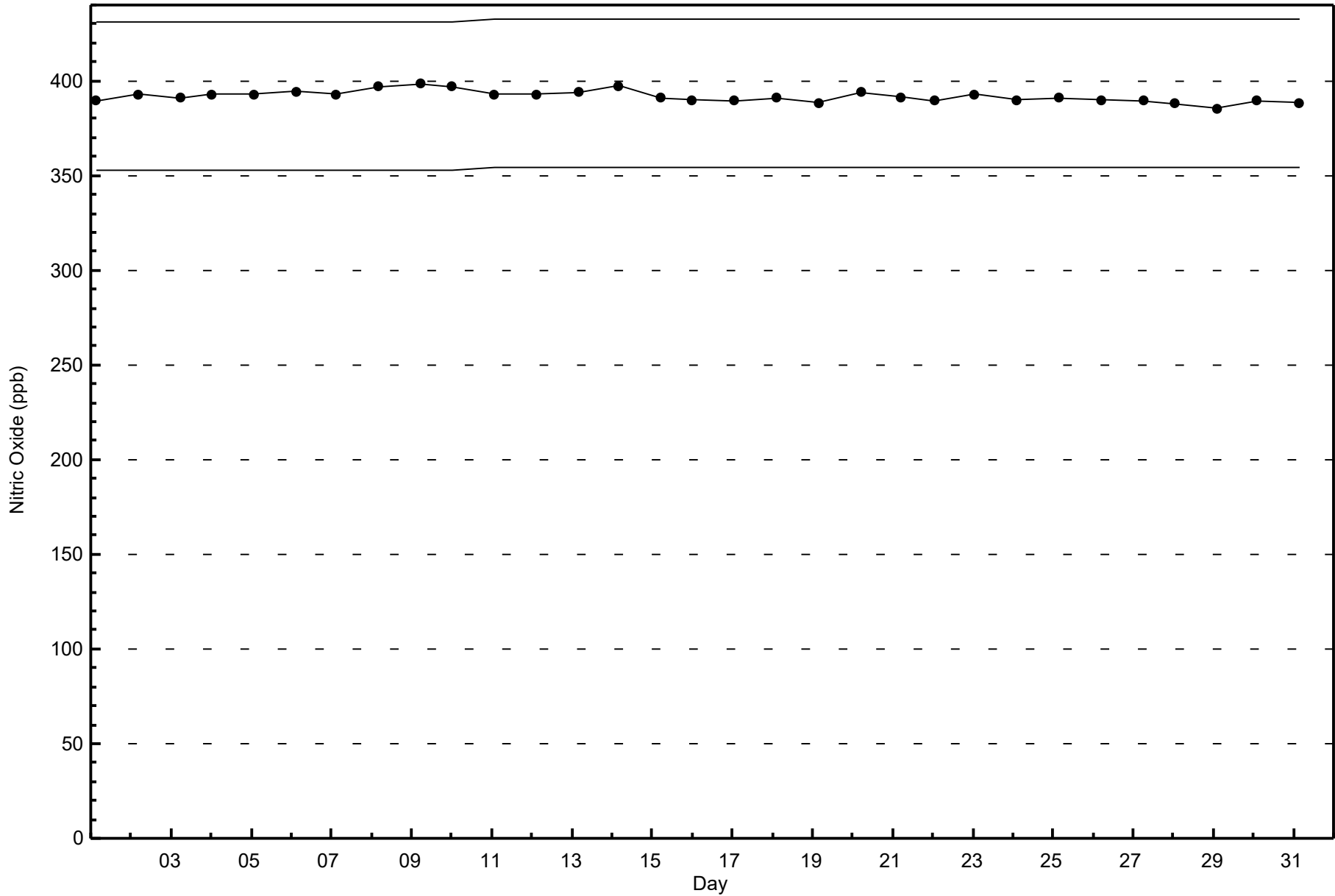






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Wapasu - January 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Wapasu - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 29.6 ppb on Jan 5 13:00	Maximum Daily Average: 11.8 ppb on Jan 16		Hours of Data:	708
Minimum Value: 0.1 ppb on Jan 10 21:00	Minimum Daily Average: 0.7 ppb on Jan 22		Hours of Missing Data:	36
Maximum Diurnal Average: 5.9 ppb at hour 12	Minimum Diurnal Average: 3.2 ppb at hour 20		Hours of Calibration:	36
Monthly Average: 4.77 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.2 Median = 3.2 Q <sub>3</sub> = 6.5 P <sub>90</sub> = 11.1 P <sub>99</sub> = 22.5		Percent Operational Time:	100.0

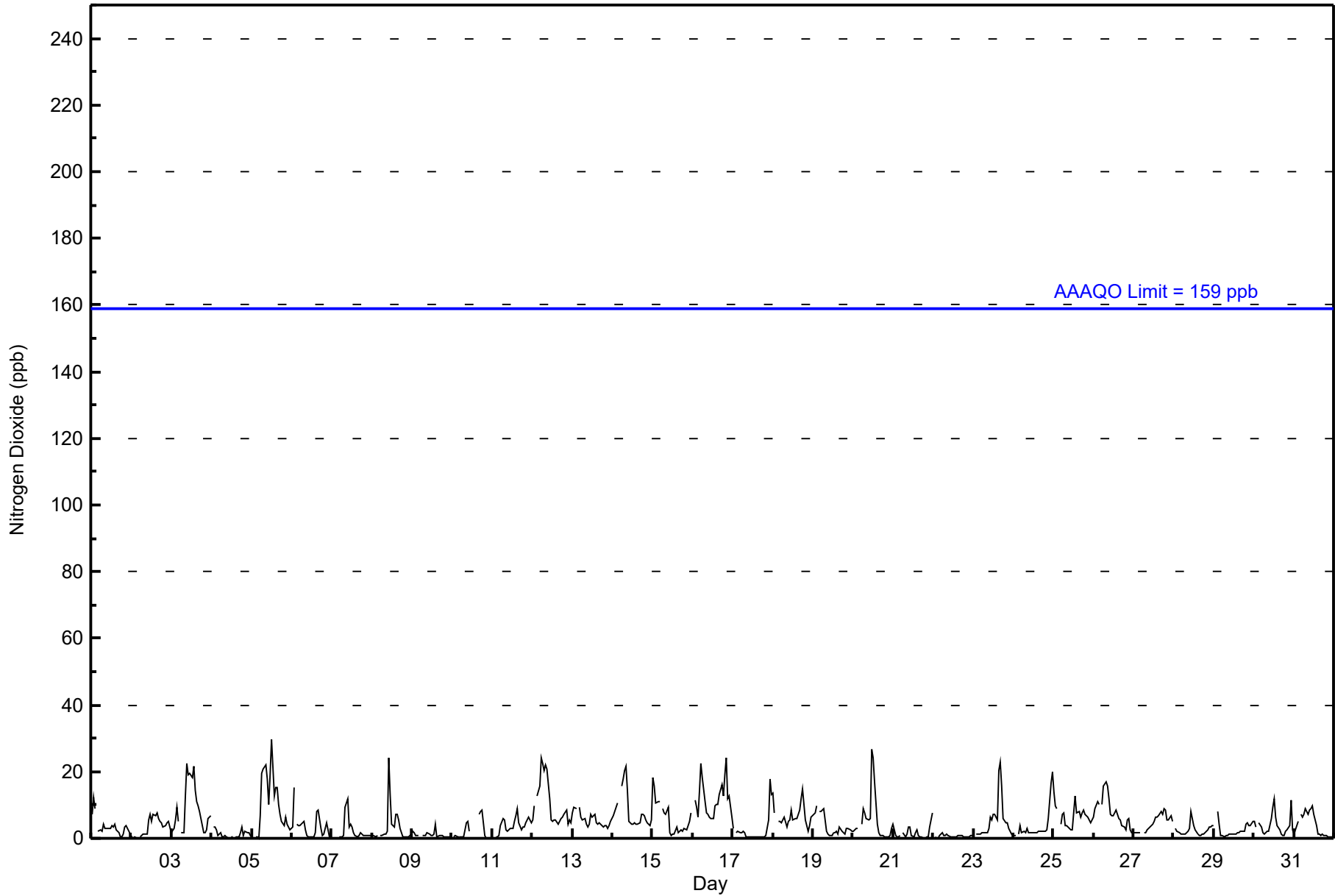
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Jan	7.3	12.4	8.8	Z	2.1	2.4	2.0	4.2	2.8	2.8	3.0	2.9	4.0	3.4	4.1	2.7	1.7	0.6	0.4	1.1	3.3	4.0	2.0	1.1	3.4	12.4																						
2-Jan	0.4	0.2	0.3	0.2	Z	0.4	1.0	1.4	1.2	1.2	5.3	7.1	5.2	7.0	6.9	7.6	6.1	5.2	4.7	3.6	3.9	4.5	5.2	3.6	3.6	7.6																						
3-Jan	1.8	2.8	5.3	9.4	5.1	Z	1.8	1.8	12.5	22.3	19.1	19.3	18.1	21.6	14.3	11.1	9.7	7.9	3.7	1.5	1.8	2.4	5.9	6.8	9.0	22.3																						
4-Jan	Z	3.2	3.4	2.4	0.9	1.8	0.5	0.3	0.9	0.5	0.2	0.2	0.3	0.2	0.2	0.3	0.5	1.9	3.6	0.9	2.1	1.6	1.7	0.8	1.2	3.6																						
5-Jan	0.3	Z	0.4	0.3	0.2	6.9	19.4	20.9	22.0	17.8	10.1	19.0	29.6	12.5	15.2	15.4	10.3	7.1	5.2	4.0	6.4	4.4	3.5	2.4	10.1	29.6																						
6-Jan	3.3	15.3	Z	4.2	3.9	3.8	4.5	4.9	2.5	1.0	0.6	0.5	0.5	0.4	1.9	8.2	8.4	2.8	0.9	1.3	3.1	4.6	0.6	0.2	3.4	15.3																						
7-Jan	0.2	0.2	0.2	Z	0.3	0.3	0.5	0.9	9.3	11.7	3.4	4.3	3.4	1.5	1.0	0.4	1.0	1.6	1.3	0.7	0.7	0.8	0.7	0.7	2.0	11.7																						
8-Jan	0.8	0.7	0.6	0.7	Z	1.0	0.9	1.2	1.4	2.3	24.1	13.2	4.4	3.5	7.2	7.2	5.4	2.9	0.5	0.5	0.5	0.6	0.3	1.3	3.5	24.1																						
9-Jan	2.1	1.9	0.9	0.7	0.8	Z	0.8	0.9	1.0	1.5	1.2	0.8	0.7	1.2	4.4	0.6	0.9	0.9	0.7	0.5	0.4	0.5	0.4	0.4	1.1	4.4																						
10-Jan	Z	0.6	0.7	0.4	0.4	0.4	0.3	0.6	4.6	5.0	2.3	C	C	C	C	C	7.4	8.0	8.3	0.9	0.1	0.2	0.2	0.2	2.3	8.3																						
11-Jan	0.5	Z	0.4	0.3	1.0	3.9	5.9	5.4	2.5	2.3	2.5	3.0	3.1	4.9	6.9	8.8	4.6	2.6	3.4	3.6	4.8	5.4	6.4	4.7	3.8	8.8																						
12-Jan	5.7	9.7	Z	12.8	15.6	24.2	22.3	20.4	22.1	20.7	11.7	5.7	4.9	5.4	5.6	4.4	5.2	5.8	6.5	7.4	8.3	4.2	5.7	4.6	10.4	24.2																						
13-Jan	7.8	9.2	9.1	Z	9.4	6.3	5.3	6.1	4.4	3.2	4.1	7.2	6.3	7.4	4.5	4.2	4.5	4.2	3.6	3.8	3.9	3.1	3.8	5.0	5.5	9.4																						
14-Jan	6.7	8.2	9.2	10.7	Z	15.5	17.7	20.3	21.6	14.6	5.1	4.2	4.1	4.8	4.3	4.3	4.8	7.3	7.4	6.6	5.4	4.5	3.7	5.7	8.6	21.6																						
15-Jan	18.3	15.6	10.5	11.1	11.2	Z	8.7	7.6	7.1	9.2	1.7	0.9	1.2	1.3	3.2	1.9	2.2	2.5	2.3	2.8	2.5	3.7	5.2	7.5	6.0	18.3																						
16-Jan	Z	11.6	9.3	6.3	14.0	22.5	18.4	11.1	7.5	7.0	6.5	6.0	6.1	9.8	10.0	10.3	13.1	16.0	12.6	18.9	24.0	12.0	12.9	6.4	11.8	24.0																						
17-Jan	3.0	Z	1.5	2.1	1.8	1.7	2.3	1.7	0.5	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.9	5.6	18.0	13.0	2.4	18.0																						
18-Jan	13.4	7.6	Z	5.1	5.0	4.8	5.3	6.5	3.3	5.2	5.5	8.5	5.6	5.9	6.1	7.0	8.4	11.9	14.9	5.3	3.7	2.3	4.0	6.2	6.6	14.9																						
19-Jan	7.4	7.8	9.6	Z	8.0	8.2	9.1	5.5	2.2	1.4	1.0	0.7	1.5	1.6	2.2	1.4	3.2	2.2	1.6	1.3	2.9	3.0	2.4	2.3	3.8	9.6																						
20-Jan	2.2	2.5	3.1	2.8	Z	4.1	8.8	7.6	5.8	5.6	5.8	26.7	24.3	17.0	4.1	1.5	0.9	0.8	0.7	0.6	0.5	0.5	0.7	3.1	5.6	26.7																						
21-Jan	4.3	1.0	0.3	0.4	1.0	Z	1.6	0.3	1.1	3.3	3.6	0.7	0.6	1.9	2.4	0.9	0.4	0.3	0.2	0.2	0.3	0.4	3.6	7.5	1.6	7.5																						
22-Jan	Z	0.5	0.2	0.2	1.0	1.7	0.8	0.8	1.1	1.0	0.6	0.4	0.4	0.4	0.3	0.8	0.9	0.7	0.6	0.5	0.5	0.6	0.7	0.8	0.7	1.7																						
23-Jan	0.9	Z	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.9	6.2	5.6	7.2	7.1	5.5	20.2	22.9	15.8	5.9	4.6	4.8	2.8	2.0	1.2	5.5	22.9																						
24-Jan	0.9	0.8	Z	1.4	3.7	1.5	2.0	1.8	2.8	1.7	1.5	1.6	1.8	1.8	1.9	2.0	2.1	2.1	2.2	2.1	2.5	6.1	16.6	19.8	3.5	19.8																						
25-Jan	14.0	9.9	8.7	Z	4.3	7.3	7.6	3.8	3.7	3.1	2.5	2.4	7.7	12.7	7.5	8.2	6.2	7.8	8.6	7.2	6.3	5.4	4.7	5.5	6.7	14.0																						
26-Jan	6.5	8.9	11.2	10.3	Z	10.0	15.6	16.8	15.6	11.9	7.3	6.6	6.8	8.3	7.2	5.9	5.6	3.7	3.2	2.7	5.4	6.0	2.4	1.9	7.8	16.8																						
27-Jan	1.8	1.7	1.7	1.7	1.7	Z	1.8	1.8	2.5	2.8	3.2	4.4	5.0	6.2	6.5	6.6	7.9	7.0	8.7	8.5	5.4	5.5	6.8	5.1	4.5	8.7																						
28-Jan	Z	3.0	2.2	1.7	1.2	1.1	1.2	1.4	2.1	2.9	8.0	5.8	4.0	2.7	1.2	0.7	1.0	1.2	1.2	2.1	2.7	3.2	3.4	3.7	2.5	8.0																						
29-Jan	3.9	Z	8.2	4.4	0.8	0.9	0.6	0.7	1.0	1.3	1.3	1.3	1.3	1.4	1.7	1.8	2.0	2.0	2.3	4.2	4.6	3.8	3.7	5.1	2.5	8.2																						
30-Jan	4.9	3.4	Z	4.8	3.3	1.9	1.4	1.5	2.0	2.2	5.8	9.3	11.9	6.2	4.0	2.7	1.2	0.7	0.9	2.1	2.5	3.7	11.3	2.4	3.9	11.9																						
31-Jan	1.3	2.4	5.2	Z	7.0	6.2	7.2	8.7	7.1	8.4	8.7	9.6	7.3	4.0	1.4	1.1	0.7	1.1	0.7	0.7	0.5	0.6	0.5	0.4	3.9	9.6																						
																								4.6	5.4	4.3	3.8	4.0	5.4	5.7	5.4	5.7	5.7	5.2	5.9	5.9	5.4	4.7	5.0	4.8	4.4	3.8	3.2	3.7	3.4	4.5	4.2	Diurnal Average
																								18.3	15.6	11.2	12.8	15.6	24.2	22.3	20.9	22.1	22.3	24.1	26.7	29.6	21.6	15.2	20.2	22.9	16.0	14.9	18.9	24.0	12.0	18.0	19.8	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  
Wapasu - January 2024







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Wapasu - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	692	97.74	97.74
21 - 40	16	2.26	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Wapasu - January 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	114	103	28	15	14	13	35	120	97	33	31	17	9	11	9	37	686
21 - 40	4	1	1	1	0	0	0	4	0	0	0	0	0	0	1	4	16
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	104	29	16	14	13	35	124	97	33	31	17	9	11	10	41	702

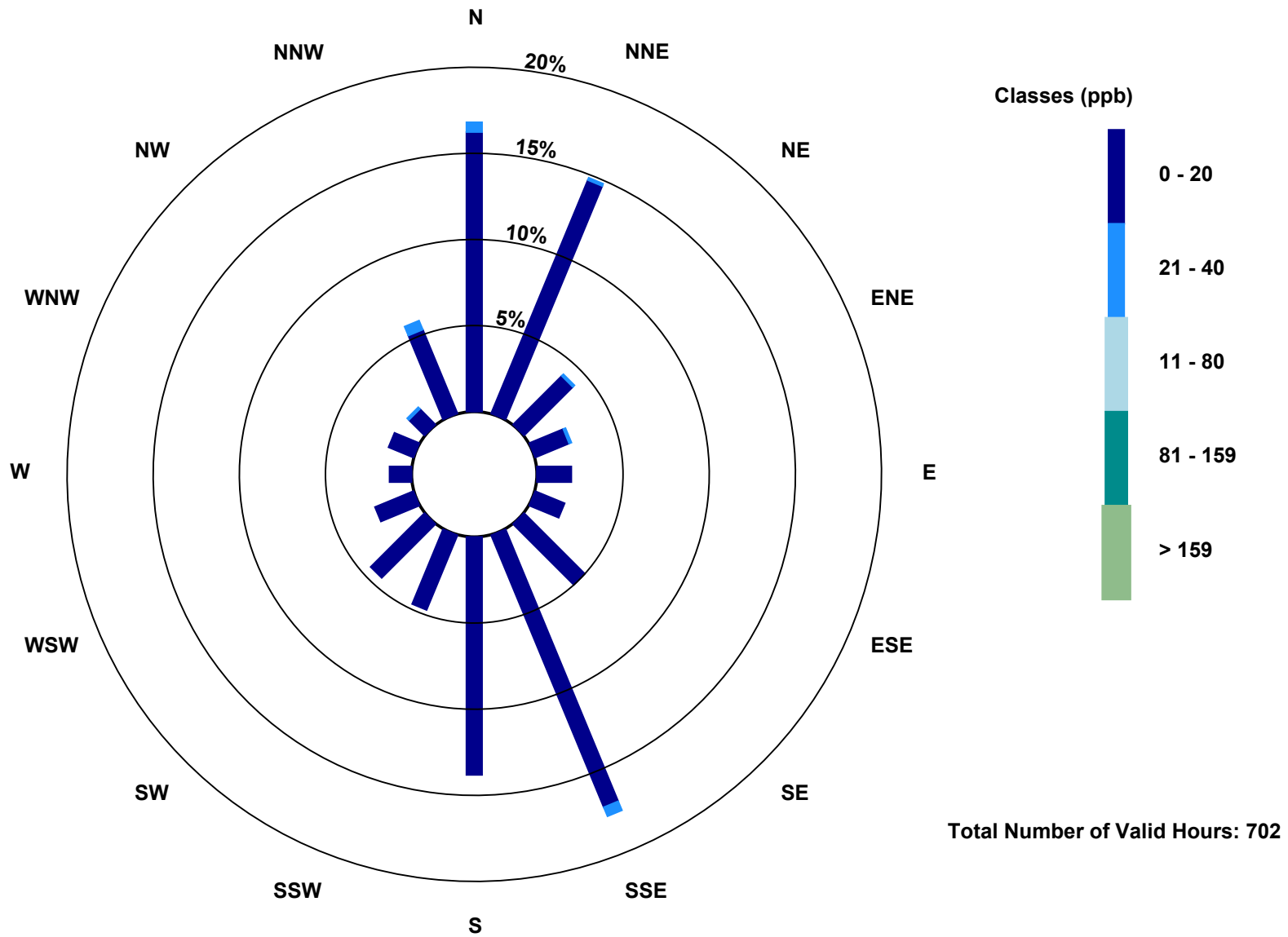
Total Number of Valid Hours: 702

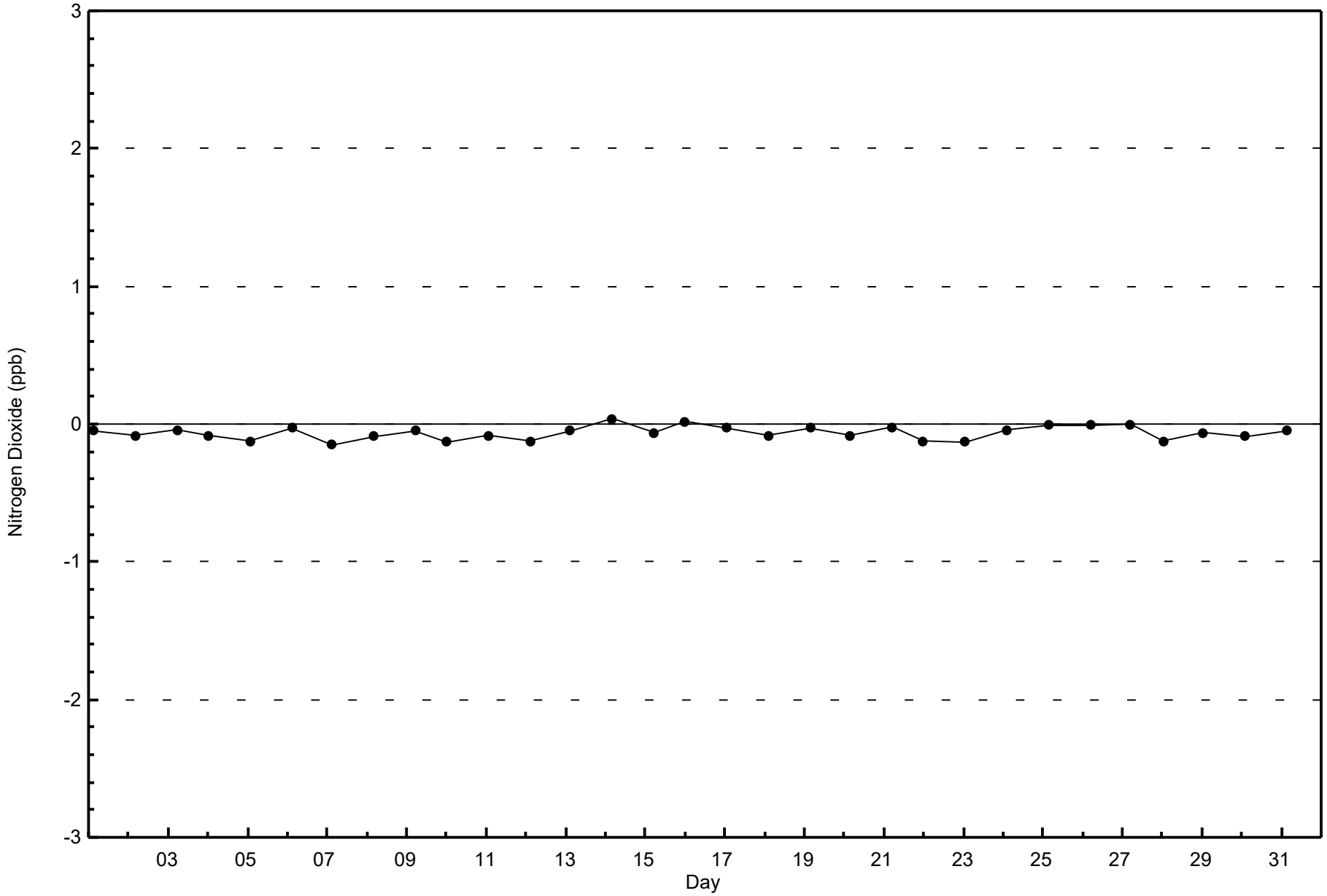
Total Number of Hours: 744

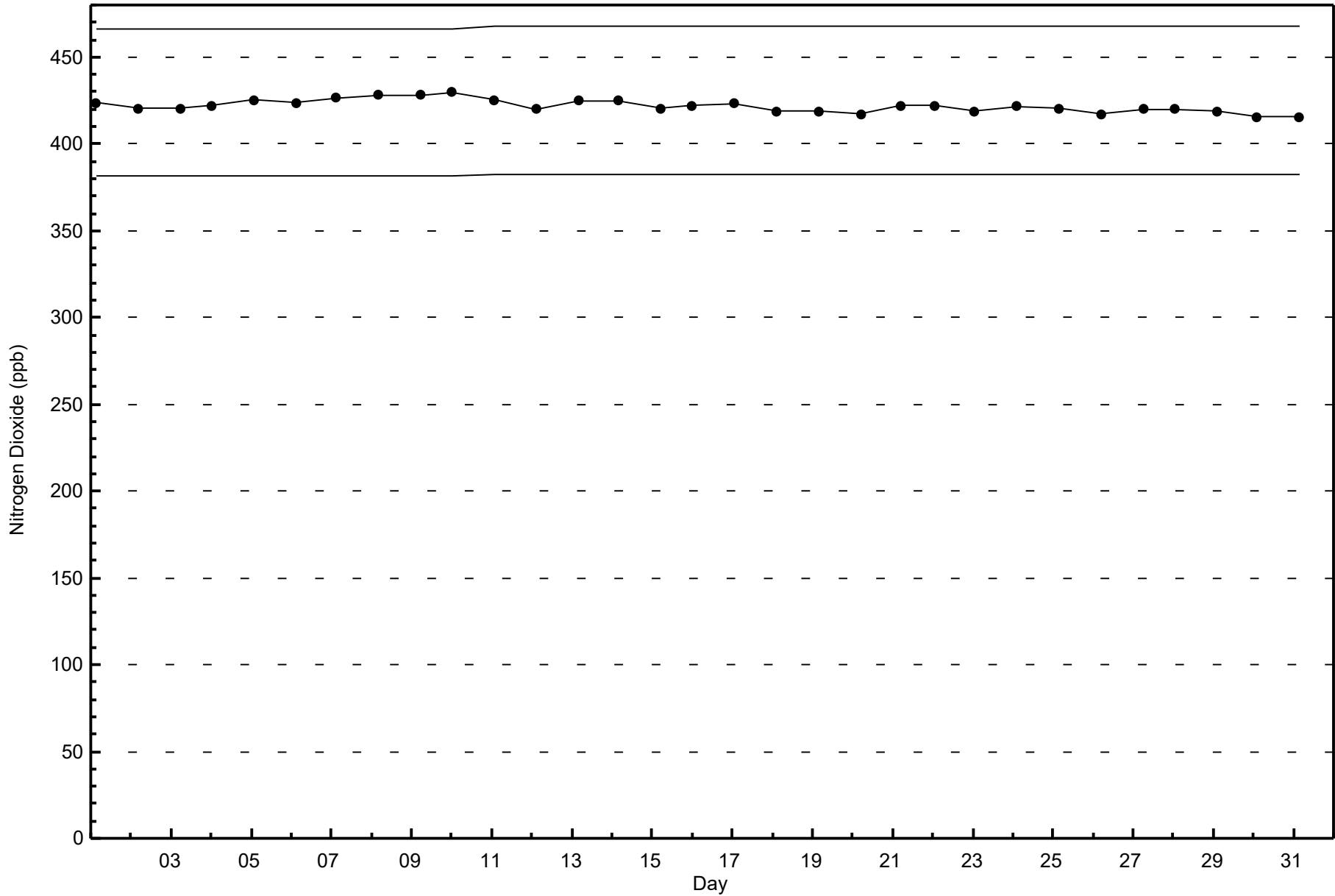


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





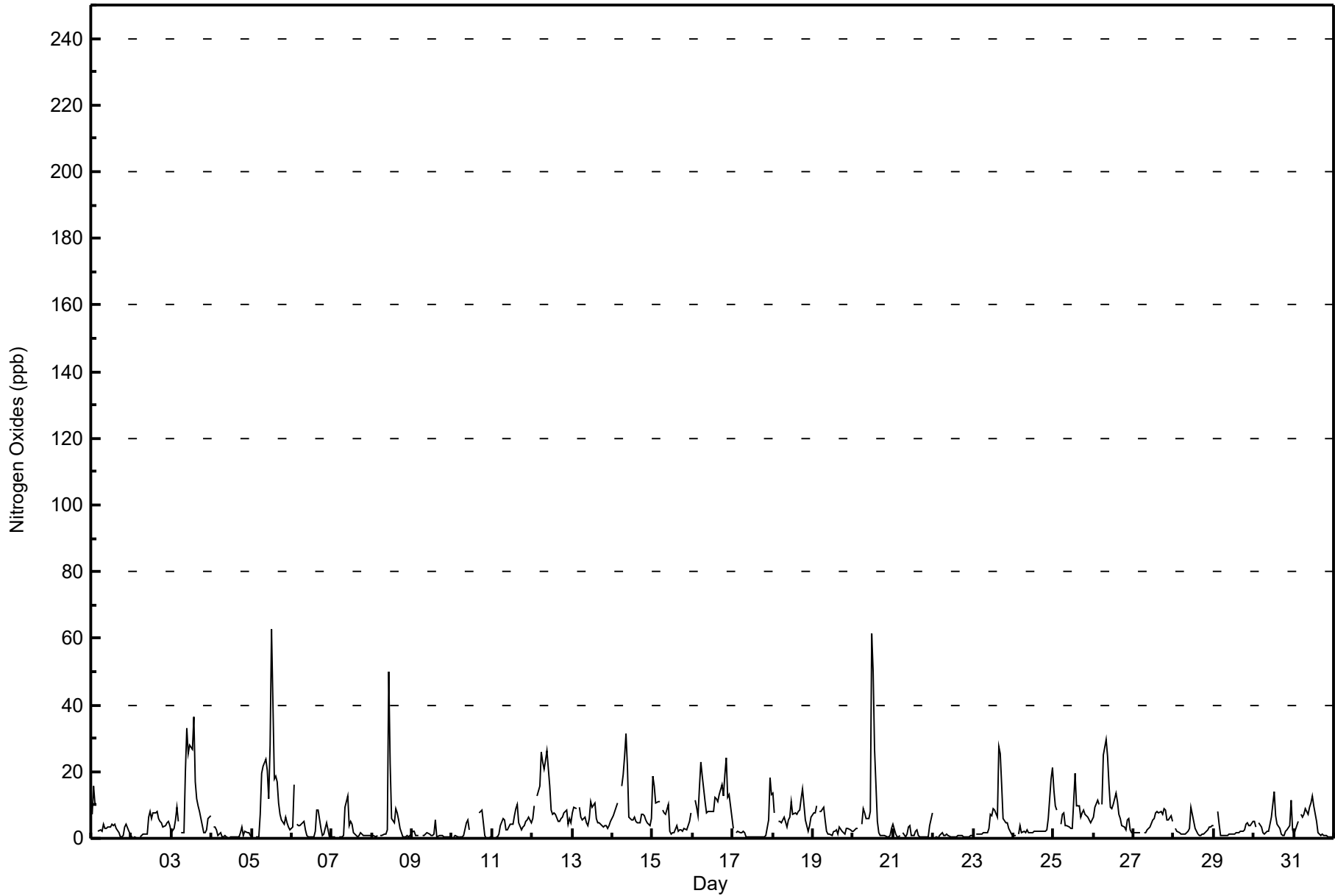




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - January 2024**

Maximum Value: 62.7 ppb on Jan 5 13:00																				Maximum Daily Average: 12.8 ppb on Jan 5					Hours in Service:	744																							
Minimum Value: 0.1 ppb on Jan 10 21:00																				Minimum Daily Average: 0.7 ppb on Jan 22					Hours of Data:	708																							
Maximum Diurnal Average: 9.2 ppb at hour 13																				Minimum Diurnal Average: 3.3 ppb at hour 20					Hours of Missing Data:	36																							
Monthly Average: 5.45 ppb																				Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.2 Median = 3.3 Q <sub>3</sub> = 7.3 P <sub>90</sub> = 11.7 P <sub>99</sub> = 29.6					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-Jan	7.4	15.9	10.0	Z	2.1	2.4	2.0	4.3	2.8	2.9	3.2	3.2	4.4	3.6	4.3	2.8	1.7	0.6	0.4	1.1	3.3	4.0	2.0	1.1	3.7	15.9																							
2-Jan	0.4	0.2	0.3	0.2	Z	0.4	1.0	1.4	1.2	1.3	6.2	8.2	5.9	7.8	7.5	7.9	6.1	5.2	4.7	3.6	3.9	4.5	5.2	3.6	3.8	8.2																							
3-Jan	1.8	2.8	5.3	9.4	5.1	Z	1.8	1.8	19.7	32.9	25.3	28.0	26.7	36.6	17.1	11.7	9.9	8.0	3.8	1.5	1.8	2.4	5.9	6.9	11.6	36.6																							
4-Jan	Z	3.2	3.4	2.4	0.9	1.8	0.5	0.3	0.9	0.5	0.2	0.2	0.3	0.2	0.2	0.3	0.5	1.9	3.6	0.9	2.1	1.6	1.7	0.8	1.2	3.6																							
5-Jan	0.3	Z	0.4	0.3	0.2	7.0	19.6	21.6	23.9	20.4	11.7	28.2	62.7	18.0	18.5	16.8	10.4	7.2	5.3	4.1	6.5	4.5	3.5	2.4	12.8	62.7																							
6-Jan	3.3	16.2	Z	4.2	4.0	3.8	4.6	5.0	2.5	1.0	0.6	0.5	0.5	0.5	2.1	8.6	8.5	2.9	0.9	1.3	3.1	4.6	0.6	0.2	3.5	16.2																							
7-Jan	0.2	0.2	0.2	Z	0.3	0.3	0.5	0.9	9.4	12.7	3.8	5.2	4.1	1.7	1.1	0.4	1.0	1.6	1.3	0.7	0.7	0.8	0.7	0.7	2.1	12.7																							
8-Jan	0.8	0.7	0.6	0.7	Z	1.0	0.9	1.2	1.4	2.5	50.0	22.3	6.0	4.6	8.8	7.8	5.5	3.0	0.6	0.6	0.6	0.7	0.4	1.4	5.3	50.0																							
9-Jan	2.2	2.0	0.9	0.7	0.8	Z	0.8	0.9	1.1	1.6	1.4	1.0	0.9	1.5	5.6	0.6	0.9	0.9	0.7	0.5	0.4	0.5	0.4	0.4	1.2	5.6																							
10-Jan	Z	0.6	0.7	0.4	0.4	0.4	0.3	0.6	4.6	5.4	2.6	C	C	C	C	C	7.5	8.0	8.3	0.9	0.1	0.2	0.2	0.2	2.3	8.3																							
11-Jan	0.5	Z	0.4	0.4	1.1	4.0	6.0	5.6	2.7	2.6	3.3	4.1	4.4	6.7	8.9	10.0	4.8	2.7	3.6	3.7	4.9	5.5	6.4	4.7	4.2	10.0																							
12-Jan	5.7	9.7	Z	12.8	15.7	25.7	22.9	20.8	23.3	26.2	15.9	8.4	7.3	7.8	7.4	5.0	5.3	5.8	6.5	7.4	8.4	4.2	5.8	4.6	11.4	26.2																							
13-Jan	7.8	9.2	9.1	Z	9.5	6.4	5.4	6.3	4.6	3.8	5.9	11.0	9.5	10.7	5.9	4.7	4.5	4.2	3.6	3.8	3.9	3.1	3.8	5.0	6.2	11.0																							
14-Jan	6.7	8.2	9.3	10.8	Z	15.8	19.0	24.7	31.3	21.8	6.5	5.7	5.6	6.3	5.3	4.7	4.8	7.3	7.4	6.6	5.4	4.5	3.7	5.8	9.9	31.3																							
15-Jan	18.6	15.7	10.5	11.1	11.2	Z	8.7	7.7	7.2	10.1	2.1	1.1	1.5	1.6	3.9	2.0	2.3	2.5	2.3	2.8	2.5	3.7	5.2	7.5	6.2	18.6																							
16-Jan	Z	11.6	9.3	6.8	15.2	23.0	18.5	11.1	7.6	7.8	8.3	8.2	7.9	12.2	11.7	11.1	13.3	16.0	12.6	18.9	24.1	12.1	13.0	6.4	12.5	24.1																							
17-Jan	3.0	Z	1.6	2.2	1.8	1.7	2.3	1.7	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.9	5.6	18.1	13.1	2.5	18.1																							
18-Jan	13.5	7.6	Z	5.1	5.0	4.8	5.3	6.5	3.3	5.6	6.4	11.0	7.2	7.5	7.3	7.8	8.6	12.0	15.0	5.4	3.7	2.3	4.0	6.2	7.0	15.0																							
19-Jan	7.5	7.8	9.7	Z	8.1	8.2	9.1	5.5	2.2	1.5	1.1	0.9	2.0	2.1	2.6	1.5	3.2	2.2	1.6	1.3	2.9	3.0	2.4	2.3	3.9	9.7																							
20-Jan	2.2	2.5	3.1	2.8	Z	4.1	8.9	7.7	5.8	5.9	7.9	61.6	49.9	26.6	4.9	1.6	0.9	0.8	0.7	0.7	0.5	0.5	0.7	3.1	8.8	61.6																							
21-Jan	4.3	1.1	0.3	0.4	1.0	Z	1.6	0.4	1.2	3.5	4.0	0.9	0.7	2.2	2.7	0.9	0.4	0.3	0.2	0.2	0.3	0.4	3.6	7.5	1.7	7.5																							
22-Jan	Z	0.5	0.2	0.2	1.0	1.7	0.8	0.8	1.1	1.0	0.6	0.4	0.4	0.4	0.3	0.8	0.9	0.7	0.6	0.5	0.5	0.6	0.7	0.8	0.7	1.7																							
23-Jan	0.9	Z	1.2	1.3	1.4	1.5	1.6	1.7	1.9	3.1	7.4	7.0	9.1	8.4	6.5	27.5	25.5	15.9	5.9	4.7	4.8	2.8	2.0	1.2	6.2	27.5																							
24-Jan	0.9	0.8	Z	1.4	3.7	1.5	2.0	1.8	2.8	1.8	1.6	1.7	2.0	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.5	6.1	17.7	21.2	3.7	21.2																							
25-Jan	14.3	9.9	8.7	Z	4.3	7.3	7.6	3.8	3.7	3.3	2.8	2.8	10.9	19.7	9.9	9.9	6.4	7.8	8.6	7.2	6.3	5.4	4.7	5.5	7.4	19.7																							
26-Jan	6.5	9.1	11.3	10.3	Z	10.0	24.9	29.7	24.7	15.9	9.4	9.0	10.0	13.4	11.1	7.3	5.8	3.7	3.2	2.7	5.4	6.0	2.4	1.9	10.2	29.7																							
27-Jan	1.8	1.7	1.7	1.7	1.7	Z	1.8	1.8	2.5	2.8	3.6	5.4	6.1	7.8	8.1	7.4	8.1	7.0	8.8	8.5	5.4	5.5	6.8	5.1	4.8	8.8																							
28-Jan	Z	3.0	2.2	1.7	1.2	1.1	1.2	1.4	2.1	3.0	9.5	7.0	5.0	2.9	1.2	0.7	1.0	1.2	1.2	2.1	2.7	3.2	3.4	3.7	2.7	9.5																							
29-Jan	3.9	Z	8.2	4.4	0.8	0.9	0.6	0.7	1.0	1.3	1.3	1.4	1.3	1.5	1.8	1.8	2.0	2.0	2.3	4.2	4.6	3.8	3.7	5.1	2.5	8.2																							
30-Jan	4.9	3.4	Z	4.8	3.3	1.9	1.4	1.5	2.0	2.2	6.3	10.2	13.9	6.9	4.3	2.8	1.2	0.7	0.9	2.1	2.5	3.7	11.3	2.4	4.1	13.9																							
31-Jan	1.3	2.4	5.2	Z	7.1	6.2	7.3	8.8	7.3	9.5	10.8	12.6	9.7	4.9	1.5	1.2	0.7	1.1	0.7	0.7	0.5	0.6	0.5	0.4	4.4	12.6																							
																								4.6	5.6	4.4	3.9	4.1	5.5	6.1	6.1	6.7	6.9	7.1	8.9	9.2	7.6	5.8	5.6	5.0	4.4	3.8	3.3	3.7	3.4	4.5	4.2	Diurnal Average	
																								18.6	16.2	11.3	12.8	15.7	25.7	24.9	29.7	31.3	32.9	50.0	61.6	62.7	36.6	18.5	27.5	25.5	16.0	15.0	18.9	24.1	12.1	18.1	21.2	Diurnal Maximum	
Z - zerospan																								C - Calibration																									





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	678	95.76	95.76
21 - 40	26	3.67	99.44
41 - 80	4	0.56	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Wapasu - January 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	109	100	28	15	14	13	35	119	97	33	30	17	9	10	8	36	673
21 - 40	6	4	1	1	0	0	0	5	0	0	1	0	0	1	1	5	25
11 - 80	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
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	104	29	16	14	13	35	124	97	33	31	17	9	11	10	41	702

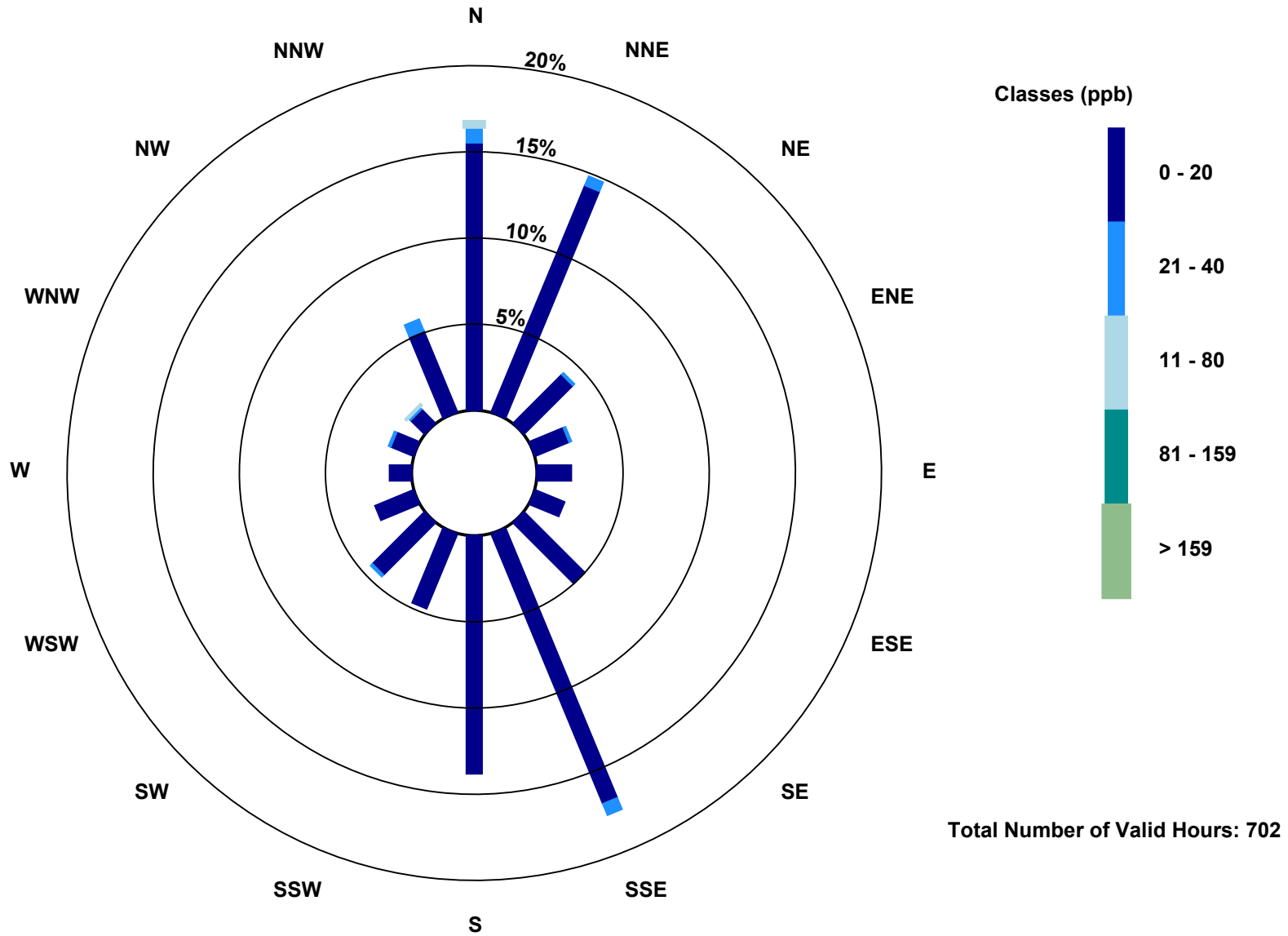
Total Number of Valid Hours: 702

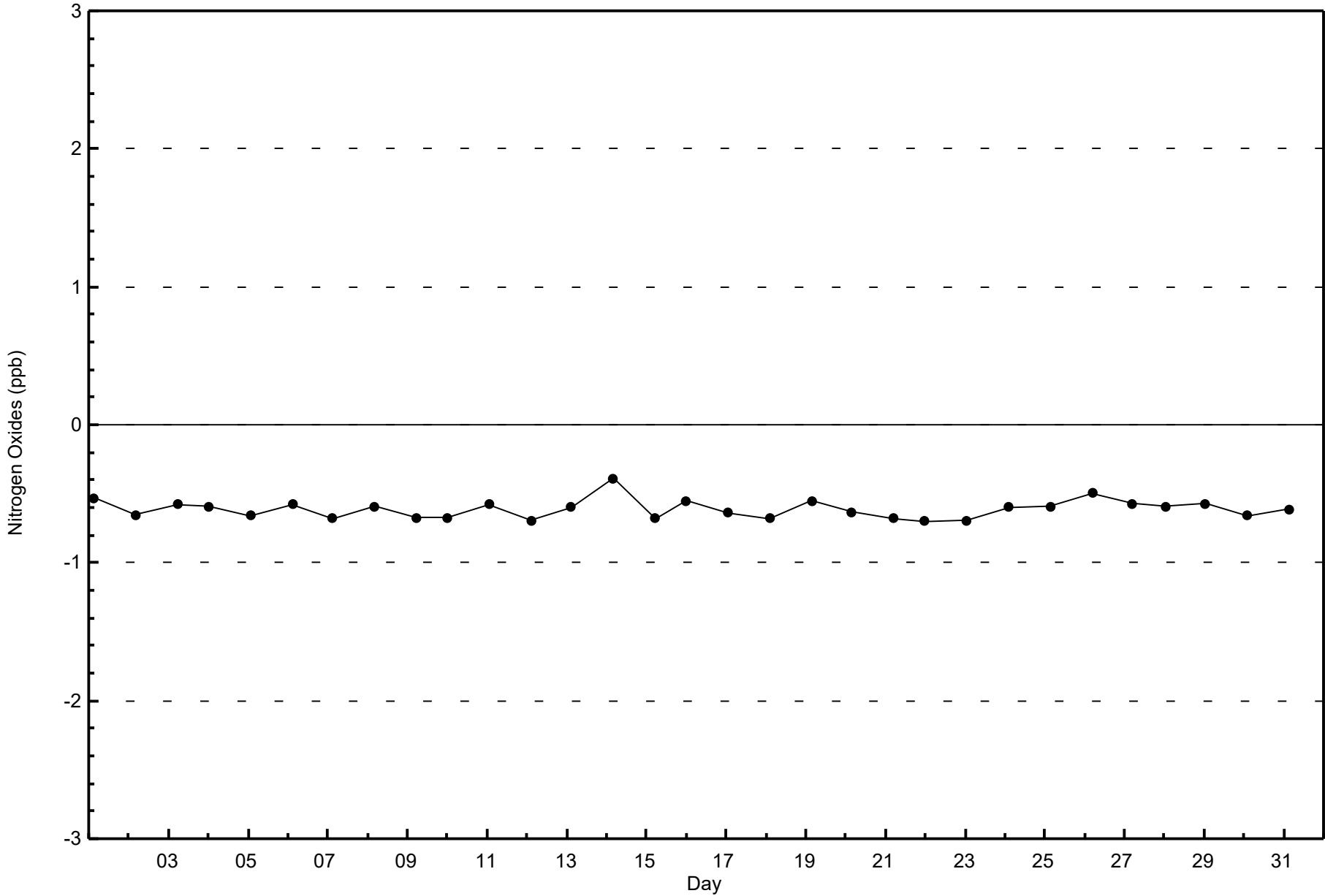
Total Number of Hours: 744

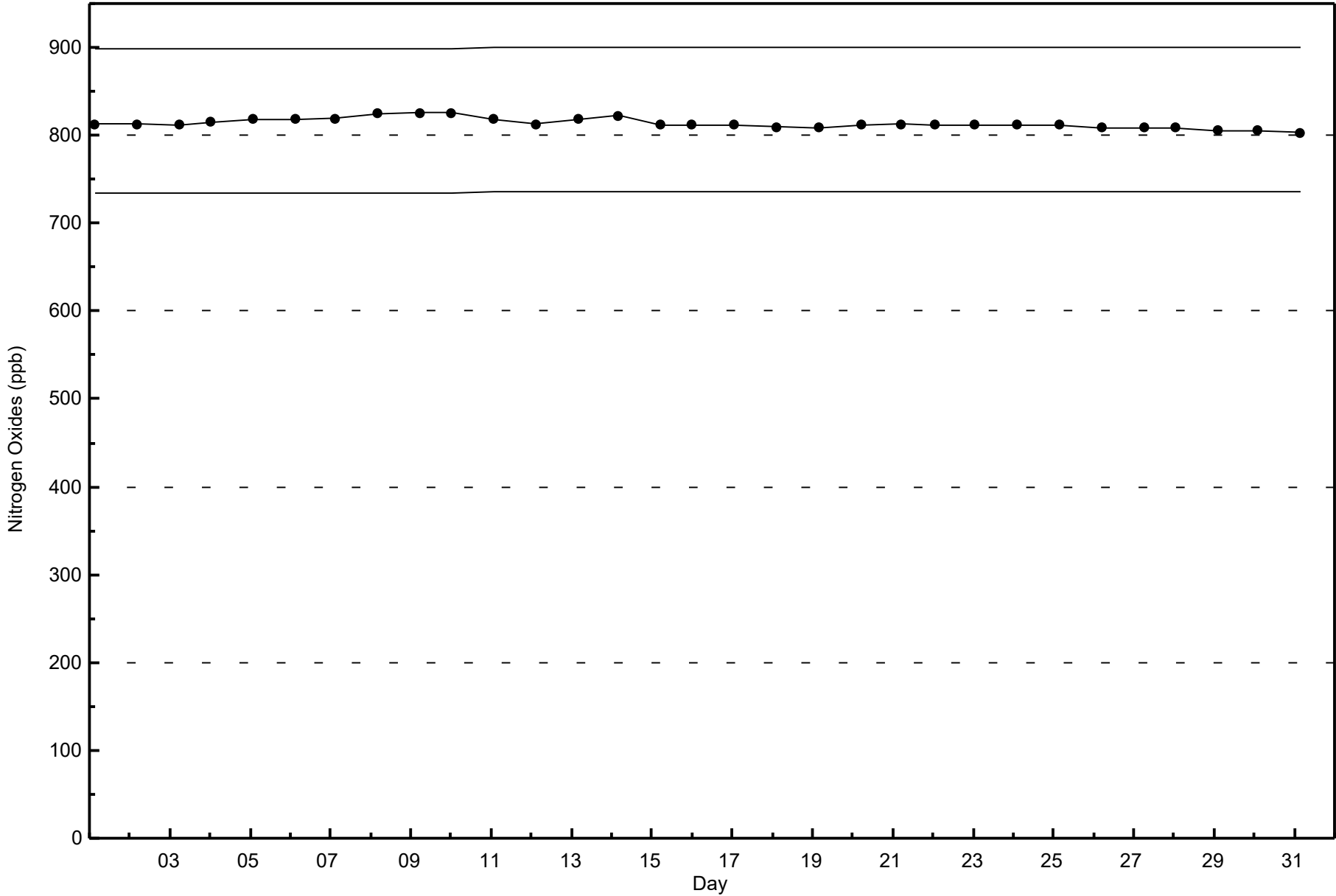


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744																												
Maximum Value: 31.2 µg/m <sup>3</sup> on Jan 26 07:00				Maximum Daily Average: 16.9 µg/m <sup>3</sup> on Jan 26		Hours of Data: 743														743																												
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 31 21:00				Minimum Daily Average: 1.7 µg/m <sup>3</sup> on Jan 29		Hours of Missing Data: 1														1																												
Maximum Diurnal Average: 5.1 µg/m <sup>3</sup> at hour 12				Minimum Diurnal Average: 3.3 µg/m <sup>3</sup> at hour 20		Hours of Calibration: 1														1																												
Monthly Average: 4.22 µg/m <sup>3</sup>				Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 2.2 Median = 3.1 Q <sub>3</sub> = 4.4 P <sub>90</sub> = 7.9 P <sub>99</sub> = 21.1		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-Jan	5.0	4.5	4.5	3.8	3.1	2.6	2.1	1.7	1.5	1.5	1.7	2.0	2.2	2.5	2.4	2.5	2.5	2.0	2.1	2.1	2.4	2.5	2.4	2.2	2.6	5.0																						
2-Jan	2.2	2.1	2.2	2.2	2.2	2.3	2.3	2.5	2.5	2.3	3.0	3.2	2.9	3.4	3.5	4.5	3.9	4.0	3.6	3.1	3.7	4.5	4.8	4.2	3.1	4.8																						
3-Jan	3.3	3.4	3.2	3.6	3.1	3.2	3.9	4.6	5.2	6.5	6.5	8.9	8.7	9.5	8.4	7.1	6.2	5.1	4.0	3.4	3.7	4.4	5.7	4.8	5.3	9.5																						
4-Jan	3.8	2.3	2.0	2.3	2.2	2.3	2.4	2.3	2.7	1.9	2.0	2.0	2.2	1.9	1.9	2.0	2.0	1.9	1.8	1.7	1.5	1.4	1.4	2.1	3.8																							
5-Jan	1.3	1.3	1.2	1.4	1.5	2.0	2.6	2.9	4.1	4.3	4.2	4.2	4.5	2.7	2.8	3.1	2.7	2.5	2.1	2.0	2.4	2.9	2.2	1.9	2.6	4.5																						
6-Jan	2.7	3.3	4.3	5.1	5.6	5.6	5.5	6.2	4.7	2.6	2.5	2.4	2.5	2.6	2.5	2.6	2.9	2.4	1.8	2.0	2.5	2.5	1.9	1.8	3.3	6.2																						
7-Jan	1.8	1.9	2.0	2.2	2.5	2.9	2.8	2.2	2.4	2.7	2.0	2.2	2.5	2.2	2.0	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.9																						
8-Jan	2.2	2.1	2.2	2.4	2.7	2.8	2.7	2.5	2.6	2.7	5.2	4.8	3.2	2.9	3.4	2.9	2.8	2.7	2.5	2.2	2.4	2.4	2.1	1.8	2.8	5.2																						
9-Jan	1.8	2.0	2.1	2.1	2.3	2.1	2.3	2.5	2.5	2.4	2.3	2.6	2.6	2.5	2.5	2.4	2.3	2.4	2.5	2.2	2.3	2.1	2.1	1.8	2.3	2.6																						
10-Jan	1.7	1.9	2.0	2.1	2.1	2.0	2.0	2.5	4.7	4.4	3.9	3.9	4.8	5.3	4.7	4.2	4.6	5.5	6.0	3.6	3.4	3.4	3.2	3.1	3.5	6.0																						
11-Jan	3.0	2.9	2.8	2.8	3.0	4.6	6.8	6.0	4.5	5.7	4.9	4.3	4.0	4.3	4.5	5.3	4.2	3.9	3.8	3.5	3.5	3.6	3.5	2.9	4.1	6.8																						
12-Jan	2.8	3.0	3.2	3.0	3.2	4.4	4.2	5.4	5.5	5.1	4.4	4.2	4.1	4.3	4.0	3.9	3.3	2.8	2.7	3.1	3.7	3.8	3.7	3.7	3.8	5.5																						
13-Jan	3.8	3.8	3.7	3.5	3.3	2.9	2.6	2.5	2.5	2.4	2.6	4.0	4.5	4.7	4.1	3.8	3.4	3.1	2.5	2.0	1.8	1.8	1.7	2.4	3.1	4.7																						
14-Jan	3.1	3.2	3.1	3.2	3.7	3.7	3.9	4.4	5.7	4.6	3.5	3.8	3.9	4.1	3.7	3.7	3.3	3.7	3.9	3.8	3.3	2.9	2.3	1.9	3.6	5.7																						
15-Jan	2.6	3.0	4.1	5.4	5.7	4.0	2.9	3.6	3.6	2.3	1.5	1.4	1.6	2.6	2.9	2.9	2.5	2.3	2.5	2.4	2.0	2.4	2.9	3.0	2.9	5.7																						
16-Jan	2.7	2.1	1.6	1.8	3.8	5.2	5.2	4.8	4.5	3.9	3.8	3.1	3.1	3.7	3.7	3.9	3.6	3.6	3.2	3.5	3.9	3.1	3.1	2.7	3.5	5.2																						
17-Jan	2.9	2.5	2.6	2.7	2.6	2.6	2.8	2.6	2.1	1.9	1.9	1.8	1.7	1.7	1.7	1.6	1.5	1.5	1.6	1.6	1.6	2.0	2.9	2.9	2.1	2.9																						
18-Jan	2.9	2.5	2.4	2.4	2.6	2.7	2.7	2.9	2.7	2.6	3.0	3.6	3.6	3.7	3.4	3.5	3.5	3.8	4.5	4.2	4.1	3.9	3.7	3.9	3.3	4.5																						
19-Jan	3.6	3.5	3.2	2.8	2.7	3.5	4.0	3.8	3.3	3.2	3.0	3.0	3.2	3.1	2.9	2.9	2.7	2.6	2.6	2.8	3.5	3.8	3.7	3.7	3.2	4.0																						
20-Jan	3.6	3.9	3.9	4.0	4.0	4.1	4.3	4.9	5.4	5.5	5.7	7.9	7.5	6.1	4.4	4.4	4.2	3.9	4.0	3.8	3.8	3.9	4.0	4.0	4.6	7.9																						
21-Jan	3.7	3.3	3.2	3.7	4.0	4.2	4.3	3.8	3.6	3.6	3.4	2.9	2.7	2.8	2.7	2.4	2.2	2.0	1.5	1.4	1.9	2.2	2.4	2.8	2.9	4.3																						
22-Jan	2.6	2.3	2.3	2.6	3.0	2.6	1.8	1.6	1.6	1.6	1.6	1.9	1.7	1.9	2.6	2.5	2.4	2.3	2.2	2.4	2.9	3.2	3.6	4.1	2.4	4.1																						
23-Jan	4.2	4.4	5.0	5.5	5.9	6.0	6.3	6.4	6.7	7.3	9.3	11.3	12.8	12.3	10.6	11.1	10.2	7.4	6.2	6.1	6.9	8.3	7.8	4.5	7.6	12.8																						
24-Jan	3.0	2.9	4.3	3.9	5.3	6.9	7.3	7.0	8.1	8.2	8.2	8.9	9.6	11.3	12.5	12.6	12.4	11.5	11.5	11.5	11.7	11.6	11.8	13.5	9.0	13.5																						
25-Jan	14.7	12.7	12.2	13.3	11.3	15.0	15.6	15.3	17.1	18.8	18.1	18.4	19.4	20.1	21.2	16.1	10.7	11.1	12.1	10.9	10.8	13.1	15.1	16.6	15.0	21.2																						
26-Jan	17.3	18.9	24.3	23.8	23.0	26.5	31.2	31.1	28.9	21.0	16.1	15.3	14.9	12.9	9.2	8.8	8.2	7.9	7.4	6.8	8.8	18.2	19.3	5.9	16.9	31.2																						
27-Jan	5.5	5.1	4.8	4.4	3.8	3.3	3.0	3.0	3.2	3.9	4.3	4.7	4.2	4.0	4.4	4.5	4.5	4.6	4.6	4.0	5.0	7.1	6.2	3.4	4.4	7.1																						
28-Jan	3.4	3.0	2.9	3.8	2.8	2.7	2.5	2.6	3.0	3.1	3.6	3.9	4.4	2.4	1.0	0.8	0.8	1.0	0.8	0.8	0.8	0.7	0.7	1.0	2.2	4.4																						
29-Jan	2.9	4.7	5.4	2.0	1.2	0.9	0.9	1.0	1.1	1.2	1.1	0.9	0.8	0.8	0.8	C	0.9	1.0	1.2	1.5	1.8	1.9	2.1	2.5	1.7	5.4																						
30-Jan	3.0	2.4	2.0	2.3	2.3	2.0	1.6	1.2	1.1	1.7	2.6	4.7	5.2	4.2	4.2	1.3	0.6	0.5	0.5	0.6	1.1	0.5	0.8	0.4	1.9	5.2																						
31-Jan	0.4	0.4	0.4	1.3	4.7	4.9	6.9	4.8	5.6	5.3	6.2	13.3	7.8	0.7	0.4	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	2.7	13.3																						
																								3.8	3.7	4.0	4.0	4.2	4.5	4.8	4.8	4.9	4.7	4.6	5.1	5.1	4.8	4.5	4.3	3.8	3.6	3.5	3.3	3.5	4.1	4.2	3.6	Diurnal Average
																								17.3	18.9	24.3	23.8	23.0	26.5	31.2	31.1	28.9	21.0	18.1	18.4	19.4	20.1	21.2	16.1	12.4	11.5	12.1	11.5	11.7	18.2	19.3	16.6	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>) -  $\mu\text{g}/\text{m}^3$**   
**Wapasu - January 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	624	83.98	83.98
6 - 15	96	12.92	96.90
16 - 25	19	2.56	99.46
26 - 80	4	0.54	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Wapasu - January 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	110	96	24	13	12	14	34	115	76	22	23	14	8	9	9	39	618
6 - 15	14	12	5	3	3	1	1	22	20	5	4	2	1	0	1	2	96
16 - 25	2	1	1	0	0	0	0	0	1	6	4	1	0	1	1	1	19
26 - 80	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	4
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	127	109	30	16	15	15	35	137	97	33	32	17	9	11	11	43	737

Total Number of Valid Hours: 737

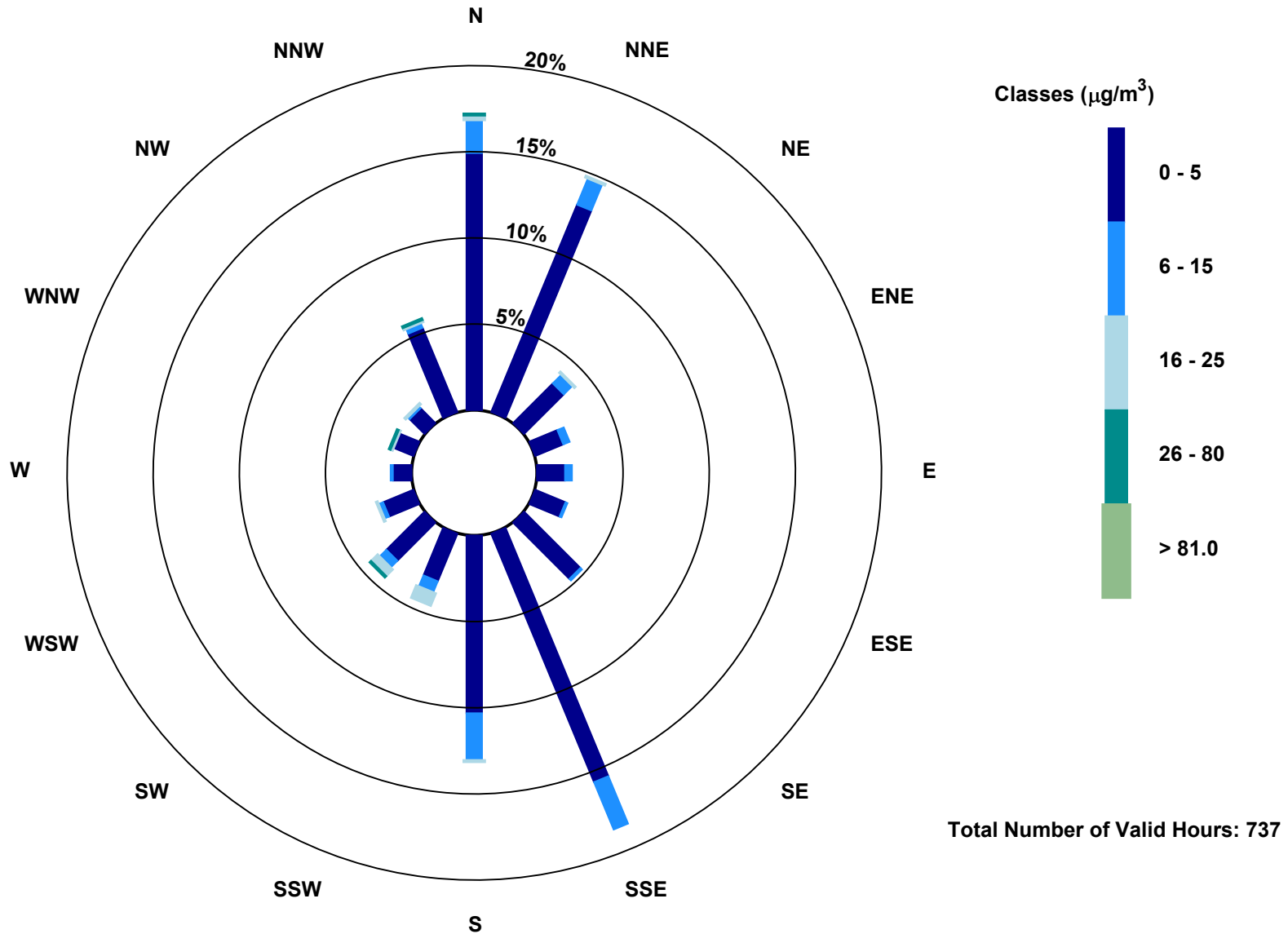
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Jan 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**

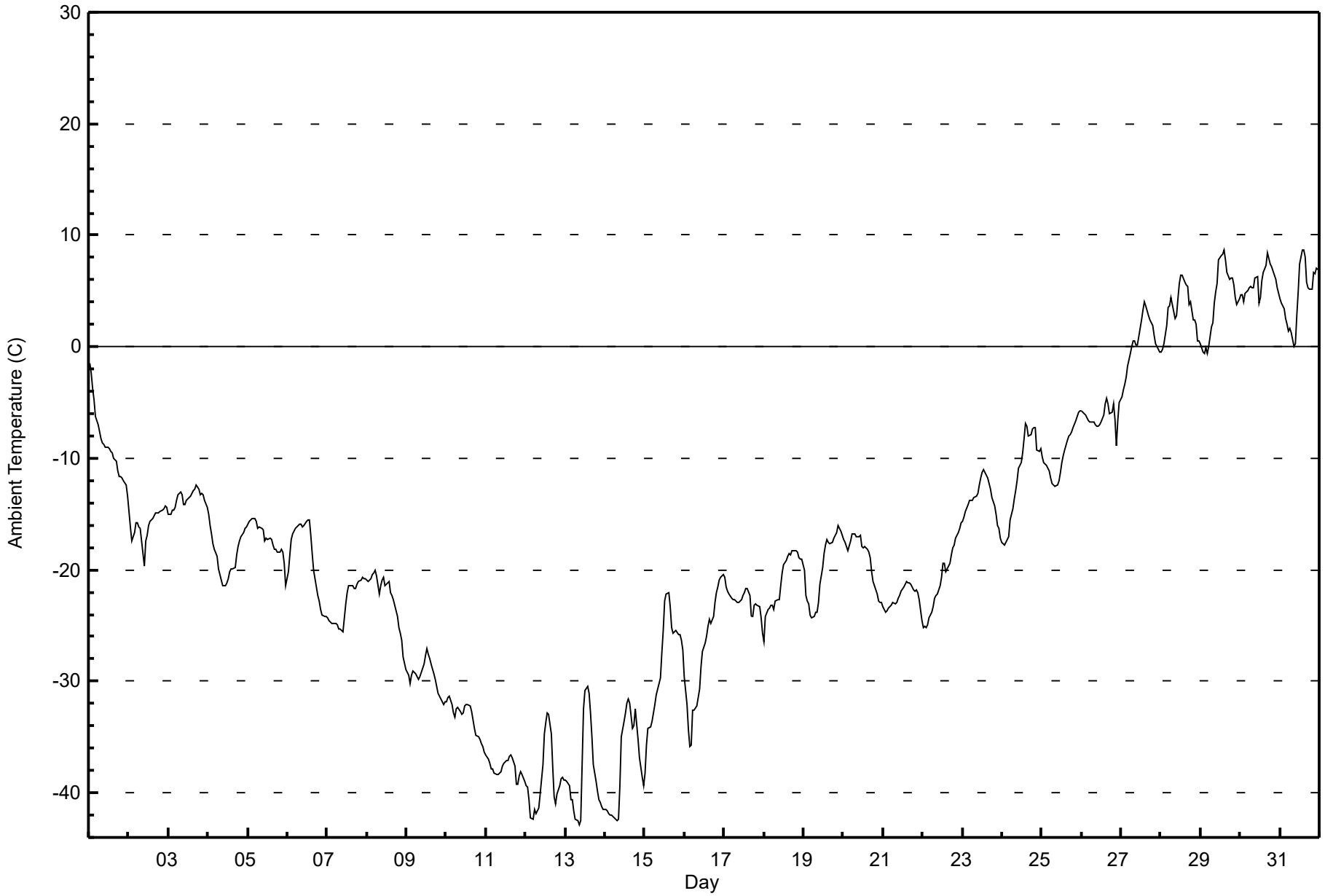
**Ambient Temperature (AT) - C**  
**Wapasu - January 2024**

Maximum Value: 8.7 C on Jan 29 15:00      Maximum Daily Average: 5.8 C on Jan 30																								Hours in Service:	744	
Minimum Value: -42.9 C on Jan 13 09:00      Minimum Daily Average: -38.8 C on Jan 12																								Hours of Data:	744	
Maximum Diurnal Average: -15.8 C at hour 15      Minimum Diurnal Average: -19.4 C at hour 4																								Hours of Missing Data:	0	
Monthly Average: -18.01 C      Percentiles: P <sub>1</sub> = -42.3 P <sub>10</sub> = -36.6 Q <sub>1</sub> = -25.2 Median = -18.5 Q <sub>3</sub> = -10.3 P <sub>90</sub> = 2.7 P <sub>99</sub> = 7.9																								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-Jan	-1.5	-2.4	-3.7	-4.8	-6.2	-7.0	-7.6	-8.2	-8.6	-8.7	-8.9	-9.0	-9.1	-9.3	-9.5	-9.9	-10.3	-11.1	-11.6	-11.6	-11.7	-12.0	-12.5	-13.3	-8.7	-1.5
2-Jan	-14.8	-16.1	-17.4	-16.6	-15.8	-15.8	-16.1	-16.2	-17.4	-19.7	-17.4	-16.9	-16.1	-15.7	-15.4	-15.2	-14.9	-14.9	-14.9	-14.7	-14.6	-14.5	-14.3	-14.4	-15.8	-14.3
3-Jan	-15.0	-15.1	-14.7	-14.7	-14.4	-13.8	-13.3	-13.0	-13.2	-14.1	-14.1	-13.7	-13.5	-13.4	-13.2	-12.9	-12.7	-12.4	-12.8	-13.3	-13.1	-13.2	-13.8	-14.4	-13.7	-12.4
4-Jan	-15.0	-16.1	-16.8	-17.7	-18.1	-18.8	-19.9	-20.4	-21.0	-21.4	-21.4	-21.2	-20.7	-20.1	-19.9	-19.9	-19.7	-18.7	-17.9	-17.4	-17.0	-16.7	-16.3	-16.2	-18.7	-15.0
5-Jan	-15.9	-15.7	-15.4	-15.4	-15.4	-15.7	-16.3	-16.2	-16.2	-16.4	-17.4	-17.2	-17.2	-17.1	-17.3	-17.8	-18.1	-18.2	-18.5	-18.4	-18.2	-18.4	-19.4	-21.4	-17.2	-15.4
6-Jan	-20.1	-18.6	-17.3	-16.7	-16.5	-16.3	-16.1	-16.0	-15.9	-16.2	-16.1	-15.6	-15.5	-15.5	-16.9	-18.5	-20.1	-21.5	-22.2	-22.9	-23.5	-24.0	-24.2	-24.2	-18.8	-15.5
7-Jan	-24.3	-24.6	-24.7	-24.9	-24.8	-24.8	-24.9	-25.3	-25.3	-25.5	-24.4	-23.0	-22.0	-21.4	-21.4	-21.5	-21.7	-21.6	-21.2	-21.1	-20.9	-20.7	-20.7	-20.7	-23.0	-20.7
8-Jan	-20.9	-21.0	-20.7	-20.4	-20.3	-20.0	-20.6	-22.1	-21.4	-20.9	-20.7	-21.4	-21.3	-21.1	-22.0	-22.2	-22.7	-23.2	-24.1	-25.2	-25.6	-26.3	-27.8	-29.0	-22.6	-20.0
9-Jan	-29.2	-29.4	-30.1	-29.5	-29.1	-29.3	-29.6	-29.8	-29.6	-29.2	-28.5	-27.7	-27.0	-27.6	-27.9	-28.5	-29.3	-29.8	-30.5	-31.1	-31.3	-31.8	-32.1	-31.9	-29.6	-27.0
10-Jan	-31.8	-31.5	-31.4	-32.1	-32.8	-33.2	-32.5	-32.4	-32.7	-33.0	-32.9	-32.2	-32.1	-32.1	-32.2	-32.7	-33.5	-34.2	-34.8	-35.0	-35.2	-35.6	-35.8	-36.4	-33.3	-31.4
11-Jan	-36.7	-36.9	-37.4	-37.8	-37.8	-38.2	-38.4	-38.4	-38.2	-38.1	-37.6	-37.4	-37.1	-37.1	-36.7	-36.7	-36.8	-37.6	-39.2	-39.2	-38.5	-38.2	-38.4	-38.9	-37.8	-36.7
12-Jan	-39.3	-39.5	-40.6	-42.2	-42.4	-41.5	-41.8	-41.6	-41.4	-40.1	-37.5	-34.7	-33.7	-32.9	-32.9	-34.7	-37.7	-40.3	-41.0	-40.2	-39.3	-38.7	-38.6	-38.9	-38.8	-32.9
13-Jan	-38.8	-38.9	-39.4	-40.6	-40.6	-41.6	-42.4	-42.6	-42.9	-42.5	-37.5	-32.4	-30.8	-30.4	-31.1	-32.8	-34.9	-37.5	-39.0	-39.8	-40.6	-40.9	-41.2	-41.4	-38.4	-30.4
14-Jan	-41.5	-41.6	-41.8	-41.9	-42.0	-42.2	-42.4	-42.5	-42.3	-39.4	-34.9	-33.6	-32.9	-32.0	-31.6	-32.0	-34.2	-34.0	-32.4	-33.8	-35.2	-36.9	-38.6	-39.3	-37.5	-31.6
15-Jan	-38.2	-35.7	-34.2	-34.1	-33.6	-32.9	-32.1	-31.2	-30.7	-29.7	-27.5	-25.4	-22.8	-22.2	-22.1	-23.4	-25.2	-25.7	-25.6	-25.4	-25.8	-25.9	-26.3	-27.1	-28.4	-22.1
16-Jan	-29.6	-32.1	-34.4	-35.8	-35.7	-32.5	-32.6	-32.2	-31.4	-30.7	-28.7	-27.4	-26.6	-25.9	-25.0	-24.5	-24.8	-24.2	-22.9	-22.0	-21.6	-20.9	-20.7	-20.4	-27.6	-20.4
17-Jan	-20.7	-21.5	-21.9	-22.2	-22.6	-22.7	-22.7	-22.9	-23.0	-22.9	-22.7	-22.3	-22.0	-21.7	-21.7	-22.4	-24.2	-24.2	-23.2	-23.0	-23.2	-23.3	-24.3	-25.7	-22.8	-20.7
18-Jan	-26.4	-24.2	-23.5	-23.4	-23.2	-23.2	-23.5	-22.8	-22.7	-22.7	-21.4	-20.3	-19.6	-19.1	-18.8	-18.6	-18.6	-18.3	-18.2	-18.3	-18.5	-19.0	-19.0	-19.0	-20.9	-18.2
19-Jan	-20.1	-22.3	-22.8	-23.1	-24.1	-24.3	-24.2	-23.8	-23.8	-23.0	-21.3	-19.8	-18.5	-17.7	-17.3	-17.6	-17.6	-17.5	-17.2	-17.0	-16.7	-16.1	-16.6	-16.9	-20.0	-16.1
20-Jan	-17.3	-17.6	-17.9	-18.2	-17.4	-16.8	-16.8	-16.8	-17.1	-17.1	-16.9	-17.9	-18.0	-17.9	-18.2	-18.4	-18.9	-20.2	-21.0	-21.4	-22.1	-22.8	-22.9	-23.0	-18.9	-16.8
21-Jan	-23.3	-23.8	-23.7	-23.4	-23.3	-23.1	-23.0	-23.0	-22.9	-22.6	-22.3	-22.0	-21.5	-21.2	-21.1	-21.2	-21.2	-21.3	-21.9	-21.9	-21.8	-22.1	-22.7	-24.5	-22.4	-21.1
22-Jan	-25.1	-25.1	-25.2	-24.9	-24.3	-23.8	-23.2	-22.6	-22.3	-22.2	-21.5	-20.7	-19.5	-19.4	-20.2	-20.0	-19.4	-18.6	-18.0	-17.8	-17.2	-16.7	-16.2	-15.8	-20.8	-15.8
23-Jan	-15.6	-15.3	-14.7	-14.1	-13.8	-13.8	-13.7	-13.5	-13.3	-13.1	-12.4	-11.8	-11.3	-11.1	-11.5	-11.8	-12.3	-12.8	-13.5	-14.2	-15.1	-16.0	-16.3	-17.1	-13.7	-11.1
24-Jan	-17.5	-17.8	-17.5	-17.3	-17.0	-15.5	-14.5	-13.7	-12.9	-12.0	-10.9	-10.4	-9.6	-8.2	-6.8	-7.2	-8.0	-7.8	-7.3	-7.3	-7.3	-9.3	-9.3	-9.1	-11.4	-6.8
25-Jan	-9.9	-10.3	-10.5	-10.6	-11.1	-11.8	-12.3	-12.4	-12.5	-12.4	-12.0	-11.3	-10.3	-9.8	-9.3	-8.4	-8.0	-7.9	-7.6	-7.2	-6.7	-6.2	-5.8	-5.7	-9.6	-5.7
26-Jan	-5.8	-5.9	-6.1	-6.4	-6.6	-6.7	-6.7	-6.8	-6.9	-7.1	-7.2	-7.0	-6.7	-6.2	-5.1	-4.7	-5.1	-6.0	-5.9	-5.1	-6.5	-8.9	-6.7	-5.0	-6.3	-4.7
27-Jan	-4.5	-3.8	-3.4	-2.8	-1.8	-0.6	0.0	0.5	0.5	0.2	0.2	1.7	2.4	3.2	4.1	3.7	2.8	2.4	2.2	1.9	1.1	0.3	-0.2	-0.5	0.4	4.1
28-Jan	-0.4	-0.2	0.3	1.9	3.6	3.7	4.4	3.8	2.5	2.8	4.3	5.6	6.4	6.4	5.8	5.5	5.4	3.8	4.0	2.5	2.4	2.1	0.6	0.5	3.2	6.4
29-Jan	0.2	-0.4	-0.5	-0.1	-0.6	0.1	1.8	2.1	4.0	4.9	5.7	7.9	8.2	8.3	8.7	7.8	6.7	6.0	6.2	6.2	5.6	4.4	3.8	4.2	4.2	8.7
30-Jan	4.6	4.6	4.1	4.7	5.0	5.3	5.4	5.3	5.2	6.2	6.3	4.0	4.4	5.9	6.7	7.3	8.4	7.9	7.4	7.1	6.7	6.1	5.3	4.8	5.8	8.4
31-Jan	4.3	3.9	3.4	2.5	2.0	1.4	1.6	1.3	0.0	0.2	2.8	4.9	7.5	8.6	8.7	8.0	5.8	5.3	5.2	5.2	6.7	6.6	7.0	6.9	4.6	8.7
																								Diurnal Average		
																								Diurnal Maximum		



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

**Ambient Temperature (AT) - C**  
**Wapasu - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Wapasu - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	348	46.77	46.77
-20 - 0	291	39.11	85.89
0 - 10	105	14.11	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

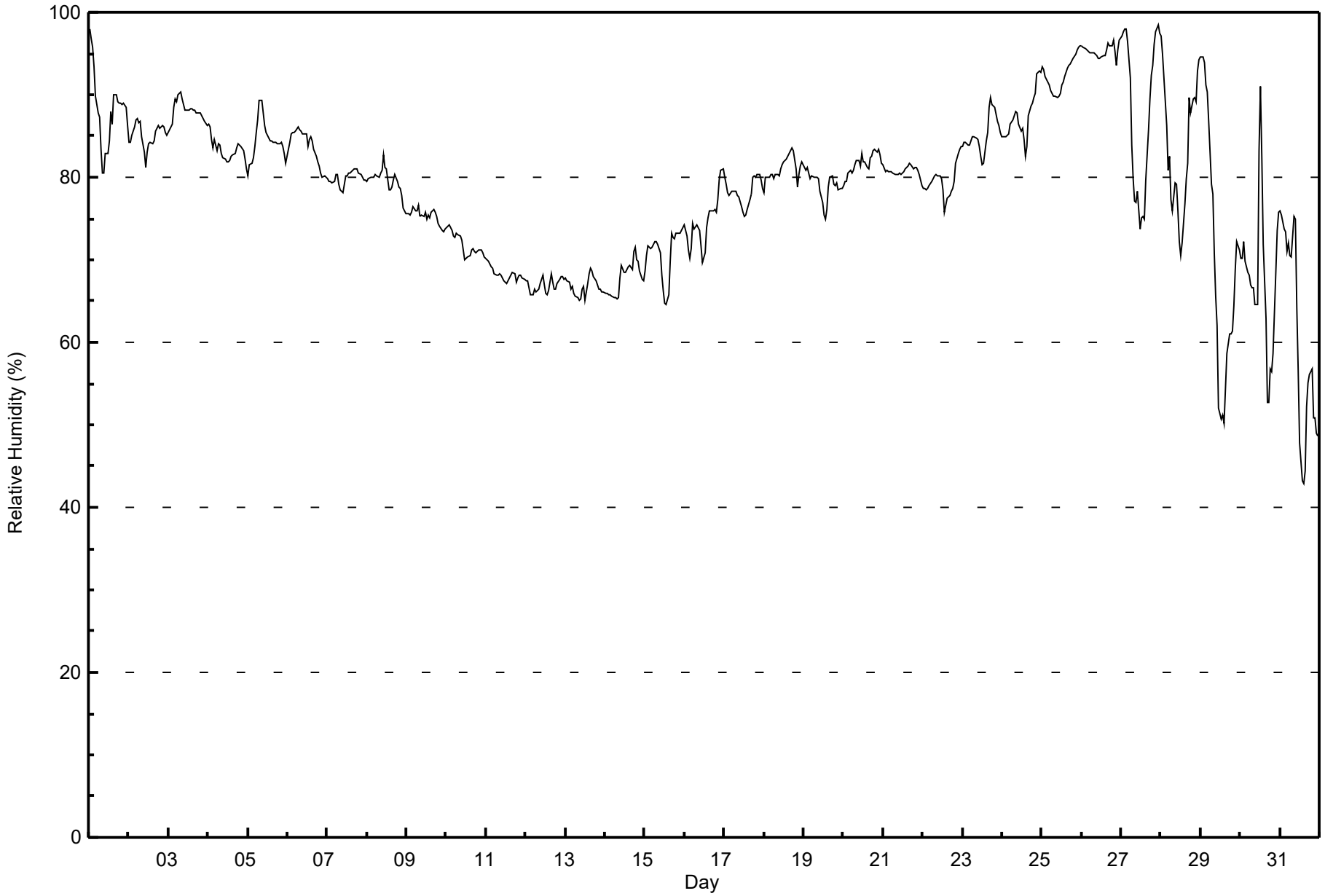
**Wapasu - January 2024**

Maximum Value: 98.4 % on Jan 27 23:00      Maximum Daily Average: 95.3 % on Jan 26																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 43.0 % on Jan 31 15:00      Minimum Daily Average: 60.5 % on Jan 31 Maximum Diurnal Average: 81.0 % at hour 1      Minimum Diurnal Average: 76.5 % at hour 15 Monthly Average: 78.86 %      Percentiles: P <sub>1</sub> = 50.7 P <sub>10</sub> = 66.8 Q <sub>1</sub> = 72.2 Median = 80.1 Q <sub>3</sub> = 84.9 P <sub>90</sub> = 90.2 P <sub>99</sub> = 97.1																						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-Jan	98.0	96.9	95.8	93.4	89.8	87.8	87.2	83.3	80.6	80.5	82.8	82.9	84.4	87.9	86.5	89.9	90.1	89.1	88.9	88.9	88.9	89.0	88.5	86.3	88.2	98.0
2-Jan	84.2	84.3	85.0	86.0	87.0	87.1	86.6	86.7	84.9	83.0	81.1	83.0	84.1	84.3	84.1	84.4	85.6	85.9	86.2	85.9	86.3	86.1	85.5	85.0	85.1	87.1
3-Jan	85.4	86.1	86.4	88.5	89.5	89.2	90.0	90.3	89.6	88.7	88.2	88.1	88.2	88.3	88.4	88.2	88.1	87.7	87.8	87.8	87.4	87.2	86.8	86.3	88.0	90.3
4-Jan	86.4	86.1	84.5	83.6	84.5	83.2	84.1	84.0	82.9	82.5	82.1	81.8	81.8	82.1	82.5	82.7	82.9	83.6	84.1	84.0	83.8	83.3	82.1	81.1	83.3	86.4
5-Jan	80.2	81.6	81.7	82.4	83.7	85.5	87.0	89.3	89.4	87.8	86.3	85.4	85.0	84.5	84.5	84.3	84.3	84.3	84.0	84.1	84.3	83.8	82.9	81.8	84.5	89.4
6-Jan	83.4	84.2	85.2	85.5	85.4	85.6	86.0	85.8	85.5	85.2	85.3	85.2	83.8	84.6	84.9	84.3	83.5	82.6	81.9	81.4	80.5	80.0	80.2	80.0	83.7	86.0
7-Jan	79.8	79.5	79.4	79.2	79.5	80.4	80.4	79.2	78.5	78.1	79.2	80.1	80.2	80.5	80.6	80.9	81.0	81.0	81.0	80.6	80.3	80.1	79.7	79.6	80.0	81.0
8-Jan	79.6	79.8	79.9	80.0	80.1	80.4	80.1	80.0	80.6	80.8	82.7	81.2	81.0	78.5	78.5	78.7	79.7	80.3	79.4	78.8	78.6	77.9	76.3	75.6	79.5	82.7
9-Jan	75.6	75.6	75.4	75.7	76.4	76.0	75.9	76.6	75.3	75.4	75.3	75.7	74.9	75.4	75.1	75.8	76.1	75.7	75.2	74.4	74.0	73.5	73.4	73.7	75.3	76.6
10-Jan	73.8	74.0	74.2	73.6	73.0	72.6	73.2	73.1	72.8	72.4	71.3	70.0	70.2	70.4	70.4	71.2	71.3	71.0	70.8	71.2	71.3	71.1	70.9	70.4	71.8	74.2
11-Jan	70.1	69.9	69.4	69.2	69.0	68.3	68.2	68.2	68.3	68.2	67.9	67.5	67.1	67.4	67.7	68.1	68.5	68.3	67.3	67.7	68.1	68.2	67.9	67.6	68.3	70.1
12-Jan	67.4	67.4	66.7	65.8	65.8	66.5	66.1	66.2	66.4	67.1	68.2	66.9	65.9	65.8	66.3	68.2	67.3	66.5	66.4	67.2	67.7	68.0	67.9	67.7	66.9	68.2
13-Jan	67.7	67.5	67.4	66.5	66.8	66.0	65.6	65.4	65.2	65.3	66.5	66.8	65.1	67.2	68.3	69.0	68.6	67.9	67.4	67.0	66.5	66.4	66.2	66.1	66.8	69.0
14-Jan	66.0	65.9	65.8	65.7	65.6	65.5	65.4	65.3	65.5	67.8	69.3	68.5	68.5	68.8	69.2	69.4	68.8	71.0	71.5	70.0	69.8	68.6	67.7	67.5	67.8	71.5
15-Jan	68.7	70.5	71.6	71.4	71.5	71.9	72.2	72.3	71.9	70.9	68.2	66.2	64.7	64.6	65.8	69.8	73.1	72.6	72.5	73.3	73.1	73.1	73.6	73.9	70.7	73.9
16-Jan	74.2	72.9	71.1	70.2	71.4	74.4	73.8	74.2	74.0	73.5	71.7	69.6	70.9	73.8	75.0	75.9	75.9	76.0	76.1	75.8	77.3	79.6	80.9	81.1	74.6	81.1
17-Jan	80.0	79.1	78.1	77.8	78.3	78.2	78.3	78.3	77.8	77.6	76.5	75.8	75.2	75.4	76.0	77.3	77.9	80.1	80.1	80.0	80.4	80.3	79.7	78.6	78.2	80.4
18-Jan	78.1	80.0	80.0	79.9	80.4	80.4	79.9	80.4	80.3	80.2	81.0	81.5	81.8	82.2	82.5	82.9	83.3	83.6	83.3	81.0	78.8	80.4	81.4	81.9	81.0	83.6
19-Jan	81.1	80.8	81.2	80.4	79.9	80.2	80.0	80.0	79.9	79.8	78.3	77.0	75.4	74.9	76.1	78.8	80.0	80.1	79.2	79.0	79.3	78.5	78.6	78.6	79.0	81.2
20-Jan	79.0	79.5	79.6	80.5	80.8	80.6	80.9	81.5	82.1	82.0	81.4	83.0	81.8	81.9	81.2	81.1	82.3	82.5	83.2	83.4	83.0	83.3	82.7	81.7	81.6	83.4
21-Jan	81.6	80.7	80.8	80.7	80.6	80.6	80.5	80.4	80.3	80.4	80.4	80.4	80.7	81.1	81.1	81.4	81.6	81.5	81.0	81.1	81.1	80.9	80.3	79.0	80.8	81.6
22-Jan	78.6	78.6	78.4	78.6	79.0	79.4	79.8	80.2	80.4	80.1	80.2	79.8	78.4	75.8	76.7	77.4	77.8	78.2	78.7	79.6	81.7	82.9	83.3	83.8	79.5	83.8
23-Jan	83.8	84.3	84.2	83.9	83.9	84.4	85.0	84.9	84.8	84.6	83.8	82.5	81.5	81.8	84.4	85.5	88.5	89.7	88.8	88.4	87.7	86.8	86.3	85.4	85.2	89.7
24-Jan	85.0	84.9	85.0	85.1	85.3	86.4	86.9	87.4	87.9	87.8	86.5	85.7	85.9	84.5	82.5	83.7	87.5	88.7	88.9	89.7	90.2	92.6	92.8	92.7	87.2	92.8
25-Jan	93.3	93.1	92.3	91.8	91.3	90.6	90.2	89.9	89.8	89.7	89.8	90.2	91.1	91.6	92.1	93.1	93.6	93.8	94.1	94.5	95.0	95.4	95.7	95.9	92.4	95.9
26-Jan	95.9	95.8	95.6	95.4	95.2	95.1	95.1	95.1	94.9	94.7	94.5	94.4	94.6	94.8	94.7	95.5	96.3	95.9	95.9	96.5	95.3	93.5	95.5	96.6	95.3	96.6
27-Jan	97.1	97.6	97.9	97.9	96.5	92.1	83.9	79.8	77.2	76.9	78.3	73.8	75.1	75.2	74.9	79.7	85.8	89.6	92.3	93.6	96.2	97.7	98.4	97.5	87.7	98.4
28-Jan	97.2	94.9	92.1	86.3	80.9	82.5	77.2	75.9	79.3	79.2	75.9	72.2	70.5	72.0	76.7	79.8	81.7	89.7	87.8	89.5	89.7	89.1	92.9	94.3	83.6	97.2
29-Jan	94.6	94.5	94.0	91.3	90.3	86.8	79.2	77.9	70.8	65.6	62.1	52.0	50.7	51.2	50.2	54.3	58.6	61.0	61.0	61.4	64.3	68.9	72.2	71.2	70.2	94.6
30-Jan	70.2	70.2	72.2	69.8	68.5	68.1	67.0	66.6	66.6	64.6	64.5	83.2	91.0	82.3	71.9	62.8	52.7	52.7	56.8	56.4	58.7	68.5	73.6	75.7	68.1	91.0
31-Jan	75.9	75.4	73.8	73.4	71.1	72.0	70.5	70.4	75.2	74.9	64.2	56.6	47.7	43.3	43.0	44.5	52.3	55.0	56.1	56.7	50.9	50.8	48.9	48.7	60.5	75.9
81.0 81.0 80.8 80.3 80.0 79.9 79.2 79.0 78.7 78.2 77.5 77.0 76.7 76.5 76.5 77.4 78.2 78.9 79.0 79.0 79.0 79.5 79.8 79.5																						Diurnal Average				
98.0 97.6 97.9 97.9 96.5 95.1 95.1 95.1 94.9 94.7 94.5 94.4 94.6 94.8 94.7 95.5 96.3 95.9 95.9 96.5 96.2 97.7 98.4 97.5																						Diurnal Maximum				



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

**Relative Humidity (RH) - %**  
**Wapasu - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Wapasu - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	24	3.23	3.23
60 - 80	334	44.89	48.12
80 - 100	386	51.88	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

**Precipitation (PC) - mm**  
**Wapasu - January 2024**

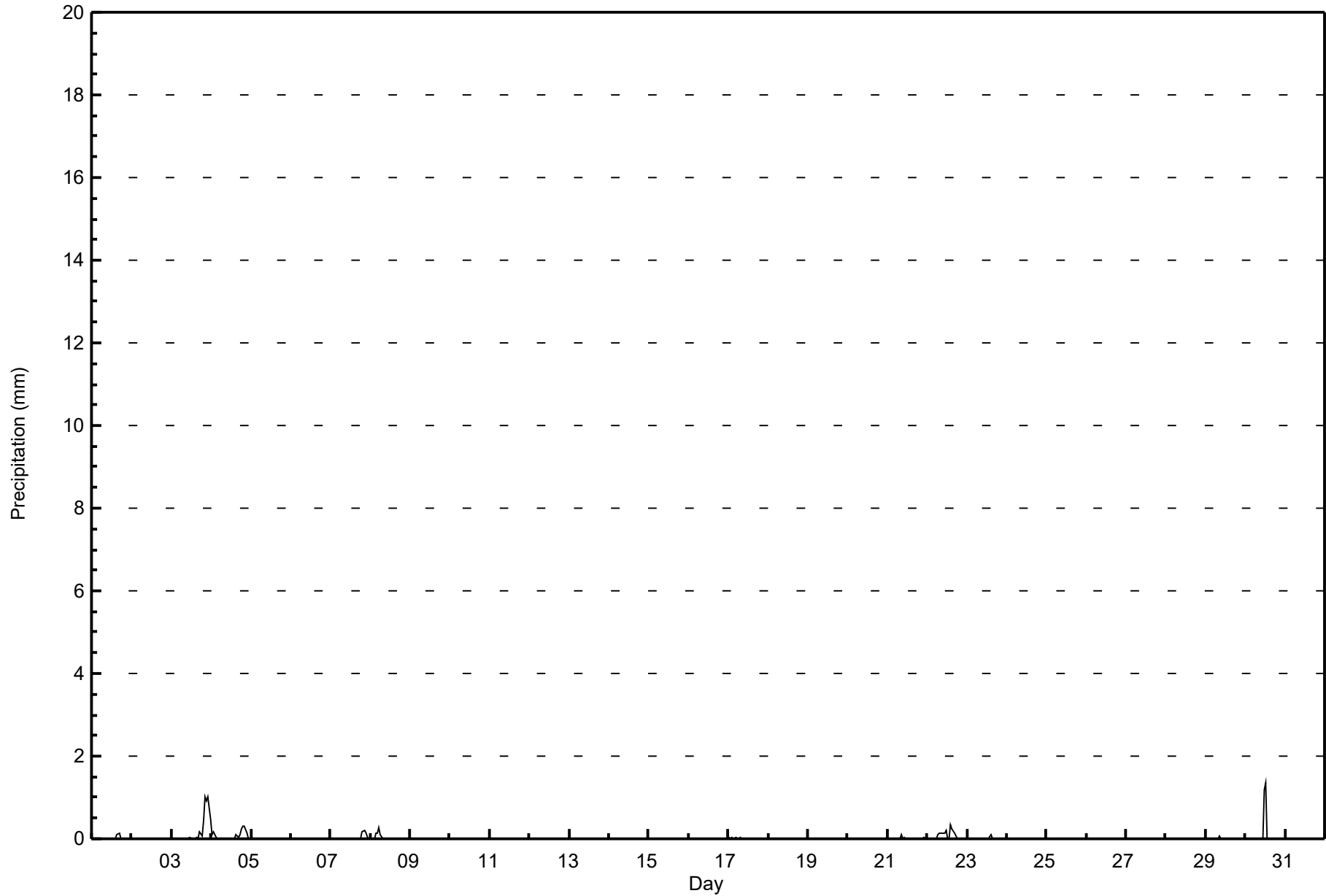
Maximum Value: 1.4 mm on Jan 30 13:00      Maximum Daily Total: 4.2 mm on Jan 3																				Hours in Service: 744 Hours of Data: 744							
Minimum Value: 0.0 mm on Jan 1 01:00      Minimum Daily Total: 0.0 mm on Jan 2 Maximum Diurnal Total: 1.6 mm at hour 21      Minimum Diurnal Total: 0.0 mm at hour 14 Monthly Total: 12.08 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> = 0.3																				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-Jan	0.0	0.0	0.0	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	0.0	0.2	0.1	
2-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	0.2	0.1	0.5	1.0	0.9	1.0	0.5	4.2	1.0		
4-Jan	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	0.1	0.1	0.2	0.3	0.3	0.1	0.0	0.0	1.6	0.3		
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.1	0.0	0.6	0.2		
8-Jan	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	
18-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	
22-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.4	
23-Jan	0.0	0.0	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	0.1	0.1	
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.1	0.1	
30-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	1.4	
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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			





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

**Precipitation (PC) - mm**  
**Wapasu - January 2024**





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

**Wind Speed (WS) - km/h**  
**Wapasu - January 2024**

Maximum Speed: 23 km/h on Feb 1 00:00	Maximum Daily Speed Average: 11.1 km/h on Jan 22	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 12 00:00	Minimum Daily Speed Average: 0.5 km/h on Jan 5	Hours of Data: 738
Maximum Diurnal Speed Average: 2.0 km/h at hour 24	Minimum Diurnal Speed Average: 0.5 km/h at hour 12	Hours of Missing Data: 6
Monthly Average Velocity: 0.9 km/h 149.5 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 13 P <sub>99</sub> = 19	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-Jan	NNW5	NNW8	N11	N13	N14	N14	NNW16	NNW16	NNW14	NNW13	NNW12	NNW10	N9	N9	N8	N8	N6	NNE6	N4	N3	NNW4	NNE6	NNE6	N8	N9.2	NNW16	
2-Jan	NNE7	NE7	NE6	NE6	NE7	NNE6	NNE6	N6	N4	N3	NNW3	NNE3	N3	WNW3	SE1	SSW3	SW2	W1	SE2	SSE2	SSE3	SSE4	SSW4	S4	NNE1.8	NE7	
3-Jan	S4	SSE3	S3	SSE4	SE4	SSE6	S6	SSE4	NNW5	NNW4	NNW4	N3	NNE4	NE5	NE5	ENE4	ENE4	ENE4	NNE5	NE6	NNE5	NE6	NNE7	NNE7	NE2.0	NNE7	
4-Jan	N7	N10	N12	N13	N13	N14	N11	N11	N9	N8	NNE7	N6	NNE6	NNE6	NNE6	ENE5	ENE5	ENE5	E6	ESE6	SE4	SE7	SE7	SE13	NNE5.7	N14	
5-Jan	SSE8	SSE6	SSE7	SSE6	S5	WSW2	N3	NNW3	NNW2	WNW3	WNW4	NW4	NW4	NNW3	N4	NNE4	NE2	NNE1	NNE1	ESE2	ESE3	E3	ESE4	ESE4	ESE0.5	SSE8	
6-Jan	ESE4	SE3	ESE3	ENE3	E2	ESE4	E3	E3	NE4	NE4	NE4	NNE5	NNE6	NNE6	N7	N7	N7	N7	N6	N7	N6	N6	N5	NNE5	NNE3.8	N7	
7-Jan	NNE4	NNE4	NNE4	NNE3	NNE2	NE1	UO	S2	ESE1	UO	SSW2	SSW4	SSW6	S6	S6	S5	S5	S7	S8	S10	S11	S11	S10	SSE9	S3.8	S11	
8-Jan	SSE10	SSE10	SSE9	SSE9	SSE9	SSE8	SSE6	SSE5	SSE4	N2	N6	N7	N8	N8	N7	N6	N6	N6	NNE6	N7	NNE6	NE4	ENE1	SE3	ENE1.5	SSE10	
9-Jan	E3	ENE4	E4	ENE5	ENE4	E4	E5	ENE3	NNE2	NE2	NNE4	NE7	NE5	N6	NNE7	NNE7	N7	NNE6	NNE7	NNE5	NNE5	N4	NNE4	NNE7	NE4.2	N7	
10-Jan	NNE6	NNE5	NNE5	N6	NNE4	NE4	NNE5	NNE5	NNE6	NNE5	NNE5	N6	N6	N6	NNW8	NNW8	N6	NNE4	NNE4	NNE6	NNE7	NNE7	NNE6	N5	N5.5	NNW8	
11-Jan	N5	NNE5	NNE4	NNE4	N5	N5	N4	N5	N6	N7	N10	N10	NNW9	NNW7	NNW6	NNW5	N5	NNW3	S0	SE1	UO	NNW2	WNW1	SSE0	N4.5	N10	
12-Jan	S1	SSE3	SSE3	SE4	SE5	SSE4	SSE5	SSE4	SSE5	SSE5	SSE4	S4	S4	SSW4	SW3	SW3	SE2	SE3	SE4	SSE4	SSE4	SSE5	SSE4	SSE4	SSE3.6	SSE5	
13-Jan	SSE5	SSE4	SSE5	SSE4	SE4	SSE3	SSE3	SE2	SE3	SE3	SE2	SW2	SW2	W3	NNW4	N1	UO	ENE2	E2	E2	ESE2	ESE2	SE3	ESE3	SE1.9	SSE5	
14-Jan	ESE2	E2	SE2	SE3	ESE2	E2	ESE1	UO	ENE3	NNE4	NNE4	N6	N6	NNE5	N3	N2	NE1	NE5	NNE3	E2	SE1	UO	SSE2	SSE5	NE1.9	N6	
15-Jan	SSE5	SSE6	SSE5	SSE6	SSE5	SSE6	SSE6	SSE6	S5	SSE6	S5	S6	S6	S6	SSW6	S6	SSE6	SSE8	S6	S6	S6	S6	S5	S5	SSE5.7	SSE8	
16-Jan	SSE4	SE3	ENE3	NNE3	NNE3	NNE5	NNE7	NNE7	NNE7	N8	N9	N11	N12	NNW11	NNW9	NW6	WNW4	NW4	NNW8	NNW11	NNW11	NNW11	NNW7	NNW12	N6.1	NNW12	
17-Jan	N15	N14	N14	N13	N11	N10	N9	N8	N8	NNE7	NNE7	NNE8	NNE7	NNE6	NNE6	NNE5	NNE4	NNE5	NNE6	NNE5	N6	N6	NNW6	N4	N7.8	N15	
18-Jan	N4	N6	N10	N10	NNW14	N12	N11	NNW11	NW6	WNW4	NNW9	N12	NNW11	NNW9	NW8	WNW6	NW5	NW6	NNW6	N9	N10	N8	NNW7	N5	NNW7.9	NNW14	
19-Jan	NW2	SW2	S3	SSE4	SSE5	SSE5	SSE6	SSE7	S7	S8	S9	SSW10	SSW10	SSW8	SSW7	S7	SSE8	SSE9	SSE11	SSE11	SSE10	SSE12	SSE13	SSE11	S7.3	SSE13	
20-Jan	SSE10	SSE12	SSE10	S8	S8	SSW8	SSW6	SW10	SW7	SW5	W5	N6	N5	N6	NNE6	NNE6	NNE6	NNE5	NNE6	NE6	NE6	NNE6	NNE5	N6	ESE0.5	SSE12	
21-Jan	N8	NNE7	NE5	NNE5	N6	N6	N6	N6	N5	N5	NNE8	N9	N8	N9	N9	N9	NNE7	NNE6	NNE5	NNE6	NNE6	NNE5	N6	N7	N6.4	N9	
22-Jan	N5	NNE5	NE4	ENE4	E4	SE4	SE6	SSE6	SSE8	SSE10	SSE13	SE17	SSE17	SSE15	SSE17	SSE19	SSE17	SSE19	SSE19	SSE19	SSE21	SSE19	SSE17	SSE15	SSE14	SSE11.1	SSE21
23-Jan	SSE14	SSE14	SSE13	SSE11	S11	S9	S9	S8	S8	SSW8	SW8	SW8	SW7	NW5	N7	N7	N8	N9	N9	NNE7	N7	NNE7	NNE7	NE6	S1.8	SSE14	
24-Jan	NE5	ENE5	NNE2	SSW1	SE1	SE9	SSE8	SSE9	SSE14	SSE12	SSE13	SSE16	SSE14	SSE14	SSE15	SSE14	SSE15	S14	SSE15	SSE12	S7	SSE2	NNE4	NNE4	SSE8.0	SSE16	
25-Jan	NE8	NE8	NNE7	NNE7	N6	N5	N5	NE4	NE3	NNE3	N3	NNW1	SW3	WSW4	SW5	SSW5	SSW8	SSW7	S8	S8	S7	S8	S8	SSW8	S0.7	NE8	
26-Jan	SSW7	SW7	SW5	WNW1	NW4	NNW2	N2	WNW2	SW2	SSW5	SSW5	SSW4	S5	S5	SSE6	SSE6	S5	S6	S6	S6	WSW2	SSW2	S4	S5	SSW3.4	SW7	
27-Jan	S5	S6	S6	S7	SSE9	SSE11	SSE11	SSE13	S11	S11	S10	S11	S9	SSW12	SW14	SW12	SW10	SW8	SW8	SSW7	S6	SSE7	SSE7	SSE8	S8.5	SW14	
28-Jan	SSE9	S10	SSE10	SSE11	SSE11	SSE10	SSE11	S11	S10	SSW10	SW13	SW17	SW19	WSW18	WSW17	W15	WNW9	W6	WSW10	WSW5	WSW6	W6	WSW5	SSW7	SW8.2	SW19	
29-Jan	S6	SSE8	SSE9	S9	SSE11	S11	S13	S11	S13	S13	S13	S14	S15	S14	S12	S10	S10	S10	S11	SSW11	S8	S7	S8	S8	S10.6	S15	
30-Jan	S7	S10	SSE8	S9	S10	SSE8	SE7	SE6	SSE8	S9	SW13	SW13	SW15	SW14	SW16	WSW11	WSW18	WSW14	WSW15	WSW18	W17	WNW14	W9	W9	SW8.9	WSW18	
31-Jan	WSW10	WSW10	WSW8	SW8	SW10	SSW7	SW9	SSW7	SSE6	SSE7	S6	S7	SSE7	S8	SSE8	SSE7	SE11	SE14	SE15	SE14	SSE17	SSE20	SSE21	SSE23	S9.1	SSE23	

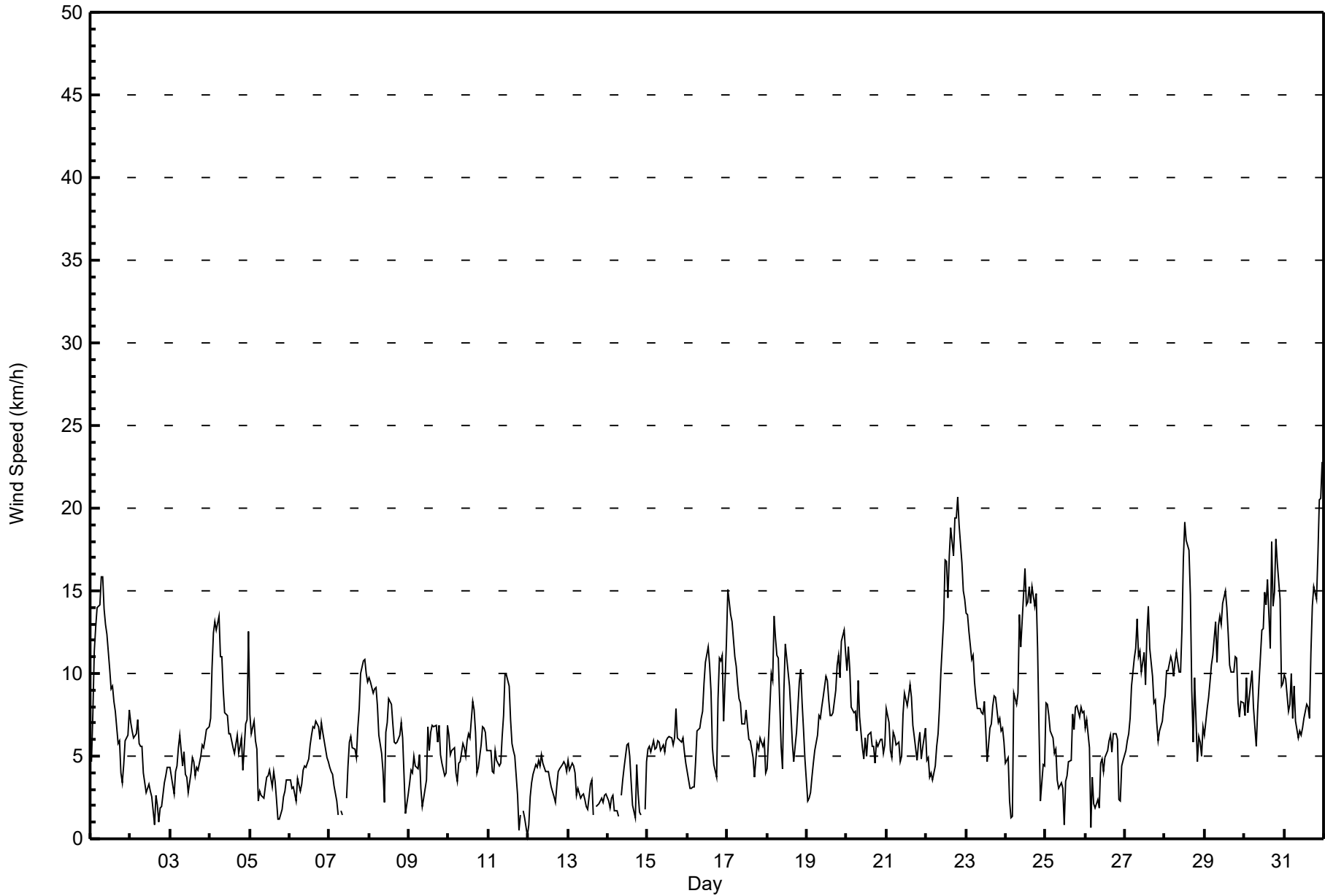
ESE1.3 ESE1.6 ESE1.7 ESE1.4 ESE1.3 ESE1.4 ESE1.4 SSE1.0 SE1.0 SSE1.0 SW0.0WSW0.5WSW1.0 W1.3 W1.2WSW0.9SSW0.7 SSE1.2 SSE1.4 SSE1.7 SSE1.0 SE1.3 SE1.7 SE2.0	Diurnal Average
N15 N14 N14 N13 N14 N14 NNW16 NNW16 NNW14 S13 SSE13 SW17 SW19WSW18WSW17 SSE19WSW18 SSE19 SSE19 SSE21 SSE19 SSE20 SSE21 SSE23	Diurnal 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 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Wapasu - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	290	39.30	39.30
6 - 11	358	48.51	87.80
12 - 19	86	11.65	99.46
20 - 28	4	0.54	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 738

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Wapasu - January 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	30	55	18	15	14	14	23	39	22	11	11	5	3	8	7	15	290
6 - 11	83	54	12	1	1	1	7	63	67	21	11	6	4	2	4	21	358
12 - 19	14	0	0	0	0	0	5	31	9	1	10	6	2	1	0	7	86
20 - 28	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	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>	<b>127</b>	<b>109</b>	<b>30</b>	<b>16</b>	<b>15</b>	<b>15</b>	<b>35</b>	<b>137</b>	<b>98</b>	<b>33</b>	<b>32</b>	<b>17</b>	<b>9</b>	<b>11</b>	<b>11</b>	<b>43</b>	<b>738</b>

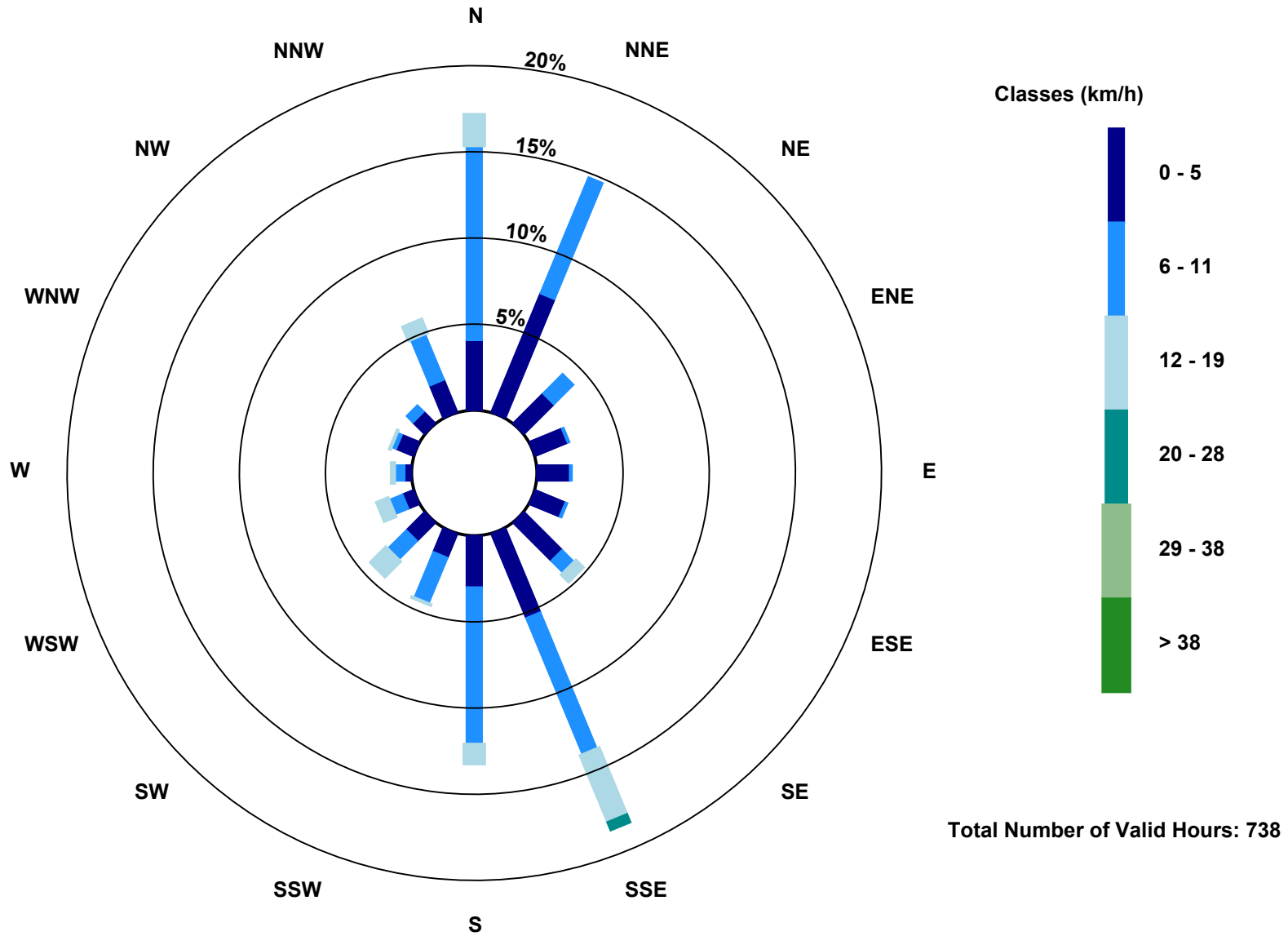
Total Number of Valid Hours: 738

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Wapasu





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

**Wind Speed (WS) - km/h**  
**Wapasu - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Feb 1 00:00 Minimum Value: 0 km/h on Jan 12 04:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 738 Hours of Missing Data: 6 Hours of Calibration: 0 Percent Operational Time: 99.2								
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-Jan	1	2	4	4	5	4	5	4	4	3	4	3	3	3	2	3	2	2	1	1	1	2	2	3	5
2-Jan	2	2	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
3-Jan	1	1	1	1	1	2	2	2	1	2	1	1	1	2	1	1	1	2	2	2	2	2	2	2	2
4-Jan	2	3	3	4	4	4	4	3	3	2	3	2	2	2	2	2	2	2	2	2	2	2	3	4	4
5-Jan	3	2	3	2	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
6-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2
7-Jan	2	2	1	1	1	1	UO	1	1	UO	2	1	2	2	2	2	2	2	3	4	4	4	3	3	4
8-Jan	3	3	3	3	3	3	2	1	1	1	2	2	3	2	2	2	2	2	2	2	2	1	2	1	3
9-Jan	2	2	1	1	1	1	1	1	1	1	2	3	2	2	2	2	2	2	2	2	2	1	1	2	3
10-Jan	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2
11-Jan	2	2	1	1	2	2	2	2	2	3	3	3	3	2	2	2	1	1	1	1	UO	1	1	1	3
12-Jan	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	1
13-Jan	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	UO	1	0	1	0	0	0	0	1
14-Jan	0	1	0	0	1	1	1	UO	1	1	2	2	2	2	1	1	1	1	1	1	1	UO	1	1	2
15-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	1	1	1	1	1	1	2
16-Jan	1	2	1	1	1	1	2	2	2	3	3	3	4	2	2	2	2	1	3	2	2	3	2	4	4
17-Jan	5	4	4	5	3	3	3	3	3	2	2	2	2	2	2	2	1	1	2	2	2	1	1	1	5
18-Jan	2	2	3	3	4	3	3	3	2	1	3	4	3	2	2	2	1	1	2	2	3	3	2	2	4
19-Jan	1	1	1	1	1	1	1	2	2	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3
20-Jan	3	3	3	3	3	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
21-Jan	2	2	2	2	2	2	2	2	2	2	3	3	3	2	3	3	2	2	2	2	2	2	2	1	3
22-Jan	1	2	1	1	1	1	2	2	2	3	4	5	5	5	5	5	5	6	5	6	5	5	5	4	6
23-Jan	4	4	4	4	4	3	3	3	3	3	2	2	1	2	2	2	2	2	3	2	2	2	2	2	4
24-Jan	1	1	1	1	3	2	2	3	4	4	5	5	5	4	5	4	5	4	5	4	3	2	2	2	5
25-Jan	3	2	3	2	2	2	2	1	1	1	1	1	1	1	1	2	3	2	3	2	2	3	2	2	3
26-Jan	2	2	2	1	1	1	1	1	2	2	2	1	2	2	2	2	2	2	2	2	2	1	1	1	2
27-Jan	1	2	1	2	2	3	3	4	3	4	3	4	3	4	4	3	3	2	2	2	1	1	1	2	4
28-Jan	2	3	3	3	3	3	3	3	3	3	5	4	5	5	5	5	4	2	3	2	2	2	1	2	5
29-Jan	1	1	1	3	3	3	4	3	4	4	4	5	5	5	4	3	3	3	4	3	3	2	2	2	5
30-Jan	2	3	2	2	3	2	1	1	3	3	5	5	5	4	4	3	5	5	4	5	5	5	3	3	5
31-Jan	3	2	2	2	3	2	2	2	1	1	2	2	2	3	2	2	3	4	4	4	5	5	6	7	7
Diurnal Maximum																								5	
UO - Unstable Operation																									



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

**Wind Direction (WD) - deg**  
**Wapasu - January 2024**

Direction of Maximum Speed: 152 deg on Feb 1 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 151.9 deg on Jan 22	Hours of Data: 738
Direction of Minimum Speed: 154 deg on Jan 12 00:00	Direction of Minimum Daily Speed Average: 0.5 deg on Jan 5
	Hours of Missing Data: 6
Monthly Average Direction: 149.5 deg	Percent Operational Time: 99.2

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-Jan	344	342	0	350	1	359	348	342	346	343	347	346	355	357	351	359	10	26	5	352	347	19	21	8	354.3
2-Jan	28	44	54	42	40	12	17	11	2	354	347	13	351	298	143	208	232	266	143	150	156	161	193	176	33.7
3-Jan	170	166	189	156	146	161	172	158	338	330	330	358	23	38	47	74	64	61	16	54	30	36	30	12	55.8
4-Jan	7	358	355	359	2	2	5	3	5	10	23	11	24	33	31	29	60	75	90	120	136	126	134	136	27.5
5-Jan	158	149	156	168	183	246	11	345	334	298	288	315	313	346	357	12	35	29	31	102	116	98	112	115	119.4
6-Jan	119	131	102	73	90	114	90	82	44	43	40	16	23	29	2	357	355	352	2	359	360	2	4	25	25.5
7-Jan	31	21	31	33	31	47	UO	171	123	UO	199	211	211	186	183	177	178	182	186	176	170	173	173	164	172.4
8-Jan	162	163	161	164	164	168	155	151	153	2	351	359	7	4	6	9	359	8	19	4	13	34	63	135	72.1
9-Jan	92	70	93	69	73	80	98	68	21	50	25	51	35	3	21	20	5	12	13	24	20	0	15	17	35.9
10-Jan	24	23	12	8	31	49	24	12	12	13	18	11	3	356	342	343	350	25	20	23	21	18	12	11	11.0
11-Jan	9	12	25	15	4	2	6	11	4	2	357	357	346	343	337	338	350	337	169	145	UO	327	286	154	357.0
12-Jan	169	153	148	145	144	150	148	148	148	148	165	170	187	201	220	222	146	139	142	150	153	155	154	149	157.7
13-Jan	151	156	148	151	145	149	155	142	125	136	141	216	221	263	338	354	UO	71	95	100	118	109	132	115	140.8
14-Jan	114	91	128	130	110	88	104	UO	60	32	22	10	6	22	4	6	42	48	29	95	125	UO	150	147	53.9
15-Jan	148	151	166	153	155	160	163	167	170	160	179	173	191	178	201	179	153	154	170	180	172	173	172	173	168.4
16-Jan	160	139	77	15	27	28	30	31	26	2	358	359	354	344	347	316	285	318	335	347	340	341	329	348	353.8
17-Jan	354	360	359	1	358	358	359	356	9	17	28	24	19	28	23	18	23	17	24	16	360	353	345	353	6.0
18-Jan	10	6	1	353	347	352	352	341	320	293	343	354	345	331	312	298	309	325	345	349	351	360	345	350	343.6
19-Jan	308	226	186	163	157	164	164	167	169	177	187	194	201	199	197	182	163	160	163	162	159	159	162	157	172.8
20-Jan	157	158	156	170	183	194	205	225	227	236	277	350	0	0	31	32	25	26	22	34	36	32	25	351	116.5
21-Jan	350	27	47	27	11	4	9	354	2	11	12	1	4	3	3	7	13	14	15	16	16	16	6	349	8.9
22-Jan	0	30	55	78	80	130	143	150	154	155	153	146	148	164	159	155	155	155	154	156	159	162	163	162	151.9
23-Jan	161	157	160	166	169	176	178	186	191	196	216	228	229	318	349	354	355	2	1	21	4	19	31	41	171.4
24-Jan	38	63	27	203	125	141	154	164	155	162	166	162	164	168	167	168	167	170	164	167	182	163	17	32	159.4
25-Jan	34	40	32	17	5	354	7	41	54	16	356	327	217	242	224	201	201	198	188	187	186	184	191	200	184.6
26-Jan	196	217	232	283	325	335	10	288	227	200	195	204	173	173	165	168	188	177	179	173	254	201	174	185	194.4
27-Jan	177	176	174	170	165	164	166	167	190	188	186	189	189	213	225	225	226	216	214	205	182	168	160	156	189.0
28-Jan	160	171	164	164	167	161	168	183	184	193	216	233	235	247	248	263	292	270	253	239	251	267	224	204	215.5
29-Jan	184	165	157	169	168	171	173	178	180	171	172	177	187	190	190	191	184	180	187	200	186	171	176	176	179.0
30-Jan	172	180	161	172	172	152	146	143	156	181	216	217	217	226	232	242	249	258	249	244	269	285	268	259	223.4
31-Jan	253	252	243	221	217	195	215	204	168	162	175	176	167	173	168	165	145	144	146	146	155	150	151	152	171.3

119.1 118.3 107.3 109.8 111.2 118.6 123.5 148.7 144.6 165.5 221.9 238.2 240.8 260.3 260.2 239.9 199.7 149.9 159.7 153.3 154.7 132.4 143.7 139.8  
 Diurnal Average

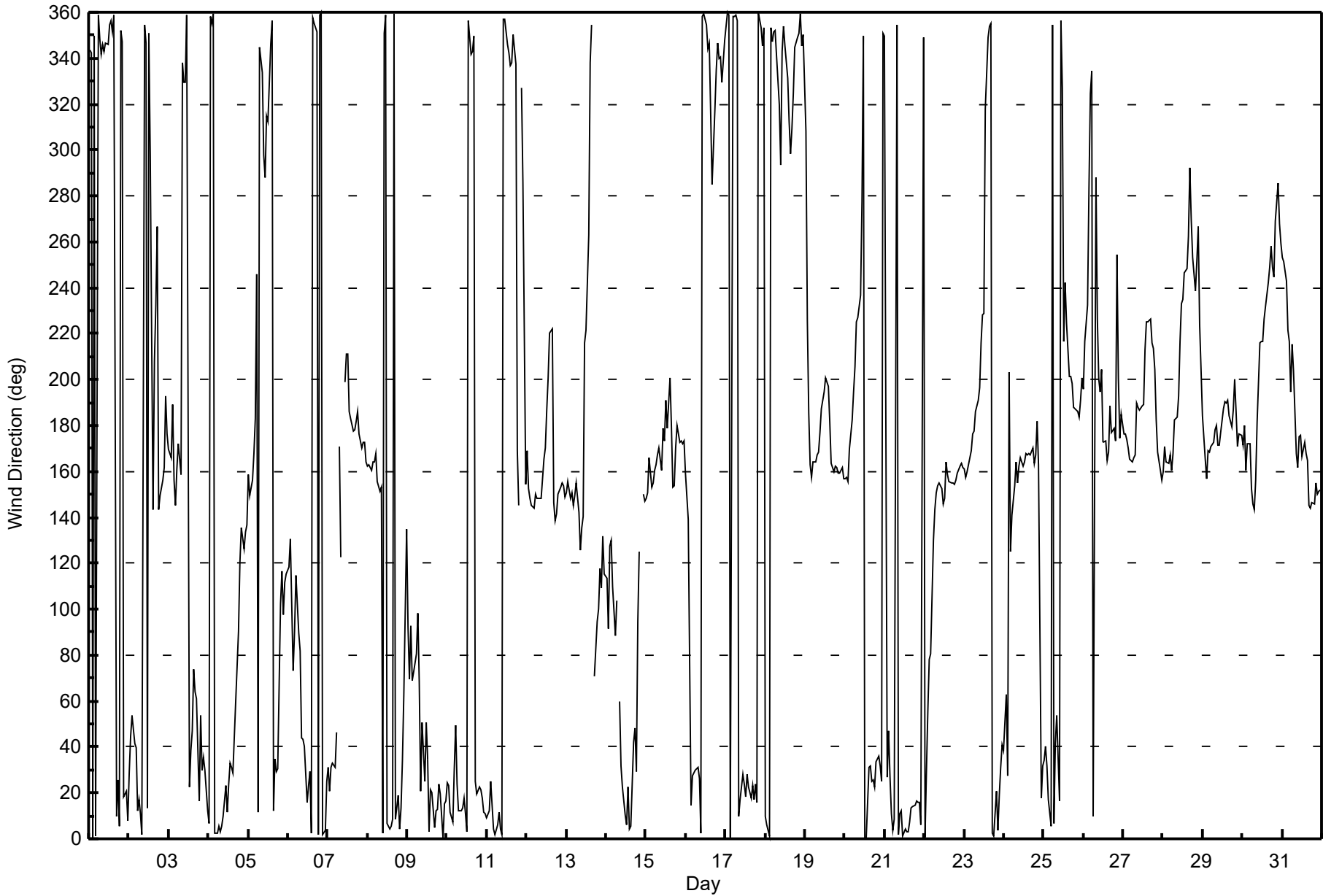
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





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

**Wind Direction (WD) - deg**  
**Wapasu - January 2024**





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

**Wind Direction (WD) - deg**  
**Wapasu - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 91 deg on Jan 24 05:00 Minimum Value: 1 deg on Jan 7 09:00 Percentiles: P <sub>1</sub> = 5 P <sub>10</sub> = 16 Q <sub>1</sub> = 20 Median = 25 Q <sub>3</sub> = 28 P <sub>90</sub> = 30 P <sub>99</sub> = 74																			Hours in Service: 744 Hours of Data: 738 Hours of Missing Data: 6 Hours of Calibration: 0 Percent Operational Time: 99.2						
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-Jan	22	13	25	21	26	25	21	17	18	18	18	19	23	22	22	25	28	25	25	30	25	26	26	26	30
2-Jan	25	21	15	23	24	30	24	27	28	25	23	34	46	56	91	23	20	71	66	21	24	25	39	26	91
3-Jan	20	21	27	19	16	18	24	30	15	26	21	27	29	30	23	24	23	22	27	25	27	27	28	28	30
4-Jan	28	24	22	25	26	28	27	25	28	26	28	28	29	31	29	24	24	23	27	24	34	23	25	19	34
5-Jan	29	22	28	27	30	64	25	28	20	37	28	26	29	27	30	24	26	46	51	20	12	14	14	11	64
6-Jan	16	19	20	27	15	22	38	24	21	25	25	27	29	29	26	22	21	19	26	25	25	25	25	29	38
7-Jan	25	29	25	24	27	28	UO	65	1	UO	33	24	23	29	29	28	26	28	29	28	26	27	28	21	65
8-Jan	21	22	22	26	24	26	17	14	14	75	21	24	26	25	24	25	23	27	27	26	29	22	43	29	75
9-Jan	19	29	15	14	16	19	16	24	41	32	27	26	35	25	28	30	27	27	27	27	26	24	27	28	41
10-Jan	30	29	27	27	25	18	29	28	28	29	28	28	27	25	19	18	23	24	26	28	29	30	30	29	30
11-Jan	30	27	26	28	28	29	29	28	27	27	25	23	18	20	20	17	20	19	86	6	UO	17	18	89	89
12-Jan	56	20	6	3	5	4	4	5	4	8	21	25	29	31	28	15	16	3	4	7	8	10	9	7	56
13-Jan	6	8	8	10	8	18	10	15	17	9	9	35	19	29	24	15	UO	22	19	14	13	10	14	13	35
14-Jan	10	20	23	14	24	6	32	UO	26	18	31	28	25	30	25	26	25	20	24	35	42	UO	47	9	47
15-Jan	8	7	16	13	10	11	11	14	21	16	25	24	26	27	25	27	16	16	17	19	17	16	14	16	27
16-Jan	11	49	14	27	26	22	27	25	30	28	28	25	22	18	17	31	22	24	17	16	14	16	17	20	49
17-Jan	23	25	24	26	25	23	25	23	27	28	28	28	30	32	30	26	15	22	29	28	24	20	15	20	32
18-Jan	20	28	26	22	18	21	21	17	24	28	19	23	21	18	22	24	26	20	18	17	20	24	20	20	28
19-Jan	32	33	19	16	11	12	16	19	21	28	28	28	25	28	28	28	22	23	22	22	22	19	21	22	33
20-Jan	24	21	20	27	26	26	25	19	16	20	37	25	25	28	30	29	26	26	29	28	25	28	27	23	37
21-Jan	20	28	25	33	29	28	27	23	25	26	28	25	26	25	27	25	29	28	26	30	29	28	26	16	33
22-Jan	24	27	28	26	35	23	20	18	19	21	20	19	20	26	22	19	21	20	20	19	20	22	23	21	35
23-Jan	21	20	23	26	27	27	29	28	28	27	23	18	20	37	23	20	19	23	24	28	29	30	26	23	37
24-Jan	22	21	46	75	91	19	19	23	19	25	26	23	23	26	24	26	25	25	21	25	53	84	39	26	91
25-Jan	29	24	29	30	25	21	30	27	25	29	25	68	28	20	19	25	26	27	28	28	30	29	29	24	68
26-Jan	26	26	21	89	21	27	34	38	60	29	31	33	29	26	24	24	29	28	28	24	36	51	18	25	89
27-Jan	23	24	21	23	20	22	24	24	26	27	29	28	27	25	18	16	17	18	20	24	18	13	14	16	29
28-Jan	19	23	22	20	21	21	26	28	27	28	24	17	17	21	23	26	28	24	24	37	20	27	17	20	37
29-Jan	19	14	14	26	22	23	25	26	28	24	26	28	31	28	30	29	29	28	29	25	27	19	27	24	31
30-Jan	34	26	18	23	24	20	14	17	23	30	30	24	23	17	19	21	23	26	23	20	29	27	26	25	34
31-Jan	23	23	21	19	20	25	20	20	23	17	26	27	25	26	22	19	16	17	19	17	20	19	20	21	27
56 49 46 89 91 64 38 65 60 75 37 68 46 56 91 31 29 71 86 37 53 84 47 89																									
Diurnal Maximum																									
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS18 STONY MOUNTAIN JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
 JANUARY 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	650	34	94	91.94	11.9	0	2.4	0
TRS(ppb) Average	708	36	36	100	0.4	0	0.3	0
THC(ppm) Average	369	23	375	52.69	2.4	-	2.1	-
NMHC(ppm) Average	369	23	375	52.69	0.134	-	0.015	-
CH4(ppm) Average	369	23	375	52.69	2.3	-	2.1	-
O3 (ppb) Average	708	36	36	100	46.4	0	40	-
NO2 (ppb) Average	707	37	37	100	16	0	5	-
NO (ppb) Average	707	37	37	100	2.7	-	0.4	-
NOX (ppb) Average	707	37	37	100	16	-	5.2	-
PM2.5 (ug/m3) Average	742	2	2	100	36.8	0	20.1	0
CO(ppm) Average	646	35	98	91.53	0.3	0	0.2	0
CO2(ppm) Average	709	35	35	100	452.9	0	445.9	0
Temperature 2 m (C) Average	744	0	0	100	12.1	-	6.4	-
Relative Humidity (%) Average	744	0	0	100	96.5	-	90.4	-
Wind Speed 20 m (km/h) Average	732	0	12	98.39	26	-	21	-
Wind Direction 20 m (deg) Average	732	0	12	98.39	-	-	-	-
Precipitation (mm) Total	744	0	0	100	0.6	-	4.2	-
Leaf Wetness (% of range) Average	744	0	0	100	33.7	-	6.5	-
Global Solar Radiation (W/m2) Average	744	0	0	100	308.6	-	50	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
 JANUARY 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	650	0.7	1.1	-	0	0.1	0.2	0.4	0.8	1.4	11.9
TRS (ppb) Average	708	0.24	0	-	0.2	0.2	0.2	0.2	0.3	0.3	0.4
THC (ppm) Average	369	2.06	0	-	2	2	2	2.1	2.1	2.1	2.4
NMHC(ppm) Average	369	0.003	0.012	-	0	0	0	0	0	0	0.134
CH4(ppm) Average	369	2.06	0	-	2	2	2	2.1	2.1	2.1	2.3
O3 (ppb) Average	708	27.55	5.9	-	6.8	20	23.6	28.2	30.9	34	46.4
NO2 (ppb) Average	707	2.43	1.9	-	0.2	0.6	1	1.9	3.3	5.1	16
NO (ppb) Average	707	0.12	0.3	-	0	0	0	0	0.1	0.4	2.7
NOX (ppb) Average	707	2.54	2	-	0.2	0.6	1	2	3.6	5.3	16
PM2.5 (ug/m3) Average	742	5.18	5.2	-	0.3	1.7	2.7	3.4	5.3	11.6	36.8
CO(ppm) Average	646	0.17	0	-	0.1	0.1	0.2	0.2	0.2	0.2	0.3
CO2(ppm) Average	709	436.09	4.1	-	429	431	432.9	435.7	438.8	441.8	452.9
Temperature 2 m (C) Average	744	-15.51	12.2	-	-40.4	-32.3	-23.9	-16	-7.5	2.6	12.1
Relative Humidity (%) Average	744	75.56	10.7	-	31.8	63.6	68.4	76.2	84	88.7	96.5
Wind Speed 20 m (km/h) Average	732	8.3	6	-	0	2	3	6	12	18	26
Wind Direction 20 m (deg) Average	732	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	8.91	-	-	-	-	-	-	-
Surface Wetness (% of range) Average	744	3.67	2	-	0.9	1.8	2.1	3.4	4.9	6	33.7
Global Solar Radiation (W/m2) Average	744	15.7	41	-	0	0	0	0	12.3	42.9	308.6

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
JANUARY 2024

MONTHLY SUMMARY

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	03 Jan 2024 11:00	04 Jan 2024 04:00	18	Unstable Operations - station temperature fluctuation
SO2	04 Jan 2024 06:00	05 Jan 2024 05:00	24	Unstable Operations - station temperature fluctuation
SO2	05 Jan 2024 07:00	06 Jan 2024 00:00	18	Unstable Operations - station temperature fluctuation
THC/NMHC/CH4	01 Jan 2024 15:00	02 Jan 2024 02:00	12	Unstable Operations - station temperature fluctuation
THC/NMHC/CH4	02 Jan 2024 04:00	05 Jan 2024 05:00	74	Unstable Operations - station temperature fluctuation
THC/NMHC/CH4	09 Jan 2024 11:00	09 Jan 2024 14:00	4	Unstable Operations - station temperature fluctuation
THC/NMHC/CH4	21 Jan 2024 01:00	21 Jan 2024 03:00	3	Unstable Operations - excessive baseline noise
THC/NMHC/CH4	21 Jan 2024 05:00	22 Jan 2024 12:00	32	Unstable Operations - excessive baseline noise
THC/NMHC/CH4	22 Jan 2024 13:00	22 Jan 2024 16:00	4	Maintenance - retention time adjusted
THC/NMHC/CH4	22 Jan 2024 17:00	23 Jan 2024 05:00	13	Unstable Operations - excessive baseline drift
THC/NMHC/CH4	23 Jan 2024 07:00	23 Jan 2024 12:00	6	Unstable Operations - excessive baseline drift
THC/NMHC/CH4	23 Jan 2024 13:00	23 Jan 2024 17:00	5	Maintenance - analyzer replaced
THC/NMHC/CH4	23 Jan 2024 18:00	01 Feb 2024 00:00	199	Unstable Operations - inconsistent response
CO	01 Jan 2024 01:00	01 Jan 2024 05:00	5	Unstable Operations - station temperature fluctuation
CO	01 Jan 2024 07:00	02 Jan 2024 00:00	18	Unstable Operations - station temperature fluctuation
CO	02 Jan 2024 02:00	03 Jan 2024 01:00	24	Unstable Operations - station temperature fluctuation
CO	03 Jan 2024 03:00	03 Jan 2024 13:00	11	Unstable Operations - station temperature fluctuation
CO	09 Jan 2024 11:00	09 Jan 2024 15:00	5	Unstable Operations - station temperature fluctuation
Wind Speed, Wind Direction 20m	12 Jan 2024 17:00	12 Jan 2024 17:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	13 Jan 2024 03:00	13 Jan 2024 11:00	9	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	13 Jan 2024 14:00	13 Jan 2024 14:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	13 Jan 2024 18:00	13 Jan 2024 18:00	1	Flat line in sensor output signal - Sensor frozen



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Sulphur Dioxide (SO<sub>2</sub>) - ppb Stony Mountain - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.9 ppb on Jan 15 17:00	Maximum Daily Average: 2.4 ppb on Jan 15		Hours of Data:	650
Minimum Value: 0.0 ppb on Jan 1 07:00	Minimum Daily Average: 0.2 ppb on Jan 26		Hours of Missing Data:	94
Maximum Diurnal Average: 1.0 ppb at hour 17	Minimum Diurnal Average: 0.4 ppb at hour 21		Hours of Calibration:	34
Monthly Average: 0.70 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 1.4 P <sub>99</sub> = 5.7		Percent Operational Time:	91.9

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-Jan	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.3	1.0	0.9	0.7	0.4	0.4	0.4	0.2	0.1	0.2	0.2	0.2	0.1	0.3	1.0
2-Jan	0.1	0.4	Z	0.2	0.3	0.4	0.7	0.8	0.8	1.1	1.2	1.3	1.7	1.7	1.4	1.2	0.9	0.9	0.7	0.8	0.7	0.4	0.4	0.3	0.8	1.7
3-Jan	0.4	0.4	0.5	Z	0.3	0.3	0.2	0.3	0.4	0.5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.5
4-Jan	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
5-Jan	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
6-Jan	Z	3.0	3.0	2.1	0.6	0.5	0.3	0.4	0.5	0.8	1.2	1.2	0.9	0.6	0.5	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.9	3.0
7-Jan	0.7	Z	0.9	0.9	1.0	1.0	1.0	1.1	1.0	0.3	0.0	0.4	0.5	0.5	0.5	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.5	1.1
8-Jan	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.2	0.1	0.1	0.1	0.3	0.3	0.3	0.2	0.8	0.7	1.1	1.8	2.2	0.4	2.2
9-Jan	2.2	1.9	1.9	Z	1.7	1.1	0.9	0.6	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.3	0.2	0.2	0.4	0.4	0.5	0.8	2.2
10-Jan	0.4	0.7	0.8	0.8	Z	0.9	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.1	1.4	3.3	5.9	2.4	0.8	0.6	0.6	0.4	0.4	0.9	5.9
11-Jan	0.5	0.2	0.1	1.6	1.3	Z	0.5	0.3	0.5	1.2	1.1	0.7	C	C	C	0.5	0.2	0.4	0.4	0.4	0.3	0.5	0.5	0.4	0.6	1.6
12-Jan	Z	0.5	0.6	0.7	0.6	0.8	0.6	0.5	0.2	0.3	0.3	0.8	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.8
13-Jan	0.1	Z	0.1	0.2	0.1	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.6	0.8	0.3	0.3	0.5	0.4	0.3	0.5	1.1	0.4	1.1
14-Jan	2.0	0.8	Z	2.1	5.6	4.0	2.9	3.1	4.4	9.8	3.7	2.4	3.2	1.7	1.3	1.2	1.0	0.9	0.6	0.5	0.3	0.1	0.1	0.2	2.3	9.8
15-Jan	0.3	0.4	0.7	Z	0.3	0.3	0.3	0.1	0.1	0.3	0.5	0.8	0.6	1.9	3.7	5.1	11.9	9.7	6.7	3.0	1.4	1.5	2.6	1.8	2.4	11.9
16-Jan	1.2	1.0	1.0	0.8	Z	1.0	0.9	0.8	1.3	1.7	2.3	2.6	1.8	1.5	2.3	2.3	1.3	0.4	0.2	0.2	0.2	0.1	0.0	0.1	1.1	2.6
17-Jan	0.1	0.0	0.1	0.0	0.1	Z	0.3	0.4	0.2	0.1	0.1	0.1	0.3	1.8	0.9	0.4	0.3	0.1	0.1	0.2	0.4	0.2	0.2	0.4	0.3	1.8
18-Jan	Z	0.1	0.2	0.5	2.1	5.7	3.5	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.7	5.7
19-Jan	0.2	Z	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.7	0.5	0.4	0.4	0.4	0.5	0.9	1.4	0.4	1.4
20-Jan	1.1	0.8	Z	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.8	0.5	0.5	0.5	1.1
21-Jan	0.5	0.7	0.5	Z	0.5	3.8	7.4	4.8	2.6	2.0	1.8	1.4	0.5	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.3	1.4	7.4
22-Jan	0.3	0.3	0.3	0.3	Z	0.2	0.1	0.2	0.2	0.8	0.4	0.3	0.3	0.5	0.5	0.4	0.3	0.4	0.5	0.3	0.3	0.4	0.2	0.3	0.3	0.8
23-Jan	0.2	0.1	0.1	0.0	0.1	Z	0.0	0.1	0.0	0.0	0.1	0.2	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.5
24-Jan	Z	0.6	1.4	1.1	0.7	0.8	0.6	0.5	0.4	0.4	0.3	0.6	0.7	0.8	1.0	1.4	1.2	0.8	0.6	0.7	0.8	0.6	0.5	0.4	0.7	1.4
25-Jan	0.5	Z	0.5	0.3	0.3	0.3	0.3	0.2	1.5	1.6	1.8	1.5	1.5	1.2	1.1	1.2	1.3	1.0	0.7	0.5	0.3	0.4	0.4	0.2	0.8	1.8
26-Jan	0.2	0.1	Z	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
27-Jan	0.4	1.3	2.7	Z	2.3	1.1	0.4	0.4	0.4	0.4	1.0	1.2	1.1	1.1	0.8	0.6	0.5	0.5	0.4	0.3	0.4	0.4	0.4	0.3	0.8	2.7
28-Jan	0.3	0.3	0.3	0.8	Z	1.0	0.8	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.0
29-Jan	0.2	0.3	0.2	0.1	0.2	Z	0.1	0.3	0.9	0.8	0.6	0.4	0.4	0.4	0.5	1.1	1.3	1.2	1.2	1.1	1.3	1.1	0.8	0.6	0.7	1.3
30-Jan	Z	0.5	0.3	1.1	1.1	1.1	0.8	2.5	2.0	1.5	0.9	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	0.6	2.5
31-Jan	0.1	Z	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.5	0.2	0.2	0.1	0.1	0.3	0.6	0.4	0.3	0.2	0.5	0.6	0.2	0.6

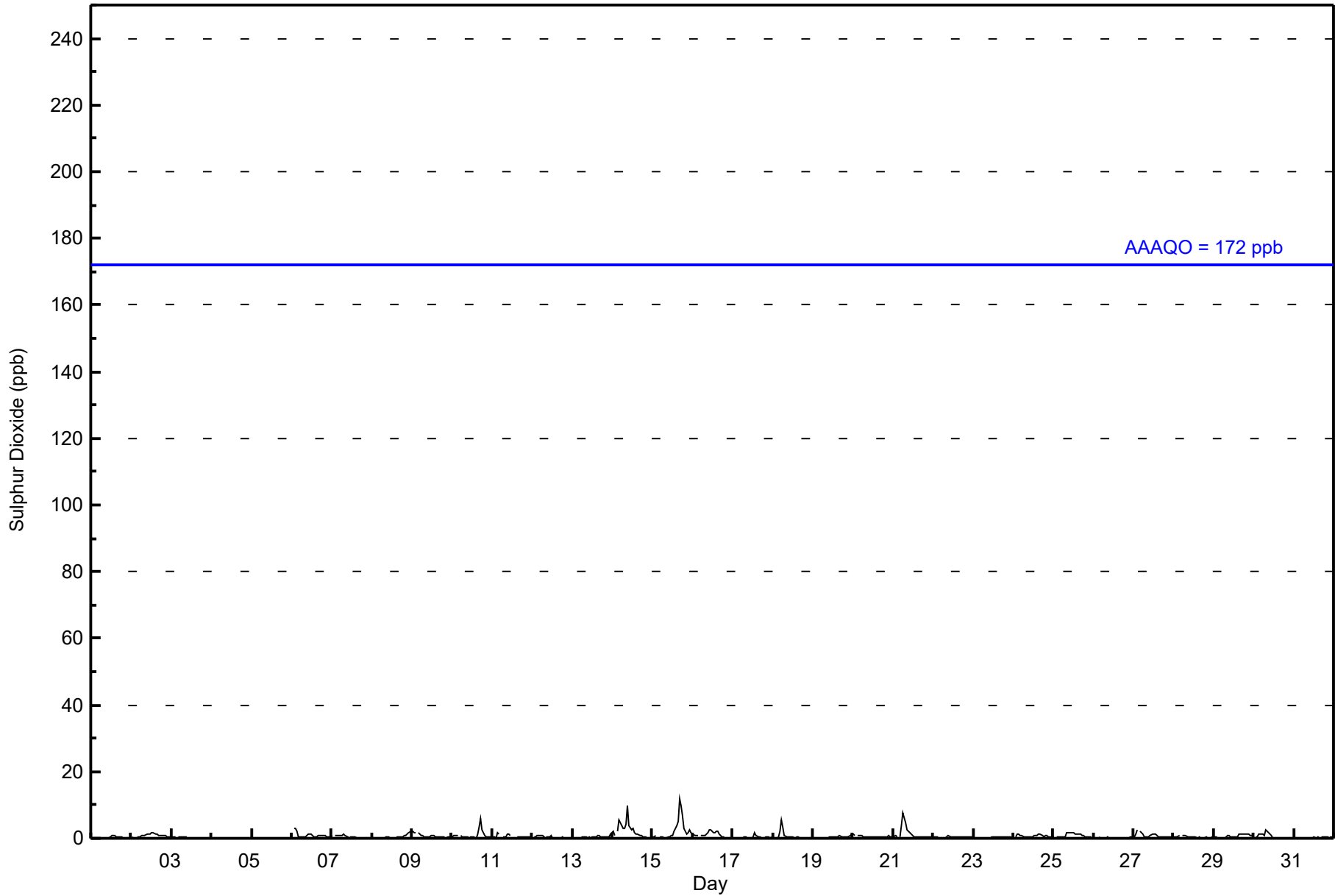
0.5	0.6	0.7	0.6	0.8	1.0	0.9	0.7	0.7	0.9	0.7	0.7	0.7	0.7	0.7	0.8	1.0	1.0	0.7	0.5	0.4	0.4	0.5	0.5	Diurnal Average	
2.2	3.0	3.0	2.1	5.6	5.7	7.4	4.8	4.4	9.8	3.7	2.6	3.2	1.9	3.7	5.1	11.9	9.7	6.7	3.0	1.4	1.5	2.6	2.2	Diurnal Maximum	

Z - zerospan                      C - Calibration                      UO - Unstable Operation  
 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 - January 2024**







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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	649	99.85	99.85
11 - 20	1	0.15	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: 650

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - January 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	14	43	38	16	18	13	11	25	36	84	66	22	44	65	93	49	637
11 - 20	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
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>	14	43	38	16	18	13	11	25	36	85	66	22	44	65	93	49	638

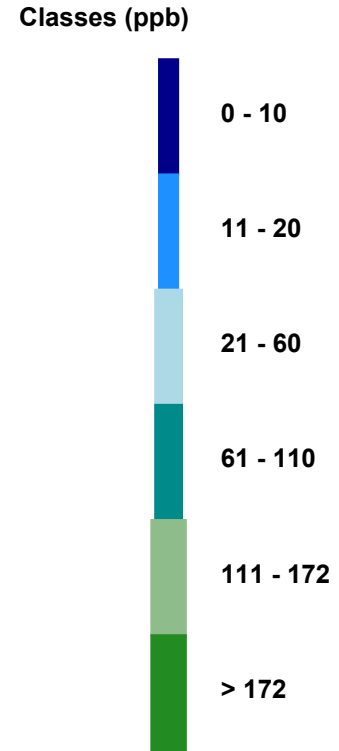
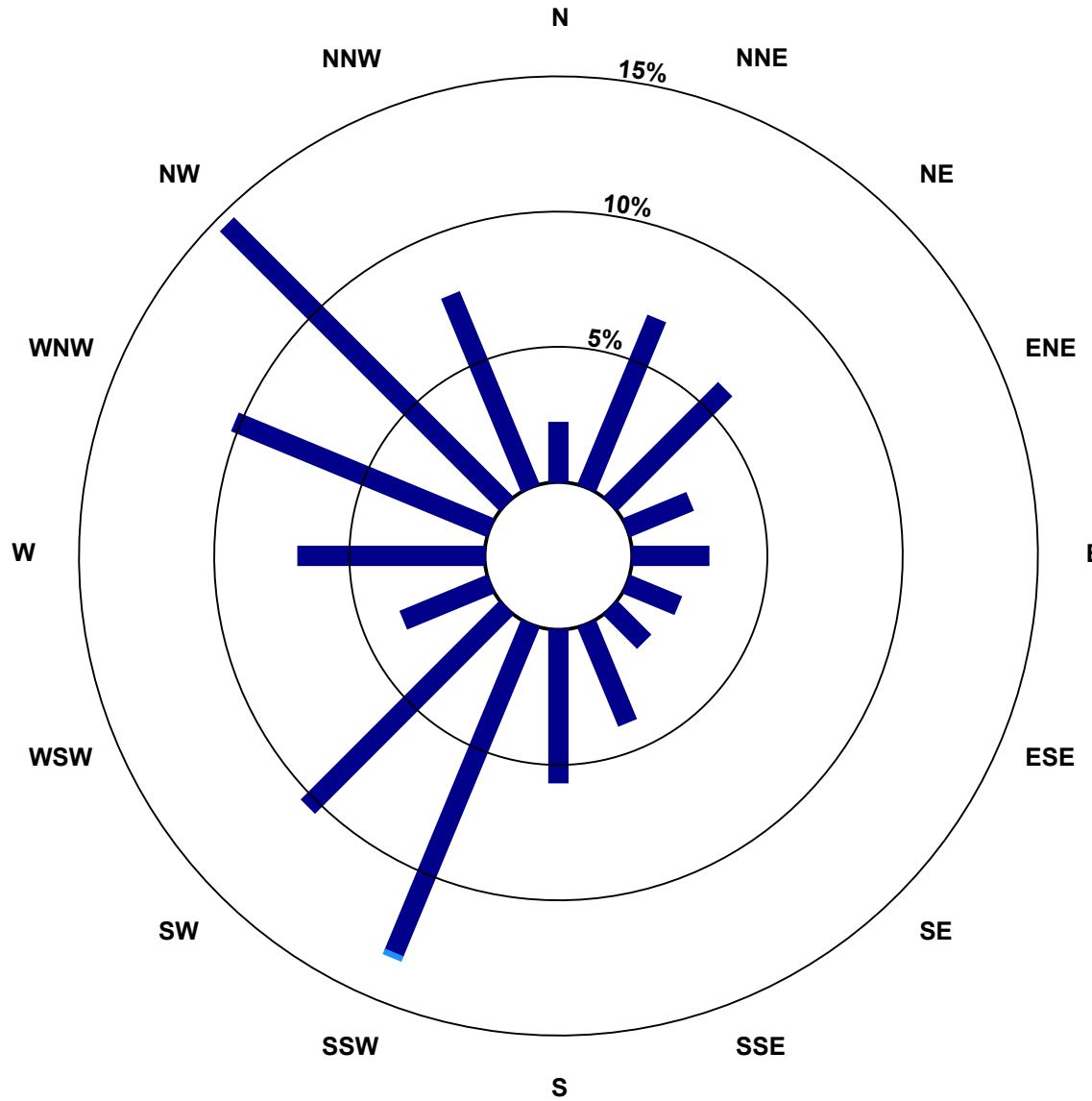
Total Number of Valid Hours: 638

Total Number of Hours: 744

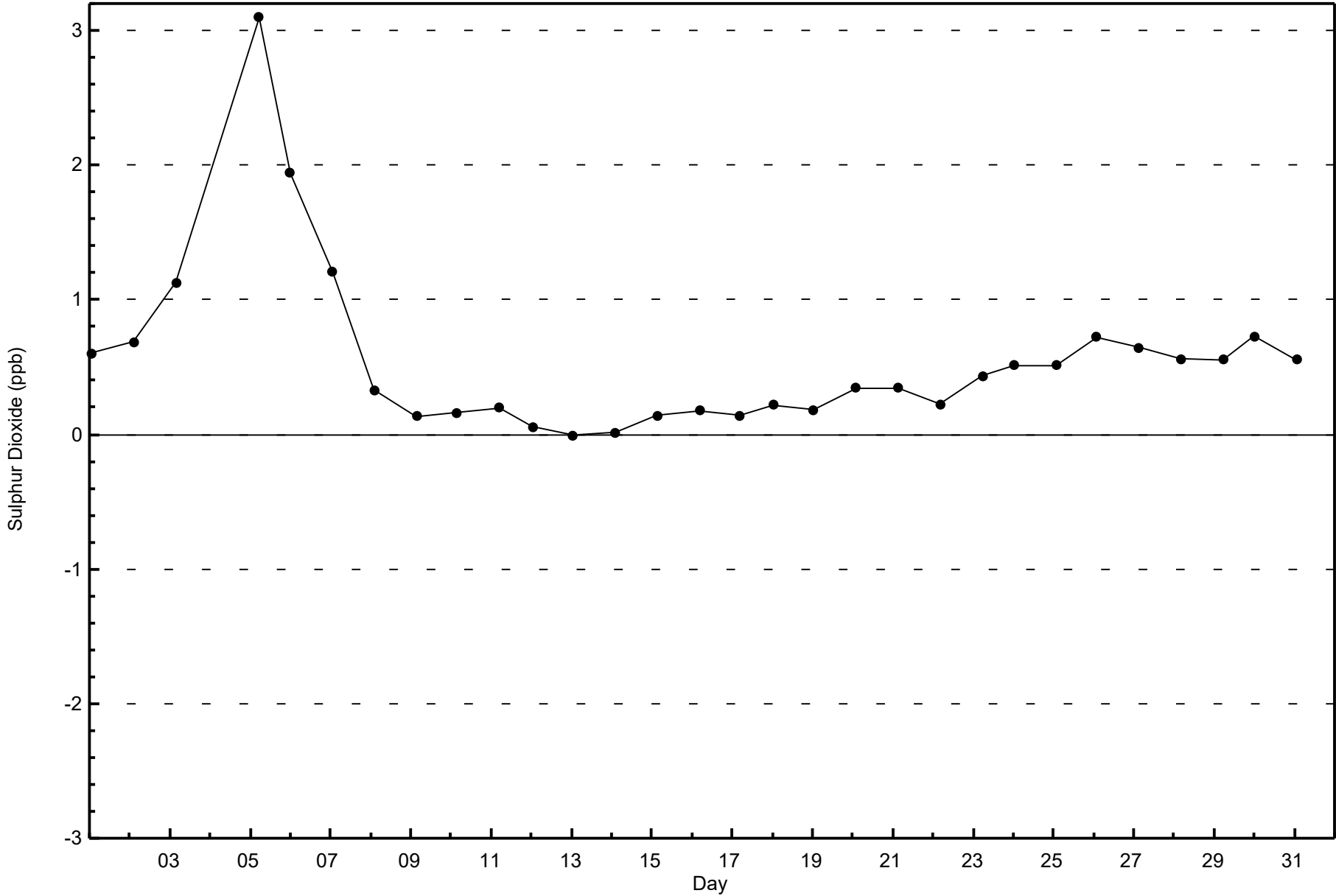


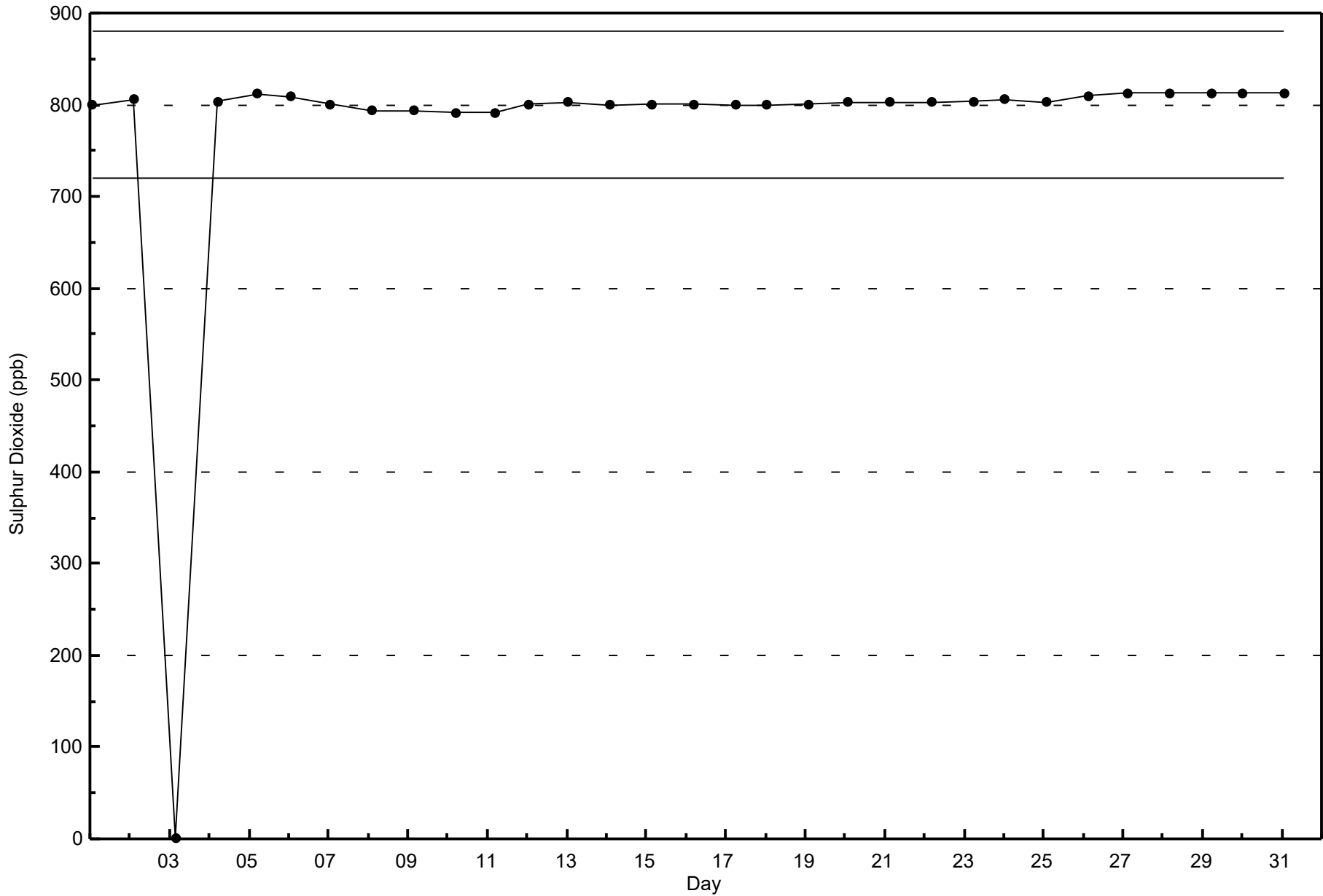
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

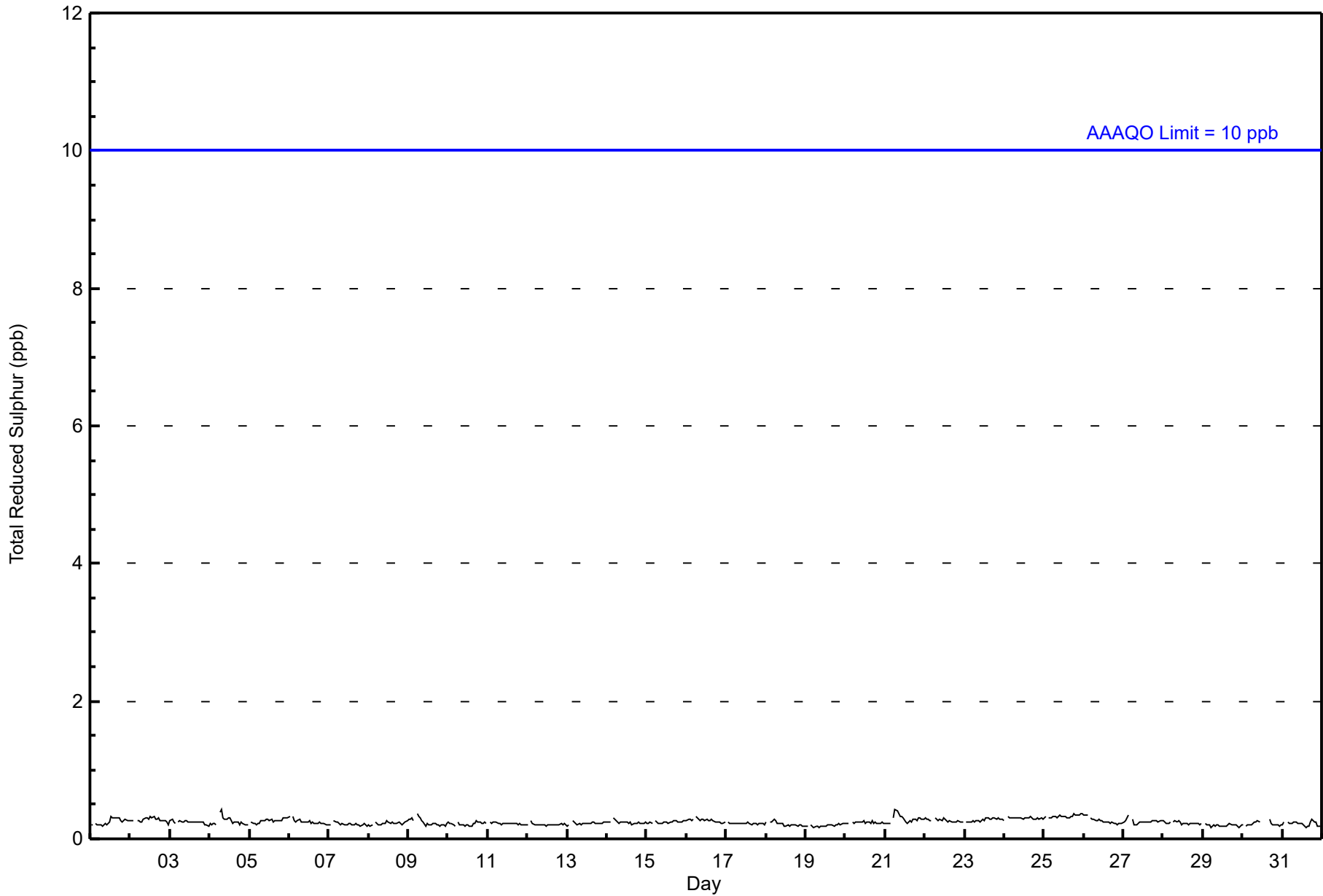


Total Number of Valid Hours: 638











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

**Total Reduced Sulphur (TRS) - ppb**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	708	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: 708

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Stony Mountain - January 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	15	46	40	22	27	19	14	28	39	86	71	23	41	64	104	58	697
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>	15	46	40	22	27	19	14	28	39	86	71	23	41	64	104	58	697

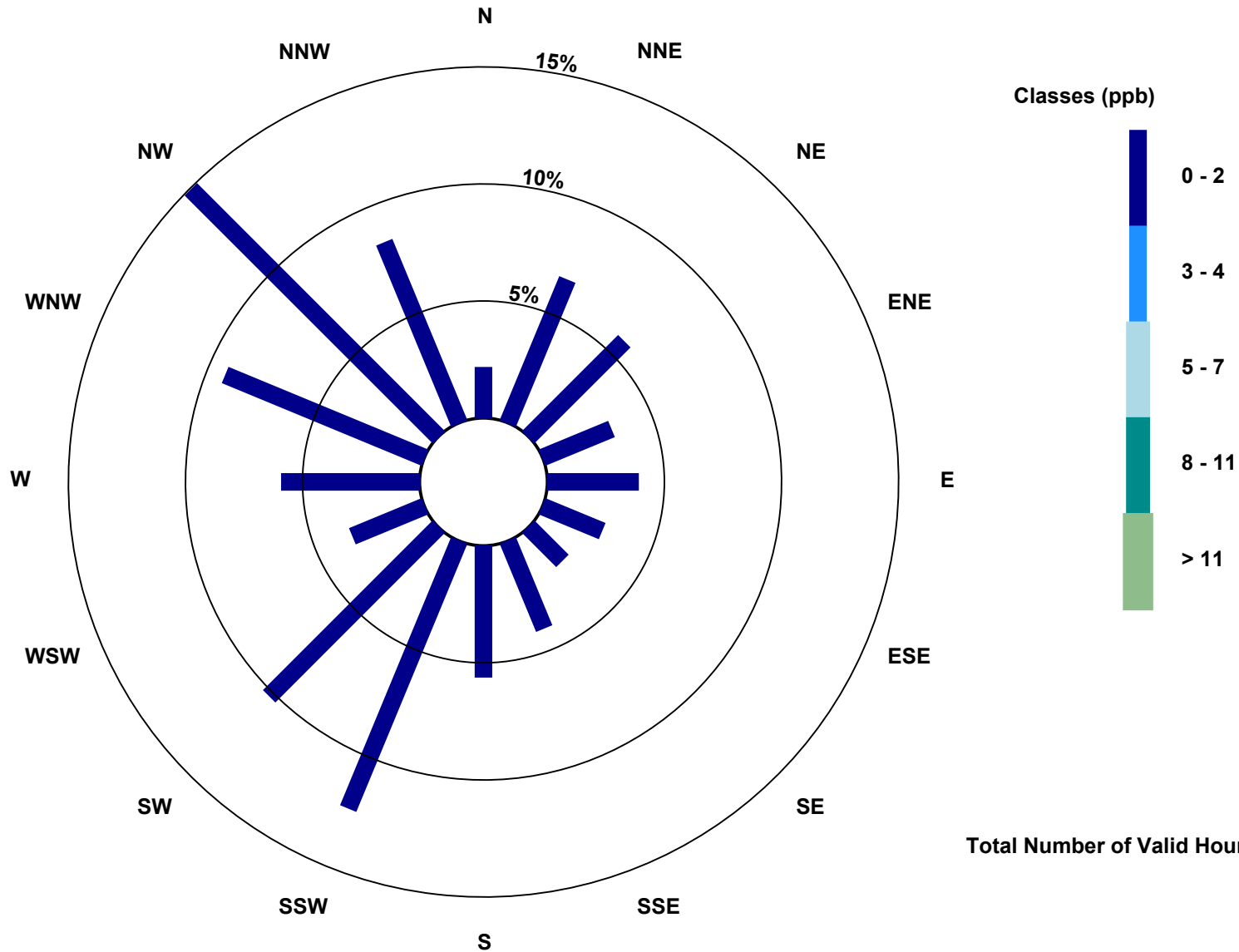
Total Number of Valid Hours: 697

Total Number of Hours: 744

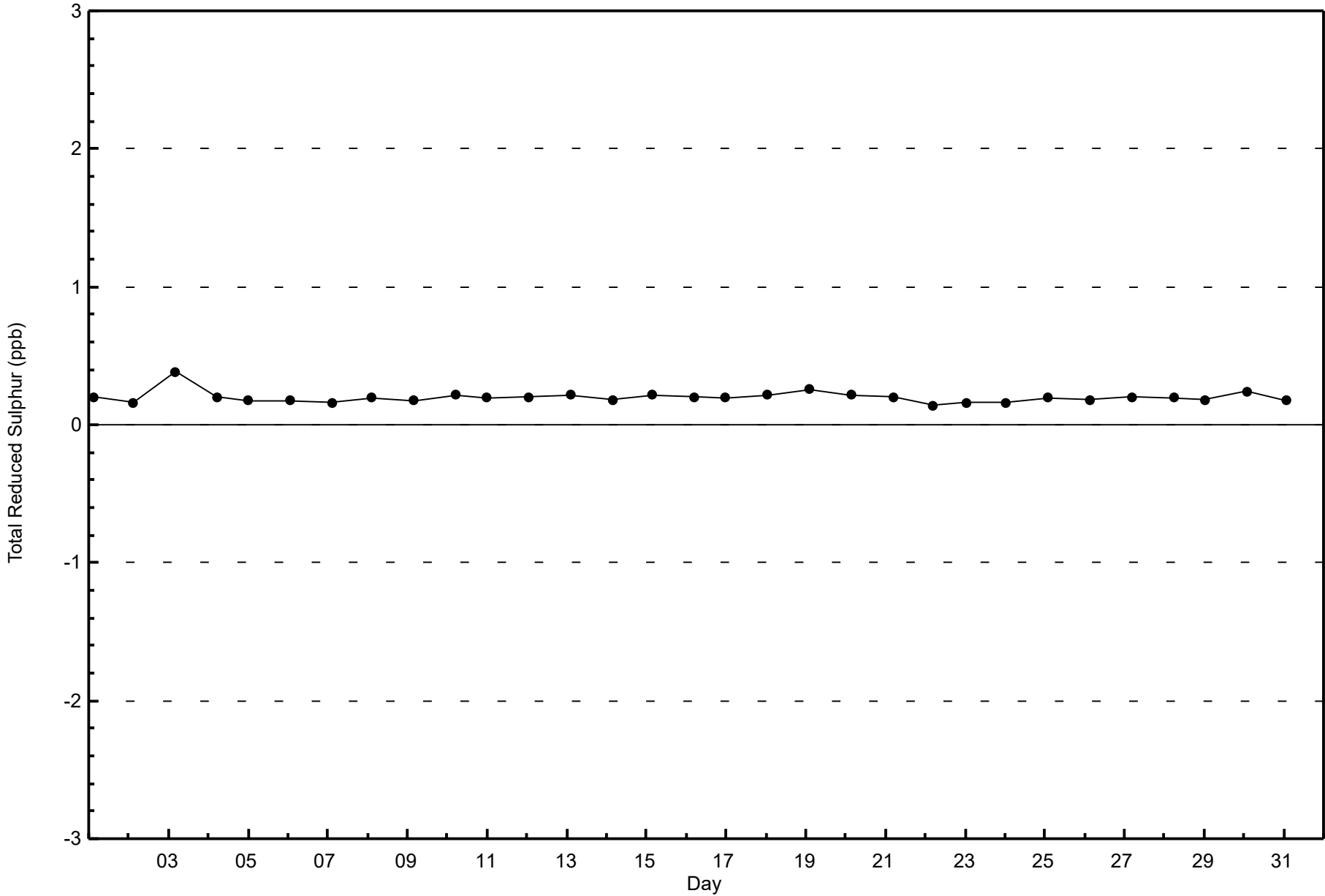


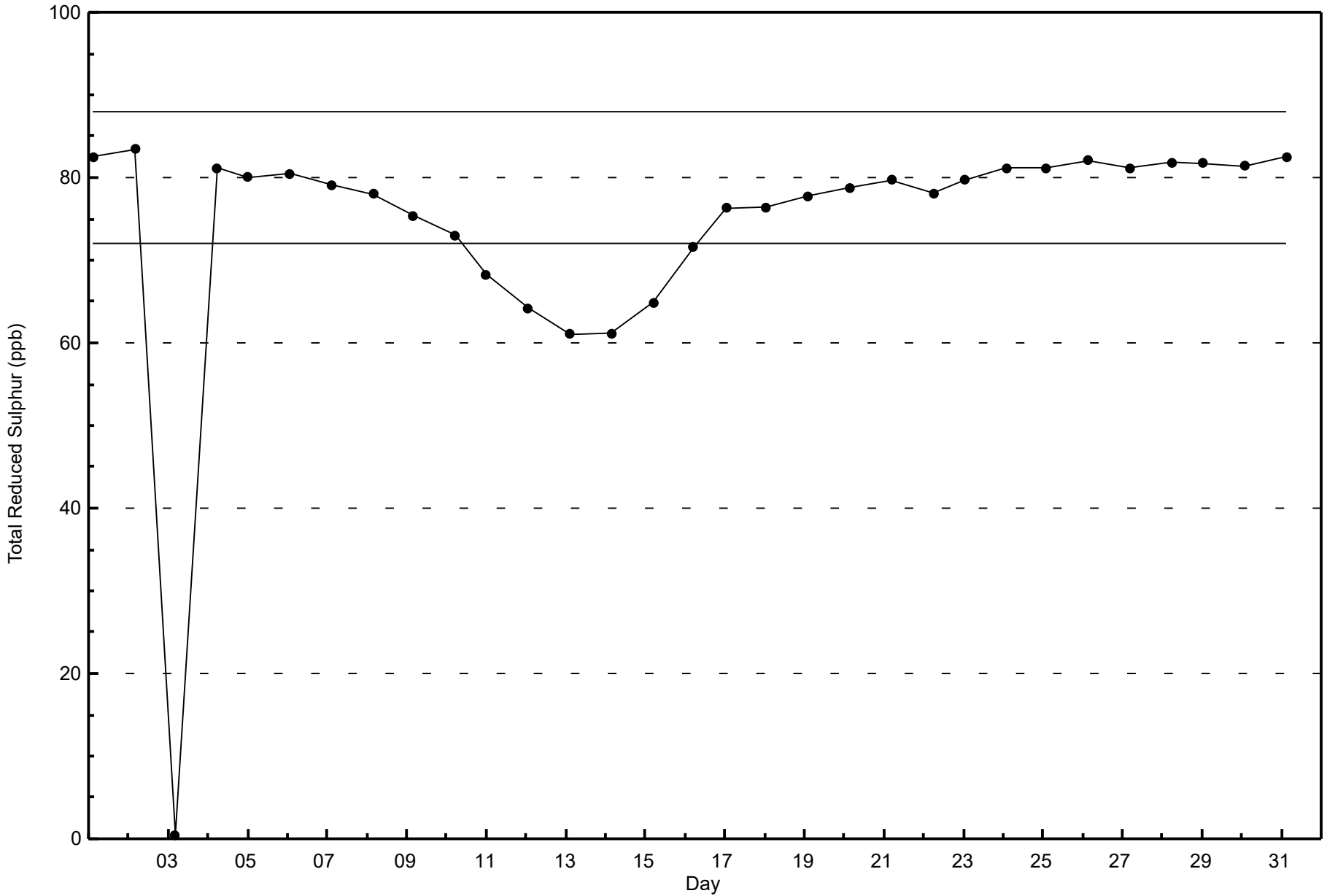
**Wood Buffalo Environmental Association**  
**Wind Rose Jan 2024**

**Total Reduced Sulphur (TRS) - ppb**  
**Stony Mountain**



Total Number of Valid Hours: 697







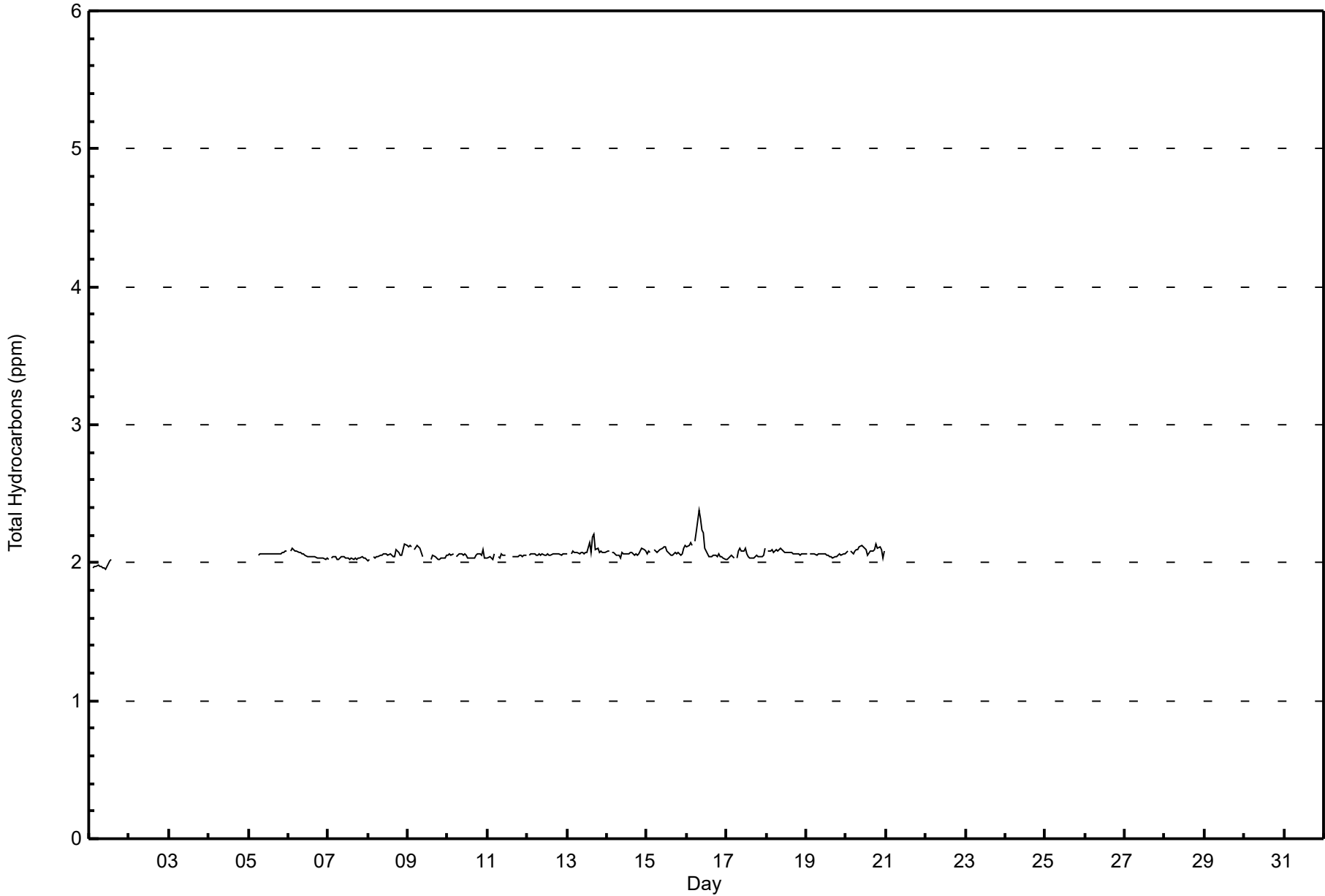
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Stony Mountain - January 2024

Maximum Value: 2.4 ppm on Jan 16 08:00		Maximum Daily Average: 2.1 ppm on Jan 16		Hours in Service: 744																							
Minimum Value: 2.0 ppm on Jan 1 11:00		Minimum Daily Average: 2.0 ppm on Jan 7		Hours of Data: 369																							
Maximum Diurnal Average: 2.1 ppm at hour 8		Minimum Diurnal Average: 2.1 ppm at hour 15		Hours of Missing Data: 375																							
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> = 2.2		Hours of Calibration: 23																							
				Percent Operational Time: 52.7																							
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-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.0	
2-Jan	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--	
3-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--	
4-Jan	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-Jan	UO	UO	UO	UO	UO	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
6-Jan	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	2.1	2.1	
7-Jan	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
8-Jan	2.0	2.0	Z	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	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	UO	UO	UO	UO	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
10-Jan	2.1	2.1	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1
11-Jan	2.0	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.1	2.1	2.1	2.1	C	C	C	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1
12-Jan	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
13-Jan	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	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
14-Jan	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	2.1
15-Jan	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	2.1
16-Jan	2.1	2.1	2.1	2.1	Z	2.2	2.2	2.4	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.4	2.1
17-Jan	2.0	2.0	2.0	2.1	2.0	Z	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	2.1	2.1	2.1	2.1
18-Jan	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
19-Jan	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	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
20-Jan	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	2.0	2.1	2.1	2.1
21-Jan	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
22-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
23-Jan	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	M	M	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
24-Jan	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	UO	UO
25-Jan	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	UO	UO
26-Jan	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	UO	UO
27-Jan	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	UO	UO
28-Jan	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	UO	UO
29-Jan	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	UO	UO
30-Jan	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	UO	UO
31-Jan	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	UO	UO
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan																								C - Calibration			
																								M - Maintenance			
																								UO - Unstable Operation			





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

**Total Hydrocarbons (THC) - ppm**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	116	31.44	31.44
2.1 - 3.0	253	68.56	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 369

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Stony Mountain - January 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	4	22	14	2	0	4	3	3	6	9	0	0	1	6	20	22	116
2.1 - 3.0	4	11	11	4	5	5	1	3	6	13	20	5	8	56	69	20	241
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>	8	33	25	6	5	9	4	6	12	22	20	5	9	62	89	42	357

Total Number of Valid Hours: 357

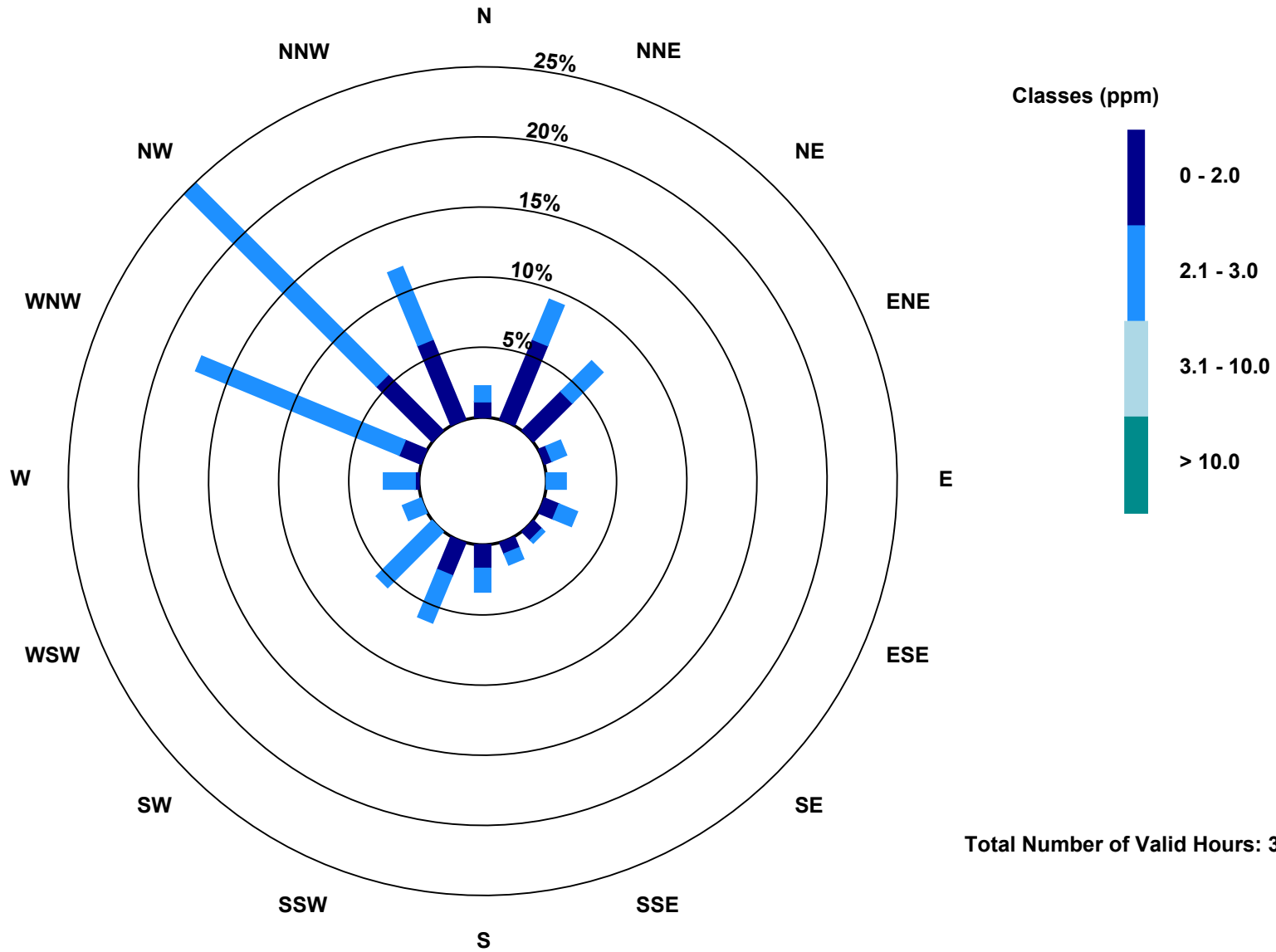
Total Number of Hours: 744

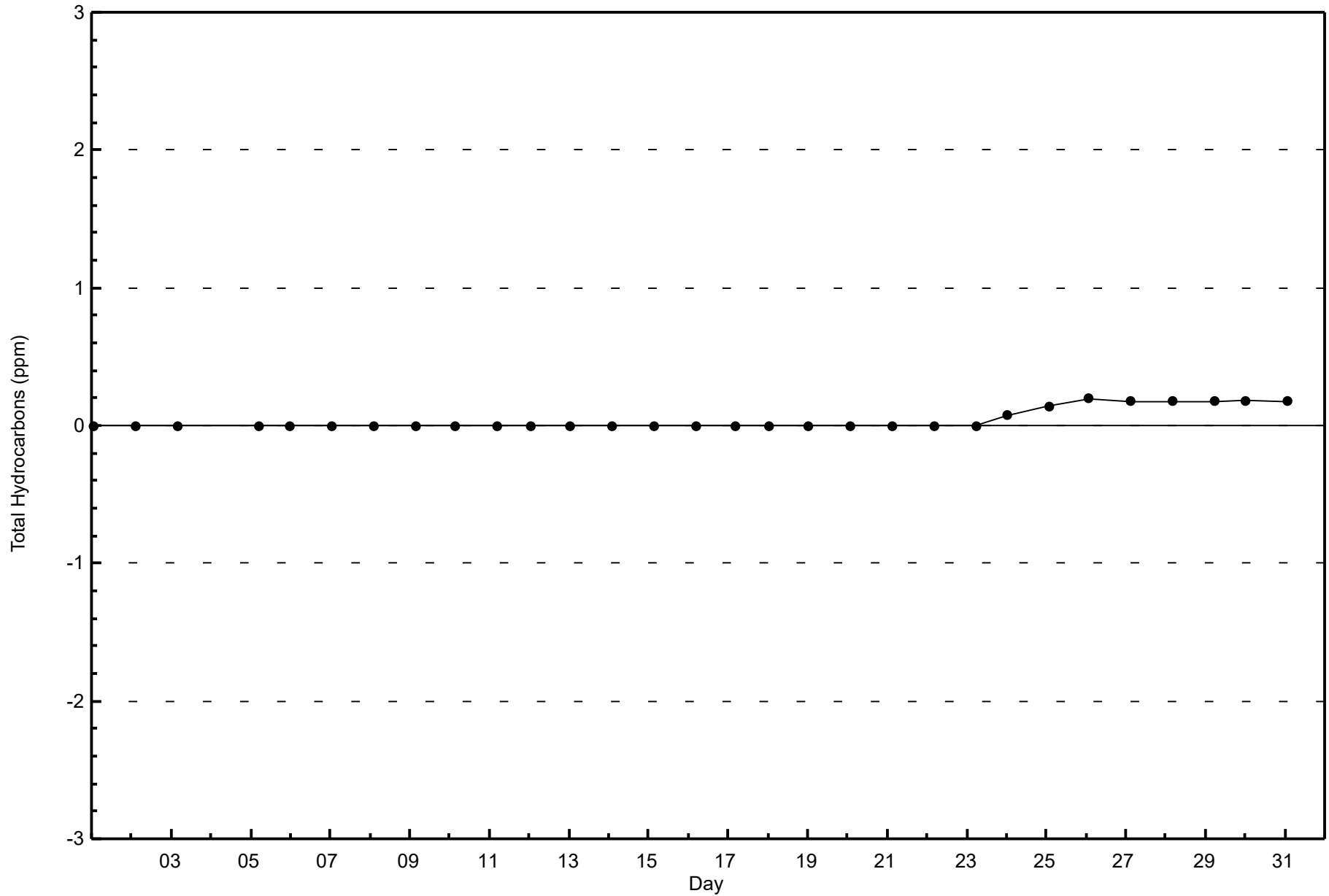


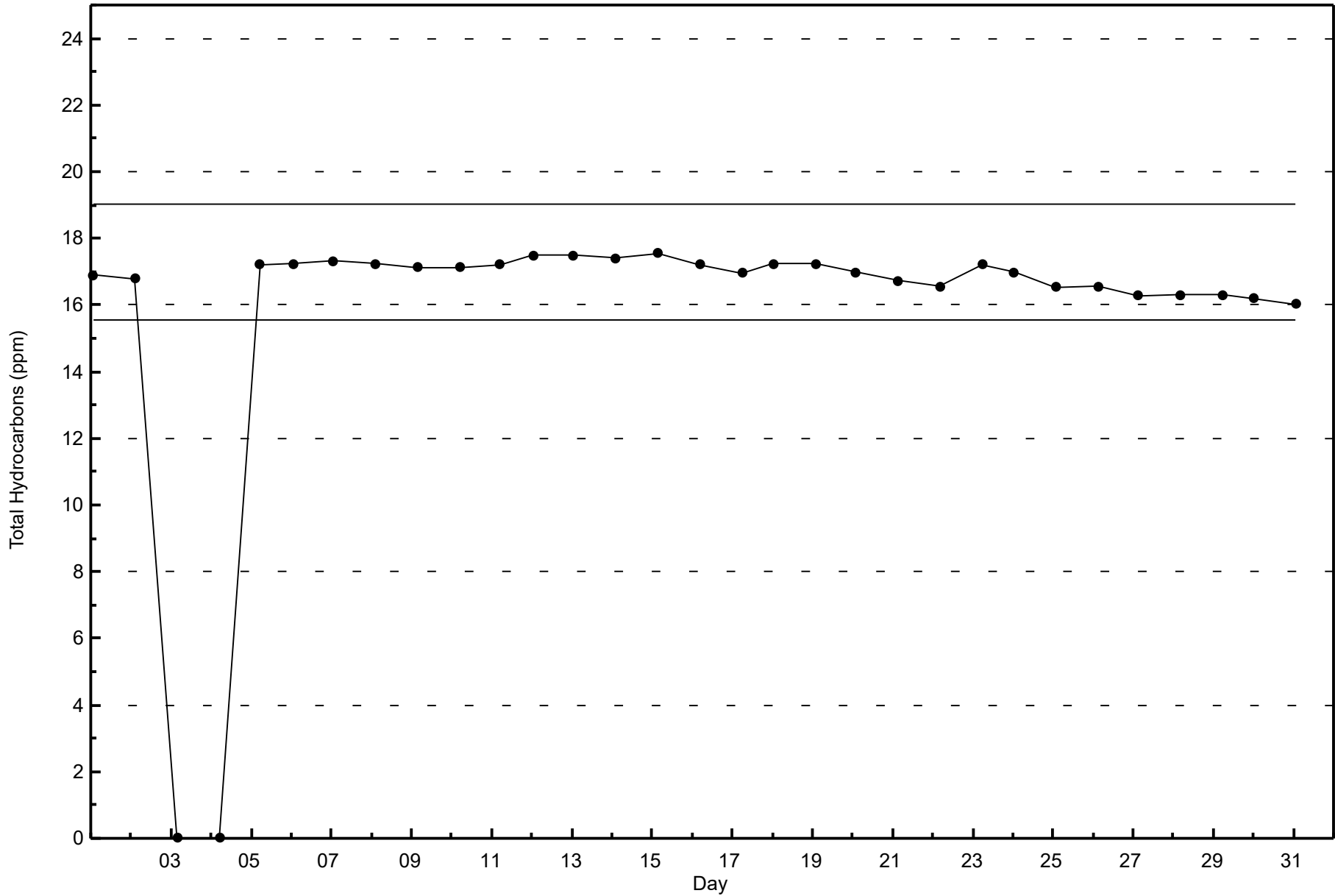


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Stony Mountain

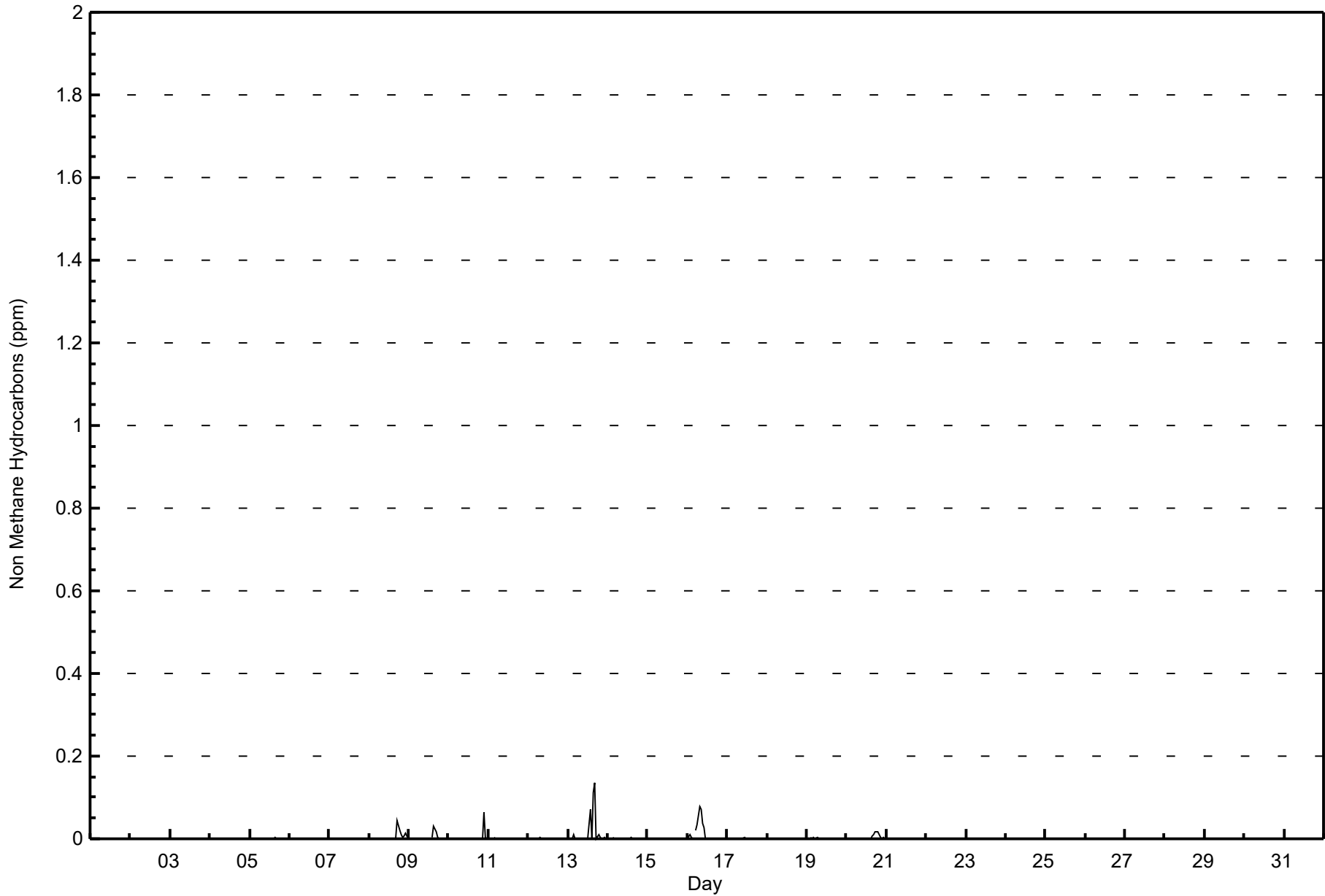








Maximum Value: 0.134 ppm on Jan 13 17:00		Maximum Daily Average: 0.015 ppm on Jan 13		Hours in Service:	744																																											
Minimum Value: 0.000 ppm on Jan 1 01:00		Minimum Daily Average: 0.000 ppm on Jan 6		Hours of Data:	369																																											
Maximum Diurnal Average: 0.010 ppm at hour 17		Minimum Diurnal Average: 0.000 ppm at hour 1		Hours of Missing Data:	375																																											
Monthly Average: 0.003 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:	23																																											
				Percent Operational Time:	52.7																																											
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-Jan	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	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000																						
2-Jan	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																						
3-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																						
4-Jan	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-Jan	UO	UO	UO	UO	UO	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																						
6-Jan	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-Jan	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																						
8-Jan	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	0.045	0.021	0.010	0.004	0.008	0.012	0.002	0.004	0.045																						
9-Jan	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	UO	UO	UO	UO	0.003	0.029	0.017	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.029																						
10-Jan	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	0.064	0.002	0.000	0.003	0.064																						
11-Jan	0.000	0.000	0.000	0.000	0.002	Z	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002																						
12-Jan	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
13-Jan	0.000	Z	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.000	0.111	0.134	0.000	0.010	0.002	0.000	0.000	0.002	0.000	0.000	0.015	0.134																						
14-Jan	0.000	0.000	Z	0.002	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																						
15-Jan	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-Jan	0.000	0.009	0.002	0.001	Z	0.022	0.036	0.078	0.072	0.037	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.078																						
17-Jan	0.000	0.000	0.000	0.000	0.000	Z	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	0.000	0.000																						
18-Jan	Z	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																						
19-Jan	0.000	Z	0.004	0.000	0.003	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	0.004																						
20-Jan	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	0.005	0.009	0.018	0.019	0.018	0.004	0.001	0.004	0.000	0.000	0.003	0.019																						
21-Jan	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																						
22-Jan	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-Jan	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																						
24-Jan	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-Jan	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-Jan	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-Jan	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-Jan	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-Jan	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-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																						
31-Jan	UO	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	0.001	0.000	0.001	0.000	0.002	0.002	0.005	0.004	0.002	0.002	0.000	0.000	0.005	0.000	0.009	0.010	0.004	0.003	0.002	0.001	0.005	0.001	0.000	Diurnal Average
																								0.000	0.009	0.004	0.009	0.003	0.022	0.036	0.078	0.072	0.037	0.027	0.000	0.001	0.070	0.003	0.111	0.134	0.045	0.021	0.018	0.004	0.064	0.012	0.002	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Stony Mountain - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	345	93.50	93.50
0.006 - 0.05	18	4.88	98.37
0.06 - 0.1	6	1.63	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 369

Total Number of Hours: 744



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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Stony Mountain - January 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	7	30	23	5	5	9	4	6	12	22	20	5	9	61	76	41	335
0.006 - 0.05	1	2	2	0	0	0	0	0	0	0	0	0	0	1	10	1	17
0.06 - 0.1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0	5
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	8	33	25	6	5	9	4	6	12	22	20	5	9	62	89	42	357

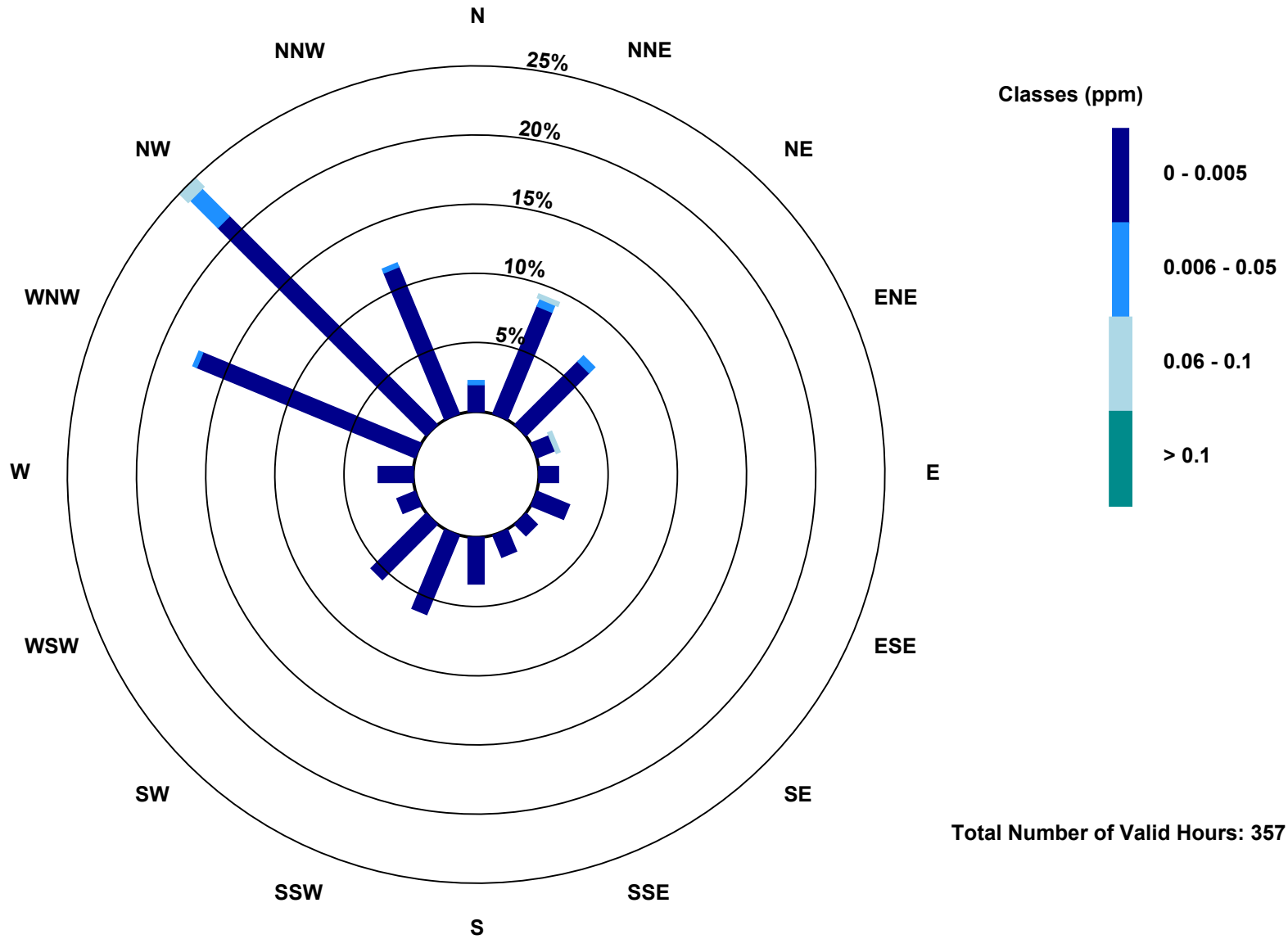
Total Number of Valid Hours: 357

Total Number of Hours: 744

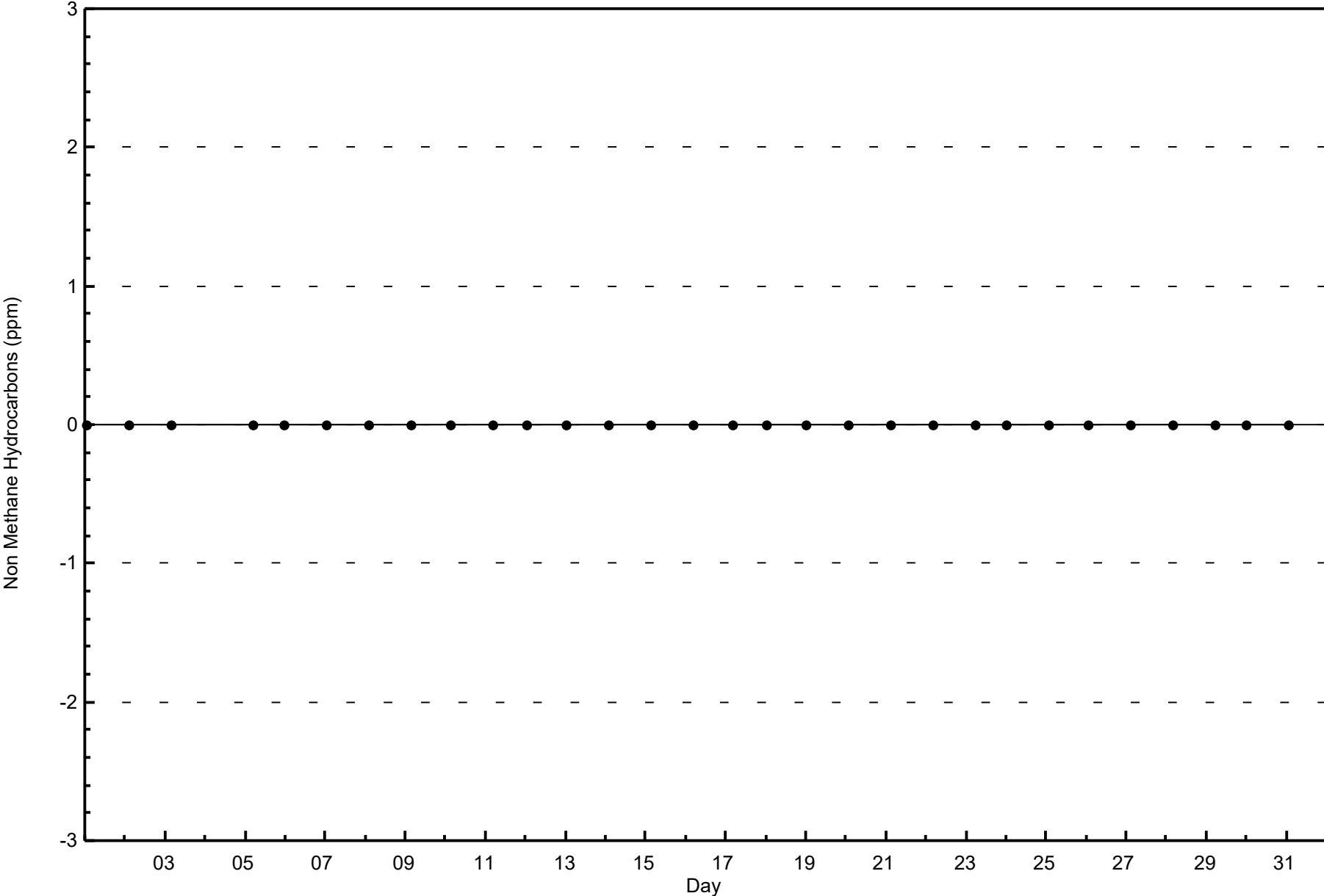


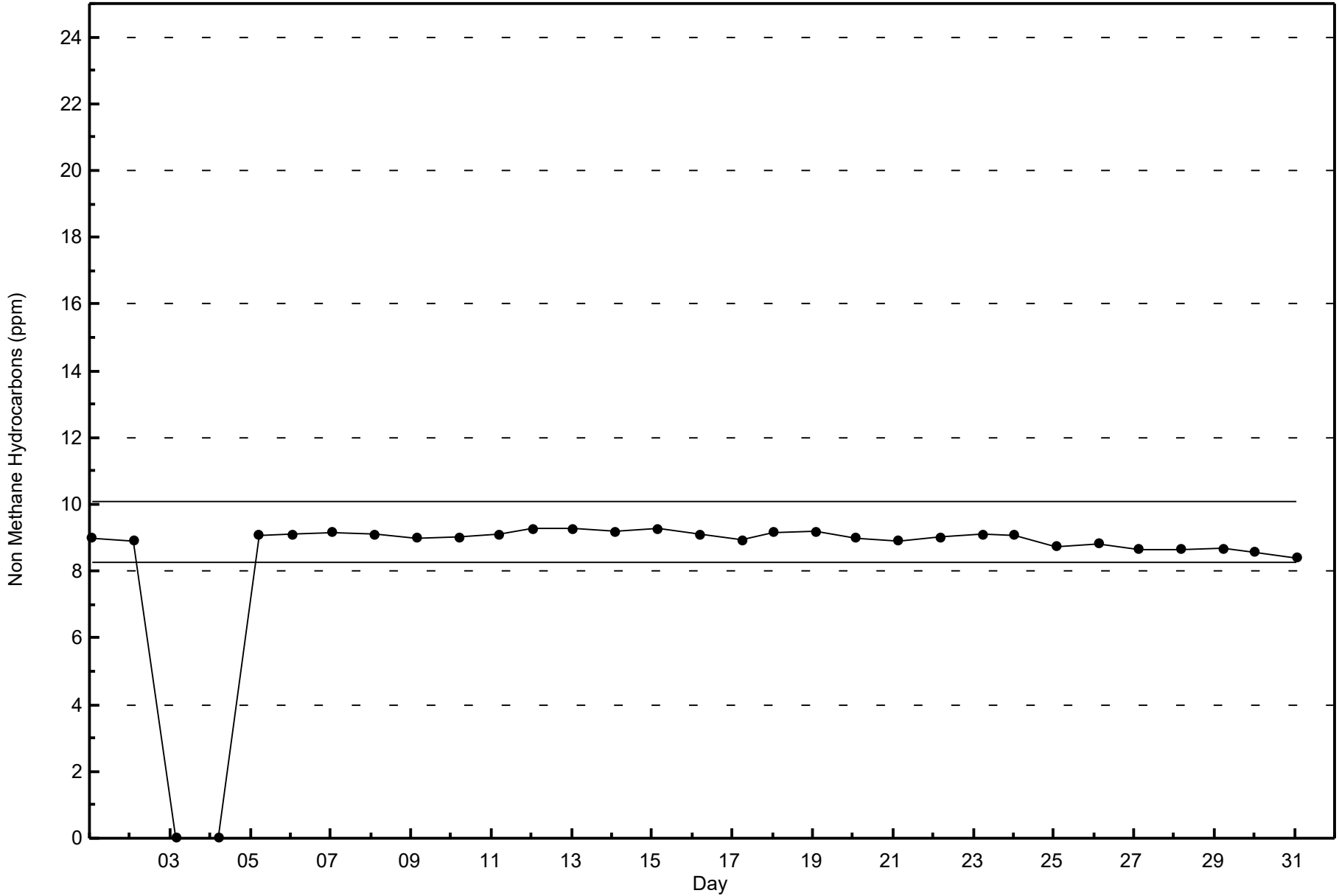
**Wood Buffalo Environmental Association**  
**Wind Rose Jan 2024**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Stony Mountain**

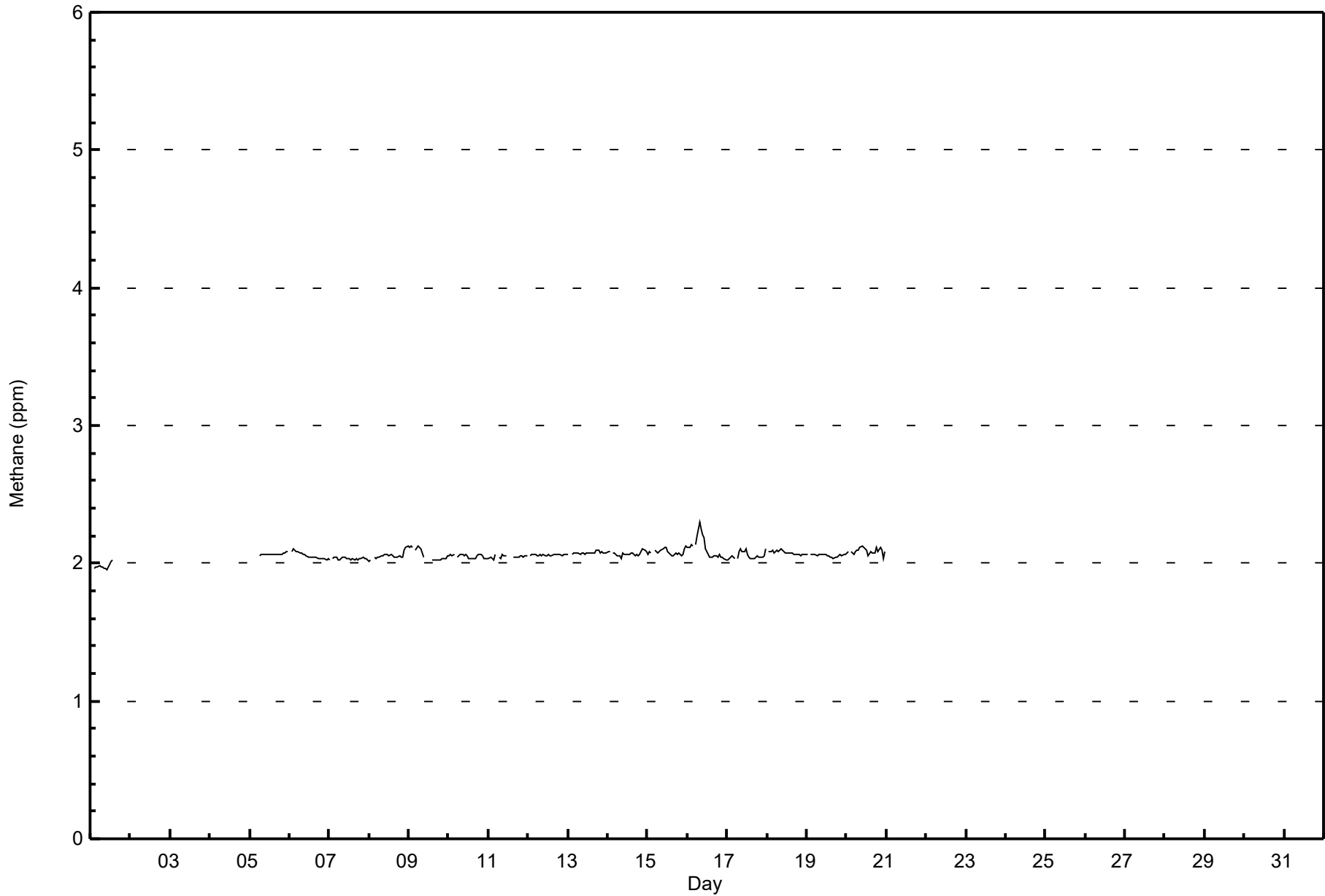














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	121	32.79	32.79
2.1 - 3.0	248	67.21	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 369

Total Number of Hours: 744



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

**Methane (CH<sub>4</sub>) - ppm**  
**Stony Mountain - January 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	5	23	14	2	0	4	3	3	6	9	0	0	1	6	22	23	121
2.1 - 3.0	3	10	11	4	5	5	1	3	6	13	20	5	8	56	67	19	236
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>	8	33	25	6	5	9	4	6	12	22	20	5	9	62	89	42	357

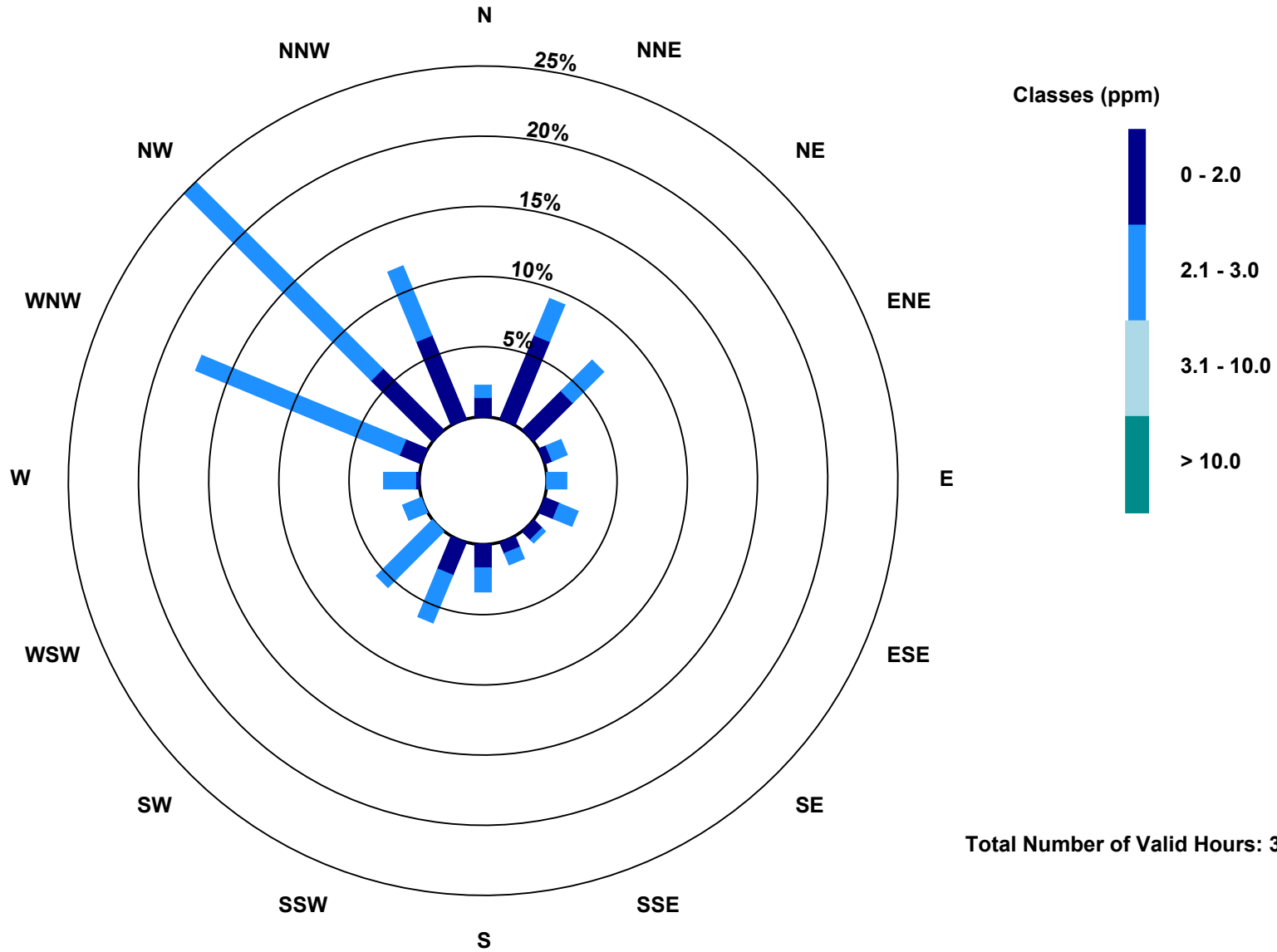
Total Number of Valid Hours: 357

Total Number of Hours: 744

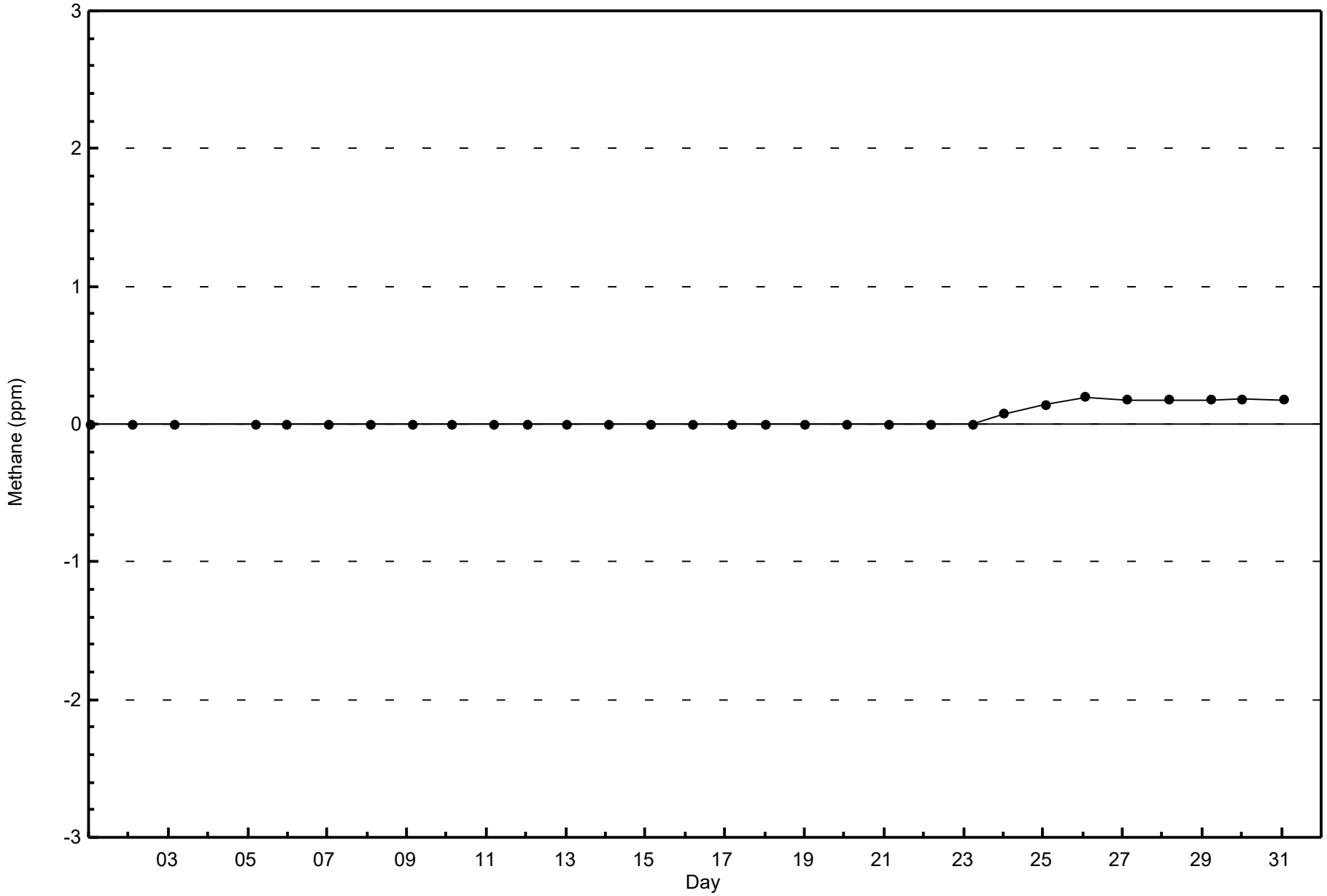


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

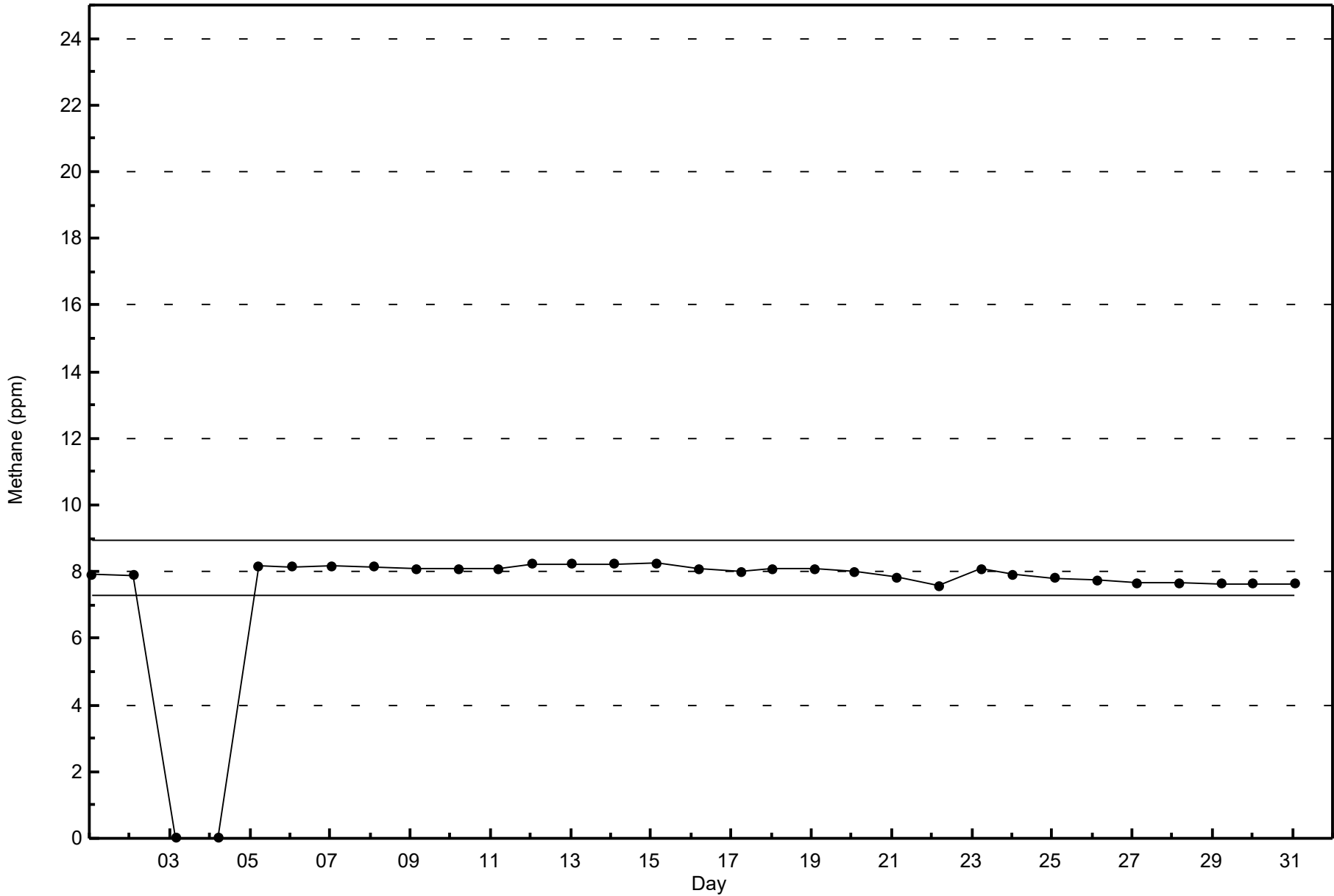
Methane (CH<sub>4</sub>) - ppm  
Stony Mountain



Total Number of Valid Hours: 357









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

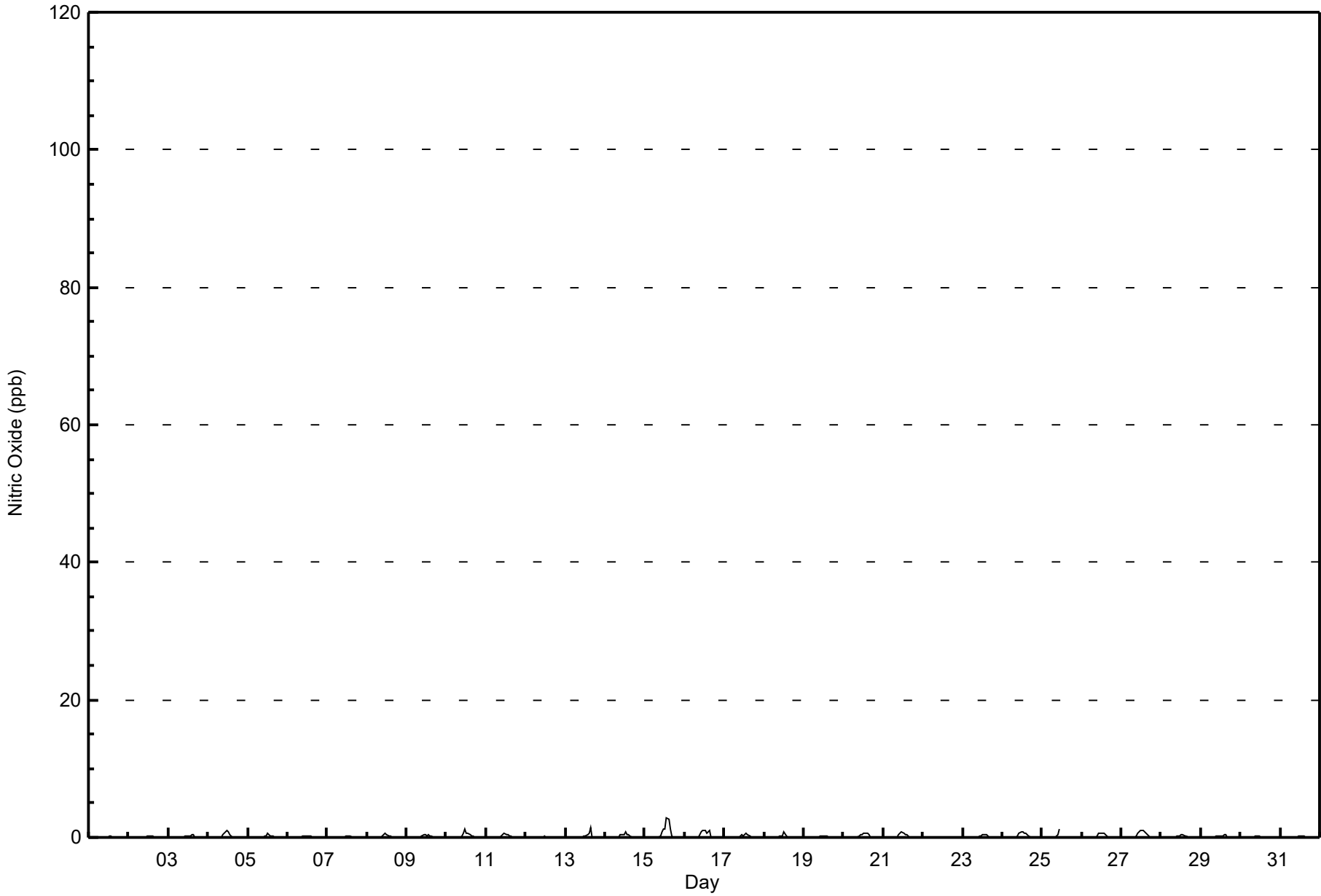
**Nitric Oxide (NO) - ppb**  
**Stony Mountain - January 2024**

Maximum Value: 2.7 ppb on Jan 15 14:00		Maximum Daily Average: 0.4 ppb on Jan 15		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Jan 2 03:00		Minimum Daily Average: 0.0 ppb on Jan 22		Hours of Data: 707																							
Maximum Diurnal Average: 0.5 ppb at hour 13		Minimum Diurnal Average: 0.0 ppb at hour 20		Hours of Missing Data: 37																							
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> = 0.4 P <sub>99</sub> = 1.2		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Jan	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
2-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	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
3-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
4-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	1.1	0.8	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
5-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
6-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	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	0.1	0.3
7-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	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	0.2
8-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.4	0.6	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
9-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
10-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.2	0.7	0.6	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2
11-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.6	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
12-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
13-Jan	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	0.4	0.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
14-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	0.5	0.5	0.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
15-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	1.2	1.2	2.7	2.5	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.7
16-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	1.0	1.0	0.7	0.7	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0
17-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.3	0.7	0.5	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-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.8	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	0.8
19-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	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	0.3
20-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
21-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.9	0.6	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9
22-Jan	0.0	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
23-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
24-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.9	0.9	0.7	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9
25-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.5	1.2	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	1.2
26-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.5	0.7	0.6	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
27-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.0	1.1	1.0	0.8	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
28-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
29-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
30-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.2
31-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	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	0.0	0.2
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											



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

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Stony Mountain - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Stony Mountain - January 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	16	44	40	22	27	20	14	26	40	82	72	23	44	65	104	57	696
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>	16	44	40	22	27	20	14	26	40	82	72	23	44	65	104	57	696

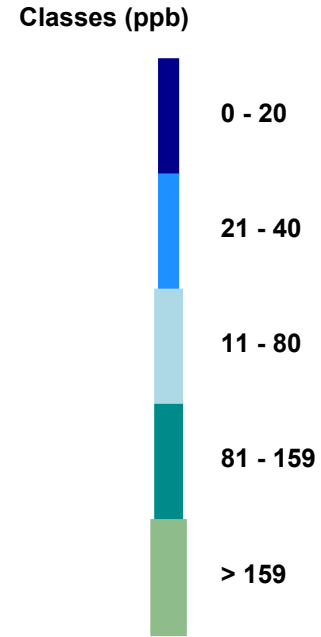
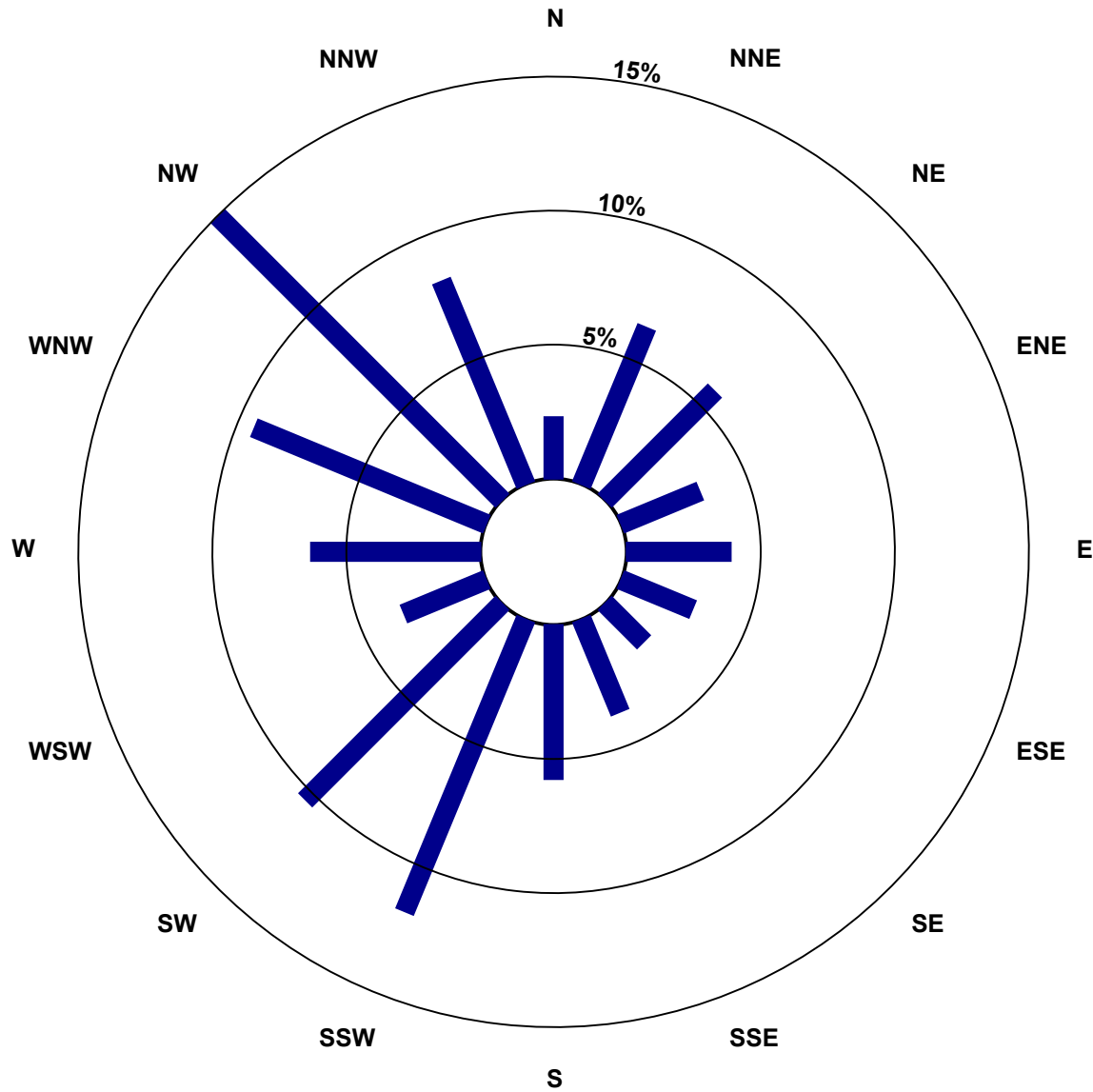
Total Number of Valid Hours: 696

Total Number of Hours: 744

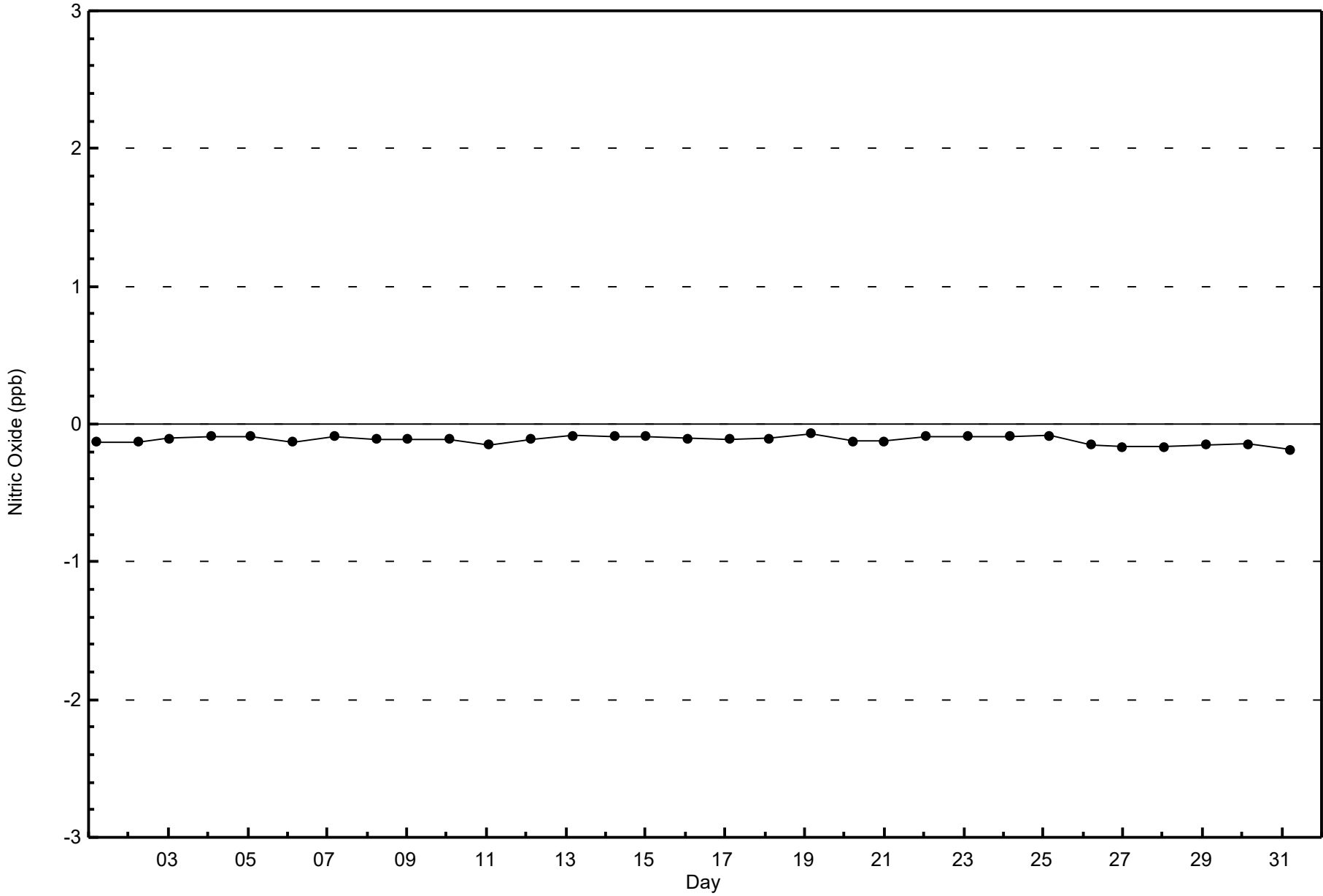


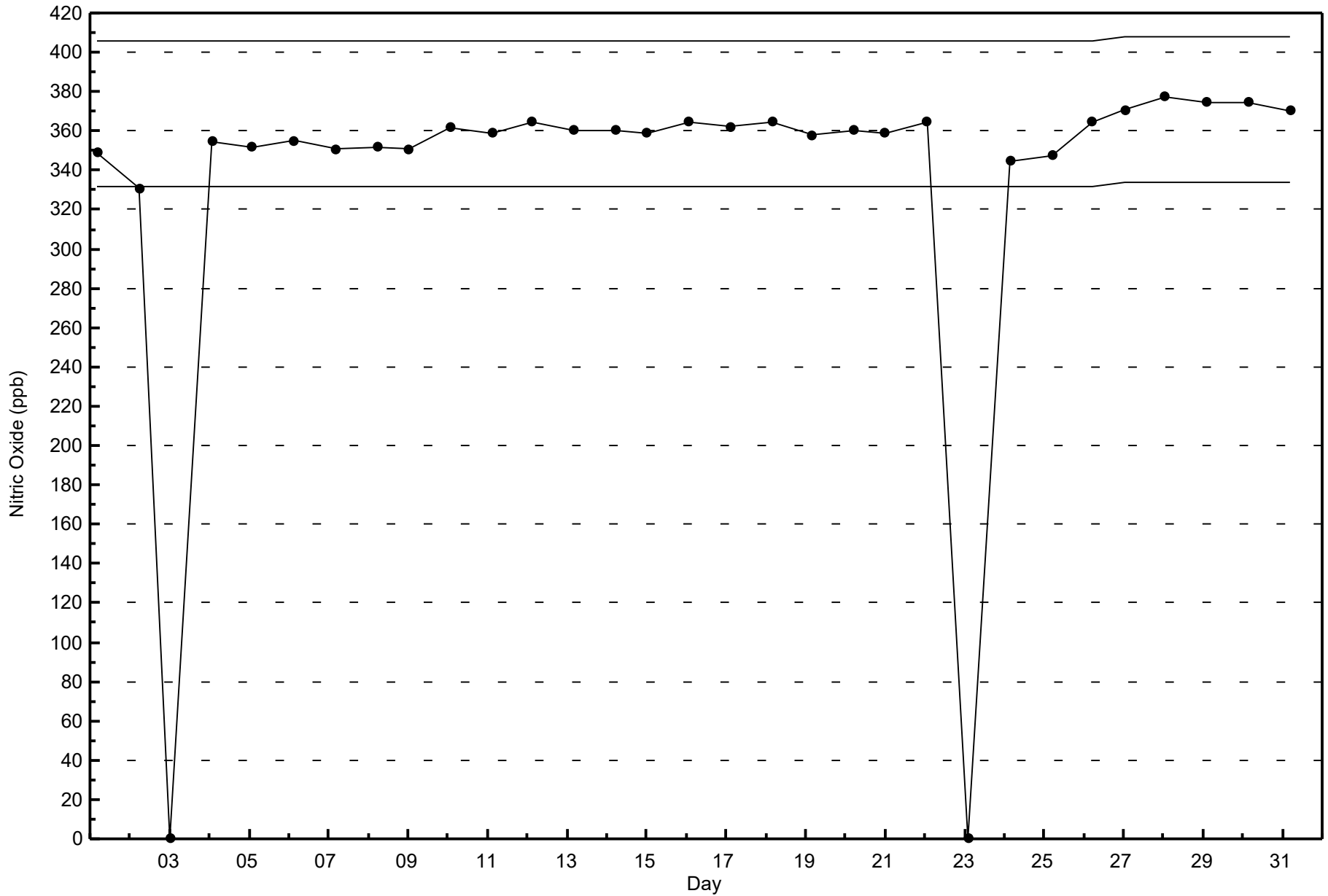
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Stony Mountain



Total Number of Valid Hours: 696









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

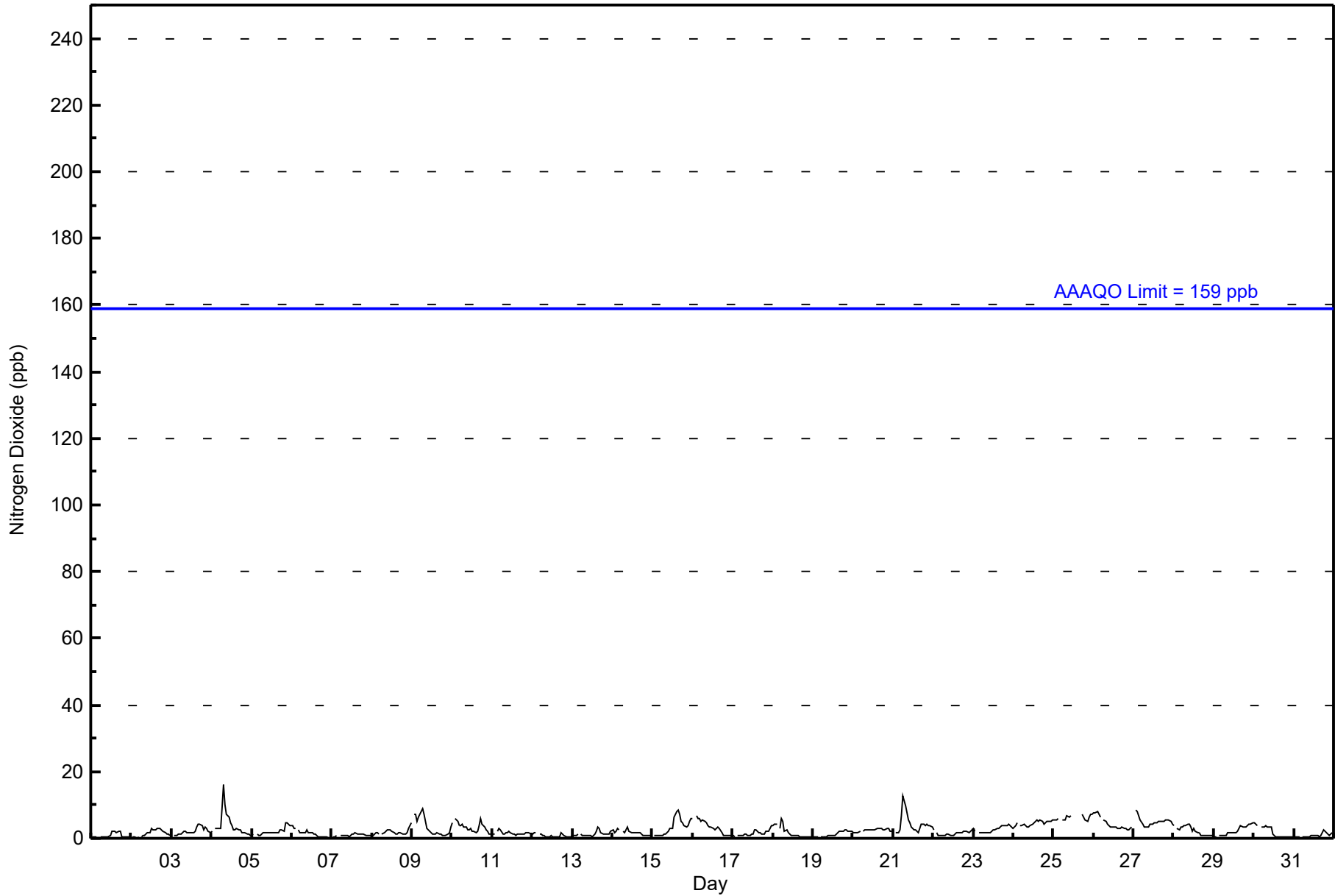
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Stony Mountain - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum																											
Maximum Value: 16.0 ppb on Jan 4 08:00		Maximum Daily Average: 5.0 ppb on Jan 27		Hours of Data: 707														Hours of Missing Data: 37		Hours of Calibration: 37																													
Minimum Value: 0.2 ppb on Jan 2 01:00		Minimum Daily Average: 0.8 ppb on Jan 12		Hours of Calibration: 37														Percent Operational Time: 100.0																															
Maximum Diurnal Average: 3.0 ppb at hour 3		Minimum Diurnal Average: 2.0 ppb at hour 12		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.0 Median = 1.9 Q <sub>3</sub> = 3.3 P <sub>90</sub> = 5.1 P <sub>99</sub> = 8.3																																													
Monthly Average: 2.43 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-Jan	0.6	0.4	0.5	0.5	Z	0.4	0.3	0.3	0.4	0.3	0.3	0.7	2.3	2.2	2.1	1.8	2.2	2.1	0.6	0.3	0.4	0.3	0.3	0.3	0.9	2.3																							
2-Jan	0.2	0.6	0.4	0.2	0.4	Z	0.3	0.9	1.0	1.6	1.7	1.9	2.8	2.7	2.7	3.1	3.1	3.1	2.6	2.1	1.8	1.2	1.1	0.8	1.6	3.1																							
3-Jan	Z	0.8	0.9	1.0	1.2	1.3	1.3	2.0	2.1	1.9	1.6	1.7	1.9	1.9	2.3	3.2	4.1	4.3	3.7	2.5	3.2	2.9	2.0	1.9	2.2	4.3																							
4-Jan	2.3	Z	2.8	3.1	2.9	2.8	9.3	16.0	10.2	7.1	6.2	4.6	3.9	2.5	2.4	3.0	2.5	2.5	1.9	1.5	1.6	1.2	1.1	1.0	4.0	16.0																							
5-Jan	1.0	1.1	Z	1.2	0.9	0.7	1.1	1.5	1.8	1.6	1.6	1.5	1.9	1.7	1.6	1.8	1.9	2.6	2.7	2.3	4.7	4.6	4.1	4.0	2.1	4.7																							
6-Jan	3.9	2.9	3.1	Z	2.4	1.8	1.9	1.8	1.9	2.5	1.7	1.5	1.6	1.4	1.2	0.7	0.5	0.6	0.5	0.5	0.4	0.3	0.2	0.2	1.5	3.9																							
7-Jan	0.2	0.3	0.3	0.7	Z	0.9	0.9	1.0	0.8	0.8	0.4	0.9	1.3	1.4	1.5	1.4	1.4	1.2	1.1	1.2	0.9	0.9	1.0	1.0	0.9	1.5																							
8-Jan	0.8	0.9	1.6	1.5	1.3	Z	1.4	1.6	2.2	2.7	2.7	2.5	2.1	1.5	1.2	1.3	1.5	1.6	1.3	1.3	1.4	1.8	2.9	4.7	1.8	4.7																							
9-Jan	Z	7.2	7.0	5.2	6.3	8.2	8.7	7.1	4.9	2.9	2.1	1.7	1.3	1.3	1.4	1.6	1.3	1.2	1.0	0.8	0.9	1.2	1.5	3.3	3.4	8.7																							
10-Jan	4.5	Z	5.9	5.2	4.0	3.8	4.4	3.3	3.2	2.7	2.5	2.8	2.0	2.3	1.8	2.0	4.0	6.1	4.3	3.2	2.5	2.0	1.3	1.2	3.3	6.1																							
11-Jan	1.4	1.4	Z	2.1	2.9	2.5	1.4	1.4	1.6	1.8	2.0	1.7	1.3	1.4	0.9	1.1	1.2	1.2	1.3	1.4	1.7	1.6	1.5	1.4	1.6	2.9																							
12-Jan	1.4	1.5	1.5	Z	1.2	1.2	0.9	0.7	0.5	0.5	0.5	0.7	0.3	0.3	0.3	0.4	0.6	1.5	1.2	0.7	0.5	0.5	0.6	0.6	0.8	1.5																							
13-Jan	0.8	0.7	0.9	1.2	Z	1.2	1.0	0.8	0.8	0.9	0.8	0.7	0.6	1.1	2.0	3.3	2.9	1.8	1.4	1.1	1.3	1.1	1.2	2.0	1.3	3.3																							
14-Jan	2.7	1.7	2.2	3.0	2.6	Z	2.0	1.8	2.5	3.6	2.0	1.5	1.9	1.6	1.5	1.6	1.5	1.3	0.9	0.8	0.8	0.9	0.8	0.9	1.7	3.6																							
15-Jan	Z	0.7	0.7	0.7	0.8	0.7	0.8	1.3	1.3	2.1	2.9	3.0	3.0	6.3	8.0	8.5	7.0	5.1	4.7	3.9	3.5	3.9	4.9	5.8	3.5	8.5																							
16-Jan	5.8	Z	6.8	5.9	5.8	5.2	5.3	5.1	4.7	4.0	3.3	3.2	3.1	2.5	2.9	3.4	2.8	1.6	1.0	1.0	1.0	1.0	0.9	0.9	3.4	6.8																							
17-Jan	0.7	0.6	Z	0.7	0.8	0.9	1.0	1.2	1.4	1.0	0.9	1.1	1.4	2.6	2.4	1.8	1.5	1.3	1.2	1.1	2.1	2.0	3.0	3.7	1.5	3.7																							
18-Jan	3.8	4.2	4.2	Z	3.1	5.9	5.1	2.2	2.5	1.9	1.4	0.9	0.7	0.8	0.9	0.8	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	1.8	5.9																							
19-Jan	0.5	0.5	0.5	0.5	Z	0.5	0.4	0.4	0.6	0.7	0.9	1.0	0.7	0.9	1.1	1.5	2.1	2.1	2.3	2.6	2.6	2.2	2.1	2.3	1.3	2.6																							
20-Jan	1.9	1.8	1.8	1.8	2.1	Z	2.0	2.5	2.7	2.5	2.4	2.4	2.4	2.5	2.9	2.9	3.0	2.8	2.6	2.6	2.9	2.8	2.3	2.2	2.4	3.0																							
21-Jan	Z	1.9	1.8	1.8	2.7	6.7	12.5	9.8	7.6	5.7	4.6	3.6	2.7	2.6	2.2	1.9	2.8	4.1	4.4	3.8	4.2	3.9	3.7	3.3	4.3	12.5																							
22-Jan	2.5	Z	1.5	0.7	0.7	0.7	0.7	0.9	1.2	1.3	0.7	0.9	0.9	1.4	1.6	1.6	1.6	1.8	2.1	2.0	2.0	1.9	2.0	2.7	1.5	2.7																							
23-Jan	3.0	2.0	Z	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.8	2.0	2.4	2.7	3.0	3.0	3.3	3.8	3.9	3.8	3.8	4.3	3.8	3.2	2.7	4.3																							
24-Jan	3.1	3.7	4.7	Z	3.8	4.0	4.3	3.9	3.3	3.4	3.7	4.3	4.8	5.2	5.3	5.1	5.7	5.0	4.4	4.5	4.9	4.9	5.0	5.4	4.5	5.7																							
25-Jan	5.3	5.5	5.7	5.8	Z	5.7	5.6	5.7	6.7	6.3	6.6	C	C	C	C	C	C	7.3	6.4	5.5	5.2	6.3	7.3	7.4	--	7.4																							
26-Jan	7.6	7.8	7.9	7.0	6.4	Z	5.4	4.9	4.4	4.0	3.6	3.4	3.4	3.3	3.0	2.8	3.0	3.3	3.0	2.9	2.6	2.5	2.8	3.6	4.3	7.9																							
27-Jan	Z	8.3	7.9	6.7	5.4	4.3	3.2	3.2	3.2	3.6	4.2	4.4	4.6	4.5	4.6	4.9	5.1	5.2	5.2	5.7	5.4	5.4	4.9	4.3	5.0	8.3																							
28-Jan	3.9	Z	3.0	2.7	3.4	3.4	3.8	3.8	4.2	4.3	3.4	2.0	2.8	2.1	1.5	1.6	0.9	0.8	0.7	0.9	0.7	0.7	0.7	0.7	2.3	4.3																							
29-Jan	0.6	0.6	Z	0.7	0.7	0.8	0.7	0.7	1.9	1.9	1.7	1.6	1.8	1.9	2.1	2.9	3.7	3.6	3.5	3.5	3.8	4.1	4.2	4.6	2.2	4.6																							
30-Jan	4.6	4.3	3.7	Z	3.6	3.4	3.6	4.0	3.5	3.6	3.3	1.4	0.8	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	2.0	4.6																							
31-Jan	0.5	0.5	0.5	0.6	Z	0.6	0.6	0.5	0.6	0.6	0.7	0.7	1.0	0.7	0.8	0.5	0.8	1.5	2.6	1.8	1.4	0.9	1.2	1.8	0.9	2.6																							
																								2.4	2.4	3.0	2.4	2.7	2.7	3.0	3.0	2.8	2.6	2.3	2.0	2.1	2.1	2.2	2.3	2.4	2.6	2.4	2.1	2.2	2.2	2.2	2.5	Diurnal Average	
																								7.6	8.3	7.9	7.0	6.4	8.2	12.5	16.0	10.2	7.1	6.6	4.6	4.8	6.3	8.0	8.5	7.0	7.3	6.4	5.7	5.4	6.3	7.3	7.4	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**  
**Stony Mountain - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - January 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	16	44	40	22	27	20	14	26	40	82	72	23	44	65	104	57	696
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>	16	44	40	22	27	20	14	26	40	82	72	23	44	65	104	57	696

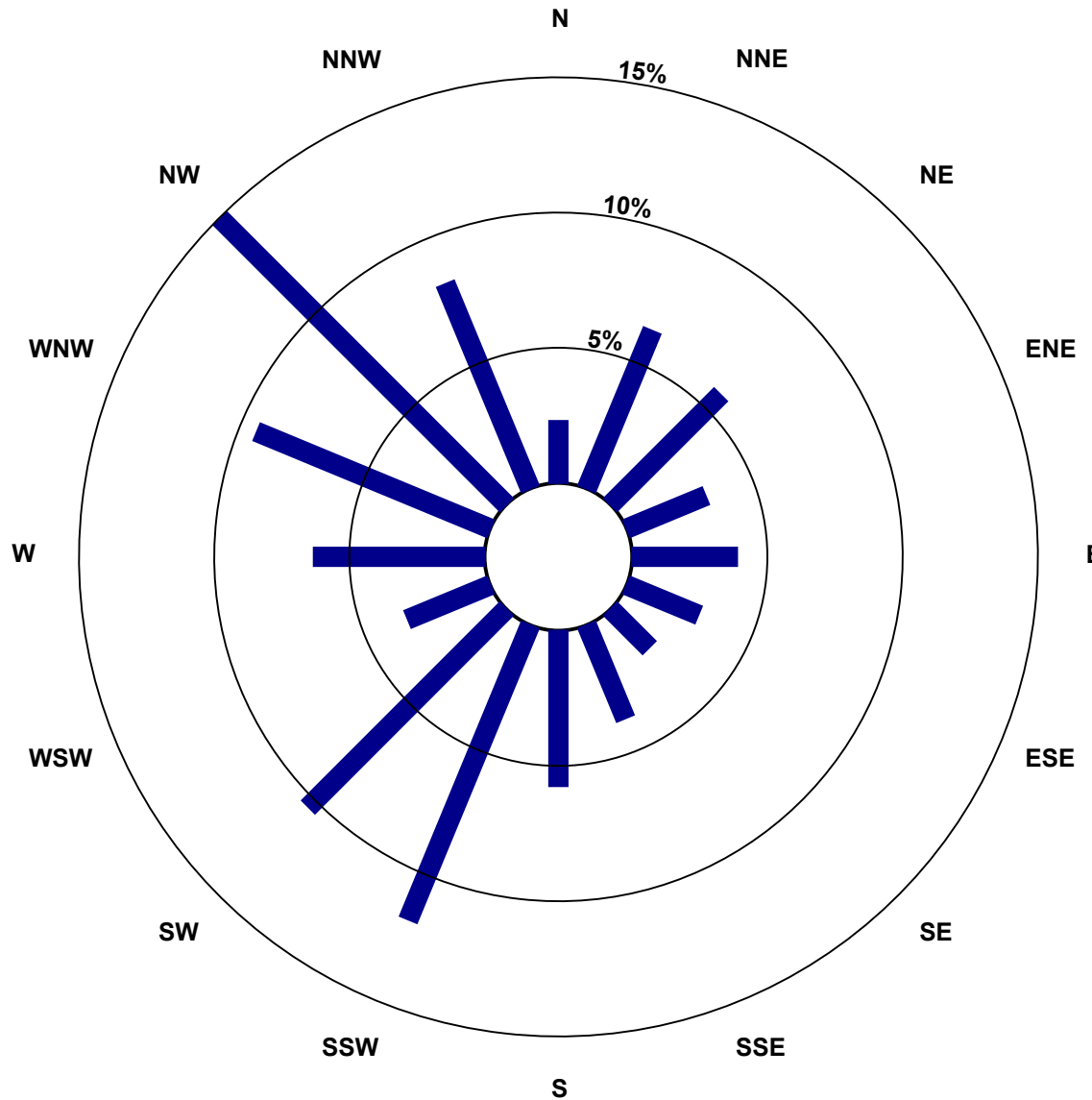
Total Number of Valid Hours: 696

Total Number of Hours: 744

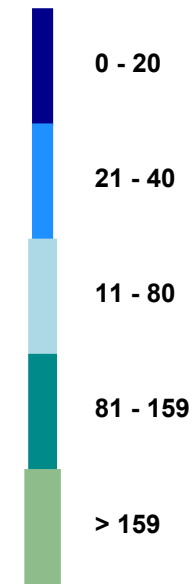


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

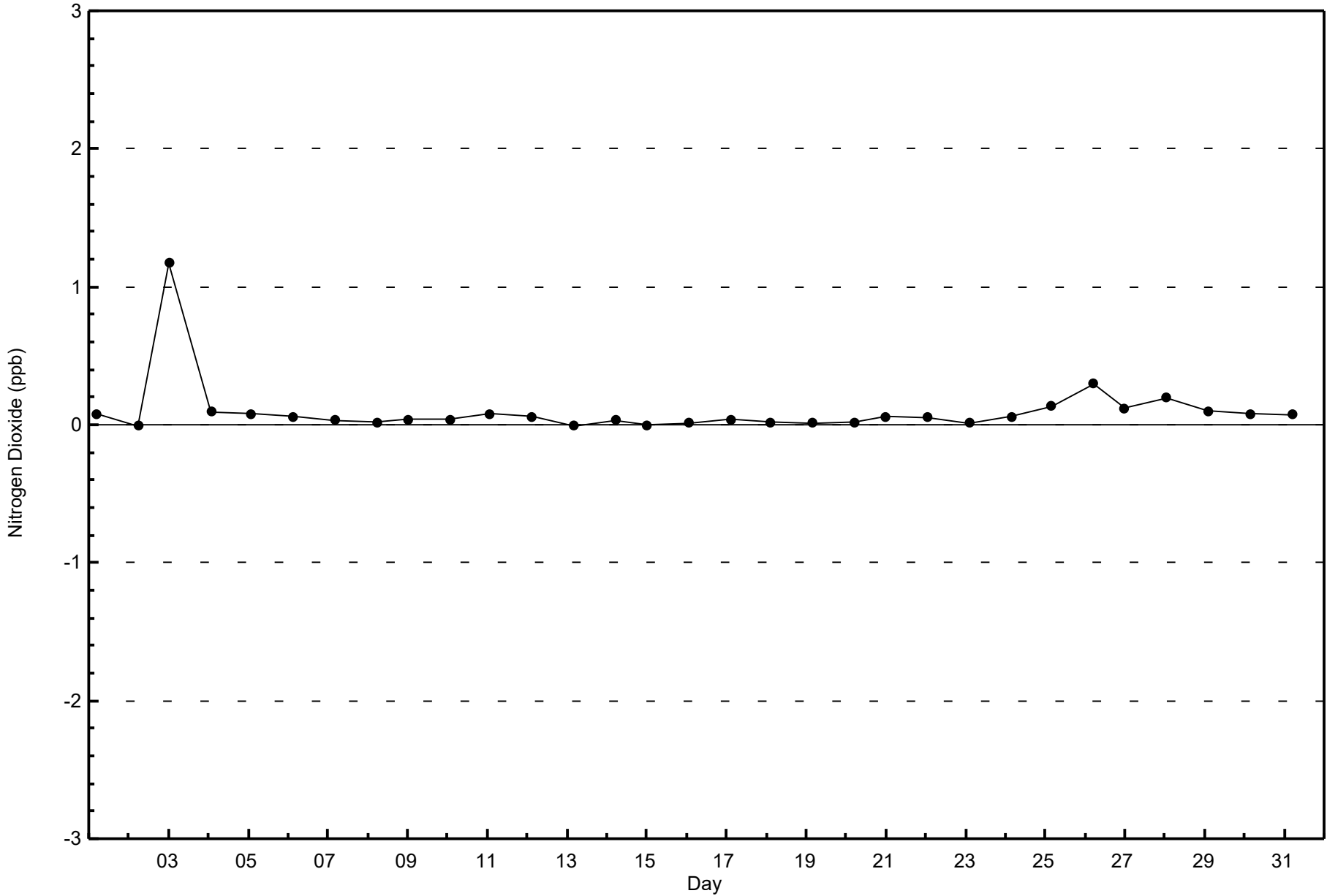
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain

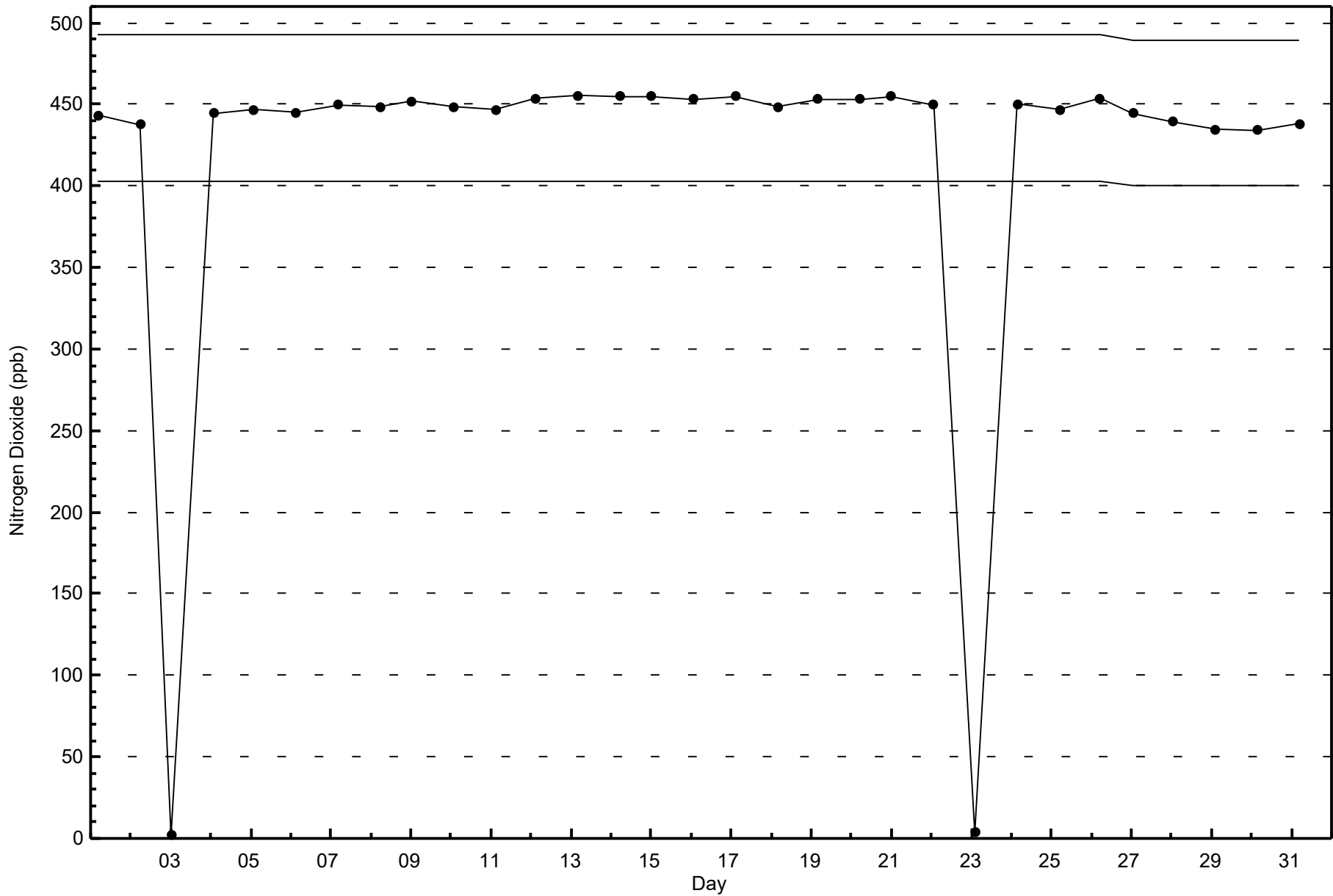


Classes (ppb)



Total Number of Valid Hours: 696







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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - January 2024**

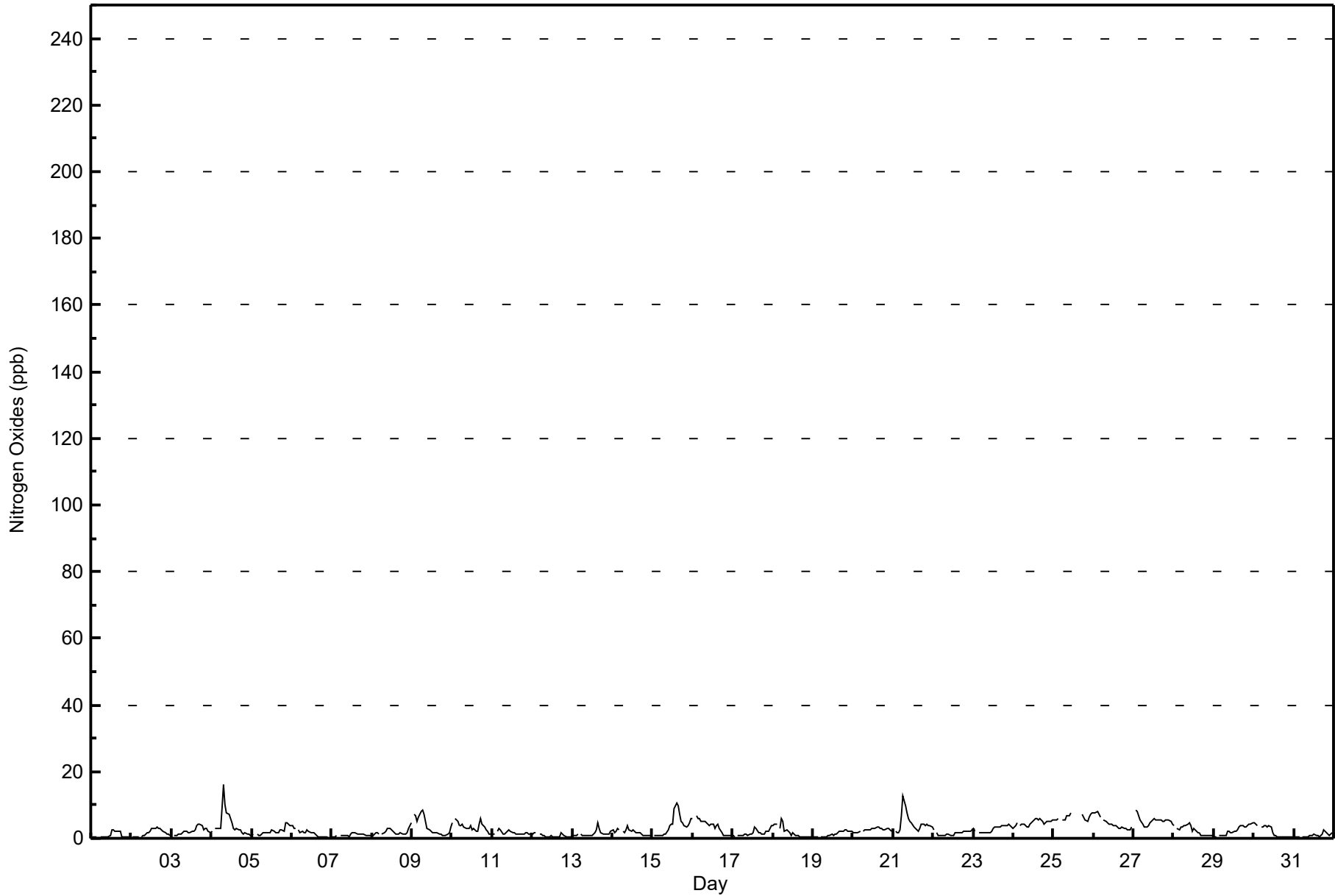
Maximum Value: 16.0 ppb on Jan 4 08:00      Maximum Daily Average: 5.2 ppb on Jan 27																				Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Minimum Value: 0.2 ppb on Jan 7 00:00      Minimum Daily Average: 0.8 ppb on Jan 12 Maximum Diurnal Average: 3.0 ppb at hour 3      Minimum Diurnal Average: 2.1 ppb at hour 20 Monthly Average: 2.54 ppb      Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.0 Median = 2.0 Q <sub>3</sub> = 3.6 P <sub>90</sub> = 5.3 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-Jan	0.6	0.5	0.5	0.5	Z	0.4	0.3	0.3	0.4	0.3	0.3	0.8	2.5	2.4	2.2	1.9	2.2	2.1	0.6	0.3	0.4	0.3	0.3	0.3	0.9	2.5
2-Jan	0.2	0.6	0.4	0.2	0.4	Z	0.3	0.9	1.0	1.6	1.8	2.0	3.0	2.9	2.8	3.2	3.1	3.1	2.6	2.1	1.8	1.2	1.1	0.8	1.6	3.2
3-Jan	Z	0.8	0.9	1.0	1.2	1.3	1.3	2.0	2.1	2.0	1.7	1.9	2.1	2.1	2.7	3.6	4.1	4.3	3.7	2.5	3.2	2.9	2.0	1.9	2.2	4.3
4-Jan	2.3	Z	2.8	3.1	2.9	2.8	9.3	16.0	10.3	7.5	7.1	5.7	4.7	2.8	2.6	3.1	2.5	2.5	1.9	1.5	1.6	1.2	1.1	1.0	4.2	16.0
5-Jan	1.0	1.1	Z	1.2	0.9	0.7	1.1	1.5	1.8	1.7	1.8	1.8	2.5	2.0	1.9	1.9	1.9	2.6	2.7	2.3	4.7	4.6	4.1	4.0	2.2	4.7
6-Jan	3.9	2.9	3.1	Z	2.4	1.8	1.9	1.8	1.9	2.7	1.9	1.7	1.9	1.6	1.3	0.7	0.5	0.6	0.5	0.5	0.4	0.3	0.2	0.2	1.5	3.9
7-Jan	0.2	0.3	0.3	0.7	Z	0.9	0.9	1.0	0.8	0.8	0.4	1.1	1.5	1.6	1.7	1.5	1.4	1.2	1.1	1.2	0.9	0.9	1.0	1.0	1.0	1.7
8-Jan	0.8	0.9	1.6	1.5	1.3	Z	1.4	1.6	2.2	2.8	3.1	3.1	2.6	1.8	1.4	1.4	1.5	1.6	1.3	1.3	1.4	1.8	2.9	4.7	1.9	4.7
9-Jan	Z	7.2	7.0	5.2	6.3	8.2	8.7	7.1	4.9	3.1	2.4	2.0	1.6	1.6	1.6	1.7	1.3	1.2	1.0	0.8	0.9	1.2	1.5	3.3	3.5	8.7
10-Jan	4.5	Z	5.9	5.2	4.0	3.8	4.4	3.3	3.2	2.9	3.1	4.0	2.7	2.9	2.3	2.2	4.2	6.1	4.3	3.2	2.5	2.0	1.3	1.2	3.4	6.1
11-Jan	1.4	1.4	Z	2.1	2.9	2.5	1.4	1.4	1.6	2.0	2.5	2.3	1.8	1.8	1.2	1.2	1.2	1.2	1.3	1.4	1.7	1.6	1.5	1.4	1.7	2.9
12-Jan	1.4	1.5	1.5	Z	1.2	1.2	0.9	0.7	0.5	0.6	0.6	1.0	0.4	0.4	0.4	0.4	0.6	1.5	1.2	0.7	0.5	0.5	0.6	0.6	0.8	1.5
13-Jan	0.8	0.7	0.9	1.2	Z	1.2	1.0	0.8	0.8	0.9	0.9	0.8	0.8	1.5	2.7	4.7	2.9	1.8	1.4	1.1	1.3	1.1	1.2	2.0	1.4	4.7
14-Jan	2.7	1.7	2.2	3.0	2.6	Z	2.0	1.8	2.5	4.0	2.5	2.0	2.6	2.0	1.8	1.7	1.5	1.3	0.9	0.8	0.8	0.9	0.8	0.9	1.9	4.0
15-Jan	Z	0.7	0.7	0.7	0.8	0.7	0.8	1.3	1.3	2.3	3.7	4.2	4.2	9.0	10.5	9.8	7.2	5.1	4.7	3.9	3.5	3.9	4.9	5.8	3.9	10.5
16-Jan	5.8	Z	6.8	5.9	5.8	5.2	5.3	5.1	4.8	4.4	4.0	4.2	4.1	3.2	3.6	4.4	2.9	1.6	1.0	1.0	1.0	1.0	0.9	0.9	3.6	6.8
17-Jan	0.7	0.6	Z	0.7	0.8	0.9	1.0	1.2	1.4	1.0	1.4	1.3	1.7	3.3	2.9	1.9	1.5	1.3	1.2	1.1	2.1	2.0	3.0	3.7	1.6	3.7
18-Jan	3.8	4.2	4.2	Z	3.1	5.9	5.1	2.2	2.5	2.0	1.7	1.0	1.5	0.9	1.0	0.8	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	1.9	5.9
19-Jan	0.5	0.5	0.5	0.5	Z	0.5	0.4	0.4	0.6	0.7	1.0	1.3	0.9	1.1	1.2	1.6	2.1	2.1	2.3	2.6	2.6	2.2	2.1	2.3	1.3	2.6
20-Jan	1.9	1.8	1.8	1.8	2.1	Z	2.0	2.5	2.7	2.7	2.7	2.8	3.0	3.1	3.4	3.3	3.1	2.8	2.6	2.6	2.9	2.8	2.3	2.2	2.6	3.4
21-Jan	Z	1.9	1.8	1.8	2.7	6.7	12.5	9.8	7.7	6.0	5.1	4.5	3.3	3.1	2.5	2.1	2.8	4.1	4.4	3.8	4.2	3.9	3.7	3.3	4.4	12.5
22-Jan	2.5	Z	1.5	0.7	0.7	0.7	0.7	0.9	1.2	1.3	0.7	1.0	0.9	1.5	1.7	1.7	1.6	1.8	2.1	2.0	2.0	1.9	2.0	2.7	1.5	2.7
23-Jan	3.0	2.0	Z	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.9	2.2	2.8	3.2	3.4	3.2	3.4	3.8	3.9	3.8	3.8	4.3	3.8	3.2	2.8	4.3
24-Jan	3.1	3.7	4.7	Z	3.8	4.0	4.3	3.9	3.3	3.6	4.2	5.2	5.7	5.9	5.4	5.8	5.0	4.4	4.5	4.9	4.9	5.0	5.4	5.4	4.6	5.9
25-Jan	5.3	5.5	5.7	5.8	Z	5.7	5.6	5.7	6.8	6.8	7.8	C	C	C	C	C	C	7.3	6.4	5.5	5.2	6.3	7.3	7.4	--	7.8
26-Jan	7.6	7.8	7.9	7.0	6.4	Z	5.4	4.9	4.5	4.2	4.1	4.1	4.0	3.9	3.4	3.0	3.1	3.3	3.0	2.9	2.6	2.5	2.8	3.6	4.4	7.9
27-Jan	Z	8.3	7.9	6.7	5.4	4.3	3.2	3.2	3.2	3.8	4.8	5.4	5.7	5.5	5.4	5.4	5.3	5.2	5.2	5.7	5.4	5.4	4.9	4.3	5.2	8.3
28-Jan	3.9	Z	3.0	2.7	3.4	3.4	3.8	3.8	4.2	4.6	3.7	2.2	3.1	2.5	1.7	1.7	0.9	0.8	0.7	0.9	0.7	0.7	0.7	0.7	2.3	4.6
29-Jan	0.6	0.6	Z	0.7	0.7	0.8	0.7	0.7	1.9	2.0	1.8	1.8	2.0	2.1	2.4	3.2	3.8	3.6	3.5	3.5	3.8	4.1	4.2	4.6	2.3	4.6
30-Jan	4.6	4.3	3.7	Z	3.6	3.4	3.6	4.0	3.5	3.7	3.5	1.5	0.9	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	2.0	4.6
31-Jan	0.5	0.5	0.5	0.6	Z	0.6	0.6	0.5	0.6	0.7	0.8	0.8	1.2	0.8	0.9	0.5	0.8	1.5	2.6	1.8	1.4	0.9	1.2	1.8	1.0	2.6
																								Diurnal Average		
																								Diurnal Maximum		
2.4 2.4 3.0 2.4 2.7 2.7 3.0 3.0 2.8 2.7 2.7 2.5 2.5 2.6 2.6 2.6 2.5 2.6 2.4 2.1 2.2 2.2 2.2 2.5 7.6 8.3 7.9 7.0 6.4 8.2 12.5 16.0 10.3 7.5 7.8 5.7 5.7 9.0 10.5 9.8 7.2 7.3 6.4 5.7 5.4 6.3 7.3 7.4																										
Z - zerospan      C - Calibration																										





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - January 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	16	44	40	22	27	20	14	26	40	82	72	23	44	65	104	57	696
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>	16	44	40	22	27	20	14	26	40	82	72	23	44	65	104	57	696

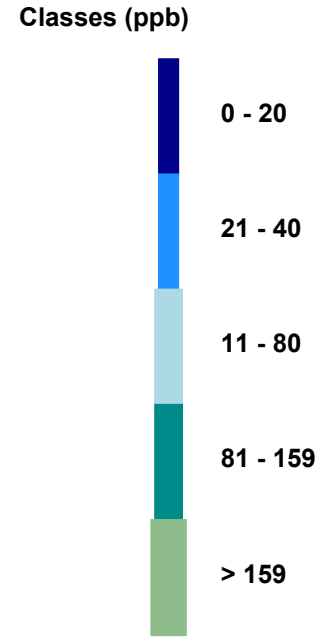
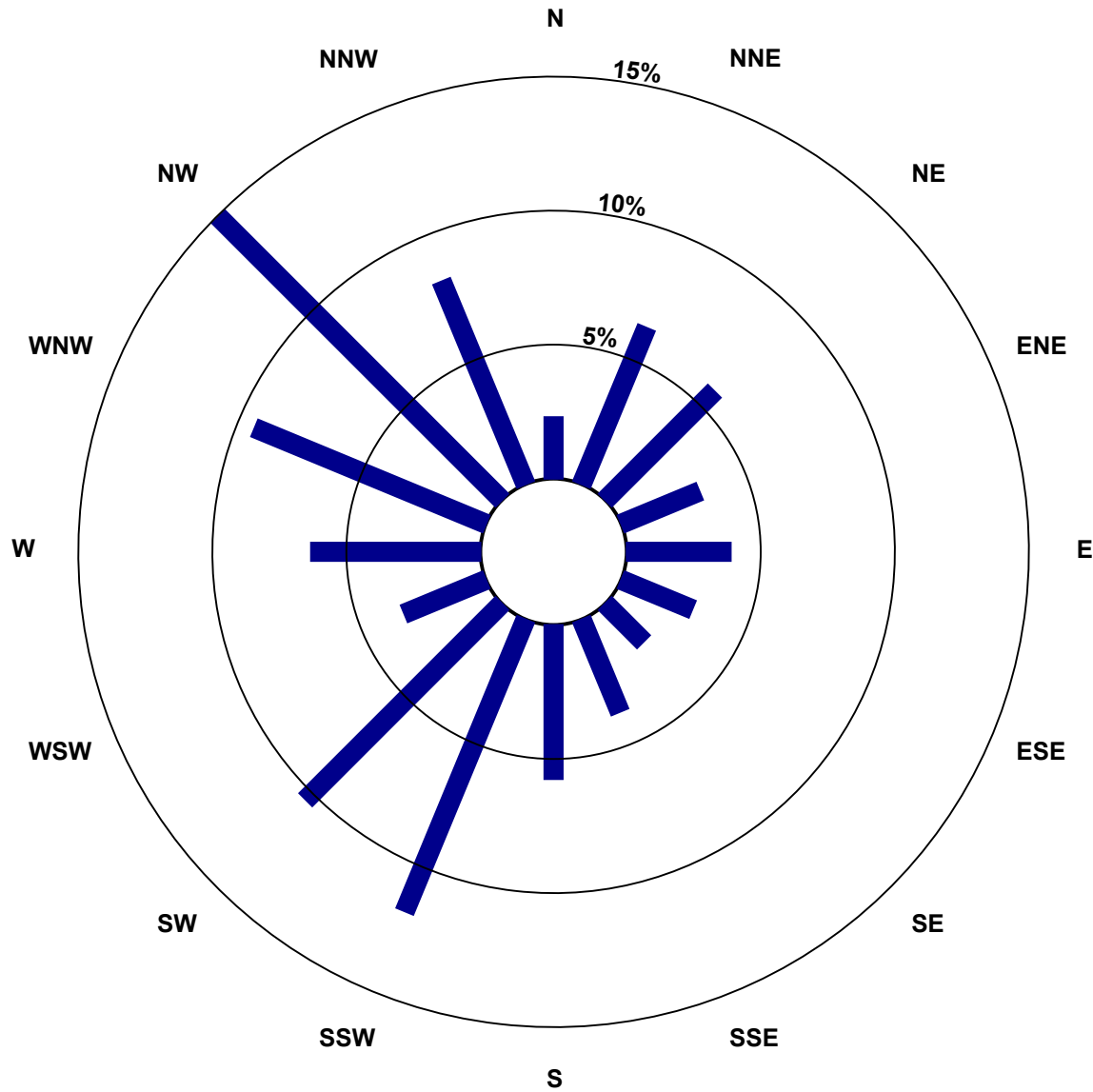
Total Number of Valid Hours: 696

Total Number of Hours: 744

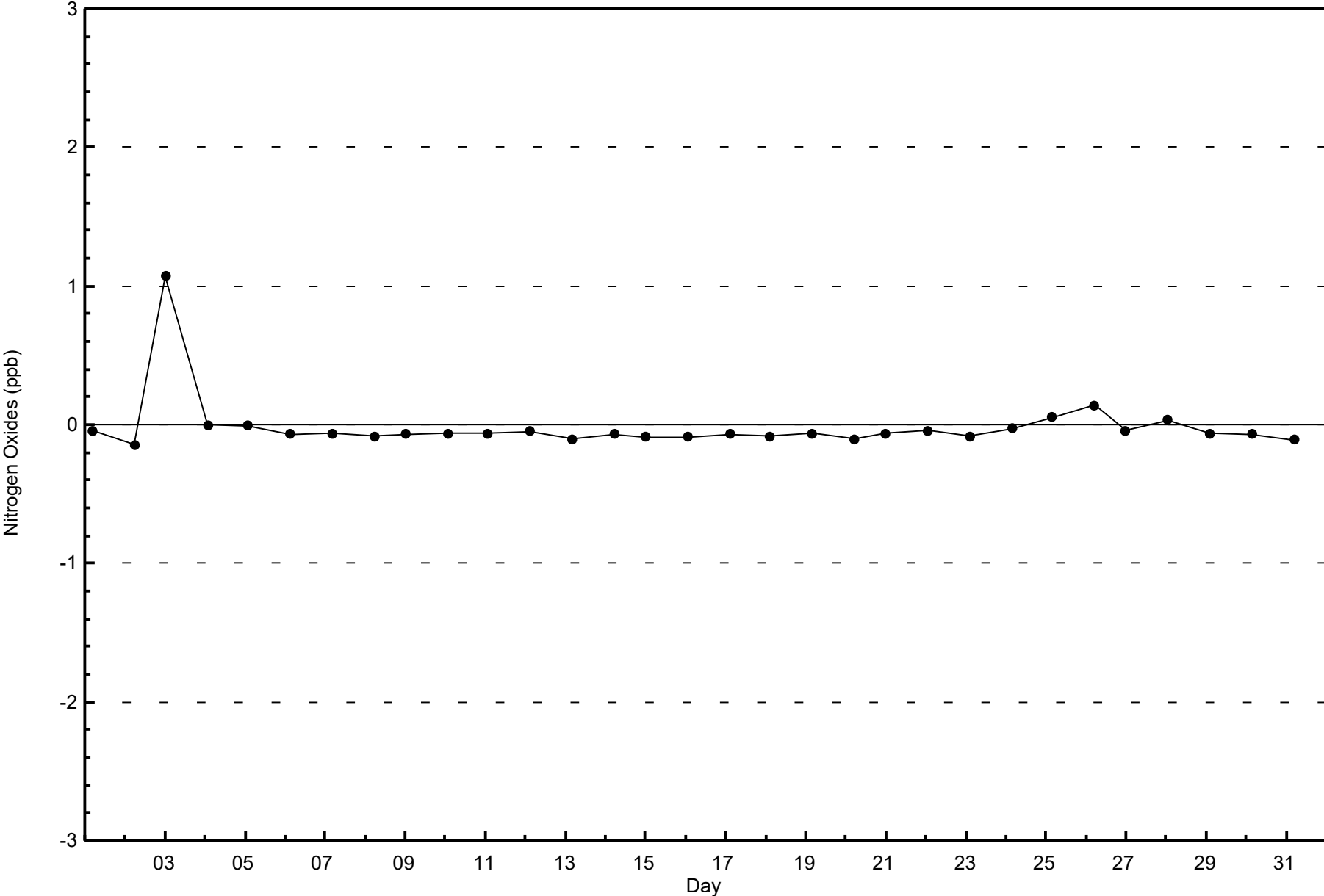


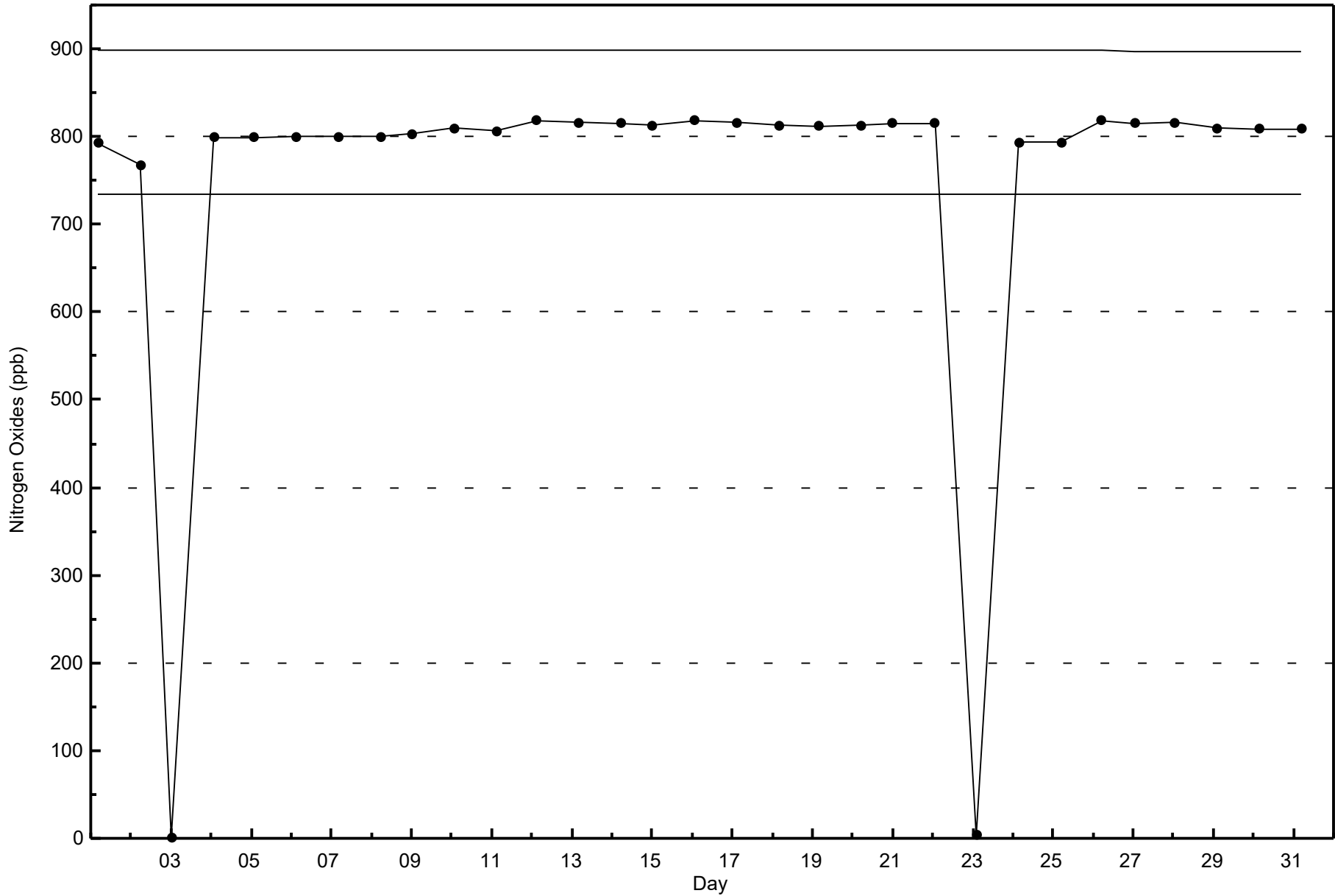
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 696







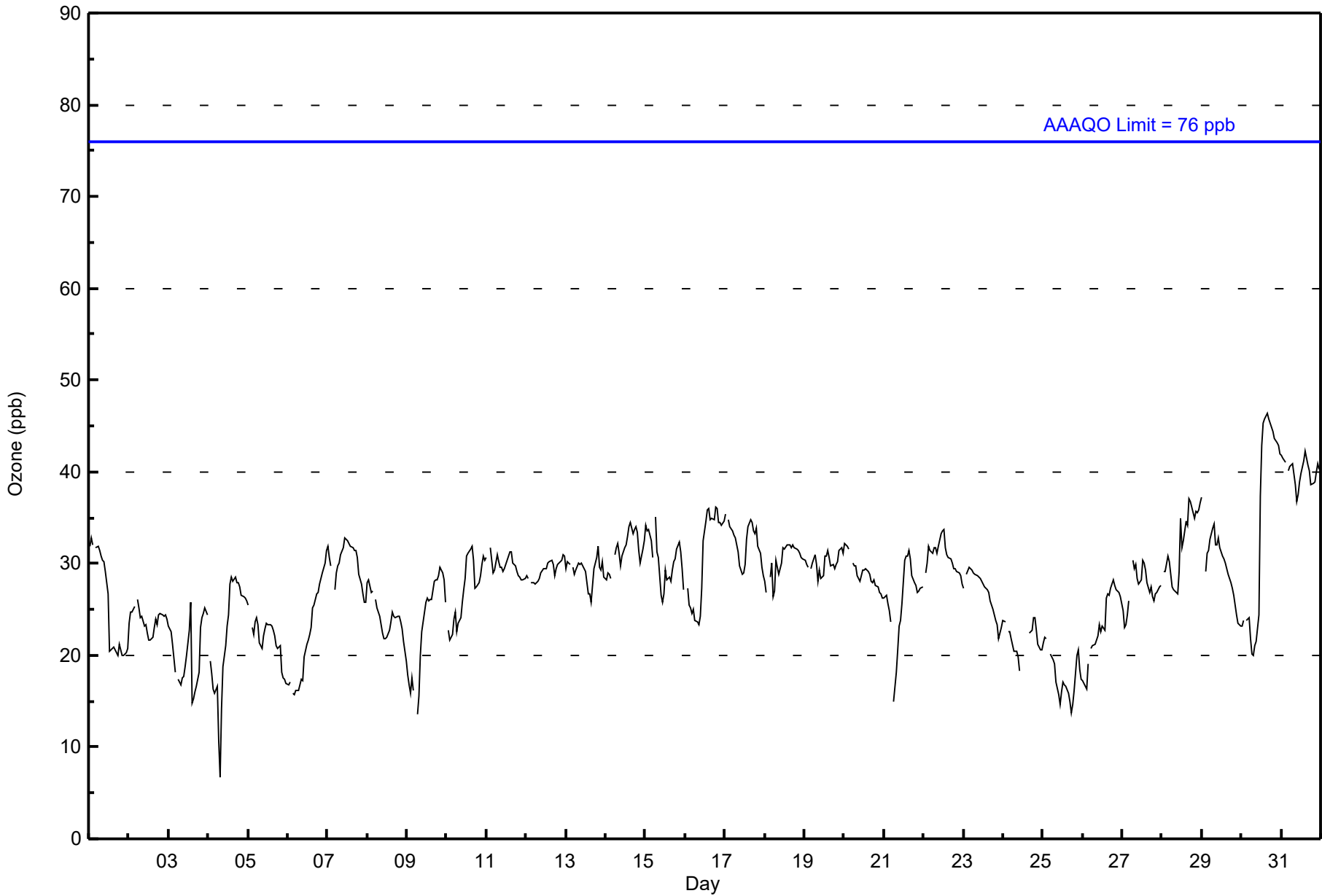
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Stony Mountain - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																			
Maximum Value: 46.4 ppb on Jan 30 16:00		Maximum Daily Average: 40.0 ppb on Jan 31				Hours of Data:		708																			
Minimum Value: 6.8 ppb on Jan 4 08:00		Minimum Daily Average: 17.8 ppb on Jan 25				Hours of Missing Data:		36																			
Maximum Diurnal Average: 29.1 ppb at hour 15		Minimum Diurnal Average: 25.7 ppb at hour 4				Hours of Calibration:		36																			
Monthly Average: 27.55 ppb		Percentiles: P <sub>1</sub> = 14.8 P <sub>10</sub> = 20.0 Q <sub>1</sub> = 23.6 Median = 28.2 Q <sub>3</sub> = 30.9 P <sub>90</sub> = 34.0 P <sub>99</sub> = 43.6				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-Jan	31.9	32.8	32.0	Z	31.8	31.9	31.4	30.9	30.3	30.2	29.2	26.7	20.4	20.5	20.7	21.0	20.3	20.0	21.1	20.7	20.0	20.0	20.3	20.8	25.4	32.8	
2-Jan	23.5	24.7	24.8	25.3	Z	26.1	25.2	24.1	24.2	23.2	23.3	22.4	21.7	21.6	22.0	23.0	23.9	23.3	24.4	24.5	24.4	24.3	24.4	24.0	23.8	26.1	
3-Jan	23.1	22.5	21.1	19.7	18.2	Z	17.3	16.7	17.5	17.7	18.8	20.0	22.7	25.8	14.8	15.3	16.0	16.7	18.2	23.0	24.1	24.6	25.2	24.4	20.1	25.8	
4-Jan	Z	19.3	18.0	16.3	15.9	16.6	10.7	6.8	14.1	18.8	21.0	23.2	24.4	27.8	28.6	28.1	28.5	27.9	27.9	27.5	26.5	26.5	26.2	26.0	22.0	28.6	
5-Jan	25.4	Z	23.1	22.3	23.7	24.2	23.3	21.3	20.7	22.1	22.9	23.5	23.3	23.3	22.8	22.1	21.1	20.8	21.1	18.2	17.6	17.4	16.9	21.8	25.4		
6-Jan	16.7	17.1	Z	15.9	15.7	16.1	16.1	16.8	17.4	17.2	19.8	21.2	21.7	22.2	23.0	25.1	25.5	26.7	26.9	27.8	28.3	29.1	30.0	31.4	22.1	31.4	
7-Jan	31.8	30.6	29.7	Z	27.1	29.0	29.7	30.0	31.0	31.7	32.7	32.6	32.4	32.2	31.9	31.7	31.4	31.5	30.7	28.9	27.7	26.7	25.8	25.8	30.1	32.7	
8-Jan	27.9	28.2	26.9	27.1	Z	26.0	25.2	24.2	23.4	22.4	21.8	21.8	21.9	22.7	23.6	24.7	24.2	24.2	24.2	24.3	23.7	22.9	21.5	19.4	24.0	28.2	
9-Jan	17.8	16.8	15.8	17.6	16.1	Z	13.6	15.6	19.9	22.6	24.8	25.7	26.2	26.0	26.1	26.1	28.1	28.2	28.2	28.6	29.5	29.0	28.2	25.7	23.3	29.5	
10-Jan	Z	22.7	21.6	22.3	23.9	24.8	22.5	23.5	24.2	25.8	27.2	28.3	30.8	31.2	31.5	31.8	30.3	27.3	27.5	27.9	28.7	29.9	30.8	30.4	27.2	31.8	
11-Jan	30.7	Z	31.7	30.3	28.9	29.3	31.0	30.2	29.6	29.7	29.2	29.4	30.4	30.9	31.3	31.2	30.1	29.8	29.1	28.7	28.5	28.2	28.3	28.4	29.8	31.7	
12-Jan	28.7	28.3	Z	27.9	27.9	27.7	27.9	28.0	28.4	28.9	29.4	29.4	29.5	30.0	30.2	30.4	29.9	28.6	29.4	29.8	30.2	30.3	31.0	30.9	29.3	31.0	
13-Jan	29.5	30.2	29.9	Z	29.6	28.8	29.3	30.0	29.9	30.0	29.8	29.5	29.1	26.7	26.7	25.7	27.6	29.4	30.7	31.9	29.6	29.3	30.2	28.6	29.2	31.9	
14-Jan	28.3	28.9	28.8	28.4	Z	30.9	31.7	32.3	31.1	29.7	30.9	31.8	32.0	32.9	34.1	34.5	33.2	33.7	34.1	33.4	31.4	30.0	31.6	32.5	31.6	34.5	
15-Jan	34.1	33.5	33.8	32.5	30.6	Z	35.2	31.3	30.6	26.5	25.7	26.7	29.2	28.3	28.5	28.0	29.4	30.3	30.5	31.6	32.4	31.3	29.4	27.2	30.3	35.2	
16-Jan	Z	27.3	25.4	25.2	24.5	25.0	23.8	23.6	23.3	24.3	27.3	32.5	34.6	35.8	36.0	34.8	34.9	34.7	36.2	36.0	34.5	34.4	34.2	34.6	30.6	36.2	
17-Jan	35.3	Z	34.8	34.0	33.5	33.2	32.8	32.0	31.3	29.7	28.8	28.9	29.9	32.7	34.1	34.7	34.5	33.5	33.2	33.8	31.9	31.2	29.6	28.7	32.3	35.3	
18-Jan	28.0	26.9	Z	28.5	30.1	26.3	27.0	30.4	28.8	29.5	30.0	31.7	31.6	32.0	32.0	32.0	31.7	32.0	31.7	31.5	31.4	31.1	30.7	30.5	30.2	32.0	
19-Jan	30.3	29.9	29.6	Z	29.5	30.0	31.0	29.9	28.0	29.3	28.4	28.7	30.8	30.8	31.4	30.7	29.8	29.8	29.4	30.0	30.2	31.4	31.7	31.2	30.1	31.7	
20-Jan	32.2	32.0	31.9	31.5	Z	30.1	29.8	29.7	28.7	28.1	28.7	29.2	29.4	29.1	28.8	28.1	27.9	28.2	27.7	27.4	26.9	26.6	26.3	29.0	32.2		
21-Jan	26.3	26.6	25.7	24.9	23.7	Z	15.0	18.2	20.6	23.3	23.8	25.6	30.3	30.8	30.7	31.4	30.4	28.7	27.9	27.6	26.9	27.0	27.3	27.4	26.1	31.4	
22-Jan	Z	29.0	30.1	31.8	31.5	31.1	31.7	31.7	31.1	31.8	33.3	33.5	33.6	31.7	31.0	30.7	30.6	30.1	29.5	29.5	29.1	28.9	28.7	27.8	30.8	33.6	
23-Jan	27.3	Z	28.8	29.5	29.5	29.3	28.9	28.8	28.7	28.5	28.3	28.1	27.8	27.5	27.2	26.9	26.0	25.4	25.0	23.8	23.4	21.8	22.5	23.1	26.8	29.5	
24-Jan	23.8	23.6	Z	22.5	22.5	21.8	20.5	20.5	20.5	19.8	18.3	C	C	C	C	C	22.4	22.8	24.1	24.1	22.7	21.3	20.5	20.7	21.8	24.1	
25-Jan	21.4	21.9	21.7	Z	20.2	19.9	19.6	19.1	17.1	15.8	14.6	16.0	17.1	16.8	16.6	15.9	15.0	13.8	14.7	16.2	19.9	20.6	18.5	17.4	17.8	21.9	
26-Jan	17.2	17.0	16.3	19.0	Z	20.8	21.1	21.2	21.7	22.1	23.3	22.6	23.2	22.8	26.2	26.8	26.6	27.2	28.2	27.6	27.1	27.0	26.9	26.4	23.4	28.2	
27-Jan	24.9	23.0	23.4	24.3	25.9	Z	30.4	29.5	30.0	28.3	27.7	28.3	30.4	30.0	29.2	27.9	26.8	27.4	26.4	25.9	26.7	26.8	27.4	27.6	27.3	30.4	
28-Jan	Z	29.2	29.1	30.9	30.2	28.8	27.5	27.2	26.8	26.7	29.1	34.9	31.8	32.5	34.6	34.1	37.1	36.8	36.2	35.0	35.6	35.6	35.8	36.6	32.3	37.1	
29-Jan	37.2	Z	29.1	31.1	31.4	32.7	33.9	34.4	32.1	32.1	32.9	31.8	30.9	30.5	30.1	29.5	28.8	28.0	27.3	26.5	25.5	24.4	23.5	23.2	29.9	37.2	
30-Jan	23.1	23.7	Z	23.7	24.1	21.8	20.2	20.0	21.0	21.5	24.4	37.3	42.8	45.4	45.8	46.4	45.7	45.3	44.9	44.4	43.6	43.2	42.8	41.9	34.5	46.4	
31-Jan	41.8	41.5	41.0	Z	40.1	40.5	40.8	40.9	38.6	36.7	37.6	38.9	39.8	41.1	42.2	41.5	40.8	40.1	38.6	38.8	38.8	39.9	41.0	40.2	40.0	42.2	
		27.6	26.4	27.1	25.7	26.4	27.0	25.9	25.8	25.8	25.9	26.5	28.0	28.7	29.1	29.1	29.1	28.7	28.5	28.5	28.6	28.3	28.1	28.0	27.6	Diurnal Average	
		41.8	41.5	41.0	34.0	40.1	40.5	40.8	40.9	38.6	36.7	37.6	38.9	42.8	45.4	45.8	46.4	45.7	45.3	44.9	44.4	43.6	43.2	42.8	41.9	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**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	83	11.72	11.72
21 - 50	625	88.28	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Stony Mountain - January 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	4	3	11	7	5	5	5	3	7	9	6	2	3	0	7	6	83
21 - 50	12	42	26	16	25	14	8	24	29	76	66	18	42	64	99	53	614
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>	16	45	37	23	30	19	13	27	36	85	72	20	45	64	106	59	697

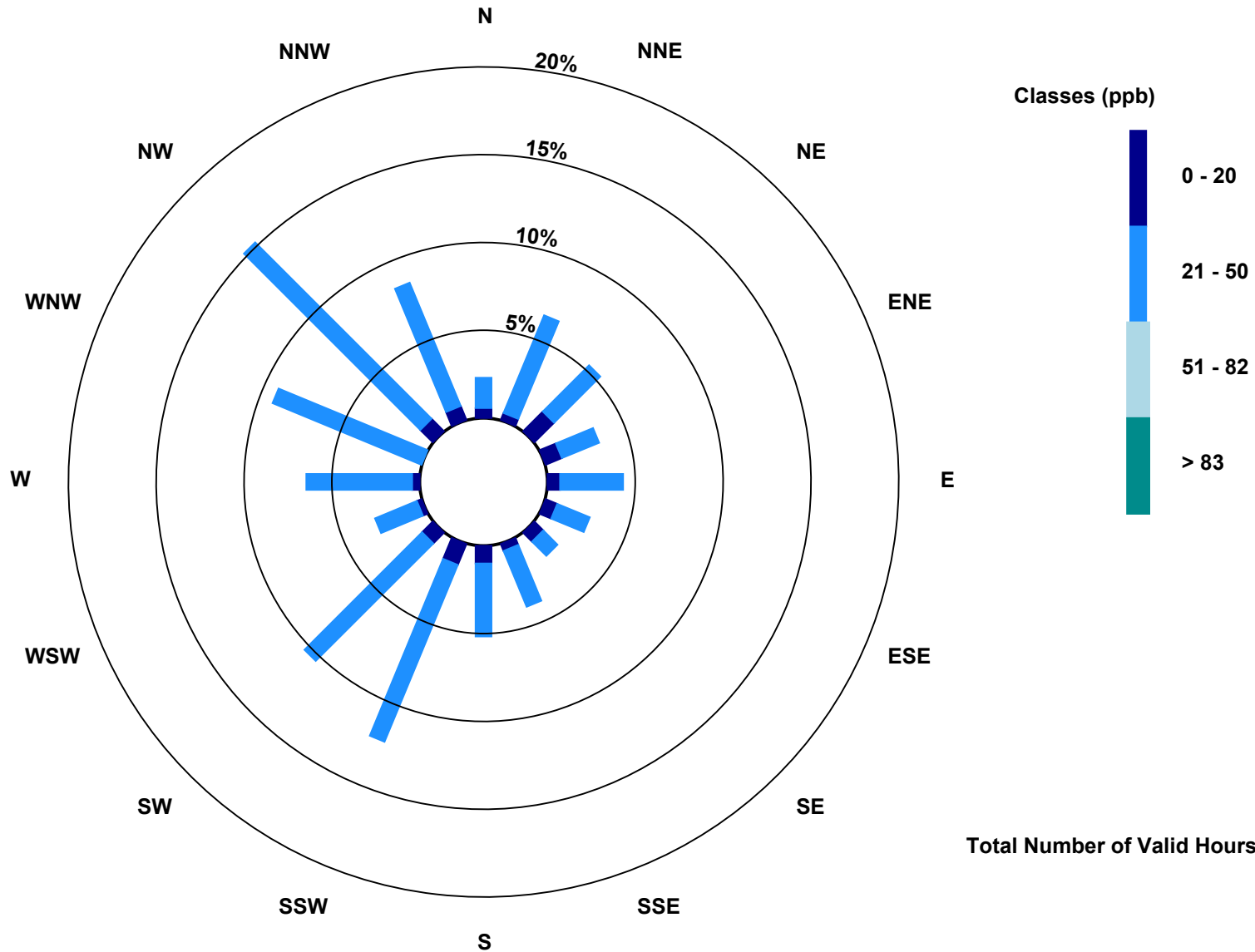
Total Number of Valid Hours: 697

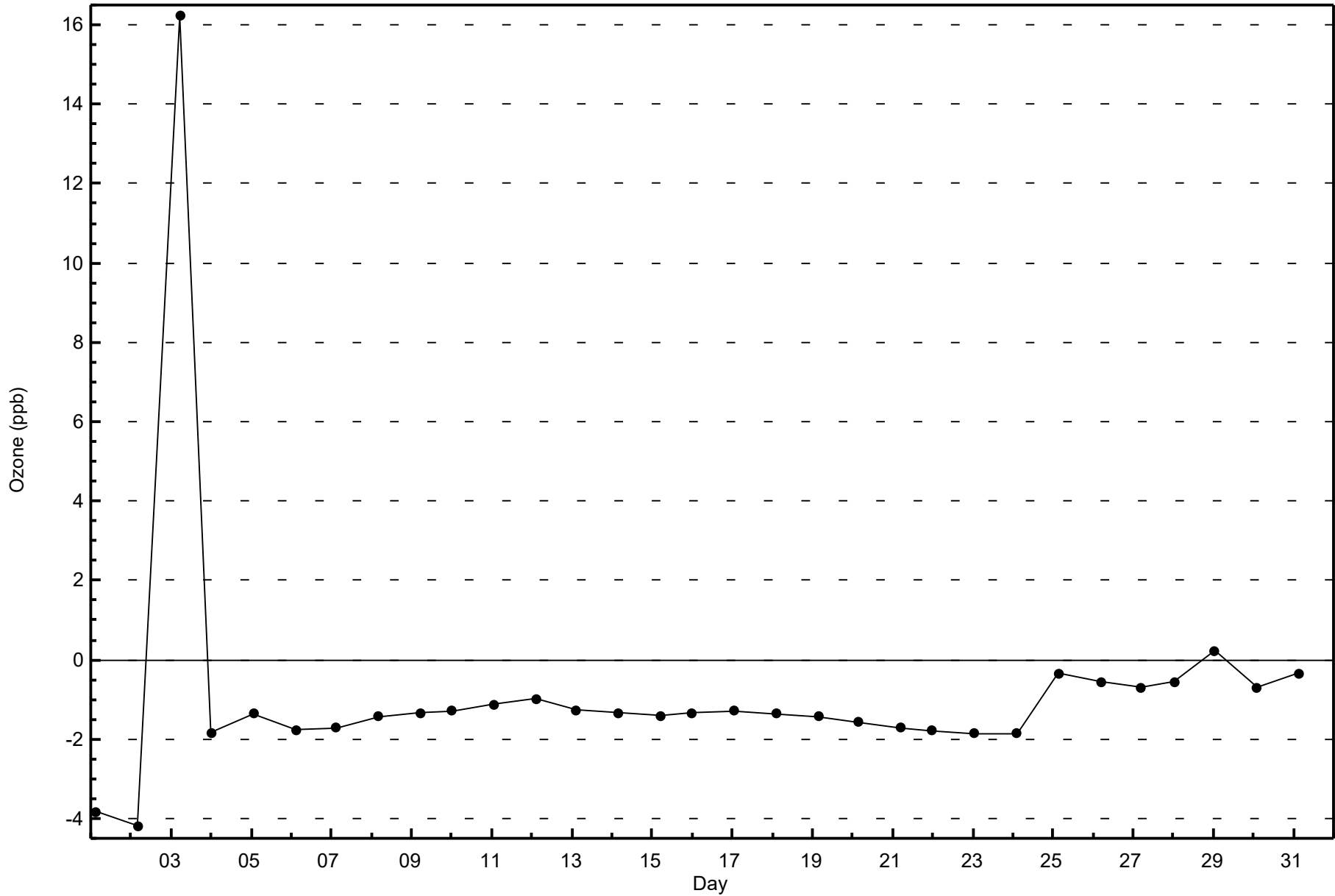
Total Number of Hours: 744

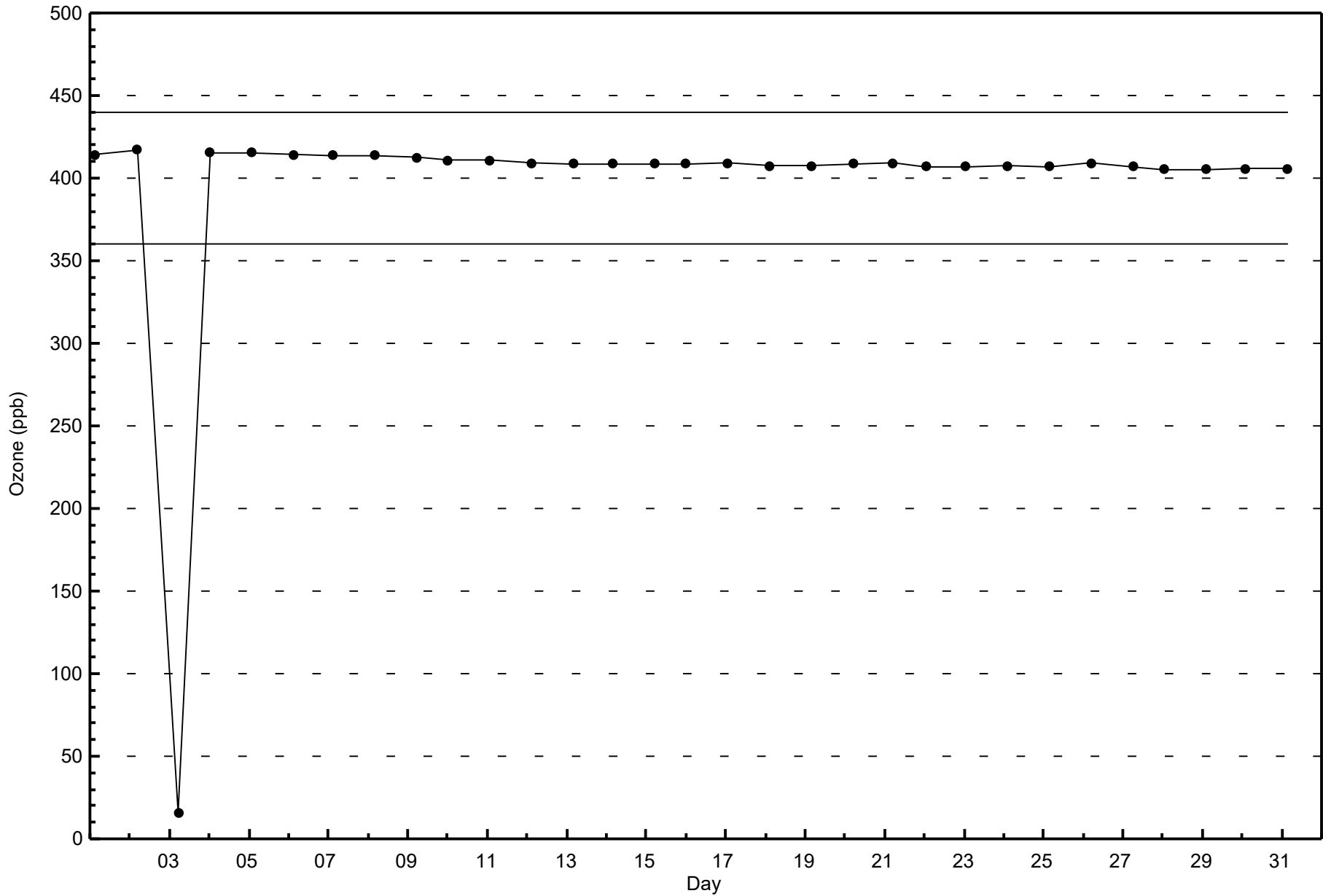


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Ozone ( $O_3$ ) - ppb  
Stony Mountain









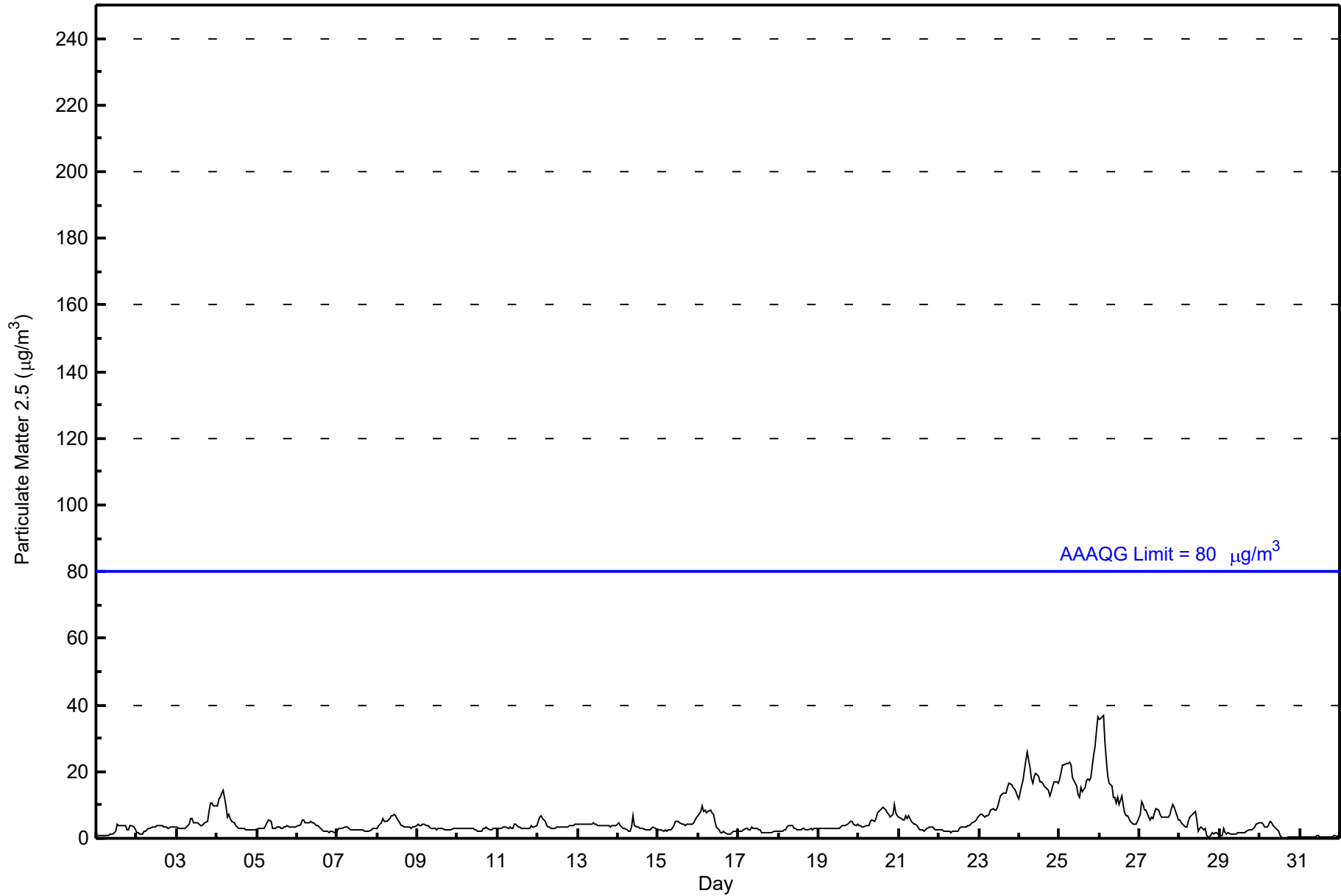
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Stony Mountain - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 36.8 µg/m <sup>3</sup> on Jan 26 03:00		Maximum Daily Average: 20.1 µg/m <sup>3</sup> on Jan 25				Hours of Data:		742																																									
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 31 16:00		Minimum Daily Average: 0.5 µg/m <sup>3</sup> on Jan 31				Hours of Missing Data:		2																																									
Maximum Diurnal Average: 6.2 µg/m <sup>3</sup> at hour 3		Minimum Diurnal Average: 4.3 µg/m <sup>3</sup> at hour 17				Hours of Calibration:		2																																									
Monthly Average: 5.18 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 2.7 Median = 3.4 Q <sub>3</sub> = 5.3 P <sub>90</sub> = 11.6 P <sub>99</sub> = 25.4				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-Jan	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.9	1.1	1.5	1.3	2.0	4.2	3.8	3.7	3.7	3.9	3.9	2.6	2.5	3.7	3.7	3.4	2.6	2.3	4.2																							
2-Jan	1.7	1.8	1.2	1.4	2.1	2.3	2.7	3.0	3.1	3.2	3.4	3.4	3.7	3.9	3.9	3.6	3.4	3.4	3.3	3.1	3.2	3.5	3.5	3.4	3.0	3.9																							
3-Jan	3.4	3.1	3.0	3.1	3.1	3.1	3.4	4.4	6.0	5.9	4.8	4.7	4.7	4.4	3.9	3.8	4.3	4.7	5.3	7.9	10.5	10.4	9.8	9.5	5.3	10.5																							
4-Jan	10.0	11.9	12.4	13.7	14.5	9.6	6.5	7.1	5.8	5.1	4.7	3.8	3.5	3.0	2.9	2.8	2.8	2.7	2.7	2.6	2.7	2.6	2.6	2.6	5.8	14.5																							
5-Jan	2.7	2.9	3.0	3.0	3.0	3.6	4.7	5.7	5.1	3.1	3.0	3.0	3.2	3.3	3.1	3.1	3.2	3.3	3.7	3.3	3.4	3.2	3.3	3.4	3.4	5.7																							
6-Jan	3.7	3.9	4.4	5.4	5.6	4.7	4.5	4.5	4.9	4.7	4.4	4.0	3.6	3.4	3.2	2.6	2.3	2.0	2.0	1.8	2.2	2.0	1.6	1.4	3.5	5.6																							
7-Jan	2.6	3.1	3.1	3.1	3.3	3.5	3.3	3.0	2.8	2.6	2.6	2.5	2.6	2.6	2.6	2.5	2.3	2.1	2.1	2.2	2.5	3.0	3.0	3.1	2.8	3.5																							
8-Jan	3.1	4.0	4.7	5.8	5.3	5.0	5.2	5.8	6.9	6.9	7.1	6.8	6.0	4.7	4.0	3.7	3.5	3.5	3.4	3.3	3.1	3.2	3.5	3.8	4.7	7.1																							
9-Jan	4.0	4.0	3.8	4.2	4.2	3.6	3.6	3.4	3.1	2.9	2.8	2.7	2.8	2.9	2.8	2.8	2.7	2.7	2.7	2.6	2.7	2.8	2.9	3.0	3.2	4.2																							
10-Jan	3.0	2.9	2.8	2.8	2.9	3.0	3.0	2.9	3.1	3.0	2.6	2.3	2.1	2.0	2.3	2.8	2.9	3.2	2.8	2.6	2.7	3.2	3.1	2.9	2.8	3.2																							
11-Jan	3.0	3.2	3.1	3.3	3.4	3.3	3.1	3.2	3.1	3.0	4.1	4.1	3.6	3.3	3.1	2.9	3.1	2.9	2.9	3.2	3.7	3.5	3.5	3.8	3.3	4.1																							
12-Jan	5.0	6.4	6.7	5.9	4.9	3.9	3.5	3.2	3.1	3.1	3.1	3.3	3.3	3.5	3.5	3.4	3.4	3.4	3.6	3.7	3.9	4.0	4.4	4.4	4.0	6.7																							
13-Jan	4.2	4.3	4.4	4.3	4.4	4.3	4.4	4.4	4.4	4.6	4.4	4.2	4.0	3.7	3.9	3.9	4.0	4.0	3.8	3.6	3.9	3.8	3.9	3.9	4.1	4.6																							
14-Jan	4.6	3.8	3.3	2.9	2.9	2.6	2.2	2.1	3.2	6.6	3.8	3.4	3.3	2.9	2.9	2.9	2.7	2.7	2.7	2.6	2.9	3.2	2.9	2.7	3.2	6.6																							
15-Jan	2.4	2.4	2.5	2.3	2.4	1.9	2.5	2.5	2.5	3.7	5.0	5.0	5.1	4.8	4.4	4.1	3.8	4.1	4.3	4.2	4.4	4.7	5.5	6.4	3.8	6.4																							
16-Jan	6.6	8.1	9.9	8.0	8.4	7.7	7.9	8.5	7.8	7.4	5.2	3.3	2.4	1.9	1.7	1.9	1.6	1.4	1.2	1.4	1.8	2.3	2.3	2.0	4.6	9.9																							
17-Jan	2.0	1.9	2.2	2.7	3.0	3.1	2.4	2.6	3.4	2.8	2.9	3.0	2.7	2.6	1.9	1.6	1.5	1.6	1.7	1.6	1.8	1.9	2.1	2.0	2.3	3.4																							
18-Jan	1.9	2.1	2.3	2.7	2.7	3.4	3.9	3.9	3.8	2.8	2.9	2.4	2.4	2.6	2.8	2.8	2.5	2.5	2.5	2.8	2.8	2.9	2.9	2.9	2.8	3.9																							
19-Jan	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	2.9	2.9	2.8	2.8	3.2	3.4	3.8	3.7	3.9	4.3	4.6	4.9	5.1	4.4	4.0	4.1	3.5	5.1																							
20-Jan	3.9	3.7	3.5	3.6	3.6	3.7	3.9	4.9	5.4	5.2	6.0	7.7	8.2	8.6	9.2	9.0	8.3	7.8	7.2	6.4	7.1	10.1	7.8	7.0	6.3	10.1																							
21-Jan	6.5	5.8	5.7	5.7	7.0	6.0	6.7	5.1	4.5	4.3	4.2	4.0	2.8	2.3	2.4	2.2	2.7	3.1	3.3	3.3	3.2	3.0	2.7	2.7	4.1	7.0																							
22-Jan	2.6	2.5	2.4	2.1	2.1	2.2	1.9	1.8	1.9	2.1	2.0	2.3	2.8	3.2	3.4	3.3	3.2	3.7	4.0	4.3	4.5	4.9	5.5	6.3	3.1	6.3																							
23-Jan	6.8	7.2	7.1	6.5	6.9	6.9	7.4	8.3	8.9	8.6	8.7	9.1	11.0	12.8	13.7	13.5	13.5	15.3	16.7	16.1	15.4	14.8	14.1	12.7	10.9	16.7																							
24-Jan	11.7	15.8	17.6	20.3	23.4	25.8	21.3	18.0	16.6	18.7	19.7	18.6	17.0	16.8	16.5	15.6	15.2	14.3	12.8	14.1	15.7	16.8	16.8	16.5	17.3	25.8																							
25-Jan	17.7	20.0	21.9	21.9	22.4	22.7	22.7	22.2	18.0	16.4	15.8	13.0	12.4	15.2	13.8	15.4	17.3	17.6	17.4	18.3	24.9	27.7	32.4	36.4	20.1	36.4																							
26-Jan	35.5	35.8	36.8	28.9	23.3	18.6	16.6	15.7	12.5	12.2	10.7	12.3	10.3	12.9	9.8	7.5	6.9	6.9	5.1	4.7	4.4	4.1	4.3	5.0	14.2	36.8																							
27-Jan	7.4	10.8	10.3	8.4	8.3	6.3	5.7	6.2	6.1	7.6	9.1	8.4	7.3	6.4	6.2	6.2	6.2	6.3	7.2	9.1	10.0	9.4	6.9	5.5	7.6	10.8																							
28-Jan	5.3	4.8	4.1	3.5	3.5	5.1	6.6	6.9	7.7	7.9	5.5	2.1	3.2	3.3	2.7	2.8	0.9	0.6	0.6	1.7	1.3	1.6	1.7	1.1	3.5	7.9																							
29-Jan	0.8	0.7	2.8	1.8	1.5	1.6	1.3	1.1	1.3	1.2	1.3	1.7	1.7	1.6	1.7	1.8	2.3	2.6	2.7	2.7	3.2	3.6	4.1	4.7	2.1	4.7																							
30-Jan	4.7	4.5	4.1	3.4	3.2	4.3	4.9	4.5	3.7	3.3	2.7	2.0	0.8	0.4	C	C	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.3	4.9																							
31-Jan	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.7	0.8	0.6	0.7	0.5	0.8																							
																								5.5	6.0	6.2	6.0	6.0	5.7	5.5	5.5	5.3	5.3	5.1	4.8	4.7	4.7	4.5	4.3	4.4	4.4	4.6	5.1	5.3	5.3	5.4	Diurnal Average		
																								35.5	35.8	36.8	28.9	23.4	25.8	22.7	22.2	18.0	18.7	19.7	18.6	17.0	16.8	16.5	15.6	17.3	17.6	17.4	18.3	24.9	27.7	32.4	36.4	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>) -  $\mu\text{g}/\text{m}^3$**   
**Stony Mountain - January 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	561	75.61	75.61
6 - 15	133	17.92	93.53
16 - 25	40	5.39	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>  
Stony Mountain - January 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	13	45	36	20	27	18	9	25	28	51	36	11	32	57	88	53	549
6 - 15	2	1	5	1	1	0	0	1	9	31	27	9	10	11	18	7	133
16 - 25	1	0	0	3	2	2	4	2	4	8	4	3	4	1	2	0	40
26 - 80	0	0	0	0	0	0	1	0	0	0	6	1	0	0	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>	16	46	41	24	30	20	14	28	41	90	73	24	46	69	108	60	730

Total Number of Valid Hours: 730

Total Number of Hours: 744





Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 0.3 ppm on Jan 26 02:00	Maximum Daily Average: 0.2 ppm on Jan 25		Hours of Data:	646
Minimum Value: 0.1 ppm on Jan 10 12:00	Minimum Daily Average: 0.1 ppm on Jan 10		Hours of Missing Data:	98
Maximum Diurnal Average: 0.2 ppm at hour 4	Minimum Diurnal Average: 0.2 ppm at hour 19		Hours of Calibration:	35
Monthly Average: 0.17 ppm	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.2 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.3		Percent Operational Time:	91.5

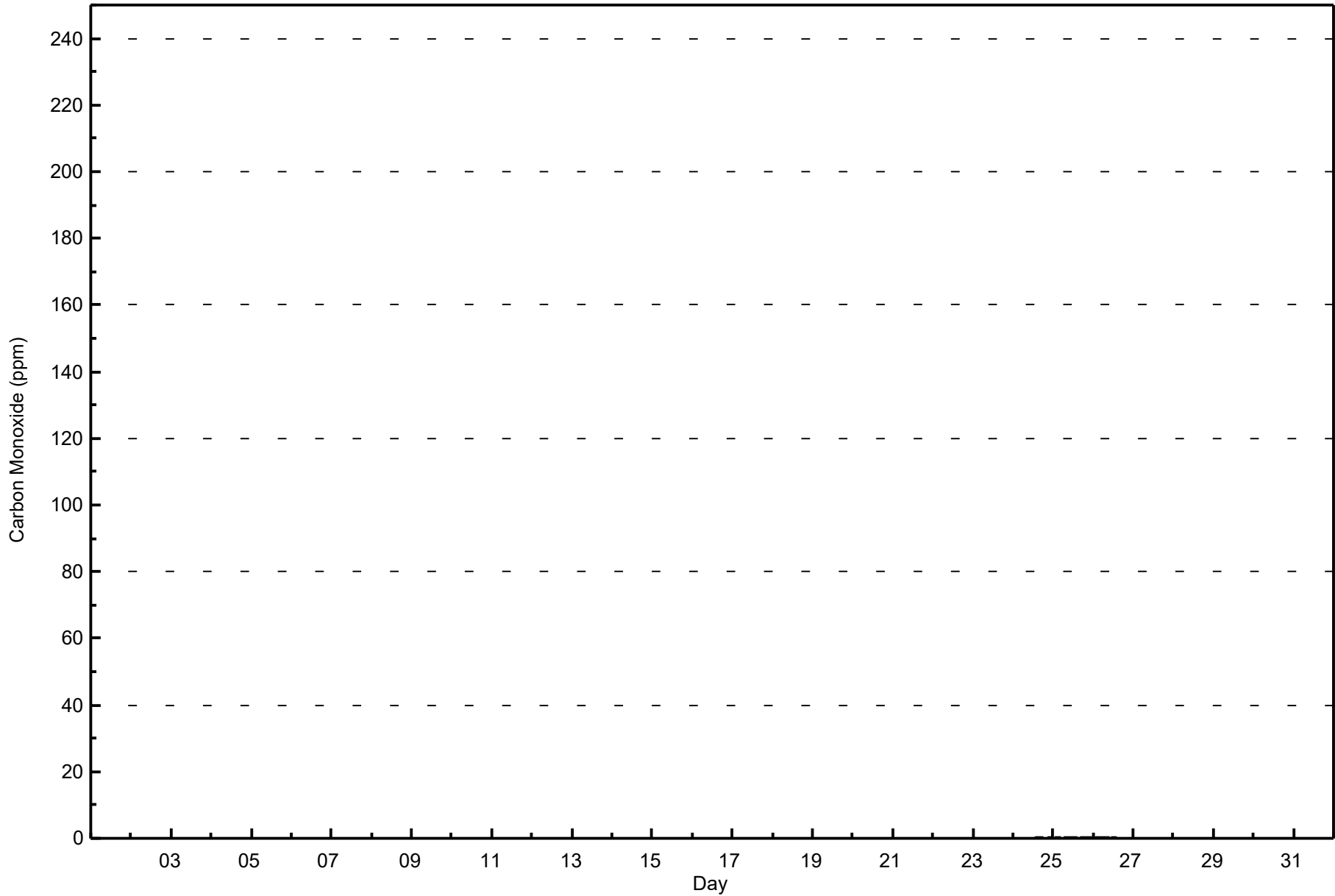
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
2-Jan	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
3-Jan	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	--	0.2
4-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
5-Jan	0.1	0.1	0.2	Z	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2
6-Jan	0.2	0.2	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.2
7-Jan	0.1	0.2	0.2	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	0.2	0.1	0.2
8-Jan	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	0.1	0.2	0.2	0.1	0.2	0.2	0.2
9-Jan	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	UO	UO	UO	UO	UO	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
10-Jan	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	0.2	0.2	0.2	0.1	0.2
11-Jan	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12-Jan	0.2	0.2	0.2	0.2	Z	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
13-Jan	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2
14-Jan	Z	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	0.2	0.2	0.2	0.2	0.2
15-Jan	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
16-Jan	0.2	0.2	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	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
17-Jan	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.2	C	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
18-Jan	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2
19-Jan	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
20-Jan	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
21-Jan	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	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
23-Jan	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
24-Jan	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
25-Jan	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	0.3	0.3	0.3	0.2	0.3
26-Jan	Z	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	0.3
27-Jan	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-Jan	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2
29-Jan	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
30-Jan	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
31-Jan	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
																								Diurnal Average		
																								Diurnal Maximum		

Z - zeronpan                      C - Calibration                      UO - Unstable Operation  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm



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

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - January 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	646	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: 646

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Stony Mountain - January 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 - 0.3	12	38	36	21	21	13	13	25	33	82	71	24	45	60	93	48	635
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>	12	38	36	21	21	13	13	25	33	82	71	24	45	60	93	48	635

Total Number of Valid Hours: 635

Total Number of Hours: 744





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - January 2024**

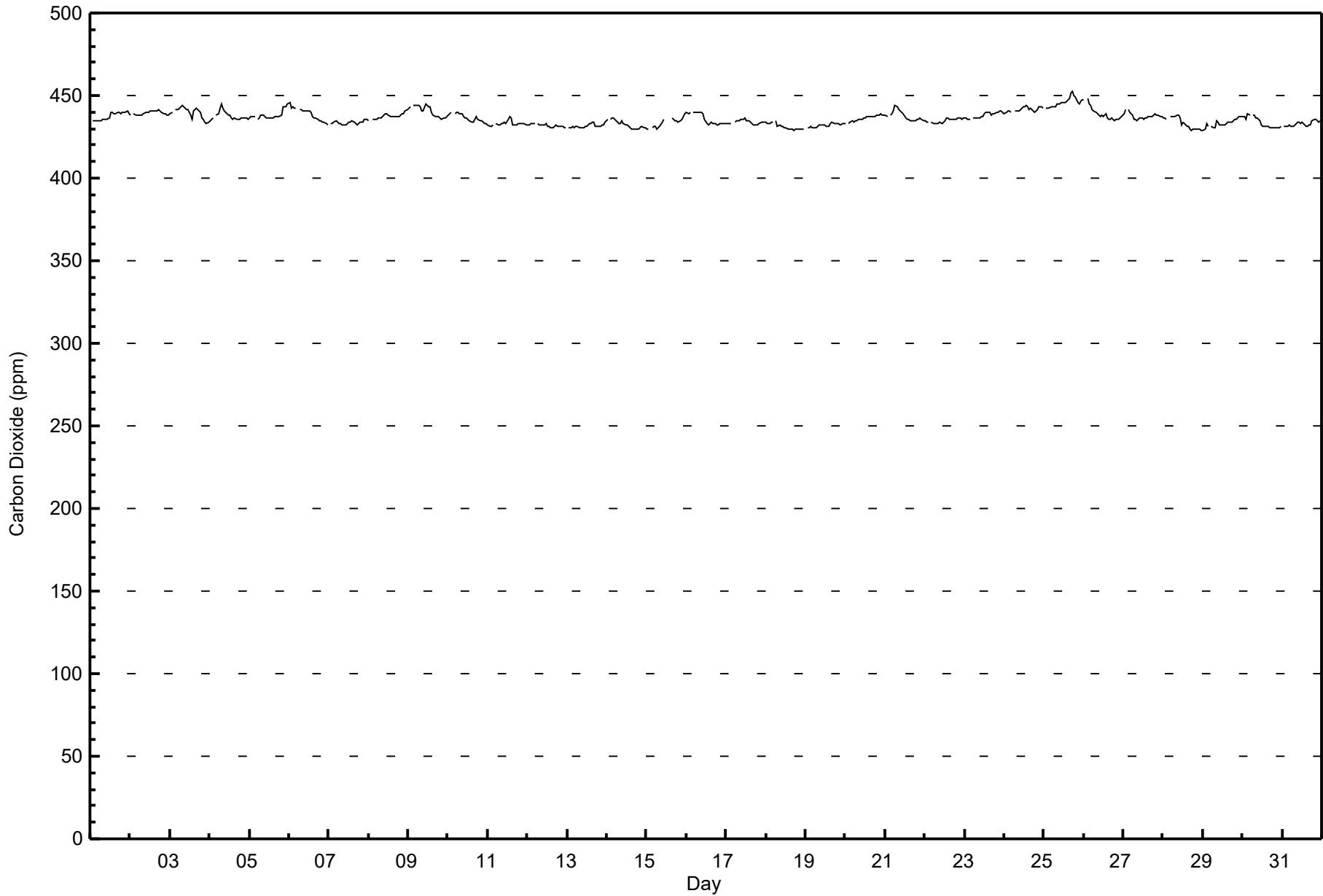
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744						
Maximum Value: 452.9 ppm on Jan 25 18:00		Maximum Daily Average: 445.9 ppm on Jan 25																	Hours of Data:		709						
Minimum Value: 429.0 ppm on Jan 29 01:00		Minimum Daily Average: 431.1 ppm on Jan 18																	Hours of Missing Data:		35						
Maximum Diurnal Average: 437.1 ppm at hour 5		Minimum Diurnal Average: 435.4 ppm at hour 20																	Hours of Calibration:		35						
Monthly Average: 436.09 ppm		Percentiles: P <sub>1</sub> = 429.4 P <sub>10</sub> = 431.0 Q <sub>1</sub> = 432.9 Median = 435.7 Q <sub>3</sub> = 438.8 P <sub>90</sub> = 441.8 P <sub>99</sub> = 447.3																	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-Jan	Z	434.5	434.4	434.4	434.7	434.9	434.9	435.3	435.4	435.3	435.6	436.4	440.0	440.1	439.4	438.9	439.5	439.8	438.8	439.6	440.2	440.0	440.4	439.4	437.5	440.4	
2-Jan	438.3	Z	439.1	438.3	438.1	437.9	438.1	438.5	438.8	439.6	439.8	439.8	440.4	440.5	440.4	441.0	440.9	441.3	440.9	439.8	439.1	438.8	438.4	437.8	439.4	441.3	
3-Jan	438.9	440.2	Z	441.2	441.7	441.9	442.3	443.7	443.6	442.8	441.9	441.8	438.4	435.9	440.6	441.6	442.1	441.5	440.2	436.8	435.4	434.0	433.4	433.6	439.7	443.7	
4-Jan	434.5	435.5	436.2	Z	438.5	439.4	442.6	445.1	442.7	440.4	439.3	438.4	438.1	436.4	435.3	436.3	435.2	435.6	436.0	436.3	436.5	436.2	436.0	435.9	437.7	445.1	
5-Jan	436.2	436.9	437.4	437.2	Z	437.2	436.0	436.5	437.8	438.3	437.3	436.8	436.4	436.5	436.5	436.6	436.9	437.2	437.5	437.7	438.0	442.8	443.0	443.3	445.2	438.2	445.2
6-Jan	445.6	442.7	443.0	442.5	442.4	Z	441.7	441.4	441.0	440.7	440.5	440.3	439.5	437.3	436.4	436.1	435.3	435.1	434.6	434.2	433.7	433.1	432.5	438.7	445.6	437.5	440.4
7-Jan	Z	433.1	433.4	433.9	434.5	433.6	433.2	433.0	432.6	432.4	431.8	433.3	433.9	434.2	434.4	433.6	433.0	432.6	433.0	433.8	434.3	435.2	435.8	435.8	433.7	435.8	441.3
8-Jan	434.9	Z	435.3	435.2	435.3	435.6	436.1	436.7	437.4	438.3	438.9	438.8	438.4	437.4	437.0	436.9	437.3	437.3	437.7	438.2	438.9	439.4	440.3	441.4	437.5	441.4	443.7
9-Jan	442.3	443.4	Z	444.0	444.1	444.1	444.1	443.0	441.1	440.9	444.8	444.2	443.5	443.4	439.8	438.5	437.3	437.1	436.9	436.5	436.0	436.2	436.5	437.2	440.7	444.8	443.7
10-Jan	437.9	439.1	440.0	Z	439.2	440.3	439.8	438.8	438.7	437.4	436.4	436.6	435.8	434.6	433.8	433.6	435.2	437.0	435.8	435.0	434.4	433.7	433.0	432.8	436.5	440.3	443.7
11-Jan	432.4	431.8	431.5	432.2	Z	433.1	432.4	432.4	432.7	433.3	433.5	433.3	435.2	437.3	436.2	432.3	432.4	432.3	432.6	432.8	432.8	432.9	432.8	432.6	433.1	437.3	443.7
12-Jan	432.3	432.4	432.7	432.9	432.8	Z	432.8	432.5	432.1	432.1	432.0	432.7	431.5	431.0	430.6	430.7	431.6	432.0	431.4	431.2	431.0	431.1	430.4	430.5	431.7	432.9	443.7
13-Jan	Z	430.7	430.8	431.2	430.6	431.0	431.0	430.7	430.8	430.7	430.8	431.0	431.4	432.6	433.0	433.7	434.3	431.7	431.2	431.0	431.7	431.9	432.3	434.0	431.7	434.3	443.7
14-Jan	435.7	Z	435.4	436.8	436.2	434.7	433.6	433.0	433.4	434.9	433.0	432.0	432.0	431.1	430.6	430.0	430.1	429.7	429.3	429.6	430.5	431.0	430.4	430.2	432.3	436.8	443.7
15-Jan	429.6	429.8	Z	430.4	431.2	431.0	429.6	430.9	431.4	433.7	435.4	Z	Z	Z	Z	436.4	435.5	434.7	434.8	434.3	434.4	435.7	437.2	438.8	433.4	438.8	443.7
16-Jan	439.5	438.8	439.9	Z	440.1	439.6	440.1	440.0	440.2	440.1	438.9	435.6	433.4	432.5	432.8	433.5	433.0	433.0	432.3	432.3	433.0	433.2	433.1	433.0	436.0	440.2	443.7
17-Jan	432.9	432.7	433.0	433.4	Z	434.1	434.4	434.9	434.8	435.3	435.6	436.3	434.9	435.0	434.8	433.1	432.6	432.5	432.3	431.9	433.1	433.5	433.6	433.7	433.8	436.3	443.7
18-Jan	433.5	433.4	433.3	433.5	433.6	Z	434.4	431.3	432.2	431.7	431.4	430.4	430.2	429.7	429.7	429.4	429.4	429.2	429.3	429.5	429.5	429.8	429.9	430.0	431.1	434.4	443.7
19-Jan	Z	430.5	430.6	431.0	430.9	430.7	430.4	431.1	432.1	431.9	432.5	432.6	431.4	431.5	431.6	432.7	433.7	433.2	433.3	432.8	432.7	432.4	432.7	433.1	432.0	433.7	443.7
20-Jan	432.8	Z	433.4	433.7	434.7	434.3	434.6	435.0	435.4	435.7	435.7	436.1	436.7	437.3	437.5	437.4	437.5	437.5	437.4	438.0	438.1	438.7	438.2	438.1	436.2	438.7	443.7
21-Jan	437.8	437.4	Z	438.5	439.1	440.6	444.5	443.2	441.6	440.5	440.0	438.9	436.0	435.8	435.7	435.1	434.9	434.9	435.1	435.3	435.6	436.0	435.5	435.2	437.7	444.5	443.7
22-Jan	434.8	434.3	433.9	Z	433.5	433.3	433.1	433.1	433.4	434.3	433.1	433.7	434.9	436.3	436.5	435.9	435.2	435.4	435.8	435.9	436.1	436.1	436.0	436.7	434.8	436.7	443.7
23-Jan	436.7	436.0	436.0	436.0	Z	436.2	436.4	436.6	436.7	436.8	437.1	437.5	438.8	439.5	439.9	439.8	438.5	439.1	439.4	440.0	440.1	440.4	440.3	439.5	438.1	440.4	443.7
24-Jan	438.8	439.5	440.8	440.3	439.7	Z	440.6	440.7	440.8	441.1	441.8	443.4	443.6	444.4	443.0	441.9	442.2	440.9	439.5	440.3	441.9	442.8	443.1	442.5	441.5	444.4	443.7
25-Jan	Z	442.5	442.5	442.7	442.8	442.9	443.2	443.4	444.7	445.3	446.0	445.8	446.1	446.1	446.5	448.2	451.3	452.9	450.4	448.8	445.5	445.0	446.6	447.3	445.9	452.9	443.7
26-Jan	447.4	Z	448.3	444.9	444.2	441.1	440.3	439.9	439.0	438.3	437.1	438.1	437.3	438.8	436.5	435.4	435.6	436.1	435.1	435.2	435.4	435.7	436.3	437.0	438.8	448.3	443.7
27-Jan	439.2	441.9	Z	441.6	439.6	438.1	435.5	435.7	435.1	435.8	436.4	436.4	435.9	436.1	436.4	437.0	437.3	437.2	437.9	438.8	438.5	438.1	437.5	437.2	437.5	441.9	443.7
28-Jan	436.9	436.3	436.0	Z	437.5	437.0	437.5	437.5	437.7	437.8	436.1	431.9	433.7	433.4	431.5	431.5	429.3	429.2	429.5	430.0	429.4	429.5	429.4	429.1	433.4	437.8	443.7
29-Jan	429.0	430.1	433.1	431.6	Z	431.2	430.8	430.7	434.5	434.1	432.5	432.1	432.4	432.4	432.8	433.6	434.1	434.2	434.5	435.2	435.7	436.3	436.9	437.3	433.3	437.3	443.7
30-Jan	437.7	437.3	435.9	439.4	438.3	Z	438.1	438.0	436.6	436.4	434.8	432.2	431.6	431.2	431.1	431.5	430.7	430.7	430.6	430.7	430.7	430.7	430.6	431.0	433.7	439.4	443.7
31-Jan	Z	431.0	431.1	431.6	432.0	431.6	431.1	431.4	433.2	434.3	433.6	432.7	433.5	432.0	431.6	431.6	432.1	432.5	434.7	435.4	435.7	434.3	433.7	434.5	432.8	435.7	443.7
436.6 435.8 436.0 436.5 437.1 436.3 436.6 436.6 436.7 436.7 436.6 436.3 436.2 436.1 435.8 435.6 435.7 435.6 435.4 435.4 435.6 435.7 435.7 435.9 435.9																								Diurnal Average			
447.4 443.4 448.3 444.9 444.2 444.1 444.5 445.1 444.7 445.3 446.0 445.8 446.1 446.1 446.5 448.2 451.3 452.9 450.4 448.8 445.5 445.0 446.6 447.3																								Diurnal Maximum			
Z - zerospan		C - Calibration																									





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain - January 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	610	86.04	86.04
440 - 460	99	13.96	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain - January 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	13	41	24	16	22	11	8	25	27	69	59	20	45	63	99	56	598
440 - 460	2	3	17	8	6	9	5	3	12	15	8	3	2	0	3	3	99
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>	15	44	41	24	28	20	13	28	39	84	67	23	47	63	102	59	697

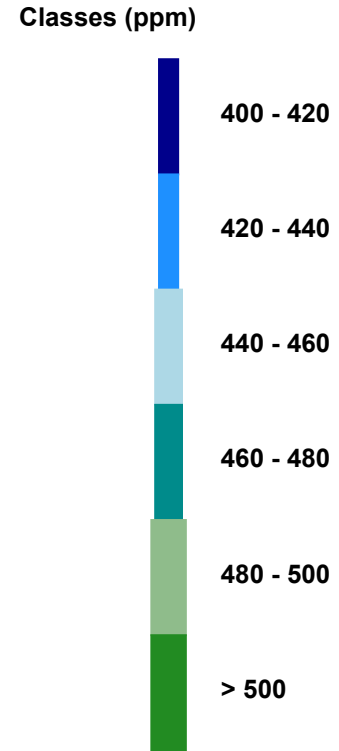
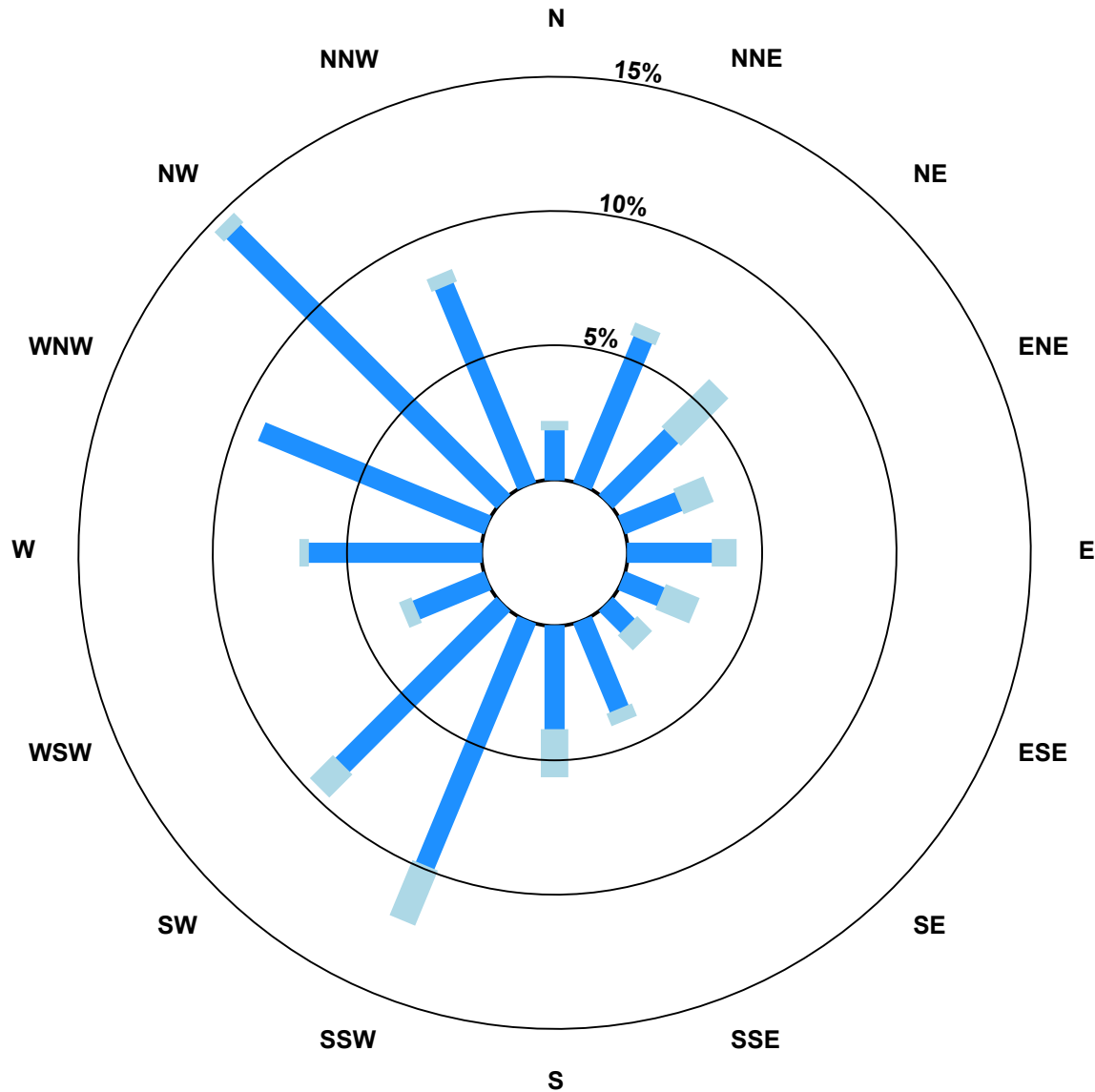
Total Number of Valid Hours: 697

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

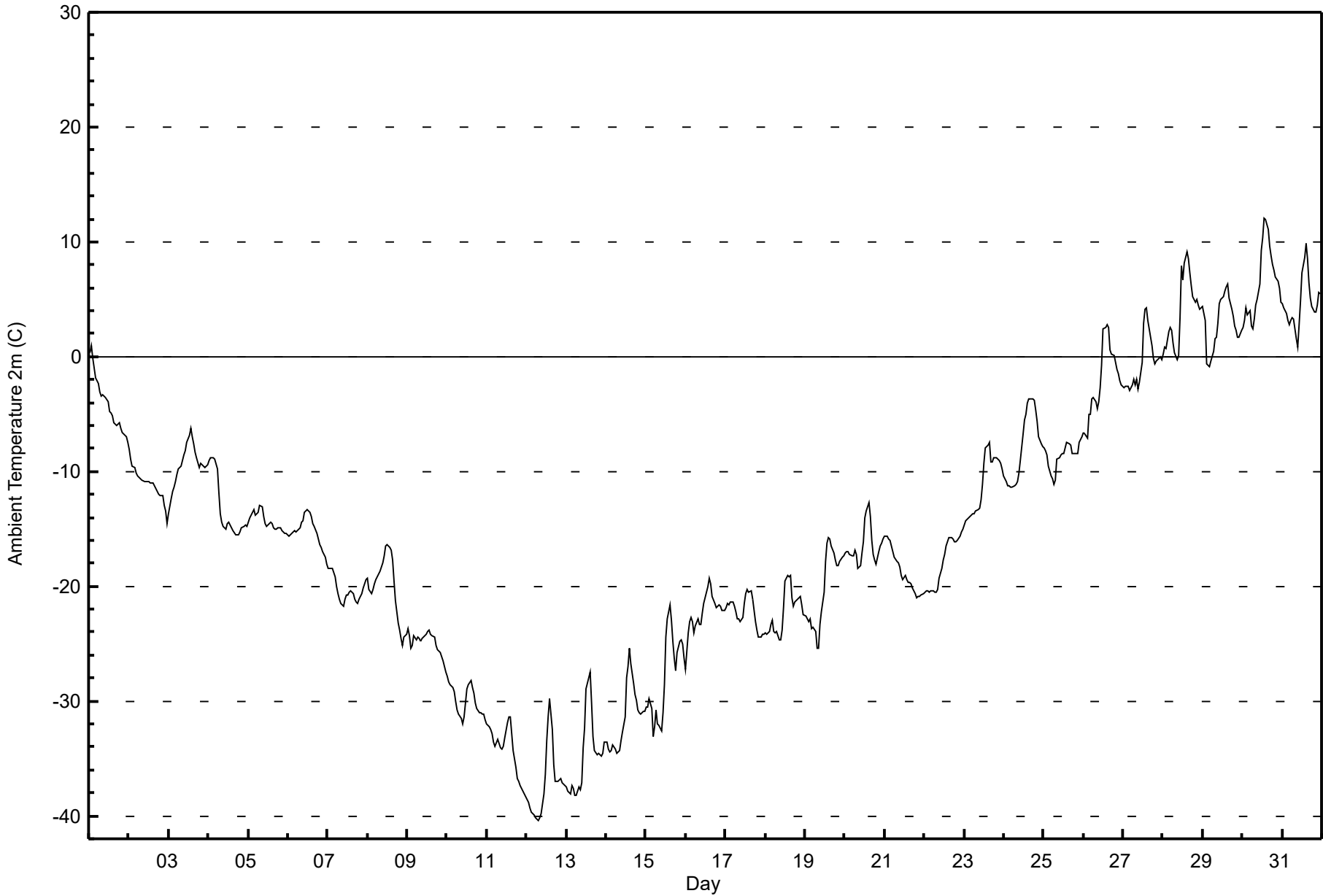
Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain



Total Number of Valid Hours: 697



Maximum Value: 12.1 C on Jan 30 14:00      Maximum Daily Average: 6.4 C on Jan 30																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -40.4 C on Jan 12 08:00      Minimum Daily Average: -37.2 C on Jan 12 Maximum Diurnal Average: -12.6 C at hour 15      Minimum Diurnal Average: -16.9 C at hour 9 Monthly Average: -15.51 C      Percentiles: $P_1 = -39.1$ $P_{10} = -32.3$ $Q_1 = -23.9$ Median = -16.0 $Q_3 = -7.5$ $P_{90} = 2.6$ $P_{99} = 9.0$																						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-Jan	0.4	0.9	-0.2	-1.0	-1.8	-2.4	-3.1	-3.4	-3.3	-3.4	-3.5	-3.9	-4.8	-4.9	-5.2	-5.8	-6.0	-5.9	-5.8	-6.3	-6.6	-6.8	-7.0	-7.5	-4.0	0.9
2-Jan	-8.1	-8.9	-9.6	-9.7	-10.2	-10.4	-10.6	-10.6	-10.8	-10.9	-10.9	-10.9	-10.9	-11.0	-11.3	-11.5	-11.8	-12.0	-12.1	-12.1	-12.9	-13.5	-14.6	-11.1	-8.1	
3-Jan	-13.7	-12.4	-11.8	-11.4	-10.8	-10.3	-9.8	-9.5	-9.1	-8.6	-8.1	-7.4	-6.8	-6.2	-7.0	-7.6	-8.3	-8.8	-9.7	-9.3	-9.4	-9.6	-9.7	-9.4	-9.4	-6.2
4-Jan	-9.0	-8.8	-8.9	-8.8	-8.9	-9.7	-11.9	-13.7	-14.5	-14.8	-15.1	-14.6	-14.4	-14.6	-14.9	-15.2	-15.5	-15.5	-15.2	-14.9	-14.7	-14.7	-14.8	-13.3	-8.8	
5-Jan	-14.5	-14.1	-13.6	-13.3	-13.8	-13.7	-13.5	-12.9	-13.1	-13.9	-14.6	-14.8	-14.7	-14.5	-14.6	-14.9	-15.1	-15.0	-14.9	-14.9	-15.1	-15.3	-15.4	-15.4	-14.4	-12.9
6-Jan	-15.6	-15.6	-15.4	-15.2	-15.2	-15.2	-15.1	-14.9	-14.4	-14.3	-13.5	-13.3	-13.4	-13.6	-13.9	-14.6	-14.8	-15.4	-15.8	-16.4	-16.6	-17.0	-17.4	-18.1	-15.2	-13.3
7-Jan	-18.5	-18.5	-18.4	-18.5	-19.2	-20.0	-20.6	-21.1	-21.5	-21.7	-21.2	-20.7	-20.8	-20.5	-20.4	-20.7	-21.2	-21.4	-21.5	-21.1	-20.7	-20.1	-19.8	-19.4	-20.3	-18.4
8-Jan	-19.3	-20.2	-20.7	-20.2	-19.7	-19.4	-19.2	-18.7	-18.3	-18.0	-17.4	-16.5	-16.4	-16.6	-16.8	-17.7	-19.5	-21.3	-23.2	-23.9	-24.6	-25.2	-24.4	-24.1	-20.1	-16.4
9-Jan	-23.7	-24.3	-25.4	-25.1	-24.3	-24.6	-24.5	-24.5	-24.8	-24.6	-24.4	-24.2	-23.9	-23.8	-24.1	-24.3	-24.5	-25.2	-25.5	-25.6	-25.8	-26.5	-27.0	-27.5	-24.9	-23.7
10-Jan	-27.9	-28.3	-28.6	-28.8	-29.1	-30.0	-30.7	-31.1	-31.6	-32.0	-31.4	-30.1	-28.9	-28.6	-28.2	-28.8	-29.3	-30.2	-30.6	-31.0	-31.0	-31.2	-31.2	-31.6	-30.0	-27.9
11-Jan	-32.0	-32.3	-32.5	-32.8	-33.6	-33.9	-33.4	-33.7	-34.1	-34.2	-34.0	-33.3	-31.8	-31.4	-31.4	-32.9	-34.3	-35.8	-36.7	-37.0	-37.4	-37.6	-37.8	-38.4	-34.3	-31.4
12-Jan	-38.6	-38.8	-39.3	-39.6	-40.0	-40.2	-40.3	-40.4	-40.2	-39.8	-38.1	-36.4	-33.4	-31.4	-29.8	-32.5	-35.6	-37.0	-37.0	-37.0	-36.8	-37.2	-37.2	-37.4	-37.2	-29.8
13-Jan	-37.5	-37.8	-38.1	-37.4	-37.6	-38.2	-38.2	-37.5	-37.7	-37.2	-34.1	-32.3	-28.9	-28.0	-27.4	-30.1	-33.1	-34.4	-34.7	-34.5	-34.7	-34.7	-34.6	-33.6	-34.7	-27.4
14-Jan	-33.5	-34.2	-34.5	-34.3	-33.9	-34.2	-34.6	-34.4	-34.3	-33.5	-32.7	-31.4	-27.9	-27.0	-25.4	-26.8	-28.5	-29.5	-30.0	-30.8	-31.0	-31.2	-30.9	-30.9	-31.5	-25.4
15-Jan	-30.6	-30.5	-29.8	-30.7	-33.1	-32.3	-30.8	-32.0	-32.1	-32.6	-31.0	-28.5	-24.4	-22.8	-21.6	-22.9	-24.8	-26.2	-27.4	-25.8	-24.8	-24.7	-25.0	-26.3	-27.9	-21.6
16-Jan	-27.2	-24.0	-23.1	-22.7	-23.1	-24.0	-23.5	-22.8	-23.3	-23.3	-22.3	-21.5	-20.5	-20.0	-19.3	-19.7	-20.9	-21.5	-21.9	-21.7	-21.6	-21.7	-22.1	-22.1	-22.2	-19.3
17-Jan	-21.8	-21.5	-21.6	-21.3	-21.4	-21.8	-22.2	-22.9	-22.8	-23.0	-22.7	-21.5	-20.7	-20.3	-20.6	-20.4	-21.1	-22.1	-23.1	-23.8	-24.5	-24.4	-24.2	-24.2	-22.2	-20.3
18-Jan	-24.0	-24.2	-23.9	-23.3	-23.0	-24.0	-24.0	-24.0	-24.7	-24.6	-23.9	-21.9	-19.5	-19.1	-19.2	-19.1	-21.0	-21.8	-21.4	-21.1	-21.0	-20.9	-21.6	-22.4	-22.2	-19.1
19-Jan	-22.6	-22.8	-23.1	-22.9	-23.7	-23.6	-24.0	-25.3	-25.3	-23.3	-22.3	-20.5	-17.8	-16.3	-15.8	-15.9	-16.5	-17.2	-17.7	-18.2	-18.2	-17.9	-17.5	-17.3	-20.2	-15.8
20-Jan	-17.1	-16.9	-17.0	-17.2	-17.4	-17.4	-16.9	-17.2	-18.4	-18.2	-17.1	-16.1	-14.0	-13.5	-12.7	-14.0	-16.0	-17.2	-17.7	-18.1	-16.9	-16.5	-16.2	-15.9	-16.5	-12.7
21-Jan	-15.7	-15.6	-15.9	-16.1	-16.4	-16.9	-17.4	-17.8	-18.0	-18.3	-19.1	-19.4	-19.1	-19.5	-19.7	-19.7	-19.8	-20.1	-20.6	-21.0	-20.9	-20.8	-20.8	-20.7	-18.7	-15.6
22-Jan	-20.5	-20.5	-20.5	-20.5	-20.4	-20.4	-20.5	-20.5	-20.2	-19.3	-18.5	-17.7	-17.2	-16.5	-16.1	-15.8	-15.8	-15.9	-16.1	-16.1	-16.0	-15.6	-15.3	-15.0	-18.0	-15.0
23-Jan	-14.7	-14.4	-14.2	-14.0	-13.9	-13.7	-13.7	-13.5	-13.3	-13.2	-12.4	-11.1	-9.3	-8.0	-7.7	-7.4	-9.2	-9.2	-8.8	-8.8	-8.9	-9.1	-9.4	-9.8	-11.2	-7.4
24-Jan	-10.4	-10.8	-11.2	-11.3	-11.4	-11.4	-11.2	-11.1	-10.9	-10.1	-9.0	-6.8	-5.5	-5.1	-4.1	-3.7	-3.6	-3.7	-3.8	-4.6	-5.7	-6.9	-7.6	-7.9	-7.8	-3.6
25-Jan	-8.0	-8.2	-8.5	-9.5	-10.4	-10.6	-11.2	-10.8	-8.9	-8.8	-8.6	-8.5	-8.4	-8.0	-7.5	-7.5	-7.7	-8.5	-8.5	-8.5	-8.5	-7.4	-7.2	-7.0	-8.6	-7.0
26-Jan	-6.6	-6.7	-7.1	-5.0	-5.0	-3.7	-3.6	-3.9	-4.5	-4.0	-2.8	-0.8	2.4	2.5	2.8	2.6	0.6	0.2	0.1	-0.5	-1.1	-1.5	-2.0	-2.5	-2.1	2.8
27-Jan	-2.7	-2.6	-2.5	-2.6	-3.0	-2.4	-1.9	-2.4	-2.0	-2.8	-2.2	-0.4	2.8	4.1	4.2	3.1	1.7	1.0	-0.1	-0.6	-0.4	-0.3	0.0	-0.3	-0.5	4.2
28-Jan	0.3	0.8	0.7	2.1	2.5	2.3	1.2	0.3	-0.2	0.2	3.4	7.9	6.7	8.2	9.2	8.5	7.3	6.2	5.3	4.7	5.0	4.5	4.2	4.2	4.0	9.2
29-Jan	4.3	3.2	-0.7	-0.7	-0.9	-0.4	0.5	1.6	1.7	2.9	4.6	5.0	5.2	5.8	6.1	6.3	5.1	4.1	3.5	2.6	2.3	1.7	1.6	2.3	2.8	6.3
30-Jan	2.5	3.2	4.3	3.6	4.0	2.6	2.5	3.2	4.5	5.0	6.3	9.2	10.4	12.1	11.9	11.1	9.6	8.8	8.1	7.5	7.0	6.6	6.0	4.8	6.4	12.1
31-Jan	4.6	4.3	3.8	3.2	2.8	3.2	3.3	3.3	1.6	0.9	2.7	4.9	7.3	8.7	9.9	8.5	6.4	5.1	4.4	3.8	3.9	4.5	5.6	5.5	4.7	9.9
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Stony Mountain - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	289	38.84	38.84
-20 - 0	349	46.91	85.75
0 - 10	102	13.71	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %  
Stony Mountain - January 2024**

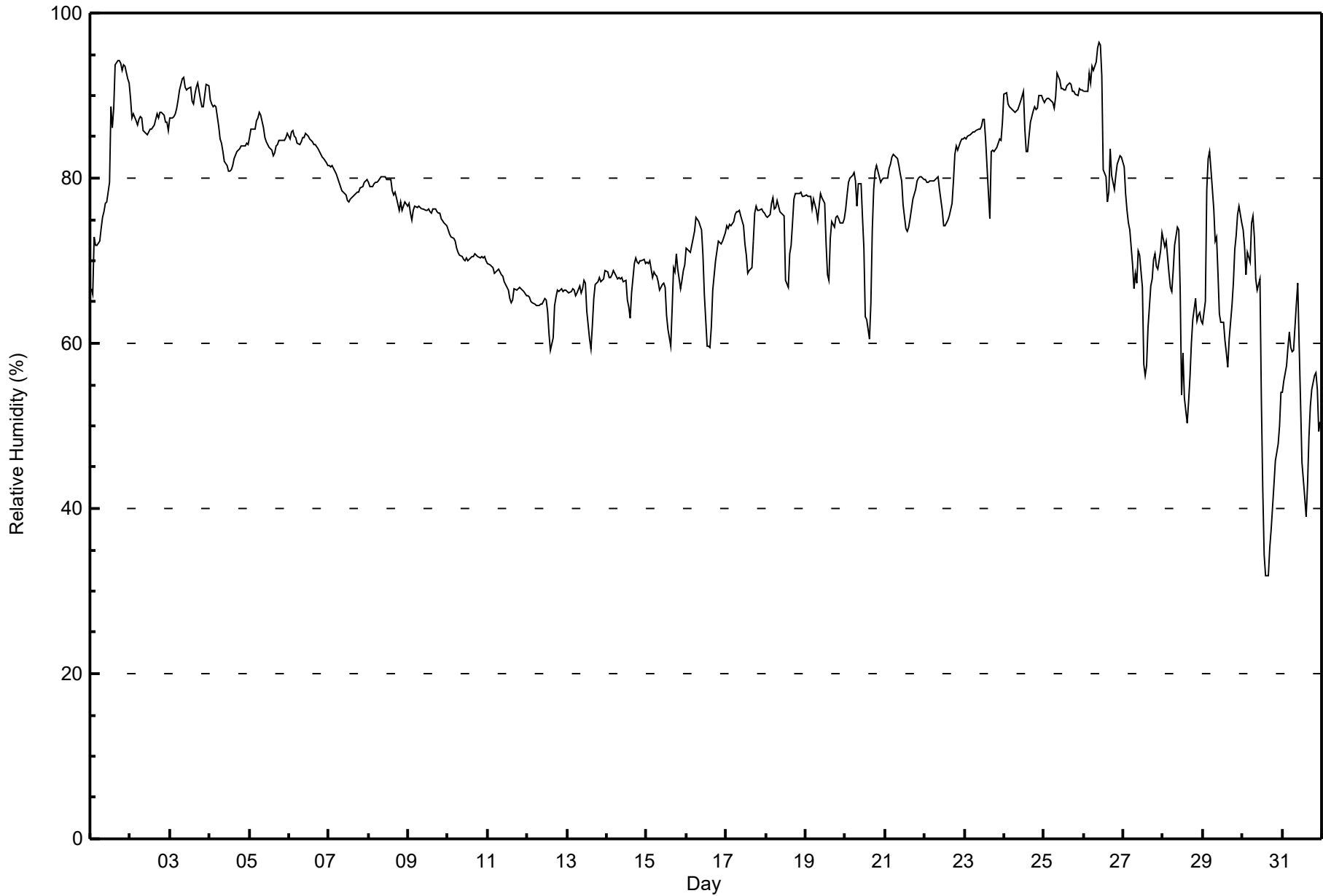
Maximum Value: 96.5 % on Jan 26 10:00      Maximum Daily Average: 90.4 % on Jan 25																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 31.8 % on Jan 30 16:00      Minimum Daily Average: 54.2 % on Jan 31 Maximum Diurnal Average: 77.6 % at hour 5      Minimum Diurnal Average: 69.8 % at hour 15 Monthly Average: 75.56 %      Percentiles: P <sub>1</sub> = 41.8 P <sub>10</sub> = 63.6 Q <sub>1</sub> = 68.4 Median = 76.2 Q <sub>3</sub> = 84.0 P <sub>90</sub> = 88.7 P <sub>99</sub> = 93.7																						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-Jan	66.6	65.9	73.0	71.9	71.9	72.3	74.0	75.2	75.9	76.9	77.1	79.5	88.7	86.2	88.4	93.7	94.3	94.2	93.9	93.1	93.8	93.5	92.1	91.5	82.6	94.3
2-Jan	89.6	87.3	87.8	87.0	86.4	87.1	87.5	87.4	85.7	85.4	85.2	85.7	86.0	86.0	86.5	87.1	87.7	87.3	87.9	87.9	87.6	86.8	86.9	85.8	86.9	89.6
3-Jan	87.3	87.3	87.4	87.9	88.5	89.5	90.7	92.0	92.3	91.0	90.6	90.9	91.0	89.3	89.0	90.1	91.1	91.4	89.5	88.7	88.6	90.0	91.4	91.1	89.9	92.3
4-Jan	89.5	88.9	88.7	88.8	88.7	86.3	84.8	84.2	83.2	82.1	81.4	80.9	81.0	80.8	81.6	82.4	83.3	83.5	83.9	83.9	83.9	84.2	84.2	84.2	84.3	89.5
5-Jan	84.8	85.9	85.9	85.9	87.0	87.4	87.9	87.6	86.1	85.0	84.4	84.0	83.8	83.4	82.7	83.1	84.0	84.1	84.5	84.6	84.5	84.6	84.9	85.4	85.1	87.9
6-Jan	84.7	85.7	85.8	85.0	84.9	84.2	84.1	84.4	84.9	84.9	85.4	85.1	84.7	84.6	84.4	84.1	84.2	83.6	83.2	82.8	82.5	82.3	81.9	81.5	84.1	85.8
7-Jan	81.6	81.4	81.6	81.2	80.5	80.1	79.5	79.0	78.5	78.1	78.0	77.3	77.1	77.4	77.6	78.0	78.2	78.2	78.3	78.7	79.1	79.5	79.7	79.9	79.1	81.6
8-Jan	79.5	78.9	79.0	79.3	79.4	79.5	79.7	80.2	80.2	80.1	80.2	79.8	79.8	79.9	78.5	78.0	78.3	77.6	76.1	77.1	76.1	76.6	77.0	76.7	78.6	80.2
9-Jan	77.0	75.8	75.0	76.1	76.6	76.5	76.6	76.4	76.3	76.2	76.2	76.1	76.2	76.0	75.7	76.2	76.3	75.9	75.8	75.7	75.1	74.5	74.3	74.2	75.9	77.0
10-Jan	73.7	73.2	72.8	72.6	72.3	71.6	71.1	70.6	70.4	70.1	70.0	70.3	70.0	70.2	70.5	70.6	70.9	70.6	70.5	70.4	70.5	70.3	70.5	70.0	71.0	73.7
11-Jan	69.7	69.6	69.4	69.2	68.5	68.7	69.1	68.6	68.3	68.2	67.5	67.0	66.5	65.4	64.9	65.3	66.6	66.4	66.7	66.8	66.6	66.5	66.2	65.8	67.4	69.7
12-Jan	65.8	65.5	65.2	65.0	64.8	64.6	64.6	64.6	64.7	64.8	65.5	65.3	64.0	61.2	59.2	60.6	64.5	65.7	66.5	66.4	66.7	66.3	66.5	66.4	64.8	66.7
13-Jan	66.3	66.1	66.2	66.7	66.4	65.7	66.0	66.9	66.1	66.6	67.7	67.3	63.9	60.6	59.3	62.3	65.4	67.1	67.5	67.9	67.5	67.7	67.7	68.8	66.0	68.8
14-Jan	68.7	68.0	68.0	68.3	68.8	68.1	67.7	67.9	67.9	67.9	67.4	67.6	65.2	64.5	63.1	66.0	69.7	70.3	69.9	69.7	70.1	70.0	70.3	69.7	68.1	70.3
15-Jan	69.8	69.6	69.9	68.0	68.7	68.4	68.1	67.5	66.4	67.1	67.3	66.8	63.3	61.8	59.7	64.2	69.2	68.7	70.8	68.9	66.6	67.7	68.8	69.4	67.4	70.8
16-Jan	71.6	71.1	71.0	71.9	72.8	73.5	75.2	74.8	74.2	73.7	70.7	65.9	59.7	59.7	59.5	62.0	66.4	70.0	71.2	72.4	72.3	72.0	72.4	73.4	69.9	75.2
17-Jan	74.2	73.9	74.3	74.3	74.8	75.5	75.9	76.0	76.1	75.4	74.3	72.1	70.7	68.4	68.8	69.1	72.4	75.8	76.6	76.1	76.2	76.2	76.0	75.8	74.1	76.6
18-Jan	75.4	75.2	75.6	76.9	77.6	76.3	76.5	77.3	76.0	75.8	75.7	75.4	67.5	66.7	70.8	71.8	74.6	77.4	78.1	78.1	78.1	78.3	77.8	77.7	75.4	78.3
19-Jan	78.0	77.8	77.8	77.8	76.3	77.5	76.1	75.0	76.6	78.1	77.6	77.0	72.1	68.3	67.6	72.7	74.7	74.0	75.3	75.5	75.1	74.5	74.6	75.1	75.2	78.1
20-Jan	76.3	77.9	79.5	80.0	80.3	80.6	79.7	76.6	79.3	79.3	75.3	71.4	63.2	62.8	60.5	65.0	73.7	78.7	80.9	81.5	80.1	79.4	79.9	79.9	75.9	81.5
21-Jan	80.0	79.9	81.1	81.7	82.6	82.9	82.7	82.4	81.6	80.5	79.7	76.8	73.9	73.6	74.1	75.1	76.2	77.4	78.7	79.7	80.1	80.2	80.1	79.9	79.2	82.9
22-Jan	79.8	79.6	79.6	79.6	79.7	79.7	79.9	79.9	80.1	78.7	76.1	74.2	74.2	74.6	74.9	75.5	76.9	79.7	82.9	84.0	83.3	84.4	84.8	84.8	79.5	84.8
23-Jan	84.9	84.8	85.1	85.3	85.4	85.5	85.6	85.8	86.0	85.9	86.2	87.1	87.2	84.5	78.1	75.0	83.3	83.3	83.3	83.8	84.2	84.7	84.6	86.7	84.4	87.2
24-Jan	90.2	90.3	89.1	88.7	88.5	88.4	88.0	88.2	88.3	88.8	89.3	90.5	85.9	83.2	83.3	85.0	86.8	88.1	88.7	88.4	88.5	90.0	90.0	89.6	88.1	90.5
25-Jan	89.2	89.5	89.6	89.6	89.4	89.1	88.5	89.8	92.7	91.9	90.9	90.8	90.7	90.8	91.2	91.5	91.4	90.5	90.4	90.1	90.0	90.8	90.7	90.6	90.4	92.7
26-Jan	90.6	90.5	90.6	92.6	91.5	93.5	93.1	94.1	95.8	96.5	96.2	92.4	81.1	80.1	77.2	78.3	83.6	80.3	78.7	80.3	81.7	82.2	82.8	82.6	86.9	96.5
27-Jan	81.3	78.2	76.1	74.6	73.7	69.6	66.6	68.5	67.3	71.2	70.7	66.8	57.5	56.2	57.3	61.9	67.0	67.8	70.2	70.9	69.2	68.9	71.2	73.5	69.0	81.3
28-Jan	72.5	71.7	72.3	68.4	66.7	66.2	68.9	71.8	74.1	73.8	66.5	53.7	58.9	53.4	50.4	53.0	55.9	60.0	62.9	65.4	62.7	63.4	63.8	62.7	64.1	74.1
29-Jan	62.4	65.1	78.7	82.4	83.2	80.9	76.3	72.3	73.0	68.4	63.6	62.5	62.6	60.4	58.7	57.2	60.5	64.5	67.3	71.4	73.0	75.6	76.5	74.7	69.6	83.2
30-Jan	73.7	71.7	68.3	71.1	69.9	74.6	75.5	72.8	67.8	66.4	67.8	53.2	42.3	34.3	31.9	31.8	35.3	37.5	40.2	42.9	45.8	47.9	50.0	54.0	55.3	75.5
31-Jan	54.1	55.4	57.3	59.4	61.3	59.5	59.0	59.2	64.8	67.3	59.9	53.0	45.5	41.4	39.0	42.9	48.7	52.4	54.3	56.2	56.5	54.4	49.3	50.5	54.2	67.3
	77.1	76.8	77.5	77.6	77.6	77.5	77.4	77.3	77.4	77.3	76.3	74.4	72.1	70.5	69.8	71.3	73.9	74.9	75.6	76.1	76.0	76.2	76.4	76.5	Diurnal Average	
	90.6	90.5	90.6	92.6	91.5	93.5	93.1	94.1	95.8	96.5	96.2	92.4	91.0	90.8	91.2	93.7	94.3	94.2	93.9	93.1	93.8	93.5	92.1	91.5	Diurnal Maximum	





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

**Relative Humidity (RH) - %**  
**Stony Mountain - January 2024**



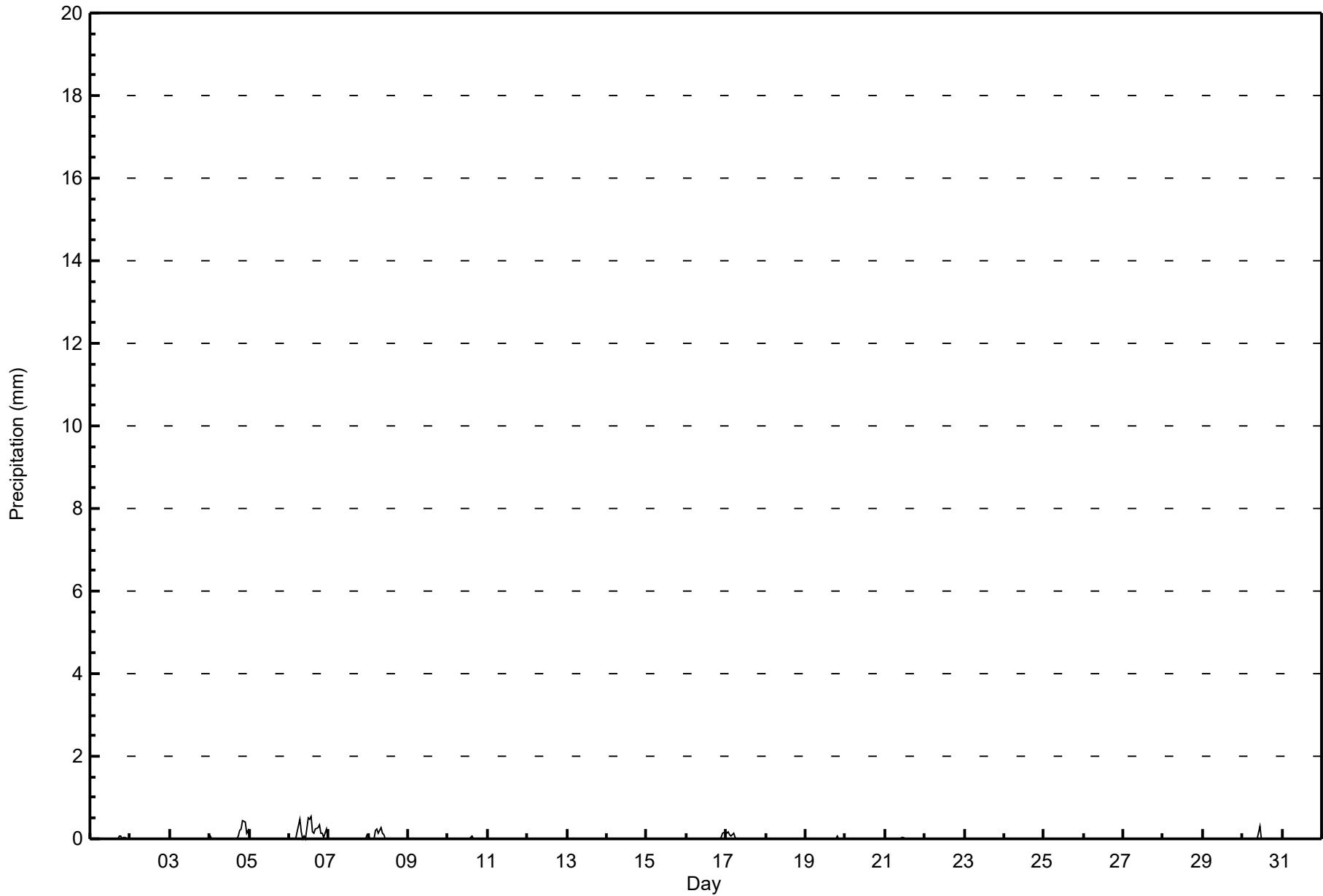


Maximum Value: 0.6 mm on Jan 6 14:00																				Maximum Daily Total: 4.2 mm on Jan 6					Hours in Service: 744		
Minimum Value: 0.0 mm on Jan 1 01:00																				Minimum Daily Total: 0.0 mm on Jan 2					Hours of Data: 744		
Maximum Diurnal Total: 0.6 mm at hour 21																				Minimum Diurnal Total: 0.1 mm at hour 4					Hours of Missing Data: 0		
Monthly Total: 8.91 mm																				Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.0$ Median = 0.0 $Q_3 = 0.0$ $P_{90} = 0.0$ $P_{99} = 0.3$					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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.2	0.1	
2-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.2	0.2	0.4	0.4	0.2	0.2	1.7	0.4	
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.2	0.0	0.1	0.0	0.5	0.5	0.6	0.2	0.1	0.2	0.3	0.3	0.1	0.2	0.1	0.2	0.0	4.2	0.6	
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	
8-Jan	0.1	0.0	0.0	0.0	0.2	0.2	0.1	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	0.0	0.0	0.0	0.0	1.2	0.3	
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	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	0.1	0.1	
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.4	0.2	
17-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	
18-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	
20-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.1	0.1	
22-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	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	0.3
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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			



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

**Precipitation (PC) - mm**  
**Stony Mountain - January 2024**





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

**Precipitation (PC) - mm**  
**Stony Mountain - January 2024**

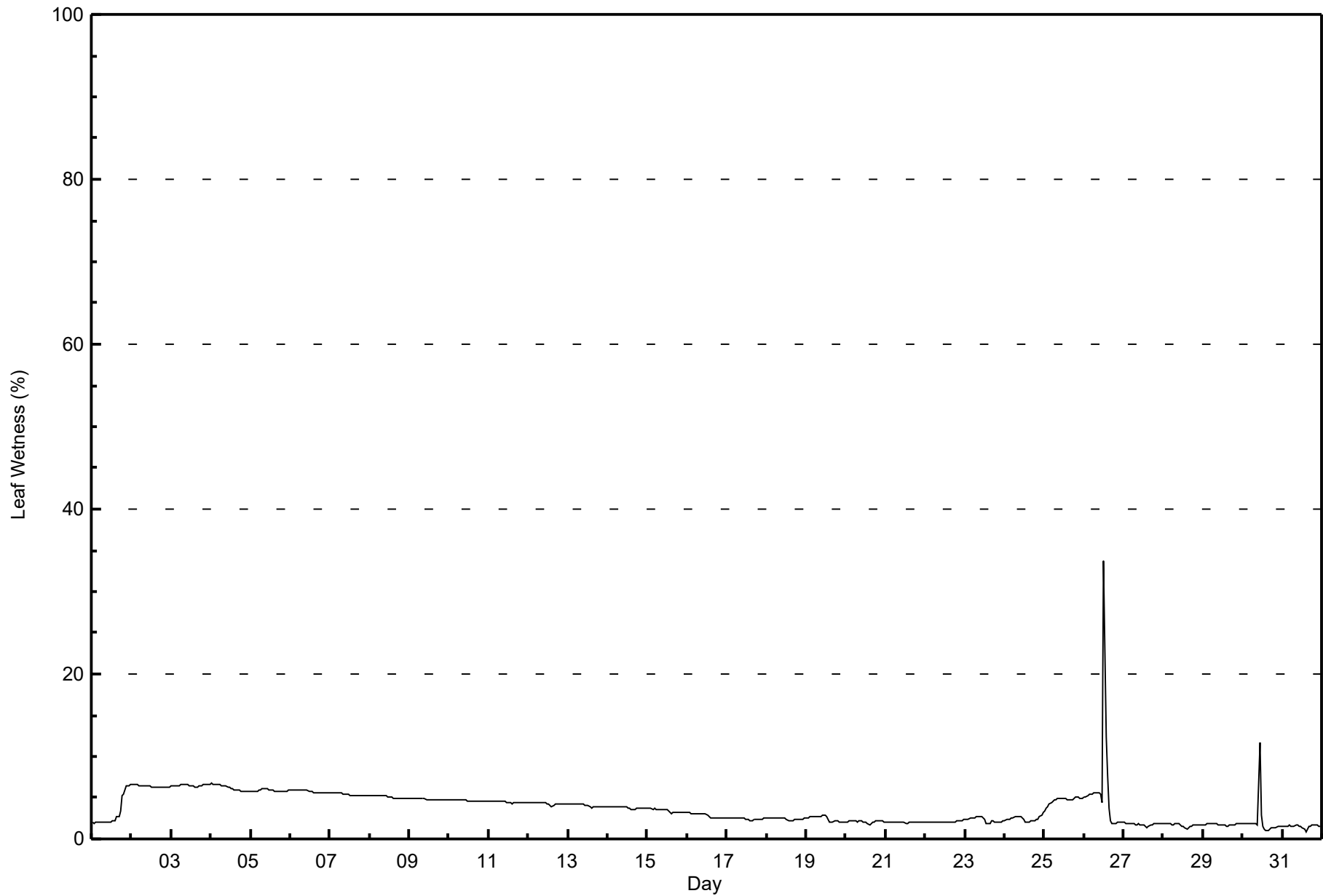
<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	738	99.19	99.19
0.4 - 0.5	5	0.67	99.87
0.6 - 0.7	1	0.13	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 33.7 % on Jan 26 13:00		Maximum Daily Average: 6.5 % on Jan 3		Hours in Service: 744																																													
Minimum Value: 0.9 % on Jan 31 15:00		Minimum Daily Average: 1.5 % on Jan 31		Hours of Data: 744																																													
Maximum Diurnal Average: 4.5 % at hour 13		Minimum Diurnal Average: 3.4 % at hour 16		Hours of Missing Data: 0																																													
Monthly Average: 3.67 %		Percentiles: P <sub>1</sub> = 1.3 P <sub>10</sub> = 1.8 Q <sub>1</sub> = 2.1 Median = 3.4 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 6.0 P <sub>99</sub> = 6.6		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-Jan	2.0	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.6	2.7	3.4	5.3	5.5	5.9	6.4	6.5	6.5	3.2	6.5																								
2-Jan	6.6	6.6	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.4	6.4	6.4	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.3	6.3	6.2	6.2	6.3	6.4	6.6																							
3-Jan	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.6	6.6	6.6	6.6	6.5	6.5	6.4	6.3	6.3	6.3	6.4	6.5	6.6	6.6	6.6	6.6	6.7	6.5	6.7																							
4-Jan	6.7	6.7	6.6	6.6	6.6	6.6	6.5	6.5	6.4	6.4	6.3	6.2	6.1	6.0	6.0	5.9	5.9	5.9	5.8	5.8	5.8	5.8	5.8	5.8	6.2	6.7																							
5-Jan	5.7	5.7	5.7	5.7	5.8	5.9	5.9	6.0	6.0	6.1	6.0	6.0	5.9	5.9	6.0	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.9	5.9	6.1																							
6-Jan	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.8	5.7	5.7	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.5	5.8	5.9																							
7-Jan	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.4	5.4	5.3	5.3	5.2	5.2	5.3	5.2	5.3	5.2	5.2	5.2	5.2	5.2	5.4	5.5																							
8-Jan	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.1	5.1	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	5.1	5.3																							
9-Jan	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.8	4.9																							
10-Jan	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.6	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.7																							
11-Jan	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.5	4.5	4.5	4.4	4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.6																							
12-Jan	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.1	4.0	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.3	4.4																							
13-Jan	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.1	4.1	4.0	3.8	3.7	3.8	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.2																							
14-Jan	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.7	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.9																							
15-Jan	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.3	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.4	3.7																							
16-Jan	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	2.9	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.8	3.2																							
17-Jan	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6																							
18-Jan	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.4	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.4	2.6																							
19-Jan	2.5	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.7	2.3	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.8																							
20-Jan	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	1.9	1.7	1.9	2.0	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2																							
21-Jan	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1																							
22-Jan	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	2.3	2.1	2.3																							
23-Jan	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.7	2.7	2.5	2.3	1.9	1.8	1.9	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.7																							
24-Jan	2.2	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.7	2.7	2.6	2.4	2.0	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.4	2.7	3.0	3.2	2.4	3.2																							
25-Jan	3.5	3.7	4.0	4.2	4.4	4.6	4.7	4.8	4.9	4.9	4.9	4.9	4.9	4.8	4.7	4.7	4.8	4.8	4.9	5.0	5.0	5.0	5.0	5.0	4.7	5.0																							
26-Jan	5.0	5.1	5.2	5.3	5.4	5.5	5.5	5.6	5.7	5.6	5.4	4.4	33.7	12.5	7.6	3.8	2.2	1.9	1.9	1.9	2.0	2.0	2.0	2.0	5.7	33.7																							
27-Jan	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.4	1.5	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.0																							
28-Jan	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.4	1.3	1.3	1.5	1.6	1.6	1.7	1.6	1.6	1.7	1.7	1.7	1.8																							
29-Jan	1.7	1.7	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.9																							
30-Jan	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	11.8	2.9	1.4	1.1	1.0	1.1	1.3	1.3	1.3	1.4	1.4	1.4	1.5	2.0	11.8																							
31-Jan	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.5	1.4	1.2	0.9	1.2	1.5	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.5	1.7																							
																								3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8	3.8	3.8	4.0	3.7	4.5	3.7	3.5	3.4	3.4	3.4	3.5	3.5	3.6	3.6	3.6	3.6	Diurnal Average
																								6.7	6.7	6.6	6.6	6.6	6.6	6.5	6.6	6.6	6.6	11.8	6.5	33.7	12.5	7.6	6.3	6.3	6.4	6.5	6.6	6.6	6.6	6.6	6.7	Diurnal Maximum	





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

**Leaf Wetness (LW) - %**  
**Stony Mountain - January 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	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	18	2.42	2.42
1.5 - 10	718	96.51	98.92
> 10	3	0.40	99.33

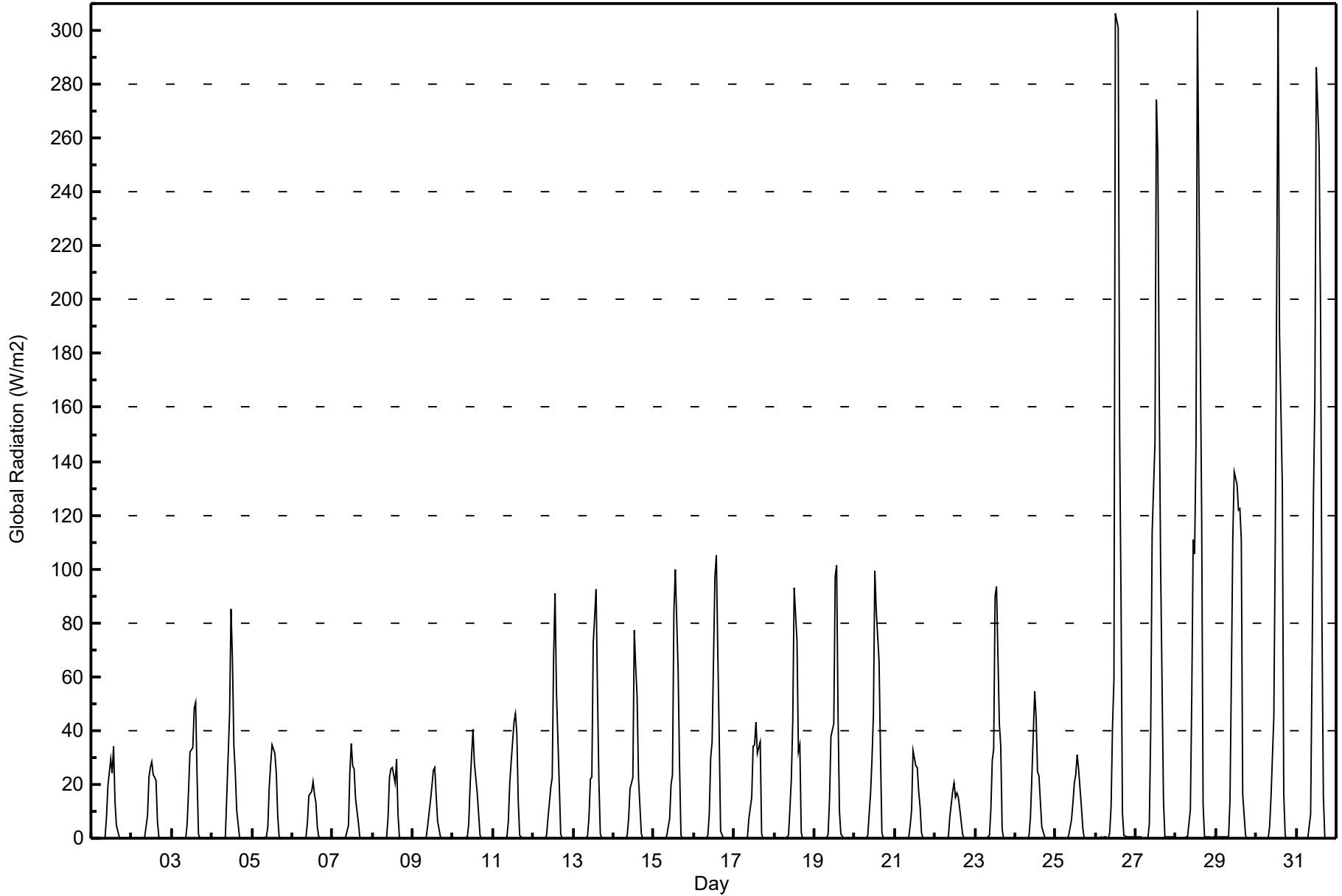
Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 308.6 W/m2 on Jan 30 14:00		Maximum Daily Average: 50.0 W/m2 on Jan 31		Hours in Service: 744																							
Minimum Value: 0.0 W/m2 on Jan 1 01:00		Minimum Daily Average: 3.9 W/m2 on Jan 6		Hours of Data: 744																							
Maximum Diurnal Average: 91.3 W/m2 at hour 14		Minimum Diurnal Average: 0.0 W/m2 at hour 6		Hours of Missing Data: 0																							
Monthly Average: 15.70 W/m2		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> = 12.3 P <sub>90</sub> = 42.9 P <sub>99</sub> = 231.7		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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.7	19.3	29.3	24.0	34.0	13.5	4.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	34.0	
2-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	8.6	22.7	26.5	28.2	23.5	21.3	6.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	28.2	
3-Jan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.5	18.0	32.3	33.6	48.2	50.6	22.9	1.7	0.3	0.2	0.0	0.0	0.0	0.0	0.0	8.9	50.6	
4-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	15.6	46.2	85.0	66.6	34.5	24.9	10.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	85.0	
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.1	18.8	27.5	34.9	31.6	24.0	8.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	34.9	
6-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.9	15.6	17.2	21.0	16.3	12.9	4.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	21.0	
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.8	24.7	35.2	27.0	25.6	14.8	5.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	35.2	
8-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	7.9	22.4	25.6	26.2	20.4	29.3	8.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	29.3	
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.0	14.2	19.3	25.4	26.4	15.9	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	26.4	
10-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.4	20.0	30.4	40.3	27.6	16.9	9.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	40.3	
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.5	20.5	28.2	43.3	46.1	39.1	13.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	46.1	
12-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	7.1	18.9	22.5	67.8	91.0	54.2	19.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	91.0	
13-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	8.1	22.2	22.3	72.4	92.4	53.9	20.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	92.4	
14-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	7.5	18.5	22.5	77.4	63.7	52.7	22.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	77.4	
15-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	7.3	20.1	23.8	83.9	99.9	62.1	26.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	99.9	
16-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	8.8	29.9	35.5	97.1	104.9	69.9	39.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	104.9	
17-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.1	15.2	34.1	34.7	43.0	31.4	35.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	43.0	
18-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	11.0	21.8	43.4	93.1	73.1	32.2	34.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	93.1	
19-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	14.5	38.0	42.5	97.2	101.5	46.1	9.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	101.5	
20-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	16.7	29.5	45.5	99.1	84.7	65.8	31.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7	99.1	
21-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.8	10.5	32.6	26.6	26.2	17.2	11.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	32.6	
22-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	7.8	17.3	20.5	15.3	16.6	15.2	11.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	20.5	
23-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	10.3	28.9	33.1	89.6	93.5	42.7	34.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	93.5	
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	7.8	23.2	54.8	44.6	24.9	23.0	13.7	4.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	8.2	54.8	
25-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	6.9	13.0	20.6	23.6	31.0	25.8	11.8	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	31.0	
26-Jan	0.0	0.0	0.0	0.4	0.1	0.3	0.3	0.3	2.3	12.3	42.2	58.6	306.4	301.1	151.3	88.9	9.6	0.9	0.6	0.6	0.7	0.7	0.6	0.7	40.8	306.4	
27-Jan	0.5	0.4	0.5	0.3	0.3	0.2	0.1	0.0	5.5	40.8	113.8	147.2	274.2	254.5	166.1	100.4	13.9	0.7	0.5	0.5	0.4	0.4	0.3	0.2	46.7	274.2	
28-Jan	0.1	0.0	0.1	0.1	0.0	0.0	0.3	0.3	10.4	53.1	110.8	105.4	146.5	307.2	182.4	119.5	12.4	0.6	0.4	0.4	0.3	0.2	0.3	0.3	43.8	307.2	
29-Jan	0.2	0.5	0.5	0.4	0.4	0.3	0.4	0.7	13.8	60.2	111.6	135.9	131.4	121.8	122.5	110.8	16.5	1.1	0.1	0.1	0.2	0.2	0.2	0.2	34.6	135.9	
30-Jan	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	4.1	15.2	45.3	111.1	201.5	308.6	187.7	130.9	16.7	0.8	0.0	0.0	0.0	0.1	0.1	0.3	42.6	308.6	
31-Jan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.1	63.8	126.6	163.9	286.2	257.1	195.8	81.1	15.7	0.6	0.1	0.1	0.0	0.0	0.0	0.2	50.0	286.2	
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	14.4	35.5	49.4	85.1	91.3	60.0	34.0	4.0	0.2	0.1	0.1	0.1	0.1	0.0	0.1	Diurnal Average		
		0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.7	13.8	63.8	126.6	163.9	306.4	308.6	195.8	130.9	16.7	1.1	0.6	0.6	0.7	0.7	0.6	0.7	Diurnal Maximum	







