



**WOOD BUFFALO  
ENVIRONMENTAL ASSOCIATION**

Unit 3 - 805 Memorial Drive  
Fort McMurray, AB T9K 0K4  
P: 780.799.4420 E: info@wbea.org  
[wbea.org](http://wbea.org)

**Wood Buffalo Environmental Association**

**OCTOBER 2024  
MONTHLY REPORT**

CONTINUOUS MONITORING

November 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





---

<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>Jackfish 1</b> .....	<b>506-1</b>
Station Summaries .....	506-2
Station Percentiles.....	506-3
Station Downtime.....	506-4
Data Summaries .....	506-5
<b>Kirby North</b> .....	<b>508-1</b>
Station Summaries .....	508-2
Station Percentiles.....	508-3
Station Downtime.....	508-4
Data Summaries .....	508-5
<b>Hangingstone Expansion</b> .....	<b>512-1</b>
Station Summaries .....	512-2
Station Percentiles.....	512-3
Station Downtime.....	512-4
Data Summaries .....	512-5



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

Unit 3 - 805 Memorial Drive  
Fort McMurray, AB T9K 0K4  
P: 780.799.4420 E: info@wbea.org  
[wbea.org](http://wbea.org)

November 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 October 2024  
Wood Buffalo Environmental Association**

---

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

The continuous ambient air quality monitoring network stations are:

AMS 01 – Bertha Ganter – Fort McKay	AMS 19 – Firebag
AMS 02 – Mildred Lake	AMS 20 – MacKay River
AMS 03 – Lower Camp (Meteorology)	AMS 21 – Conklin
AMS 04 – Buffalo Viewpoint	AMS 22 – Janvier
AMS 05 – Mannix	AMS 23 – Fort Hills
AMS 06 – Patricia McInnes	AMS 25 – Waskōw ohci Pimâtisiwin
AMS 07 – Athabasca Valley	AMS 26 – Christina Lake
AMS 08 – Fort Chipewyan	AMS 27 – Jackfish 2/3
AMS 09 – Barge Landing	AMS 29 – Surmont 2
AMS 11 – Lower Camp (Air Quality)	AMS 30 – Ells River
AMS 13 – Fort McKay South	AMS 506 – Jackfish 1
AMS 14 – Anzac	AMS 508 – Kirby North
AMS 17 – Wapasu	AMS 512 – Hangingstone Expansion
AMS 18 – Stony Mountain	



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

<b>Industry Operators</b>	<b>EPEA Approval No.</b>
Athabasca Oil Corporation	289664-01-00; 241311-01-00
Canadian Natural	153125-01-00; 20809-02-00; 149968-01-05; 224816-01-00; 237382-01-00; 308463-00-00
Cenovus Energy Inc.	48522-02-00; 206355-01-00
Chemtrade Logistics	404827-00-00
CNOOC International	137467-01-00; 236394-01-00
Connacher Oil and Gas Ltd.	240008-01-00
ConocoPhillips	48263-01-00
Greenfire Resources Operating Corporation	153105-01-00
Hammerstone Corporation	189942-01-00
Harvest Operations Corp.	246984-01-00
H.J. Baker Sulphur Canada ULC	426549-00-00
Imperial Oil Ltd.	46586-01-00
Inter Pipeline Ltd.	73203-02-00
IPC Canada Ltd.	301778-00-01
Keyera Energy Ltd.	187-03-03
MEG Energy Corp.	216466-01-00
Parsons Creek Aggregates	231302-00-00
PetroChina Canada Ltd.	254465-00-00
Suncor Energy Inc.	094-03-00; 80105-01-00; 151469-01-00; 48408-02-00
Sunshine Oilsands Ltd.	305529-00-00
Surmont Energy	318401-00-00
Syncrude Canada Ltd.	026-03-00
Titan Tire Reclamation Corporation	364232-00-00
<b>Government and Non-Government Organizations</b>	
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	
<b>Indigenous Communities</b>	
Athabasca Chipewyan First Nation	Fort McKay Métis Nation
Chard Métis Nation	Fort McMurray 468 First Nation
Chipewyan Prairie Dene First Nation	Lakeland Métis
Christina River Dene Nation Council	McMurray Métis
Conklin Resource Development Advisory Committee	Mikisew Cree First Nation
Fort McKay First Nation	



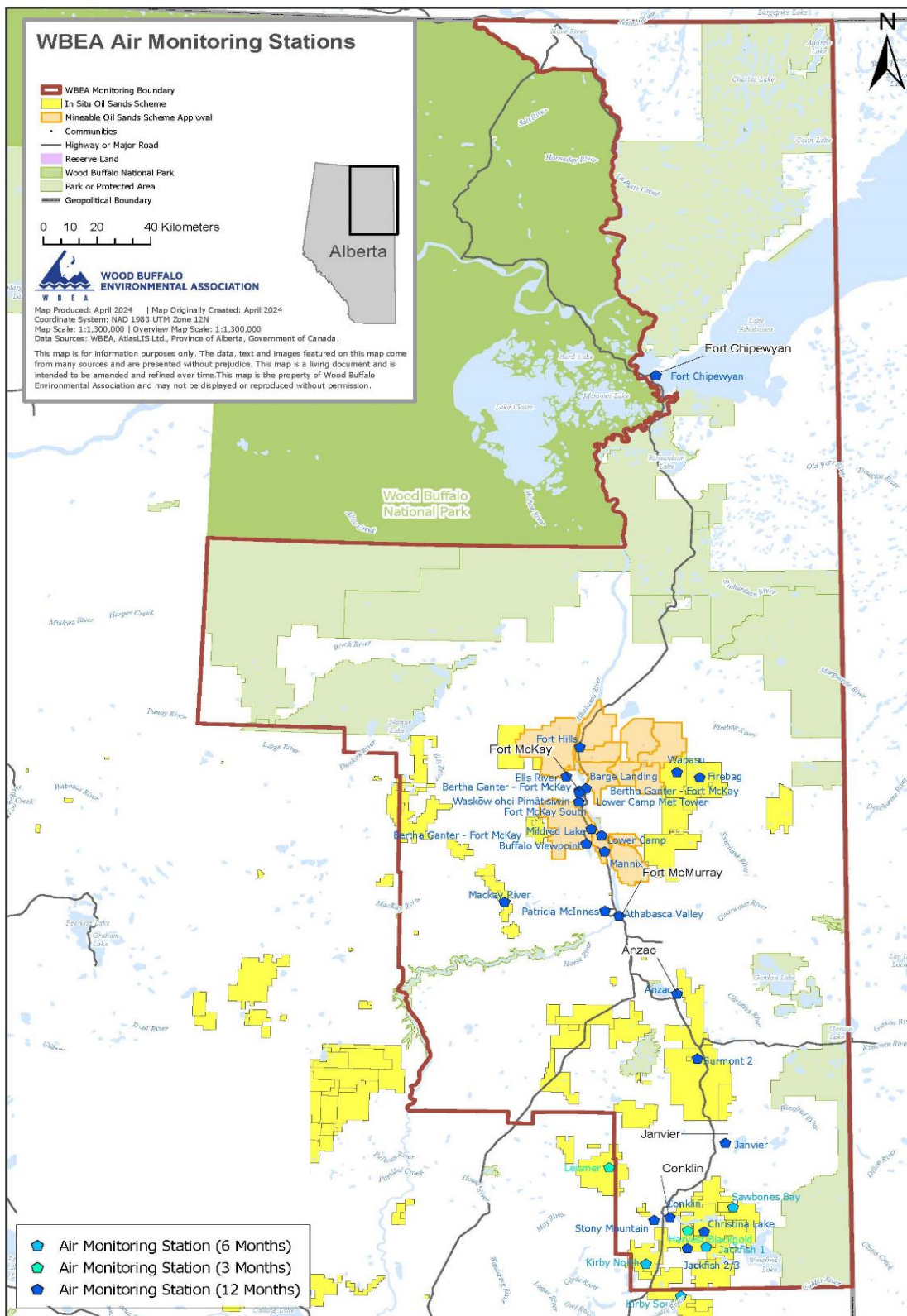


Figure 1. Map of WBEA Continuous Monitoring Network

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 TRS, CO, O3, NH3, TSP, and Dustfall.

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

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

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

There was one ground-level concentrations in excess of the 1-hour NO<sub>2</sub> objective reported to AEPA; following data validation and processing, the exceedance was not confirmed.

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

Site	Parameter	Date / Time	Reference	Period	Reported	Final	Status*
Lower Camp	H2S	30Oct24, 19:00	433844	1-hr	12	12.7	exc
Lower Camp	H2S	30Oct24, 20:00	433844	1-hr	10	10.5	exc
Lower Camp	H2S	5Oct24, 18:00	433915	1-hr	13	13.2	exc
Lower Camp	H2S	9Oct24, 18:00	434064	1-hr	11	10.9	exc
Lower Camp	H2S	11Oct24, 18:00	434132	1-hr	11	11.7	exc
Lower Camp	H2S	11Oct24, 19:00	434133	1-hr	15	15.8	exc
Lower Camp	H2S	11Oct24, 20:00	434133	1-hr	16	15.9	exc
Lower Camp	H2S	15Oct24, 18:00	434232	1-hr	16	16.6	exc
Lower Camp	H2S	15Oct24, 19:00	434233	1-hr	13	13.5	exc
Lower Camp	H2S	15Oct24, 20:00	434233	1-hr	15	15.3	exc
Lower Camp	H2S	15Oct24, 24:00	434233	1-hr	10	9.8	nae
Lower Camp	H2S	15Oct24, 24:00	434233	24-hr	4	3.7	exc
Lower Camp	H2S	18Oct24, 17:00	434346	1-hr	11	11.8	exc
Lower Camp	H2S	22Oct24, 03:00	434412	1-hr	11	11.4	exc
Lower Camp	H2S	22Oct24, 04:00	434412	1-hr	12	12.5	exc
Lower Camp	H2S	22Oct24, 05:00	434412	1-hr	13	13.0	exc
Lower Camp	H2S	22Oct24, 09:00	434427	1-hr	11	11.5	exc
Lower Camp	H2S	22Oct24, 14:00	434445	1-hr	10	10.0	nae
Lower Camp	H2S	22Oct24, 15:00	434445	1-hr	13	13.3	exc
Lower Camp	H2S	22Oct24, 17:00	434445	1-hr	12	12.7	exc
Lower Camp	H2S	22Oct24, 19:00	434445	1-hr	12	11.9	exc
Lower Camp	H2S	22Oct24, 20:00	434445	1-hr	13	13.7	exc



Lower Camp	SO2	22Oct24, 24:00	434445	24-hr	49	49.1	exc
Lower Camp	H2S	22Oct24, 24:00	434445	24-hr	7	7.4	exc
Lower Camp	H2S	23Oct24, 24:00	434517	1-hr	14	14.7	exc
Lower Camp	H2S	24Oct24, 01:00	434518	1-hr	10	9.9	nae
Jackfish 2/3	NO2	23Oct24, 13:00	434516	1-hr	233.965	0	nae
Fort Hills	PM2.5	31Oct24, 06:00	434942	1-hr	95	95.2	exc

## 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 the 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 in the Electronic Transfer System with this monthly report.

## 3.0 Operational Status

### 3.1 Continuous Monitoring

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

Station	Parameter	Details
Stony Mountain	Wind Speed (WS) and Wind Direction (WD) at 20-meter elevation	<p>The wind speed and wind direction (WS/WD) sensor at the 20-meter elevation at Stony Mountain AMS operated less than 90% of October 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 October 29, 2024 (reference number 434706).</p> <p>Throughout October, the WS/WD sensor froze due to weather conditions, resulting in inaccurate data. The sensor returned to normal operation when weather conditions changed, and the</p>



		sensor thawed. Data from the freezing events were invalidated for a total of 79 hours, resulting in a sensor operational time of 89% for October.
Jackfish 1	Wind Speed (WS) and Wind Direction (WD)	<p>The wind speed and wind direction (WS/WD) sensor at the Jackfish 1 AMS operated less than 90% of October 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 November 4, 2024 (reference number 434889).</p> <p>Throughout October, the WS/WD sensor froze due to weather conditions, resulting in inaccurate data. The sensor returned to normal operation when weather conditions changed, and the sensor thawed. Data from the freezing events were invalidated, resulting in a sensor operational time of 88% for October.</p>
Surmont 2	Wind Speed (WS) and Wind Direction (WD)	<p>The wind speed and wind direction (WS/WD) sensor at the Surmont 2 AMS operated less than 90% of October 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 November 13, 2024 (reference number 435156).</p> <p>Throughout October, the WS/WD sensor froze due to weather conditions, resulting in inaccurate data. The sensor returned to normal operation when weather conditions changed, and the sensor thawed. Data from the freezing events were invalidated, resulting in a sensor operational time of 88% for October.</p>

### 3.2 Intermittent Monitoring

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

### 3.3 General Network Notes

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

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



response below the expected 1.8 ppm triggers an investigation of the analyzer to determine if there is an issue.

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

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

The NH<sub>3</sub> analyzer required additional time to stabilize to levels below ambient concentrations following the automated daily spans and routine monthly multipoint calibrations. Additional time is required for stabilization after exposure to high concentrations of NH<sub>3</sub> gas, and this is an inherent behavior in the NH<sub>3</sub> analyzer operations due to the properties of the NH<sub>3</sub> gas. Data for 1 to 2 hours following the daily spans have been reported as invalid for a total of 37 hours this month.

Cleaning of the manifold on September 24 interrupted the normal operations of all gaseous analyzers, except the CO<sub>2</sub> analyzer, for 2 hours.

Flatline in the output signal due to wind sensor on September 20 resulted in 1 hour of invalid data.

The daily span check for the CO<sub>2</sub> analyzer was outside the 10% AMD criteria for a few days throughout the month due to an interruption in the station calibrator configuration.

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

Unstable operation due to excessive baseline noise of the THC/NMHC/CH<sub>4</sub> analyzer throughout the month of October resulted in 52 hours of invalid data. Subsequent maintenance to calibrate the analyzer, replace the support gas cylinder, and reinitiate daily QA checks resulted in an additional 11 hours of downtime.

Flatline in the output signal of the wind sensor on October 29 resulted in 12 hours of invalid data.

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

Flatline in the output signal of the wind sensor at 163-meter elevation on October 27 resulted in 1 hour of invalid data.

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

The station power failure on October 4 interrupted the normal operations of all parameters resulting in 3 hours of invalid data.

Maintenance to install an additional dryer for the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on October 16 and 17 resulted in 19 hours of downtime.

Maintenance to replace the support gas cylinder for the THC/NMHC/CH<sub>4</sub> analyzer on October 23 resulted in 2 hours of downtime.





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

Unstable operation due to depleting support gas cylinder of THC/NMHC/CH<sub>4</sub> analyzer on October 7 resulted in 29 hours of invalid data. Subsequent maintenance to replace the analyzer on October 7 resulted in additional 3 hours of downtime.

Maintenance to replace the support gas cylinder for the THC/NMHC/CH<sub>4</sub> analyzer on October 28 resulted in 2 hours of downtime.

The relative humidity sensor at 20-meter elevation operated out of range throughout the month resulting in 40 hours of invalid data.

The relative humidity sensor at 75-meter elevation operated out of range throughout the month resulting in 62 hours of invalid data.

The relative humidity sensor at 90-meter elevation operated out of range throughout the month resulting in 32 hours of invalid data.

Flatlines in the output signal of the wind sensor on October 27 and 28 resulted in 2 hours of invalid data.

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

The NH<sub>3</sub> analyzer required additional time to stabilize to levels below ambient concentrations following the automated daily spans and routine monthly multipoint calibrations. NH<sub>3</sub> analyzers require additional time for stabilization after being exposed to high concentrations, this is due to the physical properties of the NH<sub>3</sub> gas. Data for 1 hour following each daily span has been reported as invalid for a total of 46 hours this month.

Unstable operation of the THC/NMHC/CH<sub>4</sub> analyzer due to excessive baseline noise through out the month resulted in 17 hours of invalid data. Subsequent maintenance to address the excessive baseline noise on October 8 resulted in additional 4 hours of downtime.

Unstable operation due to AMD noncompliance of the THC/NMHC/CH<sub>4</sub> analyzer on October 22 to 23 resulted in 31 hours of invalid data. Subsequent maintenance to recalibrate the analyzer on October 23 resulted in additional 3 hours of downtime.

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

Flatline in the output signal of the wind sensor on October 21 in 3 hours of invalid data.

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

Maintenance to reinitiate daily QA checks on October 7 for O<sub>3</sub> analyzer resulted in 1 hour of downtime.

Maintenance to reinitiate daily QA checks on October 18 for CO analyzer resulted in 1 hour of downtime.

Maintenance to reinitiate daily QA checks on October 18 for CO<sub>2</sub> analyzer resulted in 2 hours of downtime.



The surface leaf wetness sensor operated out of range on October 27 resulting in 1 hour of invalid data.

Flatline in the output signal of the wind sensor at 10-meter elevation on October 11 resulted in 1 hour of invalid data.

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

Flatlines in the output signal of the wind sensor at 10-meter elevation throughout the month resulted in 45 hours of invalid data.

Flatline in the output signal of the wind sensor at 20-meter elevation on October 27 resulted in 3 hours of invalid data.

Maintenance to de-ice the wind sensor at 10-meter elevation on October 30 resulted in 1 hour of downtime.

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

Unstable operation due to flatline in the analyzer output signal of the H<sub>2</sub>S analyzer on October 1 and 2 resulted in 3 hours of invalid data.

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

Cleaning of the manifold on October 9 interrupted the normal operations of the H<sub>2</sub>S analyzer for 2 hours.

Unstable operation due to excessive baseline noise of the THC/NMHC/CH<sub>4</sub> analyzer on October 1 through 11 in 34 hours of invalid data. Subsequent maintenance to replace the zero-air generator on October 2 and 11 resulted in 2 additional hours of downtime for the THC/NMHC/CH<sub>4</sub> analyzer.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 12 hours of invalid data.

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

Unstable operation due to flatline in analyzer output signal of the TRS analyzer on October 3 and 4 resulted in 27 hours of invalid data.

Unstable operation due to flatline in analyzer output signal of the THC/NMHC/CH<sub>4</sub> analyzer on October 6 and 7 resulted in 17 hours of invalid data. Subsequent maintenance to reset the analyzer on October 6 and 8 resulted in additional 2 hours of downtime.

Unstable operation due to flatline in analyzer output signal of the SO<sub>2</sub> analyzer on October 16 through 18 resulted in 41 hours of invalid data. Subsequent maintenance to reset the analyzer on October 18 resulted in additional 1 hour of downtime.

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on October 25 resulted in 2 hours of downtime.



Flatlines in the output signal due to frozen wind sensor on October 21 resulted in 16 hours of invalid data.

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

Failure to record data of H<sub>2</sub>S, NO<sub>x</sub>/NO/NO<sub>2</sub> and THC analyzers on October 3 resulted in 1 hour of invalid data.

Cleaning of the manifold on October 15 interrupted the normal operations of all gaseous analyzers except for O<sub>3</sub> analyzer for 1 hour.

The relative humidity sensor periodically operated out of range throughout the month resulting in 17 hours of invalid data.

Flatlines in the output signal due to frozen wind sensor on October 18 and 20 resulted in 40 hours of invalid data.

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

Unstable operations due to excessive baseline drift of the THC/NMHC/CH<sub>4</sub> analyzer on October 14 resulted in 32 hours of invalid data.

Maintenance to replace the station router on October 17 interrupted the normal operations of all air quality analyzers for 2 hours.

Unstable operation of the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer due to flatline in output signal on October 28 and 29 resulted in 18 hours of invalid data. Subsequent maintenance to reboot the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on October 29 resulted in additional 1 hour of downtime.

Sensor failure due to inconsistency response of the output signal of the wind sensor at the 20-meter elevation from October 21 through 31 resulted in 265 hours of invalid data.

The relative humidity sensor periodically operated out of range throughout the month resulting in 50 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor at the 10-meter elevation throughout the month resulted in 27 hours of invalid data.

A flatline in the output signal of the wind sensor at the 20-meter elevation on October 5 resulted in 5 hours of invalid data.

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

Maintenance to replace the wind sensor on October 9 resulted in 4 hours of downtime.

Flatlines in the output signal of the wind sensor throughout the month resulted in 42 hours of invalid data.



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

Flatlines in the output signal of the wind sensor throughout the month resulted in 9 hours of invalid data.

Station operator activities interrupted the normal operations of the wind sensor on October 7 resulting in 1 hour of downtime.

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

Unstable operation due to flatline in output signal of the O<sub>3</sub> analyzer on October 18 and 31 resulted in 12 hours of invalid data. Subsequent maintenance to reboot the O<sub>3</sub> analyzer on October 18 and 31 resulted in additional 2 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 7 hours of invalid data.

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

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

Maintenance to replace the station router on October 31 interrupted the normal operations of all air quality analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor at the 10-meter elevation throughout the month resulted in 27 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor at the 20-meter elevation throughout the month resulted in 47 hours of invalid data.

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

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

Cleaning of the manifold on October 11 interrupted the normal operations of all gaseous analyzers except for TRS analyzer for 1 hour.

Failure to record data of all parameters on October 17 resulted in 1 hour of invalid data.

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

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



Flatlines in the output signal due to frozen wind sensor throughout the month resulted in 15 hours of invalid data.

***Station 26, Christina Lake***

No operational issues to report.

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

Maintenance to reset logger/modem on October 24 interrupted the normal operations of all parameters for 1 hour.

Maintenance to replace the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on October 23, and subsequent stabilization on October 24 resulted in 19 hours of downtime.

***Station 29, Surmont 2***

Station operator activities interrupted the normal operations of the SO<sub>2</sub> analyzer on October 22 resulting in 5 hours of downtime.

Maintenance to conduct field testing of the PM<sub>2.5</sub> analyzer on October 30 resulted in 3 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 89 hours of invalid data.

***Station 30, Ells River***

Maintenance to replace support gas cylinder for the THC/NMHC/CH<sub>4</sub> analyzer on October 25 resulted in 2 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 9 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 60 hours of invalid data.

***Station 506, Jackfish 1***

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 90 hours of invalid data. Subsequent maintenance to lower the tower to de-ice the wind sensor on October 31 resulted in additional 1 hour of downtime.

***Station 508, Kirby North***

Cleaning of the manifold on October 17 interrupted the normal operations of H<sub>2</sub>S and NO<sub>x</sub>/NO/NO<sub>2</sub> analyzers for 2 hours.



Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 47 hours of invalid data.

***Station 512, Hangingstone Expansion***

Station power failures throughout the month interrupted the normal operations of all parameters resulting in 20 hours 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**

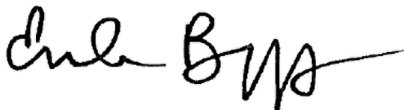
The representative of the Person Responsible for this monitoring program is Emilie Briggs, Operations Manager, WBEA.

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 Air Resource Specialists (ARS) to conduct Level three (L3) review on its behalf. Contact information for WBEA staff is included below.

Asad Hidayat, Data Technician  
Wood Buffalo Environmental Association  
T: (780) 215-6000  
E: [ahidayat@wbea.org](mailto:ahidayat@wbea.org)

Denny Estador, Data Technician  
Wood Buffalo Environmental Association  
T: (780) 713-8510  
E: [destador@wbea.org](mailto:destador@wbea.org)

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



Emilie Briggs  
Operations Manager  
Wood Buffalo Environmental Association  
Unit 3 - 805 Memorial Drive  
Fort McMurray AB T9K 0K4  
[www.wbea.org](http://www.wbea.org)  
T: (780) 799-8216 | E: [ebriggs@wbea.org](mailto:ebriggs@wbea.org)

R00\_2410



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

October 2024

Page 1 of 3

Created: November 29 2024 11:00:00

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	10	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00							
149968-01-00			ONE-HOUR AVERAGE		24-HOUR AVERAGE		
237382-00-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
48522-01-00	SO2(ppb)	1	100	25	0	5.0	0
240008-00-00	SO2(ppb)	2	100	43.8	0	14.9	0
48263-01-00	SO2(ppb)	4	100	21.1	0	4.3	0
224816-00-00	SO2(ppb)	5	100	78.4	0	14.6	0
151469-01-00	SO2(ppb)	6	100	35.9	0	5.1	0
189942-00-00	SO2(ppb)	7	100	26.9	0	4.3	0
206355-00-00	SO2(ppb)	8	100	4.1	0	1.9	0
46586-00-00	SO2(ppb)	9	100	14.6	0	1.8	0
73203-02-00	SO2(ppb)	11	100	151.0	0	49.1	1
216466-01-00	SO2(ppb)	13	100	28.8	0	5.0	0
137467-01-00	SO2(ppb)	14	94	4.4	0	1.0	0
236394-00-00	SO2(ppb)	17	100	17.5	0	4.6	0
254465-00-00	SO2(ppb)	18	100	2.5	0	0.7	0
094-03-00	SO2(ppb)	19	100	18.5	0	4.6	0
80105-01-00	SO2(ppb)	20	100	11.6	0	2.8	0
305529-00-00	SO2(ppb)	21	100	5.9	0	0.6	0
318401-00-00	SO2(ppb)	22	100	3.0	0	0.4	0
026-03-00	SO2(ppb)	23	100	20.4	0	4.5	0
364232-00-00	SO2(ppb)	25	100	21.2	0	4.3	0
228044-00-00	SO2(ppb)	26	100	17.4	0	4.2	0
247548-00-00	SO2(ppb)	27	100	8.0	0	3.2	0
231302-00-00	SO2(ppb)	29	99	4.5	0	0.7	0
246984-01-00	SO2(ppb)	30	100	23.4	0	7.3	0
153125-01-00	SO2(ppb)	506	100	12.6	0	3.9	0
	SO2(ppb)	508	100	2.9	0	0.9	0
	SO2(ppb)	512	97	134.2	0	26.1	0
	H2S(ppb)	1	100	2.4	0	0.8	0
	H2S(ppb)	2	100	5.4	0	1.2	0
	H2S(ppb)	4	100	5.8	0	0.8	0
	H2S(ppb)	5	100	4.0	0	1.3	0
	H2S(ppb)	11	100	16.6	20	7.4	2
	H2S(ppb)	17	100	1.4	0	0.3	0
	H2S(ppb)	19	100	4.0	0	0.6	0
	H2S(ppb)	20	100	1.1	0	0.2	0
	H2S(ppb)	25	100	2.5	0	0.8	0
	H2S(ppb)	26	100	1.0	0	0.3	0
	H2S(ppb)	27	100	1.6	0	0.3	0
	H2S(ppb)	29	100	0.6	0	0.1	0
	H2S(ppb)	506	100	1.9	0	0.3	0
	H2S(ppb)	508	100	1.8	0	0.4	0
	H2S(ppb)	512	97	2.5	0	0.5	0
	TRS(ppb)	1	100	2.8	0	1.2	0
	TRS(ppb)	6	100	1.2	0	0.5	0
	TRS(ppb)	7	100	1.8	0	0.7	0
	TRS(ppb)	8	100	0.4	0	0.3	0
	TRS(ppb)	9	100	2.8	0	1.3	0
	TRS(ppb)	13	100	3.2	0	1.0	0
	TRS(ppb)	14	96	0.9	0	0.2	0
	TRS(ppb)	18	100	0.7	0	0.5	0
	TRS(ppb)	21	100	0.4	0	0.2	0
	TRS(ppb)	22	100	0.5	0	0.3	0
	TRS(ppb)	23	100	2.9	0	1.0	0
	TRS(ppb)	30	100	2.0	0	0.7	0
	THC(ppm)	1	99	4.2	-	2.8	-
	THC(ppm)	2	92	4.7	-	2.5	-
	THC(ppm)	4	99	3.3	-	2.3	-
	THC(ppm)	5	95	4.5	-	2.4	-
	THC(ppm)	6	93	2.8	-	2.1	-
	THC(ppm)	7	100	2.9	-	2.2	-
	THC(ppm)	9	100	3.3	-	2.4	-
	THC(ppm)	11	100	3.1	-	2.3	-
	THC(ppm)	13	95	3.4	-	2.6	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

October 2024

Page 2 of 3

Created: November 29 2024 11:00:00

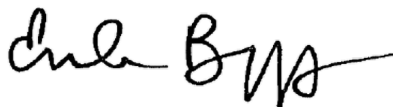
APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
	10	2024					
289664-00-00	CONTINUOUS AMBIENT MONITORING						
241311-00-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
20809-02-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
149968-01-00	THC(ppm)	14	97	2.5	-	2.1	-
237382-00-00	THC(ppm)	17	100	2.9	-	2.4	-
48522-01-00	THC(ppm)	18	99	2.3	-	2.1	-
240008-00-00	THC(ppm)	19	100	2.8	-	2.4	-
48263-01-00	THC(ppm)	20	100	3.7	-	2.5	-
224816-00-00	THC(ppm)	21	100	2.3	-	2.0	-
151469-01-00	THC(ppm)	22	100	2.3	-	2.1	-
189942-00-00	THC(ppm)	23	100	4.7	-	2.7	-
206355-00-00	THC(ppm)	29	100	2.7	-	2.3	-
46586-00-00	THC(ppm)	30	100	4.8	-	3.4	-
73203-02-00	THC(ppm)	508	100	2.5	-	2.4	-
216466-01-00	O3(ppb)	1	100	35.5	0	26.8	-
137467-01-00	O3(ppb)	4	100	37.0	0	31.8	-
236394-00-00	O3(ppb)	6	100	40.0	0	31.5	-
254465-00-00	O3(ppb)	7	100	39.5	0	29.7	-
094-03-00	O3(ppb)	8	100	37.3	0	32.2	-
80105-01-00	O3(ppb)	13	100	35.4	0	26.2	-
305529-00-00	O3(ppb)	14	100	37.1	0	31.8	-
318401-00-00	O3(ppb)	17	100	42.6	0	37.4	-
026-03-00	O3(ppb)	18	100	41.4	0	32.3	-
364232-00-00	O3(ppb)	21	98	45.1	0	30.7	-
228044-00-00	O3(ppb)	22	100	43.4	0	32.8	-
247548-00-00	NO2(ppb)	1	100	33.2	0	18.2	-
231302-00-00	NO2(ppb)	4	97	20.7	0	11.2	-
246984-01-00	NO2(ppb)	6	100	21.8	0	8.6	-
153125-01-00	NO2(ppb)	7	100	32.6	0	11.2	-
	NO2(ppb)	8	100	10.0	0	4.3	-
	NO2(ppb)	9	100	28.8	0	18.1	-
	NO2(ppb)	13	100	28.8	0	14.2	-
	NO2(ppb)	14	100	16.9	0	4.2	-
	NO2(ppb)	17	100	19.0	0	7.1	-
	NO2(ppb)	18	97	8.5	0	2.8	-
	NO2(ppb)	19	100	16.7	0	6.1	-
	NO2(ppb)	20	100	21.5	0	6.9	-
	NO2(ppb)	21	100	11.4	0	3.0	-
	NO2(ppb)	22	100	14.1	0	3.0	-
	NO2(ppb)	23	100	35.8	0	21.6	-
	NO2(ppb)	26	100	21.9	0	4.2	-
	NO2(ppb)	27	97	5.9	0	2.2	-
	NO2(ppb)	29	100	18.3	0	2.9	-
	NO2(ppb)	30	100	29.4	0	20.2	-
	NO2(ppb)	506	100	13.1	0	5.7	-
	NO2(ppb)	508	100	7.6	0	2.4	-
	NO2(ppb)	512	97	16.1	0	4.6	-
	CO(ppm)	1	100	0.6	0	0.4	-
	CO(ppm)	7	100	0.4	0	0.2	-
	CO(ppm)	8	100	0.2	0	0.1	-
	CO(ppm)	18	100	0.3	0	0.2	-
	CO2(ppm)	1	100	494.6	-	467.1	-
	CO2(ppm)	8	100	458.4	-	444.8	-
	CO2(ppm)	18	100	453.8	-	443.0	-
	NH3(ppb)	1	96	0.0	0	0.0	-
	NH3(ppb)	6	94	0.0	0	0.0	-
	PM2.5(ug/m3)	1	100	54.2	0	15.8	0
	PM2.5(ug/m3)	4	100	25.1	0	7.1	0
	PM2.5(ug/m3)	6	100	20.1	0	6.4	0
	PM2.5(ug/m3)	7	100	25.6	0	9.3	0
	PM2.5(ug/m3)	8	100	23.5	0	12.2	0
	PM2.5(ug/m3)	9	100	48.7	0	20.9	0
	PM2.5(ug/m3)	13	100	19.2	0	9.8	0
	PM2.5(ug/m3)	14	100	50.0	0	5.7	0
	PM2.5(ug/m3)	17	100	15.5	0	5.4	0
	PM2.5(ug/m3)	18	100	9.0	0	4.6	0
	PM2.5(ug/m3)	21	100	41.4	0	7.6	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
MONTHLY AIR MONITORING SUMMARY

October 2024

Page 3 of 3

Created: November 29 2024 11:00:00

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	10	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
149968-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
237382-00-00	PM2.5(ug/m3)	22	100	9.4	0	4.3	0
48522-01-00	PM2.5(ug/m3)	23	100	95.2	1	16.3	0
240008-00-00	PM2.5(ug/m3)	29	100	29.8	0	3.8	0
48263-01-00	PM2.5(ug/m3)	30	100	19.6	0	8.9	0
224816-00-00	WS(km/h)	1	100	-	-	-	-
151469-01-00	WS(km/h)	2	98	-	-	-	-
189942-00-00	WS(km/h)	4	100	-	-	-	-
206355-00-00	WS(km/h)	5	100	-	-	-	-
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)	8	100	-	-	-	-
236394-00-00	WS(km/h)	9	100	-	-	-	-
254465-00-00	WS(km/h)	11	100	-	-	-	-
094-03-00	WS(km/h)	13	98	-	-	-	-
80105-01-00	WS(km/h)	14	98	-	-	-	-
305529-00-00	WS(km/h)	17	95	-	-	-	-
318401-00-00	WS(km/h)	18	64	-	-	-	-
026-03-00	WS(km/h)	19	94	-	-	-	-
364232-00-00	WS(km/h)	20	99	-	-	-	-
228044-00-00	WS(km/h)	21	90	-	-	-	-
247548-00-00	WS(km/h)	22	94	-	-	-	-
231302-00-00	WS(km/h)	23	100	-	-	-	-
246984-01-00	WS(km/h)	25	98	-	-	-	-
153125-01-00	WS(km/h)	26	100	-	-	-	-
	WS(km/h)	27	92	-	-	-	-
	WS(km/h)	29	88	-	-	-	-
	WS(km/h)	30	99	-	-	-	-
	WS(km/h)	506	88	-	-	-	-
	WS(km/h)	508	94	-	-	-	-
	WS(km/h)	512	97	-	-	-	-
							
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 OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY - BERTHA GANTER (AMS01)  
OCTOBER 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	25.1	0	5	0
H2S(ppb) Average	706	37	38	99.87	2.4	0	0.8	0
TRS(ppb) Average	706	37	38	99.87	2.8	0	1.2	0
THC(ppm) Average	705	35	39	99.46	4.2	-	2.8	-
NMHC(ppm) Average	705	35	39	99.46	0.77	-	0.277	-
CH4(ppm) Average	705	35	39	99.46	3.4	-	2.5	-
O3 (ppb) Average	709	34	35	99.87	35.5	0	26.8	-
NO2 (ppb) Average	707	36	37	99.87	33.2	0	18.2	-
NO (ppb) Average	707	36	37	99.87	141.3	-	25.4	-
NOX (ppb) Average	707	36	37	99.87	174.5	-	43.6	-
NH3 (ppb) Average	669	43	75	95.7	0	0	0	-
PM2.5 (ug/m3) Average	742	2	2	100	54.2	0	15.8	0
CO(ppm) Average	709	34	35	99.87	0.6	0	0.4	0
CO2(ppm) Average	707	36	37	99.87	494.6	0	467.1	0
Temperature 2 m (C) Average	744	0	0	100	18.8	-	11.8	-
Temperature 10 m (C) Average	744	0	0	100	19	-	12.4	-
Relative Humidity (%) Average	744	0	0	100	98.7	-	87.1	-
Wind Speed 10 m (km/h) Average	739	2	5	99.6	23	-	13	-
Wind Direction 10 m (deg) Average	739	2	5	99.6	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.9	-	6.3	-
Leaf Wetness (% of range) Average	734	0	10	98.66	66.2	-	19.2	-
Global Solar Radiation (W/m2) Average	744	0	0	100	502.8	-	133.7	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT McKAY (AMS01)  
OCTOBER 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	0.64	2	-	0	0	0	0.1	0.2	1.2	25.1
H2S (ppb) Average	706	0.22	0.3	-	0	0	0.1	0.1	0.2	0.6	2.4
TRS (ppb) Average	706	0.47	0.3	-	0.2	0.3	0.3	0.4	0.5	0.8	2.8
THC (ppm) Average	705	2.11	0.3	-	1.9	1.9	1.9	2	2.2	2.4	4.2
NMHC(ppm) Average	705	0.042	0.093	-	0	0	0	0	0	0.1	0.77
CH4(ppm) Average	705	2.06	0.2	-	1.9	1.9	1.9	2	2.1	2.3	
O3 (ppb) Average	709	16.23	9.8	-	0	1.3	8.1	16.9	23.9	29	35.5
NO2 (ppb) Average	707	6.61	6.9	-	0	0	0.3	4.6	10.7	17.3	33.2
NO (ppb) Average	707	4.16	10.8	-	0	0	0	0.4	2.2	11.9	141.3
NOX (ppb) Average	707	10.76	15.9	-	0	0	0.7	5.1	13.6	28.6	174.5
NH3 (ppb) Average	669	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	742	6	5.5	-	0.1	1.3	2.7	4.4	7.6	12.7	54.2
CO(ppm) Average	709	0.27	0	-	0.2	0.2	0.2	0.3	0.3	0.3	0.6
CO2(ppm) Average	707	444.42	12.6	-	421.3	431.5	436.1	441.2	451.1	462.9	494.6
Temperature 2 m (C) Average	744	3.18	5.7	-	-9.6	-3.8	-0.9	2.2	6.7	11.6	18.8
Temperature 10 m (C) Average	744	3.36	5.6	-	-8.7	-3.7	-0.5	2.3	6.9	11.7	19
Relative Humidity (%) Average	744	71.83	16.1	-	29.2	47.9	61.6	73.9	83.7	91.8	98.7
Wind Speed 10 m (km/h) Average	739	7	4	-	0	2	4	6	9	13	23
Wind Direction 10 m (deg) Average	739	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	31.79	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	734	4.71	8.7	-	0.9	1.6	2	2.4	2.8	6.5	66.2
Global Solar Radiation (W/m2) Average	744	69.76	120	-	0	0	0	0	88.1	287.3	502.8

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	24 Oct 2024 15:00	24 Oct 2024 15:00	1	Maintenance - sample manifold cleaned
NH3	01 Oct 2024 04:00	31 Oct 2024 04:00	31	Stabilization after daily QA check
Wind Speed, Wind Direction	10 Oct 2024 00:00	10 Oct 2024 00:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	16 Oct 2024 13:00	16 Oct 2024 13:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	16 Oct 2024 16:00	16 Oct 2024 16:00	1	Flat line in sensor output signal - Sensor frozen
Surface Leaf Wetness	27 Oct 2024 19:00	28 Oct 2024 04:00	10	Sensor operated out of range



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 25.1 ppb on Oct 14 11:00	Maximum Daily Average: 5.0 ppb on Oct 14		Hours of Data:	708
Minimum Value: 0.0 ppb on Oct 1 01:00	Minimum Daily Average: 0.0 ppb on Oct 9		Hours of Missing Data:	36
Maximum Diurnal Average: 1.9 ppb at hour 13	Minimum Diurnal Average: 0.1 ppb at hour 1		Hours of Calibration:	35
Monthly Average: 0.64 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 1.2 P <sub>99</sub> = 10.4		Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	3.2	3.7	2.6	1.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.7
2-Oct	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	0.6	0.1	0.3	0.0	0.0	0.1	0.6
3-Oct	0.0	Z	0.1	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	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
4-Oct	0.2	0.2	Z	0.1	0.1	0.3	0.2	0.2	1.2	2.6	8.1	C	C	C	C	2.5	2.2	1.1	0.3	0.2	0.1	0.0	0.1	0.1	1.0	8.1
5-Oct	0.0	0.1	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.5	1.1	1.7	0.8	0.2	1.7
6-Oct	0.2	0.1	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
7-Oct	0.1	0.0	0.0	0.1	0.1	Z	0.3	0.1	0.5	0.6	2.4	7.8	5.8	6.6	8.5	10.1	5.5	1.1	0.2	0.1	0.1	0.2	0.3	0.5	2.2	10.1
8-Oct	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.6	1.5	1.4	1.1	1.2	2.0	8.6	5.3	2.8	2.5	1.5	0.7	0.1	0.0	0.0	0.0	1.3	8.6
9-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
10-Oct	0.0	0.0	Z	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.7	0.8	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.8
11-Oct	0.1	0.1	0.2	Z	0.2	0.2	0.4	0.3	0.5	0.6	1.6	1.2	4.8	11.8	5.1	0.5	0.3	0.4	0.2	0.2	0.3	0.3	0.3	0.2	1.3	11.8
12-Oct	0.1	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	3.1	2.0	0.9	1.1	0.7	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.4	3.1
13-Oct	0.1	1.1	1.0	1.2	2.5	Z	0.9	0.6	1.4	10.5	8.2	5.1	3.7	7.2	9.9	6.9	3.4	2.0	2.3	0.6	1.2	2.3	1.5	5.3	3.4	10.5
14-Oct	Z	0.5	0.9	4.5	5.2	1.0	0.6	0.8	1.6	11.8	25.1	14.2	17.3	6.5	6.0	5.2	1.0	0.5	4.2	3.6	2.3	0.9	0.5	0.4	5.0	25.1
15-Oct	0.3	Z	0.3	0.3	0.3	0.1	0.1	0.0	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	0.1	0.1	0.1	0.3
16-Oct	0.1	0.1	Z	0.1	0.0	0.1	0.2	0.4	0.3	0.2	0.4	0.7	1.9	5.3	3.0	1.9	0.7	1.2	1.0	0.5	0.2	0.0	0.0	0.0	0.8	5.3
17-Oct	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	10.4	13.1	4.5	0.4	0.2	0.1	0.1	0.1	0.2	0.3	0.4	0.2	0.1	1.3	13.1
19-Oct	0.1	0.2	0.1	0.2	0.4	Z	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	0.0	0.0	0.0	0.0	0.1	0.1	0.4
20-Oct	Z	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21-Oct	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.5	0.6	0.2	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.6
22-Oct	0.1	0.1	Z	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3
23-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.1	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	0.1	0.1	0.1
24-Oct	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	0.1	M	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1
25-Oct	0.1	0.0	0.1	0.2	0.3	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3
26-Oct	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.4	0.4	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.4
27-Oct	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.4	0.5	0.4	0.4	0.3	0.3	0.1	0.2	0.3	0.3	0.2	0.3	0.5
28-Oct	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
29-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.1	0.0	0.0	0.2	0.3	0.1	0.8
30-Oct	0.1	0.0	0.3	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.3
31-Oct	0.1	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.3	1.1	1.1	3.6	1.2	1.2	0.8	0.8	0.8	0.6	0.4	0.4	0.3	0.6	3.6

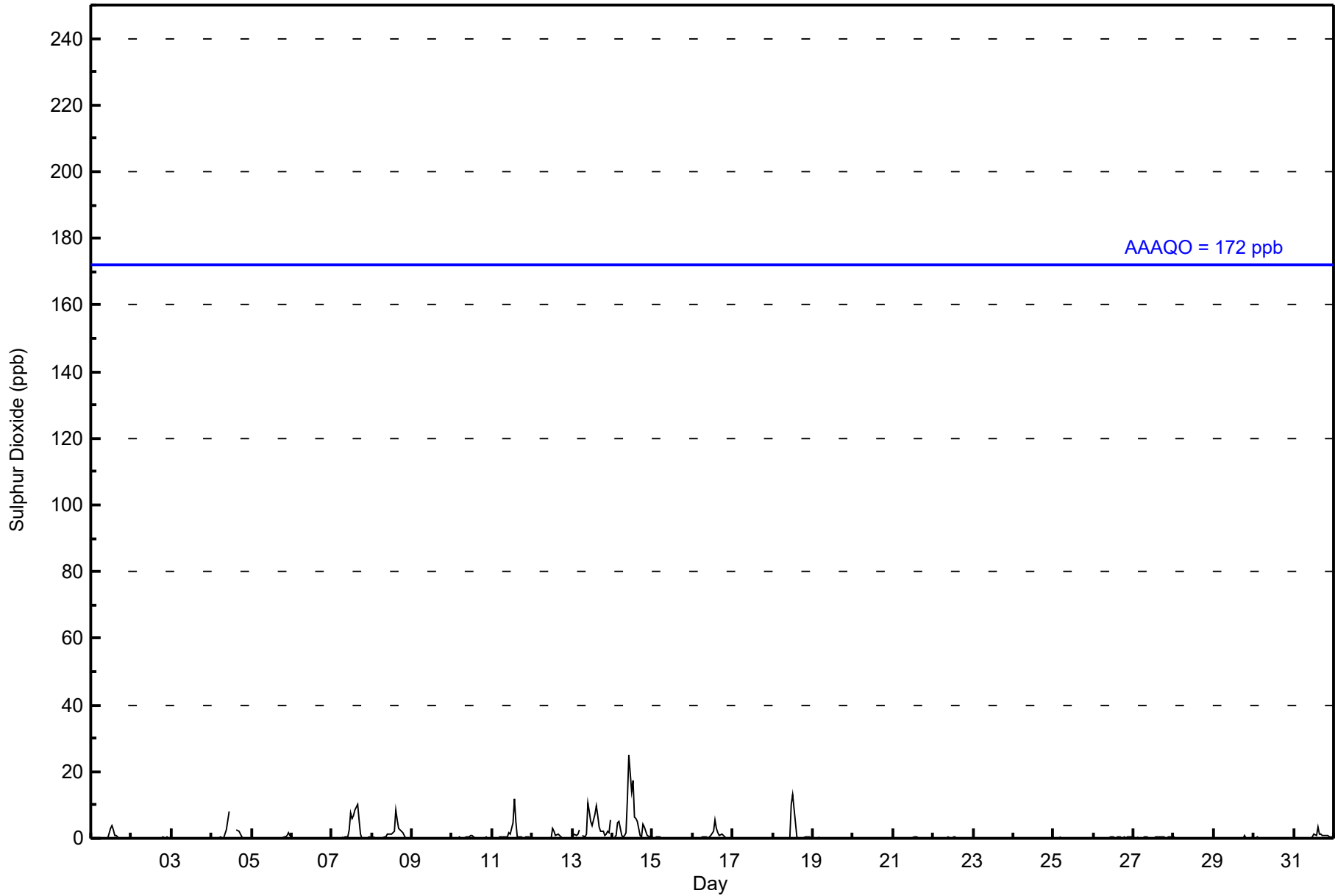
0.1	0.1	0.1	0.3	0.4	0.1	0.1	0.1	0.2	0.9	1.6	1.5	1.9	1.7	1.7	1.2	0.6	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	Diurnal Average
0.3	1.1	1.0	4.5	5.2	1.0	0.9	0.8	1.6	11.8	25.1	14.2	17.3	11.8	9.9	10.1	5.5	2.5	4.2	3.6	2.3	2.3	1.7	5.3	5.3	5.3	5.3	Diurnal Maximum

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



Wood Buffalo Environmental Association  
Hourly Averages

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







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	701	99.01	99.01
11 - 20	6	0.85	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 - October 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 - 10	68	49	16	9	9	8	9	46	110	68	51	54	43	63	64	29	696
11 - 20	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	6
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>	68	49	16	9	9	8	9	48	115	68	51	54	43	63	64	29	703

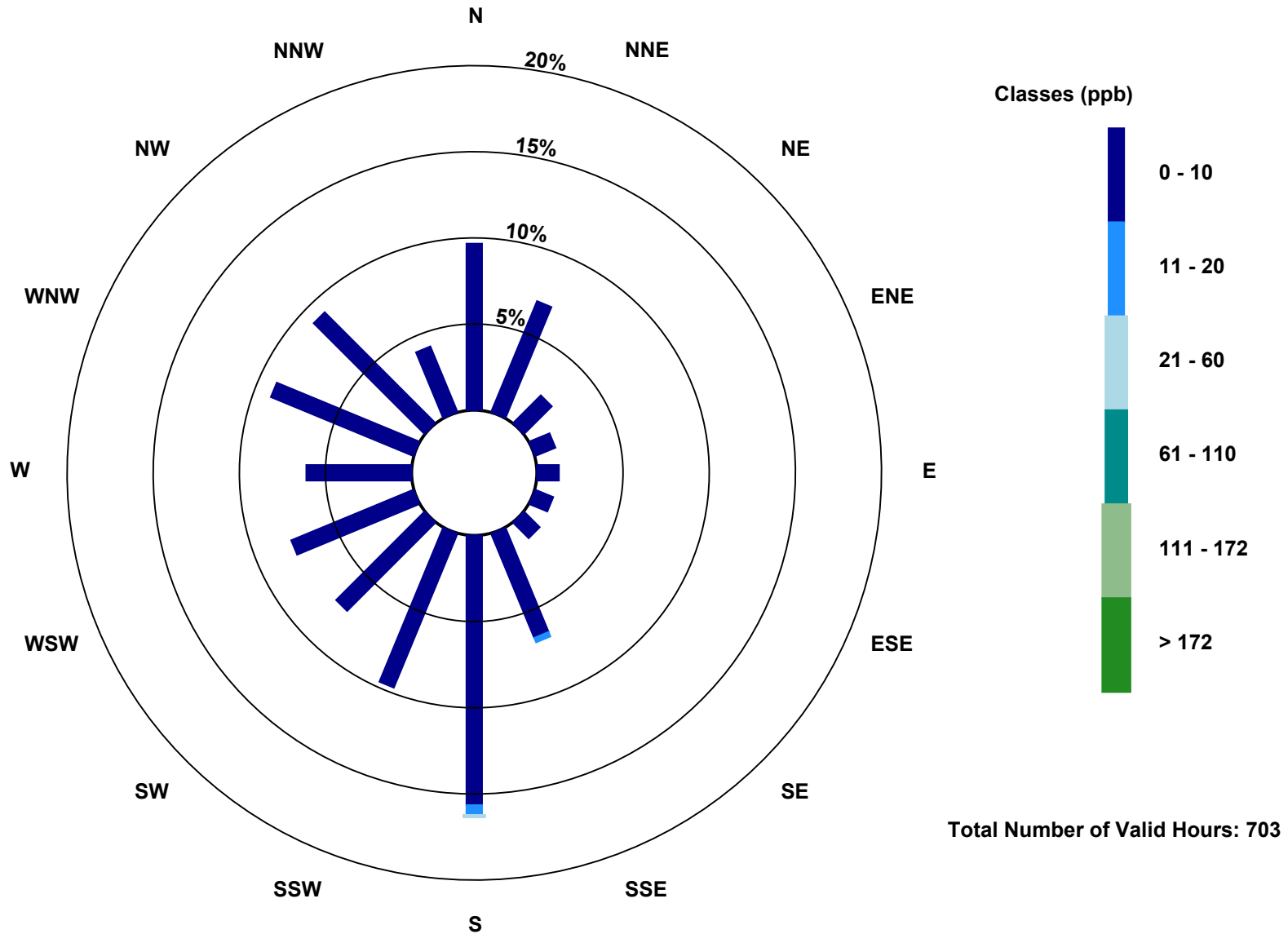
Total Number of Valid Hours: 703

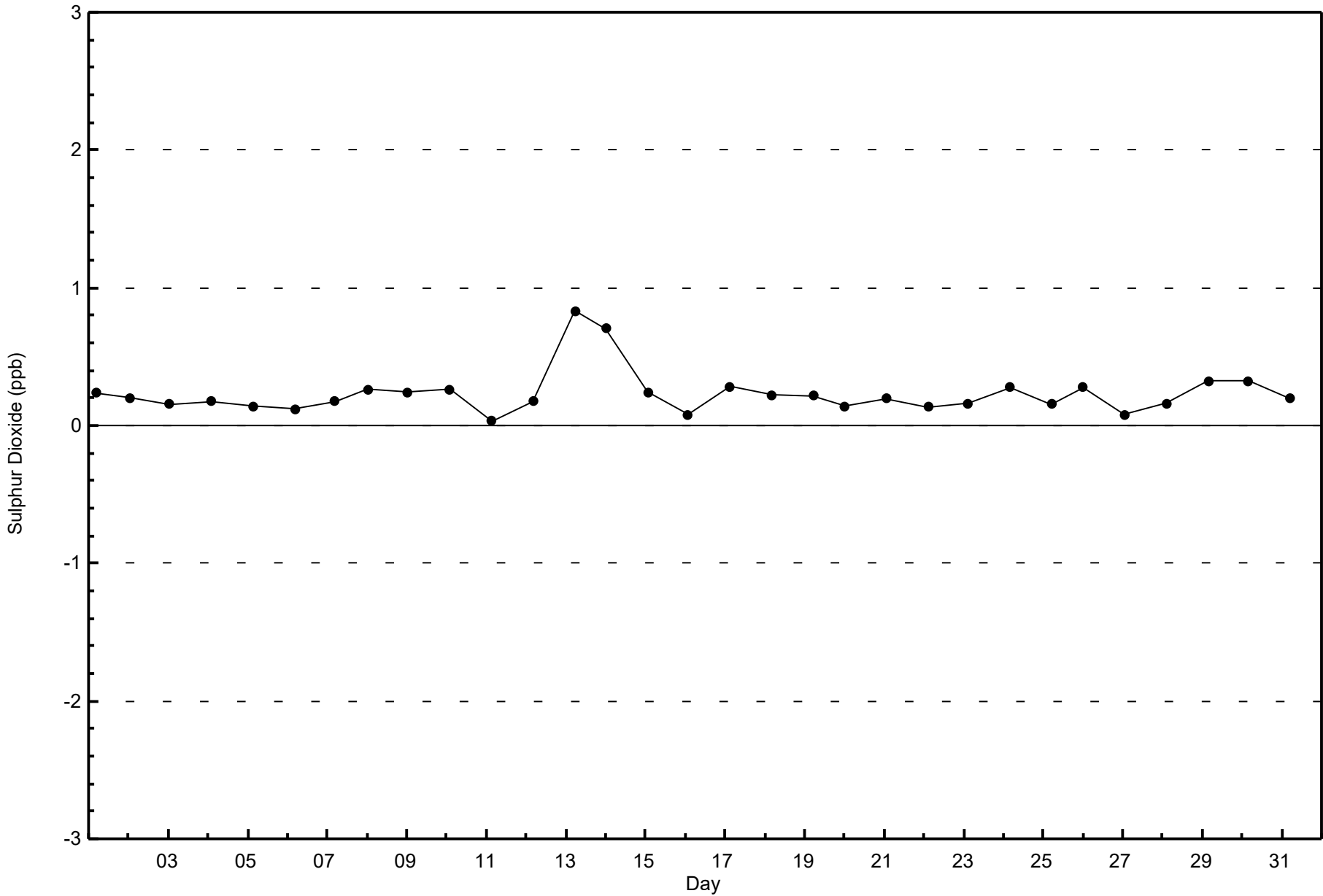
Total Number of Hours: 744

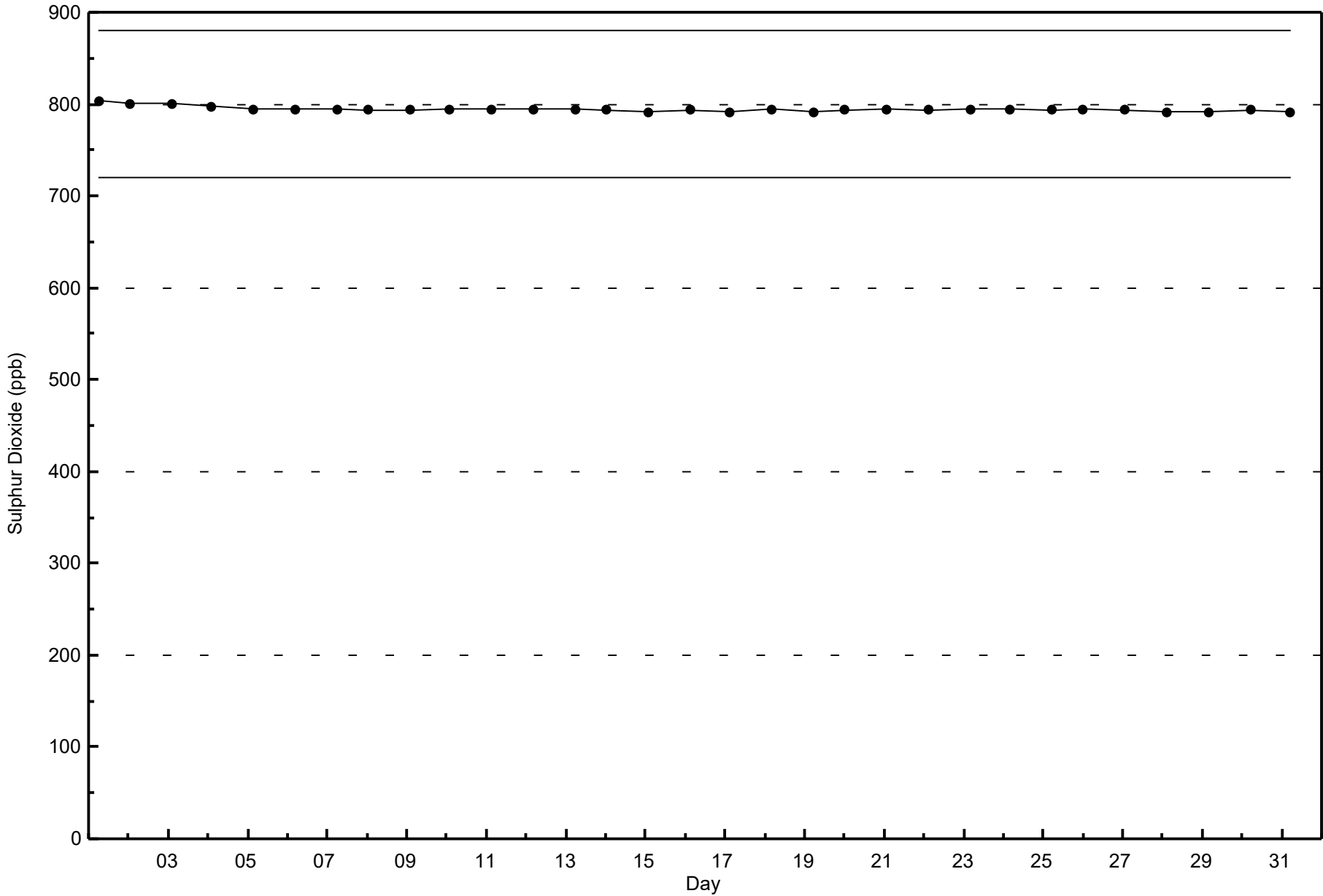


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





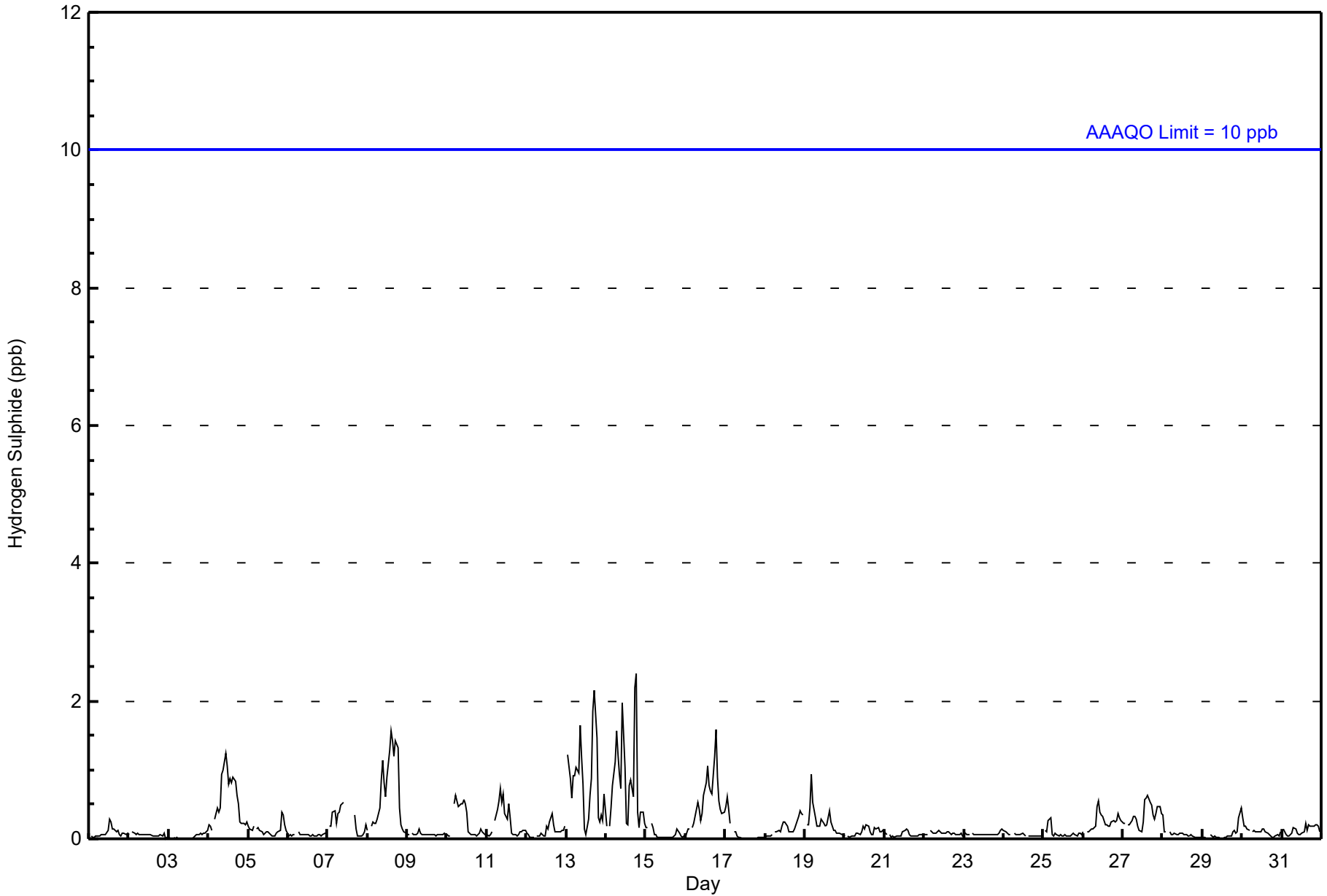






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Fort McKay - Bertha Ganter - October 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	74	49	16	9	8	8	8	45	112	71	49	55	43	63	63	28	701
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>	74	49	16	9	8	8	8	45	112	71	49	55	43	63	63	28	701

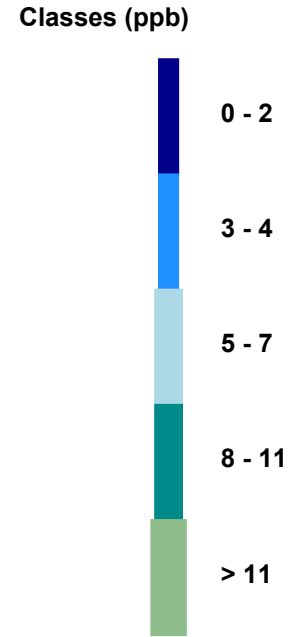
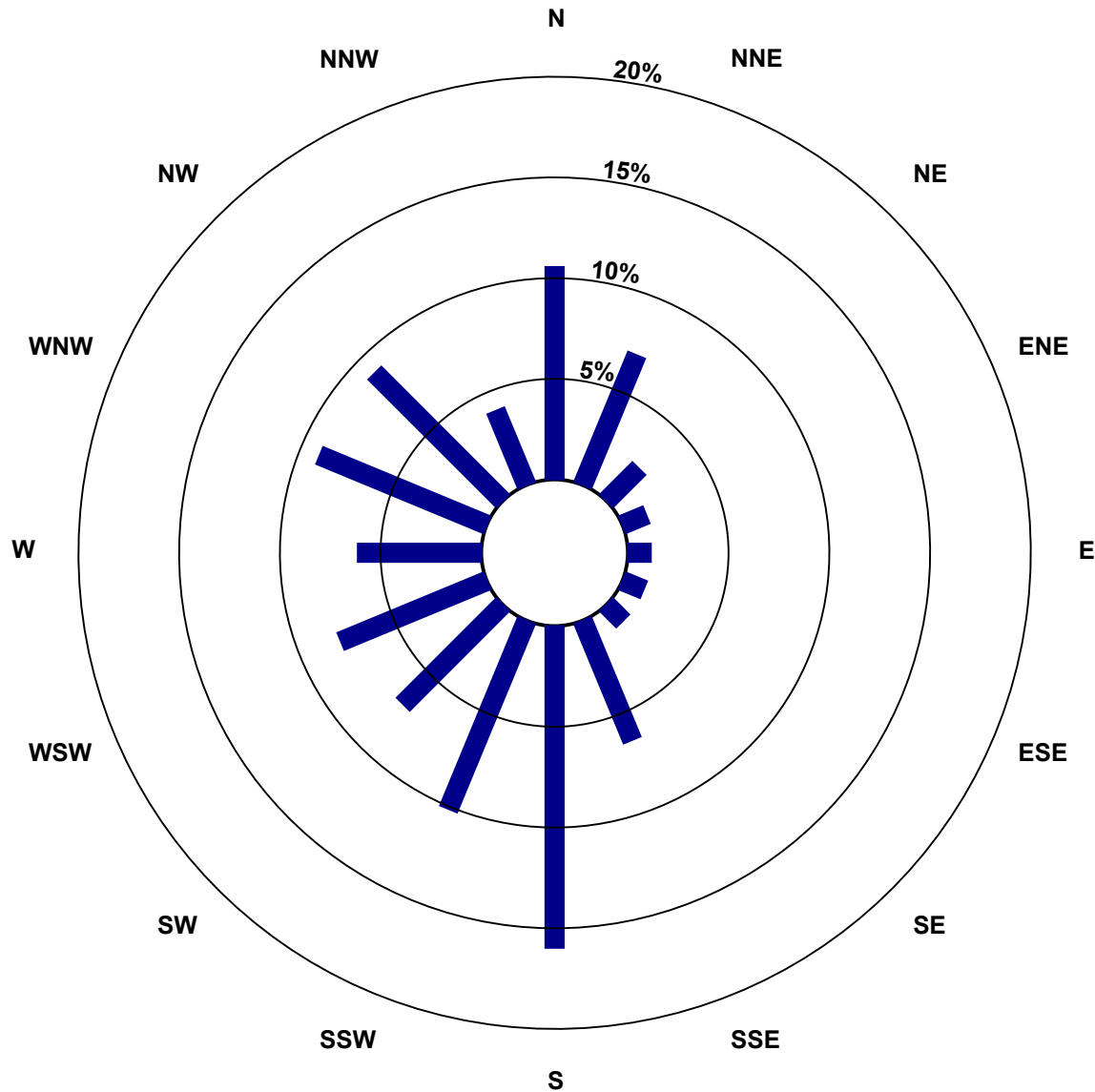
Total Number of Valid Hours: 701

Total Number of Hours: 744

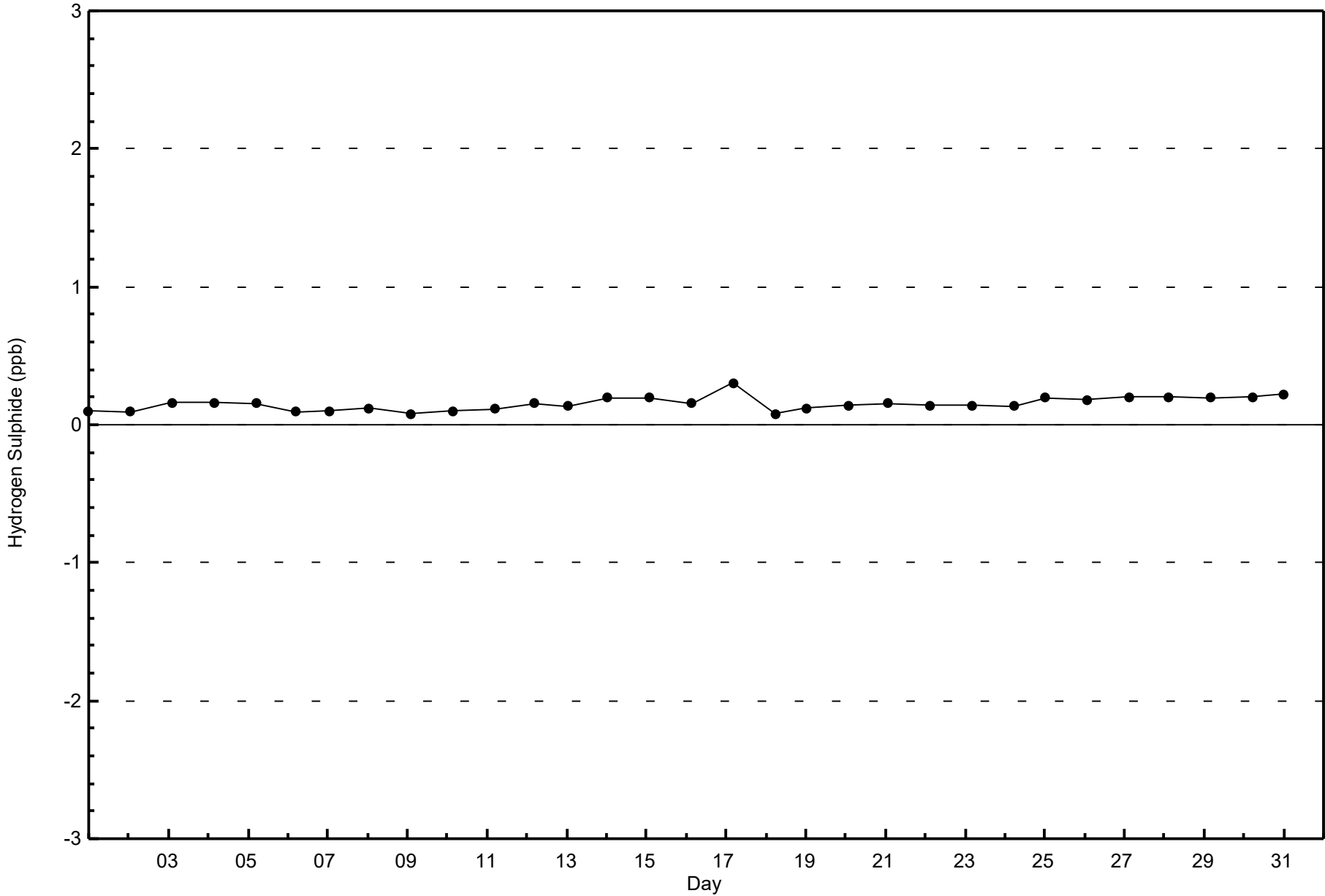


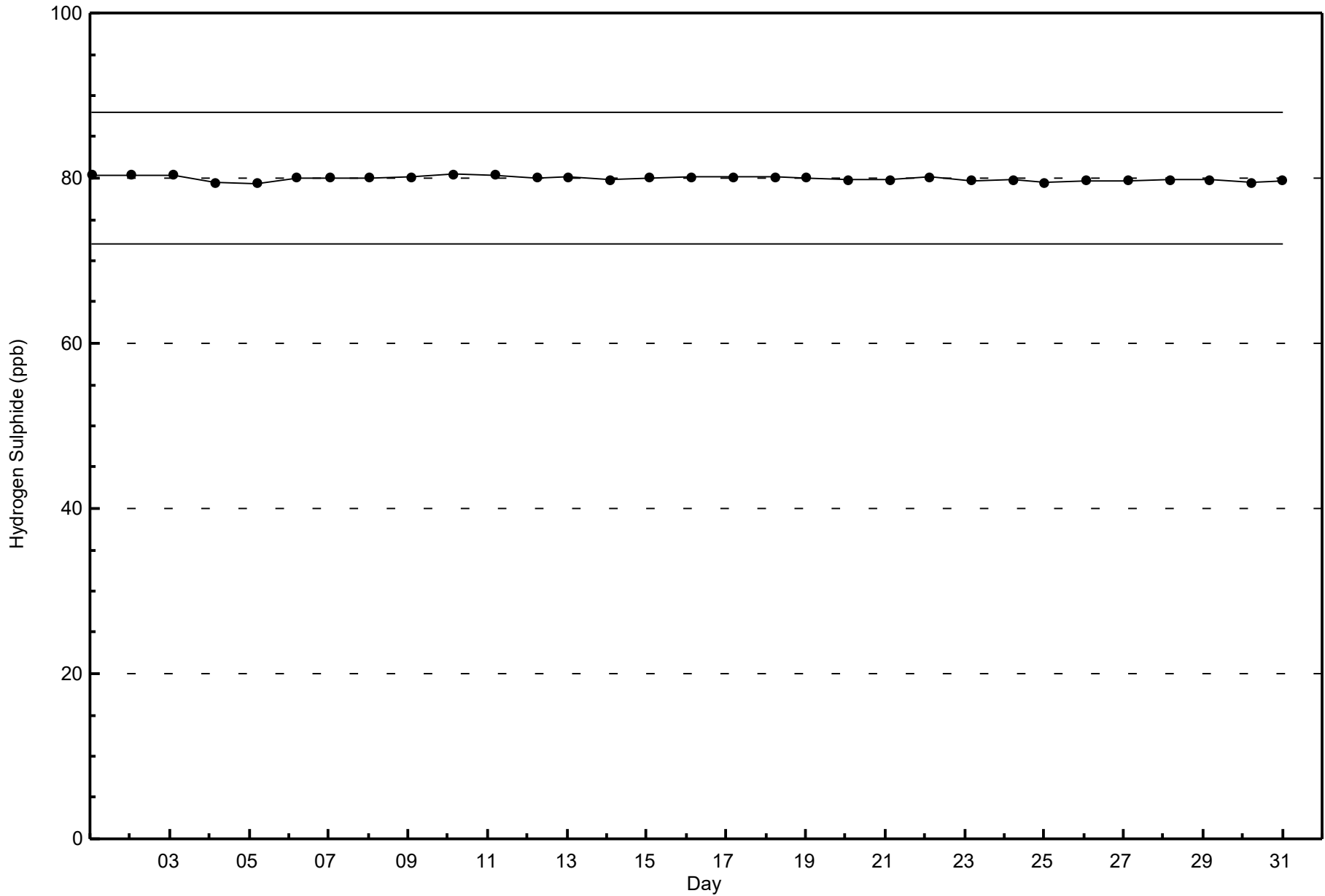
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 701