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

**Global Radiation (GR) - W/m2**  
**Stony Mountain - January 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	597	80.24	80.24
21 - 100	115	15.46	95.70
101 - 300	28	3.76	99.46
301 - 600	4	0.54	100.00
601 - 900	0	0.00	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

### Wind Speed 20 m (WS20m) - km/h

### Stony Mountain - January 2024

Maximum Speed: 26 km/h on Jan 30 11:00	Maximum Daily Speed Average: 19.2 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 6 02:00	Minimum Daily Speed Average: 0.8 km/h on Jan 5	Hours of Data: 732
Maximum Diurnal Speed Average: 4.3 km/h at hour 3	Minimum Diurnal Speed Average: 2.2 km/h at hour 16	Hours of Missing Data: 12
Monthly Average Velocity: 3.6 km/h 241.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 6 Q <sub>3</sub> = 12 P <sub>90</sub> = 18 P <sub>99</sub> = 23	Percent Operational Time: 98.4

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-Jan	WNW17	WNW14	WNW15	WNW14	W13	WNW14	WNW14	NW14	NNW13	NNW15	NW13	NNW11	N8	NNW8	NNW7	NNE6	NNE3	NNW3	NW7	NW7	NNW5	NW5	NW6	NNW7	NW8.9	WNW17			
2-Jan	NW8	NW9	NNW6	NNW7	NW7	NNW5	N3	NNE3	E2	ENE3	E3	ENE4	E5	E5	ESE4	ESE5	ESE4	E4	ESE5	E4	E4	E4	ESE5	SE5	NE2.0	NW9			
3-Jan	SSE5	S5	S5	S5	SSW6	SSW6	SSW6	S6	S6	S5	S5	S5	SSE5	SSE4	N2	ENE4	ESE5	SE6	SSE8	S10	SW8	SW8	SW9	SW8	S4.9	S10			
4-Jan	WSW8	WSW8	W8	W8	NW8	NW9	NNW8	NNW8	NNW8	NNW6	N6	NNE5	NE5	ENE5	ENE5	E7	E7	ENE7	E8	E7	E6	NE5	ENE4	ENE4	NNE2.5	NW9			
5-Jan	ESE4	SE4	E3	ENE1	NW2	NW3	WNW5	WNW5	NW5	NW7	NW6	NW4	NNW3	NW3	NW2	NNW1	SE2	E3	E3	ESE4	ESE5	ESE4	ESE3	ESE2	N0.8	NW7			
6-Jan	E1	ENE0	NE1	ENE2	NE2	N2	NNE2	NE3	NE2	NNE2	NE3	ENE4	ENE4	NE4	NNE5	NE5	NNE5	NE5	NNE5	NE6	NNE6	NE6	NNE6	NNE6	NE3.5	NE6			
7-Jan	NNE6	NE5	NE4	NE4	NNE4	NNE5	NNE4	NE3	NNE2	NE2	ESE2	ESE2	SE1	S1	SSE1	ESE2	ESE2	SE1	SE2	S3	SSW3	S3	SSW3	SSW4	ENE1.3	NNE6			
8-Jan	SSW5	SSW5	SSW5	SSW5	SSW5	SSW4	SSW5	SSW6	SW6	SW5	WSW4	W4	WNW4	NW4	NW4	NW3	NW3	NW3	NW3	NNW3	N3	N3	NNE2	NE1	WSW1.9	SW6			
9-Jan	E2	E2	E2	E3	ENE2	NE3	NE2	NE2	NE2	NE2	NE2	NNE3	NE3	NE3	NE3	NNE3	NE4	NE4	NE3	NNE3	NNE3	NNE3	NNE4	NNE4	NE2.7	NE4			
10-Jan	NNE3	NNE3	NNE3	NNE3	NNE3	N2	NNW2	NNW3	NNW3	NNW3	NW3	NNW3	N2	NNW2	NW3	NW3	NNW2	NNW3	NNW3	NNW3	NW3	NW3	NNW3	NNW3	NNW2.6	NNW3			
11-Jan	NNW2	NNW3	NNW3	NNW3	NNW3	NNW3	NNW3	NNW3	NNW2	NW3	NW3	NNW3	NW3	NW3	NNW3	NNW3	NNW3	NNW2	NW3	NW3	NW3	NW3	NW2	NW2	NNW2.7	NNW3			
12-Jan	NW3	WNW3	WNW3	WNW3	WNW3	WNW3	WNW3	WNW3	WNW3	WNW3	WNW2	NW2	WNW2	WNW2	WNW2	WNW1	UO	S1	SSW2	W2	WNW3	WNW2	WNW2	WSW1	WNW2.1	WNW3			
13-Jan	WNW1	E2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNW1	NNW1	UO	NNW1	NNE1	ENE1	UO	NE2	NNE2	NNW2	WNW2	WNW3	WNW3	---	WNW3
14-Jan	NW3	NW3	NW3	NW3	WNW4	NW3	NW3	WNW4	WNW4	WNW4	WNW4	NW4	NW4	NW3	NW3	NW3	NW3	NW4	NW4	NW4	WNW4	WNW4	WNW5	WNW5	NW3.7	WNW5			
15-Jan	WNW5	WNW5	WNW5	W3	W4	W3	WSW4	WSW3	SW4	SW4	SW5	SW4	SW3	SW3	SW3	SSW3	SSW3	SSW3	SSW3	SSW3	SSW3	SW7	SW7	SW5	SW4	SW3.6	SW7		
16-Jan	W4	WNW4	NW5	NW5	NW4	NW5	NW4	NW4	NW5	NW6	NW6	NNW7	NNW8	NNW9	NNW9	NW9	NW10	NW10	NW11	NW13	NW13	NW14	NW13	NW12	NW7.9	NW14			
17-Jan	NW13	NW14	NW14	NW15	NW14	NNW11	NNW11	NW10	NW9	NW7	NW6	NW5	N5	NNE6	NNE6	NNE7	NNE8	NE8	NNE7	NNE8	N7	NNW8	NNW8	NW7	NNW7.9	NW15			
18-Jan	NW7	WNW7	WNW7	NW10	NW10	NW11	WNW13	NW11	WNW12	WNW11	WNW12	NW12	NW10	NW11	NW11	NW11	WNW12	WNW12	WNW13	NW13	WNW12	NW13	NW11	WNW10	NW10.8	WNW13			
19-Jan	WNW11	WNW11	WNW10	WNW8	WNW5	WNW6	W4	SW5	SW9	SSW9	SSW10	SSW9	SSW10	SSW10	S9	SSE6	SSE9	S11	S9	S17	S17	SSE12	S10	SSE12	SSW6.7	S17			
20-Jan	SSE12	S13	S13	S10	SSW9	SSW6	SW5	SW8	SW7	SW8	WSW9	W8	W8	WNW9	WNW7	WNW6	NW7	NW7	NW7	NW6	NW8	NW6	NW5	NW5	WSW4.7	S13			
21-Jan	NNW4	N3	WNW2	NNE3	E5	NE7	NE7	NE6	ENE5	NE7	NE8	NE9	NNE8	NNE9	N9	N9	NNE8	NNE8	NNE9	NE9	NNE11	NE10	ENE9	ENE8	NE6.6	NNE11			
22-Jan	ENE8	ENE9	E9	E10	E9	E10	E9	E9	ESE9	SE11	SE15	SSE15	SSE13	SSE15	SSE14	SSE14	S13	S14	SSE13	S15	S11	S13	S13	S10	SE9.6	SSE15			
23-Jan	S10	S10	SSW10	SSW10	SSW11	SSW10	SSW9	SW8	SW9	SSW8	SSW7	SW6	WSW7	WSW6	WSW4	W5	SW7	WSW8	WSW6	WNW5	NNW6	NNW4	N5	NE6	SW5.3	SSW11			
24-Jan	ENE6	E7	ESE6	E6	ESE6	SE5	SE6	SE6	SE7	SE6	SSE6	S8	S11	S12	SSE10	S11	S12	SSW10	SSW15	SSW19	SSW14	SSW14	SSW16	SSW16	S8.0	SSW19			
25-Jan	SW13	SW10	SW8	WSW4	W6	NW6	NW5	N4	ENE7	ENE6	ENE4	NE3	SSE2	NW1	S3	SSW4	SSW4	SSW6	SSW10	SSW11	SW14	SW14	SW14	SW14	SW4.5	SW14			
26-Jan	SW15	SW13	SW12	WSW12	WSW12	W15	W14	W13	W11	W9	W7	WSW6	SW6	SW8	SW7	SSW9	SSW15	SSW17	SW17	SW18	SW17	SSW16	SSW18	SSW17	SW11.4	SSW18			
27-Jan	SSW16	SSW16	SSW17	SSW18	SSW19	SSW18	SSW18	SSW19	SW19	SSW22	SSW21	SSW19	SW17	SSW14	SSW15	SSW15	SW16	SW19	SW19	SW19	SW20	SW19	SW19	SW17	SW18.0	SSW22			
28-Jan	SW17	SSW19	SSW18	SSW18	SSW17	SSW21	SSW22	SW22	SW19	SW19	WSW16	WSW20	WSW19	WSW20	W21	W17	W19	W16	W14	W16	W18	W17	W18	W19	WSW16.3	SSW22			
29-Jan	W15	WSW10	SW14	SW18	SSW18	SSW21	SSW22	SSW21	SSW18	S21	SSW22	SSW23	SSW21	SSW22	SSW23	SW21	SW20	SW22	SW22	SW21	SW21	SW20	SW20	SW20	SSW19.2	SSW23			
30-Jan	SW17	SW18	SSW16	SSW16	SSW18	SSW21	SSW22	SSW19	SSW21	SSW21	W26	WNW23	W18	W17	W22	W24	W23	W22	W23	W25	W25	W24	W19	WSW15	WSW17.9	W26			
31-Jan	WSW17	W18	W17	W16	W16	W16	WNW14	WNW13	WSW11	SW14	SW14	SSW12	S11	SSE11	SSE15	S14	SSE11	SSE13	SSE15	SSE16	SSE15	SSE18	SSE22	S23	SSW10.0	S23			

WSW4.1	WSW4.0	WSW4.3	WSW3.9	WSW4.0	WSW4.0	WSW4.0	WSW3.8	WSW3.6	WSW3.8	WSW3.8	WSW3.3	WSW2.8	WSW2.8	WSW2.6	WSW2.2	SW2.7	SW3.1	SW3.4	SW3.9	WSW4.2	WSW4.0	SW4.2	SW4.3	Diurnal Average
SSW17	SSW19	SSW18	SSW18	SSW19	SSW21	SSW22	SW22	SSW21	SSW22	W26	WNW23	SSW21	SSW22	SSW23	W24	W23	W22	W23	W25	W25	W24	SSE22	S23	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**

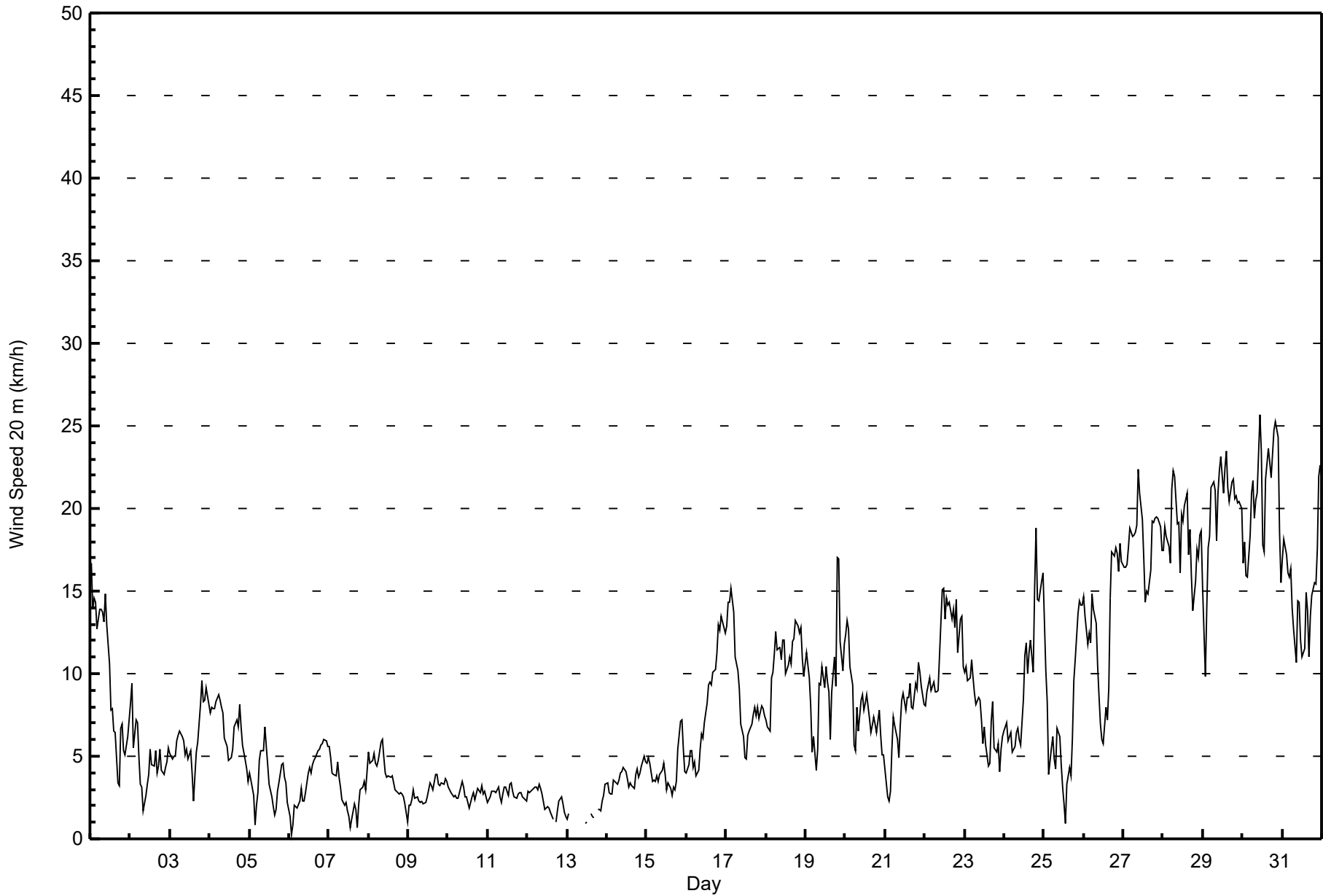
**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Jan 30 12:00 Minimum Value: 0 km/h on Jan 13 20:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 8																	Hours in Service: 744 Hours of Data: 732 Hours of Missing Data: 12 Hours of Calibration: 0 Percent Operational Time: 98.4								
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-Jan	4	4	4	4	3	4	4	4	4	5	4	4	3	2	3	2	2	1	2	2	2	1	2	3	5
2-Jan	3	3	2	3	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
3-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	2	3	3	3	
4-Jan	2	3	3	3	2	3	2	2	2	2	2	2	1	1	2	2	2	2	2	2	1	1	1	3	
5-Jan	1	1	1	1	0	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	
6-Jan	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	
7-Jan	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	2	
8-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	
9-Jan	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
11-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	
12-Jan	1	1	0	0	0	1	1	1	1	0	1	1	1	1	1	1	UO	1	0	0	0	0	1	1	
13-Jan	1	1	UO	UO	UO	UO	UO	UO	UO	UO	UO	1	1	UO	1	1	UO	1	0	0	0	0	0	1	
14-Jan	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	2	2	
16-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	2	2	3	3	3	4	4	3	
17-Jan	4	4	4	4	4	3	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	
18-Jan	1	1	2	2	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	4	3	3	2	2	
19-Jan	3	3	2	2	2	1	1	2	1	2	2	3	3	3	3	2	2	3	3	5	5	4	4	3	
20-Jan	3	4	3	3	3	2	2	3	2	2	3	3	3	3	2	2	1	1	1	1	2	2	2	1	
21-Jan	1	1	1	1	1	2	2	2	1	2	2	3	2	2	3	3	2	2	3	2	3	3	2	2	
22-Jan	2	2	3	2	3	2	2	2	2	3	4	4	3	4	4	4	4	5	4	5	3	4	4	3	
23-Jan	3	3	3	3	3	3	3	3	3	2	2	2	2	2	1	1	2	2	2	2	1	1	2	3	
24-Jan	2	2	2	2	2	2	1	2	2	1	2	2	4	3	3	3	3	2	4	5	5	4	4	5	
25-Jan	3	3	3	2	2	3	1	1	1	2	1	1	1	1	1	1	1	2	2	3	3	3	3	3	
26-Jan	3	3	2	3	3	4	4	4	3	3	2	3	2	2	2	3	4	4	4	4	3	4	4	4	
27-Jan	3	3	3	4	4	4	4	4	5	6	5	4	4	3	3	3	4	4	4	4	4	4	4	6	
28-Jan	4	4	4	4	4	5	6	5	4	4	5	7	5	6	7	5	6	5	4	4	5	5	5	7	
29-Jan	5	3	3	4	4	5	5	5	4	5	6	6	5	6	6	6	5	5	5	5	4	4	4	6	
30-Jan	3	4	3	3	4	5	5	5	5	5	9	9	6	7	8	8	8	8	7	8	8	8	7	9	
31-Jan	5	6	5	5	5	5	4	3	4	3	3	3	3	4	5	3	2	2	3	3	4	5	6	6	
Diurnal Maximum																									
UO - Unstable Operation																									



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

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - January 2024**





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

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	321	43.85	43.85
6 - 11	217	29.64	73.50
12 - 19	151	20.63	94.13
20 - 28	43	5.87	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 732

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h  
Stony Mountain - January 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	29	29	16	17	17	7	5	11	17	13	6	8	41	56	38	321
6 - 11	5	17	12	8	13	3	6	7	16	23	20	10	8	12	37	20	217
12 - 19	0	0	0	0	0	0	1	15	12	34	29	6	22	15	15	2	151
20 - 28	0	0	0	0	0	0	0	1	2	16	11	2	10	1	0	0	43
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>	16	46	41	24	30	20	14	28	41	90	73	24	48	69	108	60	732

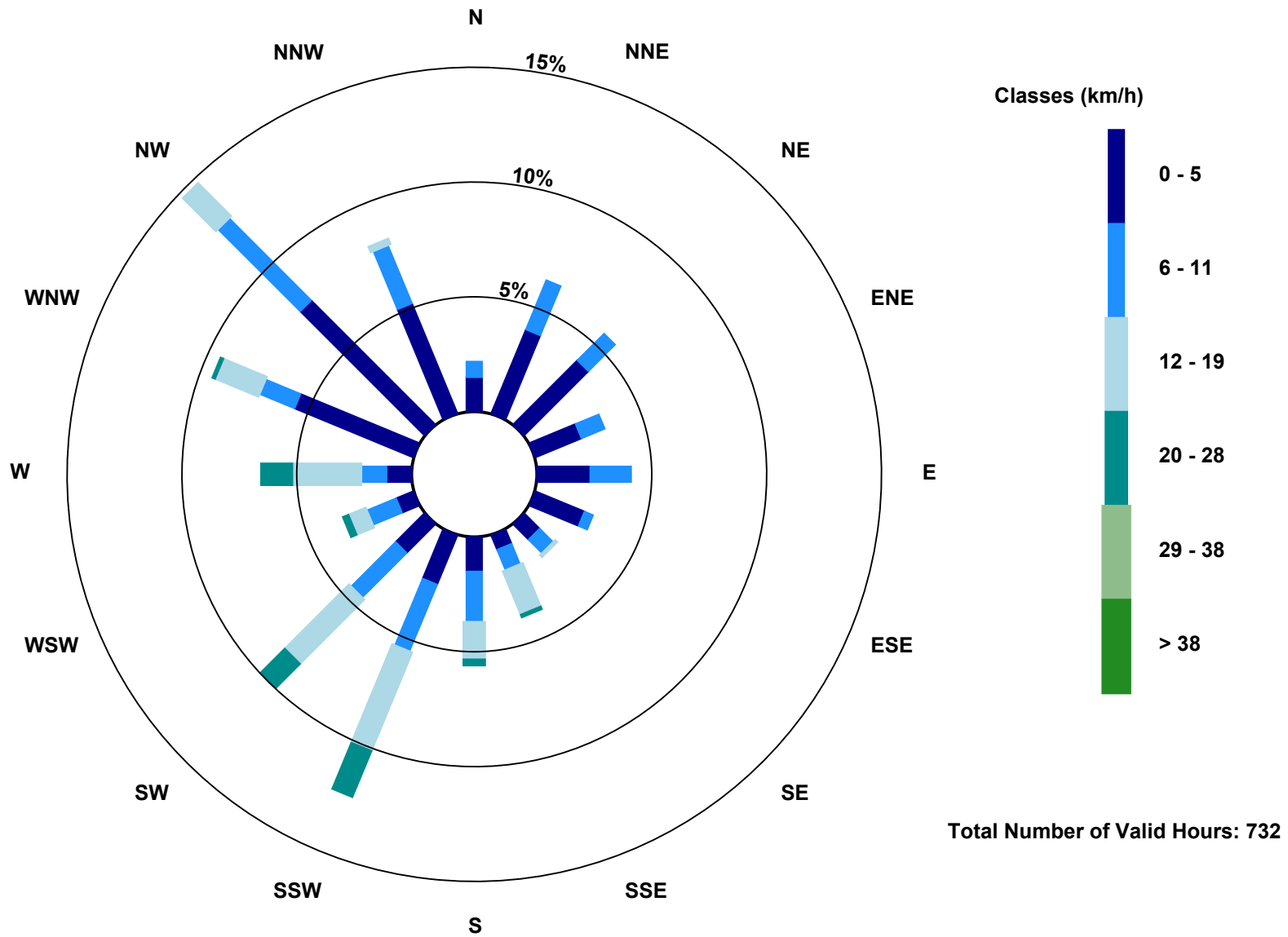
Total Number of Valid Hours: 732

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed 20 m (WS20m) - km/h  
Stony Mountain







Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Stony Mountain - January 2024

Direction of Maximum Speed: 271 deg on Jan 30 11:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 212.3 deg on Jan 29	Hours of Data: 732
Direction of Minimum Speed: 69 deg on Jan 6 02:00	Hours of Missing Data: 12
Direction of Minimum Daily Speed Average: 0.8 deg on Jan 5	Percent Operational Time: 98.4
Monthly Average Direction: 241.4 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-Jan	301	295	282	283	277	282	300	310	328	330	326	343	353	344	348	29	25	333	318	323	336	324	317	328	314.4
2-Jan	315	323	337	327	325	339	350	19	90	66	99	74	101	95	110	109	103	87	118	99	98	93	114	141	56.0
3-Jan	165	178	183	183	195	204	192	191	188	178	173	169	168	167	9	68	111	125	154	179	214	227	214	233	183.7
4-Jan	246	254	271	281	305	318	330	336	340	344	7	28	45	65	61	90	95	77	100	100	95	48	57	60	11.4
5-Jan	104	125	101	73	319	319	291	300	317	317	326	306	330	320	319	328	140	93	93	106	108	115	110	119	5.8
6-Jan	86	69	54	63	43	10	12	43	53	33	54	71	59	50	29	36	32	35	28	37	33	38	28	30	39.0
7-Jan	30	45	41	48	22	22	24	34	29	53	104	102	134	172	153	102	121	130	137	170	192	190	192	197	74.6
8-Jan	194	194	193	198	194	193	203	207	215	220	242	279	300	315	324	314	323	309	325	345	351	7	14	39	243.9
9-Jan	79	97	82	98	60	47	46	38	40	50	45	30	34	40	38	33	39	40	35	31	20	15	12	17	41.2
10-Jan	14	16	27	15	18	359	341	336	330	330	323	337	359	345	324	325	344	339	329	329	325	319	328	337	343.0
11-Jan	337	333	334	333	331	330	332	337	328	314	324	328	326	323	330	332	336	327	326	319	317	317	314	317	327.0
12-Jan	306	293	293	299	294	292	289	292	295	292	300	317	303	298	289	290	UO	169	208	269	286	293	290	247	289.9
13-Jan	283	83	UO	UO	UO	UO	UO	UO	UO	UO	UO	293	329	UO	329	27	69	UO	51	23	336	298	301	301	-
14-Jan	315	312	309	305	300	311	305	300	293	301	302	309	311	308	318	312	316	307	312	316	303	300	297	299	306.1
15-Jan	297	291	288	281	278	261	245	238	236	223	222	222	217	217	222	211	210	196	194	216	222	223	222	227	235.3
16-Jan	273	298	304	319	321	319	326	315	318	323	318	330	327	329	336	324	321	312	315	316	311	312	311	308	316.8
17-Jan	310	308	311	314	316	329	327	316	321	308	311	323	353	17	16	19	29	38	26	13	349	337	331	318	333.6
18-Jan	309	302	302	316	313	310	301	308	294	299	300	306	315	318	318	315	300	298	296	304	303	306	304	299	305.3
19-Jan	294	299	288	296	284	288	273	224	215	212	202	195	201	201	185	159	162	171	176	174	176	168	173	167	203.2
20-Jan	168	176	179	186	193	205	222	227	224	227	241	270	273	293	290	296	304	307	311	308	310	326	318	305	247.4
21-Jan	336	349	287	24	80	46	49	47	76	53	43	37	24	22	7	10	25	24	32	40	29	52	58	65	35.8
22-Jan	67	71	79	84	88	89	96	97	110	132	144	153	152	160	160	158	169	171	164	169	170	177	179	179	142.8
23-Jan	185	189	195	198	203	204	208	215	218	211	211	225	243	241	257	264	221	246	256	297	330	337	354	40	222.7
24-Jan	68	87	105	96	104	140	138	125	134	140	155	169	179	169	162	170	184	193	193	197	202	197	202	207	171.4
25-Jan	216	229	233	241	279	306	321	356	62	57	62	53	167	305	187	195	207	197	212	212	214	218	218	217	221.2
26-Jan	217	222	230	257	257	271	276	281	279	275	263	257	234	223	222	212	212	213	214	218	217	213	212	211	233.0
27-Jan	210	211	212	210	209	207	210	208	214	209	209	213	221	213	211	213	216	221	221	222	222	221	220	217	214.3
28-Jan	216	209	205	204	202	204	212	219	217	220	242	256	241	254	269	267	277	272	263	262	268	270	274	273	240.7
29-Jan	274	256	225	218	209	207	206	206	199	191	200	200	199	201	206	214	215	220	220	218	219	215	216	217	212.3
30-Jan	217	214	211	206	208	203	206	209	208	213	271	288	277	260	263	267	271	276	269	267	266	268	266	252	246.9
31-Jan	254	263	261	264	261	279	285	287	238	219	214	195	173	163	166	172	155	149	158	158	155	154	167	175	204.6

249.2 245.6 241.9 247.5 246.0 252.5 252.3 252.0 239.3 233.0 242.0 249.4 237.9 239.1 247.1 241.0 232.4 233.8 230.2 230.0 240.0 239.7 236.2 232.0  
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**

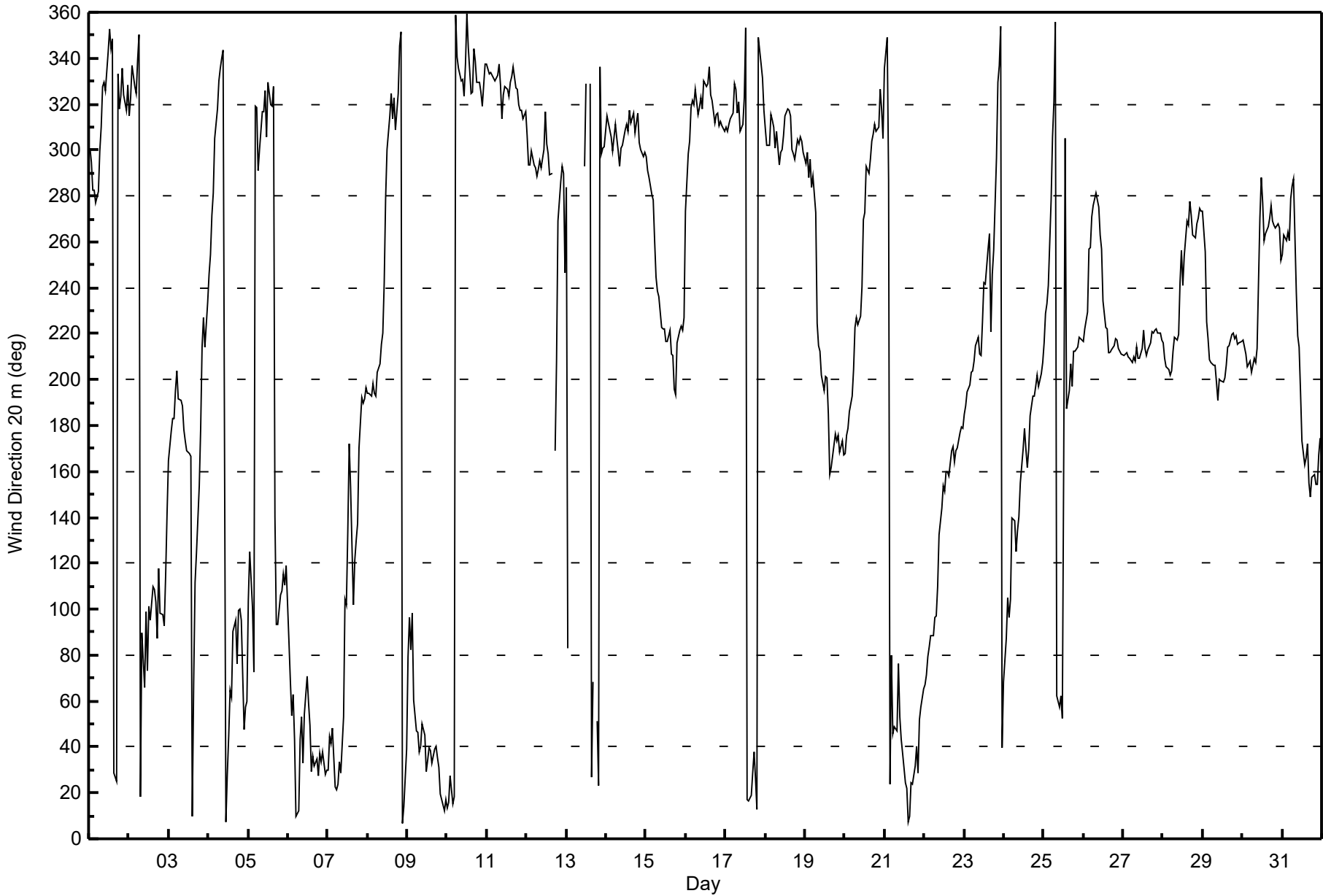
**Wind Direction 20 m (WD20m) - deg**  
**Stony Mountain - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 80 deg on Jan 7 14:00	Hours of Data: 732
Minimum Value: 8 deg on Jan 19 09:00	Hours of Missing Data: 12
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 14 Q <sub>1</sub> = 16 Median = 19 Q <sub>3</sub> = 22 P <sub>90</sub> = 26 P <sub>99</sub> = 56	Hours of Calibration: 0
	Percent Operational Time: 98.4

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-Jan	19	20	20	18	17	19	18	18	19	19	19	22	23	24	23	30	37	34	24	18	23	21	20	21	37
2-Jan	20	20	19	23	20	25	27	36	73	69	41	33	23	21	24	18	22	17	16	21	19	16	13	15	73
3-Jan	8	11	10	11	14	17	15	16	18	15	17	19	18	24	46	22	14	13	14	21	24	26	22	24	46
4-Jan	25	24	21	24	20	20	19	18	19	21	25	29	30	23	26	20	20	20	15	15	17	22	23	24	30
5-Jan	28	24	26	71	19	18	23	21	21	20	22	28	26	29	28	31	55	18	17	17	16	17	17	18	71
6-Jan	28	26	22	20	21	20	19	19	26	18	25	19	19	19	22	21	21	21	20	21	21	20	22	22	28
7-Jan	20	18	20	20	22	21	22	23	31	31	36	48	39	80	61	26	30	57	19	17	18	21	24	21	80
8-Jan	23	20	22	22	22	22	24	21	20	18	27	27	28	29	23	26	18	19	13	19	17	17	21	27	29
9-Jan	20	20	17	16	18	17	17	18	19	16	16	21	21	20	20	20	20	19	20	20	21	22	21	22	22
10-Jan	21	21	19	22	20	24	21	18	14	15	19	27	29	24	26	23	23	26	19	19	18	18	20	22	29
11-Jan	21	21	20	20	19	17	19	21	18	18	22	20	26	24	25	23	21	18	16	16	16	16	13	13	26
12-Jan	16	15	13	13	13	16	16	12	14	13	18	18	21	20	18	25	UO	24	20	22	12	13	24	29	29
13-Jan	54	18	UO	UO	UO	UO	UO	UO	UO	UO	UO	64	21	UO	18	13	21	UO	10	18	14	15	13	14	64
14-Jan	13	12	13	13	14	13	12	12	13	15	17	16	17	22	19	18	15	17	16	15	17	17	17	16	22
15-Jan	16	16	16	17	13	17	15	17	15	14	15	18	22	21	22	17	14	18	14	15	15	14	18	28	28
16-Jan	20	17	16	16	18	13	15	17	13	12	16	18	17	18	19	18	16	16	15	16	19	17	18	17	20
17-Jan	17	17	17	17	17	15	15	15	16	19	18	23	28	28	20	20	20	18	18	17	16	13	13	13	28
18-Jan	13	15	16	17	18	17	17	16	18	18	18	17	20	17	18	17	18	17	17	17	15	18	16	15	20
19-Jan	15	16	14	17	18	11	17	8	8	14	17	20	19	22	22	24	17	17	17	17	18	17	19	17	24
20-Jan	16	19	20	20	20	25	26	19	17	15	26	24	32	25	24	19	14	14	14	14	18	20	19	20	32
21-Jan	27	33	28	43	19	17	21	22	22	16	19	23	25	24	20	20	23	20	19	17	20	20	16	17	43
22-Jan	16	18	19	19	20	17	17	16	15	19	18	19	18	19	20	21	20	20	19	21	21	21	22	23	23
23-Jan	21	22	23	24	22	24	22	22	24	21	22	31	25	36	42	27	14	16	28	23	16	17	16	28	42
24-Jan	20	18	23	17	17	23	16	16	14	17	16	19	22	19	18	16	19	19	18	17	20	17	17	17	23
25-Jan	18	21	22	37	17	29	24	35	15	19	22	28	53	78	34	23	21	15	16	16	16	14	14	14	78
26-Jan	15	15	13	19	18	19	19	19	21	21	27	38	33	21	21	14	14	16	16	15	14	14	14	14	38
27-Jan	14	15	15	15	16	15	15	16	17	16	17	17	17	16	16	15	15	15	14	14	15	15	15	15	17
28-Jan	15	16	16	15	15	15	17	16	16	16	20	23	19	22	21	22	22	21	22	20	19	19	19	19	23
29-Jan	18	21	14	15	16	16	15	15	15	15	18	17	17	17	17	19	17	15	15	16	15	14	14	15	21
30-Jan	13	16	14	16	14	16	16	17	16	18	30	23	23	25	23	23	22	22	21	22	21	21	23	22	30
31-Jan	23	20	19	20	20	20	19	15	25	14	17	20	20	19	21	18	10	12	14	16	16	17	19	18	25
	54	33	28	71	22	29	27	36	73	69	41	64	53	80	61	31	55	57	28	23	24	26	24	29	

Diurnal Maximum

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS19 FIREBAG JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
JANUARY 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	709	35	35	100	26	0	5.9	0
H2S (ppb) Average	707	37	37	100	1.4	0	0.3	0
THC (ppm) Average	684	34	60	96.51	3.4	-	2.5	-
NO2 (ppb) Average	708	36	36	100	35.9	0	17.1	-
NO (ppb) Average	708	36	36	100	32.8	-	6.7	-
NOX (ppb) Average	708	36	36	100	61.6	-	22.3	-
Temperature 2 m (C) Average	744	0	0	100	8	-	5.5	-
Relative Humidity (%) Average	744	0	0	100	95.5	-	92	-
Wind Speed 10 m (km/h) Average	740	0	4	99.46	29	-	19	-
Wind Direction 10 m (deg) Average	740	0	4	99.46	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
 JANUARY 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	709	1.3	2.9	-	0	0	0	0.3	1	3.7	26
H2S (ppb) Average	707	0.15	0.1	-	0	0	0.1	0.1	0.2	0.3	1.4
THC (ppm) Average	684	2.3	0.1	-	2.1	2.2	2.2	2.3	2.3	2.4	3.4
NO2 (ppb) Average	708	5.93	6.7	-	0.1	0.3	0.7	3.9	7.9	16.3	35.9
NO (ppb) Average	708	2	4.2	-	0	0	0	0.4	1.9	5.6	32.8
NOX (ppb) Average	708	7.93	10.2	-	0.1	0.3	0.8	4.6	10.2	20.5	61.6
Temperature 2 m (C) Average	744	-18.09	12.6	-	-40.8	-35.6	-25.4	-19	-10.7	2.4	8
Relative Humidity (%) Average	744	77.13	8.7	-	46.8	65.8	70.8	77.4	83	88.4	95.5
Wind Speed 10 m (km/h) Average	740	8.5	6	-	0	3	4	6	11	18	29
Wind Direction 10 m (deg) Average	740	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC	08 Jan 2024 23:00	08 Jan 2024 23:00	1	Unstable Operation - flatline in analyzer output signal
THC	09 Jan 2024 01:00	09 Jan 2024 01:00	1	Unstable Operation - flatline in analyzer output signal
THC	13 Jan 2024 11:00	14 Jan 2024 10:00	24	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	07 Jan 2024 09:00	07 Jan 2024 10:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	25 Jan 2024 09:00	25 Jan 2024 09:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	26 Jan 2024 09:00	26 Jan 2024 09:00	1	Flat line in sensor output signal



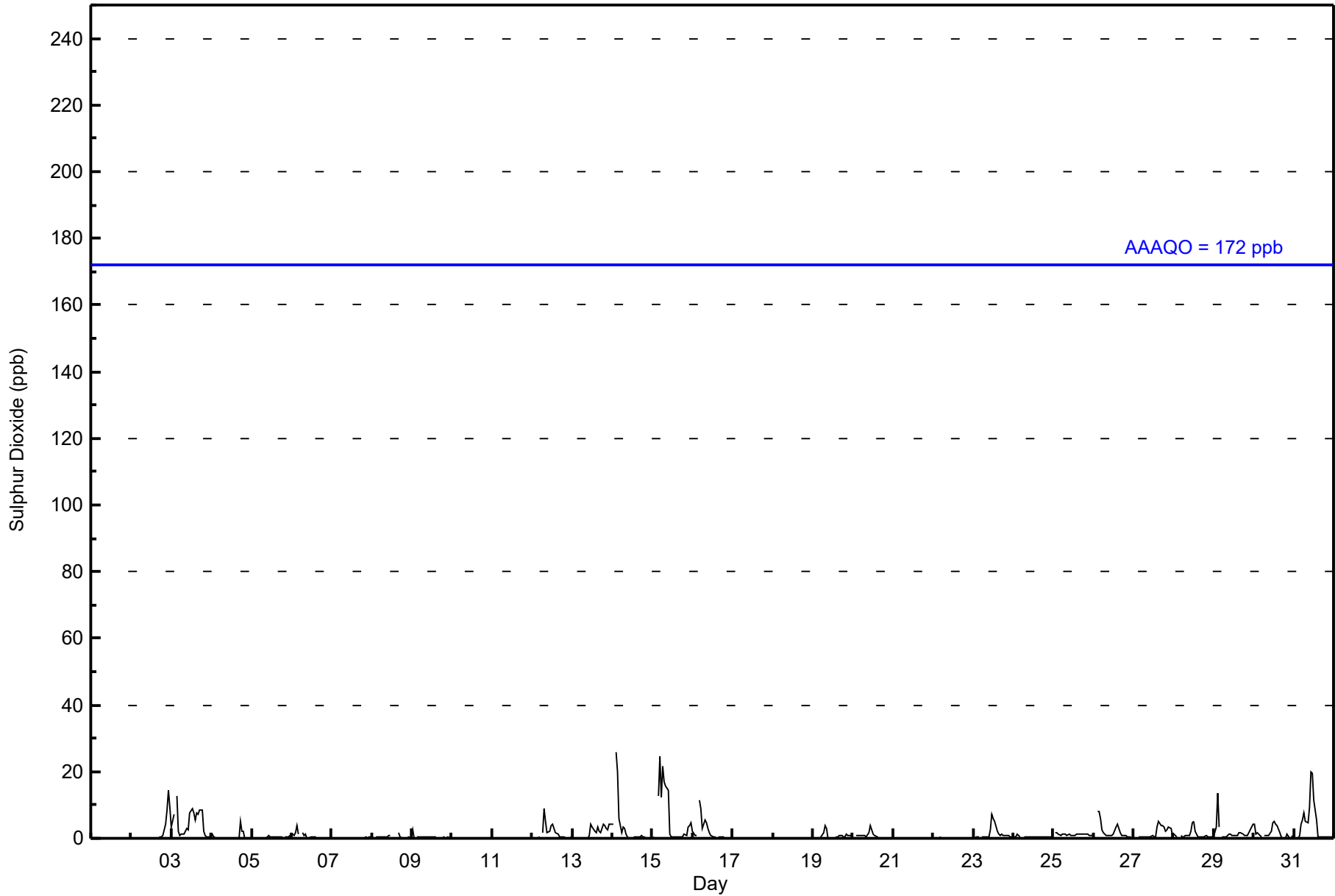
Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 26.0 ppb on Jan 14 03:00	Maximum Daily Average: 5.9 ppb on Jan 15		Hours of Data:	709
Minimum Value: 0.0 ppb on Jan 1 03:00	Minimum Daily Average: 0.0 ppb on Jan 17		Hours of Missing Data:	35
Maximum Diurnal Average: 2.6 ppb at hour 4	Minimum Diurnal Average: 0.6 ppb at hour 20		Hours of Calibration:	35
Monthly Average: 1.30 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> = 1.0 P <sub>90</sub> = 3.7 P <sub>99</sub> = 15.5		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-Jan	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	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
2-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.8	4.2	8.4	14.2	9.4	1.7	14.2
3-Jan	3.4	7.2	Z	12.8	2.3	1.0	1.3	1.1	2.3	2.8	2.7	7.5	8.9	7.6	5.5	7.5	7.2	8.4	8.3	2.1	1.0	0.5	0.5	0.4	4.4	12.8
4-Jan	1.4	0.6	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	4.9	2.3	2.3	0.1	0.0	0.0	0.0	0.5	4.9
5-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.3	0.8	0.4	0.3	0.4	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.7	0.3	0.8
6-Jan	1.2	1.0	1.7	3.9	1.3	Z	1.6	0.7	1.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.6	3.9
7-Jan	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	0.1	0.3	0.2	0.3	0.3	0.1	0.3
8-Jan	0.3	Z	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.5	0.7	0.8	C	C	C	C	1.5	0.3	0.1	0.0	0.1	0.1	0.4	0.1	0.4	1.5
9-Jan	2.7	0.1	Z	0.5	0.6	0.3	0.4	0.3	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.4	2.7
10-Jan	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
11-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
12-Jan	0.0	0.0	0.0	0.1	0.5	Z	1.5	8.9	4.9	1.6	2.1	3.6	4.2	3.0	1.5	1.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	1.5	8.9
13-Jan	Z	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.8	4.4	3.3	2.3	1.6	3.4	2.3	1.9	4.1	3.8	2.8	2.7	4.0	4.3	1.8	4.4
14-Jan	4.4	Z	26.0	20.0	5.9	1.5	3.3	2.8	1.3	0.5	0.2	0.1	0.1	0.2	0.3	0.5	0.5	0.7	0.5	0.2	0.2	0.1	0.1	0.1	3.0	26.0
15-Jan	0.1	0.3	Z	12.5	24.4	12.2	21.5	16.9	15.6	14.3	1.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	1.1	1.0	3.3	3.9	4.8	5.9	24.4
16-Jan	1.9	1.0	0.9	Z	11.6	8.9	2.9	5.5	4.6	2.8	1.6	0.8	0.4	0.3	0.2	0.2	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	1.9	11.6
17-Jan	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-Jan	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	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1
19-Jan	Z	0.1	0.1	0.1	0.1	0.3	1.5	3.7	3.1	0.1	0.0	0.0	0.0	0.1	0.4	0.5	0.7	0.8	0.6	0.6	1.1	1.0	0.7	0.5	0.7	3.7
20-Jan	0.6	Z	0.7	0.9	1.0	1.0	0.9	0.6	0.5	1.6	4.0	2.5	1.4	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.8	4.0
21-Jan	0.1	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	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
22-Jan	0.0	0.0	0.0	Z	0.4	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.4
23-Jan	0.2	0.2	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.3	2.6	7.2	6.0	5.2	2.2	1.4	1.1	1.1	0.9	0.9	0.8	0.7	0.5	0.4	1.4	7.2
24-Jan	0.3	0.3	1.1	0.7	0.4	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	0.6	0.5	0.6	0.5	1.1
25-Jan	Z	1.7	1.7	1.3	1.0	1.3	1.4	1.1	0.9	1.2	0.9	0.9	0.9	0.8	1.1	1.3	1.2	1.3	1.4	1.4	1.2	0.9	0.8	0.7	1.1	1.7
26-Jan	1.3	Z	7.9	8.1	6.0	2.4	1.7	1.0	0.8	0.8	0.9	1.0	1.5	3.2	4.1	3.1	1.5	1.0	0.8	0.7	0.4	0.4	0.3	0.2	2.1	8.1
27-Jan	0.2	0.1	Z	0.2	0.4	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.8	0.5	0.5	3.4	5.0	3.9	3.9	3.3	2.2	2.5	3.4	2.8	1.6	5.0
28-Jan	1.2	1.0	0.4	Z	0.7	0.6	0.5	0.7	0.8	1.0	2.2	4.7	5.2	2.2	0.5	0.5	0.4	0.4	0.5	0.8	0.4	0.6	0.6	0.2	1.1	5.2
29-Jan	0.4	3.2	13.8	3.4	Z	0.6	0.6	0.6	0.7	1.1	1.1	0.9	0.7	0.7	0.8	1.7	1.7	1.4	0.7	0.8	1.0	1.6	2.4	4.2	1.9	13.8
30-Jan	4.3	1.4	1.7	1.4	0.4	Z	0.9	0.9	0.7	0.9	1.9	4.8	5.1	4.4	3.8	1.6	0.5	0.1	0.0	0.1	1.2	0.0	0.2	0.7	1.6	5.1
31-Jan	Z	0.1	0.2	0.7	4.4	5.6	7.7	5.1	4.6	9.4	19.8	19.6	11.4	5.5	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.2	4.2	19.8

1.0	0.7	2.2	2.6	2.4	1.4	1.6	1.7	1.4	1.3	1.5	2.0	1.7	1.3	0.9	1.0	0.8	1.0	0.9	0.6	0.6	0.8	1.1	0.9			Diurnal Average
4.4	7.2	26.0	20.0	24.4	12.2	21.5	16.9	15.6	14.3	19.8	19.6	11.4	7.6	5.5	7.5	7.2	8.4	8.3	3.8	4.2	8.4	14.2	9.4			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**  
**Firebag - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	693	97.74	97.74
11 - 20	13	1.83	99.58
21 - 60	3	0.42	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Firebag - January 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	117	65	26	13	15	12	18	42	92	81	43	25	19	8	30	83	689
11 - 20	1	0	0	0	0	0	0	0	2	5	4	0	0	0	1	0	13
21 - 60	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	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>	118	65	26	13	15	12	18	42	95	86	48	25	19	8	32	83	705

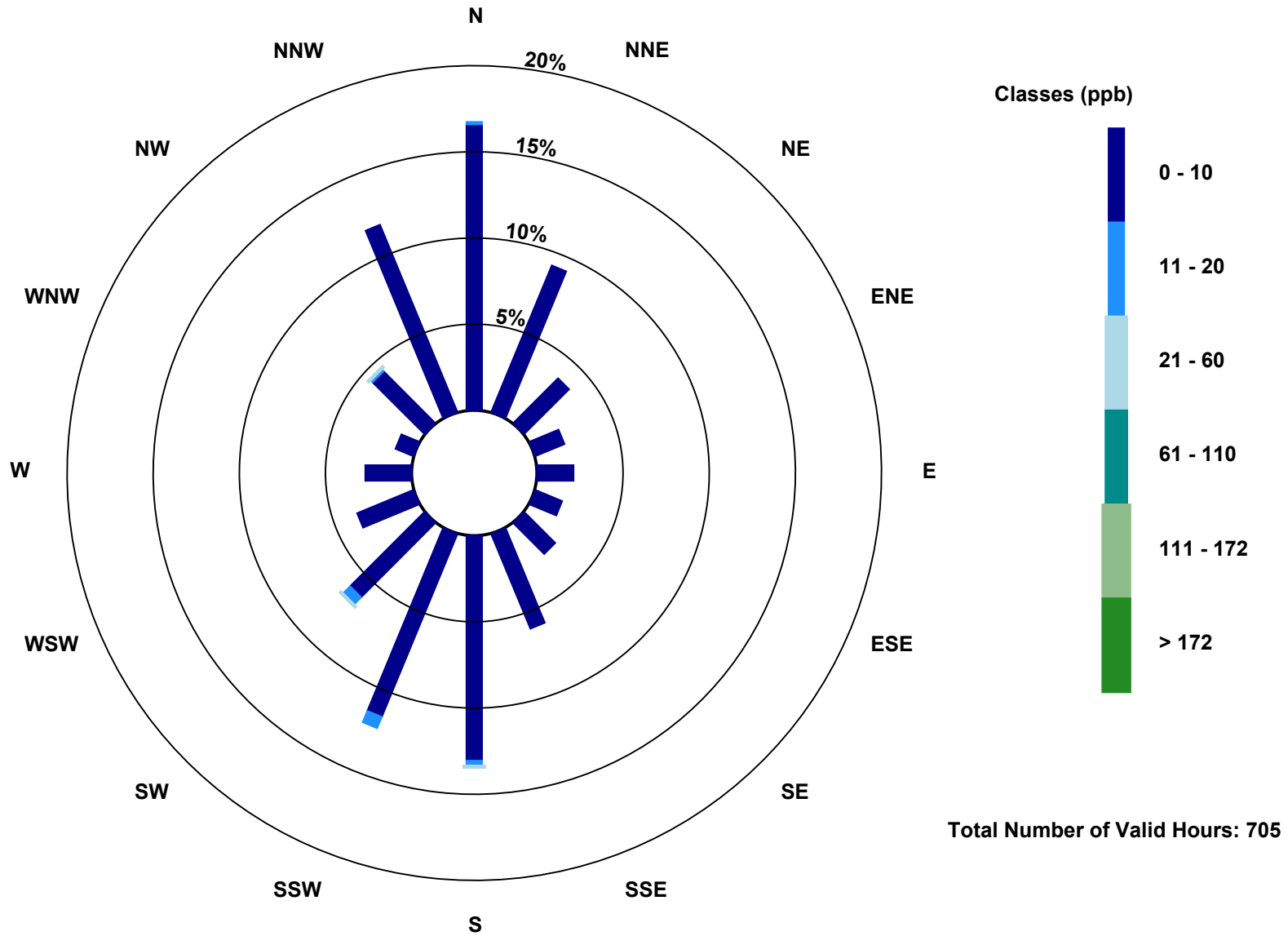
Total Number of Valid Hours: 705

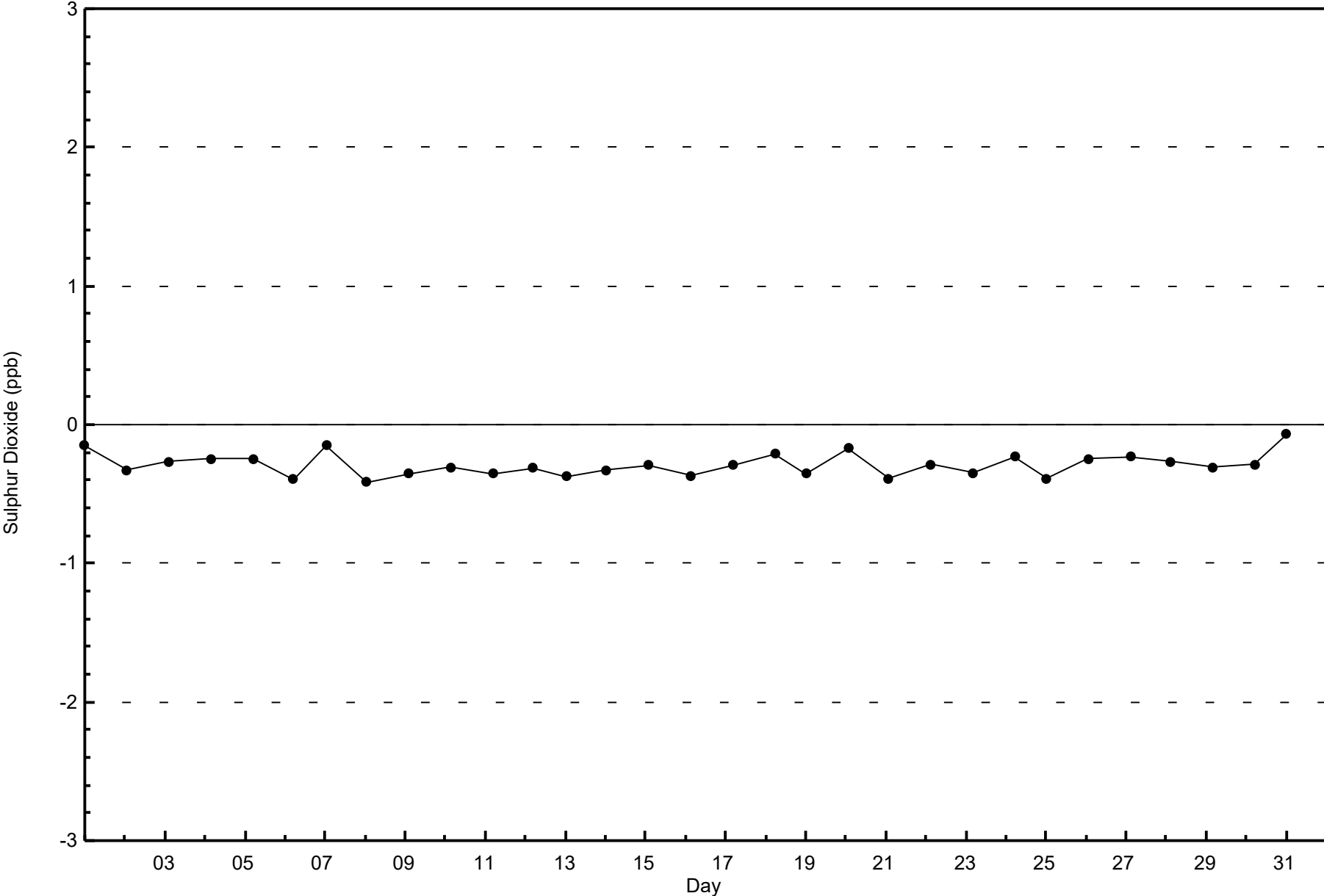
Total Number of Hours: 744

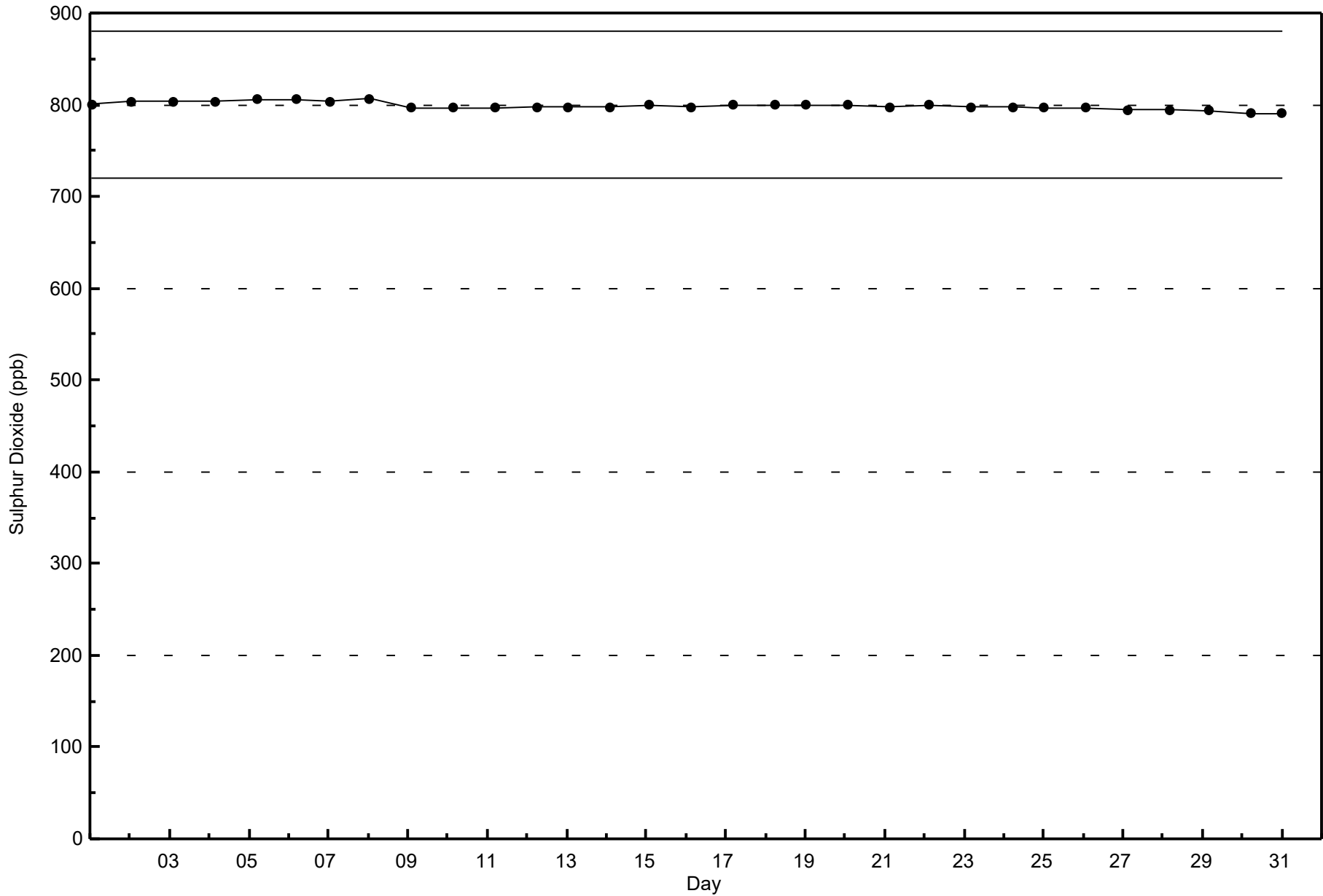


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.4 ppb on Jan 24 03:00	Maximum Daily Average: 0.3 ppb on Jan 3		Hours of Data:	707
Minimum Value: 0.0 ppb on Jan 28 03:00	Minimum Daily Average: 0.0 ppb on Jan 11		Hours of Missing Data:	37
Maximum Diurnal Average: 0.2 ppb at hour 7	Minimum Diurnal Average: 0.1 ppb at hour 15		Hours of Calibration:	37
Monthly Average: 0.15 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> = 0.3 P <sub>99</sub> = 0.7		Percent Operational Time:	100.0

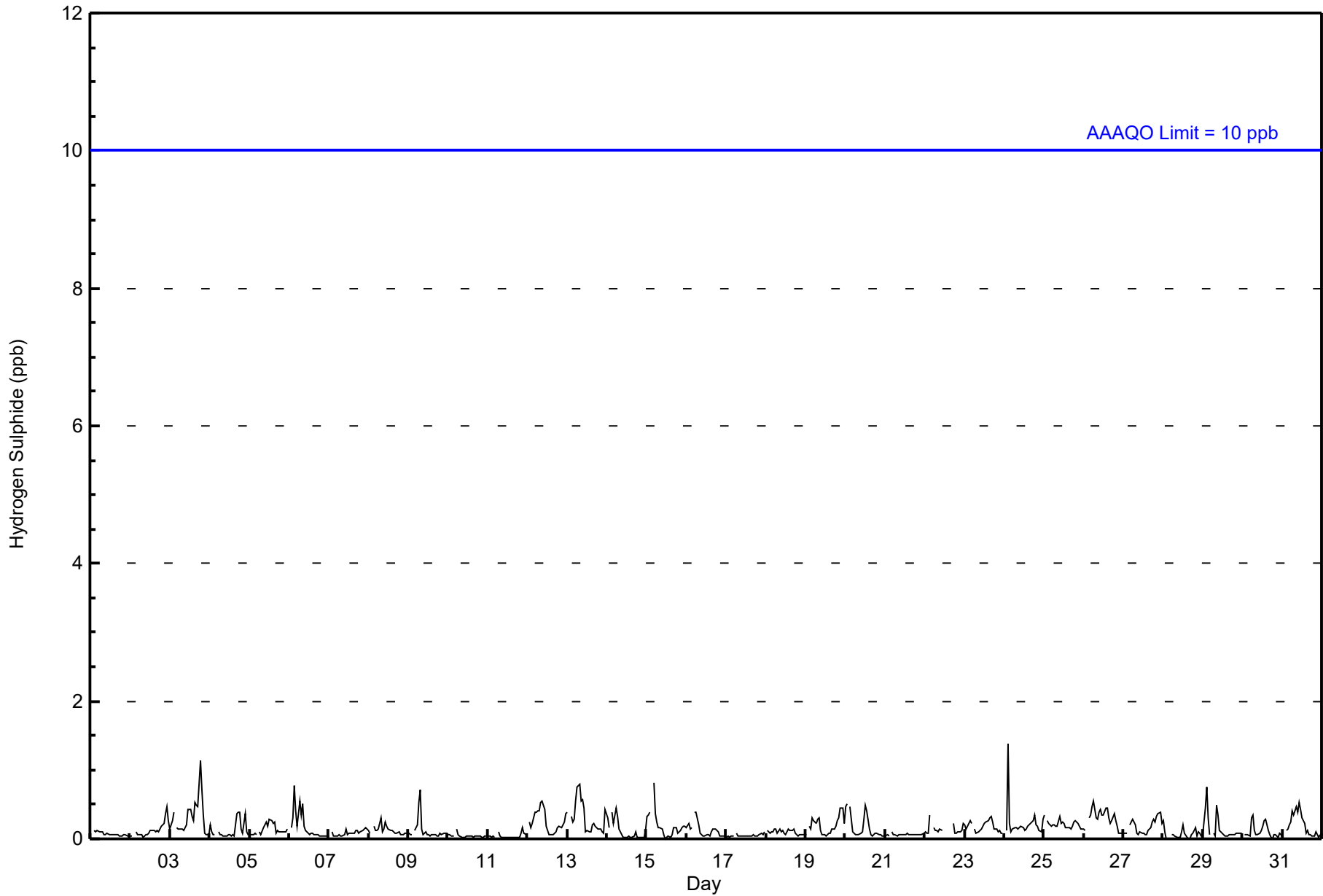
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Jan	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.2																							
2-Jan	0.0	0.0	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	0.2	0.2	0.2	0.4	0.5	0.3	0.1	0.5																							
3-Jan	0.2	0.3	0.4	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.3	0.3	0.5	0.5	0.5	1.1	0.7	0.3	0.1	0.1	0.1	0.3	1.1																							
4-Jan	0.2	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.4	0.4	0.4	0.1	0.1	0.4	0.1	0.1	0.1	0.4																							
5-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.2	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	0.3																							
6-Jan	Z	0.2	0.3	0.8	0.4	0.2	0.6	0.3	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																							
7-Jan	0.0	Z	0.1	0.0	0.0	0.0	0.1	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	0.1	0.2	0.2	0.1	0.1	0.2																							
8-Jan	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.3	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	0.3																							
9-Jan	0.1	0.1	0.1	Z	0.1	0.2	0.5	0.7	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	0.7																							
10-Jan	0.1	0.1	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																							
11-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.2																							
12-Jan	Z	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.5	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.6																							
13-Jan	0.4	Z	0.3	0.3	0.3	0.5	0.8	0.8	0.6	0.6	0.4	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.8																							
14-Jan	0.3	0.2	Z	0.4	0.2	0.4	0.3	0.1	0.1	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	0.1	0.1	0.1	0.4																							
15-Jan	0.3	0.3	0.4	Z	0.8	0.4	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.8																							
16-Jan	0.2	0.2	0.1	0.2	Z	0.4	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.4																							
17-Jan	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	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1																							
18-Jan	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	0.1	0.2																							
19-Jan	0.1	Z	0.2	0.1	0.3	0.3	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.4	0.2	0.2	0.5																							
20-Jan	0.5	0.5	Z	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.4	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.5																							
21-Jan	0.0	0.1	0.0	Z	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	0.1	0.1	0.1	0.1																							
22-Jan	0.1	0.1	0.1	0.3	Z	0.2	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	C	C	0.2	0.1	0.1	0.1	0.1	0.1	0.2	--																							
23-Jan	0.2	0.1	0.2	0.3	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3																							
24-Jan	Z	0.1	1.4	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.3	1.4																							
25-Jan	0.3	Z	0.3	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	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.3																							
26-Jan	0.1	0.1	Z	0.3	0.3	0.5	0.6	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.3	0.6																							
27-Jan	0.1	0.1	0.1	Z	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.4	0.4	0.2	0.2	0.4																							
28-Jan	0.3	0.1	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.3																							
29-Jan	0.0	0.5	0.8	0.3	0.1	Z	0.1	0.1	0.5	0.3	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	0.8																							
30-Jan	Z	0.1	0.1	0.1	0.0	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.3																							
31-Jan	0.0	Z	0.1	0.1	0.2	0.2	0.4	0.3	0.5	0.4	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.5																							
																								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	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average
																								0.5	0.5	1.4	0.8	0.8	0.5	0.8	0.8	0.6	0.6	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.5	1.1	0.7	0.3	0.5	0.5	0.4	0.4	Diurnal Maximum

Z - zerospan      C - Calibration  
 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**  
**Firebag - January 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Firebag - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Firebag - January 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	121	65	24	14	16	11	17	40	93	87	49	24	18	7	31	86	703
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>	121	65	24	14	16	11	17	40	93	87	49	24	18	7	31	86	703

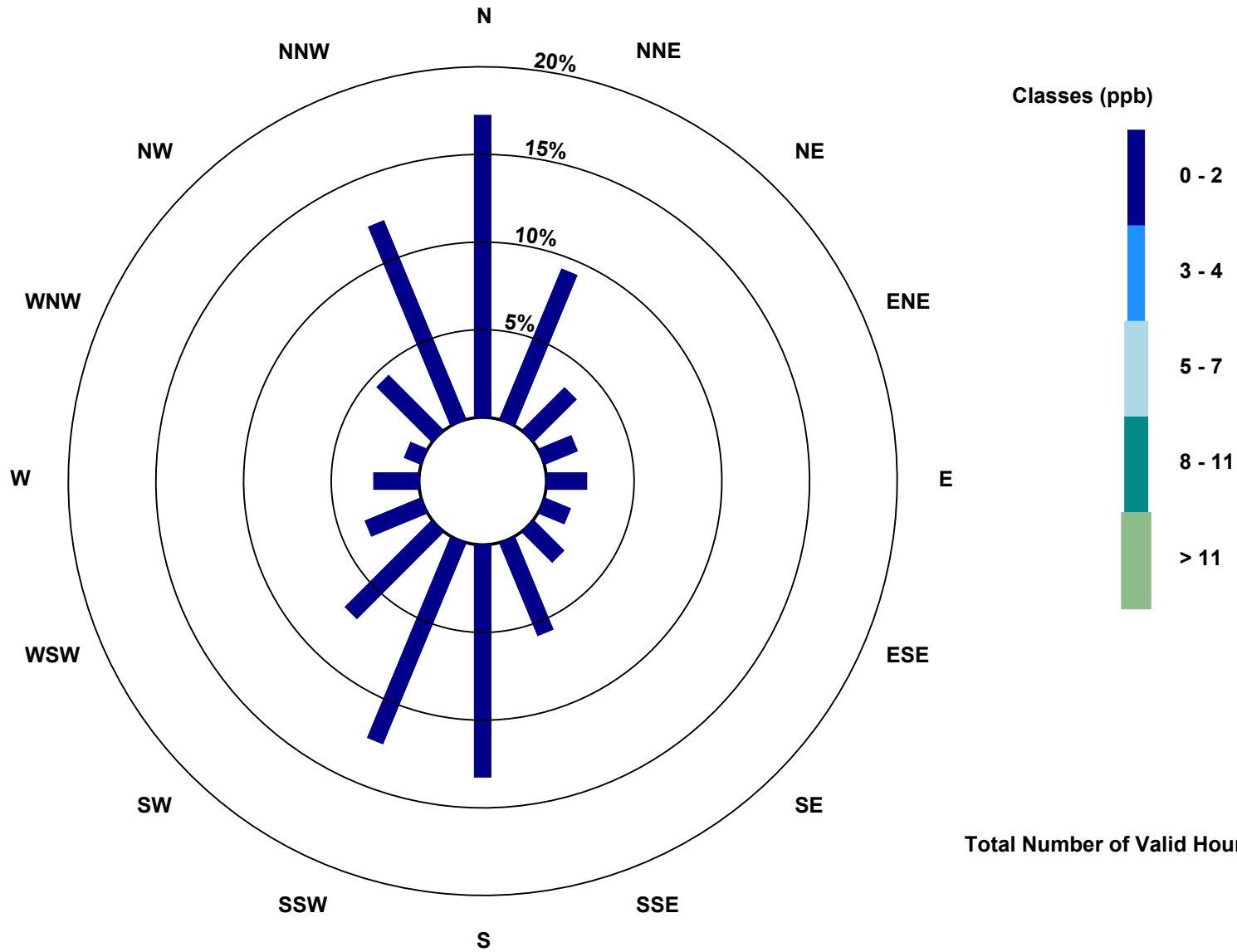
Total Number of Valid Hours: 703

Total Number of Hours: 744

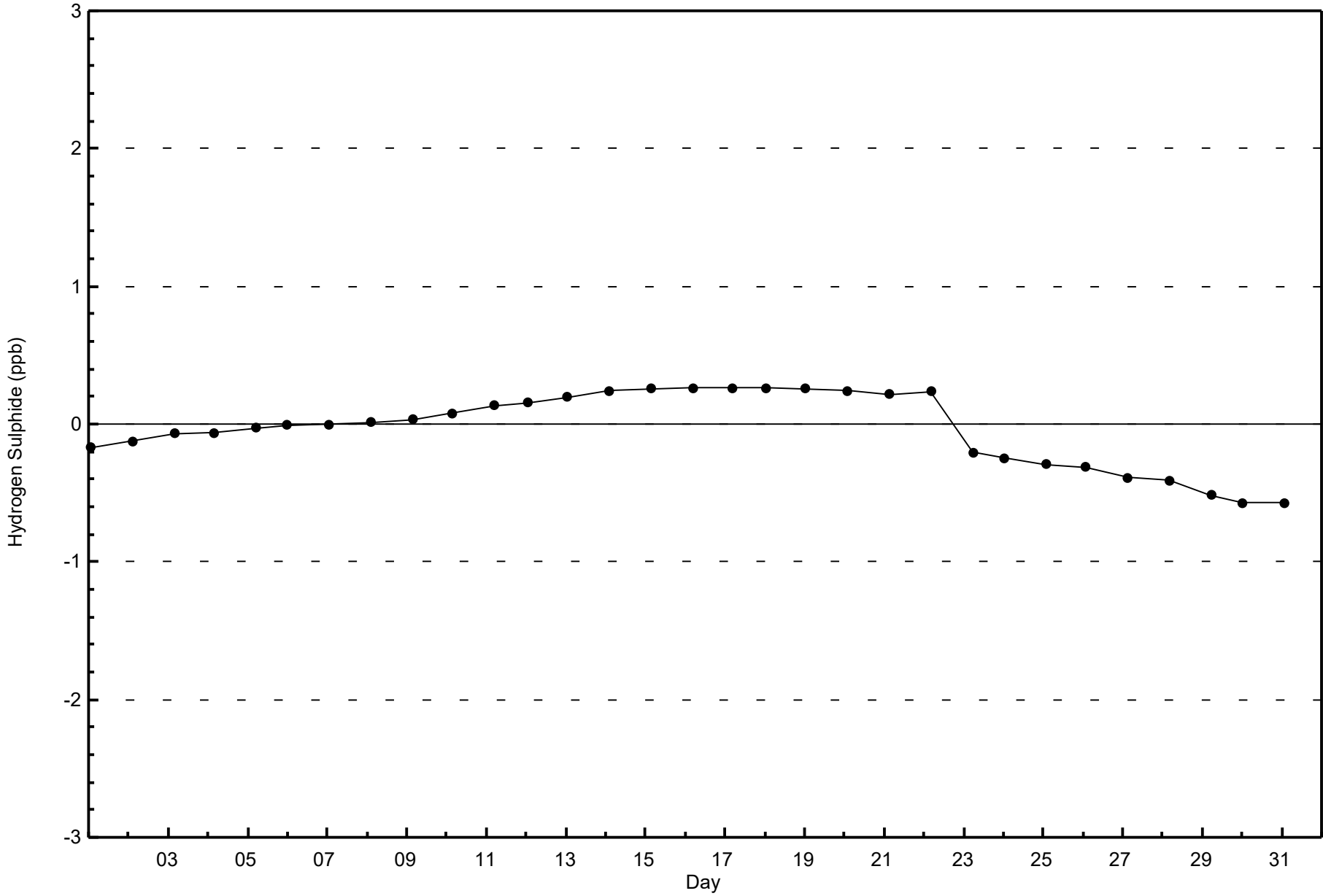


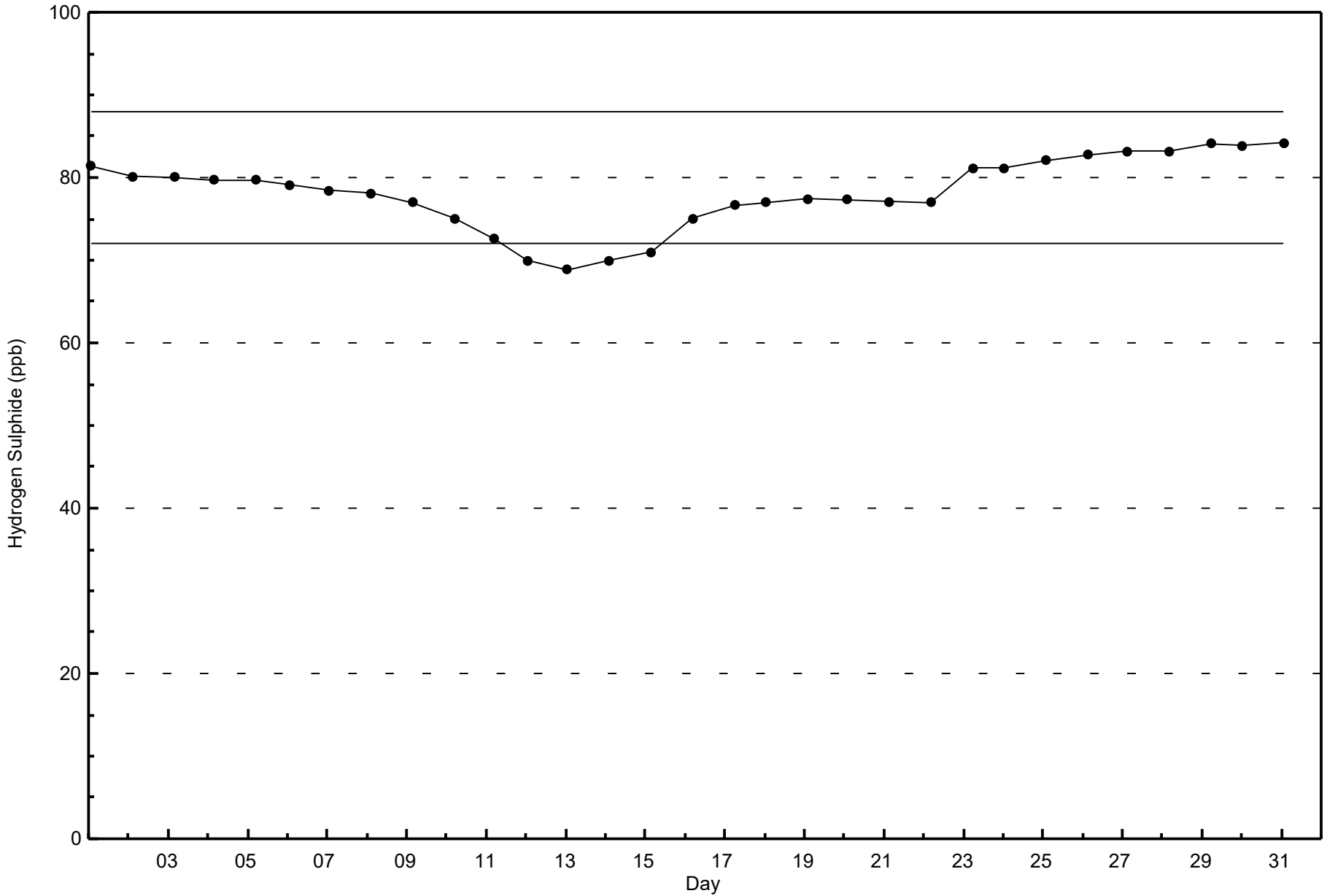
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

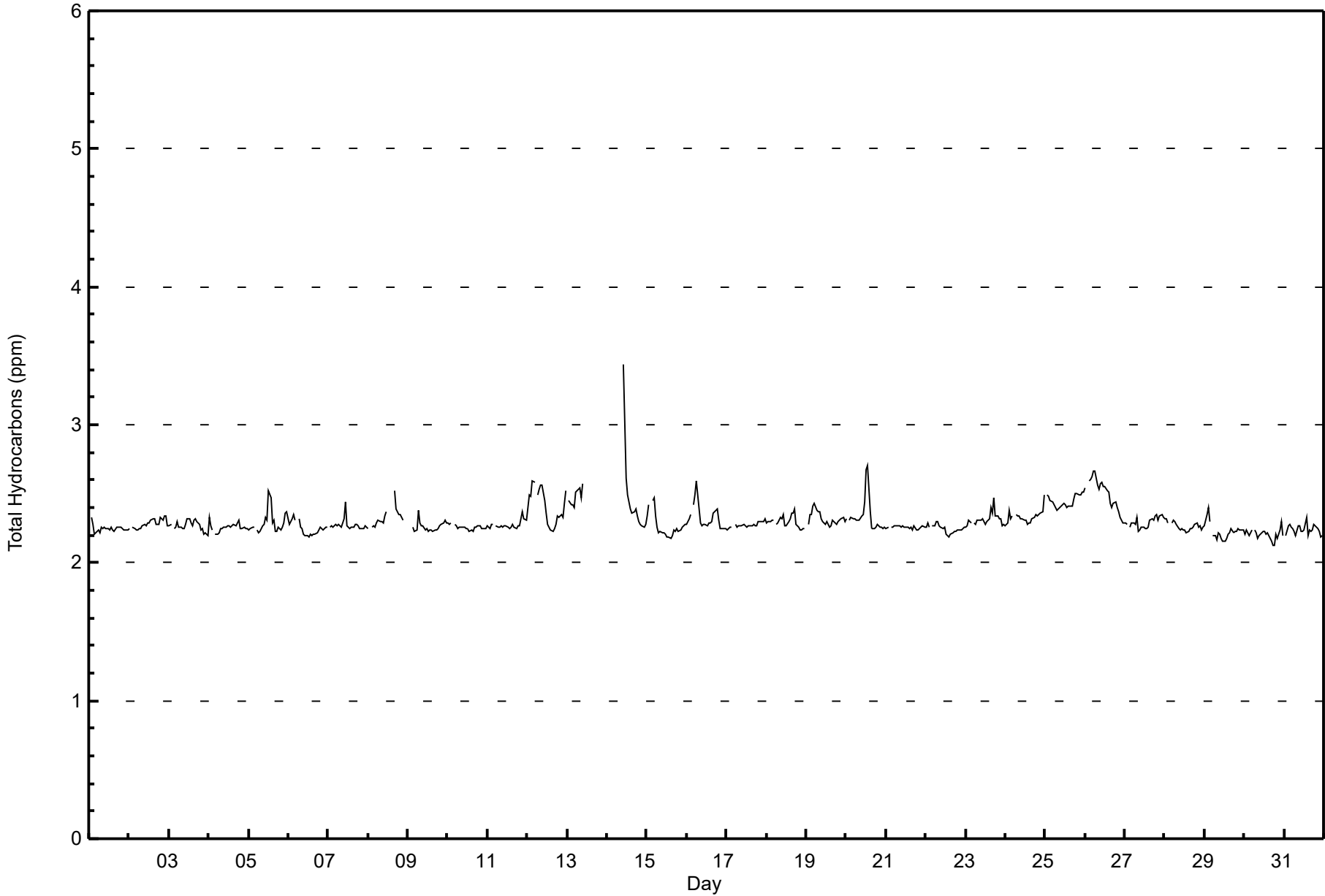


Total Number of Valid Hours: 703











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

**Total Hydrocarbons (THC) - ppm**  
**Firebag - January 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	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: 684

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Firebag - January 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	114	61	22	13	14	12	18	42	95	86	47	24	19	8	25	79	679
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	115	61	22	13	14	12	18	42	95	86	47	24	19	8	25	79	680

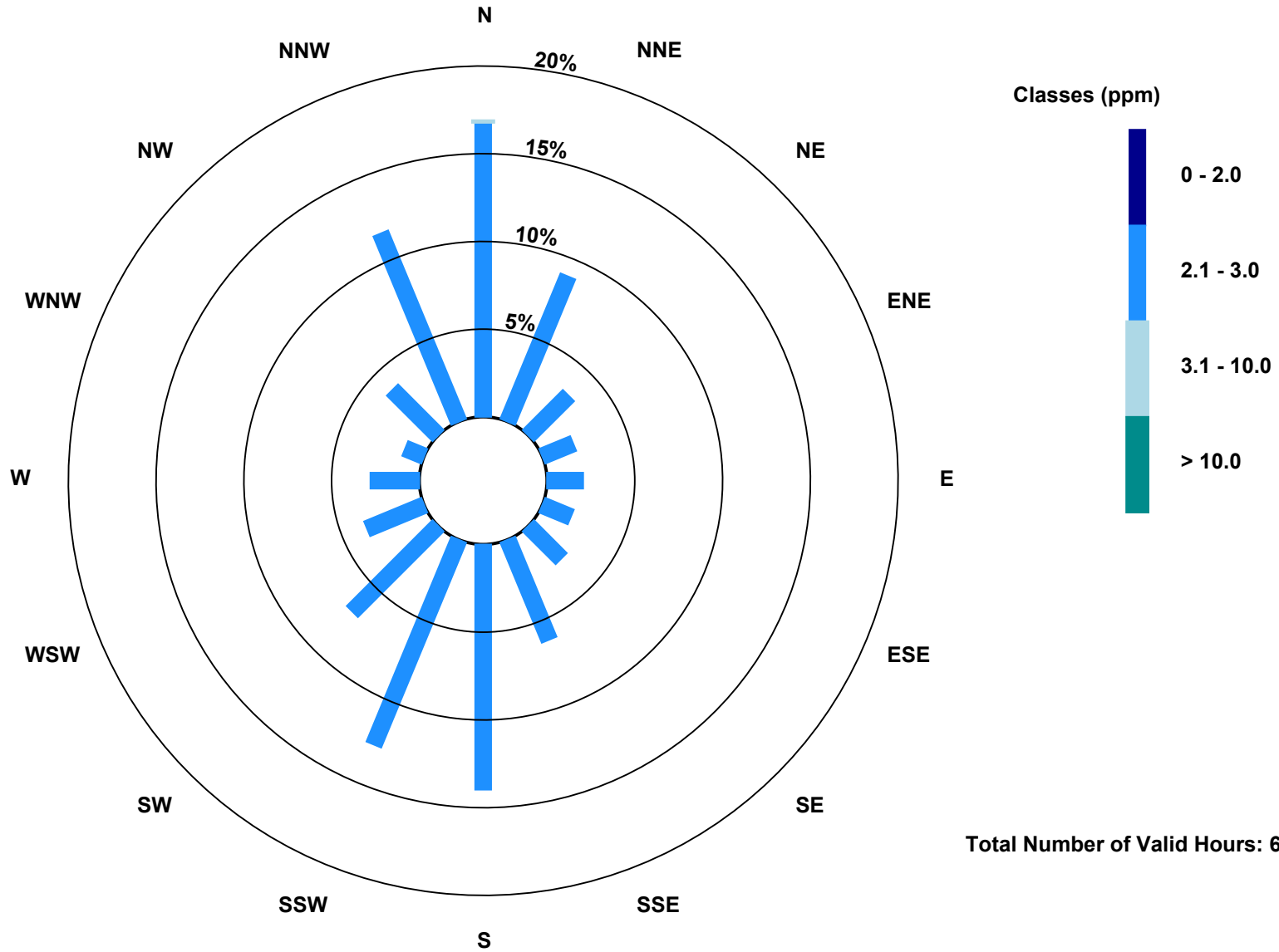
Total Number of Valid Hours: 680

Total Number of Hours: 744

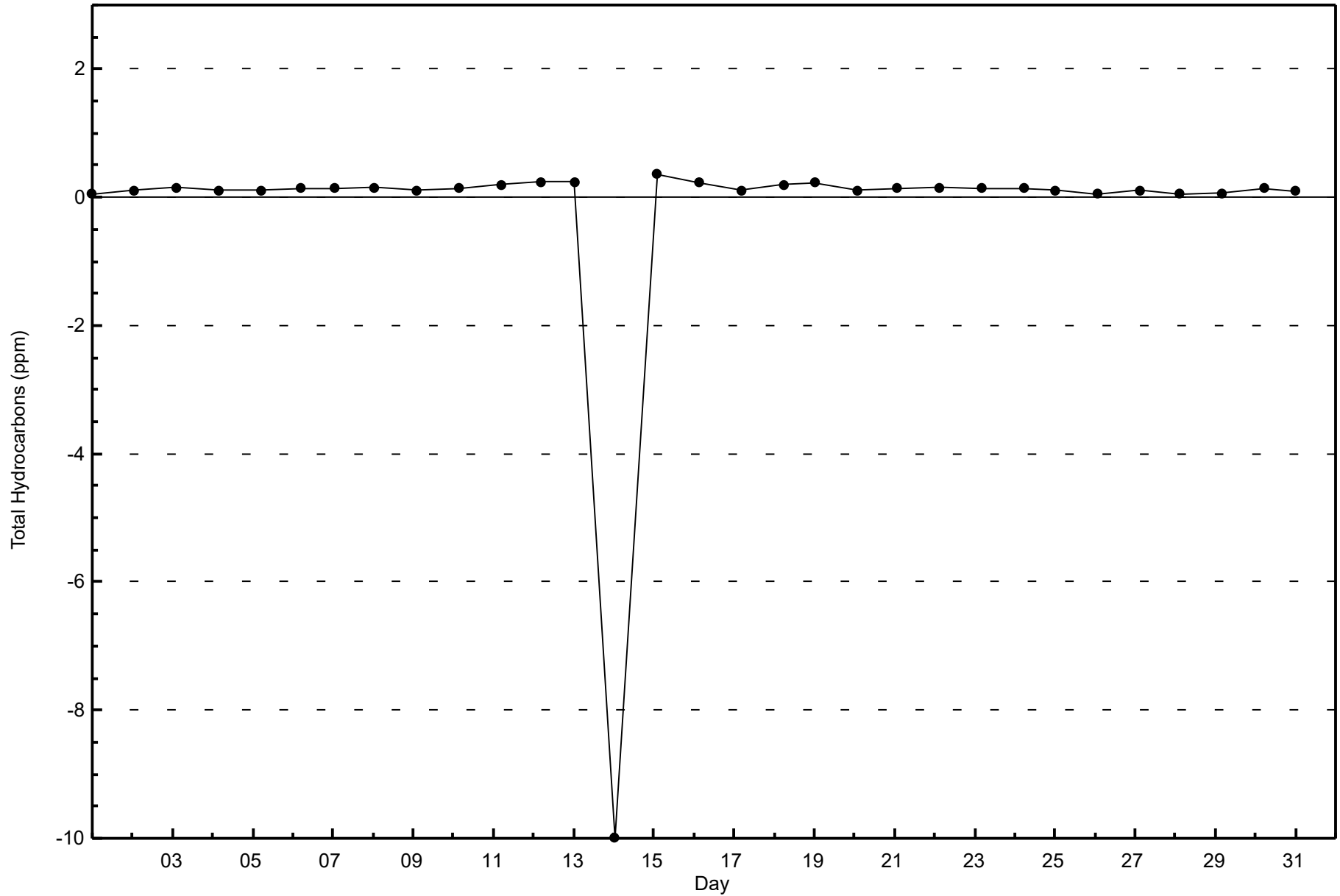


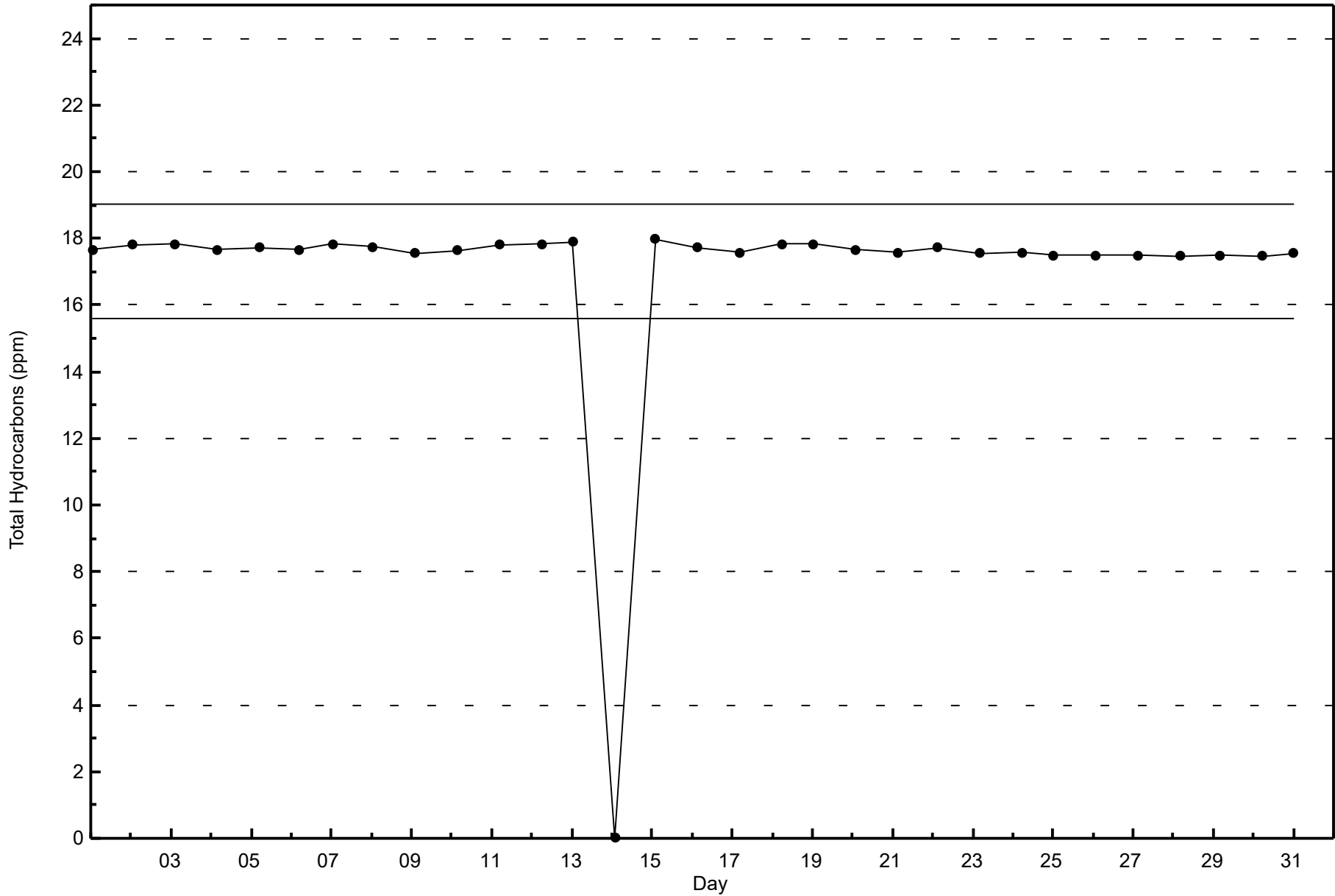
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Firebag



Total Number of Valid Hours: 680



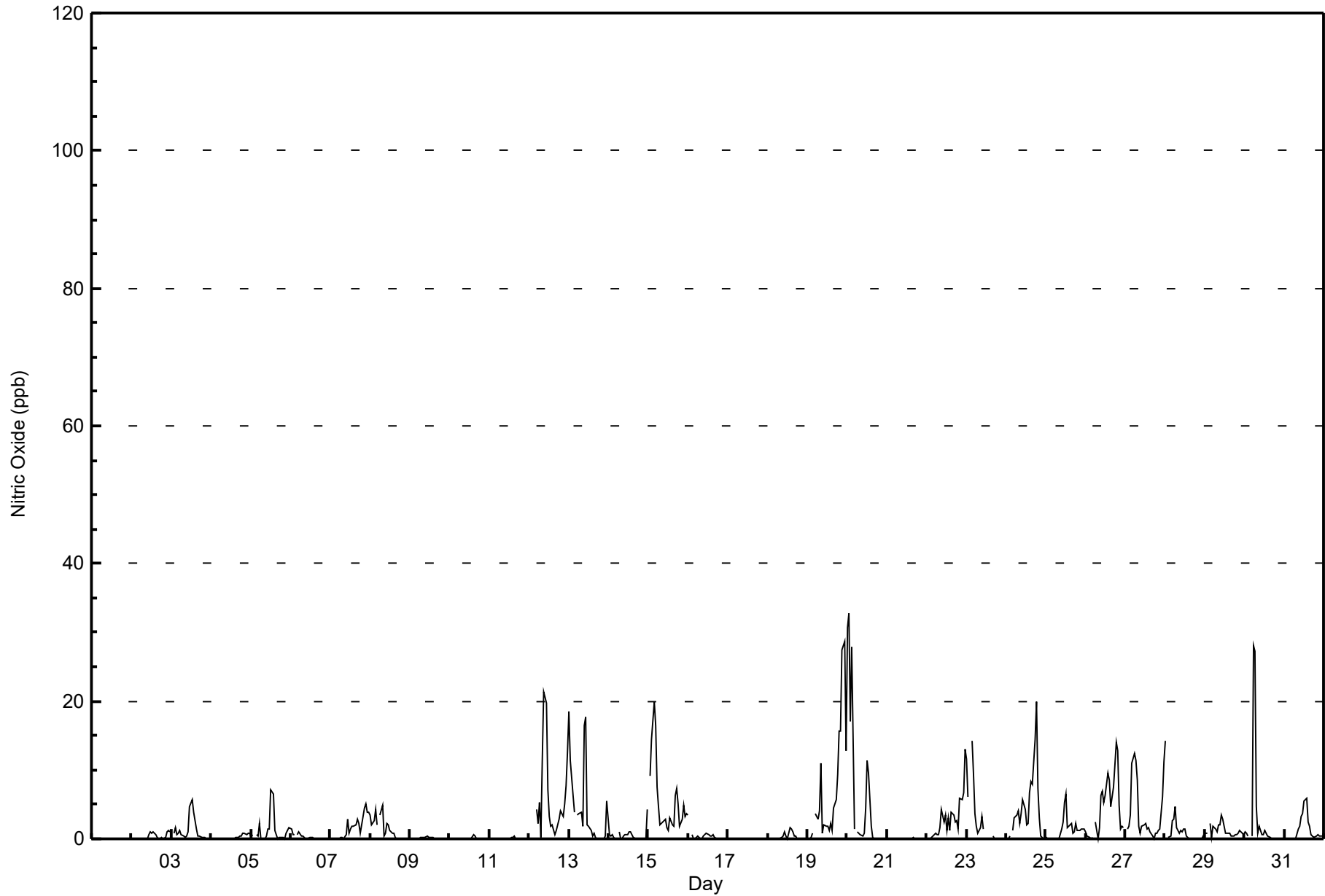






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Firebag - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Firebag - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	700	98.87	98.87
21 - 40	8	1.13	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Firebag - January 2024**

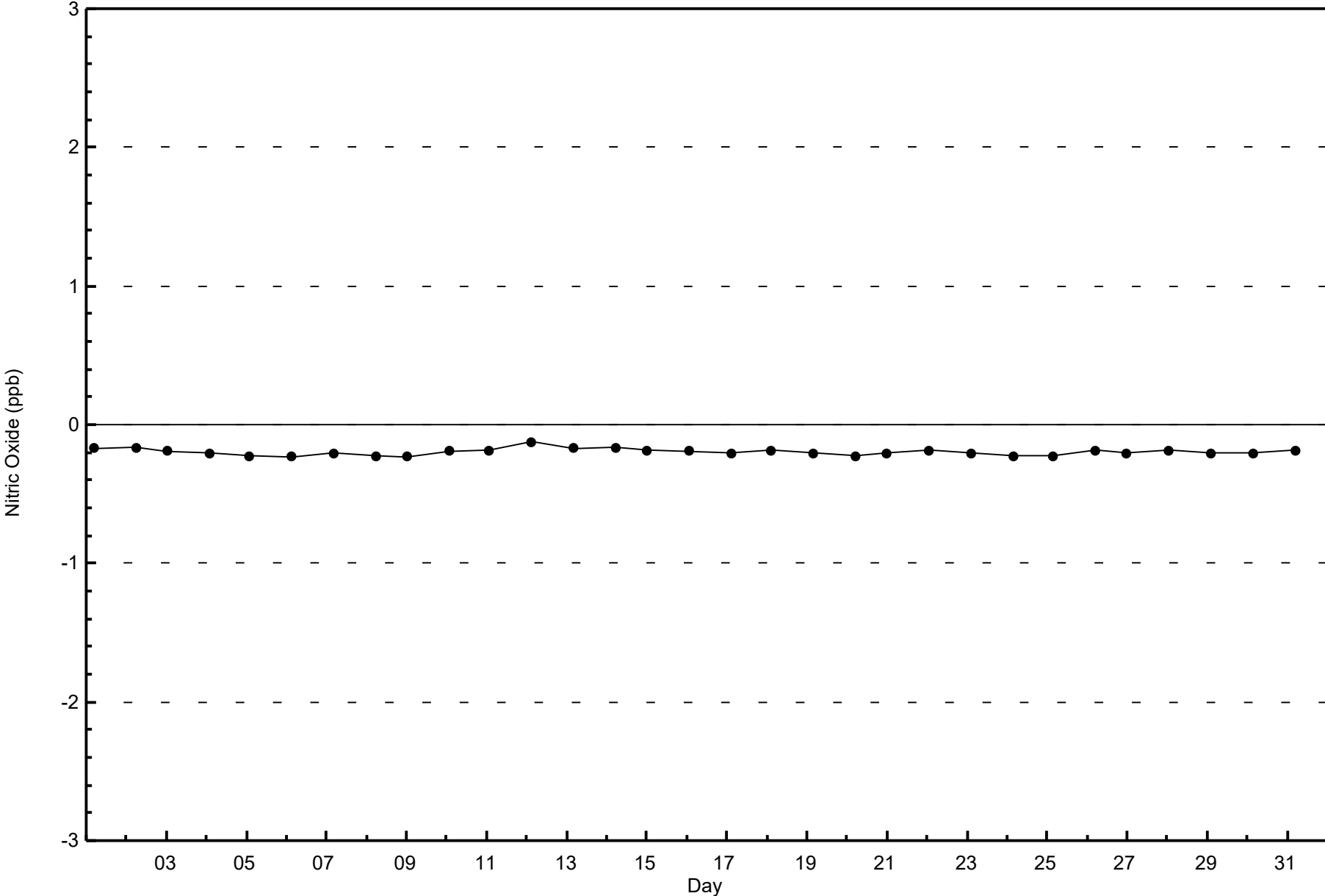
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	117	65	26	14	15	13	16	43	89	83	49	22	20	8	30	86	696
21 - 40	0	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	8
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>	117	65	26	14	15	13	16	44	96	83	49	22	20	8	30	86	704

Total Number of Valid Hours: 704

Total Number of Hours: 744



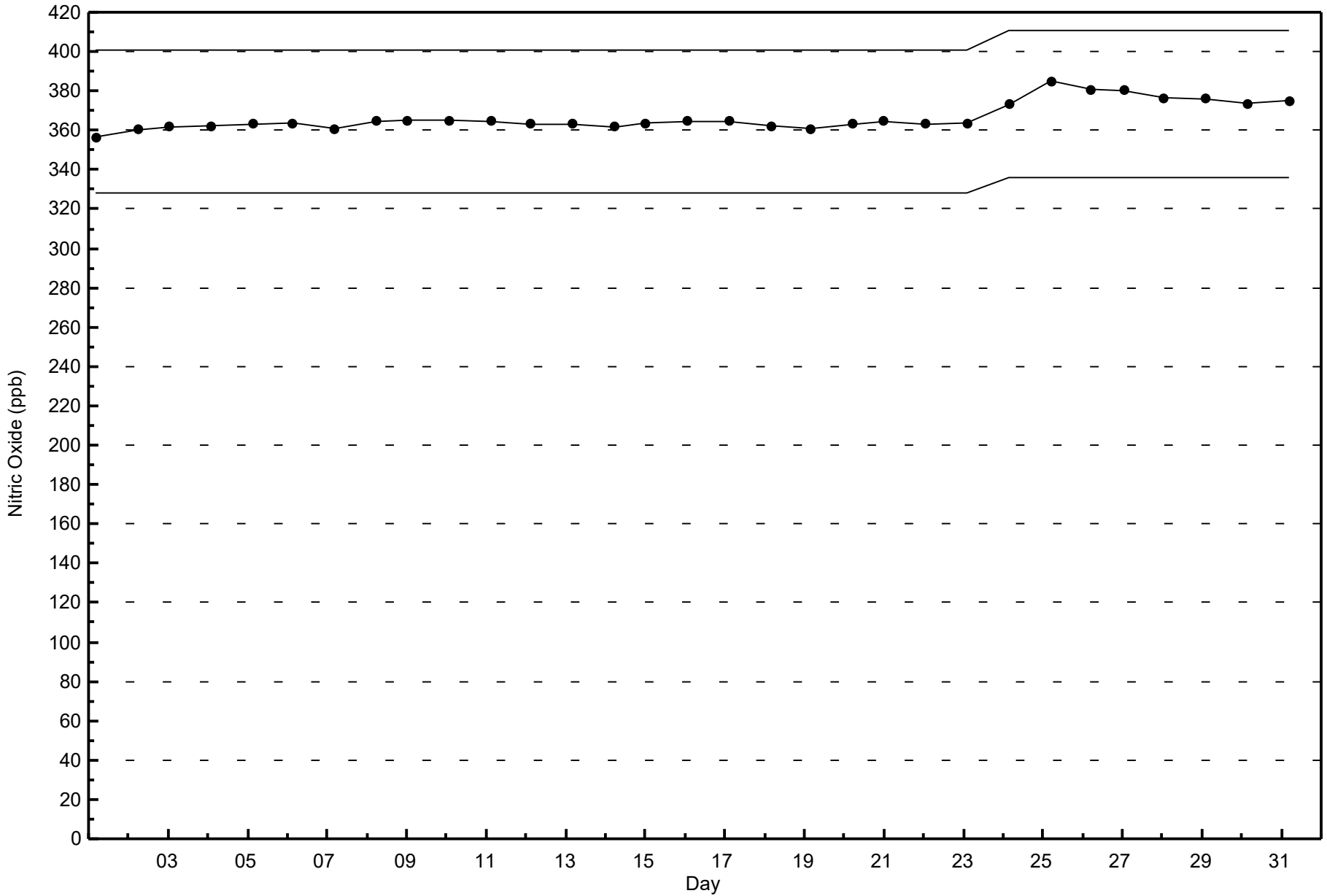






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Firebag - January 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

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

Firebag - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 35.9 ppb on Jan 15 04:00	Maximum Daily Average: 17.1 ppb on Jan 12		Hours of Data:	708
Minimum Value: 0.1 ppb on Jan 2 01:00	Minimum Daily Average: 0.3 ppb on Jan 21		Hours of Missing Data:	36
Maximum Diurnal Average: 8.6 ppb at hour 7	Minimum Diurnal Average: 3.6 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 5.93 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.7 Median = 3.9 Q <sub>3</sub> = 7.9 P <sub>90</sub> = 16.3 P <sub>99</sub> = 29.1		Percent Operational Time:	100.0

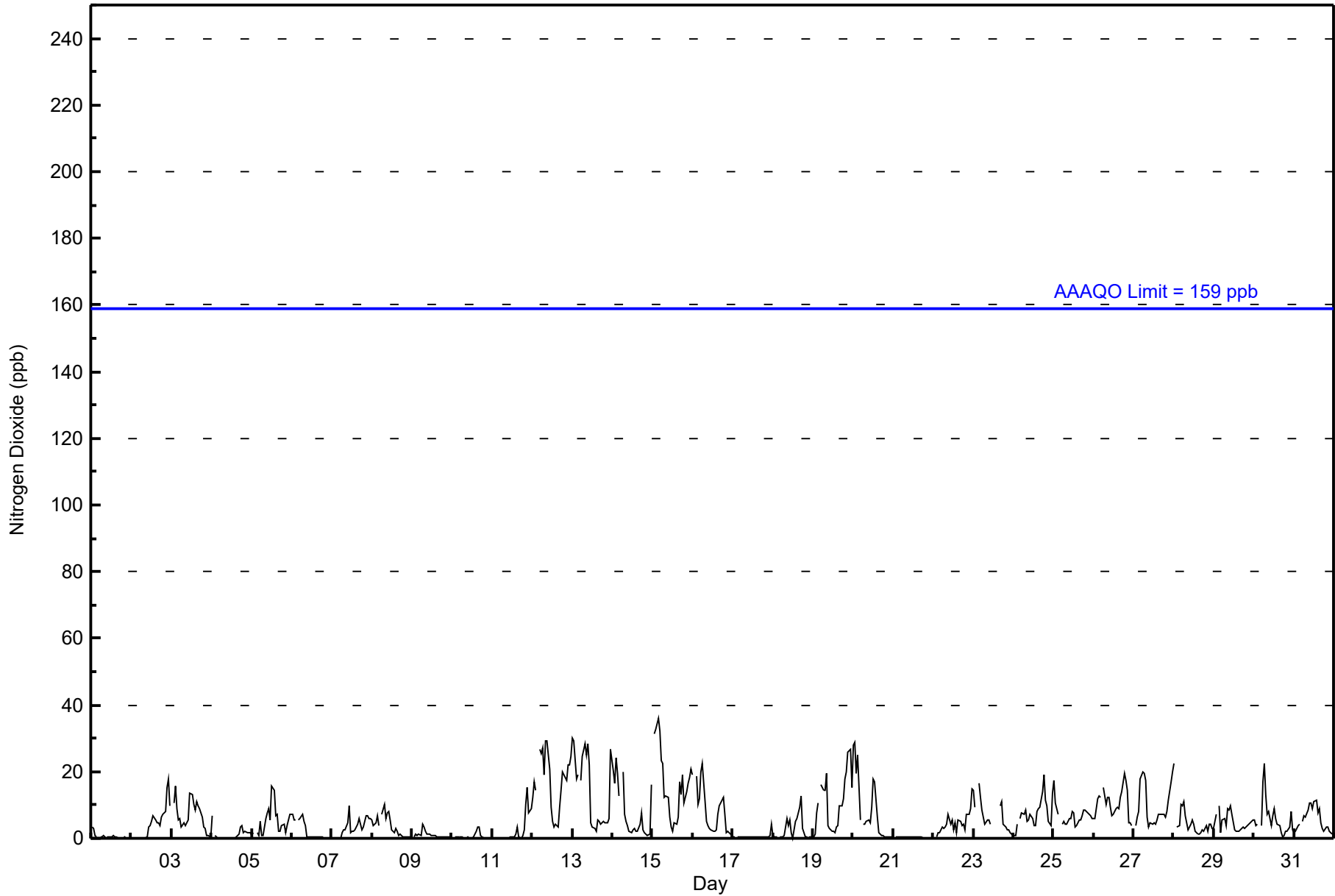
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Jan	3.3	3.0	0.9	0.5	Z	0.4	0.5	0.8	0.4	0.2	0.3	0.4	0.3	1.0	0.4	0.3	0.2	0.2	0.2	0.2	0.6	0.2	0.2	0.2	0.6	0.6	3.3																						
2-Jan	0.1	0.1	0.1	0.2	0.1	Z	0.2	0.2	0.2	0.3	3.3	3.8	5.2	6.9	5.6	4.6	4.7	3.7	6.2	7.2	8.2	15.3	17.8	9.9	4.5	17.8																							
3-Jan	Z	10.5	15.8	9.1	5.6	5.9	3.2	4.6	3.9	4.8	5.6	13.4	13.1	10.0	8.4	11.0	9.8	9.0	6.3	3.6	2.8	0.8	0.8	0.5	6.9	15.8																							
4-Jan	6.8	Z	0.7	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3	1.3	3.4	3.8	1.7	2.0	1.8	1.7	1.5	1.2	6.8																								
5-Jan	0.9	1.5	Z	1.6	0.9	5.0	0.9	1.0	6.0	7.8	8.8	5.7	15.5	14.2	6.9	7.4	2.2	2.1	3.7	4.4	1.6	4.0	5.3	7.1	5.0	15.5																							
6-Jan	7.0	5.6	5.3	Z	5.7	5.9	7.0	5.0	3.7	0.6	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	2.2	7.0																								
7-Jan	0.2	0.1	0.2	0.2	Z	0.2	1.7	2.4	2.4	4.7	9.7	1.5	2.0	2.1	2.5	4.4	5.9	4.1	2.4	3.3	6.7	6.8	6.1	5.8	3.3	9.7																							
8-Jan	5.7	3.9	4.5	6.6	4.0	Z	7.3	10.2	6.0	7.6	8.2	5.6	2.4	1.9	3.1	2.1	1.0	1.1	0.4	0.4	0.5	0.4	0.4	0.6	3.6	10.2																							
9-Jan	Z	0.6	1.1	1.0	1.1	1.0	4.4	3.4	2.2	1.2	1.3	1.0	0.8	0.8	0.8	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	1.1	4.4																								
10-Jan	0.4	Z	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	2.2	3.2	3.6	0.8	0.4	0.2	0.2	0.2	0.2	0.2	0.7	3.6																							
11-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	1.3	3.2	0.6	0.2	0.8	2.7	10.0	15.3	7.6	9.0	2.3	15.3																							
12-Jan	12.2	17.0	14.2	Z	26.7	25.4	27.2	18.9	29.2	29.2	20.9	9.2	4.9	3.3	4.4	3.5	9.2	14.3	19.8	18.9	17.2	21.9	22.2	24.7	17.1	29.2																							
13-Jan	30.0	29.1	17.9	19.1	Z	17.3	24.7	28.5	25.1	28.2	22.0	4.5	3.6	2.9	2.2	5.4	5.1	4.2	4.9	4.7	4.5	4.5	5.8	26.7	14.0	30.0																							
14-Jan	20.2	16.4	24.1	19.6	12.8	Z	20.0	7.2	5.1	3.7	2.3	1.9	2.6	2.9	2.3	2.1	4.2	7.8	2.4	1.8	1.4	1.0	1.4	15.9	7.8	24.1																							
15-Jan	Z	31.2	32.7	35.9	32.0	Z	23.4	22.6	12.1	12.5	12.1	6.3	3.3	2.3	4.5	4.3	6.4	16.9	13.0	18.9	10.4	13.8	16.6	18.4	20.6	16.1	35.9																						
16-Jan	19.1	Z	18.6	10.3	11.7	20.1	22.5	11.0	5.1	3.8	2.8	2.6	2.3	2.0	2.7	7.3	9.7	11.6	12.1	7.4	1.5	2.0	1.6	0.9	8.2	22.5																							
17-Jan	0.6	0.5	Z	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7	4.1	0.6	4.1																							
18-Jan	0.9	0.4	0.3	Z	0.5	0.4	0.5	1.0	6.0	3.9	5.3	1.8	0.2	4.9	5.8	7.6	9.2	12.7	2.8	0.3	0.3	0.2	0.3	0.3	2.9	12.7																							
19-Jan	0.3	1.3	7.6	10.4	Z	16.3	14.3	14.4	19.3	3.7	3.0	2.1	2.3	1.6	3.6	3.7	9.9	9.6	11.8	17.9	19.8	25.8	26.5	15.1	10.4	26.5																							
20-Jan	27.9	28.8	19.3	24.8	5.6	Z	4.1	4.2	5.2	5.6	4.8	9.4	17.6	16.9	6.4	1.7	1.2	0.8	0.7	0.6	0.5	0.5	0.5	0.5	8.2	28.8																							
21-Jan	Z	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4																							
22-Jan	0.2	Z	0.3	1.6	1.8	3.4	3.1	3.4	4.3	7.0	4.4	5.3	2.6	4.6	1.9	5.7	5.2	3.9	4.2	2.7	7.1	7.4	8.8	14.9	4.5	14.9																							
23-Jan	14.3	9.5	Z	16.7	12.2	8.6	6.5	4.2	5.3	5.6	4.1	C	C	C	C	C	9.7	11.1	4.3	3.4	2.7	2.4	1.6	1.1	6.9	16.7																							
24-Jan	0.9	1.0	4.4	Z	5.8	7.5	7.1	8.5	5.1	5.7	7.1	5.9	3.8	3.8	8.1	9.0	9.3	13.9	18.9	11.5	9.6	4.9	4.0	13.6	7.4	18.9																							
25-Jan	17.4	10.6	8.9	7.3	Z	4.4	4.9	4.4	4.3	5.8	6.0	8.0	7.7	3.4	4.0	5.3	5.3	6.8	8.4	8.3	7.7	7.2	6.7	6.1	6.9	17.4																							
26-Jan	5.9	5.9	12.0	12.8	12.2	Z	15.3	10.0	12.2	12.1	9.3	6.6	7.0	9.1	9.4	9.0	12.4	14.0	19.3	17.5	14.4	4.6	4.8	4.0	10.4	19.3																							
27-Jan	Z	3.9	6.2	8.0	17.7	19.9	19.6	17.2	6.2	3.6	4.8	4.2	4.6	4.3	5.4	7.0	7.4	7.2	7.3	6.4	7.9	11.6	17.1	20.0	9.5	20.0																							
28-Jan	22.5	Z	3.3	3.8	10.3	9.9	11.2	6.6	2.7	3.3	4.2	5.4	4.1	2.3	1.2	1.3	1.7	2.5	2.3	3.9	2.3	4.1	4.3	2.8	5.0	22.5																							
29-Jan	3.1	7.2	Z	9.7	1.5	5.7	6.0	3.8	8.7	8.3	9.8	7.0	2.6	2.2	2.0	2.2	2.4	3.6	2.8	3.5	3.9	4.3	4.7	5.5	4.8	9.8																							
30-Jan	5.7	3.7	4.3	Z	3.7	17.0	22.6	13.1	7.0	8.2	3.9	6.9	8.8	5.8	4.1	3.8	1.5	0.5	0.8	2.1	2.3	3.6	7.9	2.4	6.1	22.6																							
31-Jan	1.7	2.1	3.8	4.3	Z	5.0	6.6	6.4	8.3	10.7	10.6	9.0	11.0	11.6	7.8	8.7	4.6	3.0	2.1	3.3	3.3	2.2	1.7	1.4	5.6	11.6																							
																								8.0	7.5	8.0	7.9	6.9	7.9	8.6	6.6	6.4	6.1	5.5	4.2	4.3	4.2	3.6	4.3	5.0	5.4	5.5	4.8	5.0	5.5	5.8	7.0	Diurnal Average	
																								30.0	31.2	32.7	35.9	32.0	25.4	27.2	28.5	29.2	29.2	22.0	13.4	17.6	16.9	9.4	11.0	16.9	14.3	19.8	18.9	19.8	25.8	26.5	26.7	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**  
**Firebag - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	675	95.34	95.34
21 - 40	33	4.66	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag - January 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	117	64	26	14	15	12	16	36	84	79	44	22	20	8	28	86	671
21 - 40	0	1	0	0	0	1	0	8	12	4	5	0	0	0	2	0	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>	117	65	26	14	15	13	16	44	96	83	49	22	20	8	30	86	704

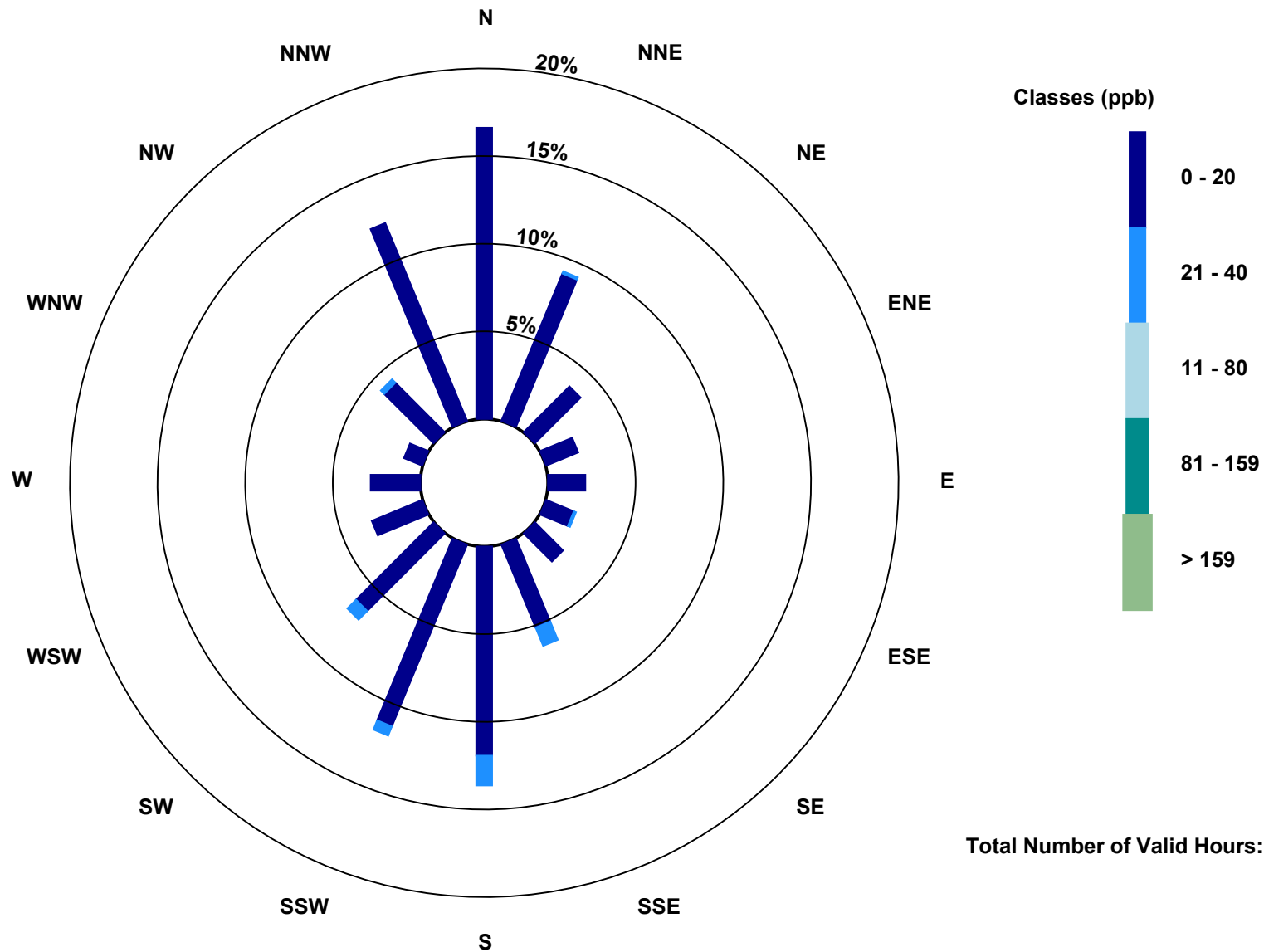
Total Number of Valid Hours: 704

Total Number of Hours: 744



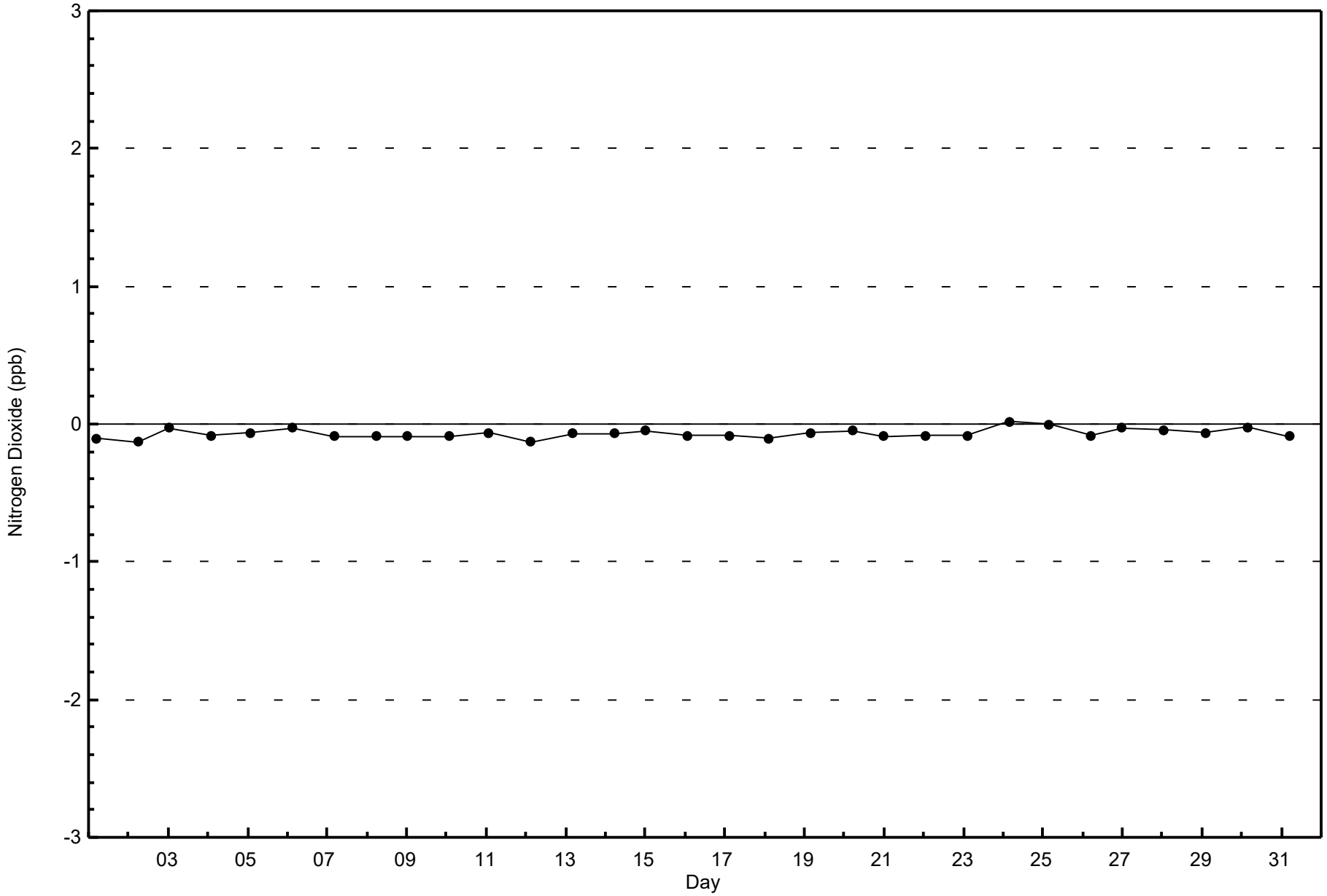
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

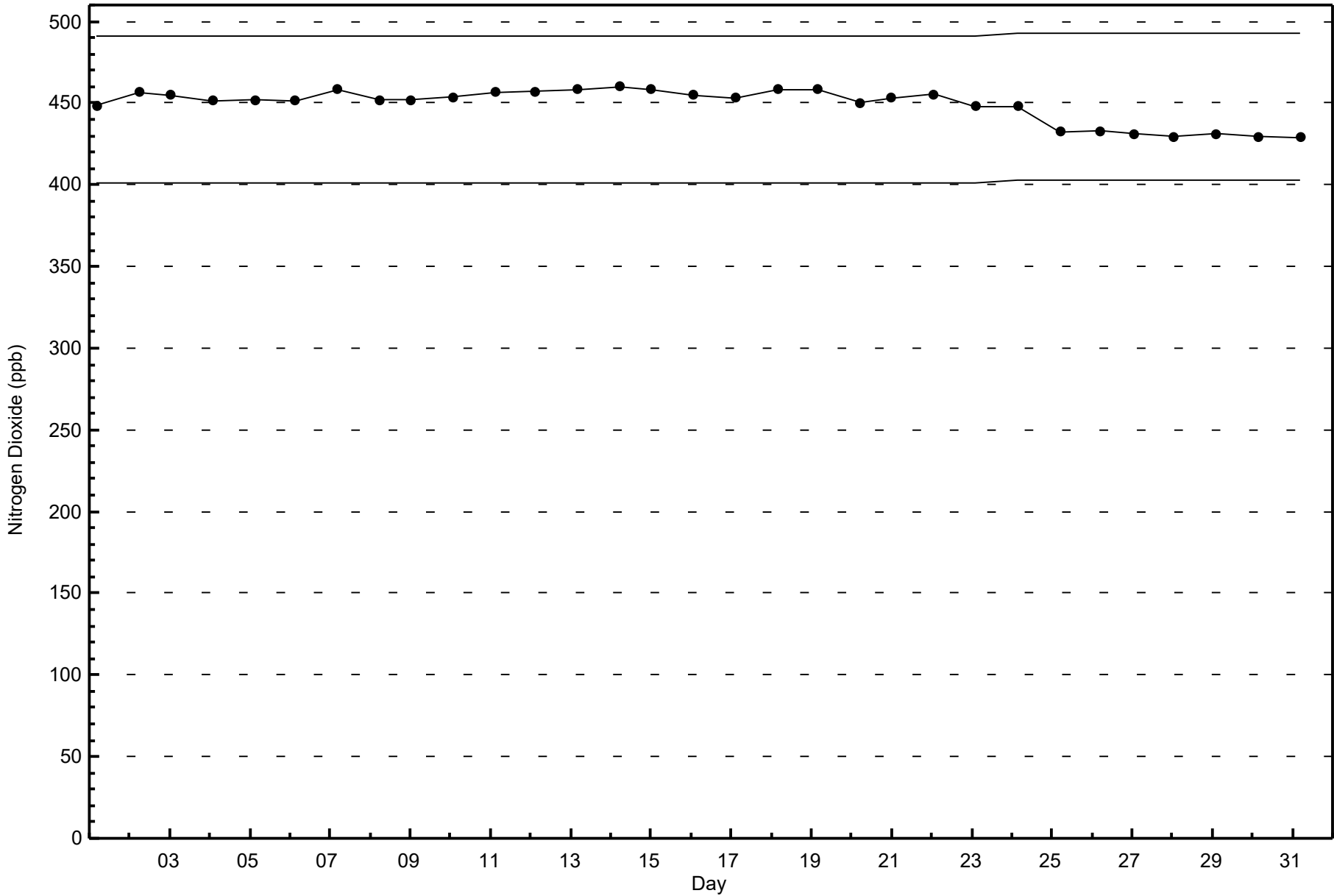
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag



Total Number of Valid Hours: 704









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

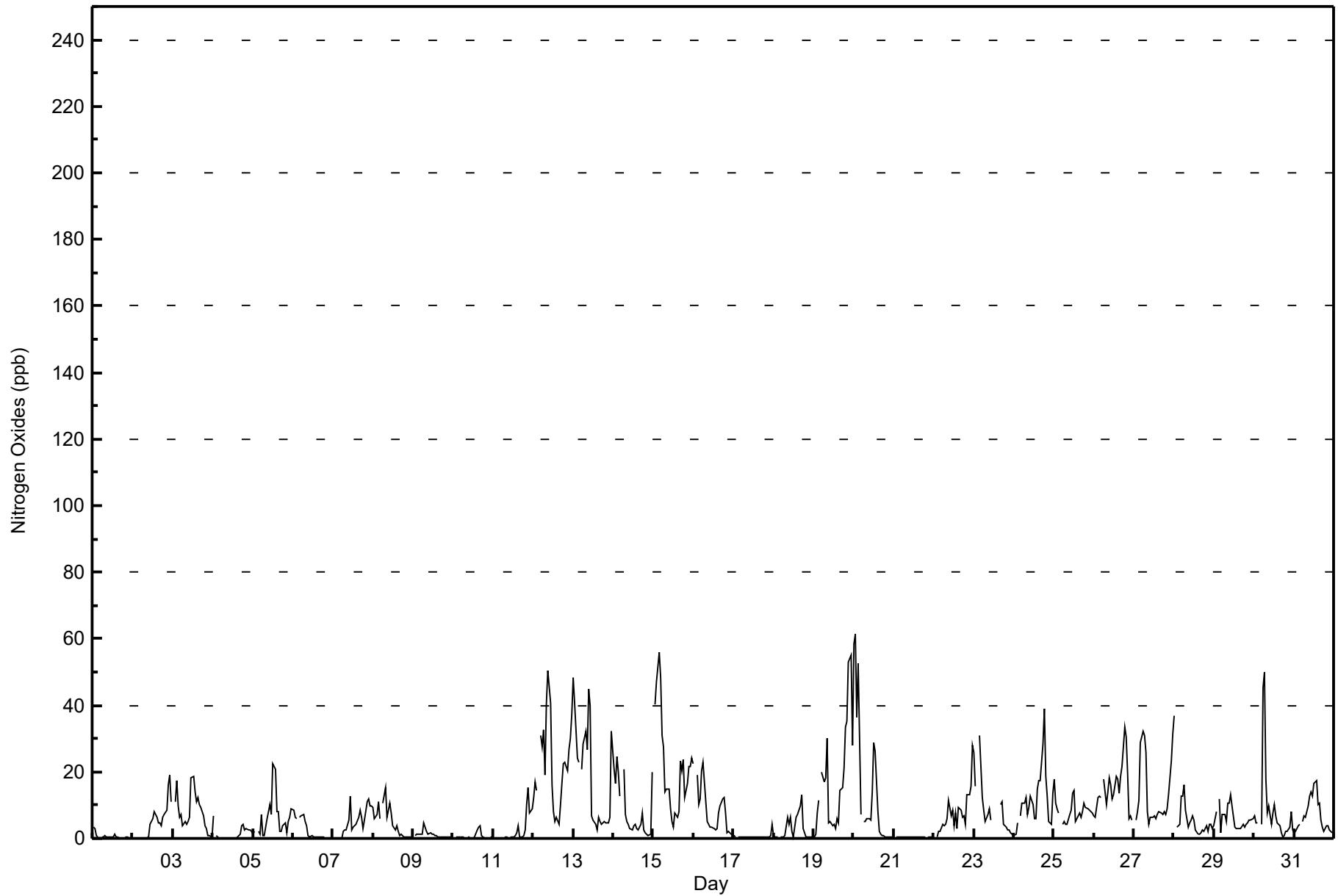
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - January 2024**

Maximum Value: 61.6 ppb on Jan 20 02:00		Maximum Daily Average: 22.3 ppb on Jan 12		Hours in Service: 744																							
Minimum Value: 0.1 ppb on Jan 2 02:00		Minimum Daily Average: 0.3 ppb on Jan 21		Hours of Data: 708																							
Maximum Diurnal Average: 11.3 ppb at hour 1		Minimum Diurnal Average: 5.0 ppb at hour 15		Hours of Missing Data: 36																							
Monthly Average: 7.93 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.8 Median = 4.6 Q <sub>3</sub> = 10.2 P <sub>90</sub> = 20.5 P <sub>99</sub> = 49.8		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-Jan	3.3	3.0	0.9	0.5	Z	0.4	0.5	0.8	0.4	0.2	0.3	0.4	0.3	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.6	0.2	0.2	0.2	0.6	0.6	3.3
2-Jan	0.1	0.1	0.1	0.2	0.1	Z	0.2	0.2	0.2	0.3	4.0	4.9	6.1	7.9	6.2	4.8	4.7	3.7	6.5	7.3	8.4	16.2	19.0	11.0	4.9	19.0	
3-Jan	Z	11.2	17.4	9.7	6.4	7.1	3.8	5.0	4.1	5.1	6.6	18.1	18.8	13.8	11.1	12.4	10.3	9.5	6.6	3.9	3.0	0.8	0.8	0.5	8.1	18.8	
4-Jan	6.8	Z	0.7	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.4	1.5	3.8	4.3	2.4	2.8	2.5	2.5	2.2	1.4	6.8		
5-Jan	1.2	2.0	Z	2.3	1.4	7.2	0.9	1.0	6.1	8.1	10.3	7.1	22.6	20.8	8.2	8.0	2.3	2.2	3.9	4.5	1.6	4.9	6.5	8.8	6.2	22.6	
6-Jan	8.4	6.3	5.9	Z	6.3	7.0	7.3	5.3	3.9	0.7	0.5	0.8	0.6	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	2.5	8.4	
7-Jan	0.2	0.1	0.2	0.2	Z	0.2	2.0	2.6	2.4	5.3	12.5	2.4	3.4	4.0	4.2	6.5	8.7	6.4	3.1	5.3	11.1	11.9	9.9	9.6	4.9	12.5	
8-Jan	9.2	5.9	7.2	10.9	6.0	Z	10.8	15.1	6.4	8.4	10.5	7.6	3.6	2.7	3.9	2.3	1.0	1.1	0.4	0.4	0.5	0.4	0.4	0.6	5.0	15.1	
9-Jan	Z	0.7	1.2	1.1	1.2	1.1	4.6	3.5	2.3	1.3	1.6	1.3	1.1	1.0	1.0	0.6	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	1.2	4.6	
10-Jan	0.4	Z	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	2.7	3.6	3.7	0.8	0.4	0.2	0.2	0.2	0.2	0.2	0.7	3.7	
11-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.7	1.6	3.6	0.6	0.2	0.8	2.7	10.0	15.3	7.6	9.0	2.4	15.3	
12-Jan	12.2	17.1	14.2	Z	31.0	27.7	32.6	19.1	40.5	50.6	40.7	16.2	8.1	5.1	6.4	4.2	10.4	16.3	22.6	22.9	20.4	26.9	29.9	37.2	22.3	50.6	
13-Jan	48.4	40.5	24.1	23.0	Z	20.7	28.4	32.3	26.9	44.7	39.8	6.6	5.5	4.1	2.7	6.2	5.3	4.2	4.9	4.7	4.5	4.5	6.1	32.2	18.3	48.4	
14-Jan	20.7	16.7	24.7	19.7	12.9	Z	20.9	7.2	5.2	4.1	2.9	2.5	3.7	4.0	3.0	2.4	4.3	7.8	2.4	1.8	1.4	1.0	1.4	20.1	8.3	24.7	
15-Jan	Z	40.3	47.1	55.9	48.5	30.9	27.3	14.1	14.7	9.0	4.9	3.6	7.5	6.3	8.2	23.2	20.4	23.9	12.3	16.6	21.4	21.6	24.3	21.6	55.9		
16-Jan	22.5	Z	19.2	10.3	11.7	20.4	22.8	11.0	5.2	4.2	3.5	3.4	3.0	2.4	3.1	7.8	9.9	11.7	12.1	7.4	1.5	2.0	1.6	0.9	8.6	22.8	
17-Jan	0.6	0.5	Z	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7	4.1	0.6	4.1	
18-Jan	0.9	0.4	0.3	Z	0.5	0.4	0.5	1.0	6.2	4.3	6.4	2.2	0.3	6.6	7.2	8.6	9.6	13.1	2.8	0.3	0.3	0.2	0.3	0.3	3.2	13.1	
19-Jan	0.3	1.3	7.7	11.3	Z	20.0	17.1	18.4	30.3	4.6	5.0	4.0	4.2	2.8	5.8	4.8	14.3	15.2	21.2	33.6	35.4	53.2	55.1	28.0	17.1	55.1	
20-Jan	58.5	61.6	36.4	52.6	7.0	Z	5.1	5.0	5.8	6.0	5.5	13.9	29.0	26.5	8.2	1.9	1.2	0.8	0.7	0.6	0.5	0.5	0.5	0.5	14.3	61.6	
21-Jan	Z	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	
22-Jan	0.2	Z	0.3	1.9	2.1	4.3	3.7	4.1	6.0	11.2	6.9	8.7	3.9	7.7	3.1	9.5	8.6	6.4	6.8	4.2	13.0	13.1	15.5	27.9	7.4	27.9	
23-Jan	25.9	15.7	Z	30.9	21.5	12.3	8.4	4.9	7.0	8.8	5.5	C	C	C	C	C	10.0	11.1	4.3	3.4	2.7	2.4	1.6	1.1	9.9	30.9	
24-Jan	0.9	1.1	4.7	Z	6.9	10.5	10.6	12.5	7.2	9.3	12.8	10.1	5.8	6.0	14.7	17.3	17.3	28.4	38.8	18.8	12.8	5.2	4.1	13.7	11.7	38.8	
25-Jan	17.6	10.7	9.0	7.4	Z	4.4	4.9	4.4	4.4	7.2	8.4	13.4	14.3	5.1	5.9	7.5	6.2	7.9	10.7	9.4	8.9	8.6	8.1	7.5	8.3	17.6	
26-Jan	7.0	6.4	12.2	12.9	12.4	Z	17.7	10.0	13.9	18.3	16.2	11.9	13.3	18.6	18.0	13.7	18.6	21.4	33.3	30.4	19.3	6.0	6.7	5.6	14.9	33.3	
27-Jan	Z	5.4	8.1	11.4	28.7	32.4	31.1	25.7	8.1	4.3	6.6	6.3	6.9	5.8	7.0	8.1	7.7	7.2	8.0	7.2	9.0	13.0	23.2	31.3	13.2	32.4	
28-Jan	36.8	Z	3.6	4.3	12.9	12.7	16.0	8.3	3.5	4.6	5.3	6.9	5.5	2.7	1.3	1.4	1.7	2.5	2.3	3.9	2.3	4.1	4.3	3.1	6.5	36.8	
29-Jan	4.0	8.1	Z	11.9	1.8	7.4	7.4	4.9	10.8	10.4	13.2	9.8	3.4	3.0	2.8	3.0	2.8	4.0	3.5	4.2	4.7	5.5	5.6	6.0	6.0	13.2	
30-Jan	6.6	4.5	4.7	Z	4.2	45.2	49.9	17.7	7.8	10.0	4.4	7.6	10.0	6.7	4.6	4.0	1.5	0.5	0.8	2.1	2.3	3.6	7.9	2.4	9.1	49.9	
31-Jan	1.7	2.1	3.8	4.3	Z	5.1	6.6	6.4	9.8	12.6	13.9	12.6	16.6	17.5	10.2	10.4	5.3	3.4	2.3	3.7	3.8	2.6	2.1	1.8	6.9	17.5	
		11.3	10.1	9.8	10.9	9.0	10.7	11.1	7.8	7.8	8.4	8.2	6.2	6.5	6.2	5.0	5.4	6.2	6.8	7.4	6.4	6.4	7.3	7.9	9.4	Diurnal Average	
		58.5	61.6	47.1	55.9	48.5	45.2	49.9	32.3	40.5	50.6	40.7	18.1	29.0	26.5	18.0	17.3	23.2	28.4	38.8	33.6	35.4	53.2	55.1	37.2	Diurnal Maximum	
Z - zerospan		C - Calibration																									



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Firebag - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	637	89.97	89.97
21 - 40	57	8.05	98.02
41 - 80	14	1.98	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Firebag - January 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	116	64	26	14	15	12	16	33	59	76	43	22	20	8	27	82	633
21 - 40	1	1	0	0	0	1	0	8	27	6	6	0	0	0	3	4	57
11 - 80	0	0	0	0	0	0	0	3	10	1	0	0	0	0	0	0	14
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>	117	65	26	14	15	13	16	44	96	83	49	22	20	8	30	86	704

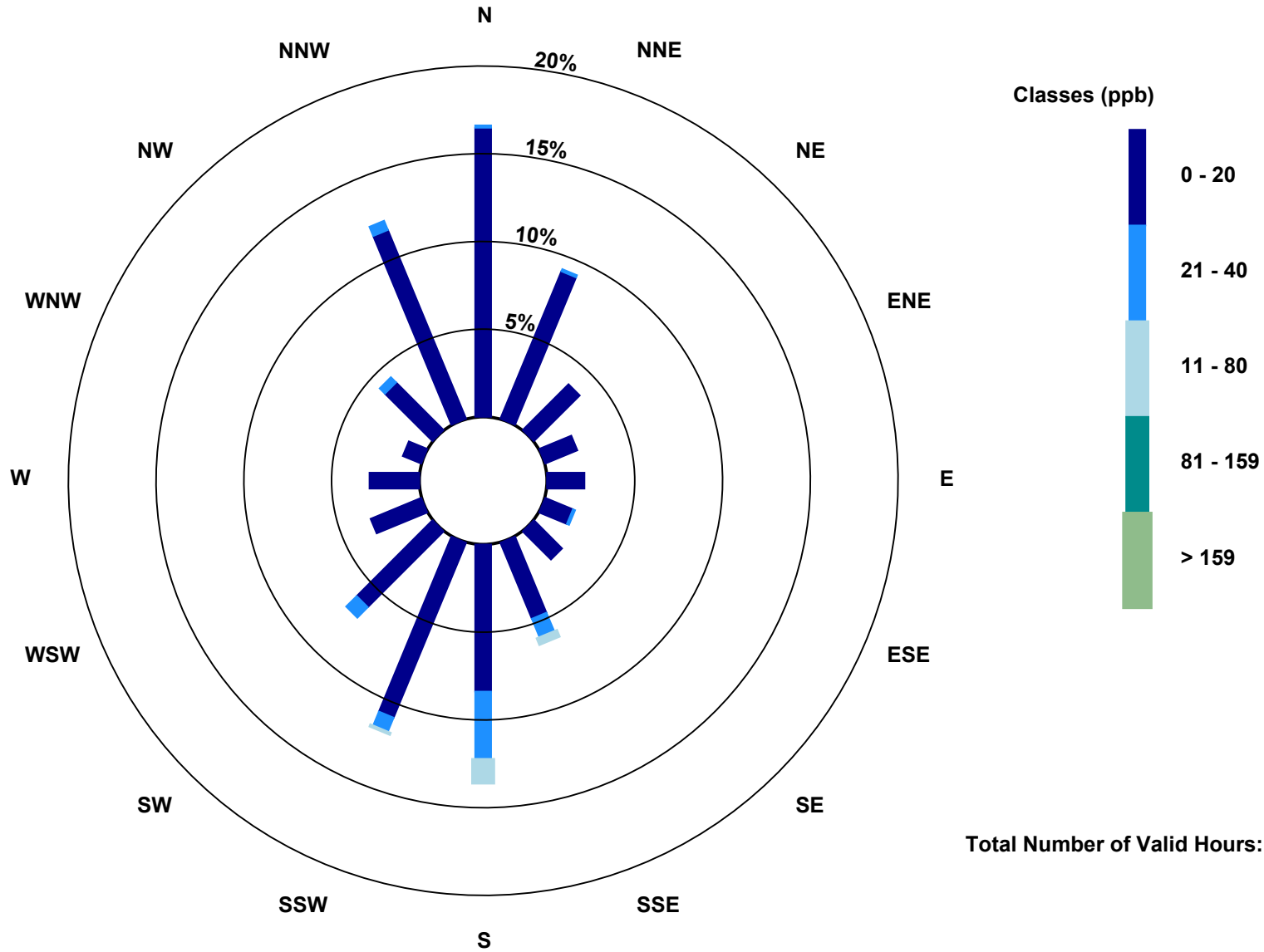
Total Number of Valid Hours: 704

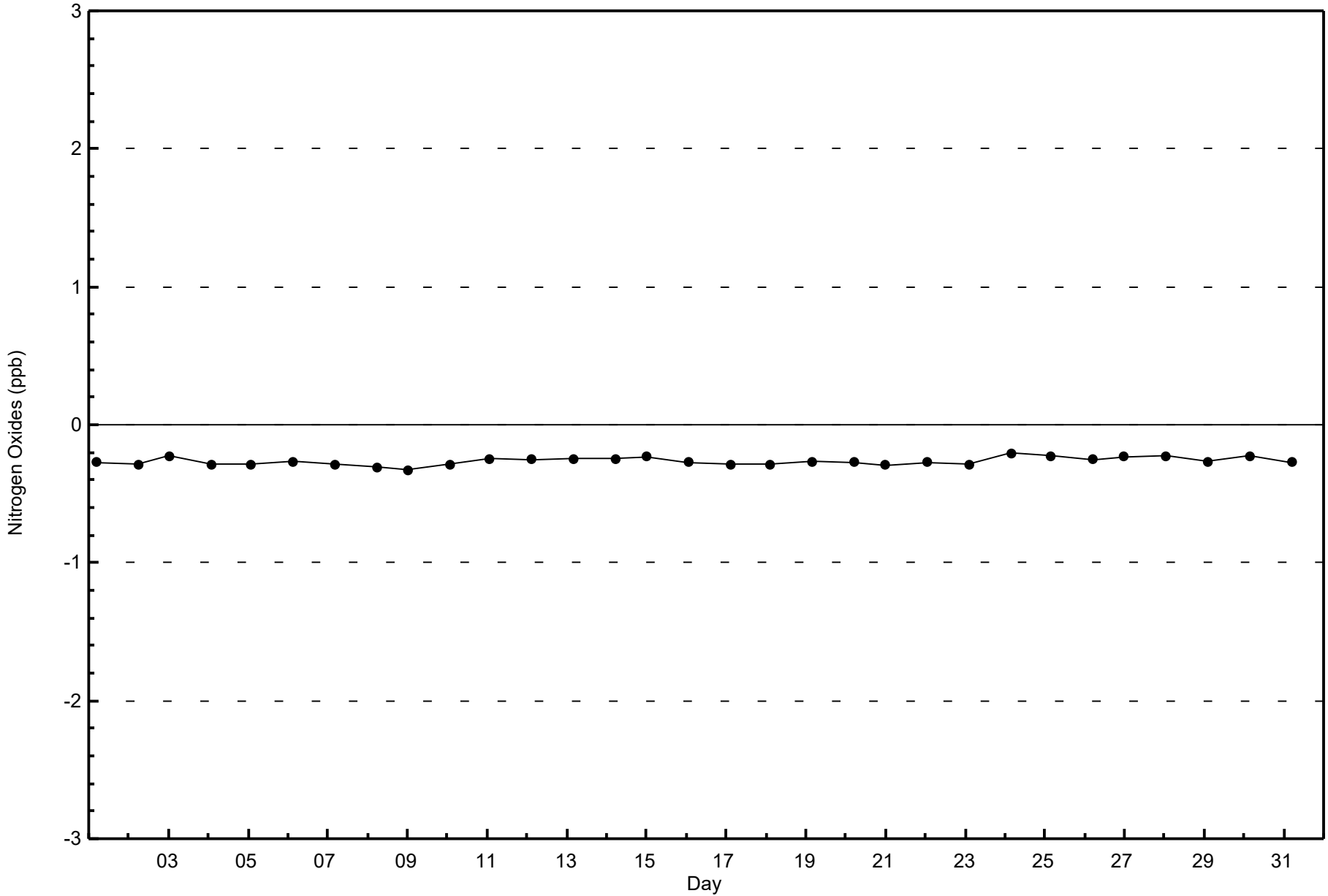
Total Number of Hours: 744



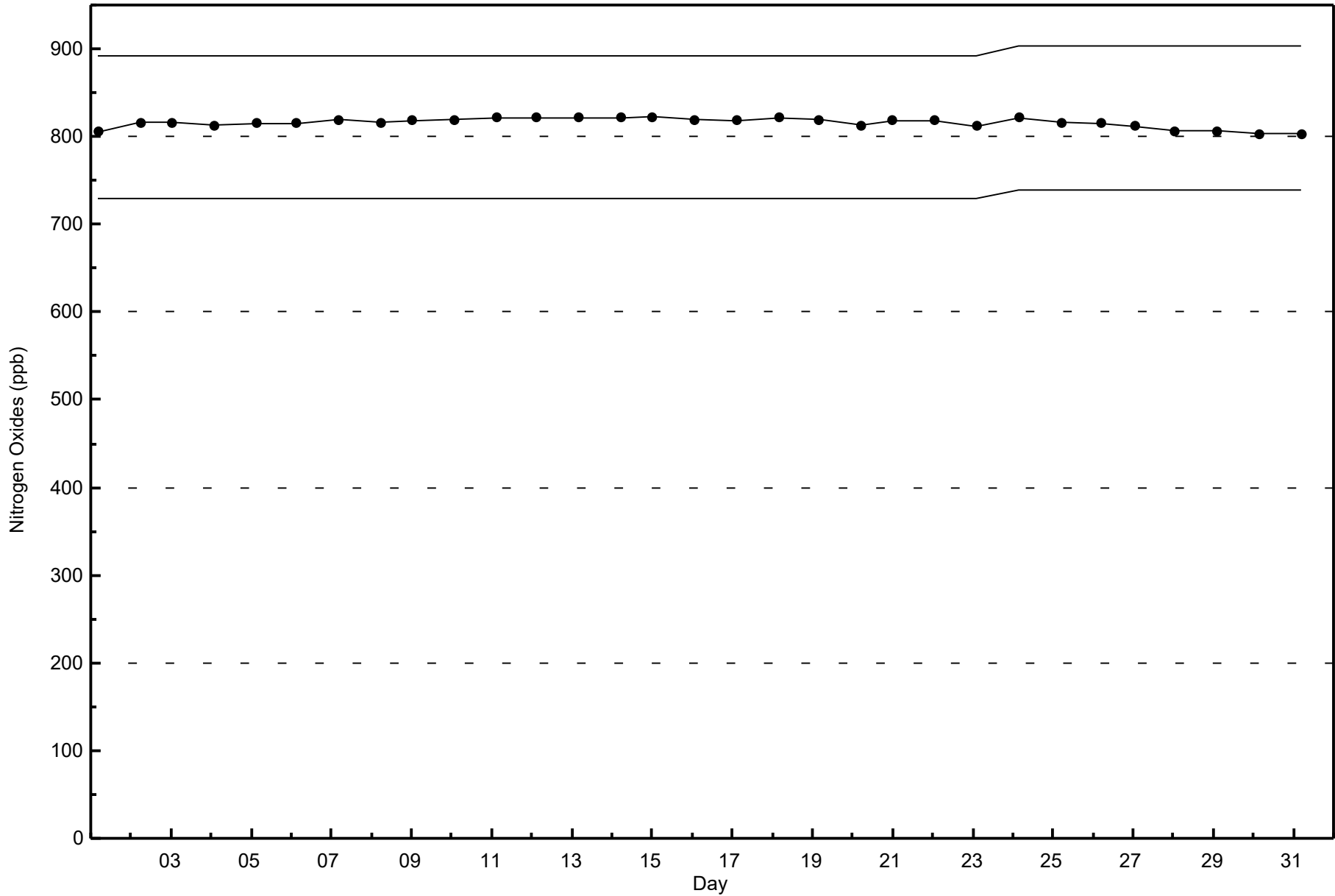
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











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

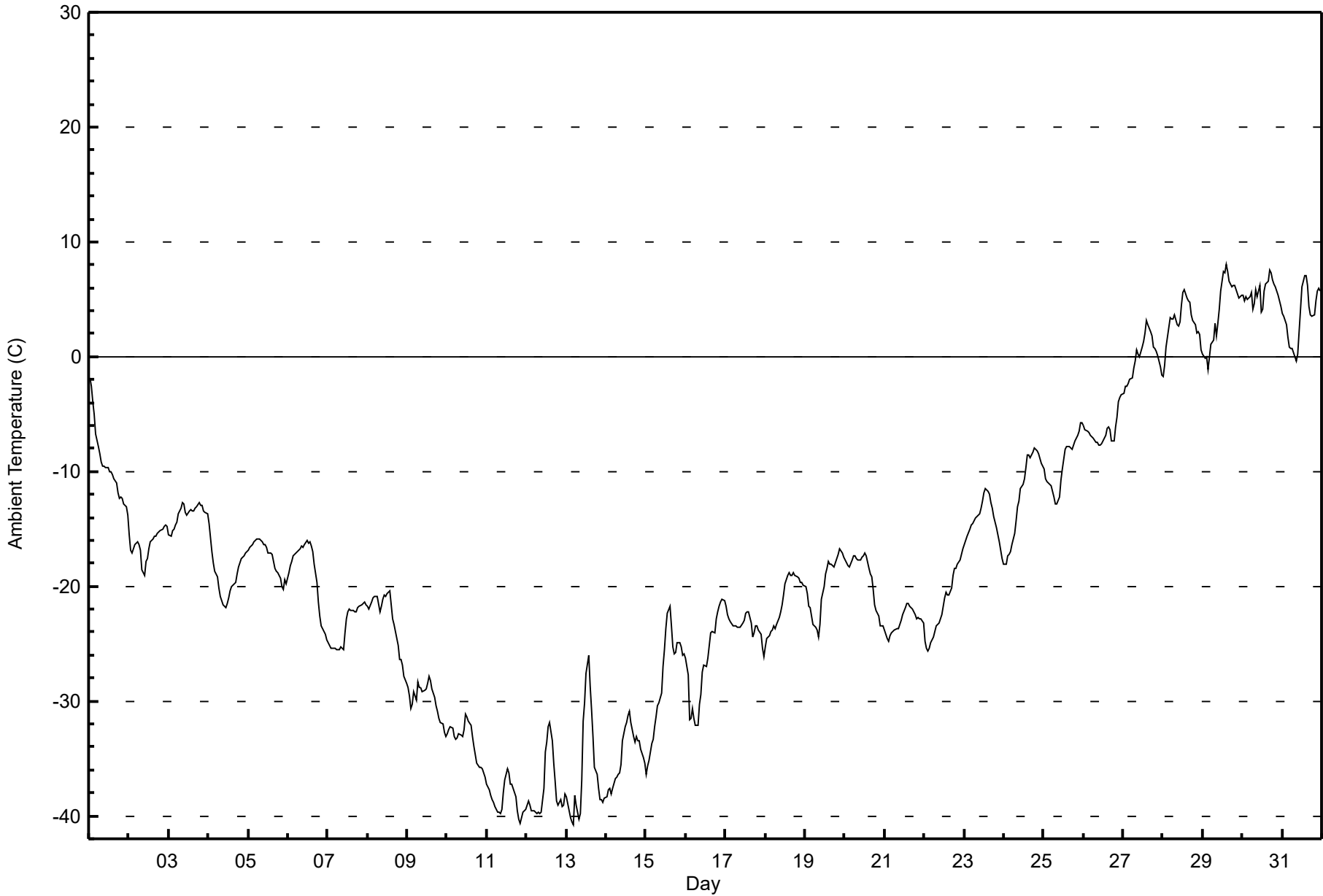
**Ambient Temperature (AT) - C**  
**Firebag - January 2024**

Maximum Value: 8.0 C on Jan 29 15:00      Maximum Daily Average: 5.5 C on Jan 30																								Hours in Service:	744	
Minimum Value: -40.8 C on Jan 13 05:00      Minimum Daily Average: -38.6 C on Jan 11																								Hours of Data:	744	
Maximum Diurnal Average: -16.0 C at hour 14      Minimum Diurnal Average: -19.4 C at hour 3																								Hours of Missing Data:	0	
Monthly Average: -18.09 C      Percentiles: P <sub>1</sub> = -39.8 P <sub>10</sub> = -35.6 Q <sub>1</sub> = -25.4 Median = -19.0 Q <sub>3</sub> = -10.7 P <sub>90</sub> = 2.4 P <sub>99</sub> = 6.9																								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-Jan	-1.9	-2.6	-3.9	-5.0	-6.7	-7.8	-8.4	-9.1	-9.6	-9.6	-9.7	-9.7	-10.0	-10.1	-10.3	-10.7	-11.1	-11.8	-12.3	-12.3	-12.4	-12.8	-13.1	-13.8	-9.4	-1.9
2-Jan	-15.5	-16.9	-17.1	-16.4	-16.3	-16.2	-16.4	-16.9	-18.6	-19.1	-17.8	-17.6	-16.8	-16.1	-15.8	-15.7	-15.6	-15.4	-15.2	-15.2	-15.0	-14.8	-14.6	-14.7	-16.2	-14.6
3-Jan	-15.6	-15.6	-15.2	-15.0	-14.6	-14.4	-13.7	-13.2	-12.7	-12.8	-13.6	-13.8	-13.5	-13.4	-13.5	-13.4	-13.2	-13.0	-12.7	-12.9	-12.9	-13.4	-13.5	-13.7	-13.7	-12.7
4-Jan	-14.5	-15.8	-17.0	-17.9	-18.7	-19.1	-20.2	-20.9	-21.3	-21.6	-21.8	-21.5	-21.0	-20.4	-20.1	-19.9	-19.6	-18.9	-18.4	-18.0	-17.6	-17.3	-17.1	-17.0	-19.0	-14.5
5-Jan	-16.8	-16.6	-16.3	-16.1	-16.0	-15.9	-15.9	-15.9	-16.1	-16.4	-16.7	-17.1	-17.1	-17.2	-17.8	-18.5	-18.7	-18.9	-19.4	-20.1	-20.2	-19.5	-19.8	-17.5	-15.9	
6-Jan	-18.8	-18.2	-17.8	-17.3	-17.2	-17.0	-16.9	-16.7	-16.5	-16.7	-16.4	-16.0	-16.2	-16.1	-16.5	-16.9	-18.1	-19.6	-21.3	-22.6	-23.4	-23.7	-24.2	-24.7	-18.7	-16.0
7-Jan	-24.9	-25.2	-25.4	-25.4	-25.4	-25.5	-25.6	-25.6	-25.3	-25.5	-24.1	-22.8	-22.3	-22.0	-22.1	-22.1	-22.2	-22.2	-21.9	-21.8	-21.6	-21.5	-21.4	-21.6	-23.5	-21.4
8-Jan	-21.8	-22.0	-21.4	-21.0	-20.9	-20.9	-20.9	-22.2	-21.7	-21.1	-20.8	-20.9	-20.6	-20.4	-21.6	-22.8	-23.4	-24.0	-25.1	-26.3	-26.4	-26.9	-27.8	-28.4	-22.9	-20.4
9-Jan	-28.8	-29.6	-30.7	-30.2	-29.1	-30.0	-28.3	-28.8	-28.8	-29.1	-29.0	-28.9	-28.4	-27.9	-28.3	-28.9	-29.7	-30.4	-30.9	-31.5	-31.9	-32.0	-32.8	-33.1	-29.9	-27.9
10-Jan	-32.8	-32.5	-32.2	-32.4	-33.1	-33.3	-33.2	-32.9	-33.0	-33.1	-32.5	-31.1	-31.4	-31.7	-32.1	-33.0	-34.0	-34.7	-35.4	-35.8	-35.8	-35.9	-36.2	-36.7	-33.5	-31.1
11-Jan	-37.3	-37.7	-38.3	-38.6	-38.9	-39.2	-39.6	-39.7	-39.7	-39.5	-38.0	-36.9	-35.9	-36.3	-37.3	-37.3	-37.6	-38.3	-39.6	-40.3	-40.6	-40.2	-39.7	-39.5	-38.6	-35.9
12-Jan	-39.1	-38.7	-39.1	-39.5	-39.6	-39.6	-39.8	-39.7	-39.9	-39.7	-37.6	-34.4	-33.5	-32.2	-31.9	-33.4	-35.4	-37.0	-38.7	-39.0	-38.6	-39.1	-39.1	-38.0	-37.6	-31.9
13-Jan	-38.3	-38.9	-40.1	-40.5	-40.8	-38.2	-39.0	-40.2	-39.8	-36.8	-31.8	-30.2	-27.6	-26.0	-28.7	-30.8	-33.1	-35.8	-36.4	-37.6	-38.5	-38.6	-38.9	-38.5	-36.0	-26.0
14-Jan	-38.4	-37.7	-37.6	-38.1	-37.6	-36.7	-36.6	-36.4	-36.3	-35.5	-33.5	-32.2	-31.8	-31.2	-30.9	-31.8	-33.1	-33.5	-33.1	-33.4	-33.5	-34.2	-34.9	-35.5	-34.7	-30.9
15-Jan	-36.4	-35.6	-35.2	-33.7	-33.3	-32.2	-31.3	-30.4	-30.1	-29.3	-27.0	-25.5	-23.7	-22.3	-21.8	-23.4	-25.3	-25.8	-24.9	-24.9	-25.2	-26.0	-25.9	-28.1	-21.8	
16-Jan	-26.3	-27.8	-31.6	-31.4	-30.7	-31.5	-32.1	-32.1	-30.3	-29.4	-27.5	-26.9	-27.0	-26.3	-25.2	-24.1	-23.9	-24.0	-22.8	-22.3	-21.7	-21.4	-21.2	-21.2	-26.6	-21.2
17-Jan	-21.8	-22.4	-22.8	-23.1	-23.5	-23.4	-23.5	-23.5	-23.6	-23.6	-23.2	-22.9	-22.3	-22.2	-22.2	-23.2	-24.5	-24.0	-23.4	-23.5	-23.8	-24.2	-25.4	-26.1	-23.4	-21.8
18-Jan	-25.3	-24.6	-24.3	-24.0	-23.9	-23.4	-23.7	-23.3	-22.7	-22.2	-21.6	-20.8	-19.8	-19.0	-18.8	-19.0	-19.0	-18.8	-19.0	-19.2	-19.3	-19.7	-19.7	-19.9	-21.3	-18.8
19-Jan	-20.0	-20.6	-21.7	-21.9	-22.6	-23.3	-23.6	-23.8	-24.5	-23.3	-21.1	-20.0	-19.0	-18.4	-17.8	-18.1	-18.1	-18.3	-17.9	-17.6	-17.2	-16.8	-17.1	-17.5	-20.0	-16.8
20-Jan	-17.7	-17.9	-18.2	-18.3	-17.7	-17.3	-17.3	-17.6	-17.7	-17.7	-17.5	-17.3	-17.2	-17.3	-18.4	-19.0	-19.1	-20.3	-21.6	-22.1	-22.6	-23.5	-23.4	-23.5	-19.2	-17.2
21-Jan	-23.9	-24.5	-24.8	-24.3	-24.1	-24.0	-23.8	-23.7	-23.7	-23.3	-22.9	-22.4	-21.9	-21.5	-21.5	-21.8	-21.9	-22.0	-22.5	-22.8	-22.7	-22.8	-22.8	-23.2	-23.0	-21.5
22-Jan	-24.7	-25.4	-25.6	-25.4	-24.9	-24.5	-23.9	-23.5	-23.3	-23.2	-22.5	-21.8	-21.0	-20.6	-20.8	-20.8	-20.1	-19.1	-18.5	-18.5	-18.1	-17.7	-17.2	-16.7	-21.6	-16.7
23-Jan	-16.4	-16.1	-15.6	-15.1	-14.7	-14.5	-14.3	-14.0	-13.9	-13.7	-13.3	-12.5	-11.8	-11.5	-11.7	-12.0	-12.7	-13.2	-13.9	-14.9	-15.5	-16.1	-16.9	-17.6	-14.2	-11.5
24-Jan	-18.0	-18.0	-17.3	-17.2	-16.9	-16.4	-15.4	-14.2	-13.1	-12.6	-11.4	-11.2	-10.7	-9.7	-8.5	-8.6	-8.8	-8.4	-8.0	-8.0	-8.2	-8.5	-9.2	-9.6	-12.0	-8.0
25-Jan	-9.8	-10.7	-10.9	-11.0	-11.3	-11.8	-12.3	-12.9	-12.9	-12.2	-10.8	-9.8	-8.9	-8.1	-7.8	-7.8	-7.9	-8.0	-7.7	-7.4	-6.9	-6.5	-5.8	-5.8	-9.4	-5.8
26-Jan	-6.0	-6.3	-6.5	-6.7	-6.8	-7.0	-7.1	-7.5	-7.5	-7.8	-7.8	-7.6	-7.4	-6.8	-6.3	-6.2	-6.4	-7.4	-7.3	-6.2	-5.3	-3.9	-3.6	-3.3	-6.4	-3.3
27-Jan	-3.2	-2.6	-2.6	-2.4	-2.0	-1.9	-1.0	-0.4	0.6	0.2	0.0	0.8	1.3	2.1	3.2	2.8	2.1	1.8	0.8	0.7	0.4	0.1	-0.8	-1.5	-0.1	3.2
28-Jan	-1.7	-0.8	0.8	2.5	3.4	3.3	3.2	3.7	2.7	2.7	3.0	4.4	5.6	5.9	5.1	4.8	4.8	3.6	3.2	2.8	2.1	2.2	1.9	0.6	2.9	5.9
29-Jan	0.2	-0.1	0.0	-1.2	-0.1	1.0	1.4	2.9	1.8	2.9	4.2	5.7	7.5	7.3	8.0	7.4	6.5	6.1	6.2	6.3	5.8	5.5	5.2	5.4	4.0	8.0
30-Jan	5.3	4.9	5.3	5.0	5.2	5.6	4.1	4.6	5.8	5.3	6.2	3.9	4.1	5.7	6.3	6.5	7.6	7.3	6.6	6.4	6.0	5.3	4.8	4.4	5.5	7.6
31-Jan	3.8	3.5	2.7	1.7	0.8	0.8	0.7	0.3	-0.4	0.2	2.2	4.2	6.1	7.1	7.1	6.1	4.4	3.7	3.5	3.6	4.9	5.8	5.9	5.8	3.5	7.1
																								Diurnal Average		
																								Diurnal Maximum		



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

**Ambient Temperature (AT) - C**  
**Firebag - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Firebag - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	353	47.45	47.45
-20 - 0	287	38.58	86.02
0 - 10	104	13.98	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

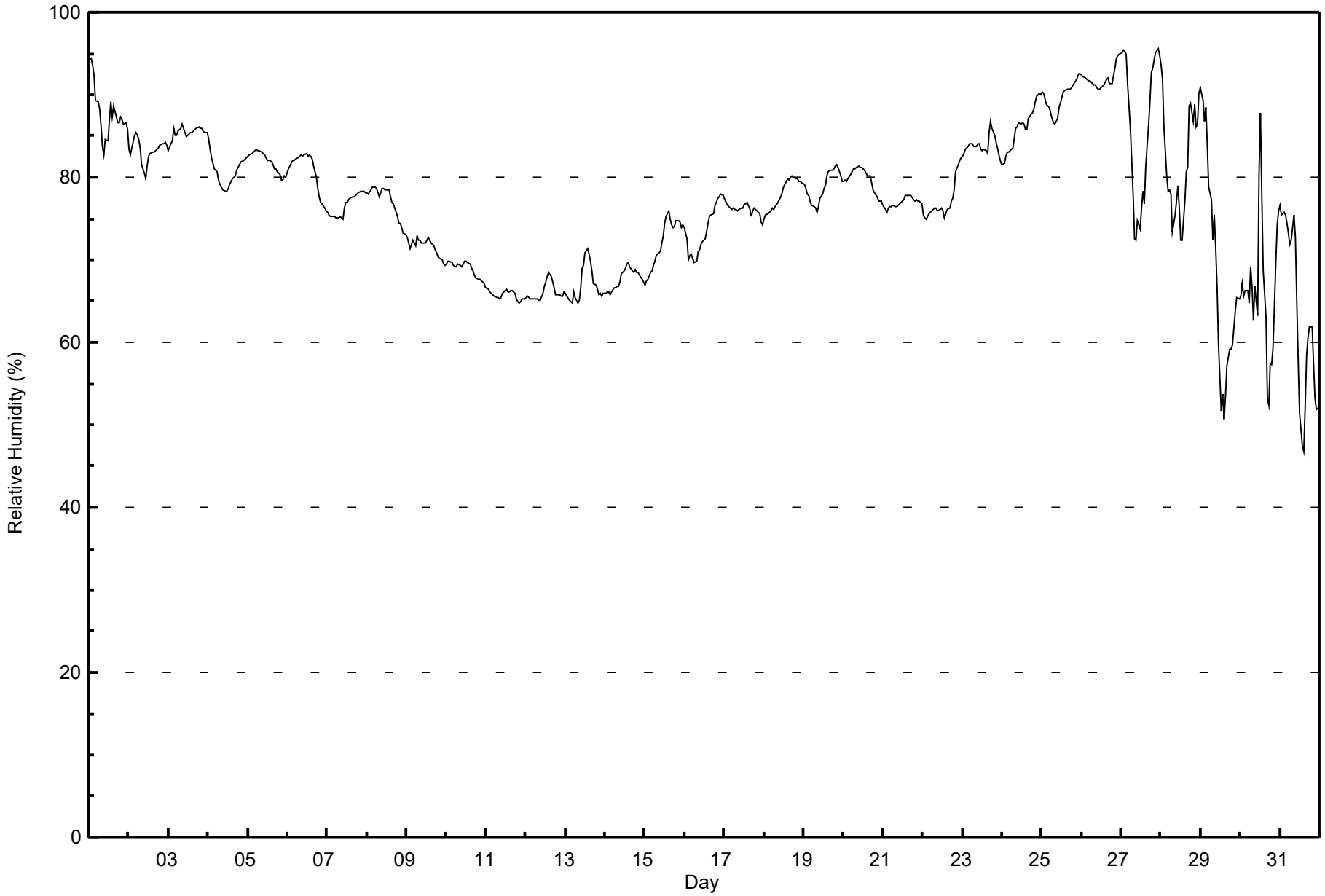
**Firebag - January 2024**

Maximum Value: 95.5 % on Jan 27 23:00      Maximum Daily Average: 92.0 % on Jan 26																						Hours in Service:	744			
Minimum Value: 46.8 % on Jan 31 15:00      Minimum Daily Average: 63.4 % on Jan 31																						Hours of Data:	744			
Maximum Diurnal Average: 78.8 % at hour 1      Minimum Diurnal Average: 76.2 % at hour 15																						Hours of Missing Data:	0			
Monthly Average: 77.13 %      Percentiles: P <sub>1</sub> = 52.2 P <sub>10</sub> = 65.8 Q <sub>1</sub> = 70.8 Median = 77.4 Q <sub>3</sub> = 83.0 P <sub>90</sub> = 88.4 P <sub>99</sub> = 94.7																						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-Jan	94.2	94.4	93.5	92.4	89.3	89.1	88.3	86.2	83.7	82.7	84.7	84.5	87.0	89.2	87.3	88.7	87.3	86.6	86.6	87.3	86.9	86.4	86.7	85.8	87.9	94.4
2-Jan	83.3	82.7	83.5	85.1	85.4	85.1	84.6	83.5	81.5	80.6	79.9	81.4	82.5	82.8	83.0	83.0	83.3	83.4	83.6	83.8	84.1	84.1	84.2	83.8	83.3	85.4
3-Jan	83.3	84.0	84.4	85.9	85.1	85.2	85.5	85.9	86.4	86.0	85.4	85.0	85.2	85.5	85.4	85.6	85.7	85.9	86.1	86.0	85.9	85.5	85.5	85.4	85.4	86.4
4-Jan	84.5	83.4	82.4	81.7	81.1	80.6	79.7	79.1	78.8	78.5	78.2	78.4	78.6	79.2	79.6	79.8	80.2	80.8	81.2	81.5	81.8	82.1	82.2	82.3	80.7	84.5
5-Jan	82.5	82.7	82.9	83.1	83.2	83.4	83.3	83.3	83.1	82.9	82.7	82.4	82.0	82.0	81.8	81.5	81.0	80.9	80.6	80.3	79.6	79.7	80.2	79.9	81.9	83.4
6-Jan	81.0	81.3	81.7	82.0	82.1	82.3	82.4	82.6	82.7	82.6	82.8	83.0	82.6	82.7	82.6	82.3	81.3	80.0	78.6	77.6	77.0	76.7	76.3	75.9	80.8	83.0
7-Jan	75.7	75.4	75.3	75.2	75.2	75.1	75.1	75.1	75.3	74.9	76.2	76.9	76.9	77.2	77.5	77.7	77.7	77.8	78.0	78.1	78.2	78.3	78.4	78.2	76.6	78.4
8-Jan	78.1	77.9	78.4	78.7	78.8	78.8	78.7	77.7	78.2	78.6	78.7	78.5	78.4	78.4	77.7	77.0	76.7	76.2	75.2	74.4	74.4	74.0	73.2	73.0	77.1	78.8
9-Jan	72.8	72.0	71.3	71.8	72.4	71.7	72.9	72.4	72.4	72.1	72.1	72.0	72.3	72.8	72.4	72.1	71.6	71.2	70.8	70.4	70.2	70.1	69.6	69.4	71.6	72.9
10-Jan	69.5	69.8	69.9	69.7	69.3	69.2	69.2	69.4	69.3	69.2	69.4	69.9	69.8	69.6	69.5	69.0	68.6	68.2	67.8	67.6	67.6	67.5	67.3	67.0	68.9	69.9
11-Jan	66.7	66.5	66.1	66.0	65.8	65.6	65.4	65.4	65.3	65.4	65.9	66.0	66.5	66.1	66.2	66.3	66.3	65.9	65.2	64.9	64.8	65.0	65.2	65.2	65.7	66.7
12-Jan	65.5	65.7	65.5	65.3	65.3	65.3	65.2	65.3	65.2	65.2	66.0	66.8	67.3	68.0	68.6	68.0	67.3	66.6	65.8	65.7	65.8	65.5	65.6	66.1	66.1	68.6
13-Jan	65.8	65.6	65.0	64.9	64.7	66.1	65.4	64.8	65.1	66.6	68.9	69.3	70.8	71.4	70.6	69.8	68.6	67.2	67.0	66.4	65.8	65.9	65.6	65.9	67.0	71.4
14-Jan	65.9	66.1	66.1	65.8	66.2	66.7	66.7	66.8	66.8	67.3	68.3	68.7	69.0	69.4	69.7	69.2	68.6	68.5	68.7	68.4	68.1	67.6	67.4	67.4	67.7	69.7
15-Jan	66.9	67.5	67.7	68.5	68.7	69.4	69.9	70.6	70.7	71.0	72.0	72.8	74.3	75.3	76.0	74.9	74.2	74.0	74.1	74.8	74.7	74.5	73.9	74.2	72.1	76.0
16-Jan	73.8	72.6	70.1	70.6	70.7	70.1	69.7	69.8	71.0	71.2	71.9	72.2	72.6	73.4	74.4	75.3	75.4	75.5	76.5	76.9	77.4	77.7	77.9	77.9	73.5	77.9
17-Jan	77.4	76.9	76.6	76.4	76.1	76.2	76.1	76.1	76.0	76.0	76.2	76.3	76.8	76.8	76.9	76.1	75.3	75.9	76.3	76.2	75.9	75.5	74.6	74.3	76.1	77.4
18-Jan	75.0	75.4	75.6	75.8	75.9	76.3	76.0	76.4	76.9	77.2	77.6	78.2	78.8	79.5	79.7	79.7	80.0	80.2	80.0	79.9	79.8	79.5	79.5	79.4	78.0	80.2
19-Jan	79.2	78.7	77.9	77.7	77.2	76.7	76.4	76.2	75.7	76.5	77.4	78.0	78.6	79.0	80.1	80.7	80.9	80.8	81.1	81.3	81.5	81.2	80.2	79.5	78.9	81.5
20-Jan	79.5	79.7	79.5	79.9	80.4	80.7	81.0	81.0	81.2	81.3	81.3	81.2	81.0	80.8	80.1	80.1	80.2	79.3	78.4	78.1	77.6	77.1	77.1	77.1	79.7	81.3
21-Jan	76.7	76.0	75.8	76.2	76.4	76.4	76.5	76.5	76.5	76.7	76.8	77.0	77.3	77.8	77.8	77.8	77.8	77.8	77.3	77.1	77.2	77.1	77.0	76.7	76.9	77.8
22-Jan	75.5	75.1	74.9	75.2	75.5	75.9	76.1	76.3	76.3	76.0	76.2	76.3	75.9	75.1	75.5	76.0	76.3	77.0	77.5	78.5	80.7	81.5	82.0	82.3	77.0	82.3
23-Jan	82.6	83.0	83.4	83.8	84.0	84.1	84.0	83.7	83.8	84.1	84.1	83.4	83.2	83.3	83.3	82.9	85.4	86.8	85.9	85.0	84.3	83.5	82.8	82.0	83.8	86.8
24-Jan	81.6	81.7	82.5	83.0	83.0	83.2	83.6	84.7	85.9	86.1	86.5	86.4	86.6	86.5	85.8	85.8	87.2	87.6	87.8	88.3	89.1	89.8	90.2	90.0	86.0	90.2
25-Jan	90.3	90.2	89.4	88.8	88.4	87.7	87.2	86.6	86.4	87.1	88.5	89.0	89.7	90.4	90.6	90.6	90.7	90.6	90.9	91.2	91.7	92.0	92.6	92.6	89.7	92.6
26-Jan	92.4	92.2	92.1	91.9	91.8	91.6	91.5	91.2	91.2	90.9	90.8	90.7	90.9	91.1	91.6	91.8	92.0	91.3	91.4	92.4	93.2	94.3	94.7	94.9	92.0	94.9
27-Jan	95.0	95.4	95.3	94.9	91.3	86.0	82.1	77.8	72.6	72.3	74.7	73.7	76.2	78.2	76.8	81.4	86.2	89.1	92.7	93.3	94.3	95.1	95.5	94.8	86.0	95.5
28-Jan	93.5	91.8	86.0	80.2	78.3	78.5	78.0	73.4	75.4	77.2	79.0	76.2	72.4	72.4	77.1	80.7	81.2	88.6	89.0	86.8	88.8	86.1	86.4	90.2	82.0	93.5
29-Jan	90.9	89.4	86.8	88.4	83.8	78.8	77.3	72.3	75.5	71.5	66.7	59.9	51.7	53.7	50.7	53.4	57.1	59.2	59.1	59.6	61.7	63.8	65.5	65.2	68.4	90.9
30-Jan	65.6	67.2	65.6	66.3	66.2	64.8	69.1	66.8	62.8	66.7	63.3	80.4	87.7	77.7	68.7	63.0	53.1	52.3	57.4	57.3	59.4	69.6	74.2	75.9	66.7	87.7
31-Jan	76.6	75.5	75.8	75.4	74.5	73.2	71.8	72.3	75.4	72.8	64.8	57.8	51.4	47.5	46.8	52.2	58.3	60.6	61.9	61.8	57.3	53.3	51.9	52.0	63.4	76.6
78.8 78.6 78.1 78.1 77.6 77.2 77.1 76.4 76.3 76.4 76.4 76.5 76.6 76.5 76.2 76.5 76.6 77.0 77.2 77.1 77.3 77.4 77.5 77.6																						Diurnal Average				
95.0 95.4 95.3 94.9 91.8 91.6 91.5 91.2 91.2 90.9 90.8 90.7 90.9 91.1 91.6 91.8 92.0 91.3 92.7 93.3 94.3 95.1 95.5 94.9																						Diurnal Maximum				



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

**Relative Humidity (RH) - %**  
**Firebag - January 2024**





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

**Relative Humidity (RH) - %**  
**Firebag - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	24	3.23	3.23
60 - 80	437	58.74	61.96
80 - 100	283	38.04	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Firebag - January 2024

Maximum Speed: 29 km/h on Feb 1 00:00	Maximum Daily Speed Average: 18.3 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 09:00	Minimum Daily Speed Average: 0.2 km/h on Jan 13	Hours of Data: 740
Maximum Diurnal Speed Average: 2.8 km/h at hour 15	Minimum Diurnal Speed Average: 0.7 km/h at hour 4	Hours of Missing Data: 4
Monthly Average Velocity: 1.5 km/h 231.9 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 11 P <sub>90</sub> = 18 P <sub>99</sub> = 26	Percent Operational Time: 99.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	NNW7	NNW10	N16	N17	N20	N21	NNW21	NNW21	NNW20	NNW19	NNW16	NNW13	N12	NNW12	NNW12	N11	N8	N9	NNW6	NNW6	NNW7	NNW10	N10	N11	NNW12.9	NNW21
2-Jan	NNE11	NNE10	NNE7	NNE12	N11	N11	N10	N10	NNW6	NW6	NW6	NNW6	NNW6	WNW5	NNW3	W3	SW4	WSW3	SSW4	SW2	SSW3	SSW5	SSW6	SSW6	NNW3.6	NNE12
3-Jan	SSW4	SSW4	SSW4	SSW4	S3	S4	S7	SSW4	WSW2	NW3	NW3	NW2	NNE3	NE4	NE4	E4	E5	E6	ENE5	ENE6	ENE6	NE9	NE10	NE9	E1.7	NE10
4-Jan	NNE8	N12	N15	N16	N16	N17	N15	N14	N10	N10	NNE9	NNE7	NNE5	NE6	NE6	NE6	ENE8	E9	E13	ESE14	ESE11	SE11	ESE13	ESE16	NE7.4	N17
5-Jan	SE16	SE12	SE14	SSE14	SSE13	S9	WSW4	W2	NW5	NW4	NW5	NW4	NW5	NNW3	N3	N3	NE2	E1	E1	SSE1	E1	ESE3	ESE4	ESE4	SSE2.2	SE16
6-Jan	ESE3	SE3	ESE3	E3	ESE4	ESE4	E3	E4	ENE3	ENE4	ENE4	ENE4	NE5	NE5	NE5	NNE5	NNE5	N4	N4	N5	N4	N4	NNE4	NNE4	NE3.1	NE5
7-Jan	NNE3	NNE3	NNE3	NNE2	NNE2	NE2	S2	SW2	UO	UO	SSW2	SW3	SSW4	S4	S4	S4	S5	S5	S8	S13	S13	S14	S13	S13	S3.8	S14
8-Jan	S12	S13	S12	S12	SSE12	SSE11	S9	S7	S6	WSW2	NNW7	N9	N9	N10	N8	NNW10	N10	N8	N8	N7	N8	NNE5	NE3	N0	ENE0.5	SSE13
9-Jan	NNE1	NE4	ENE3	NE6	NE5	ENE4	E5	ENE4	ENE5	ENE5	NE4	NE6	NE5	NNE4	NE6	NNE6	N6	NNE5	N6	NNE5	NNE5	N4	N4	N6	NE4.3	N6
10-Jan	N7	N6	N5	N6	N4	NNE4	N5	N6	NNW7	NNW8	N6	N6	NNW6	NNW7	NNW6	NNW6	NNW6	NNW7	NNW7	N7	N9	N8	N8	N7	N6.3	N9
11-Jan	N6	N6	N5	N5	N6	N6	N6	N6	N6	N7	NNW8	NNW9	NNW9	NNW8	NNW6	NNW6	NNW6	NNW4	NW3	NW3	NW3	NW3	NW3	NW3	NNW5.4	NNW9
12-Jan	WNW2	WSW3	WSW2	WSW2	SW2	SW3	SW2	SW3	S2	S2	S2	S2	SSW2	SSW2	S2	SW3	SSW2	SSW2	S2	S3	S3	S2	SSE2	SSE3	SSW2.0	WSW3
13-Jan	SSE2	SSE2	SSE2	SSE2	SE2	SSE1	SSE1	SSE1	ESE0	SSE1	SW1	WSW2	E1	NE2	NNE2	NW2	NNE1	NE2	NE2	NNE1	NNW2	NNW2	NW2	NW2	NNE0.2	NW2
14-Jan	NNW3	NNW3	NW3	NW3	NW3	NW3	N4	NNW4	N5	N6	N7	N7	N6	N5	NNW4	NNW3	NNW5	N5	N4	N4	N4	NNE2	NW3	SW1	N4.0	N7
15-Jan	SSW2	SSW2	SSW2	S2	S3	SSW3	SW4	SW4	SW4	SSW4	SSW4	SSW4	SSW5	SSW5	SSW4	SSW5	S5	S6	SSW5	SSW5	SSW4	SSW3	SSW3	SSW3	SSW3.7	S6
16-Jan	SW3	SSW1	NNE3	N4	N3	N4	NNE6	NNE8	N10	N13	N11	NNW12	NNW12	NNW10	NNW11	NNW10	NW8	NW8	NNW11	NNW12	NNW12	NNW12	NNW12	NNW13	NNW8.2	NNW13
17-Jan	NNW12	N13	N12	N11	N9	N9	N8	N6	N6	N6	N6	NNE7	NNE6	NNE5	NNE5	NNE5	N4	NNE6	NNE7	NNE5	N5	NNW4	NNW5	NNW6	N6.8	NNW13
18-Jan	NNW7	N8	N9	N9	NNW10	NNW12	NNW11	NNW10	NNW9	NW8	NNW10	N12	NNW11	NNW10	NNW8	NW6	NW6	NNW7	NNW9	NNW9	NNW9	NNW8	NNW6	N5	NNW8.6	NNW12
19-Jan	NNW3	W2	WSW3	SW4	S3	SSW4	SSW5	S5	S5	SSW7	SSW8	SSW8	SSW8	SSW7	SSW7	SSW6	SSE6	S7	S8	S9	S9	S10	S10	S11	S5.8	S11
20-Jan	S10	S10	S10	S9	S9	SSW9	SW7	SW7	SW5	WSW5	W4	WNW4	NNW4	NNW5	NNE5	NNE4	NNE5	NNE5	N5	NNE6	NNE6	NNE6	N5	NNW6	WSW0.9	S10
21-Jan	NNW6	N6	NNE4	NNE3	N4	N4	N4	N4	N3	N5	N6	N7	N6	N6	N7	N6	N6	N6	N4	N4	N5	N5	N4	N4	N5.0	N7
22-Jan	NNE4	NNE4	NE3	E2	ESE2	SE3	SE4	SE5	SE7	SSE9	SSE11	SE11	SE13	SSE15	SSE19	SSE20	SSE23	SSE25	SSE26	SSE28	S26	S23	S22	S20	SSE12.5	SSE28
23-Jan	S19	S19	S18	S17	S17	S15	S14	SSW14	SSW14	SSW14	SW12	SW11	WSW8	NW6	NNW8	N9	N9	N12	NNE12	NNE11	NNE9	NNE8	NNE7	NNE5	SSW3.7	S19
24-Jan	NE5	ENE4	E4	SE4	SE5	SE7	SSE8	SSE10	SSE15	SSE15	S20	S23	SSE23	S24	S23	S23	S22	S21	S17	S17	S11	WSW6	NW2	NNE6	S11.4	SSE24
25-Jan	NNE10	NNE11	NNE11	NNE9	NNE8	NNE6	NNE6	NNE4	UO	E1	SE4	SSE4	SSW6	SSW7	SSW8	SSW8	SSW9	SSW9	SSW9	SSW9	SSW10	SSW9	SSW10	SSW9	S1.9	NNE11
26-Jan	SW8	SW6	WSW5	NW2	NNW3	NNW3	NNE3	N2	UO	SSW4	S4	SW3	S3	S5	SSE4	SSE4	S5	S4	S4	S4	S4	SSW6	SSW6	SSW6	SSW3.0	SW8
27-Jan	SSW7	SSW7	SSW6	SSW7	S8	S8	S12	S14	SSW18	SSW23	SW20	SW20	SSW21	SW20	WSW21	WSW19	WSW17	SW14	SW9	SW10	SW10	SSW10	S12	S11	SSW12.6	SSW23
28-Jan	S11	SSW14	SSW16	S16	S13	S15	S17	SSW19	SSW22	SW20	SW19	WSW23	WSW26	W27	W26	W23	WNW18	WNW10	W14	W12	W12	WNW15	W10	SW9	WSW13.4	W27
29-Jan	SW11	SSW13	S12	SSE11	SSW19	SSW19	S19	SSW20	S18	S17	S19	S20	SSW26	SSW23	SSW25	SSW23	SSW21	SSW20	SSW24	SW23	SW20	SW17	SW17	SW18	SSW18.3	SSW26
30-Jan	SW13	SW20	SW14	SSW16	SSW16	S11	SSE10	SSE10	SSE14	S15	SW21	WSW20	SW22	WSW21	WSW22	WSW17	W26	W23	W22	W24	W28	WNW24	WNW17	W14	WSW15.0	W28
31-Jan	W16	W17	W13	WSW14	WSW12	SW14	WSW13	SW11	SW11	SW8	SW10	SW8	SSW9	S11	S11	SSE12	SSE14	SE16	SE17	SE15	SSE20	SSE26	SSE25	SSE29	S10.4	SSE29

WSW0.9	SW1.2	SW0.7	SSW0.7	SSW1.0	SSW0.9	SSW0.9	SW1.4	SW2.0	SW2.0	WSW2.4	WSW2.5	WSW2.6	WSW2.7	WSW2.8	WSW2.3	SSW1.9	SSW1.3	SSW1.4	SSW1.7	SW1.9	SW1.5	SSW1.4	SSW1.7	Diurnal Average
S19	SSW20	S18	S17	N20	N21	NNW21	NNW21	SSW22	SSW23	SW21	WSW23	WSW26	W27	W26	W23	W26	SSE25	SSE26	SSE28	W28	SSE26	SSE25	SSE29	Diurnal Maximum

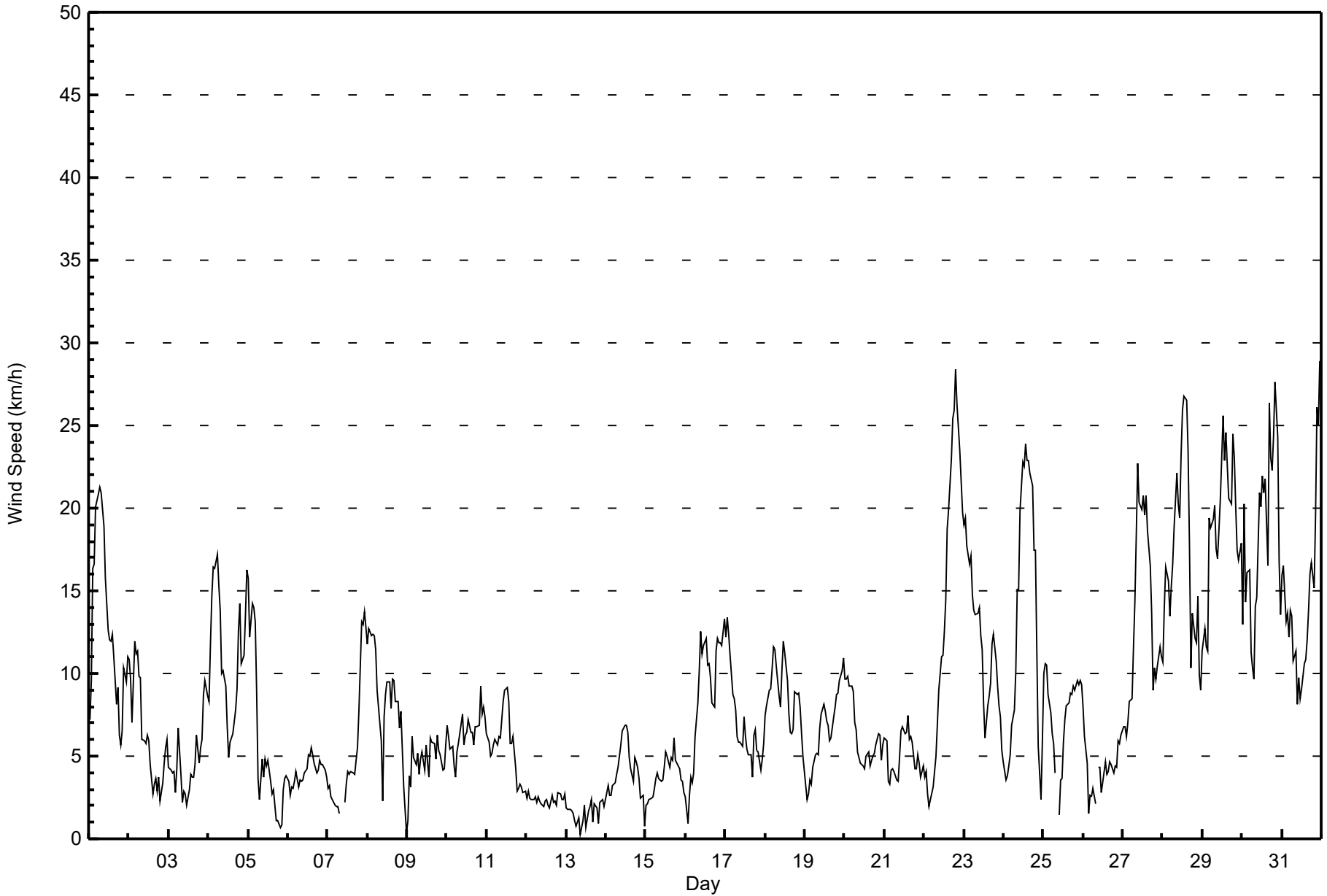
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





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

**Wind Speed (WS) - km/h**  
**Firebag - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Firebag - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	297	40.14	40.14
6 - 11	262	35.41	75.54
12 - 19	119	16.08	91.62
20 - 28	61	8.24	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Firebag - January 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	42	38	17	11	13	9	8	14	32	35	18	11	4	3	24	18	297
6 - 11	68	29	9	3	2	1	4	9	27	30	16	2	1	1	8	52	262
12 - 19	13	2	0	0	1	3	7	11	29	12	9	6	7	3	0	16	119
20 - 28	2	0	0	0	0	0	0	10	11	13	7	6	8	1	0	3	61
29 - 38	0	0	0	0	0	0	0	1	0	0	0	0	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>	125	69	26	14	16	13	19	45	99	90	50	25	20	8	32	89	740

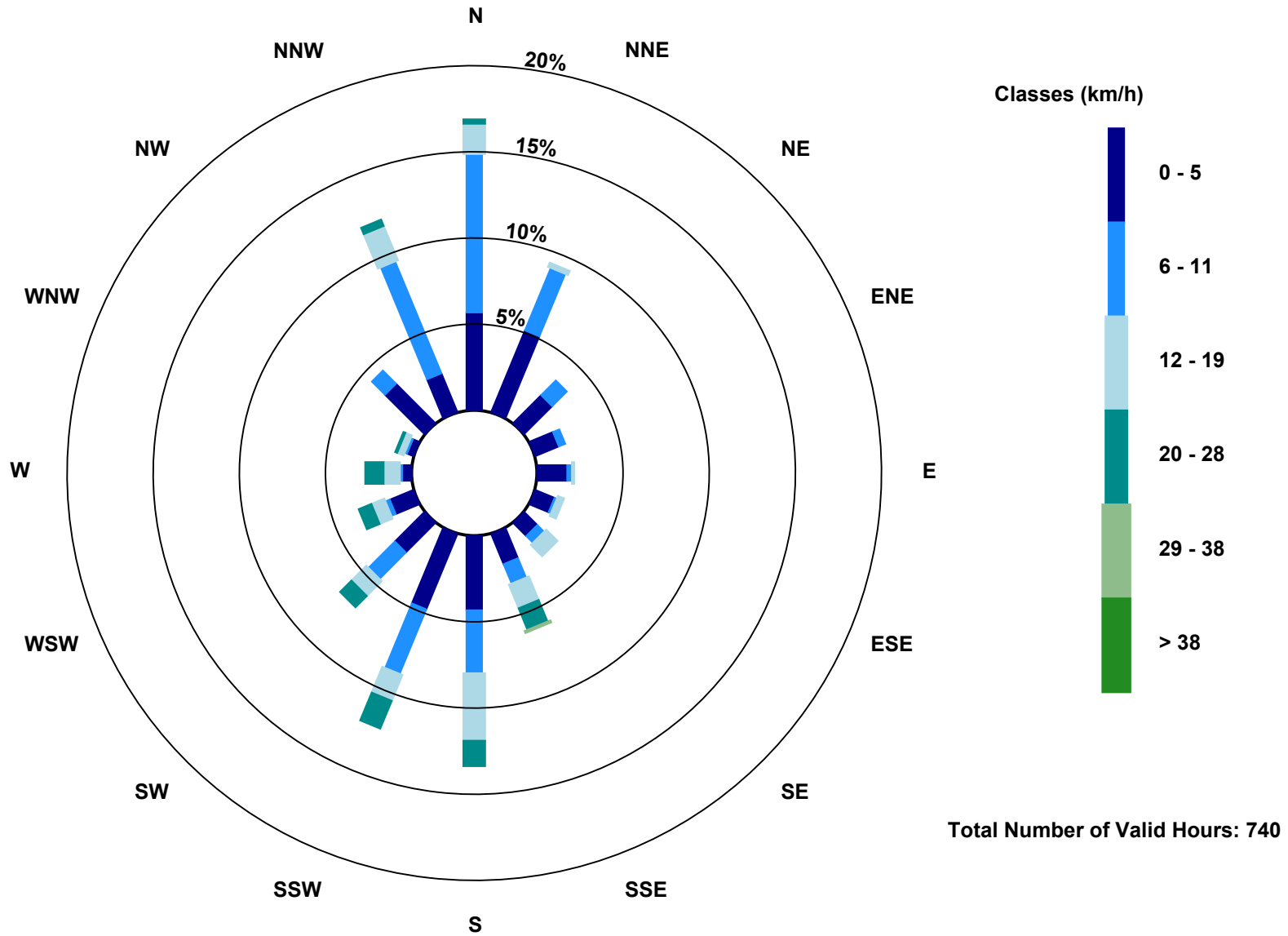
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Firebag





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

**Wind Speed (WS) - km/h**  
**Firebag - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 17:00 Minimum Value: 0 km/h on Jan 15 01:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 1 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5								
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-Jan	1	3	3	4	5	5	5	5	4	4	4	3	3	3	3	3	2	2	2	1	2	2	2	2	5
2-Jan	2	3	2	2	2	3	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	3
3-Jan	1	1	1	1	0	1	1	2	1	1	1	0	1	1	1	1	1	1	1	1	1	2	2	2	2
4-Jan	2	3	3	4	4	4	4	3	2	2	2	2	1	1	1	1	2	2	3	3	3	3	3	4	
5-Jan	4	2	3	2	2	3	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	4	
6-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7-Jan	1	1	0	1	0	0	0	1	UO	UO	1	1	0	0	0	0	0	1	1	2	2	2	2	2	
8-Jan	2	2	2	2	2	2	2	1	2	1	2	2	3	2	2	3	3	2	1	2	2	2	2	3	
9-Jan	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
10-Jan	1	1	1	1	1	1	1	2	2	2	1	2	2	2	2	2	1	1	1	1	2	2	2	2	
11-Jan	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	0	0	0	0	1	0	
12-Jan	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	
13-Jan	0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	1	
14-Jan	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	
15-Jan	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	1	
16-Jan	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	3	3	2	3	
17-Jan	3	3	3	3	2	2	2	1	1	1	1	2	2	1	1	1	1	2	2	1	1	1	1	1	
18-Jan	1	2	2	2	2	2	3	2	2	2	2	2	3	2	2	1	1	2	2	2	2	2	2	3	
19-Jan	1	0	0	1	1	0	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	2	
20-Jan	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	
21-Jan	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	2	
22-Jan	1	1	1	1	0	1	1	1	2	2	2	2	3	3	3	4	3	4	4	5	4	4	3	3	
23-Jan	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	1	3	
24-Jan	1	1	1	1	1	2	2	2	3	3	4	3	3	3	3	3	3	4	2	3	2	1	2	4	
25-Jan	2	2	2	2	2	2	1	2	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
26-Jan	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	
27-Jan	1	1	1	1	1	1	1	3	3	3	3	3	3	3	4	4	3	3	2	1	1	1	1	4	
28-Jan	1	5	2	2	3	2	3	4	4	3	3	5	5	6	6	6	7	2	3	2	2	3	2	7	
29-Jan	2	1	1	2	3	3	3	3	2	2	2	4	4	4	5	3	3	3	4	4	3	2	3	5	
30-Jan	3	3	3	4	3	3	1	2	3	4	5	4	4	4	4	4	7	6	5	5	7	6	5	7	
31-Jan	3	3	3	2	2	2	3	3	1	1	3	2	1	2	2	2	2	2	3	2	5	4	4	5	
Diurnal Maximum																									
UO - Unstable Operation																									



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

**Wind Direction (WD) - deg**  
**Firebag - January 2024**

Direction of Maximum Speed: 157 deg on Feb 1 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 201.3 deg on Jan 29	Hours of Data: 740
Direction of Minimum Speed: 120 deg on Jan 13 09:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 0.2 deg on Jan 13	Percent Operational Time: 99.5
Monthly Average Direction: 231.9 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-Jan	348	339	351	349	356	349	345	335	342	344	341	345	350	337	344	351	357	10	346	335	329	348	2	6	347.3
2-Jan	12	17	14	14	11	9	2	355	345	321	325	331	328	301	333	263	233	244	202	224	205	193	204	208	342.6
3-Jan	207	210	192	202	177	176	188	194	255	325	325	304	17	44	48	80	85	87	78	72	67	56	50	40	83.4
4-Jan	15	4	356	360	2	2	8	4	10	11	24	26	26	41	49	50	71	99	96	110	118	125	119	123	41.7
5-Jan	138	146	145	156	167	188	251	277	316	319	320	325	307	335	358	4	43	94	81	167	86	118	123	122	153.2
6-Jan	115	140	112	93	104	109	88	90	76	60	60	58	45	45	40	25	14	11	9	360	4	5	12	14	48.5
7-Jan	18	14	21	27	25	49	170	215	UO	UO	211	216	200	190	180	176	176	184	187	181	177	178	180	178	179.0
8-Jan	169	169	172	172	167	166	170	182	186	249	346	351	4	6	351	343	357	2	3	3	360	16	36	9	58.9
9-Jan	18	42	76	54	52	62	92	72	60	58	52	50	52	32	36	25	8	15	9	15	12	11	5	7	37.3
10-Jan	9	7	0	356	11	20	6	350	345	346	353	352	348	337	335	329	334	347	348	358	0	6	2	357	353.6
11-Jan	353	355	354	355	349	349	350	350	353	352	347	346	339	339	332	336	342	333	307	314	315	321	311	305	341.8
12-Jan	283	256	249	247	221	236	221	227	188	185	185	187	201	208	191	216	200	195	188	187	183	189	158	159	206.5
13-Jan	166	162	154	168	140	150	156	167	120	165	228	249	86	55	13	315	14	42	54	31	332	346	323	313	29.1
14-Jan	333	346	317	313	323	326	356	346	357	359	0	352	356	354	351	343	344	348	356	8	357	18	325	216	348.9
15-Jan	192	200	202	181	190	206	214	216	214	208	195	197	205	208	202	192	176	176	197	208	205	204	207	212	200.0
16-Jan	217	211	12	3	356	2	16	12	1	356	353	348	344	342	341	333	320	322	336	341	338	335	338	342	344.3
17-Jan	347	349	353	355	353	359	1	3	5	5	11	19	14	24	13	12	5	19	23	14	360	336	334	339	0.7
18-Jan	348	353	354	350	344	348	346	341	331	325	340	349	346	339	333	318	314	335	345	345	346	345	343	350	342.0
19-Jan	327	268	247	217	183	198	203	185	174	195	208	212	208	213	208	201	168	169	170	175	174	178	174	170	190.5
20-Jan	175	176	171	181	190	201	218	221	223	238	270	300	329	340	18	23	15	17	10	20	19	19	9	342	239.7
21-Jan	342	8	26	13	1	349	0	353	350	1	7	1	7	356	354	4	11	11	8	8	10	2	10	2	2.8
22-Jan	13	26	52	87	104	128	142	142	145	151	147	146	139	149	163	157	159	160	161	163	171	170	170	173	157.5
23-Jan	173	171	171	177	183	187	188	198	207	213	225	222	249	305	334	354	358	6	12	16	19	15	26	32	198.9
24-Jan	36	57	84	130	132	142	155	168	163	161	173	172	168	169	174	175	174	176	178	185	191	246	321	21	169.2
25-Jan	16	28	29	23	25	17	18	32	UO	80	129	162	193	199	205	207	198	196	192	198	198	198	203	215	185.5
26-Jan	218	232	251	312	328	336	22	1	UO	192	188	216	177	181	159	159	170	173	180	187	191	209	210	212	201.8
27-Jan	212	209	197	195	181	175	177	183	202	206	215	214	212	227	241	244	240	235	223	222	215	204	190	183	212.0
28-Jan	180	195	199	191	184	173	172	196	211	215	227	245	251	260	264	278	290	288	274	278	280	282	272	231	236.3
29-Jan	218	208	185	167	199	193	191	192	178	180	178	181	199	206	211	209	208	201	209	220	221	214	218	224	201.3
30-Jan	220	214	224	213	205	184	163	155	165	190	229	237	234	246	247	254	261	267	260	260	277	299	291	276	241.2
31-Jan	267	267	268	245	238	233	239	236	215	221	225	217	192	186	182	160	150	141	140	137	159	160	150	157	190.4

239.5 232.9 221.0 203.4 201.5 202.4 203.5 226.9 218.5 233.5 246.2 252.3 248.4 256.0 255.0 255.0 239.8 209.0 211.0 212.7 231.1 230.3 200.7 192.8  
 Diurnal Average

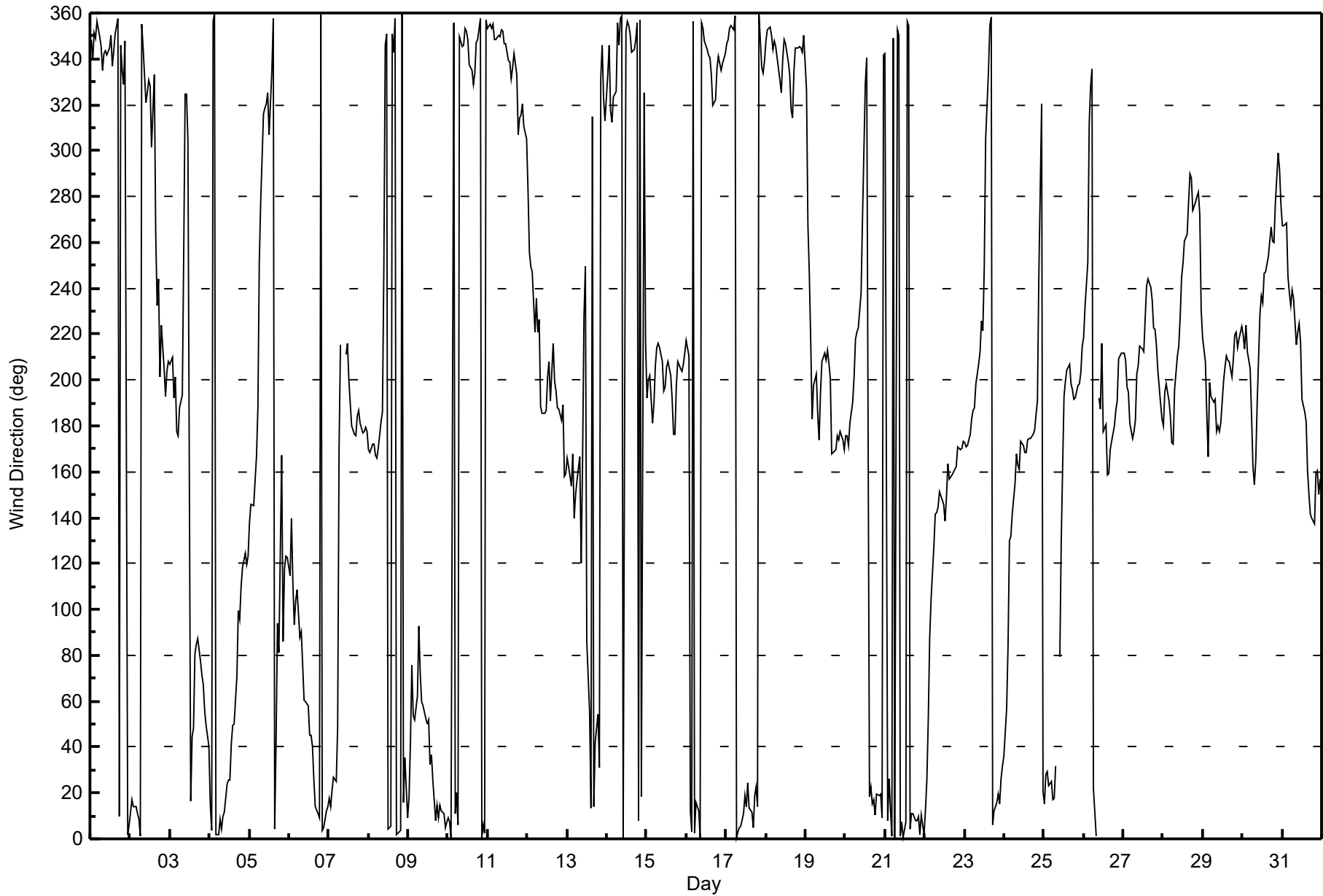
UO - Unstable Operation

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



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

**Wind Direction (WD) - deg**  
**Firebag - January 2024**





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

**Wind Direction (WD) - deg**  
**Firebag - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 87 deg on Jan 16 02:00	Hours of Data: 740
Minimum Value: 4 deg on Jan 11 20:00	Hours of Missing Data: 4
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 8 Q <sub>1</sub> = 10 Median = 13 Q <sub>3</sub> = 15 P <sub>90</sub> = 19 P <sub>99</sub> = 64	Hours of Calibration: 0
	Percent Operational Time: 99.5

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-Jan	13	12	14	14	16	14	13	12	12	11	12	14	15	14	13	14	15	11	19	16	21	13	13	12	21
2-Jan	11	10	12	12	13	13	15	15	13	9	12	14	20	26	38	24	14	29	31	33	20	17	18	15	38
3-Jan	17	21	16	15	23	20	7	15	43	27	29	33	18	14	15	12	10	10	19	12	17	10	10	43	
4-Jan	14	14	15	16	15	16	13	16	13	13	13	14	17	15	12	12	14	12	13	10	15	14	13	13	17
5-Jan	15	14	12	13	8	19	18	34	14	17	13	14	16	14	23	21	27	45	56	50	36	19	11	11	56
6-Jan	12	23	19	12	12	12	11	11	18	13	11	11	10	12	15	14	13	15	13	14	14	13	12	14	23
7-Jan	15	15	16	16	15	13	40	31	UO	UO	15	12	11	12	12	10	10	8	8	8	9	8	9	9	40
8-Jan	8	7	9	9	7	7	7	10	7	44	14	16	15	14	17	14	14	17	14	14	14	14	19	83	83
9-Jan	67	21	15	8	10	25	10	21	17	12	14	15	14	19	12	14	14	12	13	13	13	12	13	13	67
10-Jan	12	15	15	14	19	12	14	15	13	12	16	15	16	16	13	12	13	11	12	14	15	14	15	15	19
11-Jan	14	13	13	13	13	13	13	13	15	14	14	14	13	13	12	13	12	14	5	4	5	6	12	7	15
12-Jan	21	17	18	14	22	13	10	7	17	13	13	8	21	22	16	13	13	9	9	11	6	11	13	11	22
13-Jan	10	8	11	13	21	17	44	47	78	48	42	27	68	26	34	20	48	13	10	57	16	20	16	13	78
14-Jan	6	11	5	6	8	10	10	10	15	15	15	15	15	15	12	13	12	15	12	14	16	28	69	69	
15-Jan	8	17	11	15	10	9	10	8	9	17	12	9	13	11	11	8	11	14	11	9	8	14	11	11	17
16-Jan	10	87	28	17	15	16	10	13	17	18	16	14	12	12	13	13	13	12	13	13	12	12	11	12	87
17-Jan	13	14	16	14	13	15	14	14	13	13	12	11	15	13	14	9	12	12	12	13	14	16	11	11	16
18-Jan	11	14	13	14	12	14	13	14	11	11	13	13	13	12	12	14	14	13	12	13	12	13	14	16	16
19-Jan	20	15	14	11	11	8	7	11	8	7	9	9	10	15	11	11	9	8	10	9	9	8	8	8	20
20-Jan	8	8	8	8	7	11	10	12	13	14	19	27	16	16	18	17	13	13	14	11	10	12	13	14	27
21-Jan	14	14	14	14	16	15	13	18	15	13	12	15	15	13	14	15	14	14	13	13	14	16	16	15	18
22-Jan	15	11	17	25	21	19	13	13	13	10	10	12	11	12	9	10	9	9	10	9	8	8	8	9	25
23-Jan	8	8	9	9	8	7	7	9	9	10	13	12	16	24	18	13	13	14	12	13	11	12	11	13	24
24-Jan	11	23	21	14	15	15	14	8	9	11	10	9	8	7	8	8	8	8	8	6	10	33	67	11	67
25-Jan	11	12	11	13	13	12	12	18	UO	50	16	13	11	9	10	10	9	9	10	8	8	8	9	10	50
26-Jan	10	21	18	59	19	21	20	72	UO	13	13	27	18	11	13	10	8	9	8	8	6	8	7	8	72
27-Jan	8	7	9	7	9	9	8	8	13	8	9	9	8	12	10	10	9	9	9	9	7	8	5	5	13
28-Jan	7	15	6	7	11	12	13	14	9	9	10	11	11	14	14	17	17	17	14	13	14	15	16	13	17
29-Jan	11	9	16	20	8	12	9	12	10	9	8	11	9	10	10	8	11	7	9	10	9	8	9	9	20
30-Jan	12	9	8	7	8	20	14	12	17	18	15	11	12	11	12	13	14	15	14	14	20	14	17	18	20
31-Jan	14	13	14	11	9	9	8	10	8	11	14	11	15	16	15	7	12	10	11	11	10	10	10	10	16
	67	87	28	59	23	25	44	72	78	50	42	33	68	26	38	24	48	45	56	57	36	33	67	83	
	Diurnal Maximum																								

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS20 MACKAY RIVER JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)

JANUARY 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	709	35	35	100	24	0	4.6	0
H2S (ppb) Average	708	36	36	100	1.3	0	0.4	0
THC (ppm) Average	709	35	35	100	3.1	-	2.7	-
NO2 (ppb) Average	659	38	85	93.68	32.5	0	15.4	-
NO (ppb) Average	659	38	85	93.68	19.2	-	4.9	-
NOX (ppb) Average	659	38	85	93.68	49.8	-	20.3	-
Temperature 2 m (C) Average	744	0	0	100	10.9	-	5.2	-
Relative Humidity (%) Average	744	0	0	100	99.2	-	94.2	-
Wind Speed 10 m (km/h) Average	740	0	4	99.46	17	-	10	-
Wind Direction 10 m (deg) Average	740	0	4	99.46	-	-	-	-
Precipitation (mm) Total	744	0	0	100	0.7	-	2.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)  
 JANUARY 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	709	1.13	2.5	-	0	0	0.1	0.3	0.9	2.8	24
H2S (ppb) Average	708	0.16	0.1	-	0	0	0.1	0.1	0.2	0.3	1.3
THC (ppm) Average	709	2.37	0.1	-	2	2.2	2.3	2.4	2.4	2.5	3.1
NO2 (ppb) Average	659	4.38	5.9	-	0.1	0.4	0.8	2.1	5.5	11.2	32.5
NO (ppb) Average	659	0.53	2.2	-	0	0	0	0	0.1	0.6	19.2
NOX (ppb) Average	659	4.9	7.6	-	0.1	0.4	0.9	2.2	5.7	12	49.8
Temperature 2 m (C) Average	744	-17.79	12.6	-	-43.6	-35.3	-25.5	-18.6	-10.5	1.7	10.9
Relative Humidity (%) Average	744	78.04	9.7	-	38.3	65.4	72.2	79	84.5	89.7	99.2
Wind Speed 10 m (km/h) Average	740	5.3	3	-	0	2	3	5	7	10	17
Wind Direction 10 m (deg) Average	740	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	9.15	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION -MACKAY RIVER (AMS20)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2	04 Jan 2024 14:00	05 Jan 2024 08:00	19	Maintenance - preventative maintenance
NO2	24 Jan 2024 09:00	25 Jan 2024 12:00	28	Maintenance - preventative maintenance
Wind Speed, Wind Direction	05 Jan 2024 16:00	05 Jan 2024 16:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 11:00	13 Jan 2024 11:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 17:00	13 Jan 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	25 Jan 2024 01:00	25 Jan 2024 01:00	1	Flat line in sensor output signal



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

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

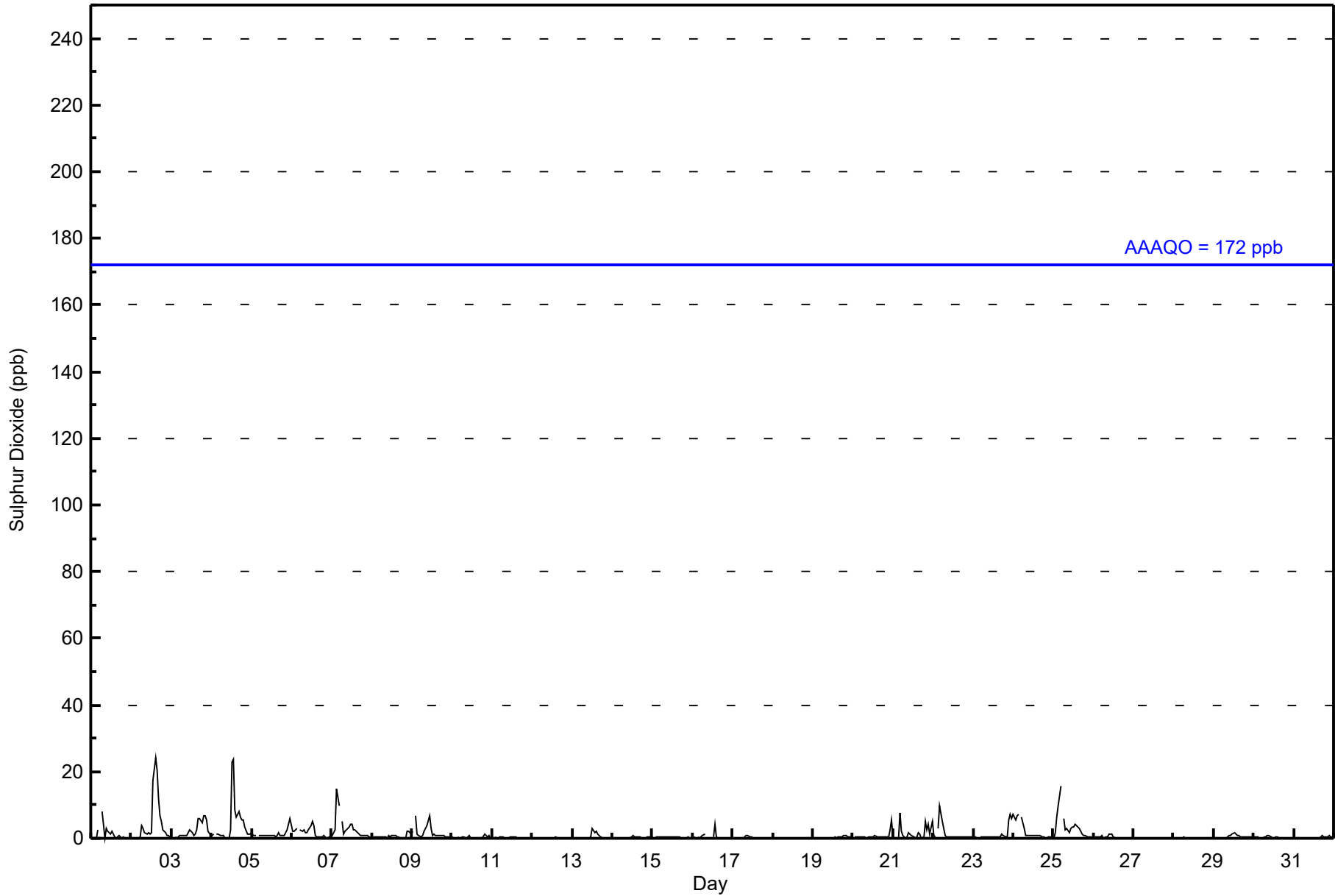
**Mackay River - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 24.0 ppb on Jan 2 15:00		Maximum Daily Average: 4.6 ppb on Jan 2																	Hours of Data:	709																												
Minimum Value: 0.0 ppb on Jan 1 01:00		Minimum Daily Average: 0.0 ppb on Jan 18																	Hours of Missing Data:	35																												
Maximum Diurnal Average: 2.2 ppb at hour 14		Minimum Diurnal Average: 0.6 ppb at hour 9																	Hours of Calibration:	35																												
Monthly Average: 1.13 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> = 0.9 P <sub>90</sub> = 2.8 P <sub>99</sub> = 11.7																	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-Jan	0.0	0.0	0.0	0.0	2.7	Z	7.9	4.2	0.0	2.8	2.0	1.2	1.9	1.1	0.5	0.1	0.7	0.5	0.0	0.5	0.0	0.0	0.0	0.0	1.1	7.9																						
2-Jan	Z	0.2	0.0	0.0	0.0	0.4	3.7	3.1	1.6	1.5	1.6	1.3	1.5	17.4	24.0	20.2	11.9	6.7	5.0	2.6	1.5	0.9	0.7	0.5	4.6	24.0																						
3-Jan	0.2	Z	0.2	0.2	0.4	0.9	1.0	1.0	1.0	1.0	1.7	2.6	1.8	0.8	1.1	2.5	6.0	6.0	4.8	6.6	7.0	5.7	2.0	1.0	2.4	7.0																						
4-Jan	1.0	1.2	Z	1.5	1.2	0.9	0.7	0.7	0.1	0.1	0.1	0.1	2.7	23.0	23.7	8.6	6.5	8.0	6.3	5.5	5.5	3.4	1.2	1.1	1.3	4.5	23.7																					
5-Jan	1.7	0.9	0.7	Z	1.0	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.8	0.8	0.6	0.7	1.6	0.7	0.9	1.0	1.5	2.4	4.3	5.9	1.4	5.9																						
6-Jan	1.9	2.0	2.7	2.9	Z	2.6	2.1	2.4	1.5	1.8	2.5	4.0	4.9	3.7	0.7	0.2	0.4	0.4	0.6	0.7	0.5	0.2	0.2	0.7	1.7	4.9																						
7-Jan	0.8	1.9	2.6	14.8	9.8	Z	5.2	1.4	2.0	2.9	3.5	4.4	4.2	2.6	2.6	1.9	1.3	0.8	1.0	1.0	0.9	0.8	0.6	0.5	2.9	14.8																						
8-Jan	Z	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	1.0	0.3	0.7	0.8	0.7	0.3	0.2	0.1	0.1	0.1	0.2	2.3	2.0	1.4	0.6	2.3																						
9-Jan	2.1	Z	6.9	1.1	0.6	0.5	0.9	2.3	2.9	3.8	6.7	2.8	1.0	1.4	0.9	0.8	0.7	0.7	0.7	1.0	0.6	0.5	0.5	0.3	1.7	6.9																						
10-Jan	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	1.4	1.0	0.4	0.8	0.2	0.3	1.4																						
11-Jan	0.1	0.1	0.2	Z	0.3	0.2	0.3	0.1	0.1	0.1	0.2	0.6	0.4	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6																						
12-Jan	0.1	0.2	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2																						
13-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.5	3.0	1.7	2.0	1.4	0.7	0.3	0.2	0.1	0.0	0.1	0.1	0.0	0.4	3.0																						
14-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.6	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.6																						
15-Jan	0.4	Z	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.5	0.5	0.6	0.6	0.5	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.3	0.6																						
16-Jan	0.2	0.4	Z	0.6	0.2	0.4	0.7	1.1	C	C	C	C	0.6	4.0	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	4.0																						
17-Jan	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.3	0.7	0.9	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.9																						
18-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2																						
19-Jan	0.1	0.1	0.1	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.4	1.0	0.8	0.7	0.6	0.6	0.5	0.3	1.0																						
20-Jan	Z	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.7	0.3	0.4	0.2	0.3	0.5	0.5	0.2	0.6	2.7	5.7	0.7	5.7																						
21-Jan	0.3	Z	0.1	0.2	7.4	2.3	0.8	0.1	0.3	1.5	1.2	0.8	0.3	0.2	0.3	1.5	1.3	0.1	0.3	5.1	2.4	4.4	1.4	5.1	1.6	7.4																						
22-Jan	0.7	0.3	Z	2.8	9.5	5.2	3.0	0.8	0.5	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	1.2	9.5																						
23-Jan	0.3	0.3	0.3	Z	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	1.2	0.9	0.5	0.6	5.5	7.3	5.8	1.2	7.3																							
24-Jan	7.2	5.4	6.7	7.3	Z	6.3	2.8	0.9	0.8	0.7	0.8	0.9	1.0	0.8	0.7	0.7	0.4	0.3	0.2	0.1	0.3	0.3	0.1	0.1	2.0	7.3																						
25-Jan	0.2	1.8	6.4	9.7	15.7	Z	5.8	2.3	2.9	1.9	2.8	3.4	3.5	4.2	3.8	2.8	2.0	1.4	1.0	0.8	0.6	0.5	0.4	0.3	3.2	15.7																						
26-Jan	Z	0.3	0.3	0.3	0.3	0.7	0.2	0.3	0.3	1.1	1.4	1.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.4																						
27-Jan	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2																						
28-Jan	0.1	0.1	Z	0.1	0.1	0.1	0.4	0.0	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	0.1	0.0	0.0	0.1	0.4																						
29-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.5	1.0	0.9	1.4	1.5	1.1	0.8	0.7	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.5	1.5																						
30-Jan	0.3	0.3	0.3	0.3	Z	0.2	0.2	0.4	0.6	0.8	0.3	0.2	0.1	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																						
31-Jan	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	0.1	0.5	0.7	0.5	0.3	0.5	0.8	0.6	0.4	0.2	0.8																						
																								0.7	0.6	1.1	1.7	2.0	0.9	1.2	0.8	0.6	0.8	1.0	1.1	1.7	2.2	1.7	1.4	1.3	0.9	0.8	1.0	0.7	0.9	0.9	1.0	Diurnal Average
																								7.2	5.4	6.9	14.8	15.7	6.3	7.9	4.2	2.9	3.8	6.7	4.4	23.0	23.7	24.0	20.2	11.9	6.7	5.5	6.6	7.0	5.7	7.3	5.9	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 - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	701	98.87	98.87
11 - 20	5	0.71	99.58
21 - 60	3	0.42	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - January 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	28	97	29	19	16	36	65	62	83	36	33	47	56	32	30	28	697
11 - 20	0	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	5
21 - 60	0	1	1	0	0	1	0	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>	28	100	30	19	16	38	67	62	83	36	33	47	56	32	30	28	705

Total Number of Valid Hours: 705

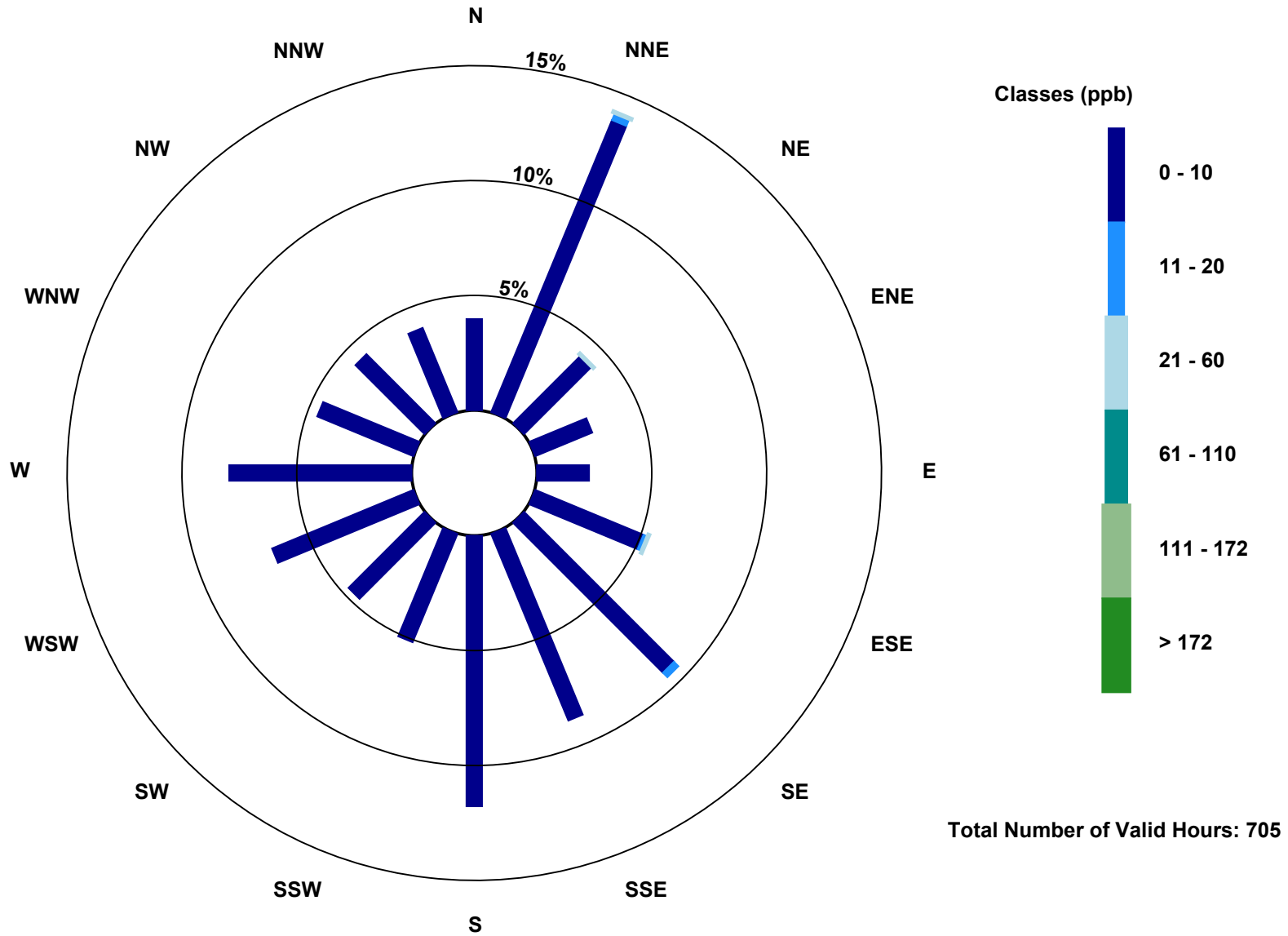
Total Number of Hours: 744

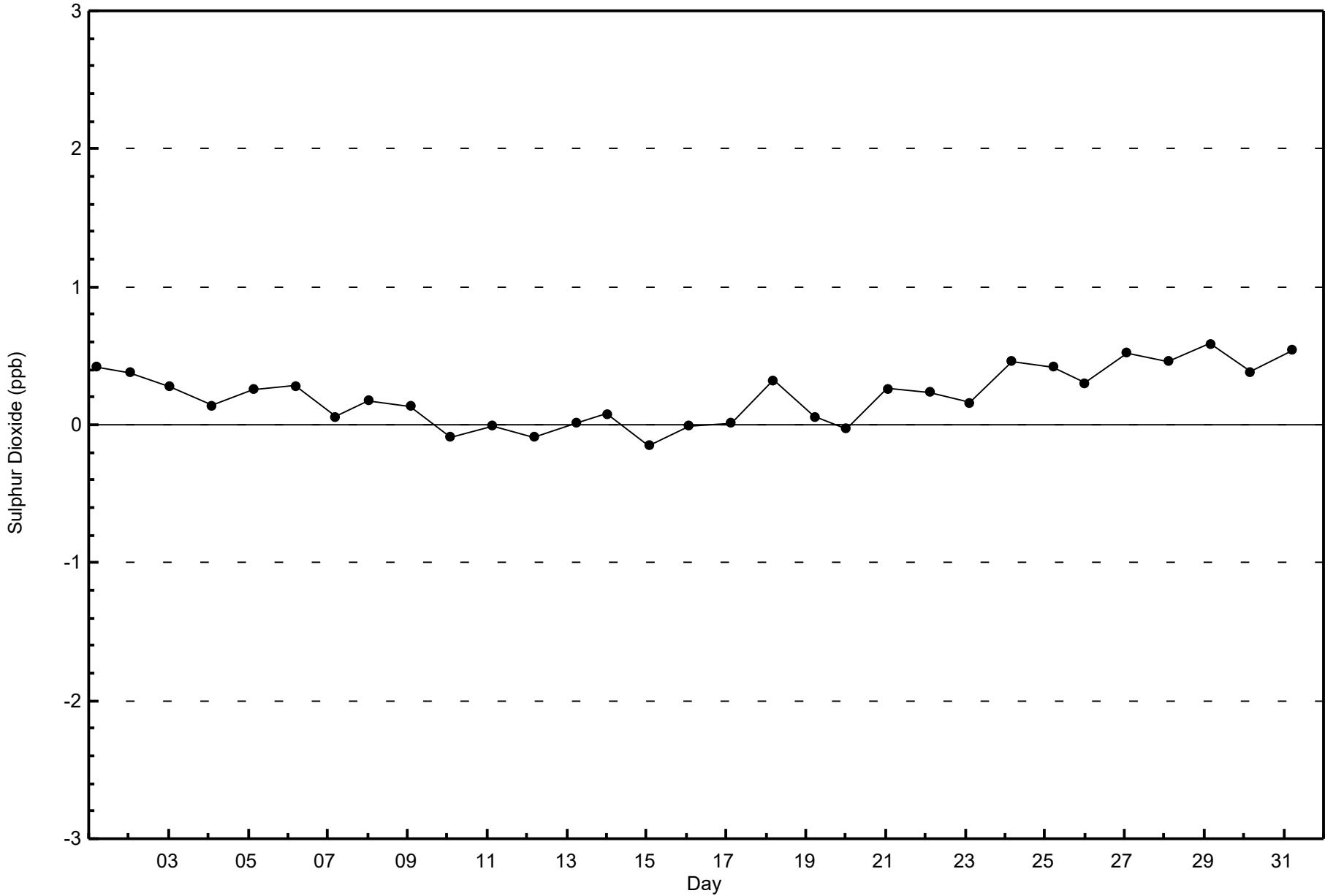


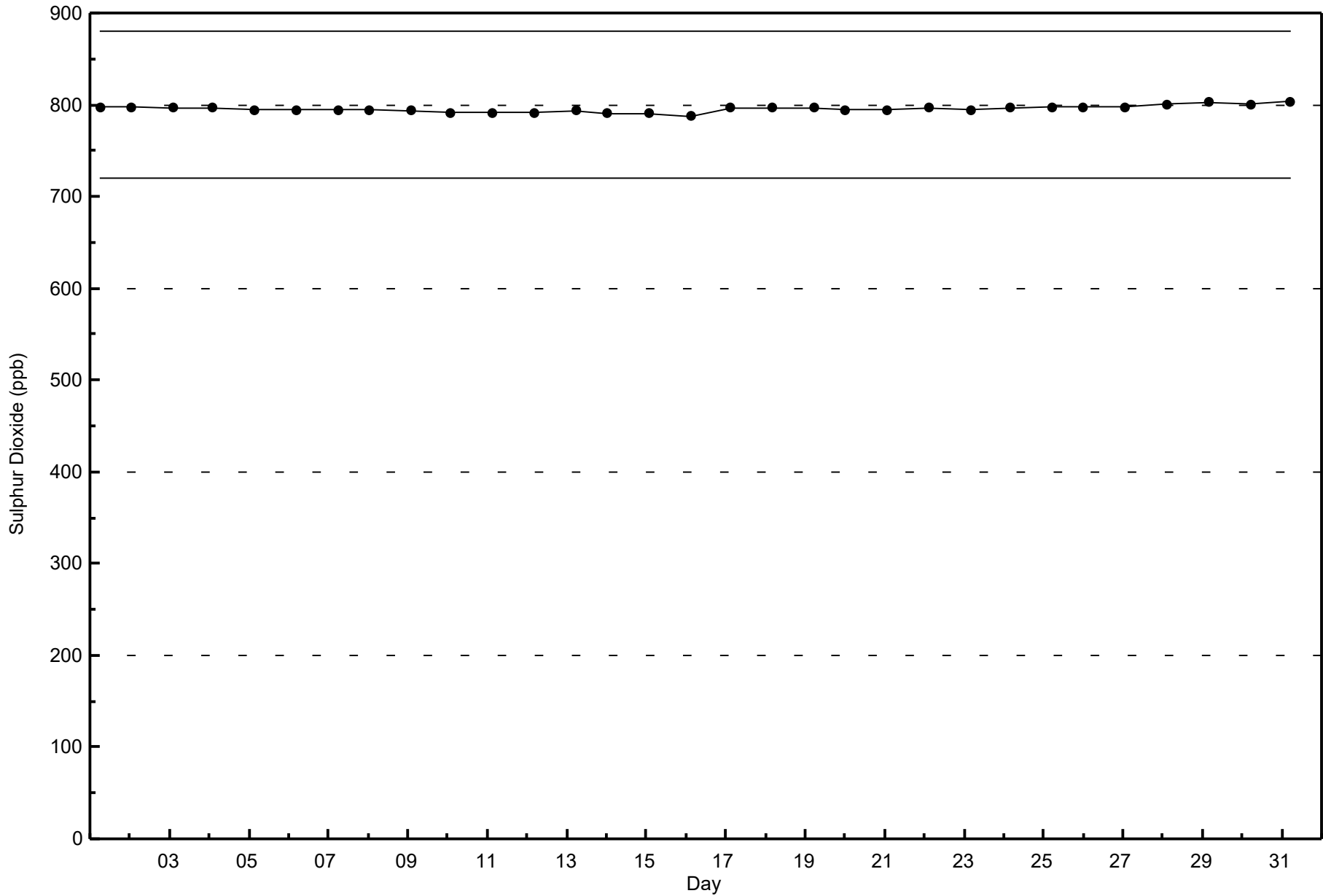


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









# Wood Buffalo Environmental Association

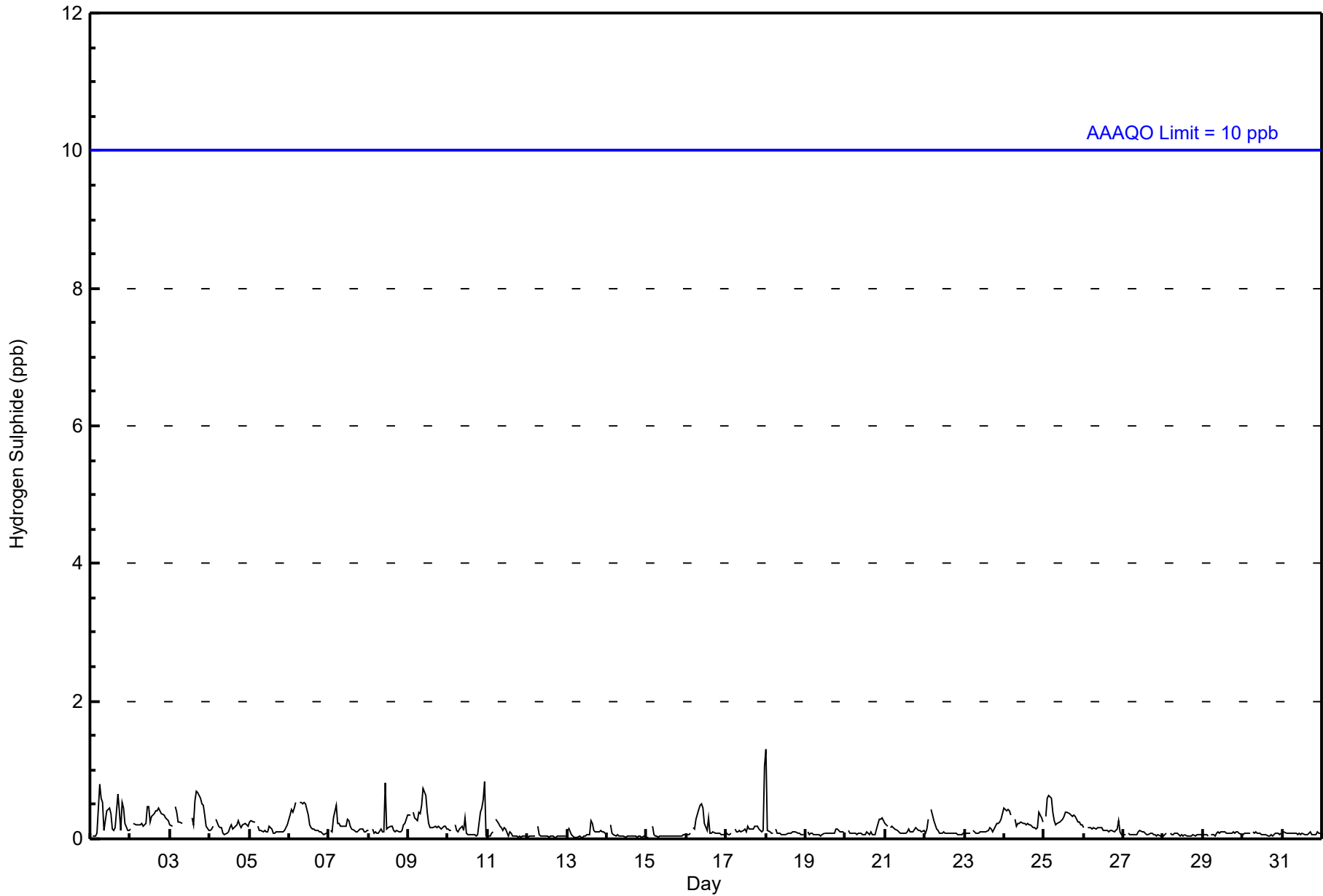
## Summary of Hour Averages

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

## Mackay River - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 1.3 ppb on Jan 18 01:00		Maximum Daily Average: 0.4 ppb on Jan 3		Hours of Data: 708																	Hours of Missing Data: 36		Hours of Calibration: 36				
Minimum Value: 0.0 ppb on Jan 13 05:00		Minimum Daily Average: 0.0 ppb on Jan 12		Hours of Calibration: 36																	Percent Operational Time: 100.0						
Maximum Diurnal Average: 0.2 ppb at hour 5		Minimum Diurnal Average: 0.1 ppb at hour 15		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> = 0.3 P <sub>99</sub> = 0.7																							
Monthly Average: 0.16 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-Jan	Z	0.0	0.0	0.0	0.1	0.8	0.6	0.5	0.1	0.3	0.4	0.4	0.4	0.1	0.1	0.2	0.7	0.4	0.1	0.5	0.5	0.2	0.1	0.1	0.3	0.8	
2-Jan	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.5
3-Jan	0.2	0.2	Z	0.5	0.4	0.2	0.2	0.2	C	C	C	C	C	0.3	0.2	0.6	0.7	0.7	0.6	0.5	0.5	0.3	0.2	0.1	0.4	0.7	
4-Jan	0.1	0.1	0.2	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
5-Jan	0.2	0.3	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3
6-Jan	0.3	0.4	0.4	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	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	0.5
7-Jan	Z	0.1	0.1	0.3	0.5	0.2	0.2	0.2	0.2	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	0.2	0.5
8-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.8	
9-Jan	0.3	0.3	Z	0.4	0.3	0.3	0.4	0.4	0.5	0.7	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.3	0.7	
10-Jan	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.4	0.4	0.6	0.8	0.0	0.2	0.8	
11-Jan	0.0	0.0	0.1	0.1	Z	0.3	0.2	0.2	0.2	0.1	0.2	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	0.1	0.3
12-Jan	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
13-Jan	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
14-Jan	0.1	Z	0.2	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	0.0	0.0	0.0	0.2
15-Jan	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	
16-Jan	0.1	0.1	0.1	Z	0.2	0.1	0.3	0.4	0.5	0.5	0.4	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5
17-Jan	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	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	1.1	1.1	
18-Jan	1.3	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	1.3
19-Jan	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	0.1	0.1	0.1	0.1	0.1
20-Jan	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	0.3	0.3	0.3	0.3	0.3
21-Jan	0.2	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	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
22-Jan	0.1	0.2	0.3	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.4
23-Jan	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	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.1	0.4
24-Jan	0.4	0.4	0.4	0.4	0.4	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	0.4	0.3	0.3	0.3	0.3	0.4
25-Jan	Z	0.3	0.6	0.6	0.6	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.6
26-Jan	0.2	Z	0.2	0.2	0.2	0.1	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	0.1	0.3	0.1	0.1	0.1	0.3
27-Jan	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	0.0	0.1	0.0	0.0	0.1	0.1
28-Jan	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	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	0.1
29-Jan	0.1	0.1	0.1	0.0	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	0.1	0.1	0.1	0.1	0.1
30-Jan	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	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
31-Jan	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
																								Diurnal Average		Diurnal Maximum	
																								0.2		1.3	
																								0.1		0.4	
																								0.2		0.6	
																								0.2		0.6	
																								0.2		0.8	
																								0.2		0.6	
																								0.5		0.5	
																								0.1		0.5	
																								0.2		0.7	
																								0.1		0.8	
																								0.1		0.6	
																								0.2		0.8	
																								0.2		1.1	

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 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River - January 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	27	100	32	19	15	37	63	64	82	39	32	49	56	30	32	28	705
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>	27	100	32	19	15	37	63	64	82	39	32	49	56	30	32	28	705

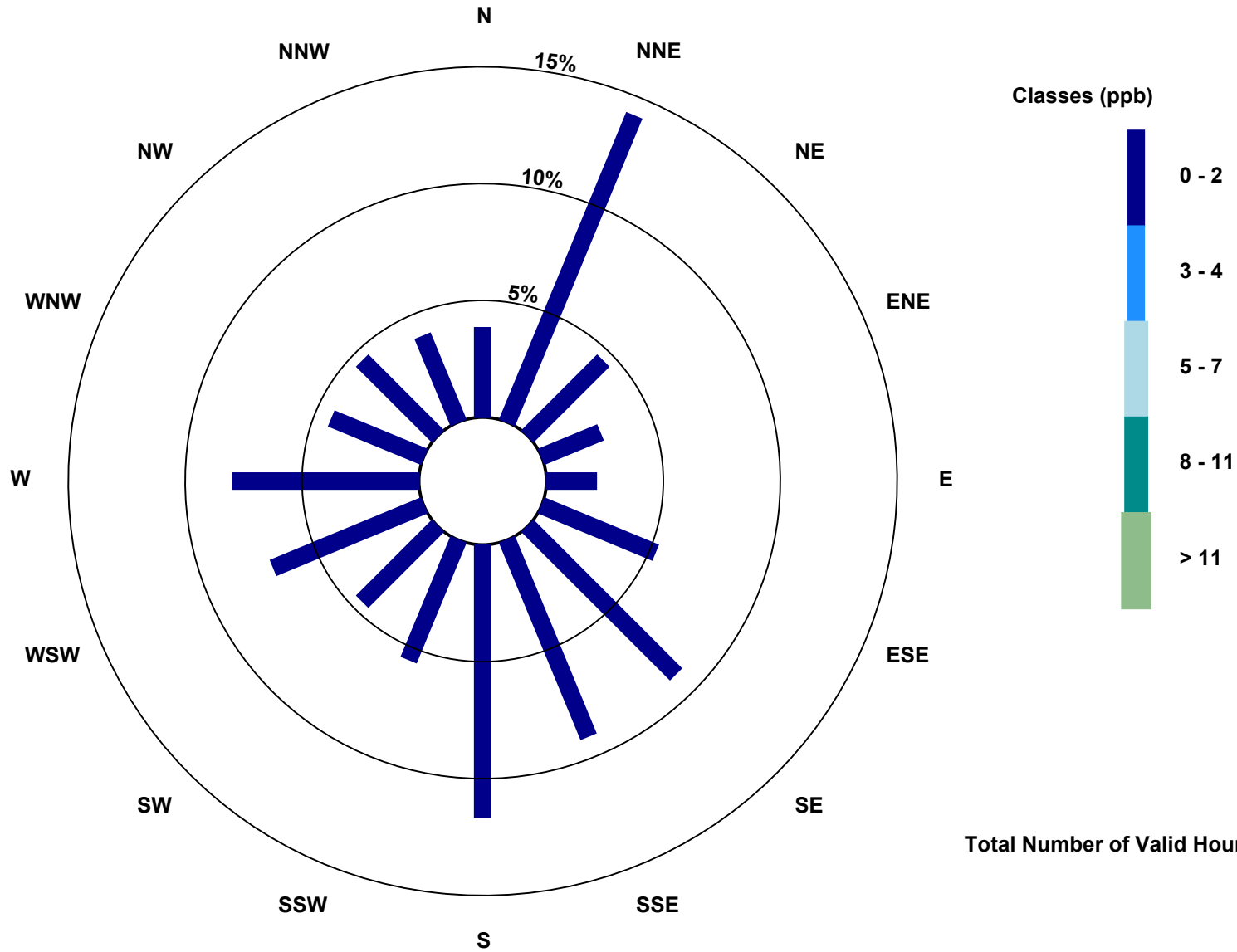
Total Number of Valid Hours: 705

Total Number of Hours: 744



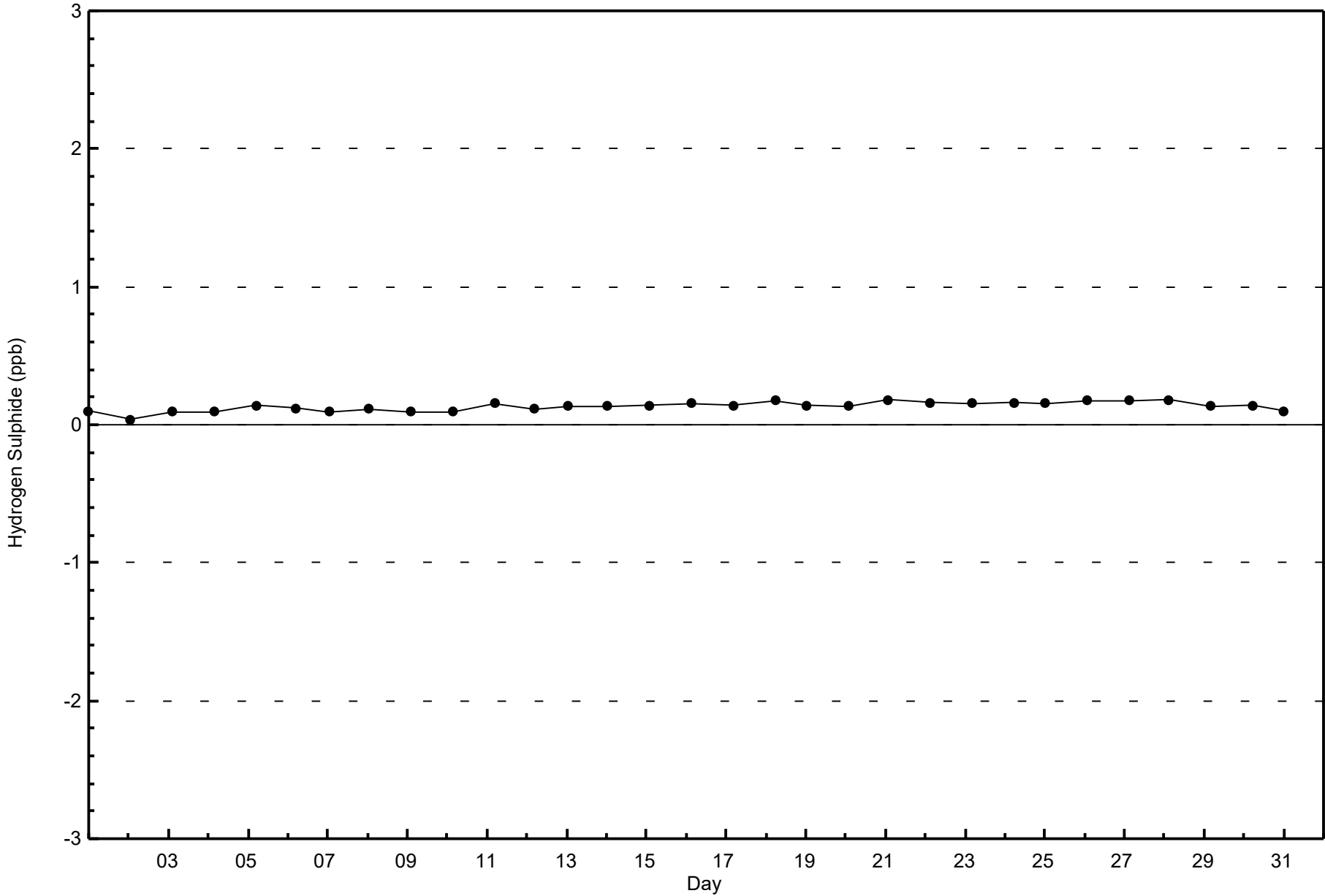
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

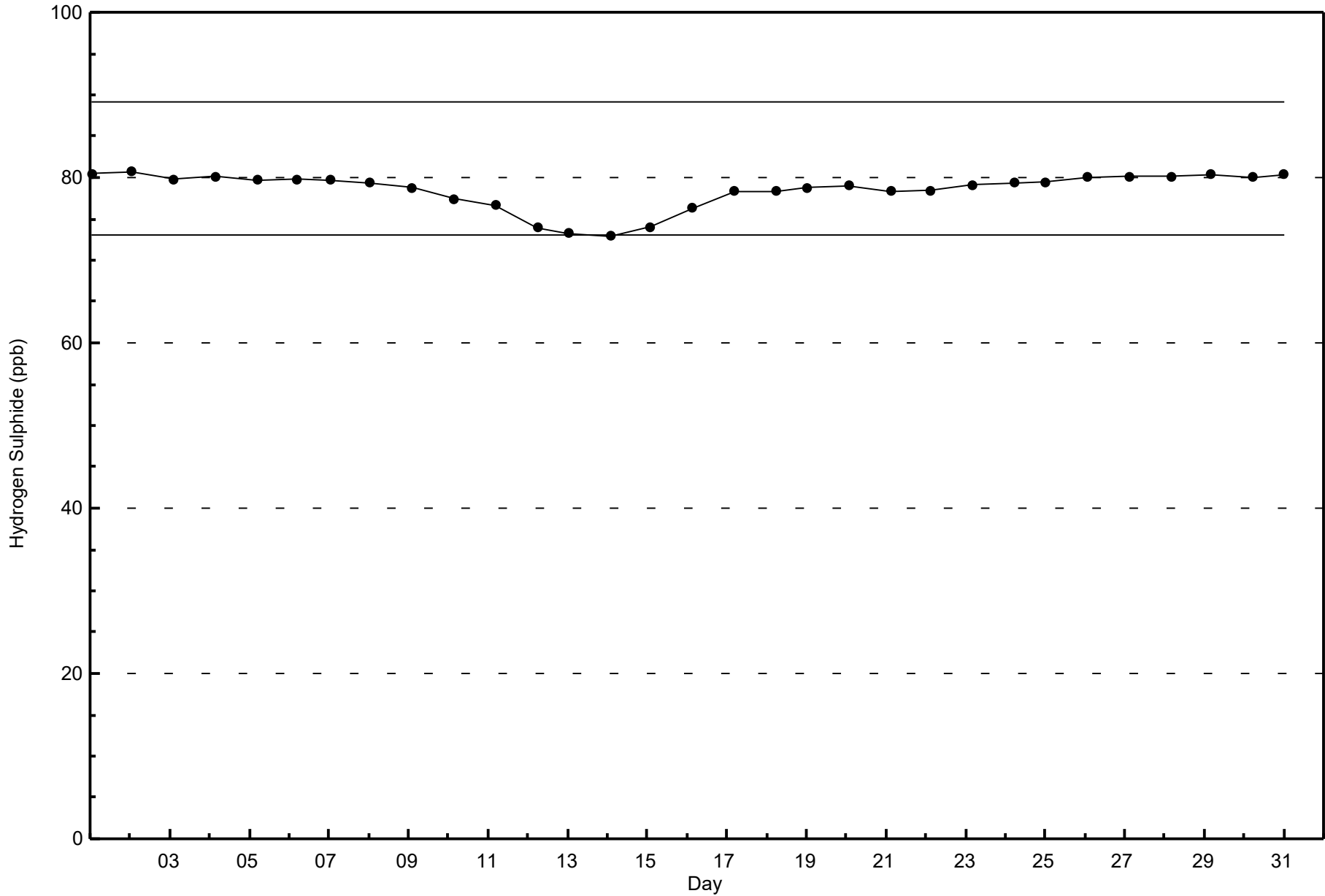
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River



Total Number of Valid Hours: 705





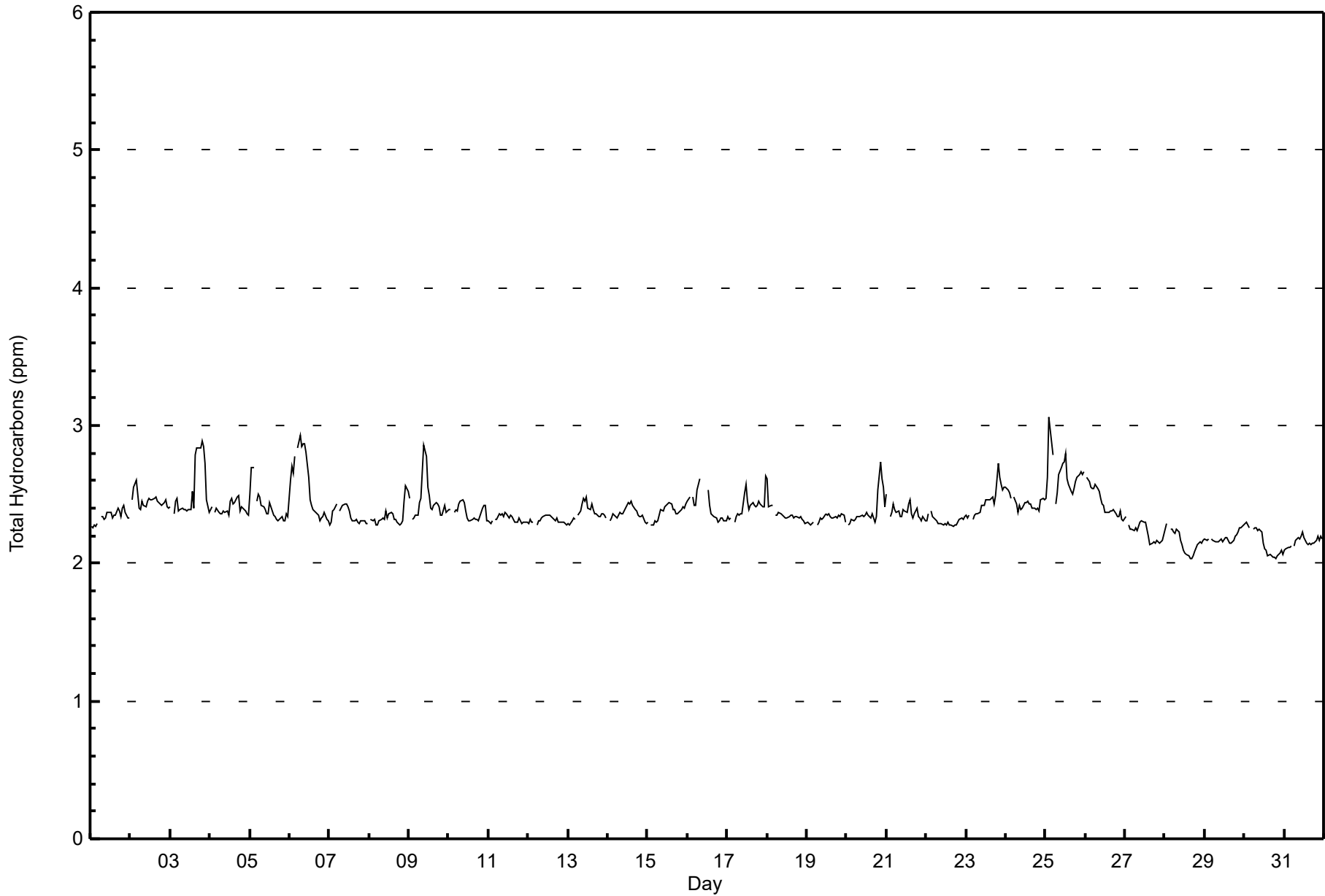






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	5	0.71	0.71
2.1 - 3.0	703	99.15	99.86
3.1 - 10.0	1	0.14	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Mackay River - January 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	3	2	0	0	0	5
2.1 - 3.0	28	99	30	19	16	38	67	62	83	36	33	44	54	32	30	28	699
3.1 - 10.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	28	100	30	19	16	38	67	62	83	36	33	47	56	32	30	28	705

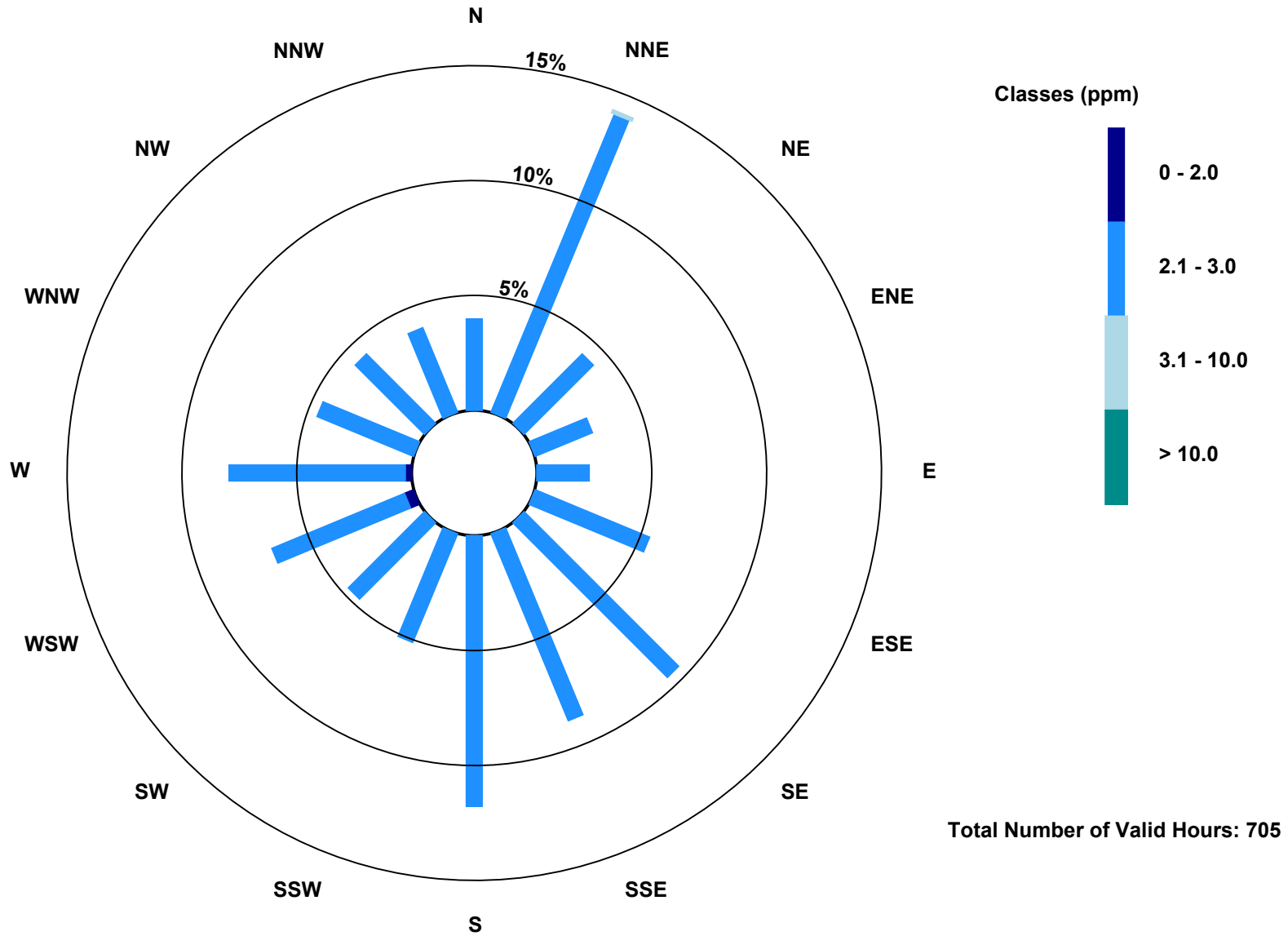
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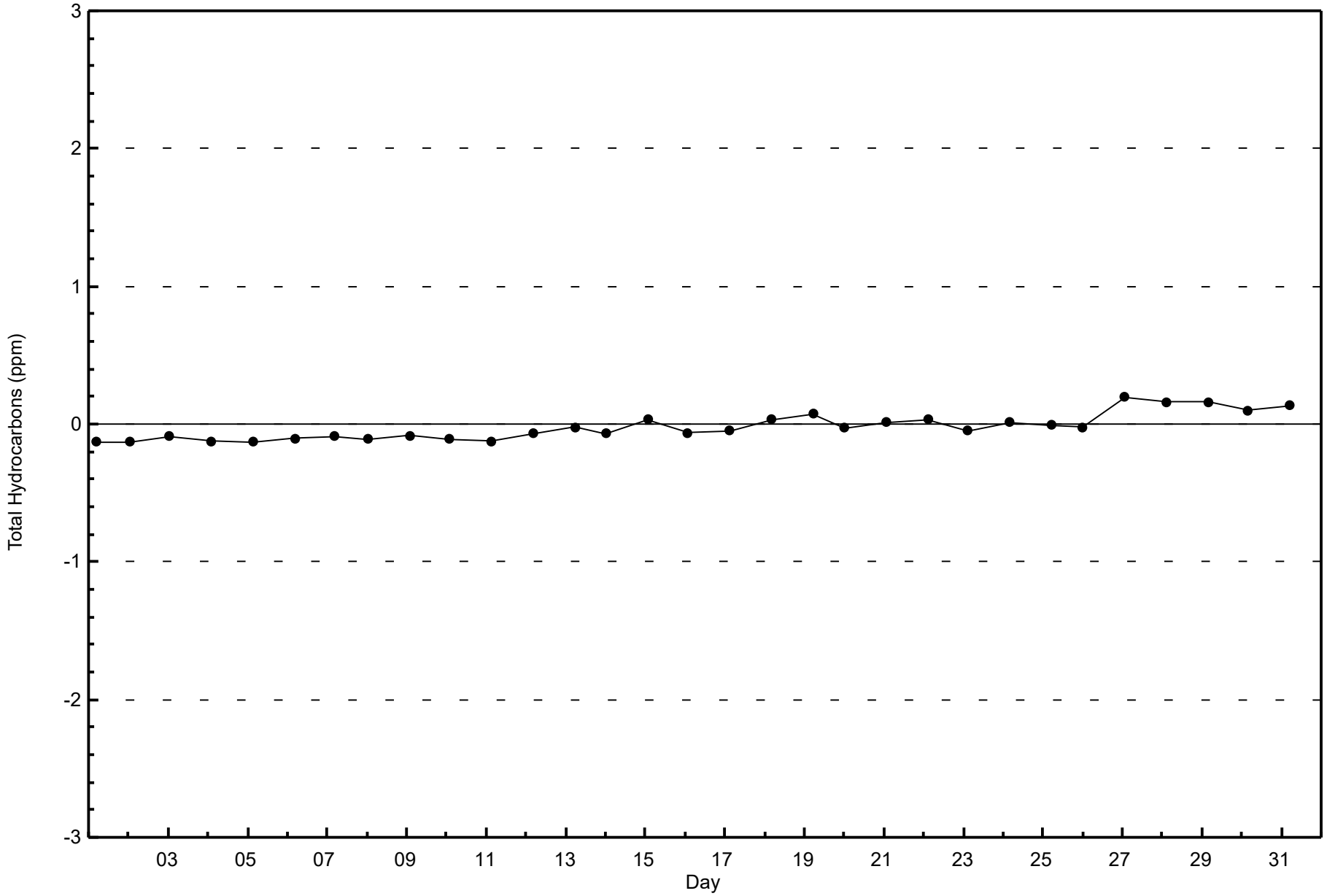
Total Number of Hours: 744



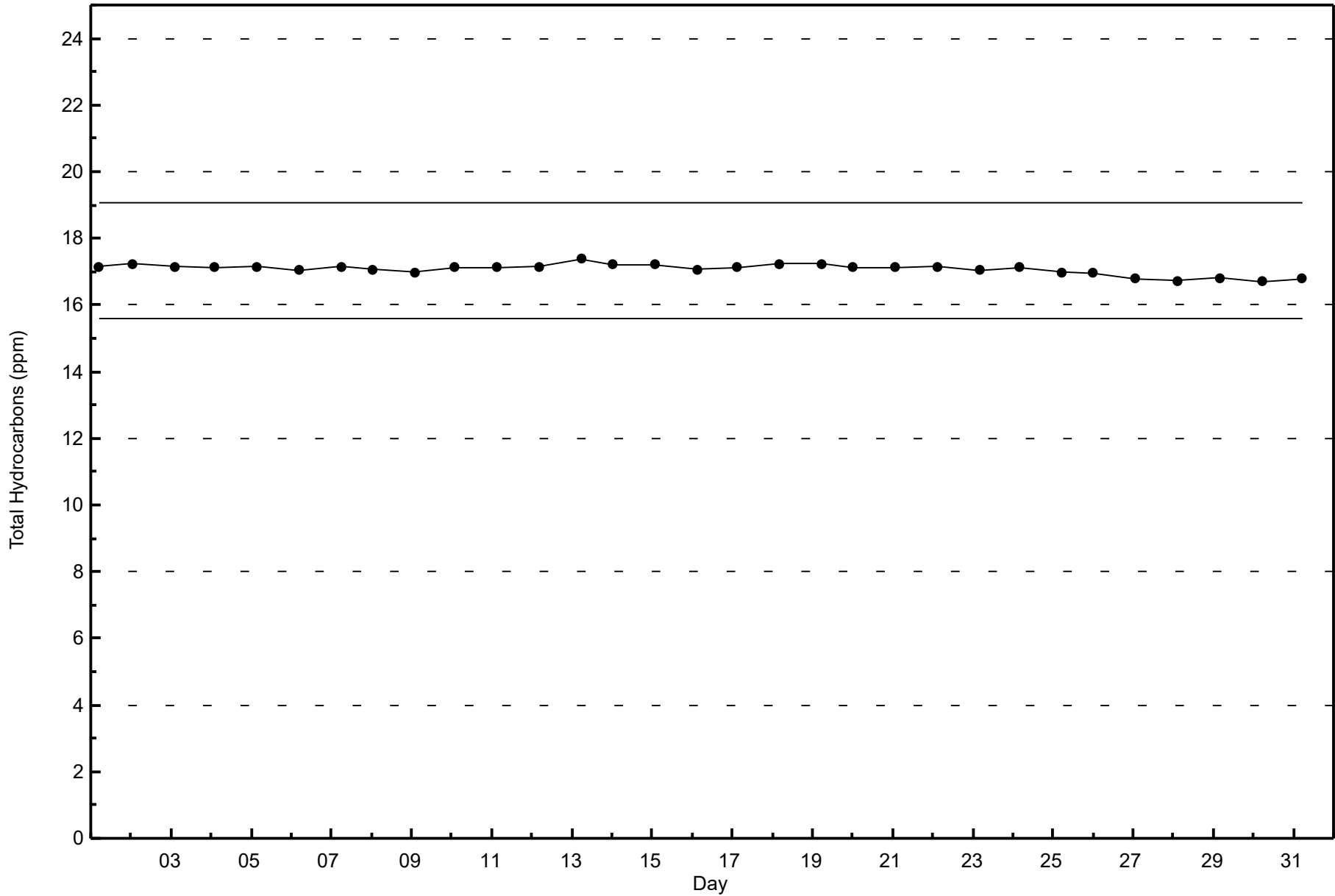
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Mackay River









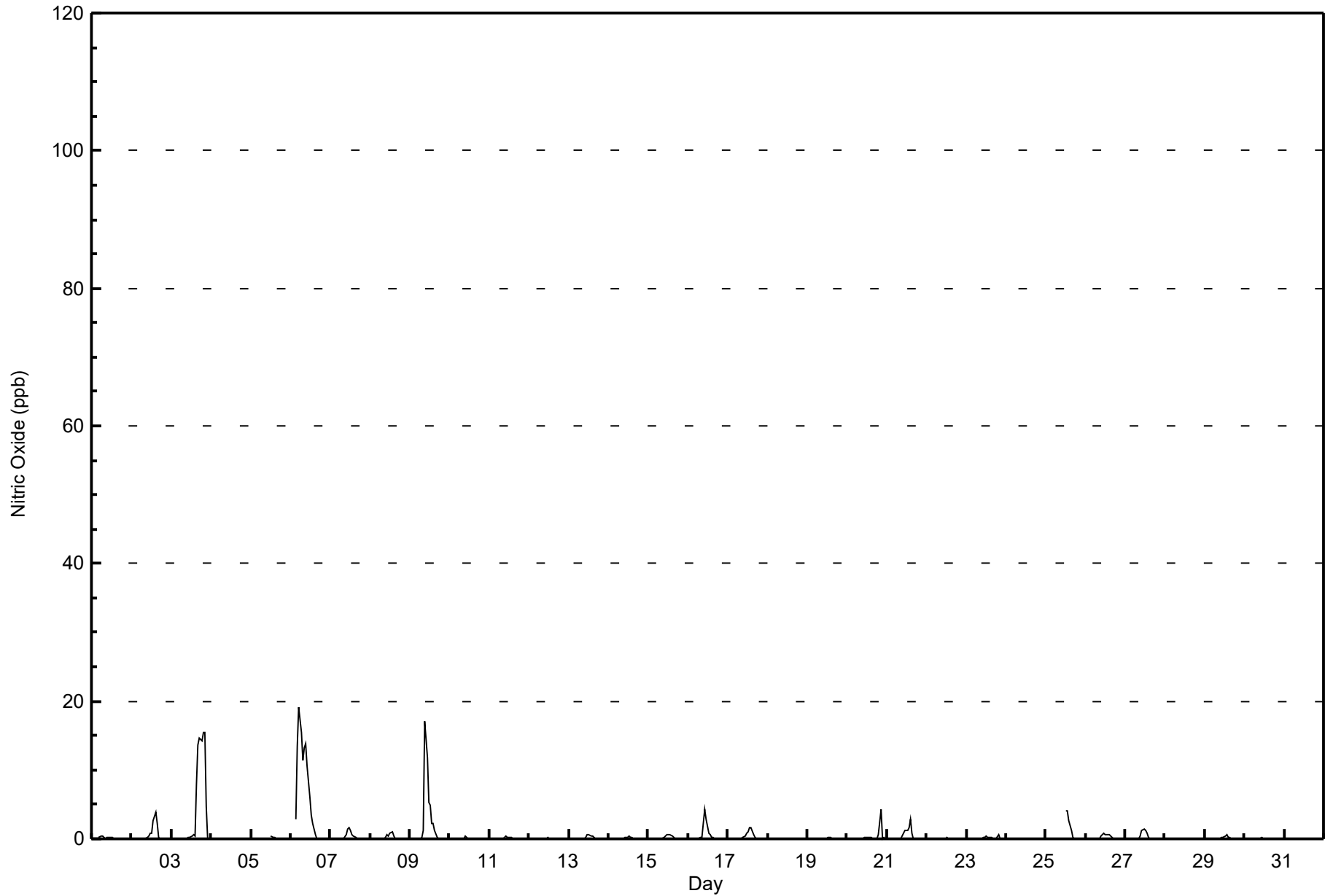


Maximum Value: 19.2 ppb on Jan 6 06:00		Maximum Daily Average: 4.9 ppb on Jan 6		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Jan 1 02:00		Minimum Daily Average: 0.0 ppb on Jan 28		Hours of Data: 659																						
Maximum Diurnal Average: 1.4 ppb at hour 10		Minimum Diurnal Average: 0.0 ppb at hour 3		Hours of Missing Data: 85																						
Monthly Average: 0.53 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> = 0.6 P <sub>99</sub> = 14.0		Hours of Calibration: 38																						
				Percent Operational Time: 93.7																						
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-Jan	0.0	0.0	0.0	Z	0.2	0.3	0.4	0.2	0.0	0.2	0.2	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	0.1	0.4
2-Jan	0.0	0.0	0.0	0.1	Z	0.0	0.0	0.1	0.0	0.2	0.4	0.7	0.8	2.6	3.8	2.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	3.8
3-Jan	0.1	0.1	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.7	0.4	7.8	13.7	14.6	14.2	15.5	15.4	4.7	0.1	0.0	3.8	15.5
4-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.0
5-Jan	M	M	M	M	M	M	M	M	C	C	C	C	C	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.4
6-Jan	0.0	0.0	Z	2.8	13.4	19.2	15.4	11.5	13.2	13.8	10.5	6.1	3.5	2.3	1.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	19.2
7-Jan	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.6	1.5	1.7	1.2	0.7	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7
8-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.5	0.5	0.8	0.9	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.9
9-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	1.1	17.0	11.8	5.4	5.0	2.2	2.3	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	17.0
10-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.3
11-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	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	0.1	0.4
12-Jan	0.0	0.0	Z	0.0	0.0	0.0	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	0.2
13-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.6	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
14-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
15-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.5	0.7	0.7	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
16-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	2.3	4.2	2.9	0.9	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	4.2
17-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	0.9	1.7	1.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7
18-Jan	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
19-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
20-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.5	4.3	0.1	0.1	0.0	0.3	4.3
21-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	0.8	1.2	1.2	1.7	2.8	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.8
22-Jan	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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
23-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.1	0.5
24-Jan	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	0.1
25-Jan	M	M	M	M	M	M	M	M	M	M	M	M	M	4.0	4.0	2.7	1.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	--	4.0
26-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	0.6	0.7	0.6	0.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
27-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	1.2	1.4	1.2	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4
28-Jan	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
29-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
30-Jan	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	0.1
31-Jan	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
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																				



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

**Nitric Oxide (NO) - ppb**  
**Mackay River - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Mackay River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	659	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: 659

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Mackay River - January 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	26	84	22	16	17	34	65	60	78	38	32	49	50	27	31	27	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>	26	84	22	16	17	34	65	60	78	38	32	49	50	27	31	27	656

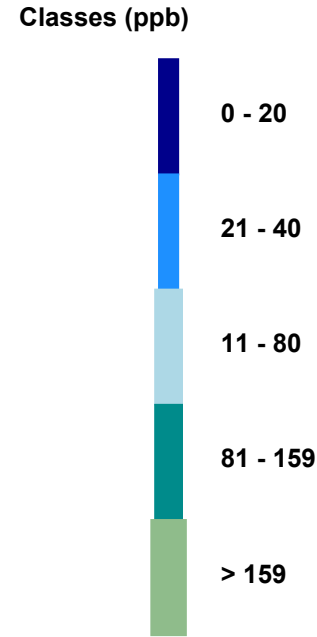
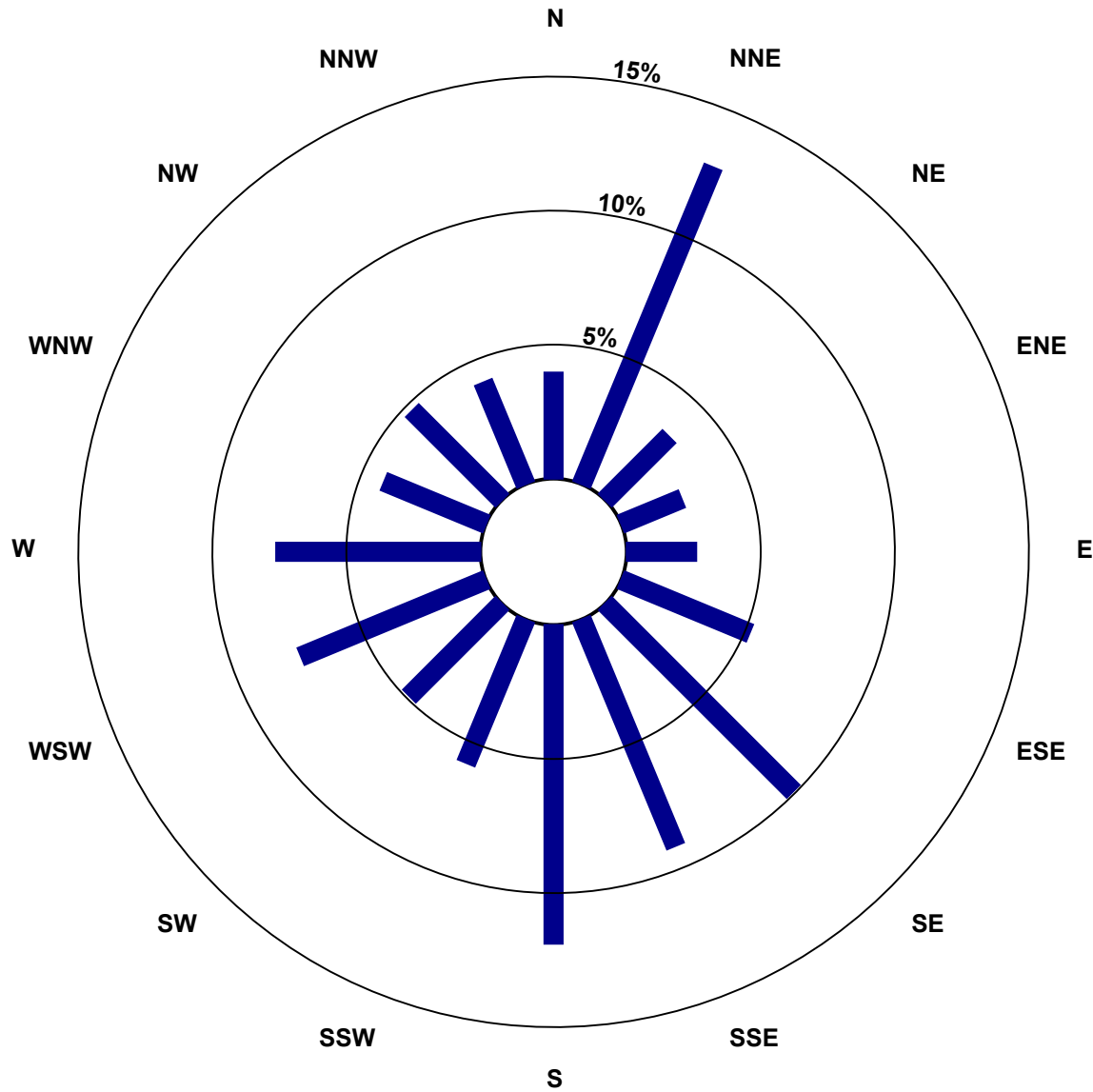
Total Number of Valid Hours: 656

Total Number of Hours: 744

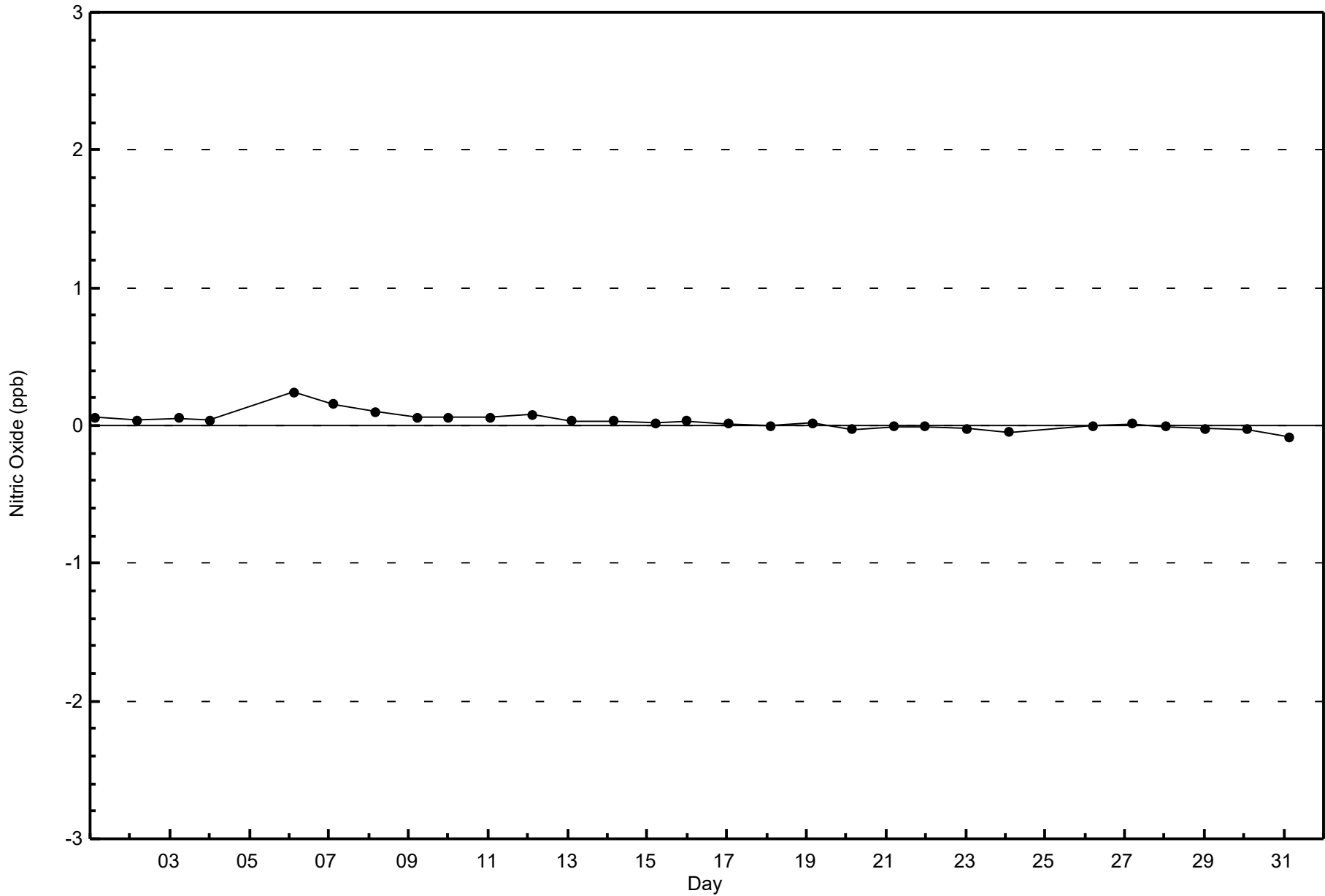


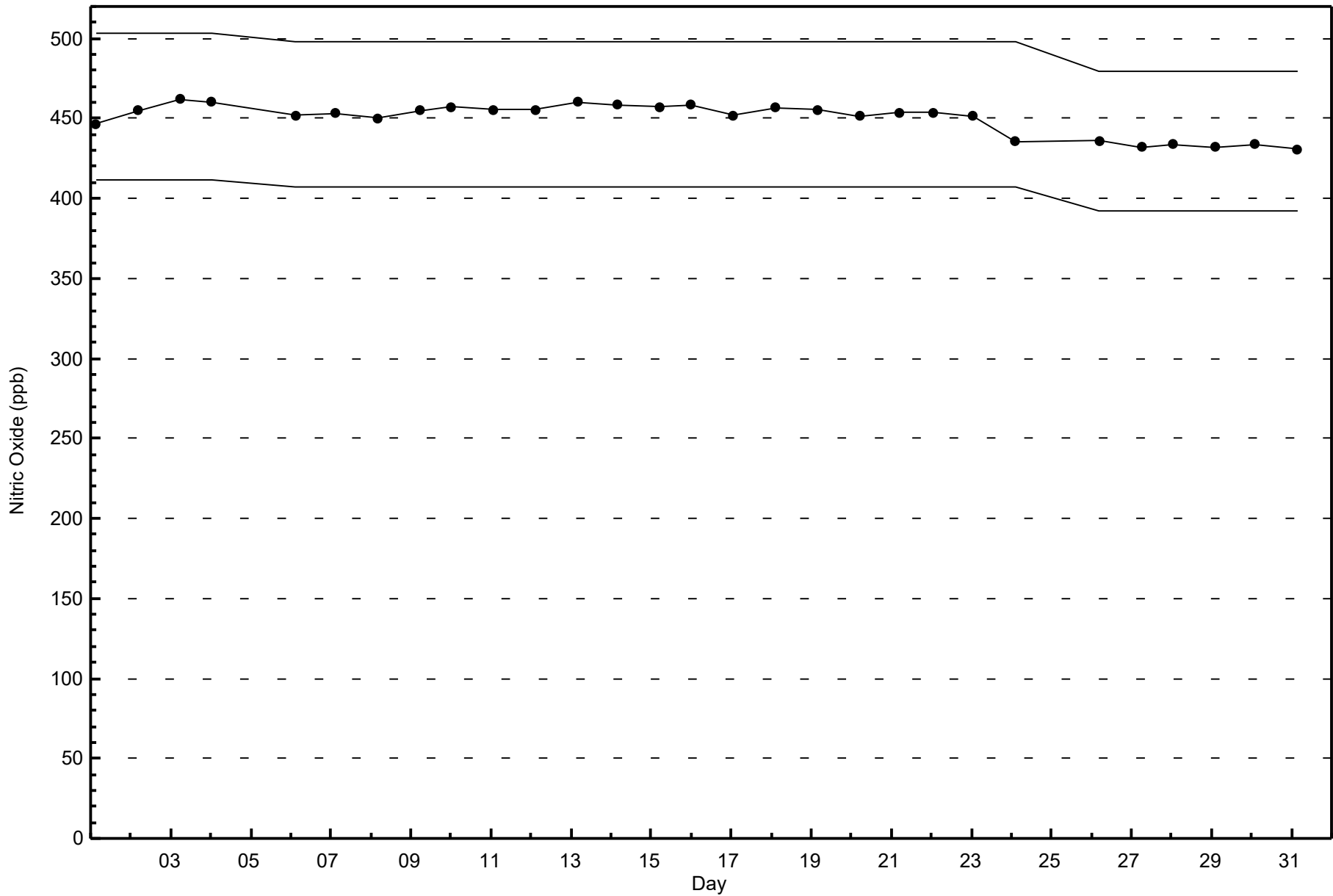
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Mackay River



Total Number of Valid Hours: 656









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Mackay River - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 32.5 ppb on Jan 9 10:00	Maximum Daily Average: 15.4 ppb on Jan 6		Hours of Data:	659
Minimum Value: 0.1 ppb on Jan 1 23:00	Minimum Daily Average: 0.4 ppb on Jan 12		Hours of Missing Data:	85
Maximum Diurnal Average: 5.6 ppb at hour 5	Minimum Diurnal Average: 3.0 ppb at hour 13		Hours of Calibration:	38
Monthly Average: 4.38 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.8 Median = 2.1 Q <sub>3</sub> = 5.5 P <sub>90</sub> = 11.2 P <sub>99</sub> = 29.4		Percent Operational Time:	93.7

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-Jan	0.3	0.3	0.3	Z	1.3	2.6	3.3	1.8	0.3	1.4	1.1	0.8	1.0	0.5	0.6	0.3	0.8	0.6	0.2	0.6	0.6	0.3	0.1	0.1	0.8	3.3	
2-Jan	0.7	5.0	10.5	10.8	Z	3.8	7.7	9.6	7.6	6.9	6.9	7.5	7.6	15.1	21.2	22.0	18.3	13.9	13.2	11.9	10.7	9.8	9.0	8.0	10.3	22.0	
3-Jan	6.8	6.0	5.4	5.0	4.6	Z	4.5	4.1	3.7	3.0	2.5	2.7	3.4	5.9	5.3	23.4	25.9	26.4	27.0	28.1	28.4	27.8	15.4	7.0	11.8	28.4	
4-Jan	Z	6.5	7.8	8.0	5.6	3.7	4.5	3.4	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	8.0	
5-Jan	M	M	M	M	M	M	M	M	C	C	C	C	C	2.2	2.3	2.3	2.2	2.3	1.8	1.9	2.2	2.7	5.0	5.8	--	5.8	
6-Jan	14.8	17.4	Z	29.5	31.1	30.6	30.7	30.2	30.6	28.5	25.1	19.0	12.2	8.7	7.7	8.5	6.1	5.9	4.6	2.8	2.8	2.4	2.0	2.4	15.4	31.1	
7-Jan	3.3	5.3	9.8	Z	19.7	15.0	13.0	10.6	9.8	9.0	8.2	6.7	4.5	2.9	3.1	2.8	2.5	2.0	2.3	3.1	3.3	2.8	2.6	2.7	6.3	19.7	
8-Jan	2.6	2.1	1.6	1.4	Z	1.2	1.2	1.3	1.3	1.4	2.0	1.2	1.8	2.6	1.8	1.1	1.0	0.9	0.9	0.9	1.2	10.3	16.2	14.5	3.1	16.2	
9-Jan	10.1	13.2	10.9	8.4	11.3	Z	16.7	10.2	19.6	32.5	24.4	15.3	12.7	8.2	9.8	10.8	11.8	9.4	8.7	8.8	10.2	9.6	9.0	12.6	12.8	32.5	
10-Jan	Z	8.0	6.5	7.1	6.9	6.7	6.3	6.2	5.7	3.7	1.3	0.5	0.3	0.2	0.4	0.3	0.3	0.2	0.2	1.4	1.2	1.1	1.0	0.3	2.9	8.0	
11-Jan	0.3	Z	2.1	2.4	2.4	2.4	2.5	3.1	2.7	2.0	1.4	0.9	0.6	0.5	0.5	0.8	0.4	0.7	2.2	1.6	1.5	0.7	1.4	1.2	1.5	3.1	
12-Jan	0.3	0.2	Z	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.4	0.6	
13-Jan	0.7	0.7	0.8	Z	0.8	0.8	0.8	0.7	0.7	0.7	1.1	1.2	0.9	1.3	1.4	1.5	1.4	1.3	1.1	1.0	0.9	0.9	0.9	0.9	1.0	1.5	
14-Jan	0.8	0.7	0.6	0.6	Z	0.5	0.5	0.5	1.1	0.4	0.5	0.5	0.8	0.9	0.7	0.6	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	1.1
15-Jan	0.6	0.7	0.7	0.7	0.6	Z	0.6	0.9	2.1	2.2	1.9	1.8	1.7	1.7	1.8	2.0	2.1	2.0	2.0	2.1	2.1	3.1	2.9	3.0	1.7	3.1	
16-Jan	Z	4.2	4.2	4.3	2.9	10.7	19.4	25.8	17.9	14.1	10.2	6.2	2.5	2.2	1.5	1.6	1.7	1.3	1.3	1.3	1.3	1.3	1.4	1.2	6.0	25.8	
17-Jan	1.4	Z	1.6	1.5	0.8	1.1	0.9	1.2	2.2	3.2	4.2	4.7	4.5	7.1	8.1	6.6	6.3	7.9	10.2	14.3	11.6	6.8	7.0	6.3	5.2	14.3	
18-Jan	5.7	3.8	Z	3.2	2.2	1.4	1.3	0.6	0.9	0.7	0.6	0.5	0.4	0.5	0.5	1.1	2.5	2.6	1.2	0.8	0.6	0.5	0.5	0.4	1.4	5.7	
19-Jan	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.7	1.0	1.0	1.0	1.1	1.3	2.6	2.7	2.2	1.8	1.8	1.4	1.0	2.7
20-Jan	1.1	1.2	1.3	1.5	Z	1.9	2.2	2.2	2.2	2.1	1.9	1.7	1.5	1.6	1.2	1.4	1.2	1.2	2.3	12.4	29.4	22.6	23.1	12.8	5.7	29.4	
21-Jan	17.1	10.1	9.6	10.4	11.4	Z	8.7	8.4	7.5	6.6	5.5	5.1	5.1	7.4	11.2	7.4	4.7	9.9	12.0	5.5	3.1	3.1	3.4	3.8	7.7	17.1	
22-Jan	Z	9.3	14.5	9.3	11.2	7.9	5.6	2.7	2.6	1.6	0.9	1.1	1.1	0.9	0.8	0.8	1.1	1.1	1.0	1.2	1.2	1.2	1.4	1.6	3.5	14.5	
23-Jan	1.6	Z	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.6	1.7	1.6	1.7	2.1	2.1	2.4	2.3	2.7	6.3	20.5	17.0	12.2	14.0	14.6	5.1	20.5	
24-Jan	17.3	17.0	Z	15.1	10.6	9.3	6.0	5.1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	17.3
25-Jan	M	M	M	M	M	M	M	M	M	M	M	M	M	7.9	9.1	8.7	7.7	7.4	8.1	9.4	9.4	6.9	6.1	5.5	4.9	--	9.4
26-Jan	4.5	4.4	4.4	4.3	Z	4.5	3.6	4.2	4.8	4.1	3.7	3.0	2.3	2.4	2.7	3.0	3.3	3.2	2.8	2.5	2.3	2.2	1.8	2.0	3.3	4.8	
27-Jan	2.2	2.1	2.1	2.0	2.1	Z	2.3	2.5	4.1	5.1	5.1	4.6	4.0	3.3	2.4	1.9	1.6	1.3	1.1	1.0	0.9	0.8	0.9	1.0	2.4	5.1	
28-Jan	Z	2.7	2.6	2.1	1.6	1.3	2.4	2.2	1.8	1.2	1.0	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	1.1	2.7	
29-Jan	0.4	Z	0.4	0.5	0.5	0.6	0.6	0.7	1.2	1.9	1.9	2.3	2.9	2.6	2.5	2.6	2.9	3.0	3.0	2.8	2.4	2.4	2.2	2.2	1.8	3.0	
30-Jan	2.6	2.6	Z	3.0	2.8	2.5	2.0	2.1	2.7	3.8	2.7	1.4	0.8	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.4	3.8	
31-Jan	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.6	0.9	1.8	1.2	1.2	1.3	1.5	1.4	1.1	0.7	1.8	

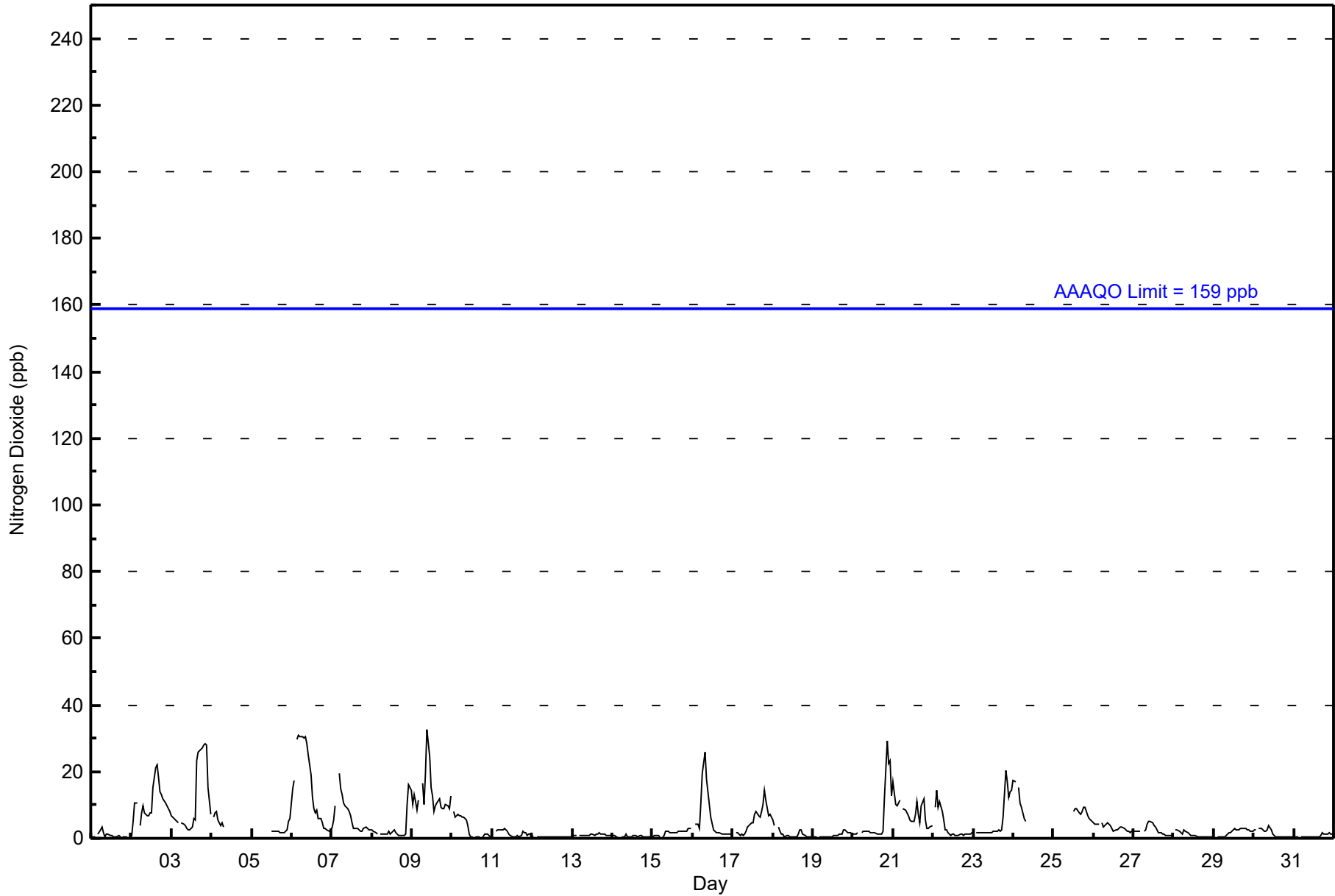
4.0	5.0	4.2	5.5	5.6	4.6	5.2	4.9	5.0	5.1	4.3	3.4	3.0	3.2	3.5	4.0	3.9	3.9	4.2	4.9	5.1	4.7	4.5	3.9	Diurnal Average	
17.3	17.4	14.5	29.5	31.1	30.6	30.7	30.2	30.6	32.5	25.1	19.0	12.7	15.1	21.2	23.4	25.9	26.4	27.0	28.1	29.4	27.8	23.1	14.6	Diurnal Maximum	

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**  
**Mackay River - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	635	96.36	96.36
21 - 40	24	3.64	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: 659

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - January 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	26	67	19	15	17	32	65	60	78	38	32	49	50	27	30	27	632
21 - 40	0	17	3	1	0	2	0	0	0	0	0	0	0	0	1	0	24
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>	26	84	22	16	17	34	65	60	78	38	32	49	50	27	31	27	656

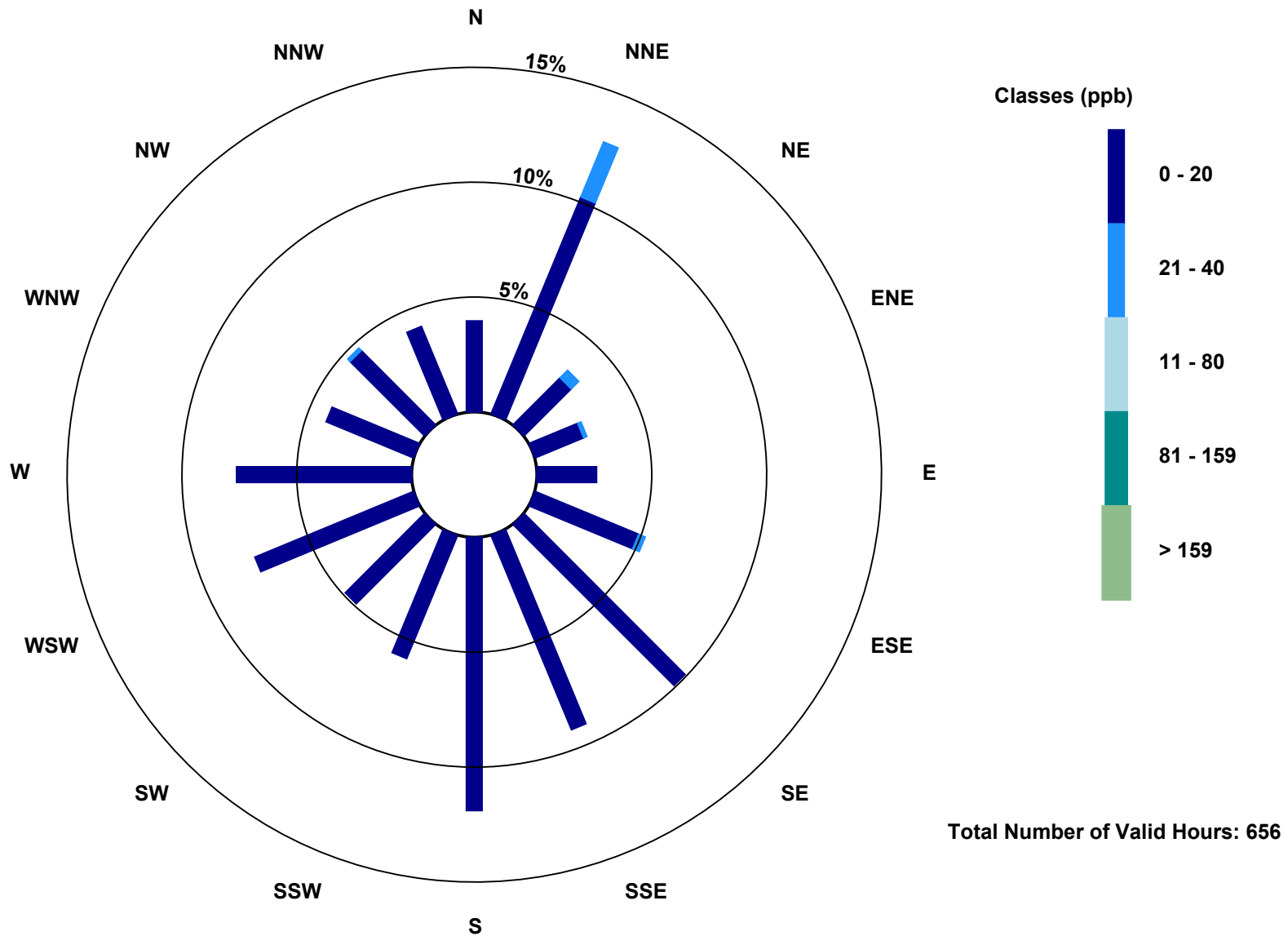
Total Number of Valid Hours: 656

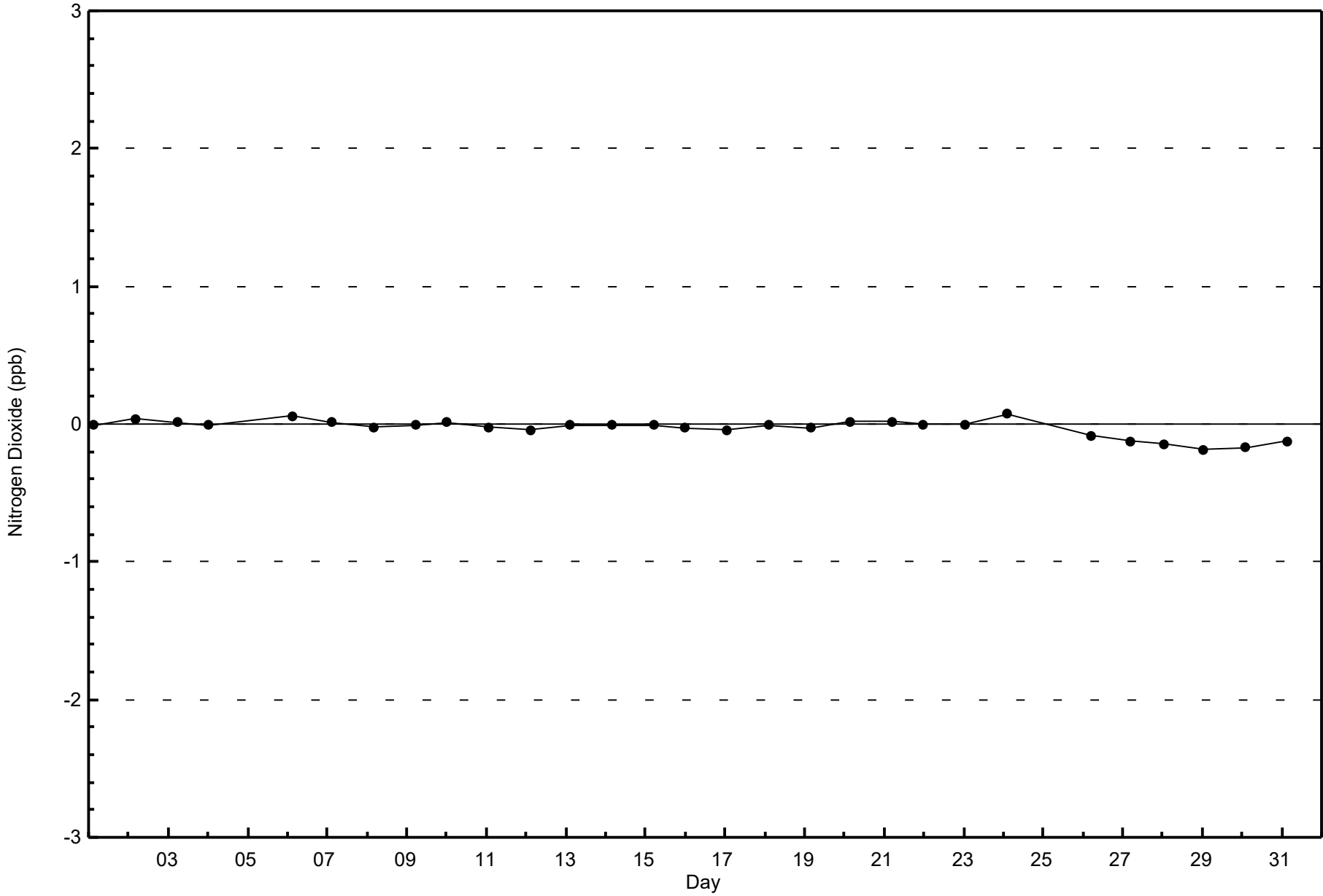
Total Number of Hours: 744

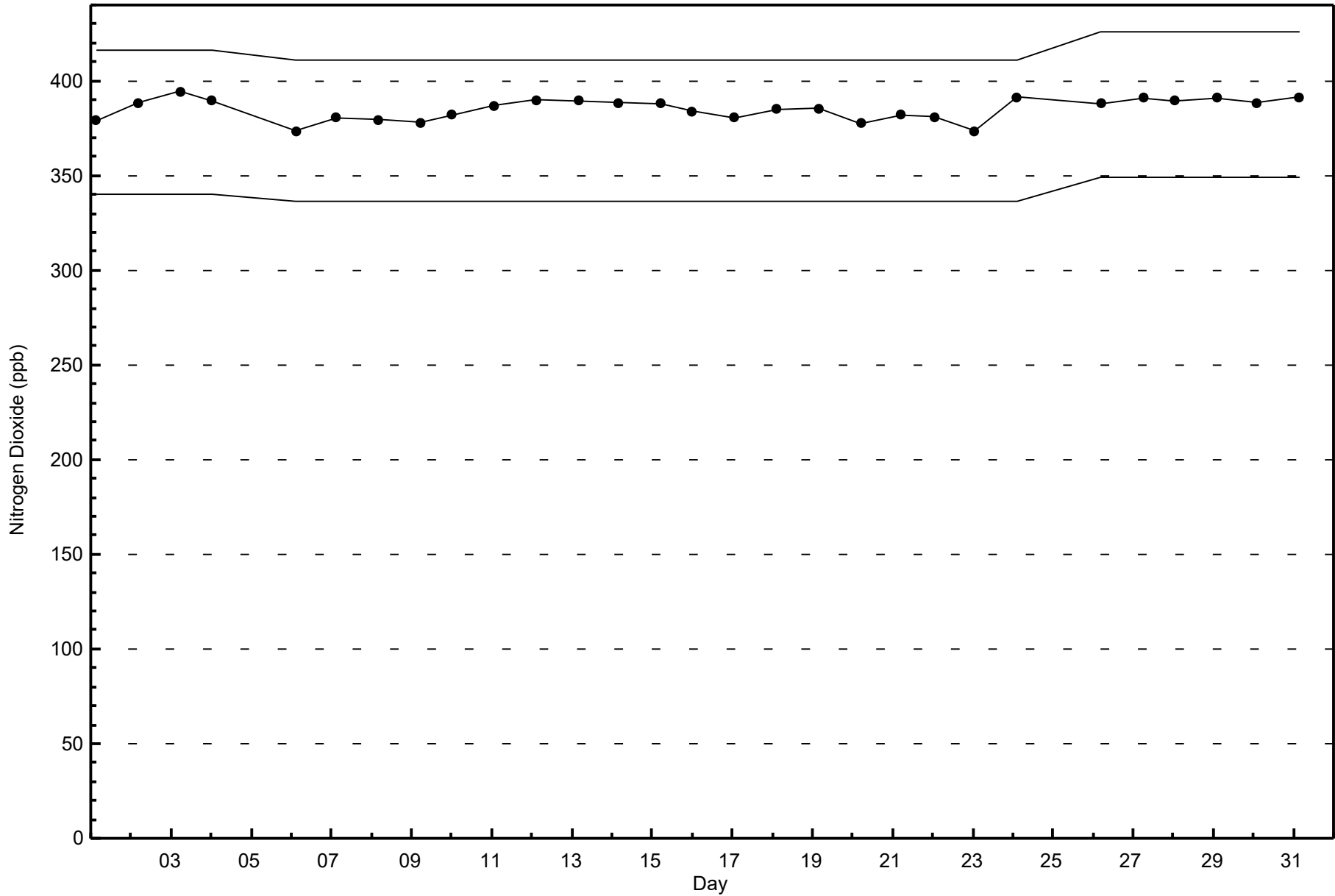


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - January 2024**

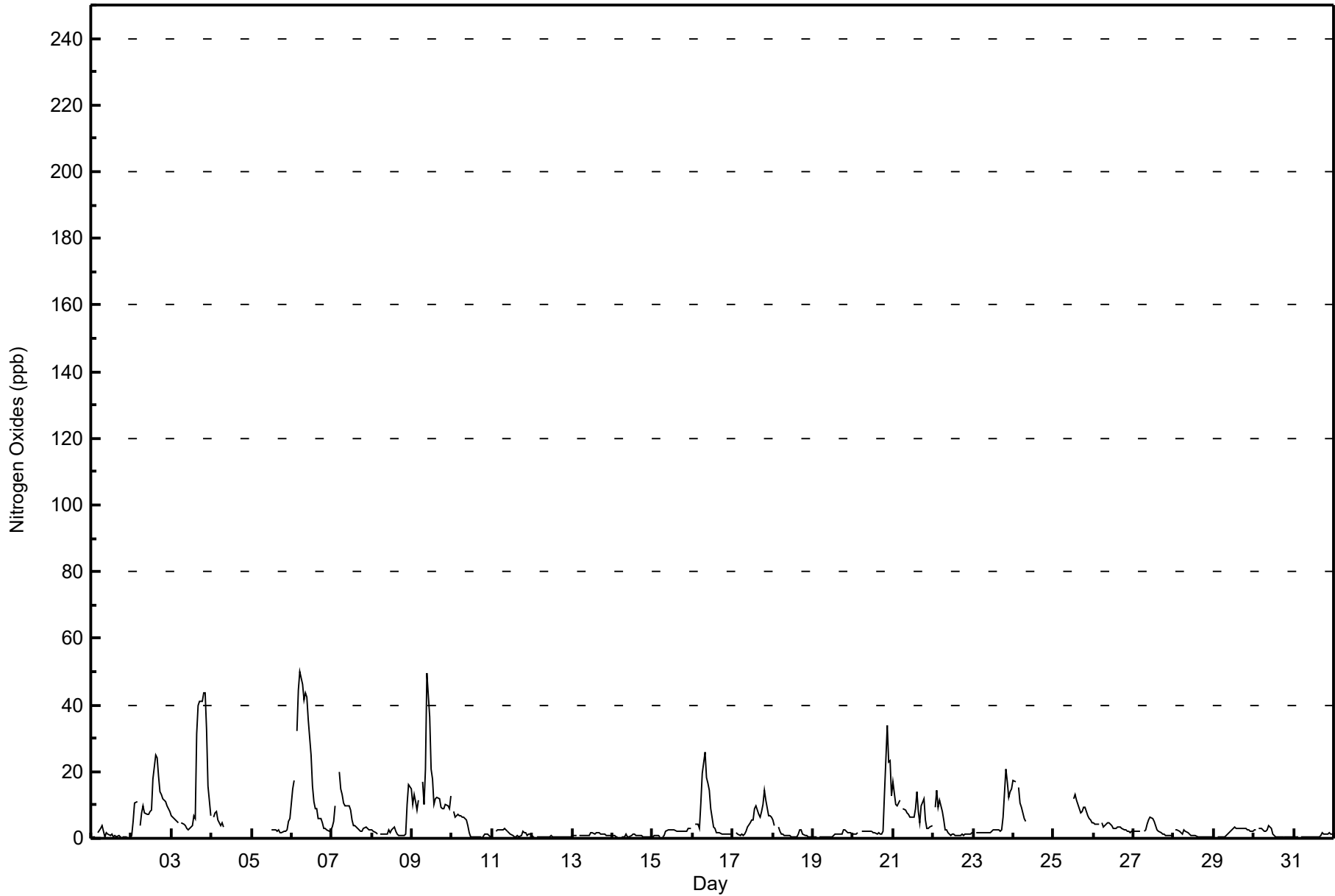
Maximum Value: 49.8 ppb on Jan 6 06:00		Maximum Daily Average: 20.3 ppb on Jan 6		Hours in Service: 744																							
Minimum Value: 0.1 ppb on Jan 2 00:00		Minimum Daily Average: 0.4 ppb on Jan 12		Hours of Data: 659																							
Maximum Diurnal Average: 6.5 ppb at hour 10		Minimum Diurnal Average: 3.8 ppb at hour 13		Hours of Missing Data: 85																							
Monthly Average: 4.90 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.9 Median = 2.2 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 12.0 P <sub>99</sub> = 42.9		Hours of Calibration: 38																							
				Percent Operational Time: 93.7																							
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-Jan	0.3	0.3	0.3	Z	1.5	2.9	3.7	2.0	0.3	1.6	1.3	0.9	1.2	0.6	0.7	0.3	0.8	0.6	0.2	0.6	0.6	0.3	0.1	0.1	0.9	3.7	
2-Jan	0.7	5.0	10.5	10.9	Z	3.8	7.7	9.7	7.6	7.1	7.3	8.2	8.4	17.7	25.0	24.2	18.6	14.0	13.3	12.0	10.8	9.9	9.1	8.1	10.8	25.0	
3-Jan	6.9	6.1	5.5	5.1	4.6	Z	4.5	4.1	3.7	3.1	2.7	2.9	3.8	6.6	5.7	31.2	39.6	41.0	41.2	43.6	43.8	32.5	15.5	7.0	15.7	43.8	
4-Jan	Z	6.5	7.8	8.0	5.6	3.7	4.5	3.4	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	8.0
5-Jan	M	M	M	M	M	M	M	M	C	C	C	C	C	2.6	2.6	2.5	2.3	2.3	1.8	1.9	2.2	2.7	5.0	5.8	--	5.8	
6-Jan	14.8	17.4	Z	32.3	44.5	49.8	46.1	41.7	43.8	42.3	35.6	25.1	15.7	11.0	9.1	9.1	6.1	5.9	4.6	2.8	2.8	2.4	2.0	2.4	20.3	49.8	
7-Jan	3.3	5.3	9.8	Z	19.8	15.0	13.0	10.6	9.8	9.6	9.7	8.4	5.7	3.6	3.6	3.0	2.5	2.0	2.3	3.1	3.3	2.8	2.6	2.7	6.6	19.8	
8-Jan	2.6	2.1	1.6	1.4	Z	1.2	1.2	1.3	1.3	1.5	2.5	1.7	2.6	3.5	2.2	1.2	1.0	0.9	0.9	0.9	1.2	10.3	16.2	14.6	3.2	16.2	
9-Jan	10.1	13.2	10.9	8.4	11.3	Z	16.8	10.3	20.7	49.5	36.2	20.7	17.7	10.4	12.1	12.1	12.0	9.4	8.7	8.8	10.2	9.6	9.0	12.6	14.8	49.5	
10-Jan	Z	8.0	6.5	7.1	6.9	6.7	6.3	6.2	5.7	4.0	1.5	0.6	0.3	0.2	0.4	0.3	0.3	0.2	0.2	1.4	1.2	1.1	1.0	0.3	2.9	8.0	
11-Jan	0.3	Z	2.1	2.4	2.4	2.4	2.5	3.1	2.7	2.2	1.8	1.2	0.8	0.6	0.6	0.8	0.4	0.7	2.2	1.6	1.5	0.7	1.4	1.2	1.6	3.1	
12-Jan	0.3	0.2	Z	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.4	0.8	
13-Jan	0.7	0.7	0.8	Z	0.8	0.8	0.8	0.7	0.7	0.8	0.9	1.7	1.8	1.2	1.7	1.6	1.5	1.4	1.3	1.1	1.0	0.9	0.9	0.9	1.1	1.8	
14-Jan	0.8	0.7	0.6	0.6	Z	0.5	0.5	0.5	1.1	0.5	0.6	0.7	1.1	1.2	0.9	0.7	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.7	1.2	
15-Jan	0.6	0.7	0.7	0.7	0.6	Z	0.6	0.9	2.1	2.4	2.4	2.5	2.4	2.3	2.2	2.2	2.1	2.0	2.0	2.1	2.1	3.1	2.9	3.0	1.9	3.1	
16-Jan	Z	4.2	4.2	4.3	2.9	10.7	19.4	26.0	18.2	16.4	14.4	9.1	3.4	2.9	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.4	1.2	6.5	26.0	
17-Jan	1.4	Z	1.6	1.5	0.8	1.1	0.9	1.2	2.2	3.3	4.6	5.4	5.4	8.8	9.7	7.2	6.4	7.9	10.2	14.3	11.6	6.8	7.0	6.3	5.4	14.3	
18-Jan	5.7	3.8	Z	3.2	2.2	1.4	1.3	0.6	0.9	0.7	0.7	0.5	0.4	0.5	0.6	1.2	2.5	2.6	1.2	0.8	0.6	0.5	0.5	0.4	1.4	5.7	
19-Jan	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.6	0.8	1.2	1.2	1.1	1.1	1.3	2.6	2.7	2.2	1.8	1.8	1.4	1.0	2.7	
20-Jan	1.1	1.2	1.3	1.5	Z	1.9	2.2	2.2	2.2	2.2	2.1	1.9	1.8	1.8	1.3	1.5	1.2	1.2	2.3	12.9	33.7	22.7	23.2	12.8	5.9	33.7	
21-Jan	17.1	10.1	9.6	10.4	11.4	Z	8.7	8.4	7.5	7.0	6.3	6.3	6.3	9.1	14.0	8.2	4.8	9.9	12.0	5.5	3.1	3.1	3.4	3.8	8.1	17.1	
22-Jan	Z	9.3	14.5	9.3	11.2	7.9	5.6	2.7	2.6	1.6	1.0	1.2	1.2	1.0	0.9	0.9	1.1	1.1	1.0	1.2	1.2	1.2	1.4	1.6	3.5	14.5	
23-Jan	1.6	Z	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.4	2.4	2.3	2.5	2.3	2.7	6.3	21.0	17.1	12.3	14.1	14.7	5.2	21.0	
24-Jan	17.4	17.1	Z	15.2	10.6	9.3	6.0	5.1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	17.4
25-Jan	M	M	M	M	M	M	M	M	M	M	M	M	M	11.9	13.1	11.4	8.9	7.7	8.1	9.4	9.4	6.9	6.1	5.5	4.9	--	13.1
26-Jan	4.5	4.4	4.4	4.3	Z	4.5	3.6	4.2	4.8	4.5	4.3	3.7	2.9	3.0	3.2	3.4	3.4	3.2	2.8	2.5	2.3	2.2	1.8	2.0	3.5	4.8	
27-Jan	2.2	2.1	2.1	2.0	2.1	Z	2.3	2.5	4.1	5.5	6.3	6.0	5.2	4.0	2.7	2.0	1.6	1.3	1.1	1.0	0.9	0.8	0.9	1.0	2.6	6.3	
28-Jan	Z	2.7	2.6	2.1	1.6	1.3	2.4	2.2	1.8	1.2	1.0	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	1.1	2.7	
29-Jan	0.4	Z	0.4	0.5	0.5	0.6	0.6	0.7	1.2	1.9	2.0	2.5	3.3	3.1	2.8	2.8	2.9	3.0	3.0	2.8	2.4	2.4	2.2	2.2	1.9	3.3	
30-Jan	2.6	2.6	Z	3.0	2.8	2.5	2.0	2.1	2.7	3.9	2.8	1.4	0.8	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.4	3.9	
31-Jan	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.6	0.9	1.8	1.2	1.2	1.3	1.5	1.4	1.1	0.7	1.8	
4.0 5.0 4.2 5.7 6.1 5.5 5.7 5.4 5.6 6.5 5.6 4.3 3.8 4.0 4.2 4.6 4.4 4.4 4.6 5.4 5.7 4.8 4.5 3.9																								Diurnal Average			
17.4 17.4 14.5 32.3 44.5 49.8 46.1 41.7 43.8 49.5 36.2 25.1 17.7 17.7 25.0 31.2 39.6 41.0 41.2 43.6 43.8 32.5 23.2 14.7																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - January 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	632	95.90	95.90
21 - 40	16	2.43	98.33
41 - 80	11	1.67	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 659

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Mackay River - January 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	26	64	19	15	17	32	65	60	78	38	32	49	50	27	30	27	629
21 - 40	0	11	1	1	0	2	0	0	0	0	0	0	0	0	1	0	16
41 - 80	0	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	11
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>	26	84	22	16	17	34	65	60	78	38	32	49	50	27	31	27	656

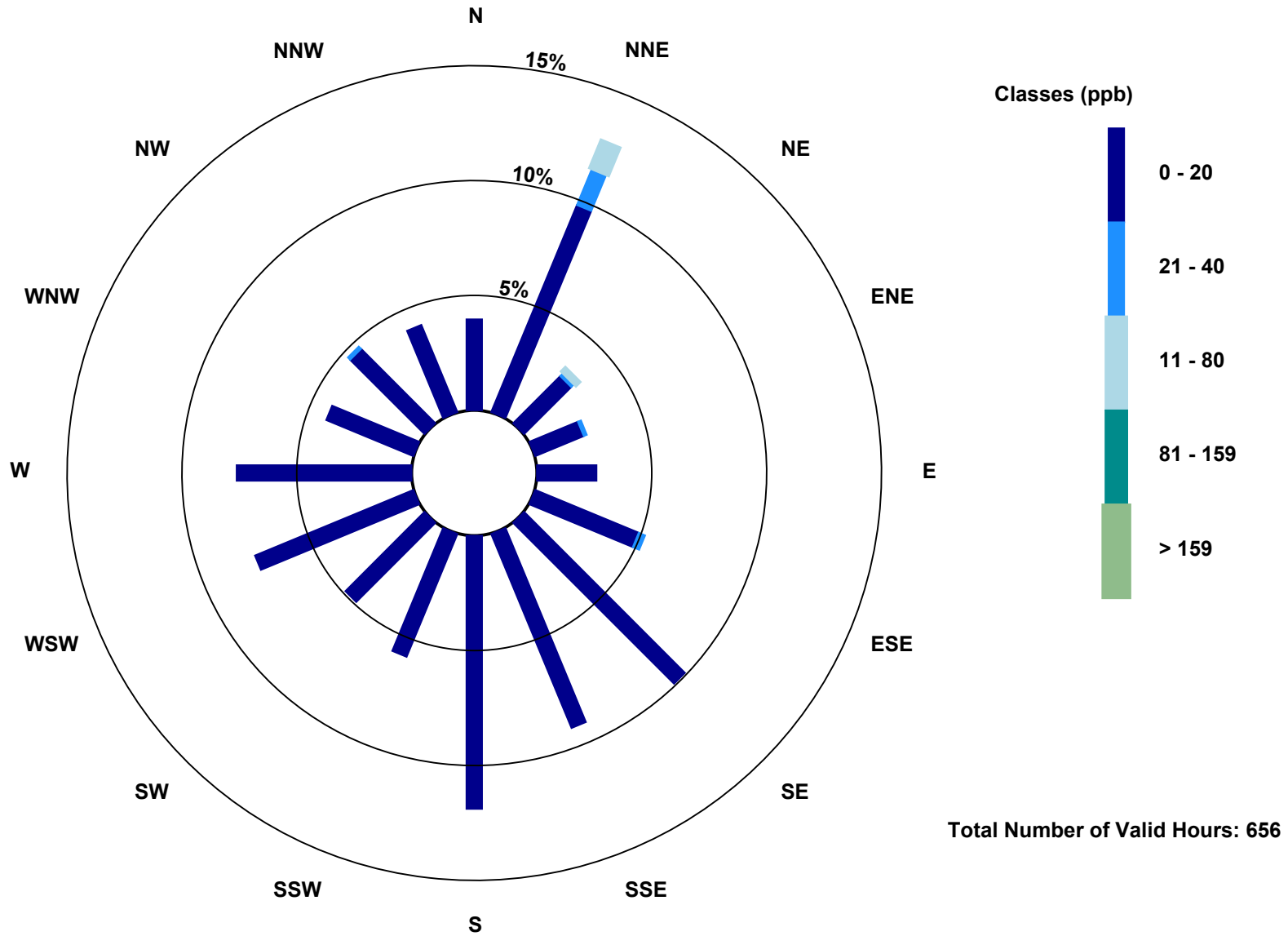
Total Number of Valid Hours: 656

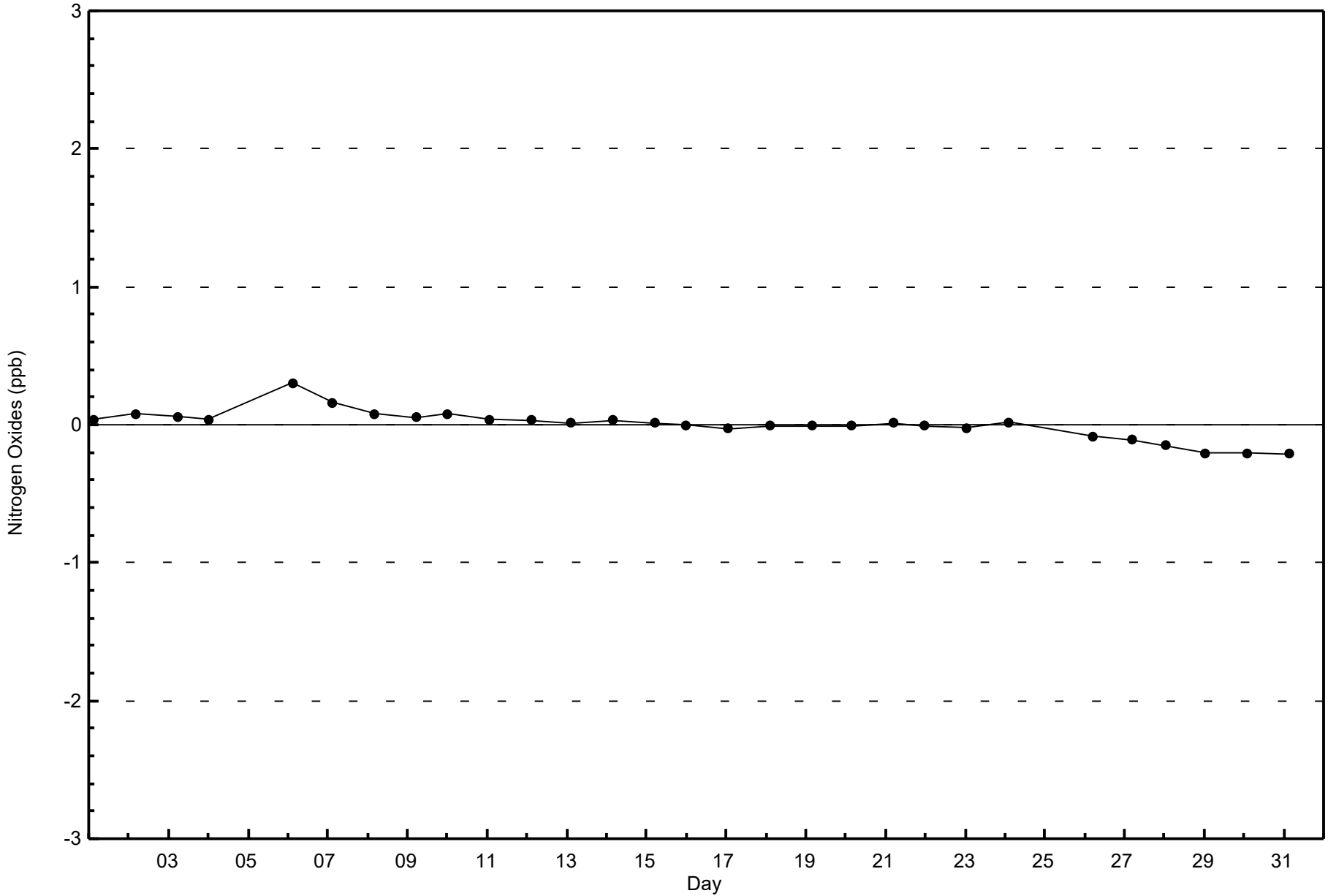
Total Number of Hours: 744

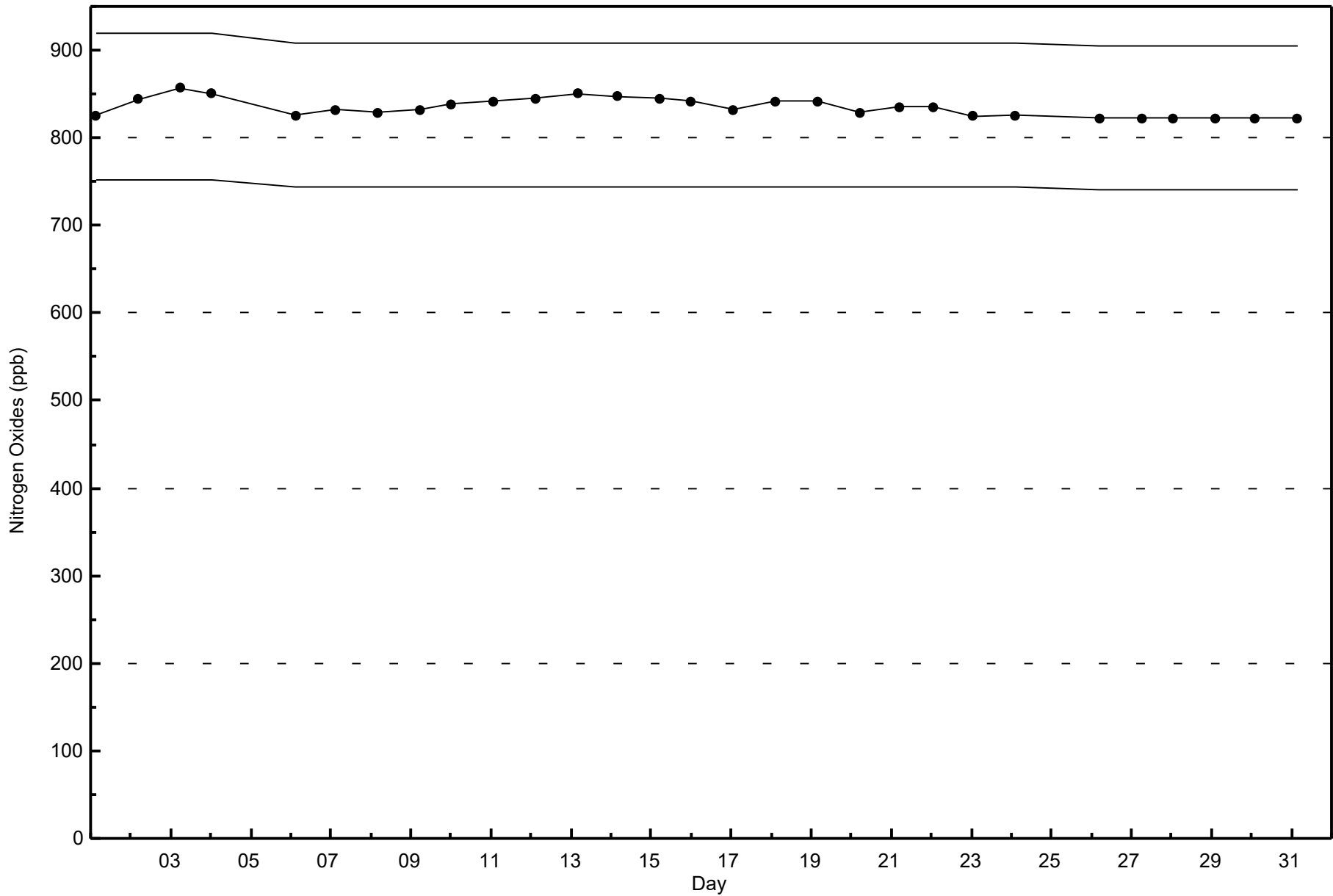


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

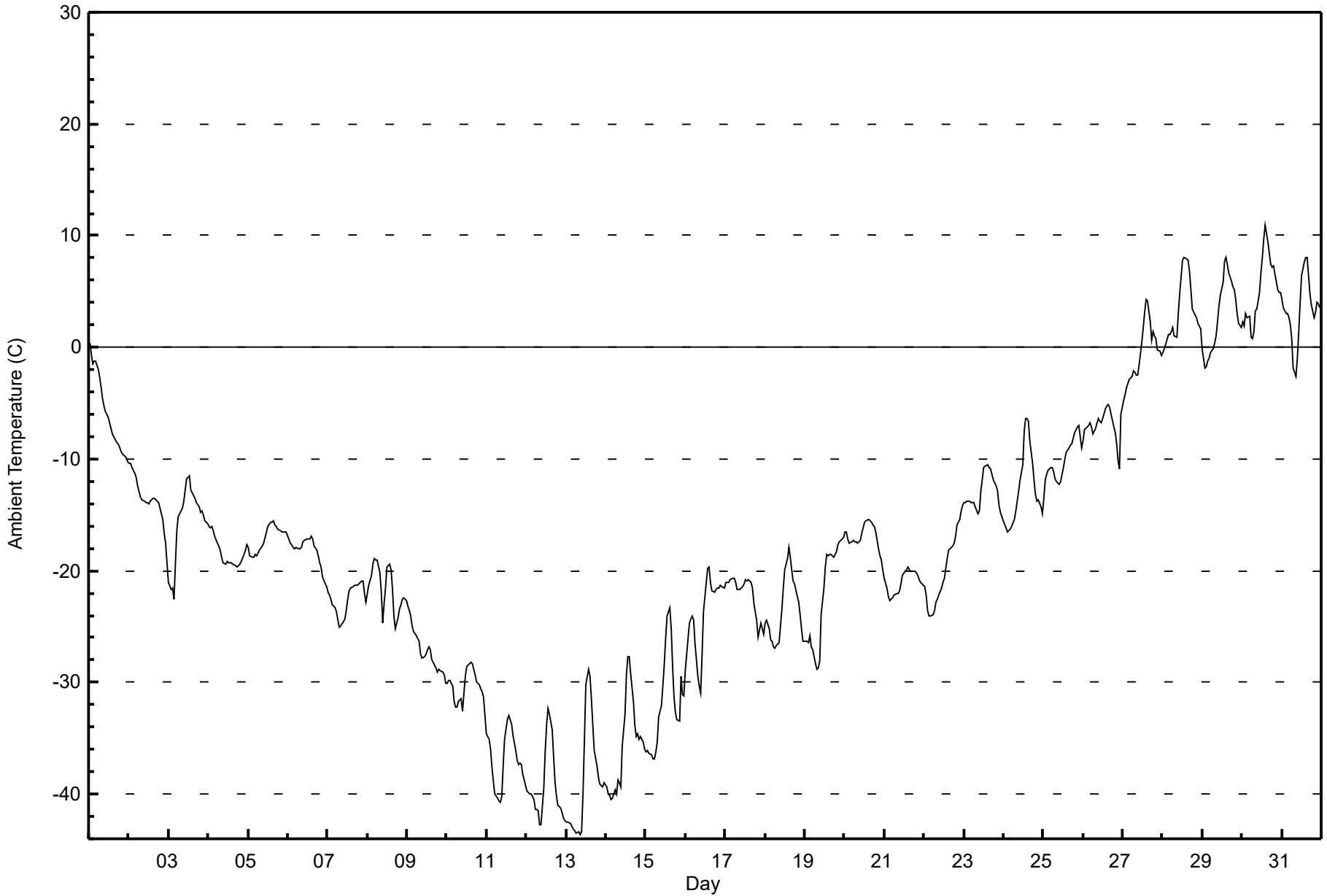
**Ambient Temperature (AT) - C**  
**Mackay River - January 2024**

Maximum Value: 10.9 C on Jan 30 15:00		Maximum Daily Average: 5.2 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -43.6 C on Jan 13 09:00		Minimum Daily Average: -39.3 C on Jan 12		Hours of Data: 744																																												
Maximum Diurnal Average: -14.6 C at hour 15		Minimum Diurnal Average: -19.6 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -17.79 C		Percentiles: P <sub>1</sub> = -42.7 P <sub>10</sub> = -35.3 Q <sub>1</sub> = -25.5 Median = -18.6 Q <sub>3</sub> = -10.5 P <sub>90</sub> = 1.7 P <sub>99</sub> = 8.0		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-Jan	0.4	-0.6	-1.5	-1.2	-1.2	-1.9	-2.8	-3.6	-4.7	-5.2	-5.8	-6.3	-6.7	-7.3	-7.7	-8.0	-8.4	-8.7	-8.9	-9.2	-9.5	-9.6	-9.9	-10.2	-5.8	0.4																						
2-Jan	-10.3	-10.4	-10.8	-11.2	-11.6	-12.4	-13.0	-13.4	-13.7	-13.8	-13.8	-14.0	-14.0	-13.8	-13.5	-13.5	-13.6	-13.8	-14.0	-14.4	-15.4	-16.7	-17.5	-19.3	-13.7	-10.3																						
3-Jan	-21.0	-21.6	-21.5	-22.6	-19.4	-16.4	-15.1	-14.6	-14.4	-13.7	-12.8	-11.7	-11.6	-12.7	-13.0	-13.3	-13.5	-14.0	-14.3	-14.7	-14.6	-15.0	-15.6	-15.8	-15.5	-11.6																						
4-Jan	-16.0	-16.1	-16.1	-16.4	-16.9	-17.5	-17.8	-18.2	-18.8	-19.2	-19.4	-19.2	-19.2	-19.2	-19.3	-19.4	-19.6	-19.6	-19.5	-19.4	-19.1	-18.5	-18.2	-17.6	-18.3	-16.0																						
5-Jan	-17.9	-18.6	-18.8	-18.8	-18.6	-18.6	-18.4	-18.1	-17.8	-17.6	-17.1	-16.6	-16.1	-15.6	-15.7	-15.5	-15.9	-16.1	-16.2	-16.4	-16.5	-16.5	-16.5	-16.6	-17.1	-15.5																						
6-Jan	-17.1	-17.6	-17.6	-17.9	-18.1	-18.0	-18.1	-18.0	-17.9	-17.4	-17.3	-17.1	-17.1	-17.1	-16.9	-17.2	-17.8	-18.2	-18.7	-19.3	-19.7	-20.6	-21.2	-21.4	-18.2	-16.9																						
7-Jan	-21.9	-22.2	-22.6	-23.1	-23.3	-23.7	-24.5	-25.1	-24.9	-24.6	-24.3	-23.6	-22.5	-21.8	-21.6	-21.4	-21.3	-21.3	-21.3	-21.2	-20.9	-20.9	-22.1	-22.8	-22.6	-20.9																						
8-Jan	-22.0	-21.4	-20.4	-19.5	-19.0	-19.0	-19.0	-20.2	-21.9	-24.7	-23.0	-21.6	-19.7	-19.4	-19.9	-21.6	-24.1	-25.1	-24.2	-23.5	-23.1	-22.5	-22.4	-22.7	-21.7	-19.0																						
9-Jan	-23.1	-23.5	-24.1	-25.0	-25.4	-25.8	-26.1	-26.4	-27.4	-27.8	-27.8	-27.5	-27.0	-26.8	-27.1	-28.0	-28.5	-28.8	-29.0	-28.9	-29.0	-29.1	-29.4	-30.0	-27.1	-23.1																						
10-Jan	-30.0	-29.8	-29.8	-30.3	-31.7	-32.2	-32.2	-31.8	-31.4	-32.6	-31.0	-29.5	-28.6	-28.4	-28.2	-28.4	-28.8	-29.3	-30.0	-30.2	-30.6	-30.8	-31.3	-33.0	-30.4	-28.2																						
11-Jan	-34.6	-35.1	-36.0	-37.6	-38.8	-40.0	-40.4	-40.6	-40.7	-40.3	-37.5	-35.2	-33.4	-32.9	-33.4	-33.7	-34.7	-36.1	-36.9	-37.3	-37.2	-37.4	-38.2	-39.2	-37.0	-32.9																						
12-Jan	-39.8	-39.8	-40.0	-40.0	-40.5	-41.4	-41.4	-41.5	-42.7	-42.7	-39.4	-36.2	-33.8	-32.3	-32.8	-34.2	-36.6	-38.9	-40.1	-41.0	-41.3	-41.6	-42.2	-42.4	-39.3	-32.3																						
13-Jan	-42.5	-42.5	-42.6	-42.9	-43.1	-43.3	-43.4	-43.4	-43.6	-43.4	-40.0	-35.2	-30.3	-28.8	-29.5	-31.4	-33.9	-36.1	-37.5	-38.4	-39.1	-39.2	-39.3	-39.0	-38.7	-28.8																						
14-Jan	-39.3	-40.0	-40.1	-40.5	-40.3	-39.6	-40.0	-38.7	-39.0	-39.3	-35.7	-32.8	-29.3	-27.7	-27.7	-29.2	-31.7	-33.9	-34.8	-34.6	-35.1	-34.8	-35.3	-36.0	-35.6	-27.7																						
15-Jan	-36.2	-36.1	-36.3	-36.5	-36.9	-36.2	-35.4	-33.1	-32.0	-30.4	-28.5	-26.1	-24.1	-23.3	-25.2	-28.6	-31.4	-32.8	-33.3	-33.4	-29.5	-31.0	-31.2	-31.9	-23.3																							
16-Jan	-29.0	-26.1	-24.7	-24.3	-24.1	-24.4	-26.6	-29.4	-30.4	-30.9	-27.6	-23.7	-21.0	-19.8	-19.7	-21.0	-21.8	-22.0	-21.7	-21.5	-21.6	-21.3	-21.4	-21.5	-24.0	-19.7																						
17-Jan	-21.1	-21.1	-21.0	-20.8	-20.7	-20.7	-21.1	-21.7	-21.7	-21.7	-21.5	-21.2	-20.8	-20.9	-20.8	-21.0	-21.6	-22.9	-23.7	-24.5	-26.0	-24.6	-25.1	-25.7	-22.2	-20.7																						
18-Jan	-24.7	-24.4	-25.2	-26.3	-26.3	-26.8	-27.0	-26.7	-26.4	-24.9	-23.4	-21.6	-20.0	-19.0	-17.9	-18.8	-19.9	-20.9	-21.2	-22.3	-22.8	-23.9	-25.1	-26.3	-23.4	-17.9																						
19-Jan	-26.3	-26.3	-26.5	-25.8	-26.8	-27.0	-28.3	-28.8	-28.7	-28.1	-23.9	-21.5	-19.7	-18.5	-18.7	-18.5	-18.5	-18.8	-18.5	-18.2	-17.7	-17.4	-17.2	-17.1	-22.4	-17.1																						
20-Jan	-16.6	-16.5	-17.1	-17.5	-17.4	-17.3	-17.4	-17.4	-17.5	-17.3	-16.7	-16.2	-15.6	-15.5	-15.5	-15.5	-15.7	-16.0	-16.1	-16.5	-18.0	-18.7	-19.1	-19.9	-17.0	-15.5																						
21-Jan	-20.7	-21.6	-22.3	-22.7	-22.6	-22.5	-22.2	-22.1	-22.1	-21.8	-21.2	-20.5	-20.1	-19.9	-19.7	-20.0	-20.0	-20.1	-20.1	-20.2	-20.5	-20.8	-21.1	-21.3	-21.1	-19.7																						
22-Jan	-21.5	-22.2	-23.6	-24.1	-24.1	-23.9	-23.6	-22.8	-22.6	-22.2	-21.6	-21.1	-20.6	-19.8	-18.9	-18.1	-17.9	-17.8	-17.6	-16.9	-15.9	-15.4	-14.6	-14.2	-20.0	-14.2																						
23-Jan	-14.0	-13.9	-13.8	-13.8	-13.9	-13.9	-14.0	-14.3	-14.9	-14.7	-12.9	-11.9	-10.7	-10.6	-10.6	-10.7	-10.9	-11.4	-11.9	-12.4	-13.0	-14.2	-14.7	-15.1	-13.0	-10.6																						
24-Jan	-15.6	-16.2	-16.5	-16.4	-16.3	-16.1	-15.4	-14.6	-13.8	-12.9	-11.8	-10.5	-7.4	-6.3	-6.3	-6.7	-8.4	-10.4	-12.0	-13.1	-13.7	-13.7	-14.3	-14.9	-12.6	-6.3																						
25-Jan	-13.5	-11.9	-11.3	-11.0	-10.8	-10.8	-11.2	-11.8	-12.1	-12.3	-12.0	-11.4	-10.7	-10.0	-9.3	-9.0	-8.8	-8.6	-8.1	-7.7	-7.1	-7.0	-8.0	-9.0	-10.1	-7.0																						
26-Jan	-8.3	-7.3	-7.1	-7.0	-6.8	-7.1	-7.8	-7.2	-6.8	-6.4	-6.6	-6.8	-6.4	-5.5	-5.2	-5.2	-5.4	-6.0	-7.1	-7.6	-8.6	-10.1	-10.9	-6.1	-7.1	-5.2																						
27-Jan	-4.8	-4.2	-3.6	-3.2	-2.8	-2.6	-2.2	-2.2	-2.5	-2.5	-1.6	0.5	1.8	3.2	4.3	4.1	2.3	0.7	1.4	1.1	0.8	-0.2	-0.4	-0.7	-0.6	4.3																						
28-Jan	-0.4	-0.1	0.3	1.1	1.2	1.4	1.8	1.1	0.8	3.0	4.8	6.3	7.8	8.1	7.9	7.8	6.7	5.2	3.4	2.9	2.6	2.2	1.9	1.6	3.3	8.1																						
29-Jan	-0.1	-1.8	-1.8	-1.2	-0.9	-0.4	-0.1	0.4	1.0	2.3	3.7	4.7	5.8	7.7	8.1	7.5	6.7	5.9	5.4	5.1	4.2	3.0	2.2	1.8	2.9	8.1																						
30-Jan	2.3	1.9	3.0	2.7	2.8	1.0	0.8	1.4	3.3	3.4	4.9	6.7	8.1	9.6	10.9	9.5	8.5	7.5	7.1	7.3	6.5	5.2	4.9	4.9	5.2	10.9																						
31-Jan	4.3	3.6	3.1	3.0	2.6	2.0	0.7	-1.8	-2.6	-1.0	1.4	4.0	6.4	7.6	8.0	8.1	6.4	4.8	3.8	2.7	3.2	4.0	4.0	3.5	3.4	8.1																						
																								-18.8	-18.8	-18.9	-19.1	-19.1	-19.2	-19.4	-19.6	-19.6	-19.4	-18.1	-16.7	-15.4	-14.8	-14.6	-15.1	-16.0	-16.8	-17.3	-17.5	-17.8	-17.9	-18.4	-18.6	Diurnal Average
																								4.3	3.6	3.1	3.0	2.8	2.0	1.8	1.4	3.3	3.4	4.9	6.7	8.1	9.6	10.9	9.5	8.5	7.5	7.1	7.3	6.5	5.2	4.9	4.9	Diurnal Maximum



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

**Ambient Temperature (AT) - C**  
**Mackay River - January 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Mackay River - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	327	43.95	43.95
-20 - 0	322	43.28	87.23
0 - 10	94	12.63	99.87
10 - 20	1	0.13	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

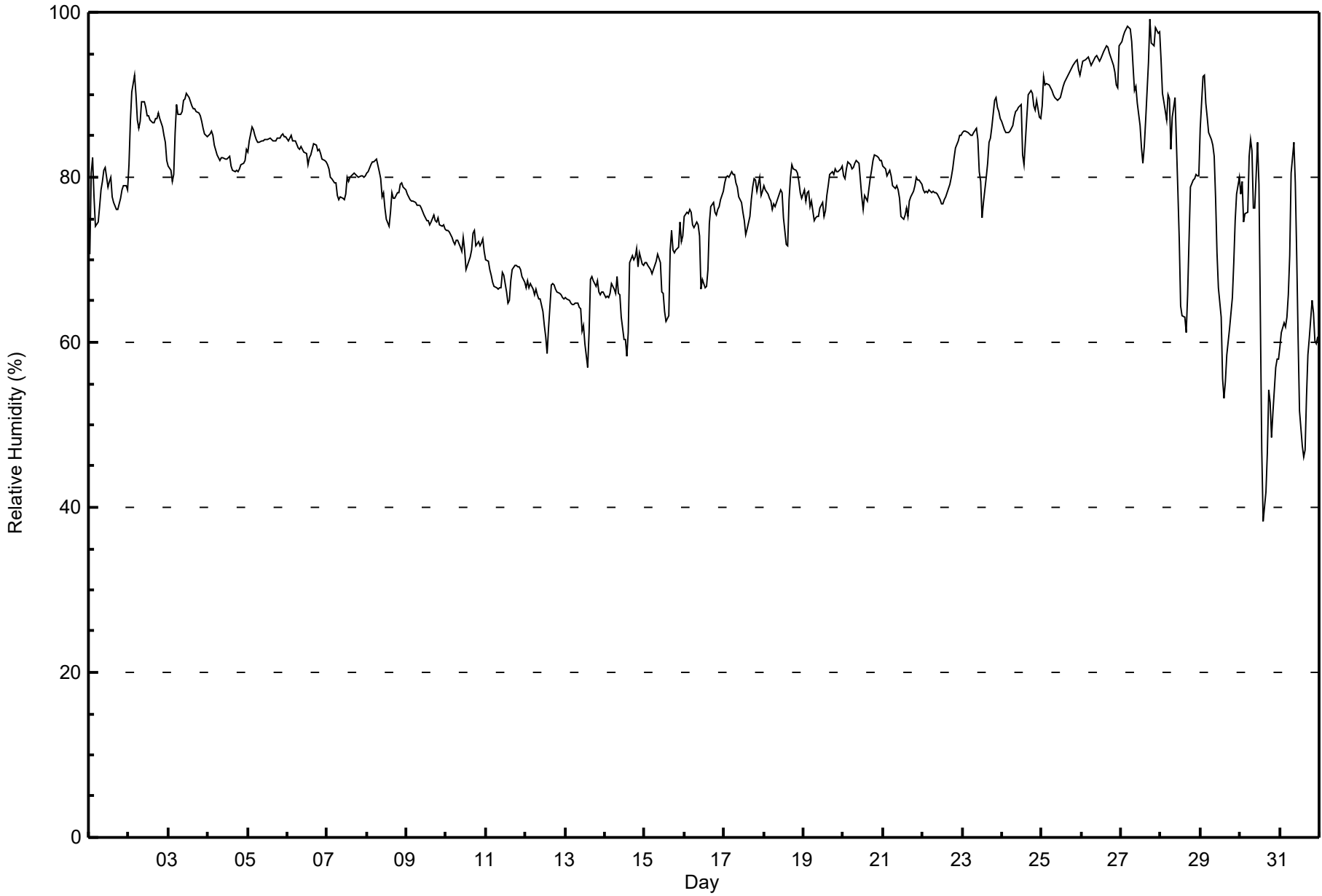
**Relative Humidity (RH) - %**  
**Mackay River - January 2024**

Maximum Value: 99.2 % on Jan 27 18:00      Maximum Daily Average: 94.2 % on Jan 26 Minimum Value: 38.3 % on Jan 30 15:00      Minimum Daily Average: 62.2 % on Jan 31 Maximum Diurnal Average: 80.0 % at hour 2      Minimum Diurnal Average: 73.0 % at hour 14 Monthly Average: 78.04 %      Percentiles: P <sub>1</sub> = 49.7 P <sub>10</sub> = 65.4 Q <sub>1</sub> = 72.2 Median = 79.0 Q <sub>3</sub> = 84.5 P <sub>90</sub> = 89.7 P <sub>99</sub> = 97.4																						Hours in Service:	744																								
																						Hours of Data:	744																								
																						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-Jan	70.7	80.6	82.3	77.7	74.1	74.6	76.4	78.5	79.5	80.8	81.2	78.9	79.5	80.1	77.5	76.9	76.0	76.2	76.7	77.5	78.6	79.0	79.0	78.4	77.9	82.3																					
2-Jan	81.5	86.8	90.3	92.4	89.9	87.0	85.9	86.8	89.1	89.2	88.5	87.5	87.5	86.9	86.6	86.7	87.2	87.2	87.8	87.1	86.1	85.2	84.3	82.1	87.1	92.4																					
3-Jan	81.3	80.9	79.5	80.4	85.4	88.9	87.6	87.6	88.0	89.3	89.6	90.2	89.7	89.1	88.7	88.4	88.2	87.9	87.7	87.5	86.8	86.0	85.3	85.0	86.6	90.2																					
4-Jan	85.1	85.3	85.6	85.0	83.9	82.8	82.4	82.0	82.3	82.4	82.2	82.3	82.6	81.3	80.9	80.8	80.8	80.7	81.1	81.5	81.7	82.0	83.3	82.5	85.6																						
5-Jan	83.1	84.5	86.1	85.8	85.1	84.6	84.3	84.2	84.4	84.5	84.6	84.3	84.5	84.7	84.6	84.4	84.3	84.4	84.8	85.1	85.2	84.9	84.9	84.7	86.1																						
6-Jan	84.3	84.8	85.0	84.5	84.5	84.4	83.5	83.4	83.7	83.4	83.1	82.9	81.6	82.3	82.8	83.4	84.1	83.8	83.3	83.4	82.9	82.2	82.1	81.8	83.4	85.0																					
7-Jan	81.5	81.0	80.0	79.9	79.3	79.3	77.8	77.3	77.7	77.4	77.2	78.0	80.0	79.5	80.0	80.3	80.5	80.3	80.1	80.0	80.1	80.1	80.0	80.2	79.5	81.5																					
8-Jan	80.6	80.7	81.5	81.8	81.8	82.1	82.2	80.7	79.8	77.6	78.2	76.2	74.9	74.0	75.8	78.1	77.5	77.4	78.2	78.2	79.1	79.4	78.8	78.5	78.9	82.2																					
9-Jan	77.9	77.5	77.3	77.1	77.0	76.9	76.7	76.6	76.5	76.3	75.4	75.1	74.7	74.8	74.2	74.7	75.5	74.7	74.5	75.0	74.3	74.1	74.2	73.7	75.6	77.9																					
10-Jan	73.6	73.6	73.5	72.7	72.3	71.9	72.3	72.3	71.5	71.1	72.7	71.2	68.8	69.3	70.3	71.2	73.3	73.5	71.8	72.2	71.6	72.0	72.5	71.0	71.9	73.6																					
11-Jan	70.1	69.8	68.8	68.1	67.2	66.8	66.6	66.4	66.7	66.6	68.4	68.1	66.1	64.8	65.0	67.4	68.7	69.3	69.3	69.2	69.1	68.9	67.9	67.4	67.8	70.1																					
12-Jan	66.6	67.4	66.6	67.0	66.4	65.8	66.4	65.7	65.3	65.2	63.7	62.0	60.7	58.7	61.7	67.0	67.1	67.0	66.5	66.1	65.9	65.8	65.4	65.2	65.2	67.4																					
13-Jan	65.4	65.3	65.0	64.7	64.5	64.6	64.8	64.8	64.2	64.1	61.4	62.0	59.9	57.0	61.2	67.6	68.0	67.4	66.9	67.5	66.2	65.8	66.2	66.2	64.6	68.0																					
14-Jan	65.4	65.5	65.5	65.9	67.1	66.4	66.0	68.0	65.9	65.7	63.0	60.4	58.3	61.2	69.7	70.4	70.0	70.4	71.3	69.1	70.9	69.5	69.4	66.5	71.3	66.5																					
15-Jan	69.6	69.6	69.2	68.8	68.3	68.8	69.3	69.8	70.7	69.6	66.1	65.9	63.7	62.6	63.2	71.2	73.6	71.2	70.9	71.1	71.5	74.6	72.2	72.9	69.4	74.6																					
16-Jan	75.2	75.8	75.6	76.2	75.8	74.2	73.9	74.6	74.3	72.9	66.5	67.6	66.7	66.9	68.8	74.4	76.5	76.9	75.8	75.4	76.1	76.5	77.3	78.3	73.8	78.3																					
17-Jan	79.4	79.9	80.2	79.9	80.7	80.4	80.3	79.3	78.8	77.7	76.9	75.8	74.7	73.0	73.7	75.3	77.3	78.7	79.8	79.7	78.3	80.0	77.9	78.4	78.2	80.7																					
18-Jan	78.9	78.5	77.9	77.5	77.2	76.2	76.9	76.4	77.5	78.0	78.4	78.1	75.0	71.9	71.8	77.3	80.0	81.5	81.0	80.9	80.6	79.6	78.2	77.5	77.8	81.5																					
19-Jan	78.4	77.2	78.1	78.3	76.4	77.1	74.8	75.0	75.2	75.2	76.3	77.0	75.3	75.9	77.8	79.0	80.3	80.6	80.4	81.1	80.6	80.7	81.0	81.4	78.0	81.4																					
20-Jan	80.1	79.8	81.0	81.8	81.5	81.1	81.3	81.8	82.1	81.6	79.7	77.6	76.2	77.9	77.2	78.4	79.7	80.9	82.0	82.7	82.5	82.5	82.0	82.0	80.5	82.7																					
21-Jan	81.3	80.9	80.2	80.4	80.8	80.2	79.1	78.7	79.0	78.5	77.5	75.3	74.8	75.5	76.2	75.3	77.1	77.7	78.4	79.1	80.0	79.7	79.7	79.2	78.5	81.3																					
22-Jan	78.5	78.1	78.2	78.1	78.4	78.2	78.2	78.2	78.1	78.0	77.2	76.8	76.8	77.2	77.6	78.1	79.2	80.0	81.0	82.4	83.5	84.4	85.1	85.2	79.4	85.2																					
23-Jan	85.5	85.7	85.6	85.5	85.3	85.2	85.1	85.4	85.9	84.6	80.6	79.4	75.1	77.0	79.9	81.7	84.2	84.7	86.1	89.3	89.7	88.4	88.0	87.1	84.4	89.7																					
24-Jan	86.8	85.8	85.5	85.4	85.5	85.6	86.2	87.3	87.9	88.2	88.6	88.9	88.2	87.7	81.6	84.4	87.3	90.0	90.5	90.2	88.6	88.2	89.3	87.3	87.1	87.0	90.5																				
25-Jan	88.6	92.1	91.2	91.4	91.1	90.9	90.5	90.0	89.7	89.4	89.5	89.7	90.3	91.1	91.6	92.2	92.5	92.8	93.2	93.6	94.2	94.2	93.1	92.3	91.5	94.2																					
26-Jan	93.2	94.1	94.2	94.3	94.6	94.0	93.5	94.2	94.5	94.8	94.5	94.1	94.4	95.3	95.6	95.9	95.8	95.2	94.1	93.6	92.7	91.2	90.9	96.0	94.2	96.0																					
27-Jan	96.4	97.1	97.6	98.0	98.3	98.1	96.4	93.4	90.5	91.1	89.0	86.2	83.6	81.7	83.7	87.0	93.9	99.2	96.2	96.1	96.0	98.2	97.5	97.6	93.4	99.2																					
28-Jan	94.2	90.2	89.2	87.0	90.0	89.5	83.4	87.3	89.6	84.1	78.5	72.6	64.4	63.2	63.1	61.2	65.7	72.4	78.7	79.6	79.8	80.4	80.2	80.1	79.4	94.2																					
29-Jan	85.9	92.3	92.3	89.0	87.3	85.4	84.6	83.9	82.6	77.4	70.9	66.6	63.1	55.7	53.2	55.3	58.4	61.6	63.6	65.5	69.7	74.7	78.0	80.0	74.0	92.3																					
30-Jan	78.0	79.5	74.6	75.7	75.8	82.6	84.5	83.2	76.2	76.3	84.2	79.2	63.4	47.0	38.3	41.9	46.7	54.3	52.6	48.4	51.5	56.9	58.0	57.9	65.3	84.5																					
31-Jan	59.4	61.2	62.3	61.8	63.0	65.8	70.5	80.4	84.2	79.3	70.5	60.6	51.7	47.5	46.1	46.9	53.5	58.5	60.4	65.1	63.6	60.1	59.9	60.7	62.2	84.2																					
																						79.2	80.0	80.0	79.7	79.6	79.6	79.4	79.8	79.7	79.0	77.9	76.5	74.3	73.0	73.3	75.3	77.0	78.0	78.2	78.5	78.5	79.0	78.7	78.7	Diurnal Average	
																						96.4	97.1	97.6	98.0	98.3	98.1	96.4	94.2	94.5	94.8	94.5	94.1	94.4	95.3	95.6	95.9	95.8	99.2	96.2	96.1	96.0	98.2	97.5	97.6	Diurnal Maximum	



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

**Relative Humidity (RH) - %**  
**Mackay River - January 2024**





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

**Relative Humidity (RH) - %**  
**Mackay River - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	1	0.13	0.13
40 - 60	26	3.49	3.63
60 - 80	385	51.75	55.38
80 - 100	332	44.62	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

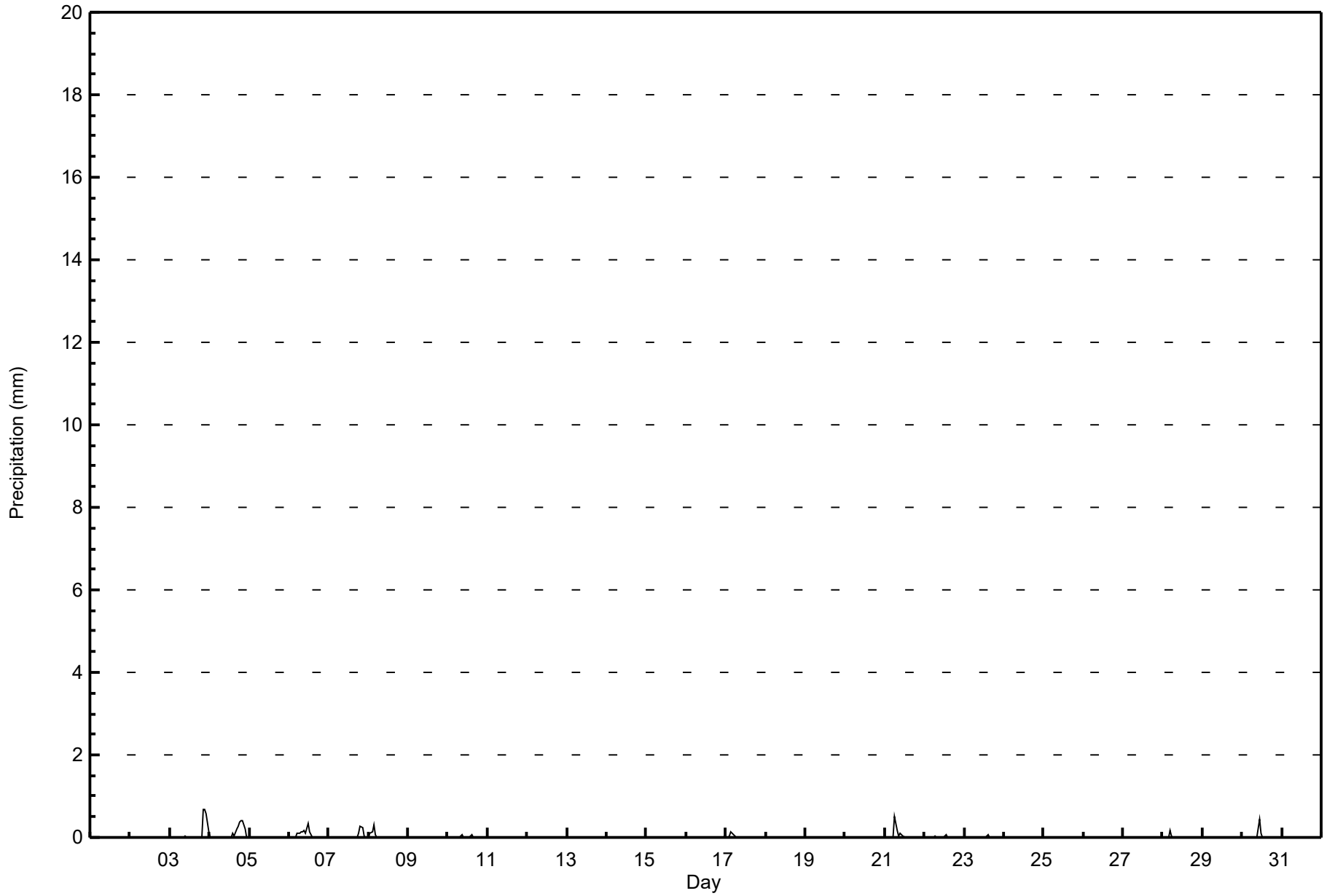
**Mackay River - January 2024**

Maximum Value: 0.7 mm on Jan 3 21:00      Maximum Daily Total: 2.1 mm on Jan 3																				Hours in Service: 744 Hours of Data: 744															
Minimum Value: 0.0 mm on Jan 1 01:00      Minimum Daily Total: 0.0 mm on Jan 1 Maximum Diurnal Total: 1.3 mm at hour 21      Minimum Diurnal Total: 0.0 mm at hour 1 Monthly Total: 9.15 mm      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 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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.7	0.7	0.6	0.1	2.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4-Jan	0.0	0.0	0.0	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	0.3	0.4	0.4	0.4	0.2	0.0	0.0	2.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.2	0.1	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.1	0.1	0.1
17-Jan	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	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Jan	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Jan	0.0	0.0	0.0	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	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
29-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
31-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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											



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

**Precipitation (PC) - mm**  
**Mackay River - January 2024**





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

**Precipitation (PC) - mm**  
**Mackay River - January 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	736	98.92	98.92
0.4 - 0.5	5	0.67	99.60
0.6 - 0.7	3	0.40	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: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h  
Mackay River - January 2024

Maximum Speed: 17 km/h on Jan 30 15:00	Maximum Daily Speed Average: 9.9 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 13:00	Minimum Daily Speed Average: 0.2 km/h on Jan 8	Hours of Data: 740
Maximum Diurnal Speed Average: 1.5 km/h at hour 14	Minimum Diurnal Speed Average: 0.0 km/h at hour 6	Hours of Missing Data: 4
Monthly Average Velocity: 0.3 km/h 204.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 5 Q <sub>3</sub> = 7 P <sub>90</sub> = 10 P <sub>99</sub> = 14	Percent Operational Time: 99.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Jan	W7	W8	W7	W7	WNW9	NW15	NNW12	NNW12	NNW9	NW9	WNW9	NW11	WNW10	WNW11	WNW9	NW8	NW8	WNW5	WNW6	NW6	NW6	NW6	NNW6	NNW5	NW7.8	NW15	
2-Jan	N4	N4	NNE5	NNE4	NNE5	NNE4	ENE4	E4	ESE4	E5	ESE4	ESE5	SE5	SE5	ESE4	ESE4	SE4	SSE5	ESE2	ESE1	E1	SE1	SE2	SE2	E2.3	SE5	
3-Jan	SSE1	SE1	ESE1	SE1	NE2	NE3	ENE3	NNW1	SE3	SE4	SE5	E3	N5	NNE6	NNE7	ENE4	NE5	NNE6	NNE6	NE5	NE5	NNE7	N7	N7	NE3.2	NNE7	
4-Jan	N7	N6	N7	N8	N10	N10	N9	N9	NNE9	NNE7	NE6	NNE7	NE8	NNE7	NNE7	NE7	NE8	NE7	NE6	NNE6	NE6	ENE6	ENE6	NE4	NNE6.6	N10	
5-Jan	NNE5	NNE5	N4	NW5	WNW5	WNW4	WNW5	W5	W5	W5	W5	WNW5	NNW4	WSW2	SSW1	UO	SSE3	ESE4	E3	E4	ESE5	E4	ENE5	E5	NNW1.1	W5	
6-Jan	NNE4	NNE5	NE5	NNE5	NNE5	NNE6	NNE6	NNE6	NNE6	NNE7	NNE8	NNE8	NNE10	NNE9	NNE8	NNE10	NNE10	N11	NNE11	N10	NNE9	NNE8	NNE8	NNE7	NNE7.5	NNE11	
7-Jan	NNE8	NNE5	NNE5	NNE6	NNE4	ENE2	E1	E1	ESE2	SE2	SSE4	SSE3	SSE5	S5	SSE4	S4	SSE5	SE5	SSE5	SSE5	SSE5	SSE5	SSE4	SE4	ESE2.2	NNE8	
8-Jan	SE4	SE4	SE4	SSE5	SSE5	SSE4	SSW2	NNW3	NNW4	W3	WNW5	NNW6	NNW5	NNW5	NNW4	NW1	SSW1	SSE1	SE1	ESE1	ENE1	E3	E3	E3	E0.2	NNW6	
9-Jan	E4	E5	NE5	ENE4	ENE3	ENE4	ENE4	NNE6	NNE7	NNE6	NNE8	NNE9	NNE10	NNE9	NNE9	NNE8	NNE7	NNE8	NNE7	NNE8	NNE9	NNE8	NNE8	NNE8	NNE6.3	NNE10	
10-Jan	N7	N6	N4	N4	NNW1	NNW0	NW2	WNW0	W1	W2	WNW4	NW7	NW8	NNW7	NNW6	NNW6	NNW4	NNW6	NNW6	NW7	NW8	NW6	NNW6	NNW3	NNW4.4	NW8	
11-Jan	NW2	ESE1	SE2	SE1	SE1	S1	SW1	SW1	SW1	W1	NW2	NNW5	NW6	NW8	NW7	NW5	WNW5	WNW4	W3	W3	WNW3	W3	WNW1	WSW2	WNW2.1	NW8	
12-Jan	SW2	SW2	WSW0	WSW1	WSW1	SW1	WSW2	SW2	S1	S1	SSW1	SW3	SW2	SSW2	SSE3	SSE3	SE3	SE3	SE3	SSE3	SE4	SE4	SE4	SSE4	S1.8	SSE4	
13-Jan	SSE5	SE5	SE4	SE3	SE2	SSE2	SE3	SSE2	ESE1	ESE1	UO	W2	W0	WSW1	NW2	NNW3	UO	ESE1	SE2	S1	SE1	SSE1	SE1	SE1	SE1.3	SE5	
14-Jan	SSE1	SE1	SW1	W1	W2	S1	SW1	WNW2	SW1	WSW1	SW2	WSW0	SW3	SW3	SW3	SW3	SW3	SSE1	SSW2	WSW3	WSW2	WSW2	WSW3	WSW2	SW2	SW1.5	SW3
15-Jan	WSW3	SSW2	S3	SSE3	SSE3	S4	S5	SSE5	S7	SSW8	S5	S5	S6	S5	S4	S3	SE2	SE2	SE2	SE2	S5	S5	SSE2	SSW2	S3.6	SSW8	
16-Jan	SSE1	SW3	WSW2	NW3	N5	NNE9	N8	NW5	NW4	NE1	WSW3	W4	WNW7	NW10	WNW9	WNW8	WNW8	WNW9	WNW9	WNW10	WNW10	W10	W9	W8	WNW5.4	W10	
17-Jan	W8	W6	W6	W7	WNW6	W5	WSW3	E2	ENE4	ENE4	NE6	NE5	NNE6	NNE7	NNE5	N6	NNE5	NNE4	NNE4	NNE5	N3	N6	NNW4	NW5	NNW3.0	W8	
18-Jan	WNW4	W4	WSW3	WSW3	WSW4	W4	W6	W4	W4	W5	W6	W7	W7	W7	W6	W6	W5	W6	W6	W4	W4	WSW3	SW2	WSW2	W4.6	W7	
19-Jan	WSW3	SW2	WSW3	WSW3	SSW3	SSW4	SE3	SSE4	SSE4	S5	S6	S6	S5	S6	SSE5	SE4	SE3	SE6	SE7	SE5	SE5	SE5	SE4	SE5	SSE3.6	SE7	
20-Jan	SSE6	S6	S5	S4	SSW4	SSW5	SSW5	SSW4	SSW3	SSW3	WSW4	WSW4	W4	NW5	NNW5	NW5	NNE3	NE2	NNE3	NNE5	NNE6	NNE5	NNE4	NNE7	W0.6	NNE7	
21-Jan	NNE6	NNE6	NNE6	NE6	NE5	NNE4	NNE3	N5	N6	N5	N5	NNE6	NNE8	NNE8	NNE7	NNE7	NNE6	NNE6	NE5	ENE5	NE6	NE7	NE7	NE5	NNE5.5	NNE8	
22-Jan	ENE6	NE7	NE7	NE7	NE5	ENE5	ENE4	E9	ESE11	ESE10	ESE10	ESE10	ESE10	ESE10	ESE10	ESE10	ESE8	ESE8	SE8	SE6	SE6	SE5	SSE5	SSE4	ESE6.6	ESE11	
23-Jan	SSE5	SE5	SE5	SSE5	SSE5	SSE6	S7	S6	S5	SSW3	WSW4	WSW3	WSW5	WSW4	W3	NW4	NNW5	N6	NNE6	NNE6	NNE7	NNE9	NE7	NNE5	SE0.6	NNE9	
24-Jan	NNE6	NNE6	NE5	NE4	ENE4	E3	E4	ESE6	ESE6	ESE7	ESE7	SE6	SSE7	S7	SSE5	SE4	SE4	S3	SSE2	SSE2	SSE3	NNW4	NW2	S0	ESE2.7	S7	
25-Jan	UO	N4	NNE5	NNE4	NNE4	NNE6	NNE7	NNE6	NNE5	NNE4	N3	WNW1	SW1	S3	SSW4	SSW4	S4	S4	S4	SSE4	SSE4	S4	S4	SSW4	ENE0.4	NNE7	
26-Jan	SSW3	WSW4	W4	W4	W4	WNW2	W2	NW1	W1	SE2	SSE5	S5	SSE4	S4	SSE4	SSE4	SE4	SE3	SSE4	SE3	SSW1	SSW1	S3	S5	S2.1	SSE5	
27-Jan	S4	S5	S4	S5	S6	S6	S7	S9	S7	S7	S9	SSW11	SSW12	SSW11	SW8	SW8	SSW5	SSW6	SSW6	SSW6	SSW6	S7	S7	SSE7	SSW6.7	SSW12	
28-Jan	S11	S11	SSE9	S9	SSE5	S7	S12	S10	S9	SSW10	SW10	SW12	WSW14	W16	W15	W12	W10	WSW5	SW5	WSW6	WSW6	WSW6	WSW6	SW7	SW7.6	W16	
29-Jan	S4	S6	SSE8	S9	SSE9	S11	S10	S10	SSE10	SSE10	SSE11	S14	S12	SSW12	SSW10	S9	S12	S13	SSW13	SSW12	S10	S9	S7	SSE10	S9.9	S14	
30-Jan	S10	S8	S10	S11	S7	SE4	SE5	SSE6	S7	SSW10	WSW11	SW10	SW12	WSW14	WSW17	WSW16	WSW14	WSW13	WSW12	WSW14	W11	W7	WSW8	WSW8	SW8.4	WSW17	
31-Jan	WSW7	SW7	SW7	SW8	WSW8	WSW7	S5	SE4	S4	S4	SE6	S8	S8	SSE7	SE8	SE6	ESE8	ESE8	ESE5	ESE7	ESE9	ESE10	SE10	SE8	SSE5.0	ESE10	

SSW0.3 SSE0.4 SE0.4 SSW0.4 WSW0.2 SW0.0 SSE0.5 SE0.6 SE0.9 SSE1.1 SSW1.0 SW1.2 WSW1.3 W1.5 W1.3 NNW0.9 W0.1 SE0.3 SSE0.3 W0.1 ENE0.1 ENE0.5 ENE0.5 ESE0.5	Diurnal Average
S11 S11 S10 S11 N10 NW15 NNW12 NNW12 ESE11 ESE10 WSW11 S14 WSW14 W16 WSW17 WSW16 WSW14 WSW13 SSW13 WSW14 W11 ESE10 SE10 SSE10	Diurnal Maximum

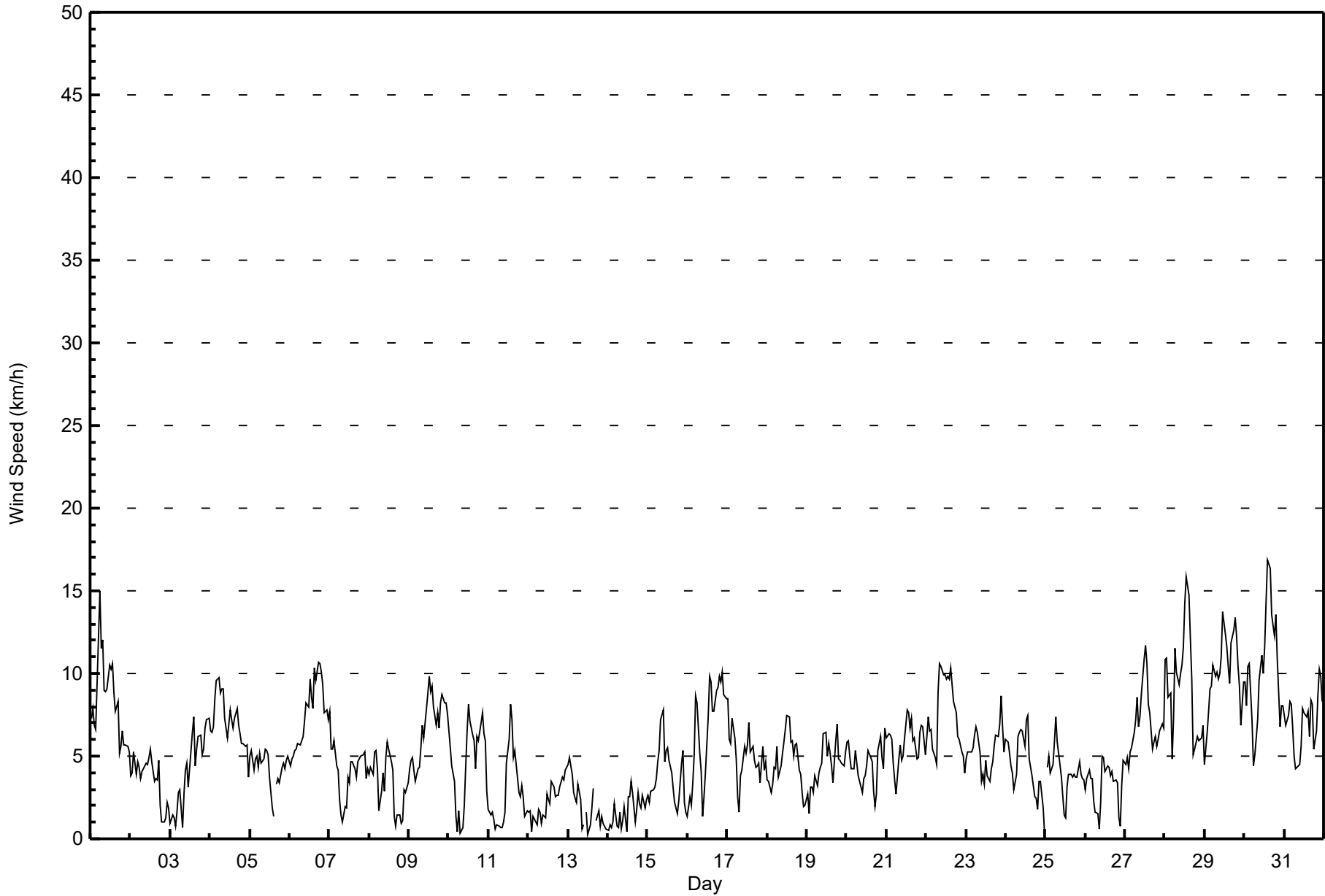
UO - Unstable Operation  
All monthly, daily, and diurnal averages have been calculated using vector methods





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

**Wind Speed (WS) - km/h**  
**Mackay River - January 2024**





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

**Wind Speed (WS) - km/h**  
**Mackay River - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	430	58.11	58.11
6 - 11	285	38.51	96.62
12 - 19	25	3.38	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: 740

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Mackay River - January 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	13	31	17	17	16	19	59	52	42	25	23	34	32	16	16	18	430
6 - 11	18	72	16	3	1	19	11	15	39	10	8	10	23	15	16	9	285
12 - 19	0	0	0	0	0	0	0	0	5	4	2	8	3	1	1	1	25
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>	31	103	33	20	17	38	70	67	86	39	33	52	58	32	33	28	740

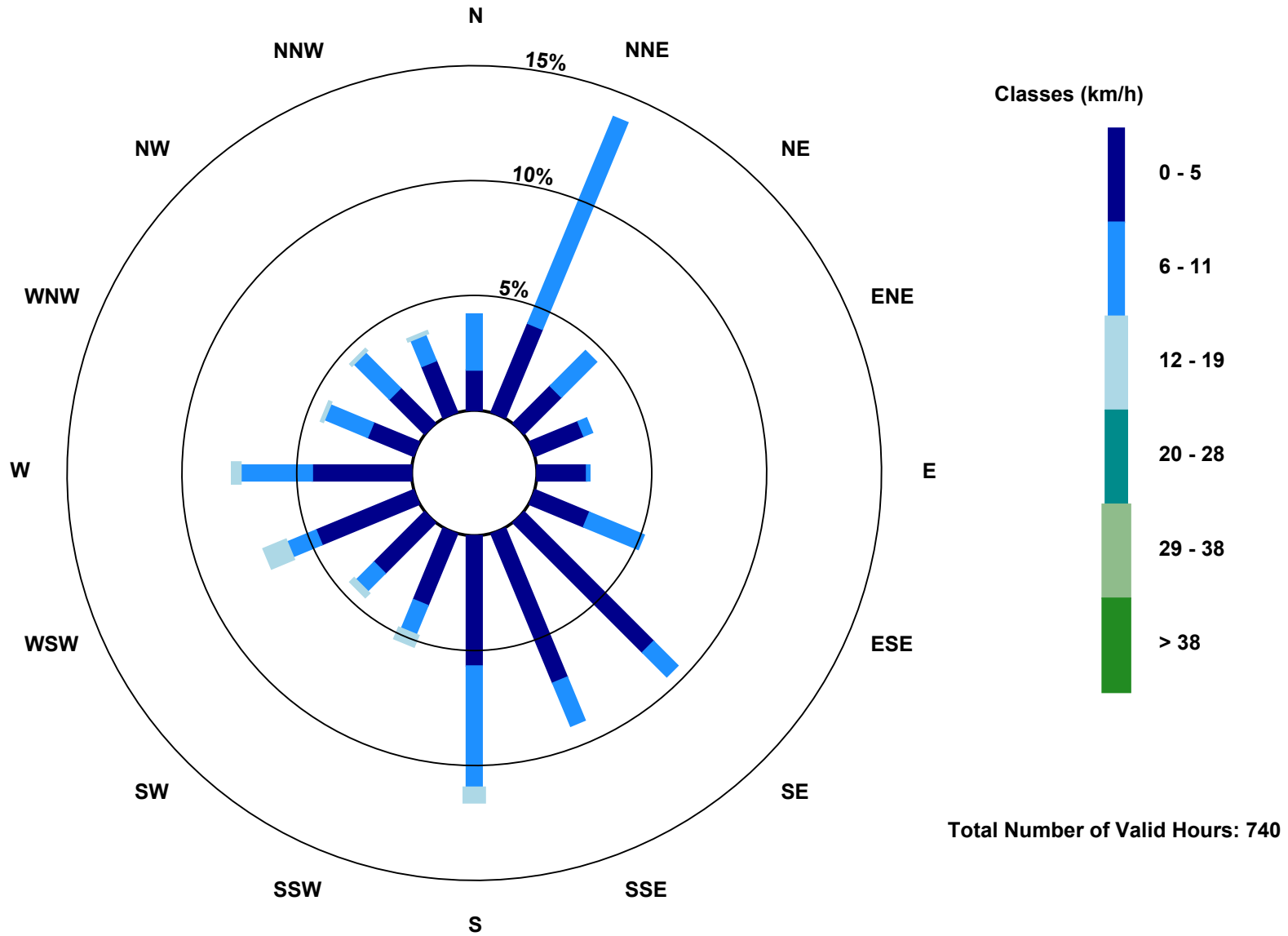
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Mackay River





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

**Wind Speed (WS) - km/h**  
**Mackay River - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 15:00 Minimum Value: 0 km/h on Jan 12 19:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5								
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-Jan	3	3	3	2	4	4	4	4	3	3	3	3	4	3	2	2	2	2	2	2	1	1	2	4	
2-Jan	2	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	2	2	1	1	1	1	2	
3-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	
4-Jan	2	2	2	2	3	3	3	3	3	3	2	2	3	2	2	2	2	2	2	2	2	2	2	3	
5-Jan	2	1	1	1	2	1	2	2	2	2	2	2	1	1	1	UO	1	1	1	1	1	1	2	2	
6-Jan	1	1	2	2	1	2	2	2	2	2	3	3	3	3	3	3	3	4	3	3	3	3	2	4	
7-Jan	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	3	
8-Jan	1	1	1	2	2	1	1	1	1	1	2	2	2	1	1	2	1	0	1	1	1	1	1	2	
9-Jan	1	1	2	2	1	2	2	2	2	2	2	3	3	3	3	3	2	2	2	3	3	3	3	3	
10-Jan	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	1	2	2	2	2	2	
11-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	2	
12-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1	
13-Jan	1	0	1	1	0	0	0	1	1	1	UO	1	1	1	1	1	UO	1	1	1	1	1	1	1	
14-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15-Jan	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	0	1	1	0	2	2	1	2	
16-Jan	1	1	1	1	2	3	3	1	1	1	1	2	3	3	3	2	2	3	3	3	3	3	3	3	
17-Jan	3	2	2	3	2	2	1	2	1	2	2	2	2	2	2	2	1	1	1	1	1	2	1	3	
18-Jan	1	1	1	1	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	1	1	1	1	3	
19-Jan	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1	1	2	2	2	2	1	1	2	
20-Jan	2	2	1	1	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	1	2	
21-Jan	2	2	2	2	2	2	1	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	3	3	
22-Jan	2	3	2	2	2	2	2	4	3	3	2	3	3	2	3	3	2	2	2	2	2	2	1	4	
23-Jan	1	2	2	1	2	2	2	1	1	1	1	2	2	1	1	1	1	2	2	2	2	2	2	2	
24-Jan	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	2	
25-Jan	UO	1	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
26-Jan	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
27-Jan	1	1	1	1	1	2	1	2	2	2	2	3	3	3	3	2	1	1	2	1	1	1	2	3	
28-Jan	3	2	2	3	2	3	3	3	2	3	3	4	6	6	6	5	4	2	2	2	2	2	2	6	
29-Jan	2	1	2	2	3	3	3	3	3	3	3	4	4	3	3	3	3	3	4	4	2	2	2	4	
30-Jan	3	2	3	3	3	1	2	3	3	3	5	4	4	6	7	7	6	6	5	6	5	3	4	7	
31-Jan	3	2	3	3	3	2	1	1	1	1	2	2	2	3	2	2	2	2	1	2	2	2	2	3	
Diurnal Maximum																								3	
UO - Unstable Operation																									



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

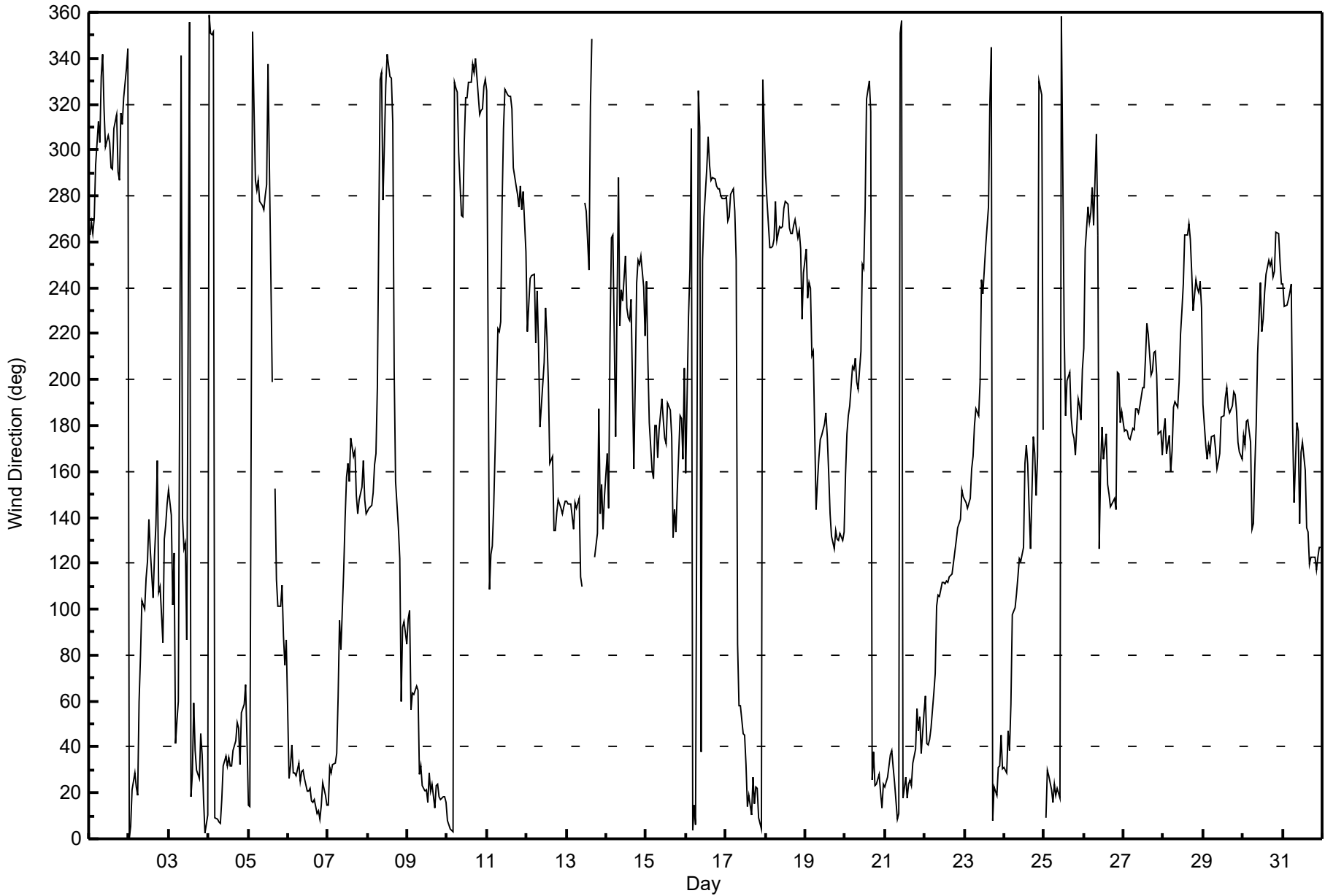
**Wind Direction (WD) - deg**  
**Mackay River - January 2024**

Direction of Maximum Speed: 246 deg on Jan 30 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 179.3 deg on Jan 29	Hours of Data: 740
Direction of Minimum Speed: 273 deg on Jan 13 13:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 0.2 deg on Jan 8	Percent Operational Time: 99.5
Monthly Average Direction: 204.6 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-Jan	263	269	264	270	294	312	303	332	341	318	301	306	303	293	292	309	315	291	287	316	311	323	336	344	304.5
2-Jan	0	6	21	29	23	19	60	80	104	100	113	121	139	126	105	123	137	165	108	110	86	130	137	146	90.7
3-Jan	152	141	102	125	42	52	60	341	139	126	129	86	356	18	28	59	38	30	26	46	36	17	2	10	39.6
4-Jan	359	351	350	351	9	9	7	7	17	32	36	32	35	32	32	38	43	51	48	32	55	58	67	43	24.9
5-Jan	15	14	351	318	287	282	287	278	276	274	280	285	337	246	199	UO	153	113	101	101	111	88	76	87	327.9
6-Jan	26	32	41	28	29	27	33	25	29	30	26	21	21	22	16	16	17	11	12	9	15	25	19	15	21.0
7-Jan	14	31	28	33	33	38	61	95	82	117	140	157	163	156	174	167	169	150	142	148	153	165	148	142	117.6
8-Jan	143	144	145	151	163	167	196	331	334	278	302	328	342	332	331	312	204	155	135	122	60	92	95	85	97.2
9-Jan	96	100	56	64	63	67	65	28	32	23	21	22	16	29	21	24	13	23	24	18	17	19	18	16	29.6
10-Jan	8	6	5	3	329	327	325	299	272	271	303	323	323	329	329	338	334	340	332	316	317	318	328	331	331.3
11-Jan	326	108	124	128	145	169	222	221	225	276	309	327	324	324	323	318	292	284	280	275	284	274	282	256	302.8
12-Jan	221	233	244	245	246	216	239	214	179	189	207	231	219	198	164	167	134	134	142	148	144	142	144	147	173.5
13-Jan	147	146	146	140	135	147	144	148	114	110	UO	277	273	248	319	348	UO	122	133	187	142	154	135	149	144.7
14-Jan	168	144	219	262	263	175	232	288	224	239	234	254	231	227	226	235	161	200	242	252	250	254	240	219	234.0
15-Jan	243	208	181	161	157	180	180	166	178	192	182	174	172	190	187	175	131	143	134	152	184	183	165	205	178.0
16-Jan	159	227	248	309	4	15	6	326	310	38	252	271	291	306	293	287	288	287	285	283	283	280	279	279	296.6
17-Jan	280	269	271	280	283	273	252	85	58	58	46	45	32	14	19	10	27	15	22	22	9	5	331	309	348.1
18-Jan	289	278	258	258	258	261	278	261	267	266	267	275	278	276	266	264	263	267	270	262	265	257	226	246	267.2
19-Jan	257	235	242	240	211	212	143	155	166	174	176	181	186	175	159	141	132	126	134	131	130	133	130	134	161.9
20-Jan	159	177	184	189	206	204	209	199	196	212	250	248	274	322	330	317	26	38	23	24	28	20	13	24	265.5
21-Jan	22	27	32	37	38	31	24	8	11	351	357	17	27	18	24	26	23	33	39	57	47	53	37	55	28.4
22-Jan	62	41	41	43	48	64	72	101	106	106	111	112	111	112	112	114	115	120	125	130	135	139	152	149	103.3
23-Jan	148	146	144	148	161	166	180	188	184	199	243	237	248	258	275	321	345	8	22	19	31	32	45	31	126.1
24-Jan	31	28	47	38	59	97	101	107	114	122	121	127	163	171	163	144	126	175	168	150	166	330	324	178	113.9
25-Jan	UO	9	30	27	21	16	24	19	22	18	358	292	221	184	200	203	184	177	175	167	192	188	182	204	65.9
26-Jan	213	257	275	268	273	284	268	307	263	126	162	179	165	177	154	150	144	146	148	144	203	202	181	186	187.8
27-Jan	178	178	177	175	174	179	178	188	187	185	188	197	196	210	225	220	202	204	212	213	202	176	178	167	192.5
28-Jan	178	183	168	175	160	169	188	190	188	199	219	230	241	263	263	268	261	247	230	244	240	238	243	231	220.1
29-Jan	189	171	165	172	168	175	176	170	161	164	168	184	184	192	197	188	186	188	195	193	186	173	169	165	179.3
30-Jan	176	171	182	182	172	135	137	162	180	211	242	221	226	238	246	252	249	252	245	247	264	264	251	241	225.3
31-Jan	242	232	232	235	238	242	179	146	181	178	137	169	173	161	135	134	120	123	122	123	117	123	127	127	161.1

194.1 162.2 144.1 202.4 243.5 231.3 159.3 137.2 134.0 165.5 202.2 222.4 251.7 264.2 270.1 284.1 260.5 142.3 161.9 277.3 76.9 63.0 73.0 119.8  
 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 (WD) - deg**  
**Mackay River - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Jan 13 13:00 Minimum Value: 6 deg on Jan 13 00:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 19 Q <sub>1</sub> = 22 Median = 25 Q <sub>3</sub> = 32 P <sub>90</sub> = 45 P <sub>99</sub> = 76																			Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5						
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-Jan	36	35	37	36	25	20	22	26	23	26	28	23	25	22	24	28	19	29	26	21	20	20	20	22	37
2-Jan	28	22	21	26	29	31	40	28	22	25	35	25	27	27	37	30	30	29	61	59	92	39	36	38	92
3-Jan	63	38	29	76	56	42	43	84	42	21	29	43	33	26	21	46	24	26	25	33	29	24	25	26	84
4-Jan	24	28	24	24	24	23	25	25	26	27	31	24	28	23	25	22	22	23	25	23	26	26	29	34	34
5-Jan	23	24	29	24	25	31	25	35	31	32	34	28	32	61	63	UO	31	27	25	25	22	29	32	31	63
6-Jan	28	22	25	21	22	22	22	20	22	25	26	26	24	25	23	23	23	24	25	23	24	25	22	23	28
7-Jan	25	22	23	26	27	22	27	33	47	21	26	31	32	28	26	28	28	23	22	24	26	24	24	19	47
8-Jan	20	25	24	23	25	24	68	20	20	19	28	20	26	25	22	48	63	37	52	28	50	33	30	26	68
9-Jan	24	21	26	35	31	31	37	27	22	23	23	23	24	24	25	24	24	24	23	24	24	24	25	25	37
10-Jan	24	24	23	25	16	57	27	66	43	22	32	21	21	20	21	20	18	19	19	18	17	17	17	15	66
11-Jan	23	65	36	41	56	55	26	62	46	36	19	24	28	20	19	18	23	22	21	27	23	36	18	20	65
12-Jan	18	22	55	29	40	81	28	25	41	28	51	29	52	53	27	21	21	12	10	11	9	9	7	6	81
13-Jan	7	6	9	17	21	10	10	13	52	49	UO	50	100	87	50	19	UO	57	16	59	38	36	23	39	100
14-Jan	70	50	68	47	19	76	76	31	62	49	26	92	49	46	23	19	63	37	25	30	61	24	25	34	92
15-Jan	26	36	32	29	23	23	22	19	17	19	35	26	27	26	25	25	16	25	51	19	25	28	37	46	51
16-Jan	54	45	54	37	30	26	25	24	16	55	28	52	25	23	25	22	22	23	26	30	26	28	32	28	55
17-Jan	26	33	32	29	28	36	47	55	26	30	28	25	28	25	30	26	21	18	20	20	24	22	20	15	55
18-Jan	18	31	38	32	46	41	27	44	46	42	39	34	32	34	43	40	34	36	27	40	41	32	34	27	46
19-Jan	31	60	29	33	24	19	24	17	18	18	18	22	24	25	27	22	25	19	21	23	25	23	24	22	60
20-Jan	26	25	19	20	33	25	26	24	25	30	46	40	42	24	21	22	42	40	32	22	24	23	27	21	46
21-Jan	22	25	28	25	34	31	28	23	22	25	28	31	26	25	26	25	24	23	30	28	26	25	24	31	34
22-Jan	29	30	25	23	25	29	28	24	19	18	18	19	18	18	19	20	20	19	20	22	26	28	26	30	
23-Jan	24	23	23	25	23	24	22	19	18	34	42	52	41	45	31	25	30	21	22	23	26	21	26	24	52
24-Jan	22	22	27	26	29	29	22	19	21	23	23	24	26	26	31	40	25	33	23	45	23	41	75	91	91
25-Jan	UO	30	21	25	27	22	24	26	25	25	27	39	66	35	34	33	28	28	32	34	28	24	21	21	66
26-Jan	29	37	33	38	31	19	26	24	62	71	28	30	35	26	25	29	22	23	15	11	72	71	25	16	72
27-Jan	16	19	28	23	26	23	21	21	19	17	18	20	20	23	30	22	18	16	19	18	19	14	15	16	30
28-Jan	19	17	22	26	30	24	19	18	18	19	27	32	39	41	39	40	42	44	34	39	37	35	38	30	44
29-Jan	32	14	21	17	20	20	20	21	23	24	25	22	21	21	22	20	18	19	19	19	17	19	26	33	33
30-Jan	18	18	17	19	24	27	25	24	27	33	46	30	32	40	43	43	44	43	46	45	39	43	40	45	46
31-Jan	41	38	34	32	34	40	27	18	23	28	18	22	23	25	22	22	16	17	18	14	17	17	18	18	41
70 65 68 76 56 81 76 84 62 71 51 92 100 87 63 48 63 57 61 59 92 71 75 91																									
Diurnal Maximum																									
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS21  
CONKLIN  
JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
 JANUARY 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	709	35	35	100	5.9	0	1.2	0
TRS(ppb) Average	707	37	37	100	0.6	0	0.5	0
THC(ppm) Average	706	35	38	99.6	2.9	-	2.6	-
NMHC(ppm) Average	706	35	38	99.6	0.116	-	0.065	-
CH4(ppm) Average	706	35	38	99.6	2.8	-	2.5	-
O3 (ppb) Average	676	33	68	95.3	48.8	0	36.7	-
NO2 (ppb) Average	704	40	40	100	17.1	0	8	-
NO (ppb) Average	704	40	40	100	14.4	-	1.6	-
NOX (ppb) Average	704	40	40	100	26	-	9.6	-
PM2.5 (ug/m3) Average	742	2	2	100	45.8	0	23.8	0
Temperature 2 m (C) Average	744	0	0	100	12.3	-	4.9	-
Relative Humidity (%) Average	744	0	0	100	94.8	-	88.6	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	18	-	10	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
 JANUARY 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	709	0.5	0.7	-	0	0.1	0.1	0.3	0.6	1.1	5.9
TRS (ppb) Average	707	0.4	0.1	-	0.3	0.3	0.4	0.4	0.4	0.5	0.6
THC (ppm) Average	706	2.15	0.2	-	1.9	2	2	2.1	2.2	2.3	2.9
NMHC(ppm) Average	706	0.007	0.019	-	0	0	0	0	0	0	0.116
CH4(ppm) Average	706	2.14	0.1	-	1.9	2	2	2.1	2.2	2.3	2.8
O3 (ppb) Average	676	25.61	8.2	-	4.1	14.9	20.4	26.6	30.7	34.3	48.8
NO2 (ppb) Average	704	3.43	2.5	-	0.2	1	1.6	2.8	4.3	7	17.1
NO (ppb) Average	704	0.41	1.1	-	0	0	0	0.1	0.4	1.1	14.4
NOX (ppb) Average	704	3.84	3.1	-	0.2	1	1.8	3	4.9	7.5	26
PM2.5 (ug/m3) Average	742	6.36	6.5	-	0.2	2	2.9	4.1	7.2	14.2	45.8
Temperature 2 m (C) Average	744	-15.98	12.6	-	-44.5	-33.4	-23.3	-15.6	-7.8	0.9	12.3
Relative Humidity (%) Average	744	76.04	10.7	-	31.8	63.4	70	77.3	84.2	88.8	94.8
Wind Speed 10 m (km/h) Average	741	5.3	3	-	0	1	3	5	7	10	18
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS 21)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	25 Jan 2024 11:00	25 Jan 2024 13:00	3	Maintenance - replaced support gas cylinder
O3	11 Jan 2024 02:00	12 Jan 2024 11:00	34	Analyzer Failure - sample pump failure
O3	12 Jan 2024 12:00	12 Jan 2024 12:00	1	Maintenanace - sample pump replaced
Wind Speed, Wind Direction	13 Jan 2024 17:00	13 Jan 2024 18:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	23 Jan 2024 21:00	23 Jan 2024 21:00	1	Flat line in sensor output signal - Sensor frozen