# Wood Buffalo Environmental Association

## Summary of Hour Averages

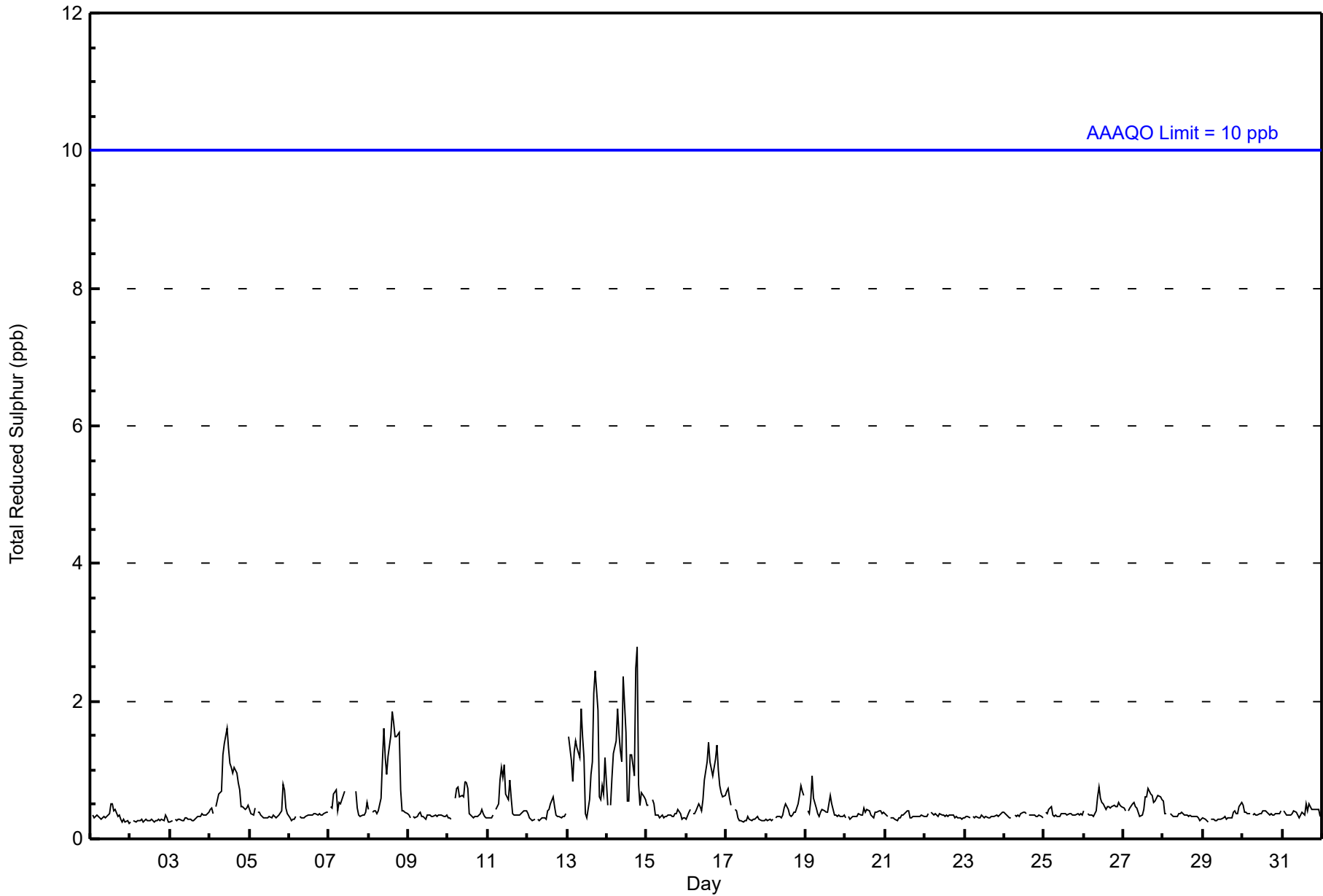
# Total Reduced Sulphur (TRS) - ppb Fort McKay - Bertha Ganter - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum												
Maximum Value: 2.8 ppb on Oct 14 19:00		Maximum Daily Average: 1.2 ppb on Oct 14																	Hours of Data: 706		Hours of Missing Data: 38														
Minimum Value: 0.2 ppb on Oct 2 00:00		Minimum Daily Average: 0.3 ppb on Oct 2																	Hours of Calibration: 37		Percent Operational Time: 99.9														
Maximum Diurnal Average: 0.6 ppb at hour 18		Minimum Diurnal Average: 0.4 ppb at hour 1																																	
Monthly Average: 0.47 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.3 Median = 0.4 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.9																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
1-Oct	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.5								
2-Oct	0.2	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3								
3-Oct	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4								
4-Oct	0.4	0.4	0.4	Z	0.5	0.7	0.7	0.7	1.2	1.4	1.6	1.3	1.1	1.0	1.0	1.0	0.8	0.7	0.5	0.5	0.4	0.4	0.5	0.4	0.5	0.8	1.6								
5-Oct	0.4	0.4	0.4	0.4	Z	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	0.4	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.8								
6-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4						
7-Oct	Z	0.5	0.4	0.7	0.7	0.4	0.5	0.5	0.6	0.7	C	C	C	C	C	C	0.7	0.4	0.4	0.3	0.3	0.4	0.4	0.5	--	0.7	--	0.7							
8-Oct	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.6	1.1	1.6	1.2	0.9	1.2	1.5	1.8	1.7	1.5	1.5	1.5	0.7	0.4	0.4	0.4	0.4	0.4	0.9	1.8	0.9	1.8						
9-Oct	0.3	0.3	Z	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	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4						
10-Oct	0.3	0.3	0.3	Z	0.6	0.7	0.8	0.6	0.6	0.6	0.8	0.8	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.8	0.5	0.8						
11-Oct	0.3	0.3	0.3	0.3	Z	0.4	0.5	0.9	1.0	0.9	1.1	0.6	0.6	0.8	0.6	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	1.1	0.5	1.1						
12-Oct	0.4	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.6	0.3	0.6						
13-Oct	Z	1.5	1.1	0.8	1.3	1.4	1.3	1.2	1.9	1.5	1.2	0.4	0.3	0.6	0.9	1.1	2.1	2.4	1.9	0.6	0.6	0.8	0.6	1.2	1.2	2.4	1.2	2.4	1.2	2.4					
14-Oct	0.5	Z	0.5	0.9	1.2	1.4	1.9	1.5	1.3	1.1	2.4	1.6	0.5	0.5	1.2	1.2	0.9	2.5	2.8	0.8	0.5	0.7	0.6	0.6	1.2	2.8	1.2	2.8	1.2	2.8					
15-Oct	0.5	0.5	Z	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.6	0.4	0.6	0.4	0.6					
16-Oct	0.3	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.5	0.4	0.6	0.9	1.1	1.4	1.1	1.0	0.9	1.2	1.4	1.0	0.8	0.7	0.6	0.6	0.7	1.4	0.7	1.4	0.7	1.4					
17-Oct	0.7	0.7	0.6	0.5	Z	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7	0.4	0.7	0.4	0.7				
18-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8	0.7	0.6	0.4	0.8	0.4	0.8	0.4	0.8				
19-Oct	Z	0.4	0.4	0.5	0.9	0.6	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.9	0.4	0.9	0.4	0.9				
20-Oct	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	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			
21-Oct	0.4	0.3	Z	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.4			
22-Oct	0.3	0.3	0.4	Z	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.4	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	0.3			
23-Oct	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.4		
24-Oct	0.4	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	M	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		
25-Oct	Z	0.4	0.4	0.4	0.5	0.3	0.3	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	0.3	0.4	0.4	0.4	0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5		
26-Oct	0.4	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.6	0.8	0.6	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8		
27-Oct	0.4	0.4	Z	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.4	0.6	0.6	0.7	0.7	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.7	0.5	0.7	0.5	0.7	0.5	0.7	
28-Oct	0.5	0.4	0.4	Z	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	
29-Oct	0.3	0.3	0.3	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.3	0.5	0.3	0.5	0.3	0.5	0.3	0.5	
30-Oct	0.5	0.4	0.4	0.4	0.4	Z	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	
31-Oct	Z	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.5
																								Diurnal Average		Diurnal Maximum									
																								0.4		0.7									
																								0.4		1.5									
																								0.4		1.1									
																								0.4		0.9									
																								0.5		1.3									
																								0.5		1.4									
																								0.5		1.9									
																								0.5		1.5									
																								0.5		1.9									
																								0.6		2.4									
																								0.5		1.6									
																								0.5		1.2									
																								0.5		1.5									
																								0.5		1.8									
																								0.5		1.7									
																								0.5		2.1									
																								0.6		2.5									
																								0.6		2.8									
																								0.4		1.0									
																								0.4		0.8									
																								0.4		0.8									
																								0.4		0.7									
																								0.4		1.2									



Wood Buffalo Environmental Association  
Hourly Averages

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	705	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay - Bertha Ganter - October 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	74	49	16	9	8	8	8	45	111	71	49	55	43	63	63	28	700
3 - 4	0	0	0	0	0	0	0	0	1	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>	74	49	16	9	8	8	8	45	112	71	49	55	43	63	63	28	701

Total Number of Valid Hours: 701

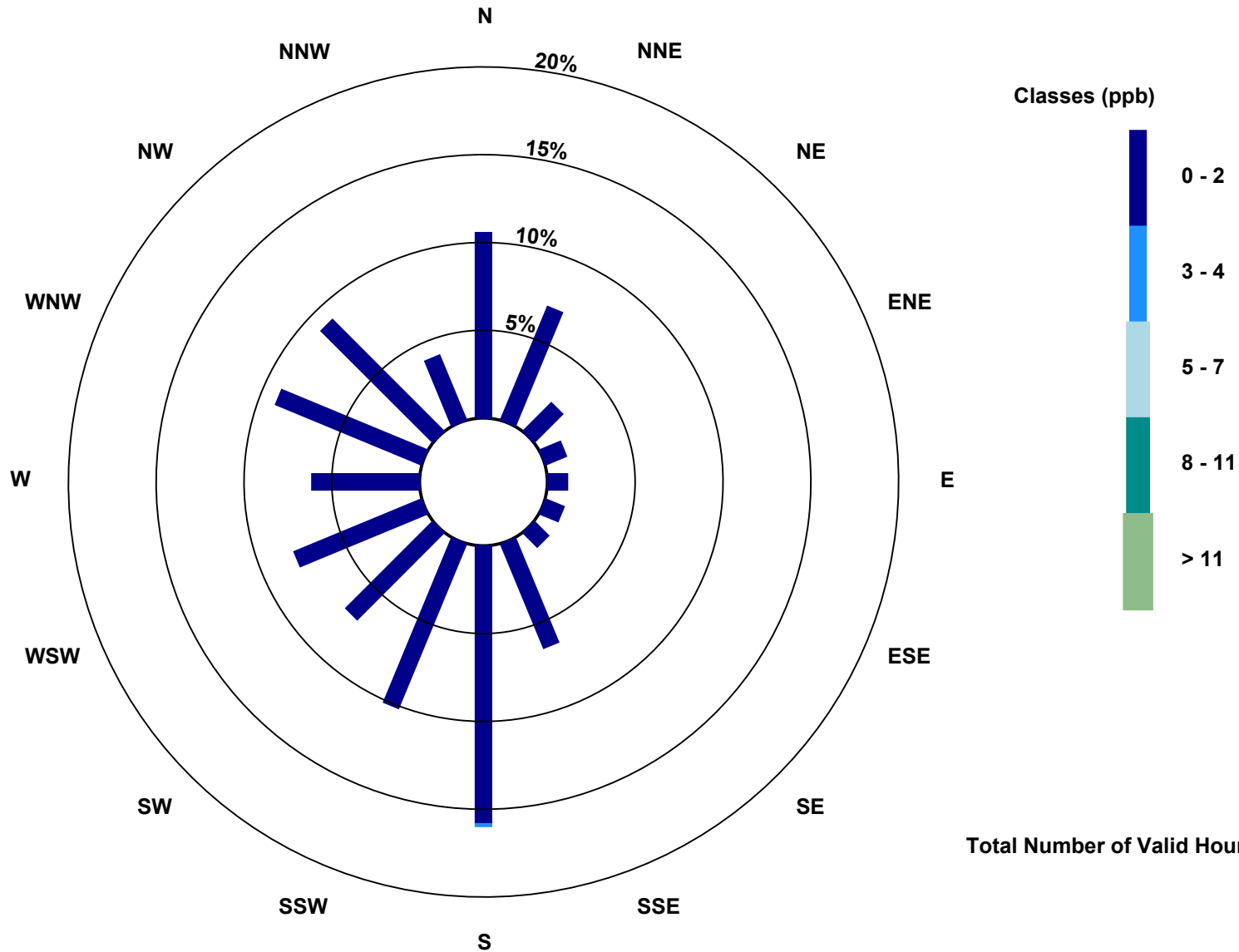
Total Number of Hours: 744



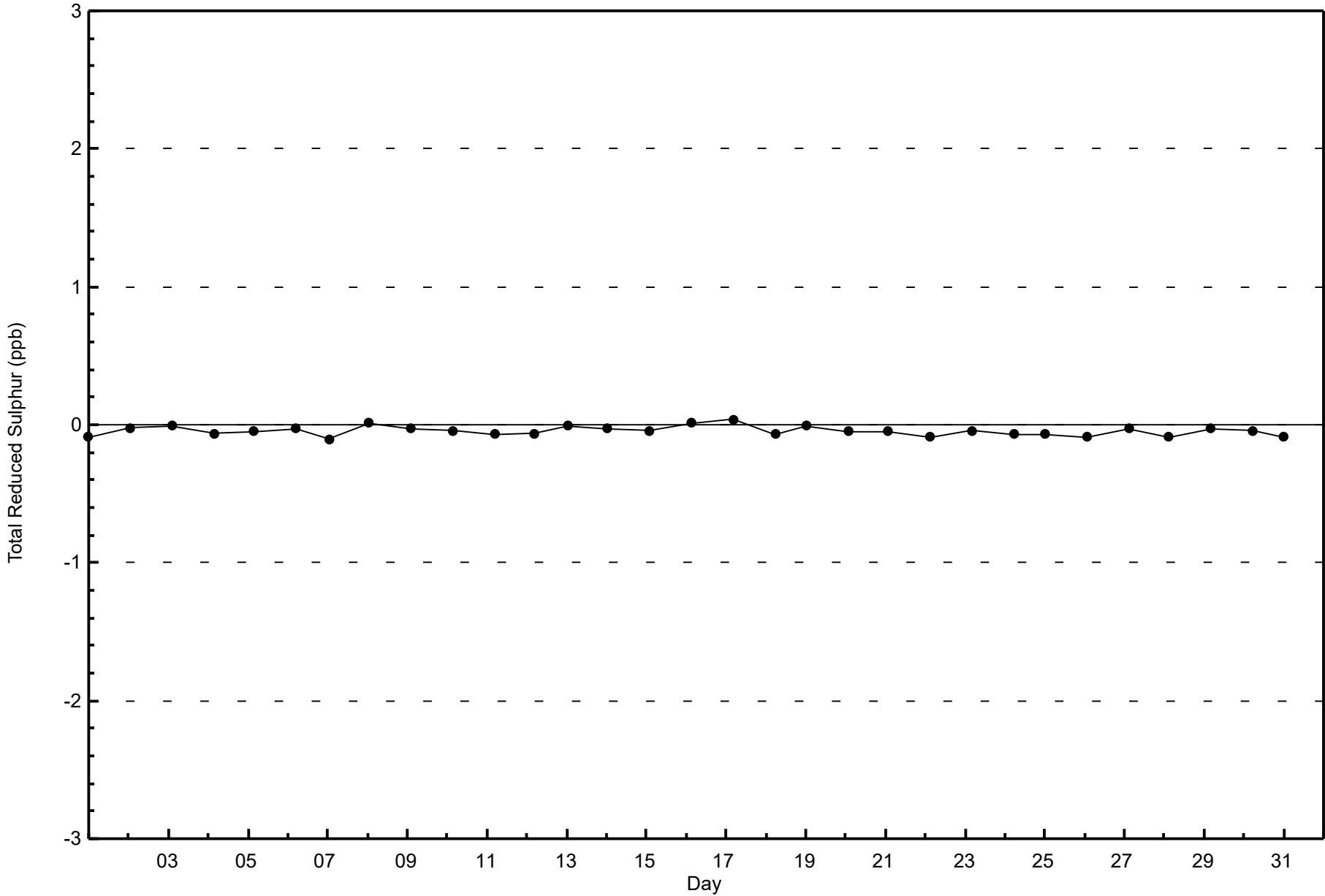


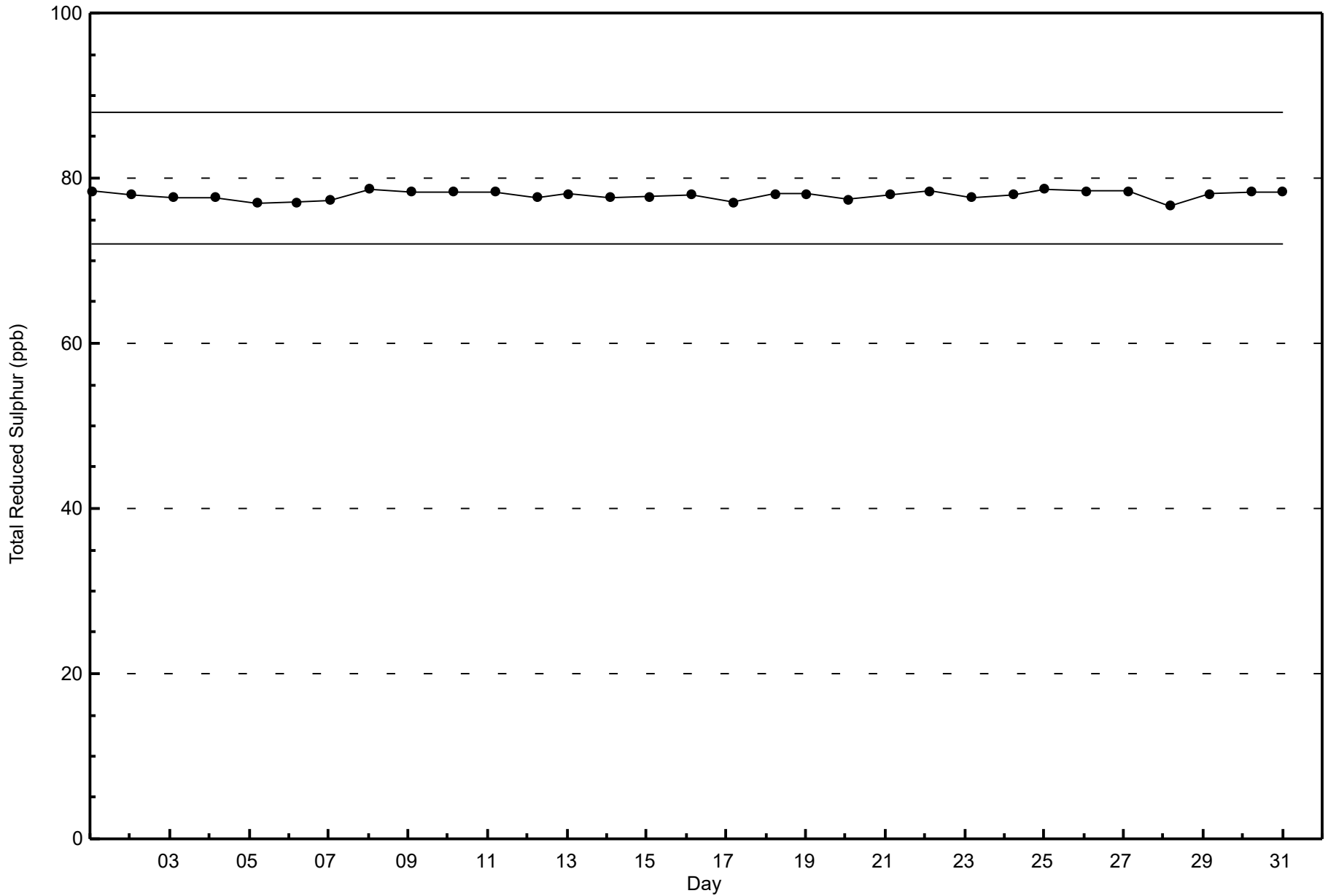
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 701



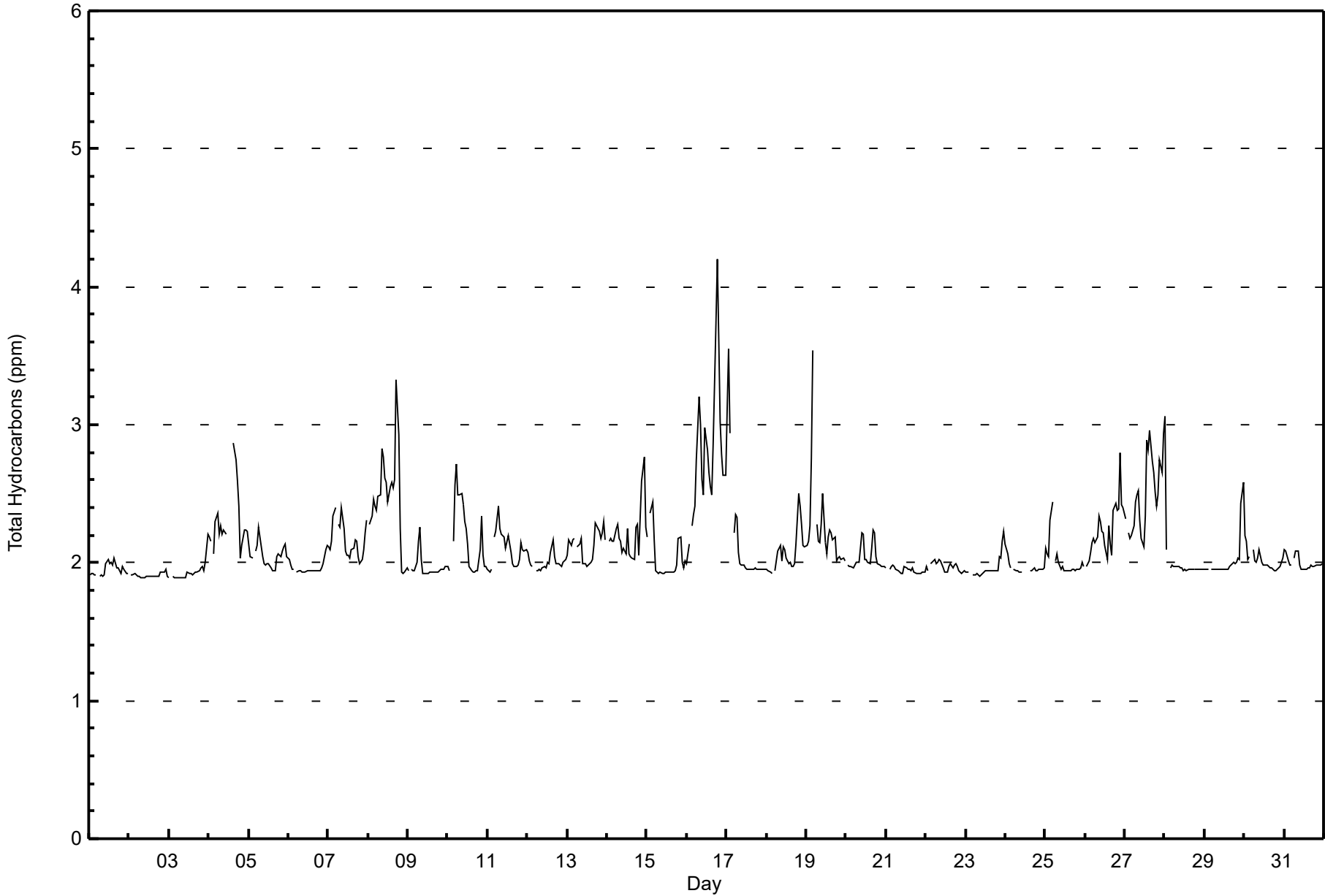






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	437	61.99	61.99
2.1 - 3.0	259	36.74	98.72
3.1 - 10.0	9	1.28	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**  
**Fort McKay - Bertha Ganter - October 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	32	27	10	6	5	7	5	20	40	43	40	45	40	54	47	13	434
2.1 - 3.0	33	22	6	3	4	1	4	28	75	25	11	8	2	5	15	15	257
3.1 - 10.0	3	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	9
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	68	49	16	9	9	8	9	48	115	68	51	54	43	60	64	29	700

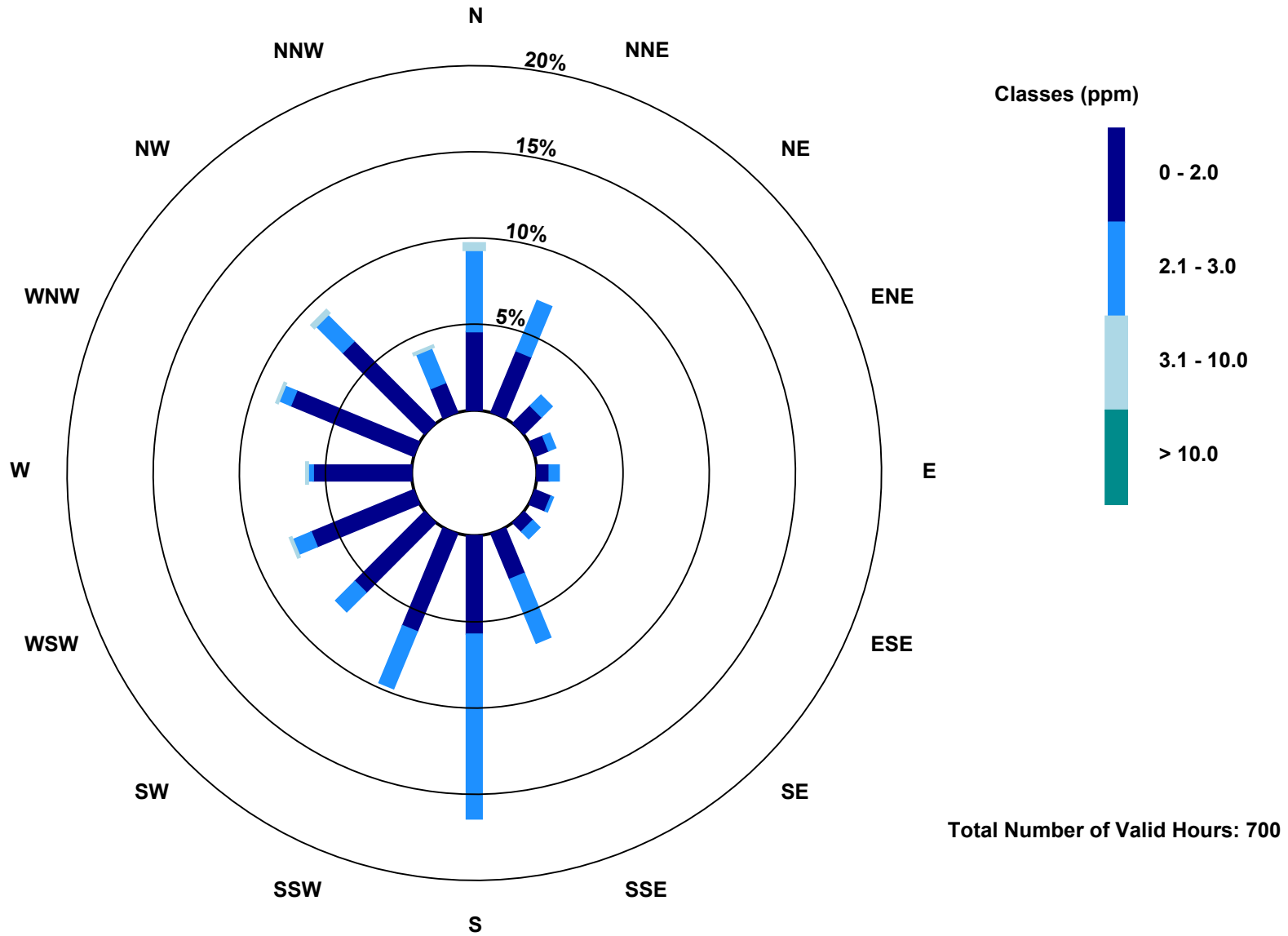
Total Number of Valid Hours: 700

Total Number of Hours: 744

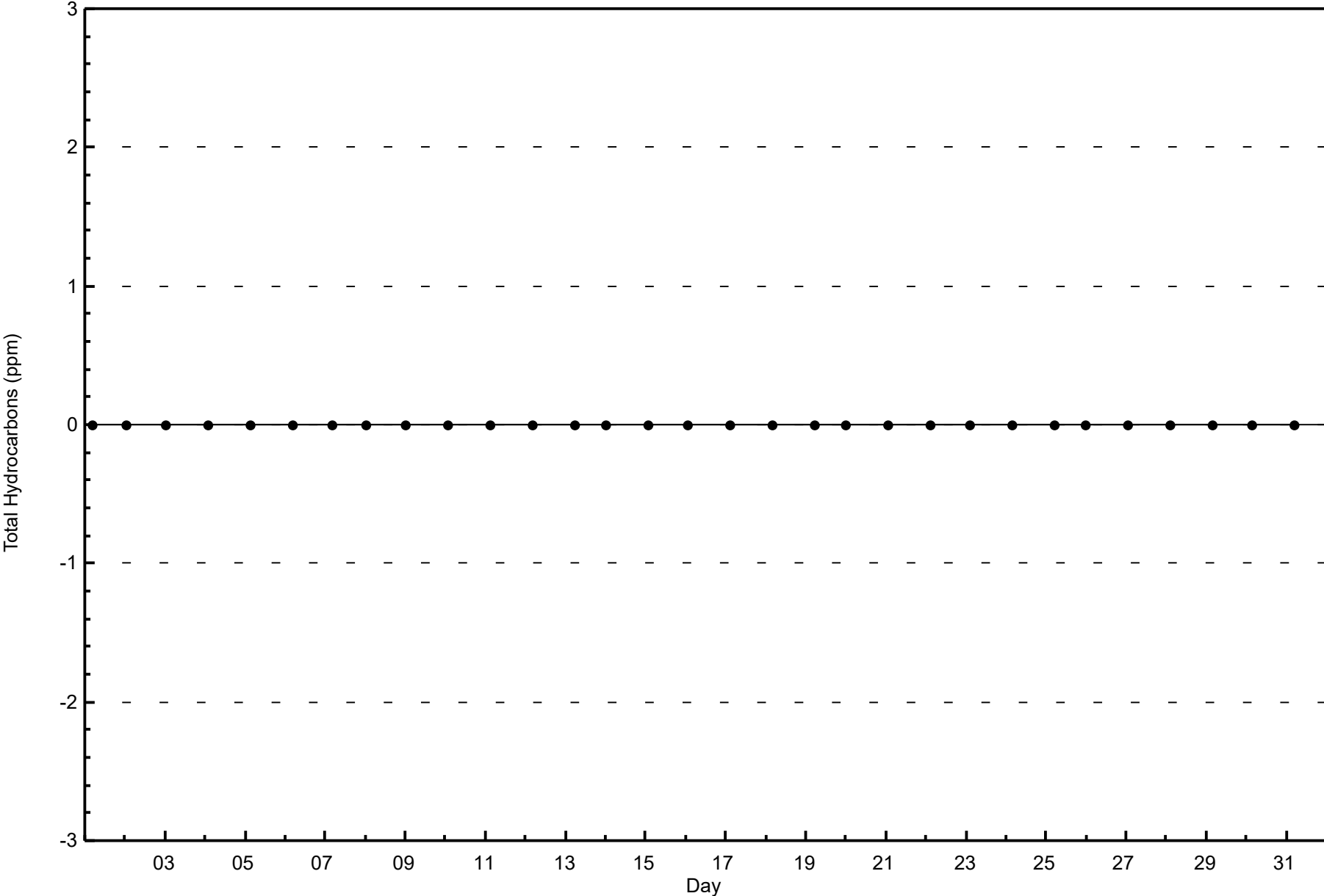


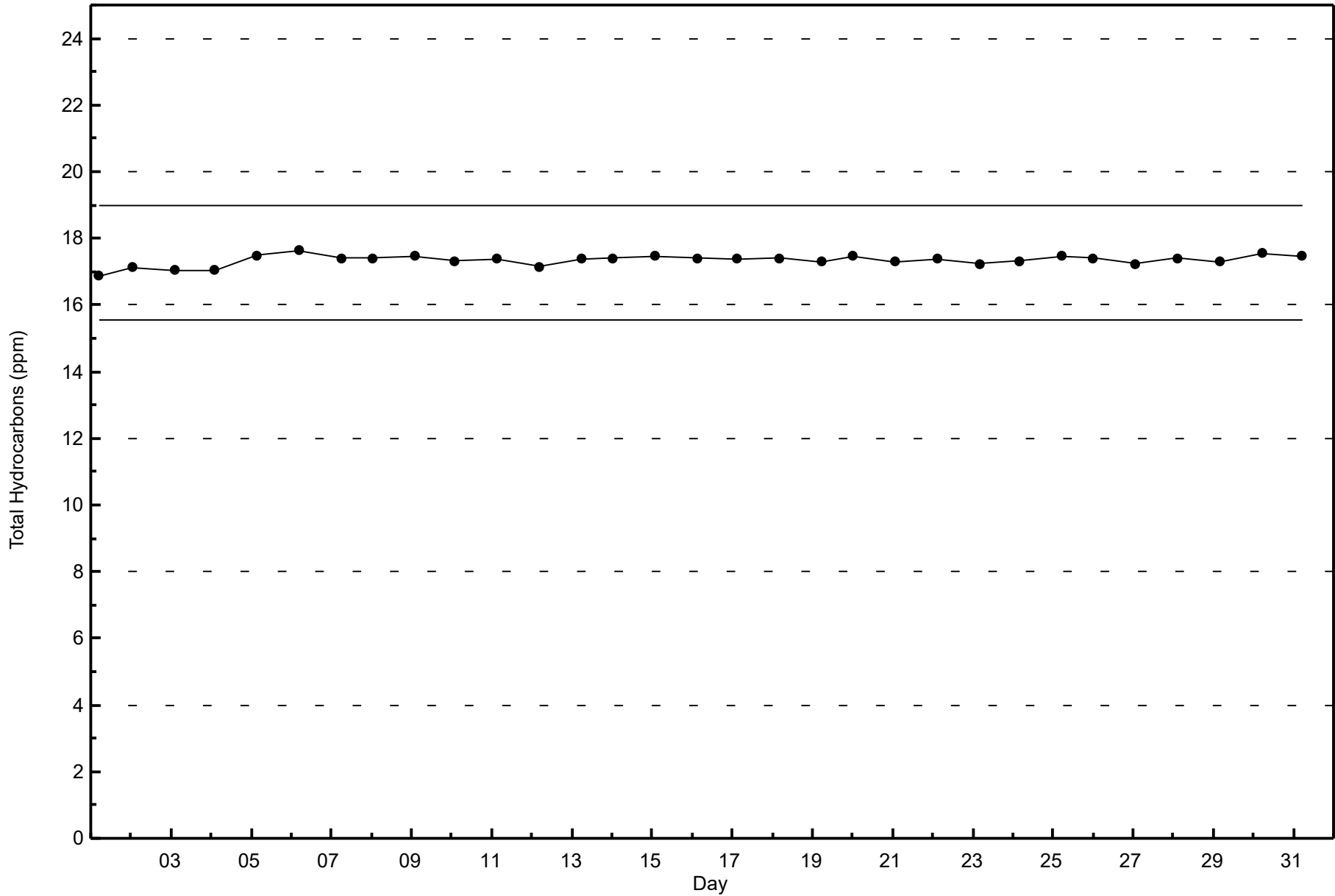
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

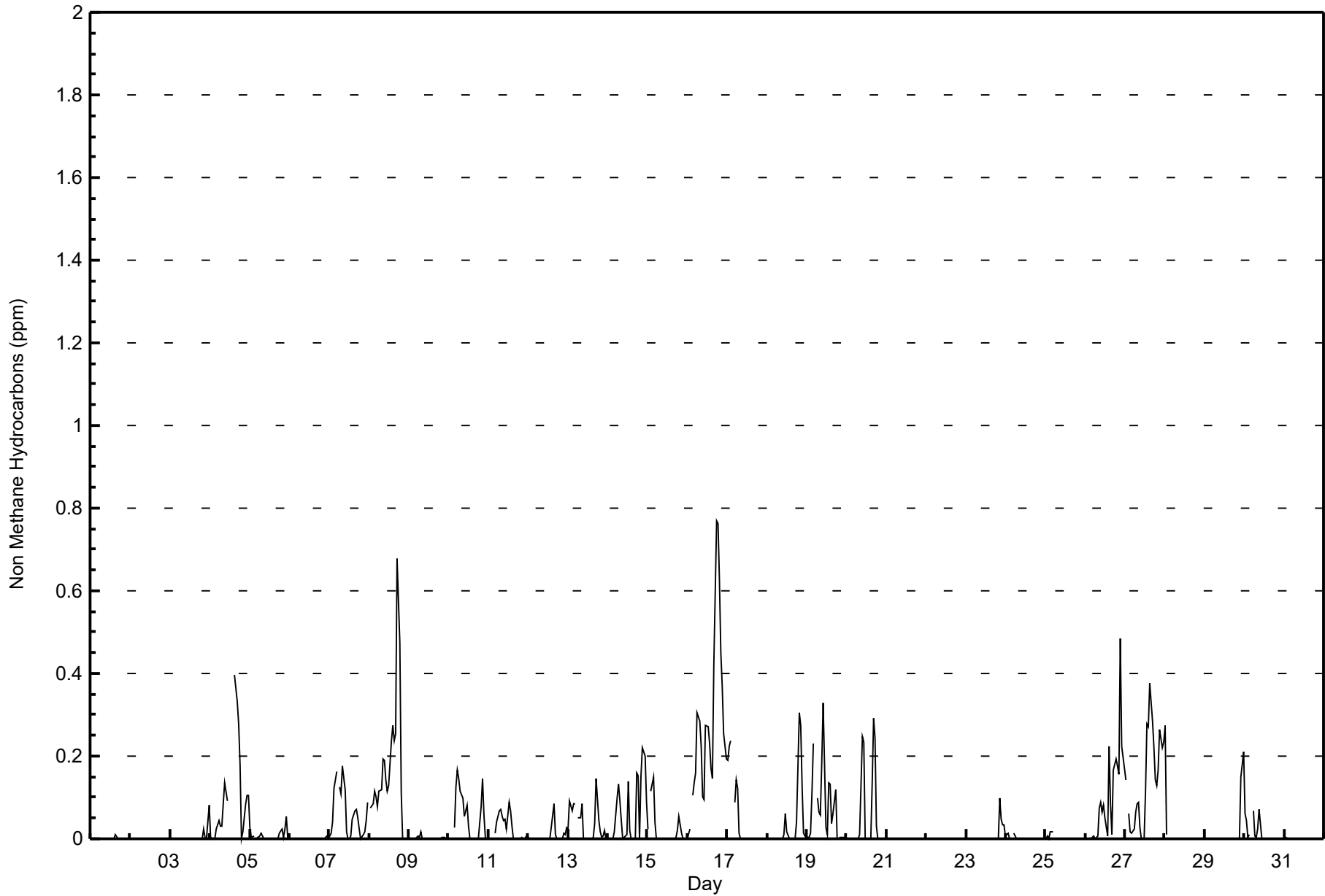














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	452	64.11	64.11
0.006 - 0.05	97	13.76	77.87
0.06 - 0.1	90	12.77	90.64
> 0.1	66	9.36	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay - Bertha Ganter - October 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	32	24	10	8	5	7	5	19	47	49	39	45	39	56	49	15	449
0.006 - 0.05	10	5	3	0	2	0	0	11	40	8	6	2	3	1	3	3	97
0.06 - 0.1	11	7	3	1	1	0	3	13	21	10	4	3	0	2	6	4	89
> 0.1	15	13	0	0	1	1	1	5	7	1	2	4	1	1	6	7	65
<b>Totals</b>	68	49	16	9	9	8	9	48	115	68	51	54	43	60	64	29	700

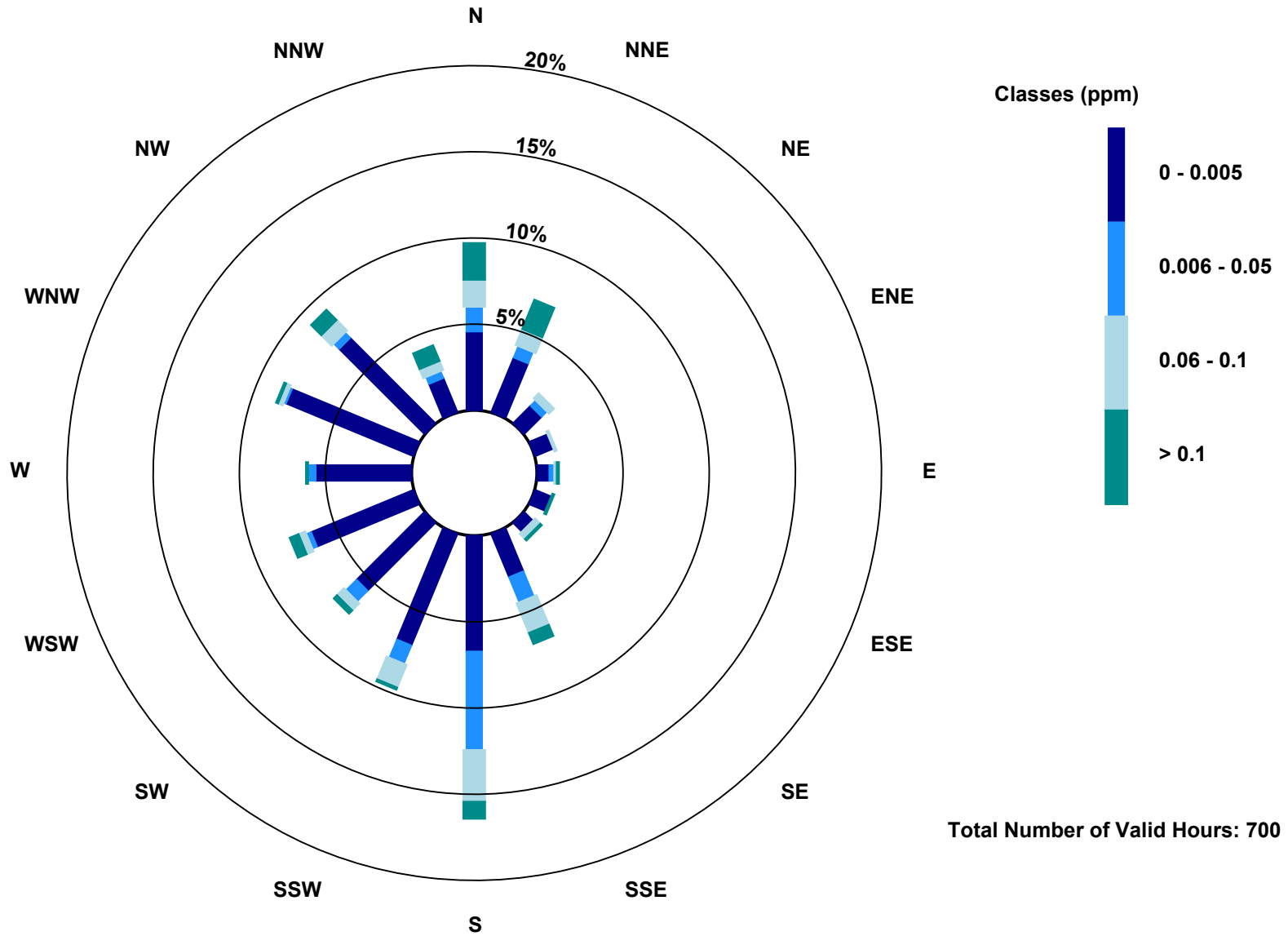
Total Number of Valid Hours: 700

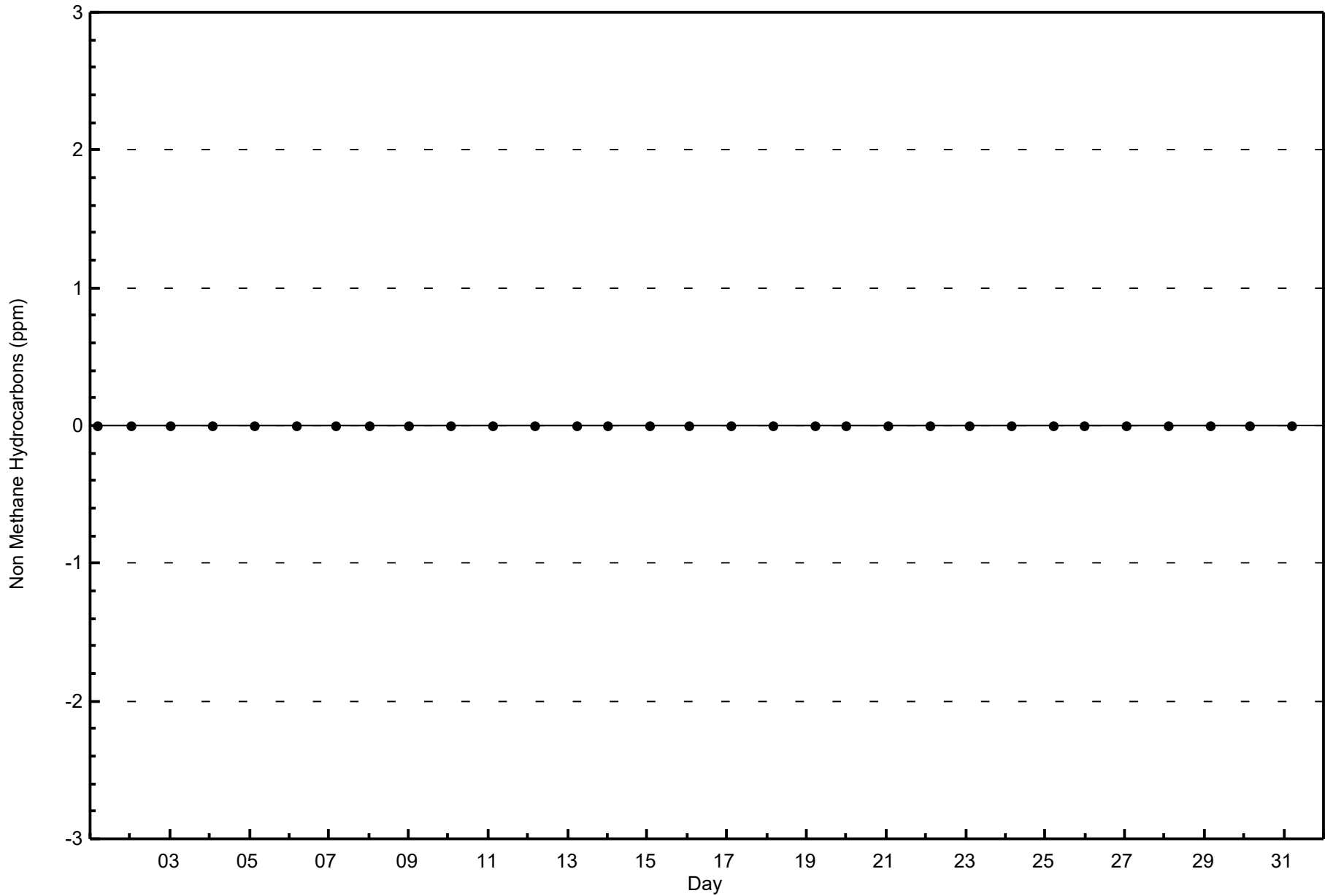
Total Number of Hours: 744



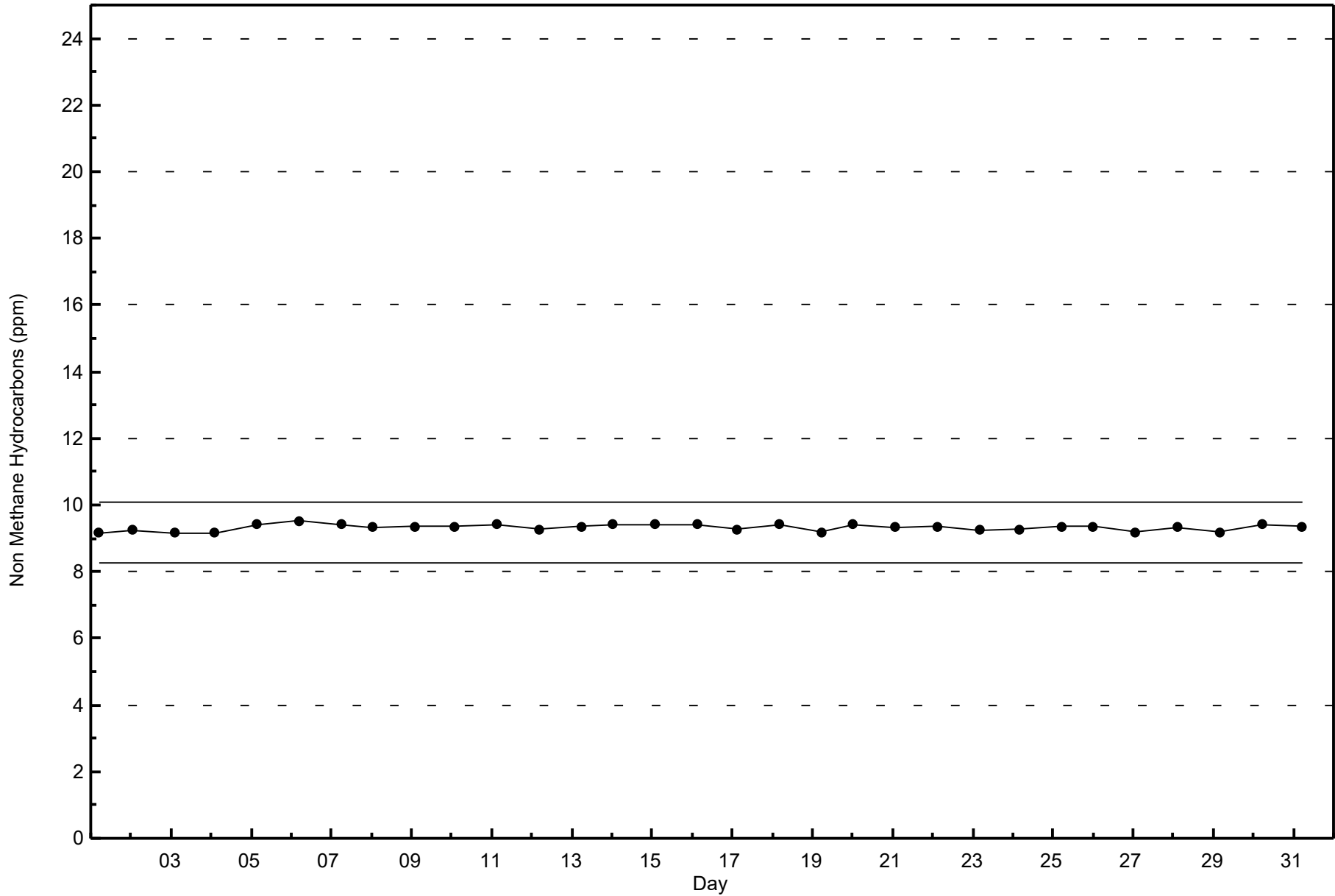
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

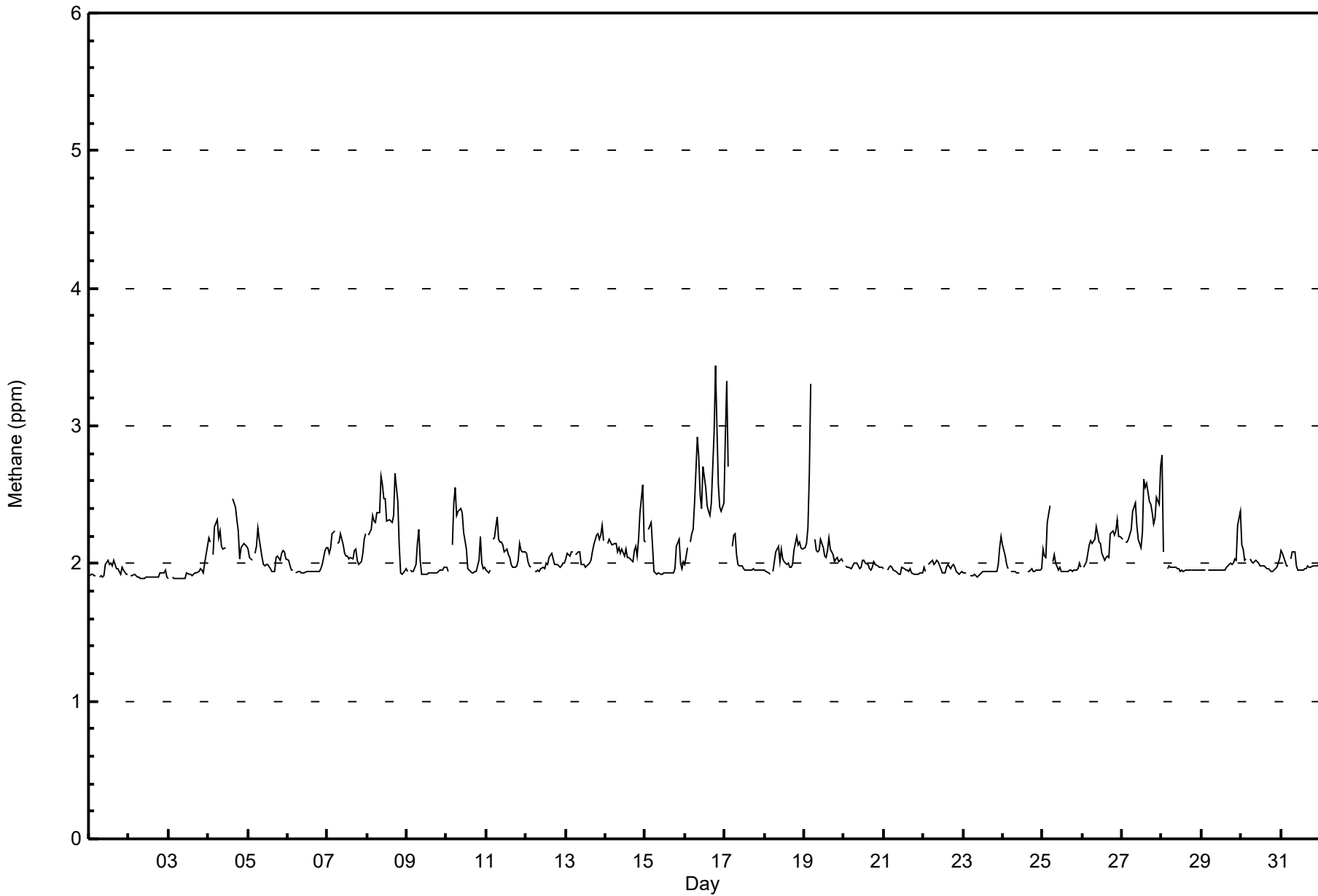














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	457	64.82	64.82
2.1 - 3.0	245	34.75	99.57
3.1 - 10.0	3	0.43	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**

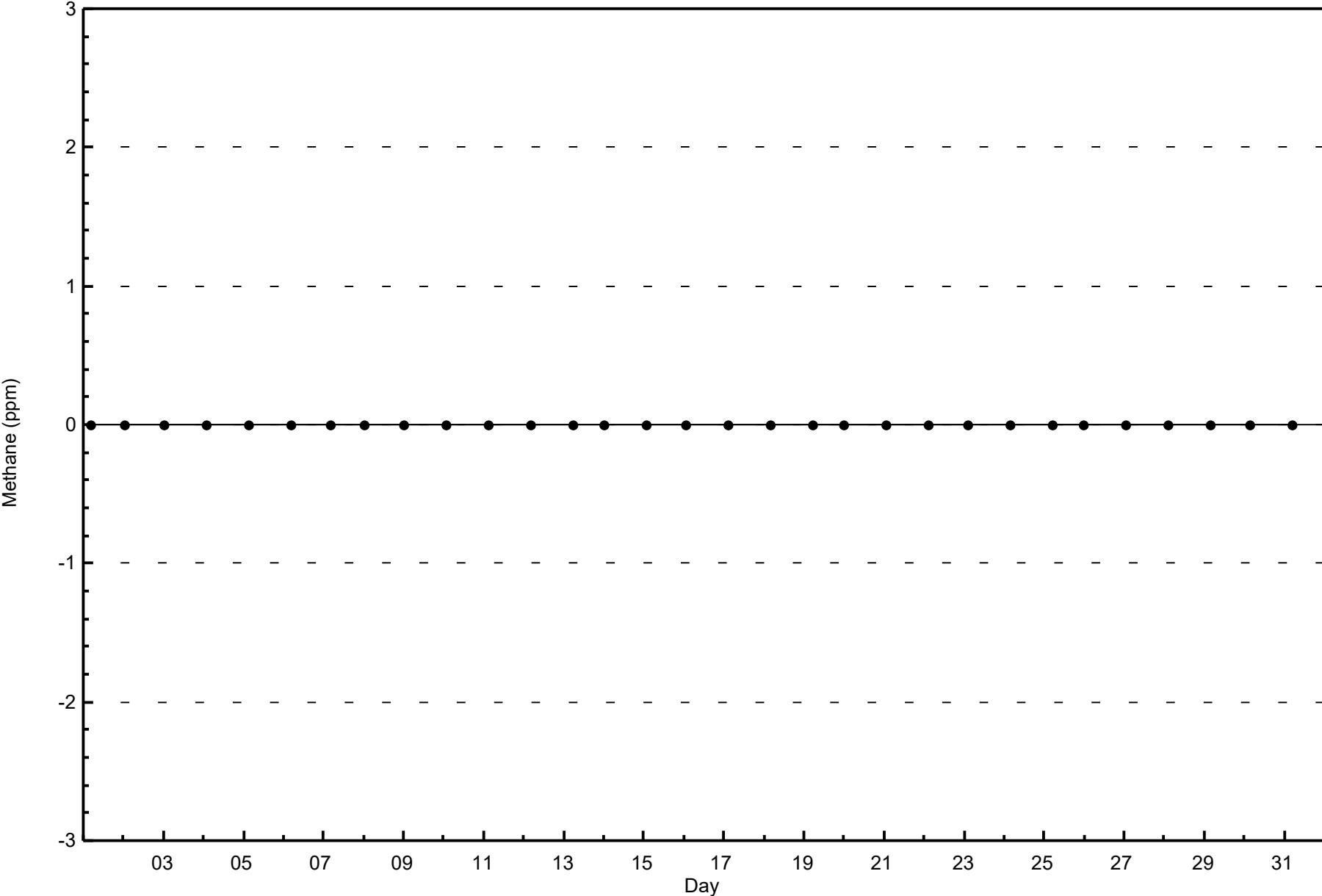
**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay - Bertha Ganter - October 2024**

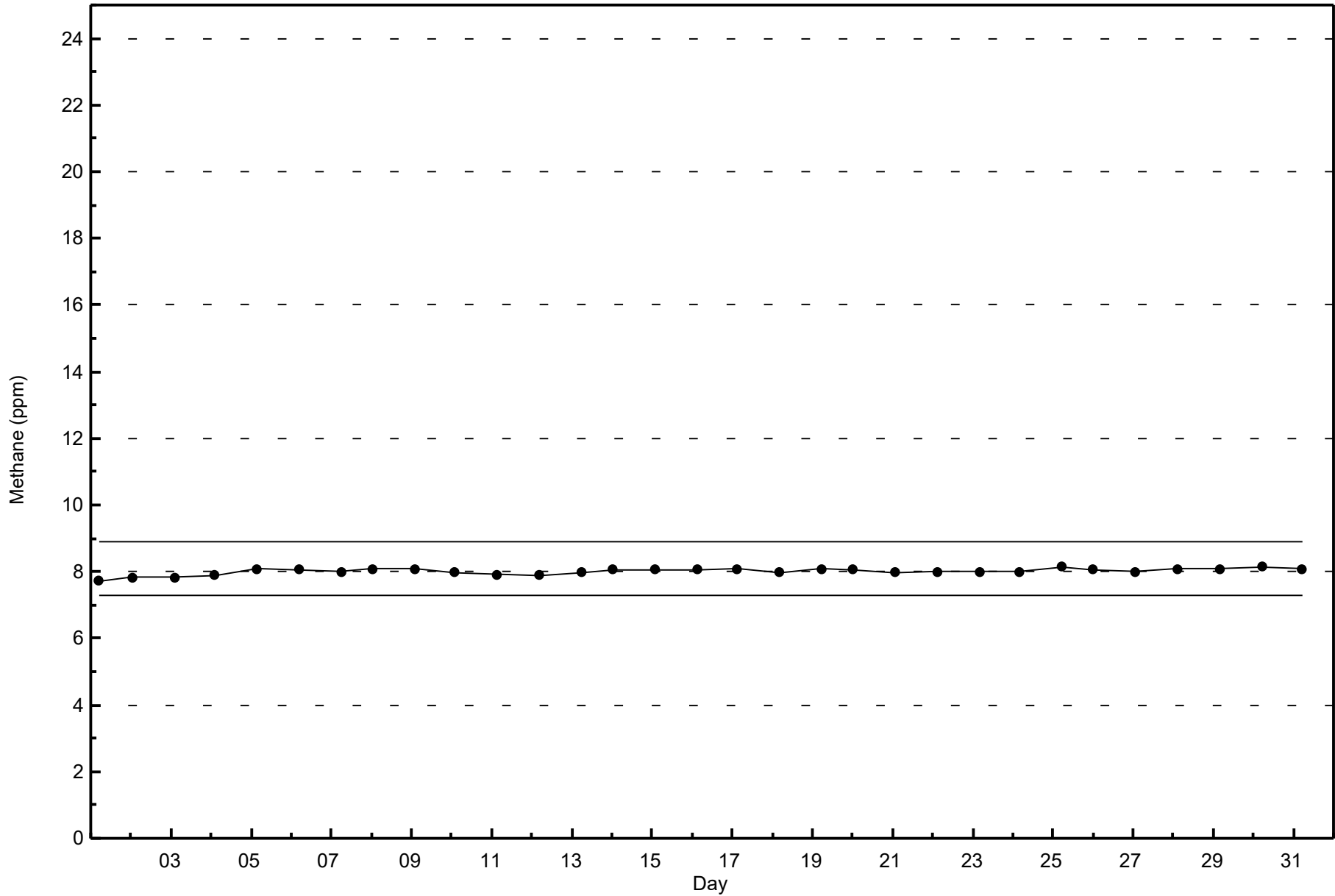
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	32	37	11	6	6	7	6	23	42	43	41	45	40	54	48	13	454
2.1 - 3.0	35	12	5	3	3	1	3	25	73	25	10	9	3	5	15	16	243
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	68	49	16	9	9	8	9	48	115	68	51	54	43	60	64	29	700

Total Number of Valid Hours: 700

Total Number of Hours: 744



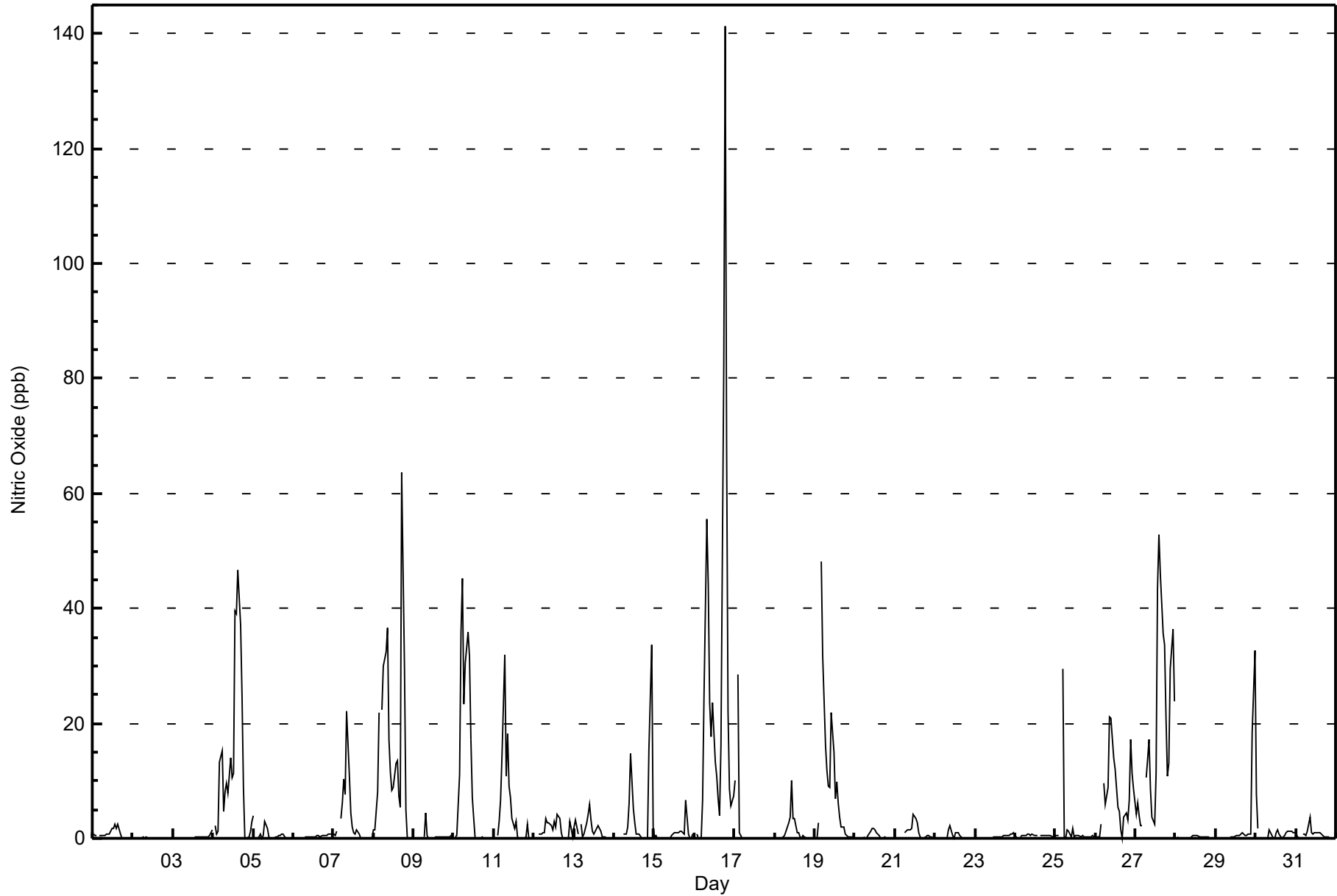








Maximum Value: 141.3 ppb on Oct 16 19:00		Maximum Daily Average: 25.4 ppb on Oct 16		Hours in Service: 744																																												
Minimum Value: 0.0 ppb on Oct 1 18:00		Minimum Daily Average: 0.0 ppb on Oct 2		Hours of Data: 707																																												
Maximum Diurnal Average: 7.7 ppb at hour 9		Minimum Diurnal Average: 0.7 ppb at hour 2		Hours of Missing Data: 37																																												
Monthly Average: 4.16 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.4 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 11.9 P <sub>99</sub> = 46.6		Hours of Calibration: 36																																												
				Percent Operational Time: 99.9																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Oct	0.6	0.6	0.6	Z	0.6	0.6	0.5	0.5	0.7	0.7	0.6	1.6	1.7	2.4	1.7	2.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.4																						
2-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.0	0.3	0.0	0.0	C	C	C	C	C	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
3-Oct	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	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.5	1.4	0.2	1.4																						
4-Oct	Z	2.2	0.7	1.3	13.3	15.3	4.8	8.2	9.5	7.8	14.0	10.5	11.3	39.5	39.0	46.6	37.0	24.8	8.8	0.0	0.0	0.4	1.1	3.1	13.0	46.6																						
5-Oct	4.0	Z	0.0	0.3	0.7	0.1	0.5	2.8	1.6	0.3	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.6	4.0																						
6-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.5	0.5	0.6	0.7	0.7	0.8	0.3	0.8																						
7-Oct	0.9	0.5	1.3	Z	3.3	6.1	10.2	7.7	22.2	10.8	4.3	2.1	1.1	0.8	1.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	22.2																						
8-Oct	1.5	1.4	8.1	21.9	Z	22.5	30.0	32.5	36.6	17.2	11.6	8.3	8.8	13.0	13.4	7.4	5.3	63.6	29.6	4.8	0.0	0.0	0.0	0.0	14.7	63.6																						
9-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.3	4.3	0.4	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.4	4.3																						
10-Oct	Z	0.3	0.5	11.0	35.8	45.3	23.3	30.4	35.9	31.7	17.3	7.1	3.4	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	10.5	45.3																						
11-Oct	0.0	Z	0.5	2.9	6.7	14.2	32.0	10.8	18.1	9.2	7.0	3.4	1.8	3.0	0.2	0.0	0.0	0.0	0.0	0.1	2.5	0.0	0.0	0.0	4.9	32.0																						
12-Oct	0.0	0.0	Z	0.6	0.8	1.0	1.1	3.3	2.7	2.8	2.2	1.6	2.9	2.0	4.1	3.5	0.9	0.0	0.0	0.0	0.0	2.9	1.6	0.2	1.5	4.1																						
13-Oct	2.0	3.1	0.6	Z	2.4	0.2	0.7	2.8	4.3	5.9	3.3	1.3	0.6	1.7	2.2	1.8	1.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	1.5	5.9																						
14-Oct	0.0	0.0	0.0	0.0	Z	0.8	0.6	0.7	1.9	6.0	14.7	5.1	2.7	0.8	0.6	0.7	0.0	0.0	0.0	0.0	0.0	15.4	33.6	2.1	3.7	33.6																						
15-Oct	0.2	0.5	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	0.7	0.9	0.9	1.0	1.2	1.2	0.9	0.8	6.8	0.7	0.0	0.0	0.7	0.7	6.8																						
16-Oct	Z	0.6	0.0	0.0	0.0	6.6	24.8	55.5	44.3	23.7	17.8	23.6	13.4	10.8	6.9	3.9	16.3	82.3	141.3	68.0	22.1	8.6	5.6	7.3	25.4	141.3																						
17-Oct	10.0	Z	28.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	28.6																						
18-Oct	0.0	0.0	Z	0.0	0.1	0.2	0.4	1.1	2.8	3.7	10.1	3.5	3.4	0.9	0.9	0.1	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	1.2	10.1																						
19-Oct	0.0	0.0	2.6	Z	48.1	31.6	16.2	11.8	9.0	8.8	22.0	15.0	6.8	9.9	6.2	3.6	2.1	2.0	0.7	0.4	0.3	0.3	0.3	0.2	8.6	48.1																						
20-Oct	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.4	1.1	1.7	1.6	1.4	1.0	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.4	1.7																						
21-Oct	0.0	0.0	0.0	0.0	0.0	Z	1.0	1.4	1.5	1.5	1.8	4.1	3.4	2.7	0.9	0.2	0.1	0.0	0.3	0.5	0.4	0.3	0.2	0.1	0.9	4.1																						
22-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.2	0.5	0.0	0.9	0.9	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2																						
23-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.7	1.0	0.3	1.0																						
24-Oct	0.4	0.0	Z	0.3	0.5	0.6	0.5	0.6	0.7	0.6	0.6	0.5	0.5	0.5	M	0.5	0.4	0.5	0.4	0.4	0.6	0.5	0.3	0.3	0.5	0.7																						
25-Oct	0.4	0.4	0.4	Z	29.4	0.3	0.0	1.4	1.3	0.2	1.6	0.4	0.5	0.5	0.4	0.2	0.4	0.3	0.3	0.2	0.3	0.2	0.5	0.1	1.7	29.4																						
26-Oct	0.1	0.3	0.4	2.5	Z	9.6	5.9	8.8	21.2	20.9	17.5	14.0	12.0	5.4	4.6	1.4	0.0	3.8	4.3	3.2	6.5	17.1	11.4	8.6	7.8	21.2																						
27-Oct	4.2	6.2	3.9	2.2	2.2	Z	10.5	13.7	17.2	8.7	3.7	2.5	11.2	43.5	52.8	45.8	35.7	33.8	21.2	10.7	13.0	29.5	36.3	23.9	18.8	52.8																						
28-Oct	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.5																						
29-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.4	0.4	0.4	0.5	0.8	0.9	0.6	0.6	0.6	0.7	0.7	18.4	32.6	2.5	32.6																						
30-Oct	7.7	1.7	Z	0.0	0.0	0.0	0.0	0.0	1.4	0.9	0.0	0.0	1.0	1.4	0.6	0.0	0.2	0.5	0.9	1.2	1.2	1.2	1.0	1.0	0.9	7.7																						
31-Oct	1.0	0.3	0.0	Z	0.7	0.7	0.4	1.1	3.8	1.1	0.8	1.0	0.9	0.9	0.9	0.8	0.5	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.7	3.8																						
																								1.3	0.7	1.9	1.8	5.6	6.0	5.3	6.5	7.7	5.4	5.0	3.6	3.1	4.8	4.9	4.1	3.4	7.0	6.9	3.2	1.6	2.6	3.6	2.7	Diurnal Average
																								10.0	6.2	28.6	21.9	48.1	45.3	32.0	55.5	44.3	31.7	22.0	23.6	13.4	43.5	52.8	46.6	37.0	82.3	141.3	68.0	22.1	29.5	36.3	32.6	Diurnal Maximum
Z - zerospan		C - Calibration				M - Maintenance																																										





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	660	93.35	93.35
21 - 40	35	4.95	98.30
41 - 80	10	1.41	99.72
81 - 159	2	0.28	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**

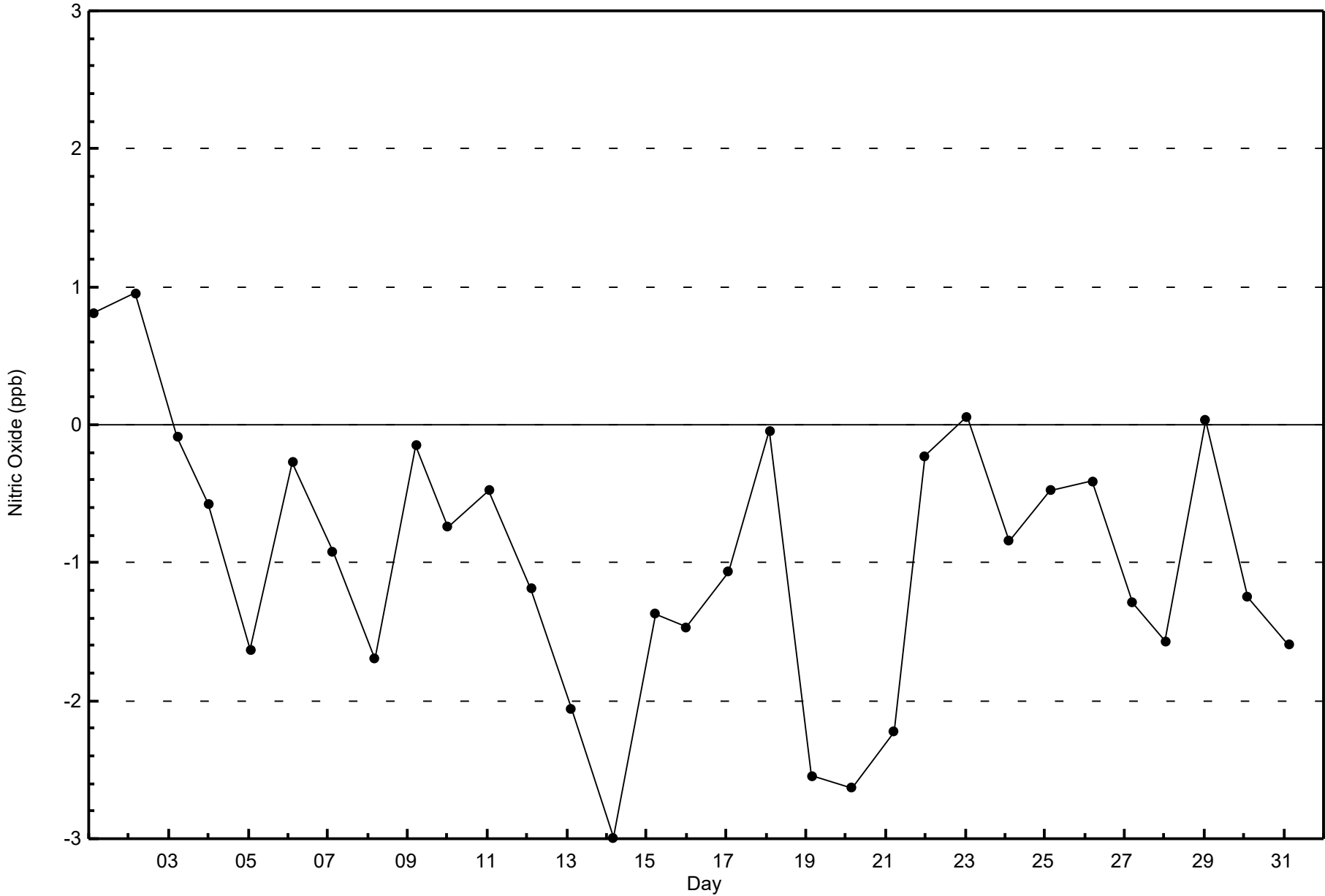
**Nitric Oxide (NO) - ppb**  
**Fort McKay - Bertha Ganter - October 2024**

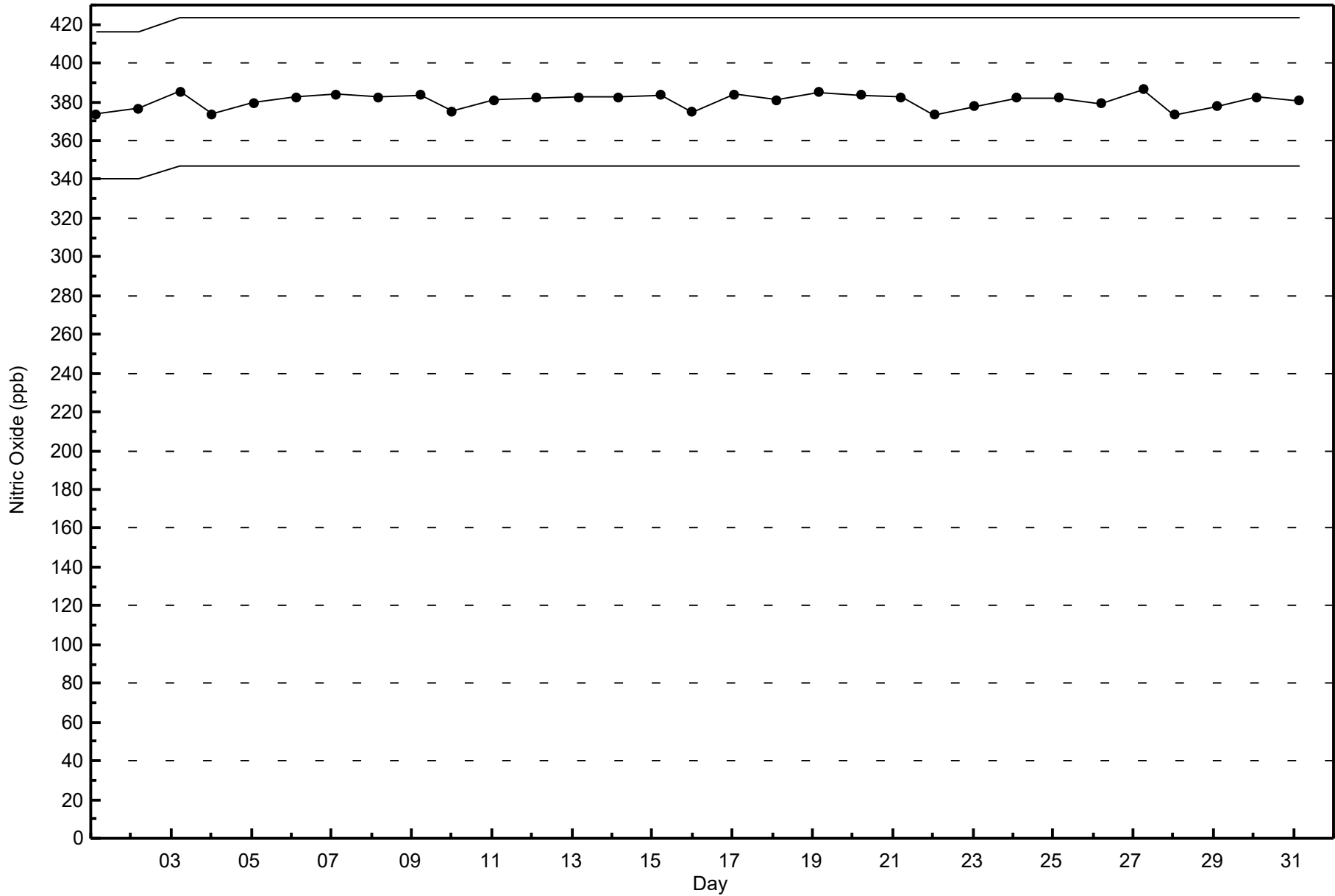
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	57	50	16	10	8	8	8	46	102	65	51	50	44	63	53	24	655
21 - 40	9	0	0	0	0	0	1	2	10	5	0	2	0	0	1	5	35
11 - 80	4	0	0	0	0	0	0	0	1	0	0	2	0	0	2	1	10
81 - 159	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	72	50	16	10	8	8	9	48	113	70	51	54	44	63	56	30	702

Total Number of Valid Hours: 702

Total Number of Hours: 744









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Fort McKay - Bertha Ganter - October 2024

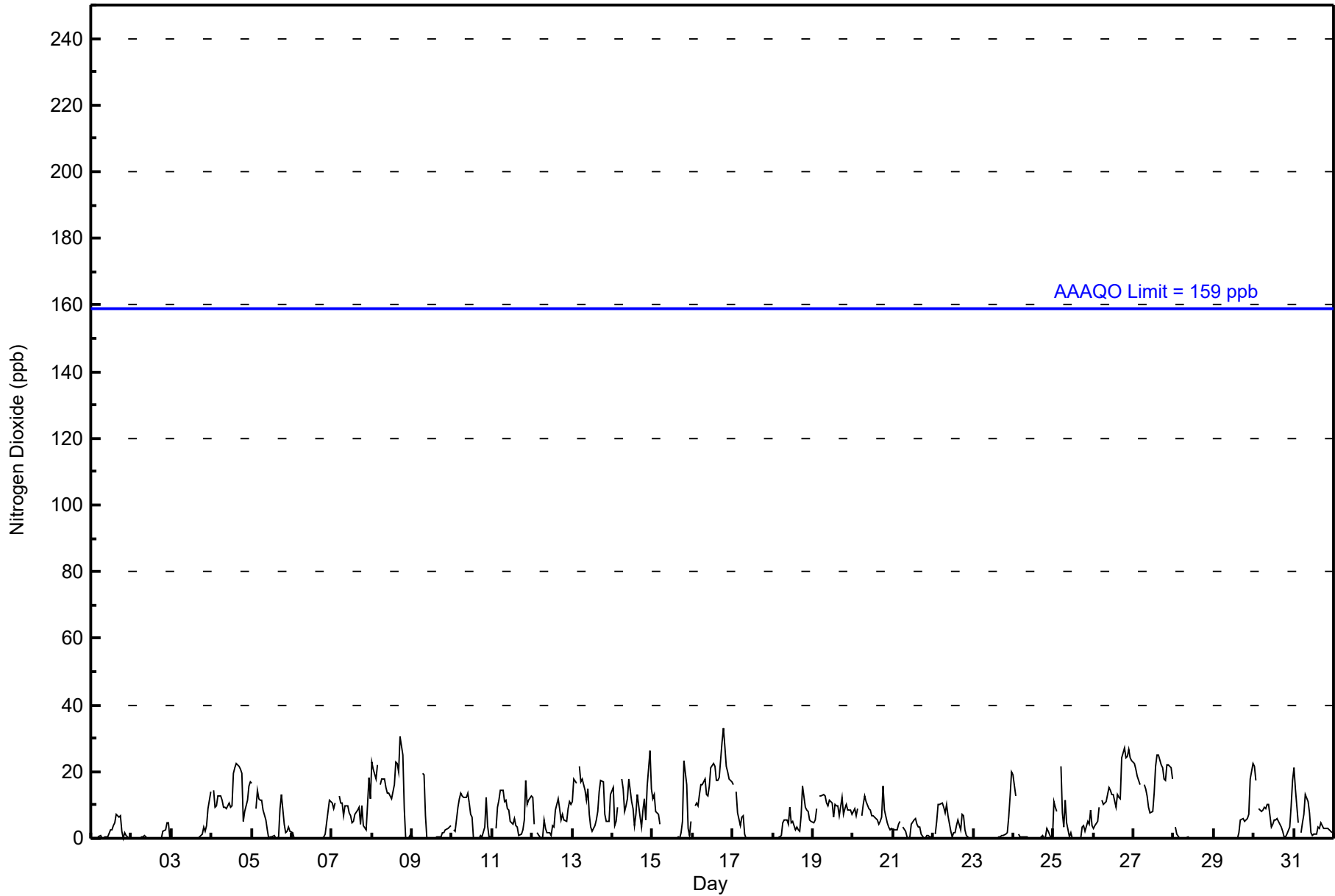
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 33.2 ppb on Oct 16 19:00		Maximum Daily Average: 18.2 ppb on Oct 16		Hours of Data: 707																	7.0		7.0																										
Minimum Value: 0.0 ppb on Oct 1 20:00		Minimum Daily Average: 0.2 ppb on Oct 28		Hours of Missing Data: 37																	13.5		22.6																										
Maximum Diurnal Average: 8.9 ppb at hour 1		Minimum Diurnal Average: 4.4 ppb at hour 12		Hours of Calibration: 36																	5.6		16.7																										
Monthly Average: 6.61 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.3 Median = 4.6 Q <sub>3</sub> = 10.7 P <sub>90</sub> = 17.3 P <sub>99</sub> = 25.1		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-Oct	0.2	0.1	0.1	Z	0.3	0.8	0.2	0.1	0.4	0.4	0.5	2.4	2.6	4.0	4.6	7.0	6.3	6.9	2.1	0.0	1.9	0.8	0.0	0.0	1.8	7.0																							
2-Oct	0.0	0.0	0.2	0.1	Z	0.2	0.5	0.5	0.8	0.1	0.1	C	C	C	C	C	0.0	0.0	0.0	2.0	2.4	4.5	4.6	0.0	0.9	4.6																							
3-Oct	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	0.2	0.2	0.6	1.2	3.2	2.3	3.7	8.7	13.9	1.5	13.9																								
4-Oct	Z	14.6	9.5	9.8	12.8	12.8	11.4	9.4	9.5	8.8	10.5	9.3	9.7	19.3	21.1	22.6	21.6	20.9	19.7	4.9	7.9	11.4	15.8	16.8	13.5	22.6																							
5-Oct	16.7	Z	8.8	14.6	11.8	11.3	11.5	8.3	5.4	2.5	0.0	0.5	0.3	0.8	0.1	0.2	0.3	8.7	13.2	4.2	1.9	2.3	3.5	2.1	5.6	16.7																							
6-Oct	1.5	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	0.4	1.4	4.8	11.6	11.2	1.4	11.6																								
7-Oct	10.4	8.8	10.6	Z	12.7	10.4	10.5	6.8	9.6	9.8	7.7	6.7	4.8	4.9	7.3	8.3	9.5	4.2	9.6	3.7	2.4	10.0	18.2	11.7	8.6	18.2																							
8-Oct	22.7	20.9	17.9	22.0	Z	16.2	17.6	17.9	15.2	13.5	13.6	12.5	12.0	16.3	23.0	22.6	19.9	30.7	25.1	9.1	0.0	0.0	0.0	1.5	15.2	30.7																							
9-Oct	0.0	0.0	0.0	0.0	0.0	Z	19.7	19.2	6.7	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.6	0.6	1.6	1.7	2.4	3.1	3.4	3.9	2.8	19.7																							
10-Oct	Z	2.4	2.2	9.3	11.8	13.4	12.9	12.2	12.1	13.7	10.6	7.3	6.2	0.0	0.0	0.0	0.0	0.7	0.5	3.6	12.2	3.7	0.3	0.5	5.9	13.7																							
11-Oct	0.8	Z	2.9	9.3	11.5	14.3	14.6	11.1	11.3	9.1	8.5	5.0	4.3	5.9	3.8	3.3	0.8	1.4	2.4	5.7	17.3	10.0	11.6	12.6	7.7	17.3																							
12-Oct	12.2	4.3	Z	1.8	0.3	0.0	0.6	5.4	2.8	1.7	1.5	0.9	3.7	3.2	8.6	11.8	8.8	5.3	7.0	5.7	5.1	8.7	11.1	10.3	5.3	12.2																							
13-Oct	11.2	17.8	16.4	Z	21.4	16.8	17.6	14.3	11.5	14.9	7.0	3.2	2.1	3.8	5.3	8.2	14.1	17.3	16.9	7.0	5.0	4.9	5.0	13.3	11.1	21.4																							
14-Oct	15.1	3.8	4.9	9.3	Z	17.7	14.7	8.1	9.8	11.8	17.6	10.9	8.8	4.0	7.1	13.0	6.2	3.4	8.6	12.0	5.6	15.5	26.4	14.9	10.8	26.4																							
15-Oct	11.9	13.0	8.2	7.2	4.1	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.3	0.2	1.8	5.1	23.2	15.9	2.9	0.9	4.9	4.3	23.2																							
16-Oct	Z	9.9	10.5	9.9	13.1	16.3	15.9	18.0	13.2	12.5	15.5	21.2	22.4	21.8	17.5	17.3	18.2	28.8	33.2	27.6	21.6	19.9	17.6	16.9	18.2	33.2																							
17-Oct	16.2	Z	13.8	7.8	3.7	6.3	6.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	16.2																							
18-Oct	0.0	0.0	Z	0.3	0.6	0.9	4.8	5.5	5.4	4.4	9.2	4.6	5.0	2.5	3.4	2.4	2.2	6.7	15.5	9.5	8.4	8.2	5.5	4.9	4.8	15.5																							
19-Oct	4.7	5.3	8.7	Z	12.9	12.6	13.2	12.8	10.7	9.8	11.6	10.5	6.3	10.1	9.8	9.9	6.6	12.2	7.3	8.9	10.0	8.5	8.5	7.0	9.5	13.2																							
20-Oct	7.9	9.0	6.6	8.7	Z	6.6	10.0	12.9	11.2	9.1	8.5	6.8	6.8	6.4	5.4	4.3	4.9	6.2	15.5	8.4	4.6	3.6	2.7	2.9	7.3	15.5																							
21-Oct	2.6	2.7	2.5	4.1	5.0	Z	3.3	2.1	0.4	0.1	0.5	4.3	5.3	5.8	4.3	3.4	3.5	1.4	0.2	0.2	0.7	0.7	0.4	0.5	2.3	5.8																							
22-Oct	Z	1.2	5.1	10.3	10.1	10.5	9.4	7.8	10.1	6.8	2.0	0.4	1.8	1.8	3.8	5.7	2.7	7.0	6.9	2.4	1.0	0.1	0.1	0.0	4.7	10.5																							
23-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	1.0	1.0	1.4	1.6	6.5	12.7	20.1	2.0	20.1																							
24-Oct	18.9	12.6	Z	1.2	0.4	0.3	0.6	0.5	0.2	0.1	0.0	0.0	0.0	0.0	M	0.0	0.0	1.0	0.2	0.3	2.8	2.0	0.0	0.1	1.9	18.9																							
25-Oct	11.2	9.5	8.0	Z	21.7	7.7	3.6	11.6	4.5	0.4	1.9	0.0	0.1	0.1	0.0	0.0	0.1	3.3	3.8	2.2	4.9	4.2	8.3	4.0	4.8	21.7																							
26-Oct	2.9	3.9	5.2	9.5	Z	11.4	10.1	11.2	13.3	15.1	14.2	13.0	13.2	9.4	13.2	12.3	11.9	24.3	27.1	24.1	24.5	26.6	24.2	23.2	14.9	27.1																							
27-Oct	22.4	20.8	18.6	17.5	16.0	Z	15.9	15.0	12.6	9.4	7.8	7.9	13.4	21.6	25.0	24.8	22.2	21.1	17.8	17.2	21.9	22.0	21.2	18.0	17.8	25.0																							
28-Oct	Z	3.4	1.1	0.1	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.4																							
29-Oct	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	1.8	5.3	5.8	5.2	5.7	6.0	7.4	17.8	22.6	3.4	22.6																							
30-Oct	21.5	17.4	Z	8.9	8.0	8.6	9.2	9.0	10.2	10.0	3.4	4.1	5.3	5.6	5.8	4.4	3.6	2.3	0.5	0.6	1.1	3.4	9.8	17.5	7.4	21.5																							
31-Oct	21.1	14.7	4.8	Z	1.5	4.6	7.3	13.0	11.0	7.6	1.5	0.8	1.3	1.4	3.2	2.8	4.7	3.8	3.1	2.9	2.9	2.5	2.3	1.8	5.2	21.1																							
																								8.9	7.5	6.4	6.5	6.9	7.7	7.8	7.6	6.4	5.5	5.0	4.4	4.5	5.0	5.9	6.2	5.6	7.3	8.1	6.4	6.3	6.5	8.1	8.3	Diurnal Average	
																								22.7	20.9	18.6	22.0	21.7	17.7	19.7	19.2	15.2	15.1	17.6	21.2	22.4	21.8	25.0	24.8	22.2	30.7	33.2	27.6	24.5	26.6	26.4	23.2	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	





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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	665	94.06	94.06
21 - 40	42	5.94	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 - October 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	57	44	16	9	8	7	8	47	110	66	50	54	44	63	54	24	661
21 - 40	15	6	0	1	0	1	1	1	3	4	1	0	0	0	2	6	41
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>	72	50	16	10	8	8	9	48	113	70	51	54	44	63	56	30	702

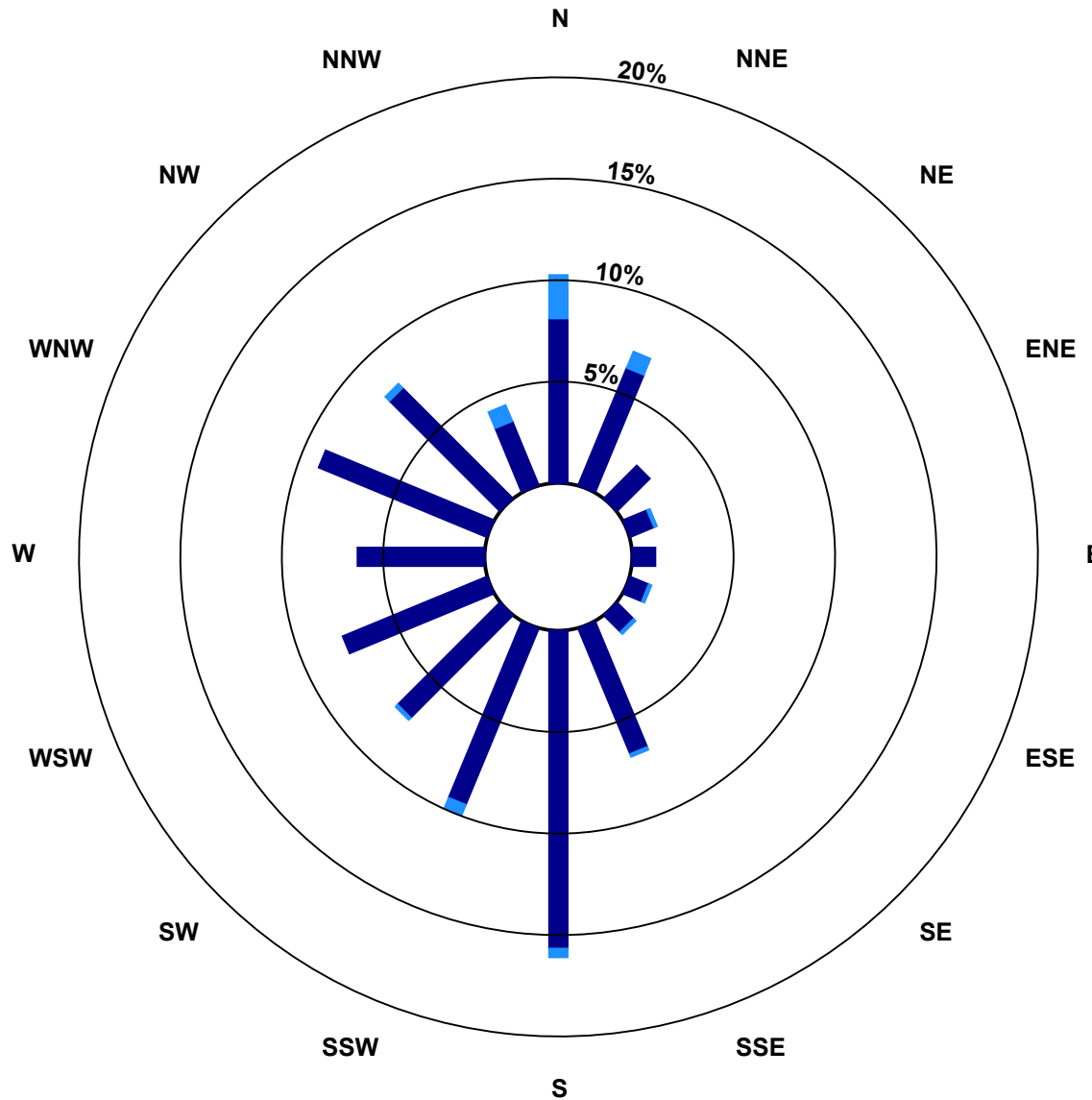
Total Number of Valid Hours: 702

Total Number of Hours: 744

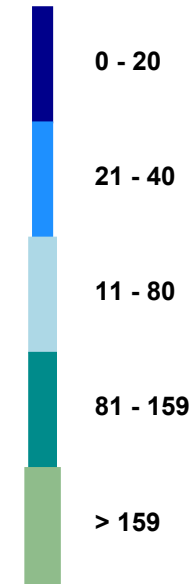


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

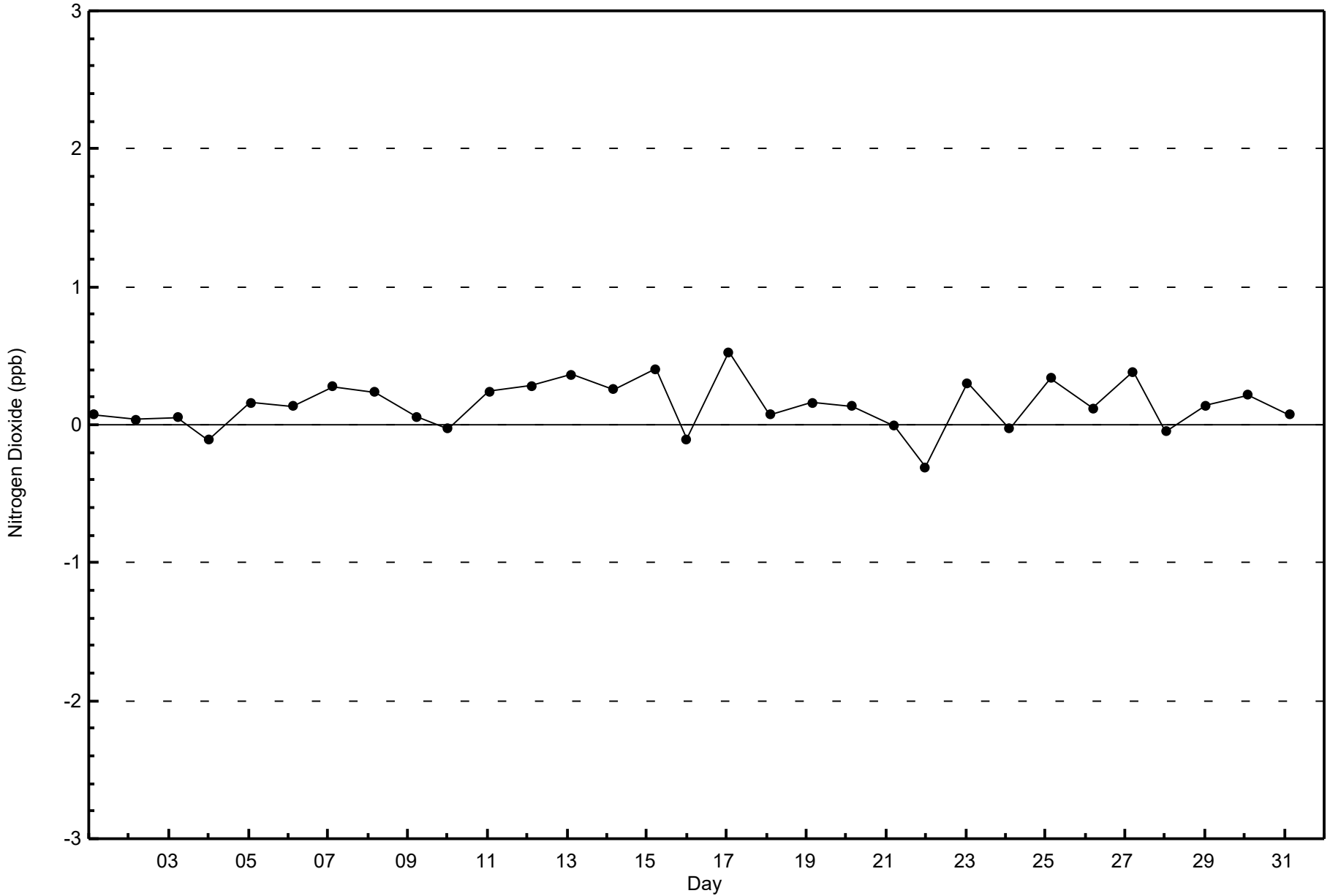
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay - Bertha Ganter

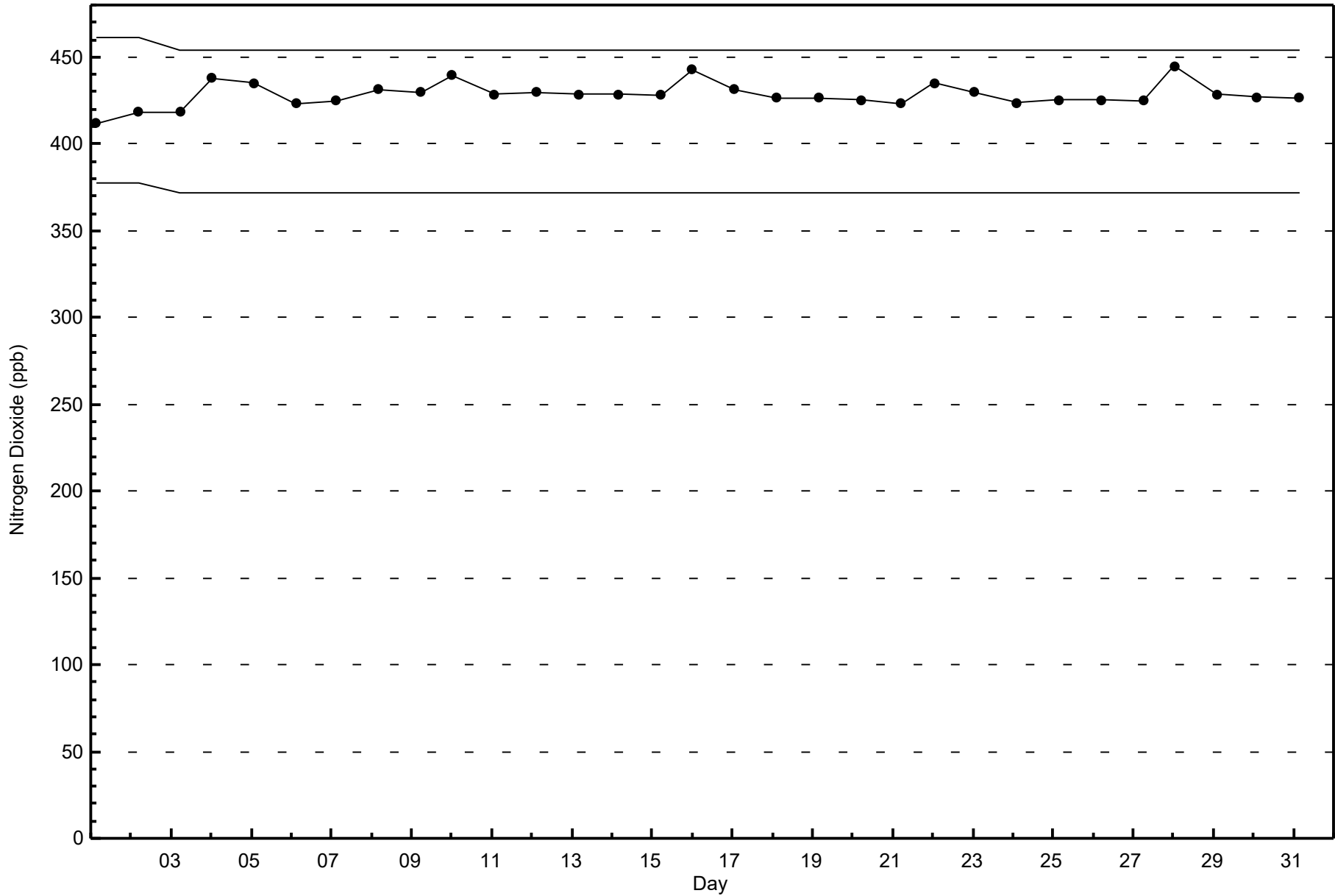


Classes (ppb)



Total Number of Valid Hours: 702







Wood Buffalo Environmental Association

Summary of Hour Averages

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

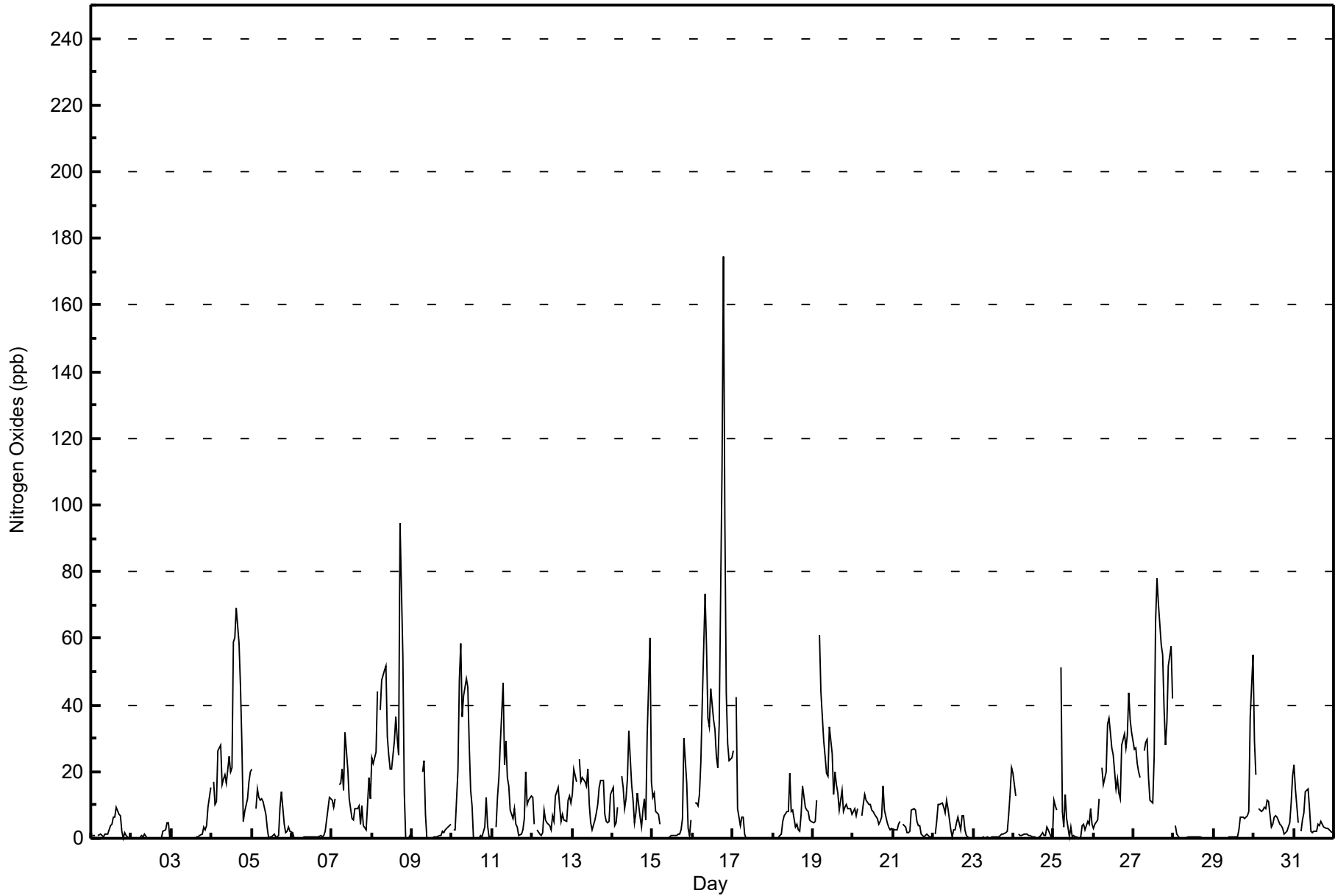
Fort McKay - Bertha Ganter - October 2024

Maximum Value: 174.5 ppb on Oct 16 19:00																						Maximum Daily Average: 43.6 ppb on Oct 16																						Hours in Service: 744					
Minimum Value: 0.0 ppb on Oct 1 20:00																						Minimum Daily Average: 0.4 ppb on Oct 28																						Hours of Data: 707					
Maximum Diurnal Average: 14.9 ppb at hour 19																						Minimum Diurnal Average: 7.6 ppb at hour 13																						Hours of Missing Data: 37					
Monthly Average: 10.76 ppb																						Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.7 Median = 5.1 Q <sub>3</sub> = 13.6 P <sub>90</sub> = 28.6 P <sub>99</sub> = 68.9																						Hours of Calibration: 36					
																																												Percent Operational Time: 99.9					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	0.8	0.7	0.7	Z	0.9	1.4	0.7	0.6	1.1	1.1	1.1	4.0	4.3	6.4	6.3	9.4	7.0	6.9	2.1	0.0	1.9	0.8	0.0	0.0	2.5	9.4																							
2-Oct	0.0	0.0	0.2	0.1	Z	0.3	0.7	0.5	1.1	0.1	0.1	C	C	C	C	C	0.0	0.1	0.0	2.0	2.4	4.5	4.6	0.0	0.9	4.6																							
3-Oct	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	0.2	0.4	0.4	0.8	1.5	3.5	2.6	4.0	9.2	15.3	1.7	15.3																							
4-Oct	Z	16.8	10.2	11.1	26.1	28.1	16.2	17.6	19.0	16.6	24.5	19.8	21.0	58.8	60.1	69.2	58.6	45.7	28.5	4.9	7.9	11.8	16.9	19.9	26.5	69.2																							
5-Oct	20.7	Z	8.8	14.9	12.5	11.4	12.0	11.2	7.0	2.8	0.0	0.5	0.3	1.1	0.4	0.6	0.7	9.5	13.8	4.2	1.9	2.3	3.5	2.1	6.2	20.7																							
6-Oct	1.5	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.7	0.6	0.9	2.0	5.5	12.3	12.0	1.7	12.3																							
7-Oct	11.3	9.3	11.9	Z	16.0	16.5	20.7	14.5	31.8	20.6	12.0	8.8	5.9	5.7	8.7	9.1	9.6	4.2	9.6	3.7	2.4	10.0	18.2	11.7	11.8	31.8																							
8-Oct	24.2	22.3	26.0	43.9	Z	38.7	47.6	50.4	51.8	30.7	25.2	20.8	20.8	29.3	36.4	30.0	25.2	94.3	54.7	13.9	0.0	0.0	0.0	1.5	29.9	94.3																							
9-Oct	0.0	0.0	0.0	0.0	0.0	Z	20.0	23.5	7.1	0.0	0.0	0.1	0.2	0.2	0.3	0.6	0.8	0.9	1.9	1.9	2.7	3.4	3.8	4.3	3.1	23.5																							
10-Oct	Z	2.7	2.7	20.3	47.6	58.7	36.2	42.6	48.0	45.4	27.9	14.4	9.6	0.0	0.0	0.0	0.0	0.9	0.6	3.6	12.2	3.7	0.3	0.5	16.4	58.7																							
11-Oct	0.8	Z	3.4	12.2	18.2	28.5	46.6	21.9	29.4	18.3	15.5	8.4	6.1	8.9	4.0	3.3	0.8	1.4	2.4	5.8	19.8	10.0	11.6	12.6	12.6	46.6																							
12-Oct	12.2	4.3	Z	2.4	1.1	1.0	1.7	8.7	5.5	4.5	3.7	2.5	6.6	5.2	12.7	15.3	9.7	5.3	7.0	5.7	5.1	11.6	12.7	10.5	6.7	15.3																							
13-Oct	13.2	20.9	17.0	Z	23.8	17.0	18.3	17.1	15.8	20.8	10.3	4.5	2.7	5.5	7.5	10.0	15.4	17.6	17.2	7.1	5.0	4.9	5.0	13.3	12.6	23.8																							
14-Oct	15.1	3.8	4.9	9.3	Z	18.5	15.3	8.8	11.7	17.8	32.3	16.0	11.5	4.8	7.7	13.7	6.2	3.4	8.6	12.0	5.6	30.9	60.0	17.0	14.6	60.0																							
15-Oct	12.1	13.5	8.2	7.2	4.1	Z	0.0	0.0	0.0	0.0	0.6	0.8	0.9	0.9	1.0	1.5	1.4	2.7	5.9	30.0	16.6	2.9	0.9	5.6	5.1	30.0																							
16-Oct	Z	10.5	10.5	9.9	13.1	22.9	40.7	73.5	57.5	36.2	33.3	44.8	35.8	32.6	24.4	21.2	34.5	111.1	174.5	95.6	43.7	28.5	23.2	24.2	43.6	174.5																							
17-Oct	26.2	Z	42.4	8.7	3.7	6.3	6.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	42.4																							
18-Oct	0.0	0.0	Z	0.3	0.7	1.1	5.2	6.6	8.2	8.1	19.3	8.1	8.4	3.4	4.3	2.5	2.2	7.3	15.7	9.5	8.4	8.2	5.5	4.9	6.0	19.3																							
19-Oct	4.7	5.3	11.3	Z	61.0	44.2	29.4	24.6	19.7	18.6	33.6	25.5	13.1	20.0	16.0	13.5	8.7	14.2	8.0	9.3	10.3	8.8	8.8	7.2	18.1	61.0																							
20-Oct	7.9	9.0	6.6	8.7	Z	6.8	10.0	12.9	11.6	10.2	10.2	8.4	8.2	7.4	5.9	4.3	4.9	6.2	15.7	8.4	4.6	3.6	2.7	2.9	7.7	15.7																							
21-Oct	2.6	2.7	2.5	4.1	5.0	Z	4.3	3.5	1.9	1.6	2.3	8.4	8.7	8.5	5.2	3.6	3.6	1.4	0.5	0.7	1.1	1.0	0.6	0.6	3.2	8.7																							
22-Oct	Z	1.2	5.1	10.3	10.1	10.5	9.4	7.8	11.5	9.0	2.5	0.4	2.7	2.7	4.7	6.3	2.7	7.0	6.9	2.4	1.0	0.1	0.1	0.0	5.0	11.5																							
23-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	1.4	1.4	1.9	2.1	7.1	13.4	21.1	2.3	21.1																							
24-Oct	19.3	12.6	Z	1.5	0.9	0.9	1.1	1.2	1.2	0.8	0.7	0.5	0.5	0.5	M	0.5	0.4	1.5	0.6	0.7	3.4	2.5	0.3	0.4	2.4	19.3																							
25-Oct	11.6	9.9	8.4	Z	51.1	8.0	3.6	13.0	5.8	0.6	3.5	0.4	0.6	0.6	0.6	0.4	0.2	0.5	3.6	4.1	2.4	5.2	4.4	8.8	4.1	6.5	51.1																						
26-Oct	3.0	4.2	5.6	12.0	Z	21.0	16.0	20.0	34.5	36.0	31.7	27.0	25.2	14.8	17.8	13.7	11.9	28.1	31.4	27.3	31.0	43.7	35.6	31.8	22.7	43.7																							
27-Oct	26.6	27.0	22.5	19.7	18.2	Z	26.4	28.7	29.8	18.1	11.5	10.4	24.6	65.1	77.8	70.6	57.9	54.9	39.0	27.9	34.9	51.5	57.5	41.9	36.6	77.8																							
28-Oct	Z	3.7	1.1	0.1	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.5	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.4	3.7																							
29-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.4	0.4	0.4	0.5	2.6	6.2	6.4	5.8	6.3	6.7	8.1	36.2	55.2	5.9	55.2																							
30-Oct	29.2	19.1	Z	8.9	8.0	8.6	9.2	9.0	11.6	10.9	3.4	4.1	6.3	7.0	6.4	4.4	3.8	2.8	1.4	1.8	2.3	4.6	10.8	18.5	8.3	29.2																							
31-Oct	22.1	15.0	4.8	Z	2.2	5.3	7.7	14.1	14.8	8.7	2.3	1.8	2.2	2.3	4.1	3.6	5.2	4.1	3.3	3.1	3.0	2.6	2.3	1.8	5.9	22.1																							
																								10.2	8.2	8.3	8.2	12.5	13.7	13.1	14.0	14.1	10.9	10.0	8.1	7.6	9.8	10.8	10.4	9.0	14.3	14.9	9.6	7.9	9.1	11.8	11.0	Diurnal Average	
																								29.2	27.0	42.4	43.9	61.0	58.7	47.6	73.5	57.5	45.4	33.6	44.8	35.8	65.1	77.8	70.6	58.6	111.1	174.5	95.6	43.7	51.5	60.0	55.2	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	



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

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







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	592	83.73	83.73
21 - 40	75	10.61	94.34
41 - 80	36	5.09	99.43
81 - 159	3	0.42	99.86
> 159	1	0.14	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  
Fort McKay - Bertha Ganter - October 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	43	41	16	9	6	7	6	39	92	62	46	50	44	63	46	19	589
21 - 40	16	8	0	1	2	1	2	8	13	3	5	0	0	0	8	6	73
11 - 80	10	1	0	0	0	0	1	1	8	5	0	4	0	0	2	4	36
81 - 159	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
> 159	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	72	50	16	10	8	8	9	48	113	70	51	54	44	63	56	30	702

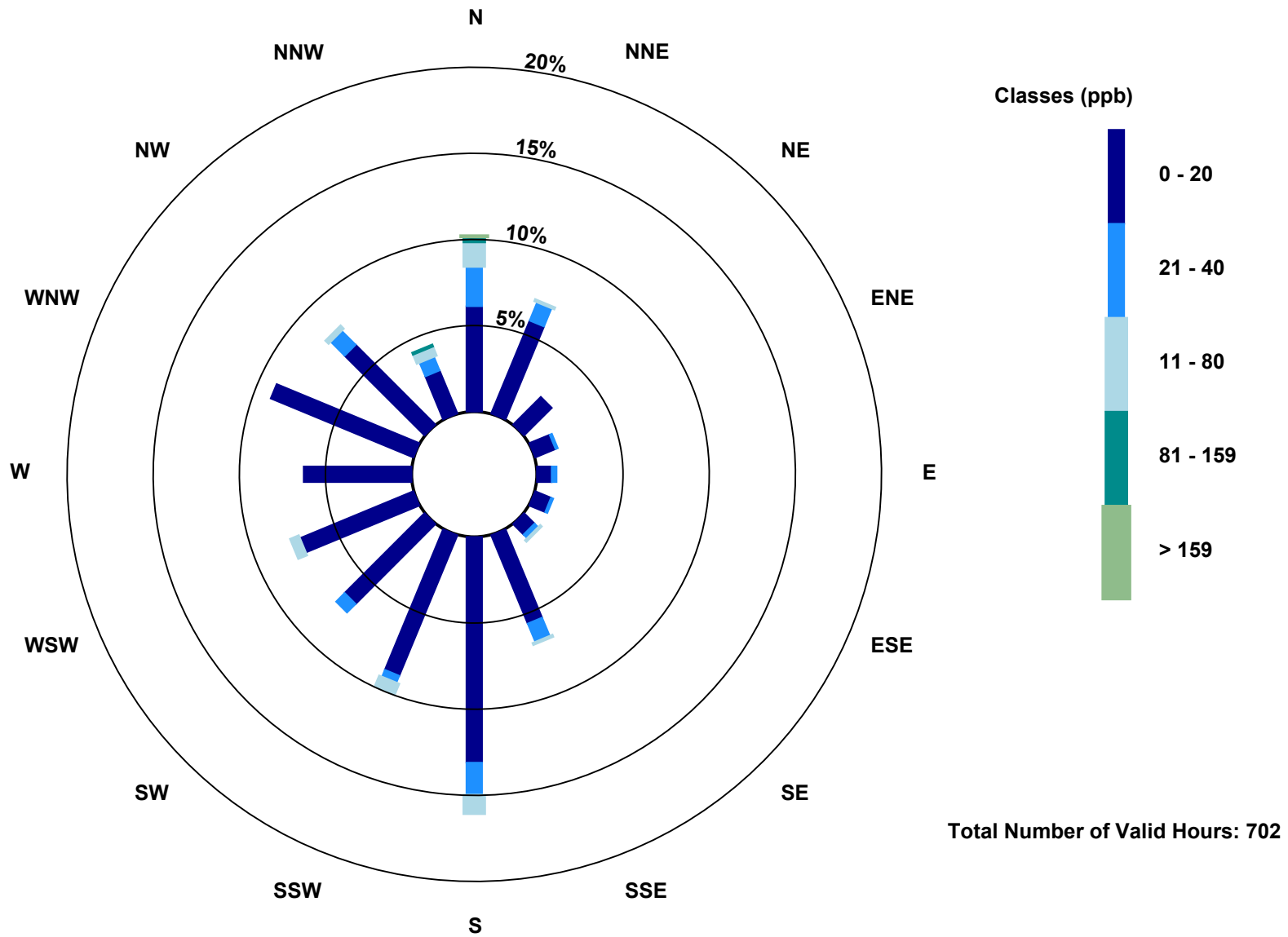
Total Number of Valid Hours: 702

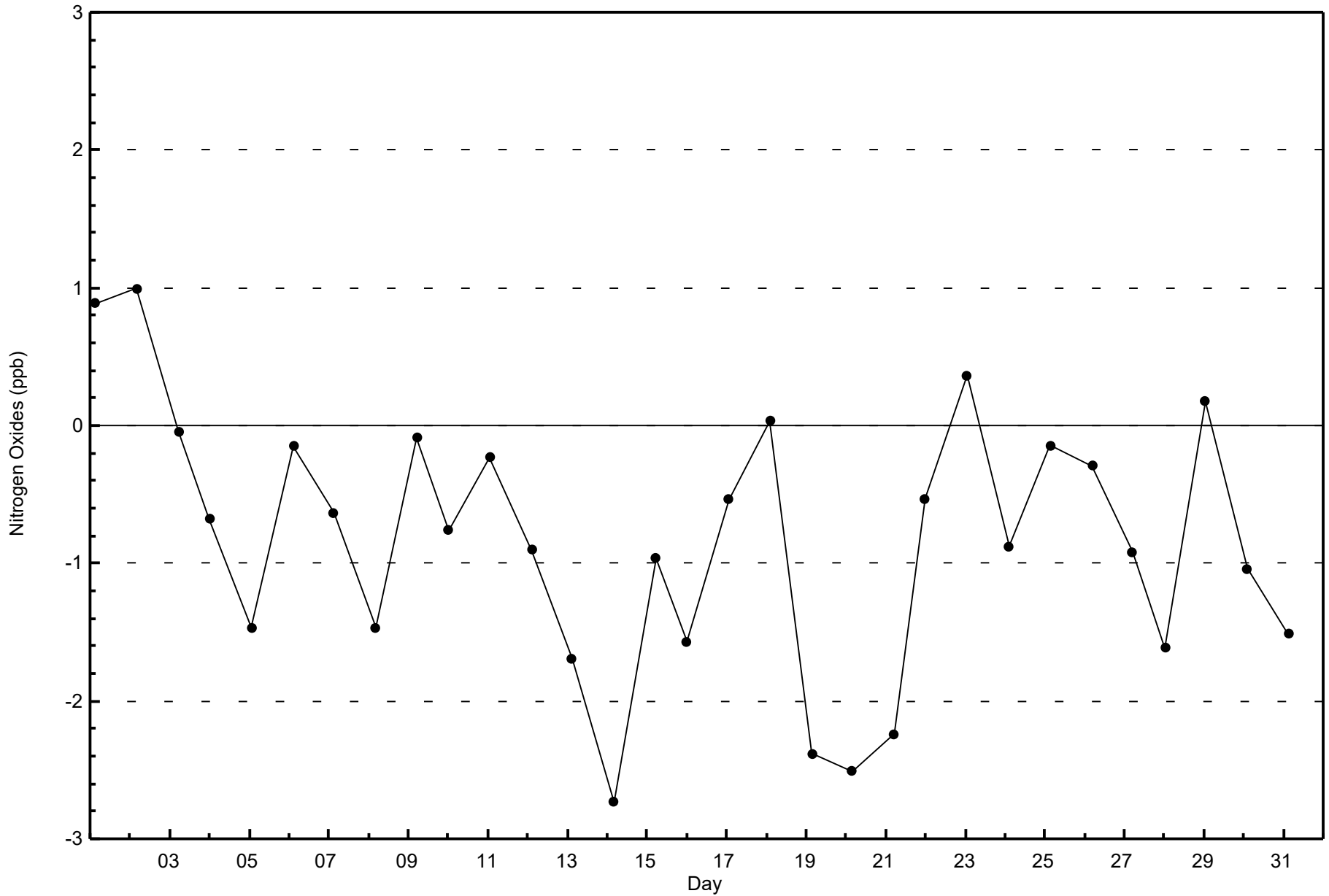
Total Number of Hours: 744

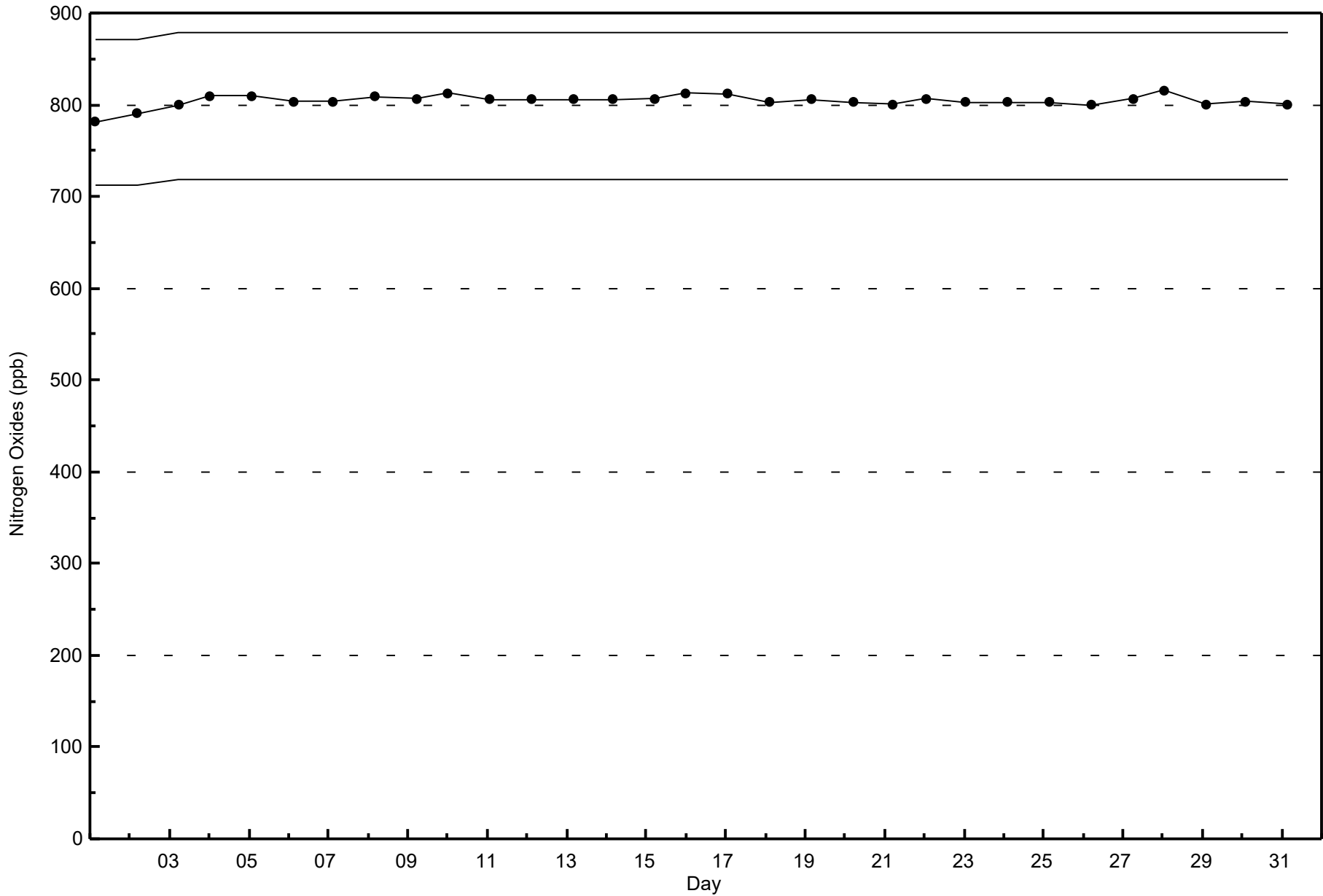


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

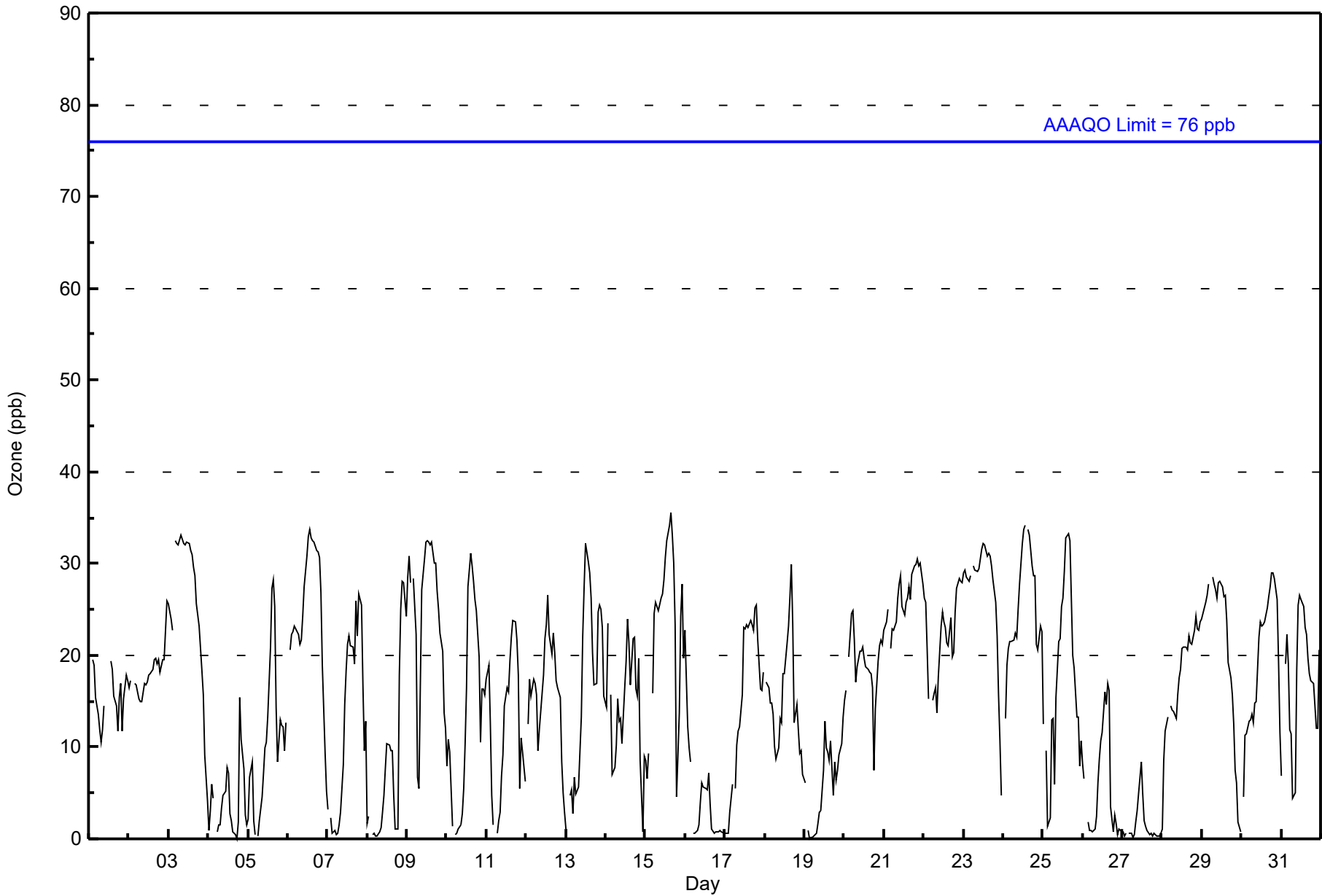
Fort McKay - Bertha Ganter - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 35.5 ppb on Oct 15 16:00	Maximum Daily Average: 26.8 ppb on Oct 23		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 4 18:00	Minimum Daily Average: 1.5 ppb on Oct 27		Hours of Missing Data:	35
Maximum Diurnal Average: 22.1 ppb at hour 14	Minimum Diurnal Average: 11.1 ppb at hour 8		Hours of Calibration:	34
Monthly Average: 16.23 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 8.1 Median = 16.9 Q <sub>3</sub> = 23.9 P <sub>90</sub> = 29.0 P <sub>99</sub> = 33.2		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-Oct	22.0	Z	19.6	18.9	15.3	13.5	11.9	10.6	12.0	14.5	C	C	C	19.4	18.5	15.6	14.4	11.7	15.4	17.0	11.7	15.2	17.9	17.3	15.6	22.0
2-Oct	16.5	17.3	Z	16.9	16.8	16.1	15.3	14.9	15.0	16.9	16.8	17.1	17.8	18.0	18.4	19.6	19.7	19.1	19.6	18.2	19.6	19.5	22.7	26.0	18.2	26.0
3-Oct	25.6	23.9	22.8	Z	32.6	32.2	32.1	33.1	32.6	32.3	32.0	32.3	32.2	31.4	30.9	29.5	28.7	25.6	23.1	20.8	18.3	15.7	9.1	4.1	26.1	33.1
4-Oct	0.9	3.0	5.9	4.5	Z	0.7	1.5	1.6	3.3	4.8	5.1	7.7	7.1	2.7	1.9	0.8	0.4	0.0	1.8	15.4	10.9	7.6	2.6	1.5	4.0	15.4
5-Oct	2.2	6.7	8.4	2.0	0.4	Z	0.3	2.0	4.5	7.2	9.9	10.5	13.2	20.9	27.2	28.3	25.3	14.4	8.3	12.9	12.4	12.2	9.6	12.6	10.9	28.3
6-Oct	Z	20.7	22.3	22.5	23.2	22.9	22.2	21.3	21.7	24.2	27.4	30.8	32.9	33.7	32.8	32.5	32.3	31.5	31.3	30.7	26.8	18.8	9.3	5.2	25.1	33.7
7-Oct	3.3	Z	2.3	0.6	0.9	0.5	0.7	1.5	2.8	8.1	14.6	18.3	21.2	22.1	21.0	20.9	19.1	25.9	22.1	26.7	25.5	16.8	9.6	12.8	12.9	26.7
8-Oct	1.6	2.4	Z	0.4	0.5	0.3	0.3	0.8	1.3	2.8	4.8	7.7	10.3	10.2	9.6	9.5	4.8	1.0	1.1	17.8	25.0	28.0	27.8	24.2	8.4	28.0
9-Oct	28.5	30.8	27.9	Z	28.3	22.3	6.7	5.5	16.7	27.2	30.6	32.3	32.4	32.4	32.1	32.4	30.1	30.1	27.0	25.1	22.4	20.5	13.8	12.1	24.7	32.4
10-Oct	7.9	10.8	9.5	1.3	Z	0.5	0.6	1.0	1.6	2.7	5.5	10.4	16.5	27.5	31.1	29.7	28.1	26.0	24.8	19.8	10.5	16.4	16.3	15.8	13.7	31.1
11-Oct	17.5	18.9	12.6	4.7	1.6	Z	0.7	2.0	2.9	6.9	9.2	14.5	16.5	16.1	19.4	22.0	23.8	23.7	21.7	17.8	5.5	11.0	9.5	6.3	12.4	23.8
12-Oct	Z	12.5	17.4	15.6	17.4	16.9	15.8	9.6	11.9	13.8	17.9	21.9	23.4	26.6	22.3	20.2	22.4	20.2	17.3	16.5	15.4	8.5	5.0	3.0	16.1	26.6
13-Oct	1.1	Z	4.7	5.3	2.7	6.7	4.9	5.6	9.5	13.3	22.0	27.4	32.2	30.2	29.0	26.2	20.3	16.8	16.9	24.8	25.5	25.1	23.1	15.5	16.9	32.2
14-Oct	14.4	23.6	Z	15.7	7.0	7.8	10.2	15.2	12.8	13.2	10.3	16.5	19.3	24.0	21.3	16.8	21.9	22.0	16.3	15.5	19.7	8.6	0.7	9.0	14.9	24.0
15-Oct	8.5	6.6	9.3	Z	15.8	24.6	25.8	25.3	24.8	26.3	26.6	28.2	30.7	32.6	34.1	35.5	33.1	30.0	23.3	4.5	13.8	24.2	27.8	19.7	23.1	35.5
16-Oct	22.7	12.2	9.9	8.4	Z	0.6	0.6	0.9	1.5	4.0	6.0	5.7	5.4	5.4	7.1	3.9	1.0	0.6	0.8	0.8	0.8	1.0	0.8	0.6	4.4	22.7
17-Oct	0.6	0.6	0.7	2.8	5.9	Z	5.5	10.2	11.7	12.2	15.7	23.0	22.9	23.4	23.0	23.7	23.4	22.7	25.2	25.5	21.7	16.4	16.2	18.2	15.3	25.5
18-Oct	Z	17.1	16.5	14.7	14.8	13.6	10.1	8.7	9.9	13.2	12.7	18.1	18.0	21.3	23.2	26.5	29.8	23.5	12.7	14.7	11.9	9.3	9.5	7.0	15.5	29.8
19-Oct	6.1	Z	0.9	0.0	0.1	0.1	0.4	0.6	1.7	3.0	3.1	7.5	12.8	9.8	9.5	8.6	10.7	4.8	8.5	6.5	7.4	9.2	10.4	13.2	5.9	13.2
20-Oct	15.1	16.2	Z	19.9	24.5	24.9	21.6	17.0	18.8	20.4	20.4	20.8	19.7	18.8	18.4	18.1	18.0	16.5	7.4	14.1	19.3	21.1	21.7	21.2	18.9	24.9
21-Oct	22.7	23.7	25.1	Z	20.7	22.8	22.8	23.6	26.2	27.7	28.7	25.3	24.5	25.7	26.2	27.5	26.0	28.8	29.8	29.9	30.6	29.7	30.0	27.7	26.3	30.6
22-Oct	26.2	25.8	20.8	15.2	Z	15.1	15.8	16.4	13.8	17.7	23.2	24.8	23.7	23.1	21.4	21.1	24.1	19.8	20.2	24.7	27.4	28.4	28.1	27.9	21.9	28.4
23-Oct	29.0	29.3	28.6	28.1	28.7	Z	29.7	29.4	29.1	29.4	30.4	31.5	32.1	32.0	30.7	31.2	30.9	29.7	28.2	25.8	22.2	15.6	10.7	4.8	26.8	32.1
24-Oct	Z	13.1	19.0	20.7	21.5	21.5	21.6	22.4	21.9	25.0	27.8	32.2	33.7	34.2	M	33.7	33.2	29.8	28.7	28.7	21.2	20.5	23.1	22.6	25.3	34.2
25-Oct	12.5	Z	9.5	1.4	2.3	13.0	13.1	5.9	15.4	21.4	21.8	25.3	26.2	29.1	32.8	33.2	32.4	26.2	20.0	18.7	13.2	13.3	7.9	10.7	17.6	33.2
26-Oct	8.3	6.5	Z	1.8	1.0	0.9	0.8	1.1	2.5	6.1	8.7	10.7	11.6	16.0	14.7	16.9	16.1	3.5	0.7	2.5	1.7	0.5	1.0	0.9	5.9	16.9
27-Oct	0.8	0.3	0.5	Z	0.6	0.6	0.1	0.4	1.8	3.1	4.9	8.5	4.8	2.0	1.4	0.9	0.5	0.6	0.4	0.6	0.5	0.3	0.4	0.6	1.5	8.5
28-Oct	1.0	8.5	11.7	13.3	Z	14.6	14.0	13.9	13.2	15.7	17.5	18.4	20.7	20.9	20.9	20.6	22.1	21.3	21.2	22.7	24.2	22.9	22.8	23.7	17.6	24.2
29-Oct	23.9	25.2	25.8	26.6	27.7	Z	28.5	27.8	27.1	26.2	27.9	28.1	27.4	26.4	26.6	23.8	19.3	17.5	15.8	12.6	7.4	6.0	1.9	0.8	20.9	28.5
30-Oct	Z	4.7	11.3	11.5	12.8	13.0	13.5	12.6	14.7	14.9	21.9	23.6	23.2	23.3	23.6	25.1	26.4	27.4	29.0	29.0	28.3	26.1	19.4	11.6	19.4	29.0
31-Oct	6.9	Z	19.0	22.3	19.0	12.0	11.4	4.4	5.1	18.5	25.5	26.6	26.1	25.3	23.1	22.3	19.6	18.0	17.3	16.9	14.5	12.1	12.1	20.5	17.3	26.6