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Conklin - January 2024

Number of Exceedences (AAAQO):		1-hr: 0    24-hr: 0		Hours in Service:		744																							
Maximum Value: 5.9 ppb on Jan 10 18:00		Maximum Daily Average: 1.2 ppb on Jan 21		Hours of Data:		709																							
Minimum Value: 0.0 ppb on Jan 3 02:00		Minimum Daily Average: 0.1 ppb on Jan 3		Hours of Missing Data:		35																							
Maximum Diurnal Average: 0.8 ppb at hour 13		Minimum Diurnal Average: 0.3 ppb at hour 4		Hours of Calibration:		35																							
Monthly Average: 0.50 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.1 P <sub>99</sub> = 3.6		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-Jan	Z	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.1	0.8	1.0	0.8	0.5	0.6	0.6	0.6	0.4	0.3	0.3	0.5	0.6	0.4	0.4	0.8	2.0		
2-Jan	0.3	Z	0.2	0.2	0.2	0.2	0.4	1.4	2.0	1.4	1.4	1.9	1.8	1.4	1.1	0.9	1.0	0.7	0.5	0.4	0.3	0.3	0.1	0.0	0.1	0.5	4.4		
3-Jan	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.3	0.5	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.9		
4-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.7	3.6	4.4	3.7	2.7	2.3	1.2	0.7	0.7	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.9		
5-Jan	0.2	0.3	0.2	0.3	Z	0.2	0.1	0.2	0.3	0.5	0.7	0.9	0.6	0.4	0.5	0.4	0.4	0.3	0.4	0.6	0.6	0.5	0.6	0.4	0.3	0.5	0.5		
6-Jan	0.4	0.3	0.3	0.2	0.3	Z	0.2	0.2	0.3	0.2	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.5	0.6		
7-Jan	Z	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.4	0.4	0.6	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.3	0.6	1.5		
8-Jan	0.1	Z	0.0	0.0	0.0	0.3	0.3	0.1	0.2	0.4	0.6	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	1.5	0.4	1.5	5.9		
9-Jan	1.5	0.4	Z	0.1	0.1	0.3	0.5	0.7	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.5	0.4	1.5	5.9		
10-Jan	0.6	0.6	0.9	Z	1.2	0.9	0.6	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.3	1.3	3.6	5.9	3.7	1.2	0.5	0.4	0.4	0.3	1.1	5.9	5.9		
11-Jan	0.3	0.4	0.4	0.9	Z	0.6	0.6	1.2	1.4	0.8	1.5	1.5	1.4	0.7	0.8	1.2	0.7	1.0	0.5	0.1	0.0	0.0	0.0	0.0	0.7	1.5	1.5		
12-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.0	0.0	0.1	0.9	2.0	0.3	0.1	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	2.0	2.0		
13-Jan	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.4	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.4	0.4		
14-Jan	0.1	Z	0.2	0.1	0.2	0.1	0.2	0.3	0.4	0.3	2.1	2.0	2.4	2.3	1.6	1.2	1.2	0.9	0.5	0.3	0.2	0.1	0.0	0.0	0.7	2.4	2.4		
15-Jan	0.0	0.0	Z	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.6	1.0	C	C	C	C	3.2	1.9	0.8	0.5	0.7	1.2	1.0	1.0	0.7	3.2	3.2		
16-Jan	1.0	0.6	0.6	Z	0.8	0.5	0.4	0.7	0.5	0.5	2.4	3.5	2.5	1.9	2.8	2.6	1.4	0.9	0.5	0.5	0.5	0.3	0.2	0.2	1.1	3.5	3.5		
17-Jan	0.2	0.2	0.1	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.1	1.2	1.0	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.4	0.3	1.2	1.2		
18-Jan	0.4	0.2	0.2	0.4	0.8	Z	4.3	1.3	0.6	0.5	0.5	0.3	0.2	0.5	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.6	4.3	4.3		
19-Jan	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.8	1.1	0.9	0.7	1.0	0.8	0.7	0.5	0.5	0.8	0.9	1.4	1.5	0.6	1.5	1.5		
20-Jan	1.2	Z	0.9	1.0	0.9	0.7	0.8	0.7	0.5	0.5	0.6	0.5	0.6	0.5	0.4	0.5	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.6	1.2	1.2		
21-Jan	0.5	0.4	Z	0.4	1.7	5.6	5.1	2.7	2.4	1.8	1.9	0.8	0.5	0.4	0.4	0.3	0.5	0.4	0.2	0.2	0.4	0.3	0.4	0.2	1.2	5.6	5.6		
22-Jan	0.2	0.0	0.1	Z	0.1	0.1	0.0	0.0	0.1	0.6	0.8	0.7	1.2	0.8	0.6	0.4	0.4	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.4	1.2	1.2		
23-Jan	0.2	0.2	0.2	0.2	Z	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.6		
24-Jan	0.4	0.9	1.3	0.9	0.9	Z	0.6	0.5	0.7	0.7	0.7	1.0	0.9	0.9	1.1	1.3	1.0	0.6	0.3	0.2	0.2	0.2	0.1	0.0	0.7	1.3	1.3		
25-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.9	0.9	1.0	1.1	0.6	0.3	0.1	0.1	0.1	0.2	0.1	0.3	1.1	1.1		
26-Jan	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.4	0.4		
27-Jan	0.4	0.6	Z	0.5	0.2	0.1	0.2	0.1	0.2	0.3	1.2	1.4	1.4	1.2	0.9	0.7	0.5	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.5	1.4	1.4		
28-Jan	0.2	0.2	0.3	Z	0.1	0.1	0.4	0.6	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.6		
29-Jan	0.1	0.0	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	1.1	0.8	1.0	1.3	1.0	1.2	1.1	0.9	0.7	0.6	0.5	1.3	1.3		
30-Jan	0.4	0.5	0.3	0.1	0.1	Z	0.0	0.0	0.0	0.2	0.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.9	0.9		
31-Jan	Z	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.5	0.3	0.3	0.2	0.4	0.2	0.2	0.8	0.6	2.1	0.9	0.4	0.4	2.1	2.1		
																								Diurnal Average			Diurnal Maximum		
																								0.4			1.5		
																								0.3			0.9		
																								0.3			1.3		
																								0.3			1.0		
																								0.3			1.7		
																								0.4			5.6		
																								0.6			5.1		
																								0.5			3.6		
																								0.5			4.4		
																								0.5			3.7		
																								0.7			2.7		
																								0.8			3.5		
																								0.8			2.5		
																								0.7			2.3		
																								0.6			2.8		
																								0.6			2.6		
																								0.7			3.6		
																								0.6			5.9		
																								0.4			3.7		
																								0.3			1.2		
																								0.3			1.1		
																								0.4			2.1		
																								0.3			1.4		
																								0.3			1.5		

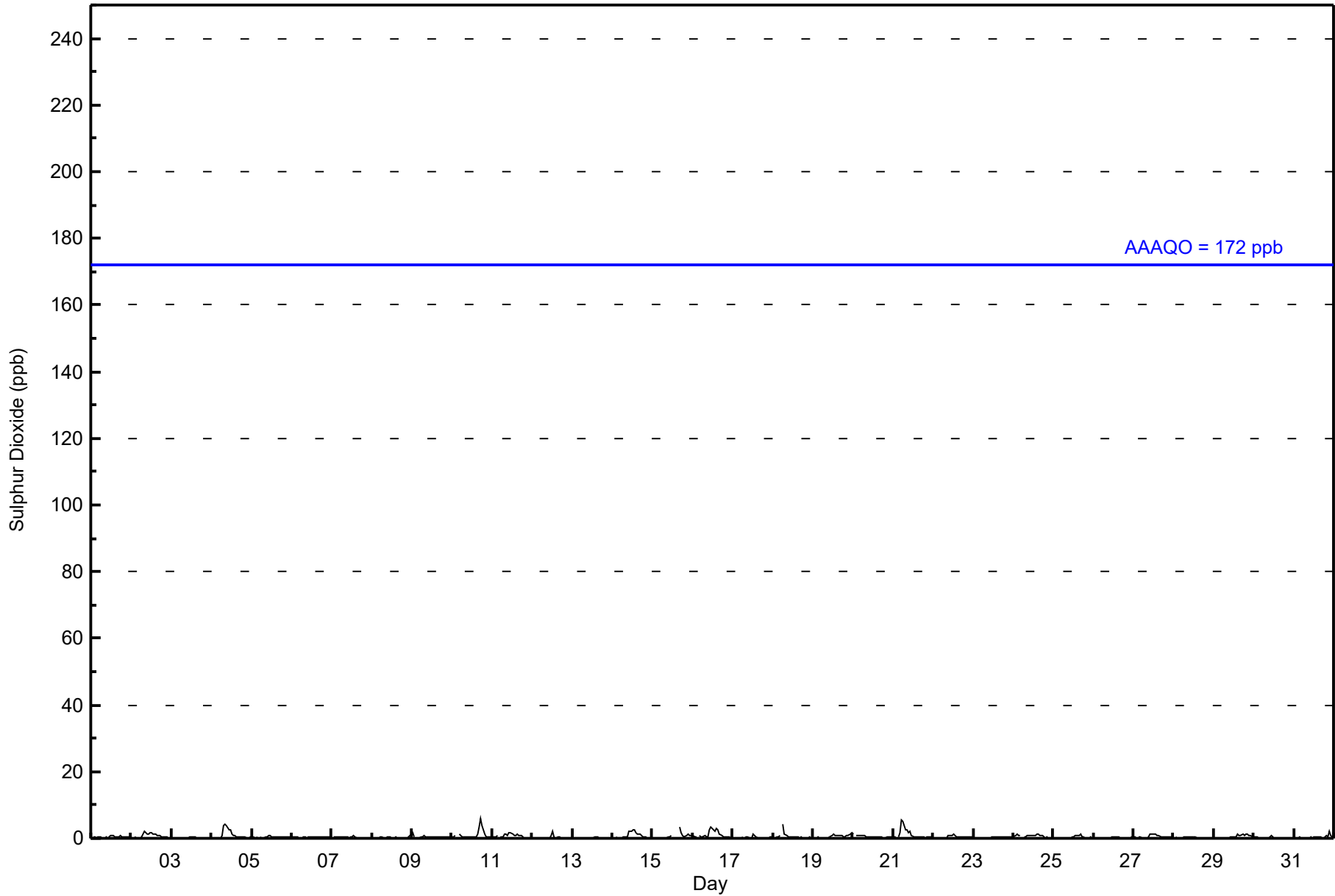
Z - zerospan    C - Calibration

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**  
**Conklin - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Conklin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	709	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin - January 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	25	57	27	17	23	32	26	68	68	67	51	16	27	33	89	80	706
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>	25	57	27	17	23	32	26	68	68	67	51	16	27	33	89	80	706

Total Number of Valid Hours: 706

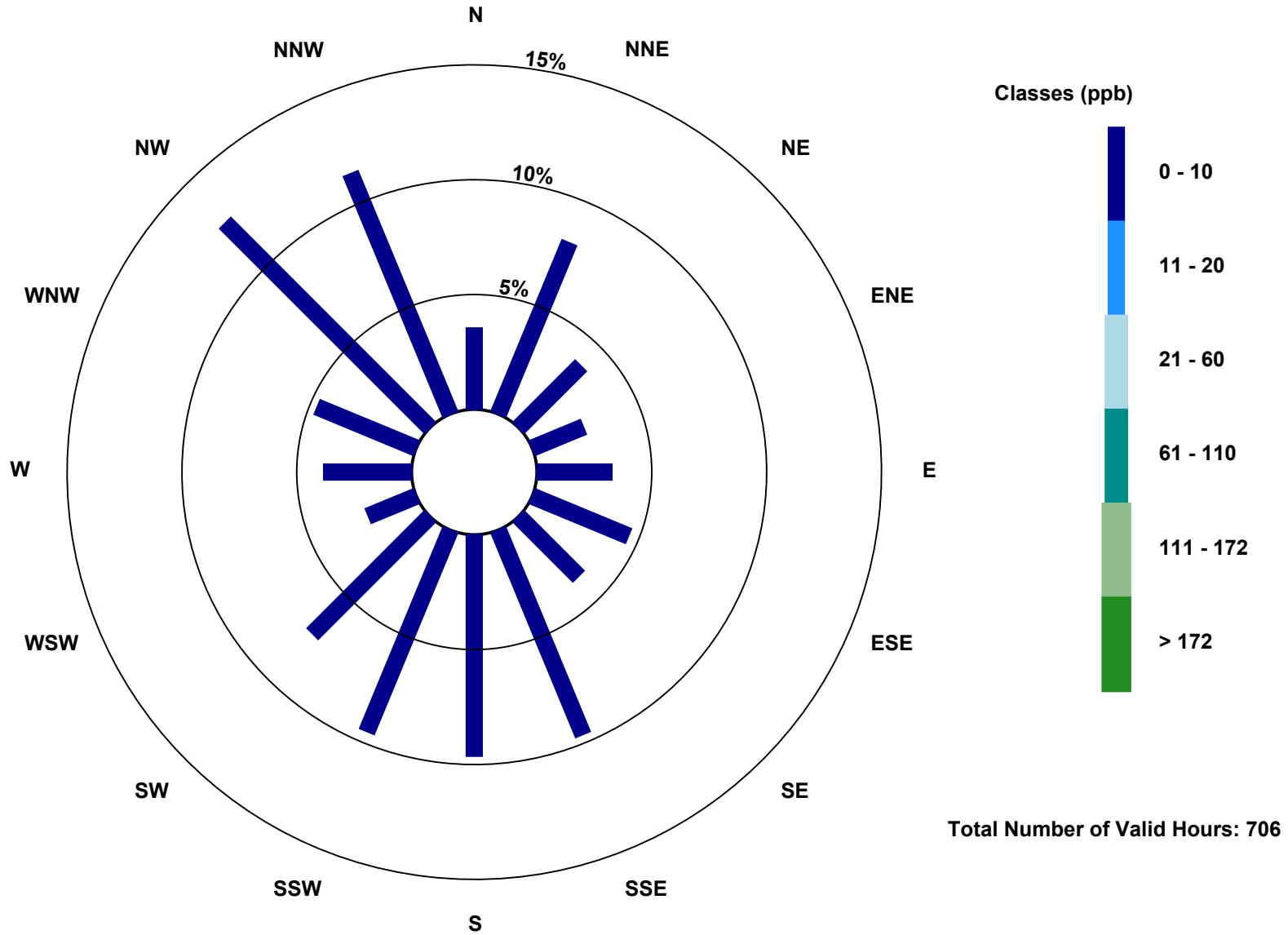
Total Number of Hours: 744

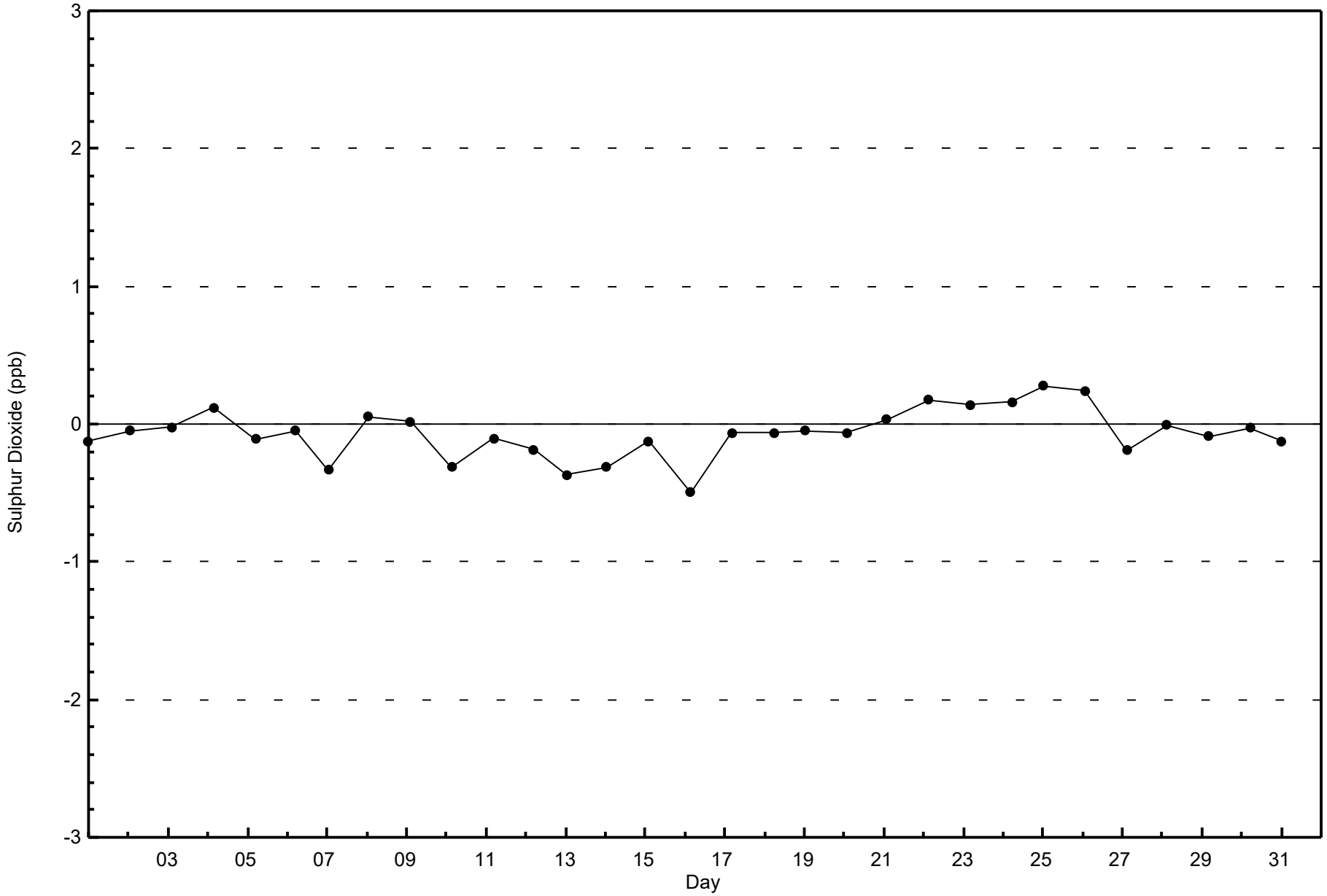


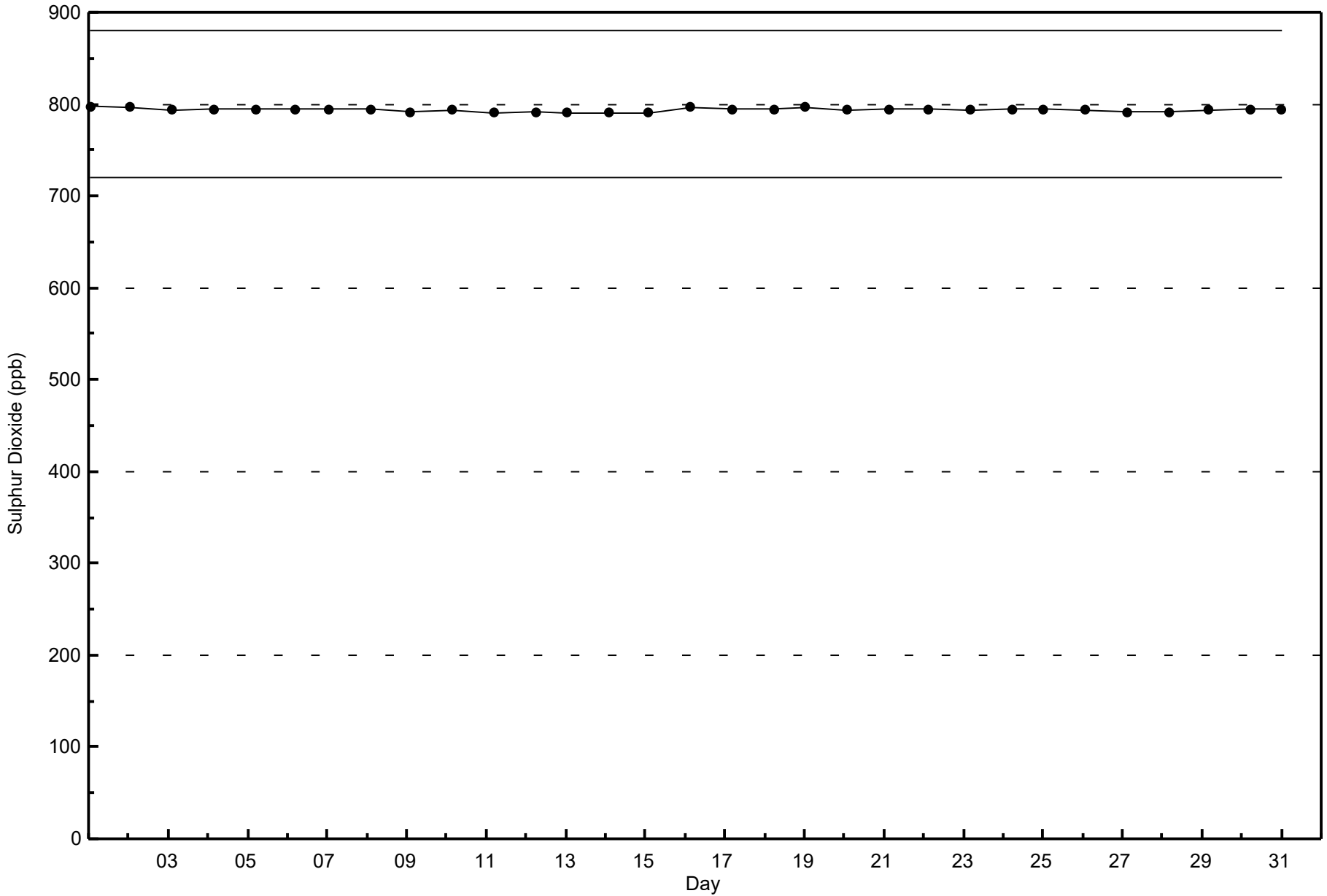


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

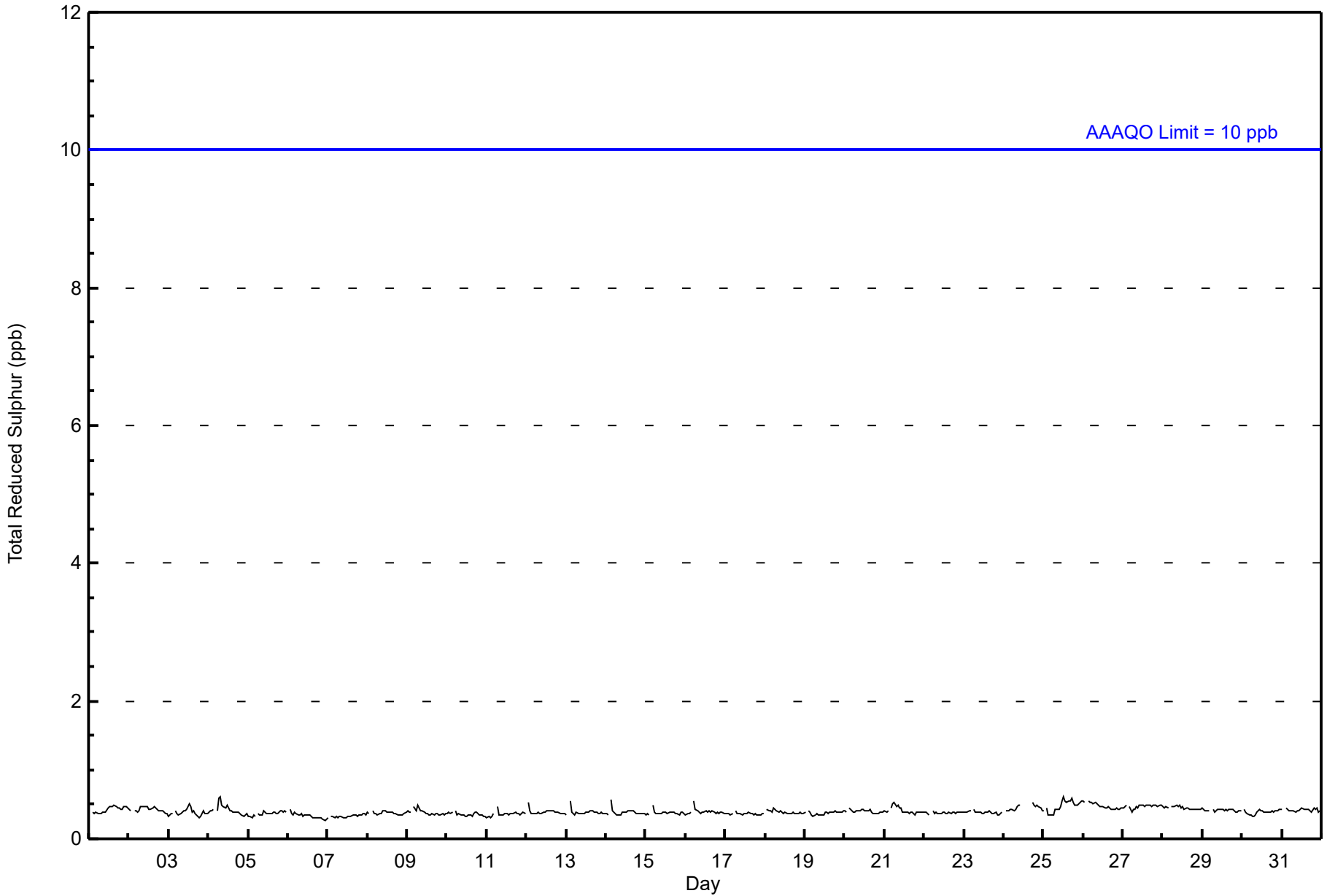
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin













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

**Total Reduced Sulphur (TRS) - ppb**  
**Conklin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	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: 707

Total Number of Hours: 744



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

**Total Reduced Sulphur (TRS) - ppb**  
**Conklin - January 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	26	57	25	16	23	32	24	66	69	64	53	19	29	31	90	80	704
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>	26	57	25	16	23	32	24	66	69	64	53	19	29	31	90	80	704

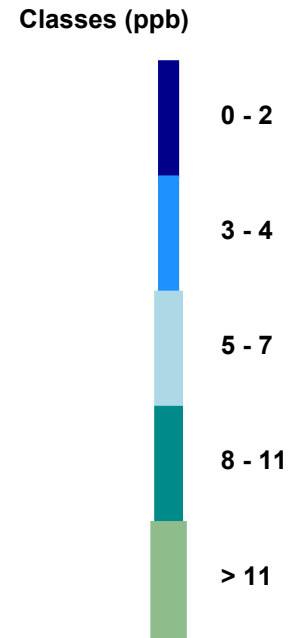
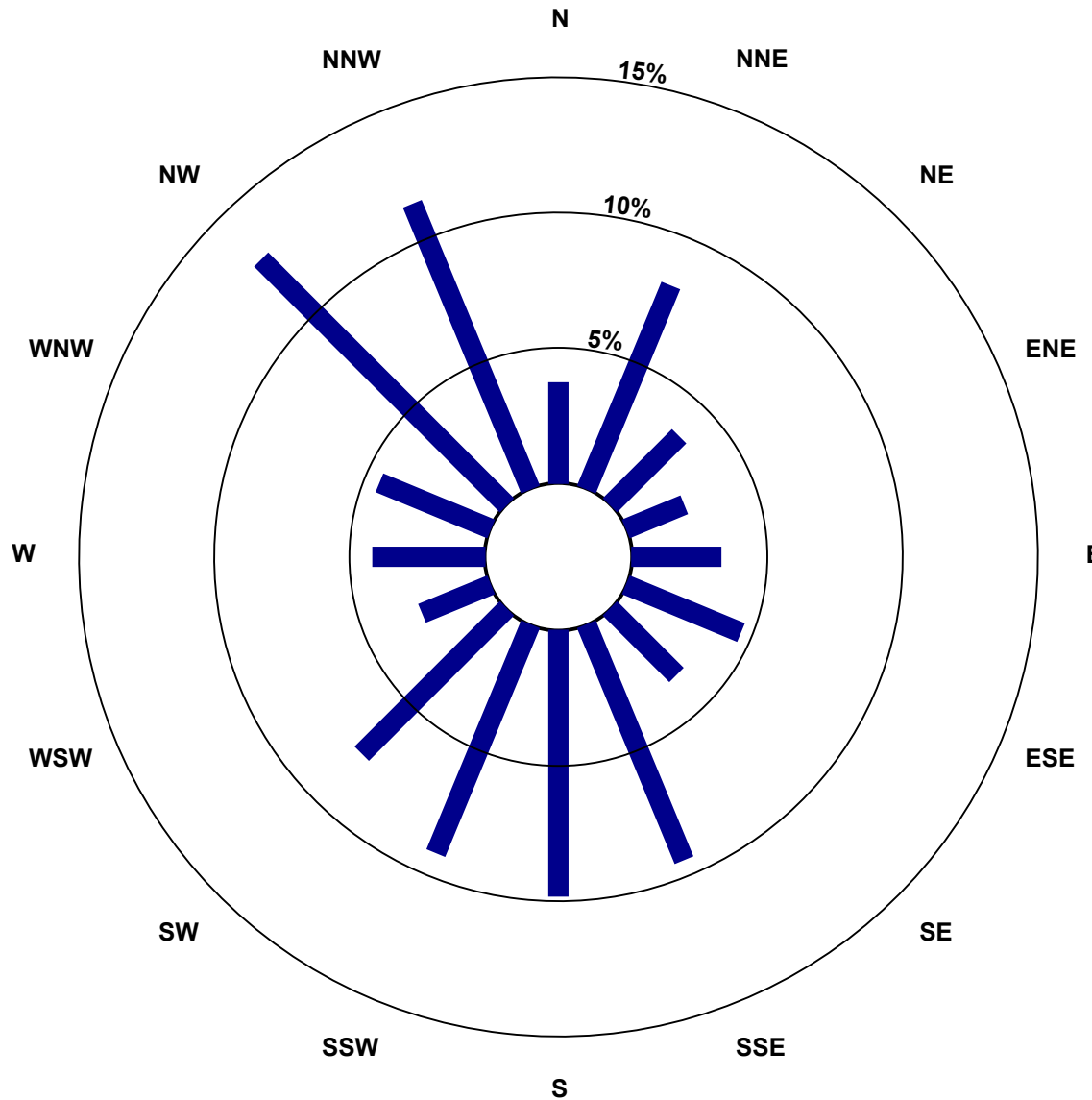
Total Number of Valid Hours: 704

Total Number of Hours: 744



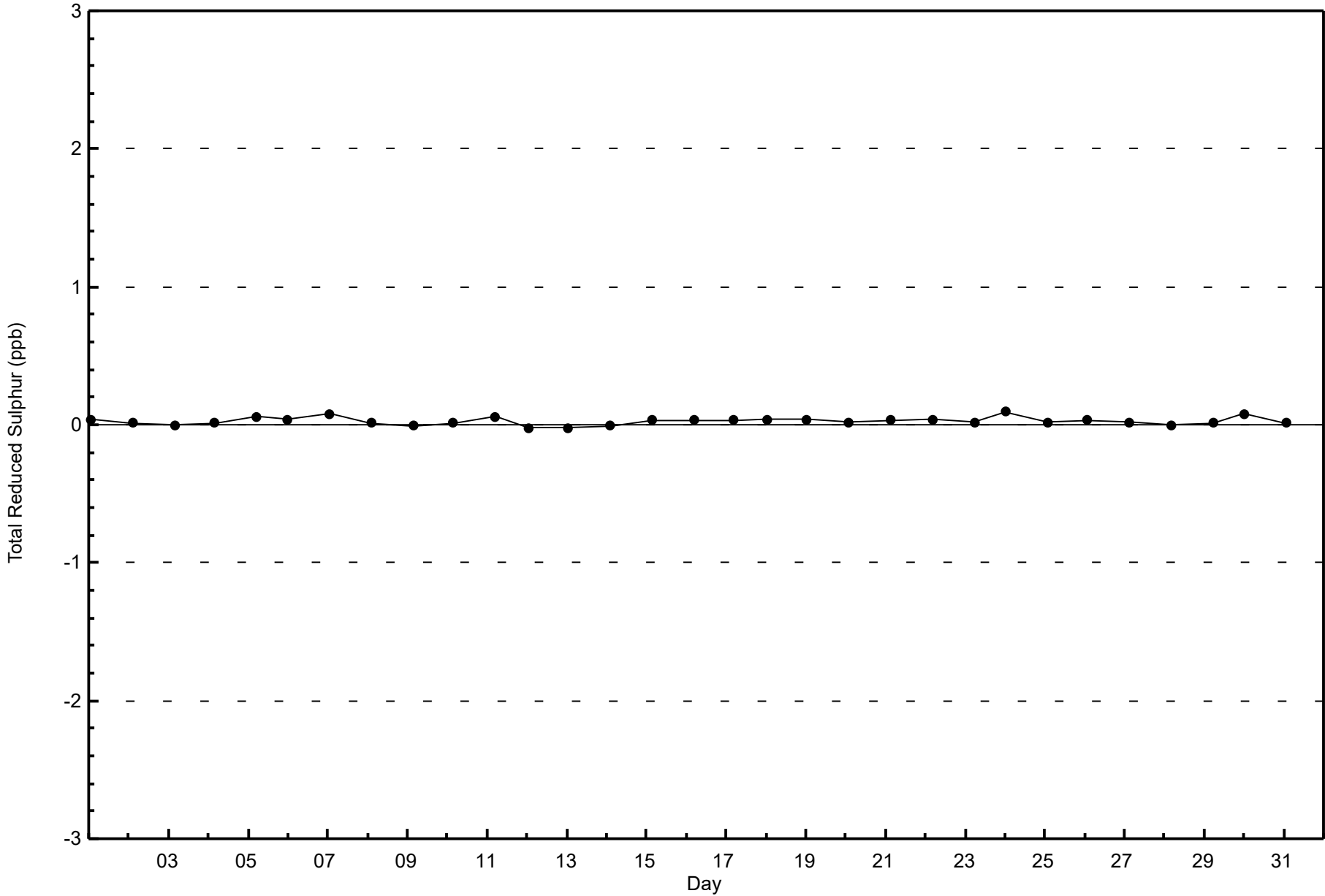
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

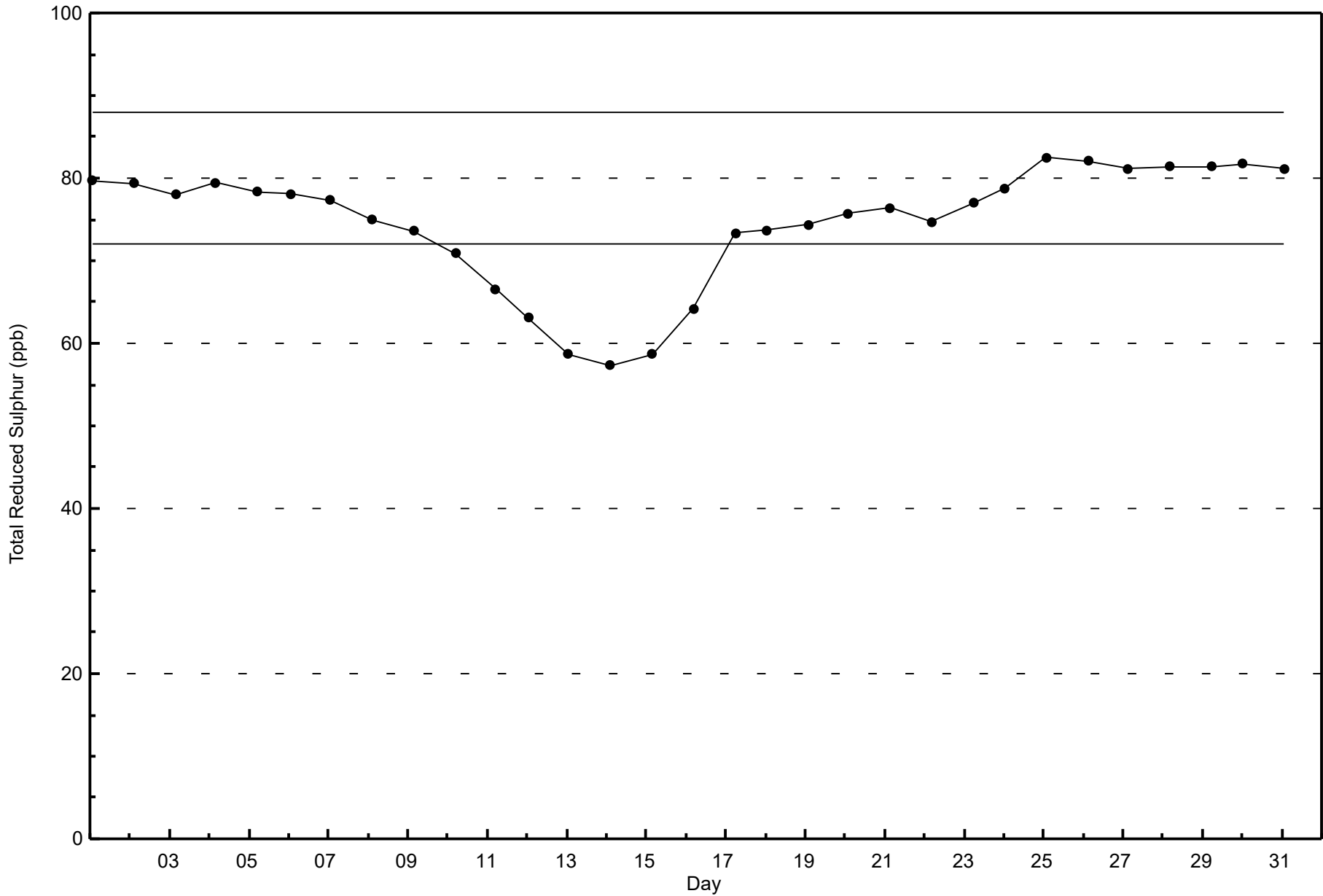
Total Reduced Sulphur (TRS) - ppb  
Conklin



Total Number of Valid Hours: 704





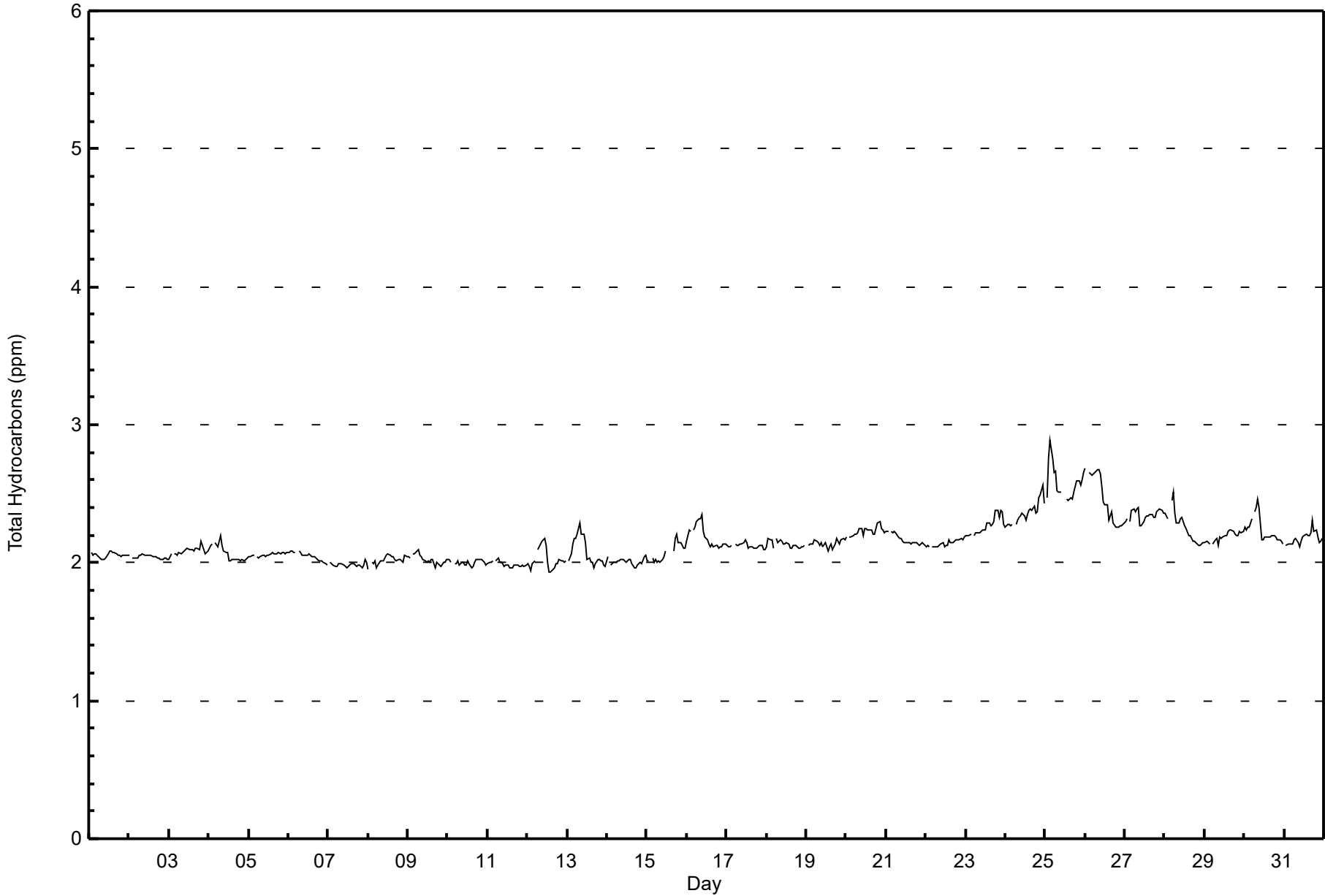






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Conklin - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Conklin - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	220	31.16	31.16
2.1 - 3.0	486	68.84	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Conklin - January 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	8	33	10	6	8	12	2	7	26	11	8	2	1	6	36	42	218
2.1 - 3.0	17	24	17	11	15	20	24	61	42	56	42	14	26	26	52	38	485
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>	25	57	27	17	23	32	26	68	68	67	50	16	27	32	88	80	703

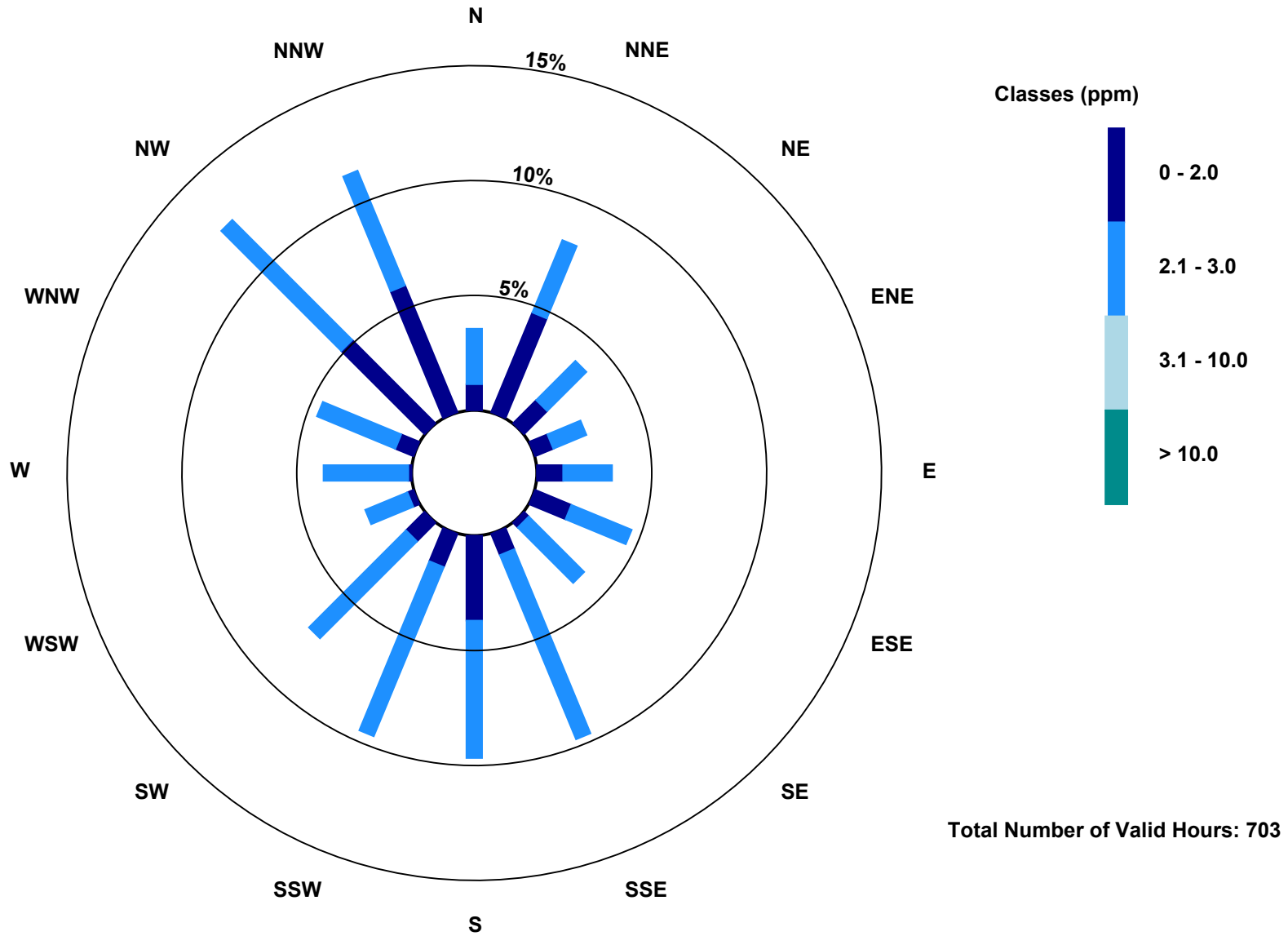
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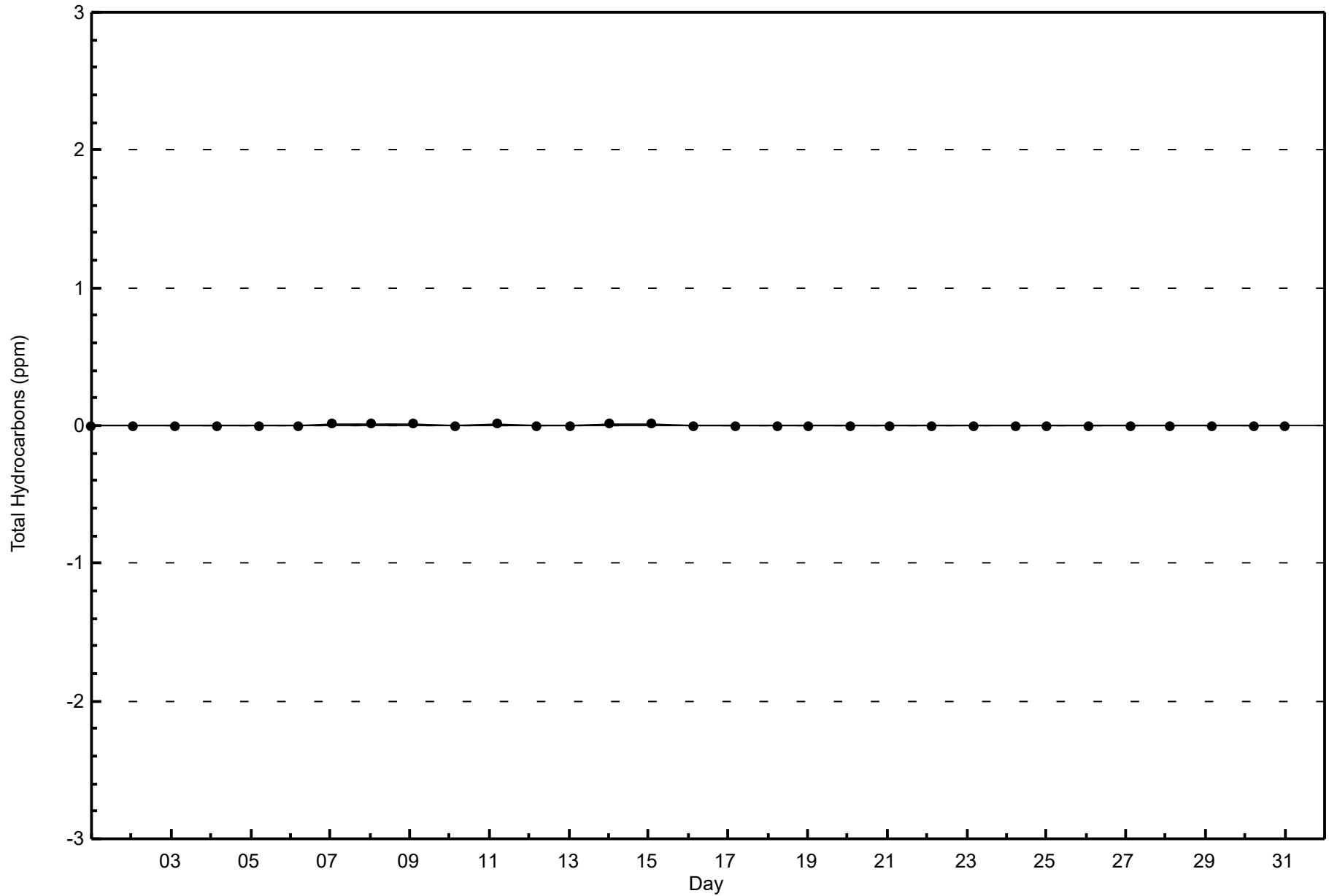
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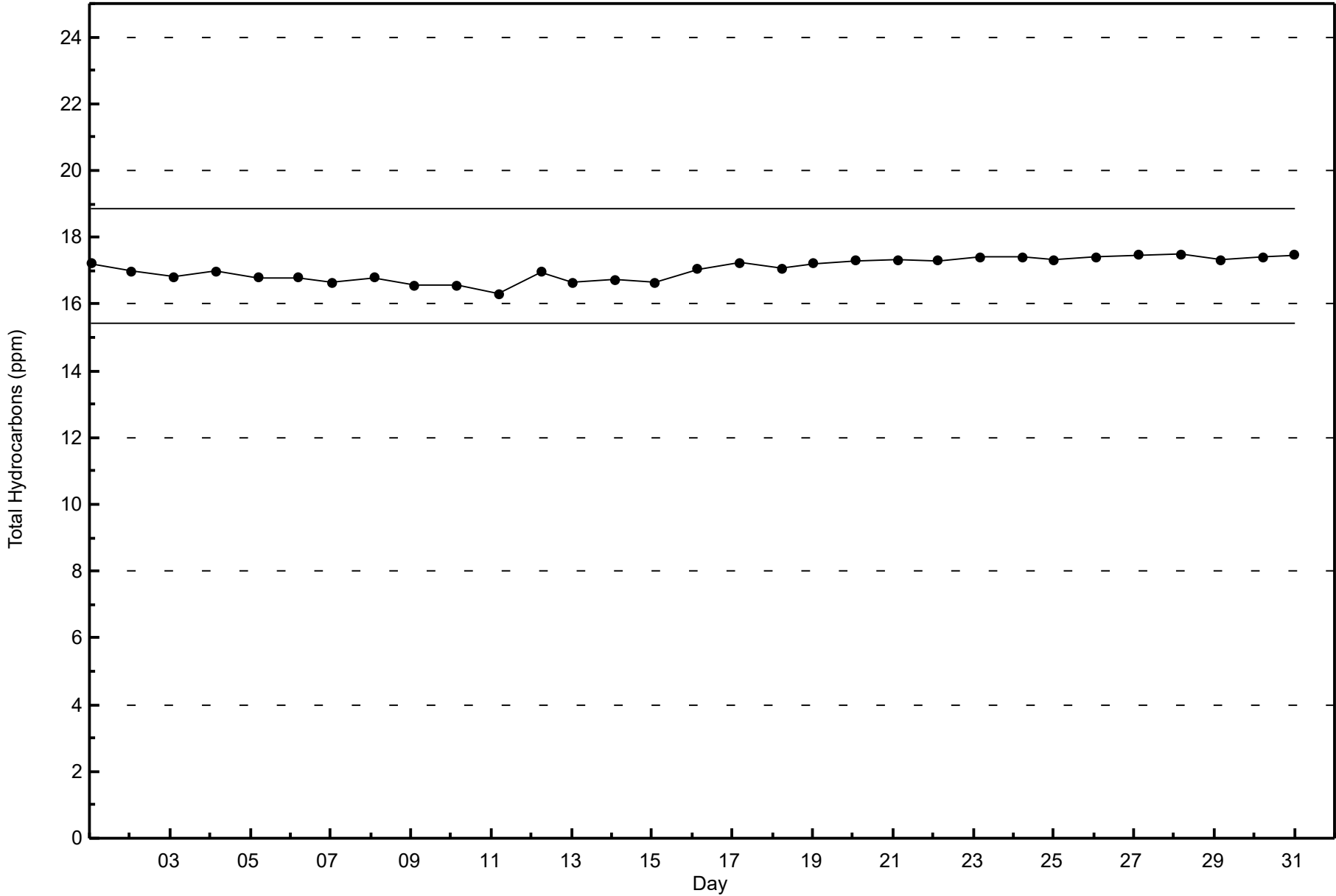
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Conklin

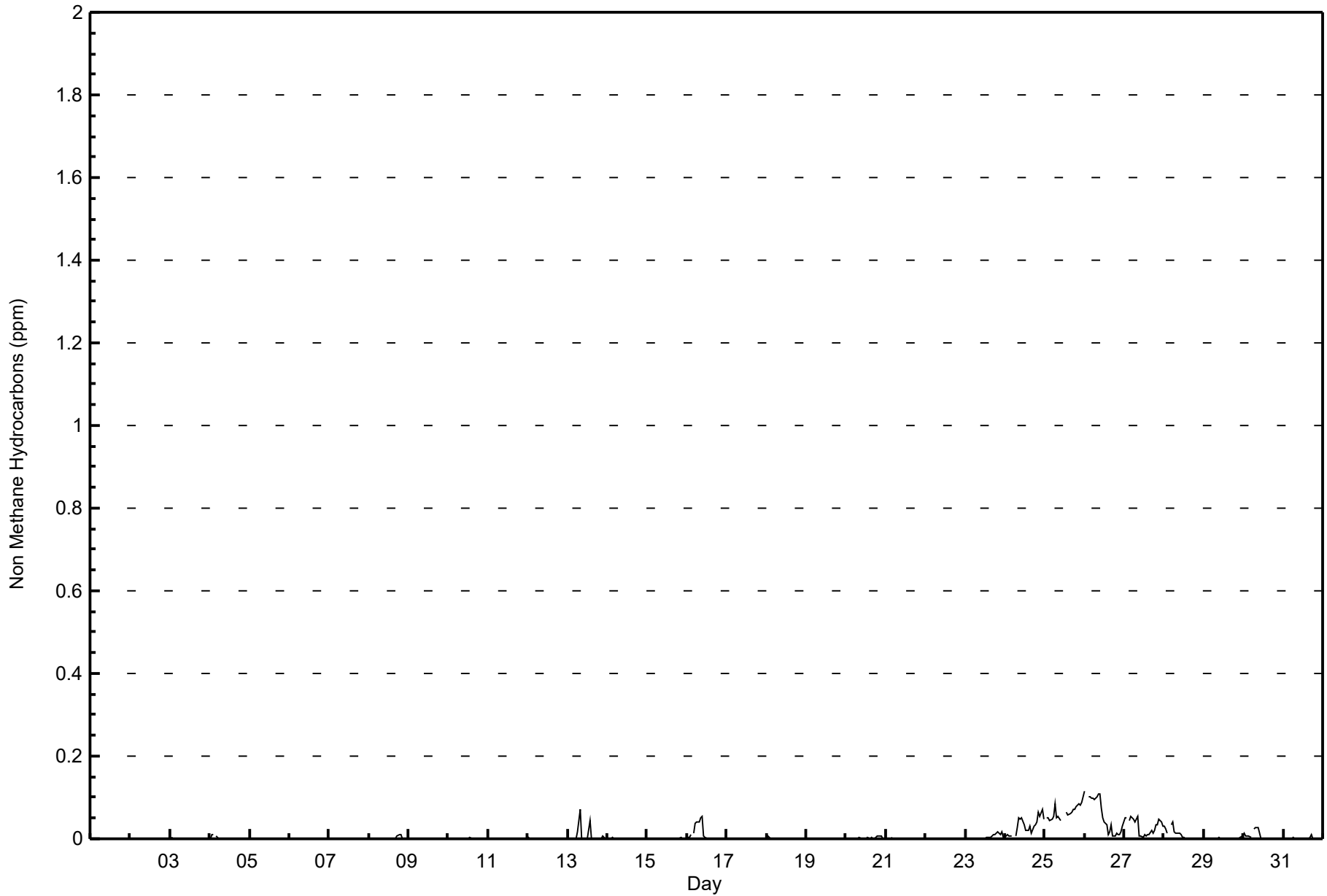














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Conklin - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	576	81.59	81.59
0.006 - 0.05	104	14.73	96.32
0.06 - 0.1	26	3.68	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Conklin - January 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	23	57	27	17	17	23	10	47	56	40	33	14	25	30	83	72	574
0.006 - 0.05	2	0	0	0	5	6	12	17	8	22	13	1	2	2	5	8	103
0.06 - 0.1	0	0	0	0	1	3	4	4	4	5	4	1	0	0	0	0	26
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	25	57	27	17	23	32	26	68	68	67	50	16	27	32	88	80	703

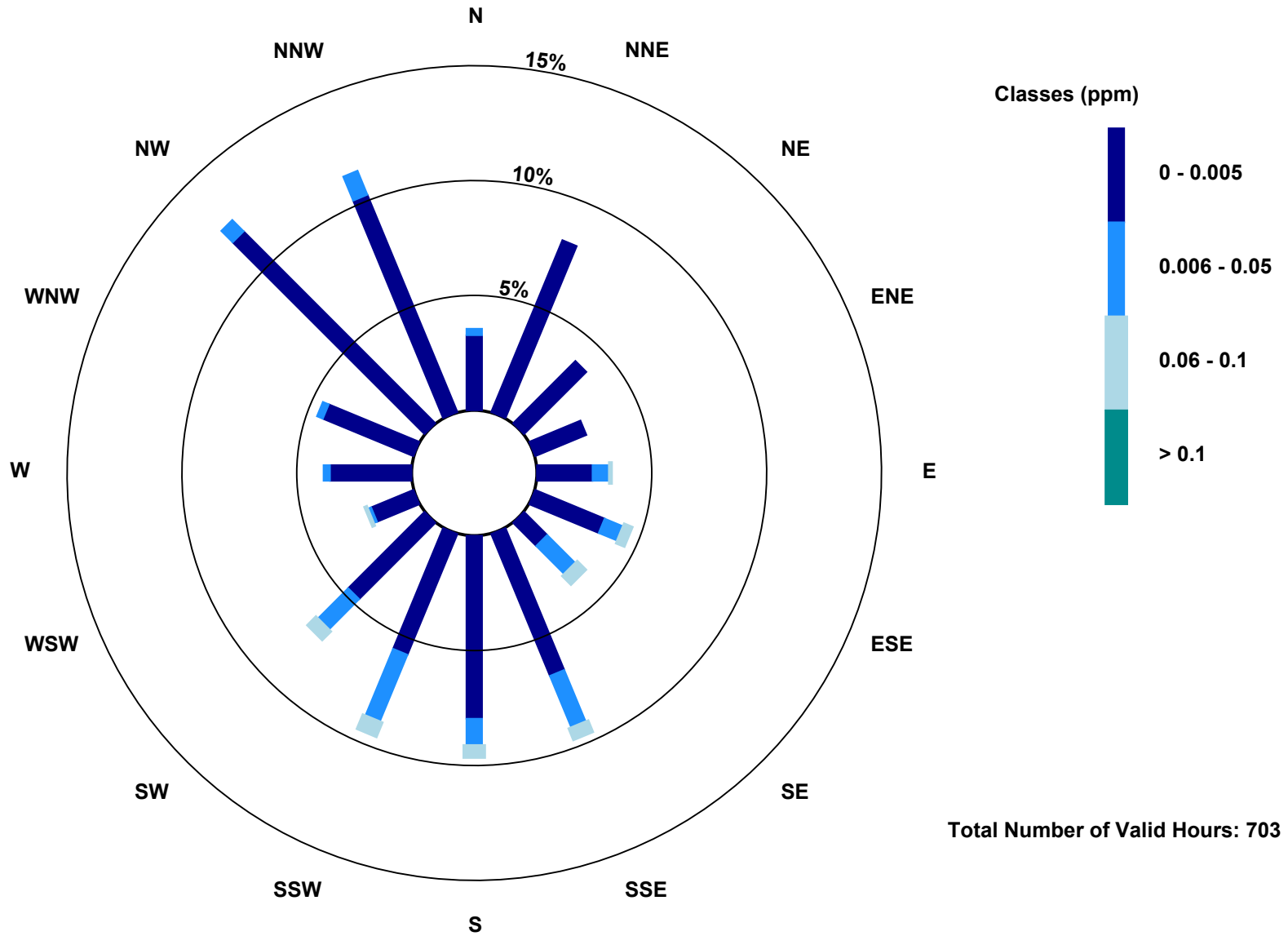
Total Number of Valid Hours: 703

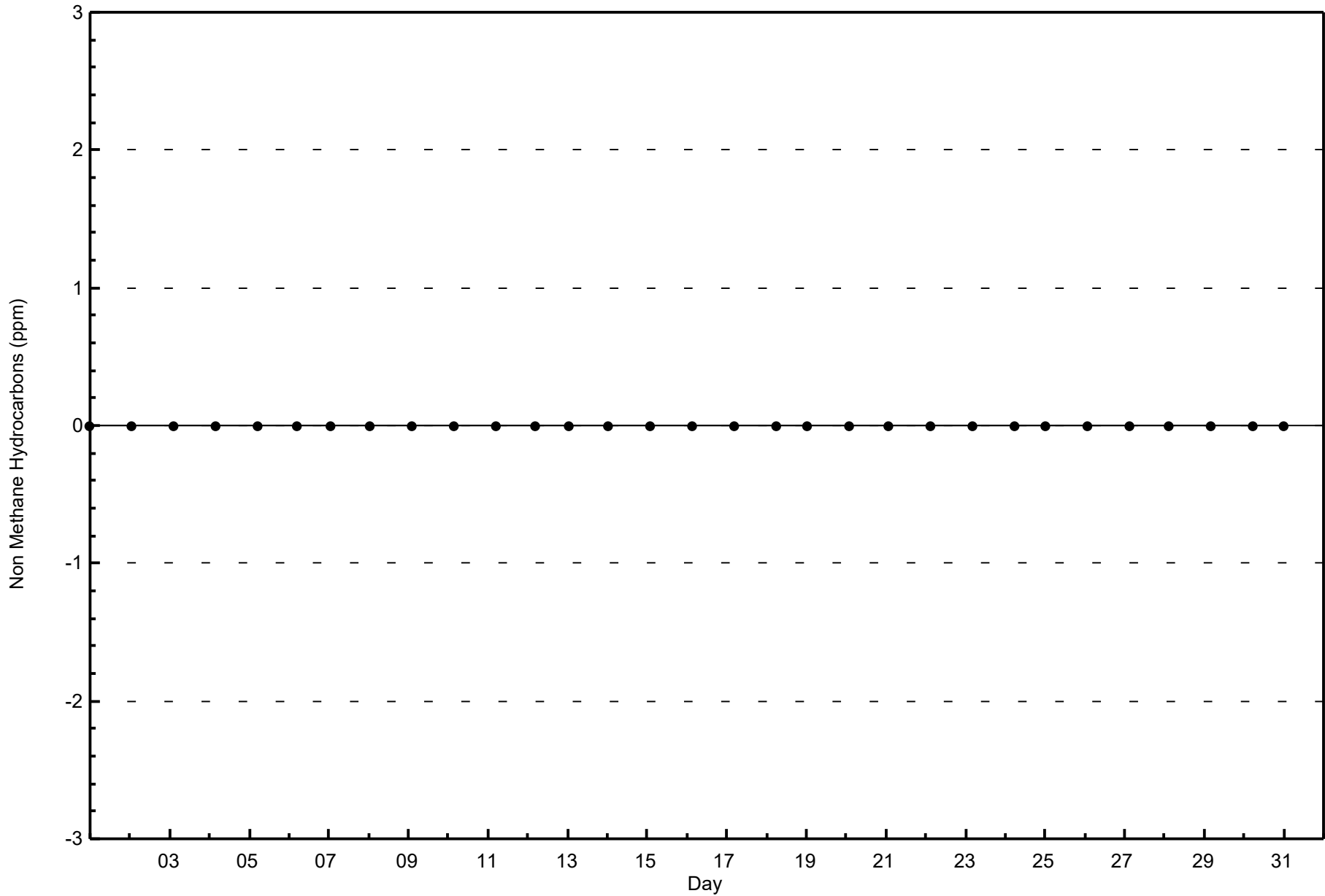
Total Number of Hours: 744

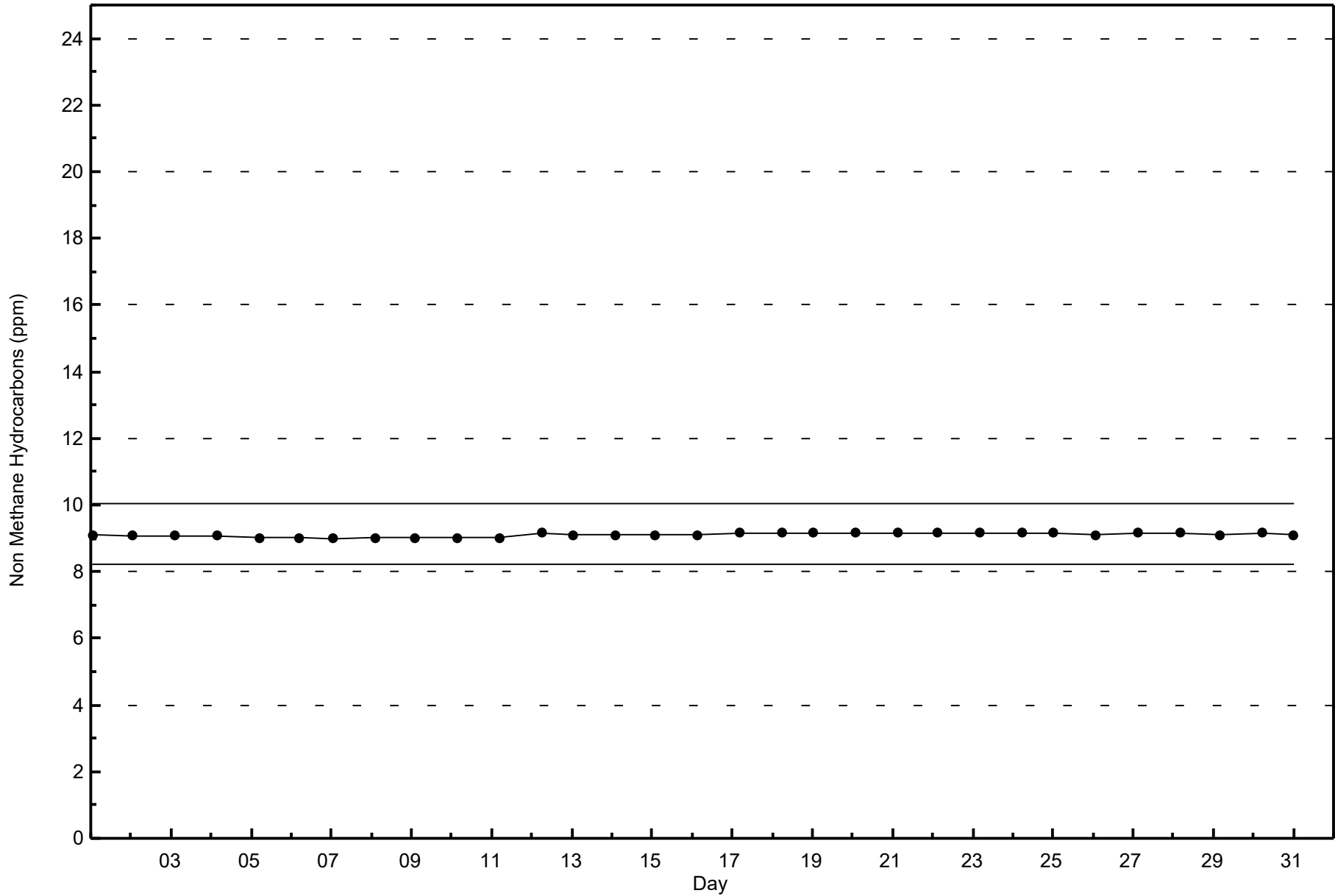


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Conklin

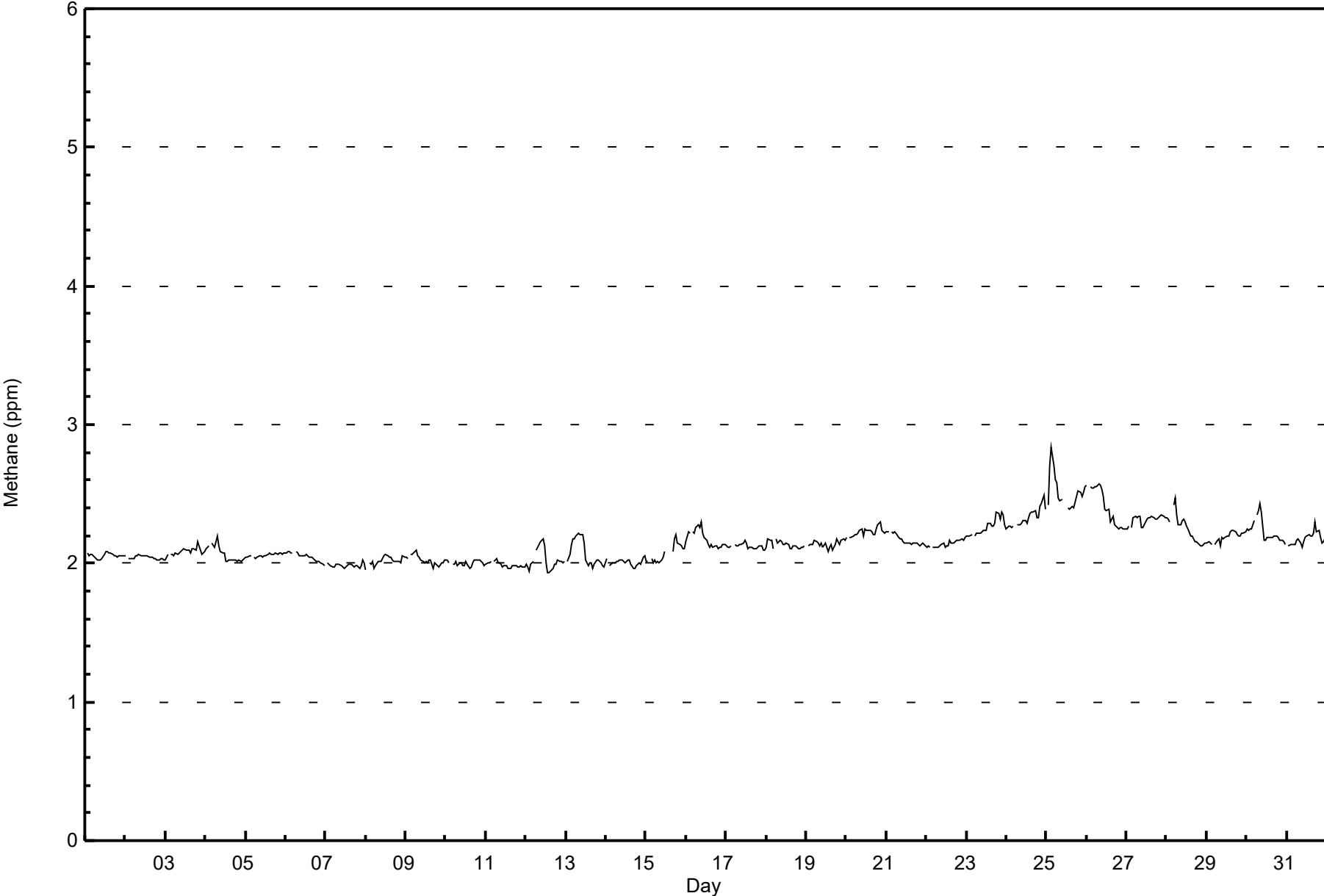














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Conklin - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	220	31.16	31.16
2.1 - 3.0	486	68.84	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Conklin - January 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	8	33	10	6	8	12	2	7	26	11	8	2	1	6	36	42	218
2.1 - 3.0	17	24	17	11	15	20	24	61	42	56	42	14	26	26	52	38	485
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>	25	57	27	17	23	32	26	68	68	67	50	16	27	32	88	80	703

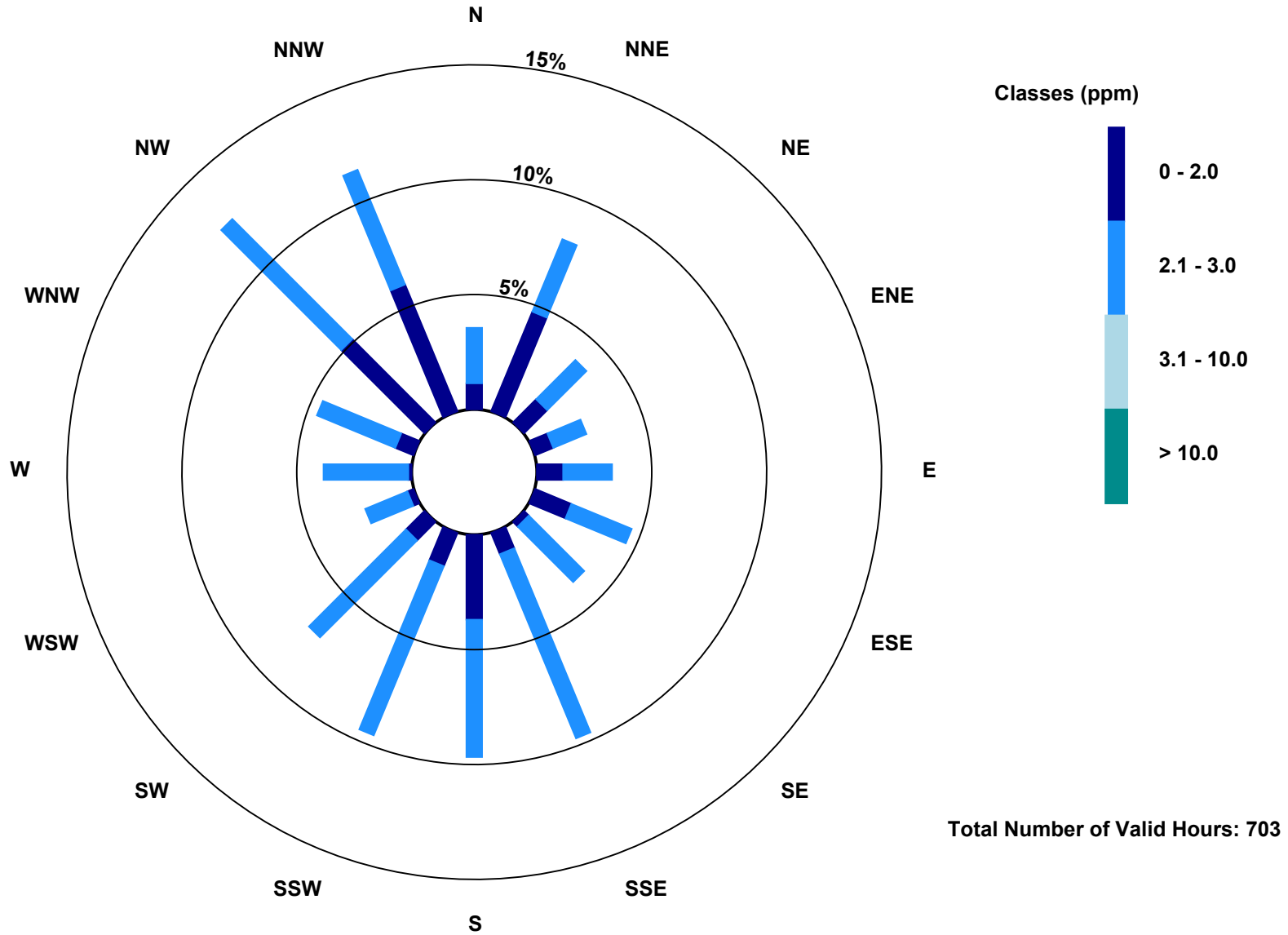
Total Number of Valid Hours: 703

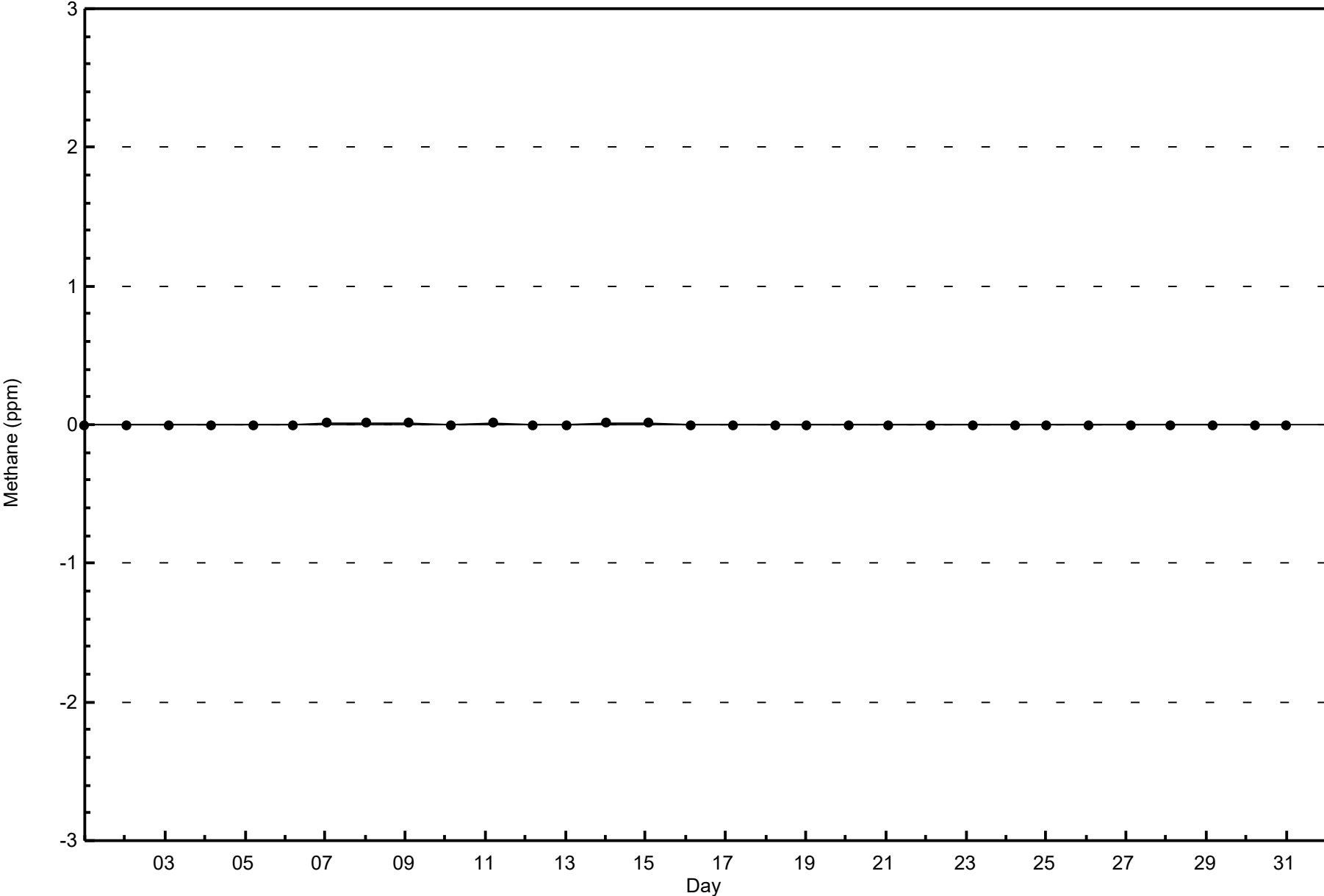
Total Number of Hours: 744

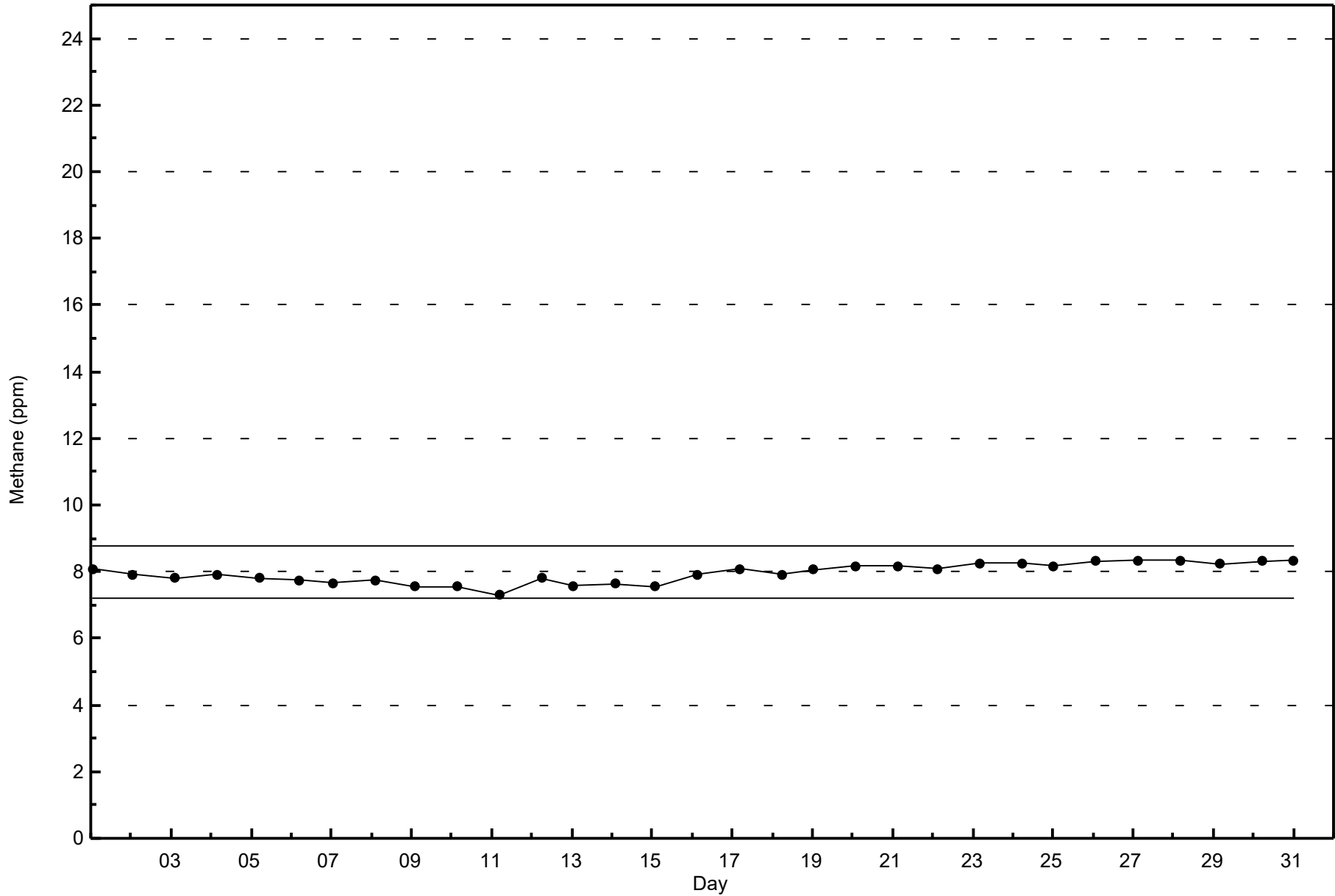


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

**Nitric Oxide (NO) - ppb**  
**Conklin - January 2024**

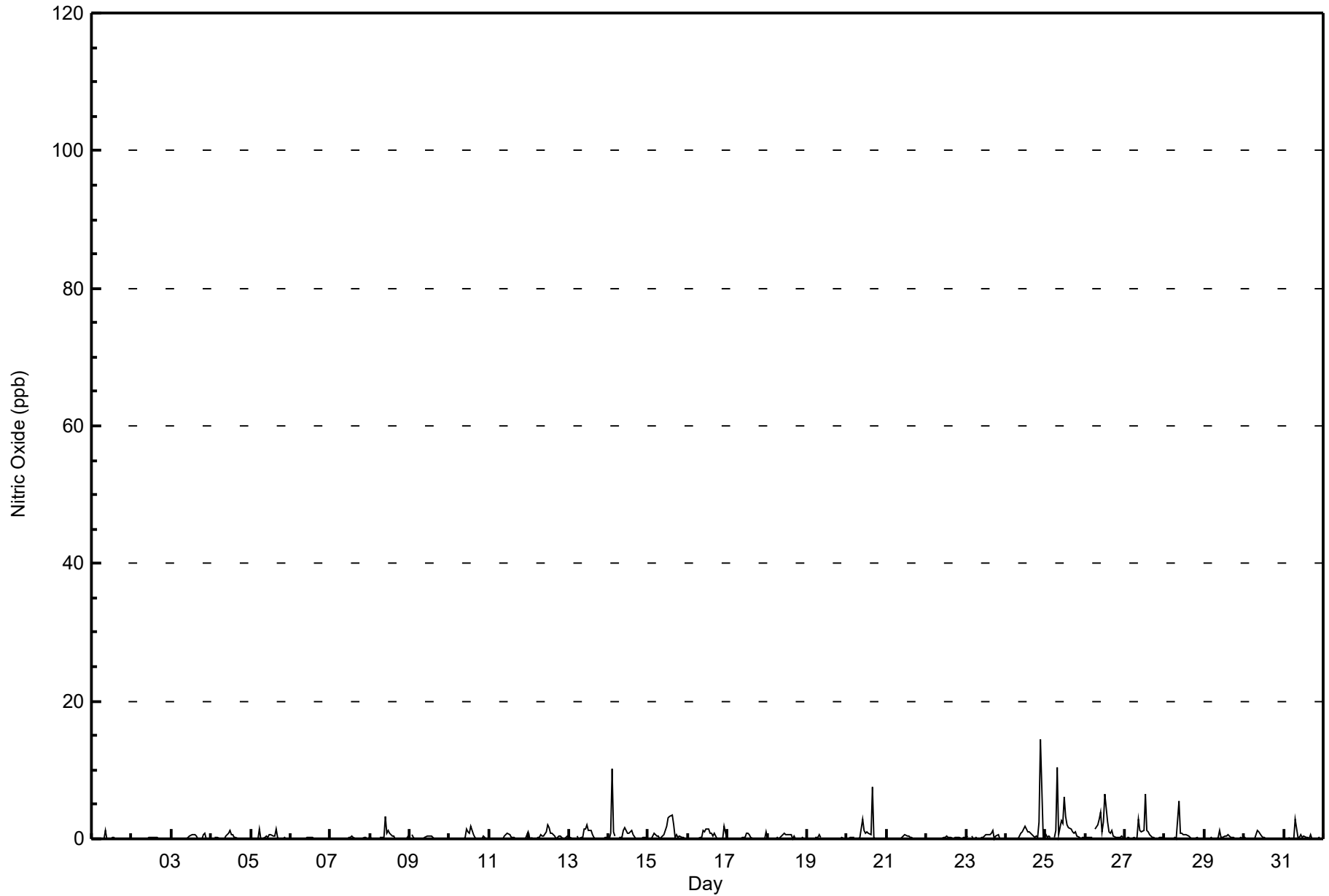
Maximum Value: 14.4 ppb on Jan 24 22:00		Maximum Daily Average: 1.6 ppb on Jan 25		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Jan 1 01:00		Minimum Daily Average: 0.0 ppb on Jan 6		Hours of Data: 704																							
Maximum Diurnal Average: 1.2 ppb at hour 13		Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Missing Data: 40																							
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> = 0.4 P <sub>90</sub> = 1.1 P <sub>99</sub> = 5.4		Hours of Calibration: 40																							
				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-Jan	0.0	0.0	0.1	0.1	Z	0.1	0.0	0.0	1.3	0.0	0.0	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	0.1	1.3	
2-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
3-Jan	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.6	0.7	0.6	0.5	0.0	0.0	0.0	0.5	0.9	0.0	0.0	0.0	0.2	0.9	
4-Jan	0.0	Z	0.2	0.3	0.1	0.0	0.1	0.1	0.1	0.4	0.8	1.1	0.6	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1	
5-Jan	0.0	0.0	Z	0.0	0.0	1.4	0.1	0.0	0.1	0.4	0.3	0.6	0.6	0.4	0.4	1.4	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.3	1.4	
6-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	0.2	
7-Jan	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	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.1	0.1	0.3	
8-Jan	0.4	0.0	0.0	0.1	0.0	Z	0.3	0.1	0.2	3.2	0.8	1.3	0.8	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	3.2	
9-Jan	Z	0.5	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
10-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.5	1.0	0.7	1.8	0.6	0.1	0.1	0.1	0.1	0.0	0.5	0.1	0.0	0.0	0.3	1.8	
11-Jan	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.0	0.1	0.3	0.7	0.8	0.6	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.2	1.1	
12-Jan	0.1	0.0	0.1	Z	0.0	0.2	0.2	0.6	0.4	0.4	1.1	2.0	1.7	0.8	0.9	0.5	0.1	0.1	0.5	0.5	0.0	0.0	0.3	0.3	0.5	2.0	
13-Jan	0.1	0.2	0.0	0.1	Z	0.4	0.1	0.3	0.3	1.4	1.3	2.1	1.2	1.1	0.5	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.4	2.1	
14-Jan	0.1	0.9	10.1	1.1	0.3	Z	0.3	0.3	0.3	1.1	1.6	0.8	0.9	1.0	1.2	0.7	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.9	10.1	
15-Jan	Z	0.0	0.1	0.8	0.6	0.4	0.4	0.1	0.2	0.5	1.2	1.8	3.0	3.2	3.4	1.9	0.3	0.5	0.1	0.3	0.1	0.1	0.0	0.0	0.8	3.4	
16-Jan	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.2	1.3	1.1	1.3	1.4	0.9	0.7	0.4	0.8	0.0	0.0	0.0	0.1	0.0	1.9	0.0	0.4	1.9	
17-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.9	0.7	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.2	1.1	
18-Jan	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.3	0.6	0.8	0.6	0.6	0.6	0.6	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.8	
19-Jan	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.6	0.3	C	C	C	C	C	C	C	C	C	C	0.1	0.0	0.0	0.1	0.0	0.1	--	0.6
20-Jan	0.0	0.1	0.1	0.3	0.2	Z	0.0	0.1	0.1	2.9	1.1	0.9	0.9	0.8	0.7	7.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.6	
21-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.7	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
22-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.1	0.3	0.2	0.1	0.2	0.2	0.1	0.3	0.1	0.3	0.3	0.1	0.4	
23-Jan	0.1	0.4	Z	0.3	0.1	0.0	0.2	0.0	0.1	0.2	0.3	0.3	0.6	0.6	0.7	0.8	1.3	0.1	0.5	0.6	0.0	0.0	0.0	0.0	0.3	1.3	
24-Jan	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.4	0.8	1.0	1.7	1.4	1.1	1.1	0.8	0.5	0.2	0.5	0.1	2.5	14.4	0.2	0.1	1.2	14.4	
25-Jan	0.5	0.2	0.3	0.1	Z	0.2	1.2	10.5	0.5	2.7	2.2	6.0	3.2	2.0	1.6	1.5	0.9	0.9	1.0	0.4	0.2	0.1	0.2	0.2	1.6	10.5	
26-Jan	0.2	0.1	0.1	0.1	0.2	Z	1.5	2.0	2.8	3.9	1.1	2.5	6.4	2.4	1.1	0.8	1.2	0.5	0.3	0.2	0.2	0.3	0.3	0.2	1.2	6.4	
27-Jan	Z	0.2	0.1	0.0	0.1	0.1	0.1	0.1	2.8	1.3	1.0	1.3	6.6	1.3	1.0	0.6	0.3	0.3	0.0	0.0	0.0	0.1	0.2	0.1	0.8	6.6	
28-Jan	0.2	Z	0.0	0.1	0.0	0.1	0.1	0.1	5.4	0.8	0.7	0.6	0.5	0.5	0.3	0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.4	5.4	
29-Jan	0.0	0.1	Z	0.1	0.2	0.0	0.0	0.0	0.2	1.2	0.2	0.3	0.3	0.5	0.7	0.5	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.2	1.2	
30-Jan	0.3	0.1	0.0	Z	0.0	0.1	0.0	0.5	1.2	1.1	0.4	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	0.2	1.2	
31-Jan	0.0	0.0	0.0	0.1	Z	0.0	0.0	2.8	0.2	0.3	0.7	0.3	0.3	0.2	0.2	0.1	0.5	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.3	2.8	
		0.1	0.1	0.4	0.1	0.1	0.1	0.2	0.6	0.6	0.9	0.7	1.0	1.2	0.8	0.6	0.7	0.2	0.1	0.1	0.1	0.2	0.5	0.1	0.2	Diurnal Average	
		0.5	0.9	10.1	1.1	0.6	1.4	1.5	10.5	5.4	3.9	2.2	6.0	6.6	3.2	3.4	7.6	1.3	0.9	1.0	0.6	2.5	14.4	1.9	1.1	Diurnal Maximum	
Z - zerospan		C - Calibration																									





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

**Nitric Oxide (NO) - ppb**  
**Conklin - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Conklin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	704	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: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Conklin - January 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	24	56	26	17	23	33	25	70	62	62	51	20	27	34	92	79	701
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>	24	56	26	17	23	33	25	70	62	62	51	20	27	34	92	79	701

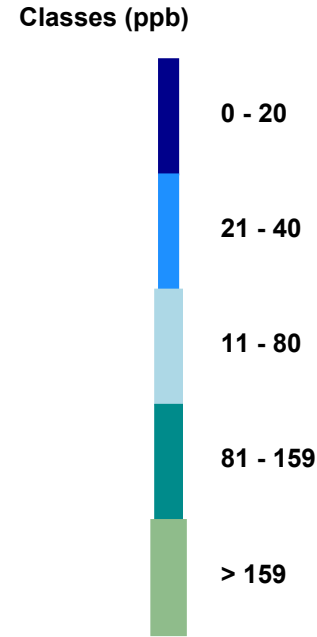
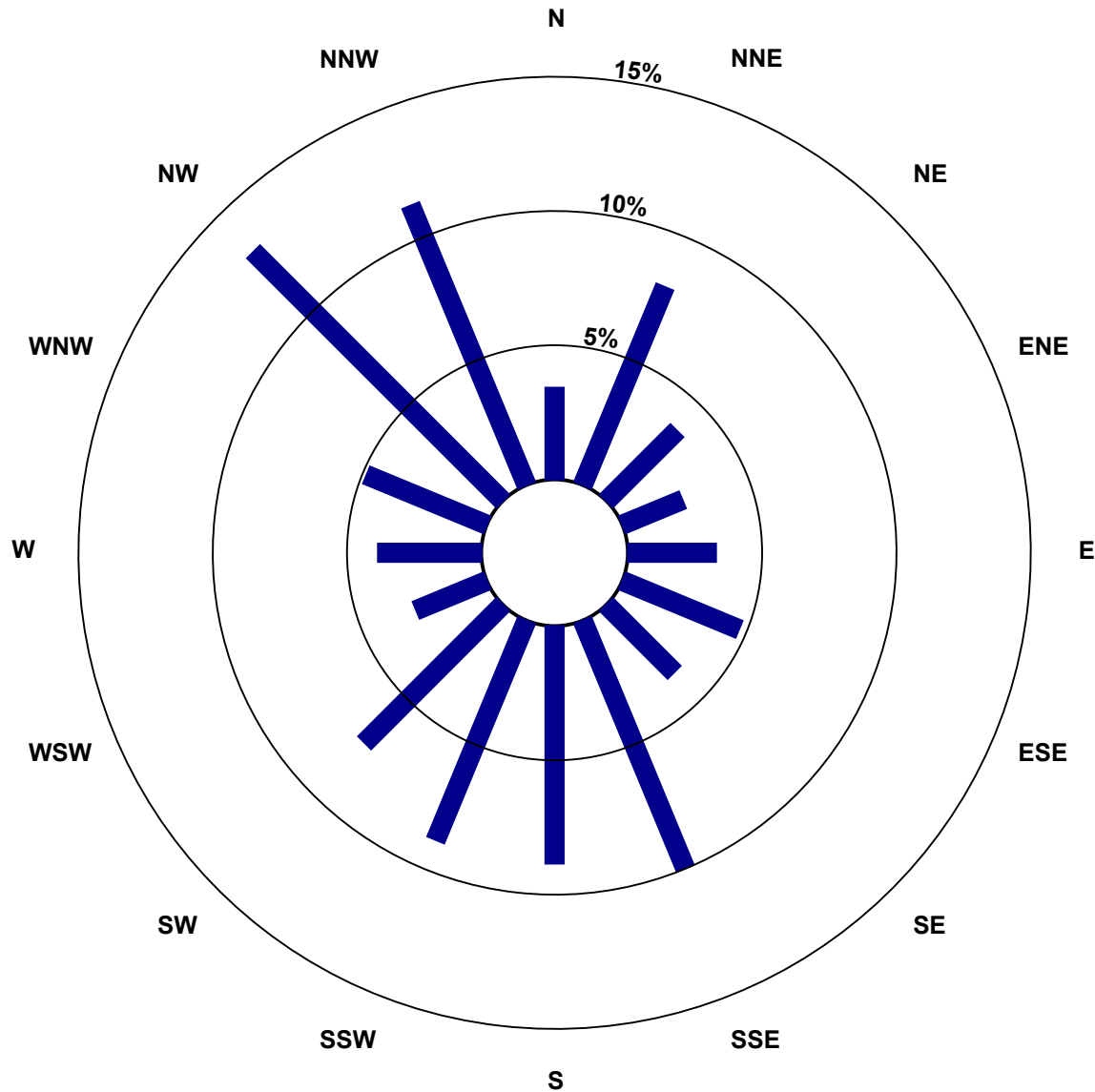
Total Number of Valid Hours: 701

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Conklin

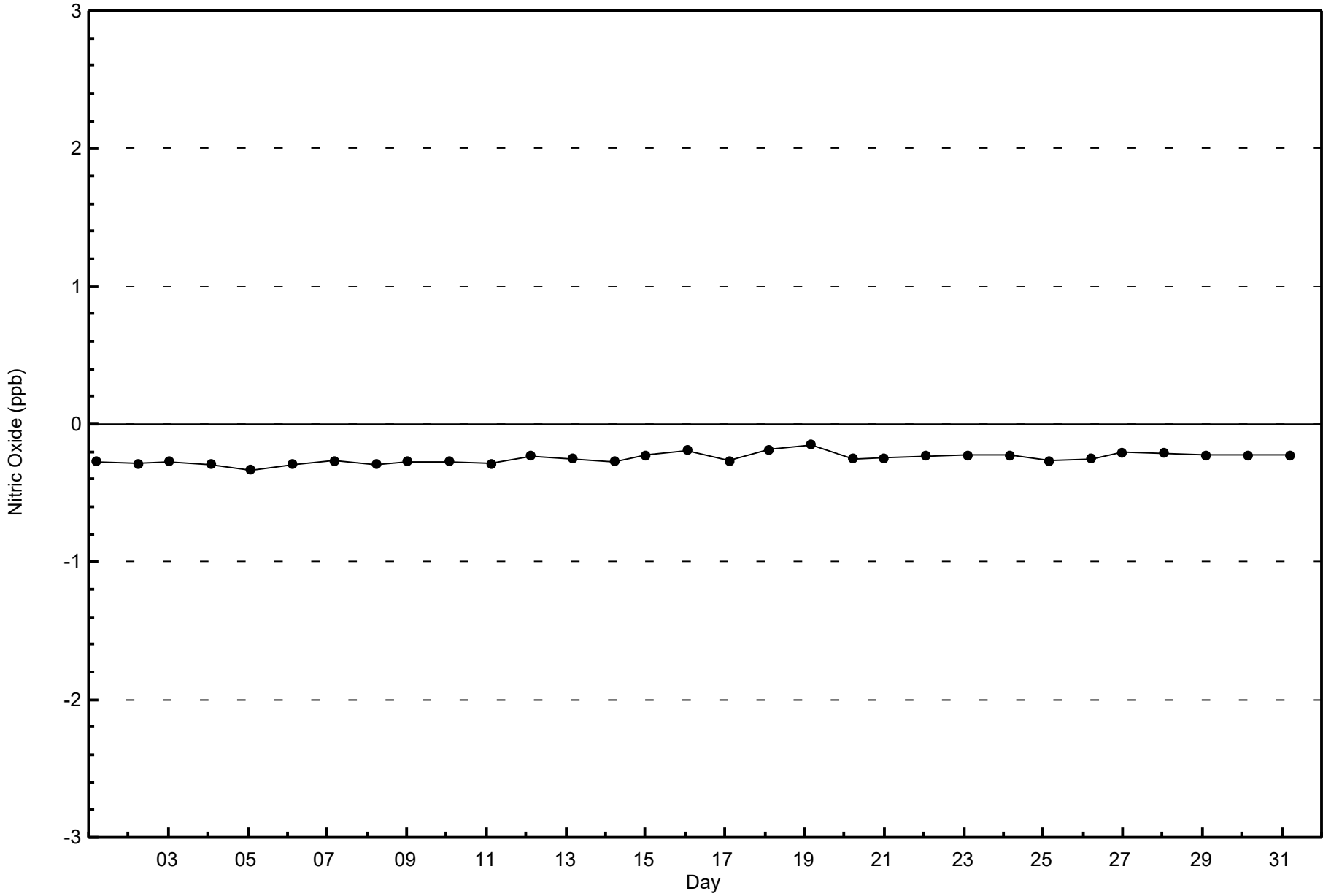


Total Number of Valid Hours: 701



**Wood Buffalo Environmental Association**  
**Zero Responses**

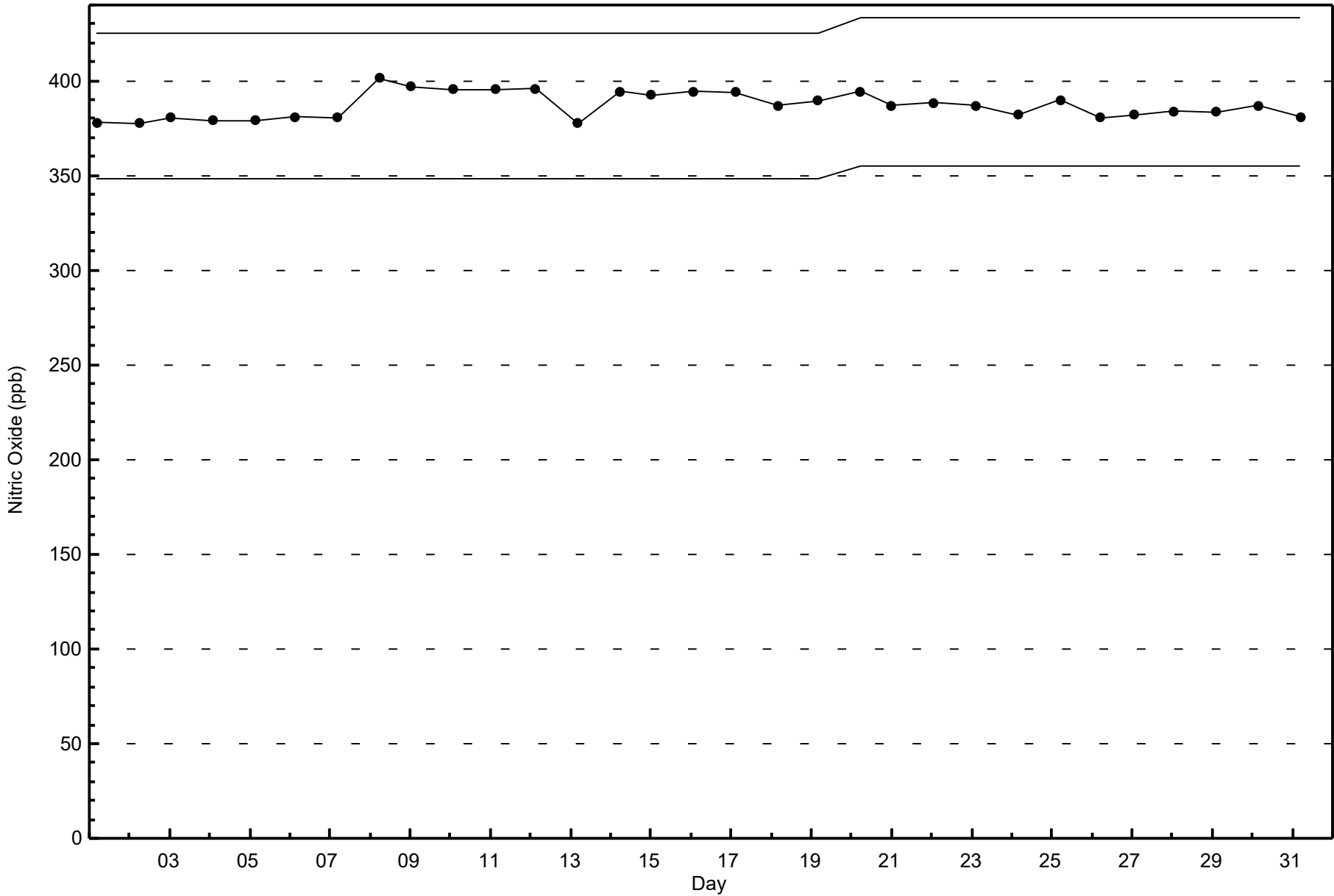
**Nitric Oxide (NO) - ppb**  
**Conklin - January 2024**





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Conklin - January 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

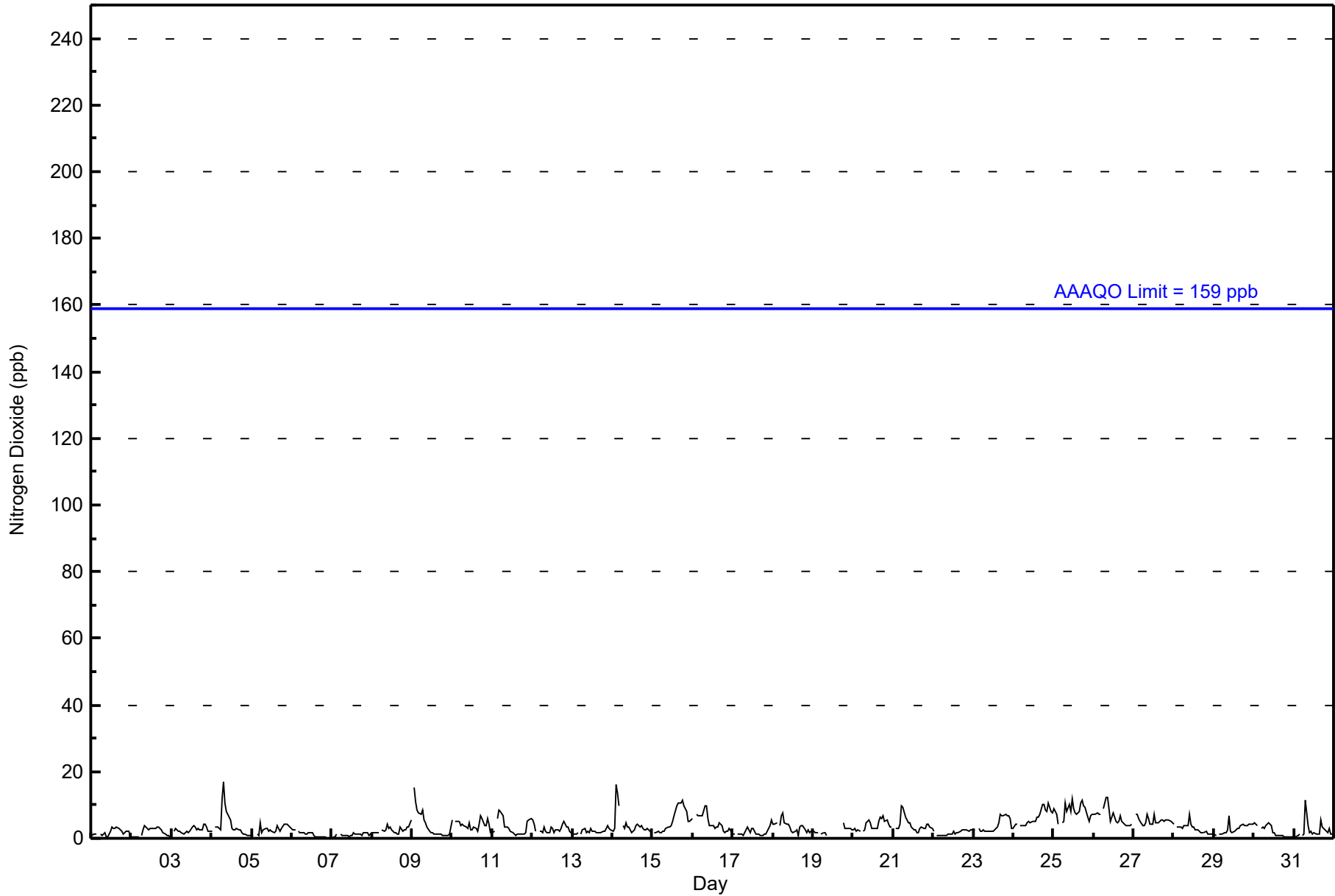
## Conklin - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 17.1 ppb on Jan 4 08:00		Maximum Daily Average: 8.0 ppb on Jan 25																	Hours of Data:	704																													
Minimum Value: 0.2 ppb on Jan 6 22:00		Minimum Daily Average: 1.1 ppb on Jan 7																	Hours of Missing Data:	40																													
Maximum Diurnal Average: 4.4 ppb at hour 8		Minimum Diurnal Average: 2.8 ppb at hour 14																	Hours of Calibration:	40																													
Monthly Average: 3.43 ppb		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.6 Median = 2.8 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 7.0 P <sub>99</sub> = 11.8																	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-Jan	1.0	1.2	1.2	1.3	Z	1.2	0.9	1.2	1.8	0.3	0.4	2.2	3.5	2.9	2.8	3.3	2.9	2.7	2.3	1.2	1.5	2.1	2.3	0.6	1.8	3.5																							
2-Jan	0.5	0.5	0.6	0.4	0.4	Z	1.0	2.7	3.8	3.0	2.4	2.8	3.0	3.0	3.1	3.2	3.4	3.0	2.7	1.6	1.2	1.0	0.8	0.6	1.9	3.8																							
3-Jan	Z	2.3	3.1	2.6	2.0	2.0	1.9	1.4	1.7	2.2	1.5	2.2	3.6	3.8	3.2	2.6	2.8	2.6	2.4	4.1	4.1	3.4	2.3	2.0	2.6	4.1																							
4-Jan	2.2	Z	3.4	3.6	3.5	2.5	11.8	17.1	10.6	8.0	6.2	5.5	3.0	2.4	2.7	2.9	2.7	2.6	1.9	1.4	1.2	1.0	1.0	1.0	4.3	17.1																							
5-Jan	0.8	0.8	Z	1.1	0.8	4.8	1.6	2.7	3.0	3.0	2.1	2.7	2.3	1.9	2.1	3.9	3.1	2.3	2.9	4.2	4.3	4.1	3.8	3.3	2.7	4.8																							
6-Jan	2.7	2.7	2.4	Z	2.2	1.9	1.9	1.6	1.2	1.1	1.6	1.8	1.6	1.0	0.6	0.6	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.2	1.2	2.7																							
7-Jan	0.2	0.4	0.4	1.1	Z	1.4	1.0	1.0	1.0	0.7	0.4	0.9	1.0	1.7	1.4	1.1	1.1	1.2	1.0	1.8	1.8	1.6	1.0	1.1	1.1	1.8																							
8-Jan	1.6	1.5	1.5	1.7	1.8	Z	2.6	2.1	2.7	4.1	3.0	3.6	2.6	1.8	1.8	1.3	1.4	3.4	2.3	2.7	2.7	3.6	3.5	5.5	2.6	5.5																							
9-Jan	Z	15.4	11.0	8.5	7.5	7.3	8.5	5.5	4.5	3.3	2.3	1.8	1.5	1.3	1.3	1.3	1.1	1.2	1.0	0.7	0.8	0.9	1.4	3.6	4.0	15.4																							
10-Jan	5.3	Z	5.1	5.1	4.9	3.7	4.1	3.7	3.4	2.9	4.6	2.5	2.5	3.2	3.0	2.1	4.3	6.6	5.8	4.0	3.8	6.0	4.2	1.8	4.0	6.6																							
11-Jan	1.8	2.1	Z	5.8	8.6	8.0	6.9	3.4	3.6	3.3	2.8	2.2	1.6	1.1	1.0	1.4	1.1	1.2	1.3	1.3	1.7	5.0	5.3	5.9	3.3	8.6																							
12-Jan	5.6	4.1	2.3	Z	2.2	2.2	1.7	3.3	2.1	1.5	1.7	3.3	2.9	1.9	2.6	2.4	2.2	3.0	4.2	5.2	3.6	3.3	2.2	1.5	2.8	5.6																							
13-Jan	1.2	1.3	1.4	1.7	Z	1.4	2.7	2.8	1.6	2.3	1.9	2.9	2.0	2.3	1.7	1.5	1.6	1.6	2.3	2.1	3.0	3.9	3.0	2.4	2.1	3.9																							
14-Jan	2.2	2.8	15.9	13.7	9.8	Z	3.9	3.1	4.6	3.4	3.6	1.9	2.1	2.7	4.0	4.2	3.2	3.8	2.9	2.5	2.4	2.8	2.3	1.8	4.3	15.9																							
15-Jan	Z	1.7	1.6	2.1	1.8	1.6	2.1	2.2	2.8	3.2	3.2	3.7	5.1	6.6	9.8	10.5	10.4	10.6	11.3	9.6	7.9	5.0	5.0	5.6	5.4	11.3																							
16-Jan	5.9	Z	7.1	6.7	6.7	6.9	6.6	9.9	9.7	5.9	4.0	4.0	4.0	2.9	3.4	3.6	4.6	3.9	2.1	1.8	2.1	2.0	2.8	1.6	4.7	9.9																							
17-Jan	1.3	1.4	Z	1.3	1.3	1.1	0.9	1.6	2.6	3.2	1.9	3.1	2.8	2.3	1.3	1.1	0.9	0.9	0.7	1.1	1.2	2.8	3.8	5.7	1.9	5.7																							
18-Jan	4.3	4.3	4.7	Z	3.9	6.7	7.7	4.5	4.3	4.3	3.4	2.1	1.8	2.0	2.6	1.0	3.3	3.9	3.8	2.7	1.6	2.6	1.7	2.2	3.5	7.7																							
19-Jan	2.1	1.8	1.6	1.6	Z	1.4	1.6	1.5	1.0	C	C	C	C	C	C	C	C	C	4.8	2.9	3.0	2.9	3.0	2.5	--	4.8																							
20-Jan	2.6	3.0	2.1	2.4	2.3	Z	2.3	2.5	4.6	5.7	4.6	3.0	2.8	2.9	3.1	5.2	6.3	6.0	6.8	5.2	5.4	4.1	3.5	3.2	3.9	6.8																							
21-Jan	Z	2.9	2.8	2.8	4.2	9.9	9.5	6.3	5.6	4.7	4.7	3.3	2.6	2.5	1.6	1.7	2.9	3.4	2.8	2.9	4.4	4.2	3.6	3.1	4.0	9.9																							
22-Jan	2.3	Z	1.0	0.7	1.0	0.7	0.8	0.7	0.9	1.3	1.2	1.1	2.0	1.3	1.7	1.6	2.2	2.7	2.5	2.4	2.6	2.2	2.5	2.7	1.7	2.7																							
23-Jan	2.6	2.5	Z	2.8	2.2	2.1	2.4	2.0	2.0	2.2	2.0	2.1	2.2	2.5	3.2	4.6	7.3	6.9	6.8	7.4	6.8	6.9	5.9	2.9	3.8	7.4																							
24-Jan	2.9	4.4	4.3	Z	3.8	3.8	3.7	4.0	4.7	5.1	4.7	5.1	5.2	5.2	6.3	6.5	7.4	10.0	10.0	8.3	8.1	10.5	8.0	7.5	6.1	10.5																							
25-Jan	9.1	8.1	7.3	4.1	Z	4.5	4.9	10.7	8.2	10.0	8.2	11.9	9.0	7.5	7.2	7.9	10.4	11.4	9.9	9.4	6.3	5.2	6.8	7.1	8.0	11.9																							
26-Jan	7.2	7.4	7.5	7.3	7.1	Z	9.1	12.3	12.1	8.8	5.1	6.2	7.7	5.2	4.6	4.9	6.6	4.9	4.4	4.0	3.8	3.9	3.9	4.2	6.4	12.3																							
27-Jan	Z	7.3	7.3	5.8	5.0	4.0	4.0	4.5	7.0	5.9	4.3	4.4	7.3	4.5	4.5	4.8	5.3	5.5	5.1	5.7	5.5	5.4	5.0	4.5	5.3	7.3																							
28-Jan	4.1	Z	3.6	3.2	3.2	3.0	3.7	3.8	3.7	7.1	4.2	3.5	3.4	2.6	2.4	2.1	1.8	1.7	1.5	2.1	1.3	1.3	1.4	1.2	2.9	7.1																							
29-Jan	1.2	0.9	Z	1.3	1.4	1.2	1.5	1.7	2.4	6.7	2.0	1.9	2.2	2.5	3.0	3.0	3.9	4.4	3.9	3.9	4.0	4.1	4.3	4.4	2.9	6.7																							
30-Jan	4.6	4.4	3.8	Z	3.1	3.5	2.9	3.7	4.1	4.5	4.0	1.9	1.5	0.9	0.7	0.8	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.5	2.2	4.6																							
31-Jan	0.5	0.6	0.8	1.2	Z	0.9	1.1	11.6	4.0	1.5	2.3	1.2	1.6	1.3	1.2	1.3	5.6	3.4	3.0	2.3	1.7	2.8	1.4	1.1	2.3	11.6																							
																								2.9	3.3	4.0	3.5	3.6	3.4	3.7	4.4	4.0	4.0	3.1	3.2	3.1	2.8	2.9	3.1	3.7	3.9	3.7	3.4	3.2	3.4	3.1	2.9	Diurnal Average	
																								9.1	15.4	15.9	13.7	9.8	9.9	11.8	17.1	12.1	10.0	8.2	11.9	9.0	7.5	9.8	10.5	10.4	11.4	11.3	9.6	8.1	10.5	8.0	7.5	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  
Conklin - January 2024







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Conklin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	704	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: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Conklin - January 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	24	56	26	17	23	33	25	70	62	62	51	20	27	34	92	79	701
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>	24	56	26	17	23	33	25	70	62	62	51	20	27	34	92	79	701

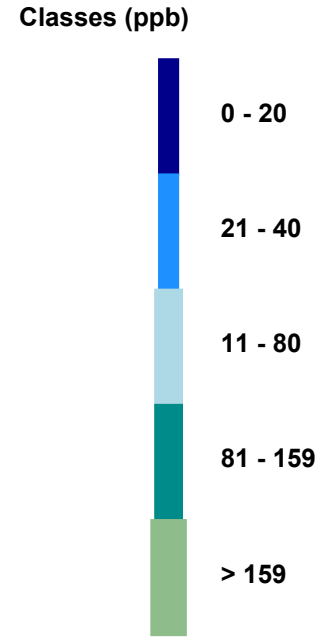
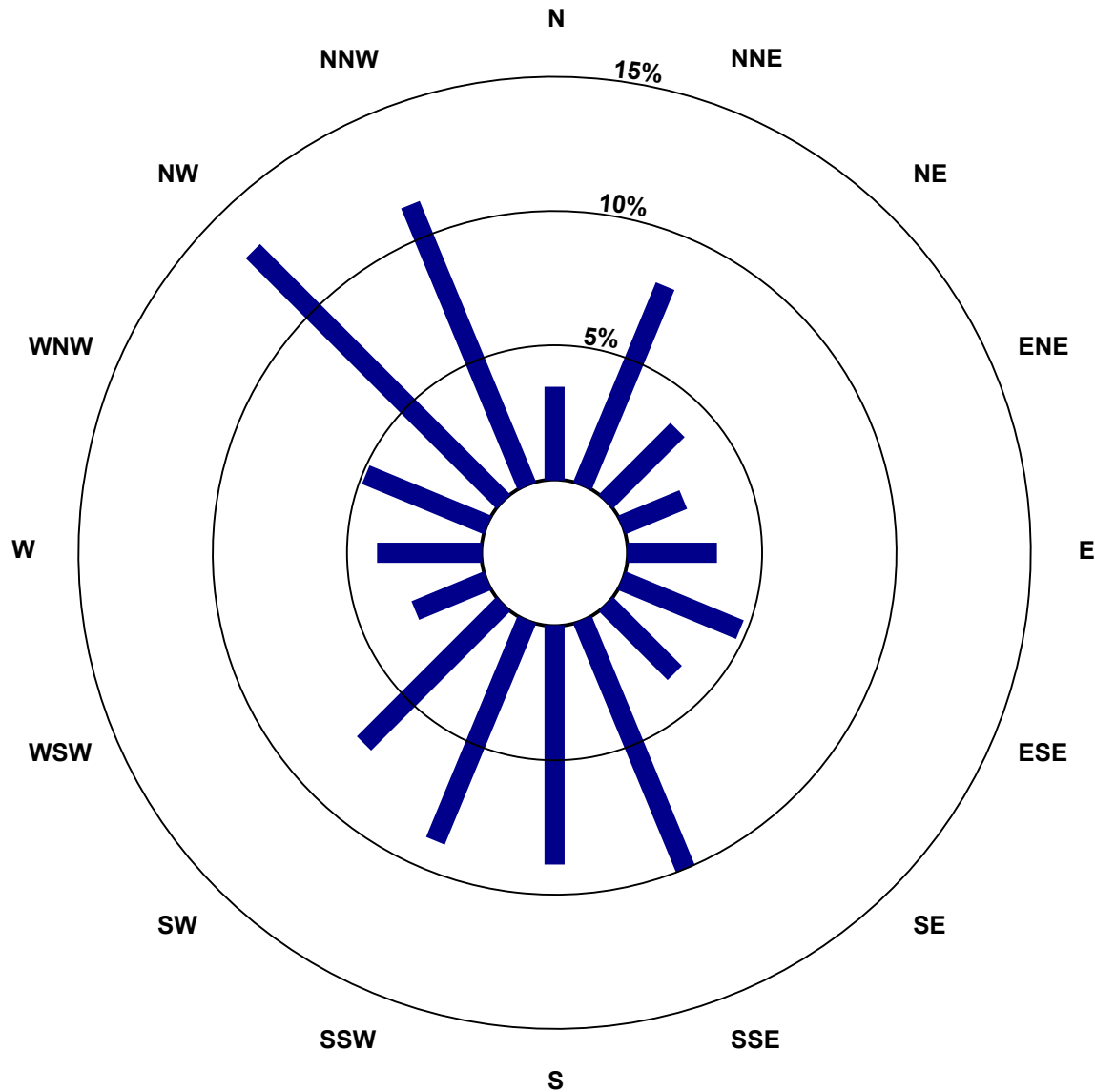
Total Number of Valid Hours: 701

Total Number of Hours: 744

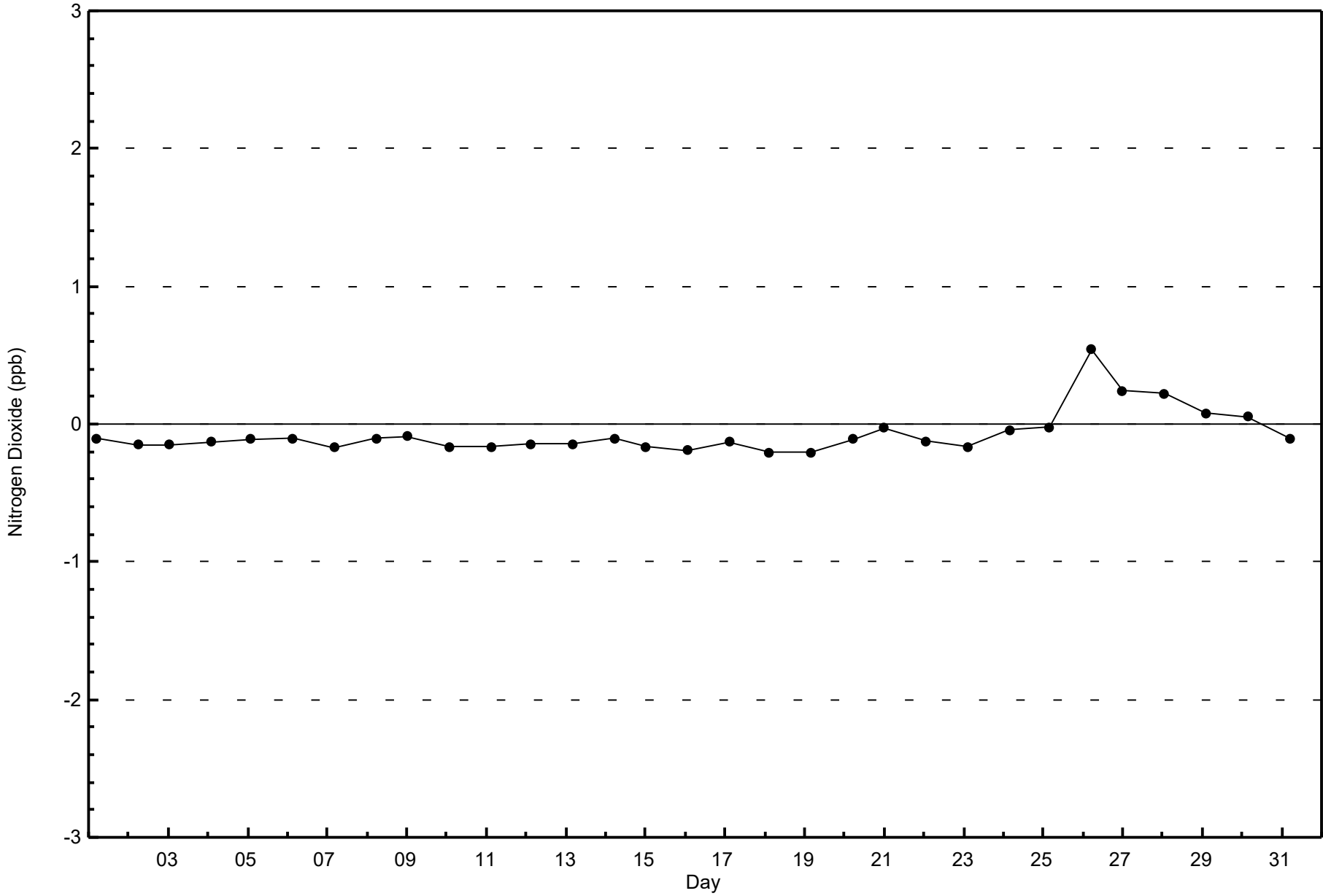


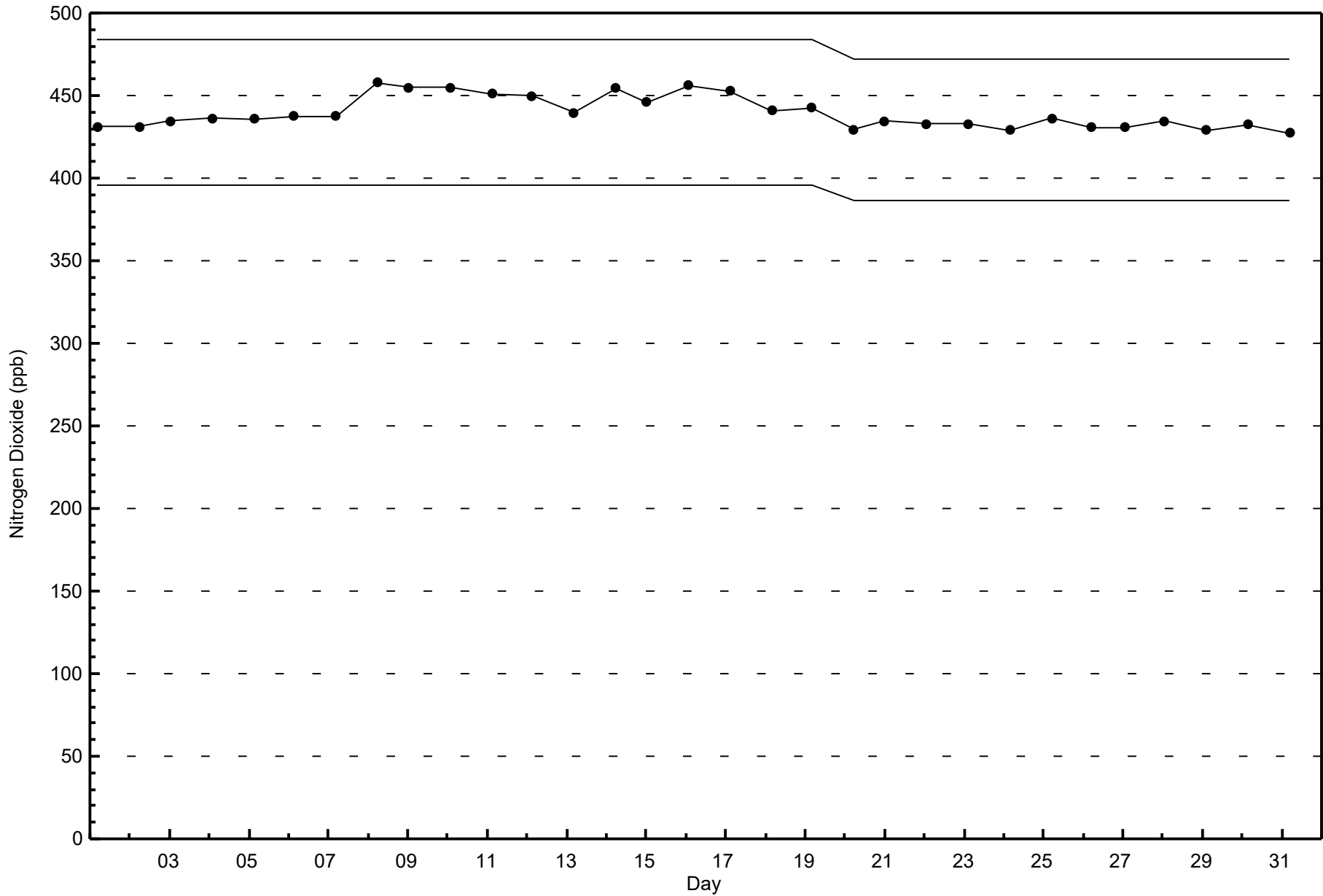
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 701







Wood Buffalo Environmental Association

Summary of Hour Averages

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

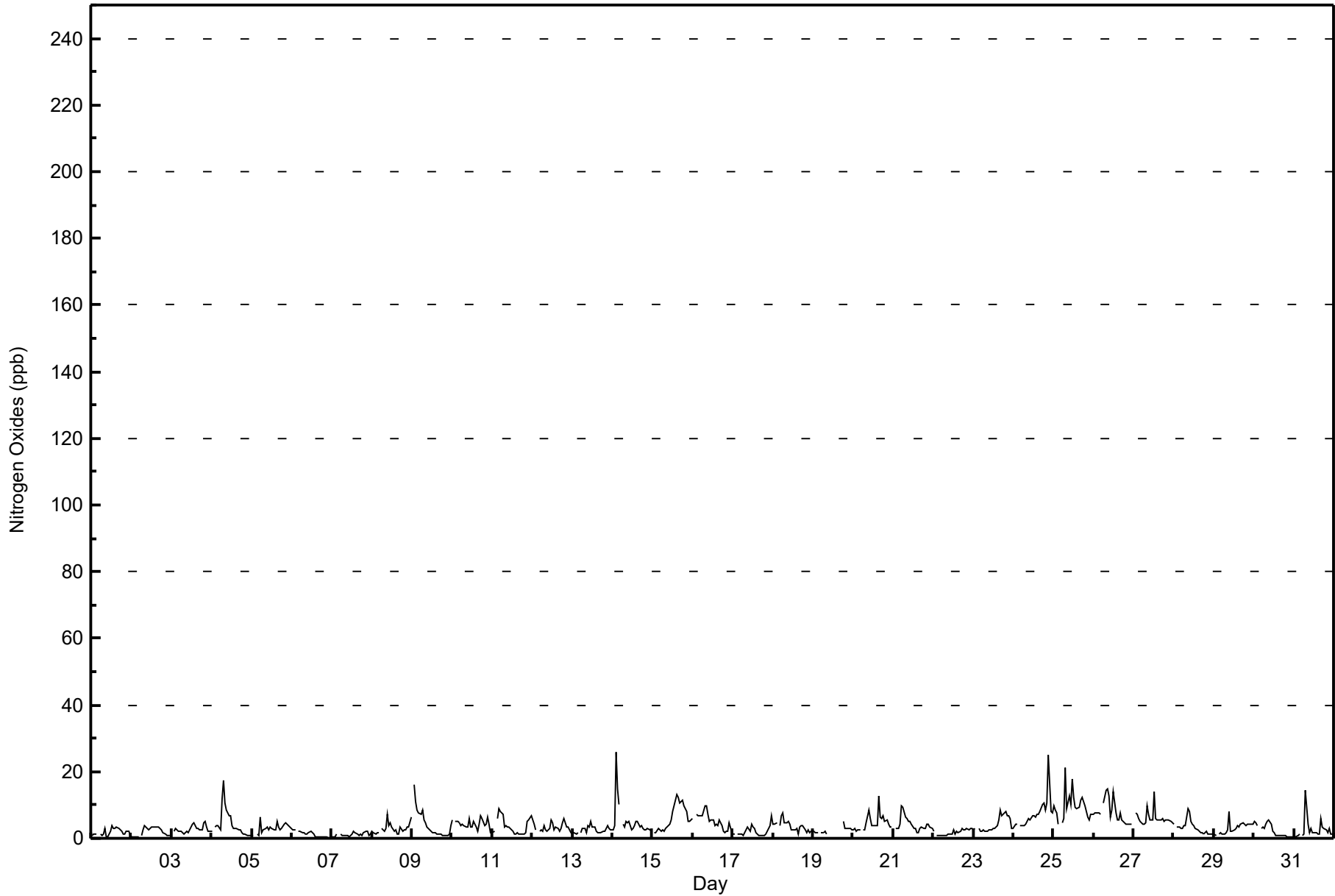
Conklin - January 2024

Maximum Value: 26.0 ppb on Jan 14 03:00																				Maximum Daily Average: 9.6 ppb on Jan 25					Hours in Service:	744							
Minimum Value: 0.2 ppb on Jan 7 00:00																				Minimum Daily Average: 1.1 ppb on Jan 7					Hours of Data:	704							
Maximum Diurnal Average: 5.0 ppb at hour 8																				Minimum Diurnal Average: 3.0 ppb at hour 1					Hours of Missing Data:	40							
Monthly Average: 3.84 ppb																				Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.8 Median = 3.0 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 7.5 P <sub>99</sub> = 14.8					Hours of Calibration:	40							
																									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-Jan	1.0	1.2	1.3	1.4	Z	1.3	0.9	1.2	3.1	0.3	0.4	2.3	3.7	3.0	2.9	3.4	2.9	2.7	2.3	1.2	1.5	2.1	2.3	0.6	1.9	3.7							
2-Jan	0.5	0.5	0.6	0.4	0.4	Z	1.0	2.7	3.8	3.1	2.5	3.0	3.3	3.2	3.3	3.3	3.4	3.0	2.7	1.6	1.2	1.0	0.8	0.6	2.0	3.8							
3-Jan	Z	2.3	3.1	2.7	2.0	2.0	1.9	1.5	1.8	2.3	1.7	2.6	4.2	4.5	3.8	3.1	2.8	2.6	2.4	4.6	5.0	3.4	2.3	2.0	2.8	5.0							
4-Jan	2.2	Z	3.6	3.9	3.6	2.5	11.9	17.2	10.7	8.4	7.0	6.6	3.6	3.0	2.9	3.0	2.7	2.6	1.9	1.4	1.2	1.0	1.0	1.0	4.5	17.2							
5-Jan	0.8	0.8	Z	1.1	0.8	6.2	1.7	2.7	3.1	3.4	2.4	3.3	2.9	2.3	2.5	5.3	3.3	2.3	2.9	4.3	4.5	4.1	3.8	3.3	2.9	6.2							
6-Jan	2.7	2.7	2.4	Z	2.2	1.9	1.9	1.6	1.2	1.1	1.8	2.0	1.8	1.1	0.6	0.6	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.2	1.2	2.7							
7-Jan	0.2	0.4	0.4	1.1	Z	1.4	1.0	1.0	1.0	0.7	0.4	1.0	1.2	2.0	1.6	1.1	1.1	1.2	1.0	1.8	2.0	1.9	1.0	1.2	1.1	2.0							
8-Jan	2.0	1.5	1.5	1.8	1.8	Z	2.9	2.2	2.9	7.3	3.8	4.9	3.4	2.2	2.3	1.4	1.4	3.4	2.3	2.7	2.7	3.6	3.5	6.2	2.9	7.3							
9-Jan	Z	15.9	11.1	8.6	7.5	7.4	8.5	5.5	4.5	3.5	2.6	2.2	1.9	1.6	1.5	1.4	1.1	1.2	1.0	0.7	0.8	0.9	1.4	3.6	4.1	15.9							
10-Jan	5.3	Z	5.1	5.1	4.9	3.7	4.1	3.7	3.5	3.2	6.1	3.5	3.2	5.0	3.6	2.2	4.4	6.7	5.9	4.0	4.3	6.1	4.2	1.8	4.3	6.7							
11-Jan	1.8	2.1	Z	5.8	8.7	8.1	7.0	3.4	3.7	3.6	3.5	3.0	2.2	1.4	1.2	1.6	1.2	1.2	1.3	1.3	1.7	5.0	5.4	7.0	3.5	8.7							
12-Jan	5.7	4.1	2.4	Z	2.2	2.4	1.9	3.9	2.5	1.9	2.8	5.3	4.6	2.7	3.5	2.9	2.3	3.1	4.7	5.7	3.6	3.3	2.5	1.8	3.3	5.7							
13-Jan	1.3	1.5	1.4	1.8	Z	1.8	2.8	3.1	1.9	3.7	3.2	5.0	3.2	3.4	2.2	1.7	1.7	1.6	2.3	2.1	3.1	4.0	3.1	2.5	2.5	5.0							
14-Jan	2.3	3.7	26.0	14.8	10.1	Z	4.2	3.4	4.9	4.5	5.2	2.7	3.0	3.7	5.2	4.9	3.3	3.8	2.9	2.5	2.4	3.0	2.6	2.0	5.3	26.0							
15-Jan	Z	1.7	1.7	2.9	2.4	2.0	2.5	2.3	3.0	3.7	4.4	5.5	8.1	9.8	13.2	12.4	10.7	11.1	11.4	9.9	8.0	5.1	5.0	5.6	6.2	13.2							
16-Jan	5.9	Z	7.2	6.7	6.7	6.9	6.6	10.0	9.9	7.2	5.1	5.3	5.4	3.8	4.1	4.0	5.4	3.9	2.1	1.8	2.2	2.0	4.7	1.6	5.2	10.0							
17-Jan	1.3	1.4	Z	1.3	1.3	1.1	0.9	1.6	2.6	3.4	2.2	4.0	3.5	2.9	1.5	1.1	0.9	0.9	0.7	1.1	1.2	2.8	3.8	6.8	2.1	6.8							
18-Jan	4.3	4.3	4.7	Z	3.9	6.8	7.8	4.5	4.6	4.9	4.2	2.7	2.4	2.6	3.2	1.1	3.6	4.0	3.8	2.7	1.6	2.7	1.7	2.2	3.7	7.8							
19-Jan	2.1	1.8	1.6	1.6	Z	1.5	1.8	2.1	1.3	C	C	C	C	C	C	C	C	C	C	4.9	2.9	3.0	3.0	2.6	--	4.9							
20-Jan	2.6	3.1	2.2	2.7	2.5	Z	2.3	2.6	4.7	8.6	5.7	3.9	3.7	3.7	3.8	12.8	6.5	6.0	6.8	5.2	5.4	4.1	3.5	3.2	4.6	12.8							
21-Jan	Z	2.9	2.8	2.8	4.2	9.9	9.5	6.3	5.7	4.9	5.2	4.0	3.1	2.9	1.8	1.8	2.9	3.4	2.8	2.9	4.4	4.2	3.6	3.1	4.1	9.9							
22-Jan	2.3	Z	1.0	0.7	1.0	0.7	0.8	0.7	0.9	1.4	1.3	1.3	2.4	1.4	2.0	1.8	2.3	2.9	2.7	2.5	2.9	2.3	2.8	3.0	1.8	3.0							
23-Jan	2.7	2.9	Z	3.1	2.3	2.1	2.6	2.0	2.1	2.4	2.3	2.4	2.8	3.1	3.9	5.4	8.6	7.0	7.3	8.0	6.8	6.9	5.9	2.9	4.2	8.6							
24-Jan	2.9	4.4	4.3	Z	3.8	3.9	3.7	4.0	5.1	5.9	5.7	6.8	6.6	6.3	7.4	7.3	7.9	10.2	10.5	8.4	10.6	24.9	8.2	7.6	7.2	24.9							
25-Jan	9.6	8.3	7.6	4.2	Z	4.7	6.1	21.2	8.7	12.7	10.4	17.9	12.2	9.5	8.8	9.4	11.3	12.3	10.9	9.8	6.5	5.3	7.0	7.3	9.6	21.2							
26-Jan	7.4	7.5	7.6	7.4	7.3	Z	10.6	14.3	14.9	12.7	6.2	8.7	14.1	7.6	5.7	5.7	7.8	5.4	4.7	4.2	4.0	4.2	4.2	4.4	7.7	14.9							
27-Jan	Z	7.5	7.4	5.8	5.1	4.1	4.1	4.6	9.8	7.2	5.3	5.7	13.9	5.8	5.5	5.4	5.6	5.8	5.1	5.7	5.5	5.5	5.2	4.6	6.1	13.9							
28-Jan	4.3	Z	3.6	3.3	3.2	3.1	3.8	3.9	9.1	7.9	4.9	4.1	3.9	3.1	2.7	2.3	1.9	1.7	1.5	2.2	1.3	1.4	1.5	1.3	3.3	9.1							
29-Jan	1.2	1.0	Z	1.4	1.6	1.2	1.5	1.7	2.6	7.9	2.2	2.2	2.5	3.0	3.7	3.5	4.1	4.6	4.0	3.9	4.1	4.2	4.4	4.4	3.1	7.9							
30-Jan	4.9	4.5	3.8	Z	3.1	3.6	2.9	4.2	5.3	5.6	4.4	2.2	1.6	1.0	0.7	0.8	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.5	2.3	5.6							
31-Jan	0.5	0.6	0.8	1.3	Z	0.9	1.1	14.4	4.2	1.8	3.0	1.5	1.9	1.5	1.4	1.4	6.1	3.5	3.1	2.3	1.7	2.9	1.4	1.2	2.5	14.4							
																								Diurnal Average					Diurnal Maximum				
3.0 3.4 4.4 3.6 3.7 3.5 3.9 5.0 4.6 4.8 3.9 4.2 4.3 3.6 3.6 3.7 4.0 4.0 3.8 3.5 3.4 3.9 3.2 3.1																																	
9.6 15.9 26.0 14.8 10.1 9.9 11.9 21.2 14.9 12.7 10.4 17.9 14.1 9.8 13.2 12.8 11.3 12.3 11.4 9.9 10.6 24.9 8.2 7.6																																	
Z - zerospan C - Calibration																																	



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Conklin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	701	99.57	99.57
21 - 40	3	0.43	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: 704

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Conklin - January 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	24	56	26	17	23	33	24	70	62	60	51	20	27	34	92	79	698
21 - 40	0	0	0	0	0	0	1	0	0	2	0	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>	24	56	26	17	23	33	25	70	62	62	51	20	27	34	92	79	701

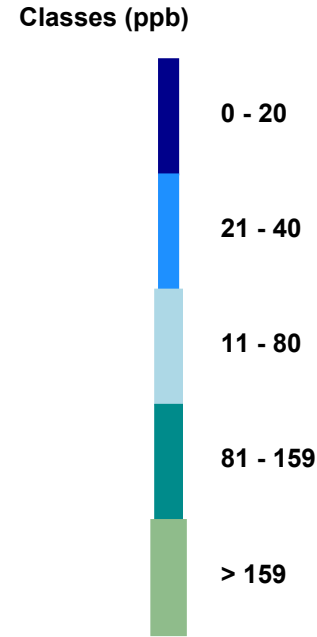
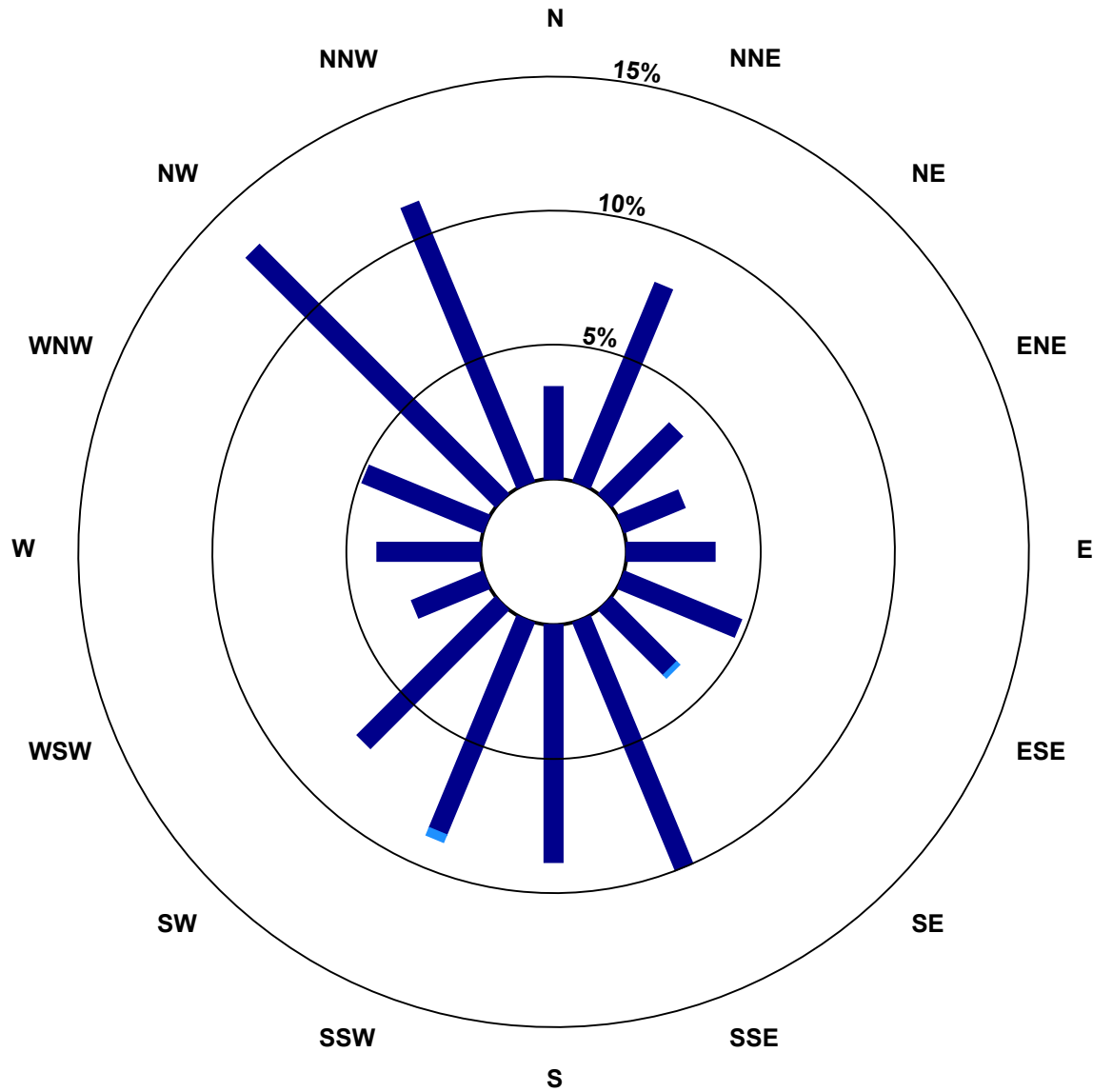
Total Number of Valid Hours: 701

Total Number of Hours: 744

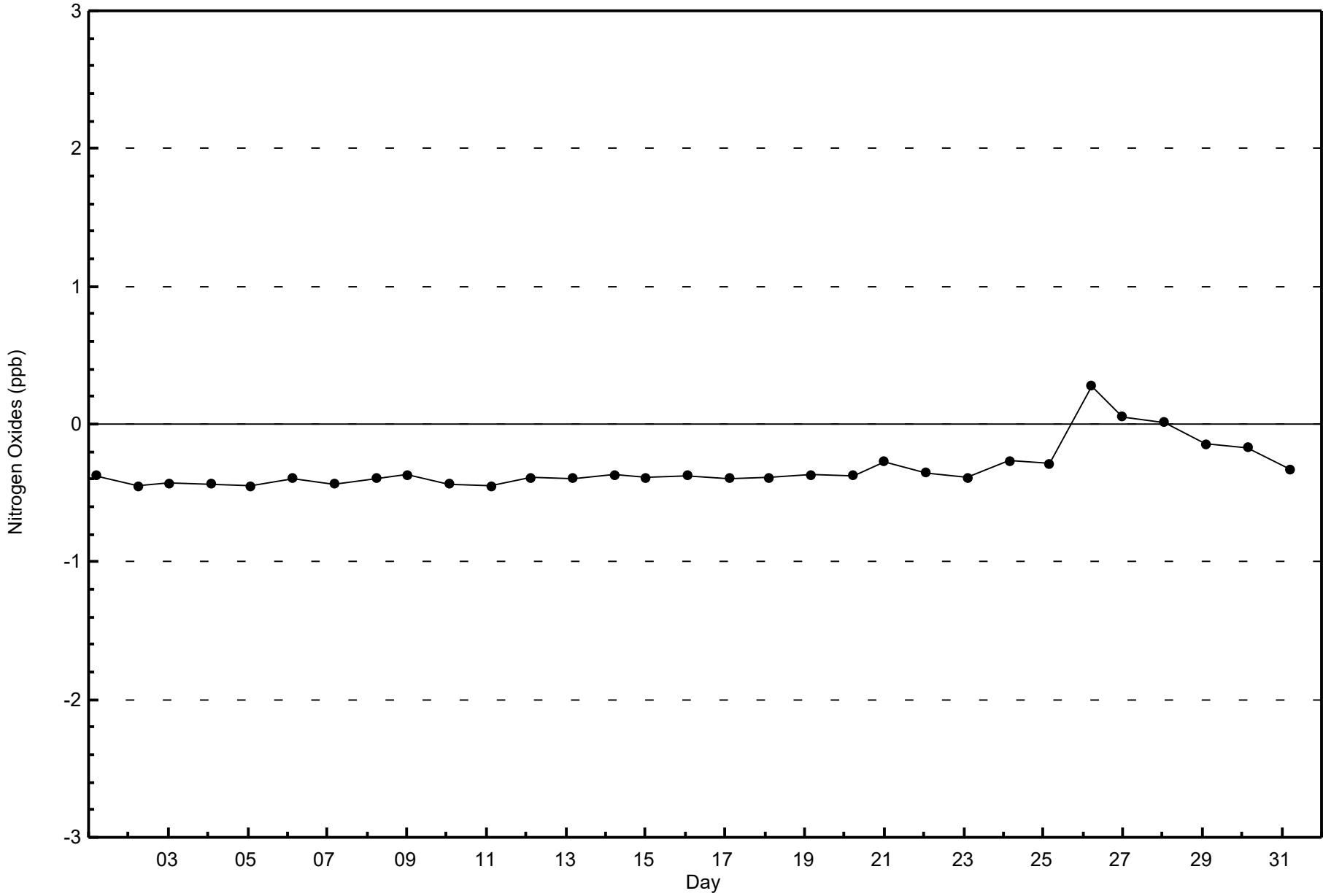


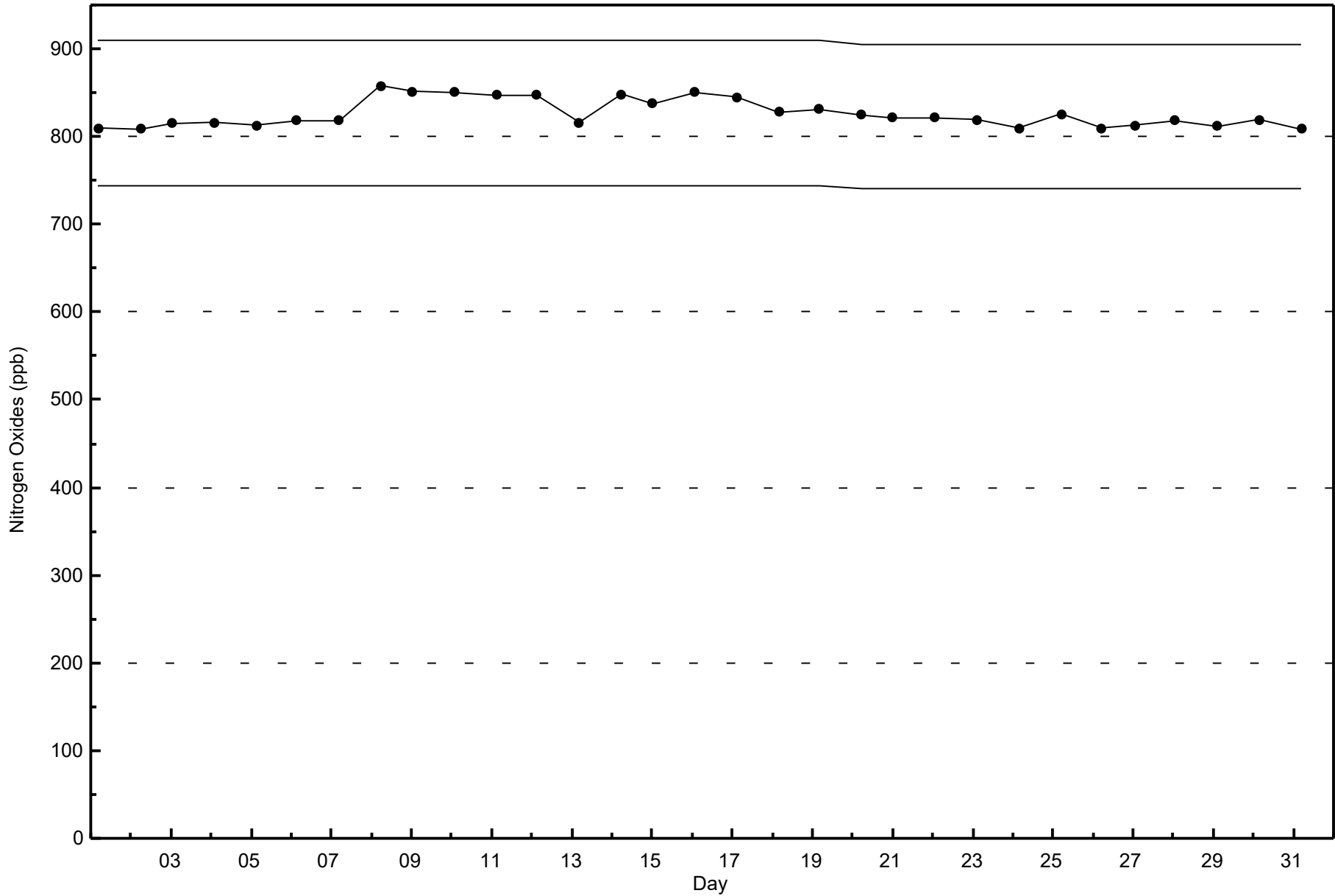
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 701







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

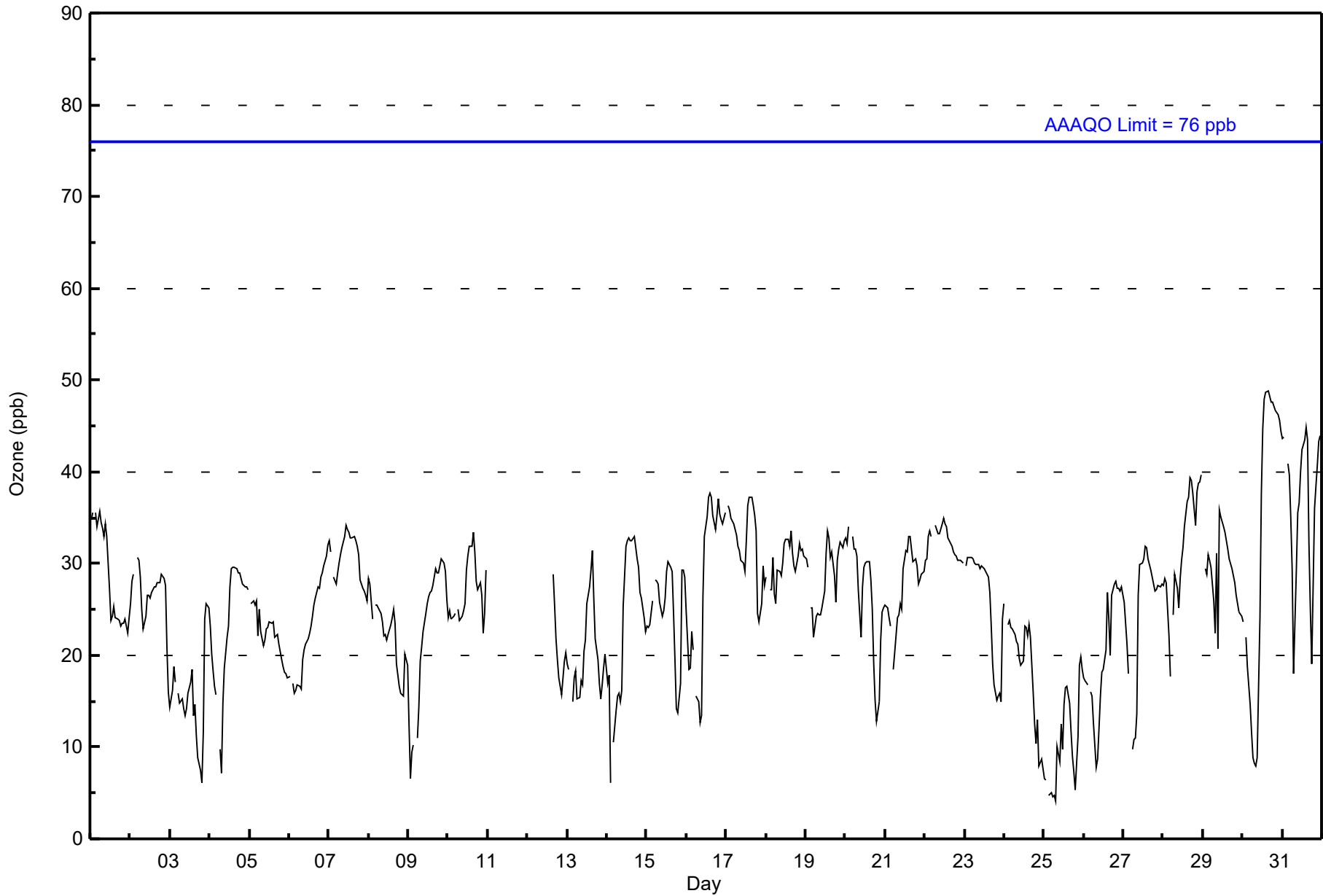
Conklin - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																		Daily Average		Daily Maximum																									
Maximum Value: 48.8 ppb on Jan 30 16:00		Maximum Daily Average: 36.7 ppb on Jan 31		Hours of Data: 676																		28.6		35.6																									
Minimum Value: 4.1 ppb on Jan 25 08:00		Minimum Daily Average: 10.5 ppb on Jan 25		Hours of Missing Data: 68																		26.6		30.7																									
Maximum Diurnal Average: 30.2 ppb at hour 15		Minimum Diurnal Average: 21.3 ppb at hour 8		Hours of Calibration: 33																		15.4		25.6																									
Monthly Average: 25.61 ppb		Percentiles: P <sub>1</sub> = 6.1 P <sub>10</sub> = 14.9 Q <sub>1</sub> = 20.4 Median = 26.6 Q <sub>3</sub> = 30.7 P <sub>90</sub> = 34.3 P <sub>99</sub> = 46.7		Percent Operational Time: 95.3																		23.1		29.6																									
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-Jan	34.8	35.6	Z	35.5	34.1	35.6	34.5	33.8	33.0	34.4	33.0	27.1	23.9	24.3	25.3	24.2	24.0	23.9	23.2	23.5	23.5	23.9	22.4	24.1	28.6	35.6																							
2-Jan	25.7	28.1	28.9	Z	30.7	30.4	28.5	25.0	22.8	24.2	26.6	26.5	26.2	26.8	27.5	27.5	27.9	28.0	28.0	28.8	28.4	27.6	20.9	16.0	26.6	30.7																							
3-Jan	14.4	16.1	18.8	17.1	Z	15.8	14.9	15.3	14.1	13.4	14.2	15.9	17.1	18.5	13.5	14.7	11.4	8.8	7.5	6.0	11.6	24.0	25.6	25.2	15.4	25.6																							
4-Jan	23.3	20.1	18.2	16.6	15.8	Z	9.8	7.1	14.7	18.7	22.0	23.2	27.5	29.5	29.5	29.6	29.4	28.9	28.9	28.4	27.8	27.4	27.4	27.2	23.1	29.6																							
5-Jan	Z	25.6	25.9	25.5	25.9	Z	22.1	25.0	22.6	21.1	21.7	22.9	23.0	23.6	23.6	22.0	22.2	22.2	21.1	19.6	18.8	18.2	18.0	17.6	22.2	25.9																							
6-Jan	17.8	Z	16.9	15.8	16.1	16.8	16.6	16.4	19.5	20.7	21.3	21.8	22.5	23.3	24.2	25.5	26.3	27.4	27.4	28.5	29.0	29.8	30.8	32.0	22.9	32.0																							
7-Jan	32.5	31.3	Z	28.5	27.8	28.9	30.1	30.9	31.7	32.9	34.1	33.7	33.5	32.8	32.8	33.0	32.5	31.9	30.9	28.3	27.3	26.9	26.6	25.9	30.6	34.1																							
8-Jan	28.3	27.8	23.9	Z	25.5	25.5	25.1	24.5	23.6	22.2	22.3	21.6	22.3	23.3	24.1	25.1	23.5	19.0	16.6	15.9	15.7	15.6	20.2	18.9	22.2	28.3																							
9-Jan	12.3	6.6	9.4	10.3	Z	10.9	14.3	19.3	21.0	22.5	24.6	25.6	26.4	26.8	27.0	27.6	29.5	28.9	28.9	29.8	30.6	30.0	29.1	26.0	22.5	30.6																							
10-Jan	24.0	24.9	23.9	24.2	24.6	Z	25.0	23.8	24.2	24.8	25.6	29.3	30.8	31.9	31.8	33.5	31.3	28.0	27.2	27.9	26.6	22.4	24.6	29.2	26.9	33.5																							
11-Jan	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--																							
12-Jan	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	C	C	C	28.9	25.4	21.9	19.6	17.6	15.7	17.5	19.4	20.4	--	28.9																							
13-Jan	19.0	18.5	Z	14.9	17.6	18.3	15.2	15.4	17.2	16.9	20.4	21.6	25.6	27.5	29.2	31.4	26.2	21.8	19.5	16.9	15.3	16.8	18.6	20.1	20.2	31.4																							
14-Jan	17.0	17.8	6.1	Z	10.4	14.1	15.6	15.9	15.0	16.2	25.2	31.8	32.5	32.8	32.5	32.5	33.0	31.7	30.5	29.6	26.8	26.2	24.1	22.5	23.5	33.0																							
15-Jan	23.2	23.0	23.3	26.0	Z	28.3	28.1	27.7	25.8	24.2	24.9	26.3	29.2	30.1	29.7	29.1	24.5	19.5	14.2	13.7	16.9	29.3	29.2	28.5	25.0	30.1																							
16-Jan	24.9	18.5	18.5	22.6	20.6	Z	15.5	15.0	12.6	13.4	26.4	32.9	35.1	37.3	37.7	37.2	35.3	33.7	35.2	37.1	35.4	34.7	34.3	35.5	28.2	37.7																							
17-Jan	Z	36.3	35.8	35.0	34.3	33.7	33.1	31.8	31.4	30.3	30.1	29.1	32.5	36.3	37.2	37.3	36.4	35.3	33.5	24.5	23.6	25.7	29.7	27.7	32.2	37.3																							
18-Jan	28.5	Z	27.2	27.2	30.7	26.8	25.6	29.3	29.2	28.6	30.0	32.1	32.6	32.7	32.0	33.6	31.2	29.7	29.1	30.9	32.2	31.4	31.7	30.7	30.1	33.6																							
19-Jan	30.5	29.6	Z	25.2	25.2	22.0	24.3	24.5	24.3	24.5	25.1	27.1	31.2	33.5	32.8	30.6	31.3	28.7	25.8	30.3	31.5	32.3	31.7	32.5	28.5	33.5																							
20-Jan	32.7	32.1	34.0	Z	32.9	31.6	31.5	30.9	27.2	21.9	27.4	29.6	30.0	30.2	30.1	28.2	25.0	19.2	15.1	12.8	15.0	21.6	24.8	25.1	26.5	34.0																							
21-Jan	25.5	25.2	24.1	23.1	Z	18.4	20.3	24.1	24.4	25.6	25.0	29.4	31.5	31.3	32.9	32.9	31.6	30.2	30.5	29.8	27.8	28.2	28.8	29.1	27.4	32.9																							
22-Jan	30.4	30.5	33.0	33.6	32.9	Z	34.1	33.8	33.2	33.3	34.4	35.0	34.3	34.1	32.8	32.6	31.9	31.2	31.0	30.9	30.3	30.4	30.2	30.1	32.3	35.0																							
23-Jan	Z	29.7	30.6	30.6	30.6	30.5	30.0	29.9	29.9	29.5	29.7	29.7	29.4	29.2	28.5	26.9	23.2	19.0	16.8	15.1	15.5	15.8	15.0	23.9	25.6	30.6																							
24-Jan	25.6	Z	23.3	23.8	23.1	22.9	22.3	21.5	21.2	19.7	18.9	19.3	23.2	23.0	22.1	23.3	22.0	15.9	12.5	10.4	13.0	8.0	8.6	7.6	18.7	25.6																							
25-Jan	6.6	6.4	Z	4.8	5.0	4.5	4.7	4.1	10.1	8.3	12.5	9.8	14.7	16.5	16.6	14.9	11.8	9.1	7.3	5.3	11.1	18.9	19.9	18.4	10.5	19.9																							
26-Jan	17.6	17.2	16.7	Z	16.0	15.5	12.6	7.8	8.7	12.1	15.6	18.2	18.5	20.6	26.9	23.9	19.9	26.5	27.8	28.0	27.2	27.2	27.1	27.5	20.0	28.0																							
27-Jan	25.7	23.4	21.2	18.0	Z	9.8	10.8	11.0	13.5	26.5	29.9	30.0	30.5	31.8	31.7	30.5	29.2	28.5	27.8	27.1	27.2	27.6	27.5	27.7	24.6	31.8																							
28-Jan	27.6	28.4	27.9	22.0	17.6	Z	24.4	28.8	27.4	25.2	28.3	30.3	31.7	34.0	36.7	37.2	39.3	39.1	37.7	34.2	37.8	38.8	38.8	39.7	31.9	39.7																							
29-Jan	Z	29.4	28.8	30.9	30.3	29.5	25.9	22.5	31.2	20.7	35.8	35.1	34.1	33.4	32.6	31.6	30.5	29.5	28.7	27.9	26.6	25.6	24.7	24.2	29.1	35.8																							
30-Jan	23.6	Z	22.0	18.7	14.7	11.6	8.8	8.2	7.9	8.9	24.1	37.7	44.7	47.9	48.6	48.8	48.3	47.6	47.6	47.1	46.6	46.2	45.5	44.4	32.6	48.8																							
31-Jan	43.6	43.8	Z	40.9	39.7	35.1	29.5	17.9	29.2	35.6	36.7	40.0	42.4	43.5	44.8	43.5	32.2	25.0	19.1	36.0	38.4	40.7	43.3	43.9	36.7	44.8																							
																								24.6	25.0	23.4	23.8	24.2	22.5	21.9	21.3	22.2	22.6	25.8	27.3	28.9	29.9	30.2	29.9	28.2	26.3	25.0	24.7	25.1	26.3	26.6	26.7	Diurnal Average	
																								43.6	43.8	35.8	40.9	39.7	35.6	34.5	33.8	33.2	35.6	36.7	40.0	44.7	47.9	48.6	48.8	48.3	47.6	47.6	47.1	46.6	46.2	45.5	44.4	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance      AF - Analyzer Failure																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb																																																	



Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Conklin - January 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	170	25.15	25.15
21 - 50	506	74.85	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 676

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - January 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	7	4	4	2	4	12	15	19	25	16	10	3	6	4	8	30	169
21 - 50	16	52	23	14	19	20	11	48	34	51	40	17	22	27	76	34	504
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>	23	56	27	16	23	32	26	67	59	67	50	20	28	31	84	64	673

Total Number of Valid Hours: 673

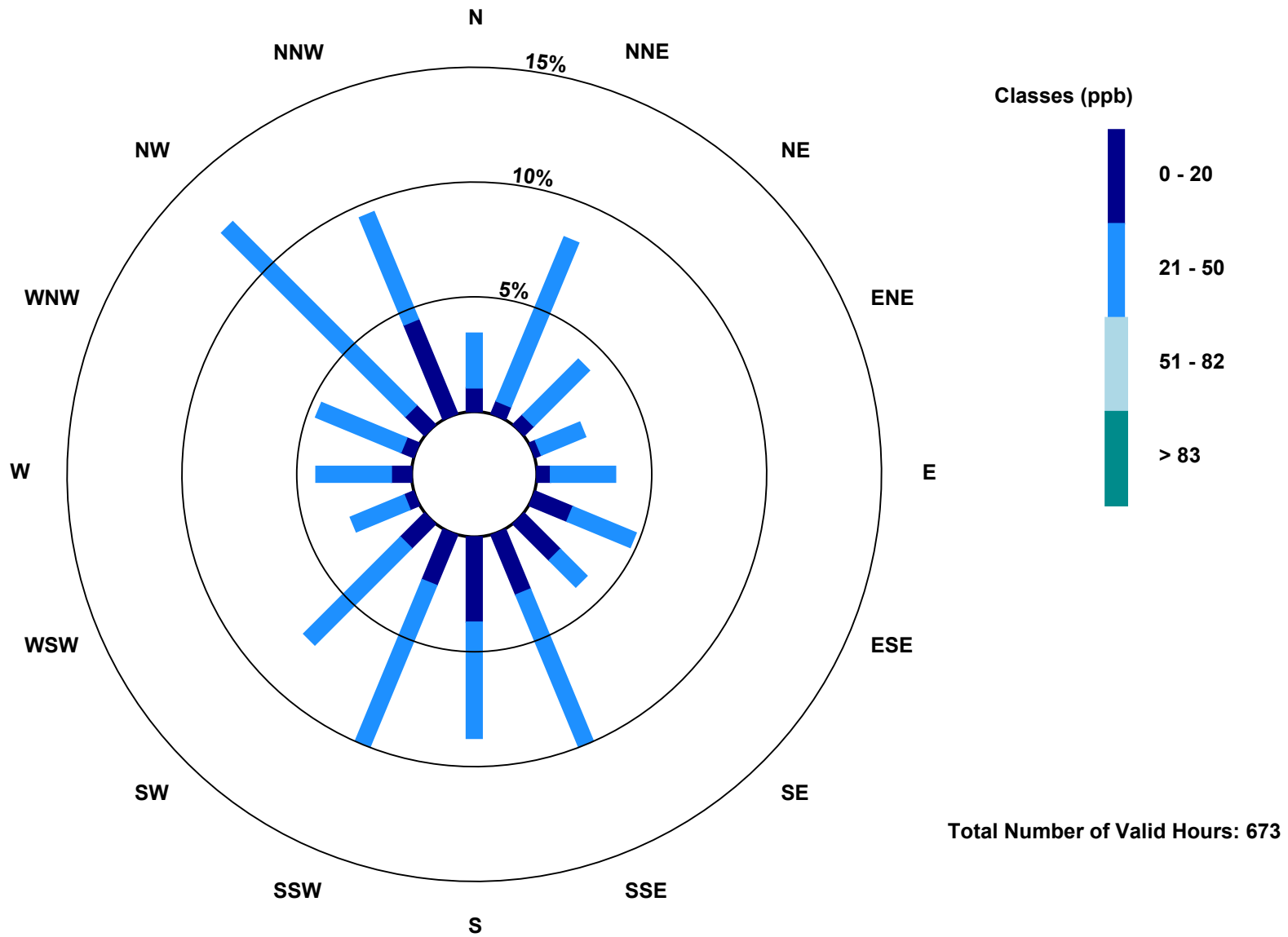
Total Number of Hours: 744

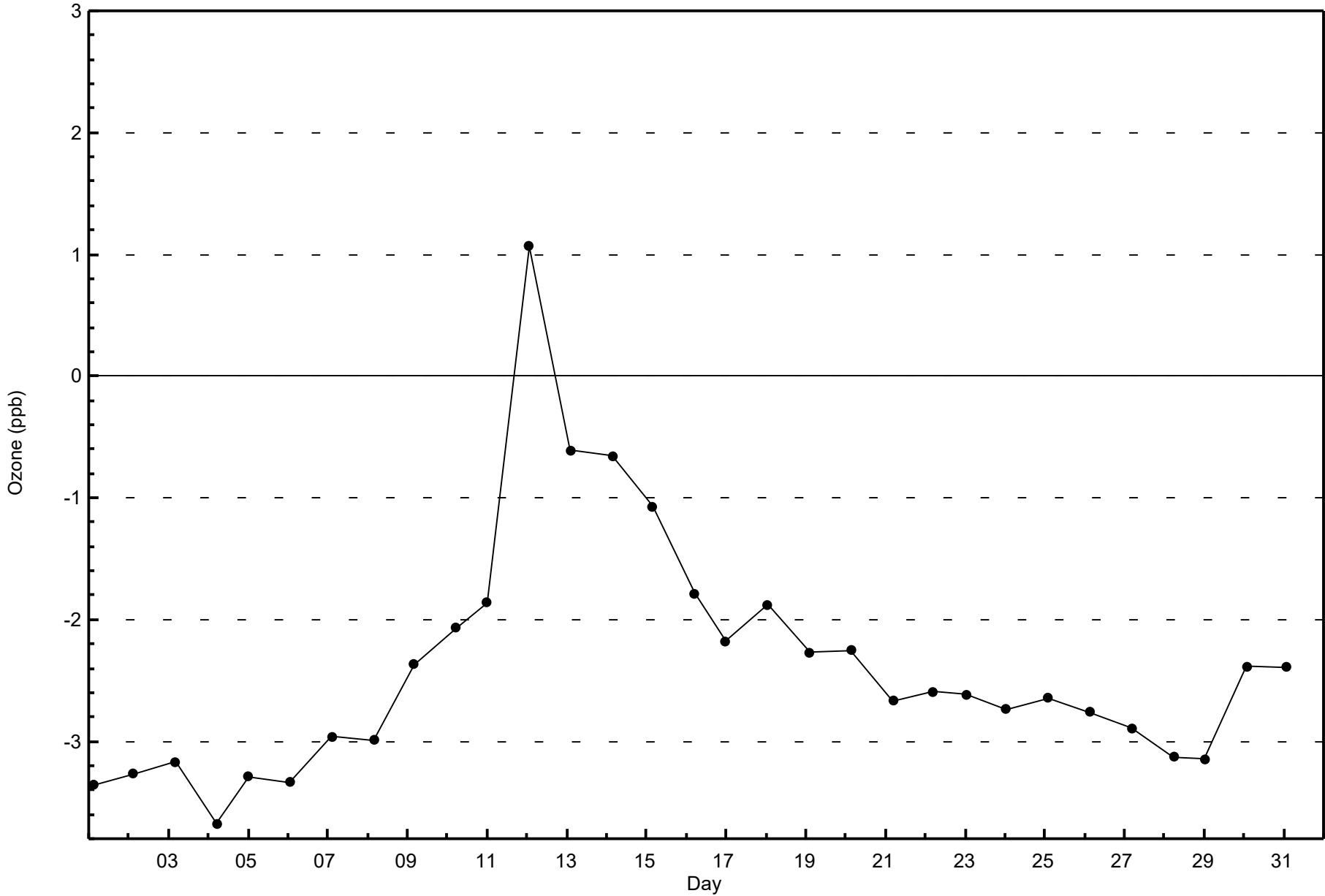


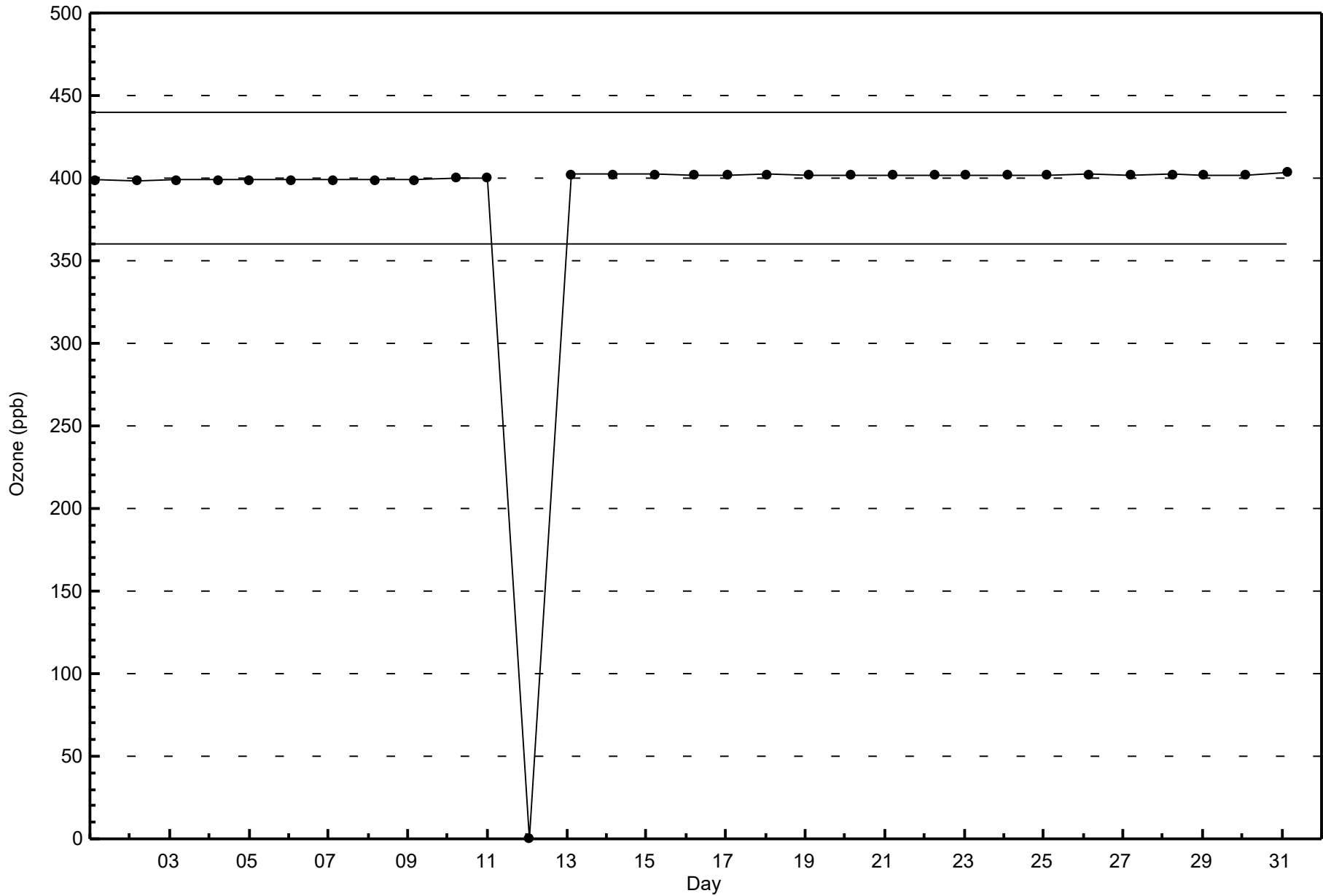


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









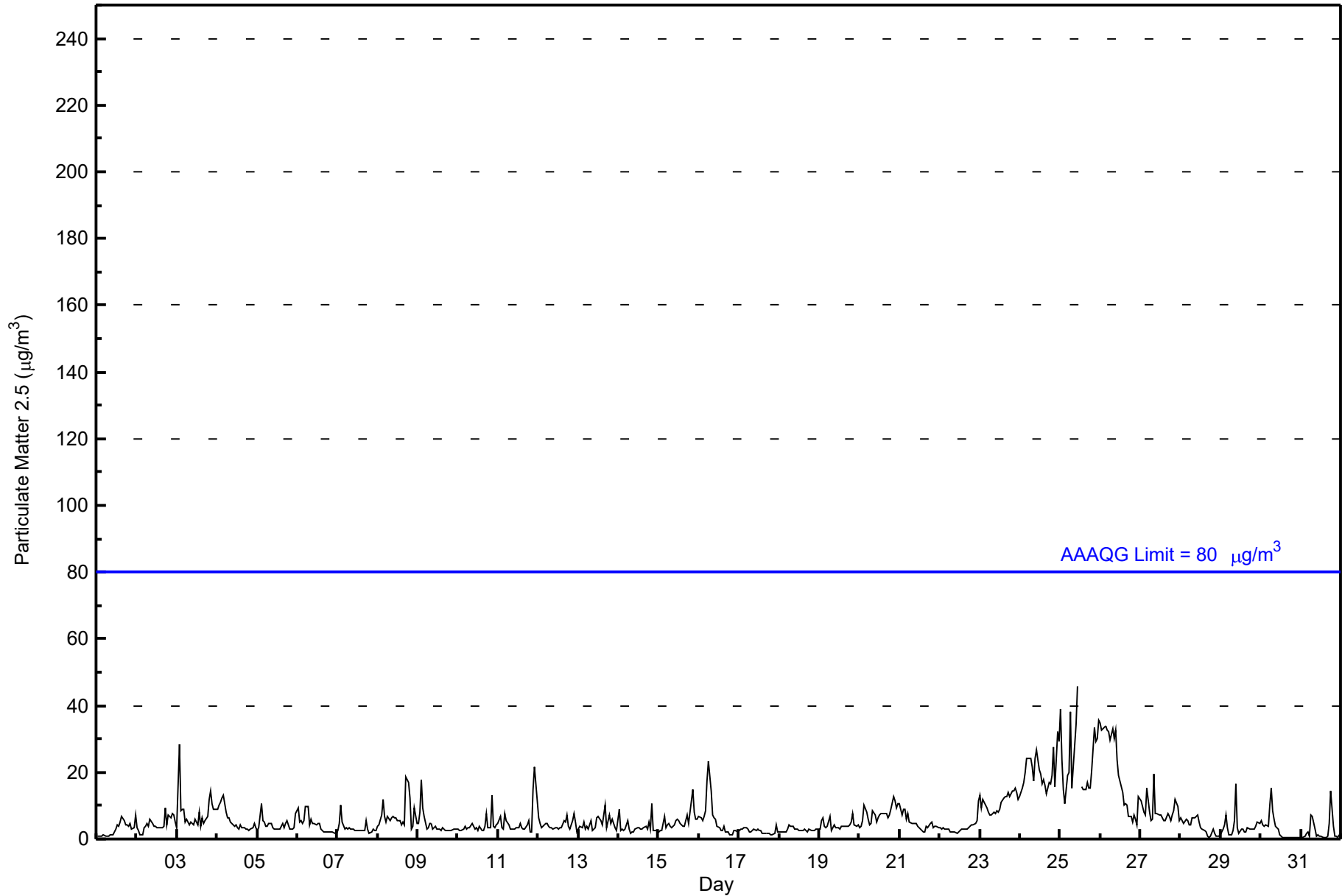
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Conklin - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 742																												
Maximum Value: 45.8 µg/m <sup>3</sup> on Jan 25 11:00		Maximum Daily Average: 23.8 µg/m <sup>3</sup> on Jan 25																	Hours of Missing Data: 2																														
Minimum Value: 0.2 µg/m <sup>3</sup> on Jan 31 16:00		Minimum Daily Average: 2.3 µg/m <sup>3</sup> on Jan 31																	Hours of Calibration: 2																														
Maximum Diurnal Average: 7.9 µg/m <sup>3</sup> at hour 7		Minimum Diurnal Average: 4.6 µg/m <sup>3</sup> at hour 15																	Percent Operational Time: 100.0																														
Monthly Average: 6.36 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.9 Median = 4.1 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 14.2 P <sub>99</sub> = 33.5																																															
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-Jan	0.9	0.8	0.7	0.7	1.1	0.8	0.7	0.8	1.2	1.4	1.4	3.1	4.4	3.8	5.2	7.0	5.3	4.1	4.1	4.0	4.5	2.9	3.3	7.2	2.9	7.2																							
2-Jan	3.5	2.6	1.3	1.3	3.5	3.9	4.5	3.7	5.8	4.6	3.7	3.9	3.6	3.6	3.3	3.3	3.8	9.3	4.1	7.2	6.5	7.8	7.0	5.0	4.4	9.3																							
3-Jan	3.2	28.3	8.4	8.7	8.9	5.3	6.1	4.2	5.1	4.5	4.4	5.8	4.3	8.1	4.0	6.5	4.5	5.4	6.6	11.7	14.2	10.6	8.7	9.1	7.8	28.3																							
4-Jan	8.9	10.2	11.0	12.1	13.1	8.2	6.4	6.5	5.2	4.8	4.0	4.4	3.4	3.0	4.2	3.3	3.4	3.1	3.0	2.5	2.8	3.2	4.5	3.5	5.6	13.1																							
5-Jan	2.5	3.3	10.6	5.4	5.3	3.9	3.9	4.5	4.8	3.3	2.8	2.8	2.9	3.0	3.9	4.6	3.4	4.7	5.6	3.1	3.0	3.1	3.4	7.6	4.2	10.6																							
6-Jan	9.3	5.1	5.4	4.6	5.4	9.6	9.6	4.3	6.1	4.9	4.5	4.4	4.5	4.6	3.2	2.6	2.1	2.0	2.0	2.3	2.2	1.9	1.7	1.6	4.3	9.6																							
7-Jan	2.5	4.7	10.0	5.1	3.1	3.3	3.0	3.3	3.0	3.1	2.5	2.7	2.5	2.5	2.3	2.5	2.5	5.7	2.9	1.9	2.3	3.0	2.6	2.6	3.3	10.0																							
8-Jan	3.6	4.1	7.4	11.7	6.8	5.2	6.9	5.5	6.5	6.9	6.6	6.3	5.4	5.4	4.3	5.2	4.1	18.6	16.9	12.4	3.1	3.8	9.4	4.7	7.1	18.6																							
9-Jan	4.8	7.8	17.8	9.5	6.8	2.8	3.2	4.6	4.5	3.0	3.6	3.0	2.9	2.8	2.7	3.2	2.5	2.6	2.5	2.6	2.6	2.9	3.0	2.8	4.4	17.8																							
10-Jan	2.9	2.6	2.6	3.0	3.9	3.0	3.5	3.5	4.6	3.6	2.8	3.5	2.5	3.8	2.4	2.7	3.8	7.6	3.6	3.3	13.2	3.6	3.3	4.4	3.9	13.2																							
11-Jan	4.7	6.7	3.2	3.1	7.7	5.6	4.0	2.9	3.0	2.9	3.1	3.4	3.4	4.5	3.3	2.9	3.0	4.1	5.6	2.1	2.0	14.8	21.5	11.3	5.4	21.5																							
12-Jan	6.3	4.6	3.3	3.6	4.7	4.6	3.7	3.4	3.2	3.1	3.3	3.4	3.1	3.2	3.5	5.4	4.9	7.1	4.0	2.9	5.5	7.8	5.1	2.3	4.2	7.8																							
13-Jan	2.9	3.7	3.5	5.2	3.0	4.0	3.1	5.6	2.7	2.9	3.3	6.4	7.0	5.6	4.1	7.4	10.0	3.5	7.4	4.7	5.8	4.5	3.5	2.7	4.7	10.0																							
14-Jan	8.8	2.4	3.2	2.6	3.0	5.4	2.8	1.6	2.3	2.1	3.0	3.3	3.4	3.1	3.0	3.2	3.7	3.1	5.1	3.2	10.6	2.7	2.5	2.3	3.6	10.6																							
15-Jan	2.3	2.6	2.4	6.8	3.5	4.1	4.7	3.9	3.4	4.3	5.4	5.7	5.5	4.7	3.9	3.8	5.5	7.2	4.7	7.9	14.8	8.0	6.0	5.8	5.3	14.8																							
16-Jan	6.9	6.2	5.4	6.8	8.5	17.3	23.2	14.2	7.4	6.5	5.8	3.8	3.4	2.3	2.6	3.7	2.1	2.2	1.3	1.5	1.4	2.4	2.5	2.3	5.8	23.2																							
17-Jan	2.6	2.9	2.9	3.5	3.3	2.8	2.3	2.1	2.4	3.0	2.8	2.8	2.7	2.6	1.7	1.7	1.8	1.7	1.7	1.5	1.2	1.6	4.2	2.0	2.4	4.2																							
18-Jan	2.2	2.2	2.0	2.2	2.2	3.0	4.0	3.8	3.7	3.2	2.9	2.8	2.6	2.6	2.5	3.0	2.5	2.3	2.9	2.4	2.6	2.6	2.9	3.0	2.8	4.0																							
19-Jan	3.1	5.7	6.4	3.8	3.4	3.7	6.7	2.6	3.4	4.4	3.2	3.5	3.1	3.8	3.8	3.7	3.9	4.0	4.1	5.2	7.5	4.4	3.8	4.2	4.2	7.5																							
20-Jan	3.6	3.6	5.6	10.2	8.1	6.0	4.2	4.6	8.6	7.1	5.2	6.5	7.3	7.8	7.6	7.6	7.4	6.5	7.4	8.9	12.8	11.6	9.2	10.5	7.4	12.8																							
21-Jan	10.7	7.1	8.9	8.8	5.8	7.7	5.2	4.6	4.8	4.8	4.7	3.6	3.0	2.6	2.2	2.2	3.7	3.3	4.5	4.9	3.3	3.8	3.7	3.2	4.9	10.7																							
22-Jan	3.2	3.0	3.4	2.9	2.9	2.8	1.9	2.2	1.9	2.3	1.8	2.0	2.5	2.8	3.2	3.0	3.0	3.3	3.9	4.1	4.3	4.6	5.7	11.3	3.4	11.3																							
23-Jan	13.1	9.4	11.9	10.3	9.2	8.2	7.1	7.2	7.9	7.8	8.4	7.9	9.0	11.0	12.3	12.6	12.7	13.8	12.7	14.4	14.3	15.1	14.0	11.7	10.9	15.1																							
24-Jan	12.8	15.2	17.1	19.8	24.2	24.1	24.2	21.7	17.4	24.0	26.7	20.6	19.3	16.7	17.8	16.2	13.5	16.9	16.6	19.2	27.3	15.7	32.0	29.1	20.3	32.0																							
25-Jan	39.0	23.9	14.7	10.5	19.2	20.1	38.3	15.1	21.5	34.3	45.8	C	C	15.6	14.9	14.9	17.0	15.3	15.5	20.4	33.3	29.3	30.2	35.7	23.8	45.8																							
26-Jan	34.8	32.7	33.6	33.9	32.8	32.3	29.8	33.1	29.9	32.7	23.7	19.1	17.3	14.1	10.3	10.8	10.0	6.9	6.7	5.2	7.3	6.0	4.2	12.6	20.0	34.8																							
27-Jan	11.6	9.9	8.2	7.3	15.4	8.0	5.5	5.8	19.4	7.4	7.7	7.3	7.1	6.4	5.5	5.7	7.8	6.7	5.6	7.4	8.6	11.7	9.7	5.7	8.4	19.4																							
28-Jan	6.5	5.7	4.5	5.9	5.6	4.3	4.2	6.3	6.4	6.9	7.0	4.9	3.5	3.1	2.5	1.9	0.6	0.6	0.8	2.9	1.6	0.8	1.0	0.7	3.7	7.0																							
29-Jan	1.1	3.1	4.2	7.2	3.3	1.4	1.3	2.4	5.7	16.6	3.2	1.6	3.1	2.8	2.3	2.1	3.6	3.2	3.1	3.0	3.1	3.6	5.1	4.6	3.8	16.6																							
30-Jan	5.7	4.2	3.9	4.2	3.8	10.3	15.0	8.5	5.9	3.8	2.8	1.4	0.8	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	3.1	15.0																							
31-Jan	0.6	0.5	1.0	1.7	2.2	1.0	7.3	6.7	3.0	1.0	1.2	0.7	0.9	0.5	0.3	0.2	0.7	4.7	14.5	3.7	0.9	0.7	0.5	1.1	2.3	14.5																							
																								7.3	7.3	7.2	7.2	7.4	7.2	7.9	6.4	6.8	7.1	6.7	5.0	4.8	5.1	4.6	4.9	4.9	5.8	5.8	5.7	7.2	6.3	6.9	6.8	Diurnal Average	
																								39.0	32.7	33.6	33.9	32.8	32.3	38.3	33.1	29.9	34.3	45.8	20.6	19.3	16.7	17.8	16.2	17.0	18.6	16.9	20.4	33.3	29.3	32.0	35.7	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  
Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Conklin - January 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	479	64.56	64.56
6 - 15	205	27.63	92.18
16 - 25	35	4.72	96.90
26 - 80	23	3.10	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Conklin - January 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	22	53	19	12	15	17	10	49	40	36	15	10	21	25	80	54	478
6 - 15	3	5	8	6	5	8	11	14	24	27	33	8	7	8	10	26	203
16 - 25	1	0	0	0	3	6	6	9	2	1	0	2	1	0	2	2	35
26 - 80	0	0	0	0	1	2	0	1	5	5	5	0	0	0	3	1	23
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	26	58	27	18	24	33	27	73	71	69	53	20	29	33	95	83	739

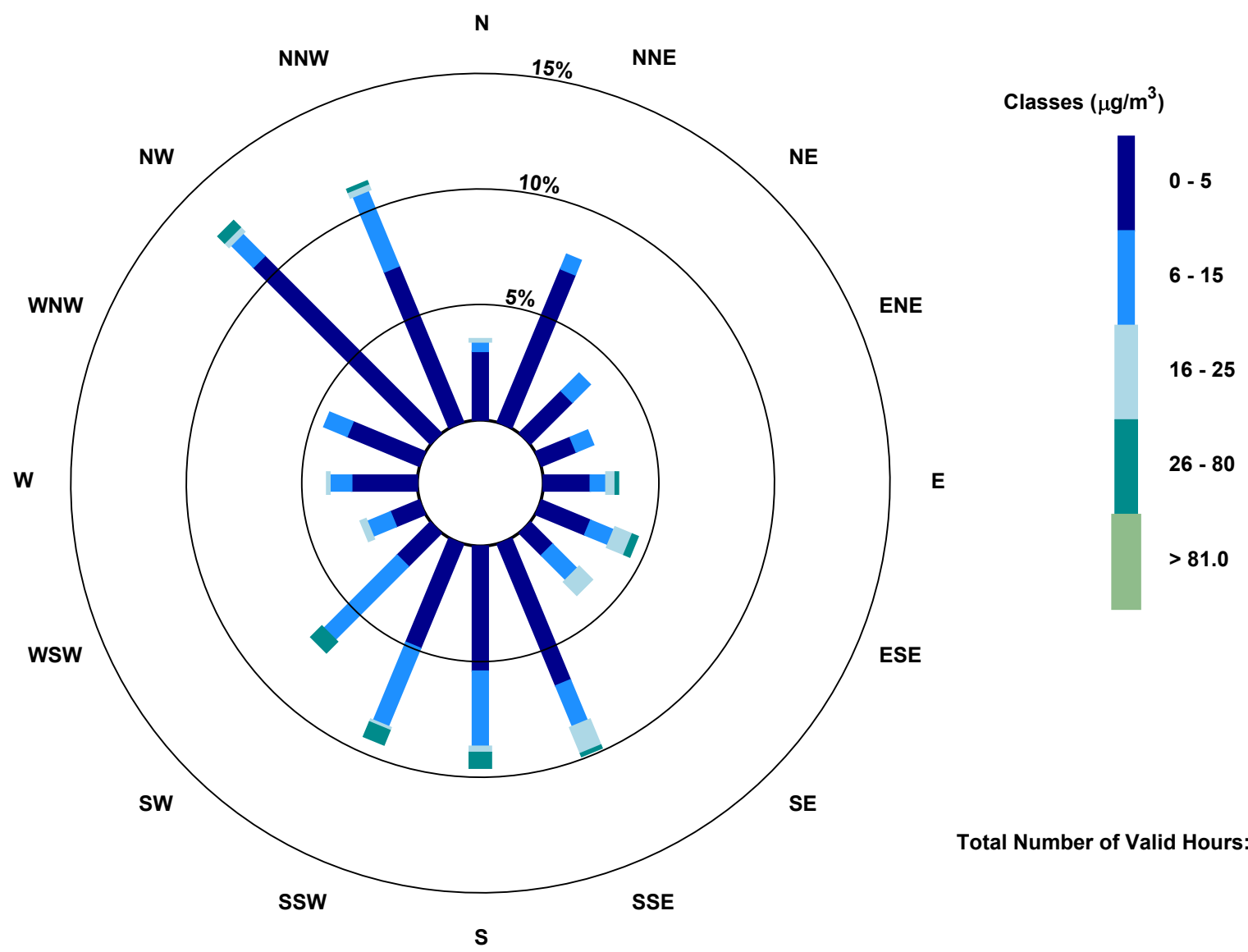
Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







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

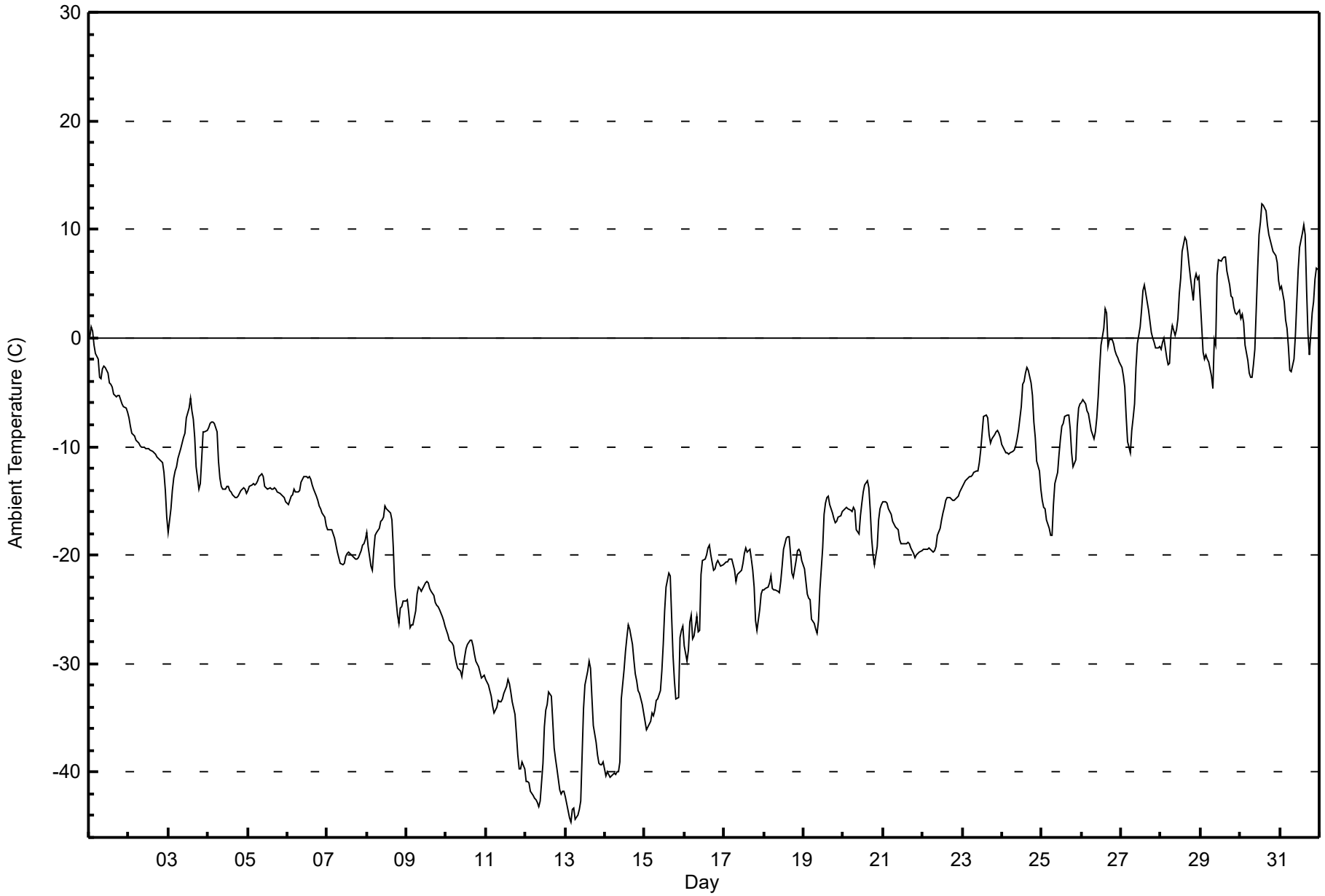
**Ambient Temperature (AT) - C**  
**Conklin - January 2024**

Maximum Value: 12.3 C on Jan 30 14:00		Maximum Daily Average: 4.9 C on Jan 30		Hours in Service: 744																																													
Minimum Value: -44.5 C on Jan 13 04:00		Minimum Daily Average: -39.5 C on Jan 12		Hours of Data: 744																																													
Maximum Diurnal Average: -12.3 C at hour 15		Minimum Diurnal Average: -18.3 C at hour 7		Hours of Missing Data: 0																																													
Monthly Average: -15.98 C		Percentiles: P <sub>1</sub> = -43.1 P <sub>10</sub> = -33.4 Q <sub>1</sub> = -23.3 Median = -15.6 Q <sub>3</sub> = -7.8 P <sub>90</sub> = 0.9 P <sub>99</sub> = 9.5		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-Jan	0.1	1.0	0.7	-0.6	-1.5	-1.9	-3.6	-3.7	-2.8	-2.6	-2.8	-3.3	-4.1	-4.2	-4.5	-5.2	-5.5	-5.3	-5.3	-5.7	-6.0	-6.3	-6.4	-6.9	-3.6	1.0																							
2-Jan	-7.4	-8.1	-8.8	-9.1	-9.4	-9.6	-9.6	-9.9	-10.1	-10.1	-10.1	-10.1	-10.1	-10.3	-10.4	-10.6	-10.7	-11.0	-11.1	-11.2	-11.5	-12.3	-14.1	-16.5	-10.5	-7.4																							
3-Jan	-17.9	-15.7	-14.1	-12.8	-12.3	-11.9	-11.1	-10.2	-9.6	-9.2	-8.7	-7.4	-6.5	-5.6	-6.7	-7.5	-9.1	-11.8	-13.9	-13.4	-11.1	-8.6	-8.7	-8.5	-10.5	-5.6																							
4-Jan	-8.2	-7.8	-7.8	-7.8	-7.9	-8.6	-11.3	-12.8	-13.6	-13.9	-14.0	-13.7	-13.7	-14.0	-14.1	-14.5	-14.7	-14.7	-14.6	-14.3	-14.0	-13.8	-14.0	-14.2	-12.4	-7.8																							
5-Jan	-14.1	-13.7	-13.5	-13.5	-13.5	-13.4	-13.2	-12.8	-12.5	-12.8	-13.6	-13.8	-13.9	-13.8	-14.0	-14.0	-13.8	-13.9	-14.1	-14.3	-14.5	-14.5	-14.7	-15.1	-13.8	-12.5																							
6-Jan	-15.3	-15.0	-14.6	-14.5	-13.9	-14.2	-14.2	-14.0	-13.3	-13.0	-12.8	-12.8	-12.9	-12.8	-13.0	-13.6	-13.9	-14.5	-14.9	-15.4	-15.7	-16.1	-16.5	-17.3	-14.3	-12.8																							
7-Jan	-17.7	-17.7	-17.6	-17.7	-18.5	-19.1	-19.7	-20.3	-20.7	-20.9	-20.7	-20.1	-19.9	-19.7	-19.8	-20.1	-20.3	-20.4	-20.4	-20.2	-19.6	-19.0	-19.0	-18.5	-19.5	-17.6																							
8-Jan	-18.0	-19.2	-20.9	-21.4	-19.6	-18.2	-17.9	-17.5	-16.9	-16.8	-16.5	-15.5	-15.7	-16.0	-16.1	-16.8	-19.3	-22.9	-25.5	-26.2	-24.8	-24.7	-24.2	-24.2	-19.8	-15.5																							
9-Jan	-24.2	-25.3	-26.7	-26.5	-26.4	-25.1	-23.6	-22.9	-23.1	-23.3	-22.9	-22.6	-22.4	-22.5	-23.1	-23.3	-23.7	-24.4	-24.6	-24.7	-25.0	-25.6	-26.1	-26.6	-24.4	-22.4																							
10-Jan	-27.0	-27.4	-27.8	-28.0	-28.3	-29.3	-29.9	-30.4	-30.7	-31.1	-30.3	-29.4	-28.6	-28.2	-27.8	-27.9	-28.4	-29.2	-29.8	-30.2	-30.8	-31.3	-31.2	-31.1	-29.3	-27.0																							
11-Jan	-31.4	-32.0	-32.5	-33.0	-33.9	-34.6	-34.1	-33.4	-33.6	-33.5	-33.2	-32.7	-32.1	-31.4	-31.8	-32.6	-33.5	-34.6	-36.4	-38.4	-39.7	-39.7	-39.0	-39.7	-34.5	-31.4																							
12-Jan	-40.9	-40.9	-40.9	-41.8	-42.2	-42.4	-42.5	-42.8	-43.1	-42.7	-39.2	-35.9	-34.3	-33.7	-32.5	-33.0	-35.3	-37.8	-38.8	-39.7	-41.7	-42.1	-41.8	-41.7	-39.5	-32.5																							
13-Jan	-42.3	-42.9	-44.2	-44.5	-43.4	-43.3	-44.3	-44.0	-43.4	-42.6	-38.4	-34.2	-32.0	-30.7	-29.7	-30.4	-33.1	-35.7	-37.2	-38.4	-39.2	-39.3	-39.3	-39.1	-38.8	-29.7																							
14-Jan	-40.3	-39.9	-40.2	-40.4	-40.3	-40.1	-40.1	-40.0	-39.9	-39.0	-33.3	-30.5	-28.9	-27.6	-26.5	-26.8	-28.2	-29.6	-30.9	-31.5	-32.4	-32.8	-33.8	-34.5	-34.5	-26.5																							
15-Jan	-35.3	-36.0	-35.9	-35.3	-34.6	-34.7	-34.2	-33.4	-33.2	-32.5	-30.7	-28.3	-25.1	-22.9	-21.7	-21.9	-25.6	-29.2	-31.6	-33.3	-33.1	-27.6	-27.0	-26.5	-30.4	-21.7																							
16-Jan	-28.3	-29.7	-28.7	-26.1	-25.5	-27.7	-27.5	-25.6	-27.1	-27.0	-21.8	-20.6	-20.4	-20.0	-19.3	-19.1	-19.9	-21.4	-21.3	-20.8	-20.5	-20.8	-21.0	-20.9	-23.4	-19.1																							
17-Jan	-20.8	-20.6	-20.6	-20.4	-20.4	-20.8	-21.5	-22.4	-21.8	-21.6	-21.4	-20.7	-19.9	-19.4	-19.7	-19.5	-20.3	-21.4	-22.9	-26.0	-26.9	-25.0	-23.5	-23.2	-21.7	-19.4																							
18-Jan	-23.2	-23.1	-22.9	-22.6	-21.9	-23.1	-23.3	-23.2	-23.3	-23.5	-22.5	-21.0	-19.4	-18.5	-18.4	-18.3	-19.9	-21.7	-22.1	-20.5	-19.6	-19.5	-19.7	-20.5	-21.3	-18.3																							
19-Jan	-21.3	-22.4	-23.6	-24.0	-24.2	-25.9	-26.3	-26.8	-27.2	-26.0	-23.2	-19.3	-16.2	-15.3	-14.6	-14.6	-15.3	-16.1	-16.7	-17.0	-16.9	-16.5	-16.3	-16.0	-20.1	-14.6																							
20-Jan	-15.8	-15.7	-15.6	-15.8	-15.8	-16.0	-15.6	-15.8	-17.7	-18.0	-16.4	-15.2	-14.2	-13.5	-13.2	-13.8	-15.9	-18.5	-20.0	-20.9	-19.2	-16.7	-15.7	-15.3	-16.3	-13.2																							
21-Jan	-15.0	-15.1	-15.3	-15.7	-16.0	-16.2	-16.9	-17.4	-17.6	-17.7	-18.5	-19.0	-19.0	-19.0	-18.9	-18.9	-18.9	-19.3	-19.9	-20.2	-20.0	-19.9	-19.8	-19.6	-18.1	-15.0																							
22-Jan	-19.5	-19.4	-19.4	-19.5	-19.4	-19.6	-19.7	-19.6	-19.2	-18.2	-17.5	-16.8	-16.1	-15.6	-15.0	-14.7	-14.7	-14.8	-14.9	-15.0	-14.8	-14.6	-14.1	-13.9	-16.9	-13.9																							
23-Jan	-13.6	-13.4	-13.1	-12.9	-12.8	-12.7	-12.6	-12.4	-12.3	-12.2	-11.4	-10.3	-8.8	-7.2	-7.1	-7.3	-8.9	-9.7	-9.3	-8.9	-8.7	-8.5	-8.8	-9.1	-10.5	-7.1																							
24-Jan	-9.8	-10.3	-10.6	-10.6	-10.6	-10.6	-10.5	-10.3	-9.9	-9.3	-8.5	-6.3	-4.3	-4.0	-3.3	-2.8	-2.9	-4.1	-5.4	-7.8	-9.2	-11.3	-12.3	-13.9	-8.3	-2.8																							
25-Jan	-15.0	-15.7	-15.8	-16.8	-17.6	-18.2	-18.2	-15.4	-13.4	-12.3	-10.7	-9.3	-8.2	-7.9	-7.2	-7.1	-7.1	-8.4	-10.6	-11.8	-11.2	-8.2	-6.4	-6.1	-11.6	-6.1																							
26-Jan	-5.9	-5.7	-6.1	-6.8	-7.0	-7.8	-8.5	-9.3	-8.6	-7.3	-5.4	-2.8	-0.7	0.9	2.7	2.3	-0.7	-0.2	-0.1	-0.5	-1.2	-1.6	-1.9	-2.2	-3.5	2.7																							
27-Jan	-2.7	-3.5	-4.5	-7.2	-9.5	-10.6	-8.5	-7.4	-6.0	-2.7	-0.5	1.0	2.6	4.3	4.9	4.2	2.6	1.5	0.5	0.0	-0.3	-0.9	-1.0	-0.8	-1.9	4.9																							
28-Jan	-1.0	-0.4	0.0	-1.8	-2.5	-2.3	0.3	1.1	0.3	0.7	1.8	4.1	5.6	8.0	9.3	9.1	8.0	6.7	5.5	3.5	5.4	6.0	5.4	5.7	3.3	9.3																							
29-Jan	3.5	-1.3	-2.0	-1.6	-2.0	-2.3	-3.5	-4.6	-0.2	-0.7	5.8	7.2	7.1	7.3	7.5	7.5	6.2	4.9	3.9	3.7	2.8	2.2	2.2	2.6	2.3	7.5																							
30-Jan	1.8	2.1	1.4	-0.6	-2.1	-3.2	-3.6	-3.7	-2.5	-1.0	6.4	9.5	10.7	12.3	12.2	11.7	10.4	9.5	9.0	8.4	8.0	7.6	7.0	5.3	4.9	12.3																							
31-Jan	4.5	4.8	3.3	1.7	0.9	-0.8	-2.9	-3.0	-1.9	0.3	3.4	6.2	8.4	9.7	10.4	9.6	4.5	0.4	-1.6	2.3	3.3	5.4	6.4	6.3	3.4	10.4																							
																								-16.8	-17.1	-17.4	-17.7	-17.8	-18.2	-18.3	-18.2	-17.9	-17.4	-15.7	-14.3	-13.3	-12.6	-12.3	-12.6	-13.8	-15.1	-16.0	-16.4	-16.4	-16.0	-16.0	-16.2	Diurnal Average	
																								4.5	4.8	3.3	1.7	0.9	-0.8	0.3	1.1	0.3	0.7	6.4	9.5	10.7	12.3	12.2	11.7	10.4	9.5	9.0	8.4	8.0	7.6	7.0	6.3	Diurnal Maximum	



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

**Ambient Temperature (AT) - C**  
**Conklin - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Conklin - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	257	34.54	34.54
-20 - 0	404	54.30	88.84
0 - 10	77	10.35	99.19
10 - 20	6	0.81	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

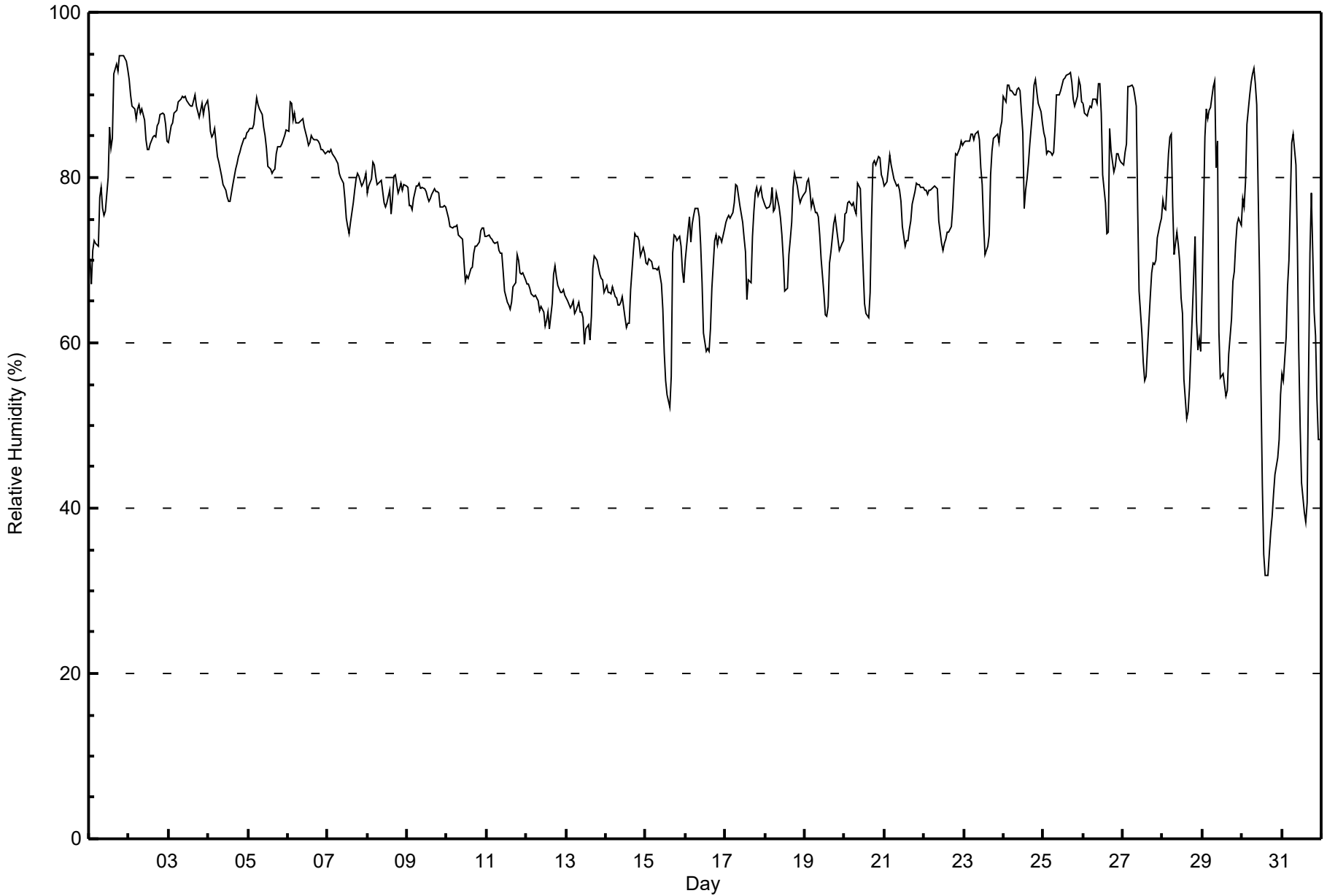
**Conklin - January 2024**

<b>Maximum Value: 94.8 % on Jan 1 19:00</b> <b>Maximum Daily Average: 88.6 % on Jan 25</b>																						Hours in Service:	744			
<b>Minimum Value: 31.8 % on Jan 30 15:00</b> <b>Minimum Daily Average: 60.8 % on Jan 31</b>																						Hours of Data:	744			
<b>Maximum Diurnal Average: 80.2 % at hour 7</b> <b>Minimum Diurnal Average: 68.3 % at hour 15</b>																						Hours of Missing Data:	0			
<b>Monthly Average: 76.04 %</b> <b>Percentiles: P<sub>1</sub> = 40.1 P<sub>10</sub> = 63.4 Q<sub>1</sub> = 70.0 Median = 77.3 Q<sub>3</sub> = 84.2 P<sub>90</sub> = 88.8 P<sub>99</sub> = 92.9</b>																						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-Jan	70.2	67.1	71.3	72.3	72.1	71.7	77.7	78.8	76.2	75.5	76.0	80.0	86.2	83.5	84.8	92.6	93.8	92.9	94.8	94.8	94.8	94.8	94.1	93.0	82.9	94.8
2-Jan	91.8	89.9	88.6	88.2	87.1	88.3	88.9	87.9	88.3	87.0	84.6	83.3	83.4	84.0	84.8	85.1	84.9	86.3	86.6	87.6	87.8	87.7	86.4	84.4	86.8	91.8
3-Jan	84.2	86.3	86.7	87.8	87.9	88.2	89.2	89.4	89.8	89.7	89.9	89.4	88.9	88.7	88.7	89.3	90.0	88.6	87.3	88.2	88.9	87.6	88.6	89.3	88.4	90.0
4-Jan	88.0	85.6	85.0	85.3	85.9	82.5	81.8	80.9	80.1	79.1	78.5	77.7	77.1	77.1	78.1	79.1	81.0	81.6	82.5	83.0	83.8	84.7	84.7	85.3	82.0	88.0
5-Jan	85.6	85.9	85.9	86.5	88.1	89.6	88.8	88.3	87.6	86.1	85.2	83.5	81.4	81.0	80.5	80.9	81.1	82.9	83.7	83.8	84.1	84.5	85.1	85.8	84.8	89.6
6-Jan	85.7	89.2	89.0	87.0	87.8	86.5	86.6	86.7	87.0	87.1	86.1	84.7	84.0	84.2	85.1	84.7	84.5	84.5	84.4	84.1	83.5	83.3	82.8	83.1	85.5	89.2
7-Jan	83.2	83.1	83.5	82.9	82.3	82.0	81.6	80.5	80.0	79.4	77.4	75.1	74.1	73.3	74.6	76.9	78.5	79.8	80.4	80.2	79.0	79.4	79.8	80.5	79.5	83.5
8-Jan	78.1	79.1	79.8	81.8	81.5	80.2	79.1	79.5	79.7	78.2	76.9	76.4	76.9	78.4	75.7	77.4	80.2	80.3	78.1	78.6	79.3	78.5	79.2	79.0	78.8	81.8
9-Jan	78.8	76.5	76.6	76.2	77.5	79.0	79.0	79.4	78.7	78.8	78.6	78.3	77.7	77.1	77.4	78.0	78.6	78.3	78.3	78.2	76.4	76.5	76.6	76.4	77.8	79.4
10-Jan	75.7	75.0	74.1	73.9	74.0	74.0	74.3	73.1	72.8	72.6	69.8	67.4	68.1	67.8	69.0	69.1	70.9	71.7	71.6	72.2	73.5	73.9	74.0	72.9	72.1	75.7
11-Jan	72.8	73.0	72.8	72.5	72.1	72.1	72.1	71.1	70.9	70.9	68.7	66.3	64.9	64.6	64.1	64.9	66.8	67.3	70.8	70.0	68.5	68.4	68.5	67.6	69.2	73.0
12-Jan	67.1	67.2	66.6	65.9	65.6	65.7	65.5	65.1	64.0	64.3	63.8	62.0	62.8	63.7	61.6	64.8	68.3	69.3	67.9	67.0	66.1	66.1	66.4	65.8	65.5	69.3
13-Jan	65.4	65.1	64.2	64.5	65.1	63.6	63.8	64.9	63.7	63.8	63.1	59.8	61.7	62.2	60.4	63.2	69.0	70.5	70.1	69.2	68.4	67.7	67.5	66.1	65.1	70.5
14-Jan	66.9	66.1	66.1	65.9	66.8	65.6	65.5	64.5	64.6	65.0	65.6	63.0	61.9	62.3	62.3	66.4	71.2	73.3	72.9	73.0	72.3	70.6	71.5	70.9	67.3	73.3
15-Jan	69.7	69.5	70.1	69.8	69.0	68.9	69.0	68.9	69.1	67.2	64.2	58.8	55.4	53.8	52.1	55.9	70.8	73.1	72.8	72.4	72.9	71.7	68.7	67.3	66.7	73.1
16-Jan	70.0	73.5	75.2	72.1	74.4	75.4	76.3	76.3	75.2	71.8	67.3	61.2	59.0	59.3	59.1	61.6	66.7	72.4	73.1	71.9	72.8	72.7	72.3	73.7	70.1	76.3
17-Jan	74.5	75.1	75.4	75.0	75.7	77.0	79.1	78.9	77.8	76.6	74.6	72.7	71.0	65.3	67.6	67.2	72.8	76.0	78.1	78.7	77.8	78.8	77.6	77.1	75.0	79.1
18-Jan	76.7	76.3	76.4	77.0	78.8	75.9	76.3	78.1	76.4	75.0	73.1	70.1	66.2	66.6	70.8	72.6	74.6	78.8	80.4	78.9	77.9	77.0	77.5	77.7	75.4	80.4
19-Jan	78.4	79.5	79.8	78.5	76.4	77.3	75.8	75.8	75.2	73.0	70.2	66.0	63.4	63.2	64.4	69.7	70.9	74.4	75.3	73.9	72.6	71.3	72.0	72.3	72.9	79.8
20-Jan	75.6	75.8	76.9	77.0	76.5	77.0	76.1	75.6	79.4	78.6	73.5	69.0	64.8	63.6	63.0	66.1	75.0	81.7	82.0	81.5	82.5	82.3	80.4	79.9	75.6	82.5
21-Jan	79.0	79.5	81.0	82.7	81.6	80.7	79.8	78.9	79.2	78.5	77.1	74.1	71.6	72.3	72.5	73.7	74.7	76.8	78.2	79.4	79.2	79.1	78.8	78.8	77.8	82.7
22-Jan	78.4	78.4	78.0	78.4	78.6	78.8	79.0	78.9	78.6	74.7	72.1	71.2	72.0	72.5	73.3	73.5	74.1	76.4	80.1	82.9	82.6	83.5	84.4	83.9	77.7	84.4
23-Jan	84.2	84.4	84.4	84.4	85.3	85.2	84.6	85.3	85.7	84.5	81.2	79.2	74.4	70.6	71.7	73.0	80.3	83.2	84.7	85.1	85.3	84.2	85.9	86.7	82.2	86.7
24-Jan	89.9	89.2	91.3	91.1	90.5	90.5	90.0	90.0	90.7	90.9	90.6	85.4	76.2	78.5	79.9	81.7	84.2	88.2	91.1	91.9	90.4	89.0	87.9	86.7	87.7	91.9
25-Jan	85.4	84.7	82.9	83.2	83.0	82.8	83.1	86.1	90.0	89.9	90.6	91.3	91.9	92.1	92.3	92.6	92.7	91.5	89.4	88.7	89.8	91.9	91.3	89.1	88.6	92.7
26-Jan	89.0	87.8	87.5	88.1	88.6	88.5	89.5	89.4	89.0	91.4	91.4	87.9	80.4	76.9	73.2	73.4	85.9	83.3	80.7	81.3	82.8	82.9	82.1	81.9	84.7	91.4
27-Jan	81.5	83.0	84.0	91.1	91.0	91.2	90.8	89.8	88.6	76.3	66.3	61.3	57.6	55.5	55.9	59.4	65.5	68.5	69.7	69.5	70.1	72.7	74.4	75.1	74.5	91.2
28-Jan	77.3	76.4	76.1	82.8	85.0	85.3	76.5	70.6	73.4	71.9	69.9	65.4	63.5	55.7	50.8	51.7	54.7	59.1	63.3	72.8	62.7	59.1	60.5	58.9	67.6	85.3
29-Jan	66.5	85.0	88.3	87.0	88.2	88.5	91.1	91.7	81.3	84.4	61.4	55.8	56.2	55.0	53.5	54.3	58.6	62.9	67.4	68.6	72.0	74.4	75.1	74.2	72.6	91.7
30-Jan	77.5	76.4	79.5	86.4	90.0	91.6	92.6	93.2	91.4	88.8	68.1	54.7	42.8	34.4	31.8	31.8	34.5	37.1	39.1	41.6	44.2	46.0	48.2	53.8	61.5	93.2
31-Jan	56.4	55.5	60.7	66.7	69.9	77.3	84.3	85.3	81.6	72.0	58.9	49.8	43.1	39.6	38.3	40.7	56.1	70.8	78.2	63.7	60.8	53.2	48.3	48.3	60.8	85.3
																								Diurnal Average		
																								Diurnal Maximum		



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

**Relative Humidity (RH) - %**  
**Conklin - January 2024**





Maximum Speed: 18 km/h on Jan 30 20:00	Maximum Daily Speed Average: 8.5 km/h on Jan 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 04:00	Minimum Daily Speed Average: 0.6 km/h on Jan 13	Hours of Data: 741
Maximum Diurnal Speed Average: 2.0 km/h at hour 15	Minimum Diurnal Speed Average: 0.3 km/h at hour 7	Hours of Missing Data: 3
Monthly Average Velocity: 1.1 km/h 252.5 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 3 Median = 5 Q <sub>3</sub> = 7 P <sub>90</sub> = 10 P <sub>99</sub> = 15	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-Jan	NW6	NW5	NW8	NW7	W6	W7	NW5	NW5	NW7	NW8	NW8	NNW9	N9	N6	N8	ENE4	ESE2	SSW1	NNW2	NNW6	N4	N4	NNW4	NNW7	NW4.7	NNW9
2-Jan	NNW6	NW7	NW5	NW5	NNW6	NNW3	NE2	NE3	N2	NE3	ENE4	ENE3	ESE5	ESE5	ESE5	ESE4	E3	ENE3	ESE4	NE3	NE3	NE2	NNW1	NNW2	NE1.9	NW7
3-Jan	NW0	NW1	NNW1	NNW0	NNW2	NNW2	ESE2	SE2	ESE2	NE1	NNE1	ESE2	ESE3	N2	NNW5	NNW5	NNW4	NNW4	NNW1	S1	SW4	SW8	SW9	SW9	W0.9	SW9
4-Jan	WSW7	W7	W7	W6	WNW6	NW10	NNW11	NNW10	NNW9	NNW8	NNE7	NNE6	NNE6	NE6	ENE6	E6	E6	ENE5	E6	E6	ENE4	NNE4	N4	NNW4	N3.4	NNW11
5-Jan	NNW2	NNW3	NNW3	NW4	NW5	NW4	NW4	NW3	NW4	WNW5	NW7	NW5	NW5	NNW5	NNW4	WNW3	SSE2	E3	E4	ESE5	ESE6	E4	E4	ENE2	NNW1.9	NW7
6-Jan	NE3	N3	NNE4	N3	NNE4	NNW5	NNW5	N4	NE4	NE5	NE6	ENE6	NE7	NE6	NNE7	NNE7	NNE8	NNE8	NNE8	NNE7	NNE7	NNE8	NNE8	NNE8	NNE5.5	NNE8
7-Jan	NNE8	NE6	NNE6	NNE7	NNE8	NNE8	NNE8	NNE6	NNE5	ENE4	ESE4	E3	E3	SSE2	ESE4	E4	ESE3	ESE1	ESE2	SE5	S4	S5	SE5	SSE5	ENE2.8	NNE8
8-Jan	S8	SSE4	ESE2	ESE2	ESE3	S5	S6	SSW5	SW5	SW6	WSW6	WNW5	NW6	NNW7	NW5	NW6	NW3	NW2	NNW3	NNW2	NNW3	NNW2	NNW3	NNW3	W1.5	S8
9-Jan	NNW1	S1	W1	WNW1	NNW3	NNW4	N3	ENE4	NE5	NE5	NE6	NNE7	NE7	NNE8	NNE7	NNE7	N9	NNE7	NNE7	NNE7	N8	NNE8	N8	NNE7	NNE5.0	N9
10-Jan	N7	NNE6	NNE6	N7	NNE6	N5	NNW4	NNW5	NNW4	NW3	NW4	NNW7	N6	NNW4	NW5	NNW7	NNW6	NW6	NW5	NNW5	NNW2	NNW2	NNW3	NNW3	NNW4.7	N7
11-Jan	NNW2	NNE2	NNW2	N2	NNW1	NNW2	NNW3	NNW4	NW3	NW3	NW7	NNW7	NNW6	NW7	NNW9	NNW9	NNW7	NNW5	NNW2	NNW1	NNW1	S0	S0	SW1	NNW3.4	NNW9
12-Jan	NNW1	SSE0	S1	S1	S1	SSE1	SSE1	S1	S2	S2	S2	W2	WNW3	NW3	NW3	ENE1	ESE2	S1	S2	S2	SW0	SSE1	SSE2	S2	SSW0.8	NW3
13-Jan	SSE2	SSW2	NW1	NW0	SSE4	S3	NNW1	SSE1	SSW2	S2	S2	NNW1	NW3	NW3	NNW3	NNE3	UO	UO	SSW1	SW0	SSW1	S2	S2	SSW2	SSW0.6	SSE4
14-Jan	S1	S2	S2	S1	S1	S2	S2	S2	S2	SSW1	WNW3	NW5	NW5	WNW4	WNW4	NW4	NW3	NW3	NW2	NW2	SSW2	SSE2	SSE2	SSE3	W1.3	NW5
15-Jan	S2	S2	SSW3	S4	SSW5	S4	SSW4	SW4	SW6	SW7	WSW7	WSW8	WSW8	WSW9	WSW8	SW4	SE1	SSE2	S1	WSW0	W3	W5	WSW6	SW7	SW4.0	WSW9
16-Jan	SW5	SSW1	SW1	SW1	SSE1	SSE0	WSW1	NNW2	NNW1	NNW3	NW7	NW9	NW10	NW13	NNW15	NW9	NW7	NW4	NW5	NW7	NW7	NW8	NW8	NW6	NW5.0	NNW15
17-Jan	NW8	NW9	NW9	NW9	NW8	NW6	NW5	NW4	NW4	NW5	NW4	WNW4	N6	NNE8	NNE7	N8	NNE7	NNE7	N4	NNW3	NNW3	NNW3	NW5	NW4	NNW5.1	NW9
18-Jan	NW4	NW5	NW3	NW4	NW5	NW6	WNW5	NW6	WNW5	WNW5	WNW6	NW8	WNW7	WNW6	NW6	NW7	WNW6	NW3	WNW3	NW5	NW5	WNW5	NW6	WNW4	NNW5.1	NW8
19-Jan	NW4	NW3	WNW1	SSW3	SSW2	S3	S3	S4	S4	S4	S5	S4	SW6	SSW10	SSW6	SE5	SSE6	SSE5	SSE5	SSE11	S10	SSE8	SSE5	SSE8	S4.4	SSE11
20-Jan	SSE8	SSE7	S8	S6	SSW4	SW3	SSW5	SW5	WSW2	SW3	WSW8	W5	WNW6	WNW6	WNW5	NW4	WNW2	NNW2	S1	W0	NE1	NNW4	NNE1	NW2	SW2.2	WSW8
21-Jan	NE2	E2	E1	ENE3	ENE4	NNE6	N6	NE6	NNE5	NE6	NNE8	NNE7	NNE8	NNE7	NNE7	NNE7	NNE6	NNE5	NNE5	NNE3	NNE7	NE7	NE5	NE5	NNE5.1	NNE8
22-Jan	NE5	ENE5	E5	ENE6	E6	ENE6	E6	E6	ESE6	SE11	SE13	SSE12	SSE11	SSE12	SSE10	SSE12	SSE11	SSE10	SSE9	SSE10	SSE8	SSE10	S11	SSE9	SE7.4	SE13
23-Jan	S7	S7	S8	S8	SSW8	SSW8	SSW6	SW6	SW7	SW6	SW7	SW6	SW6	SW6	SW4	WSW4	SSW4	SSE1	SE0	NW0	UO	SW1	N1	NE5	SSW4.3	SSW8
24-Jan	ENE5	E4	E4	E4	E4	ESE4	ESE3	ESE4	SE6	ESE5	ESE4	SE6	S9	SE9	SE6	SE6	SE5	NNW1	NW0	SE2	S2	SE1	ESE1	NNW2	SE3.2	SSE9
25-Jan	NW1	SSE1	SSE3	SSE1	N1	SSW0	S1	SSW2	SSE0	S0	NW1	WNW1	SW1	WSW1	ESE1	ESE3	SSE1	SSE3	SE2	SE2	E1	SE1	SSE1	SSW8	SSE1.3	SSW8
26-Jan	SSW8	SW10	SW9	SW8	SW8	SW7	SSW4	SSW4	S3	S3	SE3	ESE2	SE3	SE5	SW6	S3	S5	SSW8	SSW10	SSW11	SSW10	SSW10	SSW10	SSW10	SSW6.1	SSW11
27-Jan	SSW9	S7	S6	SE6	SE5	SE7	SE7	SE4	SSE4	S7	SSW10	SW7	SW11	SW12	SW11	SSW10	SSW11	SW11	SW14	SW14	SSW13	SSW11	SSW11	SSW11	SSW8.1	SW14
28-Jan	SSW5	S7	SSE4	SE2	SSE3	SSE4	SSW5	SW10	SW11	SW11	SW11	SW10	SW12	WSW12	W13	W12	W10	W8	WSW7	SW8	WSW11	W12	WNW11	W11	WSW7.3	W13
29-Jan	SW3	SSE6	SSW8	S8	S7	SSE6	SSE6	SSE4	S4	SSE2	SSW10	SSW14	SSW12	SSW13	SSW12	SW9	S6	S5	SSW7	SSW14	SSW14	SSW10	SSW13	SSW13	SSW8.2	SSW14
30-Jan	SSW7	SSW10	SSE5	SE5	SE3	SSE1	E1	SSE2	SSE2	WNW1	W15	WNW12	W10	W14	W15	W15	W16	W14	W16	W18	W18	W17	W13	WSW13	W8.5	W18
31-Jan	WSW12	WSW13	SW8	SSW7	SSW6	ESE4	SSE3	SSW5	S6	SSW8	SSW4	SSW7	S7	SSE7	SSE10	SSE7	SE5	SSE2	SE3	SSE7	SSE8	SSE11	SSE14	SSE12	S6.0	SSE14

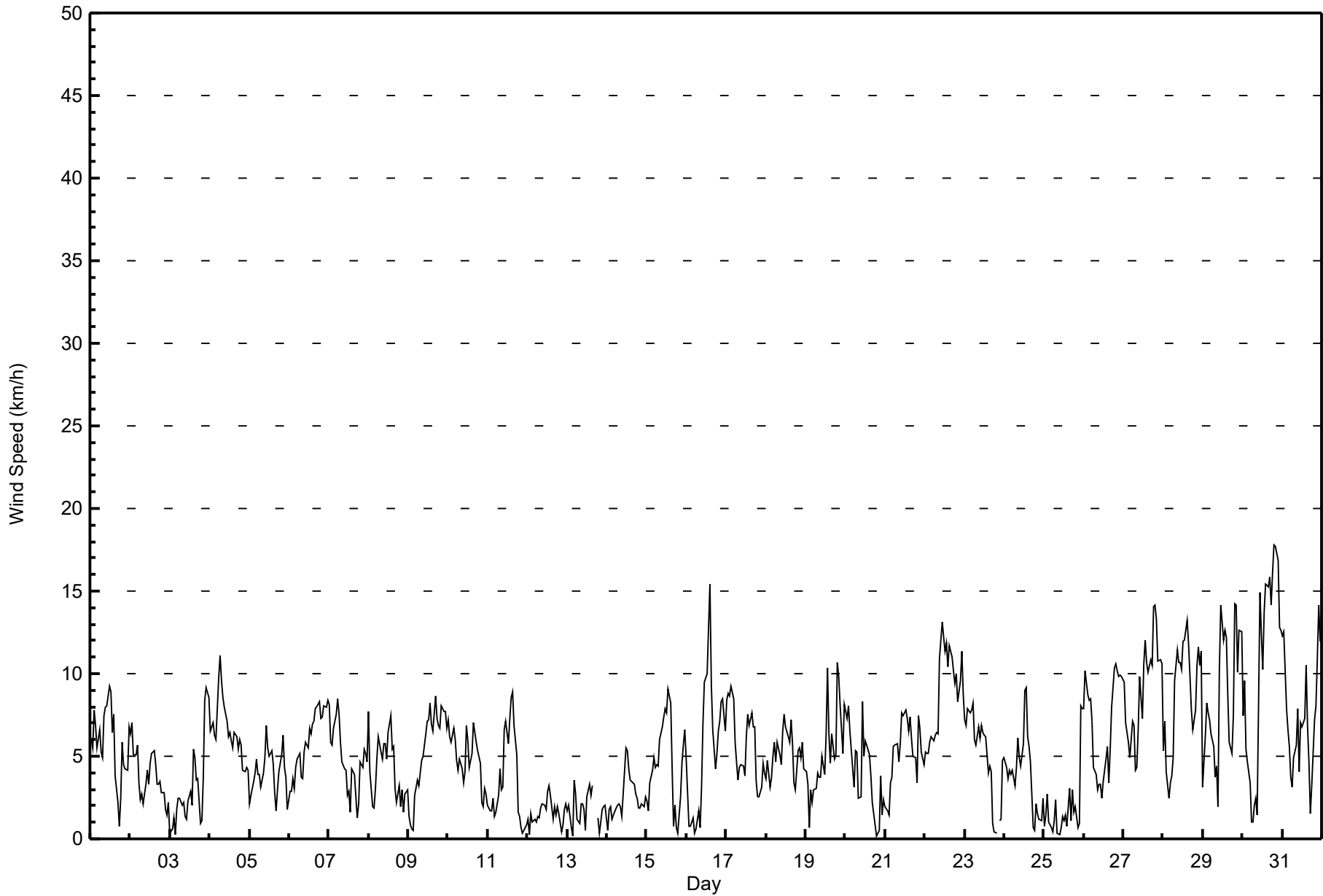
WSW1.3	SW1.3	SW1.1	SW0.7	SW0.4	W0.5	W0.3	WSW0.6	WSW0.8	WSW0.8	WSW1.8	WNW1.8	W1.8	W1.8	WNW2.0	WNW1.2	W0.8	WNW0.7	WSW0.8	SW1.4	WSW1.6	SW1.6	SW1.8	SW2.0	Diurnal Average	
WSW12	WSW13	SW9	NW9	SW8	NW10	NNW11	SW10	SW11	SE11	W15	SSW14	SSW12	W14	W15	W15	W16	W14	W16	W18	W18	W17	SSE14	WSW13	Diurnal Maximum	

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 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Conklin - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	421	56.82	56.82
6 - 11	280	37.79	94.60
12 - 19	40	5.40	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: 741

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Conklin - January 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	17	14	17	30	21	41	51	28	17	5	6	23	60	64	421
6 - 11	12	45	10	4	7	3	5	27	20	32	33	11	9	10	34	18	280
12 - 19	0	0	0	0	0	0	1	5	0	9	4	4	14	1	1	1	40
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>	26	58	27	18	24	33	27	73	71	69	54	20	29	34	95	83	741

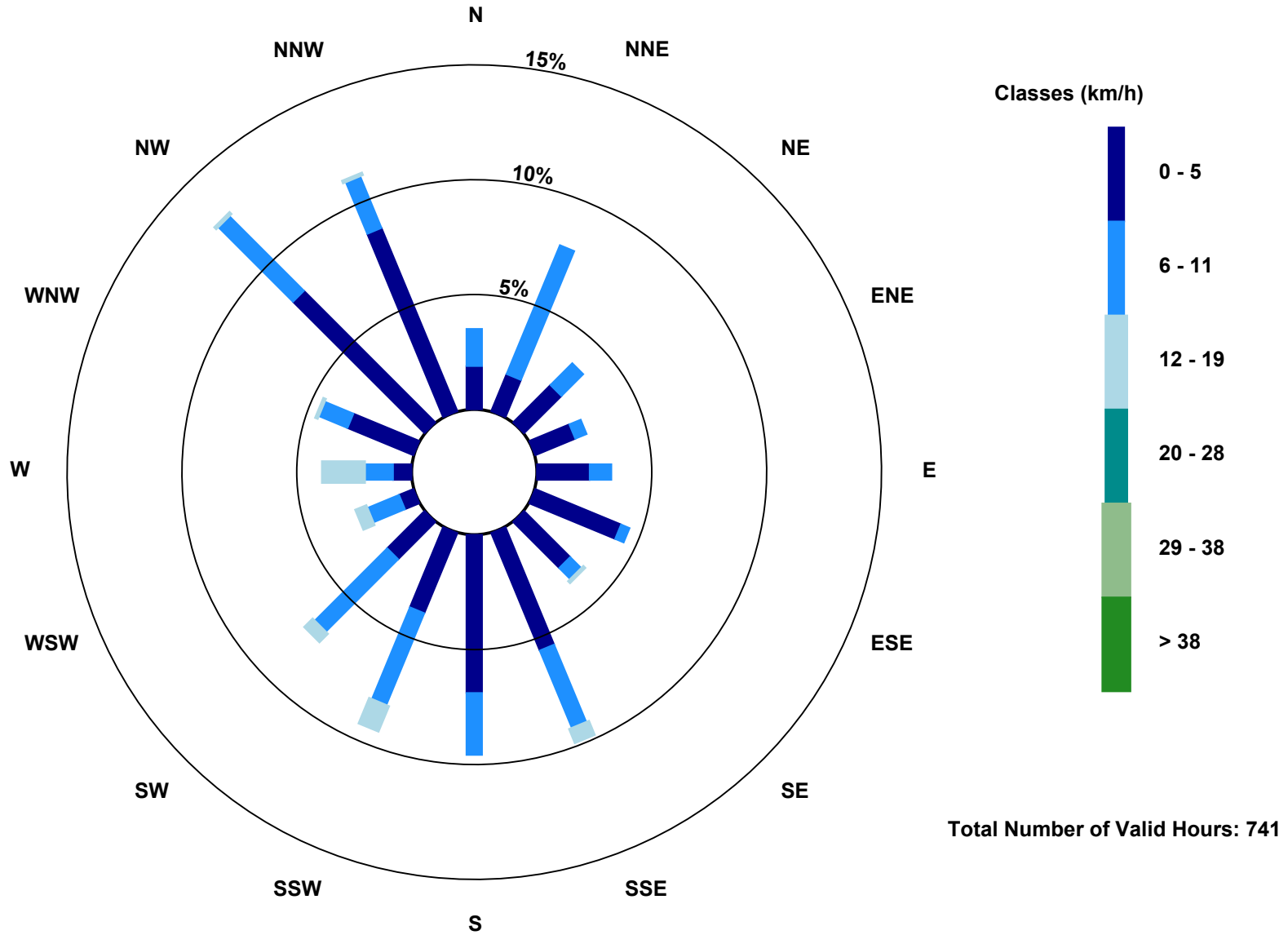
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Conklin





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

**Wind Speed (WS) - km/h**  
**Conklin - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 11:00 Minimum Value: 0 km/h on Jan 11 06:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 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-Jan	2	2	3	3	2	3	2	2	3	3	3	3	4	2	2	1	1	1	1	2	1	1	2	2	4	
2-Jan	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
3-Jan	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	
4-Jan	2	2	3	3	2	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	4	
5-Jan	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	1	1	1	2	1	2	1	1	1	2	
6-Jan	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	3	3	3	2	3	2	2	2	3	
7-Jan	3	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	
8-Jan	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	
9-Jan	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	2	3	3	2	2	3	2	2	2	3	
10-Jan	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	
11-Jan	1	1	1	0	1	0	1	1	1	2	2	2	2	3	3	3	2	2	1	1	1	1	1	1	3	
12-Jan	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	
13-Jan	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	UO	UO	1	1	1	1	1	1	2	
14-Jan	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	
15-Jan	1	1	2	1	1	1	2	2	2	3	3	2	2	3	3	2	1	1	1	1	1	2	3	2	3	
16-Jan	2	1	1	1	1	1	1	1	1	2	2	3	3	4	5	3	2	2	2	3	3	4	3	3	5	
17-Jan	4	3	4	4	3	2	1	1	1	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	4	
18-Jan	1	1	1	1	2	2	2	2	2	2	3	3	3	2	2	3	2	1	1	2	2	2	2	2	3	
19-Jan	2	1	1	1	1	2	1	1	1	1	1	1	3	3	2	2	2	1	2	3	3	2	1	2	3	
20-Jan	2	2	2	2	1	2	2	2	1	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	3	
21-Jan	1	1	1	1	1	2	2	2	1	2	2	3	2	2	2	2	2	2	2	1	2	3	2	1	3	
22-Jan	2	2	2	2	2	2	2	2	2	3	4	3	3	3	3	3	3	3	3	3	2	3	3	2	4	
23-Jan	2	2	2	3	3	3	2	2	2	2	2	2	2	2	1	2	1	1	1	1	UO	1	1	2	3	
24-Jan	2	1	1	1	1	1	1	1	2	1	1	2	2	2	2	2	1	1	1	2	2	2	1	1	2	
25-Jan	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	
26-Jan	3	3	3	2	2	2	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	3	
27-Jan	2	2	1	1	1	1	1	2	3	3	4	4	4	3	3	3	3	4	3	4	3	3	3	3	4	
28-Jan	2	2	2	1	1	1	3	4	3	4	3	3	3	4	5	6	4	3	3	2	4	4	5	4	6	
29-Jan	3	1	2	2	2	1	1	1	1	2	4	4	4	4	6	5	3	2	3	4	4	4	4	5	6	
30-Jan	2	3	1	1	1	1	1	1	1	3	7	6	5	5	6	7	7	6	6	7	7	6	5	4	7	
31-Jan	4	4	3	2	2	1	1	2	1	3	2	3	2	2	3	2	1	1	2	1	2	3	4	4	4	
																	Diurnal Maximum									
UO - Unstable Operation																										



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

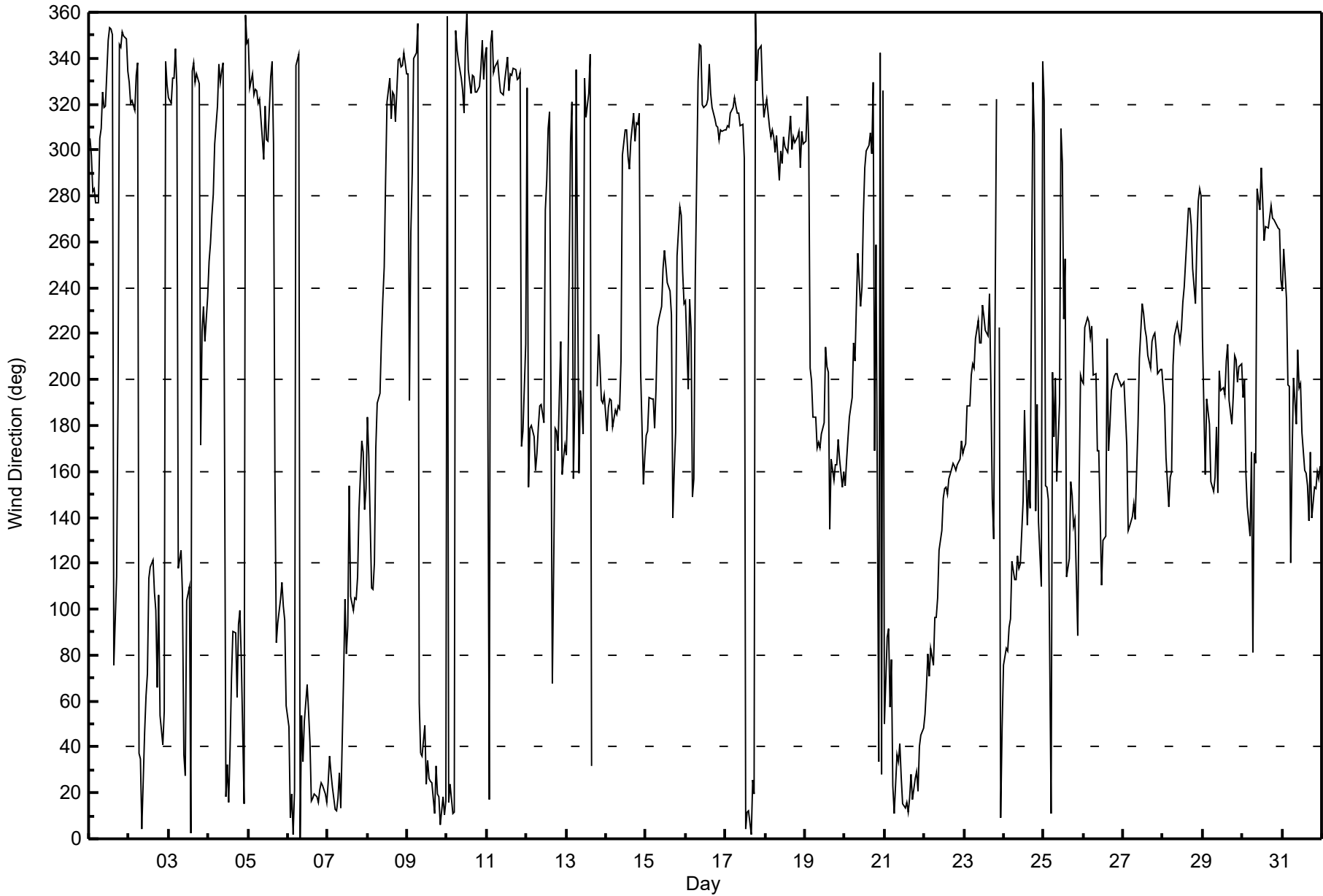
**Wind Direction (WD) - deg**  
**Conklin - January 2024**

Direction of Maximum Speed: 270 deg on Jan 30 20:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 259.7 deg on Jan 30																						Hours of Data: 741			
Direction of Minimum Speed: 321 deg on Jan 13 04:00											Direction of Minimum Daily Speed Average: 0.6 deg on Jan 13											Hours of Missing Data: 3			
Monthly Average Direction: 252.5 deg																						Percent Operational Time: 99.6			
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-Jan	305	297	282	283	277	277	305	309	325	318	319	348	353	352	350	75	114	192	346	345	352	350	348	335	324.5
2-Jan	330	320	322	317	332	338	37	35	4	46	62	72	113	118	121	108	99	66	106	54	41	56	339	329	33.8
3-Jan	323	321	331	331	344	328	118	126	107	36	28	104	110	2	334	338	330	333	329	172	221	232	217	236	272.5
4-Jan	251	259	271	281	303	319	338	329	334	338	18	32	16	40	70	90	90	62	93	99	78	15	359	347	357.3
5-Jan	348	327	333	324	326	326	320	322	305	296	319	304	304	332	339	302	157	85	94	104	112	101	95	58	341.7
6-Jan	49	9	20	2	21	337	342	0	54	34	51	67	56	42	17	18	20	18	16	22	25	23	19	16	23.4
7-Jan	25	36	29	23	13	12	18	29	13	70	104	80	93	154	106	99	105	104	114	143	173	169	143	152	63.2
8-Jan	183	167	109	109	120	170	190	194	217	235	249	288	321	331	314	325	324	312	339	340	336	337	343	333	269.8
9-Jan	333	191	264	290	340	342	355	59	37	36	49	24	34	27	25	24	11	32	20	18	6	18	10	16	20.7
10-Jan	358	16	24	11	12	352	344	338	331	326	316	347	359	335	325	333	332	325	325	327	335	348	331	341	344.8
11-Jan	345	17	346	352	333	336	338	331	325	325	324	330	340	326	333	332	335	335	331	331	334	171	177	216	332.9
12-Jan	327	153	178	180	175	161	168	180	188	189	181	274	287	309	316	68	122	179	177	169	216	158	166	171	196.4
13-Jan	167	193	304	321	157	189	335	159	189	177	331	315	325	342	32	UO	UO	197	220	206	191	190	194	206.3	
14-Jan	178	188	191	191	180	187	185	188	187	208	309	309	297	291	304	316	304	312	311	316	204	155	167	268.9	
15-Jan	176	177	192	191	192	179	196	223	227	232	249	256	249	242	238	228	140	161	172	254	275	271	247	233	228.7
16-Jan	234	196	235	222	149	157	243	330	346	345	320	318	320	322	338	325	319	314	311	310	304	309	308	308	315.3
17-Jan	309	311	310	316	318	323	319	316	316	311	311	297	4	12	12	2	26	20	360	330	343	345	326	314	333.9
18-Jan	319	322	310	306	309	306	299	306	287	300	294	306	302	299	307	315	300	306	303	306	308	292	308	302	304.5
19-Jan	304	323	303	205	200	184	184	170	173	170	177	181	214	205	203	135	165	156	163	163	174	166	153	160	178.4
20-Jan	154	165	174	183	193	216	208	232	255	232	240	272	292	300	302	307	299	329	169	259	34	343	28	326	234.5
21-Jan	50	88	91	58	78	23	11	37	33	42	27	15	13	16	12	18	28	17	26	29	21	40	45	49	29.2
22-Jan	54	66	81	71	83	76	97	96	105	125	134	148	152	153	150	157	161	164	162	160	163	165	173	168	139.2
23-Jan	170	172	189	188	202	207	205	218	226	216	216	232	227	221	219	237	197	148	131	322	UO	223	9	48	205.8
24-Jan	76	83	82	92	96	121	113	113	124	118	120	147	187	160	137	156	144	330	307	143	189	138	110	338	128.7
25-Jan	322	154	153	148	11	203	175	201	156	190	309	295	226	253	114	122	156	150	136	139	89	154	202	200	179.2
26-Jan	198	223	227	225	218	223	202	203	169	169	140	111	130	132	218	169	181	195	201	203	203	200	199	197	199.5
27-Jan	199	185	171	134	136	140	146	139	159	180	210	233	229	222	219	210	205	216	219	220	213	202	204	204	201.0
28-Jan	196	188	166	145	157	160	206	219	224	221	216	222	234	240	263	274	274	267	248	233	258	278	283	280	240.7
29-Jan	218	158	192	186	181	156	151	157	179	151	204	195	196	194	208	215	191	180	193	211	209	199	206	207	194.9
30-Jan	192	200	159	145	132	168	81	168	163	283	274	292	277	260	266	266	271	276	271	270	268	266	265	243	259.7
31-Jan	238	257	235	197	197	120	167	201	181	213	196	199	177	160	159	154	139	168	140	153	152	160	157	162	181.3
238.7 229.9 224.5 227.5 230.1 271.9 264.3 246.8 238.4 242.6 257.1 283.4 279.4 272.3 288.5 303.1 277.6 293.6 237.2 219.3 237.1 234.3 227.8 232.7																									
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 - January 2024**





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

**Wind Direction (WD) - deg**  
**Conklin - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 102 deg on Jan 25 21:00 Minimum Value: 9 deg on Jan 31 17:00 Percentiles: P <sub>1</sub> = 12 P <sub>10</sub> = 17 Q <sub>1</sub> = 20 Median = 26 Q <sub>3</sub> = 34 P <sub>90</sub> = 61 P <sub>99</sub> = 89																			Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 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-Jan	28	30	29	29	29	29	25	25	21	22	24	25	18	23	23	45	44	54	46	21	24	20	30	21	54
2-Jan	21	21	19	24	27	28	42	34	28	31	34	32	31	23	21	27	35	27	28	34	30	36	71	31	71
3-Jan	80	85	61	80	24	45	54	70	27	58	75	62	18	50	17	12	11	13	74	85	59	25	25	24	85
4-Jan	22	25	29	31	31	22	19	20	20	20	30	32	30	29	37	32	31	34	30	28	32	31	23	21	37
5-Jan	59	24	18	14	18	28	25	27	29	35	23	31	30	27	32	39	74	34	30	25	20	24	32	52	74
6-Jan	40	29	26	33	38	14	19	38	44	24	33	34	30	29	25	23	22	21	20	22	25	21	23	22	44
7-Jan	23	26	27	27	21	20	22	27	29	42	41	54	41	78	30	26	31	65	58	14	19	19	13	20	78
8-Jan	21	22	53	38	20	21	21	38	52	29	31	43	26	22	30	22	23	24	22	35	18	62	29	23	62
9-Jan	70	58	84	76	15	24	22	42	38	29	31	28	27	22	22	22	21	22	25	22	21	22	23	24	84
10-Jan	21	23	21	22	25	17	18	16	14	17	29	22	28	29	25	20	19	16	15	14	39	17	17	20	39
11-Jan	21	21	14	12	17	15	19	14	15	15	18	21	27	25	22	21	18	16	18	23	23	88	15	43	88
12-Jan	69	88	16	18	21	27	25	23	17	20	19	53	40	35	29	65	19	52	20	31	65	32	19	23	88
13-Jan	33	31	60	78	31	20	33	83	19	21	27	88	29	32	48	27	UO	UO	40	62	17	17	14	14	88
14-Jan	74	26	19	44	18	18	17	12	15	29	63	28	27	35	38	30	20	19	15	30	49	33	49	31	74
15-Jan	21	40	20	19	19	23	28	26	28	25	26	25	22	22	24	30	68	34	71	69	50	44	32	32	71
16-Jan	24	83	73	85	46	89	90	48	84	25	21	20	22	20	21	22	18	24	25	26	28	27	29	28	90
17-Jan	27	26	26	28	21	16	16	22	20	27	26	29	35	27	25	23	21	21	34	27	12	18	18	22	35
18-Jan	25	20	27	32	29	29	33	29	33	35	34	31	34	31	28	26	29	25	36	31	32	37	30	34	37
19-Jan	32	25	82	21	49	39	24	21	25	23	14	26	28	19	23	33	16	14	20	16	19	18	19	19	82
20-Jan	15	18	20	20	22	22	22	27	45	64	21	38	32	34	34	26	28	32	72	79	74	20	58	30	79
21-Jan	62	40	35	30	33	26	25	27	27	24	25	28	25	27	27	25	24	20	24	27	23	31	33	34	62
22-Jan	35	34	34	32	34	32	30	26	24	15	17	19	18	16	18	18	18	18	18	19	18	17	19	17	35
23-Jan	17	18	22	22	23	22	22	24	23	22	20	25	26	29	34	30	17	66	91	80	UO	25	81	28	91
24-Jan	35	32	36	30	34	22	31	21	16	18	18	23	21	16	23	18	17	84	65	49	91	86	71	13	91
25-Jan	74	65	16	77	77	89	78	27	82	87	79	60	79	80	92	27	35	14	80	36	102	96	30	33	102
26-Jan	37	24	25	21	19	20	21	20	19	23	17	40	34	20	23	38	29	16	16	16	16	16	17	16	40
27-Jan	16	17	23	13	21	11	13	20	30	28	34	42	26	21	20	19	14	21	18	20	17	18	18	17	42
28-Jan	43	21	38	58	23	23	70	30	22	22	21	19	20	22	28	30	27	24	33	19	25	30	30	30	70
29-Jan	71	15	18	20	18	17	17	24	29	73	20	17	20	19	36	35	41	60	34	18	17	26	22	21	73
30-Jan	22	18	21	26	61	84	63	70	37	93	33	33	32	29	28	30	30	31	28	25	26	26	25	21	93
31-Jan	18	25	27	25	30	37	34	21	18	27	43	32	27	19	18	14	9	68	49	12	13	16	16	18	68
80 88 84 85 77 89 90 83 84 93 79 88 79 80 92 65 74 84 91 85 102 96 81 52																									
Diurnal Maximum																									
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS22**  
**JANVIER**  
**JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
JANUARY 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	708	35	36	99.87	10.3	0	4.6	0
TRS(ppb) Average	707	36	37	99.87	0.7	0	0.5	0
THC(ppm) Average	643	34	101	90.99	2.5	-	2.3	-
NMHC(ppm) Average	643	34	101	90.99	0.025	-	0.005	-
CH4(ppm) Average	643	34	101	90.99	2.5	-	2.3	-
O3 (ppb) Average	708	35	36	99.87	52.7	0	42.9	-
NO2 (ppb) Average	706	37	38	99.87	19.1	0	6.2	-
NO (ppb) Average	706	37	38	99.87	4.9	-	0.9	-
NOX (ppb) Average	706	37	38	99.87	19.5	-	7.2	-
PM2.5 (ug/m3) Average	721	4	23	97.45	38.2	0	18.1	0
Temperature 2 m (C) Average	744	0	0	100	12.4	-	5.7	-
Relative Humidity (%) Average	744	0	0	100	98.2	-	94.2	-
Wind Speed 10 m (km/h) Average	744	0	0	100	22	-	12	-
Wind Speed 20 m (km/h) Average	716	0	28	96.24	30	-	16	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 20 m (deg) Average	716	0	28	96.24	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
JANUARY 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	708	0.74	1.2	-	0	0	0.1	0.3	0.7	1.9	10.3
TRS (ppb) Average	707	0.31	0.1	-	0.1	0.2	0.2	0.3	0.4	0.4	0.7
THC (ppm) Average	643	2.1	0.1	-	2	2	2	2.1	2.2	2.3	2.5
NMHC(ppm) Average	643	0	0.002	-	0	0	0	0	0	0	0.025
CH4(ppm) Average	643	2.1	0.1	-	2	2	2	2.1	2.2	2.3	2.5
O3 (ppb) Average	708	28.5	7.8	-	11.3	17.9	22.9	29.3	33.4	38	52.7
NO2 (ppb) Average	706	3.05	2.6	-	0	0.5	1.2	2.4	4.2	6.3	19.1
NO (ppb) Average	706	0.42	0.6	-	0	0	0	0.3	0.5	0.9	4.9
NOX (ppb) Average	706	3.46	2.8	-	0	0.7	1.4	2.7	4.9	7.1	19.5
PM2.5 (ug/m3) Average	721	4.42	4.6	-	0.3	1.5	2.3	3.1	4.5	7.9	38.2
Temperature 2 m (C) Average	744	-16	12.4	-	-43.8	-33.4	-22.9	-15.7	-7.7	1	12.4
Relative Humidity (%) Average	744	76.94	10.4	-	31.6	66.2	70.4	77.6	84	90.4	98.2
Wind Speed 10 m (km/h) Average	744	5.4	3	-	0	2	3	5	7	9	22
Wind Speed 20 m (km/h) Average	716	7.5	4	-	1	3	5	7	9	12	30
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	716	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, O3, SO2, TRS	17 Jan 2024 15:00	17 Jan 2024 15:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	10 Jan 2024 04:00	10 Jan 2024 10:00	7	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	15 Jan 2024 03:00	16 Jan 2024 02:00	24	Analyzer Failure - inconsistent response
THC/NMHC/CH4	16 Jan 2024 04:00	17 Jan 2024 11:00	32	Analyzer Failure - inconsistent response
THC/NMHC/CH4	17 Jan 2024 12:00	17 Jan 2024 15:00	4	Maintenance - analyzer replaced
PM2.5	24 Jan 2024 17:00	25 Jan 2024 09:00	17	Maintenance - station operator activities
PM2.5	31 Jan 2024 12:00	31 Jan 2024 13:00	2	Maintenance - verification check
Wind Speed, Wind Direction 20m	02 Jan 2024 00:00	02 Jan 2024 18:00	19	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	03 Jan 2024 05:00	03 Jan 2024 05:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	13 Jan 2024 15:00	13 Jan 2024 19:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	24 Jan 2024 07:00	24 Jan 2024 08:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	25 Jan 2024 09:00	25 Jan 2024 09:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Janvier - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 10.3 ppb on Jan 11 11:00	Maximum Daily Average: 4.6 ppb on Jan 11		Hours of Data:	708
Minimum Value: 0.0 ppb on Jan 3 06:00	Minimum Daily Average: 0.1 ppb on Jan 3		Hours of Missing Data:	36
Maximum Diurnal Average: 1.0 ppb at hour 3	Minimum Diurnal Average: 0.4 ppb at hour 5		Hours of Calibration:	35
Monthly Average: 0.74 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> = 0.7 P <sub>90</sub> = 1.9 P <sub>99</sub> = 6.1		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-Jan	0.2	0.2	0.1	0.2	0.2	Z	0.3	1.1	1.4	3.2	2.7	1.8	1.4	1.8	1.5	1.4	2.6	1.9	1.2	1.3	2.4	3.0	0.7	1.4	3.2		
2-Jan	Z	0.3	0.3	0.1	0.3	2.7	1.6	0.9	1.2	0.6	0.5	0.5	0.3	0.2	0.1	0.2	0.4	0.5	0.4	0.4	0.4	0.2	0.1	0.0	0.5	2.7	
3-Jan	0.0	Z	0.1	0.1	0.0	0.0	0.1	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	0.0	0.1	0.1	0.1	0.1	0.1	
4-Jan	0.1	0.1	Z	0.1	0.4	1.5	3.6	4.1	1.2	0.9	1.0	0.6	0.6	0.7	0.6	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.7	4.1	
5-Jan	0.0	0.1	0.1	Z	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.5	0.7	0.7	1.0	0.9	0.9	0.6	0.5	0.4	0.4	0.3	0.2	0.1	0.3	1.0	
6-Jan	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.3	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	
7-Jan	0.4	0.4	0.4	0.5	0.4	Z	0.3	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	0.1	0.1	0.5	
8-Jan	Z	0.3	0.0	0.0	0.3	0.2	0.4	0.4	0.3	0.1	0.1	0.1	0.2	0.4	0.3	0.0	1.1	2.6	4.0	3.1	1.8	1.7	1.3	1.2	0.9	4.0	
9-Jan	0.8	Z	0.5	0.2	0.1	0.2	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.8	
10-Jan	0.1	0.2	Z	0.3	0.4	0.6	0.9	0.9	0.4	0.0	C	C	C	C	4.2	3.9	2.3	1.7	2.9	2.3	2.1	3.2	2.1	3.5	1.7	4.2	
11-Jan	5.2	6.1	6.0	Z	1.5	1.8	2.9	4.8	5.9	9.7	10.3	10.0	7.0	3.8	2.9	3.5	3.0	2.5	3.1	3.1	2.3	2.8	4.7	3.7	4.6	10.3	
12-Jan	2.0	1.3	1.2	0.8	Z	0.6	0.5	0.6	0.6	0.4	0.4	0.4	0.6	1.0	0.9	0.8	0.7	0.5	0.3	0.3	0.2	0.1	0.1	0.1	0.6	2.0	
13-Jan	0.1	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.5	0.3	0.3	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.5	
14-Jan	Z	0.1	0.3	0.2	0.4	0.4	0.2	0.3	0.4	1.3	2.9	4.4	4.2	2.4	1.9	1.9	1.4	1.1	0.7	0.7	1.5	1.1	0.7	0.5	1.3	4.4	
15-Jan	0.4	Z	0.3	0.3	0.3	0.5	0.7	0.8	0.5	0.2	0.2	0.4	0.5	0.7	1.0	1.3	1.0	0.8	1.9	6.7	6.2	3.9	2.0	1.2	1.4	6.7	
16-Jan	0.9	0.8	Z	0.6	0.3	0.1	0.1	0.2	0.2	0.3	0.3	0.5	1.4	1.7	1.7	2.6	2.4	1.2	0.5	0.3	0.4	0.7	0.7	0.5	0.8	2.6	
17-Jan	0.5	0.6	1.0	Z	0.4	0.2	0.2	0.4	0.7	0.8	0.2	0.2	0.3	0.1	M	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	1.0	
18-Jan	0.4	0.5	0.3	0.2	Z	2.2	3.1	2.8	2.3	1.3	0.9	0.8	0.7	1.0	0.7	0.9	0.6	0.1	0.3	0.2	0.1	0.0	0.0	0.1	0.9	3.1	
19-Jan	0.0	0.1	0.6	0.4	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.3	0.2	0.2	0.4	0.7	0.8	0.9	1.3	1.4	0.4	1.4	
20-Jan	Z	1.0	0.8	0.8	0.7	1.1	1.0	0.6	0.3	0.4	0.4	0.5	0.5	0.4	0.3	0.3	0.1	0.2	0.3	0.5	0.6	0.5	0.4	1.4	0.6	1.4	
21-Jan	6.1	Z	9.8	5.5	3.2	2.0	1.1	2.3	2.6	1.9	0.9	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.3	0.3	0.2	0.2	0.0	1.6	9.8	
22-Jan	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	0.1	0.1	0.2	0.4	0.4	0.3	0.2	0.3	0.1	0.4	
23-Jan	0.4	0.4	0.4	Z	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.4	2.3	3.8	0.5	3.8	
24-Jan	4.7	3.7	2.5	1.8	Z	0.8	0.8	0.7	0.3	0.2	0.2	0.3	0.7	0.9	0.7	0.6	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3	1.0	4.7	
25-Jan	0.4	0.2	0.2	0.2	0.2	Z	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.5	0.5	0.5	0.5	0.5	0.6	1.6	1.2	0.6	0.3	0.2	0.4	1.6	
26-Jan	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.5	0.3	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.5	
27-Jan	0.2	Z	0.4	0.4	0.6	0.8	1.6	1.0	0.8	1.0	0.7	0.7	1.0	1.1	0.8	0.6	0.4	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.6	1.6	
28-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.7	1.0	0.4	0.3	0.4	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.3	0.2	0.3	1.0	
29-Jan	0.2	0.3	0.3	Z	0.2	0.2	0.3	0.3	0.5	0.6	0.6	1.5	0.9	0.6	0.9	0.8	0.8	0.9	1.0	0.9	0.8	0.9	0.9	0.7	0.6	1.5	
30-Jan	0.7	0.5	0.5	0.5	Z	0.3	0.3	0.3	0.4	0.8	0.9	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.9
31-Jan	0.2	0.3	0.2	0.2	0.3	Z	0.3	0.3	0.2	0.3	0.4	0.2	0.3	0.8	1.7	0.7	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.3	0.4	1.7	

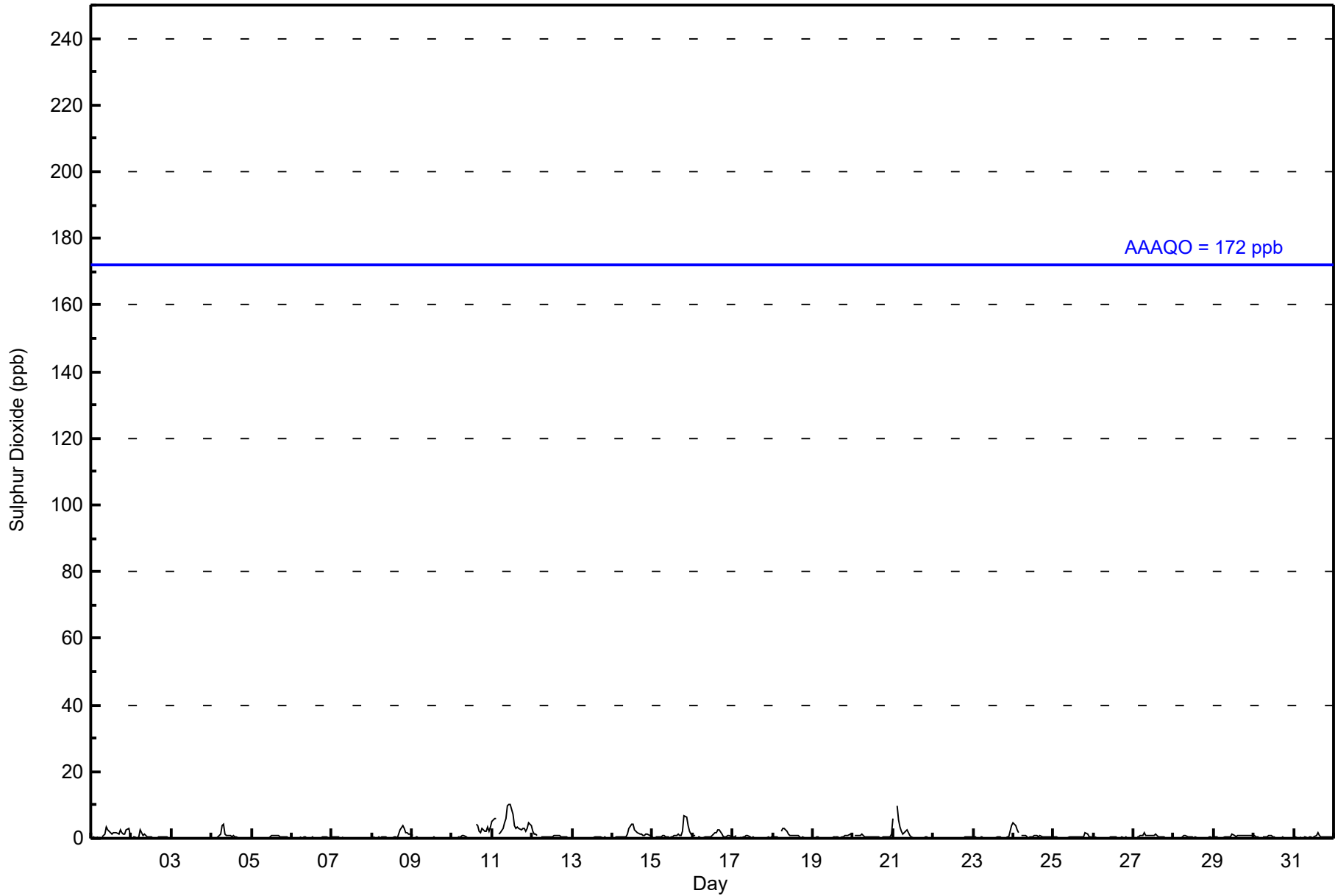
0.9	0.7	1.0	0.5	0.4	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.6	0.6	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	Diurnal Average
6.1	6.1	9.8	5.5	3.2	2.7	3.6	4.8	5.9	9.7	10.3	10.0	7.0	3.8	4.2	3.9	3.0	2.6	4.0	6.7	6.2	3.9	4.7	3.8	3.8	3.8	3.8	Diurnal Maximum

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**  
**Janvier - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	708	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: 708

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - January 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 - 10	48	130	31	20	11	8	8	26	51	141	93	29	23	33	14	15	681
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>	<b>48</b>	<b>130</b>	<b>31</b>	<b>20</b>	<b>11</b>	<b>8</b>	<b>8</b>	<b>26</b>	<b>51</b>	<b>141</b>	<b>93</b>	<b>29</b>	<b>23</b>	<b>33</b>	<b>14</b>	<b>15</b>	<b>681</b>

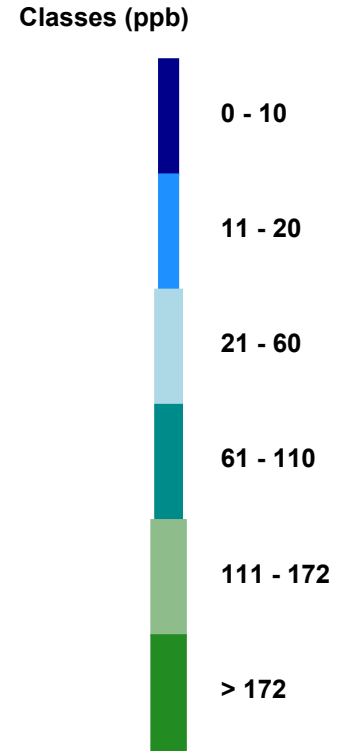
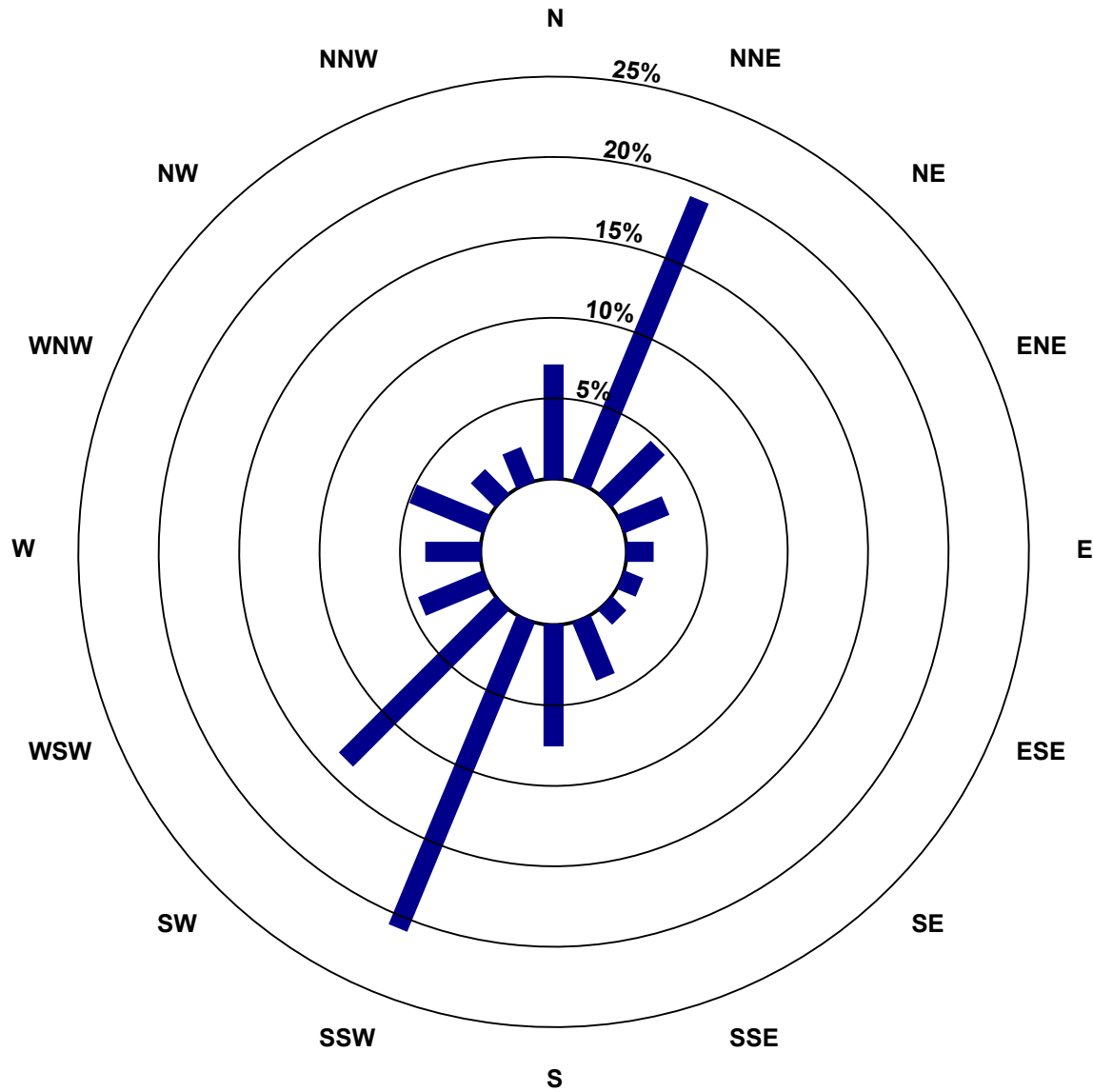
Total Number of Valid Hours: 681

Total Number of Hours: 744

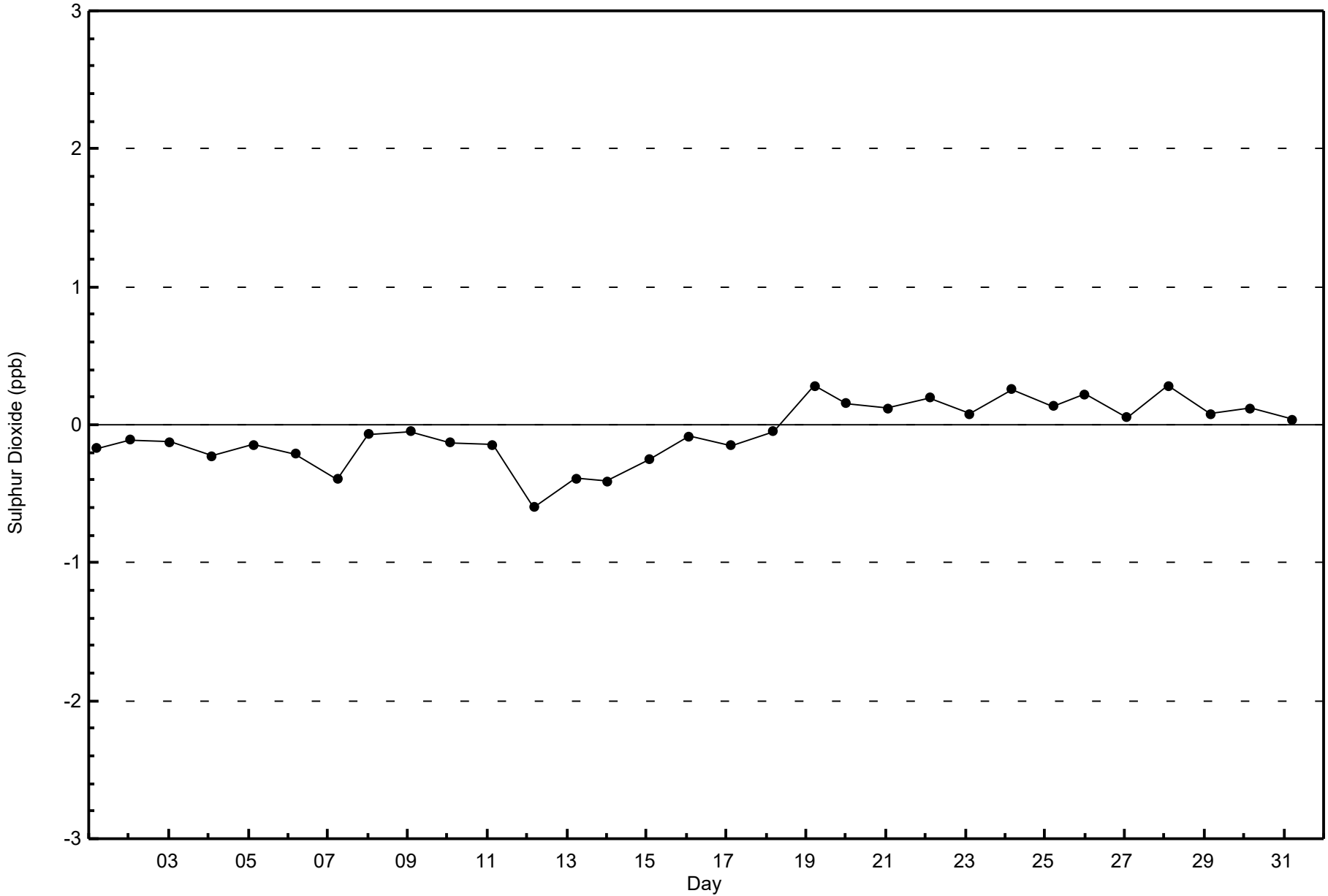


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

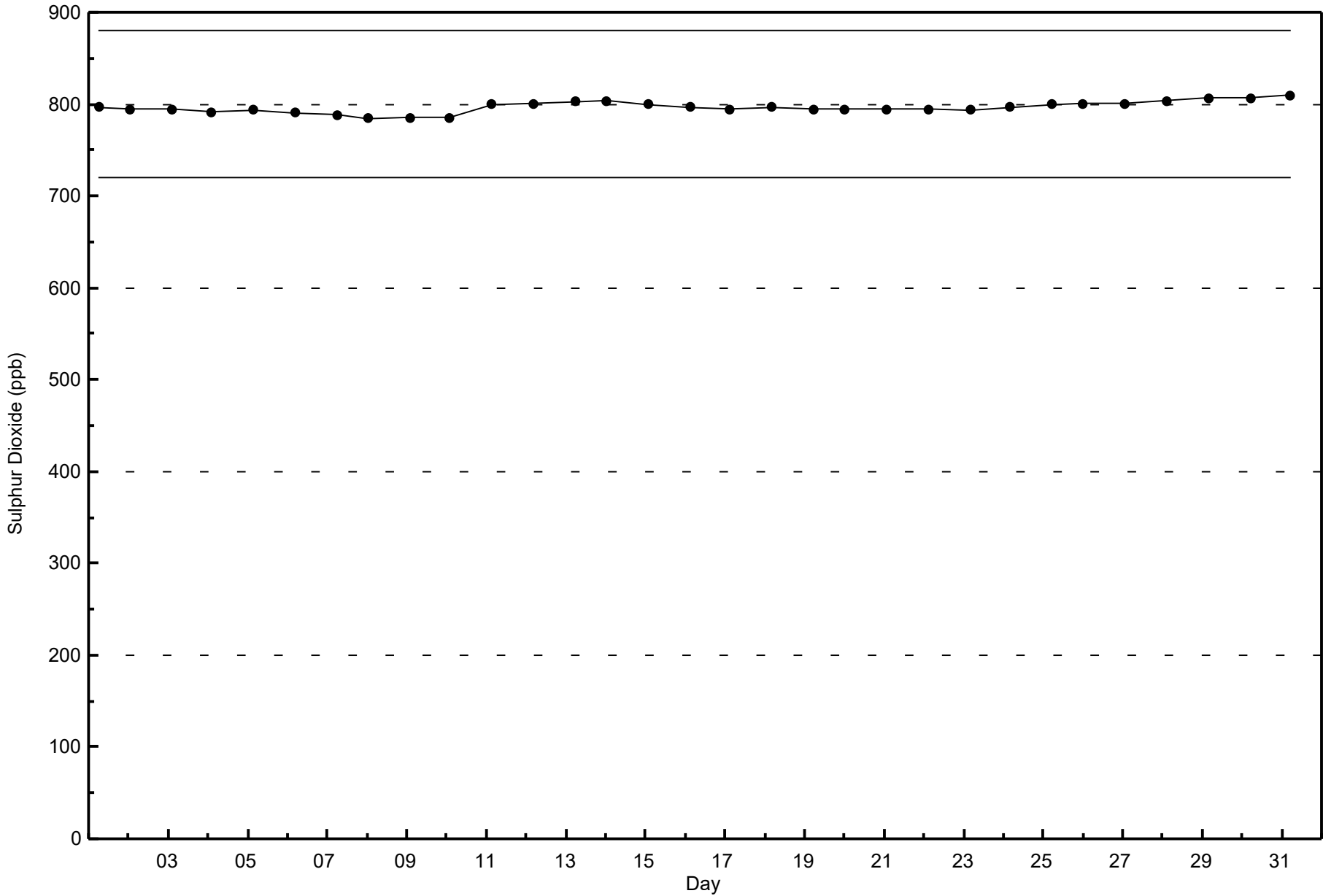
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Janvier



Total Number of Valid Hours: 681





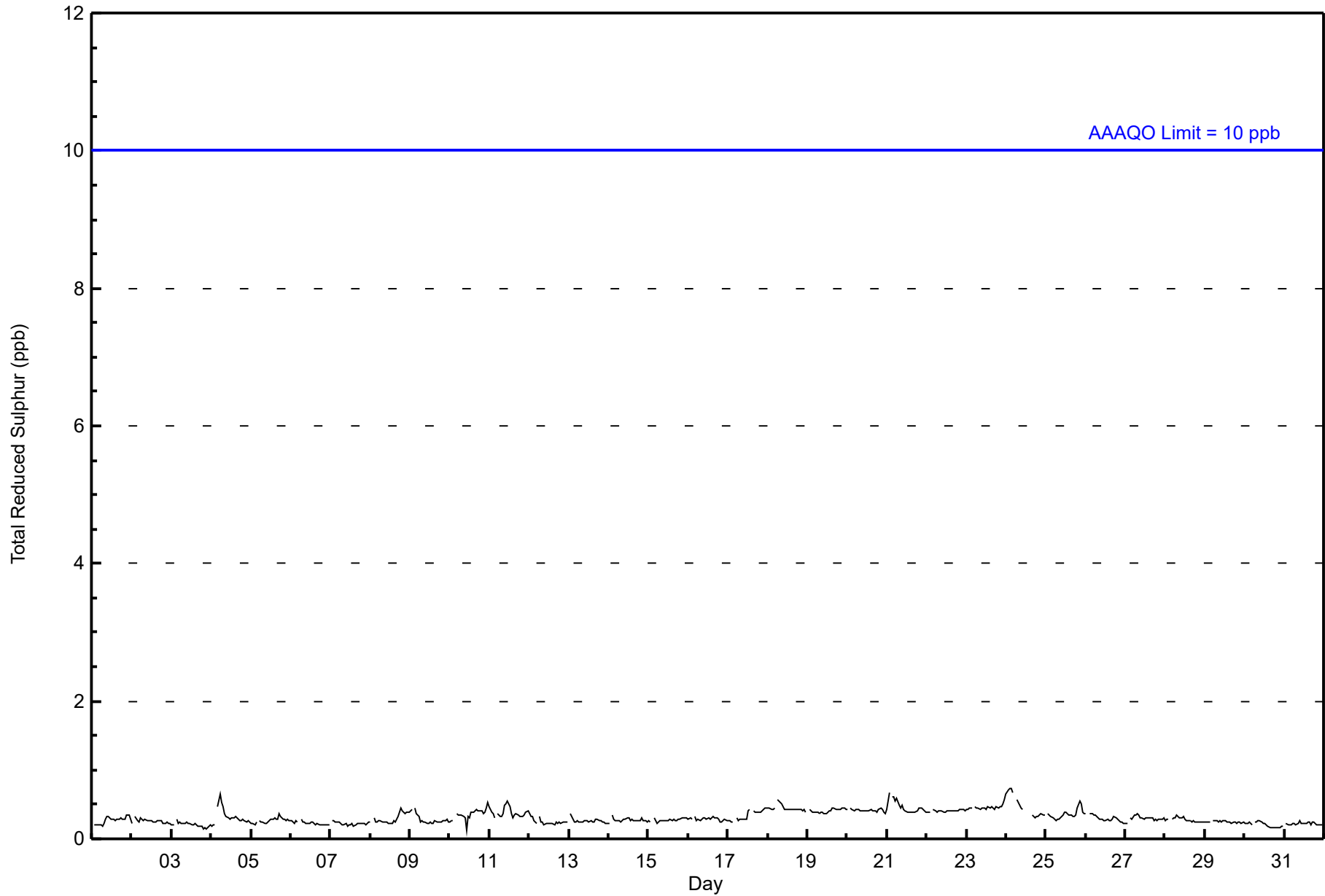






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Janvier - January 2024**





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

**Total Reduced Sulphur (TRS) - ppb**  
**Janvier - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Janvier - January 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	52	128	33	20	11	8	8	24	50	141	93	27	22	34	15	14	680
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>	52	128	33	20	11	8	8	24	50	141	93	27	22	34	15	14	680

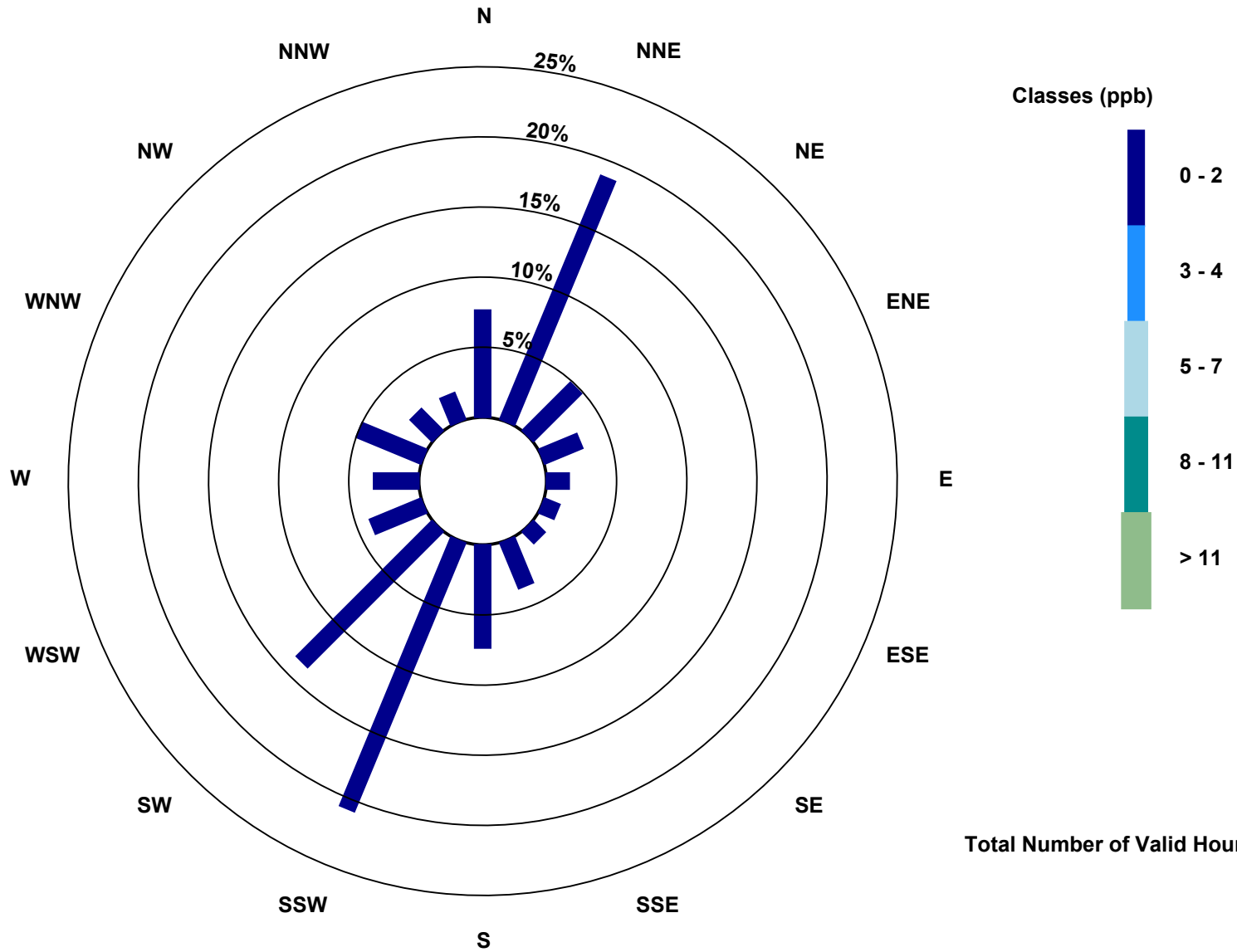
Total Number of Valid Hours: 680

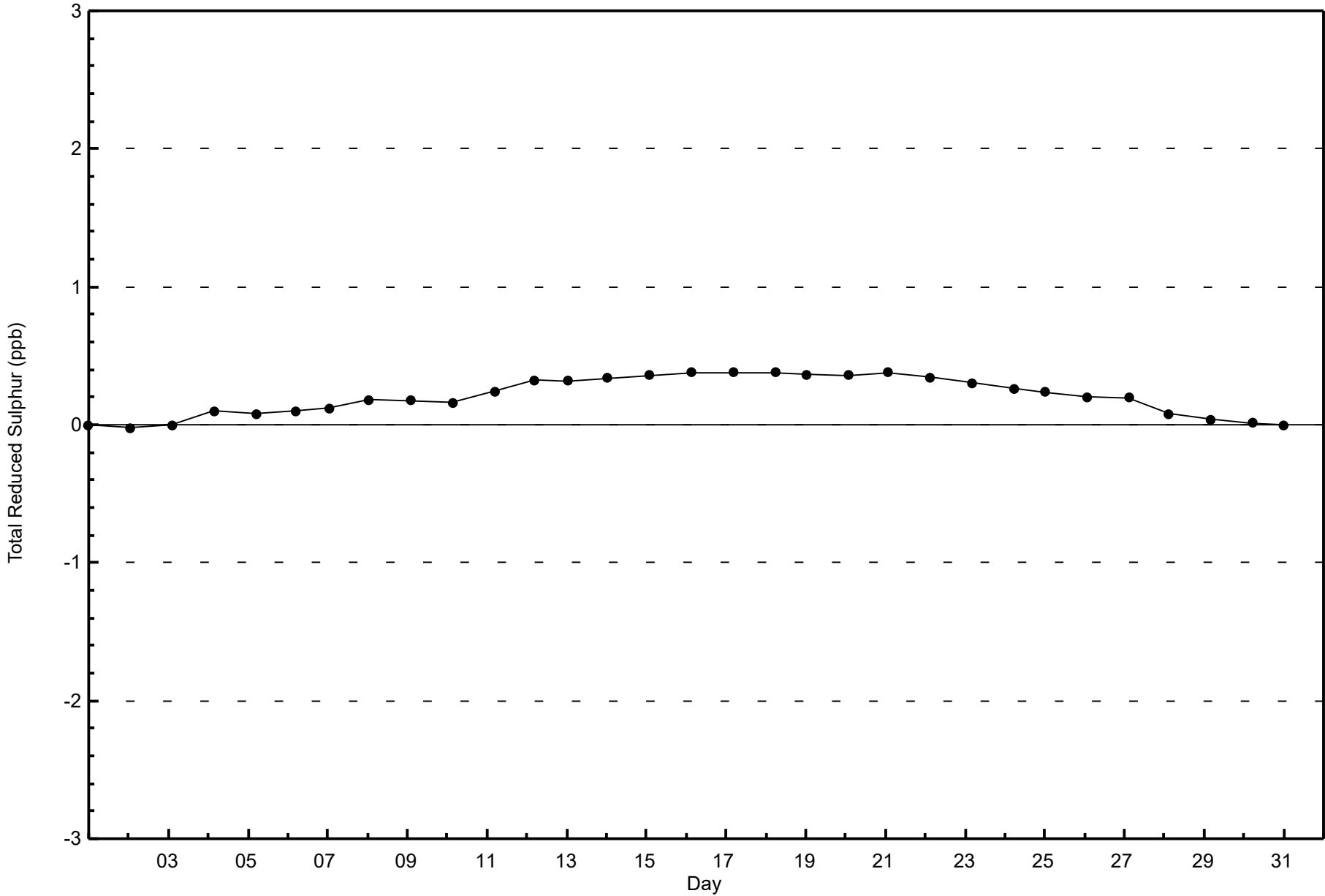
Total Number of Hours: 744

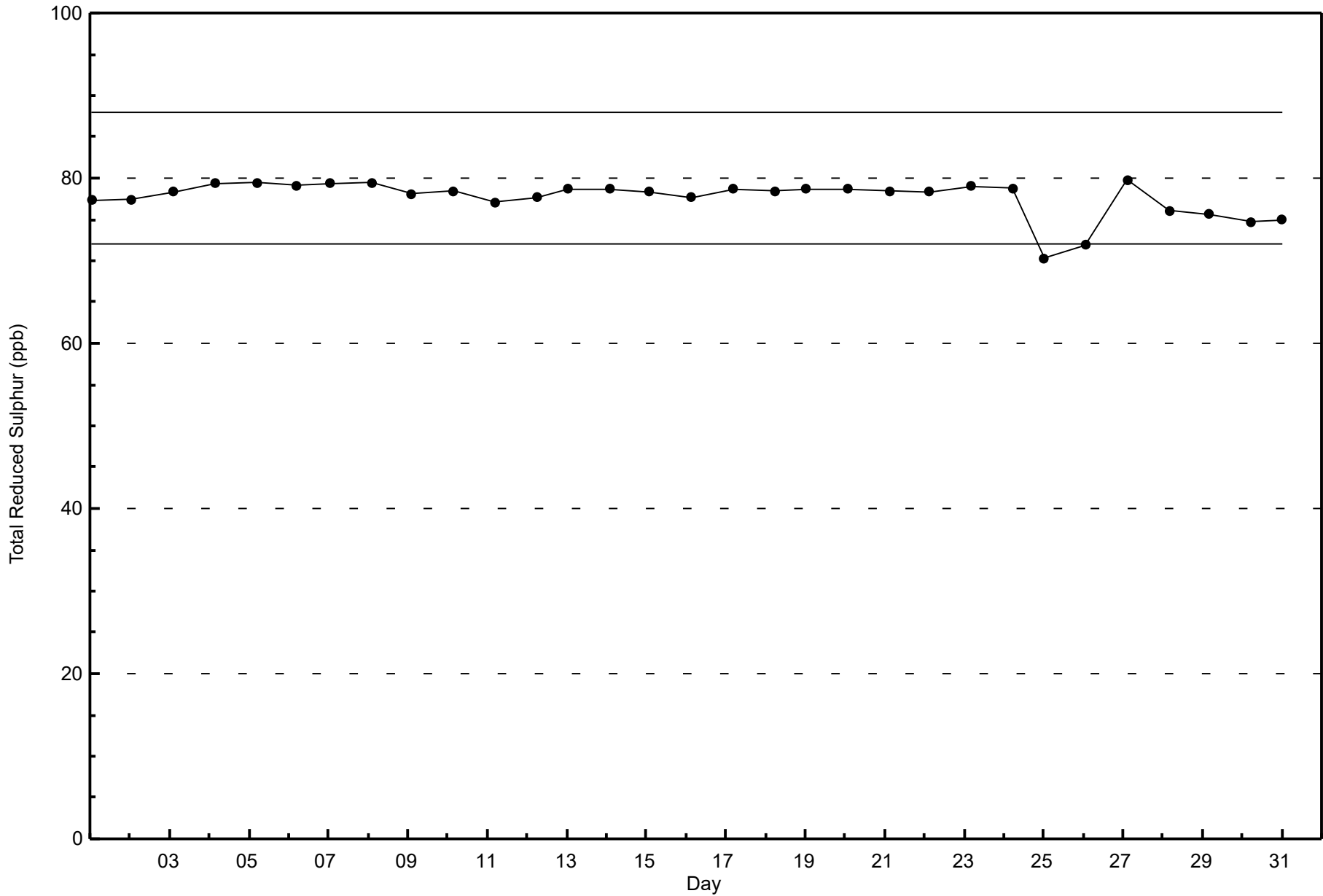


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Janvier



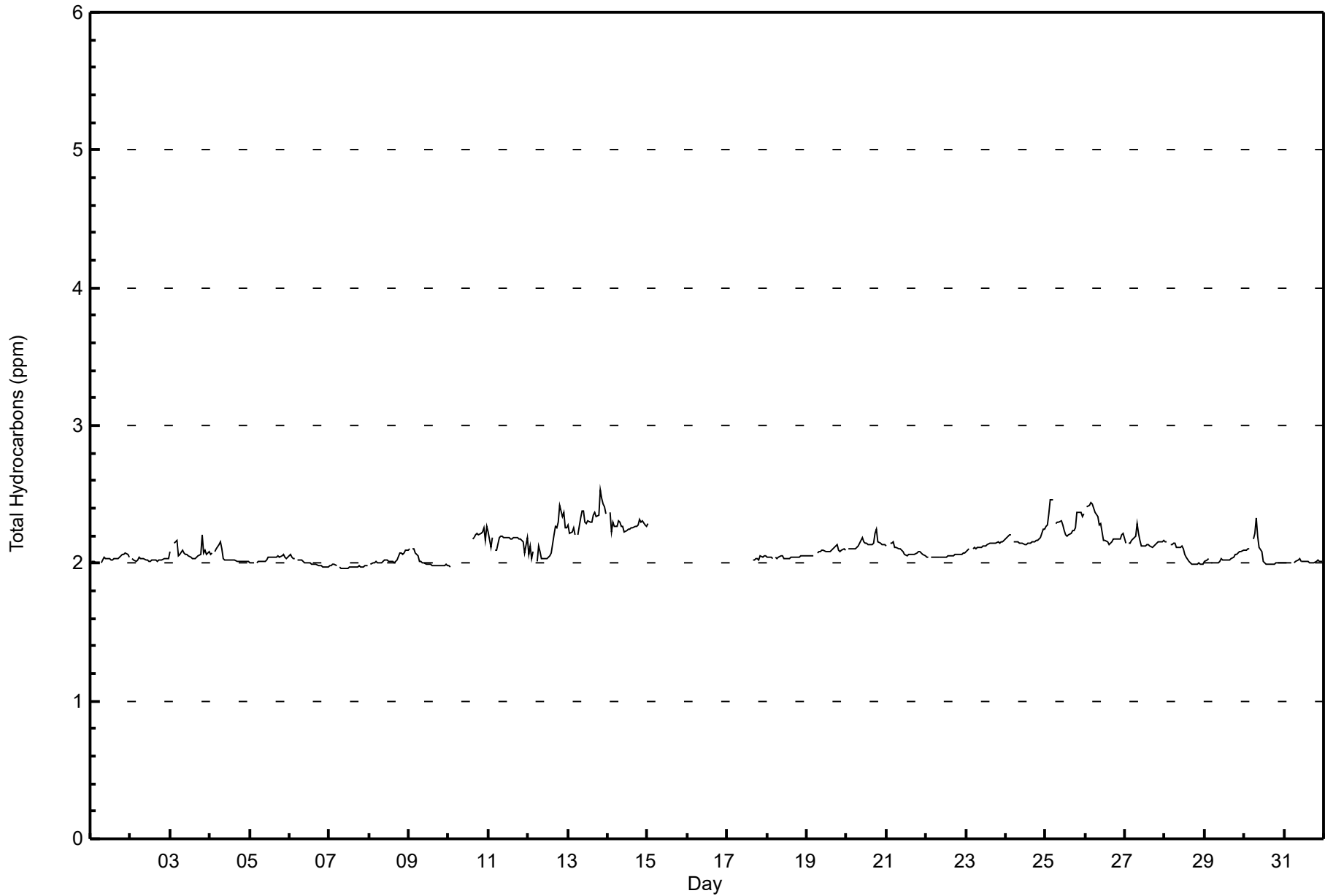








Maximum Value: 2.5 ppm on Jan 13 20:00		Maximum Daily Average: 2.3 ppm on Jan 13		Hours in Service: 744																																														
Minimum Value: 2.0 ppm on Jan 7 11:00		Minimum Daily Average: 2.0 ppm on Jan 7		Hours of Data: 643																																														
Maximum Diurnal Average: 2.1 ppm at hour 4		Minimum Diurnal Average: 2.1 ppm at hour 14		Hours of Missing Data: 101																																														
Monthly Average: 2.10 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> = 2.3 P <sub>99</sub> = 2.4		Hours of Calibration: 34																																														
				Percent Operational Time: 91.0																																														
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-Jan	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	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1																							
2-Jan	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																						
3-Jan	2.1	Z	2.1	2.2	2.2	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
4-Jan	2.1	2.1	Z	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	2.0	2.0	2.0	2.2																						
5-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1																						
6-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
7-Jan	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	2.0																						
8-Jan	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	2.1	2.1	2.1	2.1	2.1																						
9-Jan	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	2.0	2.0	2.0	2.1																						
10-Jan	2.0	2.0	Z	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	--	2.3																							
11-Jan	2.2	2.1	2.2	Z	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	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2																						
12-Jan	2.1	2.1	2.0	2.1	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.4	2.3	2.3	2.2	2.4																						
13-Jan	2.3	2.2	2.2	2.3	2.2	Z	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.5	2.5																						
14-Jan	Z	2.4	2.2	2.3	2.3	Z	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																						
15-Jan	2.3	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	AF	2.3																						
16-Jan	AF	AF	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	--																						
17-Jan	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1																						
18-Jan	2.0	2.0	2.0	2.0	Z	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
19-Jan	2.1	2.0	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																						
20-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
21-Jan	2.1	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	2.2																						
22-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
23-Jan	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	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
24-Jan	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	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	2.2	2.3	2.2	2.3	2.3																						
25-Jan	2.3	2.3	2.4	2.5	2.5	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	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.5	2.5																						
26-Jan	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	2.1	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																						
27-Jan	2.1	Z	2.1	2.1	2.2	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																						
28-Jan	2.2	2.2	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	2.1																						
29-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
30-Jan	2.1	2.1	2.1	2.1	Z	2.2	2.2	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	2.0	2.0	2.0	2.0	2.3																						
31-Jan	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	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	2.1	2.1	2.1	2.1	2.1	Diurnal Average
																								2.3	2.4	2.4	2.5	2.5	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				AF - Analyzer Failure				UO - Unstable Operation														





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

**Total Hydrocarbons (THC) - ppm**  
**Janvier - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	274	42.61	42.61
2.1 - 3.0	369	57.39	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 643

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Janvier - January 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	18	57	22	11	5	5	6	12	18	26	17	14	18	11	8	8	256
2.1 - 3.0	19	67	9	9	6	3	2	12	32	96	67	15	5	10	4	4	360
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>	37	124	31	20	11	8	8	24	50	122	84	29	23	21	12	12	616

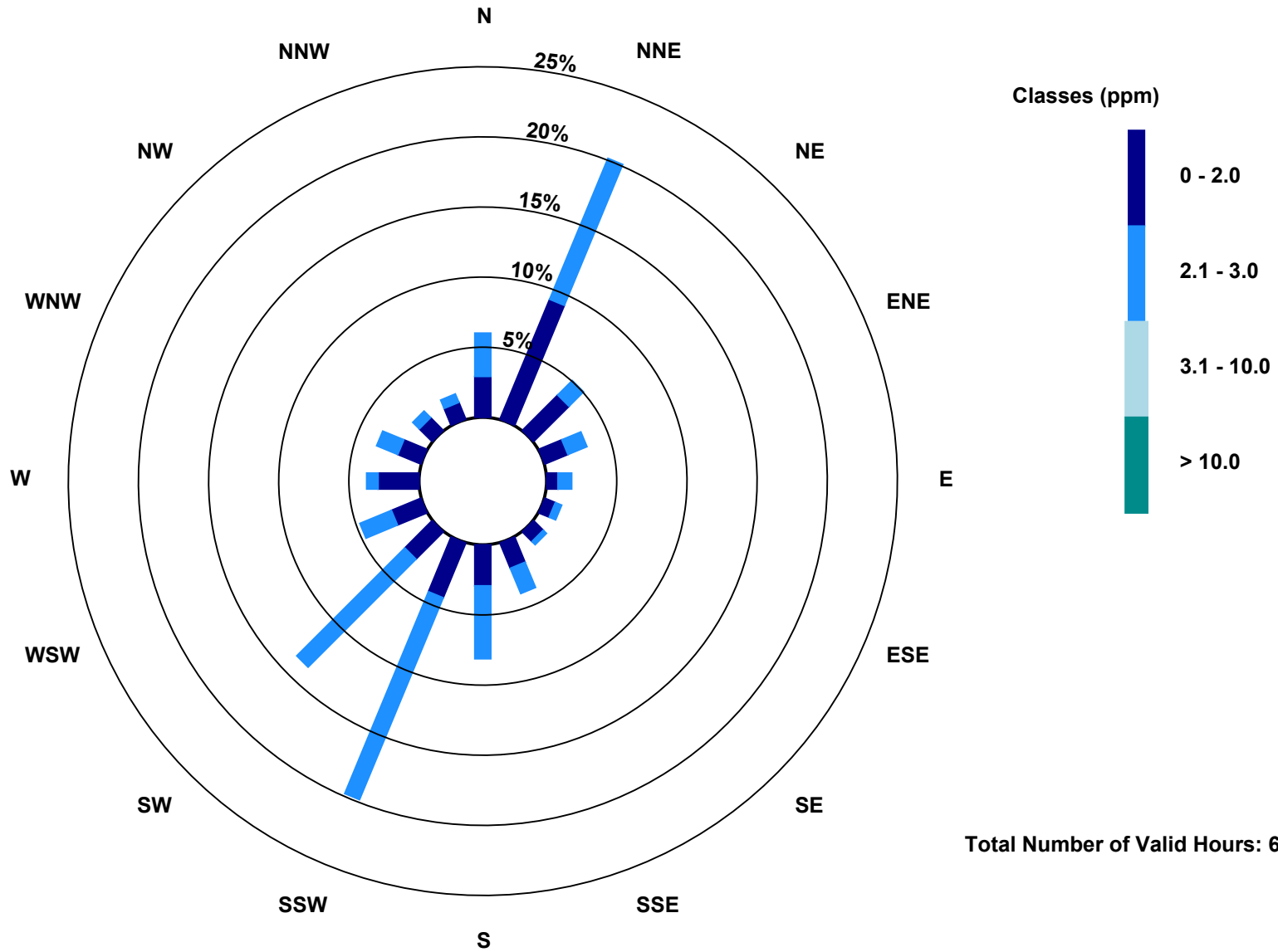
Total Number of Valid Hours: 616

Total Number of Hours: 744

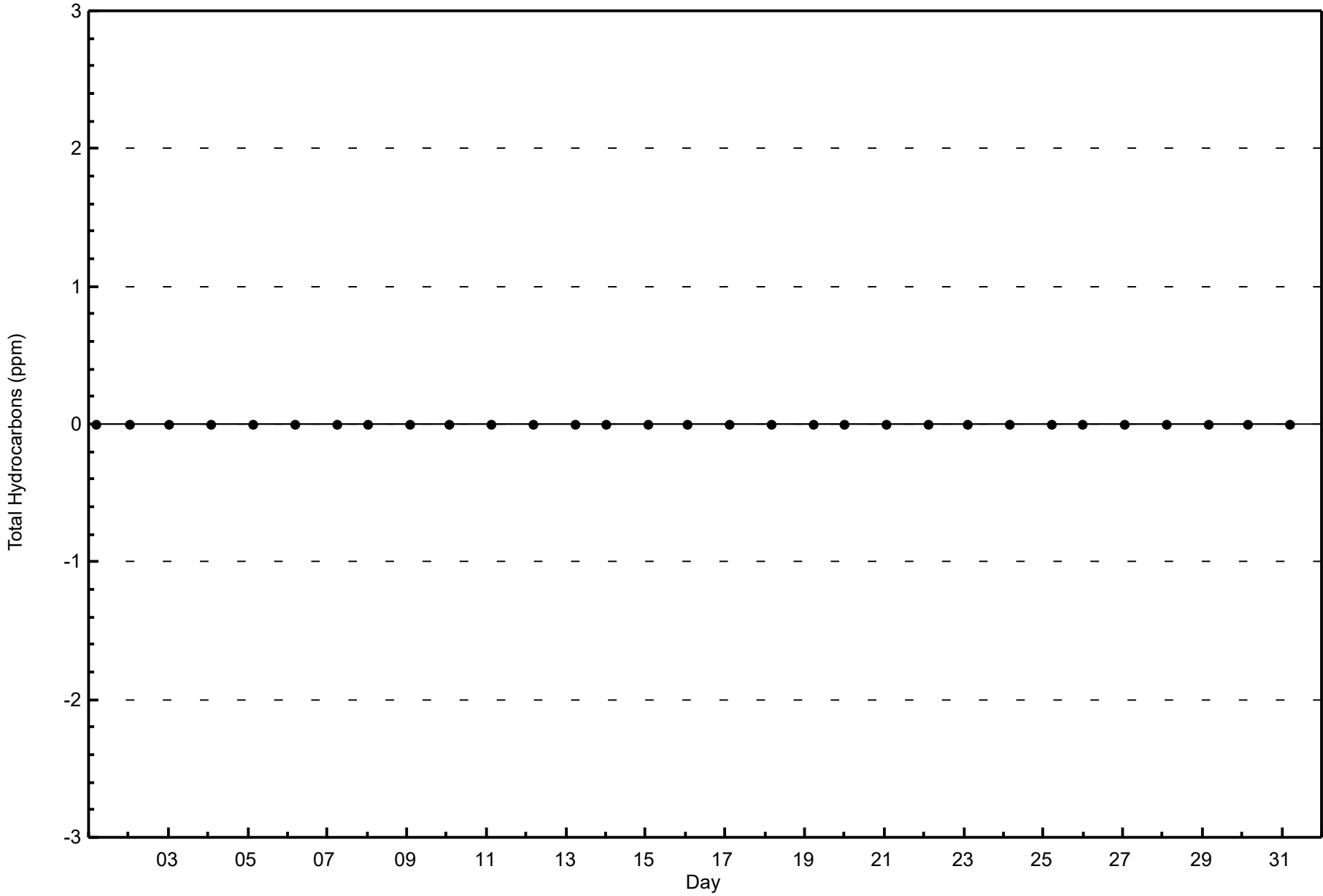


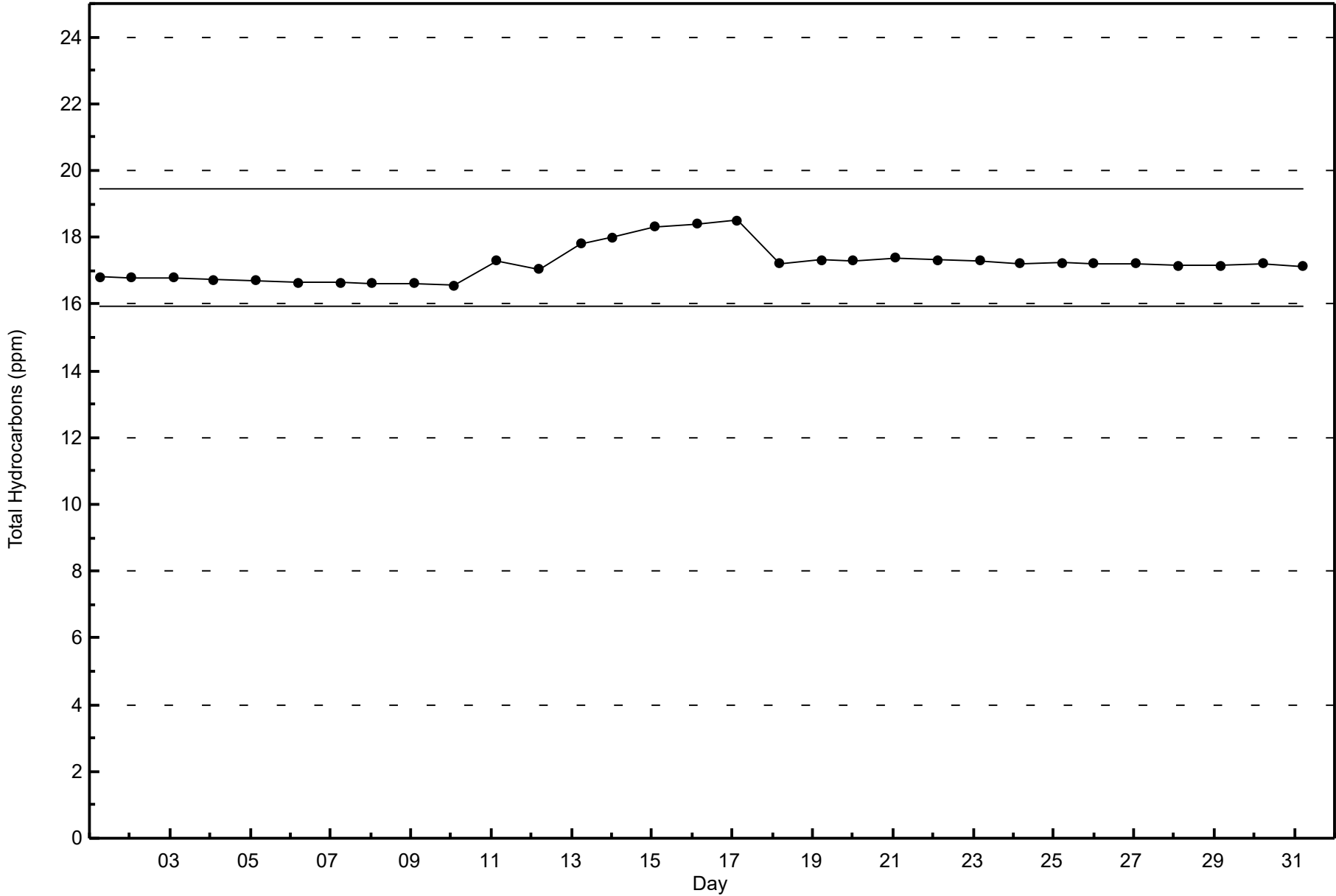
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Janvier



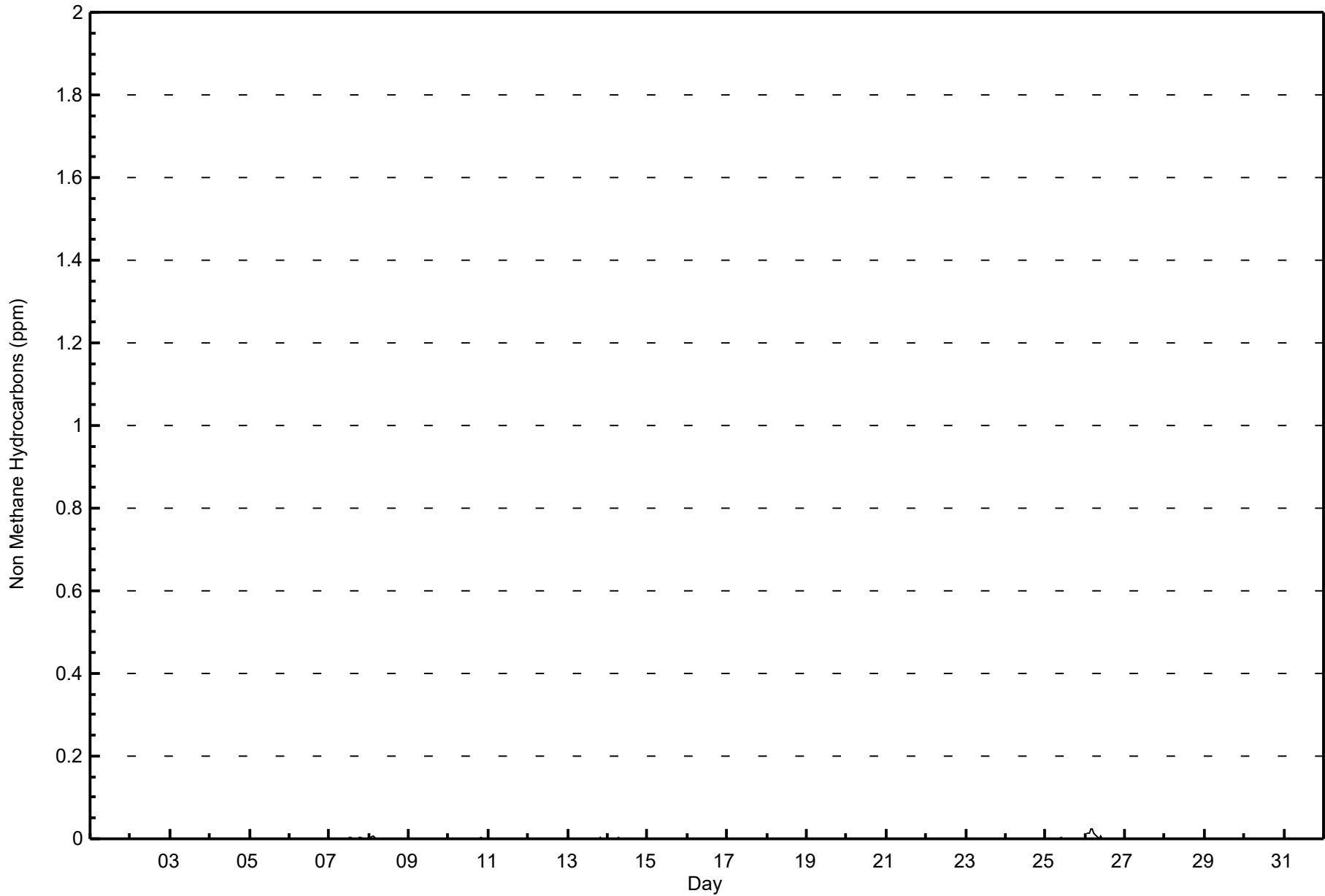
Total Number of Valid Hours: 616













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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	634	98.60	98.60
0.006 - 0.05	9	1.40	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 643

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Janvier - January 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	37	124	31	20	11	8	8	23	50	118	80	29	23	21	12	12	607
0.006 - 0.05	0	0	0	0	0	0	0	1	0	4	4	0	0	0	0	0	9
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>	37	124	31	20	11	8	8	24	50	122	84	29	23	21	12	12	616

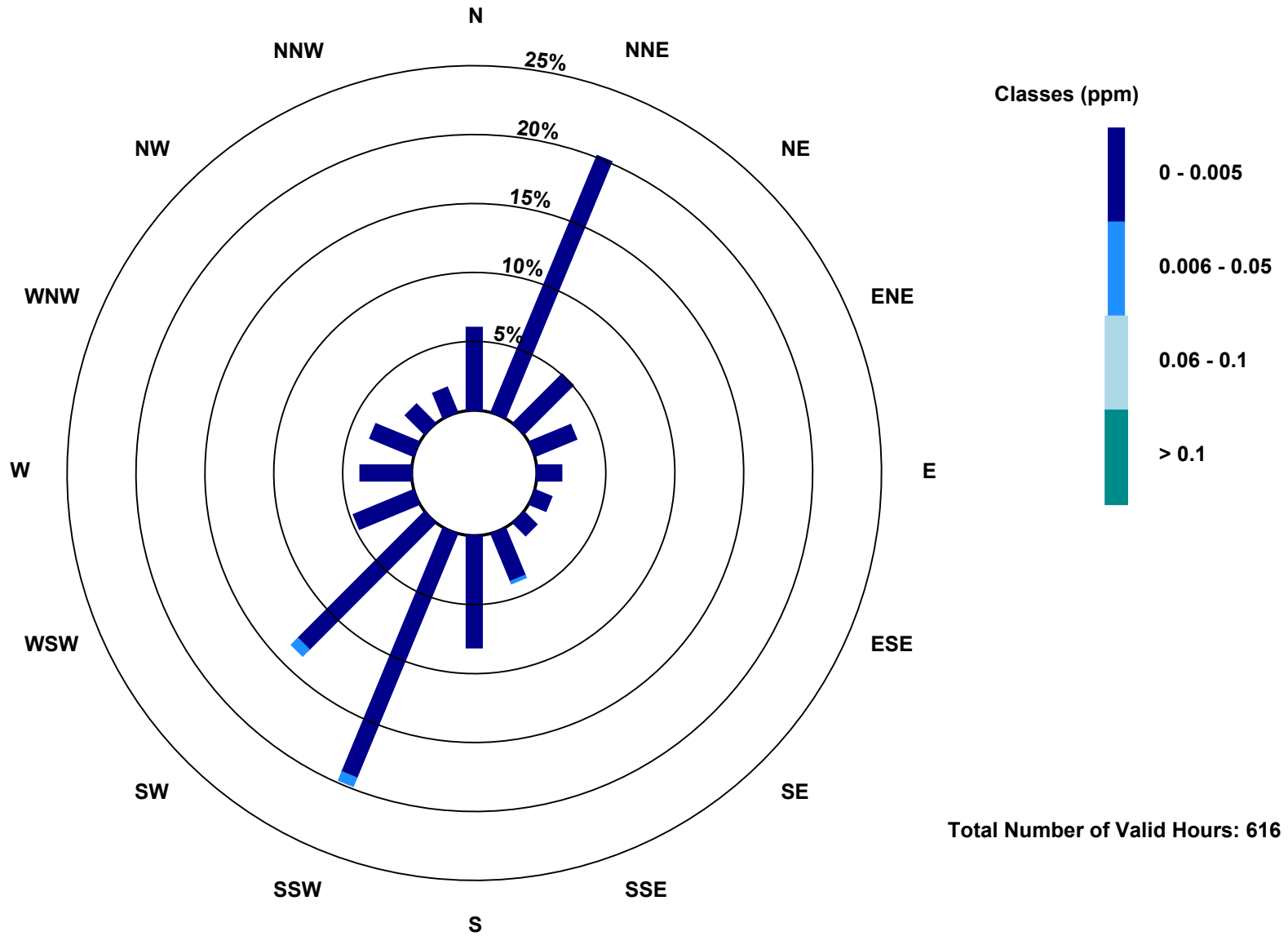
Total Number of Valid Hours: 616

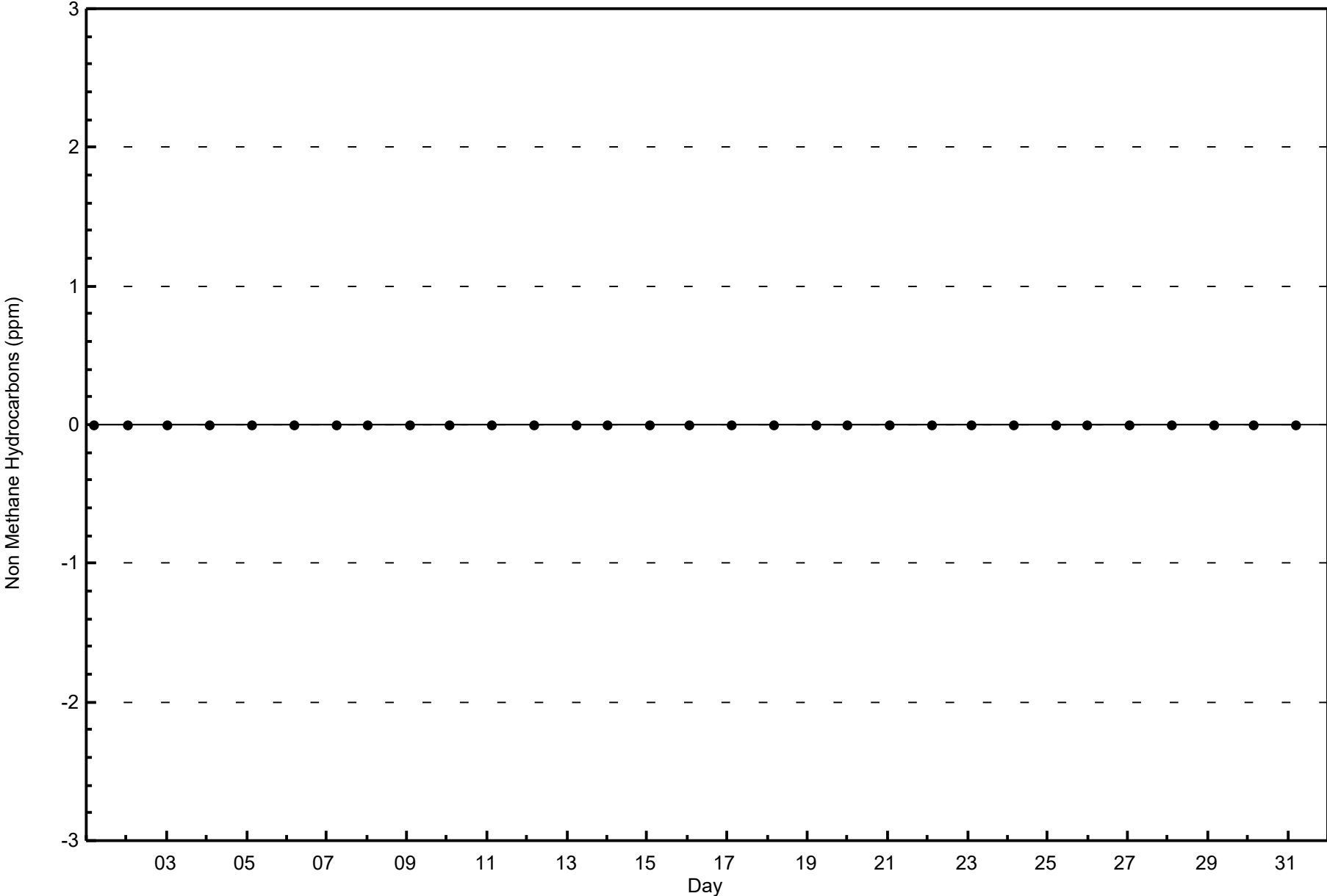
Total Number of Hours: 744

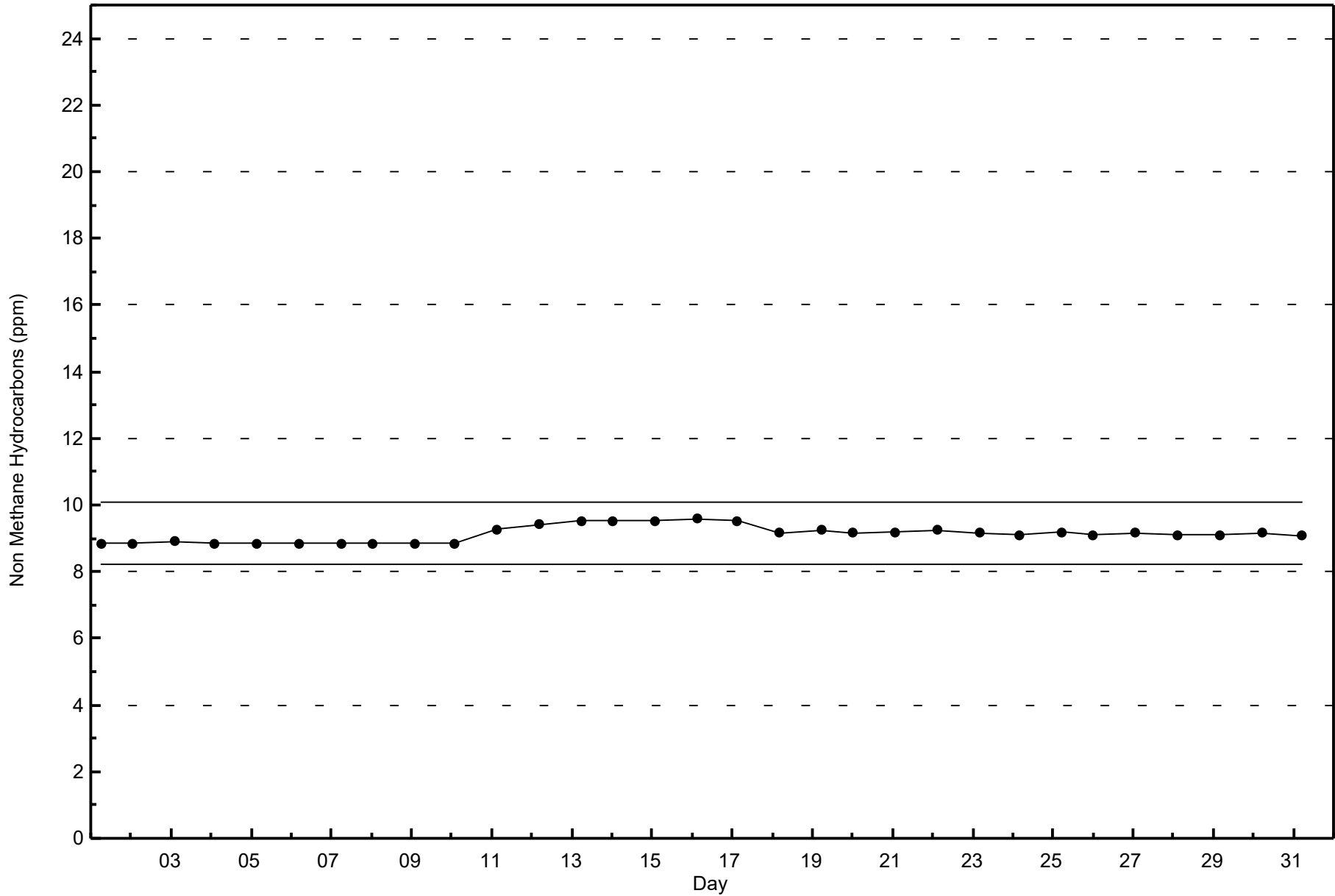


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Janvier









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

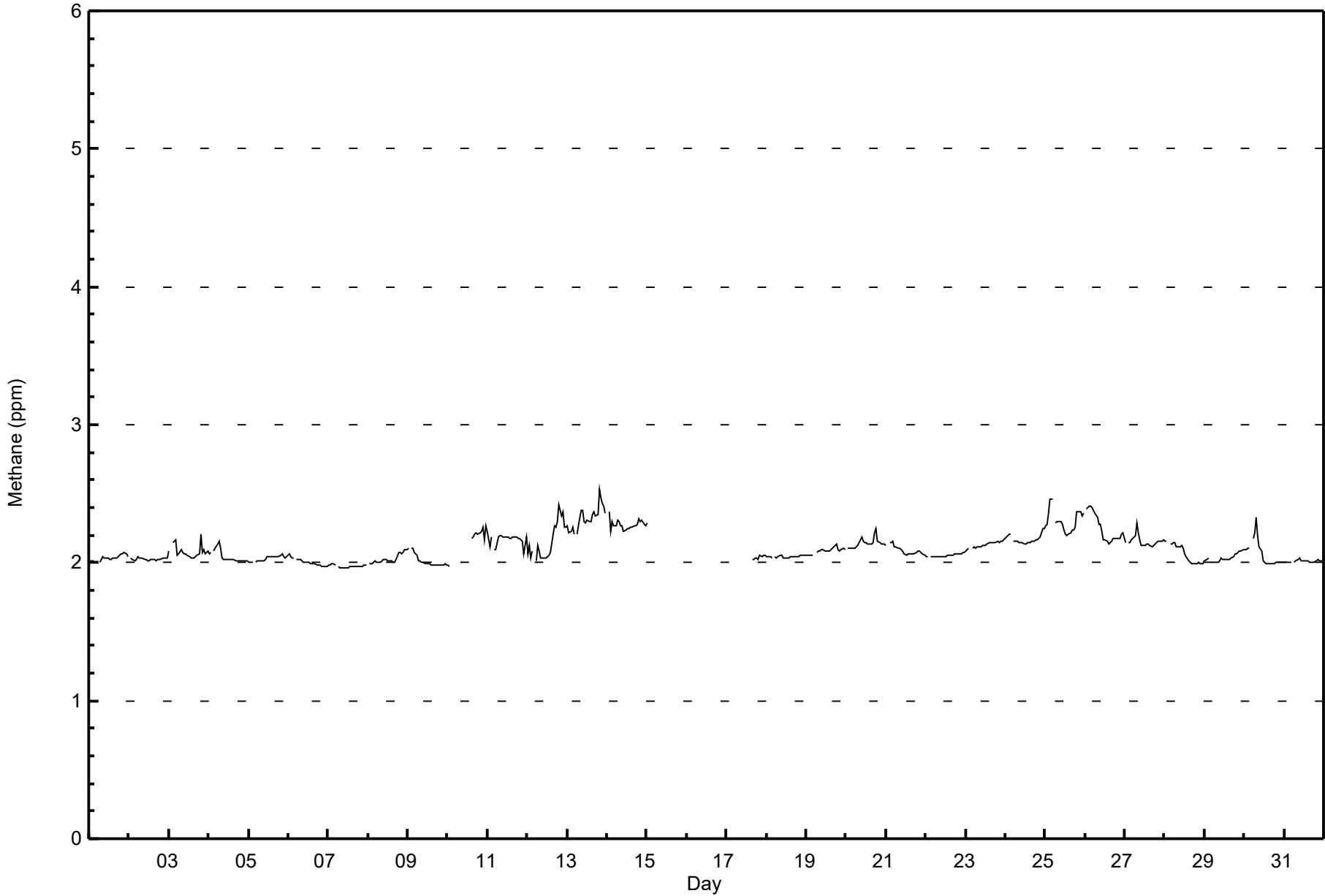
**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																											
Maximum Value: 2.5 ppm on Jan 13 20:00		Maximum Daily Average: 2.3 ppm on Jan 13		Minimum Value: 2.0 ppm on Jan 7 11:00		Minimum Daily Average: 2.0 ppm on Jan 7		Hours of Data: 643																																											
Maximum Diurnal Average: 2.1 ppm at hour 4		Minimum Diurnal Average: 2.1 ppm at hour 14		Hours of Missing Data: 101		Hours of Calibration: 34		Percent Operational Time: 91.0																																											
Monthly Average: 2.10 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> = 2.3 P <sub>99</sub> = 2.4		Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																											
1-Jan	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	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1																								
2-Jan	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																							
3-Jan	2.1	Z	2.1	2.2	2.2	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
4-Jan	2.1	2.1	Z	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	2.0	2.0	2.0	2.2																							
5-Jan	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	2.0	2.1	2.1																							
6-Jan	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
7-Jan	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	2.0																							
8-Jan	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	2.1	2.1	2.1	2.1	2.1																							
9-Jan	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	2.0	2.0	2.0	2.1																							
10-Jan	2.0	2.0	Z	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	--	2.3																								
11-Jan	2.2	2.1	2.2	Z	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	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2																							
12-Jan	2.1	2.1	2.0	2.1	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.3	2.2	2.4	2.4																							
13-Jan	2.3	2.2	2.2	2.3	2.2	Z	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.5	2.5	2.4	2.4	2.4	2.3	2.5	2.5																							
14-Jan	Z	2.4	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	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																							
15-Jan	2.3	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	AF	AF																							
16-Jan	AF	AF	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	AF																							
17-Jan	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	--	2.1																								
18-Jan	2.0	2.0	2.0	2.0	Z	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	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1																							
19-Jan	2.1	2.0	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																							
20-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
21-Jan	2.1	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	2.2																							
22-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
23-Jan	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	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.2																							
24-Jan	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	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	2.2	2.3	2.2	2.3	2.3																							
25-Jan	2.3	2.3	2.4	2.5	2.5	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	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.5	2.5																							
26-Jan	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	2.1	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																							
27-Jan	2.1	Z	2.1	2.1	2.2	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																							
28-Jan	2.2	2.2	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	2.1	2.2																							
29-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
30-Jan	2.1	2.1	2.1	2.1	Z	2.2	2.2	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	2.0	2.0	2.0	2.1	2.3																							
31-Jan	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	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	2.1	2.1	2.1	2.1	2.1	Diurnal Average	
																								2.3	2.4	2.4	2.5	2.5	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				AF - Analyzer Failure				UO - Unstable Operation															



Wood Buffalo Environmental Association  
Hourly Averages

Methane (CH<sub>4</sub>) - ppm  
Janvier - January 2024







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

**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	274	42.61	42.61
2.1 - 3.0	369	57.39	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 643

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Janvier - January 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	18	57	22	11	5	5	6	12	18	26	17	14	18	11	8	8	256
2.1 - 3.0	19	67	9	9	6	3	2	12	32	96	67	15	5	10	4	4	360
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>	37	124	31	20	11	8	8	24	50	122	84	29	23	21	12	12	616

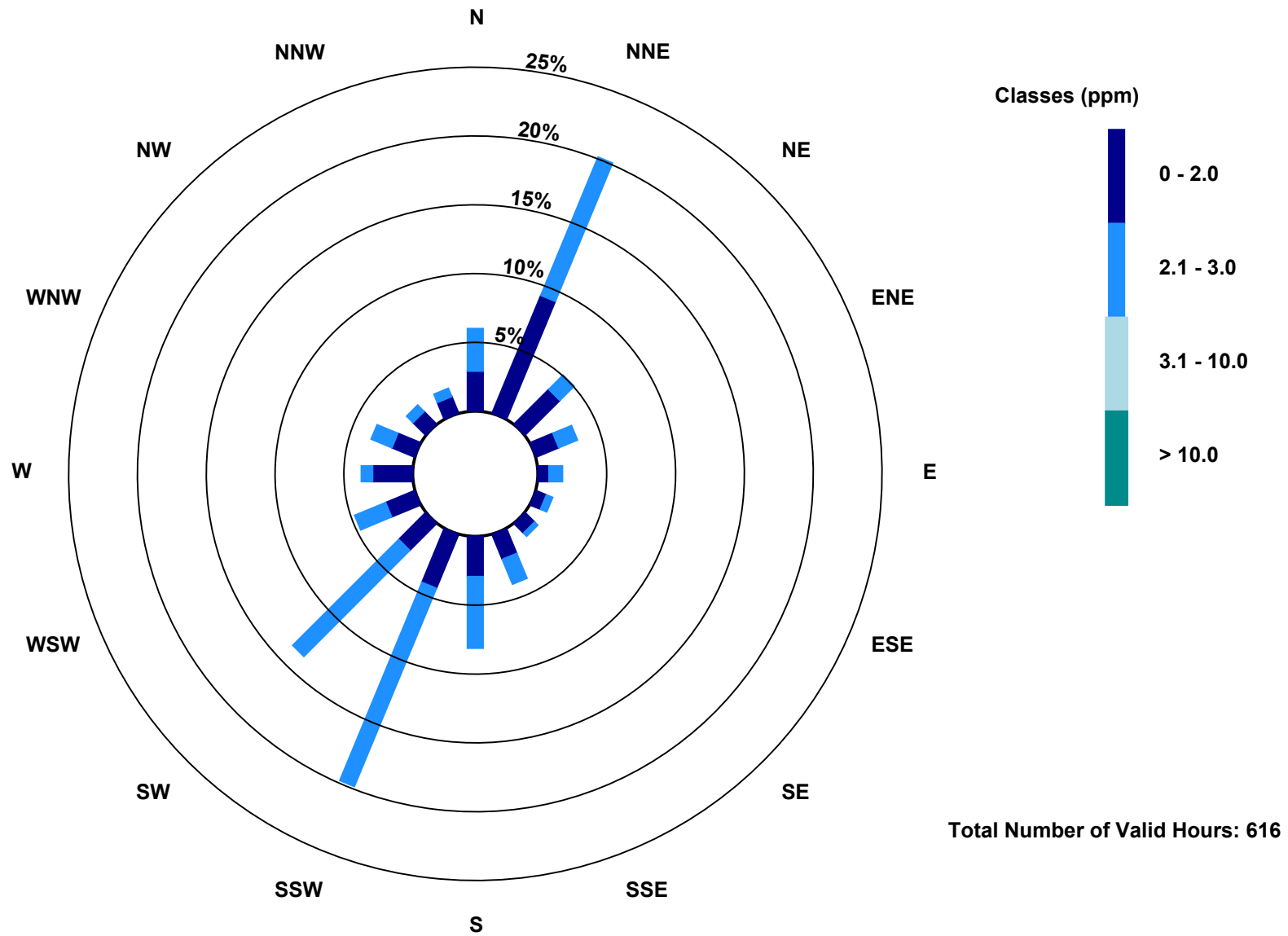
Total Number of Valid Hours: 616

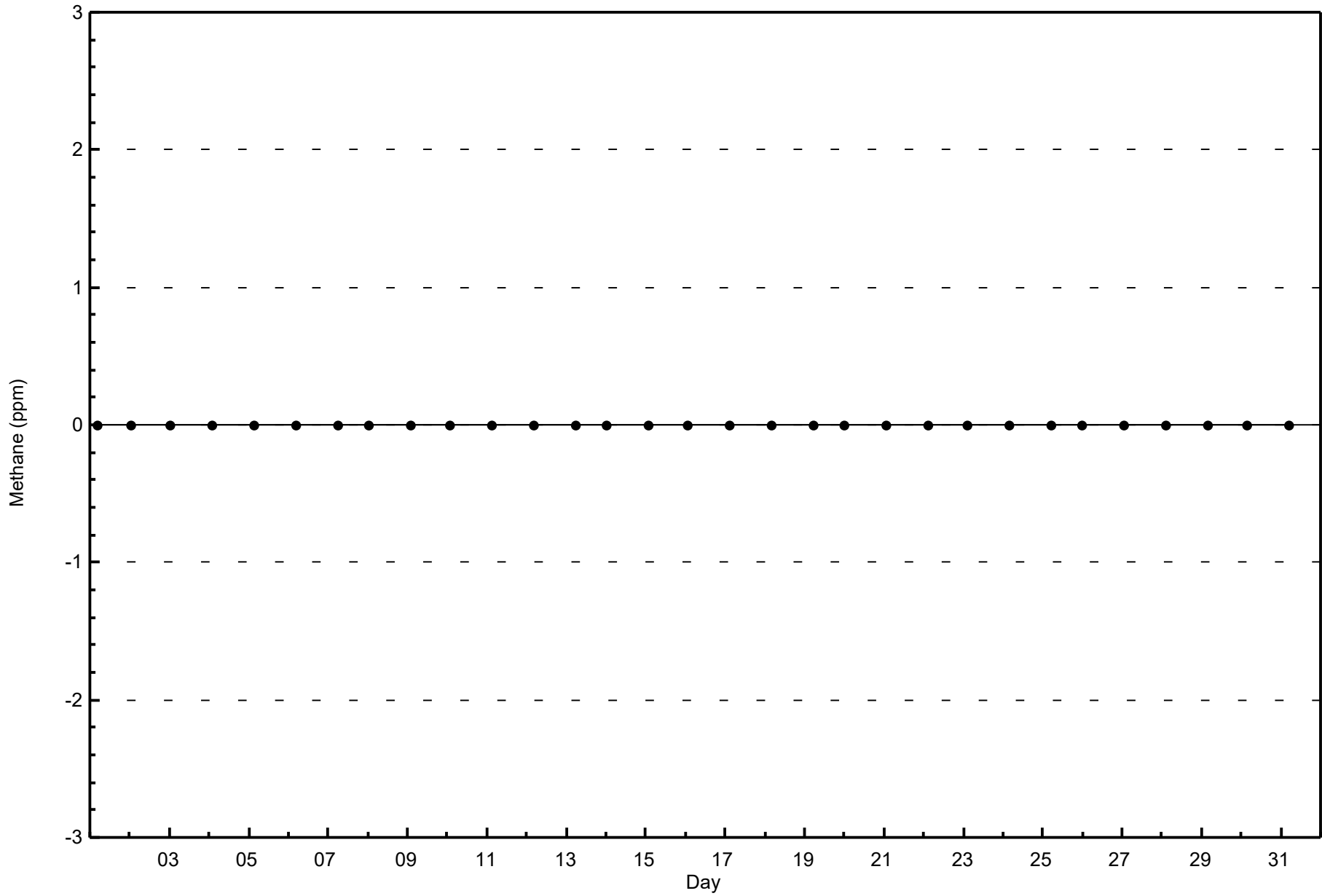
Total Number of Hours: 744

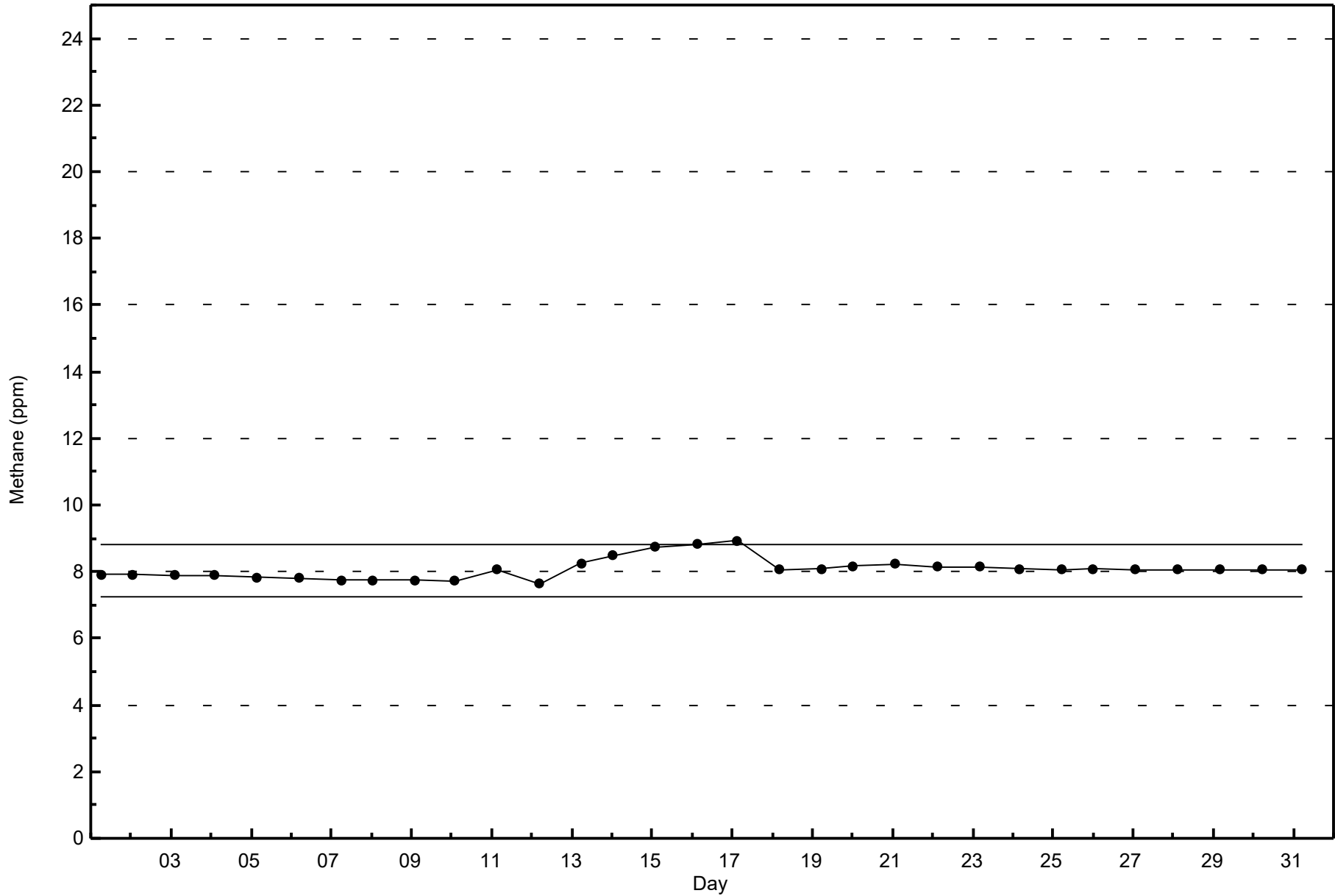


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

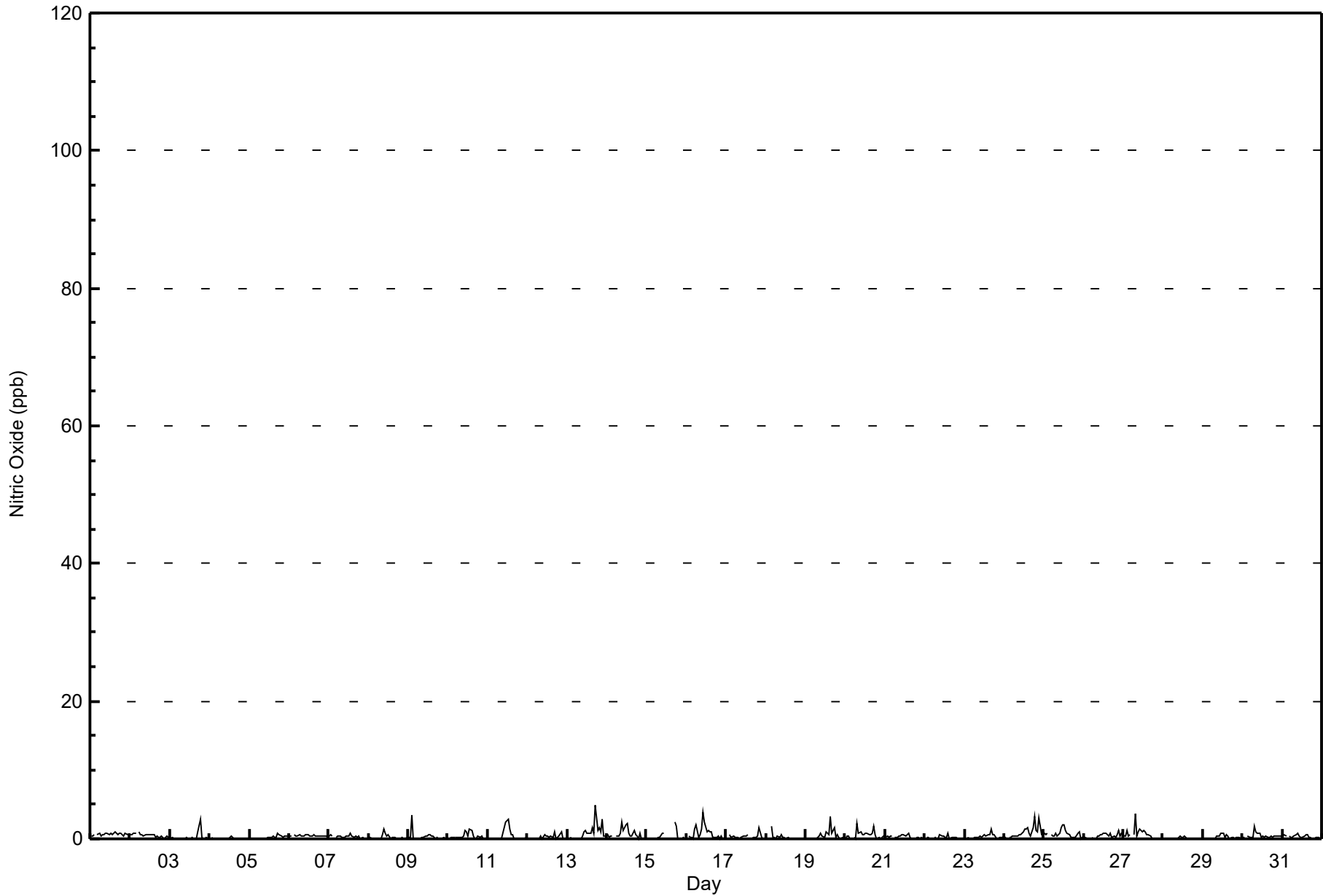
Nitric Oxide (NO) - ppb  
Janvier - January 2024

Maximum Value: 4.9 ppb on Jan 13 18:00		Maximum Daily Average: 0.9 ppb on Jan 24		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Jan 3 03:00		Minimum Daily Average: 0.1 ppb on Jan 4		Hours of Data: 706																							
Maximum Diurnal Average: 0.8 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 24		Hours of Missing Data: 38																							
Monthly Average: 0.42 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> = 0.5 P <sub>90</sub> = 0.9 P <sub>99</sub> = 2.9		Hours of Calibration: 37																							
				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-Jan	0.4	0.5	0.6	Z	0.5	0.7	0.5	0.5	0.7	0.8	0.8	0.5	0.8	0.7	0.7	0.9	0.7	0.7	0.9	0.6	0.4	0.7	0.6	0.6	0.7	0.9	
2-Jan	0.7	0.7	0.8	0.9	Z	0.9	0.7	0.5	0.5	0.5	0.5	0.7	0.5	0.5	0.6	0.2	0.4	0.3	0.3	0.4	0.0	0.1	0.4	0.2	0.5	0.9	
3-Jan	0.0	0.2	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.0	1.0	2.9	0.1	0.0	0.1	0.2	0.0	0.2	2.9	
4-Jan	Z	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
5-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.2	0.2	0.5	0.3	0.1	0.8	0.5	0.5	0.3	0.4	0.3	0.3	0.2	0.8
6-Jan	0.4	0.5	Z	0.5	0.5	0.5	0.7	0.4	0.4	0.4	0.5	0.7	0.4	0.5	0.5	0.6	0.4	0.3	0.3	0.3	0.5	0.5	0.3	0.2	0.4	0.7	
7-Jan	0.4	0.5	0.4	Z	0.1	0.3	0.4	0.3	0.2	0.2	0.4	0.3	0.4	0.7	0.4	0.3	0.4	0.3	0.3	0.0	0.3	0.0	0.1	0.1	0.3	0.7	
8-Jan	0.1	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.5	1.5	0.7	0.4	0.6	0.0	0.2	0.1	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.2	1.5	
9-Jan	0.1	0.1	3.4	0.0	0.0	Z	0.0	0.0	0.2	0.2	0.4	0.5	0.5	0.6	0.5	0.3	0.0	0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.3	3.4	
10-Jan	Z	0.1	0.1	0.3	0.2	0.1	0.1	0.2	0.2	0.5	1.2	1.0	0.5	1.4	1.2	0.3	0.0	0.0	0.4	0.2	0.3	0.0	0.0	0.0	0.4	1.4	
11-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.7	2.5	2.8	1.5	0.6	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.5	2.8	
12-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.7	0.4	0.5	0.3	0.3	0.1	1.0	0.0	0.3	0.4	1.0	0.0	0.0	0.0	0.2	1.0	
13-Jan	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.4	1.0	1.1	0.9	0.8	0.7	1.6	0.7	4.9	1.3	1.5	1.0	2.8	0.3	0.4	0.9	4.9	
14-Jan	0.5	0.3	0.4	0.3	Z	0.3	0.3	0.3	0.9	2.5	1.2	2.1	2.2	0.7	0.4	0.3	1.2	0.6	0.4	0.0	0.7	0.0	0.0	0.0	0.7	2.5	
15-Jan	0.0	0.0	0.0	0.1	0.0	Z	0.0	0.2	0.2	0.8	0.9	C	C	C	C	C	C	2.5	1.8	0.1	0.0	0.0	0.2	0.0	--	2.5	
16-Jan	Z	0.3	0.1	0.2	0.0	1.3	1.9	0.3	0.7	1.5	3.9	2.4	1.0	1.1	0.9	0.9	0.2	0.2	0.2	0.3	0.1	0.4	0.1	0.1	0.8	3.9	
17-Jan	0.3	Z	0.5	0.2	0.3	0.2	0.3	0.2	0.1	0.2	0.4	0.5	0.4	0.5	M	0.1	0.2	0.3	0.2	0.5	1.6	0.3	0.0	0.0	0.3	1.6	
18-Jan	0.2	0.0	Z	1.9	0.1	0.1	0.0	0.5	0.1	0.7	0.3	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	
19-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.7	0.4	0.2	1.0	0.7	0.7	3.3	0.8	1.7	0.2	0.7	0.3	0.0	0.1	0.0	0.5	3.3	
20-Jan	0.1	0.3	0.3	0.0	Z	0.2	0.0	2.3	0.9	0.9	0.6	0.6	0.8	0.7	0.5	0.5	0.9	1.9	0.6	0.1	0.3	0.1	0.2	0.3	0.6	2.3	
21-Jan	0.1	0.4	0.3	0.5	0.3	Z	0.3	0.2	0.4	0.4	0.7	0.6	0.5	0.6	0.9	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.3	0.9	
22-Jan	Z	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.5	0.4	0.4	0.3	0.2	0.8	0.0	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.1	0.2	0.8	
23-Jan	0.0	Z	0.2	0.0	0.0	0.0	0.2	0.1	0.2	0.4	0.2	0.3	0.5	0.3	0.7	0.5	1.4	0.6	0.7	0.1	0.0	0.2	0.2	0.3	0.3	1.4	
24-Jan	0.3	0.1	Z	0.2	0.3	0.4	0.3	0.4	0.5	0.6	0.7	1.0	1.4	1.4	1.6	0.8	0.4	1.6	3.3	1.2	0.9	3.0	0.6	0.6	0.9	3.3	
25-Jan	0.7	0.7	0.7	Z	0.6	0.4	0.5	0.8	0.5	0.9	1.5	2.0	2.0	1.1	0.8	0.6	0.3	0.2	0.3	0.3	0.8	1.0	0.1	0.2	0.7	2.0	
26-Jan	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.3	0.4	0.6	0.7	0.9	0.7	0.6	0.5	0.8	0.1	0.4	0.2	0.6	1.2	0.4	0.8	0.4	1.2	
27-Jan	0.4	0.4	1.1	0.5	0.6	Z	0.6	3.6	0.4	1.0	1.4	1.1	1.1	1.1	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.6	
28-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
29-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.5	0.8	0.7	0.3	0.7	0.4	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.2	0.8	
30-Jan	0.1	0.1	Z	0.5	0.3	0.2	0.2	1.8	1.0	0.8	0.8	0.2	0.3	0.3	0.3	0.3	0.2	0.5	0.3	0.5	0.4	0.3	0.4	0.4	0.5	1.8	
31-Jan	0.3	0.6	0.3	Z	0.4	0.3	0.3	0.4	0.5	0.8	0.5	0.3	0.1	0.5	0.7	0.6	0.2	0.2	0.0	0.0	0.2	0.1	0.3	0.0	0.3	0.8	
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											



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

**Nitric Oxide (NO) - ppb**  
**Janvier - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Janvier - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	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: 706

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Janvier - January 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	54	126	32	20	12	7	8	24	52	142	89	28	23	33	15	14	679
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>	54	126	32	20	12	7	8	24	52	142	89	28	23	33	15	14	679

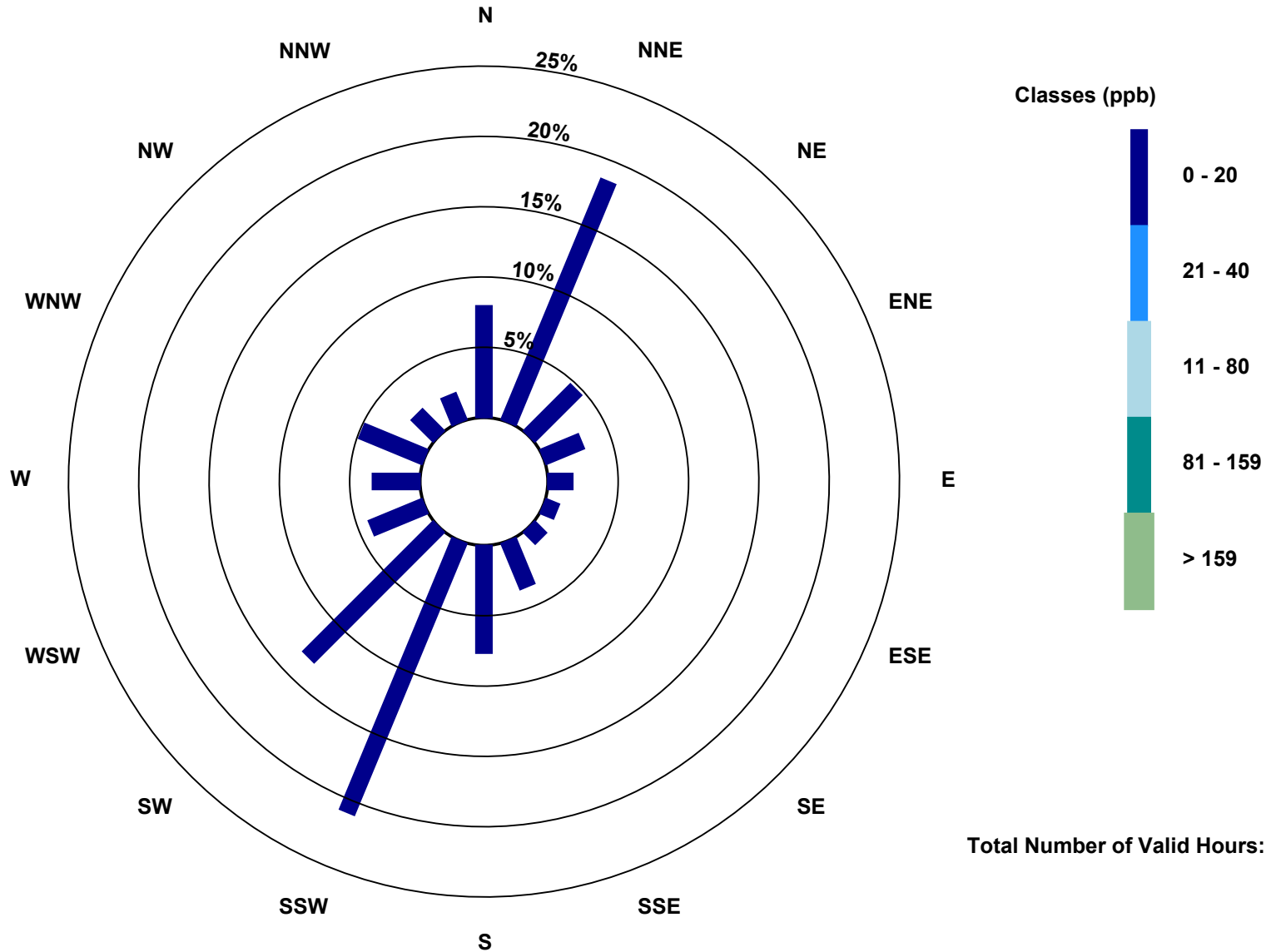
Total Number of Valid Hours: 679

Total Number of Hours: 744

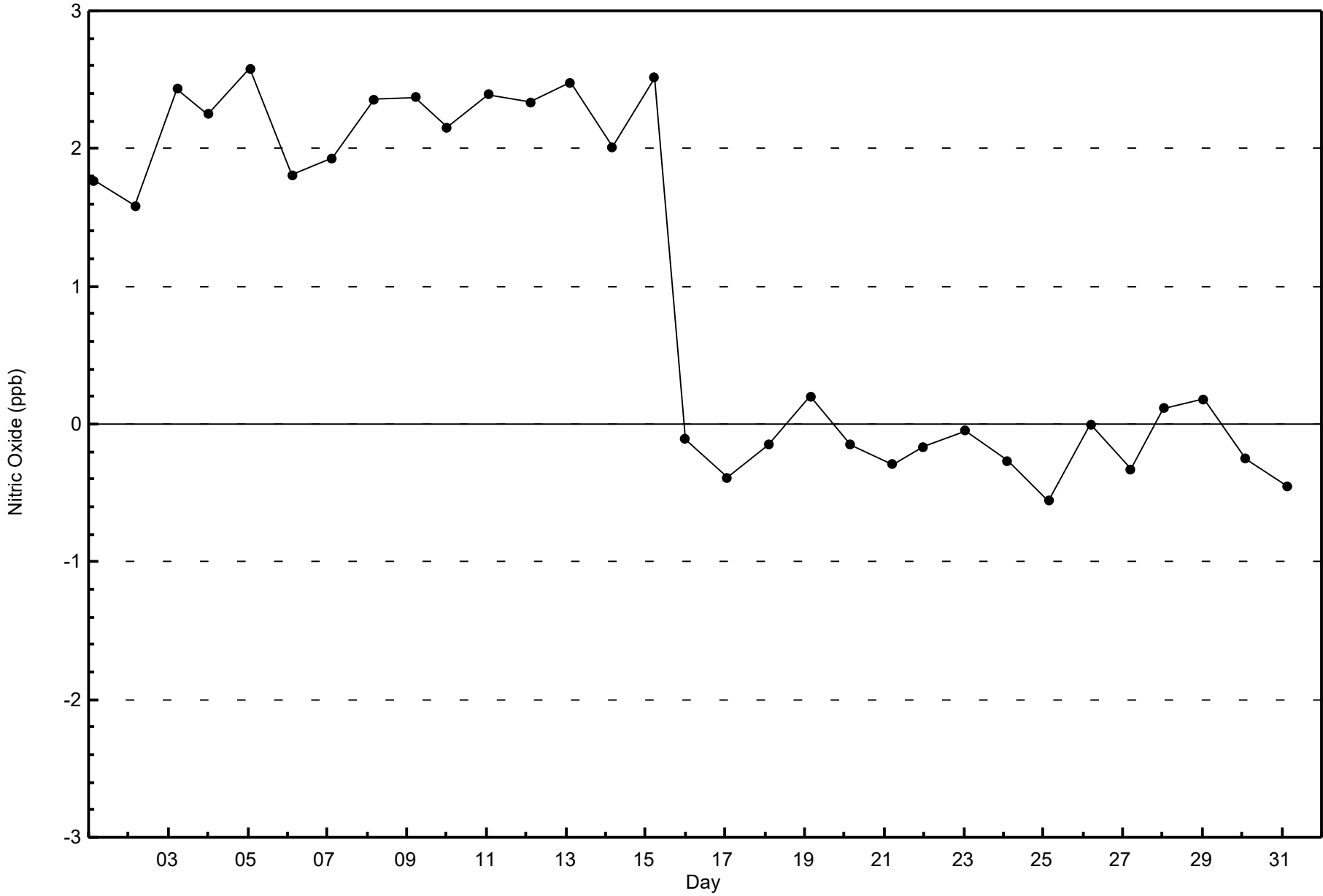


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Janvier



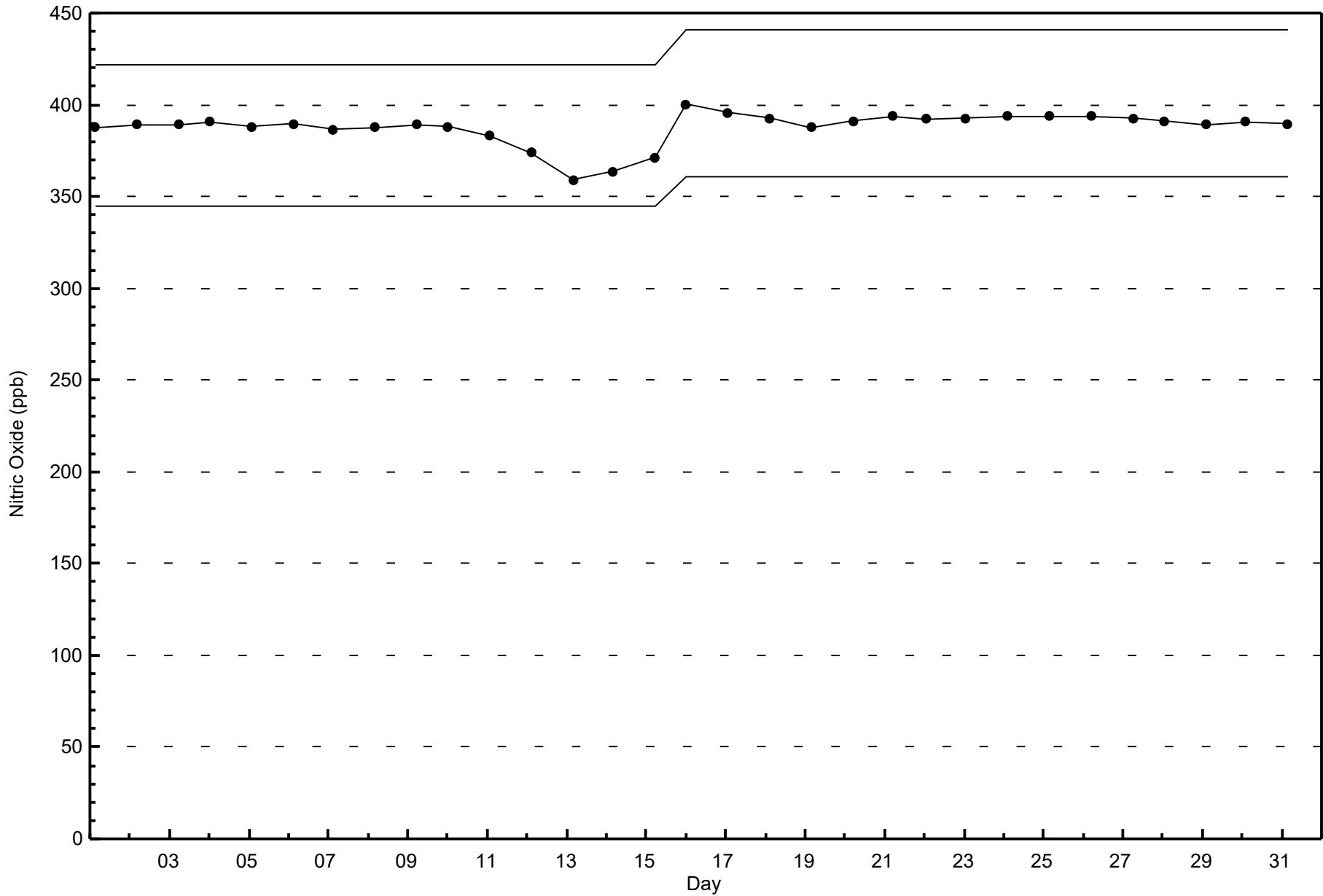
Total Number of Valid Hours: 679





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Janvier - January 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Janvier - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 19.1 ppb on Jan 21 02:00	Maximum Daily Average: 6.2 ppb on Jan 24		Hours of Data:	706
Minimum Value: 0.0 ppb on Jan 28 19:00	Minimum Daily Average: 0.7 ppb on Jan 6		Hours of Missing Data:	38
Maximum Diurnal Average: 4.0 ppb at hour 2	Minimum Diurnal Average: 2.0 ppb at hour 13		Hours of Calibration:	37
Monthly Average: 3.05 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.2 Median = 2.4 Q <sub>3</sub> = 4.2 P <sub>90</sub> = 6.3 P <sub>99</sub> = 12.1		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-Jan	0.2	0.8	0.4	Z	0.6	0.3	0.1	1.9	3.3	3.8	3.9	2.9	1.9	2.5	3.0	3.1	3.1	5.4	6.4	5.6	5.2	6.8	4.9	2.4	3.0	6.8
2-Jan	1.2	2.0	1.2	0.6	Z	4.1	3.1	2.4	2.9	2.2	1.5	1.7	1.3	1.3	1.4	1.2	1.5	1.2	1.4	1.5	1.0	1.1	1.5	1.6	1.7	4.1
3-Jan	1.2	1.3	1.0	0.9	0.7	Z	1.3	1.3	1.1	1.1	1.5	0.9	0.5	0.6	0.9	1.0	1.2	3.5	4.1	1.9	2.2	1.6	1.5	1.6	1.4	4.1
4-Jan	Z	1.7	1.9	2.1	5.2	11.9	14.0	10.9	3.2	2.7	2.6	2.4	2.7	3.3	3.3	3.0	2.4	2.0	1.1	0.4	0.3	0.3	0.5	0.3	3.4	14.0
5-Jan	0.2	Z	0.6	0.4	0.4	0.5	0.4	0.6	0.6	1.2	1.2	1.4	1.5	1.6	1.7	2.0	2.2	4.4	2.9	2.7	3.3	2.3	2.2	2.3	1.6	4.4
6-Jan	2.3	1.5	Z	1.8	1.5	1.4	1.1	1.3	0.9	0.4	0.3	0.3	0.3	0.4	0.1	0.3	0.3	0.3	0.6	0.1	0.2	0.1	0.1	0.4	0.7	2.3
7-Jan	0.3	1.0	3.0	Z	2.2	1.6	0.7	0.2	0.4	0.6	0.3	0.3	0.5	0.5	0.6	0.6	0.9	0.5	0.8	0.2	0.4	0.2	0.9	1.3	0.8	3.0
8-Jan	2.0	2.8	2.8	2.3	Z	2.6	3.2	3.0	3.7	4.4	3.9	2.6	1.9	1.3	1.3	1.4	2.4	4.3	9.9	10.6	9.7	9.0	9.4	10.9	4.6	10.9
9-Jan	12.1	12.0	13.2	9.9	7.2	Z	2.3	2.3	2.2	2.0	1.7	2.2	1.6	1.7	1.3	1.7	1.8	1.2	0.9	0.8	0.9	1.2	2.6	0.7	3.6	13.2
10-Jan	Z	0.9	1.0	2.2	3.4	5.2	6.5	7.2	5.4	5.3	4.9	2.8	1.5	4.3	5.1	6.2	6.3	6.1	8.5	7.1	6.8	8.3	9.9	15.1	5.7	15.1
11-Jan	11.2	Z	4.7	4.2	3.6	4.7	6.2	7.8	7.9	7.1	6.4	6.0	5.6	4.4	3.9	5.1	6.4	5.0	5.1	6.6	6.8	5.7	8.9	9.5	6.2	11.2
12-Jan	7.6	5.8	Z	3.7	2.2	2.5	1.7	1.3	1.4	1.5	1.4	1.3	1.1	1.2	1.4	1.5	2.4	1.3	1.8	2.5	3.4	1.6	2.2	1.2	2.3	7.6
13-Jan	2.1	2.3	2.0	Z	2.0	2.2	2.5	2.0	2.2	2.6	1.7	1.5	1.2	1.5	1.7	4.0	2.6	3.9	3.1	3.2	3.1	4.7	2.1	1.6	2.4	4.7
14-Jan	2.3	2.1	2.4	2.8	Z	3.1	2.6	2.8	2.6	3.9	2.8	3.3	3.5	1.8	1.7	2.2	2.7	2.9	2.2	2.0	3.7	2.4	1.7	1.6	2.6	3.9
15-Jan	1.2	1.3	1.3	1.5	1.1	Z	1.6	1.7	1.5	1.4	1.5	C	C	C	C	C	C	8.8	8.9	6.7	5.6	5.2	5.0	5.0	--	8.9
16-Jan	Z	5.6	5.1	5.0	4.7	8.0	7.7	4.3	5.3	5.1	5.5	3.7	3.1	3.3	3.4	5.2	4.7	3.6	1.6	1.0	1.1	1.2	1.1	0.9	3.9	8.0
17-Jan	0.9	Z	1.1	0.9	1.1	0.8	0.9	1.9	2.2	2.1	1.2	1.3	0.8	0.9	M	0.4	0.9	1.6	1.9	2.1	7.6	4.9	4.9	4.3	2.0	7.6
18-Jan	4.1	4.3	Z	5.8	4.4	3.9	5.0	5.2	4.9	3.5	1.5	1.1	0.9	1.1	0.9	1.2	0.7	0.6	0.8	1.1	1.0	0.7	0.6	0.9	2.4	5.8
19-Jan	0.7	0.5	0.2	Z	1.1	1.4	1.2	2.8	2.4	2.8	1.7	1.1	1.7	1.8	2.2	9.3	3.9	5.3	6.2	5.0	4.7	4.8	5.1	3.7	3.0	9.3
20-Jan	3.2	3.8	2.8	2.5	Z	3.3	2.9	5.2	4.9	2.8	2.0	2.0	2.3	2.7	2.6	2.9	3.7	5.4	5.0	4.0	3.2	2.3	2.7	3.8	3.3	5.4
21-Jan	7.4	19.1	13.1	11.8	9.3	Z	5.4	7.6	7.6	6.8	4.1	1.9	1.7	1.8	2.6	2.8	2.8	3.4	4.1	6.1	5.9	4.8	2.8	2.1	5.9	19.1
22-Jan	Z	0.9	0.6	0.8	0.5	0.4	0.3	0.3	0.3	0.8	0.4	0.7	0.3	0.6	1.0	0.5	0.5	0.7	1.5	2.0	2.3	1.6	1.6	1.6	0.9	2.3
23-Jan	1.9	Z	2.6	2.7	1.9	1.9	1.6	1.8	1.6	1.9	1.6	1.5	1.6	1.6	2.1	3.0	4.8	4.0	4.5	3.6	2.4	2.6	5.5	5.4	2.7	5.5
24-Jan	8.9	13.7	Z	12.9	11.0	6.7	6.4	6.4	3.5	2.6	2.5	2.6	3.5	3.9	4.1	4.3	4.8	5.7	6.5	8.5	6.3	7.3	6.3	5.3	6.2	13.7
25-Jan	5.1	5.8	5.0	Z	4.2	3.9	3.6	5.1	5.0	5.5	6.1	6.6	5.6	4.5	4.4	4.5	4.7	4.6	5.6	9.2	10.2	8.6	5.8	4.7	5.6	10.2
26-Jan	5.3	6.1	6.4	6.2	Z	6.2	5.8	5.9	6.0	5.1	4.7	3.6	3.7	3.6	3.3	3.4	4.3	4.1	4.1	3.7	3.5	3.0	2.4	2.6	4.5	6.4
27-Jan	2.5	2.8	4.6	4.2	5.5	Z	8.5	8.8	6.7	6.4	4.8	3.3	3.4	3.7	4.0	3.9	4.2	3.8	3.7	3.7	3.4	3.4	3.7	3.5	4.5	8.8
28-Jan	Z	3.5	3.0	2.7	2.6	2.8	3.2	3.9	2.8	2.9	2.6	2.6	1.8	1.7	1.1	0.5	0.1	0.5	0.0	0.5	0.6	0.3	0.0	0.1	1.7	3.9
29-Jan	0.0	Z	1.2	0.5	0.5	0.0	0.5	1.1	2.2	1.5	1.4	2.6	2.9	1.8	2.0	1.8	2.2	2.9	3.0	2.6	2.7	2.8	2.9	3.0	1.8	3.0
30-Jan	2.9	3.0	Z	3.7	3.2	2.8	2.7	4.2	5.1	5.6	4.1	1.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	5.6
31-Jan	0.0	0.1	0.0	Z	0.8	0.6	0.4	0.9	1.5	1.5	1.1	0.4	0.5	1.2	2.8	2.2	0.6	1.1	0.7	1.1	1.2	0.7	1.9	0.5	0.9	2.8

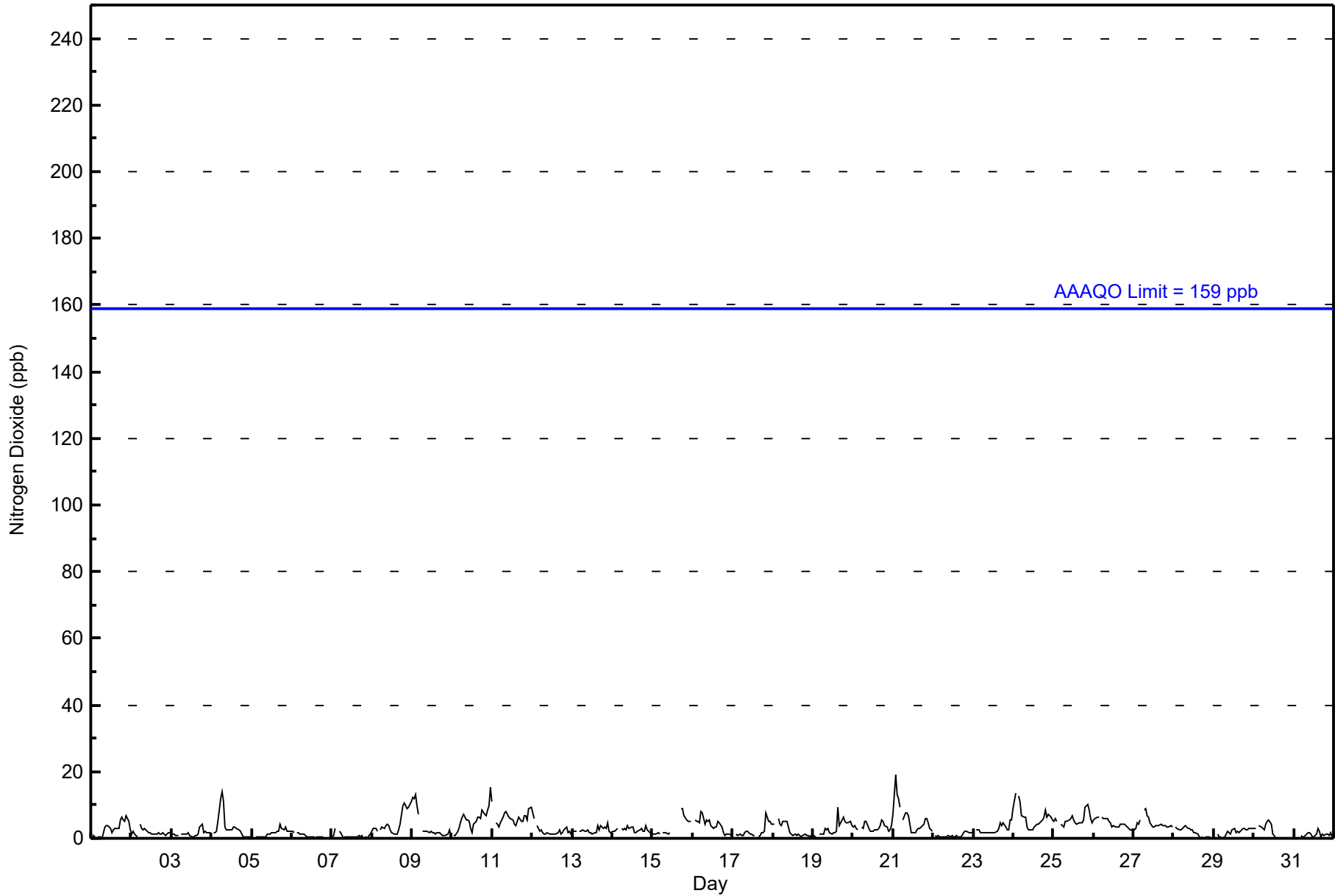
3.3	4.0	3.1	3.7	3.1	3.2	3.3	3.6	3.3	3.1	2.6	2.2	2.0	2.0	2.2	2.6	2.6	2.6	3.2	3.4	3.4	3.5	3.2	3.2	3.2	Diurnal Average	
12.1	19.1	13.2	12.9	11.0	11.9	14.0	10.9	7.9	7.1	6.4	6.6	5.6	4.5	5.1	9.3	6.4	8.8	9.9	10.6	10.2	9.0	9.9	15.1	Diurnal Maximum		

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  
Janvier - January 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Janvier - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Janvier - January 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	54	126	32	20	12	7	8	24	52	142	89	28	23	33	15	14	679
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>	54	126	32	20	12	7	8	24	52	142	89	28	23	33	15	14	679

Total Number of Valid Hours: 679

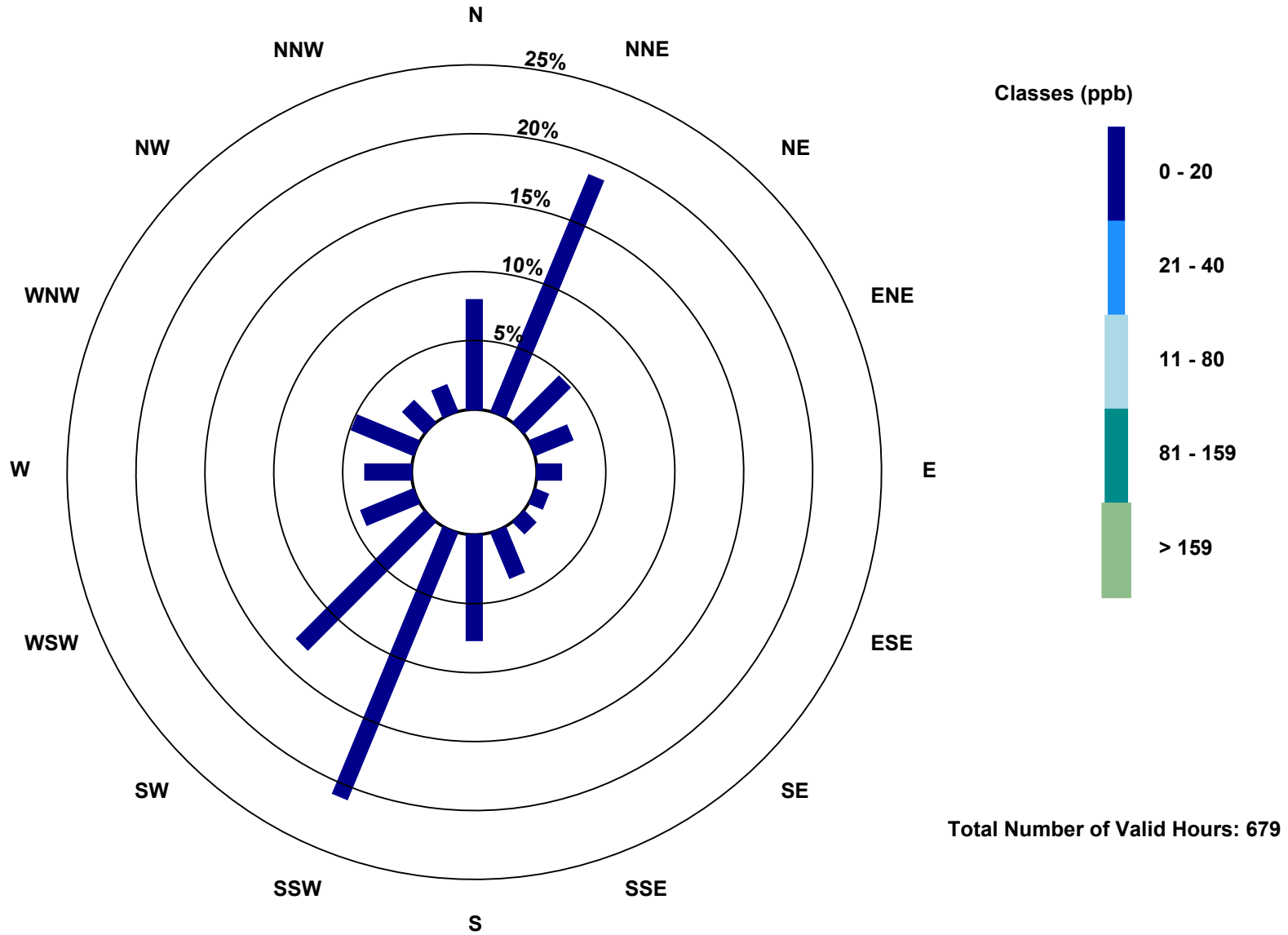
Total Number of Hours: 744

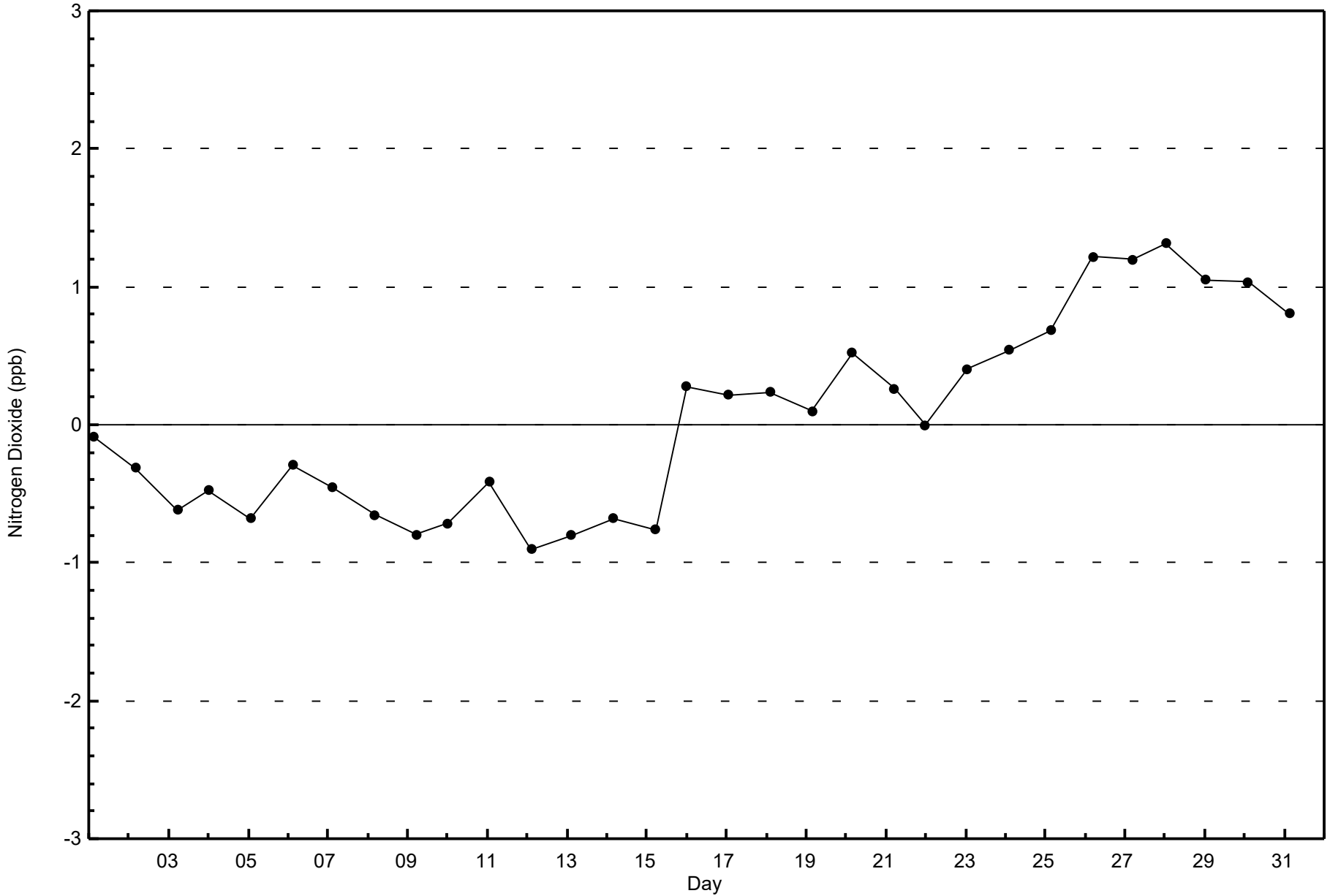


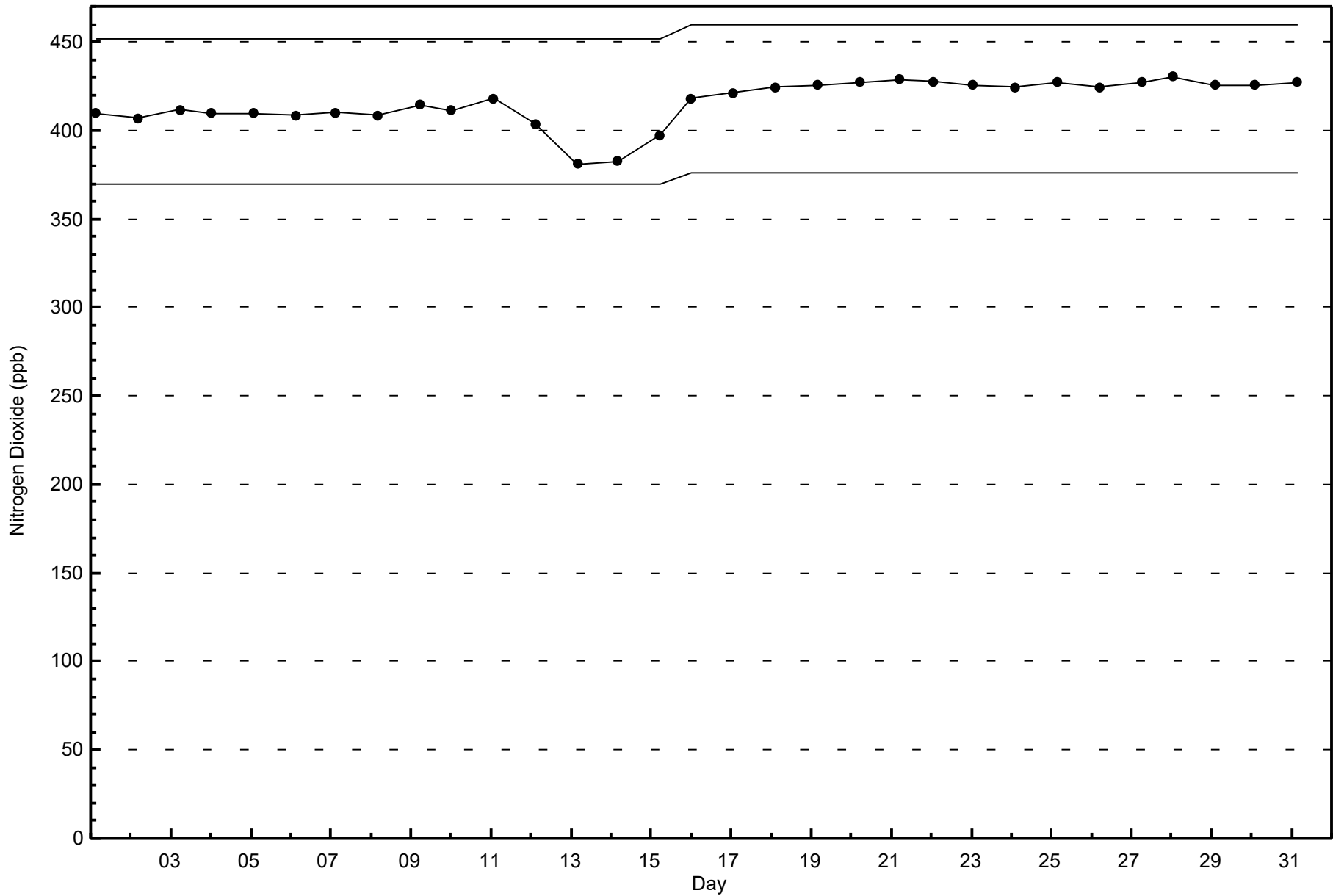


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









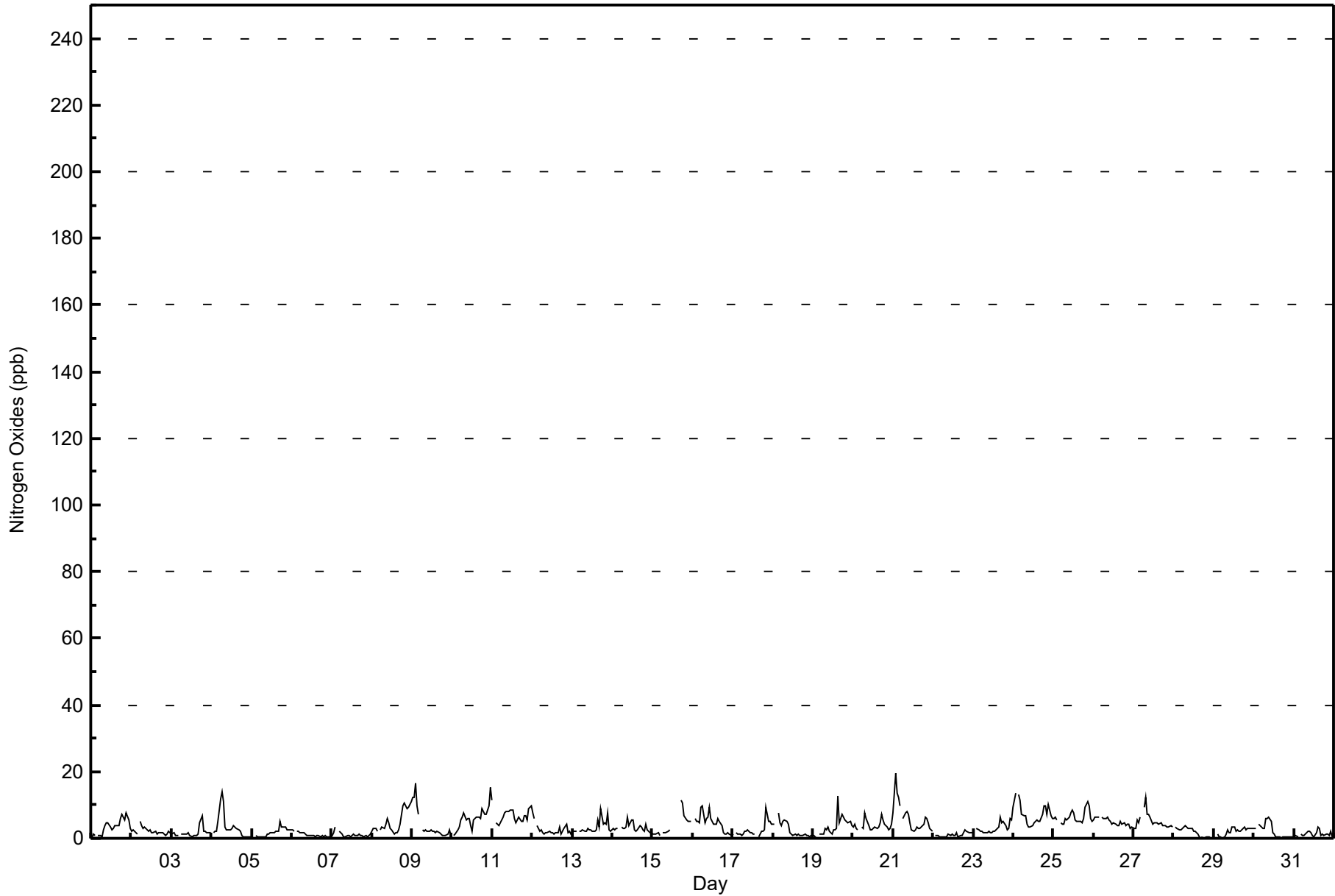
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Janvier - January 2024