12.5	14.4	13.9	11.4	13.2	12.2	11.6	11.1	12.5	15.2	17.6	20.2	21.3	22.1	21.7	21.8	21.2	19.0	17.3	18.0	16.6	15.5	13.6	12.8	Diurnal Average	
29.0	30.8	28.6	28.1	32.6	32.2	32.1	33.1	32.6	32.3	32.0	32.3	33.7	34.2	34.1	35.5	33.2	31.5	31.3	30.7	30.6	29.7	30.0	27.9	Diurnal Maximum	

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	430	60.65	60.65
21 - 50	279	39.35	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 - Bertha Ganter - October 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	60	37	11	7	3	5	6	31	88	44	21	13	12	27	37	25	427
21 - 50	13	12	4	1	6	3	3	16	25	26	29	42	34	35	25	3	277
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>	73	49	15	8	9	8	9	47	113	70	50	55	46	62	62	28	704

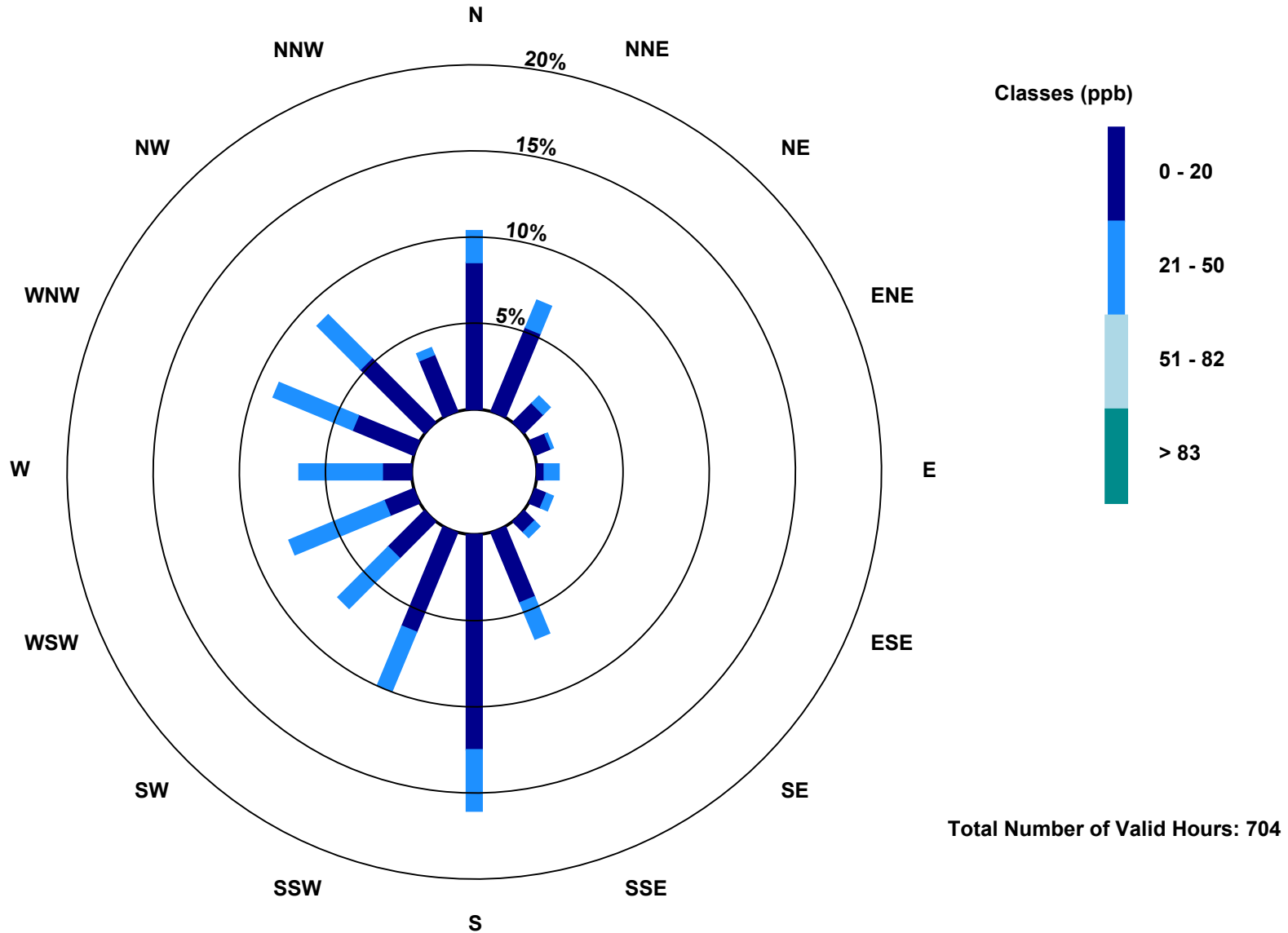
Total Number of Valid Hours: 704

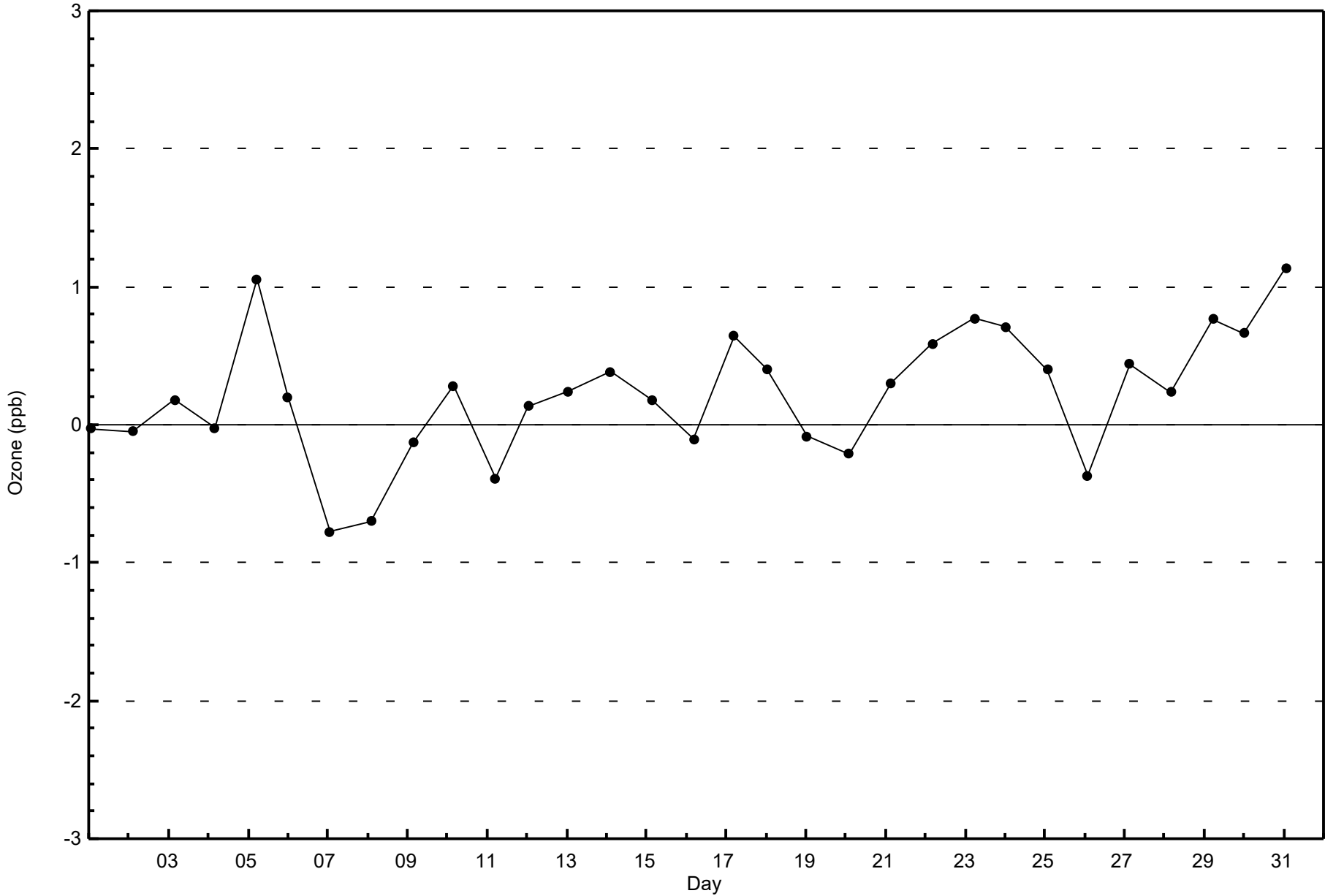
Total Number of Hours: 744

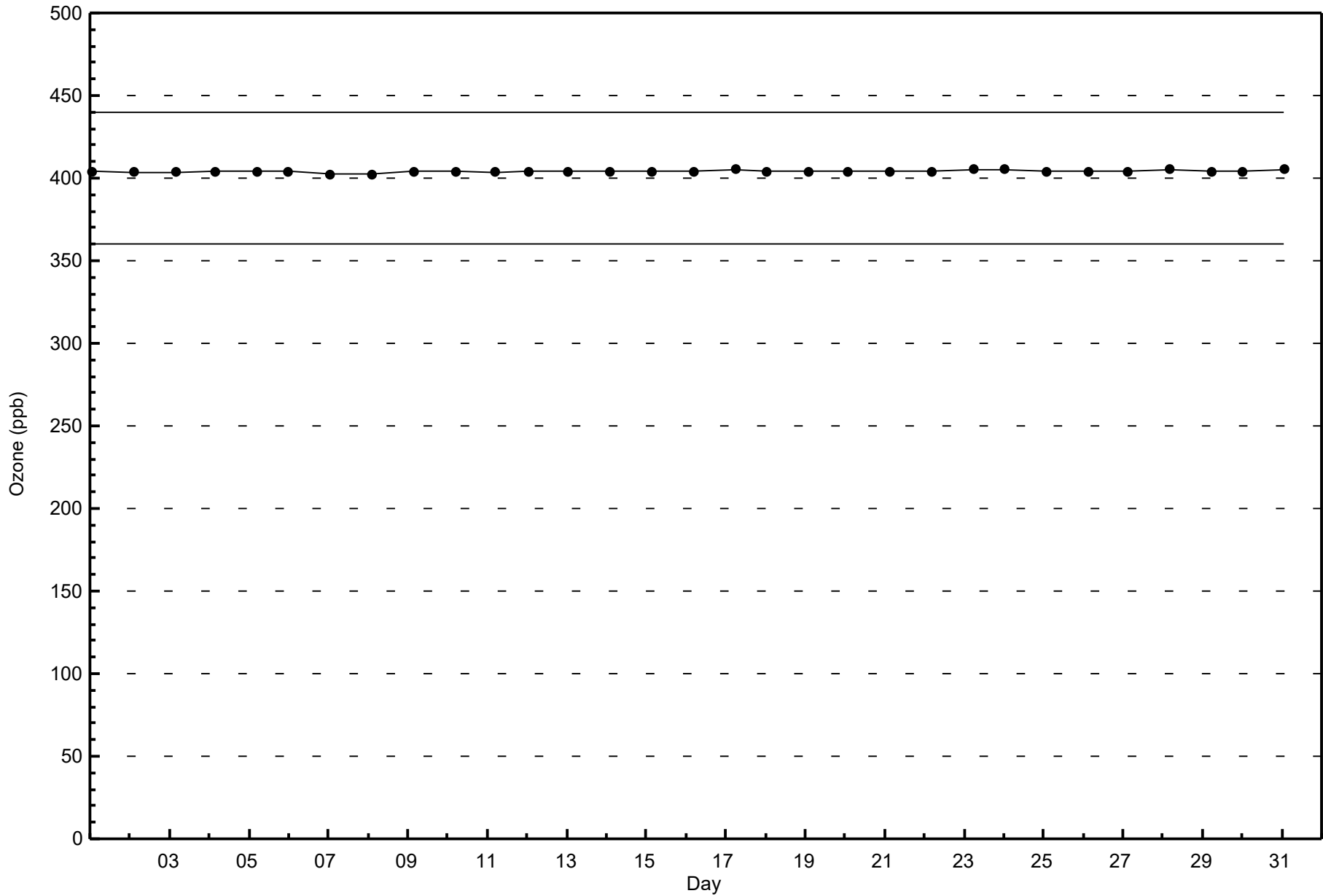


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Ozone ( $O_3$ ) - 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>

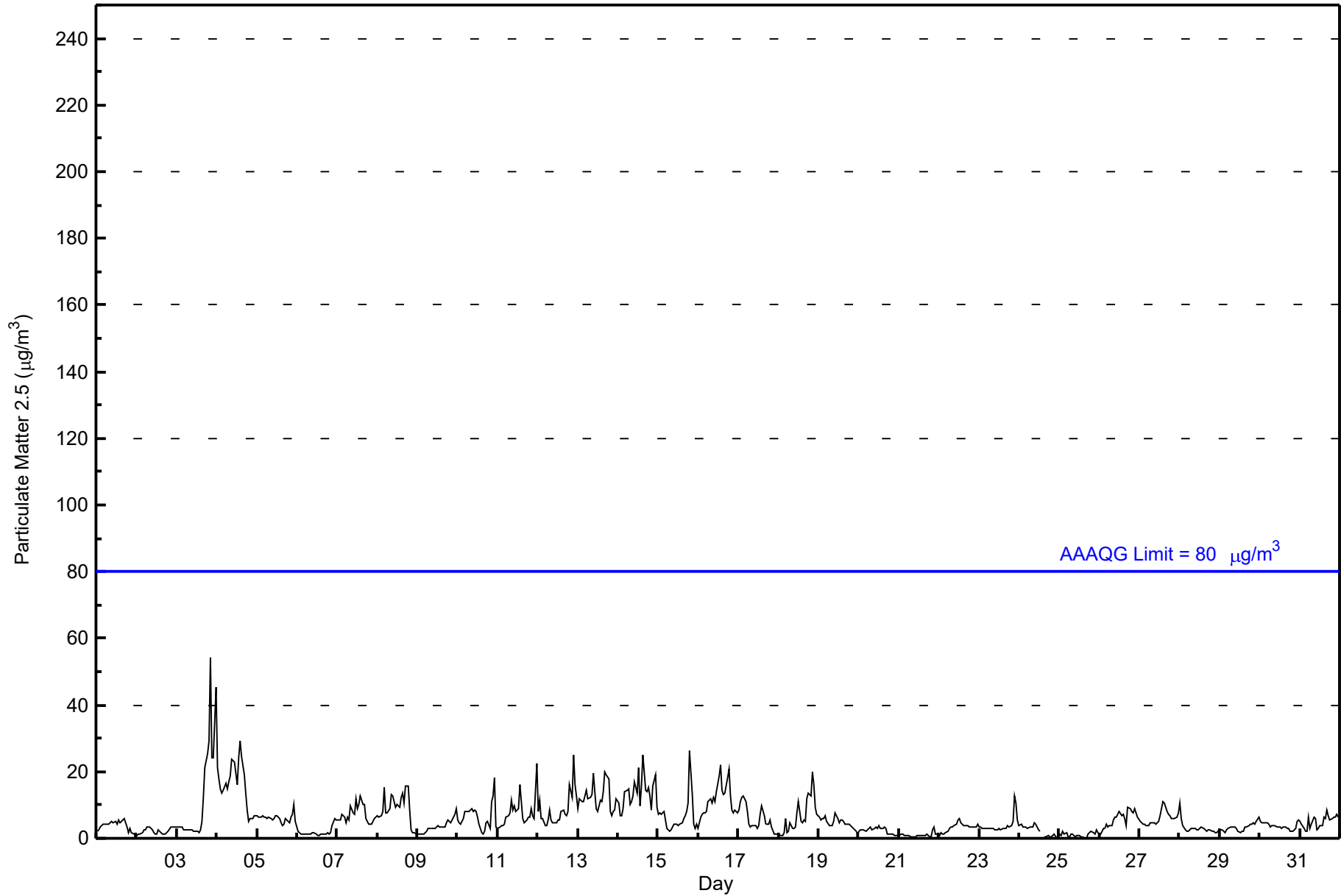
## Fort McKay - Bertha Ganter - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																Daily Average		Daily Maximum																									
Maximum Value: 54.2 µg/m <sup>3</sup> on Oct 3 21:00		Maximum Daily Average: 15.8 µg/m <sup>3</sup> on Oct 4		Hours of Data: 742																Hours of Missing Data: 2		Hours of Calibration: 2		Percent Operational Time: 100.0																									
Minimum Value: 0.1 µg/m <sup>3</sup> on Oct 24 23:00		Minimum Daily Average: 1.0 µg/m <sup>3</sup> on Oct 21		Hours of Missing Data: 2																Hours of Calibration: 2		Percent Operational Time: 100.0																											
Maximum Diurnal Average: 7.2 µg/m <sup>3</sup> at hour 21		Minimum Diurnal Average: 4.6 µg/m <sup>3</sup> at hour 3		Hours of Calibration: 2																Hours of Calibration: 2		Percent Operational Time: 100.0																											
Monthly Average: 6.00 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 2.7 Median = 4.4 Q <sub>3</sub> = 7.6 P <sub>90</sub> = 12.7 P <sub>99</sub> = 24.8		Hours of Calibration: 2																Hours of Calibration: 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-Oct	2.1	2.6	3.2	3.8	4.1	4.2	4.1	4.3	4.7	4.9	4.5	5.0	4.4	5.5	4.5	5.0	5.9	4.6	3.2	1.9	2.9	1.9	1.1	1.0	3.7	5.9																							
2-Oct	1.0	1.2	1.3	1.6	2.4	2.7	3.2	3.4	3.5	2.4	1.9	1.4	1.3	2.5	1.7	1.1	1.4	1.4	1.7	2.2	3.3	3.2	3.4	3.5	2.2	3.5																							
3-Oct	3.4	3.4	3.3	3.3	2.7	2.6	2.6	2.7	2.7	2.4	2.1	2.1	2.2	1.8	2.3	5.1	12.2	21.1	25.6	29.3	54.2	24.3	24.2	45.5	11.7	54.2																							
4-Oct	21.3	17.6	14.6	13.5	14.4	16.3	15.0	16.8	18.8	23.8	22.7	19.4	16.0	24.3	29.4	24.4	19.0	13.4	8.4	5.2	5.9	6.0	6.6	6.7	15.8	29.4																							
5-Oct	6.9	6.5	6.2	6.9	6.5	6.4	6.1	6.2	6.0	5.7	5.8	7.0	6.9	6.1	4.8	3.9	4.1	5.8	5.3	4.7	6.3	7.3	10.2	5.3	6.1	10.2																							
6-Oct	2.3	1.8	1.2	1.2	1.2	1.4	1.4	1.4	1.5	1.9	1.6	1.3	1.0	1.0	1.1	1.1	1.2	1.2	1.6	1.2	1.9	3.9	5.7	5.4	1.8	5.7																							
7-Oct	5.3	5.4	5.6	7.1	6.4	4.8	6.3	5.5	9.7	7.7	7.4	12.0	9.0	10.2	12.7	10.0	10.2	6.1	4.9	4.4	4.4	4.9	6.0	6.3	7.2	12.7																							
8-Oct	6.9	6.4	6.8	7.9	15.3	7.6	7.8	8.8	13.1	12.7	11.1	9.2	10.0	9.4	12.3	13.7	10.5	15.8	15.8	8.5	2.4	1.7	1.5	1.4	9.0	15.8																							
9-Oct	1.2	1.2	1.2	1.3	1.4	2.1	2.9	2.9	3.2	2.8	2.9	3.3	3.7	3.5	3.4	3.5	3.6	4.8	5.3	5.0	4.9	6.5	7.1	8.8	3.6	8.8																							
10-Oct	5.5	4.7	4.4	6.1	8.1	8.2	7.9	8.1	8.8	8.2	8.6	8.0	6.4	4.1	1.8	1.5	2.1	4.8	4.9	2.9	10.8	12.5	18.3	3.6	6.7	18.3																							
11-Oct	2.8	3.3	4.0	3.9	4.4	6.2	6.9	7.6	11.5	8.5	9.8	8.1	8.8	16.1	10.8	6.1	4.7	5.5	6.2	6.2	9.0	6.7	6.0	22.6	7.7	22.6																							
12-Oct	8.0	11.4	5.8	5.8	4.0	3.9	5.5	8.6	5.4	4.5	4.7	4.7	5.6	5.3	7.9	8.3	7.3	6.9	8.2	16.1	12.2	25.0	16.2	12.9	8.5	25.0																							
13-Oct	9.0	11.7	11.2	11.1	12.7	14.2	11.8	12.2	12.9	19.4	13.9	9.0	7.9	11.3	11.1	14.0	19.8	19.0	17.8	7.9	6.8	8.1	8.6	12.0	12.2	19.8																							
14-Oct	10.4	6.9	6.9	9.0	14.1	14.5	14.9	10.1	11.2	12.6	16.8	13.5	21.0	9.8	15.9	25.1	14.2	13.8	15.4	12.5	8.6	15.8	19.1	9.5	13.4	25.1																							
15-Oct	7.4	7.6	7.4	7.8	5.6	2.9	2.4	2.1	2.6	4.4	4.1	4.1	4.0	4.4	4.7	5.9	6.9	8.1	10.6	26.2	12.9	4.2	2.8	4.2	6.4	26.2																							
16-Oct	3.2	6.5	7.3	7.8	7.8	8.2	10.8	12.0	10.5	12.4	10.8	14.1	18.5	21.9	14.4	13.2	13.5	18.1	20.6	12.8	8.3	7.8	8.3	7.6	11.5	21.9																							
17-Oct	8.5	11.1	12.3	12.9	11.2	8.1	4.4	3.6	4.0	3.7	3.6	3.1	3.7	7.4	9.9	6.7	4.1	4.0	4.2	5.4	3.3	1.1	1.1	1.4	5.8	12.9																							
18-Oct	1.3	1.0	0.9	1.5	5.9	1.7	2.3	4.7	2.8	2.8	3.2	7.7	10.8	5.2	4.7	5.5	5.0	11.7	13.5	12.9	19.7	16.0	9.2	7.0	6.5	19.7																							
19-Oct	6.3	5.7	5.9	5.7	6.8	5.3	4.0	3.9	3.8	5.1	7.6	5.9	4.9	5.6	5.7	5.0	4.3	4.1	4.1	3.9	3.5	2.8	2.2	1.4	4.7	7.6																							
20-Oct	2.1	2.5	2.4	2.4	2.3	2.4	2.8	3.2	2.5	3.1	3.2	3.1	3.8	3.0	3.2	3.4	3.1	1.3	1.4	1.2	1.1	1.0	0.9	0.9	2.3	3.8																							
21-Oct	1.0	1.1	1.1	1.0	0.8	0.7	0.7	0.6	0.4	0.4	0.5	0.7	0.8	0.9	0.7	0.7	0.7	1.2	0.5	0.5	2.5	3.2	1.3	1.1	1.0	3.2																							
22-Oct	0.9	1.5	1.1	1.3	1.6	2.3	3.0	3.3	3.6	3.8	4.4	5.5	6.0	4.8	4.4	4.0	3.7	3.7	3.5	3.3	3.3	3.5	3.5	4.0	3.3	6.0																							
23-Oct	3.6	3.2	3.2	3.1	3.1	2.9	2.9	2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.8	2.9	3.0	3.8	3.2	3.8	5.0	12.5	10.7	5.4	3.9	12.5																							
24-Oct	3.9	4.4	3.2	3.4	3.4	3.0	3.2	3.3	3.4	4.6	4.2	2.4	2.3	C	C	0.3	0.2	0.9	0.4	0.3	0.9	1.3	0.1	0.3	2.3	4.6																							
25-Oct	1.3	1.0	1.9	1.4	1.7	0.4	0.5	1.5	1.1	0.5	0.8	0.7	0.8	0.5	0.3	0.2	0.2	1.4	1.8	2.2	1.6	1.5	2.7	1.8	1.2	2.7																							
26-Oct	1.2	1.4	2.8	3.0	4.4	3.5	3.7	4.0	5.5	6.5	6.4	7.4	8.1	6.6	7.3	5.8	4.0	9.2	9.1	7.9	7.6	9.0	7.7	6.2	5.8	9.2																							
27-Oct	5.2	4.8	4.3	4.1	3.8	4.0	4.5	4.7	4.8	4.6	4.3	5.1	6.7	9.1	10.8	10.6	8.2	7.4	6.6	6.1	5.9	5.9	6.2	7.5	6.0	10.8																							
28-Oct	10.6	6.1	3.7	2.4	2.0	2.1	2.4	2.8	3.1	3.1	2.7	2.6	3.1	3.5	3.0	2.4	1.9	2.6	2.7	1.9	2.2	1.6	1.8	2.2	3.0	10.6																							
29-Oct	2.5	2.7	2.3	1.6	2.5	2.8	3.2	3.5	3.4	3.3	2.8	2.3	1.6	2.1	2.3	3.2	3.5	3.8	4.4	4.3	4.5	4.4	5.2	6.5	3.3	6.5																							
30-Oct	5.2	4.7	4.9	4.6	4.6	4.1	3.4	4.0	3.6	3.9	3.5	3.3	3.4	3.1	3.3	3.2	3.0	2.8	2.2	2.1	2.3	3.1	5.2	5.3	3.7	5.3																							
31-Oct	5.3	4.4	2.9	2.2	2.3	6.2	3.1	4.4	6.4	5.8	2.7	3.2	3.9	3.8	6.3	5.9	8.5	6.6	5.7	6.0	6.3	6.6	7.0	6.4	5.1	8.5																							
																								5.0	5.0	4.6	4.8	5.4	5.0	5.0	5.3	5.7	6.1	5.8	5.7	6.1	6.5	6.8	6.5	6.1	6.9	7.1	6.7	7.2	6.9	6.8	6.9	Diurnal Average	
																								21.3	17.6	14.6	13.5	15.3	16.3	15.0	16.8	18.8	23.8	22.7	19.4	21.0	24.3	29.4	25.1	19.8	21.1	25.6	29.3	54.2	25.0	24.2	45.5	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  
Hourly Averages

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort McKay - Bertha Ganter - October 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 - Bertha Ganter - October 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	447	60.24	60.24
6 - 15	250	33.69	93.94
16 - 25	39	5.26	99.19
26 - 80	6	0.81	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 - Bertha Ganter - October 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	43	36	12	6	5	6	1	13	31	44	31	46	40	60	57	14	445
6 - 15	25	13	3	4	3	2	8	32	72	25	17	9	6	5	9	15	248
16 - 25	7	1	1	0	1	0	0	4	14	6	2	1	0	0	0	1	38
26 - 80	1	0	0	0	0	0	0	0	2	0	2	0	1	0	0	0	6
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	76	50	16	10	9	8	9	49	119	75	52	56	47	65	66	30	737

Total Number of Valid Hours: 737

Total Number of Hours: 744





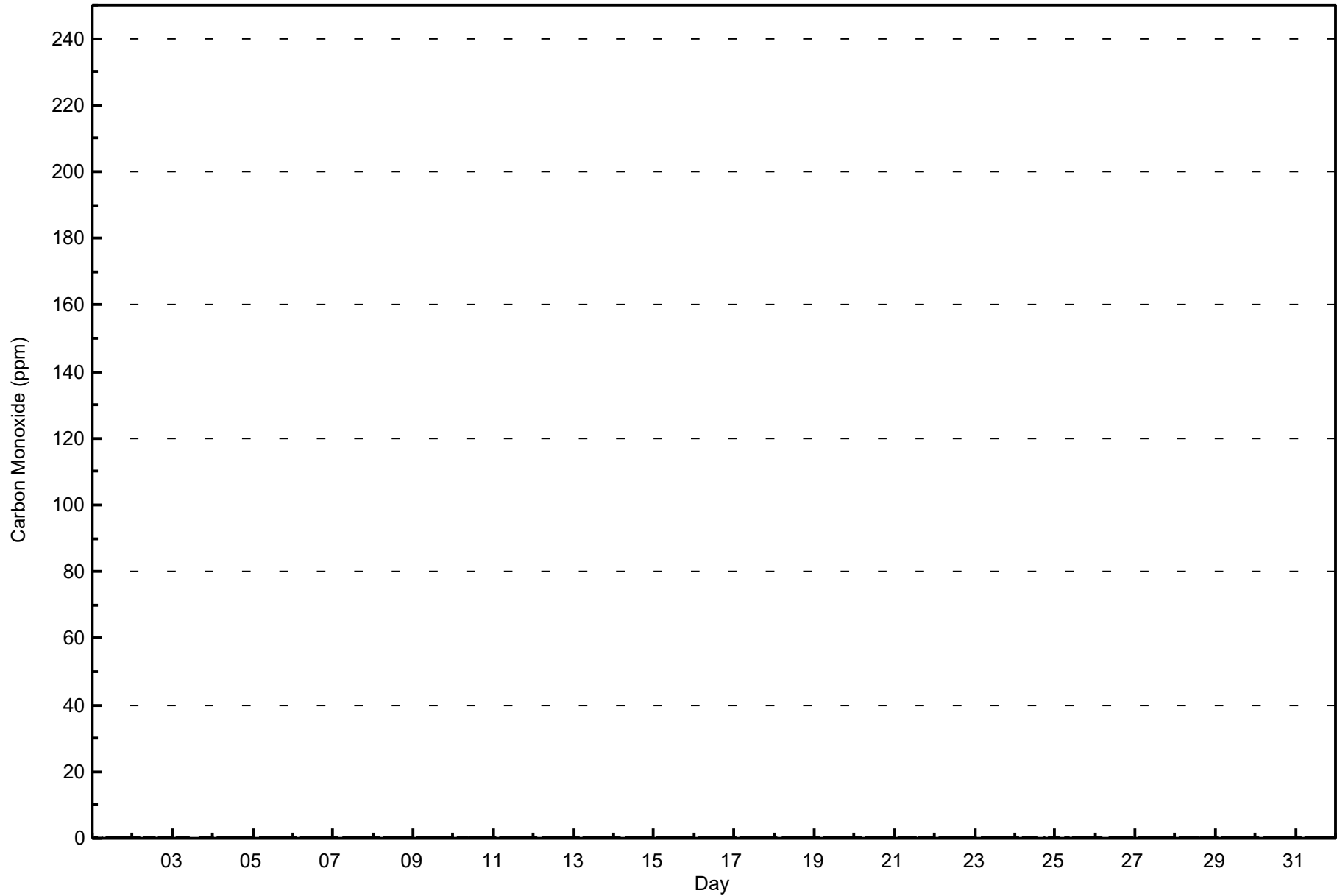


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																744																																																	
Maximum Value: 0.6 ppm on Oct 4 00:00		Maximum Daily Average: 0.4 ppm on Oct 8		Hours of Data: 709																709																																																			
Minimum Value: 0.2 ppm on Oct 3 15:00		Minimum Daily Average: 0.2 ppm on Oct 21		Hours of Missing Data: 35																35																																																			
Maximum Diurnal Average: 0.3 ppm at hour 19		Minimum Diurnal Average: 0.2 ppm at hour 3		Hours of Calibration: 34																34																																																			
Monthly Average: 0.27 ppm		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.4		Percent Operational Time: 99.9																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-Oct	0.2	0.2	0.2	0.2	Z	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	0.2	0.3	0.2	0.2	0.2	0.3	0.3																																													
2-Oct	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																																											
3-Oct	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	C	C	C	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.3	0.6																																										
4-Oct	0.3	Z	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
5-Oct	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
6-Oct	0.3	0.3	0.3	Z	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	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3																																										
7-Oct	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
8-Oct	0.3	0.3	0.3	0.3	0.4	Z	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5																																									
9-Oct	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
10-Oct	0.3	Z	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3																																										
11-Oct	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
12-Oct	0.3	0.3	0.3	Z	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3																																										
13-Oct	0.3	0.3	0.3	0.3	Z	0.3	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	0.3																																										
14-Oct	0.3	0.2	0.2	0.2	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
15-Oct	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
16-Oct	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
17-Oct	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																																										
18-Oct	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
19-Oct	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
20-Oct	0.3	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																																										
21-Oct	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																																										
22-Oct	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	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																																										
23-Oct	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
24-Oct	0.3	0.3	0.2	Z	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	M	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2																																										
25-Oct	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2																																										
26-Oct	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	0.3	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																																										
27-Oct	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	0.3	0.3	0.3																																										
28-Oct	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
29-Oct	0.3	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																																										
30-Oct	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3																																										
31-Oct	0.3	0.3	0.3	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3																																										
																								0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																			
																								0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	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	0.6	0.6	0.6																			
Z - zerospan																								C - Calibration																								M - Maintenance																							
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																																																																							



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	686	96.76	96.76
0.4 - 0.5	22	3.10	99.86
0.6 - 0.7	1	0.14	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 McKay - Bertha Ganter - October 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	71	49	16	9	9	7	8	44	108	65	50	51	45	60	60	29	681
0.4 - 0.5	1	1	0	0	0	1	1	5	5	4	1	1	0	1	0	1	22
0.6 - 0.7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
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>	72	50	16	9	9	8	9	49	114	69	51	52	45	61	60	30	704

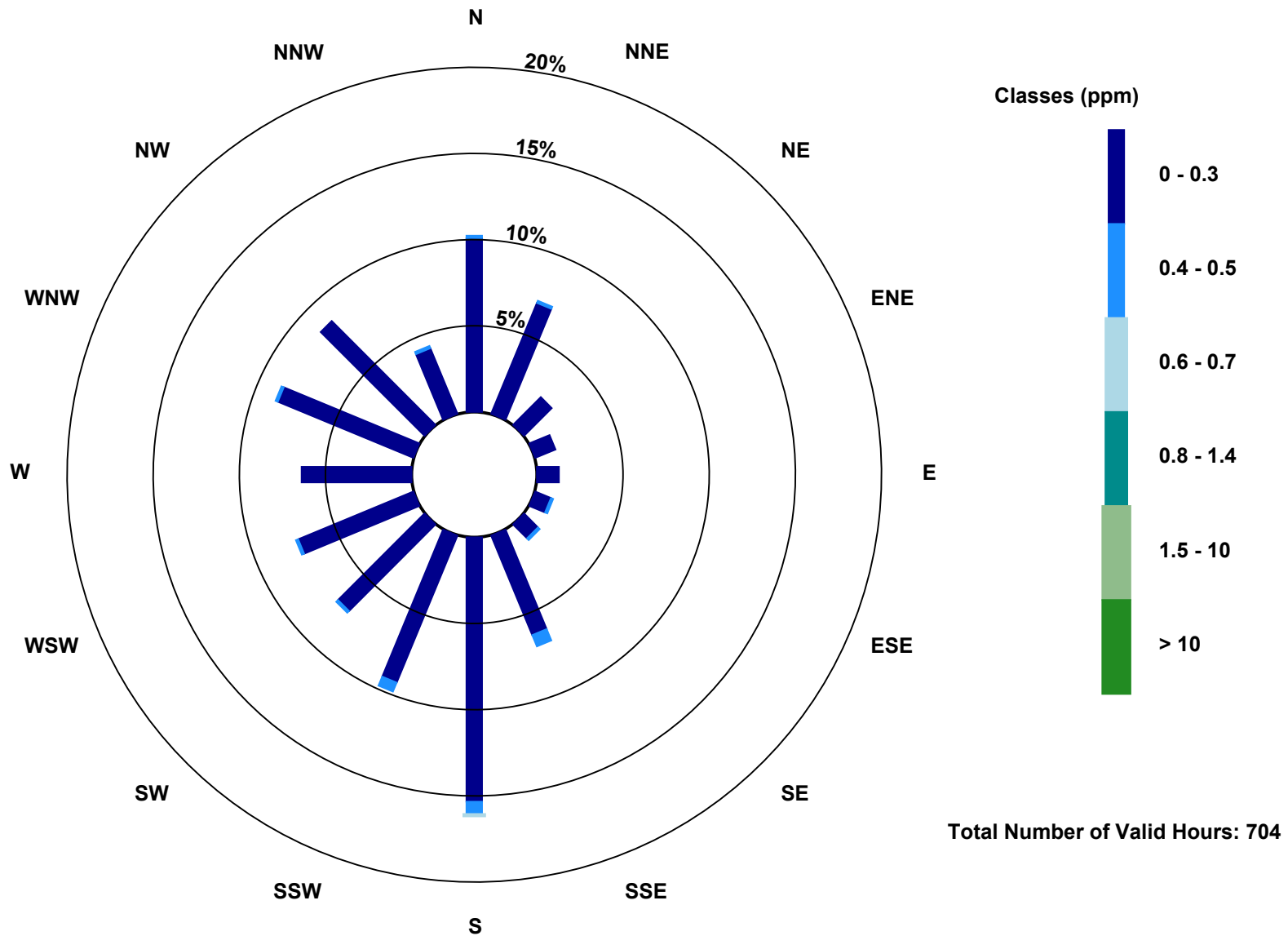
Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



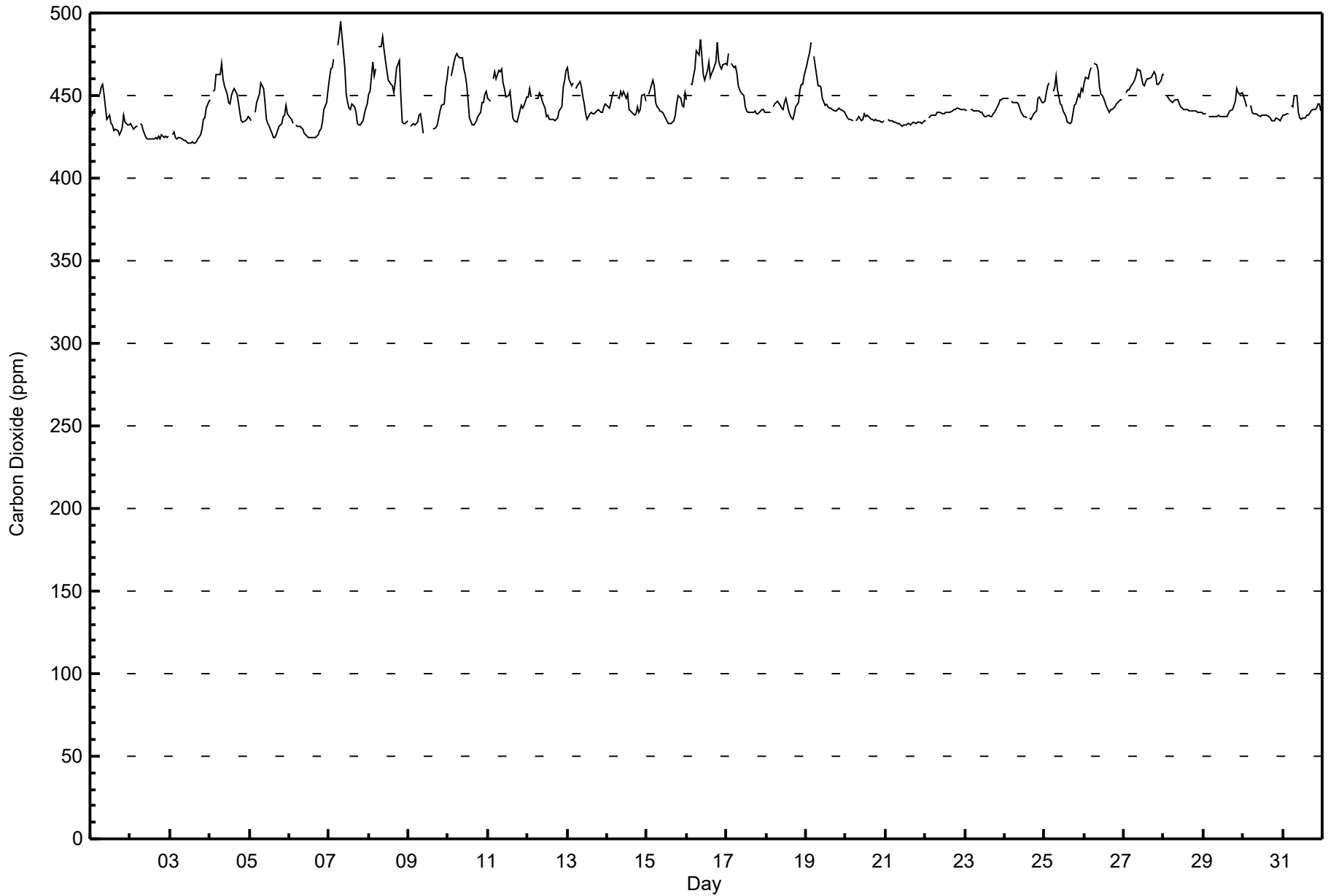


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744					
Maximum Value: 494.6 ppm on Oct 7 08:00		Maximum Daily Average: 467.1 ppm on Oct 16																	Hours of Data:	707						
Minimum Value: 421.3 ppm on Oct 3 15:00		Minimum Daily Average: 426.7 ppm on Oct 3																	Hours of Missing Data:	37						
Maximum Diurnal Average: 452.1 ppm at hour 8		Minimum Diurnal Average: 437.8 ppm at hour 16																	Hours of Calibration:	36						
Monthly Average: 444.42 ppm		Percentiles: P <sub>1</sub> = 422.9 P <sub>10</sub> = 431.5 Q <sub>1</sub> = 436.1 Median = 441.2 Q <sub>3</sub> = 451.1 P <sub>90</sub> = 462.9 P <sub>99</sub> = 480.3																	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-Oct	437.4	439.4	441.1	441.2	Z	451.1	454.9	456.8	450.8	443.0	435.8	437.7	433.1	432.4	429.2	429.7	428.8	426.4	427.9	430.3	438.3	434.1	431.9	432.3	437.6	456.8
2-Oct	433.3	431.1	429.4	431.1	431.1	Z	432.8	432.1	429.0	424.8	424.0	423.7	423.8	423.9	423.9	424.3	424.0	425.1	424.1	426.1	424.4	425.4	424.3	425.2	426.8	433.3
3-Oct	Z	426.1	428.1	424.6	424.1	424.4	424.5	423.6	423.3	422.8	422.1	421.4	421.6	421.8	421.3	421.5	422.2	423.8	426.1	429.7	435.8	436.8	442.4	446.5	426.7	446.5
4-Oct	447.7	Z	452.4	453.5	462.5	463.0	462.8	469.9	460.3	456.0	450.9	445.9	445.3	449.7	452.5	454.3	451.0	445.6	439.7	435.0	434.2	434.6	435.9	437.1	449.6	469.9
5-Oct	436.5	434.9	Z	440.0	445.8	448.2	451.0	457.3	454.7	445.6	435.5	432.8	431.1	426.8	424.3	424.5	426.1	429.2	431.4	432.7	437.1	438.3	444.4	439.0	437.7	457.3
6-Oct	436.6	435.8	433.2	Z	431.9	431.2	431.0	430.7	429.5	427.3	425.9	424.9	424.3	424.4	424.5	424.7	424.9	426.3	428.7	429.3	434.3	441.8	446.1	453.6	431.3	453.6
7-Oct	460.3	465.9	466.8	471.7	Z	480.4	486.6	494.6	485.4	467.2	451.1	445.9	442.7	441.6	444.8	442.8	439.4	432.8	431.9	432.2	434.9	439.0	442.3	444.7	454.1	494.6
8-Oct	451.1	452.5	470.1	461.5	466.4	Z	479.6	479.5	485.3	477.8	471.3	465.2	459.7	456.7	455.8	451.9	458.3	466.5	471.2	450.3	434.1	432.7	433.0	435.1	459.4	485.3
9-Oct	Z	431.4	432.4	432.6	432.2	434.2	437.7	438.6	434.1	426.9	C	C	C	C	C	429.3	430.8	432.3	436.6	440.5	444.3	444.7	455.2	460.4	437.5	460.4
10-Oct	467.9	Z	462.3	470.0	473.8	475.8	473.6	473.1	472.5	465.7	462.8	456.6	447.5	436.3	432.4	432.1	433.5	435.0	437.3	439.5	445.6	445.6	450.5	452.5	454.0	475.8
11-Oct	448.5	446.8	Z	460.2	464.3	460.2	465.1	464.4	466.2	457.7	454.2	449.4	450.4	452.4	443.9	436.1	434.7	434.2	437.0	441.0	444.5	442.6	444.4	449.0	449.9	466.2
12-Oct	449.3	454.6	448.7	Z	448.2	448.7	448.6	452.1	449.6	446.7	442.2	437.5	438.4	435.6	435.8	435.8	434.9	435.5	436.4	440.7	442.8	455.3	459.7	464.9	445.3	464.9
13-Oct	467.0	459.9	455.7	457.3	Z	454.2	455.7	458.8	455.2	448.8	444.5	438.9	435.5	438.6	439.8	438.6	438.7	439.9	441.3	440.8	440.0	443.4	445.1	446.8	446.8	467.0
14-Oct	443.1	442.7	445.6	449.9	452.4	Z	449.4	448.1	452.2	449.9	452.6	448.2	451.0	441.9	440.5	439.7	438.1	439.0	442.9	439.9	441.8	449.8	451.0	447.0	445.9	452.6
15-Oct	Z	450.9	453.0	459.0	455.7	445.7	443.4	442.4	441.1	439.5	437.8	436.0	434.3	433.4	433.1	433.5	434.7	438.0	445.3	450.4	447.9	443.9	443.2	451.5	443.2	459.0
16-Oct	447.3	Z	456.8	456.9	462.3	466.4	476.8	474.3	484.1	473.4	462.7	459.2	464.8	470.7	461.2	463.6	465.7	470.2	481.9	471.3	468.0	466.3	468.8	469.7	467.1	484.1
17-Oct	468.9	475.1	Z	469.3	466.7	468.2	463.3	456.1	453.2	451.9	449.7	443.1	440.9	439.6	439.9	439.7	439.4	440.5	439.3	439.0	439.8	441.6	441.1	439.8	449.9	475.1
18-Oct	439.4	439.5	439.8	Z	443.2	444.5	445.6	446.4	443.9	442.4	441.5	445.7	448.3	440.7	438.0	436.3	435.2	438.7	443.2	445.7	453.4	456.9	457.1	462.2	444.7	462.2
19-Oct	468.4	473.3	476.4	481.8	Z	473.9	461.7	456.0	455.7	455.3	448.1	444.5	444.7	443.6	442.8	442.6	441.7	440.3	440.5	441.7	442.8	441.9	440.4	440.1	452.1	481.8
20-Oct	438.0	436.5	435.7	435.5	434.4	Z	434.6	435.4	437.0	434.7	435.3	438.6	437.5	438.0	436.2	435.4	435.3	435.0	435.6	435.1	434.7	433.7	434.0	435.1	435.7	438.6
21-Oct	Z	435.6	435.0	434.8	434.7	433.8	433.9	433.4	432.7	432.1	431.6	432.3	432.6	432.7	432.6	432.1	433.0	434.1	433.1	433.8	433.6	433.8	433.4	434.3	433.4	435.6
22-Oct	434.7	Z	436.4	437.5	438.0	438.4	438.4	439.6	439.6	439.9	438.9	438.8	439.6	439.5	439.5	440.2	440.5	441.6	441.9	442.0	442.0	441.9	441.9	441.7	439.7	442.0
23-Oct	441.4	440.9	Z	441.1	441.2	440.9	440.7	440.9	440.4	439.9	439.7	438.3	437.7	437.5	437.8	437.5	437.7	438.6	440.1	443.0	444.9	447.1	447.0	447.9	441.0	447.9
24-Oct	447.9	448.4	447.9	Z	446.3	445.8	445.7	445.4	445.1	442.2	439.6	437.4	437.1	436.8	M	436.5	436.0	439.0	439.7	440.5	448.4	449.1	445.5	445.9	443.0	449.1
25-Oct	446.9	451.7	456.3	457.2	Z	452.9	454.9	461.9	453.3	445.1	443.8	440.7	439.3	436.9	433.6	433.4	433.7	439.3	444.5	445.3	450.5	449.5	454.0	452.7	446.8	461.9
26-Oct	457.4	461.2	460.3	464.7	466.9	Z	469.5	469.0	465.4	455.2	451.1	450.4	448.7	443.2	441.1	439.7	441.2	441.7	443.3	444.5	445.8	446.9	447.2	447.9	452.3	469.5
27-Oct	Z	451.8	453.6	453.4	455.3	457.4	459.0	461.6	466.4	465.4	465.2	456.5	455.5	458.3	460.1	460.0	461.2	462.9	464.5	462.8	456.7	456.5	459.3	462.8	459.4	466.4
28-Oct	463.1	Z	449.7	447.7	446.9	446.2	446.6	447.1	447.3	445.1	443.1	442.2	441.6	441.5	441.6	441.0	440.8	440.9	440.9	440.5	439.7	440.0	440.1	439.5	444.1	463.1
29-Oct	439.3	438.9	Z	437.6	437.3	437.1	437.0	437.2	437.5	437.8	437.1	436.9	437.0	437.5	437.7	439.1	440.5	441.4	443.9	446.9	454.2	451.9	451.1	451.7	441.2	454.2
30-Oct	449.4	447.0	443.2	Z	444.2	439.5	438.8	439.3	438.7	438.1	437.4	438.2	438.4	438.3	438.2	437.7	436.1	435.0	434.5	435.0	436.6	435.7	435.1	436.2	438.7	449.4
31-Oct	438.0	438.2	438.8	438.6	Z	444.1	442.9	449.6	450.2	440.0	436.2	435.6	436.3	436.6	438.5	438.2	439.4	440.7	441.2	441.4	442.8	444.5	445.2	440.3	440.8	450.2
448.4 446.5 448.0 450.3 448.2 450.2 451.2 452.1 451.0 446.4 443.7 441.4 440.6 439.6 438.6 437.8 438.0 439.0 440.8 440.9 442.4 443.3 444.8 446.2																								Diurnal Average		
468.9 475.1 476.4 481.8 473.8 480.4 486.6 494.6 485.4 477.8 471.3 465.2 464.8 470.7 461.2 463.6 465.7 470.2 481.9 471.3 468.0 466.3 468.8 469.7																								Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																				



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

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







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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort McKay - Bertha Ganter - October 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	327	46.25	46.25
440 - 460	292	41.30	87.55
460 - 480	81	11.46	99.01
480 - 500	7	0.99	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

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

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
400 - 420	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
420 - 440	27	33	11	7	6	4	4	10	35	24	26	29	25	43	36	7	327
440 - 460	33	17	5	2	2	4	3	33	59	33	20	14	18	17	17	14	291
460 - 480	11	0	0	0	1	0	2	6	18	12	3	5	3	2	7	9	79
480 - 500	1	0	0	0	0	0	0	0	2	0	1	2	0	0	1	0	7
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	72	50	16	9	9	8	9	49	114	69	50	50	46	62	61	30	704

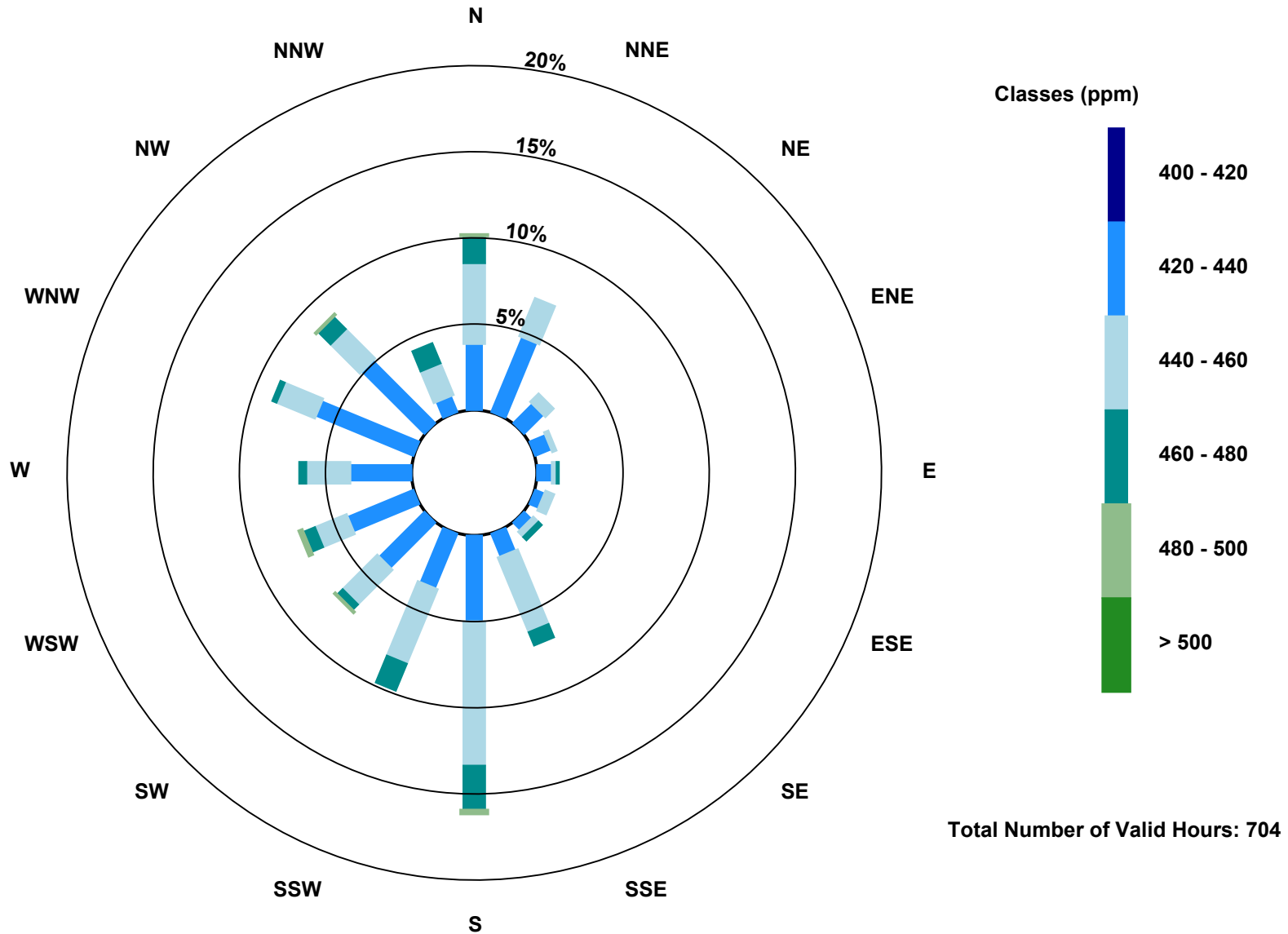
Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744	
Maximum Value: 0.0 ppb on Oct 1 01:00		Maximum Daily Average: 0.0 ppb on Oct 1	
Minimum Value: 0.0 ppb on Oct 1 01:00		Hours of Data: 669	
Maximum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 75	
Monthly Average: 0.00 ppb		Hours of Calibration: 43	
Minimum Daily Average: 0.0 ppb on Oct 1		Percent Operational Time: 95.7	
Minimum Diurnal Average: 0.0 ppb at hour 1		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.0	

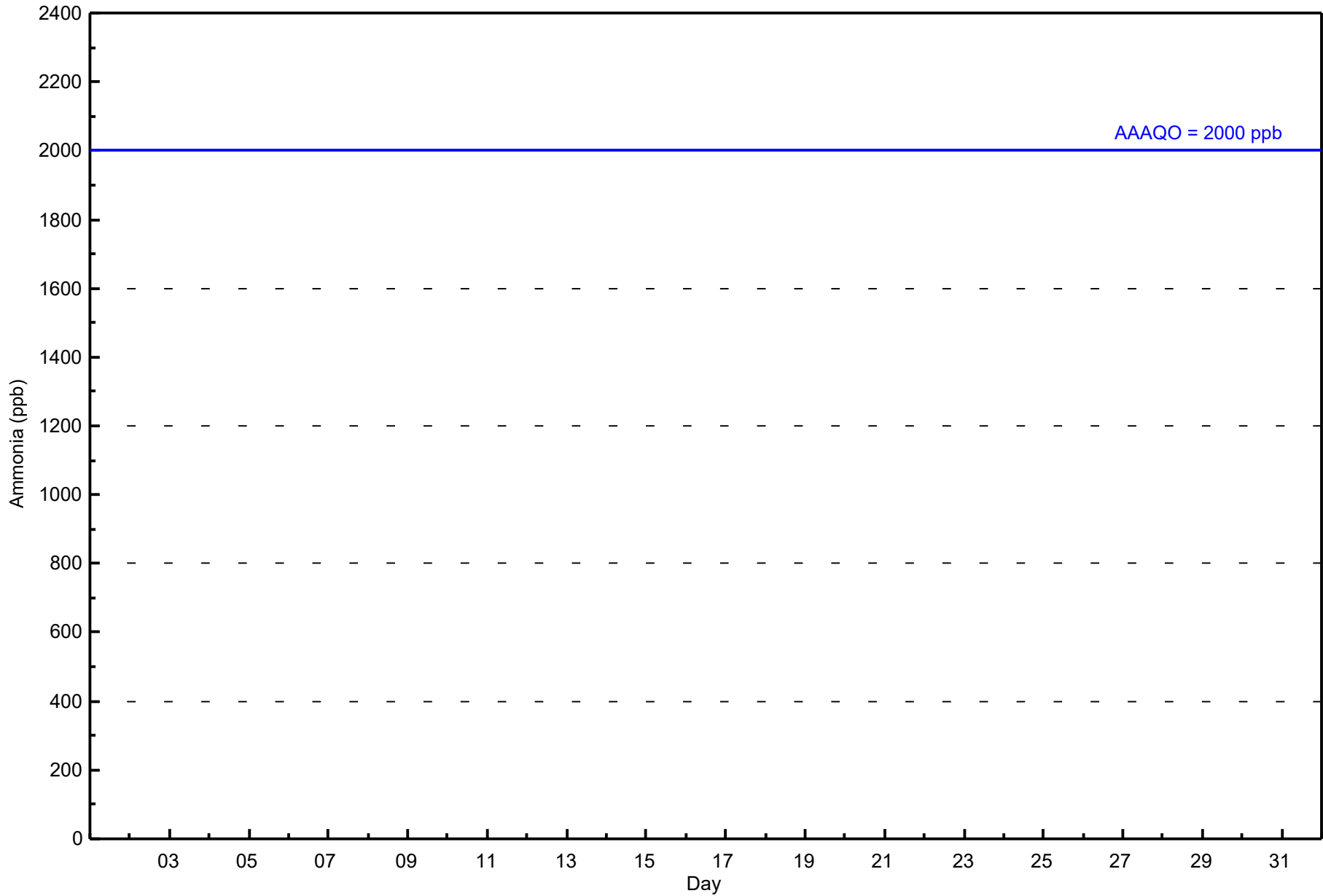
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-Oct	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	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
3-Oct	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
4-Oct	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
5-Oct	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
6-Oct	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
7-Oct	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
8-Oct	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
9-Oct	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
10-Oct	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
11-Oct	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
12-Oct	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
13-Oct	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
14-Oct	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
15-Oct	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
16-Oct	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
17-Oct	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Oct	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	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Oct	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
20-Oct	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
21-Oct	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
22-Oct	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
23-Oct	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
24-Oct	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	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Oct	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
26-Oct	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
27-Oct	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
28-Oct	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
29-Oct	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
30-Oct	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
31-Oct	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																								Diurnal Average			
0.0																								Diurnal Maximum			

Z - zerospan      C - Calibration      M - Maintenance      RE - Recovery  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 2000 ppb



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

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	669	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: 669

Total Number of Hours: 744



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

**Ammonia (NH<sub>3</sub>) - ppb**  
**Fort McKay - Bertha Ganter - October 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	67	49	16	10	8	8	9	44	103	65	48	52	41	58	58	28	664
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>	67	49	16	10	8	8	9	44	103	65	48	52	41	58	58	28	664

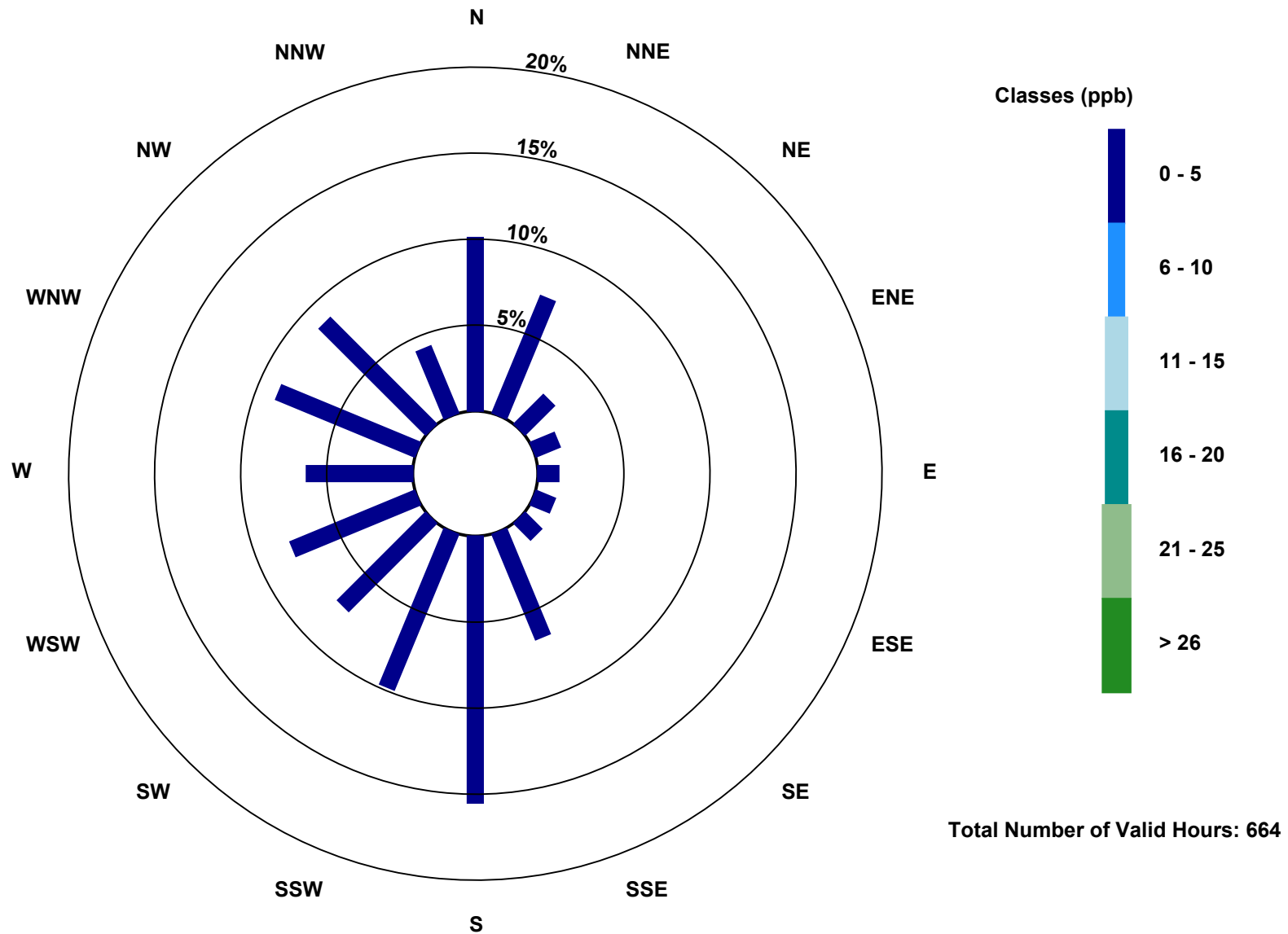
Total Number of Valid Hours: 664

Total Number of Hours: 744

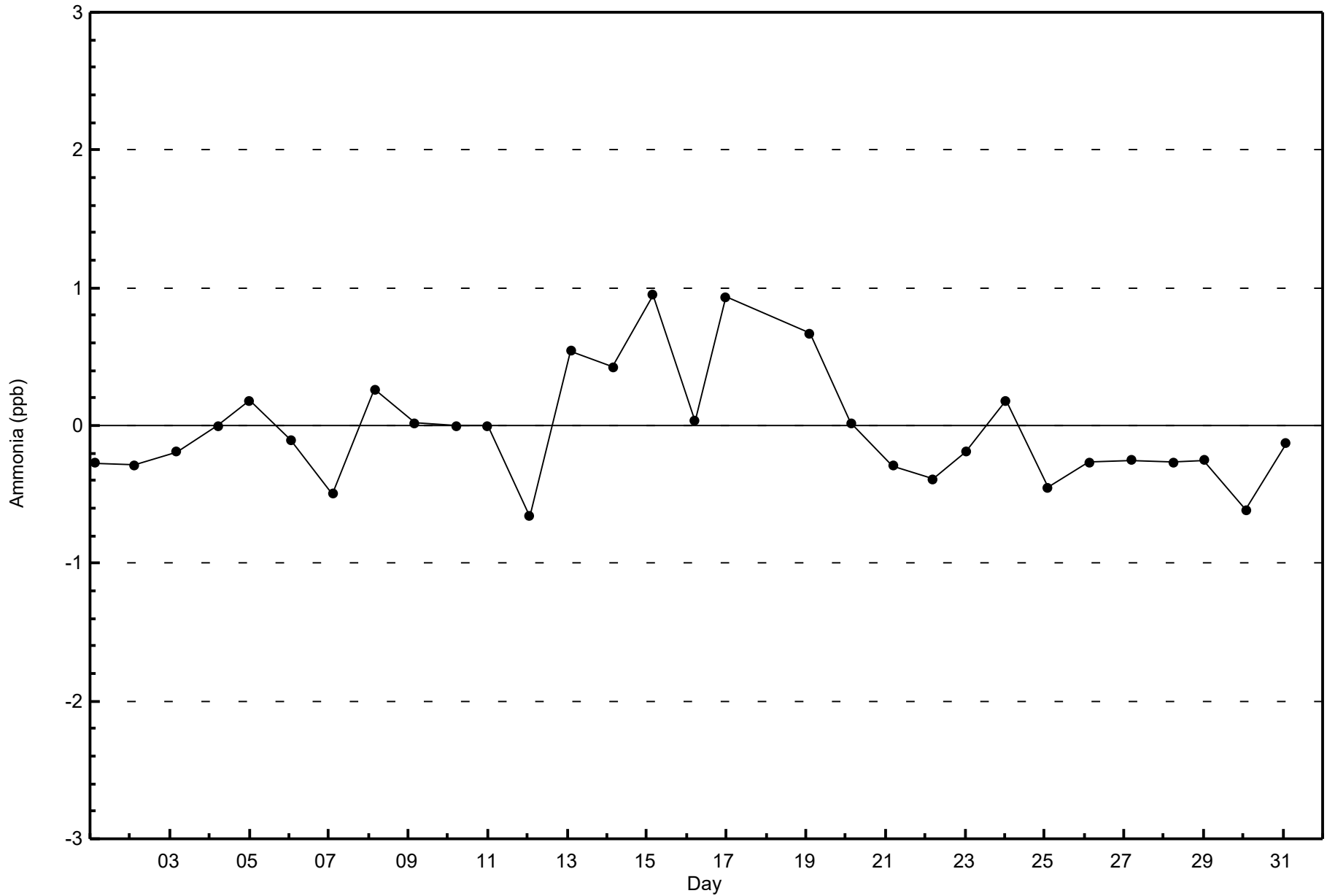


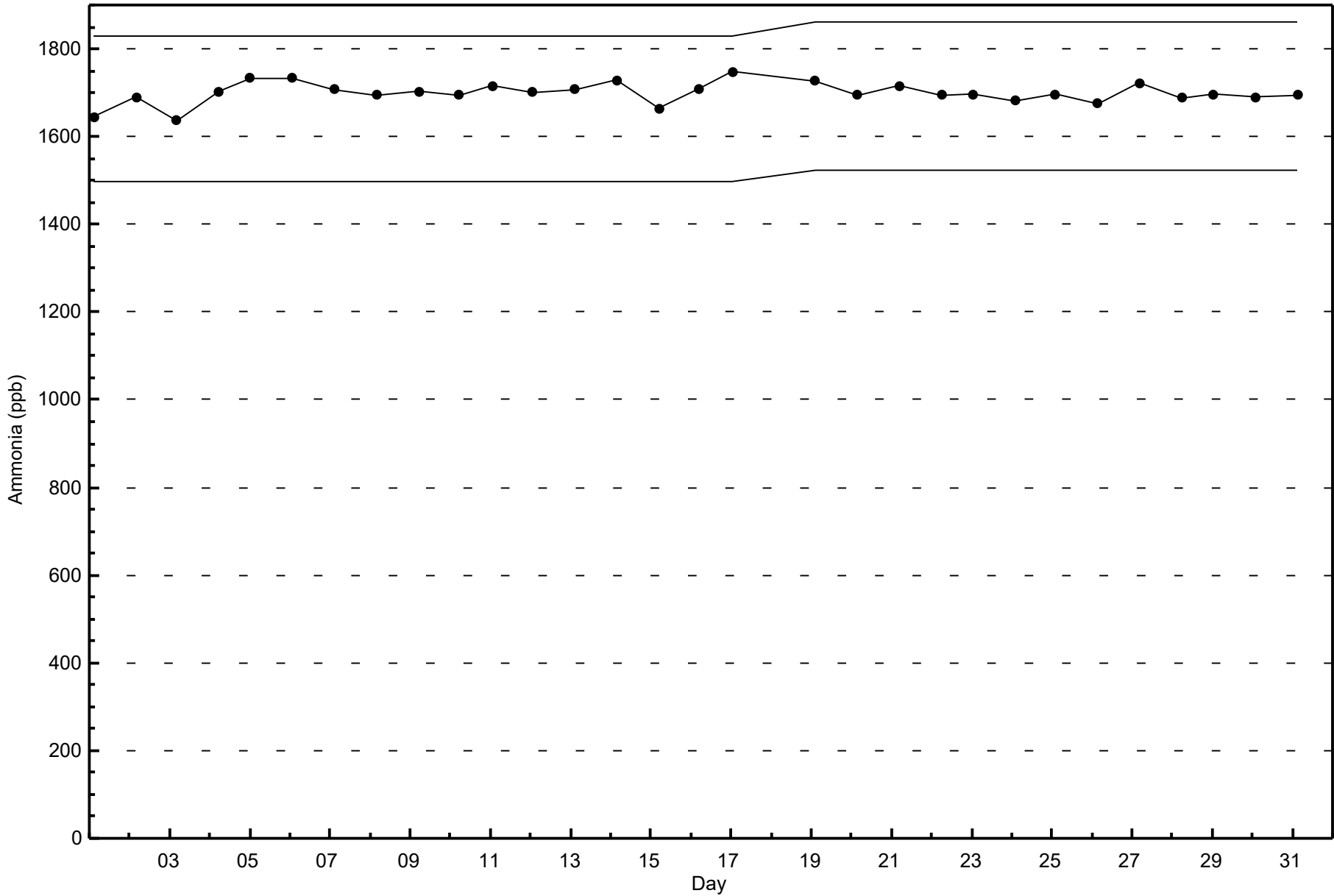
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











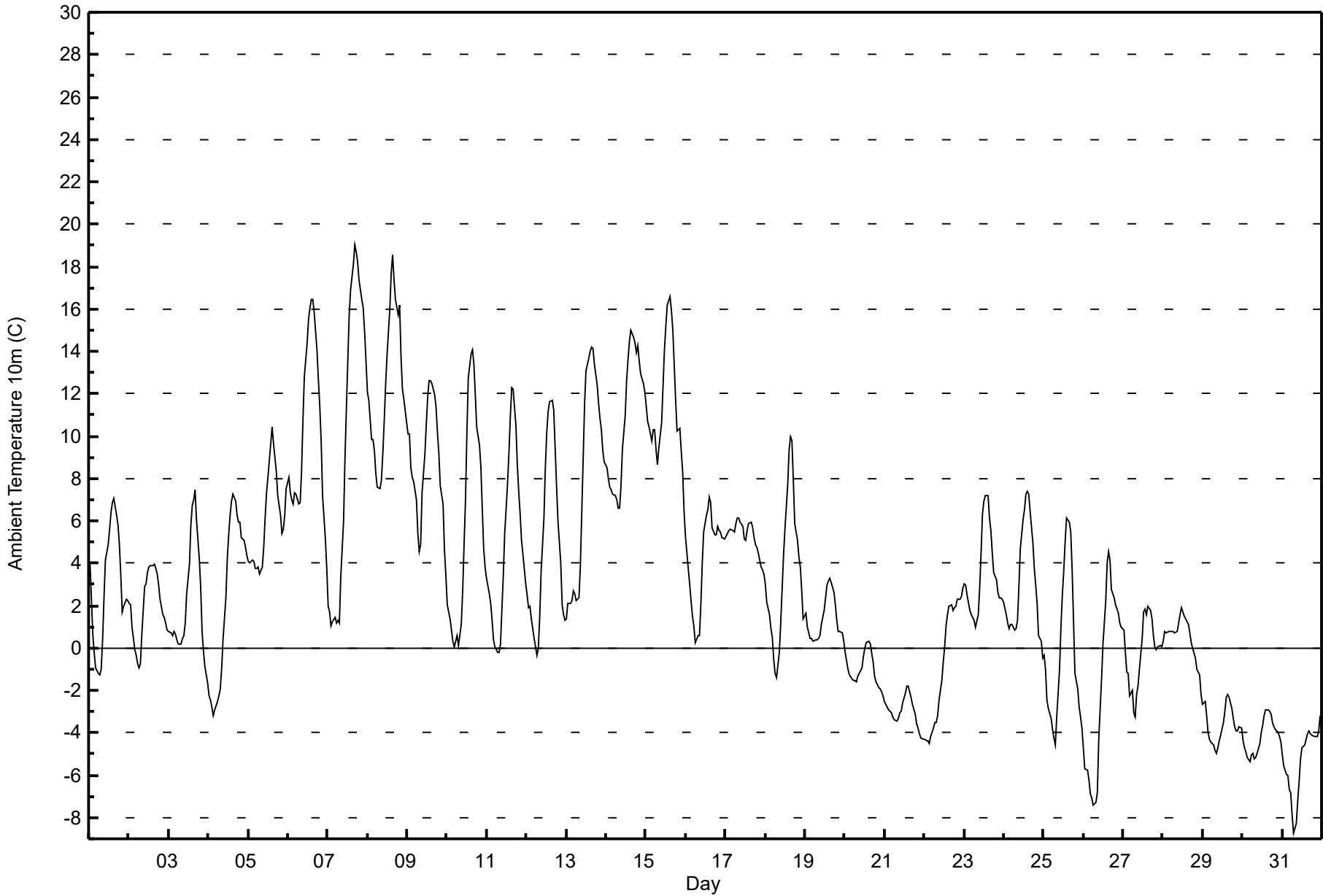
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature 10m (AT10) - C**

**Fort McKay - Bertha Ganter - October 2024**

Maximum Value: 19.0 C on Oct 7 17:00		Maximum Daily Average: 12.4 C on Oct 8		Hours in Service: 744																							
Minimum Value: -8.7 C on Oct 31 08:00		Minimum Daily Average: -5.4 C on Oct 31		Hours of Data: 744																							
Maximum Diurnal Average: 7.3 C at hour 16		Minimum Diurnal Average: 0.1 C at hour 8		Hours of Missing Data: 0																							
Monthly Average: 3.36 C		Percentiles: P <sub>1</sub> = -6.8 P <sub>10</sub> = -3.7 Q <sub>1</sub> = -0.5 Median = 2.3 Q <sub>3</sub> = 6.9 P <sub>90</sub> = 11.7 P <sub>99</sub> = 17.2		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	4.0	2.4	0.7	-0.2	-0.9	-1.2	-1.2	-1.0	0.4	2.4	4.2	4.9	5.6	6.4	6.8	7.0	6.3	5.8	4.9	3.4	1.7	2.0	2.3	2.3	2.9	7.0	
2-Oct	2.1	2.0	1.0	-0.1	-0.4	-0.7	-0.9	-0.8	0.6	2.9	3.0	3.6	3.8	3.9	3.9	4.0	3.8	3.5	2.9	2.3	1.6	1.4	1.2	0.9	1.9	4.0	
3-Oct	0.8	0.7	0.6	0.8	0.6	0.4	0.2	0.2	0.5	0.6	1.2	2.6	4.0	5.8	6.7	7.0	7.5	6.1	4.2	2.9	0.8	-0.2	-0.9	-1.6	2.1	7.5	
4-Oct	-2.2	-2.5	-2.8	-3.2	-2.9	-2.5	-2.2	-2.0	-0.9	0.5	2.4	4.2	5.4	6.3	6.9	7.2	6.9	6.3	5.9	5.9	5.2	5.1	4.7	4.4	2.3	7.2	
5-Oct	4.1	4.0	4.1	4.1	3.7	3.8	3.8	3.5	3.8	4.7	6.1	7.3	8.1	9.7	10.4	9.6	9.0	8.3	7.2	6.3	5.4	5.6	6.3	7.5	6.1	10.4	
6-Oct	8.1	7.3	7.0	6.8	7.3	7.2	6.8	6.9	8.3	10.7	12.8	14.4	15.5	16.1	16.4	16.4	15.9	14.1	12.7	11.4	9.8	7.2	5.1	3.8	10.3	16.4	
7-Oct	2.0	1.7	1.1	1.3	1.5	1.2	1.3	1.2	3.3	6.0	9.0	11.3	13.5	15.7	16.9	18.1	19.0	18.7	18.2	17.4	16.4	16.0	14.9	13.6	10.0	19.0	
8-Oct	12.1	11.7	9.8	9.9	9.3	8.3	7.6	7.6	7.9	9.2	10.7	12.4	13.8	16.0	17.7	18.5	17.4	16.4	15.7	16.2	13.8	12.2	11.8	10.6	12.4	18.5	
9-Oct	10.1	10.1	8.5	8.1	7.9	7.0	5.4	4.5	4.9	7.3	9.1	10.5	11.8	12.6	12.6	12.5	11.9	11.4	10.2	9.1	7.6	6.8	4.6	3.4	8.7	12.6	
10-Oct	2.0	1.7	1.3	0.3	0.1	0.3	0.6	0.1	1.1	2.7	4.9	6.9	10.1	12.7	13.9	14.1	13.4	12.0	10.4	9.6	8.5	6.6	4.7	3.8	5.9	14.1	
11-Oct	3.3	2.6	2.1	1.3	0.4	0.1	-0.2	-0.2	0.2	1.8	3.4	5.4	7.7	9.2	10.9	12.3	12.2	10.5	8.7	7.4	6.3	5.1	4.4	3.0	4.9	12.3	
12-Oct	2.5	1.9	2.0	1.4	0.4	0.1	-0.4	0.0	1.5	3.6	6.1	8.5	10.2	11.2	11.7	11.7	11.2	9.5	7.6	6.0	4.1	2.0	1.6	1.3	4.8	11.7	
13-Oct	1.4	2.1	2.1	2.2	2.7	2.5	2.3	2.4	3.9	6.4	8.9	11.5	13.1	13.7	14.0	14.2	14.1	13.4	12.4	11.6	10.8	10.3	9.3	8.8	8.1	14.2	
14-Oct	8.5	8.0	7.6	7.4	7.3	7.2	7.0	6.6	6.6	7.7	9.4	11.0	12.6	13.6	14.4	15.0	14.6	14.4	14.0	14.3	13.5	12.9	12.5	12.1	10.8	15.0	
15-Oct	11.4	10.7	10.5	9.8	10.3	10.3	9.4	8.7	9.4	10.6	12.3	14.1	15.2	16.2	16.6	15.9	15.0	13.4	11.7	10.2	10.4	9.3	8.3	6.4	11.5	16.6	
16-Oct	5.3	3.7	3.1	2.2	1.5	1.0	0.3	0.6	0.6	2.0	4.1	5.5	6.3	6.5	7.1	6.8	5.6	5.4	5.3	5.7	5.5	5.5	5.2	5.1	4.2	7.1	
17-Oct	5.3	5.4	5.5	5.6	5.6	5.5	5.9	6.2	6.1	6.0	5.8	5.2	5.1	5.6	5.9	6.0	5.7	5.2	4.9	4.8	4.5	3.8	3.7	3.5	5.3	6.2	
18-Oct	3.0	2.2	1.5	0.9	0.5	-0.5	-1.2	-1.4	-0.2	1.2	2.8	4.4	5.6	7.7	9.4	10.0	9.8	7.9	5.8	5.1	4.3	3.8	2.7	1.4	3.6	10.0	
19-Oct	1.6	1.0	0.7	0.4	0.5	0.3	0.4	0.4	0.5	0.6	1.1	1.7	2.4	3.0	3.2	3.3	3.1	2.6	2.0	1.3	0.8	0.8	0.7	0.3	1.4	3.3	
20-Oct	-0.2	-0.6	-1.0	-1.3	-1.5	-1.5	-1.6	-1.6	-1.3	-1.1	-0.9	-0.4	0.0	0.2	0.3	0.2	-0.3	-0.7	-1.3	-1.6	-1.9	-1.9	-2.1	-2.3	-1.0	0.3	
21-Oct	-2.5	-2.8	-2.9	-3.0	-3.1	-3.2	-3.4	-3.4	-3.3	-3.1	-3.0	-2.6	-2.1	-1.8	-1.8	-2.0	-2.3	-2.7	-3.1	-3.6	-3.8	-4.1	-4.2	-4.3	-3.0	-1.8	
22-Oct	-4.3	-4.4	-4.4	-4.5	-4.2	-3.8	-3.5	-3.5	-3.2	-2.5	-1.5	-0.7	0.1	1.0	1.6	2.0	2.1	1.8	1.9	2.0	2.3	2.3	2.4	2.8	-0.8	2.8	
23-Oct	3.0	3.0	2.5	1.8	1.6	1.4	1.3	1.0	1.6	2.9	4.5	6.3	6.9	7.2	7.2	6.1	5.6	4.5	3.6	3.2	2.6	2.4	2.4	2.3	3.5	7.2	
24-Oct	2.1	1.6	1.2	0.9	1.1	1.1	0.8	0.9	1.3	2.9	4.7	6.1	6.5	7.2	7.4	7.3	6.5	5.0	3.8	3.0	2.1	0.6	0.3	-0.5	3.1	7.4	
25-Oct	-0.3	-1.0	-2.4	-2.8	-3.3	-3.9	-4.2	-4.5	-3.3	-1.0	1.0	2.5	3.6	5.0	6.1	5.9	5.5	3.7	1.2	-1.2	-1.9	-2.8	-3.2	-3.8	-0.2	6.1	
26-Oct	-4.7	-5.7	-5.8	-6.2	-6.9	-7.1	-7.4	-7.3	-6.8	-4.3	-2.9	-1.5	0.2	2.2	4.0	4.6	4.2	2.8	2.4	2.0	1.9	1.6	1.2	1.0	-1.6	4.6	
27-Oct	0.8	-0.2	-1.1	-1.2	-2.3	-2.0	-3.1	-3.2	-2.2	-1.8	-1.0	0.4	1.7	1.9	1.6	2.0	1.8	1.4	0.6	0.1	-0.1	0.0	0.1	0.0	-0.2	2.0	
28-Oct	0.3	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.8	1.2	1.5	1.9	1.7	1.5	1.2	1.1	0.7	0.2	0.0	-0.5	-1.0	-1.2	-1.3	-2.2	0.5	1.9	
29-Oct	-2.6	-2.6	-3.2	-4.0	-4.3	-4.5	-4.5	-4.8	-5.0	-4.7	-4.4	-4.1	-3.5	-3.0	-2.3	-2.2	-2.4	-2.8	-3.3	-3.7	-3.9	-3.9	-3.7	-3.8	-3.6	-2.2	
30-Oct	-4.4	-4.7	-4.9	-5.2	-5.4	-5.0	-5.0	-5.2	-5.2	-5.0	-4.5	-4.0	-3.6	-3.2	-2.9	-2.9	-3.0	-3.1	-3.5	-3.7	-3.9	-4.0	-4.2	-4.4	-4.2	-2.9	
31-Oct	-5.0	-5.5	-6.0	-6.0	-6.7	-6.8	-7.9	-8.7	-8.3	-7.2	-6.3	-5.3	-4.7	-4.6	-4.3	-4.0	-3.9	-4.0	-4.1	-4.2	-4.2	-4.2	-3.9	-3.2	-5.4	-3.2	
		2.2	1.8	1.3	0.9	0.7	0.5	0.2	0.1	0.8	2.0	3.4	4.6	5.7	6.6	7.2	7.3	7.0	6.2	5.3	4.6	3.9	3.3	2.8	2.3	Diurnal Average	
		12.1	11.7	10.5	9.9	10.3	10.3	9.4	8.7	9.4	10.7	12.8	14.4	15.5	16.2	17.7	18.5	19.0	18.7	18.2	17.4	16.4	16.0	14.9	13.6	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 10m (AT10) - C  
Fort McKay - Bertha Ganter - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	203	27.28	27.28
0 - 10	433	58.20	85.48
10 - 20	108	14.52	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

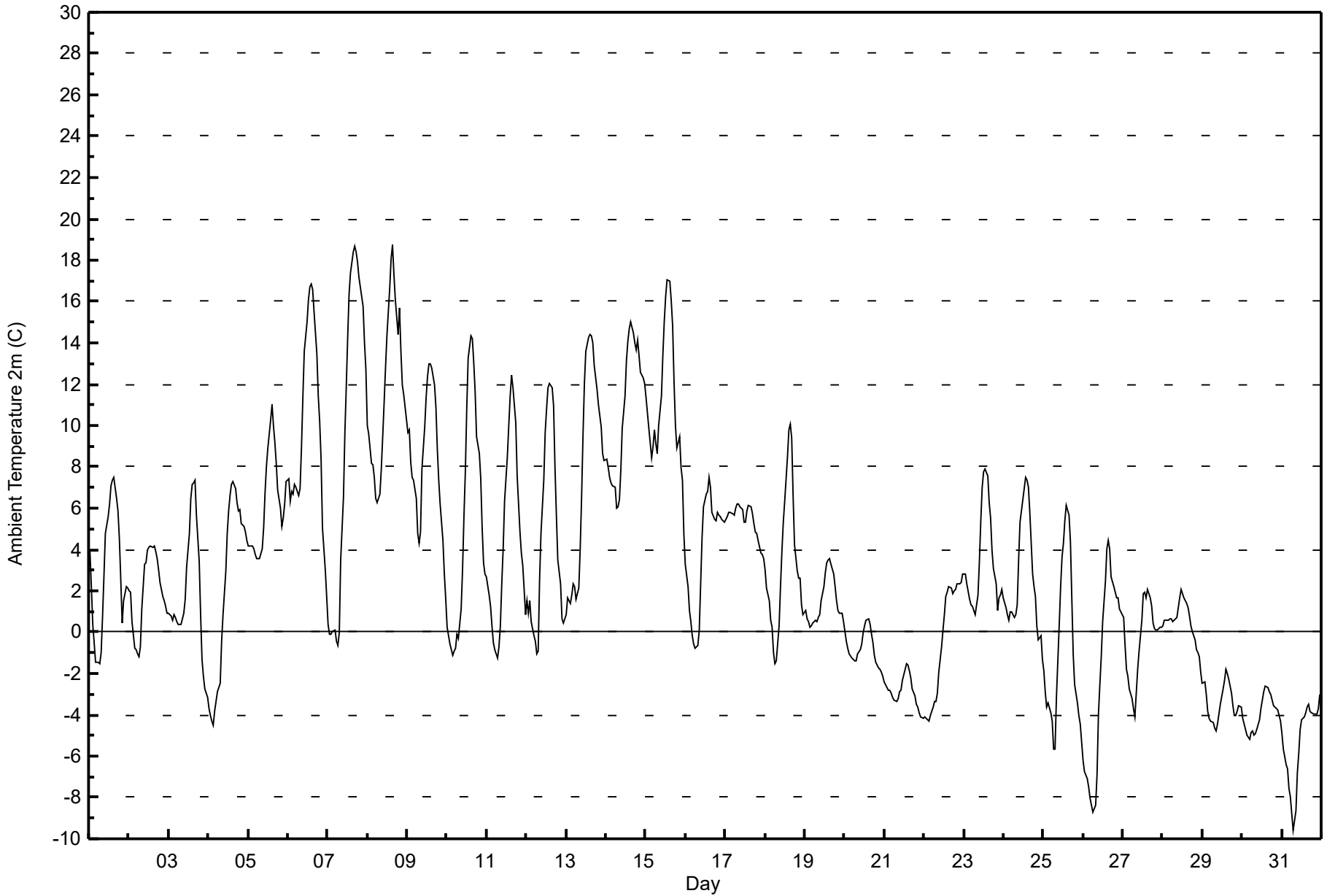


Wood Buffalo Environmental Association

Summary of Hour Averages

Ambient Temperature 2m (AT2) - C  
Fort McKay - Bertha Ganter - October 2024

Maximum Value: 18.8 C on Oct 8 16:00      Maximum Daily Average: 11.8 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -9.6 C on Oct 31 08:00      Minimum Daily Average: -5.4 C on Oct 31 Maximum Diurnal Average: 7.5 C at hour 15      Minimum Diurnal Average: -0.2 C at hour 7 Monthly Average: 3.18 C      Percentiles: P <sub>1</sub> = -7.8 P <sub>10</sub> = -3.8 Q <sub>1</sub> = -0.9 Median = 2.2 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 11.6 P <sub>99</sub> = 17.3																				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-Oct	3.9	2.2	0.4	-0.5	-1.5	-1.4	-1.5	-1.0	0.8	2.7	4.8	5.6	6.2	7.1	7.3	7.5	6.5	5.9	4.5	2.5	0.5	1.5	2.2	2.1	2.8	7.5
2-Oct	2.0	1.9	0.5	-0.8	-0.9	-1.1	-1.2	-0.7	1.1	3.3	3.4	4.0	4.1	4.2	4.1	4.1	3.9	3.6	3.0	2.4	1.8	1.6	1.3	0.9	1.9	4.2
3-Oct	0.9	0.8	0.6	0.8	0.7	0.5	0.3	0.3	0.7	0.9	1.6	3.2	4.8	6.5	7.1	7.2	7.4	5.7	3.4	0.8	-1.3	-2.1	-2.7	-3.2	1.9	7.4
4-Oct	-3.7	-4.1	-4.3	-4.5	-3.9	-2.9	-2.6	-2.5	-0.5	0.8	3.0	4.8	5.8	6.6	7.2	7.3	6.9	6.3	5.9	6.0	5.2	5.1	4.8	4.5	2.1	7.3
5-Oct	4.2	4.1	4.2	4.0	3.7	3.6	3.5	3.6	4.0	5.1	6.7	8.1	8.9	10.3	11.0	10.0	9.2	8.2	6.9	6.0	5.1	5.5	6.2	7.3	6.2	11.0
6-Oct	7.4	6.4	6.8	6.7	7.1	7.0	6.6	7.0	8.9	11.4	13.6	15.0	16.1	16.7	16.9	16.5	15.5	13.5	11.4	10.2	8.4	5.1	3.1	1.7	10.0	16.9
7-Oct	0.4	-0.1	-0.1	0.0	0.1	-0.4	-0.7	0.0	3.5	6.5	9.7	11.9	14.3	16.4	17.4	18.4	18.6	18.4	17.9	17.2	16.2	15.8	14.0	12.7	9.5	18.6
8-Oct	10.0	9.6	8.1	8.1	7.5	6.5	6.3	6.7	7.9	9.5	11.1	12.8	14.3	16.6	18.1	18.8	17.3	16.1	14.4	15.7	13.6	12.0	11.5	10.3	11.8	18.8
9-Oct	9.7	9.8	8.3	7.5	7.4	6.5	4.8	4.3	4.9	7.9	9.9	11.4	12.4	13.0	13.0	12.8	12.0	10.9	8.8	7.3	6.2	4.4	2.8	1.6	8.2	13.0
10-Oct	0.3	-0.2	-0.6	-1.1	-0.9	-0.8	-0.1	-0.3	1.1	3.0	5.6	7.8	10.8	13.3	14.3	14.2	13.0	11.6	9.5	8.7	7.4	5.1	3.4	2.8	5.3	14.3
11-Oct	2.7	1.8	1.3	0.3	-0.5	-0.9	-1.3	-0.7	0.3	2.4	4.0	6.4	8.5	10.0	11.4	12.5	11.9	10.2	7.6	6.2	4.9	3.8	3.2	0.8	4.4	12.5
12-Oct	1.5	0.9	1.5	0.5	-0.2	-0.5	-1.0	-0.9	2.5	4.7	7.4	9.6	10.8	11.8	12.1	11.9	11.0	8.0	5.6	3.5	2.3	0.6	0.4	0.6	4.4	12.1
13-Oct	0.9	1.7	1.4	1.8	2.3	2.2	1.6	2.1	4.0	6.5	9.5	12.0	13.6	14.3	14.4	14.3	14.0	12.9	11.8	11.0	10.4	9.9	8.7	8.3	7.9	14.4
14-Oct	8.3	8.0	7.5	7.2	7.1	7.0	6.0	6.1	6.4	7.9	9.9	11.4	13.1	14.1	14.7	15.0	14.5	14.0	13.6	14.2	13.4	12.6	12.3	12.0	10.7	15.0
15-Oct	11.4	10.6	9.9	8.4	9.0	9.8	9.1	8.6	10.0	11.5	13.4	15.0	16.2	17.0	17.0	16.1	14.8	12.1	10.0	8.9	9.4	8.0	7.4	4.8	11.2	17.0
16-Oct	3.3	2.2	1.1	0.5	-0.2	-0.6	-0.8	-0.6	0.1	2.4	4.6	6.1	6.6	6.8	7.5	7.0	5.8	5.4	5.4	5.8	5.7	5.6	5.5	5.3	3.8	7.5
17-Oct	5.4	5.6	5.8	5.8	5.8	5.7	6.0	6.2	6.2	6.1	5.9	5.3	5.3	5.9	6.1	6.1	5.7	5.2	4.8	4.8	4.4	3.8	3.7	3.6	5.4	6.2
18-Oct	3.0	2.1	1.5	0.5	0.2	-1.0	-1.6	-1.4	0.3	2.2	3.9	5.3	6.4	8.5	9.8	10.1	9.4	6.6	4.2	3.0	2.6	2.6	1.3	0.8	3.4	10.1
19-Oct	1.0	0.6	0.5	0.2	0.3	0.4	0.6	0.5	0.7	0.9	1.5	2.2	2.9	3.4	3.5	3.6	3.3	2.8	2.2	1.5	1.0	0.9	0.9	0.5	1.5	3.6
20-Oct	0.0	-0.4	-0.8	-1.1	-1.3	-1.3	-1.4	-1.4	-1.1	-0.8	-0.6	0.0	0.3	0.6	0.6	0.4	-0.1	-0.5	-1.1	-1.5	-1.7	-1.8	-2.0	-2.1	-0.8	0.6
21-Oct	-2.4	-2.7	-2.8	-2.8	-3.0	-3.1	-3.3	-3.3	-3.2	-2.9	-2.8	-2.3	-1.8	-1.6	-1.6	-1.9	-2.2	-2.7	-3.1	-3.5	-3.7	-3.9	-4.1	-4.2	-2.9	-1.6
22-Oct	-4.1	-4.2	-4.2	-4.3	-4.0	-3.7	-3.4	-3.4	-2.9	-1.9	-0.7	0.1	0.9	1.7	1.9	2.2	2.2	1.9	2.0	2.1	2.3	2.3	2.4	2.8	-0.5	2.8
23-Oct	2.8	2.8	2.4	1.6	1.3	1.2	1.0	0.9	1.8	3.4	5.4	7.0	7.7	7.9	7.5	6.3	5.5	4.0	3.1	2.4	1.0	1.7	1.8	2.1	3.4	7.9
24-Oct	1.6	1.2	0.8	0.6	1.0	1.0	0.7	0.8	1.3	3.5	5.3	6.4	6.9	7.5	7.4	7.0	5.8	2.8	2.2	1.7	0.3	-0.4	-0.2	-1.3	2.7	7.5
25-Oct	-1.8	-2.9	-3.6	-3.4	-3.9	-4.3	-5.6	-5.6	-3.2	0.4	2.2	3.6	4.3	5.4	6.1	5.6	4.4	1.6	-1.1	-2.6	-3.4	-4.0	-4.5	-5.3	-0.9	6.1
26-Oct	-6.2	-6.7	-7.1	-7.5	-8.1	-8.4	-8.7	-8.4	-6.9	-4.0	-2.5	-1.2	0.5	2.5	4.1	4.5	4.1	2.7	2.2	1.9	1.7	1.7	1.1	1.0	-2.0	4.5
27-Oct	0.7	-0.6	-1.8	-2.1	-2.7	-3.2	-3.7	-4.1	-2.9	-1.8	-0.9	0.6	1.8	2.0	1.7	2.1	1.7	1.2	0.4	0.1	0.1	0.1	0.2	0.2	-0.5	2.1
28-Oct	0.3	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.7	1.2	1.6	2.1	1.9	1.6	1.4	1.2	0.8	0.3	0.0	-0.4	-0.9	-1.0	-1.2	-2.0	0.5	2.1
29-Oct	-2.5	-2.4	-3.0	-3.8	-4.1	-4.3	-4.4	-4.7	-4.8	-4.4	-4.0	-3.5	-2.7	-2.4	-1.8	-2.0	-2.3	-2.9	-3.6	-4.0	-4.0	-3.8	-3.5	-3.6	-3.4	-1.8
30-Oct	-4.2	-4.5	-4.7	-5.0	-5.2	-4.9	-4.7	-5.0	-4.9	-4.7	-4.2	-3.7	-3.3	-2.9	-2.6	-2.7	-2.9	-3.0	-3.3	-3.5	-3.7	-3.8	-4.0	-4.3	-4.0	-2.6
31-Oct	-4.9	-5.6	-6.4	-6.6	-7.5	-8.0	-8.8	-9.6	-8.6	-6.8	-5.9	-4.7	-4.2	-4.1	-3.9	-3.6	-3.5	-3.8	-3.9	-4.0	-4.0	-4.0	-3.7	-3.0	-5.4	-3.0
1.7 1.2 0.8 0.4 0.2 0.1 -0.2 -0.2 0.9 2.5 3.9 5.2 6.2 7.1 7.5 7.5 6.9 5.8 4.7 4.0 3.3 2.7 2.3 1.9																								Diurnal Average		
11.4 10.6 9.9 8.4 9.0 9.8 9.1 8.6 10.0 11.5 13.6 15.0 16.2 17.0 18.1 18.8 18.6 18.4 17.9 17.2 16.2 15.8 14.0 12.7																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C  
Fort McKay - Bertha Ganter - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	221	29.70	29.70
0 - 10	423	56.85	86.56
10 - 20	100	13.44	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





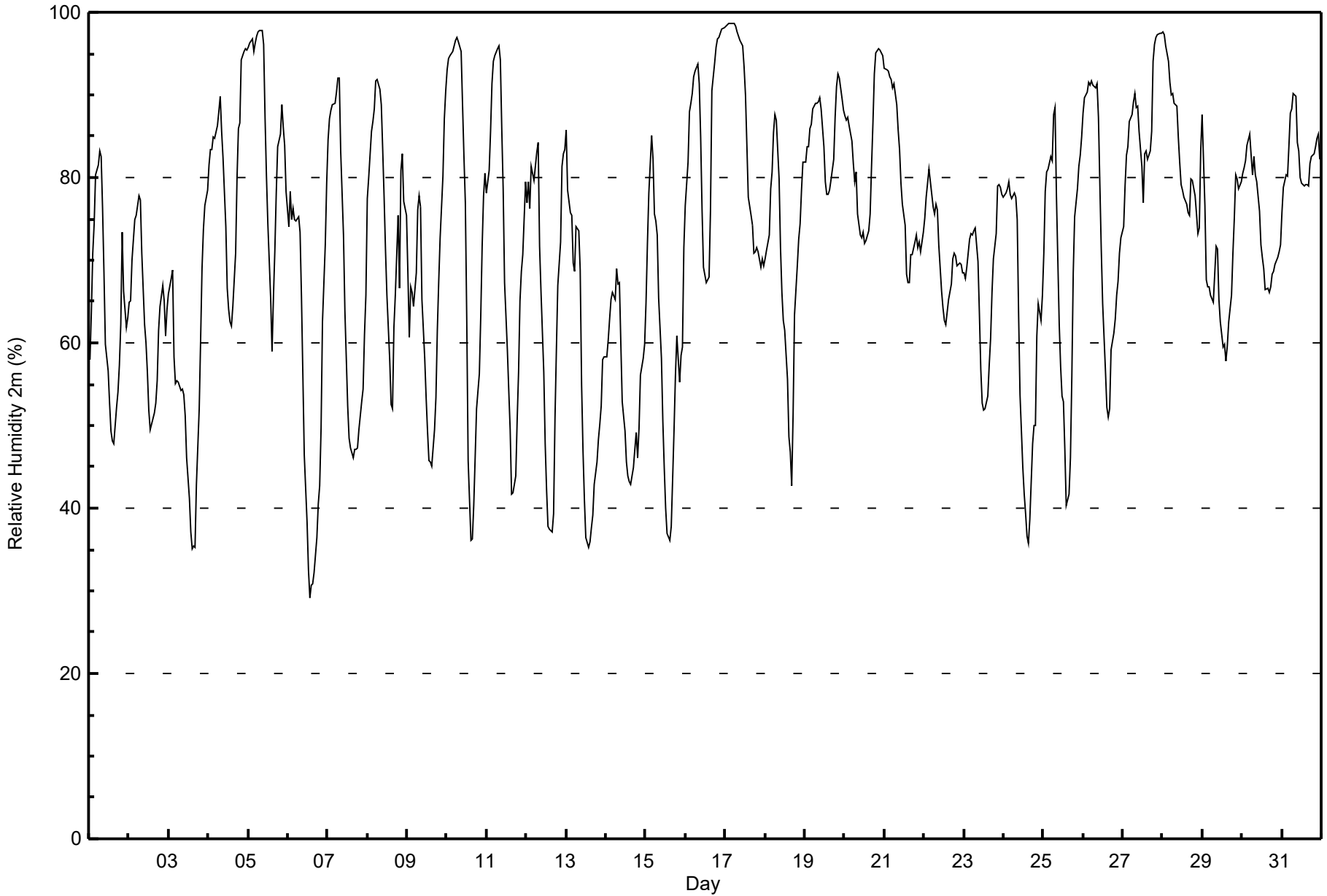
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**

**Fort McKay - Bertha Ganter - October 2024**

Maximum Value: 98.7 % on Oct 17 05:00      Maximum Daily Average: 87.1 % on Oct 27																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 29.2 % on Oct 6 14:00      Minimum Daily Average: 55.1 % on Oct 3 Maximum Diurnal Average: 83.6 % at hour 8      Minimum Diurnal Average: 54.6 % at hour 15 Monthly Average: 71.83 %      Percentiles: P <sub>1</sub> = 35.4 P <sub>10</sub> = 47.9 Q <sub>1</sub> = 61.6 Median = 73.9 Q <sub>3</sub> = 83.7 P <sub>90</sub> = 91.8 P <sub>99</sub> = 98.0																						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-Oct	58.0	63.7	70.9	74.5	80.3	81.6	83.2	82.6	76.2	68.4	59.9	56.6	52.8	49.3	48.1	47.9	52.3	54.0	57.2	62.2	73.4	66.2	61.9	63.1	64.4	83.2
2-Oct	64.9	65.1	69.9	75.0	75.4	76.5	77.8	77.4	70.8	62.2	60.0	56.4	51.9	49.6	50.9	51.5	52.7	55.5	61.5	64.4	66.9	65.1	60.9	64.0	63.6	77.8
3-Oct	66.0	67.8	68.8	58.2	55.0	55.3	55.3	54.3	54.3	53.7	51.2	46.2	41.2	37.1	35.1	35.4	35.3	42.8	52.0	60.3	69.1	73.7	76.6	78.4	55.1	78.4
4-Oct	81.5	83.3	83.4	84.9	84.7	86.3	87.9	89.8	85.6	82.3	74.1	66.6	64.0	62.5	62.0	64.3	70.8	80.1	85.9	86.6	94.3	95.3	95.6	95.5	81.1	95.6
5-Oct	95.8	96.3	96.7	95.2	96.4	97.2	97.7	97.9	97.8	96.1	87.4	80.1	74.4	65.3	59.0	65.5	71.3	78.1	83.7	85.2	88.8	86.1	83.9	78.4	85.6	97.9
6-Oct	74.0	78.4	75.0	76.3	74.9	74.7	75.2	73.4	65.7	56.1	46.5	38.3	32.5	29.2	30.6	30.8	32.3	36.4	40.5	42.8	49.6	62.5	71.8	79.3	56.1	79.3
7-Oct	84.5	87.2	88.1	88.9	89.1	90.3	92.1	92.0	83.1	73.1	63.9	58.1	52.5	48.4	47.3	46.1	47.1	47.1	47.3	49.4	52.9	54.5	61.0	65.8	67.1	92.1
8-Oct	77.5	80.0	85.6	86.7	88.3	91.8	91.9	90.7	88.9	83.4	77.5	71.2	65.7	58.0	52.6	52.1	61.8	65.7	75.4	66.7	80.8	82.8	77.2	75.4	76.2	91.9
9-Oct	68.4	60.6	66.7	66.2	64.4	68.5	76.0	77.8	76.5	65.2	58.2	53.3	49.3	45.8	45.5	45.1	49.5	53.4	61.5	67.4	72.7	80.2	87.0	90.5	64.6	90.5
10-Oct	93.1	94.4	94.7	95.2	96.0	96.7	96.9	96.5	95.3	88.8	82.5	76.9	62.8	45.8	36.0	36.4	40.3	46.1	52.0	56.3	63.3	71.7	77.8	80.5	74.0	96.9
11-Oct	78.1	80.8	85.6	91.4	94.0	94.8	95.6	95.9	94.2	86.0	78.6	67.3	59.1	54.3	49.5	41.7	41.8	43.9	50.6	56.5	65.1	68.7	70.7	79.4	71.8	95.9
12-Oct	77.0	79.6	76.3	81.4	79.7	81.3	83.0	84.3	71.6	66.3	56.4	47.8	42.2	37.8	37.5	37.1	39.3	50.8	59.2	67.0	72.2	81.3	82.9	83.3	65.6	84.3
13-Oct	85.7	78.5	75.8	75.4	69.7	68.6	74.0	73.6	68.9	54.9	47.0	41.0	36.4	35.3	36.0	37.6	39.2	42.9	45.6	48.2	50.2	52.4	58.0	58.4	56.4	85.7
14-Oct	58.3	60.3	62.8	65.2	66.1	65.2	68.9	67.2	67.3	60.1	52.9	49.3	45.6	43.8	43.3	42.8	44.9	47.1	49.1	46.1	49.7	56.2	58.2	59.9	55.4	68.9
15-Oct	65.0	72.1	78.1	85.1	82.2	75.5	74.7	73.0	65.5	58.1	50.4	44.9	40.0	36.9	36.1	37.8	43.5	49.6	56.1	60.8	55.3	58.4	59.5	71.5	59.6	85.1
16-Oct	76.5	81.9	88.0	88.9	90.2	92.1	93.0	93.8	91.4	85.0	76.1	69.2	67.3	67.6	67.9	75.9	90.6	93.9	95.7	96.8	97.0	97.5	97.9	98.2	86.3	98.2
17-Oct	98.4	98.5	98.6	98.6	98.7	98.6	98.2	97.6	97.1	96.6	96.0	93.3	90.0	83.9	77.7	75.4	74.2	70.9	71.0	71.6	71.1	69.2	70.2	69.3	86.0	98.7
18-Oct	70.1	71.3	73.1	78.7	80.6	85.5	87.7	87.0	79.8	71.6	66.2	62.8	61.6	55.6	48.6	46.7	42.6	51.4	63.4	69.3	72.6	74.5	78.6	81.8	69.2	87.7
19-Oct	81.9	83.7	83.7	85.9	86.4	88.3	88.9	89.0	89.2	89.7	88.4	83.7	79.4	78.0	78.0	78.4	79.7	82.2	87.3	91.0	92.6	92.1	89.6	88.1	85.6	92.6
20-Oct	87.5	86.9	87.2	86.3	84.4	81.6	79.5	80.6	75.6	73.1	72.8	73.3	72.1	72.4	73.6	75.5	81.3	86.6	92.5	95.0	95.6	95.4	95.1	94.7	83.3	95.6
21-Oct	93.2	93.1	92.9	92.3	91.8	90.9	91.4	88.8	85.7	83.3	79.4	76.8	74.2	68.3	67.2	67.3	70.7	70.7	72.2	73.1	71.6	72.1	71.0	73.4	79.6	93.2
22-Oct	75.1	77.6	79.3	81.1	79.6	76.5	75.6	76.7	76.2	71.9	66.3	64.2	62.8	62.2	63.8	65.3	67.1	70.1	70.9	70.6	69.4	69.7	69.5	68.5	71.3	81.1
23-Oct	68.5	67.9	69.2	72.5	73.2	73.0	73.6	73.9	69.9	63.6	56.8	52.8	51.8	52.0	53.6	57.4	60.4	66.2	70.2	73.2	79.0	79.2	78.8	77.9	67.3	79.2
24-Oct	77.6	78.1	78.7	79.5	78.0	77.5	78.2	77.7	74.9	63.4	53.7	44.9	41.7	39.3	36.5	35.7	38.7	47.7	49.9	50.0	60.9	64.8	62.8	65.8	60.7	79.5
25-Oct	70.9	78.2	80.6	81.0	82.5	82.0	87.6	88.5	77.8	62.2	57.1	53.6	52.8	47.2	40.4	41.6	46.1	56.0	68.5	75.3	78.7	81.4	82.7	84.9	69.1	88.5
26-Oct	87.7	89.7	90.4	91.4	91.3	91.7	91.2	90.9	91.3	87.3	79.1	71.4	64.7	56.6	52.2	50.9	52.1	59.2	61.3	62.9	65.7	67.5	70.8	72.6	74.6	91.7
27-Oct	74.0	79.0	82.7	83.7	86.7	87.7	89.2	90.1	88.5	88.7	85.6	81.3	76.9	82.9	83.3	82.2	83.2	85.5	94.2	96.1	96.9	97.4	97.5	97.5	87.1	97.5
28-Oct	97.6	97.3	96.0	94.1	91.5	90.1	90.2	89.0	88.6	84.9	81.9	79.2	78.4	77.6	76.7	75.7	75.4	79.8	79.7	77.9	75.5	73.2	73.9	83.2	83.6	97.6
29-Oct	87.6	76.5	67.6	66.8	66.8	65.8	64.9	68.2	71.7	71.3	65.3	62.6	59.4	59.8	57.8	59.6	62.5	65.8	70.9	75.1	80.4	79.9	78.6	79.4	69.4	87.6
30-Oct	80.4	81.3	82.0	83.8	85.2	82.7	80.3	82.6	80.4	79.5	75.9	71.9	70.4	69.0	66.5	66.6	66.2	66.8	68.3	68.7	69.5	70.3	71.0	71.9	74.6	85.2
31-Oct	75.8	78.7	80.3	80.3	83.8	87.8	88.2	90.1	89.8	84.2	83.3	80.1	79.3	79.0	79.2	79.2	79.0	81.7	82.5	82.9	83.8	84.7	85.3	82.2	82.5	90.1
78.4 79.6 80.9 82.1 82.2 82.5 83.5 83.6 80.3 74.5 68.7 63.7 59.8 56.5 54.6 55.0 57.8 62.2 67.0 69.3 73.1 75.0 76.0 77.8																								Diurnal Average		
98.4 98.5 98.6 98.6 98.7 98.6 98.2 97.9 97.8 96.6 96.0 93.3 90.0 83.9 83.3 82.2 90.6 93.9 95.7 96.8 97.0 97.5 97.9 98.2																								Diurnal Maximum		



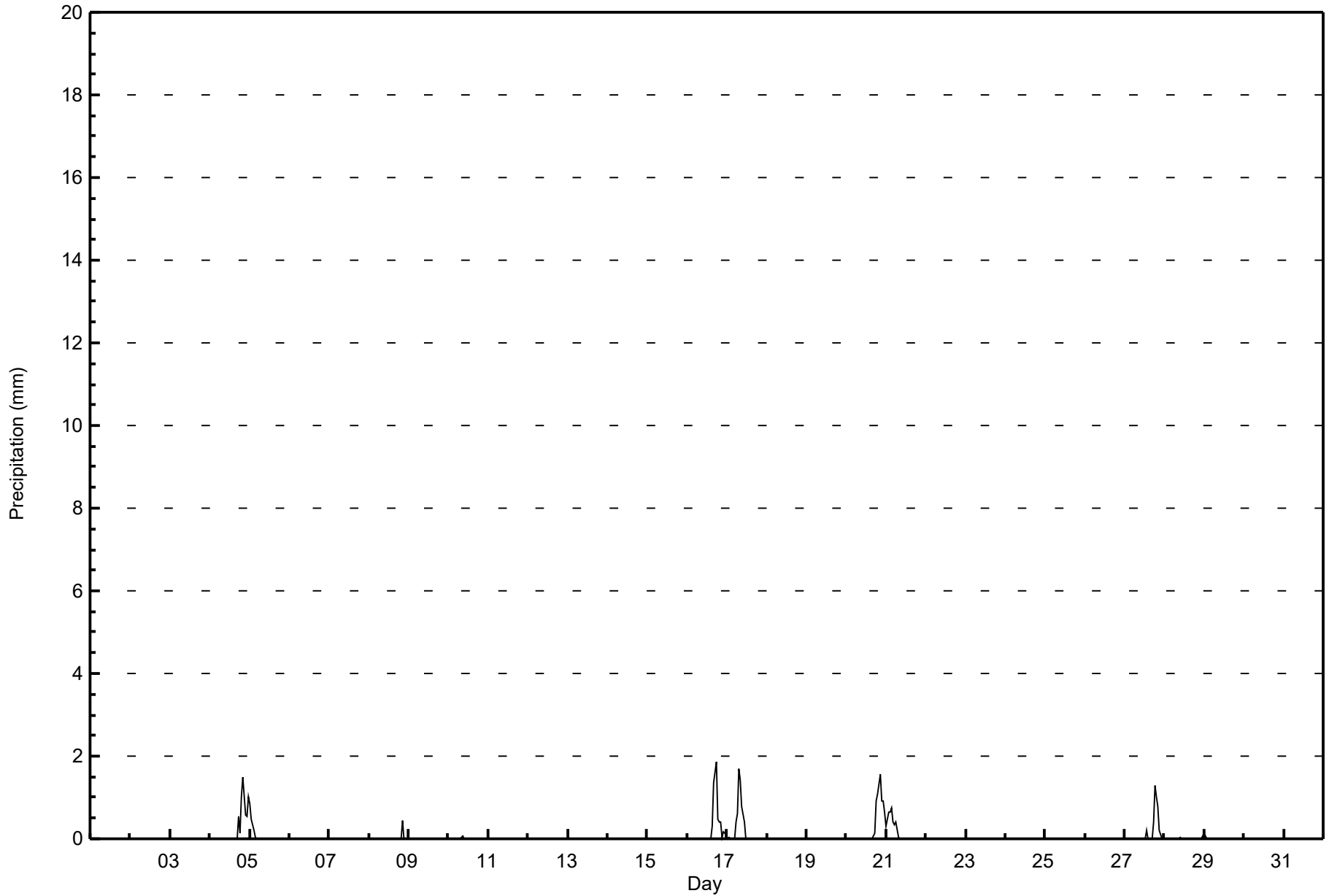


Maximum Value: 1.9 mm on Oct 16 18:00																				Maximum Daily Total: 6.3 mm on Oct 20					Hours in Service: 744																							
Minimum Value: 0.0 mm on Oct 1 01:00																				Minimum Daily Total: 0.0 mm on Oct 1					Hours of Data: 744																							
Maximum Diurnal Total: 4.7 mm at hour 21																				Minimum Diurnal Total: 0.0 mm at hour 12					Hours of Missing Data: 0																							
Monthly Total: 31.79 mm																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 1.1					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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	1.0	1.5	0.6	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	1.5															
5-Oct	0.9	0.5	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	1.6	0.9																
6-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5																
9-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																
11-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4	1.9	0.5	0.4	0.4	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.1	1.9																
17-Oct	0.0	0.1	0.0	0.0	0.0	0.4	0.6	1.7	1.4	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	1.7																
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	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	0.9	1.1	1.6	0.9	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	6.3	1.6																
21-Oct	0.3	0.6	0.6	0.7	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.7																
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	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	0.4	1.3	1.0	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	1.3																
28-Oct	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	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1																
29-Oct	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	0.1	0.1	0.1																
30-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
																								1.3	1.2	0.8	0.8	0.4	0.7	1.0	1.7	1.5	0.8	0.4	0.0	0.2	0.0	0.3	1.4	2.9	2.9	3.5	4.7	1.7	1.6	1.8	Diurnal Average	
																								0.9	0.6	0.6	0.7	0.4	0.4	0.6	1.7	1.4	0.8	0.4	0.0	0.2	0.0	0.3	1.4	1.9	1.3	1.1	1.6	0.9	0.9	1.0	Diurnal Maximum	



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

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





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

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

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	709	95.30	95.30
0.4 - 0.5	12	1.61	96.91
0.6 - 0.7	6	0.81	97.72
0.8 - 1.4	13	1.75	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



Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

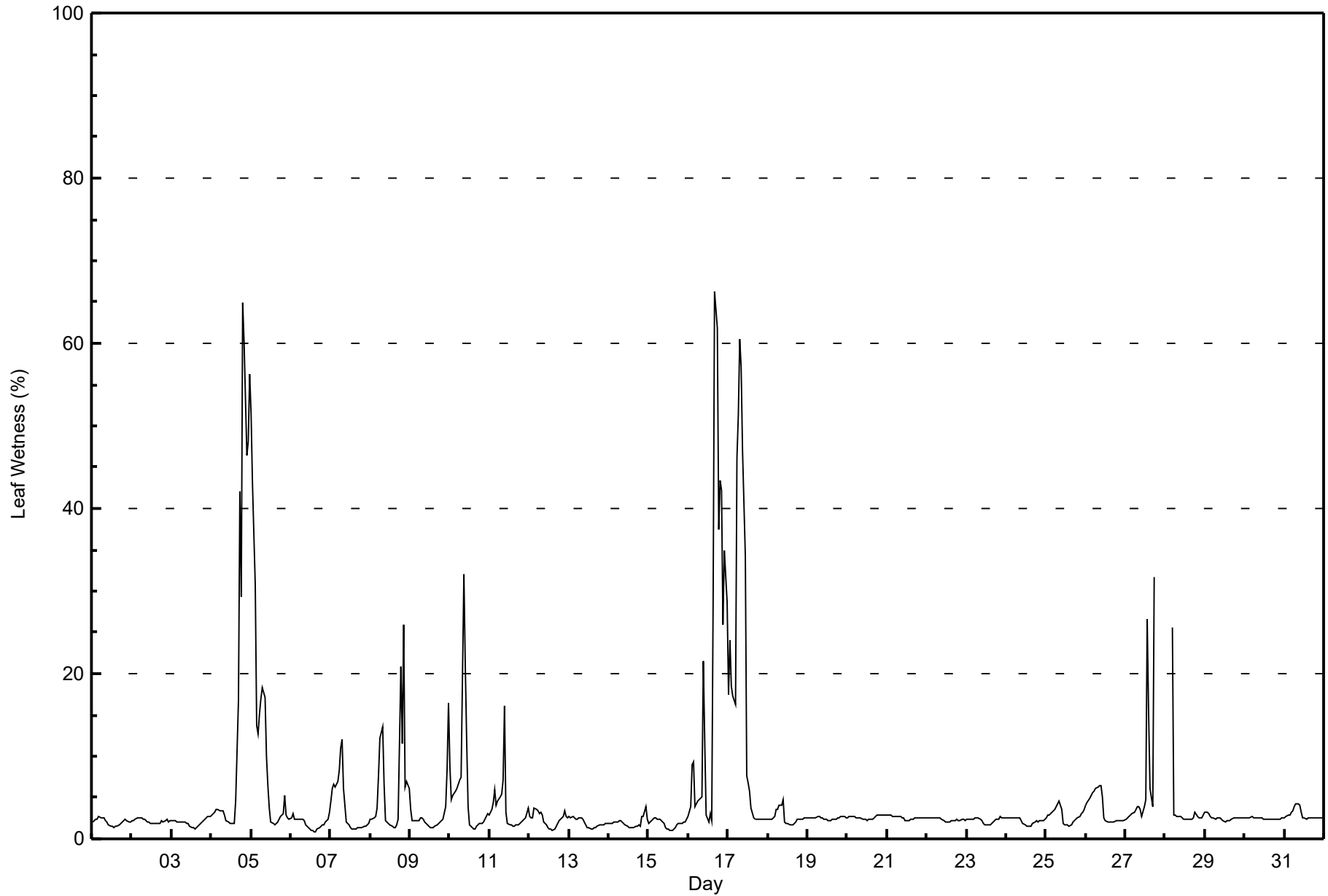
Fort McKay - Bertha Ganter - October 2024

Maximum Value: 66.2 % on Oct 16 17:00		Maximum Daily Average: 19.2 % on Oct 16		Hours in Service: 744																						
Minimum Value: 0.9 % on Oct 6 15:00		Minimum Daily Average: 1.9 % on Oct 15		Hours of Data: 734																						
Maximum Diurnal Average: 6.5 % at hour 21		Minimum Diurnal Average: 2.0 % at hour 13		Hours of Missing Data: 10																						
Monthly Average: 4.71 %		Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 2.0 Median = 2.4 Q <sub>3</sub> = 2.8 P <sub>90</sub> = 6.5 P <sub>99</sub> = 51.5		Hours of Calibration: 0																						
				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-Oct	2.0	2.1	2.3	2.5	2.6	2.5	2.6	2.5	2.3	2.0	1.6	1.5	1.5	1.4	1.5	1.6	1.7	1.8	2.0	2.2	2.4	2.2	2.1	2.1	2.0	2.6
2-Oct	2.1	2.1	2.4	2.6	2.6	2.5	2.5	2.4	2.3	2.0	2.0	1.9	1.9	1.8	1.9	1.9	1.9	1.9	2.2	2.0	2.2	2.4	2.1	2.1	2.2	2.6
3-Oct	2.1	2.2	2.2	2.1	2.0	2.1	2.1	2.0	2.0	1.9	1.8	1.6	1.4	1.3	1.3	1.3	1.5	1.7	2.0	2.2	2.4	2.5	2.7	2.8	2.0	2.8
4-Oct	2.8	3.1	3.3	3.5	3.5	3.4	3.3	3.3	2.8	2.3	2.0	1.8	1.9	1.9	1.9	4.5	16.7	42.0	29.4	64.8	60.2	46.5	48.1	56.2	17.1	64.8
5-Oct	51.6	43.0	30.7	13.7	12.7	15.0	17.0	18.3	17.1	10.0	6.5	3.7	2.0	1.9	1.7	1.9	2.0	2.3	2.7	3.0	5.3	2.9	2.5	2.4	11.2	51.6
6-Oct	2.5	3.1	2.4	2.4	2.4	2.4	2.4	2.4	2.3	1.7	1.4	1.2	1.0	1.0	0.9	0.9	1.2	1.4	1.6	1.6	1.8	2.1	2.4	3.2	1.9	3.2
7-Oct	4.6	6.1	6.6	6.3	7.0	8.4	11.0	12.0	6.1	2.0	1.8	1.6	1.4	1.2	1.2	1.1	1.3	1.4	1.4	1.4	1.5	1.5	1.8	1.9	3.8	12.0
8-Oct	2.3	2.4	2.5	2.6	3.7	7.6	12.1	13.5	6.6	2.2	2.1	1.9	1.7	1.5	1.4	1.4	1.6	2.4	20.8	11.5	25.9	6.4	6.9	6.1	6.1	25.9
9-Oct	3.6	2.2	2.2	2.2	2.2	2.3	2.5	2.5	2.4	2.0	1.7	1.5	1.4	1.4	1.4	1.5	1.6	1.8	2.0	2.2	2.4	3.9	8.5	16.4	3.0	16.4
10-Oct	8.7	4.8	5.2	5.7	6.1	6.6	7.2	7.4	32.0	20.8	11.7	4.0	1.7	1.6	1.2	1.2	1.5	1.7	1.8	1.9	2.0	2.3	2.7	3.1	6.0	32.0
11-Oct	2.8	3.6	4.4	6.0	4.0	4.6	5.1	5.5	7.2	16.2	3.2	1.9	1.7	1.6	1.5	1.5	1.6	1.7	1.9	2.1	2.3	2.4	2.5	3.7	3.7	16.2
12-Oct	2.7	2.5	2.6	3.7	3.5	3.3	3.1	3.3	2.9	2.1	1.6	1.4	1.2	1.2	1.1	1.2	1.5	1.9	2.1	2.3	2.7	3.3	2.6	2.6	2.4	3.7
13-Oct	2.7	2.5	2.6	2.5	2.4	2.4	2.6	2.5	2.3	2.0	1.6	1.4	1.3	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9	1.9	2.7
14-Oct	1.9	1.9	1.9	2.0	2.0	2.0	2.2	2.2	2.1	1.9	1.7	1.5	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.5	2.7	2.7	4.0	2.3	1.9	4.0
15-Oct	1.9	2.0	2.2	2.5	2.5	2.4	2.4	2.4	2.2	1.8	1.4	1.2	1.1	1.1	1.0	1.2	1.4	1.7	1.8	1.9	1.9	2.0	2.1	2.4	1.9	2.5
16-Oct	2.7	3.9	8.9	9.3	3.9	4.2	4.6	4.8	5.2	21.6	11.9	2.8	2.0	3.1	2.2	29.0	66.2	61.9	37.5	43.3	42.3	25.9	34.9	28.6	19.2	66.2
17-Oct	17.5	24.0	18.4	17.3	16.3	46.1	51.3	60.5	57.0	47.0	34.3	7.6	6.7	5.8	3.8	2.5	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	18.1	60.5
18-Oct	2.3	2.4	2.4	2.6	2.7	3.6	3.5	4.0	4.0	4.8	2.0	1.9	1.8	1.7	1.6	1.7	1.8	2.0	2.3	2.4	2.4	2.4	2.5	2.5	2.6	4.8
19-Oct	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.4	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.6	2.7	2.7	2.6	2.6	2.5	2.7
20-Oct	2.6	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.9	3.0	2.9	2.9	2.9	2.8	2.6	3.0
21-Oct	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.6	2.5	2.3	2.2	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8
22-Oct	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5
23-Oct	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.2	1.8	1.6	1.6	1.7	1.7	1.9	2.0	2.3	2.4	2.4	2.7	2.5	2.5	2.5	2.2	2.7
24-Oct	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.3	1.8	1.6	1.6	1.5	1.5	1.6	1.8	2.1	2.1	2.1	2.2	2.3	2.2	2.4	2.2	2.6
25-Oct	2.6	2.8	2.9	3.1	3.3	3.5	3.9	4.3	4.5	3.6	1.9	1.7	1.6	1.6	1.5	1.7	2.0	2.2	2.4	2.6	2.8	3.0	3.3	3.6	2.8	4.5
26-Oct	4.0	4.4	4.8	5.2	5.5	5.8	6.1	6.3	6.5	6.4	5.1	2.5	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.3	3.7	6.5
27-Oct	2.3	2.6	2.8	2.8	3.0	3.2	3.5	3.9	3.9	3.6	2.8	4.0	4.7	26.5	15.3	6.0	3.9	31.8	OR	OR	OR	OR	OR	OR	7.0	31.8
28-Oct	OR	OR	OR	OR	25.6	2.8	2.8	2.8	2.7	2.6	2.5	2.4	2.4	2.4	2.4	2.5	2.5	3.2	2.7	2.5	2.5	2.5	2.8	3.8	25.6	
29-Oct	3.2	3.2	3.0	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.1	2.2	2.1	2.2	2.3	2.5	2.6	2.6	2.6	2.5	2.5	2.5	2.5	3.2
30-Oct	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.7
31-Oct	2.5	2.7	2.8	3.0	3.2	3.5	3.8	4.2	4.3	4.0	3.2	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.9	4.3
																								Diurnal Average		
																								Diurnal Maximum		
5.0 4.9 4.6 4.2 4.6 5.2 5.7 6.2 6.5 5.9 4.0 2.3 2.0 2.7 2.2 2.9 4.5 6.2 4.9 6.0 6.5 4.9 5.4 5.8																										
51.6 43.0 30.7 17.3 25.6 46.1 51.3 60.5 57.0 47.0 34.3 7.6 6.7 26.5 15.3 29.0 66.2 61.9 37.5 64.8 60.2 46.5 48.1 56.2																										
OR - Out of Range																										



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

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





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

**Leaf Wetness (LW) - %**  
**Fort McKay - Bertha Ganter - October 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	50	6.81	6.81
1.5 - 10	622	84.74	91.55
> 10	55	7.49	99.05

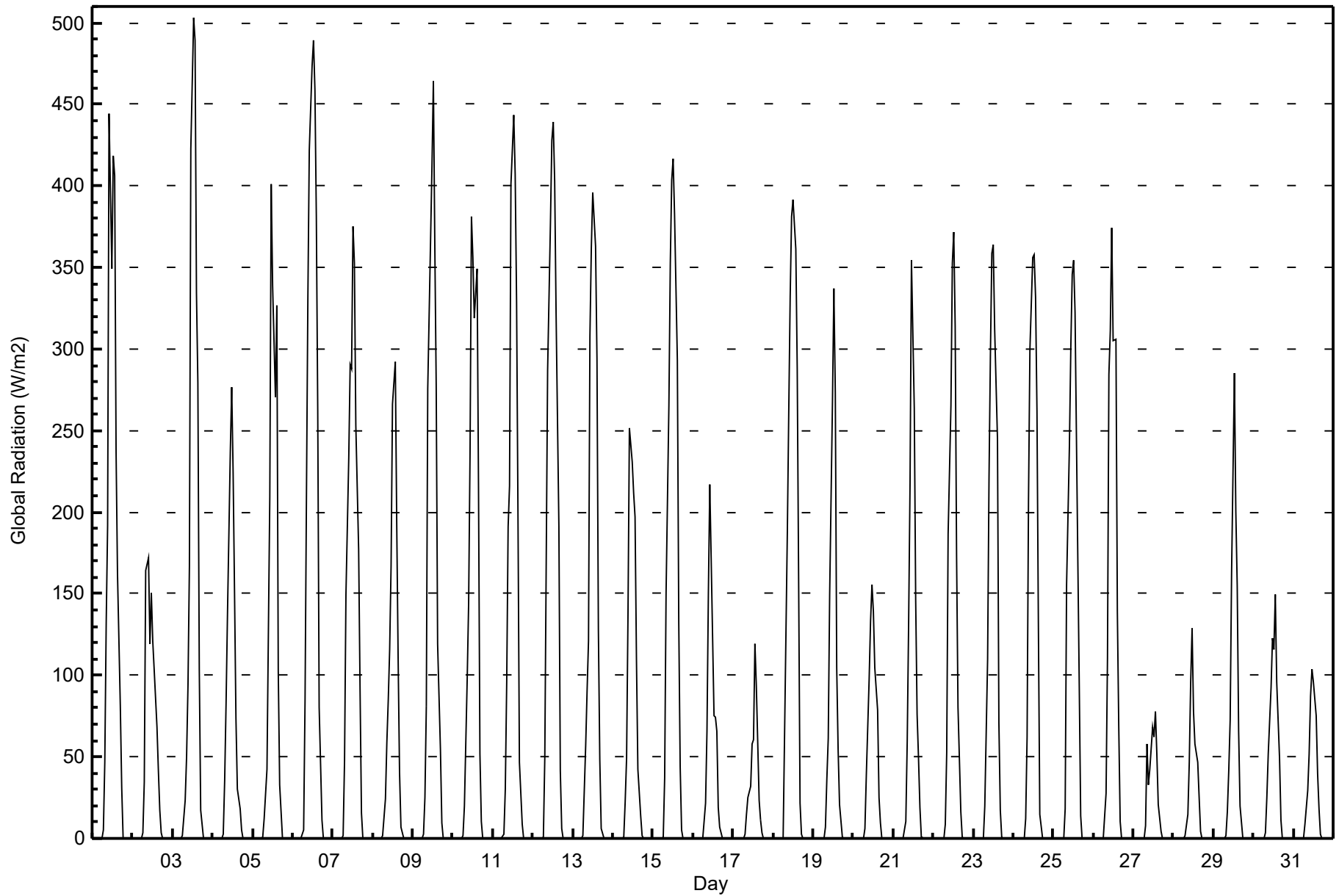
Total Number of Valid Hours: 734

Total Number of Hours: 744





Maximum Value: 502.8 W/m2 on Oct 3 13:00      Maximum Daily Average: 133.7 W/m2 on Oct 6																						Hours in Service:	744																							
Minimum Value: 0.0 W/m2 on Oct 1 01:00      Minimum Daily Average: 17.7 W/m2 on Oct 27																						Hours of Data:	744																							
Maximum Diurnal Average: 294.2 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 22																						Hours of Missing Data:	0																							
Monthly Average: 69.76 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> = 88.1 P <sub>90</sub> = 287.3 P <sub>99</sub> = 441.7																						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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	4.9	47.0	132.5	191.6	444.0	348.8	418.1	406.4	236.5	162.5	81.2	31.1	0.4	0.0	0.0	0.0	0.0	0.0	104.4	444.0																				
2-Oct	0.0	0.0	0.0	0.0	0.0	0.0	3.3	34.6	163.9	171.8	119.3	150.5	121.3	103.4	68.4	41.1	17.1	3.8	0.1	0.0	0.0	0.0	0.0	0.0	41.6	171.8																				
3-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.8	23.2	49.7	94.5	166.4	422.5	502.8	489.0	334.3	279.2	104.0	17.5	0.4	0.0	0.0	0.0	0.0	0.0	103.6	502.8																				
4-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.5	35.2	83.3	137.3	237.1	276.9	224.2	150.0	73.3	30.4	17.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	53.0	276.9																				
5-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.8	12.4	42.6	126.0	209.2	401.4	338.7	270.3	326.7	103.0	32.6	16.4	0.3	0.0	0.0	0.0	0.0	0.0	78.4	401.4																				
6-Oct	0.0	0.0	0.0	0.0	0.0	0.0	5.6	84.4	210.7	330.9	421.7	474.1	489.5	458.6	381.1	261.8	80.1	11.3	0.0	0.0	0.0	0.0	0.0	0.0	133.7	489.5																				
7-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.1	47.2	149.2	233.7	290.2	287.5	374.9	352.5	253.4	176.8	91.6	15.2	0.0	0.0	0.0	0.0	0.0	0.0	94.8	374.9																				
8-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.8	24.5	58.9	85.0	116.2	166.9	266.6	292.0	194.0	110.9	40.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0	56.8	292.0																				
9-Oct	0.0	0.0	0.1	0.0	0.0	0.0	2.4	25.4	81.1	275.4	366.3	411.9	463.8	365.1	277.7	119.0	54.9	9.3	0.0	0.0	0.0	0.0	0.0	0.0	102.2	463.8																				
10-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.7	19.8	98.9	144.4	237.1	381.1	356.3	319.2	349.6	215.1	51.6	10.8	0.0	0.0	0.0	0.0	0.0	0.0	91.1	381.1																				
11-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.3	30.1	96.1	191.1	216.5	401.1	443.6	407.2	328.5	196.4	47.0	8.7	0.0	0.1	0.0	0.0	0.0	0.0	98.7	443.6																				
12-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.3	49.5	168.5	286.9	376.9	427.7	439.3	402.7	322.4	190.7	41.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0	113.1	439.3																				
13-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.6	56.8	90.6	120.6	307.9	361.8	396.2	363.3	294.0	128.3	48.4	5.7	0.0	0.0	0.0	0.0	0.0	0.0	90.6	396.2																				
14-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.5	22.2	49.6	137.3	252.0	230.6	211.6	197.1	110.0	42.6	13.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	52.9	252.0																				
15-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.6	37.5	150.5	265.0	352.4	403.7	416.7	383.0	292.8	132.4	43.7	5.1	0.0	0.0	0.0	0.0	0.0	0.0	103.5	416.7																				
16-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5	66.1	150.2	217.1	170.3	75.5	74.8	65.7	19.3	7.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	36.2	217.1																				
17-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	14.9	25.0	32.3	58.2	60.8	119.1	93.4	23.1	11.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	18.5	119.1																				
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.3	62.1	188.6	261.8	331.8	380.9	391.8	361.2	288.1	158.4	21.8	2.4	0.0	0.0	0.0	0.0	0.0	0.0	102.0	391.8																				
19-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	61.1	149.9	268.1	336.9	273.0	104.4	54.9	21.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	54.7	336.9																				
20-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	39.0	97.3	133.0	155.6	139.0	104.5	79.0	24.8	9.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	32.8	155.6																				
21-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	60.0	132.6	217.8	354.3	263.3	146.1	76.3	49.0	19.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	55.4	354.3																				
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	52.9	186.7	265.0	352.3	371.4	313.4	173.2	80.2	16.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	75.8	371.4																				
23-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	109.8	221.2	297.2	358.5	364.3	312.3	244.3	71.0	17.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	84.0	364.3																				
24-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	62.0	207.3	299.8	355.8	358.2	332.2	261.8	131.4	14.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	84.8	358.2																				
25-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.1	155.3	240.3	301.2	345.6	354.0	322.2	245.1	92.7	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.0	354.0																				
26-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8	111.0	284.5	311.5	374.3	305.0	305.9	139.2	68.5	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.8	374.3																				
27-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	58.3	33.0	42.1	68.5	62.0	78.0	51.6	20.6	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	78.0																				
28-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	14.6	46.3	95.6	128.6	78.0	57.8	46.9	24.7	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	128.6																				
29-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	16.8	41.1	72.6	162.8	284.8	200.5	154.4	65.6	19.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	42.5	284.8																				
30-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	25.0	52.2	92.9	122.4	115.8	149.3	95.8	49.2	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9	149.3																				
31-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	29.7	51.6	87.2	103.4	95.7	75.1	39.5	18.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.3	103.4																				
																						0.0	0.0	0.0	0.0	0.0	1.1	24.8	86.0	157.5	227.7	287.3	294.2	264.0	193.6	101.4	31.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	Diurnal Average	
																						0.0	0.0	0.1	0.0	0.0	5.6	84.4	210.7	330.9	444.0	474.1	502.8	489.0	381.1	279.2	104.0	31.1	0.4	0.1	0.0	0.0	0.0	0.0	Diurnal Maximum	