Maximum Value: 19.5 ppb on Jan 21 02:00																				Maximum Daily Average: 7.2 ppb on Jan 24					Hours in Service: 744																								
Minimum Value: 0.0 ppb on Jan 28 19:00																				Minimum Daily Average: 1.1 ppb on Jan 22					Hours of Data: 706																								
Maximum Diurnal Average: 4.3 ppb at hour 2																				Minimum Diurnal Average: 2.6 ppb at hour 14					Hours of Missing Data: 38																								
Monthly Average: 3.46 ppb																				Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.4 Median = 2.7 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 7.1 P <sub>99</sub> = 12.6					Hours of Calibration: 37																								
																									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-Jan	0.6	1.3	1.0	Z	1.1	1.0	0.6	2.4	4.0	4.6	4.7	3.4	2.7	3.2	3.7	4.0	3.8	6.1	7.3	6.2	5.6	7.5	5.5	3.0	3.6	7.5																							
2-Jan	1.9	2.7	2.0	1.5	Z	5.0	3.8	2.9	3.4	2.7	2.0	2.4	1.8	1.8	2.0	1.4	1.9	1.5	1.7	1.9	1.0	1.2	1.9	1.8	2.2	5.0																							
3-Jan	1.2	1.5	1.0	0.9	0.7	Z	1.3	1.3	1.1	1.1	1.7	0.9	0.5	0.7	1.0	1.0	1.2	4.5	7.0	2.0	2.2	1.7	1.7	1.6	1.6	7.0																							
4-Jan	Z	1.9	2.0	2.1	5.2	11.9	14.1	10.9	3.2	2.7	2.6	2.5	3.0	3.7	3.5	3.1	2.4	2.0	1.1	0.4	0.3	0.3	0.5	0.3	3.5	14.1																							
5-Jan	0.2	Z	0.6	0.4	0.4	0.5	0.4	0.6	0.6	1.3	1.2	1.7	1.7	1.8	2.2	2.3	2.3	5.2	3.4	3.2	3.6	2.7	2.5	2.6	1.8	5.2																							
6-Jan	2.7	2.0	Z	2.3	2.0	1.9	1.8	1.7	1.3	0.8	0.8	1.0	0.7	0.9	0.6	0.9	0.7	0.6	0.9	0.4	0.7	0.6	0.4	0.6	1.1	2.7																							
7-Jan	0.7	1.5	3.4	Z	2.3	1.9	1.1	0.5	0.6	0.8	0.7	0.6	0.9	1.2	1.0	0.9	1.3	0.8	1.1	0.2	0.7	0.2	1.0	1.4	1.1	3.4																							
8-Jan	2.1	2.9	2.8	2.3	Z	2.6	3.2	3.0	4.2	5.9	4.6	3.0	2.5	1.3	1.5	1.5	2.6	4.3	9.9	10.7	9.9	9.0	9.4	11.1	4.8	11.1																							
9-Jan	12.2	12.1	16.6	9.9	7.2	Z	2.3	2.3	2.4	2.2	2.1	2.7	2.1	2.3	1.8	2.0	1.8	1.4	0.9	0.8	1.0	1.3	2.7	0.9	4.0	16.6																							
10-Jan	Z	1.0	1.1	2.5	3.6	5.3	6.6	7.4	5.6	5.8	6.1	3.8	2.0	5.7	6.3	6.5	6.3	6.1	8.9	7.3	7.1	8.3	9.9	15.1	6.0	15.1																							
11-Jan	11.2	Z	4.7	4.2	3.6	4.7	6.2	7.8	7.9	7.9	8.1	8.5	8.4	5.9	4.5	5.7	6.4	5.0	5.1	6.6	6.9	5.7	8.9	9.7	6.7	11.2																							
12-Jan	7.6	5.8	Z	3.7	2.2	2.5	1.7	1.3	1.7	1.6	2.1	1.7	1.6	1.5	1.7	1.6	3.4	1.3	2.1	2.9	4.4	1.6	2.2	1.2	2.5	7.6																							
13-Jan	2.1	2.3	2.1	Z	2.0	2.2	2.5	2.0	2.2	3.0	2.7	2.6	2.1	2.3	2.4	5.6	3.3	8.8	4.4	4.7	4.1	7.5	2.4	2.0	3.3	8.8																							
14-Jan	2.8	2.4	2.8	3.1	Z	3.4	2.9	3.1	3.5	6.4	4.0	5.4	5.7	2.5	2.1	2.5	3.9	3.5	2.6	2.0	4.4	2.4	1.7	1.6	3.3	6.4																							
15-Jan	1.2	1.3	1.3	1.6	1.1	Z	1.6	1.9	1.7	2.2	2.4	C	C	C	C	C	C	11.3	10.7	6.8	5.6	5.2	5.2	5.0	--	11.3																							
16-Jan	Z	5.9	5.2	5.2	4.7	9.3	9.6	4.6	6.0	6.6	9.4	6.1	4.1	4.4	4.3	6.1	4.9	3.8	1.8	1.3	1.2	1.6	1.2	1.0	4.7	9.6																							
17-Jan	1.2	Z	1.6	1.1	1.4	1.0	1.2	2.1	2.3	2.3	1.6	1.8	1.2	1.4	M	0.5	1.1	1.9	2.1	2.6	9.2	5.2	4.9	4.3	2.4	9.2																							
18-Jan	4.3	4.3	Z	7.7	4.5	4.0	5.0	5.7	5.0	4.2	1.8	1.3	1.0	1.4	1.0	1.2	0.7	0.6	0.8	1.1	1.0	0.7	0.6	0.9	2.6	7.7																							
19-Jan	0.7	0.5	0.2	Z	1.1	1.4	1.2	2.9	2.7	3.5	2.1	1.3	2.7	2.5	2.9	12.6	4.7	7.0	6.4	5.7	5.0	4.8	5.2	3.7	3.5	12.6																							
20-Jan	3.3	4.1	3.1	2.5	Z	3.5	2.9	7.5	5.8	3.7	2.6	2.6	3.1	3.4	3.1	3.4	4.6	7.3	5.6	4.1	3.5	2.4	2.9	4.1	3.9	7.5																							
21-Jan	7.5	19.5	13.4	12.3	9.6	Z	5.7	7.8	8.0	7.2	4.8	2.5	2.2	2.4	3.5	3.1	2.9	3.5	4.2	6.2	6.0	4.8	3.0	2.1	6.2	19.5																							
22-Jan	Z	1.0	0.7	0.8	0.5	0.4	0.5	0.3	0.4	1.3	0.8	1.1	0.6	0.8	1.8	0.5	0.7	0.9	1.7	2.3	2.3	1.6	1.6	1.7	1.1	2.3																							
23-Jan	1.9	Z	2.8	2.7	1.9	1.9	1.8	1.9	1.8	2.3	1.8	1.8	2.1	1.9	2.8	3.5	6.2	4.6	5.2	3.7	2.4	2.8	5.7	5.7	3.0	6.2																							
24-Jan	9.2	13.8	Z	13.1	11.3	7.1	6.7	6.8	4.0	3.2	3.2	3.6	4.9	5.3	5.7	5.1	5.2	7.3	9.8	9.7	7.2	10.3	6.9	5.9	7.2	13.8																							
25-Jan	5.8	6.5	5.7	Z	4.8	4.3	4.1	5.9	5.5	6.4	7.6	8.6	7.6	5.6	5.2	5.1	5.0	4.8	5.9	9.5	11.0	9.6	5.9	4.9	6.3	11.0																							
26-Jan	5.4	6.2	6.4	6.2	Z	6.3	5.9	6.0	6.3	5.5	5.3	4.3	4.6	4.3	3.9	3.9	5.1	4.2	4.5	3.9	4.1	4.2	2.8	3.4	4.9	6.4																							
27-Jan	2.9	3.2	5.7	4.7	6.1	Z	9.1	12.4	7.1	7.4	6.2	4.4	4.5	4.8	4.6	4.4	4.7	3.8	3.7	3.7	3.4	3.4	3.7	3.5	5.1	12.4																							
28-Jan	Z	3.5	3.0	2.7	2.6	2.8	3.2	3.9	2.8	3.0	3.0	2.9	2.0	2.1	1.1	0.5	0.1	0.5	0.0	0.5	0.6	0.3	0.0	0.1	1.8	3.9																							
29-Jan	0.0	Z	1.2	0.5	0.5	0.0	0.5	1.1	2.6	1.9	1.9	3.4	3.6	2.1	2.7	2.2	2.2	3.1	3.2	2.7	2.9	3.0	3.1	3.0	2.1	3.6																							
30-Jan	3.0	3.1	Z	4.2	3.5	3.0	2.9	6.0	6.1	6.4	4.9	1.6	1.1	0.4	0.3	0.3	0.2	0.5	0.3	0.5	0.4	0.3	0.4	0.4	2.2	6.4																							
31-Jan	0.3	0.7	0.3	Z	1.2	0.9	0.7	1.3	2.0	2.3	1.6	0.7	0.6	1.7	3.5	2.8	0.8	1.3	0.7	1.1	1.4	0.8	2.2	0.5	1.3	3.5																							
																								3.5	4.3	3.5	3.9	3.3	3.4	3.6	4.0	3.6	3.7	3.4	2.9	2.7	2.6	2.8	3.1	3.0	3.8	4.0	3.7	3.8	3.6	3.4	3.3	Diurnal Average	
																								12.2	19.5	16.6	13.1	11.3	11.9	14.1	12.4	8.0	7.9	9.4	8.6	8.4	5.9	6.3	12.6	6.4	11.3	10.7	10.7	11.0	10.3	9.9	15.1	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Janvier - January 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	54	126	32	20	12	7	8	24	52	142	89	28	23	33	15	14	679
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>	54	126	32	20	12	7	8	24	52	142	89	28	23	33	15	14	679

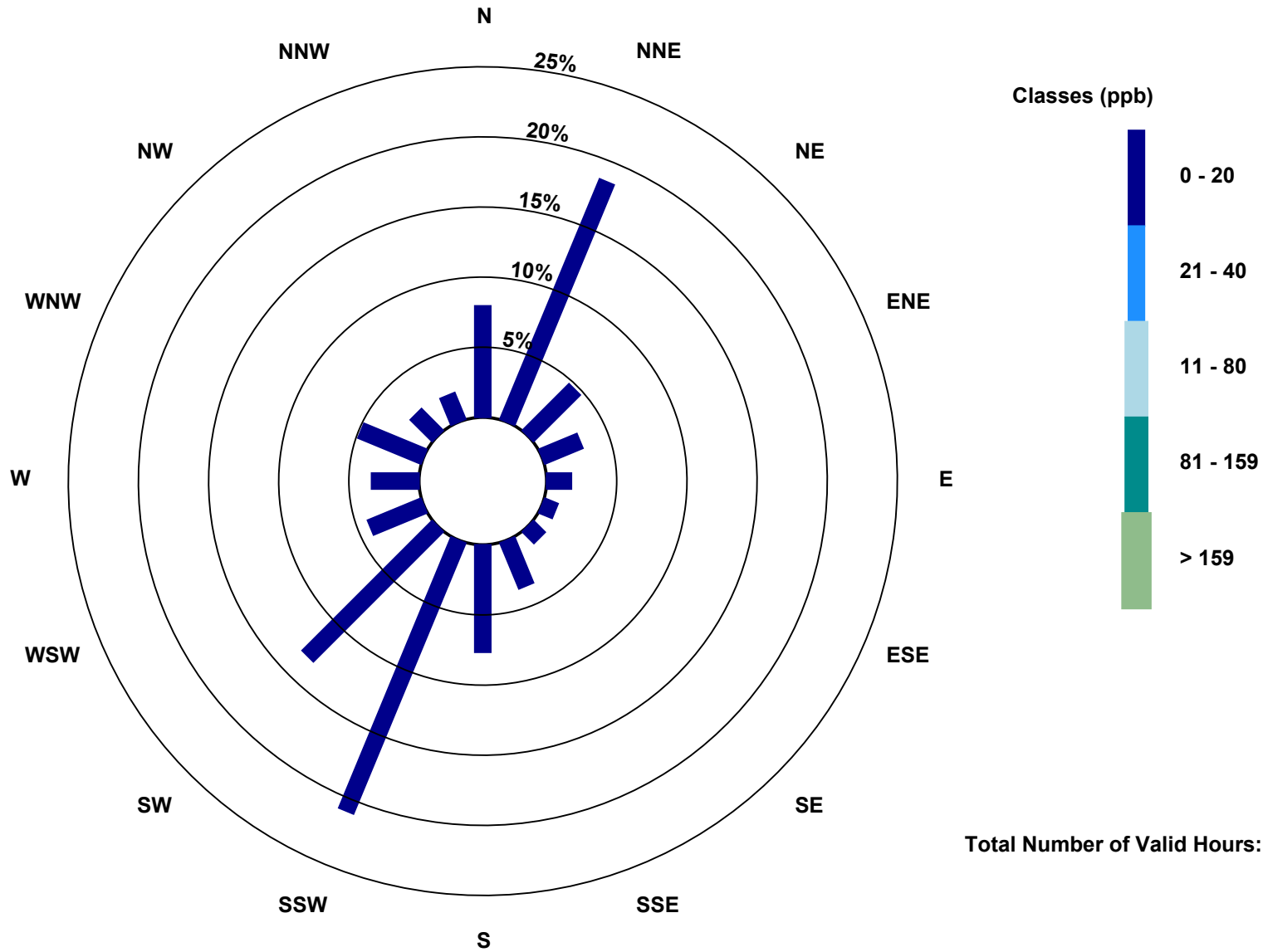
Total Number of Valid Hours: 679

Total Number of Hours: 744



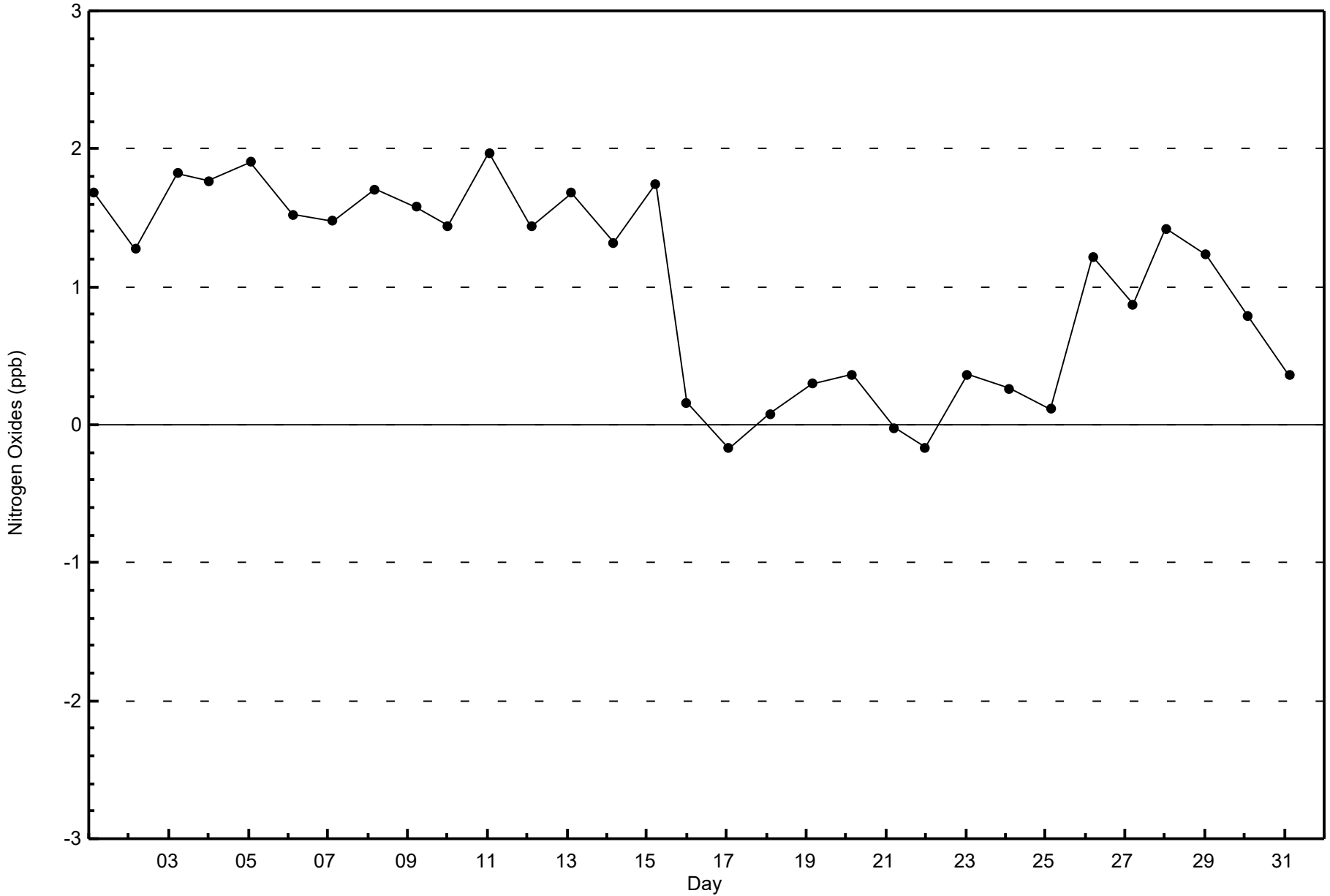
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

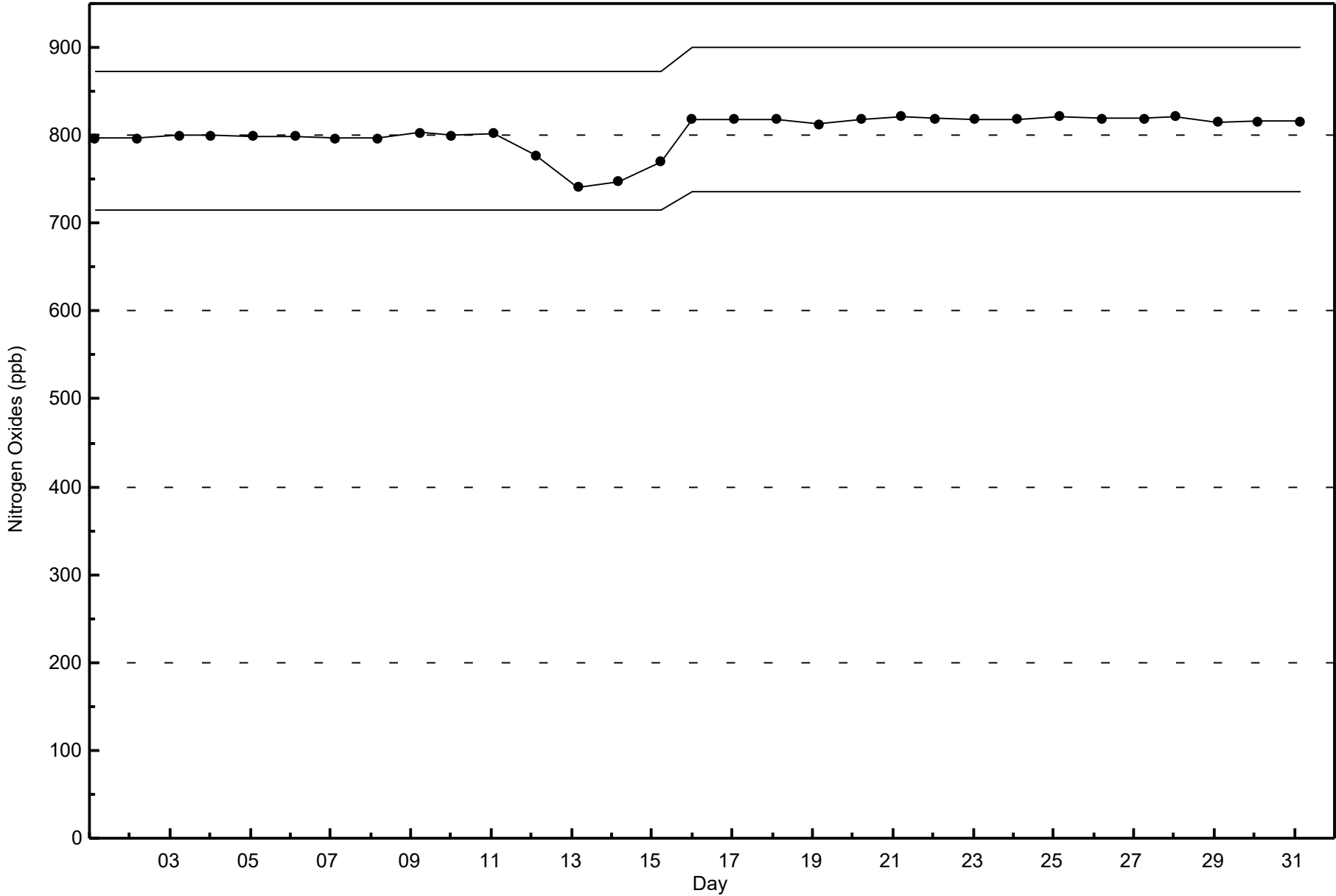
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Janvier



Total Number of Valid Hours: 679









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

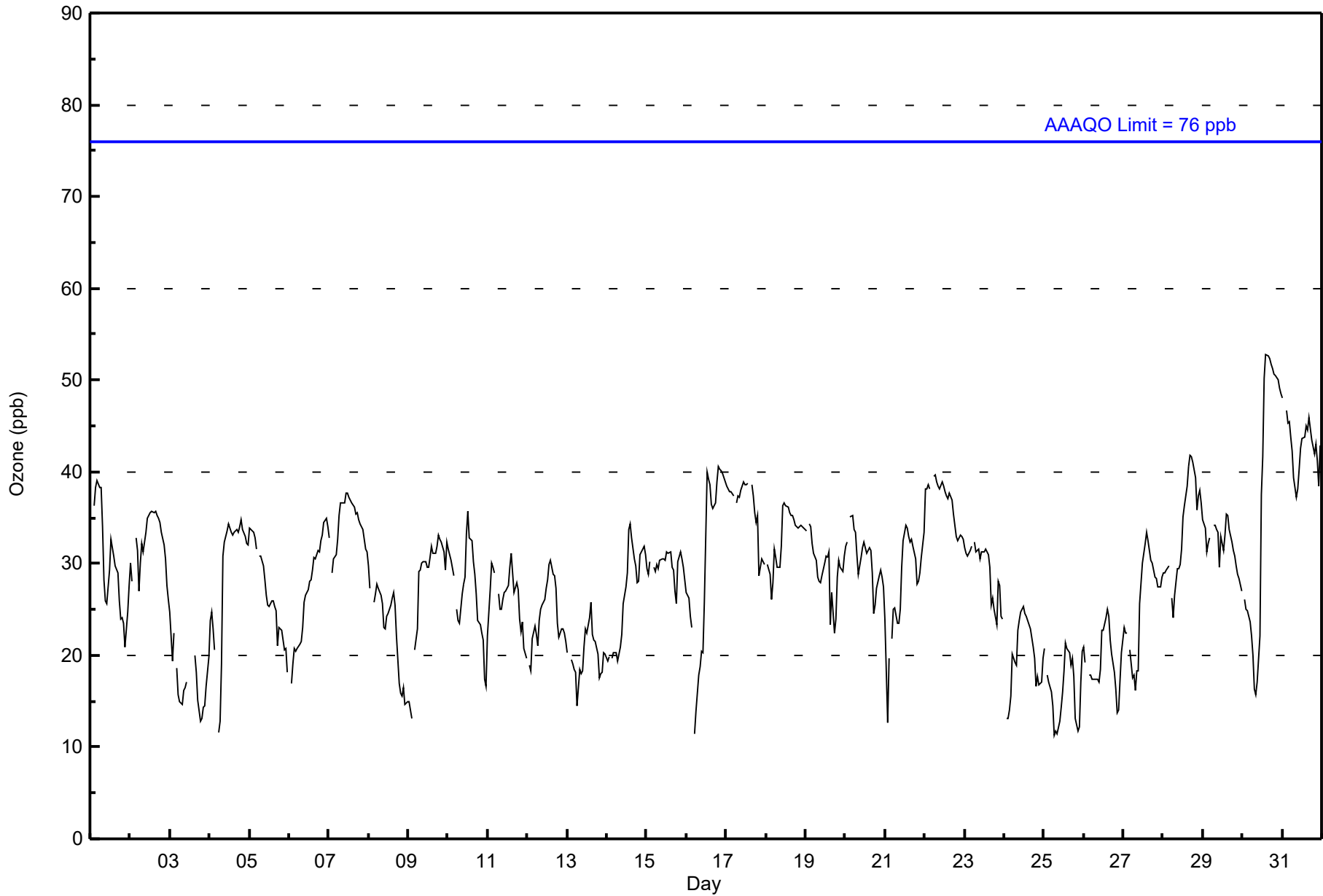
Janvier - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 52.7 ppb on Jan 30 15:00		Maximum Daily Average: 42.9 ppb on Jan 31																	Hours of Data: 708							
Minimum Value: 11.3 ppb on Jan 25 07:00		Minimum Daily Average: 16.3 ppb on Jan 25																	Hours of Missing Data: 36							
Maximum Diurnal Average: 32.7 ppb at hour 15		Minimum Diurnal Average: 24.8 ppb at hour 6																	Hours of Calibration: 35							
Monthly Average: 28.50 ppb		Percentiles: P <sub>1</sub> = 12.7 P <sub>10</sub> = 17.9 Q <sub>1</sub> = 22.9 Median = 29.3 Q <sub>3</sub> = 33.4 P <sub>90</sub> = 38.0 P <sub>99</sub> = 50.2																	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-Jan	38.0	Z	36.3	38.2	39.0	38.2	38.3	34.0	28.2	25.9	25.6	29.3	32.6	31.7	30.8	29.7	29.0	26.0	23.9	24.0	23.5	20.9	24.7	27.6	30.2	39.0
2-Jan	30.0	28.1	Z	32.8	31.4	27.0	30.1	32.1	31.3	33.4	35.0	35.3	35.5	35.7	35.6	35.7	35.2	34.9	34.5	33.4	32.1	30.4	27.6	26.1	32.3	35.7
3-Jan	24.8	19.4	22.5	Z	18.6	15.7	14.9	14.6	16.2	16.4	17.2	C	C	C	C	19.9	18.1	15.1	12.8	13.1	14.3	14.6	16.6	19.9	17.1	24.8
4-Jan	23.8	24.7	22.9	20.6	Z	11.5	12.8	19.1	30.8	32.3	33.5	34.3	33.9	33.4	33.2	33.5	33.7	33.4	34.1	34.8	33.7	33.0	32.2	32.0	29.0	34.8
5-Jan	33.9	33.7	33.4	32.8	31.5	Z	30.9	30.8	29.7	28.2	26.6	25.5	25.4	26.0	25.9	25.4	24.9	21.1	23.1	22.7	21.7	20.6	20.8	18.1	26.6	33.9
6-Jan	Z	16.9	19.0	20.7	20.5	20.8	21.2	21.5	23.0	25.7	26.6	27.1	28.1	28.2	29.3	30.7	30.5	31.5	31.3	32.4	33.1	34.5	34.9	33.9	27.0	34.9
7-Jan	32.9	Z	29.0	30.6	31.0	32.7	35.2	36.6	36.6	36.6	37.6	37.7	37.1	36.9	36.6	36.2	35.4	35.6	34.8	34.3	33.8	32.7	31.6	31.3	34.5	37.7
8-Jan	29.8	27.3	Z	25.7	26.7	27.7	27.3	26.5	25.7	23.0	22.9	24.2	24.6	25.5	26.2	26.8	25.4	22.2	16.9	15.9	15.5	16.5	14.6	14.9	23.1	29.8
9-Jan	15.0	14.0	13.2	Z	20.5	22.9	29.1	29.3	30.0	30.3	30.2	29.6	29.5	30.7	31.8	31.2	31.1	32.0	33.1	32.7	32.3	31.2	29.3	32.3	27.9	33.1
10-Jan	31.6	31.0	30.3	28.7	Z	25.0	23.8	23.5	26.8	27.8	28.5	33.3	35.7	32.8	32.4	30.2	28.8	26.7	23.9	23.3	22.4	21.6	17.4	16.6	27.0	35.7
11-Jan	22.1	27.1	30.0	29.7	29.0	Z	26.6	25.0	25.1	26.1	26.8	27.0	27.6	29.7	31.2	28.9	26.9	28.0	27.1	23.9	22.5	23.7	20.8	19.6	26.3	31.2
12-Jan	Z	18.8	18.4	21.7	23.2	22.2	21.0	23.8	25.1	25.5	26.1	27.2	28.3	29.8	30.4	28.9	28.6	27.3	23.5	21.9	22.8	22.9	22.4	21.5	24.4	30.4
13-Jan	20.3	Z	19.5	19.1	18.4	18.2	14.5	18.4	18.0	18.3	20.9	22.9	22.4	24.1	25.7	22.3	21.7	21.5	20.1	17.5	18.0	18.2	20.3	20.2	20.0	25.7
14-Jan	19.3	19.8	Z	19.7	20.3	20.2	19.4	20.2	20.9	22.2	25.7	27.4	28.9	33.7	34.4	32.8	30.5	29.8	27.9	28.1	31.0	31.3	31.9	30.9	26.4	34.4
15-Jan	29.5	28.8	30.3	Z	29.6	29.2	29.9	29.5	30.4	30.5	30.5	30.3	31.2	31.2	31.3	29.7	29.3	26.9	25.6	30.2	31.3	30.5	29.6	28.2	29.7	31.3
16-Jan	26.9	26.3	24.3	23.1	Z	11.4	13.9	17.8	18.7	20.5	20.2	25.8	40.0	39.2	38.6	36.4	36.1	36.7	38.9	40.5	40.3	40.2	39.8	38.9	30.2	40.5
17-Jan	38.5	38.2	37.9	37.9	37.3	Z	36.7	37.4	37.2	38.0	38.9	38.6	38.5	38.8	M	38.5	37.4	35.6	34.5	35.2	28.7	30.6	30.2	29.8	36.1	38.9
18-Jan	Z	30.0	28.8	26.1	27.9	31.6	30.7	29.6	29.6	31.9	36.3	36.6	36.4	36.1	35.5	35.3	35.2	34.9	34.2	33.9	34.1	34.1	34.1	33.8	32.9	36.6
19-Jan	33.5	Z	34.3	34.1	32.2	31.1	30.4	28.5	28.0	27.9	28.7	30.0	30.7	30.7	31.3	23.3	26.8	22.4	24.0	28.5	30.4	29.6	29.1	30.9	29.4	34.3
20-Jan	31.9	32.4	Z	35.1	35.3	33.6	33.4	31.0	28.9	30.6	31.8	32.3	31.7	31.2	31.8	31.5	29.0	24.5	25.5	27.3	28.6	29.2	28.5	27.5	30.6	35.3
21-Jan	24.0	12.7	19.7	Z	21.8	25.1	25.2	23.5	23.5	25.0	29.6	32.6	34.2	33.9	33.0	32.3	32.6	31.9	30.5	27.8	28.1	28.9	30.7	33.5	27.8	34.2
22-Jan	38.1	38.1	38.7	38.1	Z	39.5	39.6	38.9	38.5	38.2	38.8	38.4	37.8	37.3	37.1	37.6	37.0	35.4	34.2	32.9	32.5	33.1	32.9	32.7	36.8	39.6
23-Jan	31.7	31.1	30.9	31.4	31.9	Z	32.3	31.3	31.6	30.5	31.3	31.2	31.3	31.6	30.9	29.6	25.4	26.3	25.0	23.4	28.1	27.6	24.3	24.0	29.3	32.3
24-Jan	Z	13.2	13.2	14.0	15.6	20.1	19.2	18.9	22.8	23.9	24.7	25.3	24.6	24.3	23.7	23.3	22.9	21.0	19.7	16.7	17.7	16.8	17.1	19.7	19.9	25.3
25-Jan	20.8	Z	17.8	17.0	16.0	14.5	11.3	11.8	11.4	12.8	14.3	16.0	18.4	21.4	20.8	20.2	18.9	19.7	17.7	13.2	11.8	12.1	17.1	20.4	16.3	21.4
26-Jan	20.9	19.2	Z	17.9	17.8	17.5	17.4	17.4	17.4	17.1	18.4	22.7	22.8	24.1	24.9	24.2	21.7	20.2	18.2	16.4	13.8	14.0	17.2	20.3	19.2	24.9
27-Jan	23.0	22.4	22.4	Z	20.7	17.6	17.9	16.2	18.2	18.3	25.7	30.0	31.2	32.2	33.4	32.6	30.3	30.0	29.3	28.5	28.4	27.5	27.5	28.6	25.7	33.4
28-Jan	29.1	29.0	29.2	29.7	Z	26.2	24.1	26.6	29.5	29.5	29.8	31.6	35.0	36.3	38.4	40.5	41.8	41.6	41.0	39.3	35.9	37.4	38.0	36.5	33.7	41.8
29-Jan	34.9	33.8	31.2	32.1	32.8	Z	34.1	34.2	33.8	33.5	29.6	32.9	31.4	33.1	35.3	35.2	33.7	32.4	31.5	30.8	29.7	28.8	28.4	27.0	32.2	35.3
30-Jan	Z	26.0	25.0	24.8	23.7	22.2	20.0	16.3	15.6	17.0	22.1	37.6	41.6	50.2	52.7	52.7	52.4	51.7	51.2	50.7	50.6	50.0	49.2	48.5	37.0	52.7
31-Jan	48.0	Z	46.7	45.3	45.4	43.7	42.3	39.3	37.2	38.2	40.3	42.5	43.7	43.8	45.1	44.6	45.9	44.7	43.5	41.9	43.0	41.3	38.5	42.8	42.9	48.0
28.9 25.7 27.1 28.0 26.9 24.8 25.9 25.9 26.4 26.9 28.2 30.5 31.7 32.4 32.7 31.6 30.8 29.7 28.8 28.2 28.1 27.9 27.7 28.0																								Diurnal Average		
48.0 38.2 46.7 45.3 45.4 43.7 42.3 39.3 38.5 38.2 40.3 42.5 43.7 50.2 52.7 52.7 52.4 51.7 51.2 50.7 50.6 50.0 49.2 48.5																								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**  
**Janvier - January 2024**





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

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	126	17.80	17.80
21 - 50	575	81.21	99.01
51 - 82	7	0.99	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Janvier - January 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	8	20	9	1	1	0	0	2	9	48	17	0	1	2	2	1	121
21 - 50	41	106	25	17	11	8	8	23	44	96	75	27	14	32	12	14	553
51 - 82	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>49</b>	<b>126</b>	<b>34</b>	<b>18</b>	<b>12</b>	<b>8</b>	<b>8</b>	<b>25</b>	<b>53</b>	<b>144</b>	<b>92</b>	<b>27</b>	<b>22</b>	<b>34</b>	<b>14</b>	<b>15</b>	<b>681</b>

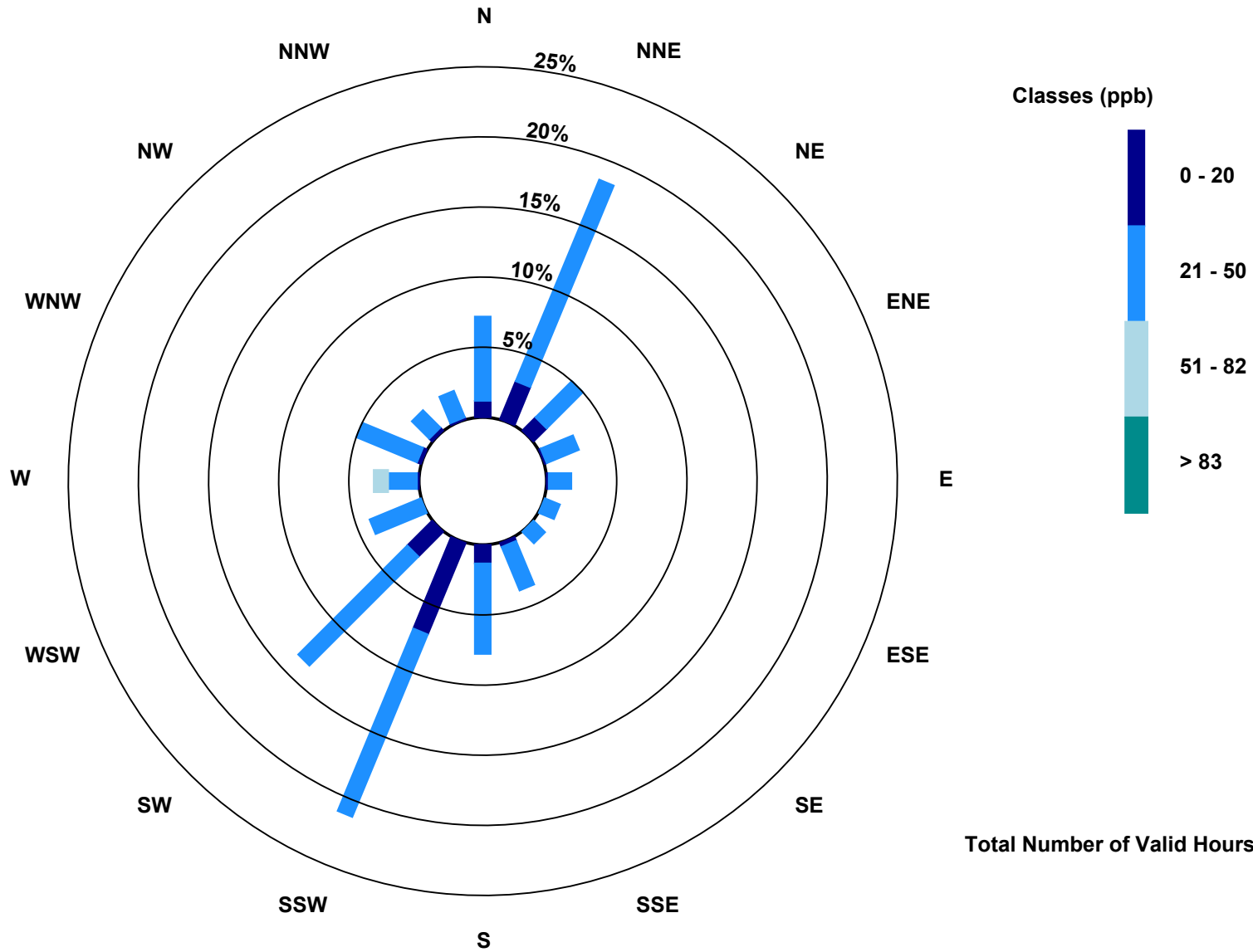
Total Number of Valid Hours: 681

Total Number of Hours: 744

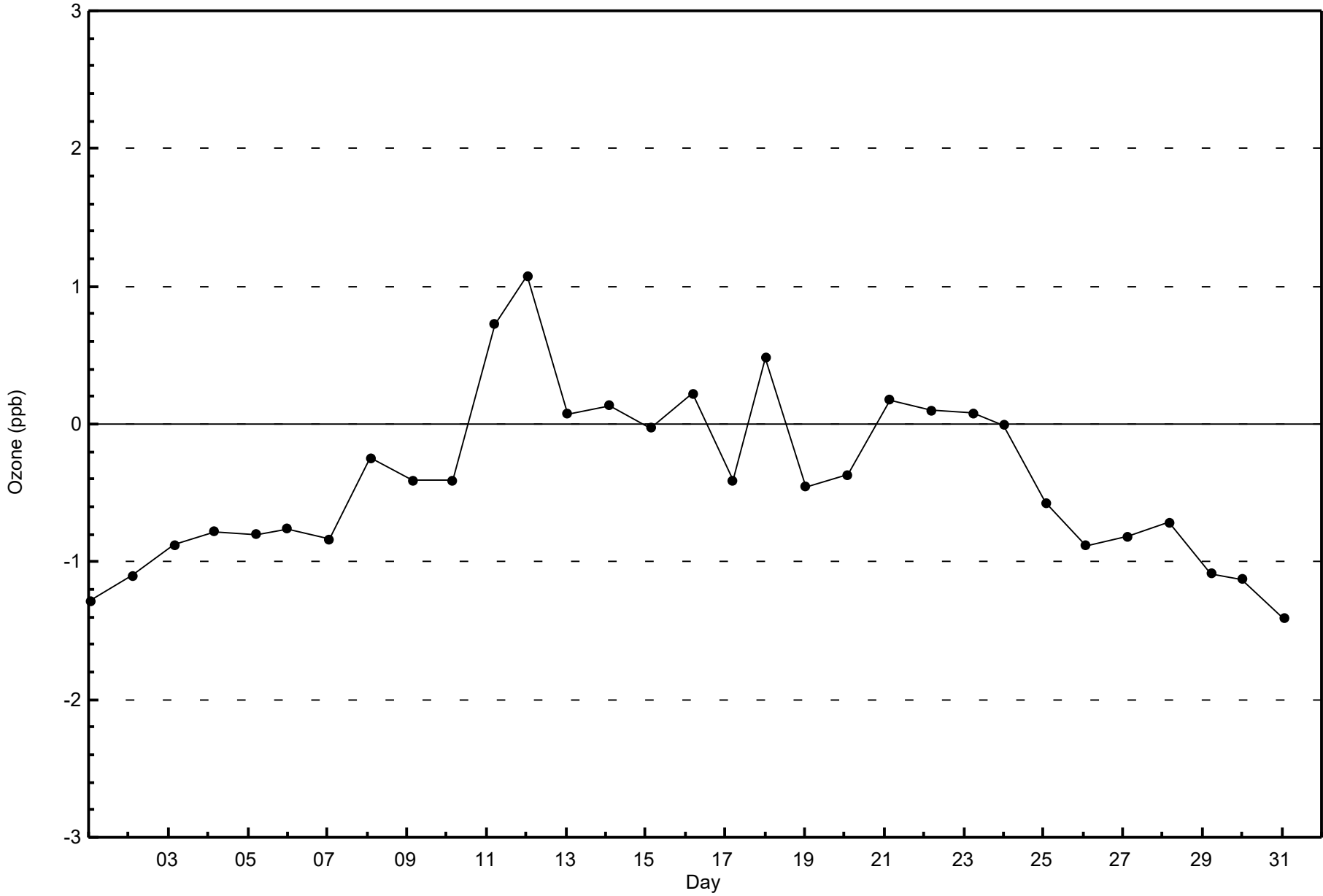


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

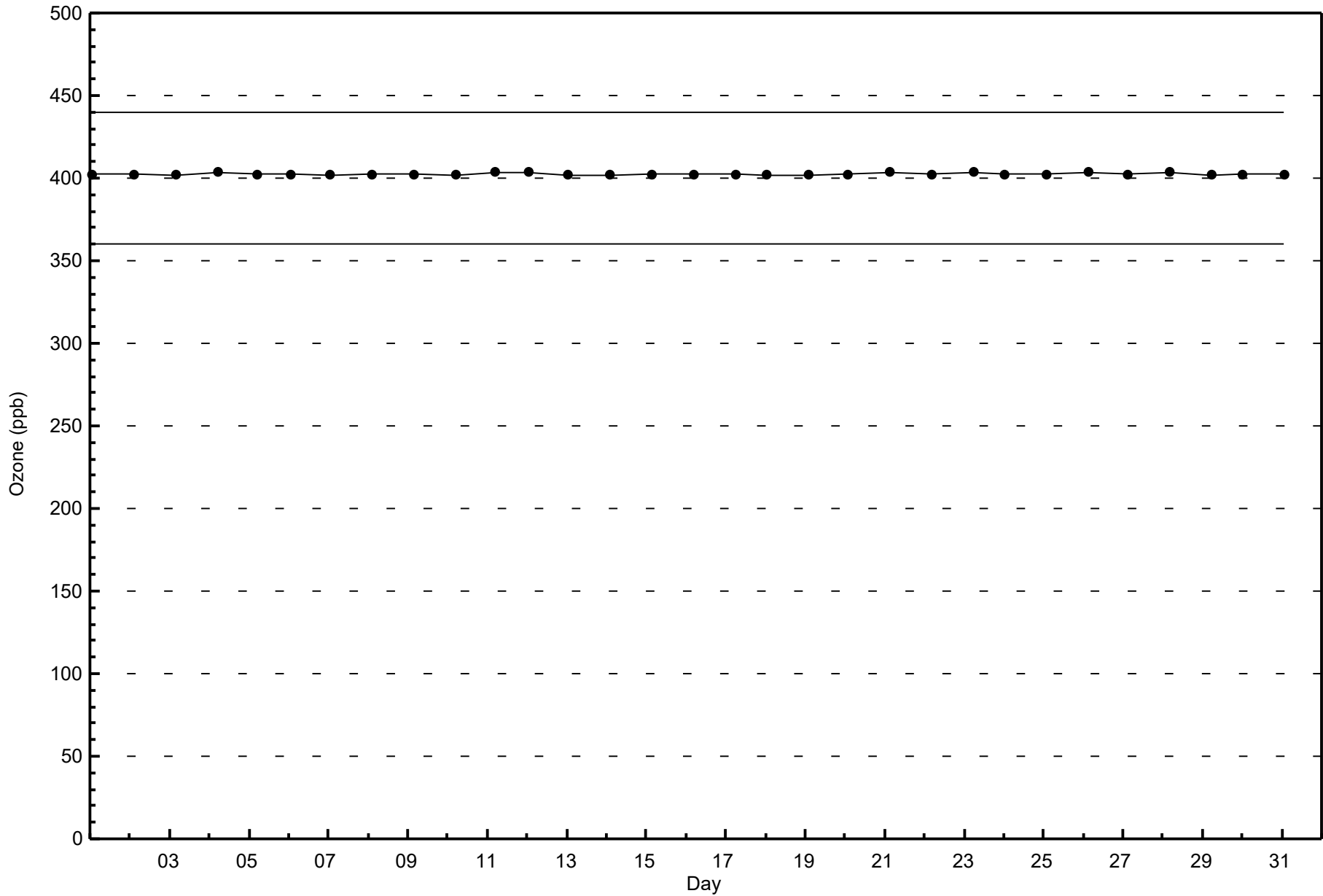
Ozone (O<sub>3</sub>) - ppb  
Janvier



Total Number of Valid Hours: 681





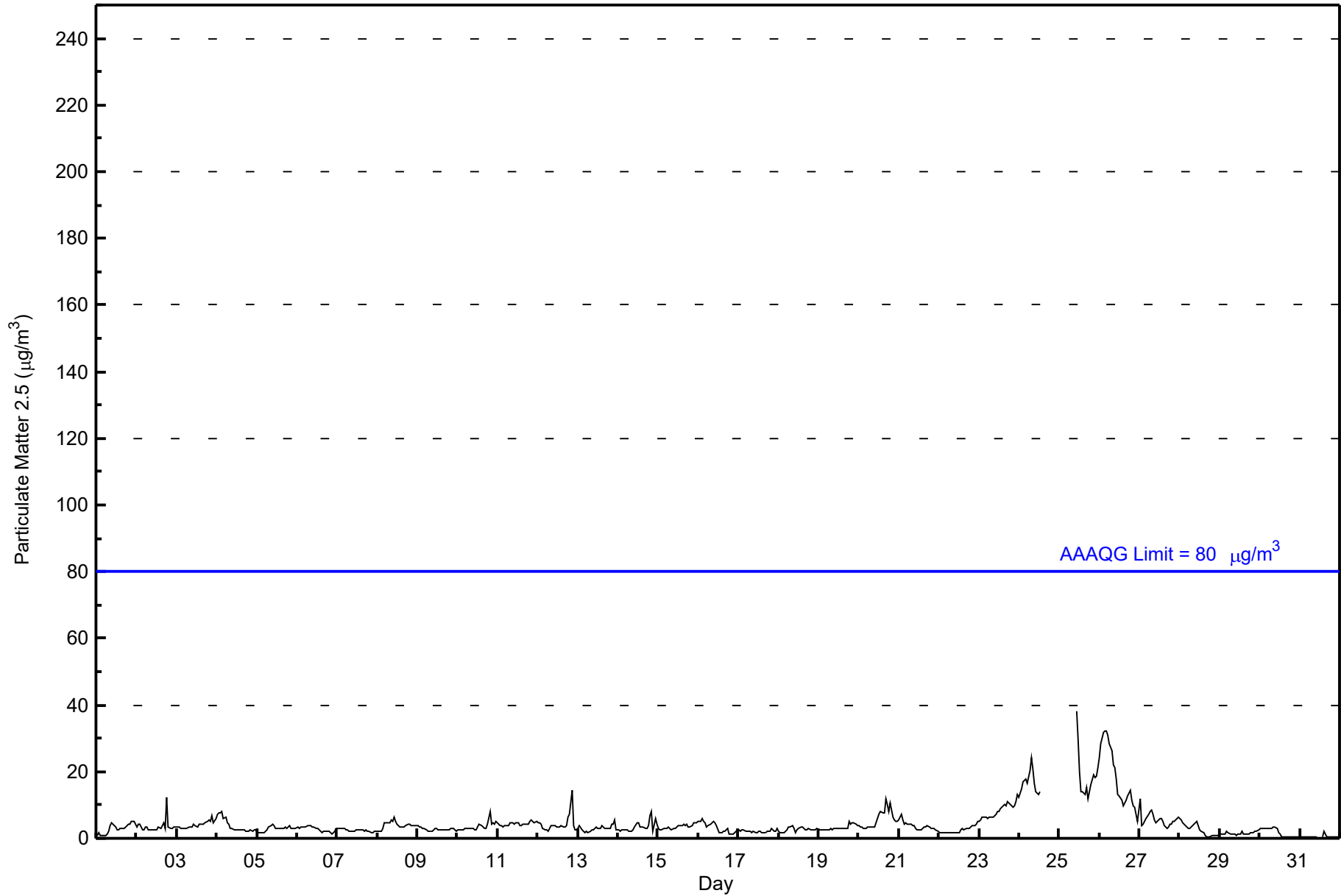




Summary of Hour Averages

Janvier - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																744																											
Maximum Value: 38.2 µg/m <sup>3</sup> on Jan 25 11:00		Maximum Daily Average: 18.1 µg/m <sup>3</sup> on Jan 26																Hours of Data: 721																															
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 31 19:00		Minimum Daily Average: 0.5 µg/m <sup>3</sup> on Jan 31																Hours of Missing Data: 23																															
Maximum Diurnal Average: 5.3 µg/m <sup>3</sup> at hour 11		Minimum Diurnal Average: 3.8 µg/m <sup>3</sup> at hour 16																Hours of Calibration: 4																															
Monthly Average: 4.42 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.3 Median = 3.1 Q <sub>3</sub> = 4.5 P <sub>90</sub> = 7.9 P <sub>99</sub> = 27.9																Percent Operational Time: 97.5																															
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-Jan	1.0	1.8	1.0	0.8	0.9	0.9	1.2	2.1	3.8	4.8	4.2	3.2	2.3	2.5	2.8	3.2	3.1	3.4	3.6	4.4	4.4	5.0	4.9	4.0	2.9	5.0																							
2-Jan	3.6	4.2	4.1	2.7	2.4	3.6	3.4	2.6	2.8	2.7	2.4	2.5	3.4	3.2	3.7	4.8	2.9	12.3	3.5	2.8	3.1	3.3	3.3	3.6	12.3																								
3-Jan	3.2	3.6	2.8	2.8	2.8	2.9	3.0	3.4	3.5	3.6	4.2	3.8	3.5	4.0	4.3	4.4	4.4	4.8	4.9	5.7	5.3	6.9	4.7	6.0	4.1	6.9																							
4-Jan	7.1	7.5	7.7	8.0	6.1	6.2	4.7	4.2	2.8	2.8	2.7	2.6	2.7	2.7	2.6	2.5	2.4	2.3	2.3	2.1	2.5	2.3	2.3	2.6	3.8	8.0																							
5-Jan	1.9	1.7	1.8	1.9	1.8	2.1	2.6	3.5	3.9	4.1	3.8	2.8	2.9	3.0	3.1	2.1	3.1	3.6	3.1	3.9	3.0	3.0	3.0	3.1	2.9	4.1																							
6-Jan	3.3	3.1	3.2	3.3	3.3	3.5	3.7	3.8	3.7	3.5	3.5	3.1	2.8	2.4	2.1	1.9	2.0	1.9	2.2	2.1	1.6	1.4	2.1	2.8	2.8	3.8																							
7-Jan	2.8	2.9	3.0	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.2	2.5	2.7	2.6	2.5	2.3	2.2	2.5	2.3	2.1	1.8	1.7	2.0	2.1	2.4	3.0																							
8-Jan	2.2	2.2	2.3	3.0	4.7	4.7	4.5	4.8	5.3	5.0	6.3	5.1	4.4	3.5	3.3	3.4	3.5	3.6	4.4	4.4	3.9	3.8	3.9	3.7	4.0	6.3																							
9-Jan	4.0	3.6	3.3	3.1	2.9	2.7	2.2	2.3	2.2	2.2	2.8	2.8	2.6	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.8	2.7	2.2	2.7	4.0																							
10-Jan	2.4	2.6	2.6	2.7	2.9	2.9	3.0	2.9	2.8	2.8	2.6	2.4	3.4	4.3	3.6	3.5	3.1	3.2	4.0	8.1	4.3	4.7	4.4	4.9	3.5	8.1																							
11-Jan	4.8	4.0	3.6	3.5	4.0	3.6	3.9	4.5	4.8	4.8	4.4	4.7	4.5	4.0	3.9	4.2	4.2	4.2	4.2	5.3	5.4	5.2	4.8	5.1	4.4	5.4																							
12-Jan	4.6	4.7	4.1	2.9	2.6	2.5	2.2	2.9	3.9	3.8	3.9	3.5	3.4	3.4	3.6	3.5	3.6	3.9	6.5	7.3	14.4	3.7	2.6	2.5	4.2	14.4																							
13-Jan	2.9	3.9	2.6	1.9	1.8	2.1	1.6	2.3	2.4	2.7	3.0	3.3	2.8	3.1	3.7	3.6	2.9	3.1	3.0	2.9	4.0	4.1	5.3	2.5	3.0	5.3																							
14-Jan	2.4	2.3	2.6	2.4	2.5	2.3	2.2	2.1	1.9	2.6	3.6	4.6	4.7	3.4	3.4	3.5	3.1	3.1	3.8	6.7	8.0	2.1	5.9	4.1	3.5	8.0																							
15-Jan	3.0	2.5	2.6	2.9	2.8	2.9	3.3	2.9	2.7	2.9	3.0	3.3	3.6	3.9	4.0	4.0	3.8	4.4	3.3	3.4	3.9	4.5	4.8	4.8	3.5	4.8																							
16-Jan	5.0	5.1	5.8	5.3	4.6	3.4	3.9	4.3	4.5	4.9	4.8	3.7	1.8	1.8	1.9	2.2	2.3	2.9	1.1	1.2	1.3	1.4	1.7	2.4	3.2	5.8																							
17-Jan	2.3	2.3	2.4	2.4	2.3	2.2	2.3	1.9	1.8	2.0	1.9	1.7	2.0	2.0	1.7	1.7	1.8	1.9	2.0	2.0	3.0	2.2	2.1	2.9	2.1	3.0																							
18-Jan	2.1	1.8	1.7	1.9	1.9	2.7	3.4	3.5	3.8	3.0	1.9	2.4	2.8	3.3	3.5	3.0	2.7	2.7	2.8	2.6	2.6	2.5	2.7	3.1	2.7	3.8																							
19-Jan	2.7	2.7	2.6	2.7	2.6	2.7	2.7	2.8	2.8	2.8	3.1	2.8	2.9	2.8	2.9	3.1	3.0	3.1	4.9	4.4	4.6	4.5	4.4	4.0	3.2	4.9																							
20-Jan	3.8	3.5	3.3	3.0	3.0	3.4	3.2	3.2	3.5	3.5	4.6	6.0	7.0	8.0	7.6	7.4	11.8	10.3	7.9	10.7	6.4	5.7	5.1	5.0	5.7	11.8																							
21-Jan	5.7	7.4	5.4	4.4	4.5	4.3	4.4	4.1	3.9	3.9	3.1	2.6	2.3	2.6	3.1	3.2	3.3	3.7	3.4	3.1	2.9	2.9	2.6	2.1	3.7	7.4																							
22-Jan	1.6	1.6	1.7	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	2.6	2.8	2.7	2.9	3.0	3.1	3.5	3.8	4.0	4.4	4.9	2.4	4.9																							
23-Jan	5.3	5.7	6.2	6.5	6.3	6.1	6.2	6.3	6.5	6.8	7.3	7.9	7.9	8.9	9.9	10.3	9.8	11.2	10.6	9.8	9.4	9.8	11.0	13.0	8.3	13.0																							
24-Jan	12.4	15.0	17.1	17.5	17.8	16.6	20.2	24.2	20.8	16.6	14.2	13.2	13.8	C	C	C	M	M	M	M	M	M	M	M	--	24.2																							
25-Jan	M	M	M	M	M	M	M	M	M	M	C	38.2	29.8	19.9	14.0	14.0	13.0	15.3	11.8	13.9	16.1	19.1	18.0	18.5	21.4	--	38.2																						
26-Jan	24.1	28.3	31.7	32.2	32.0	30.9	28.3	26.3	22.2	21.4	17.8	13.1	12.8	11.3	9.9	10.7	11.5	12.8	14.3	11.6	9.9	9.2	7.1	5.0	18.1	32.2																							
27-Jan	11.8	4.0	4.4	5.2	6.1	7.1	8.1	8.3	7.1	5.6	4.9	5.4	5.7	6.1	5.2	3.9	3.1	3.6	4.1	4.3	4.9	5.3	6.1	6.5	5.7	11.8																							
28-Jan	5.7	5.4	4.5	4.0	3.4	3.1	2.9	3.3	4.3	4.6	4.9	3.9	2.6	2.3	1.6	0.7	0.5	0.4	0.5	0.9	1.0	1.0	1.0	0.9	2.6	5.7																							
29-Jan	1.3	1.4	1.2	1.1	2.0	1.8	1.5	1.3	1.2	1.1	1.0	1.1	1.3	2.2	1.4	1.4	1.3	1.4	1.6	1.6	1.9	2.0	2.3	2.6	1.5	2.6																							
30-Jan	2.9	3.1	3.1	3.2	3.2	3.0	3.0	2.9	3.2	3.5	3.1	1.5	1.1	0.6	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	1.7	3.5																							
31-Jan	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	M	M	0.5	2.0	1.2	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	2.0																							
																								4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.7	4.5	4.4	5.3	4.9	4.5	3.9	3.9	3.8	4.0	4.0	4.5	4.6	4.7	4.1	4.2	4.3	Diurnal Average	
																								24.1	28.3	31.7	32.2	32.0	30.9	28.3	26.3	22.2	21.4	38.2	29.8	19.9	14.0	14.0	13.0	15.3	12.8	14.3	16.1	19.1	18.0	18.5	21.4	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>) -  $\mu\text{g}/\text{m}^3$**   
**Janvier - January 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	604	83.77	83.77
6 - 15	90	12.48	96.26
16 - 25	18	2.50	98.75
26 - 80	9	1.25	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 721

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Janvier - January 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	52	118	32	16	11	7	7	21	39	115	66	21	20	27	13	14	579
6 - 15	2	11	2	3	0	0	0	1	12	22	21	7	2	6	0	1	90
16 - 25	0	2	1	1	1	1	0	0	2	4	3	0	1	0	0	0	16
26 - 80	0	0	0	0	0	0	0	0	0	3	4	0	0	0	2	0	9
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	54	131	35	20	12	8	7	22	53	144	94	28	23	33	15	15	694

Total Number of Valid Hours: 694

Total Number of Hours: 744

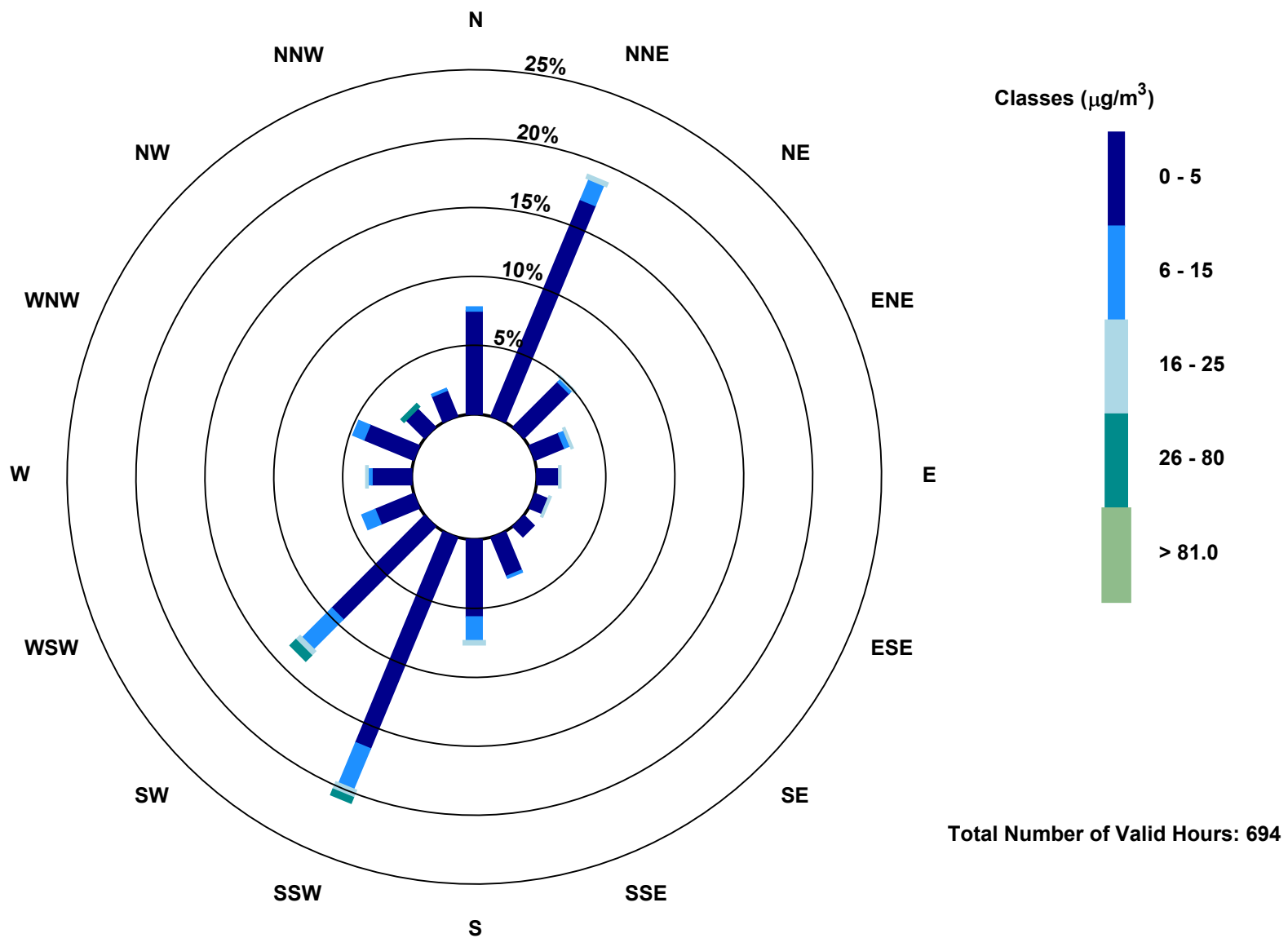


Wood Buffalo Environmental Association

Wind Rose Jan 2024

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

Janvier

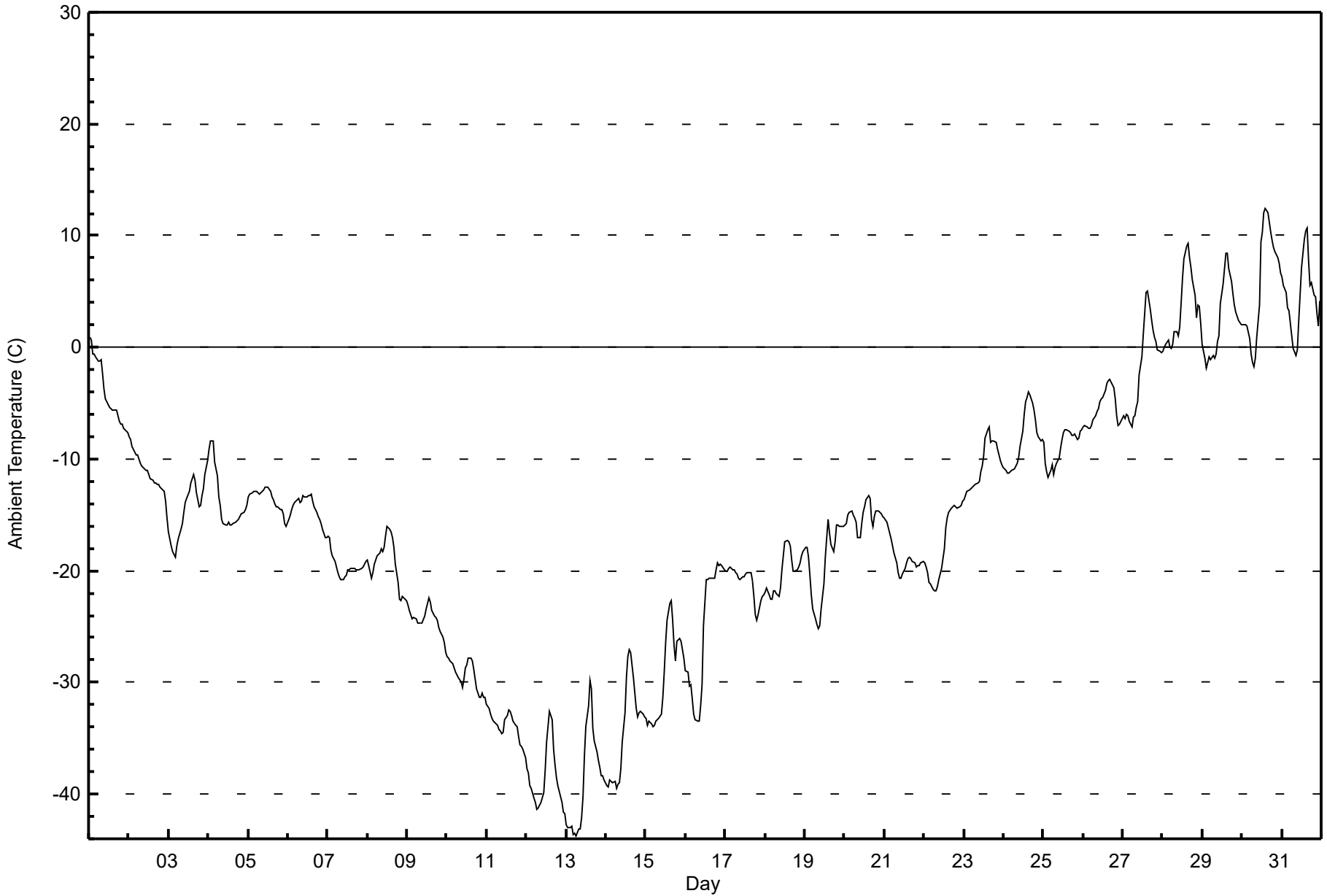




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Janvier - January 2024**

Maximum Value: 12.4 C on Jan 30 15:00      Maximum Daily Average: 5.7 C on Jan 30																						Hours in Service:	744			
Minimum Value: -43.8 C on Jan 13 07:00      Minimum Daily Average: -38.7 C on Jan 13																						Hours of Data:	744			
Maximum Diurnal Average: -13.0 C at hour 15      Minimum Diurnal Average: -18.1 C at hour 9																						Hours of Missing Data:	0			
Monthly Average: -16.00 C      Percentiles: $P_1 = -42.8$ $P_{10} = -33.4$ $Q_1 = -22.9$ Median = -15.7 $Q_3 = -7.7$ $P_{90} = 1.0$ $P_{99} = 10.0$																						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-Jan	1.0	0.6	-0.6	-0.5	-0.9	-1.2	-1.2	-1.2	-2.4	-3.7	-4.6	-5.1	-5.4	-5.5	-5.6	-5.6	-5.6	-6.2	-6.6	-6.8	-6.9	-7.2	-7.5	-7.6	-4.0	1.0
2-Jan	-8.0	-8.3	-8.9	-9.4	-9.6	-9.6	-10.0	-10.3	-10.6	-10.9	-11.0	-11.0	-11.3	-11.8	-11.9	-12.1	-12.2	-12.3	-12.3	-12.5	-12.8	-12.9	-13.8	-15.3	-11.2	-8.0
3-Jan	-16.6	-17.8	-18.3	-18.5	-18.8	-17.8	-17.1	-16.3	-15.7	-14.8	-13.9	-13.6	-12.9	-12.2	-11.8	-11.4	-11.9	-13.0	-14.2	-14.2	-13.2	-12.7	-11.4	-10.1	-14.5	-10.1
4-Jan	-9.1	-8.4	-8.3	-8.4	-10.2	-11.6	-13.4	-14.1	-15.3	-15.8	-15.9	-15.7	-15.9	-16.0	-15.8	-15.6	-15.5	-15.4	-15.2	-14.9	-14.8	-14.5	-14.2	-14.2	-13.7	-8.3
5-Jan	-13.4	-13.2	-13.0	-12.9	-12.9	-12.9	-13.1	-13.1	-12.9	-12.7	-12.5	-12.5	-12.9	-13.5	-13.7	-14.0	-14.2	-14.3	-14.5	-14.5	-14.9	-14.8	-15.8	-16.0	-13.6	-12.5
6-Jan	-15.4	-15.1	-14.6	-14.2	-13.9	-13.7	-13.5	-13.9	-13.8	-13.3	-13.4	-13.4	-13.3	-13.2	-13.1	-13.8	-14.2	-14.8	-15.1	-15.4	-15.7	-16.3	-17.0	-17.1	-14.5	-13.1
7-Jan	-16.9	-17.0	-18.1	-18.6	-19.2	-19.7	-20.1	-20.6	-20.8	-20.8	-20.6	-20.4	-19.9	-19.9	-19.8	-19.7	-19.8	-20.0	-20.0	-19.9	-19.8	-19.7	-19.4	-19.2	-19.6	-16.9
8-Jan	-19.1	-19.5	-20.6	-20.1	-19.4	-19.1	-18.7	-18.4	-18.1	-18.3	-17.9	-16.9	-16.0	-16.3	-16.5	-17.1	-17.9	-19.4	-21.1	-22.6	-22.6	-22.3	-22.4	-22.6	-19.3	-16.0
9-Jan	-23.1	-23.6	-24.0	-24.3	-24.1	-24.4	-24.7	-24.6	-24.7	-24.7	-24.1	-23.5	-22.9	-22.4	-22.8	-23.6	-24.1	-24.1	-24.4	-25.1	-25.5	-25.9	-26.5	-27.4	-24.4	-22.4
10-Jan	-27.7	-27.8	-28.0	-28.4	-28.7	-29.0	-29.4	-29.6	-30.0	-30.4	-29.7	-28.8	-28.4	-27.9	-27.8	-28.1	-28.8	-29.8	-30.6	-31.3	-31.3	-31.0	-31.3	-31.3	-29.4	-27.7
11-Jan	-31.9	-32.4	-32.9	-33.2	-33.5	-33.6	-33.9	-34.2	-34.4	-34.6	-34.5	-33.3	-33.0	-32.4	-32.6	-33.0	-33.5	-33.9	-34.0	-34.8	-35.7	-35.8	-36.0	-36.7	-33.9	-31.9
12-Jan	-37.7	-38.1	-39.3	-39.5	-40.4	-40.8	-41.4	-41.3	-41.0	-40.7	-39.9	-37.9	-35.3	-34.0	-32.6	-33.4	-35.9	-37.4	-38.5	-39.3	-40.2	-40.8	-41.6	-41.8	-38.7	-32.6
13-Jan	-42.7	-43.0	-42.9	-42.9	-43.6	-43.5	-43.8	-43.1	-43.1	-42.2	-40.2	-36.6	-34.0	-32.1	-29.9	-30.5	-34.1	-35.2	-36.2	-37.0	-37.6	-38.3	-38.4	-38.8	-38.7	-29.9
14-Jan	-39.2	-39.3	-38.8	-38.8	-39.0	-38.9	-39.4	-39.1	-38.9	-37.8	-35.3	-32.7	-29.6	-27.7	-27.0	-27.3	-29.5	-30.9	-32.4	-33.1	-32.7	-32.5	-32.8	-33.1	-34.4	-27.0
15-Jan	-33.3	-33.8	-33.5	-33.7	-33.9	-33.9	-33.4	-33.4	-33.2	-32.8	-31.3	-29.1	-26.5	-24.5	-22.9	-22.6	-24.4	-26.7	-28.1	-26.3	-26.1	-26.3	-27.1	-27.8	-29.4	-22.6
16-Jan	-28.9	-29.1	-30.3	-30.2	-31.5	-32.9	-33.3	-33.5	-33.4	-32.1	-30.2	-24.9	-20.9	-20.8	-20.7	-20.7	-20.7	-20.7	-19.9	-19.3	-19.5	-19.4	-19.5	-19.9	-25.5	-19.3
17-Jan	-20.1	-20.1	-19.8	-19.7	-19.9	-19.9	-20.1	-20.3	-20.7	-20.8	-20.6	-20.6	-20.3	-20.1	-20.2	-20.2	-20.9	-22.3	-24.0	-24.4	-23.9	-22.7	-22.3	-22.1	-21.1	-19.7
18-Jan	-22.0	-21.5	-22.2	-22.6	-22.6	-21.8	-21.8	-22.0	-22.3	-21.6	-19.9	-18.7	-17.4	-17.3	-17.5	-17.8	-19.1	-20.1	-20.1	-19.9	-19.7	-19.3	-18.7	-18.2	-20.2	-17.3
19-Jan	-17.9	-17.9	-18.8	-20.4	-22.2	-23.4	-24.3	-24.8	-25.2	-25.0	-23.5	-21.2	-18.8	-17.1	-15.4	-16.6	-17.7	-18.3	-17.4	-15.8	-15.9	-16.0	-16.0	-16.0	-19.4	-15.4
20-Jan	-15.9	-15.7	-15.0	-14.8	-14.7	-15.0	-15.3	-15.7	-17.1	-17.0	-15.8	-14.8	-14.2	-13.6	-13.2	-13.5	-15.4	-16.0	-15.2	-14.7	-14.7	-14.8	-15.0	-15.1	-15.1	-13.2
21-Jan	-15.3	-15.7	-16.1	-16.6	-17.2	-17.8	-18.4	-19.3	-20.1	-20.7	-20.6	-20.3	-19.8	-19.3	-19.0	-18.8	-18.9	-19.2	-19.3	-19.6	-19.6	-19.5	-19.3	-19.2	-18.7	-15.3
22-Jan	-19.3	-19.6	-20.1	-21.1	-21.2	-21.7	-21.9	-21.8	-21.5	-20.8	-19.8	-18.9	-18.0	-16.2	-15.3	-14.8	-14.5	-14.3	-14.2	-14.3	-14.4	-14.3	-14.1	-13.8	-17.7	-13.8
23-Jan	-13.6	-13.2	-13.0	-12.7	-12.6	-12.5	-12.4	-12.3	-12.2	-12.0	-11.1	-10.6	-9.7	-8.1	-7.4	-7.2	-8.5	-8.4	-8.4	-8.5	-9.1	-9.6	-10.2	-10.5	-10.6	-7.2
24-Jan	-10.7	-11.0	-11.2	-11.2	-11.1	-11.0	-10.9	-10.7	-10.4	-9.9	-8.9	-7.5	-6.0	-4.9	-4.4	-3.9	-4.2	-5.0	-5.6	-6.5	-7.7	-8.0	-8.4	-8.3	-8.2	-3.9
25-Jan	-8.6	-10.4	-11.2	-11.6	-11.0	-10.5	-11.4	-10.8	-10.4	-9.9	-9.0	-8.2	-7.6	-7.4	-7.3	-7.5	-7.7	-7.9	-7.8	-7.7	-8.2	-8.1	-7.5	-7.3	-9.0	-7.3
26-Jan	-7.1	-7.0	-7.2	-7.3	-7.3	-7.0	-6.4	-6.1	-5.7	-5.4	-4.9	-4.6	-4.5	-3.9	-3.3	-2.9	-2.8	-3.1	-3.6	-4.6	-6.2	-7.0	-6.9	-6.6	-5.5	-2.8
27-Jan	-6.1	-6.4	-6.0	-6.1	-6.6	-7.1	-6.2	-6.1	-5.4	-4.9	-2.4	-0.8	1.2	3.1	4.9	5.1	3.4	2.4	1.5	0.9	0.5	-0.3	-0.4	-0.4	-1.8	5.1
28-Jan	-0.3	0.0	0.3	0.6	0.0	-0.1	0.2	1.4	1.4	1.0	1.8	3.9	6.1	7.9	9.1	9.3	8.1	7.2	6.1	4.6	2.6	3.7	3.7	2.1	3.4	9.3
29-Jan	0.3	-1.0	-1.8	-1.4	-0.9	-1.1	-0.7	-0.9	-0.5	0.5	1.0	3.9	5.7	7.1	8.4	8.4	7.0	5.9	4.8	3.7	3.2	2.7	2.4	2.1	2.4	8.4
30-Jan	2.0	2.0	2.1	1.9	0.8	-0.6	-1.3	-1.7	-1.0	0.9	3.8	9.4	10.3	12.1	12.4	12.0	11.2	10.3	9.5	8.9	8.5	8.0	7.5	6.7	5.7	12.4
31-Jan	6.3	5.5	4.9	3.5	3.3	2.2	1.0	-0.1	-0.7	-0.3	2.5	4.8	7.2	9.6	10.4	10.7	7.8	5.5	5.8	4.7	4.6	3.1	1.9	4.2	4.5	10.7
																						Diurnal Average				
																						Diurnal Maximum				







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Janvier - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	253	34.01	34.01
-20 - 0	401	53.90	87.90
0 - 10	82	11.02	98.92
10 - 20	8	1.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

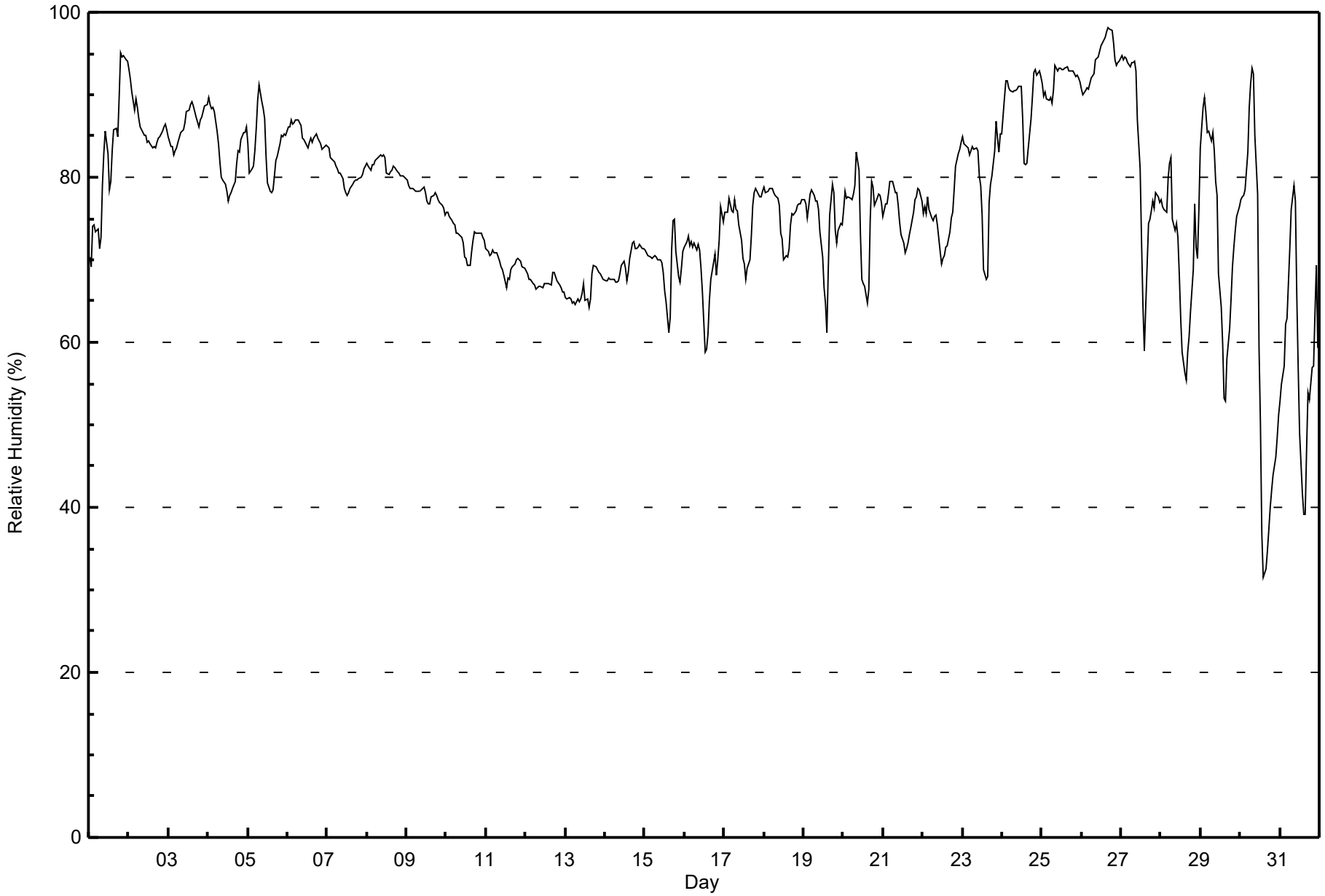
**Relative Humidity (RH) - %**  
**Janvier - January 2024**

Maximum Value: 98.2 % on Jan 26 17:00      Maximum Daily Average: 94.2 % on Jan 26																						Hours in Service: 744 Hours of Data: 744																								
Minimum Value: 31.6 % on Jan 30 15:00      Minimum Daily Average: 58.9 % on Jan 31 Maximum Diurnal Average: 80.1 % at hour 9      Minimum Diurnal Average: 70.3 % at hour 15 Monthly Average: 76.94 %      Percentiles: P <sub>1</sub> = 40.7 P <sub>10</sub> = 66.2 Q <sub>1</sub> = 70.4 Median = 77.6 Q <sub>3</sub> = 84.0 P <sub>90</sub> = 90.4 P <sub>99</sub> = 95.6																						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-Jan	70.4	69.1	74.0	74.2	73.4	73.7	71.4	72.6	79.0	83.0	85.6	82.9	78.5	79.5	83.2	85.8	85.9	84.9	89.8	95.0	94.5	94.8	94.3	94.0	82.1	95.0																				
2-Jan	93.0	91.9	90.3	88.1	89.5	88.4	87.1	86.1	85.8	85.0	85.0	84.2	84.4	84.1	83.6	83.8	83.6	84.2	84.7	84.9	85.6	86.1	86.5	85.8	86.3	93.0																				
3-Jan	84.9	83.8	83.7	82.8	83.3	83.6	84.2	85.4	85.6	85.7	86.6	87.9	88.1	88.8	89.1	88.6	88.0	87.3	86.0	87.0	87.4	88.0	88.6	88.8	86.4	89.1																				
4-Jan	89.7	88.9	88.2	88.5	88.0	85.6	84.0	81.8	79.9	79.7	79.1	78.3	77.1	77.8	78.1	78.7	79.5	81.7	83.3	83.0	84.5	85.4	85.4	86.2	83.0	89.7																				
5-Jan	84.0	80.5	81.0	81.4	83.2	85.9	89.4	91.2	89.2	88.3	87.0	82.5	79.3	78.4	78.2	78.4	80.1	82.1	82.5	84.0	85.0	85.0	85.3	85.2	83.6	91.2																				
6-Jan	86.1	86.1	86.9	86.4	86.6	87.0	86.9	86.6	86.2	84.8	84.6	83.9	83.6	84.2	84.7	84.3	84.8	85.3	84.7	84.5	84.1	83.5	83.7	83.9	85.1	87.0																				
7-Jan	83.8	83.5	82.4	82.2	81.8	81.4	81.1	80.6	80.5	79.9	78.7	78.1	77.9	78.1	78.7	79.2	79.5	79.6	79.7	79.9	79.9	80.3	81.1	81.3	80.4	83.8																				
8-Jan	81.7	81.4	80.8	81.5	81.5	82.0	82.1	82.6	82.8	82.5	82.8	82.4	80.6	80.4	80.7	80.9	81.3	81.2	80.8	80.4	80.2	80.1	80.2	79.9	81.3	82.8																				
9-Jan	79.6	79.0	78.7	78.6	78.6	78.3	78.4	78.3	78.3	78.5	78.7	78.2	77.2	76.8	76.8	77.6	77.9	78.1	77.9	77.3	76.9	76.7	76.3	75.5	77.8	79.6																				
10-Jan	75.7	75.7	75.2	74.7	74.5	74.2	73.3	73.3	72.9	72.8	72.0	70.4	70.2	69.2	69.4	71.1	72.3	73.4	73.3	73.1	73.2	73.2	72.8	72.3	72.8	75.7																				
11-Jan	71.4	71.0	70.5	70.6	71.2	70.9	70.8	70.3	69.9	69.2	68.8	68.1	66.6	67.7	67.6	68.9	69.2	69.5	70.0	70.2	70.0	69.9	69.1	68.9	69.6	71.4																				
12-Jan	68.6	68.3	67.6	67.7	67.1	66.9	66.4	66.6	66.7	66.7	66.6	67.1	67.2	67.1	67.1	66.9	68.5	68.5	68.0	67.4	67.0	66.6	66.1	66.0	67.2	68.6																				
13-Jan	65.5	65.3	65.4	65.3	64.7	64.9	64.6	65.3	64.9	65.3	65.9	67.1	65.1	65.2	64.3	65.3	68.3	69.3	69.1	68.8	68.5	68.2	68.0	67.6	66.3	69.3																				
14-Jan	67.5	67.4	67.9	67.6	67.6	67.6	67.2	67.3	67.4	68.3	69.3	69.9	69.0	67.5	68.4	70.1	72.0	72.2	71.3	71.3	71.6	71.9	71.4	71.4	69.3	72.2																				
15-Jan	71.1	70.8	70.6	70.3	70.2	70.3	70.4	70.3	70.0	69.9	69.6	68.5	66.3	64.9	61.1	63.1	71.2	74.7	74.9	71.1	68.0	67.3	69.0	71.0	69.4	74.9																				
16-Jan	71.5	72.2	72.9	71.7	72.3	71.5	72.0	71.2	71.9	71.1	69.0	66.2	58.8	59.1	61.1	65.2	67.7	69.7	70.6	68.1	70.1	72.4	76.5	74.5	69.5	76.5																				
17-Jan	75.8	75.8	75.8	77.5	75.9	75.8	77.3	76.1	76.0	74.3	72.4	70.2	69.5	67.6	69.1	69.9	72.8	76.6	78.2	78.7	78.3	77.6	77.6	78.4	74.9	78.7																				
18-Jan	78.8	78.1	78.3	78.6	78.6	78.6	78.1	77.8	77.4	76.7	73.2	72.5	70.0	70.5	70.4	71.3	74.3	75.6	75.5	76.0	76.7	76.9	76.8	77.3	75.7	78.8																				
19-Jan	77.3	76.8	75.2	76.4	78.0	78.4	77.8	77.1	77.1	76.0	73.3	70.3	66.6	64.7	61.2	68.8	75.5	79.1	78.2	73.6	72.0	73.6	74.4	74.2	74.0	79.1																				
20-Jan	76.2	78.2	77.4	77.7	77.4	77.4	78.1	79.1	83.0	80.8	73.0	67.6	67.1	66.7	64.8	66.5	74.9	79.5	78.9	76.7	77.5	78.0	77.9	77.0	75.5	83.0																				
21-Jan	75.3	76.8	76.8	77.9	79.4	79.5	79.5	78.1	78.2	76.7	74.5	73.0	72.0	70.9	71.3	72.0	73.0	73.8	75.8	77.3	77.6	78.6	78.5	77.0	76.0	79.5																				
22-Jan	75.6	76.4	75.6	77.6	76.1	75.1	74.8	75.2	75.5	74.2	71.1	69.5	70.1	70.6	71.5	71.6	73.4	75.1	75.7	78.6	81.4	82.9	83.4	84.3	75.6	84.3																				
23-Jan	85.0	84.1	83.9	83.6	82.7	83.2	83.7	83.5	83.6	83.2	80.2	78.9	75.4	68.8	67.7	68.0	76.9	79.2	80.2	83.2	86.7	84.8	83.0	85.2	80.6	86.7																				
24-Jan	85.2	89.7	91.8	91.7	90.8	90.5	90.3	90.4	90.4	90.6	91.0	91.0	87.1	81.7	81.5	81.6	83.5	87.2	89.8	92.6	93.0	92.3	92.9	92.2	89.1	93.0																				
25-Jan	91.4	89.8	90.3	89.5	89.4	89.6	89.0	90.6	93.5	92.9	93.3	93.2	93.1	93.1	93.3	93.4	92.9	92.9	92.9	92.9	92.2	92.3	92.1	91.6	91.9	93.5																				
26-Jan	90.7	90.0	90.4	90.8	90.6	91.4	92.0	92.6	94.3	94.4	94.6	95.2	96.0	96.6	97.0	97.7	98.2	98.1	97.8	96.3	94.3	93.6	94.0	94.1	94.2	98.2																				
27-Jan	94.7	94.2	94.6	94.4	93.9	93.4	94.0	94.0	94.1	92.9	87.0	81.0	72.3	64.4	59.0	64.4	74.4	75.0	75.9	77.1	76.3	78.2	77.7	76.9	82.5	94.7																				
28-Jan	77.3	76.5	76.1	75.7	79.8	81.7	82.3	74.9	73.5	74.4	72.7	68.1	63.0	58.8	56.3	55.5	58.8	60.7	63.8	68.9	76.8	71.5	70.2	76.2	70.6	82.3																				
29-Jan	83.6	88.4	89.7	87.8	85.4	85.6	84.3	85.5	83.3	79.5	77.9	68.2	64.3	59.9	53.2	52.9	58.0	61.6	65.2	69.2	71.5	73.5	75.2	76.5	74.2	89.7																				
30-Jan	77.4	77.7	77.8	78.5	83.1	88.4	91.3	93.2	92.6	85.1	78.0	59.4	50.2	36.8	31.6	32.5	34.8	37.3	40.0	42.0	43.9	46.1	48.4	51.3	61.6	93.2																				
31-Jan	52.9	55.0	57.2	62.2	62.9	67.2	71.4	76.2	78.9	77.1	65.5	56.9	48.9	41.7	39.1	39.2	47.0	53.9	53.0	57.0	57.2	63.6	69.3	59.4	58.9	78.9																				
																						78.8	78.8	78.9	79.1	79.3	79.6	79.8	79.8	80.1	79.3	77.6	75.2	72.7	71.0	70.3	71.4	74.1	75.7	76.4	77.0	77.5	77.8	78.2	78.2	Diurnal Average
																						94.7	94.2	94.6	94.4	93.9	93.4	94.0	94.0	94.3	94.4	94.6	95.2	96.0	96.6	97.0	97.7	98.2	98.1	97.8	96.3	94.5	94.8	94.3	94.1	Diurnal Maximum



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

**Relative Humidity (RH) - %**  
**Janvier - January 2024**





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Janvier - January 2024

Maximum Speed: 22 km/h on Jan 30 15:00	Maximum Daily Speed Average: 10.6 km/h on Jan 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 18 03:00	Minimum Daily Speed Average: 0.3 km/h on Jan 3	Hours of Data: 744
Maximum Diurnal Speed Average: 2.1 km/h at hour 1	Minimum Diurnal Speed Average: 0.2 km/h at hour 17	Hours of Missing Data: 0
Monthly Average Velocity: 1.1 km/h 227.5 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 5 Q <sub>3</sub> = 7 P <sub>90</sub> = 9 P <sub>99</sub> = 14	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-Jan	W6	SW7	SSW7	W6	W4	W5	WNW7	N7	NNE10	NNE10	NNE8	NNE8	NNE7	NNE4	NNW2	ENE3	NE4	NNE6	NNE5	NE5	NNE5	NNE5	NNE6	NNE6	N3.4	NNE10	
2-Jan	NNE5	NNE5	NNE4	NNE6	N3	NNE5	NNE7	NNE6	NNE5	NE5	NE5	NNE5	NE6	ENE5	NE4	ENE4	ENE3	NE4	ENE3	NNE3	NNW2	SSE0	SSE1	SE2	NE3.7	NNE7	
3-Jan	S1	S2	SSW2	S1	S1	N2	N2	NNW2	NNW1	N2	NNW2	N4	NNE4	NNE4	NNE3	NNE3	NNE2	NE2	S2	S1	ESE1	SW3	SSW5	SW6	N0.3	SW6	
4-Jan	SSW6	SW6	SW5	WSW5	NNE8	NNE8	NNE6	NNE8	NNE9	NNE8	NNE8	NNE8	NNE6	NNE6	NE6	NE7	NE5	NE6	NE5	NE4	NNE5	NNE4	NNE3	NNE4.4	NNE9		
5-Jan	E3	ESE5	E3	ENE3	NNE2	NNW2	NNW2	WNW1	SSW2	SW2	WNW4	WNW6	NW5	WNW5	N3	NNE3	NNE2	NE3	E3	E2	ENE3	E1	NE3	NNW1	NNE1.0	WNW6	
6-Jan	NNE2	NNE3	N2	NNE5	NNE5	NNE5	NNE5	NNE5	NE6	ENE6	ENE7	ENE7	ENE7	NE7	NE8	NNE10	NNE10	NNE10	NNE10	NNE9	NNE9	NNE11	NNE10	NNE7	NE6.8	NNE11	
7-Jan	NNE6	NNE7	NNE9	NNE7	NNE6	NNE6	NNE6	NNE6	NNE5	ENE5	E4	SSE1	S3	S4	S4	SSW4	S3	S4	SSE3	SE4	SE5	S4	SSE5	S8	E1.6	NNE9	
8-Jan	S7	S4	SSE4	SSE4	S5	S6	S7	S6	SSE3	SSE2	W1	WSW3	NW4	WNW5	NW3	WNW4	N4	NNE6	NNE5	NNE2	NNE1	NNE1	N1	NNE3	SSW0.7	S7	
9-Jan	NNE3	ENE1	NE3	NE2	NE3	NE4	NNE5	NNE5	NNE6	NNE7	NNE7	NNE7	NNE10	NE11	NNE11	NNE11	NNE9	NNE8	NNE10	NNE9	NNE7	NNE9	NNE9	NNE10	NNE6.8	NE11	
10-Jan	NNE7	NNE6	NNE5	N5	N5	N4	N5	N4	N4	NNE4	NNE2	N7	NNE7	NNE7	NNE6	NNE6	N4	NNW1	NNE1	SE1	SE2	NNE2	N3	NNE5	NNE4.1	NNE7	
11-Jan	NNE5	NNE6	NNE5	NNE3	N1	N4	NNE3	NNE4	NNE4	NNE3	NNE3	ENE1	NNE4	NNE5	NNE7	NNE6	NNE6	NNE3	NNE3	NNE1	SSE2	E2	NE4	SE1	NNE3.4	NNE7	
12-Jan	SW1	SSE2	SSW3	SSW3	S3	SSW3	SSE2	SSW5	SSW6	SSW5	SSW6	SSW4	SSW3	SSW3	SSW2	E2	ESE3	SE2	S2	S1	SSE1	SSE1	S2	SE1	S2.4	SSW6	
13-Jan	S2	SSW1	S2	SE1	SSW1	S2	SSE1	SSW3	S3	SSW2	SSW4	SSW3	NNW2	NW2	N2	NNE2	ESE1	SE2	S2	S2	S2	SSW3	SSW3	SSE1	S1.3	SSW4	
14-Jan	SSW3	SSW4	SSW7	SSW5	SSW5	SSW4	SSW5	SSW5	SSW5	SSW6	SSW5	SSW5	SSW4	W3	WSW4	SW3	SE2	SE2	S2	SSW3	SSW4	SSW6	SSW5	SSW5	SSW4.0	SSW7	
15-Jan	SSW6	SSW6	SSW8	SSW8	SSW8	SSW8	SSW8	SSW8	SSW9	SSW10	SSW8	SSW9	SSW11	SSW10	SSW11	SSW10	SSW7	SE5	SSE4	S3	SSW3	SSW8	SSW7	SSW5	SSW7	SSW7.4	SSW11
16-Jan	SSW6	SSW6	SSW4	SSW3	S1	NW0	S2	SSE2	S5	SSE2	SSE1	NW2	N9	N7	WNW3	WNW6	WNW6	W6	WNW5	WNW6	WNW8	WNW8	WNW8	WNW9	W2.8	N9	
17-Jan	W7	W7	WNW6	WNW5	NW4	NW5	N4	NNE7	NNE5	NNE7	NNE7	NNE7	NNE7	NNE8	NNE6	NNE6	NNE6	NNE3	NE1	NNE2	W2	NNE3	N3	NNW1	N3.7	NNE8	
18-Jan	WSW2	WNW0	ENE0	W0	W2	WNW6	W6	WSW6	SW5	W4	W6	WNW7	NNW7	NW7	WNW8	WNW6	W7	WSW7	WSW6	SW6	SW7	WSW6	SW6	SW4	W4.4	WNW8	
19-Jan	SW4	SW6	WSW7	WSW5	SSW6	SSW6	SSW7	SSW6	SSW7	SSW8	SSW8	SW6	SSW6	SSW5	SW2	NE3	ESE2	SSW1	SSE3	S8	SSW8	S5	S7	S7	SSW4.9	SSW8	
20-Jan	S6	SSW6	SSW7	SSW7	SSW7	SSW5	SSW4	SSW4	SSW3	SW4	SW7	WSW8	W6	WNW5	WNW5	WNW4	S1	SW2	W1	NNE5	NNE5	NNE4	NNE5	N4	SW2.3	WSW8	
21-Jan	NNE3	NE6	NNE5	NNE4	NNE6	NNE7	NNE9	NNE8	NNE8	NNE7	NNE6	NNE6	NNE7	NNE7	NNE8	NNE7	NNE8	NNE8	NNE6	NNE6	NNE6	NNE5	NNE5	NE6	NNE6.4	NNE9	
22-Jan	NE8	NE7	NNE8	NNE5	NE7	ENE8	ENE7	ENE6	ENE6	E6	ESE7	ESE7	ESE6	SSE5	SSE7	SSE8	SSE8	S8	S9	S9	S8	S11	S9	S8	SE4.0	S11	
23-Jan	S7	S6	S6	S7	S7	SSW7	SSW7	SSW7	SSW8	SSW7	SSW9	SW7	SW7	SW5	SW1	WSW1	E2	E1	ESE1	NNE2	NNE7	NNE6	NNE7	NNE6	SSW2.9	SSW9	
24-Jan	NNE6	NNE5	NNE4	NNE3	NE3	ESE1	ENE1	ENE3	ENE3	E1	S4	S5	S7	S6	SSE5	SSE5	SE5	SE4	SSE3	NE1	S3	S2	SSW4	SSW5	SE1.8	S7	
25-Jan	SSW5	WSW1	SSW6	SSW4	SW2	SSW3	N1	NNE2	NW1	NW1	WNW2	NW2	WSW1	WSW2	SSW3	SSW5	SSW6	SSW6	SW4	S5	S3	SSW4	SSW8	SSW9	SSW2.9	SSW9	
26-Jan	SSW9	SSW9	SSW8	SW7	SSW6	SSW6	SSW6	SSW4	SSW4	SW3	WSW4	SSW7	SSW7	SSW5	SSW4	S3	SSW4	S2	S3	SSE3	SE5	SSE4	SSW4	SSW5	SSW4.7	SSW9	
27-Jan	SSW5	SSW5	SSW6	SSW5	S4	SSW3	SSW5	SSW4	S6	SW5	SW9	SW12	SW11	SW10	SW8	SSW10	SSW8	SSW11	SW10	SW10	SW10	SSW10	SSW9	SSW9	SSW7.6	SW12	
28-Jan	SSW10	SSW10	SW9	SW7	SSW4	SW2	SSW5	SSW9	SSW11	SW10	SSW10	SSW9	SSW10	SSW10	SSW10	WSW10	W10	W10	WSW10	WSW9	SW7	SSW8	SW9	W9	SW6	SSW7.9	SSW11
29-Jan	S6	SSW6	S5	SSW9	SSW9	SSW9	SSW8	SSW6	SSW8	SSW6	SSW6	SSW8	SSW7	SSW8	SW8	SW11	SSW10	SSW11	SSW11	SSW12	SSW12	SSW12	SSW12	SSW13	SSW8.8	SSW13	
30-Jan	SSW11	SW9	SSW8	SSW9	SSW6	S4	S4	SSW3	SSW4	SW6	WSW11	W17	W11	W18	W22	W20	W20	W21	W15	W13	WSW13	WSW12	W14	W12	WSW10.6	W22	
31-Jan	WSW14	WSW13	WSW7	SSW8	WSW7	SW9	SSW8	S6	S5	SSW6	SSW8	SSW9	SSW7	S5	SSW6	SSE5	SSE5	SE4	SSE6	S6	SSE5	ESE2	ESE2	SSE5	SSW5.4	WSW14	

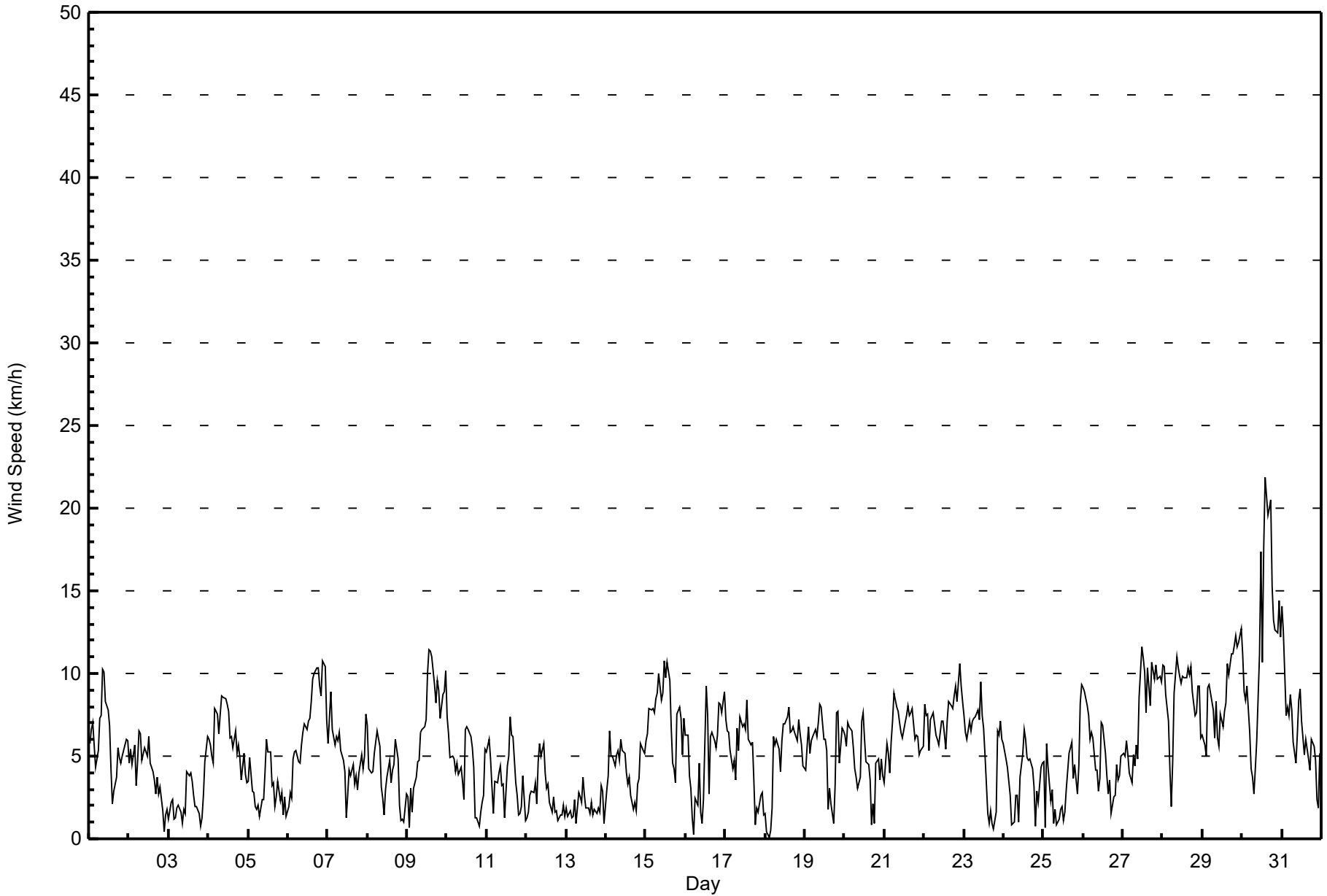
SW2.1SSW1.8SSW1.9 SW1.8 SW1.1 SW1.0 SW0.8SSW0.5 S0.7SSW0.6 SW1.4WSW1.7WNW0.9 W1.2WNW1.4WNW0.9 NW0.2SSW0.6 SW0.8SSW1.1SSW1.4 SW1.3 SW1.3 SW1.7	Diurnal Average
WSW14WSW13 NNE9 SSW9 SSW9 SSW9 NNE9 SSW9 SSW11 SW10WSW11 W17 SW11 W18 W22 W20 W20 W21 W15 W13WSW13WSW12 W14 SSW13	Diurnal Maximum

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



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

**Wind Speed (WS) - km/h**  
**Janvier - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Janvier - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	393	52.82	52.82
6 - 11	331	44.49	97.31
12 - 19	16	2.15	99.46
20 - 28	4	0.54	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Janvier - January 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	23	79	20	14	11	9	15	34	44	72	17	11	9	13	11	11	393
6 - 11	4	98	12	8	1	3	0	4	27	104	29	12	13	14	1	1	331
12 - 19	0	0	0	0	0	0	0	0	0	5	1	4	6	0	0	0	16
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	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>	27	177	32	22	12	12	15	38	71	181	47	27	32	27	12	12	744

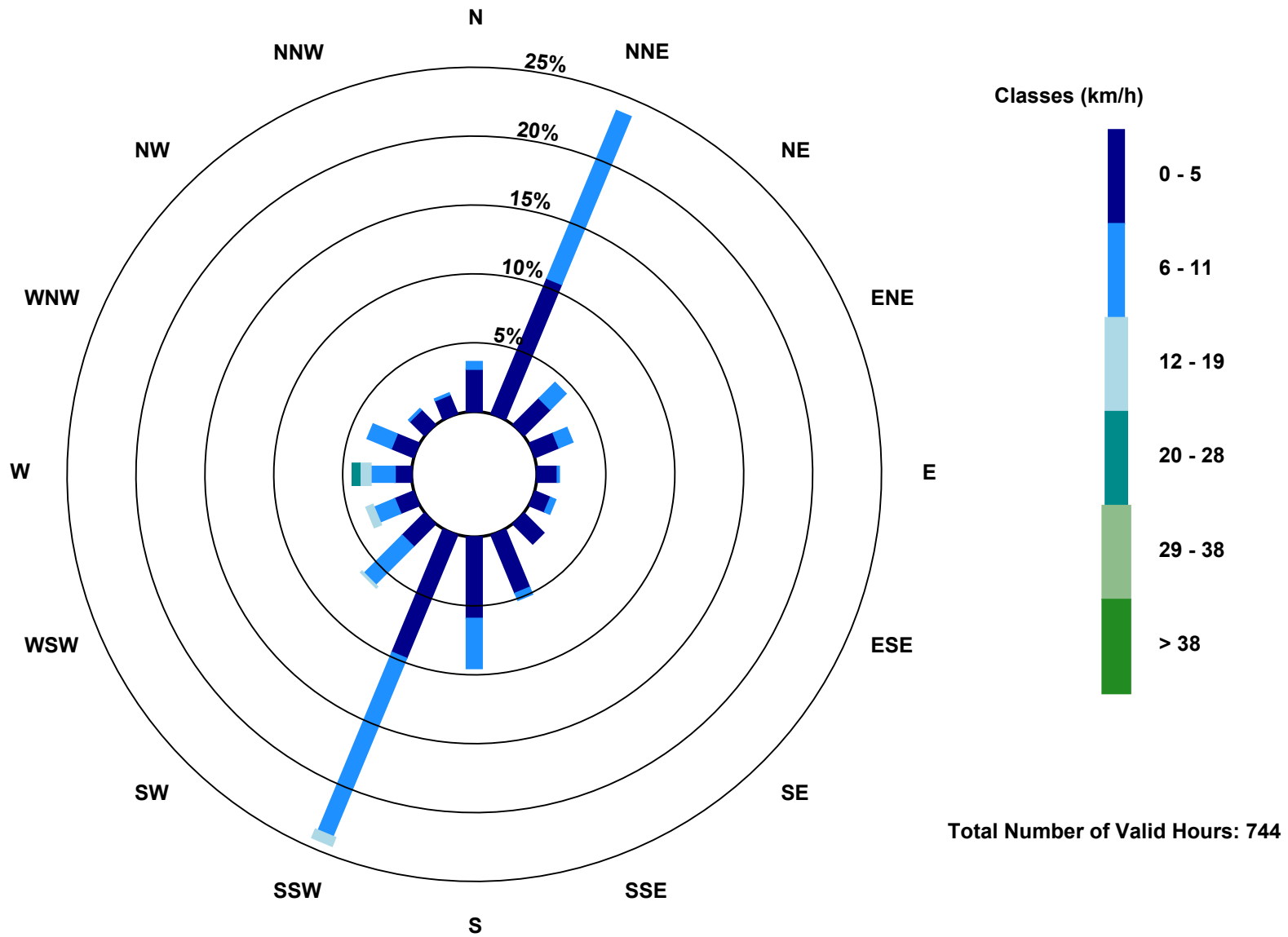
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Janvier







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

**Wind Speed (WS) - km/h**  
**Janvier - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 15:00														Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0											
Minimum Value: 0 km/h on Jan 11 21:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 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-Jan	3	2	1	3	2	2	3	4	4	4	3	3	2	2	1	1	2	2	1	1	1	2	1	2	4
2-Jan	2	2	2	2	1	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2
3-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
4-Jan	2	2	1	1	2	3	2	2	3	3	2	3	3	2	2	3	2	2	1	2	1	2	1	1	3
5-Jan	1	2	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2
6-Jan	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	3	3	3	2	2	3	3	2	3
7-Jan	2	3	3	2	2	2	2	2	2	2	2	1	1	2	1	2	1	1	1	1	1	1	2	2	3
8-Jan	2	1	1	1	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2
9-Jan	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	2	3	3	3	3
10-Jan	3	2	2	2	2	2	2	2	2	1	1	2	3	2	2	2	2	1	1	1	1	2	1	2	3
11-Jan	2	2	2	1	1	1	1	2	2	1	1	1	1	2	2	2	2	2	1	1	0	1	1	0	2
12-Jan	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1
13-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	2	1	2
14-Jan	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
15-Jan	1	1	1	2	1	2	2	2	2	2	2	3	3	3	3	2	1	2	1	2	2	2	1	1	3
16-Jan	1	2	1	2	1	1	1	1	1	1	1	2	4	3	1	2	2	2	2	2	3	3	2	3	4
17-Jan	2	2	2	2	2	2	2	3	2	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	3
18-Jan	1	1	1	1	1	2	2	2	2	2	2	2	4	3	3	3	2	2	2	2	2	2	2	1	4
19-Jan	1	2	2	2	1	1	1	2	2	2	2	2	2	2	1	1	1	1	2	3	3	2	2	2	3
20-Jan	2	2	2	2	2	2	1	1	1	1	2	3	2	2	2	2	1	1	1	2	2	1	2	2	3
21-Jan	2	2	2	1	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
22-Jan	2	2	2	1	2	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	3	3	3	3
23-Jan	2	2	2	2	2	3	2	2	2	2	3	3	2	2	2	1	1	1	1	2	2	2	2	2	3
24-Jan	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	2	2	2
25-Jan	1	1	1	2	1	2	1	1	1	1	1	1	1	1	2	1	2	2	1	1	1	1	2	2	2
26-Jan	2	2	2	2	2	1	2	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2
27-Jan	1	1	1	1	1	2	1	1	2	2	2	3	3	3	2	3	2	3	3	3	3	3	2	2	3
28-Jan	2	3	3	2	2	1	2	2	3	3	2	2	2	3	4	3	3	3	3	2	2	3	3	2	4
29-Jan	1	1	2	2	2	2	2	1	2	3	2	2	2	2	3	4	3	3	3	3	3	3	3	3	4
30-Jan	3	3	2	2	2	1	1	1	1	2	7	7	4	8	8	8	7	8	6	5	5	5	5	4	8
31-Jan	4	5	4	3	2	3	2	2	2	2	2	2	2	3	2	2	1	2	2	2	2	1	1	3	5
														Diurnal Maximum											



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

**Wind Direction (WD) - deg**  
**Janvier - January 2024**

Direction of Maximum Speed: 272 deg on Jan 30 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 253.4 deg on Jan 30	Hours of Data: 744
Direction of Minimum Speed: 68 deg on Jan 18 03:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.3 deg on Jan 3	Percent Operational Time: 100.0
Monthly Average Direction: 227.5 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-Jan	261	214	201	275	268	272	290	349	14	17	15	19	20	15	343	77	40	21	31	34	33	29	32	26	0.6
2-Jan	17	21	14	27	11	24	33	33	24	42	44	28	38	70	47	61	74	47	64	23	341	168	161	135	36.7
3-Jan	175	171	193	169	189	6	349	331	348	5	346	11	14	24	20	14	14	45	173	184	103	216	204	219	356.8
4-Jan	213	221	220	250	23	16	13	21	22	23	24	24	24	24	15	42	46	39	41	41	15	18	19	24	21.7
5-Jan	97	121	80	76	26	348	328	294	211	226	292	291	304	293	358	17	26	52	84	100	73	82	46	347	12.1
6-Jan	33	21	5	28	28	25	21	23	42	62	59	62	57	42	35	30	31	28	33	33	33	31	33	28	35.4
7-Jan	32	23	24	19	19	19	22	21	17	58	95	159	169	180	187	194	179	181	166	136	144	173	164	173	80.6
8-Jan	175	175	161	167	175	176	180	187	157	166	263	248	317	297	324	291	8	19	20	14	13	13	8	29	196.1
9-Jan	29	68	43	52	39	36	12	18	23	25	31	28	31	39	28	32	28	23	21	17	16	19	20	19	26.1
10-Jan	18	14	12	8	10	358	3	8	11	14	21	9	14	15	16	18	10	336	20	146	124	29	10	24	14.0
11-Jan	22	21	18	25	4	8	13	16	22	30	29	61	31	19	20	24	27	18	12	17	152	93	53	126	25.6
12-Jan	226	165	197	196	191	194	158	199	201	203	201	201	206	200	201	96	114	143	171	174	165	167	177	143	188.0
13-Jan	176	198	179	131	207	185	152	199	186	211	201	197	330	305	2	21	113	138	184	191	191	194	192	164	189.5
14-Jan	196	199	198	200	207	200	200	197	199	202	204	199	198	267	253	214	130	144	189	205	204	203	204	208	203.0
15-Jan	204	202	203	206	204	206	210	206	203	204	205	201	210	203	206	198	146	149	186	212	208	201	203	203	202.0
16-Jan	206	195	194	202	171	314	174	163	191	155	162	324	10	10	294	282	285	278	289	295	288	286	284	282	274.7
17-Jan	279	275	285	302	320	314	357	19	17	15	23	21	12	33	27	19	23	30	45	31	270	17	6	344	356.9
18-Jan	246	299	68	265	263	282	263	241	231	280	279	289	340	309	293	292	270	253	245	224	226	238	233	230	264.9
19-Jan	231	229	242	242	212	204	204	197	204	204	203	225	210	203	232	37	120	193	162	188	201	181	182	190	204.6
20-Jan	191	200	199	193	195	213	211	198	213	218	233	242	273	292	285	291	189	233	262	28	28	26	20	4	232.5
21-Jan	23	36	24	20	19	18	23	17	27	27	16	24	25	28	24	24	28	28	21	14	14	16	22	34	23.2
22-Jan	34	34	33	25	45	65	66	73	70	88	111	118	115	157	162	164	160	173	179	183	187	187	189	185	128.0
23-Jan	180	172	182	186	190	196	200	206	205	201	207	215	228	236	240	81	100	119	19	27	28	27	32	195.6	
24-Jan	31	21	25	21	46	111	67	60	66	100	176	176	182	170	149	149	145	136	156	45	170	186	205	199	138.6
25-Jan	201	242	197	201	220	201	1	24	317	326	283	311	243	239	198	202	202	213	218	180	185	201	204	206	208.5
26-Jan	208	203	206	217	210	198	206	211	208	230	238	213	212	206	199	188	196	179	191	164	146	156	202	210	203.2
27-Jan	209	202	204	196	187	206	197	203	188	225	215	219	221	222	224	207	207	212	216	219	220	214	213	213	212.3
28-Jan	208	213	222	214	203	215	206	213	213	217	203	198	204	211	250	269	268	256	242	230	196	216	261	217	223.8
29-Jan	191	195	188	206	210	203	208	204	199	196	200	204	208	208	217	215	205	205	210	206	204	206	211	211	205.8
30-Jan	212	215	211	201	192	183	191	200	211	215	244	278	260	265	272	272	270	269	268	259	257	257	271	264	253.4
31-Jan	255	257	249	204	237	222	201	179	187	201	209	207	209	189	192	158	167	145	149	177	161	121	103	155	203.3

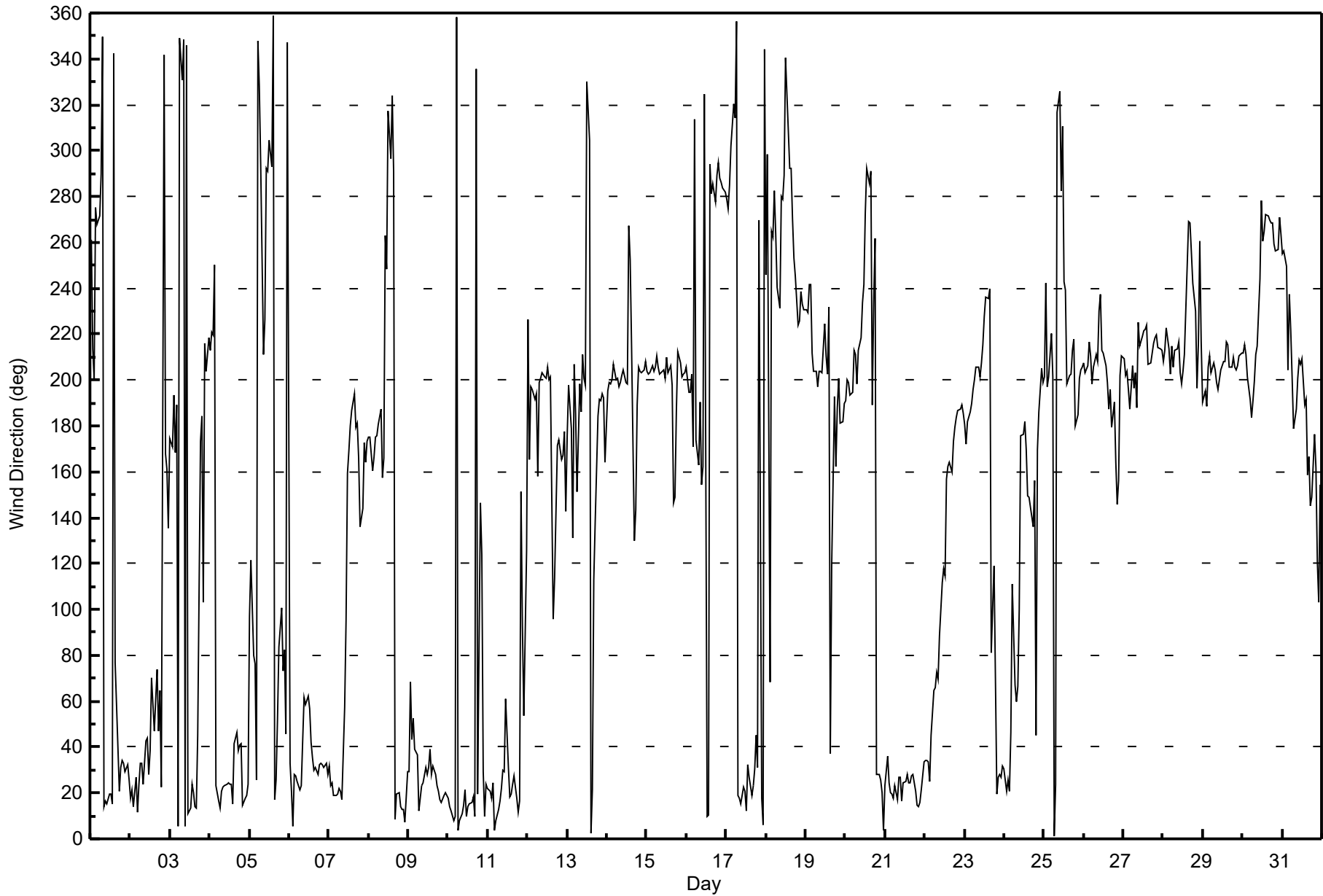
216.4 213.2 212.4 214.0 214.5 227.1 224.8 211.4 191.1 195.0 217.9 244.0 283.7 273.6 288.1 288.4 306.4 249.2 220.9 212.8 206.2 215.3 232.1 217.9  
 Diurnal Average

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



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

**Wind Direction (WD) - deg**  
**Janvier - January 2024**





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

**Wind Direction (WD) - deg**  
**Janvier - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0										Hours in Service: 744															
Maximum Value: 95 deg on Jan 19 18:00										Hours of Data: 744															
Minimum Value: 6 deg on Jan 25 03:00										Hours of Missing Data: 0															
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 14 Q <sub>1</sub> = 17 Median = 22 Q <sub>3</sub> = 32 P <sub>90</sub> = 50 P <sub>99</sub> = 89										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-Jan	39	19	13	30	33	27	23	47	29	23	25	34	26	42	50	25	48	23	18	15	18	18	16	20	50
2-Jan	24	22	25	16	23	26	16	17	24	19	21	21	23	28	36	32	35	19	33	39	39	89	58	47	89
3-Jan	69	26	31	53	42	32	42	72	70	54	79	35	31	21	19	28	33	32	49	83	62	24	33	22	83
4-Jan	21	20	19	22	19	24	25	20	20	20	23	25	22	28	28	22	17	15	23	22	21	22	36	36	36
5-Jan	33	23	33	28	31	46	38	76	27	35	27	26	41	24	48	32	38	21	20	30	23	86	65	48	86
6-Jan	34	26	27	19	16	15	15	15	23	25	24	22	20	15	18	16	15	16	15	16	16	16	16	16	34
7-Jan	16	20	19	21	25	21	21	20	24	26	36	92	51	40	33	28	22	19	23	17	20	28	27	21	92
8-Jan	22	22	21	22	21	19	20	19	26	24	56	38	51	38	61	31	48	22	21	48	69	68	83	49	83
9-Jan	35	85	39	79	16	24	20	18	15	16	15	16	14	19	19	15	16	18	20	22	22	21	20	22	85
10-Jan	25	29	29	28	23	33	26	29	32	36	51	30	32	31	23	20	34	39	56	78	24	55	30	16	78
11-Jan	19	20	22	20	59	30	24	22	20	27	23	79	32	31	19	20	16	25	20	43	32	32	17	42	79
12-Jan	36	26	20	16	9	10	18	12	10	13	13	25	34	26	32	70	10	38	20	62	39	27	27	57	70
13-Jan	28	38	37	42	44	22	59	21	23	35	23	17	48	57	38	30	47	27	38	27	23	15	24	49	59
14-Jan	12	10	8	10	10	11	8	8	12	9	14	16	26	42	27	29	41	35	31	17	18	9	12	17	42
15-Jan	12	10	12	13	13	14	16	14	13	14	15	14	19	16	15	15	23	21	24	13	15	16	17	10	24
16-Jan	12	10	29	38	62	89	42	54	17	62	80	71	34	25	47	20	18	19	19	27	20	21	21	18	89
17-Jan	19	20	18	31	51	49	50	21	20	26	27	22	27	14	19	22	15	14	50	46	46	23	29	40	51
18-Jan	65	72	94	91	52	20	17	17	18	37	18	26	44	37	28	33	19	17	19	19	19	21	19	19	94
19-Jan	22	19	20	24	14	13	13	13	13	13	18	25	26	25	58	32	45	95	55	23	19	22	18	16	95
20-Jan	17	14	16	16	17	19	18	15	17	20	21	29	28	34	30	27	88	36	77	20	22	36	33	33	88
21-Jan	33	14	23	21	22	21	18	24	23	21	25	30	25	21	21	20	18	16	18	21	26	29	22	19	33
22-Jan	18	16	15	15	21	24	23	26	29	28	26	24	24	33	27	25	24	23	22	19	16	19	17	19	33
23-Jan	19	22	19	18	19	21	16	18	16	15	20	28	30	35	89	71	34	81	79	65	18	18	17	17	89
24-Jan	17	19	20	21	42	91	58	26	36	77	33	27	24	26	32	28	16	12	27	73	38	75	24	31	91
25-Jan	12	72	6	16	25	61	77	26	41	30	21	50	57	66	70	21	26	24	26	23	37	22	15	15	77
26-Jan	15	13	14	19	21	11	16	21	22	38	34	23	24	23	33	48	25	74	73	35	14	21	17	15	74
27-Jan	12	11	9	10	18	38	14	19	17	40	17	19	20	21	22	13	15	16	16	17	17	16	15	14	40
28-Jan	14	16	20	17	16	45	34	16	16	18	14	13	13	19	29	21	17	18	20	20	18	23	19	20	45
29-Jan	16	15	21	13	13	13	15	12	10	15	16	14	16	17	20	19	17	14	15	14	14	13	14	16	21
30-Jan	16	15	17	14	21	19	21	32	13	25	35	24	24	23	23	21	22	20	22	24	26	26	20	20	35
31-Jan	21	23	33	23	24	20	17	24	23	16	19	18	23	46	28	26	17	28	27	22	32	56	64	37	64
										69 85 94 91 62 91 77 76 70 77 80 92 57 66 89 71 88 95 79 83 69 89 83 57															
										Diurnal Maximum															



Maximum Speed: 30 km/h on Jan 30 15:00	Maximum Daily Speed Average: 14.6 km/h on Jan 30	Hours in Service: 744
Minimum Speed Value: 1 km/h on Jan 16 06:00	Minimum Daily Speed Average: 0.5 km/h on Jan 3	Hours of Data: 716
Maximum Diurnal Speed Average: 3.3 km/h at hour 1	Minimum Diurnal Speed Average: 0.9 km/h at hour 17	Hours of Missing Data: 28
Monthly Average Velocity: 2.0 km/h 239.7 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 7 Q <sub>3</sub> = 9 P <sub>90</sub> = 12 P <sub>99</sub> = 19	Percent Operational Time: 96.2

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-Jan	W9	SW9	SW9	WNW9	W7	WNW8	WNW12	NNW12	N14	N13	N11	N10	N9	N5	NNW3	ENE3	NE5	NNE7	NNE6	NNE5	NNE6	NNE7	NNE7	UO	NNW4.9	N14
2-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	ENE3	NNE3	NNW2	SW1	SW2	SSW2	----	NNE3
3-Jan	SSE1	SSW3	SSW4	S2	UO	NE3	N2	NNW1	N1	NNE2	NNE2	N5	N4	NNE4	NNE4	N3	NNE3	NNE4	NE1	SSW1	NE2	SW4	SSW7	SW9	NNW0.5	SW9
4-Jan	SW8	SW8	SW7	WSW7	NNE10	N10	N8	NNE10	NNE11	NNE10	NNE10	NNE10	NNE9	NNE7	NNE7	NE6	NE8	NE6	NE7	NE6	NNE4	NNE7	NNE5	NNE4	NNE5.2	NNE11
5-Jan	ESE5	ESE6	E4	E4	NE2	N2	NNW3	WNW2	SSW3	SW3	NW6	WNW8	NW7	WNW7	N5	N4	NNE3	NE4	E5	E4	E4	E3	NE4	NE3	NNE1.5	WNW8
6-Jan	ENE3	NE5	NNE4	NE6	NNE7	NNE7	NNE6	NNE6	NE7	ENE8	ENE8	ENE8	ENE8	NE9	NE10	NNE12	NNE12	NNE13	NE13	NE11	NNE11	NNE13	NE13	NNE9	NE8.5	NNE13
7-Jan	NNE7	NNE9	NNE11	NNE8	N7	N8	NNE8	NNE8	NNE7	ENE6	E5	SSE2	S3	S5	S5	S6	S4	S5	SSE4	SE6	SE7	SSE6	SSE7	S9	E2.0	NNE11
8-Jan	S8	S7	SSE6	S7	S7	S8	S8	S7	SSE4	S4	WSW2	WSW4	NW5	NW8	NNW6	NW6	N6	NNE8	NNE7	N4	N3	NNE2	N3	NNE4	SSW0.7	S8
9-Jan	NNE4	NE2	NE5	ENE3	NE4	NE5	NNE6	NNE6	NNE8	NNE8	NE8	NNE9	NNE11	NE13	NNE14	NNE13	NNE11	NNE10	NNE12	NNE11	N9	NNE11	NNE11	NNE13	NNE8.4	NNE14
10-Jan	NNE9	N8	N6	N6	N6	N6	N6	N5	N6	N6	N3	N8	N8	N8	N8	NNE7	N6	NNW4	N3	NNW2	ENE2	NNE4	NNE5	NNE7	N5.8	NNE9
11-Jan	NNE7	NNE8	NNE6	NNE4	N3	N5	N5	NNE6	NNE6	NNE4	NNE4	ENE1	NNE5	NNE6	NNE9	NNE8	NNE7	NNE5	NNE4	N4	S1	ENE3	NE5	ENE1	NNE4.7	NNE9
12-Jan	W2	SSW3	SSW5	SSW5	SSW5	SSW6	S6	SSW7	SSW8	SSW7	SSW6	SSW5	SW4	SSW4	SSW3	ESE2	E3	E2	SW3	S2	SSW4	SE2	SSW4	SSE2	SSW3.6	SSW8
13-Jan	SSW5	SSW5	SSW5	SSE2	SW3	SSW5	S3	SSW6	SSW5	SSW4	SSW4	SSW3	NW2	WNW2	UO	UO	UO	UO	UO	SSW4	SSW5	SSW6	SSW6	SSW3	SSW3.8	SSW6
14-Jan	SSW6	SW6	SSW9	SSW8	SSW8	SSW7	SSW8	SSW8	SSW8	SSW8	SSW6	SSW5	SW4	W4	WSW5	SW4	S1	E1	SW3	WSW6	SW6	SW8	SW8	SW8	SSW5.8	SSW9
15-Jan	SW8	SSW9	SSW10	SW10	SW10	SW10	SW11	SSW12	SSW13	SSW11	SSW10	SSW12	SW11	SSW12	SSW11	SSW9	SSE6	SSE7	SSW7	SSW11	SSW11	SSW10	SSW7	SSW9	SSW9.6	SSW13
16-Jan	SW9	SSW8	SSW7	SSW6	SSW4	NNE1	SSW5	S3	SSW8	SSW3	SSW1	NNW6	N12	N10	WNW4	WNW9	WNW10	WNW9	WNW9	NW10	WNW12	WNW12	WNW11	WNW12	W4.8	WNW12
17-Jan	WNW10	WNW9	WNW9	NW8	NNW7	NW8	NNW6	NNE9	NNE7	N10	NNE8	NNE8	N8	NNE10	NNE7	NNE7	NNE8	NNE6	N4	N4	NW3	N4	N5	NNW4	N5.8	WNW10
18-Jan	WNW3	NNW3	NNW2	NW3	WNW4	WNW9	W8	WSW9	WSW8	WNW7	WNW8	WNW10	NNW10	NW11	WNW12	NW10	W9	WSW9	WSW9	SW8	SW10	WSW8	WSW8	SW6	W6.5	WNW12
19-Jan	SW6	SW8	WSW9	WSW7	SW8	SSW8	SSW9	SSW9	SSW9	SSW10	SSW9	SW7	SW7	SSW6	SW2	NE3	ESE3	SSW2	S5	S11	SSW10	S7	S9	S9	SSW6.4	S11
20-Jan	S9	SSW8	SSW9	SSW9	SSW8	SW7	SW6	SSW5	SW5	SW6	SW9	WSW10	W8	WNW6	WNW6	WNW5	W2	WNW4	WNW2	NE6	NNE6	NNE5	NNE6	N5	WSW3.1	WSW10
21-Jan	N4	NE7	NNE7	NNE5	NNE8	NNE9	NNE11	NNE10	NNE9	NNE8	NNE8	NNE7	NNE8	NNE9	NNE10	NNE9	NNE9	NNE10	NNE8	NNE9	N8	NNE7	NNE7	NE7	NNE8.0	NNE11
22-Jan	NE10	NE9	NE9	NNE7	NE9	ENE9	ENE9	ENE8	ENE8	E7	ESE9	ESE9	ESE7	SSE7	SSE9	SSE10	SSE10	SSE10	S11	S11	S10	S13	S11	S10	SE5.3	S13
23-Jan	S9	S8	S8	S9	S8	SSW9	SSW9	SSW9	SSW10	SSW9	SSW11	SW9	SW8	WSW6	WSW2	WNW1	ENE2	ENE2	NE1	NNE2	NNE8	NNE8	NNE9	NNE8	SSW3.4	SSW11
24-Jan	NNE7	NNE6	NNE5	NNE4	NE3	E1	UO	UO	ENE3	ESE2	SSE4	S6	S8	S7	SSE6	SSE6	SSE7	SE6	SSE5	WNW1	SSW5	SSW6	SW8	SSW7	SSE2.6	S8
25-Jan	SSW7	WSW2	SSW8	SSW7	SW5	SSW5	WNW1	NNE4	UO	NNE2	NW1	NW3	W1	WSW2	SSW3	SSW6	SSW6	SW7	SW5	S6	S4	SSW6	SSW10	SSW12	SSW4.0	SSW12
26-Jan	SW12	SSW11	SW10	SW10	SW8	SSW8	SSW8	SW6	SSW6	SW5	SW5	SW8	SW8	SSW6	SSW4	S3	S4	S2	SSW3	S3	S7	SSW7	SW7	SSW9	SSW6.6	SW12
27-Jan	SSW8	SSW9	SSW9	SSW8	SSW8	SW6	SSW8	SSW7	S9	SW8	SW13	SW16	SW14	SW13	SW10	SW13	SSW11	SW14	SW14	SW14	SW15	SW13	SW13	SW13	SW11.0	SW16
28-Jan	SW14	SW14	SW12	SW10	SSW7	SSW5	SSW8	SW13	SW15	SW14	SSW12	SSW12	SSW13	SW12	WSW13	W13	W14	WSW15	WSW14	WSW12	SSW11	SW13	W13	SW9	SW11.1	SW15
29-Jan	SSW9	SSW9	S9	SSW12	SW12	SSW12	SW11	SW9	SSW11	SSW9	SSW9	SSW10	SSW9	SSW10	SW11	SW13	SSW13	SSW15	SW15	SSW15	SSW16	SSW15	SW16	SW17	SSW11.9	SW17
30-Jan	SW15	SW13	SW12	SSW12	SSW9	SSW8	SSW7	S4	SSW6	SW9	WSW16	WNW24	W15	W23	W30	W26	W26	W27	W20	W18	W17	WSW16	W19	W16	WSW14.6	W30
31-Jan	WSW19	WSW17	WSW11	SSW10	WSW11	SW13	SSW10	S9	SSW7	SSW9	SW10	SSW10	SW8	S6	S8	SSE7	SSE7	SE7	SE9	SSE9	SSE7	SE5	SE5	SSE8	SSW7.2	WSW19

SW3.3 SW3.3 SW3.3 SW3.1 SW2.2WSW2.0 SW2.1 SW1.6SSW1.8 SW1.4 SW2.2WSW2.6 W1.9 W2.1WNW2.5WNW1.7WNW0.9 W1.2WSW1.3WSW1.7 SW2.2 SW2.0WSW2.2 SW2.8	Diurnal Average
WSW19WSW17 SW12 SSW12 SW12 SW13WNW12 SW13 SW15 SW14WSW16WNW24 W15 W23 W30 W26 W26 W27 W20 W18 W17WSW16 W19 SW17	Diurnal Maximum

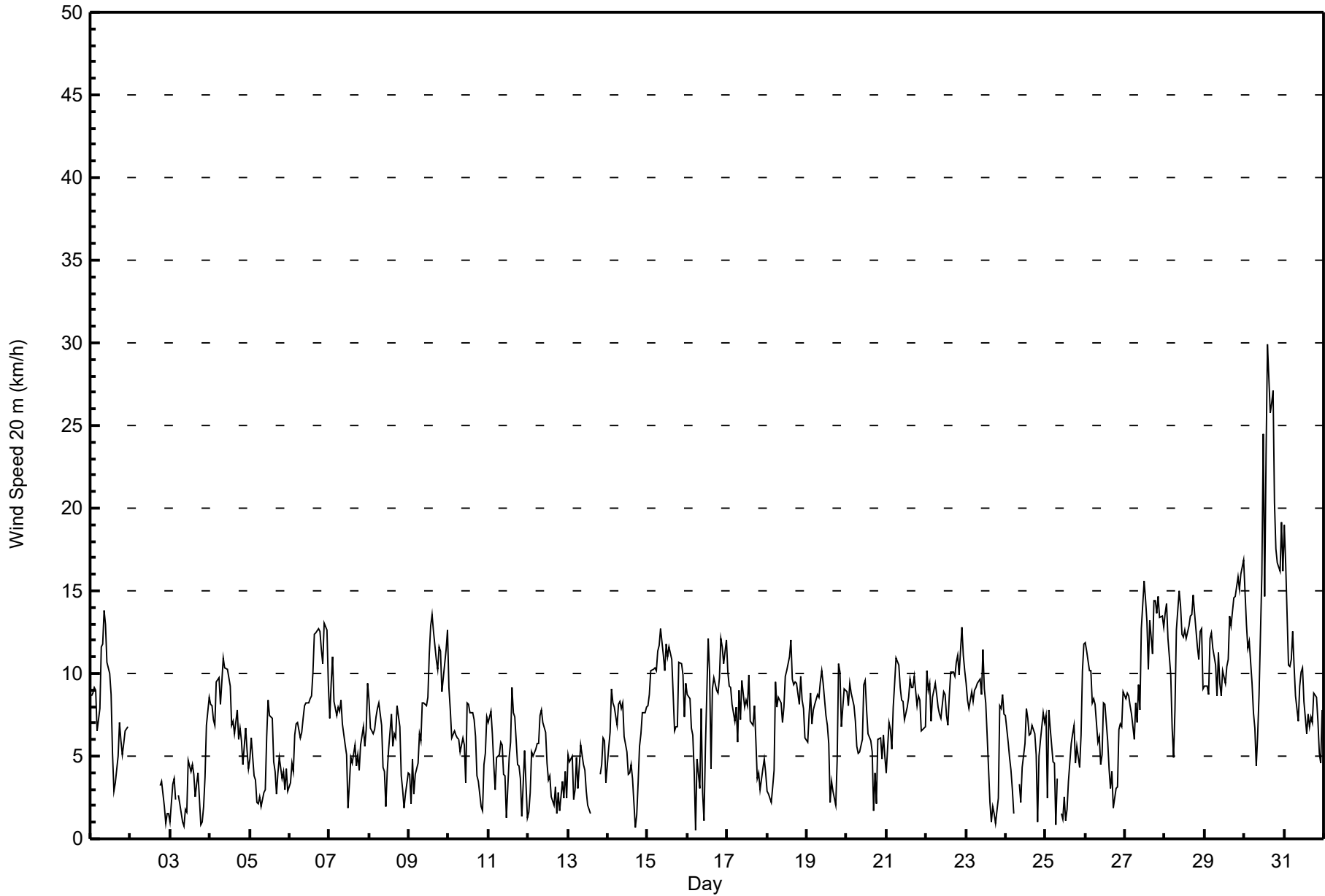
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Jan 30 15:00 Minimum Value: 0 km/h on Jan 13 20:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 3 P <sub>99</sub> = 6														Hours in Service: 744 Hours of Data: 716 Hours of Missing Data: 28 Hours of Calibration: 0 Percent Operational Time: 96.2											
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-Jan	4	2	2	3	2	2	3	5	4	5	3	4	3	2	1	1	2	2	2	1	2	2	2	UO	5
2-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1	1	1	1	1	1	1
3-Jan	1	1	1	2	UO	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2
4-Jan	2	2	1	1	2	3	3	3	3	3	3	3	3	2	2	3	2	2	1	2	1	2	1	1	3
5-Jan	2	2	1	1	1	1	1	2	1	1	2	3	3	2	1	1	1	1	1	1	1	1	2	1	3
6-Jan	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	2	3	3	3	2	3
7-Jan	2	3	3	2	2	2	2	2	2	2	2	1	1	2	1	2	1	1	1	1	2	2	2	3	3
8-Jan	2	1	1	1	2	2	2	2	1	1	1	2	2	3	2	2	2	3	2	1	1	1	1	2	3
9-Jan	2	2	1	2	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	3	3	3	4	4
10-Jan	3	3	2	2	2	2	2	2	2	2	1	3	3	3	3	2	2	1	1	2	1	2	1	2	3
11-Jan	2	2	2	1	1	2	1	2	2	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	2
12-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2
13-Jan	2	1	1	1	2	1	2	2	1	1	1	1	1	2	UO	UO	UO	UO	UO	0	1	1	1	1	2
14-Jan	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
15-Jan	1	1	2	2	2	2	3	2	2	2	2	3	3	3	3	2	1	2	1	2	2	2	2	1	3
16-Jan	1	1	2	1	2	1	1	1	1	2	2	3	4	3	2	3	2	2	2	3	3	3	3	3	4
17-Jan	3	3	2	3	3	3	2	3	2	3	3	2	2	2	2	2	2	2	1	1	1	1	1	1	3
18-Jan	1	1	1	1	2	2	2	2	2	3	2	3	4	3	4	3	2	2	2	2	2	2	2	1	4
19-Jan	1	2	3	2	2	1	1	1	2	2	2	2	2	1	1	2	2	2	3	3	4	2	2	2	4
20-Jan	2	2	2	2	2	2	1	1	1	2	2	3	2	2	2	2	2	1	1	2	2	1	2	2	3
21-Jan	2	2	2	1	3	2	3	3	2	2	3	2	2	2	2	3	2	3	2	3	2	2	2	3	3
22-Jan	2	2	2	1	2	3	3	2	2	2	3	3	2	2	3	3	3	3	3	4	3	3	3	3	4
23-Jan	2	2	2	2	2	3	3	2	2	3	3	2	2	2	2	1	1	1	1	2	2	2	2	2	3
24-Jan	2	2	1	1	2	1	UO	UO	1	1	1	2	2	2	2	2	2	1	1	1	3	3	3	2	3
25-Jan	1	1	1	2	1	2	1	1	UO	1	1	1	1	1	2	1	1	2	1	1	1	1	2	2	2
26-Jan	3	2	2	3	2	1	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	3
27-Jan	1	1	1	1	1	2	1	1	2	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	4
28-Jan	3	3	3	2	2	1	2	3	3	3	3	2	2	3	4	4	3	3	3	2	3	3	3	2	4
29-Jan	1	1	2	2	3	2	2	2	2	2	2	2	2	2	3	4	3	3	3	3	3	3	3	4	4
30-Jan	3	3	3	2	2	2	1	1	2	2	9	9	4	9	10	9	8	9	7	6	5	5	5	4	10
31-Jan	5	5	4	3	2	3	3	2	2	3	3	3	3	4	3	2	2	2	2	2	3	1	2	3	5
Diurnal Maximum																									
UO - Unstable Operation																									





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

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	220	30.73	30.73
6 - 11	406	56.70	87.43
12 - 19	83	11.59	99.02
20 - 28	6	0.84	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 716

Total Number of Hours: 744





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

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - January 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	25	32	17	11	11	4	3	8	19	40	14	6	4	11	6	9	220
6 - 11	26	92	16	9	1	4	5	18	34	96	53	15	5	18	9	5	406
12 - 19	3	9	2	0	0	0	0	0	1	16	30	8	8	5	0	1	83
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	6
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	1	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>54</b>	<b>133</b>	<b>35</b>	<b>20</b>	<b>12</b>	<b>8</b>	<b>8</b>	<b>26</b>	<b>54</b>	<b>152</b>	<b>97</b>	<b>29</b>	<b>23</b>	<b>35</b>	<b>15</b>	<b>15</b>	<b>716</b>

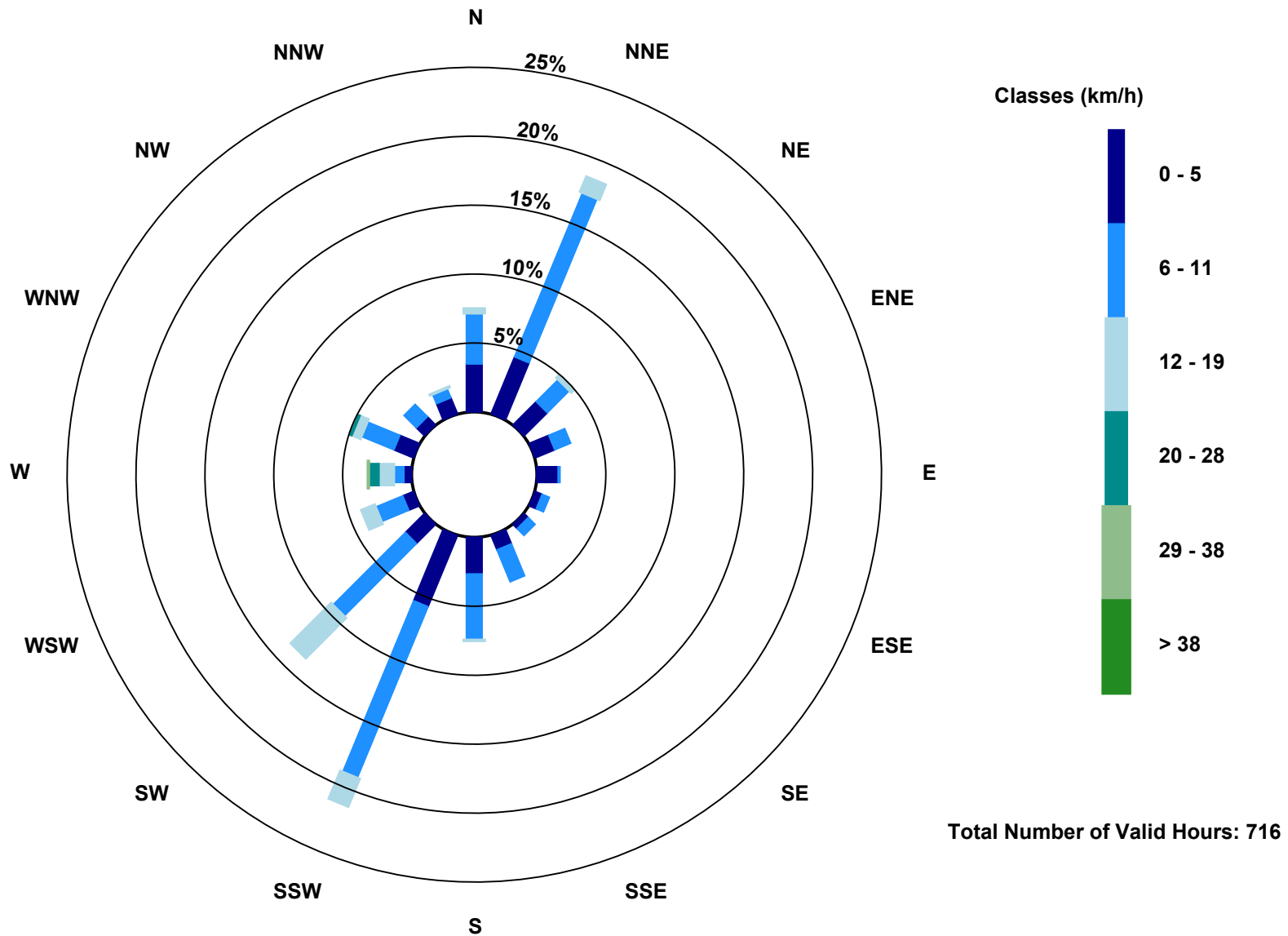
Total Number of Valid Hours: 716

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed 20 m (WS20m) - km/h  
Janvier





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Janvier - January 2024

Direction of Maximum Speed: 274 deg on Jan 30 15:00															Hours in Service: 744									
Direction of Maximum Daily Speed Average: 255.3 deg on Jan 30															Hours of Data: 716									
Direction of Minimum Speed: 14 deg on Jan 16 06:00															Hours of Missing Data: 28									
Direction of Minimum Daily Speed Average: 0.5 deg on Jan 3															Percent Operational Time: 96.2									
Monthly Average Direction: 239.7 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-Jan	277	223	214	283	279	283	301	339	5	9	7	3	11	3	341	77	42	20	28	30	33	26	30	UO	346.2
2-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	60	21	345	220	215	203	-
3-Jan	160	197	202	183	UO	36	10	343	350	16	19	5	10	17	18	5	13	26	46	210	37	217	202	221	347.9
4-Jan	217	225	227	250	21	10	10	16	20	17	19	21	19	18	13	42	47	38	45	48	17	16	19	32	17.2
5-Jan	103	118	88	82	37	352	335	298	210	234	305	294	313	299	352	8	26	50	86	100	85	89	52	47	20.2
6-Jan	68	45	18	34	33	31	23	26	50	68	66	65	62	46	36	31	32	29	34	34	32	33	35	30	38.8
7-Jan	33	23	20	12	9	10	18	17	16	61	97	167	172	177	184	190	177	176	164	138	144	164	163	169	79.7
8-Jan	172	178	165	171	173	170	174	185	158	170	250	247	319	307	329	304	1	14	14	4	355	22	2	27	207.3
9-Jan	30	42	49	66	42	39	13	19	23	26	35	25	30	40	26	31	29	24	19	13	10	14	17	16	25.4
10-Jan	15	4	4	359	4	354	355	7	9	9	2	0	6	8	6	15	3	336	3	334	66	33	12	22	6.4
11-Jan	21	17	16	23	7	359	9	13	19	28	21	64	26	14	14	20	25	13	12	10	191	66	49	63	20.3
12-Jan	273	210	204	210	205	207	187	211	210	206	208	205	214	203	204	102	92	81	214	188	198	145	206	155	199.7
13-Jan	206	211	204	159	228	208	186	207	199	211	206	194	311	296	UO	UO	UO	UO	UO	212	206	207	203	211	207.6
14-Jan	213	214	208	204	212	208	210	208	207	208	211	210	214	272	247	220	176	98	214	245	223	218	216	219	215.1
15-Jan	216	213	212	216	215	214	216	212	207	208	211	207	217	209	210	201	165	159	200	221	218	209	213	218	209.6
16-Jan	216	205	210	209	200	14	210	180	207	202	198	347	357	3	303	290	295	289	302	305	298	296	292	289	280.9
17-Jan	287	284	293	310	327	325	344	17	13	8	14	14	8	31	23	14	24	26	359	1	308	1	9	348	351.9
18-Jan	299	328	328	316	299	294	270	244	238	296	288	299	341	317	302	305	274	255	248	228	232	242	238	236	276.4
19-Jan	235	234	244	244	219	211	211	204	210	210	206	225	214	206	231	41	107	202	173	187	201	183	182	189	207.9
20-Jan	190	197	198	193	195	216	218	203	228	230	235	244	277	299	294	299	260	286	298	34	30	27	18	355	240.5
21-Jan	10	37	21	19	20	16	21	17	25	25	15	20	19	23	22	22	27	29	19	12	9	18	18	37	21.0
22-Jan	37	36	37	33	49	75	75	77	78	91	114	115	111	155	158	161	157	167	174	181	185	185	186	184	126.4
23-Jan	176	171	184	185	191	199	203	210	209	204	212	221	232	238	247	292	72	73	44	15	28	30	26	32	199.2
24-Jan	31	19	22	16	55	101	UO	UO	77	115	168	172	180	169	150	148	148	142	163	301	198	202	214	210	155.2
25-Jan	206	239	213	206	218	211	297	19	UO	16	307	322	267	239	204	203	206	215	191	181	185	202	208	210	211.8
26-Jan	214	213	216	226	220	206	211	218	210	223	231	215	215	211	199	190	191	186	195	180	180	195	214	208	210.0
27-Jan	212	200	207	206	201	216	206	210	191	223	218	224	226	226	229	215	212	217	222	224	226	223	221	220	217.2
28-Jan	215	219	226	219	204	213	208	217	220	221	207	202	207	217	253	271	271	258	248	241	206	224	263	232	229.2
29-Jan	202	202	191	211	218	212	218	218	208	202	207	207	209	211	220	221	209	210	216	212	210	211	216	215	211.3
30-Jan	216	222	221	210	203	200	202	188	204	220	249	283	260	266	274	274	272	271	271	261	259	258	271	265	255.3
31-Jan	256	257	254	211	241	228	204	188	196	206	217	212	214	187	189	160	167	142	145	168	158	127	128	153	203.6

224.7 222.4 222.5 223.6 228.2 237.4 234.5 233.3 213.2 222.0 231.3 256.5 280.9 278.3 287.1 287.2 294.4 272.6 248.2 237.0 224.8 224.9 240.8 226.2  
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**

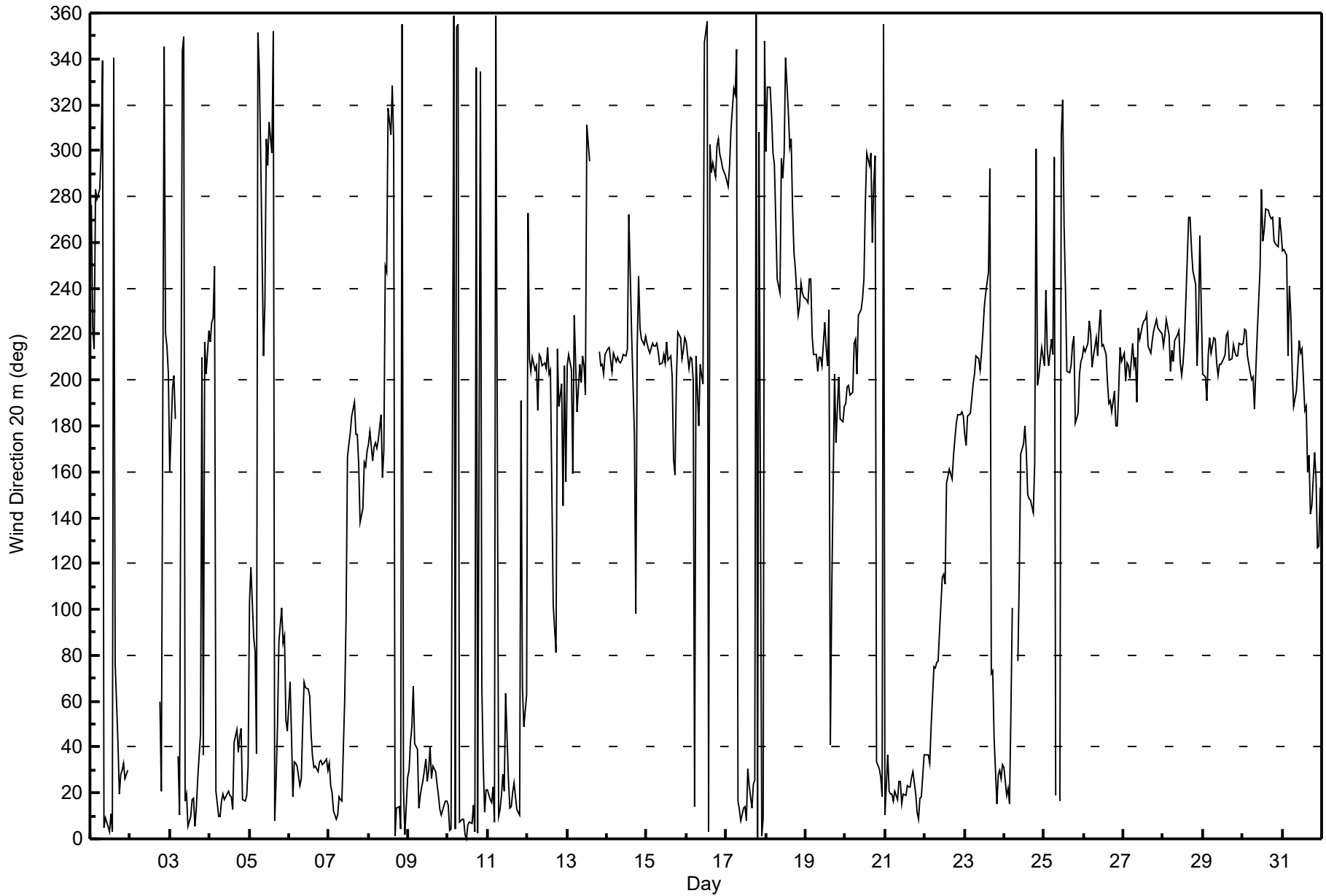
**Wind Direction 20 m (WD20m) - deg**  
**Janvier - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 93 deg on Jan 2 22:00	Hours of Data: 716
Minimum Value: 6 deg on Jan 13 22:00	Hours of Missing Data: 28
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 12 Q <sub>1</sub> = 14 Median = 18 Q <sub>3</sub> = 25 P <sub>90</sub> = 37 P <sub>99</sub> = 80	Hours of Calibration: 0
	Percent Operational Time: 96.2

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-Jan	30	17	13	25	22	23	17	35	23	23	22	31	22	36	37	22	39	20	16	14	13	18	15	UO	39
2-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	26	38	31	93	63	81	93
3-Jan	71	16	21	29	UO	18	42	82	66	52	80	33	32	24	18	30	17	13	74	76	44	21	23	17	82
4-Jan	16	17	16	18	19	22	22	18	17	18	18	19	22	21	25	33	18	16	12	21	19	17	18	34	34
5-Jan	27	22	27	24	25	38	34	77	30	31	22	19	31	21	33	25	26	13	15	21	19	32	16	27	77
6-Jan	24	19	17	13	13	13	14	11	22	20	19	17	17	15	17	13	13	13	13	14	13	13	13	13	24
7-Jan	13	17	18	20	23	20	18	18	19	25	31	74	38	36	27	24	20	18	19	14	18	25	24	21	74
8-Jan	23	15	16	16	17	19	20	18	24	16	52	33	41	26	35	23	39	20	18	31	29	29	51	26	52
9-Jan	19	47	20	66	18	26	16	18	14	13	14	14	13	18	17	14	14	16	18	19	21	20	18	19	66
10-Jan	21	28	26	29	22	26	25	23	23	24	42	30	28	29	22	17	24	17	25	46	44	26	18	15	46
11-Jan	16	19	21	16	20	26	20	18	19	25	24	83	27	26	18	18	18	22	16	15	61	17	13	29	83
12-Jan	48	25	11	14	9	7	8	10	9	10	15	27	33	22	31	66	15	45	15	75	33	28	12	46	75
13-Jan	18	13	21	33	41	12	35	15	15	20	25	20	43	71	UO	UO	UO	UO	UO	9	7	6	9	11	71
14-Jan	6	7	7	8	9	8	9	6	8	8	14	18	29	28	25	17	65	56	23	19	12	9	12	16	65
15-Jan	11	10	11	13	12	12	14	14	11	13	15	15	18	16	15	12	23	26	11	13	14	13	14	10	26
16-Jan	10	9	18	16	19	89	21	51	10	58	88	33	26	22	40	18	13	17	14	20	14	17	18	16	89
17-Jan	15	18	15	19	31	29	34	20	20	23	26	21	24	12	18	19	14	10	16	20	29	18	18	21	34
18-Jan	38	35	31	24	24	19	14	15	13	30	18	21	29	23	21	26	18	15	14	17	15	17	14	15	38
19-Jan	17	15	16	19	14	14	12	12	13	12	17	22	24	21	55	43	51	79	48	19	15	18	16	13	79
20-Jan	13	12	15	14	16	17	17	13	15	12	18	25	25	30	27	24	58	20	62	14	19	28	24	28	62
21-Jan	35	13	19	18	17	18	16	19	23	19	21	23	23	20	20	20	17	15	16	22	23	25	19	19	35
22-Jan	14	13	13	13	17	22	20	22	24	24	22	21	21	28	24	23	22	22	20	18	17	18	17	18	28
23-Jan	17	20	18	17	17	18	15	16	14	15	18	24	27	32	87	83	29	74	63	48	15	15	16	14	87
24-Jan	15	18	19	17	37	71	UO	UO	26	51	29	26	24	23	24	22	15	10	19	67	46	17	14	15	71
25-Jan	8	42	8	15	12	12	65	11	UO	17	45	42	56	50	48	19	25	20	21	20	19	16	14	14	65
26-Jan	14	13	14	16	17	9	14	16	15	22	28	20	19	22	25	43	21	72	50	27	12	9	9	8	72
27-Jan	7	8	8	7	10	18	10	14	12	33	14	15	16	18	18	13	13	14	14	14	15	14	14	13	33
28-Jan	12	14	16	14	12	27	20	14	14	16	13	12	12	17	24	18	15	16	15	15	19	19	16	18	27
29-Jan	15	11	13	12	13	12	14	12	9	11	12	11	13	14	17	17	15	13	13	13	13	11	13	14	17
30-Jan	14	13	14	13	16	11	15	25	19	20	31	20	20	21	20	19	20	18	19	20	22	21	17	18	31
31-Jan	18	20	28	22	18	15	15	16	14	14	18	17	21	42	26	24	14	22	22	19	23	25	20	26	42
	71	47	31	66	41	89	65	82	66	58	88	83	56	71	87	83	65	79	74	76	61	93	63	81	

Diurnal Maximum

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS23 FORT HILLS JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
 JANUARY 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	710	34	34	100	20.8	0	3.6	0
TRS(ppb) Average	709	35	35	100	3.6	0	1.6	0
THC(ppm) Average	710	34	34	100	9	-	3.4	-
NMHC(ppm) Average	710	34	34	100	1.378	-	0.431	-
CH4(ppm) Average	710	34	34	100	7.6	-	3	-
NO2 (ppb) Average	707	37	37	100	56.6	0	27	-
NO (ppb) Average	707	37	37	100	335.7	-	87.8	-
NOX (ppb) Average	707	37	37	100	392.3	-	114.8	-
PM2.5 (ug/m3) Average	743	1	1	100	41.8	0	17.6	0
Temperature 2 m (C) Average	744	0	0	100	8.9	-	4.4	-
Relative Humidity (%) Average	744	0	0	100	97.5	-	93.2	-
Wind Speed 10 m (km/h) Average	742	0	2	99.73	29	-	18	-
Wind Direction 10 m (deg) Average	742	0	2	99.73	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
JANUARY 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	710	0.79	1.6	-	0	0	0	0.2	0.8	2.2	20.8
TRS (ppb) Average	709	0.42	0.5	-	0	0.1	0.2	0.3	0.4	0.9	3.6
THC (ppm) Average	710	2.47	0.6	-	1.9	2	2.1	2.3	2.6	3.2	9
NMHC(ppm) Average	710	0.128	0.157	-	0	0	0	0.1	0.2	0.3	1.378
CH4(ppm) Average	710	2.35	0.4	-	1.9	2	2.1	2.2	2.4	2.8	7.6
NO2 (ppb) Average	707	19.66	9.4	-	0.9	6.3	13.7	19.6	26.3	31.5	56.6
NO (ppb) Average	707	16.57	29.9	-	0	0.2	1.6	6.4	17.3	45.9	335.7
NOX (ppb) Average	707	36.23	36.5	-	0.9	7.1	16.6	26.7	43	75	392.3
PM2.5 (ug/m3) Average	743	6.06	4.2	-	0.3	2.5	3.5	4.9	7.2	11	41.8
Temperature 2 m (C) Average	744	-18.44	12.4	-	-43	-36.6	-26.2	-19.1	-10.6	0.7	8.9
Relative Humidity (%) Average	744	77.35	8	-	53.4	67.6	71.5	77	81.7	89.5	97.5
Wind Speed 10 m (km/h) Average	742	9.1	5	-	0	3	5	9	13	16	29
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
JANUARY 2024

OPERATIONAL NOTES

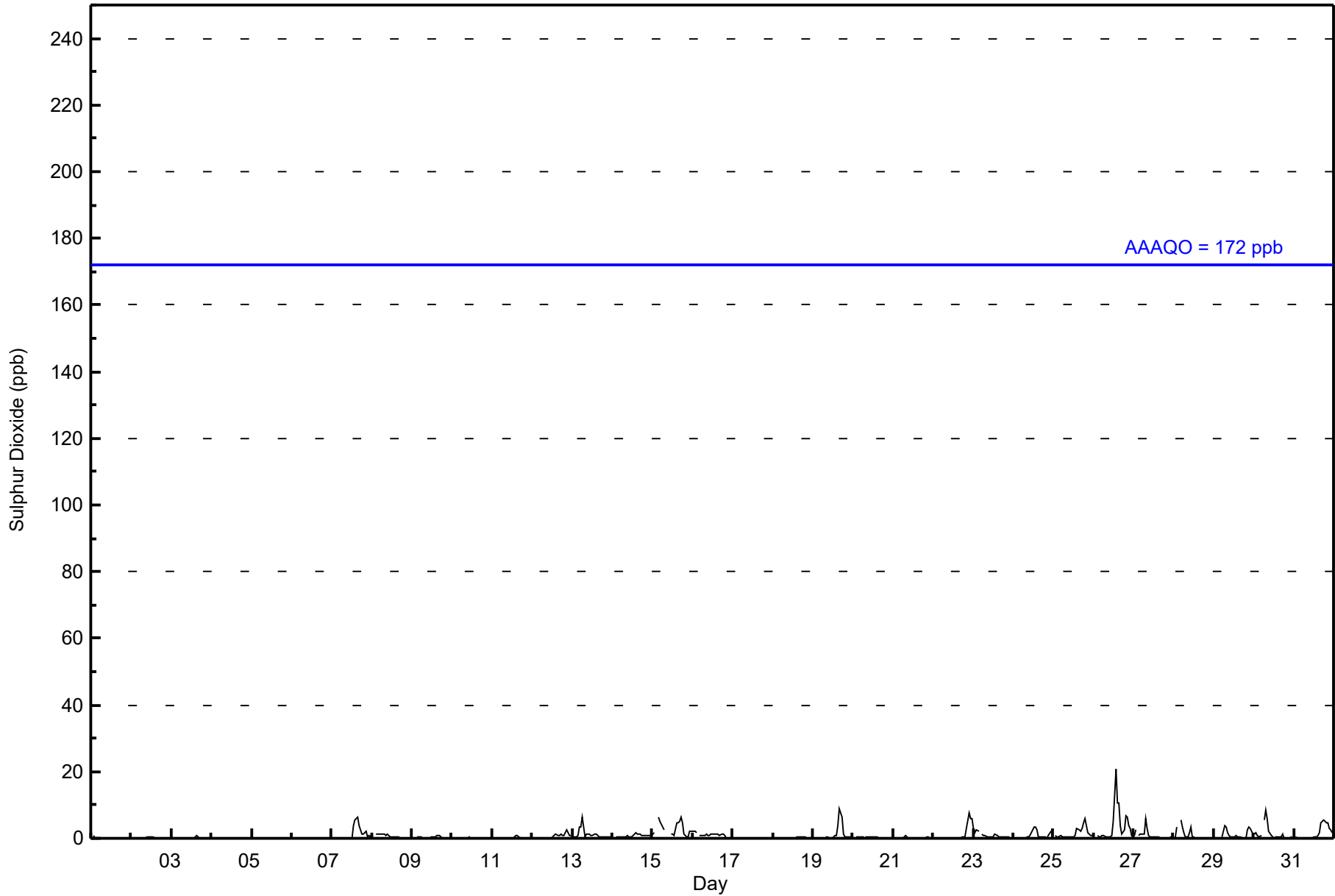
Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	11 Jan 2024 09:00	11 Jan 2024 09:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 22:00	13 Jan 2024 22:00	1	Flat line in sensor output signal





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Hills - January 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Hills - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	707	99.58	99.58
11 - 20	2	0.28	99.86
21 - 60	1	0.14	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: 710

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Hills - January 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	105	122	28	5	3	13	34	91	93	55	31	22	12	9	31	51	705
11 - 20	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
21 - 60	0	0	0	0	0	0	0	0	1	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>	105	122	28	5	3	13	34	91	96	55	31	22	12	9	31	51	708

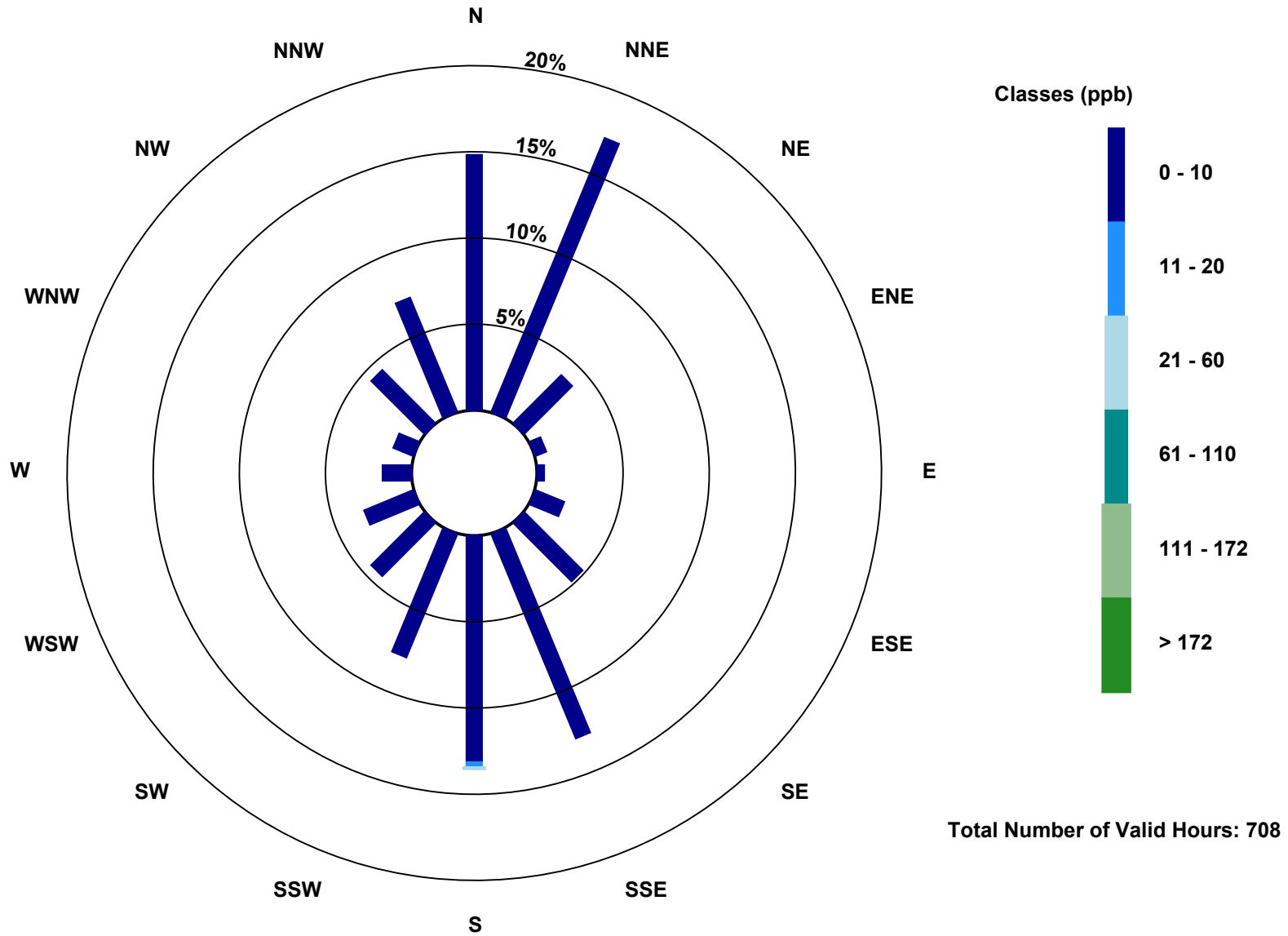
Total Number of Valid Hours: 708

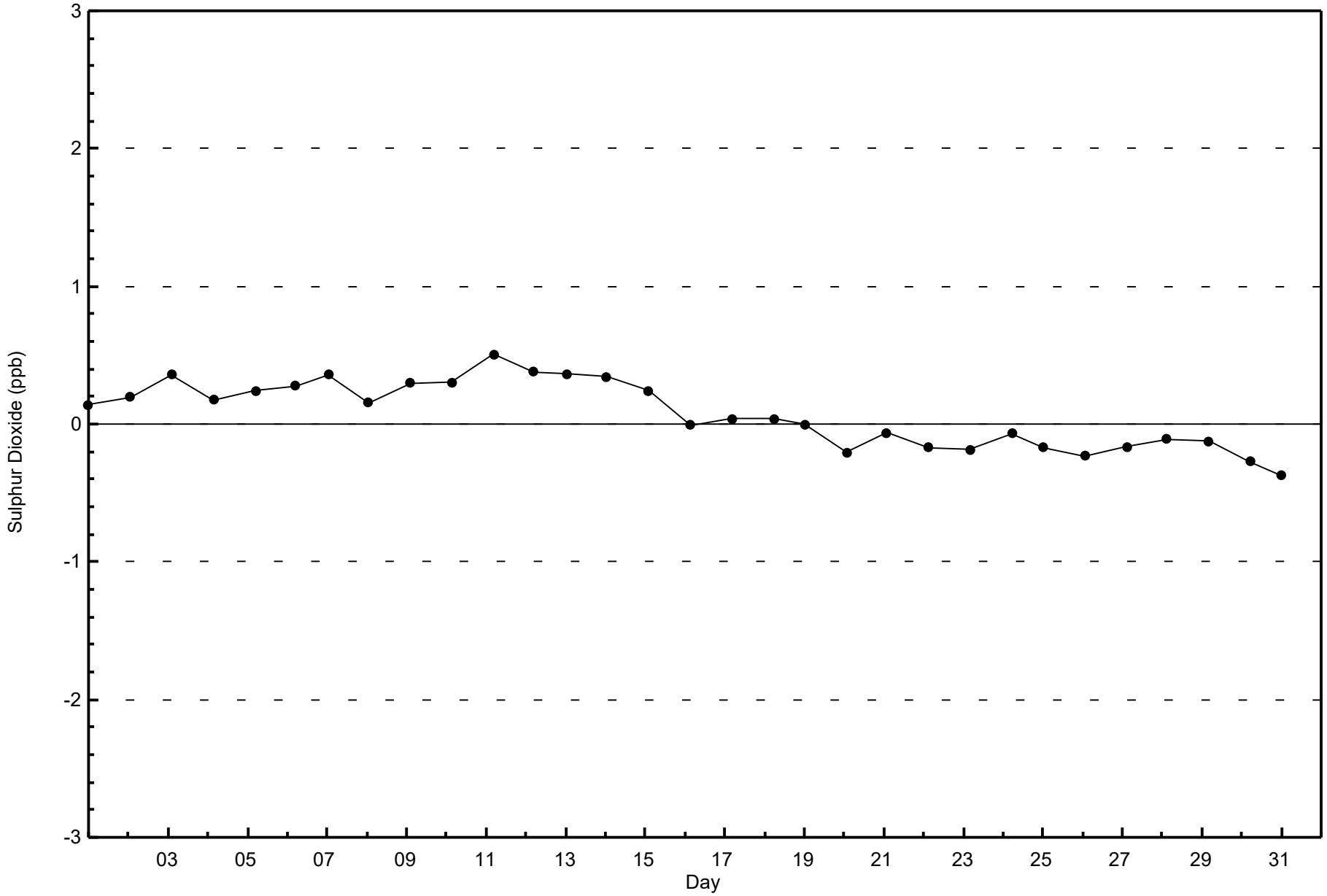
Total Number of Hours: 744

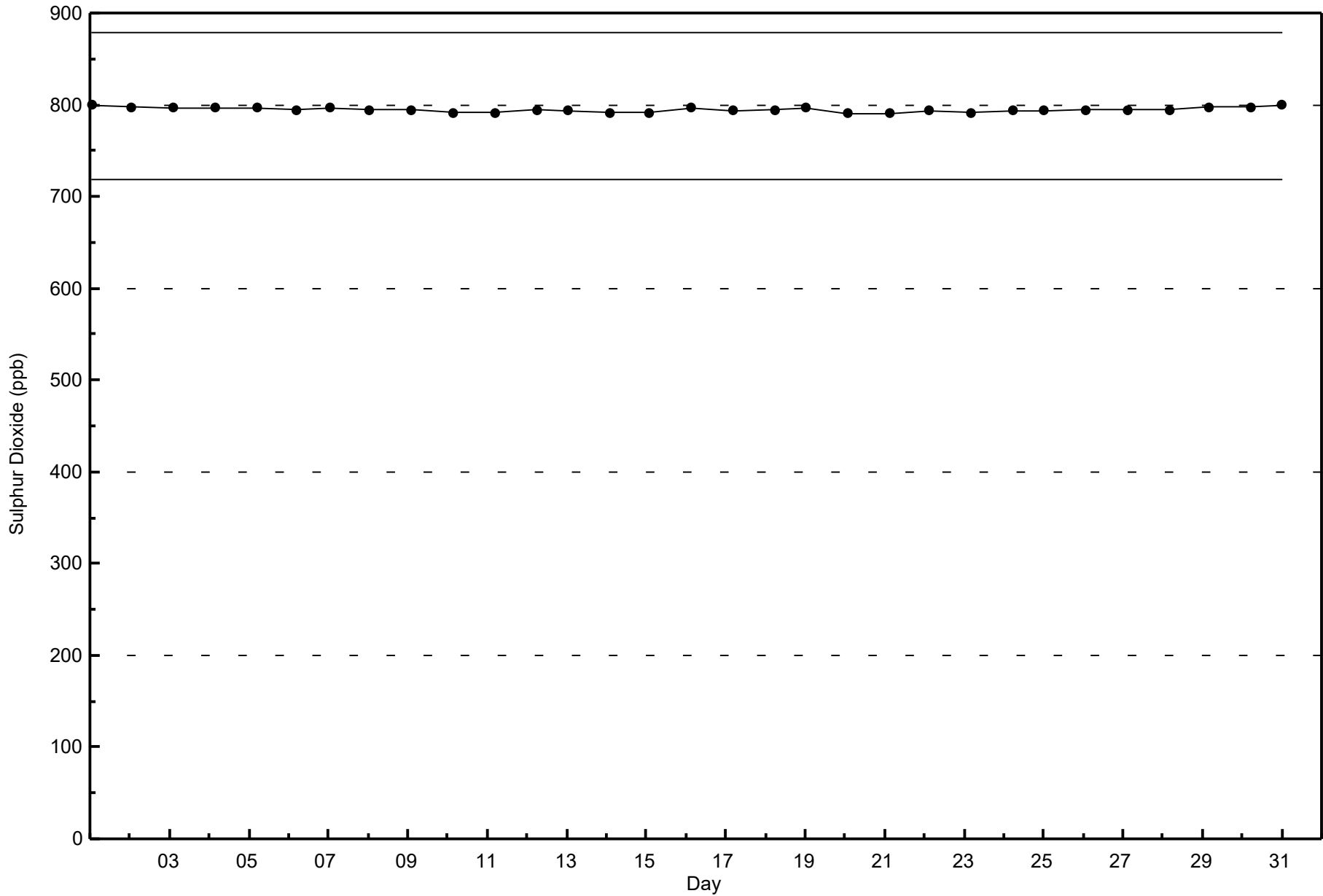


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

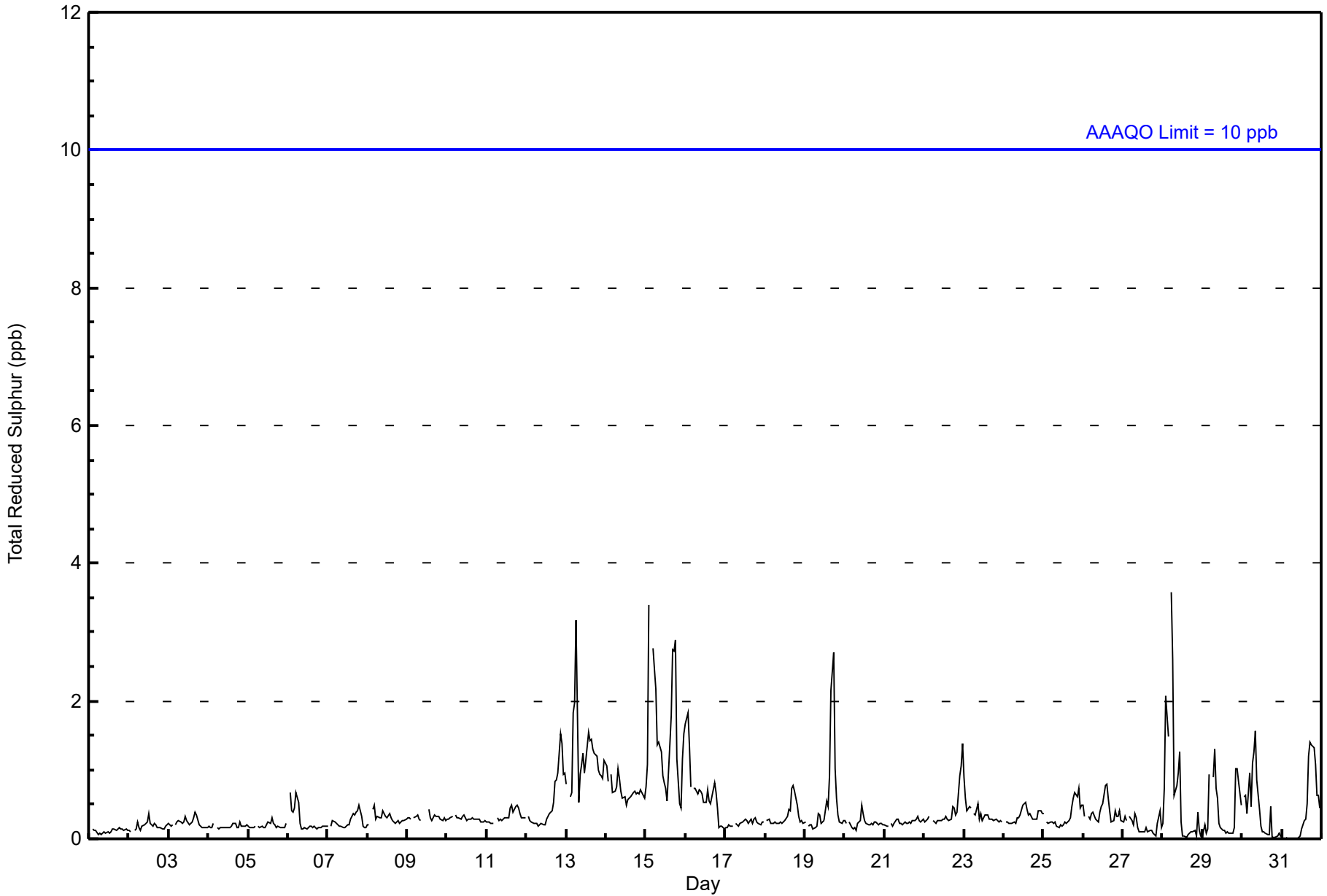














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Hills - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	700	98.73	98.73
3 - 4	9	1.27	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort Hills - January 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	101	121	27	5	3	12	34	88	95	54	32	22	12	9	33	50	698
3 - 4	0	0	0	0	0	0	0	4	3	2	0	0	0	0	0	0	9
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>	101	121	27	5	3	12	34	92	98	56	32	22	12	9	33	50	707

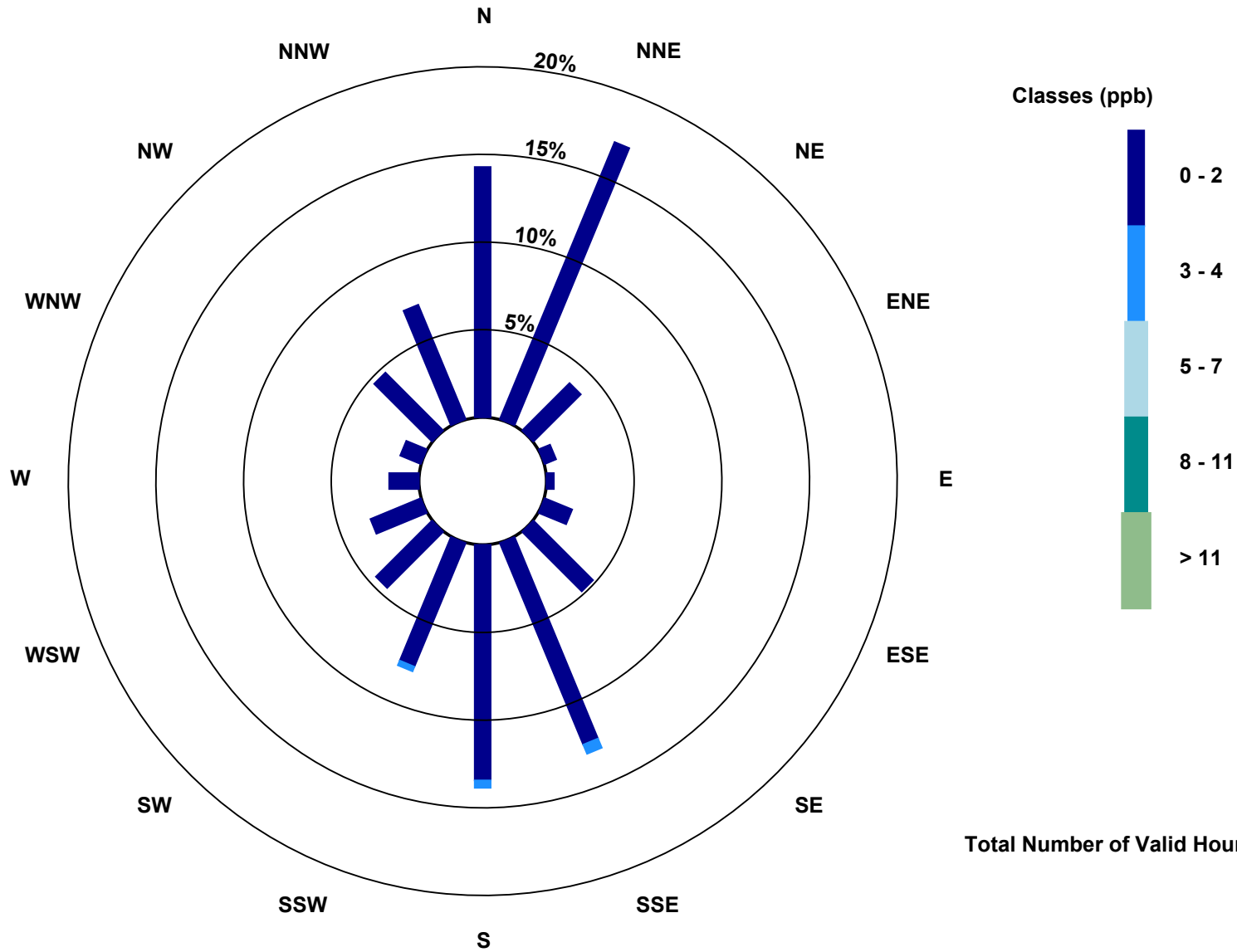
Total Number of Valid Hours: 707

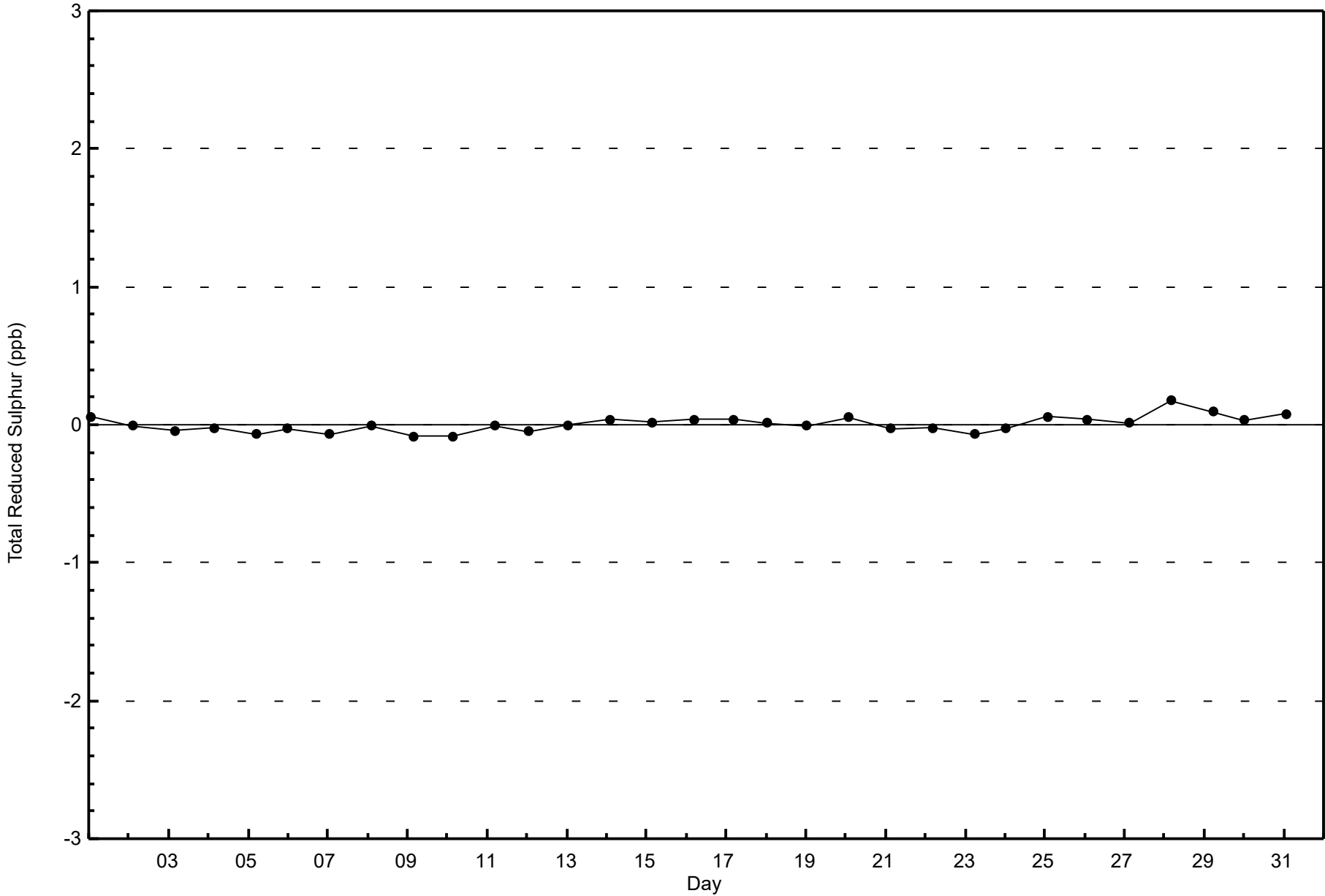
Total Number of Hours: 744

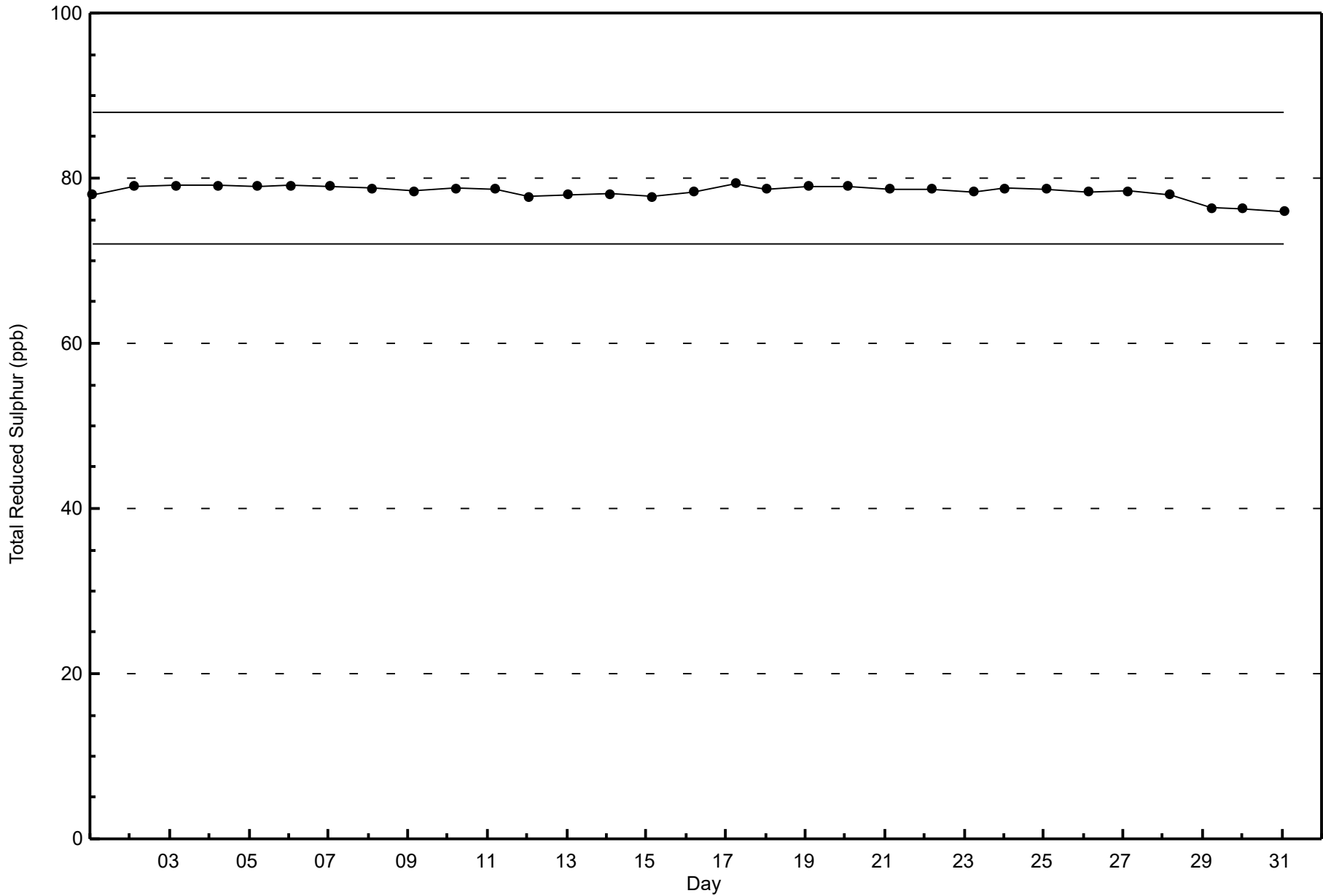


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Fort Hills









Wood Buffalo Environmental Association

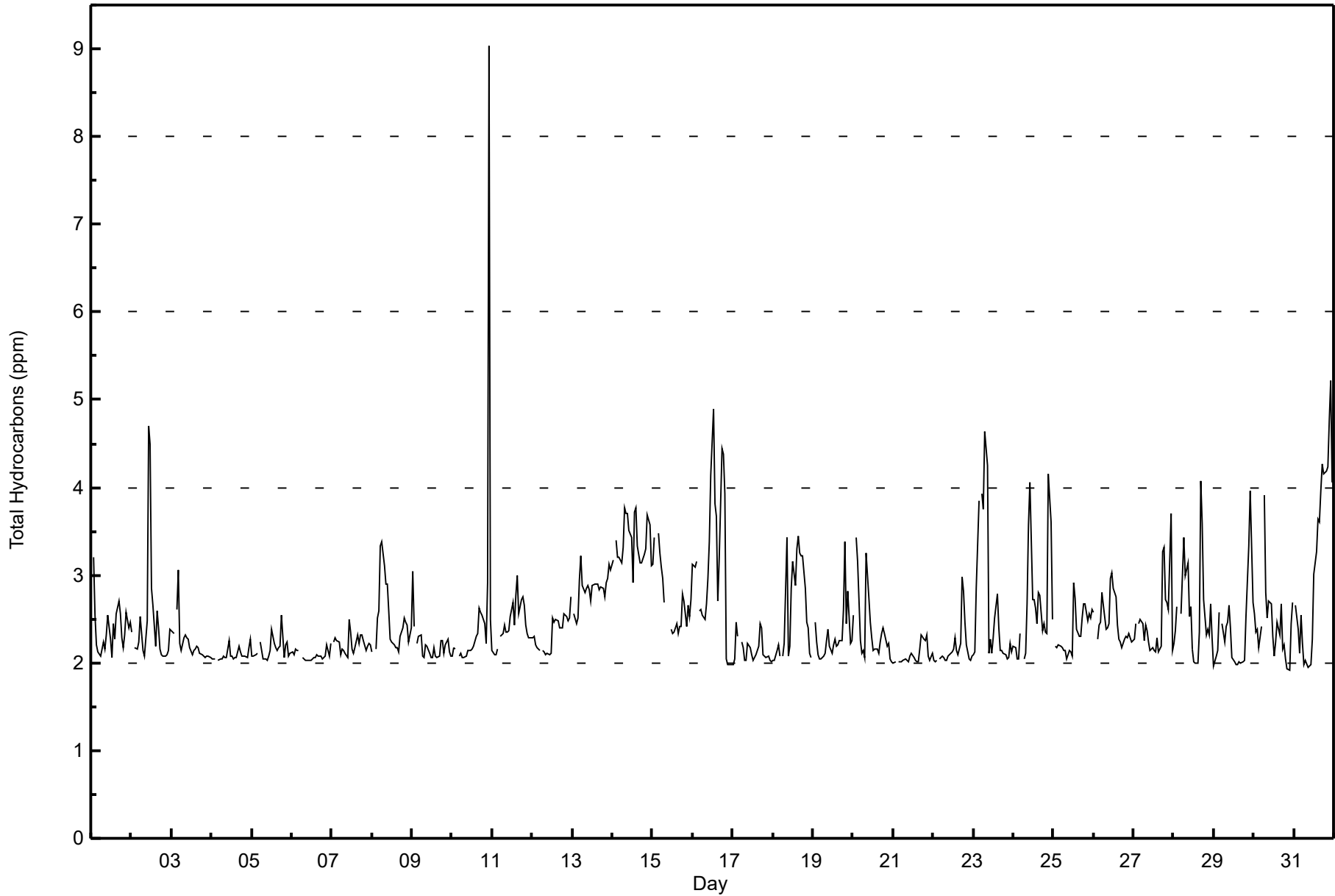
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Fort Hills - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744							
Maximum Value: 9.0 ppm on Jan 10 23:00		Maximum Daily Average: 3.4 ppm on Jan 14		Hours of Data: 710														710									
Minimum Value: 1.9 ppm on Jan 30 22:00		Minimum Daily Average: 2.1 ppm on Jan 21		Hours of Missing Data: 34														34									
Maximum Diurnal Average: 2.8 ppm at hour 23		Minimum Diurnal Average: 2.3 ppm at hour 1		Hours of Calibration: 34														34									
Monthly Average: 2.47 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.3 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 3.2 P <sub>99</sub> = 4.4		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-Jan	Z	3.2	2.5	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.5	2.3	2.1	2.5	2.3	2.6	2.7	2.6	2.3	2.2	2.3	2.6	2.4	2.5	2.4	3.2	
2-Jan	2.3	Z	2.2	2.2	2.2	2.5	2.3	2.1	2.1	2.5	4.7	4.5	2.8	2.7	2.2	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.4	2.5	4.7	
3-Jan	2.4	2.3	Z	2.6	3.1	2.2	2.1	2.3	2.3	2.3	2.3	2.2	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	3.1	
4-Jan	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.1	2.1	2.0	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.1	2.3	
5-Jan	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.4	2.2	2.2	2.1	2.2	2.2	2.5	2.1	2.2	2.2	2.1	2.1	2.2	2.5	
6-Jan	2.1	2.1	2.2	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.2	2.1	2.2	
7-Jan	Z	2.2	2.3	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.5	2.3	2.2	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.5
8-Jan	2.1	Z	2.2	2.5	2.6	3.3	3.4	3.1	2.9	2.9	2.6	2.3	2.2	2.2	2.2	2.2	2.1	2.3	2.4	2.5	2.5	2.4	2.2	2.4	2.5	3.4	
9-Jan	3.0	2.4	Z	2.2	2.3	2.3	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.1	2.2	2.3	2.1	2.1	2.2	3.0	
10-Jan	2.1	2.2	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.6	2.6	2.5	2.4	2.2	2.9	9.0	2.5	2.6	9.0	
11-Jan	2.1	2.1	2.1	2.2	Z	2.3	2.3	2.4	2.4	2.3	2.4	2.5	2.7	2.4	2.8	3.0	2.6	2.7	2.8	2.6	2.4	2.3	2.3	2.3	2.4	3.0	
12-Jan	2.3	2.3	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.6	2.5	2.5	2.5	2.7	2.3	2.7	
13-Jan	Z	2.6	2.5	2.5	3.0	3.2	2.9	2.8	2.8	2.9	2.8	2.7	2.9	2.9	2.9	2.9	2.8	2.9	2.8	2.8	2.9	3.0	3.1	3.1	2.9	3.2	
14-Jan	3.2	Z	3.4	3.2	3.2	3.1	3.3	3.8	3.7	3.7	3.5	3.4	2.9	3.7	3.8	3.3	3.1	3.1	3.2	3.2	3.3	3.7	3.6	3.1	3.4	3.8	
15-Jan	3.1	3.4	Z	3.5	3.2	3.1	3.0	2.7	C	C	C	2.4	2.3	2.3	2.4	2.3	2.4	2.4	2.8	2.7	2.4	2.7	2.5	2.7	2.7	3.5	
16-Jan	3.1	3.1	3.2	Z	2.6	2.6	2.5	2.5	2.7	3.0	3.4	4.1	4.9	3.8	3.7	2.7	3.2	4.4	4.4	3.9	2.0	2.0	2.0	2.0	3.1	4.9	
17-Jan	2.0	2.0	2.5	2.3	Z	2.2	2.2	2.0	2.0	2.2	2.2	2.1	2.0	2.1	2.1	2.2	2.5	2.4	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.5	
18-Jan	2.0	2.0	2.1	2.2	2.1	Z	2.1	2.2	3.4	2.1	2.2	2.9	3.2	2.9	3.3	3.4	3.2	3.2	3.2	2.9	2.5	2.4	2.1	2.1	2.6	3.4	
19-Jan	Z	2.5	2.2	2.1	2.0	2.0	2.1	2.1	2.3	2.4	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.3	2.6	3.4	2.4	2.8	2.2	2.2	2.3	3.4	
20-Jan	2.5	Z	3.4	3.2	2.3	2.1	2.1	2.1	3.3	2.7	2.5	2.3	2.1	2.2	2.2	2.1	2.2	2.3	2.4	2.3	2.2	2.2	2.0	2.0	2.4	3.4	
21-Jan	2.0	2.0	Z	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	2.2	2.3	2.3	2.3	2.3	2.1	2.0	2.1	2.1	2.3	
22-Jan	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.3	2.1	2.1	2.2	3.0	2.8	2.5	2.2	2.0	2.0	2.1	2.2	3.0	
23-Jan	2.1	2.1	2.9	3.9	Z	3.9	3.7	4.6	4.2	2.1	2.3	2.1	2.3	2.5	2.8	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.6	4.6	
24-Jan	2.2	2.2	2.0	2.0	2.3	Z	2.0	2.1	2.7	3.6	4.1	2.7	2.7	2.6	2.5	2.8	2.8	2.4	2.4	2.3	2.3	4.2	3.6	2.5	2.7	4.2	
25-Jan	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.9	2.7	2.4	2.3	2.3	2.5	2.7	2.7	2.5	2.6	2.5	2.6	2.4	2.9	
26-Jan	2.6	Z	2.3	2.4	2.5	2.8	2.7	2.4	2.4	2.5	3.0	3.0	2.8	2.7	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.5	3.0	
27-Jan	2.3	2.4	Z	2.4	2.5	2.4	2.3	2.4	2.4	2.2	2.1	2.2	2.1	2.1	2.3	2.1	2.2	3.3	3.3	2.7	2.7	2.6	3.7	2.1	2.5	3.7	
28-Jan	2.2	2.4	2.6	Z	2.6	3.0	3.4	3.0	3.1	2.5	2.6	2.2	2.0	2.0	2.0	2.4	4.1	3.6	2.7	2.3	2.4	2.3	2.7	2.3	2.6	4.1	
29-Jan	2.0	2.1	2.1	2.6	Z	2.5	2.2	2.4	2.5	2.7	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.9	3.3	4.0	2.7	2.4	4.0	
30-Jan	2.6	2.4	2.4	2.2	2.4	Z	3.9	2.8	2.5	2.7	2.7	2.3	2.1	2.2	2.5	2.3	2.7	2.2	2.2	2.0	1.9	1.9	2.4	2.7	2.4	3.9	
31-Jan	Z	2.7	2.4	2.1	2.5	2.2	2.0	2.0	1.9	2.0	2.0	2.3	3.0	3.3	3.6	3.6	4.0	4.3	4.2	4.2	4.2	4.8	5.2	4.1	3.2	5.2	
																								Diurnal Average			
																								Diurnal Maximum			
																								2.3 2.3 2.4 2.4 2.4 2.5 2.4 2.4 2.5 2.4 2.5 2.4 2.5 2.4 2.5 2.4 2.5 2.6 2.6 2.5 2.4 2.5 2.8 2.4 2.4 2.4 2.4			
																								3.2 3.4 3.4 3.9 3.2 3.9 3.9 4.6 4.2 3.7 4.7 4.5 4.9 3.8 3.8 3.6 4.1 4.4 4.4 4.2 4.2 4.8 9.0 4.1			
Z - zerospan																								C - Calibration			







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

**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	76	10.70	10.70
2.1 - 3.0	543	76.48	87.18
3.1 - 10.0	91	12.82	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort Hills - January 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	13	14	0	0	0	0	0	6	7	6	3	0	2	2	10	13	76
2.1 - 3.0	84	102	26	4	3	5	22	71	83	41	21	19	6	6	16	32	541
3.1 - 10.0	8	6	2	1	0	8	12	14	6	8	7	3	4	1	5	6	91
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	105	122	28	5	3	13	34	91	96	55	31	22	12	9	31	51	708

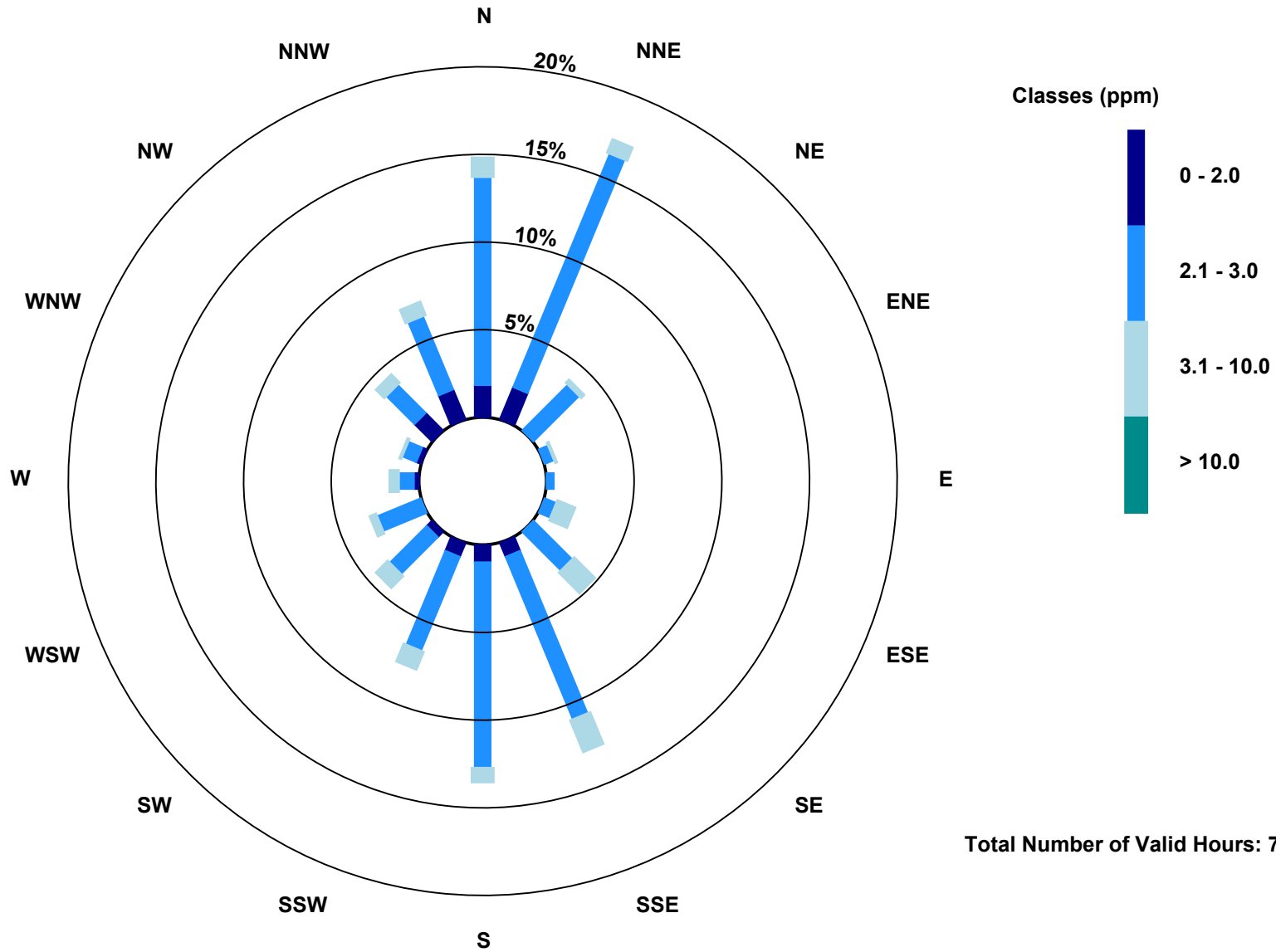
Total Number of Valid Hours: 708

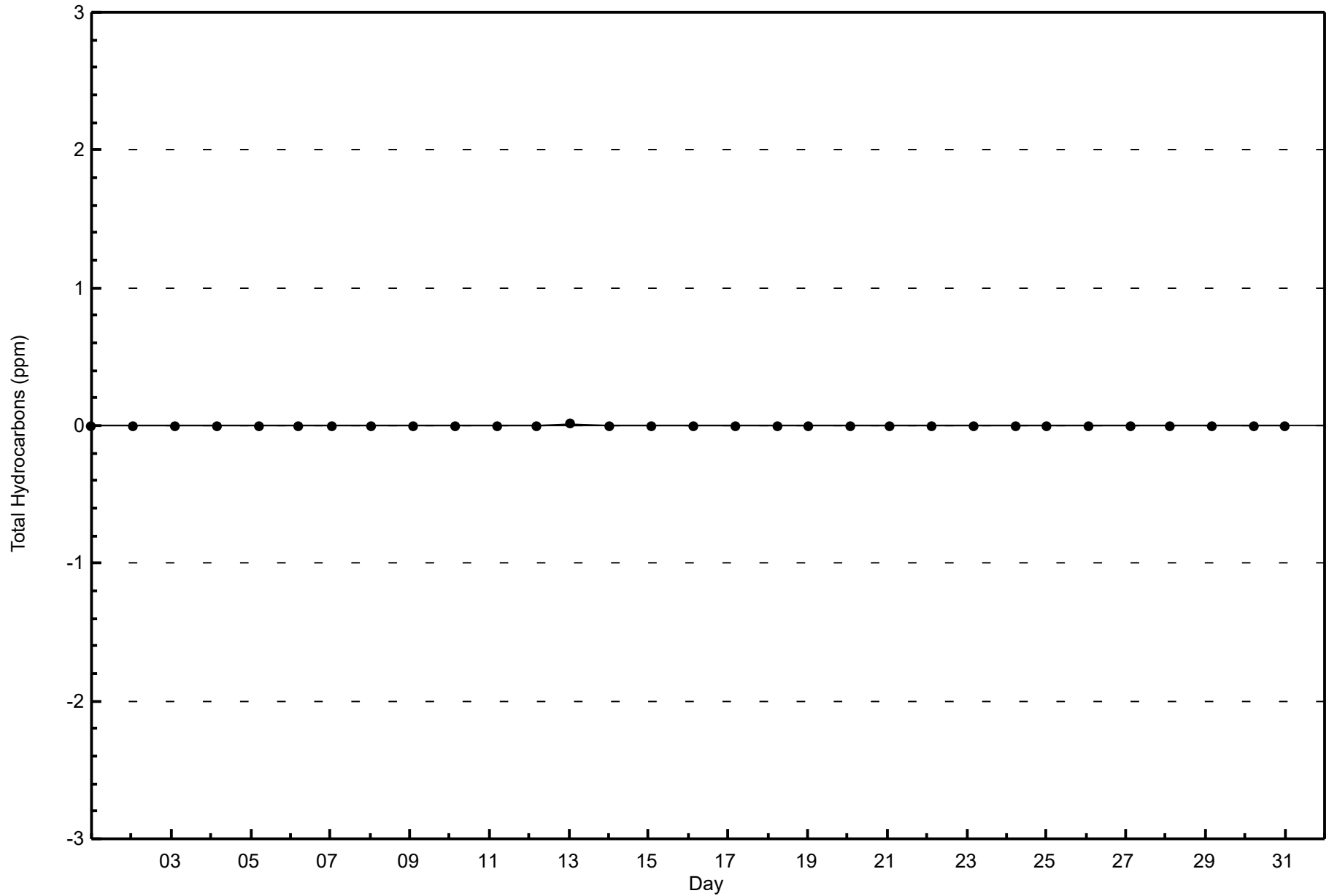
Total Number of Hours: 744

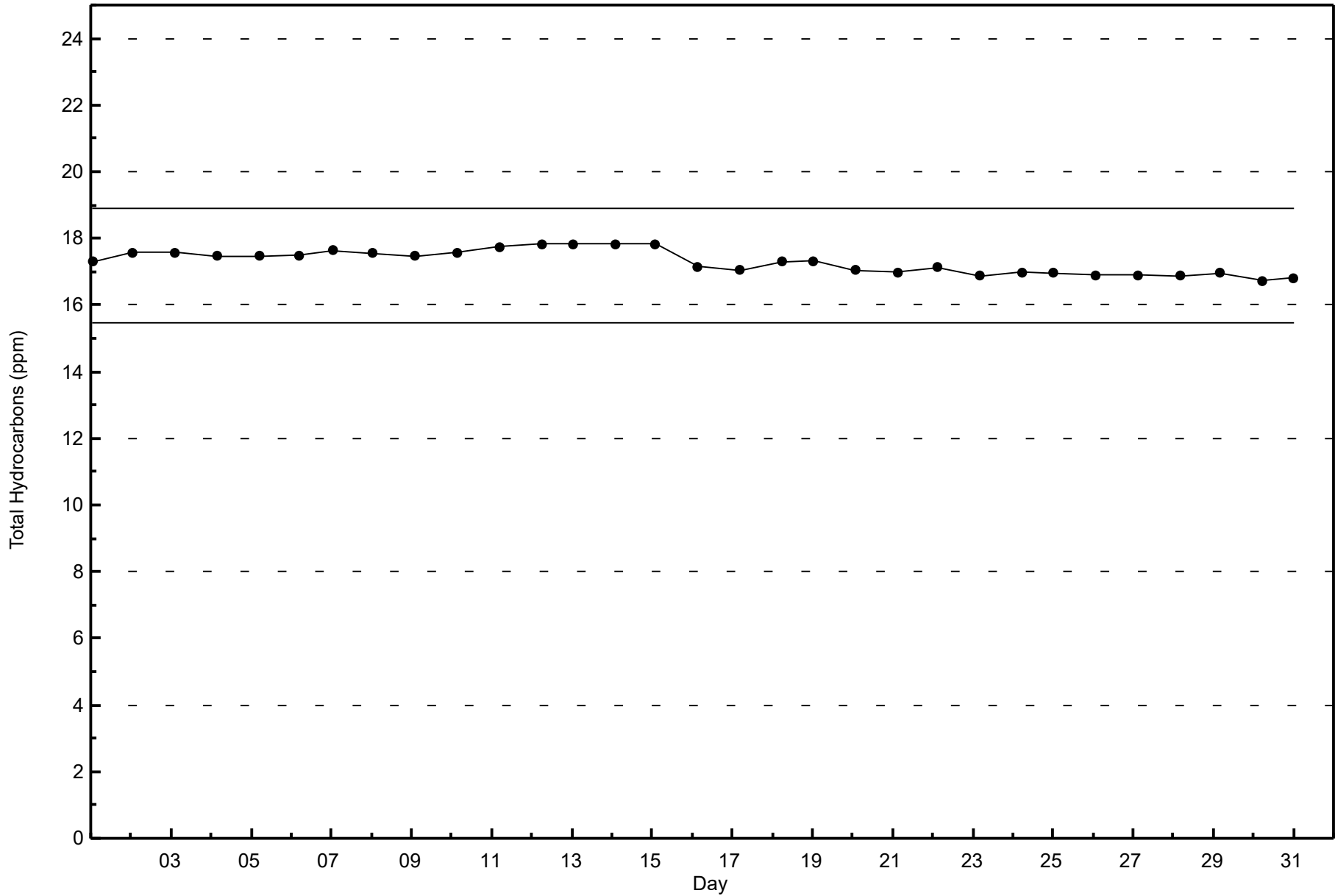


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Fort Hills

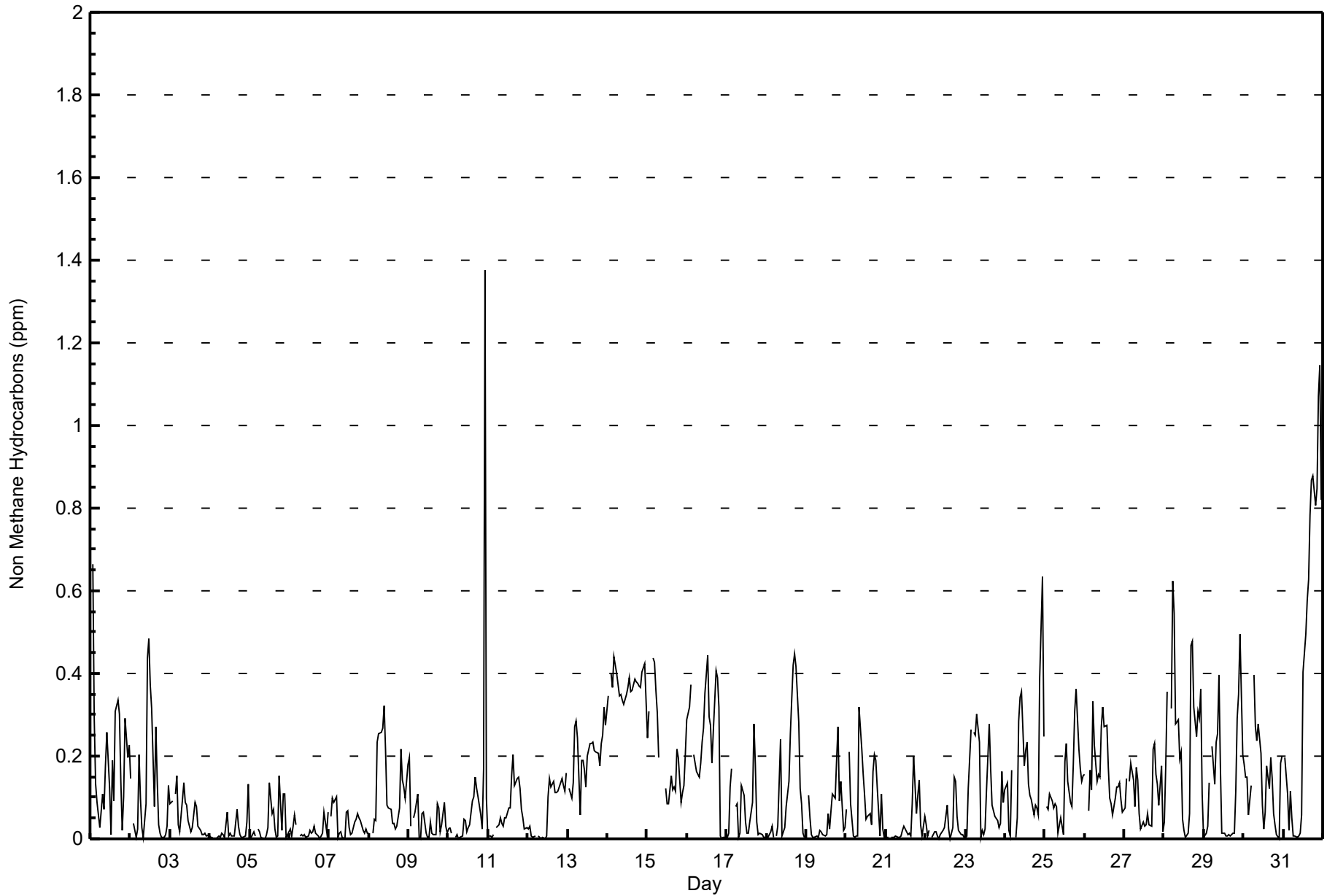








Maximum Value: 1.378 ppm on Jan 10 23:00		Maximum Daily Average: 0.431 ppm on Jan 31		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Jan 10 07:00		Minimum Daily Average: 0.020 ppm on Jan 4		Hours of Data: 710																							
Maximum Diurnal Average: 0.204 ppm at hour 23		Minimum Diurnal Average: 0.084 ppm at hour 1		Hours of Missing Data: 34																							
Monthly Average: 0.128 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> = 0.3 P <sub>99</sub> = 0.8		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-Jan	Z	0.665	0.292	0.133	0.089	0.029	0.066	0.109	0.071	0.175	0.259	0.122	0.011	0.190	0.091	0.310	0.336	0.300	0.140	0.019	0.101	0.291	0.197	0.227	0.184	0.665	
2-Jan	0.145	Z	0.036	0.003	0.025	0.204	0.098	0.027	0.004	0.084	0.438	0.485	0.373	0.314	0.077	0.271	0.140	0.032	0.014	0.004	0.004	0.009	0.030	0.129	0.128	0.485	
3-Jan	0.086	0.091	Z	0.109	0.154	0.033	0.019	0.094	0.137	0.089	0.081	0.044	0.016	0.028	0.058	0.089	0.077	0.029	0.022	0.012	0.009	0.015	0.007	0.009	0.057	0.154	
4-Jan	0.004	0.002	0.001	Z	0.001	0.007	0.005	0.015	0.010	0.003	0.064	0.007	0.013	0.006	0.008	0.007	0.071	0.031	0.009	0.005	0.005	0.008	0.042	0.131	0.020	0.131	
5-Jan	0.008	0.005	0.018	0.006	Z	0.023	0.017	0.005	0.001	0.002	0.009	0.026	0.137	0.060	0.072	0.022	0.003	0.006	0.153	0.019	0.109	0.108	0.005	0.009	0.036	0.153	
6-Jan	0.025	0.005	0.032	0.057	0.034	Z	0.006	0.009	0.006	0.009	0.003	0.007	0.020	0.012	0.017	0.031	0.013	0.006	0.001	0.005	0.015	0.064	0.016	0.066	0.020	0.066	
7-Jan	Z	0.056	0.098	0.088	0.103	0.004	0.015	0.019	0.004	0.001	0.064	0.067	0.027	0.009	0.012	0.042	0.049	0.060	0.052	0.045	0.019	0.014	0.022	0.014	0.038	0.103	
8-Jan	0.015	Z	0.012	0.048	0.044	0.233	0.254	0.259	0.268	0.322	0.214	0.082	0.075	0.071	0.038	0.036	0.022	0.032	0.074	0.217	0.141	0.125	0.099	0.181	0.124	0.322	
9-Jan	0.197	0.029	Z	0.050	0.064	0.109	0.003	0.001	0.062	0.066	0.013	0.004	0.004	0.040	0.013	0.012	0.012	0.085	0.075	0.018	0.034	0.088	0.032	0.013	0.044	0.197	
10-Jan	0.024	0.026	0.014	Z	0.003	0.010	0.000	0.005	0.006	0.048	0.044	0.018	0.026	0.033	0.091	0.103	0.148	0.123	0.103	0.059	0.024	0.171	1.378	0.098	0.111	1.378	
11-Jan	0.005	0.005	0.004	0.009	Z	0.027	0.032	0.050	0.037	0.030	0.051	0.052	0.076	0.073	0.153	0.202	0.130	0.145	0.148	0.121	0.071	0.051	0.024	0.026	0.066	0.202	
12-Jan	0.025	0.029	0.007	0.003	0.007	Z	0.007	0.003	0.002	0.004	0.001	0.005	0.101	0.146	0.124	0.139	0.113	0.112	0.115	0.127	0.145	0.129	0.114	0.160	0.070	0.160	
13-Jan	Z	0.122	0.097	0.135	0.271	0.286	0.244	0.059	0.189	0.189	0.167	0.126	0.199	0.231	0.229	0.233	0.214	0.210	0.207	0.175	0.229	0.251	0.320	0.273	0.202	0.320	
14-Jan	0.346	Z	0.401	0.366	0.440	0.400	0.374	0.344	0.350	0.337	0.326	0.348	0.367	0.391	0.357	0.360	0.385	0.380	0.375	0.371	0.365	0.403	0.425	0.332	0.371	0.440	
15-Jan	0.245	0.309	Z	0.437	0.426	0.361	0.306	0.195	C	C	C	0.121	0.085	0.085	0.152	0.118	0.126	0.114	0.217	0.197	0.087	0.112	0.128	0.203	0.201	0.437	
16-Jan	0.287	0.317	0.373	Z	0.203	0.185	0.164	0.148	0.183	0.233	0.269	0.351	0.443	0.295	0.276	0.184	0.261	0.408	0.390	0.320	0.007	0.001	0.003	0.003	0.231	0.443	
17-Jan	0.002	0.013	0.125	0.168	Z	0.078	0.083	0.003	0.013	0.128	0.107	0.042	0.012	0.015	0.042	0.090	0.277	0.180	0.039	0.012	0.014	0.009	0.004	0.002	0.063	0.277	
18-Jan	0.005	0.003	0.017	0.029	0.005	Z	0.006	0.029	0.240	0.006	0.016	0.027	0.077	0.138	0.254	0.339	0.421	0.449	0.415	0.282	0.123	0.086	0.014	0.005	0.130	0.449	
19-Jan	Z	0.106	0.051	0.010	0.003	0.002	0.006	0.004	0.019	0.018	0.010	0.006	0.011	0.060	0.025	0.067	0.109	0.098	0.190	0.271	0.090	0.140	0.020	0.029	0.059	0.271	
20-Jan	0.072	Z	0.209	0.086	0.005	0.003	0.007	0.007	0.318	0.218	0.156	0.104	0.047	0.054	0.062	0.033	0.163	0.204	0.191	0.124	0.008	0.108	0.025	0.003	0.096	0.318	
21-Jan	0.002	0.003	Z	0.005	0.003	0.002	0.006	0.002	0.002	0.006	0.019	0.030	0.018	0.011	0.013	0.006	0.083	0.200	0.061	0.105	0.142	0.035	0.008	0.055	0.035	0.200	
22-Jan	0.035	0.007	0.020	Z	0.005	0.018	0.015	0.006	0.001	0.012	0.020	0.027	0.053	0.080	0.024	0.001	0.028	0.149	0.140	0.056	0.020	0.009	0.009	0.005	0.032	0.149	
23-Jan	0.006	0.007	0.121	0.263	Z	0.257	0.250	0.302	0.235	0.005	0.021	0.009	0.022	0.115	0.276	0.169	0.080	0.068	0.053	0.045	0.029	0.036	0.163	0.087	0.114	0.302	
24-Jan	0.120	0.137	0.021	0.007	0.165	Z	0.004	0.050	0.286	0.341	0.357	0.176	0.214	0.233	0.131	0.107	0.094	0.057	0.081	0.075	0.057	0.391	0.636	0.246	0.173	0.636	
25-Jan	Z	0.078	0.073	0.107	0.091	0.076	0.086	0.078	0.014	0.050	0.029	0.010	0.186	0.230	0.140	0.087	0.078	0.180	0.309	0.362	0.218	0.170	0.139	0.151	0.128	0.362	
26-Jan	0.155	Z	0.067	0.166	0.120	0.334	0.228	0.138	0.155	0.150	0.270	0.318	0.270	0.273	0.174	0.099	0.086	0.059	0.098	0.125	0.125	0.135	0.094	0.066	0.161	0.334	
27-Jan	0.075	0.147	Z	0.141	0.183	0.141	0.076	0.172	0.141	0.062	0.025	0.039	0.030	0.032	0.060	0.034	0.030	0.215	0.231	0.157	0.133	0.080	0.175	0.017	0.104	0.231	
28-Jan	0.040	0.175	0.354	Z	0.316	0.623	0.545	0.279	0.288	0.193	0.211	0.049	0.019	0.003	0.014	0.061	0.468	0.477	0.319	0.248	0.309	0.292	0.364	0.108	0.250	0.623	
29-Jan	0.005	0.012	0.031	0.135	Z	0.223	0.133	0.233	0.254	0.397	0.176	0.015	0.012	0.007	0.007	0.011	0.007	0.013	0.014	0.115	0.293	0.351	0.495	0.203	0.137	0.495	
30-Jan	0.179	0.148	0.148	0.059	0.130	Z	0.395	0.271	0.238	0.280	0.208	0.082	0.024	0.063	0.177	0.121	0.196	0.145	0.061	0.033	0.010	0.001	0.183	0.200	0.146	0.395	
31-Jan	Z	0.196	0.107	0.019	0.116	0.050	0.006	0.008	0.005	0.005	0.013	0.056	0.402	0.495	0.578	0.628	0.783	0.868	0.877	0.808	0.846	1.073	1.145	0.822	0.431	1.145	
		0.084	0.104	0.105	0.102	0.116	0.143	0.111	0.094	0.118	0.115	0.121	0.092	0.109	0.122	0.121	0.129	0.161	0.175	0.167	0.146	0.122	0.153	0.204	0.125	Diurnal Average	
		0.346	0.665	0.401	0.437	0.440	0.623	0.545	0.344	0.350	0.397	0.438	0.485	0.443	0.495	0.578	0.628	0.783	0.868	0.877	0.808	0.846	1.073	1.378	0.822	Diurnal Maximum	
Z - zerospan		C - Calibration																									







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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort Hills - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	76	10.70	10.70
0.006 - 0.05	227	31.97	42.68
0.06 - 0.1	193	27.18	69.86
> 0.1	214	30.14	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort Hills - January 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	13	6	1	1	0	0	0	11	7	1	1	1	3	3	12	16	76
0.006 - 0.05	48	48	7	2	1	0	6	19	34	16	7	7	2	3	4	22	226
0.06 - 0.1	22	40	16	1	1	4	12	28	26	20	8	5	2	1	3	4	193
> 0.1	22	28	4	1	1	9	16	33	29	18	15	9	5	2	12	9	213
<b>Totals</b>	105	122	28	5	3	13	34	91	96	55	31	22	12	9	31	51	708

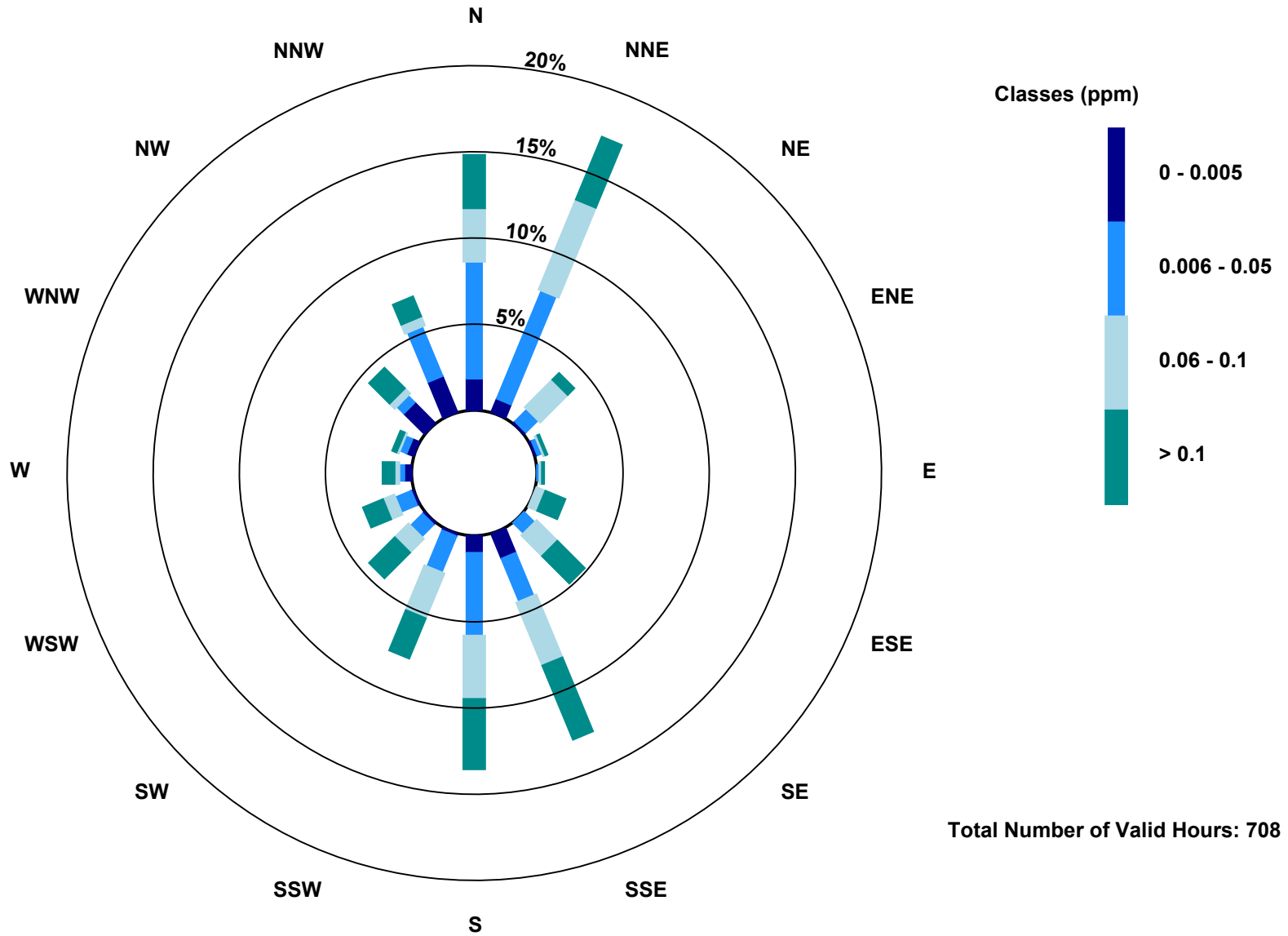
Total Number of Valid Hours: 708

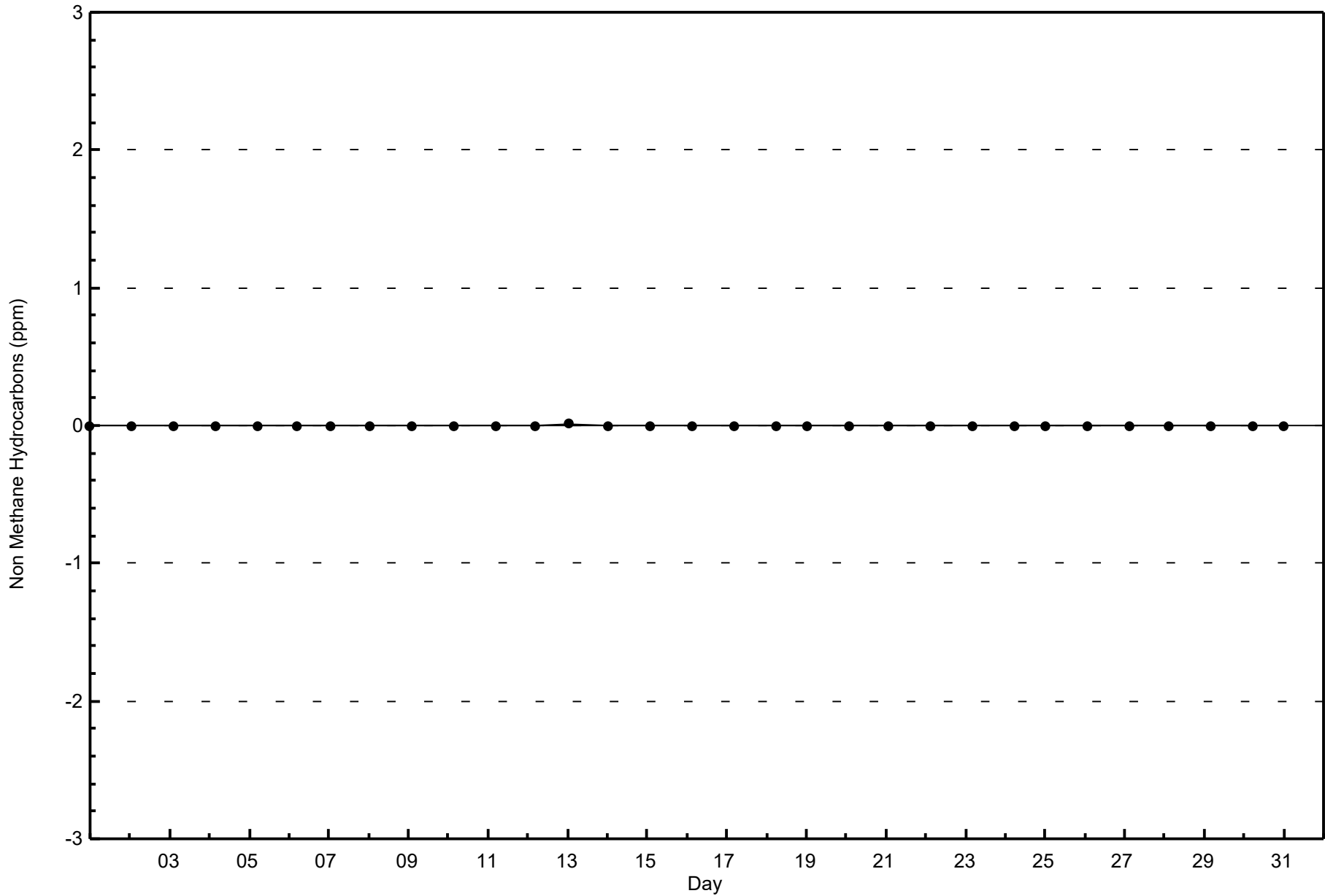
Total Number of Hours: 744

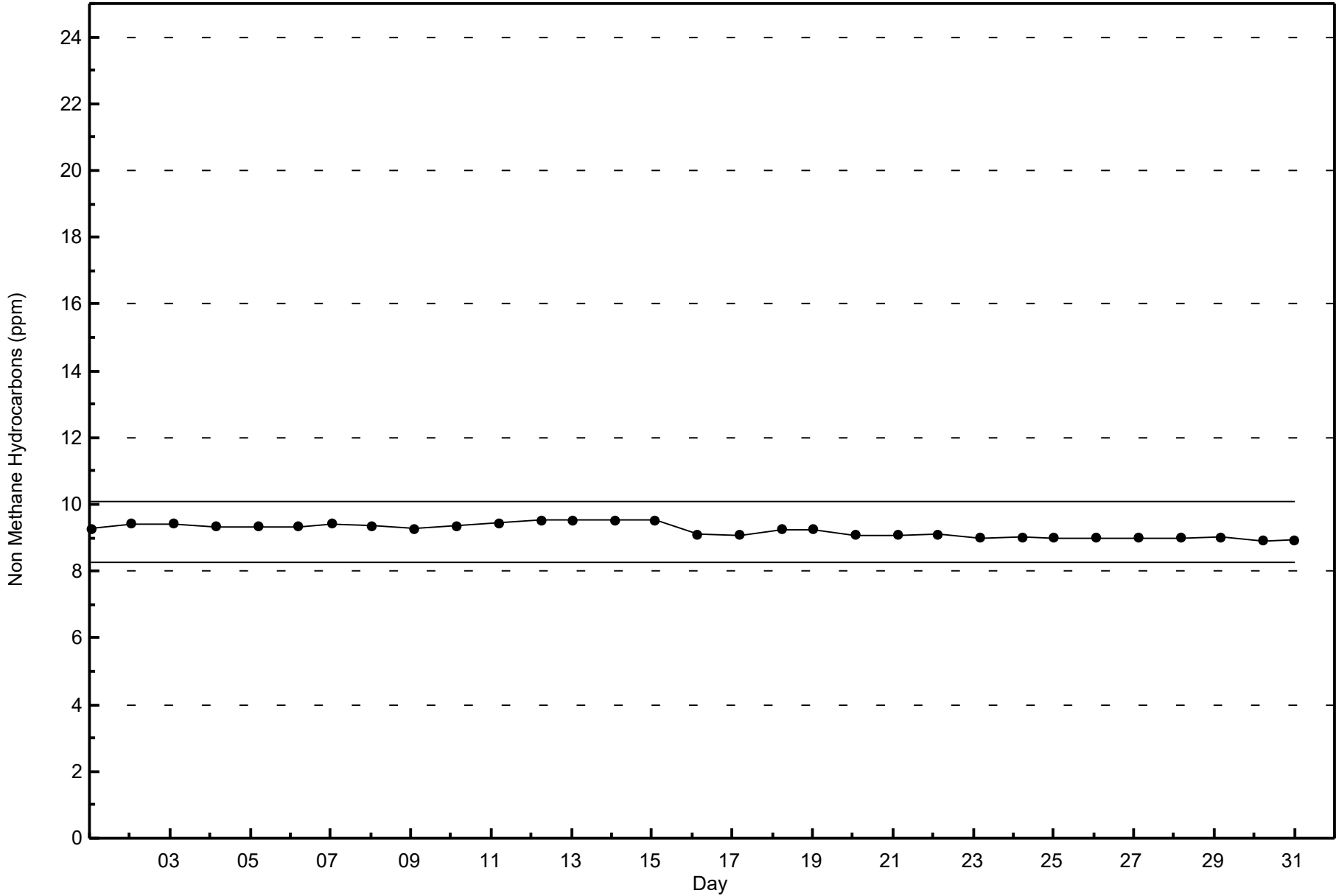


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Fort Hills









Summary of Hour Averages

Fort Hills - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 7.6 ppm on Jan 10 23:00	Maximum Daily Average: 3.0 ppm on Jan 14		Hours of Data:	710
Minimum Value: 1.9 ppm on Jan 30 22:00	Minimum Daily Average: 2.1 ppm on Jan 21		Hours of Missing Data:	34
Maximum Diurnal Average: 2.6 ppm at hour 23	Minimum Diurnal Average: 2.2 ppm at hour 2		Hours of Calibration:	34
Monthly Average: 2.35 ppm	Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.2 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.8 P <sub>99</sub> = 4.0		Percent Operational Time:	100.0

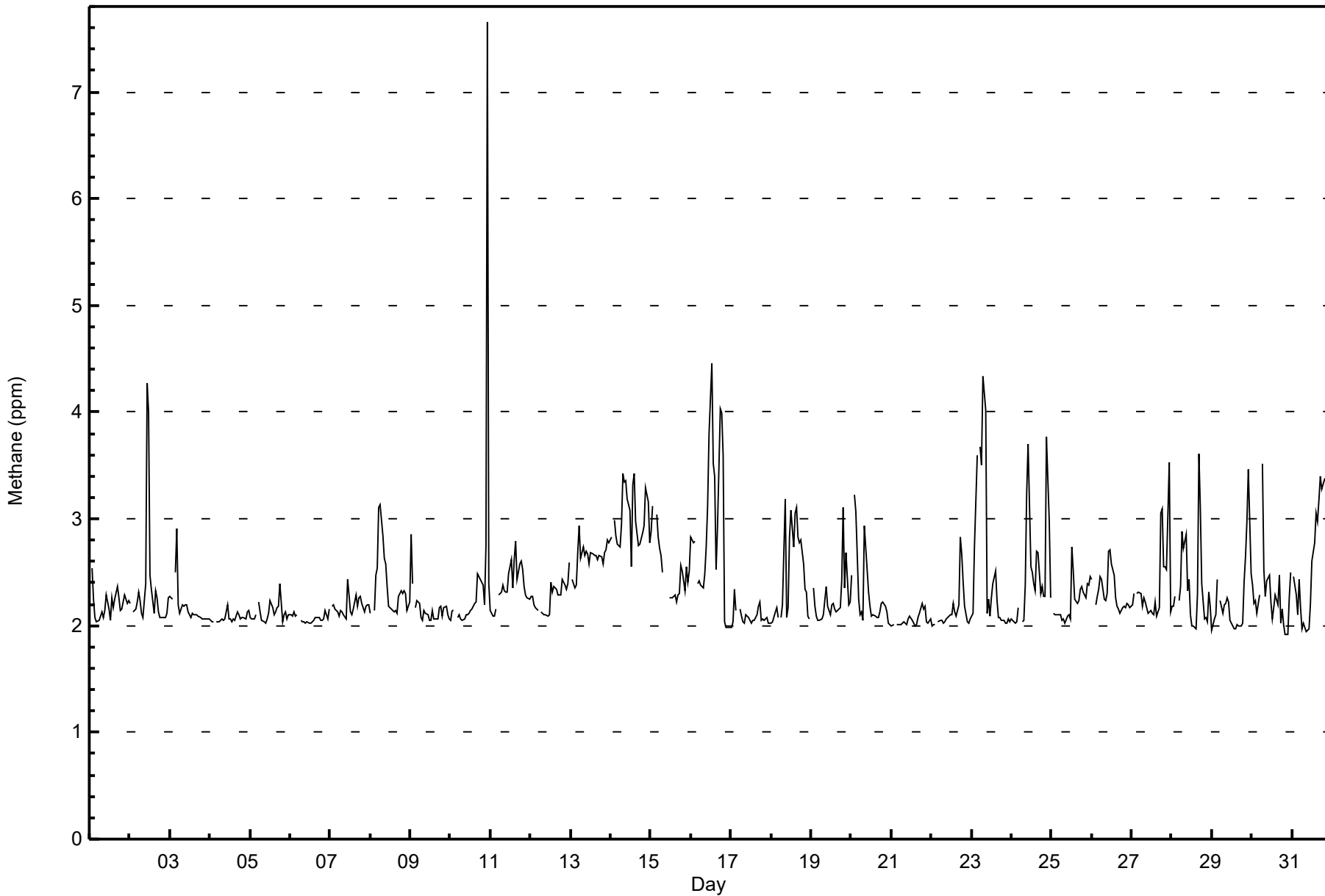
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Jan	Z	2.5	2.3	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.0	2.3	2.2	2.3	2.4	2.3	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.4	2.5	
2-Jan	2.2	Z	2.1	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.4	4.3	4.0	2.5	2.3	2.1	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	4.3
3-Jan	2.3	2.2	Z	2.5	2.9	2.2	2.1	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	2.2	2.9	
4-Jan	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.2	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	2.2	
5-Jan	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.4	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.4	
6-Jan	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	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
7-Jan	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.3	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.4	
8-Jan	2.1	Z	2.1	2.5	2.5	3.1	3.1	2.8	2.6	2.6	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.2	2.4	3.1	
9-Jan	2.9	2.4	Z	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	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.9		
10-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.5	2.5	2.4	2.4	2.2	2.7	7.6	2.4	2.5	7.6		
11-Jan	2.1	2.1	2.1	2.2	Z	2.3	2.3	2.4	2.3	2.3	2.3	2.5	2.6	2.4	2.6	2.8	2.4	2.6	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.8	2.8	
12-Jan	2.3	2.3	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.6	2.3	2.6		
13-Jan	Z	2.4	2.4	2.4	2.7	2.9	2.6	2.7	2.7	2.7	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.7	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.6	2.9		
14-Jan	2.8	Z	3.0	2.8	2.8	2.7	3.0	3.4	3.3	3.4	3.2	3.1	2.5	3.3	3.4	3.0	2.8	2.8	2.8	2.9	2.9	3.3	3.2	2.8	2.8	3.0	3.4		
15-Jan	2.9	3.1	Z	3.0	2.8	2.7	2.7	2.5	C	C	C	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.6	2.5	2.3	2.6	2.4	2.5	2.5	2.5	3.1		
16-Jan	2.8	2.8	2.8	Z	2.4	2.4	2.4	2.4	2.5	2.7	3.1	3.8	4.5	3.5	3.4	2.5	2.9	4.0	4.0	3.6	2.0	2.0	2.0	2.0	2.0	2.9	4.5		
17-Jan	2.0	2.0	2.3	2.1	Z	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.3		
18-Jan	2.0	2.0	2.1	2.2	2.1	Z	2.1	2.2	3.2	2.1	2.2	2.8	3.1	2.7	3.1	3.1	2.8	2.8	2.8	2.6	2.3	2.3	2.1	2.1	2.5	2.5	3.2		
19-Jan	Z	2.4	2.2	2.1	2.0	2.0	2.1	2.1	2.2	2.4	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.4	3.1	2.4	2.7	2.2	2.2	2.3	2.3	3.1		
20-Jan	2.5	Z	3.2	3.1	2.3	2.1	2.1	2.1	2.9	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.0	2.0	2.3	2.3	3.2		
21-Jan	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	2.1	2.1	2.2	2.2	2.2	2.0	2.0	2.1	2.1	2.1	2.2		
22-Jan	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.8	2.7	2.4	2.2	2.0	2.0	2.1	2.1	2.1	2.8		
23-Jan	2.1	2.1	2.7	3.6	Z	3.7	3.5	4.3	4.0	2.1	2.3	2.1	2.3	2.4	2.5	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.5	4.3		
24-Jan	2.1	2.0	2.0	2.0	2.2	Z	2.0	2.1	2.4	3.2	3.7	2.5	2.5	2.4	2.3	2.7	2.7	2.3	2.4	2.3	2.3	3.8	3.0	2.3	2.5	2.5	3.8		
25-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.7	2.5	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.4	2.4	2.5	2.2	2.7		
26-Jan	2.4	Z	2.2	2.3	2.3	2.5	2.4	2.2	2.2	2.3	2.7	2.7	2.6	2.5	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.7		
27-Jan	2.2	2.3	Z	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	3.1	3.1	2.6	2.6	2.5	3.5	2.1	2.4	3.5			
28-Jan	2.2	2.2	2.3	Z	2.2	2.4	2.9	2.7	2.9	2.3	2.4	2.1	2.0	2.0	2.0	2.3	3.6	3.1	2.4	2.1	2.1	2.0	2.3	2.2	2.4	3.6			
29-Jan	2.0	2.1	2.1	2.4	Z	2.2	2.1	2.2	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.6	3.0	3.5	2.5	2.3	3.5			
30-Jan	2.4	2.2	2.2	2.1	2.3	Z	3.5	2.5	2.3	2.4	2.5	2.2	2.1	2.2	2.3	2.2	2.5	2.0	2.1	2.0	1.9	1.9	2.3	2.5	2.3	3.5			
31-Jan	Z	2.5	2.3	2.1	2.4	2.2	2.0	2.0	1.9	2.0	2.0	2.2	2.6	2.8	3.1	3.0	3.2	3.4	3.3	3.4	3.4	3.7	4.1	3.2	2.7	4.1			
2.3 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.4 2.3 2.4 2.4 2.3 2.3 2.3 2.4 2.4 2.4 2.4 2.3 2.4 2.6 2.3																												Diurnal Average	
2.9 3.1 3.2 3.6 2.9 3.7 3.5 4.3 4.0 3.4 4.3 4.0 4.5 3.5 3.4 3.1 3.6 4.0 4.0 3.6 3.4 3.8 7.6 3.2																												Diurnal Maximum	

Z - zerospan C - Calibration



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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort Hills - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	100	14.08	14.08
2.1 - 3.0	556	78.31	92.39
3.1 - 10.0	54	7.61	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort Hills - January 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	19	27	0	0	0	0	0	6	7	7	3	1	4	2	10	14	100
2.1 - 3.0	82	91	27	5	3	8	25	79	84	43	21	19	4	7	20	36	554
3.1 - 10.0	4	4	1	0	0	5	9	6	5	5	7	2	4	0	1	1	54
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	105	122	28	5	3	13	34	91	96	55	31	22	12	9	31	51	708

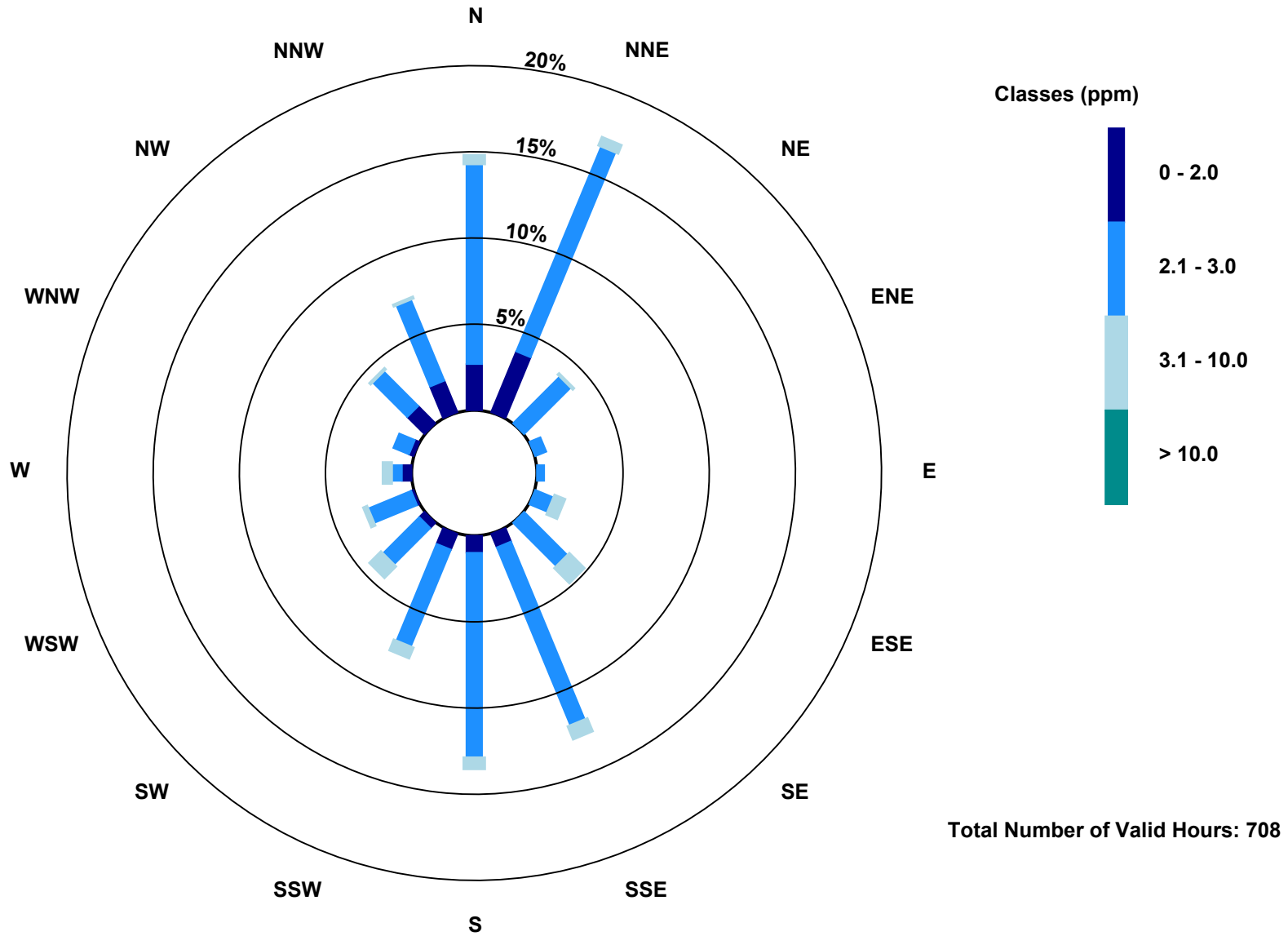
Total Number of Valid Hours: 708

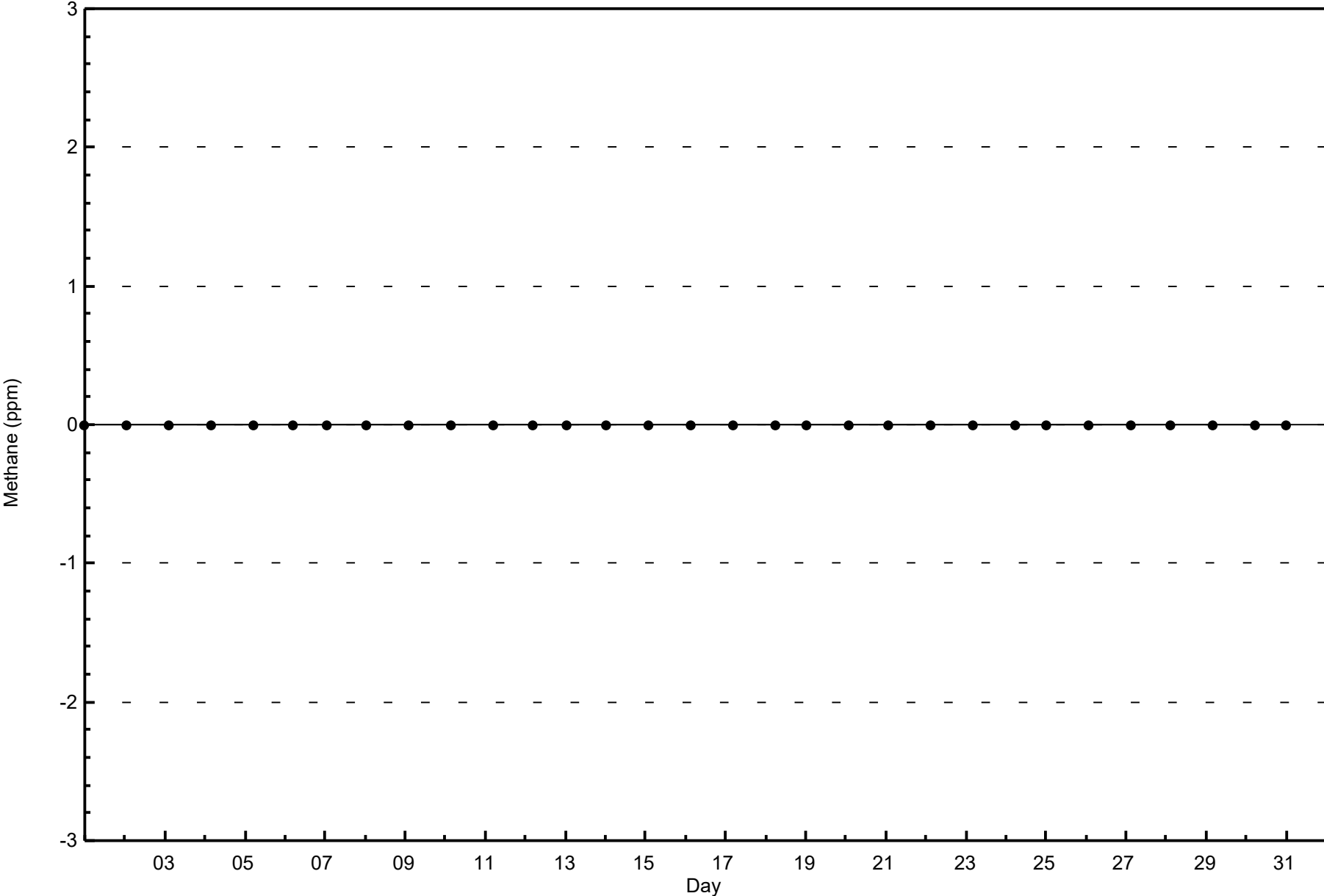
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

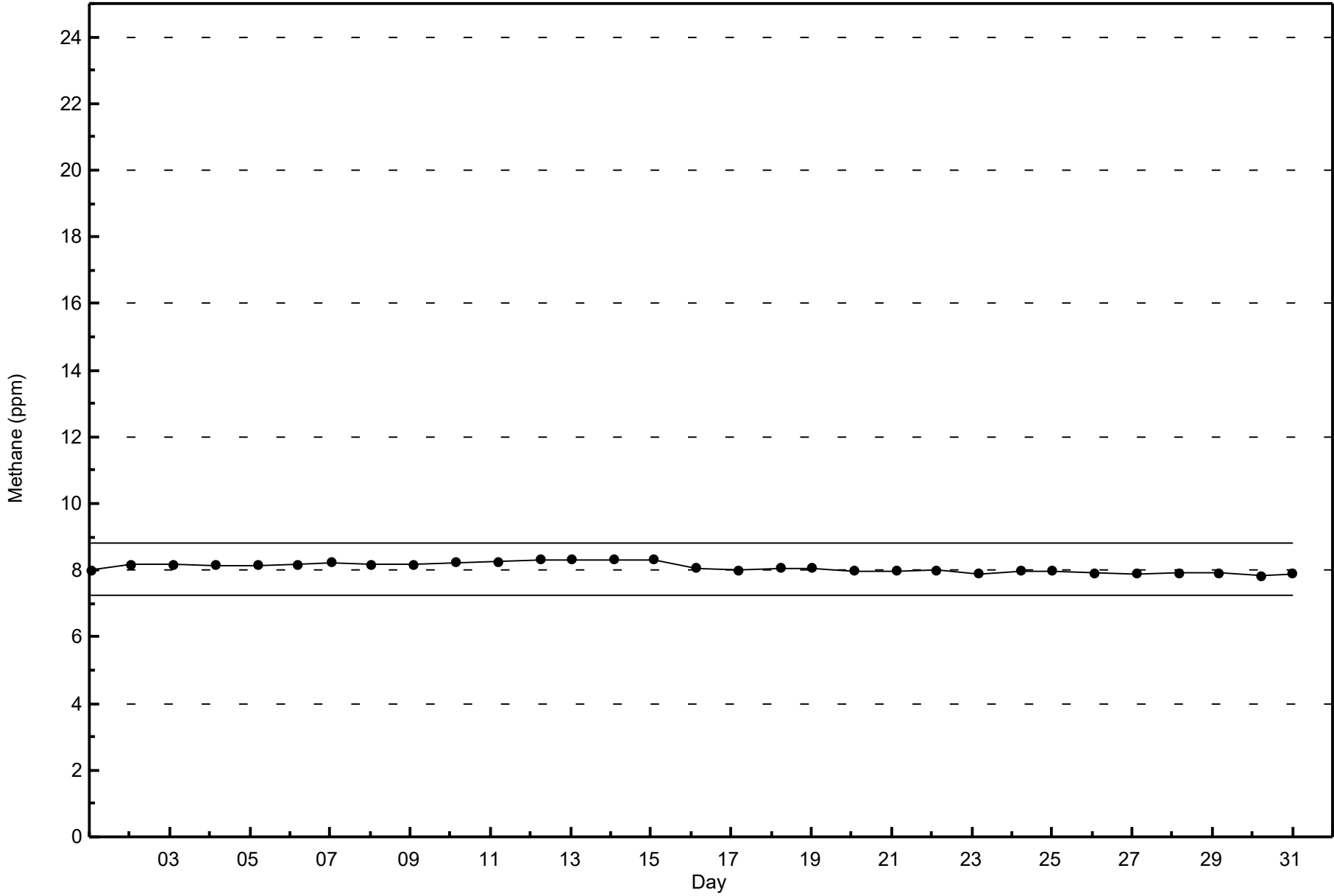






**Wood Buffalo Environmental Association**  
**Span Responses**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - January 2024**





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

Fort Hills - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 335.7 ppb on Jan 31 22:00	Maximum Daily Average: 87.8 ppb on Jan 31		Hours of Data:	707
Minimum Value: 0.0 ppb on Jan 7 21:00	Minimum Daily Average: 4.7 ppb on Jan 4		Hours of Missing Data:	37
Maximum Diurnal Average: 25.5 ppb at hour 22	Minimum Diurnal Average: 8.5 ppb at hour 1		Hours of Calibration:	37
Monthly Average: 16.57 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 1.6 Median = 6.4 Q <sub>3</sub> = 17.3 P <sub>90</sub> = 45.9 P <sub>99</sub> = 127.3		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-Jan	38.9	85.2	14.4	13.7	Z	0.7	1.2	14.3	6.3	19.9	8.9	6.8	5.6	14.4	6.8	9.9	24.8	2.0	1.4	0.2	1.0	4.2	1.8	2.2	12.4	85.2
2-Jan	1.3	0.6	0.5	0.8	5.7	Z	17.2	5.7	0.8	13.9	71.6	62.0	16.3	41.0	12.7	33.2	20.6	7.1	1.8	1.1	0.8	0.3	3.6	23.3	14.9	71.6
3-Jan	Z	19.1	15.1	8.1	7.5	0.0	0.0	5.2	11.5	17.2	16.2	12.7	3.7	6.3	8.1	14.6	8.7	1.9	2.2	3.9	1.8	2.2	1.4	1.9	7.4	19.1
4-Jan	0.7	Z	0.6	0.4	0.4	0.8	2.6	7.2	7.3	11.4	10.6	10.9	7.9	5.5	5.4	4.3	4.7	1.9	2.8	1.3	1.9	6.4	6.9	5.3	4.7	11.4
5-Jan	1.0	4.5	Z	2.1	1.8	10.9	5.1	0.5	2.3	0.6	2.6	14.1	20.2	6.8	5.3	2.7	0.9	0.7	2.8	8.9	9.2	6.4	3.0	4.1	5.1	20.2
6-Jan	9.0	5.1	10.1	Z	7.1	5.5	3.3	3.6	3.7	3.0	4.6	6.6	9.1	6.2	7.9	12.1	5.0	1.6	1.2	1.2	4.1	5.7	4.1	4.9	5.4	12.1
7-Jan	3.1	3.0	1.8	3.0	Z	6.9	9.5	10.4	15.1	4.2	17.2	13.6	3.7	2.9	4.9	13.4	1.3	1.6	1.1	0.0	0.0	0.0	0.0	0.0	5.1	17.2
8-Jan	0.0	0.0	0.0	0.3	0.9	Z	49.6	66.8	69.4	117.1	67.1	27.4	21.1	14.6	10.7	3.6	1.2	2.4	3.8	7.7	5.5	5.7	3.9	7.8	21.1	117.1
9-Jan	Z	5.3	3.6	45.1	40.3	34.1	5.1	1.6	12.8	16.5	20.6	16.0	9.9	19.8	8.4	10.6	11.6	7.5	9.6	8.0	6.4	5.6	5.3	4.8	13.4	45.1
10-Jan	4.3	Z	14.9	11.7	4.2	3.4	1.3	C	C	C	C	C	C	7.8	6.0	8.8	8.4	14.5	6.8	11.2	9.9	7.5	2.6	5.6	--	14.9
11-Jan	3.9	0.8	Z	4.0	8.8	11.4	18.7	27.0	19.2	22.5	26.5	19.9	23.3	28.5	40.8	24.5	13.6	17.2	18.7	15.2	4.8	0.9	0.5	0.3	15.3	40.8
12-Jan	0.8	1.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.6	0.6	2.6	20.3	15.9	17.9	10.0	1.1	2.6	1.4	4.2	11.7	2.8	17.3	24.5	5.9	24.5
13-Jan	26.7	14.9	11.4	30.7	Z	72.3	31.3	12.6	38.4	52.4	53.8	45.7	45.5	34.7	29.2	21.7	30.0	41.6	40.3	36.1	33.9	33.4	37.3	37.7	35.3	72.3
14-Jan	37.5	50.6	51.1	45.3	34.2	Z	52.7	56.5	64.4	65.4	54.3	56.0	25.5	48.8	55.3	64.5	55.1	61.7	68.7	74.8	72.7	75.9	49.0	21.8	54.0	75.9
15-Jan	Z	64.5	71.4	50.2	46.1	40.8	24.8	5.6	4.5	11.2	7.5	7.5	10.0	7.8	7.2	4.9	1.5	0.2	0.5	9.5	5.5	16.9	2.8	2.9	17.6	71.4
16-Jan	4.6	Z	91.6	40.0	27.5	25.1	12.0	9.0	21.8	38.4	49.5	65.6	78.7	63.0	50.8	18.7	44.5	109.8	114.9	90.8	0.2	0.1	0.1	0.1	41.6	114.9
17-Jan	0.2	2.4	Z	3.5	3.5	1.6	4.2	6.8	10.6	8.8	7.4	9.3	8.4	5.8	3.7	7.2	6.6	45.3	35.0	3.8	2.8	0.8	0.3	0.0	7.7	45.3
18-Jan	0.0	0.0	0.6	Z	0.0	4.1	0.1	2.9	35.5	1.3	1.9	8.5	17.3	20.3	44.0	63.6	91.4	79.9	83.0	54.3	11.2	5.7	1.9	1.8	23.0	91.4
19-Jan	4.6	10.1	0.4	0.1	Z	0.0	0.0	1.0	10.2	15.4	7.1	4.7	9.2	8.8	4.8	2.2	0.8	0.1	5.5	29.1	7.9	10.7	1.1	0.8	5.9	29.1
20-Jan	8.0	36.7	34.8	23.6	0.6	Z	0.5	0.0	59.1	39.8	24.4	20.1	16.3	20.2	13.0	10.1	17.4	7.5	4.9	5.0	2.7	19.4	9.4	1.0	16.3	59.1
21-Jan	Z	0.2	0.6	0.9	0.4	0.4	0.1	0.0	0.1	1.1	8.6	7.6	16.3	8.3	6.9	6.4	5.7	3.2	8.6	22.2	45.2	23.6	4.9	17.6	8.2	45.2
22-Jan	7.9	Z	6.7	6.8	3.3	3.1	1.5	0.5	0.5	2.9	13.0	18.3	12.5	21.5	6.2	0.4	2.4	15.5	13.8	2.4	0.1	0.0	0.0	0.0	6.1	21.5
23-Jan	0.0	0.7	Z	67.6	70.0	71.6	75.1	45.4	22.1	1.5	7.1	2.2	2.4	13.3	51.2	17.3	6.4	3.7	2.5	6.3	4.9	6.3	5.0	5.4	21.2	75.1
24-Jan	6.8	5.4	3.7	Z	7.2	5.6	0.1	0.1	13.6	37.1	43.6	12.1	9.2	11.7	8.5	6.5	4.1	1.6	1.5	0.2	1.8	118.3	101.8	25.6	18.5	118.3
25-Jan	20.3	14.4	9.4	9.4	Z	4.4	6.4	5.4	4.9	10.4	7.3	3.9	17.5	17.9	7.8	3.4	8.2	8.1	1.8	0.3	3.6	10.3	11.3	17.5	8.9	20.3
26-Jan	14.5	0.4	7.6	14.5	11.6	Z	26.3	5.3	16.3	16.3	29.1	33.8	30.5	20.7	7.5	2.9	0.3	0.0	0.0	0.0	0.6	0.0	0.2	0.0	10.4	33.8
27-Jan	Z	2.1	0.0	7.1	11.3	11.1	0.6	4.1	2.0	1.8	2.1	3.2	2.6	2.2	6.9	1.4	0.5	12.1	5.4	0.6	3.1	25.6	50.0	0.2	6.8	50.0
28-Jan	0.3	Z	2.0	6.2	1.2	0.3	8.6	21.1	20.7	4.3	11.9	2.5	0.5	0.2	0.1	0.9	20.9	18.6	11.5	0.6	2.3	0.1	3.8	0.8	6.1	21.1
29-Jan	0.1	0.0	Z	9.1	2.8	0.8	0.0	0.0	0.9	1.5	3.2	2.6	1.6	1.0	0.7	1.2	0.0	0.0	0.3	10.4	20.3	60.8	127.9	21.7	11.6	127.9
30-Jan	12.6	0.0	0.4	Z	0.6	0.0	88.0	11.2	1.2	6.6	9.6	3.9	0.3	1.4	3.7	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	5.5	6.4	88.0
31-Jan	14.4	3.6	2.0	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.4	8.2	73.2	70.9	99.8	115.5	178.0	202.6	182.3	197.1	183.9	335.7	253.8	98.6	87.8	335.7

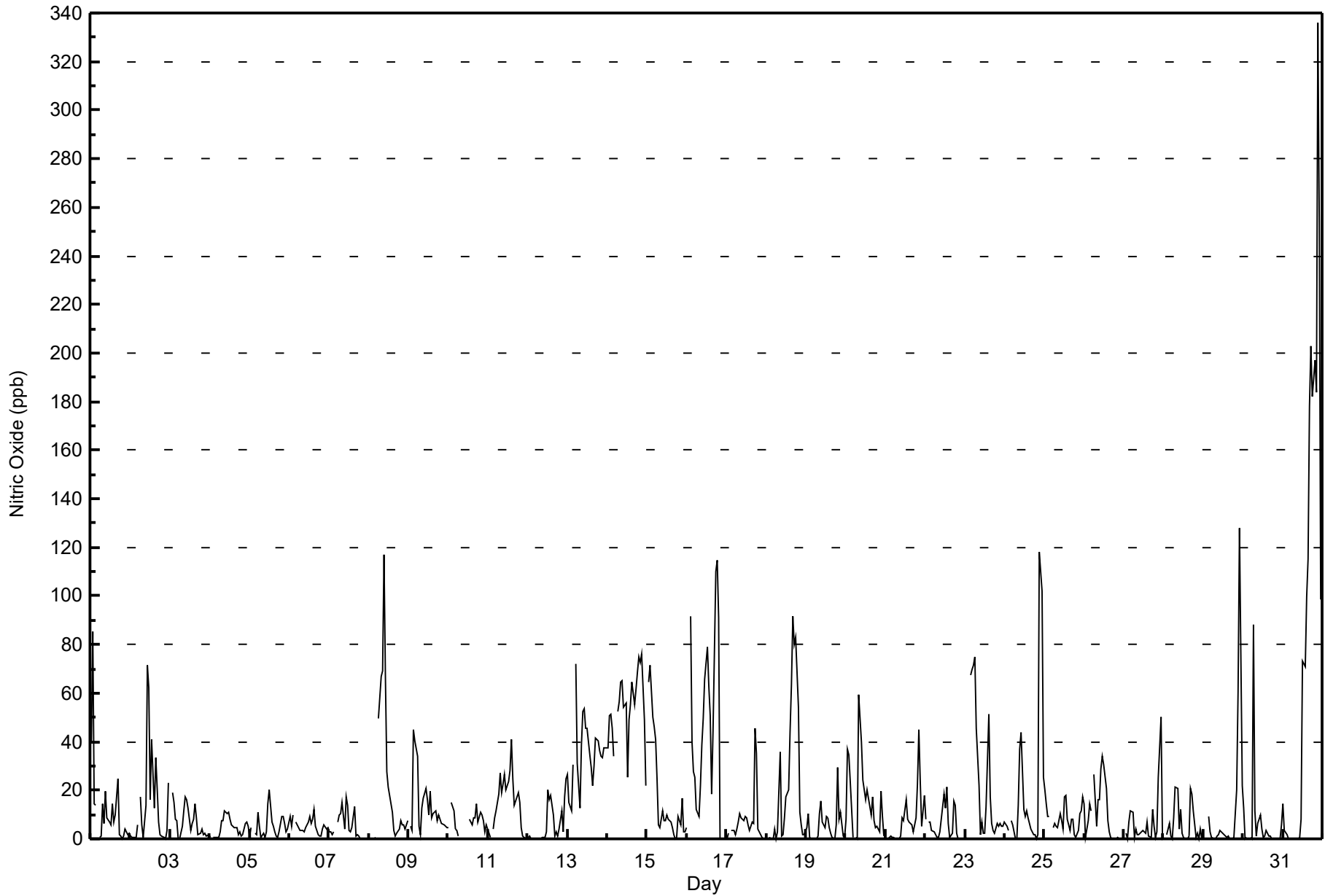
8.5	12.7	13.6	15.5	11.9	12.1	14.4	11.0	15.8	18.1	19.6	17.0	17.3	17.7	17.5	16.1	18.6	21.7	20.5	19.6	14.8	25.5	22.9	11.1	Diurnal Average	
38.9	85.2	91.6	67.6	70.0	72.3	88.0	66.8	69.4	117.1	71.6	65.6	78.7	70.9	99.8	115.5	178.0	202.6	182.3	197.1	183.9	335.7	253.8	98.6	Diurnal Maximum	

Z - zerospan      C - Calibration



Wood Buffalo Environmental Association  
Hourly Averages

Nitric Oxide (NO) - ppb  
Fort Hills - January 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Hills - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	557	78.78	78.78
21 - 40	65	9.19	87.98
41 - 80	63	8.91	96.89
81 - 159	15	2.12	99.01
> 159	7	0.99	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Hills - January 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	110	23	5	1	3	17	75	77	50	25	17	6	8	23	42	556
21 - 40	13	6	1	0	1	2	7	6	10	3	2	2	2	1	5	3	64
11 - 80	7	3	1	1	1	4	9	11	6	3	5	2	2	0	3	5	63
81 - 159	3	2	1	0	0	3	2	2	0	0	0	1	1	0	0	0	15
> 159	3	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7
<b>Totals</b>	100	124	26	6	3	13	35	94	93	56	32	22	11	9	31	50	705

Total Number of Valid Hours: 705

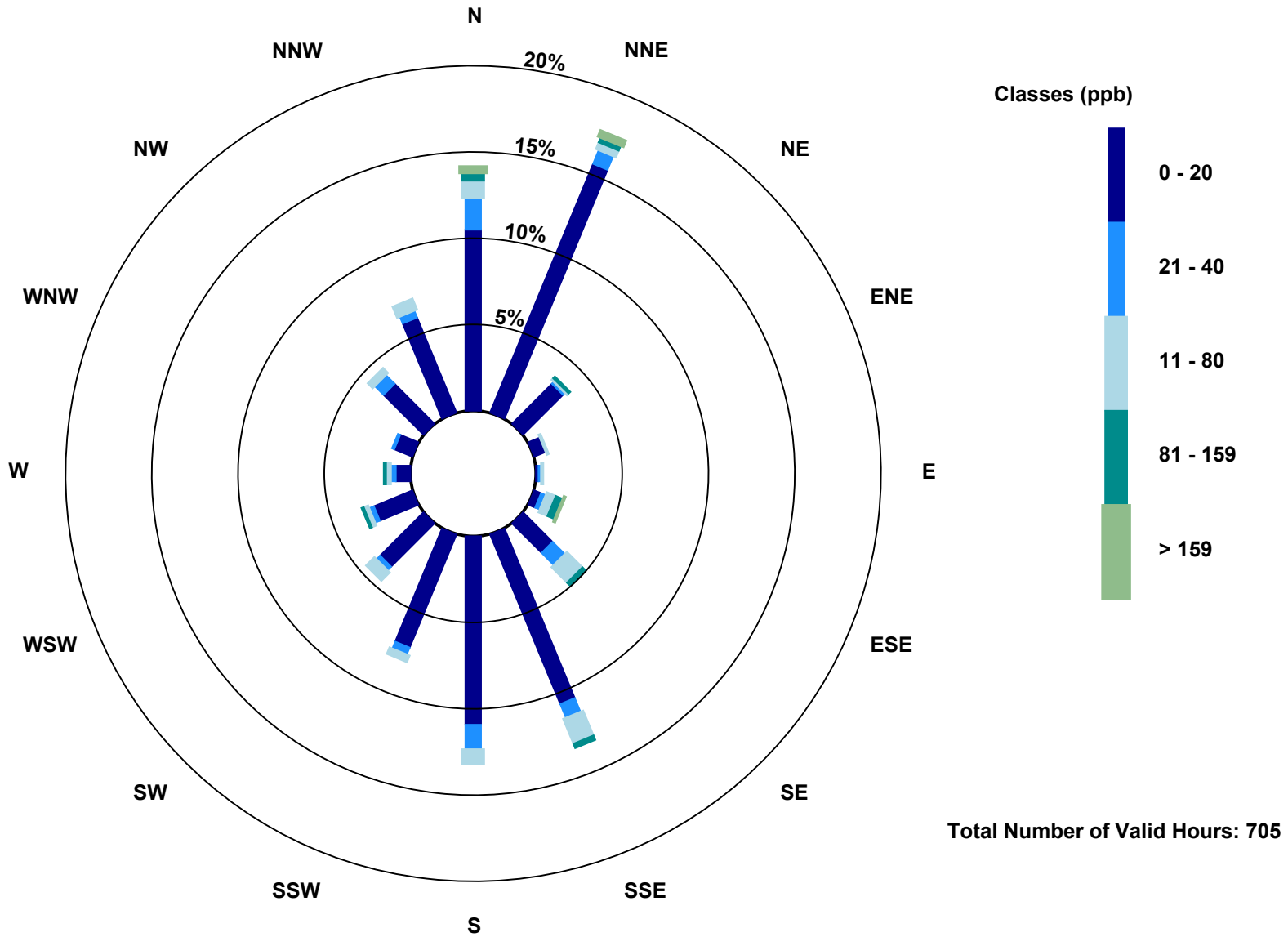
Total Number of Hours: 744

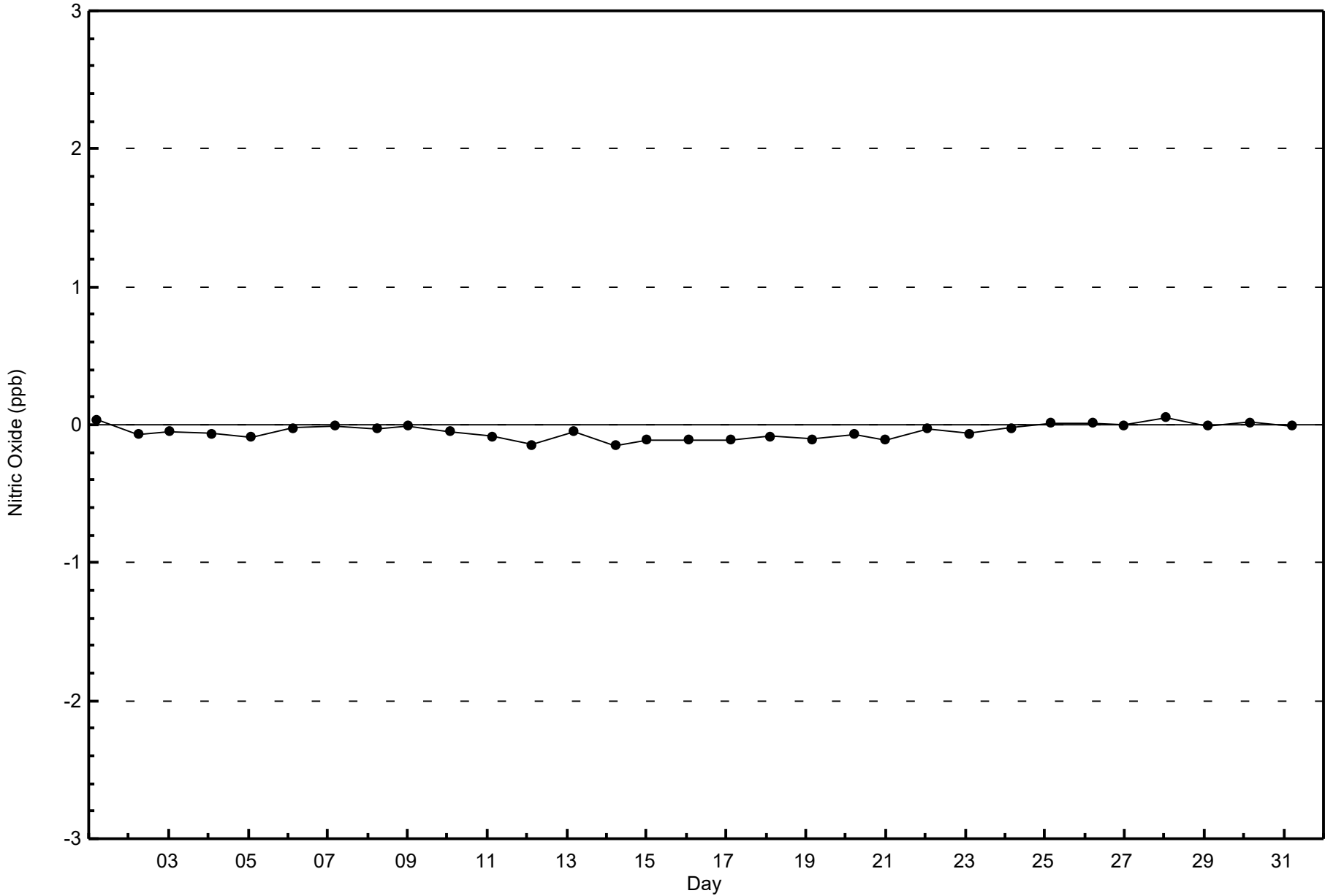


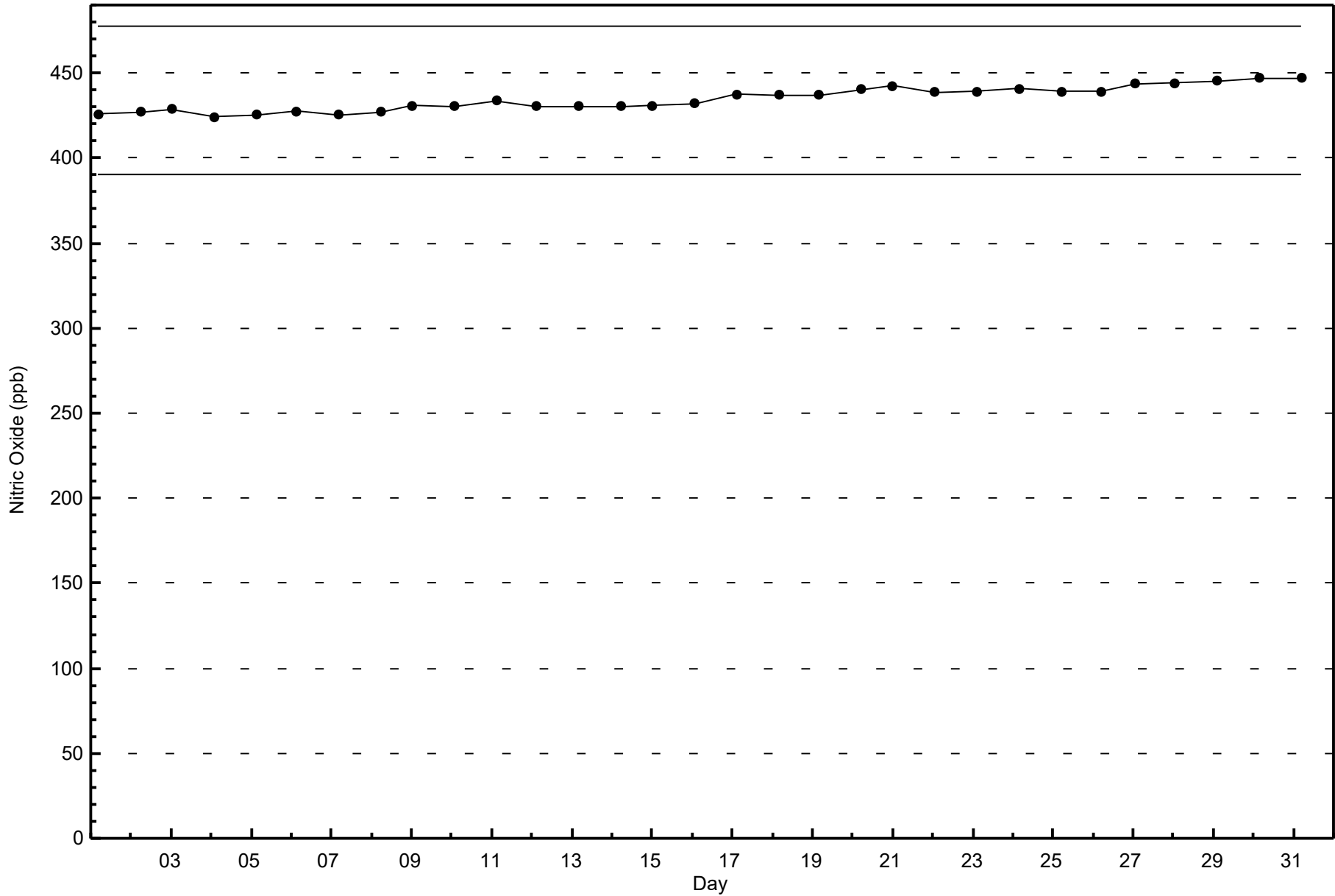


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Fort Hills









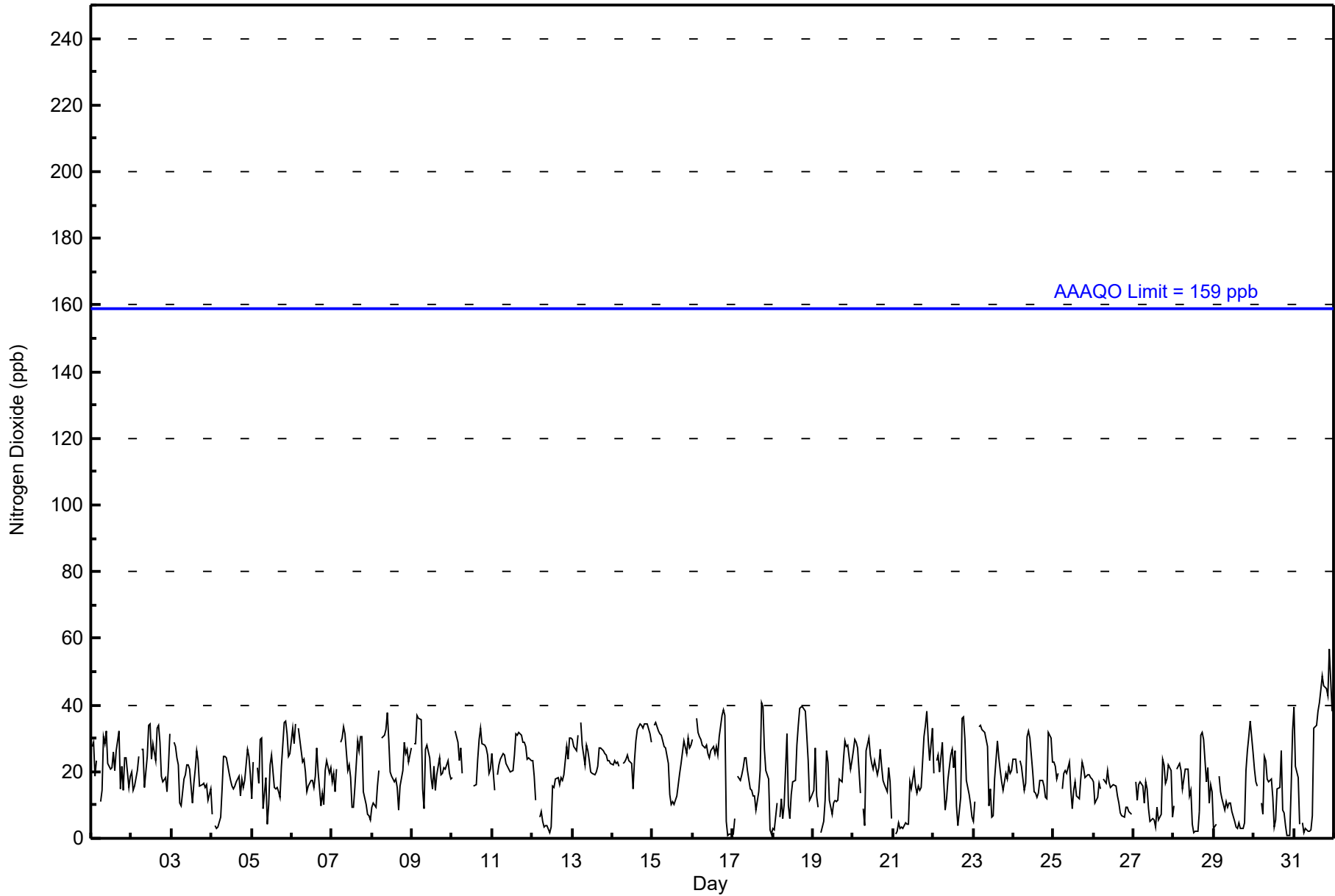
**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Hills - January 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 56.6 ppb on Jan 31 22:00	Maximum Daily Average: 27.0 ppb on Jan 31		Hours of Data:	707
Minimum Value: 0.9 ppb on Jan 30 22:00	Minimum Daily Average: 12.0 ppb on Jan 29		Hours of Missing Data:	37
Maximum Diurnal Average: 23.6 ppb at hour 19	Minimum Diurnal Average: 15.6 ppb at hour 13		Hours of Calibration:	37
Monthly Average: 19.66 ppb	Percentiles: P <sub>1</sub> = 1.3 P <sub>10</sub> = 6.3 Q <sub>1</sub> = 13.7 Median = 19.6 Q <sub>3</sub> = 26.3 P <sub>90</sub> = 31.5 P <sub>99</sub> = 40.6		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-Jan	27.4	28.7	18.7	23.1	Z	11.0	14.5	30.6	28.3	32.4	22.4	20.7	21.0	25.8	20.2	26.3	32.1	14.7	21.4	14.2	24.0	24.1	15.4	18.6	22.4	32.4																							
2-Jan	20.0	14.6	15.6	20.5	24.4	Z	26.6	26.6	15.1	24.4	34.1	34.4	23.9	28.6	23.4	33.2	33.7	28.7	18.5	16.8	18.2	13.9	21.4	31.4	23.8	34.4																							
3-Jan	Z	28.9	27.6	24.3	22.2	10.6	9.6	17.6	19.0	22.1	21.9	20.8	10.5	16.6	20.8	26.3	23.3	15.5	16.0	16.7	15.4	15.9	11.6	14.7	18.6	28.9																							
4-Jan	7.0	Z	4.0	3.0	3.5	6.4	14.9	24.7	24.5	24.3	19.5	17.2	15.7	14.9	15.5	17.0	18.5	12.8	17.9	15.2	17.5	26.9	24.6	19.2	15.9	26.9																							
5-Jan	11.7	22.7	Z	21.0	16.7	29.6	30.0	8.8	18.4	4.3	10.1	22.0	25.0	15.4	14.8	15.2	13.8	12.4	21.7	34.6	35.1	31.2	24.7	25.4	20.2	35.1																							
6-Jan	33.0	28.4	34.4	Z	32.9	29.6	22.8	23.7	20.0	14.1	15.8	17.2	17.5	15.2	18.5	27.0	19.9	9.8	13.5	10.1	20.2	23.4	19.4	21.1	21.2	34.4																							
7-Jan	17.1	19.6	14.0	20.7	Z	28.7	30.1	33.4	31.3	20.4	22.2	18.1	9.4	9.2	15.3	29.4	26.3	30.5	30.5	13.8	10.1	7.2	6.8	5.5	19.5	33.4																							
8-Jan	9.3	10.4	9.3	15.5	20.2	Z	30.2	30.9	32.8	37.8	29.7	19.9	18.6	17.0	17.8	15.3	8.3	15.6	20.4	28.8	25.5	26.7	22.8	27.3	21.3	37.8																							
9-Jan	Z	28.6	28.3	36.9	35.9	35.8	14.9	8.8	26.5	27.8	24.2	18.3	14.7	21.5	14.5	18.9	24.0	19.2	19.3	21.3	20.6	23.1	19.4	17.7	22.6	36.9																							
10-Jan	18.3	Z	32.1	28.8	23.5	27.0	19.3	C	C	C	C	C	C	15.6	16.0	23.9	29.8	33.2	28.4	28.0	27.3	24.8	19.3	20.8	--	33.2																							
11-Jan	25.6	14.3	Z	19.2	22.1	23.9	25.4	25.2	22.3	21.5	20.6	20.0	20.5	25.2	31.4	31.1	31.6	30.9	28.9	28.9	27.4	23.8	24.1	23.2	24.7	31.6																							
12-Jan	23.2	18.6	11.6	Z	6.4	8.1	5.0	3.6	4.0	4.0	1.7	3.5	15.7	15.2	18.0	18.2	16.0	18.3	17.3	19.0	27.6	23.7	30.0	30.1	14.7	30.1																							
13-Jan	29.8	27.7	26.4	31.1	Z	34.8	28.0	22.1	27.9	26.1	23.4	19.9	19.7	19.0	20.0	21.5	27.1	27.2	26.3	25.5	24.8	23.2	23.4	22.6	25.1	34.8																							
14-Jan	22.2	23.5	22.5	23.0	21.7	Z	22.3	22.8	23.7	25.2	23.2	22.3	14.8	23.1	29.1	32.8	34.3	34.1	33.2	34.3	34.2	34.4	31.3	28.8	26.8	34.4																							
15-Jan	Z	33.7	34.8	32.0	31.5	30.8	29.2	27.5	27.1	22.6	13.3	10.1	11.2	10.1	12.5	15.9	19.4	22.5	25.8	29.1	25.6	30.0	27.0	27.8	23.9	34.8																							
16-Jan	29.8	Z	36.1	31.6	30.7	29.5	27.9	27.2	27.9	25.3	24.0	26.2	27.7	25.4	27.4	25.2	30.4	36.7	38.4	36.8	4.9	1.0	1.2	1.1	24.9	38.4																							
17-Jan	1.1	5.9	Z	18.6	17.5	19.2	21.0	24.0	24.1	20.2	14.9	14.2	12.6	12.6	8.3	13.9	20.4	40.6	39.2	26.7	20.5	17.8	2.7	1.2	17.3	40.6																							
18-Jan	3.1	2.4	10.7	Z	6.5	11.9	6.1	10.1	31.4	9.7	5.8	13.3	16.9	17.4	28.1	34.0	38.8	39.3	39.2	38.0	30.8	23.1	11.3	12.1	19.1	39.3																							
19-Jan	14.4	27.3	12.5	9.5	Z	1.6	5.1	11.5	26.2	23.0	11.6	7.0	10.8	11.4	11.0	11.4	17.6	16.9	23.9	29.1	27.4	27.9	20.6	23.5	16.6	29.1																							
20-Jan	26.3	29.8	28.9	27.2	13.6	Z	9.0	3.8	26.3	30.2	24.9	22.5	20.9	23.3	18.9	21.1	26.5	21.6	17.4	16.3	14.1	21.2	16.8	6.1	20.3	30.2																							
21-Jan	Z	1.3	2.3	4.6	2.8	3.6	3.0	4.6	4.1	4.3	16.8	14.8	20.5	15.6	13.4	15.6	14.6	15.4	30.5	33.9	38.0	29.6	23.2	32.9	15.0	38.0																							
22-Jan	19.6	Z	23.5	25.1	19.8	29.0	17.0	8.6	11.9	17.7	25.2	26.6	21.1	26.2	9.8	3.9	12.1	36.0	36.3	29.7	17.5	13.1	10.2	6.2	19.4	36.3																							
23-Jan	5.1	11.1	Z	33.5	33.7	32.6	32.1	31.7	27.6	9.9	14.9	6.2	6.6	18.0	29.4	24.0	20.2	16.8	14.5	19.6	18.0	21.6	19.5	20.5	20.3	33.7																							
24-Jan	23.8	23.8	19.6	Z	23.3	21.5	14.4	16.4	30.5	32.0	30.1	19.9	14.1	13.4	12.4	13.7	17.3	17.3	15.8	12.1	11.7	31.7	30.0	23.0	20.3	32.0																							
25-Jan	22.8	21.5	18.0	19.5	Z	15.0	19.3	20.5	19.7	22.8	14.4	9.0	14.5	17.1	12.8	11.8	18.0	22.9	21.1	18.3	19.2	19.1	18.3	17.8	18.0	22.9																							
26-Jan	17.0	10.5	12.4	16.4	14.7	Z	17.8	16.4	20.2	16.9	15.4	15.6	16.3	15.6	12.5	10.8	7.5	6.8	6.3	9.4	9.4	7.9	7.8	7.3	12.6	20.2																							
27-Jan	Z	16.9	11.4	16.2	17.1	15.7	10.4	16.8	14.7	8.8	4.9	6.0	5.3	3.5	9.3	5.4	7.2	23.7	22.0	16.5	18.0	22.1	20.4	6.2	13.0	23.7																							
28-Jan	9.6	Z	20.8	22.4	20.3	14.7	18.0	20.8	20.8	12.9	14.2	4.2	1.6	2.1	2.1	8.0	30.9	31.8	29.6	16.9	21.0	10.7	15.9	14.1	15.8	31.8																							
29-Jan	3.0	4.3	Z	18.8	14.0	11.9	8.4	11.1	9.4	10.6	10.6	8.0	5.2	3.4	3.1	4.8	3.0	3.0	4.7	20.4	26.4	30.7	35.2	25.7	12.0	35.2																							
30-Jan	20.9	16.9	15.7	Z	10.7	7.0	24.5	23.3	17.6	17.0	17.6	12.3	3.2	5.7	15.0	15.3	26.1	8.5	7.6	4.0	1.0	0.9	15.2	32.0	13.8	32.0																							
31-Jan	39.6	21.4	18.2	4.2	Z	4.6	1.6	3.1	2.3	2.0	2.4	6.9	33.2	34.1	38.1	40.5	44.4	48.8	45.6	44.8	42.7	56.6	47.6	38.2	27.0	56.6																							
																								18.5	19.0	19.6	21.0	19.4	19.0	18.0	18.5	21.2	19.0	17.7	15.9	15.6	16.7	17.4	19.7	22.4	23.0	23.6	22.9	21.7	22.2	19.9	19.4	Diurnal Average	
																								39.6	33.7	36.1	36.9	35.9	35.8	32.1	33.4	32.8	37.8	34.1	34.4	33.2	34.1	38.1	40.5	44.4	48.8	45.6	44.8	42.7	56.6	47.6	38.2	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**  
**Fort Hills - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	380	53.75	53.75
21 - 40	318	44.98	98.73
11 - 80	9	1.27	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Hills - January 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	43	58	15	3	1	1	17	56	66	40	18	8	4	5	18	27	380
21 - 40	54	62	11	3	2	10	18	38	27	16	14	14	7	4	13	23	316
11 - 80	3	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	9
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>	100	124	26	6	3	13	35	94	93	56	32	22	11	9	31	50	705

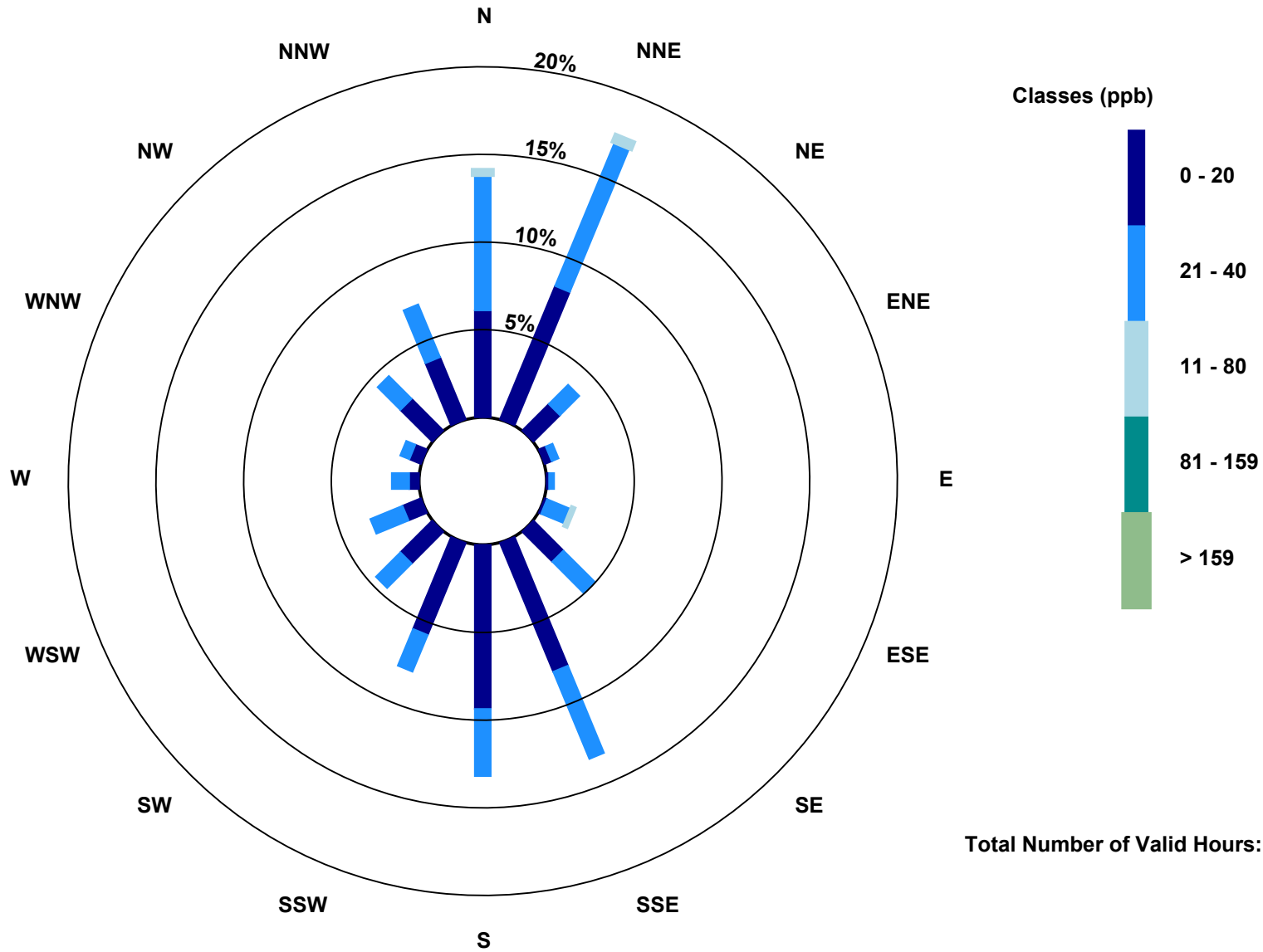
Total Number of Valid Hours: 705

Total Number of Hours: 744



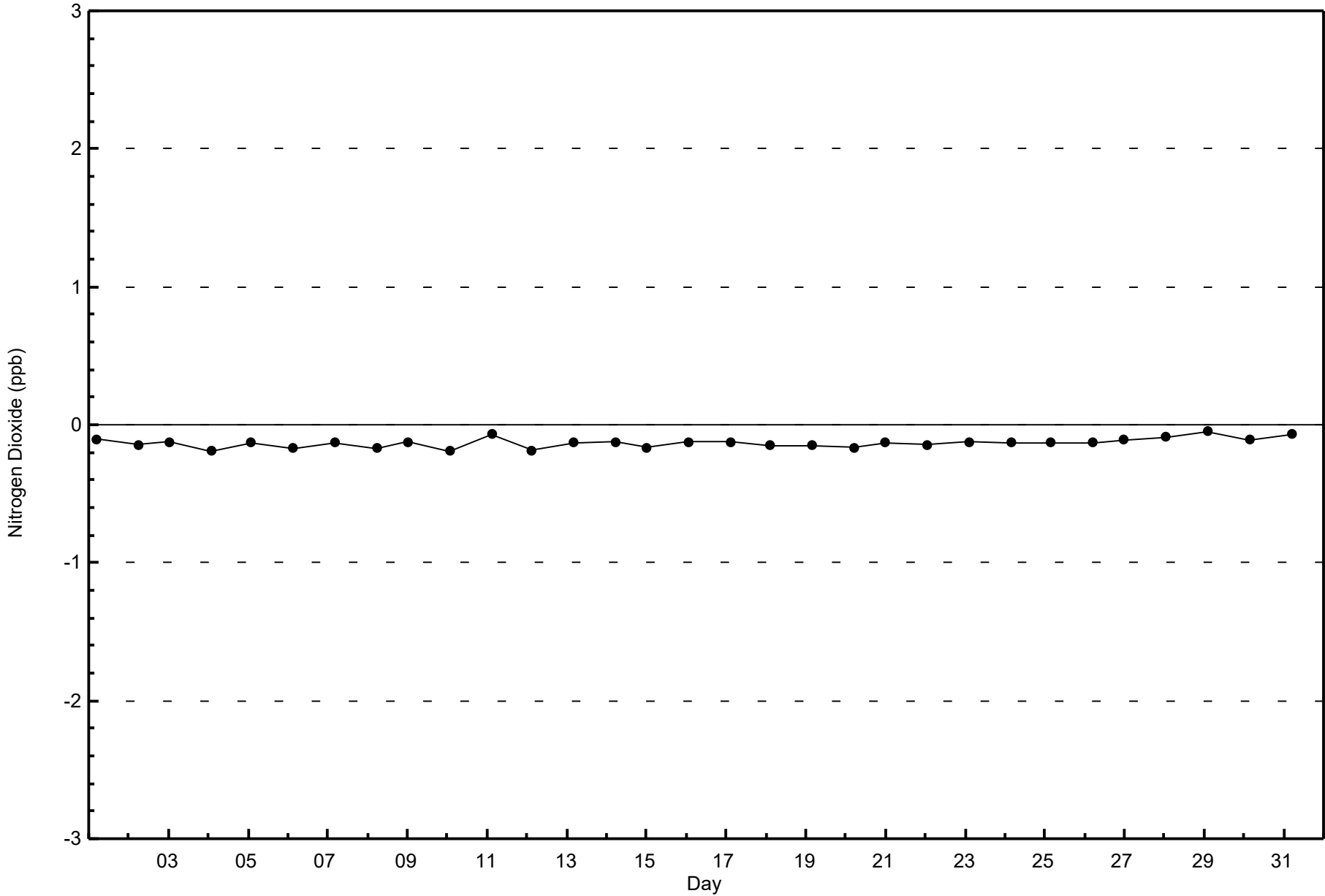
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

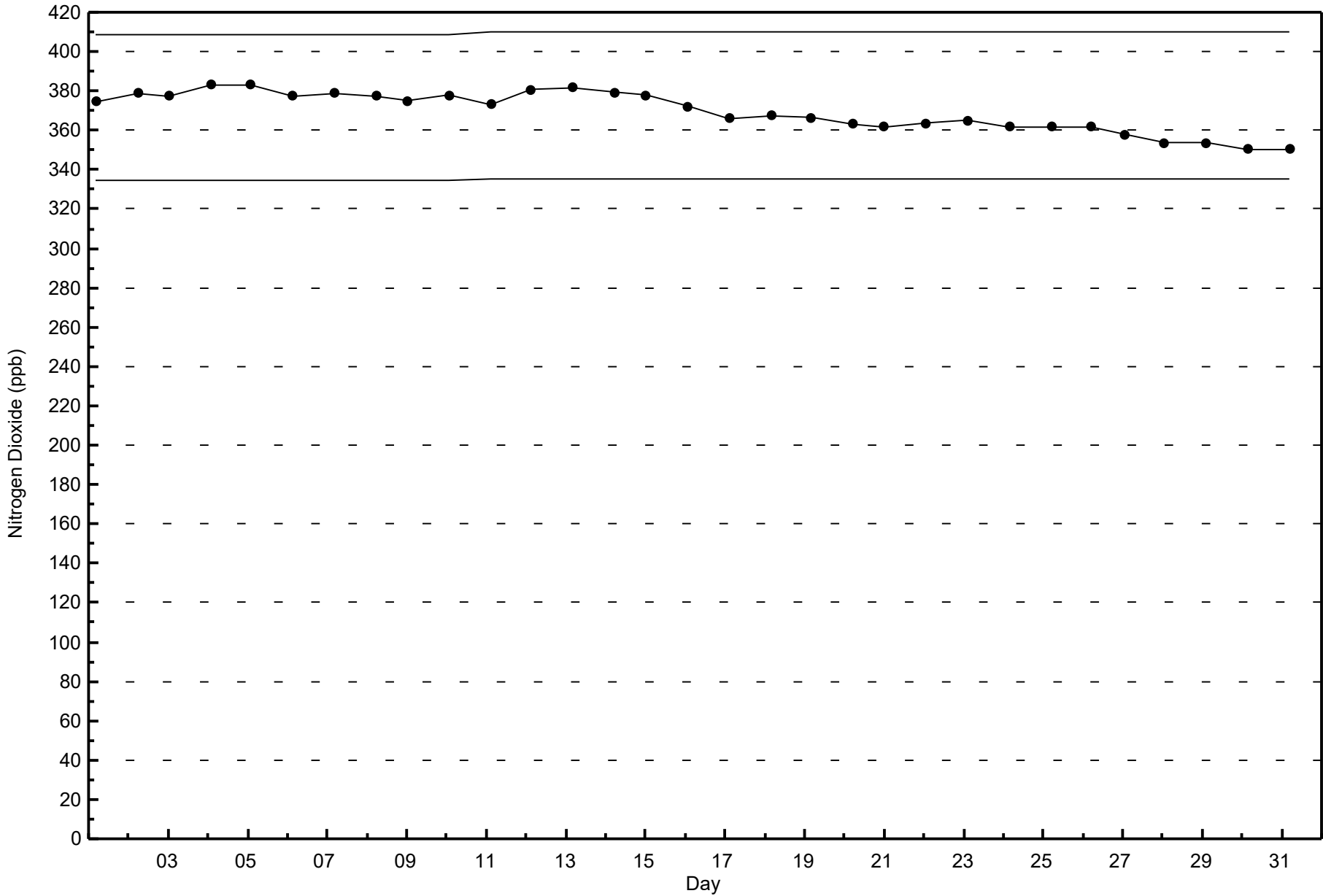
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Hills



Total Number of Valid Hours: 705









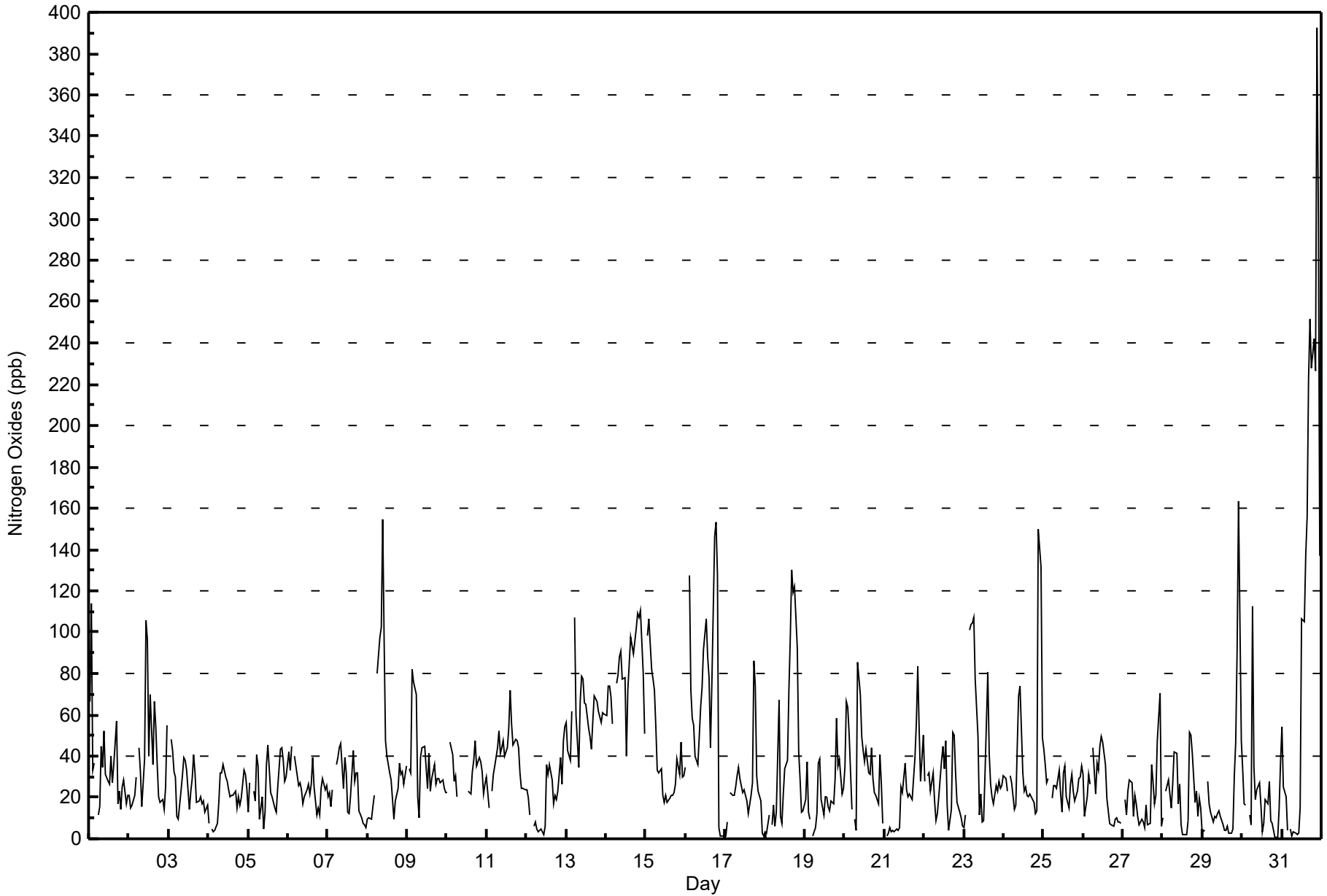
**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - January 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 392.3 ppb on Jan 31 22:00	Maximum Daily Average: 114.8 ppb on Jan 31		Hours of Data:	707
Minimum Value: 0.9 ppb on Jan 30 22:00	Minimum Daily Average: 19.8 ppb on Jan 27		Hours of Missing Data:	37
Maximum Diurnal Average: 47.7 ppb at hour 22	Minimum Diurnal Average: 27.0 ppb at hour 1		Hours of Calibration:	37
Monthly Average: 36.23 ppb	Percentiles: P <sub>1</sub> = 1.5 P <sub>10</sub> = 7.1 Q <sub>1</sub> = 16.6 Median = 26.7 Q <sub>3</sub> = 43.0 P <sub>90</sub> = 75.0 P <sub>99</sub> = 162.7		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-Jan	66.3	113.9	33.1	36.8	Z	11.7	15.7	44.9	34.6	52.3	31.3	27.5	26.6	40.2	27.0	36.2	56.9	16.7	22.8	14.4	25.0	28.3	17.2	20.8	34.8	113.9																							
2-Jan	21.3	15.2	16.1	21.3	30.1	Z	43.8	32.3	15.9	38.3	105.7	96.4	40.2	69.6	36.1	66.4	54.3	35.8	20.3	17.9	19.0	14.2	25.0	54.7	38.7	105.7																							
3-Jan	Z	48.0	42.7	32.4	29.7	10.6	9.6	22.8	30.5	39.3	38.1	33.5	14.2	22.9	28.9	40.9	32.0	17.4	18.2	20.6	17.2	18.1	13.0	16.6	26.0	48.0																							
4-Jan	7.7	Z	4.6	3.4	3.9	7.2	17.5	31.9	31.8	35.7	30.1	28.1	23.6	20.4	20.9	21.3	23.2	14.7	20.7	16.5	19.4	33.3	31.5	24.5	20.5	35.7																							
5-Jan	12.7	27.2	Z	23.1	18.5	40.5	35.1	9.3	20.7	4.9	12.7	36.1	45.2	22.2	20.1	17.9	14.7	13.1	24.5	43.5	44.3	37.6	27.7	29.5	25.3	45.2																							
6-Jan	42.0	33.5	44.5	Z	40.0	35.1	26.1	27.3	23.7	17.1	20.4	23.8	26.6	21.4	26.4	39.1	24.9	11.4	14.7	11.3	24.3	29.1	23.5	26.0	26.6	44.5																							
7-Jan	20.2	22.6	15.8	23.7	Z	35.6	39.6	43.8	46.4	24.6	39.4	31.7	13.1	12.1	20.2	42.8	27.6	32.1	31.6	13.8	10.1	7.2	6.8	5.5	24.6	46.4																							
8-Jan	9.3	10.4	9.3	15.8	21.1	Z	79.8	97.7	102.2	154.9	96.8	47.3	39.7	31.6	28.5	18.9	9.5	18.0	24.2	36.5	31.0	32.4	26.7	35.1	42.5	154.9																							
9-Jan	Z	33.9	31.9	82.0	76.2	69.9	20.0	10.4	39.3	44.3	44.8	34.3	24.6	41.3	22.9	29.5	35.6	26.7	28.9	29.3	27.0	28.7	24.7	22.5	36.0	82.0																							
10-Jan	22.6	Z	47.0	40.5	27.7	30.4	20.6	C	C	C	C	C	C	23.4	22.0	32.7	38.2	47.7	35.2	39.2	37.2	32.3	21.9	26.4	--	47.7																							
11-Jan	29.5	15.1	Z	23.2	30.9	35.3	44.1	52.2	41.5	44.0	47.1	39.9	43.8	53.7	72.2	55.6	45.2	48.1	47.6	44.1	32.2	24.7	24.6	23.5	39.9	72.2																							
12-Jan	24.0	19.6	11.7	Z	6.4	8.1	5.0	3.6	4.0	4.6	2.3	6.1	36.0	31.1	35.9	28.2	17.1	20.9	18.7	23.2	39.3	26.5	47.3	54.6	20.6	54.6																							
13-Jan	56.5	42.6	37.8	61.8	Z	107.1	59.3	34.7	66.3	78.5	77.2	65.6	65.2	53.7	49.2	43.2	57.1	68.8	66.6	61.6	58.7	56.6	60.7	60.3	60.4	107.1																							
14-Jan	59.7	74.1	73.6	68.3	55.9	Z	75.0	79.3	88.1	90.6	77.5	78.3	40.3	71.9	84.4	97.3	89.4	95.8	101.9	109.1	106.9	110.3	80.3	50.6	80.8	110.3																							
15-Jan	Z	98.2	106.2	82.2	77.6	71.6	54.0	33.1	31.6	33.8	20.8	17.6	21.2	17.9	19.7	20.8	20.9	22.7	26.3	38.6	31.1	46.9	29.8	30.7	41.5	106.2																							
16-Jan	34.4	Z	127.7	71.6	58.2	54.6	39.9	36.2	49.7	63.7	73.5	91.8	106.4	88.4	78.2	43.9	74.9	146.5	153.3	127.6	5.1	1.1	1.3	1.2	66.5	153.3																							
17-Jan	1.3	8.3	Z	22.1	21.0	20.8	25.2	30.8	34.7	29.0	22.3	23.5	21.0	18.4	12.0	21.1	27.0	85.9	74.2	30.5	23.3	18.6	3.0	1.2	25.0	85.9																							
18-Jan	3.1	2.4	11.3	Z	6.5	16.0	6.2	13.0	66.9	11.0	7.7	21.8	34.2	37.7	72.1	97.6	130.2	119.2	122.2	92.3	42.0	28.8	13.2	13.9	42.1	130.2																							
19-Jan	19.0	37.4	12.9	9.6	Z	1.6	5.1	12.5	36.4	38.4	18.7	11.7	20.0	20.2	15.8	13.6	18.4	17.0	29.4	58.2	35.3	38.6	21.7	24.3	22.4	58.2																							
20-Jan	34.3	66.5	63.7	50.8	14.2	Z	9.5	3.8	85.4	70.0	49.3	42.6	37.2	43.5	31.9	31.2	43.9	29.1	22.3	21.3	16.8	40.6	26.2	7.1	36.6	85.4																							
21-Jan	Z	1.5	2.9	5.5	3.2	4.0	3.1	4.6	4.2	5.4	25.4	22.4	36.8	23.9	20.3	22.0	20.3	18.6	39.1	56.1	83.2	53.2	28.1	50.5	23.2	83.2																							
22-Jan	27.5	Z	30.2	31.9	23.1	32.1	18.5	9.1	12.4	20.6	38.2	44.9	33.6	47.7	16.0	4.3	14.5	51.5	50.1	32.1	17.6	13.1	10.2	6.2	25.5	51.5																							
23-Jan	5.1	11.8	Z	101.1	103.7	104.2	107.2	77.1	49.7	11.4	22.0	8.4	9.0	31.3	80.6	41.3	26.6	20.5	17.0	25.9	22.9	27.9	24.5	25.9	41.5	107.2																							
24-Jan	30.6	29.2	23.3	Z	30.5	27.1	14.5	16.5	44.1	69.1	73.7	32.0	23.4	25.1	20.9	20.2	21.4	18.9	17.3	12.3	13.5	150.0	131.8	48.6	38.9	150.0																							
25-Jan	43.1	35.9	27.4	28.9	Z	19.4	25.7	25.9	24.6	33.2	21.7	12.9	32.0	35.0	20.6	15.2	26.2	31.0	22.9	18.6	22.8	29.4	29.6	35.3	26.8	43.1																							
26-Jan	31.5	10.9	20.0	30.9	26.3	Z	44.1	21.7	36.5	33.2	44.5	49.4	46.8	36.3	20.0	13.7	7.8	6.8	6.3	9.4	10.0	7.9	8.0	7.3	23.0	49.4																							
27-Jan	Z	19.0	11.4	23.3	28.4	26.8	11.0	20.9	16.7	10.6	7.0	9.2	7.9	5.7	16.2	6.8	7.7	35.8	27.4	17.1	21.1	47.7	70.4	6.4	19.8	70.4																							
28-Jan	9.9	Z	22.8	28.6	21.5	15.0	26.6	41.9	41.5	17.2	26.1	6.7	2.1	2.3	2.2	8.9	51.8	50.4	41.1	17.5	23.3	10.8	19.7	14.9	21.9	51.8																							
29-Jan	3.1	4.3	Z	27.9	16.8	12.7	8.4	11.1	10.3	12.1	13.8	10.6	6.8	4.4	3.8	6.0	3.0	3.0	5.0	30.8	46.7	91.5	163.1	47.4	23.6	163.1																							
30-Jan	33.5	16.9	16.1	Z	11.3	7.0	112.5	34.5	18.8	23.6	27.2	16.2	3.5	7.1	18.7	16.7	27.5	8.5	7.6	4.0	1.0	0.9	15.2	37.5	20.2	112.5																							
31-Jan	54.0	25.0	20.2	4.2	Z	4.6	1.6	3.1	2.5	2.1	2.8	15.1	106.4	105.0	137.9	156.0	222.4	251.4	227.9	241.9	226.6	392.3	301.4	136.8	114.8	392.3																							
																								27.0	31.7	33.2	36.6	31.3	31.1	32.4	29.5	37.0	37.1	37.3	32.8	32.9	34.4	34.9	35.8	41.0	44.7	44.0	42.4	36.6	47.7	42.8	30.5	Diurnal Average	
																								66.3	113.9	127.7	101.1	103.7	107.1	112.5	97.7	102.2	154.9	105.7	96.4	106.4	105.0	137.9	156.0	222.4	251.4	227.9	241.9	226.6	392.3	301.4	136.8	Diurnal Maximum	

Z - zerospan      C - Calibration





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	241	34.09	34.09
21 - 40	274	38.76	72.84
41 - 80	133	18.81	91.65
81 - 159	50	7.07	98.73
> 159	8	1.13	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Hills - January 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	25	12	9	2	1	1	6	42	51	30	14	6	3	4	13	22	241
21 - 40	43	85	14	2	0	1	10	30	25	19	7	6	2	3	10	17	274
11 - 80	20	20	1	1	2	5	11	15	15	5	7	7	4	2	6	10	131
81 - 159	8	4	2	1	0	5	8	6	2	2	4	3	2	0	2	1	50
> 159	3	3	0	0	0	1	0	1	0	0	0	0	0	0	0	0	8
<b>Totals</b>	<b>99</b>	<b>124</b>	<b>26</b>	<b>6</b>	<b>3</b>	<b>13</b>	<b>35</b>	<b>94</b>	<b>93</b>	<b>56</b>	<b>32</b>	<b>22</b>	<b>11</b>	<b>9</b>	<b>31</b>	<b>50</b>	<b>704</b>

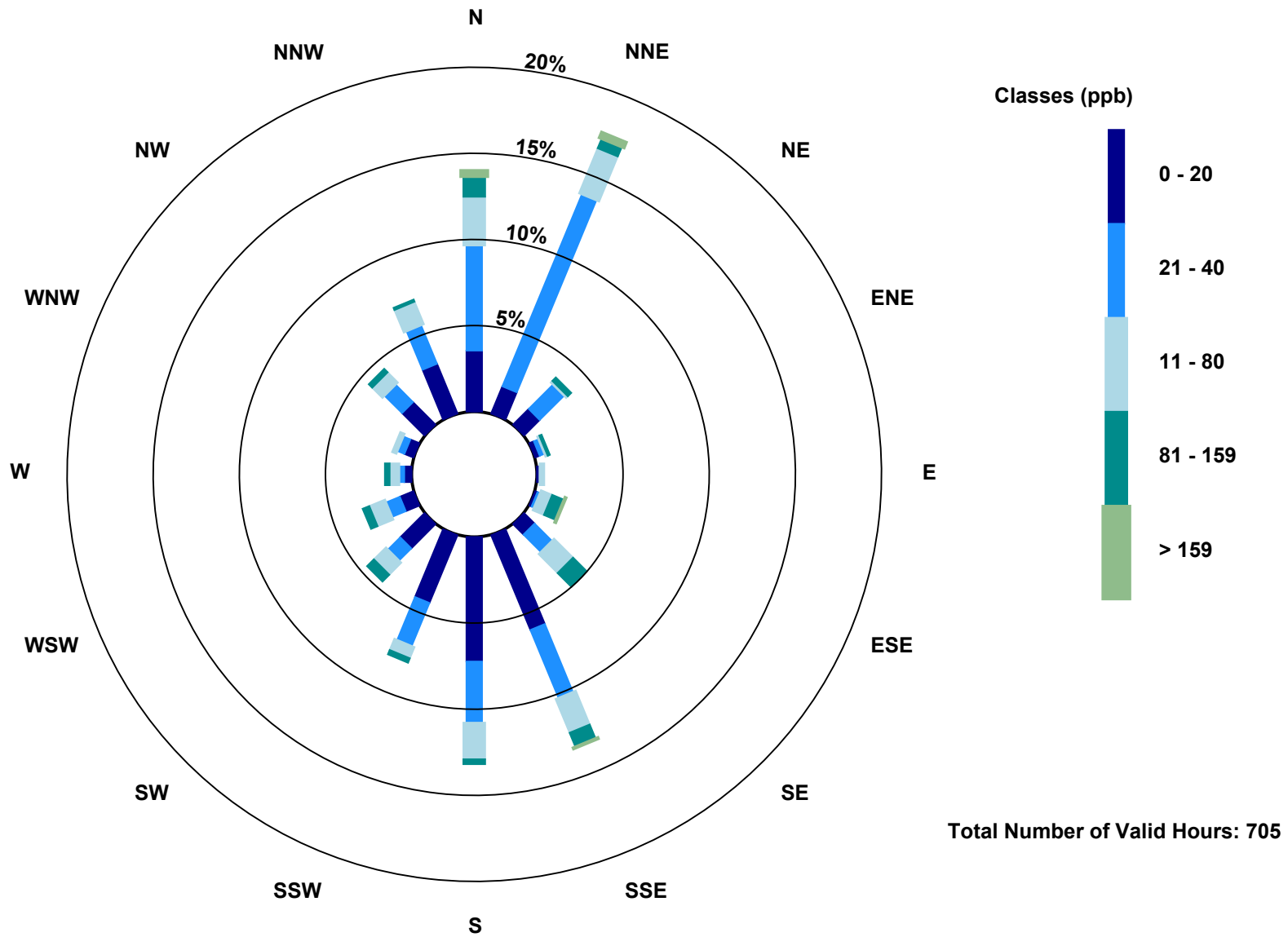
Total Number of Valid Hours: 705

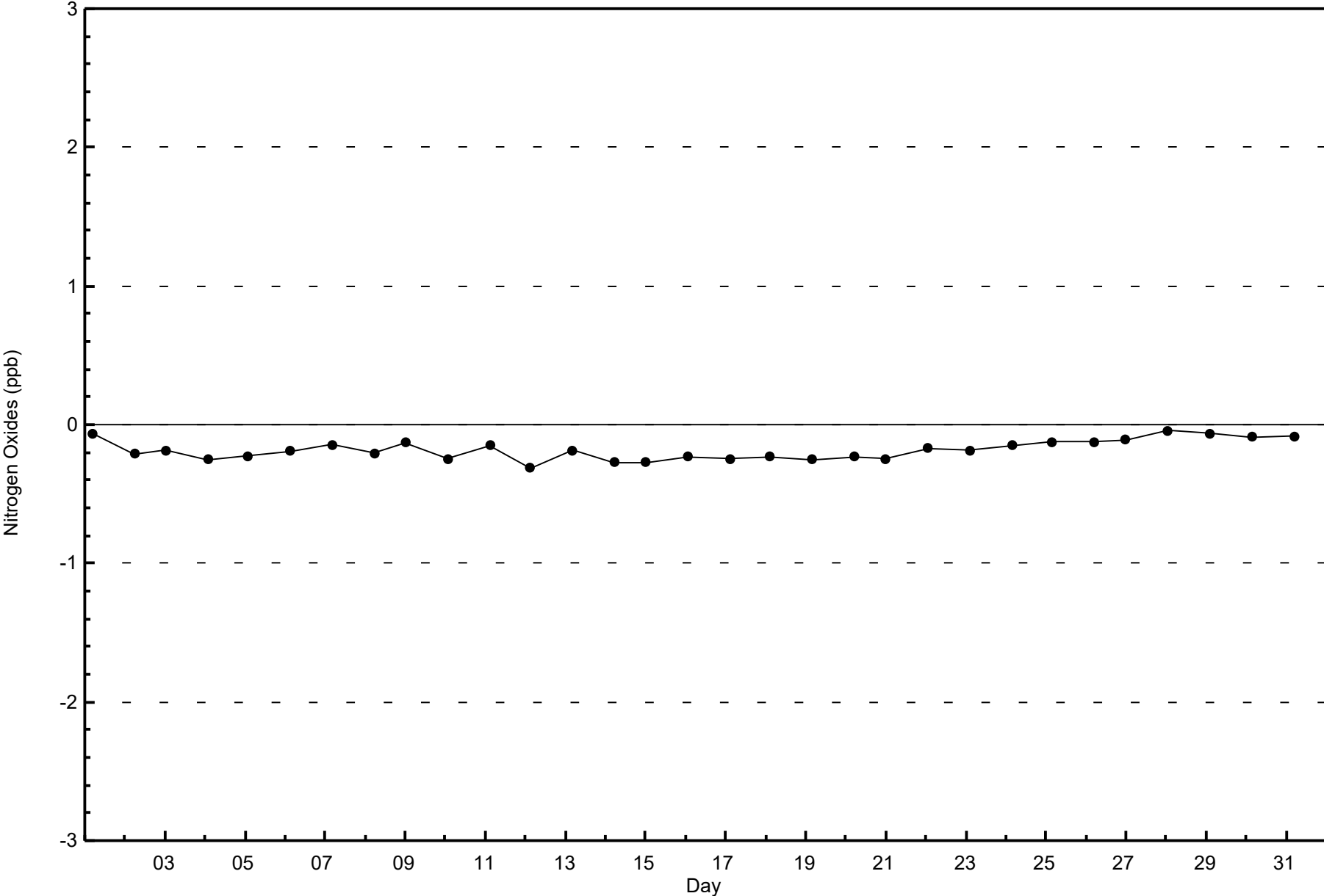
Total Number of Hours: 744



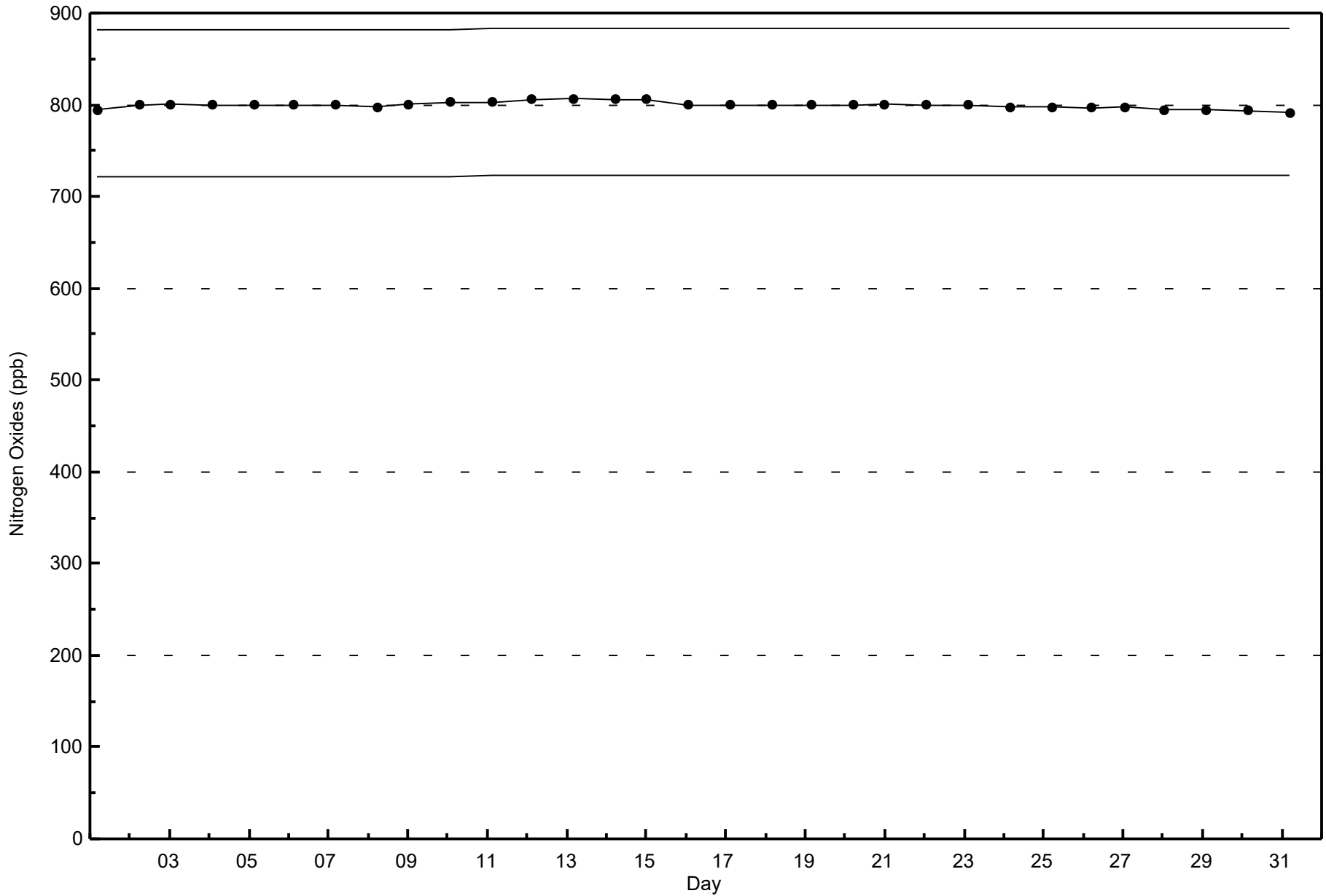
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



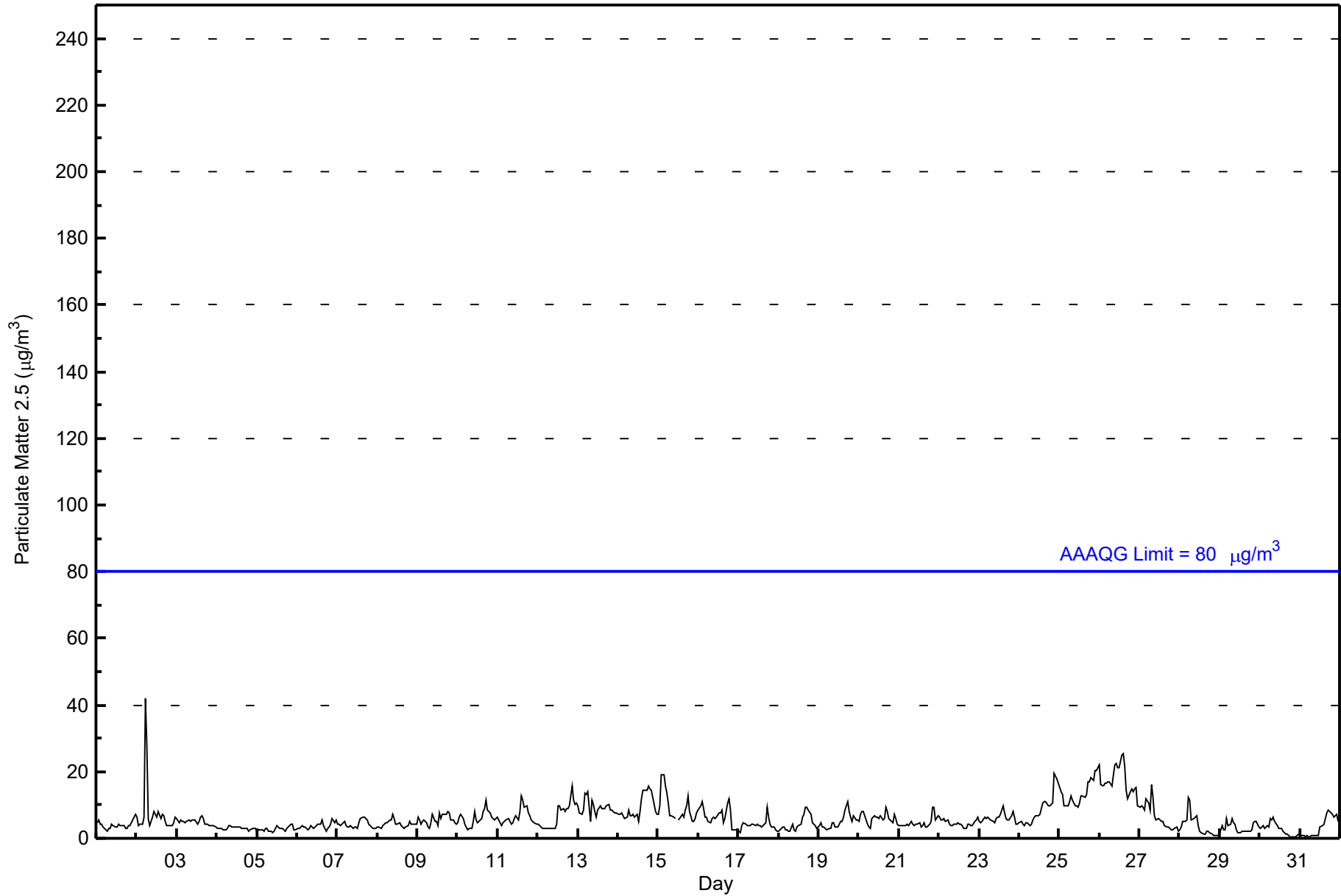








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744																											
Maximum Value: 41.8 µg/m <sup>3</sup> on Jan 2 06:00		Maximum Daily Average: 17.6 µg/m <sup>3</sup> on Jan 26		Hours of Data:																743																													
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 30 22:00		Minimum Daily Average: 2.7 µg/m <sup>3</sup> on Jan 30		Hours of Missing Data:																1																													
Maximum Diurnal Average: 7.0 µg/m <sup>3</sup> at hour 18		Minimum Diurnal Average: 5.2 µg/m <sup>3</sup> at hour 8		Hours of Calibration:																1																													
Monthly Average: 6.06 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 3.5 Median = 4.9 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 11.0 P <sub>99</sub> = 21.5		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-Jan	4.7	5.5	4.3	4.1	3.3	2.6	1.9	3.1	3.0	4.1	4.0	3.5	3.5	4.4	4.0	3.8	4.0	3.1	3.1	3.6	3.6	4.8	6.2	7.3	4.0	7.3																							
2-Jan	6.2	3.8	4.1	4.2	6.2	41.8	28.0	6.0	3.8	6.5	7.9	7.2	6.3	8.2	6.1	7.2	6.9	5.2	3.8	3.8	3.7	3.8	4.6	6.6	8.0	41.8																							
3-Jan	5.8	4.9	5.5	5.3	5.1	4.8	5.1	5.3	4.9	5.4	5.3	5.3	4.4	5.2	6.2	6.6	5.8	4.4	4.2	3.9	3.7	4.0	3.6	3.2	4.9	6.6																							
4-Jan	2.9	3.1	2.9	2.9	2.6	2.4	3.0	3.9	3.7	3.5	3.5	3.2	3.2	3.4	3.3	2.8	3.1	3.0	3.1	2.3	2.4	3.2	2.8	2.8	3.0	3.9																							
5-Jan	1.9	2.6	2.3	2.4	2.1	2.8	2.9	2.1	2.3	1.7	2.0	2.9	3.0	2.9	3.1	2.6	2.3	3.0	3.6	4.0	4.0	2.7	2.4	2.7	4.0	4.0																							
6-Jan	3.1	3.0	3.4	3.8	3.5	3.5	2.7	3.1	3.9	3.5	3.1	3.8	4.0	4.1	4.0	5.6	3.8	2.3	3.0	3.2	4.2	5.9	4.7	5.5	3.8	5.9																							
7-Jan	4.1	4.1	3.7	4.4	5.1	4.0	3.3	3.5	3.9	3.0	3.5	3.5	2.8	4.8	5.9	6.4	6.2	5.8	5.4	4.3	3.5	2.9	3.1	3.0	4.2	6.4																							
8-Jan	3.4	3.4	3.2	3.7	4.1	4.7	4.7	5.4	5.6	7.3	5.9	4.4	4.3	4.6	4.0	3.4	2.9	3.3	4.0	4.9	4.1	4.3	4.2	4.4	4.3	7.3																							
9-Jan	6.4	5.6	4.3	4.9	5.6	4.7	3.2	2.8	4.7	7.3	5.1	4.9	3.7	7.5	5.9	7.1	7.1	7.1	8.1	7.8	5.4	5.5	4.8	4.3	5.6	8.1																							
10-Jan	4.9	6.3	7.1	5.9	4.3	3.4	2.7	2.8	2.8	5.2	8.2	5.6	4.7	5.0	5.9	8.1	8.9	11.6	8.4	7.4	6.4	5.7	5.4	5.8	5.9	11.6																							
11-Jan	6.5	4.7	3.8	4.5	5.0	5.5	6.0	4.9	4.4	4.9	6.1	6.8	5.7	8.0	12.8	11.4	9.4	9.6	7.5	6.8	5.7	4.9	4.5	4.3	6.4	12.8																							
12-Jan	4.2	3.8	3.2	3.1	2.9	3.2	3.0	2.9	2.9	3.0	3.0	4.0	10.0	9.9	8.3	8.9	7.9	8.9	8.7	9.7	15.5	11.5	10.1	10.6	6.6	15.5																							
13-Jan	9.8	7.5	7.2	8.3	13.5	13.0	14.1	5.3	11.5	10.1	8.2	6.5	8.4	9.5	9.0	9.0	8.8	9.9	10.0	8.6	8.3	7.9	7.7	7.7	9.2	14.1																							
14-Jan	7.4	7.2	7.7	6.8	5.7	6.3	8.4	6.7	6.8	7.1	6.5	7.2	5.0	7.8	11.8	14.2	14.3	14.4	15.8	14.9	14.5	12.1	8.1	7.0	9.3	15.8																							
15-Jan	7.4	9.8	19.1	19.2	15.7	13.4	10.7	6.7	6.7	6.5	5.9	C	5.6	5.7	7.4	6.3	8.6	9.7	12.8	8.1	5.0	4.9	6.1	7.5	9.1	19.2																							
16-Jan	8.4	9.6	10.9	9.1	6.2	6.3	5.0	4.7	5.8	6.4	6.1	6.4	7.7	7.6	8.5	4.8	6.0	10.7	12.0	8.7	2.4	2.4	2.5	2.4	6.7	12.0																							
17-Jan	2.0	1.9	3.8	4.7	4.4	3.9	3.9	4.0	4.3	4.4	4.0	4.2	4.0	3.9	3.3	4.2	4.6	9.4	6.6	4.4	3.5	3.2	2.4	2.0	4.0	9.4																							
18-Jan	2.1	2.6	3.4	3.4	2.6	2.5	2.3	2.2	4.3	2.3	2.1	3.2	3.7	4.1	6.1	7.4	9.5	9.2	8.4	7.1	4.7	4.4	3.8	3.1	4.4	9.5																							
19-Jan	4.0	4.8	3.5	3.3	2.8	2.8	2.9	3.1	4.7	4.7	3.5	3.4	4.4	5.3	4.9	6.3	8.5	11.1	8.0	6.5	5.2	6.9	5.6	5.3	5.1	11.1																							
20-Jan	5.1	7.4	8.1	8.2	5.7	4.2	3.4	3.0	5.9	6.8	6.5	6.3	6.1	6.6	5.6	5.8	9.5	7.9	5.8	5.3	4.8	7.2	5.9	4.0	6.0	9.5																							
21-Jan	3.9	3.9	3.8	4.0	3.9	4.0	4.0	5.2	4.1	3.8	4.4	4.3	4.8	3.4	3.7	4.8	3.4	3.6	4.2	5.3	9.4	9.5	5.4	6.6	4.7	9.5																							
22-Jan	6.5	5.3	5.7	6.1	5.0	5.7	4.2	3.7	3.8	4.1	4.4	4.6	4.2	4.3	3.6	2.8	2.9	4.1	4.2	3.8	3.7	5.1	5.4	6.3	4.6	6.5																							
23-Jan	5.1	4.8	5.2	6.3	6.0	6.2	6.0	5.4	5.1	4.5	5.9	6.2	6.4	7.3	9.6	7.7	5.9	5.6	5.3	6.6	8.1	6.5	4.4	4.4	6.0	9.6																							
24-Jan	4.6	5.0	4.1	3.8	4.6	4.6	4.0	4.4	5.6	6.2	6.9	7.0	7.3	8.9	10.7	11.0	10.8	9.8	9.8	10.2	10.7	19.3	18.0	16.4	8.5	19.3																							
25-Jan	15.4	13.9	13.0	9.9	9.9	9.7	11.1	12.7	11.3	9.7	9.9	9.3	10.6	12.7	12.9	12.2	13.0	17.1	17.0	18.1	17.3	20.2	20.2	21.3	13.7	21.3																							
26-Jan	22.1	16.3	15.8	16.3	16.4	16.9	16.7	15.5	19.2	21.9	22.3	21.1	21.2	24.9	25.3	21.7	14.3	11.8	13.9	15.0	14.0	14.7	15.4	9.6	17.6	25.3																							
27-Jan	9.2	9.7	9.2	8.3	11.9	10.7	8.3	15.9	12.2	6.8	5.5	5.9	5.7	5.1	5.3	3.7	3.2	3.4	3.0	2.7	2.7	3.0	3.3	2.2	6.5	15.9																							
28-Jan	2.6	3.5	5.2	5.0	5.6	12.2	11.4	5.5	5.9	6.4	6.8	3.9	2.3	1.6	1.1	1.1	2.1	2.0	1.7	1.1	1.0	0.8	0.9	1.0	3.8	12.2																							
29-Jan	1.1	3.8	2.5	2.4	6.0	3.7	4.3	5.9	4.8	4.4	2.4	1.6	1.9	2.0	2.0	2.0	2.1	2.2	2.2	2.7	4.6	5.1	5.1	3.5	3.3	6.0																							
30-Jan	2.9	3.5	3.7	2.9	4.0	3.5	5.9	5.4	6.2	5.2	3.9	3.1	3.0	2.8	2.0	1.1	1.1	0.8	0.6	0.4	0.4	0.3	0.7	1.1	2.7	6.2																							
31-Jan	1.4	1.0	0.7	0.4	0.8	0.6	0.6	0.7	0.7	0.7	0.8	1.0	3.5	3.9	4.3	6.0	7.7	8.3	8.1	7.2	6.3	6.9	7.1	4.9	3.5	8.3																							
																								5.6	5.6	5.8	5.7	5.8	6.9	6.2	5.2	5.6	5.7	5.6	5.4	5.6	6.3	6.7	6.7	6.6	7.0	6.8	6.4	6.1	6.5	6.0	5.7	Diurnal Average	
																								22.1	16.3	19.1	19.2	16.4	41.8	28.0	15.9	19.2	21.9	22.3	21.1	21.2	24.9	25.3	21.7	14.3	17.1	17.0	18.1	17.3	20.2	20.2	21.3	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 - January 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	426	57.34	57.34
6 - 15	285	38.36	95.69
16 - 25	30	4.04	99.73
26 - 80	2	0.27	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Fort Hills - January 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	72	80	20	3	1	0	14	49	49	31	19	16	7	7	18	39	425
6 - 15	34	46	7	3	2	12	22	44	39	22	14	7	5	3	11	13	284
16 - 25	2	2	1	0	0	1	0	5	11	4	0	0	0	0	4	0	30
26 - 80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	109	128	28	6	3	13	36	98	99	57	33	23	12	10	33	53	741

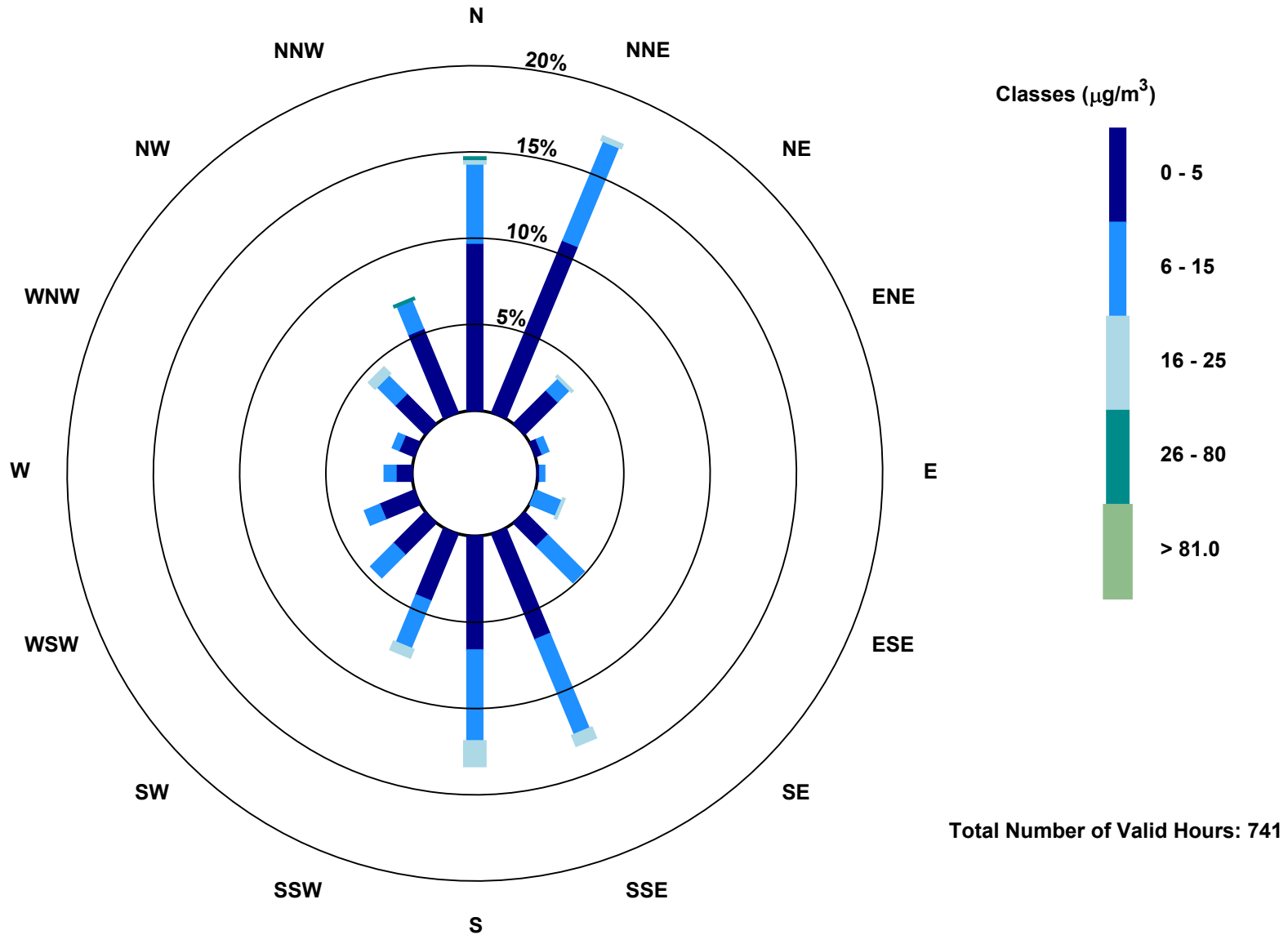
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





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

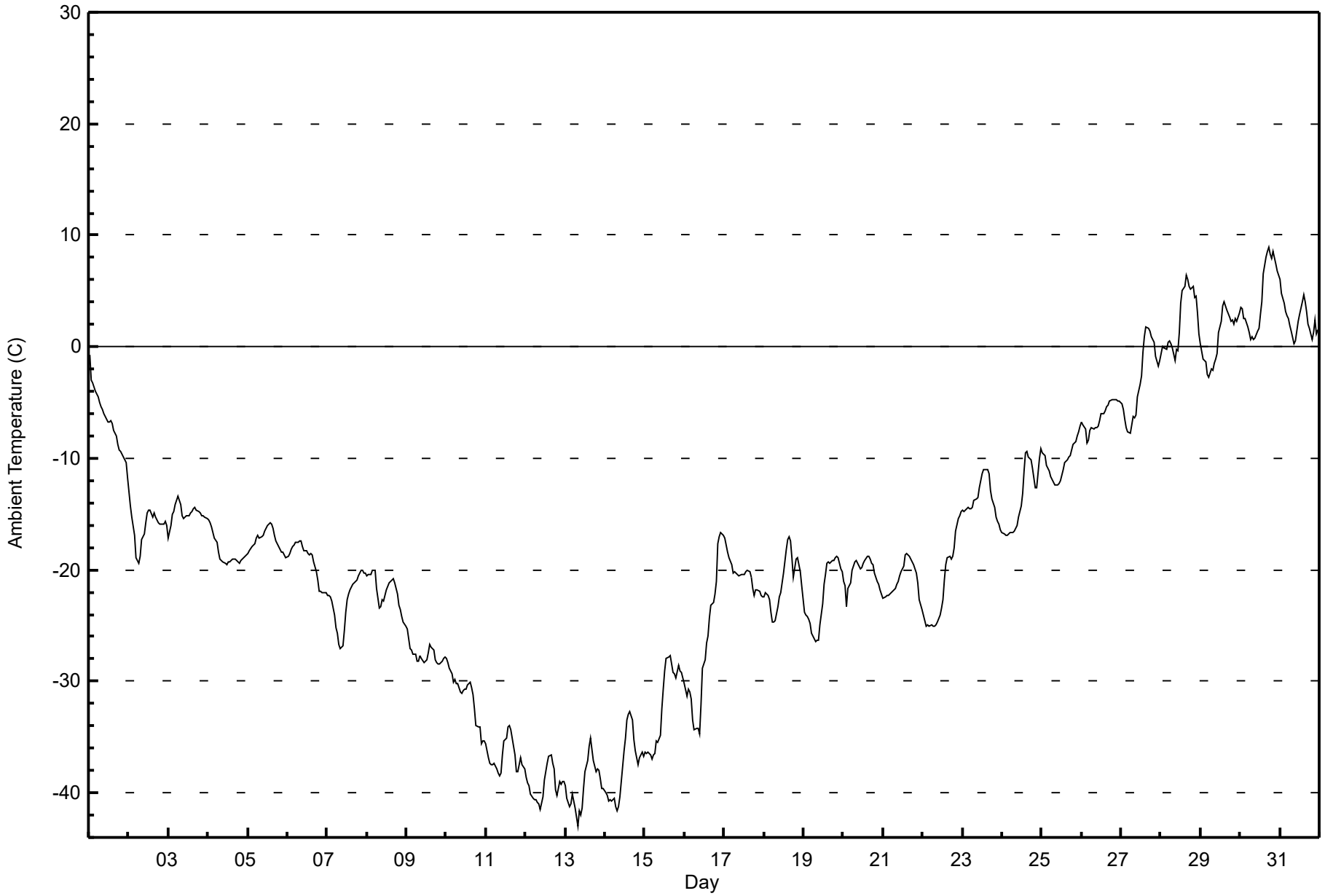
**Ambient Temperature (AT) - C**  
**Fort Hills - January 2024**

Maximum Value: 8.9 C on Jan 30 18:00																								Maximum Daily Average: 4.4 C on Jan 30																								Hours in Service: 744	
Minimum Value: -43.0 C on Jan 13 08:00																								Minimum Daily Average: -39.3 C on Jan 13																								Hours of Data: 744	
Maximum Diurnal Average: -16.3 C at hour 16																								Minimum Diurnal Average: -20.2 C at hour 8																								Hours of Missing Data: 0	
Monthly Average: -18.44 C																								Percentiles: P <sub>1</sub> = -41.3 P <sub>10</sub> = -36.6 Q <sub>1</sub> = -26.2 Median = -19.1 Q <sub>3</sub> = -10.6 P <sub>90</sub> = 0.7 P <sub>99</sub> = 6.7																								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-Jan	-0.7	-3.0	-3.2	-3.6	-4.0	-4.5	-5.0	-5.3	-5.7	-6.0	-6.3	-6.7	-6.7	-6.6	-6.9	-7.5	-8.0	-8.7	-9.2	-9.4	-9.6	-9.8	-10.3	-11.8	-6.6	-0.7																							
2-Jan	-13.0	-14.2	-15.2	-16.9	-19.0	-19.1	-19.4	-18.8	-17.3	-16.8	-15.8	-15.0	-14.7	-14.7	-15.2	-15.0	-15.3	-15.5	-15.7	-15.9	-15.9	-16.0	-15.7	-16.1	-16.1	-13.0																							
3-Jan	-17.1	-16.0	-15.0	-14.7	-14.1	-13.7	-13.4	-14.1	-15.2	-15.5	-15.3	-15.1	-15.1	-14.9	-14.7	-14.5	-14.5	-14.6	-14.8	-14.9	-15.1	-15.2	-15.3	-15.5	-14.9	-13.4																							
4-Jan	-15.5	-15.8	-16.2	-16.6	-17.1	-17.6	-18.4	-19.0	-19.2	-19.3	-19.5	-19.3	-19.3	-19.2	-19.1	-19.0	-19.2	-19.3	-19.4	-19.2	-19.3	-19.4	-18.9	-18.7	-18.6	-18.5	-15.5																						
5-Jan	-18.5	-18.2	-18.0	-17.8	-17.7	-17.2	-17.0	-17.2	-17.0	-17.0	-16.5	-16.2	-16.1	-15.8	-15.9	-16.3	-16.9	-17.4	-17.7	-18.2	-18.4	-18.4	-18.7	-18.9	-17.4	-15.8																							
6-Jan	-18.8	-18.5	-18.2	-17.9	-17.7	-17.5	-17.5	-17.4	-17.3	-17.9	-18.3	-18.3	-18.6	-18.7	-18.6	-18.7	-19.3	-20.1	-21.0	-21.9	-22.0	-22.1	-22.1	-22.1	-19.2	-17.3																							
7-Jan	-22.3	-22.3	-22.4	-22.8	-24.0	-25.2	-25.7	-26.7	-27.0	-26.8	-25.4	-23.8	-22.7	-22.2	-21.8	-21.4	-21.1	-21.0	-20.9	-20.5	-20.0	-20.0	-20.4	-20.3	-22.8	-20.0																							
8-Jan	-20.5	-20.4	-20.4	-20.1	-20.0	-20.0	-21.6	-23.5	-23.3	-22.7	-22.8	-22.3	-21.8	-21.2	-21.0	-20.9	-20.8	-21.2	-22.2	-23.2	-23.5	-24.2	-24.7	-25.1	-22.0	-20.0																							
9-Jan	-25.3	-26.2	-27.1	-27.2	-27.5	-27.6	-28.2	-28.1	-27.7	-28.0	-28.4	-28.2	-28.1	-27.5	-26.7	-27.0	-27.2	-28.0	-28.4	-28.4	-28.5	-28.2	-28.0	-27.8	-27.6	-25.3																							
10-Jan	-27.9	-28.3	-28.8	-29.4	-30.1	-29.8	-30.2	-30.2	-30.9	-31.0	-30.8	-30.8	-30.7	-30.3	-30.1	-30.6	-31.2	-32.5	-34.0	-34.1	-34.1	-35.7	-35.3	-35.4	-31.3	-27.9																							
11-Jan	-35.6	-36.9	-37.4	-37.5	-37.5	-37.3	-37.8	-38.2	-38.5	-38.2	-36.5	-35.4	-35.1	-34.1	-33.9	-34.4	-35.1	-36.6	-38.1	-38.0	-37.4	-36.9	-37.5	-37.8	-36.7	-33.9																							
12-Jan	-38.6	-39.1	-39.3	-40.1	-40.5	-40.6	-40.6	-40.9	-41.0	-41.5	-40.4	-38.8	-38.1	-37.4	-36.7	-36.6	-37.4	-37.9	-39.7	-40.2	-39.0	-39.2	-39.0	-38.9	-39.2	-36.6																							
13-Jan	-39.4	-40.5	-41.2	-41.0	-40.1	-40.8	-41.4	-43.0	-41.6	-42.0	-41.4	-39.6	-38.1	-37.1	-35.8	-35.1	-36.1	-37.1	-38.1	-37.8	-38.0	-38.8	-39.6	-39.6	-39.3	-35.1																							
14-Jan	-40.0	-40.2	-40.8	-40.6	-40.7	-40.5	-41.3	-41.6	-41.2	-40.3	-39.0	-36.2	-35.1	-33.5	-33.0	-32.7	-33.4	-35.2	-36.2	-36.8	-37.4	-36.8	-36.4	-36.7	-37.7	-32.7																							
15-Jan	-36.3	-36.5	-36.3	-36.6	-37.0	-36.6	-36.4	-35.3	-35.5	-34.8	-32.5	-30.7	-29.1	-27.9	-27.8	-27.6	-28.5	-29.2	-29.4	-29.7	-28.6	-29.0	-29.2	-29.7	-32.1	-27.6																							
16-Jan	-30.2	-31.3	-30.7	-31.0	-31.6	-33.4	-34.3	-34.2	-34.2	-34.8	-32.1	-28.8	-28.1	-26.6	-25.9	-24.2	-23.2	-23.0	-22.2	-21.1	-17.6	-17.0	-16.7	-16.9	-27.0	-16.7																							
17-Jan	-17.1	-17.8	-18.4	-19.0	-19.5	-20.3	-20.1	-20.3	-20.4	-20.5	-20.5	-20.4	-20.4	-20.1	-20.1	-20.2	-20.7	-21.7	-22.3	-21.8	-21.8	-21.9	-22.3	-22.4	-20.4	-17.1																							
18-Jan	-22.4	-22.0	-22.3	-22.7	-23.8	-24.7	-24.7	-24.6	-23.3	-22.5	-22.1	-21.2	-20.3	-18.1	-17.3	-17.0	-17.4	-18.9	-20.6	-19.0	-18.9	-19.6	-20.1	-21.5	-21.0	-17.0																							
19-Jan	-23.8	-24.0	-24.2	-24.4	-24.8	-25.7	-26.2	-26.4	-26.3	-26.3	-25.0	-23.0	-21.4	-20.4	-19.5	-19.3	-19.4	-19.1	-19.1	-19.0	-18.8	-18.9	-19.9	-20.2	-22.3	-18.8																							
20-Jan	-21.0	-21.5	-23.3	-21.7	-21.2	-20.0	-19.7	-19.3	-19.2	-19.6	-19.9	-19.8	-19.5	-19.1	-18.9	-18.8	-19.1	-19.4	-19.6	-20.3	-21.0	-21.3	-21.8	-22.2	-20.3	-18.8																							
21-Jan	-22.6	-22.5	-22.3	-22.3	-22.2	-22.1	-22.0	-21.7	-21.3	-21.0	-20.6	-20.2	-19.7	-18.7	-18.5	-18.6	-18.8	-19.1	-19.6	-19.9	-20.3	-21.2	-22.6	-23.5	-20.9	-18.5																							
22-Jan	-24.1	-24.6	-25.0	-24.9	-25.0	-25.0	-25.0	-25.1	-24.9	-24.6	-24.1	-23.5	-22.6	-21.0	-19.5	-19.0	-18.8	-19.1	-18.8	-18.0	-16.6	-15.5	-15.1	-14.8	-21.4	-14.8																							
23-Jan	-14.6	-14.7	-14.7	-14.4	-14.5	-14.5	-14.3	-13.8	-13.6	-13.5	-12.7	-12.0	-11.4	-11.1	-11.0	-11.0	-11.4	-12.9	-13.6	-14.3	-15.3	-15.7	-16.0	-16.4	-13.6	-11.0																							
24-Jan	-16.7	-16.8	-16.9	-16.9	-16.7	-16.7	-16.7	-16.5	-16.3	-16.0	-15.3	-14.3	-13.1	-11.1	-9.5	-9.4	-9.9	-10.1	-10.8	-11.8	-12.6	-12.6	-10.0	-9.2	-13.6	-9.2																							
25-Jan	-9.5	-9.6	-9.8	-10.6	-11.2	-11.7	-11.9	-12.1	-12.4	-12.5	-12.3	-12.0	-11.5	-11.0	-10.4	-10.1	-9.9	-9.7	-9.2	-8.8	-8.5	-8.0	-7.6	-7.2	-10.3	-7.2																							
26-Jan	-6.7	-7.0	-7.4	-8.7	-8.4	-7.5	-7.3	-7.3	-7.3	-7.2	-7.2	-6.6	-6.0	-6.0	-5.7	-5.4	-5.2	-4.9	-4.8	-4.8	-4.8	-4.7	-4.9	-4.9	-6.3	-4.7																							
27-Jan	-5.1	-5.7	-6.5	-7.3	-7.6	-7.7	-6.9	-6.2	-6.4	-6.1	-4.5	-3.4	-2.6	-0.4	0.9	1.8	1.6	1.4	1.0	0.7	0.4	-0.8	-1.7	-1.3	-3.0	1.8																							
28-Jan	-0.6	0.0	-0.2	-0.2	0.4	0.5	0.3	-0.1	-1.3	-0.2	-0.4	1.3	3.9	5.0	5.4	6.4	6.1	5.4	5.2	5.4	4.4	4.5	3.0	1.1	2.3	6.4																							
29-Jan	0.3	-1.1	-1.3	-1.3	-2.5	-2.7	-2.0	-2.1	-1.5	-1.1	-0.6	1.2	2.3	3.7	4.1	3.6	3.3	2.7	2.3	2.5	2.1	2.5	2.3	3.1	0.8	4.1																							
30-Jan	3.5	3.4	2.5	2.6	1.8	1.3	0.6	0.9	0.7	0.8	1.4	1.7	2.9	4.0	6.6	8.1	8.5	8.9	8.3	7.9	8.6	7.5	6.8	6.4	4.4	8.9																							
31-Jan	6.0	4.8	3.9	3.1	2.7	2.5	1.9	1.4	0.3	0.5	1.5	2.3	2.9	4.1	4.7	4.1	3.2	2.0	1.6	0.6	1.3	2.5	1.1	1.6	2.5	6.0																							
																								Diurnal Average																									
																								Diurnal Maximum																									



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

**Ambient Temperature (AT) - C**  
**Fort Hills - January 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Fort Hills - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	334	44.89	44.89
-20 - 0	325	43.68	88.58
0 - 10	85	11.42	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

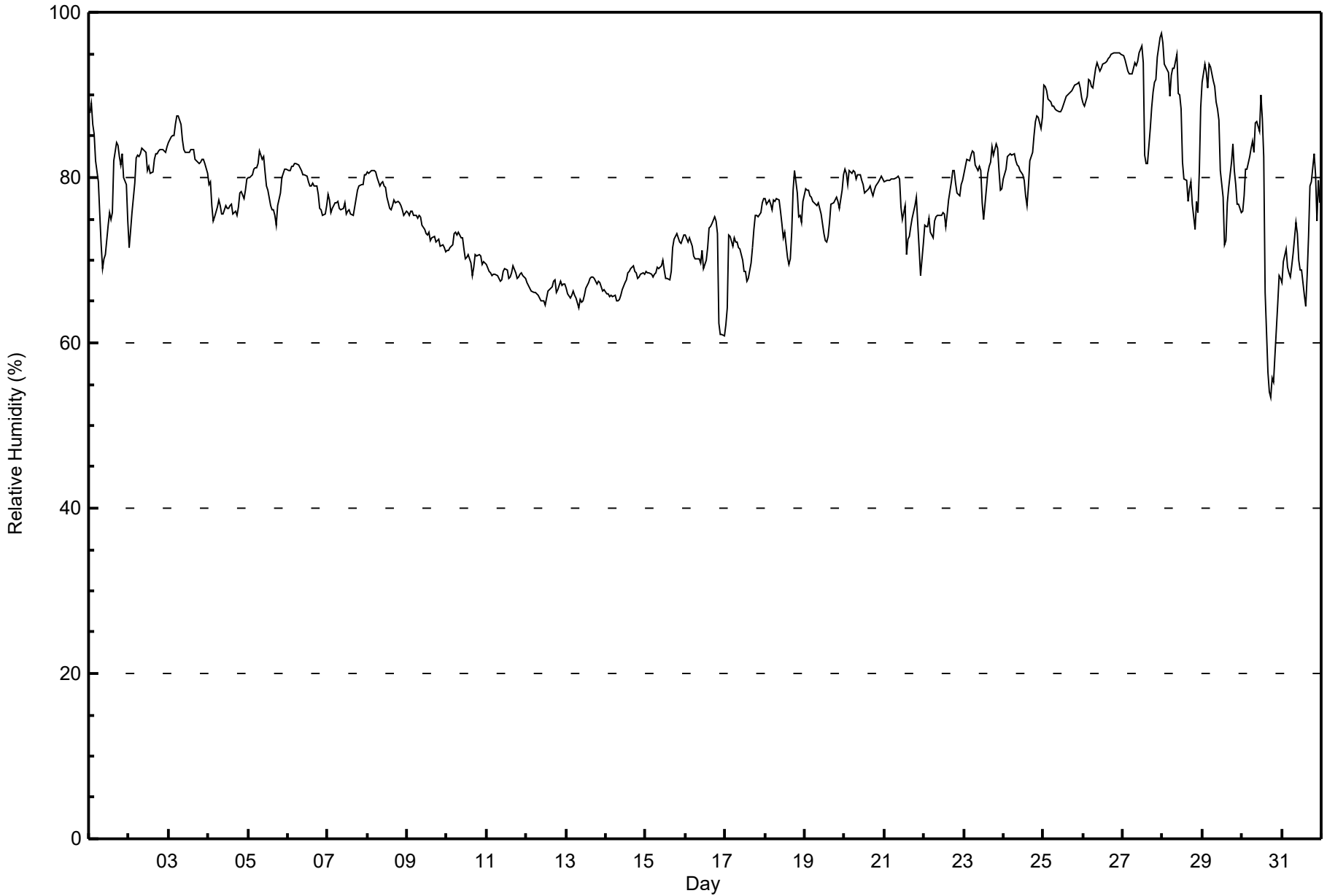
**Relative Humidity (RH) - %**  
**Fort Hills - January 2024**

Maximum Value: 97.5 % on Jan 28 00:00      Maximum Daily Average: 93.2 % on Jan 26 Minimum Value: 53.4 % on Jan 30 18:00      Minimum Daily Average: 66.3 % on Jan 12 Maximum Diurnal Average: 78.6 % at hour 6      Minimum Diurnal Average: 74.8 % at hour 15 Monthly Average: 77.35 %      Percentiles: P <sub>1</sub> = 61.0 P <sub>10</sub> = 67.6 Q <sub>1</sub> = 71.5 Median = 77.0 Q <sub>3</sub> = 81.7 P <sub>90</sub> = 89.5 P <sub>99</sub> = 95.1																						Hours in Service:	744																								
																						Hours of Data:	744																								
																						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-Jan	87.8	89.0	86.4	85.2	82.1	79.6	75.6	71.8	69.0	70.1	70.7	74.3	75.7	74.8	75.7	82.0	84.2	83.9	82.5	81.6	82.8	79.9	79.1	74.7	79.1	89.0																					
2-Jan	71.5	73.5	75.8	79.4	82.3	82.8	82.5	82.8	83.5	83.2	83.0	80.9	81.4	80.6	80.6	82.3	82.8	82.9	83.2	83.4	83.3	83.2	83.1	83.7	81.3	83.7																					
3-Jan	84.3	84.9	85.0	85.1	86.5	87.5	87.5	86.4	84.6	83.4	83.0	83.1	83.4	83.4	83.4	82.1	82.0	81.7	81.8	82.2	82.2	81.8	80.5	83.7	87.5																						
4-Jan	79.2	79.4	76.7	74.8	75.2	76.4	77.3	76.6	75.6	75.6	76.6	76.2	76.2	76.7	76.8	75.7	76.0	75.4	76.4	78.2	78.3	77.4	78.5	79.7	76.9	79.7																					
5-Jan	80.0	80.0	80.4	81.0	81.2	81.2	81.7	83.2	82.3	82.5	80.7	79.0	78.5	76.6	76.0	76.1	75.4	74.3	76.6	78.1	79.9	80.5	81.0	81.0	79.5	83.2																					
6-Jan	80.8	80.9	81.4	81.4	81.7	81.7	81.5	81.2	80.8	80.4	80.4	80.1	79.4	79.1	78.9	79.3	78.9	78.9	77.9	76.2	76.0	75.4	75.6	76.6	79.4	81.7																					
7-Jan	78.0	77.3	75.7	76.3	77.0	77.0	77.1	76.3	76.1	76.3	77.0	75.7	75.9	76.0	75.6	75.5	76.5	77.5	78.5	79.1	79.1	79.1	80.3	80.4	77.2	80.4																					
8-Jan	80.7	80.4	80.8	80.8	80.9	80.7	80.1	79.0	79.3	79.5	78.9	78.8	77.7	76.3	76.2	76.7	77.2	76.9	77.1	77.0	76.5	76.1	75.4	76.0	78.3	80.9																					
9-Jan	75.7	75.5	75.9	75.9	75.4	75.5	75.1	75.4	75.2	74.2	73.8	73.3	73.0	73.3	72.4	72.8	72.9	72.3	72.4	72.5	71.7	71.9	71.6	71.0	73.7	75.9																					
10-Jan	71.2	71.2	71.5	71.9	73.2	73.3	73.0	73.4	72.6	72.6	71.3	70.2	70.4	70.6	69.7	68.2	69.1	70.6	70.4	70.7	70.5	69.4	69.9	69.7	71.0	73.4																					
11-Jan	69.5	68.6	68.5	68.2	68.3	68.3	68.1	67.7	67.5	67.7	68.7	69.0	68.9	67.8	68.0	68.4	69.3	68.4	67.9	68.0	68.3	68.5	68.1	67.8	68.3	69.5																					
12-Jan	67.3	66.9	66.7	66.3	66.2	66.1	65.9	65.7	65.5	65.1	65.1	64.6	65.4	66.3	66.4	66.7	67.5	67.6	66.1	66.5	67.4	66.9	67.1	67.1	66.3	67.6																					
13-Jan	66.6	66.0	65.5	65.7	66.3	65.7	65.4	64.3	65.3	64.9	65.1	65.8	66.5	67.3	67.8	68.0	68.0	67.7	67.1	67.5	67.3	66.8	66.3	66.4	66.4	68.0																					
14-Jan	66.0	66.0	65.6	65.8	65.6	65.8	65.1	65.0	65.3	65.8	66.4	67.4	67.5	68.4	68.7	69.0	69.3	68.6	68.4	67.9	67.9	68.3	68.5	68.3	67.1	69.3																					
15-Jan	68.6	68.4	68.5	68.2	68.1	68.4	68.4	69.1	68.9	69.3	70.0	68.8	67.8	67.8	67.7	68.7	71.5	72.6	72.8	73.2	72.1	72.1	72.5	73.1	69.9	73.2																					
16-Jan	73.1	72.2	72.7	72.3	71.7	70.5	70.1	70.2	70.2	69.6	71.1	69.0	70.1	71.6	73.9	74.1	74.4	75.3	74.8	73.3	62.4	61.0	61.0	60.9	70.2	75.3																					
17-Jan	62.3	64.2	73.0	72.9	71.6	72.7	72.1	72.2	71.6	71.4	70.0	68.7	68.7	67.5	67.8	69.7	71.6	73.8	75.4	75.4	75.3	75.8	76.9	77.4	71.6	77.4																					
18-Jan	77.5	76.8	77.2	76.8	76.2	77.4	77.0	77.4	77.3	75.9	74.5	72.7	73.3	70.3	69.5	70.1	73.5	78.4	80.8	78.1	75.3	75.4	74.6	77.1	75.5	80.8																					
19-Jan	78.6	78.5	78.5	77.8	77.7	77.0	76.7	76.6	76.9	76.3	75.6	73.2	72.4	72.2	72.8	74.6	76.8	77.0	77.3	77.6	77.2	76.2	78.4	80.3	76.5	80.3																					
20-Jan	81.0	80.5	79.2	80.9	80.5	80.9	80.6	79.9	80.3	80.3	79.6	79.2	78.1	78.3	78.7	79.0	78.4	77.8	78.5	79.0	79.5	79.8	80.1	79.7	79.6	81.0																					
21-Jan	79.5	79.6	79.6	79.6	79.8	79.8	79.8	80.0	80.2	79.9	76.5	74.9	76.6	70.7	72.5	73.0	74.0	75.1	76.6	77.6	74.5	71.3	68.1	72.1	76.3	80.2																					
22-Jan	74.2	74.1	74.1	75.0	73.4	72.7	74.7	75.2	75.4	75.4	75.4	75.7	75.7	74.1	75.5	77.3	79.4	80.8	80.8	79.3	78.1	77.8	79.1	79.6	76.4	80.8																					
23-Jan	80.4	81.4	82.2	82.0	82.7	83.2	83.1	81.5	80.9	81.3	80.8	77.0	74.8	76.7	80.4	81.4	81.8	83.7	82.8	84.0	83.6	80.8	78.5	78.7	81.0	84.0																					
24-Jan	79.8	81.0	82.6	82.8	82.8	82.8	82.8	82.1	81.5	81.3	80.9	80.4	79.6	77.8	76.7	79.0	82.0	83.1	85.1	86.8	87.5	87.3	86.0	87.3	82.5	87.5																					
25-Jan	91.2	91.0	90.5	89.6	89.1	88.7	88.7	88.4	88.1	88.0	88.0	88.3	88.9	89.3	89.8	90.1	90.3	90.5	90.9	91.2	91.4	91.5	90.9	89.7	89.7	91.5																					
26-Jan	89.0	88.7	89.9	91.8	91.7	91.1	90.8	93.3	93.8	93.4	92.9	93.3	93.8	93.9	94.2	94.4	94.6	95.0	95.1	95.1	95.2	95.0	95.0	93.2	95.2																						
27-Jan	94.8	94.3	93.5	92.8	92.6	92.5	93.3	93.8	93.6	94.0	95.2	96.0	93.8	82.7	81.7	81.7	86.0	88.4	90.4	91.5	91.9	94.6	97.0	97.5	91.8	97.5																					
28-Jan	96.2	93.8	93.5	92.7	89.9	92.4	93.3	93.3	95.0	90.1	90.1	88.4	81.9	79.9	79.6	77.2	78.6	79.5	76.8	73.6	77.1	75.8	80.6	88.5	85.7	96.2																					
29-Jan	91.5	93.7	92.8	90.9	93.7	93.4	91.7	91.0	89.1	88.3	86.9	80.8	77.6	71.8	72.3	76.9	78.9	81.9	84.2	80.9	79.2	76.8	76.8	75.7	84.0	93.7																					
30-Jan	75.9	77.7	81.0	81.0	82.5	83.5	84.4	83.0	86.6	86.8	85.7	90.1	87.2	82.6	66.1	56.4	54.1	53.4	55.8	55.3	58.5	64.8	68.2	67.7	73.7	90.1																					
31-Jan	67.2	69.9	71.4	69.2	68.4	68.0	69.3	70.8	74.5	73.2	70.1	68.8	68.9	65.7	64.4	68.1	72.9	79.0	79.5	82.8	80.4	74.7	79.7	77.0	72.3	82.8																					
																						78.0	78.2	78.6	78.5	78.5	78.6	78.5	78.3	78.3	77.9	77.5	76.9	76.4	75.2	74.8	75.3	76.4	77.2	77.5	77.5	77.1	76.7	77.1	77.4	Diurnal Average	
																						96.2	94.3	93.5	92.8	93.7	93.4	93.3	93.8	95.0	94.0	95.2	96.0	93.8	93.9	94.2	94.4	94.6	95.0	95.1	95.1	95.1	95.2	97.0	97.5	Diurnal Maximum	



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

**Relative Humidity (RH) - %**  
**Fort Hills - January 2024**





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

**Relative Humidity (RH) - %**  
**Fort Hills - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	6	0.81	0.81
60 - 80	479	64.38	65.19
80 - 100	259	34.81	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Fort Hills - January 2024

Maximum Speed: 29 km/h on Jan 4 03:00	Maximum Daily Speed Average: 17.7 km/h on Jan 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 14 06:00	Minimum Daily Speed Average: 1.2 km/h on Jan 24	Hours of Data: 742
Maximum Diurnal Speed Average: 3.0 km/h at hour 23	Minimum Diurnal Speed Average: 0.7 km/h at hour 8	Hours of Missing Data: 2
Monthly Average Velocity: 1.5 km/h 38.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 16 P <sub>99</sub> = 24	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-Jan	NNE5	NNE9	NNE15	NNE16	NNE18	N16	N14	NNE10	N8	NNE8	NNE10	NNE11	N7	NNE6	NNE8	NNE7	NE9	NNE10	NNE6	E4	NE6	NNE11	NNE12	NE11	NNE9.5	NNE18
2-Jan	NE9	ENE10	ENE7	ENE2	NE2	N2	NNW3	NW3	NW3	SW3	SW2	WSW2	N5	NNW6	NNW4	N5	N6	NNW5	NNW6	NNW8	NNW5	NW4	NNW3	E2	N3.1	ENE10
3-Jan	NW3	NNE0	S2	SSW4	SSW6	SSW8	WSW4	NNW7	N10	N10	N12	N12	N14	N11	N11	NNE11	NNE15	N18	N21	N19	N25	N28	N27	N27	N10.7	N28
4-Jan	N25	N24	N29	N29	N24	N22	NNE21	NNE17	NNE19	NNE17	NNE15	NNE15	NNE14	NNE12	NNE14	NNE14	NNE15	NNE17	N15	N15	NNE15	NNE14	N11	NNE17.7	N29	
5-Jan	N12	N11	N10	NNW8	N9	N7	NNW4	NW6	NNW4	NW4	N6	N9	NNE8	NE8	NE8	NE11	NE11	NNE10	N11	N10	N9	N10	N11	N7.9	N12	
6-Jan	N10	N8	N10	N11	N11	N11	N16	N16	N22	N24	N21	N22	NNE24	NNE19	NNE18	NNE17	NNE20	NNE18	N20	NNE20	NNE18	NNE17	NNE16	NNE15	NNE16.7	N24
7-Jan	NNE14	NNE12	NE11	NNE11	N10	NNW6	N5	W1	NNW3	NW2	S4	S5	SSW10	SSE11	SE12	SSE9	S10	S9	S9	S10	S11	S10	S7	S7	SSE2.6	NNE14
8-Jan	SSW5	SSW5	S6	SW2	WSW3	NNW4	NNE3	NE2	N7	N9	N11	N12	N9	N10	N6	NNW5	NNW4	NE10	NE10	NNE9	NE9	NE9	NNE8	NNE5	NNE4.6	N12
9-Jan	NE7	NE4	NW4	N8	N7	N9	NNW9	N10	NNE13	NNE15	NNE14	NNE14	NNE12	NNE13	NNE18	NNE18	NNE17	NNE15	NNE20	NNE17	NNE17	NNE13	NNE16	NNE19	NNE12.5	NNE20
10-Jan	NNE17	NNE13	NNE11	NNE9	NNW5	NNW1	WNW4	W2	NNW5	N6	N5	SSE3	SSE6	SSE4	ENE3	NE6	NE5	ESE2	SSE1	ESE1	NNW2	WNW2	NW2	NW2	NNE3.2	NNE17
11-Jan	NW2	NNW3	WSW3	W1	WNW1	N1	ENE0	WNW2	UO	SW3	WSW3	WSW4	SSW2	ESE1	E3	ESE3	SW2	WSW2	SSW3	SW4	SSW5	SSW4	S5	S3	SW1.6	S5
12-Jan	SSE5	S4	SSE3	S4	S4	SSE5	SSE4	SSE4	S5	SSE5	S6	SSE7	SE10	SE8	SE7	SE7	S5	SSW2	SSW1	SSE3	SE6	S5	SE7	SSE8	SSE5.0	SE10
13-Jan	S7	SE6	S5	SE7	SE10	SSE8	S4	SSE2	SSE6	S5	S5	SSE5	SE7	SE9	SSE6	S2	NW2	N2	NW4	NNW3	NW2	UO	NW2	NNW3	SSE3.1	SE10
14-Jan	NW3	NNW2	NNW4	NNW3	N1	WNW0	NW2	W1	S3	SSE3	SSE3	S3	SE5	ESE6	SE8	ESE4	ENE3	NNW2	NW3	N1	SSW4	S5	SSE7	SSE8	SSE1.4	SSE8
15-Jan	SE10	SSE9	SSE9	SSE7	SSE7	SSE11	SE11	SSE12	SSE9	SE12	SSE14	SSE13	SSE13	SSE13	SSE14	SSE11	SE12	S9	S8	SSW11	SSE13	SSE15	SSE11	S6	SSE10.5	SSE15
16-Jan	SSE6	NNW3	N7	N12	N11	NNW7	NW4	W5	SW2	W3	S3	SW3	SSW6	SE6	SE7	S4	SSE5	ESE5	SE4	W2	NNW12	NNW16	NNW15	NNW16	NNW2.4	NNW16
17-Jan	NNW15	NNW12	NE12	NNE15	NNE14	NE10	NNE12	NNE12	NNE15	NNE13	NNE14	NNE15	NNE13	NNE11	NE14	NNE15	NE13	NNE8	N5	N10	N8	NNW5	NW7	NW5	NNE10.6	NNW15
18-Jan	WNW3	SW2	SW4	S3	SSE3	SSE3	SSW4	SSW4	S5	SSE6	SE7	SE6	SE6	SE5	ESE7	ESE6	ESE6	SE4	WSW1	NW4	WNW4	WSW7	NW5	NNW2	SSE2.1	ESE7
19-Jan	SW5	SSE4	S5	SE6	SSE6	SSE6	SSE7	SSE7	SSE8	SSE7	S9	S13	S14	SSE14	SSE15	SSE13	SSW10	SSW8	SSW6	SSW5	SSW4	SSE9	S5	S6	S7.7	SSE15
20-Jan	SSW5	SE5	SE4	SE6	S6	S6	S7	SSE5	N7	N13	N17	N13	N10	N11	N10	N11	NNE11	NNE10	NNE10	NE10	NE12	NNE13	NNE13	NNW6	NNE5.6	N17
21-Jan	NW5	NNW5	NW4	NNW6	NW5	NW4	WNW4	W4	NW3	N6	N9	N10	NNE12	NNE15	NNE18	NNE17	NE14	NNE13	NE8	NNE9	NNE11	NNE17	NNE19	NNE16	N8.7	NNE19
22-Jan	NNE22	NNE17	NNE12	NNE9	N11	N10	NNW9	NNW8	NNW6	NNW5	NNW5	NNW6	NNW5	NE0	SSE12	SSE12	S6	WSW4	WSW4	SSW4	S8	S12	S8	S9	N2.0	NNE22
23-Jan	SSW3	NNW0	SW4	W2	SW3	WSW4	SW6	SW7	SSW6	S8	S10	SSW8	WSW2	N2	N7	NNE13	NNE16	N16	N19	NNE16	NNE17	NNE15	NNE15	NNE16	N4.0	N19
24-Jan	NNE13	NNE12	N10	N7	N8	NNW6	NW4	WSW2	SW3	W4	SSW6	SSW8	SW8	SW12	SW13	SW12	SW11	SSW10	SSW10	S7	SSE7	NE5	NNE13	NNE19	W1.2	NNE19
25-Jan	NNE21	N22	NNE16	NNE15	NNE18	NNE18	NNE18	NNE12	N10	N7	NNW7	WNW2	SSW6	SSW9	S10	S11	SSE13	SSE14	SSE17	S14	SSW11	SSW11	S12	S13	NE1.7	N22
26-Jan	S12	SSW7	ESE4	NW4	NW3	N4	N6	NNW5	NW3	SSW5	S7	S7	S9	S13	S10	S13	S11	S11	SSE9	SSE9	SSE11	S9	S7	SSW8	S5.5	S13
27-Jan	S8	SSW8	S8	SSE7	SSE7	S6	S10	S6	S7	S7	S10	SSE13	S14	S14	S16	S11	SW13	SW16	SSW11	SSW9	SSW7	SSE11	SE12	SE11	S9.3	SW16
28-Jan	SSE11	S12	SSE12	SSE12	SSE13	SSE10	SSW7	S10	S13	SSE17	SSE14	S12	SSW14	SSW17	SSW17	SSW3	SW12	SW11	WSW15	WSW17	WSW13	WSW8	SW9	S7	SSW10.0	WSW17
29-Jan	SSE10	SE12	SSE12	SSE13	SSE10	SSE14	SSE14	SSE14	S13	SSW10	S9	SSW9	SSW12	SSW14	S13	SSE15	S12	S10	S12	S13	SSE12	SE15	SSE14	SSE12	SSE11.5	SSE15
30-Jan	SSE12	S9	SSE9	S11	SSE13	SSE11	SSE15	SSE10	S10	S8	S14	SSE15	SSW15	SSW10	SW19	WSW14	WSW9	W19	SW17	SW17	NW22	W10	SW15	WSW15	SSW9.6	NW22
31-Jan	WSW14	SW14	SSW12	SW13	SSW12	SW14	SSW14	SW13	SSE7	SSE8	S8	SE8	SE9	SE7	SE9	ESE9	ESE4	N2	N4	NNE4	NNE5	NNE4	N7	N5	S4.3	SW14

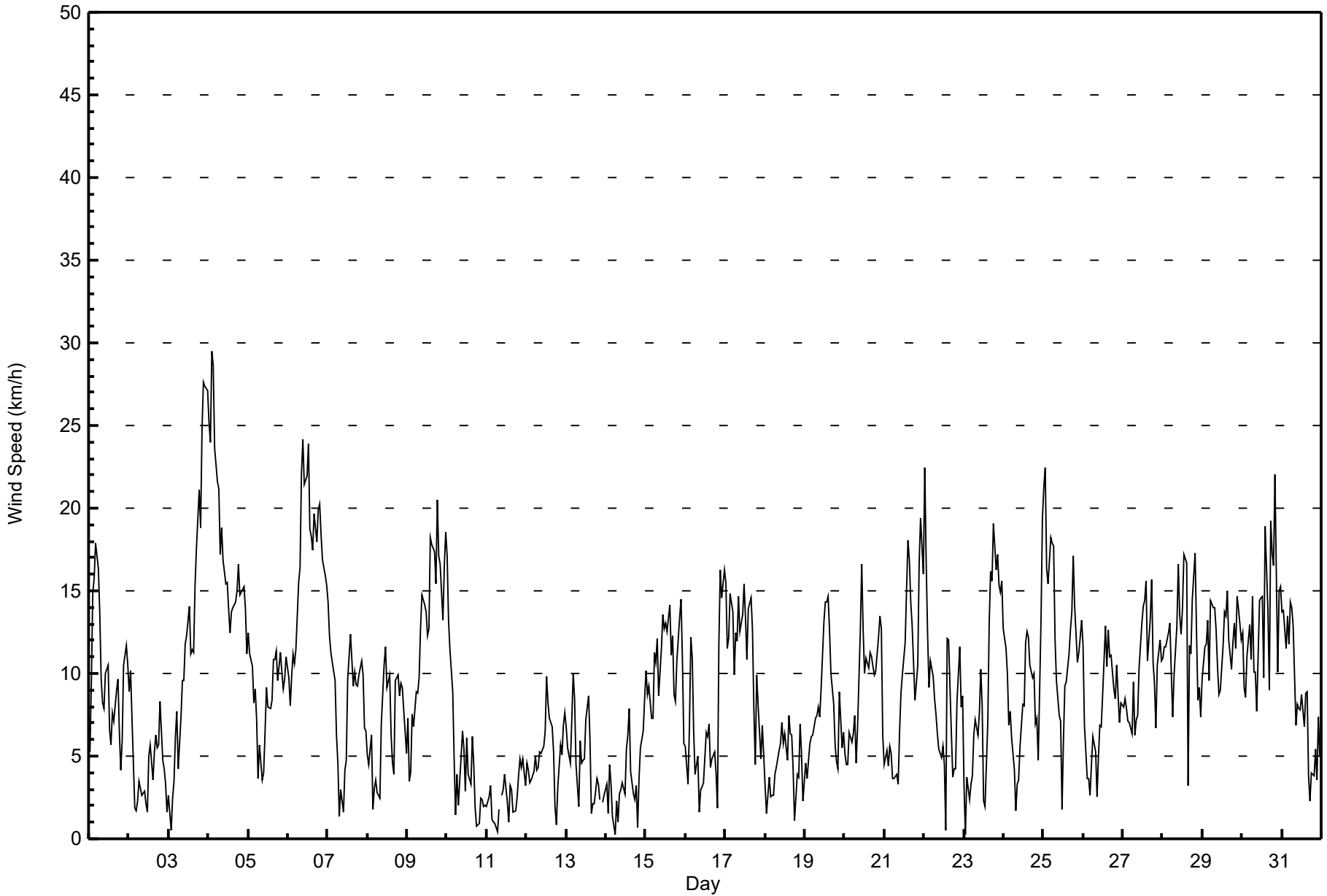
NNE2.6 NNE2.5 NE2.6 NNE2.6 NNE2.0 NNE1.3 N0.9 NNW0.7 NNE1.3 NE1.3 ENE1.2 ENE1.0 ESE1.2 ESE2.0 ESE2.4 E2.3 ENE1.6 NNE1.4 N1.4 N1.5 NNE2.4 NNE2.5 NNE3.0 NNE2.8	Diurnal Average
N25 N24 N29 N29 N24 N22 NNE21 NNE17 N22 N24 N21 N22 NNE24 NNE19 SW19 NNE18 NNE20 W19 N21 NNE20 N25 N28 N27 N27	Diurnal Maximum

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**  
**Fort Hills - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Hills - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	219	29.51	29.51
6 - 11	291	39.22	68.73
12 - 19	207	27.90	96.63
20 - 28	23	3.10	99.73
29 - 38	2	0.27	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Hills - January 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	15	7	6	4	3	8	6	19	25	19	13	14	10	10	30	30	219
6 - 11	58	28	18	2	0	5	25	44	54	28	6	3	1	0	2	17	291
12 - 19	19	86	4	0	0	0	5	36	20	10	14	6	1	0	0	6	207
20 - 28	15	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	23
29 - 38	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	109	128	28	6	3	13	36	99	99	57	33	23	12	10	33	53	742

Total Number of Valid Hours: 742

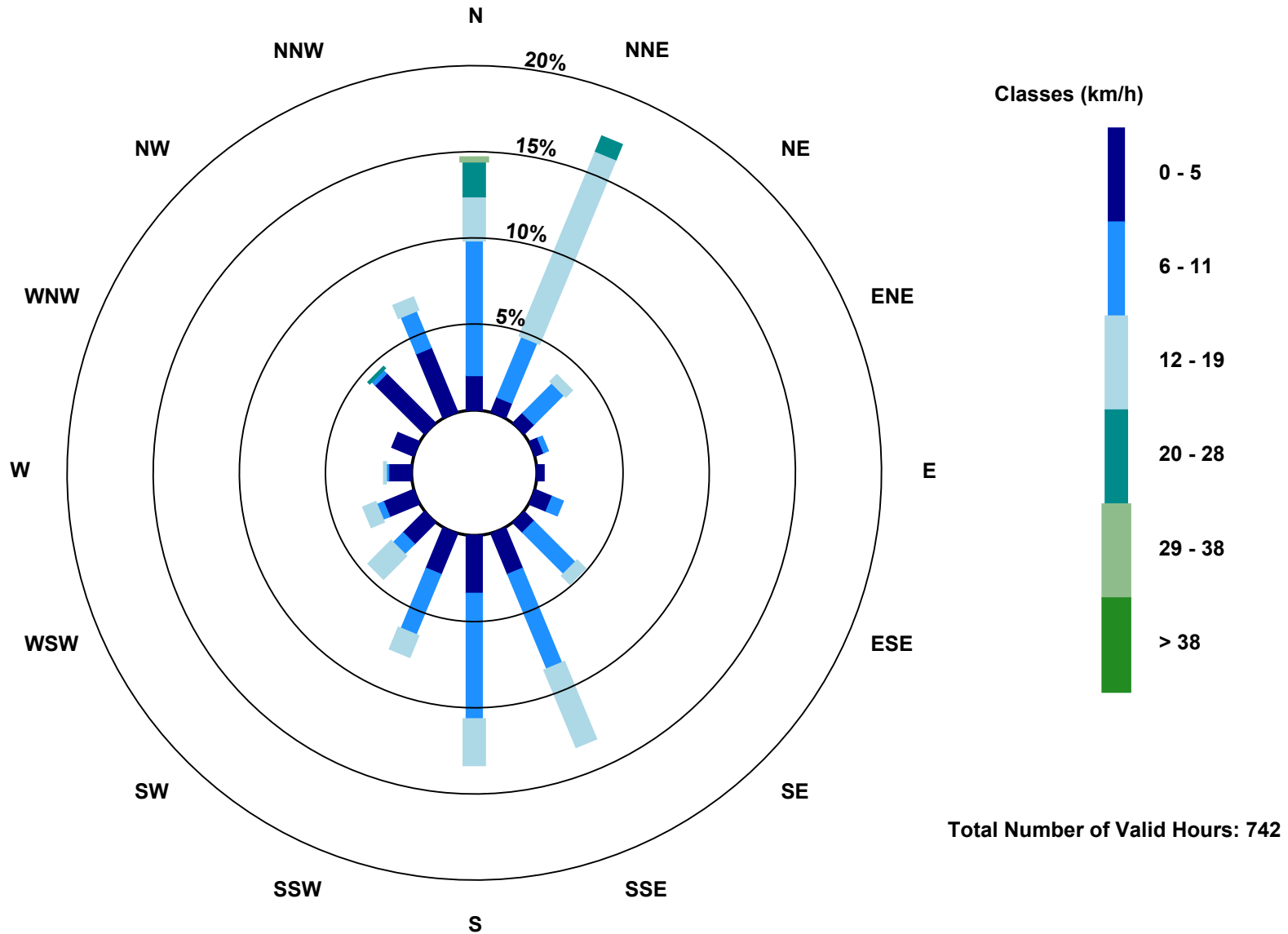
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Fort Hills





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

**Wind Speed (WS) - km/h**  
**Fort Hills - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 21:00 Minimum Value: 0 km/h on Jan 23 03:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 742 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-Jan	1	1	3	3	4	3	3	2	2	1	2	2	2	1	2	1	3	3	2	1	1	2	2	4	4
2-Jan	3	2	1	2	1	1	1	1	1	1	1	1	2	1	2	1	2	2	2	1	1	1	1	1	3
3-Jan	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	4	5	4	5	5	4	5	
4-Jan	4	4	5	5	6	4	4	3	3	3	2	3	3	2	2	2	3	3	2	3	2	3	2	6	
5-Jan	2	2	2	1	2	2	1	1	1	1	1	2	1	1	2	1	2	2	2	2	2	2	2	2	
6-Jan	2	2	2	2	2	2	2	3	4	4	4	4	4	3	3	3	4	4	3	4	3	3	3	2	
7-Jan	2	2	2	2	2	1	1	1	1	2	2	1	2	2	2	2	1	1	1	1	1	1	1	2	
8-Jan	1	1	2	1	1	1	1	1	3	2	2	2	2	2	2	1	2	2	2	2	2	2	2	3	
9-Jan	1	2	1	1	1	1	2	2	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	
10-Jan	3	3	2	2	1	1	1	1	1	1	1	3	1	1	2	1	1	1	1	1	1	2	1	3	
11-Jan	1	1	2	1	1	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
12-Jan	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	0	1	1	2	
13-Jan	1	1	1	3	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	UO	1	3	
14-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	2	
15-Jan	1	1	1	1	2	2	2	2	1	2	2	2	2	2	2	1	1	3	1	2	2	1	4	4	
16-Jan	1	2	2	3	2	1	1	1	1	1	1	3	1	1	1	1	1	1	1	2	3	3	4	4	
17-Jan	3	3	2	3	3	2	3	2	3	2	2	3	2	2	2	2	3	1	3	4	4	2	1	4	
18-Jan	1	2	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	2	2	1	3	1	3	
19-Jan	3	2	1	1	1	2	2	2	1	1	2	2	2	2	2	2	1	1	1	1	1	2	3	3	
20-Jan	1	1	1	1	2	2	1	2	2	3	3	2	2	2	2	2	2	2	2	2	2	3	3	2	
21-Jan	1	1	1	1	1	1	1	1	1	2	1	2	2	4	3	3	2	3	2	2	2	5	3	5	
22-Jan	3	4	3	2	2	2	2	1	1	1	1	1	1	1	6	2	3	1	0	1	3	2	1	6	
23-Jan	2	1	0	0	1	1	1	1	1	1	1	2	2	1	3	2	3	3	4	3	3	3	2	4	
24-Jan	3	2	1	2	2	1	2	1	0	1	2	2	1	2	2	1	1	2	1	2	2	2	6	6	
25-Jan	3	3	4	4	4	3	3	4	2	1	1	1	3	1	1	1	1	2	2	2	1	1	1	4	
26-Jan	2	3	1	2	1	1	1	1	1	2	1	1	1	2	2	2	1	1	1	1	1	1	1	3	
27-Jan	1	1	1	1	1	1	2	2	1	1	2	2	2	2	2	2	3	2	2	2	2	2	1	3	
28-Jan	2	2	2	2	3	1	2	1	1	3	2	2	3	2	3	3	3	2	3	3	3	3	2	3	
29-Jan	2	2	2	2	2	1	2	1	2	2	2	2	1	2	2	2	2	1	4	1	3	2	2	4	
30-Jan	4	3	1	2	2	2	2	2	3	4	4	2	4	2	4	5	4	6	3	4	7	4	3	7	
31-Jan	3	3	4	2	3	4	2	2	1	1	2	1	2	1	1	1	3	1	1	1	1	1	2	4	
Diurnal Maximum																									
UO - Unstable Operation																									