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

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

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	470	63.17	63.17
21 - 100	100	13.44	76.61
101 - 300	107	14.38	90.99
301 - 600	67	9.01	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: 23 km/h on Oct 21 03:00	Maximum Daily Speed Average: 12.6 km/h on Oct 20	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 6 23:00	Minimum Daily Speed Average: 0.9 km/h on Oct 16	Hours of Data: 739
Maximum Diurnal Speed Average: 2.7 km/h at hour 6	Minimum Diurnal Speed Average: 1.6 km/h at hour 13	Hours of Missing Data: 5
Monthly Average Velocity: 1.9 km/h 279.8 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 13 P <sub>99</sub> = 20	Percent Operational Time: 99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	WNW6	WNW5	NNW3	NW3	WNW2	W1	N2	NNW2	W2	NW4	NNE2	ENE6	NE6	ENE4	N6	NE6	NNE8	NNE6	NNW7	NW6	WNW4	WNW8	WNW9	WNW8	NNW3.4	WNW9	
2-Oct	WNW6	NW9	WNW7	WNW6	WNW7	WNW6	WNW5	WNW4	W5WNW14	WNW11	NW12	NW15	NW19	NW14	NW13	NW15	NW11	NW16	NNW15	NNW14	NNW14	NW11	WNW6	NW10.2	NW19		
3-Oct	NW8	NW6	NW6	NW10	NW7	WNW7	WNW7	NW9	NW9	NW11	NW11	NW9	W6	WNW9	W8	W8	W5	SSW5	SW5	SW3	W2	S4	SSW2	S3	WNW5.5	NW11	
4-Oct	S4	SSW3	SSW4	SSW3	SW2	S3	SSE2	S1	SSW2	NE1	E2	NNE4	N9	N10	N12	N11	N13	N12	NNE9	NNE6	N8	N10	N12	N13	N4.4	N13	
5-Oct	N12	N12	N9	NNW6	NW3	WNW1	W2	S2	S3	S3	SW4	SW7	SW7	SSW7	SW10	WSW7	SSW6	S6	S7	S8	S7	S6	S6	S8	SW2.8	N12	
6-Oct	SSW5	WSW6	W9	W10	W11	W11	W10	W7	WSW8	SSW8	SW11	SW12	W10WSW11	WSW9	WSW9	WSW8	WSW6	W5	W5	SSE2	S1	SW0	SW2	WSW6.8	SW12		
7-Oct	SW2	SSW2	S3	SSW2	NW3	WSW2	SW2	WSW1	S2	SSE4	S9	SSE10	SSE10	SSE12	SSE9	SE3	S5	S9	S9	S11	S8	S7	S6	S6	S5.2	SSE12	
8-Oct	SSW3	SW5	S3	SSW3	SSW2	S4	S5	S5	S4	S4	S5	SE3	SSE4	SSE6	SSE6	ESE1	NNE4	NNW4	SSW2WNW12	WNW8	WSW9	SW8	SSW7	SSW2.9	WNW12		
9-Oct	WSW8	SW8	SSW7	SSW5	SSW6	S7	SSW6	SSW6	SW6	WSW7	WSW8	WSW9	C	C	SW8	SW6	SW4	SW3	SW3	W3	W1	SSW2	SSE1	UO	SW5.1	WSW9	
10-Oct	S3	SSW4	SSW3	S5	S3	S6	S5	SSW6	S6	S6	SSE7	SSE10	SSE10	SW7	WSW9	WSW8	WSW7	WSW5	NW6	NW9	WNW3	SW1	SW2	SW2	SSW3.7	SSE10	
11-Oct	SSW2	SSW3	SSW4	SSE3	S4	S4	SSW3	SSW5	S5	S8	S9	SSE12	SSE14	SSE13	SSE15	S12	SSW8	SSW6	SW5	SSW5	SSW4	SSW3	S3	WSW1	S5.9	SSE15	
12-Oct	SSW4	S1	WSW1	WSW1	W2	WSW5	S3	S5	S4	SSE6	SSE6	SSE5	ESE5	E7	E7	ENE5	E4	ENE2	SE2	S2	SSE3	SSE1	SSW2	S3	SE2.3	E7	
13-Oct	S4	SSE4	S5	S6	S7	S5	S6	S4	S9	S13	S15	S20	S23	SSE20	SSE19	SSE14	S9	S7	S7	S8	S9	S6	S7	S8	S9.7	S23	
14-Oct	S11	S9	S6	S4	SSE6	S5	SSE4	SSE3	SSE5	S13	S15	S9	S10	S8	S9	S8	S6	S5	S8	S10	S8	SW5	S8	S9	S7.4	S15	
15-Oct	S8	S7	S5	SSE2	S6	WSW6	WSW5	WSW5	WSW4	W7	WSW7	WSW6	SSW7	WSW6	SW7	SW6	SW5	WSW4	SSW3	S4	SW5	SSW1	SW2	S4	SW4.4	S8	
16-Oct	S4	S4	SSW4	SSW2	SSW3	SW2	SSE1	WSW1	WSW1	SSE2	SE2	SE3	UO	N2	E1	UO	N6	N8	N6	N7	NNW5	NNW4	NW4	NW3	NNW0.9	N8	
17-Oct	NW2	WNW1	W3	SW3	SSW4	WSW6	WSW7	WSW8	W8	W8	W8	W8	WSW7	W9	W9	W9	W9	W9	W9	W9	W9	W9	W9	W9	W9	W8.0	WNW15
18-Oct	NW12	NW14	NW9	SSW2	SSW4	SW5	SSW4	SSW5	SSW6	S7	SSE9	SSE12	SSE12	S12	S11	S11	SSW7	S4	S4	S3	SSE4	SSE3	NNW3	N5	SSW4.0	NW14	
19-Oct	NNW3	NNW2	NW1	NW3	NW3	N8	N9	NNW5	N7	N6	N7	N10	NNE12	NNE9	NE8	NE7	NNE8	NNE11	N12	N12	N12	N13	N15	N16	N7.9	N16	
20-Oct	N17	N16	N15	N13	N15	N14	N12	N8	NNE9	NNE11	NNE11	NNE9	NE9	NE9	NNE11	NNE11	NNE11	NNE13	NNE13	NNE14	NNE15	NNE17	NNE18	NNE19	NNE12.6	NNE19	
21-Oct	N20	N21	N23	N22	N21	N21	N19	N20	N17	N19	NNE16	NNE10	NNE7	N8	NNW11	NW8	NW7	WNW4	NW7	WNW5	W4	W5	WSW4	SSW6	N10.9	N23	
22-Oct	SSW6	SSW5	S6	S7	S9	S9	SSW9	S9	SSW9	SSW11	SW10	SW9	SSW12	SSW12	S12	SSW11	SSW11	S11	SSW13	SSW12	SSW9	SSW7	SW9	SW10	SSW9.4	SSW13	
23-Oct	SW9	SW10	WSW11	WSW11	W10	W9	W9	WSW6	WSW10	W8	W6	WSW5	WSW10	WSW9	WSW9	WSW8	WSW8	W5	SW3	SSE1	SW2	SSW6	SSW6	S7	WSW6.7	WSW11	
24-Oct	S5	SSW4	SSW3	SW4	W6	W7	W5	WSW4	WSW4	W6	WNW8	WNW14	WNW14	WNW11	WNW14	WNW11	NW7	WNW4	WNW7	WNW4	W3	W3	NNE4	NNW3	WNW5.5	WNW14	
25-Oct	E0	SW5	SW4	S5	SSW3	SSW4	ESE1	SSW4	S5	SSW5	SSE3	SSE5	ESE5	NNW5	NW8	WNW9	WNW4	WSW3	SW3	NW1	SW2	NNW2	WSW2	NW3	SW1.7	WNW9	
26-Oct	NW4	W3	NW3	WNW3	W3	NW2	NW3	NNW3	N8	N11	N11	N12	N12	NNE11	NE9	NE8	NNE7	NNE6	NNE5	NNE6	NNE7	N5	NNE6	N5.6	N12		
27-Oct	NW6	N4	NNW5	NNW4	N5	NW6	NW3	NNW4	NW2	N4	N3	NNE3	NNE6	N5	N9	NW4	N3	NNW4	NW4	N3	NNW4	NNW4	NNW1	WSW2	NNW3.7	N9	
28-Oct	W3	WNW8	WNW6	WNW7	WNW8	WNW7	WNW6	WNW5	WNW7	WNW9	WNW10	NW12	NW14	NW14	NW13	NW11	NW11	WNW9	WNW8	WNW10	WNW11	WNW9	WNW9	WNW8	WNW8.9	NW14	
29-Oct	WNW7	NW12	NW14	WNW14	WNW12	NW13	NW11	NW9	NW5	WNW4	W6	WSW7	WSW6	SW7	SW7	S5	ESE3	ESE4	SE4	ESE4	ENE1	N4	N7	N10	WNW4.5	WNW14	
30-Oct	N13	N12	N15	N15	N13	NNE12	NNE14	NNE13	NNE12	NNE12	NNE12	NNE11	NE11	NNE11	NE11	NE9	NE9	ENE7	E6	E7	ESE6	NE5	NE6	NE6	NNE9.2	N15	
31-Oct	ENE5	ENE2	NNE2	E3	ENE2	ENE3	NNE3	N1	NE1	SE6	SSE8	SSE6	SSE10	SE8	SE6	SE3	SW1	NW3	NNW3	NNW3	NNE1	N2	SSW2	SW7	ESE1.6	SSE10	

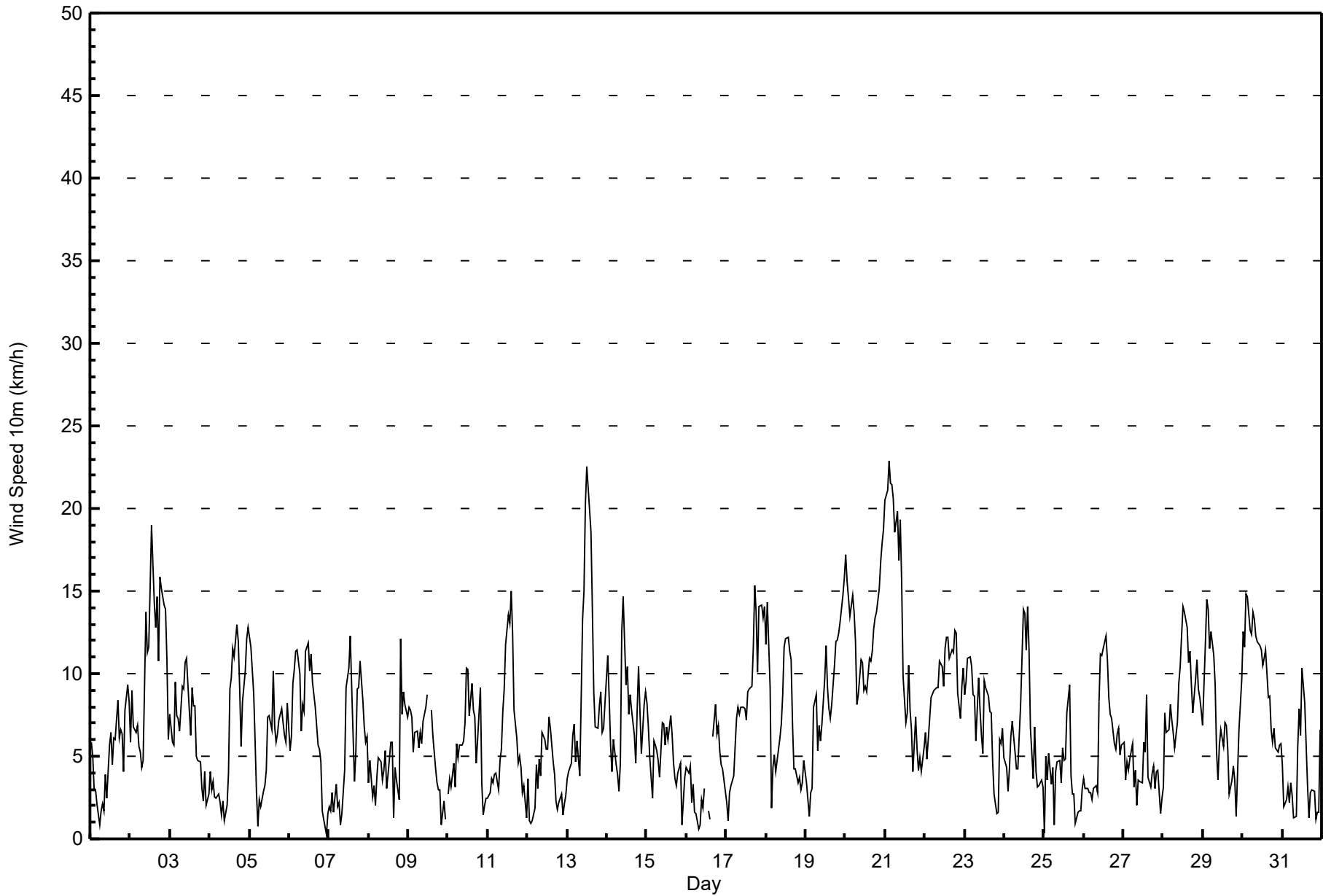
WNW2.1	WNW2.6	WNW2.7	WNW2.3	WNW2.7	WNW2.3	W2.1	W1.9	WSW1.8	SW1.7	SW1.7	SW1.6	WSW1.8	WSW2.2	W2.1	WNW1.9	WNW1.7	WNW1.9	WNW1.8	WNW1.8	NW2.0	WNW1.9	WNW1.8	Diurnal Average					
N20	N21	N23	N22	N21	N21	N19	N20	N17	N19	NNE16	S20	S23	SSE20	SSE19	SSE14	NW15	WNW15	NW16	NNW15	NNE15	NNE17	NNE18	NNE19	Diurnal Maximum				

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



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

**Wind Speed 10m (WS10) - km/h**  
**Fort McKay - Bertha Ganter - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Fort McKay - Bertha Ganter - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	304	41.14	41.14
6 - 11	326	44.11	85.25
12 - 19	99	13.40	98.65
20 - 28	10	1.35	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 739

Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Fort McKay - Bertha Ganter - October 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	14	9	3	8	5	7	7	22	51	45	32	20	20	16	21	24	304
6 - 11	25	26	13	2	4	1	2	17	59	26	19	36	27	38	28	3	326
12 - 19	30	15	0	0	0	0	0	9	7	4	1	0	0	13	17	3	99
20 - 28	7	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	10
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	76	50	16	10	9	8	9	49	119	75	52	56	47	67	66	30	739

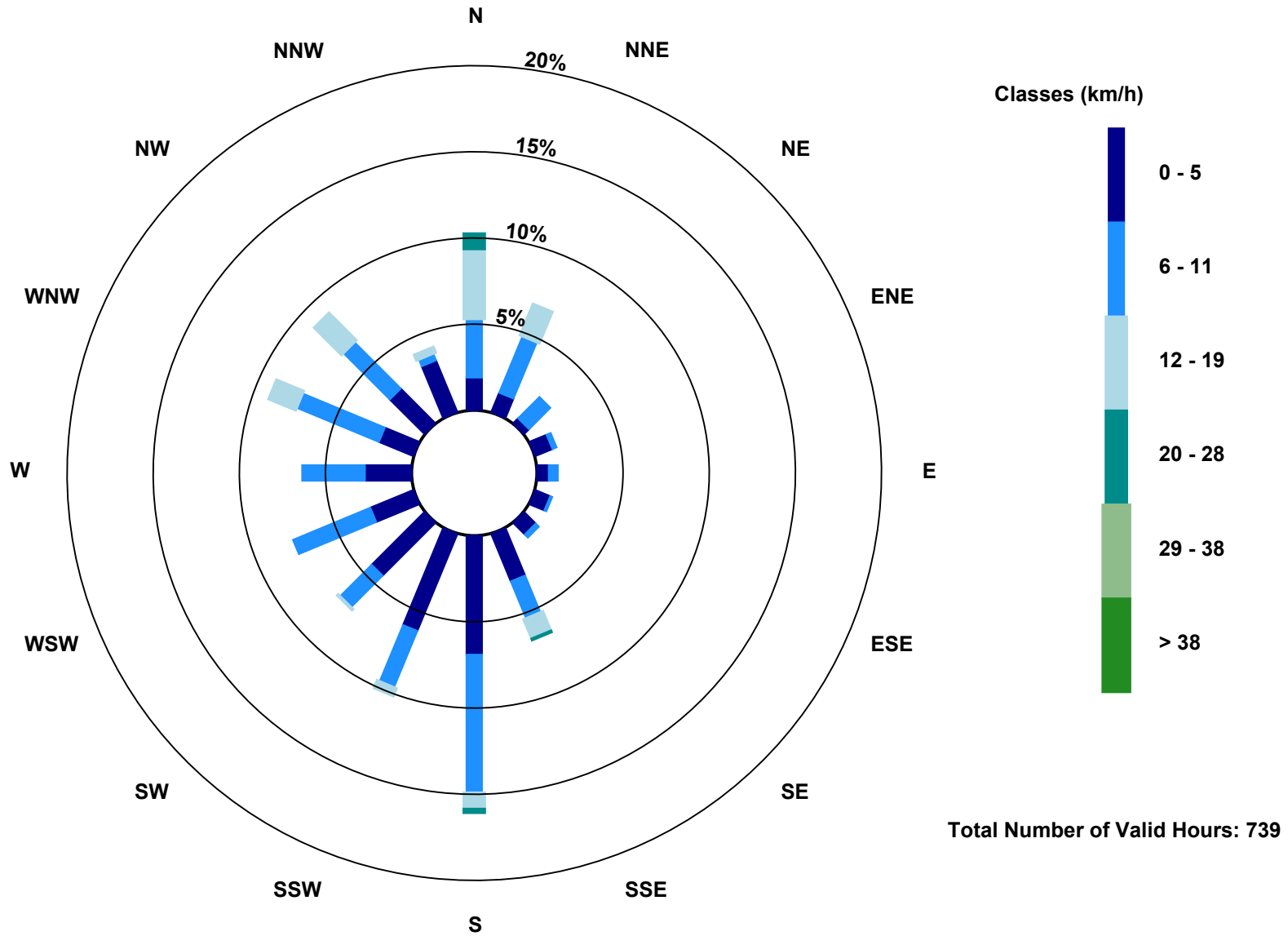
Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Fort McKay - Bertha Ganter







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

**Wind Speed 10m (WS10) - km/h**  
**Fort McKay - Bertha Ganter - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Oct 17 18:00 Minimum Value: 0 km/h on Oct 31 19:00 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																		Hours in Service: 744 Hours of Data: 739 Hours of Missing Data: 5 Hours of Calibration: 2 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-Oct	2	2	2	1	1	1	1	2	1	1	2	3	2	2	3	3	3	1	1	2	2	2	2	2	3	3
2-Oct	2	4	2	2	2	2	2	2	3	6	4	4	5	6	4	4	5	3	4	4	4	3	3	2	6	
3-Oct	3	2	2	2	3	3	3	3	3	4	4	4	4	4	4	3	2	1	1	1	2	1	2	1	4	
4-Oct	1	2	1	1	1	2	1	1	1	1	1	2	2	2	2	2	3	2	3	2	1	3	2	2	3	
5-Oct	2	2	2	2	1	1	1	1	1	1	1	3	2	3	4	3	2	1	1	1	1	2	1	2	4	
6-Oct	3	3	4	4	5	5	4	3	4	3	4	4	4	5	4	4	3	2	2	1	1	2	1	1	5	
7-Oct	2	2	1	1	1	1	2	1	1	2	2	2	2	2	2	2	3	2	2	2	1	2	1	1	3	
8-Oct	1	1	2	1	1	2	1	2	1	1	1	1	1	2	2	2	1	1	3	5	4	3	3	3	5	
9-Oct	3	3	2	2	2	2	1	1	2	3	3	3	C	C	3	3	1	1	1	1	1	2	1	UO	3	
10-Oct	1	2	2	1	1	1	2	1	1	1	1	2	2	4	4	3	3	2	3	2	1	2	1	2	4	
11-Oct	2	1	1	2	1	2	1	1	1	2	2	3	2	2	3	3	2	1	1	1	2	1	1	2	3	
12-Oct	1	1	1	1	1	2	1	1	2	2	1	2	2	2	2	2	1	1	2	2	1	1	2	2	2	
13-Oct	1	1	1	2	2	1	1	1	4	4	3	4	5	4	4	3	3	1	2	2	2	1	2	1	5	
14-Oct	2	3	2	1	2	3	2	2	2	4	3	3	3	2	4	2	2	1	2	3	2	2	2	2	4	
15-Oct	1	2	1	2	1	2	3	2	2	3	3	2	3	3	3	2	1	1	1	1	1	2	2	3		
16-Oct	2	2	1	2	2	2	2	1	1	2	2	1	UO	2	2	UO	2	2	2	1	2	1	1	1	2	
17-Oct	1	1	1	1	1	3	3	3	3	3	4	3	3	4	4	4	6	7	6	4	5	5	5	4	7	
18-Oct	4	3	6	2	1	1	1	1	2	2	2	3	3	3	3	3	2	1	1	1	1	1	1	1	6	
19-Oct	2	1	1	2	2	3	2	2	2	2	2	3	3	2	3	2	2	3	3	2	2	3	3	4	4	
20-Oct	4	3	3	4	3	3	4	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	3	4	4	
21-Oct	4	4	4	4	4	4	4	4	3	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2	4	
22-Oct	2	1	2	2	2	3	2	2	2	3	4	3	4	4	3	3	3	3	3	3	3	3	3	4	4	
23-Oct	3	4	4	4	4	4	4	3	4	3	3	3	4	4	4	3	3	2	1	1	1	1	1	1	4	
24-Oct	1	2	1	1	2	3	2	2	2	3	3	5	6	5	5	4	2	1	2	1	1	1	2	1	6	
25-Oct	2	2	1	1	2	2	2	1	1	2	1	2	2	3	3	4	2	1	1	2	2	1	1	2	4	
26-Oct	2	2	2	1	2	2	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	
27-Oct	1	1	1	1	1	1	1	1	2	1	2	2	3	2	4	2	1	1	1	1	1	1	2	1	4	
28-Oct	3	2	2	2	2	2	2	2	2	3	2	3	3	4	3	3	3	3	2	4	3	3	3	3	4	
29-Oct	3	5	4	4	4	4	3	3	2	2	3	3	3	3	3	2	1	1	1	1	1	2	1	2	5	
30-Oct	2	2	2	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	
31-Oct	2	1	1	1	1	1	1	1	1	2	2	2	3	2	2	1	1	1	0	1	1	1	3	3	3	
																		Diurnal Maximum								
C - Calibration																		UO - Unstable Operation								



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Wind Direction 10m (WD10) - deg**

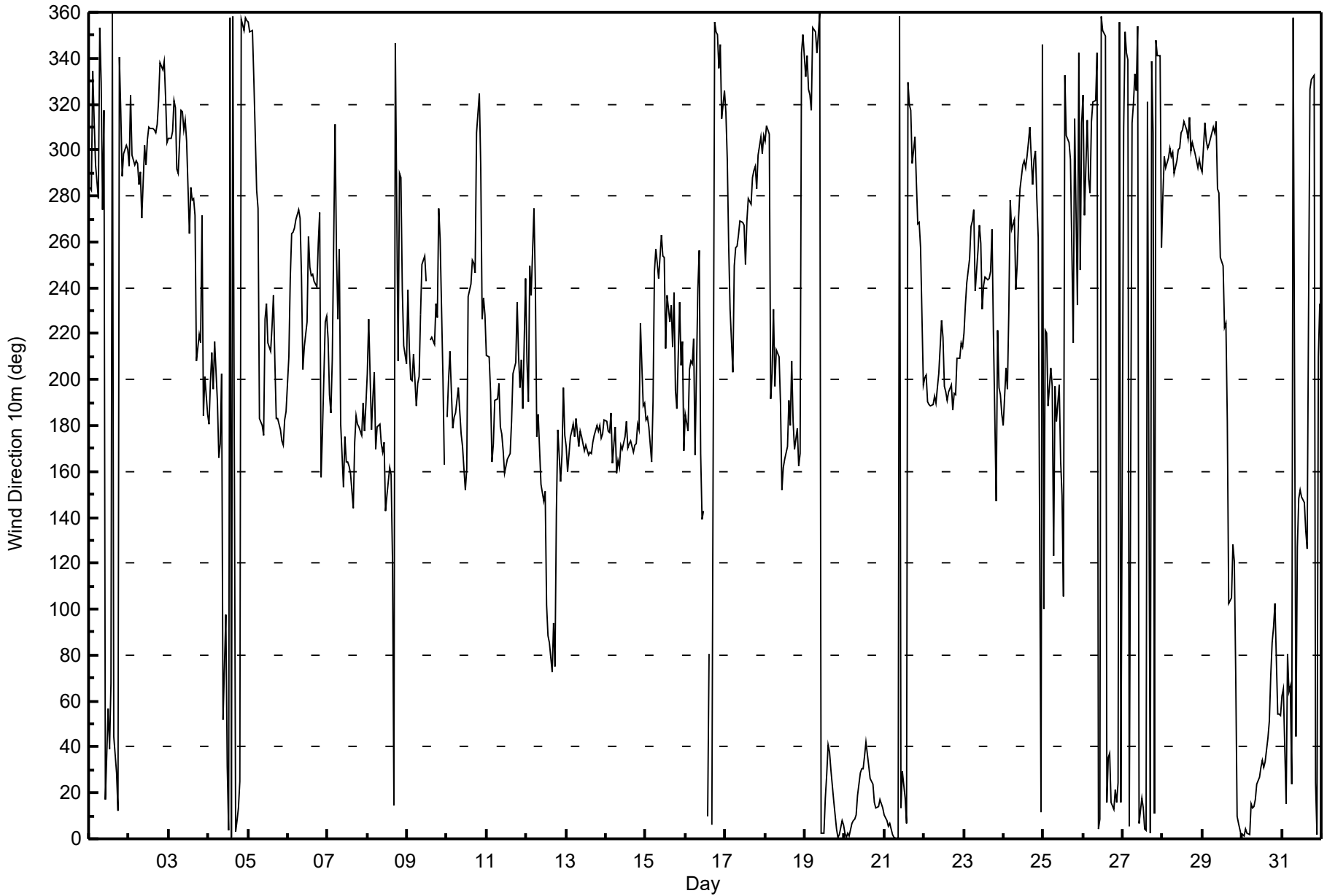
**Fort McKay - Bertha Ganter - October 2024**

Direction of Maximum Speed: 5 deg on Oct 21 03:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 16.0 deg on Oct 20	Hours of Data: 739
Direction of Minimum Speed: 225 deg on Oct 6 23:00	Hours of Missing Data: 5
Direction of Minimum Daily Speed Average: 0.9 deg on Oct 16	Percent Operational Time: 99.6
Monthly Average Direction: 279.8 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-Oct	284	282	334	313	293	279	353	329	274	317	17	57	39	68	360	44	29	12	340	317	289	298	302	300	337.3
2-Oct	293	324	298	294	295	294	285	290	270	302	293	304	310	309	309	309	307	311	322	338	335	339	323	303	311.1
3-Oct	305	305	308	321	318	292	290	317	317	309	313	304	264	284	279	279	272	208	220	216	271	184	201	185	291.0
4-Oct	180	199	212	196	217	190	166	172	203	52	98	32	4	357	1	358	3	8	13	25	357	352	357	356	1.6
5-Oct	356	351	352	331	307	283	275	183	180	176	226	233	216	213	223	237	208	183	183	178	173	171	183	186	220.1
6-Oct	210	244	264	264	266	270	274	270	245	204	214	225	262	249	245	246	243	240	260	273	158	177	225	227	247.9
7-Oct	218	194	186	209	311	255	226	257	180	153	175	164	164	162	159	144	173	184	181	180	176	190	178	189	177.0
8-Oct	203	226	178	192	203	169	179	181	172	169	173	143	150	162	158	122	15	347	208	290	288	239	215	207	205.0
9-Oct	239	214	200	200	211	189	198	202	228	250	254	243	C	C	218	218	216	233	227	275	261	201	163	UO	221.5
10-Oct	184	200	213	179	183	185	191	197	176	171	161	152	161	236	241	252	251	247	308	325	292	226	236	228	210.7
11-Oct	211	210	194	164	172	191	192	199	180	176	169	159	166	166	168	182	203	208	233	211	196	209	187	244	182.2
12-Oct	208	190	250	237	274	241	175	185	170	154	147	151	102	88	85	73	94	75	142	178	156	167	196	176	145.0
13-Oct	171	160	175	178	181	175	183	171	177	175	172	169	172	167	168	168	173	176	180	178	180	175	177	182	173.2
14-Oct	182	178	177	186	163	179	159	165	162	172	170	175	182	170	172	173	169	172	172	181	178	225	189	190	176.7
15-Oct	183	183	179	164	190	247	257	251	244	263	254	253	213	237	225	232	214	238	195	187	233	206	217	169	221.2
16-Oct	185	177	204	208	207	218	167	240	256	168	139	143	UO	10	81	UO	6	356	352	351	336	346	313	326	326.6
17-Oct	317	296	259	230	203	250	257	258	263	269	268	268	250	269	279	276	288	291	293	283	298	305	298	306	280.5
18-Oct	304	311	307	192	203	230	197	213	210	190	152	162	165	171	191	180	208	182	170	179	163	168	342	350	200.9
19-Oct	332	341	326	324	318	353	351	342	350	360	2	2	18	28	41	38	30	16	10	4	1	2	8	6	6.1
20-Oct	3	1	2	1	7	8	9	11	19	28	30	31	36	42	32	26	25	24	16	14	14	17	15	14	16.0
21-Oct	11	8	5	6	5	2	0	0	1	358	14	29	18	7	330	320	317	294	306	286	268	268	258	198	355.7
22-Oct	200	202	190	189	189	189	193	189	197	203	226	219	197	195	191	194	198	187	194	194	209	210	216	214	199.1
23-Oct	220	233	242	253	267	269	274	238	256	267	259	230	241	245	243	244	247	266	221	147	222	197	194	185	242.9
24-Oct	180	205	196	230	278	265	270	239	250	271	283	294	295	292	297	303	310	285	296	299	279	262	12	346	282.9
25-Oct	100	222	220	188	205	197	123	197	182	198	165	149	105	333	306	303	296	257	216	314	233	342	248	312	231.3
26-Oct	324	272	313	287	281	312	321	321	342	4	9	358	352	349	16	35	37	16	13	21	16	24	356	16	0.9
27-Oct	309	351	343	339	5	312	321	333	326	354	7	18	14	5	4	321	2	339	308	11	348	341	341	258	343.8
28-Oct	280	297	292	296	301	297	299	290	296	300	301	308	309	313	309	305	314	299	303	298	295	292	296	292	301.2
29-Oct	291	312	304	301	302	305	310	308	312	283	281	253	250	222	225	182	103	105	128	121	72	10	7	1	299.1
30-Oct	2	1	4	2	2	15	13	14	17	24	27	31	34	31	34	44	51	71	85	92	102	54	54	54	26.9
31-Oct	62	66	15	80	64	66	24	358	45	127	148	152	149	146	134	126	230	326	331	333	24	2	210	233	121.2

290.2 294.8 297.0 291.3 287.6 283.8 290.1 278.8 262.3 256.3 235.2 222.4 218.6 248.8 255.9 264.6 297.1 297.9 289.9 291.7 294.9 305.7 303.7 292.5  
Diurnal Average

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





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

**Wind Direction 10m (WD10) - deg**  
**Fort McKay - Bertha Ganter - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744						
Maximum Value: 100 deg on Oct 6 23:00																			Hours of Data: 739						
Minimum Value: 8 deg on Oct 27 19:00																			Hours of Missing Data: 5						
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 14 Q <sub>1</sub> = 17 Median = 23 Q <sub>3</sub> = 41 P <sub>90</sub> = 57 P <sub>99</sub> = 84																			Hours of Calibration: 2						
																			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-Oct	25	47	82	46	49	81	16	19	100	37	74	49	45	68	44	34	23	21	16	18	21	16	14	15	100
2-Oct	20	21	15	18	20	25	28	31	43	25	29	25	19	18	19	19	17	17	13	17	16	13	13	19	43
3-Oct	23	17	14	12	18	25	33	22	24	25	21	40	62	46	49	42	58	23	16	19	56	19	73	22	73
4-Oct	15	68	22	40	29	58	53	61	44	55	58	40	17	17	15	17	16	17	23	27	14	13	14	14	68
5-Oct	14	13	12	19	25	39	23	40	21	32	44	37	34	44	35	45	32	17	11	11	13	14	19	15	45
6-Oct	53	56	44	44	43	48	43	60	60	51	37	36	44	48	52	50	46	38	33	33	84	83	100	61	100
7-Oct	65	77	33	67	18	49	34	70	57	48	17	15	16	14	12	27	41	16	15	14	12	18	11	12	77
8-Oct	27	12	46	35	67	25	15	20	29	17	18	25	21	20	19	62	21	40	58	30	44	41	32	35	67
9-Oct	46	38	23	40	35	25	17	22	48	58	50	45	C	C	41	32	31	27	30	39	76	71	72	UO	76
10-Oct	56	22	60	14	36	14	21	17	16	16	13	11	22	45	41	49	46	35	37	20	23	45	79	78	79
11-Oct	74	45	49	42	21	24	22	16	14	13	14	14	13	15	14	18	25	18	26	21	20	37	22	74	74
12-Oct	36	91	68	68	67	57	34	24	36	26	14	22	44	29	33	30	19	24	48	73	30	67	42	31	91
13-Oct	16	20	19	18	14	15	14	32	18	13	14	13	13	15	14	14	13	12	13	13	12	14	13	11	32
14-Oct	13	16	25	32	22	54	31	53	20	13	13	17	20	19	16	18	15	26	23	17	12	32	16	14	54
15-Oct	13	17	19	90	22	46	65	63	86	47	49	55	46	54	43	33	21	20	35	22	26	81	60	18	90
16-Oct	15	27	23	64	28	71	86	66	70	48	65	27	UO	39	58	UO	16	15	17	20	40	20	26	53	86
17-Oct	44	40	37	40	30	45	40	43	43	42	46	40	41	48	44	41	28	29	29	35	22	18	23	18	48
18-Oct	19	14	55	69	27	35	48	28	27	26	20	19	15	18	21	15	21	20	16	15	11	53	14	17	69
19-Oct	27	32	48	74	32	19	21	23	16	23	25	21	21	20	20	19	18	15	15	16	17	16	16	16	74
20-Oct	15	15	16	16	14	17	16	16	16	18	19	22	23	26	17	16	14	16	13	14	13	15	15	14	26
21-Oct	16	15	15	14	16	17	16	16	15	15	17	20	31	30	12	13	13	24	16	24	37	36	56	23	56
22-Oct	21	27	16	13	15	15	17	16	19	22	38	41	23	21	17	18	19	17	18	17	26	32	27	32	41
23-Oct	31	45	40	36	40	42	49	61	47	50	57	73	46	44	48	43	39	42	59	78	80	22	13	12	80
24-Oct	12	33	62	38	36	39	45	49	48	49	37	25	27	29	23	19	12	21	13	19	57	49	43	25	62
25-Oct	82	28	26	15	52	21	78	22	26	33	70	31	54	69	31	20	18	35	47	74	78	73	71	23	82
26-Oct	31	57	29	40	41	49	38	24	23	17	17	19	17	16	16	17	19	13	16	20	17	19	33	31	57
27-Oct	15	33	28	30	17	15	20	25	48	31	28	34	36	30	25	46	38	19	8	23	27	13	74	34	74
28-Oct	28	15	19	21	18	17	14	25	16	15	16	14	14	14	14	15	13	19	14	18	19	23	23	23	28
29-Oct	27	22	16	20	20	17	17	15	17	46	44	48	61	44	39	23	19	21	19	24	42	22	18	16	61
30-Oct	16	14	14	14	13	14	14	15	16	15	17	19	20	18	18	26	25	29	27	22	23	27	28	28	29
31-Oct	30	45	40	19	20	11	32	23	57	20	19	26	19	19	28	41	58	41	14	20	22	23	85	34	85
																			82 91 82 90 67 81 86 70 100 58 74 73 62 69 58 62 58 42 59 78 84 83 100 78						
Diurnal Maximum																									
C - Calibration UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS02 MILDRED LAKE OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
OCTOBER 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	43.8	0	14.9	0
H2S (ppb) Average	709	35	35	100	5.4	0	1.2	0
THC (ppm) Average	645	36	99	91.53	4.7	-	2.5	-
NMHC(ppm) Average	645	36	99	91.53	0.04	-	0.005	-
CH4(ppm) Average	645	36	99	91.53	4.7	-	2.5	-
Temperature (C) Average	744	0	0	100	19.5	-	12.9	-
Relative Humidity (%) Average	744	0	0	100	100	-	89.4	-
Wind Speed 10 m (km/h) Average	732	0	12	98.39	24	-	15	-
Wind Direction 10 m (deg) Average	732	0	12	98.39	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
OCTOBER 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	2.42	5.9	-	0	0	0.1	0.2	1.2	7.5	43.8
H2S (ppb) Average	709	0.33	0.5	-	0	0	0.1	0.1	0.3	0.7	5.4
THC (ppm) Average	645	2.12	0.3	-	1.9	2	2	2	2.1	2.3	4.7
NMHC(ppm) Average	645	0	0.002	-	0	0	0	0	0	0	0.04
CH4(ppm) Average	645	2.12	0.3	-	1.9	2	2	2	2.1	2.3	4.7
Temperature 2 m (C) Average	744	3.81	5.6	-	-7.9	-3.3	0.3	3.3	7	11.7	19.5
Relative Humidity (%) Average	744	70.77	15.9	-	29.1	48.4	59.9	71.8	82.4	91.6	100
Wind Speed 10 m (km/h) Average	732	9.6	4	-	0	4	6	9	13	15	24
Wind Direction 10 m (deg) Average	732	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	03 Oct 2024 05:00	04 Oct 2024 04:00	24	Unstable Operation - inconsistent response
THC/NMHC/CH4	04 Oct 2024 06:00	04 Oct 2024 10:00	5	Unstable Operation - inconsistent response
THC/NMHC/CH4	04 Oct 2024 11:00	04 Oct 2024 15:00	5	Maintenance - station operator activities
THC/NMHC/CH4	10 Oct 2024 12:00	11 Oct 2024 05:00	18	Unstable Operation - inconsistent response
THC/NMHC/CH4	11 Oct 2024 07:00	11 Oct 2024 10:00	4	Unstable Operation - inconsistent response
THC/NMHC/CH4	11 Oct 2024 11:00	11 Oct 2024 13:00	3	Maintenance - station operator activities
THC/NMHC/CH4	23 Oct 2024 10:00	23 Oct 2024 11:00	2	Maintenance - replaced support gas cylinder
THC/NMHC/CH4	25 Oct 2024 23:00	25 Oct 2024 23:00	1	Unstable Operation - inconsistent response
THC/NMHC/CH4	27 Oct 2024 09:00	27 Oct 2024 09:00	1	Maintenance - reinitiated daily QA check
WS/WD	29 Oct 2024 01:00	29 Oct 2024 12:00	12	Unstable Operation - flatline in analyzer output signal





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

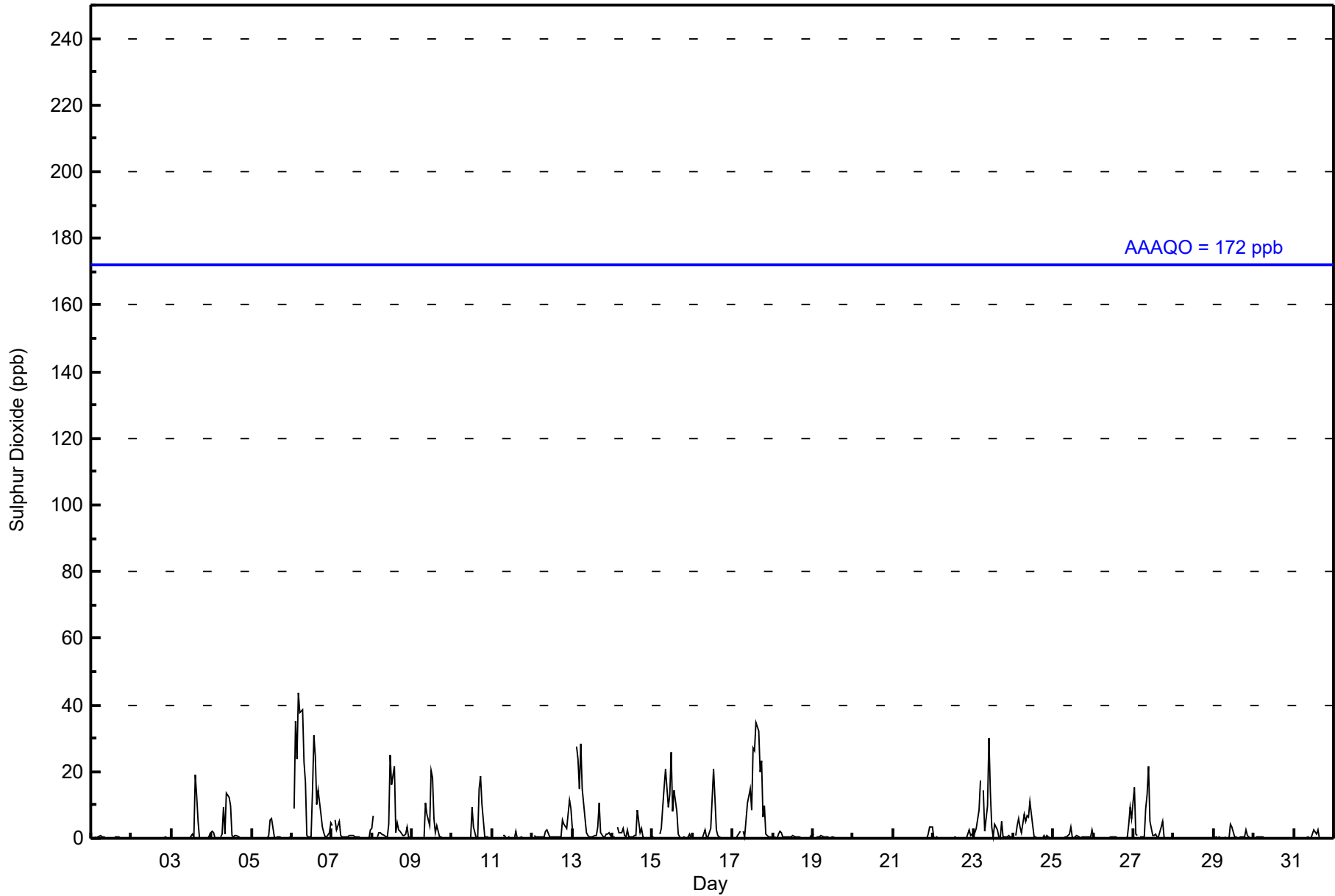
## Mildred Lake - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																																											
Maximum Value: 43.8 ppb on Oct 6 05:00		Maximum Daily Average: 14.9 ppb on Oct 6		Hours of Data: 708																																													
Minimum Value: 0.0 ppb on Oct 1 18:00		Minimum Daily Average: 0.0 ppb on Oct 20		Hours of Missing Data: 36																																													
Maximum Diurnal Average: 4.3 ppb at hour 13		Minimum Diurnal Average: 0.4 ppb at hour 21		Hours of Calibration: 36																																													
Monthly Average: 2.42 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> = 1.2 P <sub>90</sub> = 7.5 P <sub>99</sub> = 30.0		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-Oct	0.2	Z	0.2	0.1	0.5	0.8	0.6	0.2	0.3	C	C	C	C	C	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																							
2-Oct	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	0.3	0.2	0.1	0.1	0.0	0.3																							
3-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.5	18.9	12.8	5.2	0.1	0.1	0.1	0.0	0.0	0.2	1.5	1.8	18.9																							
4-Oct	2.2	1.6	0.1	0.0	Z	0.3	1.4	9.2	1.2	13.5	12.4	9.6	0.9	0.6	0.6	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.4	13.5																							
5-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.2	0.1	0.7	5.3	6.0	0.3	0.2	0.3	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.7	6.0																							
6-Oct	Z	8.8	35.0	23.7	43.8	37.8	38.4	23.0	16.9	1.0	0.6	0.3	14.1	30.9	24.5	10.0	14.4	7.3	3.4	1.7	0.4	0.3	1.7	4.5	14.9	43.8																							
7-Oct	3.8	Z	5.6	2.5	5.2	0.9	0.4	0.3	0.4	0.4	0.9	0.8	0.9	0.7	0.5	0.4	0.4	0.2	0.2	0.1	0.1	0.1	0.1	2.5	1.2	5.6																							
8-Oct	2.9	6.6	Z	0.4	1.7	1.6	1.2	0.6	0.4	0.3	4.4	25.1	16.2	21.8	1.6	4.8	2.6	2.0	1.0	0.7	1.3	3.6	0.3	0.2	4.4	25.1																							
9-Oct	0.0	0.0	0.1	Z	0.1	0.1	0.0	0.1	10.6	7.2	4.0	20.4	18.3	6.1	1.6	3.9	0.5	0.4	0.1	0.1	0.1	0.0	0.1	0.4	3.2	20.4																							
10-Oct	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	9.2	3.3	0.2	0.4	14.9	18.7	10.4	0.6	0.3	0.3	0.2	0.1	2.6	18.7																							
11-Oct	0.0	0.1	0.1	0.0	0.0	Z	0.8	0.7	0.1	0.0	0.2	0.1	0.0	0.1	2.3	0.1	0.0	0.3	0.1	0.1	0.1	0.0	0.0	0.1	0.2	2.3																							
12-Oct	Z	0.8	0.5	0.3	0.3	0.3	0.5	0.5	2.2	2.3	0.3	0.3	0.3	0.2	0.3	0.6	0.4	0.3	5.6	4.3	2.9	7.2	11.4	8.8	2.2	11.4																							
13-Oct	3.1	Z	27.6	23.7	14.9	28.2	14.7	5.9	1.5	0.8	0.6	0.5	0.5	1.0	1.0	3.2	10.7	1.5	0.4	0.3	1.4	1.1	1.7	0.9	6.3	28.2																							
14-Oct	0.4	0.4	Z	3.2	1.6	1.6	2.8	1.0	0.5	2.4	0.6	0.4	0.4	1.0	0.7	8.3	1.8	3.1	0.4	0.2	0.1	0.2	0.2	0.2	1.4	8.3																							
15-Oct	0.2	0.1	0.1	Z	1.4	3.0	9.1	15.2	20.7	9.5	13.1	25.7	8.0	14.4	8.0	1.1	0.3	0.1	0.1	0.2	0.1	0.3	1.2	0.2	5.8	25.7																							
16-Oct	0.0	0.1	0.0	0.0	Z	0.2	0.0	2.3	0.5	0.6	1.8	3.0	20.7	11.7	2.6	0.8	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	1.9	20.7																							
17-Oct	0.0	0.0	0.0	0.7	2.2	Z	2.0	0.3	5.5	10.5	15.0	8.3	27.3	26.1	34.7	32.4	19.9	23.1	6.5	9.9	1.1	0.5	0.4	0.3	9.9	34.7																							
18-Oct	Z	0.2	0.2	1.1	2.1	1.6	0.6	0.4	0.4	0.3	0.3	0.2	0.8	0.4	0.3	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.8	0.5	2.1																							
19-Oct	1.3	Z	0.6	0.3	0.5	0.7	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3																							
20-Oct	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																							
21-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.5	3.3	3.2	0.4	3.3																							
22-Oct	0.2	0.2	0.2	0.2	Z	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	0.1	0.0	2.7	1.0	1.4	0.3	2.7																						
23-Oct	0.5	1.7	2.9	8.7	17.4	Z	14.2	2.2	9.8	30.2	14.0	3.4	0.5	4.2	2.7	0.3	0.2	5.0	0.5	0.3	0.3	0.7	0.2	0.3	5.2	30.2																							
24-Oct	Z	0.8	3.9	5.8	3.5	1.6	7.4	5.1	6.6	6.2	11.0	3.9	0.4	0.3	0.0	0.1	0.1	0.1	1.0	0.2	1.0	0.5	0.1	0.2	2.6	11.0																							
25-Oct	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.3	0.2	1.5	3.6	0.3	0.1	0.4	0.6	0.3	0.0	0.5	0.4	0.4	0.3	0.3	0.4	2.4	0.5	3.6																							
26-Oct	0.5	0.4	Z	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	4.4	9.3	5.9	1.0	9.3																							
27-Oct	15.4	1.1	0.8	Z	0.3	0.4	0.5	8.9	12.9	21.7	4.9	0.6	0.7	1.4	0.3	0.4	3.2	4.9	0.3	0.1	0.0	0.0	0.1	0.1	3.4	21.7																							
28-Oct	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2																							
29-Oct	0.2	0.2	0.1	0.2	0.1	Z	0.3	0.2	0.1	0.2	4.3	3.4	0.6	0.2	0.1	0.1	0.4	0.4	0.2	2.3	0.6	0.3	0.1	0.1	0.6	4.3																							
30-Oct	Z	0.3	0.2	0.3	0.3	0.4	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
31-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.2	1.5	2.4	1.2	2.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.6																							
																								1.2	0.9	3.0	2.7	3.7	3.1	3.1	2.5	3.0	3.6	3.1	3.8	4.3	4.3	3.4	2.7	2.5	2.2	1.0	0.7	0.4	0.8	1.1	1.1	Diurnal Average	
																								15.4	8.8	35.0	23.7	43.8	37.8	38.4	23.0	20.7	30.2	15.0	25.7	27.3	30.9	34.7	32.4	19.9	23.1	10.4	9.9	2.9	7.2	11.4	8.8	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**  
**Mildred Lake - October 2024**





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	656	92.66	92.66
11 - 20	29	4.10	96.75
21 - 60	23	3.25	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  
Mildred Lake - October 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	29	12	12	19	16	46	62	61	54	70	36	33	56	34	32	645
11 - 20	0	1	0	0	1	4	4	0	0	0	0	12	6	1	0	0	29
21 - 60	0	0	0	0	1	1	3	2	0	0	0	7	9	0	0	0	23
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	30	12	12	21	21	53	64	61	54	70	55	48	57	34	32	697

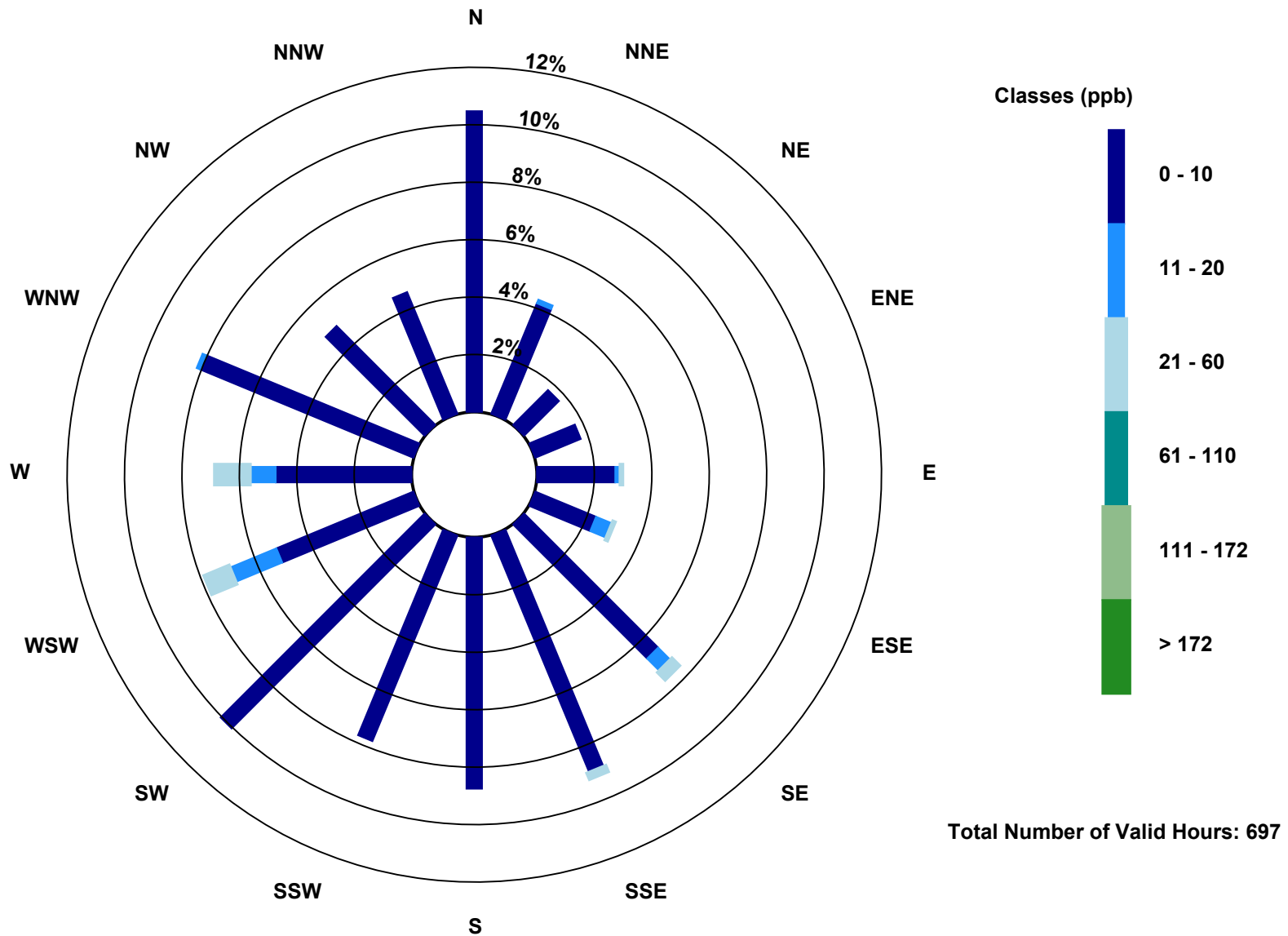
Total Number of Valid Hours: 697

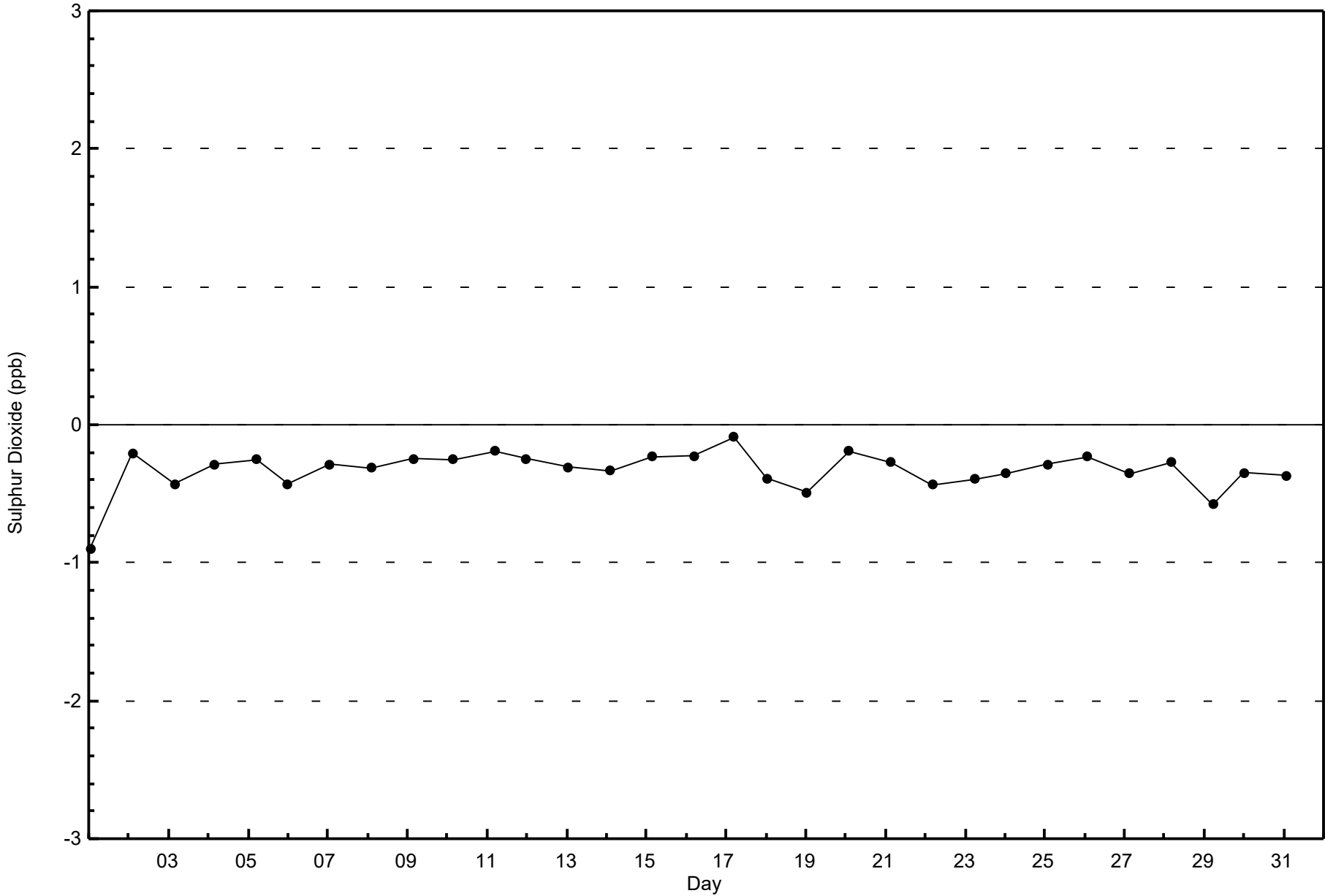
Total Number of Hours: 744

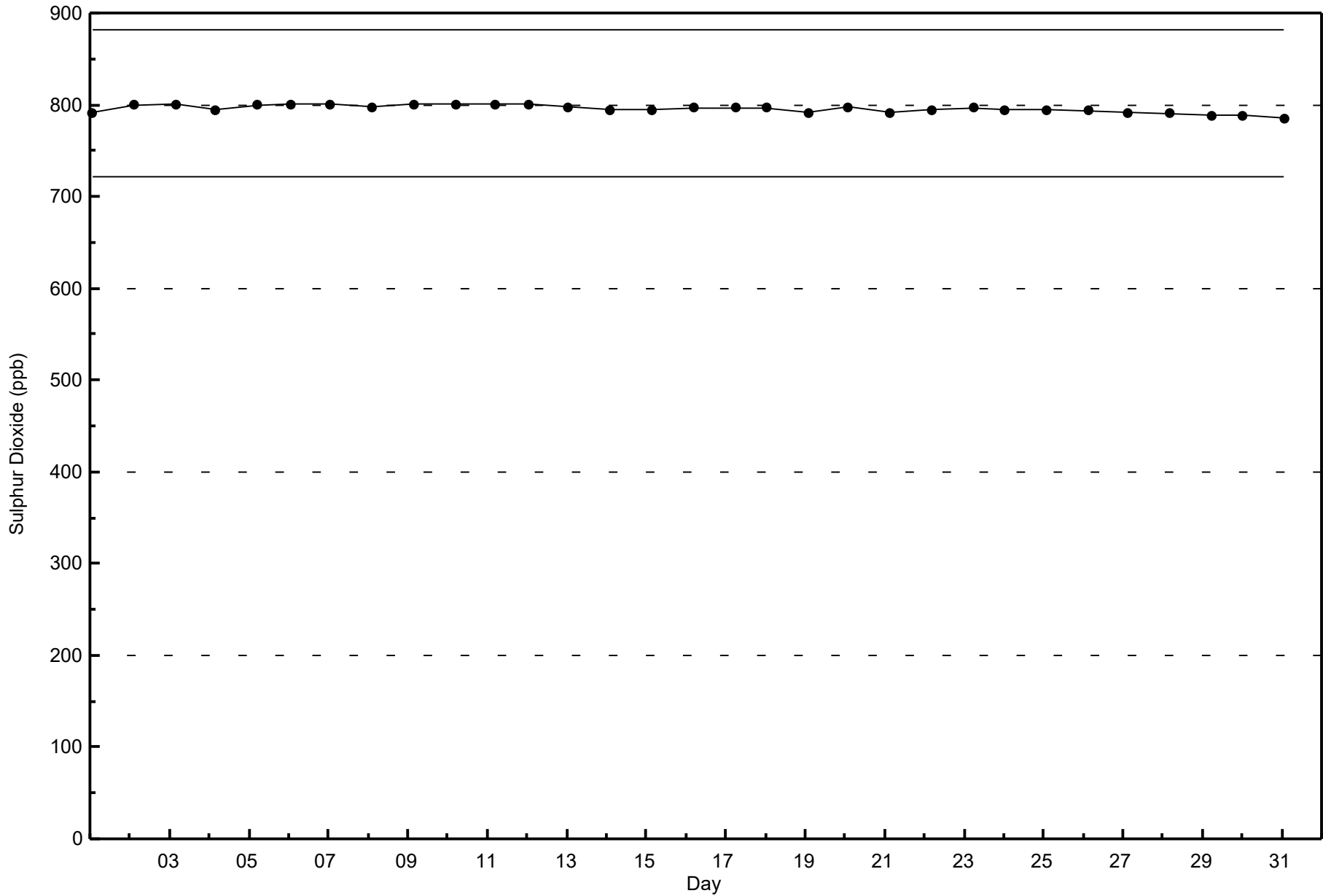


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









# Wood Buffalo Environmental Association

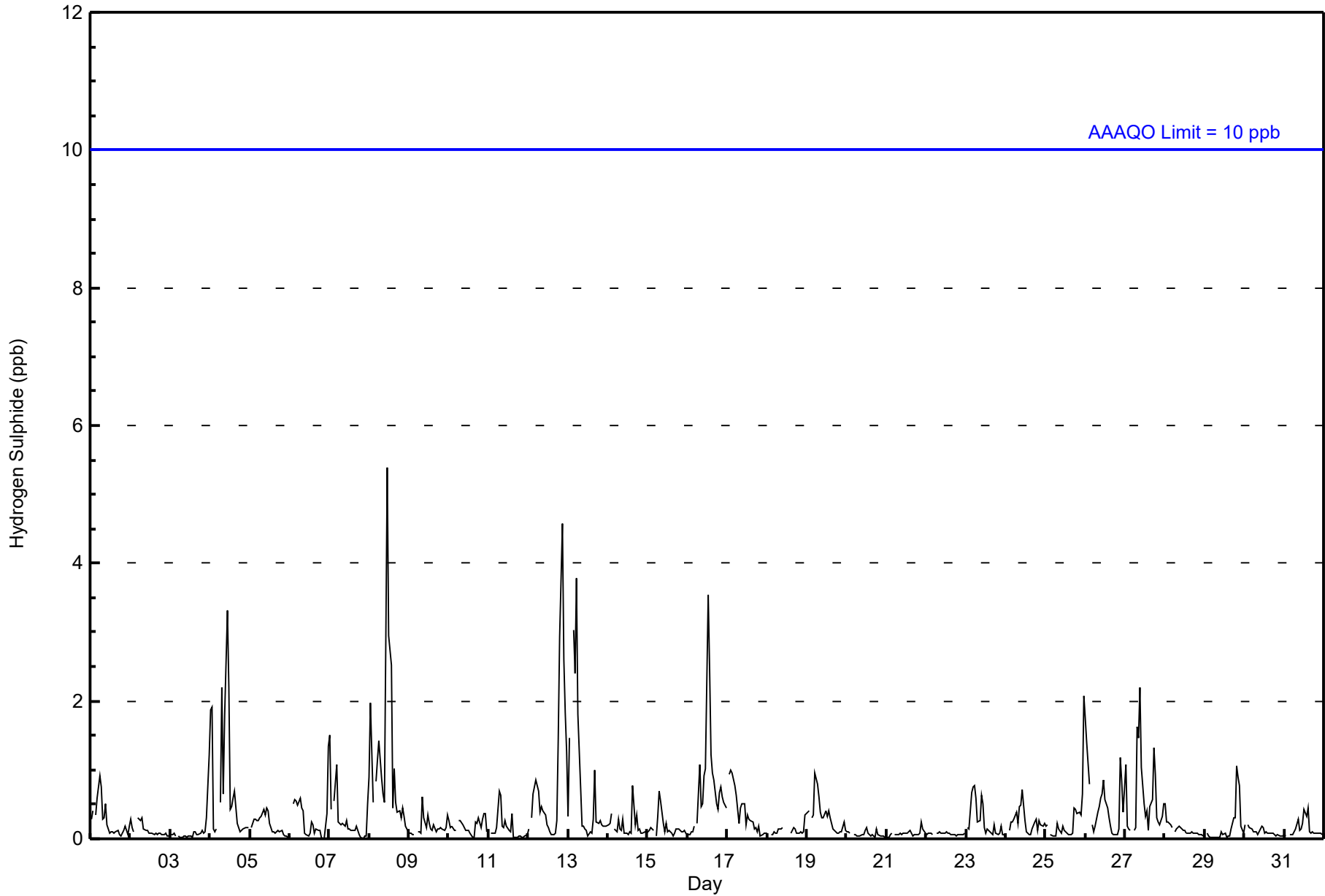
## Summary of Hour Averages

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

## Mildred Lake - October 2024

Number of Exceedences (AAAQO):		1-hr: 0    24-hr: 0		Hours in Service:		744																																											
Maximum Value: 5.4 ppb on Oct 8 12:00		Maximum Daily Average: 1.2 ppb on Oct 8		Hours of Data:		709																																											
Minimum Value: 0.0 ppb on Oct 6 21:00		Minimum Daily Average: 0.1 ppb on Oct 20		Hours of Missing Data:		35																																											
Maximum Diurnal Average: 0.5 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 15		Hours of Calibration:		35																																											
Monthly Average: 0.33 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> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 2.9		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-Oct	0.3	0.4	Z	0.3	0.6	0.9	0.7	0.3	0.3	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.3	0.9																							
2-Oct	0.3	0.2	0.1	Z	0.3	0.3	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	0.0	0.0	0.1	0.3																							
3-Oct	0.1	0.1	0.1	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	0.1	0.1	0.1	0.3	1.2	0.1	1.2																							
4-Oct	1.9	1.9	0.1	0.1	0.2	Z	0.5	2.2	0.6	1.8	3.3	2.2	0.4	0.5	0.6	0.7	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.8	3.3																						
5-Oct	Z	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.4																							
6-Oct	0.0	Z	0.5	0.6	0.6	0.5	0.6	0.4	0.4	0.1	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.4	1.3	0.3	1.3																							
7-Oct	1.5	0.4	Z	0.5	1.1	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.3	1.5																							
8-Oct	0.9	2.0	0.5	Z	0.8	1.1	1.4	0.9	0.6	0.5	2.9	5.4	3.0	2.5	0.5	1.0	0.5	0.4	0.4	0.3	0.4	0.3	0.2	0.1	1.2	5.4																							
9-Oct	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.6	0.3	0.2	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.6																							
10-Oct	0.3	0.2	0.2	0.1	0.1	Z	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.2	0.3	0.2	0.3	0.4	0.4	0.1	0.2	0.4																							
11-Oct	Z	0.1	0.1	0.1	0.1	0.2	0.7	0.6	0.2	0.2	0.3	0.2	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.7																							
12-Oct	0.1	Z	0.3	0.6	0.8	0.8	0.7	0.4	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3	1.4	2.9	4.6	2.6	1.8	1.3	0.9	4.6																							
13-Oct	0.3	1.5	Z	3.0	2.4	3.8	1.8	0.7	0.2	0.2	0.1	0.1	0.1	0.1	0.3	1.0	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.7	3.8																							
14-Oct	0.2	0.2	0.4	Z	0.1	0.1	0.3	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.8	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8																							
15-Oct	0.1	0.1	0.2	0.1	Z	0.0	0.3	0.7	0.6	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7																							
16-Oct	0.1	0.1	0.1	0.1	0.2	Z	0.2	1.1	0.5	0.5	0.9	1.0	3.5	2.5	1.2	1.0	0.9	0.5	0.4	0.7	0.8	0.6	0.5	0.5	0.8	3.5																							
17-Oct	Z	0.9	1.0	0.9	0.8	0.6	0.4	0.2	0.4	0.5	0.5	0.2	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.0	0.1	0.1	0.1	0.4	1.0																							
18-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	C	C	C	C	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.3																							
19-Oct	0.4	0.4	Z	0.3	0.4	1.0	0.8	0.6	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.3	1.0																							
20-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2																							
21-Oct	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2																							
22-Oct	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1																							
23-Oct	Z	0.2	0.1	0.7	0.8	0.8	0.6	0.2	0.3	0.6	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.8																							
24-Oct	0.0	Z	0.1	0.2	0.2	0.3	0.4	0.2	0.5	0.5	0.7	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.2	0.2	0.2	0.2	0.7																							
25-Oct	0.2	0.2	Z	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.4	0.4	0.4	0.3	0.7	2.1	0.3	2.1																							
26-Oct	1.7	1.4	0.8	Z	0.2	0.1	0.2	0.4	0.5	0.6	0.6	0.8	0.6	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	1.2	0.8	0.4	0.5	1.7																							
27-Oct	1.1	0.2	0.1	0.1	Z	0.1	0.2	1.6	1.5	2.2	1.0	0.5	0.3	0.4	0.1	0.5	0.6	1.3	0.9	0.3	0.2	0.2	0.3	0.5	0.6	2.2																							
28-Oct	0.5	0.2	0.2	0.2	0.2	Z	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.5																							
29-Oct	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.3	1.1	0.9	0.8	0.2	0.1	0.2	1.1																							
30-Oct	0.2	Z	0.2	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	0.1	0.0	0.1	0.0	0.0	0.1	0.2																							
31-Oct	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.4	0.3	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5																							
																								0.4	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	Diurnal Average	
																								1.9	2.0	1.0	3.0	2.4	3.8	1.8	2.2	1.5	2.2	3.3	5.4	3.5	2.5	1.2	1.0	1.0	1.3	1.4	2.9	4.6	2.6	1.8	2.1	Diurnal Maximum	
Z - zerospan    C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb    24-hr 3 ppb																																																	







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	698	98.45	98.45
3 - 4	9	1.27	99.72
5 - 7	2	0.28	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**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mildred Lake - October 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	71	30	12	12	19	18	49	58	62	55	69	54	49	57	37	35	687
3 - 4	0	0	0	0	2	2	3	2	0	0	0	0	0	0	0	0	9
5 - 7	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	71	30	12	12	21	21	52	61	62	55	69	54	49	57	37	35	698

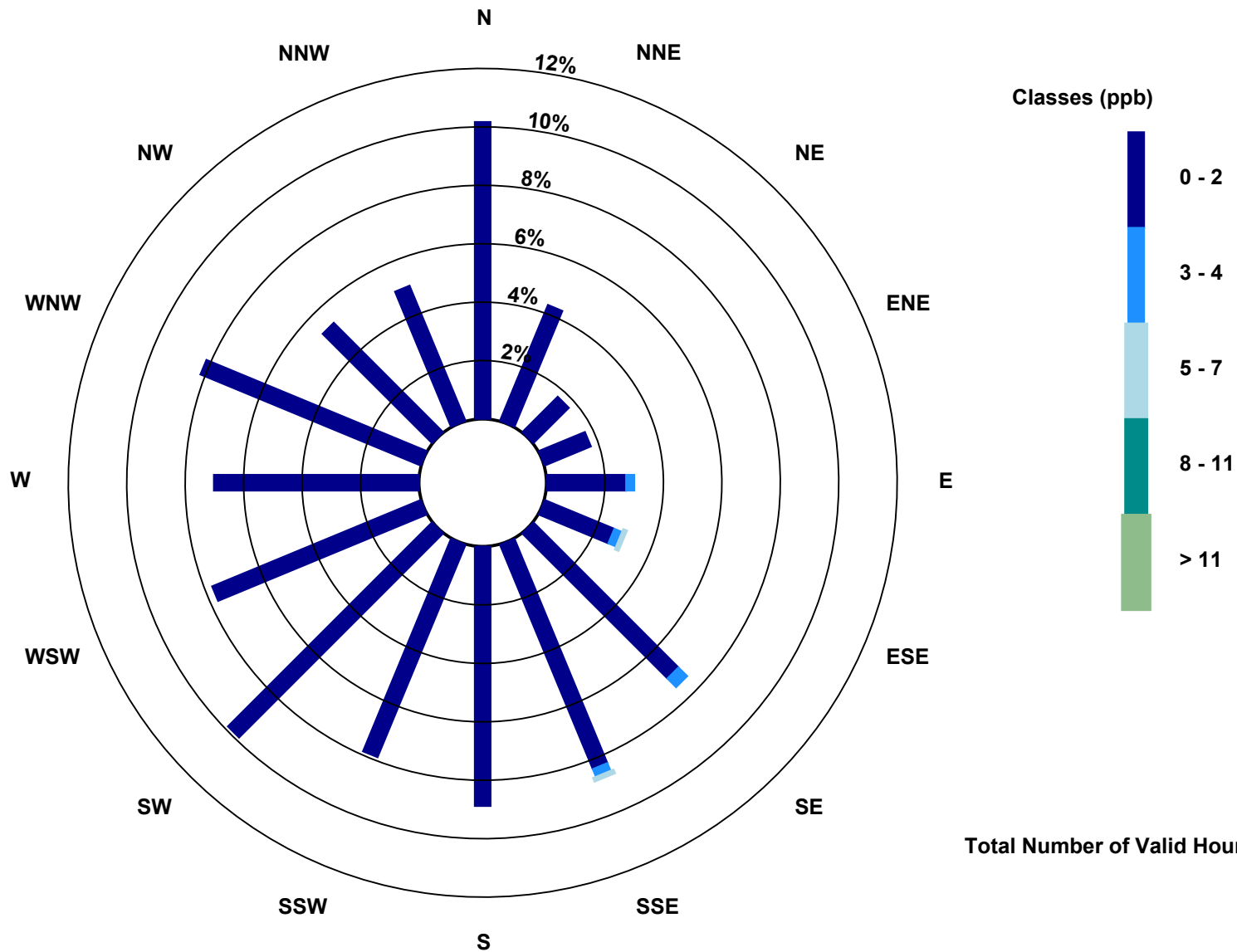
Total Number of Valid Hours: 698

Total Number of Hours: 744

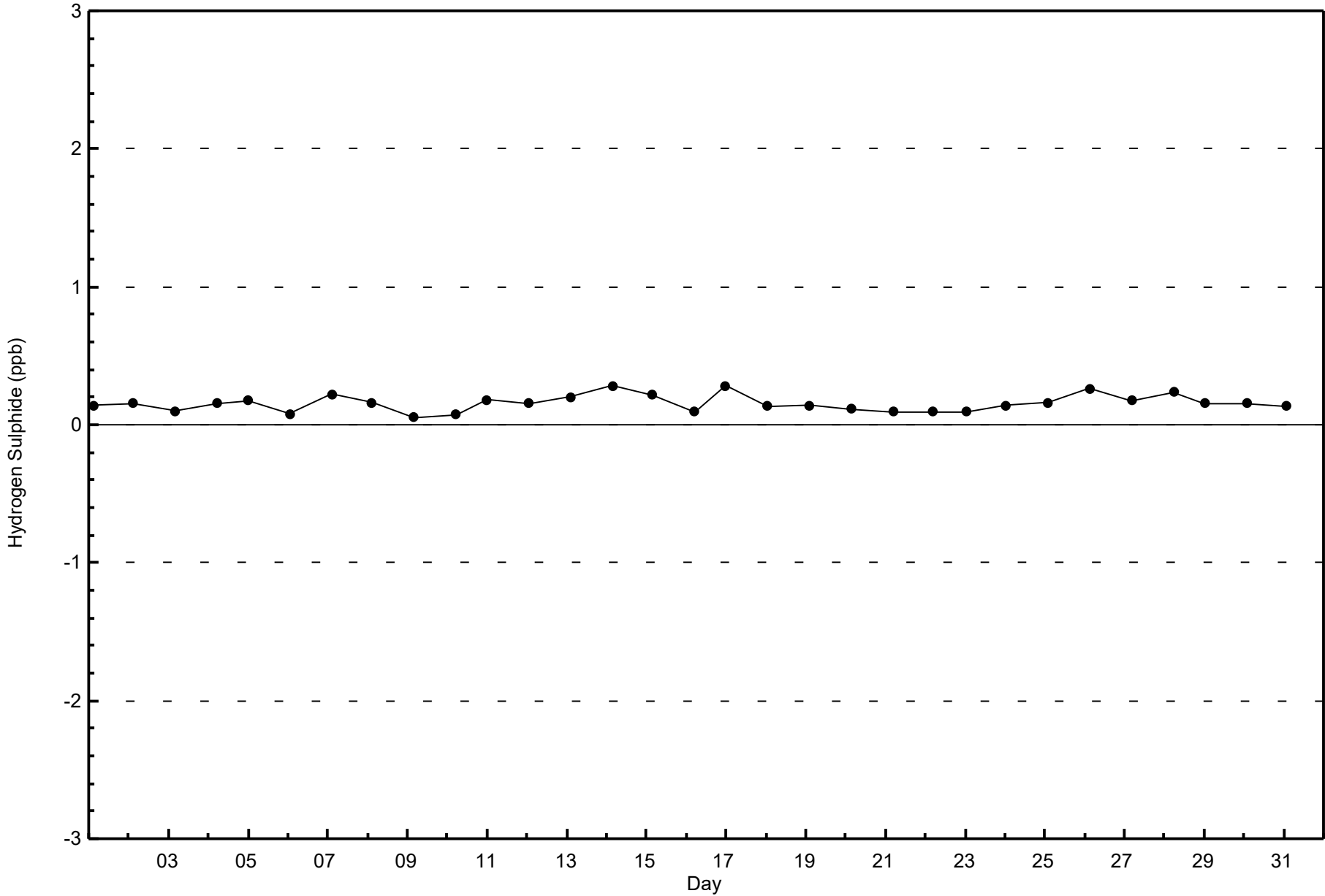


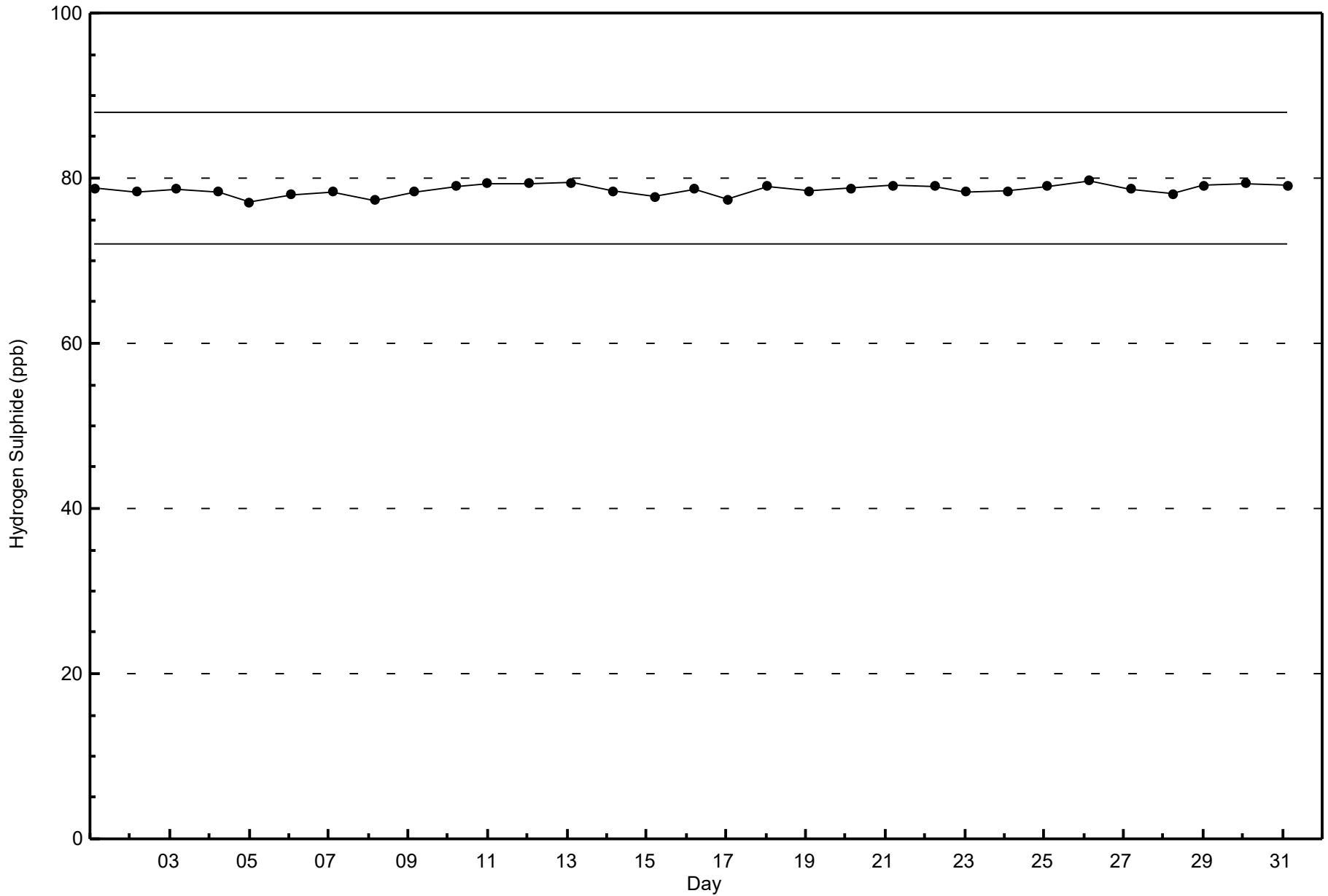
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 698







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

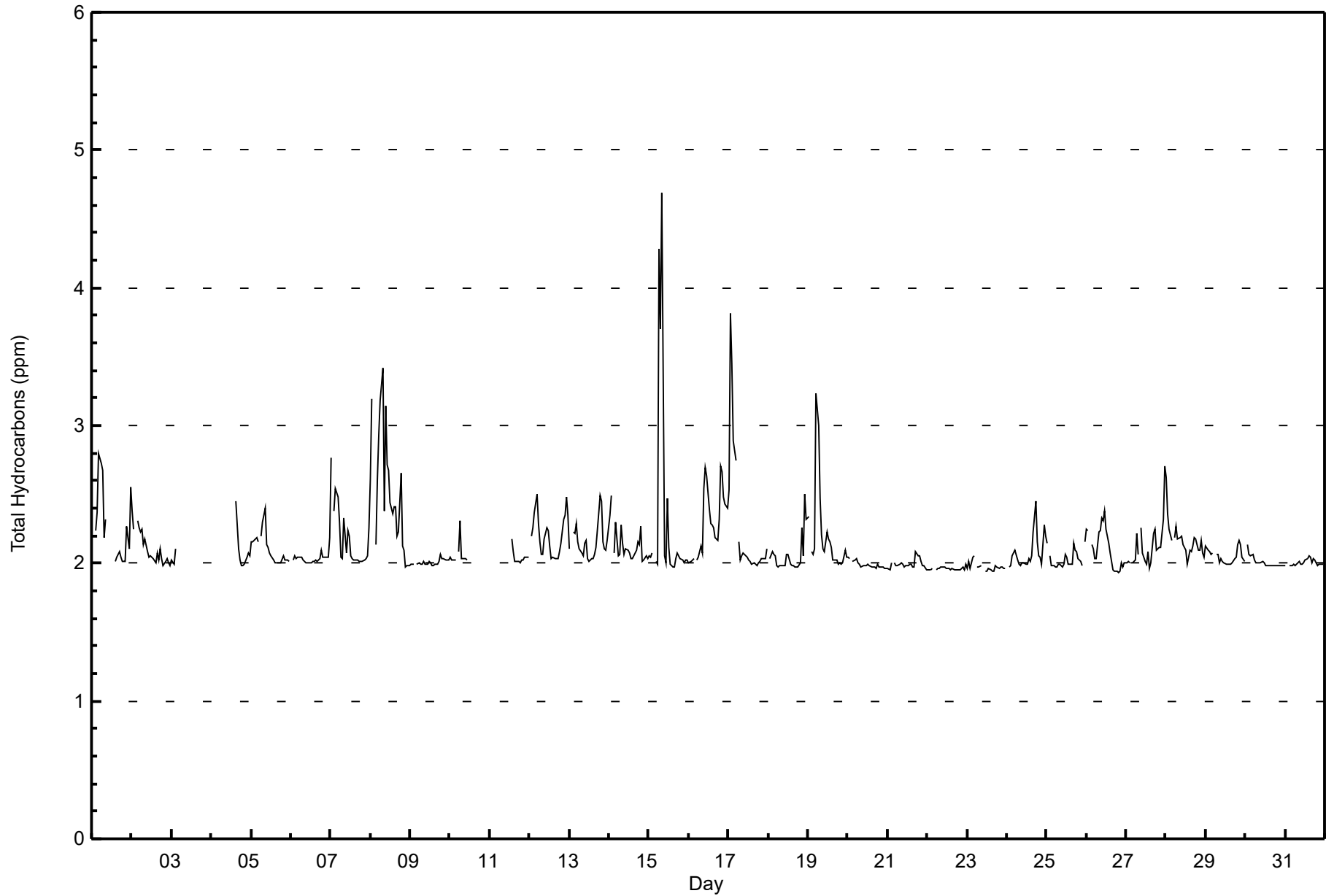
Mildred Lake - October 2024

Maximum Value: 4.7 ppm on Oct 15 09:00																				Maximum Daily Average: 2.5 ppm on Oct 8					Hours in Service: 744		
Minimum Value: 1.9 ppm on Oct 26 20:00																				Minimum Daily Average: 2.0 ppm on Oct 22					Hours of Data: 645		
Maximum Diurnal Average: 2.2 ppm at hour 7																				Minimum Diurnal Average: 2.0 ppm at hour 15					Hours of Missing Data: 99		
Monthly Average: 2.12 ppm																				Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.3 P <sub>99</sub> = 3.2					Hours of Calibration: 36		
																									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-Oct	2.2	Z	2.2	2.4	2.8	2.7	2.7	2.2	2.3	C	C	C	C	C	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.3	2.1	2.6	2.3	2.8	
2-Oct	2.4	2.2	Z	2.3	2.3	2.2	2.2	2.1	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	
3-Oct	2.0	2.0	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1	
4-Oct	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	M	M	M	M	M	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.5	
5-Oct	2.2	2.2	2.2	2.2	Z	Z	2.2	2.3	2.4	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.4	
6-Oct	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.2	2.0	2.2	
7-Oct	2.8	Z	2.4	2.5	2.5	2.3	2.0	2.0	2.3	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.2	2.8	
8-Oct	2.6	3.2	Z	2.1	2.6	2.9	3.2	3.4	2.4	3.1	2.7	2.7	2.4	2.4	2.4	2.4	2.2	2.2	2.7	2.1	2.1	2.0	2.0	2.0	2.5	3.4	
9-Oct	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	2.0	2.0	2.0	2.0	2.1	
10-Oct	2.0	2.0	2.0	2.0	Z	2.1	2.3	2.0	2.0	2.0	2.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.3	
11-Oct	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	M	M	M	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
12-Oct	Z	2.2	2.3	2.4	2.5	2.3	2.2	2.1	2.1	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.4	2.5	2.4	2.2	2.5	
13-Oct	2.1	Z	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.0	2.0	2.0	2.1	2.1	2.2	2.5	2.4	2.2	2.1	2.1	2.2	2.2	2.2	2.5	
14-Oct	2.4	2.5	Z	2.1	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.1	2.3	2.0	2.0	2.1	2.0	2.1	2.5	
15-Oct	2.1	2.0	2.1	Z	2.0	2.0	4.3	3.7	4.7	2.1	2.0	2.5	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.3	4.7	
16-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.5	2.7	2.6	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.7	2.7	2.5	2.4	2.4	2.3	2.7	
17-Oct	2.5	3.8	3.4	2.9	2.7	Z	2.2	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	2.1	2.1	2.3	3.8	
18-Oct	Z	2.0	2.1	2.1	2.1	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	2.3	2.1	2.5	2.3	2.1	2.5
19-Oct	2.3	Z	2.1	2.1	2.1	3.2	3.0	2.5	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	3.2	
20-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
21-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	
22-Oct	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	1.9	2.0	2.0	1.9	2.0	2.0	2.0	
23-Oct	2.0	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.0	M	M	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
24-Oct	Z	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.5	2.2	2.1	2.0	2.0	2.3	2.2	2.2	2.1	2.5	
25-Oct	2.1	Z	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	2.1	2.1	2.1	2.0	2.0	2.0	UO	2.2	2.0	2.2	
26-Oct	2.3	2.2	Z	2.1	2.1	2.0	2.0	2.2	2.2	2.3	2.3	2.4	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.4	
27-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.2	2.1	M	2.3	2.1	2.0	2.0	2.1	2.0	2.0	2.2	2.3	2.1	2.1	2.1	2.1	2.3	2.7	2.1	2.7	
28-Oct	2.6	2.4	2.3	2.2	Z	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.0	2.2	2.6	
29-Oct	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.1	2.2	
30-Oct	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	2.1	
31-Oct	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	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
2.2																								Diurnal Average			
2.8																								Diurnal Maximum			
Z - zerospan				C - Calibration				M - Maintenance				UO - Unstable Operation															



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

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







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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	367	56.90	56.90
2.1 - 3.0	268	41.55	98.45
3.1 - 10.0	10	1.55	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 645

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Mildred Lake - October 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	45	19	11	7	14	7	13	14	44	40	55	29	26	16	13	10	363
2.1 - 3.0	28	8	1	4	5	10	36	41	10	8	5	16	20	35	13	21	261
3.1 - 10.0	0	0	0	0	0	0	0	2	2	0	0	4	0	1	0	1	10
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	73	27	12	11	19	17	49	57	56	48	60	49	46	52	26	32	634

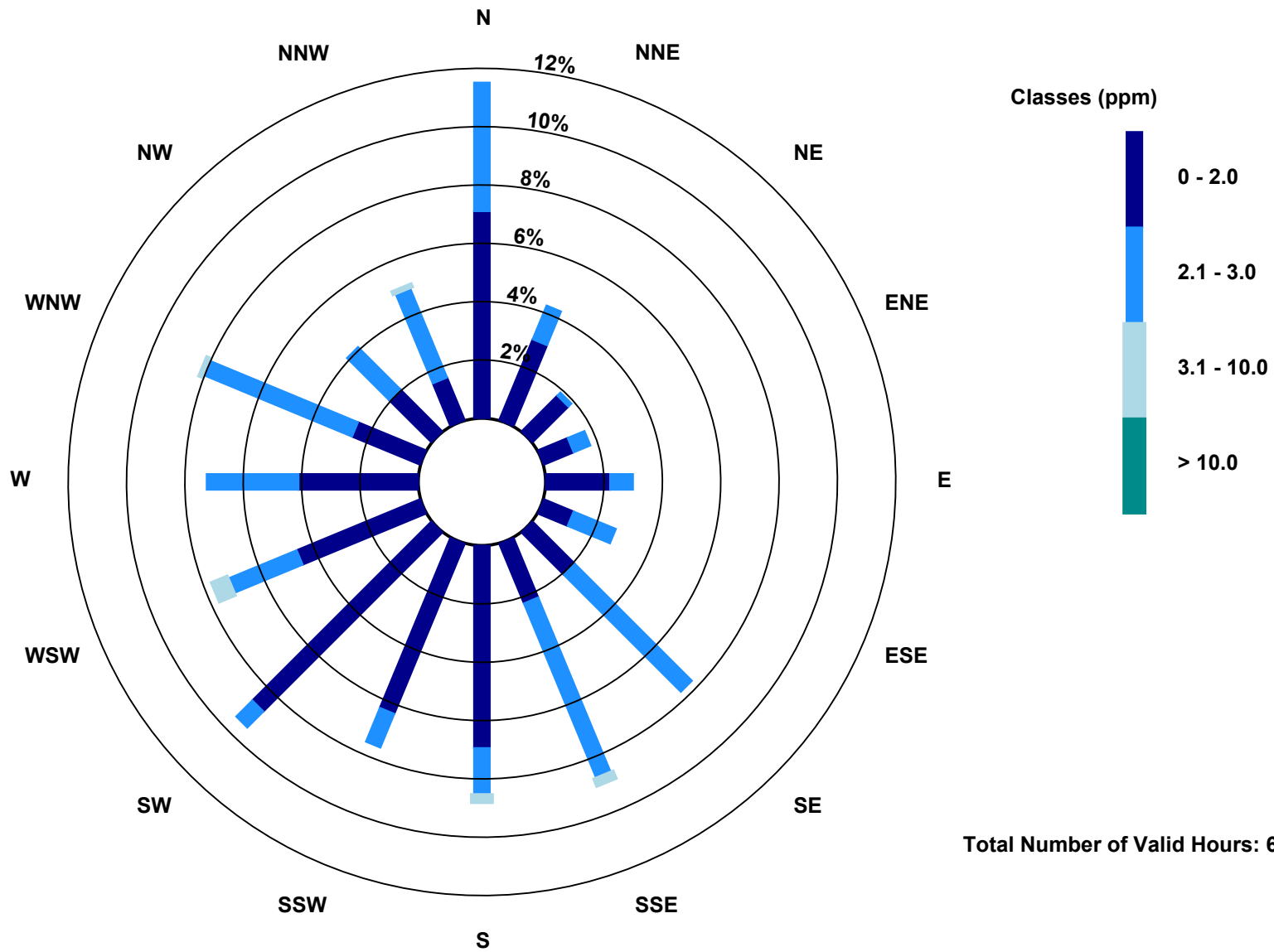
Total Number of Valid Hours: 634

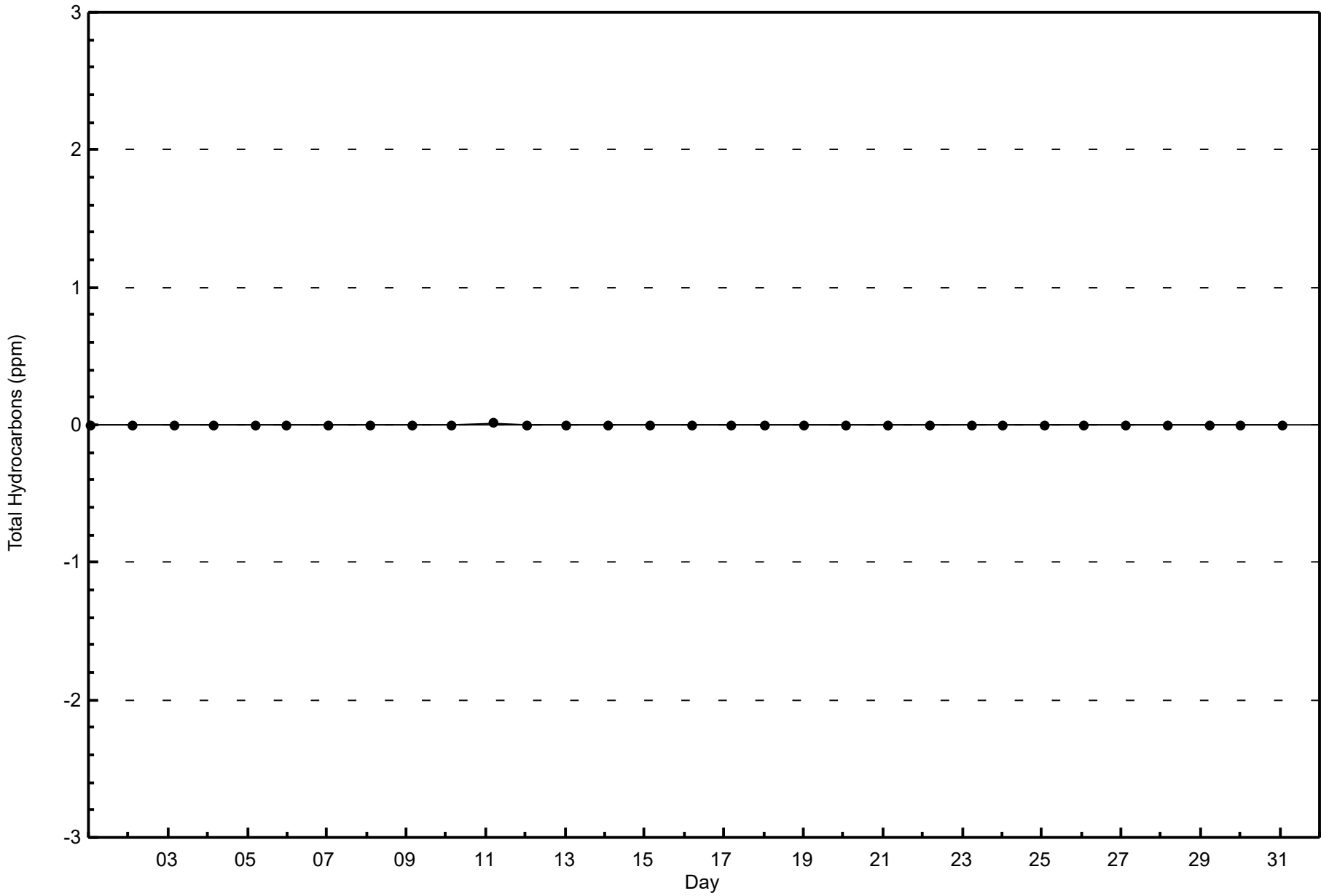
Total Number of Hours: 744

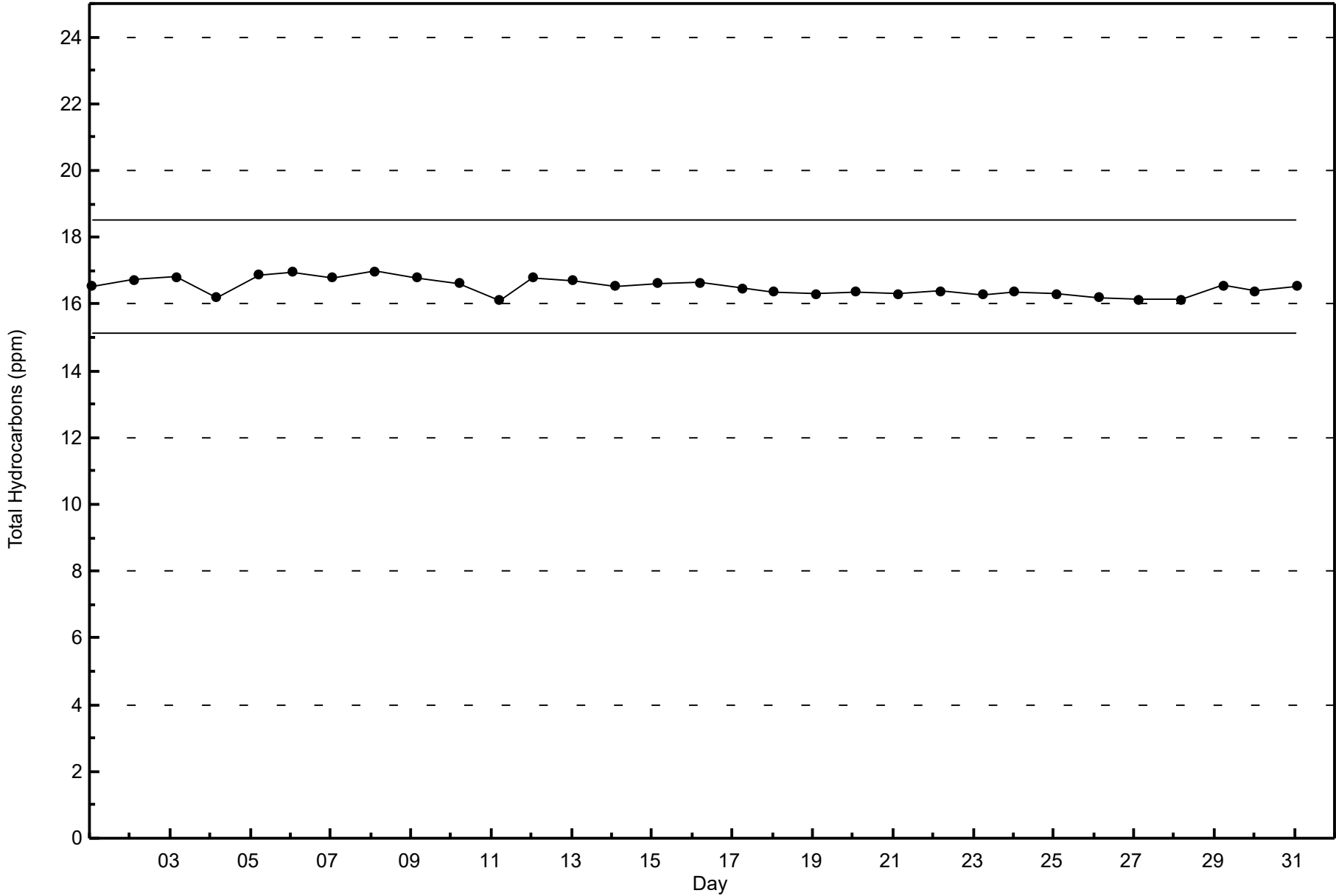


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Mildred Lake





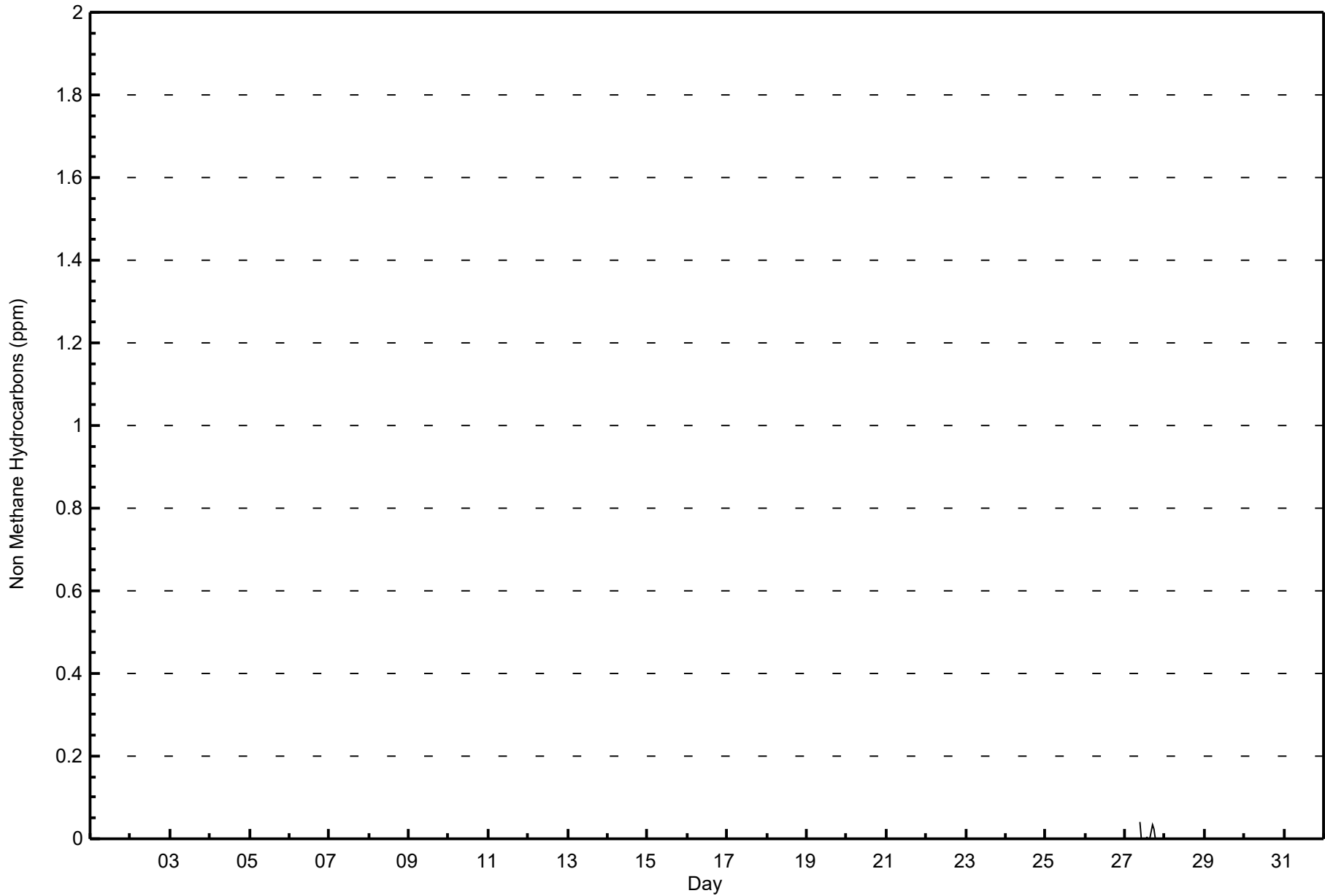






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	642	99.53	99.53
0.006 - 0.05	3	0.47	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 645

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

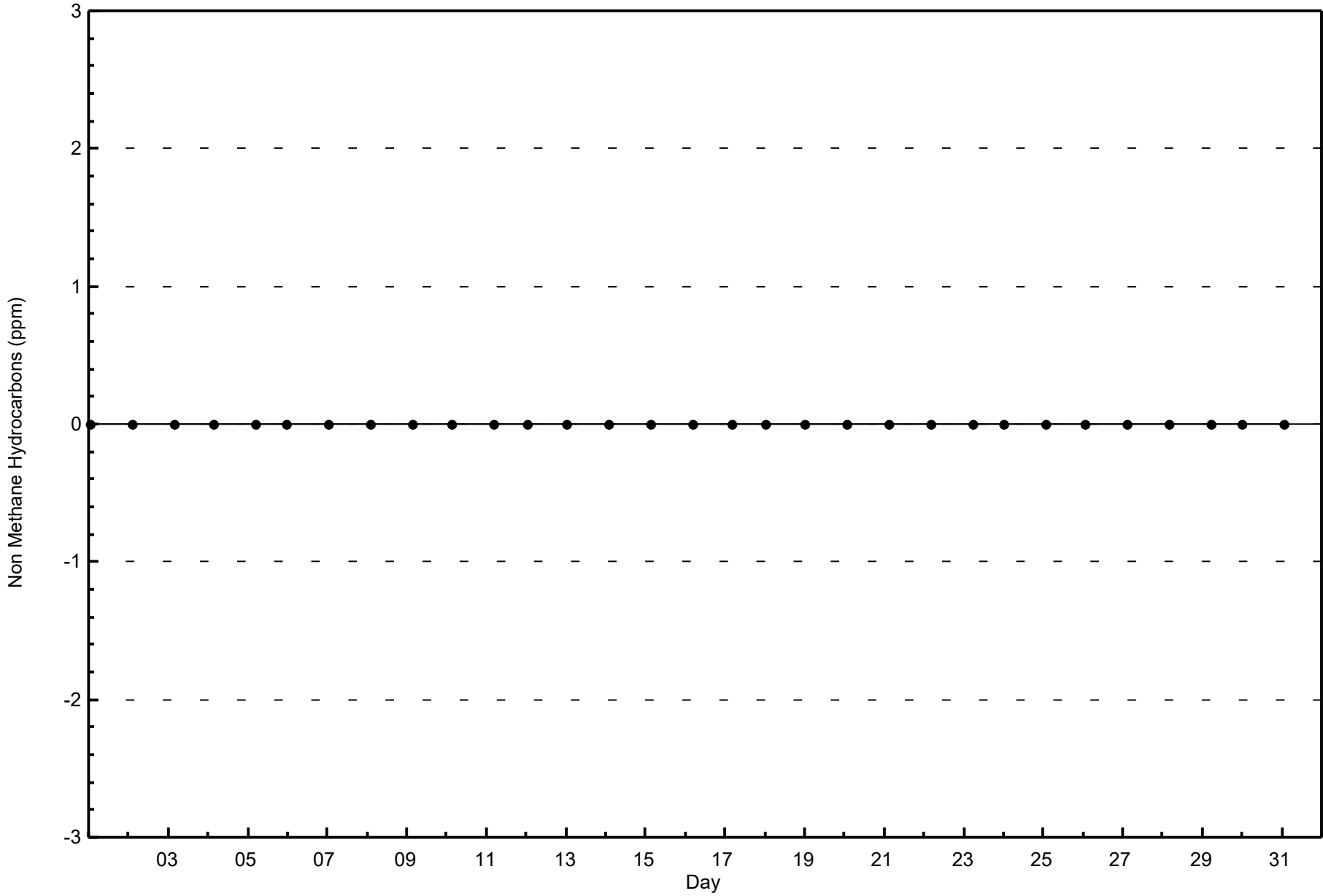
**Non Methane Hydrocarbons (NMHC) - ppm  
Mildred Lake - October 2024**

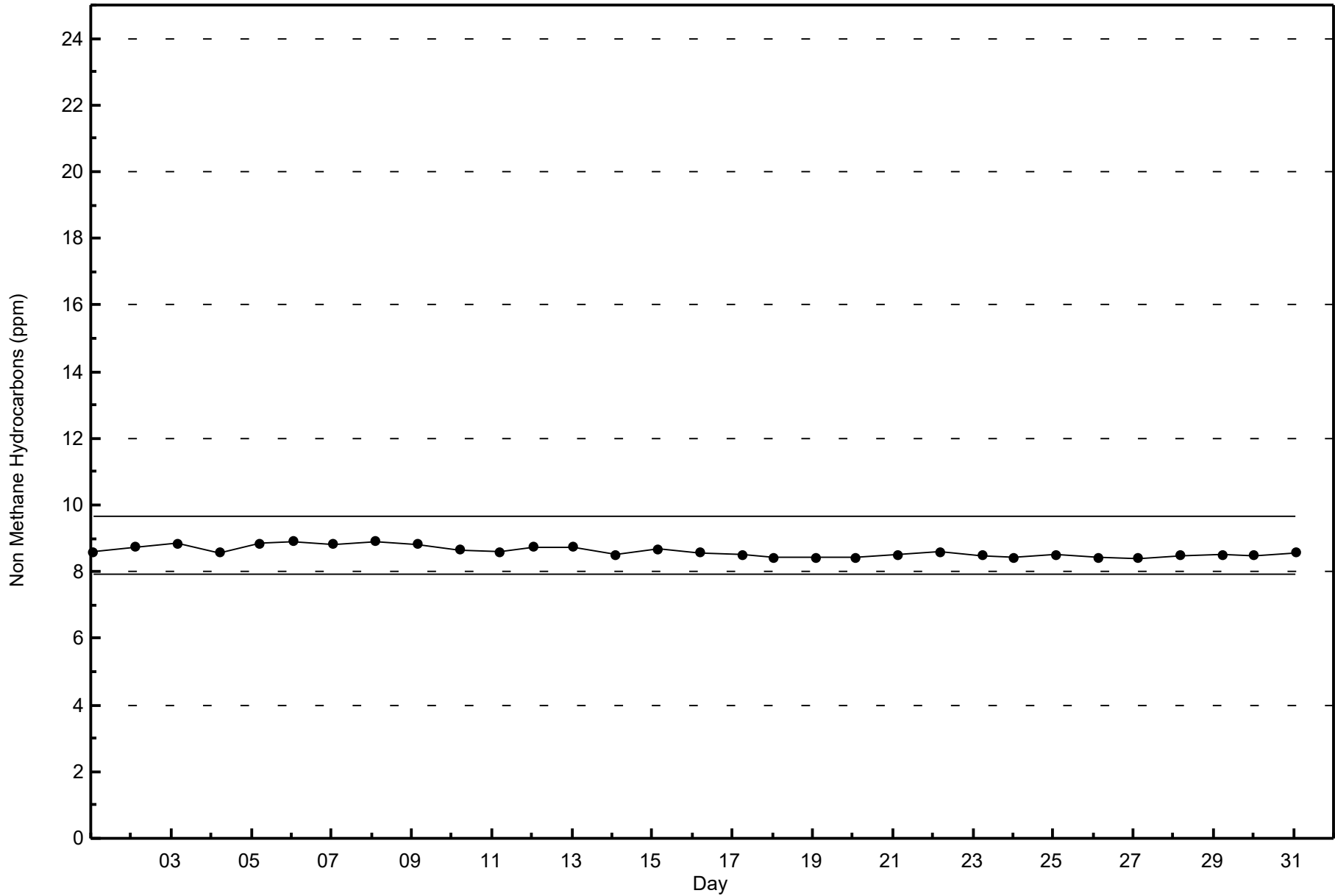
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	73	27	11	11	19	17	47	57	56	48	60	49	46	52	26	32	631
0.006 - 0.05	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	73	27	12	11	19	17	49	57	56	48	60	49	46	52	26	32	634

Total Number of Valid Hours: 634

Total Number of Hours: 744









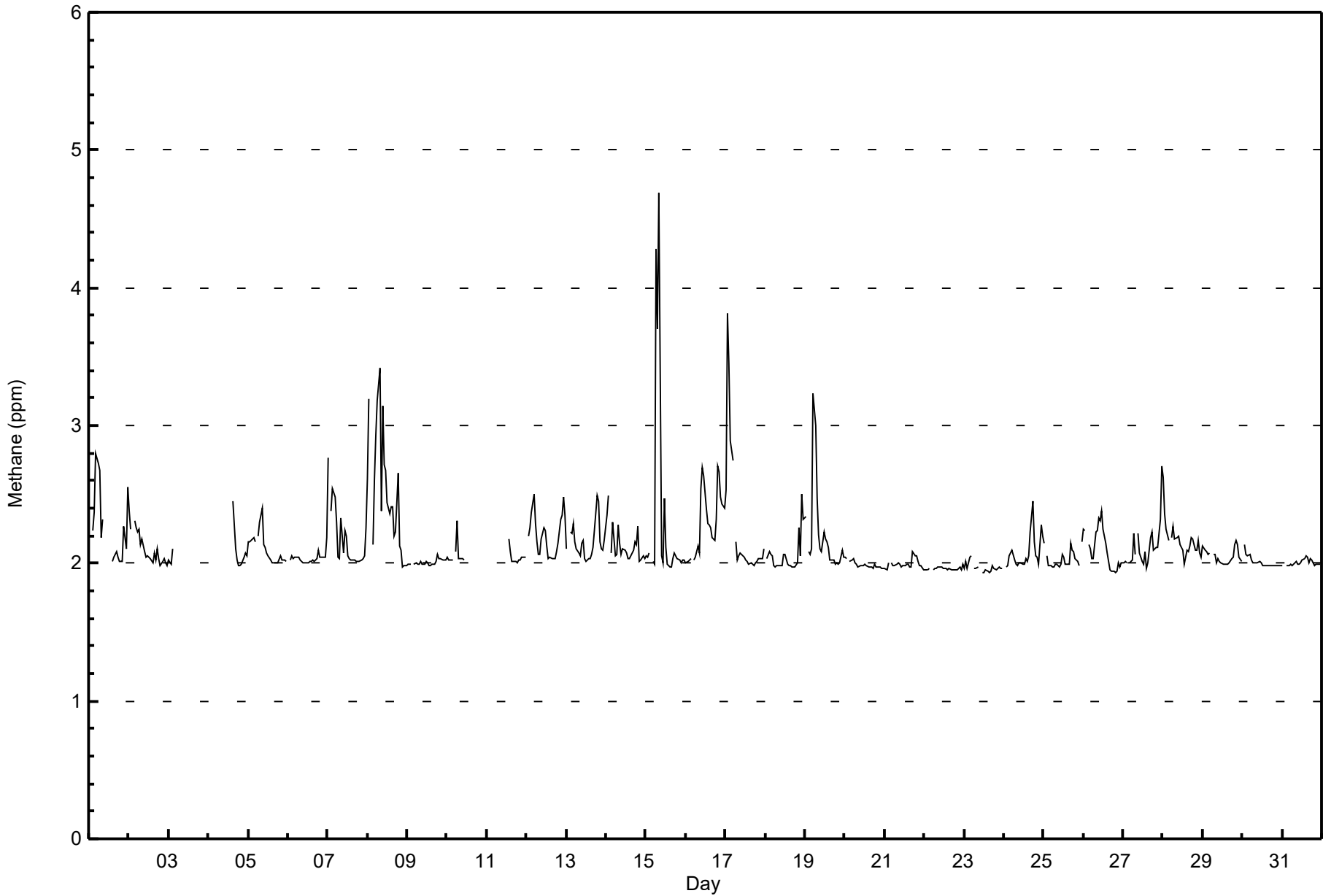
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Mildred Lake - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum				
Maximum Value: 4.7 ppm on Oct 15 09:00		Maximum Daily Average: 2.5 ppm on Oct 8		Hours of Data: 645														Hours of Missing Data: 99		Hours of Calibration: 36						
Minimum Value: 1.9 ppm on Oct 23 13:00		Minimum Daily Average: 2.0 ppm on Oct 22		Hours of Calibration: 36														Percent Operational Time: 91.5								
Maximum Diurnal Average: 2.2 ppm at hour 7		Minimum Diurnal Average: 2.0 ppm at hour 15		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.3 P <sub>99</sub> = 3.2																						
Monthly Average: 2.12 ppm																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	2.2	Z	2.2	2.4	2.8	2.7	2.7	2.2	2.3	C	C	C	C	C	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.3	2.1	2.6	2.3	2.8
2-Oct	2.4	2.2	Z	2.3	2.3	2.2	2.2	2.1	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4
3-Oct	2.0	2.0	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.1
4-Oct	UO	UO	UO	UO	Z	UO	UO	UO	UO	UO	M	M	M	M	M	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	--	2.5
5-Oct	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.3	2.4	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.4
6-Oct	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.2	2.0	2.2
7-Oct	2.8	Z	2.4	2.5	2.5	2.3	2.0	2.0	2.3	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.2	2.8
8-Oct	2.6	3.2	Z	2.1	2.6	2.9	3.2	3.4	2.4	3.1	2.7	2.7	2.4	2.4	2.4	2.4	2.2	2.2	2.7	2.1	2.1	2.0	2.0	2.0	2.5	3.4
9-Oct	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	2.0	2.0	2.0	2.0	2.1
10-Oct	2.0	2.0	2.0	2.0	Z	2.1	2.3	2.0	2.0	2.0	2.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.3
11-Oct	UO	UO	UO	UO	UO	Z	UO	UO	UO	UO	M	M	M	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	--	2.2
12-Oct	Z	2.2	2.3	2.4	2.5	2.3	2.2	2.1	2.1	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.4	2.5	2.4	2.2	2.5
13-Oct	2.1	Z	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.5	2.4	2.2	2.1	2.1	2.2	2.2	2.5
14-Oct	2.4	2.5	Z	2.2	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.3	2.0	2.0	2.1	2.0	2.1	2.5
15-Oct	2.1	2.0	2.1	Z	2.0	2.0	4.3	3.7	4.7	2.1	2.0	2.5	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.3	4.7
16-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.5	2.7	2.6	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.7	2.7	2.5	2.4	2.4	2.3	2.7
17-Oct	2.5	3.8	3.4	2.9	2.7	Z	2.2	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	2.1	2.1	2.3	3.8
18-Oct	Z	2.0	2.1	2.1	2.1	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	2.3	2.1	2.5	2.3	2.1	2.5
19-Oct	2.3	Z	2.1	2.1	2.1	3.2	3.0	2.5	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	3.2
20-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
21-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1
22-Oct	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	1.9	2.0	2.0	1.9	2.0	2.0	2.0
23-Oct	2.0	2.0	2.0	2.0	2.1	Z	2.0	2.0	2.0	M	M	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
24-Oct	Z	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.5	2.2	2.1	2.0	2.0	2.3	2.2	2.1	2.5
25-Oct	2.1	Z	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	2.1	2.0	2.0	2.0	UO	2.0	2.2
26-Oct	2.3	2.2	Z	2.1	2.1	2.0	2.0	2.2	2.2	2.3	2.3	2.4	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.4
27-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.2	2.1	M	2.2	2.1	2.0	2.0	2.1	2.0	2.0	2.2	2.2	2.1	2.1	2.1	2.1	2.3	2.7	2.1	2.7
28-Oct	2.6	2.4	2.3	2.2	Z	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.2	2.6
29-Oct	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.1	2.2
30-Oct	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	2.1
31-Oct	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
2.2																								Diurnal Average		
2.8																								Diurnal Maximum		
Z - zerospan				C - Calibration				M - Maintenance				UO - Unstable Operation														





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	367	56.90	56.90
2.1 - 3.0	268	41.55	98.45
3.1 - 10.0	10	1.55	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 645

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mildred Lake - October 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	45	19	11	7	14	7	13	14	44	40	55	29	26	16	13	10	363
2.1 - 3.0	28	8	1	4	5	10	36	41	10	8	5	16	20	35	13	21	261
3.1 - 10.0	0	0	0	0	0	0	0	2	2	0	0	4	0	1	0	1	10
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	73	27	12	11	19	17	49	57	56	48	60	49	46	52	26	32	634

Total Number of Valid Hours: 634

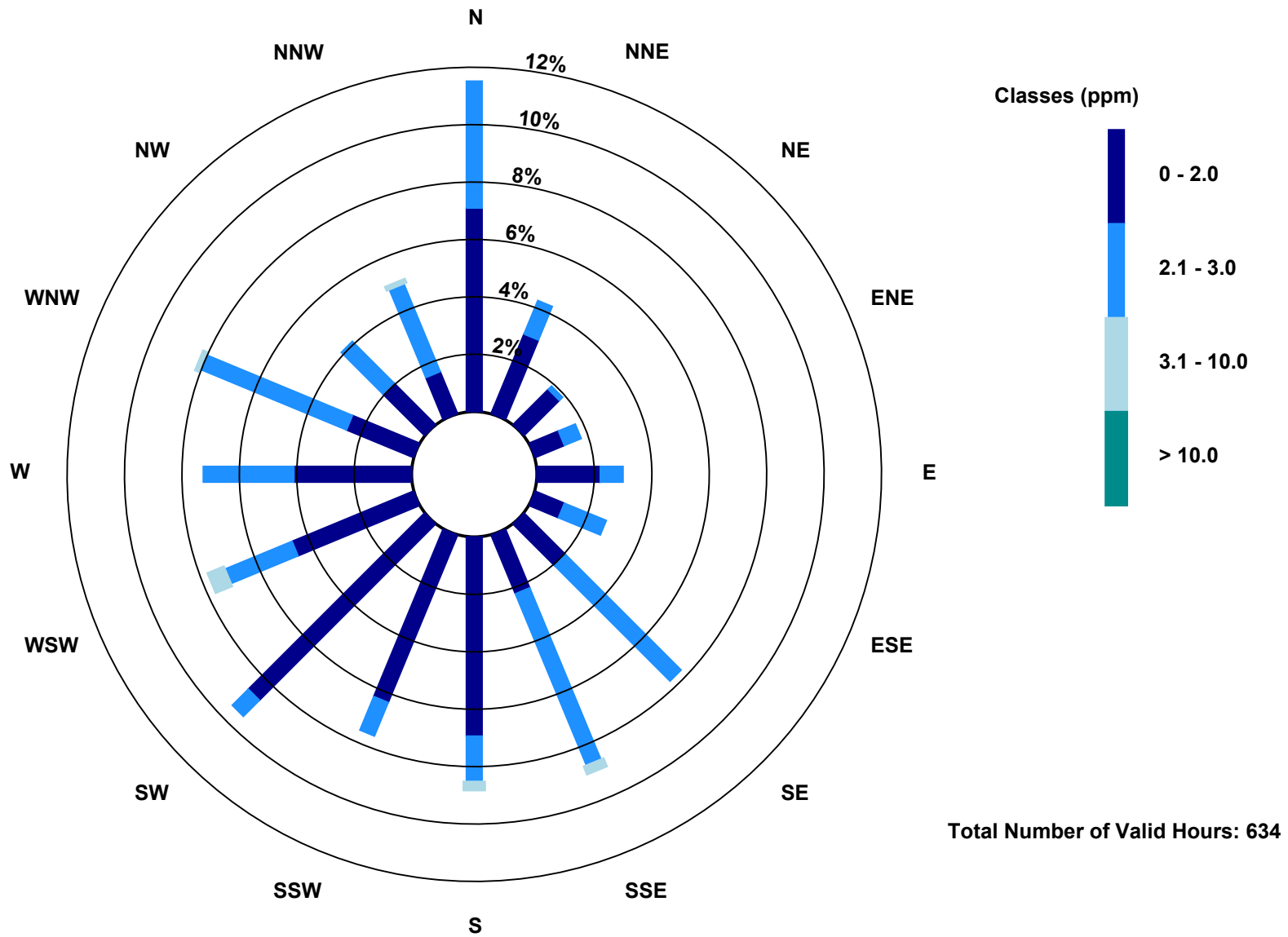
Total Number of Hours: 744

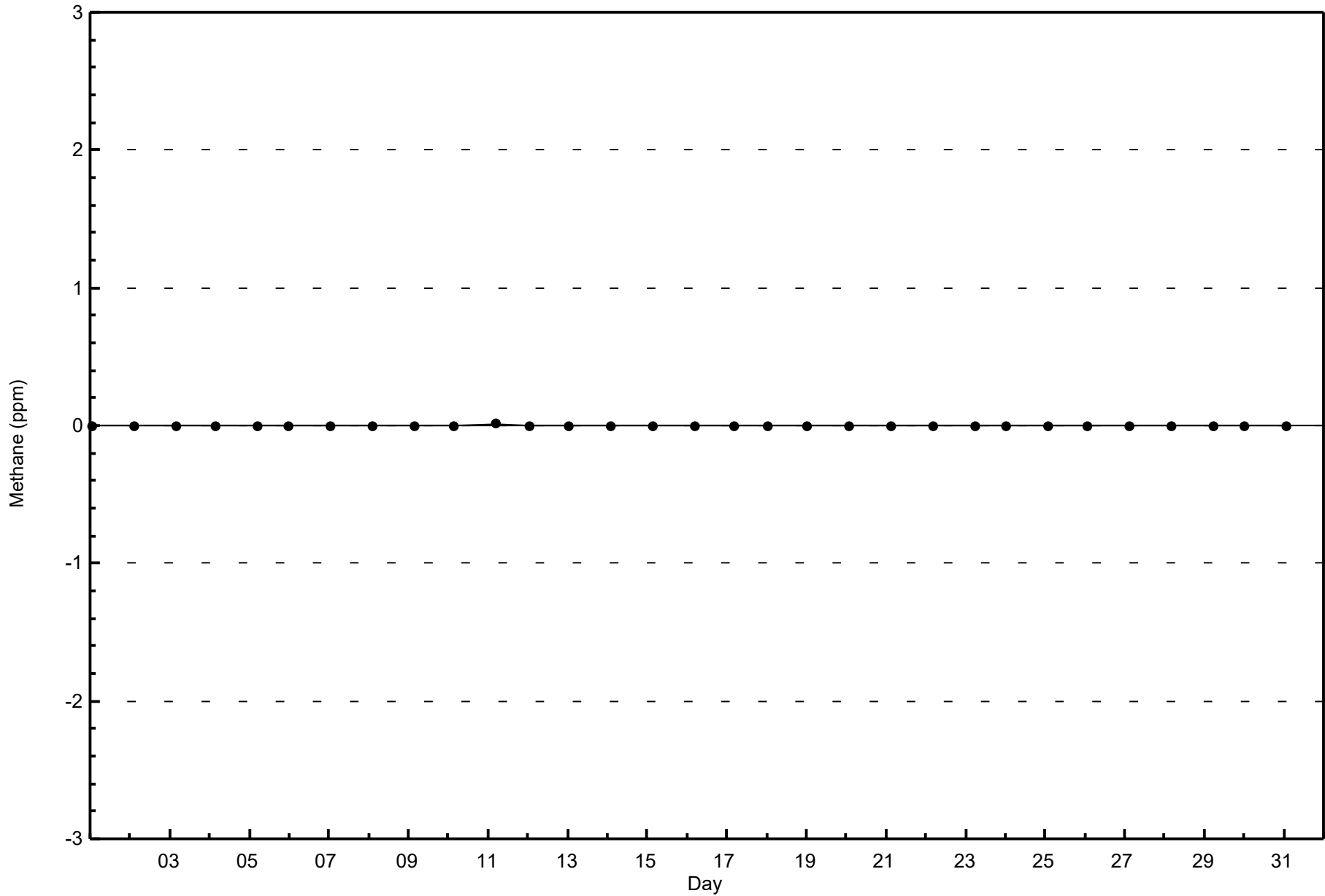


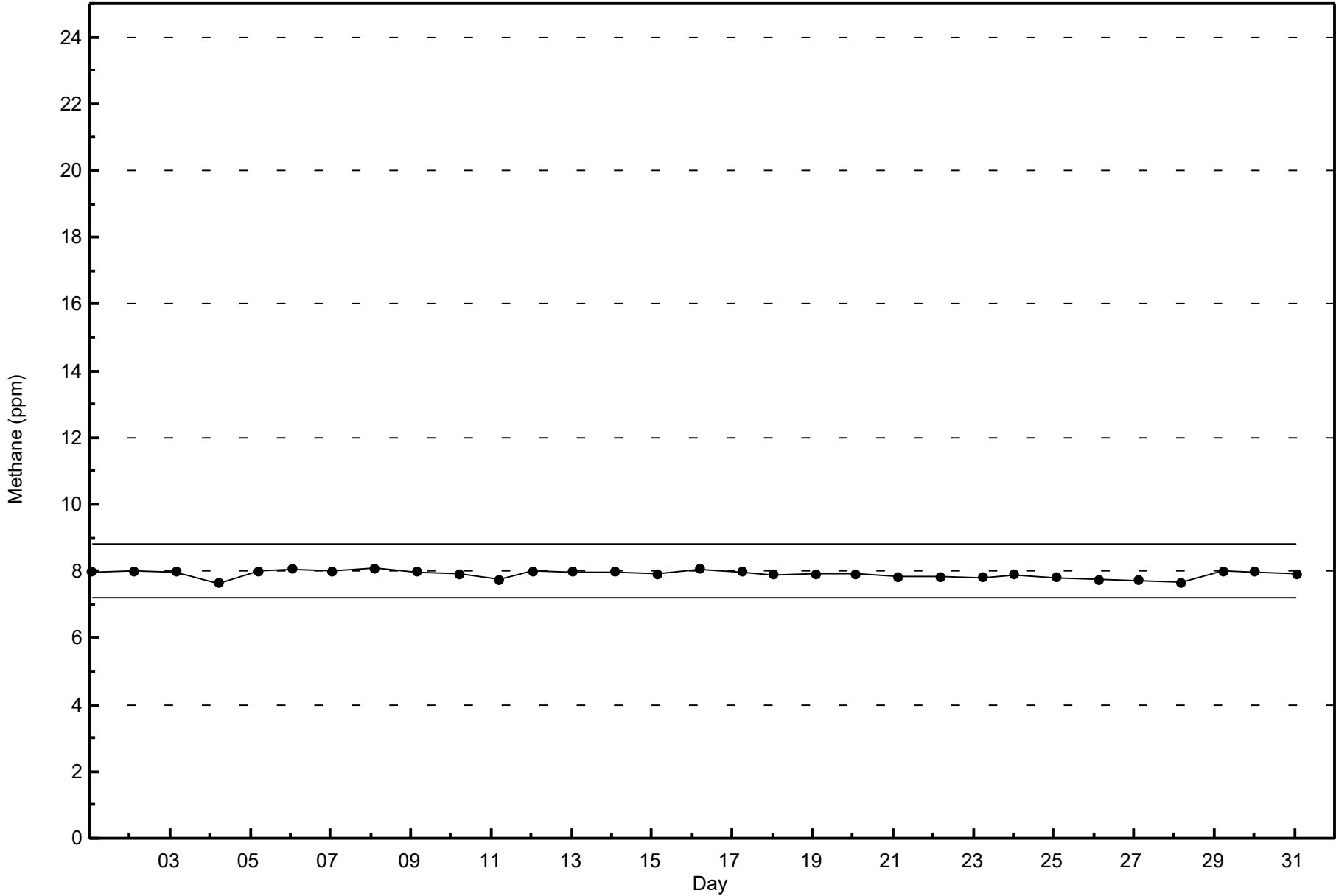


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









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

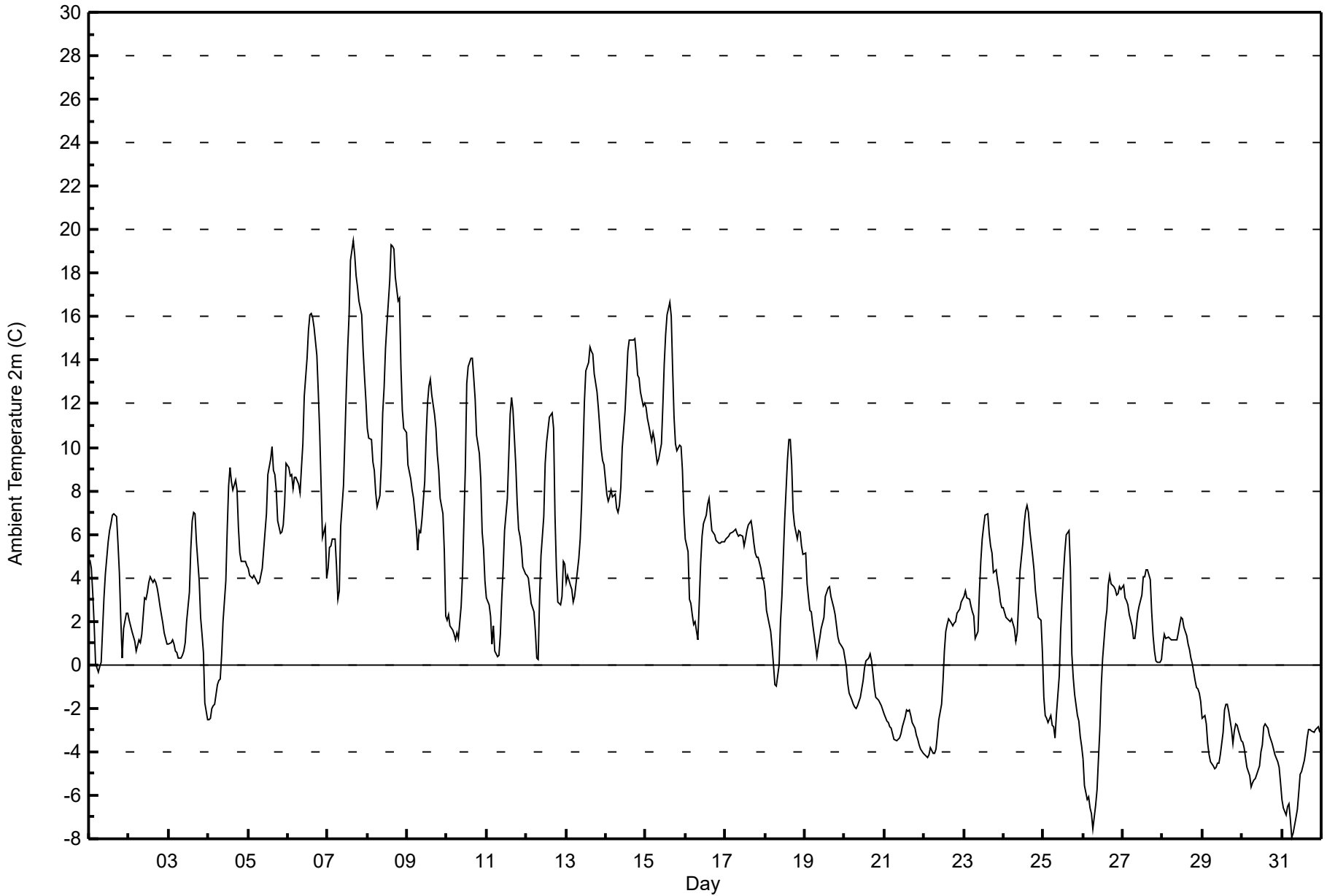
**Ambient Temperature 2m (AT2) - C**  
**Mildred Lake - October 2024**

Maximum Value: 19.5 C on Oct 7 16:00      Maximum Daily Average: 12.9 C on Oct 8																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -7.9 C on Oct 31 07:00      Minimum Daily Average: -5.0 C on Oct 31 Maximum Diurnal Average: 7.5 C at hour 15      Minimum Diurnal Average: 0.9 C at hour 8 Monthly Average: 3.81 C      Percentiles: P <sub>1</sub> = -6.6 P <sub>10</sub> = -3.3 Q <sub>1</sub> = 0.3 Median = 3.3 Q <sub>3</sub> = 7.0 P <sub>90</sub> = 11.7 P <sub>99</sub> = 17.8																										
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-Oct	4.8	4.4	3.3	1.8	0.0	-0.3	-0.1	0.1	1.6	3.1	4.2	5.7	6.2	6.5	6.9	6.9	6.8	5.6	4.2	2.1	0.3	1.7	2.4	2.4	3.4	6.9
2-Oct	2.0	1.8	1.5	1.1	0.7	0.9	1.1	1.0	1.4	3.1	3.0	3.3	3.8	4.0	3.8	3.9	3.8	3.5	3.2	2.7	1.9	1.4	1.2	1.0	2.3	4.0
3-Oct	1.0	1.0	1.1	0.9	0.7	0.5	0.3	0.3	0.4	0.6	1.0	2.0	3.3	5.3	6.6	7.0	7.0	5.6	3.8	2.2	1.4	0.6	-1.8	-2.6	2.0	7.0
4-Oct	-2.6	-2.5	-2.0	-1.9	-1.8	-0.9	-0.7	-0.7	0.5	2.0	3.9	6.2	8.2	9.1	8.5	8.0	8.5	8.0	6.3	5.2	4.8	4.8	4.7	4.5	3.3	9.1
5-Oct	4.4	4.1	4.0	4.1	4.0	3.9	3.7	3.8	4.4	5.2	6.1	6.9	8.7	9.5	10.0	9.0	8.8	8.0	6.6	6.1	6.1	6.4	7.5	9.2	6.3	10.0
6-Oct	9.1	8.7	8.8	8.1	8.6	8.6	8.3	7.9	9.1	10.2	12.3	14.1	15.4	16.1	16.2	16.0	15.5	14.2	12.5	10.8	8.3	5.9	6.4	4.0	10.6	16.2
7-Oct	4.4	5.4	5.5	5.8	5.8	4.6	3.0	3.4	6.4	8.2	10.4	12.6	14.5	16.1	18.6	19.5	18.8	17.9	17.4	16.8	16.1	14.5	13.2	12.2	11.3	19.5
8-Oct	10.9	10.4	10.3	9.3	9.0	7.9	7.3	7.8	9.2	11.6	12.7	14.5	15.7	17.6	19.3	19.3	19.1	17.9	16.8	16.9	13.7	11.7	10.9	10.6	12.9	19.3
9-Oct	9.2	8.9	8.6	8.1	7.7	6.3	5.3	6.2	6.0	6.7	8.4	10.5	12.0	12.8	13.1	12.4	11.5	10.9	9.6	8.9	7.6	7.0	5.2	2.2	8.5	13.1
10-Oct	2.1	2.3	1.8	1.6	1.4	1.1	1.5	1.2	2.7	4.2	6.6	9.0	12.9	13.7	14.1	14.1	13.2	12.2	10.6	9.7	8.5	6.1	5.3	3.9	6.7	14.1
11-Oct	3.1	2.8	2.3	0.9	1.8	0.6	0.4	0.5	1.4	3.1	4.4	6.2	7.6	9.6	11.5	12.3	11.7	9.2	7.5	6.2	5.9	5.4	4.5	4.2	5.1	12.3
12-Oct	4.1	4.0	3.4	2.9	2.5	1.5	0.3	0.3	3.1	5.0	6.8	9.3	10.2	10.8	11.4	11.6	10.9	6.9	4.5	2.9	2.8	3.1	4.8	4.7	5.3	11.6
13-Oct	3.8	4.1	3.6	3.4	2.9	3.1	3.7	4.9	5.8	7.4	9.7	12.1	13.5	13.9	14.6	14.4	14.3	13.4	12.6	11.8	10.9	9.9	9.4	9.2	8.9	14.6
14-Oct	7.9	7.5	7.7	8.0	7.7	7.8	7.2	7.0	7.3	8.1	10.0	11.6	13.0	14.4	14.9	14.9	14.9	15.0	14.3	13.3	13.2	12.5	11.9	12.0	10.9	15.0
15-Oct	11.8	11.3	11.0	10.3	10.7	10.4	9.8	9.3	9.4	10.1	11.9	13.8	15.2	16.1	16.7	16.0	13.6	11.4	10.2	9.8	10.1	10.0	9.0	6.9	11.5	16.7
16-Oct	5.8	5.2	3.0	2.8	2.3	1.9	2.0	1.2	2.9	4.7	5.9	6.5	6.9	7.4	7.6	6.9	6.1	6.0	5.7	5.7	5.6	5.6	5.7	5.7	5.0	7.6
17-Oct	5.8	5.9	5.9	6.0	6.1	6.2	6.3	6.0	5.9	6.0	5.9	5.5	5.8	6.2	6.4	6.6	6.2	5.6	5.2	4.9	4.9	4.4	4.0	3.8	5.6	6.6
18-Oct	3.4	2.5	1.8	1.5	0.8	0.0	-0.9	-1.0	0.0	2.0	3.1	4.9	6.7	9.4	10.4	10.3	9.2	7.0	6.4	5.8	6.2	6.1	5.5	5.1	4.4	10.4
19-Oct	5.1	3.7	3.1	2.5	2.4	1.9	0.9	0.4	0.8	1.2	1.7	2.2	3.1	3.4	3.5	3.6	3.2	2.6	2.3	1.8	1.3	1.0	0.8	0.7	2.2	5.1
20-Oct	0.3	-0.1	-0.8	-1.3	-1.6	-1.8	-2.0	-2.0	-1.9	-1.5	-1.1	-0.7	-0.1	0.2	0.3	0.5	0.2	-0.4	-1.0	-1.5	-1.6	-1.8	-1.9	-2.1	-1.0	0.5
21-Oct	-2.3	-2.6	-2.7	-2.8	-2.9	-3.2	-3.4	-3.5	-3.4	-3.4	-3.2	-2.9	-2.4	-2.1	-2.1	-2.1	-2.3	-2.7	-2.9	-3.3	-3.5	-3.7	-3.9	-4.1	-3.0	-2.1
22-Oct	-4.1	-4.2	-4.3	-4.1	-3.8	-4.1	-4.1	-3.9	-3.2	-2.5	-1.8	-0.8	0.6	1.5	1.8	2.1	1.9	1.8	1.9	2.0	2.4	2.6	2.9	3.0	-0.7	3.0
23-Oct	3.1	3.4	3.1	3.0	2.7	2.4	2.3	1.2	1.5	3.4	4.7	5.8	6.4	6.9	6.9	6.1	5.5	5.1	4.2	4.4	3.9	3.4	2.9	2.6	4.0	6.9
24-Oct	2.7	2.2	2.1	2.0	2.0	2.1	1.6	1.1	1.5	2.9	4.3	5.6	6.5	7.1	7.3	7.0	6.2	5.0	4.4	3.4	2.9	2.2	2.0	0.5	3.5	7.3
25-Oct	-1.5	-2.4	-2.4	-2.7	-2.4	-2.8	-2.9	-3.3	-2.3	-0.5	1.5	3.0	4.2	5.2	6.0	6.2	4.4	0.5	-0.6	-1.3	-2.3	-2.6	-3.3	-3.7	-0.2	6.2
26-Oct	-4.3	-5.6	-6.2	-6.1	-6.6	-6.8	-7.5	-6.5	-5.7	-4.3	-3.0	-1.0	0.3	2.0	2.5	3.6	4.1	3.7	3.6	3.5	3.2	3.3	3.6	3.5	-1.1	4.1
27-Oct	3.6	3.1	3.0	2.7	2.3	1.8	1.2	1.2	1.7	2.3	2.7	3.2	4.0	4.0	4.4	4.3	3.9	2.4	1.3	0.6	0.2	0.1	0.1	0.2	2.3	4.4
28-Oct	0.9	1.4	1.2	1.3	1.2	1.2	1.1	1.1	1.2	1.5	1.9	2.2	2.1	1.7	1.3	1.0	0.7	0.3	0.0	-0.7	-1.0	-1.1	-1.3	-1.7	0.7	2.2
29-Oct	-2.4	-2.3	-2.7	-3.6	-4.1	-4.5	-4.7	-4.8	-4.7	-4.5	-4.5	-4.1	-3.1	-2.1	-1.8	-1.8	-2.1	-3.0	-3.6	-3.1	-2.7	-2.8	-3.1	-3.5	-3.3	-1.8
30-Oct	-3.5	-3.8	-4.3	-4.7	-5.1	-5.6	-5.4	-5.3	-5.2	-5.0	-4.6	-4.0	-3.7	-2.9	-2.7	-2.9	-3.2	-3.4	-3.7	-3.9	-4.1	-4.5	-4.7	-5.4	-4.2	-2.7
31-Oct	-6.2	-6.6	-6.9	-6.5	-6.4	-7.1	-7.9	-7.7	-7.0	-6.7	-5.9	-5.0	-4.9	-4.4	-3.9	-3.4	-3.0	-3.0	-3.0	-3.1	-3.0	-2.9	-2.9	-3.1	-5.0	-2.9
																								Diurnal Average		
																								Diurnal Maximum		