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

**Wind Direction (WD) - deg**  
**Fort Hills - January 2024**

Direction of Maximum Speed: 6 deg on Jan 4 03:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 12.1 deg on Jan 4	Hours of Data: 742
Direction of Minimum Speed: 293 deg on Jan 14 06:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 1.2 deg on Jan 24	Percent Operational Time: 99.7
Monthly Average Direction: 38.6 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-Jan	29	21	26	18	12	8	6	16	9	20	28	13	4	31	32	31	34	28	28	81	53	25	30	34	22.5
2-Jan	45	64	58	78	55	359	334	310	312	214	216	253	355	338	345	1	356	337	342	342	328	321	338	99	359.4
3-Jan	316	19	177	200	194	196	237	343	1	356	5	3	3	4	9	15	12	10	8	10	7	8	7	7	4.7
4-Jan	4	3	6	4	6	11	13	15	15	19	28	15	23	13	15	16	27	23	17	5	7	13	15	359	12.1
5-Jan	2	359	1	346	352	356	334	325	329	323	353	5	20	47	48	48	48	49	28	7	7	359	356	1	10.1
6-Jan	1	1	4	7	359	3	5	5	9	9	3	6	13	18	19	20	17	12	10	12	21	26	20	26	11.7
7-Jan	27	27	37	29	10	347	359	263	331	305	172	169	205	158	145	160	176	190	175	177	177	183	182	191	149.6
8-Jan	212	213	186	214	243	331	21	38	357	2	7	5	3	9	357	344	338	36	48	32	50	53	20	22	15.3
9-Jan	45	55	324	10	349	2	343	351	13	14	13	18	13	25	20	19	18	26	22	21	29	31	26	22	17.5
10-Jan	17	24	25	24	334	341	291	277	329	3	5	147	147	151	66	39	51	112	167	113	333	295	322	323	17.8
11-Jan	308	294	244	274	294	355	63	285	UO	236	248	256	211	106	87	123	226	246	208	223	209	198	180	171	220.2
12-Jan	160	169	163	169	170	167	160	167	172	163	181	148	142	136	140	145	181	203	207	163	143	178	140	153	157.7
13-Jan	169	145	172	140	139	148	189	152	154	175	170	149	138	146	152	191	309	350	321	327	321	UO	308	337	155.9
14-Jan	305	346	327	333	352	293	323	264	182	163	159	172	127	122	132	119	77	348	310	356	198	184	159	149	150.2
15-Jan	146	153	154	166	147	153	144	157	151	140	151	159	161	161	151	147	155	169	182	196	167	153	155	189	157.5
16-Jan	151	346	3	8	7	333	312	281	215	259	186	218	206	141	135	175	157	112	125	268	327	331	330	340	335.6
17-Jan	341	344	42	32	32	34	26	20	22	28	27	24	20	26	35	29	34	22	7	2	352	346	325	310	18.2
18-Jan	302	235	222	185	163	158	193	196	189	154	127	129	132	133	118	122	106	146	247	319	288	255	312	337	163.0
19-Jan	220	156	176	143	161	160	159	160	153	163	183	181	174	152	162	165	193	199	211	194	198	162	179	186	172.3
20-Jan	197	140	145	144	173	179	176	163	358	3	1	3	2	4	8	3	16	18	28	40	44	32	25	335	22.3
21-Jan	324	332	325	330	305	304	288	273	305	349	5	3	13	16	15	21	37	29	35	20	28	14	21	20	9.3
22-Jan	15	14	16	13	359	6	347	342	336	329	340	335	333	48	158	161	189	249	240	198	185	184	190	187	355.3
23-Jan	210	348	219	262	230	238	227	229	207	177	187	199	247	352	4	17	17	8	9	16	17	22	27	19	6.3
24-Jan	24	16	11	353	8	342	317	254	222	261	206	210	220	219	215	220	220	205	196	171	150	52	27	22	266.1
25-Jan	12	9	20	15	22	24	17	14	8	5	346	301	201	202	190	178	166	164	168	185	193	194	189	182	55.5
26-Jan	177	208	115	315	307	359	349	344	325	205	189	182	174	181	183	185	182	181	167	159	160	170	173	202	182.3
27-Jan	180	193	172	158	164	183	175	178	172	179	179	168	170	176	187	190	216	222	209	208	199	148	145	131	180.3
28-Jan	161	170	167	159	157	168	202	180	172	167	154	191	198	212	213	200	236	234	244	251	237	257	221	177	196.9
29-Jan	168	145	147	157	161	152	162	166	182	195	187	196	192	199	179	160	174	189	183	187	158	131	147	150	168.4
30-Jan	165	170	164	173	158	157	148	159	177	172	180	159	199	196	230	238	241	261	224	230	306	267	227	246	206.3
31-Jan	249	221	194	218	196	218	209	226	166	162	182	145	129	133	134	123	120	2	2	12	18	26	354	10	190.8

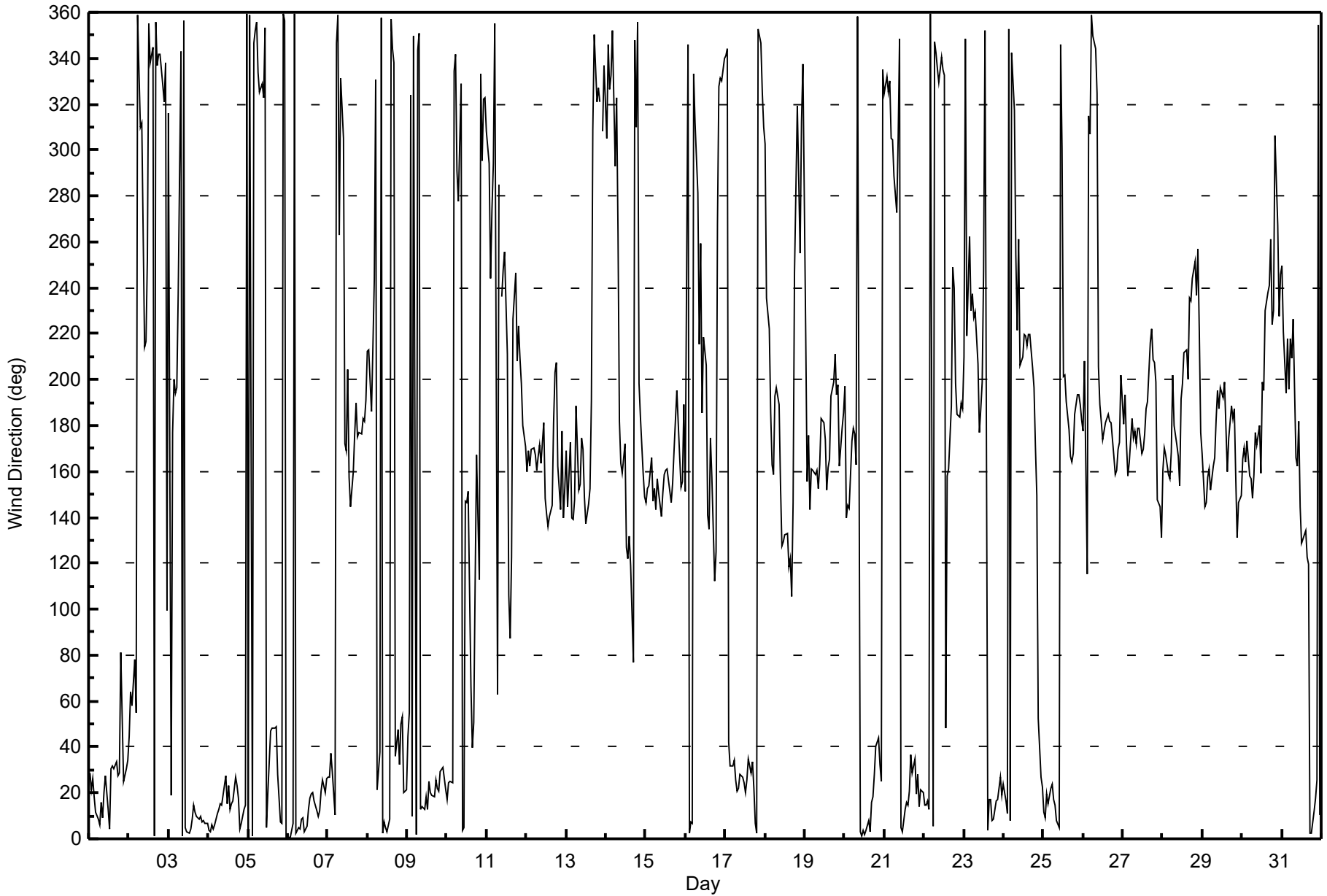
18.4 26.0 42.0 30.2 31.8 31.3 2.1 330.5 19.3 34.7 62.4 74.0 120.3 123.0 117.7 86.1 61.7 12.6 9.2 352.6 13.5 31.0 25.1 21.1  
 Diurnal Average

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**  
**Fort Hills - January 2024**





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

**Wind Direction (WD) - deg**  
**Fort Hills - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 101 deg on Jan 18 19:00	Hours of Data: 742
Minimum Value: 6 deg on Jan 11 23:00	Hours of Missing Data: 2
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 9 Q <sub>1</sub> = 10 Median = 13 Q <sub>3</sub> = 21 P <sub>90</sub> = 34 P <sub>99</sub> = 80	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-Jan	23	8	13	10	10	12	12	12	9	10	14	11	11	20	23	13	10	10	30	18	10	13	11	16	30
2-Jan	23	8	9	68	44	25	17	21	40	20	31	64	33	22	33	14	25	19	22	9	19	17	28	64	68
3-Jan	56	87	25	17	18	11	35	16	12	11	12	13	12	12	9	10	10	10	10	12	12	10	12	12	87
4-Jan	14	14	13	14	13	12	10	10	11	11	10	12	13	9	10	11	12	10	9	12	11	9	14	24	24
5-Jan	11	14	14	11	12	12	30	15	27	29	15	11	19	9	13	8	9	10	21	9	9	11	12	13	30
6-Jan	12	12	11	9	12	13	11	12	10	11	14	12	12	9	9	8	13	14	11	10	9	9	10	10	14
7-Jan	9	11	11	15	10	15	14	53	12	42	13	13	13	13	9	11	10	9	8	9	8	13	15	22	53
8-Jan	15	19	21	62	28	13	32	47	11	11	9	10	11	10	30	23	34	18	11	15	10	9	27	26	62
9-Jan	11	68	26	9	13	11	14	11	11	9	12	10	11	13	9	10	9	11	9	10	11	13	10	8	68
10-Jan	10	12	11	17	21	59	26	36	18	11	15	81	14	24	57	16	17	51	73	59	23	59	57	56	81
11-Jan	28	26	18	41	36	49	80	22	UO	15	13	10	35	83	33	20	36	12	17	8	9	9	6	14	83
12-Jan	16	10	10	8	6	10	11	13	12	14	14	18	8	9	12	11	8	49	67	20	14	11	17	11	67
13-Jan	17	14	17	8	8	9	38	65	17	20	23	17	10	10	10	70	42	24	7	15	33	UO	66	18	70
14-Jan	22	79	18	26	81	98	25	44	24	20	16	29	9	14	9	18	28	33	17	62	29	12	11	18	98
15-Jan	11	11	10	17	14	9	9	9	7	9	9	14	12	13	8	7	6	19	12	12	10	7	12	25	25
16-Jan	17	81	13	17	10	22	22	19	40	26	34	40	16	29	10	47	34	15	22	70	11	11	19	11	81
17-Jan	10	28	10	11	11	11	11	10	11	11	11	12	11	15	11	9	9	8	47	23	32	51	12	14	51
18-Jan	25	62	18	29	21	28	23	24	16	26	16	16	17	33	9	10	15	25	101	63	35	30	23	74	101
19-Jan	25	22	21	24	12	11	15	13	12	9	10	9	8	7	9	9	10	12	14	22	11	7	14	8	25
20-Jan	15	16	14	10	11	12	11	48	15	13	12	11	13	11	15	14	11	13	13	13	8	11	14	23	48
21-Jan	22	10	21	21	21	22	16	14	14	18	11	12	11	12	11	15	11	10	11	14	11	7	8	9	22
22-Jan	8	11	12	17	11	11	14	10	9	8	17	9	21	82	11	10	38	12	12	13	8	8	8	9	82
23-Jan	44	75	8	34	22	14	9	8	11	8	13	13	71	59	13	10	9	11	12	12	10	10	12	10	75
24-Jan	10	11	10	15	12	20	27	33	15	29	17	14	11	10	9	7	7	8	9	11	21	58	13	11	58
25-Jan	8	8	13	12	10	9	8	11	8	9	10	57	26	10	11	8	9	8	7	8	8	9	9	13	57
26-Jan	17	21	28	36	48	21	16	16	50	13	12	26	13	11	11	8	9	11	11	9	8	8	14	11	50
27-Jan	11	9	10	15	17	11	9	35	8	10	15	10	8	15	9	10	12	7	10	14	26	14	9	15	35
28-Jan	21	12	16	8	11	27	30	17	10	12	14	13	15	9	9	63	17	8	11	10	16	23	25	31	63
29-Jan	18	15	14	13	11	8	7	6	8	12	13	18	11	9	13	10	12	9	11	7	24	8	12	14	24
30-Jan	26	21	11	20	9	15	11	17	22	53	29	15	12	19	9	8	22	18	14	22	16	32	14	10	53
31-Jan	10	14	37	14	27	22	8	8	30	18	21	20	10	18	12	13	44	40	19	13	13	34	11	41	44
	56	87	37	68	81	98	80	65	50	53	34	81	71	83	57	70	44	51	101	70	35	59	66	74	

Diurnal Maximum

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS25 WASKŌW OHCI PIMÂTISIWIN JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMÂTISIWIN (AMS25)  
 JANUARY 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	709	35	35	100	20	0	2.8	0
H2S(ppb) Average	707	37	37	100	2.8	0	1.4	0
Temperature 2 m (C) Average	744	0	0	100	11.1	0	3.6	0
Relative Humidity (%) Average	744	0	0	100	99.7	-	93.5	-
Wind Speed 10 m (km/h) Average	738	0	6	99.19	14	0	8	0
Wind Direction 10 m (deg) Average	738	0	6	99.19	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)  
 JANUARY 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	709	0.78	1.6	-	0	0	0.1	0.2	0.7	2	20
H2S (ppb) Average	707	0.46	0.5	-	0	0.1	0.2	0.3	0.6	1.2	2.8
Temperature 2 m (C) Average	744	-18.56	12.7	-	-44	-37.7	-26.5	-18.7	-10.6	-0.7	11.1
Relative Humidity (%) Average	744	77.25	9.3	-	45	65.8	71.2	76.8	81.4	91.8	99.7
Wind Speed 10 m (km/h) Average	738	3.7	3	-	0	1	2	3	5	7	14
Wind Direction 10 m (deg) Average	738	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMÂTISIWIN (AMS25)

JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	11 Jan 2024 23:00	11 Jan 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 01:00	12 Jan 2024 02:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 06:00	12 Jan 2024 07:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 22:00	13 Jan 2024 22:00	1	Flat line in sensor output signal



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 20.0 ppb on Jan 31 15:00	Maximum Daily Average: 2.8 ppb on Jan 19		Hours of Data:	709
Minimum Value: 0.0 ppb on Jan 1 17:00	Minimum Daily Average: 0.0 ppb on Jan 2		Hours of Missing Data:	35
Maximum Diurnal Average: 1.8 ppb at hour 15	Minimum Diurnal Average: 0.3 ppb at hour 23		Hours of Calibration:	35
Monthly Average: 0.78 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> = 0.7 P <sub>90</sub> = 2.0 P <sub>99</sub> = 7.4		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-Jan	0.3	0.3	0.2	0.3	0.3	Z	0.3	0.3	0.2	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	0.1	0.3
2-Jan	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	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
3-Jan	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.0	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.5	0.4	0.2	0.1	0.2	0.2	0.1	0.2	0.5
4-Jan	0.1	0.0	Z	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5-Jan	0.1	0.0	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	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
6-Jan	0.1	0.1	0.2	0.3	Z	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.3
7-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.2	0.1	0.0	3.4	4.4	1.8	0.9	1.2	1.8	3.0	0.6	0.4	0.3	0.3	0.8	4.4
8-Jan	Z	0.5	0.5	3.1	4.4	4.0	1.9	0.7	0.3	0.3	0.4	0.6	0.5	0.5	0.4	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.9	4.4
9-Jan	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.3	0.4	0.3	0.5	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.5
10-Jan	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	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.0	0.2
11-Jan	0.1	0.1	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
12-Jan	0.1	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.4	0.5	0.4	0.5	0.3	0.2	0.6	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.6
13-Jan	0.1	0.0	0.0	0.2	0.1	Z	0.4	0.8	0.8	0.8	0.8	1.1	2.1	2.6	2.5	2.2	2.3	1.3	0.5	0.5	0.4	0.4	0.5	0.7	0.9	2.6
14-Jan	Z	0.7	0.6	0.5	0.5	0.6	0.5	0.5	0.3	0.3	0.6	0.7	0.7	1.1	1.1	1.3	0.9	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.5	1.3
15-Jan	0.2	Z	0.5	1.8	1.7	2.2	5.2	4.2	1.5	1.6	6.5	6.9	2.6	2.1	2.1	2.9	1.4	4.1	1.5	1.3	0.5	0.6	0.8	1.0	2.3	6.9
16-Jan	2.0	2.7	Z	1.6	1.2	0.7	0.6	0.4	0.4	0.4	0.4	0.6	1.0	1.8	1.6	1.2	1.0	0.8	0.7	0.7	0.5	0.3	0.3	0.2	0.9	2.7
17-Jan	0.2	0.4	0.2	Z	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	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.4
18-Jan	0.1	0.0	0.0	0.1	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.2
19-Jan	0.1	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.3	0.4	3.3	6.8	7.4	5.5	9.1	10.3	6.0	6.0	3.3	1.8	1.1	1.1	0.7	0.7	2.8	10.3
20-Jan	Z	0.5	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.5
21-Jan	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
22-Jan	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.1	C	C	C	C	1.0	3.4	1.8	3.1	1.7	2.4	8.7	6.5	1.0	0.8	0.7	1.7	8.7
23-Jan	1.2	7.1	5.3	Z	1.4	2.7	5.3	1.8	1.2	1.3	1.0	0.7	0.5	0.5	0.8	0.6	0.6	0.8	0.5	0.6	0.5	0.4	0.4	1.6	7.1	
24-Jan	0.3	0.2	0.3	Z	0.4	0.3	0.2	0.2	0.3	0.5	1.0	1.2	1.1	1.1	0.9	0.6	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.5	1.2
25-Jan	0.3	0.6	0.5	0.3	0.5	Z	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.3	1.5	3.2	2.5	2.3	1.7	1.4	1.8	1.0	0.8	0.7	0.9	3.2
26-Jan	Z	0.6	0.3	0.3	0.2	0.3	0.4	0.5	0.4	0.4	0.6	0.7	2.3	3.4	2.5	1.3	6.2	6.9	6.0	2.0	1.4	1.9	1.7	4.8	6.9	
27-Jan	4.5	Z	1.6	0.9	0.8	1.6	1.4	1.2	1.1	0.9	0.9	1.3	1.5	4.3	3.3	2.6	1.5	0.9	0.6	0.3	0.2	0.2	0.2	0.5	1.4	4.5
28-Jan	0.5	0.7	Z	1.4	1.7	1.5	1.8	0.6	2.0	3.9	1.1	0.5	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.9
29-Jan	0.0	0.0	0.0	Z	0.2	1.1	1.2	0.2	0.2	0.1	0.3	0.4	0.5	0.8	0.5	0.2	0.0	0.0	0.1	0.7	1.7	2.1	2.2	2.0	0.6	2.2
30-Jan	2.3	7.6	4.8	3.5	Z	6.0	1.0	0.6	0.7	0.8	0.8	0.6	0.6	0.5	0.4	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	1.3	7.6
31-Jan	0.1	0.0	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.1	0.2	0.4	5.6	20.0	12.4	8.9	5.6	2.7	2.0	1.3	1.3	0.7	0.6	2.7	20.0

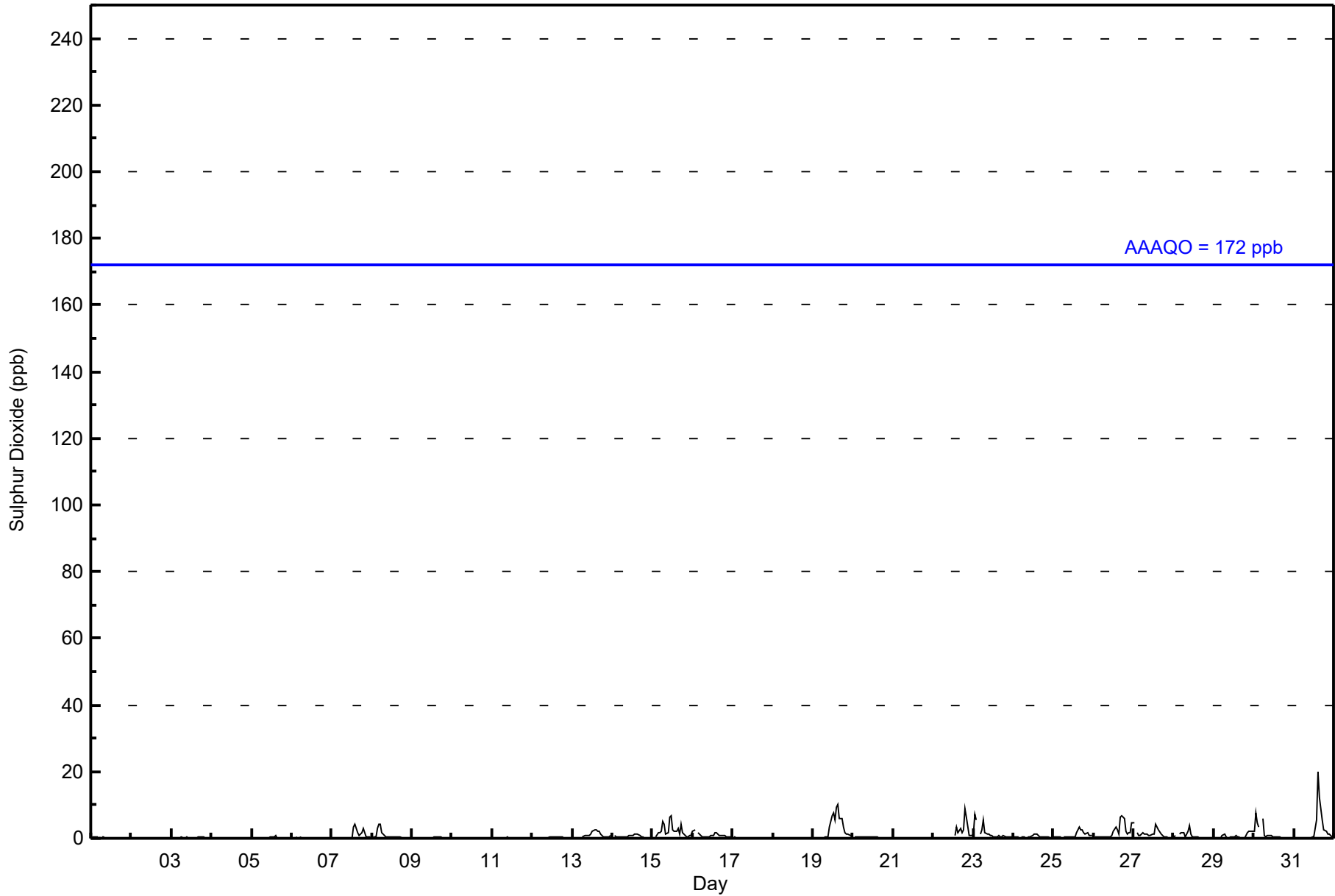
0.5	0.9	0.6	0.6	0.5	0.9	0.7	0.4	0.4	0.5	0.7	0.8	0.8	1.2	1.8	1.5	1.2	1.1	0.8	0.8	0.6	0.4	0.3	0.5	Diurnal Average	
4.5	7.6	5.3	3.5	4.4	6.0	5.3	4.2	2.0	3.9	6.5	6.9	7.4	5.6	20.0	12.4	8.9	6.9	6.0	8.7	6.5	2.1	2.2	4.8	Diurnal Maximum	

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**  
**Waskow ohci Pimatisiwin - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	707	99.72	99.72
11 - 20	2	0.28	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - January 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	91	55	33	10	3	8	48	123	43	25	28	33	53	33	31	84	701
11 - 20	0	0	0	0	0	0	0	2	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>	91	55	33	10	3	8	48	125	43	25	28	33	53	33	31	84	703

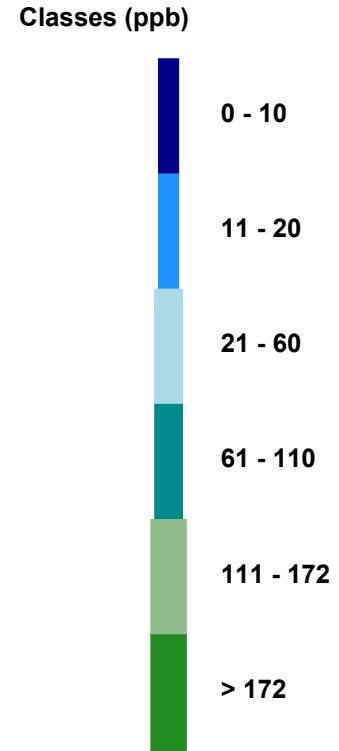
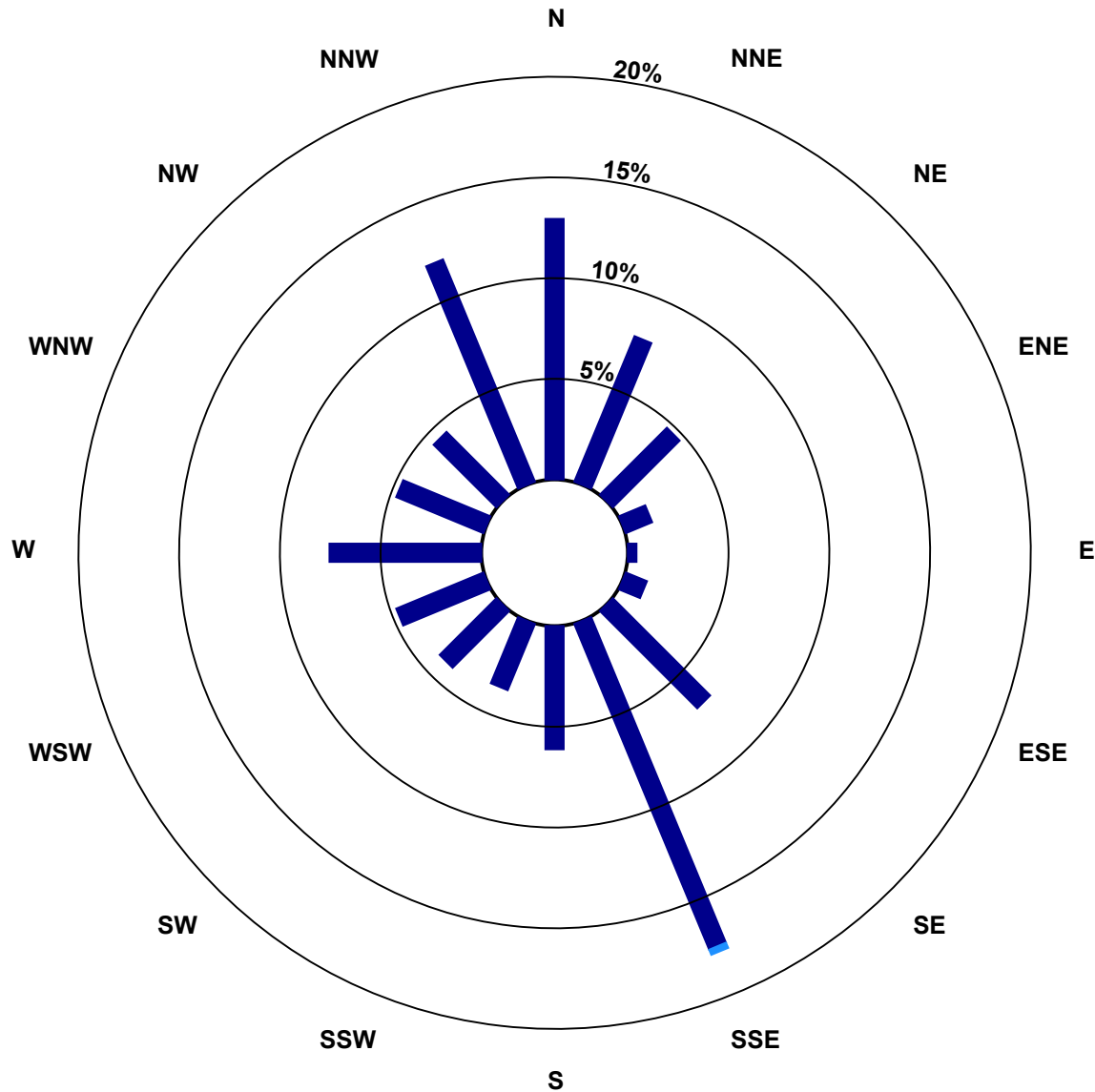
Total Number of Valid Hours: 703

Total Number of Hours: 744

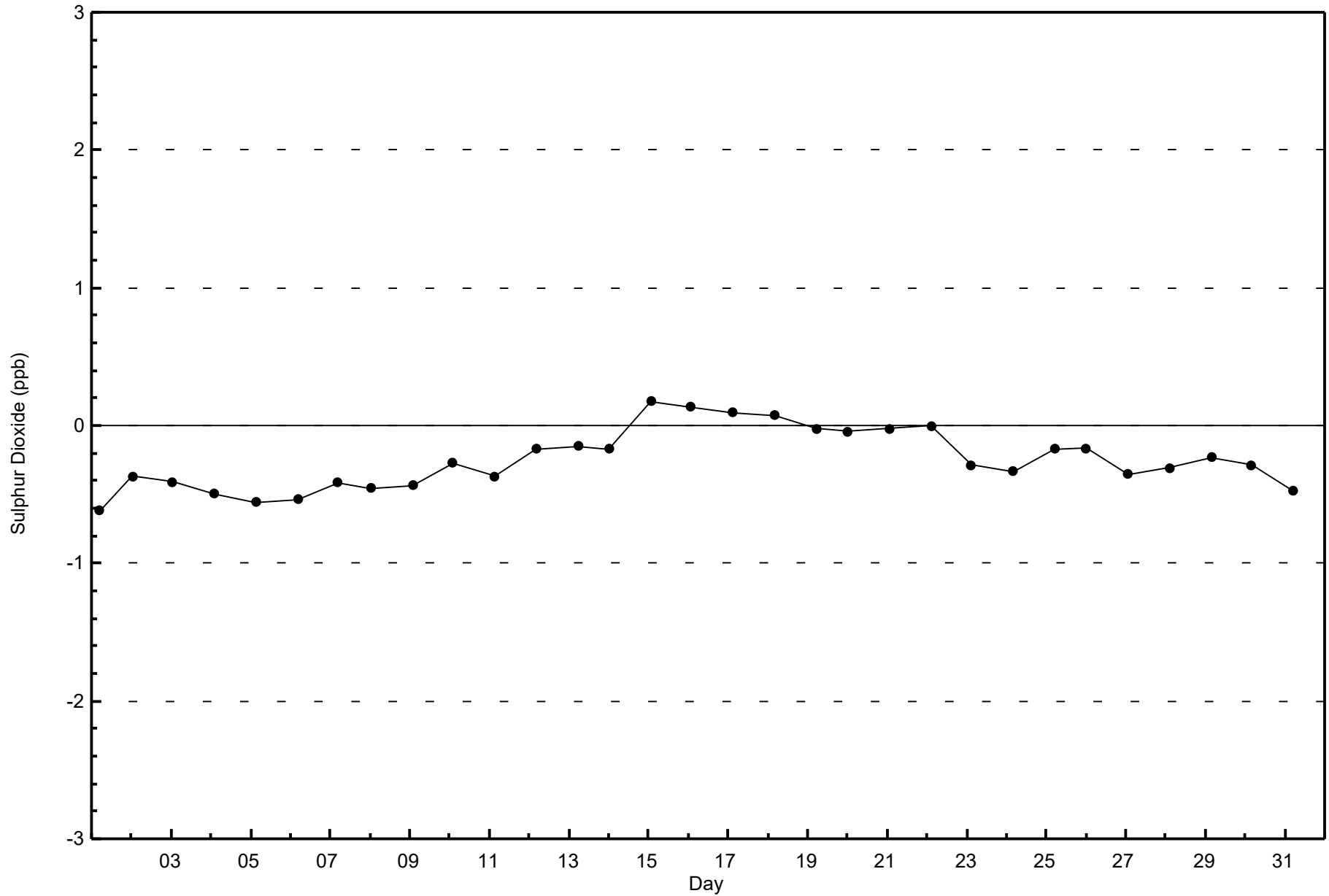


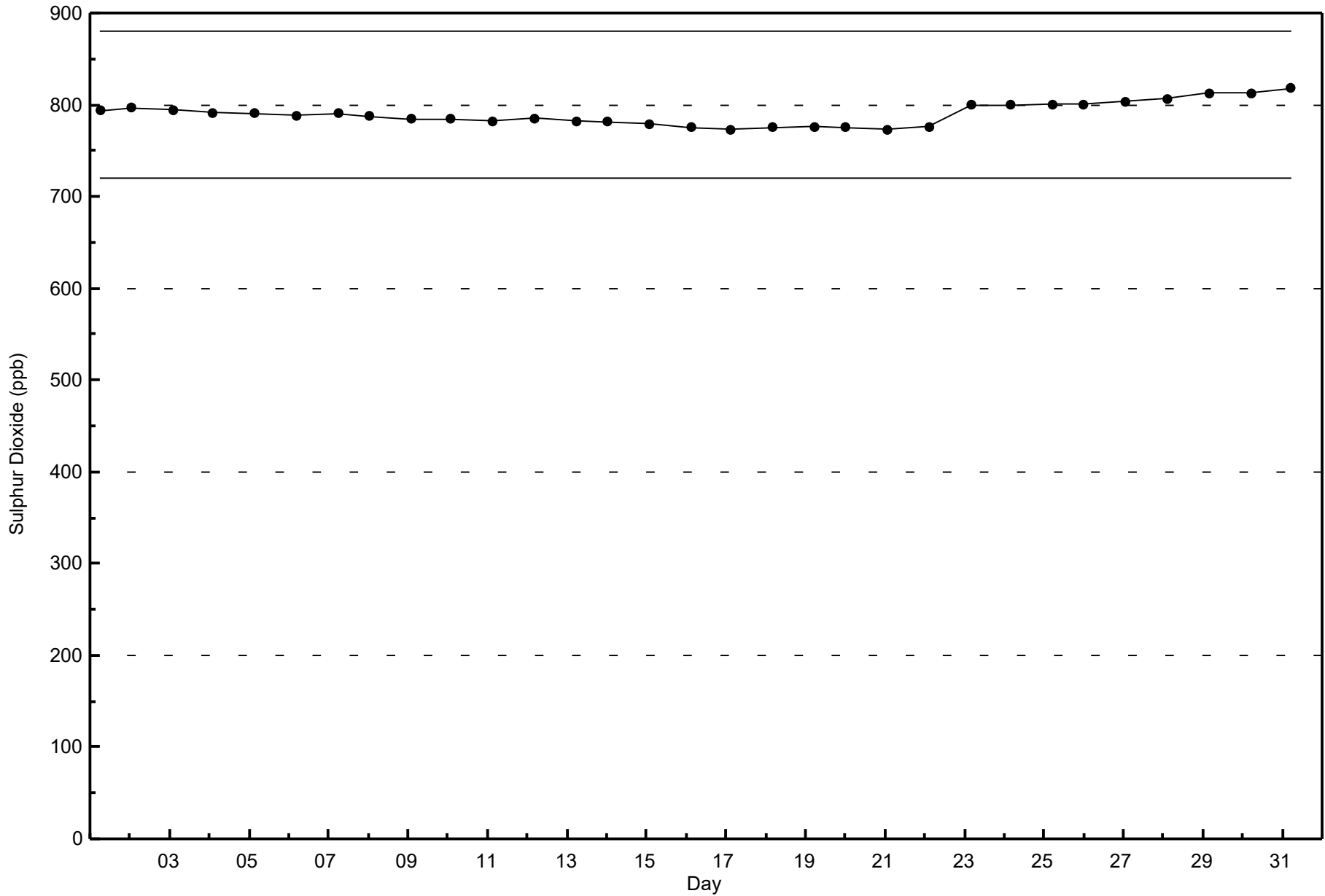
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



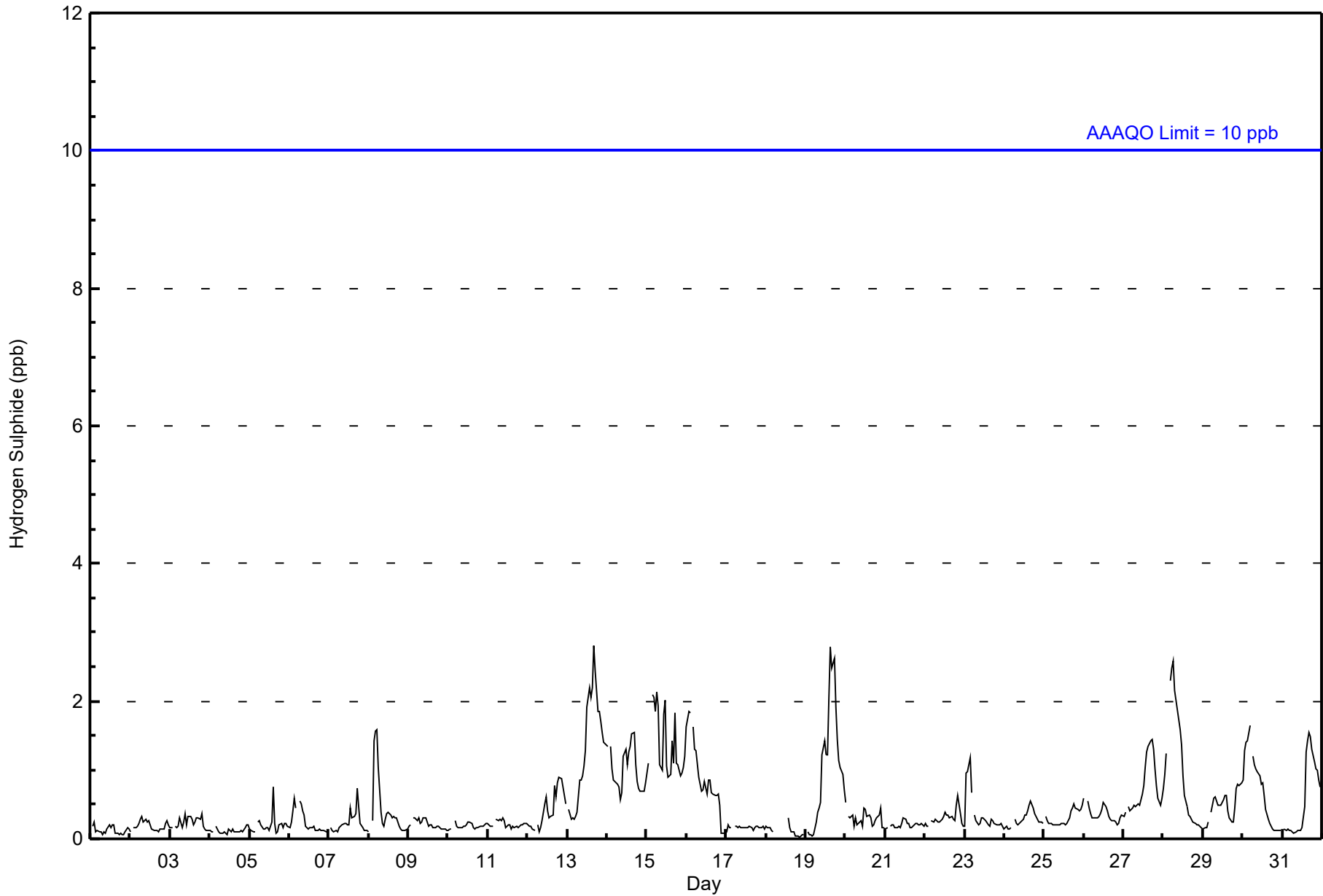
Total Number of Valid Hours: 703













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	703	99.43	99.43
3 - 4	4	0.57	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin - January 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	94	53	34	9	3	8	47	127	38	23	29	30	55	31	30	87	698
3 - 4	0	0	0	0	0	0	0	2	1	0	0	1	0	0	0	0	4
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>	94	53	34	9	3	8	47	129	39	23	29	31	55	31	30	87	702

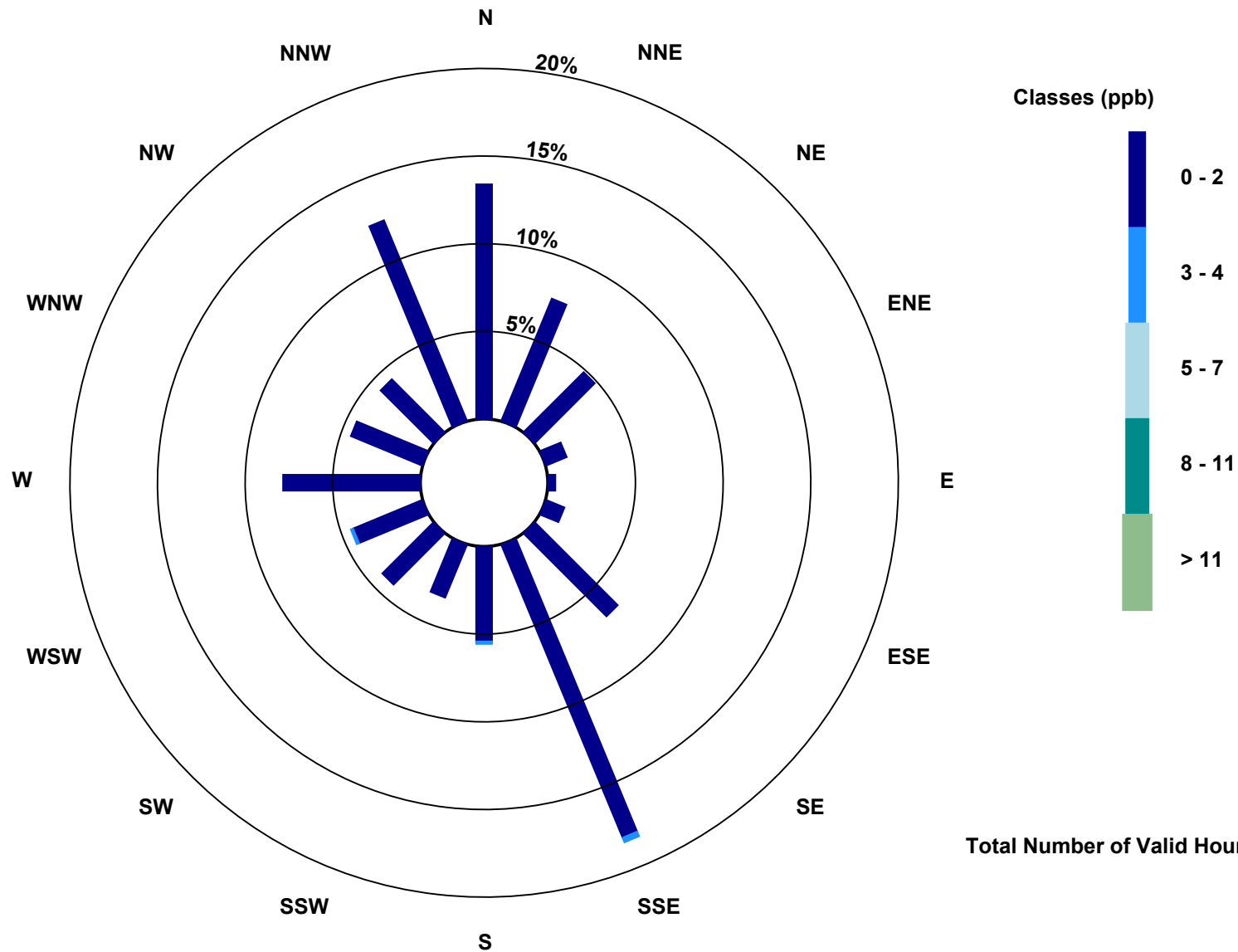
Total Number of Valid Hours: 702

Total Number of Hours: 744

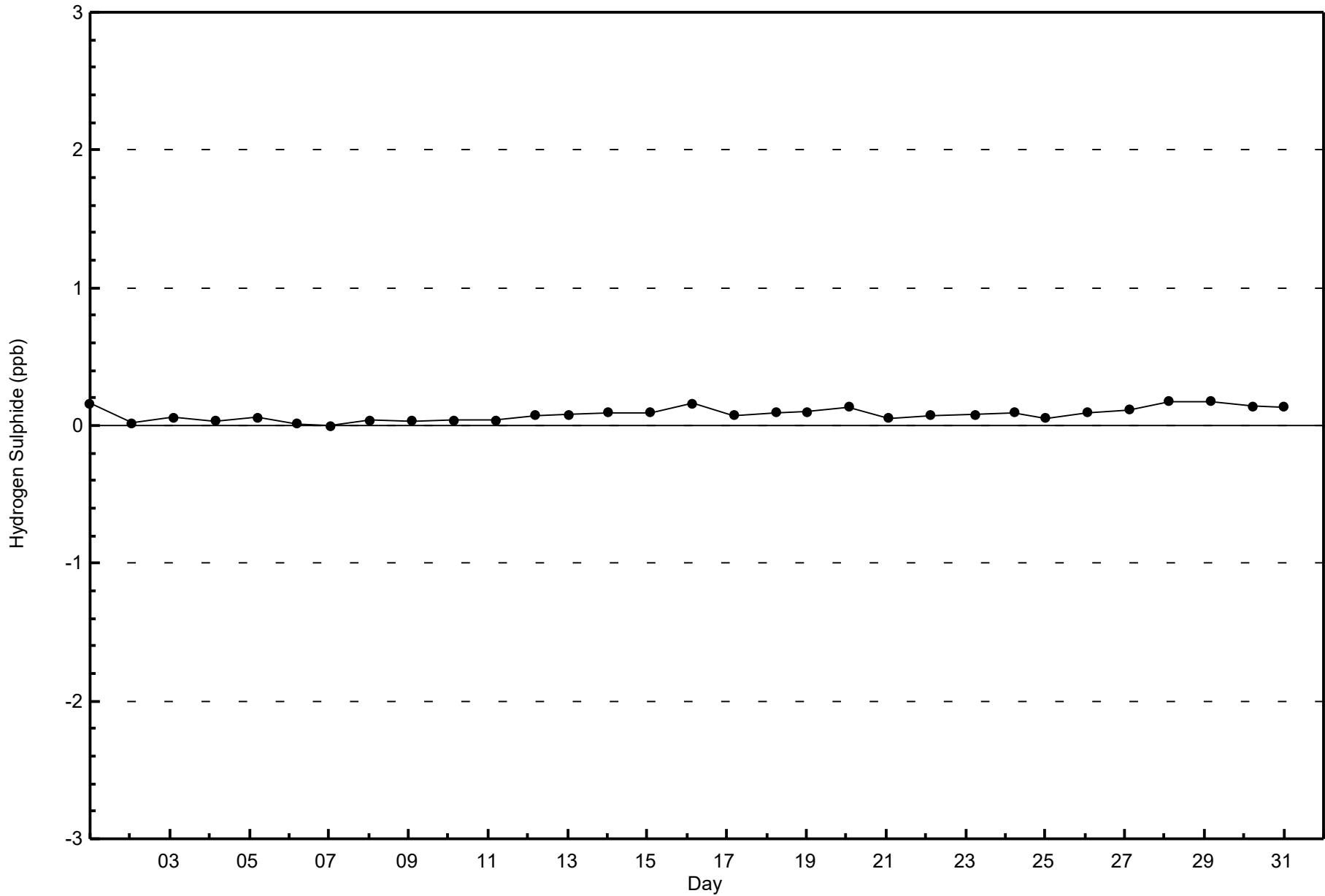


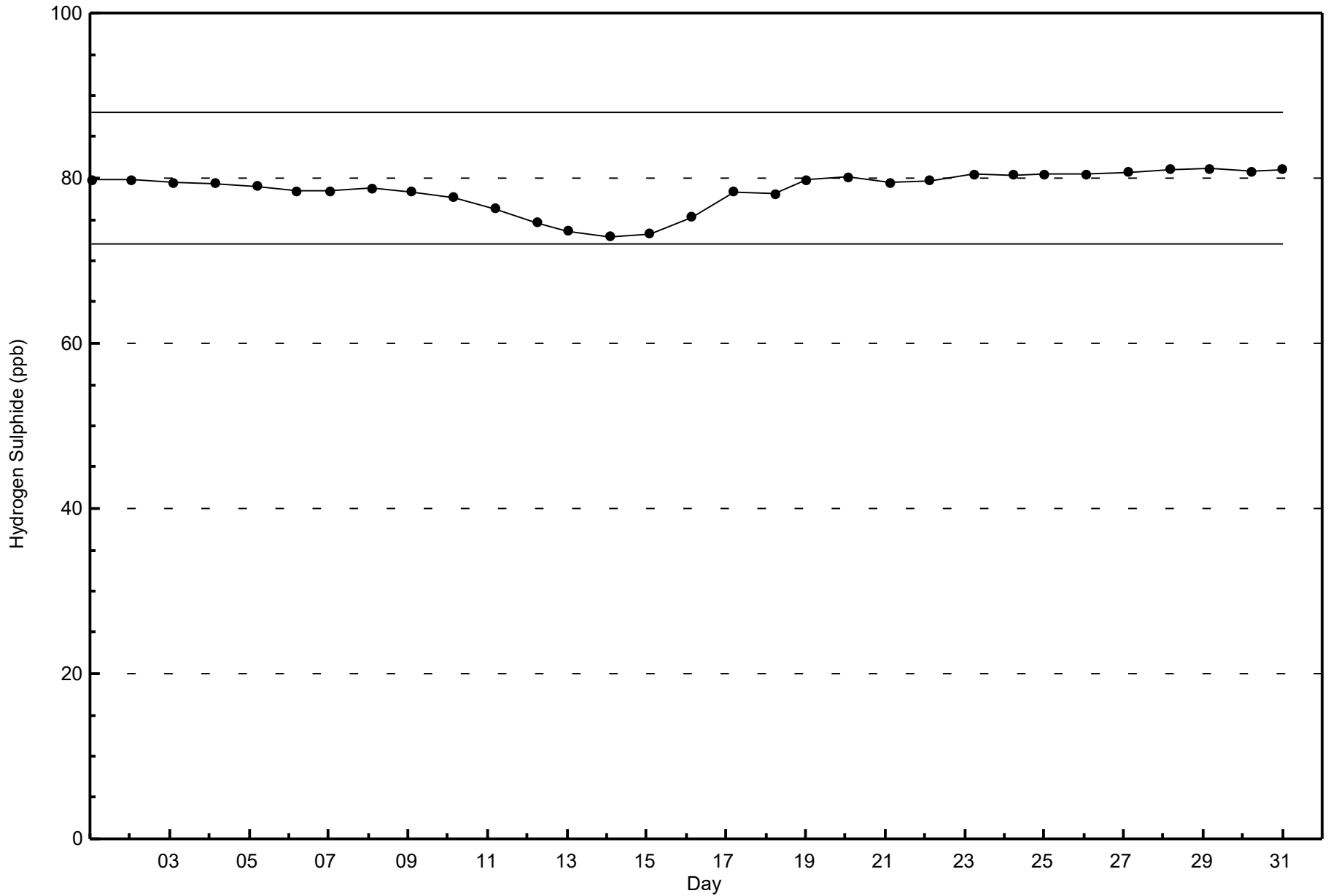
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 702

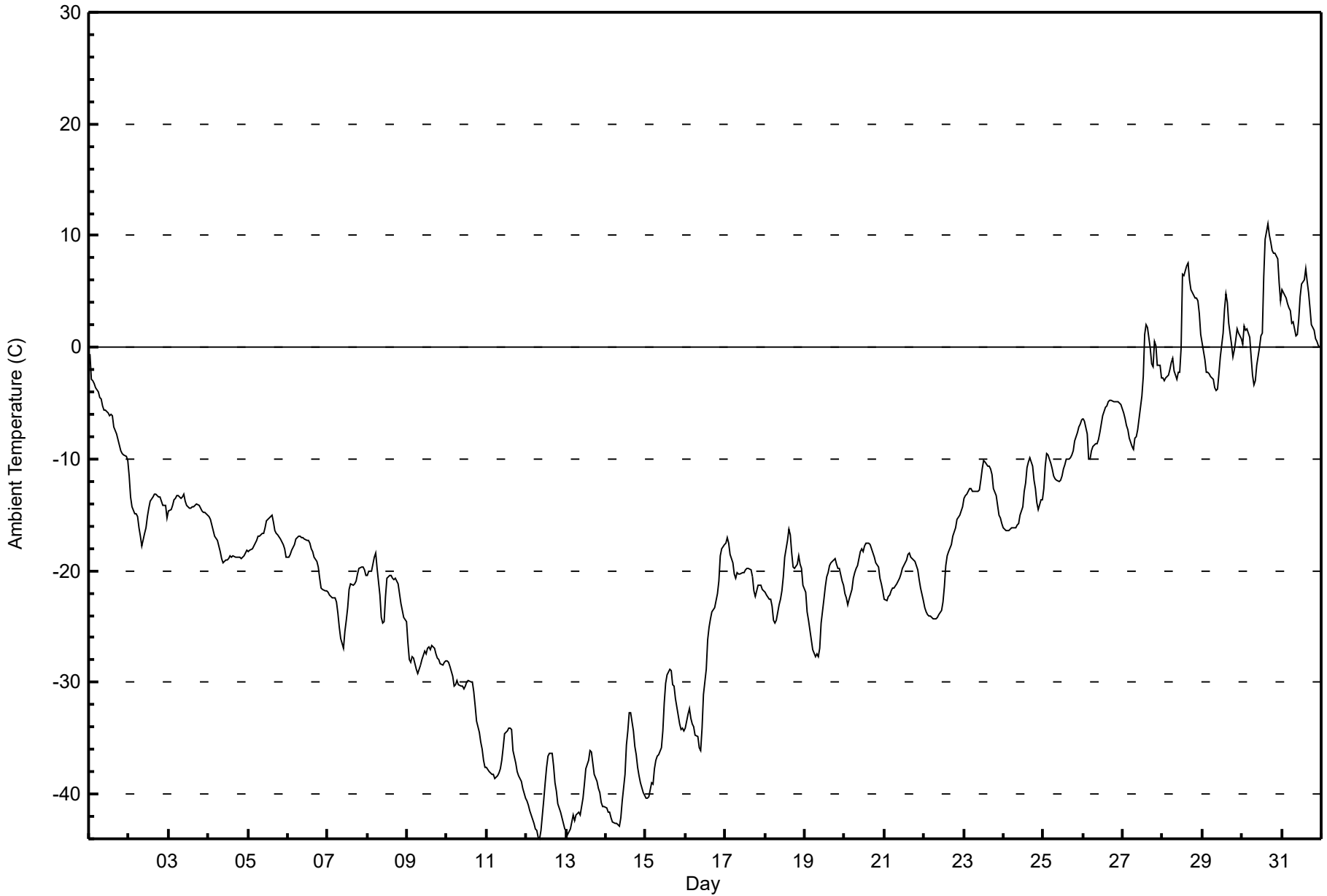






Maximum Value: 11.1 C on Jan 30 16:00      Maximum Daily Average: 3.6 C on Jan 30																						Hours in Service:	744			
Minimum Value: -44.0 C on Jan 12 09:00      Minimum Daily Average: -40.7 C on Jan 12																						Hours of Data:	744			
Maximum Diurnal Average: -16.0 C at hour 16      Minimum Diurnal Average: -20.6 C at hour 9																						Hours of Missing Data:	0			
Monthly Average: -18.56 C      Percentiles: $P_1 = -43.1$ $P_{10} = -37.7$ $Q_1 = -26.5$ Median = -18.7 $Q_3 = -10.6$ $P_{90} = -0.7$ $P_{99} = 7.7$																						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-Jan	-0.6	-2.8	-3.0	-3.2	-3.6	-4.0	-4.4	-4.6	-5.3	-5.6	-5.7	-5.9	-6.1	-6.0	-6.2	-7.1	-7.8	-8.2	-8.7	-9.3	-9.4	-9.6	-9.8	-10.1	-6.1	-0.6
2-Jan	-11.5	-13.4	-14.3	-14.9	-14.9	-15.2	-16.2	-16.9	-17.8	-16.7	-16.2	-15.2	-14.4	-13.7	-13.4	-13.2	-13.1	-13.3	-13.4	-13.4	-14.1	-14.2	-14.1	-15.3	-14.5	-11.5
3-Jan	-14.7	-14.5	-14.1	-13.7	-13.5	-13.3	-13.3	-13.6	-13.4	-13.2	-13.8	-14.1	-14.3	-14.4	-14.3	-14.3	-14.1	-14.0	-14.2	-14.4	-14.7	-14.8	-14.8	-15.1	-14.1	-13.2
4-Jan	-15.2	-15.3	-15.9	-16.4	-16.9	-17.3	-17.8	-18.3	-18.9	-19.3	-19.1	-19.0	-18.9	-18.7	-18.8	-18.7	-18.8	-18.8	-18.8	-18.8	-18.9	-18.7	-18.5	-18.1	-18.1	-15.2
5-Jan	-18.3	-18.2	-18.0	-17.8	-17.5	-17.3	-17.0	-16.9	-16.7	-16.6	-16.1	-15.6	-15.4	-15.1	-15.0	-15.7	-16.4	-16.7	-16.8	-17.1	-17.4	-17.7	-18.1	-18.8	-16.9	-15.0
6-Jan	-18.8	-18.5	-18.1	-17.9	-17.7	-17.2	-16.9	-17.0	-17.0	-17.2	-17.3	-17.2	-17.5	-18.1	-18.3	-18.8	-19.2	-19.7	-20.6	-21.5	-21.7	-21.8	-21.8	-21.8	-18.6	-16.9
7-Jan	-21.9	-22.2	-22.3	-22.5	-22.5	-22.8	-23.8	-25.1	-26.0	-26.9	-25.5	-24.4	-23.3	-21.7	-21.2	-21.3	-21.1	-21.0	-20.3	-19.8	-19.7	-19.6	-19.9	-20.4	-22.3	-19.6
8-Jan	-20.4	-20.0	-20.0	-19.5	-18.8	-18.4	-19.8	-22.1	-24.2	-24.7	-24.6	-22.3	-20.7	-20.4	-20.5	-20.7	-20.8	-20.7	-21.1	-22.0	-23.0	-23.6	-24.2	-24.5	-21.5	-18.4
9-Jan	-26.5	-27.9	-28.2	-27.7	-27.8	-28.8	-29.2	-28.9	-28.4	-27.9	-27.2	-27.4	-26.9	-26.9	-27.0	-26.7	-27.0	-27.4	-27.9	-27.9	-28.4	-28.5	-28.2	-28.1	-27.8	-26.5
10-Jan	-28.1	-28.2	-28.6	-29.4	-30.3	-30.2	-29.8	-30.2	-30.4	-30.3	-30.6	-30.3	-30.0	-29.9	-29.9	-29.9	-30.9	-32.1	-33.4	-34.5	-35.3	-36.0	-36.9	-37.6	-31.4	-28.1
11-Jan	-37.6	-37.9	-38.1	-38.3	-38.3	-38.6	-38.4	-38.1	-37.7	-36.9	-35.8	-34.6	-34.3	-34.1	-34.1	-34.2	-36.1	-37.2	-38.0	-38.4	-38.7	-38.8	-39.5	-40.3	-37.3	-34.1
12-Jan	-40.6	-41.0	-41.5	-41.9	-42.6	-43.1	-43.3	-43.8	-44.0	-43.3	-40.4	-39.0	-37.7	-36.6	-36.3	-36.4	-37.4	-38.9	-39.8	-40.8	-41.6	-42.1	-42.7	-43.1	-40.7	-36.3
13-Jan	-43.2	-43.6	-43.1	-42.5	-41.9	-42.3	-41.9	-41.6	-41.9	-41.1	-40.4	-39.1	-37.7	-36.9	-36.1	-36.2	-37.2	-38.2	-38.8	-39.5	-39.8	-40.7	-41.1	-41.1	-40.3	-36.1
14-Jan	-41.3	-41.6	-41.6	-42.1	-42.5	-42.6	-42.6	-42.7	-42.9	-42.1	-40.7	-38.3	-35.6	-34.4	-32.7	-32.8	-34.4	-35.7	-36.5	-37.6	-38.3	-39.0	-39.8	-40.1	-39.1	-32.7
15-Jan	-40.4	-40.4	-40.3	-39.0	-39.1	-37.7	-36.9	-36.6	-36.5	-35.9	-34.3	-31.8	-30.1	-29.3	-28.8	-29.0	-30.2	-30.3	-31.5	-32.2	-33.7	-34.2	-34.1	-34.4	-34.5	-28.8
16-Jan	-34.1	-32.9	-32.3	-33.2	-33.7	-34.0	-34.7	-34.8	-35.9	-36.1	-34.1	-31.0	-28.8	-26.2	-25.1	-24.3	-23.7	-23.3	-22.6	-22.1	-21.0	-18.6	-18.1	-17.7	-28.3	-17.7
17-Jan	-17.5	-17.1	-17.5	-18.6	-19.3	-20.3	-20.6	-20.2	-20.3	-20.3	-20.2	-20.1	-19.9	-19.8	-19.8	-19.9	-20.6	-21.8	-22.3	-21.9	-21.2	-21.3	-21.6	-21.7	-20.2	-17.1
18-Jan	-21.9	-22.1	-22.5	-22.6	-23.1	-24.4	-24.6	-24.5	-23.0	-22.5	-21.8	-20.6	-18.8	-17.2	-16.3	-16.7	-18.4	-19.6	-19.8	-19.4	-18.7	-19.4	-19.8	-21.3	-20.8	-16.3
19-Jan	-22.0	-23.6	-24.5	-25.3	-26.2	-27.1	-27.7	-27.4	-27.7	-27.0	-24.7	-22.6	-21.4	-20.5	-20.2	-19.5	-19.3	-19.0	-19.0	-19.4	-19.7	-19.8	-20.9	-21.3	-22.7	-19.0
20-Jan	-22.1	-22.4	-23.1	-22.6	-21.6	-20.6	-20.2	-19.8	-19.5	-18.2	-18.0	-18.3	-17.8	-17.5	-17.5	-17.7	-18.1	-18.4	-18.8	-19.3	-19.6	-20.7	-21.2	-21.8	-19.8	-17.5
21-Jan	-22.6	-22.7	-22.3	-22.2	-21.8	-21.6	-21.5	-21.2	-20.9	-20.6	-20.3	-19.8	-19.3	-19.1	-18.5	-18.4	-18.8	-19.0	-19.2	-19.5	-19.9	-20.8	-21.5	-22.7	-20.6	-18.4
22-Jan	-23.4	-23.7	-24.0	-24.1	-24.1	-24.3	-24.3	-24.3	-24.1	-23.9	-23.6	-22.8	-21.4	-19.5	-18.7	-18.3	-17.7	-16.9	-16.5	-16.1	-15.5	-15.0	-14.7	-14.2	-20.5	-14.2
23-Jan	-13.6	-13.3	-13.1	-12.7	-12.7	-12.9	-13.0	-12.9	-12.8	-12.8	-11.8	-10.9	-10.2	-10.3	-10.6	-10.6	-10.8	-11.3	-12.7	-13.3	-14.1	-15.0	-15.3	-15.8	-12.6	-10.2
24-Jan	-16.2	-16.4	-16.5	-16.4	-16.3	-16.2	-16.2	-16.2	-16.0	-15.8	-15.1	-14.2	-13.0	-12.1	-10.8	-10.2	-9.9	-10.6	-11.8	-12.6	-13.9	-14.6	-13.6	-13.6	-14.1	-9.9
25-Jan	-12.6	-10.6	-9.5	-9.7	-10.4	-10.9	-11.5	-11.7	-11.9	-12.0	-11.9	-11.5	-10.9	-10.5	-10.1	-10.0	-9.9	-9.7	-9.2	-8.4	-7.6	-7.1	-6.8	-6.5	-10.0	-6.5
26-Jan	-6.4	-6.6	-7.7	-10.0	-10.0	-9.3	-8.9	-8.6	-8.6	-8.2	-7.6	-6.8	-6.1	-5.4	-5.3	-4.9	-4.8	-4.7	-4.9	-4.9	-4.9	-4.9	-5.0	-5.1	-6.6	-4.7
27-Jan	-5.9	-6.4	-7.0	-7.4	-8.2	-8.9	-9.1	-8.1	-8.0	-7.4	-6.4	-4.4	-2.6	1.2	2.0	1.7	-0.1	-1.5	-1.8	0.6	0.1	-1.6	-1.6	-2.7	-3.9	2.0
28-Jan	-2.7	-3.0	-2.7	-2.5	-2.0	-1.4	-0.9	-2.1	-2.8	-2.2	-2.2	-0.1	6.5	6.4	7.3	7.5	6.1	5.2	4.9	4.4	4.4	4.2	3.0	1.1	1.5	7.5
29-Jan	0.5	-1.1	-2.2	-2.2	-2.3	-2.6	-2.9	-3.7	-3.9	-3.7	-2.4	-0.8	1.3	3.4	4.7	4.1	2.1	0.3	-0.9	-0.3	0.6	1.6	1.2	0.8	-0.3	4.7
30-Jan	0.3	1.9	1.5	1.6	0.9	-0.8	-2.5	-3.3	-3.0	-1.6	0.0	1.0	1.3	6.3	9.6	11.1	10.0	9.5	8.6	8.4	8.4	7.9	5.8	4.1	3.6	11.1
31-Jan	5.1	4.9	4.5	3.9	3.6	3.3	2.1	2.3	1.0	1.1	2.6	4.5	5.6	6.1	7.1	5.9	4.9	3.5	2.0	1.5	0.7	0.5	0.2	0.0	3.2	7.1
																						Diurnal Average				
																						Diurnal Maximum				







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Waskow ohci Pimatisiwin - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	314	42.20	42.20
-20 - 0	361	48.52	90.73
0 - 10	68	9.14	99.87
10 - 20	1	0.13	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

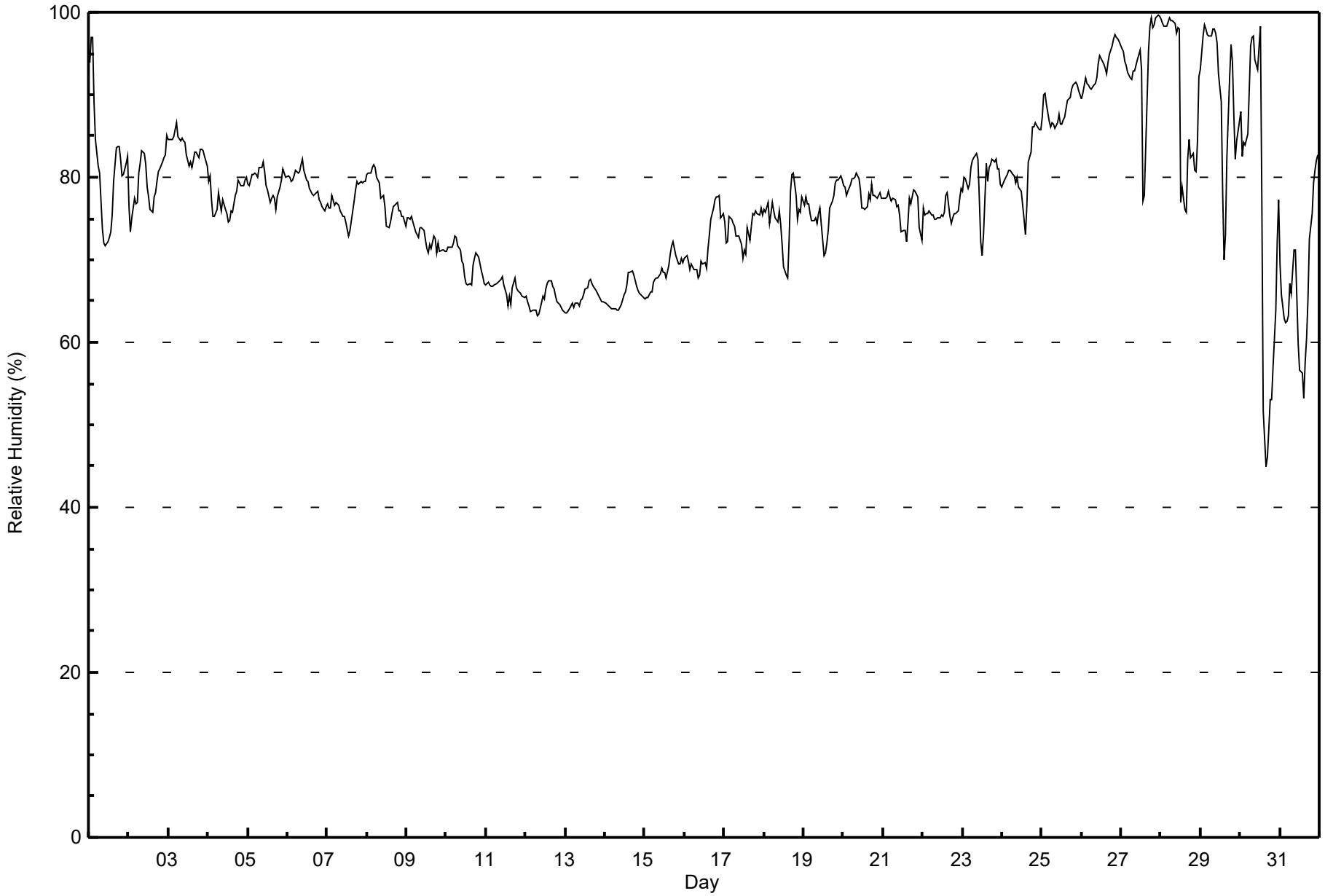


Maximum Value: 99.7 % on Jan 27 23:00      Maximum Daily Average: 93.5 % on Jan 27																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 45.0 % on Jan 30 16:00      Minimum Daily Average: 65.0 % on Jan 12 Maximum Diurnal Average: 78.5 % at hour 24      Minimum Diurnal Average: 73.1 % at hour 15 Monthly Average: 77.25 %      Percentiles: P <sub>1</sub> = 56.5 P <sub>10</sub> = 65.8 Q <sub>1</sub> = 71.2 Median = 76.8 Q <sub>3</sub> = 81.4 P <sub>90</sub> = 91.8 P <sub>99</sub> = 98.8																						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-Jan	93.9	97.0	97.0	89.2	84.6	81.4	80.6	77.1	73.6	72.1	71.7	72.2	72.7	73.4	75.5	79.5	83.6	83.8	83.8	82.3	80.1	80.3	81.7	82.5	81.2	97.0
2-Jan	76.5	73.5	75.1	77.4	76.8	77.0	80.4	81.7	83.2	82.9	81.5	78.8	77.6	76.1	75.8	77.7	78.1	79.5	80.6	81.1	81.8	82.4	82.7	85.0	79.3	85.0
3-Jan	84.7	84.5	84.7	85.0	85.8	86.6	85.0	84.5	84.8	84.5	84.3	82.7	81.4	81.8	81.2	82.0	83.0	83.0	82.3	83.4	83.3	83.2	82.5	81.3	83.6	86.6
4-Jan	79.5	80.2	77.3	75.2	75.3	76.1	78.1	76.9	75.9	77.3	76.2	75.6	74.5	74.7	76.0	75.7	77.8	78.3	79.7	79.4	79.0	79.0	79.7	80.0	77.4	80.2
5-Jan	79.1	79.1	80.4	80.4	80.5	80.4	80.0	81.2	81.2	81.9	80.6	78.9	78.5	77.0	77.4	77.7	77.5	76.0	77.6	78.8	79.7	81.0	80.5	80.1	79.4	81.9
6-Jan	80.1	80.0	79.6	79.7	80.1	80.9	80.6	80.6	81.5	82.1	80.8	79.7	79.5	78.7	78.3	78.0	77.9	78.1	78.3	77.4	76.9	76.4	75.9	76.4	79.1	82.1
7-Jan	76.8	76.3	76.4	77.8	76.7	77.0	76.7	76.7	75.9	75.3	75.3	74.6	73.7	72.8	73.6	76.0	77.1	78.4	79.4	79.2	79.5	79.3	79.6	79.5	76.8	79.6
8-Jan	80.3	80.5	80.5	81.2	81.5	81.2	80.1	79.3	77.5	77.6	77.8	76.4	74.0	74.0	74.6	75.5	76.5	76.6	76.9	75.9	76.0	75.3	75.2	74.0	77.4	81.5
9-Jan	75.0	75.1	74.9	75.3	74.5	73.4	73.0	72.6	73.8	73.9	73.6	72.5	71.3	70.9	71.9	71.4	72.9	72.5	70.9	72.1	71.1	71.2	71.2	71.1	72.8	75.3
10-Jan	71.1	71.5	71.5	71.5	72.0	73.0	72.8	71.7	71.3	69.8	69.5	68.0	67.1	66.9	67.1	67.0	69.4	70.2	70.8	70.3	69.6	68.6	68.0	67.1	69.8	73.0
11-Jan	67.0	67.2	66.9	66.8	66.7	67.0	67.2	67.3	67.4	67.6	67.9	67.0	65.8	64.3	65.6	64.6	66.7	67.8	66.7	66.3	66.2	65.9	65.7	65.4	66.5	67.9
12-Jan	65.6	64.9	64.4	63.7	63.9	63.9	63.9	63.3	63.4	64.0	65.6	65.3	66.4	67.0	67.4	67.5	66.8	66.4	65.6	65.0	64.7	64.3	63.8	63.7	65.0	67.5
13-Jan	63.5	63.5	64.0	64.4	64.7	64.2	64.8	64.7	64.5	65.1	65.2	65.8	66.5	66.7	67.4	67.6	67.1	66.8	66.3	65.9	65.5	65.2	64.9	64.9	65.4	67.6
14-Jan	64.7	64.5	64.4	64.2	64.1	64.1	64.1	63.9	63.9	64.2	64.7	65.8	66.1	66.9	68.5	68.5	68.6	68.2	67.5	66.7	66.3	65.9	65.7	65.5	65.7	68.6
15-Jan	65.3	65.4	65.3	66.2	66.1	67.2	67.6	67.9	67.7	68.4	68.9	68.5	68.4	67.8	69.3	70.8	71.6	72.2	71.4	70.5	69.5	69.5	70.2	69.7	68.6	72.2
16-Jan	70.1	70.5	69.8	68.8	69.5	69.1	68.8	68.7	67.7	68.2	69.8	69.5	69.6	69.0	71.4	73.0	74.9	76.4	77.3	77.6	77.6	77.9	75.0	75.6	71.9	77.9
17-Jan	74.7	72.1	72.1	75.2	74.8	74.5	74.1	72.9	72.9	72.9	71.9	70.2	71.2	70.7	74.0	72.3	74.1	75.7	75.5	75.9	75.6	75.4	76.3	75.5	73.8	76.3
18-Jan	76.2	75.8	76.9	74.5	75.5	76.9	75.9	75.1	74.7	75.9	74.3	71.9	69.2	68.2	67.7	72.3	78.3	80.3	80.6	77.8	74.9	76.2	75.7	77.7	75.1	80.6
19-Jan	76.6	77.7	76.8	76.7	75.6	74.7	74.7	75.1	74.4	75.5	76.2	72.4	70.5	70.8	72.0	73.6	76.3	77.1	77.8	79.3	79.7	79.7	80.2	79.7	76.0	80.2
20-Jan	78.9	78.9	77.7	78.3	79.1	79.8	79.8	80.0	80.6	79.8	78.5	76.3	76.2	76.0	76.5	78.0	77.3	79.2	77.7	77.8	77.4	77.8	78.2	77.4	78.2	80.6
21-Jan	77.5	77.5	77.6	78.3	77.7	77.1	77.5	77.3	76.5	76.6	75.4	73.4	73.6	73.5	72.3	74.7	77.4	76.7	78.5	78.4	77.9	77.7	73.9	72.4	76.2	78.5
22-Jan	76.3	75.4	75.6	75.5	75.9	75.4	75.3	74.9	74.9	75.0	75.1	75.4	75.2	75.8	77.7	78.1	75.2	74.4	75.0	75.6	75.6	75.9	77.4	78.7	75.8	78.7
23-Jan	78.2	80.0	79.8	78.7	79.1	81.2	82.0	82.3	82.8	82.3	77.4	72.2	70.5	73.1	81.6	79.5	81.2	81.6	82.3	81.9	82.3	81.0	81.1	79.2	79.6	82.8
24-Jan	78.8	79.7	80.0	80.3	80.9	80.9	80.3	80.1	79.3	80.0	78.9	78.4	76.6	75.0	73.0	76.6	81.9	83.1	86.1	86.2	86.7	86.3	85.8	85.8	80.8	86.7
25-Jan	87.2	90.1	90.3	88.8	86.8	86.1	86.6	86.4	85.9	86.6	87.6	86.5	86.9	87.3	89.3	89.5	89.7	90.7	91.2	91.6	91.1	90.5	90.0	88.5	91.6	91.6
26-Jan	89.5	90.3	92.0	91.3	91.2	90.8	90.7	91.2	91.4	92.0	93.7	94.8	94.5	93.7	93.1	92.5	94.0	94.8	95.9	96.8	97.2	96.9	96.8	96.5	93.4	97.2
27-Jan	95.7	95.2	94.1	93.5	92.7	92.0	91.9	92.9	92.9	93.5	94.3	95.4	93.0	77.1	77.9	83.7	95.4	98.2	99.2	98.2	98.4	99.4	99.7	99.6	93.5	99.7
28-Jan	99.2	98.6	98.2	98.4	98.8	99.3	98.9	99.0	98.7	97.4	98.2	98.0	77.0	78.8	76.2	75.7	82.3	84.7	82.4	82.9	80.9	80.6	84.4	92.2	90.0	99.3
29-Jan	93.0	97.2	98.5	98.0	97.2	97.0	97.1	98.0	97.9	97.4	96.2	92.5	89.2	78.1	69.9	73.1	82.4	92.1	96.1	93.8	87.5	82.2	84.5	86.8	90.7	98.5
30-Jan	88.0	82.5	84.3	83.9	85.3	90.5	96.0	97.0	97.1	94.2	93.0	95.7	98.4	77.3	51.8	45.0	46.1	49.5	53.0	53.1	56.9	63.9	72.3	77.4	76.3	98.4
31-Jan	69.5	65.8	62.9	62.3	62.6	63.2	67.1	66.0	71.1	71.2	65.6	59.8	56.6	56.4	53.1	57.7	60.5	65.3	72.5	75.6	79.2	80.8	82.1	82.8	67.1	82.8
78.5 78.4 78.4 78.1 77.9 78.1 78.4 78.3 78.2 78.2 77.7 76.6 75.2 73.5 73.1 74.0 76.2 77.3 78.0 77.9 77.7 77.8 78.1 78.5																								Diurnal Average		
99.2 98.6 98.5 98.4 98.8 99.3 98.9 99.0 98.7 97.4 98.2 98.0 98.4 93.7 93.1 92.5 95.4 98.2 99.2 98.2 98.4 99.4 99.7 99.6																								Diurnal Maximum		



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

**Relative Humidity (RH) - %**  
**Waskow ohci Pimatisiwin - January 2024**





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

**Relative Humidity (RH) - %**  
**Waskow ohci Pimatisiwin - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	12	1.61	1.61
60 - 80	494	66.40	68.01
80 - 100	238	31.99	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

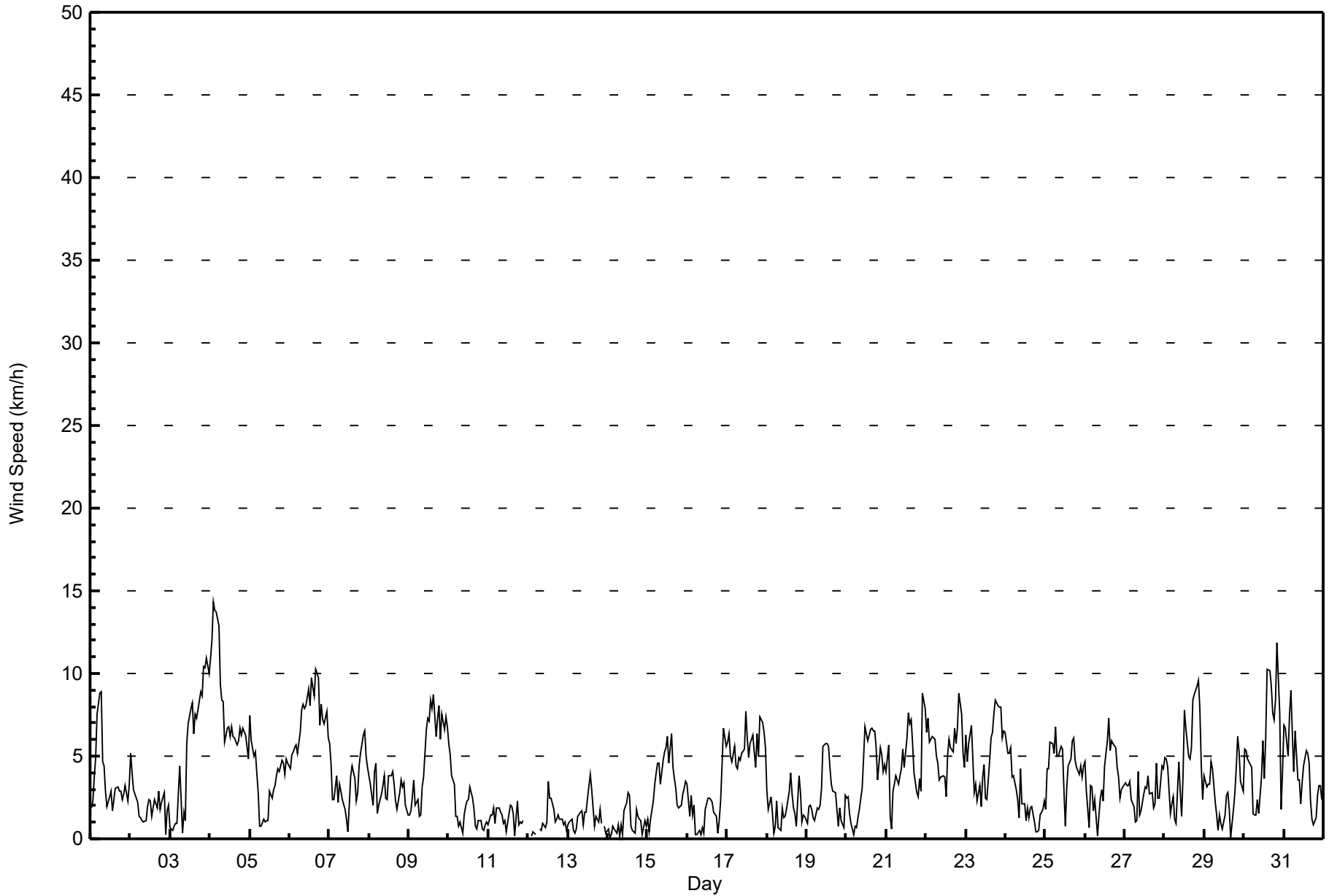


Maximum Speed: 14 km/h on Jan 4 03:00	Maximum Daily Speed Average: 8.0 km/h on Jan 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 12 00:00	Minimum Daily Speed Average: 0.6 km/h on Jan 11	Hours of Data: 738
Maximum Diurnal Speed Average: 1.5 km/h at hour 21	Minimum Diurnal Speed Average: 0.4 km/h at hour 9	Hours of Missing Data: 6
Monthly Average Velocity: 0.8 km/h 349.6 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 7 P <sub>99</sub> = 11	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-Jan	WNW2	WNW2	NNE4	N5	N8	NNW9	NNW9	NNW5	NNE4	NNW3	NNE2	NE3	NNE3	ENE2	NE2	NE3	NE3	NE3	NE3	ENE2	NE3	NNE3	ENE2	ENE3	NNE3.1	NNW9
2-Jan	NE5	NE4	NE3	NNE2	NE2	NE1	N1	NNW1	SW1	SSW1	N2	N2	NNE2	WNW1	S2	SE2	NNE2	N3	N2	NNW2	N3	NNE0	NE2	NW2	NNE1.4	NE5
3-Jan	N1	SE1	ESE1	NNE1	SSW1	SSE3	SSE4	SSE0	N2	NNE1	N6	NNW7	NNW8	NNW8	NNW6	NNW8	NNW7	NNW8	NNW9	N9	NNW10	N10	N11	N10	NNW4.6	N11
4-Jan	NNW11	NNW12	N14	N14	N14	N13	NNW9	N8	NNE8	NNE6	NNE7	N7	NNE6	N7	N6	NNE6	NNE6	NNE6	N7	NNW6	N7	NNW6	N6	NNW5	N8.0	N14
5-Jan	NNW7	NNW6	NNW5	NW5	WNW4	WNW3	W1	SSE1	SE1	SSE1	E1	NE1	NE3	NE2	NE3	NE3	NNE4	NNE4	N4	N5	NNW5	N4	NNW5	N2.7	NNW7	
6-Jan	NNW4	NNW5	NNW5	NNW6	NNW6	NNW5	NNW6	NNW8	NNW8	N8	NNW8	NNW9	N8	NNW10	N9	N9	N10	NNW10	N7	N8	N7	N7	NNW8	N6	N7.3	N10
7-Jan	NNE6	NNE5	NE2	ENE2	NNE4	NE2	N3	WNW3	WNW2	W2	SSE1	S0	ESE2	SE4	SE4	SSE4	SSE2	SSE3	SSE4	SSE5	SSE6	SSE7	SSE5	SSE4	SE1.5	SSE7
8-Jan	SE4	SE3	SE2	SE4	SE5	SSW2	NW2	NW3	W3	WNW4	NW2	NNE2	N4	NNW4	NNW4	NNW3	NNW2	NNW2	NE3	NE4	NE3	NE3	NE2	NE1	NNE1.0	SE5
9-Jan	NNW1	WNW2	WNW3	N4	N2	NNW2	NNE1	NNE1	N3	N4	N7	N7	N7	N8	N8	N9	N6	NNE7	N8	N6	N8	N7	NNE7	NNE7	N5.0	N9
10-Jan	N6	NNE5	N4	N3	W1	S1	S1	SSE1	NNE0	NE1	ENE2	NNE2	NE2	NE3	NE2	NE2	NW1	WNW1	WNW1	WNW1	W1	W0	WNW1	WNW1	NNE1.2	N6
11-Jan	WSW1	WSW1	W1	W2	WNW1	W2	W2	W2	W1	WSW1	S1	ENE0	NE1	NE2	NE2	NNE2	NNW0	W2	WSW1	W1	WSW1	WSW1	UO	SE0	W0.6	W2
12-Jan	UO	UO	SSW0	W0	WSW0	UO	UO	SSW1	W1	W1	W1	ESE1	SSE4	SE2	SSE2	S2	WSW1	W1	W1	W1	W1	W1	WSW1	SW1	SSW0.7	SSE4
13-Jan	WSW1	WSW1	W1	W1	W0	W1	W1	WNW2	W2	SSW1	WSW2	S2	SE2	SSE4	SSE3	SSE2	S1	W1	W1	W2	WSW1	UO	SW1	NW0	SW0.8	SSE4
14-Jan	WSW1	SSW0	SW0	SW1	SW1	S0	SW1	SW0	SSW1	S0	SSE2	SE2	SSE3	SSE3	SSW1	W1	NW0	W2	W1	W1	WSW1	SSE0	S1	S1	SSW0.6	SSE3
15-Jan	S1	ESE0	S1	SSE2	SSE3	SSE4	SSE5	SSE5	SSE3	SSE5	SSE5	SSE6	SE6	SE5	SSE6	SSE4	SSE4	SSE3	SSE2	SSE2	SSE2	SSE3	SSE3	SSE3	SSE3.5	SSE6
16-Jan	SSE3	S1	NNW3	NW1	N2	WNW0	ESE0	SW1	W0	SW1	NW0	ESE2	SE2	SE2	SSE2	SSE2	SSE2	SSE1	SSE0	NW1	WNW2	W4	W7	W6	SW0.7	W7
17-Jan	WNW6	NW6	N5	N5	NNE6	NNE4	NNE4	NNE5	NNE5	NNE5	NNE5	N8	N6	NNE5	N6	N6	N5	NNW4	N6	NNW5	NNW7	NNW7	NW6	NW6	N5.1	N8
18-Jan	WNW3	W2	W3	WSW2	SW0	NW1	WSW2	WSW1	SSW1	SE2	S1	ENE1	SE2	SE3	SSE4	S3	S2	NNW1	NW1	W4	NNW3	WNW1	W1	SW1	SW0.7	SSE4
19-Jan	SW1	SSW2	SSE2	S2	S1	SSE1	SSE2	S2	S2	SSE3	SSE6	SSE6	SE6	SSE6	SSE4	SSE3	SSE3	SE3	NW2	W1	NNW2	NW1	WNW1	NW3	SSE1.8	SSE6
20-Jan	WNW2	NW3	W2	NW1	ENE0	W1	SE1	SE1	SSE2	NNW3	NNW5	NNW7	NNW6	NNW6	NNW7	NNW7	NNW7	NNW7	N5	NE4	NNE5	NNE5	NNE4	NNW4	NNW3.2	NNW7
21-Jan	NW4	NW6	NNE1	NW1	NW3	WNW3	WNW4	W3	NW4	NNW4	NNW5	N4	N6	NNW8	N7	NNE7	N6	NNE4	NNE3	N3	N4	NNE3	NNW9	N8	NNW4.1	NNW9
22-Jan	N6	N7	N6	N6	NNW6	NNW6	NNW5	NNW5	NW4	NNW4	N4	NNW4	N3	SE5	SE6	SE6	SSE5	SE7	SE6	SE7	SSE9	SSE8	SE5	SSE4	ENE1.2	SSE9
23-Jan	SE6	SE5	SSE6	SSE7	SSE5	S3	SSE3	SSE2	SSE3	SSE2	SSE4	S4	S2	N2	N5	NNW6	N6	N8	N8	N8	N8	N8	N6	N7	NNE1.2	N8
24-Jan	N6	N5	N5	N6	N4	NNW4	WNW3	WNW2	NNW1	NW4	NW2	NW2	NNE1	ENE2	E1	SE2	SW2	WNW1	ESE0	NE0	WSW1	S1	NNW2	WNW2	NNW1.7	N6
25-Jan	N2	N4	NNE4	NNE6	NNE6	NNE5	N7	N5	NNW5	NNW6	NNW5	NNW3	WSW1	SE3	SE4	SSE5	SSE6	SSE6	SSE5	SSE4	S4	S4	S4	S4	ENE0.9	N7
26-Jan	SSE5	SSW3	SE1	W3	WNW3	W2	WNW2	SSW0	S1	SE2	SSE3	SE2	SE4	SE6	SSE7	SSE5	SSE6	SSE6	SE6	SE4	SSE4	SE2	SSE3	SSW3	SSE2.7	SSE7
27-Jan	S3	SSW3	S3	SSE3	S2	NW2	SSW1	SSE1	SSE4	S1	SSE2	SSE3	SE3	SSE3	S4	SSE3	SSE3	SSE2	SSE2	SW5	E2	SSE2	SSE4	SSE4	S2.4	SW5
28-Jan	SSE5	SE5	SSE4	SSE2	SSE2	S3	WSW1	SSE1	SSE5	S3	SSW1	SSW4	SSW8	SSW7	SW5	SW5	SW5	WSW8	WSW9	WSW9	WSW10	W8	W4	SSE2	SW3.7	WSW10
29-Jan	SSE4	SSE3	SSE3	SSE3	SSE5	SSE4	SE2	SE1	S0	WSW1	SSW1	WSW1	W1	SW3	SSW3	SSW2	SW0	W2	SW3	S4	SSE6	SSE5	SSE3	S3	S2.3	SSE6
30-Jan	SSE5	SSE5	SSE5	SSE5	SSE4	WSW2	WSW1	SW1	SSE2	SSE1	S4	SSE6	SSE4	SSW6	SW10	SW10	WSW9	WSW8	SSW7	SW8	W12	WNW8	SW2	SW4	SW4.0	W12
31-Jan	WSW7	WSW7	SW5	WSW8	WSW9	SW6	SSW4	SW7	SSE4	S4	S2	ESE3	SE4	SE5	SSE5	SSE5	SSE2	ESE1	N1	NW1	NNW3	WNW3	NW3	WNW2	SSW2.5	WSW9
NNW0.8NNW1.2 N0.9NNW1.0NNW1.0 NN1.2 NN1.1 NW0.8NNW0.4NNW0.7 N0.9NNE1.0 NE0.9ENE0.8 E0.6 NE0.6 N0.7NNW1.0 N1.1NNW0.9NNW1.5NNW1.2NNW1.4NNW1.1																								Diurnal Average		
NNW11 NNW12 N14 N14 N14 N13 NNW9 N8 NNE8 N8 NNW8 NNW9 N8 NNW10 SW10 SW10 N10 NNW10 NNW9 WSW9 W12 N10 N11 N10																								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 - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	560	75.88	75.88
6 - 11	172	23.31	99.19
12 - 19	6	0.81	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: 738

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Waskow ohci Pimatisiwin - January 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	36	41	35	10	3	9	40	113	43	22	25	25	51	33	29	45	560
6 - 11	58	15	0	0	0	0	10	18	0	4	5	10	3	2	4	43	172
12 - 19	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	6
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>	98	56	35	10	3	9	50	131	43	26	30	35	55	35	33	89	738

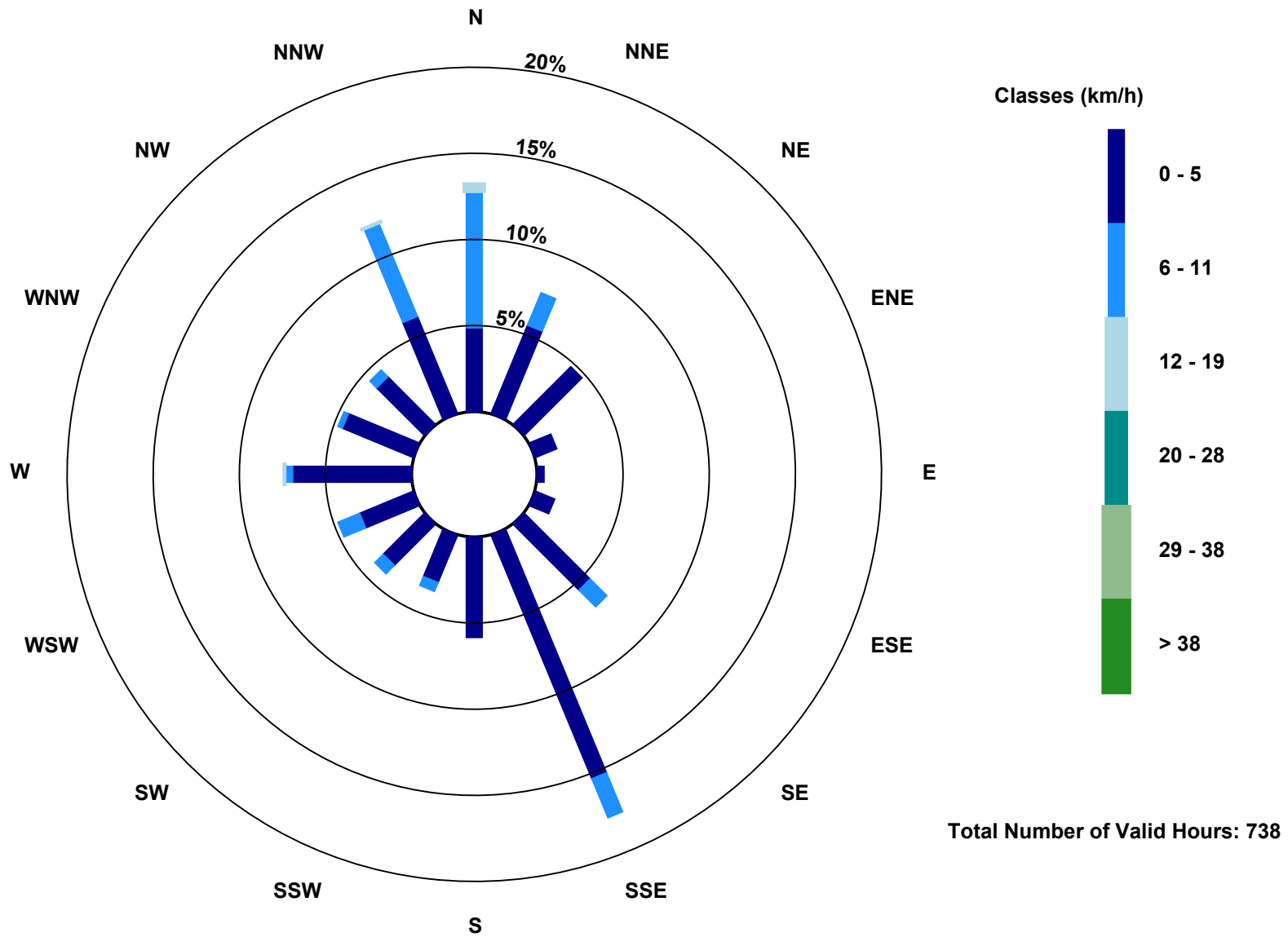
Total Number of Valid Hours: 738

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 5 km/h on Jan 30 16:00	Hours of Data: 738
Minimum Value: 0 km/h on Jan 18 13:00	Hours of Missing Data: 6
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 1 Q <sub>3</sub> = 2 P <sub>90</sub> = 2 P <sub>99</sub> = 4	Hours of Calibration: 0
	Percent Operational Time: 99.2

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

Diurnal Maximum

UO - Unstable Operation



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction (WD) - deg

Waskow ohci Pimatisiwin - January 2024

Direction of Maximum Speed: 350 deg on Jan 4 03:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 358.8 deg on Jan 4	Hours of Data: 738
Direction of Minimum Speed: 146 deg on Jan 12 00:00	Hours of Missing Data: 6
Direction of Minimum Daily Speed Average: 0.6 deg on Jan 11	Percent Operational Time: 99.2
Monthly Average Direction: 349.6 deg	

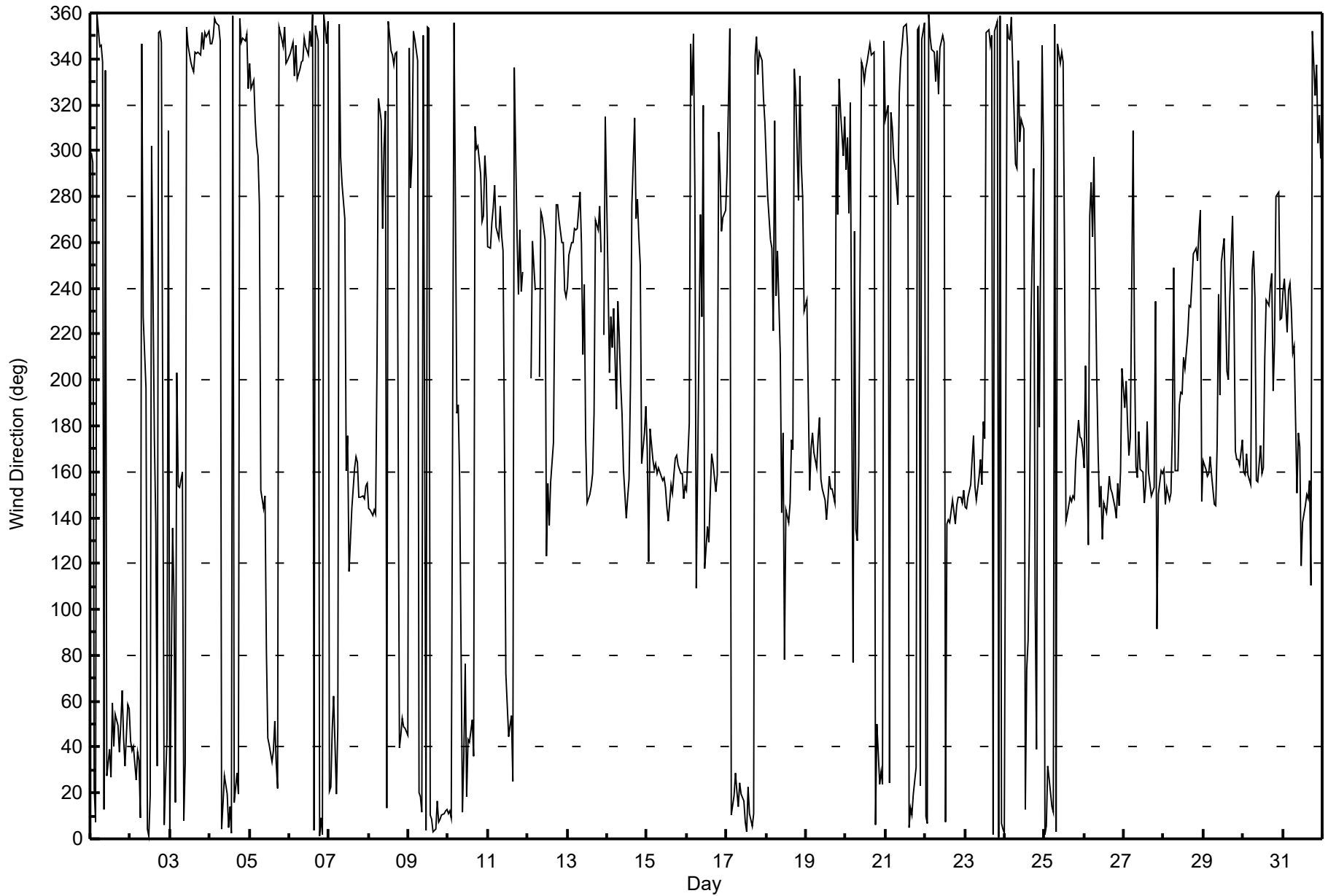
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Jan	299	295	22	7	360	346	346	339	13	335	28	39	27	59	40	54	50	38	50	65	44	32	58	57	14.1
2-Jan	43	38	41	26	38	34	9	347	227	196	5	1	19	302	174	137	32	351	352	347	6	26	44	309	19.4
3-Jan	4	136	105	16	203	154	153	160	8	33	354	346	338	336	334	343	342	343	342	351	344	352	350	352	347.2
4-Jan	347	347	350	358	356	355	348	4	15	27	20	5	14	3	359	16	28	19	357	347	349	348	351	327	358.8
5-Jan	338	327	331	313	303	298	276	152	144	149	82	44	41	34	38	51	33	22	354	349	345	354	338	339	350.5
6-Jan	343	345	347	332	346	331	336	338	339	349	345	341	352	345	360	4	354	348	1	9	2	359	346	356	349.5
7-Jan	21	22	48	62	19	49	355	297	286	270	161	176	117	130	144	161	166	164	149	149	149	148	154	155	126.4
8-Jan	144	144	141	143	142	208	323	313	266	302	318	13	356	343	342	337	342	343	40	45	53	49	48	45	14.2
9-Jan	344	284	298	352	349	339	20	18	11	350	3	354	353	10	8	3	4	16	7	8	10	11	12	13	3.3
10-Jan	11	12	9	356	277	186	189	157	12	37	77	18	43	42	52	36	311	301	302	290	269	272	298	288	11.6
11-Jan	258	257	268	275	285	267	261	276	263	256	172	72	44	50	53	25	336	263	238	265	239	247	UO	146	276.5
12-Jan	UO	UO	201	261	239	UO	UO	201	274	271	261	123	155	137	155	173	239	276	277	270	260	260	239	236	206.3
13-Jan	241	255	260	260	266	265	266	282	259	211	242	175	146	150	154	159	185	269	265	276	256	UO	219	315	216.1
14-Jan	243	203	228	214	231	188	235	218	199	185	161	140	149	157	198	276	314	270	279	263	250	164	177	189	198.1
15-Jan	169	121	179	165	161	164	159	162	160	156	157	153	145	139	154	151	159	166	167	163	159	159	148	153	156.2
16-Jan	152	181	347	324	351	283	109	219	272	227	319	118	136	129	151	168	164	151	159	308	290	265	271	274	235.4
17-Jan	291	321	353	11	19	28	21	14	25	20	17	7	3	23	11	6	11	341	349	333	343	339	323	312	355.9
18-Jan	295	280	261	258	221	313	237	256	211	142	177	78	143	138	147	174	170	335	325	278	332	294	280	230	233.4
19-Jan	235	192	152	170	177	168	162	175	184	157	153	148	139	148	158	153	153	146	319	272	331	317	297	315	160.6
20-Jan	291	306	273	321	77	265	135	130	163	339	336	330	336	339	347	342	343	343	6	50	24	29	24	348	348.7
21-Jan	313	320	25	316	310	296	292	277	325	340	346	354	355	345	5	13	10	19	31	353	354	23	348	356	346.9
22-Jan	10	7	360	349	344	343	330	344	325	345	350	347	7	137	139	138	148	143	137	145	149	149	146	152	74.1
23-Jan	145	144	149	154	165	175	153	148	158	165	155	182	174	352	353	346	350	2	352	356	0	359	6	4	33.4
24-Jan	2	355	349	349	358	338	294	292	339	304	314	309	13	74	87	140	223	292	107	39	241	179	346	300	337.5
25-Jan	2	5	31	26	14	12	355	3	346	338	343	338	255	138	142	149	147	150	148	165	182	175	175	171	61.5
26-Jan	161	206	128	272	286	262	297	202	169	145	154	131	146	142	150	158	152	151	145	140	155	145	160	205	161.0
27-Jan	188	199	181	167	175	309	210	163	157	178	161	160	146	155	182	160	149	152	153	234	92	150	160	159	169.0
28-Jan	161	146	153	148	151	178	249	160	161	189	195	194	210	205	219	232	232	243	255	257	252	265	274	147	219.3
29-Jan	164	161	158	160	166	159	146	145	171	237	194	252	261	231	204	200	236	272	232	169	165	165	163	174	176.9
30-Jan	160	159	168	159	155	248	257	235	156	155	172	159	162	209	235	232	241	246	196	216	280	282	227	227	214.5
31-Jan	239	244	221	239	242	231	212	215	151	177	171	119	138	145	150	148	156	110	352	324	338	303	315	297	211.4

337.4 332.3 356.8 346.1 342.0 325.3 321.0 320.0 343.9 336.0 8.8 18.2 44.3 65.0 84.6 41.8 8.4 343.9 351.7 327.3 339.1 342.7 342.6 331.5

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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744																								
Maximum Value: 109 deg on Jan 24 19:00																			Hours of Data: 738																								
Minimum Value: 8 deg on Jan 12 20:00																			Hours of Missing Data: 6																								
Percentiles: P <sub>1</sub> = 13 P <sub>10</sub> = 19 Q <sub>1</sub> = 22 Median = 27 Q <sub>3</sub> = 44 P <sub>90</sub> = 70 P <sub>99</sub> = 97																			Hours of Calibration: 0																								
																			Percent Operational Time: 99.2																								
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-Jan	74	56	36	24	26	20	20	27	20	21	37	26	28	25	26	17	18	34	24	25	24	23	24	19	74																		
2-Jan	23	25	21	28	37	19	19	55	89	82	42	28	44	70	44	43	37	45	65	33	31	84	23	33	89																		
3-Jan	51	69	36	40	78	40	25	97	28	26	18	16	20	18	18	18	19	19	21	18	20	20	22	97																			
4-Jan	20	18	20	23	22	21	21	24	26	26	26	22	25	24	24	23	24	22	20	20	23	20	24	39	39																		
5-Jan	18	21	18	15	18	25	74	65	56	24	31	54	25	27	28	25	20	23	23	23	18	19	18	19	74																		
6-Jan	21	19	18	16	17	17	16	17	16	18	17	17	22	19	24	25	20	26	26	22	22	24	18	21	26																		
7-Jan	22	22	34	23	24	25	17	13	13	63	54	86	35	29	21	30	23	28	20	24	20	22	20	15	86																		
8-Jan	16	28	37	21	24	53	34	16	15	24	28	27	27	24	28	34	39	29	33	22	23	24	51	26	53																		
9-Jan	26	28	31	18	30	60	55	33	30	20	22	22	24	22	22	22	27	21	23	24	24	23	23	24	60																		
10-Jan	22	27	22	28	64	38	66	48	44	23	23	39	35	26	24	20	50	56	28	30	45	72	56	34	72																		
11-Jan	38	14	45	10	34	19	29	22	24	37	72	86	32	28	20	29	38	12	39	35	53	21	UO	98	98																		
12-Jan	UO	UO	78	37	63	UO	UO	63	28	31	42	56	29	34	36	22	52	24	12	8	12	44	36	54	78																		
13-Jan	49	32	29	46	54	52	33	41	14	55	40	43	30	22	28	25	75	17	31	9	36	UO	53	58	75																		
14-Jan	43	87	82	56	59	82	27	82	63	87	21	23	21	23	70	83	42	12	9	37	60	84	32	78	87																		
15-Jan	50	43	66	27	26	20	17	17	21	20	23	24	25	27	18	15	17	25	48	37	31	27	22	24	66																		
16-Jan	26	71	24	41	55	99	75	87	81	86	82	35	27	40	47	45	30	34	89	83	69	25	27	21	99																		
17-Jan	20	18	36	24	25	25	27	24	24	24	24	21	24	26	22	21	22	25	16	17	18	19	18	21	36																		
18-Jan	31	33	29	82	99	92	35	91	100	41	61	38	31	30	26	20	26	66	88	37	31	87	66	69	100																		
19-Jan	82	35	28	24	60	33	26	57	20	27	23	27	26	29	21	23	23	47	38	79	63	83	96	17	96																		
20-Jan	24	16	26	25	46	74	70	41	60	35	27	20	24	20	23	21	19	20	24	25	24	23	31	20	74																		
21-Jan	15	18	65	95	50	24	28	31	19	20	22	28	25	21	26	24	24	23	27	35	23	33	21	22	95																		
22-Jan	22	25	21	20	18	18	17	20	23	17	22	26	35	47	25	27	25	24	24	20	23	23	22	25	47																		
23-Jan	21	20	19	22	24	32	22	32	20	26	32	41	65	67	21	18	22	22	20	20	22	21	23	22	67																		
24-Jan	22	20	19	19	24	23	28	27	34	26	54	45	74	25	42	72	81	94	109	79	81	66	86	33	109																		
25-Jan	85	22	22	24	22	24	20	22	18	18	22	35	98	40	24	22	21	20	22	25	31	29	29	30	98																		
26-Jan	31	57	92	30	20	36	25	97	54	31	32	42	27	24	23	27	24	21	20	30	22	27	29	67	97																		
27-Jan	35	49	45	28	33	54	73	77	23	64	53	37	28	49	26	26	19	37	51	63	49	29	18	23	77																		
28-Jan	17	24	31	56	53	61	89	51	23	37	77	39	40	46	55	34	29	28	28	26	28	36	48	50	89																		
29-Jan	36	28	31	38	21	28	34	33	90	59	78	93	80	61	58	73	89	68	28	37	25	31	41	76	93																		
30-Jan	27	22	15	20	26	62	79	85	58	103	53	24	25	47	42	44	43	48	39	44	29	37	56	46	103																		
31-Jan	28	32	49	39	37	57	59	49	37	51	89	32	24	23	28	23	39	51	60	81	32	26	25	59	89																		
																			85	87	92	95	99	99	89	97	100	103	89	93	98	70	70	83	89	94	109	83	81	87	96	98	
Diurnal Maximum																																											
UO - Unstable Operation																																											



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS26 CHRISTINA LAKE JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
JANUARY 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	709	35	35	100	13.7	0	3.2	0
H2S (ppb) Average	707	37	37	100	0.9	0	0.4	0
NO2 (ppb) Average	706	38	38	100	24.5	0	10.8	-
NO (ppb) Average	706	38	38	100	39.2	-	6.3	-
NOX (ppb) Average	706	38	38	100	55.8	-	17.1	-
Temperature 2 m (C) Average	744	0	0	100	12	-	6.4	-
Relative Humidity (%) Average	744	0	0	100	96.6	-	91.2	-
Wind Speed 10 m (km/h) Average	740	0	4	99.46	28	-	15	-
Wind Direction 10 m (deg) Average	740	0	4	99.46	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
 JANUARY 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	709	35	35	-	13.7	0	3.2	0	1.2	2.5	13.2
H2S (ppb) Average	707	37	37	-	0.9	0	0.4	0	0.2	0.3	1.1
NO2 (ppb) Average	706	38	38	-	24.5	0	10.8	0	7	10	19.7
NO (ppb) Average	706	38	38	-	39.2	0	6.3	0	2.9	7	31.5
NOX (ppb) Average	706	38	38	-	55.8	0	17.1	0	9.2	16.1	45.2
Temperature 2 m (C) Average	744	0	0	-	12	0	6.4	0	0.1	2.4	6.9
Relative Humidity (%) Average	744	0	0	-	96.6	0	91.2	29	81.9	86.1	94.3
Wind Speed 10 m (km/h) Average	740	0	4	-	28	0	15	0	14	19	32
Wind Direction 10 m (deg) Average	740	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	02 Jan 2024 00:00	02 Jan 2024 03:00	4	Flat line in sensor output signal - Sensor frozen

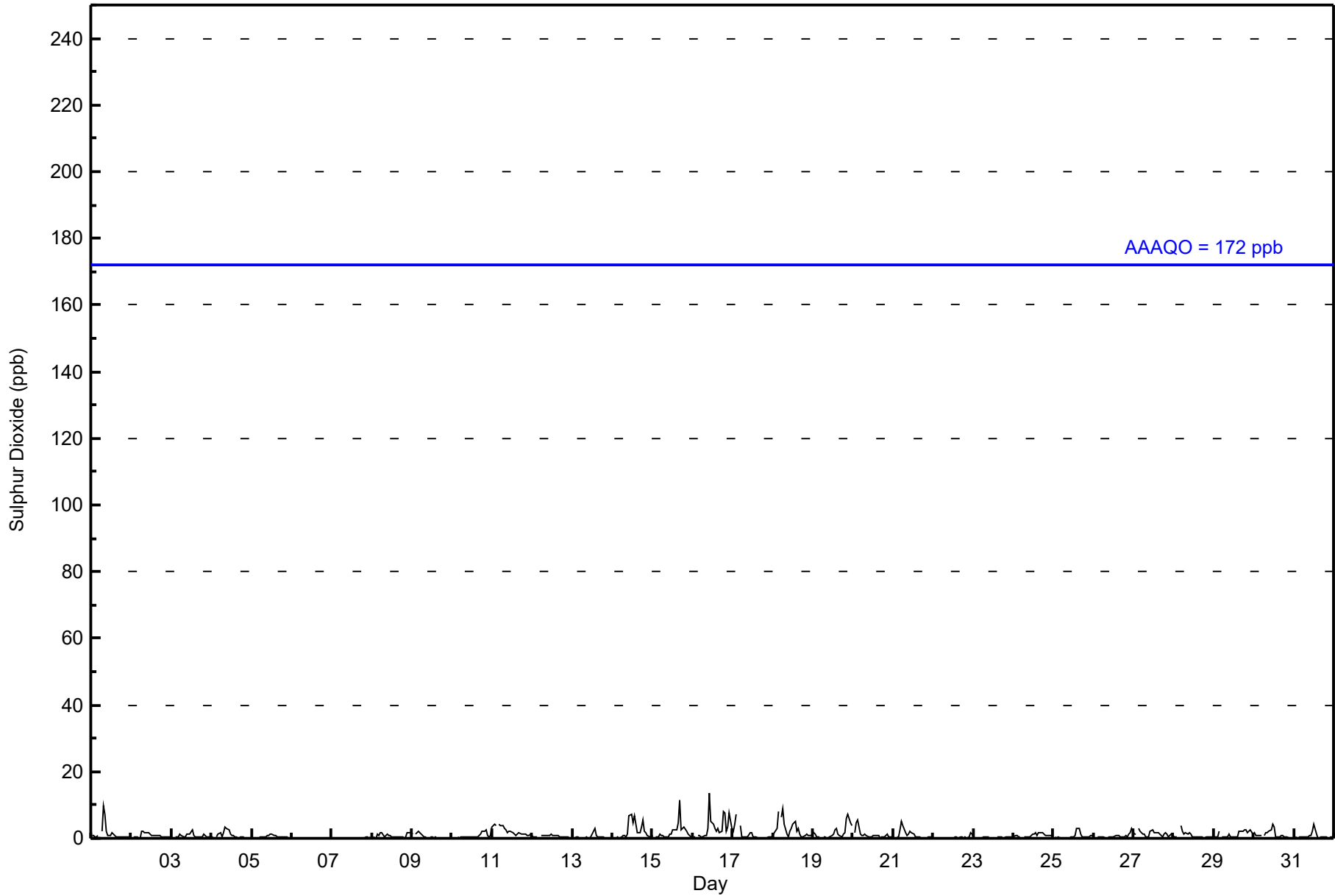


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 13.7 ppb on Jan 16 11:00		Maximum Daily Average: 3.2 ppb on Jan 16																	709							
Minimum Value: 0.0 ppb on Jan 6 07:00		Minimum Daily Average: 0.0 ppb on Jan 6																	35							
Maximum Diurnal Average: 1.7 ppb at hour 11		Minimum Diurnal Average: 0.7 ppb at hour 18																	35							
Monthly Average: 1.07 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.5 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 2.5 P <sub>99</sub> = 7.5																	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-Jan	0.8	0.8	0.5	0.4	0.9	Z	2.2	9.7	7.4	2.2	0.7	0.9	1.8	1.3	0.7	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.5	1.5	9.7
2-Jan	Z	0.1	0.2	0.3	0.1	0.2	2.0	2.3	1.9	1.5	1.8	1.3	1.0	1.0	1.0	0.8	0.7	0.7	0.5	0.5	0.5	0.3	0.3	0.3	0.8	2.3
3-Jan	0.3	Z	0.4	0.6	0.6	1.4	0.7	0.6	0.6	1.2	1.4	1.1	2.7	0.9	0.6	0.4	0.3	0.4	0.5	1.1	0.8	0.4	0.3	0.3	0.8	2.7
4-Jan	0.3	0.1	Z	0.4	1.1	1.7	0.6	1.8	3.5	3.0	2.6	1.2	0.7	0.7	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.9	3.5
5-Jan	0.2	0.2	0.2	Z	0.2	0.3	0.3	0.3	0.6	0.7	0.9	1.2	1.2	0.9	0.7	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.5	1.2
6-Jan	0.2	0.1	0.0	0.1	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	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2
7-Jan	0.1	0.1	0.2	0.1	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.1	0.3	0.1	0.4
8-Jan	Z	0.4	0.2	1.4	0.7	1.8	1.7	0.2	0.7	1.1	0.9	0.8	0.6	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.5	1.7	1.9	1.5	0.8	1.9
9-Jan	1.3	Z	1.3	1.8	1.9	1.3	0.9	0.5	0.4	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	0.1	0.5	1.9
10-Jan	0.2	0.1	Z	0.3	0.2	0.3	0.4	0.6	0.6	0.4	0.5	0.6	0.4	0.5	0.4	0.3	1.0	1.4	1.9	2.3	2.4	0.9	0.4	0.9	0.7	2.4
11-Jan	3.3	4.2	3.9	Z	4.1	3.6	3.7	3.1	2.5	1.8	2.0	2.1	1.7	1.4	1.0	1.2	1.6	1.1	1.4	1.3	1.3	1.0	1.0	1.2	2.2	4.2
12-Jan	0.4	0.4	0.2	0.3	Z	0.9	0.7	1.0	1.0	0.7	0.8	1.1	1.0	1.0	1.0	0.7	0.5	0.5	0.6	0.5	0.4	0.2	0.1	0.1	0.6	1.1
13-Jan	0.1	0.2	0.2	0.3	0.1	Z	0.1	0.0	0.3	0.1	0.2	0.4	1.5	3.0	1.0	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.4	3.0
14-Jan	Z	0.1	0.1	0.4	0.2	0.3	1.0	0.8	0.4	1.3	6.8	7.3	4.8	6.9	4.3	1.6	1.8	3.4	5.6	2.2	1.9	0.9	0.6	0.5	2.3	7.3
15-Jan	0.7	Z	0.5	0.4	1.2	0.7	0.8	0.5	0.4	0.5	1.4	1.2	2.7	2.5	2.4	4.6	11.3	2.7	3.2	3.4	1.9	1.2	0.8	0.5	2.0	11.3
16-Jan	0.4	0.3	Z	1.0	0.7	0.5	0.6	0.7	0.7	2.8	13.7	4.9	4.1	3.0	2.0	2.9	1.8	1.9	8.1	7.7	2.1	3.3	7.5	3.1	3.2	13.7
17-Jan	2.3	4.4	7.2	Z	3.9	0.4	0.2	0.3	0.5	0.3	1.6	1.5	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.6	1.1	7.2
18-Jan	0.6	1.5	2.9	7.9	Z	6.3	8.9	4.1	1.1	0.5	2.3	2.9	4.3	5.3	1.9	3.1	1.1	0.4	0.3	0.9	1.2	0.9	0.9	1.0	2.6	8.9
19-Jan	1.7	1.1	0.6	0.5	0.6	Z	0.4	0.2	0.2	0.2	0.6	0.7	1.4	2.4	3.0	1.4	0.7	0.6	1.3	1.7	5.9	7.3	4.7	3.8	1.8	7.3
20-Jan	Z	1.9	4.8	5.5	1.1	0.7	1.1	1.4	0.7	0.4	0.5	0.5	1.0	0.7	0.9	0.7	0.2	0.3	0.3	0.4	1.3	0.6	0.4	0.5	1.1	5.5
21-Jan	0.4	Z	0.5	0.4	2.6	5.2	3.7	1.5	1.0	1.1	2.2	1.5	1.1	0.4	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.5	1.0	5.2
22-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.4	1.9	1.5	0.3	1.9
23-Jan	0.6	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.4	0.2	C	C	C	C	0.5	0.5	0.3	0.3	0.2	0.4	0.4	0.5	0.5	0.2	0.3	0.6
24-Jan	0.6	0.7	0.7	0.6	0.6	Z	0.3	0.3	0.3	0.3	0.5	1.1	1.3	1.9	0.9	1.6	1.5	1.9	1.2	0.8	0.9	0.8	0.7	0.5	0.9	1.9
25-Jan	Z	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.8	3.1	2.9	1.4	0.5	0.3	0.3	0.3	0.3	0.7	0.7	0.6	3.1
26-Jan	0.5	Z	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.6	0.6	0.5	0.6	1.0	0.9	0.8	0.4	0.2	0.3	0.6	0.3	1.3	1.9	3.0	0.7	3.0
27-Jan	1.2	1.1	Z	2.9	2.2	1.4	1.4	0.5	0.5	0.5	2.3	2.3	1.8	1.6	1.8	1.6	0.9	0.6	1.1	1.5	1.4	0.6	1.2	1.4	1.4	2.9
28-Jan	0.5	0.5	0.4	Z	3.6	1.9	1.4	1.6	1.3	1.8	1.4	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.6	0.5	0.8	3.6
29-Jan	0.2	0.2	0.4	2.0	Z	0.5	0.4	0.3	0.4	1.2	0.6	0.6	0.5	0.5	0.6	2.1	2.2	2.1	2.6	2.5	1.9	2.0	2.6	1.2	1.2	2.6
30-Jan	1.6	0.8	0.8	0.7	0.8	Z	1.0	1.5	1.7	2.1	2.4	4.4	3.3	0.5	0.4	0.4	0.8	0.7	0.5	0.3	0.2	0.2	0.1	0.1	1.1	4.4
31-Jan	Z	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.5	0.8	0.9	2.3	4.1	1.2	0.2	0.2	0.4	0.6	0.4	0.2	0.2	0.1	0.3	0.3	0.6	4.1
																								Diurnal Average		
																								Diurnal Maximum		
																								0.7 0.8 1.0 1.1 1.1 1.2 1.1 1.1 1.0 0.9 1.7 1.5 1.5 1.4 1.0 1.0 1.0 0.7 1.0 1.0 0.9 0.9 1.0 0.8		
																								3.3 4.4 7.2 7.9 4.1 6.3 8.9 9.7 7.4 3.0 13.7 7.3 4.8 6.9 4.3 4.6 11.3 3.4 8.1 7.7 5.9 7.3 7.5 3.8		
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**  
**Christina Lake - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	707	99.72	99.72
11 - 20	2	0.28	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Christina Lake - January 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	16	40	61	45	34	29	26	42	76	82	56	53	30	35	51	28	704
11 - 20	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	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>	16	40	61	45	34	29	26	42	76	83	56	53	30	35	52	28	706

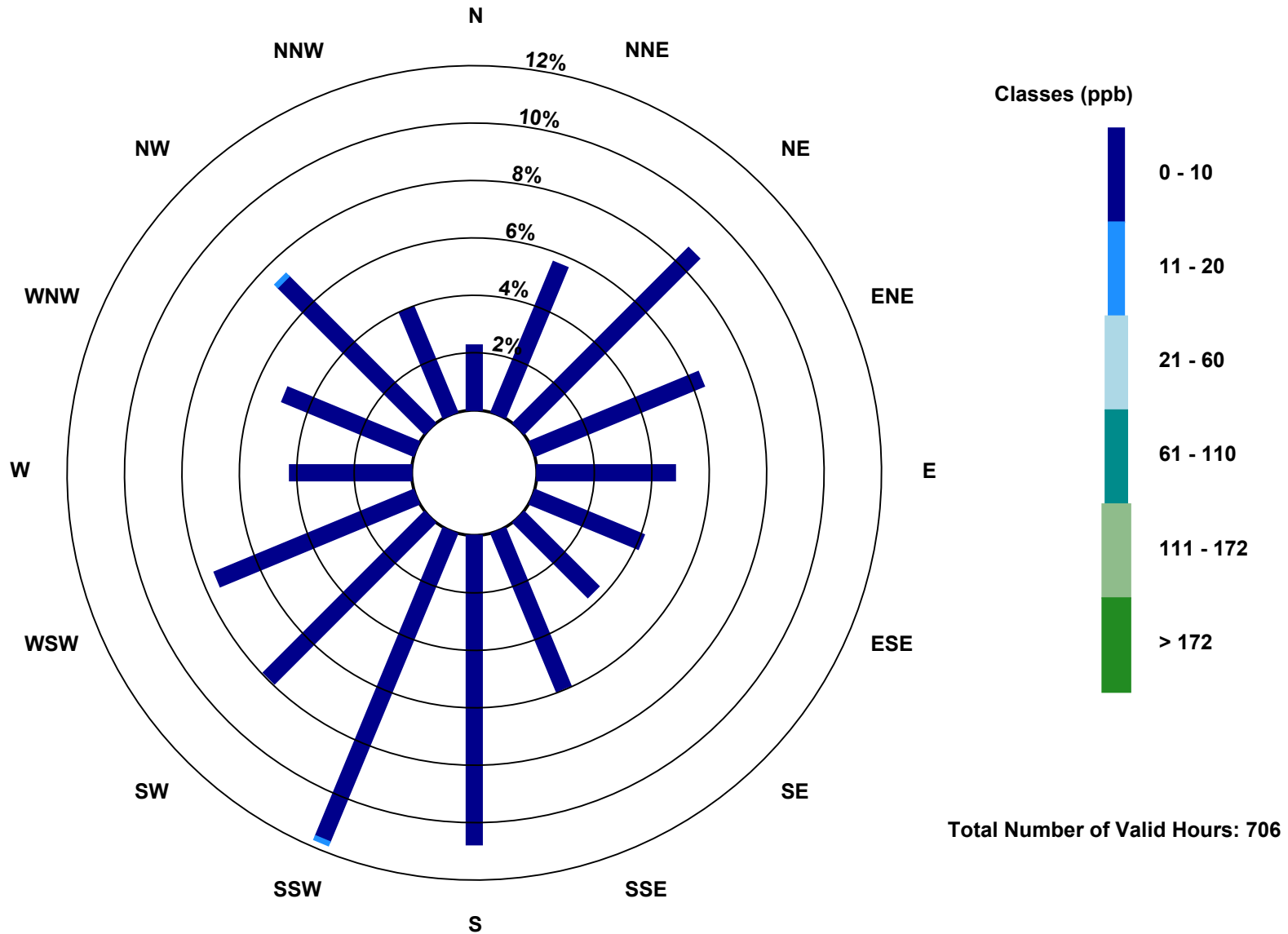
Total Number of Valid Hours: 706

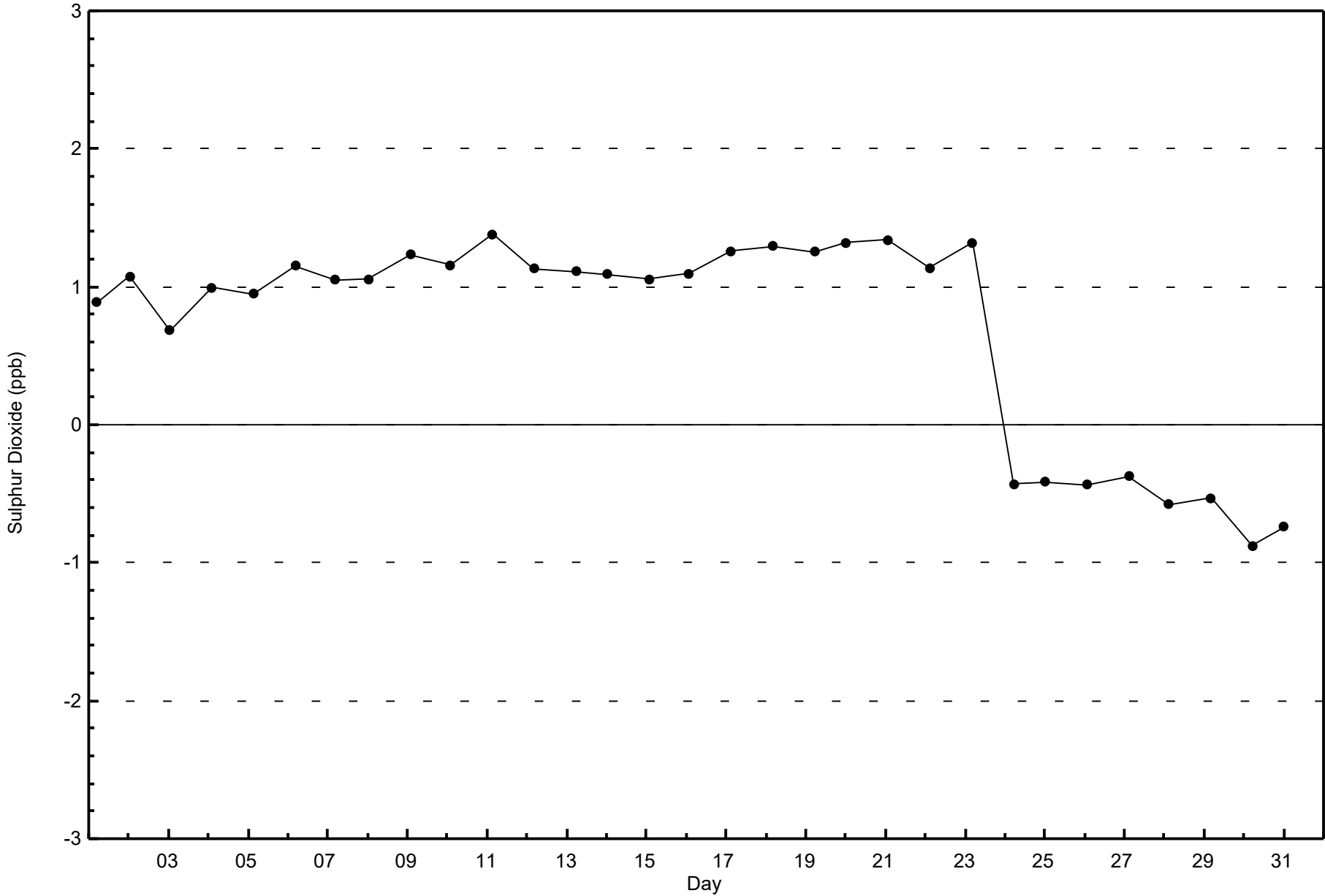
Total Number of Hours: 744



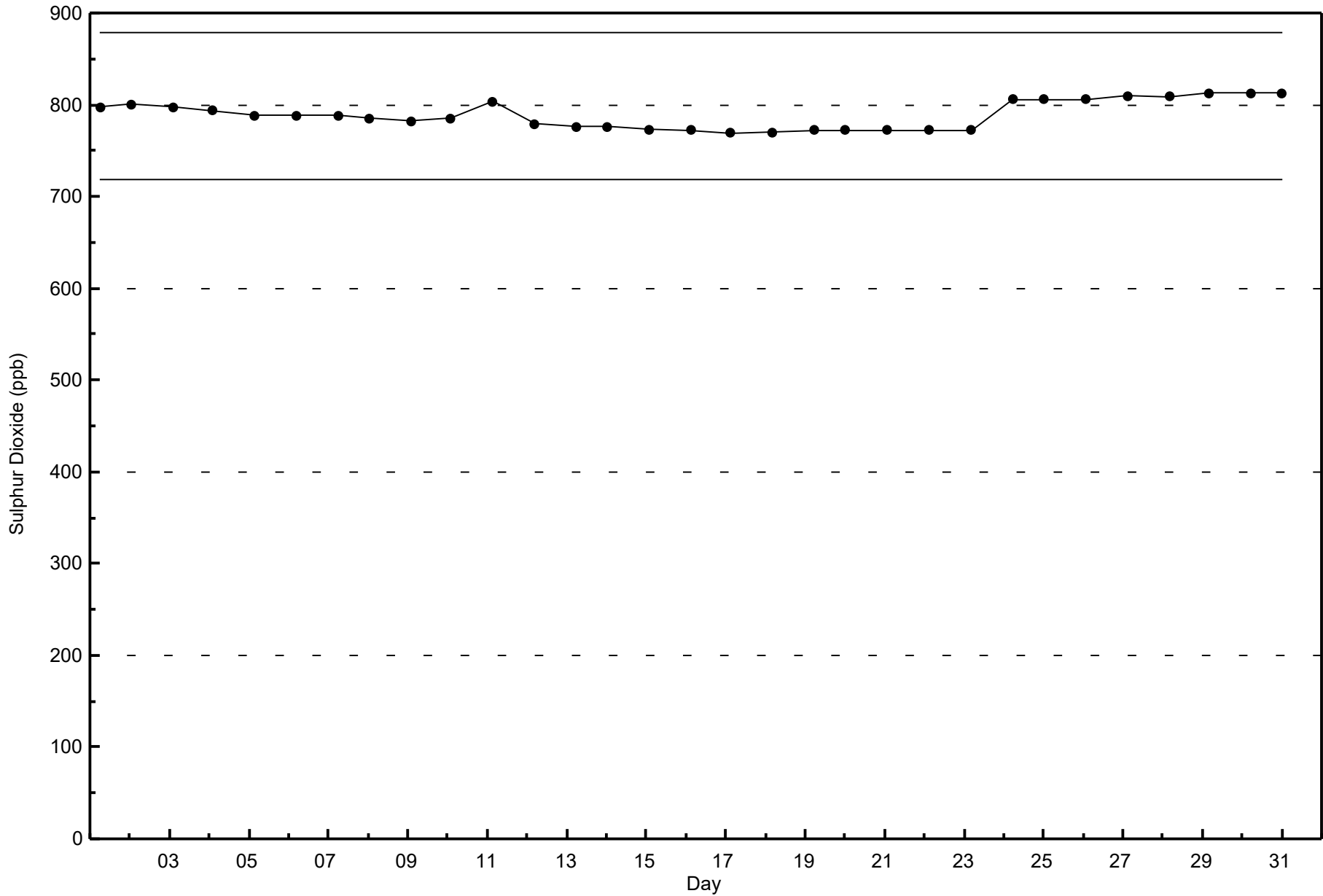
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







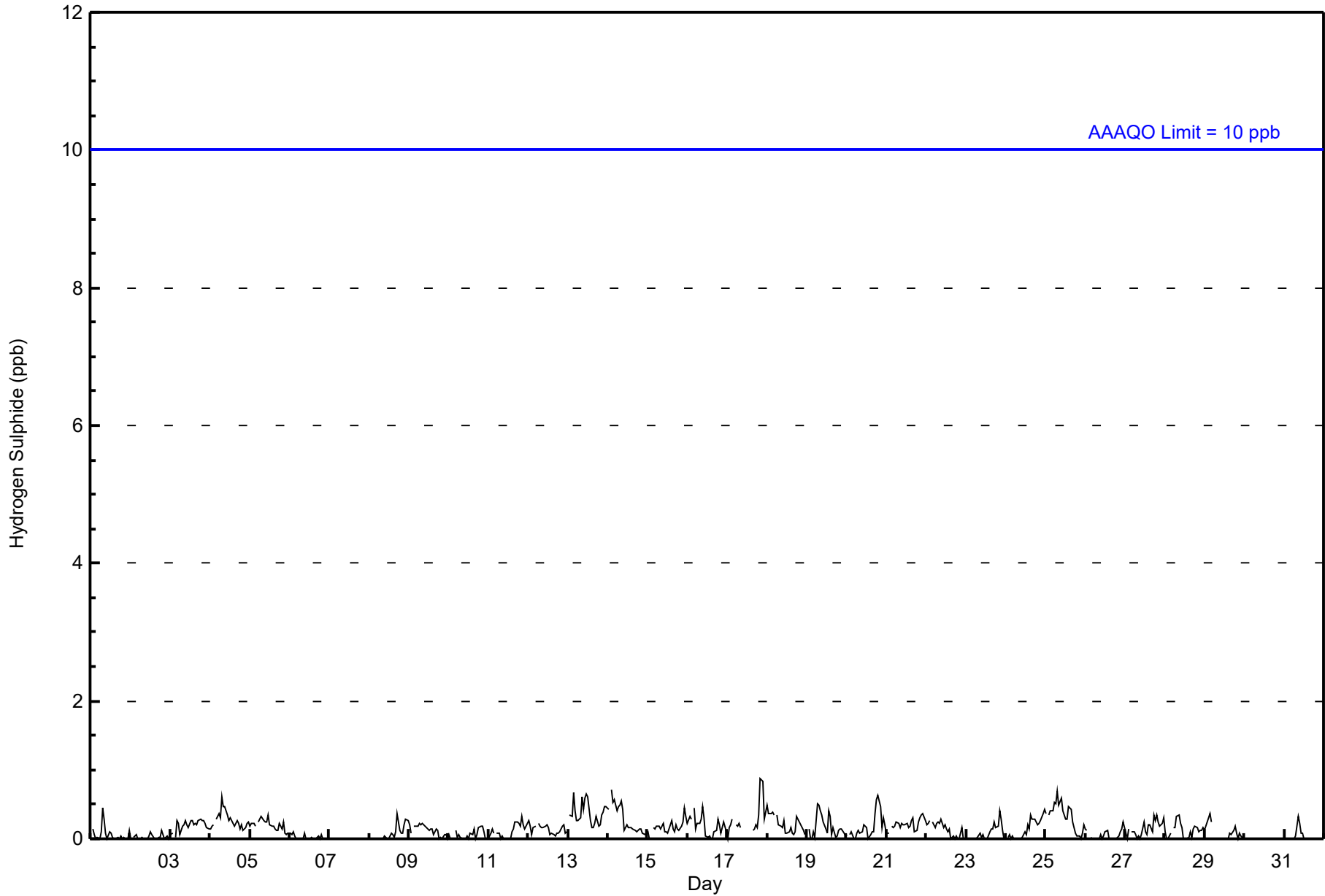






Wood Buffalo Environmental Association  
Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Christina Lake - January 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Christina Lake - January 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	16	37	58	45	33	31	28	41	75	84	58	56	29	35	50	28	704
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>	16	37	58	45	33	31	28	41	75	84	58	56	29	35	50	28	704

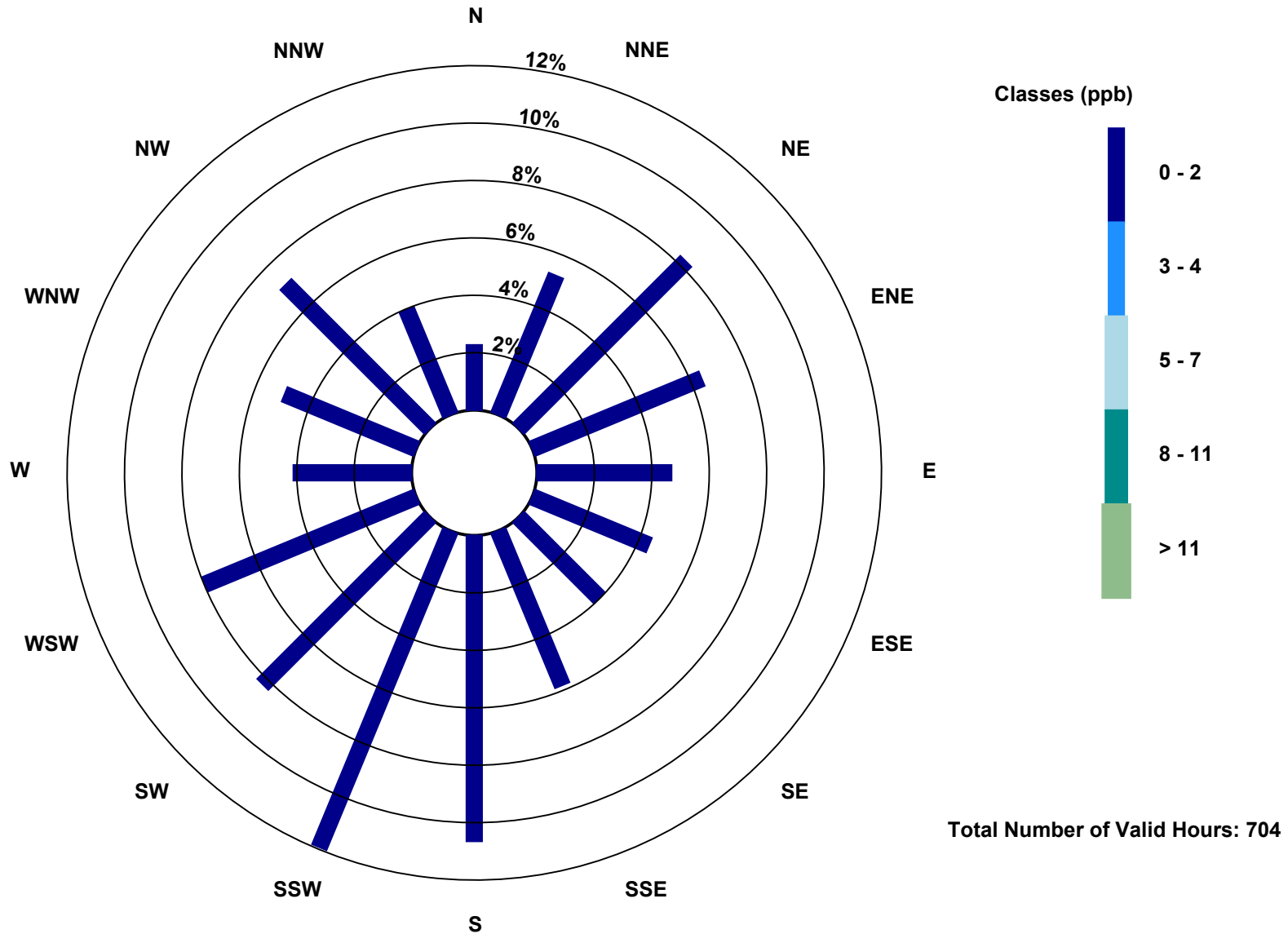
Total Number of Valid Hours: 704

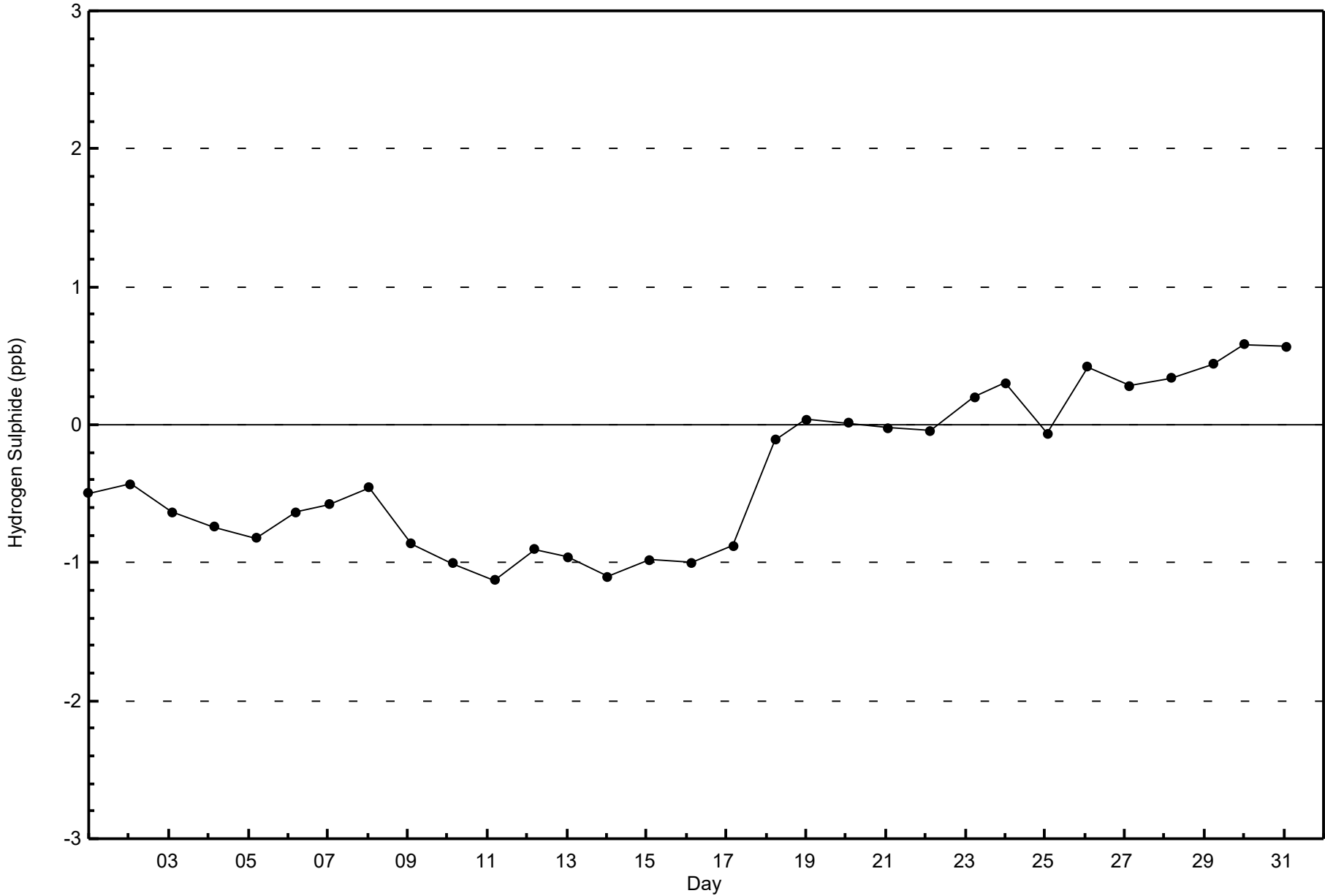
Total Number of Hours: 744

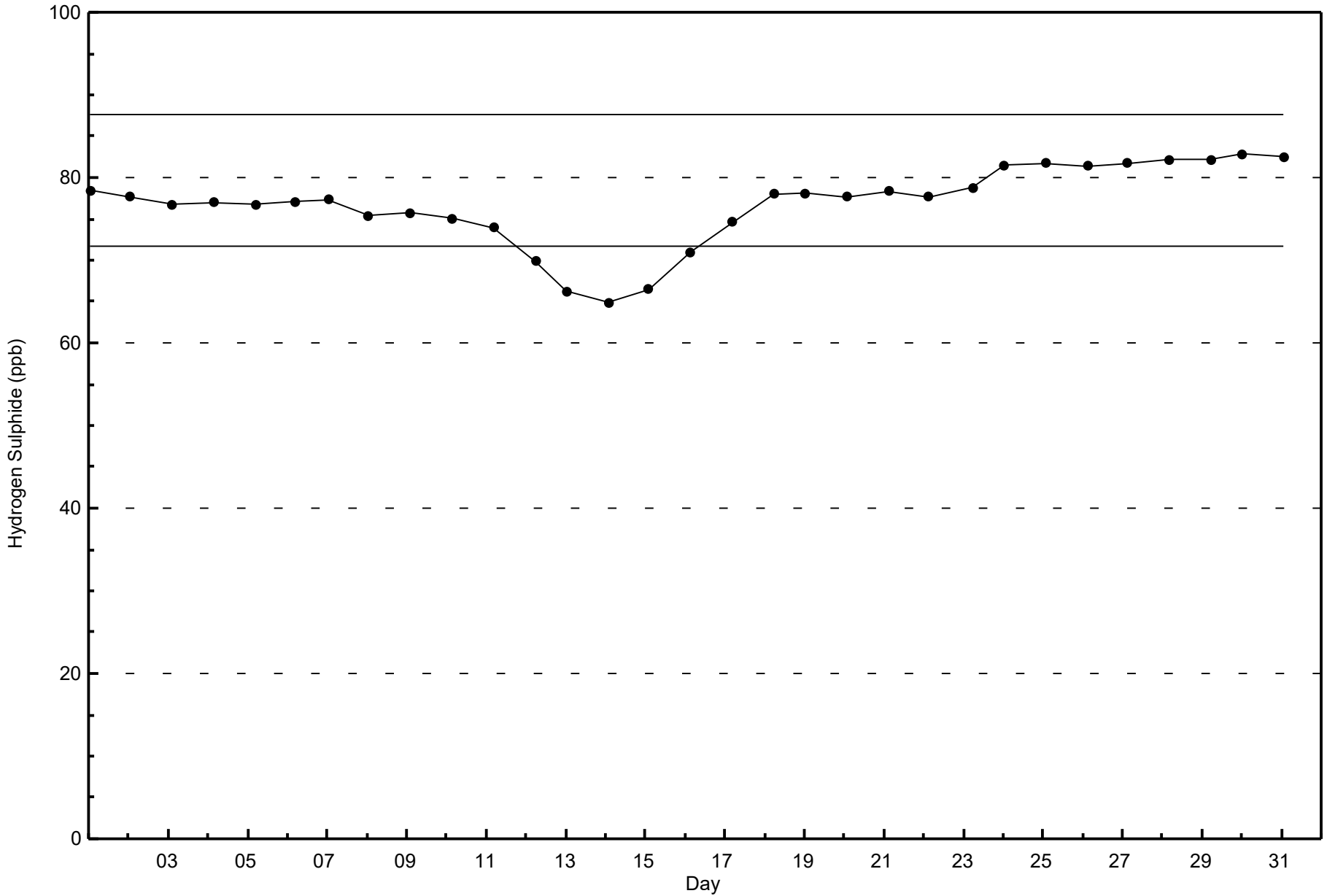


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









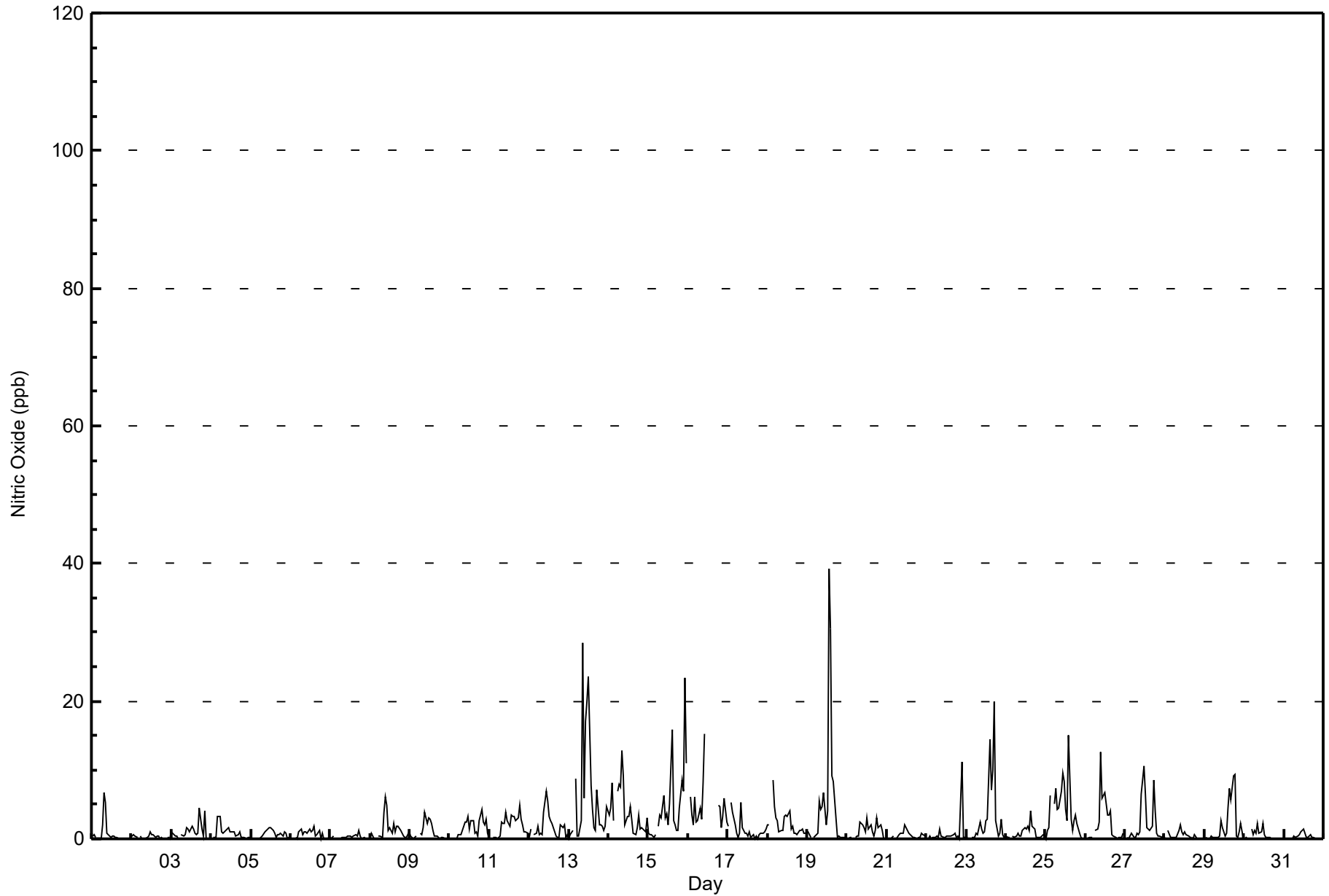


Maximum Value: 39.2 ppb on Jan 19 14:00		Maximum Daily Average: 6.3 ppb on Jan 13		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Jan 5 03:00		Minimum Daily Average: 0.3 ppb on Jan 7		Hours of Data: 706																							
Maximum Diurnal Average: 3.9 ppb at hour 15		Minimum Diurnal Average: 0.5 ppb at hour 1		Hours of Missing Data: 38																							
Monthly Average: 1.87 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.7 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 4.6 P <sub>99</sub> = 17.1		Hours of Calibration: 38																							
				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-Jan	0.4	0.7	0.2	Z	0.0	0.0	2.1	6.6	5.3	0.8	0.7	0.2	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.8	6.6	
2-Jan	0.5	0.5	0.4	0.2	Z	0.4	0.0	0.0	0.0	0.1	0.3	1.0	0.7	0.7	0.3	0.4	0.4	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.3	1.0	
3-Jan	1.0	0.5	0.5	0.3	0.1	Z	0.5	0.4	0.5	1.6	1.4	1.0	1.8	1.4	0.8	0.6	0.9	4.5	1.4	0.4	4.0	0.0	0.1	0.0	1.0	4.5	
4-Jan	Z	0.1	0.2	0.2	3.3	3.2	1.1	0.9	0.9	1.2	1.6	1.1	0.9	1.1	0.9	0.4	0.5	0.9	0.2	0.1	0.1	0.1	0.1	0.2	0.8	3.3	
5-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.5	1.0	1.2	1.4	1.5	1.6	1.2	0.8	0.2	0.5	0.6	0.7	0.3	1.1	0.8	0.1	0.1	0.6	1.6	
6-Jan	0.1	0.1	Z	0.1	0.0	1.0	1.4	0.6	0.9	1.0	0.9	1.4	1.0	1.1	1.7	0.4	0.7	1.2	0.1	0.7	0.1	0.0	0.1	0.4	0.7	1.7	
7-Jan	0.0	0.2	0.3	Z	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.4	0.4	0.3	0.3	0.6	0.5	1.2	0.4	0.1	0.2	0.0	0.0	0.0	0.3	1.2	
8-Jan	0.0	0.7	0.1	0.0	Z	0.3	0.4	0.3	3.9	6.2	4.8	1.2	1.5	0.8	2.3	1.0	1.9	1.8	1.2	0.9	0.4	0.2	0.2	1.0	1.4	6.2	
9-Jan	0.5	0.1	0.1	0.1	0.3	Z	0.7	0.5	1.6	3.9	2.1	3.0	2.9	2.2	1.2	0.5	0.3	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.9	3.9	
10-Jan	Z	0.0	0.0	0.1	0.0	0.6	0.5	0.6	1.9	2.5	2.5	3.2	1.4	2.7	2.6	0.9	1.1	0.4	2.7	4.3	2.4	1.9	2.8	0.7	1.6	4.3	
11-Jan	0.3	Z	0.2	0.1	0.1	0.0	0.3	2.5	2.2	2.3	3.8	2.5	1.8	3.6	3.2	3.2	2.6	3.1	4.9	2.8	2.0	1.1	1.0	0.8	1.9	4.9	
12-Jan	0.3	1.3	Z	0.5	0.8	1.7	0.6	0.7	0.7	3.8	7.0	5.6	3.3	2.6	2.2	1.0	0.4	0.2	0.2	1.9	1.5	2.1	0.2	0.5	1.7	7.0	
13-Jan	0.0	0.6	1.1	Z	8.7	0.3	0.4	2.6	28.4	6.0	17.2	19.9	23.6	7.7	4.3	1.7	1.3	7.1	2.1	2.0	1.7	1.3	1.9	4.6	6.3	28.4	
14-Jan	3.5	4.4	8.1	2.6	Z	6.9	7.9	7.4	12.9	9.3	2.1	3.3	3.3	4.6	2.9	0.9	0.6	1.6	3.5	1.5	1.7	1.5	1.1	3.0	4.1	12.9	
15-Jan	0.8	0.6	0.6	0.1	0.7	Z	1.8	3.5	3.0	6.2	3.0	3.6	2.1	5.1	15.9	2.6	2.1	1.1	1.1	4.4	8.5	6.9	23.5	11.1	4.7	23.5	
16-Jan	Z	6.0	3.5	2.1	6.1	2.4	2.6	4.5	2.9	8.2	15.3	C	C	C	C	C	C	C	4.8	4.6	1.6	3.2	5.9	2.4	--	15.3	
17-Jan	1.9	Z	5.3	3.8	2.0	0.7	0.2	0.9	5.2	1.6	0.7	0.8	0.4	1.0	0.2	0.5	0.0	0.5	0.0	0.6	0.9	0.9	1.1	1.4	1.3	5.3	
18-Jan	2.0	2.1	Z	8.6	4.7	3.1	2.7	1.0	1.1	1.2	3.2	3.5	3.2	4.0	1.4	1.8	0.8	0.7	0.7	1.2	1.2	1.3	0.9	0.9	2.2	8.6	
19-Jan	1.0	0.7	0.3	Z	0.2	0.4	0.9	5.6	4.2	4.8	6.8	2.0	4.1	39.2	30.6	9.1	8.3	2.9	0.3	0.3	0.3	0.3	0.2	0.1	5.3	39.2	
20-Jan	0.0	0.1	0.2	0.2	Z	0.2	0.5	0.3	2.4	1.9	1.6	1.1	3.1	1.4	2.0	1.1	0.4	1.1	3.0	1.6	2.1	1.2	0.1	0.1	1.1	3.1	
21-Jan	0.1	0.0	0.0	0.1	0.3	Z	0.1	0.6	0.9	0.7	0.9	1.9	1.3	0.9	0.6	0.3	0.2	0.1	0.0	0.2	0.2	0.8	0.7	0.3	0.5	1.9	
22-Jan	Z	0.1	0.3	0.1	0.1	0.1	0.5	0.3	1.4	0.4	0.2	0.2	0.5	0.4	0.5	0.3	0.6	0.8	0.2	0.5	0.1	11.2	0.3	0.1	0.8	11.2	
23-Jan	0.2	0.1	Z	0.2	0.3	0.2	0.8	0.6	2.4	1.4	0.7	1.0	2.6	2.8	14.5	7.1	10.0	19.8	2.7	0.3	0.8	2.9	0.6	0.3	3.1	19.8	
24-Jan	0.5	0.2	0.2	Z	0.3	0.3	0.5	0.9	0.4	0.5	1.3	1.7	1.4	1.8	1.3	4.1	1.8	1.4	0.3	0.2	0.1	0.2	0.6	0.6	0.9	4.1	
25-Jan	0.1	1.2	1.5	6.3	Z	5.0	7.4	4.3	4.4	7.0	9.7	8.3	4.3	2.6	15.0	2.9	1.3	2.6	3.5	2.3	0.7	0.3	0.0	0.0	4.0	15.0	
26-Jan	0.1	0.1	0.1	0.2	0.3	Z	1.2	1.3	2.3	12.7	5.8	6.2	6.7	3.4	3.5	4.1	0.6	0.5	0.3	0.1	0.1	0.2	0.2	0.8	2.2	12.7	
27-Jan	Z	0.1	0.1	0.5	0.7	0.2	0.2	0.7	0.7	1.0	6.6	10.6	6.5	1.6	1.4	1.2	1.8	8.6	4.1	0.7	0.5	0.5	0.3	0.7	2.1	10.6	
28-Jan	0.1	Z	1.1	0.2	0.1	0.2	0.3	0.2	1.2	2.1	1.0	0.5	1.0	0.6	0.4	0.3	0.1	0.1	0.5	0.0	0.1	0.1	0.1	0.1	0.4	2.1	
29-Jan	0.0	0.1	Z	0.1	0.4	0.2	0.2	0.2	0.1	0.3	2.7	1.6	0.5	0.7	4.6	7.4	5.8	9.1	9.4	0.3	0.2	1.1	2.3	0.1	2.1	9.4	
30-Jan	0.0	0.1	0.1	Z	1.4	0.6	1.3	0.8	2.3	0.8	0.9	2.3	0.6	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.3	
31-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.3	0.2	0.3	0.6	1.0	1.2	1.3	0.2	0.2	0.5	0.7	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.3	1.3	
		0.5	0.8	0.9	1.1	1.2	1.1	1.2	1.6	3.1	3.0	3.5	3.1	2.8	3.2	3.9	1.8	1.5	2.4	1.6	1.1	1.1	1.3	1.4	1.0	Diurnal Average	
		3.5	6.0	8.1	8.6	8.7	6.9	7.9	7.4	28.4	12.7	17.2	19.9	23.6	39.2	30.6	9.1	10.0	19.8	9.4	4.6	8.5	11.2	23.5	11.1	Diurnal Maximum	
Z - zerospan		C - Calibration																									



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

**Nitric Oxide (NO) - ppb**  
**Christina Lake - January 2024**





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

**Nitric Oxide (NO) - ppb**  
**Christina Lake - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	701	99.29	99.29
21 - 40	5	0.71	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Christina Lake - January 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	16	41	58	43	31	33	27	43	76	78	58	56	30	35	45	27	697
21 - 40	0	0	1	0	1	0	0	0	1	2	0	0	0	0	0	0	5
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>	16	41	59	43	32	33	27	43	77	80	58	56	30	35	45	27	702

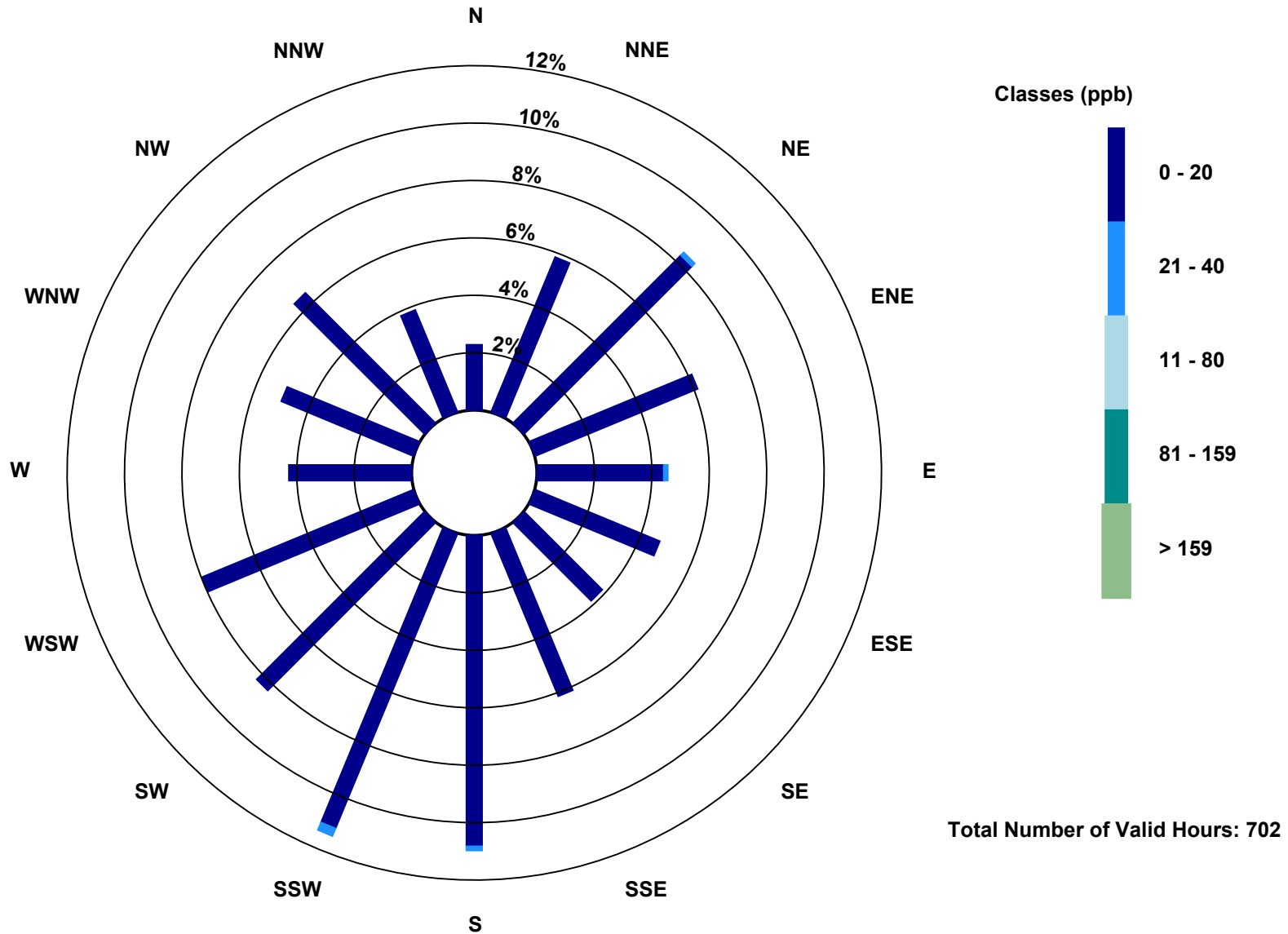
Total Number of Valid Hours: 702

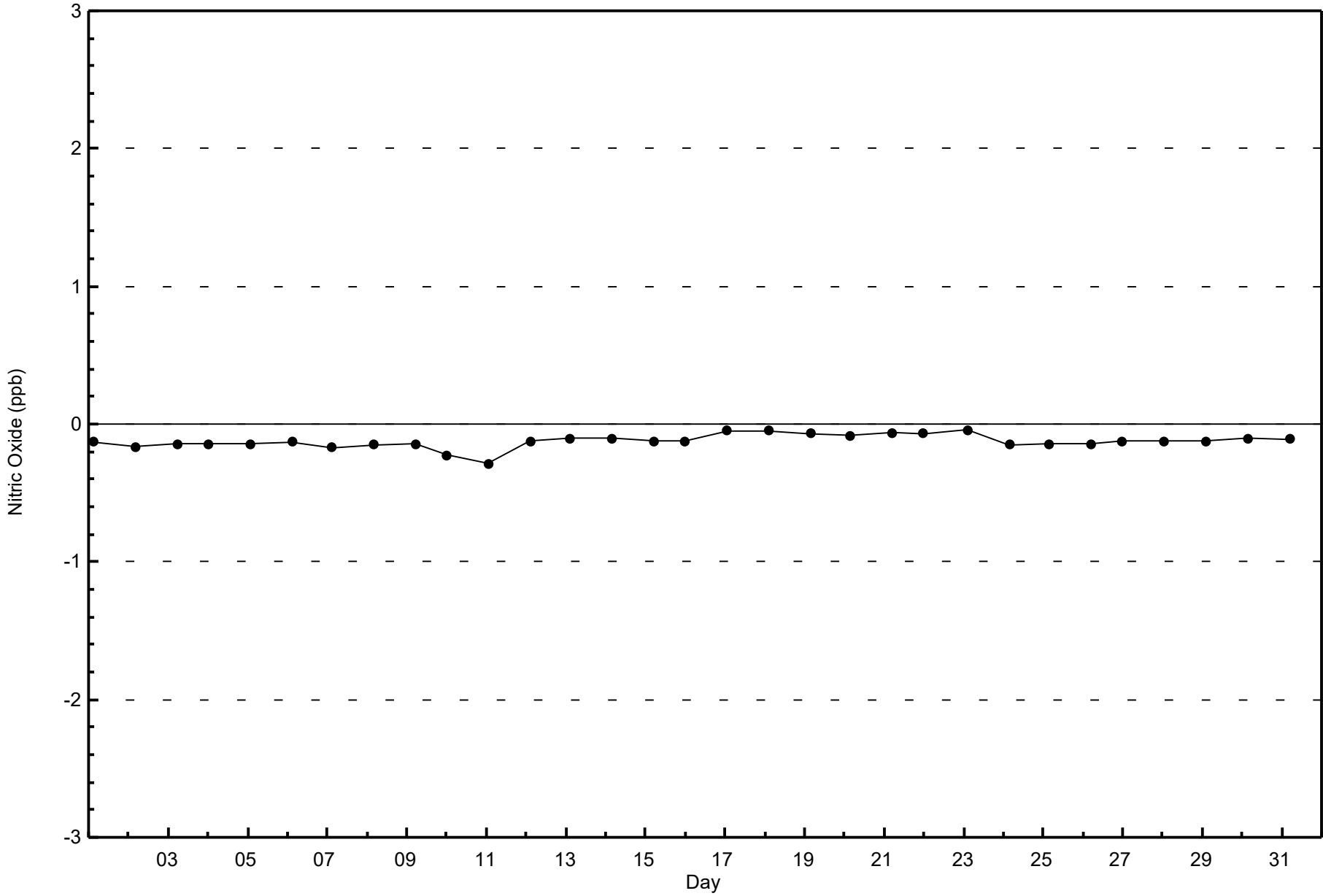
Total Number of Hours: 744

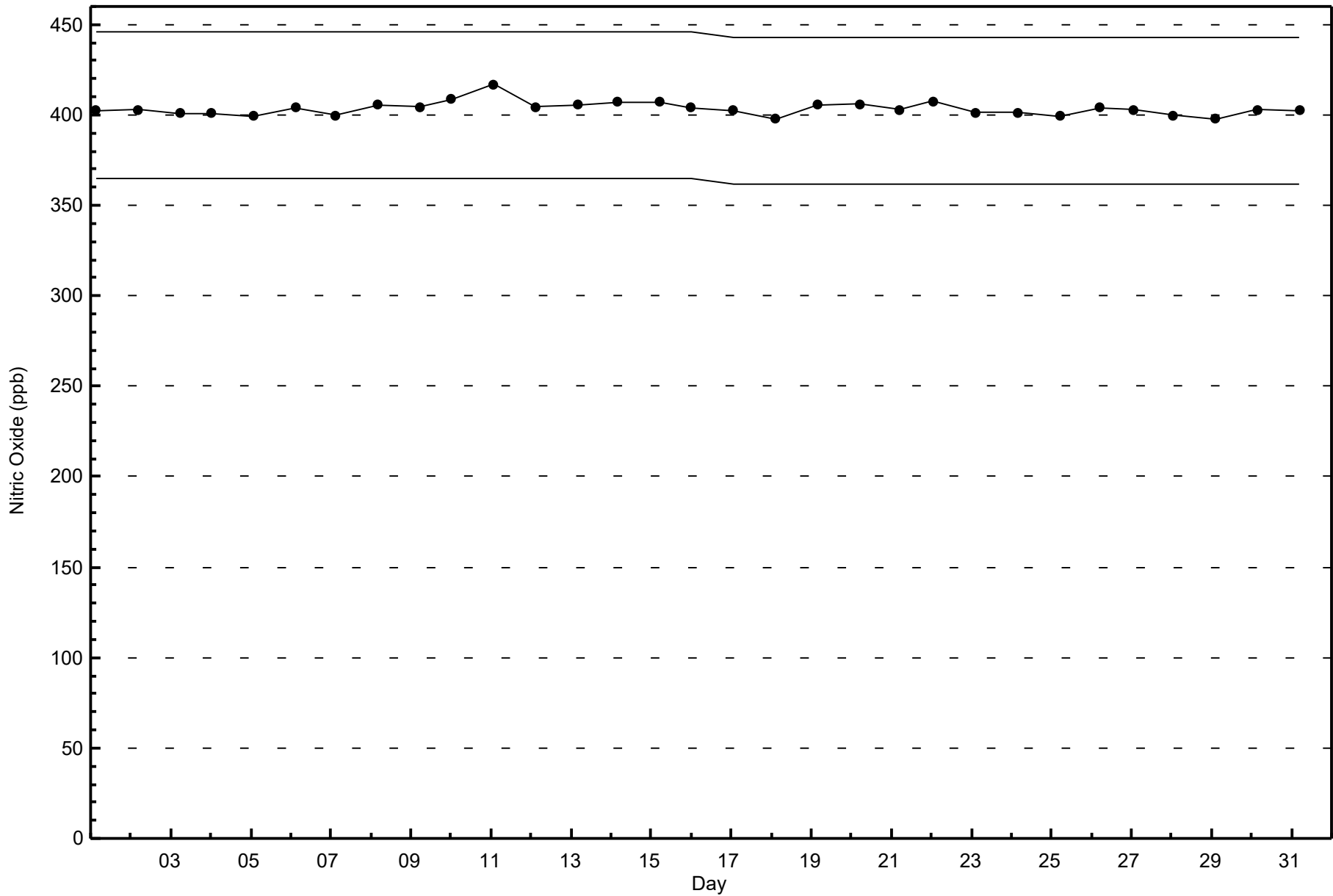


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Christina Lake









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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - January 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 24.5 ppb on Jan 16 07:00	Maximum Daily Average: 10.8 ppb on Jan 13		Hours of Data:	706
Minimum Value: 0.6 ppb on Jan 22 04:00	Minimum Daily Average: 1.6 ppb on Jan 7		Hours of Missing Data:	38
Maximum Diurnal Average: 7.5 ppb at hour 9	Minimum Diurnal Average: 4.4 ppb at hour 16		Hours of Calibration:	38
Monthly Average: 5.47 ppb	Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 2.8 Median = 4.5 Q <sub>3</sub> = 7.1 P <sub>90</sub> = 10.4 P <sub>99</sub> = 21.2		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Jan	3.3	4.1	1.9	Z	2.4	3.1	5.9	12.7	8.5	1.8	3.1	2.8	4.8	3.9	3.0	2.5	2.4	2.8	2.6	2.1	1.7	1.5	3.5	4.7	3.7	12.7																							
2-Jan	3.9	1.8	1.3	0.7	Z	2.1	3.2	3.8	3.1	2.6	3.6	4.4	4.1	4.1	3.6	3.0	2.8	1.7	1.8	1.1	1.0	1.2	1.1	0.8	2.5	4.4																							
3-Jan	1.1	1.1	1.6	2.3	2.4	Z	3.0	3.1	3.1	6.0	5.5	4.3	7.2	5.5	5.3	4.9	4.8	5.0	6.4	6.2	6.5	3.5	2.6	2.6	4.1	7.2																							
4-Jan	Z	2.8	3.9	3.9	5.7	5.2	8.1	16.9	13.9	9.2	8.1	4.2	3.1	4.0	5.5	3.6	2.7	4.6	1.3	1.2	1.2	2.6	2.5	1.6	5.0	16.9																							
5-Jan	0.9	Z	0.8	0.7	0.7	1.5	2.2	3.6	3.6	3.8	3.4	3.2	3.4	3.1	3.3	2.7	4.5	4.6	5.0	4.2	3.5	3.8	2.9	2.9	3.0	5.0																							
6-Jan	2.7	3.1	Z	2.4	2.3	5.5	5.8	4.2	4.0	3.6	2.8	2.9	2.7	3.7	4.5	2.0	3.5	5.4	1.2	3.8	1.2	1.1	1.3	1.2	3.1	5.8																							
7-Jan	0.9	2.6	3.5	Z	2.0	1.8	2.0	1.5	1.2	2.1	2.1	0.9	0.9	1.0	0.9	1.5	1.7	2.8	1.8	1.1	1.4	1.3	0.8	1.4	1.6	3.5																							
8-Jan	1.6	3.2	2.3	4.0	Z	4.8	4.8	3.1	5.4	6.9	5.2	3.7	3.0	2.6	3.5	2.4	3.7	3.8	3.0	2.9	3.3	6.4	7.9	12.2	4.3	12.2																							
9-Jan	10.7	3.3	3.4	4.2	4.8	Z	6.9	7.5	7.7	9.8	5.5	5.1	3.9	3.5	3.4	2.3	1.5	1.6	1.4	1.1	1.0	0.9	0.8	1.3	4.0	10.7																							
10-Jan	Z	1.1	1.5	1.5	1.7	3.1	3.9	4.9	5.4	4.8	4.3	4.1	2.6	4.3	5.0	3.8	4.0	4.0	7.2	8.2	6.7	4.5	4.4	5.0	4.2	8.2																							
11-Jan	12.1	Z	15.0	13.0	10.6	7.1	9.1	9.4	8.3	7.3	6.1	4.7	3.4	4.9	5.0	5.3	5.8	4.8	5.8	5.3	4.1	3.6	3.3	3.0	6.8	15.0																							
12-Jan	2.1	4.7	Z	8.7	8.5	5.2	6.6	9.8	7.1	9.1	11.4	7.7	5.7	4.5	4.8	5.0	5.3	4.2	5.0	13.0	11.3	6.3	3.2	3.2	6.6	13.0																							
13-Jan	2.6	3.1	4.1	Z	17.0	3.2	4.9	11.0	23.6	9.6	13.0	13.4	16.4	11.5	8.6	4.6	9.1	15.0	11.6	10.7	10.0	11.7	15.1	18.3	10.8	23.6																							
14-Jan	16.7	16.0	18.4	14.7	Z	18.1	21.2	18.9	18.0	12.7	6.1	5.7	5.8	7.2	5.0	3.7	3.2	4.9	7.2	5.5	6.1	8.1	3.9	8.1	10.2	21.2																							
15-Jan	8.3	6.6	7.3	3.9	4.9	Z	5.7	5.8	7.9	6.4	5.1	6.2	3.8	5.9	10.4	10.3	14.7	15.7	9.7	11.3	14.6	19.2	21.4	22.8	9.9	22.8																							
16-Jan	Z	15.5	16.8	17.9	22.2	21.5	24.5	21.6	13.8	13.4	12.9	C	C	C	C	C	C	C	8.1	9.1	4.7	6.0	9.5	4.8	--	24.5																							
17-Jan	5.2	Z	8.3	6.6	4.6	2.2	1.2	2.0	7.4	3.5	3.5	3.0	1.6	2.4	1.4	2.3	1.3	4.3	0.8	2.6	3.9	3.1	4.5	6.8	3.6	8.3																							
18-Jan	7.4	8.1	Z	13.9	8.3	6.9	9.5	7.4	6.2	5.1	5.4	4.6	4.1	4.7	2.5	2.7	1.9	3.2	3.5	3.9	3.6	4.1	3.1	3.5	5.4	13.9																							
19-Jan	3.5	3.6	3.2	Z	4.8	4.8	8.1	12.6	10.7	9.3	8.1	2.8	4.5	16.6	13.1	6.1	10.3	6.1	3.8	5.7	10.4	10.1	6.9	5.4	7.4	16.6																							
20-Jan	3.2	3.7	7.0	7.6	Z	3.5	5.3	4.4	6.7	7.8	5.6	3.3	3.3	3.6	4.6	4.4	4.6	7.8	8.4	6.6	7.0	4.7	3.0	4.7	5.3	8.4																							
21-Jan	4.5	3.5	3.9	4.1	7.2	Z	8.5	7.1	8.1	5.5	5.2	5.6	3.7	2.4	2.1	1.6	3.0	3.2	2.0	3.3	2.7	6.5	7.1	5.4	4.6	8.5																							
22-Jan	Z	1.3	0.9	0.6	1.0	0.9	2.4	1.3	2.4	0.9	0.7	1.1	1.5	1.9	2.4	2.0	2.1	2.6	1.8	3.2	3.4	8.8	5.8	3.6	2.3	8.8																							
23-Jan	2.4	2.1	Z	2.4	2.7	2.7	3.7	3.5	7.0	4.0	2.8	3.1	4.1	4.3	9.7	8.2	12.2	20.6	15.8	9.0	6.5	7.9	5.0	4.4	6.3	20.6																							
24-Jan	4.9	4.4	4.3	Z	4.3	3.7	4.7	3.2	2.8	3.4	4.3	4.6	4.8	5.9	5.6	7.3	8.2	9.0	7.0	6.2	5.7	6.4	7.1	7.3	5.4	9.0																							
25-Jan	6.0	5.7	7.3	8.4	Z	8.9	10.3	9.9	9.1	12.5	13.9	12.4	8.9	7.3	13.0	10.1	8.6	7.7	8.5	7.6	6.0	5.6	6.1	6.9	8.7	13.9																							
26-Jan	6.5	7.8	8.4	8.1	9.2	Z	11.9	11.2	11.4	12.1	9.5	6.6	6.3	6.3	8.2	9.7	6.1	5.3	4.4	3.8	3.8	5.3	5.9	8.2	7.7	12.1																							
27-Jan	Z	7.2	7.7	10.3	8.7	7.0	6.0	4.1	4.8	5.4	8.1	8.7	7.6	5.0	5.4	6.4	6.1	10.4	7.6	7.5	5.8	4.6	5.0	8.3	6.9	10.4																							
28-Jan	3.6	Z	4.4	4.5	6.5	4.4	4.9	5.1	6.4	6.7	5.4	3.5	3.3	2.7	2.2	2.4	2.9	3.9	6.1	2.3	2.0	2.2	2.7	2.6	3.9	6.7																							
29-Jan	1.8	1.6	Z	3.9	5.4	1.8	2.1	0.9	1.2	2.4	3.7	2.8	2.3	2.5	6.3	8.4	8.7	12.2	12.1	6.5	5.0	6.0	7.0	4.6	4.7	12.2																							
30-Jan	5.0	4.1	4.4	Z	7.3	6.5	8.2	8.6	9.8	5.3	5.3	5.2	3.0	1.2	1.1	1.1	1.4	1.6	1.1	1.0	1.1	1.2	1.5	0.9	3.7	9.8																							
31-Jan	1.0	1.0	1.2	2.5	Z	3.1	3.2	6.6	4.3	3.6	3.2	3.4	4.1	1.3	0.7	1.6	3.0	3.9	2.1	1.3	1.2	1.1	1.1	1.4	2.4	6.6																							
																								4.7	4.6	5.5	6.0	6.2	5.3	6.7	7.3	7.5	6.3	5.9	4.8	4.5	4.6	5.0	4.4	5.0	6.1	5.3	5.1	4.7	5.1	5.0	5.4	Diurnal Average	
																								16.7	16.0	18.4	17.9	22.2	21.5	24.5	21.6	23.6	13.4	13.9	13.4	16.4	16.6	13.1	10.3	14.7	20.6	15.8	13.0	14.6	19.2	21.4	22.8	Diurnal Maximum	

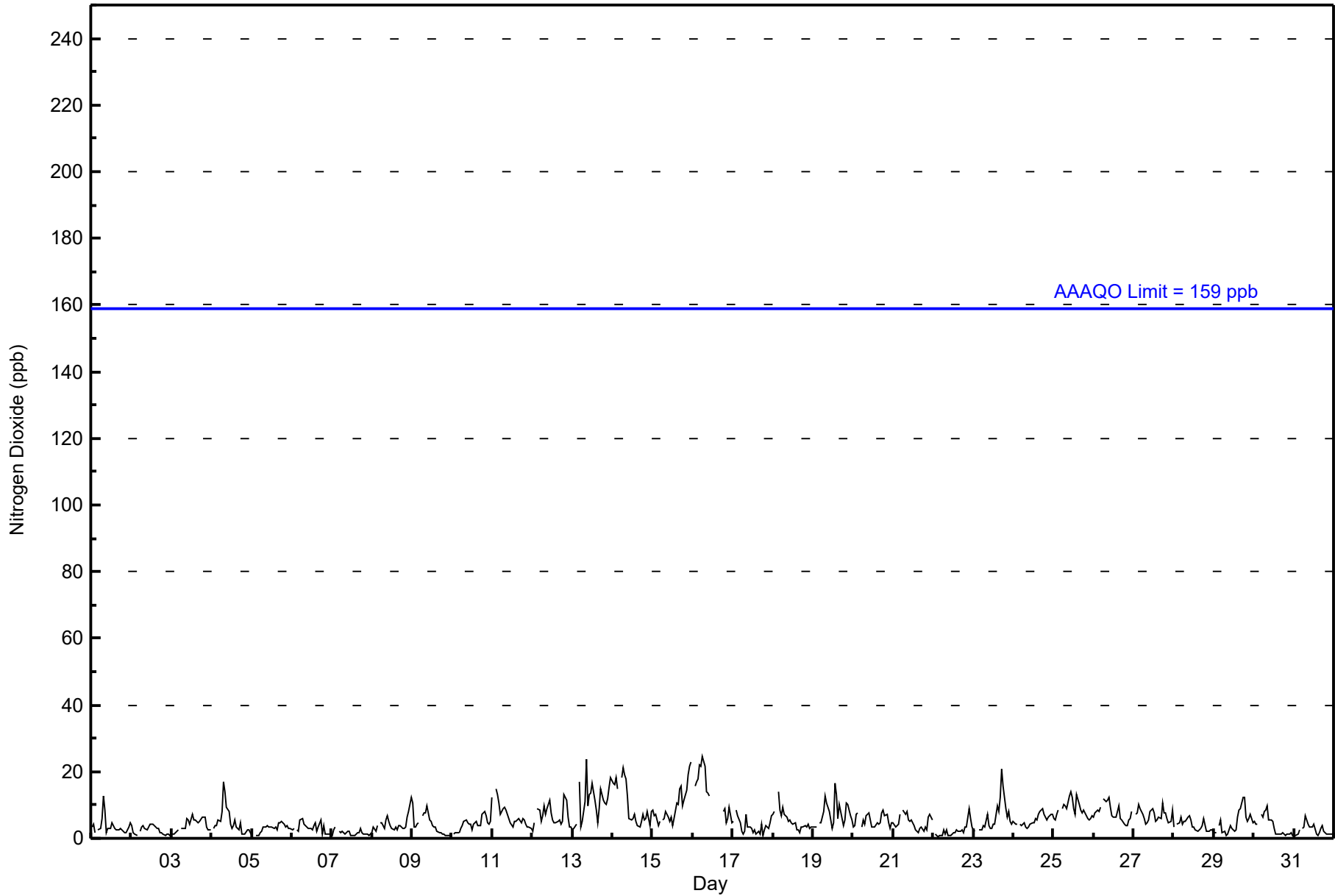
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - January 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	697	98.73	98.73
21 - 40	9	1.27	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Christina Lake - January 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	16	41	59	43	29	33	27	42	75	80	58	54	30	35	44	27	693
21 - 40	0	0	0	0	3	0	0	1	2	0	0	2	0	0	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>	16	41	59	43	32	33	27	43	77	80	58	56	30	35	45	27	702

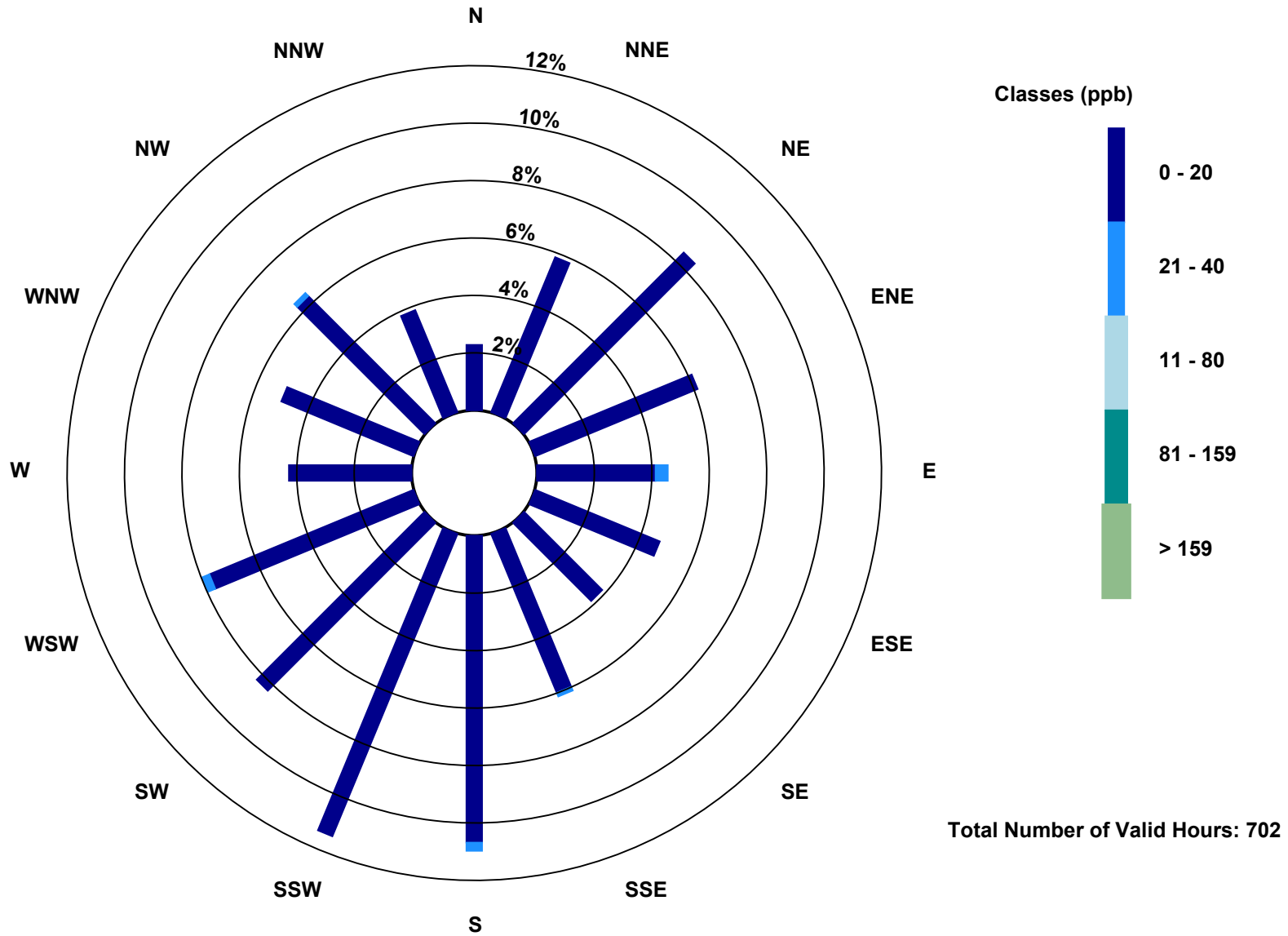
Total Number of Valid Hours: 702

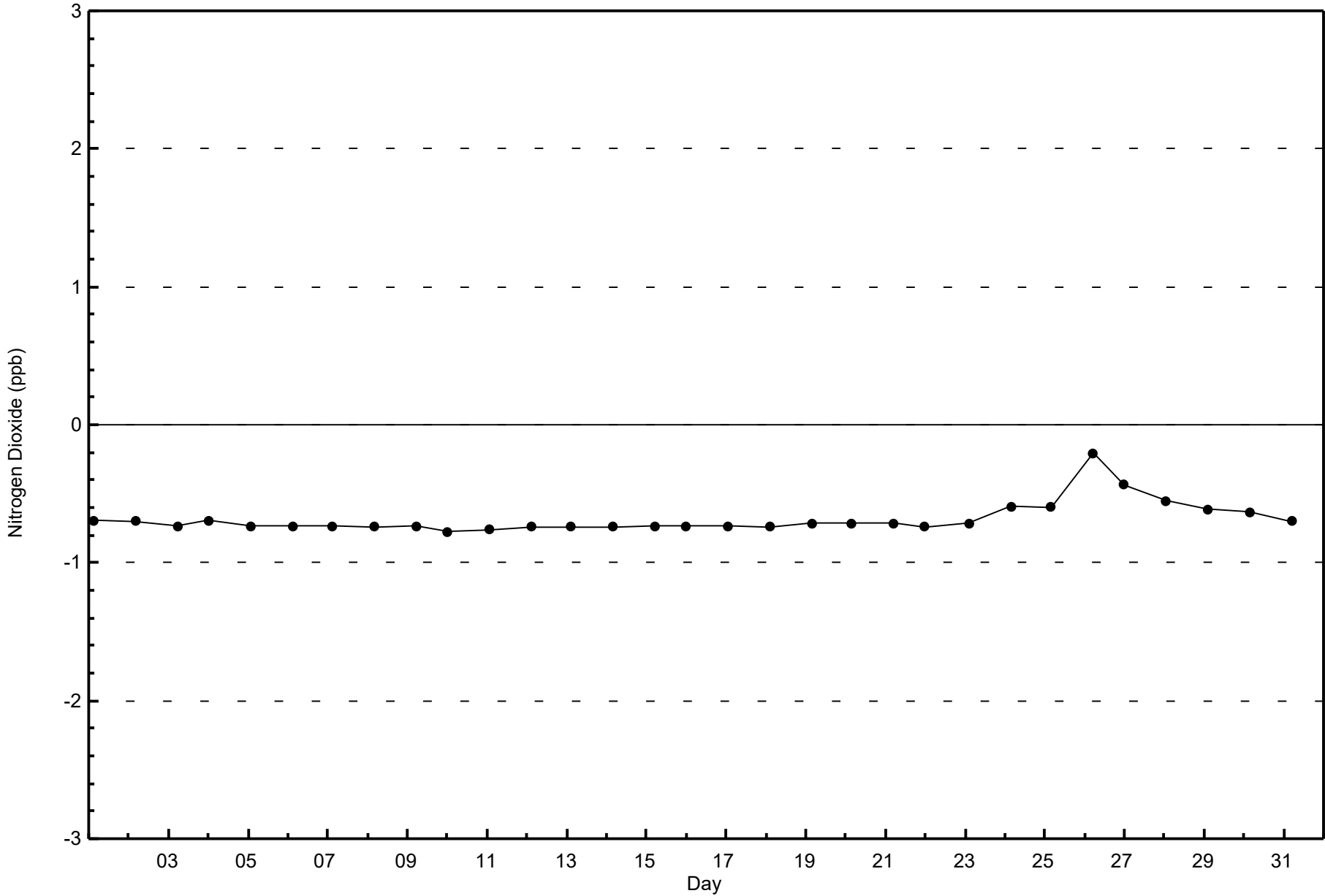
Total Number of Hours: 744

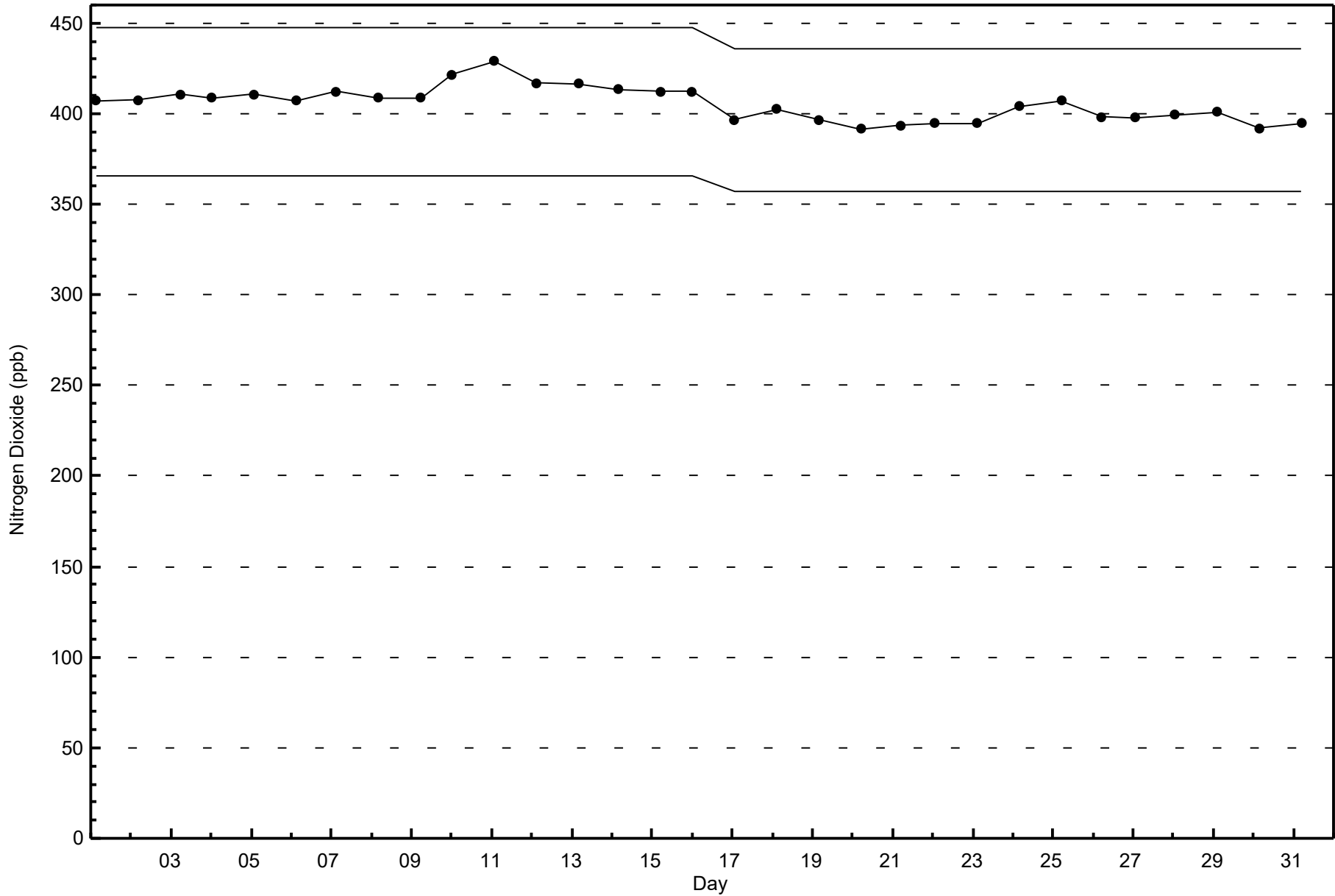


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









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

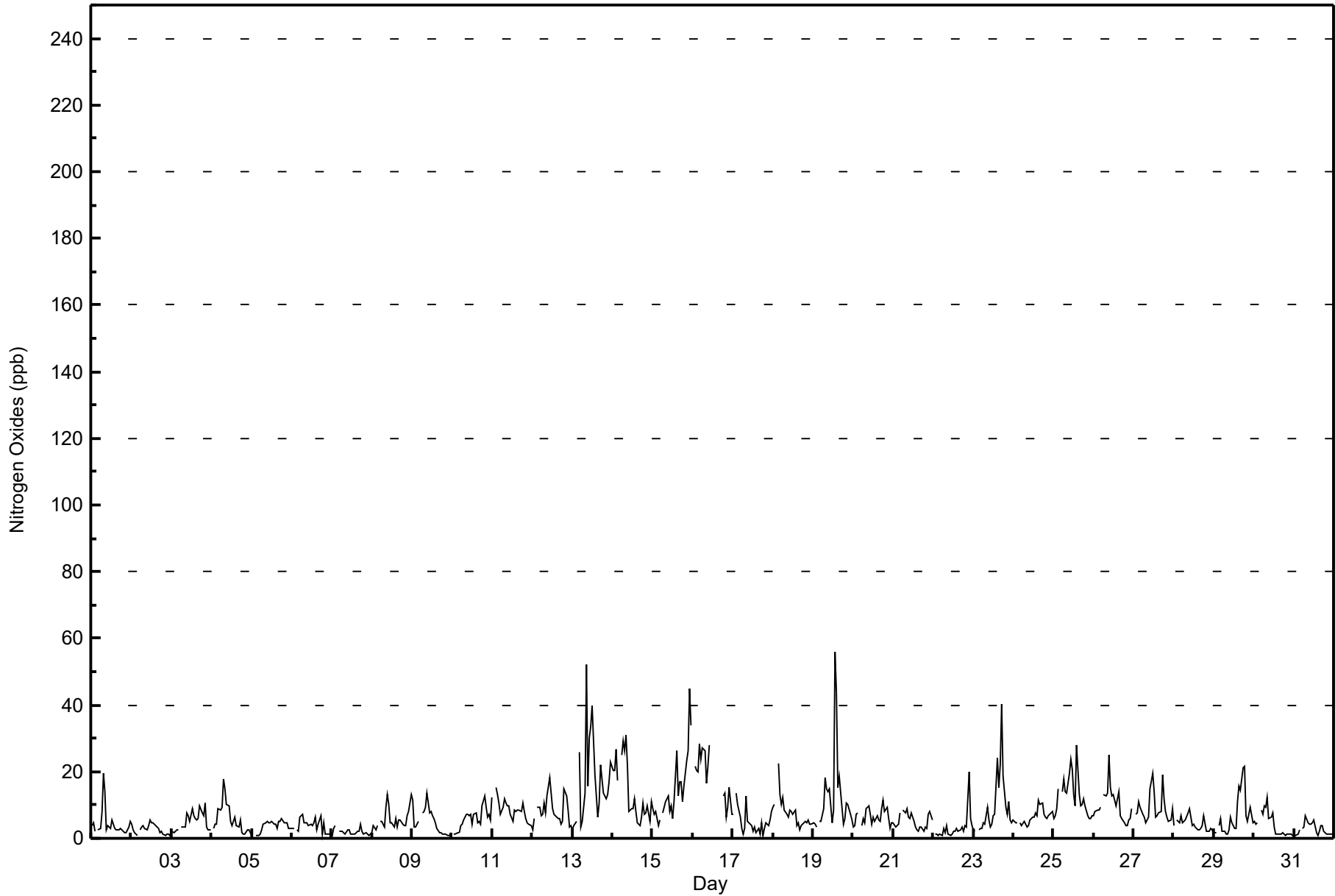
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - January 2024**

Maximum Value: 55.8 ppb on Jan 19 14:00																						Maximum Daily Average: 17.1 ppb on Jan 13																						Hours in Service: 744					
Minimum Value: 0.7 ppb on Jan 5 04:00																						Minimum Daily Average: 1.9 ppb on Jan 7																						Hours of Data: 706					
Maximum Diurnal Average: 10.6 ppb at hour 9																						Minimum Diurnal Average: 5.2 ppb at hour 1																						Hours of Missing Data: 38					
Monthly Average: 7.33 ppb																						Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 3.2 Median = 5.4 Q <sub>3</sub> = 9.0 P <sub>90</sub> = 14.7 P <sub>99</sub> = 33.2																						Hours of Calibration: 38					
																																												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-Jan	3.7	4.8	2.1	Z	2.4	3.1	8.0	19.3	13.8	2.6	3.8	3.0	5.3	4.2	3.2	2.6	2.5	2.9	2.7	2.1	1.7	1.5	3.5	4.9	4.5	19.3																							
2-Jan	4.4	2.3	1.7	0.9	Z	2.5	3.2	3.8	3.1	2.7	3.9	5.4	4.8	4.8	3.9	3.4	3.2	1.8	2.0	1.2	1.0	1.2	1.2	0.8	2.8	5.4																							
3-Jan	2.1	1.6	2.1	2.6	2.5	Z	3.5	3.5	3.6	7.6	6.9	5.3	9.0	6.9	6.1	5.5	5.7	9.5	7.8	6.6	10.5	3.5	2.7	2.6	5.1	10.5																							
4-Jan	Z	2.9	4.1	4.1	9.0	8.4	9.2	17.8	14.8	10.4	9.7	5.3	4.0	5.1	6.4	4.0	3.2	5.5	1.5	1.3	1.3	2.7	2.6	1.8	5.9	17.8																							
5-Jan	0.9	Z	0.8	0.7	0.7	1.5	2.4	4.1	4.6	5.0	4.8	4.7	5.0	4.3	4.1	2.9	5.0	5.2	5.7	4.5	4.6	4.6	3.0	3.0	3.6	5.7																							
6-Jan	2.8	3.2	Z	2.5	2.3	6.5	7.2	4.8	4.9	4.6	3.7	4.3	3.7	4.8	6.2	2.4	4.2	6.6	1.3	4.5	1.3	1.1	1.4	1.6	3.7	7.2																							
7-Jan	0.9	2.8	3.8	Z	2.1	1.9	2.1	1.7	1.4	2.4	2.6	1.3	1.3	1.3	1.2	2.1	2.2	4.0	2.2	1.2	1.6	1.3	0.8	1.4	1.9	4.0																							
8-Jan	1.6	3.9	2.4	4.0	Z	5.1	5.2	3.4	9.3	13.1	10.0	4.9	4.5	3.4	5.8	3.4	5.6	5.6	4.2	3.8	3.7	6.6	8.1	13.2	5.7	13.2																							
9-Jan	11.2	3.4	3.5	4.3	5.1	Z	7.6	8.0	9.3	13.7	7.6	8.1	6.8	5.7	4.6	2.8	1.8	1.7	1.4	1.2	1.2	0.9	0.8	1.3	4.9	13.7																							
10-Jan	Z	1.1	1.5	1.6	1.7	3.7	4.4	5.5	7.3	7.3	6.8	7.3	4.0	7.0	7.6	4.7	5.1	4.4	9.9	12.5	9.1	6.4	7.2	5.7	5.7	12.5																							
11-Jan	12.4	Z	15.2	13.1	10.7	7.1	9.4	11.9	10.5	9.6	9.9	7.2	5.2	8.5	8.2	8.5	8.4	7.9	10.7	8.1	6.1	4.7	4.3	3.8	8.8	15.2																							
12-Jan	2.4	6.0	Z	9.2	9.3	6.9	7.2	10.5	7.8	12.9	18.4	13.3	9.0	7.1	7.0	6.0	5.7	4.4	5.2	14.9	12.8	8.4	3.4	3.7	8.3	18.4																							
13-Jan	2.6	3.7	5.2	Z	25.7	3.5	5.3	13.6	52.0	15.6	30.2	33.3	40.0	19.2	12.9	6.3	10.4	22.1	13.7	12.7	11.7	13.0	17.0	22.9	17.1	52.0																							
14-Jan	20.2	20.4	26.5	17.3	Z	25.0	29.1	26.3	30.9	22.0	8.2	9.0	9.1	11.8	7.9	4.6	3.8	6.5	10.7	7.0	7.8	9.6	5.0	11.1	14.3	30.9																							
15-Jan	9.1	7.2	7.9	4.0	5.6	Z	7.5	9.3	10.9	12.6	8.1	9.8	5.9	11.0	26.3	12.9	16.8	16.8	10.8	15.7	23.1	26.1	44.9	33.9	14.6	44.9																							
16-Jan	Z	21.5	20.3	20.0	28.3	23.9	27.1	26.1	16.7	21.6	28.2	C	C	C	C	C	C	C	12.9	13.7	6.3	9.2	15.4	7.2	--	28.3																							
17-Jan	7.1	Z	13.6	10.4	6.6	2.9	1.4	2.9	12.6	5.1	4.2	3.8	2.0	3.4	1.6	2.8	1.3	4.8	0.8	3.2	4.8	4.0	5.6	8.2	4.9	13.6																							
18-Jan	9.4	10.2	Z	22.5	13.0	10.0	12.2	8.4	7.3	6.3	8.6	8.1	7.3	8.7	3.9	4.5	2.7	3.9	4.2	5.1	4.8	5.4	4.0	4.4	7.6	22.5																							
19-Jan	4.5	4.3	3.5	Z	5.0	5.2	9.0	18.2	14.9	14.1	14.9	4.8	8.6	55.8	43.7	15.2	18.6	9.0	4.1	6.0	10.7	10.4	7.1	5.5	12.7	55.8																							
20-Jan	3.2	3.8	7.2	7.8	Z	3.7	5.8	4.7	9.1	9.7	7.2	4.4	6.4	5.0	6.6	5.5	5.0	8.9	11.4	8.2	9.1	5.9	3.1	4.8	6.4	11.4																							
21-Jan	4.6	3.5	3.9	4.2	7.5	Z	8.6	7.7	9.0	6.2	6.1	7.5	5.0	3.3	2.7	1.9	3.2	3.3	2.0	3.5	2.9	7.3	7.8	5.7	5.1	9.0																							
22-Jan	Z	1.4	1.2	0.7	1.1	1.0	2.9	1.6	3.8	1.3	0.9	1.3	2.0	2.3	2.9	2.3	2.7	3.4	2.0	3.7	3.5	20.0	6.1	3.7	3.1	20.0																							
23-Jan	2.6	2.2	Z	2.6	3.0	2.9	4.5	4.1	9.4	5.4	3.5	4.1	6.7	7.1	24.2	15.3	22.2	40.4	18.5	9.3	7.3	10.8	5.6	4.7	9.4	40.4																							
24-Jan	5.4	4.6	4.5	Z	4.6	4.0	5.2	4.1	3.2	3.9	5.6	6.3	6.2	7.7	6.9	11.4	10.0	10.4	7.3	6.4	5.8	6.6	7.7	7.9	6.3	11.4																							
25-Jan	6.1	6.9	8.8	14.7	Z	13.9	17.7	14.2	13.5	19.5	23.6	20.7	13.2	9.9	28.0	13.0	9.9	10.3	12.0	9.9	6.7	5.9	6.1	6.9	12.7	28.0																							
26-Jan	6.6	7.9	8.5	8.3	9.5	Z	13.1	12.5	13.7	24.8	15.3	12.8	13.0	9.7	11.7	13.8	6.7	5.8	4.7	3.9	3.9	5.5	6.1	9.0	9.9	24.8																							
27-Jan	Z	7.3	7.8	10.8	9.4	7.2	6.2	4.8	5.5	6.4	14.7	19.3	14.1	6.6	6.8	7.6	7.9	19.0	11.7	8.2	6.3	5.1	5.3	9.0	9.0	19.3																							
28-Jan	3.7	Z	5.5	4.7	6.6	4.6	5.2	5.3	7.6	8.8	6.4	4.0	4.3	3.3	2.6	2.7	3.0	4.0	6.6	2.3	2.1	2.3	2.8	2.7	4.4	8.8																							
29-Jan	1.8	1.7	Z	4.0	5.8	2.0	2.3	1.1	1.3	2.7	6.4	4.4	2.8	3.2	10.9	15.8	14.5	21.3	21.5	6.8	5.2	7.1	9.3	4.7	6.8	21.5																							
30-Jan	5.0	4.2	4.5	Z	8.7	7.1	9.5	9.4	12.1	6.1	6.2	7.5	3.6	1.4	1.2	1.2	1.5	1.7	1.1	1.0	1.1	1.2	1.5	0.9	4.2	12.1																							
31-Jan	1.0	1.0	1.2	2.5	Z	3.1	3.5	6.8	4.6	4.2	4.2	4.6	5.4	1.5	0.9	2.1	3.7	4.0	2.2	1.4	1.2	1.2	1.1	1.4	2.7	6.8																							
																								5.2	5.3	6.4	7.1	7.4	6.4	7.9	8.9	10.6	9.3	9.4	7.9	7.3	7.8	8.9	6.2	6.5	8.5	6.9	6.1	5.8	6.4	6.5	6.4	Diurnal Average	
																								20.2	21.5	26.5	22.5	28.3	25.0	29.1	26.3	52.0	24.8	30.2	33.3	40.0	55.8	43.7	15.8	22.2	40.4	21.5	15.7	23.1	26.1	44.9	33.9	Diurnal Maximum	
Z - zerospan      C - Calibration																																																	



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - January 2024**







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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	669	94.76	94.76
21 - 40	33	4.67	99.43
41 - 80	4	0.57	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Christina Lake - January 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	16	41	58	41	28	32	24	40	73	72	54	54	29	34	42	27	665
21 - 40	0	0	1	2	3	1	3	3	3	6	4	2	1	1	3	0	33
11 - 80	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0	4
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>	16	41	59	43	32	33	27	43	77	80	58	56	30	35	45	27	702

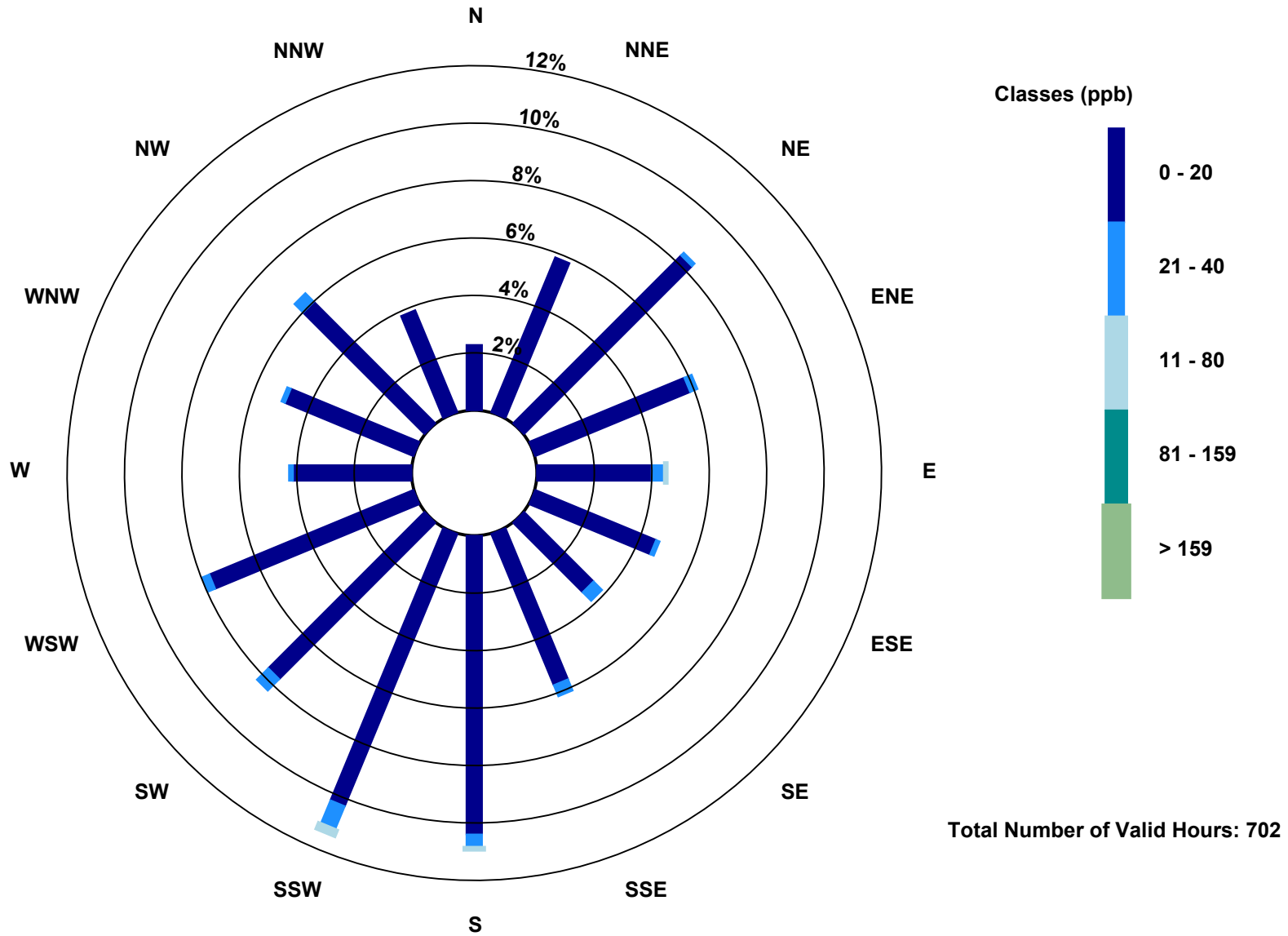
Total Number of Valid Hours: 702

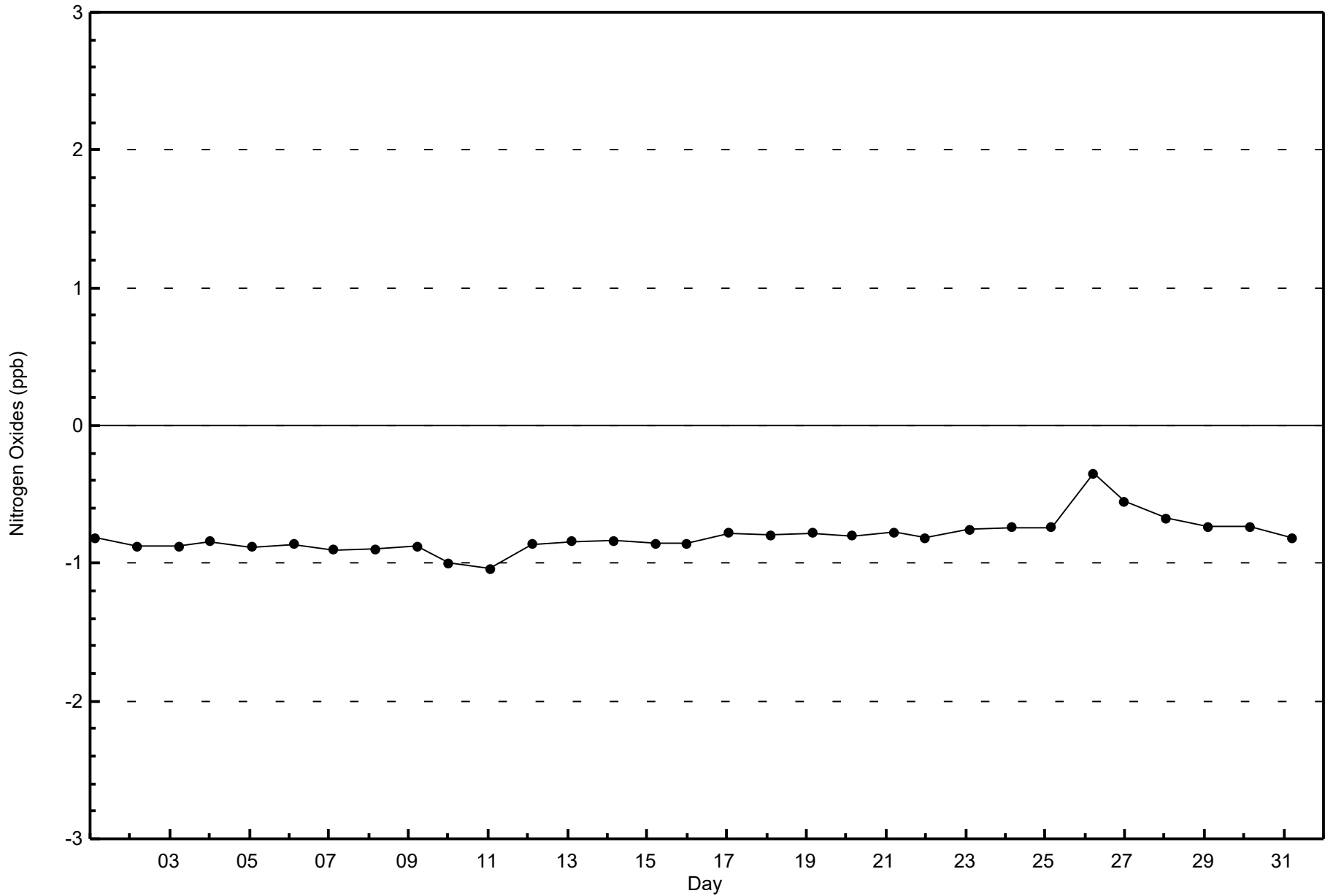
Total Number of Hours: 744

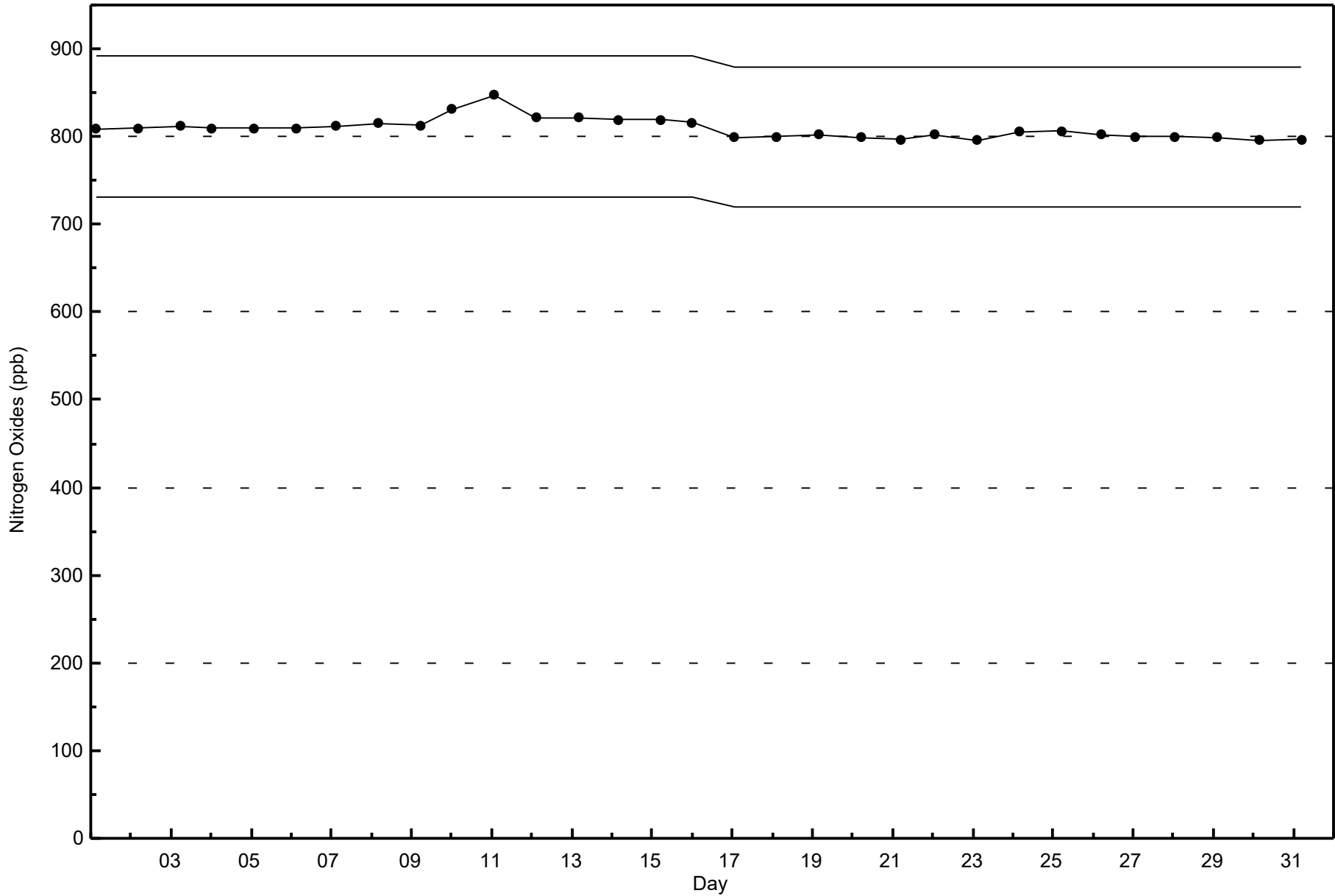


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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





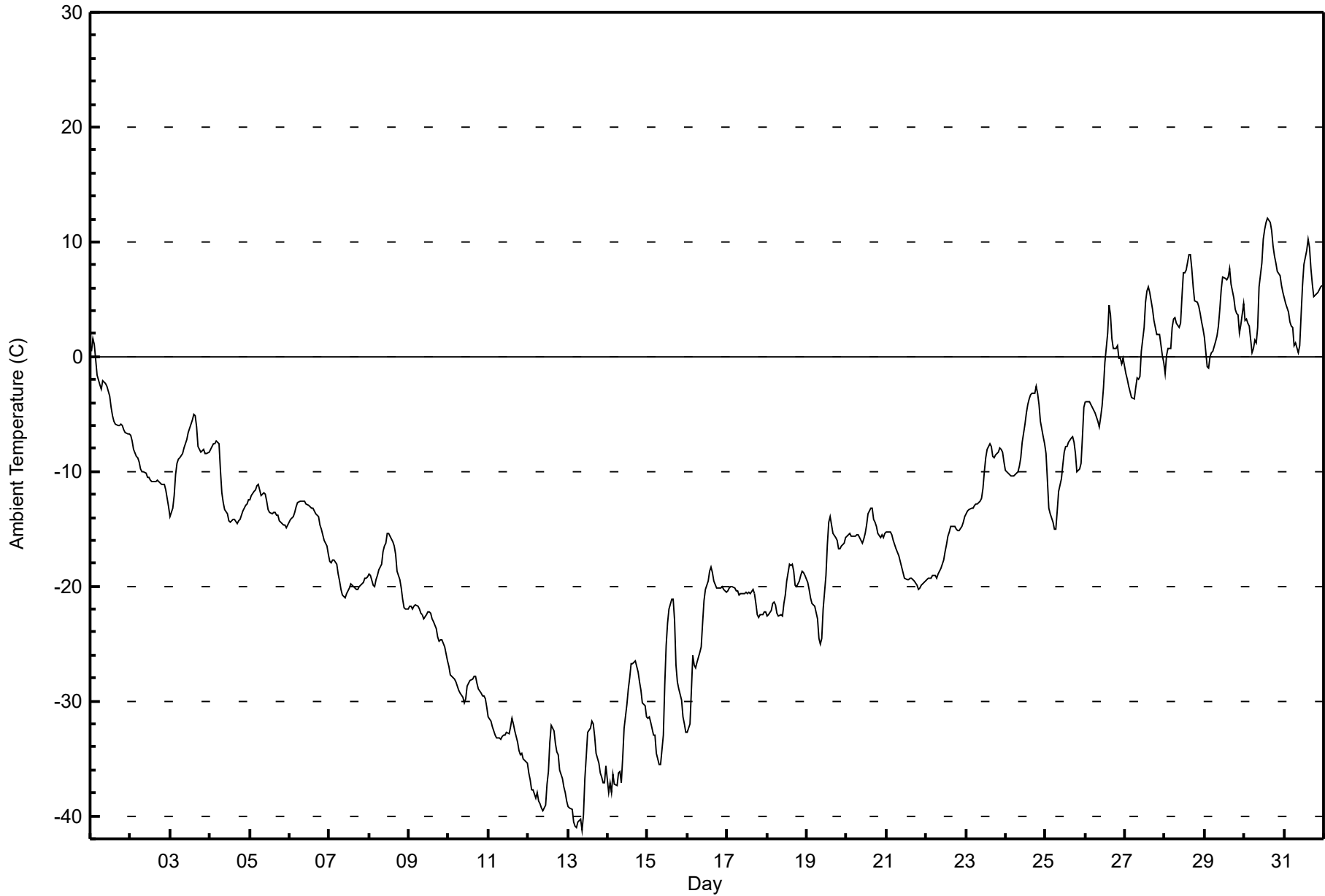




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Christina Lake - January 2024**

Maximum Value: 12.0 C on Jan 30 15:00 Minimum Value: -41.2 C on Jan 13 09:00 Maximum Diurnal Average: -12.3 C at hour 15 Monthly Average: -14.93 C		Maximum Daily Average: 6.4 C on Jan 30 Minimum Daily Average: -37.0 C on Jan 13 Minimum Diurnal Average: -16.6 C at hour 8 Percentiles: P <sub>1</sub> = -39.5 P <sub>10</sub> = -32.8 Q <sub>1</sub> = -22.0 Median = -15.1 Q <sub>3</sub> = -6.9 P <sub>90</sub> = 2.7 P <sub>99</sub> = 9.6		Hours in Service: 744 Hours of Data: 744 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-Jan	0.5	1.6	1.1	-0.2	-1.6	-2.5	-2.9	-2.1	-2.2	-2.4	-2.5	-3.5	-4.4	-5.1	-5.6	-5.9	-6.1	-6.0	-5.9	-6.0	-6.3	-6.6	-6.7	-6.7	-3.7	1.6
2-Jan	-6.9	-7.3	-8.1	-8.7	-8.9	-9.1	-9.8	-10.0	-10.0	-10.1	-10.5	-10.6	-10.7	-10.8	-10.8	-10.8	-10.8	-10.9	-11.0	-11.1	-11.1	-11.7	-12.4	-13.1	-10.2	-6.9
3-Jan	-14.0	-13.2	-12.0	-10.2	-9.3	-9.0	-8.8	-8.4	-7.9	-7.6	-7.2	-6.6	-5.9	-5.5	-5.0	-5.1	-6.2	-7.8	-8.3	-8.1	-8.1	-8.4	-8.5	-8.3	-8.3	-5.0
4-Jan	-8.1	-7.8	-7.6	-7.6	-7.4	-7.6	-9.9	-11.9	-12.8	-13.3	-13.7	-14.3	-14.4	-14.2	-14.1	-14.2	-14.5	-14.3	-14.1	-13.8	-13.4	-13.0	-12.9	-12.4	-12.0	-7.4
5-Jan	-12.5	-12.2	-11.8	-11.6	-11.3	-11.1	-11.7	-12.1	-11.8	-12.0	-12.5	-13.3	-13.6	-13.7	-13.6	-13.6	-13.8	-13.9	-14.3	-14.5	-14.7	-14.6	-14.9	-14.7	-13.1	-11.1
6-Jan	-14.2	-14.1	-13.9	-13.6	-13.1	-12.7	-12.6	-12.6	-12.6	-12.6	-12.8	-13.0	-13.1	-13.2	-13.2	-13.4	-13.7	-13.9	-14.6	-15.1	-15.5	-16.0	-16.5	-17.2	-13.9	-12.6
7-Jan	-17.9	-18.0	-17.8	-17.7	-18.1	-18.9	-19.5	-20.2	-20.8	-21.0	-20.7	-20.4	-20.2	-19.8	-19.9	-20.2	-20.3	-20.2	-20.1	-19.9	-19.7	-19.3	-19.3	-19.2	-19.5	-17.7
8-Jan	-18.9	-19.0	-19.9	-20.0	-19.4	-19.0	-18.6	-18.1	-17.0	-16.6	-16.3	-15.4	-15.4	-15.8	-16.1	-16.5	-17.2	-18.7	-19.4	-20.2	-21.1	-21.8	-22.0	-22.0	-18.5	-15.4
9-Jan	-21.7	-21.7	-22.0	-21.8	-21.7	-21.7	-21.9	-22.3	-22.5	-22.8	-22.5	-22.3	-22.2	-22.4	-22.8	-23.0	-23.7	-24.4	-24.8	-24.7	-24.6	-25.3	-25.9	-26.5	-23.1	-21.7
10-Jan	-26.9	-27.7	-27.9	-28.1	-28.3	-28.7	-29.1	-29.3	-29.6	-30.2	-29.8	-28.7	-28.5	-28.2	-28.1	-27.8	-27.8	-28.4	-28.9	-29.3	-29.5	-29.5	-29.7	-30.5	-28.8	-26.9
11-Jan	-31.4	-31.8	-32.2	-32.6	-33.0	-33.2	-33.2	-33.4	-33.1	-33.0	-32.9	-32.7	-32.8	-32.2	-31.6	-31.9	-32.6	-33.6	-34.3	-34.7	-34.6	-35.0	-35.2	-35.4	-33.2	-31.4
12-Jan	-36.2	-36.9	-37.7	-37.7	-38.4	-38.0	-38.7	-39.0	-39.3	-39.5	-39.1	-37.2	-36.1	-33.6	-32.1	-32.7	-33.6	-34.4	-34.7	-36.0	-36.7	-37.5	-38.0	-38.8	-36.8	-32.1
13-Jan	-39.3	-39.3	-39.4	-40.5	-40.9	-41.1	-40.6	-40.3	-41.2	-39.9	-36.8	-34.8	-32.8	-32.4	-31.7	-31.9	-33.0	-34.6	-35.4	-36.2	-36.7	-37.1	-37.1	-35.6	-37.0	-31.7
14-Jan	-38.0	-37.2	-38.0	-36.4	-37.2	-37.4	-36.3	-36.1	-37.1	-35.0	-32.3	-30.3	-28.9	-28.0	-26.8	-26.7	-26.5	-26.9	-27.5	-28.3	-29.0	-30.1	-30.4	-31.3	-32.2	-26.5
15-Jan	-31.5	-31.4	-31.9	-33.0	-33.0	-34.6	-35.1	-35.6	-35.6	-32.9	-28.6	-25.2	-23.2	-22.0	-21.1	-21.1	-23.0	-26.8	-28.3	-28.9	-29.9	-31.4	-32.0	-32.8	-29.5	-21.1
16-Jan	-32.8	-32.0	-29.1	-26.0	-26.9	-27.1	-26.7	-25.8	-25.2	-23.2	-21.2	-20.3	-19.6	-18.7	-18.3	-18.8	-19.6	-20.1	-20.1	-20.2	-20.1	-20.1	-20.3	-20.5	-23.0	-18.3
17-Jan	-20.5	-20.2	-20.1	-20.0	-20.2	-20.3	-20.5	-20.8	-20.6	-20.7	-20.7	-20.6	-20.6	-20.5	-20.6	-20.3	-20.6	-21.5	-22.4	-22.7	-22.5	-22.5	-22.2	-22.3	-21.0	-20.0
18-Jan	-22.5	-22.5	-22.1	-21.4	-21.4	-21.6	-22.4	-22.6	-22.5	-22.6	-21.5	-20.8	-19.5	-18.1	-18.1	-18.1	-18.7	-19.9	-20.0	-19.6	-19.1	-18.7	-18.9	-19.1	-20.5	-18.1
19-Jan	-19.7	-20.3	-21.1	-21.5	-21.6	-21.8	-22.9	-24.6	-25.1	-24.6	-22.0	-19.0	-16.4	-14.4	-14.0	-14.7	-15.4	-15.8	-16.0	-16.7	-16.8	-16.5	-16.2	-15.8	-18.9	-14.0
20-Jan	-15.6	-15.5	-15.4	-15.6	-15.6	-15.6	-15.5	-15.5	-15.8	-16.3	-15.8	-15.4	-14.7	-13.7	-13.2	-13.2	-14.2	-14.5	-14.8	-15.5	-15.7	-15.5	-15.7	-15.4	-15.2	-13.2
21-Jan	-15.2	-15.2	-15.3	-15.5	-16.0	-16.4	-16.8	-17.4	-17.8	-18.3	-18.8	-19.3	-19.4	-19.4	-19.3	-19.3	-19.4	-19.5	-20.0	-20.3	-20.2	-19.9	-19.8	-19.6	-18.2	-15.2
22-Jan	-19.4	-19.3	-19.4	-19.3	-19.1	-19.1	-19.4	-18.9	-18.7	-18.4	-17.7	-17.0	-16.3	-15.7	-15.2	-14.8	-14.8	-14.8	-15.0	-15.1	-15.2	-14.8	-14.4	-13.9	-16.9	-13.9
23-Jan	-13.7	-13.5	-13.3	-13.3	-13.1	-13.0	-12.9	-12.8	-12.6	-12.3	-11.5	-10.1	-8.8	-8.1	-7.6	-7.9	-8.7	-8.8	-8.5	-8.3	-8.0	-8.0	-8.3	-9.2	-10.5	-7.6
24-Jan	-9.9	-10.1	-10.3	-10.4	-10.4	-10.3	-10.1	-10.0	-9.6	-8.7	-7.4	-5.9	-4.8	-4.1	-3.7	-3.3	-3.2	-3.2	-2.6	-3.2	-4.2	-5.6	-7.0	-7.6	-6.9	-2.6
25-Jan	-8.5	-10.7	-13.2	-13.7	-14.4	-15.0	-13.5	-11.7	-10.7	-9.4	-8.4	-7.9	-7.8	-7.4	-7.1	-7.0	-7.4	-8.5	-10.0	-9.8	-9.3	-6.9	-4.4	-9.9	-4.4	
26-Jan	-4.0	-3.9	-3.9	-4.1	-4.4	-4.7	-4.9	-5.6	-6.1	-5.3	-4.3	-2.7	-0.5	2.1	4.5	3.6	1.6	0.8	0.7	0.9	-0.1	-0.2	-0.6	-0.2	-1.7	4.5
27-Jan	-1.5	-1.9	-2.6	-3.1	-3.6	-3.7	-2.7	-1.9	-1.9	-1.7	0.5	2.5	4.8	5.7	6.0	5.6	4.1	3.1	2.6	1.9	1.9	1.9	0.1	-0.5	0.7	6.0
28-Jan	-1.5	0.1	0.7	0.7	2.6	3.3	3.4	2.9	2.5	3.0	5.2	7.3	7.3	7.6	8.9	8.8	7.6	6.1	4.9	4.8	4.4	3.8	3.0	2.5	4.2	8.9
29-Jan	1.6	-0.8	-0.9	0.0	0.3	0.5	1.3	1.9	2.6	4.1	5.9	7.0	6.8	6.7	6.9	7.7	6.4	5.1	4.1	3.8	3.7	2.0	2.8	4.6	3.5	7.7
30-Jan	3.2	3.3	2.9	2.6	0.3	0.7	1.5	1.1	2.6	6.1	8.1	10.3	11.1	11.6	12.0	11.7	10.9	9.6	8.8	8.1	7.4	7.1	6.2	5.5	6.4	12.0
31-Jan	5.1	4.6	3.9	3.1	2.6	2.6	1.0	1.2	0.3	0.9	3.6	6.2	8.1	9.3	10.2	9.5	7.7	6.3	5.2	5.5	5.6	5.8	6.0	6.2	5.0	10.2
-15.9 -15.9 -16.1 -16.0 -16.2 -16.3 -16.5 -16.6 -16.6 -16.0 -15.0 -14.0 -13.3 -12.7 -12.3 -12.4 -13.1 -13.8 -14.3 -14.6 -14.8 -15.1 -15.3 -15.3																								Diurnal Average		
5.1 4.6 3.9 3.1 2.6 3.3 3.4 2.9 2.6 6.1 8.1 10.3 11.1 11.6 12.0 11.7 10.9 9.6 8.8 8.1 7.4 7.1 6.2 6.2																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Christina Lake - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	250	33.60	33.60
-20 - 0	378	50.81	84.41
0 - 10	109	14.65	99.06
10 - 20	7	0.94	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





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

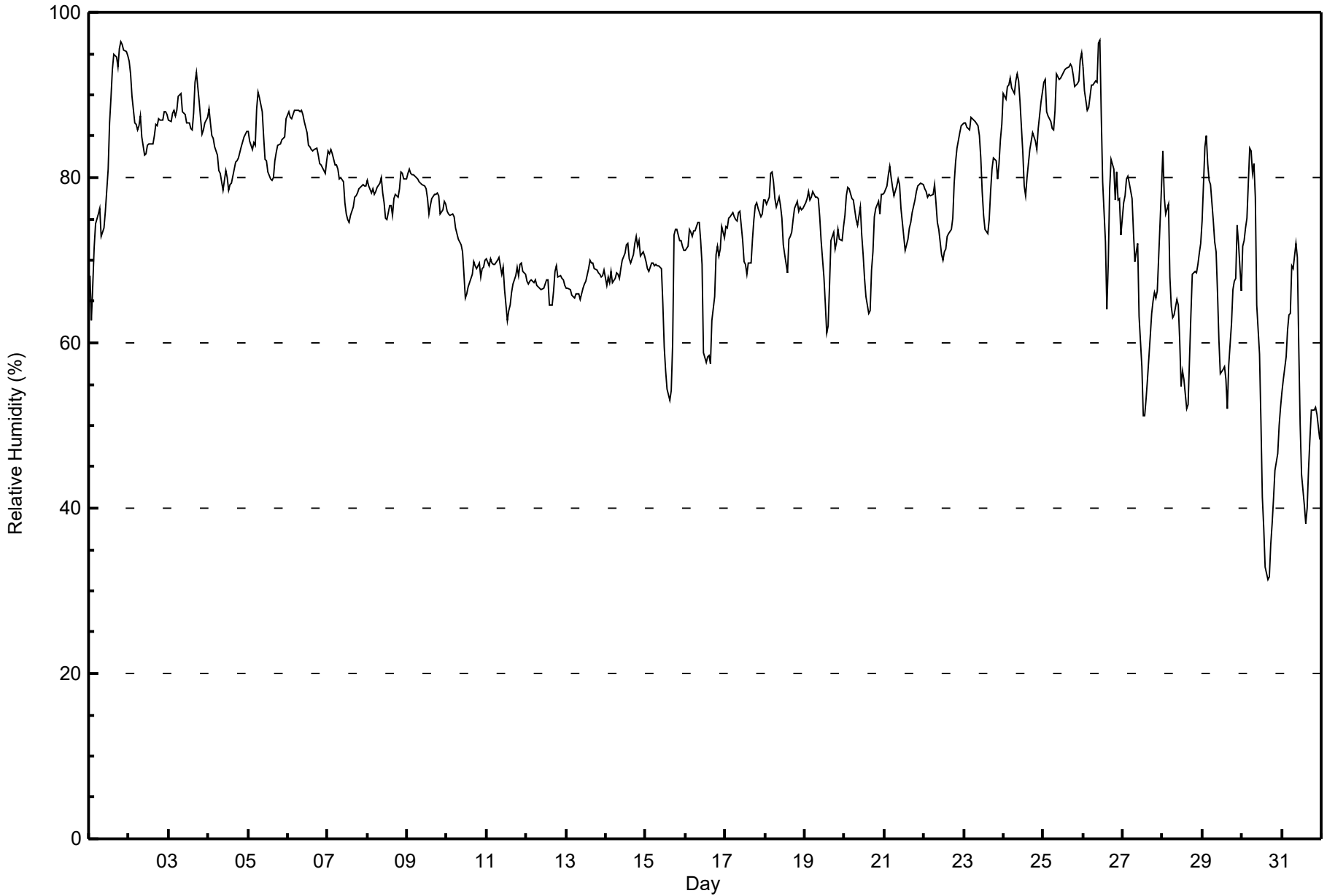
**Relative Humidity (RH) - %**  
**Christina Lake - January 2024**

Maximum Value: 96.6 % on Jan 26 11:00      Maximum Daily Average: 91.2 % on Jan 25																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 31.4 % on Jan 30 16:00      Minimum Daily Average: 54.5 % on Jan 31 Maximum Diurnal Average: 78.5 % at hour 4      Minimum Diurnal Average: 69.0 % at hour 15 Monthly Average: 75.24 %      Percentiles: P <sub>1</sub> = 40.2 P <sub>10</sub> = 63.5 Q <sub>1</sub> = 69.1 Median = 76.2 Q <sub>3</sub> = 82.7 P <sub>90</sub> = 88.0 P <sub>99</sub> = 95.0																						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-Jan	68.1	62.7	66.9	71.5	74.5	75.7	76.2	72.9	73.4	73.9	76.0	80.9	86.6	89.7	93.0	95.0	94.6	93.4	95.6	96.4	96.1	95.5	95.3	94.8	83.3	96.4
2-Jan	94.0	92.5	89.9	86.7	86.4	85.7	86.4	87.4	84.9	82.7	82.9	84.0	84.1	84.0	84.1	85.1	86.5	86.3	87.2	86.9	87.0	87.9	88.0	87.6	86.6	94.0
3-Jan	86.9	86.8	87.8	88.2	87.5	88.1	89.9	90.2	88.0	87.8	87.7	86.6	86.6	85.9	85.8	87.8	91.5	92.8	89.1	87.1	85.2	85.7	86.6	87.3	87.8	92.8
4-Jan	88.2	86.6	85.2	84.7	83.8	82.7	80.9	80.5	79.5	78.5	80.8	80.0	78.5	79.1	79.3	80.1	81.8	82.0	82.4	83.1	83.8	84.9	85.2	85.5	82.4	88.2
5-Jan	85.6	84.4	83.3	84.2	84.0	88.3	90.3	89.7	88.0	85.0	82.3	82.0	80.7	79.8	79.6	79.9	82.0	83.0	83.9	84.1	84.6	84.7	85.0	87.1	84.2	90.3
6-Jan	88.0	87.3	87.2	87.6	88.2	88.1	88.2	88.0	88.1	87.7	86.7	85.5	84.0	83.7	83.4	83.2	83.4	83.5	82.7	81.8	81.5	81.3	80.4	82.0	85.1	88.2
7-Jan	83.2	82.9	83.5	82.9	81.5	81.6	81.0	79.9	80.0	79.5	77.0	75.6	74.8	74.6	75.4	76.5	77.7	77.8	78.2	78.6	78.9	79.2	79.0	79.0	79.1	83.5
8-Jan	79.6	79.0	78.1	78.6	78.0	78.4	78.8	79.3	80.0	78.2	76.9	75.2	74.9	76.6	76.5	75.4	77.4	78.0	77.6	78.7	80.6	80.5	79.9	79.9	78.2	80.6
9-Jan	80.5	80.9	80.5	80.4	80.3	80.0	79.8	79.5	79.4	79.1	79.1	78.6	77.4	75.6	76.7	77.5	77.9	77.9	78.1	77.8	75.6	76.2	77.0	76.8	78.4	80.9
10-Jan	75.9	75.7	75.4	75.6	75.3	73.8	73.2	72.6	71.8	70.9	68.3	65.5	66.0	66.8	67.7	68.4	69.7	69.3	68.9	69.7	68.0	69.0	69.1	70.0	70.7	75.9
11-Jan	70.2	69.4	70.1	69.6	69.5	69.6	69.9	70.3	69.3	68.3	69.2	66.4	62.7	63.9	64.6	66.0	67.2	68.1	69.1	68.2	69.6	69.7	68.6	68.4	68.2	70.3
12-Jan	67.5	67.1	67.5	67.6	67.2	67.6	67.0	66.8	66.6	66.5	66.6	67.1	67.7	67.6	64.5	64.6	66.3	68.6	69.2	68.0	68.1	67.9	67.6	66.9	67.2	69.2
13-Jan	66.7	66.6	66.4	65.8	65.7	65.5	65.9	65.9	65.3	65.9	66.6	67.2	67.5	69.0	70.1	69.7	69.6	69.0	68.8	68.5	68.3	67.9	68.1	68.9	67.4	70.1
14-Jan	67.0	67.9	67.2	68.7	67.3	67.7	68.5	68.3	67.7	68.9	69.9	70.8	71.9	72.0	70.1	69.6	70.7	72.0	72.9	71.6	72.4	70.6	71.0	70.5	69.8	72.9
15-Jan	69.9	69.0	68.6	69.7	69.7	69.4	69.6	69.4	69.4	68.9	64.8	59.4	56.6	54.5	53.1	54.3	59.8	73.1	73.8	73.8	72.4	72.4	71.7	71.2	66.8	73.8
16-Jan	71.2	71.8	73.7	73.5	72.9	73.6	73.5	74.6	74.5	72.4	69.6	58.9	57.6	58.3	58.5	57.5	62.7	65.6	70.7	71.7	70.5	71.4	74.0	72.7	68.8	74.6
17-Jan	74.0	73.9	75.1	75.3	75.8	75.2	74.9	74.8	75.7	75.9	72.4	69.8	69.6	68.4	69.7	69.7	72.6	74.8	76.6	77.0	76.2	75.3	75.6	77.3	74.0	77.3
18-Jan	77.3	76.8	77.7	80.5	80.7	79.6	77.5	76.5	77.6	76.6	75.2	71.8	70.6	68.5	72.6	72.8	73.4	75.0	76.2	77.1	75.9	76.5	76.1	76.3	75.8	80.7
19-Jan	77.0	77.5	78.2	77.3	77.6	78.2	77.6	77.6	77.5	75.2	72.4	67.9	64.7	61.2	62.1	66.9	72.4	73.5	71.4	72.2	73.7	72.6	72.4	74.1	73.0	78.2
20-Jan	75.3	77.7	78.9	78.7	77.5	77.3	76.2	74.9	74.2	76.4	73.1	70.7	67.8	65.6	63.6	64.0	68.7	71.0	75.3	76.3	77.2	75.7	77.9	77.9	73.8	78.9
21-Jan	78.2	79.0	80.3	81.3	80.0	78.8	77.9	79.0	79.8	79.1	76.4	74.5	71.2	71.9	72.5	73.8	74.6	75.7	77.3	78.4	78.9	79.2	79.4	79.1	77.3	81.3
22-Jan	78.7	78.3	77.7	78.0	77.8	77.9	79.2	76.9	74.6	73.7	70.7	69.9	71.1	71.4	72.8	73.3	73.7	75.0	79.3	81.9	83.5	85.4	86.3	86.4	77.2	86.4
23-Jan	86.6	86.5	86.1	85.8	87.3	87.2	86.9	86.8	86.3	85.1	82.4	78.2	75.4	73.8	73.2	74.9	78.4	81.0	82.3	82.0	79.9	81.6	84.5	86.5	82.4	87.3
24-Jan	90.2	89.4	91.0	91.1	92.1	90.9	90.1	91.7	92.5	91.7	89.1	83.0	78.9	77.8	80.0	81.7	83.4	85.5	84.9	84.3	83.4	85.9	89.1	90.4	87.0	92.5
25-Jan	91.5	91.8	88.0	87.4	86.7	85.9	85.7	88.2	92.5	91.8	92.1	92.4	92.8	93.0	93.2	93.4	93.8	93.4	92.4	91.0	91.4	91.7	94.2	95.1	91.2	95.1
26-Jan	93.5	90.5	88.2	88.5	89.8	91.2	91.2	91.7	91.6	96.3	96.6	87.6	79.5	72.2	64.1	69.6	78.6	82.2	81.0	77.4	80.6	77.3	77.5	73.1	83.7	96.6
27-Jan	77.0	77.8	79.8	80.1	79.3	77.4	73.4	69.9	71.1	72.0	63.3	57.1	51.2	51.1	53.2	55.6	60.8	63.5	65.1	66.0	65.4	66.2	74.5	78.8	67.9	80.1
28-Jan	83.2	77.6	75.6	76.9	68.0	64.4	63.1	63.4	65.2	64.6	60.3	54.8	56.6	55.7	52.0	52.6	57.9	63.4	68.3	68.6	68.4	69.6	70.9	72.1	65.6	83.2
29-Jan	74.7	83.8	85.1	81.6	79.6	79.1	74.8	72.2	71.1	66.0	60.3	56.3	56.8	57.2	55.6	52.1	57.2	62.3	66.4	67.5	67.9	74.3	72.0	66.3	68.3	85.1
30-Jan	71.7	72.3	73.9	75.1	83.6	83.2	80.4	81.7	77.6	64.5	58.7	50.6	41.4	37.5	32.8	31.4	31.8	35.6	38.2	41.1	44.5	46.7	50.0	52.2	56.5	83.6
31-Jan	54.1	55.6	58.4	61.5	63.5	63.5	69.4	68.9	72.0	70.3	59.7	50.1	44.1	40.4	38.2	40.1	44.7	48.4	51.8	51.9	52.2	51.4	49.8	48.3	54.5	72.0
	78.2	78.0	78.2	78.5	78.4	78.2	78.0	77.7	77.6	76.6	74.4	71.6	70.0	69.3	69.0	69.7	72.3	74.2	75.3	75.4	75.5	75.9	76.7	76.9	Diurnal Average	
	94.0	92.5	91.0	91.1	92.1	91.2	91.2	91.7	92.5	96.3	96.6	92.4	92.8	93.0	93.2	95.0	94.6	93.4	95.6	96.4	96.1	95.5	95.3	95.1	Diurnal Maximum	



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

**Relative Humidity (RH) - %**  
**Christina Lake - January 2024**





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

**Relative Humidity (RH) - %**  
**Christina Lake - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	7	0.94	0.94
40 - 60	52	6.99	7.93
60 - 80	446	59.95	67.88
80 - 100	239	32.12	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

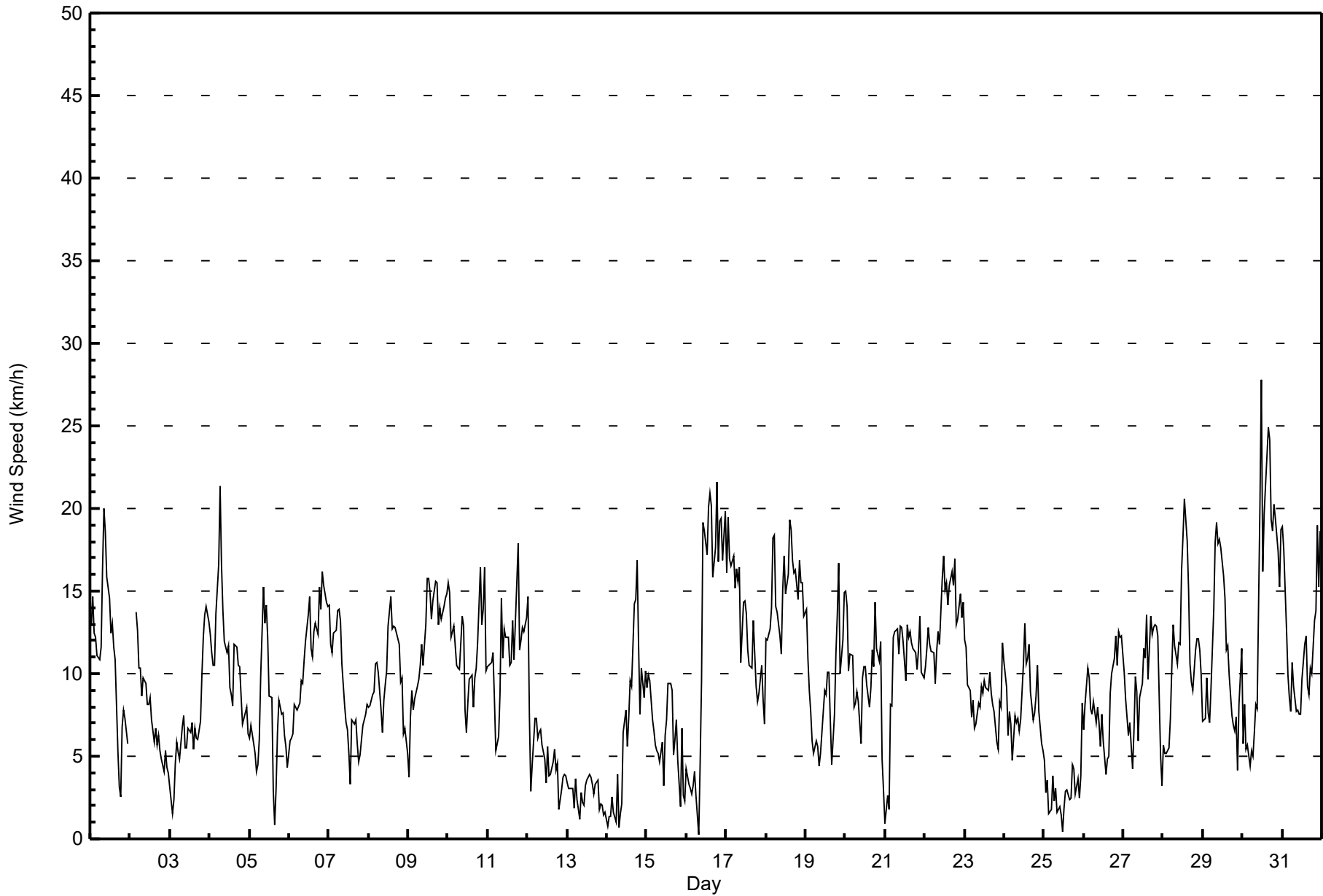
**Wind Speed (WS) - km/h**  
**Christina Lake - January 2024**

Maximum Speed: 28 km/h on Jan 30 12:00	Maximum Daily Speed Average: 14.7 km/h on Jan 18	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 16 08:00	Minimum Daily Speed Average: 0.7 km/h on Jan 5	Hours of Data: 740
Maximum Diurnal Speed Average: 2.5 km/h at hour 24	Minimum Diurnal Speed Average: 0.9 km/h at hour 5	Hours of Missing Data: 4
Monthly Average Velocity: 1.4 km/h 269.1 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 16 P <sub>99</sub> = 20	Percent Operational Time: 99.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Jan	W13	W15	W12	W12WSW11	WSW11	W12	NW16	NW20	NW19	NNW16	NNE15	NE12	NE13	NE12	ENE11	ESE5	ESE3	ESE3	E7	E8	ENE7	ENE6	UO	NNW4.6	NW20		
2-Jan	UO	UO	UO	NW14	NNW13	N10	NE10	NE9	NE10	ENE9	NE8	NE8	E9	E7	ESE6	E7	ESE6	ESE6	SE5	ESE5	ESE4	E5	ESE4	SSE4	ENE4.8	NW14	
3-Jan	ESE3	ESE1	ESE2	S5	SSW6	S5	SSW5	S7	SSW7	S5	S5	S7	S6	SSE7	ESE5	E7	ESE6	ESE6	SSE7	S10	SW12	SW14	SW14	SW13	S5.3	SW14	
4-Jan	WSW12	WSW11	W10	W11	WNW14	NW17	NNW21	NNW17	NNW14	N12	NNE11	NE12	NNE9	NE9	ENE8	ENE12	E12	ENE11	E10	ESE9	E7	NE8	ENE8	E6	N4.9	NNW21	
5-Jan	ESE6	SE7	SE6	SE5	SSE4	SW5	NW6	W10	WNW15	WNW13	WNW14	WNW12	WNW9	W9	NNW3	WNW1	ESE3	E6	E8	ESE8	ESE8	ESE6	ESE6	E4	W0.7	WNW15	
6-Jan	E6	E6	ENE6	E8	ENE8	ENE8	ENE8	ENE10	ENE9	ENE11	ENE12	ENE14	ENE15	ENE12	ENE11	NE13	NE13	NE12	NE15	NE14	NE16	NE15	NE14	NNE14	NE10.9	NE16	
7-Jan	NNE14	NE12	NE11	NE12	NNE13	NNE14	NNE14	NE13	NNE11	NE8	ENE7	E7	ESE5	SE3	ESE7	SE7	SE7	SE6	S5	SSE5	S7	S7	SSE8	SSE8	ENE5.4	NNE14	
8-Jan	SSE8	SSW8	S9	S9	S11	S11	S10	S8	SSW6	SW8	SW9	W10	NW13	NW15	NNW13	NW13	NNW13	NW12	NNW12	N9	N10	NNE6	NNE7	NE5	WNW3.1	NW15	
9-Jan	E4	ESE7	E9	ENE8	ENE8	ENE9	ENE10	ENE11	ENE12	NE10	ENE13	NE16	ENE16	NE15	NE13	NE14	NNE16	NE15	NNE13	NE14	NNE13	NNE14	NNE15	NNE15	NE11.4	ENE16	
10-Jan	NNE16	NNE15	NNE12	NNE13	NNE12	NNE10	NNE10	N10	NNW13	NNW13	N8	N6	NNE8	NNW10	NNW10	N8	N10	NNE10	N12	NNW16	NNW13	NNW14	NNW16	NNE10	N10.6	NNW16	
11-Jan	NE10	NE11	NE11	NE11	NE8	NE5	NNE6	N9	NNW15	NW11	NW13	NW12	NNE12	N10	N11	NNW13	N11	NNW15	NNW18	NNW11	NW12	NW13	NW13	NW13	N9.7	NNW18	
12-Jan	NW15	NNW7	ENE3	W4	WSW7	NW7	WSW6	WSW6	WSW7	WSW6	SW5	SSE3	ENE6	ENE4	NNE4	ENE5	ENE5	SE4	SSW5	SE2	SSW3	SSW4	SSW4	SSW4	W1.4	NW15	
13-Jan	SSW3	SSW3	SSW3	E3	SSE2	SSW4	SSE2	SE1	E3	SSE2	ESE2	ENE3	NE4	ENE4	E4	ESE3	S3	SSW3	SSW4	SSE2	S2	S2	S1	SSW2	SSE1.6	ENE4	
14-Jan	ESE1	SSE1	SE1	SW3	E2	SSW1	WSW4	S1	SE2	W2	WSW6	WNW8	WNW6	NW7	WNW10	W9	NW14	NW14	NW17	WNW12	WNW8	WSW10	WSW9	SW10	WNW5.1	NW17	
15-Jan	WSW9	WSW10	WSW10	SW7	SW7	WSW6	SSW5	S5	S5	S6	S3	SW6	SW7	SW9	SW9	SW9	SSW5	SSE6	SSW7	SSW5	SSE2	E7	S3	S2	SSW5.4	WSW10	
16-Jan	S4	S3	SSW3	WSW3	E3	E4	SSE3	NW0	WSW5	NW10	NW19	NW19	NW17	NW20	NW21	NW20	NW16	NW18	NW22	NW17	WNW19	WNW19	NW17	WNW20	NW10.7	NW22	
17-Jan	WNW16	WNW19	WNW17	WNW17	NW17	NW15	NW16	NW16	NNW16	NNE11	NNE14	NNE14	NE14	NE11	NE11	NE10	NE13	NE11	NNE9	NNE8	NNE9	NNE11	N8	NW7	N9.5	WNW19	
18-Jan	NW12	NW12	NW13	WNW14	NW18	NW18	WNW14	WNW14	W12	W11	WNW15	WNW17	NW15	NW16	NW19	NW19	NW17	WNW16	WNW16	WNW14	WNW17	WNW16	WNW16	WNW13	WNW14.7	NW19	
19-Jan	WNW14	WNW11	WSW9	WSW8	WSW6	SSW5	SW6	SSW6	SSW4	SSW5	S6	SSW9	SSW9	SSW10	SSW10	SSE7	SSE5	S8	SSW11	S14	S17	S10	S12	S15	SSW7.4	S17	
20-Jan	S15	S14	S10	S11	SSW11	SSW8	SW8	SW9	SW8	WSW6	WSW10	WSW10	WSW10	W9	W8	WNW9	NW11	WNW10	NW14	NW12	NW11	N12	NE5	WSW3	WSW5.8	S15	
21-Jan	NNE1	E3	ESE2	ENE8	ENE8	NE12	NE13	NE13	NE11	NE13	NE13	NE12	NNE10	NE13	NE12	NNE13	NE12	NE12	NE11	NE10	NNE11	NE13	NE10	ENE10	NE10.0	NE13	
22-Jan	ENE10	ENE12	ENE13	E12	E11	E11	E9	ESE11	SE13	SE12	SE16	SSE17	SSE15	SSE15	SSE14	S15	S16	S15	S17	SSE13	SSE13	S15	S13	S14	SE10.7	SSE17	
23-Jan	SSW12	S12	SSW9	S9	S7	SSW8	S7	SSW7	SSW8	SW8	SW9	WSW9	WSW10	WSW9	WSW10	SW9	WSW8	SW8	W6	NNW5	NNW8	NNE8	NE12	SW5.5	SSW12	SSW12	
24-Jan	ENE11	ENE9	E6	E8	E7	SE5	SE7	ESE7	SE7	SE7	SSE7	S11	S13	S11	SSE11	S12	SSE9	SSE7	S8	SSW9	SSW11	S8	S6	SSW5	SSE6.4	S13	
25-Jan	S5	S3	SSW4	S2	S2	SSW4	S2	SSW3	SSE2	S2	SE1	ENE0	ENE2	NE3	SSW3	S2	S2	SSE4	SSE4	SE3	S4	SE2	SSW4	SW8	S2.3	SW8	
26-Jan	SW7	SW8	WSW10	WSW10	WSW8	WSW8	WSW8	W7	WSW8	SW7	SW6	SSW8	S6	SE4	WSW5	SSW5	SSW9	SSW10	SW11	SW12	SW10	SW13	SW12	SW12	SW7.9	SW13	
27-Jan	SSW10	SSW8	S7	S6	S7	SSE4	S7	SSW10	SSW9	SSW6	SSW9	SW9	WSW12	SW11	SW14	SW10	SW13	SW12	SW13	SW13	SW13	SW12	S5	SSW3	SW8.8	SW14	
28-Jan	S6	SSW5	SSE5	SE5	S7	SSW10	SW13	SW12	SW11	SW12	SW12	WSW16	WSW18	WSW21	WSW18	W15	WSW11	WSW10	WSW9	WSW11	W12	W12	W11	WSW10	WSW10.1	WSW21	
29-Jan	SW7	S7	SSW10	SSW8	SSW7	S9	SSW14	SSW18	SSW19	SSW18	SSW18	SSW18	SSW18	SSW16	SSW15	SSW11	SW12	SW10	SSW7	SSW7	SSW7	SSW7	SSW4	SSW8	SW12	SSW11.0	SSW19
30-Jan	S6	SSW8	SSW5	SSW6	ESE4	S5	S5	SE6	SE8	SW8	W20	WNW28	W16	WSW20	W21	W25	W24	W19	W19	WSW20	WSW19	W17	WSW15	WSW19	WSW12.0	WNW28	
31-Jan	WSW19	WSW18	WSW13	WSW10	WSW9	WSW8	SW11	SW9	SSW8	SW8	SW8	SSW8	SSW10	S12	S12	SSE9	SE9	SE10	SE10	SSE13	SSE14	SSE19	SSE15	SSE19	SSW8.7	SSE19	

WSW1.8	WSW1.8	SW1.6	WSW1.1	WSW0.9	W0.9	W1.3	W1.3	W1.7	W1.6	W2.1	WNW2.4	WNW1.0	WNW1.7	NW1.5	NW1.2	NNW1.0	W1.9	W1.5	W2.2	W1.6	W1.4	SW2.5	Diurnal Average		
WSW19	WNW19	WNW17	WNW17	NW18	NW18	NNW21	SSW18	NW20	NW19	W20	WNW28	WSW18	WSW21	W21	W25	W24	W19	NW22	WSW20	WSW19	WNW19	NW17	WNW20	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  
Christina Lake - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	148	20.00	20.00
6 - 11	336	45.41	65.41
12 - 19	241	32.57	97.97
20 - 28	15	2.03	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



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

**Wind Speed (WS) - km/h**  
**Christina Lake - January 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	0	2	5	8	10	18	13	18	28	32	3	5	2	1	1	2	148
6 - 11	13	19	22	29	23	15	13	12	36	45	35	41	12	8	7	6	336
12 - 19	3	21	35	10	2	0	2	13	17	10	20	11	13	25	40	19	241
20 - 28	0	0	0	0	0	0	0	0	0	0	0	3	4	2	5	1	15
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>	16	42	62	47	35	33	28	43	81	87	58	60	31	36	53	28	740

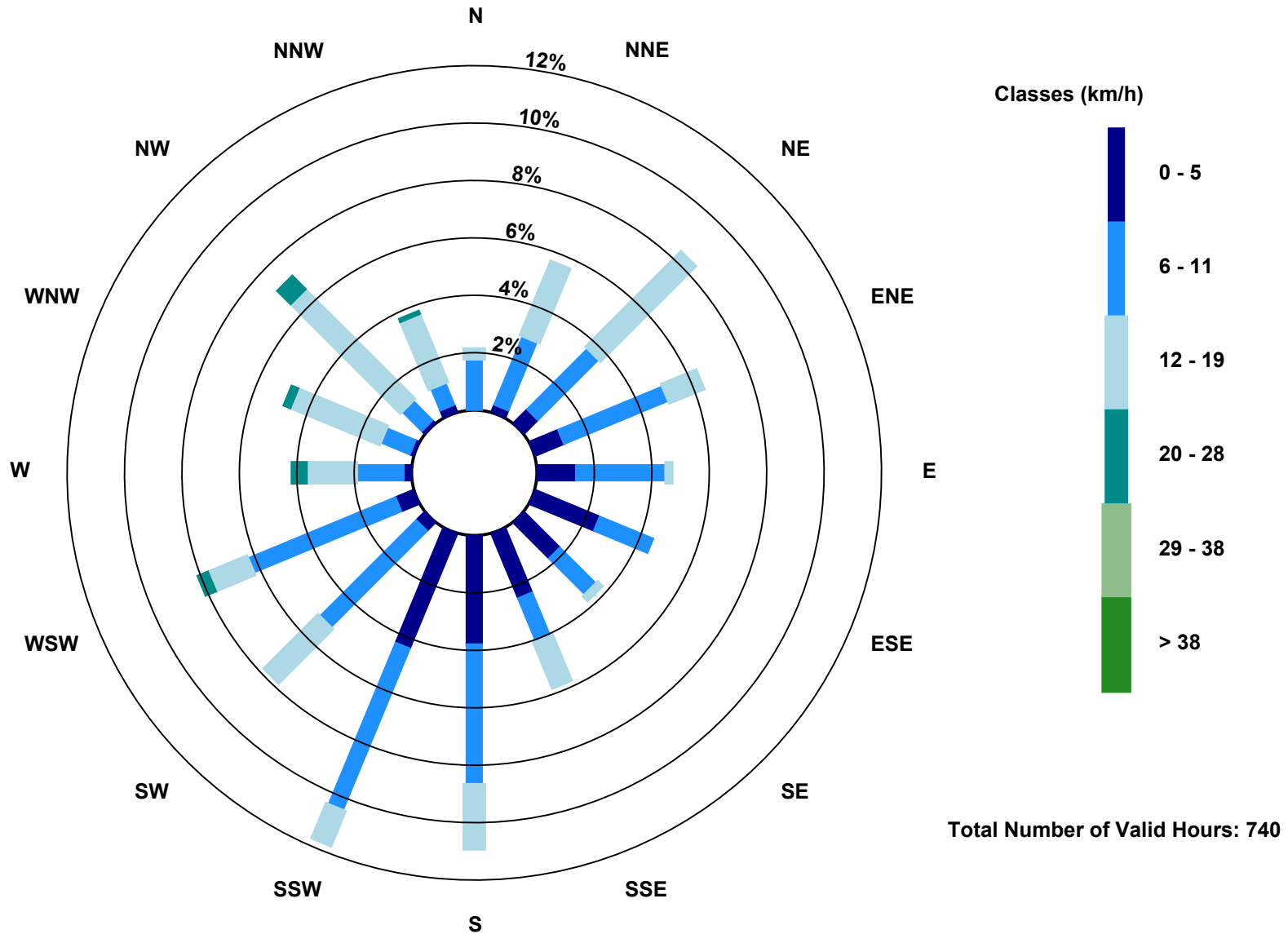
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Christina Lake







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

**Wind Speed (WS) - km/h**  
**Christina Lake - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Jan 30 11:00	Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5
Minimum Value: 0 km/h on Jan 13 12:00	
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 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-Jan	3	5	3	2	2	2	4	4	4	4	3	3	2	2	1	1	3	1	1	2	1	1	2	UO	5
2-Jan	UO	UO	UO	3	2	2	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	3
3-Jan	1	1	1	1	1	2	1	2	1	2	1	2	1	2	1	1	1	1	2	3	3	3	3	3	4
4-Jan	3	3	2	3	4	4	4	3	3	3	2	2	3	2	2	2	2	2	2	2	1	1	1	1	3
5-Jan	2	2	2	1	1	1	2	3	3	4	3	3	3	3	2	1	2	2	1	1	1	1	1	1	4
6-Jan	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	2	2	3	3	2	3	3	2	3
7-Jan	2	2	2	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	3
8-Jan	2	2	2	2	2	2	2	2	2	3	3	3	4	3	3	3	3	2	3	2	3	2	1	1	4
9-Jan	2	2	2	1	2	2	2	2	2	2	2	2	3	3	2	2	3	3	2	2	2	2	2	3	3
10-Jan	2	3	2	2	2	2	2	4	3	3	2	2	2	3	3	2	3	2	3	3	3	3	2	2	4
11-Jan	1	1	1	1	4	2	2	3	3	2	3	2	3	3	4	4	3	4	2	3	2	2	2	2	4
12-Jan	2	4	1	2	2	3	2	2	2	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	4
13-Jan	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	0	1	1	1	1	1
14-Jan	1	1	1	1	1	1	1	1	1	2	1	3	2	2	3	3	3	2	4	4	3	2	2	2	4
15-Jan	2	2	2	1	1	1	1	1	1	2	2	1	2	2	2	2	2	1	1	1	1	2	2	1	2
16-Jan	1	2	1	2	1	2	1	1	3	5	4	3	3	4	4	5	3	4	4	4	4	5	5	5	5
17-Jan	4	5	5	4	4	4	3	3	3	3	2	3	2	2	2	1	2	2	2	2	3	2	2	2	5
18-Jan	2	2	2	4	4	4	3	4	4	3	4	4	3	4	3	4	4	4	4	5	4	5	4	4	5
19-Jan	4	4	2	2	2	1	3	1	1	1	2	2	2	2	3	3	1	2	3	4	5	3	3	4	5
20-Jan	4	4	2	3	3	2	2	2	2	1	3	3	3	2	2	3	2	4	2	2	4	3	2	1	4
21-Jan	2	1	1	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	1	2	2	1	2	2
22-Jan	2	2	2	2	2	2	1	3	2	2	4	4	3	3	3	4	4	4	4	3	3	3	3	3	4
23-Jan	3	2	2	2	1	2	1	2	2	1	2	2	2	2	2	1	1	1	1	2	2	3	3	2	3
24-Jan	2	2	1	1	1	2	2	1	1	1	2	2	4	3	3	3	2	2	2	2	3	2	3	2	4
25-Jan	1	2	2	2	1	2	2	2	2	1	1	1	1	1	2	2	2	1	1	2	2	1	2	2	2
26-Jan	2	2	2	2	1	1	2	2	2	1	1	1	1	2	3	1	1	2	2	2	2	2	2	2	3
27-Jan	2	2	2	2	1	2	3	3	3	2	2	2	4	2	3	2	3	2	3	3	3	3	1	1	4
28-Jan	1	1	2	2	3	4	3	3	2	2	3	4	4	5	5	4	3	2	2	3	3	3	3	2	5
29-Jan	2	1	2	2	2	3	3	4	3	3	4	4	3	4	4	3	3	2	1	1	2	2	3	4	4
30-Jan	1	3	2	2	1	3	2	2	1	3	10	8	5	6	6	8	9	7	5	5	5	5	4	4	10
31-Jan	5	4	3	3	2	2	2	2	1	1	2	2	2	3	3	3	1	2	2	3	3	4	4	4	5
	5	5	5	4	4	4	4	4	4	5	10	8	5	6	6	8	9	7	5	5	5	5	5	5	

Diurnal Maximum

UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Christina Lake - January 2024**

Direction of Maximum Speed: 285 deg on Jan 30 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 301.2 deg on Jan 18	Hours of Data: 740
Direction of Minimum Speed: 324 deg on Jan 16 08:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 0.7 deg on Jan 5	Percent Operational Time: 99.5
Monthly Average Direction: 269.1 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-Jan	272	281	265	260	248	247	272	318	321	322	342	23	41	46	51	68	103	119	111	93	80	65	60	UO	335.0
2-Jan	UO	UO	UO	319	327	2	45	56	49	58	50	50	79	90	107	98	113	103	136	115	102	94	121	156	61.7
3-Jan	108	116	112	188	201	183	193	179	195	187	169	174	177	159	123	98	123	107	157	178	217	233	227	233	184.1
4-Jan	246	253	262	265	285	312	341	327	345	11	31	39	20	40	67	70	86	63	90	102	93	55	73	82	10.5
5-Jan	111	127	127	125	160	219	317	271	288	283	296	300	289	278	337	299	108	96	98	104	104	119	109	97	269.7
6-Jan	91	82	70	83	75	58	59	62	75	66	61	59	60	59	39	43	48	37	47	40	40	40	29	53.8	
7-Jan	32	43	44	46	33	27	32	35	29	41	70	95	111	124	114	131	138	134	171	156	176	172	153	159	71.1
8-Jan	156	197	188	176	190	182	185	188	197	226	236	260	309	319	332	324	330	319	339	4	7	15	25	46	283.3
9-Jan	95	105	90	78	69	72	67	65	63	53	61	54	61	54	41	36	27	36	32	34	32	27	27	31	49.5
10-Jan	25	32	30	23	30	13	17	3	335	346	4	359	30	346	340	5	5	23	356	336	331	327	334	28	2.0
11-Jan	46	38	47	47	56	38	21	355	327	326	326	320	27	350	353	343	359	334	333	344	323	318	319	318	350.3
12-Jan	324	340	78	274	248	304	250	247	257	251	218	157	75	60	31	66	61	143	209	142	210	196	192	199	261.9
13-Jan	192	205	209	83	159	204	155	143	89	157	107	59	49	62	88	105	173	202	202	162	176	176	171	193	147.4
14-Jan	108	155	141	220	89	196	245	182	128	267	254	295	300	319	299	264	315	315	315	297	282	242	257	229	284.4
15-Jan	239	247	241	223	223	213	200	189	190	185	189	227	218	225	232	235	213	164	199	202	165	98	191	186	213.5
16-Jan	189	189	198	247	93	89	165	324	255	312	314	318	323	321	319	320	324	320	322	313	289	290	305	293	309.6
17-Jan	287	292	300	299	321	320	319	322	338	21	31	22	39	53	44	54	40	42	32	22	12	21	8	316	351.6
18-Jan	307	312	322	302	315	319	303	292	280	270	290	301	322	314	321	325	305	283	284	286	289	287	290	288	301.2
19-Jan	292	282	246	250	238	204	218	201	207	201	191	192	196	210	202	167	161	170	193	175	189	184	191	181	204.0
20-Jan	174	180	186	190	195	207	229	222	231	239	253	258	253	263	267	290	308	303	311	315	315	357	35	255	252.5
21-Jan	30	97	121	62	66	43	36	47	49	41	34	46	30	37	40	30	43	39	34	39	33	46	45	57	42.8
22-Jan	73	77	76	86	91	87	79	113	127	132	146	161	160	162	158	169	177	174	175	165	165	172	183	191	144.7
23-Jan	192	190	195	191	187	194	189	200	213	219	219	239	243	240	225	239	227	238	229	279	339	344	22	43	221.1
24-Jan	61	66	89	87	92	124	145	120	127	125	155	171	175	169	166	174	163	153	181	194	194	181	171	195	150.2
25-Jan	177	179	192	171	170	210	176	211	155	187	125	71	58	35	205	186	172	164	162	146	180	138	199	225	180.5
26-Jan	224	234	237	245	242	240	253	260	244	236	223	197	180	138	246	213	207	213	214	217	215	217	218	222	224.1
27-Jan	207	200	184	172	172	157	189	200	202	196	205	224	240	236	226	227	225	223	226	229	227	225	189	207	213.9
28-Jan	185	193	159	144	187	193	214	227	229	229	235	247	244	251	256	263	258	258	248	257	266	261	260	255	239.7
29-Jan	232	178	209	210	212	187	206	202	199	195	202	207	201	201	209	223	220	210	205	205	208	195	209	221	205.4
30-Jan	186	203	196	211	102	169	186	137	142	216	269	285	273	252	262	265	271	269	263	258	258	259	256	251	254.1
31-Jan	254	258	256	255	254	242	216	229	205	217	218	213	192	170	169	152	146	142	139	155	163	166	163	164	195.1

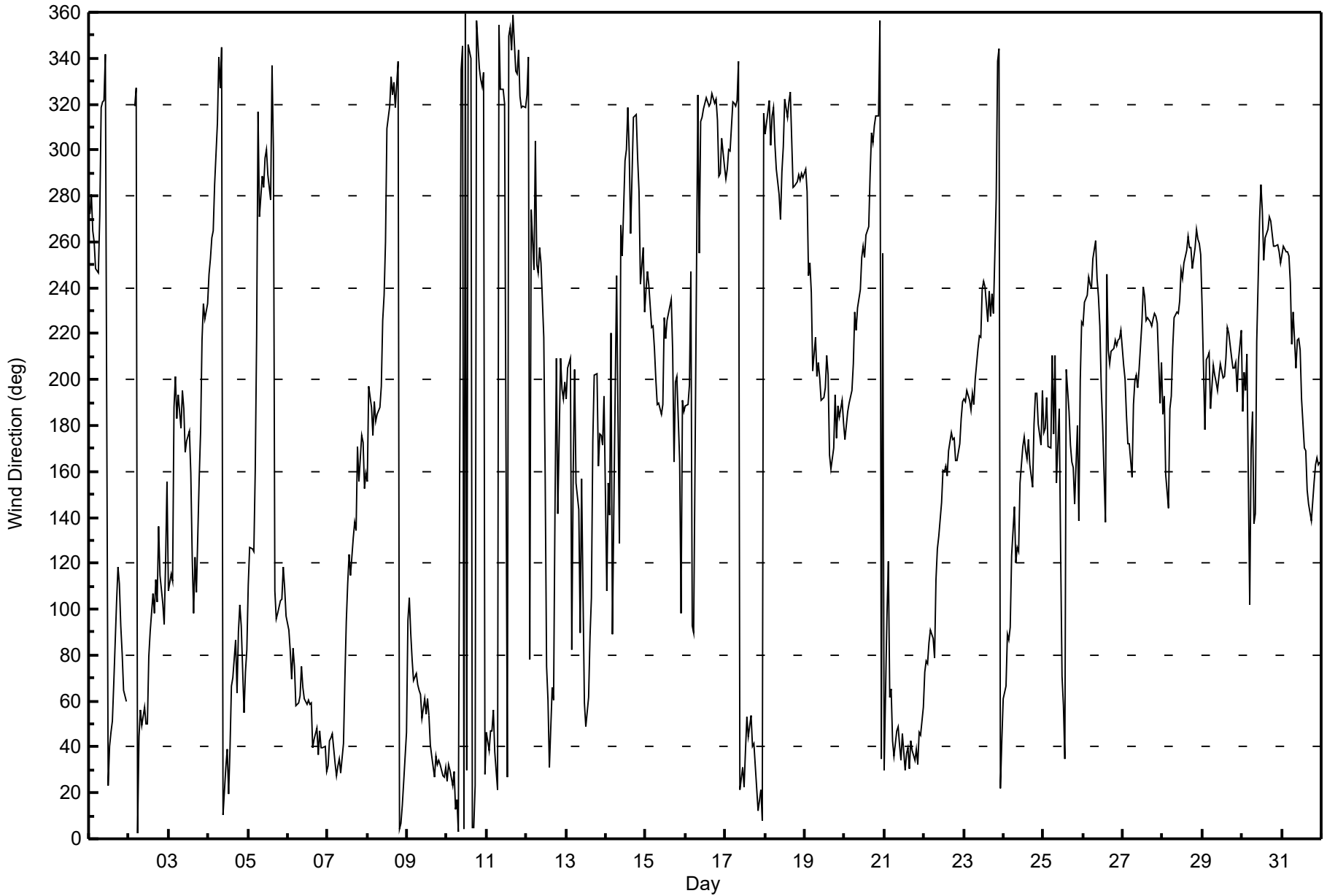
246.2 237.1 216.4 240.0 248.4 269.3 270.4 266.7 276.0 273.8 280.6 286.7 299.5 289.6 291.0 305.3 311.3 300.4 278.2 263.0 260.3 268.5 262.7 236.0  
 Diurnal Average

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**  
**Christina Lake - January 2024**





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

**Wind Direction (WD) - deg**  
**Christina Lake - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Jan 16 08:00 Minimum Value: 6 deg on Jan 25 18:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 10 Q <sub>1</sub> = 12 Median = 14 Q <sub>3</sub> = 20 P <sub>90</sub> = 32 P <sub>99</sub> = 75																		Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5							
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-Jan	16	15	16	15	11	9	32	14	11	10	19	15	13	8	9	14	30	23	30	11	14	16	18	UO	32
2-Jan	UO	UO	UO	12	16	30	11	12	13	13	20	17	18	16	18	12	14	10	13	15	21	16	22	33	33
3-Jan	7	20	14	15	12	26	23	15	13	17	16	16	14	18	19	8	13	11	21	16	17	11	14	14	26
4-Jan	16	17	17	17	18	18	14	16	30	20	15	16	19	20	19	12	13	12	14	11	11	24	12	14	30
5-Jan	10	13	13	13	27	21	35	22	13	19	17	26	31	27	79	75	46	13	13	11	15	13	17	26	79
6-Jan	12	15	13	10	13	10	10	11	14	12	8	7	9	10	11	14	11	11	8	11	10	10	10	10	15
7-Jan	10	9	9	14	14	10	9	10	10	18	21	14	30	39	17	16	9	10	16	11	13	14	12	11	39
8-Jan	12	13	11	12	12	11	12	14	18	16	18	17	20	12	17	19	15	10	20	19	19	17	12	12	20
9-Jan	40	19	16	10	12	11	11	11	11	11	11	11	11	13	12	8	10	10	9	11	10	10	11	11	40
10-Jan	11	13	11	11	11	23	18	28	13	18	23	31	22	26	23	30	25	16	21	12	16	13	8	25	31
11-Jan	8	8	7	8	27	26	27	31	11	14	14	16	21	26	24	21	22	19	8	20	10	10	9	9	31
12-Jan	8	60	35	44	15	27	30	20	22	21	24	41	13	54	65	59	34	28	13	55	54	17	24	20	65
13-Jan	18	17	19	23	47	14	36	59	19	21	33	13	12	19	11	14	26	7	10	21	16	40	46	51	59
14-Jan	79	50	46	21	53	76	22	76	45	47	17	19	24	20	23	24	14	11	13	18	24	12	20	10	79
15-Jan	11	10	9	13	11	11	23	12	25	23	27	21	17	14	13	10	45	20	13	19	69	14	37	58	69
16-Jan	39	49	42	80	49	38	48	98	58	43	11	11	11	11	13	12	14	11	10	16	13	13	18	13	98
17-Jan	15	14	18	19	14	12	10	12	12	24	13	12	12	14	9	9	8	9	8	13	14	13	25	30	30
18-Jan	9	12	12	15	11	15	17	18	19	18	16	19	15	19	11	12	20	16	13	16	15	15	14	17	20
19-Jan	17	24	22	17	22	22	46	28	17	23	17	13	17	14	18	20	26	16	17	12	13	16	15	14	46
20-Jan	13	14	12	12	13	14	11	15	11	22	17	19	17	20	28	24	17	22	8	10	35	24	37	55	55
21-Jan	80	28	35	16	13	10	11	9	10	9	12	11	15	12	12	12	9	9	9	9	10	11	11	15	80
22-Jan	15	12	12	11	12	13	10	20	12	13	14	13	14	12	13	13	13	14	12	13	11	12	13	11	20
23-Jan	12	12	13	13	11	14	12	13	16	13	15	18	15	18	13	14	8	9	9	37	35	28	31	9	37
24-Jan	12	11	12	10	14	26	12	11	12	13	17	15	14	13	13	12	12	18	15	13	12	10	17	11	26
25-Jan	11	41	24	51	73	36	50	64	53	35	47	86	65	34	48	31	26	6	10	29	22	32	33	14	86
26-Jan	18	15	11	16	12	11	14	16	10	15	18	15	14	24	34	18	11	12	9	11	9	9	9	11	34
27-Jan	11	14	15	14	12	31	35	16	17	26	17	15	14	16	11	13	10	10	11	11	11	10	24	32	35
28-Jan	19	12	31	32	23	23	15	13	12	13	19	15	12	14	16	18	16	15	14	17	16	16	16	14	32
29-Jan	23	13	9	11	17	19	12	10	10	12	12	12	14	13	18	16	13	15	11	14	11	42	22	24	42
30-Jan	23	12	19	25	37	45	19	12	9	31	23	14	18	16	18	19	18	18	18	17	17	17	16	14	45
31-Jan	16	17	16	17	16	27	8	7	9	11	14	17	13	13	14	14	8	11	9	13	12	12	12	12	27
80 60 46 80 73 76 50 98 58 47 47 86 65 54 79 75 46 28 30 55 69 42 46 58																									
Diurnal Maximum																									
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS27**  
**JACKFISH 2/3**  
**JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
JANUARY 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	650	34	94	91.94	11.4	0	2.6	0
H2S (ppb) Average	702	38	42	99.46	0.9	0	0.4	0
NO2 (ppb) Average	703	37	41	99.46	14.7	0	5.2	-
NO (ppb) Average	703	37	41	99.46	4.1	-	1.1	-
NOX (ppb) Average	703	37	41	99.46	15.5	-	6.3	-
Temperature 2 m (C) Average	741	0	3	99.6	10.9	-	5.7	-
Relative Humidity (%) Average	741	0	3	99.6	94.1	-	90.6	-
Wind Speed 10 m (km/h) Average	738	0	6	99.19	21	-	13	-
Wind Direction 10 m (deg) Average	738	0	6	99.19	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
 JANUARY 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	650	0.82	1.2	-	0	0.1	0.2	0.4	0.9	1.9	11.4
H2S (ppb) Average	702	0.22	0.1	-	0	0.1	0.1	0.2	0.3	0.4	0.9
NO2 (ppb) Average	703	2.3	2	-	0	0.3	1.1	2	3	4.3	14.7
NO (ppb) Average	703	0.31	0.5	-	0	0	0	0.2	0.4	0.8	4.1
NOX (ppb) Average	703	2.61	2.2	-	0	0.4	1.2	2.2	3.4	4.8	15.5
Temperature 2 m (C) Average	741	-15.58	12	-	-41	-32.7	-23	-16.1	-7.3	1.6	10.9
Relative Humidity (%) Average	741	77.27	10.1	-	33.2	66.6	70.7	78.7	85.3	89	94.1
Wind Speed 10 m (km/h) Average	738	5.7	3	-	0	2	3	6	8	10	21
Wind Direction 10 m (deg) Average	738	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	25 Jan 2024 02:00	27 Jan 2024 11:00	58	Analyzer Failure - lost communication
SO2	27 Jan 2024 12:00	27 Jan 2024 13:00	2	Maintenance - analyzer replaced
H2S, NO2	26 Jan 2024 12:00	26 Jan 2024 12:00	1	DAS Failure - data not recorded
ALL PARAMETERS (except SO2)	26 Jan 2024 14:00	26 Jan 2024 14:00	1	Maintenance - station logger/modem reset
ALL PARAMETERS (except SO2)	27 Jan 2024 11:00	27 Jan 2024 12:00	2	Maintenance - station logger/modem reset
Wind Speed, Wind Direction	12 Jan 2024 17:00	12 Jan 2024 17:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 09:00	13 Jan 2024 10:00	2	Flat line in sensor output signal - Sensor frozen





Wood Buffalo Environmental Association

Summary of Hour Averages

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

Jackfish 2/3 - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.4 ppb on Jan 15 18:00	Maximum Daily Average: 2.6 ppb on Jan 14		Hours of Data:	650
Minimum Value: 0.0 ppb on Jan 1 02:00	Minimum Daily Average: 0.2 ppb on Jan 22		Hours of Missing Data:	94
Maximum Diurnal Average: 1.4 ppb at hour 12	Minimum Diurnal Average: 0.5 ppb at hour 4		Hours of Calibration:	34
Monthly Average: 0.82 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 1.9 P <sub>99</sub> = 5.8		Percent Operational Time:	91.9

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-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.2	0.2	0.1	0.4	1.2	0.8	0.6	0.6	0.8	0.5	0.5	0.3	0.2	0.2	0.3	0.3	0.4	1.8	
2-Jan	0.1	Z	0.1	0.0	0.0	0.1	0.4	2.2	1.8	1.5	2.1	2.1	1.4	1.1	1.0	0.9	0.7	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.8	2.2	
3-Jan	0.4	0.5	Z	0.4	0.4	0.3	0.2	0.4	0.3	0.5	0.4	0.4	0.5	0.6	0.6	0.3	0.2	0.5	0.6	0.6	0.3	0.1	0.1	0.1	0.4	0.6	
4-Jan	0.1	0.2	0.1	Z	2.5	0.2	0.2	1.2	3.3	3.4	2.3	3.2	3.0	1.8	0.8	0.4	0.5	0.4	0.4	0.1	0.0	0.1	0.0	0.0	1.1	3.4	
5-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.3	0.0	0.1	0.1	0.9	1.6	0.2	0.2	0.1	0.1	0.2	0.5	0.7	0.5	0.5	0.3	0.3	0.3	1.6	
6-Jan	0.5	0.3	0.4	0.3	0.4	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.4	0.5	0.5	0.5	0.1	0.3	0.5	
7-Jan	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.5	1.2	0.4	0.7	0.4	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.2	
8-Jan	0.2	Z	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.6	0.7	0.8	0.6	0.4	0.6	0.3	0.3	0.3	0.4	0.7	0.8	0.9	1.7	1.6	0.5	1.7	
9-Jan	1.8	1.5	Z	1.3	1.4	2.0	1.2	1.3	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.7	0.4	0.3	0.8	0.3	0.1	0.1	0.1	0.1	0.7	2.0	
10-Jan	0.2	0.1	0.2	Z	0.3	0.2	0.7	0.8	0.7	0.8	0.5	1.4	1.6	1.6	0.4	0.1	1.0	2.7	4.6	2.5	1.4	0.5	0.3	0.3	1.0	4.6	
11-Jan	0.4	1.3	3.0	2.7	Z	1.7	1.6	1.9	1.2	1.2	1.0	1.4	1.5	0.9	0.6	0.8	0.7	0.7	0.9	0.9	0.3	0.1	0.1	0.2	1.1	3.0	
12-Jan	0.1	0.4	0.4	0.5	0.5	Z	0.6	0.2	0.2	0.2	0.3	0.5	0.5	0.3	0.2	C	C	C	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.6	
13-Jan	Z	0.0	0.0	0.0	0.0	0.1	0.1	1.9	1.7	0.7	1.1	3.1	3.5	5.6	4.8	2.1	0.8	0.5	0.5	0.8	0.9	0.5	0.5	0.5	1.3	5.6	
14-Jan	0.8	Z	0.9	1.3	1.5	1.6	3.3	1.3	3.2	4.7	8.8	7.0	3.4	2.3	1.8	1.7	0.9	1.5	1.6	1.3	2.1	2.0	2.5	3.2	2.6	8.8	
15-Jan	0.8	0.5	Z	0.7	0.8	1.1	0.7	0.3	0.3	0.5	0.8	1.0	1.0	0.8	1.5	6.4	11.1	11.4	7.9	3.2	1.6	0.9	0.9	2.0	2.4	11.4	
16-Jan	2.9	2.2	3.1	Z	1.6	1.0	0.9	1.6	1.1	1.8	2.0	2.7	2.4	1.4	1.7	2.3	1.4	0.8	0.4	0.4	0.8	0.9	0.3	0.8	1.5	3.1	
17-Jan	5.9	3.0	0.3	0.2	Z	0.3	0.3	0.3	0.4	0.4	0.8	1.7	1.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.9	1.0	0.8	5.9	
18-Jan	0.4	0.5	0.2	0.2	0.2	Z	3.3	1.2	2.7	1.9	5.0	4.5	0.3	0.3	0.4	0.4	0.8	4.1	3.9	3.8	1.4	0.4	0.5	0.4	1.6	5.0	
19-Jan	Z	2.7	2.4	0.1	0.2	0.1	0.0	0.0	0.1	0.4	0.5	0.6	0.8	1.3	2.2	0.8	0.4	0.5	0.6	0.8	1.0	2.1	1.7	1.3	0.9	2.7	
20-Jan	1.0	Z	0.7	0.7	0.8	0.7	0.5	0.4	0.4	0.4	0.6	0.4	0.3	0.3	0.6	0.3	0.5	0.7	1.4	0.3	0.5	0.7	1.1	0.9	0.6	1.4	
21-Jan	0.6	0.6	Z	0.5	0.4	1.7	5.0	3.3	2.2	1.3	1.4	2.0	1.7	2.0	0.9	0.4	0.3	0.3	0.3	1.0	0.6	0.8	0.5	0.5	1.2	5.0	
22-Jan	0.4	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.3	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	0.4
23-Jan	0.3	0.3	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.9	0.7	0.7	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.9	
24-Jan	0.3	0.3	0.5	0.6	0.6	Z	0.4	0.2	0.2	0.4	0.6	0.7	0.7	0.9	1.2	1.4	1.1	0.9	1.2	1.1	0.9	0.8	0.7	0.7	0.7	1.4	
25-Jan	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	--	--
26-Jan	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	--	--
27-Jan	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	--	0.3
28-Jan	0.2	0.2	0.2	Z	0.9	1.2	0.7	0.8	0.7	0.6	0.5	0.7	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.4	1.2
29-Jan	0.1	0.2	0.1	0.1	Z	0.2	0.2	0.4	0.7	0.8	0.7	0.6	0.5	0.9	0.5	0.8	0.8	0.9	1.2	1.7	1.5	1.3	0.8	0.6	0.7	1.7	
30-Jan	0.6	0.5	0.5	0.6	0.9	Z	0.8	2.0	1.2	2.0	1.1	0.6	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	2.0	
31-Jan	Z	0.1	0.1	0.4	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.2	0.6	0.5	0.2	0.3	0.3	0.3	0.3	0.2	0.6	

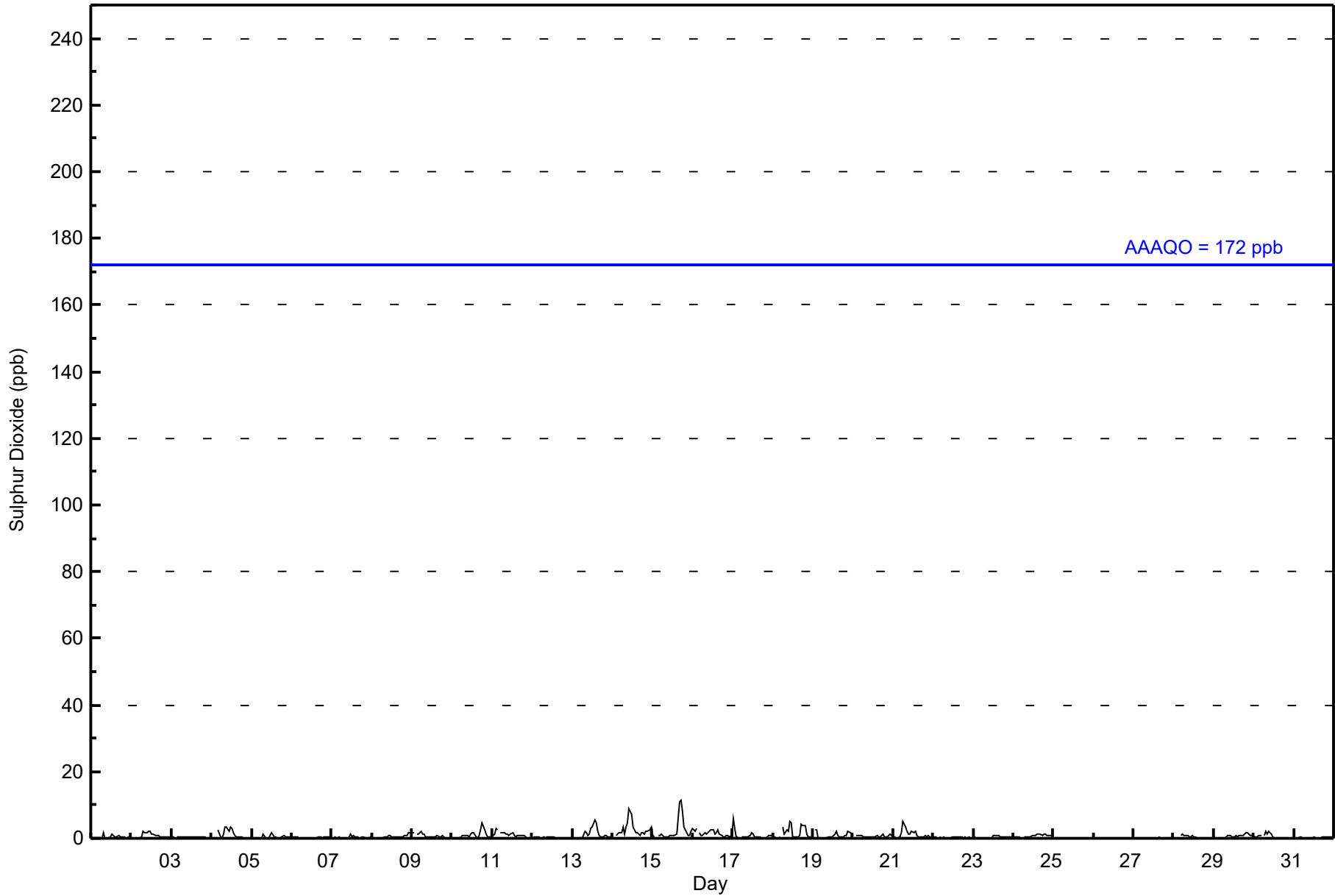
0.8	0.7	0.6	0.5	0.6	0.6	0.8	0.9	0.9	0.9	1.2	1.4	1.1	0.9	0.8	0.8	0.9	1.1	1.0	0.8	0.6	0.5	0.5	0.6	Diurnal Average	
5.9	3.0	3.1	2.7	2.5	2.0	5.0	3.3	3.3	4.7	8.8	7.0	3.5	5.6	4.8	6.4	11.1	11.4	7.9	3.8	2.1	2.1	2.5	3.2	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      AF - Analyzer 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 - January 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	648	99.69	99.69
11 - 20	2	0.31	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: 650

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3 - January 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	16	40	60	42	33	30	22	36	64	67	45	49	28	35	50	28	645
11 - 20	0	0	0	0	0	0	0	1	0	1	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>	16	40	60	42	33	30	22	37	64	68	45	49	28	35	50	28	647

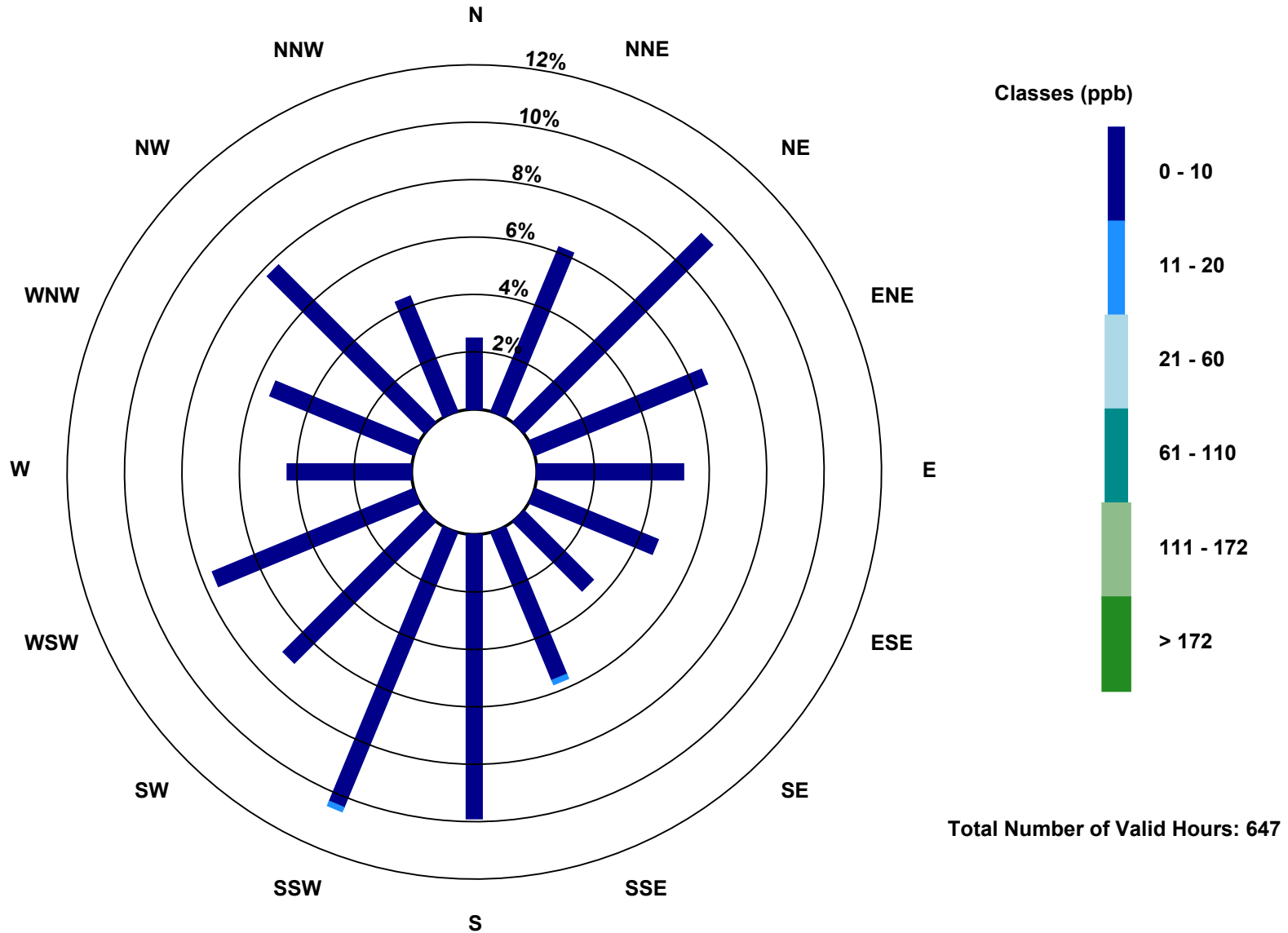
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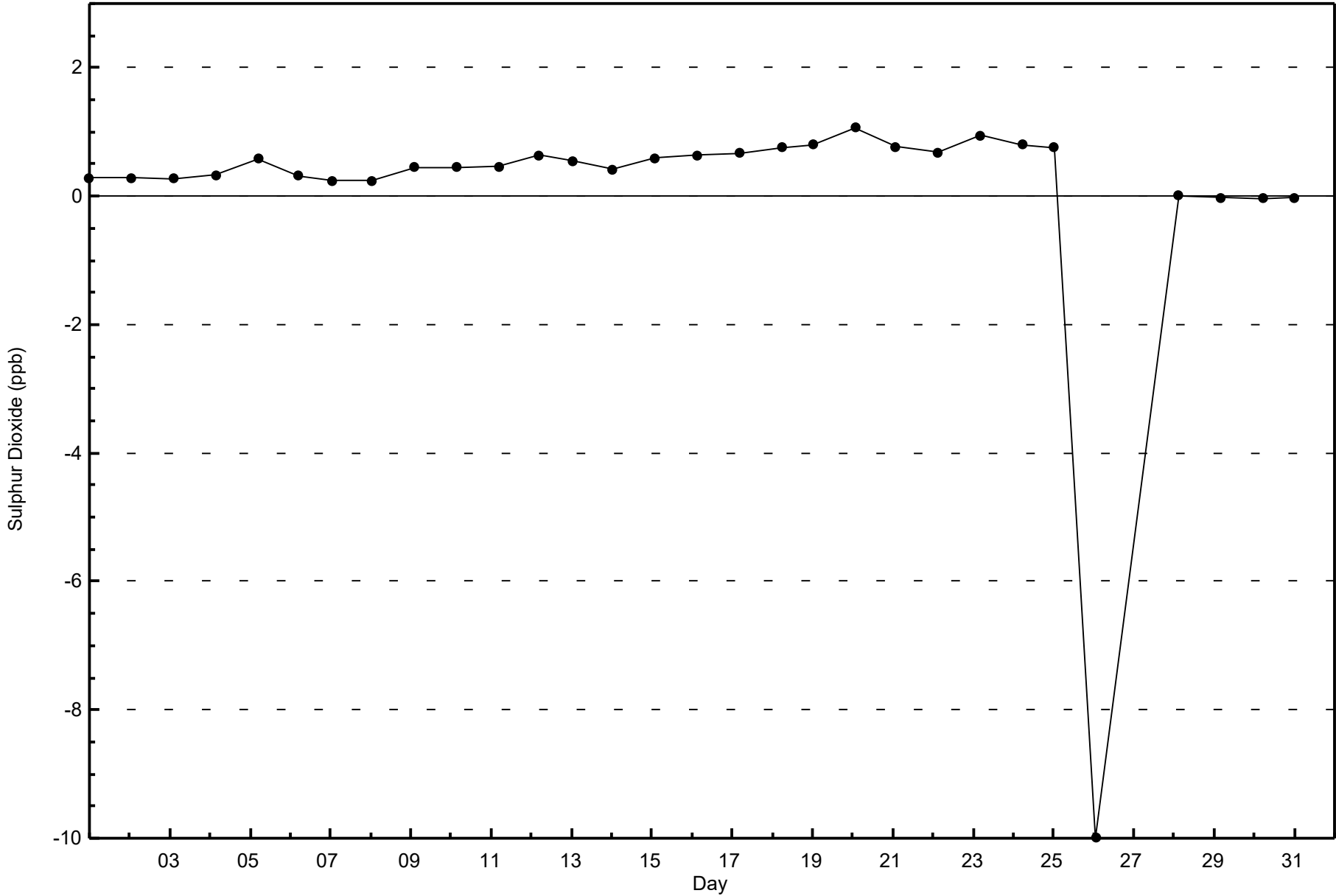
Total Number of Hours: 744

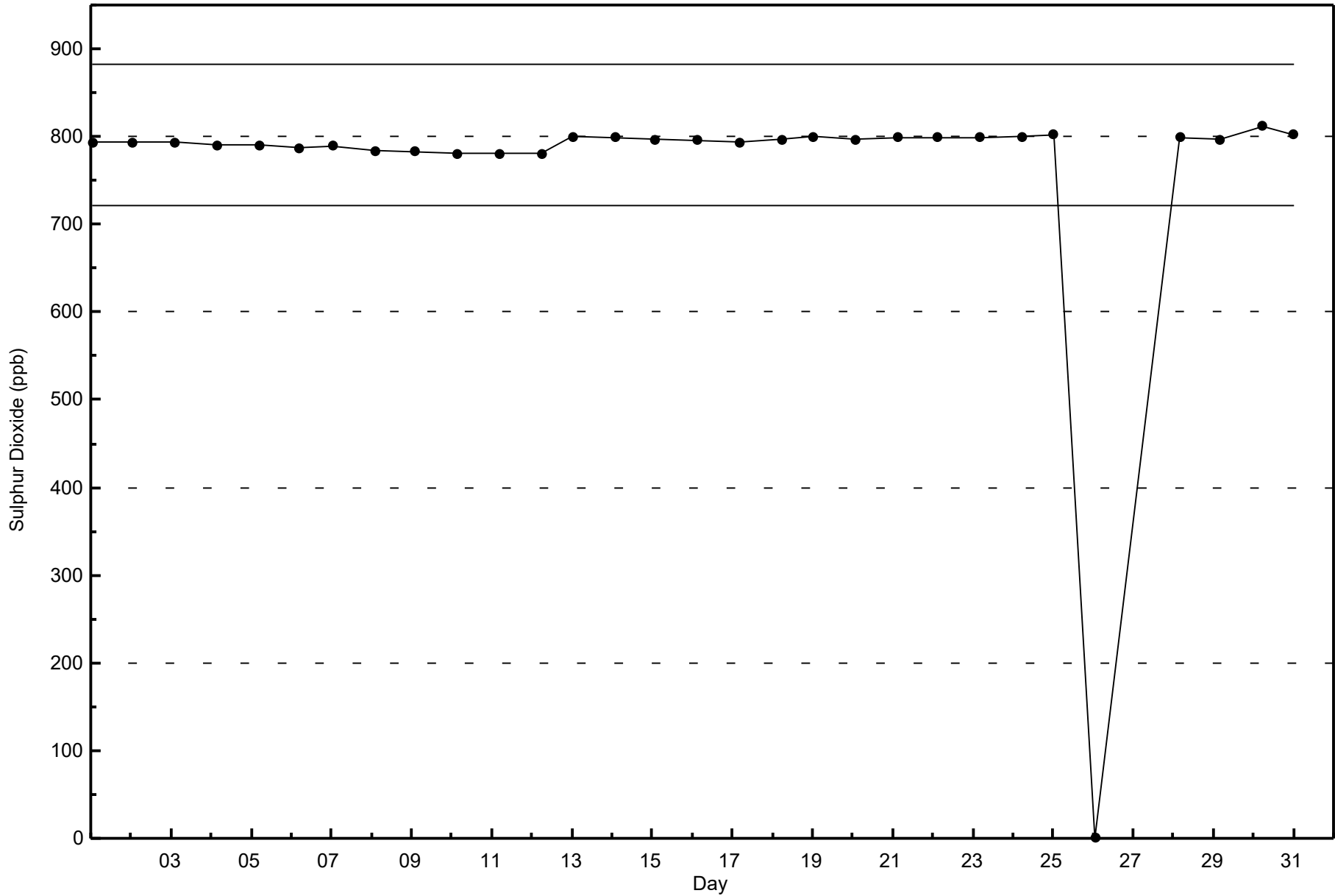


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3







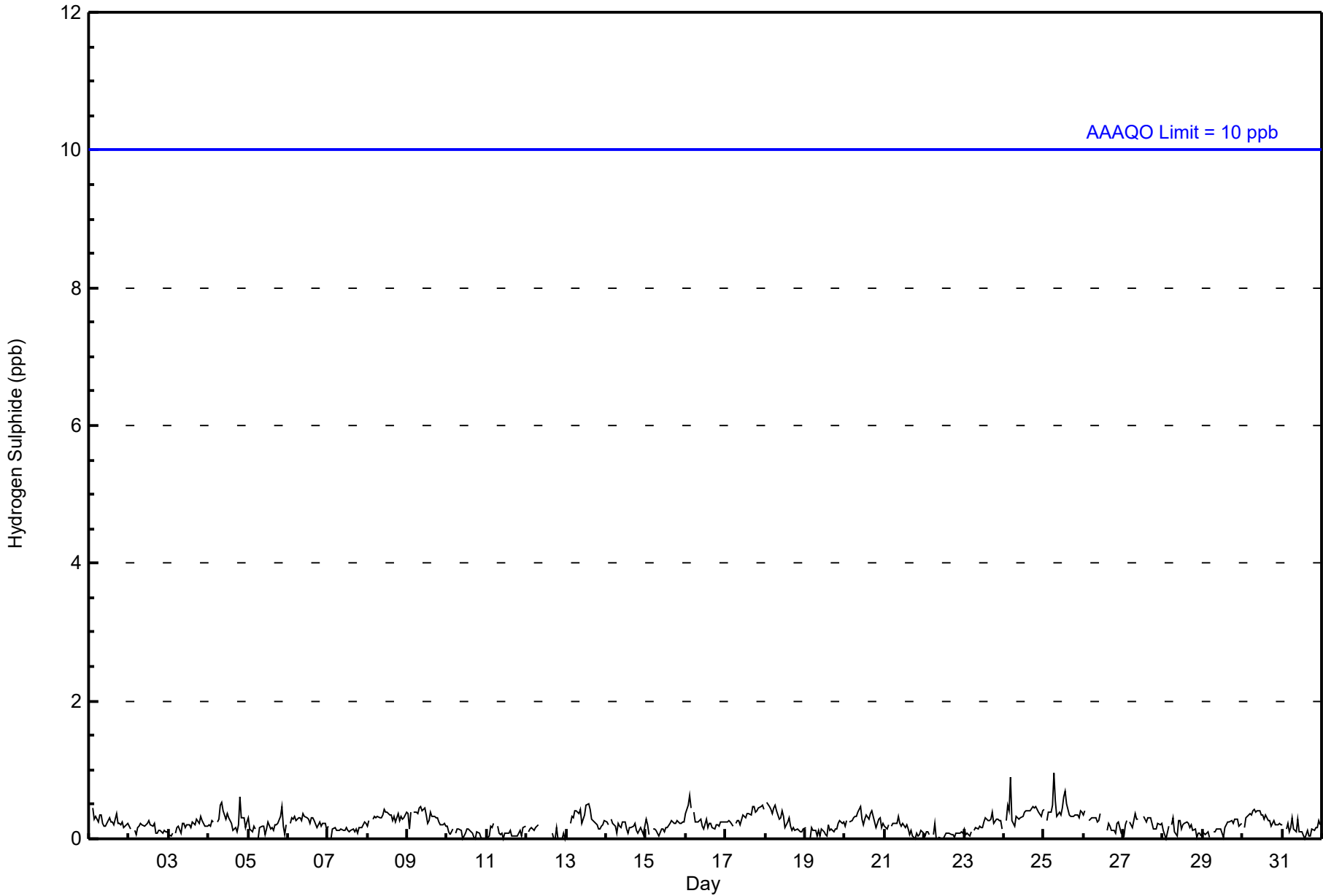






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - January 2024**





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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	702	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: 702

Total Number of Hours: 744



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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - January 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	36	32	77	36	14	8	12	20	61	91	77	79	37	24	49	46	699
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>	36	32	77	36	14	8	12	20	61	91	77	79	37	24	49	46	699

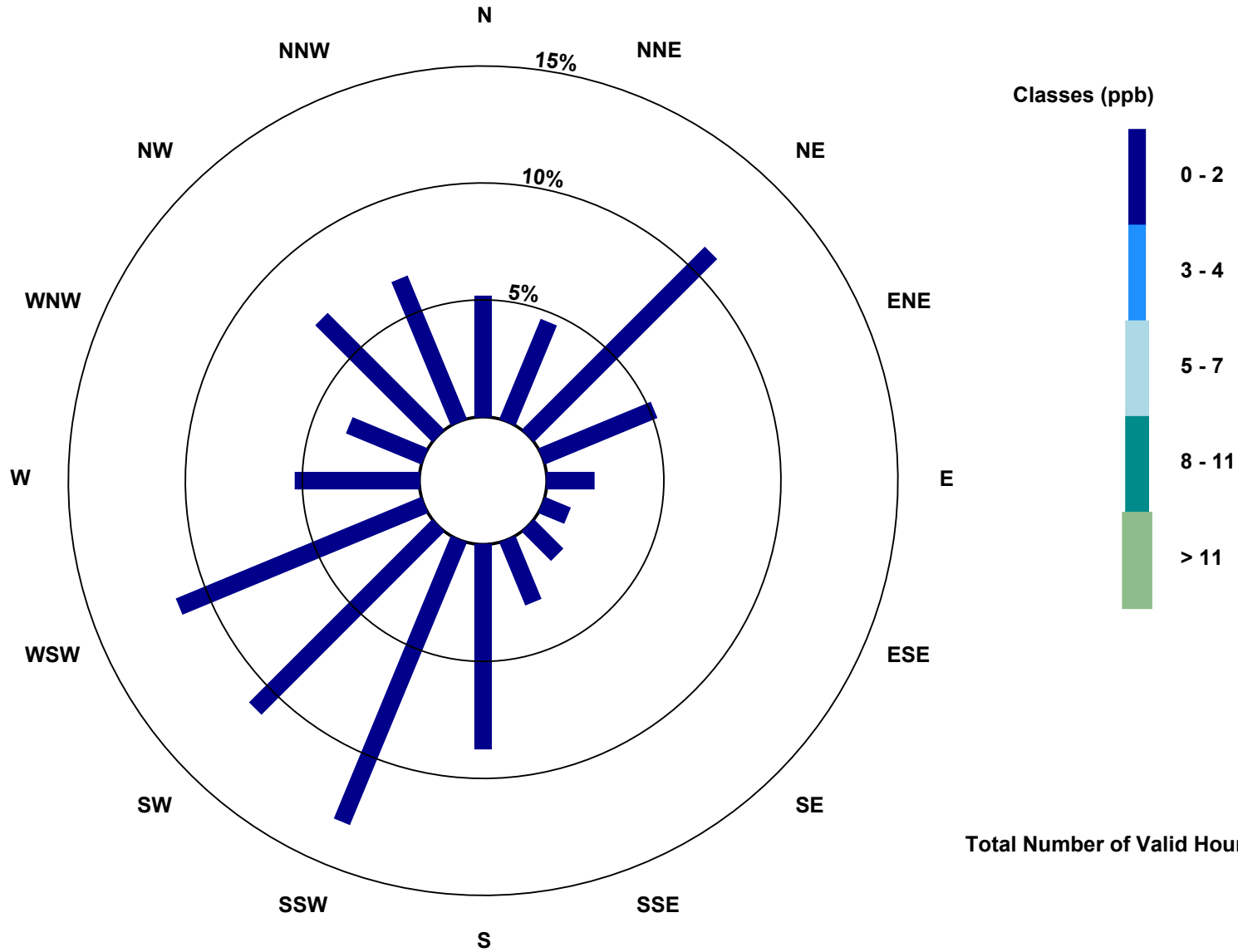
Total Number of Valid Hours: 699

Total Number of Hours: 744

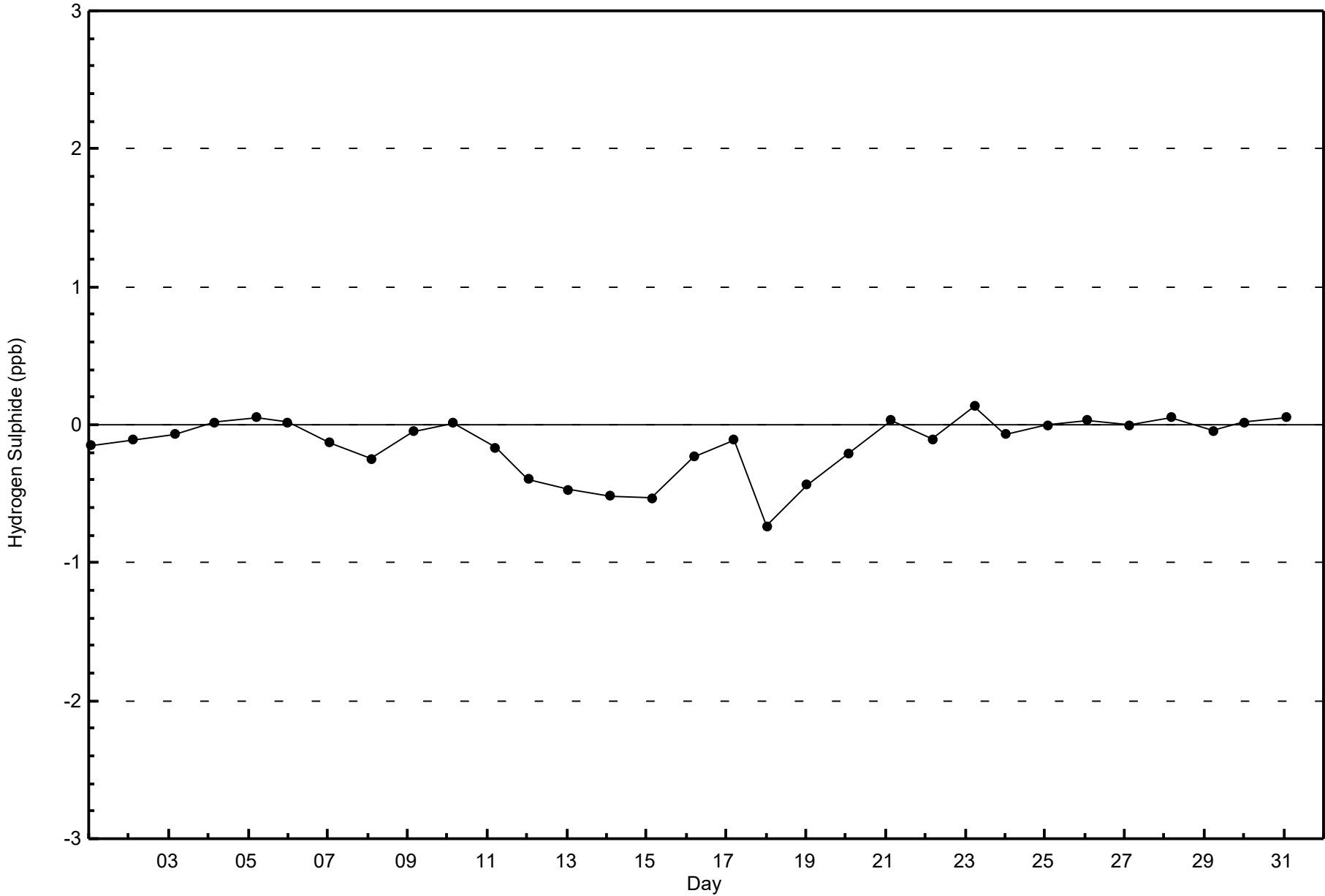


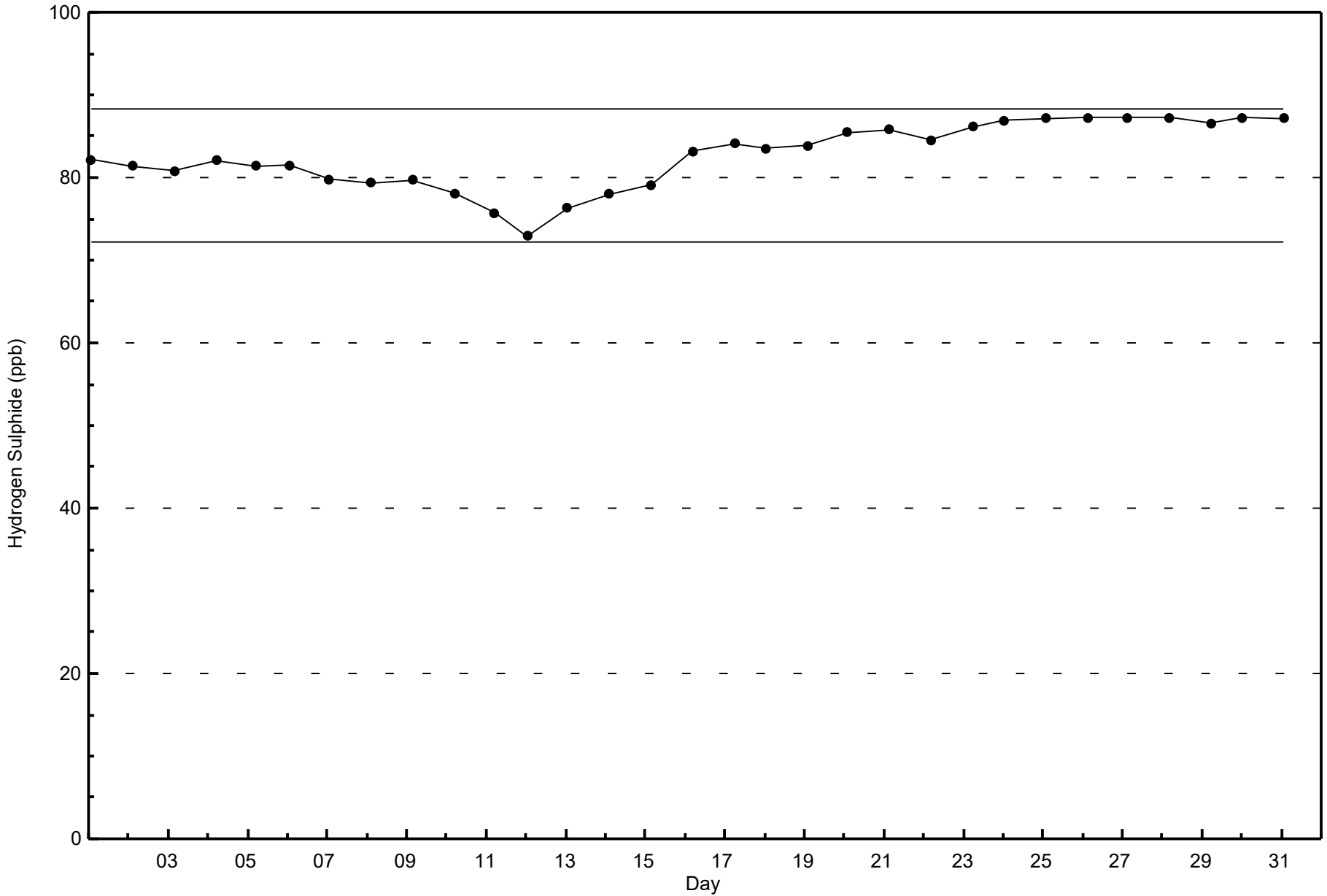
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 699





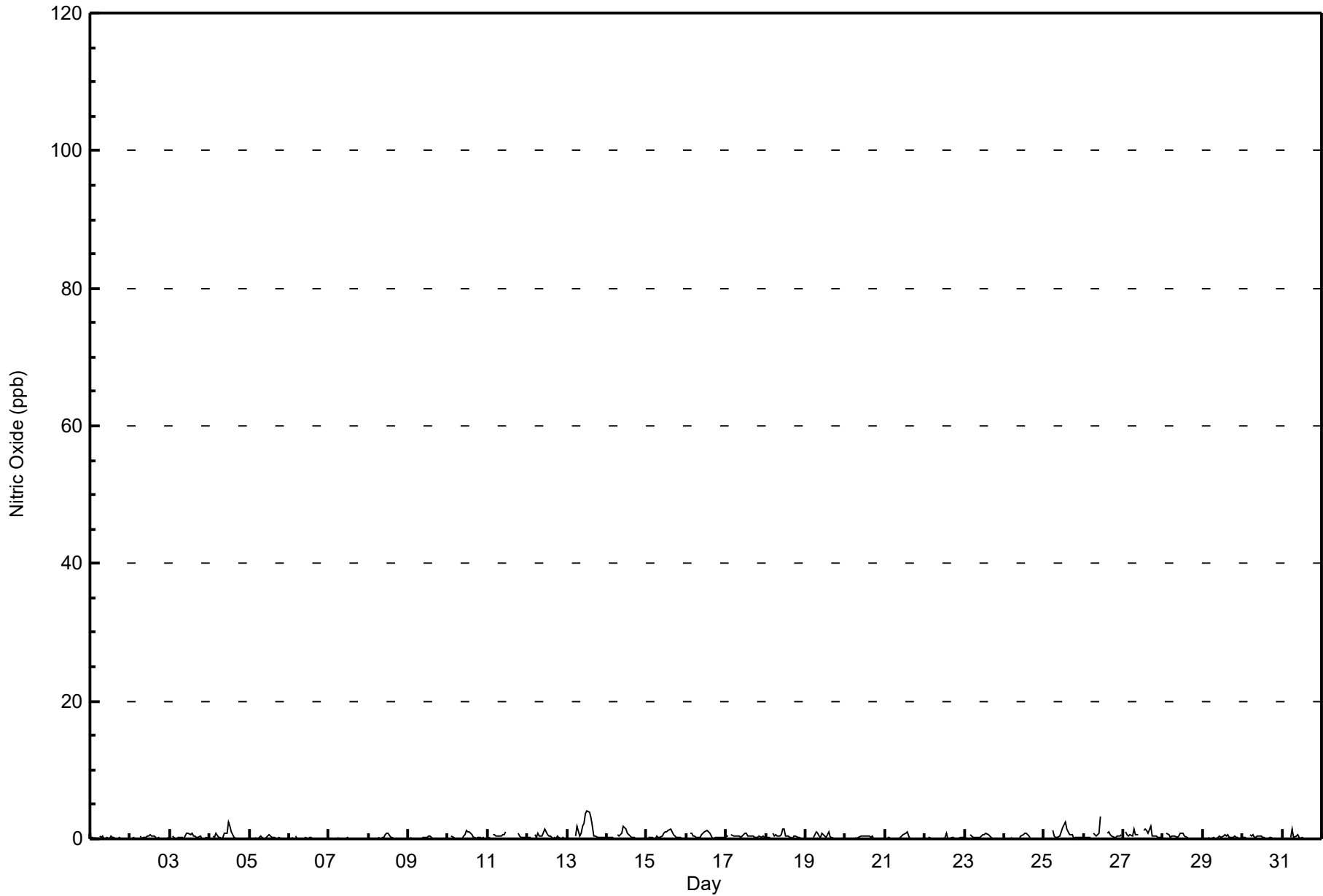


Maximum Value: 4.1 ppb on Jan 13 13:00		Maximum Daily Average: 1.1 ppb on Jan 13		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Jan 1 19:00		Minimum Daily Average: 0.0 ppb on Jan 7		Hours of Data: 703																						
Maximum Diurnal Average: 0.8 ppb at hour 12		Minimum Diurnal Average: 0.1 ppb at hour 22		Hours of Missing Data: 41																						
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 = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.2		Hours of Calibration: 37																						
				Percent Operational Time: 99.5																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.2	0.1	0.1	0.2	Z	0.4	0.2	0.3	0.1	0.1	0.1	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	0.1	0.4
2-Jan	0.1	0.0	0.1	0.0	0.0	Z	0.3	0.1	0.1	0.2	0.3	0.5	0.5	0.4	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5
3-Jan	Z	0.4	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.4	0.8	0.8	0.6	0.7	0.5	0.4	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.3	0.8
4-Jan	0.0	Z	0.4	0.2	0.8	0.1	0.2	0.1	0.3	0.8	0.9	2.4	1.9	0.9	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4
5-Jan	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.4	0.0	0.0	0.1	0.4	0.7	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.7
6-Jan	0.0	0.0	0.1	Z	0.4	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4
7-Jan	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.1	0.3	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
8-Jan	0.0	0.0	0.0	0.1	0.0	Z	0.3	0.0	0.1	0.2	0.6	0.8	0.7	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8
9-Jan	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
10-Jan	0.0	Z	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.6	1.3	1.1	1.1	0.5	0.2	0.2	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.3	1.3
11-Jan	0.0	0.1	Z	0.5	0.5	0.5	0.5	0.3	0.4	0.6	0.7	1.0	C	C	C	C	C	C	0.9	0.3	0.2	0.2	0.2	0.3	--	1.0
12-Jan	0.1	0.3	0.2	Z	0.5	0.2	0.8	0.5	0.5	0.4	1.3	1.1	0.7	0.5	0.3	0.1	0.1	0.1	0.4	0.2	0.1	0.2	0.1	0.0	0.4	1.3
13-Jan	0.1	0.1	0.0	0.0	Z	0.5	1.7	0.4	0.8	1.8	2.3	3.7	4.1	3.8	3.1	1.9	0.4	0.4	0.2	0.2	0.1	0.1	0.2	0.2	1.1	4.1
14-Jan	0.2	0.1	0.1	0.1	0.1	Z	0.7	0.3	0.6	0.8	1.8	1.5	0.9	0.5	0.3	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.4	1.8
15-Jan	Z	0.3	0.2	0.1	0.0	0.1	0.3	0.2	0.2	0.5	0.7	1.0	0.9	1.2	1.4	0.9	0.7	0.4	0.3	0.2	0.1	0.1	0.1	0.0	0.4	1.4
16-Jan	0.2	Z	0.8	0.9	0.4	0.3	0.2	0.2	0.3	0.6	0.8	0.9	1.3	1.0	0.8	0.4	0.0	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.5	1.3
17-Jan	0.4	0.4	Z	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.6	0.8	0.7	0.5	0.4	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.8
18-Jan	0.1	0.3	0.3	Z	0.8	0.4	0.5	0.5	0.5	0.7	1.5	1.3	0.5	0.3	0.3	0.2	0.1	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.4	1.5
19-Jan	0.0	0.0	0.1	0.1	Z	0.3	1.0	0.7	0.3	0.2	0.8	0.5	0.2	0.6	1.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0
20-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.0	0.1	0.4	0.3	0.5	0.5	0.5	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5
21-Jan	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.7	0.9	1.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
22-Jan	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.1	0.0	0.1	0.2	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.9
23-Jan	0.2	0.2	Z	0.6	0.5	0.3	0.3	0.3	0.2	0.2	0.4	0.6	0.6	0.8	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8
24-Jan	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.8	0.7	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
25-Jan	0.0	0.0	0.0	0.0	Z	1.3	0.4	0.2	0.3	0.4	1.0	1.6	2.0	2.4	1.4	0.6	0.6	0.6	0.0	0.2	0.1	0.1	0.2	0.2	0.6	2.4
26-Jan	0.2	0.3	0.2	0.2	0.2	Z	0.9	0.4	0.6	0.9	3.3	DF	1.6	M	0.8	1.1	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.6	0.7	3.3
27-Jan	Z	1.0	0.6	0.5	0.7	0.4	1.5	0.5	0.7	0.6	M	M	1.2	1.4	1.2	0.8	1.8	0.3	0.4	0.5	0.5	0.3	0.3	0.2	0.7	1.8
28-Jan	0.2	Z	0.7	0.6	0.3	0.3	0.5	0.4	0.3	0.5	0.7	0.8	0.8	0.4	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8
29-Jan	0.0	0.0	Z	0.3	0.0	0.0	0.2	0.0	0.0	0.2	0.4	0.3	0.3	0.6	0.3	0.5	0.2	0.2	0.3	0.5	0.2	0.2	0.0	0.2	0.2	0.6
30-Jan	0.3	0.2	0.2	Z	0.6	0.3	0.7	0.2	0.2	0.4	0.4	0.3	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.7
31-Jan	0.1	0.0	0.0	0.1	Z	0.3	1.4	0.2	0.4	0.7	0.3	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure																										



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

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - January 2024**







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

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	703	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: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Jackfish 2/3 - January 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	33	33	78	35	16	8	12	18	66	88	80	77	38	27	47	44	700
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>33</b>	<b>33</b>	<b>78</b>	<b>35</b>	<b>16</b>	<b>8</b>	<b>12</b>	<b>18</b>	<b>66</b>	<b>88</b>	<b>80</b>	<b>77</b>	<b>38</b>	<b>27</b>	<b>47</b>	<b>44</b>	<b>700</b>

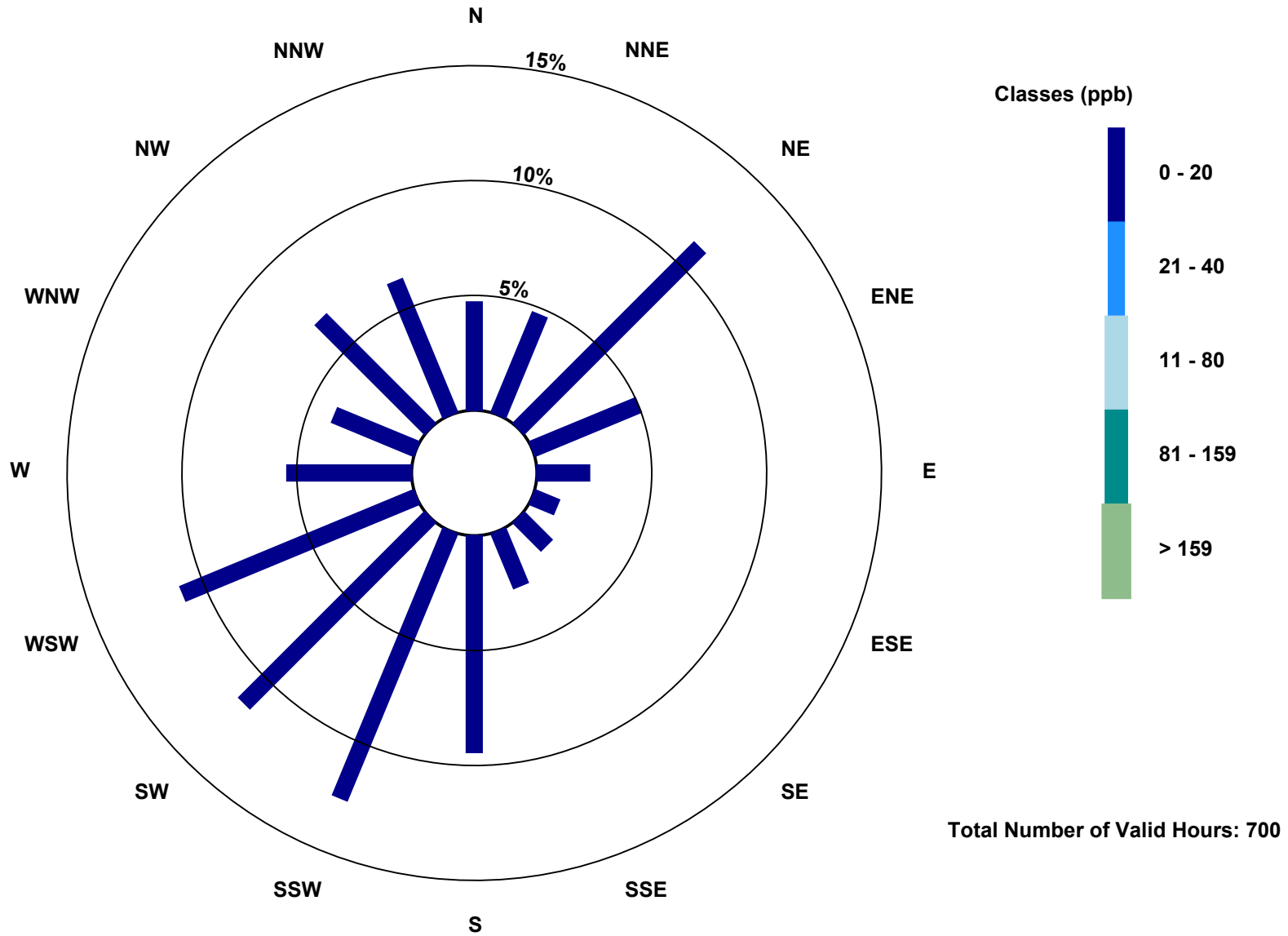
Total Number of Valid Hours: 700

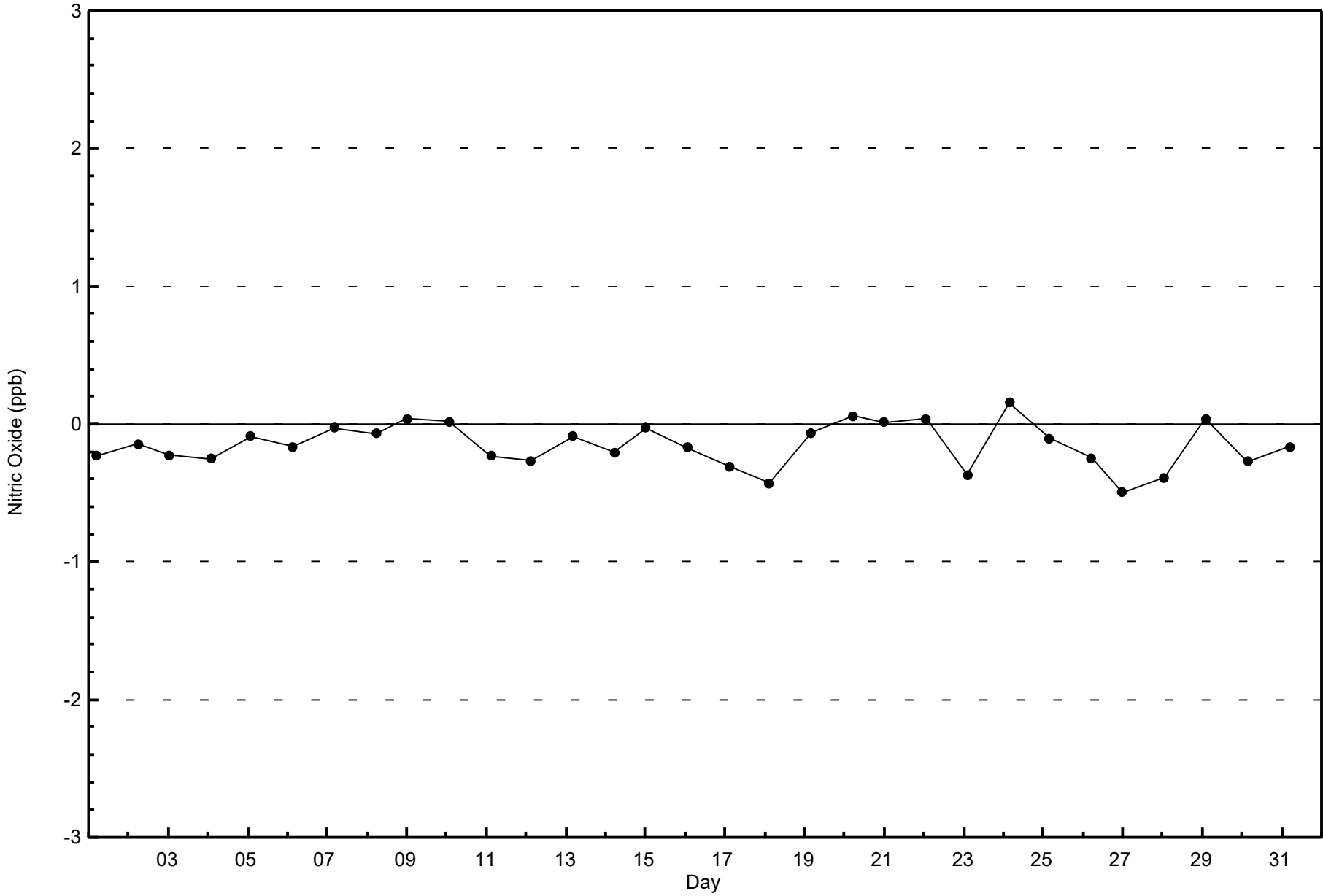
Total Number of Hours: 744

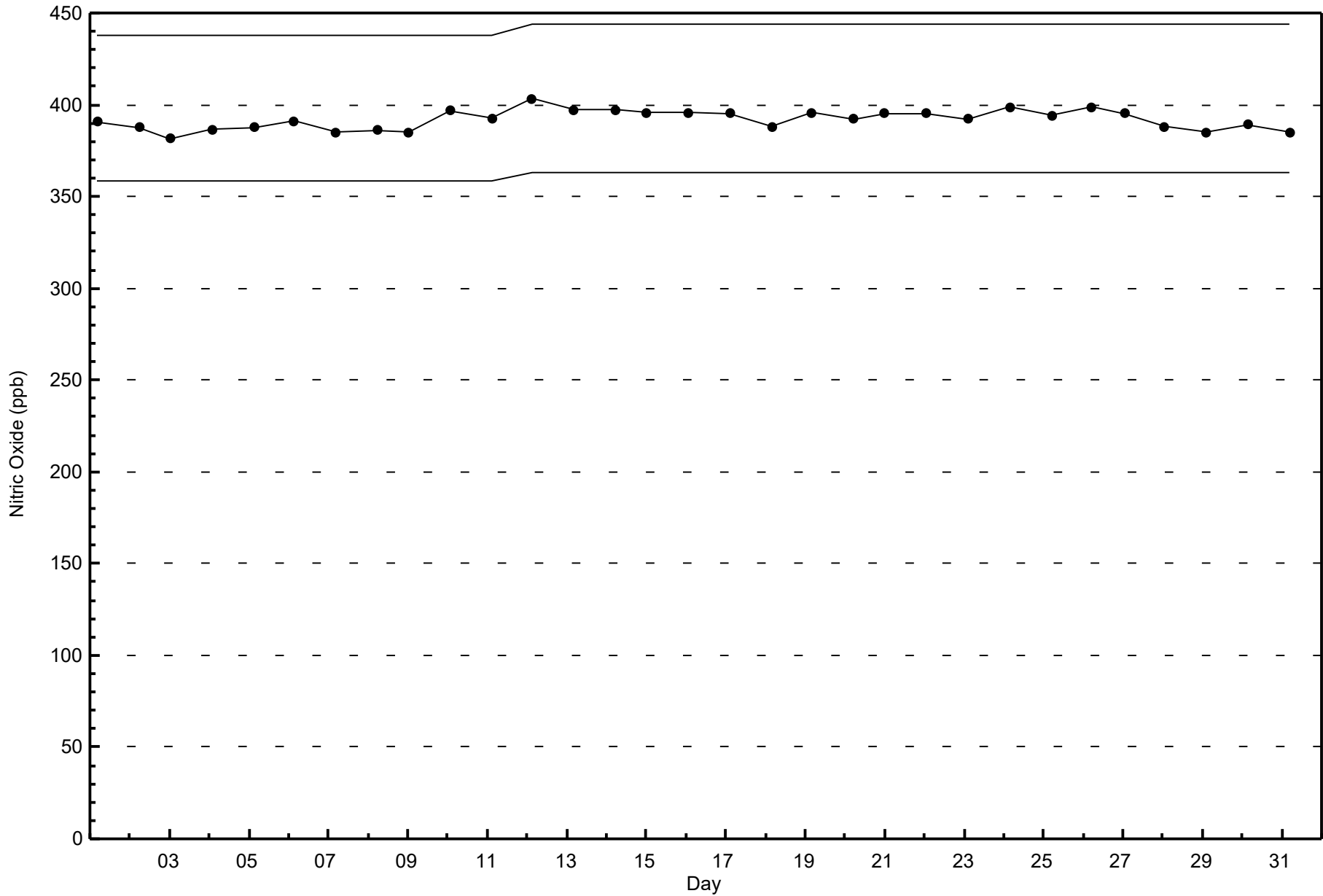


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Jackfish 2/3









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Jackfish 2/3 - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 14.7 ppb on Jan 13 09:00	Maximum Daily Average: 5.2 ppb on Jan 13		Hours of Data:	703
Minimum Value: 0.0 ppb on Jan 1 01:00	Minimum Daily Average: 0.5 ppb on Jan 31		Hours of Missing Data:	41
Maximum Diurnal Average: 3.1 ppb at hour 9	Minimum Diurnal Average: 1.6 ppb at hour 22		Hours of Calibration:	37
Monthly Average: 2.30 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 1.1 Median = 2.0 Q <sub>3</sub> = 3.0 P <sub>90</sub> = 4.3 P <sub>99</sub> = 10.2		Percent Operational Time:	99.5

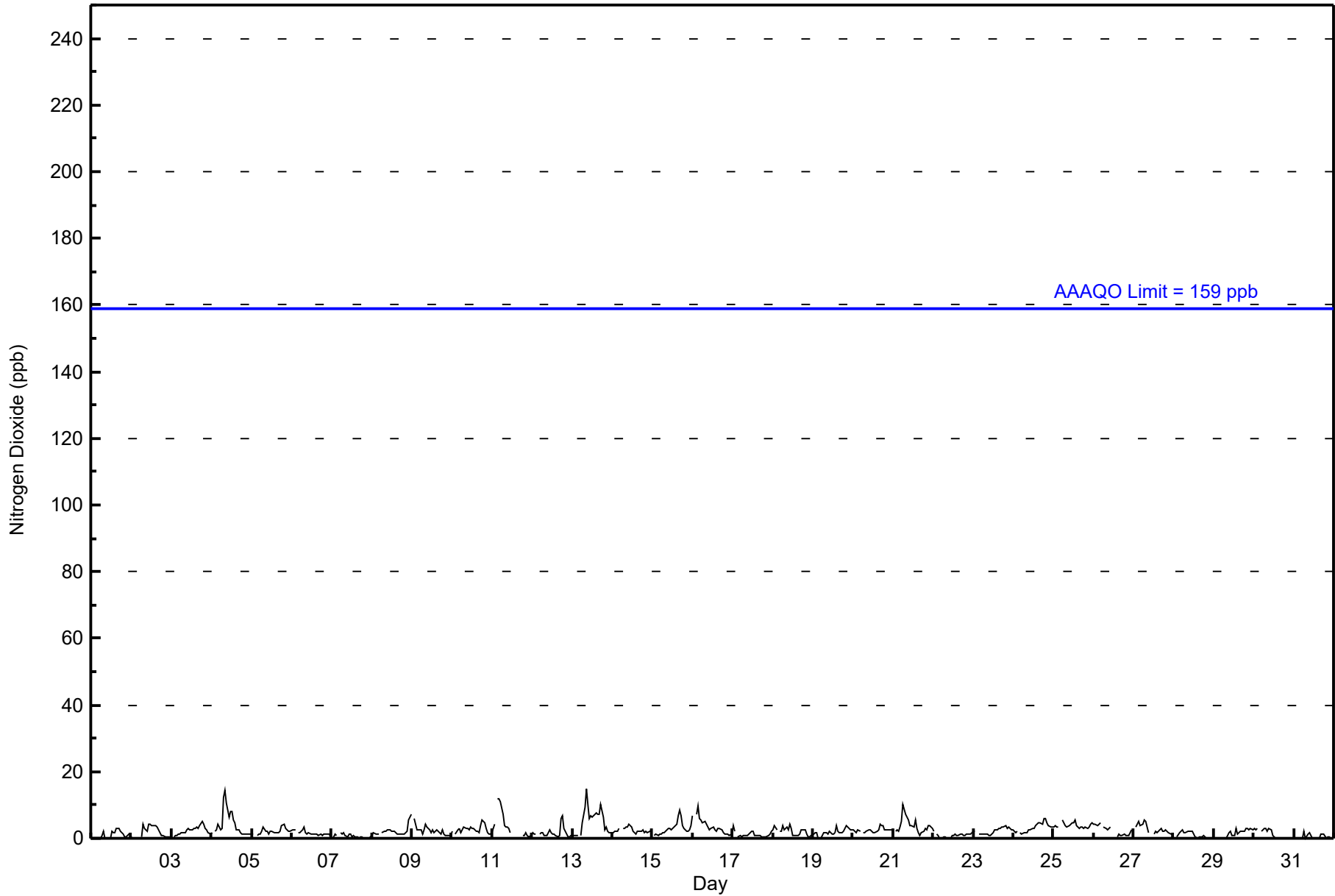
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.9	2.3	0.0	0.0	0.0	0.1	2.1	1.6	1.7	2.8	3.1	2.1	1.6	1.4	0.6	0.6	1.1	1.2	1.0	3.1
2-Jan	0.1	0.0	0.2	0.0	0.0	Z	0.6	4.1	3.1	2.2	4.1	4.3	3.9	3.9	3.9	3.6	2.6	1.5	1.0	0.8	0.6	0.4	0.4	0.5	1.8	4.3
3-Jan	Z	0.5	0.7	1.0	1.1	1.1	1.5	1.8	1.8	2.6	3.1	2.6	2.5	3.0	3.0	3.4	2.9	4.0	4.9	4.4	2.9	2.6	1.7	1.4	2.4	4.9
4-Jan	1.5	Z	2.3	2.6	4.3	2.6	3.0	12.3	14.6	10.6	6.4	8.2	8.0	5.7	4.7	2.7	2.6	1.9	1.3	1.2	1.1	1.1	1.2	1.1	4.4	14.6
5-Jan	1.2	1.1	Z	0.9	1.1	1.3	2.0	3.3	2.1	2.3	1.4	2.0	2.3	1.5	1.8	1.7	1.6	2.1	4.0	4.1	2.9	2.4	2.2	2.0	2.1	4.1
6-Jan	2.5	2.4	2.6	Z	1.9	1.8	2.4	3.3	1.5	1.4	1.9	1.3	1.2	1.2	1.4	1.3	1.0	1.4	0.9	1.3	1.4	1.2	1.3	0.0	1.6	3.3
7-Jan	0.0	0.6	1.2	0.8	Z	1.5	1.1	1.5	0.8	0.6	1.2	1.3	0.6	0.7	0.6	0.4	0.1	0.4	0.3	0.1	0.0	0.0	0.2	0.3	0.6	1.5
8-Jan	0.7	1.6	1.4	1.4	1.4	Z	1.9	2.0	2.1	2.5	2.7	2.6	2.3	2.2	1.6	1.3	1.4	1.3	1.3	1.4	1.7	2.3	5.6	7.1	2.2	7.1
9-Jan	Z	5.8	4.3	2.4	2.5	2.7	1.4	2.5	4.3	3.5	2.5	1.9	2.4	1.8	2.1	2.7	1.9	1.3	2.5	1.1	0.7	0.7	0.7	0.8	2.3	5.8
10-Jan	2.2	Z	1.2	2.5	2.8	1.8	2.7	3.4	3.1	3.1	2.6	3.2	3.1	2.9	2.3	2.0	1.8	3.8	5.7	4.5	3.0	1.7	1.4	1.2	2.7	5.7
11-Jan	1.5	4.2	Z	11.7	12.0	11.0	7.0	4.0	3.5	3.6	2.8	1.9	C	C	C	C	C	C	0.9	1.0	1.5	0.9	0.5	0.8	--	12.0
12-Jan	1.9	1.1	1.4	Z	1.2	1.5	1.7	0.9	1.0	0.8	2.6	1.7	1.2	1.3	1.0	0.6	1.0	5.9	6.9	2.8	1.1	0.5	0.5	0.8	1.7	6.9
13-Jan	0.8	0.7	0.9	0.8	Z	0.9	4.8	9.3	14.7	10.2	6.1	6.7	6.3	7.0	7.5	7.3	7.2	10.1	6.3	2.5	3.4	2.2	1.7	1.6	5.2	14.7
14-Jan	1.8	2.3	2.1	2.0	2.9	Z	3.1	2.8	3.5	3.3	4.4	3.4	2.1	1.5	1.4	2.0	2.2	2.1	2.4	1.8	2.1	1.7	2.0	2.7	2.4	4.4
15-Jan	Z	1.0	1.3	1.0	1.2	1.3	1.7	1.6	2.0	3.0	3.0	2.6	2.8	3.3	4.1	6.6	8.3	6.7	3.8	3.1	2.3	2.3	2.7	4.0	3.0	8.3
16-Jan	6.6	Z	7.3	9.8	6.0	5.4	4.8	5.1	4.4	3.4	2.6	2.8	3.2	2.7	2.3	2.8	2.9	2.7	1.7	1.2	1.1	1.1	0.8	1.1	3.6	9.8
17-Jan	3.8	2.2	Z	0.4	0.8	0.6	0.8	0.7	0.8	0.7	1.5	2.2	2.0	1.0	0.7	0.8	0.8	0.5	0.4	0.4	0.5	0.8	1.4	2.3	1.1	3.8
18-Jan	2.5	3.8	2.4	Z	2.3	2.3	4.0	2.5	3.2	2.5	4.1	3.0	0.9	0.9	0.8	0.9	1.1	2.5	2.6	2.4	1.2	0.5	0.6	0.8	2.1	4.1
19-Jan	1.3	1.8	1.8	0.2	Z	0.2	1.9	1.6	1.5	1.1	2.0	1.2	1.2	1.8	3.8	2.1	1.6	1.9	2.0	3.0	3.9	3.2	2.7	2.6	1.9	3.9
20-Jan	2.4	2.0	1.6	2.4	2.2	Z	1.5	1.7	2.3	2.5	2.4	2.3	1.9	1.9	2.2	2.6	4.3	4.0	4.0	2.5	2.6	2.4	2.5	2.6	2.5	4.3
21-Jan	Z	2.3	2.4	2.3	3.2	5.0	10.2	7.0	6.3	5.5	3.8	4.0	3.5	5.3	3.0	1.6	0.9	1.7	2.1	3.0	2.5	3.7	4.0	2.9	3.7	10.2
22-Jan	2.3	Z	1.2	0.8	0.0	0.1	0.3	0.3	0.1	0.2	0.1	0.7	0.8	1.3	0.8	1.0	1.3	1.3	1.0	1.0	1.1	1.3	1.3	1.6	0.9	2.3
23-Jan	2.1	2.2	Z	1.3	1.1	1.3	1.2	1.2	1.1	0.9	1.0	1.2	1.7	2.7	2.5	2.9	3.0	3.3	3.5	3.9	3.1	3.4	2.8	2.7	2.2	3.9
24-Jan	2.5	1.8	2.3	Z	1.8	1.4	1.5	1.6	1.9	2.4	2.5	2.8	2.9	3.7	4.2	4.6	4.8	4.4	6.0	5.9	4.7	3.9	3.6	3.4	3.2	6.0
25-Jan	3.6	3.7	3.4	3.2	Z	5.5	4.8	3.7	3.5	3.8	4.2	4.5	4.7	5.3	4.0	2.9	3.6	3.2	3.0	3.2	2.8	3.3	4.4	4.6	3.9	5.5
26-Jan	4.3	4.1	3.9	4.4	4.5	Z	3.4	3.1	2.6	2.9	3.4	DF	1.8	M	0.6	1.2	0.8	1.0	1.1	0.8	0.9	0.7	1.5	2.6	2.4	4.5
27-Jan	Z	3.6	4.2	4.9	3.8	4.3	5.5	5.2	3.6	1.6	M	M	1.4	2.1	1.9	2.1	3.0	2.1	2.1	2.6	2.1	1.7	1.4	1.2	2.9	5.5
28-Jan	1.2	Z	0.5	1.5	2.0	2.6	1.8	1.8	2.0	2.1	2.2	2.1	1.3	0.6	0.2	0.4	0.3	0.5	0.7	0.1	0.0	0.0	0.0	0.0	1.0	2.6
29-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.0	0.8	1.6	2.0	0.8	1.0	2.8	1.4	1.7	2.0	2.0	2.3	2.8	2.8	2.7	2.8	2.7	1.4	2.8
30-Jan	3.1	2.7	2.9	Z	2.3	2.6	2.8	2.9	2.3	2.8	2.5	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	3.1
31-Jan	0.0	0.0	0.0	0.2	Z	0.0	2.0	0.0	1.1	1.8	0.7	0.0	0.2	0.0	0.1	0.2	1.2	1.4	1.1	0.1	0.3	0.3	0.0	0.0	0.5	2.0
1.9 2.0 2.1 2.3 2.5 2.3 2.7 3.0 3.1 2.8 2.7 2.5 2.3 2.4 2.2 2.2 2.3 2.6 2.5 2.1 1.8 1.6 1.7 1.8																								Diurnal Average		
6.6 5.8 7.3 11.7 12.0 11.0 10.2 12.3 14.7 10.6 6.4 8.2 8.0 7.0 7.5 7.3 8.3 10.1 6.9 5.9 4.7 3.9 5.6 7.1																								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 - January 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	703	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: 703

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3 - January 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	33	33	78	35	16	8	12	18	66	88	80	77	38	27	47	44	700
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>33</b>	<b>33</b>	<b>78</b>	<b>35</b>	<b>16</b>	<b>8</b>	<b>12</b>	<b>18</b>	<b>66</b>	<b>88</b>	<b>80</b>	<b>77</b>	<b>38</b>	<b>27</b>	<b>47</b>	<b>44</b>	<b>700</b>

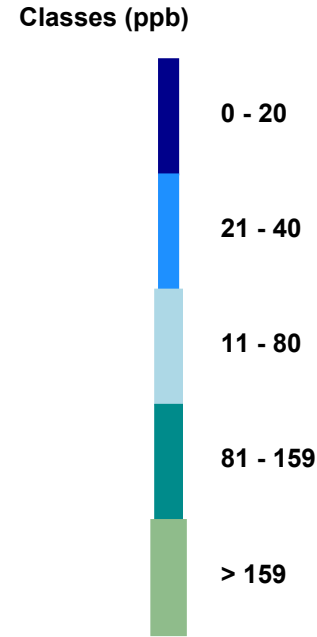
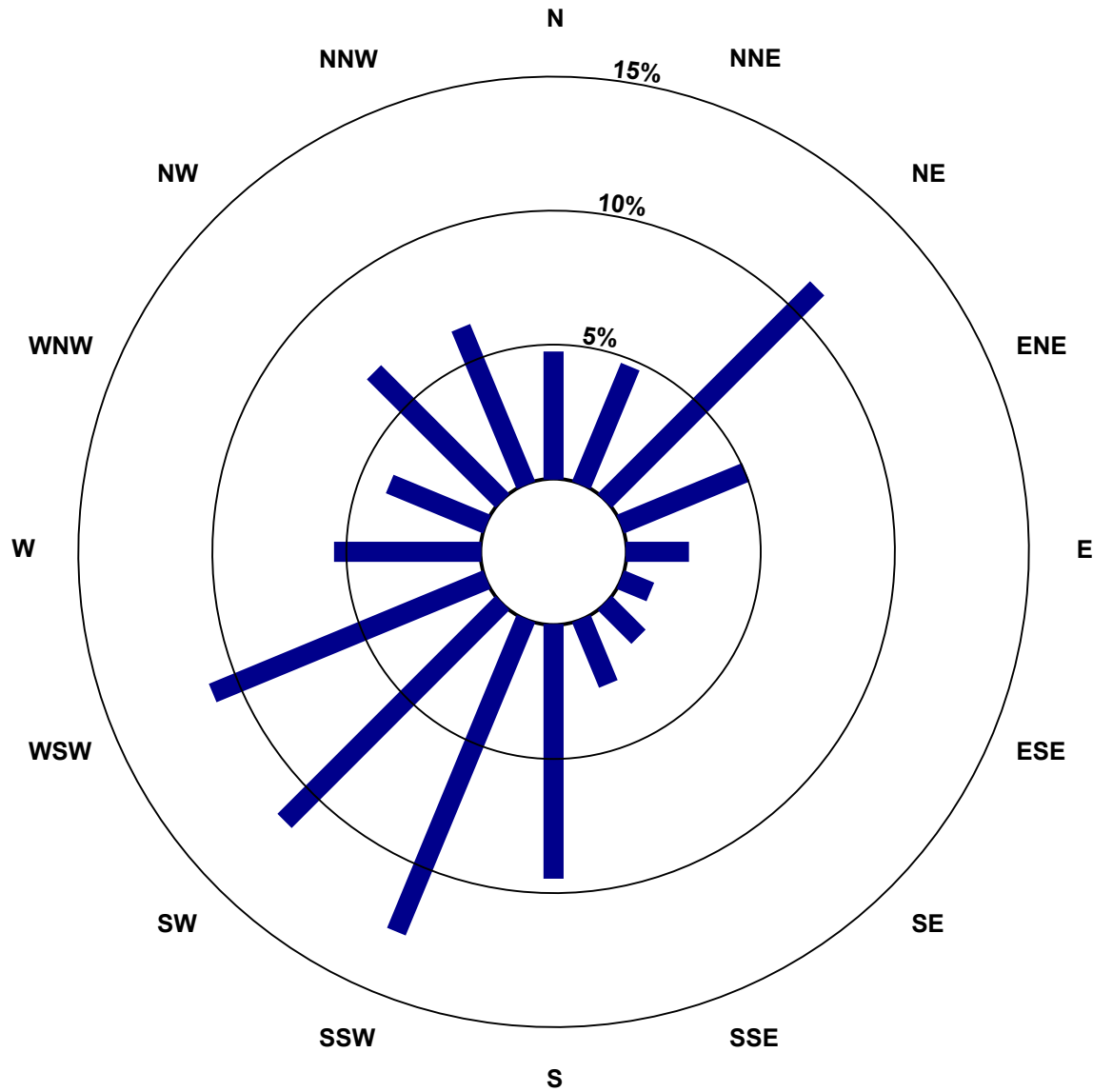
Total Number of Valid Hours: 700

Total Number of Hours: 744

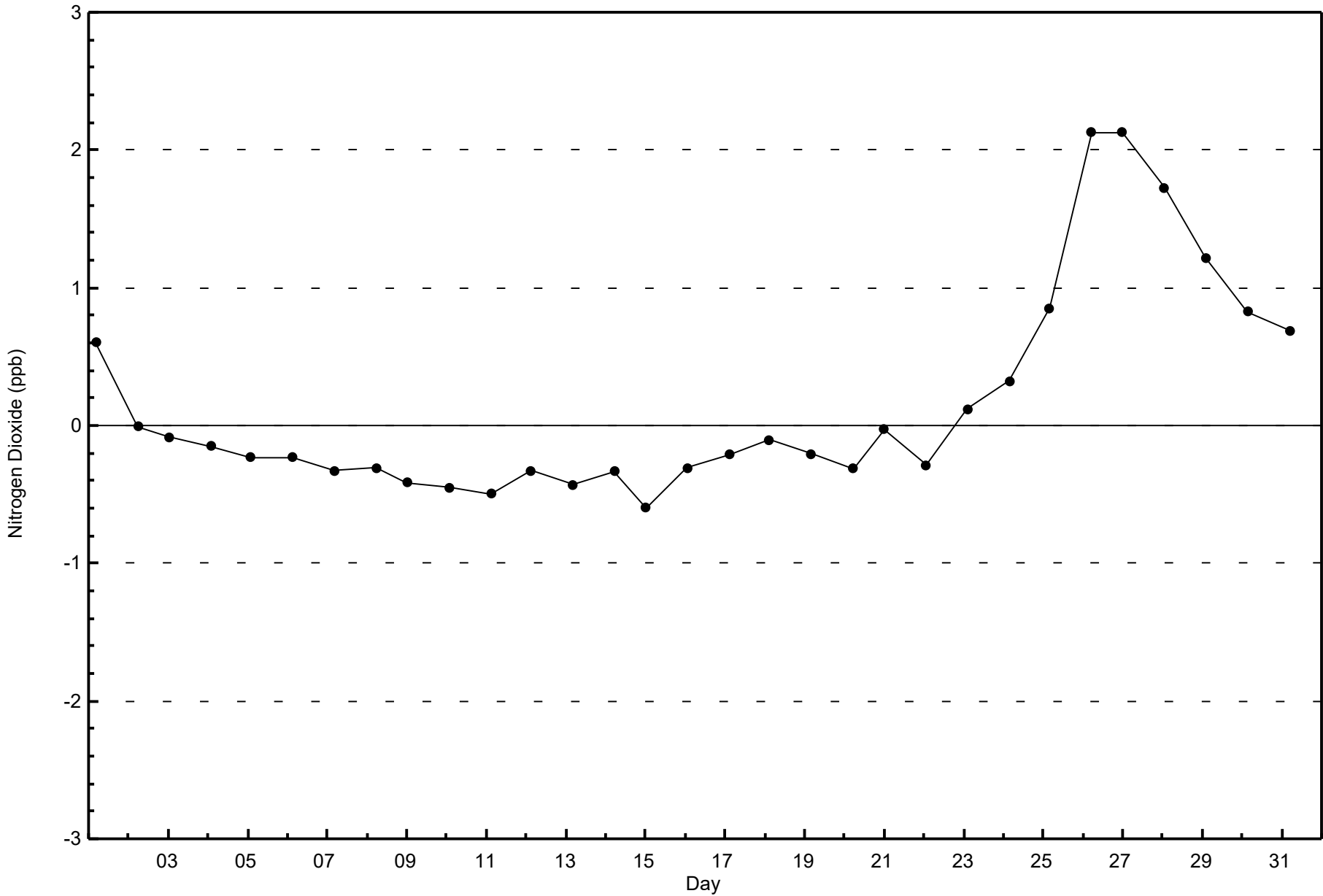


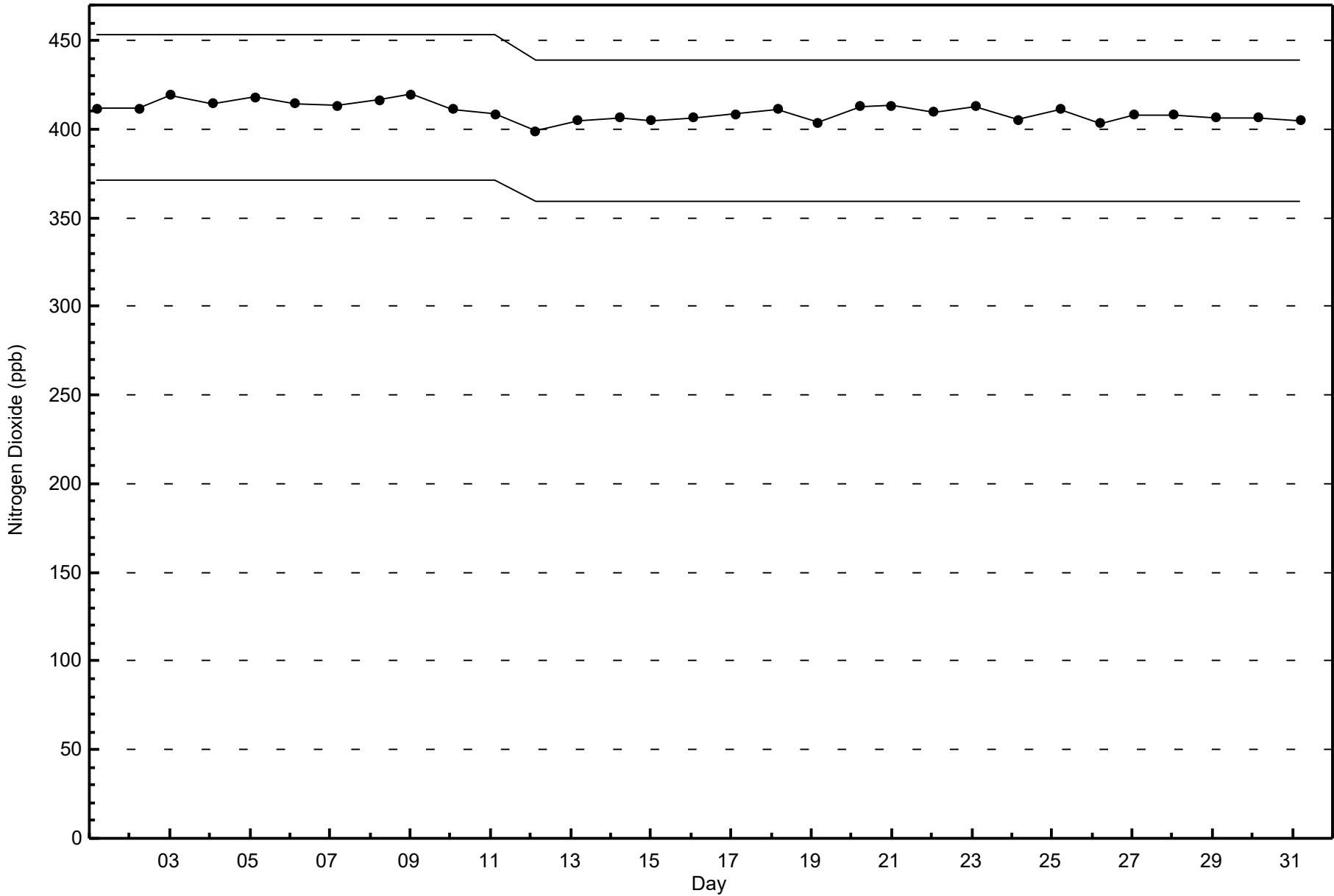
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 700







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

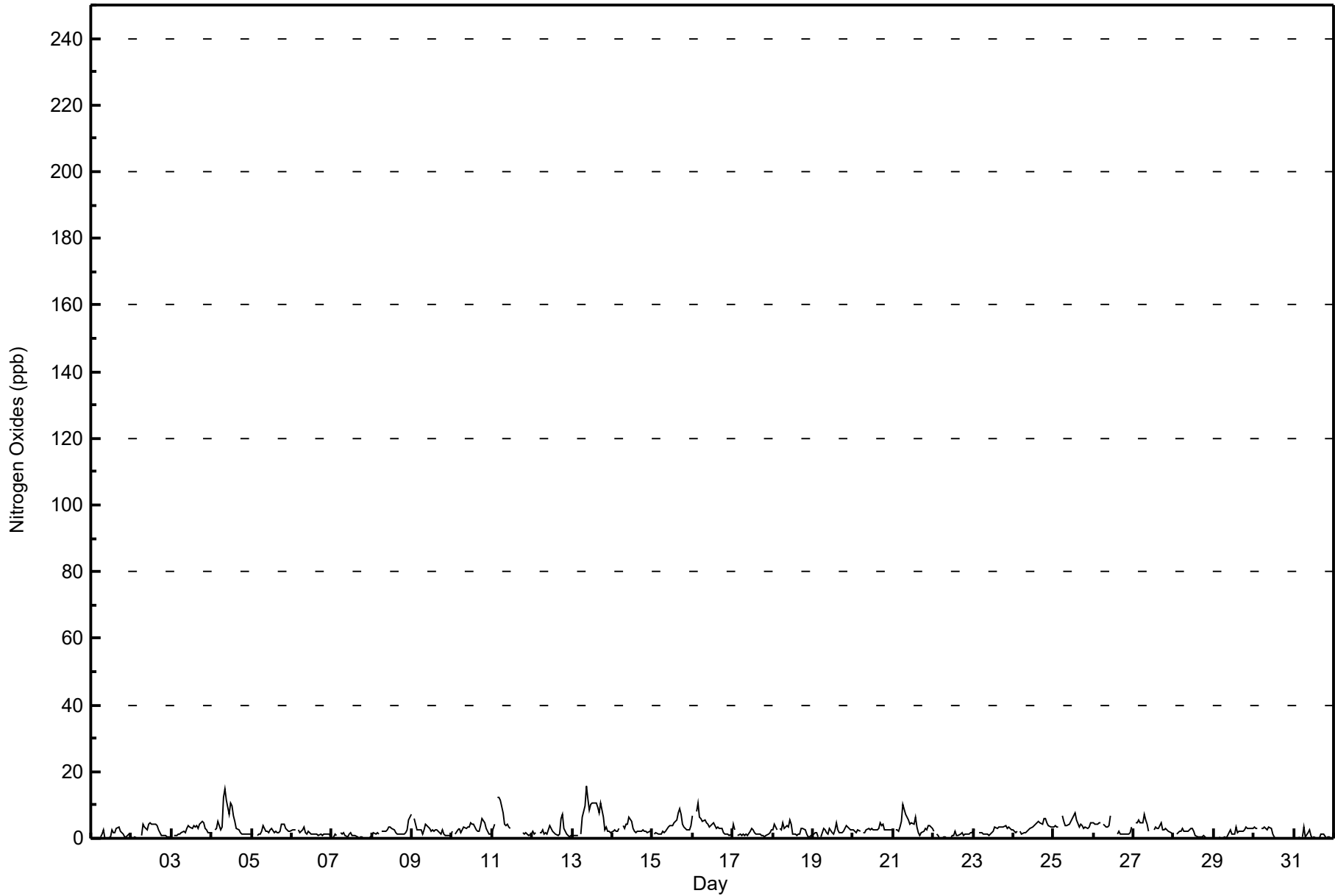
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - January 2024**

Maximum Value: 15.5 ppb on Jan 13 09:00      Maximum Daily Average: 6.3 ppb on Jan 13																				Hours in Service: 744 Hours of Data: 703 Hours of Missing Data: 41 Hours of Calibration: 37 Percent Operational Time: 99.5						
Minimum Value: 0.0 ppb on Jan 2 02:00      Minimum Daily Average: 0.6 ppb on Jan 31 Maximum Diurnal Average: 3.4 ppb at hour 11      Minimum Diurnal Average: 1.7 ppb at hour 22 Monthly Average: 2.61 ppb      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.2 Median = 2.2 Q <sub>3</sub> = 3.4 P <sub>90</sub> = 4.8 P <sub>99</sub> = 11.3																										
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-Jan	0.2	0.1	0.1	0.2	Z	0.4	1.1	2.6	0.1	0.1	0.1	0.2	2.4	1.8	1.8	2.9	3.2	2.2	1.6	1.4	0.6	0.6	1.1	1.2	1.1	3.2
2-Jan	0.2	0.0	0.3	0.0	0.0	Z	0.9	4.2	3.2	2.4	4.4	4.8	4.4	4.3	4.2	3.8	2.6	1.6	1.0	0.8	0.6	0.4	0.5	0.6	2.0	4.8
3-Jan	Z	0.9	0.8	1.1	1.2	1.3	1.7	2.0	1.9	3.0	3.9	3.4	3.1	3.7	3.5	3.8	3.0	4.2	5.2	4.5	3.0	2.7	1.8	1.5	2.6	5.2
4-Jan	1.5	Z	2.7	2.8	5.1	2.7	3.2	12.4	14.9	11.4	7.3	10.6	9.9	6.6	5.3	3.0	2.6	1.9	1.3	1.2	1.1	1.1	1.2	1.1	4.8	14.9
5-Jan	1.2	1.1	Z	1.0	1.1	1.3	2.2	3.7	2.1	2.3	1.5	2.4	3.0	1.7	2.0	1.9	1.6	2.1	4.1	4.1	2.9	2.4	2.3	2.0	2.2	4.1
6-Jan	2.5	2.4	2.7	Z	2.3	1.8	2.4	3.3	1.6	1.4	2.1	1.4	1.4	1.4	1.4	1.3	1.0	1.4	0.9	1.3	1.4	1.2	1.3	0.1	1.7	3.3
7-Jan	0.0	0.6	1.2	0.8	Z	1.7	1.1	1.5	0.8	0.6	1.3	1.6	0.6	0.7	0.7	0.4	0.1	0.4	0.3	0.1	0.0	0.0	0.2	0.3	0.7	1.7
8-Jan	0.7	1.6	1.4	1.5	1.4	Z	2.2	2.0	2.2	2.7	3.3	3.4	3.0	2.5	1.8	1.3	1.4	1.3	1.3	1.4	1.7	2.3	5.6	7.2	2.3	7.2
9-Jan	Z	6.1	4.3	2.4	2.5	2.7	1.4	2.5	4.3	3.6	2.8	2.1	2.7	2.2	2.4	2.7	1.9	1.3	2.5	1.1	0.7	0.7	0.7	0.8	2.4	6.1
10-Jan	2.2	Z	1.5	2.7	2.8	1.8	2.7	3.4	3.1	3.4	3.2	4.5	4.2	4.0	2.8	2.2	2.0	3.8	5.9	4.7	3.1	1.9	1.5	1.3	3.0	5.9
11-Jan	1.5	4.3	Z	12.2	12.5	11.5	7.5	4.3	3.9	4.2	3.5	2.9	C	C	C	C	C	C	1.8	1.3	1.7	1.1	0.7	1.1	--	12.5
12-Jan	2.0	1.4	1.6	Z	1.7	1.7	2.5	1.4	1.5	1.2	3.9	2.8	1.9	1.8	1.3	0.7	1.1	6.0	7.3	3.0	1.2	0.7	0.6	0.8	2.1	7.3
13-Jan	0.9	0.8	0.9	0.8	Z	1.4	6.5	9.7	15.5	12.0	8.4	10.4	10.4	10.8	10.6	9.2	7.6	10.5	6.5	2.7	3.5	2.3	1.9	1.8	6.3	15.5
14-Jan	2.0	2.4	2.2	2.1	3.0	Z	3.8	3.1	4.1	4.1	6.2	4.9	3.0	2.0	1.7	2.2	2.3	2.1	2.5	1.9	2.1	1.7	2.1	2.7	2.8	6.2
15-Jan	Z	1.3	1.5	1.1	1.2	1.4	2.0	1.8	2.2	3.5	3.7	3.6	3.7	4.5	5.5	7.5	9.0	7.1	4.1	3.3	2.4	2.4	2.8	4.0	3.5	9.0
16-Jan	6.8	Z	8.1	10.7	6.4	5.7	5.0	5.3	4.7	4.0	3.4	3.7	4.5	3.7	3.1	3.2	2.9	2.9	1.8	1.4	1.3	1.4	1.0	1.2	4.0	10.7
17-Jan	4.2	2.6	Z	1.0	1.2	1.0	1.1	1.0	1.1	1.0	2.1	3.0	2.7	1.5	1.1	1.2	1.1	0.7	0.7	0.6	0.8	1.1	1.7	2.6	1.5	4.2
18-Jan	2.6	4.1	2.7	Z	3.1	2.7	4.5	3.0	3.7	3.2	5.6	4.3	1.4	1.2	1.1	1.1	1.2	2.8	3.0	2.6	1.3	0.5	0.6	0.8	2.5	5.6
19-Jan	1.3	1.8	1.9	0.3	Z	0.5	2.9	2.3	1.8	1.3	2.8	1.7	1.4	2.4	4.8	2.4	1.7	1.9	2.0	3.0	3.9	3.2	2.7	2.6	2.2	4.8
20-Jan	2.4	2.0	1.6	2.4	2.2	Z	1.8	1.7	2.4	2.9	2.7	2.8	2.4	2.4	2.6	2.8	4.7	4.0	4.0	2.5	2.6	2.4	2.5	2.6	2.6	4.7
21-Jan	Z	2.5	2.5	2.3	3.2	5.0	10.2	7.0	6.3	5.7	4.3	4.7	4.4	6.4	3.4	1.6	0.9	1.7	2.1	3.0	2.5	3.7	4.0	2.9	3.9	10.2
22-Jan	2.3	Z	1.4	0.9	0.0	0.1	0.3	0.3	0.1	0.2	0.1	0.7	1.0	2.2	0.9	1.0	1.4	1.5	1.0	1.1	1.1	1.4	1.5	1.7	0.9	2.3
23-Jan	2.3	2.4	Z	1.9	1.6	1.6	1.5	1.5	1.3	1.1	1.4	1.8	2.3	3.5	3.1	3.4	3.3	3.4	3.5	3.9	3.1	3.4	2.8	2.7	2.5	3.9
24-Jan	2.5	1.8	2.3	Z	2.0	1.4	1.5	1.6	1.9	2.4	2.9	3.5	3.7	4.4	4.8	5.1	4.8	4.4	6.0	5.9	4.7	3.9	3.6	3.4	3.4	6.0
25-Jan	3.6	3.7	3.4	3.2	Z	6.8	5.2	3.9	3.8	4.2	5.2	6.1	6.7	7.7	5.4	3.5	4.2	3.8	3.0	3.4	2.9	3.4	4.6	4.8	4.5	7.7
26-Jan	4.5	4.4	4.1	4.6	4.7	Z	4.3	3.5	3.2	3.8	6.7	DF	3.4	M	1.4	2.3	1.3	1.4	1.4	1.1	1.3	1.1	1.8	3.2	3.0	6.7
27-Jan	Z	4.6	4.8	5.4	4.5	4.7	7.0	5.7	4.3	2.2	M	M	2.6	3.5	3.1	2.9	4.8	2.4	2.5	3.1	2.6	2.0	1.7	1.4	3.6	7.0
28-Jan	1.4	Z	1.2	2.1	2.3	2.9	2.3	2.2	2.3	2.6	2.9	2.9	2.1	1.0	0.4	0.4	0.4	0.6	0.7	0.1	0.0	0.0	0.0	0.0	1.3	2.9
29-Jan	0.0	0.0	Z	0.3	0.0	0.0	0.4	0.0	0.8	1.8	2.4	1.1	1.3	3.4	1.7	2.2	2.2	2.2	2.6	3.3	3.0	2.9	2.8	2.9	1.6	3.4
30-Jan	3.4	2.9	3.1	Z	2.9	2.9	3.5	3.1	2.5	3.2	2.9	1.2	0.5	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	1.4	3.5
31-Jan	0.1	0.0	0.0	0.3	Z	0.3	3.4	0.2	1.5	2.5	1.0	0.0	0.4	0.0	0.1	0.2	1.3	1.4	1.1	0.1	0.3	0.3	0.0	0.0	0.6	3.4
2.0 2.1 2.2 2.5 2.8 2.5 3.1 3.2 3.3 3.2 3.4 3.3 3.2 3.2 2.7 2.5 2.5 2.7 2.6 2.2 1.9 1.7 1.8 1.9																								Diurnal Average		
6.8 6.1 8.1 12.2 12.5 11.5 10.2 12.4 15.5 12.0 8.4 10.6 10.4 10.8 10.6 9.2 9.0 10.5 7.3 5.9 4.7 3.9 5.6 7.2																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure																										



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - January 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	703	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: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 2/3 - January 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	33	33	78	35	16	8	12	18	66	88	80	77	38	27	47	44	700
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>	33	33	78	35	16	8	12	18	66	88	80	77	38	27	47	44	700

Total Number of Valid Hours: 700

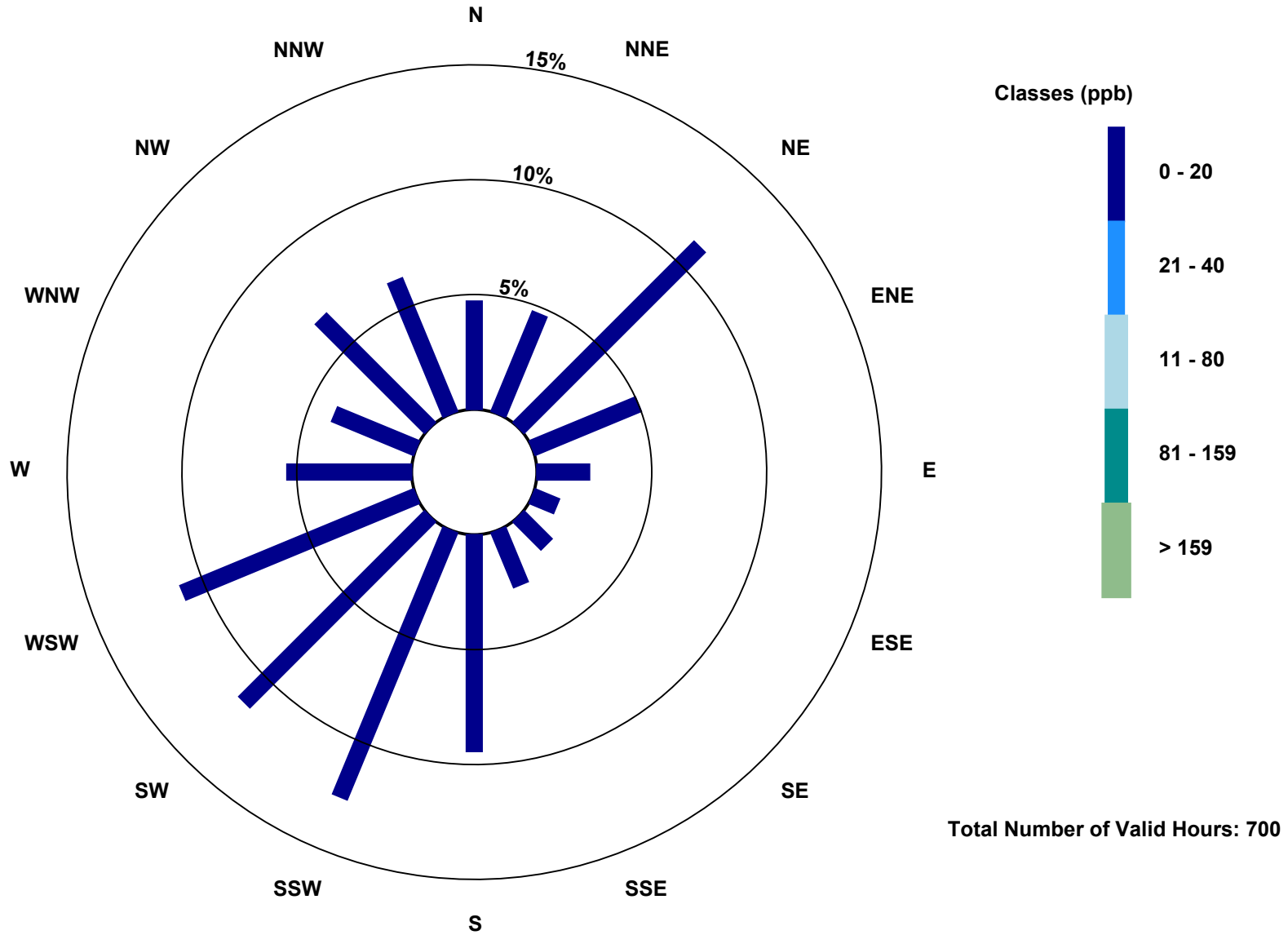
Total Number of Hours: 744

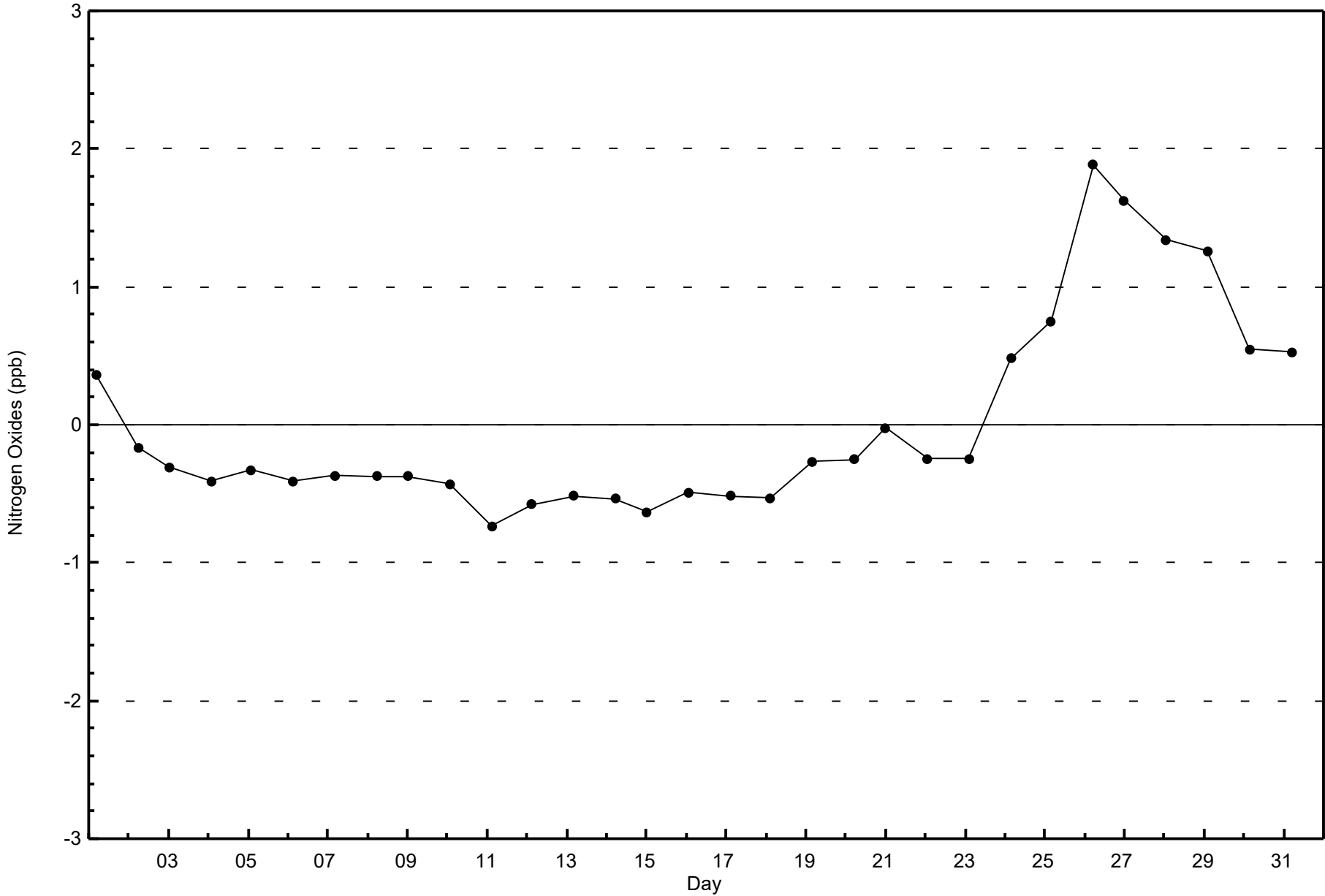


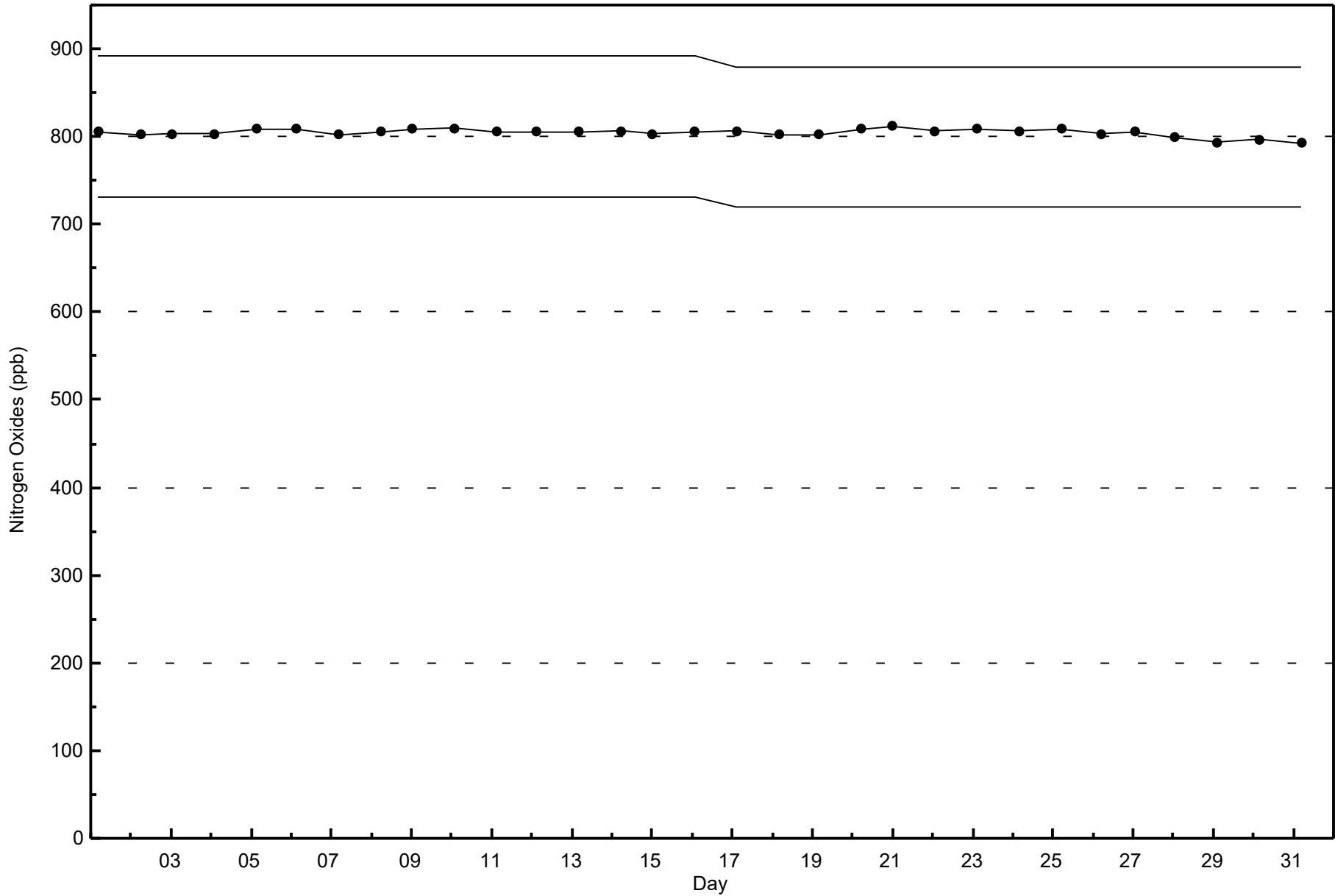


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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 - January 2024**

Maximum Value: 10.9 C on Jan 30 15:00		Maximum Daily Average: 5.7 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -41.0 C on Jan 12 08:00		Minimum Daily Average: -37.8 C on Jan 12		Hours of Data: 741																																												
Maximum Diurnal Average: -13.0 C at hour 15		Minimum Diurnal Average: -16.9 C at hour 7		Hours of Missing Data: 3																																												
Monthly Average: -15.58 C		Percentiles: P <sub>1</sub> = -39.2 P <sub>10</sub> = -32.7 Q <sub>1</sub> = -23.0 Median = -16.1 Q <sub>3</sub> = -7.3 P <sub>90</sub> = 1.6 P <sub>99</sub> = 8.7		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-Jan	-2.5	-2.6	-2.2	-2.9	-3.7	-4.3	-5.4	-5.6	-4.0	-3.7	-3.7	-3.9	-4.5	-5.0	-5.2	-6.1	-6.4	-6.4	-6.4	-6.3	-6.2	-6.6	-7.0	-7.2	-4.9	-2.2																						
2-Jan	-7.6	-8.3	-9.0	-9.7	-10.1	-10.3	-10.4	-10.8	-10.9	-11.1	-11.1	-11.1	-11.3	-11.4	-11.4	-11.4	-11.4	-11.5	-11.8	-11.9	-11.8	-12.0	-11.9	-11.7	-10.8	-7.6																						
3-Jan	-11.9	-11.7	-11.3	-11.0	-10.6	-10.3	-9.8	-9.4	-9.1	-8.7	-8.3	-7.6	-7.0	-6.1	-5.0	-5.9	-6.9	-7.8	-9.0	-9.5	-9.4	-9.7	-9.6	-9.5	-9.0	-5.0																						
4-Jan	-9.2	-9.0	-8.8	-8.7	-8.6	-8.9	-10.2	-12.8	-13.8	-14.2	-14.3	-14.1	-14.4	-14.8	-14.7	-14.9	-14.9	-14.8	-14.4	-14.0	-13.5	-13.5	-13.2	-12.7	-8.6																							
5-Jan	-13.1	-12.8	-12.5	-12.3	-12.1	-11.9	-11.3	-11.7	-12.3	-12.8	-13.7	-14.3	-14.1	-14.3	-14.2	-14.3	-14.6	-14.5	-14.4	-14.6	-14.7	-14.9	-15.1	-14.6	-13.5	-11.3																						
6-Jan	-14.4	-14.6	-14.3	-14.5	-14.3	-14.0	-13.5	-13.7	-13.7	-13.4	-13.0	-12.9	-13.1	-13.5	-13.9	-14.1	-14.6	-14.9	-15.3	-15.9	-16.3	-16.7	-17.3	-17.8	-14.6	-12.9																						
7-Jan	-18.6	-18.9	-18.8	-18.7	-18.9	-19.5	-20.2	-20.9	-21.7	-22.2	-21.7	-20.9	-20.5	-20.1	-20.0	-20.4	-20.7	-20.9	-20.9	-20.6	-20.5	-20.3	-20.0	-19.5	-20.2	-18.6																						
8-Jan	-19.0	-19.9	-20.8	-21.0	-20.4	-19.7	-19.2	-18.6	-18.1	-18.0	-17.5	-16.5	-16.3	-16.6	-16.7	-17.6	-18.2	-19.2	-20.6	-21.3	-21.9	-22.3	-22.7	-23.0	-19.4	-16.3																						
9-Jan	-23.0	-22.7	-22.8	-22.5	-22.5	-22.5	-22.3	-22.4	-23.3	-23.4	-23.1	-22.6	-22.4	-22.7	-23.6	-23.8	-24.1	-25.1	-25.5	-25.8	-25.6	-25.9	-26.6	-27.1	-23.8	-22.3																						
10-Jan	-27.6	-28.2	-28.6	-29.0	-29.2	-29.8	-30.1	-30.4	-30.7	-31.2	-31.2	-30.1	-29.1	-28.1	-28.9	-28.8	-29.0	-29.7	-30.2	-30.6	-30.7	-31.0	-31.3	-31.5	-29.8	-27.6																						
11-Jan	-31.8	-32.4	-33.3	-34.1	-34.5	-35.6	-34.7	-34.2	-34.1	-33.9	-33.5	-32.8	-32.6	-32.2	-32.0	-32.8	-34.1	-34.9	-35.9	-36.6	-36.8	-36.6	-36.5	-37.0	-34.3	-31.8																						
12-Jan	-37.6	-38.0	-38.9	-39.4	-40.1	-40.6	-40.7	-41.0	-40.8	-40.6	-39.4	-37.4	-35.7	-34.7	-33.4	-33.7	-35.8	-37.3	-37.6	-37.7	-37.0	-36.5	-37.0	-37.1	-37.8	-33.4																						
13-Jan	-37.3	-37.3	-37.1	-37.0	-38.0	-38.4	-37.7	-36.9	-36.3	-35.3	-34.5	-33.6	-30.2	-28.5	-29.2	-31.4	-33.2	-34.6	-34.9	-34.9	-35.2	-35.1	-35.2	-35.2	-34.9	-28.5																						
14-Jan	-35.1	-34.6	-34.8	-34.8	-34.9	-35.1	-35.2	-35.0	-35.1	-34.7	-33.3	-30.8	-29.4	-28.5	-27.2	-26.6	-27.6	-28.5	-28.8	-29.2	-29.9	-30.4	-31.4	-31.7	-31.9	-26.6																						
15-Jan	-32.3	-32.7	-32.4	-32.1	-31.8	-31.8	-31.9	-31.7	-31.3	-30.8	-29.4	-27.1	-25.1	-23.6	-22.4	-22.9	-23.9	-24.7	-25.3	-25.6	-25.5	-24.8	-25.0	-25.8	-27.9	-22.4																						
16-Jan	-26.5	-26.1	-25.4	-24.2	-23.4	-24.8	-24.4	-23.5	-24.1	-23.4	-22.3	-21.2	-20.5	-20.3	-19.9	-20.6	-21.0	-21.5	-21.5	-21.5	-21.3	-21.4	-21.6	-21.9	-22.6	-19.9																						
17-Jan	-22.0	-21.6	-21.5	-21.3	-21.3	-21.9	-22.2	-22.5	-22.3	-22.0	-21.4	-20.9	-21.0	-21.0	-20.3	-21.0	-21.5	-22.2	-23.2	-24.4	-24.5	-23.8	-23.7	-23.6	-22.1	-20.3																						
18-Jan	-23.9	-24.0	-23.3	-22.8	-22.5	-22.3	-23.1	-23.4	-23.6	-24.2	-22.9	-21.3	-19.9	-18.8	-19.3	-19.3	-20.2	-21.5	-21.9	-21.3	-20.2	-19.9	-19.9	-20.4	-21.7	-18.8																						
19-Jan	-21.2	-22.2	-22.5	-22.9	-23.1	-24.0	-24.3	-24.5	-25.4	-24.2	-22.3	-19.3	-16.7	-15.4	-15.2	-15.8	-16.7	-17.0	-17.7	-18.2	-18.3	-17.9	-17.4	-17.1	-20.0	-15.2																						
20-Jan	-17.0	-16.9	-16.8	-17.0	-16.8	-16.8	-16.9	-16.8	-17.0	-17.6	-17.0	-16.9	-16.0	-14.6	-13.9	-14.7	-16.0	-16.6	-17.3	-17.9	-17.2	-16.7	-16.5	-16.3	-16.5	-13.9																						
21-Jan	-16.1	-16.1	-16.1	-16.1	-16.3	-16.7	-17.3	-17.7	-18.0	-18.2	-18.6	-19.0	-18.7	-19.2	-19.3	-19.8	-20.4	-20.5	-20.8	-21.2	-21.1	-20.9	-20.8	-20.7	-18.7	-16.1																						
22-Jan	-20.5	-20.4	-20.3	-20.2	-20.2	-20.1	-19.9	-19.7	-19.6	-19.2	-18.7	-18.0	-17.3	-16.7	-16.2	-16.2	-16.0	-16.0	-16.3	-16.4	-16.1	-15.7	-15.2	-14.8	-17.9	-14.8																						
23-Jan	-14.6	-14.5	-14.4	-14.2	-14.0	-13.9	-13.7	-13.8	-13.6	-13.2	-12.4	-11.0	-10.1	-9.6	-9.4	-9.2	-9.9	-10.1	-10.0	-9.6	-9.2	-9.2	-9.4	-9.6	-11.6	-9.2																						
24-Jan	-10.2	-10.8	-10.9	-10.8	-10.9	-11.0	-10.9	-10.6	-10.1	-9.1	-7.8	-6.6	-6.0	-5.2	-4.6	-4.4	-4.0	-3.7	-3.4	-4.1	-5.1	-6.1	-6.9	-7.7	-7.5	-3.4																						
25-Jan	-8.2	-8.8	-9.2	-9.7	-10.4	-11.8	-12.1	-11.4	-9.6	-9.2	-8.9	-8.3	-8.0	-7.6	-7.6	-7.5	-7.3	-7.6	-7.9	-8.2	-8.0	-7.2	-6.1	-5.5	-8.6	-5.5																						
26-Jan	-4.9	-5.4	-5.5	-5.3	-5.3	-5.3	-5.6	-5.9	-5.3	-4.8	-4.3	-1.5	0.9	M	2.4	1.7	0.5	0.1	-0.2	-0.6	-1.1	-1.9	-2.2	-2.4	-2.7	2.4																						
27-Jan	-2.5	-3.5	-3.8	-4.6	-5.4	-5.3	-4.6	-4.2	-3.7	-2.7	M	M	2.6	3.6	3.9	3.3	1.8	1.0	0.1	-0.5	-0.2	0.2	0.4	0.2	-1.1	3.9																						
28-Jan	0.2	0.5	1.6	0.4	0.1	1.1	1.6	0.9	0.4	0.8	2.8	5.4	5.3	7.0	7.8	7.5	6.1	4.5	3.7	3.9	3.4	2.2	1.6	1.4	2.9	7.8																						
29-Jan	1.3	-0.3	-0.7	-0.7	-0.8	-0.5	-0.7	1.0	1.2	2.2	4.6	5.8	5.9	5.7	6.0	6.1	4.9	3.8	3.1	3.0	2.5	2.6	2.4	3.0	2.6	6.1																						
30-Jan	2.6	2.3	1.0	0.8	1.4	1.6	2.3	3.7	5.7	6.4	6.6	8.9	9.9	10.8	10.9	10.5	9.4	8.0	7.2	6.7	6.3	5.5	4.8	4.2	5.7	10.9																						
31-Jan	3.8	3.4	2.7	2.2	1.6	1.4	0.4	0.3	0.6	0.2	2.1	4.9	7.3	8.6	9.5	8.8	5.4	5.3	4.2	3.3	3.4	4.5	5.2	5.2	3.9	9.5																						
																								-16.1	-16.4	-16.5	-16.6	-16.7	-16.9	-16.9	-16.9	-16.8	-16.5	-16.3	-15.2	-13.8	-13.7	-13.0	-13.4	-14.2	-14.8	-15.3	-15.6	-15.6	-15.6	-15.7	-15.7	Diurnal Average
																								3.8	3.4	2.7	2.2	1.6	1.6	2.3	3.7	5.7	6.4	6.6	8.9	9.9	10.8	10.9	10.5	9.4	8.0	7.2	6.7	6.3	5.5	5.2	5.2	Diurnal Maximum
M - Maintenance																																																





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Jackfish 2/3 - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	283	38.19	38.19
-20 - 0	353	47.64	85.83
0 - 10	102	13.77	99.60
10 - 20	3	0.40	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



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

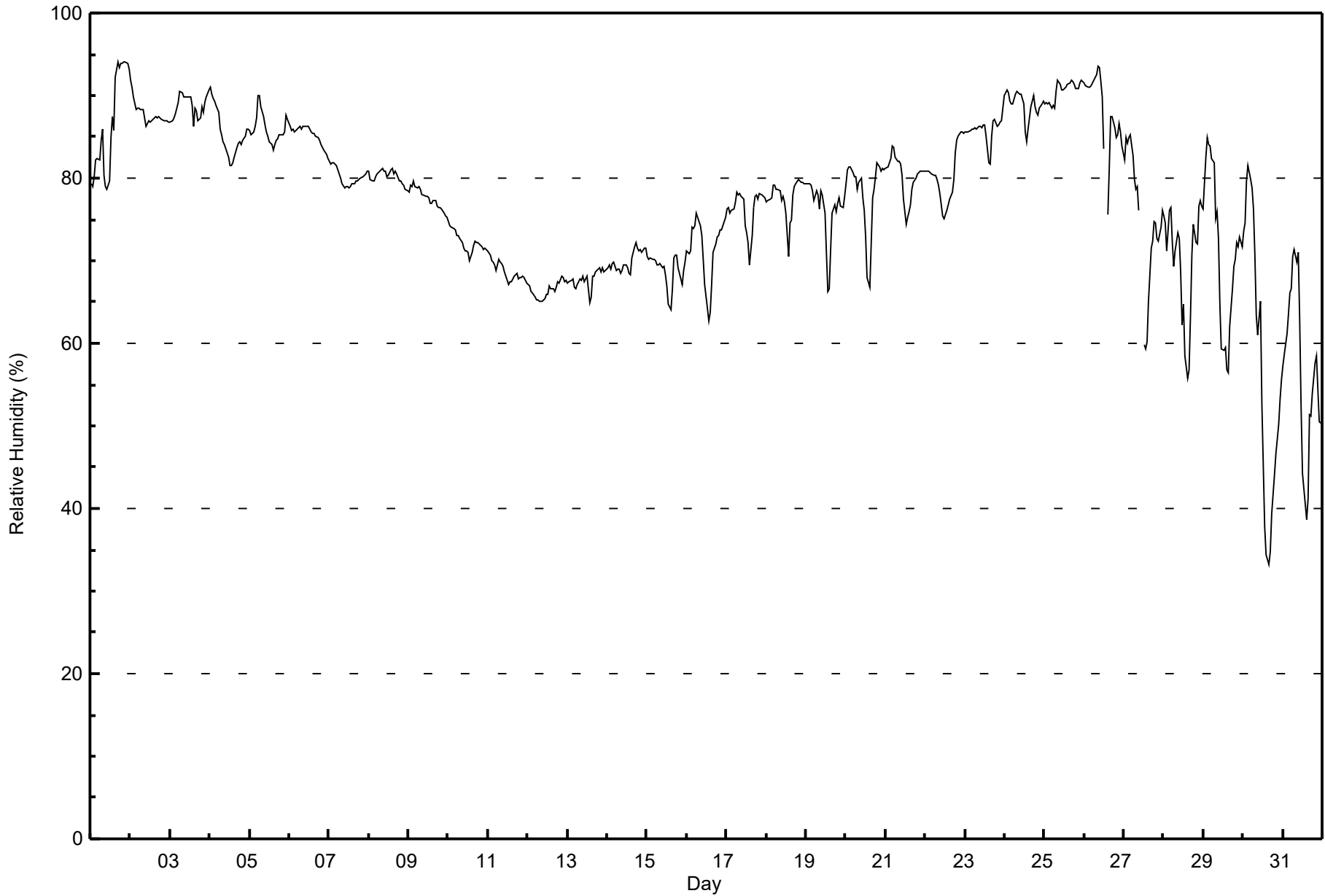
**Relative Humidity (RH) - %**  
**Jackfish 2/3 - January 2024**

Maximum Value: 94.1 % on Jan 1 17:00      Maximum Daily Average: 90.6 % on Jan 25																						Hours in Service:	744																								
Minimum Value: 33.2 % on Jan 30 16:00      Minimum Daily Average: 56.8 % on Jan 31																						Hours of Data:	741																								
Maximum Diurnal Average: 79.9 % at hour 5      Minimum Diurnal Average: 71.8 % at hour 15																						Hours of Missing Data:	3																								
Monthly Average: 77.27 %      Percentiles: P <sub>1</sub> = 41.4 P <sub>10</sub> = 66.6 Q <sub>1</sub> = 70.7 Median = 78.7 Q <sub>3</sub> = 85.3 P <sub>90</sub> = 89.0 P <sub>99</sub> = 93.4																						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-Jan	79.3	79.0	80.2	82.3	82.3	82.1	84.5	86.0	80.3	78.9	78.6	79.6	85.0	87.4	85.7	92.2	94.1	93.4	93.9	93.9	94.1	94.1	94.0	93.2	86.4	94.1																					
2-Jan	91.8	91.1	89.9	88.3	88.6	88.5	88.3	88.4	88.3	86.3	86.6	86.9	86.9	87.0	87.3	87.5	87.3	87.4	87.2	87.1	87.0	86.9	87.0	86.8	87.9	91.8																					
3-Jan	86.8	87.0	87.2	87.8	88.5	89.2	90.4	90.4	89.8	89.9	89.8	89.8	89.8	88.8	86.2	88.5	88.1	87.0	87.3	88.7	88.0	89.1	89.8	90.6	88.7	90.6																					
4-Jan	91.0	90.1	89.7	89.4	88.9	87.9	85.9	85.3	84.4	84.0	83.0	82.5	81.5	81.5	81.8	82.6	83.8	84.2	84.3	84.1	84.6	85.1	85.9	86.0	85.3	91.0																					
5-Jan	85.8	85.2	85.7	86.2	87.4	90.0	90.1	88.6	87.4	86.5	85.6	85.1	84.5	84.0	83.5	84.1	84.6	84.8	85.3	85.2	85.2	85.6	87.6	87.1	86.0	90.1																					
6-Jan	86.3	85.8	86.0	85.7	85.8	85.9	86.2	86.0	86.2	86.2	86.3	86.3	85.9	85.6	85.5	85.4	85.1	85.0	84.6	84.0	83.8	83.3	82.8	82.4	85.3	86.3																					
7-Jan	82.0	81.7	81.8	81.8	81.6	81.1	80.6	79.9	79.2	78.8	79.0	78.9	78.8	78.9	79.3	79.3	79.7	79.6	79.8	80.0	80.1	80.3	80.5	80.8	80.1	82.0																					
8-Jan	80.8	79.9	79.7	79.7	80.1	80.4	80.7	81.1	81.2	80.9	80.9	80.2	80.3	81.1	81.1	80.6	80.8	80.5	79.6	79.6	79.3	79.2	78.7	78.4	80.2	81.2																					
9-Jan	78.3	79.2	79.0	79.7	78.9	78.9	79.0	78.7	78.0	77.9	77.8	77.8	77.7	77.0	76.9	77.3	77.3	76.7	76.5	76.4	76.3	75.8	75.5	75.2	77.6	79.7																					
10-Jan	74.8	74.3	74.0	73.8	73.7	73.0	73.1	72.7	72.2	71.5	71.2	71.3	71.0	70.1	70.9	71.9	72.3	72.2	72.1	71.8	71.6	71.4	71.6	71.4	72.3	74.8																					
11-Jan	71.2	70.7	70.0	69.8	69.4	68.8	70.1	69.8	69.7	69.3	68.7	68.1	67.2	67.4	67.4	67.8	68.2	68.4	67.7	67.9	68.0	68.1	67.9	67.4	68.7	71.2																					
12-Jan	67.2	66.9	66.2	66.0	65.6	65.3	65.2	65.0	65.2	65.1	65.5	66.0	66.0	67.0	66.5	66.6	66.3	66.8	67.4	67.4	68.2	67.9	67.4	67.7	66.4	68.2																					
13-Jan	67.3	67.5	67.6	67.8	66.7	66.5	67.1	67.8	67.7	68.1	67.4	67.8	68.2	64.9	65.7	68.1	68.2	68.6	69.1	69.2	68.7	69.2	68.6	68.9	67.8	69.2																					
14-Jan	69.1	69.5	69.0	69.6	69.8	68.8	68.9	69.0	68.5	68.7	69.5	69.5	69.1	68.5	68.4	70.4	71.7	72.3	71.6	71.2	71.3	71.1	71.5	71.5	69.9	72.3																					
15-Jan	70.4	70.1	70.4	70.1	70.2	70.0	69.5	69.5	69.7	69.2	69.3	68.3	66.9	64.8	64.1	66.6	70.3	70.6	70.7	69.2	67.7	67.2	68.8	69.8	68.9	70.7																					
16-Jan	71.1	70.8	71.2	74.1	74.0	74.2	75.8	74.8	74.3	73.0	70.1	67.0	64.2	62.8	63.7	67.1	71.0	72.0	73.0	73.1	73.7	73.8	74.3	75.3	71.4	75.8																					
17-Jan	76.2	76.5	75.7	76.1	76.3	77.1	78.3	78.0	78.1	77.8	77.4	74.3	73.4	72.2	69.5	73.1	76.5	77.8	78.0	77.5	78.1	78.0	77.8	77.6	76.3	78.3																					
18-Jan	77.1	77.2	77.4	77.5	79.1	79.1	78.7	78.7	78.5	77.3	77.8	77.2	75.7	70.5	74.6	75.0	77.9	78.9	79.4	79.9	79.7	79.5	79.5	79.3	77.7	79.9																					
19-Jan	79.4	79.4	79.3	79.1	78.5	77.2	78.5	77.9	76.3	78.4	77.9	75.8	70.9	66.3	66.6	71.4	75.8	76.8	76.0	76.9	77.6	76.6	76.5	77.8	76.1	79.4																					
20-Jan	79.4	81.0	81.4	81.4	80.7	80.2	80.2	78.7	79.4	79.9	77.6	76.1	72.9	68.0	66.8	72.2	77.6	78.7	80.2	81.8	81.4	80.8	81.1	80.9	78.3	81.8																					
21-Jan	81.2	81.4	81.8	82.4	83.8	83.8	82.6	82.1	82.0	81.7	80.3	77.5	74.5	75.3	76.0	76.8	78.6	79.4	80.1	80.5	80.7	80.9	80.8	80.8	80.2	83.8																					
22-Jan	80.8	80.9	80.8	80.7	80.5	80.4	80.3	79.8	79.2	78.1	75.5	75.1	75.6	76.1	76.8	77.4	78.4	79.9	83.1	84.5	85.2	85.6	85.7	85.4	80.2	85.7																					
23-Jan	85.6	85.6	85.6	85.8	85.9	86.0	86.0	85.9	86.2	86.3	86.1	86.5	86.5	85.0	81.8	81.6	85.1	86.9	87.1	86.2	86.4	86.8	87.0	88.4	85.8	88.4																					
24-Jan	89.9	90.6	90.3	89.3	88.9	89.1	90.2	90.5	90.4	90.2	90.2	89.0	85.5	84.4	85.9	87.4	88.7	90.0	88.7	87.9	87.7	88.5	89.0	89.3	88.8	90.6																					
25-Jan	89.0	89.1	88.9	89.1	88.5	88.8	88.5	90.5	91.8	91.3	90.8	90.8	90.8	90.8	91.1	91.4	91.5	91.8	91.6	91.4	90.9	90.9	91.5	91.9	90.6	91.9																					
26-Jan	91.6	91.2	90.9	91.0	91.2	91.5	91.8	92.5	93.6	93.3	91.7	89.8	83.6	M	75.5	81.1	87.5	87.4	86.2	84.9	85.2	86.5	85.6	84.0	88.2	93.6																					
27-Jan	82.2	84.9	84.2	84.9	85.3	82.7	79.8	78.7	79.0	76.0	M	M	59.9	59.3	60.1	65.0	71.5	72.4	74.7	74.5	72.7	72.4	74.1	76.1	75.0	85.3																					
28-Jan	75.4	74.6	71.3	76.2	76.4	72.4	69.3	71.2	73.4	72.6	68.6	62.2	64.8	58.5	55.8	56.8	63.3	70.7	74.4	72.1	72.1	76.5	77.4	76.6	70.1	77.4																					
29-Jan	76.2	82.6	84.9	84.0	83.9	82.4	81.9	75.1	75.9	72.7	64.8	59.4	59.2	59.5	56.8	56.5	62.0	66.6	69.3	70.1	72.2	71.6	72.9	71.7	71.3	84.9																					
30-Jan	73.6	74.6	79.6	81.5	79.8	78.8	76.2	70.7	63.4	61.0	65.1	52.7	45.3	37.8	34.4	33.2	34.8	39.3	41.8	44.0	46.7	50.2	53.1	55.6	57.2	81.5																					
31-Jan	57.2	58.6	61.1	63.6	66.1	66.7	70.6	71.3	69.9	70.9	62.8	52.4	44.2	40.5	38.6	41.2	51.4	51.2	53.8	57.7	58.4	54.5	50.6	50.3	56.8	71.3																					
																						79.0	79.3	79.4	79.8	79.9	79.6	79.6	79.2	78.7	78.1	77.2	75.5	73.7	72.1	71.8	73.4	75.8	76.7	77.2	77.4	77.5	77.7	77.9	78.0	Diurnal Average	
																						91.8	91.2	90.9	91.0	91.2	91.5	91.8	92.5	93.6	93.3	91.7	90.8	90.8	91.1	91.4	92.2	94.1	93.4	93.9	93.9	94.1	94.1	94.0	93.2	Diurnal Maximum	
M - Maintenance																																															



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

**Relative Humidity (RH) - %**  
**Jackfish 2/3 - January 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Jackfish 2/3 - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	6	0.81	0.81
40 - 60	32	4.32	5.13
60 - 80	388	52.36	57.49
80 - 100	315	42.51	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Jackfish 2/3 - January 2024

Maximum Speed: 21 km/h on Jan 30 16:00	Maximum Daily Speed Average: 11.6 km/h on Jan 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 12 16:00	Minimum Daily Speed Average: 0.0 km/h on Jan 5	Hours of Data: 738
Maximum Diurnal Speed Average: 2.9 km/h at hour 24	Minimum Diurnal Speed Average: 1.4 km/h at hour 18	Hours of Missing Data: 6
Monthly Average Velocity: 2.1 km/h 236.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 6 Q <sub>3</sub> = 8 P <sub>90</sub> = 10 P <sub>99</sub> = 16	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-Jan	W7	W6	W7	W8	W7	W7	W5	WNW6	NW6	NW6	NW6	NNW6	N6	N5	N5	NE5	NE4	NE3	ENE2	NE1	N3	NNE4	NE4	N3	NW3.2	W8	
2-Jan	NNW5	NW5	NNW5	NW4	NNW5	NNW3	NE2	NE3	NNE1	ENE4	ENE4	NE4	ENE4	ENE4	ENE4	E3	SE3	E3	SE3	ESE2	ESE2	SE3	SE3	SSE3	NE1.7	NW5	
3-Jan	SSE3	S4	S4	S5	S5	S5	SSW4	S5	S4	S5	S5	S5	S5	S4	S2	SSE2	SSE3	S5	S6	S7	SW9	WSW10	SW10	SW12	SSW5.0	SW12	
4-Jan	WSW11	WSW10	W8	W8	WNW7	NW6	NNW6	NNW6	N5	N5	NNE6	NE6	NE6	ENE5	ENE6	ENE6	E6	ENE6	E7	E6	E5	ENE3	NE3	ENE3	NNE2.0	WSW11	
5-Jan	ESE3	SSE4	SSE3	S3	SSW3	SW4	W3	WNW6	NNW4	NW4	NNW5	NW4	NW3	WNW3	NE1	N1	SSW1	ENE3	ENE3	E4	E5	SE3	ESE3	SE1	WNW0.0	WNW6	
6-Jan	ENE2	NE3	NE3	ENE4	ENE4	NE3	NE4	NE6	NE5	NE5	NE5	NE6	NE7	NE7	NE7	NE7	NE7	NE7	NE7	NE9	NE7	NE8	NE7	NNE7	NE5.7	NE9	
7-Jan	NNE7	NE7	NE7	NE6	NE6	NE6	NE6	NE6	NNE4	NE3	NE3	ENE3	ENE1	NE2	ENE2	SSW1	S2	SSE2	S2	SSW2	S2	S3	SSW3	SSW5	ENE2.1	NE7	
8-Jan	SSW6	SSW6	SSW6	SSW5	SSW5	SSW5	SSW6	SW9	SW8	SW8	SW7	WSW7	WNW5	NW4	NNW4	NNW4	NNW3	NNW3	N2	N3	N3	NNE3	NNE3	NE2	WSW2.6	SW9	
9-Jan	NE2	E3	E5	E4	ENE4	ENE5	E5	ENE5	NE6	NE7	ENE7	NE7	NE8	NE8	NE8	NE7	NE6	NE8	NE7	NE7	NE7	NE6	NNE6	NNE5	NE5.7	NE8	
10-Jan	NNE4	NNE5	NNE5	NNE5	NNE4	N4	N4	N3	N3	N3	NNW3	N3	N3	NNW3	NNW3	NNW3	NNW3	NNW3	NNW3	NNW3	N3	NW2	NNW2	N2	N3.2	NNE5	
11-Jan	N2	NNE3	N2	N1	N0	S1	WNW1	NNW4	N3	NNW2	NNW3	NNW4	N4	NNW3	NNW4	NNW3	NNW3	NNW3	NNW2	W1	W1	NW1	NNW2	WNW1	NNW2.0	N4	
12-Jan	WNW2	W2	WSW2	WSW2	WSW2	WSW2	WSW3	WSW4	WSW3	WSW3	WSW3	SW2	WSW2	NNE0	E1	NNW0	UO	S2	SSW2	SSW2	SW3	SW3	SW2	SW2	WSW1.8	WSW4	
13-Jan	SW2	SW2	WSW3	WSW2	S1	SSW1	SSW1	ESE1	UO	UO	SW1	SSW2	NNE1	NNE2	NE2	NE3	NE1	SSW1	SE0	ENE1	NE1	WSW1	WSW2	WSW2	SW0.5	ENE3	
14-Jan	SW1	SW1	WSW2	WSW3	WSW4	WSW3	WSW3	WSW2	WSW3	WSW4	W3	NW3	NW3	NNW3	NNW3	NW3	NW2	WNW3	NW4	WNW3	WNW3	W3	W4	W3	W2.4	W4	
15-Jan	WSW4	WSW5	WSW6	WSW6	WSW6	SW7	SW7	SW8	SW8	SW9	WSW9	SW9	SW9	SW9	SW8	SW7	SW6	SSW5	SSW7	SSW9	SW10	SW10	SW10	SW8	SW7.4	SW10	
16-Jan	WSW8	WSW6	W5	WNW4	NNW2	ENE1	NE2	NNW2	WNW2	NW3	NNW5	NNW6	NNW6	NW7	NNW7	NNW5	NW4	NW4	NW6	NW7	NW7	NW8	NW8	NW7	NW4.4	WSW8	
17-Jan	WNW7	NW7	NW8	NW8	NW6	NNW5	NW4	NNW4	NNW5	NNW5	NNE5	NNE6	NNE6	NE5	N4	N3	NNE4	NE6	NNE4	NNE2	N3	N4	N4	NNW3	N4.2	NW8	
18-Jan	NNW3	NNW3	NW3	NW4	NW5	NW5	NW6	NW6	WNW6	WNW6	WNW6	NW6	NW5	NW6	NW6	NW6	WNW6	WNW7	WNW7	WNW6	NW7	NW7	NW5	NW4	NW5.3	NW7	
19-Jan	WNW5	W4	W4	WSW5	WSW3	SW4	WSW5	SW5	SSW6	SSW7	SSW7	SSW7	SSW7	SW6	SSW6	S5	S4	S5	SSW5	S7	S10	S8	SSW8	S9	SSW5.2	S10	
20-Jan	S8	S7	S6	SSW6	SSW6	SW6	SW6	SW5	WSW4	WSW5	WSW9	WSW9	W7	W7	W6	W4	WNW3	W4	W3	NNW1	NW3	N4	N2	WNW2	WSW3.8	WSW9	
21-Jan	N2	ENE1	WSW1	NE3	ENE4	NE5	NE5	NE4	NE5	NE6	NE6	NNE5	NNE6	NE7	NNE6	NNE6	NNE5	NE6	NE7	NE8	NE8	NE7	NE6	ENE6	NE5.1	NE8	
22-Jan	ENE6	ENE6	ENE6	ENE6	E6	E6	ESE6	ESE6	SE6	SE6	SSE8	SSE8	SSE8	S7	SSE7	S8	S7	S8	S8	S7	S7	S7	SSW7	SSW7	SSE5.1	SSE8	
23-Jan	SSW8	SSW7	SSW7	SSW6	SSW5	SSW5	SSW5	SSW4	SW7	SW7	SW7	WSW7	WSW8	WSW7	WSW6	WSW6	WSW5	WSW6	WSW6	WSW5	NW3	N2	NNE2	NE3	SW4.6	WSW8	
24-Jan	NE6	ENE6	E4	E4	ESE4	SE4	SSE4	SSE4	SSE5	S5	S5	S8	SSW8	S7	S8	S9	SSW8	S8	SSW9	SSW9	SSW9	SSW8	SSW8	SSW9	SSW10	S5.0	SSW10
25-Jan	SW9	SW8	SW7	SW8	SW3	SW1	NW1	NNE2	NE2	NNE3	NE3	ENE3	ENE2	WSW2	SW3	SW3	SW3	SSW4	SSW6	SW8	SW9	SW8	SW8	SW9	SW3.5	SW9	
26-Jan	SW8	SW8	SW9	WSW10	WSW9	WSW9	WSW7	WSW6	WSW6	WSW3	WSW4	WSW6	WSW7	M	SW8	SW7	SSW8	SSW7	SSW7	SSW7	SSW7	SSW7	SSW7	SSW8	SSW8	SW6.9	WSW10
27-Jan	SSW8	S7	SSW8	S9	S8	S8	S8	S9	SSW8	SSW8	M	M	WSW14	SW11	SW11	SW11	SSW10	SSW10	SW11	SW11	SW11	SSW11	SSW9	SSW9	SSW9.0	WSW14	
28-Jan	SSW9	SSW8	SSW9	S7	S8	SSW8	SW11	SW12	SW13	SW12	SW9	WSW13	WSW16	W16	WSW16	W14	W10	WSW9	WSW11	W10	W10	W10	W10	W10	WSW11	WSW9.8	WSW16
29-Jan	WSW9	SSW8	SSW10	SSW9	SSW8	S8	S7	SSW8	S7	S8	SSW8	SSW10	SSW10	SSW9	SSW10	SW13	SW14	SW12	SW12	SW12	SW12	SW10	SW11	SSW11	SSW11	SSW9.7	SW14
30-Jan	SSW10	SSW9	S9	SSW7	S8	SSW8	SSW8	SSW9	SSW12	SW12	W16	WNW15	W12	WSW18	W20	W21	W16	W13	W15	W17	W17	WSW16	WSW14	WSW14	WSW11.6	W21	
31-Jan	WSW14	W13	WSW13	WSW12	WSW11	W8	WSW7	WSW6	SW9	SW9	SW10	SW8	S6	S6	S7	SSE5	SE4	SE6	SSE5	SSE6	SSE7	SSE9	S10	S11	SSW6.5	WSW14	

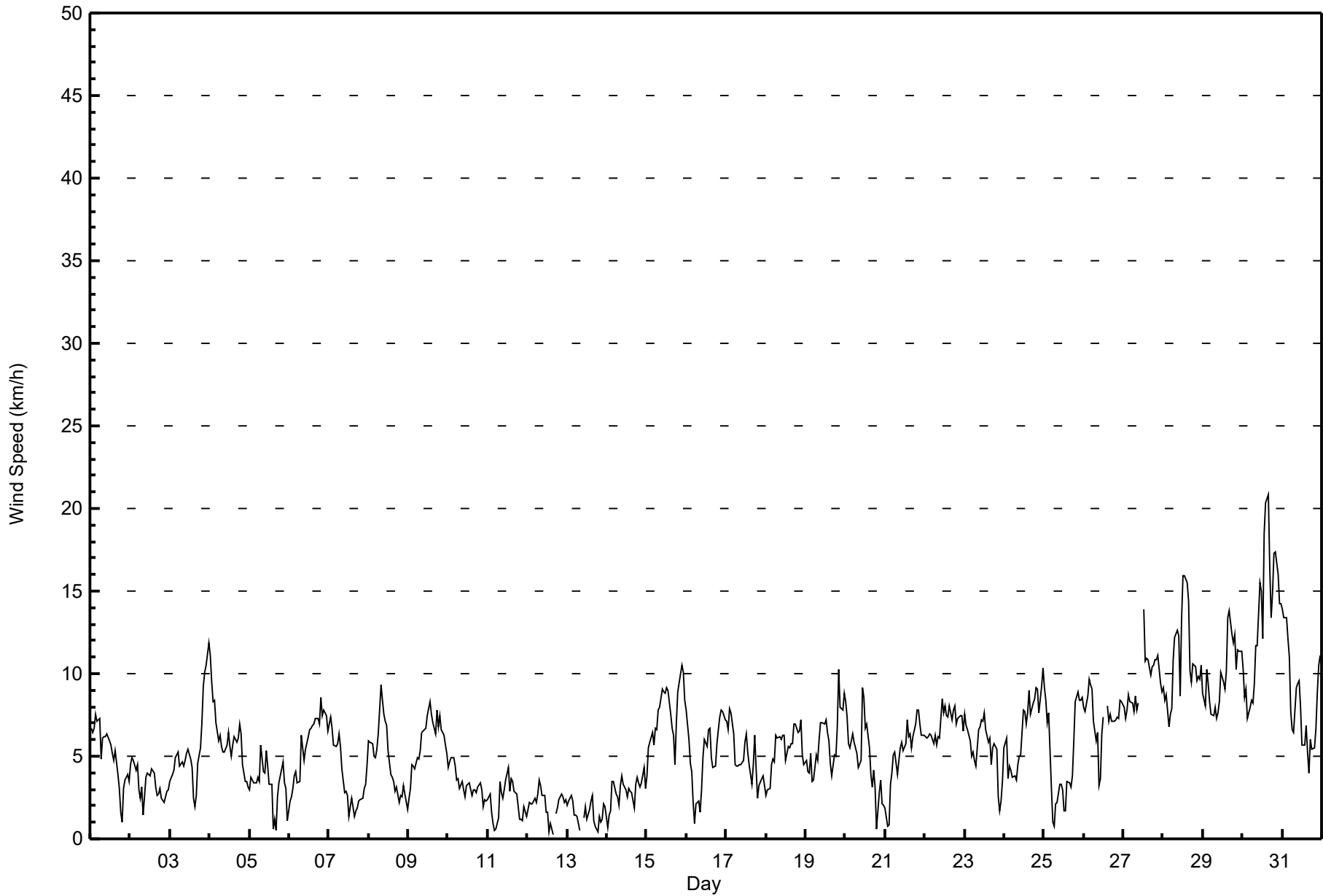
SW2.7	SW2.5	SW2.6	SW2.6	SW2.0	SW1.9	SW1.8	WSW1.8	SW2.1	SW2.2	WSW2.0	W2.1	W2.1	W2.0	WSW1.9	WSW1.9	SW1.6	SW1.4	SW2.0	SW2.3	SW2.4	SW2.5	SW2.6	SW2.9	Diurnal Average	
WSW14	W13	WSW13	WSW12	WSW11	WSW9	SW11	SW12	SW13	SW12	W16	WNW15	WSW16	WSW18	W20	W21	W16	W13	W15	W17	WSW17	WSW16	WSW14	WSW14	Diurnal Maximum	

M - Maintenance      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**  
**Jackfish 2/3 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Jackfish 2/3 - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	364	49.32	49.32
6 - 11	339	45.93	95.26
12 - 19	33	4.47	99.73
20 - 28	2	0.27	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 738

Total Number of Hours: 744



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

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - January 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	35	25	34	27	12	6	9	12	27	23	19	37	13	15	26	44	364
6 - 11	1	9	46	10	5	2	3	8	40	70	53	37	15	11	23	6	339
12 - 19	0	0	0	0	0	0	0	0	0	1	10	12	9	1	0	0	33
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	2	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>	36	34	80	37	17	8	12	20	67	94	82	86	39	27	49	50	738

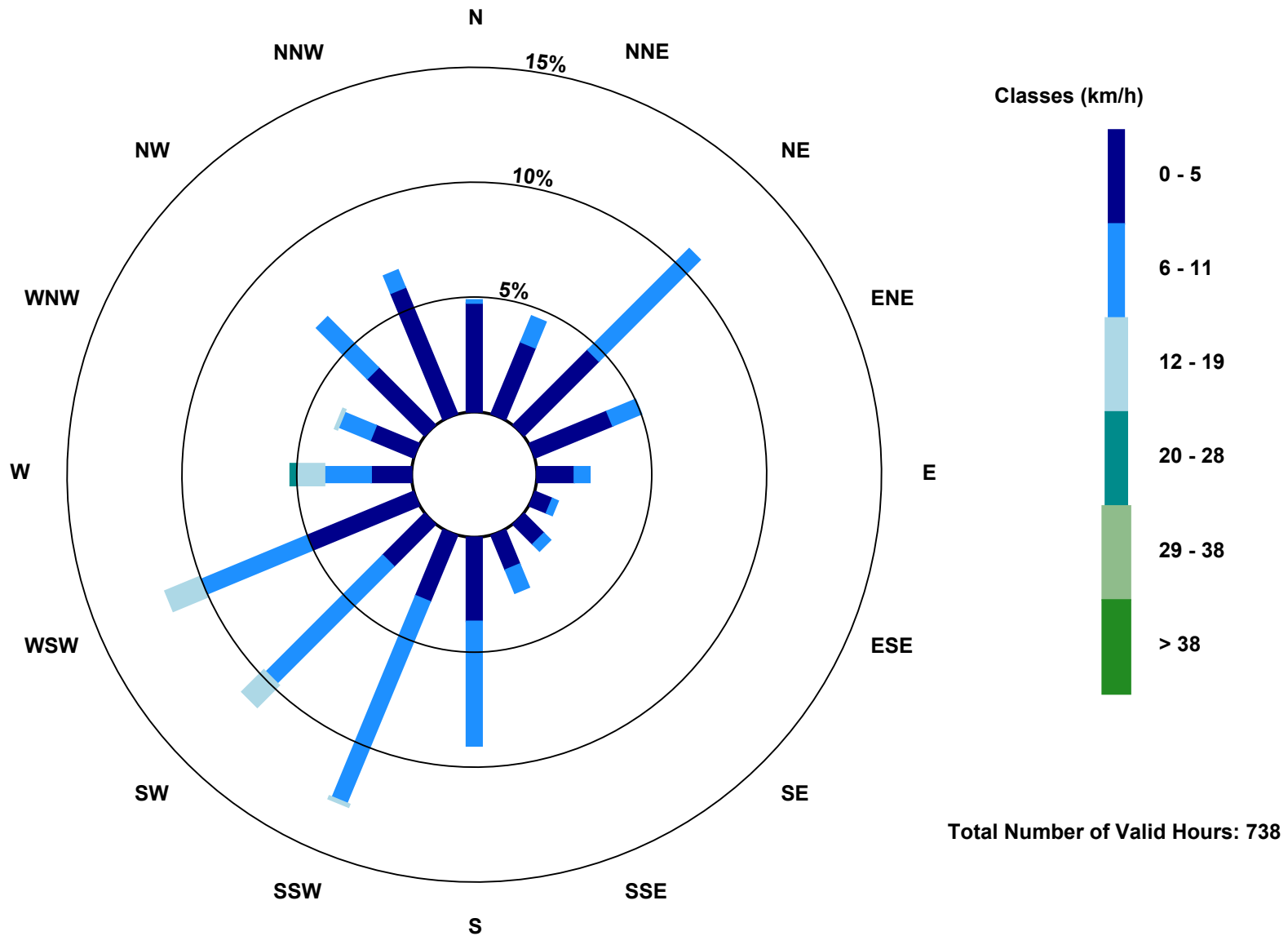
Total Number of Valid Hours: 738

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Jan 30 16:00	Hours in Service: 744 Hours of Data: 738 Hours of Missing Data: 6 Hours of Calibration: 0 Percent Operational Time: 99.2
Minimum Value: 0 km/h on Jan 13 23:00	
Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 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-Jan	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	1	1	1	1	1	1	1	1	3
2-Jan	2	2	2	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3
4-Jan	3	2	2	3	3	2	3	2	2	2	2	2	2	3	2	2	2	2	2	2	1	1	1	1	3
5-Jan	1	2	1	1	1	1	1	1	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	2
6-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	2	2	3
7-Jan	2	3	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
8-Jan	2	2	2	2	1	2	2	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	3
9-Jan	1	1	2	2	1	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	3
10-Jan	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
11-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	2
12-Jan	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	UO	0	1	1	1	1	0	1	1
13-Jan	1	0	0	0	1	1	1	1	1	UO	UO	1	1	1	1	1	1	1	1	1	1	1	0	0	1
14-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2
15-Jan	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
16-Jan	2	2	2	2	1	1	1	1	1	2	2	2	2	3	3	3	2	2	2	3	3	4	3	3	4
17-Jan	3	3	3	3	3	2	2	2	2	2	2	3	2	2	2	1	2	2	2	1	1	1	1	1	3
18-Jan	1	1	1	2	2	2	3	3	2	2	3	3	2	2	2	2	3	3	2	2	3	3	2	2	3
19-Jan	2	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	1	2	2	3	3	3	3	3	3
20-Jan	3	3	2	2	2	2	2	2	1	2	3	2	2	2	2	3	1	1	1	1	1	2	1	1	3
21-Jan	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3
22-Jan	2	2	2	2	2	2	2	2	2	3	4	3	3	3	3	3	3	3	3	3	3	3	3	2	4
23-Jan	3	2	2	2	2	2	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	3
24-Jan	2	2	1	1	1	2	1	1	2	2	2	3	3	2	3	3	2	3	3	3	2	2	2	2	3
25-Jan	2	2	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
26-Jan	2	2	2	2	2	2	2	1	2	1	1	2	2	M	2	2	2	2	2	2	2	1	2	2	2
27-Jan	2	1	2	2	2	2	2	2	2	2	M	M	3	2	2	2	2	2	2	2	3	3	2	2	3
28-Jan	2	2	2	2	2	2	3	3	3	3	2	4	5	5	5	5	4	2	2	3	3	2	2	2	5
29-Jan	2	1	2	2	2	2	2	2	2	2	3	4	3	3	3	4	3	3	2	3	2	2	2	3	4
30-Jan	2	2	2	2	2	2	2	2	3	4	6	7	4	6	7	7	6	4	4	5	5	4	3	4	7
31-Jan	3	3	3	3	3	2	2	1	2	2	2	2	2	2	3	2	2	3	2	2	3	3	4	4	4
	3	3	3	3	3	2	3	3	3	4	6	7	5	6	7	7	6	4	4	5	5	4	4	4	

Diurnal Maximum

M - Maintenance UO - Unstable Operation



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

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - January 2024**

Direction of Maximum Speed: 263 deg on Jan 30 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 245.2 deg on Jan 30	Hours of Data: 738
Direction of Minimum Speed: 340 deg on Jan 12 16:00	Hours of Missing Data: 6
Direction of Minimum Daily Speed Average: 0.0 deg on Jan 5	Percent Operational Time: 99.2
Monthly Average Direction: 236.4 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-Jan	275	261	270	264	265	260	279	287	322	313	321	342	357	357	11	47	50	41	68	52	349	13	37	4	317.8
2-Jan	336	319	328	323	334	347	37	56	22	70	63	37	72	64	65	82	136	83	129	120	114	126	139	155	49.8
3-Jan	165	175	177	178	188	187	196	187	191	188	189	186	189	190	174	147	156	173	184	189	223	238	232	235	198.3
4-Jan	243	250	259	263	297	317	330	347	351	7	30	37	45	66	59	65	79	66	86	100	97	65	52	62	15.9
5-Jan	115	154	163	176	200	219	272	302	327	317	339	316	307	292	43	358	196	78	72	100	98	127	119	137	284.3
6-Jan	69	48	52	60	61	49	44	53	54	49	43	51	47	46	50	51	41	49	40	47	47	43	42	33	47.5
7-Jan	31	46	53	46	43	35	37	35	32	36	50	72	68	43	68	201	189	155	190	197	179	183	196	212	56.7
8-Jan	212	213	207	203	203	207	211	221	219	220	229	256	290	310	330	335	335	345	352	7	7	31	31	34	241.8
9-Jan	52	80	80	96	65	74	83	67	56	54	58	52	53	53	52	44	39	42	41	40	38	36	29	24	52.2
10-Jan	15	18	29	22	21	11	3	1	355	358	348	5	2	3	338	342	341	336	338	334	353	315	337	350	359.4
11-Jan	3	27	8	360	356	190	296	344	352	334	333	348	352	341	334	337	333	337	335	279	271	306	339	303	339.6
12-Jan	293	265	248	239	242	258	242	243	240	237	243	236	246	32	95	340	UO	176	195	208	236	232	220	220	236.5
13-Jan	217	224	243	237	191	201	211	115	UO	UO	225	212	22	25	53	56	53	198	132	66	55	253	245	248	219.4
14-Jan	217	235	246	249	246	244	239	246	248	247	259	311	319	335	336	316	321	297	310	302	288	271	273	267	278.1
15-Jan	258	255	250	242	237	236	233	232	231	232	238	236	236	235	230	233	220	194	198	212	234	235	235	234	232.2
16-Jan	244	250	265	290	327	75	36	341	284	320	333	341	329	321	332	329	322	317	315	311	305	310	312	311	310.9
17-Jan	298	306	315	318	321	329	322	329	338	343	25	16	28	36	11	9	33	41	28	12	4	358	5	344	350.3
18-Jan	329	332	321	312	323	322	318	314	290	282	289	307	316	312	314	320	303	295	286	290	314	309	313	320	307.5
19-Jan	296	281	267	253	241	216	237	219	202	208	207	210	213	214	197	182	182	186	199	184	191	188	198	186	208.7
20-Jan	180	188	190	195	206	219	232	220	238	237	249	256	265	263	275	264	292	274	279	327	323	352	349	302	240.8
21-Jan	4	69	243	40	58	50	40	42	46	49	45	33	16	35	31	23	31	39	36	42	38	50	51	63	40.0
22-Jan	66	63	68	78	79	93	105	112	128	140	151	166	161	175	168	175	184	184	182	172	185	189	197	195	150.1
23-Jan	207	208	212	207	210	211	205	212	229	230	229	239	246	245	239	250	223	239	239	251	313	351	25	37	229.9
24-Jan	48	58	98	93	102	144	153	150	157	176	188	191	193	189	185	182	197	190	201	200	207	208	208	210	181.9
25-Jan	219	223	222	217	224	216	304	30	53	33	45	68	69	247	230	222	219	204	205	214	217	222	230	219	218.5
26-Jan	218	227	232	239	238	240	245	251	254	258	237	248	241	M	235	220	202	197	201	200	203	201	203	201	224.5
27-Jan	195	189	192	184	186	183	187	184	197	210	M	M	239	236	231	230	210	211	219	221	219	213	211	211	209.7
28-Jan	199	207	209	186	184	194	219	222	217	217	216	244	249	259	256	261	259	253	251	261	267	259	261	255	237.5
29-Jan	239	205	208	205	201	190	188	194	185	188	199	200	198	197	210	218	215	215	214	221	218	214	211	213	207.7
30-Jan	194	193	183	194	189	198	204	209	209	216	263	285	265	258	262	263	266	262	260	260	259	255	256	256	245.2
31-Jan	255	259	253	240	242	261	240	244	232	225	223	221	188	180	169	163	141	142	158	162	161	165	175	174	213.0

234.4 231.4 230.0 226.9 226.2 221.9 232.1 236.7 232.6 232.4 249.1 264.9 259.1 263.3 255.7 251.5 235.2 221.9 224.0 223.3 235.5 234.7 232.9 230.0  
 Diurnal Average

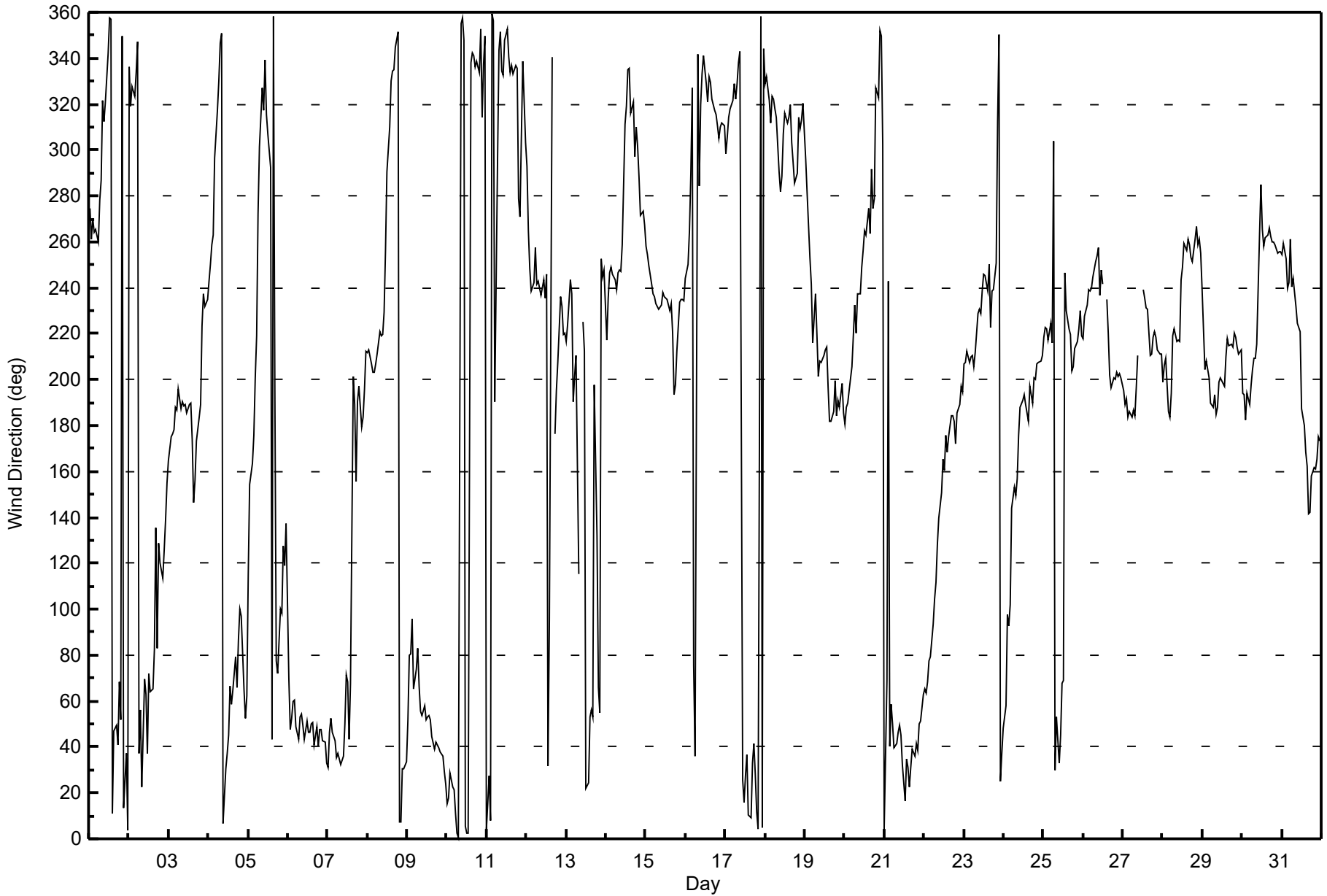
M - Maintenance UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





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

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - January 2024**





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

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 108 deg on Jan 20 20:00	Hours of Data: 738
Minimum Value: 8 deg on Jan 14 09:00	Hours of Missing Data: 6
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 16 Q <sub>1</sub> = 21 Median = 30 Q <sub>3</sub> = 44 P <sub>90</sub> = 56 P <sub>99</sub> = 87	Hours of Calibration: 0
	Percent Operational Time: 99.2

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-Jan	28	22	25	20	20	17	28	28	44	43	43	51	42	48	43	28	30	32	29	62	53	50	34	46	62
2-Jan	43	43	44	50	52	58	70	33	51	38	38	40	35	26	30	30	39	28	30	42	50	42	44	39	70
3-Jan	33	25	23	24	21	23	18	22	25	25	24	25	31	40	50	36	56	53	38	33	27	22	23	24	56
4-Jan	21	20	21	25	39	48	45	47	45	42	41	38	40	35	35	30	28	26	29	26	28	45	28	27	48
5-Jan	33	51	41	39	37	24	42	46	54	50	48	48	49	98	66	96	36	27	29	30	44	37	57	98	
6-Jan	47	25	22	25	25	24	26	18	22	21	22	22	23	25	26	25	30	26	30	27	27	29	27	39	47
7-Jan	37	32	27	27	32	38	35	34	39	35	33	45	84	58	41	68	56	42	28	31	46	33	36	27	84
8-Jan	27	26	24	29	26	27	24	21	22	21	21	27	41	64	64	55	63	49	70	50	56	42	41	51	70
9-Jan	37	43	32	33	29	28	28	28	23	23	26	25	25	26	25	26	34	28	28	28	31	33	39	42	43
10-Jan	54	48	39	42	48	49	51	49	45	52	50	49	56	50	63	57	58	59	58	55	47	58	64	59	64
11-Jan	42	35	43	58	75	73	97	51	54	50	62	57	53	58	63	62	71	64	72	77	87	98	81	57	98
12-Jan	71	49	19	27	17	19	16	12	13	14	13	27	63	87	93	95	UO	19	14	11	16	16	14	18	95
13-Jan	20	15	12	24	37	25	56	64	UO	UO	58	18	80	63	44	18	61	71	46	27	18	74	12	10	80
14-Jan	57	29	71	9	8	9	23	37	8	10	32	54	54	47	52	73	72	48	47	56	52	26	27	27	73
15-Jan	16	13	14	15	17	14	14	14	15	14	16	16	17	18	20	17	17	21	19	16	15	14	15	16	21
16-Jan	16	16	24	36	63	86	76	47	75	81	58	52	47	52	65	57	57	49	48	48	45	44	45	40	86
17-Jan	40	44	44	42	46	48	40	45	40	41	41	47	42	41	46	44	30	27	39	34	36	38	41	42	48
18-Jan	43	46	48	44	48	52	45	44	36	33	40	42	45	46	51	39	43	30	26	33	41	44	46	47	52
19-Jan	43	30	35	14	30	17	18	15	11	17	17	22	25	30	32	43	41	38	44	30	30	41	38	33	44
20-Jan	36	35	41	39	31	26	22	25	21	21	20	24	33	31	41	51	36	20	36	108	59	53	66	51	108
21-Jan	49	77	65	35	27	33	27	38	34	27	32	40	40	36	39	39	30	29	27	22	32	28	25	26	77
22-Jan	26	27	27	27	28	27	30	38	39	42	42	45	42	41	45	40	43	42	41	38	35	38	38	35	45
23-Jan	33	35	29	31	29	27	27	31	26	23	25	23	22	21	26	19	20	16	14	13	48	49	38	34	49
24-Jan	26	24	37	27	32	44	36	51	41	45	39	33	33	33	37	26	33	29	26	24	23	20	18	16	51
25-Jan	15	16	17	14	56	64	66	42	49	35	33	32	69	68	26	29	23	22	18	17	17	18	17	18	69
26-Jan	19	18	16	14	13	16	17	16	18	35	17	14	17	M	18	16	16	16	18	20	18	14	14	15	35
27-Jan	16	14	17	15	17	17	19	20	20	21	M	M	17	17	17	15	17	16	16	17	17	17	17	16	21
28-Jan	15	21	23	21	23	25	21	18	16	17	23	18	18	22	21	26	20	12	12	18	23	14	14	14	26
29-Jan	17	16	15	15	19	20	22	25	27	28	28	26	25	29	25	19	17	16	15	15	15	15	15	16	29
30-Jan	13	14	14	16	22	20	21	21	22	23	37	36	28	23	26	26	28	25	21	21	21	18	16	19	37
31-Jan	16	19	15	15	16	22	19	14	15	16	17	24	38	36	39	45	39	43	48	53	50	39	39	40	53
	71	77	71	58	75	86	97	64	75	81	62	57	84	87	98	95	96	71	72	108	87	98	81	59	
	Diurnal Maximum																								

M - Maintenance      UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS29  
SURMONT 2  
JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT2 (AMS29)  
JANUARY 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	643	33	101	90.86	12.9	0	2.9	0
H2S (ppb) Average	642	33	102	90.73	0.7	0	0.2	0
THC(ppm) Average	643	33	101	90.86	2.4	-	2.3	-
NO2 (ppb) Average	641	34	103	90.73	21	0	9.4	-
NO (ppb) Average	641	34	103	90.73	8.8	-	1.1	-
NOX (ppb) Average	641	34	103	90.73	21.2	-	10.6	-
PM2.5 (ug/m3) Average	674	2	70	90.86	25.5	0	14.8	0
Temperature 2 m (C) Average	725	0	19	97.45	8.8	-	5.3	-
Relative Humidity (%) Average	725	0	19	97.45	96.8	-	94	-
Wind Speed 10 m (km/h) Average	705	0	39	94.76	13	-	7	-
Wind Direction 10 m (deg) Average	705	0	39	94.76	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
 JANUARY 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	643	0.86	1.4	-	0	0.1	0.2	0.4	0.9	2.2	12.9
H2S (ppb) Average	642	0.11	0.1	-	0	0	0.1	0.1	0.1	0.2	0.7
THC (ppm) Average	643	2.14	0.1	-	1.9	2	2.1	2.1	2.2	2.2	2.4
NO2 (ppb) Average	641	4.26	3.6	-	0.1	0.9	1.7	3.2	5.6	8.8	21
NO (ppb) Average	641	0.3	0.7	-	0	0	0	0.1	0.3	0.8	8.8
NOX (ppb) Average	641	4.55	3.8	-	0.1	0.9	1.9	3.5	6.2	9.1	21.2
PM2.5 (ug/m3) Average	674	4.17	3.8	-	0.3	1.5	2.2	2.9	4.1	9.9	25.5
Temperature 2 m (C) Average	725	-17.17	12.5	-	-42.9	-34.8	-24.3	-17.1	-9.5	2.8	8.8
Relative Humidity (%) Average	725	77.13	9.7	-	44.6	65.1	69.9	77.5	84	90.4	96.8
Wind Speed 10 m (km/h) Average	705	4.4	3	-	0	1	2	4	6	8	13
Wind Direction 10 m (deg) Average	705	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2	05 Jan 2024 12:00	05 Jan 2024 12:00	1	Maintenance - sample manifold cleaned
AIR QUALITY ANALYZERS	28 Jan 2024 17:00	31 Jan 2024 12:00	68	Station power failure
ALL METEOROLOGICAL SENSORS	30 Jan 2024 06:00	31 Jan 2024 00:00	19	Station power failure
Wind Speed, Wind Direction	09 Jan 2024 03:00	09 Jan 2024 03:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Jan 2024 04:00	12 Jan 2024 06:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 03:00	13 Jan 2024 03:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 06:00	13 Jan 2024 06:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 19:00	14 Jan 2024 07:00	13	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Jan 2024 22:00	26 Jan 2024 22:00	1	Flat line in sensor output signal - Sensor frozen



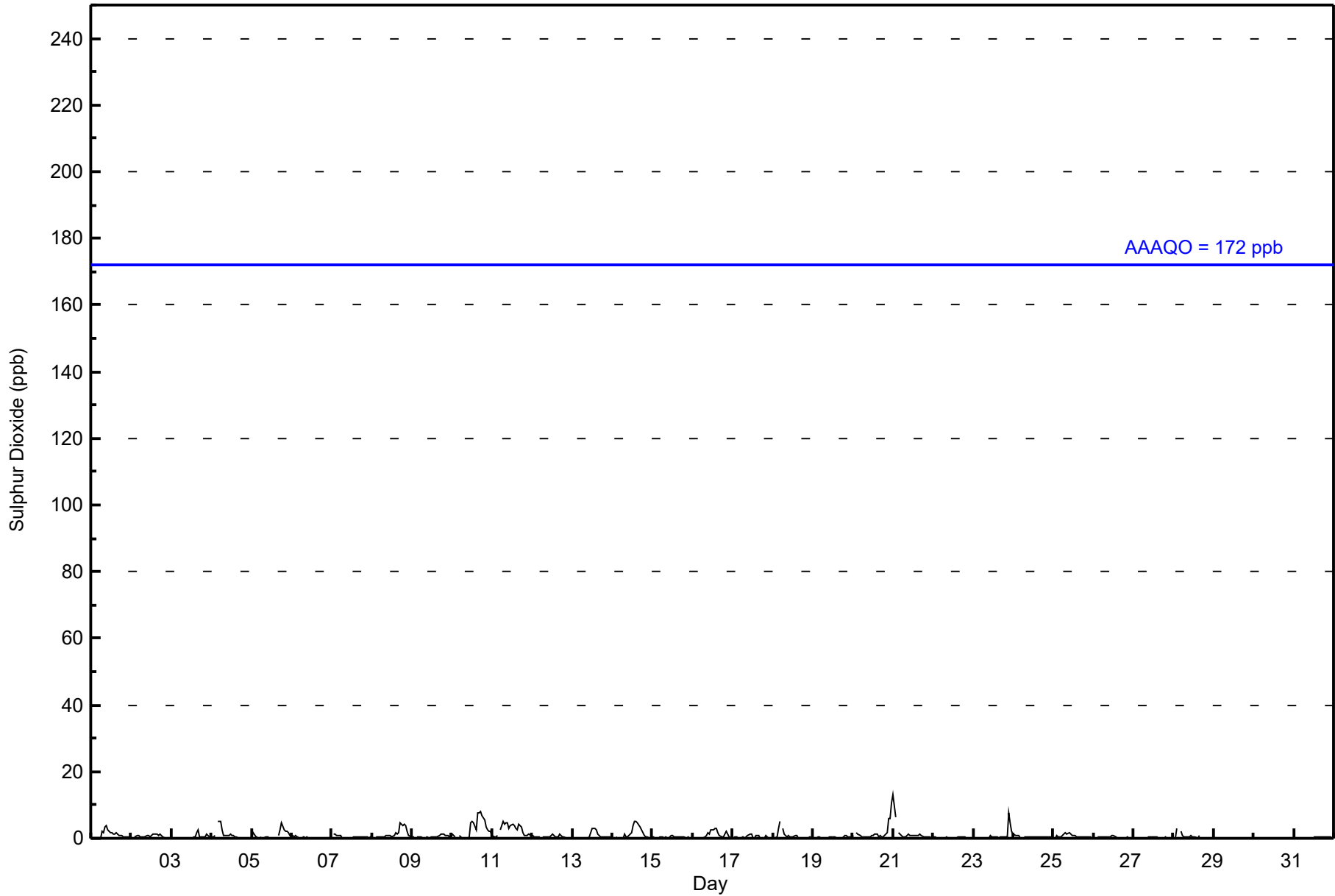
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum					
Maximum Value: 12.9 ppb on Jan 21 01:00		Maximum Daily Average: 2.9 ppb on Jan 10		Hours of Data: 643																	Hours of Missing Data: 101		Hours of Calibration: 33					
Minimum Value: 0.0 ppb on Jan 2 23:00		Minimum Daily Average: 0.2 ppb on Jan 22		Hours of Calibration: 33																	Percent Operational Time: 90.9							
Maximum Diurnal Average: 1.1 ppb at hour 17		Minimum Diurnal Average: 0.6 ppb at hour 3		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 2.2 P <sub>99</sub> = 6.6																								
Monthly Average: 0.86 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-Jan	Z	0.1	0.2	0.2	0.1	0.1	2.2	1.8	3.4	3.9	2.5	1.8	1.9	1.2	1.2	1.7	0.9	1.0	0.9	0.5	0.4	0.3	0.3	0.3	1.2	3.9		
2-Jan	0.5	Z	0.4	0.7	0.9	0.3	0.3	0.2	0.4	0.9	0.7	0.6	0.7	1.1	1.2	1.1	0.9	1.2	1.0	0.4	0.1	0.0	0.0	0.0	0.6	1.2		
3-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.6	1.9	2.5	0.6	0.4	0.3	0.4	1.4	0.7	0.2	0.4	2.5		
4-Jan	0.3	0.4	0.8	Z	5.0	5.2	2.7	0.9	0.9	0.9	0.7	1.2	0.8	0.8	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	5.2		
5-Jan	0.3	1.6	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.4	C	C	C	C	C	0.7	2.5	4.8	2.6	2.2	2.0	1.6	0.8	1.2	4.8	
6-Jan	0.6	0.6	0.7	0.6	0.4	Z	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.8	0.2	0.8		
7-Jan	Z	1.3	1.1	1.0	0.9	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	0.5	0.3	0.4	0.4	0.6	0.5	0.2	0.3	0.4	1.3	1.3	
8-Jan	0.2	Z	0.4	0.4	0.5	0.4	0.6	0.5	0.7	0.8	0.8	0.8	0.6	0.6	1.9	1.3	1.9	4.6	3.7	4.4	3.7	2.0	0.9	0.4	1.4	4.6		
9-Jan	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	1.0	1.1	1.2	1.2	1.1	0.8	0.3	0.6	0.5	1.2	1.2	
10-Jan	1.1	0.8	0.5	Z	0.7	0.4	0.2	0.1	0.1	0.1	0.4	4.8	5.0	4.6	2.4	7.7	7.6	8.2	6.8	5.4	3.5	2.3	1.9	2.1	2.9	8.2	8.2	
11-Jan	0.7	0.3	0.3	0.7	Z	2.6	5.0	4.3	4.7	4.8	3.1	3.7	4.4	3.9	3.0	2.4	4.4	3.3	1.9	1.0	0.7	0.8	1.1	0.8	2.5	5.0	5.0	
12-Jan	0.9	0.4	0.3	0.5	0.6	Z	0.5	0.5	0.3	0.2	0.5	0.8	1.1	0.9	0.5	0.5	1.2	0.7	0.6	0.4	0.2	0.1	0.1	0.1	0.5	1.2	1.2	
13-Jan	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.8	3.1	3.0	2.4	1.5	1.0	0.5	0.3	0.2	0.4	0.4	0.4	0.3	0.7	3.1	3.1	
14-Jan	0.2	Z	0.2	0.2	0.1	0.2	0.2	1.3	0.5	0.6	0.8	1.9	3.7	4.9	5.1	4.6	3.4	2.7	1.8	0.7	0.4	0.2	0.2	0.2	1.5	5.1	5.1	
15-Jan	0.2	0.3	Z	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.8	0.7	0.5	0.5	0.3	0.2	0.2	0.4	0.4	0.1	0.2	0.2	0.1	0.3	0.8	0.8	
16-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.3	1.0	1.8	1.5	2.4	2.7	2.9	3.2	1.6	0.9	0.6	0.6	1.4	2.0	1.1	0.4	0.2	1.1	3.2	3.2	
17-Jan	0.2	0.2	0.2	0.4	Z	0.3	0.4	0.1	0.3	0.7	1.5	1.2	0.1	0.0	0.9	1.0	0.1	0.0	0.1	0.2	0.7	0.2	0.1	0.2	0.4	1.5	1.5	
18-Jan	0.2	0.1	0.5	3.2	4.9	Z	2.8	1.4	0.6	1.0	0.5	0.3	0.3	0.9	0.9	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.4	0.4	0.8	4.9	4.9	
19-Jan	Z	0.0	0.1	0.6	0.2	0.2	0.1	0.0	0.0	0.1	0.4	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.5	1.0	0.8	0.5	0.4	0.5	0.3	1.0	1.0	
20-Jan	1.0	Z	1.5	1.1	0.7	0.4	0.4	0.3	0.3	0.4	0.6	0.7	0.7	1.2	1.4	0.6	0.7	0.6	0.6	0.7	1.6	5.9	6.0	10.5	1.7	10.5	10.5	
21-Jan	12.9	6.4	Z	1.8	1.4	0.8	0.6	0.4	0.8	1.1	0.8	1.0	1.1	0.9	0.9	0.9	1.1	0.7	0.4	0.6	0.4	0.4	0.2	0.2	1.6	12.9	12.9	
22-Jan	0.3	0.2	0.2	Z	0.1	0.0	0.1	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.4	0.3	0.0	0.1	0.1	0.1	0.2	0.4	0.4	
23-Jan	0.1	0.1	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	1.0	0.6	0.3	0.2	0.3	0.2	0.4	0.2	0.3	0.2	0.3	7.8	4.6	2.2	0.8	7.8	7.8	
24-Jan	1.2	0.9	0.8	0.7	0.5	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.3	0.2	0.2	0.5	1.2	1.2	
25-Jan	Z	0.2	0.9	0.3	0.2	0.8	1.4	1.6	1.4	1.7	1.5	1.0	0.9	0.7	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.2	0.7	1.7	1.7	
26-Jan	0.2	Z	0.2	0.3	0.2	0.4	0.3	0.3	0.5	0.4	0.4	0.7	0.6	0.6	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.0	0.3	0.7	0.7
27-Jan	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.2	0.4	0.4	
28-Jan	0.0	0.1	2.8	Z	2.2	0.7	0.5	0.6	0.6	0.6	0.7	0.5	0.3	0.2	0.1	0.7	PF	PF	PF	PF	PF	PF	PF	PF	--	2.8	2.8	
29-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--	--
30-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--	--
31-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	0.4	0.4
																								Diurnal Average		Diurnal Maximum		
																								0.9		12.9		
																								0.6		6.4		
																								0.6		2.8		
																								0.6		3.2		
																								0.9		5.0		
																								0.6		5.2		
																								0.7		5.0		
																								0.6		4.3		
																								0.7		4.7		
																								0.8		4.8		
																								0.7		3.1		
																								1.0		4.8		
																								1.1		5.0		
																								1.1		4.9		
																								1.1		5.1		
																								1.1		7.7		
																								1.1		7.6		
																								1.1		8.2		
																								1.0		6.8		
																								0.9		5.4		
																								0.8		3.7		
																								1.0		7.8		
																								0.8		6.0		
																								0.8		10.5		

Z - zerospan      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**  
**Surmont 2 - January 2024**







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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	642	99.84	99.84
11 - 20	1	0.16	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: 643

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - January 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	29	15	11	12	13	79	72	23	14	31	59	34	32	47	63	91	625
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
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>	29	15	11	12	13	79	72	23	14	31	59	34	32	47	63	92	626

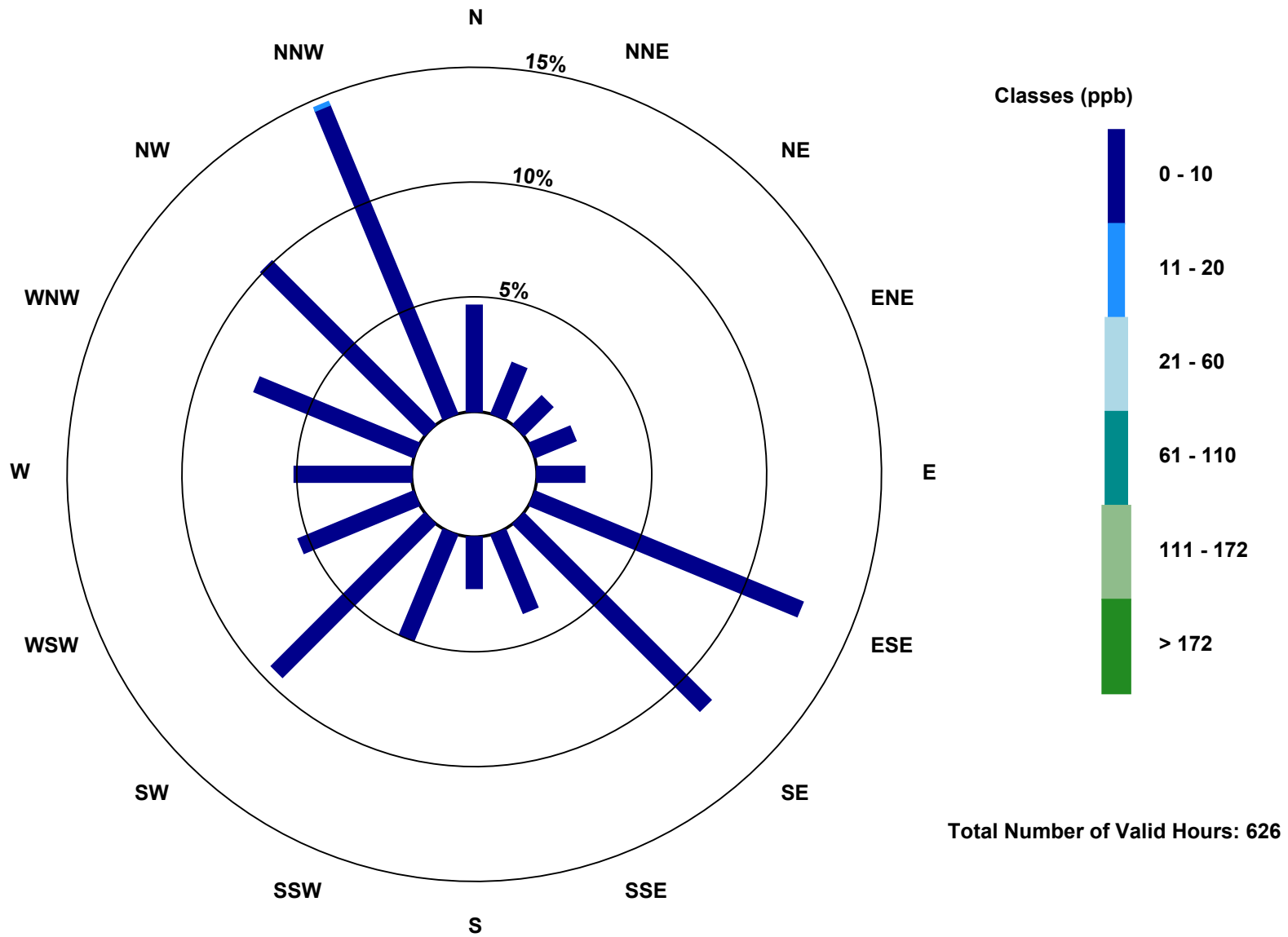
Total Number of Valid Hours: 626

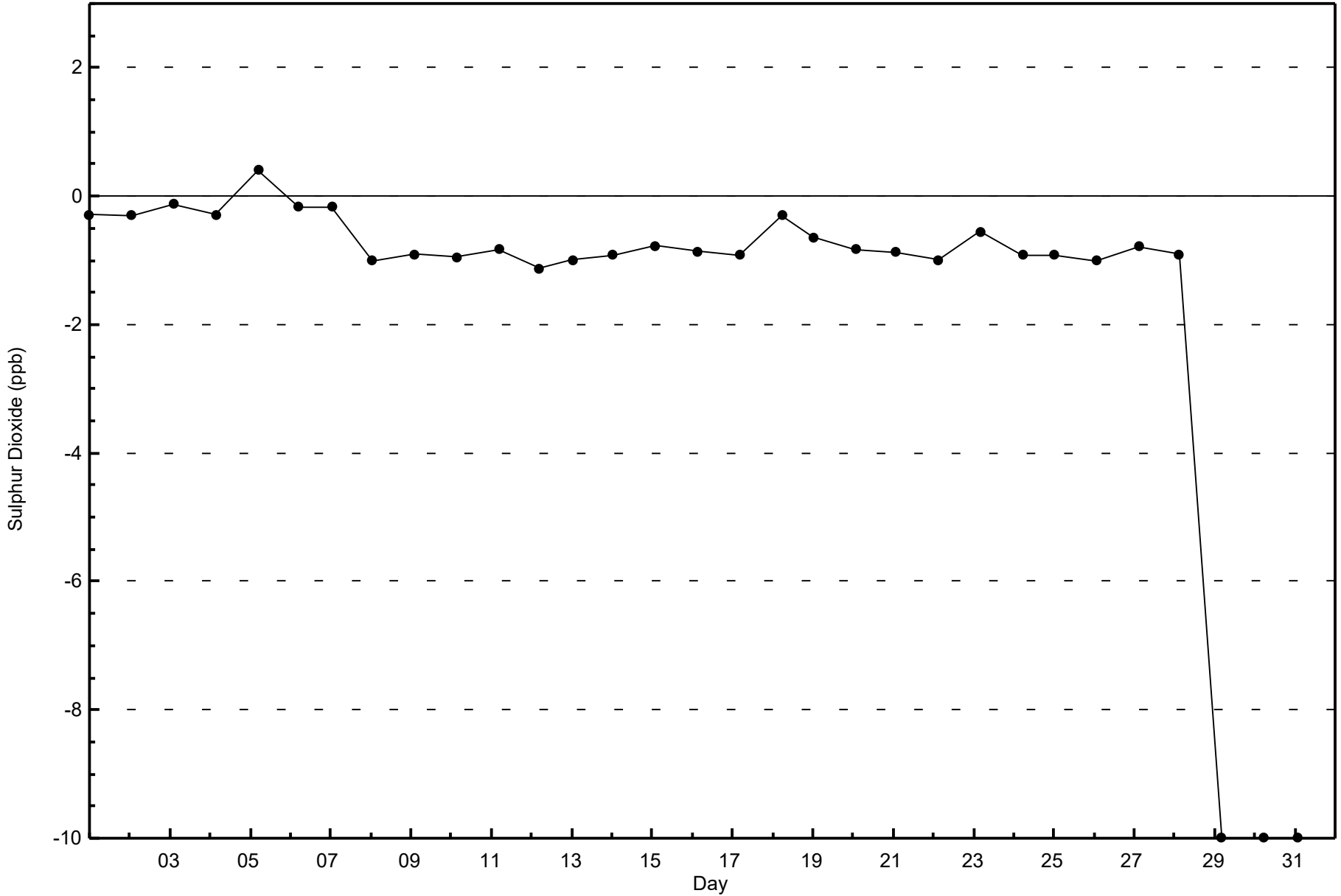
Total Number of Hours: 744

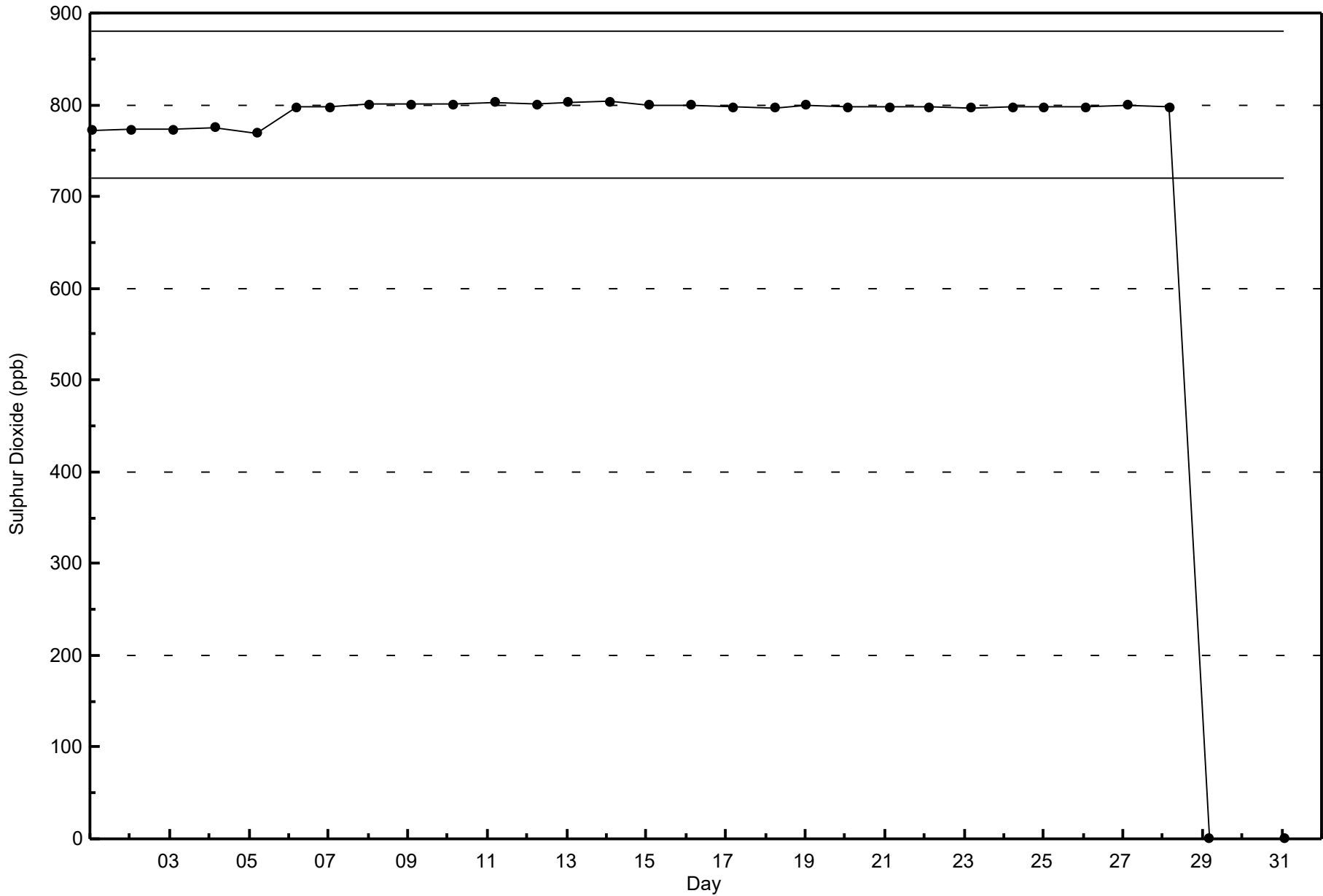


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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









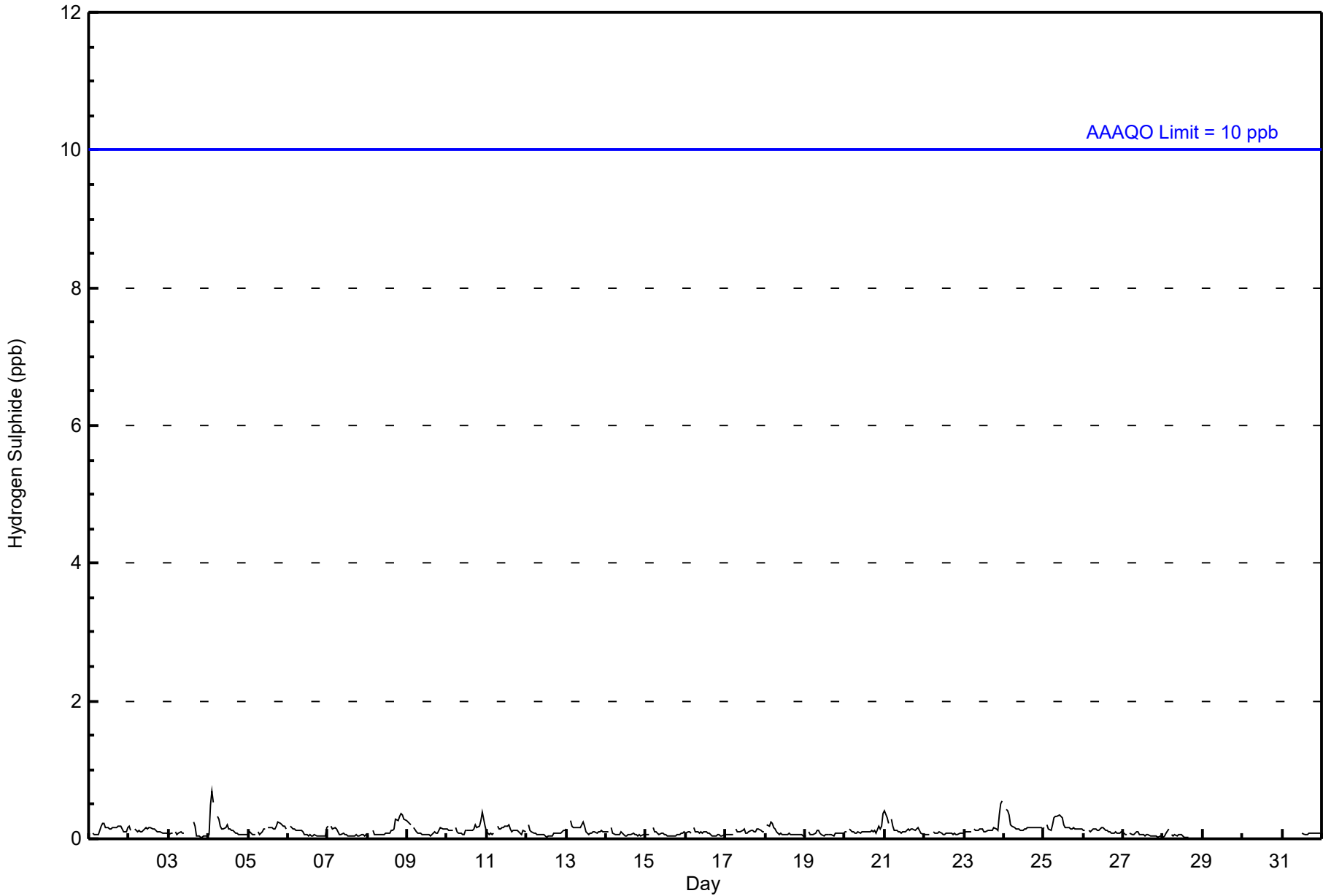
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Surmont 2 - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744								
Maximum Value: 0.7 ppb on Jan 4 03:00		Maximum Daily Average: 0.2 ppb on Jan 25																Hours of Data:		642										
Minimum Value: 0.0 ppb on Jan 28 14:00		Minimum Daily Average: 0.1 ppb on Jan 27																Hours of Missing Data:		102										
Maximum Diurnal Average: 0.2 ppb at hour 3		Minimum Diurnal Average: 0.1 ppb at hour 14																Hours of Calibration:		33										
Monthly Average: 0.11 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> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.4																Percent Operational Time:		90.7										
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-Jan	0.1	Z	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	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2
2-Jan	0.2	0.1	Z	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	0.1	0.1	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-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	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	
4-Jan	0.1	0.5	0.7	0.5	Z	0.3	0.3	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
5-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	M	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
6-Jan	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	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	
7-Jan	0.2	Z	0.2	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	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	
8-Jan	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	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.1	0.1	0.4	0.1	
9-Jan	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	0.0	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	
10-Jan	0.1	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	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.1	
11-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.2	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	
12-Jan	Z	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	0.1	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-Jan	0.1	Z	0.3	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
14-Jan	0.1	0.1	Z	0.2	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	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	
15-Jan	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	0.0	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	
16-Jan	0.1	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	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	
17-Jan	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	0.1	0.1	
18-Jan	Z	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	
19-Jan	0.0	Z	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
20-Jan	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	0.2	0.1	0.2	0.4	0.1	0.1	0.4	
21-Jan	0.4	0.3	0.2	Z	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	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.4	
22-Jan	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	
23-Jan	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	0.2	0.1	0.1	0.4	0.5	0.5	0.2	0.2	0.5	0.2	
24-Jan	Z	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	0.2	0.2	0.2	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-Jan	0.2	Z	0.2	0.1	0.1	0.2	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	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	
26-Jan	0.1	0.1	Z	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	0.1	0.1	0.1	0.1	
27-Jan	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	0.0	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	
28-Jan	0.0	0.0	0.1	0.1	Z	0.1	0.0	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	PF	PF	PF	PF	PF	PF	PF	PF	0.1	
29-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--
30-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--
31-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0.1	0.1	0.1	0.1	0.1	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		0.1				
																								Diurnal Maximum		0.4				
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**  
**Surmont 2 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	642	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: 642

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Surmont 2 - January 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	29	15	13	14	13	77	70	21	15	29	60	33	32	48	61	93	623
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>	29	15	13	14	13	77	70	21	15	29	60	33	32	48	61	93	623

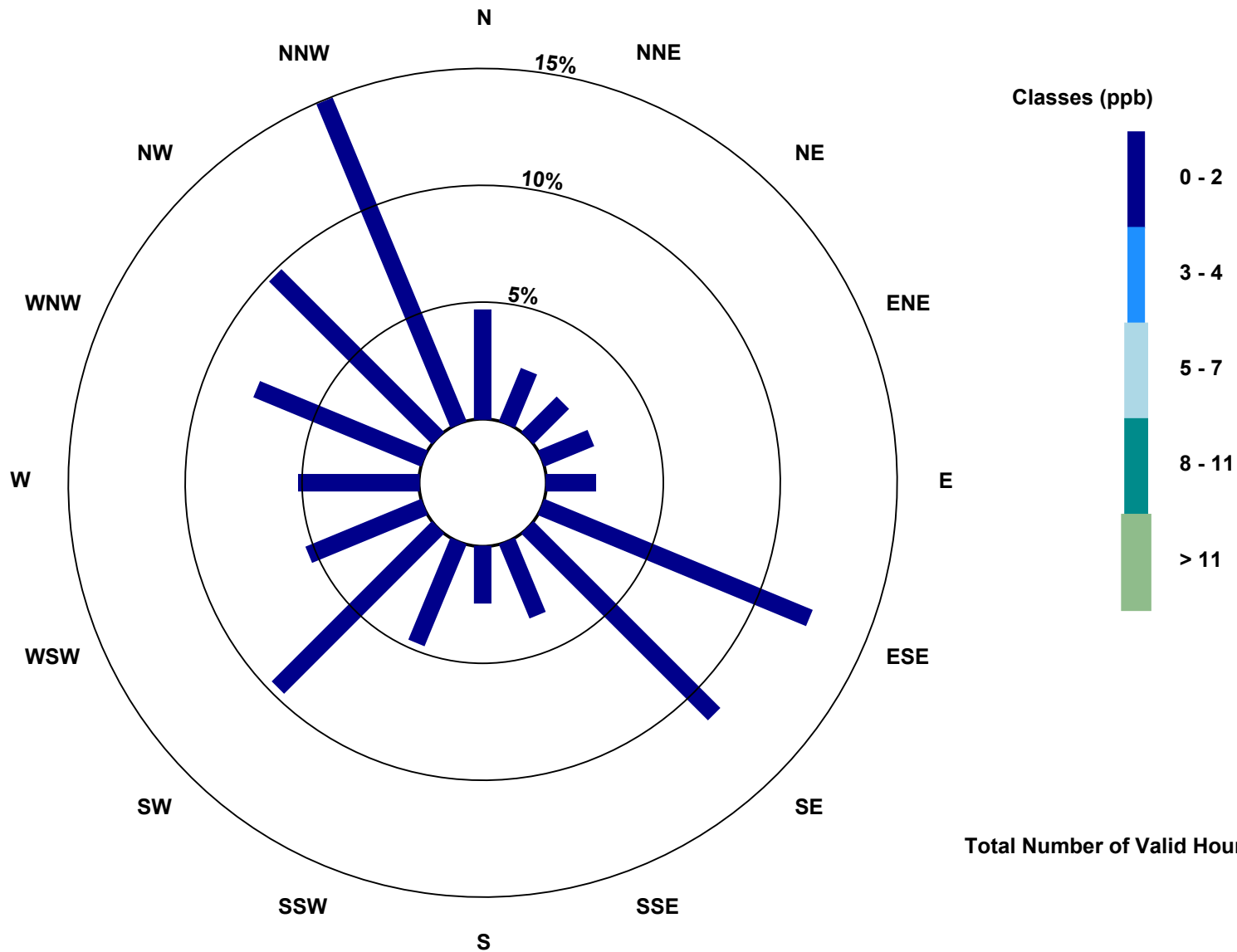
Total Number of Valid Hours: 623

Total Number of Hours: 744

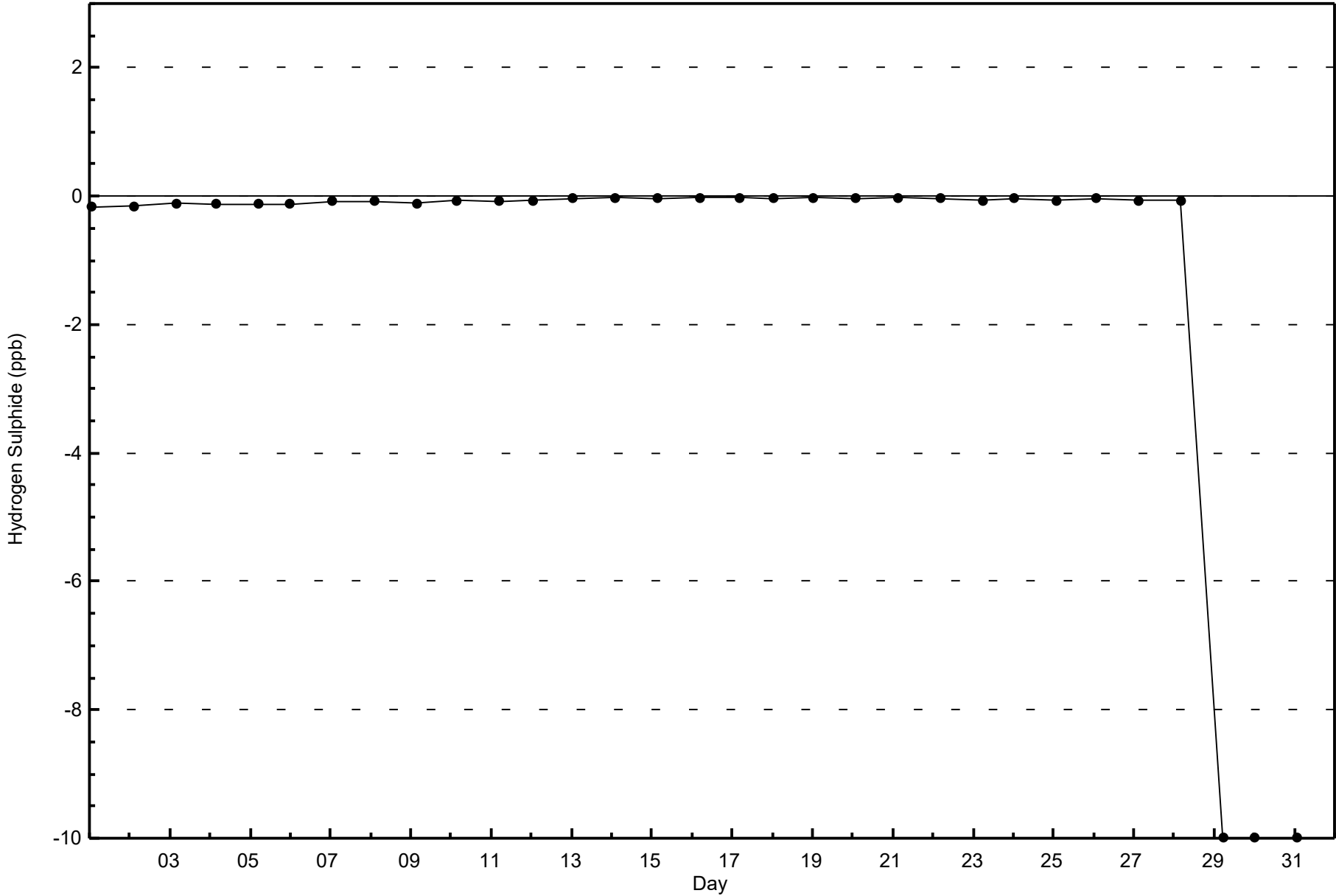


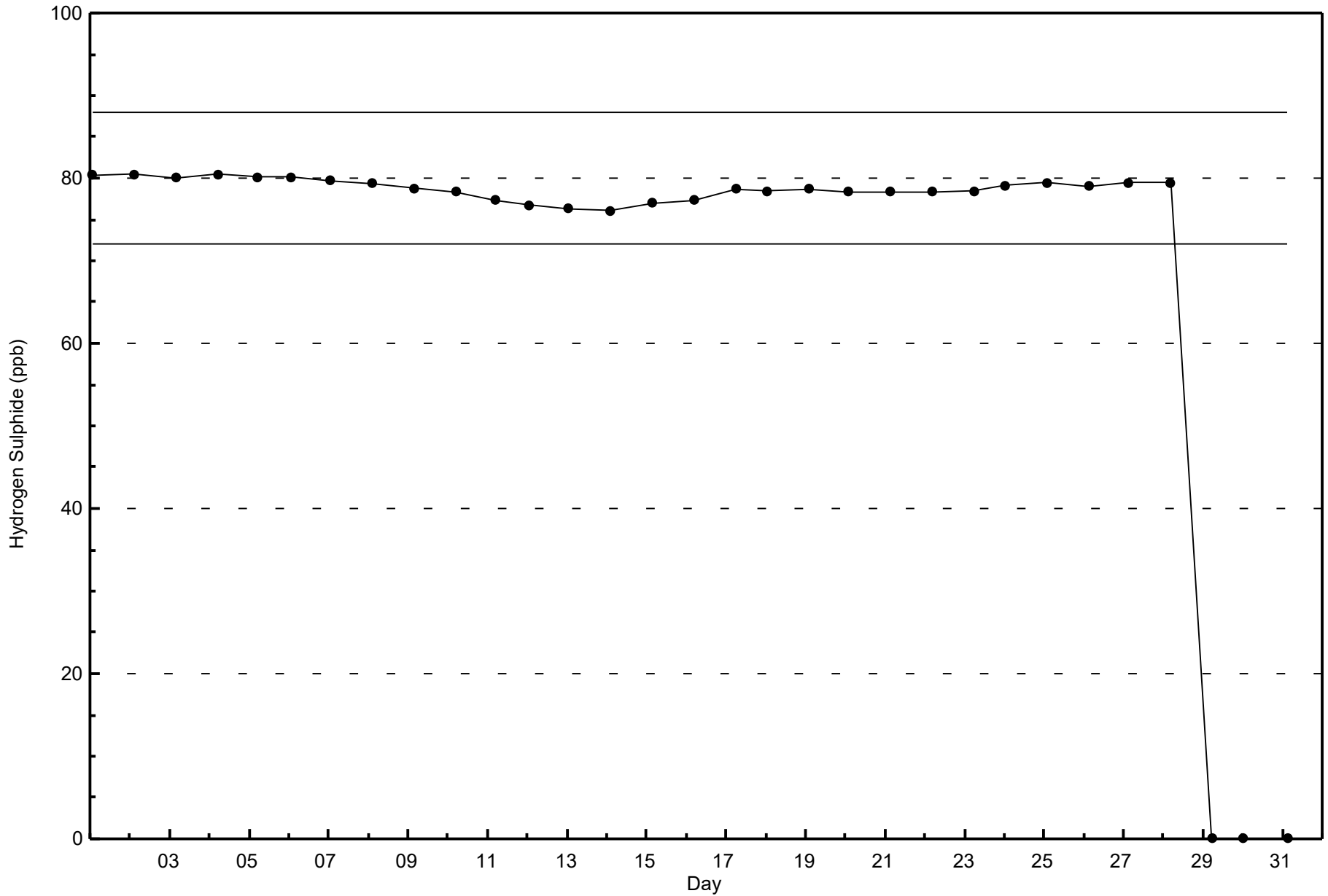
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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



Total Number of Valid Hours: 623







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

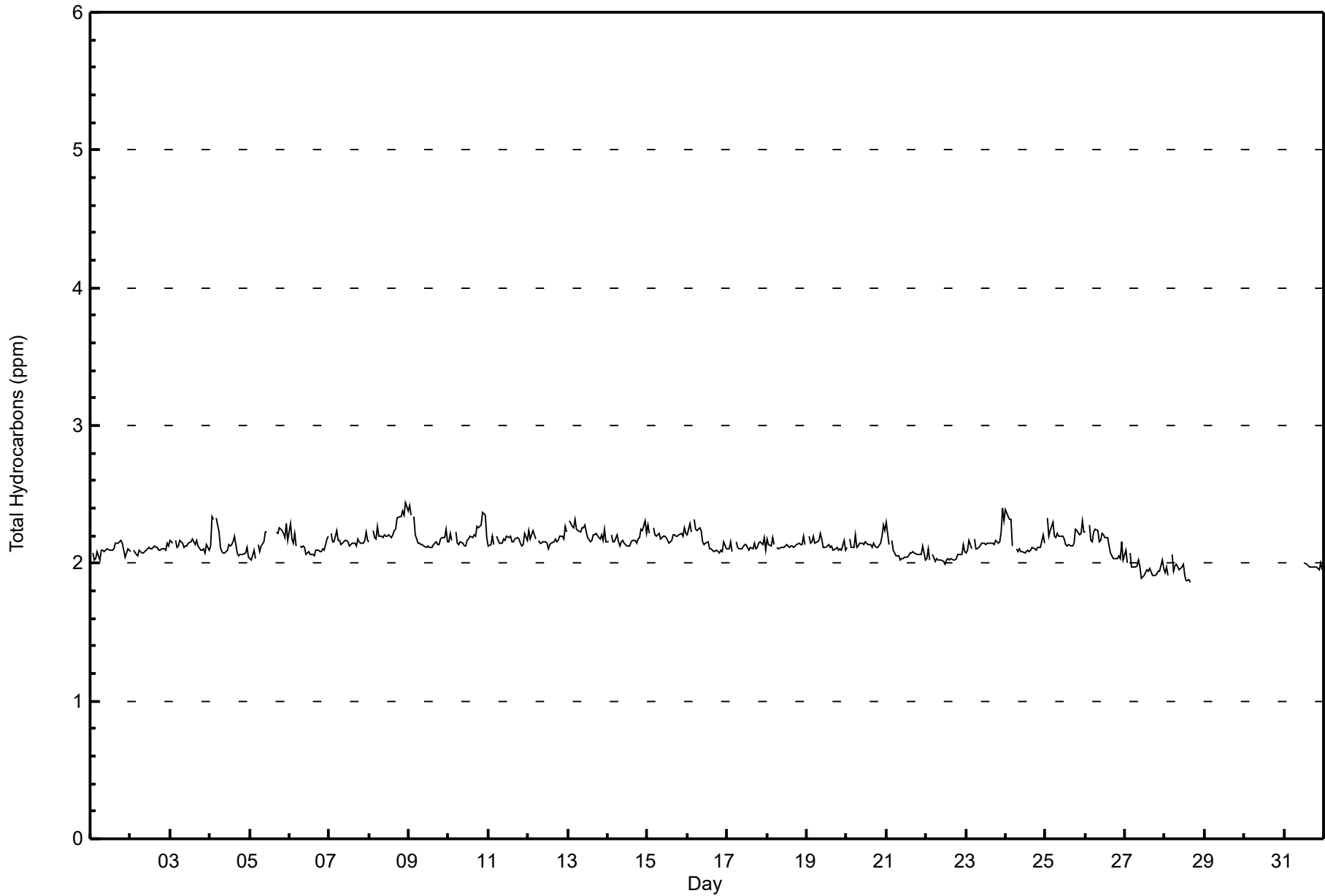
Surmont 2 - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																					
Maximum Value: 2.4 ppm on Jan 8 23:00		Maximum Daily Average: 2.3 ppm on Jan 8										Hours of Data: 643															
Minimum Value: 1.9 ppm on Jan 28 16:00		Minimum Daily Average: 2.0 ppm on Jan 27										Hours of Missing Data: 101															
Maximum Diurnal Average: 2.2 ppm at hour 23		Minimum Diurnal Average: 2.1 ppm at hour 14										Hours of Calibration: 33															
Monthly Average: 2.14 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.4										Percent Operational Time: 90.9															
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-Jan	Z	2.1	2.0	2.0	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	2.2	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.2	
2-Jan	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	
3-Jan	2.2	2.1	Z	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
4-Jan	2.1	2.3	2.3	Z	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.3	
5-Jan	2.0	2.0	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.2	C	C	C	C	C	2.2	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.3	
6-Jan	2.3	2.2	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	2.2	2.2	2.1	2.1	2.3	
7-Jan	Z	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	
8-Jan	2.2	Z	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	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.4
9-Jan	2.4	2.3	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	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.2	2.4	
10-Jan	2.2	2.2	2.2	Z	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.4	
11-Jan	2.1	2.1	2.2	2.1	Z	2.2	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	2.1	2.1	2.1	2.2	2.2	2.2	2.2	
12-Jan	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	
13-Jan	Z	2.3	2.3	2.3	2.3	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
14-Jan	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	
15-Jan	2.3	2.2	Z	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	2.2	2.2	2.3	2.2	2.2	2.2	2.3	
16-Jan	2.2	2.3	2.2	Z	2.3	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.3	
17-Jan	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.2	
18-Jan	2.2	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	2.2	2.1	2.1	2.1	2.2	
19-Jan	Z	2.2	2.1	2.2	2.2	2.1	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	2.2	2.1	2.1	2.1	2.2	
20-Jan	2.1	Z	2.2	2.1	2.1	2.2	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	2.2	2.3	2.2	2.1	2.3	
21-Jan	2.3	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.3	
22-Jan	2.0	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	2.1	2.1	2.1	2.1	2.0	2.1	
23-Jan	2.1	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	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.4	2.3	2.2	2.2	2.4	
24-Jan	2.4	2.3	2.3	2.3	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	2.2	2.1	2.1	2.4	
25-Jan	Z	2.3	2.2	2.2	2.3	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	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	
26-Jan	2.2	Z	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.2	2.0	2.1	2.3	
27-Jan	2.1	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	
28-Jan	1.9	2.0	1.9	Z	2.1	1.9	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	PF	PF	PF	PF	PF	PF	PF	--	2.1	
29-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--	
30-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--	
31-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	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	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan			C - Calibration			PF - Power Failure																					



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

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - January 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	82	12.75	12.75
2.1 - 3.0	561	87.25	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 643

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Surmont 2 - January 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	0	1	1	0	2	25	14	2	2	4	3	14	6	1	1	5	81
2.1 - 3.0	29	14	10	12	11	54	58	21	12	27	56	20	26	46	62	87	545
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>	29	15	11	12	13	79	72	23	14	31	59	34	32	47	63	92	626

Total Number of Valid Hours: 626

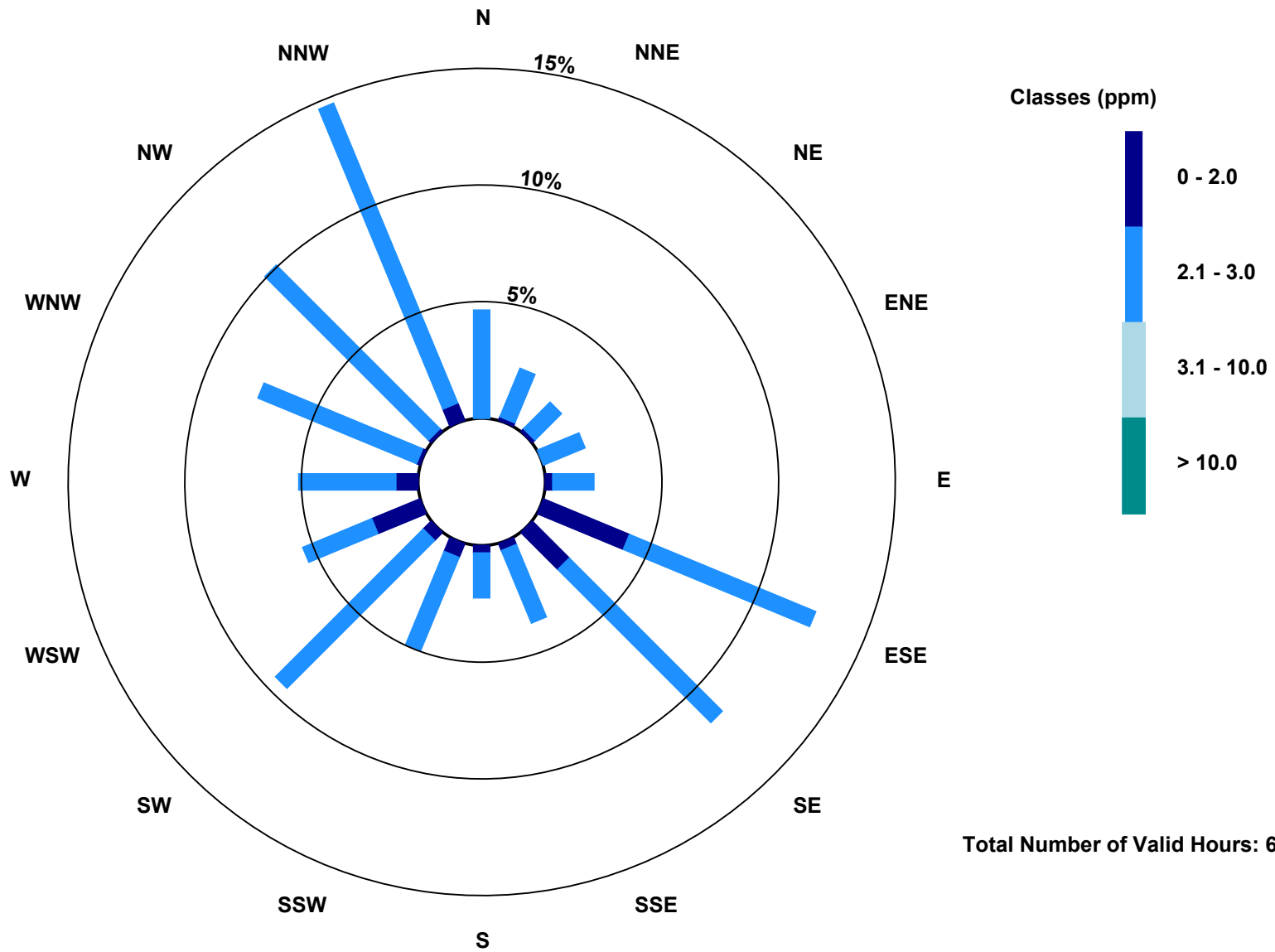
Total Number of Hours: 744

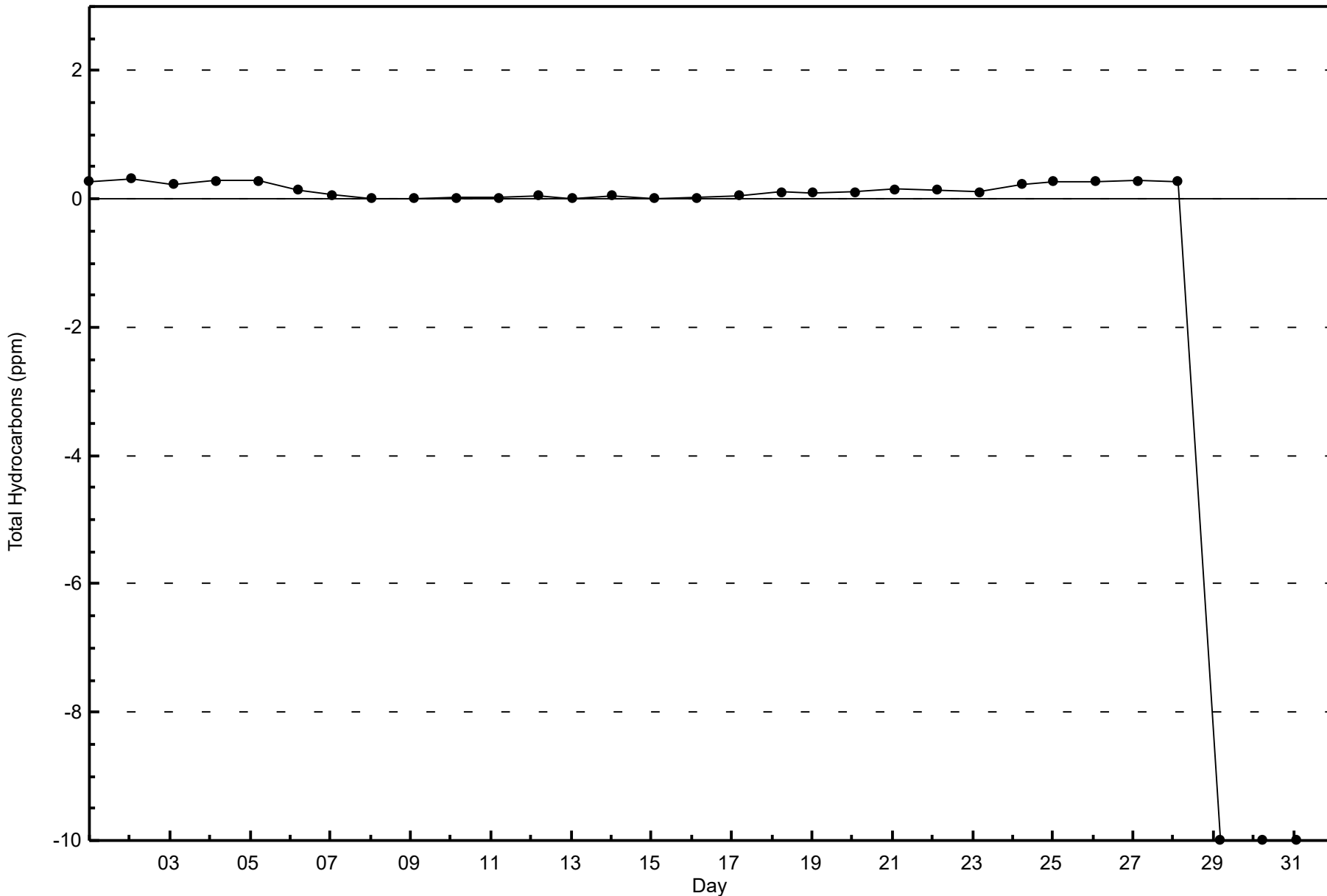


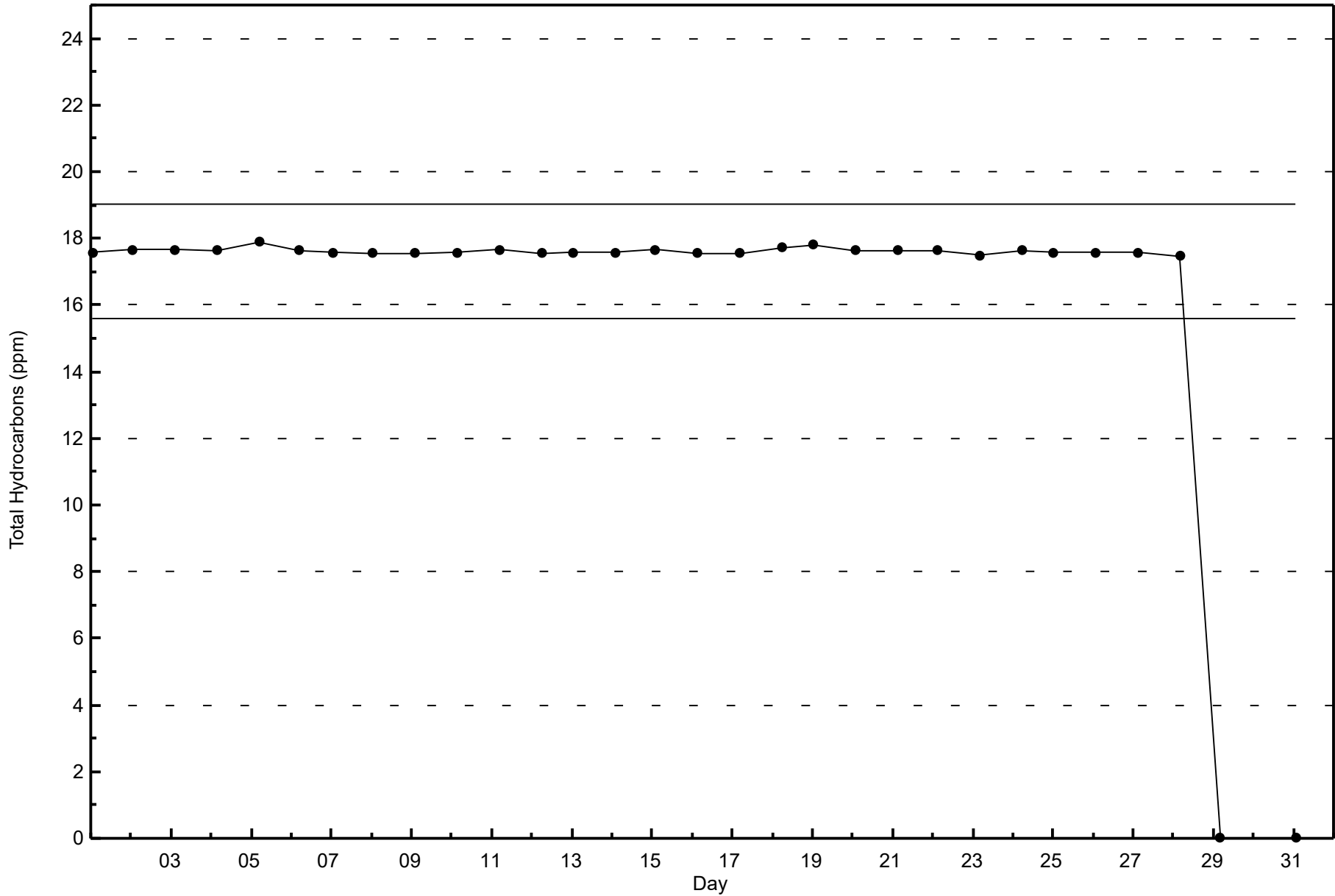


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbons (THC) - ppm  
Surmont 2





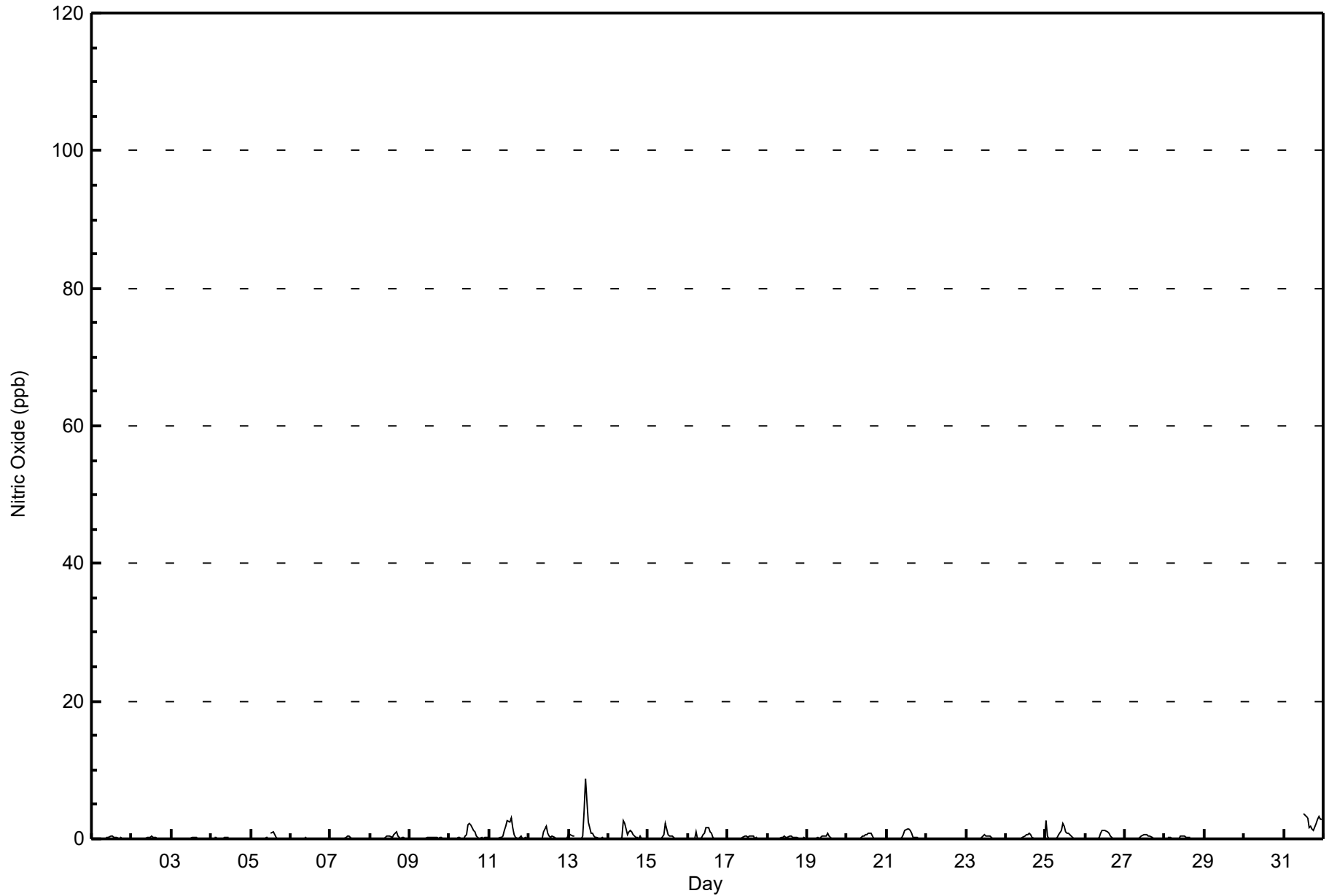






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Surmont 2 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	641	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: 641

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Surmont 2 - January 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	26	15	13	11	11	78	74	23	16	29	58	34	31	48	60	96	623
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>	26	15	13	11	11	78	74	23	16	29	58	34	31	48	60	96	623

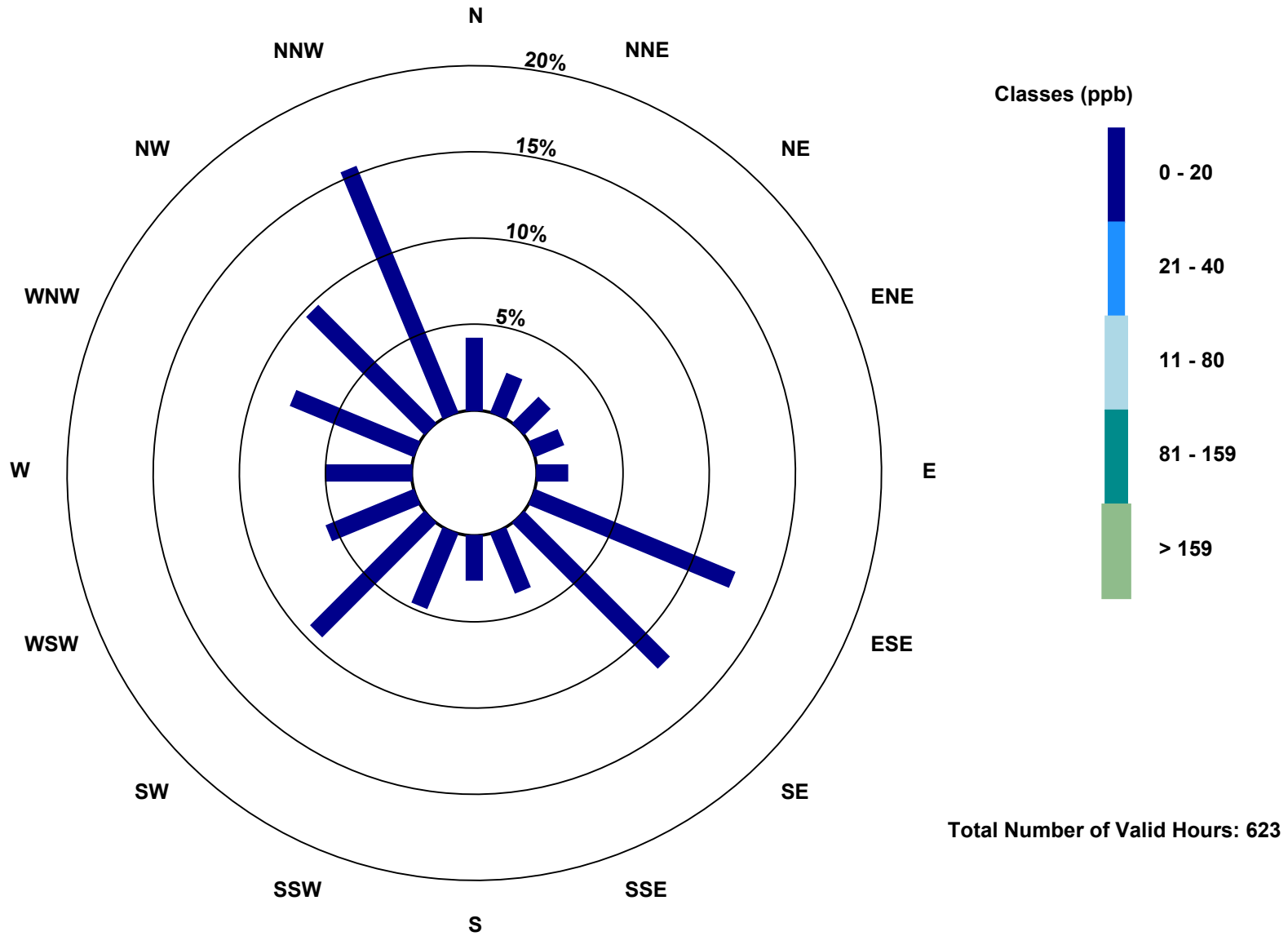
Total Number of Valid Hours: 623

Total Number of Hours: 744

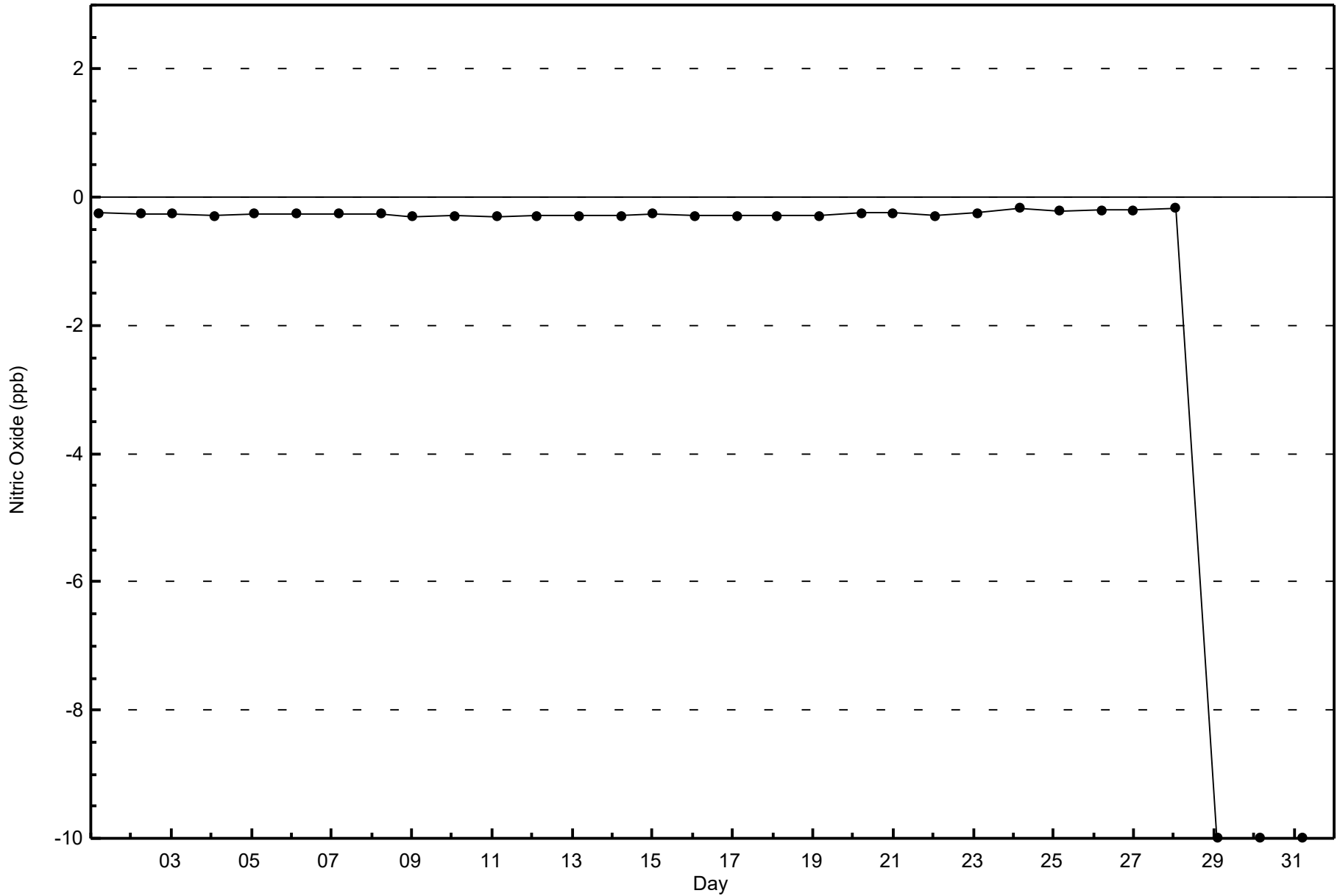


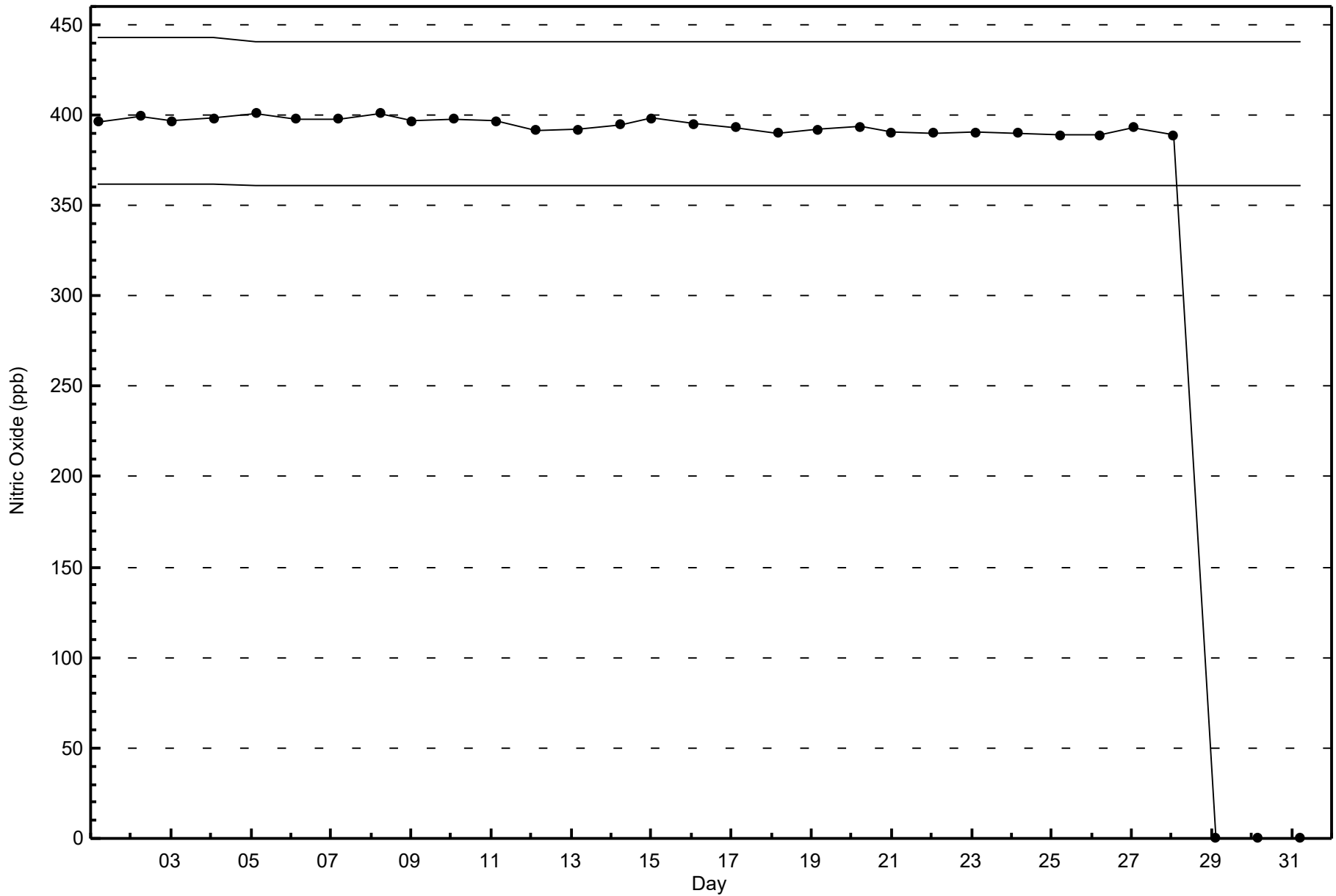
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Surmont 2











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Surmont 2 - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.0 ppb on Jan 10 22:00	Maximum Daily Average: 9.4 ppb on Jan 13		Hours of Data:	641
Minimum Value: 0.1 ppb on Jan 5 00:00	Minimum Daily Average: 0.8 ppb on Jan 22		Hours of Missing Data:	103
Maximum Diurnal Average: 5.6 ppb at hour 3	Minimum Diurnal Average: 2.6 ppb at hour 14		Hours of Calibration:	34
Monthly Average: 4.26 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.7 Median = 3.2 Q <sub>3</sub> = 5.6 P <sub>90</sub> = 8.8 P <sub>99</sub> = 16.5		Percent Operational Time:	90.7

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-Jan	0.5	0.4	0.4	0.4	Z	0.3	5.0	4.7	5.2	6.3	4.6	3.7	4.0	3.1	4.4	7.4	9.0	8.0	6.8	5.7	2.8	1.1	1.9	2.2	3.8	9.0	
2-Jan	2.1	1.2	1.8	3.4	4.8	Z	4.6	2.6	2.0	3.2	2.3	2.5	3.0	2.9	3.4	3.2	3.1	2.2	1.9	1.5	1.3	1.2	1.3	2.0	2.5	4.8	
3-Jan	Z	1.4	1.3	1.5	1.2	2.4	3.5	2.6	1.6	1.1	0.9	0.9	1.2	1.5	1.6	2.8	2.7	1.3	0.8	0.7	0.7	0.9	0.7	1.0	1.5	3.5	
4-Jan	2.2	Z	15.7	14.7	14.3	12.1	4.6	2.9	3.0	3.0	2.8	C	C	C	C	C	1.3	0.5	0.3	0.3	0.2	0.3	0.1	--	15.7		
5-Jan	0.2	0.4	Z	0.3	0.3	0.3	0.3	0.8	2.0	3.4	2.3	M	3.9	4.8	4.6	4.3	4.4	6.2	8.5	6.9	6.6	4.6	5.3	3.1	3.3	8.5	
6-Jan	2.7	2.5	2.7	Z	2.3	2.1	2.3	2.3	2.2	2.1	0.9	0.6	0.6	0.4	0.6	0.8	1.2	0.7	0.6	0.4	0.4	0.7	1.1	9.8	1.7	9.8	
7-Jan	9.0	7.1	6.5	6.5	Z	6.2	5.6	3.4	3.7	4.8	2.9	2.3	0.9	0.4	0.6	0.4	0.6	1.0	1.3	1.5	1.7	1.4	2.0	1.7	3.1	9.0	
8-Jan	1.4	1.4	1.1	1.3	1.3	Z	1.4	1.6	1.6	1.6	1.8	1.5	1.2	1.1	2.8	4.8	9.6	14.5	13.8	14.3	16.4	14.8	12.6	11.5	5.8	16.4	
9-Jan	Z	8.9	7.4	6.4	4.3	2.3	2.8	2.3	2.4	1.4	1.2	1.2	1.3	1.1	0.9	1.4	3.0	3.1	3.1	8.7	8.8	8.8	8.7	8.7	4.3	8.9	
10-Jan	7.4	Z	7.3	7.3	7.4	7.3	6.2	6.5	5.8	4.3	2.9	5.6	5.8	5.7	5.1	7.8	9.0	13.9	13.3	14.6	18.0	21.0	18.9	11.0	9.2	21.0	
11-Jan	5.8	4.3	Z	5.2	6.6	6.9	7.5	7.3	8.4	8.6	6.3	6.3	5.7	6.5	4.8	4.4	6.6	6.9	7.9	4.7	2.7	2.4	6.6	5.3	6.0	8.6	
12-Jan	5.5	5.8	4.8	Z	3.7	3.6	3.5	3.5	4.4	5.1	4.7	1.9	0.9	0.9	1.7	2.0	2.9	2.7	4.1	5.5	5.8	6.3	10.6	13.4	4.5	13.4	
13-Jan	18.2	17.9	16.0	16.4	Z	13.7	13.4	11.8	11.2	10.9	11.5	9.4	5.3	2.6	3.0	3.3	5.1	7.7	4.7	5.8	7.4	8.1	7.3	6.1	9.4	18.2	
14-Jan	5.5	5.5	5.4	5.2	4.5	Z	4.0	6.0	6.3	9.0	4.9	1.6	2.5	3.3	3.9	4.7	5.5	6.1	4.9	4.8	4.7	3.4	4.1	3.0	4.7	9.0	
15-Jan	Z	2.2	1.7	1.8	4.1	6.3	8.4	5.5	5.1	5.0	7.3	4.9	2.4	1.7	2.0	1.8	1.7	1.9	2.4	5.0	8.2	11.8	10.5	13.5	5.0	13.5	
16-Jan	11.5	Z	10.1	9.1	8.4	10.2	8.3	7.3	5.7	5.2	3.8	4.4	4.1	3.3	3.2	2.3	1.7	1.2	1.0	1.6	2.2	1.4	0.9	0.9	4.7	11.5	
17-Jan	0.9	0.8	Z	1.0	1.0	1.0	2.5	2.1	2.8	3.4	3.1	2.4	1.4	1.3	2.1	3.7	2.4	3.1	5.1	8.7	8.2	5.1	3.1	2.1	2.9	8.7	
18-Jan	3.5	4.2	3.4	Z	6.0	4.9	4.0	2.6	1.8	1.7	1.6	0.9	0.9	1.1	1.2	1.1	1.0	1.0	1.0	0.9	0.6	0.7	1.2	0.8	2.0	6.0	
19-Jan	0.6	0.4	0.6	1.0	Z	2.4	12.2	13.2	9.3	3.2	1.9	1.4	2.0	1.4	1.2	1.0	1.0	1.5	2.5	3.1	2.6	2.6	2.3	2.5	3.0	13.2	
20-Jan	3.0	2.9	2.8	2.7	2.5	Z	2.1	1.9	3.1	3.2	2.8	2.9	3.4	3.1	3.5	3.7	3.9	3.7	3.6	2.8	7.0	11.3	11.6	17.5	4.6	17.5	
21-Jan	Z	10.7	6.3	6.4	6.6	6.3	7.4	7.3	4.4	3.9	4.1	5.1	5.3	5.5	6.5	7.4	7.9	8.0	7.3	6.0	5.9	3.2	0.8	0.5	5.8	10.7	
22-Jan	0.7	Z	0.4	0.6	0.8	0.4	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.4	0.5	0.5	0.5	0.4	0.5	1.3	1.8	1.9	2.2	2.2	0.8	2.2	
23-Jan	2.1	2.3	Z	2.0	1.9	1.8	1.7	2.0	2.2	2.0	2.7	2.7	2.2	2.2	2.9	2.7	3.7	4.2	4.2	3.8	4.2	10.2	16.6	15.3	4.2	16.6	
24-Jan	14.0	15.2	14.9	Z	4.9	4.3	4.0	3.7	3.5	2.9	2.6	2.8	3.1	3.4	4.2	5.0	5.8	6.0	6.2	7.0	5.7	5.0	4.9	4.8	5.8	15.2	
25-Jan	12.3	8.2	10.5	7.5	Z	6.6	8.9	12.0	11.3	10.0	8.6	7.0	5.1	4.3	4.4	4.4	4.4	4.5	4.4	4.3	4.4	4.5	4.4	3.7	6.8	12.3	
26-Jan	3.4	3.6	3.9	4.3	4.3	Z	5.0	4.5	5.5	3.4	3.1	3.3	2.9	3.1	3.1	2.9	3.1	3.2	3.4	2.7	2.3	2.0	2.6	4.7	3.5	5.5	
27-Jan	Z	1.8	1.5	1.4	1.4	2.7	3.4	3.6	3.6	3.6	3.2	3.1	2.8	2.7	3.0	3.4	3.3	2.8	2.5	2.5	3.0	2.3	2.5	2.3	2.7	3.6	
28-Jan	2.2	Z	7.5	8.4	5.1	3.6	2.1	2.6	2.2	3.2	3.7	2.4	1.5	0.9	0.8	1.0	PF	PF	PF	PF	PF	PF	PF	PF	--	8.4	
29-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
30-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
31-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	4.2	3.4	3.5	3.5	4.4	3.7	2.8	3.3	3.3	4.0	2.8	2.9	--	4.4

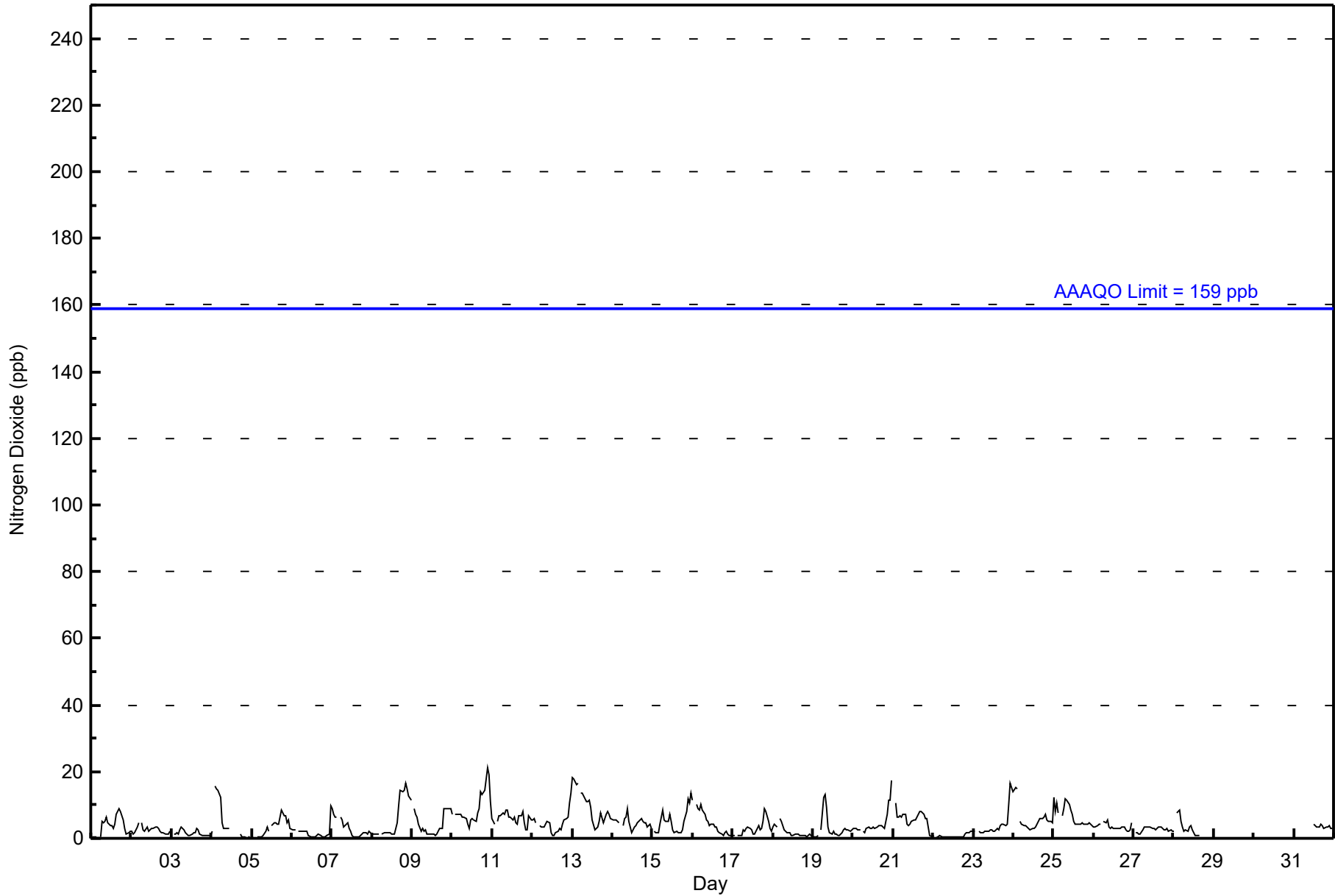
5.0	4.7	5.6	4.8	4.2	4.7	4.8	4.5	4.3	4.1	3.5	3.1	2.8	2.6	2.8	3.3	4.0	4.3	4.3	4.6	4.9	5.0	5.3	5.5	Diurnal Average	
18.2	17.9	16.0	16.4	14.3	13.7	13.4	13.2	11.3	10.9	11.5	9.4	5.8	6.5	6.5	7.8	9.6	14.5	13.8	14.6	18.0	21.0	18.9	17.5	Diurnal Maximum	

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 - January 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Surmont 2 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	640	99.84	99.84
21 - 40	1	0.16	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: 641

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Surmont 2 - January 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	26	15	13	11	11	78	74	23	16	29	58	34	31	48	60	95	622
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	26	15	13	11	11	78	74	23	16	29	58	34	31	48	60	96	623

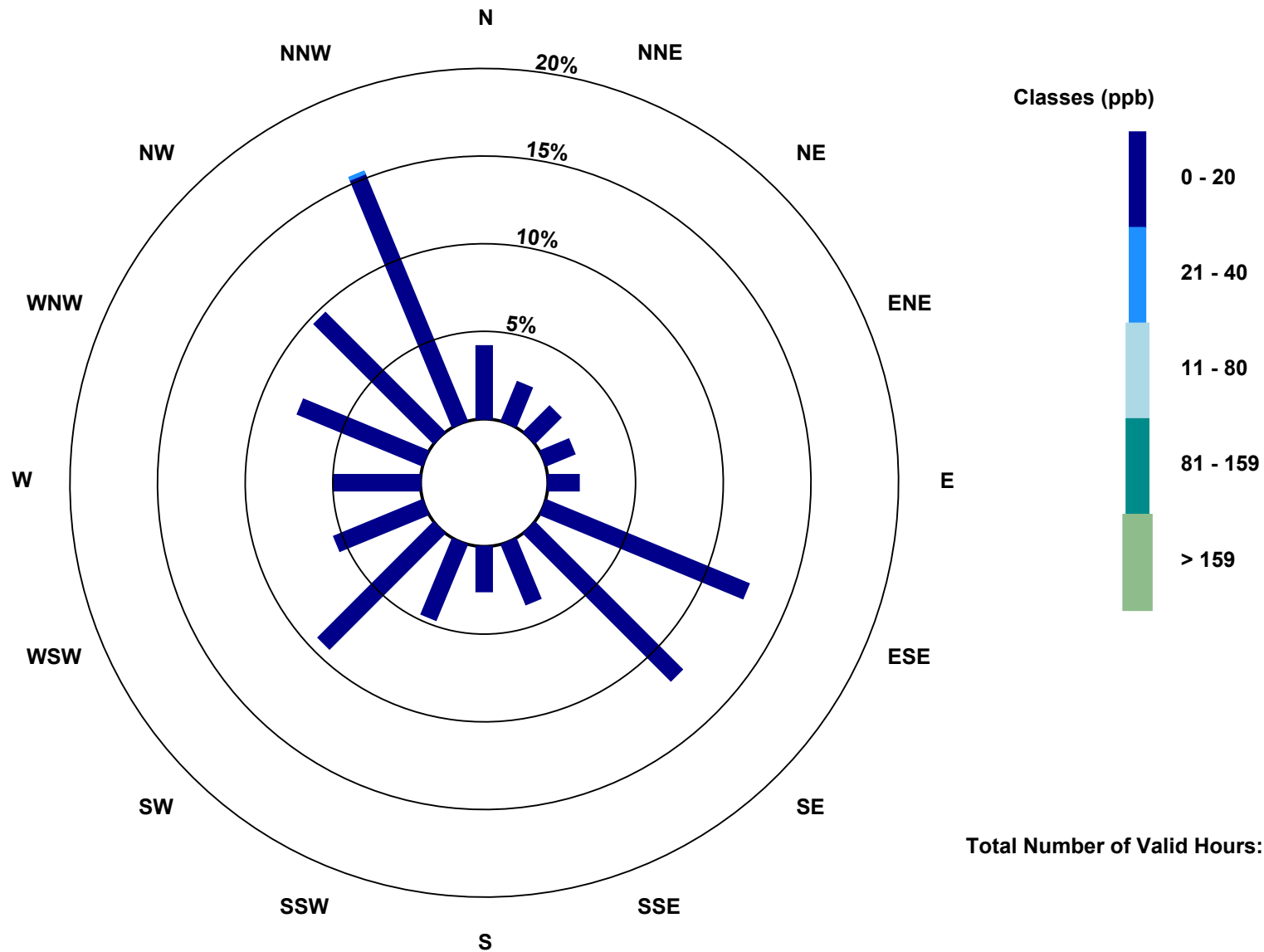
Total Number of Valid Hours: 623

Total Number of Hours: 744

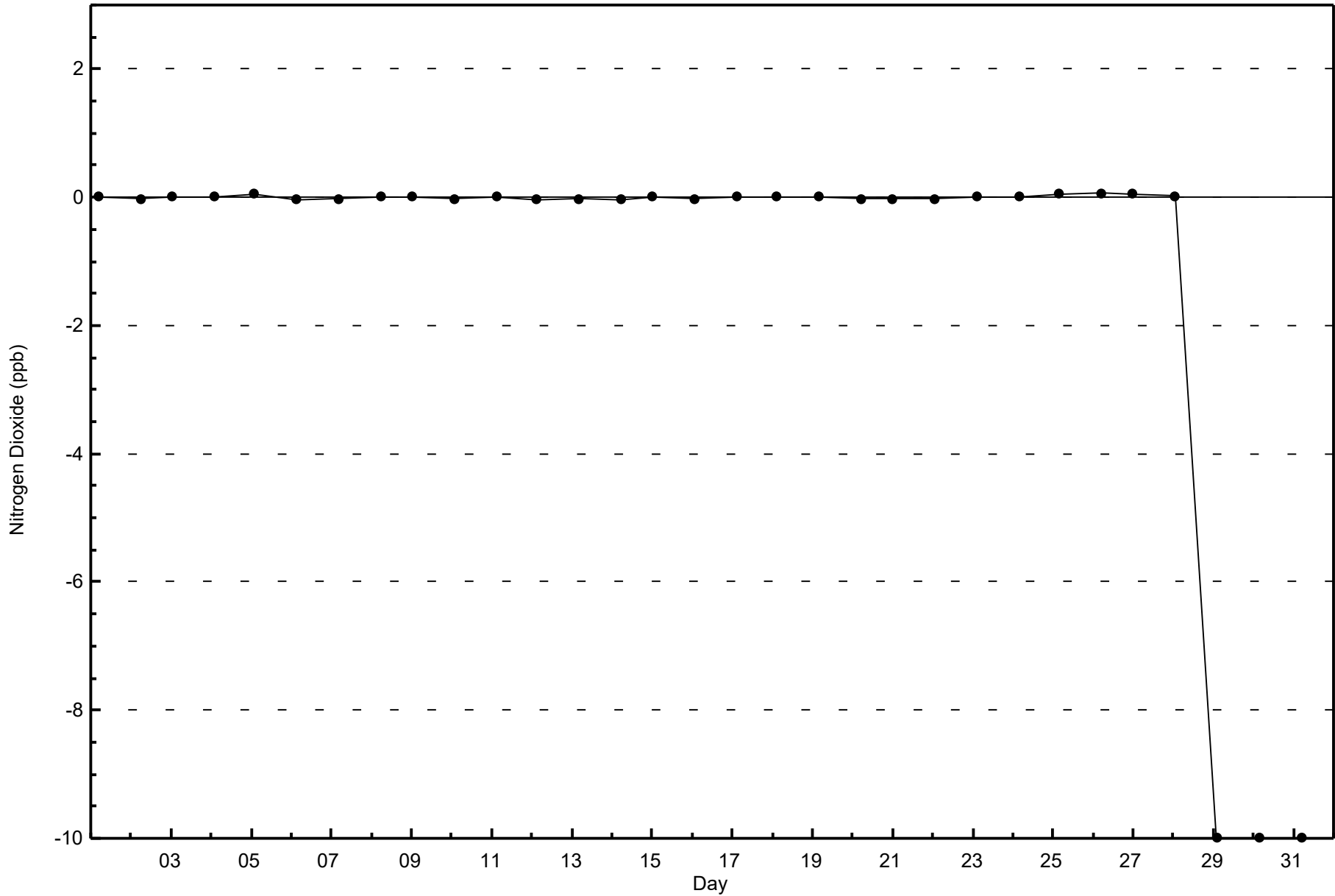


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

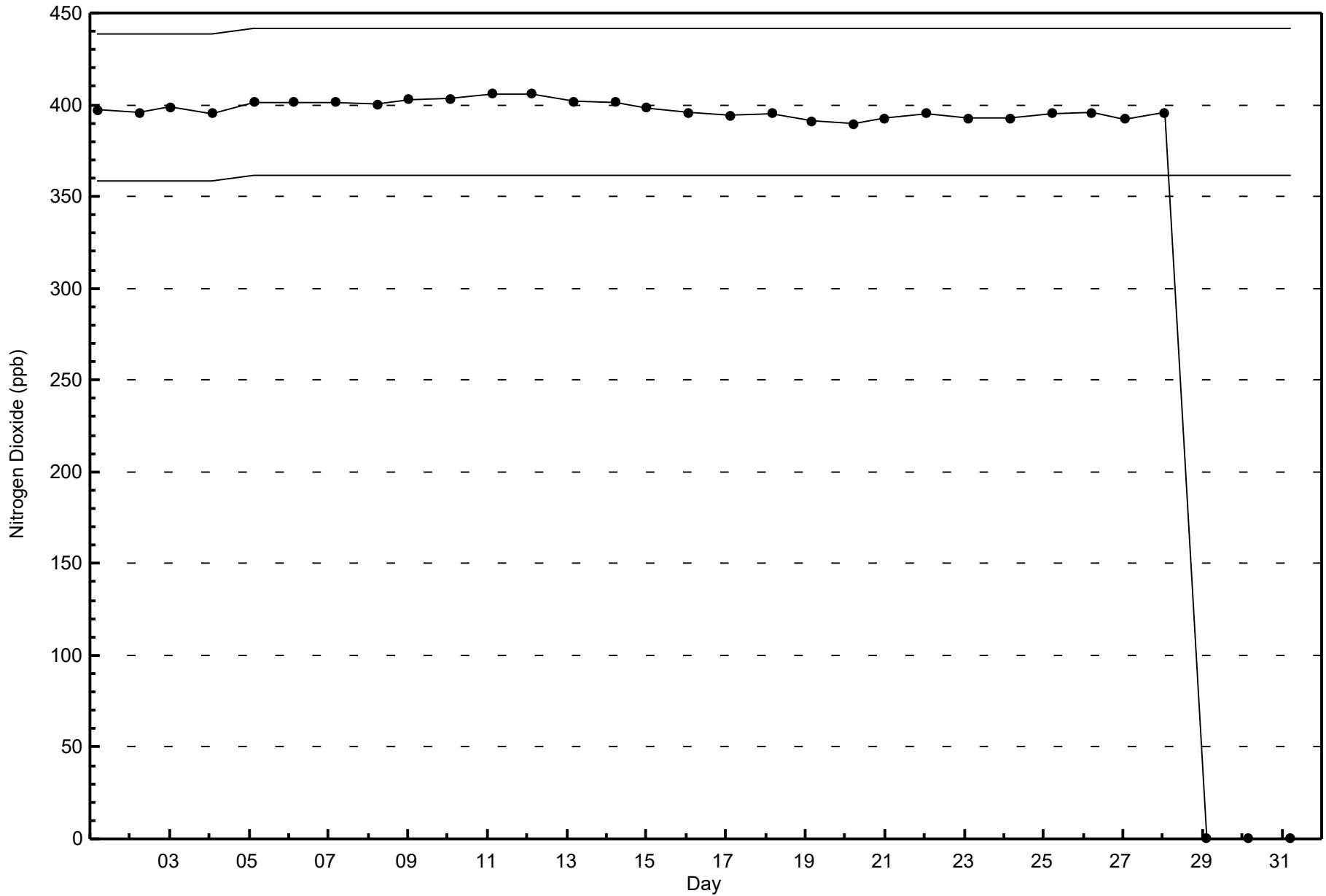
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Surmont 2



Total Number of Valid Hours: 623









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Surmont 2 - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.2 ppb on Jan 10 22:00	Maximum Daily Average: 10.6 ppb on Jan 13		Hours of Data:	641
Minimum Value: 0.1 ppb on Jan 5 00:00	Minimum Daily Average: 0.8 ppb on Jan 22		Hours of Missing Data:	103
Maximum Diurnal Average: 5.6 ppb at hour 3	Minimum Diurnal Average: 3.4 ppb at hour 14		Hours of Calibration:	34
Monthly Average: 4.55 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.9 Median = 3.5 Q <sub>3</sub> = 6.2 P <sub>90</sub> = 9.1 P <sub>99</sub> = 17.2		Percent Operational Time:	90.7

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-Jan	0.5	0.4	0.4	0.4	Z	0.3	5.0	4.8	5.3	6.4	4.8	4.0	4.3	3.3	4.6	7.5	9.1	8.1	6.9	5.7	2.8	1.1	1.9	2.2	3.9	9.1	
2-Jan	2.1	1.3	1.8	3.5	4.8	Z	4.7	2.7	2.0	3.3	2.5	2.8	3.3	3.1	3.6	3.3	3.1	2.2	1.9	1.5	1.3	1.2	1.3	2.0	2.6	4.8	
3-Jan	Z	1.4	1.3	1.5	1.2	2.4	3.5	2.6	1.6	1.1	1.0	1.0	1.3	1.7	1.8	3.0	2.8	1.3	0.8	0.7	0.7	0.9	0.7	1.0	1.5	3.5	
4-Jan	2.3	Z	15.8	14.9	14.4	12.2	4.7	3.0	3.1	3.2	3.1	C	C	C	C	C	C	1.3	0.5	0.3	0.3	0.2	0.3	0.1	--	15.8	
5-Jan	0.2	0.4	Z	0.3	0.3	0.3	0.3	0.8	2.1	3.5	2.6	M	4.8	5.8	5.3	4.6	4.5	6.3	8.5	6.9	6.6	4.6	5.3	3.1	3.5	8.5	
6-Jan	2.7	2.5	2.7	Z	2.3	2.1	2.3	2.3	2.2	2.2	1.0	0.7	0.7	0.5	0.6	0.8	1.3	0.7	0.6	0.4	0.4	0.7	1.2	9.8	1.8	9.8	
7-Jan	9.1	7.1	6.5	6.5	Z	6.2	5.6	3.4	3.7	5.1	3.3	2.7	1.1	0.4	0.6	0.4	0.6	1.0	1.3	1.5	1.7	1.4	2.0	1.7	3.2	9.1	
8-Jan	1.4	1.4	1.1	1.3	1.3	Z	1.4	1.6	1.6	1.7	2.3	2.0	1.6	1.4	3.4	5.7	10.5	14.9	13.9	14.5	16.6	14.9	12.7	11.6	6.0	16.6	
9-Jan	Z	9.0	7.5	6.4	4.3	2.3	2.8	2.3	2.4	1.5	1.4	1.4	1.6	1.3	1.1	1.5	3.2	3.2	3.2	8.8	8.9	8.9	8.8	8.7	4.4	9.0	
10-Jan	7.4	Z	7.3	7.3	7.4	7.5	6.3	6.6	5.9	4.8	3.5	7.5	8.0	7.7	6.2	8.7	9.3	14.1	13.4	14.8	18.1	21.2	19.0	11.1	9.7	21.2	
11-Jan	5.9	4.3	Z	5.2	6.7	7.0	7.6	7.4	8.8	9.8	8.1	8.9	8.2	9.5	6.4	5.0	6.9	7.0	8.0	5.1	2.7	2.5	6.7	5.3	6.7	9.8	
12-Jan	5.5	5.8	4.8	Z	3.7	3.6	3.5	3.5	4.5	6.2	6.6	2.8	1.2	1.2	2.1	2.2	3.0	2.7	4.1	5.5	5.8	6.3	10.7	13.7	4.8	13.7	
13-Jan	19.0	18.6	16.4	16.9	Z	13.8	13.5	11.9	11.5	14.9	20.3	15.0	7.8	3.5	3.7	3.7	5.2	7.9	4.7	5.8	7.5	8.1	7.3	6.1	10.6	20.3	
14-Jan	5.5	5.5	5.4	5.2	4.5	Z	4.1	6.1	6.5	11.6	7.1	2.2	3.4	4.5	4.9	5.3	5.6	6.2	4.9	5.2	4.7	3.4	4.1	3.0	5.2	11.6	
15-Jan	Z	2.2	1.7	1.8	4.1	6.3	8.4	5.5	5.2	5.7	9.6	6.4	3.1	2.1	2.4	2.0	1.8	1.9	2.4	5.0	8.3	11.9	10.6	13.6	5.3	13.6	
16-Jan	11.5	Z	10.1	9.1	8.4	11.1	8.3	7.4	5.8	5.8	4.7	6.0	5.7	4.4	4.0	2.5	1.8	1.3	1.1	1.6	2.2	1.4	0.9	0.9	5.0	11.5	
17-Jan	0.9	0.8	Z	1.0	1.0	1.1	2.5	2.1	2.9	3.6	3.5	2.9	1.7	1.6	2.5	4.2	2.5	3.2	5.2	8.7	8.3	5.1	3.1	2.1	3.1	8.7	
18-Jan	3.5	4.2	3.4	Z	6.0	5.0	4.1	2.7	1.9	1.8	2.1	1.2	1.2	1.4	1.5	1.3	1.1	1.2	1.1	1.0	0.6	0.7	1.3	0.8	2.1	6.0	
19-Jan	0.6	0.4	0.6	1.0	Z	2.4	12.5	13.3	9.5	3.6	2.4	1.9	2.9	1.9	1.4	1.1	1.0	1.5	2.5	3.1	2.6	2.6	2.3	2.5	3.2	13.3	
20-Jan	3.0	2.9	2.8	2.7	2.5	Z	2.1	1.9	3.2	3.6	3.3	3.5	4.1	4.0	4.2	4.1	4.0	3.8	3.6	2.8	7.0	11.3	11.6	17.5	4.8	17.5	
21-Jan	Z	10.8	6.3	6.4	6.6	6.3	7.5	7.4	4.5	4.1	4.7	6.2	6.7	6.9	7.8	8.2	8.2	8.2	7.5	6.0	5.9	3.2	0.8	0.5	6.1	10.8	
22-Jan	0.7	Z	0.4	0.6	0.8	0.4	0.3	0.3	0.3	0.5	0.4	0.5	0.3	0.4	0.5	0.5	0.5	0.4	0.5	1.3	1.8	1.9	2.2	2.2	0.8	2.2	
23-Jan	2.1	2.3	Z	2.0	1.9	1.8	1.7	2.0	2.2	2.2	3.2	3.3	2.6	2.7	3.3	2.9	3.8	4.3	4.2	3.8	4.2	10.2	16.7	15.3	4.3	16.7	
24-Jan	14.0	15.3	14.9	Z	4.9	4.3	4.0	3.7	3.5	3.0	2.8	3.2	3.6	4.1	5.0	5.5	6.0	6.0	6.2	7.0	5.7	5.0	4.9	4.8	6.0	15.3	
25-Jan	15.0	8.5	10.6	7.6	Z	6.7	9.0	12.1	11.9	11.2	10.7	8.9	6.0	5.2	5.2	4.9	4.6	4.5	4.4	4.3	4.4	4.5	4.4	3.7	7.3	15.0	
26-Jan	3.4	3.6	3.9	4.3	4.3	Z	5.0	4.5	5.7	4.1	4.2	4.5	4.2	4.2	3.9	3.3	3.2	3.2	3.4	2.7	2.3	2.0	2.6	4.7	3.8	5.7	
27-Jan	Z	1.8	1.5	1.4	1.4	2.7	3.4	3.6	3.7	3.9	3.5	3.6	3.4	3.3	3.5	3.8	3.4	2.9	2.5	2.5	3.0	2.3	2.5	2.3	2.9	3.9	
28-Jan	2.2	Z	7.6	8.6	5.2	3.6	2.1	2.6	2.3	3.5	4.2	2.9	1.9	1.1	0.9	1.2	PF	PF	PF	PF	PF	PF	PF	PF	--	8.6	
29-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
30-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
31-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	7.9	6.7	6.6	5.2	6.3	5.1	4.1	5.6	6.2	7.2	5.7	5.8	--	7.9	

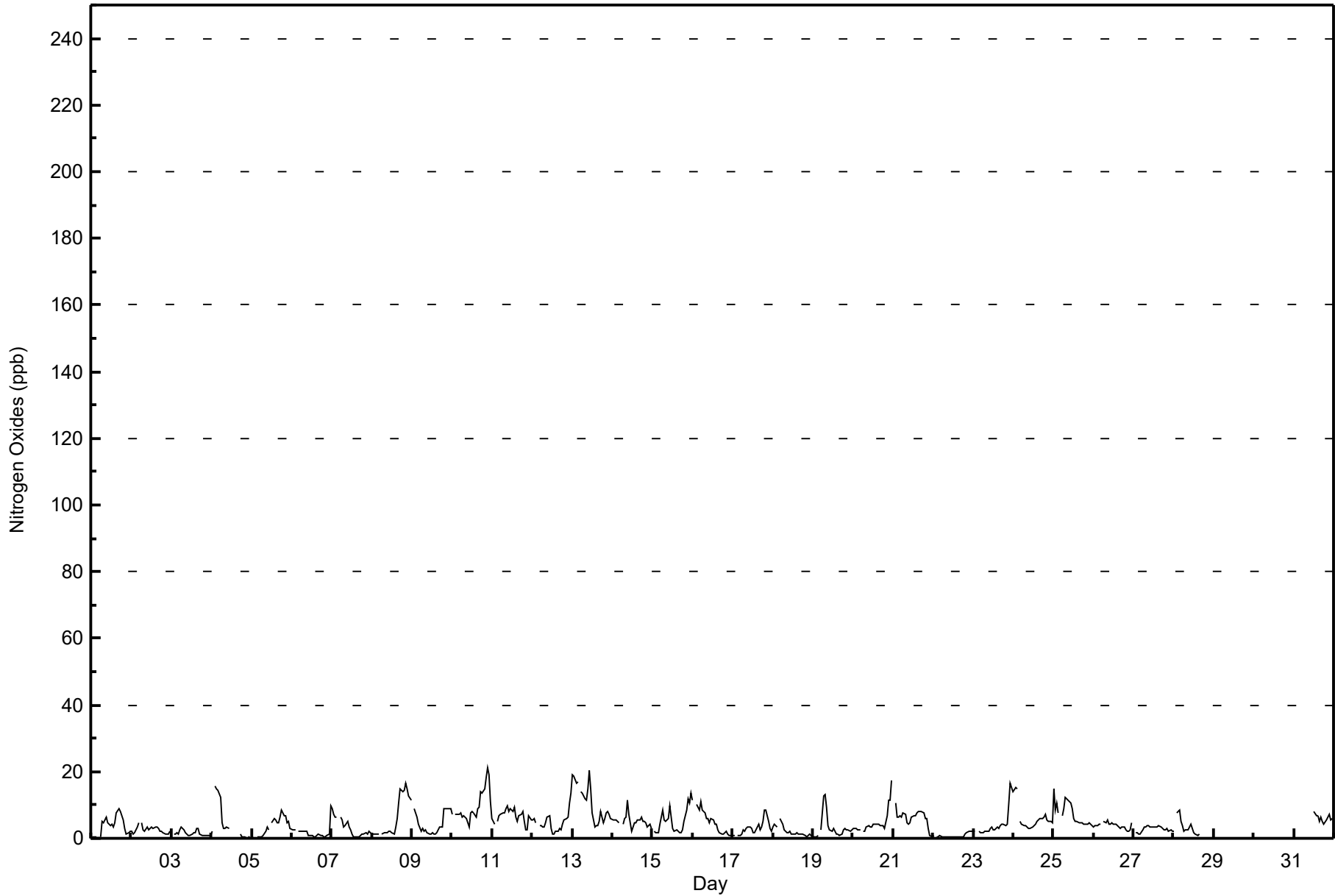
5.1	4.8	5.6	4.8	4.3	4.8	4.9	4.6	4.4	4.7	4.5	4.1	3.7	3.4	3.5	3.7	4.2	4.4	4.3	4.7	5.0	5.2	5.4	5.6	Diurnal Average	
19.0	18.6	16.4	16.9	14.4	13.8	13.5	13.3	11.9	14.9	20.3	15.0	8.2	9.5	7.8	8.7	10.5	14.9	13.9	14.8	18.1	21.2	19.0	17.5	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      PF - Power Failure



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Surmont 2 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2 - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	640	99.84	99.84
21 - 40	1	0.16	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: 641

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2 - January 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	26	15	13	11	11	78	74	23	16	29	58	34	31	48	60	95	622
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	26	15	13	11	11	78	74	23	16	29	58	34	31	48	60	96	623

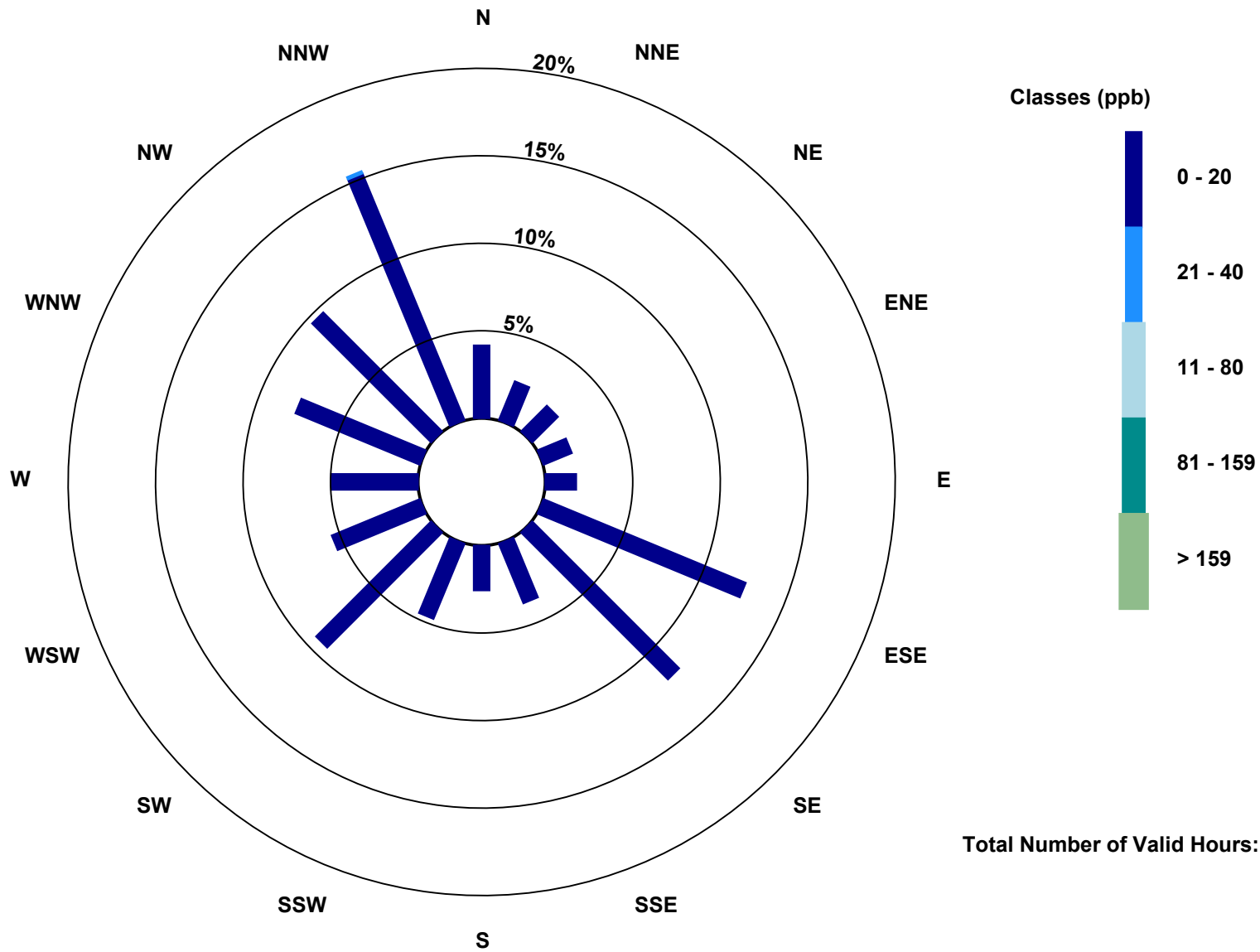
Total Number of Valid Hours: 623

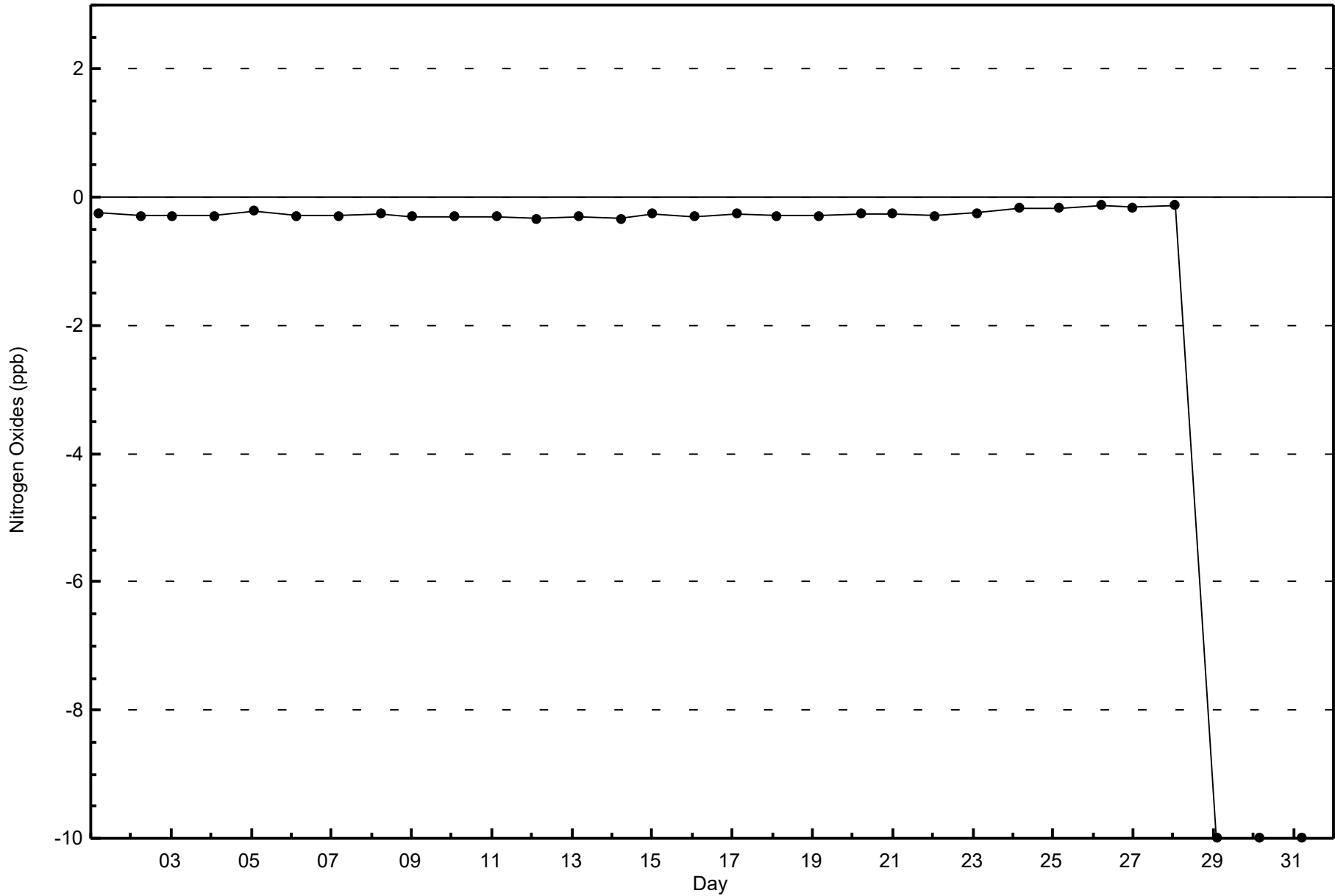
Total Number of Hours: 744

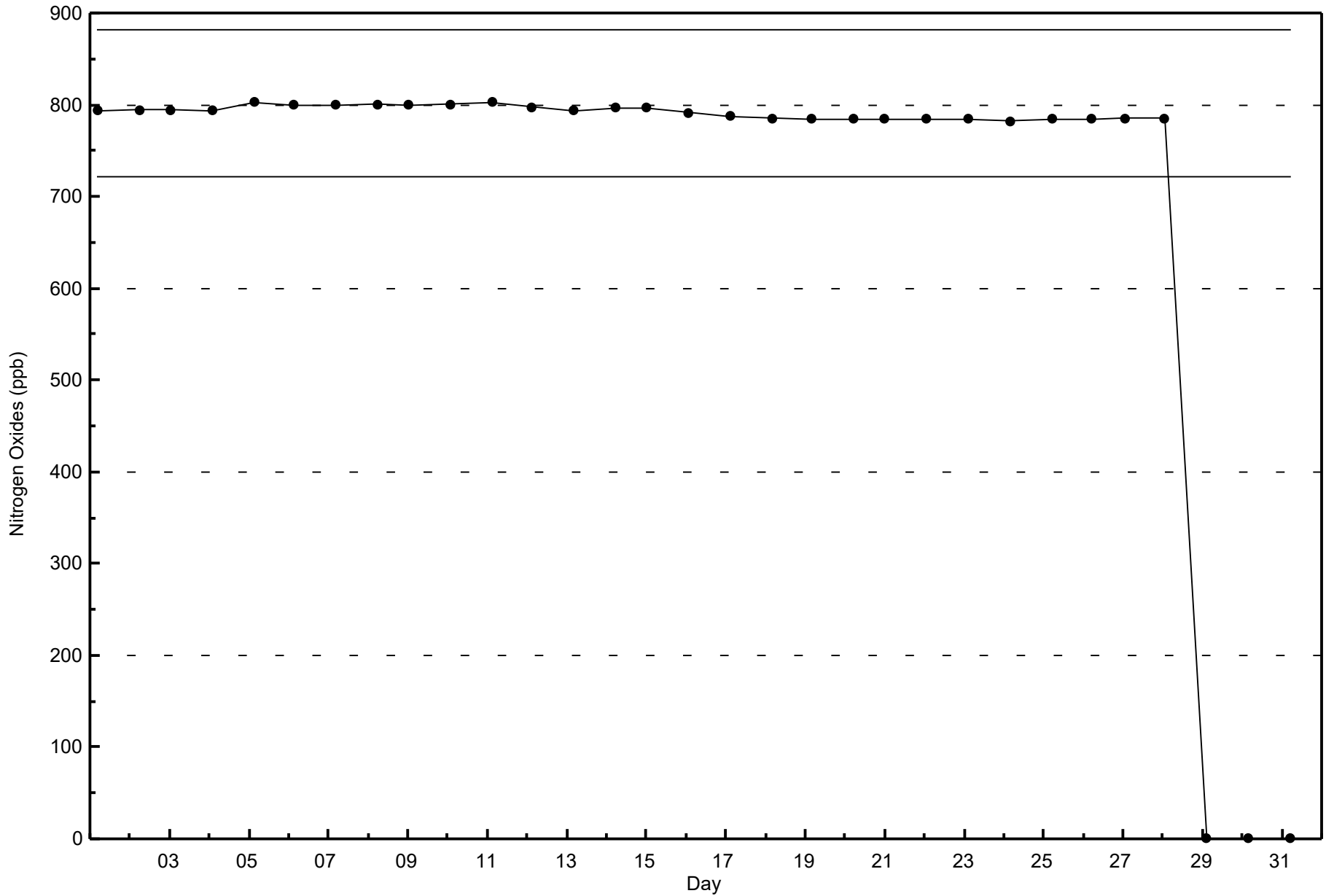


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2











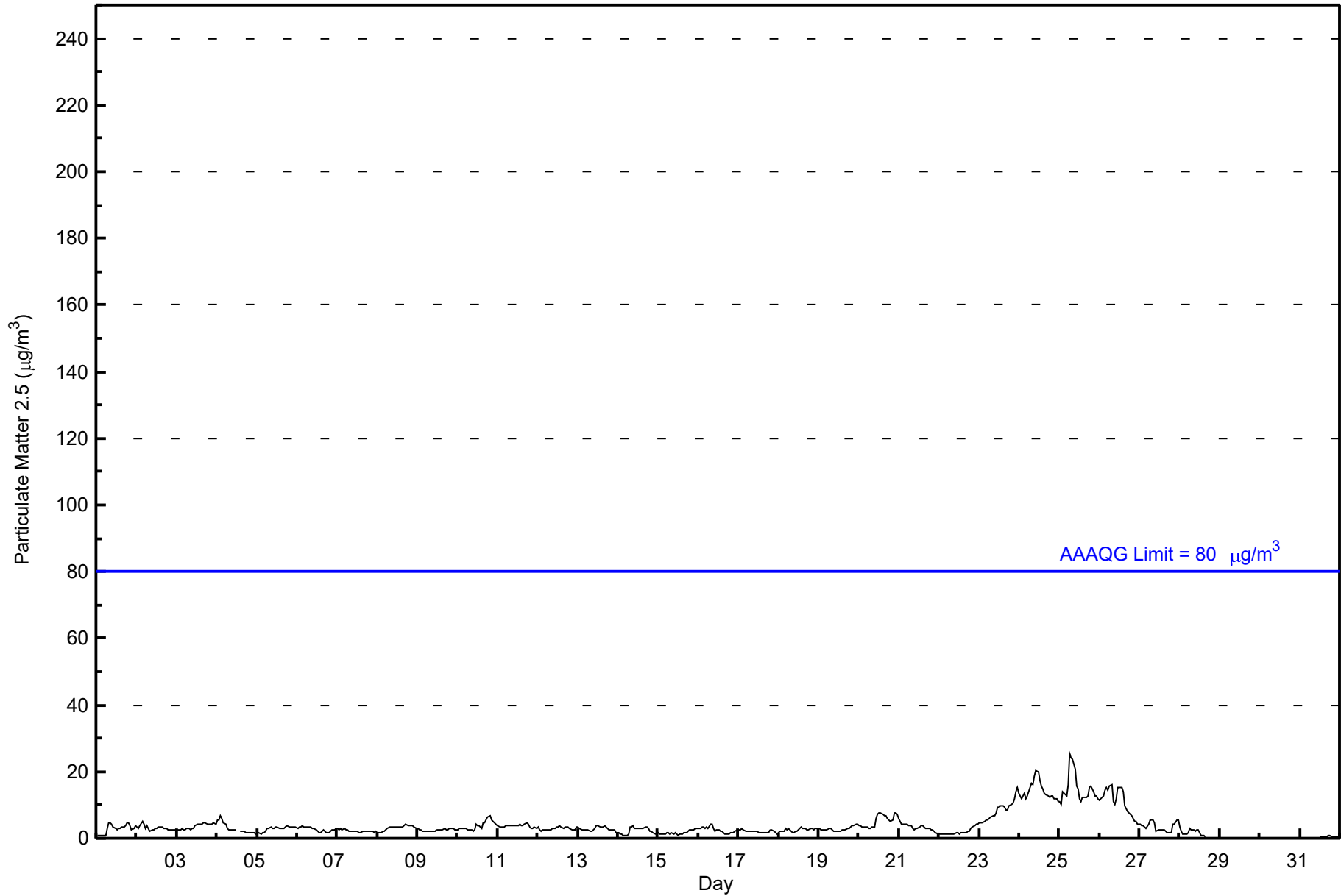
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Surmont 2 - January 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 25.5 µg/m <sup>3</sup> on Jan 25 07:00		Maximum Daily Average: 14.8 µg/m <sup>3</sup> on Jan 25																	Hours of Data: 674								
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 31 21:00		Minimum Daily Average: 1.7 µg/m <sup>3</sup> on Jan 15																	Hours of Missing Data: 70								
Maximum Diurnal Average: 4.8 µg/m <sup>3</sup> at hour 8		Minimum Diurnal Average: 3.7 µg/m <sup>3</sup> at hour 2																	Hours of Calibration: 2								
Monthly Average: 4.17 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.2 Median = 2.9 Q <sub>3</sub> = 4.1 P <sub>90</sub> = 9.9 P <sub>99</sub> = 17.8																	Percent Operational Time: 90.9								
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-Jan	0.8	0.8	0.7	0.7	0.8	0.9	2.9	4.5	4.7	4.1	3.4	2.8	2.7	2.8	3.1	3.2	3.5	3.7	4.6	4.5	3.6	2.8	2.9	3.7	2.8	4.7	
2-Jan	3.3	2.9	3.7	5.0	4.4	2.9	3.8	2.9	2.0	2.5	2.6	2.8	3.2	3.3	3.4	3.3	3.1	2.9	2.8	2.7	2.6	2.5	2.6	2.7	3.1	5.0	
3-Jan	2.6	2.6	2.7	2.8	2.5	2.6	2.8	2.9	2.7	2.9	3.1	3.7	4.2	4.3	4.3	4.3	4.8	4.5	4.2	4.2	4.1	4.4	4.5	4.4	3.6	4.8	
4-Jan	5.5	5.5	6.7	6.1	4.5	4.3	2.9	2.8	2.7	2.7	2.6	2.7	C	C	2.2	2.3	2.0	1.9	1.7	1.7	1.7	1.6	1.6	1.3	3.0	6.7	
5-Jan	1.2	1.5	1.4	1.5	1.6	2.3	2.8	3.1	3.4	3.1	3.1	3.3	3.2	3.0	3.1	3.1	3.1	3.5	3.8	3.5	3.5	3.3	3.3	3.2	2.8	3.8	
6-Jan	3.1	3.3	3.4	3.6	3.4	3.4	3.5	3.4	3.3	3.1	2.8	2.6	2.2	1.7	1.6	2.0	2.4	1.8	1.8	1.8	1.9	2.5	2.7	2.9	2.7	3.6	
7-Jan	2.9	2.7	2.8	2.7	2.8	2.6	2.4	2.1	2.0	2.2	2.0	2.1	2.0	1.7	1.9	1.9	2.0	2.0	2.2	2.2	2.1	2.0	1.9	1.9	2.2	2.9	
8-Jan	1.9	1.8	1.8	1.9	2.3	2.5	2.9	3.4	3.4	3.6	3.6	3.5	3.3	3.2	3.3	3.3	3.8	4.1	3.9	3.8	3.8	3.8	3.3	3.0	3.1	4.1	
9-Jan	2.8	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.6	2.5	2.4	2.3	2.6	3.0	2.7	2.7	2.8	3.0	2.9	2.7	2.6	2.5	3.0	
10-Jan	2.7	2.8	2.8	2.9	2.9	2.8	2.6	2.6	2.5	2.2	2.7	4.4	3.6	3.8	3.1	4.7	4.8	5.5	6.3	6.6	5.5	5.1	4.6	4.1	3.8	6.6	
11-Jan	3.6	3.4	3.5	3.5	3.6	3.7	3.9	3.9	3.9	3.9	3.6	3.8	3.8	4.1	3.6	3.9	4.3	4.6	4.4	3.4	3.1	3.0	3.4	3.1	3.7	4.6	
12-Jan	3.4	2.7	2.3	2.5	2.6	2.6	2.6	2.7	2.7	2.8	3.0	3.4	3.6	3.6	3.3	3.0	3.4	3.3	3.3	3.0	2.6	2.4	2.7	3.2	2.9	3.6	
13-Jan	3.2	2.9	2.7	2.7	2.6	2.6	2.5	2.3	2.3	2.4	3.0	3.8	3.7	3.2	3.3	3.3	3.6	3.5	2.6	2.7	2.7	2.5	2.5	1.9	2.9	3.8	
14-Jan	1.5	1.4	1.1	1.0	0.8	0.8	1.3	3.5	3.5	3.7	3.0	3.1	3.1	3.2	3.2	3.2	3.2	3.3	2.9	2.2	2.2	1.7	1.4	1.4	2.3	3.7	
15-Jan	1.7	1.4	1.1	1.1	1.3	1.5	1.6	1.3	1.6	1.4	1.6	1.3	1.1	1.1	1.3	1.5	1.7	1.7	1.9	2.5	2.5	2.7	2.8	2.8	1.7	2.8	
16-Jan	2.8	3.0	3.3	3.3	3.1	3.3	3.2	4.3	4.3	2.9	2.2	2.4	2.6	2.0	2.1	1.6	1.1	1.2	1.3	1.6	1.7	1.6	2.1	2.7	2.5	4.3	
17-Jan	2.7	2.6	2.8	2.6	2.3	2.0	2.1	2.0	2.1	2.1	2.0	2.0	1.8	1.7	1.8	1.9	1.6	1.5	1.9	2.5	2.5	2.0	1.6	1.4	2.1	2.8	
18-Jan	1.7	2.0	2.1	2.3	2.8	2.5	2.9	2.4	1.8	1.9	2.1	2.3	2.6	3.2	3.1	2.8	2.8	2.6	2.6	2.9	2.9	2.7	2.8	2.8	2.5	3.2	
19-Jan	2.8	2.7	2.7	2.7	2.6	2.5	2.8	3.1	2.5	2.1	2.3	2.2	2.1	2.3	2.6	2.6	2.6	2.8	3.0	3.6	3.7	3.8	4.1	4.0	2.9	4.1	
20-Jan	3.9	3.7	3.5	3.4	3.3	3.2	3.1	3.1	3.4	3.5	6.0	7.2	7.6	7.8	7.3	6.9	6.7	6.1	5.6	5.0	5.5	7.6	7.8	7.4	5.4	7.8	
21-Jan	6.1	4.4	4.3	4.4	4.2	4.1	3.9	3.8	2.9	2.6	2.8	3.1	3.5	3.6	3.7	3.4	3.1	3.1	3.0	2.7	2.6	2.2	1.6	1.4	3.4	6.1	
22-Jan	1.5	1.5	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.4	1.5	1.5	1.4	1.5	1.5	1.6	1.8	2.1	2.3	2.9	3.4	4.0	4.2	4.4	2.0	4.4	
23-Jan	4.7	4.8	4.9	5.1	5.5	5.6	6.0	6.2	6.6	6.6	7.7	9.2	9.5	9.8	9.7	9.1	8.5	8.5	9.8	10.1	10.5	11.9	13.8	15.1	8.3	15.1	
24-Jan	13.6	12.0	12.7	13.8	12.0	12.6	15.3	16.4	16.2	18.4	20.2	19.8	17.6	15.6	14.9	13.8	13.2	12.7	12.4	12.7	12.6	11.9	11.8	11.0	14.3	20.2	
25-Jan	10.8	10.0	14.0	13.5	12.7	16.0	25.5	24.1	23.6	20.7	15.8	14.9	12.0	10.9	12.2	12.4	12.5	12.6	15.3	15.6	13.9	12.7	12.5	11.7	14.8	25.5	
26-Jan	11.4	11.8	12.6	14.4	15.2	14.3	15.6	16.1	11.1	10.1	11.8	15.2	15.1	15.3	13.9	9.6	8.9	8.2	7.3	6.7	6.0	5.1	5.0	4.3	11.0	16.1	
27-Jan	4.0	3.8	3.6	3.3	3.1	4.3	5.3	5.5	5.6	4.7	2.2	2.5	2.7	2.6	2.5	2.4	1.9	1.6	1.5	1.8	4.2	4.1	5.5	5.7	3.5	5.7	
28-Jan	3.3	2.0	1.3	1.3	1.3	1.5	2.8	2.7	2.5	2.3	2.3	2.6	1.6	0.8	0.8	0.6	PF	PF	PF	PF	PF	PF	PF	PF	--	3.3	
29-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
30-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	--
31-Jan	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0.4	0.4	0.4	0.4	0.5	1.0	0.7	0.4	0.3	0.3	0.4	0.4	--	1.0	
																								Diurnal Average			
																								Diurnal Maximum			
																								3.9 3.7 3.9 4.0 3.8 4.0 4.7 4.8 4.5 4.4 4.3 4.7 4.4 4.3 4.1 3.9 4.1 4.0 4.1 4.1 4.1 4.0 4.1 4.1			
																								13.6 12.0 14.0 14.4 15.2 16.0 25.5 24.1 23.6 20.7 20.2 19.8 17.6 15.6 14.9 13.8 13.2 12.7 15.3 15.6 13.9 12.7 13.8 15.1			
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 - January 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	563	83.53	83.53
6 - 15	95	14.09	97.63
16 - 25	16	2.37	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 674

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Surmont 2 - January 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	24	13	12	14	12	60	50	22	12	31	58	28	27	37	57	86	543
6 - 15	4	2	0	0	1	19	18	2	4	1	5	7	6	7	7	12	95
16 - 25	0	0	1	0	0	2	6	0	0	0	0	0	1	5	1	0	16
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>	28	15	13	14	13	81	74	24	16	32	63	35	34	49	65	98	654

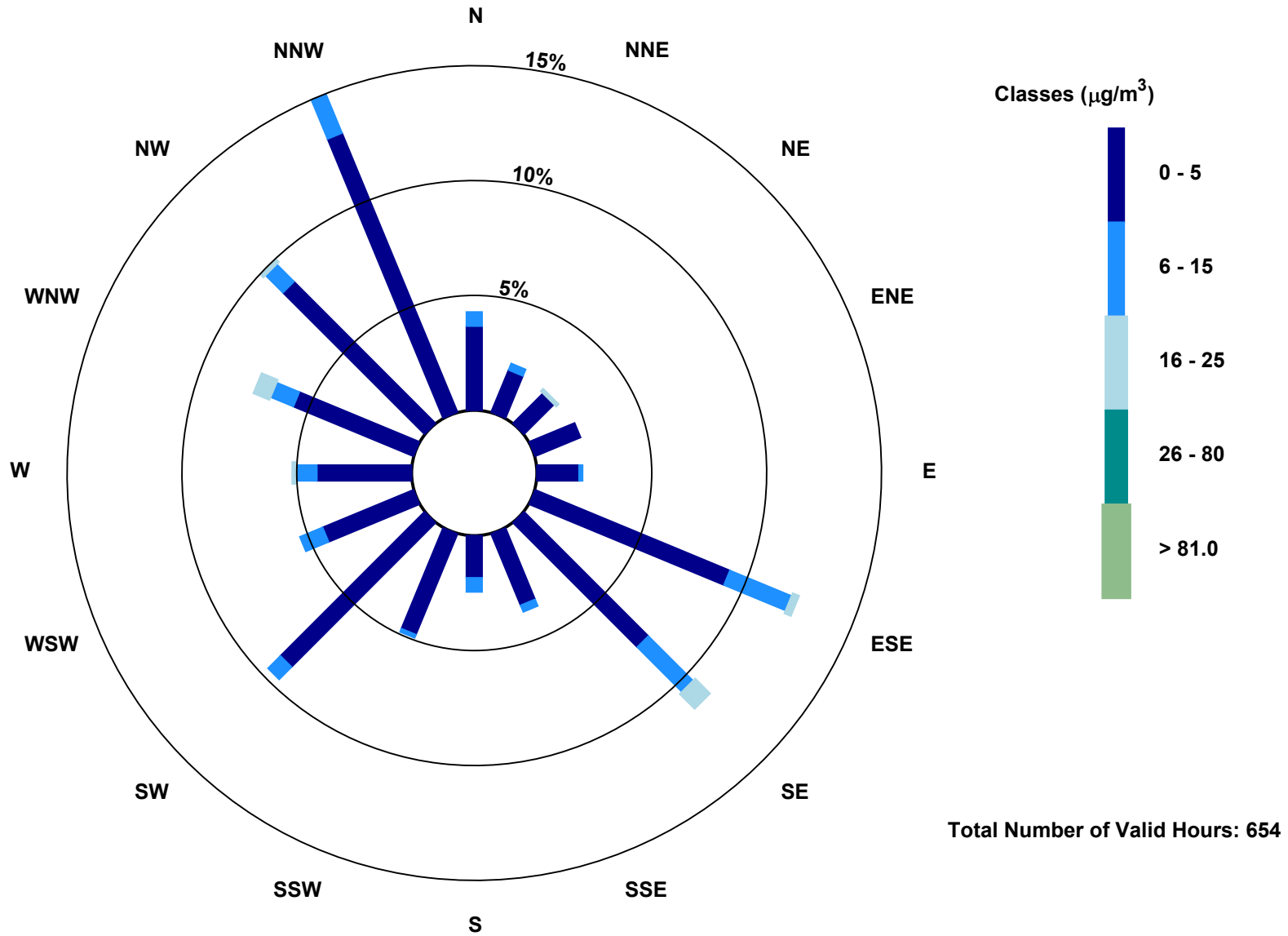
Total Number of Valid Hours: 654

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Surmont 2



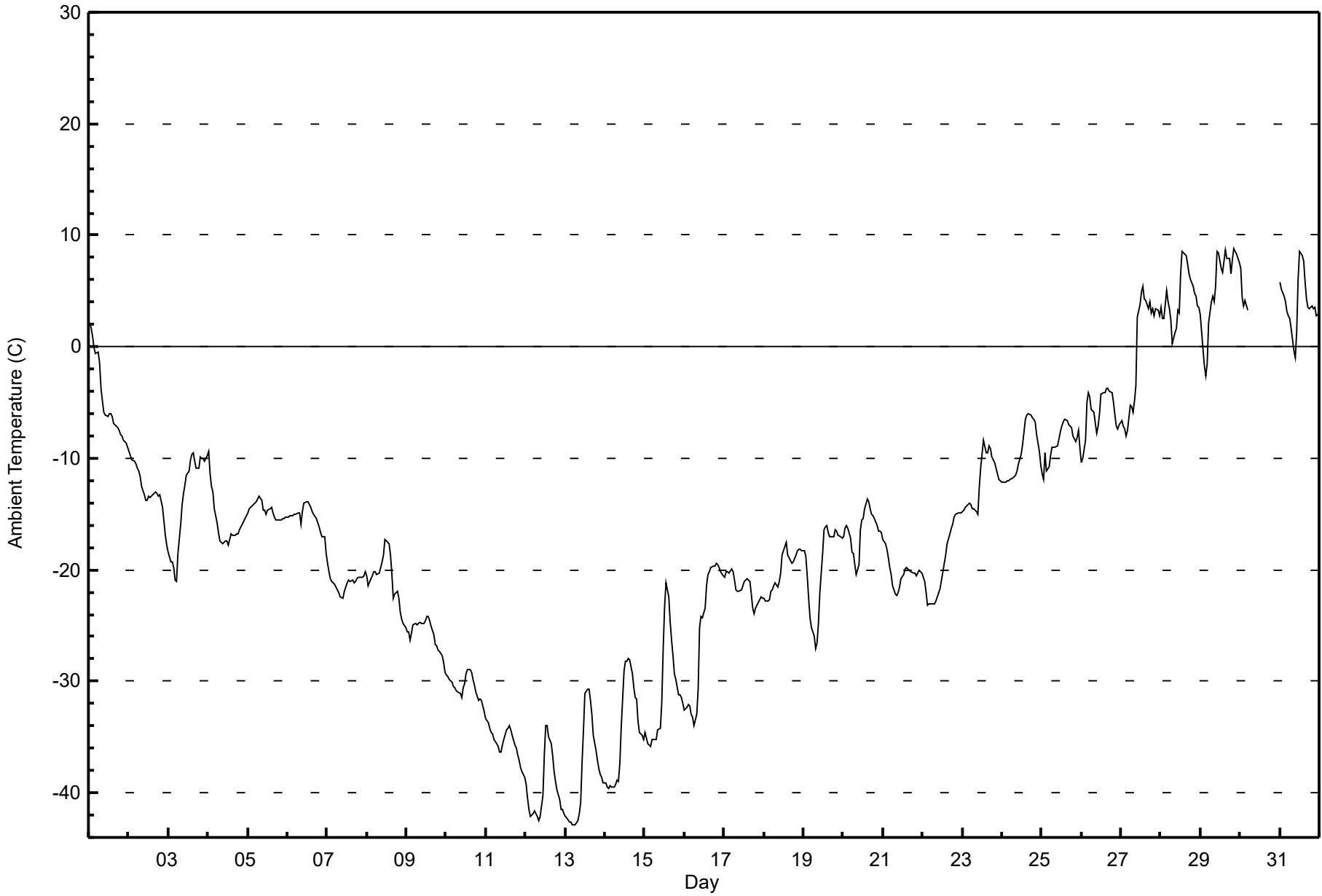


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Surmont 2 - January 2024**

Maximum Value: 8.8 C on Jan 29 21:00		Maximum Daily Average: 5.3 C on Jan 29		Hours in Service: 744																						
Minimum Value: -42.9 C on Jan 13 07:00		Minimum Daily Average: -39.6 C on Jan 12		Hours of Data: 725																						
Maximum Diurnal Average: -14.8 C at hour 14		Minimum Diurnal Average: -19.3 C at hour 9		Hours of Missing Data: 19																						
Monthly Average: -17.17 C		Percentiles: P <sub>1</sub> = -42.2 P <sub>10</sub> = -34.8 Q <sub>1</sub> = -24.3 Median = -17.1 Q <sub>3</sub> = -9.5 P <sub>90</sub> = 2.8 P <sub>99</sub> = 8.3		Hours of Calibration: 0																						
				Percent Operational Time: 97.5																						
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-Jan	2.2	1.6	0.9	-0.1	-0.6	-0.4	-1.5	-3.7	-4.8	-5.8	-6.2	-6.2	-6.0	-6.0	-6.3	-6.9	-7.1	-7.2	-7.5	-7.8	-8.0	-8.4	-8.6	-9.0	-4.7	2.2
2-Jan	-9.4	-9.8	-10.2	-10.3	-10.6	-10.9	-11.1	-11.6	-12.5	-13.3	-13.7	-13.7	-13.3	-13.5	-13.3	-13.2	-13.0	-13.2	-13.3	-13.3	-14.4	-15.6	-16.9	-17.8	-12.8	-9.4
3-Jan	-18.4	-19.3	-19.3	-19.8	-20.9	-21.1	-18.5	-15.9	-14.2	-13.2	-12.4	-11.5	-11.1	-10.1	-9.6	-9.6	-10.2	-10.9	-10.9	-9.9	-10.1	-10.0	-10.3	-9.7	-13.6	-9.6
4-Jan	-9.4	-11.4	-12.5	-13.1	-14.5	-15.7	-16.7	-17.3	-17.5	-17.7	-17.4	-17.4	-17.8	-17.3	-16.8	-16.9	-16.9	-16.8	-16.7	-16.4	-16.1	-15.7	-15.4	-15.2	-15.8	-9.4
5-Jan	-14.9	-14.5	-14.3	-14.1	-14.0	-13.9	-13.6	-13.4	-13.8	-14.6	-14.7	-15.0	-14.6	-14.5	-14.4	-14.9	-15.3	-15.5	-15.5	-15.5	-15.5	-15.4	-15.4	-15.3	-14.7	-13.4
6-Jan	-15.3	-15.1	-15.2	-15.1	-15.1	-15.0	-14.9	-14.9	-15.9	-14.8	-14.0	-13.8	-13.9	-14.1	-14.3	-14.7	-15.0	-15.4	-15.7	-16.1	-16.6	-17.1	-17.1	-18.6	-15.3	-13.8
7-Jan	-19.4	-20.1	-20.7	-21.0	-21.3	-21.5	-21.8	-22.1	-22.4	-22.6	-21.9	-21.5	-21.2	-20.9	-21.0	-20.9	-21.1	-21.1	-20.8	-20.7	-20.7	-20.6	-20.5	-20.2	-21.1	-19.4
8-Jan	-20.5	-21.4	-20.8	-20.5	-20.2	-20.2	-20.4	-20.4	-19.8	-19.3	-18.7	-17.3	-17.4	-17.6	-18.6	-20.4	-22.5	-22.2	-21.9	-22.5	-23.8	-24.4	-24.8	-25.2	-20.9	-17.3
9-Jan	-25.5	-25.6	-26.3	-25.7	-24.9	-24.8	-24.9	-24.8	-24.7	-24.8	-24.8	-24.5	-24.2	-24.2	-24.5	-25.0	-25.8	-26.7	-26.9	-27.2	-27.3	-27.7	-28.3	-29.2	-25.8	-24.2
10-Jan	-29.5	-29.6	-29.9	-30.0	-30.5	-30.6	-30.8	-31.0	-31.1	-31.4	-30.5	-30.2	-29.3	-29.0	-29.0	-29.2	-29.9	-30.3	-31.0	-31.8	-31.6	-31.7	-32.2	-32.7	-30.5	-29.0
11-Jan	-33.3	-33.7	-34.2	-34.6	-34.8	-35.2	-35.6	-35.8	-36.4	-36.3	-35.7	-35.2	-34.4	-34.2	-34.0	-34.4	-34.9	-35.7	-36.0	-36.5	-37.1	-37.8	-38.1	-38.5	-35.5	-33.3
12-Jan	-39.2	-40.5	-41.5	-42.1	-41.9	-41.6	-41.8	-42.1	-42.5	-42.2	-40.3	-36.6	-34.0	-34.0	-35.0	-35.6	-36.8	-38.1	-39.0	-39.8	-40.6	-41.5	-41.6	-41.9	-39.6	-34.0
13-Jan	-42.1	-42.2	-42.6	-42.7	-42.8	-42.8	-42.9	-42.5	-41.8	-40.9	-37.3	-34.3	-31.1	-30.6	-30.7	-31.7	-33.0	-34.8	-36.3	-37.1	-37.9	-38.4	-38.5	-39.0	-38.1	-30.6
14-Jan	-39.1	-39.5	-39.6	-39.4	-39.4	-39.4	-39.2	-38.9	-39.0	-37.4	-34.1	-29.1	-28.2	-28.2	-27.9	-28.1	-29.3	-30.6	-31.5	-31.5	-33.6	-34.6	-34.9	-35.3	-34.5	-27.9
15-Jan	-34.6	-35.2	-35.5	-35.8	-35.2	-35.2	-35.2	-35.2	-34.4	-34.2	-31.8	-27.1	-23.2	-21.2	-22.4	-24.6	-26.3	-27.6	-29.3	-29.8	-31.2	-31.2	-31.5	-31.9	-30.8	-21.2
16-Jan	-32.6	-32.3	-32.0	-32.1	-33.0	-33.2	-34.0	-32.9	-30.7	-25.1	-24.2	-24.3	-23.4	-21.4	-20.5	-20.2	-19.8	-19.7	-19.6	-19.4	-19.5	-19.7	-20.2	-20.5	-25.4	-19.4
17-Jan	-20.6	-20.2	-20.2	-20.3	-19.9	-20.2	-20.9	-21.8	-21.9	-22.0	-21.8	-21.4	-21.1	-20.9	-20.8	-21.1	-22.1	-23.4	-23.9	-23.4	-23.2	-22.7	-22.5	-22.5	-21.6	-19.9
18-Jan	-22.5	-22.8	-22.8	-22.6	-22.0	-21.8	-21.5	-21.2	-21.5	-21.1	-20.3	-18.7	-18.3	-17.6	-18.7	-18.9	-19.2	-19.4	-19.3	-18.6	-18.3	-18.2	-18.1	-18.2	-20.1	-17.6
19-Jan	-18.3	-18.8	-20.5	-22.6	-24.3	-25.1	-25.9	-27.1	-26.5	-24.8	-22.1	-18.5	-16.4	-16.2	-16.1	-16.6	-17.0	-17.1	-17.0	-16.5	-16.6	-16.9	-17.0	-17.2	-19.8	-16.1
20-Jan	-17.0	-16.3	-16.1	-16.3	-17.1	-18.4	-18.6	-19.5	-20.4	-19.5	-16.4	-15.6	-15.4	-14.5	-13.7	-13.9	-14.5	-15.1	-15.2	-15.4	-16.0	-16.5	-16.5	-16.7	-16.4	-13.7
21-Jan	-17.3	-17.7	-18.2	-18.9	-19.8	-20.5	-21.4	-22.2	-22.2	-22.1	-21.6	-20.8	-20.4	-19.9	-19.8	-19.9	-20.0	-20.2	-20.3	-20.3	-20.5	-20.3	-20.1	-20.3	-20.2	-17.3
22-Jan	-20.7	-21.1	-22.0	-23.1	-23.1	-23.0	-23.0	-23.0	-22.8	-22.5	-21.7	-21.0	-20.1	-19.4	-18.7	-17.6	-16.8	-16.2	-16.0	-15.3	-15.0	-14.9	-14.9	-14.9	-19.4	-14.9
23-Jan	-14.7	-14.6	-14.4	-14.2	-14.0	-14.1	-14.5	-14.5	-14.8	-15.0	-12.7	-10.9	-9.6	-8.4	-9.5	-9.5	-8.9	-9.2	-9.9	-10.4	-10.9	-11.4	-11.9	-12.0	-12.1	-8.4
24-Jan	-12.1	-12.2	-12.1	-12.0	-12.0	-11.8	-11.7	-11.5	-11.2	-10.6	-9.7	-8.7	-7.6	-6.5	-6.1	-6.0	-6.1	-6.3	-6.6	-6.7	-7.9	-9.3	-10.6	-9.5	-6.0	
25-Jan	-11.4	-11.9	-9.5	-11.2	-10.7	-9.8	-9.0	-9.0	-9.1	-8.9	-8.3	-7.7	-7.1	-6.8	-6.5	-6.6	-7.0	-7.1	-7.3	-8.0	-8.5	-8.2	-7.5	-9.1	-8.6	-6.5
26-Jan	-10.4	-10.0	-8.4	-4.9	-4.1	-4.5	-5.7	-5.9	-6.9	-7.8	-7.1	-5.9	-4.3	-4.2	-4.1	-3.8	-3.8	-4.0	-4.1	-5.0	-6.1	-7.1	-7.4	-7.0	-5.9	-3.8
27-Jan	-6.6	-7.1	-7.4	-8.0	-7.5	-5.2	-5.4	-5.9	-4.9	-3.4	2.7	3.8	4.9	5.4	4.3	4.1	3.4	4.0	3.1	3.5	2.8	3.5	3.3	2.8	-0.4	5.4
28-Jan	3.6	2.6	2.6	5.0	4.0	3.4	2.4	0.3	1.3	1.7	3.3	3.0	6.6	8.5	8.2	8.2	7.4	6.5	6.1	5.4	4.8	4.5	3.7	3.5	4.4	8.5
29-Jan	2.9	-0.2	-1.8	-2.6	-1.4	2.2	4.0	4.5	4.0	5.4	8.6	8.5	7.1	6.7	7.7	8.7	7.9	7.9	6.6	7.8	8.8	8.5	8.3	7.5	5.3	8.8
30-Jan	7.1	4.4	3.7	4.1	3.3	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	7.1
31-Jan	5.8	5.1	4.5	4.1	3.2	2.8	2.6	1.6	-0.4	-1.0	1.4	6.1	8.6	8.2	7.7	5.8	4.3	3.5	3.5	3.7	3.4	3.6	2.8	2.9	3.9	8.6
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		

PF - Power Failure





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

**Ambient Temperature (AT) - C**  
**Surmont 2 - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	301	41.52	41.52
-20 - 0	336	46.34	87.86
0 - 10	88	12.14	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 725

Total Number of Hours: 744





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

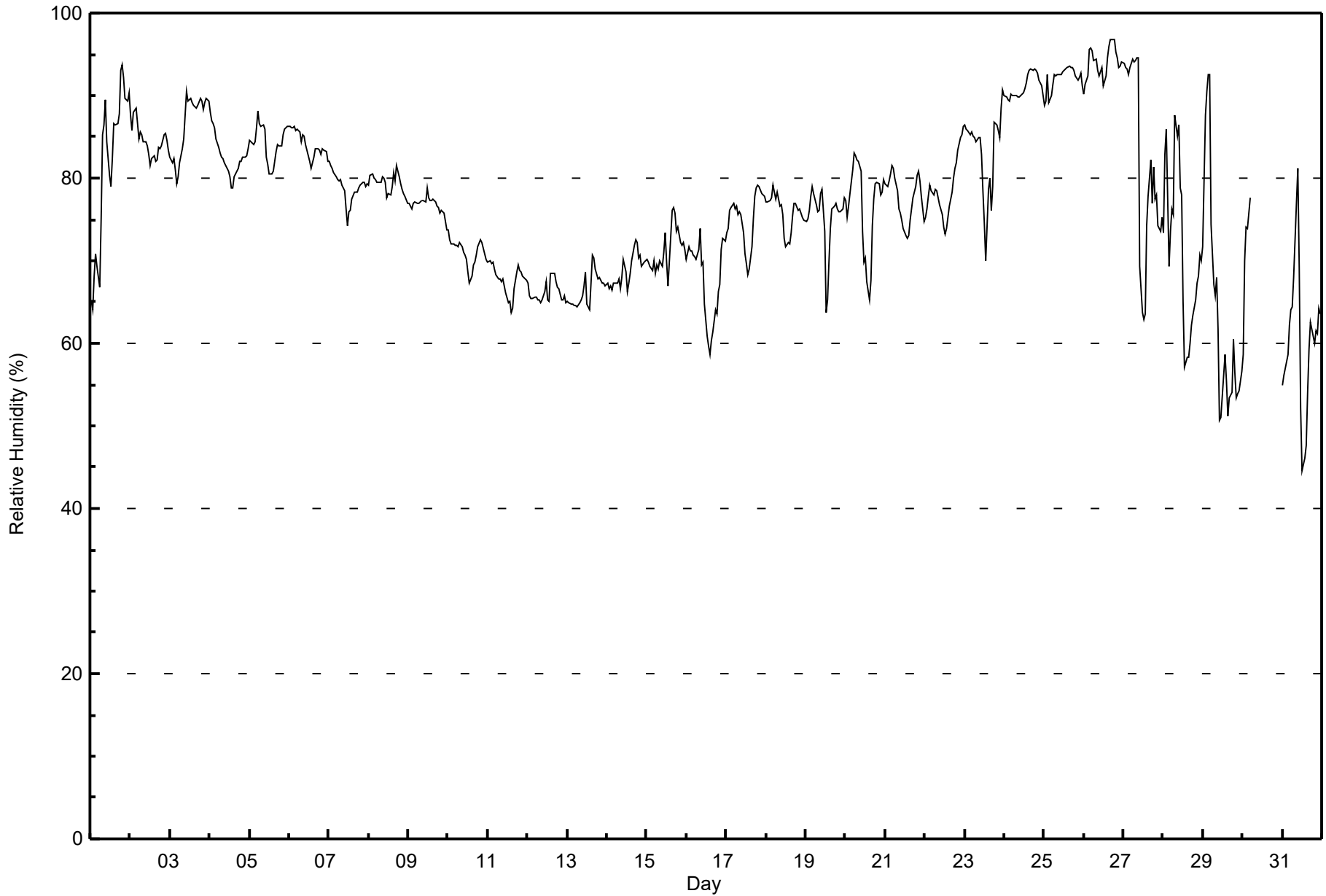
**Relative Humidity (RH) - %**  
**Surmont 2 - January 2024**

Maximum Value: 96.8 % on Jan 26 19:00																								Hours in Service: 744		
Maximum Daily Average: 94.0 % on Jan 26																								Hours of Data: 725		
Minimum Value: 44.6 % on Jan 31 13:00																								Hours of Missing Data: 19		
Minimum Daily Average: 60.5 % on Jan 31																								Hours of Calibration: 0		
Maximum Diurnal Average: 79.2 % at hour 9																								Percent Operational Time: 97.5		
Minimum Diurnal Average: 72.5 % at hour 14																										
Monthly Average: 77.13 %																										
Percentiles: P <sub>1</sub> = 53.4 P <sub>10</sub> = 65.1 Q <sub>1</sub> = 69.9 Median = 77.5 Q <sub>3</sub> = 84.0 P <sub>90</sub> = 90.4 P <sub>99</sub> = 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-Jan	65.0	64.0	68.1	70.9	69.4	66.8	75.1	85.2	86.5	89.4	84.4	80.4	79.0	82.3	86.6	86.5	86.6	87.7	93.0	93.7	92.3	89.6	89.3	90.4	81.8	93.7
2-Jan	87.6	85.8	88.0	88.6	86.6	84.8	85.6	85.3	84.5	84.4	83.9	82.8	81.6	82.4	82.6	82.1	82.2	83.7	83.6	83.9	85.3	85.4	84.5	83.4	84.5	88.6
3-Jan	82.5	81.9	82.3	81.0	79.4	80.2	81.9	83.5	84.7	87.6	90.5	89.3	89.7	89.2	88.7	88.7	88.6	88.9	89.7	89.3	88.3	89.2	89.7	89.3	86.4	90.5
4-Jan	87.9	87.0	86.7	86.1	84.7	83.8	83.0	82.6	82.4	81.9	81.1	80.8	80.2	78.8	78.8	80.2	80.8	81.1	82.0	82.1	82.5	82.5	82.7	83.6	82.6	87.9
5-Jan	84.6	84.5	84.1	84.4	86.1	88.1	86.7	86.3	86.4	85.9	82.5	81.6	80.5	80.6	80.9	82.0	83.2	84.0	83.8	83.9	85.3	85.9	86.2	86.2	84.3	88.1
6-Jan	86.3	86.1	86.0	86.2	85.7	85.9	85.6	84.4	85.3	85.0	84.0	82.8	82.0	81.2	81.9	82.5	83.6	83.5	83.4	82.9	83.5	83.4	83.2	82.1	84.0	86.3
7-Jan	82.0	81.6	81.2	80.7	80.2	79.8	79.7	79.9	79.1	78.4	76.3	74.2	75.9	76.1	77.5	78.3	78.3	78.4	78.8	79.1	79.4	79.5	79.1	79.2	78.9	82.0
8-Jan	79.1	80.4	80.6	79.9	79.8	79.4	79.5	79.5	80.1	80.0	79.4	77.6	78.1	77.9	79.0	80.7	79.7	81.5	80.1	79.4	78.6	78.2	77.8	76.9	79.3	81.5
9-Jan	76.9	76.7	76.2	76.9	77.2	77.0	76.9	77.1	77.3	77.3	77.1	78.8	77.7	77.3	77.3	77.4	77.1	76.6	76.5	75.8	76.1	75.8	74.7	73.6	76.7	78.8
10-Jan	73.8	72.6	72.0	72.0	71.8	71.9	71.7	72.2	71.7	71.1	70.6	70.1	68.7	67.3	68.1	69.4	69.8	70.7	71.7	72.6	72.3	71.6	70.8	70.1	71.0	73.8
11-Jan	69.9	70.1	69.7	69.8	69.1	68.2	67.8	67.8	67.5	67.7	67.0	66.1	64.9	65.0	63.7	64.2	66.7	68.7	69.5	68.8	68.7	68.1	68.0	67.6	67.7	70.1
12-Jan	67.2	65.8	65.3	65.4	65.6	65.6	65.3	65.3	64.9	65.2	66.2	67.4	65.2	65.0	68.5	68.4	68.4	67.5	66.8	66.6	65.3	65.2	65.7	64.8	66.1	68.5
13-Jan	65.1	64.9	64.7	64.7	64.6	64.6	64.4	65.0	65.3	65.8	67.0	68.6	64.8	64.0	67.3	70.7	70.4	69.0	67.9	67.9	67.7	67.4	67.3	67.0	66.5	70.7
14-Jan	67.3	66.5	66.9	66.5	67.2	67.3	67.8	66.6	67.9	70.2	68.7	66.3	67.3	68.4	70.0	71.9	72.6	72.2	70.3	70.8	69.3	69.9	70.0	68.7	68.7	72.6
15-Jan	70.2	69.8	69.2	68.9	70.0	68.4	69.5	69.0	69.9	69.3	71.0	73.4	69.8	66.9	73.1	76.2	76.4	75.8	73.5	74.0	72.2	71.9	72.1	71.4	71.3	76.4
16-Jan	70.2	71.7	71.1	71.1	70.7	70.6	70.1	71.3	73.9	69.4	69.8	64.8	60.9	59.7	58.6	60.3	61.4	64.0	63.5	66.2	67.1	71.3	72.7	72.3	67.6	73.9
17-Jan	73.4	73.9	76.1	76.5	76.9	76.3	76.7	75.6	76.0	75.6	73.4	70.9	69.6	68.4	68.9	71.6	75.1	77.8	78.9	79.2	79.0	78.2	78.0	77.8	75.2	79.2
18-Jan	77.1	77.1	77.3	77.6	79.1	78.4	77.5	78.3	76.7	76.8	75.5	72.8	71.6	72.2	72.1	73.4	75.5	76.9	77.0	76.2	76.3	75.8	75.3	74.9	75.9	79.1
19-Jan	74.8	75.1	76.1	77.8	79.0	78.1	76.9	76.0	76.2	78.1	78.6	73.6	63.6	65.2	69.8	73.8	76.2	76.6	77.0	76.3	75.9	76.0	76.3	77.6	75.2	79.0
20-Jan	77.3	75.3	76.6	78.2	81.0	83.0	82.8	82.3	82.0	80.8	73.6	69.9	70.3	67.5	65.3	67.6	74.2	77.5	79.3	79.5	79.4	78.0	78.3	79.9	76.7	83.0
21-Jan	79.3	79.0	79.6	80.4	81.6	81.3	80.0	78.4	76.3	75.7	75.0	73.9	73.0	72.7	73.0	74.9	76.2	77.7	79.0	80.3	80.8	79.6	77.9	74.8	77.5	81.6
22-Jan	75.2	76.2	77.9	79.2	78.5	78.0	78.6	78.5	77.7	76.9	75.6	74.1	73.2	73.9	75.2	76.6	78.4	79.9	81.2	81.8	83.4	85.0	85.3	86.3	78.6	86.3
23-Jan	86.4	86.0	85.7	85.2	85.6	85.1	84.8	84.3	84.9	84.9	83.0	78.5	74.6	70.1	78.7	80.0	76.1	79.0	86.8	86.4	85.8	84.8	88.5	90.6	83.2	90.6
24-Jan	89.9	89.8	89.4	89.3	90.1	90.0	90.0	89.9	89.9	89.8	90.0	90.3	90.9	91.5	92.5	93.0	93.3	93.0	93.2	93.0	92.8	91.8	91.2	90.1	91.0	93.3
25-Jan	88.8	89.3	92.6	89.2	90.0	91.3	92.6	92.5	92.5	92.5	92.5	92.8	93.0	93.2	93.4	93.5	93.4	93.3	93.1	92.3	91.9	92.1	92.7	91.2	92.1	93.5
26-Jan	90.2	91.4	92.4	95.5	95.7	95.4	94.3	94.3	93.1	92.4	92.9	93.4	91.2	92.5	94.5	95.9	96.8	96.8	96.8	95.2	94.5	93.4	93.5	94.0	94.0	96.8
27-Jan	94.0	93.4	93.2	92.6	93.4	94.5	94.1	94.3	94.6	94.6	69.3	63.8	62.9	63.6	74.3	77.8	82.2	77.0	81.4	77.5	77.9	74.2	73.6	75.2	82.0	94.6
28-Jan	73.4	82.9	86.0	69.3	73.6	76.2	75.7	87.6	85.2	86.5	78.8	78.0	65.1	57.2	58.3	58.3	60.0	62.3	63.4	65.3	67.4	68.2	70.6	70.1	71.6	87.6
29-Jan	71.7	87.6	90.6	92.5	92.5	74.4	67.1	65.8	68.0	61.7	50.7	50.9	56.2	58.7	55.5	51.2	53.5	54.0	60.6	56.4	53.3	53.9	54.3	56.6	64.1	92.5
30-Jan	58.6	69.9	74.1	73.9	77.7	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	77.7
31-Jan	54.9	56.1	57.8	58.6	62.2	64.1	64.5	68.0	77.0	81.3	69.2	52.2	44.6	46.1	47.7	54.1	59.4	62.5	61.7	60.0	61.4	61.3	64.3	63.6	60.5	81.3
76.8 77.8 78.6 78.4 78.9 78.3 78.2 78.9 79.2 79.1 76.6 74.8 72.8 72.5 74.0 75.3 76.5 77.3 78.2 77.9 77.8 77.5 77.8 77.7																								Diurnal Average		
94.0 93.4 93.2 95.5 95.7 95.4 94.3 94.3 94.6 94.6 92.9 93.4 93.0 93.2 94.5 95.9 96.8 96.8 96.8 95.2 94.5 93.4 93.5 94.0																								Diurnal Maximum		
PF - Power Failure																										



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

**Relative Humidity (RH) - %**  
**Surmont 2 - January 2024**





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

**Relative Humidity (RH) - %**  
**Surmont 2 - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	29	4.00	4.00
60 - 80	421	58.07	62.07
80 - 100	275	37.93	100.00

Total Number of Valid Hours: 725

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Surmont 2 - January 2024

Maximum Speed: 13 km/h on Jan 29 22:00	Maximum Daily Speed Average: 6.6 km/h on Jan 16	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 09:00	Minimum Daily Speed Average: 0.3 km/h on Jan 8	Hours of Data: 705
Maximum Diurnal Speed Average: 2.1 km/h at hour 1	Minimum Diurnal Speed Average: 0.4 km/h at hour 17	Hours of Missing Data: 39
Monthly Average Velocity: 0.8 km/h 296.5 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 4 Q <sub>3</sub> = 6 P <sub>90</sub> = 8 P <sub>99</sub> = 12	Percent Operational Time: 94.8

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-Jan	WNW11	W10	W11	W9	W9	WNW9	NNW10	NNW9	NNW9	NNW9	NNW8	NNW7	NW5	NNW5	NNW5	NNW5	N5	NNW4	N4	N4	NNW4	NNW4	NNW5	N4	NNW5.9	W11
2-Jan	N4	NNW5	NNW5	NNW4	NNW5	NNW4	NNW4	N5	NNE4	NE4	NNE4	N4	NNE3	NNE2	N2	ESE1	ESE3	ESE4	SE3	SSE3	S2	SSW2	SW2	SW2	N1.7	N5
3-Jan	SW2	SW2	SW2	SW3	SW1	SW1	SSW1	SSW1	S1	SSE2	SE2	ESE3	SE4	ESE3	ESE3	ESE4	SE4	SE3	ESE4	ESE3	E2	ESE4	SE4	SSW2	SE1.8	SE4
4-Jan	NW3	N4	WNW3	NNW6	NNW8	NNW7	NNW8	NW7	NNW7	NNW7	NNW6	N5	N6	NNW5	E3	ENE3	E4	E5	ESE5	ESE5	E3	E3	ESE5	ESE6	N2.9	NNW8
5-Jan	ESE7	ESE6	ESE5	ESE4	SE4	SSE3	SSE2	NW1	NNE3	NE2	W4	W5	NNW3	ENE2	NE3	NE3	N3	N2	ENE1	ESE3	ESE4	ESE5	ESE5	ESE4	E1.8	ESE7
6-Jan	ESE4	E4	ENE4	ENE3	ENE3	ENE3	E3	E0	SW0	ESE2	ENE3	ENE4	NE5	ENE5	NE5	ENE5	NE5	NNE4	NNE4	NE5	NE6	NE5	NNE4	NW4	NE3.3	NE6
7-Jan	NNW4	NNW5	NNW4	NW3	NW3	N3	N3	NNW3	NW3	WNW2	SSE1	SE2	S3	SSE5	SE5	ESE5	SE4	SSE4	SE4	ESE5	SE5	ESE6	SE5	SE4	ESE1.2	ESE6
8-Jan	SSE2	S2	SE3	SSE3	SSE5	ESE6	ESE5	SE3	SE3	ESE3	W1	NW3	NNW5	NW4	NNW5	NW3	W2	WNW4	WNW2	WNW3	W2	W2	SW2	SSW0	SSW0.3	ESE6
9-Jan	SW1	SSW1	UO	SSW1	ESE3	ESE3	ESE3	E3	NE3	ENE3	ENE4	E4	NNE4	NNE4	NNE4	N4	NNW4	NNW5	NNW5	NNW5	NNW5	NNW6	NNW6	NNW5	NNE2.3	NNW6
10-Jan	NNW5	NW4	NW4	NNW3	NW3	NW4	NW4	WNW3	NW3	WNW4	NW4	NW4	NNW6	NNW6	NNW6	NNW6	NW5	NW4	WNW2	W2	NW3	NNW4	NNW4	NNW5	NW3.9	NNW6
11-Jan	NNW5	NW5	NW4	NW4	NNW5	NW4	NW4	NW4	NW4	NW3	NNW4	NNW5	NNW5	NNW5	NNW6	NNW5	NNW4	W2	W1	W2	WNW2	W3	W3	WSW1	NW3.4	NNW6
12-Jan	WSW2	WSW0	WSW0	UO	UO	UO	SW0	SW1	SSW0	SSW0	SSW2	WSW2	SSW2	SW2	SSW2	S1	SW1	SW1	SW1	WSW1	SW1	SW1	SW1	SW0	SW0.9	SW2
13-Jan	SW1	SW1	UO	SW1	SW0	UO	WSW1	SW1	SSW0	SW0	SE1	SSE1	SSE1	WSW2	NW1	SSW0	SW3	WSW2	UO	UO	UO	UO	UO	UO	---	SW3
14-Jan	UO	UO	UO	UO	UO	UO	UO	WSW1	W1	W1	NW1	NNW7	NNW8	NW6	NW4	NW3	W2	WNW2	W3	W3	SW1	S0	SW1	SW1	---	NNW8
15-Jan	WSW1	SW0	SSW0	SSW1	SW3	SW3	SW2	SW2	SW3	SW2	SW1	SSE1	SE3	SW3	SSE3	S2	S2	SSW2	SW2	SW3	SW1	SW3	SW3	SW2	SSW1.7	SSE3
16-Jan	SW1	SW2	SW2	WSW1	SW1	WSW1	SW1	WNW2	WNW3	NW7	NNW9	NNW11	NNW11	NNW13	NW11	NW11	NW10	NW10	NW10	NW11	NW10	WNW12	WNW11	WNW11	NW6.6	NNW13
17-Jan	WNW11	WNW10	WNW10	NW7	NW7	NNW9	N7	NNW6	NNW6	NNW7	N6	NNE5	N4	N5	N5	NNW5	NNW3	W4	WNW4	WNW5	WNW6	NW4	WNW3	NW3	NW5.2	WNW11
18-Jan	NW4	NW4	NW6	NW5	NW6	NW6	WNW6	WNW5	WNW7	WNW6	WNW8	NW9	NW7	NW10	WNW9	W7	W7	WNW8	WNW8	WNW7	WNW7	WNW7	WNW6	WNW5	WNW6.4	NW10
19-Jan	WNW4	WNW5	WSW5	WSW3	SSW1	SW2	SW2	SW1	SSW2	SSW1	SE2	SE4	ESE4	SE5	SE5	ESE5	ESE6	ESE4	SE5	SE5	ESE7	ESE7	SE6	SE6	SE2.5	ESE7
20-Jan	SSE5	SSE5	SSE5	SE4	SSE2	SSW1	SSW2	SSW1	SW1	SSW1	W7	W6	WNW6	WNW6	NNW5	N4	NNE3	N4	NNW3	NNW4	NNW5	NW4	NW5	NW4	WNW1.4	W7
21-Jan	NNW5	NW5	NNW5	NNW5	NNW5	NNW4	NNW7	NNW7	NNW7	NNW6	NW5	NNW6	N7	N7	NNW7	NNW6	N5	NNW5	NW5	NNW6	NW4	N4	N4	NNE5	NNW5.3	NNW7
22-Jan	NE5	ENE4	E2	ESE1	SE3	ESE6	ESE8	ESE7	ESE9	ESE9	ESE9	ESE10	ESE9	ESE8	ESE8	ESE7	ESE7	ESE7	ESE5	SE6	SE7	SE6	SE6	SE7	ESE6.3	ESE10
23-Jan	SE4	SE4	SSE3	SE3	SE4	SSW2	S3	S3	SW2	S2	S3	SW3	WSW4	W4	WSW3	WSW3	NNE2	NNW2	N3	NNW4	NNW5	NNW5	NNW5	NNW4	WSW0.6	NNW5
24-Jan	NNW4	N1	SE1	ESE2	ESE4	ESE5	ESE5	ESE6	SE6	SE7	SE7	SE7	SE7	SE7	SE6	SE5	SE4	SE4	ESE3	ESE4	SSE3	SW2	SW2	SE3.9	SE7	
25-Jan	SW2	WSW2	WSW3	WSW1	W1	W1	WNW2	WNW3	WNW3	WNW3	NW1	ESE1	SE2	ESE4	SE5	ESE5	ESE4	ESE4	ESE4	SE4	ESE5	SE5	ESE2	SE1	SE1.3	ESE5
26-Jan	SE1	W2	NW2	WNW3	WNW4	NW2	NE2	WNW1	WNW2	SSE1	ESE4	SE4	ESE5	SE6	SE5	SE4	SE4	SE4	SE4	ESE3	E1	UO	SSW1	SSW1	SE1.4	SE6
27-Jan	SSW1	SSW2	S2	S2	S2	SE4	SE3	ESE4	ESE5	E5	WSW9	WSW12	WSW8	WSW8	WSW5	SW5	WSW5	WSW7	WSW7	WSW8	WSW10	WSW9	WSW9	WSW7	SW4.4	WSW12
28-Jan	WSW8	SW4	SSW3	SW4	S2	ESE5	E5	SSW2	SW3	SE4	ESE5	SE4	W6	W9	W12	W11	W11	W10	W10	W8	W9	WSW9	WSW9	WSW10	WSW4.8	W12
29-Jan	WSW9	SW3	SW3	WSW3	SSW1	WSW6	SW6	SSW4	SSE4	SE5	S6	SSE5	ESE7	ESE6	ESE5	SSW5	SW5	WSW11	WSW7	WSW10	WSW11	WSW13	WSW13	WSW10	SW4.6	WSW13
30-Jan	WSW8	SSW3	SSW2	S2	S2	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	---	WSW8
31-Jan	W13	WSW13	WSW12	WSW10	W6	WSW12	WSW9	WSW7	SSW2	SW1	SE2	SE4	SE5	SE6	SE6	SE4	SSE3	SSE4	S4	SE6	SE7	SE7	SE6	SE6	SSW3.3	W13

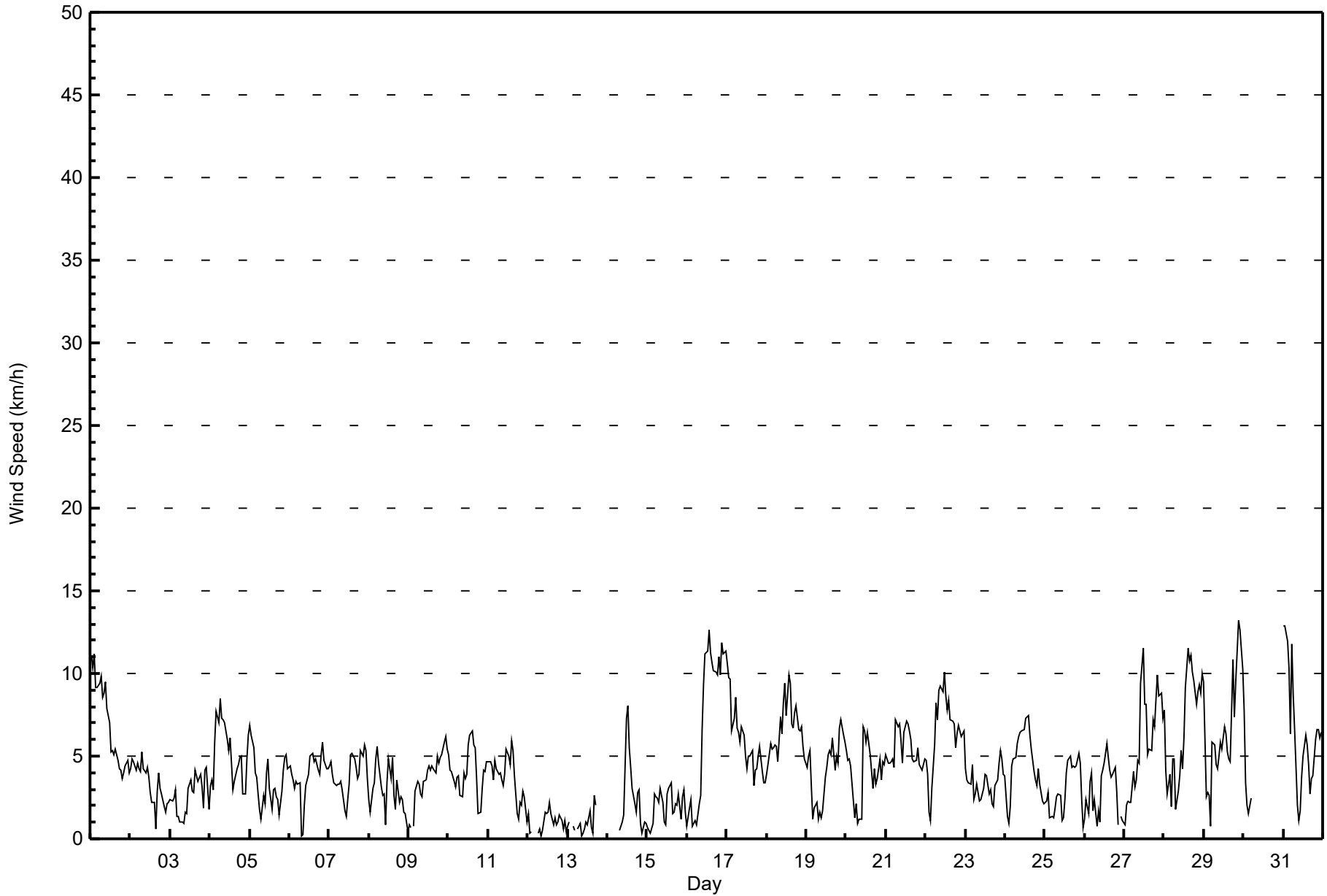
W2.1	W1.6	W1.8	W1.4	WNW0.9	WNW0.9	WNW0.8	NW0.9	NNW0.8	N0.6	NNW0.7	NNW0.9	NNW1.2	NNW1.1	N1.0	N0.7	NW0.4	W1.0	W0.8	W0.7	W0.8	W1.0	W1.2	W1.2	Diurnal Average	
W13	WSW13	WSW12	WSW10	W9	WSW12	NNW10	NNW9	ESE9	NNW9	WSW9	WSW12	NNW11	NNW13	W12	W11	W11	WSW11	NW10	NW11	WSW11	WSW13	WSW13	WNW11	Diurnal Maximum	

UO - Unstable Operation      PF - Power Failure  
 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 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Surmont 2 - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	522	74.04	74.04
6 - 11	173	24.54	98.58
12 - 19	10	1.42	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Surmont 2 - January 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	25	15	12	14	13	59	55	26	18	38	67	24	22	27	47	60	522
6 - 11	4	0	1	0	0	25	22	0	1	0	1	25	17	21	18	38	173
12 - 19	0	0	0	0	0	0	0	0	0	0	0	6	2	1	0	1	10
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>	29	15	13	14	13	84	77	26	19	38	68	55	41	49	65	99	705

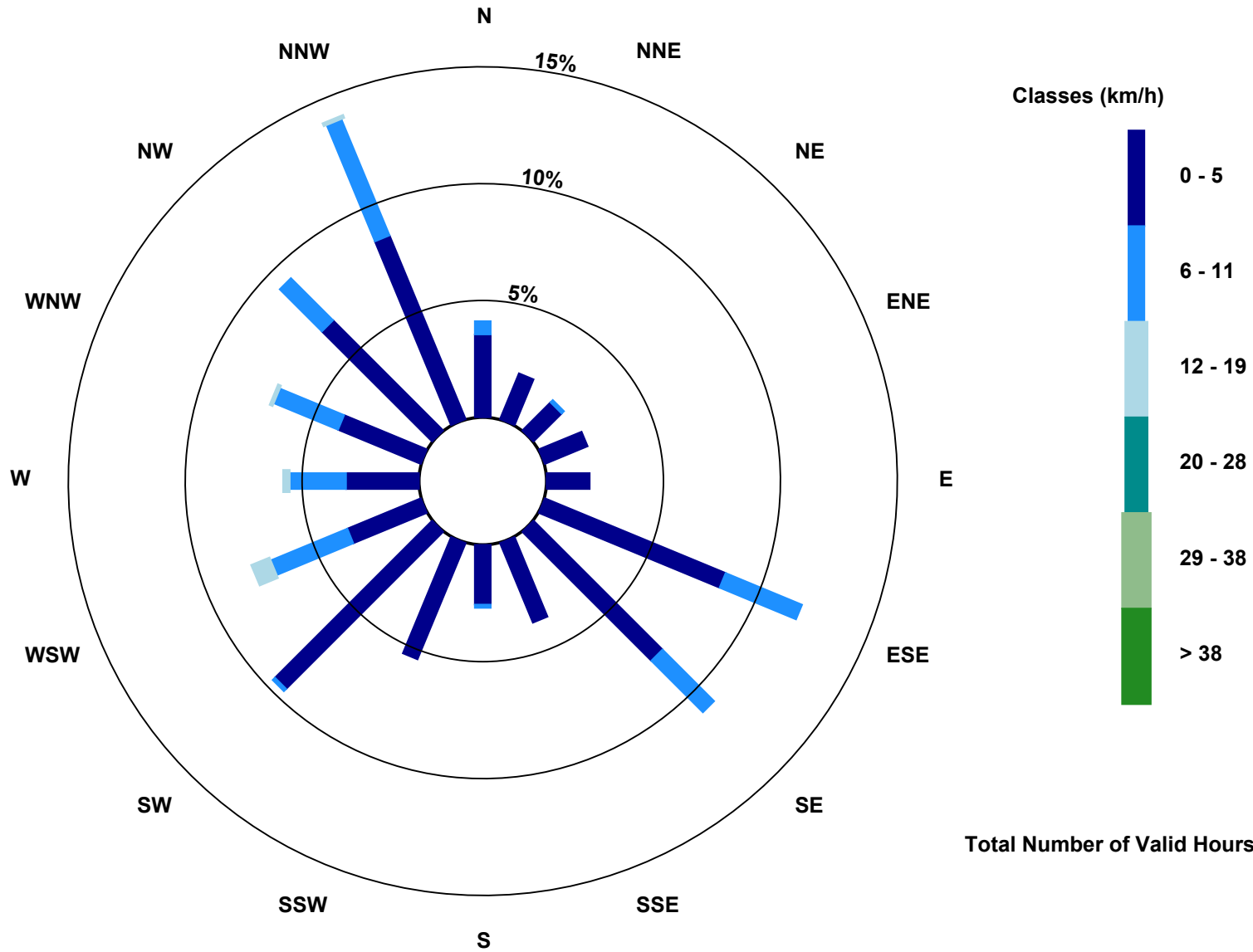
Total Number of Valid Hours: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Surmont 2







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

**Wind Speed (WS) - km/h**  
**Surmont 2 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Jan 16 14:00 Minimum Value: 0 km/h on Jan 27 03:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 4																	Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 0 Percent Operational Time: 94.8								
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-Jan	4	3	4	3	3	3	4	3	3	4	3	3	2	2	2	2	2	2	2	2	2	2	2	1	4
2-Jan	2	2	2	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	2
4-Jan	1	2	1	2	3	3	3	3	3	3	2	2	2	2	1	1	1	2	1	2	2	2	1	2	3
5-Jan	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
6-Jan	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
7-Jan	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	2	2	2	1	2
8-Jan	1	1	1	1	2	2	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	2
9-Jan	1	1	UO	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10-Jan	2	2	2	1	1	2	2	1	1	2	2	2	2	3	3	2	3	2	1	1	2	2	2	2	3
11-Jan	2	2	2	2	2	2	2	2	2	1	2	2	2	2	3	2	2	1	1	1	1	1	1	1	3
12-Jan	1	1	1	UO	UO	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13-Jan	1	1	UO	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	UO	UO	UO	UO	UO	UO	1
14-Jan	UO	UO	UO	UO	UO	UO	UO	1	1	1	2	3	3	3	2	2	1	1	1	1	1	1	1	1	3
15-Jan	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	2	1	1	2	2	1	2
16-Jan	1	1	2	1	1	1	1	1	2	3	4	4	4	5	5	4	4	4	4	5	4	4	4	4	5
17-Jan	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	2	2	2	2	1	1	3
18-Jan	2	2	2	2	2	3	2	2	3	2	3	4	3	4	3	2	2	2	3	2	2	3	2	2	4
19-Jan	2	2	1	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
20-Jan	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2
21-Jan	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
22-Jan	1	2	1	1	1	2	3	2	3	3	3	3	3	2	2	2	2	2	2	2	3	3	3	2	3
23-Jan	2	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	1	2
24-Jan	1	1	1	1	2	2	2	2	2	2	3	2	3	3	2	2	2	2	2	1	1	2	1	1	3
25-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	2
26-Jan	1	1	1	2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	UO	1	1	2
27-Jan	1	1	0	1	1	1	1	1	1	1	4	4	3	4	2	2	2	3	3	3	3	3	3	2	4
28-Jan	3	2	2	2	1	2	2	1	2	2	2	1	5	4	5	4	4	3	3	3	3	3	3	3	5
29-Jan	3	1	1	2	1	3	3	2	2	2	3	3	2	2	2	3	3	3	3	3	4	4	3	3	4
30-Jan	3	3	1	1	1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	3
31-Jan	5	4	3	3	3	4	3	2	3	1	2	2	2	2	2	2	1	2	2	3	2	2	2	2	5
Diurnal Maximum																									
UO - Unstable Operation    PF - Power Failure																									



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

**Wind Direction (WD) - deg**  
**Surmont 2 - January 2024**

Direction of Maximum Speed: 245 deg on Jan 29 22:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 310.5 deg on Jan 16	Hours of Data: 705
Direction of Minimum Speed: 192 deg on Jan 13 09:00	Hours of Missing Data: 39
Direction of Minimum Daily Speed Average: 0.3 deg on Jan 8	Percent Operational Time: 94.8
Monthly Average Direction: 296.5 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-Jan	283	276	275	271	269	291	335	337	330	332	335	340	312	333	347	345	7	330	10	8	347	336	347	9	318.4
2-Jan	356	343	335	331	333	343	345	354	21	41	25	6	26	33	9	114	121	109	130	147	178	210	235	222	7.0
3-Jan	224	220	228	229	229	224	202	196	180	157	142	118	131	107	107	106	140	130	117	105	101	114	133	196	143.4
4-Jan	319	3	301	334	341	341	338	324	337	338	340	354	351	347	85	73	85	97	110	113	88	94	108	111	8.8
5-Jan	114	114	118	121	137	151	147	306	25	45	272	270	327	67	35	47	0	7	72	112	107	108	105	106	96.6
6-Jan	115	95	75	77	78	76	88	81	228	102	69	61	54	59	40	57	36	22	25	42	52	55	29	326	56.1
7-Jan	332	345	334	325	324	356	6	331	320	294	157	140	182	150	135	121	137	156	140	116	125	120	135	127	112.3
8-Jan	147	183	142	152	147	121	123	130	132	123	262	304	328	325	340	306	263	287	297	303	271	263	232	199	211.0
9-Jan	236	208	UO	193	110	112	115	101	55	78	69	87	29	22	20	3	345	337	343	337	335	335	333	331	13.6
10-Jan	333	320	310	329	311	313	318	302	305	300	321	324	336	343	333	331	326	317	292	277	317	328	334	336	323.1
11-Jan	327	323	323	319	331	320	322	318	310	322	335	340	330	341	337	334	329	267	259	276	284	280	279	239	320.6
12-Jan	248	244	254	UO	UO	UO	228	225	206	196	206	256	206	228	202	176	219	225	233	239	234	216	226	224	224.0
13-Jan	220	231	UO	230	228	UO	238	226	192	225	140	162	158	247	321	212	236	238	UO	UO	UO	UO	UO	UO	--
14-Jan	UO	UO	UO	UO	UO	UO	UO	250	261	269	320	337	340	319	318	310	272	288	263	268	235	172	225	226	--
15-Jan	243	214	213	195	230	225	229	224	227	224	217	163	127	228	151	182	190	196	230	236	225	235	228	219	213.0
16-Jan	216	224	230	237	214	241	229	295	303	308	331	331	331	331	324	321	319	311	306	316	307	294	289	288	310.5
17-Jan	293	293	293	308	325	337	350	331	343	344	352	13	4	351	360	347	331	279	287	290	288	309	288	307	321.5
18-Jan	318	317	320	308	320	322	301	294	291	299	288	304	312	322	282	281	273	285	282	286	292	296	293	295	298.1
19-Jan	298	284	252	254	193	221	225	220	194	194	132	136	123	144	137	110	123	122	137	128	121	120	128	137	145.7
20-Jan	147	150	157	127	157	199	213	201	219	206	261	265	290	283	331	357	31	355	327	337	341	308	326	322	294.2
21-Jan	329	323	335	341	328	332	341	343	337	334	317	340	349	351	343	341	350	336	320	334	321	349	6	30	339.7
22-Jan	43	76	85	123	134	114	111	109	111	116	115	111	117	109	109	118	116	116	121	125	133	135	136	129	114.9
23-Jan	125	141	154	131	132	194	188	173	218	186	187	230	254	265	254	251	24	345	7	346	339	344	332	328	243.3
24-Jan	346	350	137	123	115	119	122	111	122	125	138	126	140	134	129	136	127	141	134	119	121	147	229	234	128.9
25-Jan	232	238	257	238	269	270	296	293	300	287	310	108	129	114	126	121	120	122	123	127	123	125	112	128	139.6
26-Jan	126	269	306	301	288	307	36	285	295	162	118	127	123	126	130	134	137	130	127	118	86	UO	194	195	133.9
27-Jan	212	193	174	183	171	133	132	122	111	96	241	246	250	246	237	232	253	247	238	241	241	251	249	251	231.8
28-Jan	244	234	197	226	169	106	101	197	221	135	117	140	268	261	270	273	262	261	265	268	264	258	253	249	248.8
29-Jan	245	219	233	246	200	237	227	195	152	144	171	151	112	106	108	211	226	242	244	250	252	245	246	250	222.4
30-Jan	248	213	212	181	176	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--
31-Jan	260	257	254	258	269	248	255	251	213	218	135	132	131	139	124	124	149	163	177	144	128	134	126	146	206.5

278.3 276.0 270.1 276.3 286.1 295.0 330.6 309.3 327.4 0.1 311.6 337.8 347.0 341.0 3.7 350.3 321.5 271.7 260.4 274.4 276.8 269.4 261.9 264.9  
 Diurnal Average

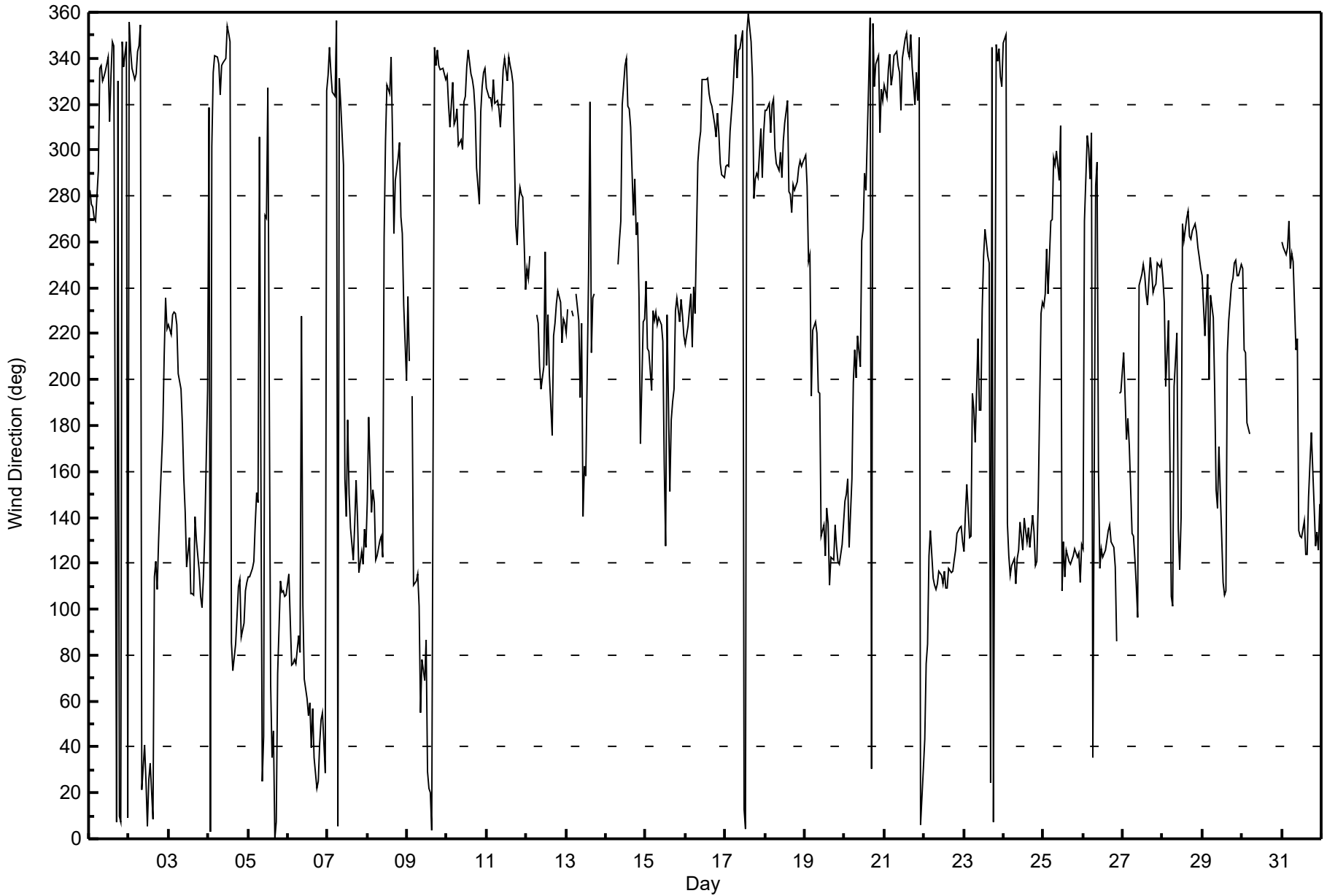
UO - Unstable Operation PF - Power Failure

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



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

**Wind Direction (WD) - deg**  
**Surmont 2 - January 2024**





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

**Wind Direction (WD) - deg**  
**Surmont 2 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 114 deg on Jan 29 05:00 Minimum Value: 8 deg on Jan 3 04:00 Percentiles: P <sub>1</sub> = 13 P <sub>10</sub> = 24 Q <sub>1</sub> = 31 Median = 40 Q <sub>3</sub> = 47 P <sub>90</sub> = 61 P <sub>99</sub> = 90																			Hours in Service: 744 Hours of Data: 705 Hours of Missing Data: 39 Hours of Calibration: 0 Percent Operational Time: 94.8																												
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-Jan	30	28	28	24	24	35	46	44	43	35	39	41	44	46	40	42	49	43	49	62	48	38	35	44	62																						
2-Jan	46	41	44	43	36	39	42	39	41	56	41	49	63	76	69	95	36	24	40	40	36	30	22	25	95																						
3-Jan	10	23	13	8	12	9	28	61	42	29	39	44	37	46	36	31	43	45	44	48	63	29	41	47	63																						
4-Jan	54	53	43	38	40	46	42	50	38	38	35	46	41	45	65	43	36	29	19	23	76	71	19	22	76																						
5-Jan	26	26	31	37	47	46	40	76	53	70	54	28	53	83	50	38	58	56	67	31	25	23	20	17	83																						
6-Jan	27	28	25	32	29	37	35	101	80	47	38	36	33	39	36	40	37	54	52	42	35	35	49	37	101																						
7-Jan	33	37	37	47	43	39	47	43	41	46	67	58	56	46	47	41	42	54	45	29	38	34	48	41	67																						
8-Jan	42	49	53	50	50	38	39	47	34	31	47	58	43	53	46	60	28	44	43	44	22	30	36	58	60																						
9-Jan	46	64	UO	59	24	23	24	32	40	31	38	37	41	50	45	47	40	34	47	35	33	35	40	35	64																						
10-Jan	38	45	48	46	45	38	43	45	51	36	58	52	42	47	43	38	43	40	39	31	44	41	45	36	58																						
11-Jan	33	44	39	42	37	45	45	36	37	45	44	30	38	45	41	40	43	25	31	16	21	15	15	54	54																						
12-Jan	43	48	48	UO	UO	UO	73	64	85	65	32	53	52	36	45	30	42	44	40	20	19	57	42	66	85																						
13-Jan	50	63	UO	60	46	UO	64	74	85	70	64	36	66	83	95	75	8	13	UO	UO	UO	UO	UO	UO	95																						
14-Jan	UO	UO	UO	UO	UO	UO	UO	55	44	62	90	37	34	42	46	40	28	47	19	46	52	81	41	44	90																						
15-Jan	46	27	63	34	13	8	16	27	16	33	28	35	37	37	29	28	20	28	28	19	26	46	31	52	63																						
16-Jan	59	39	38	81	60	72	72	67	60	46	41	39	36	35	40	42	41	41	43	39	36	32	30	31	81																						
17-Jan	30	30	34	42	43	34	45	40	42	37	43	53	57	41	43	38	56	21	23	28	28	46	40	45	57																						
18-Jan	46	47	38	38	43	47	40	39	32	40	32	39	45	43	27	28	28	31	31	34	32	33	38	32	47																						
19-Jan	34	40	22	51	52	33	45	38	35	42	61	34	31	38	39	34	35	45	44	40	29	30	35	36	61																						
20-Jan	45	45	53	45	32	47	38	35	22	43	27	32	36	34	49	57	72	44	44	39	45	55	43	41	72																						
21-Jan	41	44	38	41	40	43	29	37	32	39	41	35	33	36	36	33	42	38	39	41	38	47	51	47	51																						
22-Jan	36	34	57	68	33	22	23	20	24	25	28	27	31	25	22	29	29	30	37	39	47	48	45	41	68																						
23-Jan	49	47	50	40	46	53	44	46	42	32	42	40	31	30	29	42	84	73	54	50	38	37	34	38	84																						
24-Jan	42	91	71	41	29	28	36	28	31	40	51	48	47	44	37	49	46	52	53	55	33	53	30	24	91																						
25-Jan	48	21	19	8	39	58	35	31	30	27	52	71	61	31	36	30	38	39	39	45	34	32	34	62	71																						
26-Jan	81	62	90	49	40	76	50	96	37	65	35	40	29	26	31	43	48	46	38	44	79	UO	30	49	96																						
27-Jan	71	32	17	18	26	26	20	18	22	40	42	22	25	30	38	32	34	29	27	25	20	23	23	21	71																						
28-Jan	32	39	69	69	92	39	32	83	49	41	27	41	76	41	39	35	27	25	27	29	25	25	24	20	92																						
29-Jan	22	21	14	30	114	47	73	78	57	56	61	57	28	31	38	64	68	21	25	21	25	21	20	24	114																						
30-Jan	25	54	89	72	42	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	89																						
31-Jan	26	25	24	24	40	27	22	22	73	58	48	48	37	38	34	41	52	51	48	49	42	42	39	50	73																						
Diurnal Maximum																								81	91	90	81	114	76	73	101	85	70	90	71	76	83	95	95	84	73	67	62	79	81	51	66
UO - Unstable Operation      PF - Power Failure																																															



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS30 ELLS RIVER JANUARY 2024**

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

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
 JANUARY 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	709	35	35	100	13.5	0	2.5	0
TRS (ppb) Average	707	37	37	100	3.9	0	1.1	0
THC (ppm) Average	709	35	35	100	5.8	-	2.6	-
NMHC (ppm) Average	709	35	35	100	0.317	-	0.022	-
CH4 (ppm) Average	709	35	35	100	5.5	-	2.6	-
NO2 (ppb) Average	707	37	37	100	35.1	0	23.5	-
NO (ppb) Average	707	37	37	100	118.6	-	29.7	-
NOX (ppb) Average	707	37	37	100	145.5	-	53.2	-
PM2.5 (ug/m3) Average	741	3	3	100	26.4	0	16.4	0
Temperature 2 m (C) Average	744	0	0	100	10.6	-	4.1	-
Relative Humidity (%) Average	744	0	0	100	95.4	-	90.1	-
Wind Speed 10 m (km/h) Average	731	0	13	98.25	23	-	16	-
Wind Direction 10 m (deg) Average	731	0	13	98.25	-	-	-	-
Global Solar Radiation (W/m2) Average	744	0	0	100	293.5	-	46.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
JANUARY 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	709	0.44	1.4	-	0	0	0	0.1	0.3	0.6	13.5
TRS (ppb) Average	707	0.59	0.3	-	0.3	0.4	0.4	0.5	0.6	0.8	3.9
THC (ppm) Average	709	2.27	0.3	-	2	2	2.1	2.2	2.3	2.6	5.8
NMHC(ppm) Average	709	0.001	0.013	-	0	0	0	0	0	0	0.317
CH4(ppm) Average	709	2.26	0.3	-	2	2	2.1	2.2	2.3	2.6	5.5
NO2 (ppb) Average	707	13.01	8.6	-	0.2	1.2	6.2	12.1	19.8	25.2	35.1
NO (ppb) Average	707	5.77	11.9	-	0	0	0.1	0.6	5.8	16.5	118.6
NOX (ppb) Average	707	18.78	17.7	-	0.2	1.2	6.5	14.4	26.1	41.2	145.5
PM2.5 (ug/m3) Average	741	5.27	3.6	-	0.3	2.4	3.2	4.4	6.1	9.1	26.4
Temperature 2 m (C) Average	744	-18.6	12.7	-	-44.7	-37.9	-26.7	-18.9	-10.8	0	10.6
Relative Humidity (%) Average	744	73.86	9.5	-	46.5	61.7	67.5	73.5	79	88.2	95.4
Wind Speed 10 m (km/h) Average	731	7.6	5	-	0	2	4	7	10	14	23
Wind Direction 10 m (deg) Average	731	268.1	-	-	-	-	-	-	-	-	-
Global Solar Radiation (W/m2) Average	744	18.62	38.2	-	0	0	0	0.1	18	71.6	293.5

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	10 Jan 2024 18:00	10 Jan 2024 19:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Jan 2024 21:00	10 Jan 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Jan 2024 23:00	10 Jan 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Jan 2024 06:00	11 Jan 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Jan 2024 19:00	12 Jan 2024 20:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	13 Jan 2024 18:00	13 Jan 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 02:00	14 Jan 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	14 Jan 2024 05:00	14 Jan 2024 08:00	4	Flat line in sensor output signal

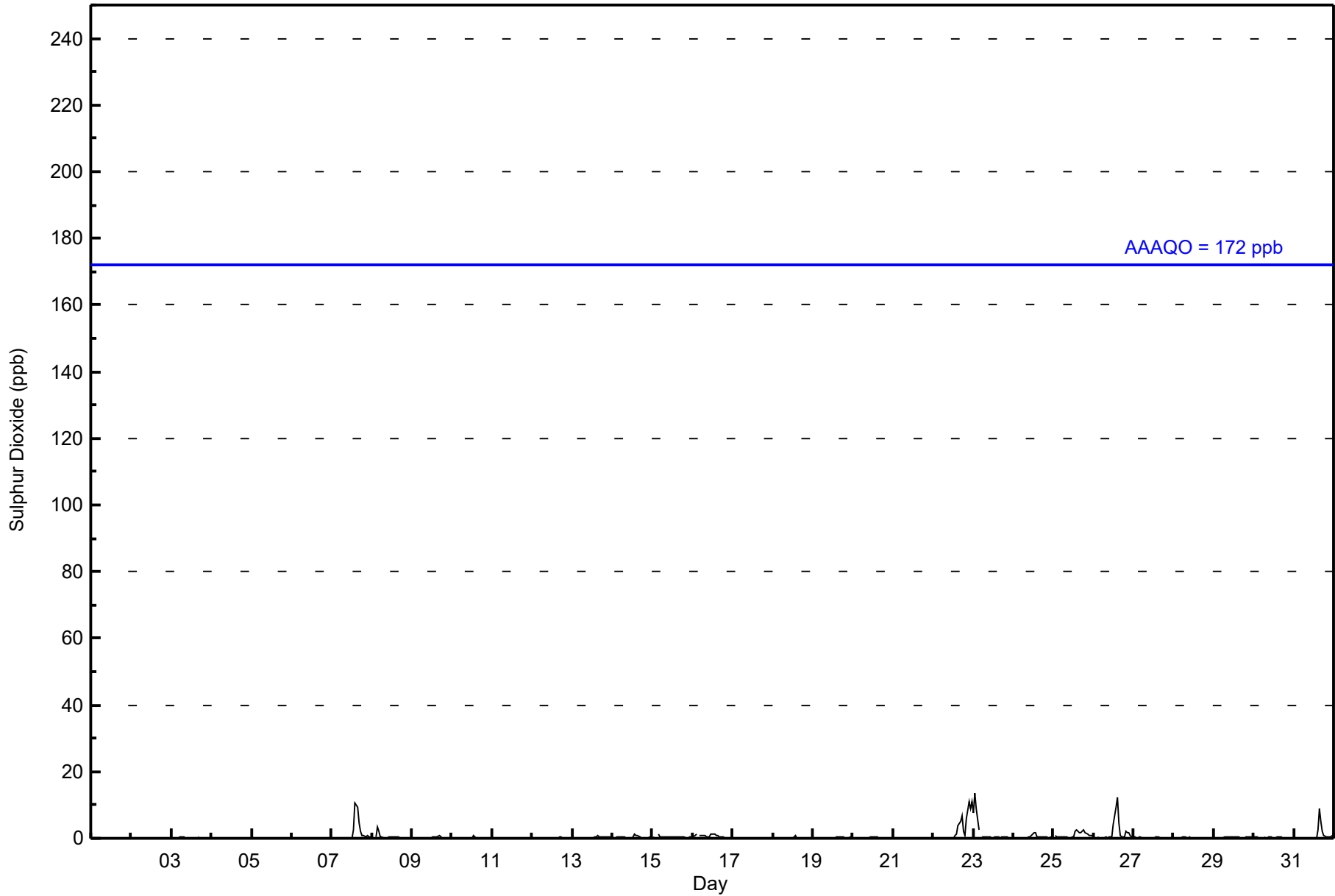






Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Ells River - January 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Ells River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	704	99.29	99.29
11 - 20	5	0.71	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Ells River - January 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	92	24	9	4	10	21	76	99	63	56	31	27	26	21	25	692
11 - 20	0	0	0	0	0	0	0	4	1	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>	108	92	24	9	4	10	21	80	100	63	56	31	27	26	21	25	697

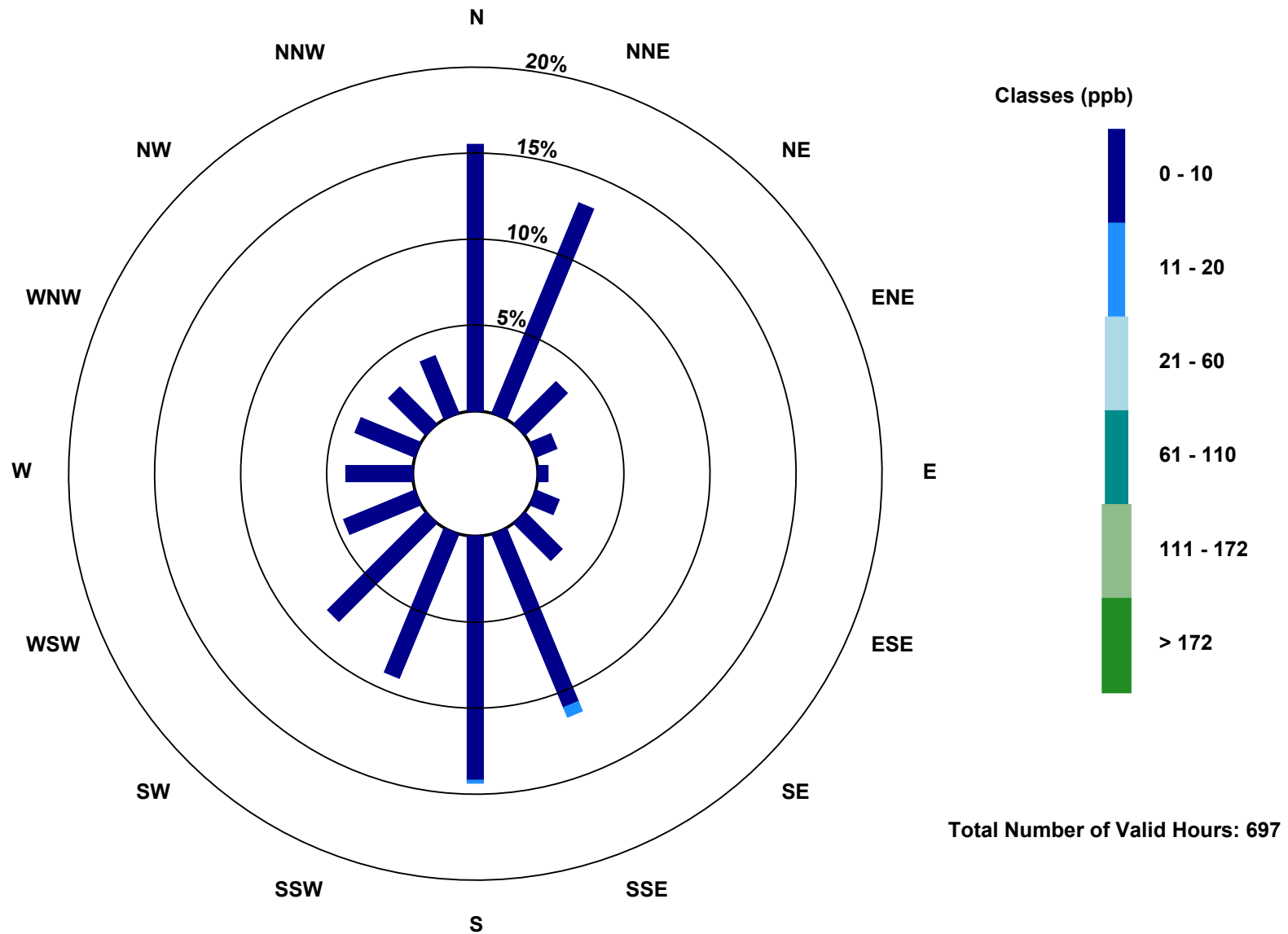
Total Number of Valid Hours: 697

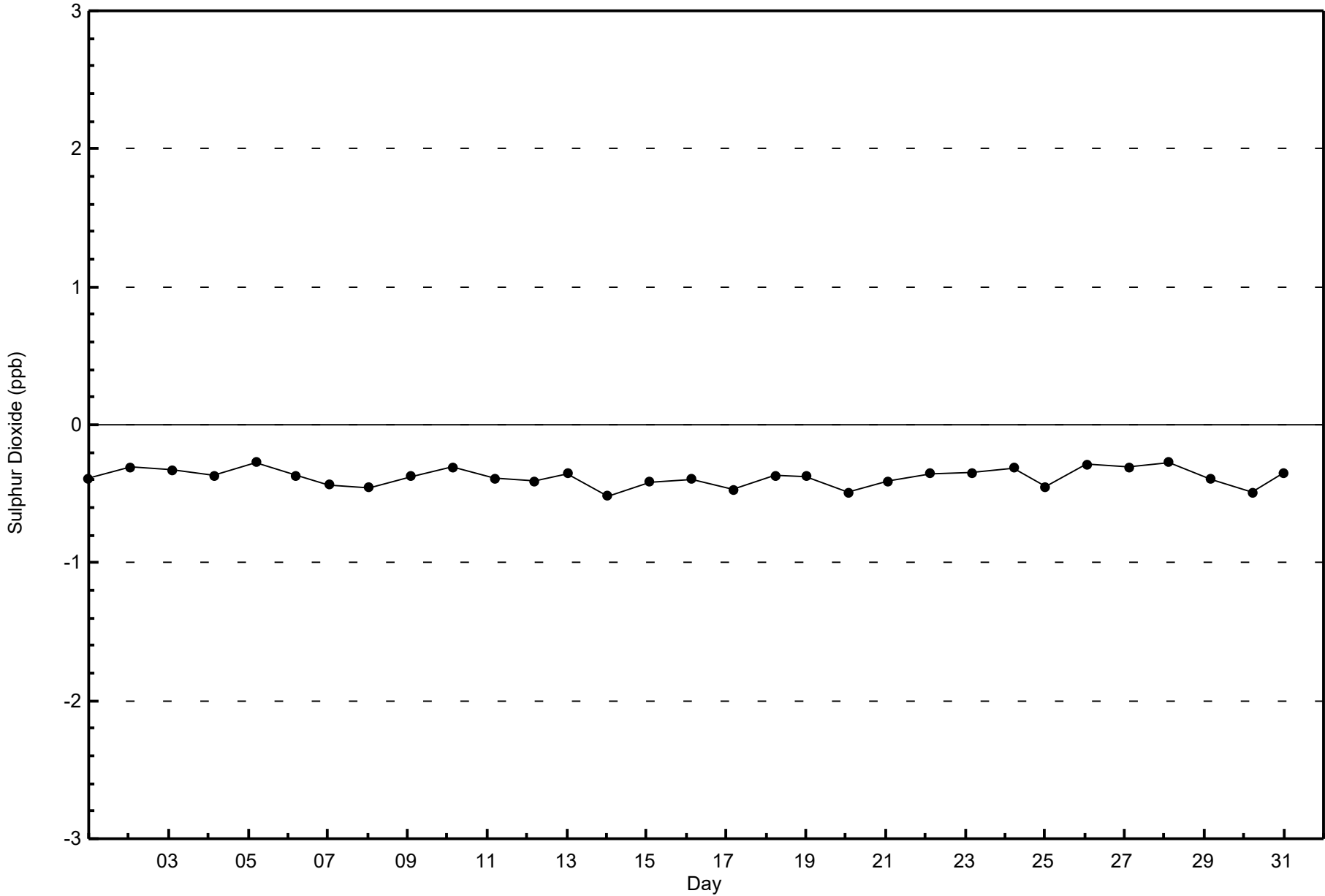
Total Number of Hours: 744

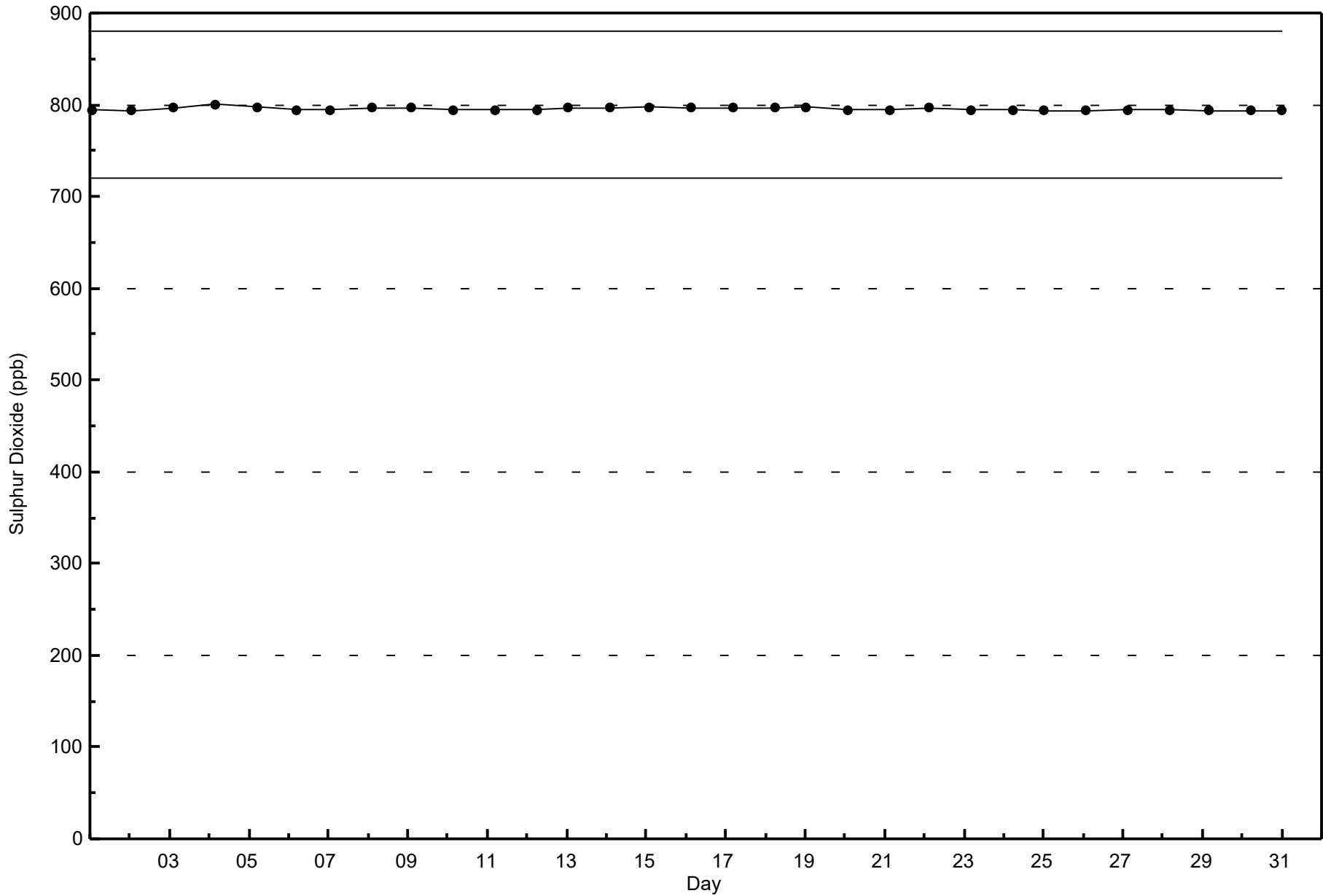


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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







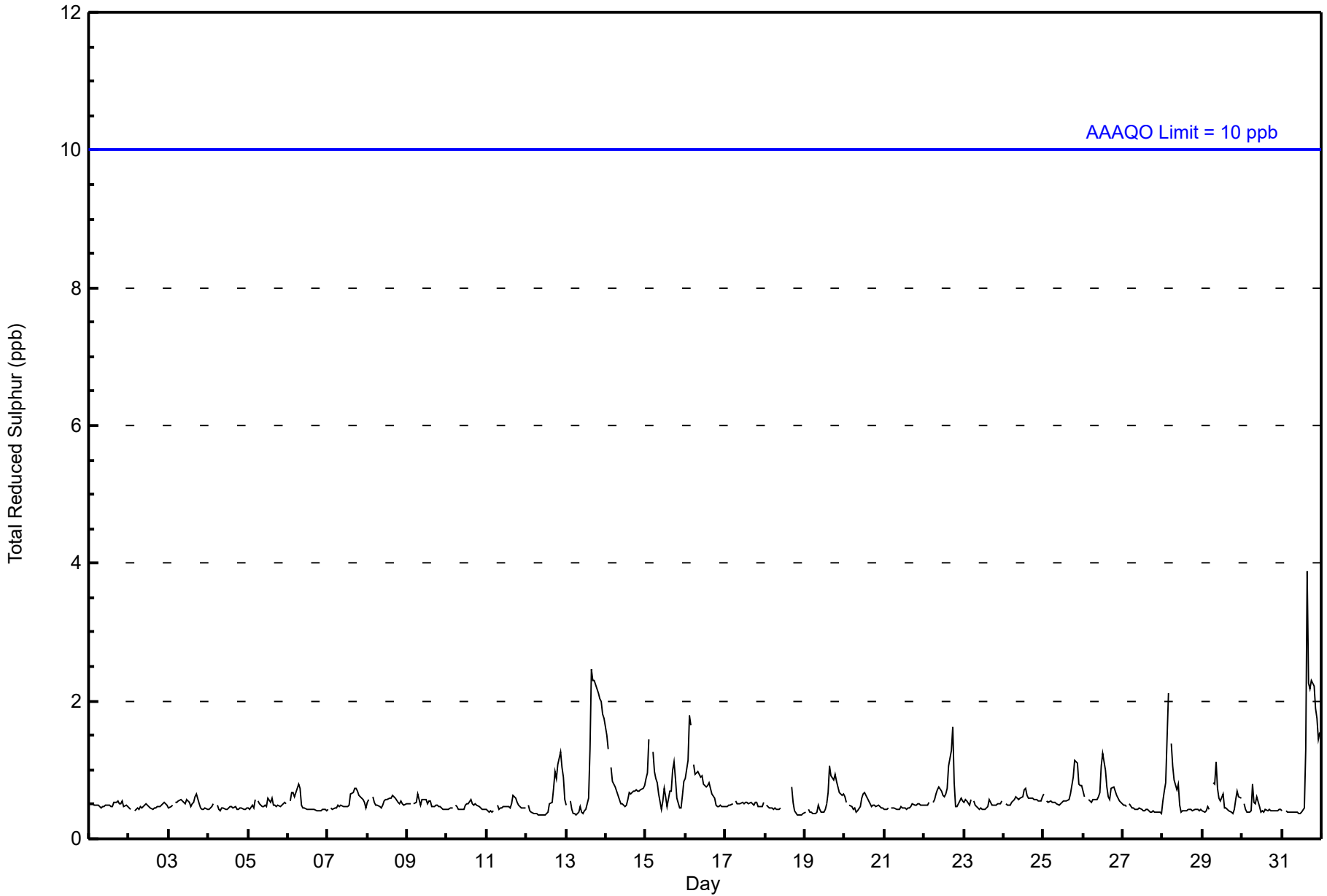






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - January 2024**





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

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	706	99.86	99.86
3 - 4	1	0.14	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Ells River - January 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	111	93	23	9	4	8	20	78	105	62	54	31	26	24	21	25	694
3 - 4	0	0	0	0	0	0	1	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>	111	93	23	9	4	8	21	78	105	62	54	31	26	24	21	25	695

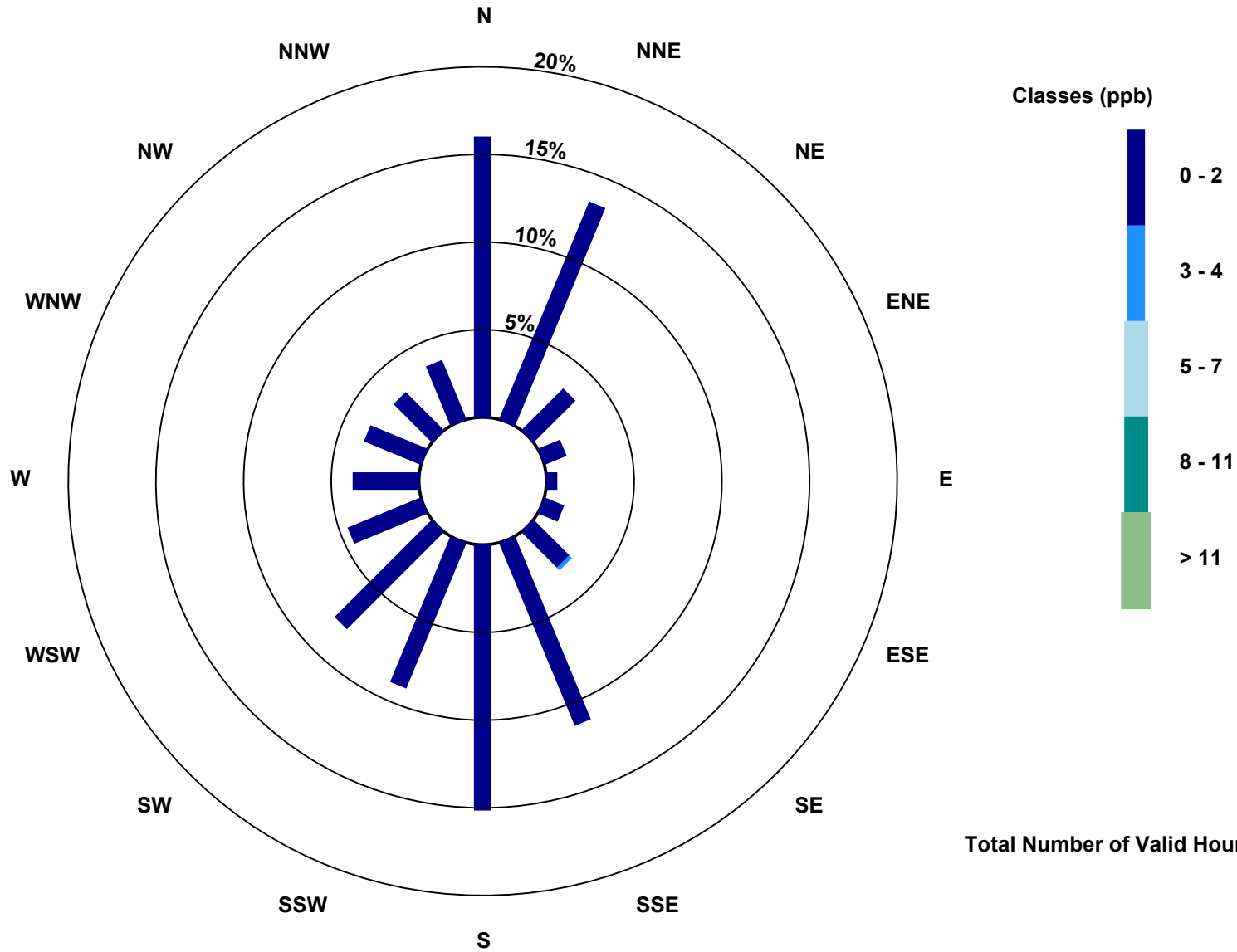
Total Number of Valid Hours: 695

Total Number of Hours: 744

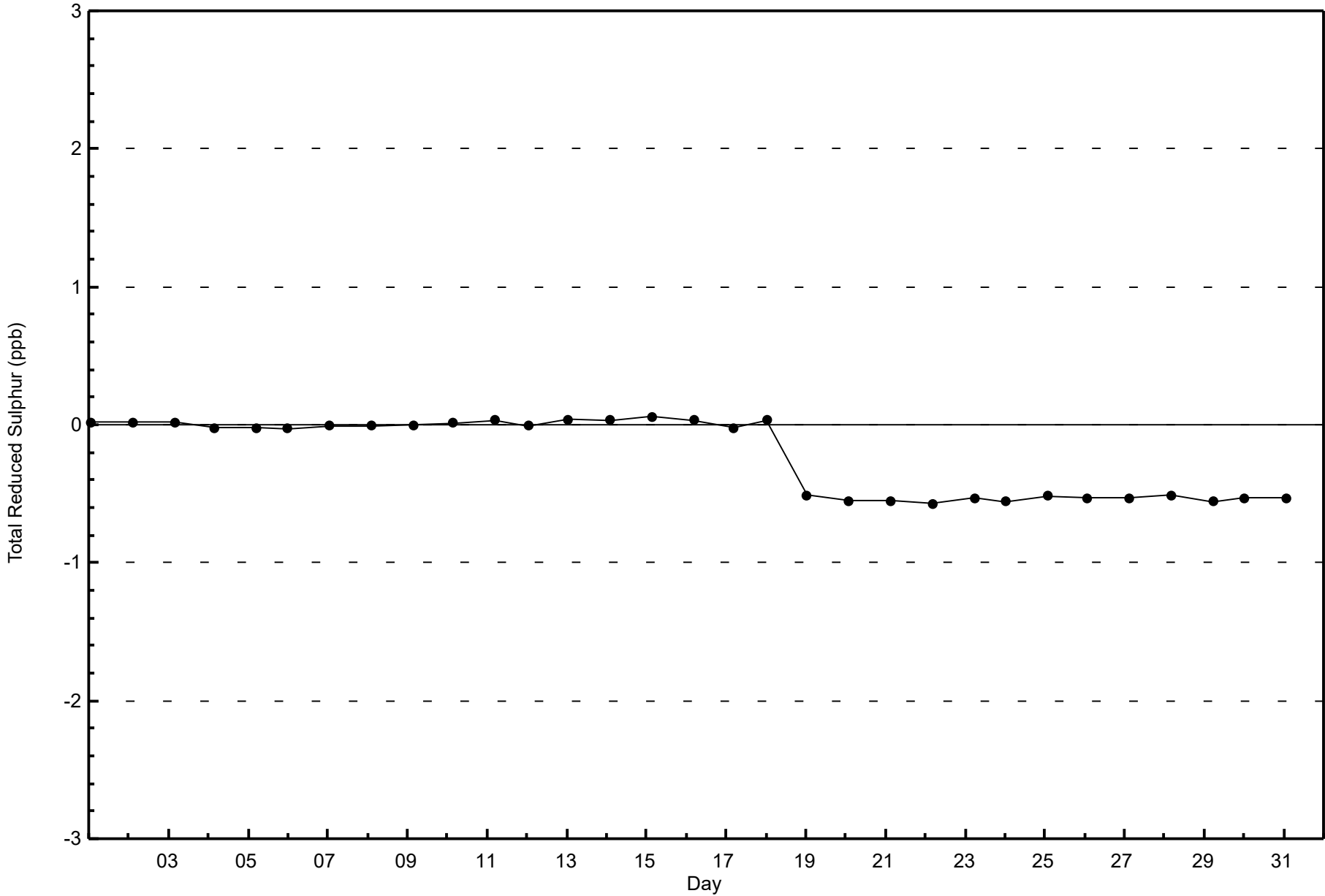


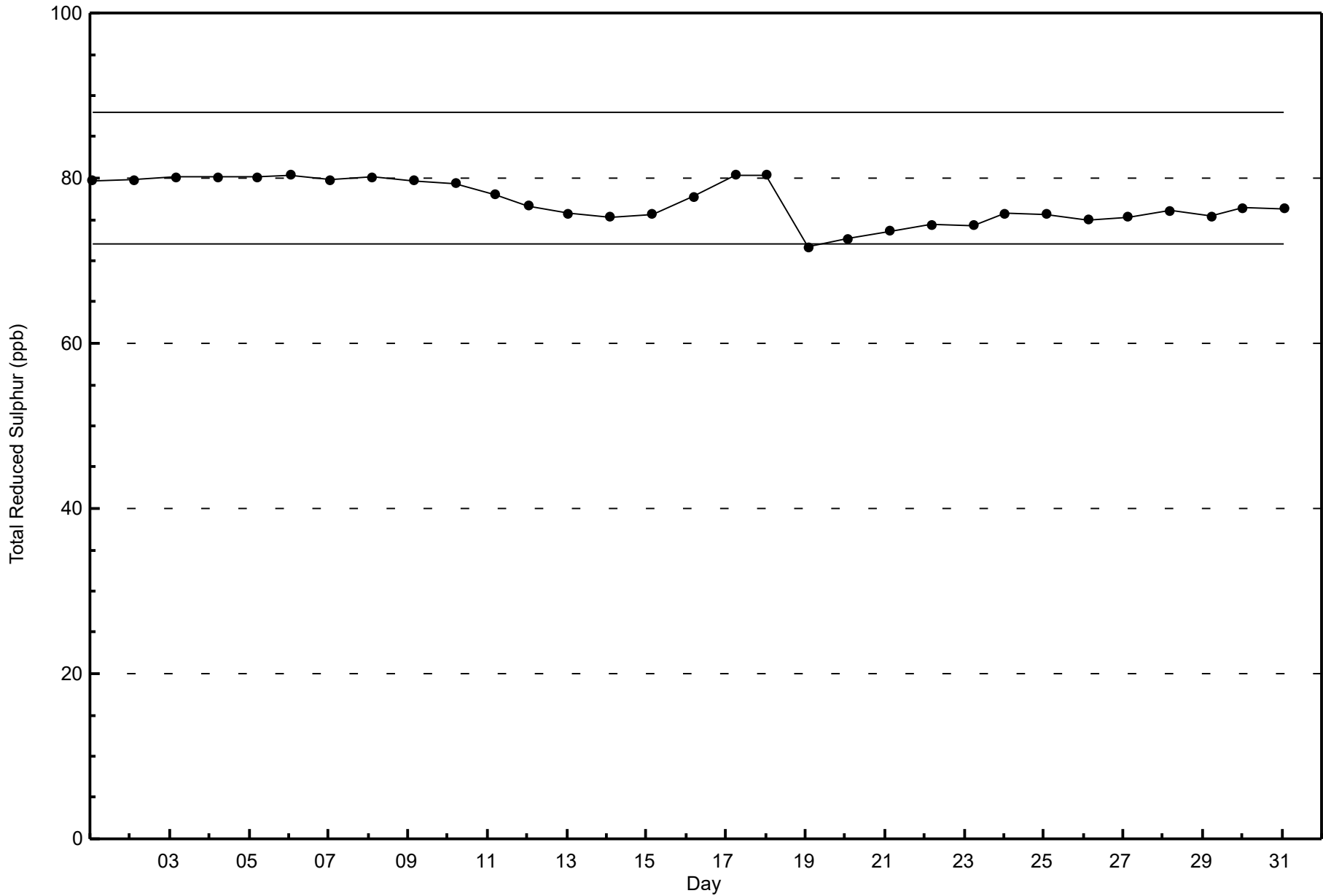
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Reduced Sulphur (TRS) - ppb  
Ells River



Total Number of Valid Hours: 695







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

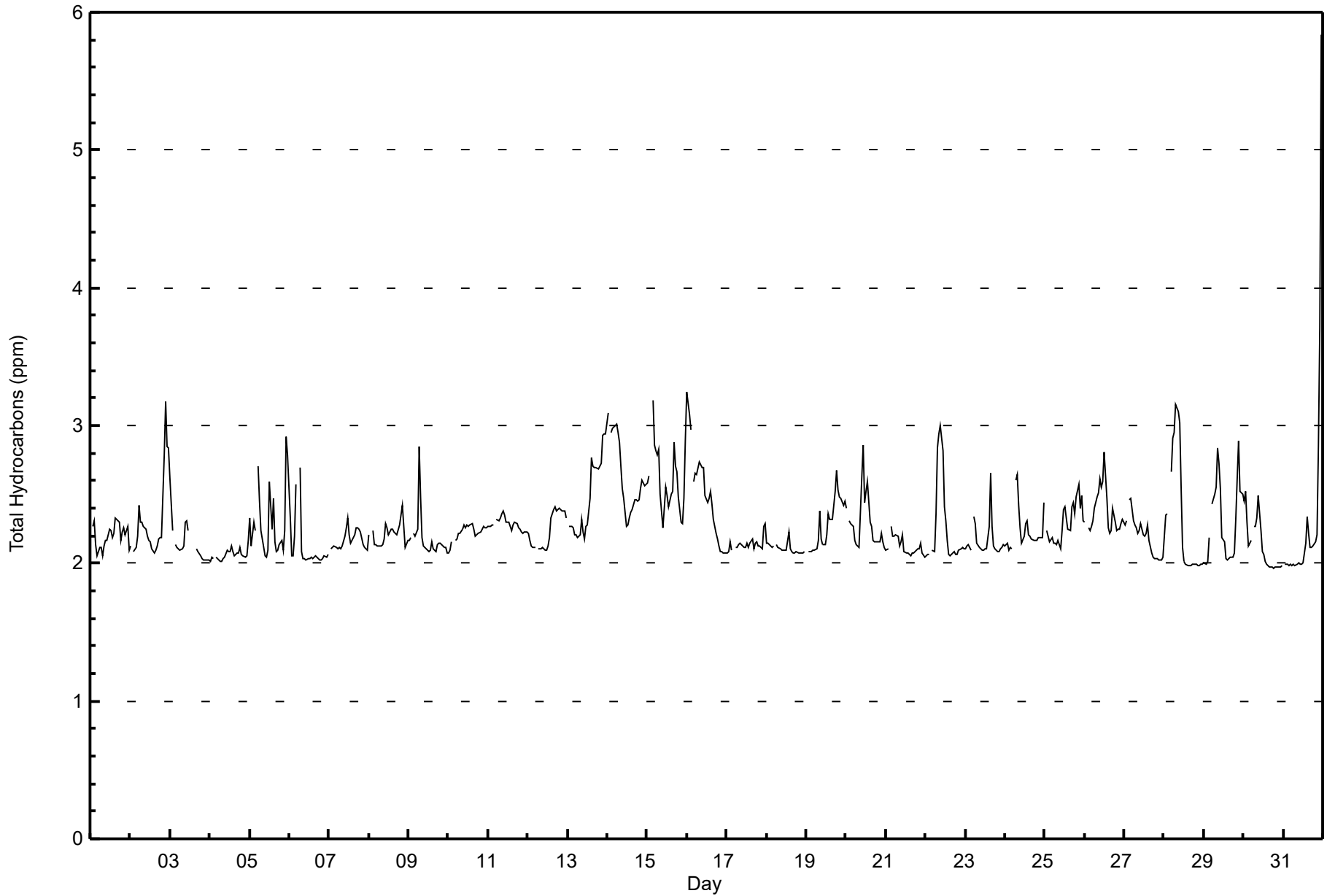
**Total Hydrocarbons (THC) - ppm**  
**Ells River - January 2024**

Maximum Value: 5.8 ppm on Feb 1 00:00		Maximum Daily Average: 2.6 ppm on Jan 14		Hours in Service: 744																							
Minimum Value: 2.0 ppm on Jan 30 19:00		Minimum Daily Average: 2.1 ppm on Jan 4		Hours of Data: 709																							
Maximum Diurnal Average: 2.4 ppm at hour 24		Minimum Diurnal Average: 2.2 ppm at hour 19		Hours of Missing Data: 35																							
Monthly Average: 2.27 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.2 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.6 P <sub>99</sub> = 3.1		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-Jan	Z	2.3	2.3	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.1	2.2	2.3		
2-Jan	2.1	Z	2.1	2.1	2.2	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.8	3.2	2.8	2.8	2.3	3.2	
3-Jan	2.6	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	C	C	C	C	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.6		
4-Jan	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	2.0	2.1	2.2	2.2		
5-Jan	2.3	2.1	2.3	2.2	Z	2.7	2.5	2.2	2.1	2.1	2.0	2.1	2.6	2.2	2.5	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.9	2.8	2.3	2.9	
6-Jan	2.3	2.1	2.1	2.2	2.6	Z	2.7	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.7	
7-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	
8-Jan	2.2	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.1	2.2	2.2	2.4
9-Jan	2.2	2.2	Z	2.2	2.2	2.2	2.8	2.5	2.2	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	2.2	2.8	
10-Jan	2.1	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	
11-Jan	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.4	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	2.4	
12-Jan	2.2	2.2	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.4	
13-Jan	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.5	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.9	2.9	2.5	2.9	
14-Jan	3.1	Z	3.0	3.0	3.0	3.0	3.0	2.9	2.7	2.5	2.5	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	3.1	
15-Jan	2.6	2.6	Z	3.2	2.9	2.8	2.8	2.8	2.8	2.5	2.3	2.4	2.5	2.5	2.4	2.5	2.5	2.9	2.7	2.7	2.5	2.3	2.3	2.5	2.9	2.6	3.2
16-Jan	3.2	3.1	3.0	Z	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.5	2.4	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.5	3.2	
17-Jan	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.3	2.3	2.1	2.3	
18-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
19-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.2	2.1	2.1	2.2	2.4	2.3	2.3	2.3	2.5	2.7	2.5	2.5	2.5	2.4	2.4	2.3	2.7	
20-Jan	2.4	Z	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.6	2.9	2.4	2.5	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.3	2.9	
21-Jan	2.1	2.1	Z	2.3	2.2	2.2	2.2	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	2.0	2.1	2.3	
22-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.4	2.8	2.9	3.0	2.8	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.0	
23-Jan	2.1	2.1	2.1	2.1	Z	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.7	
24-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.6	2.6	2.4	2.3	2.1	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.6	
25-Jan	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.4	2.4	2.3	2.3	2.2	2.4	2.4	2.4	2.5	2.6	2.4	2.5	2.3	2.3	2.6	
26-Jan	2.3	Z	2.3	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.6	2.8	2.5	2.3	2.2	2.2	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.8	
27-Jan	2.3	2.3	Z	2.5	2.5	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.5	
28-Jan	2.2	2.3	2.4	Z	2.7	2.9	3.0	3.1	3.1	3.0	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	2.3	3.1	
29-Jan	2.0	2.0	2.0	2.2	Z	2.4	2.5	2.5	2.8	2.7	2.5	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.6	2.9	2.5	2.5	2.3	2.9	
30-Jan	2.4	2.5	2.3	2.1	2.2	Z	2.3	2.3	2.3	2.5	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	
31-Jan	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	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.9	3.7	5.8	2.3	5.8	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											



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

**Total Hydrocarbons (THC) - ppm**  
**Ells River - January 2024**







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

**Total Hydrocarbons (THC) - ppm**  
**Ells River - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	82	11.57	11.57
2.1 - 3.0	618	87.17	98.73
3.1 - 10.0	9	1.27	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Ells River - January 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	22	9	0	0	0	0	0	3	4	15	17	9	1	1	0	1	82
2.1 - 3.0	86	83	24	9	4	9	21	74	94	48	38	22	26	23	21	24	606
3.1 - 10.0	0	0	0	0	0	1	0	3	2	0	1	0	0	2	0	0	9
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	108	92	24	9	4	10	21	80	100	63	56	31	27	26	21	25	697

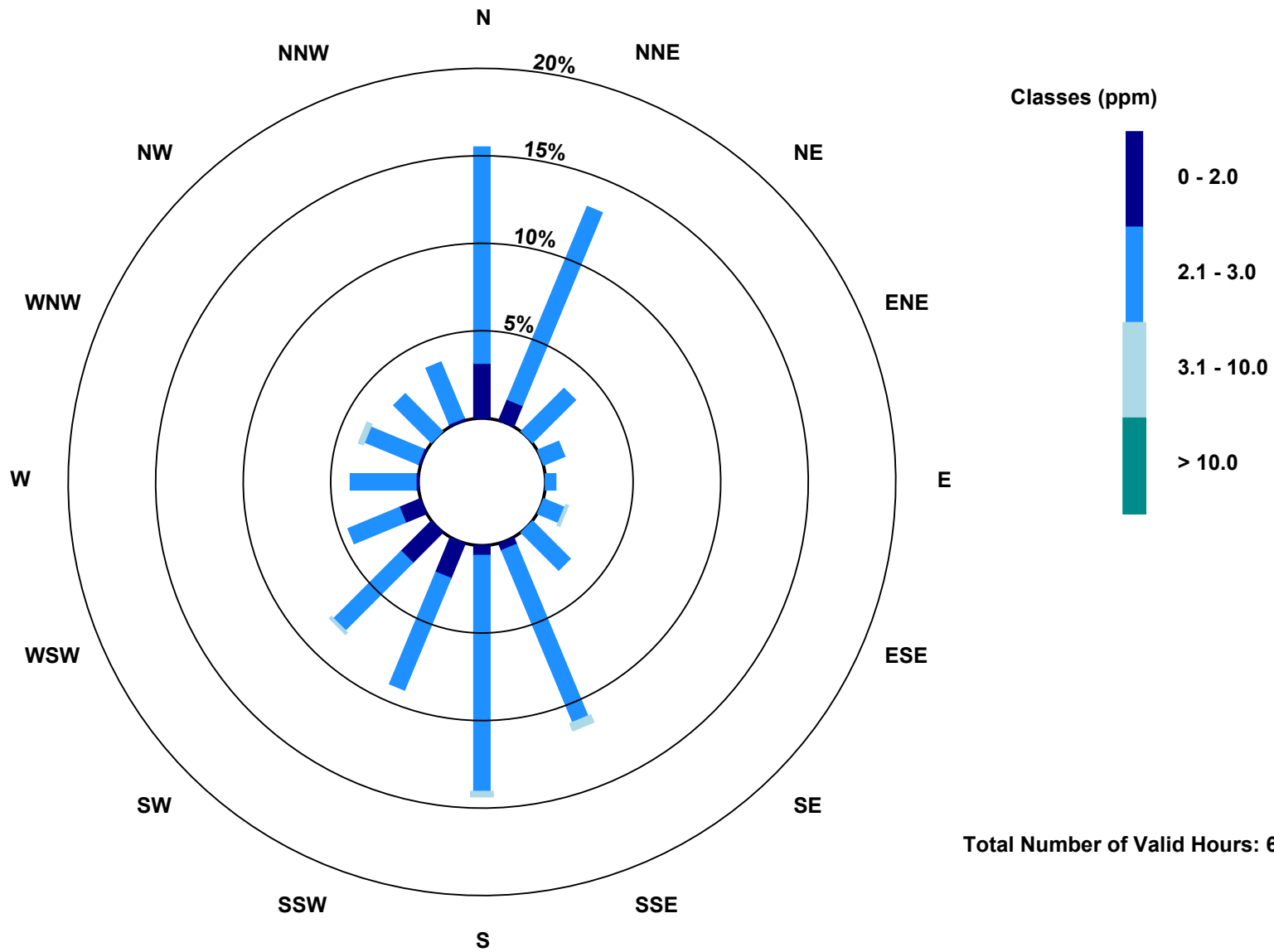
Total Number of Valid Hours: 697

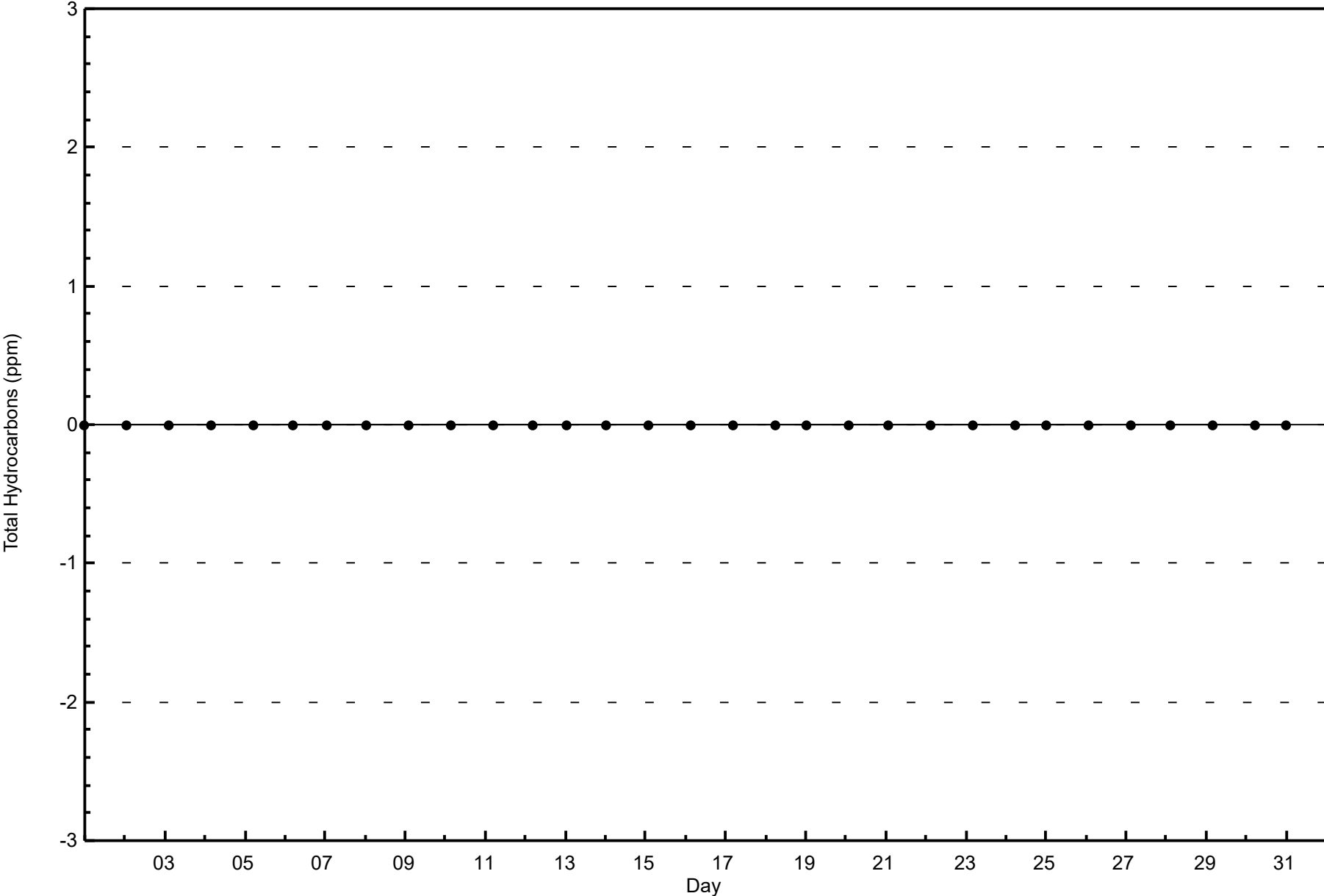
Total Number of Hours: 744

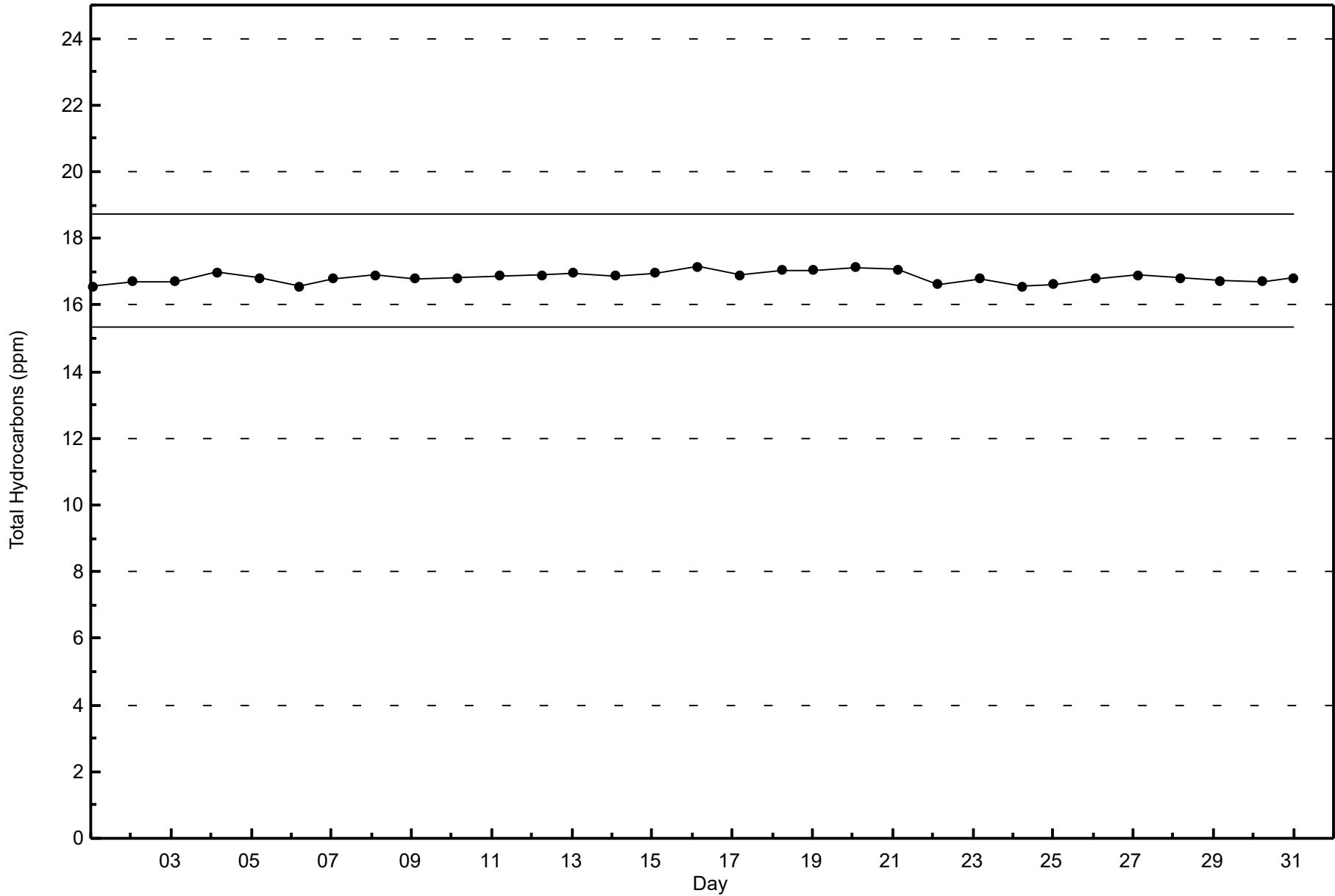


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

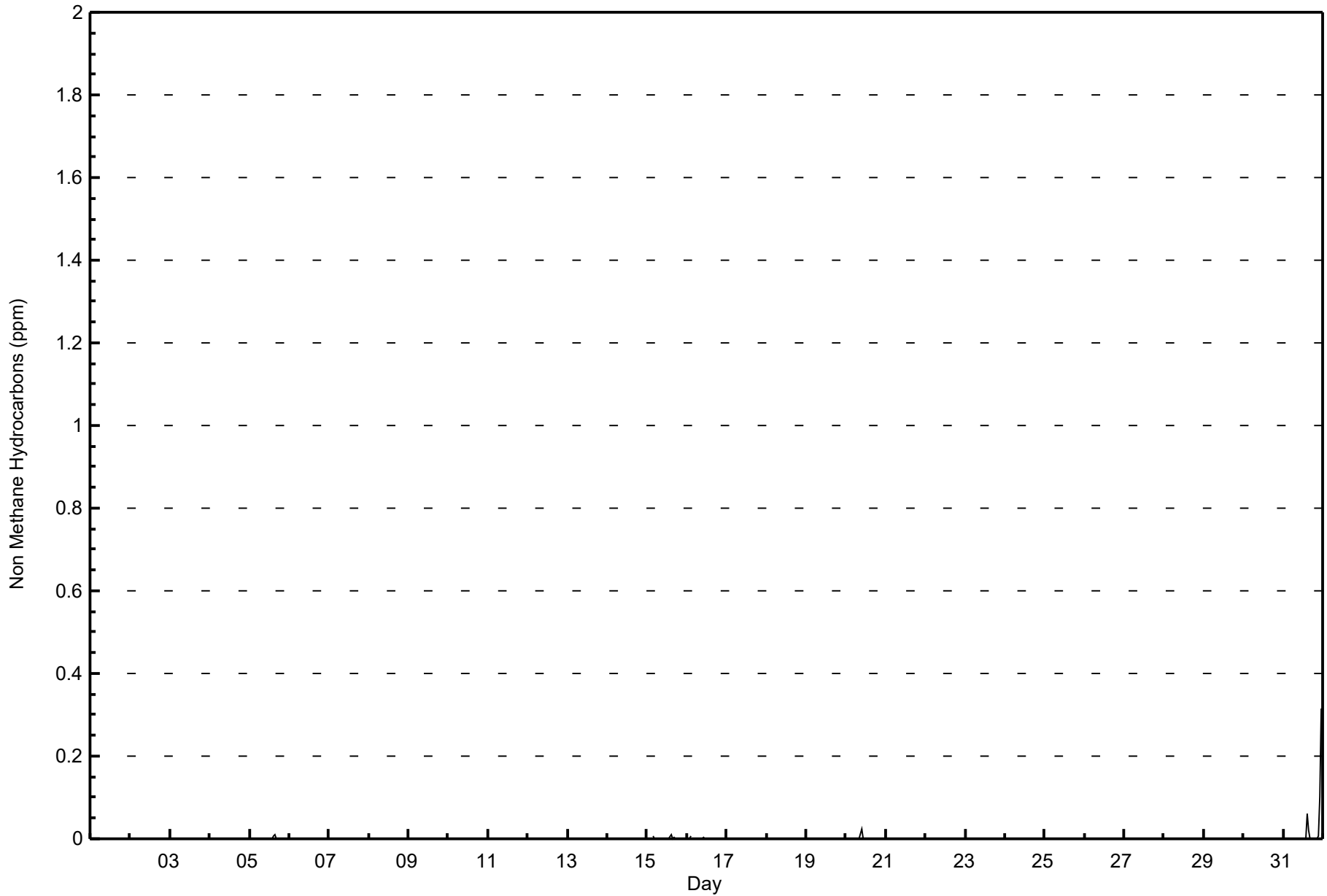
Total Hydrocarbons (THC) - ppm  
Ells River













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Ells River - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	699	98.59	98.59
0.006 - 0.05	7	0.99	99.58
0.06 - 0.1	2	0.28	99.86
> 0.1	1	0.14	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744





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

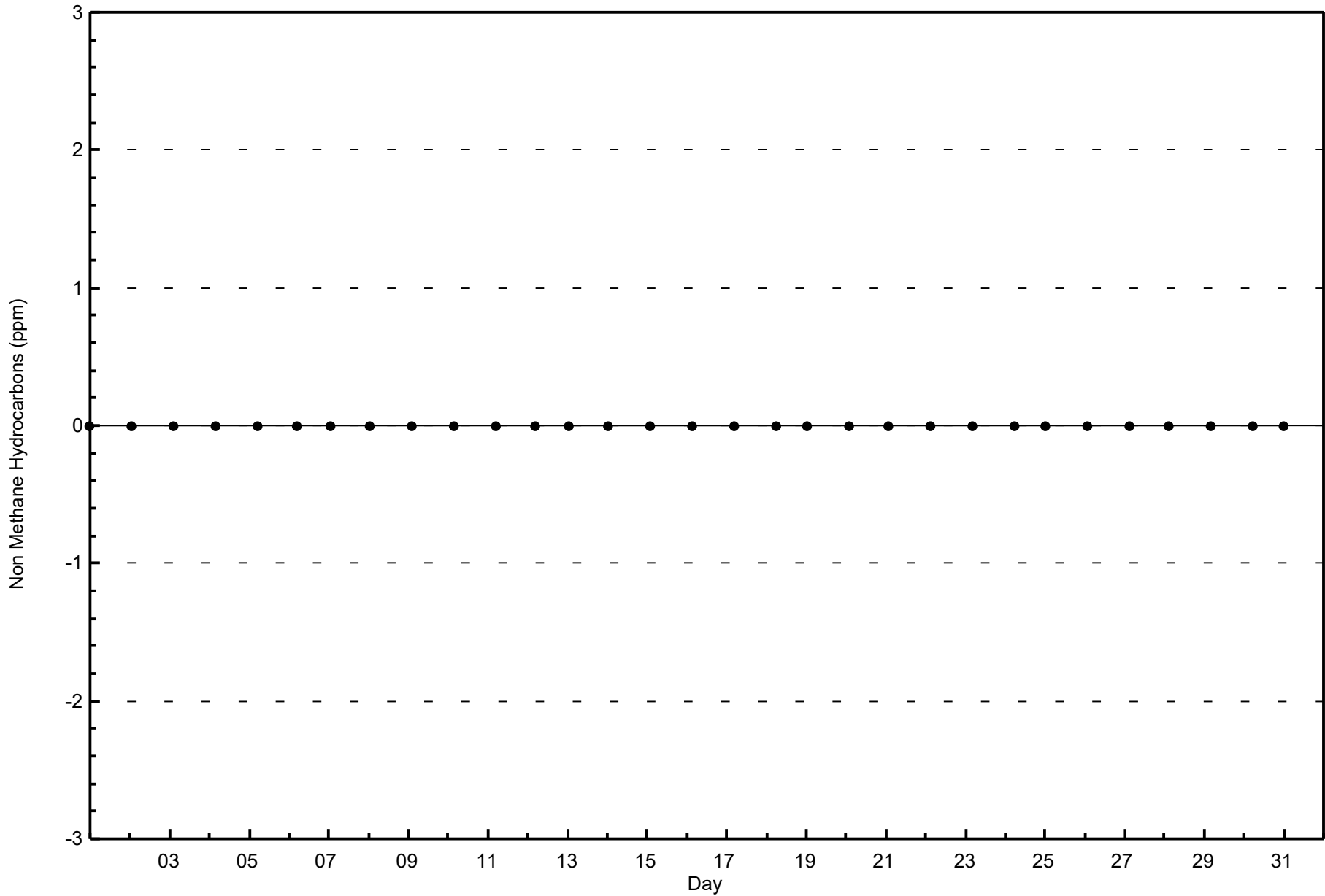
**Non Methane Hydrocarbons (NMHC) - ppm**  
**Ells River - January 2024**

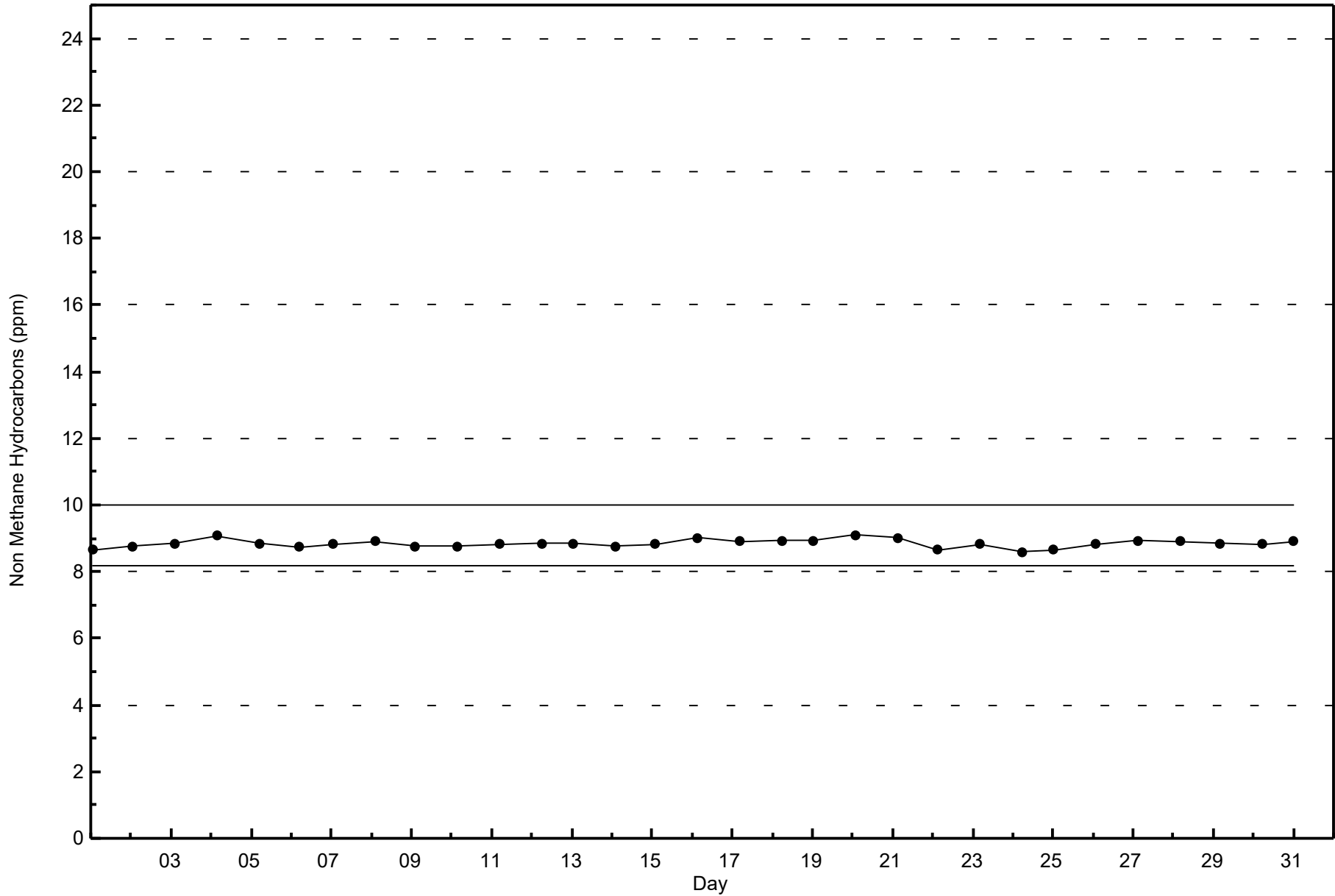
<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	108	91	22	9	4	10	20	78	99	63	56	31	27	24	21	24	687
0.006 - 0.05	0	1	2	0	0	0	1	1	1	0	0	0	0	0	0	1	7
0.06 - 0.1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<b>Totals</b>	108	92	24	9	4	10	21	80	100	63	56	31	27	26	21	25	697

Total Number of Valid Hours: 697

Total Number of Hours: 744









Wood Buffalo Environmental Association

Summary of Hour Averages

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

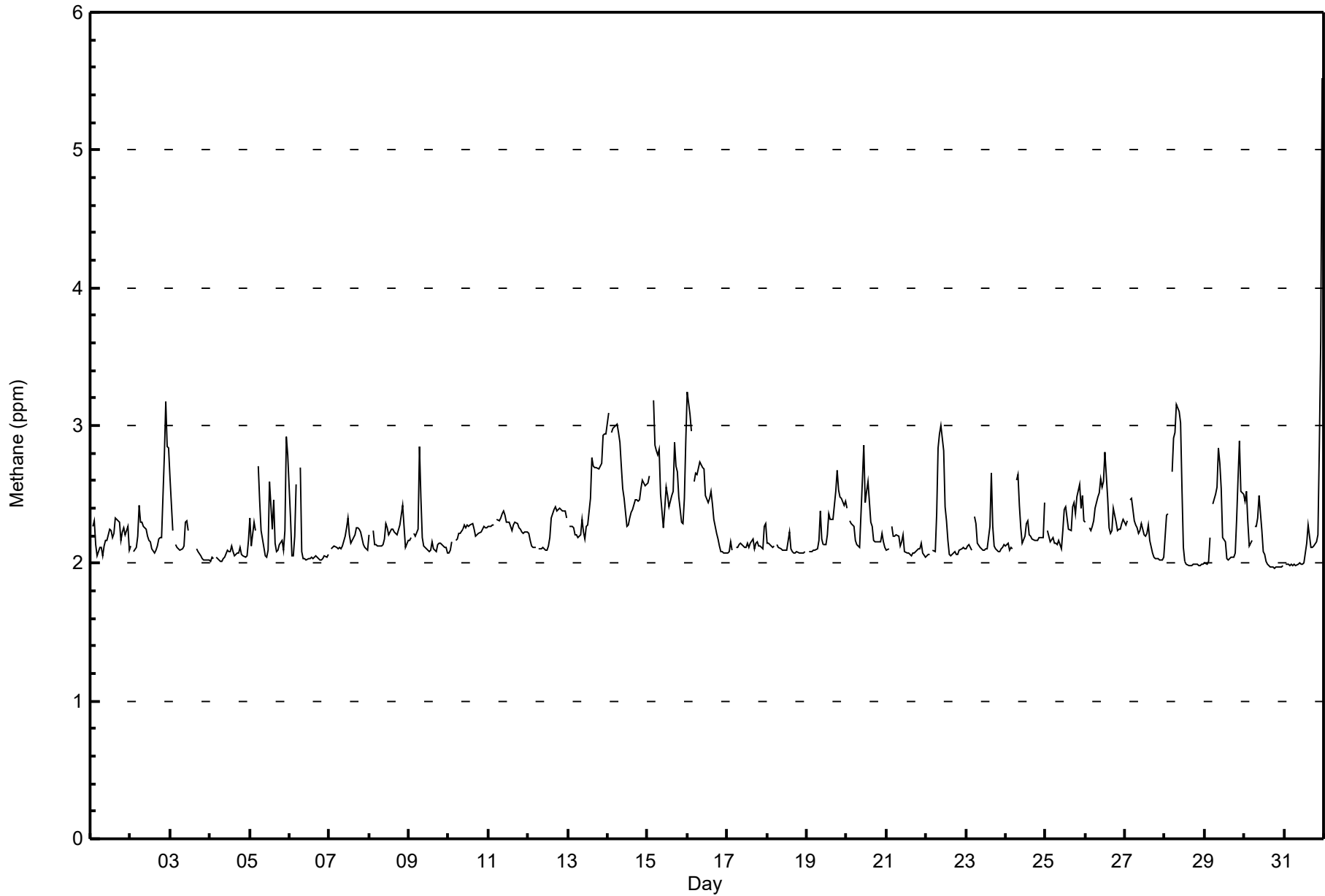
Ells River - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744							
Maximum Value: 5.5 ppm on Feb 1 00:00		Maximum Daily Average: 2.6 ppm on Jan 14		Hours of Data:														709									
Minimum Value: 2.0 ppm on Jan 30 19:00		Minimum Daily Average: 2.1 ppm on Jan 4		Hours of Missing Data:														35									
Maximum Diurnal Average: 2.4 ppm at hour 24		Minimum Diurnal Average: 2.2 ppm at hour 19		Hours of Calibration:														35									
Monthly Average: 2.26 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.1 Median = 2.2 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.6 P <sub>99</sub> = 3.1		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-Jan	Z	2.3	2.3	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.1	2.2	2.2	2.3	2.3
2-Jan	2.1	Z	2.1	2.1	2.2	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.8	3.2	2.8	2.8	2.3	3.2	
3-Jan	2.6	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2	C	C	C	C	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.6		
4-Jan	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	2.0	2.1	2.2	2.2		
5-Jan	2.3	2.1	2.3	2.2	Z	2.7	2.5	2.2	2.1	2.1	2.0	2.1	2.6	2.2	2.5	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.9	2.8	2.3	2.9	
6-Jan	2.3	2.1	2.1	2.2	2.6	Z	2.7	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.7		
7-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	
8-Jan	2.2	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.1	2.2	2.4	
9-Jan	2.2	2.2	Z	2.2	2.2	2.2	2.8	2.5	2.2	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	2.2	2.8	
10-Jan	2.1	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	
11-Jan	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.4	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	2.4	
12-Jan	2.2	2.2	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.4	
13-Jan	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.5	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.9	2.9	2.9	2.5	2.9	
14-Jan	3.1	Z	3.0	3.0	3.0	3.0	3.0	2.9	2.7	2.5	2.5	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	3.1	
15-Jan	2.6	2.6	Z	3.2	2.9	2.8	2.8	2.8	2.8	2.5	2.3	2.4	2.5	2.5	2.4	2.5	2.5	2.9	2.7	2.7	2.5	2.3	2.3	2.5	2.9	3.2	
16-Jan	3.2	3.1	3.0	Z	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.5	2.4	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.5	3.2	
17-Jan	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.3	2.3	2.1	2.3	
18-Jan	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
19-Jan	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.2	2.1	2.1	2.2	2.4	2.3	2.3	2.3	2.5	2.7	2.5	2.5	2.5	2.4	2.4	2.3	2.7	
20-Jan	2.4	Z	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.6	2.9	2.4	2.5	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.3	2.9	
21-Jan	2.1	2.1	Z	2.3	2.2	2.2	2.2	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	2.0	2.1	2.3	
22-Jan	2.1	2.1	2.1	Z	2.1	2.1	2.4	2.8	2.9	3.0	2.8	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.0	
23-Jan	2.1	2.1	2.1	2.1	Z	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.7	
24-Jan	2.1	2.1	2.1	2.1	2.1	Z	2.6	2.6	2.4	2.3	2.1	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.6	
25-Jan	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.4	2.4	2.3	2.3	2.2	2.4	2.4	2.4	2.5	2.6	2.4	2.5	2.3	2.3	2.6	
26-Jan	2.3	Z	2.3	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.6	2.8	2.5	2.3	2.2	2.2	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.8	
27-Jan	2.3	2.3	Z	2.5	2.5	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.5	
28-Jan	2.2	2.3	2.4	Z	2.7	2.9	3.0	3.1	3.1	3.0	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	2.3	3.1	
29-Jan	2.0	2.0	2.0	2.2	Z	2.4	2.5	2.5	2.8	2.7	2.5	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.6	2.9	2.5	2.5	2.3	2.9	
30-Jan	2.4	2.5	2.3	2.1	2.2	Z	2.3	2.3	2.3	2.5	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	
31-Jan	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	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.8	3.6	5.5	2.3	5.5	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											



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

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - January 2024**





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

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	82	11.57	11.57
2.1 - 3.0	618	87.17	98.73
3.1 - 10.0	9	1.27	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Ells River - January 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	22	9	0	0	0	0	0	3	4	15	17	9	1	1	0	1	82
2.1 - 3.0	86	83	24	9	4	9	21	74	94	48	38	22	26	23	21	24	606
3.1 - 10.0	0	0	0	0	0	1	0	3	2	0	1	0	0	2	0	0	9
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	108	92	24	9	4	10	21	80	100	63	56	31	27	26	21	25	697

Total Number of Valid Hours: 697

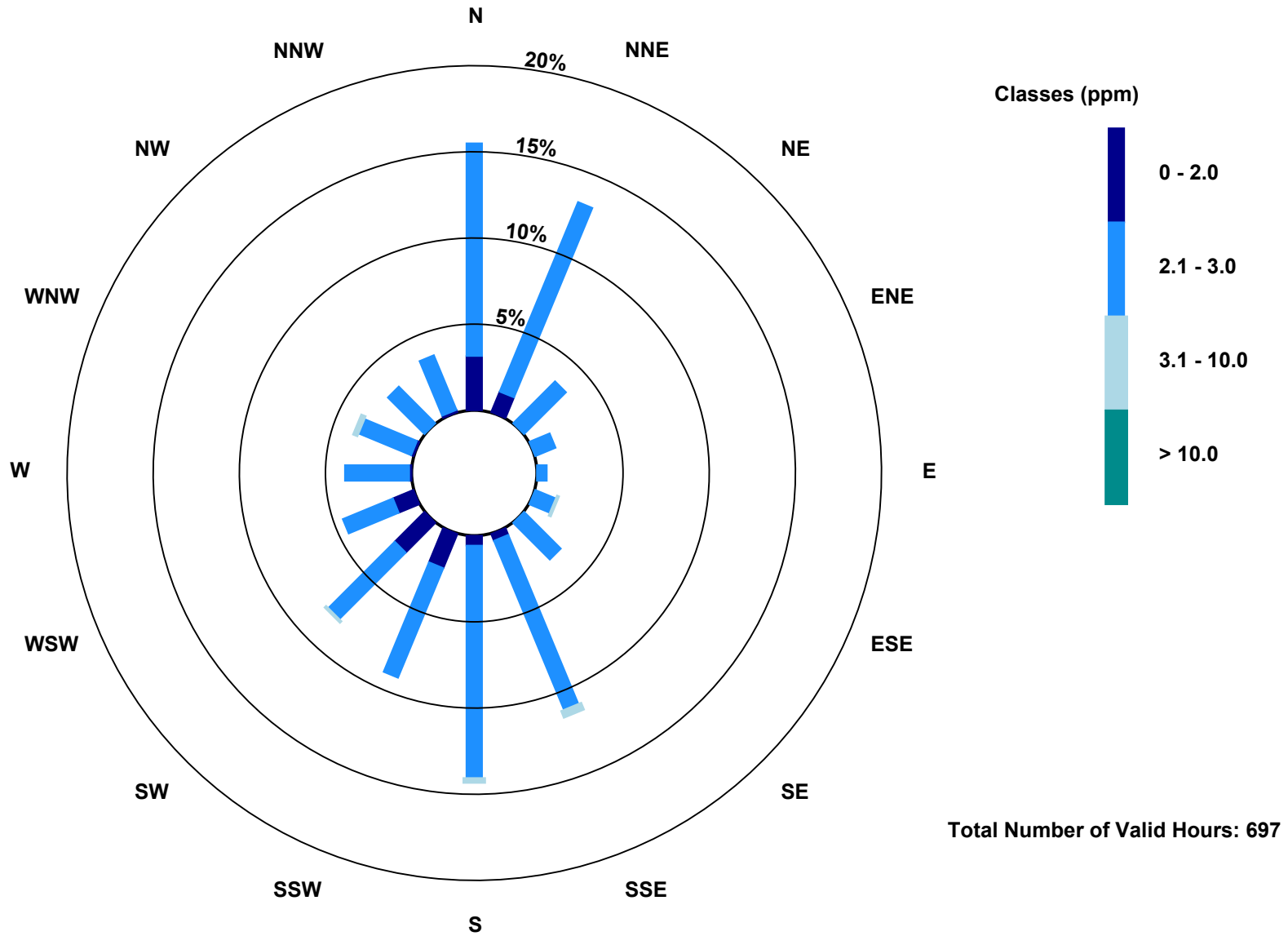
Total Number of Hours: 744

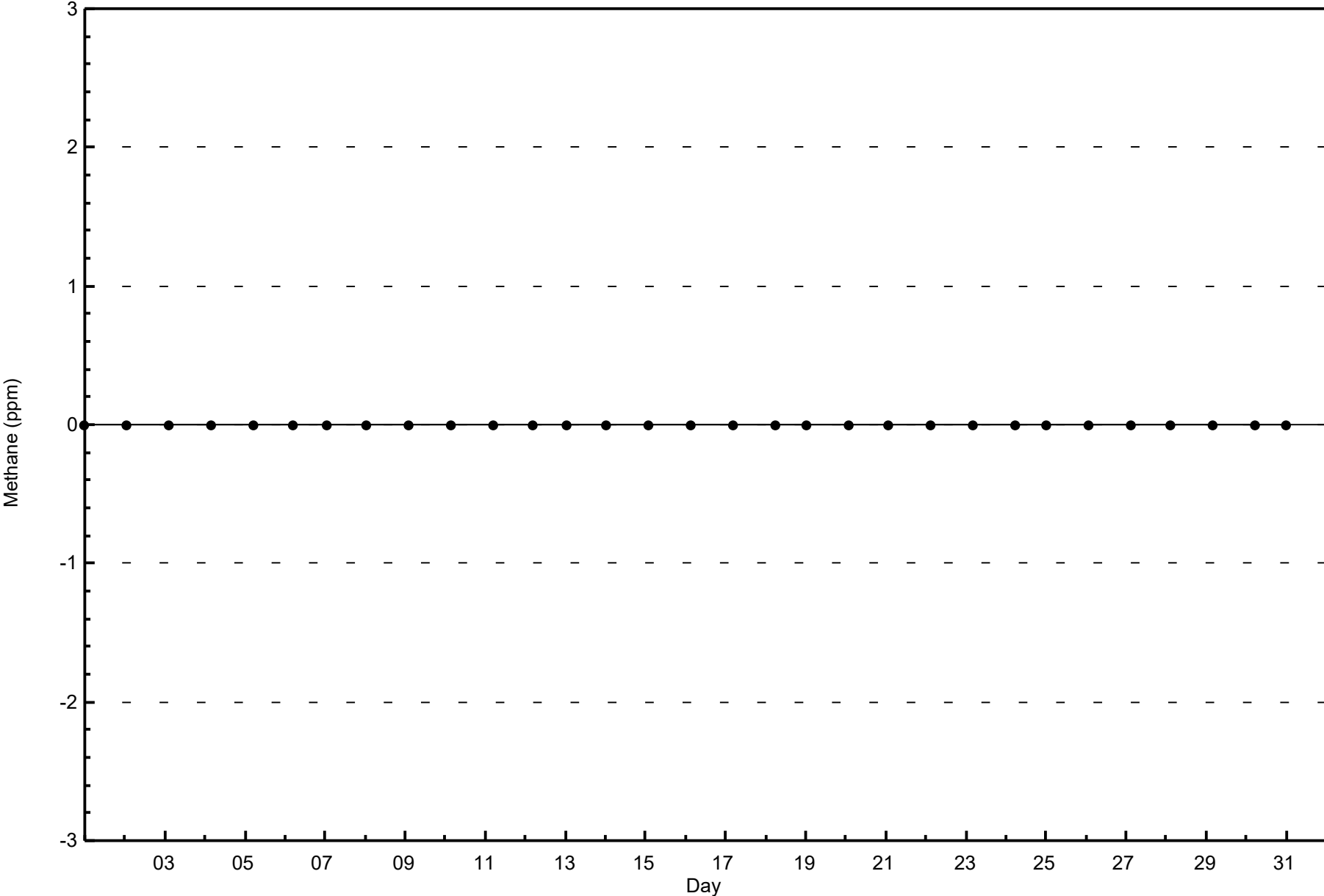




Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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

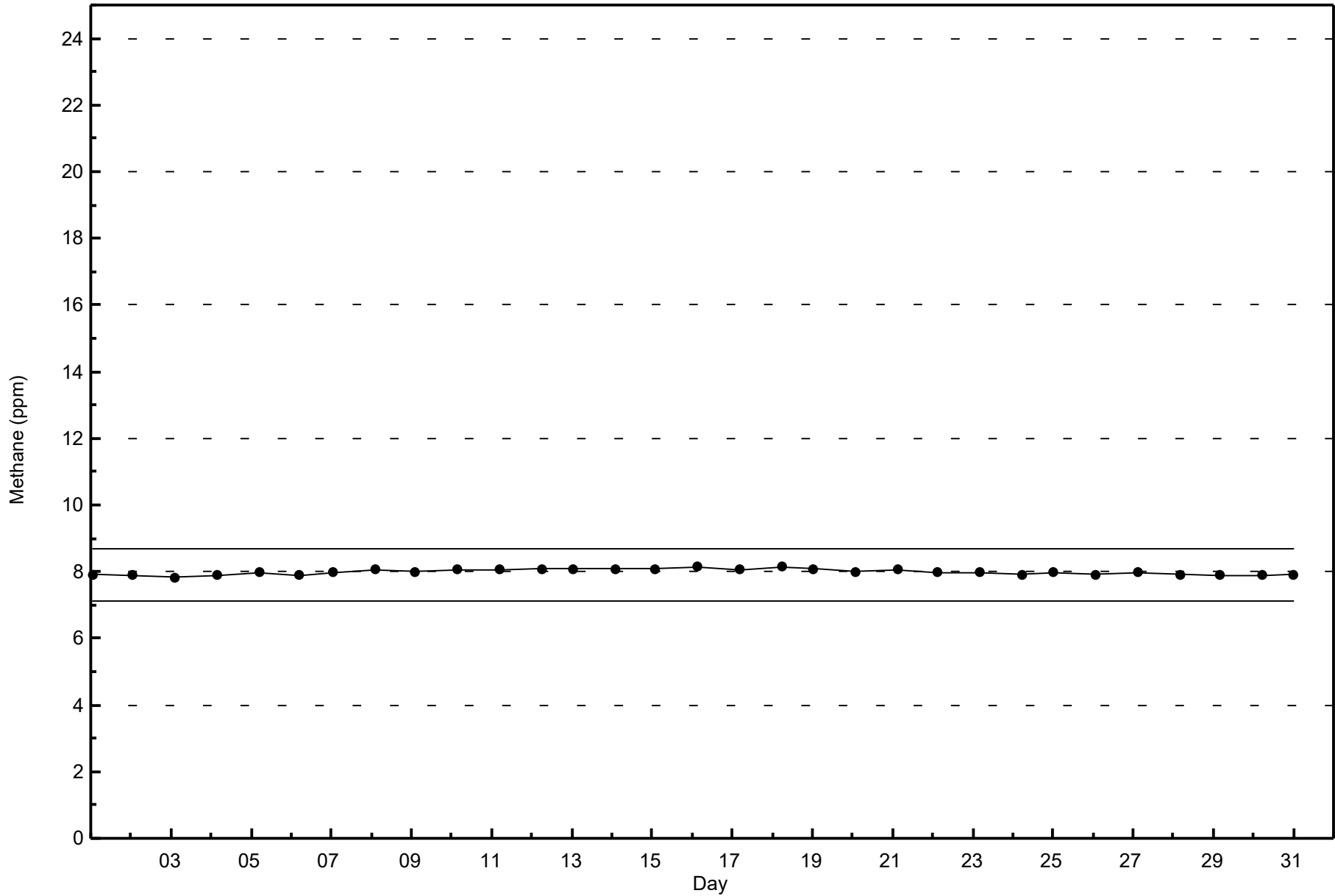






Wood Buffalo Environmental Association  
Span Responses

Methane (CH<sub>4</sub>) - ppm  
Ells River - January 2024





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

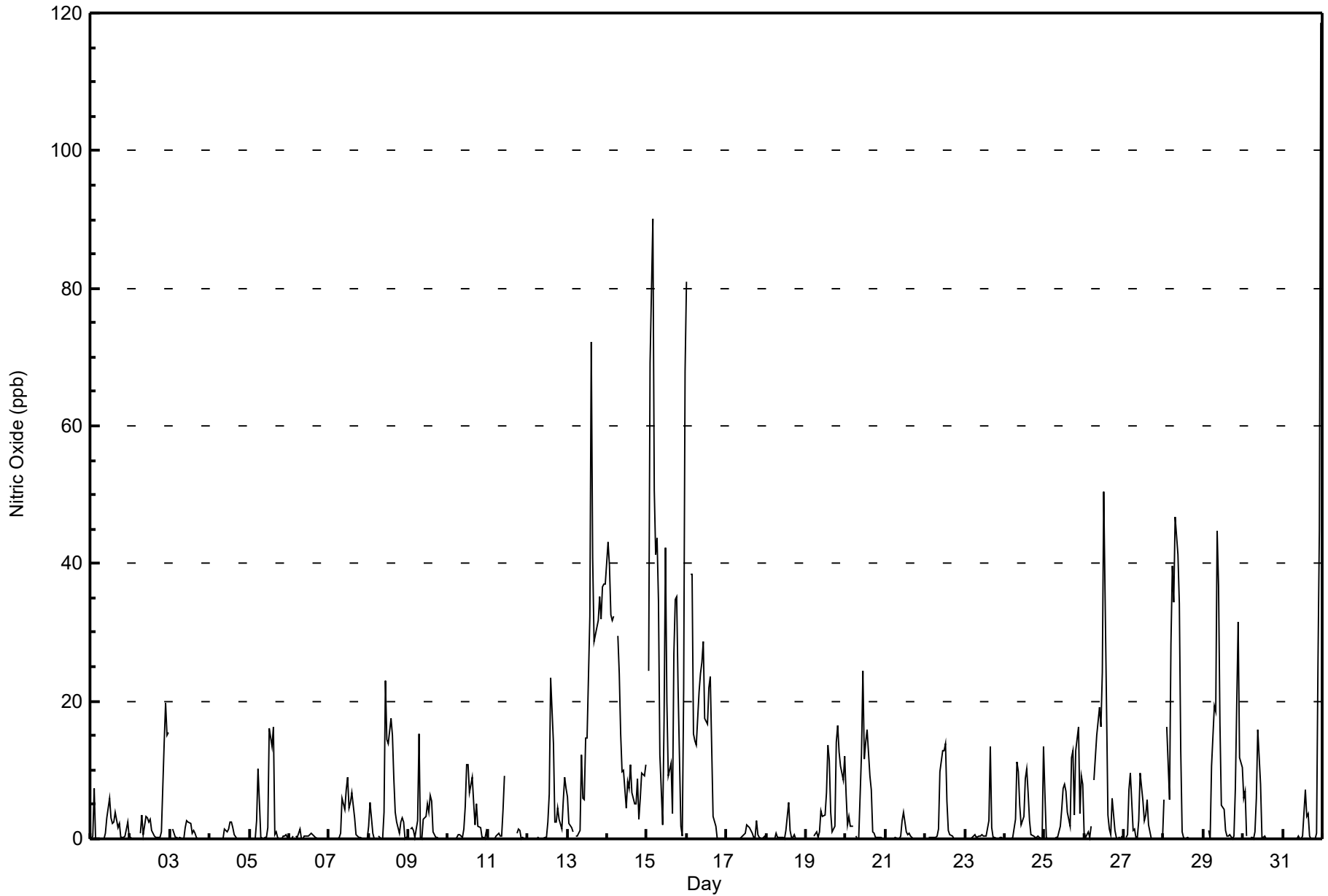
**Nitric Oxide (NO) - ppb**  
**Ells River - January 2024**

Maximum Value: 118.6 ppb on Feb 1 00:00		Maximum Daily Average: 29.7 ppb on Jan 15		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Jan 1 06:00		Minimum Daily Average: 0.3 ppb on Jan 6		Hours of Data: 707																						
Maximum Diurnal Average: 9.8 ppb at hour 24		Minimum Diurnal Average: 3.2 ppb at hour 17		Hours of Missing Data: 37																						
Monthly Average: 5.77 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> = 5.8 P <sub>90</sub> = 16.5 P <sub>99</sub> = 50.2		Hours of Calibration: 37																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	0.1	0.4	7.3	0.1	Z	0.0	0.0	0.0	0.1	0.9	3.1	5.8	3.0	2.3	2.4	4.0	1.7	2.3	0.2	0.2	0.2	0.5	2.4	0.1	1.6	7.3
2-Jan	0.1	0.1	0.0	0.0	0.1	Z	0.9	3.5	0.7	3.3	3.0	2.5	2.8	1.3	0.4	0.3	0.1	0.1	0.2	1.0	14.1	19.8	15.1	15.5	3.7	19.8
3-Jan	Z	1.4	0.8	0.2	0.1	0.1	0.1	0.1	0.1	1.7	2.6	2.4	2.3	0.8	1.2	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.6
4-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	1.1	1.4	2.4	1.7	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	2.4
5-Jan	0.0	0.0	Z	0.1	2.6	10.1	5.3	0.2	0.0	0.3	0.3	1.5	16.1	13.4	16.2	0.6	1.0	0.3	0.1	0.1	0.3	0.4	0.6	0.3	3.0	16.2
6-Jan	0.0	0.0	0.3	Z	0.4	0.2	1.4	0.0	0.1	0.4	0.3	0.4	0.5	0.9	0.5	0.5	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	1.4
7-Jan	0.1	0.0	0.0	0.0	Z	0.0	0.2	0.9	5.8	4.3	7.1	8.9	4.4	5.3	6.8	3.0	0.7	0.5	0.3	0.2	0.0	0.0	0.0	0.1	2.1	8.9
8-Jan	1.8	5.4	0.8	0.0	0.0	Z	0.3	0.1	0.1	3.8	23.1	14.5	13.8	17.5	15.1	8.7	3.8	2.3	0.8	2.4	3.0	2.5	0.1	0.5	5.2	23.1
9-Jan	Z	1.5	1.7	1.2	0.2	2.7	15.3	0.3	0.0	2.9	3.3	5.0	3.9	6.3	5.4	1.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	15.3
10-Jan	0.0	Z	0.0	0.0	0.0	0.1	0.5	0.6	0.2	1.3	4.6	10.8	10.8	6.6	9.0	5.2	2.0	5.1	1.9	1.5	0.2	0.1	0.0	1.0	2.7	10.8
11-Jan	0.0	0.1	Z	0.0	0.1	0.5	0.9	0.3	0.4	4.2	9.1	C	C	C	C	C	C	0.7	1.5	1.2	0.1	0.2	0.1	0.0	--	9.1
12-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.1	0.0	0.1	0.2	0.2	2.5	6.4	23.4	13.8	2.4	2.4	4.5	2.8	1.4	5.5	9.0	7.4	3.6	23.4
13-Jan	6.1	2.3	1.7	1.0	Z	0.3	0.4	1.2	12.2	5.8	5.7	14.7	14.6	32.3	72.1	40.9	28.6	29.7	31.7	35.2	31.9	36.7	37.0	37.0	20.8	72.1
14-Jan	43.0	39.6	32.6	31.7	32.3	Z	29.5	24.1	15.2	9.7	9.9	4.5	8.4	7.4	10.7	6.8	5.0	5.0	8.8	2.9	5.9	9.5	9.1	10.9	15.8	43.0
15-Jan	Z	24.5	69.2	90.2	50.6	41.3	43.8	34.6	12.1	2.1	17.1	42.3	19.9	9.1	11.0	3.8	26.7	34.9	35.2	22.0	1.8	0.4	21.8	67.9	29.7	90.2
16-Jan	81.0	Z	38.5	38.5	15.3	14.2	13.5	21.4	24.1	25.6	28.6	17.5	16.6	22.0	23.6	13.4	3.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	17.3	81.0
17-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.8	2.0	1.9	1.6	0.8	0.1	0.1	2.7	0.6	0.1	0.1	0.2	0.4	0.5	2.7
18-Jan	0.1	0.1	0.0	Z	0.0	0.1	0.8	0.1	0.1	0.2	0.2	0.1	1.2	5.3	1.2	0.3	0.2	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.5	5.3
19-Jan	0.0	0.0	0.0	0.0	Z	0.3	1.1	0.2	1.0	4.0	3.2	3.4	6.7	13.6	11.4	3.9	1.0	1.8	14.0	16.4	12.7	10.7	8.6	11.9	5.5	16.4
20-Jan	6.6	2.1	3.2	1.9	1.8	Z	0.4	0.1	0.0	12.3	24.4	11.6	14.1	15.9	9.2	7.2	1.0	0.8	0.3	0.1	0.1	0.1	0.1	0.0	4.9	24.4
21-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5	2.6	3.9	0.9	0.6	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.9
22-Jan	0.1	Z	0.1	0.2	0.1	0.1	0.2	0.4	1.5	9.8	12.8	12.8	13.8	5.5	1.1	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.6	13.8
23-Jan	0.0	0.0	Z	0.1	0.1	0.4	0.6	0.1	0.4	0.4	0.5	0.4	0.4	0.3	2.6	13.4	1.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.0	13.4
24-Jan	0.1	0.0	0.1	Z	0.1	0.2	2.8	11.3	9.8	4.8	2.0	3.2	8.8	10.2	6.8	2.7	0.7	0.4	0.2	0.1	0.5	0.2	0.0	13.4	3.4	13.4
25-Jan	6.5	0.2	0.0	0.0	Z	0.0	0.0	0.2	0.2	1.8	4.2	7.4	7.9	7.0	4.0	1.8	11.8	12.9	3.4	12.8	16.4	3.7	9.1	7.9	5.2	16.4
26-Jan	0.8	0.1	1.0	0.1	1.7	Z	8.5	15.0	17.1	19.1	16.3	24.3	50.4	19.0	3.5	1.4	0.7	5.8	1.1	0.1	0.1	0.2	0.1	0.4	8.1	50.4
27-Jan	Z	0.1	0.5	7.2	9.6	1.3	1.4	0.2	0.2	2.7	9.5	5.4	2.7	3.5	5.8	2.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	2.3	9.6
28-Jan	5.6	Z	16.2	5.8	28.3	39.6	34.4	46.8	41.3	34.2	12.7	1.0	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	11.6	46.8
29-Jan	0.0	0.0	Z	1.1	0.1	10.5	19.4	18.6	44.8	36.8	16.6	4.9	4.3	1.2	0.4	0.3	0.5	0.0	0.4	7.4	19.7	31.6	11.8	10.3	10.5	44.8
30-Jan	6.0	6.9	0.4	Z	0.3	0.2	0.1	1.0	5.9	15.8	8.0	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	15.8
31-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.3	7.1	3.3	3.6	0.5	0.1	0.0	0.1	0.9	25.3	44.8	118.6	8.9	118.6
																								Diurnal Average		
																								Diurnal Maximum		
																								81.0 39.6 69.2 90.2 50.6 41.3 43.8 46.8 44.8 36.8 28.6 42.3 50.4 32.3 72.1 40.9 28.6 34.9 35.2 35.2 31.9 36.7 44.8 118.6		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association  
Hourly Averages

Nitric Oxide (NO) - ppb  
Ells River - January 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Ells River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	649	91.80	91.80
21 - 40	41	5.80	97.60
41 - 80	14	1.98	99.58
81 - 159	2	0.28	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Ells River - January 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	112	87	25	10	5	5	15	62	91	60	51	31	23	20	21	24	642
21 - 40	0	1	0	0	0	1	3	8	9	1	2	1	3	3	2	2	36
41 - 80	0	0	0	0	0	0	3	4	5	0	1	0	0	1	0	0	14
81 - 159	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	112	88	25	10	5	6	21	74	106	61	54	32	26	25	23	26	694

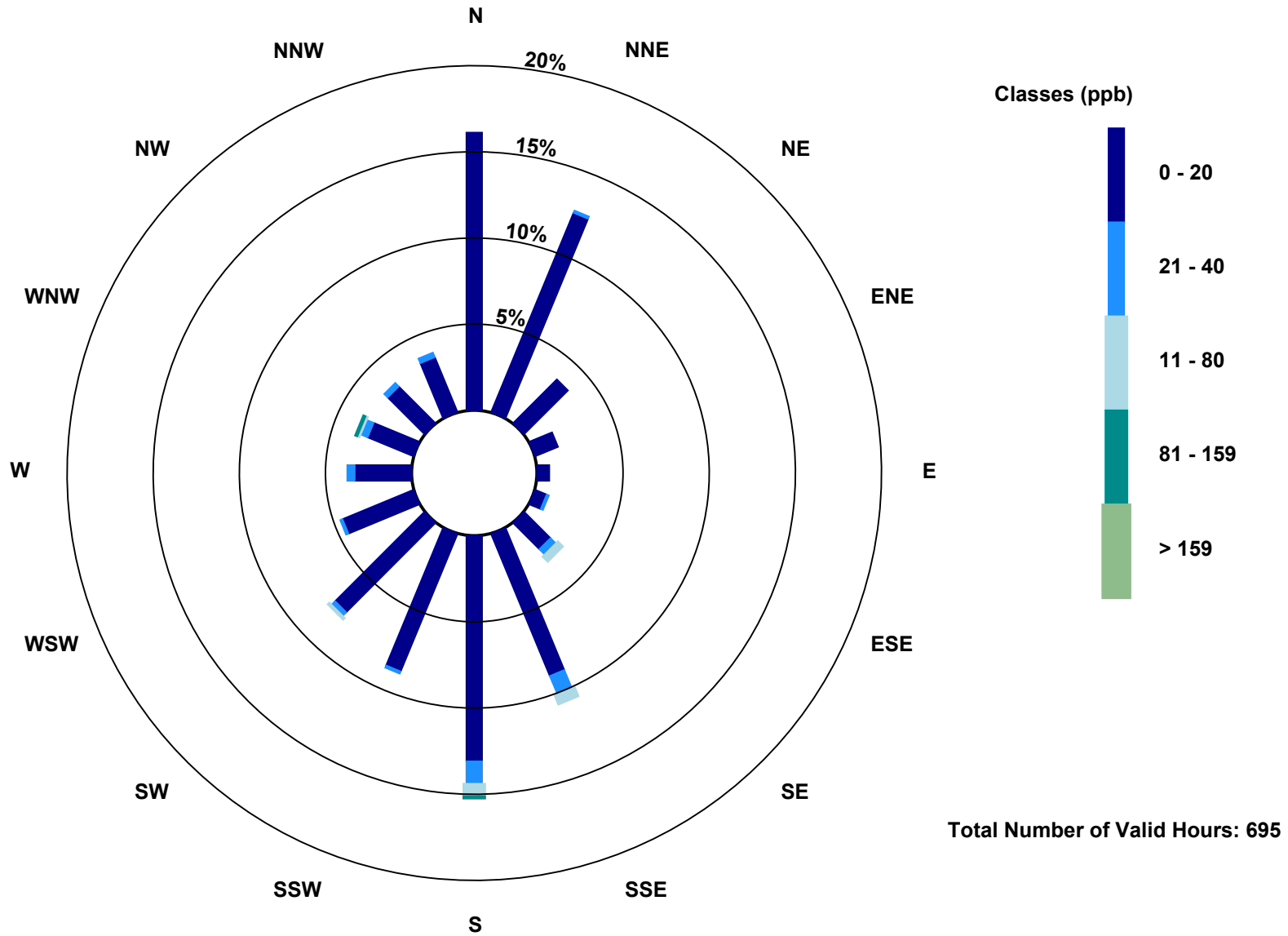
Total Number of Valid Hours: 695

Total Number of Hours: 744

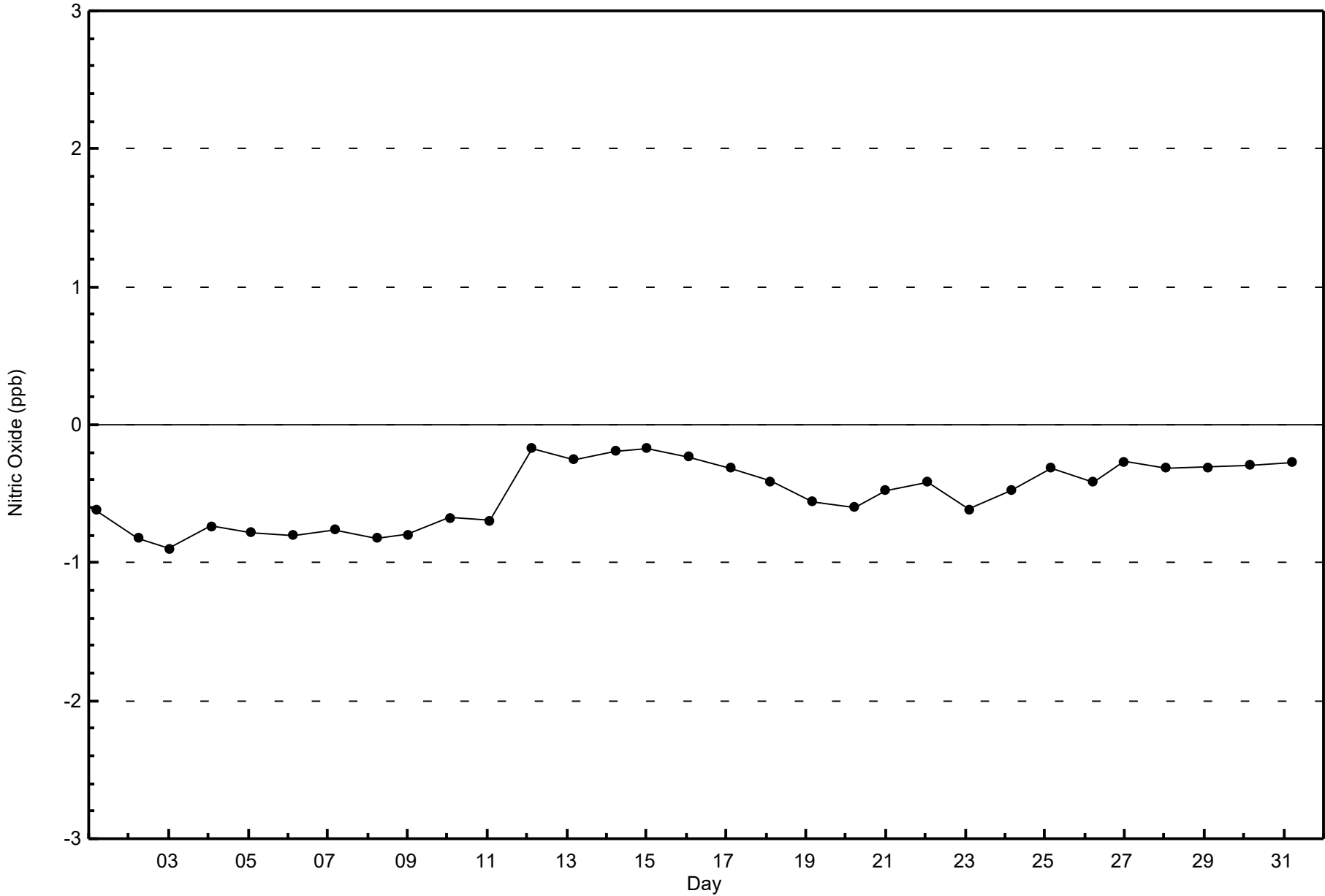


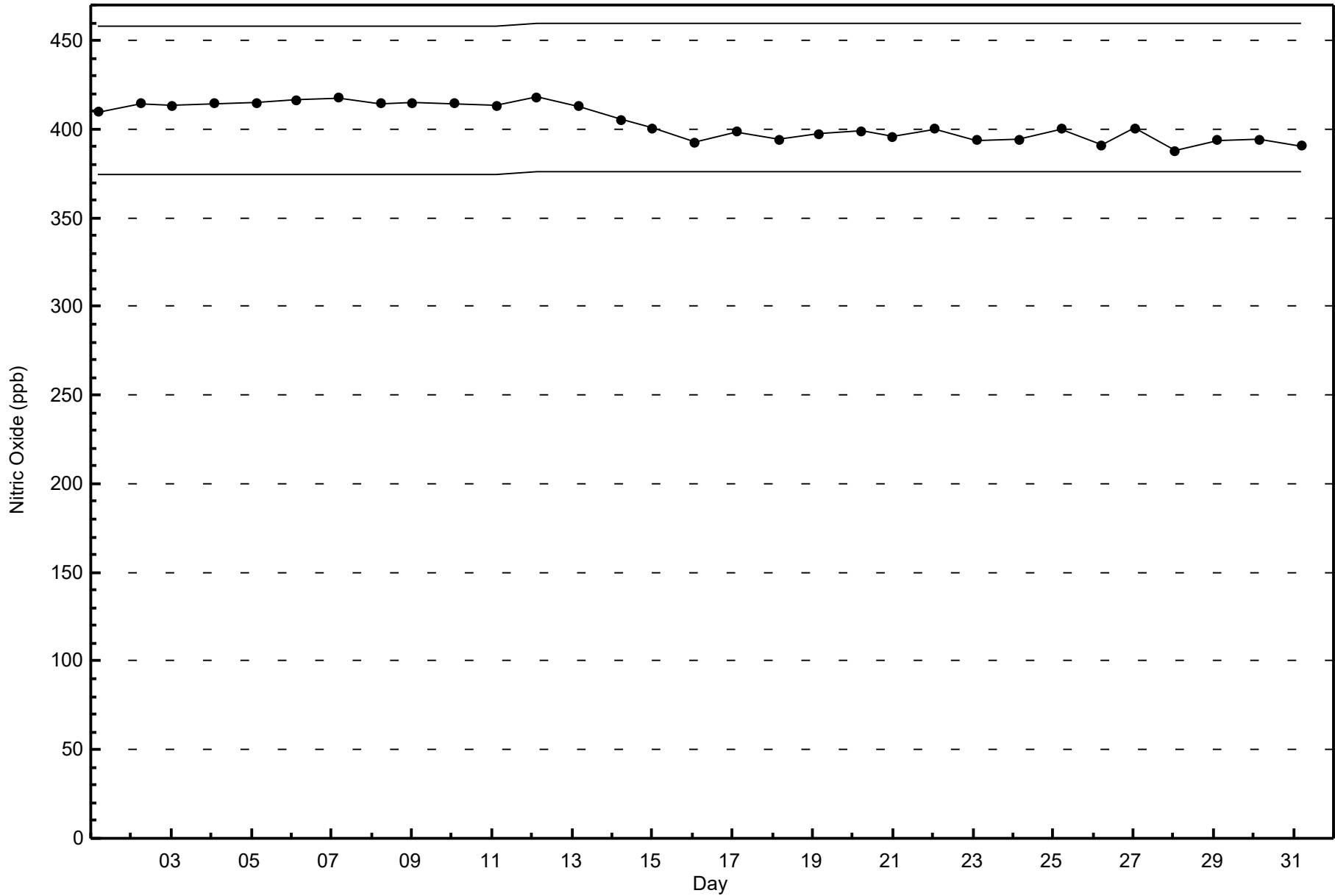
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Ells River







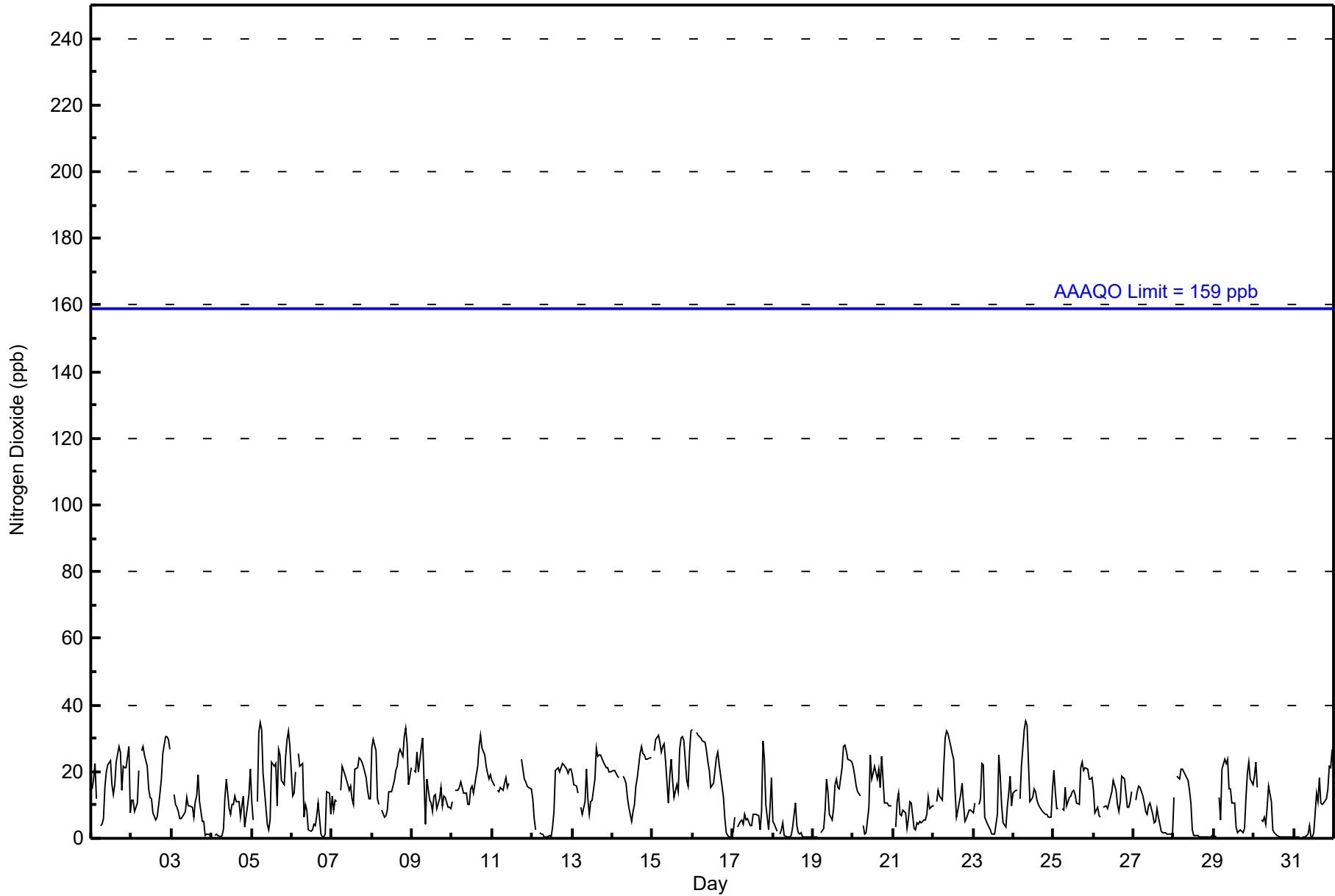




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Ells River - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 35.1 ppb on Jan 24 08:00		Maximum Daily Average: 23.5 ppb on Jan 15																	Hours of Data:	707							
Minimum Value: 0.2 ppb on Jan 19 04:00		Minimum Daily Average: 2.1 ppb on Jan 18																	Hours of Missing Data:	37							
Maximum Diurnal Average: 15.3 ppb at hour 18		Minimum Diurnal Average: 10.0 ppb at hour 12																	Hours of Calibration:	37							
Monthly Average: 13.01 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 6.2 Median = 12.1 Q <sub>3</sub> = 19.8 P <sub>90</sub> = 25.2 P <sub>99</sub> = 32.4																	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-Jan	14.7	17.7	22.5	11.8	Z	4.0	4.4	6.0	15.1	19.9	22.0	23.5	16.1	13.2	16.0	22.9	27.6	25.9	14.6	21.5	21.1	21.3	27.6	7.5	17.3	27.6	
2-Jan	11.4	11.3	8.0	10.7	20.5	Z	26.4	27.4	25.0	21.7	14.8	12.1	11.7	7.7	5.5	6.5	9.6	13.4	18.0	25.3	30.5	30.7	29.5	26.7	17.6	30.7	
3-Jan	Z	13.2	10.1	9.2	7.9	5.8	6.0	7.3	8.1	12.3	9.7	9.7	9.4	6.5	11.0	12.8	19.0	11.2	5.1	5.2	1.0	1.1	1.2	1.0	8.0	19.0	
4-Jan	0.9	Z	0.8	1.2	0.9	0.5	1.0	2.9	12.3	17.6	8.8	7.1	10.1	10.1	12.8	11.1	10.9	6.4	9.7	12.6	3.4	9.7	13.3	20.6	8.0	20.6	
5-Jan	11.0	5.4	Z	11.2	31.9	34.6	32.8	19.5	9.5	4.3	2.6	5.3	22.7	21.5	22.6	9.9	26.6	24.9	17.2	16.3	24.5	29.5	32.0	27.4	19.3	34.6	
6-Jan	12.9	13.5	19.8	Z	25.5	21.5	22.3	6.2	10.2	8.6	2.5	2.0	2.7	4.2	4.0	6.9	10.7	1.1	0.6	0.6	1.1	14.0	13.5	7.2	9.2	25.5	
7-Jan	12.5	8.5	11.5	11.1	Z	14.2	21.6	20.3	18.9	15.9	14.5	15.8	11.7	10.2	20.9	21.0	24.0	23.9	22.8	21.8	18.1	14.3	11.8	11.9	16.4	24.0	
8-Jan	27.0	29.8	26.1	11.7	10.1	Z	8.4	6.3	6.6	8.5	13.9	14.1	13.9	17.2	20.2	21.5	25.5	26.7	24.4	30.3	32.9	28.6	16.1	21.3	19.2	32.9	
9-Jan	Z	20.2	19.8	25.9	20.0	27.2	30.2	17.4	4.1	18.0	11.4	10.4	8.2	12.5	13.3	8.8	11.9	15.4	9.6	12.6	12.3	9.2	9.4	9.0	14.6	30.2	
10-Jan	10.9	Z	14.4	14.6	15.3	16.8	15.4	13.5	13.4	10.2	10.0	15.0	15.8	13.4	19.1	21.6	27.4	30.8	27.0	24.9	21.6	19.6	18.0	18.9	17.7	30.8	
11-Jan	17.2	15.8	Z	14.6	14.0	15.4	14.6	16.7	18.2	15.3	16.5	C	C	C	C	C	C	23.7	20.8	17.7	16.8	15.8	15.4	15.0	--	23.7	
12-Jan	11.8	5.8	2.5	Z	1.5	1.2	1.3	0.6	0.5	0.5	0.7	0.5	3.4	8.2	20.3	21.2	20.0	21.1	22.4	21.9	20.6	19.6	20.8	20.6	10.7	22.4	
13-Jan	18.9	16.0	15.6	13.5	Z	9.2	7.2	11.1	20.7	11.8	7.0	11.0	11.3	17.6	27.0	24.4	24.9	25.1	23.0	22.2	21.1	21.2	19.9	20.1	17.4	27.0	
14-Jan	20.5	20.4	19.3	18.6	18.3	Z	18.6	17.6	16.4	12.1	9.2	5.2	8.0	10.2	15.6	18.3	25.6	27.6	25.6	24.9	23.6	23.8	24.3	24.0	18.6	27.6	
15-Jan	Z	26.1	29.6	30.8	28.9	25.9	27.7	28.3	23.1	10.8	18.6	23.8	17.5	12.4	15.9	13.9	26.9	30.1	30.6	29.2	17.2	15.6	25.8	32.4	23.5	32.4	
16-Jan	32.8	Z	31.8	31.1	30.6	29.9	29.2	28.8	26.3	22.7	20.5	15.4	16.6	20.3	24.2	25.8	22.1	15.7	12.3	5.8	1.8	0.8	0.6	0.6	19.4	32.8	
17-Jan	2.1	6.3	Z	3.4	4.9	5.3	4.4	7.1	5.4	6.1	4.0	3.7	7.0	7.0	7.4	6.7	2.7	8.2	29.1	23.9	10.0	2.5	9.2	18.1	8.0	29.1	
18-Jan	5.2	4.1	2.1	Z	1.2	2.7	4.7	0.9	0.5	0.4	0.5	0.7	3.3	10.8	4.0	1.8	1.1	1.7	0.6	0.3	0.4	0.3	0.3	0.3	2.1	10.8	
19-Jan	0.3	0.4	0.3	0.2	Z	1.8	2.9	8.6	17.8	13.8	7.4	5.4	8.9	16.3	17.8	15.2	14.8	21.3	27.7	28.0	26.2	23.8	23.2	22.9	13.3	28.0	
20-Jan	21.3	18.7	15.7	13.8	12.7	Z	4.0	1.4	1.7	9.2	25.1	17.6	19.3	21.5	18.0	20.8	15.3	24.4	17.8	10.8	10.8	9.8	9.9	9.8	14.3	25.1	
21-Jan	Z	3.6	10.9	13.5	7.2	6.8	8.5	7.7	3.1	6.0	11.2	10.5	3.1	2.4	4.6	4.3	4.9	4.6	5.4	5.7	7.3	12.2	8.9	9.7	7.0	13.5	
22-Jan	9.9	Z	11.1	14.2	12.9	11.6	21.5	29.9	32.2	31.4	27.4	25.5	23.9	14.4	6.5	8.6	13.2	16.7	10.3	5.0	6.1	8.6	8.5	7.9	15.5	32.2	
23-Jan	7.8	10.5	Z	10.0	11.8	22.4	21.9	6.2	4.2	3.3	2.6	1.3	1.3	1.4	7.3	25.2	18.6	9.6	4.6	3.6	9.5	13.6	18.5	9.8	9.8	25.2	
24-Jan	13.4	14.3	14.3	Z	11.9	21.4	32.5	35.1	34.0	22.4	11.2	12.3	14.7	14.1	11.6	10.3	9.2	8.0	7.5	7.0	7.0	6.4	6.4	14.9	14.8	35.1	
25-Jan	20.4	13.9	9.1	8.8	Z	8.7	8.6	15.1	9.9	12.4	12.5	13.8	14.4	13.2	10.4	10.3	21.3	22.7	20.5	21.0	20.6	17.9	18.0	18.2	14.9	22.7	
26-Jan	14.2	7.7	9.3	6.6	6.4	Z	9.4	9.6	8.9	10.5	12.2	13.9	17.2	14.2	10.1	8.0	11.0	18.8	17.7	13.4	9.4	9.3	11.2	14.1	11.4	18.8	
27-Jan	Z	11.3	13.9	15.5	15.2	12.5	10.6	8.2	7.3	9.7	10.7	7.3	4.5	5.0	8.9	6.4	2.1	1.8	1.5	1.5	1.4	1.3	1.3	1.4	6.9	15.5	
28-Jan	12.3	Z	18.8	18.0	20.9	20.7	19.9	18.9	17.2	14.2	10.5	2.4	0.8	0.7	0.8	0.6	0.6	0.6	0.6	0.5	0.4	0.5	0.6	0.7	7.9	20.9	
29-Jan	0.7	0.5	Z	12.2	5.4	20.7	23.6	22.6	23.9	15.0	14.9	10.8	10.6	3.4	1.5	2.1	2.5	1.9	3.1	12.3	19.4	22.9	17.9	16.0	11.5	23.9	
30-Jan	18.7	23.0	15.2	Z	5.7	4.9	6.2	4.3	9.4	15.6	11.2	2.4	1.9	1.2	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	5.4	23.0	
31-Jan	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	1.1	4.0	0.5	0.6	1.5	13.7	11.0	18.3	10.5	10.3	10.5	11.7	14.7	21.5	21.1	26.9	7.8	26.9	
		12.7	12.2	13.6	12.8	13.7	13.3	14.4	13.1	13.1	12.4	11.1	10.0	10.4	10.8	12.3	12.9	14.7	15.3	14.2	14.1	13.3	13.7	14.0	14.0	Diurnal Average	
		32.8	29.8	31.8	31.1	31.9	34.6	32.8	35.1	34.0	31.4	27.4	25.5	23.9	21.5	27.0	25.8	27.6	30.8	30.6	30.3	32.9	30.7	32.0	32.4	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  
Ells River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	544	76.94	76.94
21 - 40	163	23.06	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Ells River - January 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	78	13	6	4	5	17	55	75	54	48	26	18	19	16	14	538
21 - 40	22	10	12	4	1	1	4	20	31	7	6	6	8	6	7	12	157
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>	112	88	25	10	5	6	21	75	106	61	54	32	26	25	23	26	695

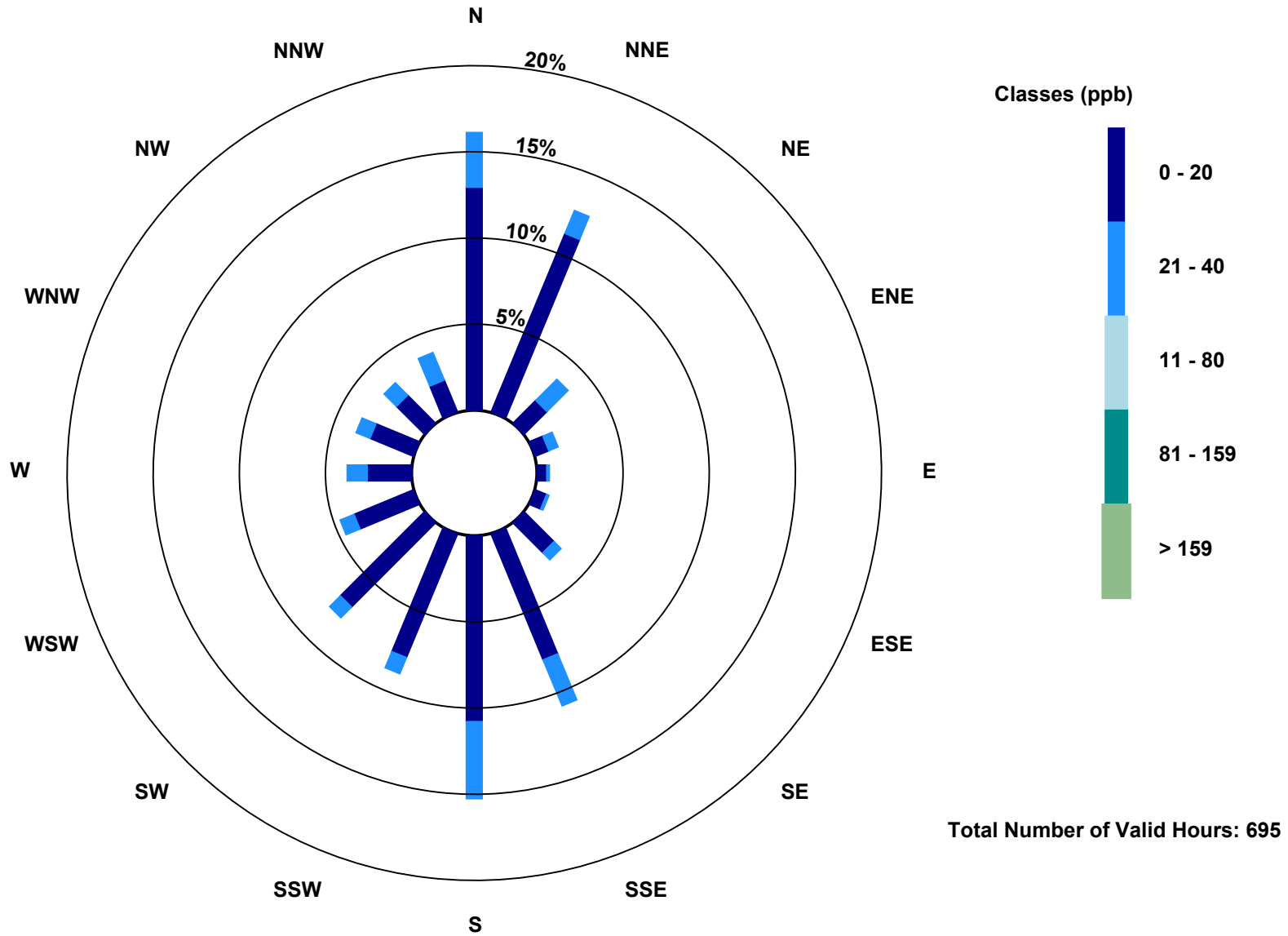
Total Number of Valid Hours: 695

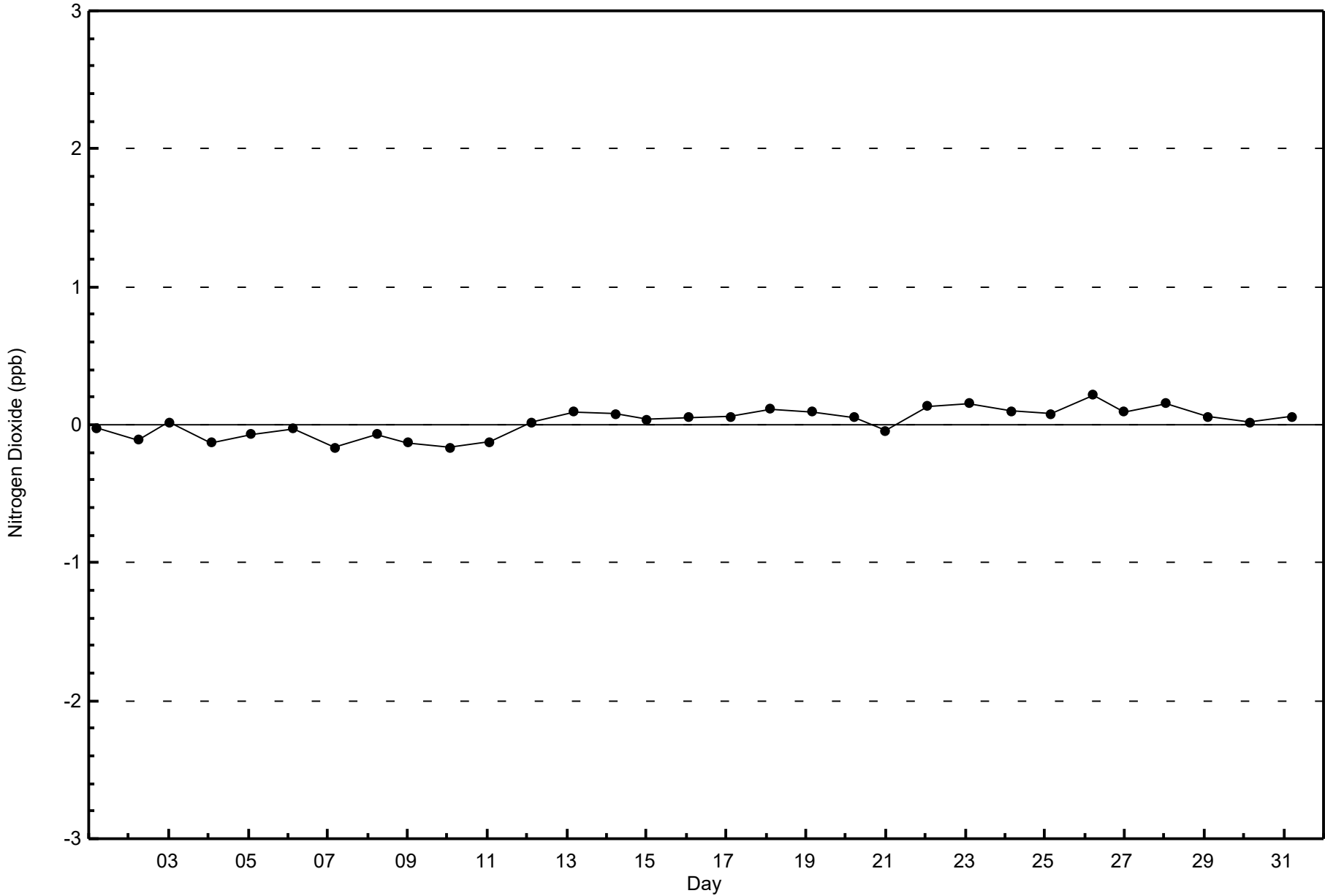
Total Number of Hours: 744



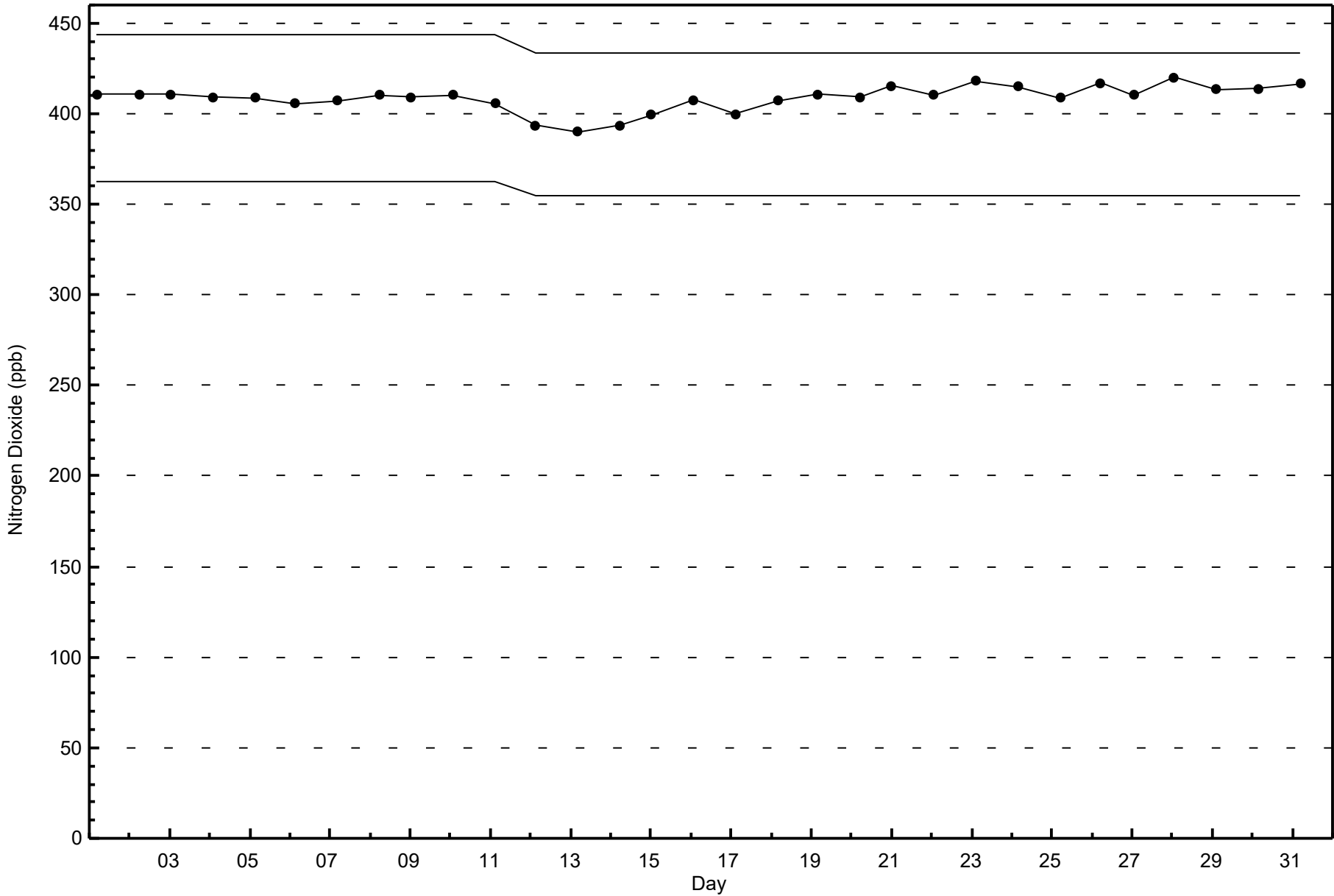
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

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











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

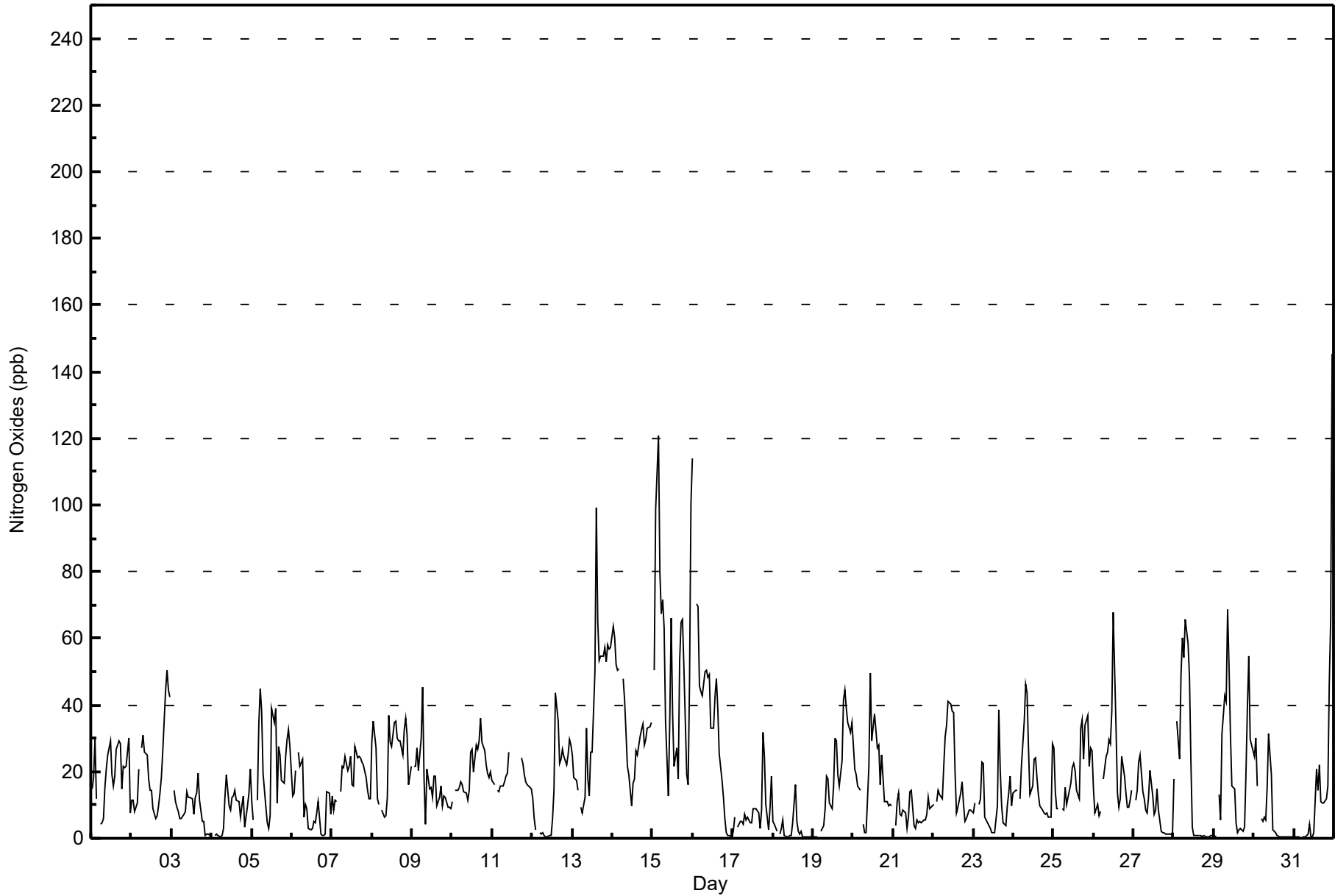
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - January 2024**

Maximum Value: 145.5 ppb on Feb 1 00:00      Maximum Daily Average: 53.2 ppb on Jan 15																						Hours in Service:	744			
Minimum Value: 0.2 ppb on Jan 19 04:00      Minimum Daily Average: 2.5 ppb on Jan 18																						Hours of Data:	707			
Maximum Diurnal Average: 23.9 ppb at hour 24      Minimum Diurnal Average: 15.5 ppb at hour 2																						Hours of Missing Data:	37			
Monthly Average: 18.78 ppb      Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 6.5 Median = 14.4 Q <sub>3</sub> = 26.1 P <sub>90</sub> = 41.2 P <sub>99</sub> = 71.4																						Hours of Calibration:	37			
																						Percent Operational Time:	100.0			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	14.8	18.1	29.8	11.9	Z	4.0	4.4	6.0	15.2	20.8	25.1	29.3	19.1	15.5	18.4	26.9	29.3	28.2	14.8	21.7	21.3	21.8	30.0	7.6	18.9	30.0
2-Jan	11.5	11.4	8.0	10.7	20.6	Z	27.3	30.9	25.7	25.0	17.8	14.6	14.5	9.0	5.9	6.8	9.7	13.5	18.2	26.3	44.6	50.5	44.6	42.2	21.3	50.5
3-Jan	Z	14.6	10.9	9.4	8.0	5.9	6.1	7.4	8.2	14.0	12.3	12.1	11.7	7.3	12.2	13.5	19.3	11.2	5.1	5.2	1.0	1.1	1.2	1.0	8.6	19.3
4-Jan	0.9	Z	0.8	1.2	0.9	0.5	1.0	2.9	12.4	19.0	9.9	8.5	12.5	14.5	11.6	11.0	6.4	9.7	12.6	3.4	9.7	13.3	20.7	8.5	20.7	
5-Jan	11.0	5.4	Z	11.3	34.5	44.7	38.1	19.7	9.5	4.6	2.9	6.8	38.8	34.9	38.8	10.5	27.6	25.2	17.3	16.4	24.8	29.9	32.6	27.7	22.3	44.7
6-Jan	12.9	13.5	20.1	Z	25.9	21.7	23.7	6.2	10.3	9.0	2.8	2.4	3.2	5.1	4.5	7.4	10.8	1.1	0.6	0.6	1.2	14.1	13.6	7.3	9.5	25.9
7-Jan	12.6	8.5	11.5	11.1	Z	14.2	21.8	21.2	24.7	20.2	21.6	24.7	16.1	15.5	27.7	24.0	24.7	24.4	23.1	22.0	18.1	14.3	11.8	12.0	18.5	27.7
8-Jan	28.8	35.2	26.9	11.7	10.1	Z	8.7	6.4	6.7	12.3	37.0	28.6	27.7	34.7	35.3	30.2	29.3	29.0	25.2	32.7	35.9	31.1	16.2	21.8	24.4	37.0
9-Jan	Z	21.7	21.5	27.1	20.2	29.9	45.5	17.7	4.1	20.9	14.7	15.4	12.1	18.8	18.7	9.8	12.1	15.6	9.6	12.6	12.3	9.2	9.4	9.0	16.9	45.5
10-Jan	10.9	Z	14.4	14.6	15.3	16.9	15.9	14.1	13.6	11.5	14.6	25.8	26.6	20.0	28.1	26.8	29.4	35.9	28.9	26.4	21.8	19.7	18.0	19.9	20.4	35.9
11-Jan	17.2	15.9	Z	14.6	14.1	15.9	15.5	17.0	18.6	19.5	25.6	C	C	C	C	C	C	24.4	22.3	18.9	16.9	16.0	15.5	15.0	--	25.6
12-Jan	11.8	5.8	2.5	Z	1.5	1.2	1.6	0.7	0.5	0.6	0.9	0.7	5.9	14.6	43.7	35.0	22.4	23.5	26.9	24.7	22.0	25.1	29.8	28.0	14.3	43.7
13-Jan	25.0	18.3	17.3	14.5	Z	9.5	7.6	12.3	32.9	17.6	12.7	25.7	25.9	49.9	99.1	65.3	53.5	54.8	54.7	57.4	53.0	57.9	56.9	57.1	38.2	99.1
14-Jan	63.5	60.0	51.9	50.3	50.6	Z	48.1	41.7	31.6	21.8	19.1	9.7	16.4	17.6	26.3	25.1	30.6	32.6	34.4	27.8	29.5	33.3	33.4	34.9	34.4	63.5
15-Jan	Z	50.6	98.8	121.0	79.5	67.2	71.5	62.9	35.2	12.9	35.7	66.1	37.4	21.5	26.9	17.7	53.6	65.0	65.8	51.2	19.0	16.0	47.6	100.3	53.2	121.0
16-Jan	113.8	Z	70.3	69.6	45.9	44.1	42.7	50.2	50.4	48.3	49.1	32.9	33.2	42.3	47.8	39.2	25.3	17.5	12.3	5.8	1.8	0.8	0.6	0.6	36.7	113.8
17-Jan	2.1	6.3	Z	3.4	4.9	5.3	4.4	7.1	5.4	6.4	4.6	4.5	9.0	8.9	9.0	7.5	2.8	8.3	31.8	24.5	10.1	2.6	9.4	18.5	8.6	31.8
18-Jan	5.3	4.2	2.1	Z	1.2	2.8	5.5	1.0	0.6	0.6	0.7	0.8	4.5	16.1	5.2	2.1	1.3	2.3	0.6	0.3	0.5	0.3	0.3	0.3	2.5	16.1
19-Jan	0.3	0.4	0.3	0.2	Z	2.1	4.0	8.8	18.8	17.8	10.6	8.8	15.6	29.9	29.2	19.1	15.8	23.1	41.7	44.4	38.9	34.5	31.8	34.8	18.7	44.4
20-Jan	27.9	20.8	18.9	15.7	14.5	Z	4.4	1.5	1.7	21.5	49.5	29.2	33.4	37.4	27.2	28.0	16.3	25.2	18.1	10.9	10.9	9.9	10.0	9.8	19.2	49.5
21-Jan	Z	3.6	10.9	13.5	7.2	6.8	8.6	7.7	3.1	6.5	13.8	14.4	4.0	3.0	5.4	4.7	5.1	4.6	5.4	5.7	7.3	12.2	8.9	9.7	7.5	14.4
22-Jan	10.0	Z	11.2	14.4	13.0	11.7	21.7	30.3	33.7	41.2	40.2	38.3	37.7	19.9	7.6	9.3	13.6	16.8	10.3	5.0	6.1	8.6	8.5	7.9	18.1	41.2
23-Jan	7.8	10.5	Z	10.2	11.9	22.8	22.5	6.3	4.6	3.7	3.1	1.7	1.7	9.9	38.6	20.2	9.8	4.7	3.7	9.6	13.7	18.6	9.9	10.7	38.6	
24-Jan	13.5	14.3	14.4	Z	12.0	21.6	35.3	46.4	43.8	27.2	13.2	15.5	23.5	24.3	18.4	13.0	9.9	8.4	7.7	7.1	7.5	6.6	6.4	28.3	18.2	46.4
25-Jan	26.9	14.1	9.1	8.8	Z	8.7	8.6	15.3	10.1	14.2	16.7	21.2	23.2	20.2	14.4	12.1	33.1	35.6	23.9	33.8	37.0	21.6	27.1	26.1	20.0	37.0
26-Jan	15.0	7.8	10.3	6.7	8.1	Z	17.9	24.6	26.0	29.6	28.5	38.2	67.6	33.2	13.6	9.4	11.7	24.6	18.8	13.5	9.5	9.5	11.3	14.5	19.6	67.6
27-Jan	Z	11.4	14.4	22.7	24.8	13.8	12.0	8.4	7.5	12.4	20.2	12.7	7.2	8.5	14.7	8.4	2.2	1.8	1.6	1.5	1.5	1.3	1.3	1.5	9.2	24.8
28-Jan	17.9	Z	35.0	23.8	49.2	60.3	54.3	65.7	58.5	48.4	23.2	3.4	1.0	0.8	0.9	0.7	0.7	0.6	0.7	0.6	0.5	0.6	0.7	0.7	19.5	65.7
29-Jan	0.7	0.5	Z	13.3	5.5	31.2	43.0	41.2	68.7	51.8	31.5	15.7	14.9	4.6	1.9	2.4	3.0	1.9	3.5	19.7	39.1	54.5	29.7	26.3	21.9	68.7
30-Jan	24.7	29.9	15.6	Z	6.0	5.1	6.3	5.3	15.3	31.4	19.2	2.6	2.0	1.5	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	7.3	31.4
31-Jan	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	1.1	4.3	0.6	0.6	1.8	20.8	14.3	21.9	11.0	10.4	10.5	11.8	15.6	46.8	65.9	145.5	16.7	145.5
																								Diurnal Average		
																								Diurnal Maximum		
18.7 15.5 20.3 19.7 19.4 18.0 20.3 18.9 19.3 19.2 18.6 17.0 18.2 18.3 20.7 17.6 17.9 18.8 17.7 17.6 16.8 18.5 19.5 23.9																								Diurnal Average		
113.8 60.0 98.8 121.0 79.5 67.2 71.5 65.7 68.7 51.8 49.5 66.1 67.6 49.9 99.1 65.3 53.6 65.0 65.8 57.4 53.0 57.9 65.9 145.5																								Diurnal Maximum		
Z - zerospan      C - Calibration																										



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - January 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	459	64.92	64.92
21 - 40	176	24.89	89.82
41 - 80	66	9.34	99.15
81 - 159	6	0.85	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Ells River - January 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	82	76	13	5	3	4	9	41	54	47	42	26	16	15	13	11	457
21 - 40	29	9	12	5	2	1	6	19	36	13	9	3	5	6	5	11	171
11 - 80	1	3	0	0	0	1	5	13	14	1	3	3	5	3	5	4	61
81 - 159	0	0	0	0	0	0	1	2	2	0	0	0	0	1	0	0	6
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	112	88	25	10	5	6	21	75	106	61	54	32	26	25	23	26	695

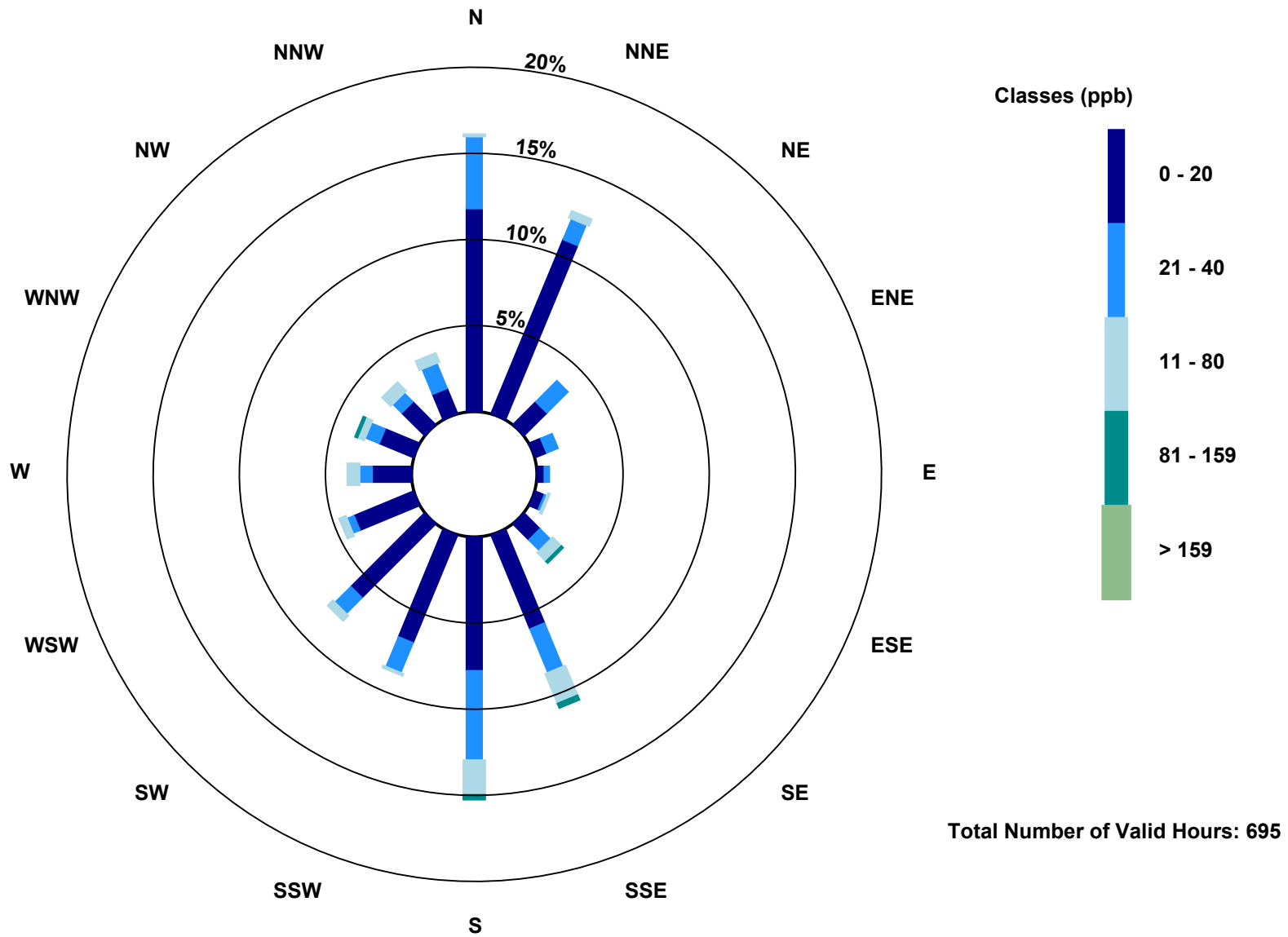
Total Number of Valid Hours: 695

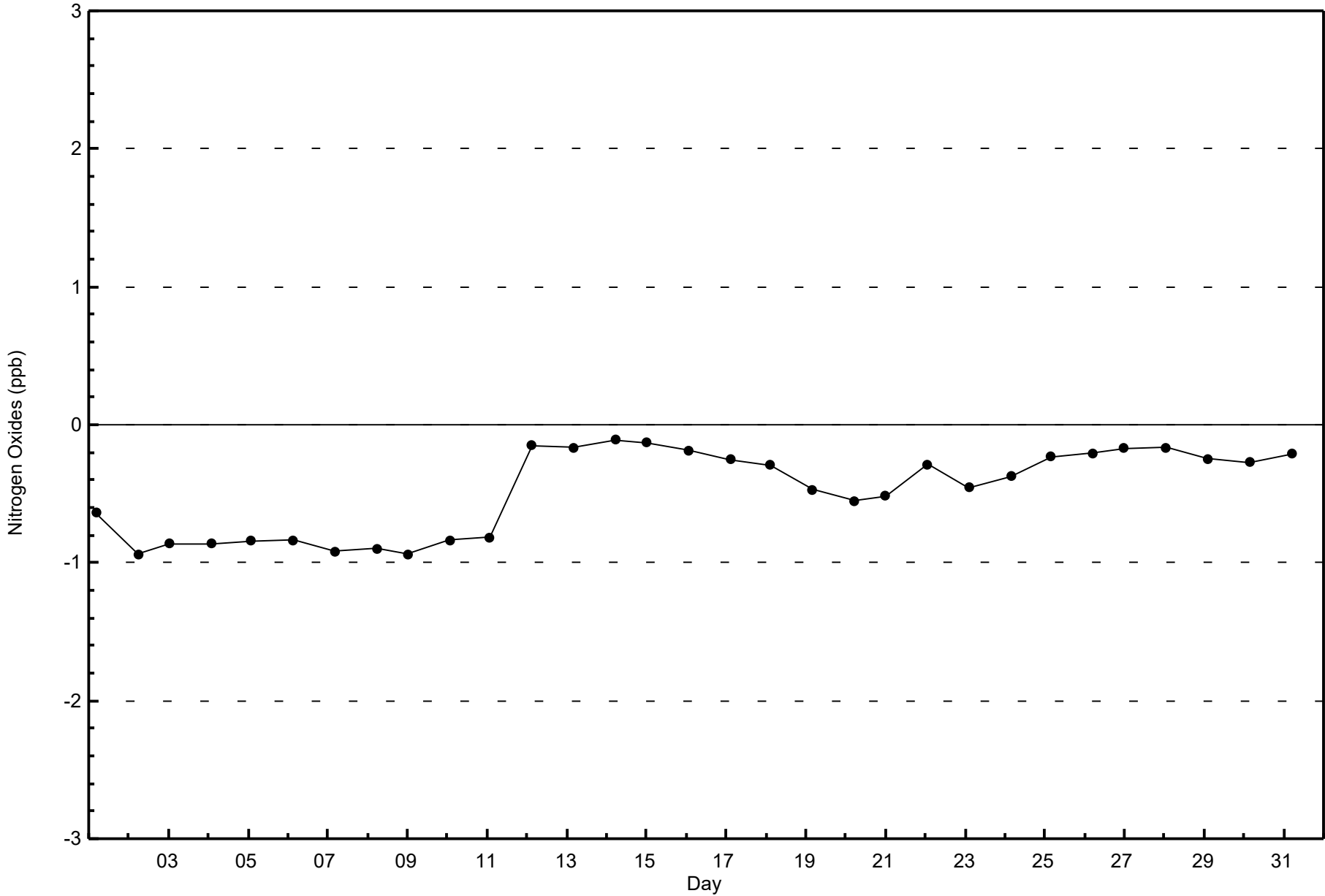
Total Number of Hours: 744

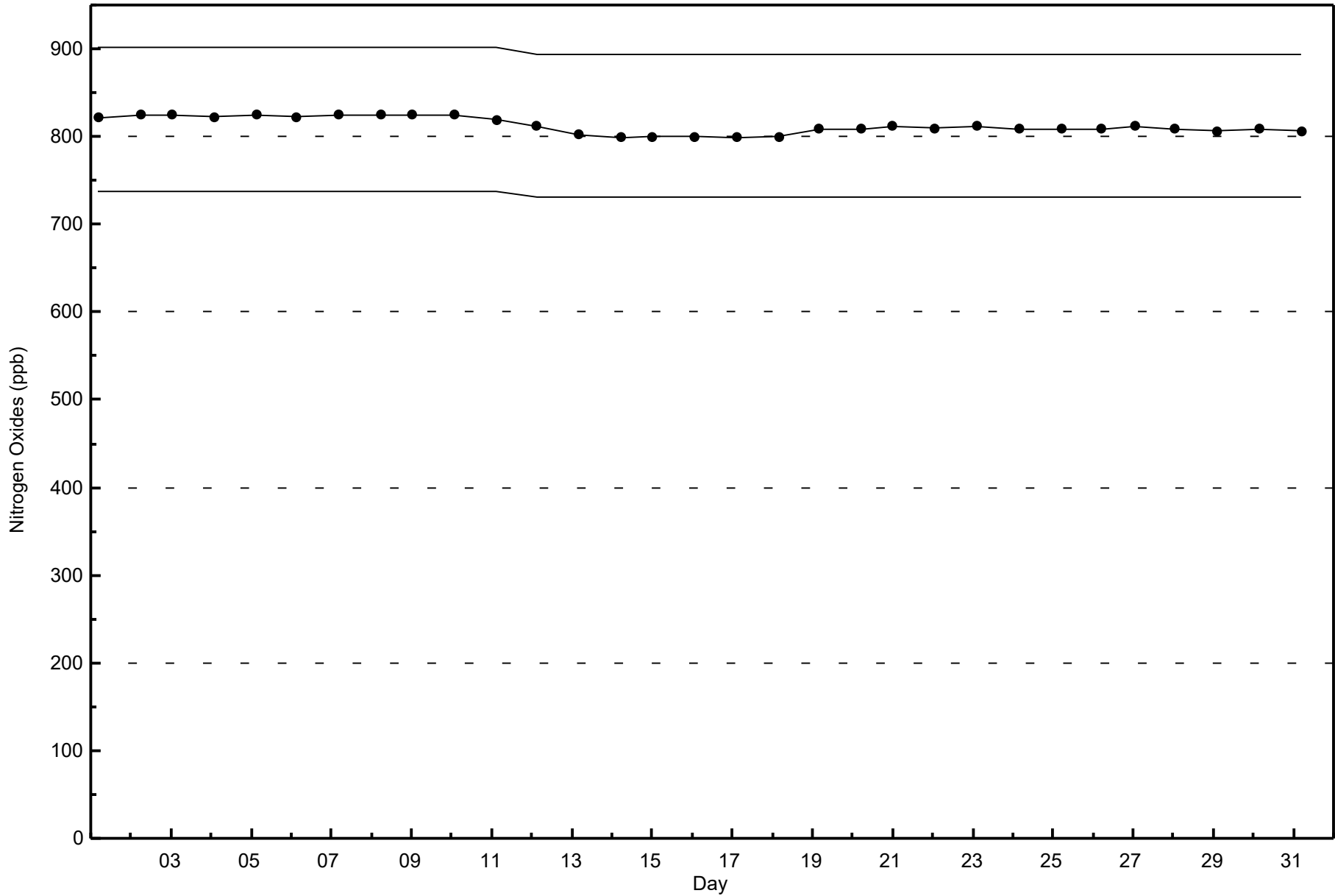


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Ells River











Summary of Hour Averages

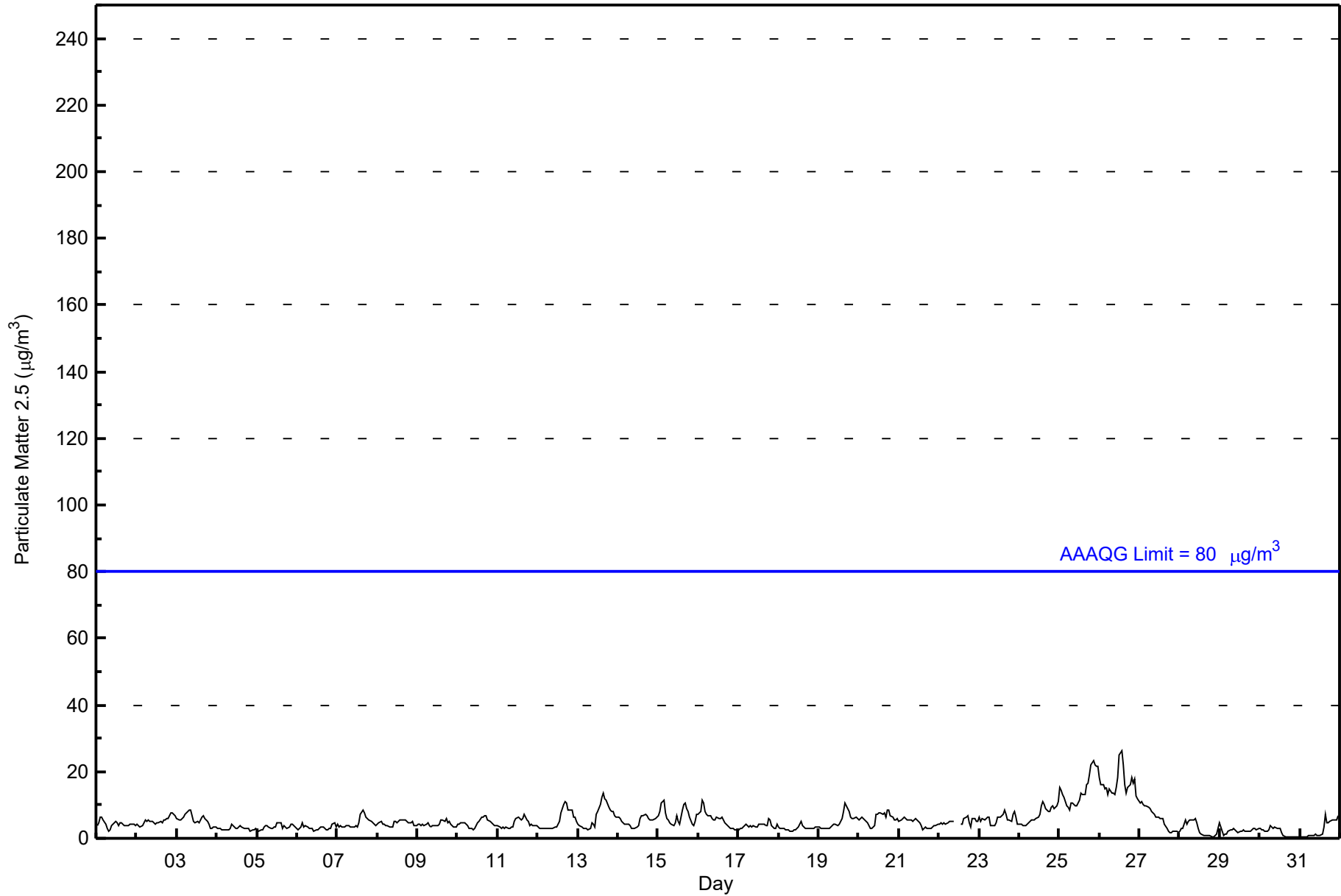
Ells River - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 26.4 µg/m <sup>3</sup> on Jan 26 14:00	Maximum Daily Average: 16.4 µg/m <sup>3</sup> on Jan 26		Hours of Data:	741
Minimum Value: 0.3 µg/m <sup>3</sup> on Jan 31 01:00	Minimum Daily Average: 1.8 µg/m <sup>3</sup> on Jan 30		Hours of Missing Data:	3
Maximum Diurnal Average: 6.4 µg/m <sup>3</sup> at hour 16	Minimum Diurnal Average: 4.5 µg/m <sup>3</sup> at hour 10		Hours of Calibration:	3
Monthly Average: 5.27 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 2.4 Q <sub>1</sub> = 3.2 Median = 4.4 Q <sub>3</sub> = 6.1 P <sub>90</sub> = 9.1 P <sub>99</sub> = 20.5		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-Jan	3.7	4.6	6.2	6.2	5.3	4.1	2.8	2.0	2.7	3.8	4.0	4.9	4.6	4.0	4.6	4.7	3.8	3.7	3.6	3.9	4.1	4.2	4.4	3.8	4.2	6.2																						
2-Jan	4.3	4.0	3.4	3.8	4.5	5.5	5.3	5.7	5.2	5.2	4.8	4.4	4.8	4.6	4.9	4.8	5.5	5.4	6.0	6.1	7.6	7.7	7.1	6.8	5.3	7.7																						
3-Jan	5.8	5.6	5.7	5.8	6.2	7.3	7.8	8.3	8.5	6.7	5.1	4.6	5.2	4.8	5.7	6.5	6.9	5.8	4.9	4.2	3.0	3.1	3.4	3.2	5.6	8.5																						
4-Jan	3.0	3.0	2.9	2.7	2.7	2.6	2.6	2.6	3.0	4.1	3.4	2.9	3.2	3.4	3.6	3.2	3.1	2.8	3.0	2.9	2.1	2.4	2.7	3.0	3.0	4.1																						
5-Jan	2.5	2.1	2.5	2.6	3.2	3.7	4.0	3.6	3.2	3.0	3.2	3.3	4.5	4.6	4.5	3.1	3.7	3.5	3.2	3.4	4.2	4.4	3.9	3.3	3.5	4.6																						
6-Jan	2.7	2.8	3.4	4.5	3.6	3.6	3.5	2.8	2.8	2.8	2.2	2.4	2.6	3.1	3.2	3.4	3.4	2.5	2.5	2.8	2.8	4.4	4.5	3.3	3.2	4.5																						
7-Jan	4.2	3.6	3.7	3.6	3.6	3.7	4.0	3.9	3.4	3.3	3.3	3.6	3.4	4.7	7.2	8.6	7.5	6.4	5.9	5.3	5.0	4.5	4.2	3.8	4.6	8.6																						
8-Jan	4.4	4.8	5.0	4.3	4.2	3.6	3.7	3.6	3.3	3.6	5.0	4.9	4.7	5.3	5.5	5.6	5.5	5.4	4.5	4.5	4.5	4.9	3.9	4.0	4.5	5.6																						
9-Jan	4.3	4.2	3.8	4.1	3.8	4.2	4.5	3.8	3.2	3.9	3.7	3.8	3.9	4.2	5.6	5.5	5.2	5.9	4.6	5.0	4.2	3.5	3.3	3.4	4.2	5.9																						
10-Jan	4.1	4.2	4.5	4.5	4.5	4.1	3.8	3.2	3.0	2.7	2.8	3.7	4.6	5.1	6.2	6.5	6.8	6.8	5.7	5.2	4.6	4.4	3.8	3.9	4.5	6.8																						
11-Jan	3.7	3.3	3.2	3.3	3.1	3.3	3.2	3.1	3.3	3.3	4.9	5.7	6.2	5.9	5.6	6.0	7.0	5.7	4.9	4.0	4.1	3.8	3.6	3.7	4.3	7.0																						
12-Jan	3.4	3.0	2.9	2.9	2.9	3.0	3.1	2.9	3.0	3.1	3.5	3.4	4.2	5.1	7.8	10.1	10.9	10.7	8.6	8.6	8.6	6.5	6.2	5.1	5.4	10.9																						
13-Jan	4.3	3.6	3.3	3.0	2.8	2.8	2.6	3.1	4.7	4.3	3.5	7.1	8.2	10.0	12.4	13.6	11.8	11.6	9.1	8.4	7.9	7.9	6.7	6.4	6.6	13.6																						
14-Jan	6.1	5.7	5.1	4.6	4.4	4.2	4.2	3.6	3.0	2.8	3.0	3.3	4.0	5.9	6.6	6.8	7.1	6.8	5.8	5.6	5.3	5.5	6.0	6.5	5.1	7.1																						
15-Jan	6.7	8.1	10.8	11.5	7.4	5.8	5.6	4.8	4.3	3.7	4.7	6.8	5.1	4.4	8.7	10.3	10.6	9.0	8.1	6.4	4.0	3.7	4.9	7.1	6.8	11.5																						
16-Jan	7.2	8.1	11.5	10.6	8.0	7.1	6.6	6.8	6.0	5.4	5.6	6.3	6.0	6.1	6.4	5.6	4.5	3.7	3.4	2.8	3.1	2.9	2.7	2.6	5.8	11.5																						
17-Jan	2.6	3.0	3.1	3.4	4.1	3.7	3.4	3.7	3.5	3.7	3.5	3.6	4.4	4.4	4.2	4.4	3.6	3.7	5.9	5.4	3.7	2.9	3.0	4.4	3.8	5.9																						
18-Jan	3.4	3.2	2.9	2.8	2.6	2.4	2.4	1.9	2.1	2.4	2.6	2.8	3.2	5.1	3.9	3.3	2.9	2.9	3.0	3.0	3.1	3.2	3.3	3.3	3.0	5.1																						
19-Jan	3.3	3.2	3.1	3.1	3.1	3.1	3.1	3.3	3.9	4.3	4.0	3.8	4.2	5.0	5.8	7.9	10.4	8.8	8.2	6.3	5.8	6.0	6.3	6.0	5.1	10.4																						
20-Jan	5.5	6.0	6.5	5.8	5.1	4.5	3.6	2.9	3.0	3.7	7.0	7.0	7.5	7.8	7.3	7.7	6.4	8.3	8.3	6.6	6.2	5.5	5.7	5.8	6.0	8.3																						
21-Jan	5.1	5.4	5.9	6.3	6.1	5.6	5.7	5.5	5.2	5.5	5.9	5.5	4.5	3.6	2.7	3.1	3.3	3.0	3.1	3.1	3.2	3.9	3.8	4.4	4.6	6.3																						
22-Jan	4.2	4.5	4.2	4.7	4.4	4.6	5.3	5.0	4.9	5.2	C	C	C	4.3	4.3	5.8	6.4	6.7	4.7	3.4	5.8	5.9	5.3	5.2	5.0	6.7																						
23-Jan	6.1	5.1	5.8	5.3	6.1	6.3	6.6	4.0	3.7	3.8	4.6	6.3	6.6	6.4	7.1	8.5	7.2	5.5	5.5	5.3	7.0	7.9	6.5	4.2	5.9	8.5																						
24-Jan	4.2	4.3	4.0	4.0	3.9	4.3	4.9	5.3	5.5	5.4	5.9	6.5	7.1	9.6	10.9	10.0	9.1	8.2	8.1	9.1	9.7	8.7	9.8	11.0	7.1	11.0																						
25-Jan	15.2	14.3	13.1	12.3	9.9	9.2	8.7	10.7	10.7	9.6	9.6	10.4	11.5	13.5	13.2	13.3	16.3	16.6	19.0	22.2	23.2	22.0	21.5	21.5	14.5	23.2																						
26-Jan	18.2	16.2	16.1	14.9	15.2	13.0	14.7	13.6	13.4	13.2	15.1	18.4	24.9	26.4	22.1	16.1	13.4	15.4	16.2	18.3	16.7	17.9	12.9	11.7	16.4	26.4																						
27-Jan	10.5	10.8	10.0	9.8	9.9	9.4	9.0	7.9	7.6	7.0	6.5	6.5	6.0	6.0	5.8	4.3	2.8	2.2	1.9	1.9	2.1	2.1	2.1	1.8	6.0	10.8																						
28-Jan	2.1	2.8	3.0	5.3	4.1	5.1	5.5	5.5	5.6	5.8	4.8	3.1	1.7	1.4	1.0	0.9	0.9	0.8	0.7	0.6	0.6	0.7	1.2	3.0	2.7	5.8																						
29-Jan	4.6	2.2	0.9	1.3	1.3	2.0	2.6	2.4	2.8	2.3	2.1	1.9	2.3	2.0	2.4	2.2	2.2	2.2	2.1	2.6	2.9	3.0	2.8	2.9	2.3	4.6																						
30-Jan	2.8	2.6	2.4	2.0	2.2	2.4	3.7	3.2	2.9	3.3	3.0	3.2	3.0	1.9	1.0	0.5	0.5	0.5	0.4	0.6	0.4	0.3	0.3	0.3	1.8	3.7																						
31-Jan	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.9	1.2	0.9	0.8	0.9	1.3	3.4	7.1	4.7	4.7	5.0	5.3	5.5	5.5	5.5	6.8	2.7	7.1																						
																								5.1	5.0	5.1	5.1	4.8	4.7	4.7	4.5	4.5	4.5	4.6	5.0	5.4	5.8	6.2	6.4	6.2	6.0	5.7	5.6	5.5	5.5	5.2	5.2	Diurnal Average
																								18.2	16.2	16.1	14.9	15.2	13.0	14.7	13.6	13.4	13.2	15.1	18.4	24.9	26.4	22.1	16.1	16.3	16.6	19.0	22.2	23.2	22.0	21.5	21.5	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>) -  $\mu\text{g}/\text{m}^3$**   
**Ells River - January 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	496	66.94	66.94
6 - 15	225	30.36	97.30
16 - 25	19	2.56	99.87
26 - 80	1	0.13	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Ells River - January 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	71	23	9	4	3	5	39	59	48	45	23	17	21	15	17	489
6 - 15	25	23	2	1	1	7	14	32	46	13	13	10	10	5	8	9	219
16 - 25	0	0	0	0	0	1	2	9	5	2	0	0	0	0	0	0	19
26 - 80	0	0	0	0	0	0	0	1	0	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>	115	94	25	10	5	11	21	81	110	63	58	33	27	26	23	26	728

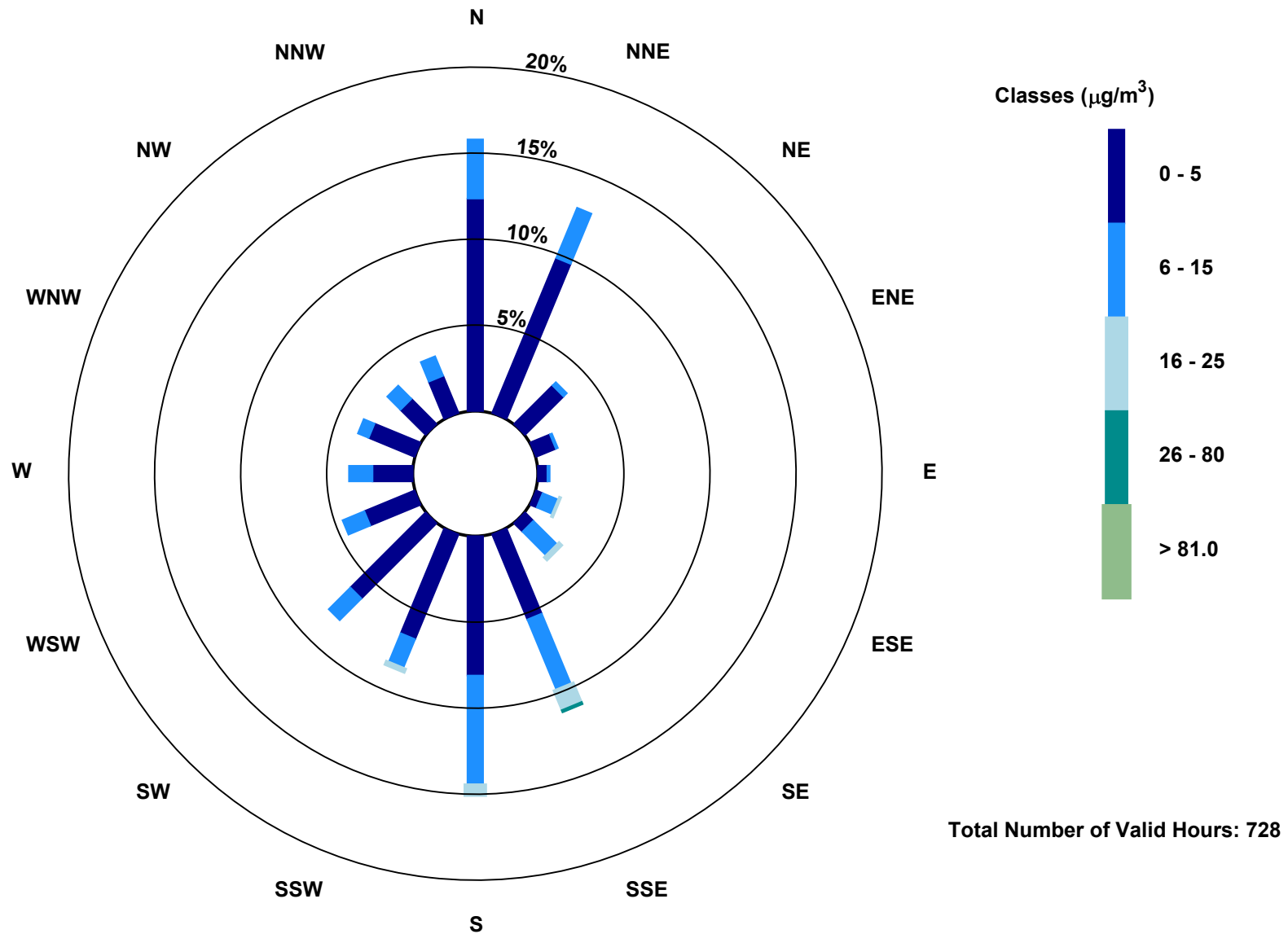
Total Number of Valid Hours: 728

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 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**

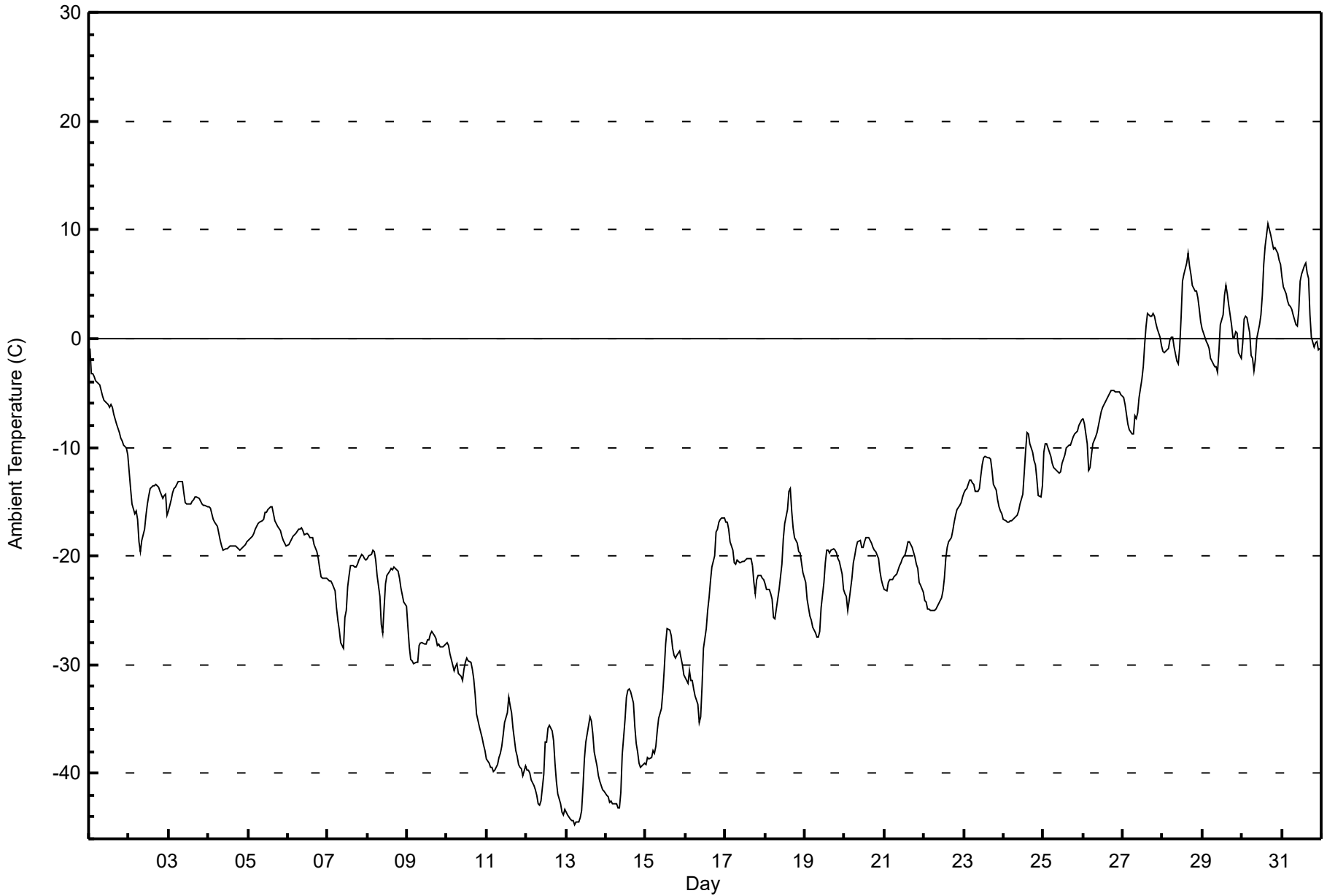
**Ambient Temperature (AT) - C**  
**Ells River - January 2024**

Maximum Value: 10.6 C on Jan 30 16:00		Maximum Daily Average: 4.1 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -44.7 C on Jan 13 06:00		Minimum Daily Average: -40.9 C on Jan 13		Hours of Data: 744																																												
Maximum Diurnal Average: -15.8 C at hour 16		Minimum Diurnal Average: -20.7 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -18.60 C		Percentiles: P <sub>1</sub> = -43.8 P <sub>10</sub> = -37.9 Q <sub>1</sub> = -26.7 Median = -18.9 Q <sub>3</sub> = -10.8 P <sub>90</sub> = 0.0 P <sub>99</sub> = 7.8		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-Jan	-1.0	-3.2	-3.3	-3.5	-3.9	-4.2	-4.3	-4.7	-5.3	-5.7	-5.8	-6.1	-6.3	-6.1	-6.3	-7.0	-7.8	-8.3	-8.7	-9.2	-9.4	-9.8	-10.1	-10.6	-6.3	-1.0																						
2-Jan	-12.3	-13.8	-15.2	-16.2	-15.9	-16.7	-18.7	-19.5	-18.6	-17.5	-16.3	-15.3	-14.5	-13.7	-13.5	-13.6	-13.5	-13.6	-13.6	-14.0	-14.7	-14.5	-14.3	-16.3	-15.2	-12.3																						
3-Jan	-15.9	-14.9	-14.2	-13.8	-13.7	-13.4	-13.2	-13.2	-13.2	-14.2	-15.1	-15.2	-15.2	-15.2	-15.0	-14.8	-14.6	-14.6	-14.7	-15.0	-15.2	-15.3	-15.3	-15.5	-14.6	-13.2																						
4-Jan	-15.5	-15.6	-16.1	-16.6	-16.9	-17.2	-17.9	-18.5	-19.1	-19.4	-19.3	-19.3	-19.2	-19.1	-19.1	-19.1	-19.2	-19.3	-19.5	-19.4	-19.1	-18.9	-18.9	-18.7	-18.4	-15.5																						
5-Jan	-18.6	-18.4	-18.2	-17.9	-17.6	-17.2	-17.0	-16.9	-16.8	-16.6	-16.0	-16.0	-15.8	-15.5	-15.5	-16.1	-16.7	-17.0	-17.3	-17.7	-18.2	-18.5	-18.9	-19.1	-17.2	-15.5																						
6-Jan	-18.9	-18.7	-18.5	-18.2	-18.1	-17.9	-17.6	-17.5	-17.4	-17.6	-18.0	-17.9	-18.1	-18.3	-18.3	-18.4	-18.9	-19.6	-20.3	-21.1	-21.9	-22.0	-22.1	-22.1	-19.1	-17.4																						
7-Jan	-22.2	-22.3	-22.3	-22.5	-23.2	-24.8	-25.9	-26.8	-27.9	-28.4	-25.7	-25.1	-22.9	-21.7	-20.9	-20.9	-21.1	-21.0	-20.7	-20.3	-19.8	-20.0	-20.3	-20.3	-22.8	-19.8																						
8-Jan	-20.3	-19.9	-19.8	-19.4	-19.6	-20.3	-21.8	-23.7	-26.3	-27.1	-24.8	-22.5	-21.8	-21.4	-21.1	-21.3	-21.1	-21.2	-21.4	-22.0	-22.9	-23.5	-24.2	-24.6	-22.2	-19.4																						
9-Jan	-26.6	-28.3	-29.5	-29.7	-29.9	-29.8	-29.7	-28.2	-27.9	-27.9	-28.2	-28.0	-27.6	-27.7	-27.2	-26.9	-27.3	-27.6	-28.2	-28.2	-28.4	-28.4	-28.2	-28.1	-28.2	-26.6																						
10-Jan	-28.0	-28.2	-28.9	-30.0	-30.6	-30.2	-29.9	-30.8	-31.1	-31.4	-30.4	-29.8	-29.3	-29.7	-29.8	-30.4	-31.3	-32.7	-34.5	-35.6	-36.2	-36.7	-37.3	-37.9	-31.7	-28.0																						
11-Jan	-38.7	-39.1	-39.5	-39.4	-39.8	-39.7	-39.2	-38.6	-38.1	-37.4	-36.5	-35.4	-34.5	-32.9	-33.8	-34.4	-35.9	-37.9	-38.5	-39.1	-39.4	-39.5	-40.2	-39.3	-37.8	-32.9																						
12-Jan	-39.7	-39.7	-40.0	-40.6	-41.1	-41.5	-42.1	-42.8	-42.9	-42.5	-40.0	-37.1	-37.1	-35.9	-35.5	-36.0	-37.0	-39.0	-40.8	-41.8	-42.7	-43.5	-43.7	-43.3	-40.3	-35.5																						
13-Jan	-43.5	-43.8	-44.2	-44.4	-44.4	-44.7	-44.4	-44.5	-44.0	-43.5	-41.2	-38.6	-37.1	-35.6	-34.8	-35.2	-36.3	-38.0	-39.3	-40.2	-40.8	-41.1	-41.4	-41.7	-40.9	-34.8																						
14-Jan	-42.0	-42.1	-42.6	-42.5	-42.8	-42.7	-42.7	-43.2	-43.2	-41.8	-38.3	-35.1	-33.0	-32.4	-32.2	-32.5	-33.6	-35.7	-37.3	-38.0	-39.1	-39.5	-39.2	-39.0	-38.8	-32.2																						
15-Jan	-39.1	-38.5	-38.7	-38.6	-37.9	-38.2	-37.5	-36.1	-34.9	-34.0	-32.5	-30.5	-28.1	-26.7	-26.8	-27.3	-28.4	-29.1	-29.4	-29.1	-28.7	-29.4	-30.0	-30.9	-32.5	-26.7																						
16-Jan	-31.1	-31.7	-30.5	-31.5	-31.5	-32.2	-32.9	-33.7	-35.3	-34.7	-31.9	-28.5	-26.7	-25.0	-23.8	-22.3	-21.0	-20.0	-17.8	-17.6	-16.9	-16.7	-16.5	-16.5	-26.1	-16.5																						
17-Jan	-16.9	-16.9	-17.5	-18.7	-19.4	-20.6	-20.7	-20.4	-20.5	-20.6	-20.5	-20.5	-20.4	-20.2	-20.2	-20.2	-20.8	-22.4	-23.4	-22.1	-21.8	-21.8	-22.1	-22.2	-20.4	-16.9																						
18-Jan	-22.5	-23.1	-23.1	-23.5	-24.0	-25.6	-25.7	-24.9	-23.0	-21.9	-20.7	-18.4	-17.1	-15.8	-14.1	-13.8	-15.9	-17.4	-18.3	-18.8	-19.6	-19.7	-20.6	-21.6	-20.4	-13.8																						
19-Jan	-22.4	-23.9	-24.7	-25.5	-25.9	-26.6	-27.1	-27.4	-27.4	-26.9	-24.8	-22.4	-20.7	-19.5	-19.5	-19.7	-19.4	-19.3	-19.4	-19.7	-20.3	-20.5	-21.6	-23.0	-22.8	-19.3																						
20-Jan	-23.5	-23.7	-25.0	-24.1	-22.0	-20.6	-20.0	-19.2	-18.7	-18.6	-19.2	-19.2	-18.7	-18.3	-18.3	-18.5	-18.9	-19.2	-19.5	-19.6	-20.2	-21.4	-22.2	-22.6	-20.5	-18.3																						
21-Jan	-23.1	-23.3	-22.5	-22.2	-22.2	-22.2	-22.0	-21.7	-21.2	-20.8	-20.6	-20.2	-19.9	-19.4	-18.6	-18.7	-19.0	-19.3	-20.1	-20.8	-21.1	-22.4	-22.6	-23.4	-21.1	-18.6																						
22-Jan	-24.0	-24.3	-24.8	-24.9	-25.0	-25.1	-25.0	-24.9	-24.6	-24.3	-23.9	-23.2	-22.0	-20.2	-19.2	-18.7	-18.3	-17.6	-16.9	-16.3	-15.7	-15.3	-15.0	-14.6	-21.0	-14.6																						
23-Jan	-14.2	-14.0	-13.8	-13.0	-13.0	-13.2	-13.4	-14.1	-14.0	-13.8	-12.6	-11.6	-11.0	-10.9	-10.9	-11.0	-11.1	-12.1	-13.4	-13.9	-14.8	-15.5	-15.8	-16.1	-13.2	-10.9																						
24-Jan	-16.6	-16.8	-16.9	-16.9	-16.8	-16.7	-16.5	-16.4	-16.3	-15.9	-15.3	-14.3	-12.4	-10.3	-8.6	-8.8	-9.7	-10.5	-11.2	-11.6	-12.9	-14.4	-14.6	-13.6	-13.9	-8.6																						
25-Jan	-10.4	-9.7	-9.7	-10.1	-10.8	-11.5	-11.8	-11.9	-12.2	-12.4	-12.3	-11.4	-11.1	-10.7	-10.1	-9.8	-9.8	-9.4	-9.1	-8.8	-8.5	-8.1	-7.7	-7.5	-10.2	-7.5																						
26-Jan	-7.3	-7.8	-9.7	-12.2	-11.9	-10.7	-9.7	-9.1	-8.7	-8.1	-7.3	-6.7	-6.3	-5.8	-5.5	-5.3	-5.0	-4.8	-4.8	-4.8	-4.8	-4.9	-4.9	-5.1	-7.1	-4.8																						
27-Jan	-5.5	-6.0	-6.9	-7.9	-8.4	-8.8	-8.8	-7.1	-7.3	-6.9	-5.4	-3.8	-2.6	-0.6	1.1	2.3	2.1	2.1	2.2	2.1	1.5	0.9	0.2	-0.7	-3.0	2.3																						
28-Jan	-1.2	-1.3	-1.1	-0.9	-0.1	0.1	0.1	-0.7	-2.0	-2.4	-0.8	1.9	5.3	5.9	6.9	7.8	6.7	5.9	4.9	4.3	4.3	3.7	2.7	1.5	2.1	7.8																						
29-Jan	0.9	0.2	-0.2	-0.5	-0.9	-1.8	-2.3	-2.6	-2.6	-3.2	-1.1	1.2	2.1	4.0	4.8	4.1	3.1	1.2	0.1	0.1	0.6	0.5	-1.3	-1.8	0.2	4.8																						
30-Jan	-0.5	1.8	2.0	1.9	0.4	-1.5	-1.8	-2.9	-1.9	0.0	1.2	2.1	3.9	6.8	8.5	10.6	10.0	9.5	8.8	8.2	8.4	7.8	7.2	6.8	4.1	10.6																						
31-Jan	5.6	4.8	4.2	3.5	3.0	2.9	2.7	2.1	1.3	1.2	2.5	5.3	5.9	6.7	6.9	6.0	5.5	2.2	0.1	-0.8	-0.4	-0.2	-1.0	-1.0	2.9	6.9																						
																								-19.2	-19.4	-19.7	-20.0	-20.1	-20.4	-20.5	-20.6	-20.7	-20.5	-19.4	-18.1	-17.2	-16.3	-15.8	-15.8	-16.3	-17.0	-17.5	-17.8	-18.0	-18.4	-18.7	-19.0	Diurnal Average
																								5.6	4.8	4.2	3.5	3.0	2.9	2.7	2.1	1.3	1.2	2.5	5.3	5.9	6.8	8.5	10.6	10.0	9.5	8.8	8.2	8.4	7.8	7.2	6.8	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Ells River - January 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Ells River - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	325	43.68	43.68
-20 - 0	344	46.24	89.92
0 - 10	73	9.81	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

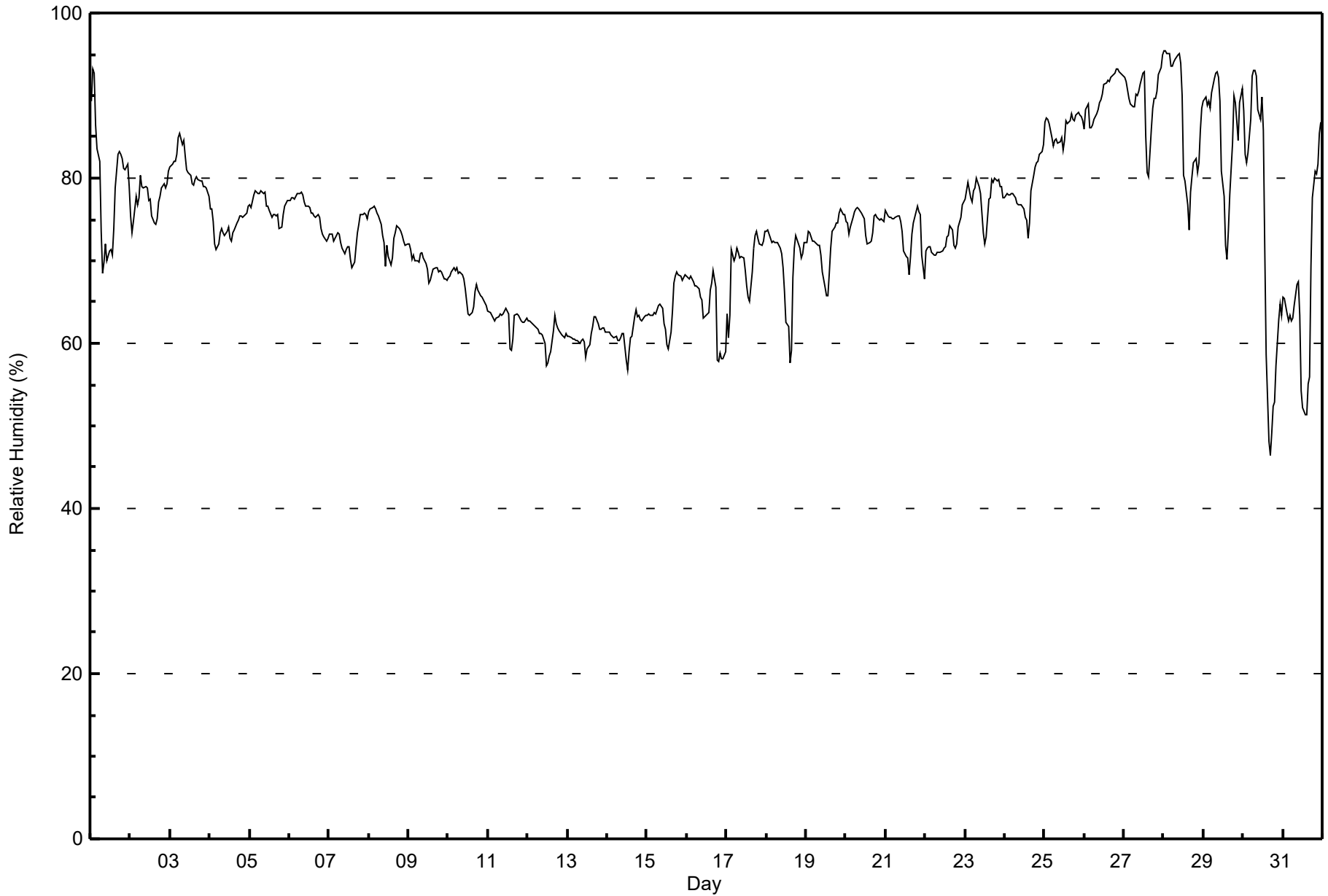
**Relative Humidity (RH) - %**  
**Ells River - January 2024**

Maximum Value: 95.4 % on Jan 28 02:00      Maximum Daily Average: 90.1 % on Jan 26 Minimum Value: 46.5 % on Jan 30 17:00      Minimum Daily Average: 61.0 % on Jan 13 Maximum Diurnal Average: 75.4 % at hour 1      Minimum Diurnal Average: 69.8 % at hour 15 Monthly Average: 73.86 %      Percentiles: P <sub>1</sub> = 53.5 P <sub>10</sub> = 61.7 Q <sub>1</sub> = 67.5 Median = 73.5 Q <sub>3</sub> = 79.0 P <sub>90</sub> = 88.2 P <sub>99</sub> = 94.2																						Hours in Service: 744 Hours of Data: 744 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-Jan	89.3	93.3	92.7	86.5	83.6	82.1	73.6	68.5	69.8	72.1	70.0	71.2	71.4	70.7	73.9	78.9	83.0	83.3	82.9	82.4	81.2	81.1	81.7	79.0	79.3	93.3
2-Jan	75.3	73.4	74.7	77.9	76.8	77.5	80.3	79.0	78.8	79.0	78.8	77.2	77.4	75.4	74.6	74.4	75.1	77.1	77.7	78.9	79.3	78.9	79.3	80.9	80.9	80.9
3-Jan	81.4	81.6	82.0	82.1	83.0	84.9	85.4	84.1	84.5	82.8	81.0	80.6	80.3	79.4	79.2	79.8	80.2	79.8	79.7	79.7	79.0	79.1	78.8	77.7	77.7	85.4
4-Jan	76.3	76.2	74.8	72.0	71.3	72.1	73.3	73.9	73.3	73.0	73.5	74.1	72.7	72.4	73.3	73.6	74.5	75.0	75.5	75.5	75.2	75.6	75.8	76.6	76.6	76.6
5-Jan	76.8	76.4	77.9	78.5	78.3	78.2	78.1	78.5	78.2	78.3	76.6	76.5	76.7	75.3	75.6	75.6	75.4	75.6	73.9	74.1	75.5	76.6	77.0	77.3	77.3	78.5
6-Jan	77.4	77.6	77.6	77.4	77.8	78.1	78.2	78.4	78.0	77.2	76.7	76.6	76.4	75.7	75.8	75.5	75.2	75.5	75.2	74.0	73.2	72.9	72.4	72.7	72.7	78.4
7-Jan	73.3	73.2	73.2	72.3	73.1	73.3	73.1	72.2	71.5	70.9	71.3	71.7	71.7	70.2	69.2	69.9	71.8	73.3	74.5	75.6	75.6	75.7	75.6	75.0	75.0	75.7
8-Jan	75.9	76.2	76.4	76.6	76.3	75.7	75.3	74.4	73.0	72.2	69.4	71.8	70.5	69.4	70.4	72.8	73.5	74.3	73.9	73.6	73.1	72.3	71.8	72.1	72.1	76.6
9-Jan	72.0	71.3	70.2	70.7	70.0	70.0	69.8	70.8	71.0	70.4	69.7	68.9	67.3	67.6	68.3	69.0	69.2	69.2	68.7	68.7	68.6	67.8	67.8	67.6	67.6	72.0
10-Jan	68.0	68.1	68.6	69.1	68.7	69.1	68.5	68.7	68.3	67.8	66.7	65.0	63.6	63.5	63.8	64.3	66.3	67.1	66.4	65.8	65.6	65.3	65.0	64.5	64.5	69.1
11-Jan	63.9	63.7	63.4	63.1	62.7	63.1	63.2	63.5	63.4	63.6	63.9	64.2	63.5	59.3	59.2	60.6	63.4	63.5	63.5	63.0	62.8	62.5	62.5	63.0	63.0	64.2
12-Jan	62.7	62.8	62.6	62.3	62.0	61.9	61.6	61.2	61.2	61.0	60.0	57.2	57.7	58.5	59.0	61.5	63.5	62.3	61.8	61.5	61.1	60.8	60.8	61.1	61.1	63.5
13-Jan	60.9	60.8	60.6	60.5	60.5	60.3	60.4	60.0	60.4	60.5	60.2	58.3	59.3	59.9	61.1	62.1	63.1	63.2	62.3	61.8	61.7	61.9	61.8	61.4	61.4	63.2
14-Jan	61.3	61.3	61.0	60.9	60.6	60.8	60.4	60.3	60.7	61.1	61.2	58.0	56.8	59.0	60.7	60.9	63.2	64.1	63.2	63.4	62.9	62.7	63.1	63.4	63.4	64.1
15-Jan	63.4	63.5	63.5	63.4	63.7	63.6	64.0	64.6	64.8	64.2	62.4	61.8	59.8	59.3	61.3	63.9	67.3	68.1	68.7	68.3	68.1	67.5	68.0	68.4	68.4	68.7
16-Jan	68.1	67.8	68.1	67.8	67.5	66.9	66.9	66.6	65.7	65.3	63.1	63.2	63.5	63.8	66.5	67.3	68.8	66.7	58.0	57.8	58.9	58.2	58.2	59.1	59.1	68.8
17-Jan	63.6	60.7	63.4	71.3	70.0	70.5	71.6	71.0	70.4	70.5	70.3	68.8	66.9	65.6	65.1	68.6	71.6	73.1	73.6	72.7	72.0	71.8	72.3	73.5	73.5	73.6
18-Jan	73.6	73.7	72.8	72.2	72.3	72.1	72.3	72.2	71.5	70.9	69.1	66.2	62.5	62.1	57.7	59.2	68.0	71.6	73.0	72.0	71.5	70.4	70.8	72.2	72.2	73.7
19-Jan	72.3	73.5	73.5	72.9	72.4	72.3	72.1	71.9	71.9	70.7	68.7	66.8	65.8	65.8	68.4	71.5	73.5	74.1	74.5	74.6	75.8	76.3	75.7	75.6	75.6	76.3
20-Jan	74.7	74.6	73.2	74.0	75.2	76.0	76.2	76.4	76.4	75.7	75.4	75.0	73.0	72.1	72.3	72.4	73.3	75.4	75.6	75.3	74.8	75.0	75.0	74.7	74.7	76.4
21-Jan	76.1	75.4	75.3	75.3	75.1	75.1	75.2	75.4	75.4	74.8	73.6	71.2	70.6	70.3	68.2	70.5	73.2	74.5	76.0	76.7	75.9	75.6	70.7	67.8	67.8	76.7
22-Jan	71.1	71.5	71.8	71.7	71.0	70.7	70.7	71.0	71.1	71.0	71.2	71.5	71.8	72.9	73.0	74.2	73.8	71.9	71.5	72.0	74.1	75.3	76.8	77.1	77.1	77.1
23-Jan	77.5	78.4	79.6	77.6	77.2	78.5	78.8	80.0	79.0	78.1	75.7	73.4	72.0	72.8	77.5	77.6	79.9	79.5	79.9	79.6	79.8	79.0	79.1	77.7	77.8	80.0
24-Jan	77.6	78.1	78.0	78.0	78.2	78.2	77.7	77.0	76.7	76.8	76.9	76.2	75.3	75.0	72.7	74.6	78.5	80.3	81.4	81.8	82.0	82.9	83.3	84.1	84.1	84.1
25-Jan	86.7	87.4	87.2	86.7	84.9	83.9	84.6	84.7	84.2	84.5	85.0	83.3	84.6	86.9	86.7	86.9	87.7	87.1	87.0	87.6	88.0	87.7	87.5	87.0	87.0	88.0
26-Jan	85.9	88.3	88.9	86.2	86.1	86.4	87.2	87.8	88.2	89.1	89.5	90.1	91.4	91.6	91.8	91.6	92.2	92.3	92.7	93.3	93.2	92.9	92.8	92.6	92.6	93.3
27-Jan	92.2	91.6	90.6	89.6	89.0	88.6	88.7	90.2	90.1	90.5	91.4	92.7	92.9	85.0	80.8	80.1	86.0	88.5	89.7	89.7	90.5	92.6	93.5	95.0	95.0	95.0
28-Jan	95.4	95.4	95.1	95.0	93.6	93.5	94.1	94.4	94.9	95.1	93.9	89.9	80.3	79.6	76.8	73.8	78.4	80.2	81.8	82.3	80.7	81.8	85.8	88.4	88.4	95.4
29-Jan	89.4	89.9	88.9	89.3	88.5	90.4	92.1	92.7	92.8	92.2	89.3	80.9	77.8	71.9	70.2	73.5	78.0	84.3	90.0	89.1	86.9	84.5	89.1	90.8	90.8	92.8
30-Jan	88.2	82.9	81.9	83.1	87.2	92.4	93.1	93.1	92.4	88.3	87.1	89.8	85.7	71.5	58.6	48.1	46.5	49.2	52.3	53.0	57.3	62.8	64.8	63.4	63.4	93.1
31-Jan	65.6	65.4	63.6	62.8	63.3	62.8	63.0	64.6	67.2	67.5	63.3	54.3	52.2	51.4	51.4	55.1	56.0	69.3	77.7	80.9	80.5	81.7	85.5	86.8	86.8	86.8
75.4 75.3 75.2 75.1 74.8 75.1 75.1 75.1 75.0 74.7 73.7 72.5 71.3 70.1 69.8 70.6 72.6 73.8 74.3 74.3 74.4 74.5 74.9 75.0																								Diurnal Average		
95.4 95.4 95.1 95.0 93.6 93.5 94.1 94.4 94.9 95.1 93.9 92.7 92.9 91.6 91.8 91.6 92.2 92.3 92.7 93.3 93.2 92.9 93.5 95.0																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Ells River - January 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Ells River - January 2024**

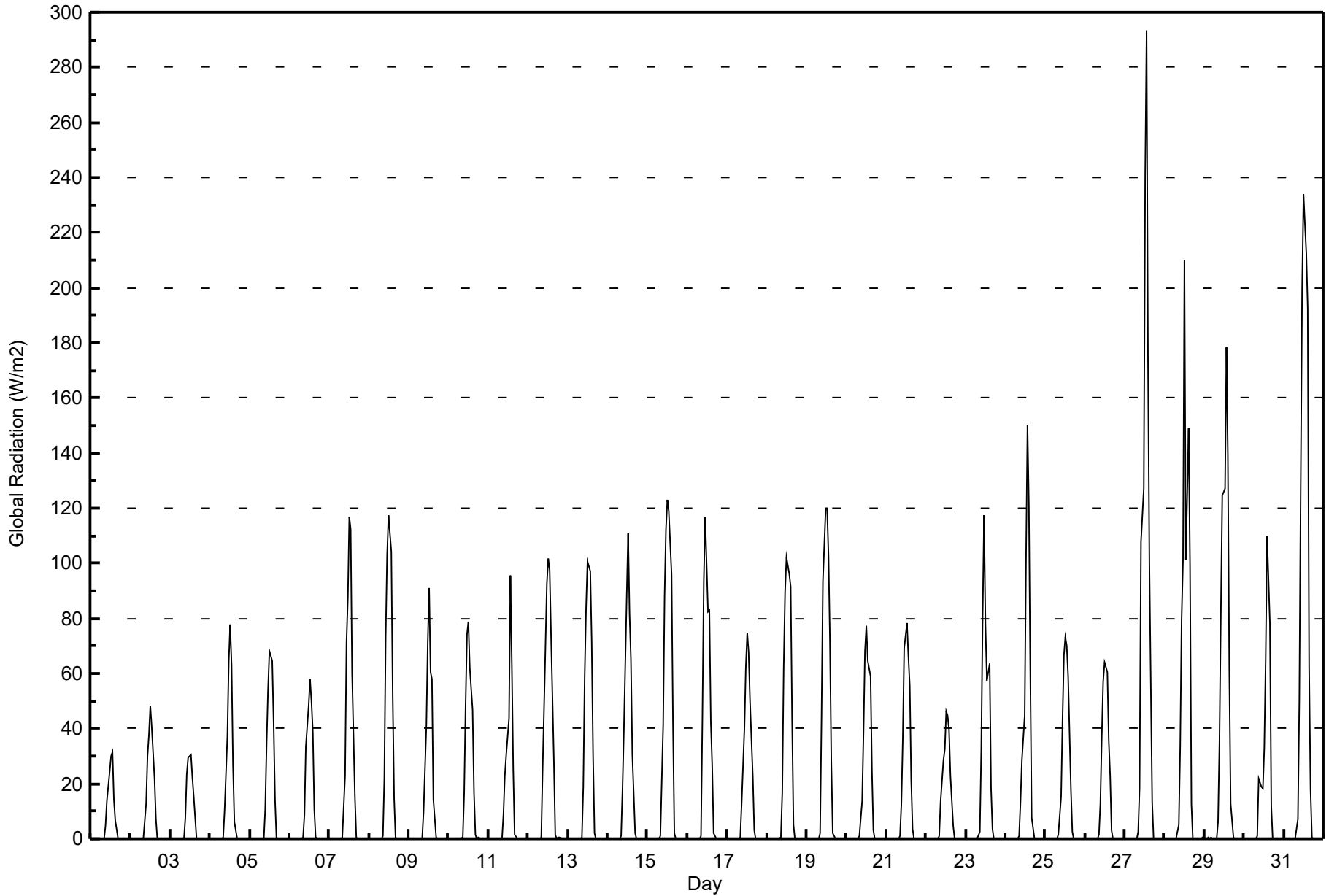
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	36	4.84	4.84
60 - 80	542	72.85	77.69
80 - 100	166	22.31	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 293.5 W/m2 on Jan 27 14:00      Maximum Daily Average: 46.1 W/m2 on Jan 31																						Hours in Service: 744				
Minimum Value: 0.0 W/m2 on Jan 1 02:00      Minimum Daily Average: 5.2 W/m2 on Jan 1																						Hours of Data: 744				
Maximum Diurnal Average: 94.9 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 7																						Hours of Missing Data: 0				
Monthly Average: 18.62 W/m2      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> = 18.0 P <sub>90</sub> = 71.6 P <sub>99</sub> = 177.0																						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-Jan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.5	13.5	24.4	30.1	31.4	14.1	6.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	31.4
2-Jan	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.2	12.6	29.9	37.8	48.4	40.7	21.9	7.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	48.4
3-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	7.7	23.2	29.3	30.5	22.4	15.3	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	30.5
4-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	10.2	37.1	64.6	77.6	63.3	26.8	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	77.6
5-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	10.9	34.7	53.9	68.1	64.5	42.0	14.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	68.1
6-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.8	33.5	48.4	58.2	49.6	38.4	10.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	58.2
7-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	22.9	70.9	87.3	117.1	112.6	59.9	15.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.3	117.1
8-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.8	21.8	73.9	103.3	117.4	104.2	51.8	14.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	117.4
9-Jan	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.9	40.4	71.1	90.9	60.4	57.9	14.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.4	90.9
10-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	16.6	48.3	74.5	78.8	62.3	46.6	16.7	1.3	0.2	0.3	0.1	0.1	0.2	0.1	0.1	14.4	78.8
11-Jan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.8	22.9	30.7	43.8	95.5	63.6	25.6	1.4	0.2	0.0	0.0	0.0	0.0	0.1	0.0	12.2	95.5
12-Jan	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.7	25.7	69.8	92.8	101.5	97.4	73.8	28.5	1.7	0.3	0.3	0.3	0.2	0.2	0.1	0.1	20.6	101.5
13-Jan	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.6	18.9	58.8	84.1	100.7	97.1	71.7	30.1	2.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	19.4	100.7
14-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	18.1	40.0	88.6	110.8	81.6	64.8	30.6	2.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	18.3	110.8
15-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	41.3	87.8	112.6	123.3	118.8	96.3	42.4	1.8	0.2	0.1	0.1	0.0	0.1	0.0	0.0	26.1	123.3
16-Jan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	43.9	93.3	116.8	82.3	82.8	42.7	26.5	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5	116.8
17-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	12.6	40.2	62.3	74.9	67.7	49.9	22.3	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9	74.9
18-Jan	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.6	17.0	61.9	89.6	102.0	96.2	91.5	43.8	5.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	21.2	102.0
19-Jan	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	2.1	43.7	93.3	120.0	120.2	102.8	72.3	28.0	2.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24.4	120.2
20-Jan	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	13.6	39.2	68.3	77.5	64.5	58.8	24.5	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6	77.5
21-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	12.9	36.1	69.3	78.5	66.3	55.4	21.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	78.5
22-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	13.9	28.5	32.4	46.4	44.7	39.5	23.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	46.4
23-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	32.2	80.8	117.7	77.9	57.3	63.3	18.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	117.7
24-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	13.1	28.5	45.0	103.9	149.8	121.3	60.1	7.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	22.1	149.8
25-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	15.5	43.2	66.8	73.0	70.3	59.2	18.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6	73.0
26-Jan	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	1.6	12.7	36.8	56.8	63.9	60.3	35.8	22.8	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	63.9
27-Jan	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	2.3	18.5	107.8	127.0	241.0	293.5	175.0	99.6	13.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	44.9	293.5
28-Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.2	33.8	79.8	101.3	210.2	101.2	148.8	99.4	12.7	0.2	0.0	0.0	0.0	0.0	0.2	0.3	33.1	210.2
29-Jan	0.2	0.2	0.3	0.2	0.3	0.1	0.1	0.0	6.2	35.0	81.5	124.6	127.2	178.5	139.6	62.2	12.9	0.6	0.0	0.1	0.2	0.1	0.0	0.0	32.1	178.5
30-Jan	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.3	22.1	19.0	18.3	33.2	65.5	110.0	78.1	11.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1	15.0	110.0
31-Jan	0.3	0.0	0.2	0.2	0.0	0.1	0.1	0.1	7.2	50.5	127.6	199.4	234.1	212.7	192.6	62.6	18.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	46.1	234.1
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Speed (WS) - km/h**  
**Ells River - January 2024**

Maximum Speed: 23 km/h on Jan 3 22:00	Maximum Daily Speed Average: 15.9 km/h on Jan 6	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 11 02:00	Minimum Daily Speed Average: 1.1 km/h on Jan 11	Hours of Data: 731
Maximum Diurnal Speed Average: 2.5 km/h at hour 21	Minimum Diurnal Speed Average: 0.4 km/h at hour 9	Hours of Missing Data: 13
Monthly Average Velocity: 0.9 km/h 5.2 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> = 14 P <sub>99</sub> = 21	Percent Operational Time: 98.3

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-Jan	E1	N4	N12	NNE14	NNE14	N12	NNW16	NW11	N7	NNE3	NE3	NE6	NNE3	ENE2	NE7	NE7	NE7	NNE7	NE7	ENE5	ENE6	NE6	NNE6	NNE11	NNE6.5	NNW16
2-Jan	NNE10	ENE7	ENE4	ENE5	ENE2	ESE2	NNW1	W2	WSW2	WNW2	N2	NNE3	NNW3	SSW1	S4	SSE4	ENE3	NE4	NE2	N4	NNE4	SSE0	NNE1	NW1	NE1.6	NNE10
3-Jan	S3	S4	S1	ESE3	SSE6	SSE9	S5	NW1	N4	NNE8	N9	N12	N13	N11	N9	N11	N14	N15	N17	N18	N21	N23	N23	N22	N8.6	N23
4-Jan	N20	N21	N23	N22	N19	N20	NNE21	NNE14	NNE13	NNE12	NNE15	NNE11	NNE13	NNE12	N12	NNE13	NNE14	NNE14	N13	N13	N14	N13	NNE11	N10	NNE15.0	N23
5-Jan	N11	N8	N8	NNW5	NW5	W1	SW1	SW1	SSW1	WSW3	NNW1	NNE5	NNE4	NNE6	NE8	NE9	NE7	NE7	N10	NNE9	NNE9	N8	NNW8	N8	N4.9	N11
6-Jan	N10	N9	N8	N8	N9	N9	N11	N13	N17	N21	N21	N21	N22	N22	N23	N19	N20	N19	N21	NNE18	N18	NNE14	N17	N14	N15.9	N23
7-Jan	NE10	NE9	NE7	NNE11	NNE8	N6	NNW4	WNW3	W3	WSW2	S3	S6	SSW6	SSE8	S8	S7	S6	SSW6	S6	S6	SSE7	SSE7	SSE8	S9	SSE2.0	NNE11
8-Jan	SSE8	S7	SSE7	SSE8	W3	WNW6	WNW2	S1	WNW4	WNW6	NW5	N10	N8	N6	N5	N4	N3	NW2	NE8	NE9	NNE9	NE8	NE6	ENE4	NNE2.1	N10
9-Jan	NNE4	ESE1	NW2	N4	NNW3	NNW4	NW5	NNW6	NNE11	N10	N15	N12	N15	NNE15	NNE16	NNE18	NNE13	NNE15	NNE15	NNE15	NNE13	NNE15	NNE15	NNE15	NNE10.4	NNE18
10-Jan	N12	NNE11	NNE8	N5	NW3	E2	W3	SW1	NW2	WNW2	NNE0	E1	N3	NNE6	ENE6	NE5	N2	UO	UO	SW1	UO	S1	UO	WNW1	NNE2.7	N12
11-Jan	W1	WSW0	WSW1	WSW1	WSW0	UO	SSW2	SSW1	SW1	SSW2	SSW3	SW3	W1	SSE3	ESE5	ESE5	ESE2	WSW2	SSW1	S1	SW1	SW1	SSW2	SW3	S1.1	ESE5
12-Jan	SSW3	SSW4	S4	SW3	SW3	S2	S4	S5	SSW4	S6	SSW5	W1	SE7	SSE6	SE7	SE7	SSE5	SSW1	UO	UO	S1	SSW1	S5	S5	S3.6	SE7
13-Jan	S4	S5	S5	S4	SSE4	S5	SSW3	SW1	S5	S4	S3	SSE3	SSE6	SE7	SE6	SE6	ESE2	UO	W3	W1	WSW1	SSE2	S4	NW1	S3.0	SE7
14-Jan	SW1	UO	WNW2	W1	UO	UO	UO	UO	S3	S2	SSW2	WSW1	SE5	SE7	SE7	SE4	E3	NW2	W3	W1	SW1	SW3	S4	S5	SSE1.8	SE7
15-Jan	SSE7	S6	S8	S7	S7	SSE6	S8	SSE9	S9	SSE9	SSE11	SSE11	SSE12	S11	SSE12	SSE9	SSE9	S9	S11	S9	S11	S10	S10	SSE9	S9.0	SSE12
16-Jan	SSE4	ESE2	NNE4	NNW7	N11	NNW7	NW7	WNW5	SSE2	SSW2	SE3	S4	SSW5	SSE4	SSE5	SSE2	SW4	WNW5	NW12	NW11	NW12	NW12	NNW13	WNW9	NW3.5	WNW13
17-Jan	NW13	NW15	N11	NE10	NNE13	NE10	NE7	NNE9	NE12	NNE11	NNE13	NNE16	NNE13	NNE12	NNE15	NNE13	NNE13	NNE9	NNE10	N12	N13	N11	NNW8	WNW6	NNE10.3	NNE16
18-Jan	WSW4	SW2	SW4	SSW4	SSW3	SW0	SSW3	SW5	SW8	SW6	SW5	WSW3	E3	ESE2	NNW6	WNW6	W6	W8	W9	W8	W8	W8	W7	WSW6	WSW4.1	W9
19-Jan	WSW5	SW5	SSW3	SSW5	S6	S6	S7	S6	S6	S8	SSE8	SSE10	SSE11	S10	SSE8	SSE7	S5	SSW5	WSW4	S3	W3	SSE4	S1	NNW1	S5.0	SSE11
20-Jan	WSW2	S2	SW2	SSW2	SSW2	SSW3	SSW4	S6	WSW2	NNW5	NNW10	N10	NNW7	NNW6	N7	N9	N9	N11	N10	NNE9	NNE11	NNE9	NNE8	N7	N4.5	NNE11
21-Jan	N7	N4	N4	NW4	WNW4	W5	W5	WSW5	WNW3	NNW5	N8	N9	N12	N12	NNE14	NNE15	NNE11	NNE11	NNE6	N4	NNE1	N6	N17	NNE16	N6.6	N17
22-Jan	NNE14	NNE14	N11	N11	N11	N9	NNW7	N6	N4	N4	N4	N5	N4	SE7	SSE12	SE8	SE9	SE9	SSE13	SSE16	SSE13	SSE10	SSE8	SSE10	E2.3	SSE16
23-Jan	SSE9	SSE6	SSE6	S10	S11	S6	S4	W4	SW5	SSW6	S6	S8	SE1	N3	N6	N12	NNE12	NNE18	N18	N15	N18	NNE15	NNE11	NNE13	NNE2.7	N18
24-Jan	N12	N8	N8	N10	NNE7	N6	WNW4	W3	W2	WNW5	WSW4	WSW3	SW4	SSW8	SSW7	SW7	SW7	WSW8	WSW7	SW6	S4	NNW5	NNW4	WNW2.4	N12	
25-Jan	NNE7	NNE10	NNE11	NNE13	NNE14	NNE16	NNE14	NNE9	NNE7	N8	N6	NW1	SW4	S6	S8	S8	SSE9	SSE10	SSE12	S9	SSW8	S8	SSW8	S10	ENE1.4	NNE16
26-Jan	S9	S5	ESE4	WNW5	W4	SW2	WSW2	WNW1	SW2	SSW5	S4	SSE5	SE8	SSE10	SSE10	SSE9	SSE9	S7	SSE8	SSE7	SSE8	SE5	S6	S6	S5.0	SSE10
27-Jan	SSE7	S6	S5	S5	SSW5	SW2	S6	S6	S9	SSW7	S8	S10	S10	S12	S12	SSW8	SW8	SW11	SW12	WSW13	WSW9	SW8	S7	SSE10	SSW7.2	WSW13
28-Jan	SSE8	SSE9	S6	SSE8	S9	S4	SW5	S6	SSE5	SSE9	S10	SSW13	SSW14	SW11	SW10	SW10	SW11	SW12	WSW12	WSW14	WSW15	WSW10	SW6	SSW8	SSW8.0	WSW15
29-Jan	SSW7	S10	S9	SSW12	S10	SSE9	SSE8	SSE8	S7	SW4	SW6	SW6	SSW7	SSW7	SSW8	SSE8	S7	SSW4	S8	S10	S11	S8	SE3	S6	S7.3	SSW12
30-Jan	SSE13	S10	SSW6	S8	SSE6	ESE4	SSE7	S2	S8	S6	SSW9	SSW12	SSW12	SW14	SW15	SW15	WSW16	WSW14	SSW13	SW14	WNW18	W12	WSW7	SW11	SW8.4	WNW18
31-Jan	SW12	SW14	SSW10	SSW10	SW14	SSW14	SSW14	SSW14	SSW10	SSW9	SW8	SSW3	SSE7	SE9	SSE10	SE10	SSE8	NW2	NW3	WNW2	NNW3	NW4	WNW5	WNW4	SSW6.1	SSW14

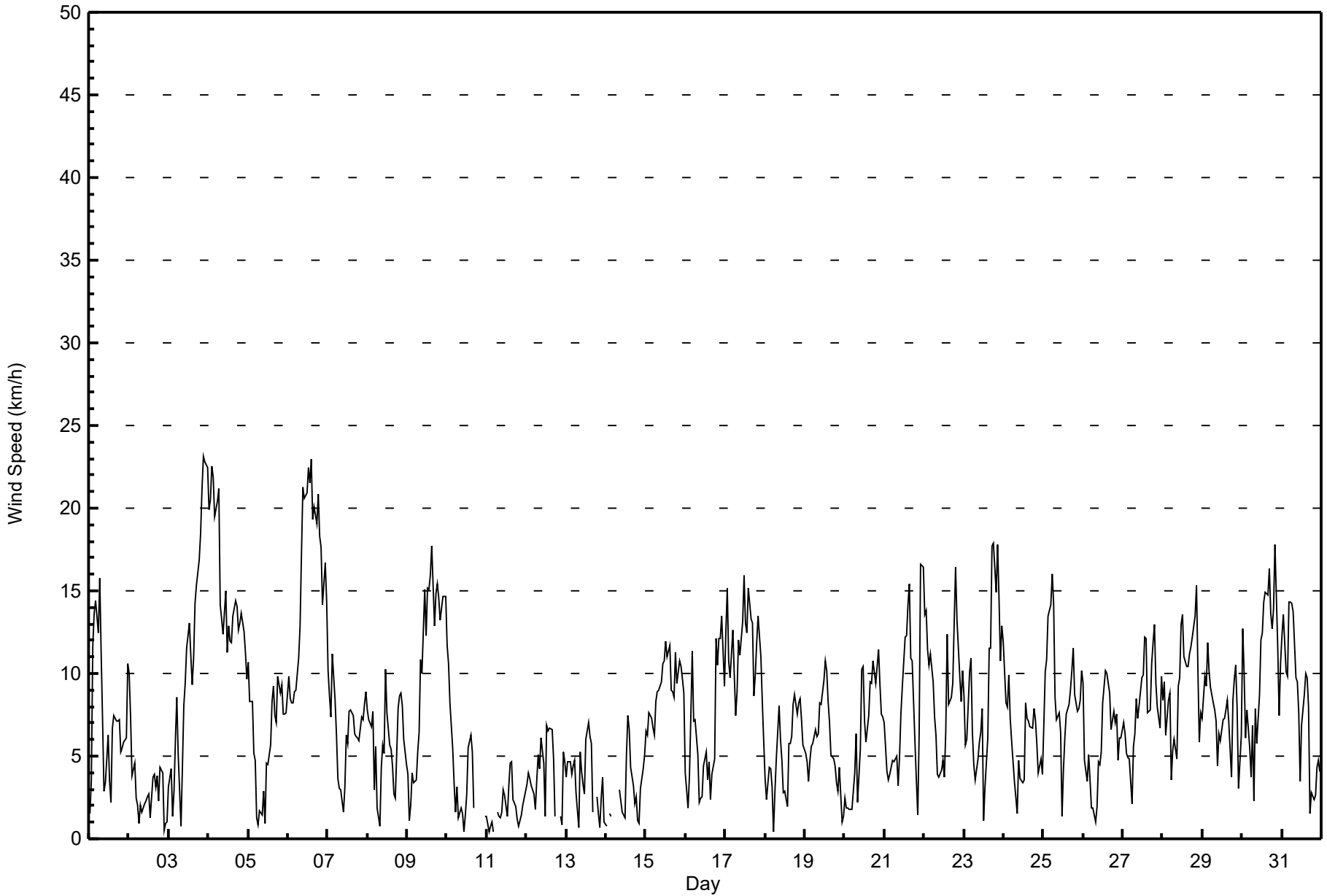
NNE0.9	NNE0.7	NNE1.3	NNE1.3	N1.2	N1.1	NNW1.1	W0.9	WSW0.4	W0.6	NNE0.6	NNE0.9	ENE0.8	ESE1.4	E1.7	ENE1.8	NE1.1	NNW1.9	NNW2.0	NNW1.6	NNW2.5	N1.9	N2.2	N1.4	Diurnal Average	
N20	N21	N23	N22	N19	N20	NNE21	NNE14	N17	N21	NNE21	N21	N22	N22	N23	N19	N20	N19	N21	N18	N21	N23	N23	N22	Diurnal Maximum	

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 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Ells River - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	271	37.07	37.07
6 - 11	318	43.50	80.57
12 - 19	124	16.96	97.54
20 - 28	18	2.46	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 731

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Ells River - January 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	18	11	4	7	5	11	6	15	40	34	31	21	19	19	15	15	271
6 - 11	49	36	20	3	0	0	15	58	68	20	18	6	7	5	3	10	318
12 - 19	35	45	1	0	0	0	0	8	2	9	9	6	1	2	5	1	124
20 - 28	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
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>	118	94	25	10	5	11	21	81	110	63	58	33	27	26	23	26	731

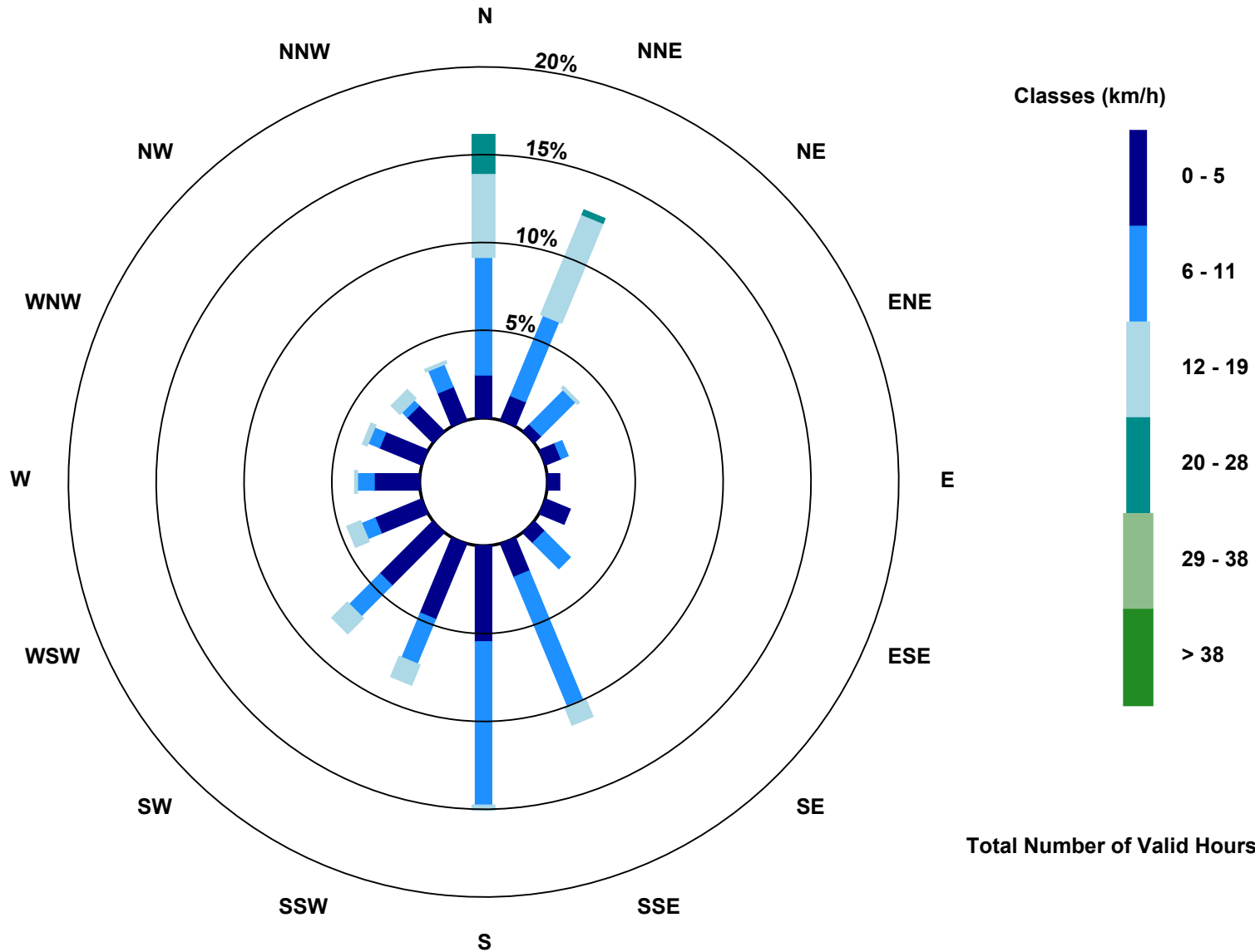
Total Number of Valid Hours: 731

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Ells River



Total Number of Valid Hours: 731



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Ells River - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 21:00 Minimum Value: 0 km/h on Jan 18 13:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 4																	Hours in Service: 744 Hours of Data: 731 Hours of Missing Data: 13 Hours of Calibration: 0 Percent Operational Time: 98.3									
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	1	2	2	2	2	2	4	3	3	1	1	1	2	2	2	1	2	2	1	2	1	1	1	2	4	
2-Jan	2	1	2	2	2	1	1	1	2	1	1	2	1	1	3	2	1	1	1	1	2	1	1	1	3	
3-Jan	1	1	2	1	1	2	2	2	1	1	1	2	2	1	1	1	2	2	3	3	3	3	3	4		
4-Jan	3	3	3	4	4	3	4	3	3	2	3	2	2	2	2	2	2	2	2	1	2	1	1	2		
5-Jan	2	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	2		
6-Jan	1	1	1	1	1	1	1	2	2	3	3	3	2	3	3	3	3	4	3	3	3	2	3	2		
7-Jan	2	2	2	1	1	1	1	1	1	1	1	2	1	2	2	2	2	1	1	2	1	1	1	2		
8-Jan	1	1	2	2	1	1	2	1	1	1	1	2	1	1	1	2	1	1	3	1	1	1	2	1		
9-Jan	1	1	1	1	1	1	1	1	1	1	2	2	3	2	2	3	3	2	2	2	3	3	2	2		
10-Jan	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	UO	UO	1	UO	1	UO	1	2		
11-Jan	1	1	1	1	1	UO	1	1	1	1	1	1	1	2	1	1	2	1	1	1	1	1	2	1		
12-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	UO	UO	1	1	1	2		
13-Jan	2	1	1	2	1	1	1	2	1	2	1	1	1	1	1	1	1	UO	0	1	1	2	2	1		
14-Jan	1	UO	1	1	UO	UO	UO	UO	2	1	1	1	2	1	1	1	1	1	1	1	1	2	1	2		
15-Jan	1	2	2	1	2	1	1	2	1	1	1	2	2	2	2	1	2	1	1	2	1	1	2	2		
16-Jan	2	1	2	3	1	3	1	3	1	2	2	2	1	1	2	1	1	3	3	3	3	2	2	3		
17-Jan	6	4	3	2	2	2	1	2	2	2	2	2	3	2	2	2	2	2	1	1	3	1	2	1		
18-Jan	2	1	1	1	1	1	1	1	2	1	1	2	0	1	1	1	2	2	1	2	2	2	2	2		
19-Jan	2	2	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1	1	3	2	2		
20-Jan	1	1	1	1	2	2	2	2	2	3	2	1	1	2	2	1	1	1	1	2	1	2	1	3		
21-Jan	1	1	2	1	1	1	1	2	1	1	1	2	2	2	2	3	2	2	1	1	1	3	2	3		
22-Jan	3	2	2	2	1	1	1	1	1	1	1	1	1	4	3	3	1	2	2	3	3	2	1	2		
23-Jan	2	1	2	2	3	1	1	1	1	1	1	2	1	1	2	3	2	3	3	2	3	3	1	2		
24-Jan	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	1	2	2	2	2	3	2	1		
25-Jan	1	3	2	2	4	2	3	2	1	1	1	1	2	1	2	2	1	2	2	2	1	1	1	2		
26-Jan	3	2	1	2	1	1	1	1	2	1	1	1	1	2	2	2	2	1	1	1	2	1	1	2		
27-Jan	1	1	1	1	1	2	2	2	2	1	1	2	2	2	2	2	2	3	3	3	3	2	2	1		
28-Jan	1	2	1	1	2	2	1	2	2	2	2	2	3	4	3	2	2	2	3	3	4	4	2	1		
29-Jan	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	1	2	3	2	4	3	2	2	2		
30-Jan	4	2	1	2	2	3	2	2	3	4	3	3	3	4	4	5	5	4	3	5	8	5	2	2		
31-Jan	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3	1	1	1	2	1	1	2		
																	Diurnal Maximum									
UO - Unstable Operation																										



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Ells River - January 2024**

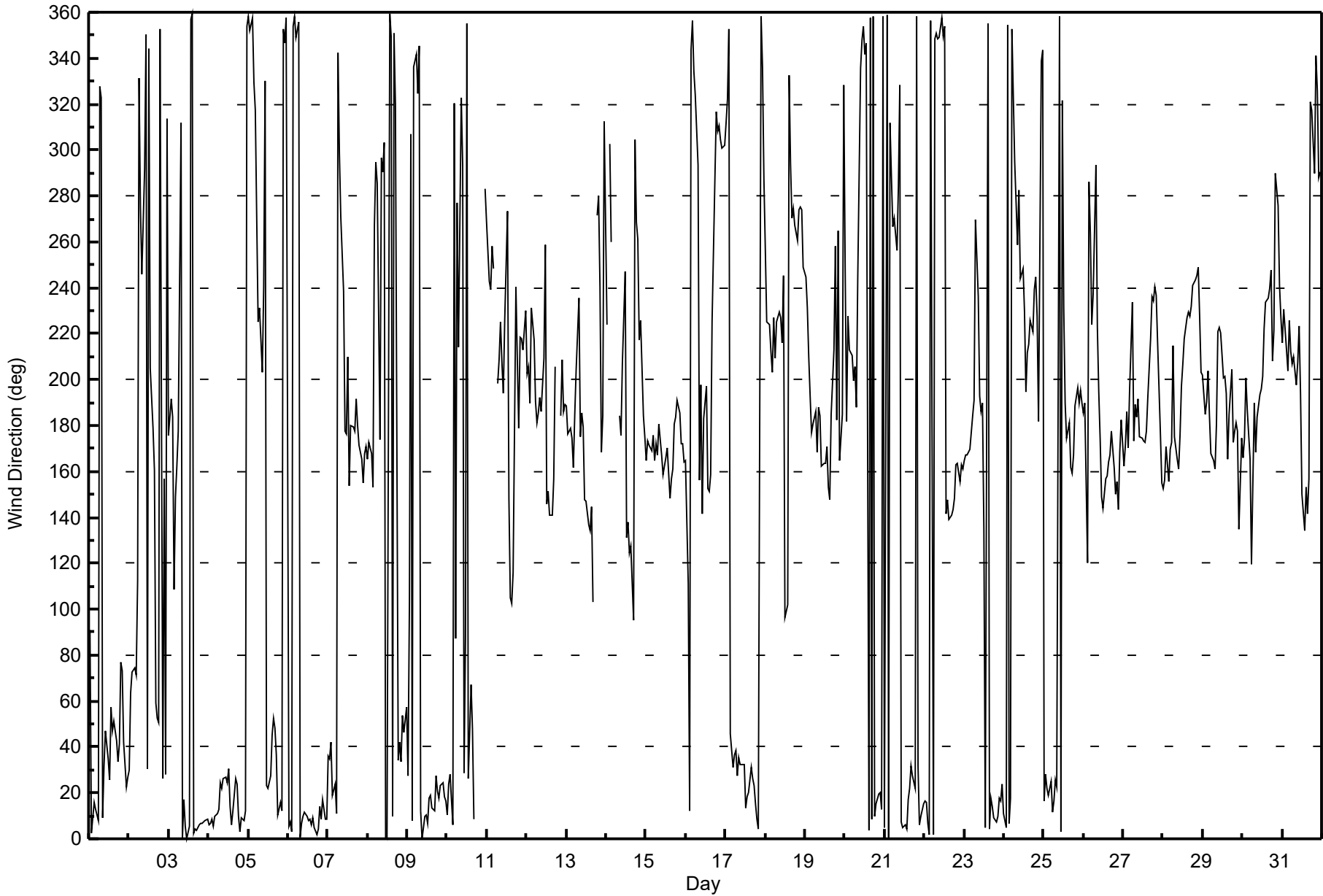
Direction of Maximum Speed: 7 deg on Jan 3 22:00 Direction of Maximum Daily Speed Average: 6.6 deg on Jan 6	Hours in Service: 744 Hours of Data: 731 Hours of Missing Data: 13
Direction of Minimum Speed: 243 deg on Jan 11 02:00 Direction of Minimum Daily Speed Average: 1.1 deg on Jan 11	Percent Operational Time: 98.3
Monthly Average Direction: 5.2 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-Jan	91	2	9	16	13	8	328	323	9	32	47	35	25	58	47	51	43	33	41	77	73	42	23	27	20.5
2-Jan	30	63	73	74	71	113	331	275	246	292	350	31	344	205	179	160	59	52	51	353	26	157	28	314	44.3
3-Jan	176	191	183	108	149	162	177	312	1	17	5	0	5	357	359	2	4	4	6	7	7	7	8	9	8.3
4-Jan	6	6	8	6	10	11	13	25	22	26	27	25	31	14	6	12	26	24	9	3	9	8	12	354	13.4
5-Jan	358	352	358	330	317	270	225	231	203	240	330	23	22	27	45	52	48	36	10	16	12	353	346	358	8.7
6-Jan	5	7	3	354	358	349	356	1	7	10	11	10	8	9	6	9	5	2	4	14	9	17	8	9	6.6
7-Jan	36	35	42	19	24	11	342	299	271	238	177	176	210	154	180	179	178	192	180	171	165	155	168	171	149.4
8-Jan	165	173	168	153	267	295	286	174	297	291	304	1	0	359	349	10	351	320	34	42	33	54	47	57	13.7
9-Jan	28	103	307	8	336	342	325	345	12	0	9	10	7	17	19	14	12	27	21	18	23	24	18	17	13.2
10-Jan	11	24	28	6	321	87	277	214	323	293	29	88	355	26	67	48	8	UO	UO	218	UO	186	UO	283	16.6
11-Jan	269	243	239	258	248	UO	198	209	225	208	194	226	273	148	105	102	116	241	208	179	219	218	213	230	191.2
12-Jan	203	206	190	231	217	190	181	186	192	186	209	259	146	151	141	141	157	205	UO	UO	184	209	186	189	179.2
13-Jan	189	176	179	175	162	185	204	236	175	186	180	148	147	137	134	145	103	UO	272	280	240	168	184	312	169.1
14-Jan	224	UO	303	260	UO	UO	UO	UO	184	175	208	247	131	138	124	128	95	304	269	261	218	226	184	175	167.1
15-Jan	165	173	171	169	176	164	172	167	181	167	159	162	166	170	148	157	161	180	183	191	185	172	172	164	169.8
16-Jan	165	111	12	343	356	335	324	293	156	197	141	183	197	152	151	159	225	287	317	308	310	305	301	302	304.3
17-Jan	312	322	352	46	31	36	38	28	35	32	33	32	14	18	20	31	26	23	16	8	4	358	336	287	14.2
18-Jan	257	225	224	212	203	227	209	225	229	227	216	245	96	102	333	294	270	275	267	261	274	275	274	249	254.2
19-Jan	245	231	210	193	177	181	186	169	188	184	162	163	163	171	153	147	185	213	258	182	265	165	185	328	182.1
20-Jan	248	182	228	213	211	200	205	188	245	336	348	354	342	347	4	357	8	358	10	15	20	20	13	358	356.5
21-Jan	5	359	1	312	289	267	271	256	284	328	8	5	6	4	17	22	32	28	22	358	32	6	10	15	3.2
22-Jan	17	16	7	2	356	2	348	351	349	349	358	350	354	141	148	139	141	144	148	163	164	155	163	161	89.5
23-Jan	165	167	167	170	177	185	191	269	236	193	186	189	135	5	355	4	17	14	9	8	10	18	17	24	22.5
24-Jan	11	5	354	7	18	353	295	277	259	282	244	230	195	212	215	226	221	239	245	228	182	339	344	281.5	
25-Jan	17	28	22	19	25	12	16	26	22	358	3	321	231	190	175	181	161	159	167	188	196	190	195	190	64.6
26-Jan	185	190	120	286	263	224	238	293	223	195	174	149	144	157	158	164	167	177	162	150	156	143	169	183	170.4
27-Jan	162	171	186	170	195	234	173	189	184	192	175	175	173	172	178	192	218	236	235	241	237	216	177	155	193.8
28-Jan	153	156	171	155	169	172	215	175	165	161	176	197	207	218	227	229	228	232	241	244	245	249	228	203	207.0
29-Jan	202	185	191	204	184	168	165	161	181	221	223	220	201	202	194	165	185	205	173	177	181	177	135	175	185.9
30-Jan	166	174	201	187	165	120	156	190	169	184	193	196	201	222	234	236	240	248	208	221	290	276	241	227	216.1
31-Jan	216	230	213	204	225	212	207	210	198	208	223	194	150	135	153	142	157	321	317	290	341	326	288	291	206.2

20.5 24.1 13.5 14.8 0.5 357.9 291.6 267.0 248.8 279.3 16.9 29.3 60.6 112.6 91.8 69.6 45.7 347.1 343.1 331.3 340.0 354.7 352.2 354.3  
 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 - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 95 deg on Jan 18 06:00	Hours of Data: 731
Minimum Value: 5 deg on Jan 17 19:00	Hours of Missing Data: 13
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 9 Q <sub>1</sub> = 10 Median = 15 Q <sub>3</sub> = 24 P <sub>90</sub> = 50 P <sub>99</sub> = 85	Hours of Calibration: 0
	Percent Operational Time: 98.3

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Jan	64	40	7	8	11	15	14	11	28	24	28	10	18	20	15	14	9	10	13	21	15	12	12	7	64
2-Jan	10	14	34	31	78	17	41	45	88	63	26	14	45	65	79	18	46	23	52	23	15	76	81	62	88
3-Jan	35	11	76	23	18	16	14	91	23	11	9	9	10	10	10	8	10	10	9	10	8	9	9	9	91
4-Jan	10	10	10	11	10	9	9	11	10	8	8	13	10	11	11	11	8	8	11	11	9	14	27	27	91
5-Jan	9	15	12	23	11	38	23	40	52	30	55	10	14	18	12	10	11	10	9	7	7	9	7	10	55
6-Jan	9	10	8	10	10	9	11	11	9	6	7	7	7	8	9	8	9	10	12	11	8	9	8	12	12
7-Jan	10	11	16	6	9	9	21	16	20	50	29	16	23	21	17	12	12	13	12	13	11	10	9	9	50
8-Jan	9	12	17	9	46	12	29	84	40	11	21	12	10	12	11	16	31	25	21	10	8	17	18	18	84
9-Jan	15	74	41	16	13	22	13	17	9	11	7	8	10	7	10	15	9	7	8	9	12	9	8	8	74
10-Jan	9	9	7	18	22	77	35	69	21	52	67	35	23	9	15	15	28	UO	UO	54	UO	56	UO	35	77
11-Jan	27	62	45	42	62	UO	54	32	51	31	23	27	56	17	20	8	49	39	57	95	58	18	61	23	95
12-Jan	23	22	23	19	28	13	9	11	8	8	18	69	13	19	11	8	15	48	UO	UO	76	72	14	12	76
13-Jan	17	8	12	50	18	14	35	85	25	25	25	70	16	6	7	10	72	UO	12	27	73	23	41	29	85
14-Jan	56	UO	46	43	UO	UO	UO	UO	49	18	38	83	7	8	12	19	15	38	9	36	78	25	25	23	83
15-Jan	9	11	8	10	14	10	7	10	12	11	11	12	11	16	10	9	9	7	6	12	9	8	10	17	17
16-Jan	45	76	23	17	11	15	13	44	63	60	63	33	19	43	18	49	23	36	12	12	14	11	12	18	76
17-Jan	22	11	40	9	9	10	10	13	9	10	9	9	12	12	8	8	7	7	5	7	10	11	12	16	40
18-Jan	37	50	28	21	25	95	33	26	16	18	29	73	14	58	26	21	15	12	10	18	12	14	15	24	95
19-Jan	16	26	32	13	11	11	12	13	10	10	10	14	15	15	14	11	12	29	22	44	32	54	91	55	91
20-Jan	38	60	53	42	69	26	26	15	46	32	13	13	18	26	18	15	7	12	9	10	11	9	10	13	69
21-Jan	11	14	27	37	19	13	9	15	21	19	9	11	9	11	10	8	11	10	9	12	63	12	7	7	63
22-Jan	7	8	9	11	10	10	12	11	23	14	15	14	18	68	11	13	10	8	11	11	11	9	9	9	68
23-Jan	11	9	7	11	11	12	34	20	22	15	15	20	88	21	13	9	8	7	9	9	10	9	9	9	88
24-Jan	8	11	10	8	10	20	26	21	45	19	27	19	36	21	21	17	17	16	16	13	36	51	21	26	51
25-Jan	9	8	9	9	9	8	7	9	14	13	16	73	35	17	21	16	11	11	12	12	12	12	13	13	73
26-Jan	15	28	25	23	20	45	56	86	27	20	21	23	8	18	13	12	12	18	12	9	13	11	23	20	86
27-Jan	10	13	18	9	29	71	20	40	10	12	13	12	12	11	11	15	18	19	20	18	19	20	19	13	71
28-Jan	11	9	17	10	17	54	29	27	27	13	11	12	18	21	20	16	14	14	15	16	17	21	24	15	54
29-Jan	23	13	19	11	11	13	10	6	18	22	15	24	24	21	27	11	25	72	14	17	12	38	60	41	72
30-Jan	34	8	14	15	14	45	31	57	28	69	26	15	16	18	20	21	19	21	20	24	21	21	21	18	69
31-Jan	12	17	21	22	16	16	19	14	12	17	22	52	26	11	19	8	14	59	36	52	54	34	16	22	59
	64	76	76	50	78	95	56	91	88	69	67	83	88	68	79	49	72	72	57	95	78	76	91	62	
	Diurnal Maximum																								

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS501  
LEISMER  
JANUARY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LEISMER (AMS501)  
 JANUARY 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	708	35	36	99.87	20.6	0	5.3	0
H2S (ppb) Average	707	36	37	99.87	0.6	0	0.2	0
NO2 (ppb) Average	706	37	38	99.87	15.4	0	6	-
NO (ppb) Average	706	37	38	99.87	13.5	-	4.3	-
NOX (ppb) Average	706	37	38	99.87	22.3	-	10.1	-
Temperature 2 m (C) Average	743	0	1	99.87	10.7	-	4.9	-
Relative Humidity (%) Average	743	0	1	99.87	97.7	-	93.7	-
Wind Speed 10 m (km/h) Average	726	0	18	97.58	36	-	18	-
Wind Direction 10 m (deg) Average	726	0	18	97.58	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LEISMER (AMS501)  
 JANUARY 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	708	1.2	2.4	-	0	0	0.2	0.4	1	3	20.6
H2S (ppb) Average	707	0.1	0.1	-	0	0	0.1	0.1	0.1	0.2	0.6
NO2 (ppb) Average	706	3.11	2.4	-	0	0.7	1.3	2.6	4.3	6.5	15.4
NO (ppb) Average	706	0.92	1.7	-	0	0	0	0.2	1	2.3	13.5
NOX (ppb) Average	706	4.03	3.6	-	0.3	0.7	1.5	3	5.5	8.1	22.3
Temperature 2 m (C) Average	743	-16.14	12.1	-	-42.7	-33.3	-23.8	-16.1	-8.2	0.6	10.7
Relative Humidity (%) Average	743	77.89	10.4	-	33.6	66	71.4	78.8	85.6	90.6	97.7
Wind Speed 10 m (km/h) Average	726	8.2	5	-	0	3	5	7	10	14	36
Wind Direction 10 m (deg) Average	726	258.7	0	-	0	-	-	-	-	-	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LEISMER (AMS501)  
JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	12 Jan 2024 12:00	12 Jan 2024 12:00	1	Maintenance - station logger/modem reset
Wind Speed, Wind Direction	13 Jan 2024 20:00	13 Jan 2024 21:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Jan 2024 20:00	27 Jan 2024 10:00	15	Flat line in sensor output signal - Sensor frozen

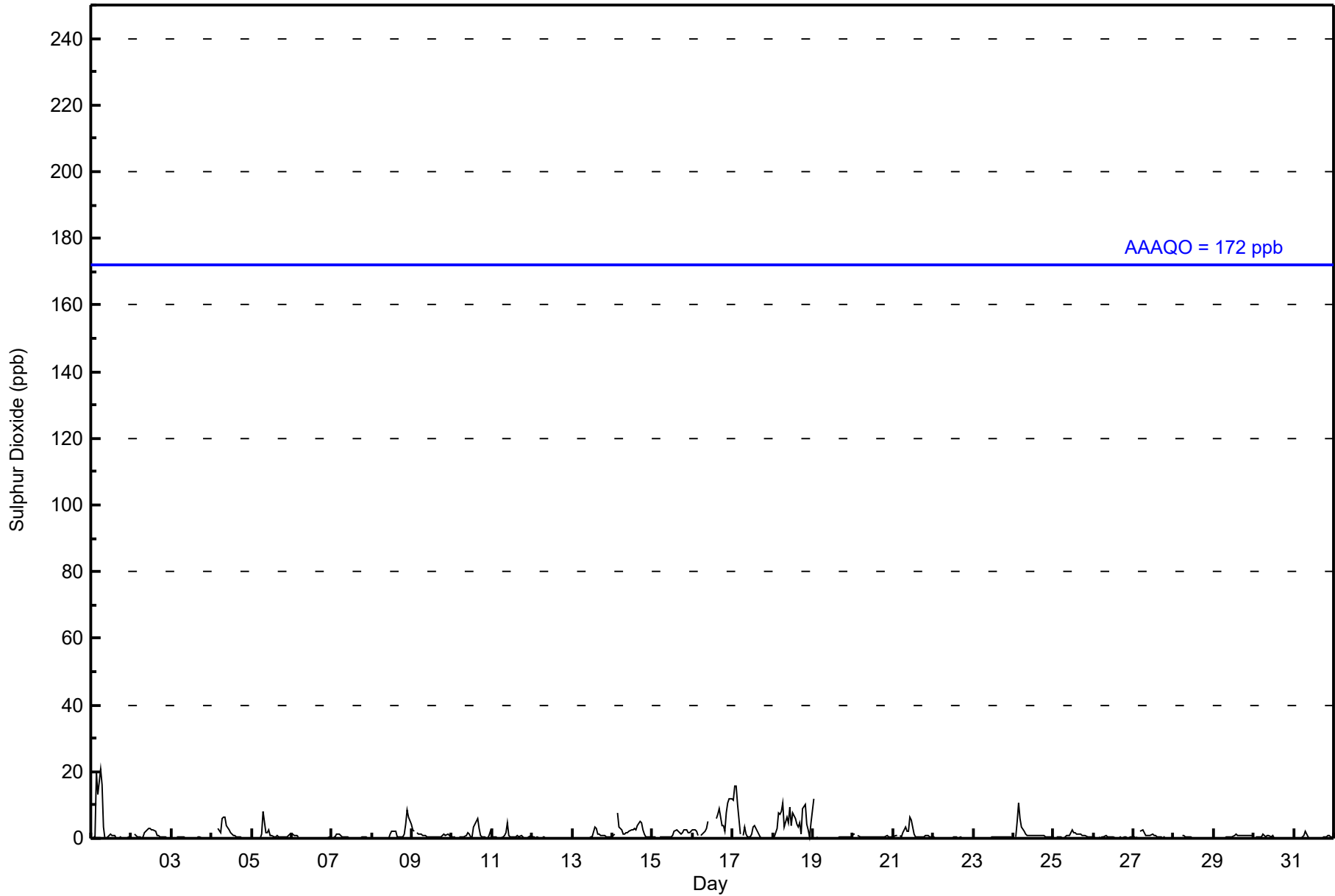


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 20.6 ppb on Jan 1 06:00		Maximum Daily Average: 5.3 ppb on Jan 18				Hours of Data:		708																																								
Minimum Value: 0.0 ppb on Jan 3 22:00		Minimum Daily Average: 0.1 ppb on Jan 12				Hours of Missing Data:		36																																								
Maximum Diurnal Average: 2.5 ppb at hour 4		Minimum Diurnal Average: 0.7 ppb at hour 18				Hours of Calibration:		35																																								
Monthly Average: 1.20 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 3.0 P <sub>99</sub> = 11.9				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-Jan	Z	0.2	0.5	19.8	13.0	20.6	15.9	3.6	0.2	0.2	0.5	1.1	1.0	0.8	0.8	0.0	0.0	0.5	0.1	0.1	0.0	0.0	0.2	0.1	3.4	20.6																						
2-Jan	0.5	Z	1.3	0.3	0.4	0.3	0.1	0.4	1.5	2.4	2.8	2.8	2.6	2.3	2.1	1.0	0.7	0.4	0.3	0.3	0.3	0.2	0.2	0.1	1.0	2.8																						
3-Jan	0.1	0.1	Z	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.3																						
4-Jan	0.0	0.0	0.0	Z	2.8	1.9	5.9	6.5	3.8	2.5	1.8	1.3	0.9	0.8	0.5	0.5	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.1	1.6	6.5																						
5-Jan	0.1	0.2	0.2	0.2	Z	0.2	1.1	7.9	1.9	1.6	2.3	1.0	0.7	0.5	0.6	0.8	0.6	0.3	0.4	0.6	0.5	0.6	0.7	1.1	1.0	7.9																						
6-Jan	1.2	0.9	0.7	0.8	0.5	Z	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	0.1	0.2	0.3	0.3	0.3	1.2																						
7-Jan	Z	0.3	0.5	1.1	1.2	1.0	0.3	0.4	0.6	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.5	0.4	0.3	0.1	0.1	0.1	0.4	1.2																						
8-Jan	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.3	2.0	1.9	2.1	0.6	0.4	0.3	0.3	1.5	4.0	8.6	6.5	4.2	1.5	8.6																						
9-Jan	2.6	2.1	Z	1.7	1.4	1.1	0.9	0.7	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.4	0.3	0.4	0.7	1.1	0.8	1.5	0.7	0.4	0.8	2.6																						
10-Jan	0.3	0.3	0.3	Z	0.4	0.5	0.5	0.5	0.9	1.7	1.2	0.3	0.5	3.4	5.1	5.9	3.0	0.9	0.4	0.3	0.2	0.2	0.8	2.2	1.3	5.9																						
11-Jan	0.3	0.6	0.4	0.2	Z	0.1	0.2	0.8	1.9	4.6	0.7	0.6	0.4	0.6	0.6	0.7	0.5	0.7	0.3	0.1	0.1	0.2	0.5	0.6	0.7	4.6																						
12-Jan	0.4	0.3	0.2	0.5	0.0	Z	0.4	0.3	0.1	0.1	0.1	M	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.5																						
13-Jan	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.3	3.2	3.1	1.2	1.2	1.0	0.9	0.7	0.5	0.5	0.5	0.6	0.6	3.2																						
14-Jan	1.0	1.5	Z	7.8	3.2	2.5	1.4	1.4	1.5	1.7	2.3	2.3	2.6	2.8	2.3	3.9	5.0	4.5	2.5	1.1	0.5	0.4	0.3	0.6	2.3	7.8																						
15-Jan	0.4	0.2	0.3	Z	0.4	0.4	0.5	0.3	0.3	0.4	0.3	0.3	0.8	2.3	2.4	2.1	1.6	1.4	1.9	2.6	2.5	1.7	1.8	2.0	1.2	2.6																						
16-Jan	2.6	2.5	2.0	1.0	Z	0.8	1.2	2.2	3.2	5.2	C	C	C	C	6.0	7.1	9.0	3.8	3.9	2.3	7.6	10.5	11.9	12.0	5.0	12.0																						
17-Jan	11.7	15.8	15.7	10.0	1.2	Z	0.9	3.5	1.2	0.5	0.5	1.1	3.2	3.8	3.1	1.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	3.2	15.8																						
18-Jan	Z	0.4	3.0	7.6	7.4	8.1	10.6	3.5	6.5	4.7	9.2	3.7	7.8	6.0	4.3	3.3	4.5	1.2	8.9	10.3	4.4	2.6	0.3	4.6	5.3	10.6																						
19-Jan	11.8	Z	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.4	0.7	11.8																						
20-Jan	1.1	1.2	Z	0.8	0.6	0.5	0.5	0.3	0.3	0.2	0.3	0.3	0.5	0.3	0.4	0.3	0.3	0.4	0.6	0.5	0.7	0.4	0.3	0.5	0.5	1.2																						
21-Jan	0.6	0.8	0.8	Z	0.7	0.5	1.5	3.2	2.1	2.0	6.5	5.5	1.2	0.5	0.5	0.4	0.4	0.5	0.5	0.7	0.6	0.7	0.6	0.6	1.4	6.5																						
22-Jan	0.4	0.2	0.2	0.0	Z	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.4																						
23-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.6	0.6	0.5	0.4	0.5	0.6	0.4	0.4	0.5	0.4	0.6	0.3	0.6																						
24-Jan	Z	0.6	5.0	10.8	5.8	3.6	2.1	1.5	1.0	0.9	0.8	0.7	0.7	0.7	0.9	0.8	0.8	0.9	0.8	0.6	0.6	0.6	0.6	0.5	1.8	10.8																						
25-Jan	0.5	Z	0.4	0.3	0.2	0.1	0.1	0.6	1.0	0.7	1.7	2.6	1.8	1.5	1.3	1.3	1.1	0.8	0.7	0.7	0.6	0.3	0.4	0.4	0.8	2.6																						
26-Jan	0.4	0.3	Z	0.2	0.2	0.3	0.5	0.8	0.2	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.1	0.2	0.3	0.3	0.3	0.8																						
27-Jan	0.2	0.2	0.4	Z	2.0	2.7	1.5	0.8	0.8	0.8	0.9	1.1	0.9	0.7	0.5	0.5	0.3	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.7	2.7																						
28-Jan	0.2	0.2	0.2	0.2	Z	0.7	0.6	0.6	0.5	0.5	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.7																						
29-Jan	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.3	0.4	0.3	0.4	0.5	0.8	1.2	1.0	0.9	1.0	1.0	0.8	0.8	0.8	0.7	0.8	0.7	0.5	1.2																						
30-Jan	Z	0.4	0.4	0.5	0.6	1.4	0.8	0.6	0.7	0.8	0.4	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.4																						
31-Jan	0.0	Z	0.0	0.1	0.1	0.3	0.9	2.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.3	0.6	0.7	0.7	0.4	0.3	0.3	2.2																						
																								1.4	1.2	1.3	2.5	1.6	1.9	1.6	1.4	1.1	1.1	1.2	1.0	1.0	1.2	1.3	1.1	1.1	0.7	0.9	0.9	0.9	1.0	0.9	1.1	Diurnal Average
																								11.8	15.8	15.7	19.8	13.0	20.6	15.9	7.9	6.5	5.2	9.2	5.5	7.8	6.0	6.0	7.1	9.0	4.5	8.9	10.3	7.6	10.5	11.9	12.0	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**  
**Leismer - January 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Leismer - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	695	98.16	98.16
11 - 20	12	1.69	99.86
21 - 60	1	0.14	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: 708

Total Number of Hours: 744



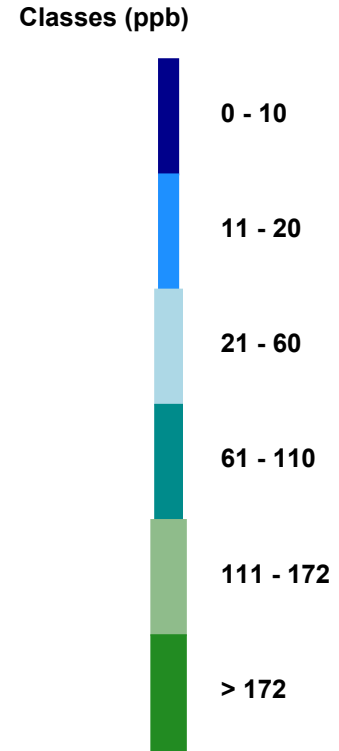
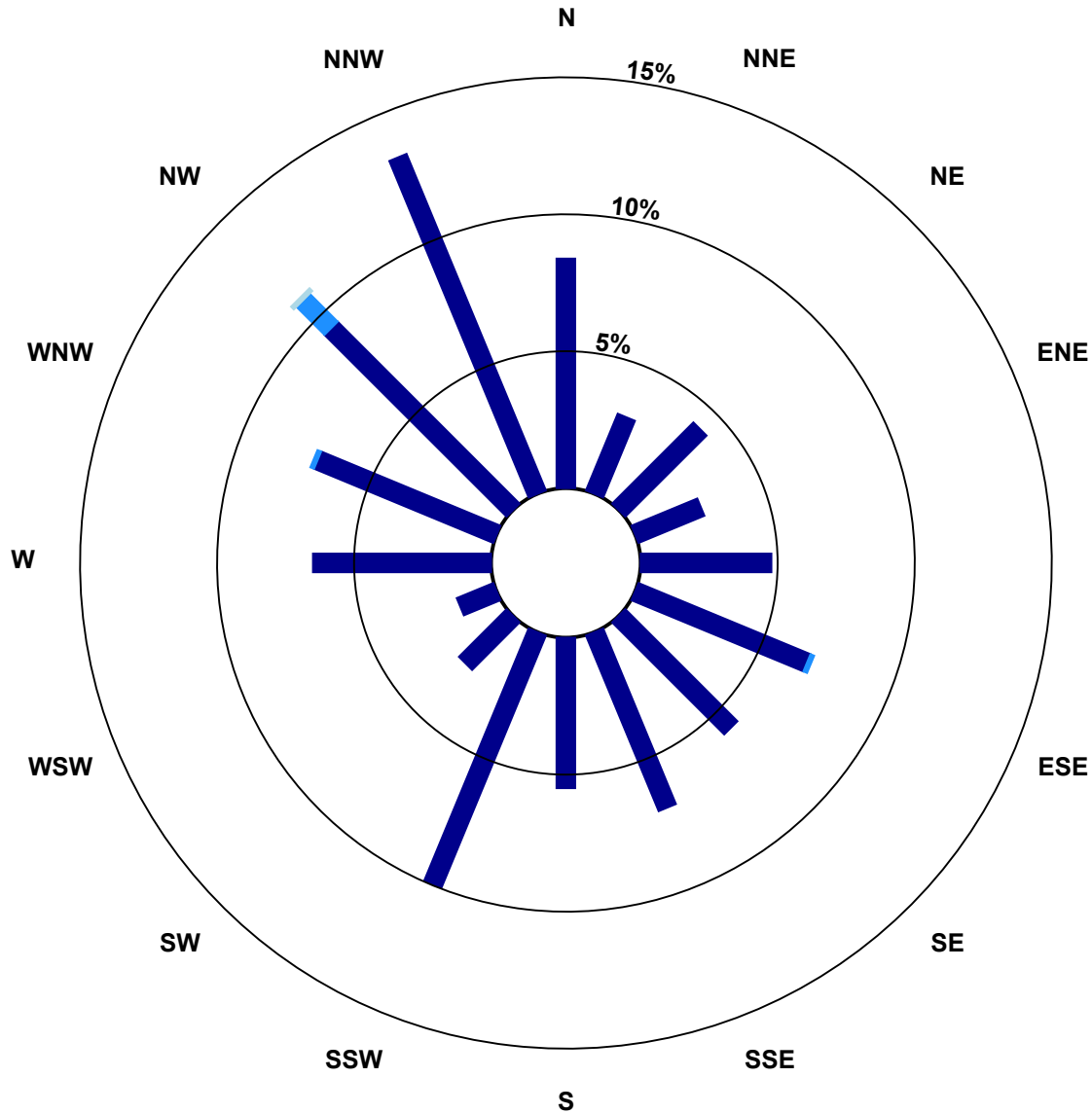
**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Leismer - January 2024**

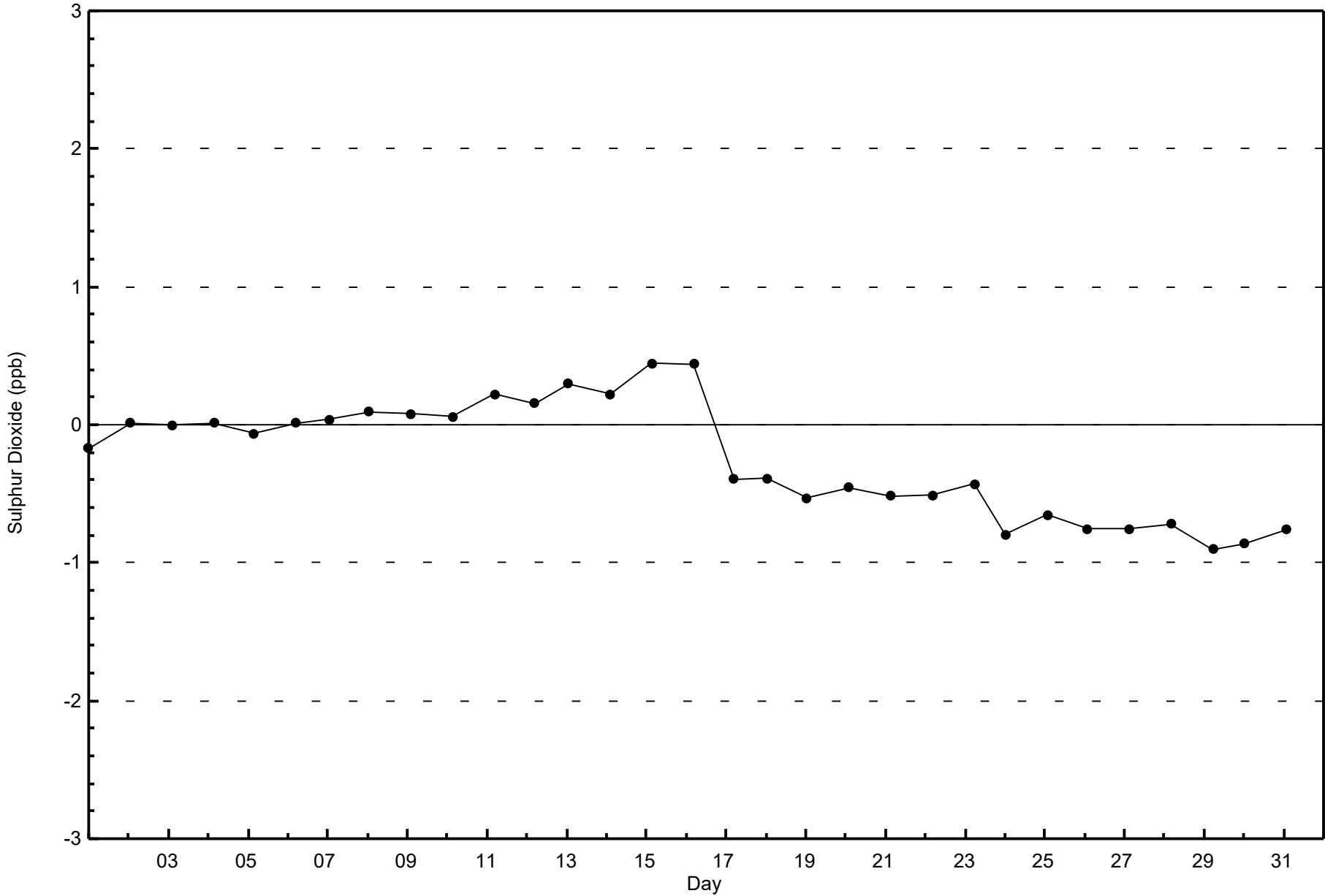
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	58	21	29	18	33	47	40	48	38	69	17	10	45	49	65	92	679
11 - 20	0	0	0	0	0	1	0	0	0	0	0	0	0	1	10	0	12
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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>	58	21	29	18	33	48	40	48	38	69	17	10	45	50	76	92	692

Total Number of Valid Hours: 692

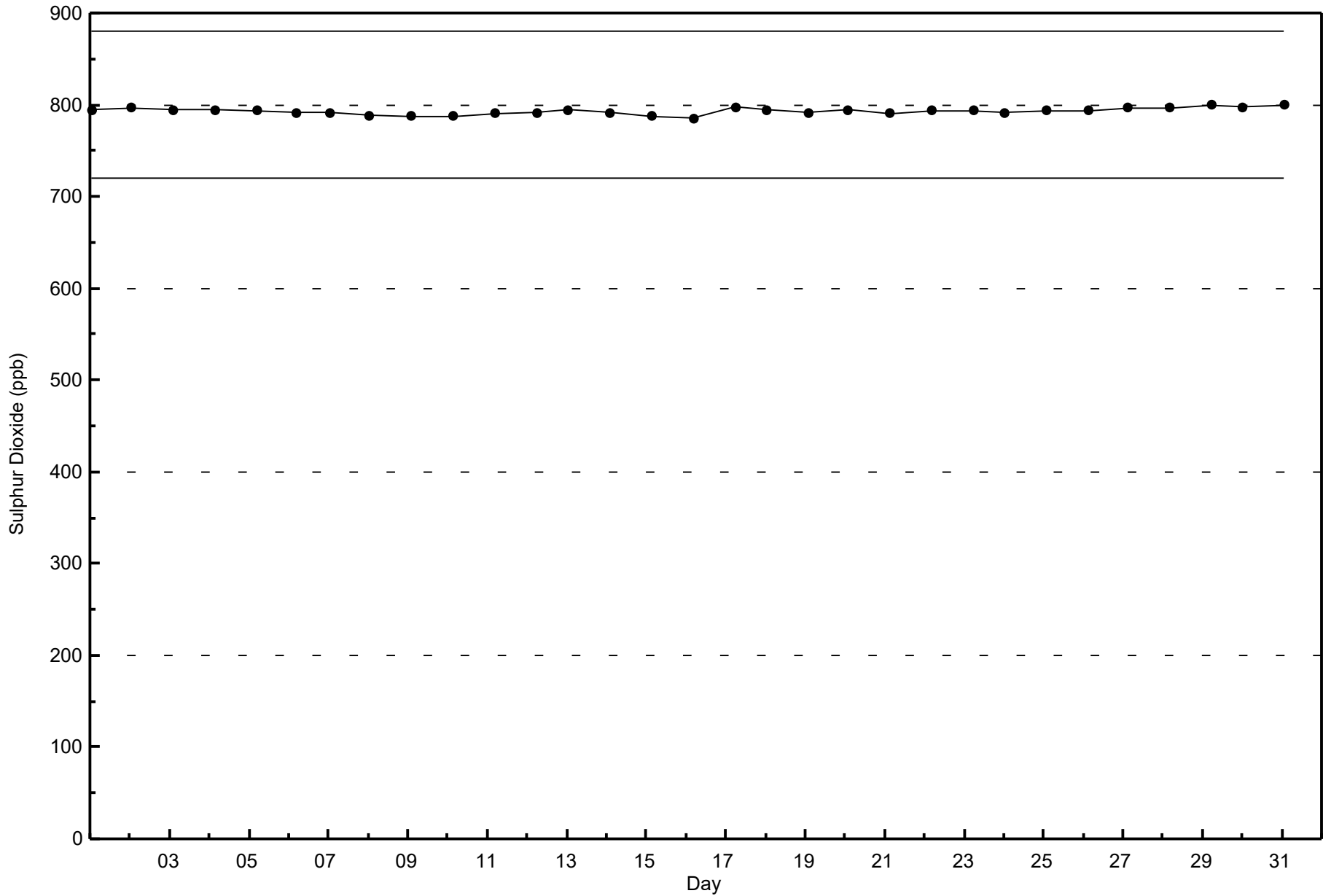
Total Number of Hours: 744



Total Number of Valid Hours: 692





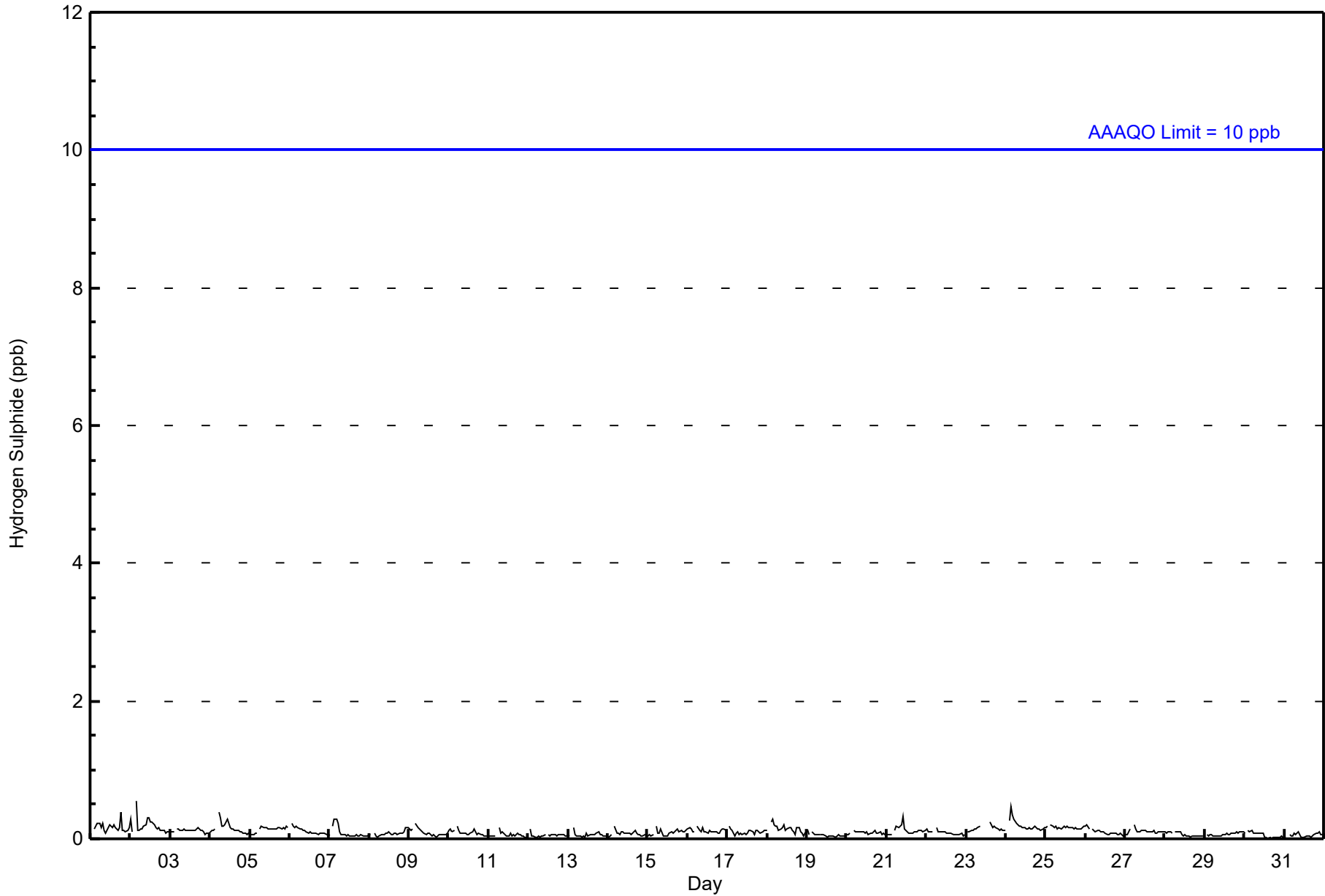




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Leismer - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0    24-hr: 0		Hours in Service:		744																																													
Maximum Value: 0.6 ppb on Jan 2 04:00		Maximum Daily Average: 0.2 ppb on Jan 24		Hours of Data:		707																																													
Minimum Value: 0.0 ppb on Jan 30 15:00		Minimum Daily Average: 0.1 ppb on Jan 12		Hours of Missing Data:		37																																													
Maximum Diurnal Average: 0.2 ppb at hour 4		Minimum Diurnal Average: 0.1 ppb at hour 23		Hours of Calibration:		36																																													
Monthly Average: 0.10 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> = 0.1 P <sub>90</sub> = 0.2 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-Jan	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	0.1	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2																								
2-Jan	0.3	0.1	Z	0.6	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.3	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	0.2																							
3-Jan	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
4-Jan	0.1	0.1	0.1	0.1	Z	0.4	0.3	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	0.1	0.1	0.1	0.1																							
5-Jan	0.1	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	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																							
6-Jan	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
7-Jan	0.1	Z	0.2	0.3	0.3	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	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
8-Jan	0.1	0.1	Z	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	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2																							
9-Jan	0.2	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	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
10-Jan	0.1	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2																							
11-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
12-Jan	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	M	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1																								
13-Jan	0.1	0.0	Z	0.2	0.1	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	0.1	0.1	0.0	0.0	0.0	0.1	0.1																								
14-Jan	0.0	0.0	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	0.0	0.0	0.1	0.0	0.1	0.0																								
15-Jan	0.1	0.1	0.1	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
16-Jan	0.1	0.2	0.1	0.1	0.1	Z	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	0.1	0.1																							
17-Jan	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																							
18-Jan	0.1	Z	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3																							
19-Jan	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																							
20-Jan	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																							
21-Jan	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
22-Jan	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2																							
23-Jan	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	C	C	C	C	C	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																							
24-Jan	0.1	Z	0.3	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.5																							
25-Jan	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	0.2	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																							
26-Jan	0.2	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	0.2																							
27-Jan	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
28-Jan	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	0.0	0.0	0.0	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-Jan	Z	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	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-Jan	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
31-Jan	0.0	0.0	Z	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	0.1	0.1	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	0.1	0.1	0.1	0.1	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	
																								0.3	0.2	0.3	0.6	0.3	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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**  
**Leismer - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Leismer - January 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	57	20	31	18	36	46	41	49	37	67	16	9	45	47	77	95	691
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>	57	20	31	18	36	46	41	49	37	67	16	9	45	47	77	95	691

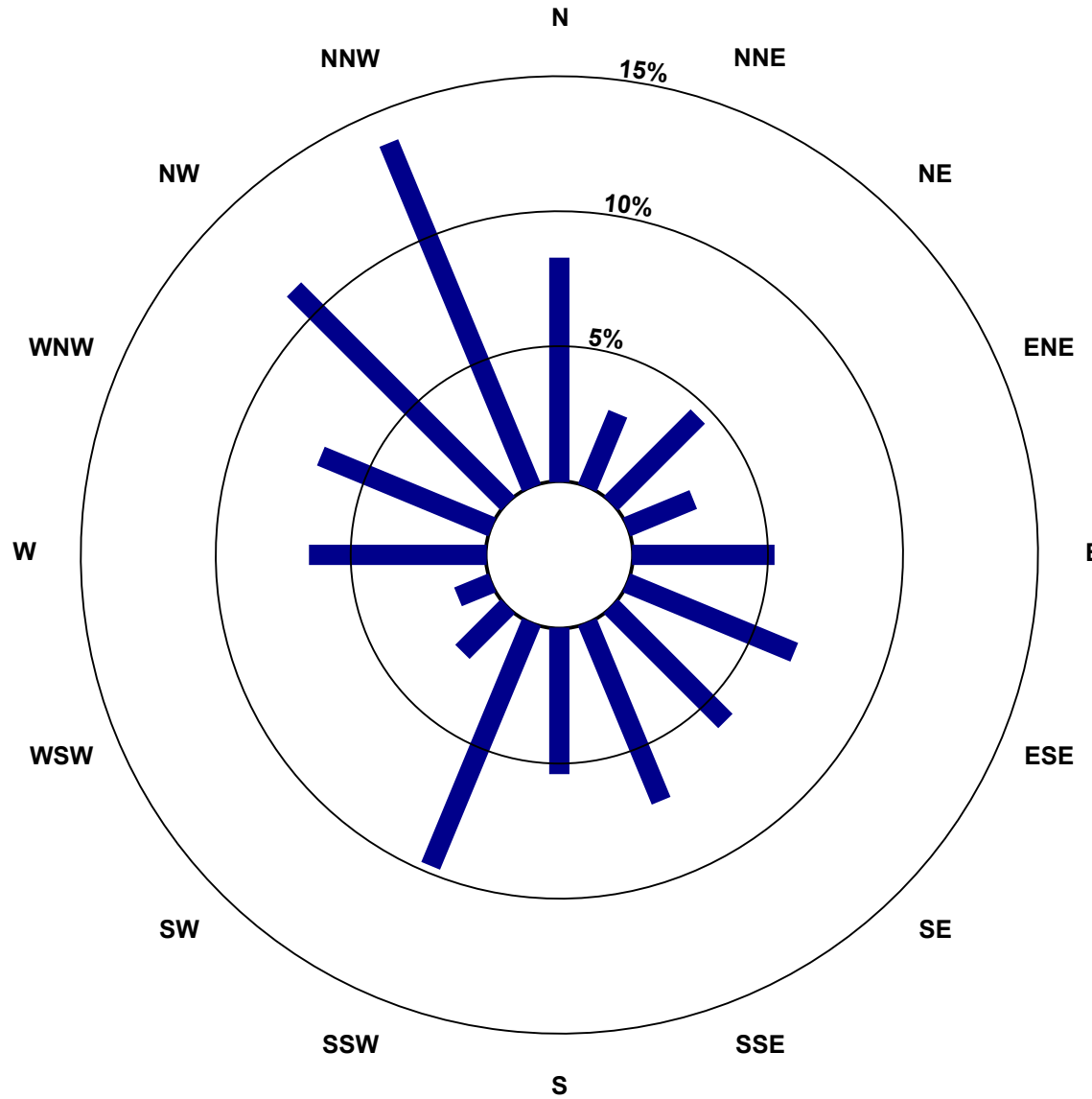
Total Number of Valid Hours: 691

Total Number of Hours: 744

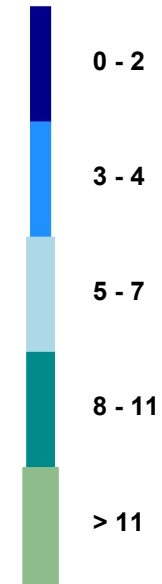


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

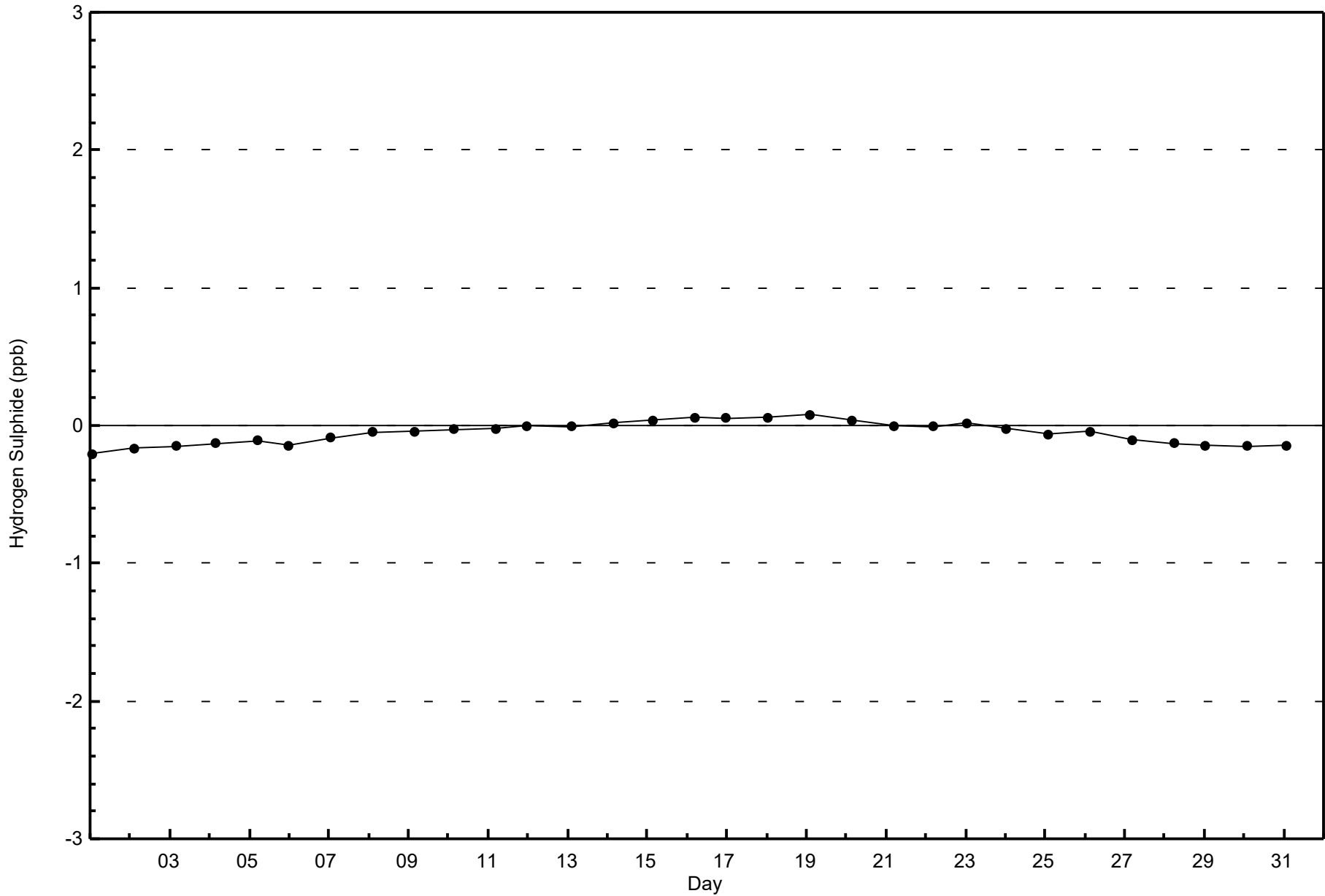
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Leismer

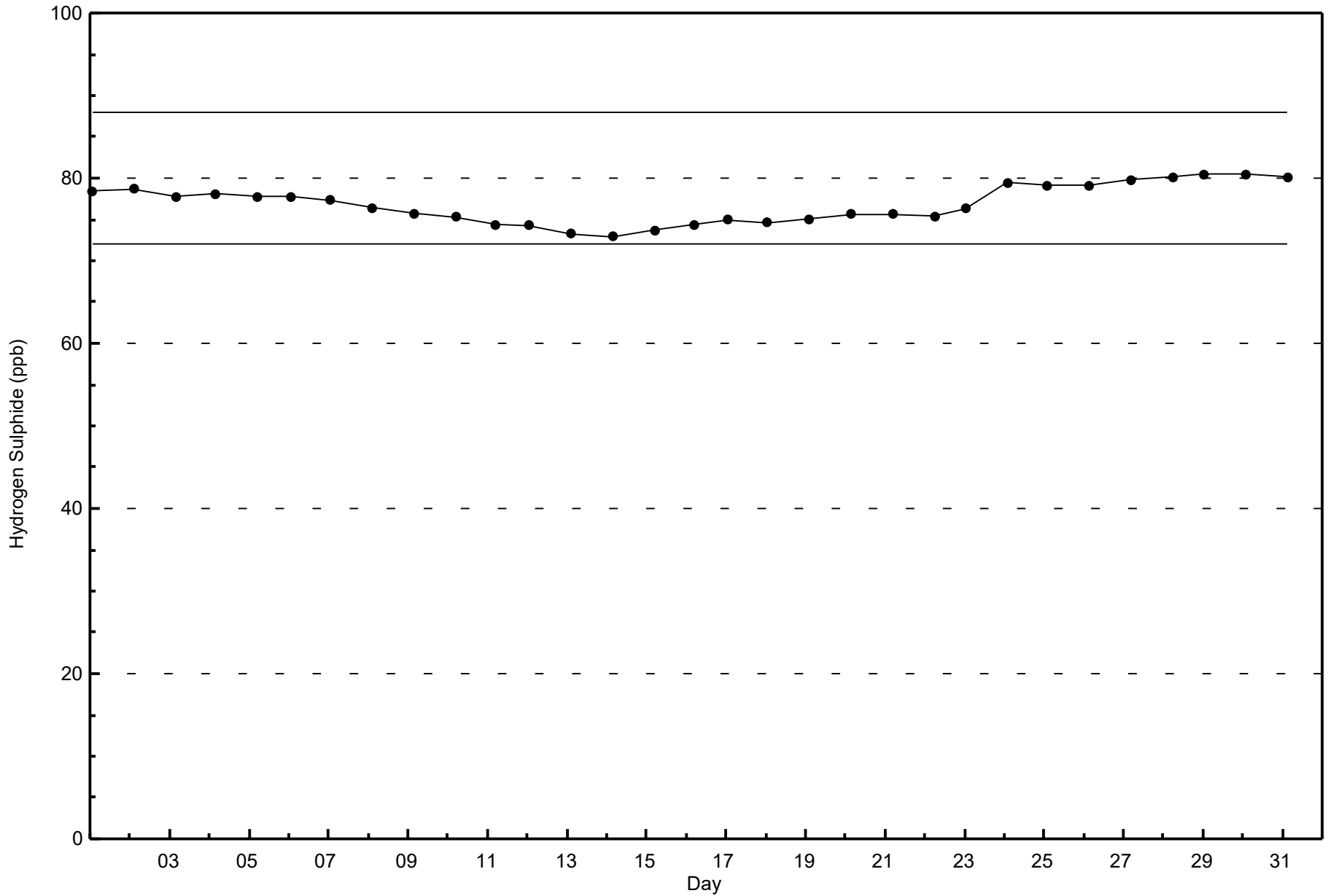


Classes (ppb)



Total Number of Valid Hours: 691









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

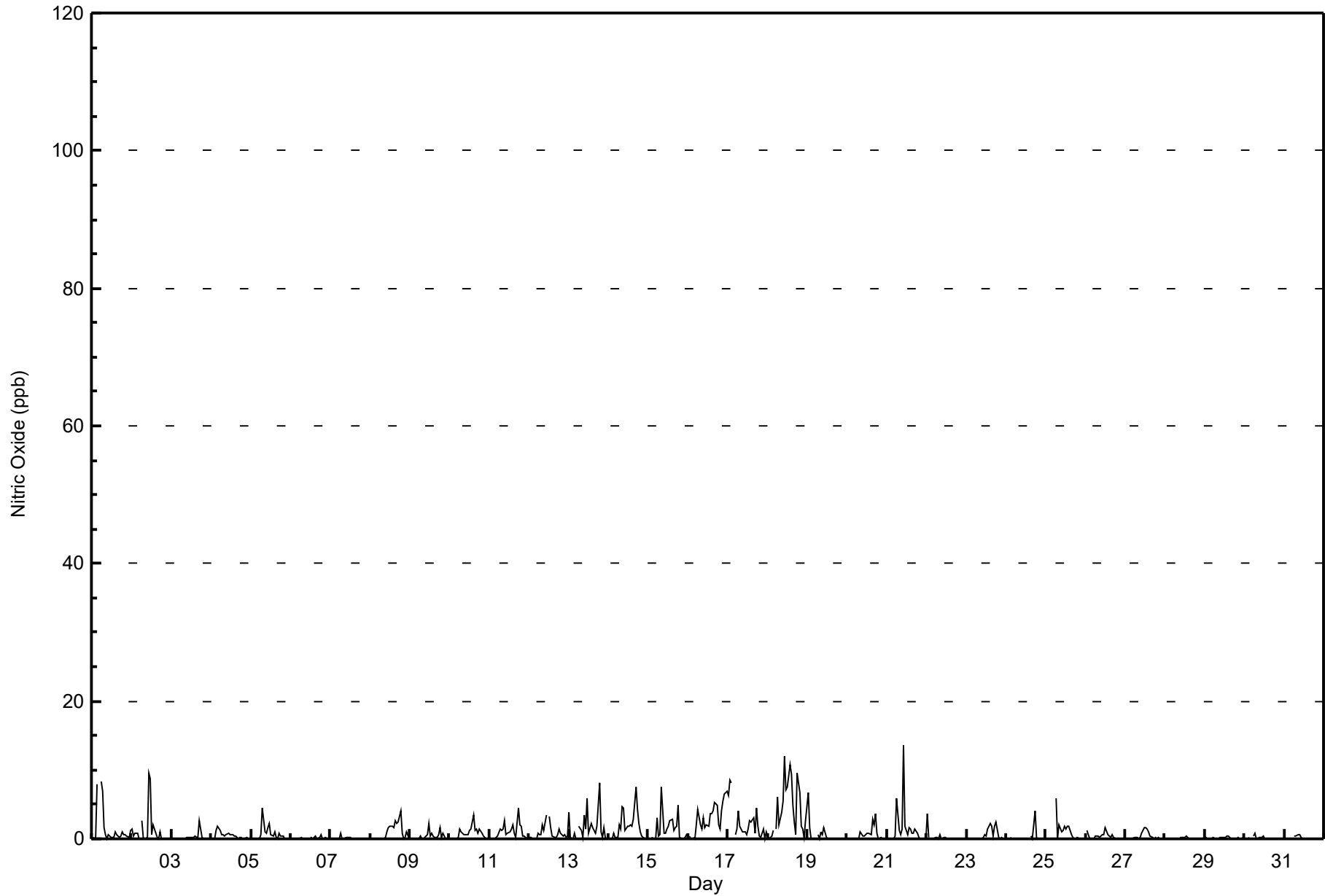
**Nitric Oxide (NO) - ppb**  
**Leismer - January 2024**

Maximum Value: 13.5 ppb on Jan 21 11:00		Maximum Daily Average: 4.3 ppb on Jan 18		Hours in Service: 744																																												
Minimum Value: 0.0 ppb on Jan 2 20:00		Minimum Daily Average: 0.1 ppb on Jan 28		Hours of Data: 706																																												
Maximum Diurnal Average: 1.9 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Missing Data: 38																																												
Monthly Average: 0.92 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> = 1.0 P <sub>90</sub> = 2.3 P <sub>99</sub> = 8.5		Hours of Calibration: 37																																												
				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-Jan	0.3	0.0	0.2	7.9	Z	8.4	7.0	1.7	0.5	0.0	0.6	0.3	0.3	0.3	1.0	0.6	0.1	0.4	1.1	0.7	0.7	0.4	0.2	1.2	1.5	8.4																						
2-Jan	1.4	0.3	0.8	0.8	0.0	Z	2.6	0.1	0.0	0.1	9.6	8.8	0.6	2.0	0.8	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	9.6																						
3-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.4	0.2	0.3	2.7	0.2	0.0	0.0	0.0	0.0	0.0	0.2	2.7																						
4-Jan	0.0	Z	0.0	1.3	1.8	1.1	0.7	0.6	0.4	0.7	0.8	0.6	0.6	0.6	0.4	0.4	0.0	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.5	1.8																						
5-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.6	4.4	1.0	0.7	1.6	2.3	0.6	0.5	1.0	0.2	0.0	0.8	0.5	0.4	0.1	0.0	0.0	0.0	0.6	4.4																						
6-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.4	0.1	0.2	0.6	0.0	0.0	0.2	0.0	0.0	0.1	0.6																						
7-Jan	0.1	0.0	0.0	0.0	Z	0.0	0.8	0.0	0.0	0.1	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	0.0	0.1	0.8																						
8-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	1.0	1.7	1.8	1.9	1.6	2.6	2.3	2.4	4.0	0.9	0.0	0.1	1.0	0.0	0.9	4.0																						
9-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.6	2.2	0.4	0.7	0.5	0.1	0.1	0.6	1.6	0.2	0.8	0.0	0.0	0.0	0.4	2.2																						
10-Jan	0.0	Z	0.0	0.0	0.0	0.2	1.5	1.0	0.6	0.6	0.7	0.6	1.2	1.4	3.5	1.2	1.3	0.7	1.5	0.7	0.5	0.2	0.1	0.1	0.8	3.5																						
11-Jan	0.2	0.0	Z	0.0	0.2	0.4	1.4	1.3	1.4	2.6	0.6	0.9	0.9	1.4	2.1	0.7	0.3	4.5	2.0	1.7	0.4	0.4	0.1	0.0	1.0	4.5																						
12-Jan	0.2	0.2	0.0	Z	0.0	0.8	0.6	0.7	2.0	1.3	3.5	M	3.2	1.6	0.5	0.2	0.2	0.7	1.4	0.7	0.3	0.6	0.3	0.5	0.9	3.5																						
13-Jan	3.8	0.2	0.1	0.8	0.0	Z	1.8	1.3	0.1	3.4	1.3	6.0	0.8	2.2	1.6	1.3	0.9	1.9	8.1	1.0	0.3	1.7	0.3	0.0	1.7	8.1																						
14-Jan	Z	0.0	0.0	0.8	0.1	0.2	2.1	1.4	4.7	4.4	1.2	1.8	1.9	2.1	1.8	2.8	7.6	4.2	2.3	1.1	0.4	0.2	0.1	0.1	1.8	7.6																						
15-Jan	0.0	Z	0.2	0.0	0.1	3.0	0.4	0.6	7.5	0.9	0.8	1.5	1.9	2.6	2.8	1.2	1.7	1.9	4.9	0.1	0.0	0.1	0.2	0.6	1.4	7.5																						
16-Jan	0.3	0.2	Z	0.1	0.0	2.0	4.2	2.0	1.5	3.0	1.7	2.0	1.8	3.7	3.6	4.1	5.3	4.9	2.1	1.4	4.1	5.5	6.5	7.0	2.9	7.0																						
17-Jan	6.3	8.5	8.0	Z	0.7	1.5	4.1	1.9	1.5	1.1	1.1	0.7	1.5	2.6	2.4	3.1	0.7	4.5	1.8	0.5	0.3	1.5	0.0	1.1	2.4	8.5																						
18-Jan	0.5	0.0	0.5	1.2	Z	1.3	6.2	2.0	3.9	5.4	11.9	7.1	7.5	10.7	9.4	5.0	2.5	0.7	9.6	6.7	1.8	1.4	0.1	2.7	4.3	11.9																						
19-Jan	6.7	1.7	0.0	0.0	0.0	Z	0.6	0.0	1.0	0.6	1.7	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	0.5	6.7																						
20-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.4	0.6	0.9	0.8	0.6	2.8	2.0	3.6	0.8	0.0	0.1	0.0	0.0	0.0	0.6	3.6																						
21-Jan	0.0	Z	0.0	0.1	0.1	0.4	5.9	1.1	0.6	1.4	13.5	1.7	0.7	1.6	1.4	0.7	0.9	1.4	0.7	0.2	0.0	0.0	0.0	0.0	1.4	13.5																						
22-Jan	3.6	0.2	Z	0.0	0.0	0.1	0.2	0.1	0.5	0.0	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	0.2	3.6																						
23-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.4	1.4	2.3	1.9	0.5	1.8	2.4	0.1	0.0	0.1	0.1	0.1	0.5	2.4																						
24-Jan	0.1	0.0	0.1	0.2	Z	0.0	0.1	0.0	0.1	C	C	C	C	C	C	0.3	0.0	4.0	0.3	0.0	0.0	0.0	0.0	0.0	--	4.0																						
25-Jan	0.0	0.0	0.0	0.0	0.0	Z	5.8	0.0	2.0	1.0	1.2	1.8	1.4	1.9	1.8	0.6	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.8	5.8																						
26-Jan	Z	1.2	0.0	0.0	0.0	0.0	0.5	0.4	0.3	0.3	0.6	0.6	1.7	0.6	0.4	0.2	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7																						
27-Jan	0.0	Z	0.0	0.1	0.1	0.2	0.1	0.2	0.0	0.3	0.8	1.6	1.6	1.4	1.0	0.4	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.4	1.6																						
28-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																						
29-Jan	0.5	0.0	0.0	Z	0.0	0.3	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.5																						
30-Jan	0.1	0.0	0.0	0.2	Z	0.4	0.8	0.1	0.0	0.1	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																						
31-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.3	0.5	0.6	0.1	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	0.1	0.6																						
																								0.9	0.5	0.4	0.5	0.1	0.8	1.6	0.7	1.0	1.0	1.9	1.5	1.1	1.4	1.4	1.0	0.9	1.4	1.5	0.5	0.3	0.4	0.3	0.4	Diurnal Average
																								6.7	8.5	8.0	7.9	1.8	8.4	7.0	4.4	7.5	5.4	13.5	8.8	7.5	10.7	9.4	5.0	7.6	4.9	9.6	6.7	4.1	5.5	6.5	7.0	Diurnal Maximum
Z - zerospan      C - Calibration      M - Maintenance																																																



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Leismer - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Leismer - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Leismer - January 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	55	21	32	17	33	47	37	44	41	67	17	11	45	49	77	97	690
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>	55	21	32	17	33	47	37	44	41	67	17	11	45	49	77	97	690

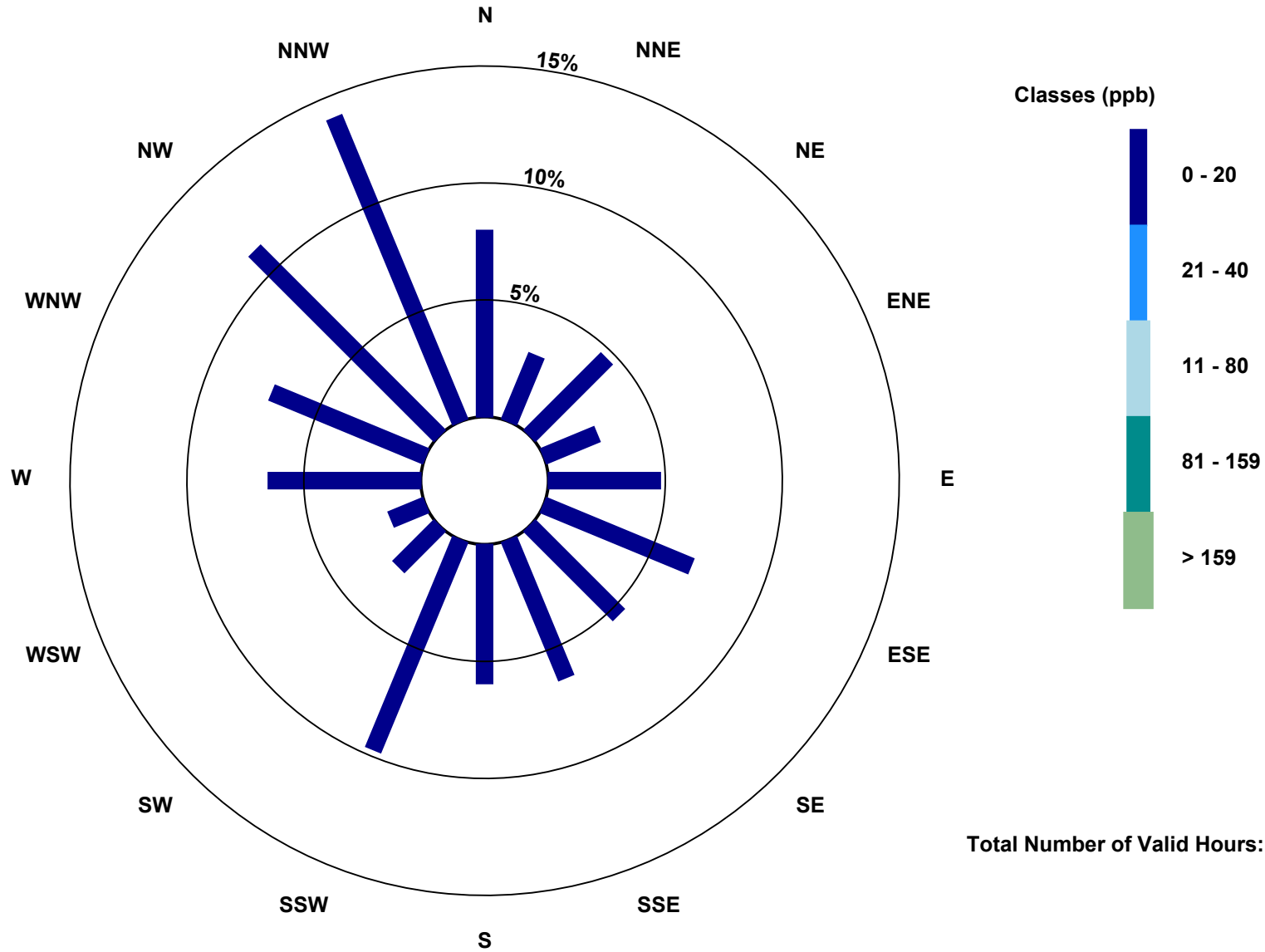
Total Number of Valid Hours: 690

Total Number of Hours: 744

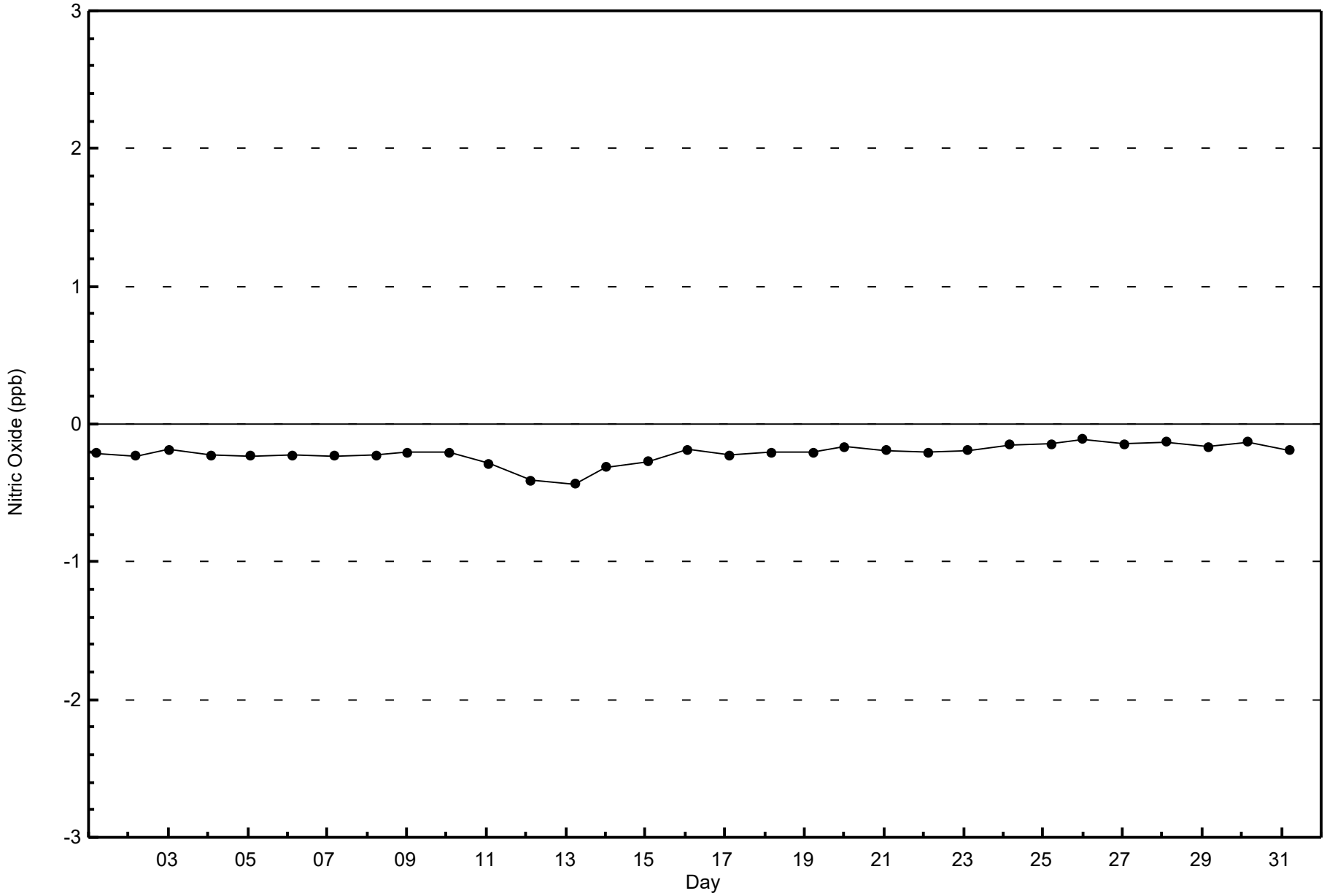


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Leismer



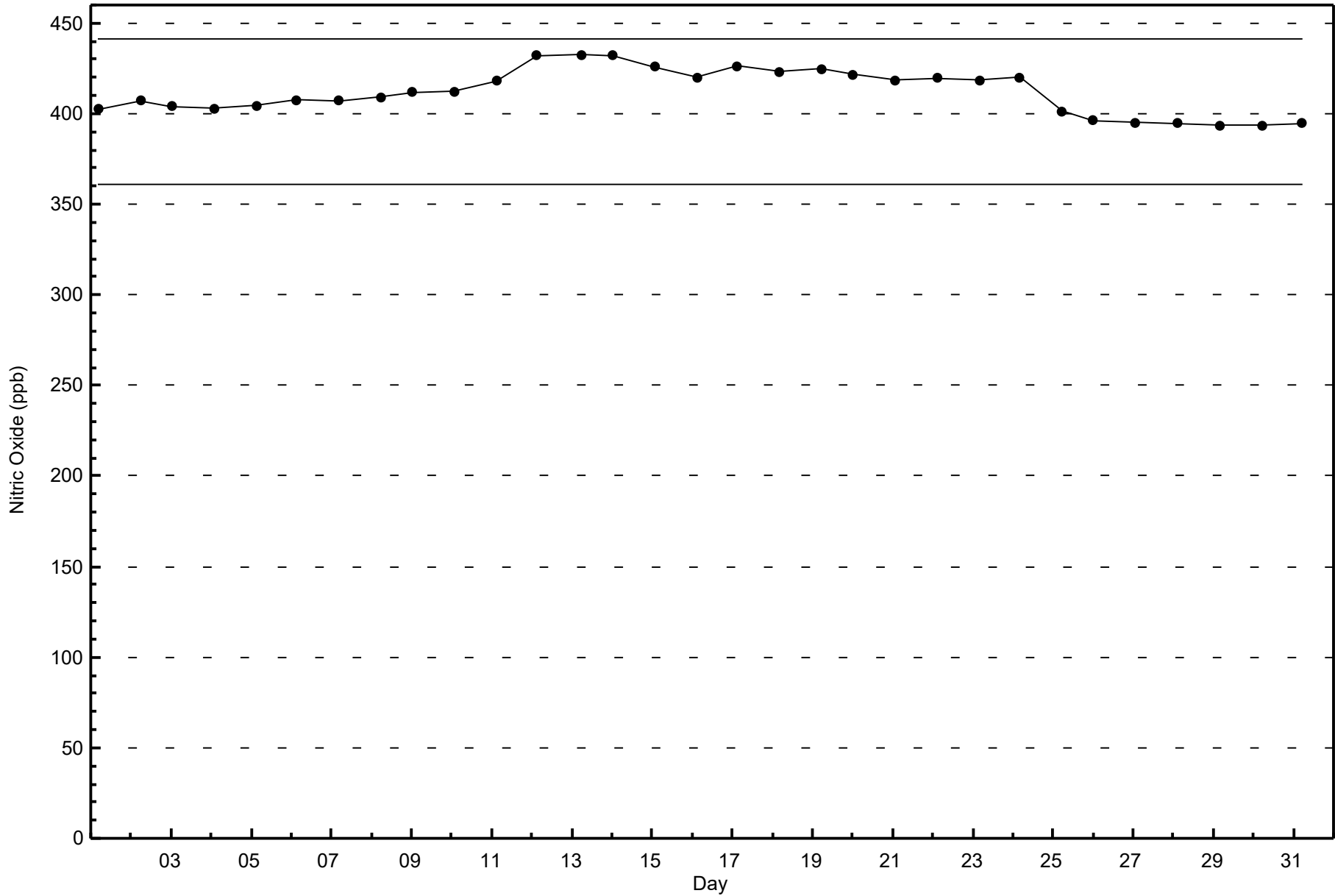
Total Number of Valid Hours: 690





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Leismer - January 2024





# Wood Buffalo Environmental Association

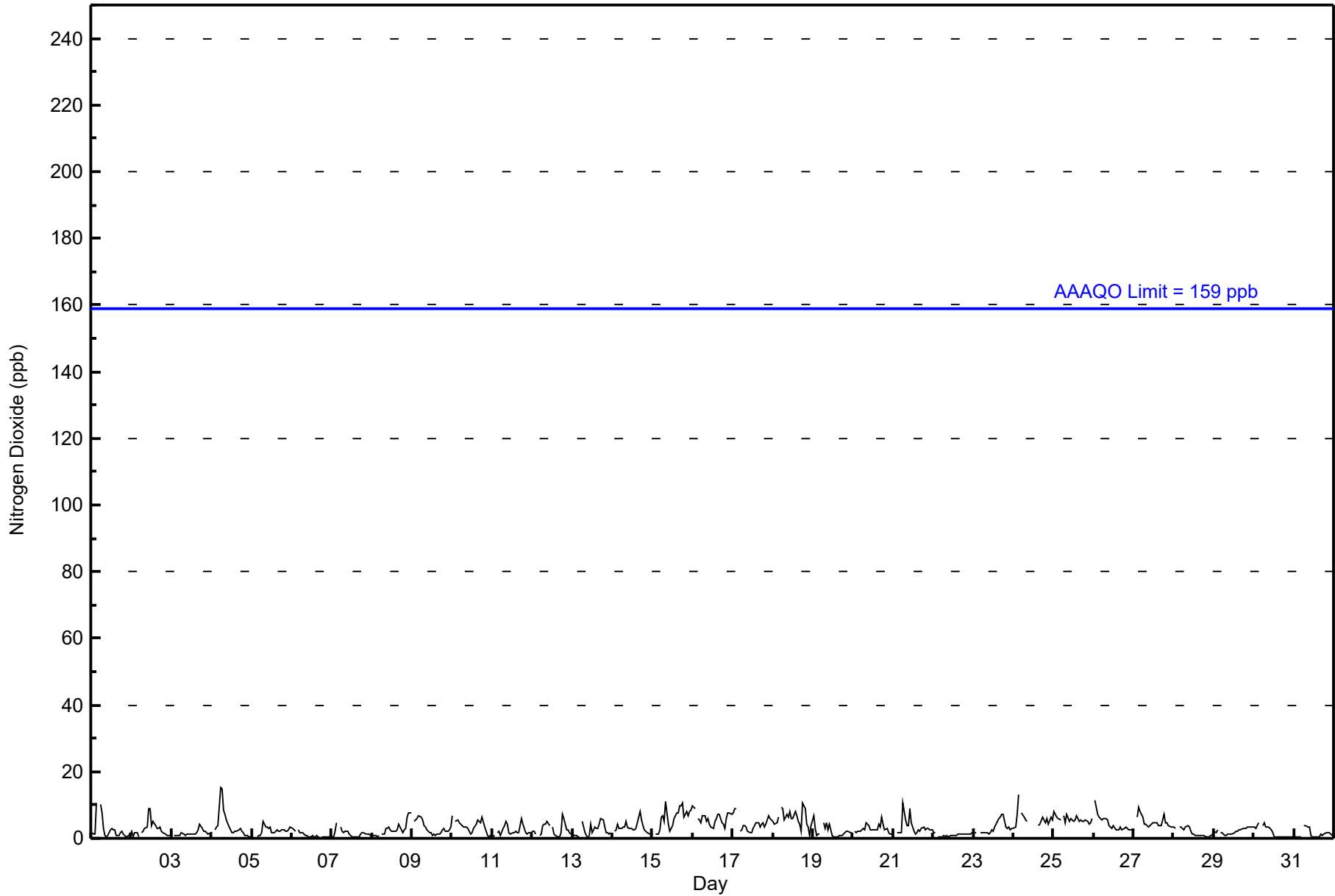
## Summary of Hour Averages

# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

## Leismer - January 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 15.4 ppb on Jan 4 06:00		Maximum Daily Average: 6.0 ppb on Jan 15		Minimum Value: 0.0 ppb on Jan 13 10:00		Minimum Daily Average: 1.0 ppb on Jan 22		Hours of Data: 706																																								
Maximum Diurnal Average: 4.5 ppb at hour 7		Minimum Diurnal Average: 2.3 ppb at hour 13		Hours of Missing Data: 38		Hours of Calibration: 37		Percent Operational Time: 99.9																																								
Monthly Average: 3.11 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.3 Median = 2.6 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 6.5 P <sub>99</sub> = 10.4																																														
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-Jan	1.7	1.1	1.2	10.4	Z	10.2	7.7	3.1	0.7	0.4	1.0	2.5	2.8	2.6	2.5	0.8	0.8	1.5	2.2	1.4	0.7	0.4	0.7	1.3	2.5	10.4																						
2-Jan	2.1	0.6	1.5	1.8	0.4	Z	1.7	2.2	2.8	3.5	9.0	8.8	3.7	5.1	3.7	2.9	3.0	3.2	2.0	1.6	1.2	0.9	0.8	1.0	2.8	9.0																						
3-Jan	Z	0.8	0.8	0.8	0.8	1.0	1.5	1.1	1.0	1.3	1.1	1.1	1.1	1.1	1.3	1.7	2.6	4.4	3.1	2.0	2.1	1.7	1.4	1.5	1.5	4.4																						
4-Jan	1.9	Z	2.6	3.3	3.8	15.4	15.0	8.4	7.3	5.7	3.5	2.4	1.7	1.5	2.1	2.2	2.4	3.1	2.3	1.5	1.0	0.9	0.4	0.4	3.9	15.4																						
5-Jan	0.4	0.4	Z	0.6	0.7	0.7	1.9	5.0	3.6	3.2	3.0	3.3	1.8	1.6	2.2	2.4	2.2	2.3	2.4	2.4	2.1	2.3	2.6	3.4	2.2	5.0																						
6-Jan	2.8	2.6	2.3	Z	2.5	1.8	1.5	1.4	1.0	0.8	0.6	0.5	0.7	0.5	0.6	0.7	0.3	0.2	0.6	0.4	0.3	0.5	0.5	0.8	1.0	2.8																						
7-Jan	0.4	0.4	2.2	4.5	Z	3.6	2.2	1.7	2.0	2.0	1.4	0.8	0.6	0.5	0.5	0.6	0.6	1.1	1.5	1.5	1.4	1.2	1.1	1.0	1.4	4.5																						
8-Jan	1.0	0.8	0.7	0.6	0.7	Z	1.1	1.2	2.9	2.8	3.5	2.6	2.2	2.0	2.1	2.7	4.1	3.3	1.6	2.6	3.1	6.3	7.5	7.5	2.7	7.5																						
9-Jan	Z	4.9	5.3	5.8	6.6	6.3	5.4	3.8	3.4	2.7	1.8	1.9	1.0	1.2	1.0	1.1	1.1	1.7	2.6	2.9	2.2	2.2	2.4	3.5	3.1	6.6																						
10-Jan	6.7	Z	5.1	5.4	4.8	4.1	3.7	3.3	3.4	2.9	2.1	1.4	1.8	3.1	4.3	5.7	5.1	4.6	6.3	3.3	2.0	1.0	0.6	0.7	3.5	6.7																						
11-Jan	0.5	0.7	Z	1.6	2.2	0.9	2.9	3.8	5.0	4.1	1.7	1.2	1.5	1.9	2.1	1.8	1.7	6.1	4.2	2.9	1.6	1.4	1.7	1.7	2.3	6.1																						
12-Jan	2.1	2.0	1.3	Z	0.7	1.2	3.9	4.1	4.2	5.1	4.0	M	3.2	1.4	0.8	0.5	0.6	1.6	7.4	5.8	2.7	2.5	1.5	1.1	2.6	7.4																						
13-Jan	1.8	0.7	0.9	0.6	0.5	Z	5.0	1.7	0.8	0.0	0.9	4.3	1.5	3.2	2.8	2.9	4.1	5.8	5.6	3.3	1.7	1.9	1.4	1.6	2.3	5.8																						
14-Jan	Z	2.2	2.7	4.2	2.9	2.8	3.6	3.6	5.1	3.5	2.9	2.8	2.7	2.4	3.1	4.6	8.0	5.4	3.9	2.5	2.1	1.8	1.1	1.3	3.3	8.0																						
15-Jan	1.1	Z	1.3	1.1	2.4	6.4	6.6	5.0	11.2	4.4	2.2	2.9	4.0	5.8	7.8	7.5	9.6	9.8	10.5	6.5	8.1	6.7	7.9	8.3	6.0	11.2																						
16-Jan	9.7	8.8	Z	6.1	5.4	4.7	6.8	6.8	5.0	5.9	4.2	3.6	3.1	5.1	5.8	7.0	7.1	4.7	4.2	2.9	5.8	7.5	7.6	7.2	5.9	9.7																						
17-Jan	7.5	9.1	8.9	Z	2.1	2.5	4.0	3.7	3.5	2.0	1.8	1.7	3.0	3.9	4.8	4.8	3.4	4.2	4.8	3.6	4.1	6.8	6.1	5.7	4.4	9.1																						
18-Jan	4.9	4.1	4.8	6.4	Z	9.4	8.7	5.4	7.4	6.4	8.1	5.8	6.1	8.0	6.8	4.9	4.2	2.3	10.4	8.8	4.2	3.4	0.9	3.7	5.9	10.4																						
19-Jan	6.7	3.1	0.8	1.3	1.1	Z	4.5	2.9	4.6	2.7	4.2	0.7	0.4	0.5	0.4	0.5	0.7	1.0	1.2	1.6	2.2	2.0	1.8	1.8	2.0	6.7																						
20-Jan	Z	2.0	1.9	2.0	2.1	2.5	2.8	2.6	4.8	3.8	2.7	2.4	2.7	2.6	2.5	4.2	3.3	6.2	4.4	2.5	2.8	1.9	1.4	1.4	2.8	6.2																						
21-Jan	1.4	Z	1.6	1.8	1.5	1.8	10.8	5.5	4.0	3.8	8.8	4.5	2.2	1.4	1.6	2.4	2.3	3.0	3.3	2.6	2.8	3.0	2.6	2.5	3.3	10.8																						
22-Jan	1.9	1.6	Z	0.3	0.3	0.4	0.8	0.3	1.0	0.5	0.8	0.9	0.9	0.9	1.0	1.2	1.3	1.2	1.1	1.1	1.2	1.3	1.3	1.5	1.0	1.9																						
23-Jan	1.6	1.5	1.5	Z	1.5	1.5	1.5	1.5	1.5	1.4	1.5	2.5	2.0	3.2	5.1	5.8	6.5	7.2	7.1	3.6	3.0	3.2	2.7	2.9	3.0	7.2																						
24-Jan	2.9	3.3	7.0	13.3	Z	7.5	6.4	5.4	5.0	C	C	C	C	C	C	3.7	4.2	6.5	5.5	4.5	5.9	4.2	6.5	5.3	--	13.3																						
25-Jan	8.1	7.0	6.5	5.8	5.3	Z	6.9	4.7	7.1	5.0	5.8	5.4	4.9	5.5	6.7	5.0	5.3	5.1	5.2	5.3	4.9	4.4	4.7	5.9	5.7	8.1																						
26-Jan	Z	11.5	7.0	6.2	5.9	5.6	5.9	5.8	5.4	4.0	3.3	3.1	3.9	2.6	2.5	2.7	3.4	2.6	2.8	3.4	3.0	2.5	2.6	2.5	4.3	11.5																						
27-Jan	2.5	Z	6.4	9.2	8.0	6.5	4.3	4.3	3.8	3.6	4.0	4.8	4.6	4.8	4.8	3.9	4.0	5.4	7.3	4.8	4.8	3.8	3.4	3.3	4.9	9.2																						
28-Jan	3.3	3.1	Z	3.2	3.2	2.9	2.7	3.3	4.0	3.5	2.2	1.4	1.2	1.0	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7	1.8	4.0																						
29-Jan	2.3	1.6	2.6	Z	1.8	1.7	0.7	0.7	1.1	1.4	1.1	1.4	1.7	2.1	2.2	2.4	2.6	2.9	2.9	2.9	3.5	3.2	3.2	3.3	2.1	3.5																						
30-Jan	3.2	3.0	3.8	4.6	Z	4.0	4.5	3.3	3.6	3.3	2.7	1.8	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.8	4.6																						
31-Jan	0.3	0.3	0.4	0.4	0.6	Z	4.0	4.0	3.6	3.6	0.8	0.5	0.5	0.4	0.5	0.5	1.1	0.9	1.4	1.8	1.9	1.7	1.1	1.0	1.4	4.0																						
																								3.0	3.0	3.1	3.9	2.6	4.2	4.5	3.5	3.9	3.1	3.0	2.7	2.3	2.5	2.8	2.8	3.1	3.5	3.8	2.9	2.7	2.6	2.5	2.7	Diurnal Average
																								9.7	11.5	8.9	13.3	8.0	15.4	15.0	8.4	11.2	6.4	9.0	8.8	6.1	8.0	7.8	7.5	9.6	9.8	10.5	8.8	8.1	7.5	7.9	8.3	Diurnal Maximum
Z - zerospan      C - Calibration      M - Maintenance																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Leismer - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Leismer - January 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	55	21	32	17	33	47	37	44	41	67	17	11	45	49	77	97	690
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>	55	21	32	17	33	47	37	44	41	67	17	11	45	49	77	97	690

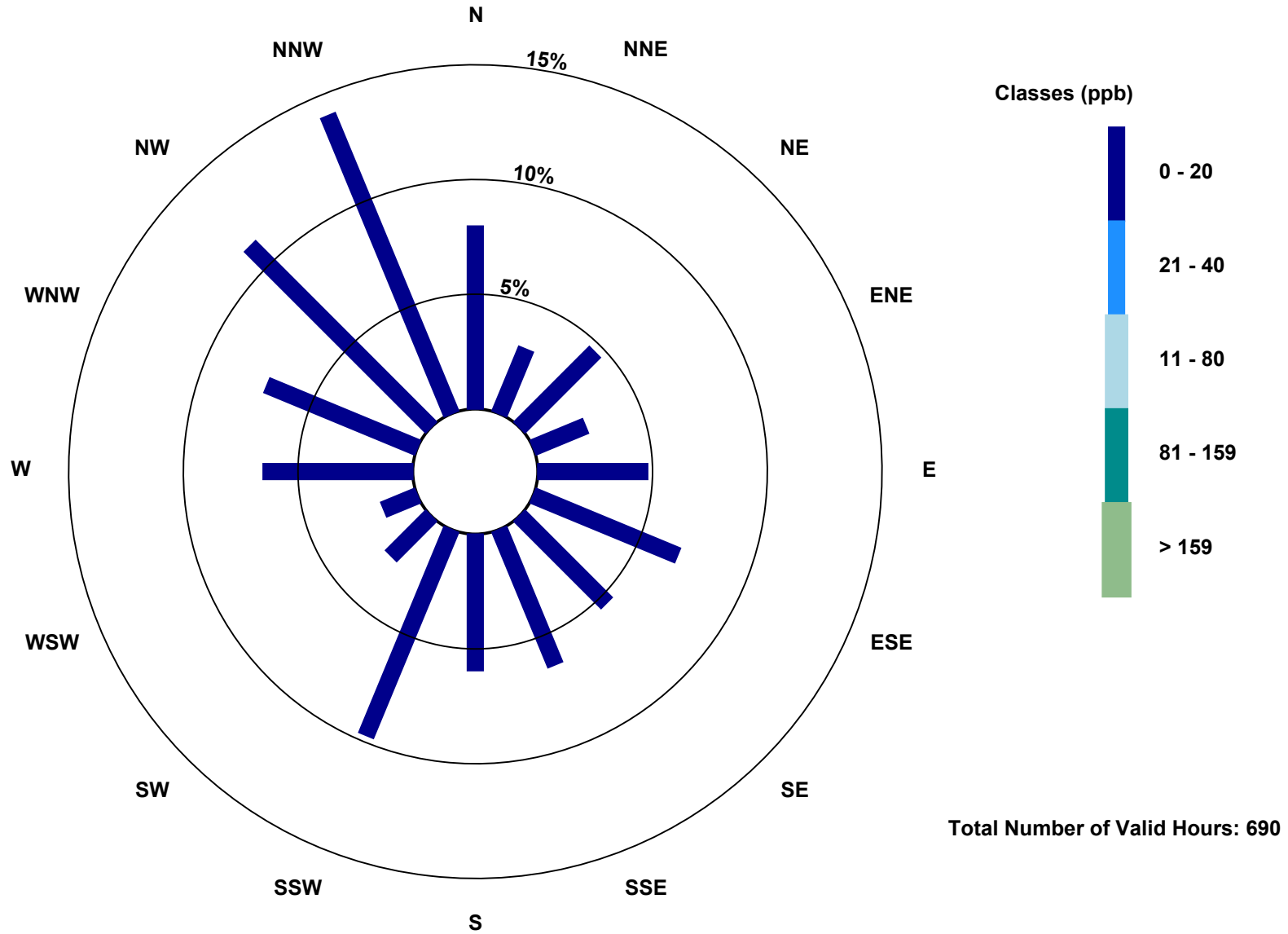
Total Number of Valid Hours: 690

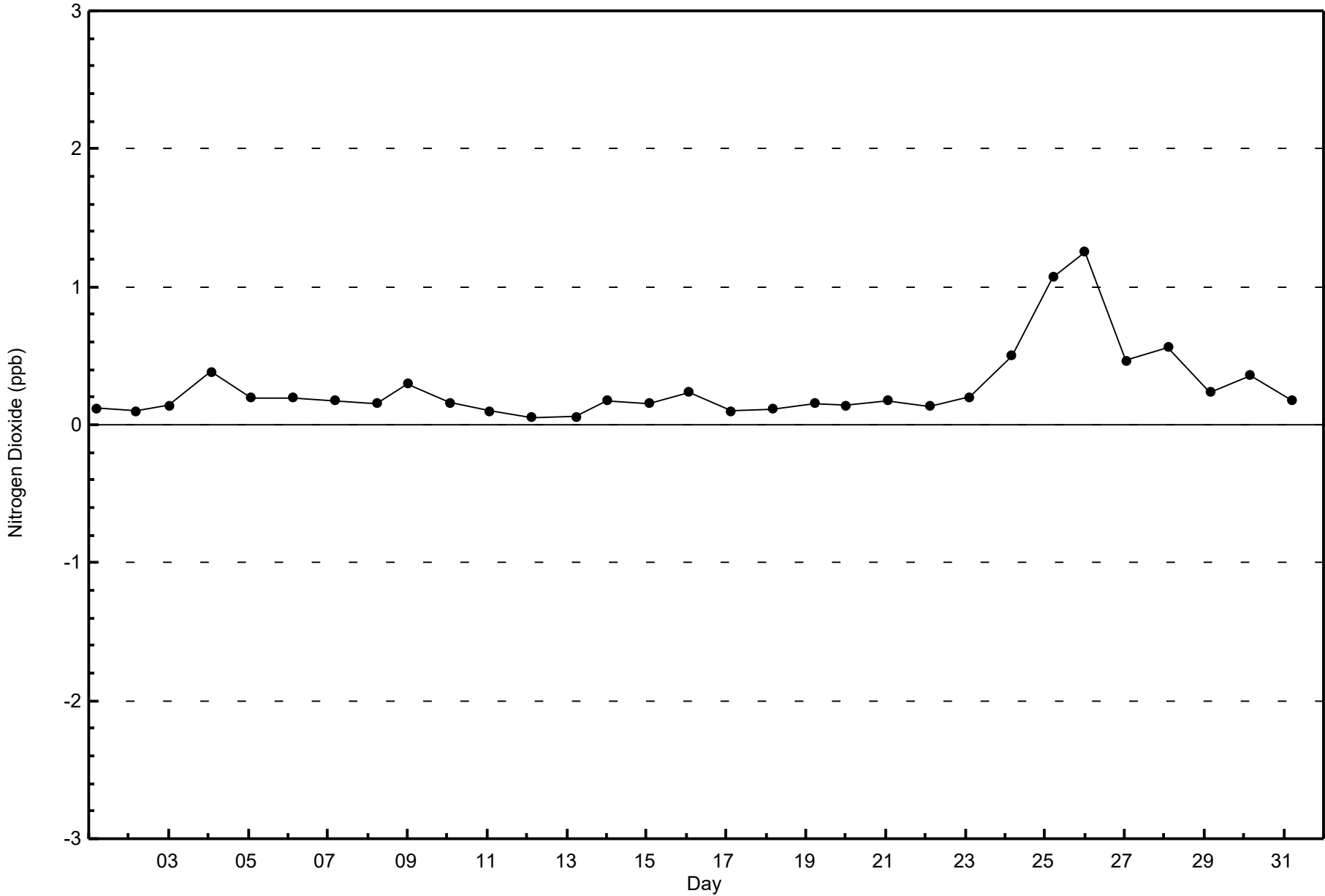
Total Number of Hours: 744

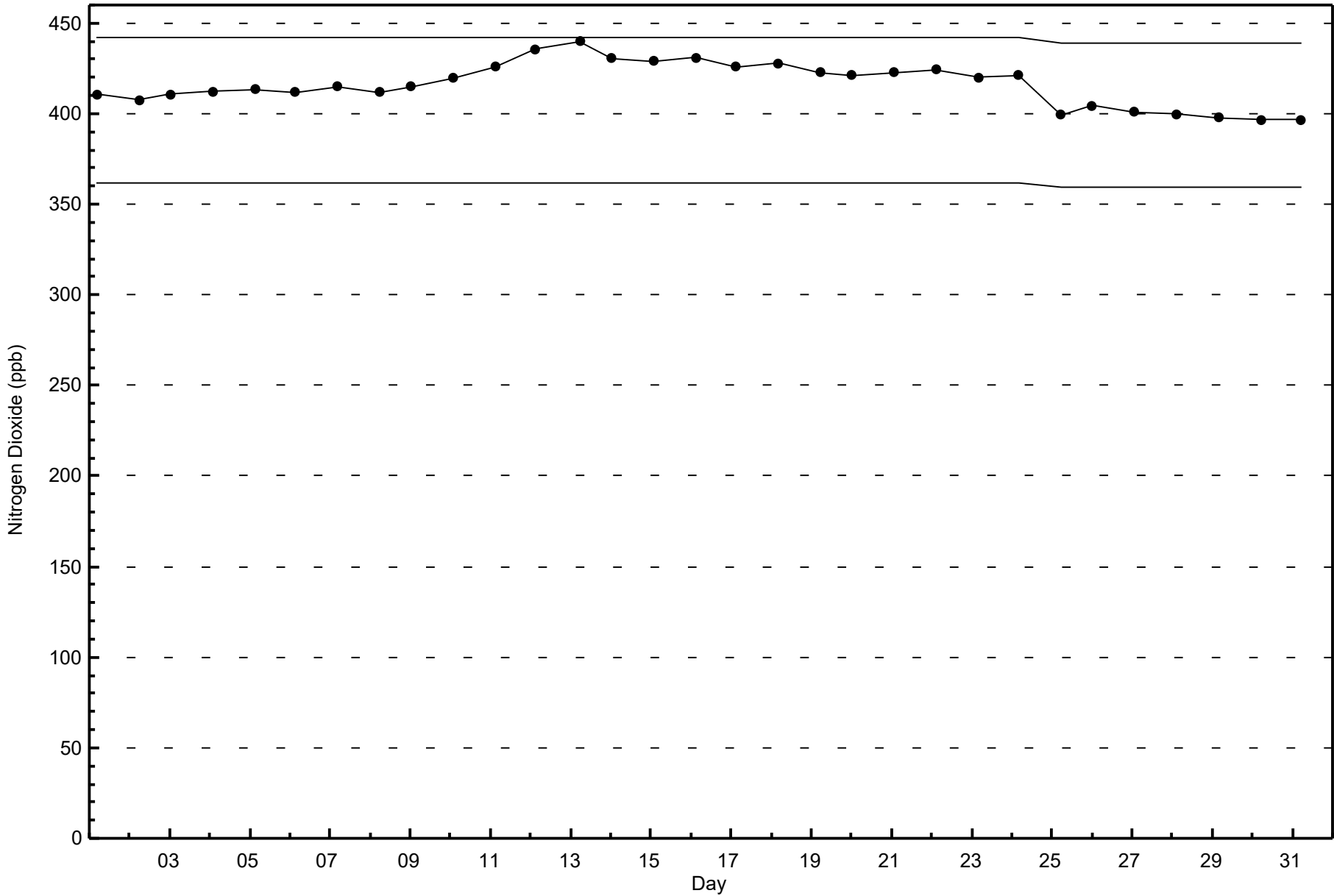


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Leismer









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

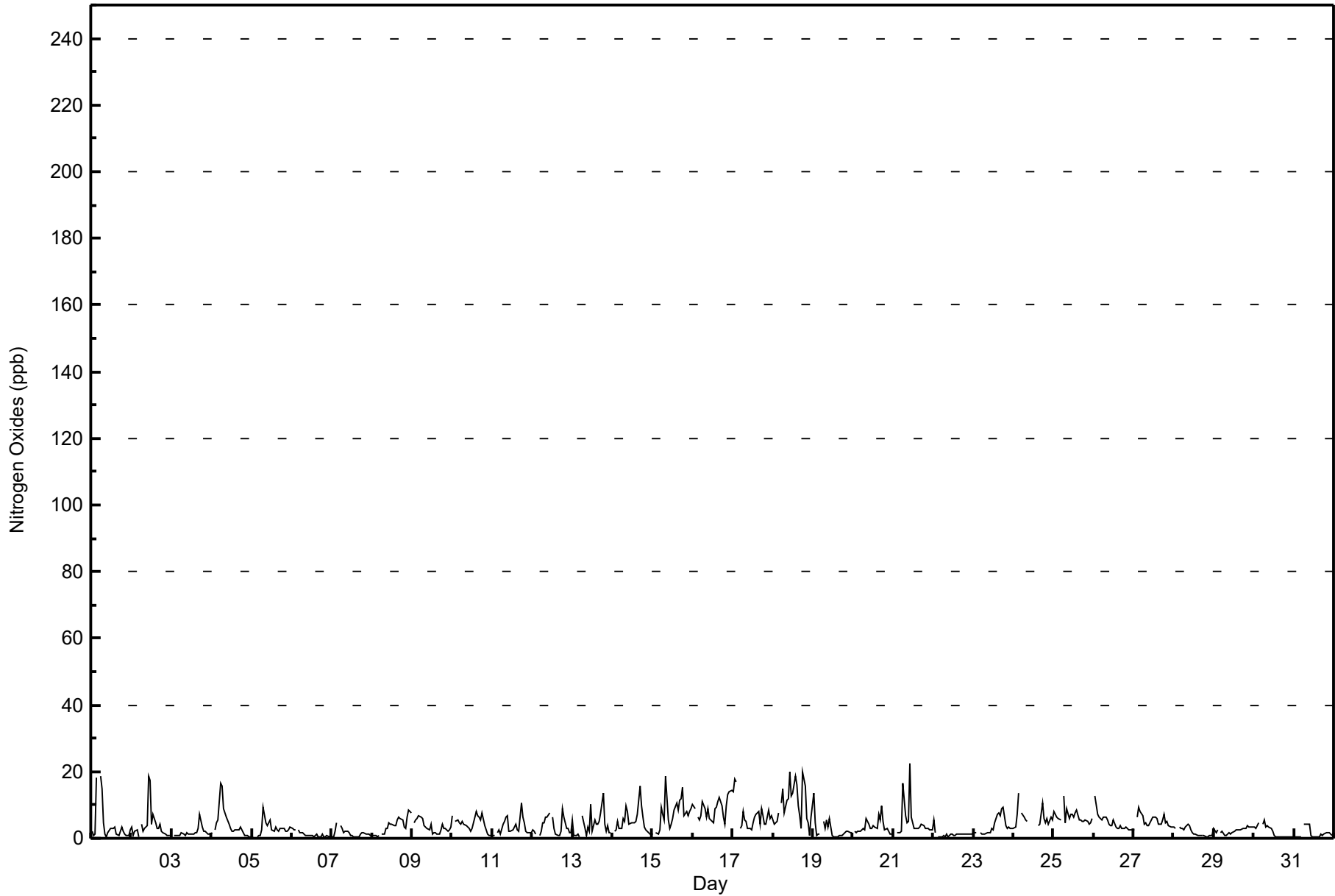
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Leismer - January 2024**

Maximum Value: 22.3 ppb on Jan 21 11:00																						Maximum Daily Average: 10.1 ppb on Jan 18																						Hours in Service: 744					
Minimum Value: 0.3 ppb on Jan 30 20:00																						Minimum Daily Average: 1.1 ppb on Jan 6																						Hours of Data: 706					
Maximum Diurnal Average: 6.1 ppb at hour 7																						Minimum Diurnal Average: 2.7 ppb at hour 5																						Hours of Missing Data: 38					
Monthly Average: 4.03 ppb																						Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.5 Median = 3.0 Q <sub>3</sub> = 5.5 P <sub>90</sub> = 8.1 P <sub>99</sub> = 18.3																						Hours of Calibration: 37					
																						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-Jan	2.0	1.1	1.4	18.3	Z	18.6	14.7	4.8	1.2	0.4	1.6	2.8	3.1	2.9	3.5	1.4	0.9	1.9	3.3	2.1	1.4	0.8	0.9	2.5	4.0	18.6																							
2-Jan	3.5	0.9	2.3	2.6	0.4	Z	4.3	2.3	2.8	3.6	18.6	17.6	4.3	7.1	4.5	3.0	3.0	4.2	2.0	1.6	1.2	0.9	0.8	1.0	4.0	18.6																							
3-Jan	Z	0.8	0.8	0.8	0.8	1.0	1.6	1.1	1.0	1.5	1.2	1.3	1.3	1.7	1.9	2.9	7.1	3.3	2.0	2.1	1.7	1.4	1.5	1.7	7.1																								
4-Jan	1.9	Z	2.6	4.6	5.6	16.5	15.7	9.0	7.7	6.4	4.3	3.0	2.3	2.1	2.5	2.6	2.4	3.4	2.4	1.6	1.0	1.0	0.4	0.4	4.3	16.5																							
5-Jan	0.4	0.4	Z	0.6	0.7	0.7	2.5	9.4	4.6	3.9	4.6	5.6	2.4	2.1	3.2	2.6	2.2	3.1	2.9	2.8	2.2	2.3	2.6	3.4	2.8	9.4																							
6-Jan	2.8	2.6	2.3	Z	2.5	1.8	1.6	1.4	1.0	0.8	0.7	0.6	0.9	0.6	0.8	1.1	0.4	0.4	1.2	0.4	0.3	0.7	0.5	0.8	1.1	2.8																							
7-Jan	0.5	0.4	2.2	4.5	Z	3.6	3.0	1.7	2.0	2.1	1.7	1.0	0.7	0.6	0.6	0.6	0.6	1.1	1.5	1.5	1.4	1.2	1.1	1.0	1.5	4.5																							
8-Jan	1.0	0.8	0.7	0.6	0.7	Z	1.1	1.2	2.9	3.1	4.5	4.3	4.0	3.9	3.7	5.3	6.4	5.7	5.6	3.5	3.1	6.4	8.5	7.5	3.7	8.5																							
9-Jan	Z	4.9	5.3	5.8	6.6	6.3	5.8	3.9	3.4	2.8	2.4	4.1	1.4	1.9	1.5	1.2	1.2	2.3	4.2	3.1	3.0	2.2	2.4	3.5	3.4	6.6																							
10-Jan	6.7	Z	5.1	5.4	4.8	4.3	5.2	4.3	4.0	3.5	2.8	2.0	3.0	4.5	7.8	6.9	6.4	5.3	7.8	4.0	2.5	1.2	0.7	0.8	4.3	7.8																							
11-Jan	0.7	0.7	Z	1.6	2.4	1.3	4.3	5.1	6.4	6.7	2.3	2.1	2.4	3.3	4.2	2.5	2.0	10.6	6.2	4.6	2.0	1.8	1.8	1.7	3.3	10.6																							
12-Jan	2.3	2.2	1.3	Z	0.7	2.0	4.5	4.8	6.2	6.4	7.5	M	6.4	3.0	1.3	0.7	0.8	2.3	8.8	6.5	3.0	3.1	1.8	1.6	3.5	8.8																							
13-Jan	5.6	0.9	1.0	1.4	0.5	Z	6.8	3.0	0.9	3.4	2.2	10.3	2.3	5.4	4.4	4.2	5.0	7.7	13.7	4.3	2.0	3.6	1.7	1.6	4.0	13.7																							
14-Jan	Z	2.2	2.7	5.0	3.0	3.0	5.7	5.0	9.8	7.9	4.1	4.6	4.6	4.5	4.9	7.4	15.6	9.6	6.2	3.6	2.5	2.0	1.2	1.4	5.1	15.6																							
15-Jan	1.1	Z	1.5	1.1	2.5	9.4	7.0	5.6	18.7	5.3	3.0	4.4	5.9	8.4	10.6	8.7	11.3	11.7	15.4	6.6	8.1	6.8	8.1	8.9	7.4	18.7																							
16-Jan	10.0	9.0	Z	6.2	5.4	6.7	11.0	8.8	6.5	8.9	5.9	5.6	4.9	8.8	9.4	11.1	12.4	9.6	6.3	4.3	9.9	13.0	14.1	14.2	8.8	14.2																							
17-Jan	13.8	17.6	16.9	Z	2.8	4.0	8.1	5.6	5.0	3.1	2.9	2.4	4.5	6.5	7.2	7.9	4.1	8.7	6.6	4.1	4.4	8.3	6.1	6.8	6.8	17.6																							
18-Jan	5.4	4.1	5.3	7.6	Z	10.7	14.9	7.4	11.3	11.8	20.0	12.9	13.6	18.7	16.2	9.9	6.7	3.0	20.0	15.5	6.0	4.8	1.0	6.4	10.1	20.0																							
19-Jan	13.4	4.8	0.8	1.3	1.1	Z	5.1	2.9	5.6	3.3	5.9	0.9	0.4	0.5	0.4	0.5	0.7	1.0	1.2	1.6	2.2	2.0	1.8	1.8	2.6	13.4																							
20-Jan	Z	2.0	1.9	2.0	2.1	2.5	2.8	2.6	5.7	4.3	3.1	3.0	3.6	3.4	3.1	7.0	5.3	9.8	5.2	2.5	2.9	1.9	1.4	1.4	3.5	9.8																							
21-Jan	1.4	Z	1.6	1.9	1.6	2.2	16.7	6.6	4.6	5.2	22.3	6.2	2.9	3.0	3.0	3.1	3.2	4.4	4.0	2.8	2.8	3.0	2.6	2.5	4.7	22.3																							
22-Jan	5.5	1.8	Z	0.3	0.3	0.5	1.0	0.4	1.5	0.5	1.1	1.1	1.0	1.0	1.1	1.3	1.3	1.2	1.1	1.1	1.2	1.3	1.3	1.5	1.2	5.5																							
23-Jan	1.6	1.5	1.5	Z	1.5	1.5	1.5	1.5	1.5	1.5	1.7	3.0	2.4	4.6	7.4	7.7	7.0	9.0	9.5	3.7	3.0	3.3	2.8	3.0	3.5	9.5																							
24-Jan	3.0	3.3	7.1	13.5	Z	7.5	6.5	5.4	5.1	C	C	C	C	C	C	4.0	4.2	10.5	5.8	4.5	5.9	4.2	6.5	5.3	--	13.5																							
25-Jan	8.1	7.0	6.5	5.8	5.3	Z	12.7	4.7	9.1	6.0	7.0	7.2	6.3	7.4	8.5	5.6	5.5	5.1	5.3	5.5	4.9	4.4	4.7	5.9	6.5	12.7																							
26-Jan	Z	12.7	7.0	6.2	5.9	5.6	6.4	6.2	5.7	4.3	3.9	3.7	5.6	3.2	2.9	2.9	4.0	2.8	2.8	3.4	3.0	2.5	2.6	2.5	4.6	12.7																							
27-Jan	2.5	Z	6.4	9.3	8.1	6.7	4.4	4.5	3.8	3.9	4.8	6.4	6.2	6.2	5.8	4.3	4.1	5.5	7.4	4.8	4.9	3.8	3.4	3.3	5.2	9.3																							
28-Jan	3.3	3.1	Z	3.2	3.2	2.9	2.7	3.3	4.1	3.8	2.4	1.5	1.4	1.4	1.0	0.9	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7	1.9	4.1																							
29-Jan	2.8	1.6	2.6	Z	1.8	2.0	0.7	0.7	1.1	1.6	1.2	1.6	1.9	2.4	2.6	2.6	2.7	2.9	2.9	2.9	3.7	3.2	3.2	3.4	2.3	3.7																							
30-Jan	3.3	3.0	3.8	4.8	Z	4.4	5.3	3.4	3.6	3.4	2.9	2.3	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.9	5.3																							
31-Jan	0.3	0.3	0.4	0.4	0.6	Z	4.3	4.3	4.1	4.2	0.9	0.6	0.5	0.4	0.5	0.5	1.2	0.9	1.4	1.8	1.9	1.7	1.1	1.0	1.4	4.3																							
																								4.0	3.5	3.5	4.4	2.7	5.0	6.1	4.2	4.9	4.1	4.9	4.2	3.4	4.0	4.2	3.9	4.0	4.9	5.3	3.5	3.0	3.0	2.8	3.1	Diurnal Average	
																								13.8	17.6	16.9	18.3	8.1	18.6	16.7	9.4	18.7	11.8	22.3	17.6	13.6	18.7	16.2	11.1	15.6	11.7	20.0	15.5	9.9	13.0	14.1	14.2	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Leismer - January 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Leismer - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	99.86	99.86
21 - 40	1	0.14	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Leismer - January 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	54	21	32	17	33	47	37	44	41	67	17	11	45	49	77	97	689
21 - 40	1	0	0	0	0	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>	55	21	32	17	33	47	37	44	41	67	17	11	45	49	77	97	690

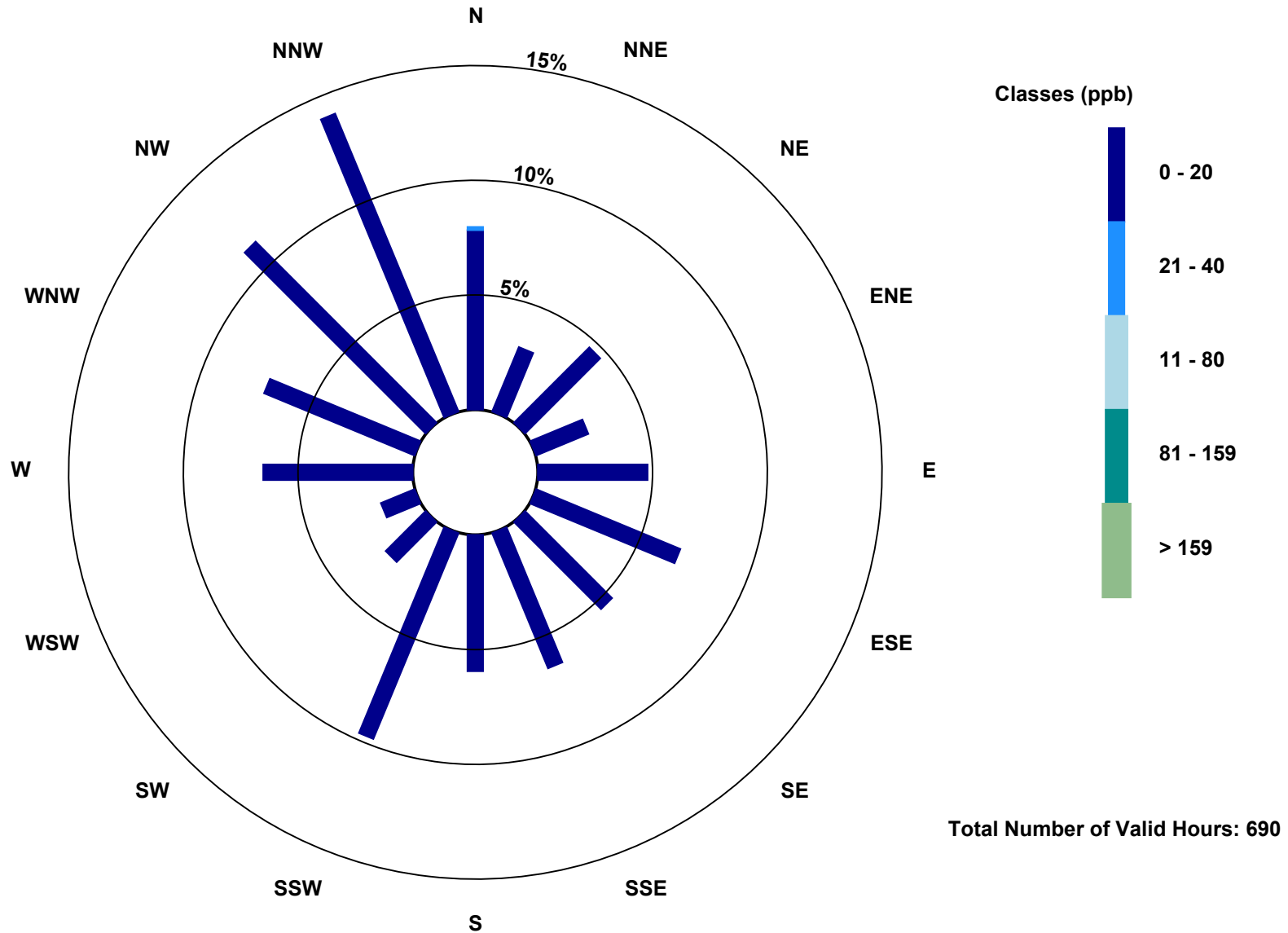
Total Number of Valid Hours: 690

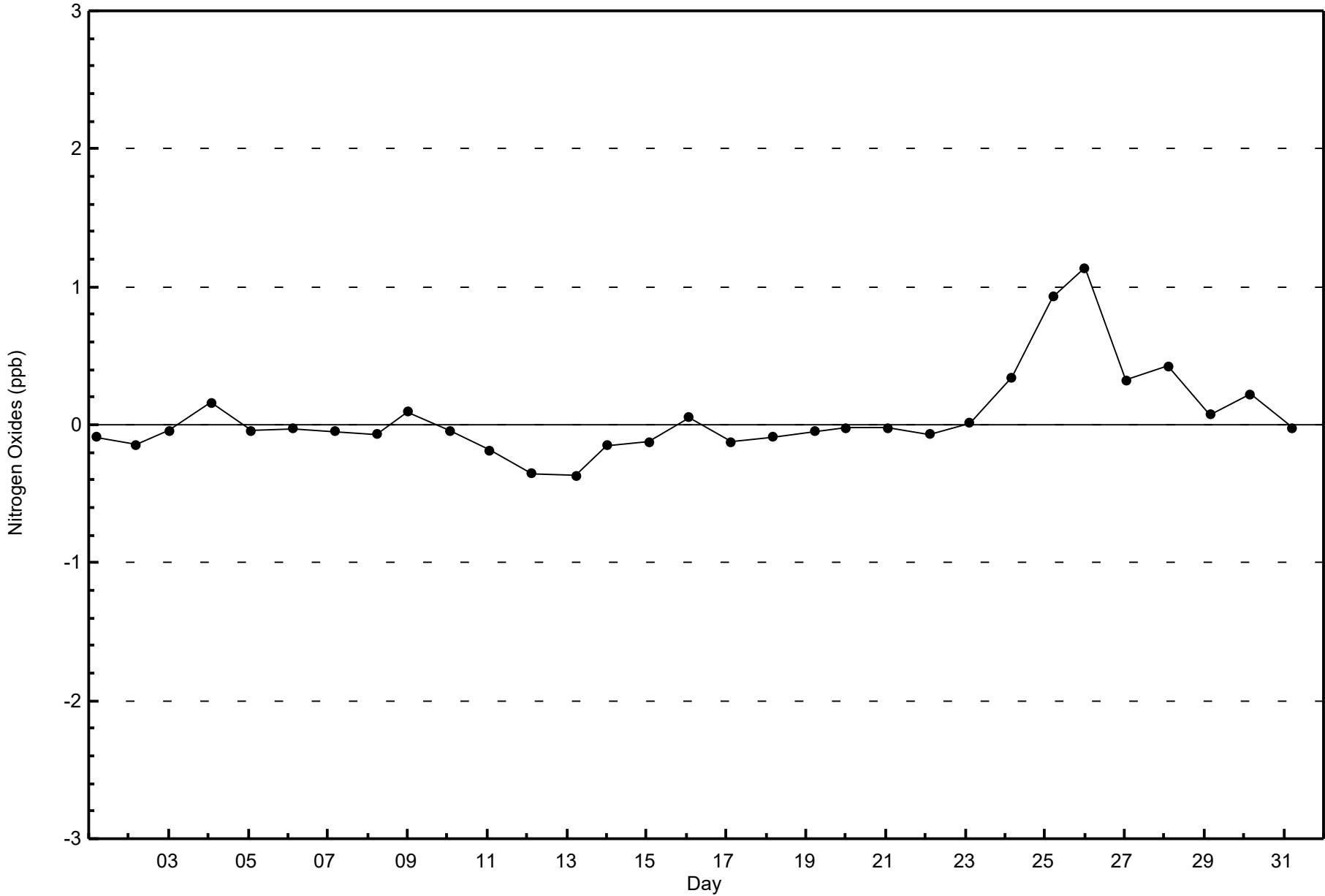
Total Number of Hours: 744

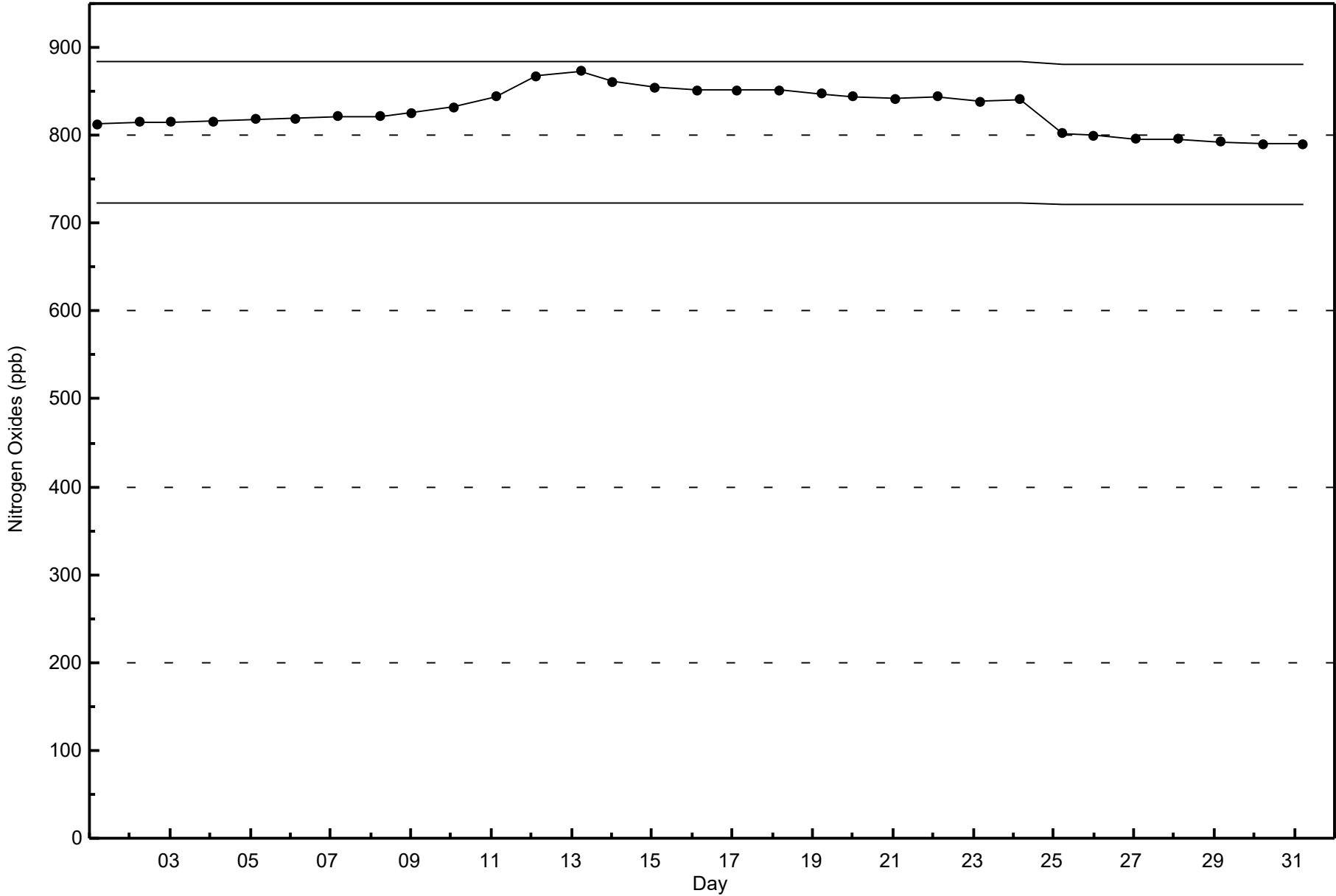


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Leismer





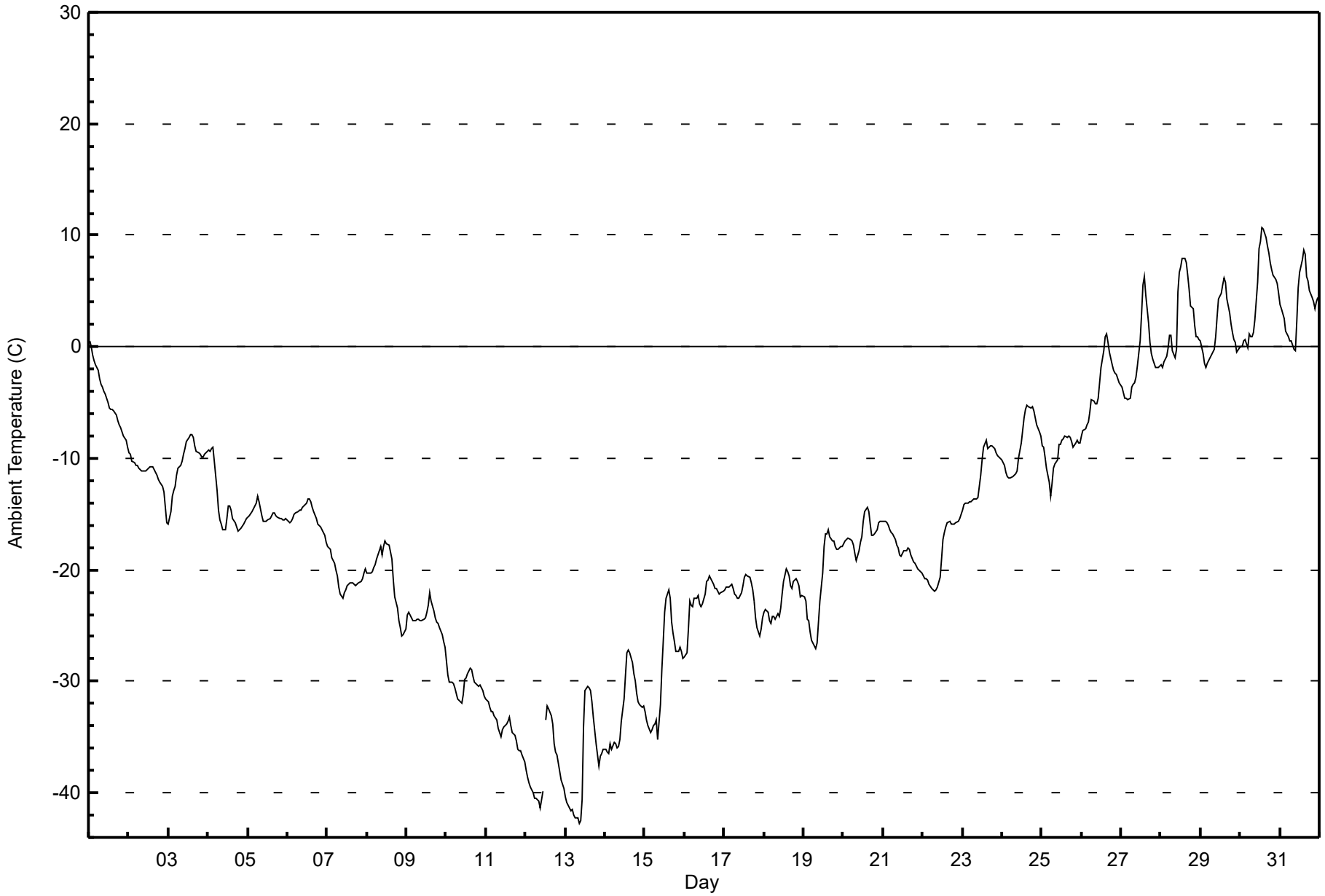




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Leismer - January 2024**

Maximum Value: 10.7 C on Jan 30 14:00 Minimum Value: -42.7 C on Jan 13 09:00 Maximum Diurnal Average: -13.3 C at hour 15 Monthly Average: -16.14 C		Maximum Daily Average: 4.9 C on Jan 30 Minimum Daily Average: -37.7 C on Jan 12 Minimum Diurnal Average: -17.9 C at hour 9 Percentiles: P <sub>1</sub> = -41.3 P <sub>10</sub> = -33.3 Q <sub>1</sub> = -23.8 Median = -16.1 Q <sub>3</sub> = -8.2 P <sub>90</sub> = 0.6 P <sub>99</sub> = 8.4		Hours in Service: 744 Hours of Data: 743 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-Jan	0.5	0.0	-0.7	-1.2	-1.6	-2.1	-2.9	-3.3	-3.6	-3.9	-4.2	-5.0	-5.5	-5.6	-5.6	-5.8	-6.1	-6.6	-7.1	-7.3	-7.7	-8.0	-8.4	-9.0	-4.6	0.5	
2-Jan	-9.5	-9.7	-10.2	-10.3	-10.6	-10.7	-10.9	-11.0	-11.1	-11.2	-11.1	-11.0	-10.9	-10.7	-10.8	-11.0	-11.3	-11.5	-11.9	-12.2	-12.5	-13.0	-14.4	-15.7	-11.4	-9.5	
3-Jan	-15.9	-14.8	-13.4	-12.9	-12.5	-11.6	-10.8	-10.6	-10.2	-9.6	-9.1	-8.5	-8.1	-7.9	-7.8	-8.2	-8.8	-9.4	-9.5	-9.6	-9.9	-9.8	-9.6	-9.3	-10.3	-7.8	
4-Jan	-9.3	-9.3	-9.1	-9.0	-10.3	-12.9	-14.7	-15.5	-15.9	-16.4	-16.5	-15.4	-14.3	-14.3	-14.6	-15.4	-15.8	-16.1	-16.5	-16.3	-16.3	-15.9	-15.6	-15.4	-14.2	-9.0	
5-Jan	-15.3	-15.1	-14.8	-14.6	-14.2	-14.0	-13.3	-13.9	-15.2	-15.6	-15.7	-15.6	-15.4	-15.4	-15.1	-14.9	-14.9	-15.1	-15.3	-15.4	-15.4	-15.5	-15.5	-15.4	-15.0	-13.3	
6-Jan	-15.7	-15.8	-15.7	-15.4	-15.0	-14.9	-14.8	-14.7	-14.6	-14.5	-14.3	-14.0	-13.7	-13.6	-13.9	-14.3	-14.8	-15.3	-15.9	-16.0	-16.2	-16.5	-16.9	-17.5	-15.2	-13.6	
7-Jan	-18.0	-18.0	-18.2	-19.0	-19.5	-20.1	-20.6	-21.6	-22.1	-22.6	-22.1	-21.8	-21.5	-21.3	-21.2	-21.2	-21.3	-21.4	-21.3	-21.2	-21.0	-20.8	-20.3	-19.9	-20.7	-18.0	
8-Jan	-20.3	-20.3	-20.3	-20.1	-19.8	-19.6	-19.0	-18.3	-17.9	-18.7	-17.9	-17.4	-17.7	-17.8	-18.4	-19.1	-20.9	-22.4	-23.5	-24.6	-25.1	-25.9	-25.8	-25.3	-20.7	-17.4	
9-Jan	-24.0	-23.9	-24.1	-24.3	-24.6	-24.6	-24.5	-24.5	-24.6	-24.6	-24.5	-24.3	-23.8	-23.2	-22.1	-22.8	-23.7	-24.3	-24.7	-24.8	-25.2	-25.9	-26.5	-27.0	-24.4	-22.1	
10-Jan	-28.1	-29.5	-30.0	-30.0	-30.1	-30.6	-31.1	-31.6	-31.8	-32.0	-31.1	-29.8	-29.7	-29.3	-28.8	-29.0	-29.5	-30.1	-30.2	-30.4	-30.3	-30.6	-30.9	-31.3	-30.3	-28.1	
11-Jan	-31.6	-31.8	-32.3	-32.7	-32.7	-33.1	-33.5	-34.2	-34.6	-34.9	-34.3	-34.1	-33.9	-33.6	-33.2	-34.0	-34.6	-34.8	-35.3	-36.1	-36.3	-36.3	-36.6	-37.2	-34.2	-31.6	
12-Jan	-38.0	-38.6	-39.1	-39.5	-40.0	-40.4	-40.5	-40.6	-40.7	-41.3	-39.8	M	-33.5	-32.2	-32.4	-33.1	-33.8	-35.6	-36.4	-36.6	-38.1	-38.9	-39.2	-39.6	-37.7	-32.2	
13-Jan	-40.4	-40.9	-41.3	-41.6	-41.4	-41.9	-42.2	-42.3	-42.7	-42.5	-40.6	-34.0	-30.8	-30.5	-30.5	-30.8	-31.8	-33.3	-35.5	-36.6	-37.6	-36.7	-36.5	-36.1	-37.4	-30.5	
14-Jan	-36.1	-36.3	-36.4	-35.6	-36.1	-35.5	-35.6	-35.9	-35.9	-35.2	-32.0	-29.0	-26.4	-23.8	-22.5	-21.8	-22.5	-24.7	-25.7	-26.5	-27.3	-27.3	-26.9	-27.3	-32.6	-27.2	
15-Jan	-32.8	-33.4	-34.0	-34.6	-34.3	-34.0	-33.9	-33.4	-35.2	-32.0	-29.0	-26.4	-23.8	-22.5	-21.8	-22.5	-24.7	-25.7	-26.5	-27.3	-27.3	-26.9	-27.3	-27.9	-29.1	-21.8	
16-Jan	-27.8	-27.4	-25.3	-22.8	-23.2	-23.3	-22.6	-22.5	-22.3	-22.3	-23.1	-23.4	-23.1	-22.2	-21.0	-20.9	-20.6	-20.8	-21.3	-21.6	-21.7	-21.9	-22.2	-22.0	-22.0	-22.7	-20.6
17-Jan	-21.9	-21.6	-21.5	-21.5	-21.3	-21.6	-22.2	-22.3	-22.5	-22.5	-22.0	-21.4	-20.7	-20.5	-20.5	-20.7	-21.2	-21.8	-22.8	-24.3	-25.1	-25.9	-25.3	-24.3	-22.3	-20.5	
18-Jan	-23.8	-23.5	-23.8	-24.5	-24.8	-24.2	-24.1	-24.4	-24.0	-24.2	-23.5	-22.2	-21.0	-19.9	-20.2	-20.5	-21.4	-21.6	-21.1	-20.8	-21.0	-21.4	-22.5	-22.3	-22.5	-19.9	
19-Jan	-22.5	-22.8	-24.4	-24.6	-25.6	-26.3	-26.8	-27.0	-26.6	-24.7	-22.8	-20.3	-18.0	-16.7	-16.7	-16.4	-17.0	-17.4	-17.4	-17.9	-18.2	-18.1	-17.9	-17.9	-21.0	-16.4	
20-Jan	-17.7	-17.4	-17.3	-17.1	-17.3	-17.5	-17.8	-18.5	-19.2	-18.3	-17.5	-17.0	-15.6	-14.8	-14.4	-14.8	-15.9	-16.9	-16.9	-16.8	-16.4	-15.8	-15.6	-15.6	-16.8	-14.4	
21-Jan	-15.6	-15.7	-15.7	-16.0	-16.4	-16.7	-16.7	-17.2	-17.7	-18.1	-18.7	-18.7	-18.3	-18.3	-18.2	-18.1	-18.2	-18.7	-19.2	-19.4	-19.6	-19.9	-20.0	-20.3	-18.0	-15.6	
22-Jan	-20.5	-20.7	-20.8	-21.0	-21.3	-21.7	-21.8	-21.9	-21.8	-21.5	-20.7	-19.0	-17.3	-16.7	-16.1	-15.8	-15.6	-15.9	-15.9	-15.9	-15.8	-15.7	-15.4	-15.0	-18.5	-15.0	
23-Jan	-14.6	-14.1	-14.1	-14.0	-13.9	-13.9	-13.8	-13.6	-13.7	-13.5	-12.5	-11.5	-10.1	-8.9	-8.4	-9.1	-9.0	-8.9	-8.9	-9.2	-9.5	-9.7	-9.9	-10.0	-11.5	-8.4	
24-Jan	-10.1	-10.7	-11.2	-11.6	-11.8	-11.8	-11.7	-11.5	-11.4	-11.1	-10.0	-8.7	-7.5	-6.3	-5.6	-5.2	-5.4	-5.4	-5.4	-5.8	-6.4	-7.0	-7.6	-8.1	-8.6	-5.2	
25-Jan	-8.9	-9.0	-9.8	-10.9	-12.1	-13.4	-12.3	-10.9	-10.5	-10.1	-8.8	-8.7	-8.3	-8.2	-8.0	-8.1	-8.0	-8.1	-8.5	-9.0	-8.6	-8.4	-8.7	-8.6	-9.4	-8.0	
26-Jan	-8.0	-7.5	-7.4	-7.0	-6.8	-5.9	-4.8	-4.8	-5.1	-5.1	-4.6	-3.2	-1.8	-0.3	0.9	1.2	0.4	-0.5	-1.6	-2.2	-2.3	-2.5	-2.9	-3.3	-3.6	1.2	
27-Jan	-3.6	-4.1	-4.6	-4.6	-4.7	-4.6	-3.7	-3.3	-3.2	-2.8	-1.7	0.6	2.9	5.5	6.3	4.7	2.1	0.4	-0.7	-1.1	-1.4	-1.9	-1.8	-1.7	-1.1	6.3	
28-Jan	-1.7	-1.9	-1.4	-0.8	-0.1	1.0	1.0	-0.3	-1.0	-0.2	4.9	6.7	7.2	8.0	7.9	7.5	6.4	5.1	3.7	3.4	1.9	1.0	0.9	0.7	2.5	8.0	
29-Jan	0.6	-0.6	-1.5	-1.9	-1.5	-1.2	-0.7	-0.5	-0.3	0.9	2.6	4.3	4.8	5.5	6.1	5.8	4.3	3.0	2.0	1.2	0.6	0.4	-0.4	-0.1	1.4	6.1	
30-Jan	0.1	0.0	0.5	0.6	-0.1	1.2	0.9	0.9	1.3	2.4	5.8	8.7	9.4	10.7	10.5	9.8	9.1	8.5	7.6	6.9	6.4	6.0	5.6	4.8	4.9	10.7	
31-Jan	3.8	3.4	2.5	1.4	1.1	0.9	0.5	0.5	-0.2	-0.3	2.2	5.3	6.7	7.8	8.7	8.2	6.2	5.9	5.1	4.4	4.0	3.4	4.1	4.4	3.7	8.7	
																								-17.0 -17.1 -17.3 -17.3 -17.5 -17.6 -17.6 -17.7 -17.9 -17.6 -16.6 -14.6 -14.3 -13.5 -13.3 -13.6 -14.3 -15.0 -15.5 -15.9 -16.3 -16.5 -16.6 -16.7		Diurnal Average	
																								3.8 3.4 2.5 1.4 1.1 1.2 1.0 0.9 1.3 2.4 5.8 8.7 9.4 10.7 10.5 9.8 9.1 8.5 7.6 6.9 6.4 6.0 5.6 4.8		Diurnal Maximum	
M - Maintenance																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Leismer - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	293	39.43	39.43
-20 - 0	363	48.86	88.29
0 - 10	85	11.44	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744

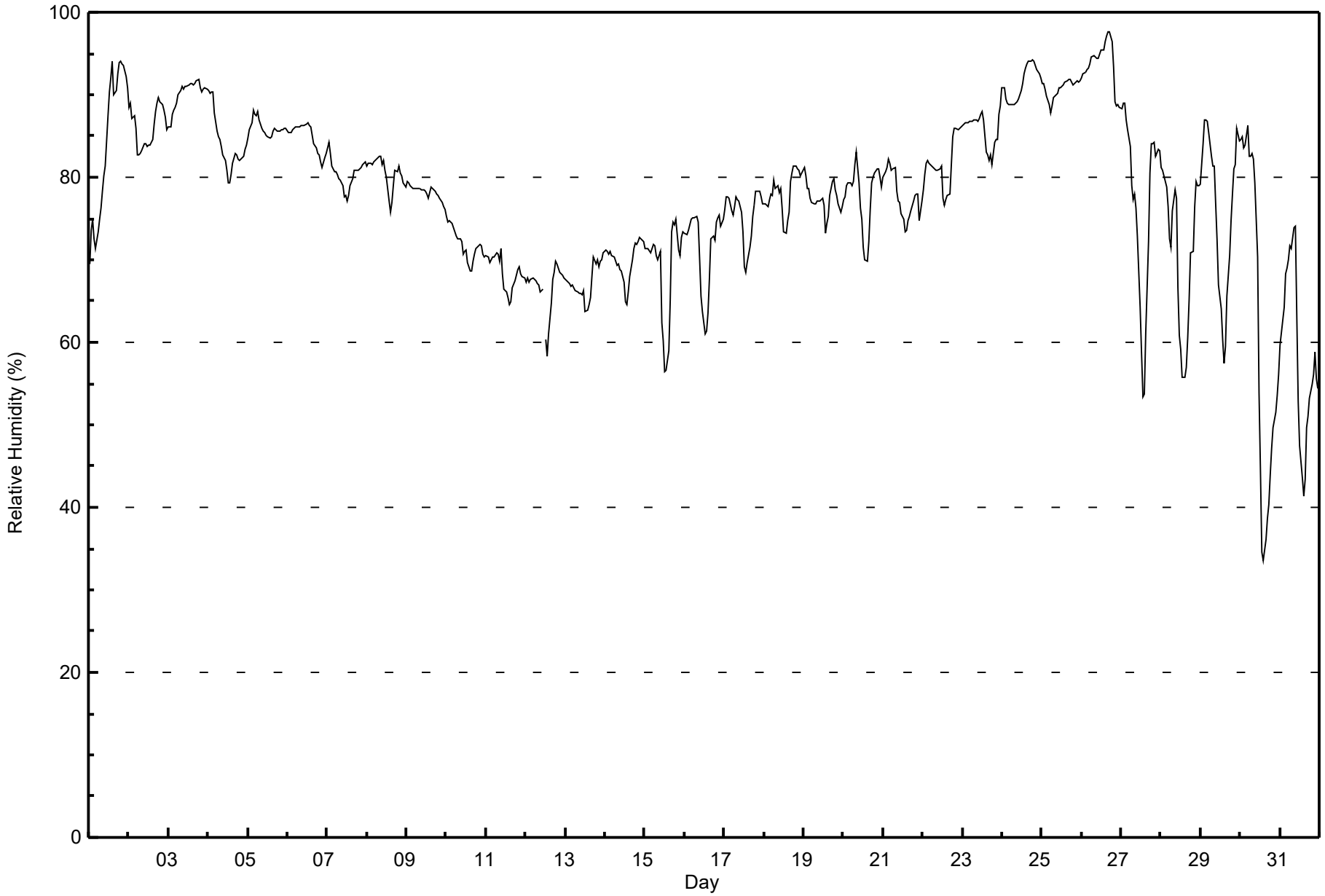




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Leismer - January 2024**

Maximum Value: 97.7 % on Jan 26 18:00      Maximum Daily Average: 93.7 % on Jan 26																						Hours in Service:	744			
Minimum Value: 33.6 % on Jan 30 15:00      Minimum Daily Average: 58.7 % on Jan 31																						Hours of Data:	743			
Maximum Diurnal Average: 80.3 % at hour 4      Minimum Diurnal Average: 72.2 % at hour 14																						Hours of Missing Data:	1			
Monthly Average: 77.89 %      Percentiles: P <sub>1</sub> = 43.7 P <sub>10</sub> = 66.0 Q <sub>1</sub> = 71.4 Median = 78.8 Q <sub>3</sub> = 85.6 P <sub>90</sub> = 90.6 P <sub>99</sub> = 94.9																						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-Jan	69.6	73.6	74.8	72.5	71.4	73.3	74.9	76.3	78.3	80.2	81.4	87.4	90.4	92.0	94.1	90.0	90.5	92.6	93.9	94.1	93.8	93.6	92.1	90.9	84.2	94.1
2-Jan	88.5	89.1	87.1	87.5	85.9	82.6	82.7	82.9	83.2	84.1	84.1	83.8	83.9	83.9	84.6	86.4	87.9	89.0	89.6	89.1	88.8	88.1	87.3	85.8	86.1	89.6
3-Jan	86.1	86.2	87.7	88.2	88.4	89.0	89.9	90.5	91.1	90.8	91.0	91.0	91.2	91.3	91.3	91.2	91.3	91.6	91.8	90.9	90.4	90.6	90.8	90.8	90.1	91.8
4-Jan	90.4	90.2	90.3	90.3	87.9	85.6	84.9	84.6	83.8	82.8	82.1	80.8	79.3	79.4	80.3	81.7	82.9	82.7	82.1	82.1	82.2	82.5	83.4	83.9	84.0	90.4
5-Jan	84.8	85.7	86.6	88.2	87.7	87.4	84.9	87.0	85.9	85.5	85.4	85.0	84.9	84.8	84.9	85.6	85.9	85.8	85.6	85.6	85.7	85.7	85.9	85.9	86.0	88.2
6-Jan	85.5	85.4	85.4	85.7	86.0	86.0	86.1	86.1	86.2	86.2	86.3	86.4	86.5	86.2	86.0	85.1	84.2	83.5	83.0	82.6	81.9	81.3	82.4	82.9	84.9	86.5
7-Jan	83.5	84.2	82.9	81.3	80.8	80.7	80.4	79.8	79.7	79.0	77.6	77.7	77.2	77.9	79.0	79.8	80.8	80.9	80.9	80.9	81.2	81.5	81.7	81.9	80.5	84.2
8-Jan	81.3	81.7	81.7	81.6	81.8	82.0	82.2	82.5	82.5	81.5	82.0	80.9	79.9	77.1	75.7	76.9	79.0	80.8	80.8	81.3	80.6	80.2	79.3	78.8	80.5	82.5
9-Jan	79.4	79.3	78.9	78.8	78.6	78.6	78.7	78.7	78.6	78.5	78.4	78.2	78.1	77.5	78.2	78.8	78.5	78.3	78.0	77.8	77.4	77.0	76.4	76.1	78.2	79.4
10-Jan	75.3	74.5	74.7	74.4	73.9	73.3	72.9	72.6	72.6	72.1	70.7	71.0	71.1	69.6	68.6	68.7	69.8	70.7	71.3	71.7	71.8	71.7	70.7	70.3	71.8	75.3
11-Jan	70.5	70.3	69.6	69.9	70.3	70.3	70.8	70.7	69.8	71.3	68.2	66.5	66.0	65.5	64.6	64.9	66.6	67.5	68.2	68.8	69.1	68.3	67.9	67.8	68.5	71.3
12-Jan	67.3	67.8	67.2	67.6	67.9	67.7	67.4	67.1	66.9	66.1	66.5	M	60.4	58.3	60.9	64.8	67.6	68.4	69.9	69.6	68.6	68.4	68.2	67.8	66.6	69.9
13-Jan	67.6	67.5	67.2	66.8	66.9	66.5	66.2	66.1	66.0	65.9	65.8	66.3	63.7	63.9	64.6	65.4	68.0	70.3	69.6	69.9	69.2	69.8	70.1	70.8	67.3	70.8
14-Jan	71.2	71.0	70.6	71.1	70.4	70.3	69.9	69.4	69.5	68.8	68.6	67.3	64.9	64.6	66.1	68.0	69.9	71.3	72.0	71.9	72.3	72.8	72.4	72.1	69.9	72.8
15-Jan	71.4	71.3	71.3	70.8	71.4	71.8	71.7	70.5	70.0	71.0	62.4	60.1	56.5	56.7	59.0	65.1	73.4	74.6	74.2	74.9	71.1	70.5	72.7	73.4	69.0	74.9
16-Jan	73.3	73.1	73.6	74.2	75.0	75.0	75.1	75.3	74.6	70.1	65.6	63.7	61.1	61.4	63.6	67.7	72.6	72.8	72.3	74.6	75.1	75.5	74.1	74.9	71.4	75.5
17-Jan	76.0	77.6	77.6	77.4	75.9	75.4	76.5	77.6	77.3	77.1	75.8	73.4	69.1	68.5	69.7	71.5	72.9	75.2	76.6	78.4	78.4	78.3	77.6	76.8	75.4	78.4
18-Jan	76.9	76.7	76.5	77.3	78.0	77.8	79.7	78.6	78.9	78.2	78.6	76.2	73.4	73.2	74.7	75.8	79.5	80.6	81.4	81.3	81.0	80.9	80.1	80.6	78.2	81.4
19-Jan	81.2	80.1	78.7	78.6	77.5	77.0	76.8	76.7	77.1	77.2	77.2	77.4	76.7	73.2	74.5	75.3	77.8	79.4	79.8	78.5	77.7	76.8	75.8	76.4	77.4	81.2
20-Jan	77.3	77.6	78.9	79.3	79.4	79.0	79.6	81.5	83.1	79.2	76.3	74.8	71.5	70.1	69.9	72.1	76.1	79.4	80.0	80.5	81.1	81.0	80.1	78.8	77.8	83.1
21-Jan	80.0	80.7	81.1	82.2	81.8	80.9	81.0	81.3	78.3	77.1	77.0	75.7	75.0	73.4	73.5	74.7	75.2	76.0	77.1	77.9	78.0	78.0	74.7	77.2	77.8	82.2
22-Jan	78.5	80.3	81.7	82.0	81.7	81.3	81.1	81.0	80.9	80.8	81.0	81.3	77.4	76.7	77.2	77.8	78.0	81.5	85.0	86.0	85.9	85.7	86.0	86.1	81.5	86.1
23-Jan	86.2	86.5	86.5	86.7	86.8	86.8	86.8	87.0	86.9	86.8	87.2	87.6	87.9	87.0	83.0	82.8	82.1	82.7	81.6	84.2	84.6	84.5	87.7	88.6	85.8	88.6
24-Jan	90.9	90.8	89.5	89.0	88.8	88.8	88.8	88.9	88.9	89.1	89.5	90.4	91.4	92.5	93.2	93.8	94.0	94.1	94.2	94.1	93.6	93.0	92.5	92.1	91.3	94.2
25-Jan	91.4	91.4	90.8	89.8	88.8	87.7	88.6	89.7	89.9	90.1	90.8	90.8	91.0	91.2	91.5	91.7	91.9	91.9	91.6	91.3	91.4	91.6	91.5	91.6	90.8	91.9
26-Jan	92.1	92.6	92.7	93.0	93.2	93.7	94.6	94.8	94.7	94.4	94.4	95.0	95.4	95.5	96.4	97.1	97.6	97.7	96.4	93.4	89.1	88.6	88.8	88.6	93.7	97.7
27-Jan	88.3	88.9	88.9	86.9	85.8	83.8	79.0	77.2	77.9	76.3	72.9	64.3	58.6	53.4	53.8	61.1	72.2	80.5	84.1	84.1	84.2	82.6	83.3	83.3	77.1	88.9
28-Jan	81.1	80.9	80.1	78.8	76.5	72.5	71.5	76.0	78.5	77.4	66.7	60.9	59.1	55.8	55.7	56.9	60.4	65.1	70.9	71.0	76.5	79.5	79.0	78.9	71.2	81.1
29-Jan	79.1	84.0	87.0	86.9	86.7	85.4	82.6	81.4	81.3	76.7	72.3	66.9	64.0	60.3	57.5	59.5	65.5	70.6	74.7	78.0	81.0	81.6	85.9	84.4	76.4	87.0
30-Jan	84.6	84.8	83.5	83.8	86.3	82.5	82.5	82.9	82.2	79.2	70.3	54.0	44.5	34.6	33.6	36.2	38.6	40.4	43.9	47.1	49.7	51.6	53.5	56.1	61.9	86.3
31-Jan	59.7	61.2	64.3	68.3	68.9	70.1	71.6	71.4	74.0	74.0	63.2	52.8	47.5	43.5	41.4	43.3	49.6	51.0	53.2	54.9	56.2	58.7	55.6	54.3	58.7	74.0
																						Diurnal Average				
																						Diurnal Maximum				
M - Maintenance																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Leismer - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	4	0.54	0.54
40 - 60	36	4.85	5.38
60 - 80	365	49.13	54.51
80 - 100	338	45.49	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Leismer - January 2024

Maximum Speed: 36 km/h on Jan 30 14:00	Maximum Daily Speed Average: 15.8 km/h on Jan 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 17:00	Minimum Daily Speed Average: 0.7 km/h on Jan 5	Hours of Data: 726
Maximum Diurnal Speed Average: 3.6 km/h at hour 14	Minimum Diurnal Speed Average: 1.2 km/h at hour 20	Hours of Missing Data: 18
Monthly Average Velocity: 2.3 km/h 311.2 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> = 14 P <sub>99</sub> = 26	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-Jan	WNW20	NNW19	NNW23	NW20	NNW20	NW24	NW25	NW20	NNW20	NNW18	NNW14	N8	N7	N8	NNW11	NNW9	NNW10	NW10	NNW10	NNW9	N7	NNW8	NW10	NNW12	NW13.4	NW25	
2-Jan	NNW11	NNW11	NNW11	NNW9	NNW8	N6	NNE5	NNW4	ENE2	NE3	NE3	ENE3	ESE3	ESE3	ESE5	ESE6	SE5	ESE6	SE6	ESE6	ESE6	E4	ESE4	SE3	NE2.2	NNW11	
3-Jan	SE3	ESE1	SE2	S2	SE2	SE3	SE3	SE3	SE3	SSE5	SE5	SE4	ESE4	E4	ESE5	E6	ESE8	SE7	SE5	SSW5	SW5	SW6	WSW5	SE3.1	ESE8		
4-Jan	W6	W9	W11	NNW15	NW16	NNW17	NNW14	NNW12	NNW12	N9	NNE7	NE4	ENE4	ESE6	ESE9	ESE10	ESE9	ESE12	ESE12	ESE11	E8	E7	ESE9	ESE9	NNE2.8	NNW17	
5-Jan	ESE8	SE7	ESE4	SE4	ESE1	WSW2	WNW8	NW16	NW11	NW9	NW10	NW8	NW6	WNW6	NNW2	E1	S5	E4	ESE7	ESE7	ESE9	ESE8	ESE8	ESE5	NNE0.7	NW16	
6-Jan	ESE5	E5	E5	E6	E6	E6	E6	E8	E8	E8	E9	E7	E5	NE6	ENE6	NE7	NE8	NE7	NE9	NE8	NE8	NE7	NE7	NE8	ENE6.3	E9	
7-Jan	NE7	NE6	N6	N7	N8	NNE6	ENE5	ENE5	ENE3	ESE5	ESE5	ESE5	SE4	SSE6	SE5	SSE6	SSE7	SE6	SE6	SE6	SSE7	SSE6	SSE6	SSE7	ESE3.4	N8	
8-Jan	SSW6	S5	S6	SSE6	SSE6	SSE6	S6	SSW6	SW4	SSW3	W7	NNW13	NW14	NNW13	NW13	NNW8	NNW6	NNW7	N8	NNE6	N6	NNE6	NE3	NE3	NW2.2	NW14	
9-Jan	ESE5	ESE5	ESE6	ESE6	E7	E7	E8	E8	E7	E8	E7	ENE7	ENE6	NE7	ENE6	NE6	ENE6	NE6	NE5	NE5	NNE6	NNE7	NNE7	N8	ENE5.4	N8	
10-Jan	NNW10	N9	N9	N7	N5	NNW7	NNW8	NNW9	N9	N8	N10	N10	N9	N9	NNW10	NNW13	NNW10	NNW7	NW7	NNW8	NNW9	NNW12	NNW11	N10	NNW8.8	NNW13	
11-Jan	NNW10	NNW9	NNW9	NNW7	NNW8	NNW10	NNW10	NNW10	NW9	NW12	NNW12	NW13	NW11	NNW9	NNW11	NNW13	NNW10	NNW9	NW9	NNW9	NNW11	NNW13	NNW11	NNW9	NNW10.1	NW13	
12-Jan	NNW6	NNW8	NNW6	WNW4	NNW6	N3	WNW6	WNW6	N2	NW4	NW4	M	WNW9	WNW7	WNW9	NW5	NE3	ENE2	NW1	WNW1	NNW1	NNE1	NE1	N2	NW3.6	WNW9	
13-Jan	NE2	NE2	N3	NNE3	ENE2	ENE2	NNW3	NNE3	NNE3	NNE2	N2	NW2	WNW2	N4	NNW4	NNW3	N0	ENE1	ENE2	UO	UO	NNW5	NNW5	NNW5	N2.2	NNW5	
14-Jan	N7	N6	NNW6	N6	NNW7	NNW6	NNW6	NNW6	NNW7	NNW6	NNW9	NW11	NW10	NW11	NW12	NW12	NW12	NW12	NW14	NW13	NNW9	WNW8	WNW7	W8	WNW8	NW8.0	NW14
15-Jan	W6	W7	WNW5	WSW2	WNW4	WNW4	W4	WNW1	SSW1	SSE1	SW3	SSW3	SSW6	SW6	SW5	SSW4	S4	S5	SSE5	S4	SW3	W4	WNW5	WNW8	WSW3.0	WNW8	
16-Jan	NNW7	NNW6	NNW5	NNW7	NNW7	N7	NNW7	NNW9	NNW12	NNW16	NNW19	NNW17	NNW17	NW18	NW20	NW18	NW17	NW21	NW19	NW21	NW21	NW20	NW23	NW24	NNW14.7	NW24	
17-Jan	NW22	NW22	NW21	NW19	NW19	NW18	NW14	NW14	NW13	NNW10	NNW10	NNW10	N11	N10	NNW10	NNW11	N10	N9	N7	N6	N7	N7	N8	N7	NNW11.7	NW22	
18-Jan	N9	NNW10	NW11	NW12	NW14	NW16	NW17	NW14	NW13	NW16	NW17	NW20	NW18	NW17	NW15	NNW18	NNW14	NNW13	NNW16	NW15	NW11	NW10	WNW7	NW14	NW13.8	NW20	
19-Jan	NW16	NW7	WSW2	WNW5	NW1	WSW1	W2	WSW1	WNW1	SSW1	SSW4	SSW5	SSW8	S10	S8	SSE7	SE5	SSE7	SSE11	SSE12	SSE10	SSE8	SSE12	SSE11	S4.0	NW16	
20-Jan	SSE11	SSE10	S8	SSW8	SSW9	SW7	SSW6	SSW4	S3	SSW4	WSW6	W9	NNW12	W12	WNW9	NW11	NNW10	NNW9	NW7	WSW3	WNW5	N5	N7	NNW6	W3.6	W12	
21-Jan	N6	N4	N3	NE3	NNE5	NNE7	N7	N9	N7	N10	N8	N8	NNE6	NNE10	NE8	NNE7	NE7	ENE6	NE6	NE6	NE7	ENE7	E7	E8	NNE6.1	N10	
22-Jan	E9	E10	E10	E10	E11	ESE13	ESE13	ESE11	ESE12	ESE14	ESE14	SE13	SSE15	SSE16	SSE15	SSE14	SSE14	SSE15	SSE12	SSE10	SSE12	SSE12	S10	S9	SE10.9	SSE16	
23-Jan	S9	SSW11	SSW11	SSW10	SSW9	SSW8	SSW7	SSW7	SSW6	SSW6	SSW6	SW6	WSW4	WNW6	NW5	WNW7	WNW6	NW8	NW7	N7	NNW8	NNW6	N5	NNE4	WSW3.7	SSW11	
24-Jan	E4	ESE8	ESE8	ESE7	ESE8	SE7	SE7	SE7	ESE8	SE6	SE7	SSE8	SSE8	SSE7	SE9	SE8	SE8	SE5	S6	SSW5	SSW6	SSW6	SW4	SW5	SE5.8	SE9	
25-Jan	SSW5	WSW3	WNW3	E2	ESE1	N3	N6	N4	N3	NNE3	SE3	SE4	SW2	WSW1	SSW3	S4	S3	S4	S3	SSE5	SSW4	SSW3	SSW4	SSW3	S1.2	N6	
26-Jan	SSW3	W2	W2	W4	W6	W8	NNW11	WNW8	WNW5	W4	WNW5	W2	SSW1	S4	S5	S6	SSE6	S7	SSW7	UO	UO	UO	UO	UO	WSW3.4	WNW11	
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSW8	SW7	SW8	SW8	SW7	SSW8	S6	SSW5	SSW5	SSW5	S5	S6	S5	S5	---	SW8
28-Jan	S5	SSW5	S4	SSE3	SSE7	S7	SSW8	SSW5	SSW5	SSW5	W9	W14	W16	W24	W24	NNW25	NNW19	W14	NNW14	W11	WSW4	W5	W5	W5	W8.1	WNW25	
29-Jan	W5	SW2	SSW4	SSW4	SSW6	S6	S7	S8	S7	SSE8	SSW8	SSW12	SSW10	SSW10	SSW10	SSW9	SSW7	SSW7	SSW6	SSW6	S5	S6	SSW6	S4	SSW6.5	SSW12	
30-Jan	S3	S4	SSE2	S4	E3	SSE7	SSE7	SSW5	SSW5	SSW7	W25	NNW31	W23	W36	W35	W30	W33	W33	W27	W24	W22	W25	NNW27	W15	W15.8	W36	
31-Jan	W10	W14	NNW10	W8	W6	WNW7	WNW7	WNW5	W2	S4	SSW6	SSW6	SSE9	SSE12	SSE13	SSE13	SE10	SE12	SE12	SE11	SE11	SE10	SE13	SE11	S4.6	W14	

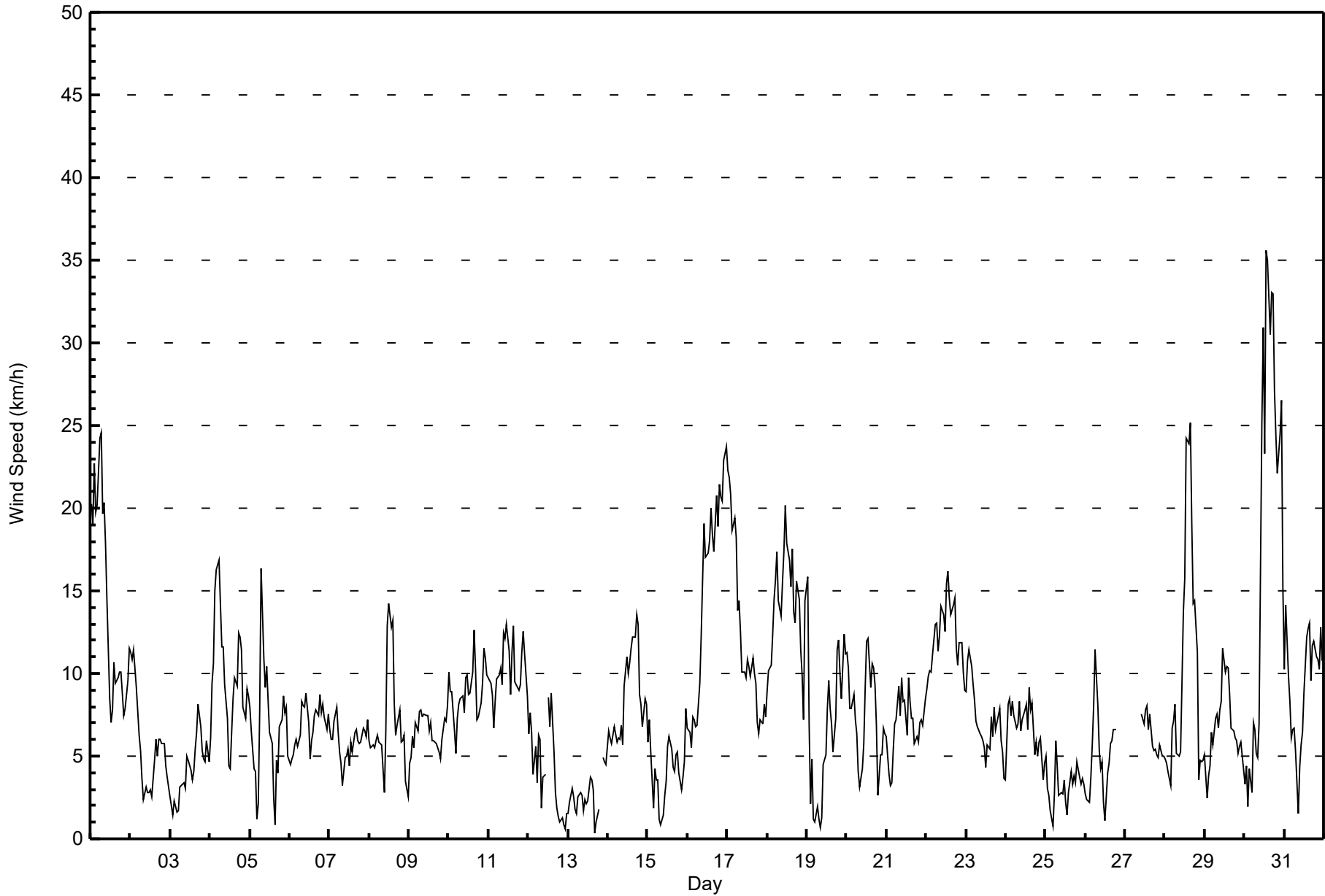
NW2.5	NW2.5	NW2.5	NW2.3	NW2.4	NW2.6	NW3.0	NNW3.2	NNW2.4	NNW2.0	NW2.9	NW3.3	NNW3.1	NNW3.6	NNW3.4	NNW3.0	NW1.9	NNW1.8	NNW1.4	NNW1.2	NW1.4	NW1.7	NW1.6	NW1.8	Diurnal Average	
NNW22	NNW22	NNW23	NNW20	NNW20	NW24	NW25	NNW20	NNW18	W25	NNW31	W23	W36	W35	W30	W33	W33	W27	W24	W22	W25	NNW27	NW24	Diurnal Maximum		

M - Maintenance      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**  
**Leismer - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Leismer - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	219	30.17	30.17
6 - 11	377	51.93	82.09
12 - 19	95	13.09	95.18
20 - 28	29	3.99	99.17
29 - 38	6	0.83	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 726

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Leismer - January 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	15	9	12	11	10	17	18	7	24	31	9	11	13	15	7	10	219
6 - 11	46	12	20	7	26	26	19	28	18	38	8	1	15	21	22	70	377
12 - 19	0	0	0	0	0	7	4	14	0	1	0	0	6	10	35	18	95
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	8	5	15	1	29
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	6
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	61	21	32	18	36	50	41	49	42	70	17	12	47	52	79	99	726

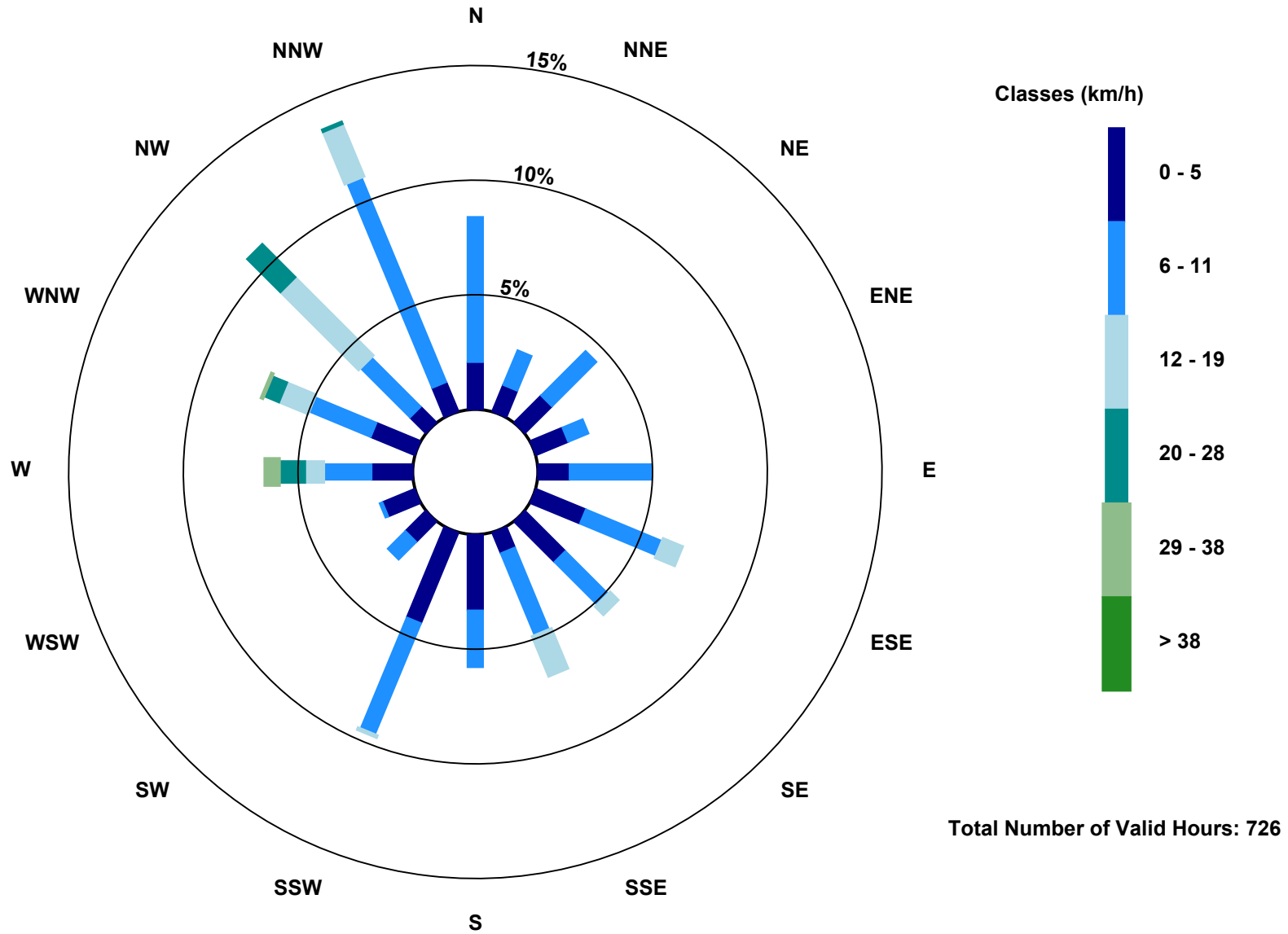
Total Number of Valid Hours: 726

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Leismer







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Leismer - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 12 km/h on Jan 30 11:00 Minimum Value: 0 km/h on Jan 13 12:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 7														Hours in Service: 744 Hours of Data: 726 Hours of Missing Data: 18 Hours of Calibration: 0 Percent Operational Time: 97.6																					
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-Jan	3	3	3	4	4	5	4	4	4	4	4	3	2	1	4	2	2	2	2	1	1	1	2	2	5										
2-Jan	2	2	3	2	2	2	2	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	2	1	3										
3-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	2										
4-Jan	2	2	2	3	3	3	3	2	2	2	2	2	2	2	3	3	2	3	3	3	3	2	2	2	3										
5-Jan	2	2	1	1	1	2	4	3	3	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	4										
6-Jan	1	1	1	2	2	2	2	2	2	2	2	3	2	2	2	3	3	2	3	3	2	2	2	3	3										
7-Jan	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2										
8-Jan	1	1	1	1	1	1	1	2	2	1	3	3	3	4	3	1	1	1	1	1	1	2	2	1	4										
9-Jan	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2										
10-Jan	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2										
11-Jan	2	1	2	1	1	1	2	2	2	2	3	2	2	2	2	2	2	1	1	1	1	2	2	1	3										
12-Jan	1	1	2	2	2	2	2	2	1	2	1	M	2	2	2	1	1	1	1	1	1	1	1	1	2										
13-Jan	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	UO	UO	1	1	1	1										
14-Jan	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	3	2	2	2	2	1	3										
15-Jan	1	1	2	2	2	1	2	1	1	1	2	1	2	2	2	1	1	1	1	1	1	1	1	2	2										
16-Jan	1	2	2	2	1	2	1	2	2	3	3	3	4	4	4	3	3	3	3	4	4	4	4	4	4										
17-Jan	4	4	4	3	3	3	2	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	1	4										
18-Jan	2	2	2	3	2	3	3	3	3	3	3	4	4	4	4	4	3	3	3	3	3	2	2	4	4										
19-Jan	5	2	1	2	1	1	1	1	1	1	1	1	2	3	2	2	1	1	3	4	3	2	2	2	5										
20-Jan	2	2	2	2	2	3	2	1	1	1	2	3	3	2	2	3	2	1	2	2	2	1	1	1	3										
21-Jan	1	1	1	1	2	1	2	3	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	3										
22-Jan	2	3	3	3	3	3	3	3	3	3	3	4	3	4	3	3	3	3	3	2	3	3	2	2	4										
23-Jan	2	3	4	3	3	3	2	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1	2	4											
24-Jan	2	2	2	2	2	1	1	2	2	1	1	1	1	2	2	2	1	2	2	1	1	1	1	1	2										
25-Jan	1	1	1	1	1	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2										
26-Jan	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	UO	UO	UO	UO	UO	2										
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	2	3	2	2	1	1	1	1	1	1	1	1	3										
28-Jan	1	1	1	2	1	2	2	1	1	1	3	4	4	7	6	5	3	3	2	3	2	1	1	1	7										
29-Jan	2	1	1	1	2	1	2	1	2	2	3	3	3	3	3	3	1	1	1	1	1	1	1	2	3										
30-Jan	2	1	1	2	2	1	1	2	1	2	12	7	7	11	10	8	10	8	6	6	6	6	6	6	12										
31-Jan	3	3	3	2	2	2	2	2	2	1	2	2	2	2	3	3	2	3	2	2	2	2	3	2	3										
											5	4	4	4	4	5	4	4	4	4	12	7	7	11	10	8	10	8	6	6	6	6	6	6	
Diurnal Maximum																																			
M - Maintenance UO - Unstable Operation																																			



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Leismer - January 2024**

Direction of Maximum Speed: 277 deg on Jan 30 14:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 272.6 deg on Jan 30	Hours of Data: 726
Direction of Minimum Speed: 355 deg on Jan 13 17:00	Hours of Missing Data: 18
Direction of Minimum Daily Speed Average: 0.7 deg on Jan 5	Percent Operational Time: 97.6
Monthly Average Direction: 311.2 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-Jan	291	290	293	312	299	308	316	321	333	334	338	10	5	352	337	336	336	312	328	336	349	334	315	334	320.2
2-Jan	332	329	328	335	343	8	17	347	58	49	56	72	116	115	108	123	136	118	133	112	115	100	114	126	43.1
3-Jan	134	117	140	174	170	136	138	144	140	126	153	145	142	106	94	111	100	105	125	144	203	227	218	246	142.7
4-Jan	272	280	281	292	322	332	328	332	342	3	22	42	69	115	104	107	110	114	114	116	99	92	107	116	29.2
5-Jan	120	132	106	127	111	257	282	317	317	319	324	311	309	297	341	83	169	100	105	122	116	118	111	122	26.1
6-Jan	102	101	99	100	92	89	87	85	96	90	92	90	79	53	60	48	44	47	40	41	39	47	49	47	69.5
7-Jan	56	43	6	1	6	17	64	60	66	110	119	120	146	151	146	152	150	140	143	145	148	150	148	161	109.9
8-Jan	193	189	179	160	155	160	185	201	215	192	273	299	306	328	323	333	344	346	8	12	7	33	44	54	309.2
9-Jan	111	112	112	108	97	91	90	90	83	90	89	74	64	53	74	45	57	55	51	37	13	13	16	357	68.1
10-Jan	344	358	4	3	2	348	348	348	352	360	3	2	352	353	348	333	343	341	325	327	330	334	344	350	347.4
11-Jan	343	340	341	341	329	335	330	329	318	322	328	325	323	331	328	339	330	327	326	335	331	329	329	335	330.7
12-Jan	336	329	338	300	345	350	293	299	3	306	320	M	288	292	289	314	38	66	309	288	333	30	51	350	317.5
13-Jan	53	49	354	14	60	60	337	12	23	13	359	306	302	356	347	348	355	69	61	UO	UO	346	340	334	359.3
14-Jan	358	355	344	349	347	343	347	335	330	347	328	324	322	322	324	324	318	322	326	331	286	284	279	284	324.5
15-Jan	279	279	286	258	284	288	272	294	212	167	229	210	213	217	219	200	176	169	162	191	216	279	283	287	240.5
16-Jan	345	342	329	346	345	357	335	332	345	346	338	341	339	324	322	318	320	319	318	319	310	313	317	318	326.9
17-Jan	318	317	316	319	325	322	321	320	325	331	344	348	359	349	338	346	4	4	6	11	10	0	1	350	335.0
18-Jan	356	343	320	315	318	320	315	318	310	319	317	320	314	320	313	300	299	289	303	309	304	318	300	318	314.3
19-Jan	313	305	246	297	311	258	275	238	291	203	201	197	194	187	173	149	142	155	161	168	158	149	158	161	181.4
20-Jan	155	167	178	193	203	220	208	201	177	206	248	276	284	281	283	307	339	339	316	253	303	352	351	347	263.2
21-Jan	360	10	0	38	16	24	10	10	3	350	7	2	13	15	38	24	42	57	54	42	40	73	83	99	27.5
22-Jan	100	101	100	101	98	109	111	110	115	113	117	135	154	155	156	154	162	163	163	162	167	166	172	173	137.0
23-Jan	178	195	199	204	203	205	206	212	213	213	209	224	242	282	308	299	297	308	309	349	346	338	11	33	242.2
24-Jan	93	122	113	108	123	140	136	124	118	132	138	154	149	147	144	146	143	139	170	207	212	206	226	228	144.4
25-Jan	210	237	287	93	106	359	0	10	354	19	129	133	218	243	202	178	179	171	175	159	192	201	197	196	187.7
26-Jan	200	270	265	270	276	280	290	290	294	278	283	260	202	181	181	174	168	190	201	UO	UO	UO	UO	UO	247.5
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	209	221	214	223	219	202	188	198	194	192	178	179	183	187	--
28-Jan	171	193	177	164	159	180	205	205	201	205	266	270	275	280	278	283	283	281	283	278	241	270	271	278	262.2
29-Jan	272	230	210	195	202	183	189	191	171	158	201	197	198	200	213	207	203	193	194	196	191	189	201	184	197.2
30-Jan	189	185	155	177	101	158	165	194	198	200	280	294	280	277	276	276	278	278	277	276	275	278	283	274	272.6
31-Jan	270	278	282	281	268	293	298	303	273	187	196	194	157	157	163	163	143	135	136	136	130	131	137	142	176.1

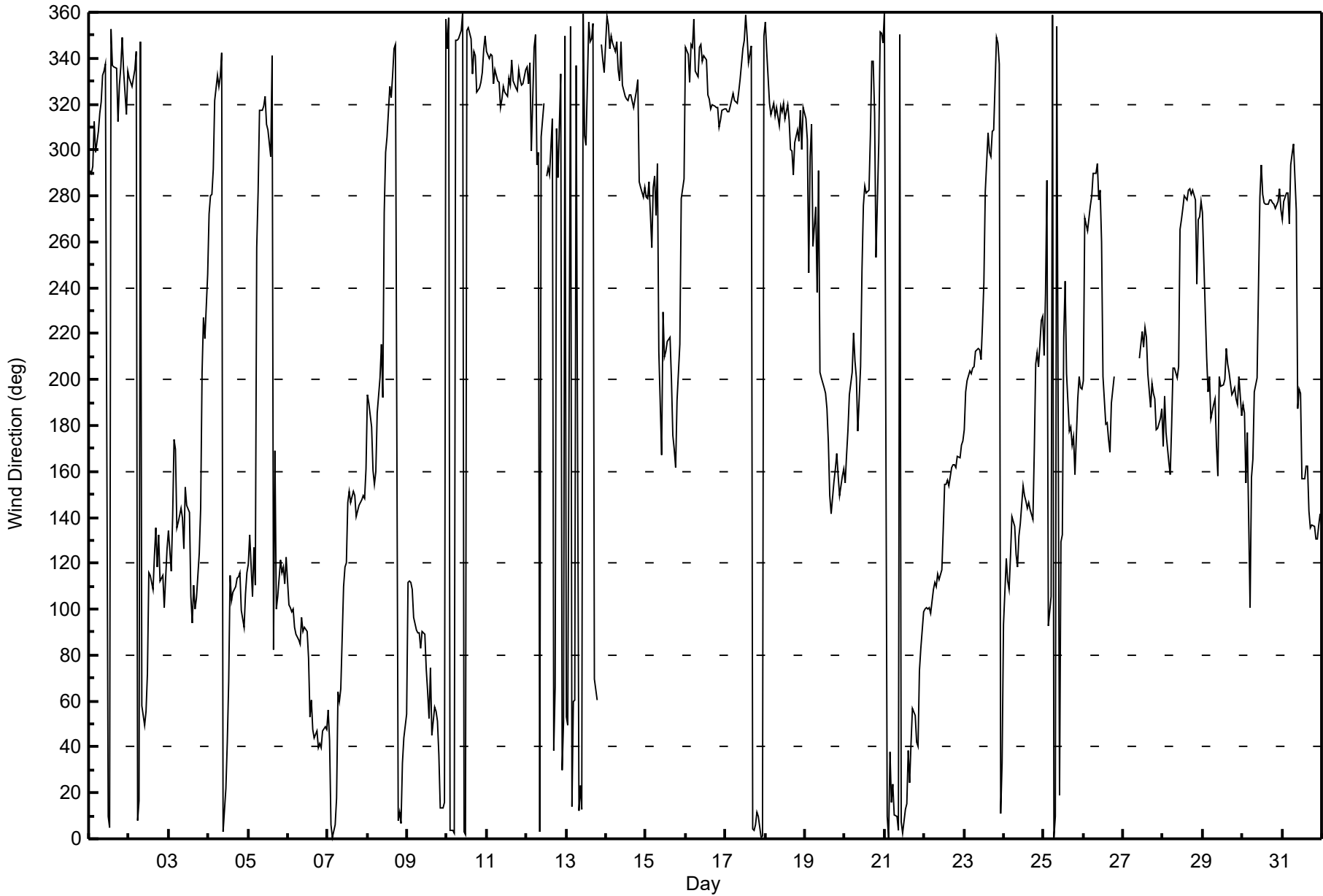
316.0 307.1 309.3 315.2 325.2 326.2 316.6 326.3 339.8 346.6 314.6 307.2 292.8 292.7 293.7 297.9 306.3 303.7 298.2 303.6 305.4 318.7 309.3 313.1  
 Diurnal Average

M - Maintenance 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**  
**Leismer - January 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Leismer - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 81 deg on Jan 15 04:00 Minimum Value: 7 deg on Jan 15 00:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 17 Q <sub>3</sub> = 23 P <sub>90</sub> = 32 P <sub>99</sub> = 73																	Hours in Service: 744 Hours of Data: 726 Hours of Missing Data: 18 Hours of Calibration: 0 Percent Operational Time: 97.6								
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-Jan	9	9	8	15	12	13	10	11	12	12	16	25	20	15	17	17	13	25	10	11	17	24	26	14	26
2-Jan	14	17	16	16	19	23	24	41	59	29	39	47	23	34	22	17	16	15	18	17	20	22	21	17	59
3-Jan	24	46	20	26	29	34	18	16	16	33	15	16	20	20	21	15	13	15	19	15	33	33	30	35	46
4-Jan	21	13	12	12	11	13	11	17	14	17	21	46	45	27	22	19	18	17	16	16	29	22	16	17	46
5-Jan	16	19	22	20	81	56	24	10	16	15	13	26	27	39	56	80	17	21	17	18	15	18	18	20	81
6-Jan	20	22	20	21	23	25	23	24	20	23	20	23	30	27	32	25	25	27	23	26	21	28	26	26	32
7-Jan	26	24	25	15	15	19	29	32	38	18	20	19	32	19	22	13	13	13	12	11	10	12	12	14	38
8-Jan	14	17	15	13	11	12	17	22	30	16	21	18	20	13	9	16	10	12	11	15	24	14	32	47	47
9-Jan	22	20	20	21	20	23	23	22	24	22	24	28	30	28	34	27	30	30	31	29	16	15	17	15	34
10-Jan	15	15	16	17	15	12	13	13	13	13	14	16	17	14	14	11	13	10	11	11	11	9	12	12	17
11-Jan	12	10	11	12	9	8	8	9	12	9	11	12	15	15	13	14	10	9	10	9	8	8	10	10	15
12-Jan	12	10	13	22	13	19	16	18	62	21	28	M	9	18	10	30	24	20	24	41	51	53	42	17	62
13-Jan	25	30	21	17	25	39	21	26	32	30	35	31	41	20	15	15	77	33	26	UO	UO	13	15	16	77
14-Jan	11	11	13	14	14	20	18	13	16	13	10	10	11	12	11	10	13	10	11	19	13	14	11	7	20
15-Jan	11	12	16	81	40	27	15	73	75	48	49	38	29	27	28	24	12	12	14	10	41	18	11	8	81
16-Jan	24	20	26	17	15	16	14	15	11	12	13	14	14	12	12	11	10	10	10	11	14	13	10	10	26
17-Jan	10	11	12	11	11	10	10	9	10	12	13	16	22	17	18	17	15	14	12	9	10	10	13	18	22
18-Jan	14	11	11	10	10	10	14	17	16	10	10	10	14	13	16	14	20	15	15	15	16	18	19	12	20
19-Jan	13	22	63	35	73	64	28	62	72	65	24	21	21	18	15	15	13	12	10	16	12	10	10	12	73
20-Jan	12	13	16	17	18	24	19	14	17	23	35	20	19	14	15	27	9	9	27	67	39	18	16	14	67
21-Jan	16	16	27	28	18	14	21	16	26	16	17	17	27	22	22	20	26	27	29	22	27	26	24	17	29
22-Jan	20	21	18	19	20	17	15	17	16	15	14	18	14	13	13	13	14	13	14	12	13	13	15	15	21
23-Jan	16	20	19	20	21	19	19	21	23	24	24	33	35	27	27	19	17	29	24	16	12	13	21	28	35
24-Jan	43	15	17	19	19	15	18	17	15	19	19	14	13	19	14	12	10	14	13	16	15	10	25	22	43
25-Jan	13	29	43	52	75	43	13	29	30	59	60	28	56	57	38	19	21	16	17	16	16	16	17	18	75
26-Jan	20	22	28	17	11	13	9	13	18	22	12	29	78	23	17	13	16	14	12	UO	UO	UO	UO	UO	78
27-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	23	27	24	25	25	17	11	12	12	15	13	10	15	15	27
28-Jan	14	12	25	20	9	27	16	16	16	25	29	23	17	14	14	11	9	10	8	15	44	27	20	20	44
29-Jan	17	53	25	20	15	14	14	12	21	13	16	15	16	17	21	19	12	13	12	10	13	13	13	31	53
30-Jan	39	18	36	23	60	13	16	17	13	19	27	10	14	16	15	15	14	12	14	14	15	14	10	22	60
31-Jan	20	13	18	13	21	24	22	34	60	19	18	25	19	15	15	13	10	13	14	14	14	16	13	13	60
43 53 63 81 81 64 29 73 75 65 60 47 78 57 56 80 77 33 31 67 51 53 42 47																								Diurnal Maximum	
M - Maintenance																								UO - Unstable Operation	



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS505 SAWBONES BAY JANUARY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
 JANUARY 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	709	35	35	100	14.6	0	3.8	0
H2S (ppb) Average	652	32	92	91.94	1.8	0	0.5	0
NO2 (ppb) Average	708	36	36	100	32.7	0	13.4	-
NO (ppb) Average	708	36	36	100	26.5	-	4.6	-
NOX (ppb) Average	708	36	36	100	59.2	-	18	-
Temperature 2 m (C) Average	744	0	0	100	11.4	-	5.4	-
Relative Humidity (%) Average	701	0	43	94.22	100	-	96	-
Wind Speed 10 m (km/h) Average	724	0	20	97.31	31	-	17	-
Wind Direction 10 m (deg) Average	724	0	20	97.31	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
 JANUARY 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	709	1.19	1.8	-	0	0.1	0.2	0.5	1.3	3.1	14.6
H2S (ppb) Average	652	0.19	0.2	-	0	0.1	0.1	0.1	0.2	0.3	1.8
NO2 (ppb) Average	708	5.22	4.8	-	0	0.6	1.7	3.9	7.3	11.3	32.7
NO (ppb) Average	708	0.92	2.5	-	0	0	0	0	0.7	2.7	26.5
NOX (ppb) Average	708	6.14	6.7	-	0	0.6	1.8	4.2	8.6	12.9	59.2
Temperature 2 m (C) Average	744	-15.87	12.4	-	-42.8	-33.6	-22.8	-15.6	-7.8	1.3	11.4
Relative Humidity (%) Average	701	78.56	11.2	-	33.8	67.3	72	78.9	86.2	93.8	100
Wind Speed 10 m (km/h) Average	724	8.4	5	-	0	4	5	8	11	14	31
Wind Direction 10 m (deg) Average	724	256.7	0	-	0	-	-	-	-	-	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
JANUARY 2024

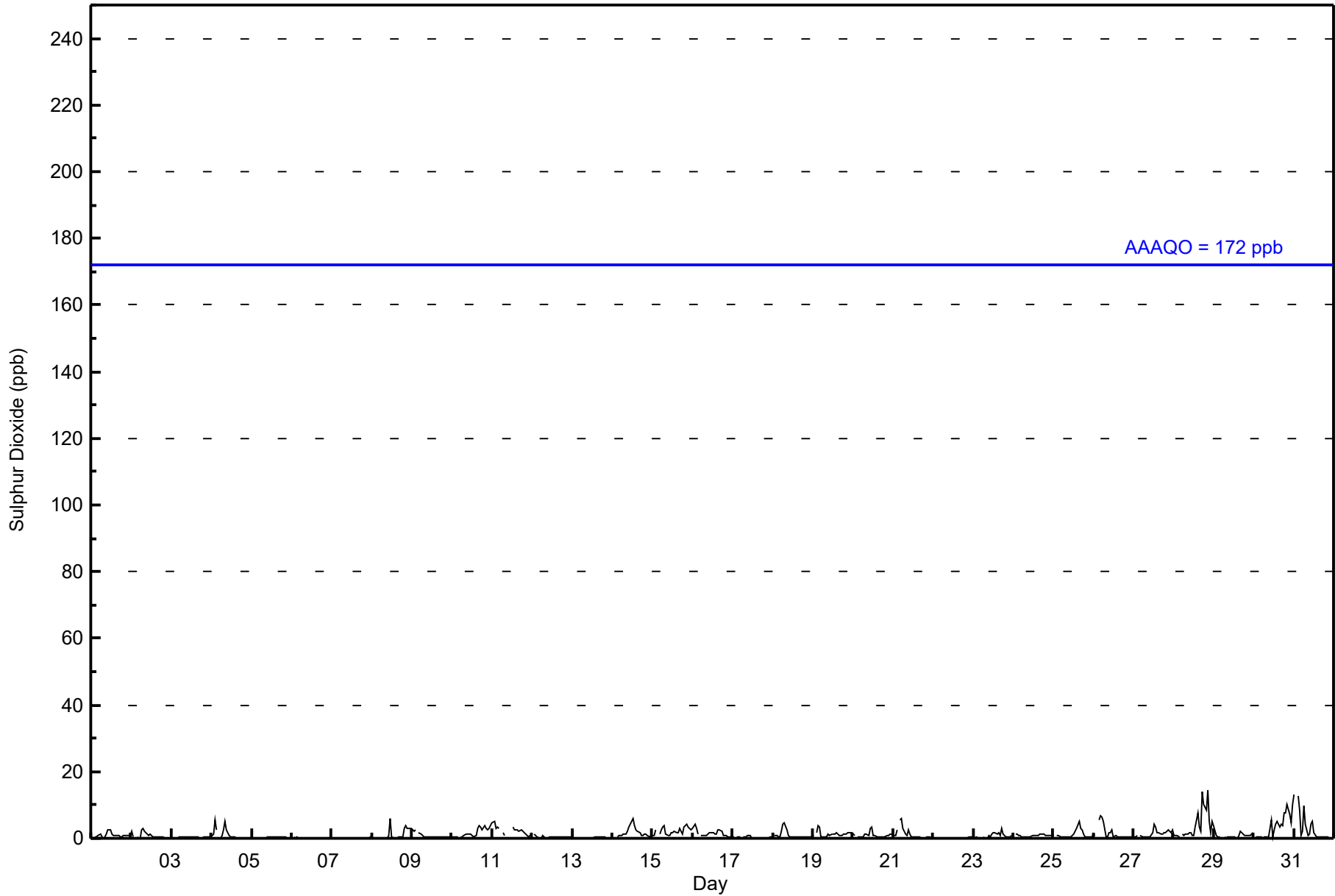
OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S	06 Jan 2024 03:00	08 Jan 2024 12:00	58	Analyzer Failure - sample pump failure
H2S	08 Jan 2024 13:00	08 Jan 2024 14:00	2	Maintenance - sample pump replaced
Relative Humidity	01 Jan 2024 19:00	01 Jan 2024 21:00	3	Sensor operated out of range
Relative Humidity	24 Jan 2024 21:00	24 Jan 2024 21:00	1	Sensor operated out of range
Relative Humidity	26 Jan 2024 03:00	27 Jan 2024 11:00	33	Sensor operated out of range
Relative Humidity	29 Jan 2024 03:00	29 Jan 2024 08:00	6	Sensor operated out of range
Wind Speed, Wind Direction	13 Jan 2024 14:00	13 Jan 2024 14:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 18:00	13 Jan 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 22:00	14 Jan 2024 04:00	7	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Jan 2024 15:00	27 Jan 2024 01:00	11	Flat line in sensor output signal - Sensor frozen





Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 14.6 ppb on Jan 28 21:00		Maximum Daily Average: 3.8 ppb on Jan 28																	Hours of Data: 709		Daily Maximum																												
Minimum Value: 0.0 ppb on Jan 5 05:00		Minimum Daily Average: 0.0 ppb on Jan 7																	Hours of Missing Data: 35		Daily Maximum																												
Maximum Diurnal Average: 1.6 ppb at hour 3		Minimum Diurnal Average: 0.8 ppb at hour 9																	Hours of Calibration: 35		Daily Maximum																												
Monthly Average: 1.19 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.5 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 3.1 P <sub>99</sub> = 9.8																	Percent Operational Time: 100.0		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-Jan	2.1	Z	0.6	0.6	0.9	1.2	0.3	0.1	0.4	1.4	2.8	2.5	1.4	0.6	0.8	0.8	0.6	0.6	0.6	0.7	0.8	1.0	0.9	0.9	1.0	2.8																							
2-Jan	2.2	0.6	Z	0.2	0.0	0.1	2.5	3.1	2.0	1.3	1.0	1.2	0.8	0.6	0.4	0.3	0.4	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.8	3.1																							
3-Jan	0.1	0.1	0.0	Z	0.3	0.5	0.4	0.3	0.4	0.4	0.5	0.4	0.4	0.5	0.3	0.4	0.2	0.1	0.2	0.3	0.3	0.5	0.4	0.3	0.3	0.5																							
4-Jan	0.9	1.1	5.7	2.7	Z	0.1	0.9	2.6	5.1	2.4	0.9	0.5	0.6	0.4	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	1.1	5.7																							
5-Jan	0.0	0.0	0.1	0.1	0.0	Z	0.1	0.1	0.0	0.2	0.4	0.4	0.3	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.6																							
6-Jan	Z	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	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	0.1	0.3																							
7-Jan	0.0	Z	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	0.2	0.0	0.2																							
8-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	5.9	0.2	0.2	0.1	0.2	0.4	0.3	0.4	2.9	3.7	3.1	3.0	2.8	1.0	5.9																							
9-Jan	2.4	2.3	2.7	Z	1.5	1.1	0.8	0.6	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.8	2.7																							
10-Jan	0.4	0.3	0.4	0.3	Z	0.4	0.6	1.0	1.2	1.2	1.2	1.1	0.7	0.5	0.8	2.9	4.0	3.3	2.5	3.9	3.1	2.7	3.1	3.9	1.7	4.0																							
11-Jan	4.5	5.1	2.8	3.5	3.1	Z	1.5	0.9	C	C	C	C	3.2	2.4	2.6	2.5	2.2	2.4	2.2	1.8	1.4	0.9	0.6	1.2	2.4	5.1																							
12-Jan	Z	1.3	0.9	0.3	0.1	0.1	0.9	0.2	0.1	0.0	0.4	0.2	0.4	0.6	0.5	0.5	0.6	0.6	0.5	0.2	0.3	0.4	0.3	0.2	0.4	1.3																							
13-Jan	0.2	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.5	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.5																							
14-Jan	0.2	0.2	Z	0.4	0.6	0.8	1.3	1.2	1.1	2.3	3.5	5.3	5.8	3.6	2.7	2.2	1.7	0.9	0.9	1.3	1.3	1.0	0.6	0.6	1.7	5.8																							
15-Jan	0.8	0.6	2.7	Z	1.3	2.6	3.4	4.0	1.1	0.8	0.9	1.5	1.7	2.2	1.7	1.5	3.0	2.1	1.1	3.5	4.3	3.3	2.8	2.4	2.2	4.3																							
16-Jan	3.1	4.0	2.8	1.3	Z	1.0	0.7	0.7	1.0	1.3	1.6	1.8	1.5	1.1	1.2	2.5	2.7	1.9	1.0	0.7	0.7	0.4	0.4	0.4	1.5	4.0																							
17-Jan	0.4	0.2	0.2	0.3	0.2	Z	0.5	0.3	0.3	0.7	0.6	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.7																							
18-Jan	Z	0.7	0.7	0.3	0.4	2.0	4.0	4.7	2.4	0.8	0.6	0.5	0.6	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	1.0	4.7																							
19-Jan	0.7	Z	1.9	3.7	3.2	0.5	0.2	0.3	0.4	1.1	1.0	1.2	1.4	1.1	1.5	1.2	0.9	0.9	1.1	1.3	1.4	1.8	1.6	1.5	1.3	3.7																							
20-Jan	1.3	0.8	Z	0.4	0.4	0.5	0.6	1.1	1.1	1.0	2.9	3.3	0.9	0.7	0.5	0.5	0.6	0.5	0.4	0.6	0.7	0.7	1.2	1.4	1.0	3.3																							
21-Jan	0.9	0.7	2.7	Z	5.5	5.9	2.9	1.3	0.9	2.6	1.4	0.6	0.5	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.3	0.3	0.2	1.2	5.9																							
22-Jan	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.1	0.4																							
23-Jan	0.3	0.1	0.3	0.1	0.1	Z	0.3	0.2	0.2	0.7	0.5	1.3	1.9	1.9	1.1	1.6	0.6	3.0	1.1	0.5	0.5	0.4	0.3	0.7	0.8	3.0																							
24-Jan	Z	1.4	1.3	0.9	0.7	0.5	0.5	0.6	0.4	0.5	0.5	0.6	1.0	1.0	0.9	1.0	1.4	1.5	1.2	0.9	0.7	0.8	0.9	0.9	0.9	1.5																							
25-Jan	0.7	Z	1.8	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.6	0.7	1.1	2.2	3.0	5.0	3.1	2.5	1.1	0.4	0.3	0.3	0.3	0.5	1.2	5.0																							
26-Jan	1.1	0.9	Z	5.4	6.8	6.4	5.1	0.5	0.5	1.7	1.7	2.6	0.5	0.9	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	1.7	6.8																							
27-Jan	0.3	0.4	1.0	Z	0.8	0.5	0.5	0.5	0.3	0.4	0.5	1.6	4.4	3.2	1.7	1.7	1.5	1.4	1.9	1.9	2.1	2.5	1.7	2.7	1.5	4.4																							
28-Jan	0.9	0.7	0.7	0.5	Z	1.2	1.0	1.2	1.4	1.8	1.6	0.9	0.8	3.5	7.6	3.5	2.1	13.9	10.0	8.6	14.6	5.2	1.6	4.9	3.8	14.6																							
29-Jan	3.9	0.9	0.5	0.3	0.1	Z	0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.1	0.2	1.0	2.0	1.1	0.9	0.9	0.9	0.9	0.9	1.5	0.8	3.9																							
30-Jan	Z	0.5	0.4	0.3	0.2	0.2	0.5	0.4	0.4	0.6	5.4	0.6	2.5	4.3	5.1	3.4	4.0	3.9	7.5	7.8	10.2	7.4	4.6	10.1	3.5	10.2																							
31-Jan	13.2	Z	12.8	8.4	0.6	1.9	9.9	4.4	0.9	1.3	4.0	5.1	1.8	0.3	0.2	0.2	0.6	0.4	0.4	0.5	0.3	0.2	0.1	0.2	2.9	13.2																							
																								1.6	0.9	1.6	1.2	1.1	1.1	1.3	1.0	0.8	0.9	1.2	1.4	1.2	1.1	1.2	1.1	1.4	1.2	1.3	1.6	1.2	0.9	1.3	Diurnal Average		
																								13.2	5.1	12.8	8.4	6.8	6.4	9.9	4.7	5.1	2.6	5.4	5.9	5.8	4.3	7.6	5.0	4.0	13.9	10.0	8.6	14.6	7.4	4.6	10.1	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**  
**Sawbones Bay - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	705	99.44	99.44
11 - 20	4	0.56	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Sawbones Bay - January 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	73	68	22	21	30	33	29	90	69	44	23	15	41	65	30	33	686
11 - 20	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
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>	73	68	22	21	30	33	29	90	69	44	23	19	41	65	30	33	690

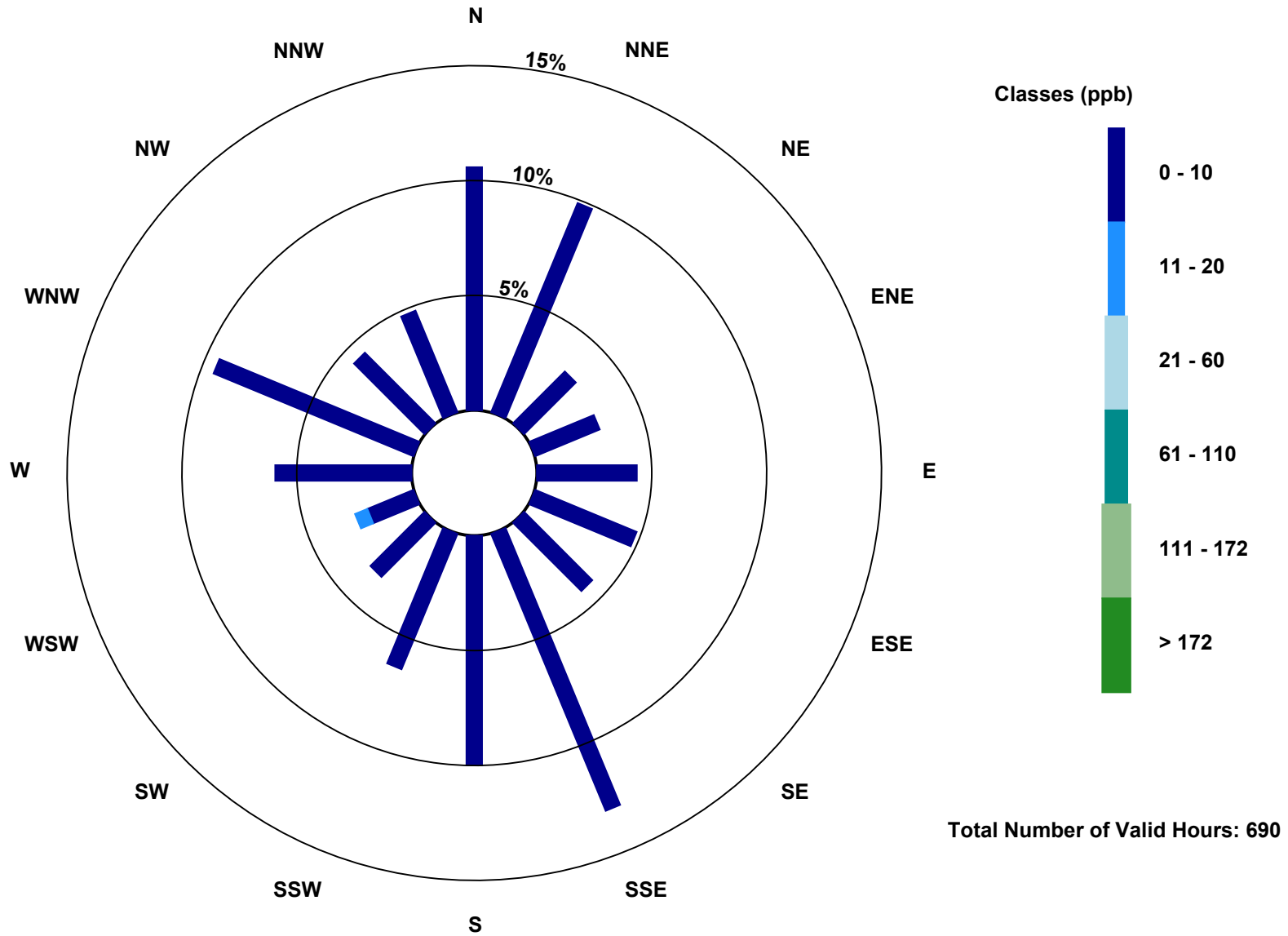
Total Number of Valid Hours: 690

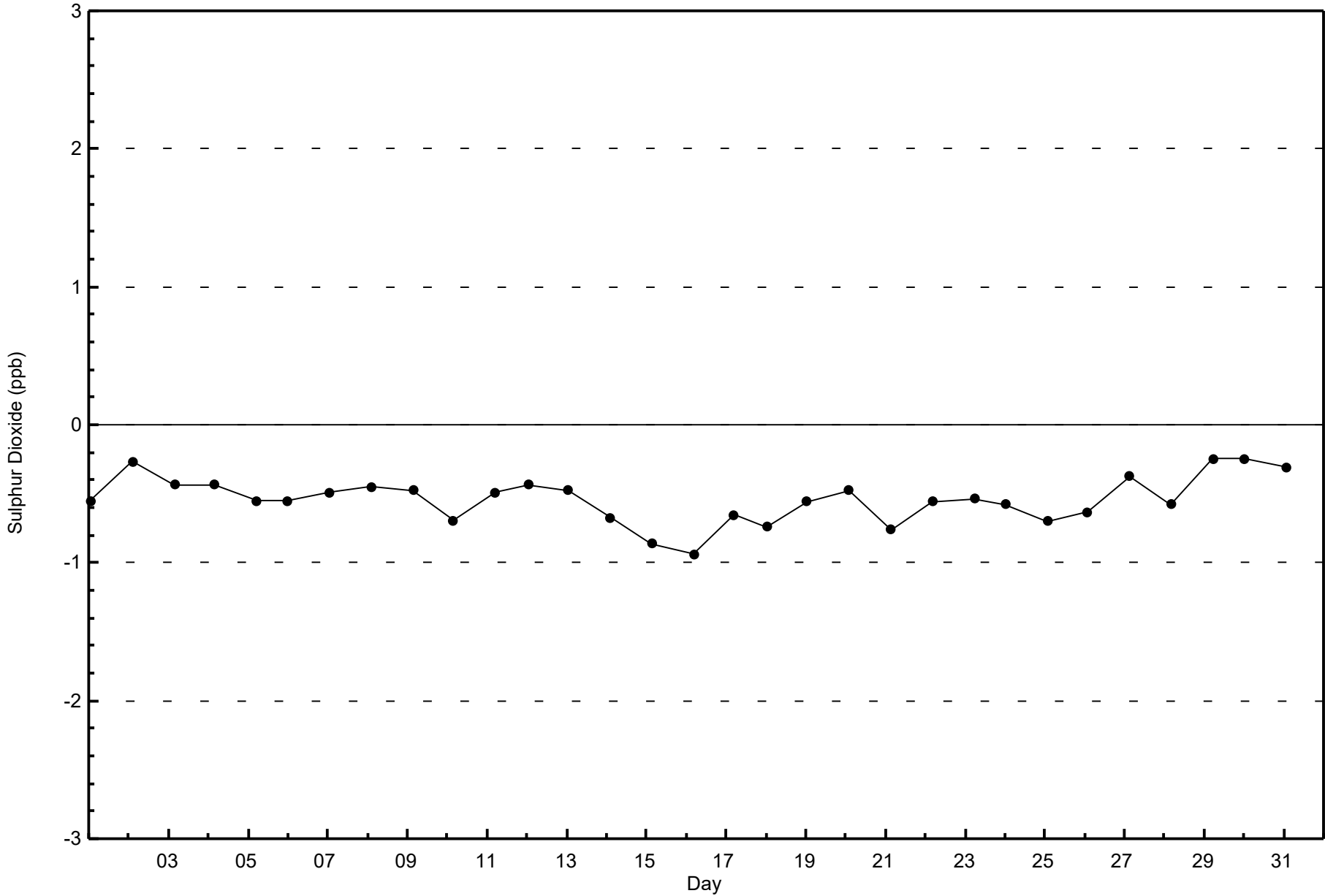
Total Number of Hours: 744

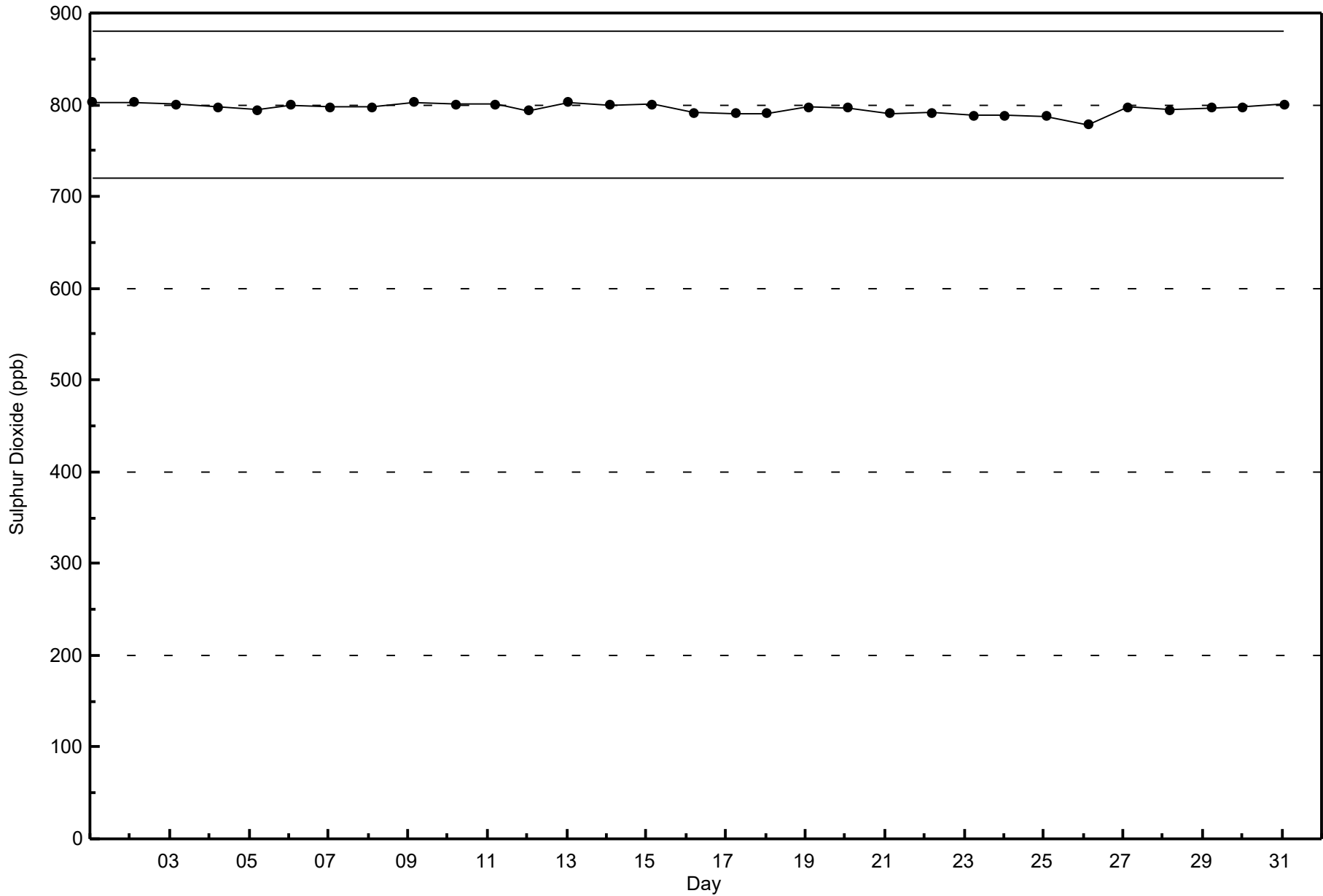


**Wood Buffalo Environmental Association**  
**Wind Rose Jan 2024**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Sawbones Bay**







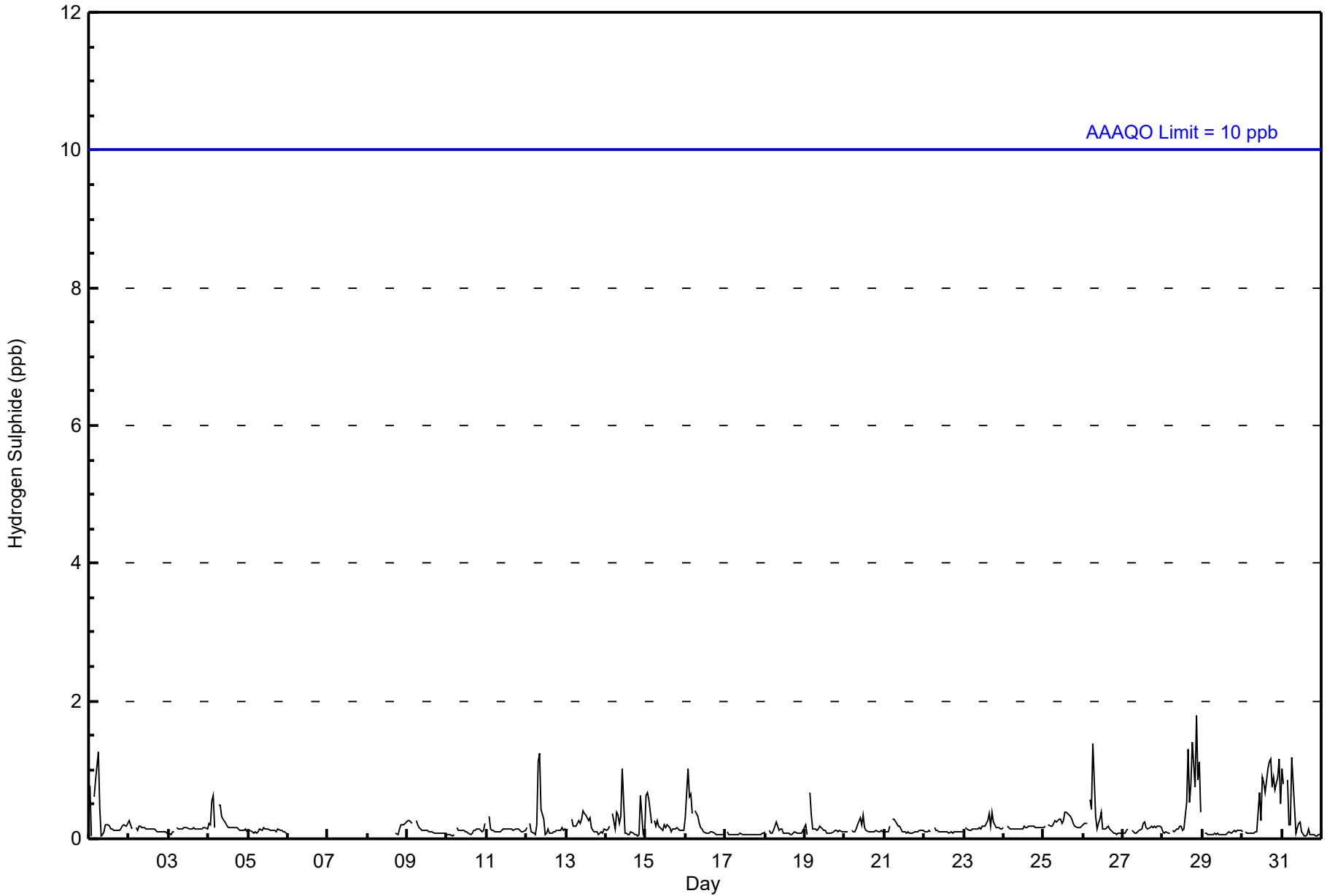


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Hydrogen Sulphide (H2S) - ppb**  
**Sawbones Bay - January 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 1.8 ppb on Jan 28 21:00		Maximum Daily Average: 0.5 ppb on Jan 30				Hours of Data:		652																		
Minimum Value: 0.0 ppb on Jan 31 15:00		Minimum Daily Average: 0.1 ppb on Jan 17				Hours of Missing Data:		92																		
Maximum Diurnal Average: 0.3 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 24				Hours of Calibration:		32																		
Monthly Average: 0.19 ppb		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> = 1.2				Percent Operational Time:		91.9																		
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-Jan	0.8	0.0	Z	0.6	0.9	1.3	0.4	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	1.3
2-Jan	0.3	0.2	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.3
3-Jan	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2
4-Jan	0.2	0.2	0.5	0.6	0.2	Z	0.5	0.5	0.3	0.3	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	0.6
5-Jan	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
6-Jan	0.1	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	0.1
7-Jan	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	--
8-Jan	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	C	C	C	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
9-Jan	0.3	0.3	0.2	0.2	Z	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	0.1	0.1	0.3
10-Jan	0.1	0.1	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	0.1	0.1	0.1	0.1	0.2	0.2	0.2
11-Jan	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	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3
12-Jan	0.2	Z	0.2	0.1	0.1	0.1	0.2	1.1	1.3	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	0.1	0.1	0.1	1.3
13-Jan	0.1	0.1	Z	0.3	0.2	0.2	0.2	0.3	0.2	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	0.4
14-Jan	0.1	0.1	0.2	Z	0.4	0.1	0.4	0.3	0.2	0.3	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.1	0.1	0.1	1.0
15-Jan	0.6	0.7	0.6	0.2	Z	0.3	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.7
16-Jan	0.3	1.0	0.6	0.6	0.4	Z	0.4	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	1.0
17-Jan	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
18-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
19-Jan	0.2	0.1	Z	0.7	0.3	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	0.7
20-Jan	0.1	0.1	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
21-Jan	0.1	0.1	0.1	0.2	Z	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	0.1	0.3
22-Jan	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.2
23-Jan	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.4	0.2	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.4
24-Jan	0.2	Z	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25-Jan	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
26-Jan	0.2	0.2	0.2	Z	0.6	0.4	1.4	0.3	0.1	0.2	0.3	0.4	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	1.4
27-Jan	0.1	0.1	0.1	0.1	Z	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.5	1.3	0.5	0.8	1.4	0.7	1.8	0.9	1.1	0.4	1.8	
29-Jan	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
30-Jan	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.3	0.9	0.8	0.7	1.0	1.1	1.2	0.8	0.9	0.7	0.9	1.2	0.5	1.2	
31-Jan	1.0	0.8	Z	0.8	0.2	0.2	1.2	0.8	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	1.2	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance AF - Analyzer 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**  
**Sawbones Bay - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	652	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: 652

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Sawbones Bay - January 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	70	50	16	14	27	30	22	81	68	43	24	19	39	66	29	35	633
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>	70	50	16	14	27	30	22	81	68	43	24	19	39	66	29	35	633

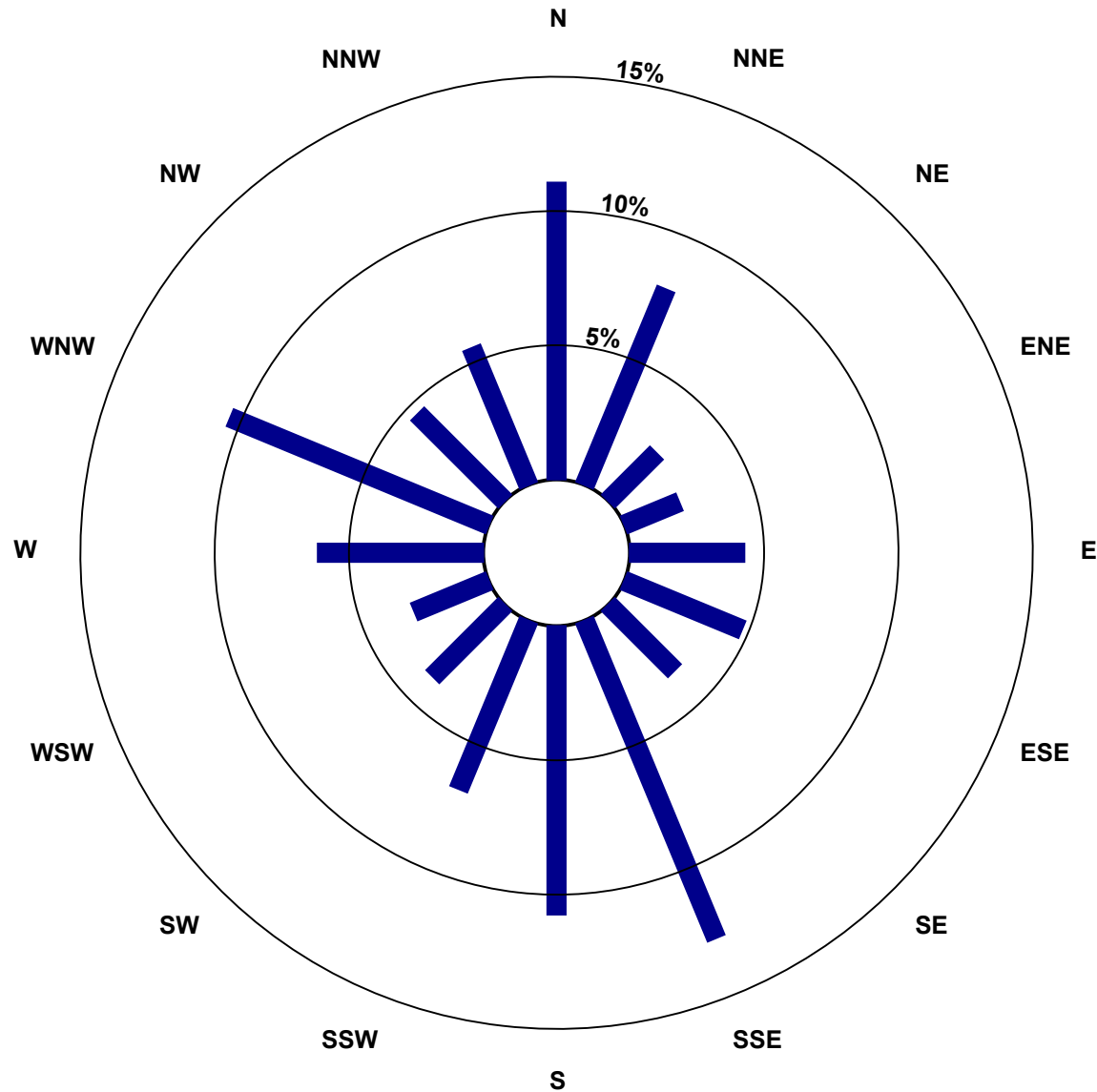
Total Number of Valid Hours: 633

Total Number of Hours: 744

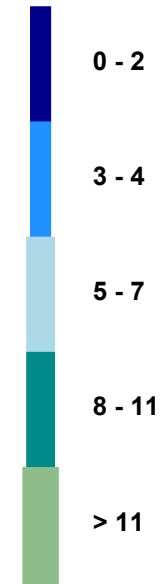


**Wood Buffalo Environmental Association**  
**Wind Rose Jan 2024**

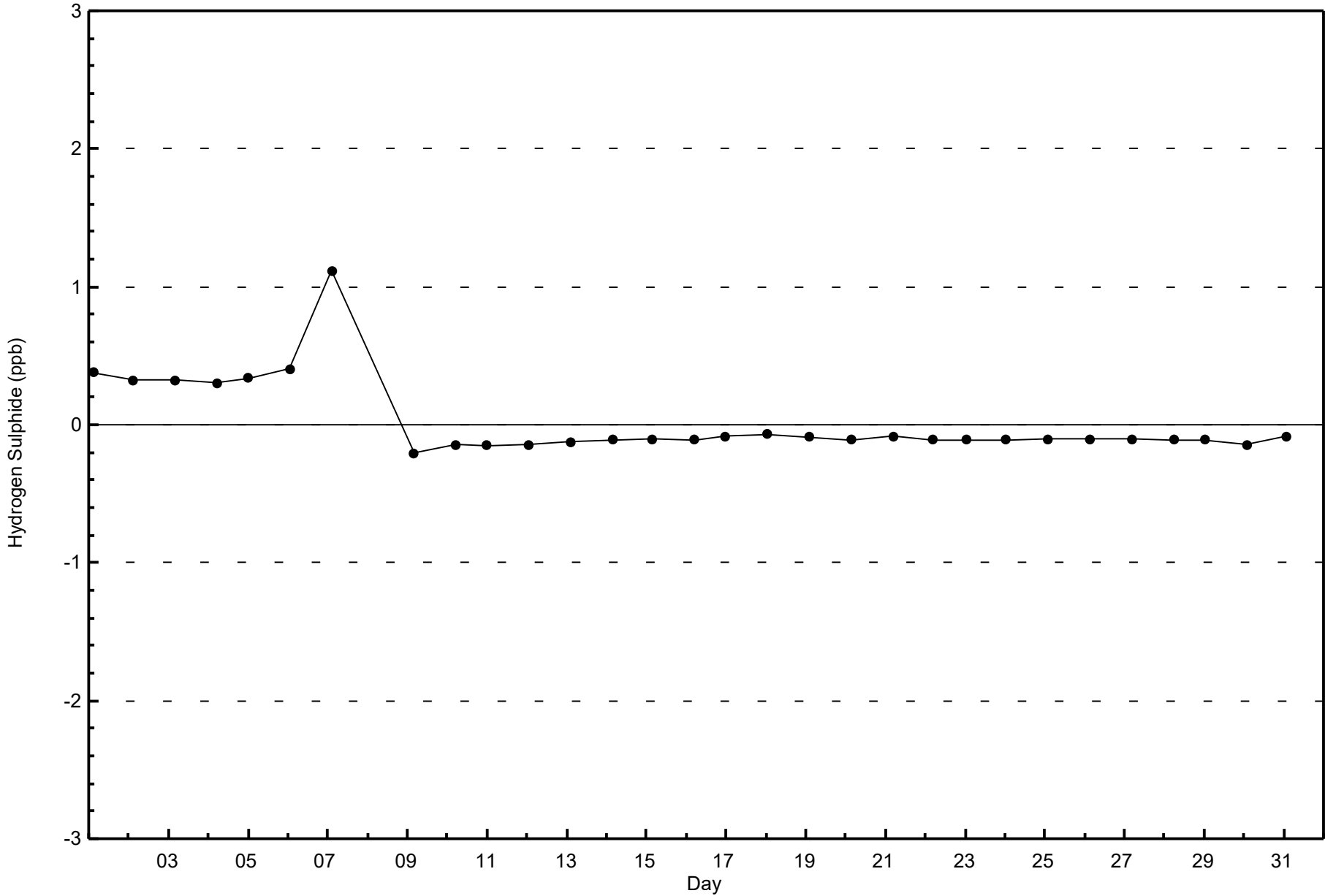
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Sawbones Bay**

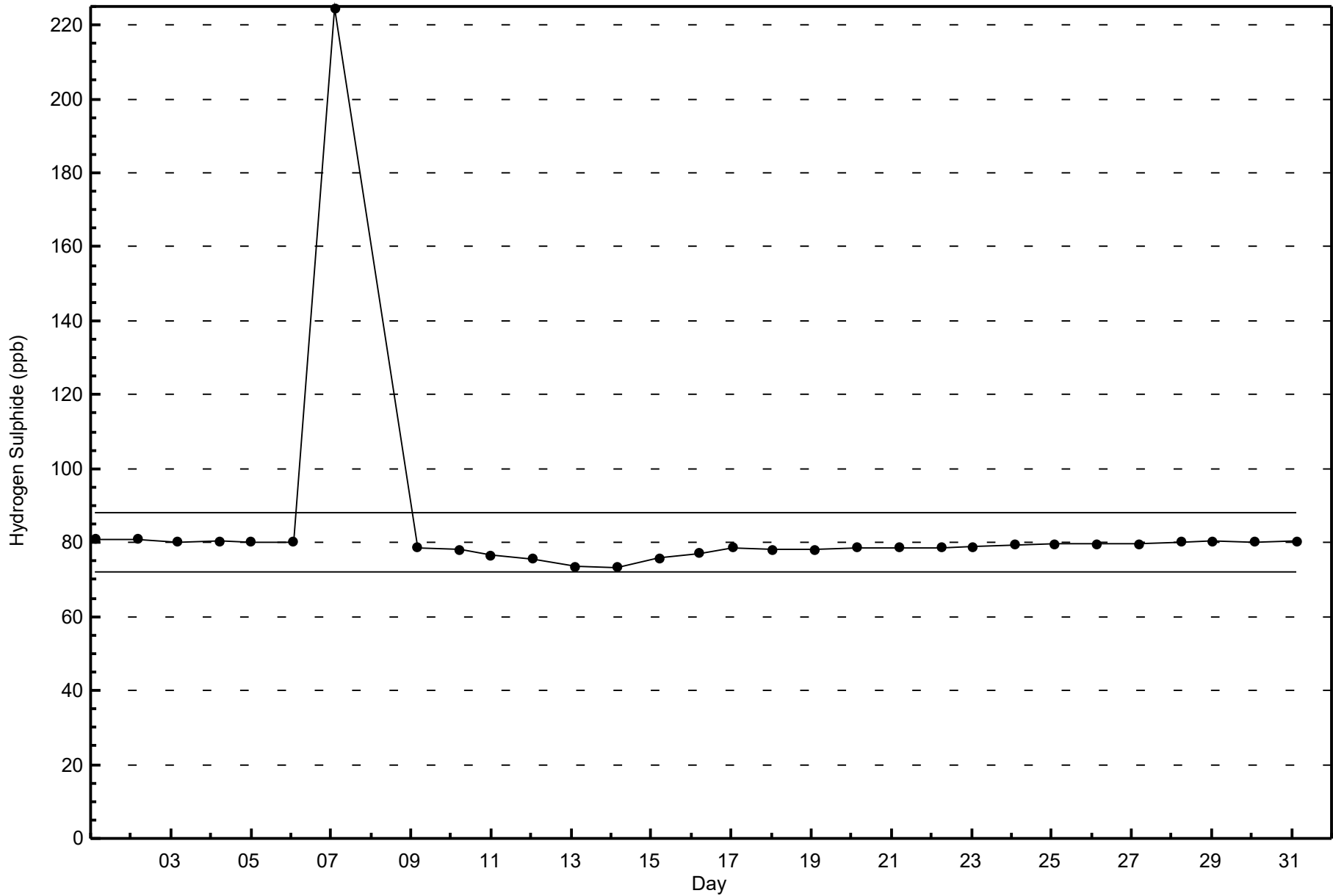


Classes (ppb)



Total Number of Valid Hours: 633





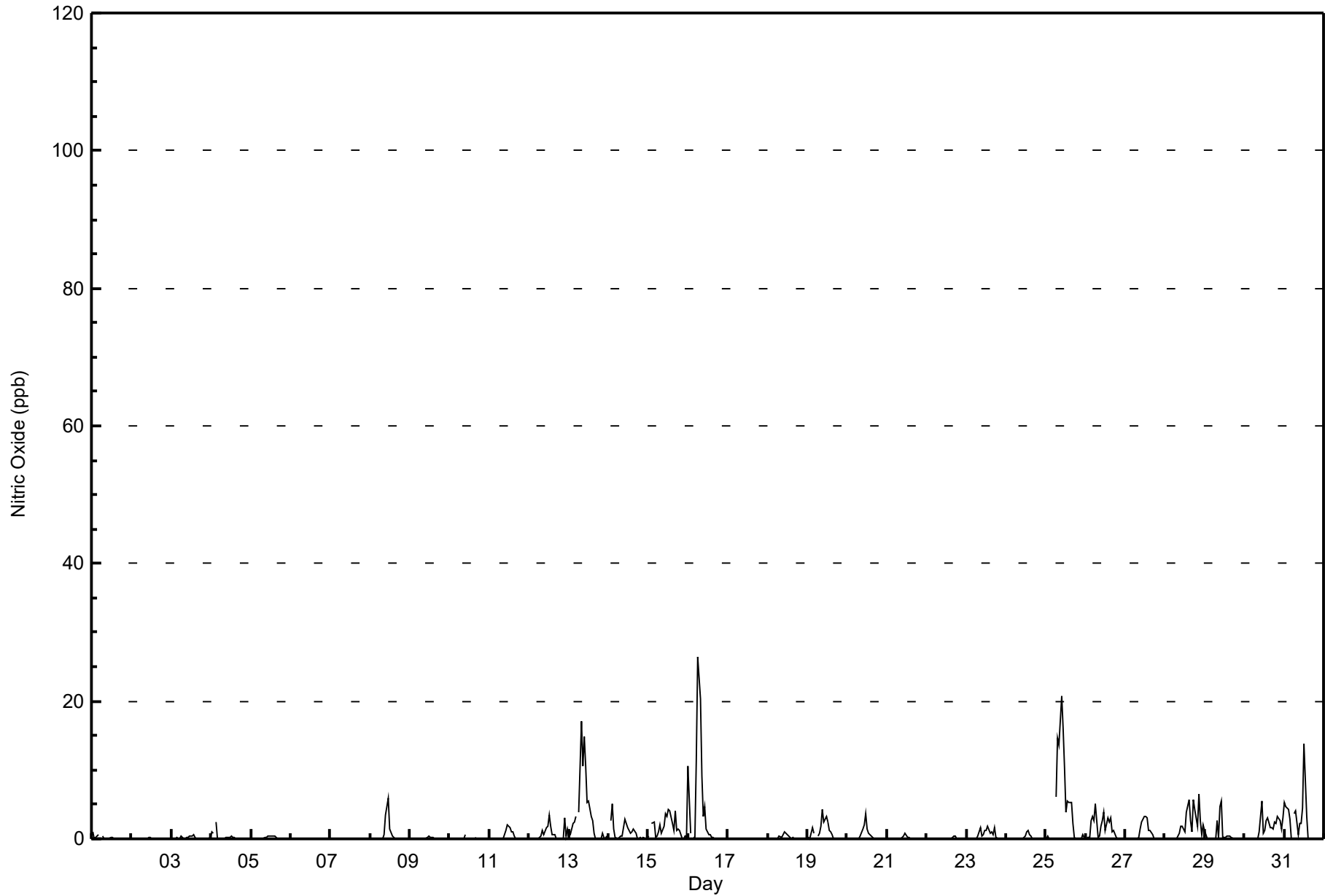


Maximum Value: 26.5 ppb on Jan 16 07:00																				Maximum Daily Average: 4.6 ppb on Jan 25					Hours in Service:	744	
Minimum Value: 0.0 ppb on Jan 1 02:00																				Minimum Daily Average: 0.0 ppb on Jan 6					Hours of Data:	708	
Maximum Diurnal Average: 2.4 ppb at hour 11																				Minimum Diurnal Average: 0.1 ppb at hour 23					Hours of Missing Data:	36	
Monthly Average: 0.92 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> = 0.7 P <sub>90</sub> = 2.7 P <sub>99</sub> = 13.9					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-Jan	1.0	0.0	0.3	0.4	0.6	Z	0.4	0.0	0.0	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	0.1	1.0	
2-Jan	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	0.1	0.1
3-Jan	0.0	Z	0.0	0.2	0.0	0.0	0.5	0.0	0.0	0.2	0.3	0.5	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	
4-Jan	1.0	0.8	Z	2.4	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.4	
5-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
6-Jan	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	
7-Jan	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	
8-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	3.4	4.7	5.9	1.4	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	5.9	
9-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
10-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.6	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	0.6	
11-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.6	1.3	2.0	1.6	1.1	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0	
12-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.5	1.3	0.6	1.6	1.8	3.5	1.9	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.4	1.4	0.8	3.5
13-Jan	0.4	0.5	2.3	2.4	3.3	Z	3.9	17.1	10.5	14.9	10.5	5.3	5.4	3.3	2.6	0.8	0.0	0.0	0.0	0.0	0.8	0.2	0.0	0.4	3.7	17.1	
14-Jan	Z	2.6	5.1	1.4	0.1	0.0	0.2	0.3	0.4	1.7	2.8	1.7	1.2	0.8	1.1	1.4	0.9	0.0	0.0	0.2	0.0	0.2	0.0	0.0	1.0	5.1	
15-Jan	0.3	Z	2.3	2.5	0.2	0.4	1.0	2.1	0.7	1.9	3.7	3.2	4.2	4.1	2.3	1.2	4.1	1.2	1.3	1.3	0.1	0.1	0.3	0.2	1.7	4.2	
16-Jan	10.6	0.9	Z	0.1	0.1	11.5	26.5	20.4	9.2	3.2	4.7	1.5	0.6	0.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	26.5	
17-Jan	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	
18-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.4	0.2	0.6	1.0	0.8	0.6	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	
19-Jan	0.2	0.0	0.8	1.6	0.7	Z	0.5	0.9	1.9	4.4	2.3	3.3	2.4	1.2	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.4	
20-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4	2.0	3.6	1.3	0.8	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.6	
21-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	
22-Jan	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	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
23-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	1.7	0.5	1.2	1.2	1.9	0.8	1.0	0.7	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.9	
24-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	1.2	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	
25-Jan	0.0	0.4	0.0	0.0	0.0	Z	6.1	14.6	13.7	20.8	16.0	10.4	3.9	5.4	5.3	5.4	2.3	0.2	0.0	0.0	0.0	0.0	0.5	0.3	4.6	20.8	
26-Jan	Z	0.1	0.3	2.5	3.3	2.7	5.1	0.3	0.3	1.9	2.6	3.8	1.2	3.0	2.5	3.0	1.0	1.1	0.3	0.0	0.0	0.0	0.0	0.0	1.5	5.1	
27-Jan	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.3	1.4	2.4	3.2	3.3	3.1	1.3	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.3	
28-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.8	1.9	1.7	1.5	0.9	4.0	5.7	2.6	1.0	5.7	4.3	1.9	6.5	2.7	0.7	2.1	1.9	6.5	
29-Jan	1.2	0.0	0.0	Z	0.0	0.0	0.0	2.6	0.3	4.7	5.4	0.2	0.2	0.4	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	5.4	
30-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	1.0	5.5	0.9	1.2	2.6	3.0	1.6	1.5	1.5	2.5	2.3	3.2	2.7	1.4	3.1	1.5	5.5	
31-Jan	5.2	4.6	4.3	2.8	0.0	Z	3.7	4.2	0.7	2.2	2.2	4.5	13.9	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	13.9	
																								Diurnal Average			
0.8 0.4 0.6 0.6 0.3 0.6 1.6 2.1 1.4 2.2 2.4 1.9 1.7 1.4 1.0 0.7 0.4 0.4 0.3 0.2 0.3 0.3 0.1 0.2																								Diurnal Maximum			
10.6 4.6 5.1 2.8 3.3 11.5 26.5 20.4 13.7 20.8 16.0 10.4 13.9 5.4 5.7 5.4 4.1 5.7 4.3 2.3 6.5 3.1 1.4 3.1																											
Z - zerospan C - Calibration																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - January 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	99.72	99.72
21 - 40	2	0.28	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Sawbones Bay - January 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	69	70	22	22	27	33	27	90	69	44	22	20	38	67	30	37	687
21 - 40	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
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	70	22	22	28	33	27	90	69	44	23	20	38	67	30	37	689

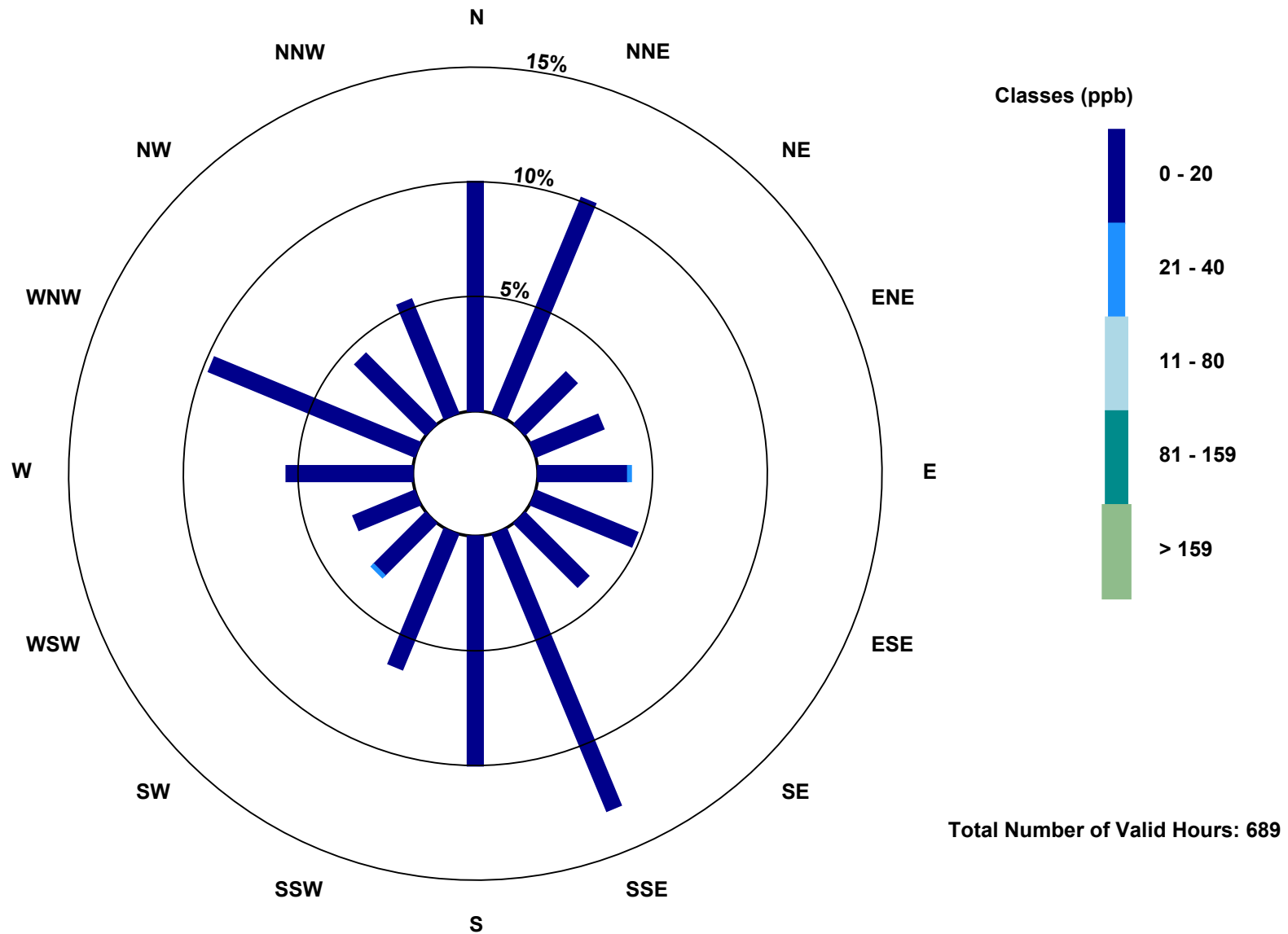
Total Number of Valid Hours: 689

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

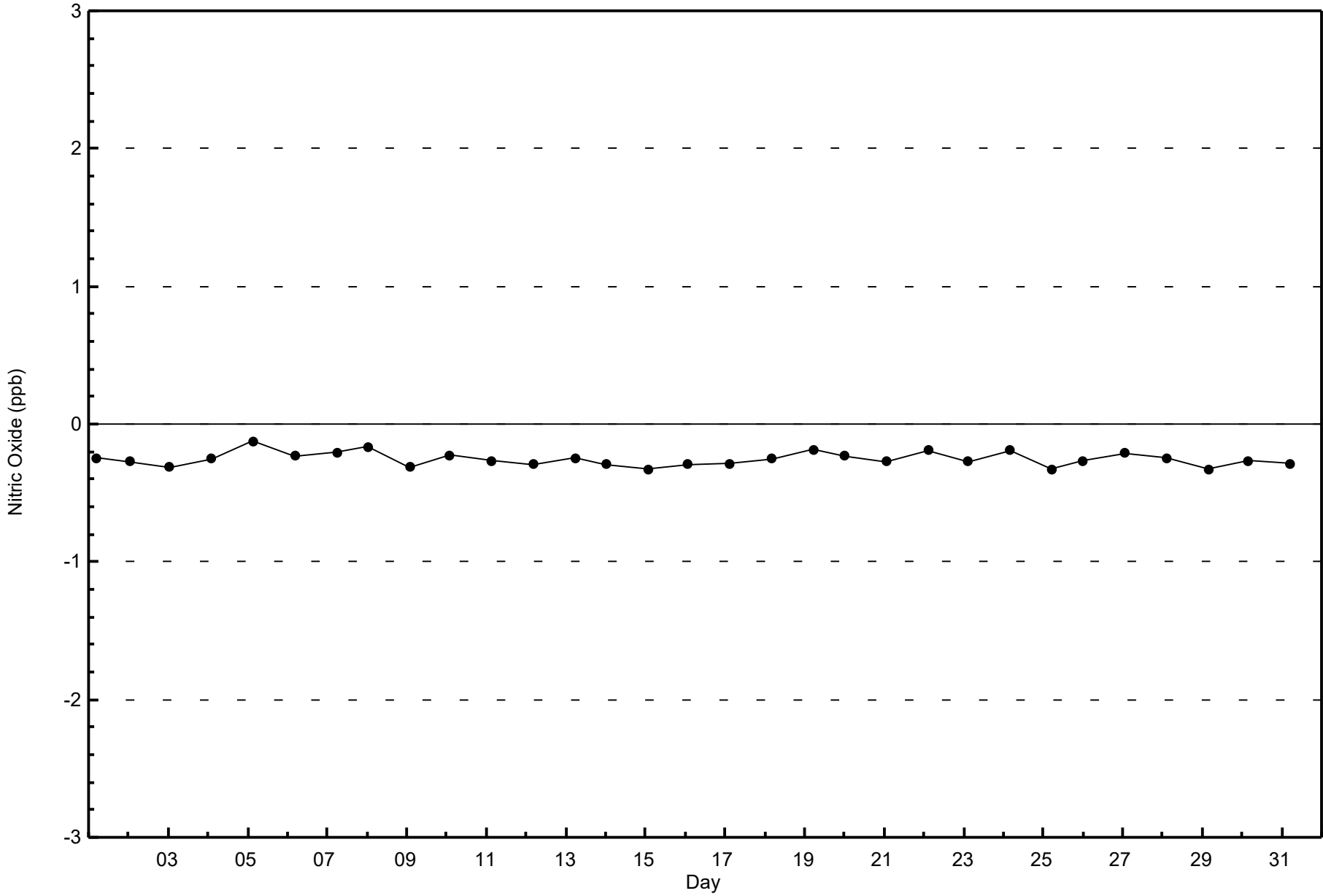
Nitric Oxide (NO) - ppb  
Sawbones Bay

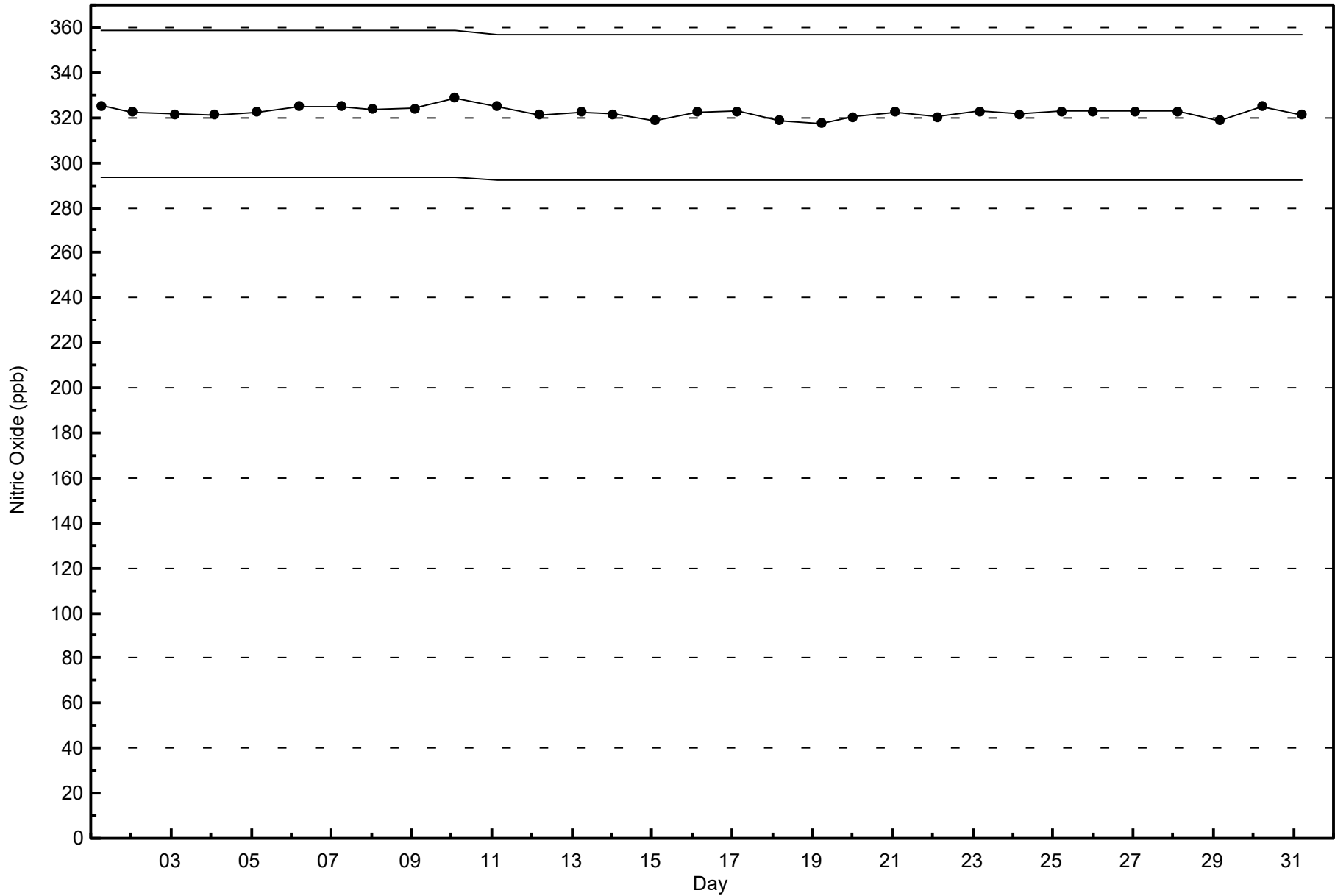




**Wood Buffalo Environmental Association**  
**Zero Responses**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - January 2024**







**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Sawbones Bay - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 32.7 ppb on Jan 16 07:00	Maximum Daily Average: 13.4 ppb on Jan 25
Minimum Value: 0.0 ppb on Jan 17 20:00	Hours of Data: 708
Maximum Diurnal Average: 7.3 ppb at hour 8	Hours of Missing Data: 36
Monthly Average: 5.22 ppb	Hours of Calibration: 36
Minimum Daily Average: 0.5 ppb on Jan 7	Percent Operational Time: 100.0
Minimum Diurnal Average: 3.5 ppb at hour 15	
Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.7 Median = 3.9 Q <sub>3</sub> = 7.3 P <sub>90</sub> = 11.3 P <sub>99</sub> = 22.4	

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-Jan	3.9	1.2	1.9	2.4	2.9	Z	2.8	1.6	1.3	3.7	4.2	4.6	3.5	2.0	1.7	1.8	2.1	1.7	1.8	2.6	4.4	4.4	3.8	4.0	2.8	4.6
2-Jan	Z	2.7	1.3	1.7	1.1	0.8	3.0	4.1	3.3	3.0	2.9	2.5	2.1	1.7	1.1	1.0	1.1	0.9	0.7	0.5	0.5	0.5	0.5	0.4	1.6	4.1
3-Jan	0.6	Z	3.0	9.1	3.6	3.3	11.4	7.3	3.7	6.3	4.2	4.3	4.0	4.1	2.9	3.4	3.6	2.7	1.8	2.4	3.6	4.0	3.7	3.5	4.2	11.4
4-Jan	4.8	4.0	Z	5.9	3.1	2.9	9.9	12.6	12.8	7.0	2.7	2.3	2.1	2.0	1.9	1.8	1.4	0.9	0.8	0.7	0.8	0.7	0.6	0.6	3.6	12.8
5-Jan	0.5	0.4	0.5	Z	0.5	0.4	1.4	2.1	2.8	2.4	2.1	1.9	1.7	1.9	2.3	2.3	2.1	2.1	2.2	2.8	2.7	2.1	1.9	1.6	1.8	2.8
6-Jan	1.6	1.5	1.6	1.8	Z	1.6	1.2	0.9	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.7	1.8
7-Jan	0.1	0.2	0.3	0.2	0.9	Z	0.3	0.2	0.2	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.2	1.8	1.1	3.2	0.5	3.2
8-Jan	Z	3.0	6.3	6.9	4.9	2.6	2.4	3.1	4.8	8.6	7.4	8.7	3.3	2.1	1.6	1.7	1.8	1.3	1.2	5.4	9.6	9.5	10.6	11.9	5.2	11.9
9-Jan	12.1	Z	8.8	6.5	6.7	7.0	5.4	4.0	2.8	1.9	1.5	1.3	1.1	1.0	1.1	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	3.0	12.1
10-Jan	0.7	0.6	Z	0.6	0.5	0.7	2.4	4.6	5.0	5.7	C	C	C	C	C	3.8	5.8	6.2	5.9	6.3	6.0	6.0	6.1	11.6	4.4	11.6
11-Jan	13.9	12.4	6.0	Z	3.4	3.7	3.0	3.7	4.9	5.6	5.1	4.3	3.3	3.0	3.9	4.4	4.6	5.3	5.7	5.2	4.7	6.4	5.0	4.7	5.3	13.9
12-Jan	4.9	5.5	4.2	4.7	Z	2.3	4.3	4.7	5.3	3.1	4.3	4.1	6.5	4.0	2.6	5.0	6.3	6.1	11.5	13.0	12.5	21.4	14.5	16.1	7.3	21.4
13-Jan	12.5	16.3	17.8	18.1	15.8	Z	19.4	24.5	22.4	17.8	11.7	7.3	7.0	5.9	6.4	4.3	4.1	3.3	3.1	2.5	7.9	9.9	8.4	11.3	11.2	24.5
14-Jan	Z	15.4	19.7	14.3	8.7	5.4	9.6	8.2	9.4	6.2	5.5	3.3	2.6	2.3	3.4	4.5	5.5	2.5	1.0	3.8	2.5	2.7	1.9	1.8	6.1	19.7
15-Jan	3.1	Z	6.5	7.0	3.6	3.4	4.7	10.2	11.3	11.0	8.6	5.7	7.4	8.0	7.0	6.8	15.5	16.9	19.9	24.1	12.6	7.4	12.4	8.9	9.7	24.1
16-Jan	24.7	10.4	Z	8.7	8.4	26.9	32.7	29.4	17.6	10.6	8.2	3.6	2.1	2.2	1.9	3.2	4.0	3.6	2.7	1.4	1.2	1.2	1.1	1.2	9.0	32.7
17-Jan	1.3	1.2	1.1	Z	1.4	0.7	1.0	0.6	1.1	1.8	1.2	0.7	0.6	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.6	2.1	0.7	2.1
18-Jan	2.4	2.2	2.4	3.2	Z	2.4	5.4	7.3	5.6	3.8	3.3	2.2	2.0	1.0	0.7	1.1	2.1	1.8	1.3	1.0	0.8	0.8	0.8	1.1	2.4	7.3
19-Jan	1.8	0.8	3.9	8.4	6.7	Z	3.5	6.8	14.2	14.0	5.9	6.0	4.4	3.0	3.9	4.7	4.1	5.5	9.6	8.2	4.8	3.7	3.1	3.1	5.7	14.2
20-Jan	Z	2.2	1.7	1.5	1.7	3.5	4.9	4.5	4.7	5.7	5.5	7.1	3.2	2.8	2.6	2.9	3.2	2.8	3.6	8.4	5.4	3.2	2.4	2.2	3.7	8.4
21-Jan	1.9	Z	4.1	7.0	7.9	10.9	9.2	4.8	4.3	4.7	3.6	2.7	1.5	1.3	0.9	0.8	1.2	1.2	1.1	1.4	2.1	3.2	3.0	2.0	3.5	10.9
22-Jan	0.8	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.0	0.1	0.2	0.2	0.2	0.3	1.6	2.4	1.5	1.3	1.2	1.4	1.7	2.4	0.7	2.4
23-Jan	3.5	3.2	3.8	Z	3.1	3.4	3.3	4.2	4.9	4.2	3.1	4.2	4.2	4.5	3.5	5.9	7.8	9.7	6.8	5.0	4.1	2.9	2.0	2.3	4.3	9.7
24-Jan	2.8	3.2	3.1	2.7	Z	2.9	2.6	2.2	2.3	2.1	2.1	2.4	3.7	4.4	4.5	5.0	6.3	7.1	6.6	7.1	8.1	8.7	10.8	9.9	4.8	10.8
25-Jan	11.1	14.3	10.8	11.3	10.5	Z	19.3	23.5	21.7	20.2	17.6	13.9	9.3	10.7	12.7	15.6	14.3	13.4	11.1	6.2	6.8	8.8	12.6	12.6	13.4	23.5
26-Jan	Z	11.0	9.1	11.3	11.6	11.2	11.9	6.6	7.0	7.9	8.0	8.3	4.7	6.9	6.2	8.5	9.6	11.9	12.7	7.0	5.2	6.1	10.0	8.1	8.7	12.7
27-Jan	7.9	Z	8.2	9.3	7.3	9.5	11.7	5.6	5.9	9.8	7.0	7.5	8.0	8.4	5.8	7.6	8.5	7.5	7.5	8.0	8.6	9.1	7.0	7.4	8.0	11.7
28-Jan	4.9	6.5	Z	5.4	5.6	5.7	6.0	6.0	9.7	9.6	7.5	5.8	4.7	7.5	11.7	7.9	5.1	17.9	16.3	10.9	18.3	8.0	4.4	6.9	8.4	18.3
29-Jan	7.0	4.9	6.6	Z	7.4	5.6	11.1	10.8	3.8	10.7	7.2	2.2	2.4	3.5	3.5	4.0	6.6	6.6	5.7	5.5	7.3	9.0	9.0	5.4	6.3	11.1
30-Jan	6.0	7.4	5.7	4.2	Z	4.1	8.9	7.6	4.5	10.0	10.5	3.6	5.1	7.5	9.1	7.0	7.7	7.6	9.6	10.6	13.3	10.8	7.8	13.4	7.9	13.4
31-Jan	18.6	16.4	16.2	12.9	1.0	Z	13.9	14.9	6.4	7.1	8.4	10.4	16.9	6.0	0.8	0.7	2.6	1.2	1.7	1.4	0.7	0.5	0.4	0.4	6.9	18.6

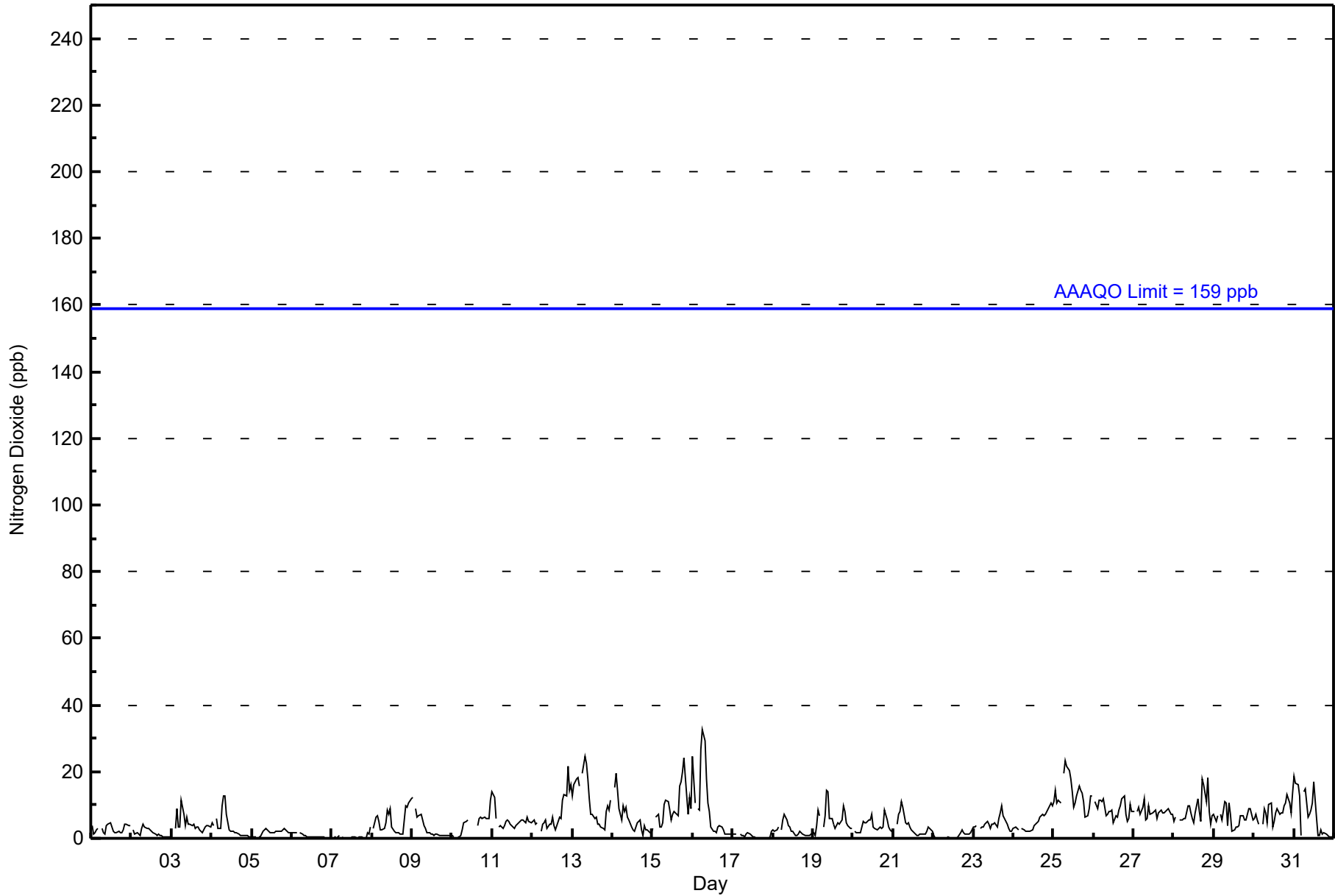
5.9	5.7	5.9	6.4	4.9	4.8	7.3	7.3	6.6	6.6	5.3	4.4	4.0	3.6	3.5	3.8	4.5	4.9	5.0	5.0	5.1	5.0	4.8	5.2	Diurnal Average	
24.7	16.4	19.7	18.1	15.8	26.9	32.7	29.4	22.4	20.2	17.6	13.9	16.9	10.7	12.7	15.6	15.5	17.9	19.9	24.1	18.3	21.4	14.5	16.1	Diurnal Maximum	

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 - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	698	98.59	98.59
21 - 40	10	1.41	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: 708

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay - January 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	69	70	22	22	27	31	26	88	68	44	21	20	37	67	30	37	679
21 - 40	0	0	0	0	1	2	1	2	1	0	2	0	1	0	0	0	10
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>	69	70	22	22	28	33	27	90	69	44	23	20	38	67	30	37	689

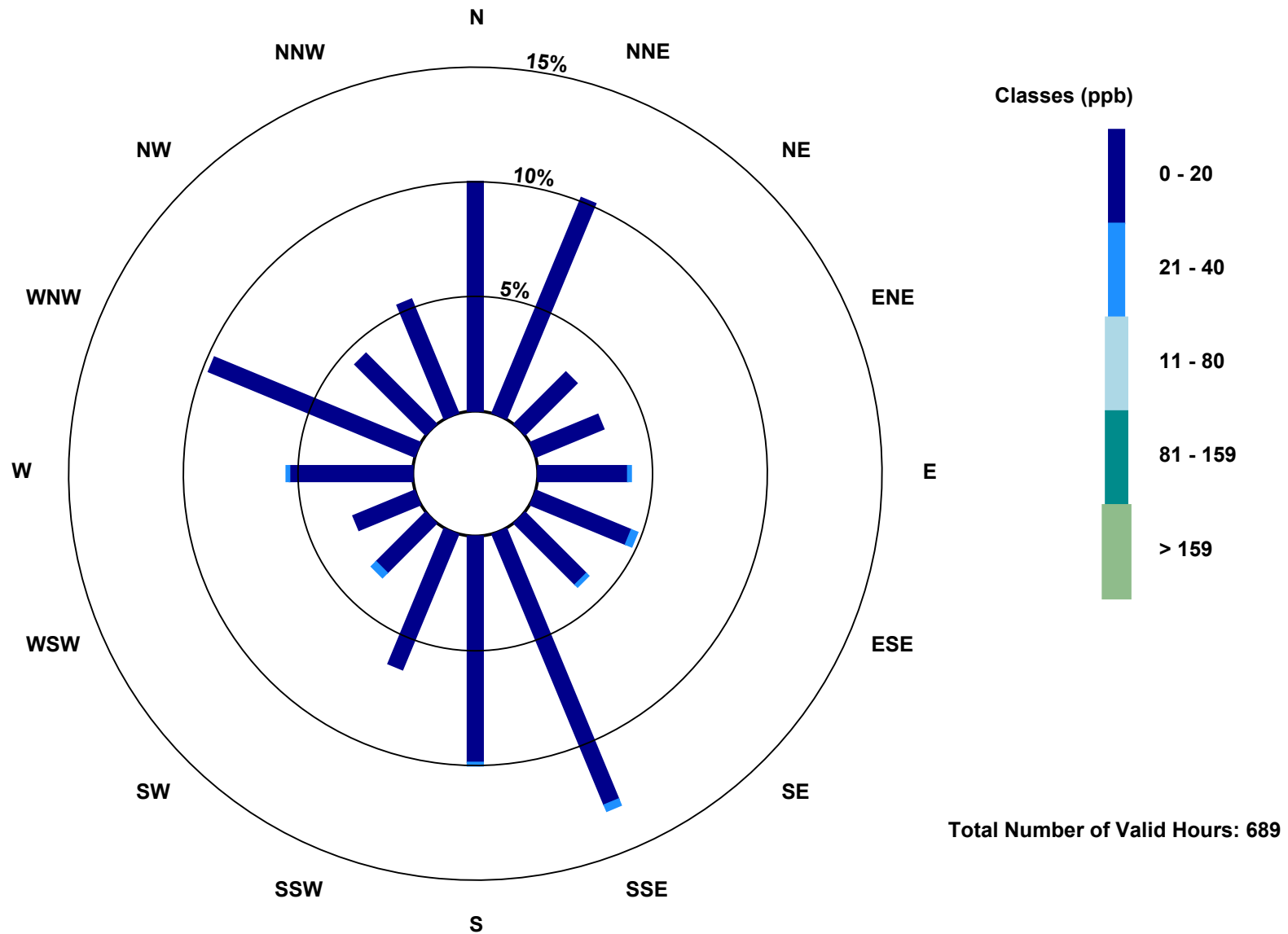
Total Number of Valid Hours: 689

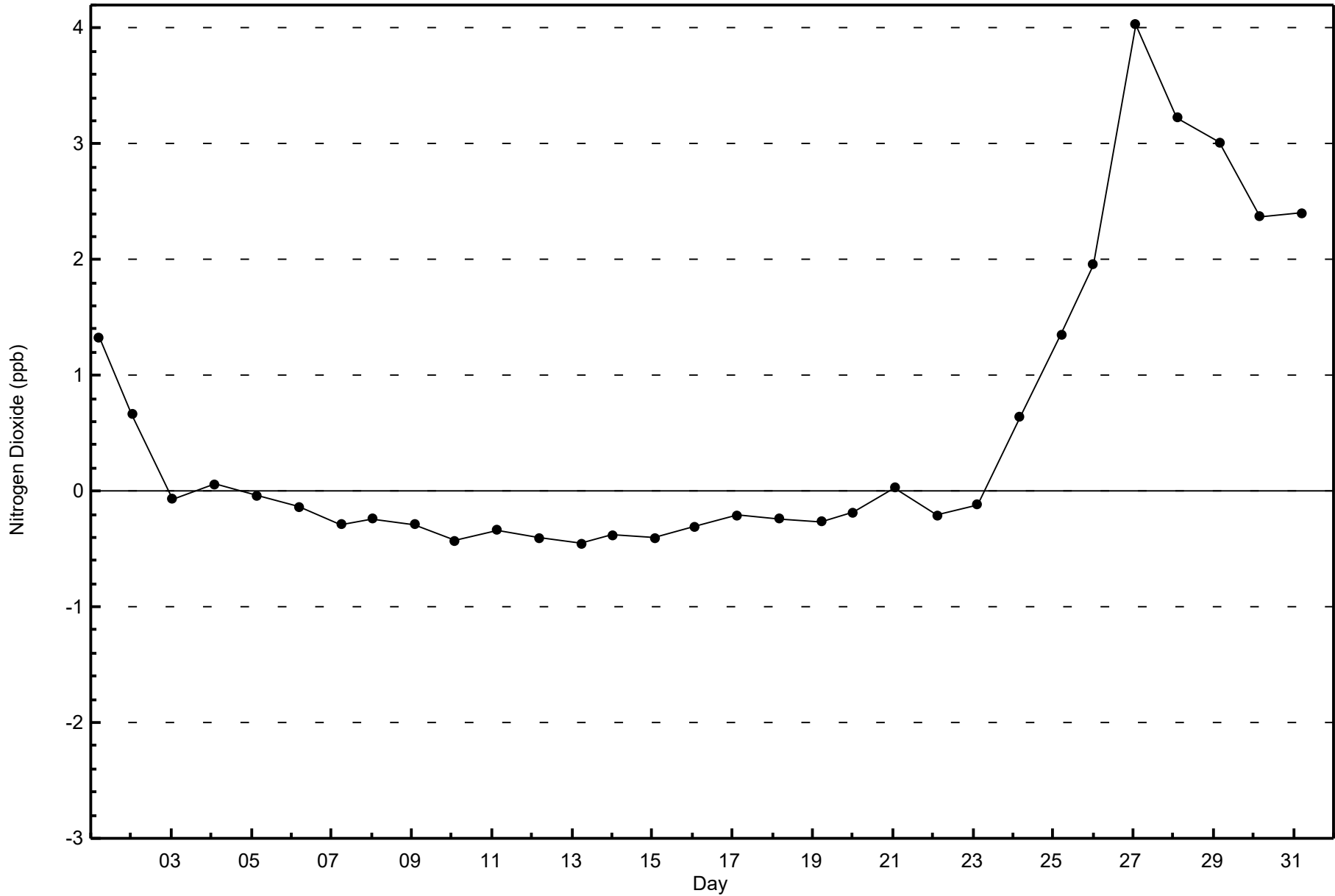
Total Number of Hours: 744

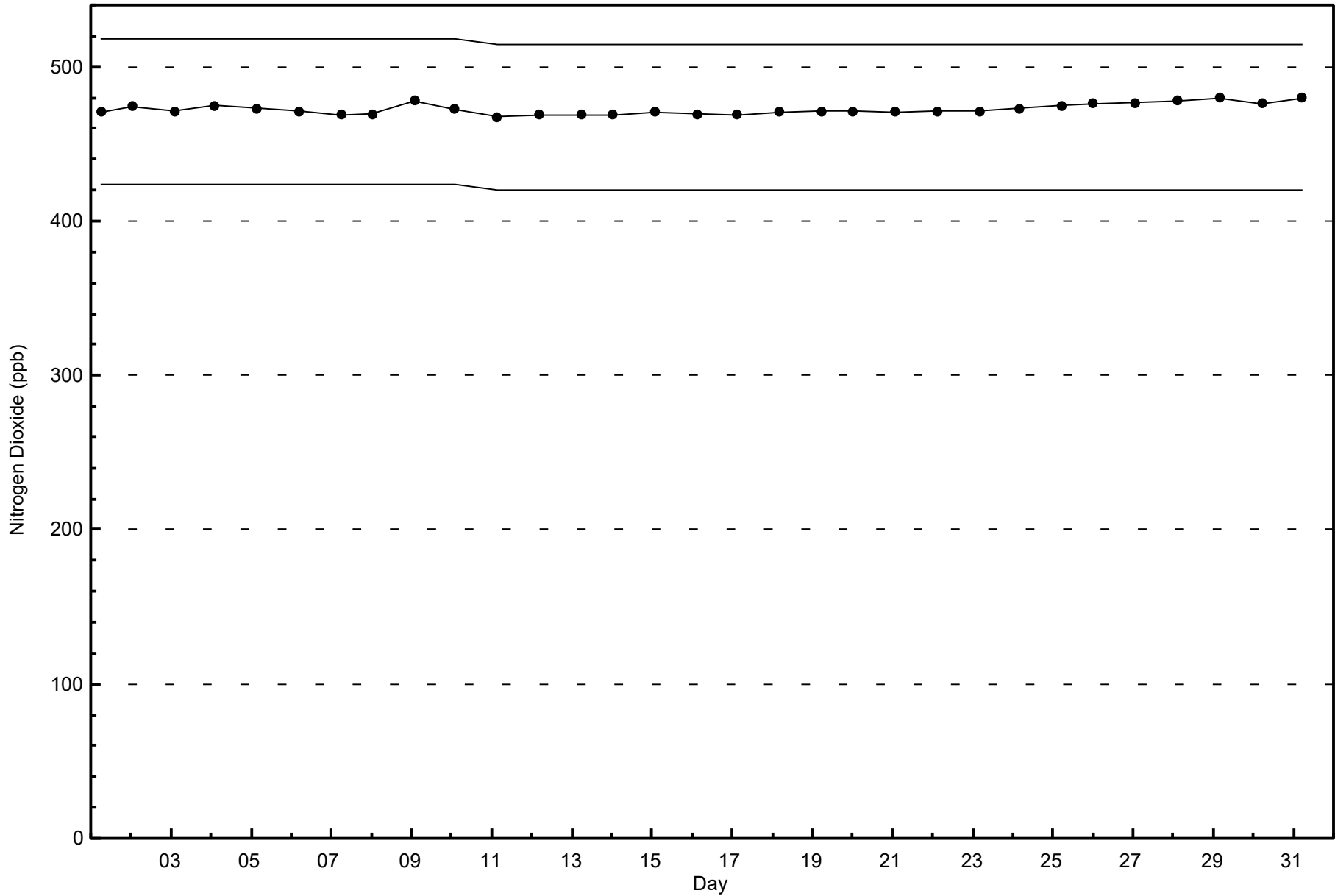


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

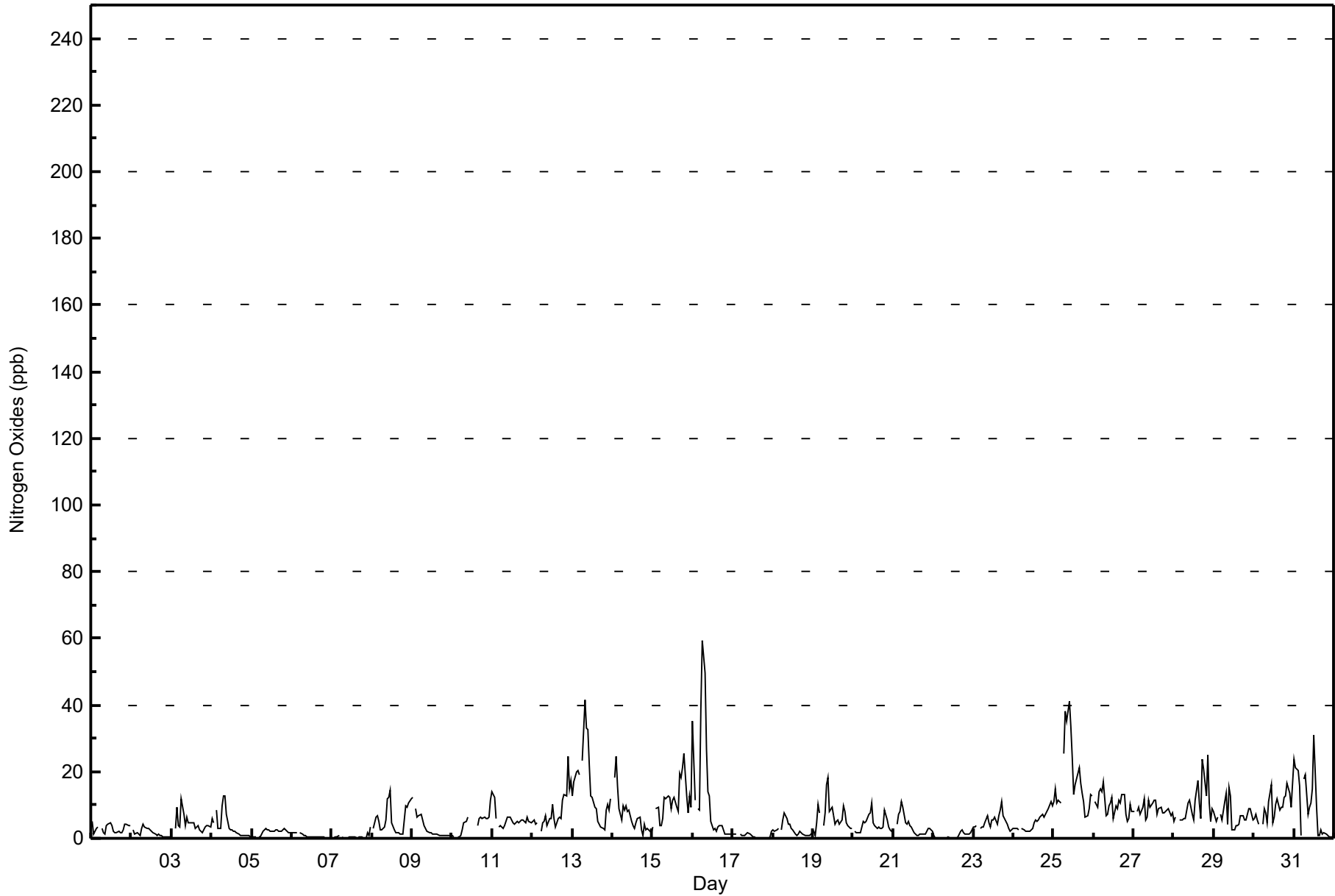
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - January 2024**

Maximum Value: 59.2 ppb on Jan 16 07:00      Maximum Daily Average: 18.0 ppb on Jan 25																				Hours in Service: 744 Hours of Data: 708						
Minimum Value: 0.0 ppb on Jan 22 11:00      Minimum Daily Average: 0.5 ppb on Jan 7 Maximum Diurnal Average: 9.4 ppb at hour 8      Minimum Diurnal Average: 4.5 ppb at hour 15 Monthly Average: 6.14 ppb      Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.8 Median = 4.2 Q <sub>3</sub> = 8.6 P <sub>90</sub> = 12.9 P <sub>99</sub> = 35.2																				Hours of Missing Data: 36 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-Jan	4.9	1.2	2.2	2.8	3.5	Z	3.2	1.6	1.3	3.7	4.2	4.8	3.6	2.1	1.7	1.8	2.1	1.7	1.8	2.6	4.4	4.4	3.8	4.0	2.9	4.9
2-Jan	Z	2.7	1.3	1.7	1.1	0.8	3.0	4.1	3.3	3.0	3.0	2.6	2.2	1.7	1.1	1.0	1.1	0.9	0.7	0.5	0.5	0.5	0.5	0.4	1.6	4.1
3-Jan	0.6	Z	3.0	9.3	3.6	3.3	11.9	7.3	3.7	6.5	4.5	4.8	4.5	4.6	3.1	3.4	3.6	2.7	1.8	2.4	3.6	4.0	3.7	3.6	4.3	11.9
4-Jan	5.8	4.8	Z	8.3	3.1	2.9	9.9	12.6	12.8	7.1	2.9	2.5	2.5	2.3	2.0	1.8	1.4	0.9	0.8	0.7	0.8	0.7	0.6	0.6	3.8	12.8
5-Jan	0.5	0.4	0.5	Z	0.5	0.4	1.4	2.2	2.9	2.7	2.4	2.3	2.1	2.3	2.7	2.4	2.1	2.1	2.2	2.8	2.7	2.1	1.9	1.6	1.9	2.9
6-Jan	1.6	1.5	1.6	1.8	Z	1.6	1.2	0.9	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.7	1.8
7-Jan	0.1	0.2	0.3	0.2	0.9	Z	0.3	0.2	0.2	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.2	1.8	1.1	3.2	0.5	3.2
8-Jan	Z	3.0	6.3	6.9	4.9	2.6	2.4	3.2	5.4	12.0	12.1	14.6	4.7	2.6	1.9	1.8	1.8	1.3	1.2	5.4	9.6	9.5	10.6	11.9	5.9	14.6
9-Jan	12.1	Z	8.8	6.5	6.7	7.0	5.4	4.0	2.8	1.9	1.8	1.6	1.4	1.3	1.3	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	3.1	12.1
10-Jan	0.7	0.6	Z	0.6	0.5	0.7	2.4	4.6	5.1	6.3	C	C	C	C	C	4.0	5.8	6.2	5.9	6.3	6.0	6.0	6.1	11.6	4.4	11.6
11-Jan	13.9	12.4	6.0	Z	3.4	3.7	3.0	3.7	4.9	6.2	6.4	6.3	4.9	4.1	4.8	4.9	4.6	5.3	5.7	5.2	4.7	6.4	5.0	4.7	5.7	13.9
12-Jan	4.9	5.5	4.2	4.7	Z	2.3	4.5	5.2	6.6	3.7	5.9	5.9	10.0	5.9	3.2	5.7	6.3	6.1	11.5	13.0	12.5	24.5	14.9	17.5	8.0	24.5
13-Jan	12.9	16.8	20.1	20.5	19.1	Z	23.3	41.6	32.9	32.7	22.2	12.6	12.4	9.2	9.0	5.1	4.1	3.3	3.1	2.5	8.7	10.1	8.4	11.7	14.9	41.6
14-Jan	Z	18.0	24.8	15.7	8.8	5.4	9.8	8.5	9.8	7.9	8.3	5.0	3.8	3.1	4.5	5.9	6.4	2.5	1.0	4.0	2.5	2.9	1.9	1.8	7.1	24.8
15-Jan	3.4	Z	8.8	9.5	3.8	3.8	5.7	12.3	12.0	12.9	12.3	8.9	11.6	12.1	9.3	8.0	19.6	18.1	21.2	25.4	12.7	7.5	12.7	9.1	11.3	25.4
16-Jan	35.3	11.3	Z	8.8	8.5	38.4	59.2	49.8	26.8	13.8	12.9	5.1	2.7	2.8	2.1	3.4	4.0	3.6	2.7	1.4	1.2	1.2	1.1	1.2	12.9	59.2
17-Jan	1.3	1.2	1.1	Z	1.4	0.7	1.0	0.6	1.1	1.8	1.2	0.7	0.6	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.6	2.1	0.7	2.1
18-Jan	2.4	2.2	2.4	3.2	Z	2.4	5.4	7.7	5.8	4.4	4.3	3.0	2.6	1.1	0.7	1.2	2.1	1.8	1.3	1.0	0.8	0.8	0.8	1.1	2.5	7.7
19-Jan	2.0	0.8	4.7	10.0	7.4	Z	4.0	7.7	16.1	18.4	8.2	9.3	6.8	4.2	5.0	5.3	4.1	5.5	9.6	8.2	4.8	3.7	3.1	3.1	6.6	18.4
20-Jan	Z	2.2	1.7	1.5	1.7	3.5	4.9	4.5	5.0	7.1	7.5	10.7	4.5	3.6	3.0	3.2	3.2	2.8	3.6	8.4	5.4	3.2	2.4	2.2	4.2	10.7
21-Jan	1.9	Z	4.1	7.0	7.9	10.9	9.2	4.8	4.3	4.9	4.0	3.6	1.7	1.4	0.9	0.8	1.2	1.2	1.1	1.4	2.1	3.2	3.0	2.0	3.6	10.9
22-Jan	0.8	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.0	0.1	0.2	0.2	0.2	0.3	2.0	2.7	1.5	1.3	1.2	1.4	1.7	2.4	0.7	2.7
23-Jan	3.5	3.2	3.8	Z	3.1	3.4	3.3	4.6	6.6	4.7	3.6	5.4	5.4	6.4	4.3	6.9	8.5	11.2	6.9	5.0	4.1	2.9	2.0	2.3	4.8	11.2
24-Jan	2.8	3.2	3.1	2.7	Z	2.9	2.6	2.2	2.3	2.1	2.2	2.8	4.6	5.6	5.1	5.4	6.4	7.1	6.6	7.1	8.1	8.7	10.8	9.9	5.0	10.8
25-Jan	11.1	14.7	10.8	11.3	10.5	Z	25.4	38.1	35.4	41.0	33.6	24.3	13.2	16.1	18.0	21.0	16.6	13.6	11.1	6.2	6.8	8.8	13.1	12.9	18.0	41.0
26-Jan	Z	11.1	9.4	13.8	14.9	13.9	17.0	6.9	7.3	9.8	10.6	12.1	5.9	9.9	8.7	11.5	10.6	13.0	13.0	7.0	5.2	6.1	10.0	8.1	10.3	17.0
27-Jan	7.9	Z	8.2	9.3	7.3	9.5	11.8	5.6	6.2	11.2	9.4	10.7	11.3	11.5	7.1	8.8	9.2	7.5	7.5	8.0	8.6	9.1	7.0	7.4	8.7	11.8
28-Jan	4.9	6.5	Z	5.4	5.6	5.7	6.0	6.0	10.5	11.5	9.2	7.3	5.6	11.5	17.4	10.5	6.1	23.6	20.6	12.8	24.8	10.7	5.1	9.0	10.3	24.8
29-Jan	8.2	4.9	6.6	Z	7.4	5.6	11.1	13.4	4.1	15.4	12.6	2.4	2.6	3.9	3.9	4.4	6.8	6.6	5.7	5.5	7.3	9.0	9.0	5.4	7.0	15.4
30-Jan	6.0	7.4	5.7	4.2	Z	4.1	8.9	7.6	4.5	11.0	16.0	4.5	6.3	10.1	12.1	8.6	9.2	9.1	12.1	12.9	16.5	13.5	9.2	16.5	9.4	16.5
31-Jan	23.8	21.0	20.5	15.7	1.0	Z	17.6	19.1	7.1	9.3	10.6	14.9	30.8	9.2	0.8	0.7	2.6	1.2	1.7	1.4	0.7	0.5	0.4	0.4	9.2	30.8
																								Diurnal Average		
																								Diurnal Maximum		
6.7   6.0   6.5   7.0   5.3   5.4   8.9   9.4   8.0   8.8   7.8   6.3   5.7   5.0   4.5   4.5   4.9   5.3   5.3   5.2   5.4   5.3   4.9   5.5																								Diurnal Average		
																								Diurnal Maximum		
35.3   21.0   24.8   20.5   19.1   38.4   59.2   49.8   35.4   41.0   33.6   24.3   30.8   16.1   18.0   21.0   19.6   23.6   21.2   25.4   24.8   24.5   14.9   17.5																								Diurnal Maximum		
Z - zerospan      C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Sawbones Bay - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	680	96.05	96.05
21 - 40	24	3.39	99.44
41 - 80	4	0.56	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Sawbones Bay - January 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	68	70	22	22	26	29	25	85	65	44	21	15	37	66	30	37	662
21 - 40	1	0	0	0	1	2	2	5	4	0	1	5	1	1	0	0	23
11 - 80	0	0	0	0	1	2	0	0	0	0	1	0	0	0	0	0	4
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	70	22	22	28	33	27	90	69	44	23	20	38	67	30	37	689

Total Number of Valid Hours: 689

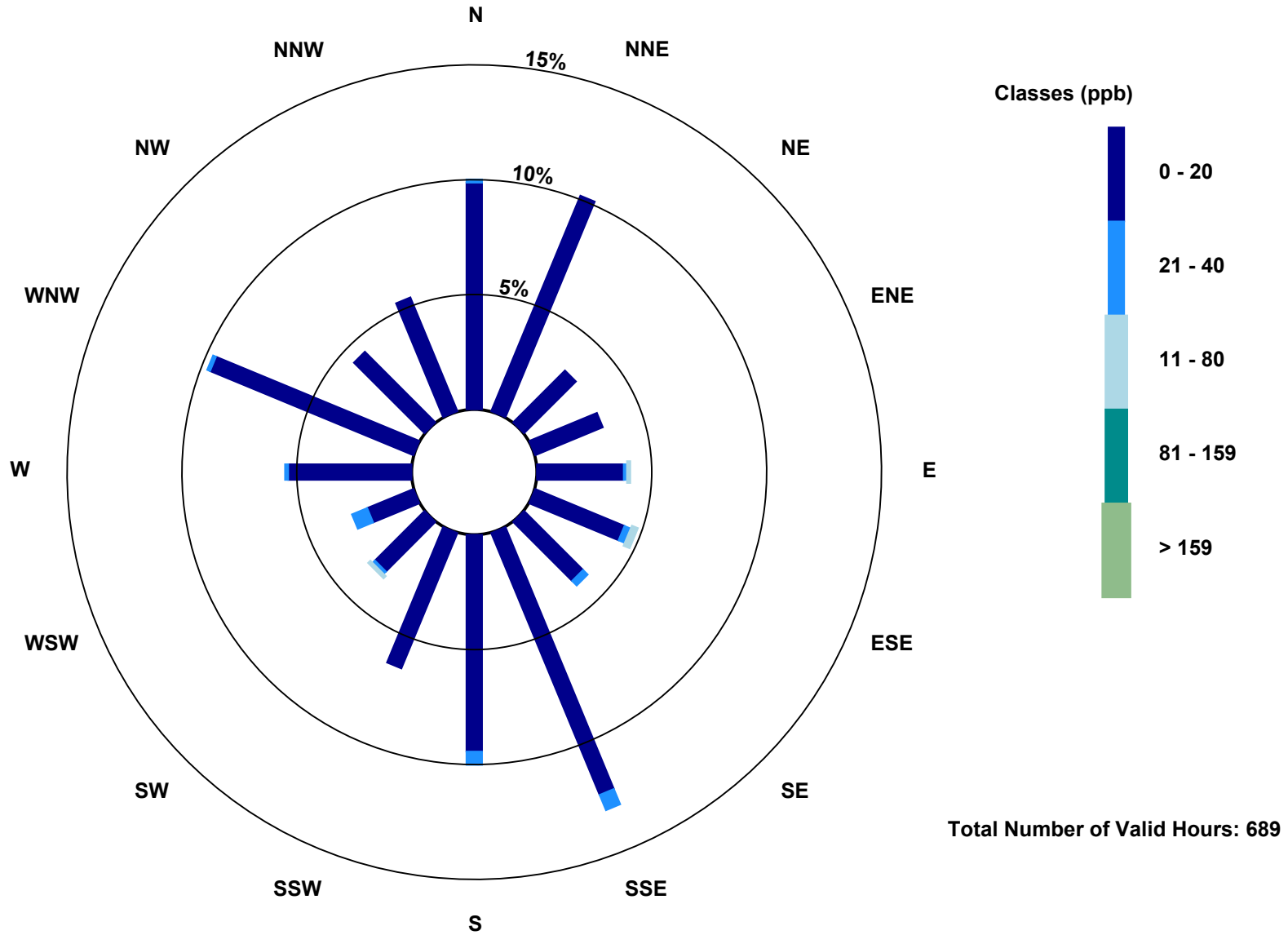
Total Number of Hours: 744

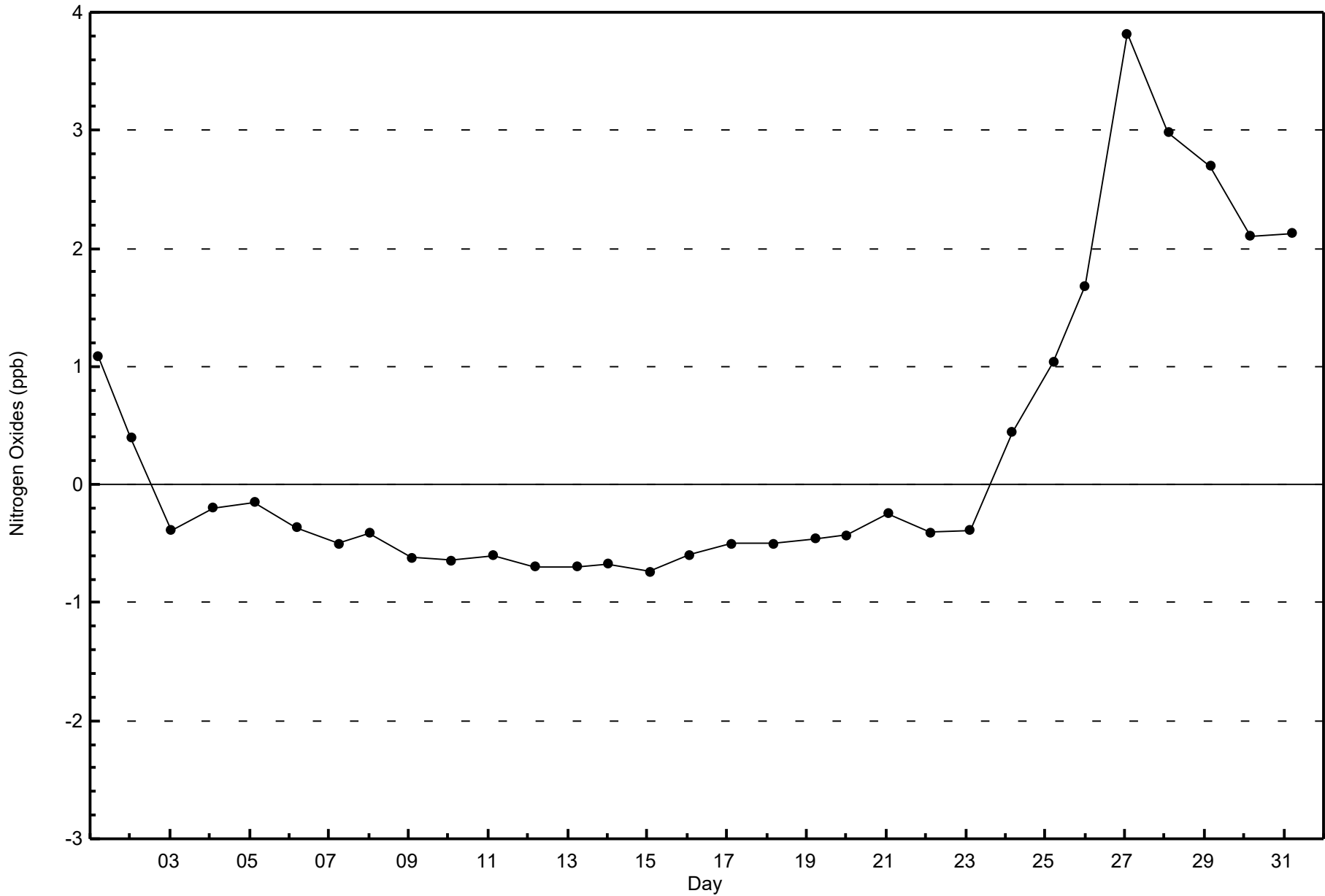


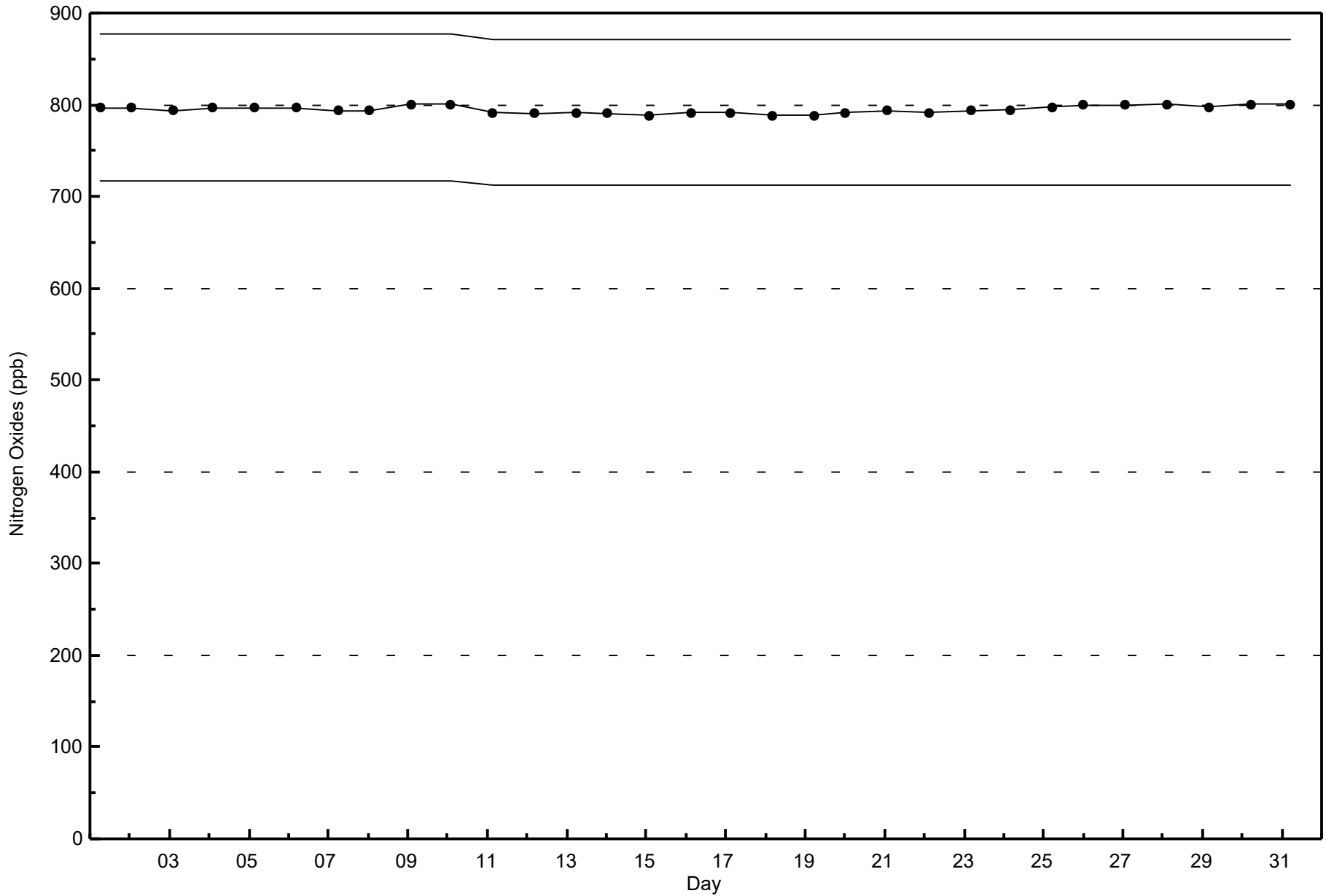


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Sawbones Bay









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Sawbones Bay - January 2024**

Maximum Value: 11.4 C on Jan 30 15:00		Maximum Daily Average: 5.4 C on Jan 30		Hours in Service: 744																																												
Minimum Value: -42.8 C on Jan 13 05:00		Minimum Daily Average: -38.8 C on Jan 12		Hours of Data: 744																																												
Maximum Diurnal Average: -13.3 C at hour 15		Minimum Diurnal Average: -17.4 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -15.87 C		Percentiles: $P_1 = -41.9$ $P_{10} = -33.6$ $Q_1 = -22.8$ Median = -15.6 $Q_3 = -7.8$ $P_{90} = 1.3$ $P_{99} = 9.3$		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-Jan	0.0	0.0	0.5	-0.3	-0.6	-1.4	-2.6	-3.6	-3.2	-3.3	-4.6	-5.2	-5.8	-6.3	-6.6	-6.6	-6.5	-6.6	-6.8	-7.1	-7.3	-7.5	-7.5	-7.5	-4.4	0.5																						
2-Jan	-7.9	-8.3	-8.5	-9.1	-9.6	-10.1	-10.5	-10.6	-10.9	-11.2	-11.5	-11.8	-11.7	-11.6	-11.5	-11.5	-11.6	-11.9	-12.2	-12.3	-12.4	-12.7	-13.6	-14.4	-11.1	-7.9																						
3-Jan	-15.1	-15.5	-15.3	-14.0	-11.9	-10.8	-10.0	-9.7	-9.2	-8.6	-8.1	-7.5	-6.8	-6.3	-6.1	-6.1	-6.7	-7.9	-8.4	-9.0	-8.7	-8.5	-8.8	-8.6	-9.5	-6.1																						
4-Jan	-8.5	-8.3	-8.0	-8.0	-8.3	-8.9	-11.4	-12.8	-13.7	-15.0	-15.6	-15.8	-15.5	-15.3	-15.4	-15.5	-15.4	-15.0	-14.9	-14.6	-14.1	-13.7	-13.5	-13.6	-12.9	-8.0																						
5-Jan	-13.9	-13.5	-13.0	-12.5	-12.4	-12.3	-12.0	-11.9	-12.6	-12.7	-12.9	-13.6	-14.1	-14.0	-14.2	-14.7	-15.0	-15.5	-16.0	-16.7	-16.1	-15.8	-15.6	-15.5	-14.0	-11.9																						
6-Jan	-15.1	-14.9	-14.4	-14.0	-13.6	-13.3	-13.4	-13.2	-13.5	-13.8	-13.8	-13.7	-13.6	-13.5	-13.7	-14.0	-14.2	-14.7	-15.3	-15.6	-16.2	-16.7	-17.1	-17.9	-14.5	-13.2																						
7-Jan	-18.4	-18.3	-18.2	-18.2	-18.8	-19.5	-20.3	-21.0	-21.4	-21.5	-21.4	-21.2	-20.8	-20.5	-20.4	-20.7	-21.1	-21.1	-21.0	-20.9	-20.7	-20.3	-20.3	-20.1	-20.2	-18.2																						
8-Jan	-19.6	-19.9	-21.5	-21.3	-20.5	-20.0	-19.6	-19.0	-18.6	-17.9	-16.7	-16.1	-16.8	-16.6	-16.9	-17.1	-17.7	-18.8	-20.2	-20.5	-21.5	-21.7	-21.9	-22.2	-19.3	-16.1																						
9-Jan	-22.5	-22.8	-22.9	-22.8	-23.0	-23.2	-23.4	-23.7	-24.0	-23.7	-23.2	-22.9	-22.9	-22.8	-23.0	-23.3	-24.2	-25.1	-25.3	-25.2	-25.2	-25.7	-26.4	-27.1	-23.9	-22.5																						
10-Jan	-27.8	-28.4	-28.5	-28.8	-29.1	-29.3	-29.8	-29.9	-30.1	-30.8	-30.7	-30.0	-29.5	-29.2	-29.2	-29.1	-29.2	-29.8	-30.2	-30.8	-31.0	-31.2	-31.7	-31.9	-29.8	-27.8																						
11-Jan	-32.3	-32.9	-33.2	-33.5	-34.1	-34.5	-34.7	-34.9	-35.2	-35.1	-35.0	-34.4	-33.7	-33.4	-33.2	-33.7	-34.6	-35.6	-36.1	-36.5	-36.7	-36.9	-37.6	-38.1	-34.8	-32.3																						
12-Jan	-38.7	-39.1	-39.7	-40.2	-40.3	-40.7	-40.5	-39.9	-40.3	-40.7	-39.9	-38.4	-37.1	-35.8	-35.2	-35.1	-36.2	-37.1	-37.7	-39.2	-39.7	-39.9	-40.2	-40.9	-38.8	-35.1																						
13-Jan	-42.1	-42.2	-42.0	-42.1	-42.8	-42.2	-42.1	-42.0	-41.8	-40.2	-38.2	-37.6	-36.0	-34.0	-33.1	-33.0	-33.5	-35.3	-35.4	-36.2	-37.0	-37.6	-37.8	-38.3	-38.4	-33.0																						
14-Jan	-38.6	-39.1	-39.3	-38.8	-38.0	-37.7	-37.9	-37.4	-37.4	-36.0	-34.9	-33.0	-30.8	-29.0	-28.4	-28.3	-28.7	-29.6	-29.7	-30.3	-30.8	-30.6	-32.0	-32.1	-33.7	-28.3																						
15-Jan	-32.0	-32.1	-31.6	-31.2	-32.5	-32.0	-31.9	-32.0	-33.7	-32.1	-28.0	-27.0	-24.9	-23.4	-22.0	-21.9	-23.8	-25.4	-27.6	-28.5	-27.9	-27.8	-27.9	-27.7	-28.5	-21.9																						
16-Jan	-29.2	-27.4	-28.2	-28.5	-27.8	-29.1	-30.1	-31.6	-29.9	-28.1	-25.5	-22.6	-21.2	-20.3	-20.3	-21.1	-21.3	-21.5	-20.9	-20.7	-20.6	-20.6	-20.7	-20.7	-24.5	-20.3																						
17-Jan	-21.1	-21.2	-21.1	-20.9	-21.1	-21.3	-21.2	-21.2	-21.2	-21.6	-21.5	-21.4	-21.3	-21.1	-21.0	-20.8	-21.6	-23.0	-24.0	-24.5	-23.8	-23.0	-22.6	-22.7	-21.9	-20.8																						
18-Jan	-22.6	-22.2	-22.0	-22.2	-22.0	-21.8	-22.5	-22.9	-23.5	-23.2	-22.7	-21.7	-20.4	-18.7	-18.6	-19.2	-20.2	-20.8	-20.8	-20.7	-20.3	-19.9	-19.5	-19.5	-21.2	-18.6																						
19-Jan	-19.6	-20.2	-20.8	-21.8	-22.1	-22.7	-22.8	-23.9	-25.1	-24.1	-20.5	-18.7	-16.7	-15.1	-14.2	-15.6	-16.7	-17.0	-16.8	-17.0	-16.9	-16.7	-16.3	-15.9	-19.1	-14.2																						
20-Jan	-15.7	-15.6	-15.5	-15.7	-15.7	-15.7	-15.4	-15.4	-15.9	-16.4	-16.2	-16.1	-15.4	-14.6	-14.2	-14.3	-15.0	-15.8	-16.8	-17.1	-16.7	-16.1	-15.7	-15.7	-15.7	-14.2																						
21-Jan	-15.6	-15.9	-16.3	-16.7	-17.0	-17.3	-17.7	-18.3	-18.8	-19.3	-20.2	-20.6	-20.3	-20.1	-20.1	-20.0	-19.8	-20.0	-20.7	-21.2	-20.6	-20.4	-20.2	-19.9	-19.0	-15.6																						
22-Jan	-19.8	-19.9	-19.9	-19.9	-20.0	-20.5	-20.7	-20.6	-20.4	-19.8	-18.8	-17.9	-17.0	-16.4	-15.8	-15.4	-15.1	-15.1	-15.2	-15.4	-15.2	-15.1	-14.7	-14.4	-17.6	-14.4																						
23-Jan	-14.0	-13.8	-13.6	-13.5	-13.3	-13.3	-13.1	-13.0	-12.9	-12.6	-11.6	-10.7	-9.4	-8.6	-8.2	-7.7	-9.1	-9.0	-8.8	-8.9	-8.9	-9.1	-9.7	-10.4	-11.0	-7.7																						
24-Jan	-10.8	-10.9	-10.9	-11.1	-11.2	-11.0	-10.8	-10.4	-10.1	-9.5	-8.5	-7.5	-6.0	-4.8	-4.3	-4.1	-4.1	-4.7	-4.6	-5.4	-6.8	-7.4	-8.2	-9.1	-8.0	-4.1																						
25-Jan	-9.5	-9.8	-10.8	-11.5	-12.0	-13.8	-12.9	-12.2	-11.2	-10.6	-9.3	-8.7	-8.2	-8.2	-7.9	-7.8	-7.8	-7.9	-8.9	-10.1	-10.4	-10.1	-9.2	-8.0	-9.9	-7.8																						
26-Jan	-7.9	-7.7	-6.0	-5.7	-6.1	-5.9	-5.6	-6.0	-5.7	-5.5	-5.0	-4.4	-2.7	-2.4	-1.7	-1.7	-2.0	-2.6	-3.5	-3.1	-2.9	-3.3	-3.5	-4.3	-4.4	-1.7																						
27-Jan	-4.2	-4.6	-5.2	-5.5	-5.8	-5.8	-5.6	-4.7	-4.1	-3.3	-1.6	0.8	2.9	4.3	5.6	5.2	2.9	1.3	0.9	0.6	0.1	-0.5	-1.9	-1.2	-1.2	5.6																						
28-Jan	-2.0	-1.8	-0.4	0.5	0.7	1.5	1.4	0.9	0.2	1.4	3.4	5.7	6.2	6.6	8.1	8.5	7.7	6.9	5.8	4.0	4.2	4.2	3.5	3.5	3.4	8.5																						
29-Jan	2.1	-0.8	-2.3	-2.9	-3.2	-3.0	-2.8	-0.5	2.2	2.8	5.3	7.4	7.6	7.3	7.3	7.5	5.5	3.8	2.5	1.5	0.7	0.6	-0.2	1.9	2.1	7.6																						
30-Jan	1.4	1.1	0.9	0.8	-0.3	-1.6	0.3	1.2	1.3	2.2	5.5	8.4	9.6	10.8	11.4	11.2	10.3	9.6	8.9	8.3	7.9	7.6	7.1	5.8	5.4	11.4																						
31-Jan	5.1	4.9	4.3	3.1	1.4	1.1	2.3	1.2	0.1	1.9	4.1	6.2	8.1	9.5	9.8	8.8	6.9	5.2	4.0	4.2	5.1	5.1	5.0	4.9	4.7	9.8																						
																								-16.7	-16.8	-16.9	-17.0	-17.1	-17.3	-17.3	-17.4	-17.4	-17.0	-16.1	-15.2	-14.3	-13.7	-13.3	-13.5	-14.1	-14.8	-15.3	-15.8	-15.8	-15.8	-16.1	-16.2	Diurnal Average
																								5.1	4.9	4.3	3.1	1.4	1.5	2.3	1.2	2.2	2.8	5.5	8.4	9.6	10.8	11.4	11.2	10.3	9.6	8.9	8.3	7.9	7.6	7.1	5.8	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Sawbones Bay - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Sawbones Bay - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	286	38.44	38.44
-20 - 0	363	48.79	87.23
0 - 10	91	12.23	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

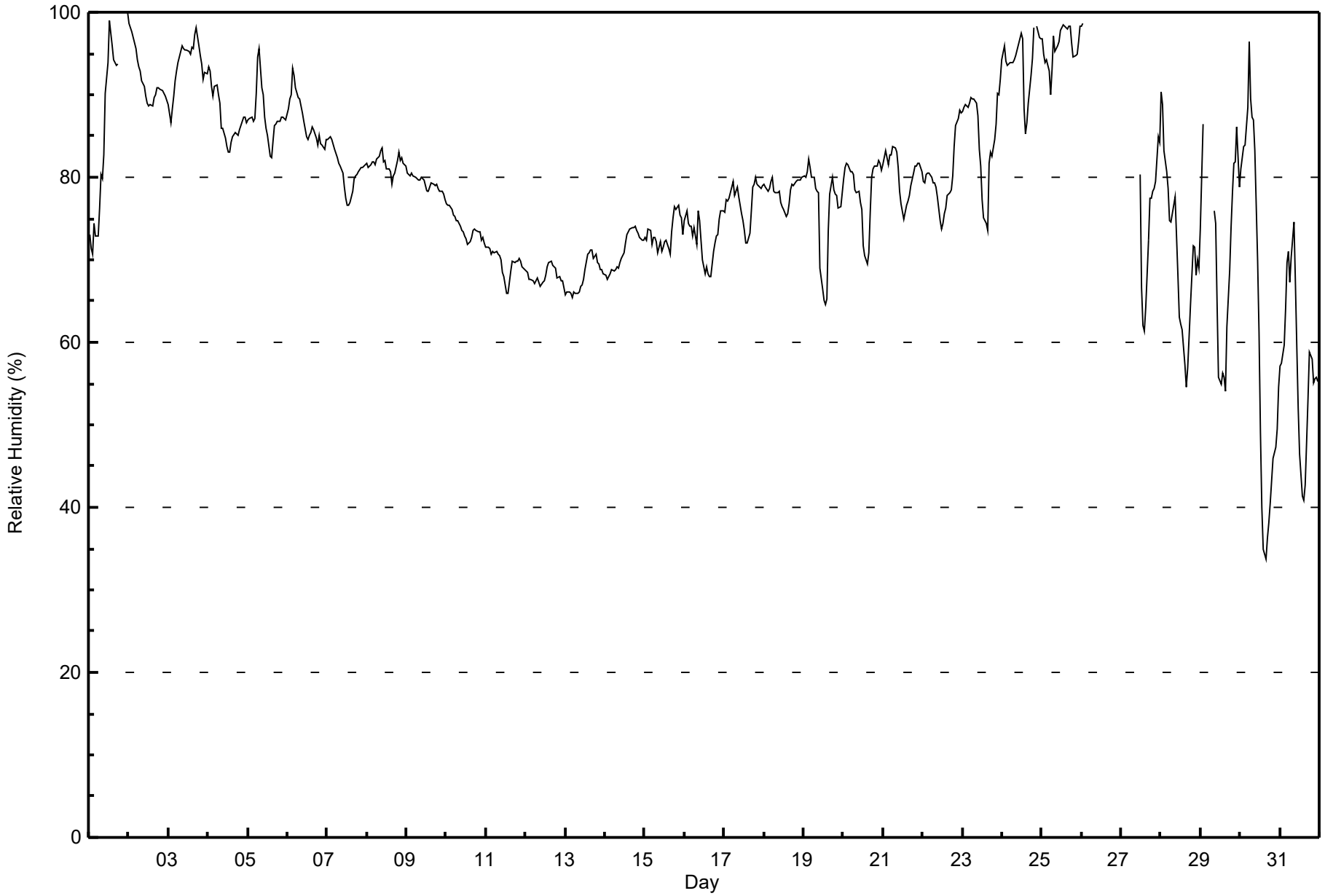
**Relative Humidity (RH) - %**  
**Sawbones Bay - January 2024**

Maximum Value: 100.0 % on Jan 1 22:00      Maximum Daily Average: 96.0 % on Jan 25																								Hours in Service:	744	
Minimum Value: 33.8 % on Jan 30 16:00      Minimum Daily Average: 57.5 % on Jan 31																								Hours of Data:	701	
Maximum Diurnal Average: 81.4 % at hour 2      Minimum Diurnal Average: 73.5 % at hour 15																								Hours of Missing Data:	43	
Monthly Average: 78.56 %      Percentiles: P <sub>1</sub> = 41.4 P <sub>10</sub> = 67.3 Q <sub>1</sub> = 72.0 Median = 78.9 Q <sub>3</sub> = 86.2 P <sub>90</sub> = 93.8 P <sub>99</sub> = 98.4																								Hours of Calibration:	0	
																								Percent Operational Time:	94.2	
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-Jan	73.0	71.4	70.7	74.3	72.8	73.0	76.2	80.3	79.8	82.7	90.2	94.0	99.0	97.4	96.0	94.3	93.6	93.7	OR	OR	OR	100.0	100.0	100.0	86.3	100.0
2-Jan	98.7	98.1	97.7	96.3	95.6	94.2	93.4	92.9	91.7	90.9	89.9	89.0	88.7	88.9	88.6	89.7	90.0	90.9	90.9	90.6	90.6	90.2	89.9	89.4	91.9	98.7
3-Jan	88.7	86.5	88.4	89.8	91.8	92.9	94.0	95.2	96.0	95.6	95.5	95.4	95.3	95.0	95.8	95.6	97.4	98.2	96.0	94.7	93.8	91.9	92.7	92.6	93.7	98.2
4-Jan	93.3	92.8	91.1	89.8	91.1	91.1	89.9	89.0	85.9	86.0	84.8	83.8	83.0	83.0	84.3	84.9	85.4	85.3	85.1	85.8	86.2	87.3	87.2	86.6	87.2	93.3
5-Jan	87.0	87.1	87.3	86.8	87.1	90.2	94.6	95.7	90.8	90.1	87.3	86.0	85.0	82.5	82.3	84.4	86.3	86.5	86.7	86.8	87.3	87.3	87.1	87.0	87.5	95.7
6-Jan	88.3	89.5	90.0	93.2	92.4	90.8	89.6	89.6	88.6	87.7	86.7	84.9	84.7	85.2	85.4	86.1	85.8	84.8	83.8	85.1	84.1	83.9	83.3	84.6	87.0	93.2
7-Jan	84.6	84.7	85.0	84.6	83.4	82.9	82.5	81.6	81.3	80.4	78.9	77.5	76.6	76.6	76.9	78.3	79.8	80.2	80.3	80.7	81.2	81.3	81.3	81.6	80.9	85.0
8-Jan	81.8	81.2	81.6	81.9	81.9	81.6	82.3	82.5	83.2	83.6	81.9	82.0	81.0	81.0	80.6	79.1	80.2	80.4	82.0	83.1	82.1	82.4	81.7	81.3	81.7	83.6
9-Jan	80.6	80.3	80.1	80.6	80.2	80.0	79.9	79.7	79.6	79.9	79.6	78.9	78.3	78.3	78.8	79.3	79.2	79.0	79.2	78.6	78.4	78.4	78.0	77.4	79.3	80.6
10-Jan	76.9	76.7	76.6	76.1	75.4	75.2	74.7	74.7	74.1	73.6	73.3	72.9	72.5	71.8	72.1	72.7	73.5	73.7	73.5	73.3	73.4	72.5	72.7	71.9	73.9	76.9
11-Jan	71.5	71.6	71.3	70.7	71.1	70.9	71.0	70.8	70.5	69.9	68.5	68.0	65.9	65.9	67.3	68.6	69.8	69.7	69.8	69.9	70.2	69.8	69.1	68.8	69.6	71.6
12-Jan	68.7	68.5	67.6	67.6	67.4	67.1	67.4	67.8	67.3	66.8	67.3	67.5	68.1	69.2	69.6	69.8	69.3	69.1	69.0	67.8	68.0	67.5	67.4	66.7	68.0	69.8
13-Jan	65.7	66.0	66.1	65.9	65.4	66.1	65.9	65.9	66.1	66.8	66.9	67.7	68.9	70.7	70.9	71.1	71.2	70.1	70.7	69.6	69.5	68.8	68.8	68.4	68.1	71.2
14-Jan	68.2	67.7	67.9	68.4	68.9	68.6	68.8	69.1	68.9	69.7	70.2	70.9	72.0	73.0	73.4	73.7	73.8	73.9	74.1	73.5	73.1	72.8	72.4	72.3	71.1	74.1
15-Jan	72.7	72.3	73.7	73.6	71.9	72.8	72.8	72.3	70.9	72.2	71.1	71.6	72.3	72.4	71.3	70.7	73.3	75.1	76.4	76.0	76.7	75.5	75.1	73.1	73.2	76.7
16-Jan	74.8	76.0	74.4	74.0	74.1	72.8	73.9	71.9	75.9	74.8	72.4	70.0	68.3	69.1	68.3	68.0	68.0	71.1	72.1	72.9	73.1	74.9	75.9	75.9	72.6	76.0
17-Jan	75.8	77.4	77.2	77.5	78.8	79.4	77.8	78.2	78.8	77.6	75.5	74.7	73.5	72.1	72.0	73.2	76.0	78.8	79.2	80.0	79.2	78.9	78.6	79.0	77.1	80.0
18-Jan	79.2	78.9	78.4	78.6	79.5	79.9	78.3	78.1	78.2	78.2	76.9	76.5	76.2	75.2	75.6	76.7	78.5	79.2	79.0	79.6	79.6	79.7	79.7	80.0	78.3	80.0
19-Jan	80.2	80.0	80.7	82.2	81.3	80.0	79.9	78.7	78.2	78.2	69.0	66.4	65.0	64.5	65.2	73.6	78.0	79.9	78.5	77.9	77.8	76.3	76.4	78.1	76.1	82.2
20-Jan	79.8	81.2	81.8	81.5	80.7	80.8	80.3	78.6	78.1	78.3	76.9	76.1	71.7	70.4	69.5	70.9	75.7	79.9	81.1	81.3	81.4	82.0	81.8	80.8	78.4	82.0
21-Jan	81.6	83.3	82.4	81.5	82.7	82.8	83.7	83.6	83.0	81.1	78.3	76.8	75.0	75.8	76.7	77.1	77.8	79.0	80.4	81.4	81.4	81.7	81.6	80.7	80.4	83.7
22-Jan	79.5	79.4	80.3	80.5	80.6	80.0	79.4	79.3	78.9	77.6	74.7	73.8	74.4	75.6	76.3	77.8	78.2	78.5	80.1	83.8	86.3	87.1	88.2	87.9	79.9	88.2
23-Jan	88.0	88.6	88.8	88.5	89.1	89.7	89.5	89.5	89.0	87.5	83.4	81.4	77.4	75.0	74.4	73.6	81.7	83.1	82.5	84.6	86.4	90.1	90.0	91.8	85.1	91.8
24-Jan	94.3	95.9	94.1	93.6	93.7	93.8	93.9	94.3	94.8	95.5	96.1	97.4	96.8	88.3	85.3	86.6	89.0	92.3	94.4	98.1	OR	98.3	96.9	96.8	93.9	98.3
25-Jan	96.8	94.9	94.0	94.3	92.9	90.0	93.0	97.2	95.2	96.0	96.5	97.8	98.2	98.6	98.4	98.0	98.4	98.3	96.3	94.7	94.7	94.9	96.5	98.3	96.0	98.6
26-Jan	98.3	98.6	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	98.6
27-Jan	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	80.4	66.6	62.0	61.4	64.2	72.4	77.5	77.4	78.4	78.7	79.4	84.8	--	84.8
28-Jan	90.3	88.9	83.2	80.7	78.7	74.7	74.6	75.6	77.5	72.8	68.2	63.1	62.3	61.5	57.3	54.6	57.0	60.6	64.5	71.8	71.6	68.2	70.1	69.0	70.7	90.3
29-Jan	73.8	86.4	OR	OR	OR	OR	OR	OR	75.9	74.4	64.7	55.8	54.9	56.3	55.7	54.1	61.9	68.6	74.0	78.1	81.7	81.9	86.2	78.8	70.2	86.4
30-Jan	81.1	82.4	83.7	83.9	88.5	96.5	89.5	87.2	87.0	83.3	69.8	61.1	49.2	40.0	35.0	33.8	36.2	38.1	40.5	43.2	45.9	47.3	49.5	54.6	62.8	96.5
31-Jan	57.1	57.5	59.6	64.1	69.6	71.1	67.4	70.4	74.5	67.4	59.4	52.1	46.5	41.4	40.8	42.8	47.8	53.1	58.8	58.1	55.1	55.6	55.7	55.2	57.5	74.5
																								Diurnal Average		
																								Diurnal Maximum		
OR - Out of Range																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Sawbones Bay - January 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Sawbones Bay - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	5	0.71	0.71
40 - 60	32	4.56	5.28
60 - 80	353	50.36	55.63
80 - 100	308	43.94	99.57

Total Number of Valid Hours: 701

Total Number of Hours: 744

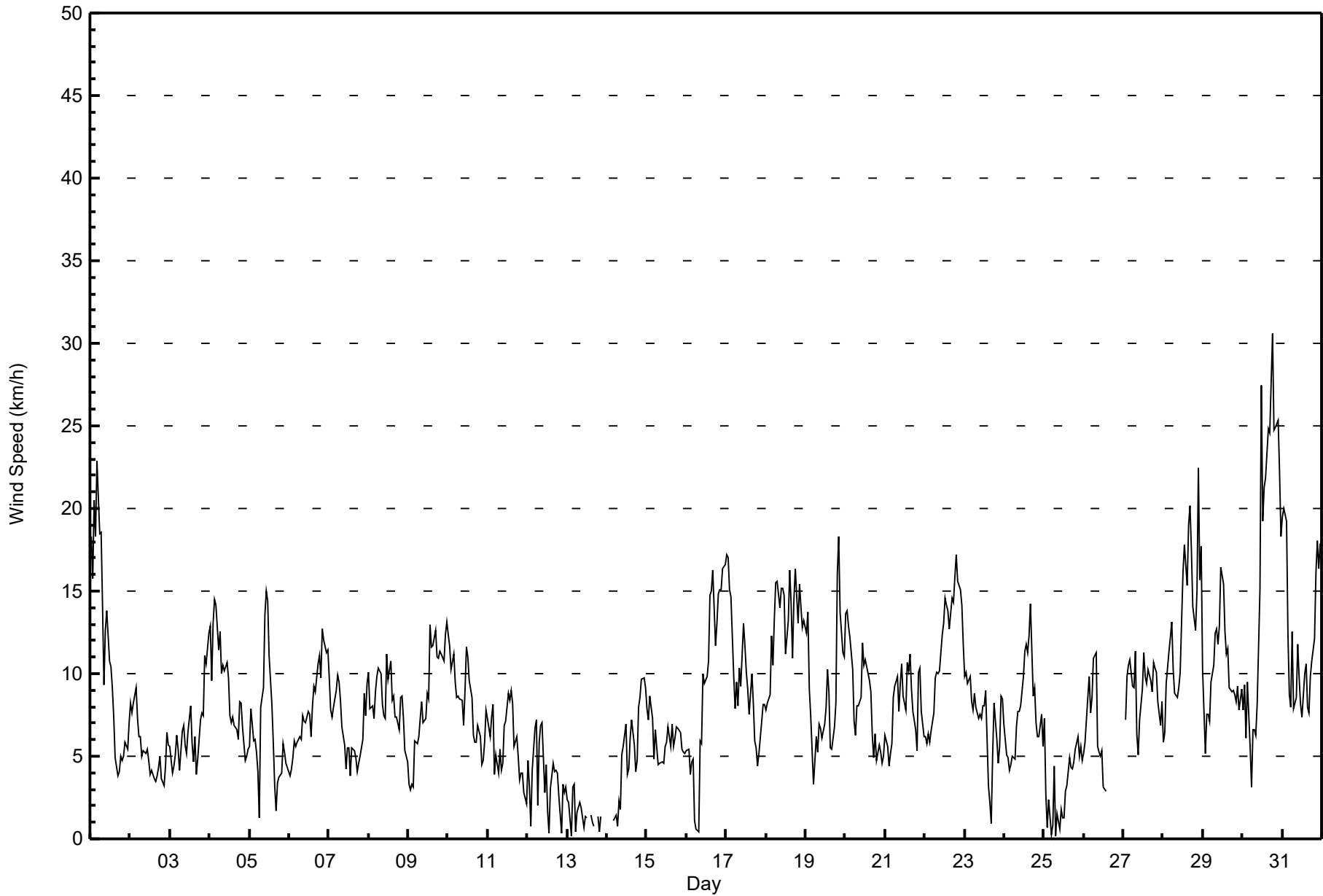


Summary statistics table including Maximum Speed (31 km/h on Jan 30 19:00), Minimum Speed Value (0 km/h on Jan 13 03:00), Monthly Average Velocity (1.3 km/h 260.6 deg), Hours in Service (744), Hours of Data (724), Hours of Missing Data (20), and Percent Operational Time (97.3).

Main data table with columns for Day, Hourly Period Ending At (MST) (1-24), Daily Average, and Daily Maximum. Rows represent days from 1-Jan to 31-Jan, showing wind direction and speed for each hour.

Summary rows for Diurnal Average and Diurnal Maximum, listing wind directions and speeds for each hour of the day.

Legend: 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  
Sawbones Bay - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	196	27.07	27.07
6 - 11	389	53.73	80.80
12 - 19	122	16.85	97.65
20 - 28	16	2.21	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 724

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Sawbones Bay - January 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	17	6	12	22	20	13	24	12	7	6	6	9	6	9	16	196
6 - 11	55	47	16	12	8	14	13	47	52	33	13	2	12	27	14	24	389
12 - 19	9	7	0	0	0	0	3	24	9	4	6	10	8	34	8	0	122
20 - 28	0	0	0	0	0	0	0	0	0	0	0	3	11	2	0	0	16
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	75	71	22	24	30	34	29	95	73	44	25	21	41	69	31	40	724

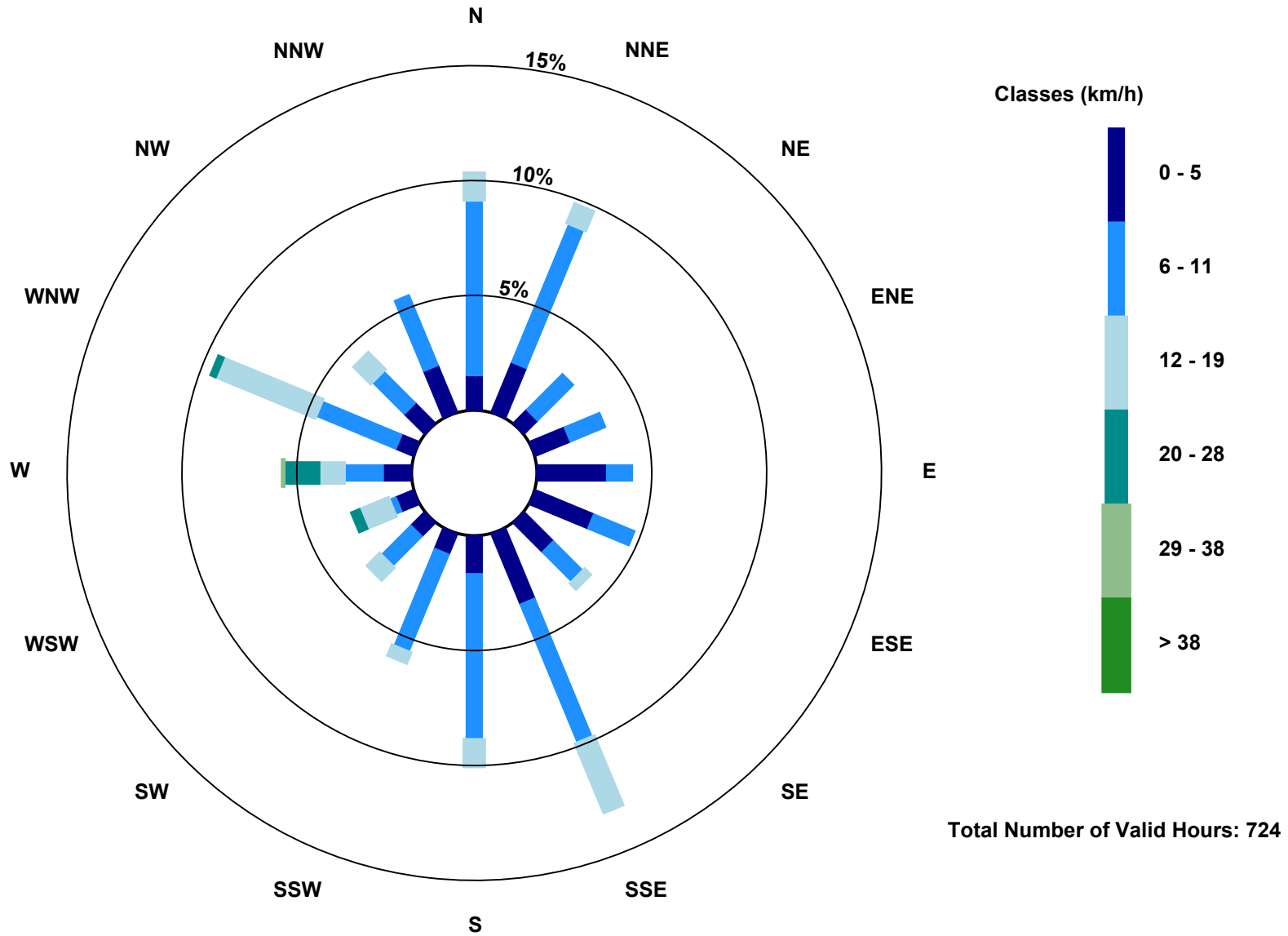
Total Number of Valid Hours: 724

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Sawbones Bay





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Sawbones Bay - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Jan 30 15:00														Hours in Service: 744 Hours of Data: 724 Hours of Missing Data: 20 Hours of Calibration: 0 Percent Operational Time: 97.3											
Minimum Value: 0 km/h on Jan 13 12:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 2 P <sub>90</sub> = 3 P <sub>99</sub> = 6																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-Jan	4	3	4	4	4	4	4	3	2	3	3	2	2	2	1	1	1	1	1	2	1	1	1	2	4
2-Jan	2	2	2	2	2	1	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2
3-Jan	1	1	1	1	1	1	2	1	1	1	1	2	2	1	1	1	1	1	1	1	2	3	3	3	3
4-Jan	3	3	4	4	3	3	3	2	2	3	2	2	2	2	1	3	2	2	2	2	2	1	1	2	4
5-Jan	2	2	1	1	1	1	1	3	2	3	2	3	3	2	2	1	1	1	1	1	1	1	1	3	
6-Jan	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	2	3	3	
7-Jan	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	2	1	1	1	1	1	2	1	2	2
8-Jan	2	2	1	1	2	2	2	2	1	1	2	3	2	2	2	2	2	2	1	2	2	1	1	2	3
9-Jan	1	1	1	1	1	2	2	2	2	2	2	3	2	3	2	3	3	2	2	3	2	3	3	3	3
10-Jan	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	3
11-Jan	2	1	2	2	1	1	0	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2
12-Jan	1	1	1	1	3	2	1	2	1	1	2	1	1	1	1	1	1	1	0	1	1	1	1	1	3
13-Jan	1	1	1	1	1	1	1	1	1	1	1	0	0	UO	0	1	1	UO	0	1	1	UO	UO	UO	1
14-Jan	UO	UO	UO	UO	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	1	2
15-Jan	2	2	2	3	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	3
16-Jan	1	2	3	2	1	1	1	1	1	2	2	3	2	2	3	3	3	2	2	3	2	3	3	3	3
17-Jan	3	3	3	2	2	1	2	2	2	2	3	2	2	2	2	2	3	1	1	1	2	2	2	2	3
18-Jan	2	2	1	2	2	3	2	3	2	2	2	3	3	3	3	3	2	4	3	2	3	2	2	2	4
19-Jan	2	2	3	2	2	2	2	1	1	1	1	2	2	2	2	1	1	3	2	4	4	3	3	3	4
20-Jan	3	3	3	3	3	2	2	2	2	3	3	3	2	3	2	1	1	1	1	1	1	1	1	1	3
21-Jan	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	3	2	2	2	3
22-Jan	2	2	2	2	2	3	3	3	2	2	3	3	4	4	3	3	4	3	3	4	4	3	3	3	4
23-Jan	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	1	4	2	1	1	1	2	4	
24-Jan	2	2	2	1	1	1	1	1	2	2	2	3	3	3	3	3	3	2	1	1	3	2	2	1	3
25-Jan	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
26-Jan	0	1	2	2	2	2	4	3	2	2	2	3	1	1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4
27-Jan	UO	2	1	2	1	2	3	2	2	2	2	2	3	3	2	2	2	1	2	2	2	2	1	2	3
28-Jan	1	1	2	2	2	2	3	2	1	2	2	3	4	4	5	5	5	4	4	3	3	4	4	3	5
29-Jan	6	3	2	2	1	1	1	3	3	2	3	4	4	3	3	3	2	1	1	1	1	1	2	2	6
30-Jan	2	2	3	2	1	1	2	2	2	1	8	7	5	6	8	7	6	6	6	5	6	5	5	4	8
31-Jan	5	6	4	4	2	3	4	3	2	3	3	2	2	2	2	2	2	2	2	3	4	4	4	4	6
														Diurnal Maximum											
UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Sawbones Bay - January 2024**

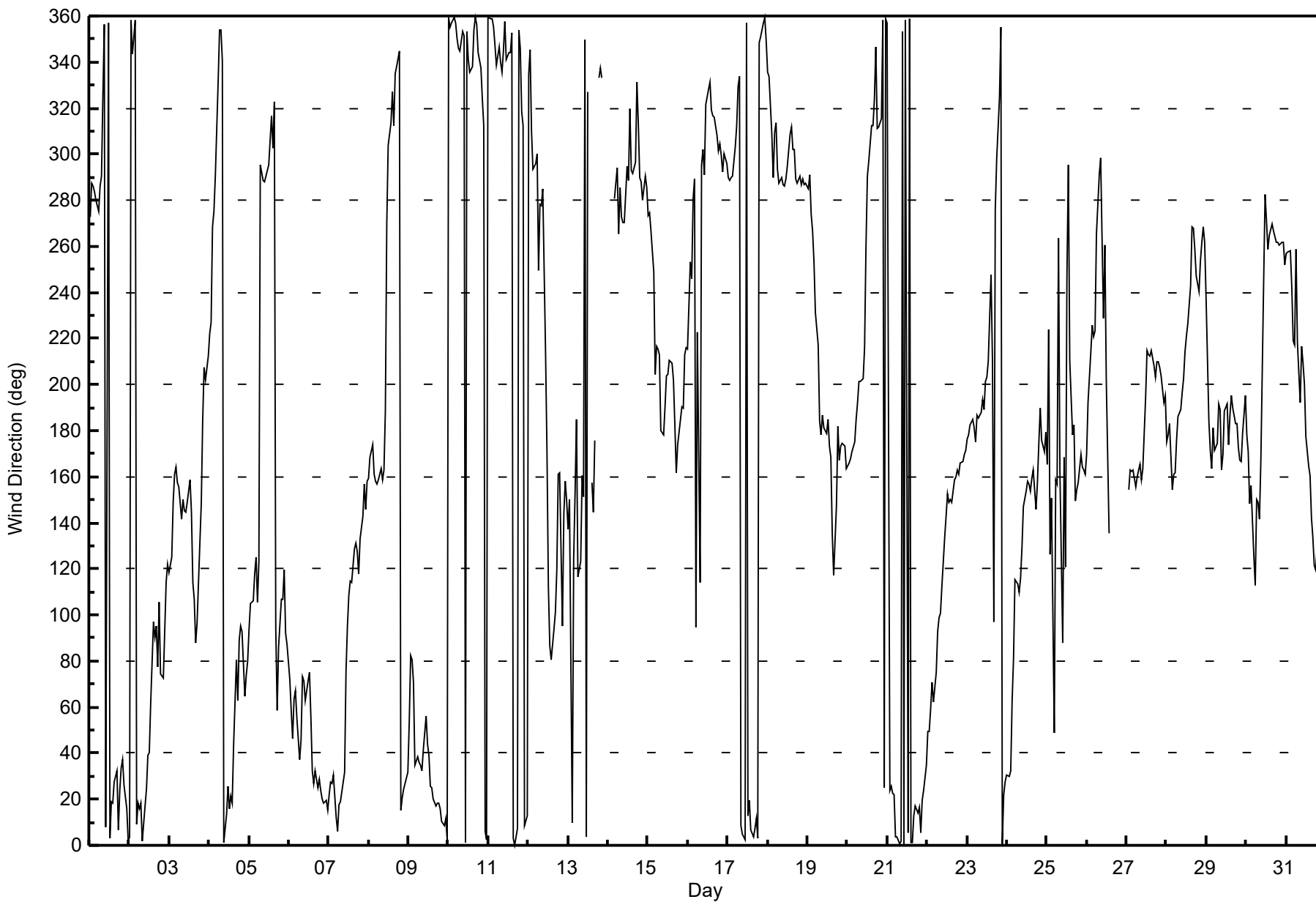
Direction of Maximum Speed: 262 deg on Jan 30 19:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 252.2 deg on Jan 30	Hours of Data: 724
Direction of Minimum Speed: 10 deg on Jan 13 03:00	Hours of Missing Data: 20
Direction of Minimum Daily Speed Average: 0.6 deg on Jan 8	Percent Operational Time: 97.3
Monthly Average Direction: 260.6 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-Jan	273	287	286	283	280	275	286	290	326	356	8	357	3	19	19	27	32	7	24	34	37	26	16	2	319.0	
2-Jan	4	358	344	358	9	19	16	18	2	17	24	39	40	62	97	90	95	77	105	75	73	94	114	122	38.0	
3-Jan	118	125	149	161	164	157	156	141	150	145	144	149	159	145	114	107	88	96	131	148	184	208	202	212	155.9	
4-Jan	222	227	269	275	291	332	354	341	1	13	26	16	21	18	43	80	63	89	95	93	65	74	80		0.2	
5-Jan	94	105	106	118	125	106	123	296	289	288	291	293	295	317	303	323	95	59	86	107	107	119	92	87	328.6	
6-Jan	72	59	46	64	67	56	37	46	73	71	63	71	75	56	33	27	32	25	29	24	20	18	20	15	40.6	
7-Jan	22	28	27	31	12	6	18	19	23	32	76	95	109	115	114	129	131	127	118	133	143	157	146	158	71.6	
8-Jan	159	168	174	161	158	157	159	163	159	163	189	270	304	314	327	313	335	338	345	15	21	24	27	32	205.7	
9-Jan	54	83	80	71	35	38	36	35	32	41	56	44	39	26	25	20	17	18	18	16	10	9	12	2	26.4	
10-Jan	359	355	357	360	357	350	346	345	353	351	1	353	341	336	338	354	359	356	344	337	324	312	6	2	350.4	
11-Jan	360	359	359	355	347	339	347	340	336	345	358	341	344	344	353	3	0	8	354	346	319	312	9	13	350.3	
12-Jan	334	345	310	294	296	300	250	278	278	285	213	171	113	86	81	94	101	119	161	162	95	144	158	149	252.3	
13-Jan	137	150	10	125	153	185	116	124	160	151	350	3	327	UO	157	145	176	UO	333	338	333	UO	UO	UO	135.0	
14-Jan	UO	UO	UO	UO	281	294	265	286	273	270	270	295	288	320	293	291	297	331	313	290	288	280	290	286	290.6	
15-Jan	273	275	267	249	205	217	216	213	180	178	190	204	204	211	209	202	182	161	174	180	190	190	213	216	210.2	
16-Jan	216	253	246	281	289	95	223	114	295	302	291	322	328	332	319	317	316	308	301	305	300	292	300	296	302.9	
17-Jan	290	289	290	290	303	312	330	334	9	5	3	357	13	19	7	4	7	12	3	349	351	357	359	349	337.4	
18-Jan	336	334	309	290	310	314	293	287	290	287	286	289	295	309	312	302	302	289	287	291	287	289	287	288	296.3	
19-Jan	285	291	274	266	253	231	217	185	178	186	181	179	185	173	168	136	117	147	182	167	173	175	173	163	190.6	
20-Jan	165	166	168	171	175	185	192	201	201	203	216	260	290	297	312	312	324	347	311	312	316	358	25	359	231.0	
21-Jan	357	24	25	23	22	4	4	1	2	353	0	358	6	359	1	1	13	17	14	17	5	19	24	35	8.3	
22-Jan	49	49	59	71	62	75	93	99	101	112	133	143	152	149	150	149	159	160	163	161	166	167	170	171	138.9	
23-Jan	176	178	182	185	181	175	187	186	188	193	189	202	203	210	248	211	97	276	298	325	355	0	22	28	198.5	
24-Jan	30	30	32	63	81	115	114	110	116	130	147	154	158	157	154	159	163	146	158	175	189	176	171	179	144.0	
25-Jan	165	224	126	151	49	159	157	264	162	88	169	121	247	295	210	178	182	150	154	157	170	164	163	161	168.9	
26-Jan	170	192	214	226	221	223	265	291	299	263	229	260	202	135	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
27-Jan	UO	154	163	163	163	156	160	163	166	159	164	195	215	213	212	215	208	203	210	210	208	204	192	195	188.0	
28-Jan	175	178	183	154	161	162	176	186	189	196	203	214	221	226	243	268	268	259	247	240	254	262	268	262	227.9	
29-Jan	238	184	171	164	181	171	175	191	189	163	170	189	191	174	186	195	190	183	183	173	167	166	179	195	182.5	
30-Jan	178	171	149	156	126	113	150	149	142	167	246	283	271	259	265	270	266	264	262	262	260	262	262	252	252.2	
31-Jan	257	257	258	243	219	217	259	218	192	217	210	200	177	165	161	142	133	121	120	141	148	151	150	150	190.6	

261.6 258.2 256.0 240.1 243.0 249.9 257.9 258.4 247.8 252.2 248.8 272.0 264.2 278.2 295.8 300.6 299.4 303.4 256.1 225.1 241.8 242.6 248.0 246.3  
 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**  
**Sawbones Bay - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on Jan 13 06:00 Minimum Value: 7 deg on Jan 12 19:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 10 Q <sub>1</sub> = 13 Median = 15 Q <sub>3</sub> = 20 P <sub>90</sub> = 30 P <sub>99</sub> = 81																			Hours in Service: 744 Hours of Data: 724 Hours of Missing Data: 20 Hours of Calibration: 0 Percent Operational Time: 97.3						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Jan	16	10	10	12	10	13	9	10	26	18	15	18	14	14	12	15	28	16	14	20	20	15	12	16	28
2-Jan	15	15	14	16	17	12	17	20	18	27	30	35	42	37	25	26	24	27	18	33	31	32	11	13	42
3-Jan	11	15	7	11	10	13	44	13	13	16	16	15	14	18	16	13	22	12	16	14	20	17	16	17	44
4-Jan	17	24	17	15	11	30	15	16	19	17	16	17	18	21	16	31	29	30	23	20	20	33	28	28	33
5-Jan	20	15	13	15	16	10	76	25	10	10	11	13	18	19	18	23	48	22	40	22	16	19	22	24	76
6-Jan	29	27	22	29	32	29	20	25	30	31	35	31	29	30	20	15	17	15	16	14	12	13	13	13	35
7-Jan	13	15	14	17	16	15	15	14	18	20	36	24	19	34	18	18	17	15	14	15	13	11	14	11	36
8-Jan	12	16	9	12	11	13	14	12	12	13	25	23	14	16	20	22	21	16	15	17	11	10	14	17	25
9-Jan	28	28	30	30	17	23	23	17	18	25	29	26	24	14	15	12	14	12	13	14	15	14	15	15	30
10-Jan	17	16	15	16	14	14	14	13	14	13	14	15	15	15	15	13	13	13	9	10	11	31	12	14	31
11-Jan	14	12	13	14	12	12	7	9	9	16	14	17	20	17	15	14	10	10	9	10	11	7	20	15	20
12-Jan	7	16	52	18	16	8	41	17	9	8	38	18	59	88	25	8	9	25	7	45	81	15	20	19	88
13-Jan	19	20	79	20	22	96	20	22	29	55	23	13	23	UO	20	22	68	UO	9	15	12	UO	UO	UO	96
14-Jan	UO	UO	UO	UO	35	13	47	14	11	9	9	18	34	11	12	9	16	10	8	8	13	10	9	47	
15-Jan	13	12	14	28	22	12	16	23	16	16	19	16	16	13	12	24	15	7	9	10	12	15	21	28	
16-Jan	25	21	49	15	28	63	92	81	13	13	9	18	18	16	14	11	11	12	11	12	12	11	12	12	92
17-Jan	10	10	9	9	11	12	12	13	13	15	16	16	18	17	23	14	13	8	13	11	17	14	15	13	23
18-Jan	12	14	11	9	12	15	11	10	10	8	8	9	14	16	13	11	11	10	10	11	9	10	10	8	16
19-Jan	12	8	21	17	23	44	20	24	8	14	15	20	18	16	14	28	19	17	16	12	14	16	14	13	44
20-Jan	13	13	13	13	15	14	15	16	16	13	18	24	18	20	13	12	10	14	7	15	10	21	22	23	24
21-Jan	19	12	25	12	18	15	14	16	20	18	17	18	22	18	16	15	15	12	17	20	14	14	14	26	26
22-Jan	30	29	30	34	30	32	21	16	16	19	19	19	16	16	15	16	14	13	14	12	13	13	14	14	34
23-Jan	14	14	14	14	15	16	14	15	14	14	17	15	19	17	57	69	86	72	19	9	15	13	12	14	86
24-Jan	17	17	23	30	28	15	15	13	15	19	18	17	15	14	14	14	12	15	12	10	33	14	14	7	33
25-Jan	9	35	85	34	96	85	17	69	75	56	19	50	54	41	32	17	17	16	10	14	8	14	10	18	96
26-Jan	10	15	14	16	16	15	19	12	14	35	23	34	20	33	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	35
27-Jan	UO	10	9	10	8	12	13	10	14	25	17	16	16	16	13	14	14	12	12	12	13	14	12	11	25
28-Jan	12	11	14	10	8	9	17	12	11	13	15	16	15	15	20	14	16	12	17	16	15	10	13	12	20
29-Jan	37	35	14	11	13	12	10	12	15	9	15	14	15	13	20	14	14	11	11	8	13	11	11	19	37
30-Jan	11	13	41	13	21	32	13	10	20	22	31	12	16	21	20	15	14	14	12	13	14	13	13	20	41
31-Jan	14	14	11	20	15	25	22	34	17	17	19	18	18	15	16	17	13	14	14	15	15	16	14	14	34
37 35 85 34 96 96 92 81 75 56 38 50 59 88 57 69 86 72 40 45 81 33 28 28																									
Diurnal Maximum																									
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS507  
KIRBY SOUTH  
JANUARY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

February 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS 507)  
JANUARY 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	37	59	97.04	12.4	0	3.3	0
H2S (ppb) Average	704	39	40	99.87	51	2	3.2	1
THC (ppm) Average	685	37	59	97.04	23	-	3.8	-
NO2 (ppb) Average	707	37	37	100	49.9	0	29.8	-
NO (ppb) Average	707	37	37	100	152.3	-	86.5	-
NOX (ppb) Average	707	37	37	100	195.6	-	116.4	-
Temperature 2 m (C) Average	744	0	0	100	10.3	-	5.6	-
Relative Humidity (%) Average	744	0	0	100	94.9	-	89.8	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	34	-	21	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH(AMS507)  
 JANUARY 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	0.92	1.4	-	0	0.1	0.2	0.5	1	2.1	12.4
H2S (ppb) Average	704	0.27	2	-	0	0.1	0.1	0.1	0.2	0.3	51
THC (ppm) Average	685	2.56	0.9	-	2	2.3	2.4	2.4	2.6	2.9	23
NO2 (ppb) Average	707	5.27	8	-	0.2	0.8	1.6	2.7	4.4	12.5	49.9
NO (ppb) Average	707	6.17	20.7	-	0	0	0	0	0.6	16.1	152.3
NOX (ppb) Average	707	11.44	27.5	-	0.2	0.8	1.6	3	4.8	30.2	195.6
Temperature 2 m (C) Average	744	-15.43	11.8	-	-40.1	-31.9	-22.7	-16.4	-7.1	1.7	10.3
Relative Humidity (%) Average	744	77.04	9.8	-	33.1	66.3	71.7	77.4	84.3	89.2	94.9
Wind Speed 10 m (km/h) Average	741	9.6	5	-	0	4	6	9	12	15	34
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS507)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2, THC	16 Jan 2024 16:00	17 Jan 2024 13:00	22	Maintenance - SO2 preventative maintenance
H2S	18 Jan 2024 15:00	18 Jan 2024 15:00	1	Maintenance - reinitiated daily QA check
Wind Speed, Wind Direction	12 Jan 2024 18:00	12 Jan 2024 19:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Jan 2024 09:00	13 Jan 2024 09:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Kirby South - January 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 12.4 ppb on Jan 15 17:00	Maximum Daily Average: 3.3 ppb on Jan 13		Hours of Data:	685
Minimum Value: 0.0 ppb on Jan 1 10:00	Minimum Daily Average: 0.0 ppb on Jan 7		Hours of Missing Data:	59
Maximum Diurnal Average: 1.7 ppb at hour 13	Minimum Diurnal Average: 0.6 ppb at hour 24		Hours of Calibration:	37
Monthly Average: 0.92 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.5 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 7.5		Percent Operational Time:	97.0

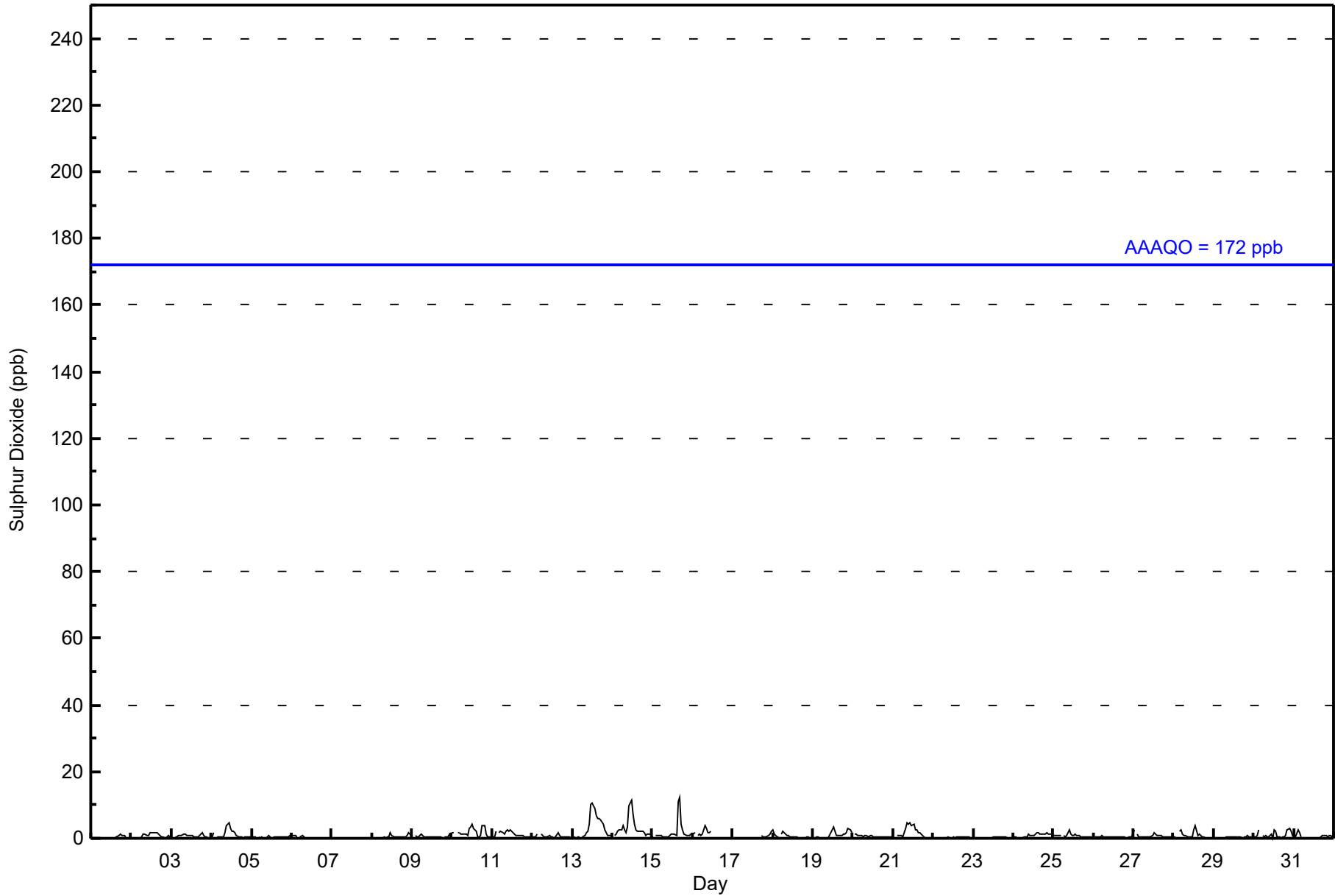
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.4	1.0	1.2	0.9	1.0	0.7	0.1	0.0	0.0	0.3	1.2																						
2-Jan	Z	0.2	0.0	0.1	0.1	0.1	0.5	1.3	1.3	0.8	0.7	1.7	1.8	1.5	1.7	1.6	1.3	1.0	0.6	0.3	0.1	0.3	0.7	0.5	0.8	1.8																						
3-Jan	0.6	Z	0.6	0.5	0.7	0.8	0.8	1.1	1.1	0.9	0.8	1.0	0.8	0.6	0.4	0.6	0.9	1.5	0.9	0.4	0.2	0.1	0.2	0.7	1.5																							
4-Jan	0.2	1.6	Z	0.2	0.3	0.2	0.2	0.4	1.6	4.0	4.7	3.0	2.2	2.2	1.6	0.8	0.5	0.4	0.3	0.2	0.3	0.5	0.4	0.6	1.2	4.7																						
5-Jan	0.6	0.5	0.4	Z	0.2	0.2	0.4	0.1	0.2	0.5	0.7	0.6	0.2	0.3	0.5	0.5	0.5	0.5	0.3	0.3	0.4	0.5	0.5	0.8	0.4	0.8																						
6-Jan	0.7	1.0	0.8	0.6	Z	0.3	0.7	0.2	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	0.2	1.0																							
7-Jan	0.1	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1																						
8-Jan	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.4	0.6	1.7	0.7	0.3	0.3	0.5	0.5	0.4	0.3	0.4	0.6	0.9	1.7	0.9	0.5	1.7																						
9-Jan	0.7	Z	0.8	0.6	0.6	1.4	0.9	0.5	0.5	0.2	0.4	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.1	0.0	0.3	0.5	1.1	1.4	0.6	1.4																						
10-Jan	1.6	1.5	Z	1.6	1.5	1.2	1.3	1.2	1.3	0.9	2.8	3.4	4.3	3.0	2.2	0.4	0.3	0.7	3.7	4.0	1.4	0.6	0.3	0.5	1.7	4.3																						
11-Jan	0.3	0.5	2.1	Z	1.9	2.0	1.8	1.2	2.2	2.7	1.9	2.5	1.6	1.2	1.0	0.8	0.7	0.8	1.0	0.6	0.5	0.5	0.5	0.6	1.2	2.7																						
12-Jan	0.5	0.6	0.5	1.3	Z	1.4	1.0	0.4	0.6	0.4	0.8	0.6	0.4	0.2	0.4	1.6	0.7	0.4	0.3	0.6	0.5	0.3	0.3	0.1	0.6	1.6																						
13-Jan	0.2	0.3	0.1	0.3	0.4	Z	0.3	0.9	1.8	2.0	4.2	10.2	10.7	8.7	6.8	6.1	6.1	5.5	4.1	2.4	1.6	0.8	0.8	0.9	3.3	10.7																						
14-Jan	Z	0.9	1.2	2.2	2.4	2.4	3.8	2.7	1.5	3.2	9.7	11.4	7.3	4.2	2.4	2.2	2.2	2.0	2.0	1.5	0.8	1.5	1.1	0.7	3.0	11.4																						
15-Jan	0.6	Z	0.7	0.8	1.0	0.7	0.3	0.3	0.3	0.3	0.7	1.1	1.3	1.3	0.9	11.1	12.4	4.1	2.5	1.1	0.7	0.6	0.7	1.1	1.9	12.4																						
16-Jan	1.4	1.8	Z	1.0	1.1	1.1	1.3	3.7	2.8	1.6	1.8	2.1	C	C	C	M	M	M	M	M	M	M	M	M	--	3.7																						
17-Jan	M	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	M	M	M	M	M	M	M	--	2.1																						
18-Jan	2.5	1.4	0.6	0.3	Z	1.2	2.3	1.6	0.9	0.7	0.4	0.4	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.6	2.5																						
19-Jan	0.1	0.1	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.9	2.7	3.6	2.0	0.8	0.7	0.7	1.0	1.2	1.2	1.8	3.1	2.5	1.8	1.1	3.6																						
20-Jan	Z	1.1	1.2	1.0	1.0	0.7	0.6	0.7	0.8	0.6	0.7	0.9	0.5	0.6	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.4	0.5	0.4	0.6	1.2																						
21-Jan	0.7	Z	1.0	0.8	0.7	0.7	0.6	2.9	4.8	4.3	4.6	3.8	4.2	2.7	2.5	1.7	1.7	1.2	0.3	0.2	0.1	0.0	0.0	0.1	1.7	4.8																						
22-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.3	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.1	0.2	0.4																						
23-Jan	0.1	0.1	0.2	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.1	0.2	0.1	0.2	0.2	0.5																						
24-Jan	0.4	0.2	0.1	0.1	Z	0.1	0.3	0.6	0.6	1.1	0.8	0.7	1.0	1.4	1.8	1.7	1.4	1.2	1.5	1.4	1.6	1.4	1.3	1.2	1.0	1.8																						
25-Jan	1.0	0.9	0.8	0.8	0.8	Z	0.7	0.4	0.9	2.7	1.2	1.0	0.9	1.4	0.9	0.7	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.3	0.8	2.7																						
26-Jan	Z	0.4	0.3	0.5	0.6	0.9	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.9																						
27-Jan	2.6	Z	1.2	0.5	0.4	0.5	0.5	0.6	0.5	0.3	0.4	1.0	1.5	1.5	1.0	0.8	0.7	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.7	2.6																						
28-Jan	0.2	0.2	Z	2.1	2.4	1.1	0.7	0.7	0.6	0.6	0.4	0.3	2.7	3.8	0.7	1.3	0.9	0.4	0.4	0.0	0.1	0.0	0.1	0.1	0.9	3.8																						
29-Jan	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.7	0.5	0.5	0.5	0.3	0.7																						
30-Jan	0.4	0.5	0.7	2.3	Z	0.7	0.4	0.9	0.6	0.5	1.3	0.1	2.6	1.9	0.3	0.5	0.1	0.4	0.3	0.9	2.5	3.0	2.0	0.7	1.0	3.0																						
31-Jan	1.1	0.4	2.4	1.8	0.4	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.8	0.7	0.8	0.5	0.8	0.8	0.6	0.5	2.4																						
																								0.7	0.6	0.6	0.8	0.7	0.7	0.8	0.9	1.0	1.4	1.7	1.7	1.4	1.0	1.3	1.2	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	Diurnal Average
																								2.6	1.8	2.4	2.3	2.4	2.4	3.8	3.7	4.8	4.3	9.7	11.4	10.7	8.7	6.8	11.1	12.4	5.5	4.1	4.0	2.5	3.1	2.5	2.1	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**  
**Kirby South - January 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	681	99.42	99.42
11 - 20	4	0.58	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: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - January 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	32	48	46	39	19	11	14	35	79	80	56	46	44	45	44	678
11 - 20	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	4
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>	41	32	48	46	39	19	11	14	35	79	81	57	46	45	45	44	682

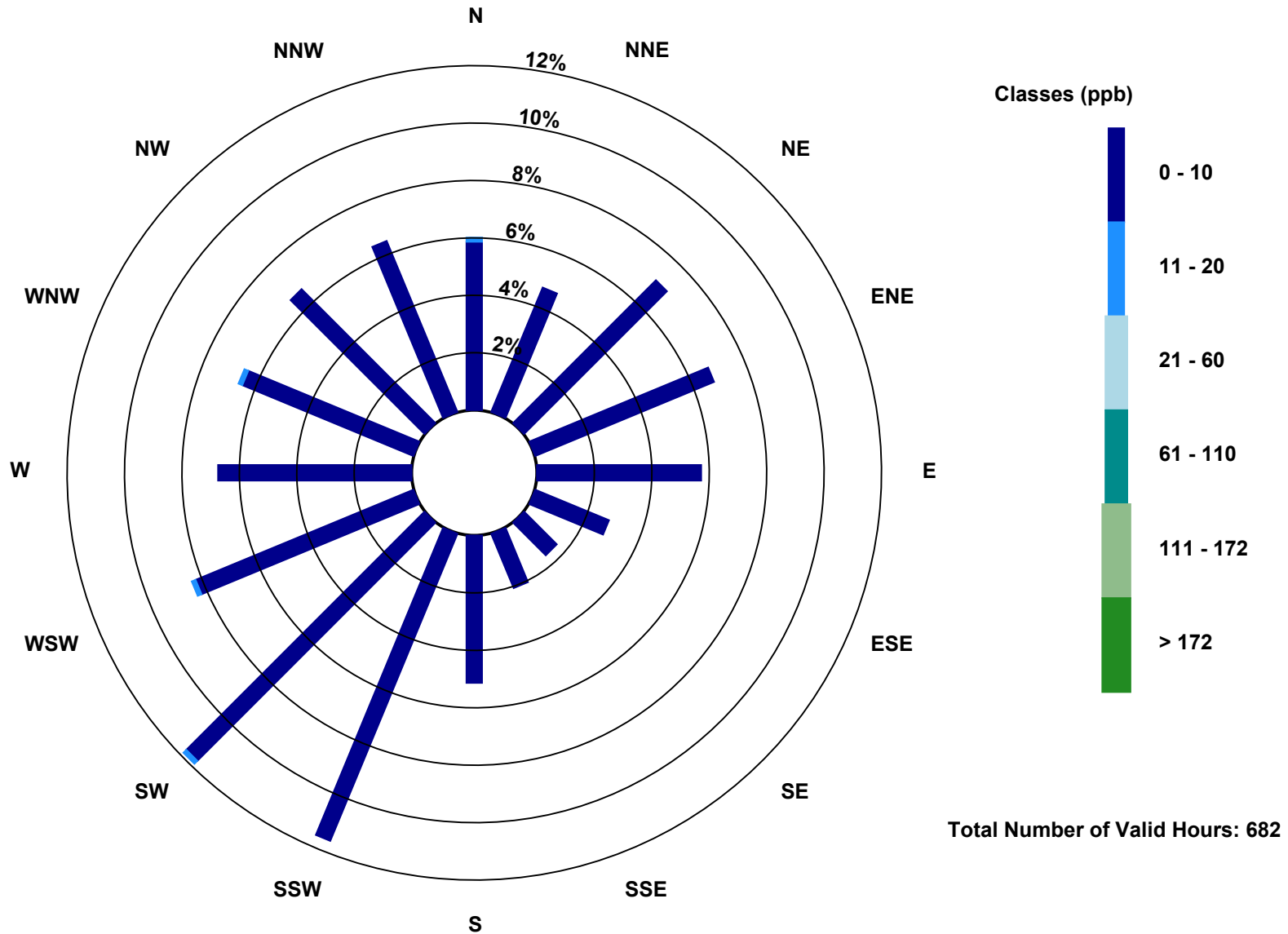
Total Number of Valid Hours: 682

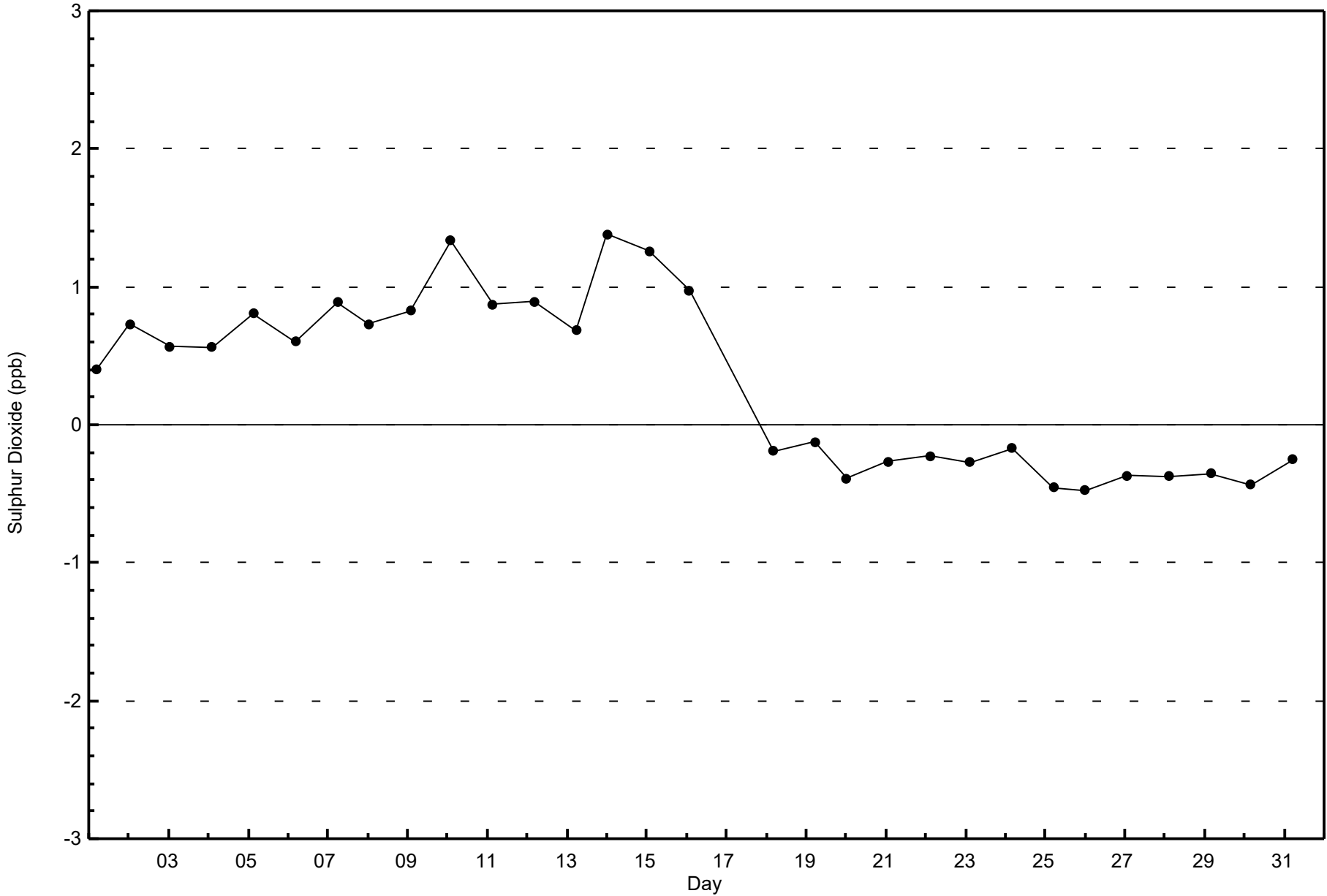
Total Number of Hours: 744

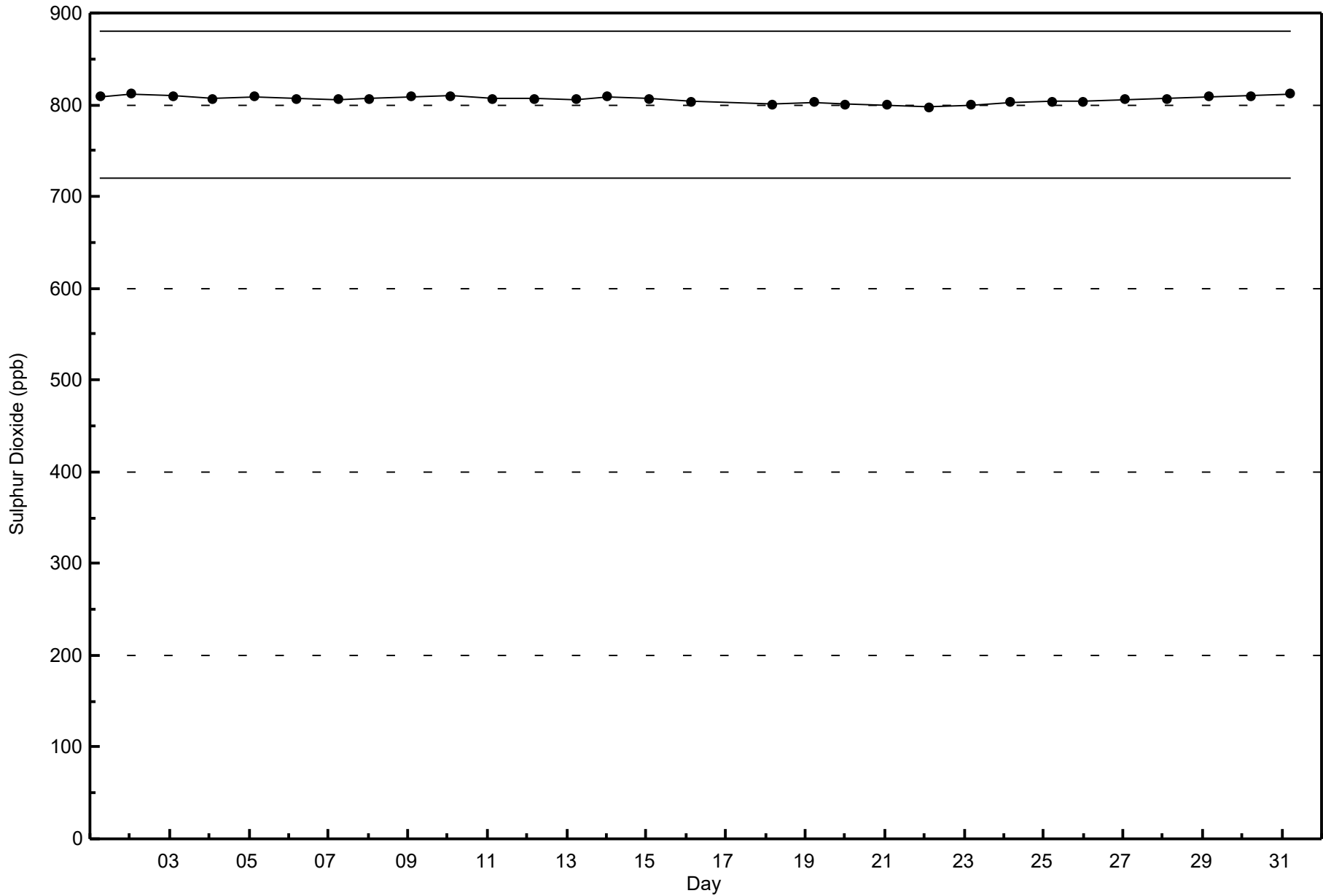


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

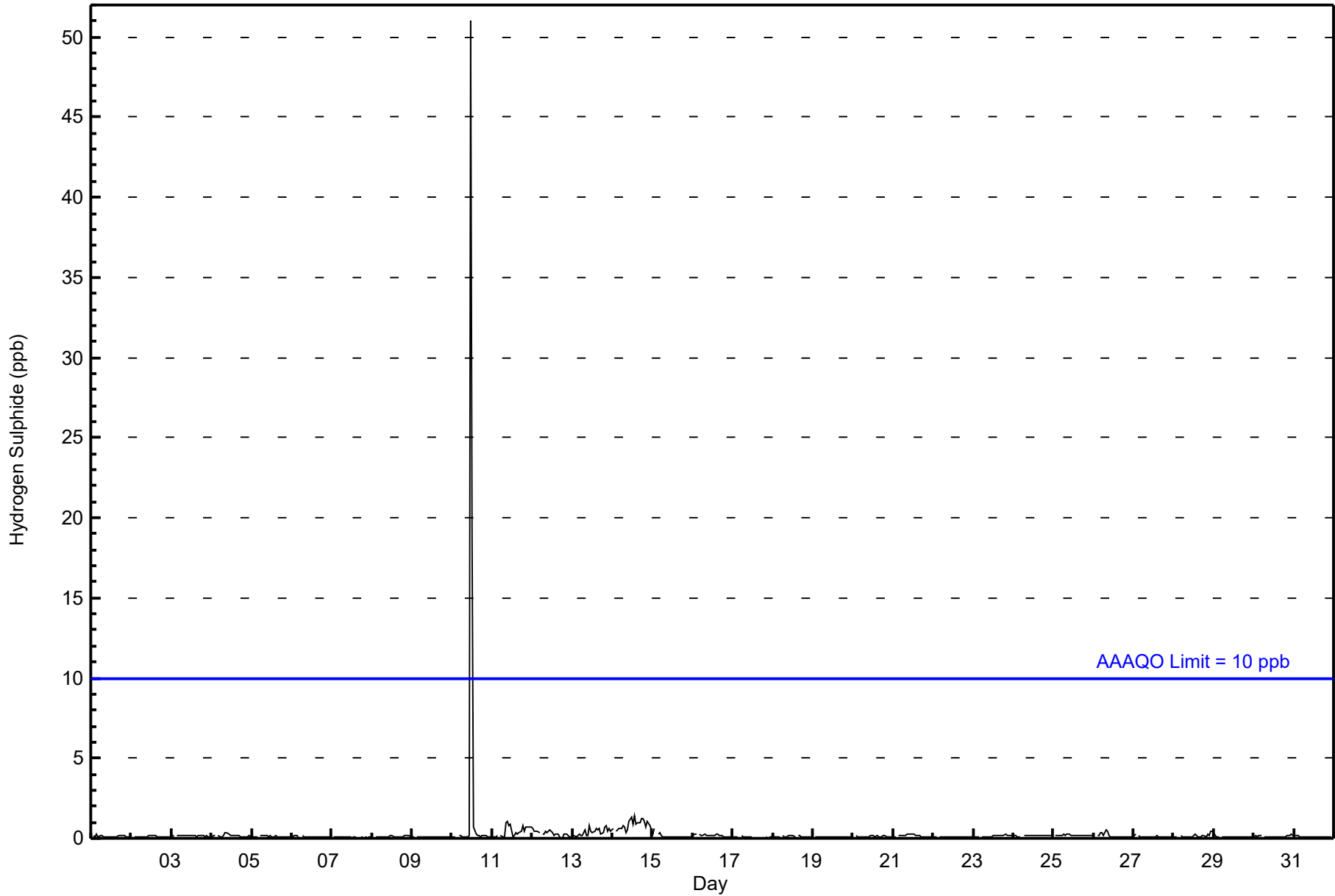
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Kirby South













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	702	99.72	99.72
3 - 4	0	0.00	99.72
5 - 7	0	0.00	99.72
8 - 11	0	0.00	99.72
> 11	2	0.28	100.00

Total Number of Valid Hours: 704

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby South - January 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	46	30	45	48	39	18	12	13	36	79	79	58	45	46	55	50	699
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	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Totals</b>	46	32	45	48	39	18	12	13	36	79	79	58	45	46	55	50	701

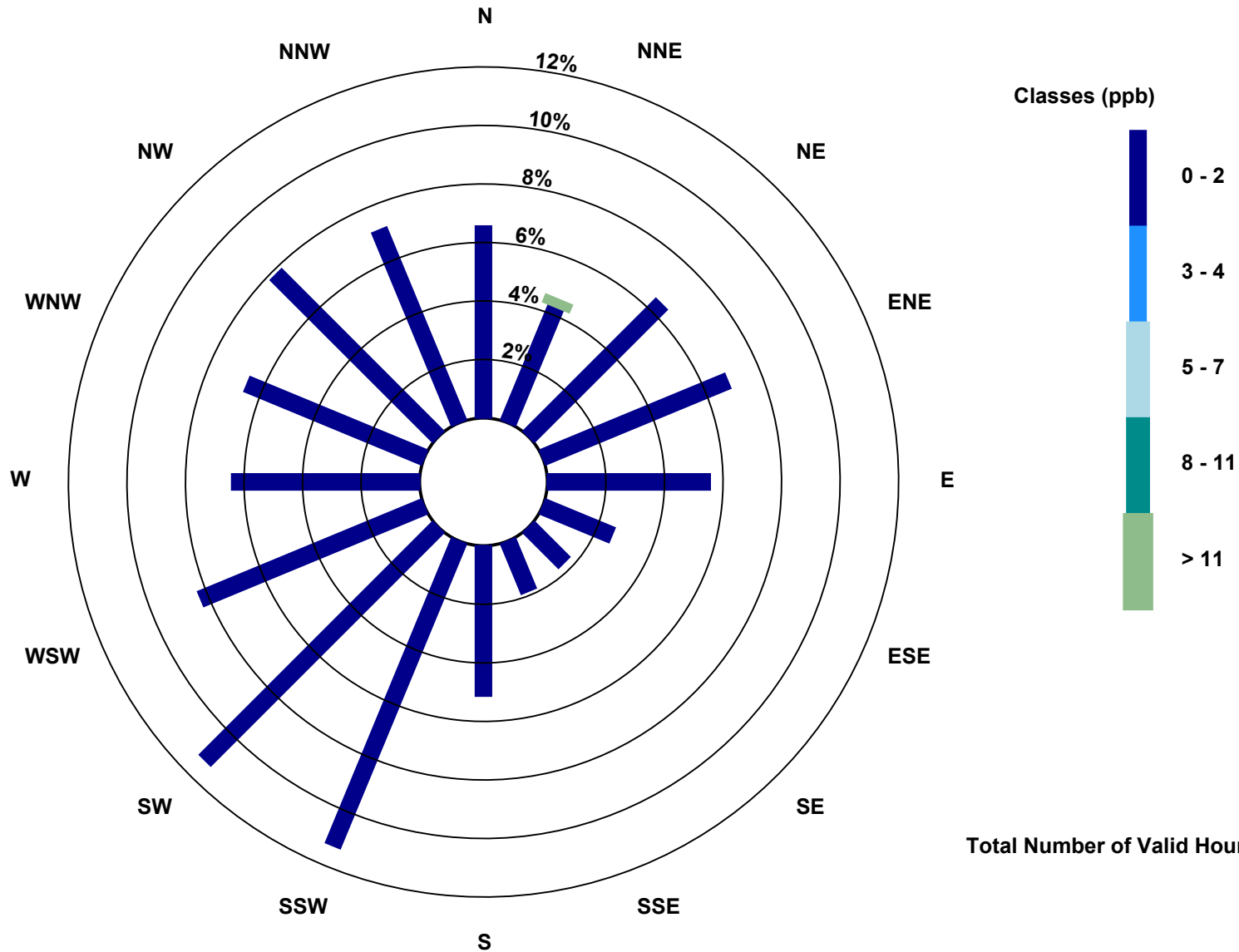
Total Number of Valid Hours: 701

Total Number of Hours: 744

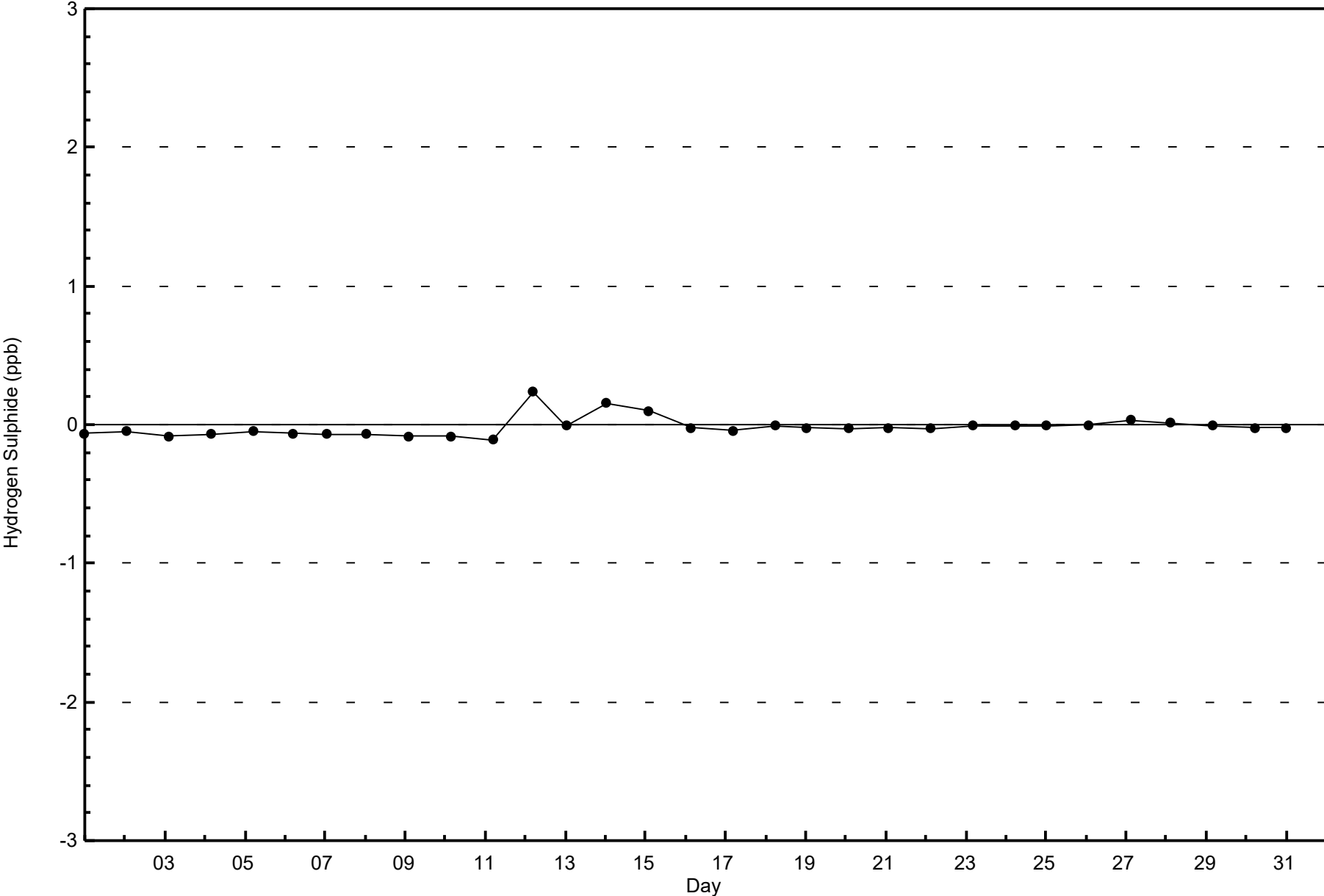


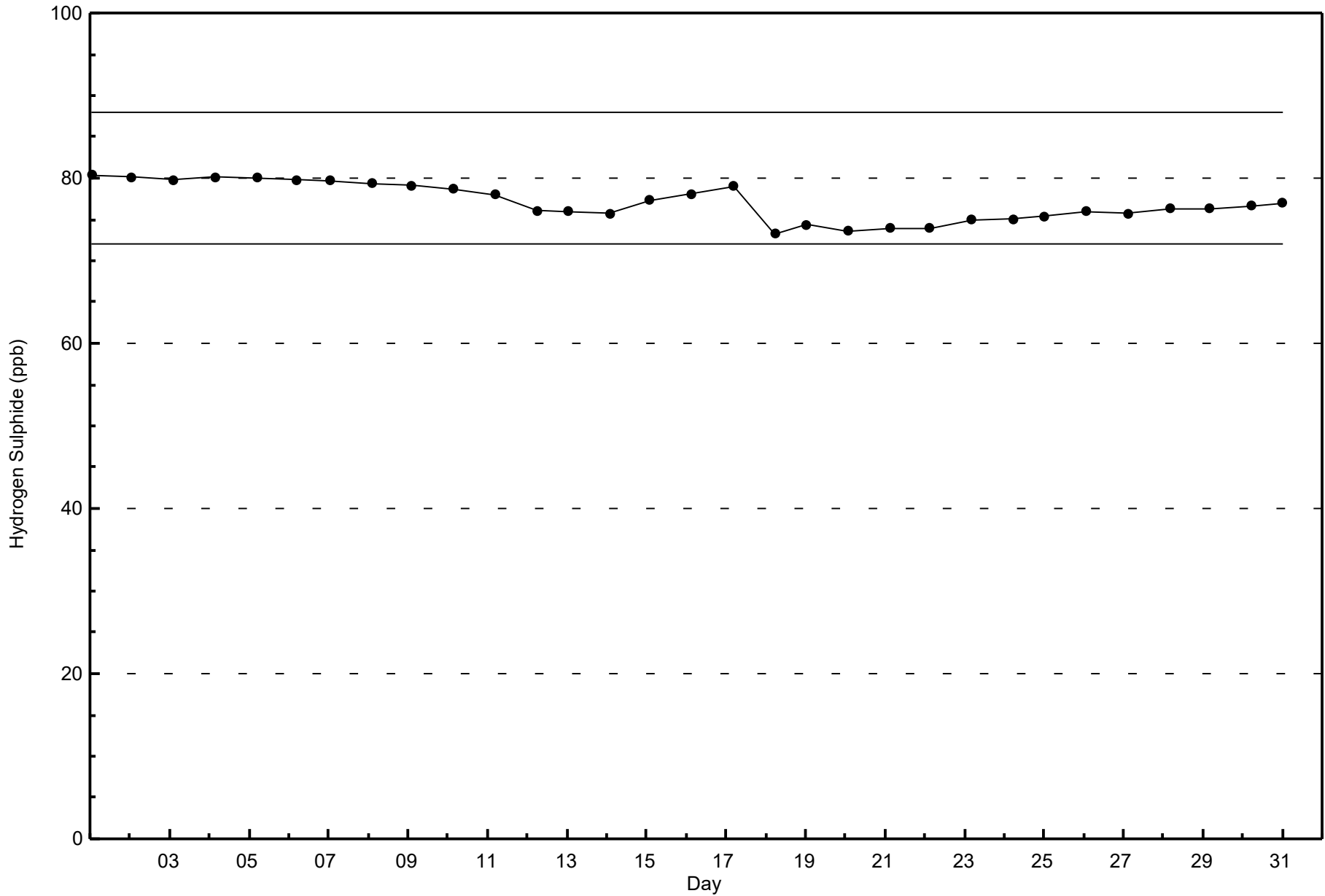
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby South



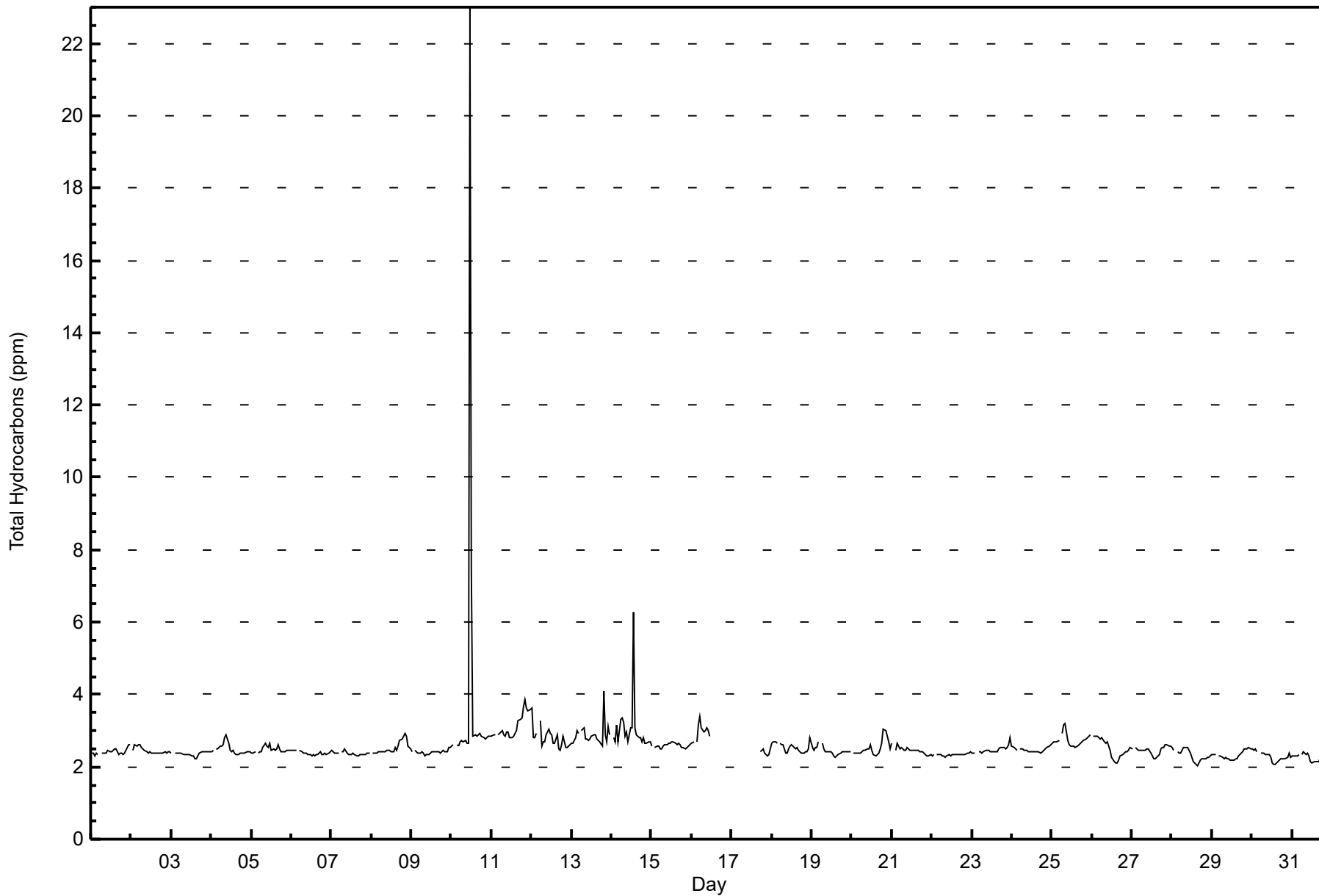
Total Number of Valid Hours: 701







Maximum Value: 23.0 ppm on Jan 10 12:00      Maximum Daily Average: 3.8 ppm on Jan 10																				Hours in Service: 744 Hours of Data: 685									
Minimum Value: 2.0 ppm on Jan 28 16:00      Minimum Daily Average: 2.3 ppm on Jan 31 Maximum Diurnal Average: 3.2 ppm at hour 12      Minimum Diurnal Average: 2.4 ppm at hour 16 Monthly Average: 2.56 ppm      Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 2.4 Median = 2.4 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 2.9 P <sub>99</sub> = 3.6																				Hours of Missing Data: 59 Hours of Calibration: 37 Percent Operational Time: 97.0									
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-Jan	2.4	2.4	2.3	2.4	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.3	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.4	2.6			
2-Jan	Z	2.4	2.6	2.6	2.6	2.6	2.6	2.5	2.5	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	2.4	2.4	2.4	2.4	2.4		
3-Jan	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		
4-Jan	2.4	2.4	Z	2.5	2.5	2.6	2.6	2.6	2.8	2.9	2.6	2.5	2.4	2.5	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		
5-Jan	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.7	2.5	2.5	2.5	2.5	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5		
6-Jan	2.5	2.5	2.5	2.5	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		
7-Jan	2.5	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.5	2.4	2.3	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4		
8-Jan	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.5	2.5	2.6	2.7	2.8	2.8	2.9	2.8	2.6	2.5	2.5	2.9	2.9		
9-Jan	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.4	2.6	2.6		
10-Jan	2.6	2.6	Z	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.6	23.0	7.4	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.9	2.9	3.8	23.0		
11-Jan	2.8	2.9	2.9	Z	2.9	2.9	3.0	2.9	2.8	3.0	3.0	2.8	2.8	2.9	2.9	3.0	3.3	3.3	3.4	3.7	3.9	3.6	3.6	3.6	3.1	3.9	3.9		
12-Jan	3.6	2.8	2.8	2.9	Z	3.3	2.6	2.7	2.7	2.9	3.0	2.9	2.9	2.6	2.6	2.9	2.5	2.5	2.6	2.8	2.5	2.5	2.6	2.6	2.8	3.6	3.6		
13-Jan	2.7	2.7	2.8	3.0	2.9	Z	3.0	3.1	2.8	2.8	2.7	2.8	2.9	2.9	2.9	2.8	2.7	2.7	2.6	4.1	2.9	2.7	3.1	2.9	2.9	4.1	4.1		
14-Jan	Z	2.8	2.7	3.2	2.7	3.3	3.4	3.2	2.8	3.0	2.7	3.1	3.1	6.3	3.1	2.9	2.8	2.8	2.7	2.8	2.6	2.6	2.7	2.7	3.0	6.3	6.3		
15-Jan	2.6	Z	2.5	2.6	2.6	2.5	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.6	2.7	2.6	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7		
16-Jan	2.6	2.7	Z	2.7	3.1	3.4	3.1	3.0	3.0	3.1	3.0	2.8	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	3.4
17-Jan	M	M	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	2.4	2.4	2.5	2.4	2.3	2.3	2.5	--	2.5	
18-Jan	2.7	2.7	2.7	2.6	Z	2.6	2.6	2.6	2.4	2.4	2.5	2.6	2.6	2.5	2.5	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.8	2.5	2.8	2.8	
19-Jan	2.5	2.5	2.5	2.5	2.7	Z	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7
20-Jan	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.6	2.5	2.3	2.3	2.3	2.4	2.5	2.6	3.0	3.0	2.9	2.7	2.5	2.5	3.0	3.0	3.0	
21-Jan	2.7	Z	2.5	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.5	2.7	2.7	
22-Jan	2.3	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	2.4	2.4	2.4	2.4	2.3	2.4	2.4	
23-Jan	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	2.5	2.8	2.8	
24-Jan	2.6	2.5	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.5	2.6	2.6	
25-Jan	2.7	2.7	2.7	2.7	2.7	Z	2.9	3.2	3.2	2.7	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.9	2.7	2.7	3.2	3.2	
26-Jan	Z	2.8	2.8	2.9	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.4	2.3	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.9	2.9	
27-Jan	2.5	Z	2.6	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.3	2.3	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.6	
28-Jan	2.5	2.5	Z	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.3	2.1	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.5	
29-Jan	2.4	2.3	2.4	Z	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.5	2.5	
30-Jan	2.5	2.5	2.5	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.5	2.5	
31-Jan	2.3	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4	2.4	
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan      C - Calibration      M - Maintenance																													





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Kirby South - January 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	2	0.29	0.29
2.1 - 3.0	654	95.47	95.77
3.1 - 10.0	28	4.09	99.85
> 10.0	1	0.15	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Kirby South - January 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	1	1	0	0	2
2.1 - 3.0	29	28	47	46	38	19	11	13	35	79	81	57	45	44	45	34	651
3.1 - 10.0	12	3	1	0	1	0	0	1	0	0	0	0	0	0	0	10	28
> 10.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	41	32	48	46	39	19	11	14	35	79	81	57	46	45	45	44	682

Total Number of Valid Hours: 682

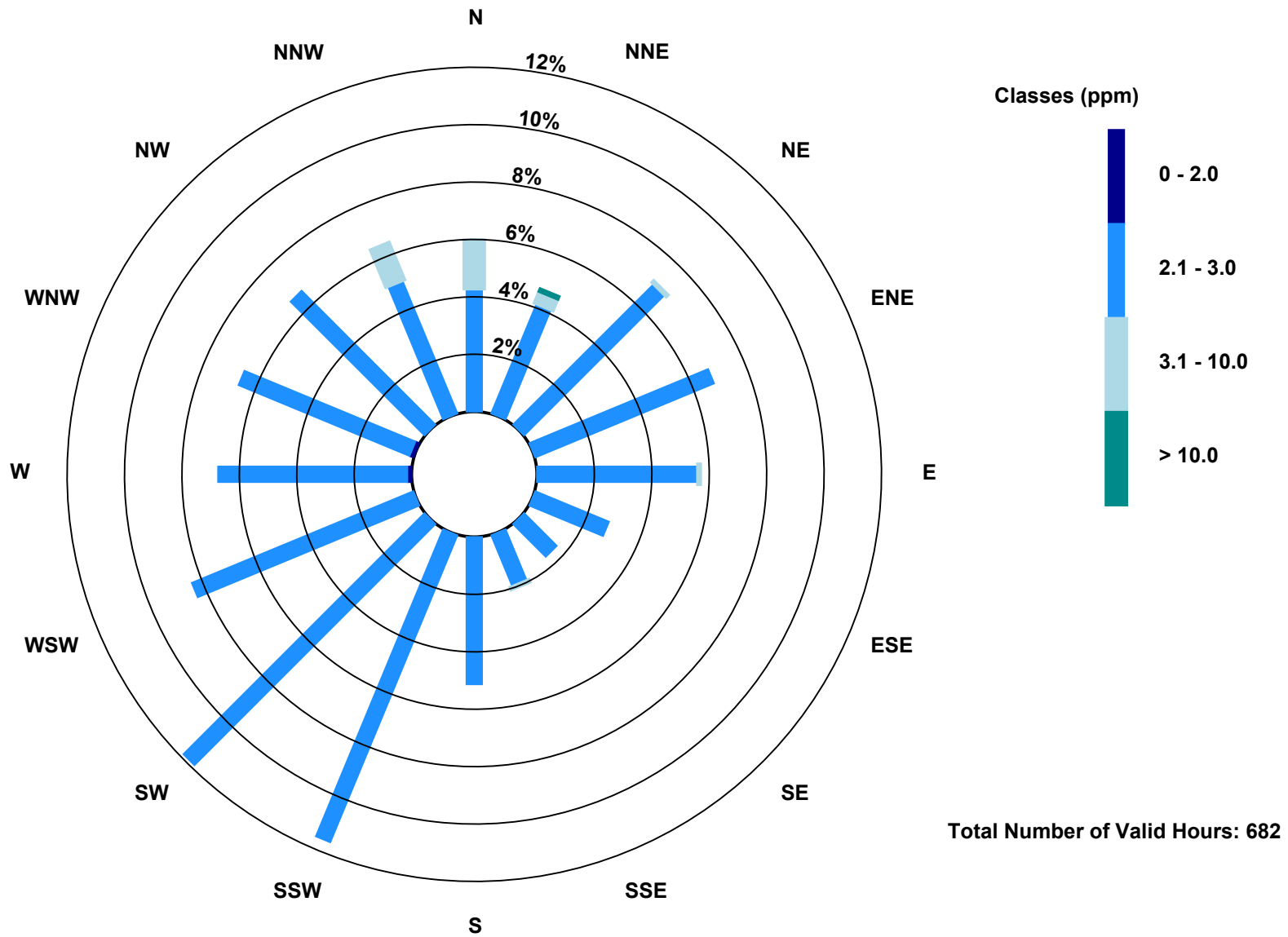
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Jan 2024

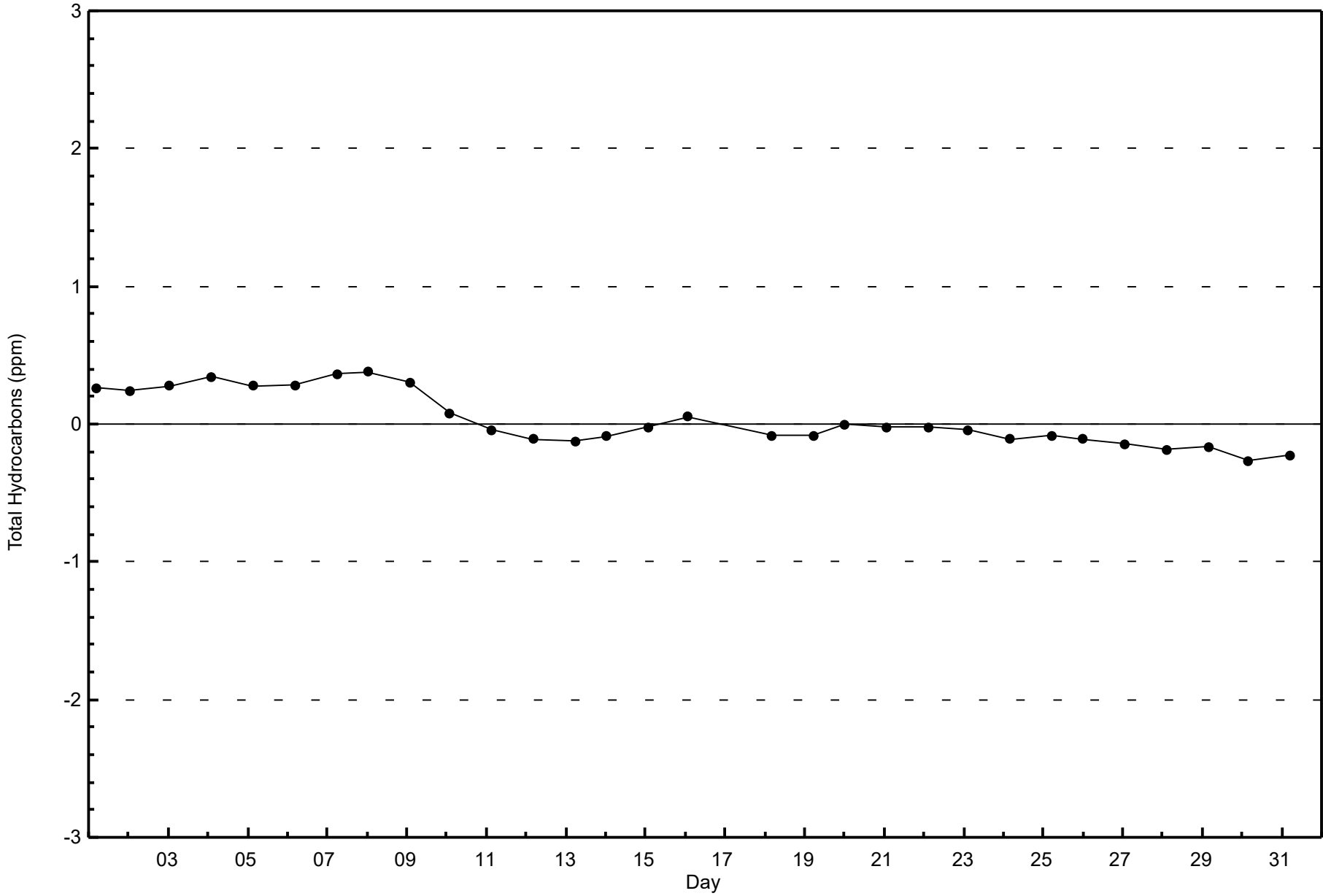
Total Hydrocarbons (THC) - ppm  
Kirby South

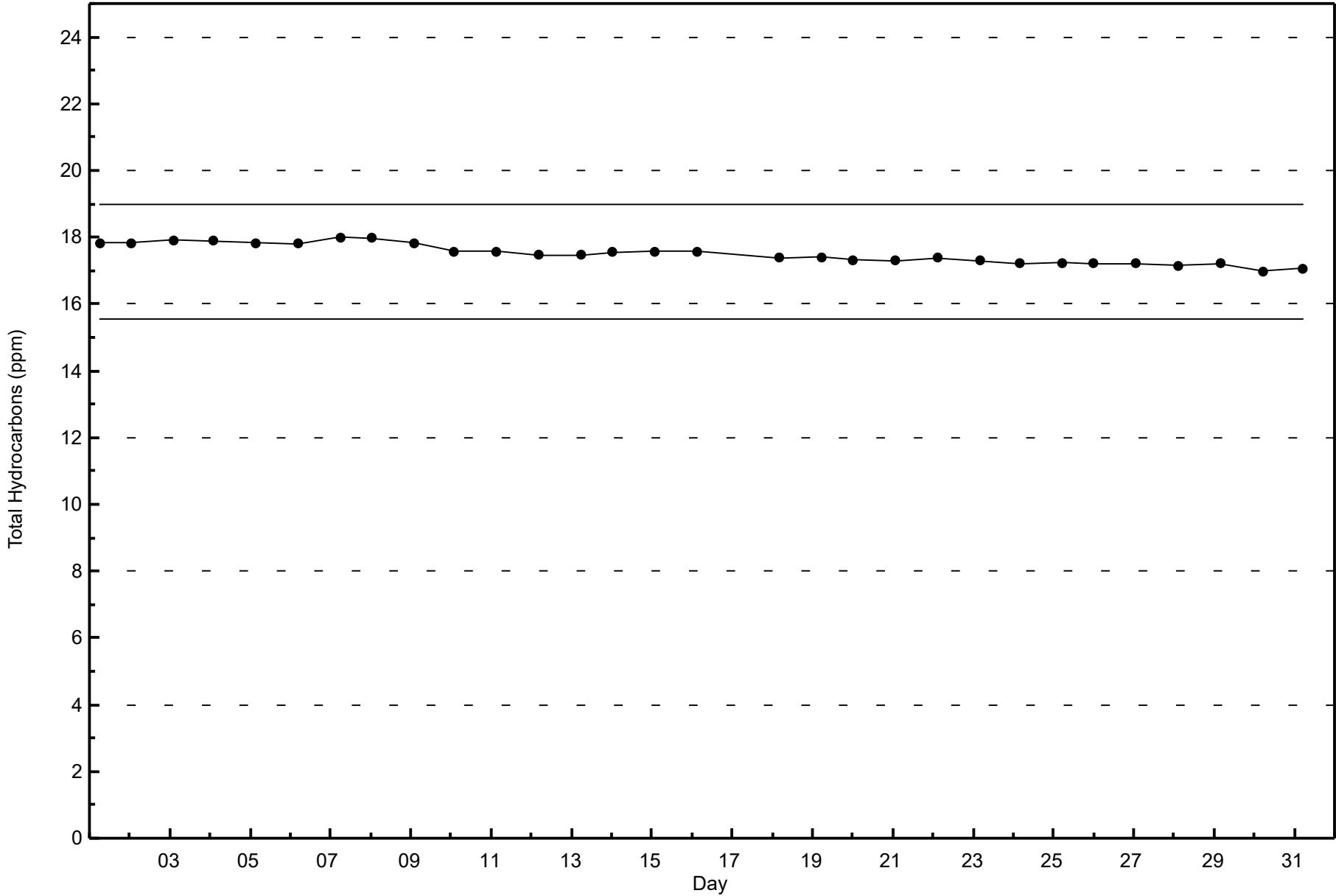




Wood Buffalo Environmental Association  
Zero Responses

Total Hydrocarbons (THC) - ppm  
Kirby South - January 2024



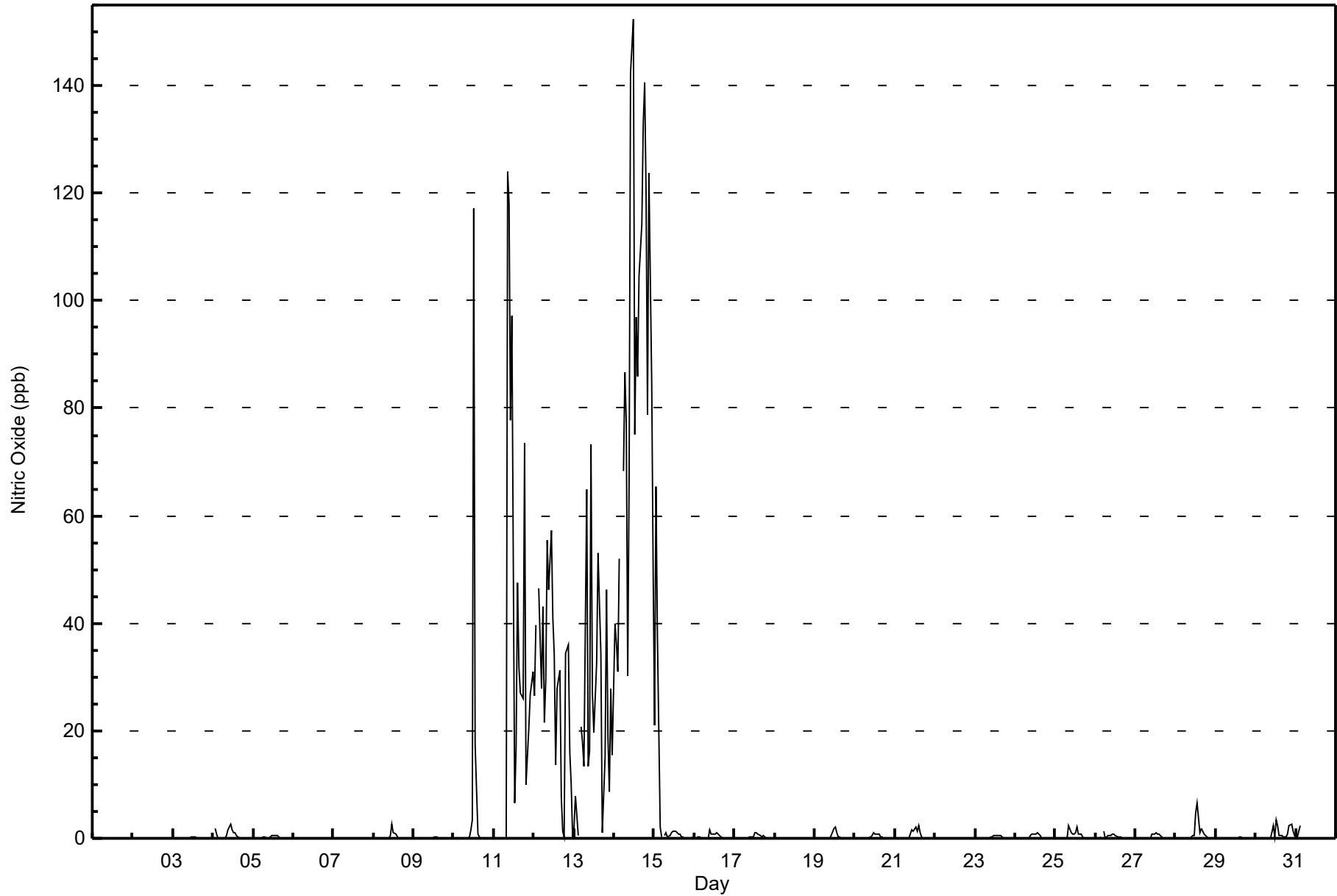






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Kirby South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Kirby South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	642	90.81	90.81
21 - 40	27	3.82	94.63
41 - 80	22	3.11	97.74
81 - 159	16	2.26	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Kirby South - January 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	30	49	45	36	19	12	12	37	80	79	55	43	41	34	33	639
21 - 40	5	0	0	1	0	0	0	1	0	0	0	0	1	4	6	9	27
11 - 80	5	0	2	1	2	0	0	0	0	0	0	0	0	2	5	5	22
81 - 159	2	3	0	0	0	0	0	0	0	0	0	0	0	1	6	4	16
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	46	33	51	47	38	19	12	13	37	80	79	55	44	48	51	51	704

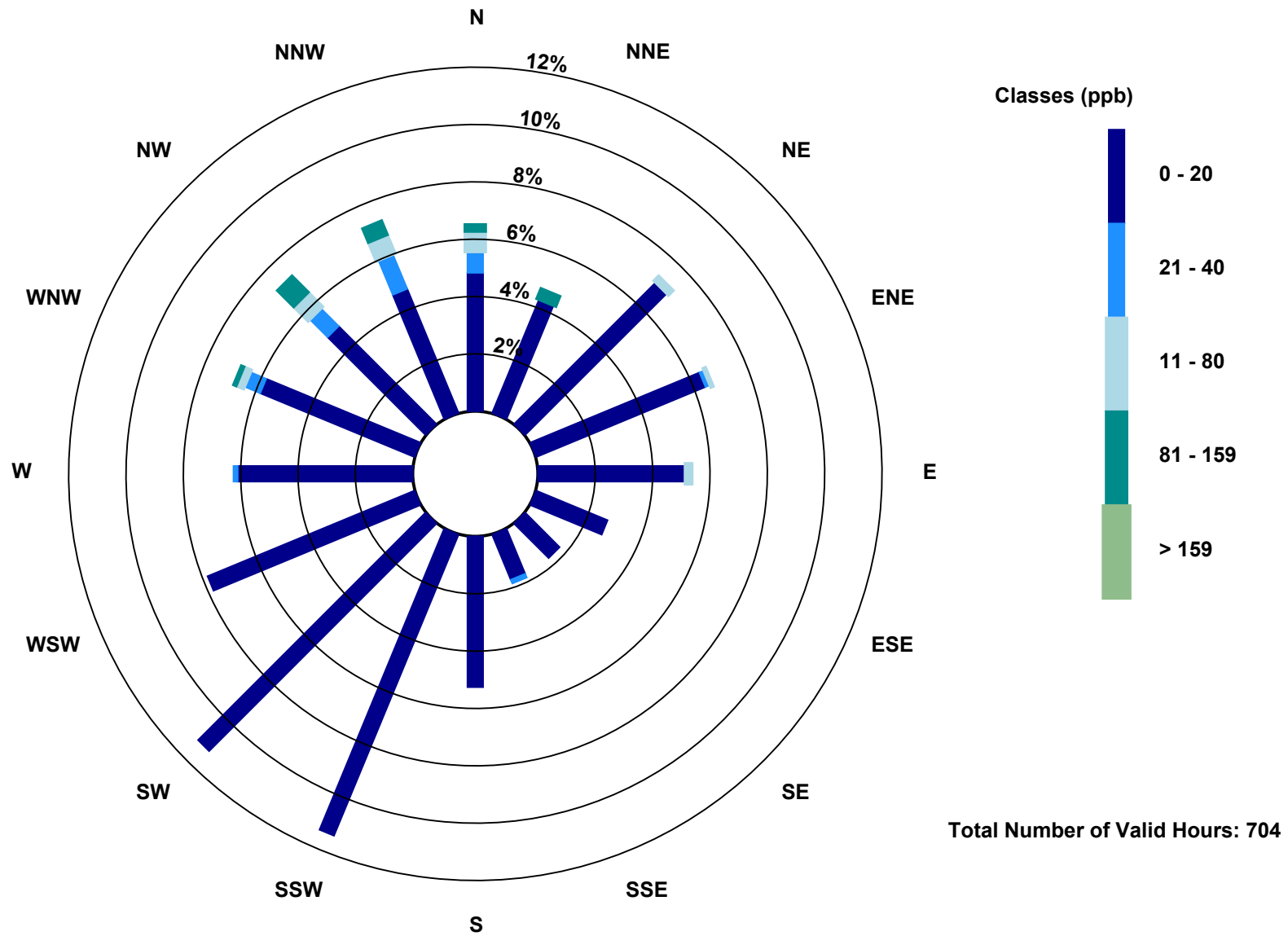
Total Number of Valid Hours: 704

Total Number of Hours: 744

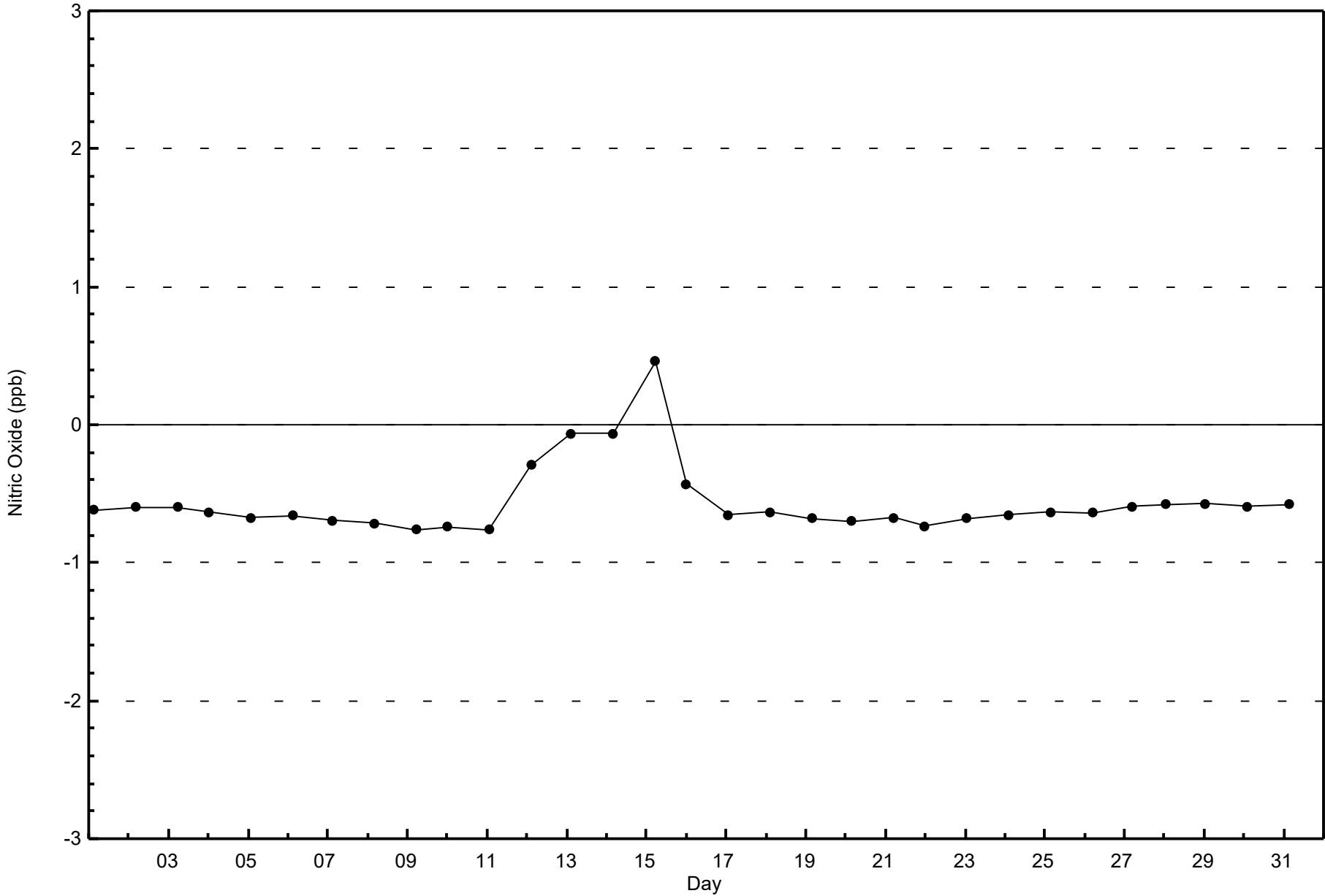


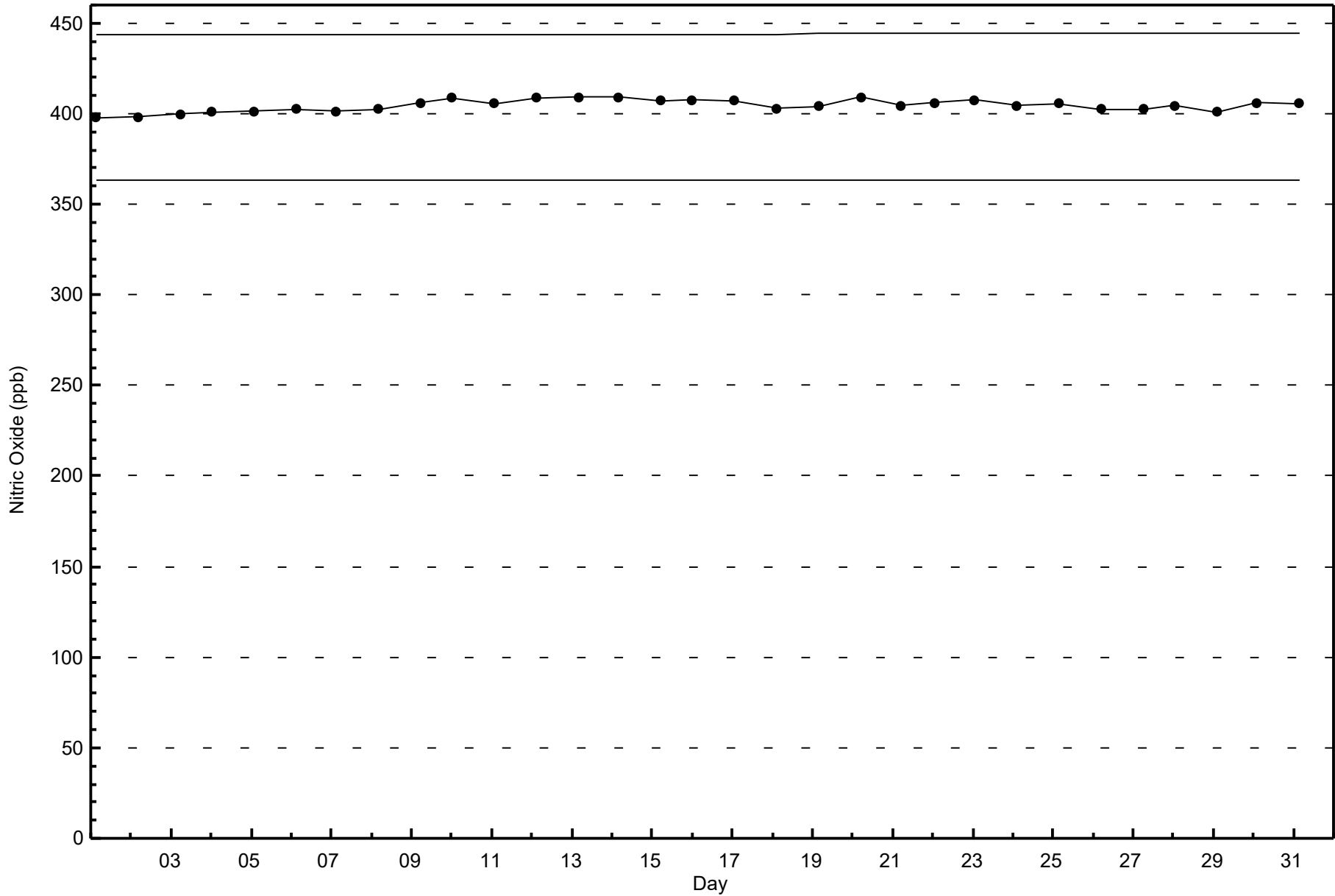
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitric Oxide (NO) - ppb  
Kirby South











# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

## Kirby South - January 2024

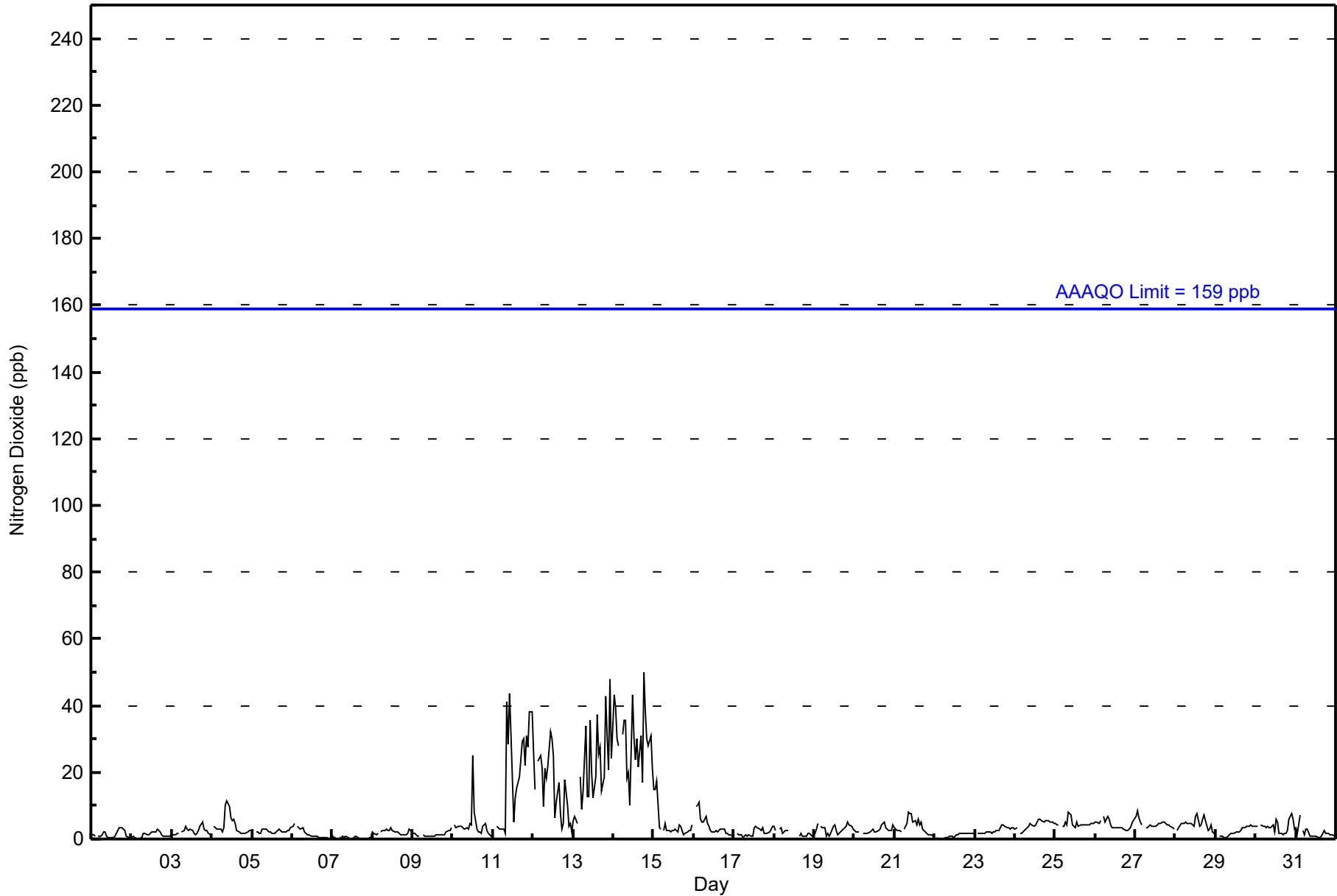
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 49.9 ppb on Jan 14 19:00		Maximum Daily Average: 29.8 ppb on Jan 14		Hours of Data: 707																	Hours of Missing Data: 37		Hours of Calibration: 37																										
Minimum Value: 0.2 ppb on Jan 2 04:00		Minimum Daily Average: 0.4 ppb on Jan 7		Hours of Calibration: 37																	Percent Operational Time: 100.0																												
Maximum Diurnal Average: 6.5 ppb at hour 11		Minimum Diurnal Average: 4.1 ppb at hour 5		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.6 Median = 2.7 Q <sub>3</sub> = 4.4 P <sub>90</sub> = 12.5 P <sub>99</sub> = 39.1																																													
Monthly Average: 5.27 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-Jan	1.4	1.4	0.9	Z	0.8	1.0	1.2	2.1	2.3	1.0	0.5	0.4	0.4	0.3	0.9	1.7	3.3	3.6	3.3	3.0	2.4	0.7	0.4	0.4	1.5	3.6																							
2-Jan	0.6	0.7	0.4	0.2	Z	0.3	0.6	1.5	1.7	1.2	1.2	1.9	2.1	2.1	2.3	2.8	2.6	2.0	1.3	1.0	1.0	0.8	1.0	0.9	1.3	2.8																							
3-Jan	1.2	1.3	1.4	1.7	1.9	Z	2.2	2.7	3.7	3.1	2.5	3.0	2.5	1.8	1.4	1.7	2.6	3.8	5.2	3.1	2.5	2.6	1.8	1.4	2.4	5.2																							
4-Jan	Z	3.7	3.2	3.1	3.1	2.8	2.0	3.2	10.1	11.5	9.6	6.2	5.4	6.0	4.7	2.4	2.1	1.8	1.6	1.7	1.8	2.2	2.4	2.6	4.1	11.5																							
5-Jan	2.7	Z	2.2	2.0	1.9	1.8	2.8	3.1	2.9	2.7	2.3	2.2	1.8	1.7	2.1	2.5	3.1	2.6	2.0	2.1	2.1	2.5	2.4	3.6	2.4	3.6																							
6-Jan	4.0	4.5	Z	4.0	3.2	2.9	3.3	2.3	1.5	1.3	1.1	0.9	0.8	1.0	1.0	0.7	0.6	0.6	0.4	0.4	0.3	0.3	0.2	0.2	1.5	4.5																							
7-Jan	0.7	0.6	0.3	Z	0.3	0.4	0.8	0.6	0.8	0.3	0.2	0.2	0.2	0.6	0.9	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.4	0.9																							
8-Jan	2.0	1.5	1.4	1.6	Z	2.3	2.5	2.7	2.8	2.7	2.5	3.6	2.5	2.1	2.1	2.0	1.8	1.1	1.1	1.1	1.3	1.7	2.9	2.1	2.1	3.6																							
9-Jan	1.8	1.7	1.4	0.9	1.0	Z	1.4	0.8	0.8	0.8	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.3	1.2	1.4	2.1	2.4	2.6	3.2	1.4	3.2																							
10-Jan	Z	4.3	3.5	4.0	4.0	3.7	3.3	3.0	3.4	2.9	4.6	4.3	25.2	8.0	3.0	2.1	2.0	1.6	3.9	4.5	2.4	1.5	1.1	0.9	4.2	25.2																							
11-Jan	0.9	Z	3.7	3.2	2.8	2.8	2.8	1.9	41.2	28.3	43.6	31.3	5.2	12.2	15.3	16.8	18.6	29.1	30.1	22.0	30.8	27.7	38.1	38.2	19.4	43.6																							
12-Jan	25.8	14.8	Z	23.2	25.2	21.7	9.7	21.1	18.4	21.8	32.4	30.1	24.8	6.4	10.9	16.8	7.5	2.9	4.5	17.7	10.0	3.9	4.7	2.3	15.5	32.4																							
13-Jan	5.4	6.7	4.5	Z	18.6	9.0	14.2	33.7	12.7	12.9	35.7	20.4	12.3	18.8	37.4	25.6	27.6	14.3	18.6	42.7	31.0	20.9	48.0	24.2	21.5	48.0																							
14-Jan	43.1	39.2	30.1	27.8	Z	31.2	35.8	35.5	18.3	20.0	10.3	43.3	30.2	23.6	30.1	21.8	30.8	16.8	49.9	38.3	29.9	28.0	30.9	21.0	29.8	49.9																							
15-Jan	14.8	14.9	17.2	3.4	2.9	Z	2.6	4.5	2.4	2.5	2.2	2.4	2.4	3.0	2.1	4.1	3.9	2.4	1.4	1.7	2.2	2.5	2.7	4.3	4.5	17.2																							
16-Jan	Z	9.9	10.0	10.9	5.9	4.9	4.9	6.7	4.8	3.9	2.7	2.2	2.3	2.4	2.2	2.6	2.8	3.0	3.0	1.6	1.5	1.2	1.4	1.0	4.0	10.9																							
17-Jan	1.1	Z	1.6	1.2	1.1	0.6	0.7	1.1	1.0	1.1	0.8	0.9	3.3	3.7	3.3	2.8	2.4	3.3	1.5	1.5	1.8	2.3	2.9	3.8	1.9	3.8																							
18-Jan	3.9	2.5	Z	2.8	3.6	1.8	2.2	2.5	2.5	C	C	C	C	C	C	0.8	1.5	1.0	0.8	0.7	1.6	1.7	1.4	0.8	--	3.9																							
19-Jan	1.9	3.0	4.5	Z	4.0	3.4	3.2	1.0	1.9	0.7	1.5	4.0	4.1	2.4	1.4	1.6	2.0	2.8	3.2	3.8	5.0	4.1	4.0	2.9	2.9	5.0																							
20-Jan	2.4	2.2	2.3	2.3	Z	1.6	1.5	1.6	1.8	2.1	2.7	3.0	2.1	2.3	2.5	2.8	4.2	4.5	5.0	3.6	2.7	2.4	2.5	4.3	2.7	5.0																							
21-Jan	3.3	2.5	2.4	2.4	2.0	Z	3.1	4.5	8.2	7.8	7.5	5.1	5.4	4.3	6.1	4.2	4.9	2.8	2.1	1.7	1.3	1.4	1.2	1.0	3.7	8.2																							
22-Jan	Z	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.3	1.0	0.8	0.3	0.9	1.1	1.2	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.5	1.5	1.0	1.7																							
23-Jan	1.6	Z	1.6	1.7	1.7	1.7	1.7	2.0	2.3	2.2	1.6	2.0	2.1	2.4	2.4	3.4	4.3	4.2	3.9	3.3	3.2	3.1	3.2	3.3	2.6	4.3																							
24-Jan	3.0	3.2	Z	1.8	1.9	2.2	2.8	3.4	3.9	4.7	4.2	3.8	4.3	4.9	5.8	5.9	5.6	5.0	5.6	5.4	5.7	5.2	4.9	4.7	4.3	5.9																							
25-Jan	4.5	4.3	4.2	Z	4.0	4.0	5.2	4.2	8.1	7.2	4.2	3.7	3.6	5.1	3.9	4.4	4.2	4.2	4.3	4.2	4.3	4.6	4.8	4.8	4.6	8.1																							
26-Jan	5.0	5.1	4.8	5.6	Z	6.9	5.0	6.9	5.8	4.4	3.6	3.4	3.5	3.2	3.2	3.4	3.3	2.9	2.5	2.5	2.8	3.2	4.7	5.6	4.2	6.9																							
27-Jan	6.8	8.4	6.5	4.9	4.4	Z	3.4	3.6	3.8	4.2	3.9	3.8	3.9	4.2	4.7	4.8	5.0	5.0	4.8	4.4	4.2	3.8	3.3	3.1	4.6	8.4																							
28-Jan	Z	2.6	3.6	4.7	4.7	4.6	4.9	4.6	4.5	4.5	4.3	3.8	6.9	7.8	3.7	4.4	6.1	7.4	5.7	2.6	3.0	4.4	2.1	1.9	4.5	7.8																							
29-Jan	1.5	Z	1.0	0.9	0.8	0.6	0.6	0.7	1.3	1.7	1.8	1.9	2.0	2.1	2.2	2.7	3.2	3.5	3.7	3.9	4.0	4.1	3.9	4.0	2.3	4.1																							
30-Jan	3.8	3.7	Z	4.2	3.9	4.0	3.6	3.8	3.5	3.5	4.3	2.2	5.9	4.9	1.5	1.8	1.4	1.7	1.5	2.7	5.8	7.6	6.0	3.0	3.7	7.6																							
31-Jan	3.6	1.9	7.3	Z	2.5	1.3	3.0	3.0	0.9	0.7	0.8	0.8	0.8	0.6	0.6	0.8	1.5	2.6	1.8	1.7	1.1	1.3	1.2	1.0	1.8	7.3																							
																								5.6	5.6	4.6	4.7	4.1	4.5	4.2	5.4	5.7	5.4	6.5	6.4	5.6	4.7	5.3	4.9	5.2	4.5	5.7	6.0	5.5	4.8	6.1	4.9	Diurnal Average	
																								43.1	39.2	30.1	27.8	25.2	31.2	35.8	35.5	41.2	28.3	43.6	43.3	30.2	23.6	37.4	25.6	30.8	29.1	49.9	42.7	31.0	28.0	48.0	38.2	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**  
**Kirby South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	657	92.93	92.93
21 - 40	43	6.08	99.01
41 - 80	7	0.99	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South - January 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	33	30	48	45	36	19	12	13	37	80	79	55	44	46	42	35	654
21 - 40	11	2	2	2	2	0	0	0	0	0	0	0	0	2	8	14	43
41 - 80	2	1	1	0	0	0	0	0	0	0	0	0	0	0	1	2	7
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>	46	33	51	47	38	19	12	13	37	80	79	55	44	48	51	51	704

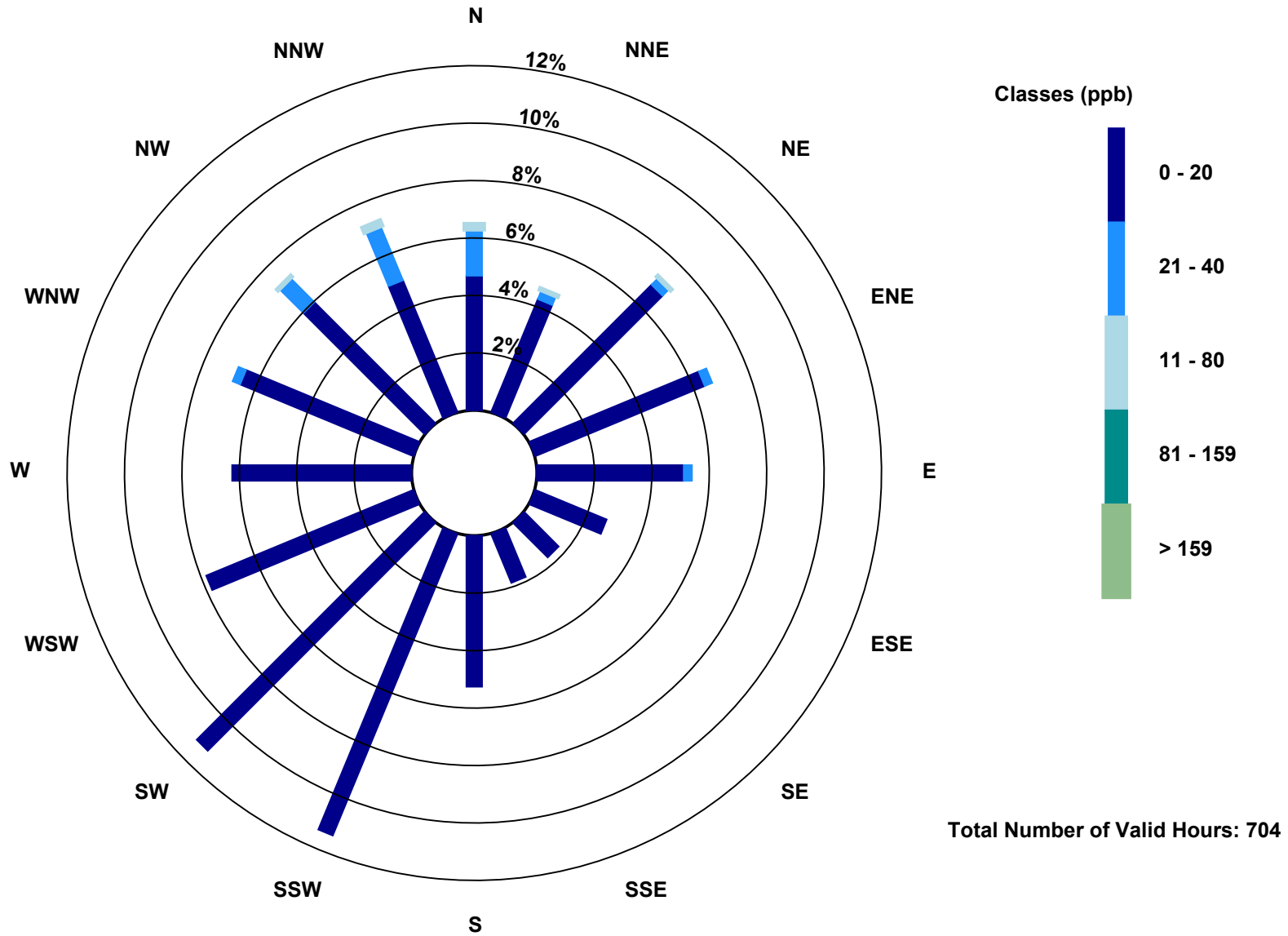
Total Number of Valid Hours: 704

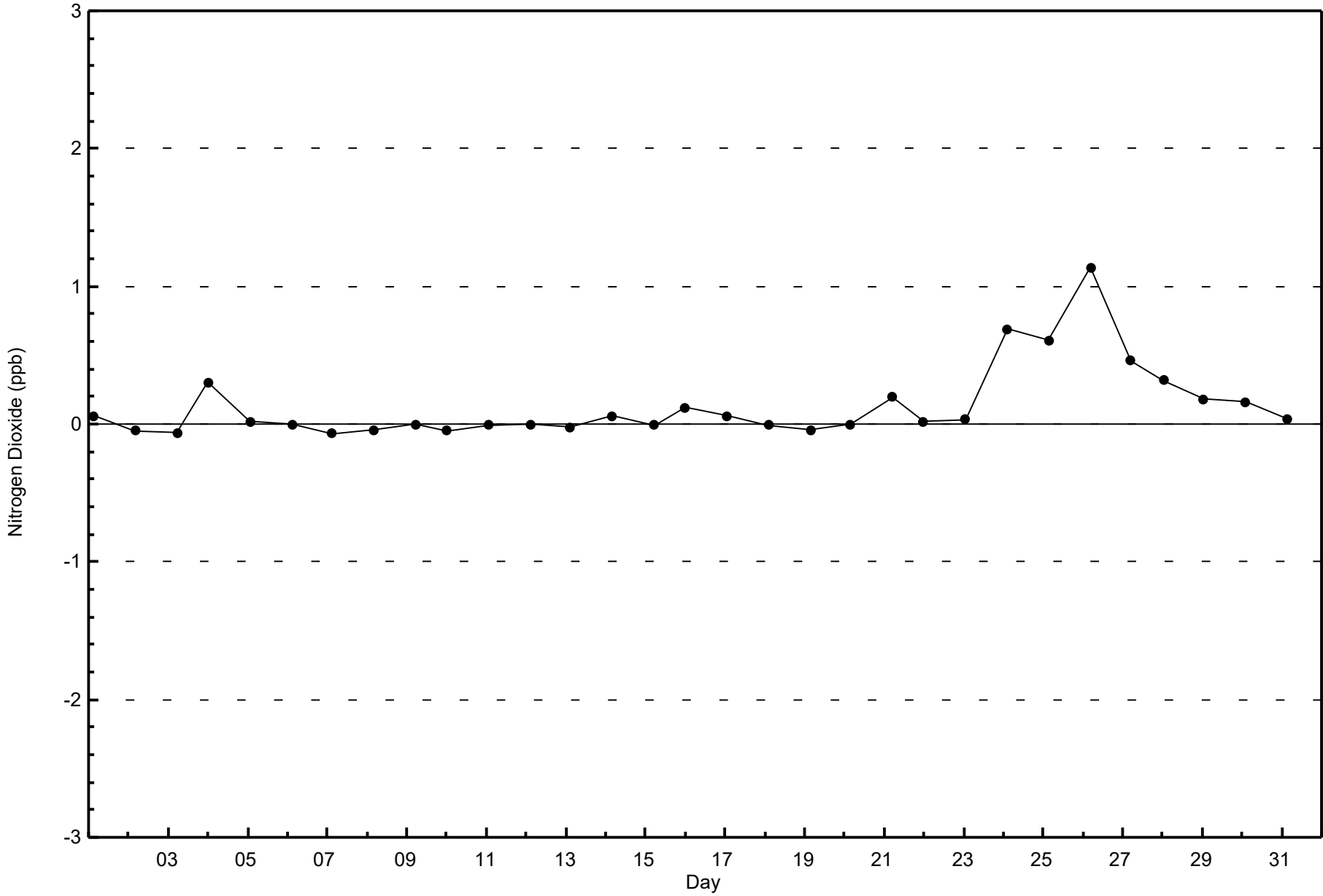
Total Number of Hours: 744



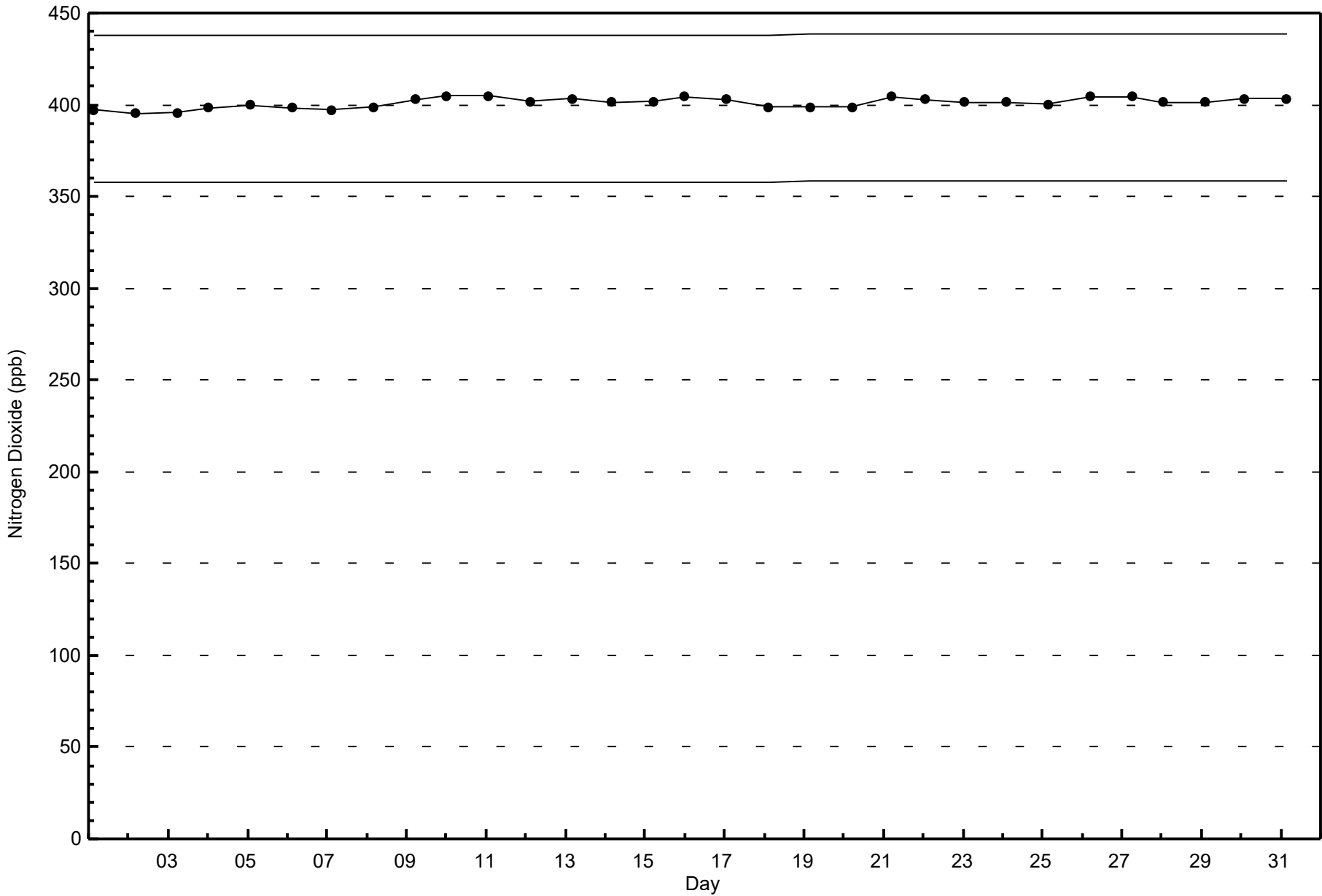
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South











**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

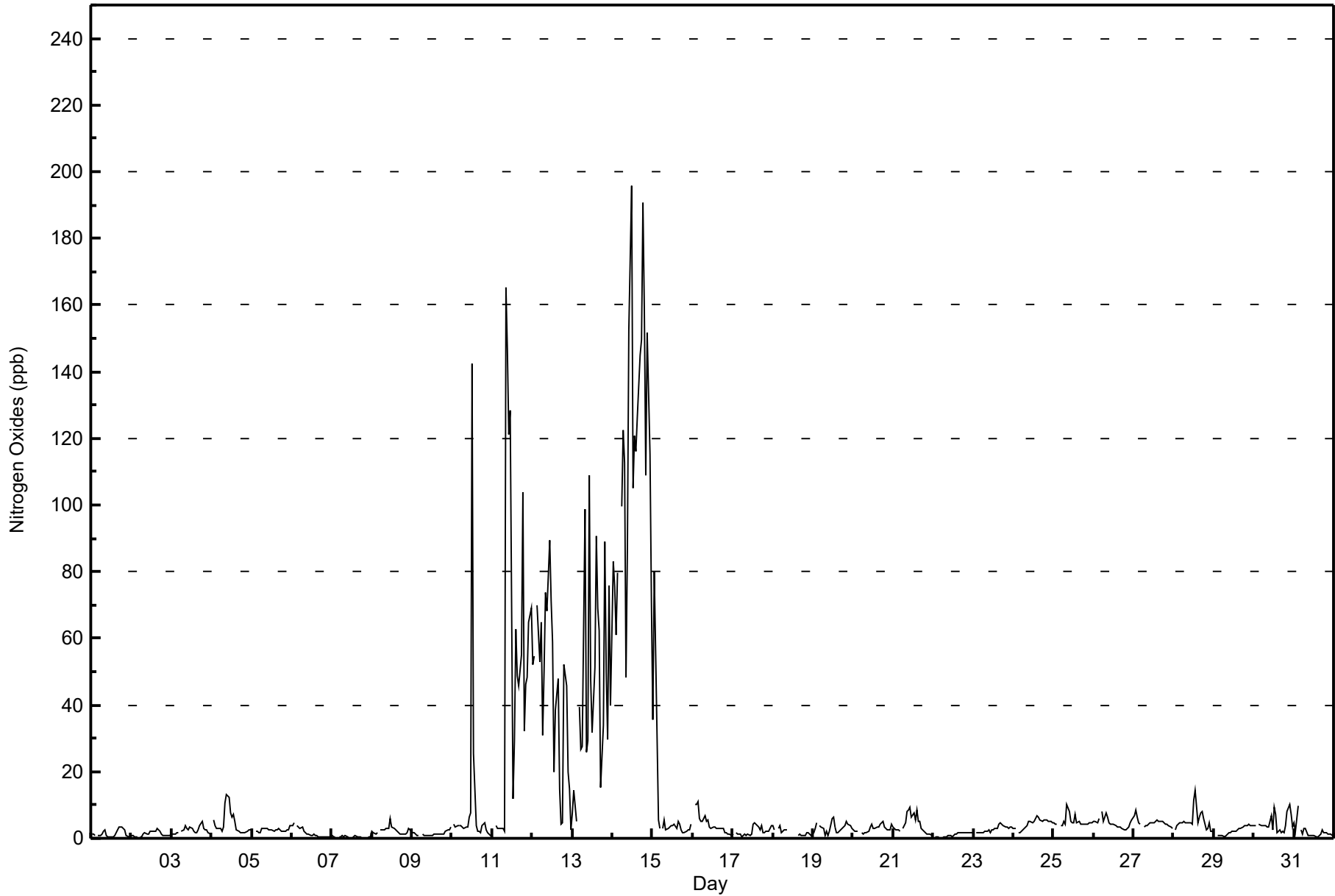
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - January 2024**

Maximum Value: 195.6 ppb on Jan 14 12:00      Maximum Daily Average: 116.4 ppb on Jan 14 Minimum Value: 0.2 ppb on Jan 7 19:00      Minimum Daily Average: 0.4 ppb on Jan 7 Maximum Diurnal Average: 18.7 ppb at hour 11      Minimum Diurnal Average: 6.0 ppb at hour 5 Monthly Average: 11.44 ppb      Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.6 Median = 3.0 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 30.2 P <sub>99</sub> = 146.4																						Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Jan	1.4	1.4	0.9	Z	0.8	1.0	1.2	2.1	2.3	1.0	0.5	0.4	0.4	0.3	0.9	1.7	3.3	3.6	3.3	3.0	2.4	0.7	0.4	0.4	1.5	3.6
2-Jan	0.6	0.7	0.4	0.2	Z	0.3	0.6	1.5	1.7	1.2	1.2	2.0	2.2	2.1	2.3	2.8	2.6	2.0	1.3	1.0	1.0	0.8	1.0	0.9	1.3	2.8
3-Jan	1.2	1.3	1.4	1.7	1.9	Z	2.2	2.7	3.7	3.1	2.6	3.3	2.8	2.0	1.5	1.7	2.6	3.8	5.2	3.1	2.5	2.6	1.8	1.4	2.4	5.2
4-Jan	Z	5.5	3.9	3.1	3.1	2.8	2.0	3.2	10.6	13.0	12.1	7.8	6.5	7.0	5.2	2.6	2.1	1.8	1.6	1.7	1.8	2.2	2.4	2.6	4.6	13.0
5-Jan	2.7	Z	2.2	2.0	1.9	1.8	3.1	3.2	2.9	2.8	2.7	2.5	2.2	2.5	2.7	3.1	2.6	2.0	2.1	2.1	2.5	2.4	3.6	2.5	3.6	
6-Jan	4.0	4.5	Z	4.0	3.2	2.9	3.3	2.3	1.5	1.3	1.1	0.9	0.8	1.1	1.0	0.7	0.6	0.4	0.4	0.3	0.3	0.2	0.2	1.5	4.5	
7-Jan	0.7	0.6	0.3	Z	0.3	0.4	0.8	0.6	0.8	0.3	0.2	0.2	0.2	0.6	1.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.4	1.0
8-Jan	2.0	1.5	1.4	1.6	Z	2.3	2.5	2.7	2.8	2.8	3.0	6.1	3.6	2.8	2.5	2.1	1.8	1.1	1.1	1.1	1.3	1.7	2.9	2.1	2.3	6.1
9-Jan	1.8	1.7	1.4	0.9	1.0	Z	1.4	0.8	0.8	0.8	0.8	0.9	1.0	1.2	1.3	1.2	1.1	1.3	1.2	1.4	2.1	2.4	2.6	3.2	1.4	3.2
10-Jan	Z	4.3	3.5	4.0	4.0	3.7	3.3	3.0	3.4	3.3	6.3	7.6	142.4	25.4	3.8	2.3	2.0	1.6	3.9	4.5	2.4	1.5	1.1	0.9	10.4	142.4
11-Jan	0.9	Z	3.7	3.2	2.8	2.8	2.8	1.9	165.1	146.4	121.3	128.6	11.7	29.3	62.9	48.6	45.7	55.1	103.8	32.0	46.0	48.3	64.8	69.1	52.0	165.1
12-Jan	52.3	54.6	Z	69.8	53.1	64.9	31.1	50.6	73.8	68.0	89.6	71.0	59.0	20.1	38.7	48.0	15.0	4.3	4.8	52.2	45.9	19.9	14.7	2.7	43.7	89.6
13-Jan	7.4	14.5	5.0	Z	39.4	26.8	27.6	98.5	26.0	29.3	108.9	47.5	32.0	51.3	90.5	69.2	62.1	15.3	33.8	88.8	49.9	29.6	75.8	39.8	46.5	108.9
14-Jan	83.0	75.5	61.1	79.7	Z	99.6	122.5	112.6	48.4	87.2	152.7	195.6	105.3	120.6	116.1	126.3	145.1	149.7	190.6	158.0	108.7	151.6	115.2	71.1	116.4	195.6
15-Jan	35.8	80.3	55.4	5.4	3.1	Z	3.1	5.5	2.7	3.1	3.2	3.7	3.7	4.4	2.9	4.9	4.2	2.5	1.5	1.8	2.2	2.5	2.7	4.4	10.4	80.3
16-Jan	Z	10.3	10.2	11.2	6.0	5.0	4.9	6.8	4.9	5.3	3.4	2.9	3.2	3.4	3.0	3.1	3.0	3.1	3.1	1.6	1.5	1.2	1.4	1.0	4.3	11.2
17-Jan	1.1	Z	1.6	1.2	1.1	0.6	0.7	1.1	1.0	1.4	0.9	1.1	4.3	4.7	4.2	3.4	2.7	3.7	1.6	1.6	1.9	2.3	2.9	3.8	2.1	4.7
18-Jan	3.9	2.5	Z	2.8	3.6	1.8	2.2	2.5	2.5	C	C	C	C	C	C	0.8	1.5	1.0	0.8	0.7	1.6	1.7	1.4	0.8	--	3.9
19-Jan	1.9	3.0	4.5	Z	4.0	3.4	3.2	1.0	2.0	0.8	2.0	5.9	6.2	3.4	1.7	1.8	2.0	2.8	3.2	3.8	5.0	4.1	4.0	2.9	3.1	6.2
20-Jan	2.4	2.2	2.3	2.3	Z	1.6	1.5	1.6	1.8	2.2	3.3	4.1	2.8	3.0	3.2	3.2	4.3	4.5	5.0	3.6	2.7	2.4	2.5	4.3	2.9	5.0
21-Jan	3.3	2.5	2.4	2.4	2.0	Z	3.1	4.5	8.2	8.6	9.2	6.3	7.6	5.6	8.4	5.1	5.3	2.8	2.1	1.7	1.3	1.4	1.2	1.0	4.2	9.2
22-Jan	Z	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.3	1.0	0.8	0.3	0.9	1.1	1.2	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.5	1.5	1.0	1.7
23-Jan	1.6	Z	1.6	1.7	1.7	1.7	1.7	2.0	2.3	2.4	1.8	2.4	2.7	3.0	2.8	4.1	4.5	4.2	4.0	3.4	3.2	3.1	3.2	3.3	2.7	4.5
24-Jan	3.0	3.2	Z	1.8	1.9	2.2	2.8	3.4	3.9	5.1	5.0	4.6	5.2	5.8	6.6	6.5	5.7	5.0	5.6	5.4	5.7	5.2	4.9	4.7	4.5	6.6
25-Jan	4.5	4.3	4.2	Z	4.0	4.0	5.2	4.3	10.3	8.2	5.0	4.6	4.8	7.2	4.6	5.1	4.4	4.2	4.3	4.2	4.3	4.6	4.8	4.8	5.0	10.3
26-Jan	5.0	5.1	4.8	5.8	Z	8.2	5.0	7.5	6.2	4.9	4.3	4.1	4.1	3.6	3.5	3.5	3.3	2.9	2.5	2.5	2.8	3.2	4.7	5.6	4.5	8.2
27-Jan	6.8	8.4	6.5	4.9	4.4	Z	3.4	3.6	3.8	4.3	4.6	4.7	4.8	5.0	5.5	5.2	5.1	5.0	4.8	4.4	4.2	3.8	3.3	3.1	4.8	8.4
28-Jan	Z	2.6	3.6	4.7	4.7	4.6	4.9	4.6	4.5	4.8	4.8	4.3	11.6	14.4	4.8	6.2	7.5	8.1	6.1	2.6	3.0	4.5	2.1	1.9	5.3	14.4
29-Jan	1.5	Z	1.0	0.9	0.8	0.6	0.6	0.7	1.3	1.7	1.8	2.0	2.1	2.2	2.4	2.9	3.2	3.5	3.7	3.9	4.0	4.1	3.9	4.0	2.3	4.1
30-Jan	3.8	3.7	Z	4.2	3.9	4.0	3.6	3.8	3.5	3.5	6.6	2.4	9.3	7.4	1.9	2.4	1.6	2.1	1.8	3.6	8.2	10.2	7.2	3.5	4.4	10.2
31-Jan	4.5	2.2	9.6	Z	2.6	1.3	3.0	3.0	0.9	0.7	0.8	0.8	0.8	0.6	0.6	0.8	1.5	2.6	1.8	1.7	1.1	1.3	1.2	1.0	1.9	9.6
9.1 11.4 7.4 8.8 6.0 9.5 8.2 11.0 13.0 14.0 18.7 17.6 14.8 11.4 12.9 12.0 11.2 9.8 13.1 12.8 10.4 10.4 10.9 8.1																								Diurnal Average		
83.0 80.3 61.1 79.7 53.1 99.6 122.5 112.6 165.1 146.4 152.7 195.6 142.4 120.6 116.1 126.3 145.1 149.7 190.6 158.0 108.7 151.6 115.2 71.1																								Diurnal Maximum		
Z - zerospan      C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	629	88.97	88.97
21 - 40	15	2.12	91.09
41 - 80	34	4.81	95.90
81 - 159	26	3.68	99.58
> 159	3	0.42	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South - January 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	28	48	42	36	19	12	12	37	80	79	55	43	39	33	32	627
21 - 40	1	2	0	3	0	0	0	1	0	0	0	0	0	3	3	1	14
41 - 80	8	0	1	2	0	0	0	0	0	0	0	0	1	5	7	10	34
81 - 159	4	2	2	0	2	0	0	0	0	0	0	0	0	1	7	8	26
> 159	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
<b>Totals</b>	46	33	51	47	38	19	12	13	37	80	79	55	44	48	51	51	704

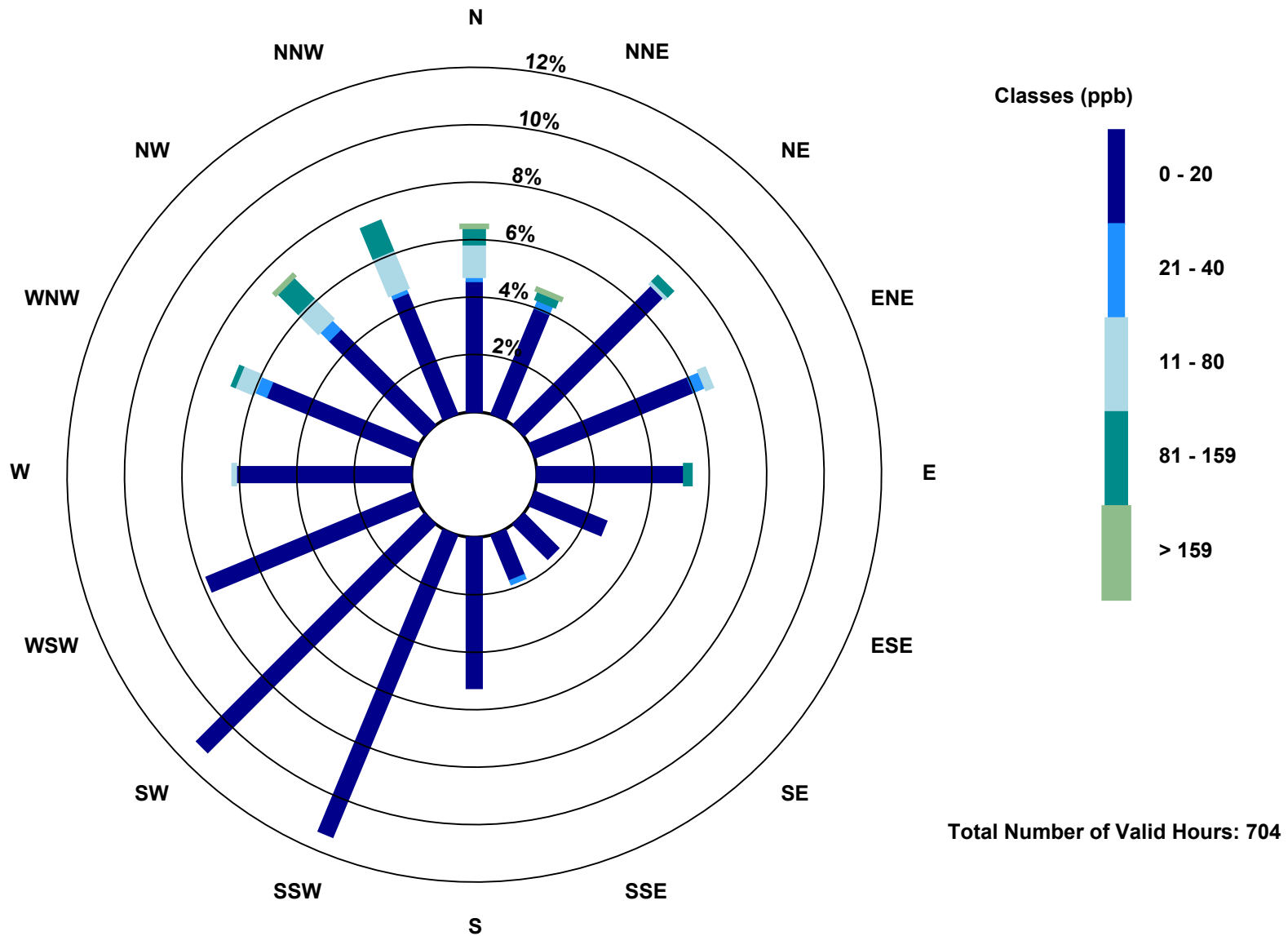
Total Number of Valid Hours: 704

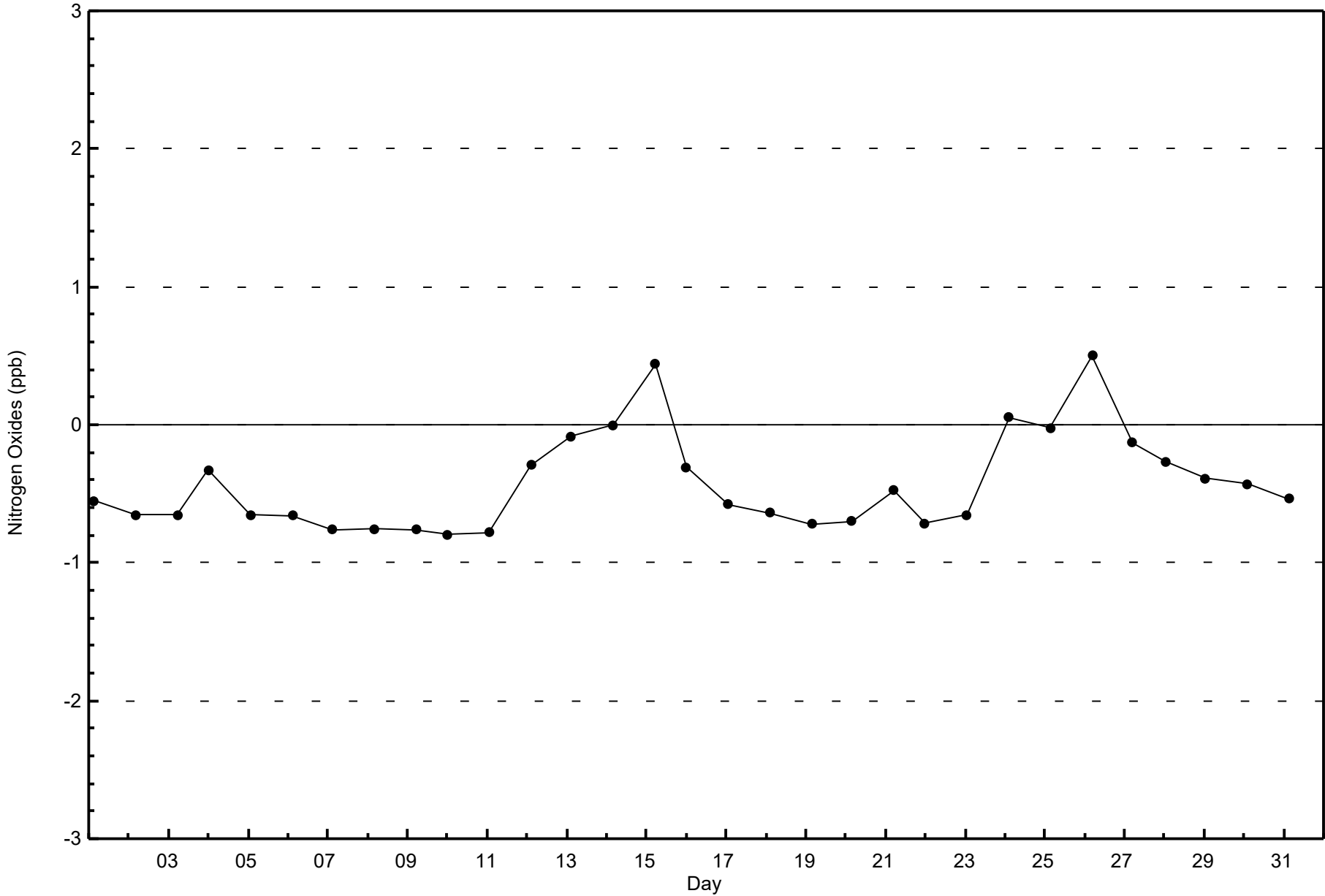
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Oxides ( $\text{NO}_x$ ) - ppb  
Kirby South

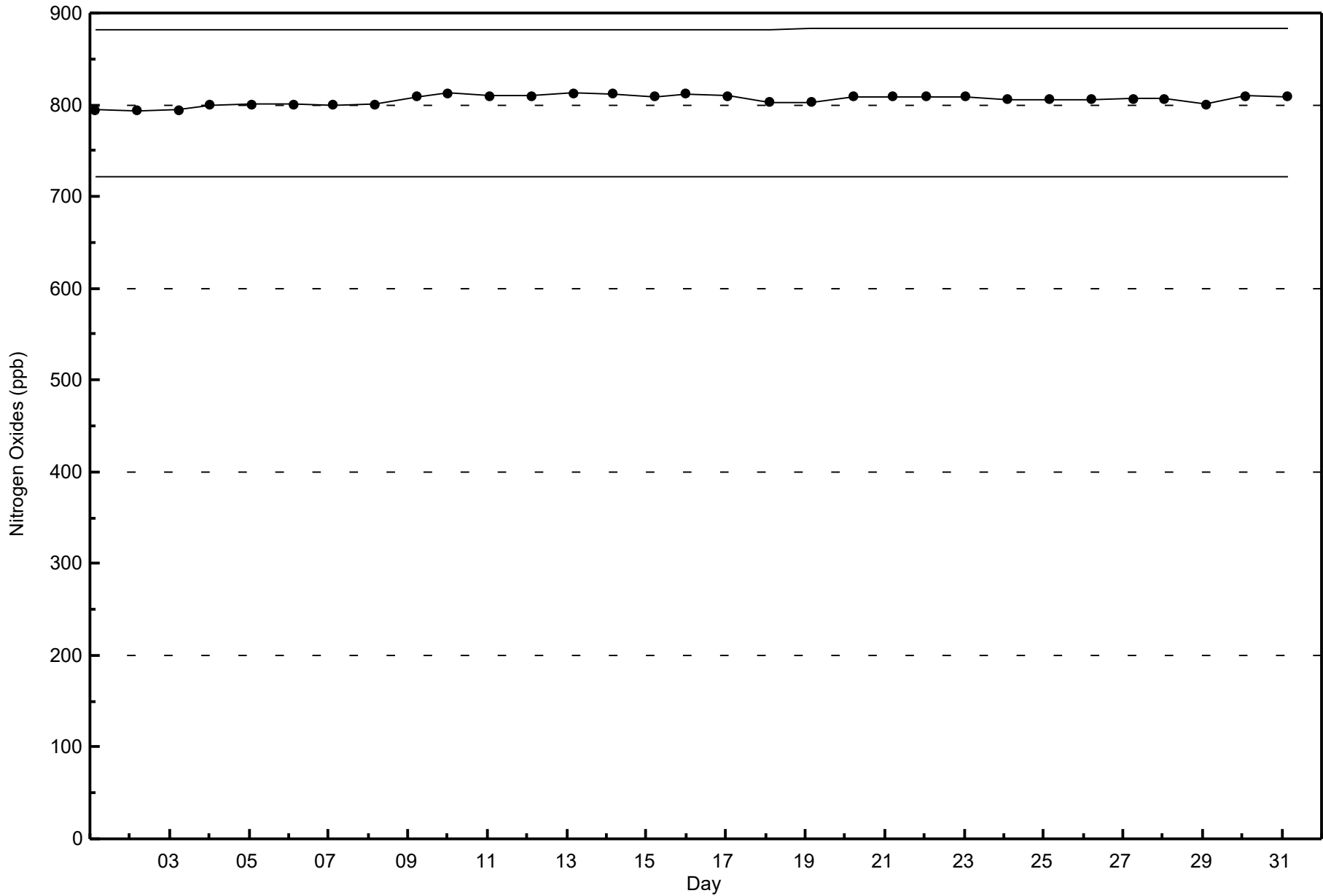






Wood Buffalo Environmental Association  
Span Responses

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South - January 2024







**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Kirby South - January 2024**

Maximum Value: 10.3 C on Jan 30 16:00 Minimum Value: -40.1 C on Jan 13 06:00 Maximum Diurnal Average: -12.8 C at hour 15 Monthly Average: -15.43 C		Maximum Daily Average: 5.6 C on Jan 30 Minimum Daily Average: -36.8 C on Jan 12 Minimum Diurnal Average: -16.9 C at hour 9 Percentiles: $P_1 = -39.0$ $P_{10} = -31.9$ $Q_1 = -22.7$ Median = -16.4 $Q_3 = -7.1$ $P_{90} = 1.7$ $P_{99} = 8.1$		Hours in Service: 744 Hours of Data: 744 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-Jan	-2.6	-2.6	-2.2	-2.7	-3.6	-4.5	-5.4	-6.5	-6.4	-4.9	-4.1	-3.9	-4.0	-4.1	-4.2	-4.9	-5.9	-6.2	-6.3	-6.4	-6.2	-6.4	-6.5	-6.8	-4.9	-2.2
2-Jan	-7.5	-8.2	-8.7	-9.1	-9.6	-10.0	-10.6	-10.6	-10.7	-10.9	-11.0	-11.0	-10.9	-10.9	-10.8	-11.0	-11.3	-11.4	-11.6	-11.8	-11.9	-12.2	-12.0	-12.0	-10.7	-7.5
3-Jan	-11.1	-10.5	-10.2	-9.9	-9.7	-9.6	-9.4	-9.4	-9.1	-8.7	-8.2	-7.8	-6.8	-5.7	-5.4	-6.2	-8.0	-8.6	-9.3	-9.8	-10.2	-10.2	-9.9	-9.7	-8.9	-5.4
4-Jan	-9.4	-9.2	-9.0	-8.8	-8.8	-8.9	-9.4	-10.9	-12.6	-13.8	-13.6	-13.5	-13.4	-13.4	-13.7	-14.2	-14.4	-14.3	-14.2	-13.7	-13.3	-12.9	-12.7	-12.5	-12.1	-8.8
5-Jan	-12.4	-12.2	-11.9	-11.7	-11.6	-11.5	-11.1	-10.6	-11.4	-12.5	-13.4	-14.0	-14.1	-14.2	-13.9	-14.3	-13.9	-13.8	-13.4	-13.9	-14.3	-14.6	-14.5	-13.4	-13.0	-10.6
6-Jan	-13.0	-12.5	-12.4	-12.6	-12.6	-11.9	-11.2	-11.5	-11.8	-11.7	-11.5	-11.5	-11.6	-12.2	-13.1	-13.8	-14.3	-14.6	-15.2	-15.5	-16.3	-16.6	-17.0	-17.6	-13.4	-11.2
7-Jan	-17.9	-18.6	-19.1	-19.2	-19.2	-19.2	-19.5	-20.2	-20.5	-21.1	-21.5	-21.3	-20.8	-20.1	-20.1	-20.3	-20.6	-20.8	-20.6	-20.3	-20.1	-19.8	-19.4	-19.2	-20.0	-17.9
8-Jan	-19.7	-20.5	-20.8	-20.9	-20.6	-20.3	-19.9	-20.0	-19.6	-19.1	-18.6	-17.9	-16.8	-16.9	-17.1	-17.4	-17.6	-18.0	-19.1	-19.9	-20.5	-21.7	-21.9	-21.9	-19.4	-16.8
9-Jan	-21.9	-21.7	-21.8	-21.6	-21.7	-22.0	-22.0	-21.7	-21.7	-21.7	-21.4	-21.6	-21.9	-22.5	-23.1	-23.5	-23.9	-24.1	-24.7	-25.3	-25.7	-25.7	-25.9	-26.5	-23.1	-21.4
10-Jan	-26.9	-27.3	-28.0	-28.5	-28.8	-29.0	-29.5	-30.0	-30.4	-30.5	-30.1	-29.1	-27.9	-27.8	-28.3	-28.5	-28.9	-29.5	-29.8	-30.0	-30.2	-30.2	-30.4	-30.7	-29.2	-26.9
11-Jan	-31.1	-31.8	-31.9	-32.1	-32.5	-32.7	-33.2	-33.7	-33.8	-33.6	-33.0	-32.4	-31.9	-31.4	-31.0	-32.3	-32.6	-33.8	-34.8	-35.7	-36.1	-36.5	-36.8	-37.0	-33.4	-31.0
12-Jan	-37.4	-37.7	-38.4	-38.5	-38.9	-38.6	-39.1	-40.0	-39.6	-39.1	-36.8	-32.8	-31.8	-33.4	-32.8	-32.7	-35.4	-38.0	-38.8	-38.3	-35.9	-35.8	-36.8	-37.6	-36.8	-31.8
13-Jan	-37.1	-38.7	-39.4	-38.9	-39.7	-40.1	-39.4	-38.6	-38.8	-37.2	-30.6	-27.9	-29.4	-27.2	-26.1	-27.9	-30.3	-32.4	-34.0	-35.8	-36.6	-36.6	-36.5	-36.3	-34.8	-26.1
14-Jan	-35.8	-36.0	-36.2	-33.7	-33.3	-33.1	-32.2	-32.7	-33.6	-33.7	-30.1	-27.2	-25.9	-23.7	-24.8	-24.6	-26.7	-28.1	-29.0	-29.6	-30.0	-30.5	-30.5	-31.2	-30.5	-23.7
15-Jan	-32.0	-31.5	-31.8	-31.9	-31.4	-32.5	-33.6	-33.1	-32.2	-32.6	-30.0	-27.5	-25.6	-23.9	-22.4	-22.6	-24.4	-24.9	-25.6	-25.9	-26.6	-26.2	-26.2	-26.7	-28.4	-22.4
16-Jan	-27.4	-26.5	-26.1	-25.2	-23.0	-23.3	-23.6	-22.7	-22.2	-22.2	-21.3	-19.9	-19.9	-20.3	-20.3	-21.1	-22.0	-22.5	-22.5	-21.9	-21.8	-21.9	-22.4	-22.5	-19.9	
17-Jan	-22.6	-22.1	-21.6	-21.7	-21.7	-21.5	-21.9	-22.0	-22.5	-22.3	-22.0	-21.5	-21.0	-20.9	-21.1	-21.1	-22.3	-23.3	-23.7	-23.5	-24.2	-24.2	-23.4	-23.0	-22.3	-20.9
18-Jan	-22.7	-23.0	-23.1	-23.2	-23.2	-22.4	-22.8	-23.7	-24.5	-25.1	-24.4	-22.3	-20.7	-19.9	-19.7	-19.5	-20.8	-21.8	-22.1	-21.5	-21.5	-21.4	-21.5	-21.9	-22.2	-19.5
19-Jan	-22.9	-23.0	-22.9	-22.9	-23.2	-25.0	-25.6	-25.7	-25.7	-24.4	-21.8	-19.4	-17.5	-16.6	-16.4	-16.8	-17.4	-18.0	-18.7	-19.1	-19.0	-18.7	-18.4	-17.9	-20.7	-16.4
20-Jan	-17.6	-17.4	-17.7	-17.5	-17.1	-17.2	-17.2	-17.3	-17.6	-17.9	-17.7	-17.3	-16.4	-15.5	-15.1	-15.2	-16.1	-16.8	-17.1	-17.2	-17.5	-17.8	-17.5	-17.2	-17.0	-15.1
21-Jan	-16.6	-16.4	-16.3	-16.0	-15.9	-16.1	-16.3	-16.8	-17.2	-17.3	-17.2	-17.5	-17.7	-17.7	-18.3	-19.1	-19.9	-20.6	-20.8	-21.1	-21.1	-21.1	-20.9	-20.8	-18.3	-15.9
22-Jan	-20.7	-20.5	-20.4	-20.4	-20.3	-20.1	-20.0	-19.9	-19.7	-19.5	-18.9	-18.1	-17.6	-17.2	-17.0	-16.7	-16.6	-16.7	-16.9	-16.7	-16.3	-15.8	-15.4	-15.2	-18.2	-15.2
23-Jan	-15.0	-14.8	-14.7	-14.6	-14.5	-14.3	-14.2	-14.1	-13.9	-13.7	-12.8	-11.6	-10.6	-9.9	-9.2	-9.2	-9.9	-10.3	-10.3	-9.9	-9.9	-9.7	-9.7	-9.4	-11.9	-9.2
24-Jan	-9.6	-10.0	-10.5	-10.8	-10.7	-10.4	-9.8	-9.2	-8.9	-8.5	-8.2	-7.6	-6.8	-5.9	-5.5	-4.8	-4.4	-4.1	-4.7	-6.0	-6.7	-7.0	-7.8	-8.3	-7.8	-4.1
25-Jan	-8.8	-9.4	-9.9	-10.5	-10.5	-11.0	-11.9	-13.7	-12.4	-10.5	-9.3	-9.0	-8.1	-7.1	-6.8	-6.9	-7.1	-7.8	-8.5	-8.5	-8.5	-8.5	-7.8	-7.0	-9.1	-6.8
26-Jan	-6.3	-6.5	-7.2	-6.6	-4.9	-4.8	-6.7	-5.3	-4.8	-5.0	-3.5	-1.4	0.6	2.4	3.3	3.0	0.9	0.6	0.3	-0.6	-0.9	-1.3	-1.9	-2.2	-2.4	3.3
27-Jan	-2.1	-2.8	-3.3	-3.2	-3.9	-3.7	-3.6	-3.9	-4.0	-3.9	-2.8	-0.8	1.5	3.4	4.1	4.0	1.6	0.2	-0.5	-0.6	-0.7	-0.6	-0.4	-0.8	-1.1	4.1
28-Jan	-0.4	0.5	0.4	1.6	1.6	1.0	-0.7	-1.2	-1.1	-0.3	0.1	2.5	5.7	7.3	7.6	7.3	6.2	5.1	4.3	3.4	3.1	2.2	1.7	1.7	2.5	7.6
29-Jan	0.4	-0.5	-0.9	-0.7	-0.5	0.9	0.5	1.0	1.6	2.7	2.8	3.6	3.9	4.4	4.8	4.5	3.2	2.4	1.9	1.6	1.7	1.3	1.8	2.3	1.9	4.8
30-Jan	2.1	2.0	2.7	4.5	4.3	2.1	2.0	2.1	2.7	3.1	4.5	8.0	9.2	9.8	10.3	10.3	9.6	8.6	7.7	7.0	6.3	5.8	4.8	4.5	5.6	10.3
31-Jan	4.0	3.3	2.9	2.2	1.8	1.8	0.9	0.3	-1.4	-0.5	2.0	4.6	7.0	7.9	9.0	8.2	6.2	5.6	5.0	5.0	5.3	5.1	5.1	4.4	4.0	9.0
																								Diurnal Average		
																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Kirby South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Kirby South - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	281	37.77	37.77
-20 - 0	365	49.06	86.83
0 - 10	96	12.90	99.73
10 - 20	2	0.27	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

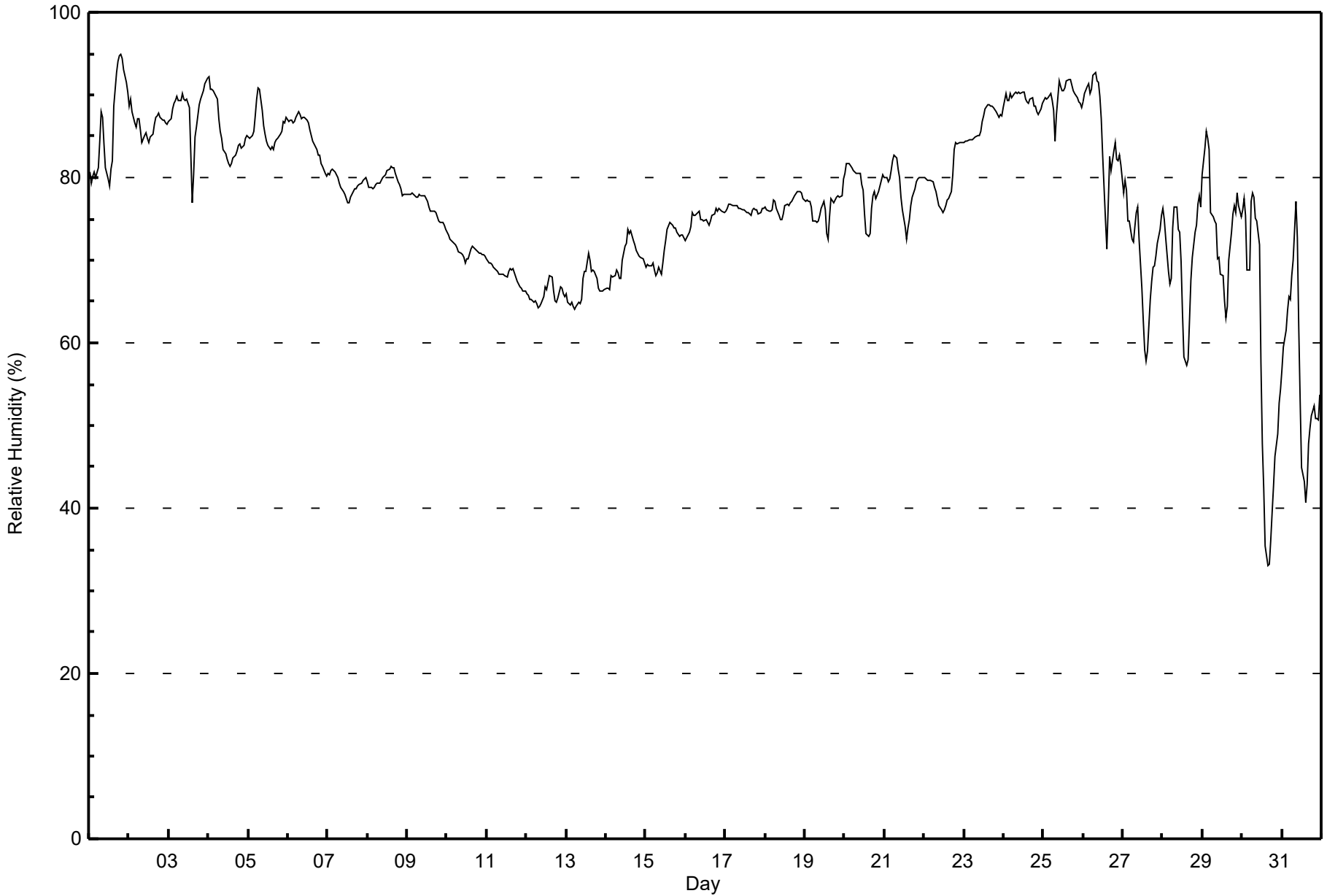
**Relative Humidity (RH) - %**  
**Kirby South - January 2024**

Maximum Value: 94.9 % on Jan 1 20:00      Maximum Daily Average: 89.8 % on Jan 25																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 33.1 % on Jan 30 16:00      Minimum Daily Average: 56.4 % on Jan 31 Maximum Diurnal Average: 78.7 % at hour 7      Minimum Diurnal Average: 73.4 % at hour 15 Monthly Average: 77.04 %      Percentiles: P <sub>1</sub> = 42.8 P <sub>10</sub> = 66.3 Q <sub>1</sub> = 71.7 Median = 77.4 Q <sub>3</sub> = 84.3 P <sub>90</sub> = 89.2 P <sub>99</sub> = 92.3																						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-Jan	80.7	79.4	80.1	80.7	80.0	81.1	84.4	88.0	87.3	84.1	81.2	79.8	79.1	81.0	82.0	88.6	92.8	94.2	94.8	94.9	94.4	93.1	91.6	90.3	86.0	94.9
2-Jan	88.7	89.5	88.0	86.7	86.1	87.2	87.2	85.8	84.2	85.1	85.5	84.7	84.3	84.9	85.3	86.5	87.3	87.5	87.8	87.2	86.9	87.0	86.7	86.5	86.5	89.5
3-Jan	86.8	87.2	88.3	88.9	89.3	89.8	89.3	89.4	90.2	89.6	89.3	89.5	88.4	82.9	77.0	80.3	85.0	86.1	88.7	89.4	90.1	90.5	91.3	92.1	87.9	92.1
4-Jan	92.3	90.6	90.6	90.5	90.2	89.5	87.2	85.6	84.7	83.3	82.9	82.2	81.7	81.3	81.6	82.3	82.6	83.3	83.8	84.0	83.5	83.9	84.8	85.1	85.3	92.3
5-Jan	85.0	84.8	85.0	85.6	87.5	89.5	90.9	90.7	88.1	86.3	85.3	84.3	83.9	83.4	83.7	83.5	84.2	84.6	84.7	85.3	85.5	86.7	86.7	87.3	85.9	90.9
6-Jan	86.8	87.0	86.9	86.7	86.7	87.3	87.9	87.6	87.2	87.3	87.3	87.0	86.7	85.8	85.1	84.3	84.1	83.4	82.7	82.7	81.6	81.3	80.5	80.2	85.2	87.9
7-Jan	80.4	80.4	80.8	81.0	80.7	80.3	80.0	79.3	78.9	78.3	77.9	77.4	77.0	77.0	77.7	78.3	78.6	78.7	78.9	79.1	79.3	79.6	79.8	80.0	79.1	81.0
8-Jan	79.5	78.9	78.8	78.7	78.9	79.1	79.4	79.3	79.7	80.0	80.2	80.4	80.8	81.1	81.3	81.2	81.2	80.5	79.4	79.1	78.6	77.8	78.0	78.0	79.6	81.3
9-Jan	78.0	78.0	78.0	78.1	77.9	77.6	77.7	77.9	77.9	77.8	77.8	77.5	77.1	76.5	75.9	76.0	76.0	75.8	75.2	74.7	74.5	74.5	74.2	73.8	76.6	78.1
10-Jan	73.4	73.1	72.6	72.3	72.1	71.9	71.5	71.1	70.9	70.7	70.4	69.7	70.2	70.2	71.4	71.7	71.5	71.3	71.1	70.9	70.8	70.7	70.6	70.4	71.3	73.4
11-Jan	70.1	69.6	69.7	69.4	69.2	69.1	68.7	68.4	68.3	68.3	68.3	68.1	67.9	68.7	68.9	68.8	69.0	68.1	67.5	67.0	66.8	66.6	66.3	66.2	68.3	70.1
12-Jan	65.9	65.7	65.3	65.3	65.0	65.1	64.8	64.3	64.5	64.7	65.6	66.7	66.5	67.3	68.1	68.0	66.3	65.1	64.9	65.3	66.8	66.6	66.0	65.6	65.8	68.1
13-Jan	66.0	64.8	64.5	64.9	64.4	64.0	64.5	64.9	64.7	65.2	67.9	68.7	70.8	70.0	68.7	68.8	68.7	67.8	66.6	66.2	66.2	66.3	66.4	66.7	66.7	70.8
14-Jan	66.7	66.5	66.4	68.1	68.0	68.2	68.8	68.5	67.8	67.8	70.1	71.7	72.0	73.8	73.3	73.5	72.4	71.9	71.2	70.9	70.6	70.3	70.2	69.7	69.9	73.8
15-Jan	69.2	69.5	69.3	69.3	69.7	68.8	68.2	68.6	69.1	68.4	69.6	71.1	72.4	73.6	74.5	74.5	74.2	73.9	73.8	73.4	72.9	73.1	73.0	72.7	71.4	74.5
16-Jan	72.4	73.0	73.3	74.0	75.8	75.4	75.3	75.8	75.9	74.9	75.0	74.7	74.9	74.6	74.2	74.7	75.3	75.7	76.2	76.0	76.2	76.1	76.0	75.8	75.1	76.2
17-Jan	76.0	76.3	76.8	76.7	76.5	76.6	76.6	76.5	76.3	76.3	76.1	76.1	76.0	75.7	75.7	75.4	76.0	76.3	76.2	76.1	75.6	75.7	76.2	76.3	76.2	76.8
18-Jan	76.4	76.1	75.9	75.9	76.2	77.3	77.1	76.3	75.5	74.9	74.9	75.5	76.6	76.7	76.6	76.9	77.1	77.5	77.8	78.3	78.2	78.3	78.1	77.5	76.7	78.3
19-Jan	77.1	77.2	77.0	77.1	76.4	74.7	74.7	74.5	74.7	75.4	76.3	77.1	76.1	73.2	72.5	75.3	77.4	77.0	77.2	77.7	77.8	77.6	77.8	79.8	76.3	79.8
20-Jan	80.4	81.7	81.8	81.6	81.2	80.9	80.7	80.5	80.4	80.4	79.2	78.5	75.6	73.2	72.9	73.3	76.3	77.8	78.2	77.5	78.3	79.0	79.7	80.3	78.7	81.8
21-Jan	80.1	80.0	79.6	79.8	80.8	82.1	82.7	82.3	81.1	80.0	77.7	76.1	74.0	72.6	73.9	74.9	76.6	77.7	78.6	79.5	79.8	80.0	79.9	79.9	78.7	82.7
22-Jan	80.0	79.8	79.7	79.6	79.7	79.5	78.9	78.3	77.4	76.5	76.0	75.8	76.1	76.6	77.3	77.4	78.3	80.3	83.3	84.2	84.2	84.2	84.3	84.2	79.7	84.3
23-Jan	84.3	84.4	84.4	84.5	84.5	84.6	84.7	84.9	85.0	85.2	85.6	86.7	87.5	88.3	88.9	88.8	88.6	88.6	88.5	88.1	87.6	87.3	87.6	87.5	86.5	88.9
24-Jan	88.5	90.2	89.4	89.3	90.1	89.6	90.1	90.4	90.2	90.3	90.2	90.3	90.4	89.5	89.1	89.0	89.5	89.7	88.6	88.0	87.6	88.3	89.0	89.4	89.4	90.4
25-Jan	89.4	89.6	89.4	89.7	90.2	89.3	88.2	84.4	87.6	91.7	91.0	90.5	90.5	90.9	91.7	91.8	91.8	91.3	90.6	90.2	89.6	89.2	89.0	88.5	89.8	91.8
26-Jan	89.1	90.1	91.0	91.3	90.2	90.7	92.3	91.6	91.5	89.9	87.0	82.7	74.9	71.3	76.8	82.5	80.9	83.2	84.2	82.2	82.0	82.8	81.5	85.5	92.8	
27-Jan	78.1	79.6	78.5	74.8	74.7	72.5	72.3	74.0	75.7	76.5	72.6	66.6	62.7	59.2	57.8	58.9	65.3	67.5	69.1	69.4	70.6	72.0	73.7	75.4	70.7	79.6
28-Jan	76.2	74.9	72.7	68.7	67.1	67.8	73.8	76.5	76.4	73.8	73.4	69.9	63.5	58.3	57.3	58.0	62.7	67.6	70.3	73.4	74.3	76.7	77.8	76.4	70.3	77.8
29-Jan	80.4	83.6	85.6	84.8	83.4	75.7	75.2	74.8	74.4	70.2	70.3	68.4	68.1	65.1	63.1	64.4	70.0	73.4	75.7	76.6	75.8	78.1	76.6	75.2	74.5	85.6
30-Jan	76.1	77.4	75.5	68.8	68.9	77.2	78.1	77.7	75.1	74.7	71.8	57.7	47.8	42.4	35.3	33.1	33.3	36.1	39.5	42.7	46.2	49.0	52.7	54.5	58.0	78.1
31-Jan	56.8	59.5	61.6	63.9	65.6	65.2	68.1	69.9	77.2	72.7	61.9	53.0	45.0	43.3	40.7	42.9	47.9	49.7	51.2	52.4	50.9	50.8	50.8	53.7	56.4	77.2
78.4 78.7 78.6 78.3 78.3 78.3 78.7 78.7 78.7 78.1 77.5 76.2 75.0 74.0 73.4 74.1 75.6 76.1 76.7 77.0 76.9 77.1 77.3 77.4																								Diurnal Average		
92.3 90.6 91.0 91.3 90.2 90.7 92.3 92.8 91.6 91.7 91.0 90.5 90.5 90.9 91.7 91.8 92.8 94.2 94.8 94.9 94.4 93.1 91.6 92.1																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Kirby South - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Kirby South - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	5	0.67	0.67
40 - 60	29	3.90	4.57
60 - 80	431	57.93	62.50
80 - 100	279	37.50	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Kirby South - January 2024

Maximum Speed: 34 km/h on Jan 30 16:00	Maximum Daily Speed Average: 17.8 km/h on Jan 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 13 12:00	Minimum Daily Speed Average: 0.8 km/h on Jan 5	Hours of Data: 741
Maximum Diurnal Speed Average: 3.7 km/h at hour 14	Minimum Diurnal Speed Average: 2.1 km/h at hour 17	Hours of Missing Data: 3
Monthly Average Velocity: 2.7 km/h 261.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 12 P <sub>90</sub> = 15 P <sub>99</sub> = 26	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-Jan	WNW13	W12WNW15	W14WNW13	W14WNW12	WNW11	WNW9	NW10	NNW10	NNW11	NNW12	NNW9	N8	NE7	ENE7	NE5	ENE4	E4	ENE1	NNW8	N7	NNW7				NW6.8	WNW15	
2-Jan	NW9	NW10	NNW9	N9	N8	N9	NNE6	NE4	NE3	ENE6	E5	ENE5	E4	E5	E4	E5	E6	ESE5	E5	SE3	E3	SE4	ESE4	ESE3	NE3.2	NW10	
3-Jan	S5	SSW7	S6	S5	S5	SSW8	SSW8	SSW8	SSW8	SSW9	S8	S8	SSW9	SSW10	SSW9	SSE6	S7	S10	SSW13	SSW16	SW18	WSW15	WSW16	WSW15	SSW8.8	SW18	
4-Jan	WSW15	W14WNW15	WNW13	WNW12	NNW11	NNW13	NNW12	NNE10	NNE9	NE9	ENE10	ENE6	ENE6	ENE9	E10	E10	E10	E11	ESE10	SE9	SE6	E5	SE4	NNE2.7	WSW15		
5-Jan	SE5	SSE6	S6	S6	SSW7	SW7	W8	NW8	NNW11	NNW9	NW8	NNW8	NW7	NW7	WNW3	WNW4	ENE1	SSE4	ESE4	ESE6	E7	E6	SE5	SSE6	W0.8	NNW11	
6-Jan	SE5	ESE5	ESE4	E6	E5	ESE3	ESE5	E5	ESE5	E5	E6	E7	ENE9	ENE10	ENE10	ENE13	ENE11	NE13	ENE14	NE12	NE14	ENE12	NE14	NE14	ENE8.0	NE14	
7-Jan	NE14	NE14	NE13	NE14	ENE13	ENE11	NE11	ENE10	NE8	ENE7	ENE6	E4	ESE2	NNW1	S1	SE4	SSW5	SSW5	SSW4	SSW4	SSW5	SW6	SW8	SW10	ENE3.5	NE14	
8-Jan	SSW12	SW10	SW11	SW11	SW11	SW11	SW10	SW9	SW8	SW9	SW9	W9	WNW9	NW10	NNW9	NW9	NNW8	NNW7	NNW6	NNE5	NNE6	NNE5	ENE4	E5	WSW4.2	SSW12	
9-Jan	ESE4	ESE5	ESE8	ESE8	E8	E8	E7	ESE11	E9	E10	E11	ENE14	ENE15	ENE15	ENE15	NE15	ENE16	ENE15	NE15	NE14	NE13	NE13	NE14	NE12	ENE10.7	ENE16	
10-Jan	NE10	NE10	NE12	NE10	NE9	NNE9	NNE7	NNE9	NNE7	NNE7	NNE7	NNE7	NNE7	NNE8	NNE7	N6	N7	NNE5	N5	N7	N8	NNE9	N7	N7	N7	NNE7.6	NE12
11-Jan	N7	NNE5	NNE6	N5	N7	N7	N5	N6	NNE8	NNE7	N8	N9	NNE10	NNE9	N9	NNW9	NNW7	N6	N6	N6	N5	N6	N5	N6	N6.7	NNE10	
12-Jan	NNW5	NW5	NW6	NW6	NNW6	NNW5	NW4	NW4	NW6	NW5	NNW4	N3	NNW4	WNW4	NW4	NNW3	E1	UO	UO	WNW5	WNW6	WNW4	WNW4	W4	NW4.1	NW6	
13-Jan	W4	WNW3	WNW2	WNW2	SSE0	ENE0	WNW1	E1	UO	NE1	E2	W0	WNW3	NW3	NE3	ENE5	ENE4	NE4	ENE4	NE3	NE2	NW2	NNW2	NNW2	N1.2	ENE5	
14-Jan	NNW2	N2	NNW3	NNW3	NNW4	NNW4	NNW4	NNW4	NNW4	NW4	NW5	NW6	N6	NNW6	NNW6	NW7	NW6	NW7	NW7	NNW7	NW6	NW7	WNW8	WNW6	NW5.0	WNW8	
15-Jan	WNW6	WNW9	WNW8	W9	W7	WSW7	WSW9	WSW10	WSW10	WSW8	WSW11	WSW10	WSW10	WSW10	WSW12	WSW10	SW11	SW12	SW10	SW10	SW13	WSW14	WSW13	WSW13	WSW15	WSW9.8	WSW15
16-Jan	WSW11	W11	WNW9	WNW9	N7	N5	NNE6	NNE7	NNE9	N8	N12	NNE14	N15	N15	N16	N13	NNW12	NW10	NW11	NW13	NW16	NW17	NW16	NW16	NNW10.0	NW17	
17-Jan	NW15	NW17	NW14	NW14	NNW15	NNW11	NNW10	NNW11	NNW10	NNW9	N9	N8	NE11	NNE11	NNE9	NE6	NE7	NE7	NE7	NE8	NE7	NE12	NE12	NNE7	N8.5	NW17	
18-Jan	N8	N8	N7	NNW8	NNW9	NNW14	NNW16	NNW12	NW10	NW10	NW11	NW15	NNW12	NW12	NNW14	NNW12	NW11	NW12	NW10	NW11	NW11	NW11	NW10	NNW8	NNW10.4	NNW16	
19-Jan	NW8	NW7	WNW6	WNW5	WSW2	WNW2	WSW7	SW4	SW6	SW8	SW11	SW11	SW13	SSW13	SSW11	S9	S7	SSW12	SSW10	S13	S13	S18	SSW16	SSW16	SSW7.8	S18	
20-Jan	S15	SSW12	SSW10	SSW10	SSW12	SSW11	SW9	SW9	SW7	SW7	W10	NNW12	NNW11	WNW11	WNW8	NW7	WNW6	WNW6	NW7	N6	N6	NNW5	NW5	WNW5	WSW5.4	S15	
21-Jan	NNE4	NE2	E2	NNE6	NE7	ENE6	ENE9	ENE10	ENE8	NE8	NE10	NE10	NE11	NE11	NE13	NE13	NE14	NE14	NE13	ENE13	ENE12	ENE13	ENE11	ENE11	NE9.2	NE14	
22-Jan	E10	E10	E10	E10	E9	ESE9	ESE10	SE11	SE12	SSE14	SSE16	S16	S17	S16	S16	S16	S14	S16	S15	S15	SSW12	SSW13	SSW13	SSW13	SSE10.4	S17	
23-Jan	SSW11	SSW11	SSW10	SSW7	SSW6	SSW6	SSW6	SW6	SW6	SW7	SW7	WSW6	WSW6	WSW6	WSW5	WNW6	W4	W5	WSW6	W8	WNW6	WNW6	NW3	NNE3	WSW5.3	SSW11	
24-Jan	NE5	ENE6	E6	ESE6	SE4	SSE3	SSE5	S8	S8	S10	SSW10	SSW11	SSW11	SSW14	SSW14	SSW15	SSW16	SSW17	SSW18	SSW17	SSW18	SSW17	SSW15	SSW13	SSW9.2	SSW18	
25-Jan	SW14	SW11	SW8	WSW9	WSW7	WSW7	WSW3	SSE1	NNE4	ENE6	ENE9	E6	ENE3	WSW3	SW4	WSW3	SW4	SW6	SW7	WSW10	WSW12	WSW11	WSW10	WSW10	SW4.7	SW14	
26-Jan	WSW9	WSW9	SW10	WSW10	W13	W12	WSW9	W11	W9	WSW8	WSW8	SW7	WSW9	WSW12	WSW10	SW9	SW8	SSW10	SSW11	SSW11	SSW12	SSW10	SW10	SSW9	WSW9.3	W13	
27-Jan	SSW10	SSW11	SSW12	SSW13	SSW14	SSW13	SSW15	SSW15	SW16	SW14	SW14	WSW14	WSW14	WSW12	WSW13	WSW12	SW12	SW11	WSW13	WSW12	SW11	SW11	SW11	SW9	SW12.2	SW16	
28-Jan	SW10	SW9	SSW12	SSW12	SSW14	SSW17	SW14	SW15	SW14	SW15	WSW14	WSW16	W25	W29	NNW24	W24	W20	W15	W17	W14	W15	W14	W14	W16	WSW14.3	W29	
29-Jan	WSW8	SW8	SW11	SW11	SW12	SSW12	SSW13	SSW15	SSW17	SSW20	SSW19	SSW17	SSW14	SSW16	SSW17	SW15	SW16	SW15	SW15	SW14	SW12	SW12	SW11	SW10	SW13.4	SSW20	
30-Jan	SW10	SSW8	SSW12	SSW12	SSW15	SSW17	SSW14	SSW14	SW14	SW14	W21	NNW25	W23	W29	NNW32	NNW34	NNW32	NNW31	W26	W26	W27	W24	W16	W20	W17.8	WNW34	
31-Jan	W20	W19	W19	W15	W12	WNW9	W7	W8	WSW10	SW10	SW9	SSW8	S10	S12	S15	S12	SSE9	SSE13	SSE13	S17	S20	S22	S23	S20	SSW9.6	S23	

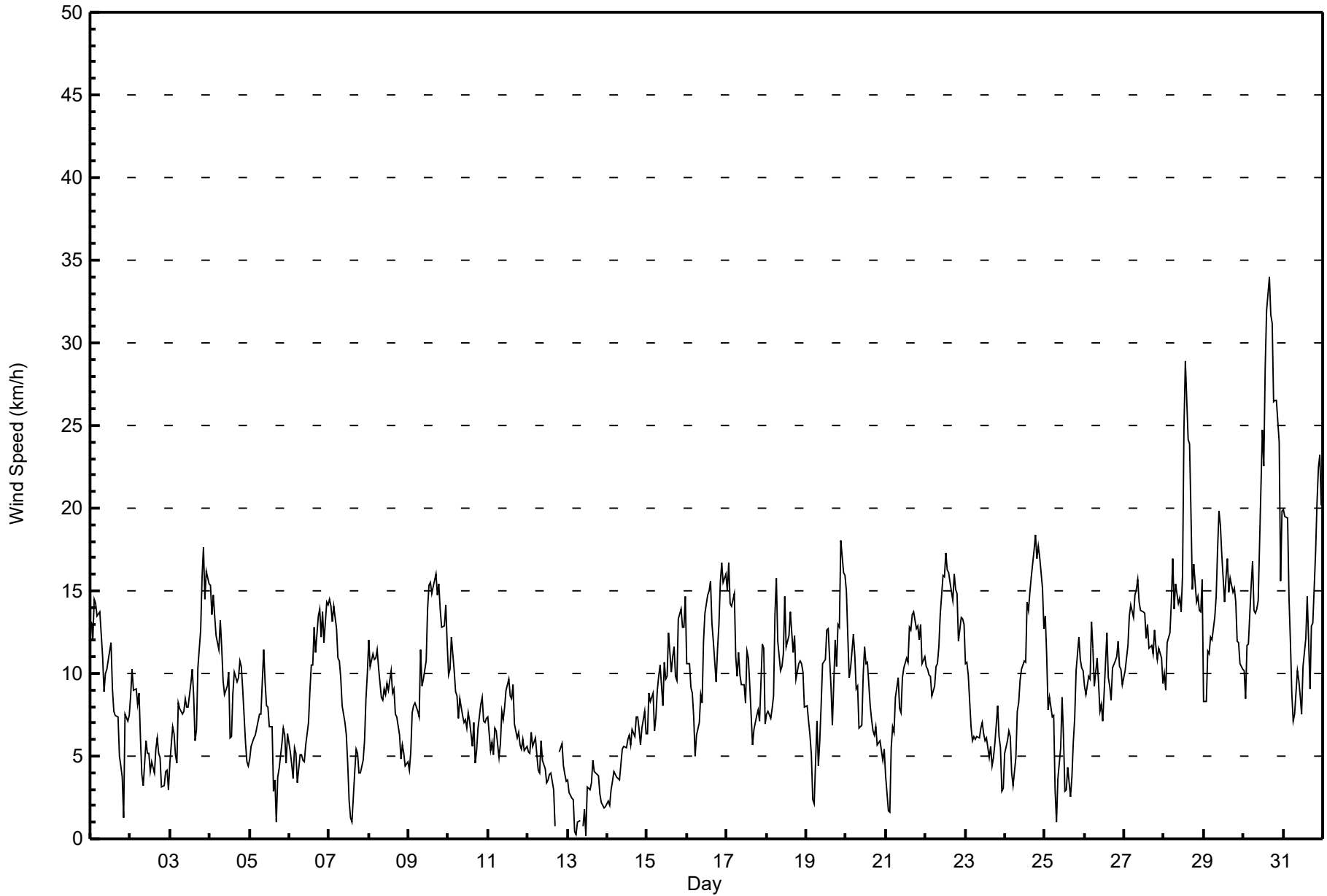
W3.4	W3.1	W3.2	W2.9	W2.6	WSW2.6	WSW2.5	WSW2.2	WSW2.3	WSW2.3	W2.3	NNW2.3	W2.6	W3.7	NNW3.1	NNW2.5	W2.1	WSW2.4	WSW2.3	WSW2.8	WSW3.1	WSW3.2	WSW3.0	WSW3.4			Diurnal Average
W20	W19	W19	W15	SSW15	SSW17	NNW16	SW15	SSW17	SSW20	W21	NNW25	W25	W29	NNW32	NNW34	NNW32	NNW31	W26	W26	W27	W24	S23	S20			Diurnal Maximum

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**  
**Kirby South - January 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Kirby South - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	141	19.03	19.03
6 - 11	369	49.80	68.83
12 - 19	207	27.94	96.76
20 - 28	18	2.43	99.19
29 - 38	6	0.81	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Kirby South - January 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	8	7	9	11	18	12	8	5	4	5	3	5	5	14	11	16	141
6 - 11	35	26	21	23	23	8	3	5	12	34	51	34	11	22	34	27	369
12 - 19	5	1	23	14	0	0	1	4	17	45	28	20	18	8	12	11	207
20 - 28	0	0	0	0	0	0	0	0	4	1	0	0	11	2	0	0	18
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	6
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	48	34	53	48	41	20	12	14	37	85	82	59	47	50	57	54	741

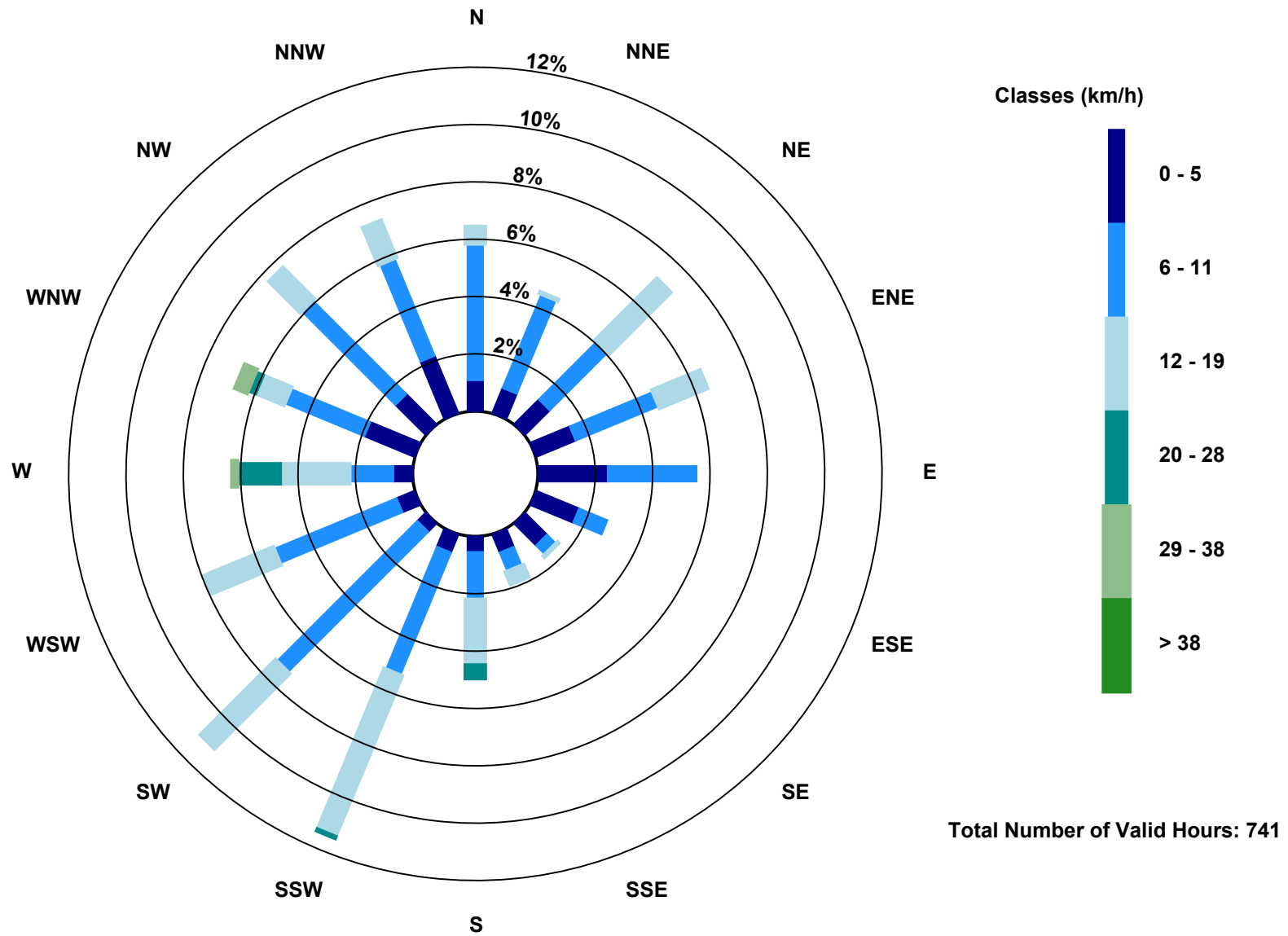
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Kirby South





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Kirby South - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 8 km/h on Jan 30 16:00	Hours of Data: 741
Minimum Value: 1 km/h on Jan 13 02:00	Hours of Missing Data: 3
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 6	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-Jan	2	2	2	2	2	3	2	2	2	2	3	3	3	3	2	2	2	1	1	1	2	2	1	2	3
2-Jan	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2
3-Jan	1	1	2	1	1	2	2	2	2	2	2	2	3	3	2	1	1	3	3	4	4	4	4	4	4
4-Jan	4	3	3	3	3	2	3	3	3	2	2	2	1	2	2	2	2	3	2	2	2	2	1	1	4
5-Jan	2	2	1	1	1	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	2	3
6-Jan	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	2	3	3	3	3	3	3	3	3
7-Jan	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1	2	1	1	1	1	2	2	3	3
8-Jan	3	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	3
9-Jan	1	2	2	2	2	2	2	3	3	2	3	3	3	3	3	4	3	3	3	3	2	2	3	3	4
10-Jan	2	2	3	3	2	2	2	2	2	2	2	2	2	2	1	2	1	1	2	2	2	2	2	2	3
11-Jan	2	1	2	1	2	2	1	2	2	2	2	3	2	3	3	2	2	1	2	1	1	1	1	1	3
12-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	UO	1	1	1	1	1	1
13-Jan	1	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2
15-Jan	1	2	1	2	2	1	2	1	1	2	3	2	2	3	2	2	2	3	3	2	2	2	2	3	3
16-Jan	2	2	2	2	2	1	1	2	2	2	3	4	4	4	4	4	3	2	2	2	3	3	3	3	4
17-Jan	3	4	3	3	4	3	2	3	2	2	2	2	3	3	3	1	1	1	2	2	2	3	2	2	4
18-Jan	2	2	2	2	2	3	4	3	2	2	2	3	3	3	3	3	2	3	2	2	2	2	2	2	4
19-Jan	2	1	1	1	2	1	2	1	2	2	3	3	3	3	4	2	2	3	3	3	3	5	5	4	5
20-Jan	4	3	2	3	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	1	4
21-Jan	1	1	1	1	2	2	2	2	2	1	2	2	3	3	2	2	3	3	3	3	3	3	2	3	3
22-Jan	3	2	3	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	4	3	3	4
23-Jan	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	3
24-Jan	1	1	2	2	1	1	1	2	2	3	2	2	4	4	3	4	4	4	4	4	4	4	3	3	4
25-Jan	3	2	2	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	2	3	2	2	2	2	3
26-Jan	2	1	1	2	2	2	1	2	2	1	1	2	2	3	3	2	1	2	2	2	2	2	2	1	3
27-Jan	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	3
28-Jan	1	2	2	3	3	4	3	3	3	3	3	4	5	6	5	5	4	3	3	2	2	2	2	3	6
29-Jan	3	2	2	2	2	3	3	3	4	4	4	4	3	4	4	3	3	3	3	3	3	3	2	3	4
30-Jan	3	3	4	3	4	4	3	3	3	3	7	7	6	7	7	8	7	7	5	5	5	5	4	3	8
31-Jan	3	3	3	3	3	2	1	1	2	2	2	2	3	3	4	4	2	3	3	4	5	5	5	5	5
	4	4	4	3	4	4	4	3	4	4	7	7	6	7	7	8	7	7	5	5	5	5	5	5	5

Diurnal Maximum

UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Kirby South - January 2024**

Direction of Maximum Speed: 283 deg on Jan 30 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 264.3 deg on Jan 30	Hours of Data: 741
Direction of Minimum Speed: 275 deg on Jan 13 12:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 0.8 deg on Jan 5	Percent Operational Time: 99.6
Monthly Average Direction: 261.4 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-Jan	289	281	288	278	284	278	283	284	291	319	339	337	341	346	353	38	63	56	68	81	71	329	350	346	315.9
2-Jan	318	320	344	350	355	355	32	40	46	72	95	64	96	86	88	88	101	111	94	128	84	127	118	116	46.1
3-Jan	181	194	183	176	189	204	209	200	198	201	187	189	195	203	200	168	169	184	196	204	225	238	242	239	205.1
4-Jan	249	265	284	286	302	326	340	348	15	17	46	66	70	62	70	88	96	85	90	123	137	130	101	124	27.2
5-Jan	131	165	185	189	209	228	259	305	339	330	326	343	304	318	299	284	57	155	116	106	98	99	126	165	266.5
6-Jan	140	121	110	90	97	105	117	94	105	83	84	85	75	60	61	59	58	47	60	55	54	59	51	49	68.8
7-Jan	41	52	55	56	61	57	52	57	41	61	75	82	120	330	186	145	205	202	203	201	209	225	221	225	70.9
8-Jan	211	215	218	214	216	221	222	222	217	224	234	273	299	311	331	317	330	348	347	17	20	31	60	90	256.0
9-Jan	111	105	113	111	91	90	96	105	94	83	84	77	73	69	67	56	60	57	53	47	52	52	41	42	70.4
10-Jan	39	35	41	36	35	25	15	19	19	20	25	21	28	18	5	9	12	352	359	9	13	10	6	9	20.5
11-Jan	8	18	14	359	0	4	0	11	21	18	11	10	17	16	353	345	346	355	356	353	353	350	0	353	3.5
12-Jan	345	311	309	321	347	336	313	304	309	322	331	352	346	283	305	329	94	UO	UO	294	296	295	293	263	315.2
13-Jan	278	300	297	295	164	57	299	86	UO	56	89	275	293	314	45	67	59	49	62	51	41	325	348	335	11.2
14-Jan	344	3	345	346	328	347	344	339	311	311	319	349	353	335	345	314	321	312	316	327	308	314	300	298	324.9
15-Jan	289	294	289	278	273	243	244	248	250	245	252	247	238	240	239	236	236	225	227	235	244	248	252	252	248.8
16-Jan	258	279	284	298	355	358	21	17	17	355	351	13	352	351	352	354	340	314	317	318	321	318	320	317	333.2
17-Jan	314	320	319	321	331	346	339	342	345	344	353	351	38	30	29	43	41	53	47	37	38	42	41	25	359.9
18-Jan	9	360	351	332	330	346	346	338	317	305	307	318	329	326	328	328	309	313	307	316	318	311	320	336	326.5
19-Jan	314	308	300	297	254	291	241	234	234	235	221	216	219	207	203	189	184	192	193	187	187	189	195	198	212.3
20-Jan	189	192	192	199	203	213	225	227	230	232	262	287	289	286	296	315	298	301	321	349	356	345	320	298	253.5
21-Jan	15	54	96	32	48	61	59	57	58	49	54	51	47	40	41	41	44	52	52	61	61	67	74	75	53.5
22-Jan	85	81	89	97	95	106	121	130	138	152	156	173	177	181	179	183	189	187	187	187	194	197	203	204	163.2
23-Jan	206	204	207	207	208	210	212	225	229	232	230	240	257	256	240	282	260	263	257	278	288	287	311	21	237.9
24-Jan	54	74	92	110	127	157	162	178	176	183	192	193	198	208	199	204	212	213	211	216	214	218	223	225	199.4
25-Jan	227	229	235	246	241	241	255	151	25	65	66	83	73	249	236	255	225	234	236	238	242	240	242	237	235.6
26-Jan	237	238	236	254	271	266	242	265	266	244	244	235	245	246	248	227	222	211	209	211	210	213	215	212	236.4
27-Jan	211	207	211	211	208	209	210	211	216	222	229	242	243	239	249	237	232	234	237	238	233	232	228	234	225.6
28-Jan	225	218	209	203	204	210	226	233	234	232	241	245	264	277	282	280	281	279	276	280	276	278	276	274	255.3
29-Jan	258	224	230	223	224	212	204	202	202	200	204	205	205	207	212	225	229	234	230	233	233	229	233	228	218.0
30-Jan	222	211	207	206	207	209	213	212	215	223	269	295	280	281	285	283	284	282	281	279	277	277	269	276	264.3
31-Jan	276	276	271	262	275	294	278	265	239	234	235	212	180	181	183	178	163	156	165	174	172	173	177	176	209.7

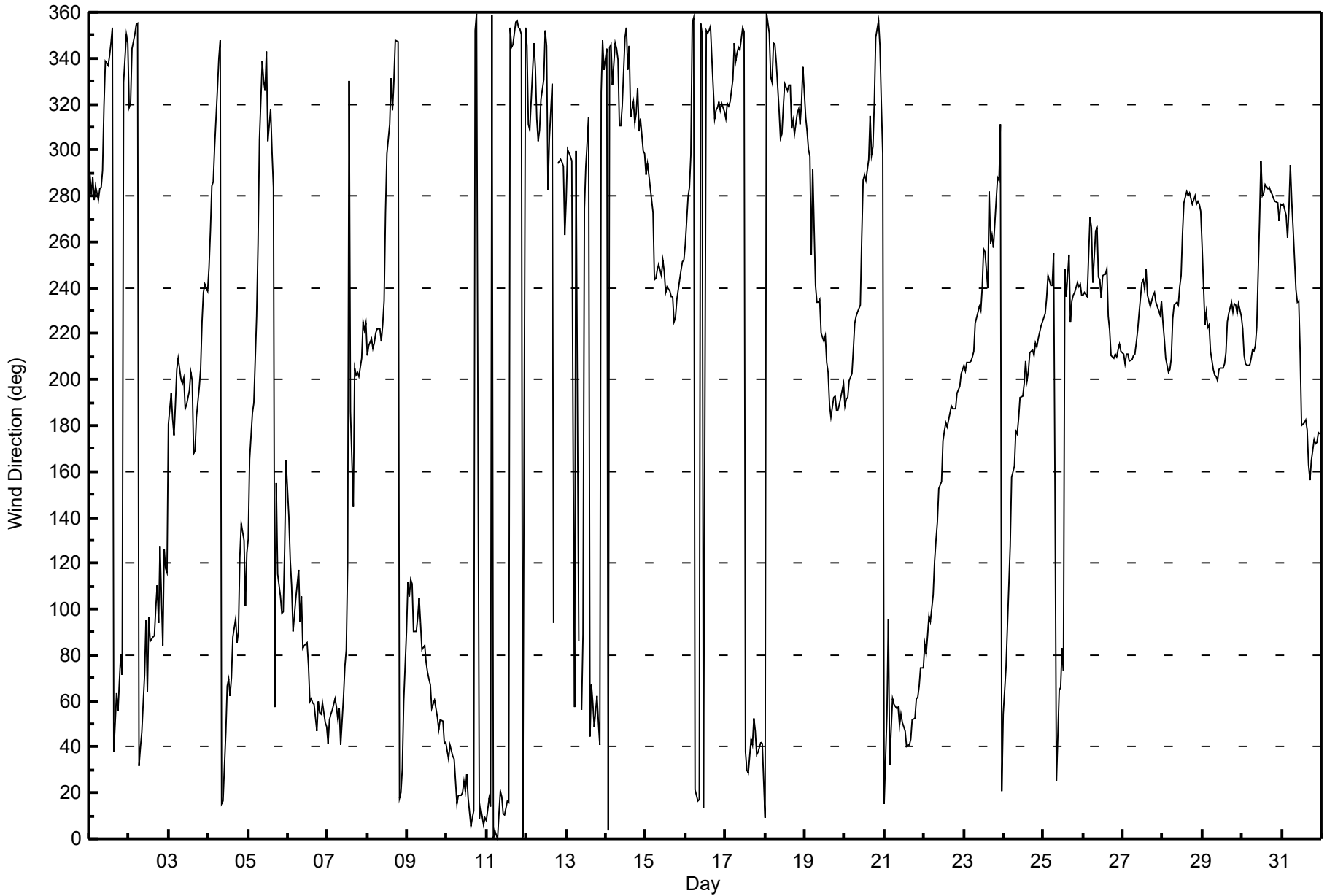
261.8 261.9 259.4 258.8 262.0 258.4 256.5 254.1 255.3 247.5 260.1 284.5 279.6 279.0 282.4 284.7 269.3 251.3 247.6 246.0 250.5 253.4 253.9 252.2  
 Diurnal Average

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**  
**Kirby South - January 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Kirby South - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 95 deg on Jan 7 15:00 Minimum Value: 5 deg on Jan 13 19:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 19 P <sub>90</sub> = 23 P <sub>99</sub> = 71																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 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-Jan	12	10	11	9	10	9	10	9	16	14	23	19	18	23	24	24	13	15	17	21	80	20	18	19	80	
2-Jan	21	20	19	21	25	22	27	39	69	26	33	44	32	27	37	16	16	18	16	19	16	23	18	23	69	
3-Jan	21	13	15	24	31	15	17	15	15	14	16	16	17	16	17	13	12	17	15	17	16	15	13	15	31	
4-Jan	15	16	11	11	15	14	17	20	23	20	22	15	22	27	18	18	16	20	21	16	15	39	22	17	39	
5-Jan	16	23	16	17	17	17	18	31	16	19	20	23	20	20	55	22	79	29	24	17	17	16	25	17	79	
6-Jan	19	18	21	16	15	21	20	19	17	17	15	18	16	14	13	12	14	12	13	15	13	15	12	12	21	
7-Jan	14	12	13	12	15	13	15	20	16	19	25	28	66	93	95	42	20	19	19	20	17	17	16	16	95	
8-Jan	16	16	14	15	15	14	16	15	15	17	15	17	19	15	25	14	21	20	21	23	18	16	24	20	25	
9-Jan	26	29	22	19	17	17	19	18	17	16	16	15	14	14	13	12	11	11	11	12	11	12	12	13	29	
10-Jan	14	15	14	14	16	16	19	17	17	18	18	20	21	20	22	21	18	20	20	20	19	19	20	19	22	
11-Jan	18	18	18	20	19	20	20	20	17	18	20	21	19	20	22	18	17	19	19	18	19	18	19	18	22	
12-Jan	17	18	8	15	16	17	15	14	9	14	25	39	36	16	16	50	78	UO	UO	9	7	11	13	19	78	
13-Jan	15	10	12	13	56	69	26	45	UO	55	20	85	14	39	36	11	12	10	5	18	17	32	22	23	85	
14-Jan	26	32	23	26	18	18	19	18	21	9	13	21	21	22	30	19	13	12	12	14	14	12	11	14	32	
15-Jan	11	10	11	8	12	10	10	10	10	9	11	12	13	14	14	15	12	11	17	15	12	10	10	9	10	17
16-Jan	18	9	11	14	21	23	19	26	19	21	19	21	20	20	20	20	16	16	14	12	13	12	13	13	26	
17-Jan	13	14	13	14	15	18	19	16	18	19	19	19	25	17	17	16	13	10	12	12	12	11	13	20	25	
18-Jan	19	19	22	16	15	19	18	18	16	13	13	12	16	20	20	19	13	12	14	15	14	14	14	18	22	
19-Jan	15	13	21	27	39	25	13	10	11	11	14	14	15	17	16	19	17	15	16	15	15	14	17	17	39	
20-Jan	15	16	14	15	16	15	17	15	15	17	18	10	14	15	19	15	10	10	17	18	18	22	32	13	32	
21-Jan	36	79	52	22	19	18	15	14	16	15	16	18	19	19	14	15	13	12	12	13	13	16	14	16	79	
22-Jan	16	15	19	16	16	18	17	17	16	16	16	16	15	16	15	16	15	16	16	16	18	15	16	15	19	
23-Jan	17	16	15	17	16	17	15	16	17	14	15	16	18	18	20	15	18	15	12	11	10	11	35	24	35	
24-Jan	15	17	16	17	21	31	19	17	17	17	16	15	18	16	16	16	14	14	13	14	13	14	13	15	31	
25-Jan	13	14	14	10	10	10	46	72	40	16	14	18	24	47	16	23	13	13	14	14	12	10	10	12	72	
26-Jan	12	10	8	16	9	14	10	13	12	13	12	15	18	13	14	14	11	12	14	11	10	11	12	11	18	
27-Jan	11	11	12	13	12	12	13	13	14	14	13	12	13	13	14	12	12	11	11	10	12	11	11	8	14	
28-Jan	9	11	13	14	15	15	16	11	13	13	12	13	13	11	11	10	10	10	9	9	8	9	8	8	16	
29-Jan	12	14	11	11	12	12	13	14	13	14	14	15	15	14	15	14	12	12	12	12	12	13	13	13	15	
30-Jan	14	13	12	14	15	13	13	13	13	15	28	13	14	13	12	12	12	11	11	10	10	10	14	10	28	
31-Jan	9	9	10	12	16	18	26	31	11	12	15	25	17	16	17	12	12	13	16	15	15	16	15	15	31	
Diurnal Maximum																										
UO - Unstable Operation																										



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS511 BLACKGOLD JANUARY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

February 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BLACKGOLD (AMS511)  
 JANUARY 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	644	33	100	90.99	19.2	0	4.9	0
H2S (ppb) Average	684	35	60	96.64	2	0	0.3	0
THC (ppm) Average	662	33	82	93.41	2.8	-	2.7	-
NO2 (ppb) Average	683	36	61	96.64	16.2	0	7.6	-
NO (ppb) Average	683	36	61	96.64	31	-	2.1	-
NOX (ppb) Average	683	36	61	96.64	43.4	-	9.6	-
Temperature 2 m (C) Average	744	0	0	100	11.7	-	6.1	-
Relative Humidity (%) Average	744	0	0	100	95.5	-	90	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	21	-	11	-
Wind Direction 10 m (deg) Average	743	0	1	99.87	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BLACKGOLD (AMS511)  
 JANUARY 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	644	1.17	2	-	0	0	0.1	0.6	1.3	2.8	19.2
H2S (ppb) Average	684	0.13	0.1	-	0	0	0.1	0.1	0.2	0.2	2
THC (ppm) Average	662	2.37	0.1	-	2.2	2.3	2.3	2.4	2.4	2.5	2.8
NO2 (ppb) Average	683	3.44	2.7	-	0	1	1.7	2.8	4.3	6.7	16.2
NO (ppb) Average	683	0.58	1.6	-	0	0	0	0.2	0.6	1.4	31
NOX (ppb) Average	683	4.02	3.7	-	0	1.1	1.8	3	4.9	7.8	43.4
Temperature 2 m (C) Average	744	-15.4	12.5	-	-43	-32.8	-22.8	-15.5	-7	2.6	11.7
Relative Humidity (%) Average	744	75.51	10.6	-	31.9	63.6	69	76.9	83.3	87.9	95.5
Wind Speed 10 m (km/h) Average	743	6.4	3	-	0	2	4	6	8	11	21
Wind Direction 10 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BLACKGOLD (AMS511)  
 JANUARY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2, THC	13 Jan 2024 13:00	15 Jan 2024 13:00	49	Unstable Operations - station temperature fluctuation
H2S, NO2	13 Jan 2024 13:00	14 Jan 2024 13:00	25	Unstable Operations - station temperature fluctuation
SO2	17 Jan 2024 08:00	17 Jan 2024 08:00	1	Unstable Operation - excessive baseline drift
SO2	20 Jan 2024 22:00	21 Jan 2024 02:00	5	Unstable Operation - excessive baseline drift
SO2	21 Jan 2024 11:00	21 Jan 2024 15:00	5	Unstable Operation - excessive baseline drift
SO2	22 Jan 2024 23:00	22 Jan 2024 23:00	1	Unstable Operation - excessive baseline drift
SO2	23 Jan 2024 06:00	23 Jan 2024 11:00	6	Unstable Operation - excessive baseline drift
Wind Speed, Wind Direction	25 Jan 2024 18:00	25 Jan 2024 18:00	1	Flat line in sensor output signal

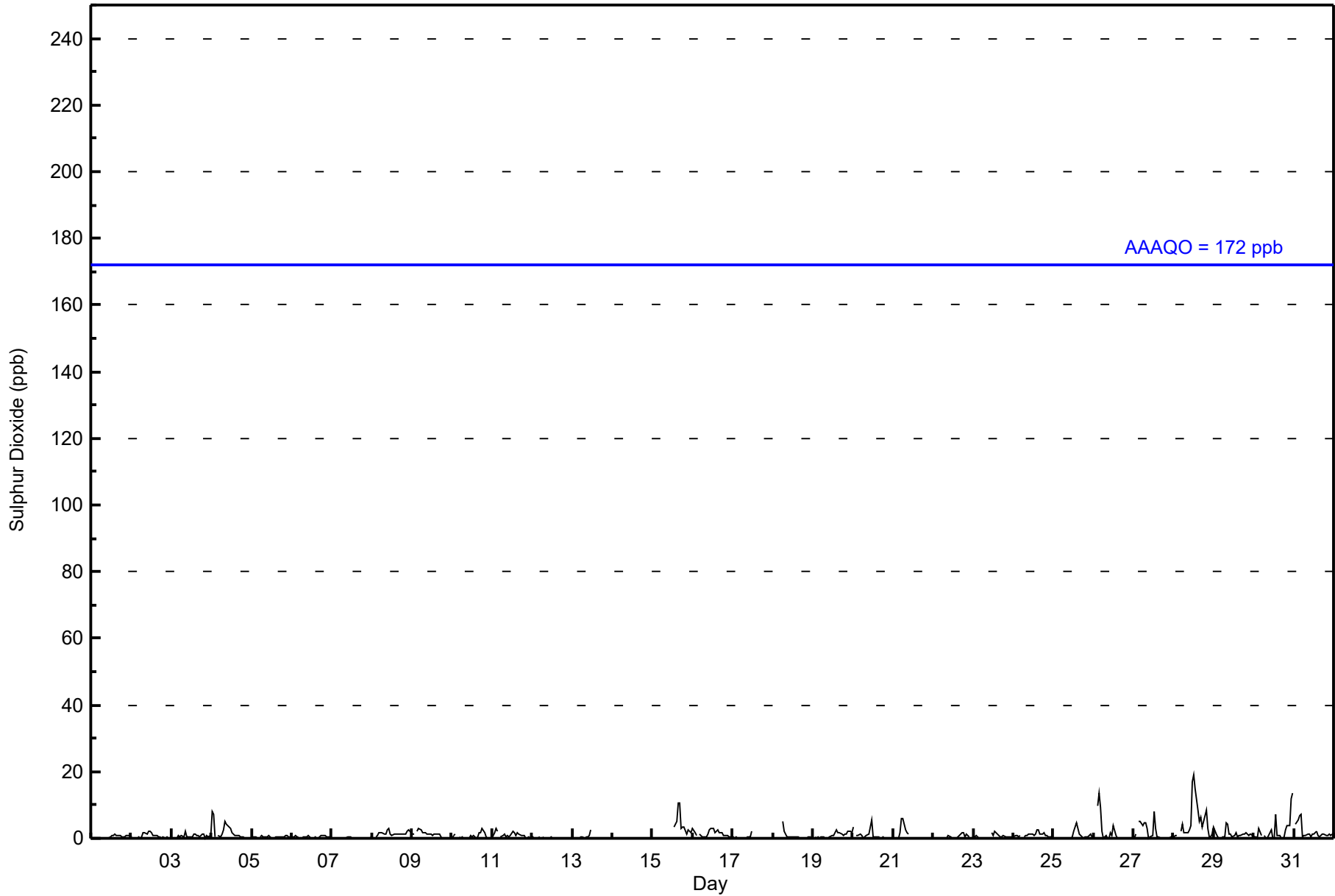


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 19.2 ppb on Jan 28 13:00		Maximum Daily Average: 4.9 ppb on Jan 28		Hours of Data: 644																							
Minimum Value: 0.0 ppb on Jan 1 02:00		Minimum Daily Average: 0.1 ppb on Jan 7		Hours of Missing Data: 100																							
Maximum Diurnal Average: 2.0 ppb at hour 14		Minimum Diurnal Average: 0.7 ppb at hour 21		Hours of Calibration: 33																							
Monthly Average: 1.17 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> = 1.3 P <sub>90</sub> = 2.8 P <sub>99</sub> = 10.7		Percent Operational Time: 91.0																							
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-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.8	1.3	0.8	0.8	0.7	0.4	0.3	0.5	0.7	1.0	0.9	0.4	1.3	
2-Jan	0.6	Z	0.2	0.2	0.4	0.1	0.4	1.6	1.7	1.5	2.2	1.9	1.7	1.0	0.8	0.8	0.6	0.4	0.1	0.6	0.1	0.5	0.1	0.1	0.8	2.2	
3-Jan	0.1	0.0	Z	0.0	0.7	0.5	0.7	0.6	2.1	0.3	0.4	0.4	0.3	1.2	1.1	0.9	0.6	0.5	1.4	1.3	0.2	0.8	0.3	0.9	0.7	2.1	
4-Jan	8.1	7.2	0.3	Z	0.7	0.6	1.3	2.7	4.9	4.2	3.5	2.9	1.7	1.2	1.0	0.8	1.0	0.5	0.4	0.3	0.1	0.0	0.0	0.0	1.9	8.1	
5-Jan	0.3	0.4	0.5	0.0	Z	0.2	0.7	0.3	0.3	0.6	0.6	0.4	0.1	0.2	0.3	0.4	0.5	0.3	0.2	0.6	0.7	0.9	0.5	0.3	0.4	0.9	
6-Jan	0.3	0.5	0.7	0.6	0.3	Z	0.3	0.3	0.4	0.3	1.0	0.1	0.1	0.1	0.2	0.0	0.1	0.9	0.8	0.9	0.8	0.4	0.3	0.2	0.4	1.0	
7-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3	
8-Jan	0.9	Z	0.5	1.0	1.8	1.8	1.6	1.1	1.3	2.5	3.0	1.5	0.9	1.2	1.3	1.3	1.2	1.1	1.3	1.2	1.4	2.2	2.6	1.7	1.5	3.0	
9-Jan	1.2	1.1	Z	2.3	2.8	2.5	1.8	1.6	1.5	1.4	1.3	1.3	0.8	1.3	1.1	1.1	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.8	
10-Jan	0.0	1.1	1.3	Z	0.3	0.0	0.4	0.0	0.0	0.0	0.0	1.0	0.3	0.8	0.1	0.2	1.6	1.7	3.1	1.7	0.4	0.0	0.0	0.0	0.6	3.1	
11-Jan	0.1	1.6	2.9	2.3	Z	0.6	0.7	1.5	0.6	0.7	0.4	1.0	2.0	1.7	0.7	1.8	1.3	0.9	1.0	0.9	0.1	0.0	0.3	0.0	1.0	2.9	
12-Jan	0.2	0.0	0.0	0.0	0.2	Z	0.4	0.0	0.0	0.0	0.0	0.5	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	0.5	
13-Jan	Z	0.2	0.0	0.0	0.1	0.4	0.5	0.0	0.3	0.3	0.8	2.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.4	
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--	
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3.4	5.2	10.7	10.7	2.8	3.3	3.2	1.1	2.6	2.1	1.5	--	10.7
16-Jan	3.1	1.6	0.9	Z	1.1	1.0	0.2	0.3	0.4	1.5	2.7	3.2	2.9	1.9	2.0	2.5	1.9	1.5	0.9	0.8	0.8	0.8	0.5	0.5	1.4	3.2	
17-Jan	0.3	0.2	0.2	0.1	Z	0.2	0.0	UO	0.1	0.2	0.5	2.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	2.0	
18-Jan	0.4	0.2	0.0	0.2	0.2	Z	5.1	2.0	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.1	0.2	0.3	0.5	0.5	0.6	5.1	
19-Jan	Z	0.4	0.2	0.3	0.2	0.3	0.4	0.0	0.0	0.2	0.6	0.8	0.7	1.6	2.5	1.6	1.6	1.4	0.9	1.3	1.1	1.9	2.1	1.5	0.9	2.5	
20-Jan	3.2	Z	1.0	1.0	1.4	1.0	0.0	0.6	1.0	1.1	3.4	5.3	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.1	0.0	UO	UO	UO	1.1	5.3	
21-Jan	UO	UO	Z	0.2	1.6	5.9	5.8	2.5	1.6	1.1	UO	UO	UO	UO	UO	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	--	5.9	
22-Jan	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	1.0	0.4	0.1	0.1	0.1	0.1	0.4	1.1	1.6	1.5	0.6	1.1	0.5	UO	0.2	0.4	1.6	
23-Jan	0.4	0.5	0.7	0.0	Z	UO	UO	UO	UO	UO	UO	1.8	1.0	2.1	1.1	1.1	0.3	0.5	0.9	0.5	0.4	0.3	0.5	0.4	--	2.1	
24-Jan	0.3	0.7	0.8	0.6	0.8	Z	0.6	0.7	0.9	1.1	1.2	1.4	0.9	1.4	2.6	2.4	1.3	1.1	1.6	0.9	0.8	0.6	0.4	0.7	1.0	2.6	
25-Jan	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.5	2.1	3.5	4.6	1.3	0.8	0.3	0.0	0.3	0.3	0.8	1.3	0.5	0.7	4.6	
26-Jan	0.1	Z	9.8	13.4	9.4	2.1	0.2	1.0	0.0	0.0	1.7	0.7	3.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	13.4	
27-Jan	0.0	1.2	Z	5.0	4.9	3.7	4.5	4.5	2.8	0.0	0.6	0.9	8.2	3.2	0.5	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.6	0.8	1.8	8.2	
28-Jan	0.6	0.7	0.8	Z	2.3	4.3	1.8	1.8	1.8	2.3	3.7	17.0	19.2	14.9	8.5	4.9	6.2	3.5	5.0	8.6	2.8	0.5	0.4	1.2	4.9	19.2	
29-Jan	3.3	1.4	0.3	0.2	Z	0.2	0.6	4.7	4.4	1.4	1.1	0.4	0.9	1.6	0.6	0.9	1.0	1.3	1.1	1.8	1.5	0.8	1.2	0.7	1.4	4.7	
30-Jan	0.6	0.4	0.0	2.9	0.9	Z	0.7	0.2	0.0	1.0	2.4	0.0	0.0	7.3	1.0	0.9	0.0	0.1	0.2	2.5	3.8	3.9	11.7	13.4	2.3	13.4	
31-Jan	Z	4.3	5.4	6.7	7.0	0.5	0.8	0.7	1.5	1.2	0.6	1.1	1.1	1.9	1.0	0.4	0.8	1.2	1.2	0.8	1.0	1.1	0.7	1.1	1.8	7.0	
		1.1	1.0	1.1	1.5	1.5	1.1	1.0	1.1	1.0	0.9	1.2	1.8	2.0	2.0	1.4	1.3	1.2	0.8	0.9	1.0	0.7	0.7	1.0	1.0	Diurnal Average	
		8.1	7.2	9.8	13.4	9.4	5.9	5.8	4.7	4.9	4.2	3.7	17.0	19.2	14.9	8.5	10.7	10.7	3.5	5.0	8.6	3.8	3.9	11.7	13.4	Diurnal Maximum	
Z - zerospan		C - Calibration				UO - Unstable Operation																					
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  
Blackgold - January 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Blackgold - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	636	98.76	98.76
11 - 20	8	1.24	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: 644

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Blackgold - January 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	21	35	58	31	21	10	10	30	48	59	66	31	56	53	63	43	635
11 - 20	0	0	0	0	0	0	0	0	0	1	1	6	0	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>	21	35	58	31	21	10	10	30	48	60	67	37	56	53	63	43	643

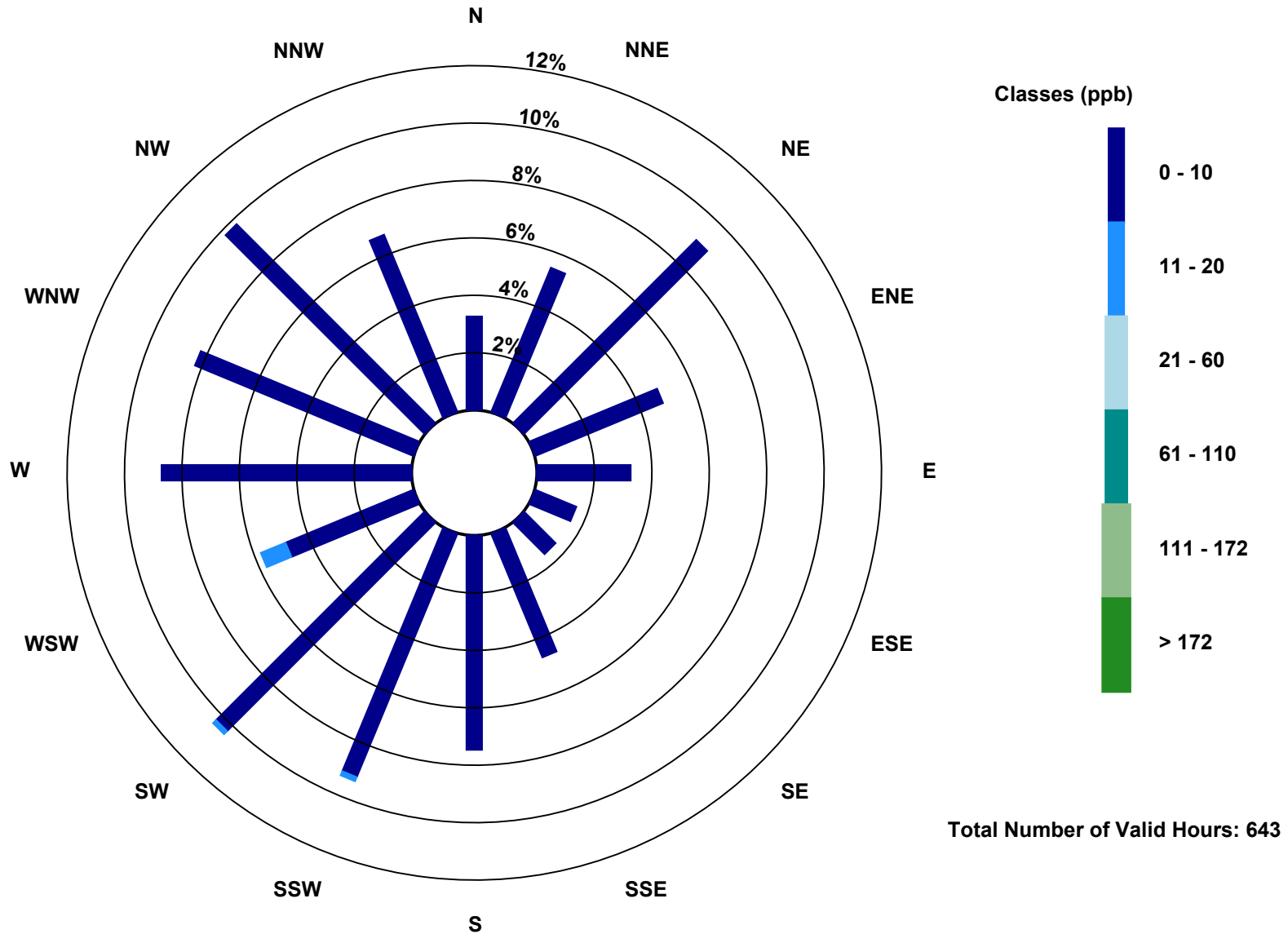
Total Number of Valid Hours: 643

Total Number of Hours: 744

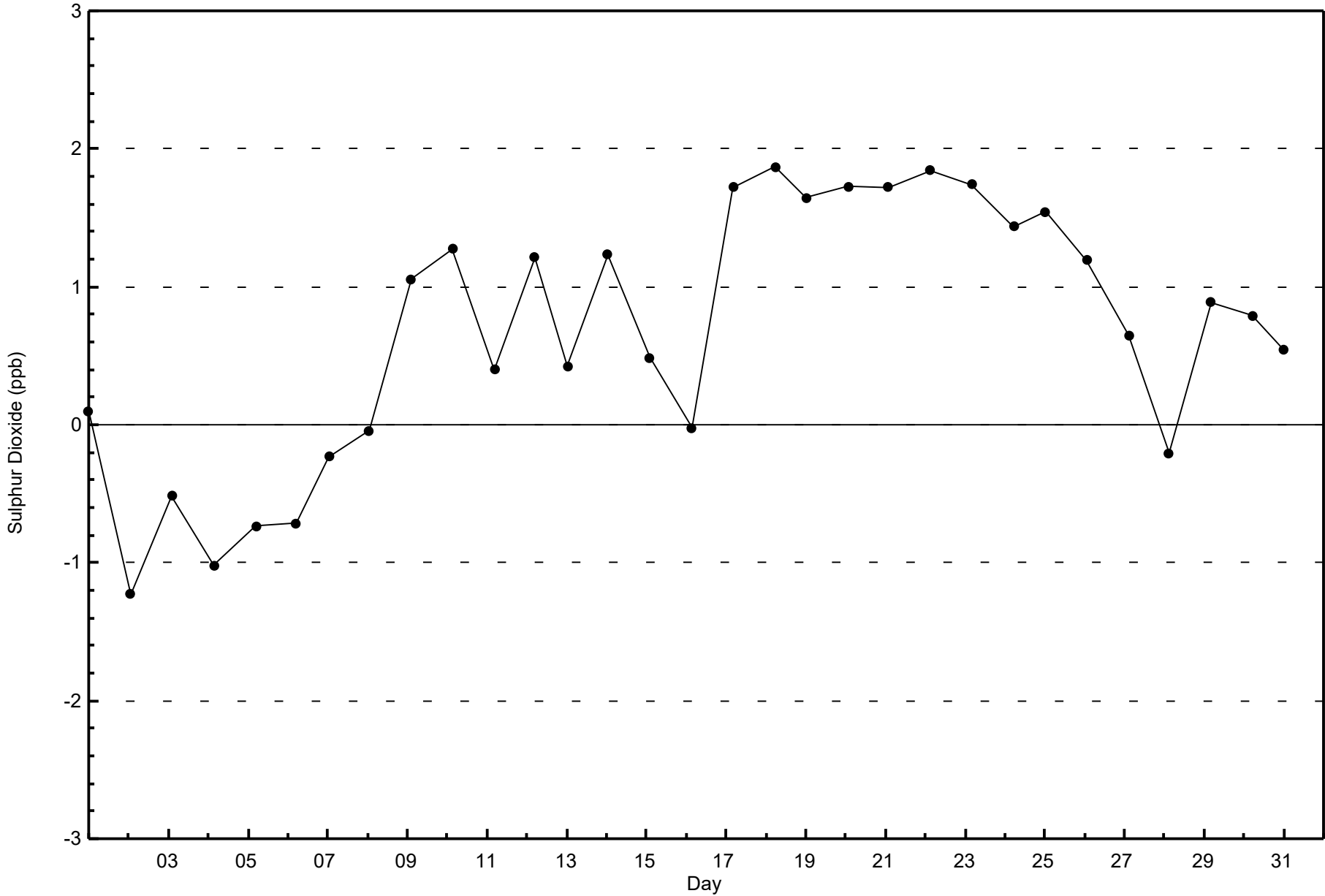


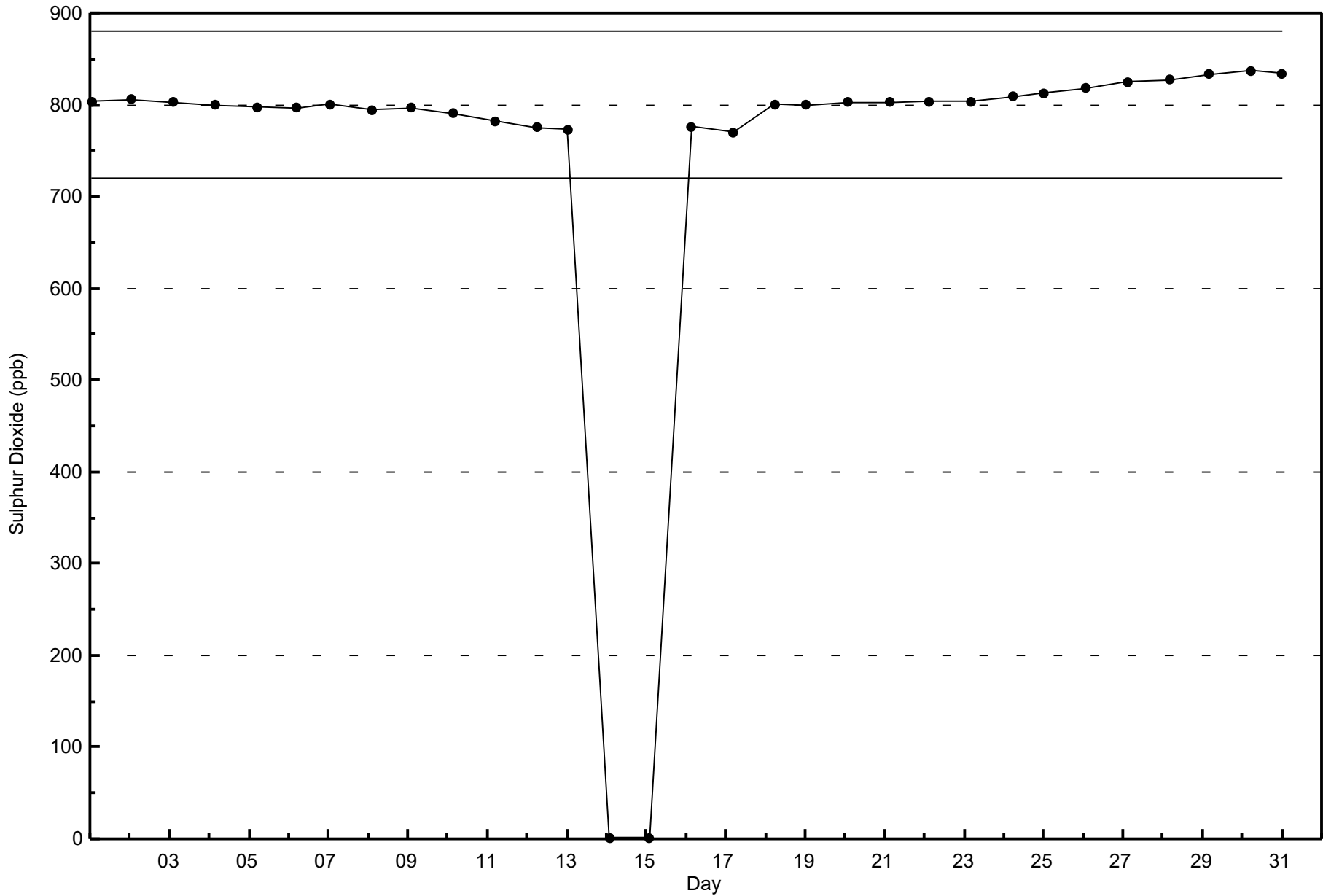
Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Blackgold

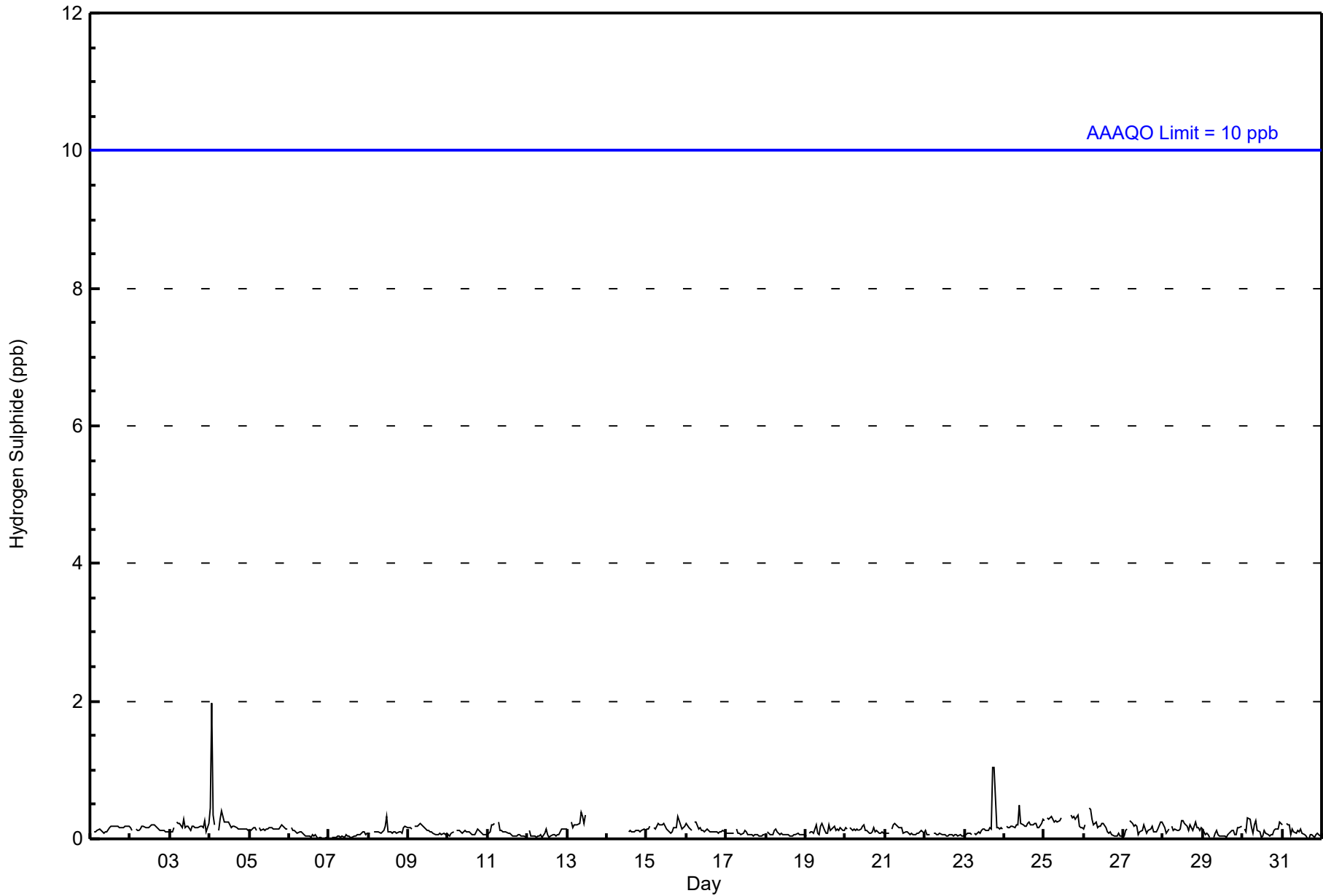














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Blackgold - January 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: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Blackgold - January 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	24	41	59	29	21	11	11	29	45	65	73	44	61	59	66	45	683
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>	24	41	59	29	21	11	11	29	45	65	73	44	61	59	66	45	683

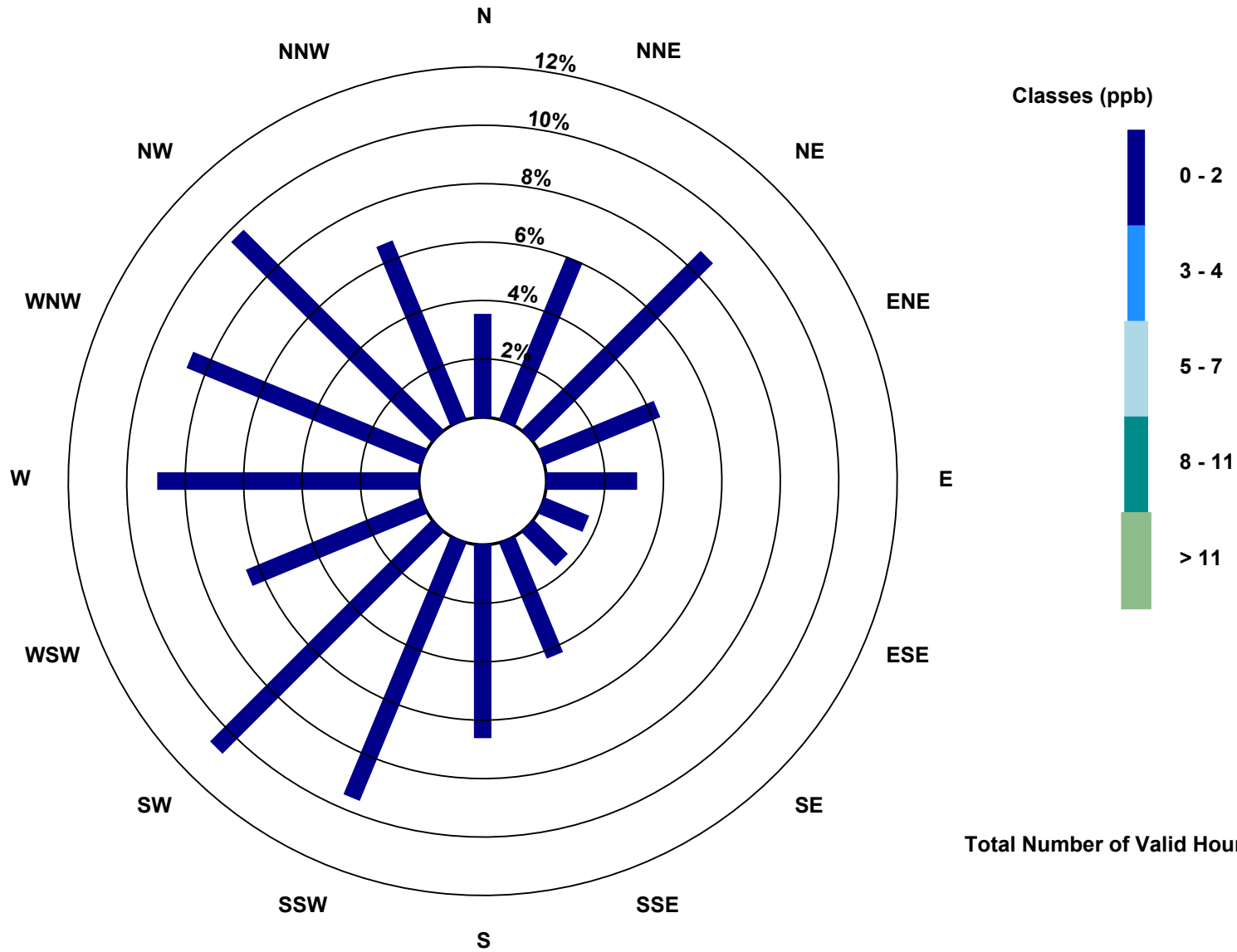
Total Number of Valid Hours: 683

Total Number of Hours: 744

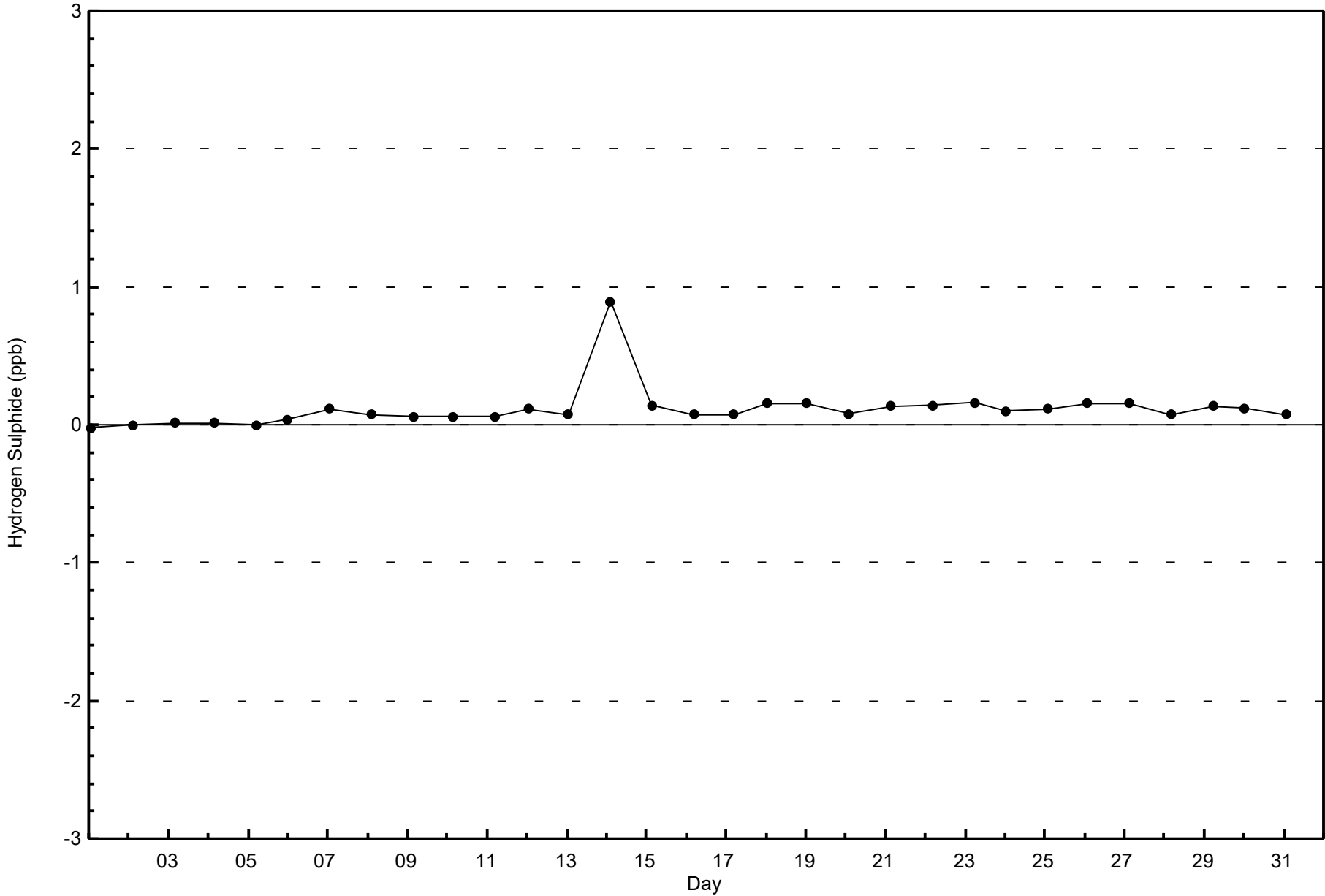


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

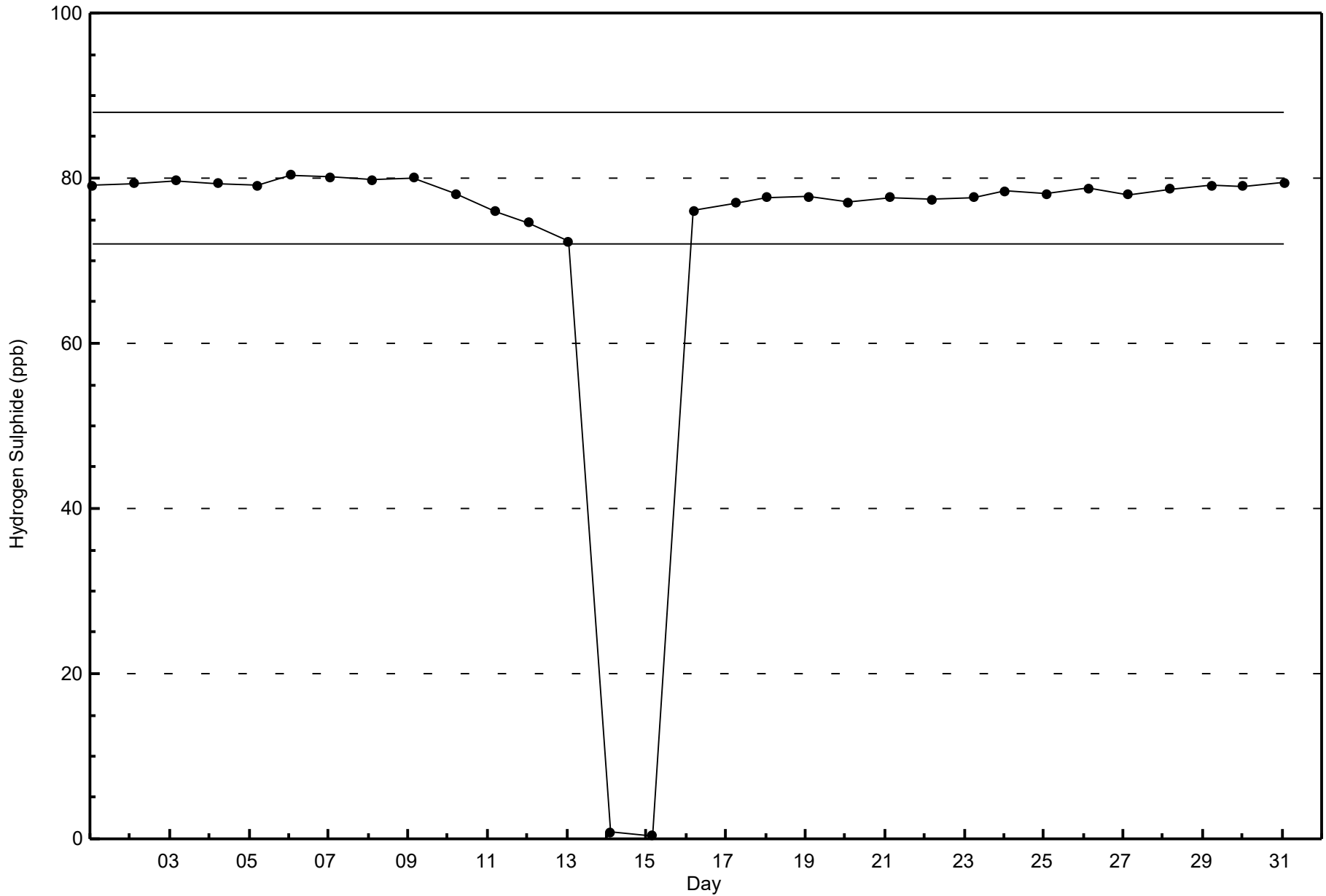
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Blackgold



Total Number of Valid Hours: 683









Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbon (THC) - ppm

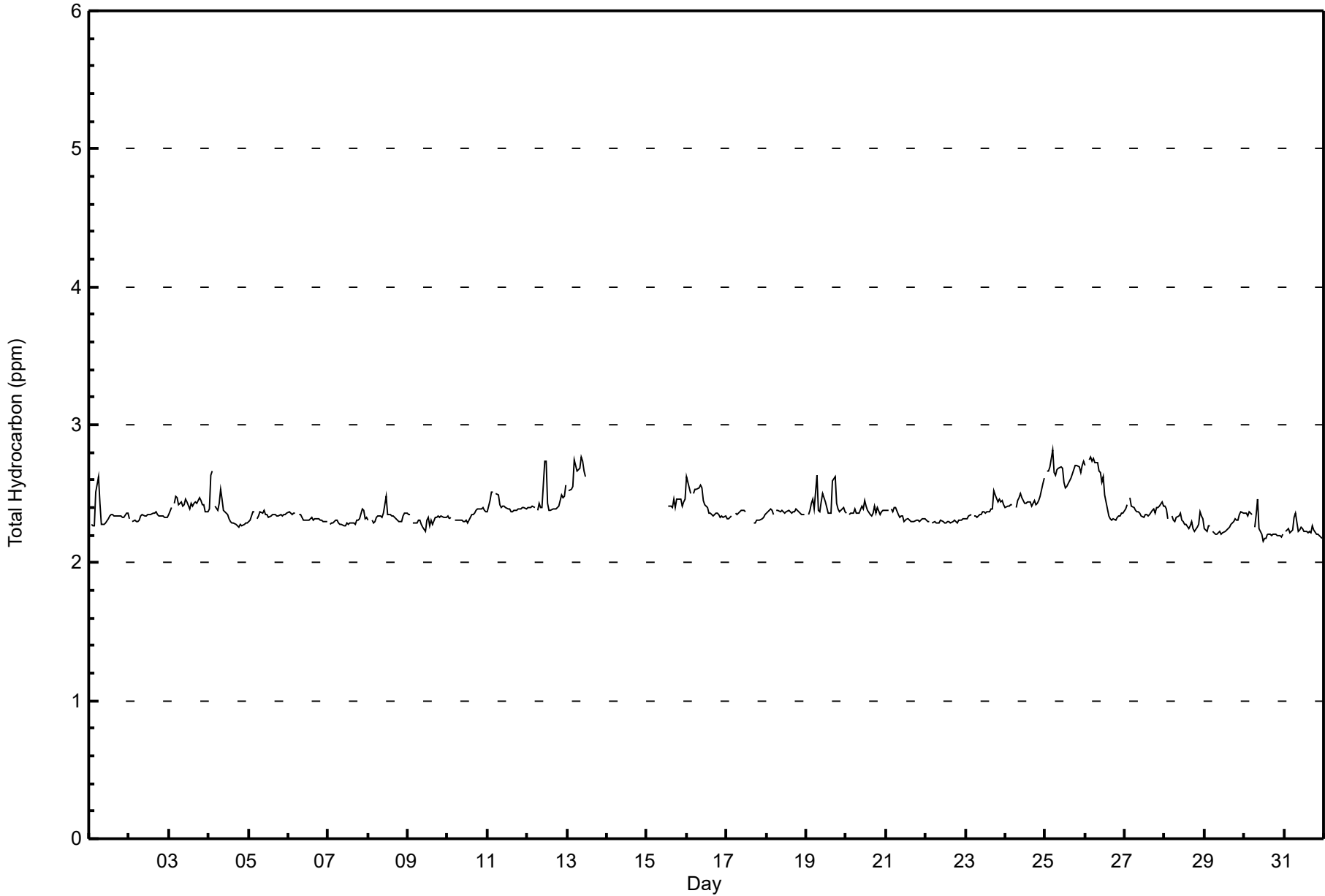
Blackgold - January 2024

Maximum Value: 2.8 ppm on Jan 25 05:00		Maximum Daily Average: 2.7 ppm on Jan 25		Hours in Service: 744																							
Minimum Value: 2.2 ppm on Jan 30 12:00		Minimum Daily Average: 2.2 ppm on Jan 31		Hours of Data: 662																							
Maximum Diurnal Average: 2.4 ppm at hour 5		Minimum Diurnal Average: 2.3 ppm at hour 15		Hours of Missing Data: 82																							
Monthly Average: 2.37 ppm		Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 2.3 Median = 2.4 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.5 P <sub>99</sub> = 2.7		Hours of Calibration: 33																							
				Percent Operational Time: 93.4																							
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-Jan	Z	2.3	2.3	2.3	2.5	2.6	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	2.4	2.3	2.6		
2-Jan	2.3	Z	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	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4		
3-Jan	2.3	2.4	Z	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.5		
4-Jan	2.4	2.6	2.7	Z	2.4	2.4	2.4	2.5	2.5	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	2.7		
5-Jan	2.3	2.3	2.4	2.4	Z	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.4		
6-Jan	2.4	2.4	2.4	2.4	2.4	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	2.4		
7-Jan	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	2.4	2.4	2.3	2.3	2.4		
8-Jan	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5		
9-Jan	2.3	2.3	Z	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3		
10-Jan	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	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		
11-Jan	2.4	2.5	2.5	2.5	Z	2.5	2.5	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	2.4	2.4	2.4	2.4	2.5		
12-Jan	2.4	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.7	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.6	2.7		
13-Jan	Z	2.5	2.5	2.6	2.8	2.7	2.7	2.7	2.8	2.7	2.7	2.6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.8		
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--		
15-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.4	2.4	2.4	2.5	2.4	2.5	2.5	2.4	2.4	2.5	--		
16-Jan	2.6	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.6		
17-Jan	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	C	C	C	C	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4			
18-Jan	2.4	2.4	2.4	2.4	2.3	Z	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	2.4	2.4	2.4	2.4	2.3	2.4		
19-Jan	Z	2.3	2.4	2.4	2.5	2.4	2.6	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.6		
20-Jan	2.4	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.5		
21-Jan	2.4	2.4	Z	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	2.3	2.3	2.3	2.4		
22-Jan	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		
23-Jan	2.3	2.3	2.3	2.4	Z	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.5	2.4	2.4	2.4	2.5		
24-Jan	2.4	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.5	2.6	2.6	2.6		
25-Jan	Z	2.7	2.7	2.7	2.8	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.8		
26-Jan	2.7	Z	2.7	2.8	2.7	2.8	2.7	2.7	2.7	2.7	2.6	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.8		
27-Jan	2.4	2.4	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5		
28-Jan	2.4	2.4	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.4		
29-Jan	2.2	2.2	2.3	2.3	Z	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	2.3	2.4	2.4	2.4		
30-Jan	2.4	2.4	2.3	2.4	2.3	Z	2.3	2.4	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5		
31-Jan	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.2	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	2.2	2.4		
2.4																								Diurnal Average			
2.7																								Diurnal Maximum			
Z - zerospan				C - Calibration				UO - Unstable Operation																			



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbon (THC) - ppm**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbon (THC) - ppm**  
**Blackgold - January 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	662	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: 662

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbon (THC) - ppm  
Blackgold - January 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	22	37	60	31	22	10	10	30	49	64	69	37	56	54	65	45	661
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>	22	37	60	31	22	10	10	30	49	64	69	37	56	54	65	45	661

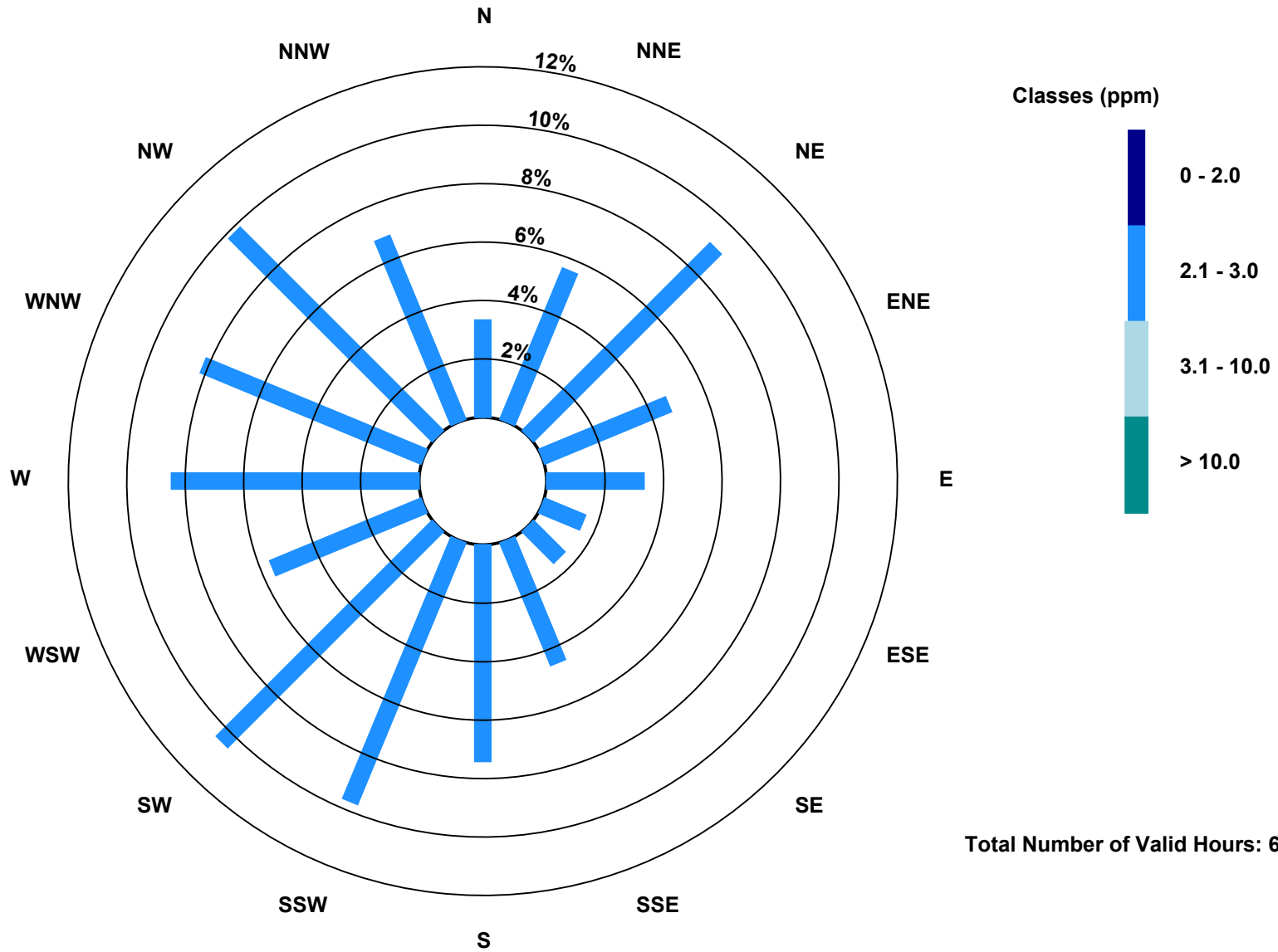
Total Number of Valid Hours: 661

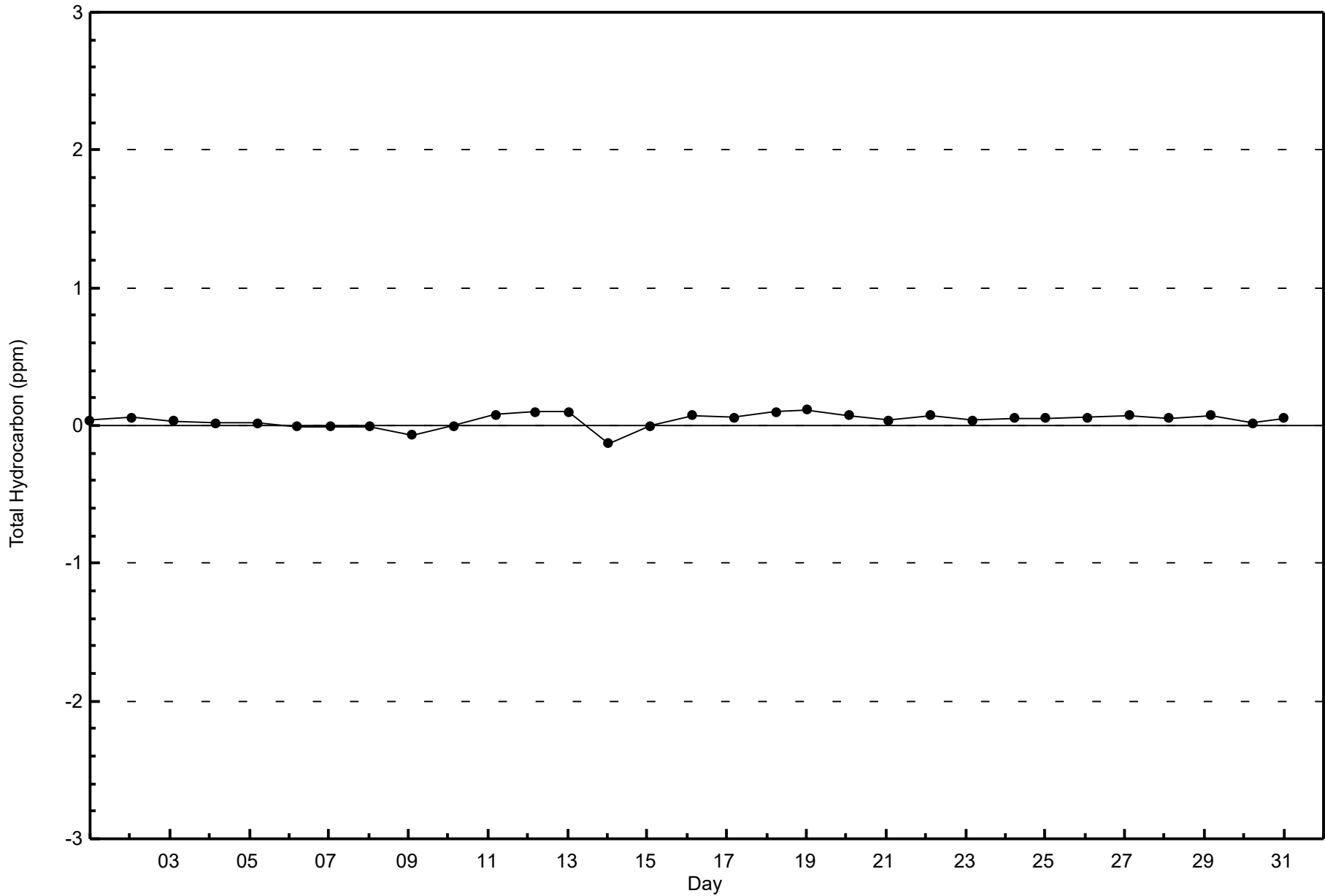
Total Number of Hours: 744

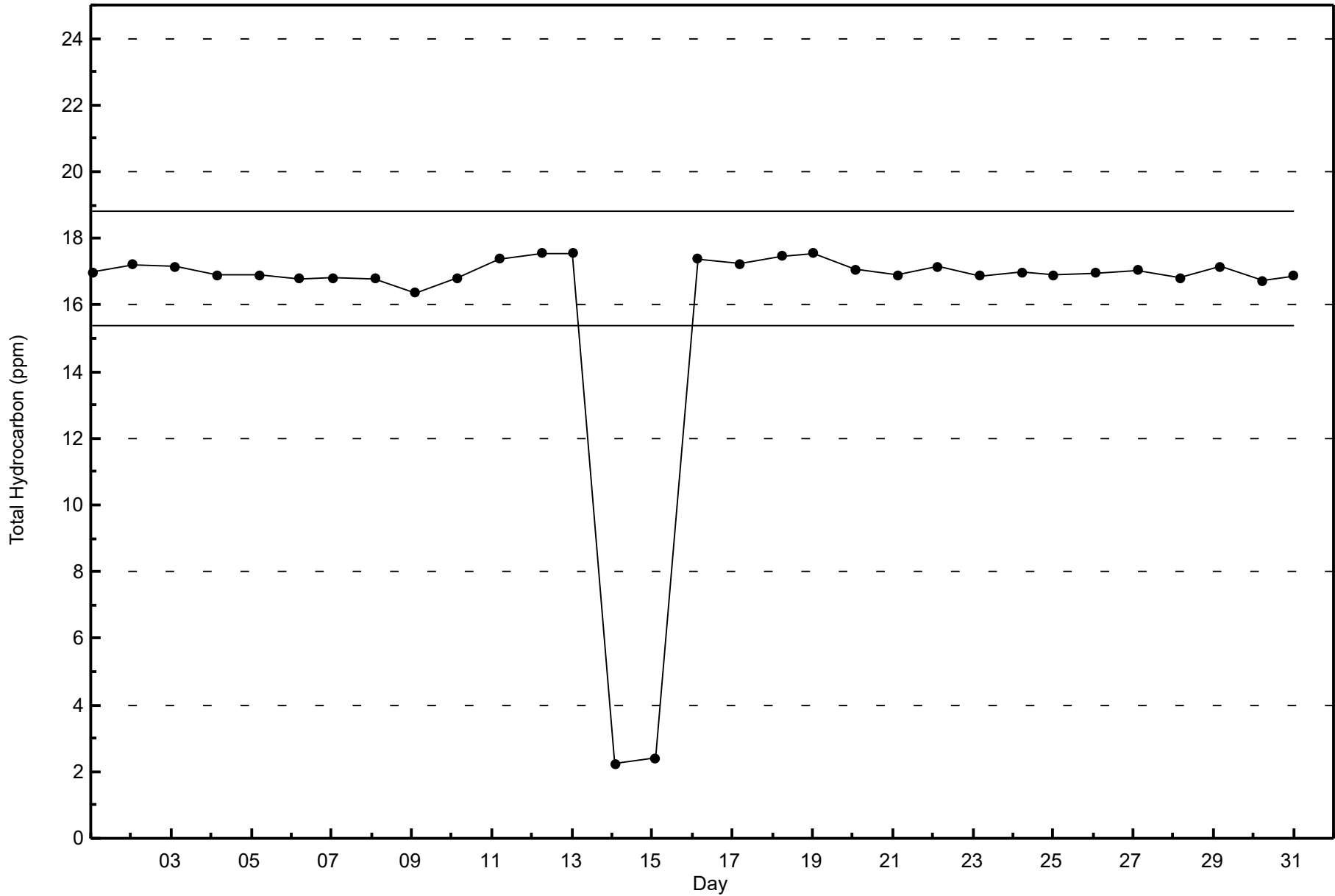


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Total Hydrocarbon (THC) - ppm  
Blackgold











**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

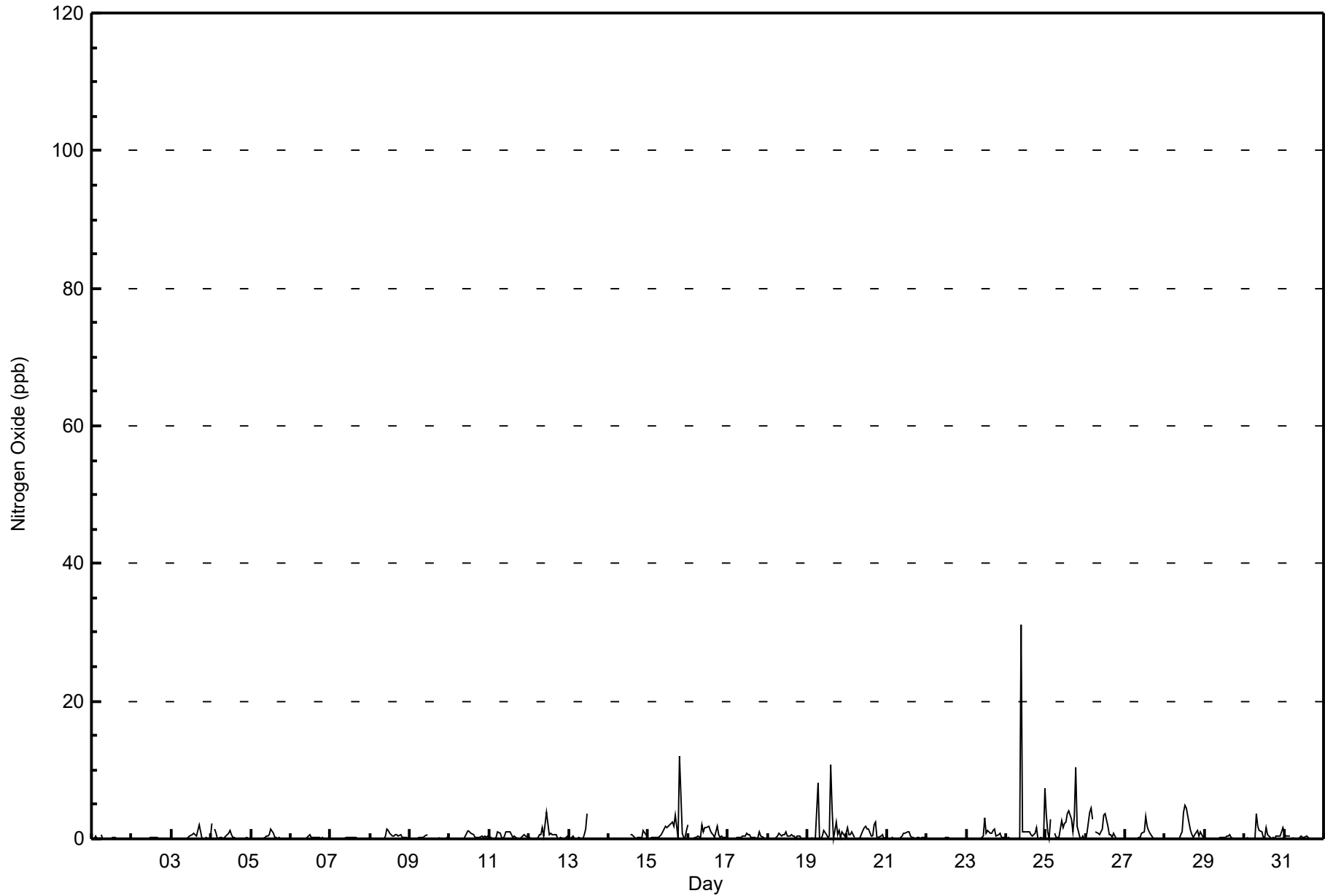
**Nitrogen Oxide (NO) - ppb**  
**Blackgold - January 2024**

Maximum Value: 31.0 ppb on Jan 24 10:00		Maximum Daily Average: 2.1 ppb on Jan 24		Hours in Service: 744																									
Minimum Value: 0.0 ppb on Jan 1 02:00		Minimum Daily Average: 0.0 ppb on Jan 22		Hours of Data: 683																									
Maximum Diurnal Average: 1.6 ppb at hour 10		Minimum Diurnal Average: 0.1 ppb at hour 2		Hours of Missing Data: 61																									
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 = 0.2 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.4 P <sub>99</sub> = 4.6		Hours of Calibration: 36																									
				Percent Operational Time: 96.6																									
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-Jan	0.1	0.0	0.4	0.0	Z	0.5	0.0	0.0	0.0	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	0.1	0.5				
2-Jan	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3			
3-Jan	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.8	0.6	0.4	1.3	2.0	0.0	0.0	0.0	0.2	0.0	0.2	2.0				
4-Jan	2.1	Z	1.4	0.9	0.0	0.1	0.3	0.0	0.1	0.3	0.8	1.3	0.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	2.1				
5-Jan	0.2	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.3	0.7	1.4	0.8	0.3	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	1.4				
6-Jan	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.6	0.1	0.2	0.3	0.1	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.6				
7-Jan	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2				
8-Jan	0.1	0.1	0.1	0.1	0.1	Z	0.0	0.1	0.1	0.4	1.4	1.2	0.9	0.5	0.5	0.5	0.5	0.4	0.6	0.2	0.2	0.2	0.2	0.0	1.4				
9-Jan	Z	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.4	0.6	C	C	C	C	C	C	0.3	0.1	0.1	0.1	0.0	0.1	0.0	0.6				
10-Jan	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	1.2	1.1	0.7	0.6	0.3	0.2	0.2	0.2	0.3	0.1	0.4	0.3	0.4	1.2				
11-Jan	0.2	0.2	Z	0.1	0.2	1.0	0.8	0.2	0.1	0.5	1.0	1.0	1.0	0.7	0.3	0.4	0.2	0.1	0.0	0.1	0.4	0.7	0.5	0.3	1.0				
12-Jan	0.2	0.0	0.0	Z	0.0	0.2	0.6	0.5	1.6	0.4	3.8	2.2	0.7	0.9	0.7	0.6	0.5	0.0	0.0	0.1	0.0	0.0	0.1	0.4	3.8				
13-Jan	0.1	0.0	0.3	0.0	Z	0.1	0.2	0.0	0.1	0.6	1.5	3.7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3.7				
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.6	0.7	0.3	0.1	0.2	0.1	0.1	0.1	1.3	0.6	0.4	1.3				
15-Jan	Z	0.1	0.2	0.1	0.2	0.1	0.2	0.4	0.6	1.4	1.8	1.7	1.9	2.0	2.5	1.9	3.5	1.9	0.1	12.0	0.9	0.3	0.1	1.2	12.0				
16-Jan	2.1	Z	0.1	0.0	0.1	0.3	0.3	0.2	2.1	0.9	1.5	1.6	1.8	1.2	0.8	0.5	0.2	1.8	0.7	0.1	0.4	0.3	0.1	0.1	2.1				
17-Jan	0.0	0.1	Z	0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.4	0.8	0.6	0.5	0.3	0.2	0.2	0.1	0.1	1.0	0.3	0.2	0.1	0.1	1.0				
18-Jan	0.1	0.1	0.0	Z	0.1	0.1	0.3	0.8	0.4	0.7	0.6	1.0	0.4	0.5	0.7	0.5	0.3	0.0	0.3	0.5	0.1	0.1	0.1	0.1	1.0				
19-Jan	0.1	0.0	0.0	0.2	Z	0.0	8.1	0.2	0.0	0.5	1.2	0.7	0.3	0.5	10.8	4.3	0.0	2.5	0.7	1.3	0.2	1.1	0.5	0.8	10.8				
20-Jan	1.6	0.6	0.6	1.0	0.2	Z	0.0	0.0	0.1	1.3	1.6	1.8	1.4	1.4	0.5	0.5	2.1	2.3	0.2	0.1	0.4	0.5	0.0	0.1	2.3				
21-Jan	Z	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.7	0.7	1.0	1.0	0.5	0.3	0.2	0.0	0.1	0.2	0.1	0.1	0.2	0.1	1.0				
22-Jan	0.1	Z	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2				
23-Jan	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.3	3.1	0.9	1.2	0.8	0.8	1.1	1.4	0.5	0.6	0.9	0.2	0.2	0.3	3.1				
24-Jan	0.1	0.1	0.0	Z	0.1	0.1	0.0	0.0	0.1	31.0	1.0	1.0	1.0	1.0	1.0	0.7	0.3	0.8	1.6	0.0	0.0	0.2	0.0	7.2	31.0				
25-Jan	3.4	0.9	0.1	2.8	Z	0.8	0.2	0.2	0.3	2.5	1.7	2.3	2.5	3.6	4.2	2.9	1.0	3.2	10.5	1.9	0.3	0.1	0.3	0.0	10.5				
26-Jan	0.0	0.8	3.9	4.5	2.8	Z	1.0	0.8	0.5	1.0	1.4	3.5	3.6	1.9	0.7	0.5	0.1	0.8	0.0	0.0	0.0	0.1	0.0	0.0	4.5				
27-Jan	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.7	1.1	3.3	1.9	1.2	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	3.3				
28-Jan	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.5	1.1	4.0	4.9	4.5	2.2	1.2	0.6	0.3	0.6	1.3	0.4	0.9	0.6	0.3	4.9				
29-Jan	0.2	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.4	0.3	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7				
30-Jan	0.0	0.0	0.1	Z	0.1	0.1	0.0	3.7	1.9	1.1	0.9	0.3	0.2	1.6	0.6	0.3	0.1	0.2	0.0	0.4	0.4	0.5	0.9	1.7	3.7				
31-Jan	0.8	0.4	0.4	0.5	Z	0.2	0.0	0.0	0.1	0.3	0.5	0.2	0.2	0.4	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8				
		0.5	0.1	0.3	0.4	0.2	0.2	0.4	0.3	0.3	1.6	0.9	1.3	1.1	1.0	1.1	0.7	0.5	0.6	0.5	0.7	0.2	0.2	0.5	Diurnal Average				
		3.4	0.9	3.9	4.5	2.8	1.0	8.1	3.7	2.1	31.0	3.8	4.0	4.9	4.5	10.8	4.3	3.5	3.2	10.5	12.0	0.9	1.3	0.9	7.2	Diurnal Maximum			
Z - zerospan		C - Calibration				UO - Unstable Operation																							



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxide (NO) - ppb**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxide (NO) - ppb  
Blackgold - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	682	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: 683

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxide (NO) - ppb  
Blackgold - January 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	24	38	58	29	23	10	10	30	50	65	71	43	56	61	71	42	681
21 - 40	0	0	0	0	0	0	1	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>	24	38	58	29	23	10	11	30	50	65	71	43	56	61	71	42	682

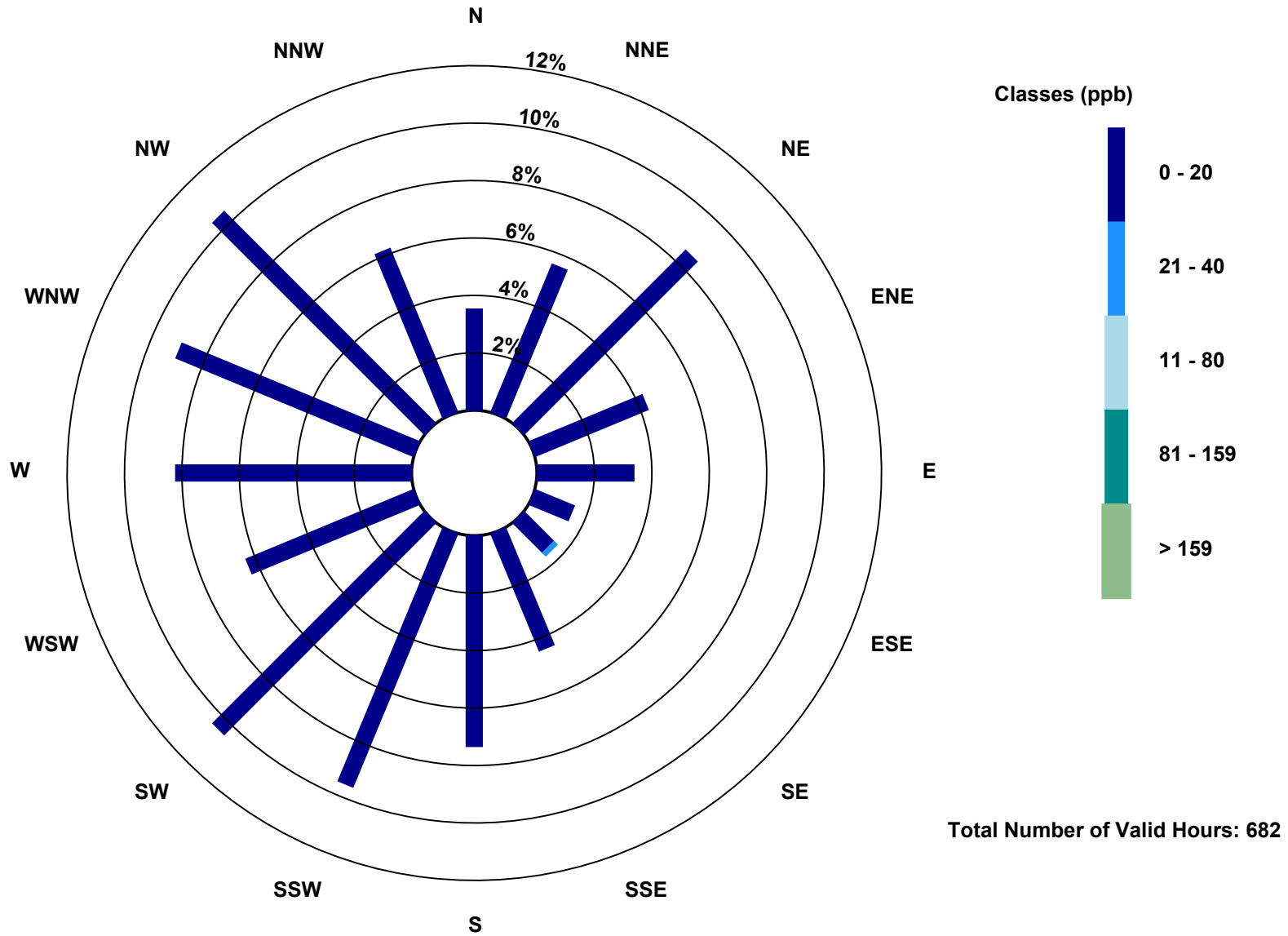
Total Number of Valid Hours: 682

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

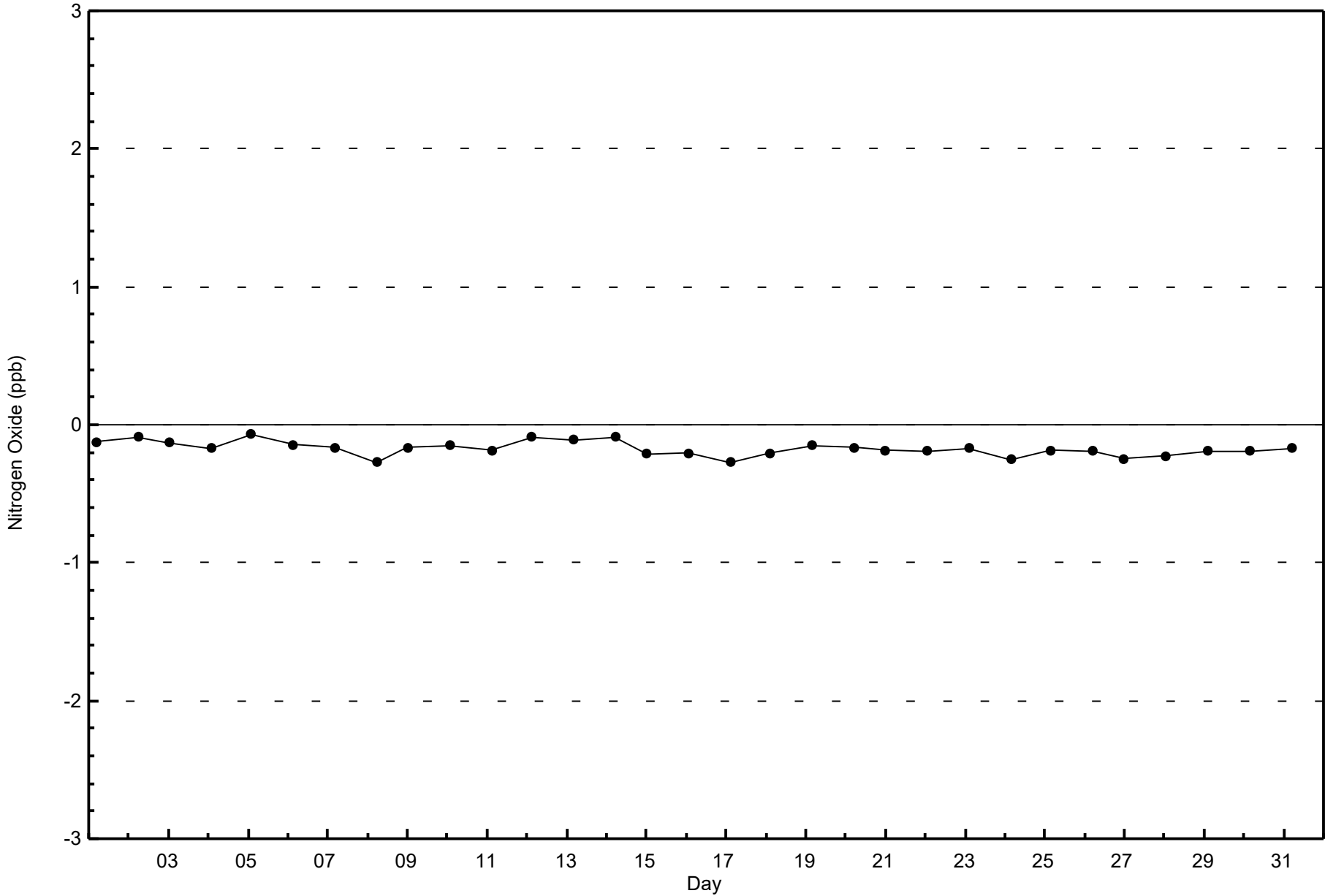
Nitrogen Oxide (NO) - ppb  
Blackgold

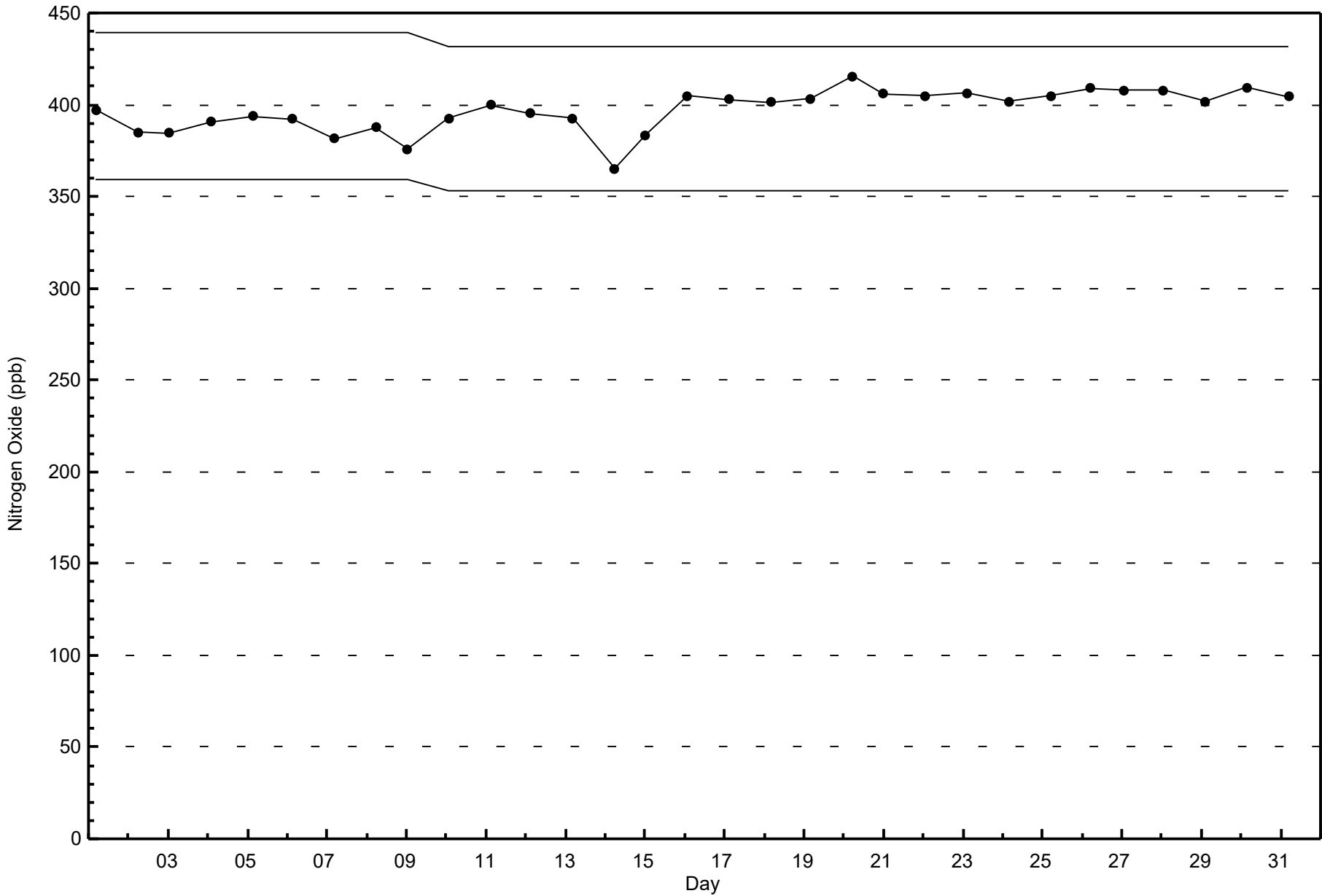




**Wood Buffalo Environmental Association**  
**Zero Responses**

**Nitrogen Oxide (NO) - ppb**  
**Blackgold - January 2024**







# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

## Blackgold - January 2024

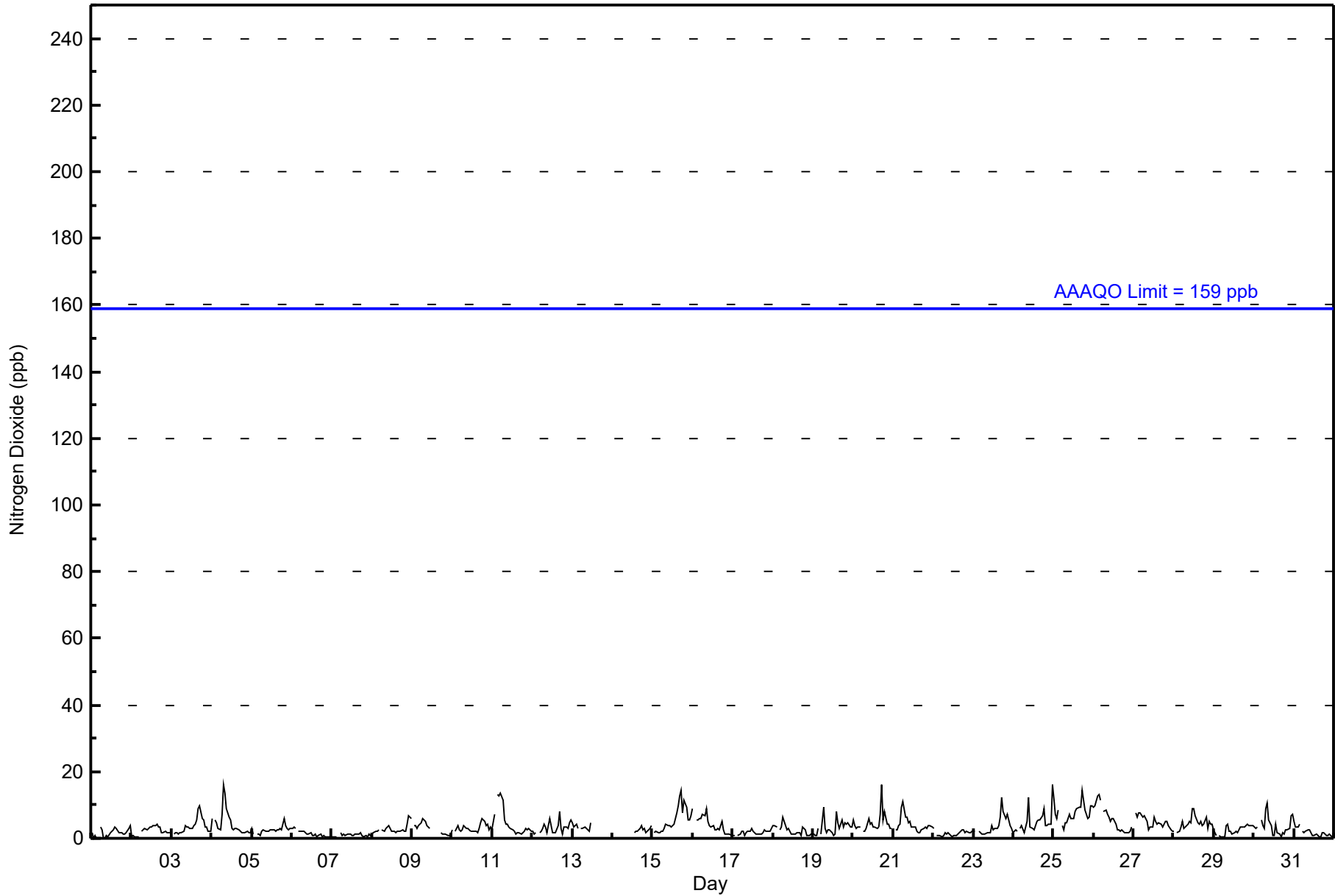
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744																												
Maximum Value: 16.2 ppb on Jan 4 08:00		Maximum Daily Average: 7.6 ppb on Jan 25																	Hours of Data:		683																												
Minimum Value: 0.0 ppb on Jan 1 09:00		Minimum Daily Average: 0.9 ppb on Jan 7																	Hours of Missing Data:		61																												
Maximum Diurnal Average: 4.6 ppb at hour 18		Minimum Diurnal Average: 2.8 ppb at hour 13																	Hours of Calibration:		36																												
Monthly Average: 3.44 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.7 Median = 2.8 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 6.7 P <sub>99</sub> = 13.2																	Percent Operational Time:		96.6																												
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-Jan	1.6	0.1	1.0	0.2	Z	3.2	2.5	0.1	0.0	0.8	0.3	1.6	2.2	2.4	3.3	2.9	1.9	1.6	1.5	1.4	1.4	1.6	3.0	3.7	1.7	3.7																							
2-Jan	0.5	0.7	0.4	0.6	0.6	Z	2.0	2.7	3.1	2.7	2.9	3.2	3.5	3.8	4.0	4.1	3.4	3.3	1.7	1.8	2.2	1.8	1.9	1.9	2.3	4.1																							
3-Jan	Z	1.3	1.5	1.6	1.3	1.6	1.9	2.0	3.8	3.3	3.4	2.9	2.9	4.0	4.4	5.7	9.0	9.6	5.9	5.6	3.4	3.4	2.3	2.2	3.6	9.6																							
4-Jan	5.8	Z	5.7	4.6	2.9	2.7	7.4	16.2	13.5	8.7	6.2	5.7	3.0	2.5	3.0	2.8	2.7	2.1	1.5	1.5	1.5	2.0	1.6	1.8	4.6	16.2																							
5-Jan	2.8	1.4	Z	1.3	1.2	0.9	2.1	2.6	2.1	2.0	2.1	2.4	2.7	2.5	2.2	2.4	2.5	3.1	2.7	5.8	4.0	3.0	2.6	2.9	2.5	5.8																							
6-Jan	3.1	3.3	3.0	Z	2.3	2.2	2.0	2.1	1.9	1.2	1.1	1.6	0.9	1.0	1.4	0.6	1.0	1.1	0.6	0.9	0.4	0.3	0.3	0.5	1.4	3.3																							
7-Jan	0.3	0.3	0.3	0.3	Z	1.6	0.9	1.1	0.9	1.3	1.1	1.1	0.8	0.8	1.1	1.2	1.3	1.8	0.9	0.4	0.7	0.5	1.2	0.8	0.9	1.8																							
8-Jan	1.2	1.5	2.0	2.0	2.4	Z	2.4	2.0	2.8	3.5	4.0	3.1	2.1	2.0	1.8	2.2	2.1	2.3	2.6	2.3	2.2	4.3	6.7	6.0	2.8	6.7																							
9-Jan	Z	3.9	3.9	3.0	3.9	4.7	5.9	5.5	4.9	3.9	2.8	C	C	C	C	C	C	1.6	1.2	1.2	1.1	0.7	0.9	1.1	--	5.9																							
10-Jan	2.5	Z	2.1	3.7	2.5	2.1	2.6	3.7	2.8	2.8	2.4	2.3	2.2	2.1	2.3	1.9	2.8	4.6	6.0	5.2	3.7	4.3	2.7	3.3	3.1	6.0																							
11-Jan	2.4	7.4	Z	13.1	12.7	13.4	11.4	5.6	4.3	4.3	3.4	2.8	2.5	2.1	1.1	1.8	1.5	1.4	1.6	2.0	2.8	2.7	2.8	2.2	4.6	13.4																							
12-Jan	2.0	1.4	1.5	Z	1.9	2.1	2.8	4.2	3.5	1.7	6.1	3.8	1.5	1.9	1.9	3.7	8.0	3.0	1.3	3.5	3.4	3.0	4.5	5.7	3.1	8.0																							
13-Jan	4.5	3.5	4.4	2.9	Z	2.9	3.1	3.2	3.1	2.4	2.1	4.7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	4.7																							
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.8	2.3	2.2	2.8	4.0	2.5	2.8	1.9	2.3	2.9	3.7	--	4.0																							
15-Jan	Z	1.5	2.1	1.5	1.5	2.0	2.3	2.9	4.4	4.0	4.0	3.4	3.7	4.4	7.6	9.9	12.9	14.3	7.5	11.3	9.2	5.3	5.5	6.7	5.6	14.3																							
16-Jan	9.1	Z	5.6	5.6	5.8	5.9	7.2	6.9	8.7	5.1	3.9	3.3	3.8	2.6	2.5	3.1	2.6	5.2	2.4	1.2	1.3	1.3	1.2	1.0	4.1	9.1																							
17-Jan	1.0	0.8	Z	1.0	1.1	2.2	2.0	1.0	1.7	2.2	2.1	3.1	2.3	1.5	1.1	1.4	1.4	1.1	1.8	2.5	2.0	2.0	2.3	2.8	1.8	3.1																							
18-Jan	4.0	3.8	3.3	Z	2.4	3.6	6.3	4.9	2.6	2.9	2.0	1.4	1.1	1.3	1.5	1.7	1.7	0.9	3.3	2.7	0.9	0.8	1.0	1.1	2.4	6.3																							
19-Jan	1.1	0.9	0.7	2.8	Z	1.4	9.5	2.9	1.9	2.5	2.7	1.6	0.9	1.4	7.9	4.7	2.8	5.7	3.5	4.7	4.2	4.7	3.3	3.6	3.3	9.5																							
20-Jan	5.6	3.8	2.8	3.3	3.2	Z	2.2	2.2	2.9	5.9	4.4	4.6	3.3	3.5	2.8	3.3	7.1	16.0	5.5	8.2	4.3	4.3	3.1	3.0	4.6	16.0																							
21-Jan	Z	2.7	2.4	3.8	4.1	9.5	11.0	6.5	6.2	4.5	5.0	3.2	3.4	3.4	2.2	1.5	1.9	2.4	2.9	3.2	2.8	3.8	3.7	3.6	4.1	11.0																							
22-Jan	3.1	Z	0.9	0.9	0.7	0.6	1.0	1.5	1.4	1.6	0.8	0.5	1.0	0.9	0.8	1.2	2.2	2.7	2.5	1.6	2.1	1.7	1.6	2.0	1.4	3.1																							
23-Jan	2.1	2.1	Z	2.0	1.8	1.3	1.4	1.3	1.6	1.7	1.7	3.7	2.4	2.9	3.0	3.8	6.5	12.3	8.0	5.8	7.2	5.5	3.7	2.8	3.7	12.3																							
24-Jan	1.5	2.4	2.2	Z	3.0	3.7	1.8	3.3	5.1	12.4	3.5	2.9	2.7	3.8	5.2	5.6	5.5	6.7	9.1	3.9	3.7	4.1	4.3	16.1	4.9	16.1																							
25-Jan	11.7	7.4	5.9	8.3	Z	4.0	2.5	4.5	4.7	7.1	5.8	5.9	5.8	7.9	8.8	9.2	9.3	14.2	11.4	8.6	6.1	6.5	9.9	9.8	7.6	14.2																							
26-Jan	9.2	9.8	12.7	13.2	11.3	Z	8.0	8.5	7.3	6.2	4.9	5.9	6.1	4.3	2.6	2.7	2.3	2.7	1.8	1.6	1.8	1.8	2.2	3.6	5.7	13.2																							
27-Jan	Z	7.6	6.2	7.6	7.8	6.4	6.8	6.0	5.2	2.6	3.5	3.6	6.3	4.9	4.3	4.5	4.4	3.6	4.1	5.2	5.0	3.8	2.6	2.1	5.0	7.8																							
28-Jan	2.2	Z	1.5	2.1	3.2	5.1	2.8	3.3	4.1	4.9	4.5	9.0	8.9	6.9	4.8	4.3	5.1	3.7	4.4	6.3	3.1	4.9	4.4	4.4	4.5	9.0																							
29-Jan	2.6	0.9	Z	0.8	0.4	0.5	0.5	3.9	4.3	2.1	2.3	1.2	1.6	2.3	1.7	2.6	3.2	3.6	3.3	3.9	4.2	3.9	3.8	3.8	2.5	4.3																							
30-Jan	3.6	2.9	3.4	Z	5.7	3.9	3.1	8.8	10.7	5.3	4.0	0.8	0.7	4.1	1.8	1.4	0.6	1.5	1.1	2.4	2.7	3.1	6.6	7.1	3.7	10.7																							
31-Jan	5.2	3.3	3.2	4.1	Z	2.2	1.7	2.2	2.4	2.5	1.5	0.8	1.0	1.4	0.8	0.4	0.3	1.6	1.8	0.7	0.7	1.1	0.7	0.3	1.7	5.2																							
																								3.5	3.0	3.1	3.6	3.5	3.5	3.9	4.1	4.1	3.7	3.2	3.1	2.8	2.9	3.0	3.2	3.8	4.6	3.5	3.6	3.0	3.0	3.1	3.7	Diurnal Average	
																								11.7	9.8	12.7	13.2	12.7	13.4	11.4	16.2	13.5	12.4	6.2	9.0	8.9	7.9	8.8	9.9	12.9	16.0	11.4	11.3	9.2	6.5	9.9	16.1	Diurnal Maximum	
Z - zerospan																								C - Calibration				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**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Blackgold - January 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: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Blackgold - January 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	24	38	58	29	23	10	11	30	50	65	71	43	56	61	71	42	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>	24	38	58	29	23	10	11	30	50	65	71	43	56	61	71	42	682

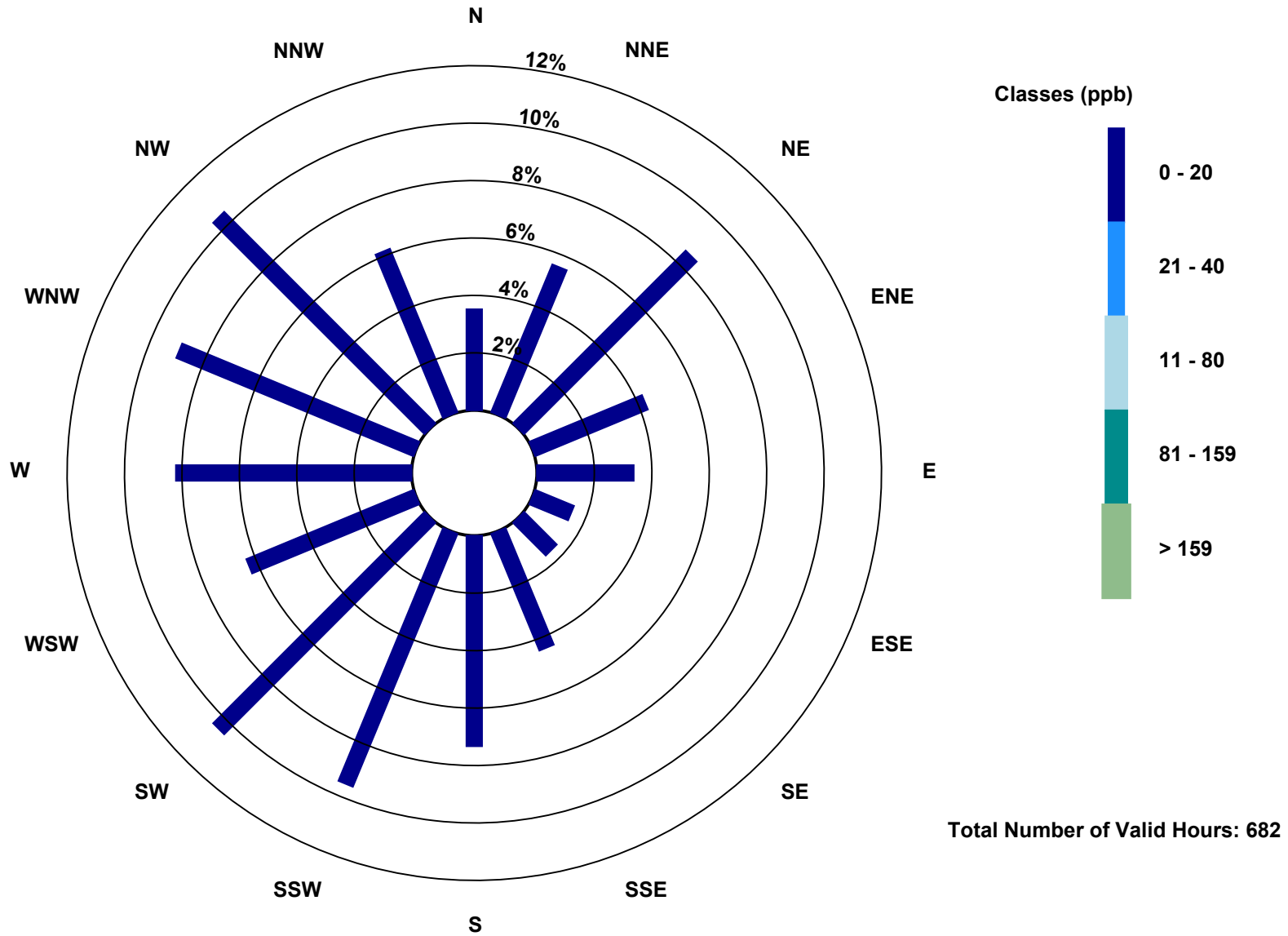
Total Number of Valid Hours: 682

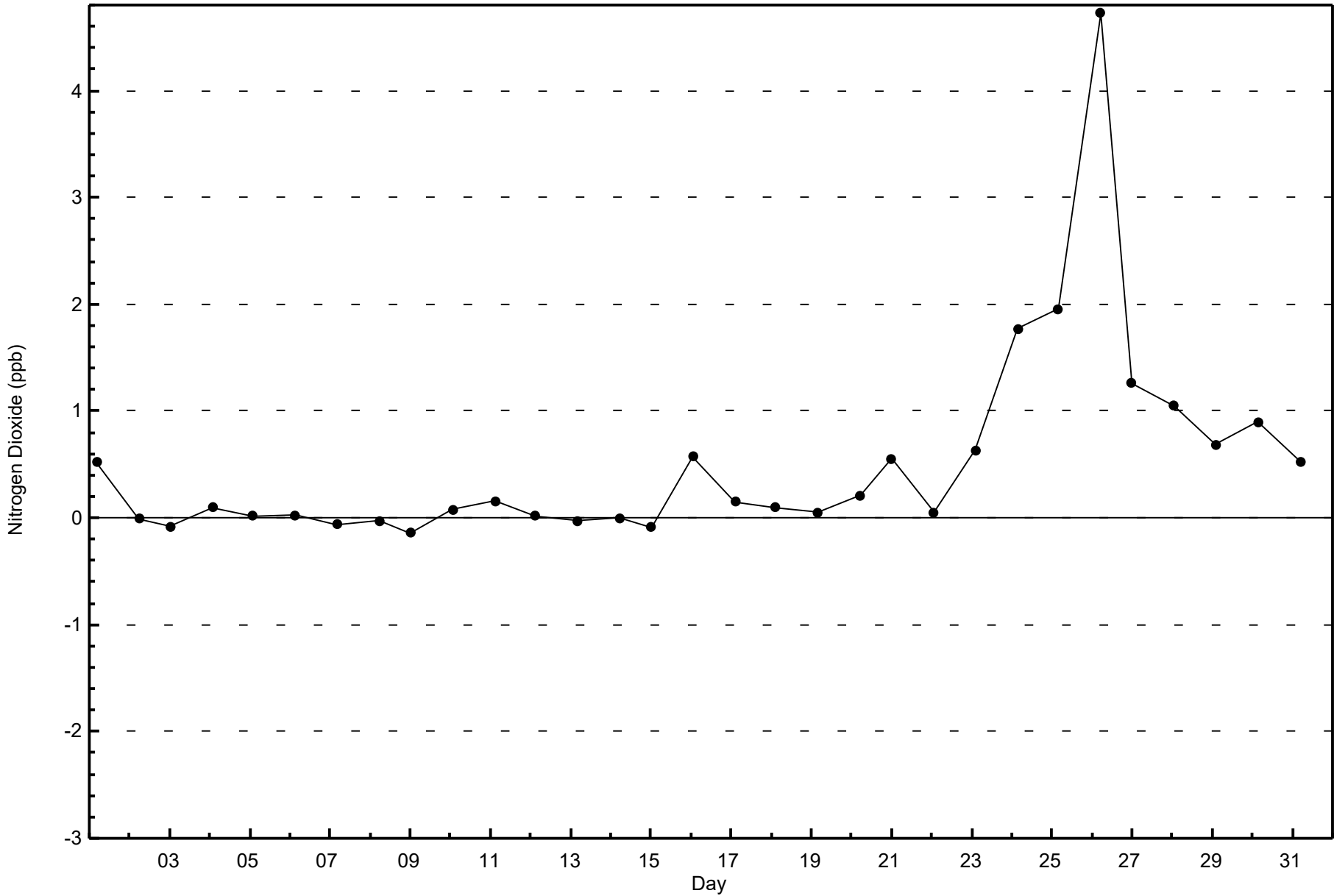
Total Number of Hours: 744

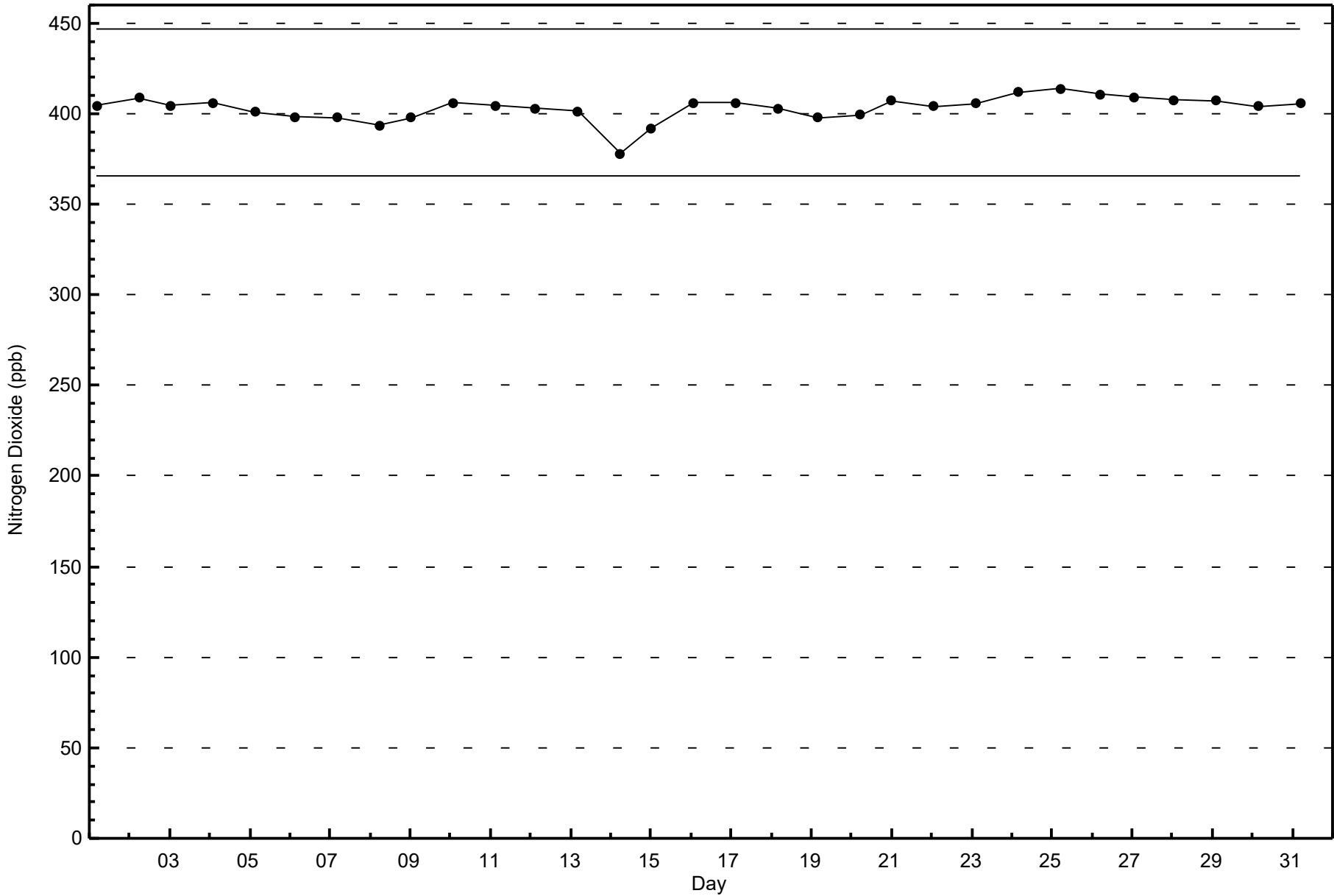


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Blackgold









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

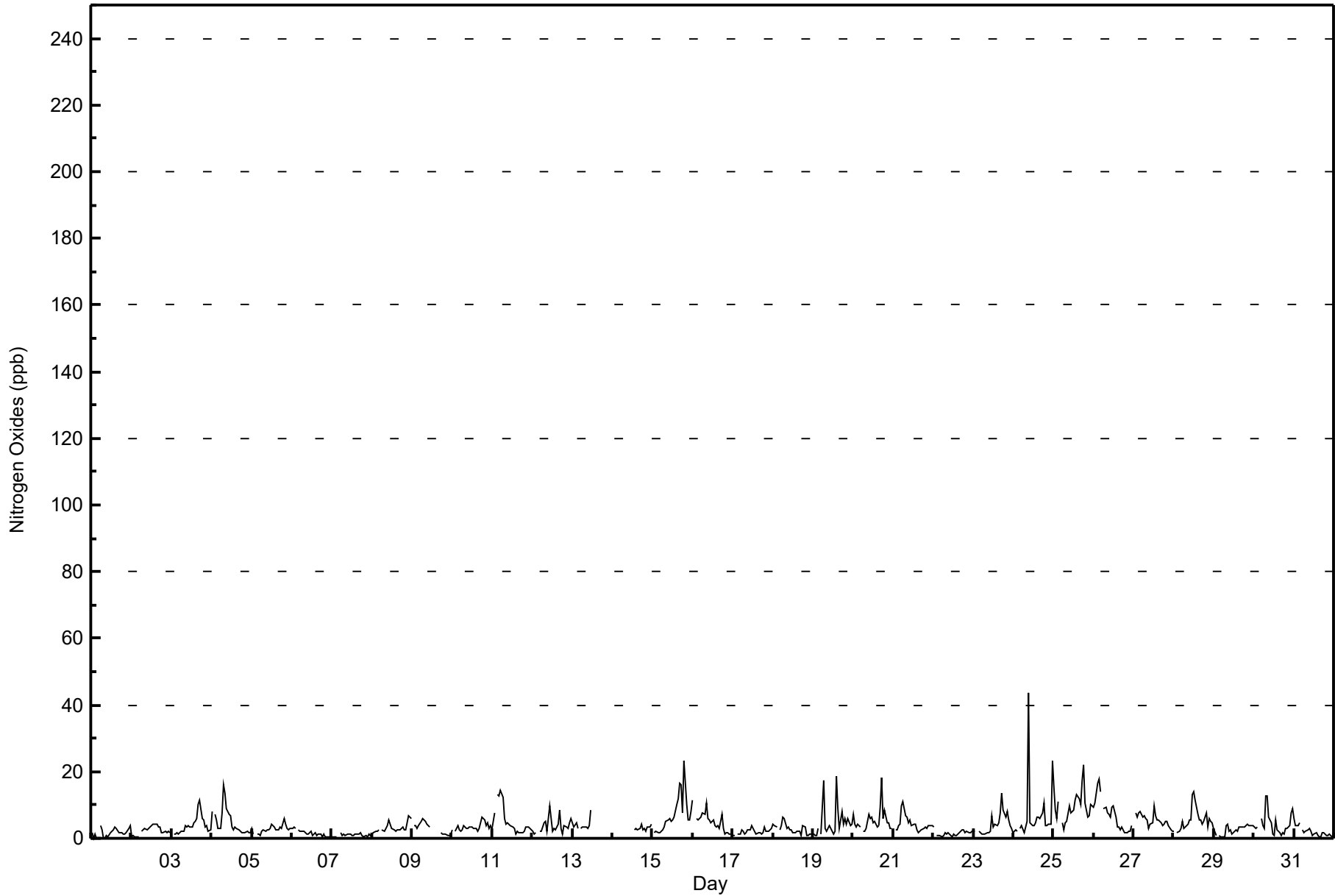
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Blackgold - January 2024**

Maximum Value: 43.4 ppb on Jan 24 10:00      Maximum Daily Average: 9.6 ppb on Jan 25																				Hours in Service: 744 Hours of Data: 683									
Minimum Value: 0.0 ppb on Jan 1 09:00      Minimum Daily Average: 1.0 ppb on Jan 7 Maximum Diurnal Average: 5.3 ppb at hour 10      Minimum Diurnal Average: 3.1 ppb at hour 2 Monthly Average: 4.02 ppb      Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.8 Median = 3.0 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 7.8 P <sub>99</sub> = 17.6																				Hours of Missing Data: 61 Hours of Calibration: 36 Percent Operational Time: 96.6									
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-Jan	1.7	0.1	1.4	0.2	Z	3.7	2.5	0.1	0.0	0.8	0.3	1.6	2.3	2.5	3.5	2.9	1.9	1.6	1.5	1.4	1.4	1.6	3.0	3.7	1.7	3.7			
2-Jan	0.5	0.7	0.4	0.6	0.6	Z	2.0	2.7	3.1	2.7	3.0	3.4	3.8	4.1	4.3	4.2	3.4	3.3	1.7	1.8	2.2	1.8	1.9	1.9	2.3	4.3			
3-Jan	Z	1.3	1.5	1.6	1.3	1.6	1.9	2.0	3.8	3.3	3.7	3.3	3.4	4.8	5.0	6.1	10.3	11.6	5.9	5.6	3.4	3.6	2.3	2.4	3.9	11.6			
4-Jan	7.9	Z	7.1	5.5	2.9	2.8	7.7	16.2	13.6	9.0	7.0	7.0	3.6	2.7	3.2	2.8	2.7	2.1	1.5	1.5	1.5	2.1	1.6	1.8	5.0	16.2			
5-Jan	3.0	1.4	Z	1.3	1.2	0.9	2.2	2.6	2.2	2.5	2.4	3.1	4.1	3.3	2.5	2.5	2.5	3.3	2.8	5.9	4.0	3.0	2.6	2.9	2.7	5.9			
6-Jan	3.1	3.3	3.0	Z	2.3	2.2	2.1	2.1	1.9	1.3	1.2	2.2	1.0	1.2	1.7	0.7	1.2	1.3	0.6	1.1	0.4	0.3	0.3	0.5	1.5	3.3			
7-Jan	0.3	0.3	0.3	0.3	Z	1.6	0.9	1.1	1.0	1.5	1.3	1.3	1.0	1.0	1.3	1.3	1.3	1.8	0.9	0.5	0.7	0.6	1.2	0.8	1.0	1.8			
8-Jan	1.3	1.6	2.1	2.1	2.5	Z	2.4	2.1	2.9	3.9	5.4	4.3	3.0	2.5	2.3	2.7	2.6	2.7	3.2	2.5	2.4	4.5	6.9	6.0	3.1	6.9			
9-Jan	Z	3.9	4.0	3.0	4.0	4.9	6.1	5.7	5.1	4.3	3.4	C	C	C	C	C	C	1.9	1.3	1.3	1.2	0.7	1.0	1.1	--	6.1			
10-Jan	2.6	Z	2.1	3.7	2.5	2.1	2.6	3.7	2.9	3.2	3.3	3.5	3.3	2.8	2.9	2.2	3.0	4.8	6.2	5.5	3.8	4.7	3.0	3.7	3.4	6.2			
11-Jan	2.6	7.6	Z	13.2	12.9	14.4	12.2	5.8	4.4	4.8	4.4	3.8	3.5	2.8	1.4	2.2	1.7	1.5	1.6	2.1	3.2	3.4	3.3	2.5	5.0	14.4			
12-Jan	2.2	1.4	1.5	Z	1.9	2.3	3.4	4.7	5.1	2.1	9.9	6.0	2.2	2.8	2.6	4.3	8.5	3.0	1.3	3.6	3.4	3.0	4.6	6.1	3.7	9.9			
13-Jan	4.6	3.5	4.7	2.9	Z	3.0	3.2	3.2	3.0	3.6	8.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	8.4			
14-Jan	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.4	3.0	2.5	2.9	4.2	2.6	2.9	2.0	3.6	3.5	4.1	--	4.2			
15-Jan	Z	1.6	2.3	1.6	1.7	2.1	2.5	3.3	5.0	5.4	5.8	5.1	5.6	6.4	10.1	11.8	16.4	16.2	7.6	23.3	10.1	5.6	5.6	7.9	7.1	23.3			
16-Jan	11.2	Z	5.7	5.6	5.9	6.2	7.5	7.1	10.8	6.0	5.4	4.9	5.6	3.8	3.3	3.6	2.8	7.0	3.1	1.3	1.7	1.6	1.3	1.1	4.9	11.2			
17-Jan	1.0	0.9	Z	1.1	1.2	2.4	2.3	1.1	1.8	2.6	2.5	3.9	2.9	2.0	1.4	1.6	1.6	1.2	1.9	3.5	2.3	2.2	2.4	2.9	2.0	3.9			
18-Jan	4.1	3.9	3.3	Z	2.5	3.7	6.6	5.7	3.0	3.6	2.6	2.4	1.5	1.8	2.2	2.2	2.0	0.9	3.6	3.2	1.0	0.9	1.1	1.2	2.8	6.6			
19-Jan	1.2	0.9	0.7	3.0	Z	1.4	17.6	3.1	1.9	3.0	3.9	2.3	1.2	1.9	18.7	9.0	2.8	8.2	4.2	6.0	4.4	5.8	3.8	4.4	4.8	18.7			
20-Jan	7.2	4.4	3.4	4.3	3.4	Z	2.2	2.2	3.0	7.2	6.0	6.4	4.7	4.9	3.3	3.8	9.2	18.3	5.7	8.3	4.7	4.8	3.1	3.1	5.4	18.3			
21-Jan	Z	2.7	2.4	4.0	4.2	9.6	11.1	6.6	6.4	4.8	5.7	3.9	4.4	4.4	2.7	1.8	2.1	2.4	3.0	3.4	2.9	3.9	3.9	3.7	4.3	11.1			
22-Jan	3.2	Z	0.9	0.9	0.7	0.6	1.0	1.5	1.4	1.7	0.9	0.6	1.2	1.0	0.9	1.3	2.2	2.7	2.5	1.6	2.1	1.7	1.6	2.0	1.5	3.2			
23-Jan	2.1	2.1	Z	2.0	1.8	1.3	1.4	1.4	1.6	1.9	2.0	6.8	3.3	4.1	3.8	4.6	7.6	13.7	8.5	6.4	8.1	5.7	3.9	3.1	4.2	13.7			
24-Jan	1.6	2.5	2.2	Z	3.1	3.8	1.8	3.3	5.2	43.4	4.5	3.9	3.7	4.8	6.2	6.3	5.8	7.5	10.7	3.9	3.7	4.3	4.3	23.3	7.0	43.4			
25-Jan	15.1	8.3	6.0	11.1	Z	4.8	2.7	4.7	5.0	9.6	7.5	8.2	8.3	11.5	13.0	12.1	10.3	17.4	21.9	10.5	6.4	6.6	10.2	9.8	9.6	21.9			
26-Jan	9.2	10.6	16.6	17.7	14.1	Z	9.0	9.3	7.8	7.2	6.3	9.4	9.7	6.2	3.3	3.2	2.4	3.5	1.8	1.6	1.8	1.9	2.2	3.6	6.9	17.7			
27-Jan	Z	7.6	6.2	7.7	7.9	6.4	6.8	6.1	5.4	2.8	4.2	4.7	9.6	6.8	5.5	5.3	4.6	3.7	4.1	5.2	5.0	3.8	2.6	2.2	5.4	9.6			
28-Jan	2.2	Z	1.5	2.1	3.2	5.2	2.8	3.4	4.2	5.4	5.6	13.0	13.8	11.4	7.0	5.5	5.7	4.0	5.0	7.6	3.5	5.8	5.0	4.7	5.5	13.8			
29-Jan	2.8	1.0	Z	0.8	0.4	0.5	0.5	3.9	4.3	2.2	2.6	1.4	1.9	2.7	2.0	3.3	3.3	3.6	3.3	3.9	4.2	3.9	3.8	3.8	2.6	4.3			
30-Jan	3.6	2.9	3.5	Z	5.8	4.0	3.1	12.5	12.6	6.4	4.9	1.1	0.9	5.7	2.4	1.7	0.7	1.7	1.1	2.8	3.1	3.6	7.5	8.8	4.4	12.6			
31-Jan	6.0	3.7	3.6	4.6	Z	2.4	1.7	2.2	2.5	2.8	2.0	1.0	1.2	1.8	1.0	0.4	0.4	1.6	1.8	0.7	0.7	1.1	0.7	0.3	1.9	6.0			
4.0 3.1 3.5 4.0 3.7 3.6 4.3 4.3 4.4 5.3 4.0 4.4 4.0 3.9 4.2 3.9 4.2 5.2 4.0 4.3 3.2 3.2 3.3 4.1																								Diurnal Average					
15.1 10.6 16.6 17.7 14.1 14.4 17.6 16.2 13.6 43.4 9.9 13.0 13.8 11.5 18.7 12.1 16.4 18.3 21.9 23.3 10.1 6.6 10.2 23.3																								Diurnal Maximum					
Z - zerospan				C - Calibration				UO - Unstable Operation																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Blackgold - January 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Blackgold - January 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	679	99.41	99.41
21 - 40	3	0.44	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: 683

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Blackgold - January 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	24	38	58	29	23	10	10	30	50	64	70	42	56	61	71	42	678
21 - 40	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3
41 - 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>	24	38	58	29	23	10	11	30	50	65	71	43	56	61	71	42	682

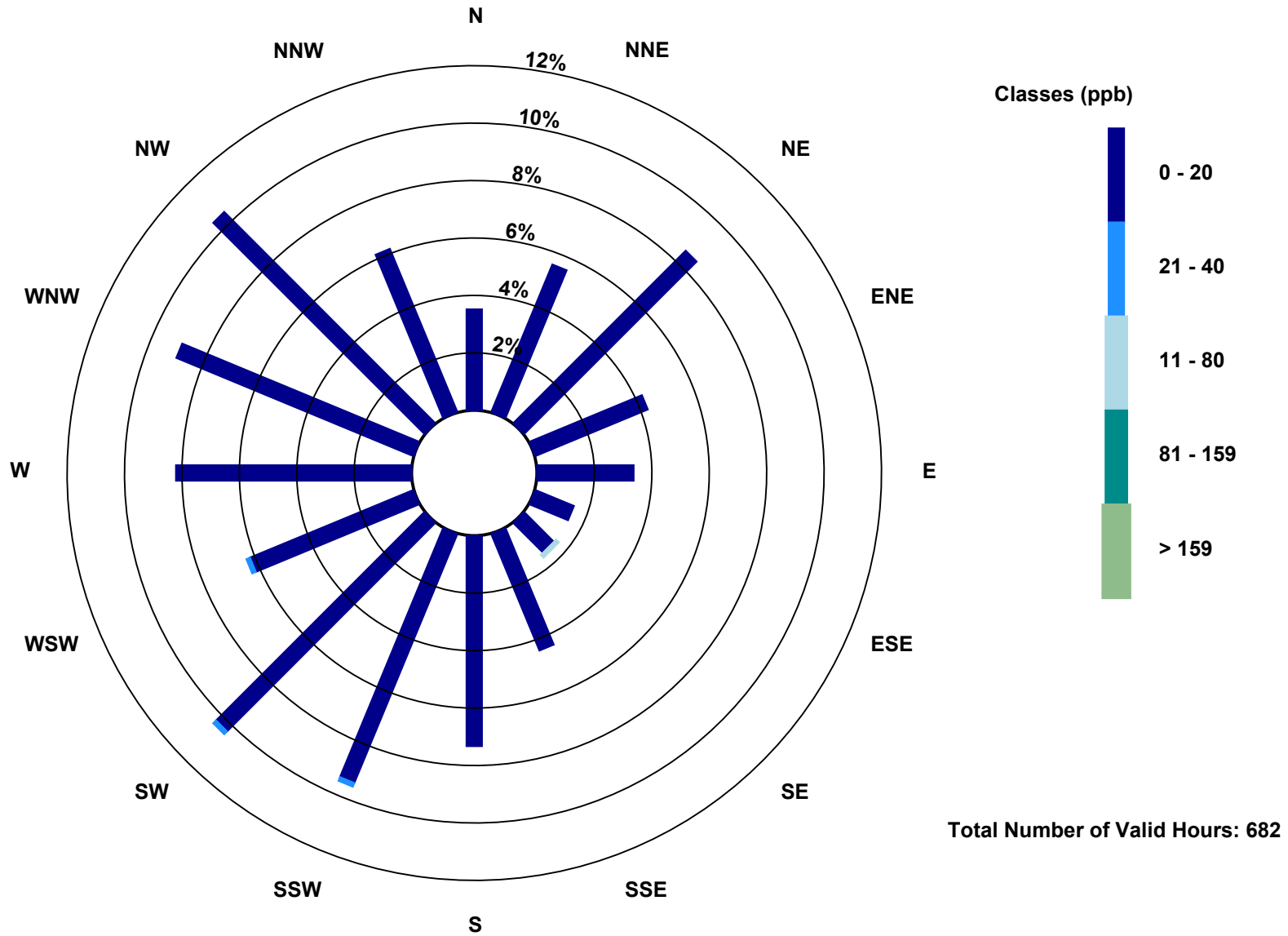
Total Number of Valid Hours: 682

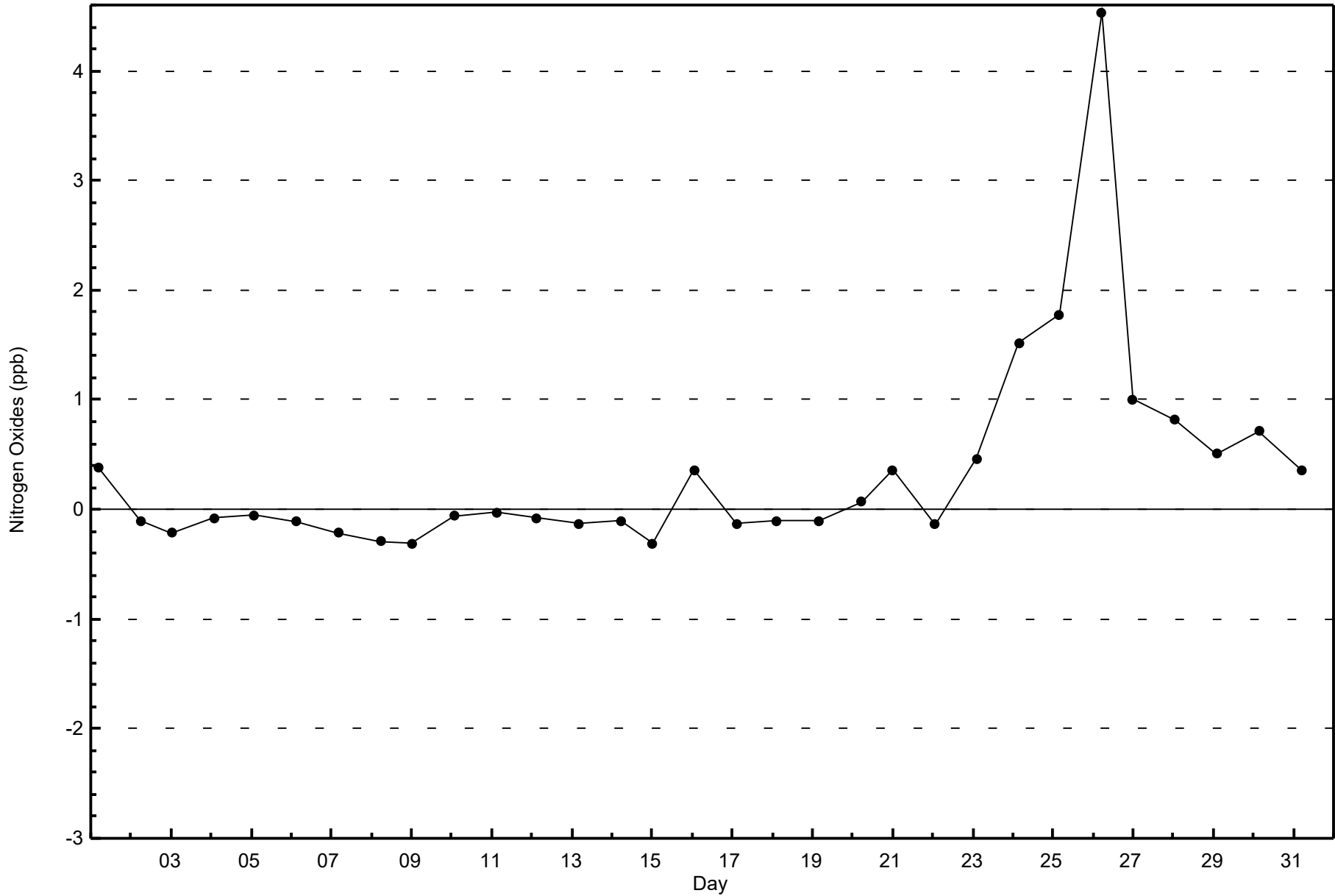
Total Number of Hours: 744

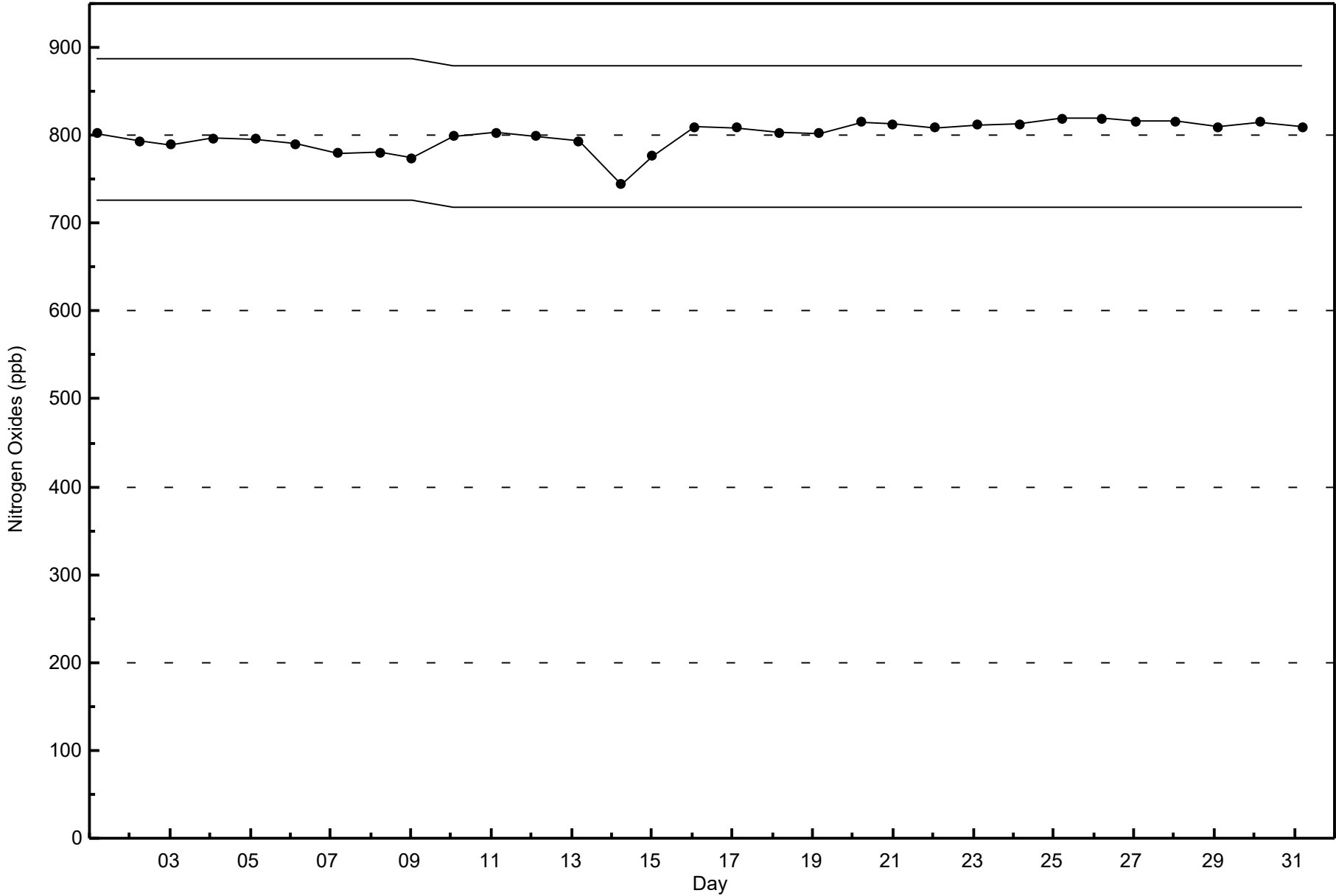


Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Blackgold









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

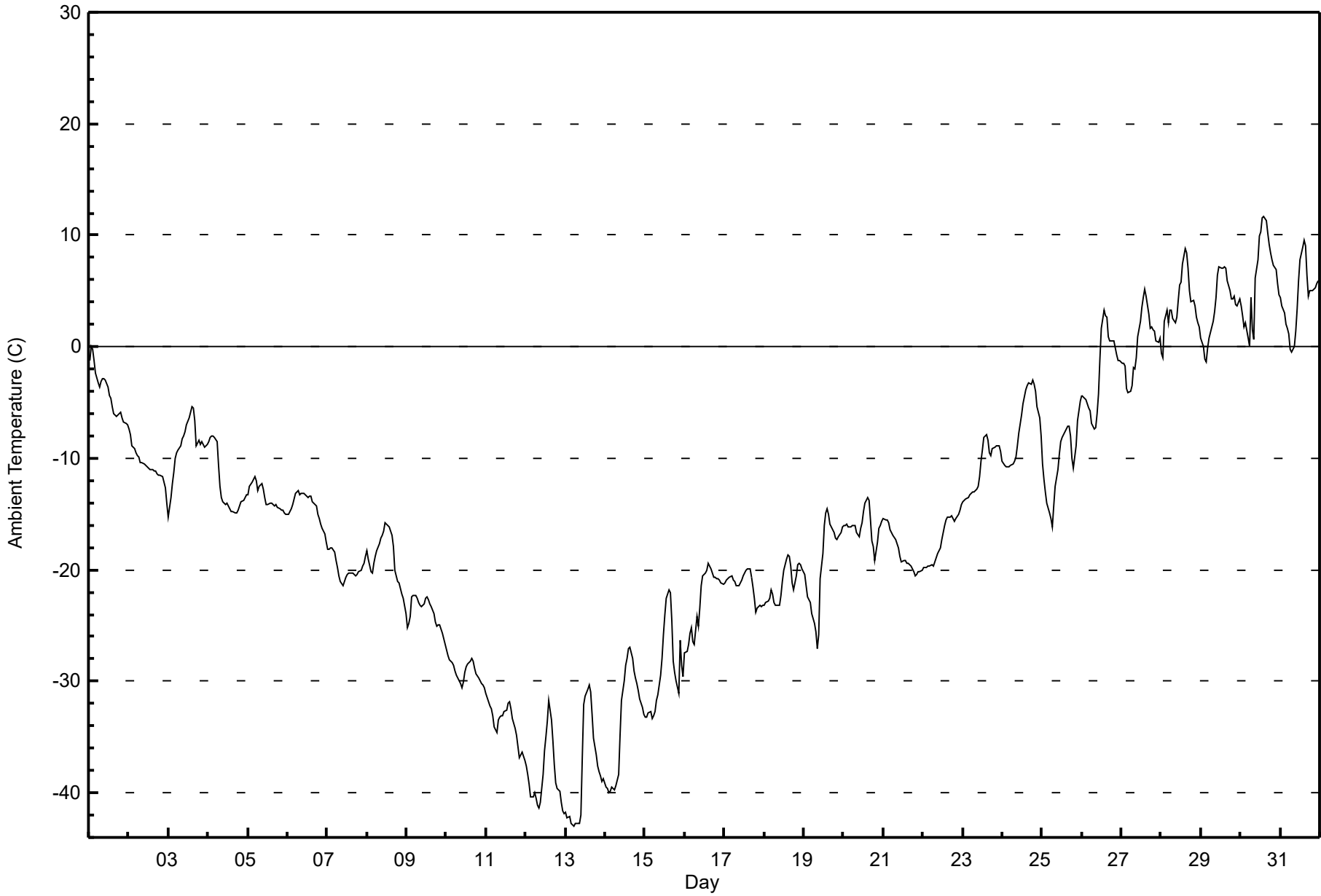
**Ambient Temperature (AT) - C**  
**Blackgold - January 2024**

Maximum Value: 11.7 C on Jan 30 15:00		Maximum Daily Average: 6.1 C on Jan 30		Hours in Service: 744																																													
Minimum Value: -43.0 C on Jan 13 06:00		Minimum Daily Average: -38.5 C on Jan 12		Hours of Data: 744																																													
Maximum Diurnal Average: -12.6 C at hour 15		Minimum Diurnal Average: -17.0 C at hour 7		Hours of Missing Data: 0																																													
Monthly Average: -15.40 C		Percentiles: P <sub>1</sub> = -42.0 P <sub>10</sub> = -32.8 Q <sub>1</sub> = -22.8 Median = -15.5 Q <sub>3</sub> = -7.0 P <sub>90</sub> = 2.6 P <sub>99</sub> = 9.1		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-Jan	-1.2	0.0	-0.2	-1.3	-2.3	-3.2	-3.6	-3.1	-2.9	-2.9	-3.0	-3.6	-4.3	-4.6	-5.3	-6.0	-6.2	-6.1	-6.0	-5.9	-6.4	-6.7	-6.9	-7.0	-4.1	0.0																							
2-Jan	-7.4	-7.9	-8.9	-9.2	-9.5	-9.7	-9.9	-10.4	-10.4	-10.5	-10.7	-10.8	-10.9	-11.0	-11.1	-11.1	-11.1	-11.3	-11.5	-11.5	-11.7	-12.1	-12.6	-14.1	-10.6	-7.4																							
3-Jan	-15.2	-13.6	-12.3	-11.2	-10.0	-9.6	-9.2	-8.8	-8.2	-8.0	-7.7	-7.0	-6.4	-5.8	-5.4	-5.5	-6.6	-8.9	-8.4	-8.7	-8.5	-8.8	-9.0	-8.8	-8.8	-5.4																							
4-Jan	-8.5	-8.1	-8.0	-8.0	-8.1	-8.5	-10.6	-12.6	-13.5	-13.9	-14.1	-14.0	-14.2	-14.5	-14.8	-14.8	-14.9	-14.9	-14.7	-14.3	-13.9	-13.8	-13.5	-13.3	-12.5	-8.0																							
5-Jan	-13.2	-12.5	-12.2	-11.9	-11.7	-12.0	-12.9	-12.5	-12.2	-12.8	-13.5	-14.1	-14.1	-14.1	-14.0	-14.1	-14.3	-14.2	-14.5	-14.6	-14.6	-14.6	-14.9	-15.1	-13.5	-11.7																							
6-Jan	-15.0	-14.7	-14.5	-14.1	-13.7	-13.2	-12.9	-13.3	-13.2	-13.1	-13.2	-13.4	-13.5	-13.4	-13.4	-13.9	-14.0	-14.3	-15.1	-15.4	-15.9	-16.3	-16.8	-17.5	-14.3	-12.9																							
7-Jan	-18.2	-18.2	-18.1	-18.0	-18.4	-19.2	-19.8	-20.5	-21.1	-21.4	-21.0	-20.6	-20.4	-20.3	-20.3	-20.5	-20.5	-20.4	-20.2	-20.0	-19.7	-19.4	-18.9	-18.9	-19.8	-18.0																							
8-Jan	-18.3	-19.1	-20.1	-20.3	-19.4	-18.8	-18.3	-17.6	-17.1	-16.9	-16.5	-15.8	-15.9	-16.2	-16.5	-16.9	-17.9	-20.0	-21.1	-21.1	-21.7	-22.2	-22.5	-24.0	-18.9	-15.8																							
9-Jan	-25.2	-24.8	-24.1	-22.4	-22.3	-22.4	-22.5	-22.9	-23.2	-23.3	-23.0	-22.6	-22.5	-22.6	-23.1	-23.4	-23.9	-24.7	-25.0	-24.9	-24.9	-25.7	-26.1	-26.7	-23.8	-22.3																							
10-Jan	-27.2	-27.7	-28.1	-28.4	-28.6	-29.0	-29.4	-29.7	-30.2	-30.6	-30.0	-29.2	-28.7	-28.5	-28.2	-28.0	-28.2	-28.8	-29.4	-29.7	-29.9	-30.3	-30.3	-30.6	-29.1	-27.2																							
11-Jan	-31.1	-31.8	-32.2	-32.4	-33.1	-34.1	-34.5	-33.4	-33.3	-33.1	-33.0	-32.8	-32.6	-31.9	-31.8	-32.5	-33.3	-34.2	-34.8	-35.8	-36.8	-36.6	-36.3	-37.1	-33.7	-31.1																							
12-Jan	-37.6	-38.3	-39.3	-40.3	-40.4	-40.0	-40.5	-41.1	-41.4	-40.9	-38.4	-36.3	-35.0	-33.6	-31.8	-33.4	-35.3	-37.4	-39.1	-39.6	-39.9	-40.9	-41.6	-41.8	-38.5	-31.8																							
13-Jan	-41.7	-42.2	-42.1	-42.8	-42.9	-43.0	-42.8	-42.7	-42.8	-42.0	-36.9	-32.1	-31.3	-30.7	-30.3	-30.9	-33.0	-35.0	-36.6	-37.6	-38.2	-38.5	-39.0	-38.8	-38.1	-30.3																							
14-Jan	-39.5	-39.6	-39.9	-39.8	-39.5	-39.7	-39.4	-38.9	-38.4	-34.9	-31.7	-30.0	-28.5	-28.0	-27.0	-26.9	-27.9	-29.0	-29.6	-30.2	-30.8	-31.6	-32.4	-32.9	-33.6	-26.9																							
15-Jan	-33.2	-33.2	-32.9	-32.8	-33.3	-33.1	-32.8	-31.7	-31.2	-29.4	-27.9	-25.9	-24.1	-22.6	-21.7	-22.0	-24.6	-28.2	-29.2	-30.0	-31.0	-26.3	-28.5	-29.5	-29.0	-21.7																							
16-Jan	-27.5	-27.3	-26.7	-25.7	-25.2	-26.4	-26.7	-24.2	-25.1	-23.4	-21.5	-20.5	-20.3	-20.0	-19.4	-19.7	-19.9	-20.7	-20.6	-20.8	-20.8	-20.9	-21.1	-21.3	-22.7	-19.4																							
17-Jan	-21.1	-20.9	-20.8	-20.7	-20.6	-21.0	-21.1	-21.4	-21.4	-21.4	-20.9	-20.5	-20.4	-20.0	-20.0	-19.9	-20.6	-21.6	-22.5	-23.7	-23.5	-23.2	-23.2	-23.2	-21.4	-19.9																							
18-Jan	-23.1	-22.9	-22.8	-22.5	-21.8	-22.2	-23.0	-23.1	-23.1	-23.2	-22.2	-21.1	-20.0	-19.0	-18.7	-18.7	-19.6	-21.2	-21.7	-20.6	-19.6	-19.5	-19.5	-19.9	-21.2	-18.7																							
19-Jan	-20.5	-21.5	-22.5	-22.7	-22.9	-24.0	-24.9	-25.6	-27.1	-25.8	-20.8	-18.5	-16.1	-14.9	-14.5	-15.0	-15.9	-16.4	-16.6	-17.2	-17.3	-17.0	-16.6	-16.2	-19.6	-14.5																							
20-Jan	-16.1	-16.0	-15.9	-16.2	-16.1	-16.1	-16.0	-16.0	-16.6	-17.0	-16.3	-15.8	-14.8	-14.1	-13.5	-13.8	-15.5	-17.5	-17.9	-19.2	-17.5	-16.2	-16.0	-15.7	-16.1	-13.5																							
21-Jan	-15.4	-15.5	-15.5	-15.8	-16.4	-16.7	-16.9	-17.3	-17.7	-18.1	-18.8	-19.2	-19.1	-19.2	-19.4	-19.5	-19.6	-19.7	-20.2	-20.6	-20.4	-20.2	-20.1	-20.0	-18.4	-15.4																							
22-Jan	-19.9	-19.8	-19.8	-19.7	-19.6	-19.5	-19.7	-19.3	-18.9	-18.6	-18.0	-17.3	-16.7	-16.0	-15.6	-15.3	-15.3	-15.2	-15.4	-15.6	-15.4	-15.0	-14.6	-14.2	-17.3	-14.2																							
23-Jan	-13.9	-13.8	-13.6	-13.5	-13.3	-13.1	-13.1	-13.0	-12.8	-12.5	-11.6	-10.2	-9.2	-8.2	-7.8	-8.4	-9.5	-9.8	-9.1	-9.0	-8.8	-8.8	-8.9	-9.4	-10.9	-7.8																							
24-Jan	-10.2	-10.7	-10.8	-10.8	-10.8	-10.6	-10.5	-10.3	-9.9	-8.9	-7.7	-6.1	-5.1	-4.5	-3.9	-3.5	-3.2	-3.4	-3.0	-3.3	-4.0	-5.3	-6.3	-8.0	-7.1	-3.0																							
25-Jan	-10.6	-11.9	-13.0	-14.0	-14.9	-15.4	-16.2	-14.3	-12.6	-11.0	-9.7	-8.5	-8.1	-7.9	-7.6	-7.1	-7.1	-8.0	-9.9	-10.9	-8.9	-6.6	-5.7	-4.9	-10.2	-4.9																							
26-Jan	-4.3	-4.5	-4.8	-5.1	-5.5	-5.7	-6.8	-7.4	-7.2	-6.0	-4.3	-1.1	1.7	3.3	2.8	2.7	0.9	0.5	0.6	0.5	-0.1	-0.8	-1.2	-1.3	-2.2	3.3																							
27-Jan	-1.5	-1.4	-1.7	-3.7	-4.1	-4.0	-3.5	-1.9	-2.0	-1.0	0.8	2.3	3.6	4.5	5.1	4.5	2.9	1.7	1.8	1.5	1.4	0.5	0.4	0.7	0.3	5.1																							
28-Jan	-0.6	-1.0	2.3	3.3	2.2	3.2	3.3	2.5	2.2	2.7	4.2	5.5	5.7	7.4	8.8	8.5	7.0	5.0	4.1	4.2	3.6	2.6	2.1	1.7	3.8	8.8																							
29-Jan	0.8	0.0	-1.1	-1.3	-0.1	0.7	1.7	2.3	3.2	4.4	6.5	7.2	7.0	7.1	7.2	7.0	6.0	5.0	4.3	4.3	4.5	3.8	3.6	4.2	3.7	7.2																							
30-Jan	3.6	2.7	1.8	2.1	0.8	0.0	4.4	1.6	0.7	6.1	7.8	9.9	10.3	11.6	11.7	11.3	10.2	9.1	8.4	7.8	7.3	6.9	5.7	4.7	6.1	11.7																							
31-Jan	4.4	3.7	3.1	2.1	1.7	1.2	-0.3	-0.5	0.1	1.3	3.4	5.9	7.8	9.0	9.6	9.0	6.4	4.6	5.0	5.1	5.1	5.3	5.7	5.9	4.4	9.6																							
																								-16.4	-16.5	-16.6	-16.7	-16.8	-16.9	-17.0	-17.0	-17.0	-16.3	-15.2	-14.1	-13.4	-12.9	-12.6	-12.8	-13.7	-14.7	-15.1	-15.4	-15.4	-15.4	-15.7	-15.9	Diurnal Average	
																								4.4	3.7	3.1	3.3	2.2	3.2	4.4	2.5	3.2	6.1	7.8	9.9	10.3	11.6	11.7	11.3	10.2	9.1	8.4	7.8	7.3	6.9	5.7	5.9	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Blackgold - January 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	267	35.89	35.89
-20 - 0	366	49.19	85.08
0 - 10	106	14.25	99.33
10 - 20	5	0.67	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

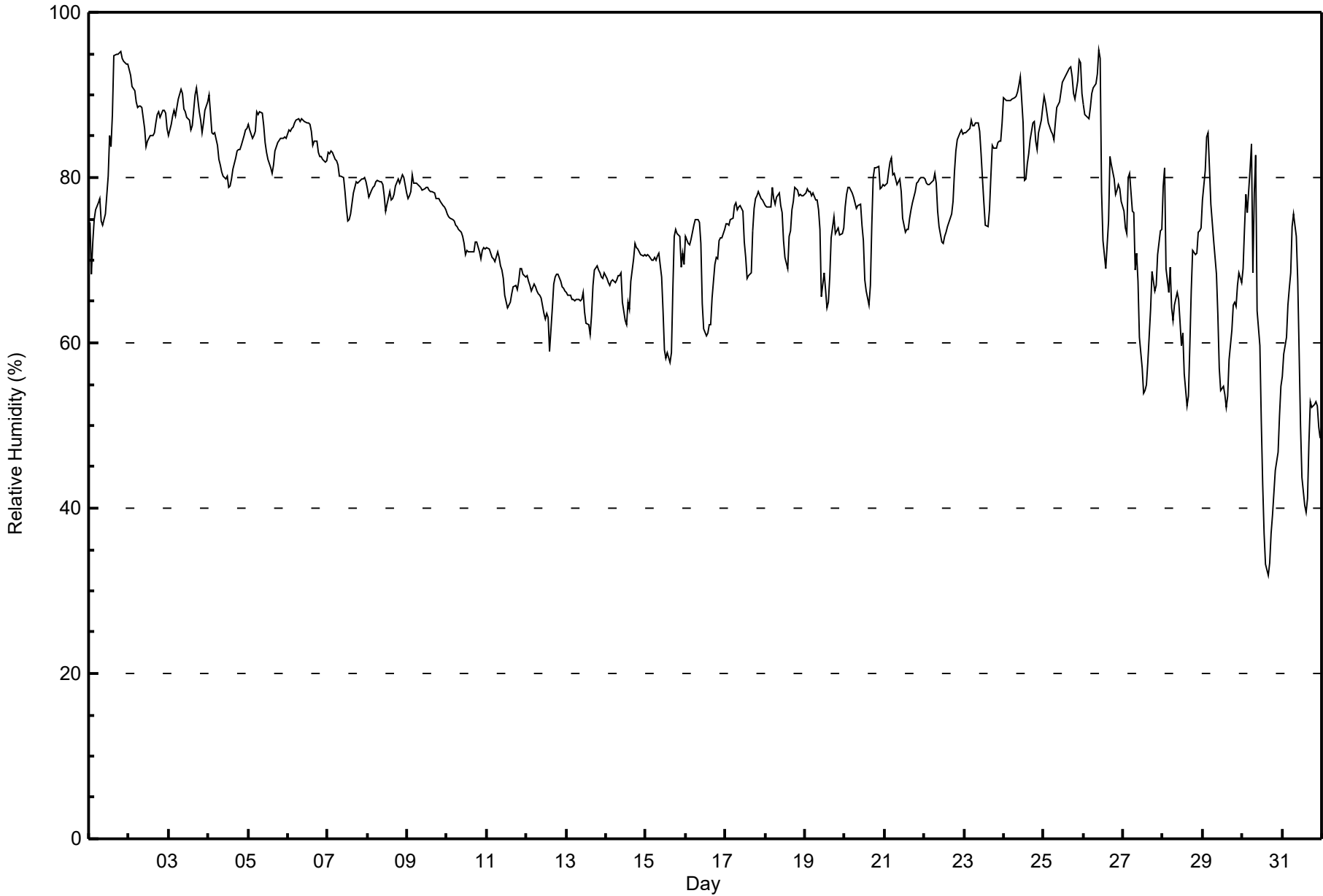
**Blackgold - January 2024**

Maximum Value: 95.5 % on Jan 26 10:00      Maximum Daily Average: 90.0 % on Jan 25																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 31.9 % on Jan 30 16:00      Minimum Daily Average: 56.2 % on Jan 31 Maximum Diurnal Average: 78.7 % at hour 5      Minimum Diurnal Average: 69.2 % at hour 15 Monthly Average: 75.51 %      Percentiles: P <sub>1</sub> = 40.8 P <sub>10</sub> = 63.6 Q <sub>1</sub> = 69.0 Median = 76.9 Q <sub>3</sub> = 83.3 P <sub>90</sub> = 87.9 P <sub>99</sub> = 94.4																						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-Jan	74.5	68.3	72.2	75.0	76.2	77.0	77.4	74.7	74.2	75.0	75.6	80.2	85.2	83.7	87.6	94.7	95.0	95.0	95.1	95.3	94.5	94.0	93.8	93.7	83.7	95.3
2-Jan	93.1	92.4	91.1	90.5	89.1	88.4	88.7	88.6	88.5	86.0	83.7	84.4	84.7	85.1	85.1	85.4	86.6	87.6	88.0	87.2	88.1	88.2	87.9	86.0	87.7	93.1
3-Jan	85.2	86.5	87.4	88.1	87.5	88.5	89.6	90.7	90.1	88.4	87.9	87.3	87.0	85.7	86.2	88.1	90.0	90.9	88.0	87.0	85.5	86.6	88.2	89.2	87.9	90.9
4-Jan	90.0	87.8	85.4	85.2	85.5	83.9	82.1	81.6	80.7	80.2	79.9	80.2	78.7	79.0	79.9	81.1	82.3	83.1	83.3	83.4	83.9	85.1	85.7	86.0	83.1	90.0
5-Jan	86.5	85.7	84.7	85.0	85.7	88.0	87.7	87.9	87.7	86.3	84.2	83.1	82.3	81.2	80.5	81.5	83.1	83.7	84.3	84.8	84.7	84.7	84.9	84.8	84.7	88.0
6-Jan	85.8	85.7	85.9	86.2	86.6	87.0	87.1	86.8	87.0	87.0	86.9	86.7	86.5	86.4	85.5	83.9	84.4	84.4	83.1	82.5	82.5	82.2	81.8	82.1	85.2	87.1
7-Jan	83.1	82.9	83.2	83.0	82.2	82.0	81.6	80.2	80.1	80.0	78.4	76.2	74.7	74.8	75.6	78.1	78.8	79.4	79.3	79.4	79.9	79.8	79.9	79.6	79.7	83.2
8-Jan	78.6	77.7	78.6	78.9	79.0	79.4	79.6	79.4	79.5	79.2	77.8	75.9	76.8	78.3	77.3	77.5	77.9	78.9	79.8	79.3	79.8	80.3	80.0	78.1	78.6	80.3
9-Jan	77.5	77.7	78.2	80.3	79.3	79.3	79.2	78.9	78.7	78.5	78.7	78.8	78.7	78.5	78.4	78.3	78.1	77.5	77.4	77.5	77.2	76.6	76.5	76.1	78.2	80.3
10-Jan	75.6	75.3	75.1	74.9	74.7	74.3	74.0	73.8	73.3	72.9	72.0	70.7	71.1	71.1	71.0	71.0	71.0	72.3	72.2	71.1	70.2	71.1	71.4	71.4	72.6	75.6
11-Jan	71.5	71.3	70.8	70.3	70.2	69.9	71.0	70.4	69.3	68.9	67.8	65.8	64.3	64.6	65.0	65.9	66.7	67.0	66.5	67.4	69.0	68.9	68.3	67.9	68.3	71.5
12-Jan	68.1	67.5	67.0	66.3	67.1	66.7	66.2	66.0	65.8	65.4	63.5	62.8	63.5	63.0	59.0	64.2	67.1	68.0	68.2	68.4	67.5	66.8	66.6	66.2	65.9	68.4
13-Jan	66.0	65.8	65.8	65.3	65.3	65.2	65.2	65.3	65.0	65.3	66.1	63.8	62.3	62.1	61.0	63.4	66.9	68.9	69.2	68.9	68.5	68.0	67.7	68.4	65.8	69.2
14-Jan	67.8	67.3	67.0	67.4	67.6	67.4	67.6	68.1	68.5	64.9	62.2	64.9	64.1	67.5	70.2	72.0	71.5	71.3	71.0	70.6	70.6	70.7	70.7	70.7	68.0	72.0
15-Jan	70.6	70.7	70.5	70.0	69.9	70.4	70.0	70.5	70.9	68.0	63.9	59.2	58.1	58.8	57.5	58.7	66.4	72.8	73.8	73.3	72.9	69.2	70.9	69.5	67.8	73.8
16-Jan	72.8	72.1	71.9	72.5	73.4	74.2	75.0	74.9	74.5	72.1	64.7	61.7	60.9	61.2	62.2	62.2	65.4	69.4	70.3	70.2	72.4	72.7	72.7	73.8	69.7	75.0
17-Jan	74.5	74.3	74.3	74.9	75.1	76.7	76.9	76.2	76.4	76.7	75.9	72.3	70.3	67.8	68.1	68.4	73.5	76.3	77.5	77.8	78.3	77.5	77.2	77.0	74.7	78.3
18-Jan	76.6	76.4	76.4	76.5	78.8	77.4	76.7	77.6	78.1	76.7	75.8	72.4	70.3	69.1	72.9	73.5	76.1	77.1	78.8	78.5	77.8	77.9	77.8	77.8	76.1	78.8
19-Jan	78.2	78.6	78.3	78.3	77.8	78.1	77.3	77.2	76.1	73.8	65.6	68.4	66.5	64.2	64.9	68.0	72.8	75.3	73.2	73.6	73.9	73.1	73.2	73.9	73.3	78.6
20-Jan	76.5	78.0	78.8	78.8	78.1	77.6	76.9	76.2	76.6	76.7	74.2	72.3	67.7	66.3	64.5	67.0	74.2	79.9	81.2	81.1	81.4	78.7	78.7	79.1	75.9	81.4
21-Jan	79.0	79.3	80.6	81.9	82.4	80.3	80.5	79.1	79.4	79.8	78.4	75.1	73.5	73.7	73.7	75.0	76.2	77.0	78.4	79.3	79.5	79.8	80.1	79.9	78.4	82.4
22-Jan	79.9	79.3	79.1	79.1	79.4	79.7	80.5	79.4	76.0	74.0	72.1	72.0	72.9	73.3	74.0	74.6	75.6	77.1	80.6	83.2	84.6	85.5	85.8	85.2	78.5	85.8
23-Jan	85.5	85.4	85.7	86.0	86.9	86.2	86.3	86.6	86.6	85.6	82.9	79.8	76.9	74.3	74.0	76.2	80.2	83.9	83.5	84.2	84.5	84.5	84.5	86.6	83.2	86.9
24-Jan	89.7	89.3	89.3	89.4	89.4	89.5	89.6	89.8	90.3	91.3	92.2	86.6	79.7	79.9	81.7	82.9	84.6	86.6	86.9	84.4	83.4	85.5	86.9	88.4	87.0	92.2
25-Jan	89.9	89.0	87.7	86.6	85.6	85.2	84.6	86.6	88.5	89.1	90.4	91.5	91.9	92.2	92.6	93.3	93.4	92.2	90.1	89.4	91.7	94.3	93.8	90.1	90.0	94.3
26-Jan	88.8	87.6	87.3	87.2	88.5	90.1	90.9	91.4	92.6	95.5	94.4	78.3	72.3	69.0	71.9	74.8	82.6	81.6	79.8	77.9	78.5	79.2	78.6	77.1	83.2	95.5
27-Jan	75.9	74.0	73.2	80.0	80.5	75.9	75.8	68.8	70.9	67.4	60.7	57.0	54.0	54.2	54.8	57.7	64.1	68.7	67.4	66.3	66.9	70.7	73.5	73.7	68.0	80.5
28-Jan	79.0	81.2	69.1	66.1	69.2	64.2	62.6	64.6	66.0	65.2	62.5	59.6	61.1	56.3	52.3	53.5	59.7	66.3	71.2	70.7	70.8	73.4	73.6	73.9	66.3	81.2
29-Jan	77.3	80.8	84.9	85.4	81.1	76.7	72.4	70.4	68.3	63.3	56.9	54.2	54.7	53.8	52.2	53.6	58.0	61.6	64.6	64.9	64.3	67.0	68.5	67.3	66.8	85.4
30-Jan	69.1	73.8	78.0	75.7	81.0	84.0	68.5	78.1	82.7	63.9	59.7	50.4	42.9	37.0	33.2	31.9	33.4	36.9	39.1	41.8	44.6	46.8	51.1	54.7	56.6	84.0
31-Jan	55.9	58.6	60.8	64.6	66.7	68.4	74.0	75.7	72.9	67.6	58.9	49.9	43.7	40.4	39.4	41.2	47.9	52.9	52.2	52.5	52.9	52.4	49.9	48.4	56.2	75.7
78.1 78.1 78.0 78.4 78.7 78.4 77.9 77.9 77.9 76.4 74.1 71.6 70.2 69.4 69.2 70.7 73.6 75.6 75.9 75.9 76.1 76.5 76.8 76.7																								Diurnal Average		
93.1 92.4 91.1 90.5 89.4 90.1 90.9 91.4 92.6 95.5 94.4 91.5 91.9 92.2 92.6 94.7 95.0 95.0 95.1 95.3 94.5 94.3 93.8 93.7																								Diurnal Maximum		



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Blackgold - January 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	7	0.94	0.94
40 - 60	46	6.18	7.12
60 - 80	446	59.95	67.07
80 - 100	245	32.93	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Speed (WS) - km/h**  
**Blackgold - January 2024**

Maximum Speed: 21 km/h on Jan 30 12:00	Maximum Daily Speed Average: 9.5 km/h on Jan 29	Hours in Service: 744
Minimum Speed Value: 0 km/h on Jan 3 02:00	Minimum Daily Speed Average: 1.1 km/h on Jan 13	Hours of Data: 743
Maximum Diurnal Speed Average: 2.4 km/h at hour 24	Minimum Diurnal Speed Average: 0.7 km/h at hour 18	Hours of Missing Data: 1
Monthly Average Velocity: 1.7 km/h 259.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 8 P <sub>90</sub> = 11 P <sub>99</sub> = 15	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-Jan	W8	WNW8	WNW9	WNW8	W6	W7	WNW9	WNW11	NW10	NW10	NW9	N9	NNW7	NNW7	NE6	ENE5	E2	SE1	SE1	N2	NE5	NE4	NE4	N4	NW4.4	WNW11
2-Jan	NNW7	NW8	NW8	NW5	NNW6	NNW4	NNE3	NE3	NE2	ENE4	NE5	NE4	E5	E5	ENE5	E5	E3	ENE4	E4	ENE3	NE3	ENE4	ENE3	SW0	NNE2.7	NW8
3-Jan	NW2	WNW0	ENE1	S2	S5	S3	S3	S4	S5	S4	SSE5	SSE5	SSE6	SSE6	E4	E4	ESE2	SE3	S7	S9	SSW9	SW9	SSW11	SW12	S4.0	SW12
4-Jan	WSW8	WSW8	W8	W8	NW11	NW11	NNW10	NNW9	NNW8	NNW8	N6	NE7	NE6	NE6	NE6	ENE8	E8	ENE7	E8	E7	E6	NNE5	NE4	NE4	N3.5	NW11
5-Jan	E4	ESE4	ESE4	SE4	SE2	NW3	NW5	WNW6	NW7	WNW10	NW9	WNW8	NW6	NNW6	N4	NNE3	E2	ENE4	ENE6	E5	E6	ESE5	E4	NNE2	N1.7	WNW10
6-Jan	ENE4	NE4	NE4	ENE5	ENE6	NE5	NNE5	NE6	ENE6	NE7	NE7	ENE9	ENE9	NE7	NE8	NE9	NE7	NNE8	NNE9	NE9	NE9	NE9	NNE8	NNE8	NE7.0	NNE9
7-Jan	NNE8	NE7	NE6	NE7	N6	NNE7	NNE7	NE7	NNE6	NNE5	NE5	NE4	NE4	NNE4	NE4	ENE3	ESE4	ESE3	SSE4	SSE4	S6	SSE5	SSE5	S7	NE3.2	NNE8
8-Jan	SSW9	SSW7	S7	S5	S7	S7	S8	SSW8	SSW8	SW7	WSW7	WNW8	NW6	NNW8	NNW7	NNW6	NNW6	NW5	NW5	NNW5	N5	N4	NNE4	NW2	WSW2.6	SSW9
9-Jan	WNW2	NNW2	NE3	E6	NE5	ENE7	ENE7	NE7	NE7	NE7	NE8	NE9	NE10	NE9	NE9	NNE7	NNE9	NE9	NE8	NNE8	NNE7	NNE8	NNE7	N7	NE6.5	NE10
10-Jan	N8	NNE7	N7	N7	N6	N5	N5	NNW5	NNW6	NNW5	NW5	NNW6	NNW5	N5	NW5	NW5	NNW6	NNW5	NNW5	NNW6	NW4	NW4	NW4	NNW4	NNW5.2	N8
11-Jan	N3	NNE3	NNW3	NNW3	NW2	NW2	WNW2	NW5	NW4	NW4	NW7	NNW7	N7	NNW5	NNW8	NW8	NNW7	NW6	NNW5	WNW4	WNW5	WNW4	WNW3	WNW5	NNW4.3	NNW8
12-Jan	WNW5	WNW3	WNW3	W2	WNW4	WNW7	WNW4	W3	W4	W3	W2	SW2	NNW1	NNW3	NNW3	NNE3	W0	W2	W2	W2	WSW2	W1	WSW1	WSW1	WNW2.3	WNW7
13-Jan	WSW1	W1	W2	SSW1	WSW1	W2	WSW1	WSW1	WSW1	SW1	S1	NE0	NNE4	N4	NNE4	NNE3	NNW1	W2	W2	W2	W3	W3	W3	W3	WNW1.1	NNE4
14-Jan	W1	W2	W2	W3	WSW2	WSW2	W3	W3	W3	W5	W5	WNW6	NW5	NW6	NW6	NW6	NW4	WNW5	WNW5	WNW5	WNW5	W6	W6	W5	WNW4.0	WNW6
15-Jan	W4	W4	WSW4	WSW5	WSW3	W3	WSW4	WSW5	WSW4	WSW8	SW9	SW8	SW7	SW7	SW8	SW6	SSW3	W1	SSW4	WSW3	W2	SW5	SW5	WNW1	SW4.4	SW9
16-Jan	W4	W3	W5	WNW6	WNW3	WNW2	N1	NW4	WNW5	NW7	NW11	NW10	NW11	NW13	NW13	NW10	NW9	NW7	NW11	NW13	WNW12	NW13	NW14	WNW11	NW8.1	NW14
17-Jan	WNW12	NW13	NW14	NW13	NW11	NW7	NW8	NW8	NNW8	NNW6	N6	NNE8	NNE9	NNE7	N7	N6	NNE7	NE6	NNE4	NNW3	NNW4	NNW5	NW5	NW5	NNW6.5	NW14
18-Jan	NW5	NW6	WNW6	WNW7	NW7	NW10	WNW8	WNW8	WNW8	W7	WNW10	WNW12	NW11	NW10	NW10	NW10	WNW7	WNW6	WNW5	WNW7	WNW10	WNW11	NW10	WNW10	WNW8.3	WNW12
19-Jan	WNW9	WNW6	W4	W4	W4	WSW4	WSW4	WSW4	SW3	SW4	SSW2	SSW6	SSW8	S10	S9	S8	S5	S6	S8	S14	S16	S11	S10	S13	SSW5.6	S16
20-Jan	SSE13	S12	S9	S10	SSW8	SSW7	SSW8	SSW7	SW6	SW4	SW9	W7	W7	WNW7	NW5	NNW5	NW4	WNW3	WNW4	W3	WNW5	NNW5	NW2	WNW4	SW3.9	SSE13
21-Jan	NNW2	E2	NNE1	NE4	ENE5	NE6	NE5	NNE5	NE5	NE7	NE8	NE8	NNE6	N8	NNE8	N8	NNE6	NNE7	NNE5	NE6	NNE8	NE8	NE7	ENE6	NE5.6	N8
22-Jan	ENE7	ENE8	ENE8	E8	ENE8	ENE7	ENE6	E7	ESE10	SE12	SE15	SSE15	SSE13	SSE13	SSE13	SSE14	SSE12	S13	S15	SSE12	S12	S12	S12	S11	SE8.9	SE15
23-Jan	S13	S10	SSW9	SSW9	SSW8	SSW9	SSW8	SSW7	SSW7	SW7	SW7	SW7	SW7	WSW7	SW6	SW5	SW3	W3	WSW2	WNW3	NW2	NW2	N3	NE6	SSW5.0	S13
24-Jan	NE7	NE5	ENE4	ENE5	E4	ESE4	SE6	ESE5	ESE6	SE5	SE7	S10	S10	S11	SSE9	S9	S9	S4	SSW7	SSW9	SSW8	SSW5	SSW6	SW2	SSE4.5	S11
25-Jan	WNW1	NW2	W2	WNW3	W2	WSW2	WSW2	W2	W1	W1	ESE1	SSE1	E1	ENE1	SSW3	S3	SSE3	UO	SSW1	WSW2	SSW5	SW7	SW9	SW10	SW2.2	SW10
26-Jan	SW8	SW9	WSW7	WSW7	WSW6	W5	W5	W4	WSW2	W3	SW3	WNW4	W3	WSW4	SW7	SSW5	SSW7	SSW8	SSW9	SSW9	SSW8	SSW8	SW7	SSW8	SW5.6	SSW9
27-Jan	SSW8	SSW10	SSW8	S6	SSW6	S5	SSW6	SSW8	SSW4	SSW7	SSW10	SW11	SW11	SW10	SW9	SW9	SW7	SSW8	SW9	SW9	SW8	SW7	SW8	SW8	SSW7.8	SW11
28-Jan	SW4	SW5	SSW7	SSW9	S8	SSW8	SSW11	SW10	SW8	SW10	SW10	WSW10	WSW13	WSW12	WSW11	W11	WSW6	SW6	SW7	W7	W8	W10	W9	W6	WSW7.7	WSW13
29-Jan	SW4	SW6	SW6	SW7	SSW10	SSW10	SSW11	SSW10	SSW9	S12	SSW14	SSW15	SSW14	SSW15	SSW14	SW12	SW9	SW8	SW7	SW10	SW9	SW7	SW8	SW8	SSW9.5	SSW15
30-Jan	SSW6	SSW7	SW3	SSW6	SSW3	S4	SSW9	NNE1	NNE2	SW10	W17	WNW21	W12	WSW13	W15	W18	W18	W14	W14	W13	W13	WSW12	WSW9	WSW12	WSW9.2	WNW21
31-Jan	WSW10	W10	W8	SW7	WSW7	WNW8	SW4	WSW5	WSW6	WSW7	SW7	SSW8	S8	SSE10	SSE11	SSE9	SSE5	SE7	SE8	SSE11	SSE15	SSE13	SSE14	SSE19	S6.2	SSE19

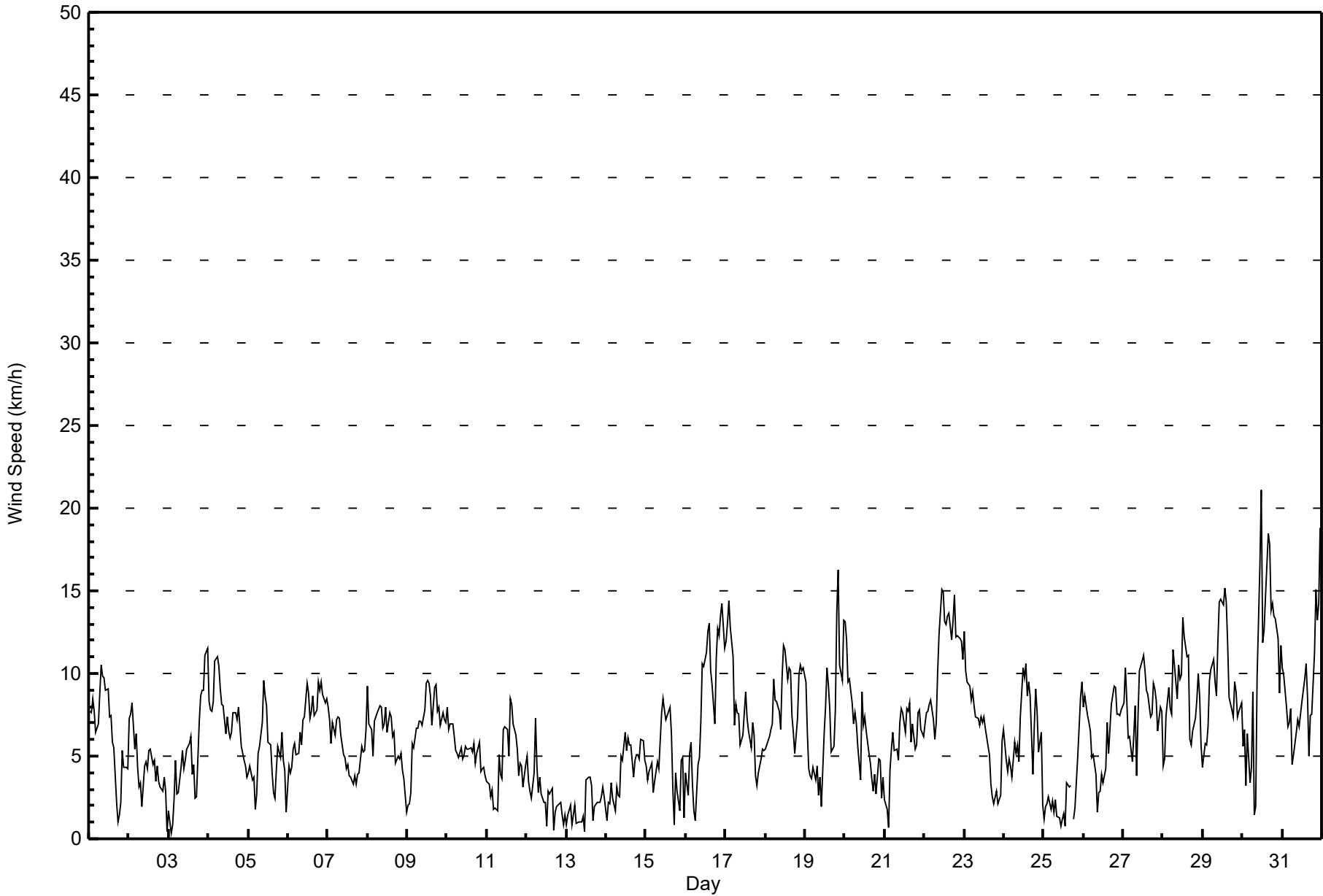
W2.2	WSW2.1	W2.1	WSW1.7	W1.6	W1.8	W1.7	W1.8	W1.5	WSW1.9	WSW2.2	W2.2	W1.7	W1.7	W1.3	WNW1.2	W0.8	W0.7	SW1.5	SW1.7	WSW2.1	WSW2.0	WSW2.0	WSW2.4	Diurnal Average
SSE13	NW13	NW14	NW13	NW11	NW11	SSW11	WNW11	ESE10	SE12	W17	WNW21	SSW14	SSW15	W15	W18	W18	W14	S15	S14	S16	NW13	NW14	SSE19	Diurnal Maximum

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**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Blackgold - January 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	315	42.40	42.40
6 - 11	370	49.80	92.19
12 - 19	57	7.67	99.87
20 - 28	1	0.13	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Blackgold - January 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	19	24	16	15	9	6	10	13	11	17	27	53	30	30	23	315
6 - 11	14	25	38	16	8	2	3	8	27	53	54	16	17	30	36	23	370
12 - 19	0	0	0	0	0	0	2	12	11	5	2	5	9	3	8	0	57
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>	26	44	62	32	23	11	11	30	51	69	73	48	79	64	74	46	743

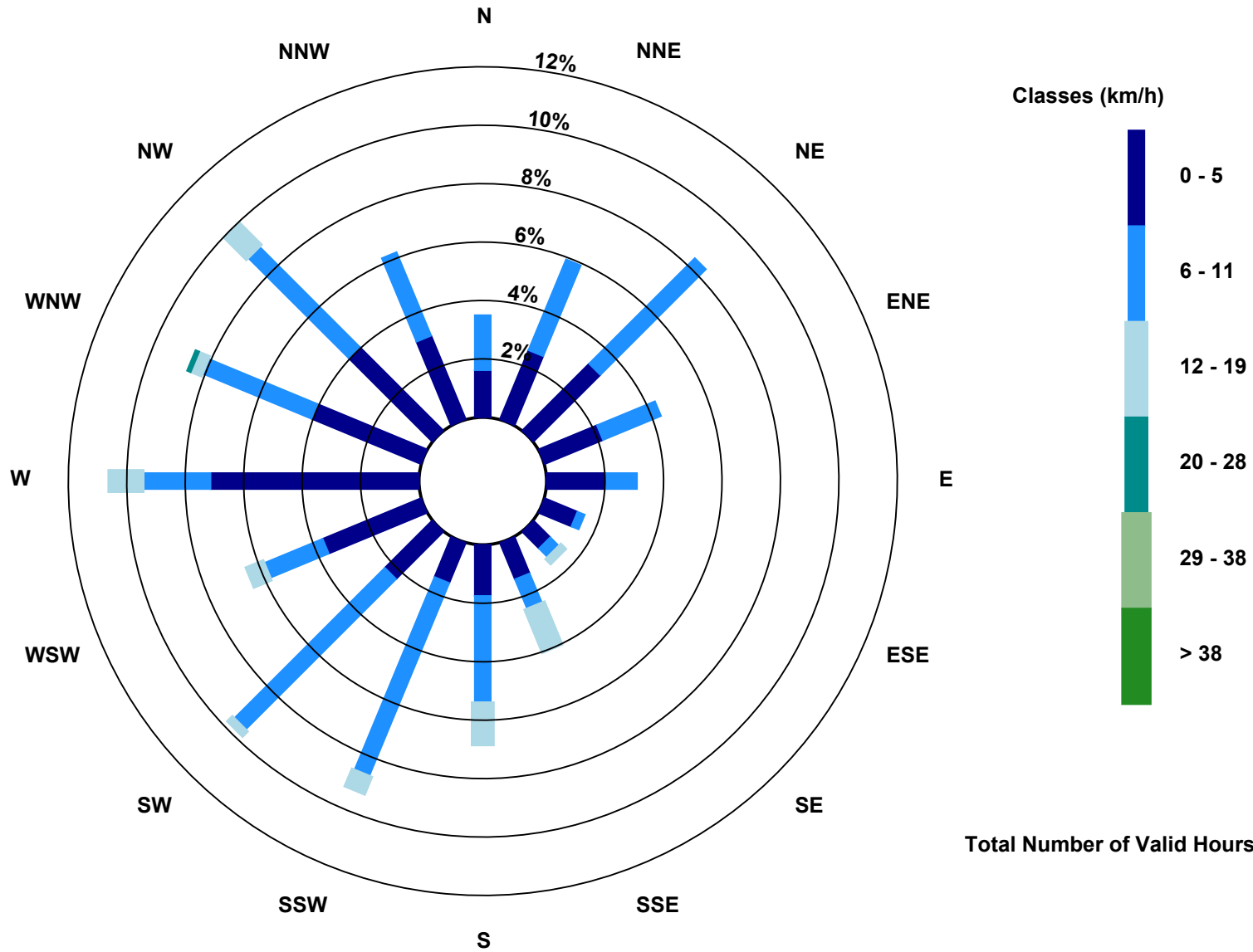
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Jan 2024

Wind Speed (WS) - km/h  
Blackgold



Total Number of Valid Hours: 743





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Blackgold - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Jan 30 11:00 Minimum Value: 0 km/h on Jan 13 18:00 Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 3 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 743 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-Jan	2	2	2	2	2	2	3	3	3	3	3	3	2	2	1	2	1	1	2	2	1	1	2	3		
2-Jan	2	2	2	2	2	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1		
3-Jan	0	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	3	3	3	4			
4-Jan	3	3	3	3	3	3	4	3	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1		
5-Jan	1	2	1	1	1	2	1	2	2	3	3	2	2	2	1	1	1	1	1	1	2	1	1	1		
6-Jan	1	1	1	2	2	1	1	2	2	2	2	3	3	2	3	3	2	3	3	3	3	3	3	3		
7-Jan	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1		
8-Jan	3	2	1	1	2	2	2	3	2	3	3	2	2	2	2	2	2	1	1	1	1	2	1	1		
9-Jan	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	2	3	3	2	2	2	2	2	2		
10-Jan	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	1	1	2	1	1	1	1		
11-Jan	1	1	1	1	1	1	2	1	1	1	2	2	2	2	3	2	2	2	2	1	1	1	1	1		
12-Jan	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	2	1	1	0	1	1	0	1	1		
13-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0		
14-Jan	1	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	1	1	1	2	1	2		
15-Jan	1	1	1	1	1	1	2	2	2	3	3	3	3	2	2	2	2	1	1	1	1	2	2	1		
16-Jan	2	2	1	1	2	1	1	2	1	3	3	3	3	4	4	4	3	2	3	4	3	4	4	3		
17-Jan	3	4	4	4	4	2	3	2	2	2	2	3	3	2	2	2	2	2	1	1	1	1	1	1		
18-Jan	1	2	1	2	2	3	3	3	2	2	3	4	3	3	3	3	2	2	2	3	2	3	3	2		
19-Jan	2	2	1	1	2	2	1	1	1	1	1	2	2	3	2	2	1	1	2	4	4	3	3	3		
20-Jan	3	3	2	2	3	2	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	2	1	1		
21-Jan	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2		
22-Jan	2	2	2	2	2	2	1	3	2	3	4	4	3	3	3	4	3	4	5	3	3	3	3	3		
23-Jan	3	3	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3		
24-Jan	2	1	1	1	1	1	2	1	1	1	3	3	3	3	3	3	2	2	3	3	4	2	2	1		
25-Jan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	UO	1	2	2	2	3	3		
26-Jan	2	3	3	3	2	2	2	1	1	2	1	2	1	3	3	1	1	2	2	2	2	2	2	2		
27-Jan	2	2	2	1	1	2	2	2	2	3	3	3	4	3	3	3	2	2	3	3	3	2	2	2		
28-Jan	1	2	1	2	2	3	3	4	3	3	3	4	5	5	5	4	3	2	2	3	3	2	3	2		
29-Jan	2	2	2	2	2	2	2	3	2	3	4	4	4	3	4	3	3	2	2	3	3	2	2	3		
30-Jan	2	2	2	2	2	3	2	1	1	4	9	7	4	6	5	8	7	5	5	5	6	5	3	4		
31-Jan	4	4	3	3	3	2	1	2	1	2	2	2	2	2	3	2	1	1	2	2	3	4	4	5		
																	Diurnal Maximum									
UO - Unstable Operation																										



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Blackgold - January 2024**

Direction of Maximum Speed: 291 deg on Jan 30 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 208.9 deg on Jan 29	Hours of Data: 743
Direction of Minimum Speed: 292 deg on Jan 3 02:00	Hours of Missing Data: 1
Direction of Minimum Daily Speed Average: 1.1 deg on Jan 13	Percent Operational Time: 99.9
Monthly Average Direction: 259.6 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-Jan	280	286	284	285	279	281	297	303	319	310	319	351	347	341	51	66	95	139	134	3	49	37	44	356	323.1
2-Jan	337	319	315	315	328	333	33	55	53	67	54	45	80	86	77	82	86	63	96	70	42	69	63	219	32.8
3-Jan	309	292	73	186	185	181	171	175	191	169	166	163	168	163	97	86	113	125	176	174	210	225	213	226	183.7
4-Jan	243	253	274	281	304	309	335	330	337	348	7	49	48	52	56	68	82	60	88	88	84	27	50	43	6.0
5-Jan	87	114	106	124	145	326	321	301	305	300	312	302	320	328	5	28	85	75	70	80	99	107	94	22	8.4
6-Jan	58	41	37	65	63	52	32	47	64	53	46	64	60	48	42	34	37	28	30	42	34	36	33	21	43.5
7-Jan	26	42	36	36	10	18	28	39	32	23	40	55	46	30	39	57	105	120	156	165	174	163	158	182	55.4
8-Jan	193	201	185	178	189	181	191	204	211	220	238	286	311	329	329	329	328	308	322	338	350	11	17	305	254.3
9-Jan	294	330	51	86	53	59	58	54	52	50	56	53	52	53	39	28	33	35	38	30	14	15	15	8	40.3
10-Jan	360	15	11	6	8	352	350	342	340	328	325	334	338	349	320	324	333	330	329	335	323	313	326	334	342.3
11-Jan	5	20	342	338	324	306	297	326	317	321	325	336	355	346	330	323	328	326	333	302	294	296	298	294	326.5
12-Jan	300	293	289	279	290	294	287	274	274	272	264	222	341	347	330	22	277	262	268	269	257	267	256	248	287.3
13-Jan	238	265	268	206	242	266	247	253	250	232	172	54	14	10	21	24	332	279	270	264	267	275	269	269	291.7
14-Jan	270	267	261	268	258	245	271	265	274	273	277	295	304	312	304	304	309	295	291	285	284	280	275	273	285.2
15-Jan	270	265	249	237	252	269	252	240	249	238	232	232	228	217	218	222	198	263	206	248	264	226	234	290	235.9
16-Jan	262	281	281	284	289	299	358	307	298	309	312	321	317	315	325	326	323	315	310	307	303	304	307	301	308.9
17-Jan	302	304	306	308	309	314	314	323	328	331	5	14	22	20	358	5	26	37	17	338	334	327	319	306	333.1
18-Jan	311	309	298	292	315	304	298	298	288	280	291	303	309	305	315	312	301	288	285	295	297	294	304	302	300.4
19-Jan	298	286	273	265	277	238	247	237	228	234	205	206	212	191	177	171	184	177	183	173	183	175	183	175	200.8
20-Jan	168	178	176	180	192	211	209	209	218	236	235	272	277	285	309	331	307	286	289	280	297	328	309	287	231.3
21-Jan	348	98	23	42	59	41	35	17	43	46	47	41	15	5	24	6	30	27	29	41	31	44	50	58	34.0
22-Jan	63	70	76	82	78	77	69	93	117	132	139	148	151	160	157	158	165	170	170	161	170	173	174	180	142.3
23-Jan	186	189	197	193	201	207	205	206	211	214	215	232	234	237	217	232	215	276	247	298	304	307	4	38	213.6
24-Jan	45	50	71	67	79	121	131	111	121	125	161	175	175	170	159	175	177	173	207	207	209	211	201	234	160.9
25-Jan	286	308	264	284	277	256	257	260	262	260	102	159	88	69	207	188	165	UO	202	248	208	223	227	224	228.0
26-Jan	224	234	245	254	244	262	273	270	255	269	228	286	272	240	229	203	207	209	207	206	211	212	214	211	229.3
27-Jan	204	198	199	185	193	176	194	196	206	208	210	217	234	230	224	227	216	213	226	224	223	220	219	227	213.2
28-Jan	224	216	200	193	189	196	206	224	223	224	225	248	238	252	258	262	253	231	229	261	271	281	280	273	236.6
29-Jan	236	231	223	220	207	203	205	209	195	184	192	203	195	198	202	215	216	218	218	227	226	222	222	226	208.9
30-Jan	209	209	227	195	209	184	201	19	18	217	270	291	276	255	264	271	273	275	269	264	259	258	245	245	257.5
31-Jan	257	263	263	235	249	285	229	248	243	237	217	208	174	167	152	150	148	133	143	150	151	156	151	156	186.8

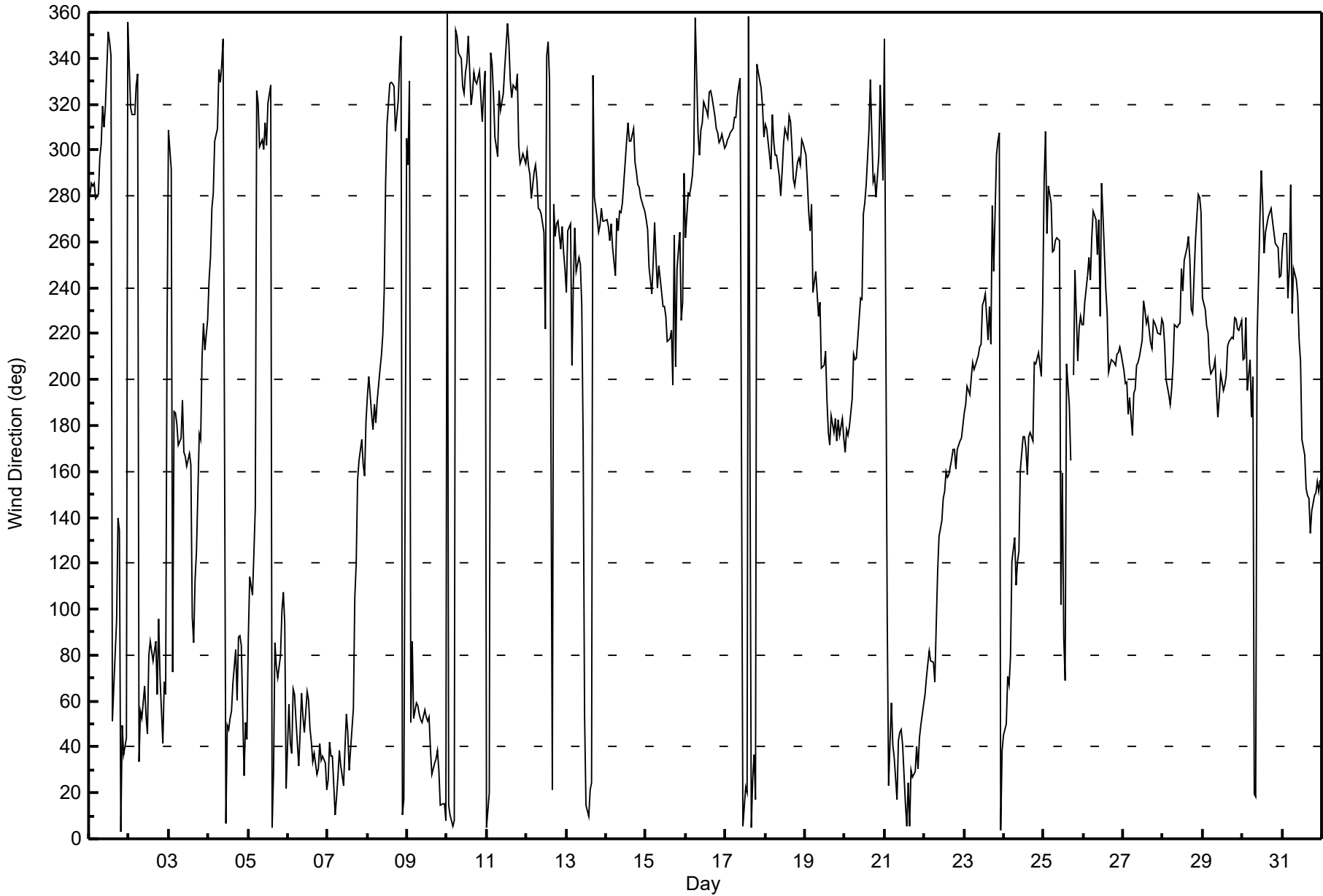
264.2 257.8 262.7 247.8 259.3 270.6 259.5 273.3 272.5 254.7 255.8 276.6 278.3 270.2 281.1 287.6 269.3 272.4 232.4 235.9 239.7 254.2 243.9 243.7  
 Diurnal Average

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**  
**Blackgold - January 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Blackgold - January 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 90 deg on Jan 12 13:00 Minimum Value: 6 deg on Jan 13 20:00 Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 15 Q <sub>1</sub> = 18 Median = 22 Q <sub>3</sub> = 27 P <sub>90</sub> = 38 P <sub>99</sub> = 73														Hours in Service: 744 Hours of Data: 743 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-Jan	20	18	20	18	26	22	21	17	21	21	21	23	31	23	28	26	61	53	30	66	29	25	26	34	66
2-Jan	21	22	22	21	30	30	51	24	36	26	26	33	21	19	19	16	21	18	18	25	21	20	17	83	83
3-Jan	27	66	34	71	14	52	30	24	15	16	18	17	18	20	22	13	17	28	13	18	23	24	20	23	71
4-Jan	35	29	27	23	20	20	23	22	24	23	28	29	28	29	25	20	20	21	18	15	16	27	23	27	35
5-Jan	22	18	18	16	47	54	24	20	20	17	24	26	29	30	40	35	38	24	18	14	18	18	24	54	54
6-Jan	22	23	22	21	19	21	20	23	23	21	21	20	19	23	21	22	21	21	23	22	21	21	24	23	24
7-Jan	21	23	23	23	25	24	24	23	27	24	25	33	32	37	33	28	21	21	15	14	13	13	18	17	37
8-Jan	18	17	13	20	15	15	16	21	20	26	35	27	22	25	23	25	22	19	17	23	22	24	27	54	54
9-Jan	26	42	36	17	21	18	18	19	21	22	21	22	21	22	20	23	22	21	21	20	25	24	24	24	42
10-Jan	24	25	25	24	26	23	21	25	21	24	25	30	33	29	23	24	21	19	17	21	23	19	17	19	33
11-Jan	25	24	22	19	23	16	26	20	20	21	21	27	23	32	23	20	19	19	20	15	10	10	16	11	32
12-Jan	11	18	14	21	17	10	16	21	14	17	21	33	90	34	37	23	79	18	13	14	15	11	51	41	90
13-Jan	58	33	14	61	60	17	59	66	62	44	66	81	28	31	27	17	36	7	11	6	7	9	8	9	81
14-Jan	40	10	11	9	16	16	17	13	16	18	23	18	25	21	22	21	21	20	15	15	16	14	14	18	40
15-Jan	17	21	17	18	37	16	22	30	35	26	24	25	21	26	21	22	40	71	11	34	70	62	31	79	79
16-Jan	31	60	17	15	36	38	62	26	18	21	20	22	21	22	22	20	20	18	19	18	16	18	16	16	62
17-Jan	18	18	17	19	20	18	20	20	21	22	26	29	27	32	27	35	22	19	30	19	24	21	22	21	35
18-Jan	20	20	15	17	23	20	17	18	17	21	19	20	19	22	21	19	20	17	19	25	17	14	17	16	25
19-Jan	17	14	20	30	43	20	20	16	15	22	41	22	21	20	18	17	15	16	16	15	14	17	16	16	43
20-Jan	16	16	16	15	19	19	18	18	22	38	28	29	28	36	36	20	25	20	19	27	19	25	65	18	65
21-Jan	31	49	68	25	24	29	31	25	29	21	20	25	35	27	25	25	24	22	23	21	21	22	21	24	68
22-Jan	20	19	18	19	17	17	17	24	14	13	15	15	15	16	16	16	16	16	18	16	16	15	15	16	24
23-Jan	16	16	17	15	18	20	18	18	20	22	24	29	31	36	37	33	39	42	53	54	22	15	28	23	54
24-Jan	22	23	23	21	22	24	16	16	13	24	18	16	19	20	19	18	16	28	17	17	30	20	20	55	55
25-Jan	39	51	44	24	57	27	67	34	58	57	67	50	56	73	50	24	22	UO	52	57	32	26	26	24	73
26-Jan	25	27	36	38	34	35	29	34	87	50	50	25	43	70	26	15	12	14	14	15	15	13	16	15	87
27-Jan	14	11	13	9	13	35	22	14	49	21	19	22	28	25	23	27	21	21	26	30	26	19	15	21	49
28-Jan	19	21	14	11	12	18	18	27	30	24	25	35	29	30	34	30	35	29	27	37	35	20	25	44	44
29-Jan	52	18	17	15	15	15	14	16	18	15	18	18	16	15	17	22	25	24	27	27	25	27	23	28	52
30-Jan	25	19	47	32	60	74	16	75	73	28	36	19	26	33	31	30	27	27	31	33	32	33	33	29	75
31-Jan	35	33	35	39	34	20	30	18	17	20	22	25	21	17	20	12	11	9	12	13	13	15	15	16	39
58 66 68 71 60 74 67 75 87 57 67 81 90 73 50 35 79 71 53 66 70 62 65 83																									
Diurnal Maximum																									
UO - Unstable Operation																									

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

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February 29, 2024  
1:24:42 PM  
Request # 4648156

**Submitted by:** EN6138\_DENNY  
**Submission Date:** Feb 29, 2024 1:24:19 PM

File Type

Ambient Data

File Name

AMB-WBEA-202401-V00.xml

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

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February 29, 2024  
1:26:07 PM  
Request # 4648158

**Submitted by:** EN6138\_DENNY  
**Submission Date:** Feb 29, 2024 1:25:55 PM

File Type

Calibration Report

File Name

CAL-WBEA-202401.pdf

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

February 29, 2024  
1:27:09 PM  
Request # 4648160

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**Submitted by:** EN6138\_DENNY  
**Submission Date:** Feb 29, 2024 1:27:09 PM

File Type  
Airshed Monitoring Report

File Name  
WBEA-202401.pdf

**Total Number of Files: 1**

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End of Report