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

**Ambient Temperature 2m (AT2) - C**  
**Mildred Lake - October 2024**





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

**Ambient Temperature 2m (AT2) - C**  
**Mildred Lake - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	174	23.39	23.39
0 - 10	461	61.96	85.35
10 - 20	109	14.65	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

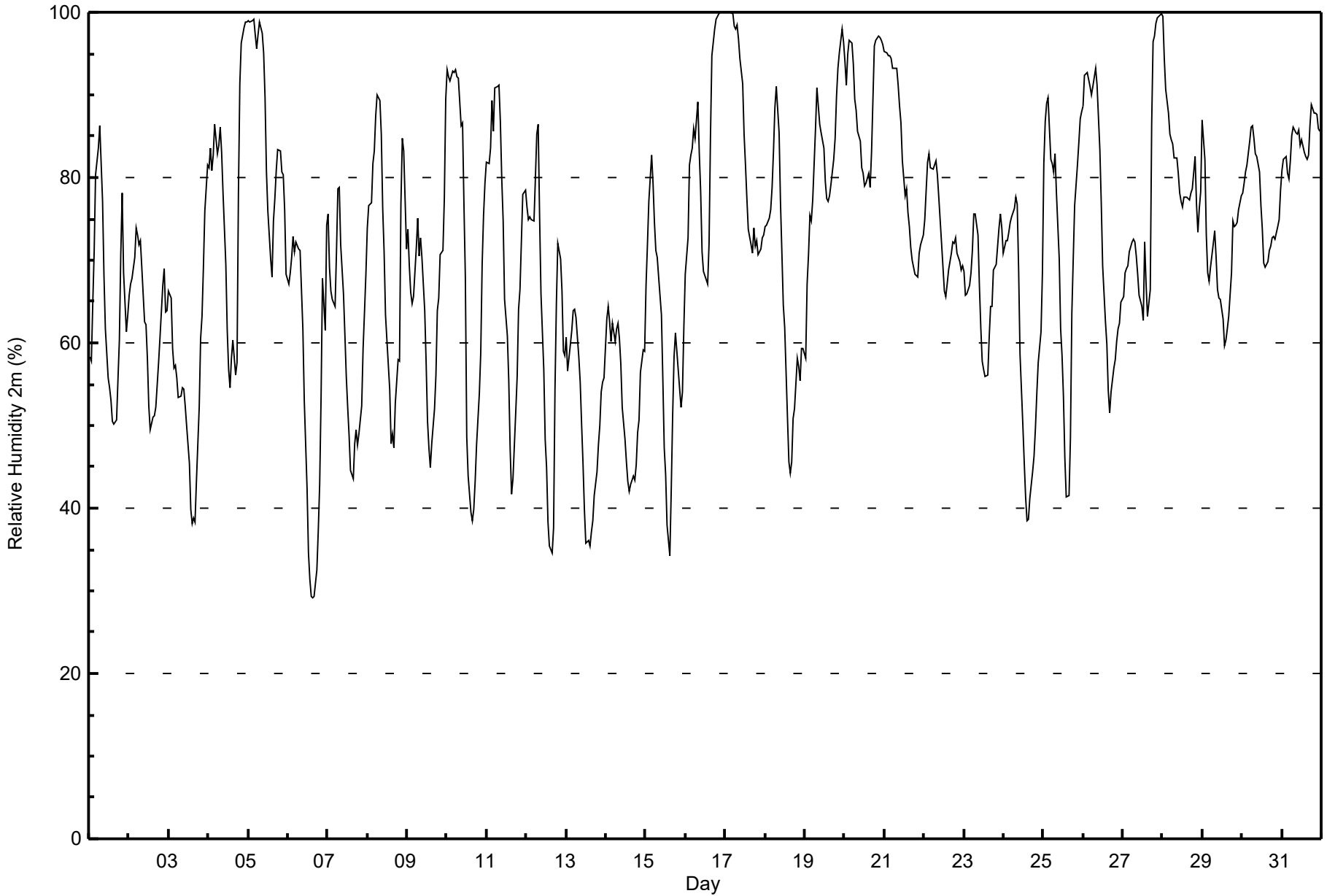
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Mildred Lake - October 2024**

Maximum Value: 100.0 % on Oct 16 23:00      Maximum Daily Average: 89.4 % on Oct 20																						Hours in Service:	744			
Minimum Value: 29.1 % on Oct 6 16:00      Minimum Daily Average: 50.4 % on Oct 13																						Hours of Data:	744			
Maximum Diurnal Average: 81.4 % at hour 8      Minimum Diurnal Average: 55.2 % at hour 15																						Hours of Missing Data:	0			
Monthly Average: 70.77 %      Percentiles: P <sub>1</sub> = 34.9 P <sub>10</sub> = 48.4 Q <sub>1</sub> = 59.9 Median = 71.8 Q <sub>3</sub> = 82.4 P <sub>90</sub> = 91.6 P <sub>99</sub> = 99.9																						Hours of Calibration:	0			
																						Percent Operational Time:	100.0			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	58.3	57.8	64.8	71.0	80.4	83.5	86.3	81.8	77.1	68.2	61.8	55.8	54.6	53.1	50.4	50.1	50.6	55.6	60.3	70.7	78.2	68.5	61.3	63.3	65.1	86.3
2-Oct	65.8	67.2	67.8	70.3	73.8	73.1	71.9	72.3	69.2	62.6	62.2	58.1	52.4	49.5	51.0	51.2	52.1	54.9	57.7	60.6	67.0	69.0	63.7	64.0	62.8	73.8
3-Oct	66.4	65.5	59.3	57.0	57.2	55.8	53.4	53.5	54.6	54.4	52.5	49.9	45.4	39.8	38.1	38.8	38.2	43.3	52.2	60.5	63.3	69.2	75.9	81.5	55.2	81.5
4-Oct	81.2	83.6	80.8	82.7	86.4	82.9	84.0	86.2	83.0	78.2	69.6	61.5	56.8	54.5	58.1	60.4	56.2	57.6	78.2	91.3	96.2	98.2	98.8	98.9	77.7	98.9
5-Oct	98.9	98.9	99.0	99.1	97.2	95.5	97.2	98.8	97.4	95.1	89.7	80.6	76.0	70.2	67.9	74.8	77.5	80.9	83.3	83.2	80.6	80.3	76.1	68.4	86.1	99.1
6-Oct	67.1	68.4	70.3	72.9	71.0	72.1	71.3	71.2	66.5	61.7	53.0	42.4	34.5	31.3	29.2	29.1	29.4	32.6	37.3	43.0	53.4	67.8	61.5	74.2	54.6	74.2
7-Oct	75.6	69.2	66.3	65.2	64.4	71.1	78.7	78.8	71.9	66.0	61.0	56.0	52.1	48.8	44.5	43.6	47.8	49.5	47.7	49.0	52.3	59.4	63.8	68.2	60.5	78.8
8-Oct	73.8	76.6	76.9	81.8	83.2	87.4	90.0	89.4	85.3	76.3	70.9	63.4	60.4	54.5	47.9	49.0	47.3	52.6	58.0	57.7	76.8	84.8	83.2	71.4	70.8	90.0
9-Oct	73.8	69.4	66.0	64.8	65.6	71.5	75.1	70.6	72.7	70.4	63.9	57.6	50.4	47.2	44.9	47.7	52.1	56.2	63.9	65.4	70.7	71.2	77.5	89.4	64.9	89.4
10-Oct	93.1	92.1	91.7	92.9	92.8	93.1	92.2	92.1	86.3	86.6	76.7	67.9	48.6	43.8	39.4	38.5	39.9	43.3	47.7	53.9	58.7	69.5	75.5	79.3	70.6	93.1
11-Oct	81.8	81.7	83.6	89.3	85.5	90.8	91.0	91.2	86.7	79.7	74.7	65.2	60.8	55.3	47.2	41.6	43.6	51.7	55.9	64.1	66.4	72.2	78.0	78.4	71.5	91.2
12-Oct	76.5	74.9	75.3	74.9	74.7	79.8	85.2	86.5	75.4	65.9	56.7	48.4	45.0	38.3	35.3	34.6	37.5	54.5	64.8	72.1	70.2	66.3	59.0	58.4	62.9	86.5
13-Oct	60.6	56.5	59.9	61.5	63.9	64.1	63.1	58.3	55.2	50.2	45.4	39.8	35.8	36.1	35.4	37.1	38.5	41.5	44.4	47.6	50.0	54.1	55.2	55.8	50.4	64.1
14-Oct	62.9	64.4	62.5	60.1	62.4	60.2	61.7	62.4	60.4	57.4	52.1	48.3	45.6	43.2	42.0	42.9	43.9	43.5	45.3	49.2	50.7	56.5	59.2	59.0	54.0	64.4
15-Oct	67.0	71.9	77.2	82.6	79.3	74.6	71.1	70.4	67.9	63.4	55.6	47.3	44.0	38.0	34.3	42.1	51.1	58.4	61.3	59.0	54.5	52.2	54.1	61.9	60.0	82.6
16-Oct	68.2	72.7	81.5	82.7	83.5	85.9	84.8	89.2	83.0	78.2	71.1	68.6	67.6	67.1	72.0	84.9	94.8	98.0	99.1	99.5	99.8	100.0	100.0	100.0	84.7	100.0
17-Oct	100.0	100.0	100.0	100.0	99.8	98.3	97.9	98.4	96.8	94.5	91.3	85.3	81.5	77.5	73.7	71.9	70.8	74.0	71.7	72.4	70.7	71.3	72.7	73.0	85.1	100.0
18-Oct	74.1	74.3	75.0	76.1	78.8	83.1	88.5	90.9	85.5	77.0	70.8	64.6	61.9	50.8	45.6	44.2	45.6	50.8	52.0	58.2	57.1	55.4	59.3	59.4	65.8	90.9
19-Oct	58.1	67.2	70.7	75.5	74.8	77.3	85.9	90.8	88.7	86.4	85.4	83.6	79.4	77.4	77.1	77.9	79.2	82.3	84.8	89.9	93.2	95.1	97.9	96.4	82.3	97.9
20-Oct	94.1	91.2	94.9	96.6	96.2	93.8	89.5	88.1	85.5	84.4	81.2	80.5	79.0	79.4	80.4	78.8	83.1	89.5	96.0	96.7	97.1	97.0	96.7	96.1	89.4	97.1
21-Oct	95.3	95.1	94.8	94.7	94.5	93.3	93.3	93.3	91.2	88.7	86.7	82.1	77.9	78.7	75.8	74.0	71.5	70.0	68.3	68.2	68.0	70.8	71.8	73.1	82.1	95.3
22-Oct	74.9	78.6	81.9	82.9	81.2	81.0	81.5	82.0	80.3	77.6	72.1	69.1	66.3	65.6	67.2	68.8	70.8	72.1	72.1	72.7	70.8	69.8	68.9	69.3	74.1	82.9
23-Oct	68.6	65.8	66.0	66.9	68.5	71.3	75.5	75.5	73.1	67.0	61.8	57.8	56.8	55.9	56.2	60.7	64.5	64.3	68.8	69.5	71.7	74.0	75.5	73.9	67.1	75.5
24-Oct	70.9	72.3	72.3	73.4	74.6	75.3	76.3	77.6	76.7	68.9	58.6	50.2	45.5	41.4	38.5	38.6	41.1	44.3	46.3	49.7	53.9	57.7	61.4	68.5	59.8	77.6
25-Oct	81.8	86.8	89.1	89.7	82.2	81.7	80.7	82.9	78.2	70.1	61.7	58.4	53.5	46.0	41.4	41.5	48.5	63.5	70.1	76.6	81.5	84.2	87.1	87.9	71.9	89.7
26-Oct	88.6	92.3	92.8	91.8	91.1	89.9	91.0	93.2	91.2	87.4	83.4	77.0	69.3	62.5	59.8	54.3	51.5	54.1	56.9	57.9	60.1	61.7	62.5	64.8	74.4	93.2
27-Oct	65.6	68.5	68.9	69.3	70.9	72.2	72.5	72.2	70.4	68.2	65.8	64.4	62.7	72.2	67.1	63.2	66.5	86.5	96.5	97.2	98.6	99.3	99.6	99.9	76.6	99.9
28-Oct	99.5	94.4	90.7	87.8	85.3	84.6	84.0	82.4	82.4	80.6	78.1	77.1	76.5	77.7	77.7	77.4	77.3	78.2	78.6	82.5	76.8	73.3	76.3	78.3	81.6	99.5
29-Oct	86.9	82.3	73.1	68.5	67.5	69.2	72.0	73.6	70.3	66.4	65.4	65.3	62.9	59.7	60.3	61.7	63.2	68.5	74.8	74.1	74.3	74.6	76.0	77.9	70.4	86.9
30-Oct	78.2	79.4	80.7	81.5	84.4	86.1	86.3	84.7	82.9	82.5	80.6	76.6	73.7	69.7	69.1	69.8	71.2	71.8	72.7	72.9	72.5	74.1	75.0	78.4	77.3	86.3
31-Oct	80.9	82.3	82.5	80.6	79.8	82.0	85.1	86.1	85.4	85.2	85.8	83.9	84.6	83.0	82.6	82.2	82.8	86.3	88.8	87.8	87.9	87.7	86.0	85.7	84.4	88.8
																								Diurnal Average		
																								Diurnal Maximum		







# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

## Mildred Lake - October 2024

Maximum Speed: 24 km/h on Oct 6 05:00		Maximum Daily Speed Average: 14.2 km/h on Oct 17		Hours in Service: 744																										
Minimum Speed Value: 0 km/h on Oct 1 06:00		Minimum Daily Speed Average: 0.6 km/h on Oct 16		Hours of Data: 732																										
Maximum Diurnal Speed Average: 3.5 km/h at hour 5		Minimum Diurnal Speed Average: 1.8 km/h at hour 24		Hours of Missing Data: 12																										
Monthly Average Velocity: 2.6 km/h 248.3 deg		Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 15 P <sub>99</sub> = 22		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-Oct	W12	W12	W9	W3	WNW2	S0	NNE3	ENE2	SSW2	NW5	NNW7	WNW5	NW5	NW6	N5	NNE7	NNE7	NNE8	NNE5	N5	NW5	NW8	NW11	NW9	NW4.5	W12				
2-Oct	WNW10	NW9	NW12	WNW11	WNW10	W11	W13	W12	WNW14	WNW19	WNW15	WNW16	WNW17	NW20	NW19	WNW15	NW20	WNW18	NW17	NW15	NNW13	NNW13	NW14	NW12	NW14.0	NW20				
3-Oct	NW12	NW11	NW13	NW11	NW9	NW12	NW15	NW12	NW10	NW15	NW13	WNW11	WNW10	WNW10	WSW9	WSW11	WSW10	SW9	SW4	SSW3	SSW5	SSW5	ESE3	SE4	WNW7.3	NW15				
4-Oct	E2	S3	S7	S6	S5	SSE6	SE4	SE3	S7	ESE7	E6	ENE6	NNE6	NNE6	N8	NNE9	N9	N9	NNE8	N7	NNW8	NNW10	N13	NNE2.7	N13					
5-Oct	N14	N13	N10	NNW7	NW6	NNW5	NNW3	NNW2	W2	SW3	WSW4	WSW7	SW8	SSW11	SSW12	SSW9	SSW6	S7	S7	SSE8	S10	S11	S12	SSW11	SW3.2	N14				
6-Oct	SW11	WSW13	WSW19	WSW20	W24	W19	W17	WSW12	WSW12	SW13	SW14	SW17	WSW16	WSW14	W15	W14	W13	W11	WSW8	SW6	SW3	SSE4	SSE7	SE5	WSW11.6	W24				
7-Oct	SSE8	SSE8	SSE9	SSE11	SSE10	S7	SSW7	SSW7	S10	SSE10	SE16	SE15	SSE12	SSE12	S10	S7	S6	S8	S12	S11	S10	S5	S4	SSE5	SSE8.8	SE16				
8-Oct	SSE6	SSE6	SSE6	SSE5	ESE3	SSE1	SSE3	S3	SSE6	S3	SE4	SSE5	SE8	SSE10	SSE9	SE7	SE9	SE6	S6	WSW16	W11	SW14	SW12	SW15	S4.9	WSW16				
9-Oct	SW13	WSW11	WSW13	SW13	SW11	SSW7	SSW8	SW13	WSW12	WSW10	WSW10	WSW10	WSW10	WSW11	SW11	SW9	SW7	WSW4	W4	SSW5	SW5	SSW4	WSW6	SW4	E3	SW8.1	WSW13			
10-Oct	S4	S5	S5	SSW7	S7	SSE9	S6	S7	S5	S7	S6	SSE9	SSW10	SW13	SW12	SW11	W12	W13	WSW8	WNW10	NW6	WNW4	SW4	SW5	SW5.8	SW13				
11-Oct	SW6	SW7	SW6	SSW5	SSW7	SSE7	SE5	S8	SSE8	SSE8	SSE9	SSE11	SSE12	SSE12	S8	SSW11	SW9	SSW8	S9	SSW9	SW6	SW7	SW7	SW7	S6.8	SSE12				
12-Oct	SW4	WSW6	WSW7	W7	W7	WSW5	WSW5	SSW3	SSW4	SW4	W5	SW2	ENE3	NW7	NNW4	ENE2	E6	E5	SE5	ESE5	SE5	SE8	SE9	SSE9	SSW1.8	SE9				
13-Oct	SE9	SE12	SE10	SE9	ESE8	ESE9	ESE11	SE16	SE17	SE18	SSE20	SSE20	SSE20	SE18	SE17	SE16	SE13	SSE11	SSE13	SSE13	SSE13	SE11	SE14	SE15	SE13.6	SSE20				
14-Oct	SSE9	SSE9	SE9	SE12	SE10	SE14	SE13	SSE10	SSE13	SE15	SSE15	SE10	SSE11	SE15	SE18	SE13	SE14	SSE13	SSE15	SSE9	SSE10	SSW7	S7	S8	SSE11.3	SE18				
15-Oct	SSW9	S8	SSE6	S5	SW8	WSW9	WSW12	WSW12	WSW12	SW9	WSW9	WSW10	WSW9	W8	WSW7	SW7	SSW6	SSW6	SSW4	SSW7	SW7	SW7	SW6	WSW4	SW7.0	WSW12				
16-Oct	SW5	SSW5	SSE4	S5	S5	S6	S7	SSE3	S3	SSE4	SSE5	SE4	E2	NNE3	ENE3	N5	N6	NNW7	N8	NNW9	NNW11	N7	NNW7	NNW4	N0.6	NNW11				
17-Oct	NW2	WNW3	WSW4	W6	WSW7	WSW9	SW12	SW15	WSW14	W15	WSW16	W19	W16	W18	W21	W21	W23	W24	W22	W18	WNW20	WNW19	WNW16	WNW14	W14.2	W24				
18-Oct	WNW12	WNW13	WNW14	W11	W10	WSW7	SSW4	S8	S9	S8	SSE10	SSE10	SE10	SSW11	SSW11	S13	S10	S7	SSE8	SSE8	SSE12	SSE13	SE10	ESE6	SSW5.7	WNW14				
19-Oct	SE3	NNW3	N3	NNW3	N4	NNW9	NNW9	N8	N7	NNW9	NNW9	NNW10	N11	N7	NNE6	NNE7	N9	N9	N10	N11	N11	N11	N12	N12	N7.6	N12				
20-Oct	N14	N13	NNW11	NNW10	NNW11	N9	N11	N9	N9	NNE8	NNE10	NNE7	NNE8	NNE10	NNE10	NNE11	NNE11	NNE12	N13	N14	N16	N15	N18	N18	N11.2	N18				
21-Oct	N19	N22	N21	N21	N19	N23	N22	N17	N17	NNW19	NNW16	N15	N11	NNW9	N7	NNW8	NW9	NW9	WNW11	WNW10	WNW10	W9	W9	SW10	NNW12.4	N23				
22-Oct	SW11	SSW11	SSW9	SSW9	SSW11	S13	S11	S11	S13	SSW13	SW15	SW13	SSW12	SSW14	SSW14	SSW14	SSW14	S14	SSW15	SSW13	SW12	SW12	SW15	SW15	SSW12.2	SW15				
23-Oct	SW14	WSW18	WSW20	WSW19	WSW22	W19	W13	SW3	SW10	WSW13	WSW8	SW14	SW17	WSW14	SW14	SW14	SW13	WSW12	SW12	SW13	SSW8	SSE8	S6	SSW6	WSW12.1	WSW22				
24-Oct	SW9	SW9	WSW9	WSW6	W11	W10	WSW7	SW7	SW7	W11	WNW13	W17	WNW14	WNW14	WNW15	WNW14	WNW9	WNW9	W10	WNW11	W6	W4	NW7	NNE3	W8.7	W17				
25-Oct	W2	SSW3	S6	S8	SSW9	SSW8	WSW5	SW2	SSW6	SW6	WSW6	W8	WNW9	WNW11	W10	WNW10	NW5	E1	SSW2	SSW4	NE2	SE3	ESE2	E3	WSW3.4	WNW11				
26-Oct	NNE2	NNE2	N4	N5	N4	N5	N4	N9	N11	N9	N11	NNW10	NNW11	N12	NNW11	NNE6	ENE6	ENE8	E10	E13	E11	ESE9	SE13	SE14	NE5.0	SE14				
27-Oct	SE15	SE16	SE16	SE16	SE12	SE10	SE8	SE9	ESE9	SE10	ESE10	E12	ESE12	ESE9	E12	ESE13	SE9	NE1	N3	NNW5	N4	NNW7	NNW8	NW6	ESE6.8	SE16				
28-Oct	WNW9	WNW13	WNW13	WNW14	WNW14	WNW13	WNW12	WNW12	WNW13	WNW14	WNW15	WNW14	NW16	NW17	NW16	WNW15	NW14	WNW15	WNW14	WNW16	WNW17	WNW15	WNW13	WNW13	WNW14.0	NW17				
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SW9	SW10	SSW9	S5	SE5	NE3	E3	E4	E4	ENE3	N6	N8	---	SW10
30-Oct	N8	N13	N13	N13	N13	N13	N11	N11	N11	N10	N12	NNE10	NNE10	NNE10	NNE11	NE11	NE9	NE8	NE9	NE8	NE8	NE6	NE6	NE5	NNE9.4	N13				
31-Oct	ENE6	ENE6	ENE6	ENE5	E8	E7	E7	ENE5	E9	E9	ESE11	SE11	ESE10	ESE7	ESE6	SSE6	S8	SSE9	SSE10	S10	S9	S9	S9	SW7	SE5.8	ESE11				
WSW2.5WSW2.7 W3.0WSW3.1WSW3.5WSW2.7 W2.3 SW2.3 SW3.0WSW2.8WSW2.4WSW3.1WSW3.0WSW3.5WSW3.4WSW2.8WSW2.3WSW2.1WSW2.1WSW2.7 W1.8WSW2.2WSW1.9WSW1.8																								Diurnal Average						
N19 N22 N21 N21 W24 N23 N22 N17 N17WNW19 SSE20 SSE20 SSE20 NW20 W21 W21 W23 W24 W22 W18WNW20WNW19 N18 N18																								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**

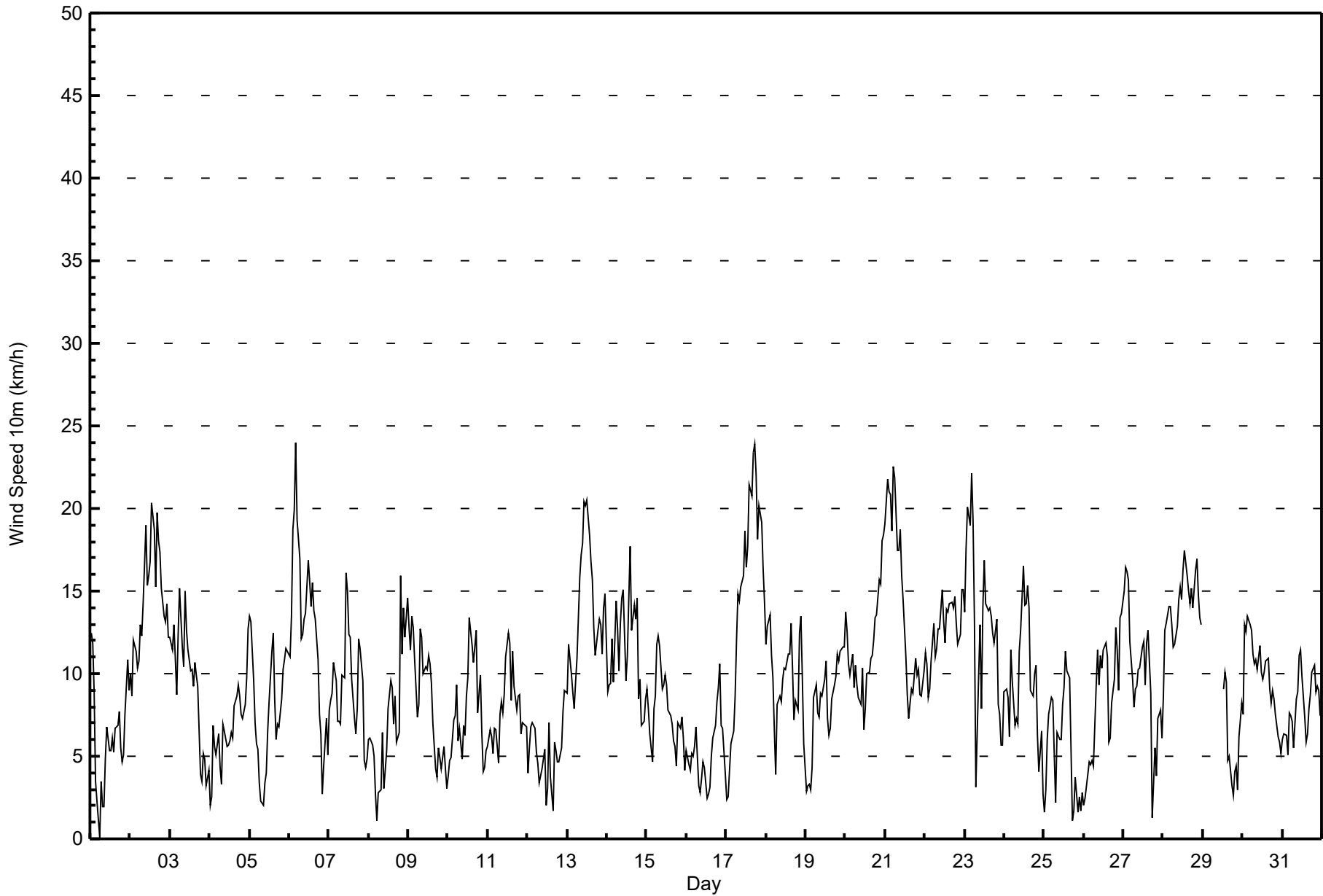
**Wind Speed 10m (WS10) - km/h**  
**Mildred Lake - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Oct 6 04:00 Minimum Value: 1 km/h on Oct 26 02:00 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: 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-Oct	3	4	3	3	1	1	1	1	2	2	2	3	3	3	2	2	3	2	1	1	1	2	2	2	4	
2-Oct	3	3	3	3	3	3	4	4	4	6	5	5	4	5	6	4	5	5	5	3	3	3	3	2	6	
3-Oct	3	3	4	3	2	4	3	3	3	4	4	4	3	4	4	3	3	3	3	2	1	1	1	2	4	
4-Oct	1	2	2	2	3	3	1	1	2	2	2	1	2	2	1	2	2	3	3	2	2	2	2	3	3	
5-Oct	2	3	2	1	1	1	1	1	2	1	1	2	3	4	4	3	2	1	1	3	3	2	2	4	4	
6-Oct	4	4	6	8	6	6	6	5	5	4	5	5	6	4	5	5	4	3	3	2	1	1	1	2	8	
7-Oct	3	2	2	2	4	2	1	1	2	3	3	3	3	3	3	2	2	2	2	2	3	2	1	1	4	
8-Oct	2	2	1	1	2	2	2	1	1	2	1	2	2	2	2	2	2	1	2	7	5	4	4	4	7	
9-Oct	4	3	4	4	3	3	3	4	4	3	4	4	3	4	3	3	2	2	2	2	2	1	2	1	4	
10-Oct	1	1	2	1	2	2	2	2	2	2	2	2	4	4	4	3	5	4	3	3	2	2	1	1	5	
11-Oct	1	2	2	2	2	2	2	1	2	2	2	2	2	2	3	3	3	1	1	1	2	2	2	2	3	
12-Oct	3	3	2	2	2	1	2	2	1	1	2	1	2	3	2	2	1	1	1	1	1	2	2	2	3	
13-Oct	2	2	2	2	1	2	3	4	4	3	5	5	5	4	4	3	3	2	2	3	2	2	3	3	5	
14-Oct	2	3	2	3	3	3	3	3	4	3	4	2	2	3	4	3	4	3	4	3	2	2	2	2	4	
15-Oct	2	2	2	3	3	3	6	5	4	3	3	3	3	3	3	3	2	1	1	1	2	2	2	1	6	
16-Oct	2	2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	3	1	2	3	
17-Oct	1	1	2	2	2	3	4	4	5	6	6	5	6	6	7	6	7	7	7	5	6	6	5	4	7	
18-Oct	4	4	4	4	4	2	2	2	2	2	3	3	2	3	3	4	3	1	2	1	3	2	2	2	4	
19-Oct	3	1	2	1	1	3	3	1	2	2	2	2	3	2	2	2	2	2	3	3	3	3	3	3	3	
20-Oct	4	3	2	2	2	3	3	2	2	2	3	2	2	3	3	3	3	3	3	3	3	3	4	4	4	
21-Oct	5	5	5	5	4	6	5	4	4	5	3	3	3	2	2	3	2	2	3	3	3	3	3	4	6	
22-Oct	3	3	2	2	2	3	3	3	3	3	5	4	3	4	4	4	3	3	4	4	4	4	4	4	5	
23-Oct	4	6	6	6	7	7	5	3	5	6	3	5	5	4	4	4	4	4	3	4	4	2	2	1	7	
24-Oct	3	3	3	2	4	4	2	2	3	4	4	5	4	4	4	3	2	2	2	3	1	3	2	5		
25-Oct	2	1	2	1	3	3	2	2	2	2	2	3	3	3	3	3	2	1	2	1	2	2	2	1	3	
26-Oct	2	1	1	2	1	2	2	2	2	1	2	2	2	2	2	2	2	3	2	3	3	3	4	4	4	
27-Oct	5	3	3	3	2	2	2	2	3	3	3	4	3	3	3	5	4	1	1	1	1	2	2	1	5	
28-Oct	3	4	3	3	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	3	3	2	1	1	1	1	1	1	2	4	
30-Oct	2	3	2	3	3	3	3	3	3	3	3	3	3	2	3	3	3	2	3	2	2	1	1	1	3	
31-Oct	1	1	2	1	1	1	1	1	2	2	3	4	3	2	2	2	3	2	3	3	2	2	2	3	4	
																	Diurnal Maximum									
																	5 6 6 8 7 7 6 5 5 6 6 5 6 6 7 6 7 7 7 7 6 6 5 5									
UO - Unstable Operation																										



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

**Wind Speed 10m (WS10) - km/h**  
**Mildred Lake - October 2024**





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

**Wind Speed 10m (WS10) - km/h**  
**Mildred Lake - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	138	18.85	18.85
6 - 11	365	49.86	68.72
12 - 19	209	28.55	97.27
20 - 28	20	2.73	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 10m (WS10) - km/h  
Mildred Lake - October 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	6	4	7	9	5	11	10	16	15	13	7	6	4	5	8	138
6 - 11	34	23	8	6	9	14	18	41	44	31	34	27	19	17	16	24	365
12 - 19	25	1	0	0	3	2	27	13	5	10	27	19	19	38	16	4	209
20 - 28	5	0	0	0	0	0	0	3	0	0	0	3	6	1	2	0	20
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>76</b>	<b>30</b>	<b>12</b>	<b>13</b>	<b>21</b>	<b>21</b>	<b>56</b>	<b>67</b>	<b>65</b>	<b>56</b>	<b>74</b>	<b>56</b>	<b>50</b>	<b>60</b>	<b>39</b>	<b>36</b>	<b>732</b>

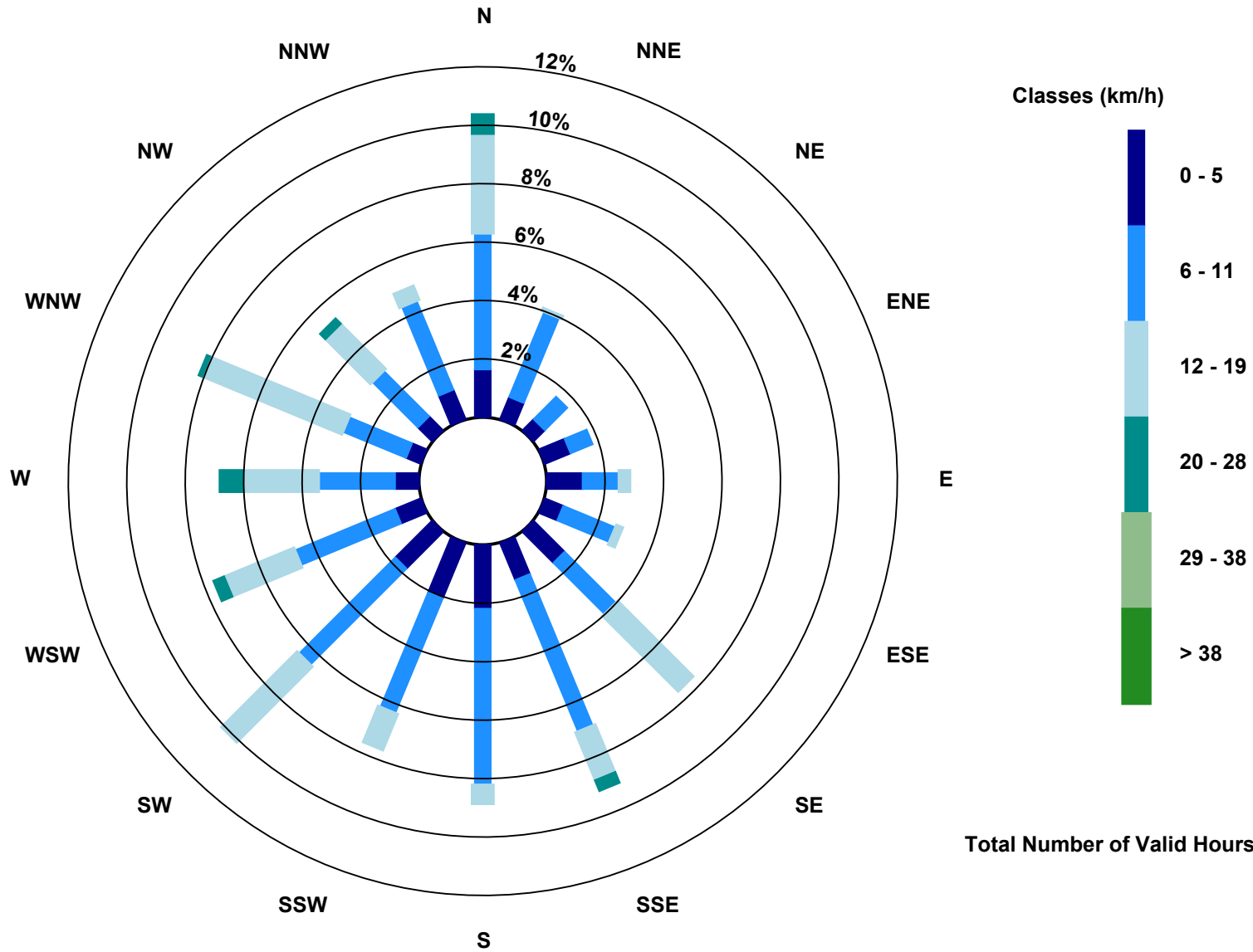
Total Number of Valid Hours: 732

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Mildred Lake





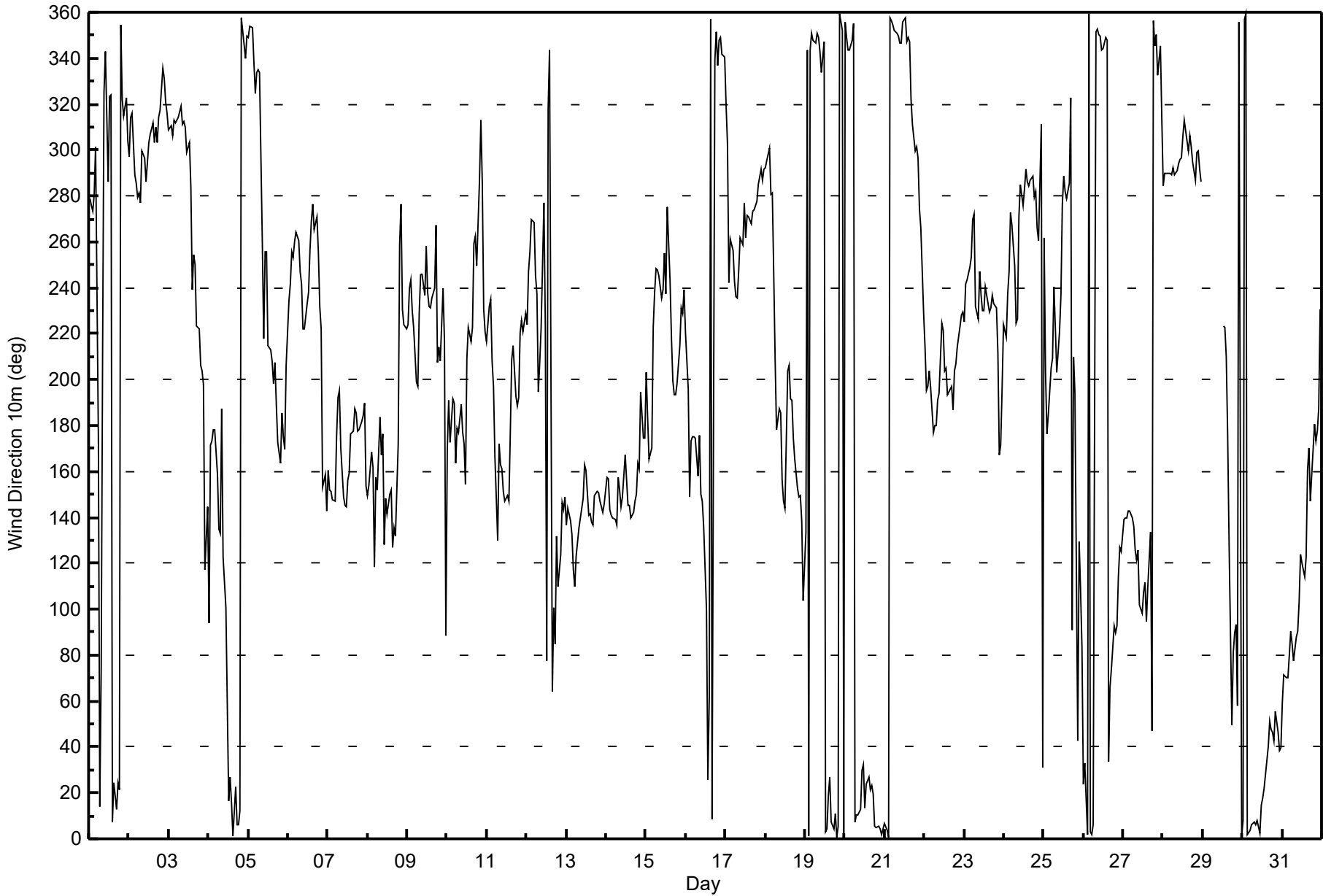


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 10m (WD10) - deg**  
**Mildred Lake - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 87 deg on Oct 25 21:00 Minimum Value: 8 deg on Oct 31 07:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 13 Q <sub>1</sub> = 16 Median = 19 Q <sub>3</sub> = 25 P <sub>90</sub> = 36 P <sub>99</sub> = 72																			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-Oct	16	18	19	69	49	86	22	51	87	22	32	54	50	43	37	28	32	19	16	18	10	10	10	16	87	
2-Oct	18	29	18	17	18	19	20	21	17	19	20	19	17	17	16	17	16	16	15	11	17	13	11	12	29	
3-Oct	14	14	16	13	14	13	13	13	17	18	18	25	25	40	34	37	34	28	57	50	16	20	36	32	57	
4-Oct	58	72	13	15	18	18	33	35	20	29	29	33	27	30	22	17	19	19	19	17	13	13	15	72		
5-Oct	13	15	13	15	11	11	21	15	71	26	31	27	31	25	23	19	27	15	19	23	20	14	15	29	71	
6-Oct	24	23	22	23	19	21	23	29	29	24	27	24	26	26	23	21	23	23	28	28	54	19	10	30	54	
7-Oct	14	14	14	12	23	21	14	14	14	20	12	13	14	16	21	15	18	15	12	13	26	28	30	24	30	
8-Oct	14	16	15	12	59	78	56	40	14	46	22	25	17	14	16	18	16	17	16	49	26	22	23	22	78	
9-Oct	22	22	20	24	23	22	29	22	23	24	29	28	27	26	31	35	54	42	22	23	23	19	38	37	54	
10-Oct	24	11	24	12	14	19	31	15	30	17	22	17	38	28	28	28	25	22	23	17	11	24	32	20	38	
11-Oct	22	15	15	18	27	20	35	16	12	19	16	16	15	15	42	23	21	14	12	13	25	23	22	32	42	
12-Oct	64	35	18	18	17	26	43	48	40	46	34	79	72	46	55	81	25	8	18	13	13	15	12	14	81	
13-Oct	14	9	11	12	13	12	19	16	14	12	14	15	17	15	15	15	15	11	11	11	10	10	11	12	19	
14-Oct	13	17	17	16	13	14	15	19	16	11	14	16	18	13	12	18	12	14	15	22	15	20	19	16	22	
15-Oct	23	14	32	59	32	28	30	28	27	26	24	23	28	32	37	31	31	14	19	15	24	27	27	31	59	
16-Oct	22	42	36	26	20	14	23	52	60	26	23	25	65	48	38	14	17	19	19	11	11	31	15	58	65	
17-Oct	28	37	25	24	23	27	24	25	25	24	22	19	24	22	20	20	21	19	19	19	19	19	19	18	37	
18-Oct	19	19	18	18	23	26	58	22	25	23	18	19	23	26	23	19	15	17	14	12	12	12	16	21	58	
19-Oct	67	68	25	15	15	11	14	15	15	16	17	18	24	20	23	20	17	17	18	19	19	19	15	19	68	
20-Oct	17	16	14	16	14	18	19	18	19	21	23	27	21	18	20	18	18	18	16	16	17	16	15	18	27	
21-Oct	18	17	17	16	16	16	16	15	16	15	15	16	22	26	16	14	12	17	17	17	23	23	26	27	27	
22-Oct	21	22	21	21	17	14	16	15	16	17	24	24	21	21	18	17	17	15	19	21	23	25	21	22	25	
23-Oct	23	24	22	22	22	22	25	68	32	29	37	25	23	24	23	21	22	23	22	22	38	20	24	18	68	
24-Oct	24	24	24	28	22	26	27	29	42	27	20	20	21	21	19	18	15	14	16	15	27	27	38	72	72	
25-Oct	71	58	37	15	21	20	45	66	19	27	34	27	25	22	23	18	18	73	66	16	87	62	63	47	87	
26-Oct	53	23	15	16	17	28	18	11	10	12	12	16	14	15	13	25	20	18	14	14	16	19	23	20	53	
27-Oct	18	14	13	12	11	12	15	17	19	20	18	18	24	33	18	20	21	56	28	12	22	12	14	17	56	
28-Oct	20	17	17	16	16	17	17	18	17	16	17	18	16	14	15	16	15	16	20	18	18	16	18	17	20	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	28	28	26	32	19	28	41	18	21	26	14	14	41
30-Oct	17	14	16	15	16	17	16	19	17	18	18	22	19	20	21	20	20	19	19	19	17	18	17	18	22	
31-Oct	18	10	12	15	11	11	8	14	15	16	16	25	20	25	31	27	19	22	21	18	19	16	18	30	31	
Diurnal Maximum																										
UO - Unstable Operation																										







## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS03 LOWER CAMP METEOROLOGY OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
OCTOBER 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	744	0	0	100	20.2	-	13.9	-
Temperature 45 m (C) Average	744	0	0	100	20.5	-	14.2	-
Temperature 100 m (C) Average	744	0	0	100	20.6	-	14.7	-
Temperature 163 m (C) Average	744	0	0	100	20.1	-	14.8	-
Relative Humidity 20 m (%) Average	744	0	0	100	98.2	-	85.6	-
Relative Humidity 45 m (%) Average	744	0	0	100	98	-	85.7	-
Relative Humidity 100 m (%) Average	744	0	0	100	99.3	-	88.5	-
Relative Humidity 163 m (%) Average	744	0	0	100	98.4	-	89.4	-
Wind Speed 20 m (km/h) Average	744	0	0	100	26	-	17.0	-
Wind Speed 45 m (km/h) Average	744	0	0	100	35	-	23.0	-
Wind Speed 100 m (km/h) Average	744	0	0	100	47	-	29.0	-
Wind Speed 163 m (km/h) Average	743	0	1	99.87	56	-	34.0	-
Wind Direction 20 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 45 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 100 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 163 m (deg) Average	743	0	1	99.87	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	744	0	0	100	0.3	-	0.0	-
Vertical Wind Speed 45 m (km/h) Average	744	0	0	100	1.2	-	0.5	-
Vertical Wind Speed 100 m (km/h) Average	744	0	0	100	2.6	-	1.2	-
Vertical Wind Speed 163 m (km/h) Average	743	0	1	99.87	5.3	-	1.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
OCTOBER 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	744	4.4	5.6	-	-7	-2.6	0.9	4	7.8	12.4	20.2
Temperature 45 m (C) Average	744	4.48	5.6	-	-6.9	-2.8	0.9	4	8	12.4	20.5
Temperature 100 m (C) Average	744	4.42	5.7	-	-7.3	-3.2	0.7	4	8.1	12.5	20.6
Temperature 163 m (C) Average	744	4.19	5.8	-	-7.8	-3.8	0.4	3.8	8	12.3	20.1
Relative Humidity 20 m (%) Average	744	67.72	15.7	-	26.7	44	57.2	68.7	79	88.9	98.2
Relative Humidity 45 m (%) Average	744	66.42	15.9	-	26.5	43.2	55.6	67.2	77.5	87.7	98
Relative Humidity 100 m (%) Average	744	65.69	16.1	-	26.3	41.9	54.2	66.9	76.3	87.1	99.3
Relative Humidity 163 m (%) Average	744	63.79	16.4	-	25.5	41.1	51.7	64.1	73	87.4	98.4
Wind Speed 20 m (km/h) Average	744	10.2	6	-	0	3	6	10	14	18	26
Wind Speed 45 m (km/h) Average	744	14.3	7	-	1	5	8	14	20	24	35
Wind Speed 100 m (km/h) Average	744	18.4	9	-	1	7	11	17	25	31	47
Wind Speed 163 m (km/h) Average	743	21.2	10	-	0	9	13	20	29	35	56
Wind Direction 20 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 100 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 163 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	744	-0.28	0.3	-	-1.2	-0.7	-0.5	-0.2	0	0.1	0.3
Vertical Wind Speed 45 m (km/h) Average	744	0.17	0.3	-	-0.8	-0.3	0	0.2	0.4	0.6	1.2
Vertical Wind Speed 100 m (km/h) Average	744	0.07	0.6	-	-1.7	-0.7	-0.2	0	0.3	0.8	2.6
Vertical Wind Speed 163 m (km/h) Average	743	0.78	0.9	-	-0.9	-0.1	0.1	0.5	1.3	2.1	5.3

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Vertical Wind Speed, Wind Speed, Wind Direction, 163m	27 Oct 2024 21:00	27 Oct 2024 21:00	1	Flat line in sensor output signal



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

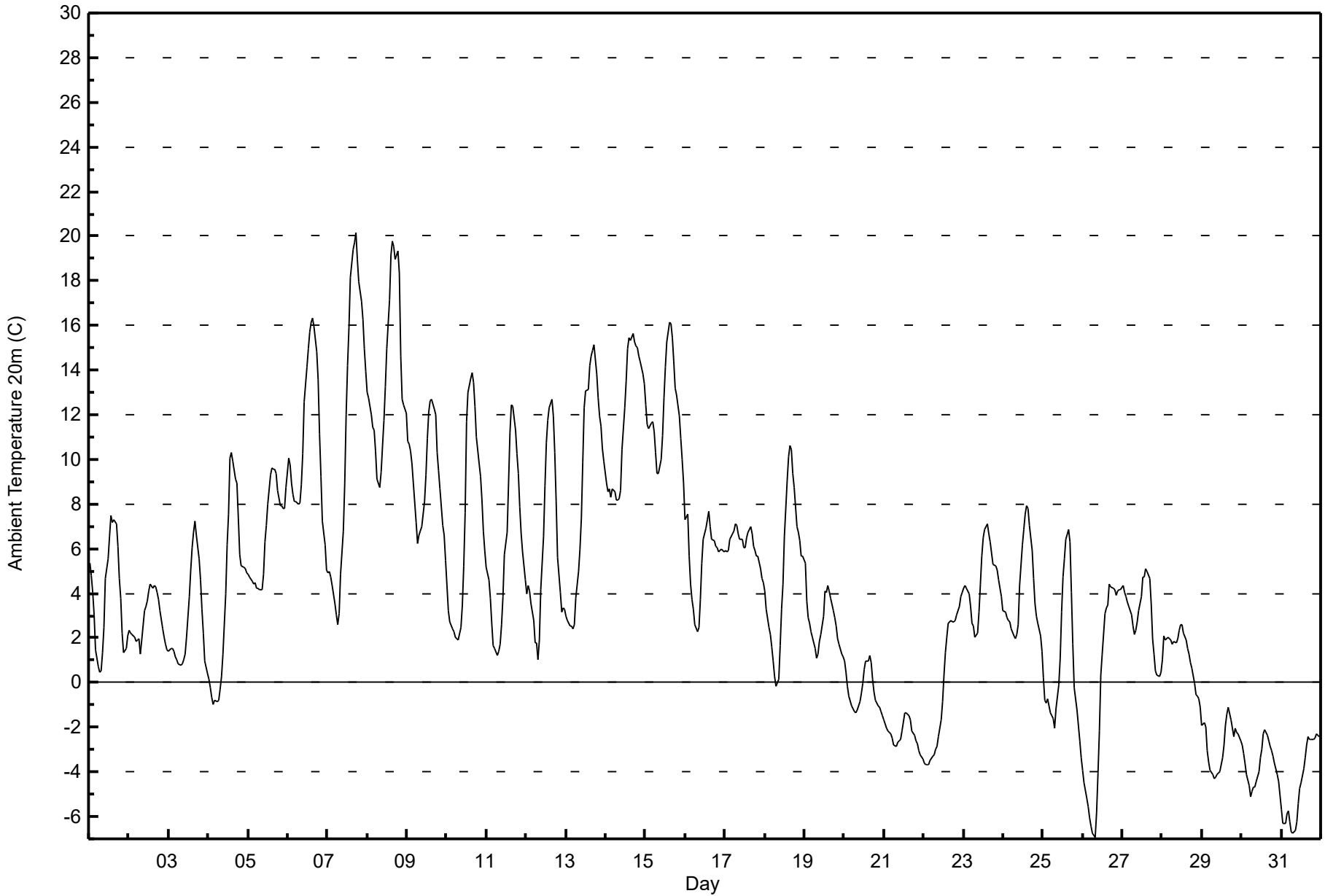
**Ambient Temperature 20m (AT20) - C**  
**Lower Camp Met Tower - October 2024**

Maximum Value: 20.2 C on Oct 7 18:00		Maximum Daily Average: 13.9 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -7.0 C on Oct 26 08:00		Minimum Daily Average: -4.5 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 8.0 C at hour 16		Minimum Diurnal Average: 1.5 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: 4.40 C		Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -2.6 Q <sub>1</sub> = 0.9 Median = 4.0 Q <sub>3</sub> = 7.8 P <sub>90</sub> = 12.4 P <sub>99</sub> = 19.0		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-Oct	5.4	4.8	4.0	3.0	1.5	0.7	0.4	0.5	1.4	2.5	4.7	5.6	6.6	7.5	7.2	7.3	7.1	6.1	4.7	3.8	2.2	1.3	1.5	2.1	3.8	7.5																						
2-Oct	2.4	2.2	2.2	2.0	1.8	1.9	2.0	1.3	1.9	3.2	3.4	3.7	4.1	4.4	4.2	4.4	4.3	4.0	3.7	3.2	2.4	2.0	1.7	1.5	2.8	4.4																						
3-Oct	1.4	1.5	1.5	1.4	1.2	1.0	0.8	0.8	0.8	1.0	1.3	2.1	3.9	5.0	6.1	6.7	7.2	6.6	5.5	4.6	3.3	2.2	1.0	0.4	2.8	7.2																						
4-Oct	0.1	-0.2	-0.7	-1.0	-0.8	-0.8	-0.8	-0.3	0.3	1.3	4.0	6.2	7.5	10.0	10.3	9.9	9.1	8.9	7.3	5.7	5.2	5.1	5.1	4.9	4.0	10.3																						
5-Oct	4.8	4.7	4.5	4.4	4.5	4.2	4.2	4.2	4.2	4.8	6.3	7.0	8.0	9.3	9.6	9.6	9.5	9.3	8.6	7.9	7.9	7.8	7.8	8.8	6.8	9.6																						
6-Oct	10.1	9.8	8.9	8.5	8.1	8.1	8.0	8.0	8.8	10.3	12.6	14.1	14.9	15.7	16.1	16.4	16.0	14.8	13.6	11.1	9.3	7.2	6.1	5.1	10.9	16.4																						
7-Oct	4.9	5.0	4.7	4.3	3.5	3.0	2.6	3.1	4.8	6.8	8.9	12.0	14.2	15.9	18.2	19.4	19.7	20.2	19.0	18.0	17.1	16.3	14.9	13.9	11.3	20.2																						
8-Oct	13.0	12.7	12.0	11.4	11.3	10.4	9.1	8.8	9.4	10.6	11.8	13.3	15.0	17.2	19.2	19.8	19.5	19.0	19.4	18.3	14.7	12.7	12.4	12.1	13.9	19.8																						
9-Oct	10.8	10.7	10.4	9.8	9.0	7.2	6.3	6.6	6.8	7.0	8.1	9.3	10.9	12.1	12.7	12.7	12.3	12.0	10.3	9.5	8.6	7.1	6.6	5.5	9.3	12.7																						
10-Oct	4.3	3.2	2.7	2.4	2.3	2.0	2.0	1.9	2.5	3.5	5.2	7.6	11.7	13.0	13.6	13.9	13.4	12.4	11.0	9.8	9.2	8.2	6.8	5.9	7.0	13.9																						
11-Oct	5.2	4.6	3.8	2.6	1.6	1.5	1.2	1.4	1.7	2.6	3.8	5.8	6.7	8.9	11.2	12.4	12.4	11.3	10.2	9.4	7.9	6.6	5.9	4.6	6.0	12.4																						
12-Oct	4.0	4.4	4.1	3.5	2.8	1.8	1.8	1.0	1.9	4.2	6.5	8.8	10.7	11.7	12.3	12.7	12.0	10.3	8.1	5.6	4.0	3.1	3.4	3.3	5.9	12.7																						
13-Oct	3.0	2.8	2.6	2.6	2.4	2.6	3.8	5.0	6.0	7.4	9.9	12.3	13.1	13.2	14.2	14.6	14.9	15.1	13.8	12.8	11.9	11.5	10.5	9.9	9.0	15.1																						
14-Oct	9.0	8.6	8.7	8.3	8.7	8.6	8.2	8.2	8.2	8.6	10.5	12.3	13.5	14.9	15.4	15.3	15.6	15.3	15.1	15.0	14.6	14.4	13.8	13.4	11.8	15.6																						
15-Oct	12.4	11.6	11.4	11.6	11.7	11.2	10.3	9.4	9.4	10.0	11.1	12.7	14.1	15.3	16.2	16.1	15.5	14.4	13.2	12.9	11.9	10.9	10.0	8.9	12.2	16.2																						
16-Oct	7.3	7.5	5.7	4.4	3.8	3.3	2.6	2.3	2.5	3.7	5.3	6.4	6.9	7.3	7.7	7.0	6.4	6.4	6.1	6.0	5.8	5.9	6.0	5.9	5.5	7.7																						
17-Oct	5.9	5.9	5.9	6.4	6.7	6.8	7.1	7.0	6.7	6.4	6.4	6.1	6.1	6.5	6.8	7.0	6.7	6.1	5.9	5.7	5.7	5.1	4.7	4.5	6.2	7.1																						
18-Oct	4.1	3.3	2.5	2.1	1.6	1.0	0.3	-0.1	0.1	1.6	3.3	4.4	6.5	9.0	10.1	10.6	10.4	9.4	8.7	7.0	6.7	6.4	5.7	5.7	5.0	10.6																						
19-Oct	5.3	3.6	2.9	2.7	2.3	2.0	1.5	1.1	1.3	1.8	2.2	3.0	4.1	4.1	4.3	4.1	3.8	3.2	2.9	2.5	2.0	1.7	1.3	1.1	2.7	5.3																						
20-Oct	1.0	0.4	-0.1	-0.6	-1.1	-1.2	-1.3	-1.3	-1.2	-0.9	-0.5	0.0	0.6	1.0	1.0	1.2	0.9	0.1	-0.4	-0.8	-1.0	-1.1	-1.3	-1.5	-0.3	1.2																						
21-Oct	-1.7	-2.0	-2.2	-2.2	-2.3	-2.5	-2.8	-2.9	-2.7	-2.6	-2.6	-2.2	-1.3	-1.3	-1.4	-1.5	-1.7	-2.1	-2.3	-2.6	-2.8	-3.0	-3.3	-3.4	-2.3	-1.3																						
22-Oct	-3.6	-3.7	-3.6	-3.7	-3.5	-3.3	-3.3	-3.0	-2.9	-2.4	-1.7	-0.8	0.3	1.3	2.0	2.7	2.8	2.7	2.7	2.8	3.0	3.4	3.9	4.0	-0.2	4.0																						
23-Oct	4.2	4.3	4.2	4.0	3.4	2.6	2.5	2.0	2.2	3.1	4.4	5.6	6.5	6.8	7.1	6.7	6.3	5.8	5.3	5.2	5.0	4.6	4.2	3.9	4.6	7.1																						
24-Oct	3.2	3.2	2.9	2.8	2.7	2.4	2.1	2.0	2.2	2.6	4.3	6.2	6.8	7.5	7.9	7.8	7.1	5.9	4.6	3.5	3.0	2.7	2.1	1.4	4.0	7.9																						
25-Oct	0.2	-0.8	-0.9	-0.7	-1.4	-1.5	-1.6	-2.1	-1.2	-0.1	1.1	3.2	4.7	5.6	6.4	6.8	6.3	4.0	1.7	-0.2	-1.2	-1.9	-2.6	-3.4	0.9	6.8																						
26-Oct	-3.9	-4.5	-5.2	-5.6	-6.1	-6.4	-6.7	-7.0	-5.8	-4.0	-2.2	0.3	1.3	3.1	3.4	3.4	4.4	4.3	4.3	4.2	3.9	4.1	4.2	4.2	-0.5	4.4																						
27-Oct	4.3	4.1	3.9	3.6	3.4	3.0	2.5	2.2	2.3	2.7	3.2	3.8	4.8	4.8	5.1	5.0	4.6	3.5	2.0	1.3	0.5	0.3	0.3	0.4	3.0	5.1																						
28-Oct	1.0	2.1	1.9	2.0	2.0	1.9	1.7	1.8	1.8	2.0	2.3	2.6	2.6	2.2	1.9	1.5	1.3	0.9	0.7	-0.1	-0.5	-0.6	-0.7	-1.1	1.3	2.6																						
29-Oct	-1.9	-1.8	-2.0	-3.0	-3.5	-3.9	-4.1	-4.3	-4.2	-4.1	-4.1	-4.0	-3.3	-2.8	-1.9	-1.4	-1.1	-1.7	-2.1	-2.4	-2.1	-2.2	-2.3	-2.6	-2.8	-1.1																						
30-Oct	-2.8	-3.1	-3.6	-4.1	-4.6	-5.1	-4.9	-4.7	-4.7	-4.5	-4.0	-3.3	-3.0	-2.3	-2.1	-2.4	-2.6	-2.9	-3.1	-3.3	-3.6	-4.1	-4.5	-5.1	-3.7	-2.1																						
31-Oct	-5.7	-6.3	-6.3	-5.9	-5.8	-6.3	-6.7	-6.8	-6.6	-6.2	-5.4	-4.7	-4.5	-3.9	-3.4	-2.8	-2.4	-2.6	-2.5	-2.6	-2.5	-2.3	-2.4	-2.4	-4.5	-2.3																						
																								3.5	3.2	2.8	2.5	2.2	1.8	1.6	1.5	1.9	2.7	3.9	5.1	6.3	7.2	7.8	8.0	7.8	7.2	6.4	5.6	4.9	4.4	4.0	3.6	Diurnal Average
																								13.0	12.7	12.0	11.6	11.7	11.2	10.3	9.4	9.4	10.6	12.6	14.1	15.0	17.2	19.2	19.8	19.7	20.2	19.4	18.3	17.1	16.3	14.9	13.9	Diurnal Maximum



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

**Ambient Temperature 20m (AT20) - C**  
**Lower Camp Met Tower - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 20m (AT20) - C  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	162	21.77	21.77
0 - 10	458	61.56	83.33
10 - 20	123	16.53	99.87
> 20	1	0.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

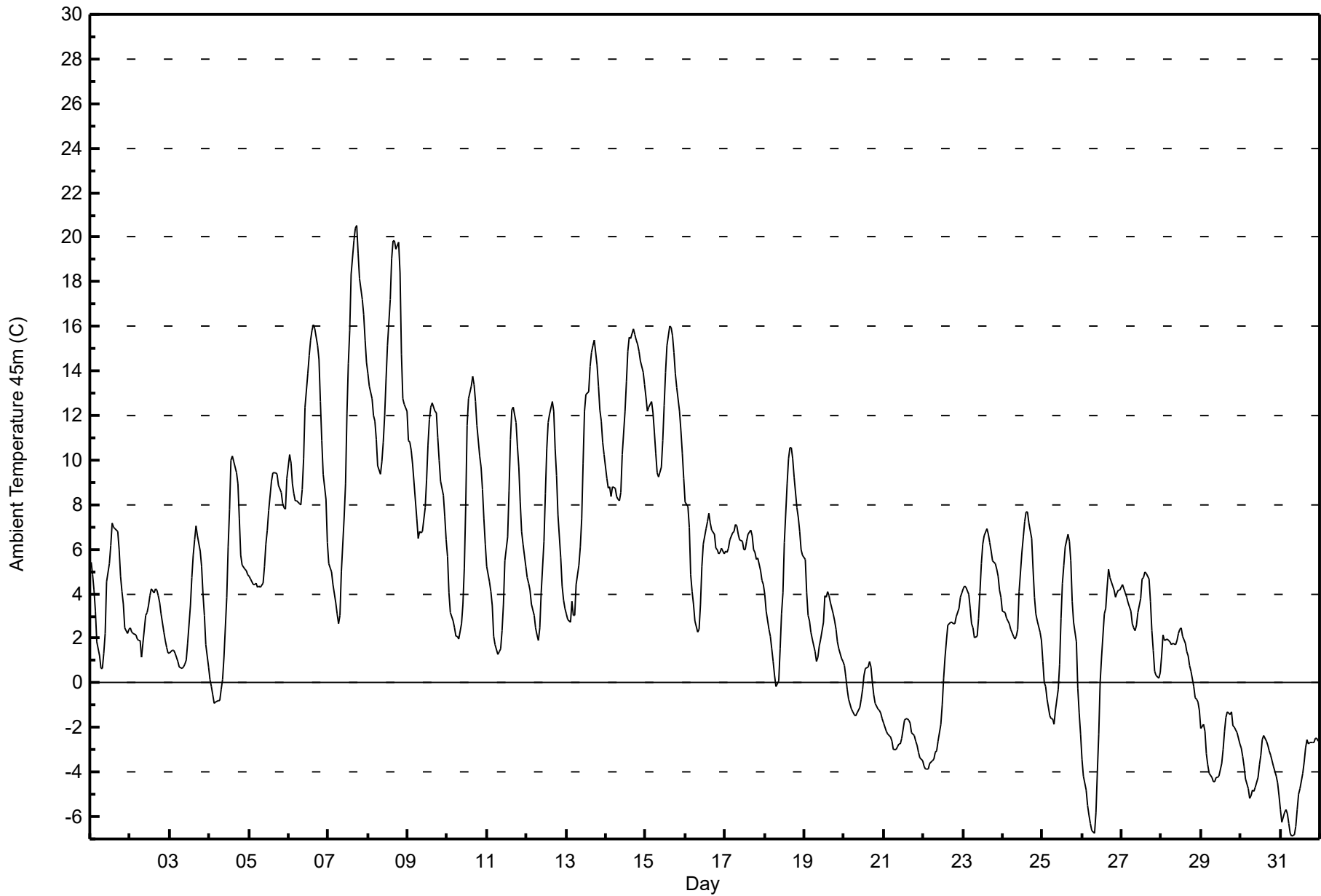




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 45m (AT45) - C**  
**Lower Camp Met Tower - October 2024**

Maximum Value: 20.5 C on Oct 7 18:00		Maximum Daily Average: 14.2 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -6.9 C on Oct 31 08:00		Minimum Daily Average: -4.6 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 7.9 C at hour 16		Minimum Diurnal Average: 1.5 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: 4.48 C		Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -2.8 Q <sub>1</sub> = 0.9 Median = 4.0 Q <sub>3</sub> = 8.0 P <sub>90</sub> = 12.4 P <sub>99</sub> = 19.2		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-Oct	5.4	4.8	4.2	3.2	1.8	1.2	0.6	0.6	1.4	2.2	4.5	5.3	6.2	7.2	7.0	6.9	6.8	6.0	4.8	4.1	3.5	2.4	2.2	2.4	4.0	7.2																						
2-Oct	2.5	2.3	2.2	2.2	1.9	1.9	1.9	1.2	1.8	3.0	3.2	3.4	3.9	4.2	4.0	4.2	4.2	3.9	3.6	3.1	2.3	1.9	1.6	1.4	2.7	4.2																						
3-Oct	1.4	1.5	1.4	1.3	1.1	1.0	0.7	0.7	0.7	0.8	1.0	1.8	3.5	4.7	5.7	6.4	7.0	6.6	5.9	5.2	4.0	3.1	1.7	0.7	2.8	7.0																						
4-Oct	0.1	-0.2	-0.6	-0.9	-0.9	-0.8	-0.8	-0.3	0.2	1.1	3.8	6.1	7.8	10.0	10.2	9.9	9.4	8.9	7.4	5.8	5.3	5.1	5.0	4.9	4.0	10.2																						
5-Oct	4.8	4.6	4.4	4.4	4.5	4.3	4.4	4.3	4.5	5.3	6.2	6.9	7.7	9.0	9.4	9.4	9.4	9.3	8.9	8.5	8.0	7.9	7.8	9.2	6.8	9.4																						
6-Oct	10.2	9.9	9.0	8.5	8.2	8.2	8.1	8.0	8.7	10.1	12.4	13.9	14.7	15.4	15.8	16.1	15.9	15.1	14.5	12.6	10.9	9.4	8.2	6.3	11.2	16.1																						
7-Oct	5.3	5.2	5.0	4.4	3.6	3.1	2.6	3.0	5.0	7.5	8.9	12.0	14.3	15.8	18.3	19.9	20.4	20.5	19.3	18.2	17.2	16.5	15.4	14.4	11.5	20.5																						
8-Oct	13.9	13.3	12.7	12.0	11.7	10.9	9.8	9.4	9.9	10.8	12.0	13.6	15.1	17.2	19.0	19.8	19.9	19.5	19.8	18.4	14.7	12.8	12.5	12.2	14.2	19.9																						
9-Oct	10.8	10.8	10.4	9.8	9.0	7.4	6.5	6.8	6.7	6.8	7.8	9.1	10.7	11.8	12.4	12.5	12.2	12.2	11.0	10.0	9.0	8.4	7.5	6.4	9.4	12.5																						
10-Oct	5.6	4.0	3.2	2.8	2.4	2.1	2.1	2.0	2.7	3.5	5.2	7.9	11.6	12.8	13.3	13.7	13.4	12.6	11.6	10.2	9.7	8.7	7.4	6.2	7.3	13.7																						
11-Oct	5.2	4.5	4.1	3.5	2.1	1.7	1.3	1.4	1.5	2.3	3.5	5.5	6.5	8.6	10.9	12.3	12.4	11.7	10.6	9.7	8.1	6.8	6.2	5.2	6.1	12.4																						
12-Oct	4.8	4.5	4.2	3.5	3.0	2.5	2.2	1.9	2.5	4.0	6.3	8.5	10.5	11.7	12.1	12.6	12.2	10.5	9.3	7.5	5.6	4.3	3.7	3.3	6.3	12.6																						
13-Oct	3.1	2.8	2.7	3.7	3.0	3.0	4.4	5.3	6.1	7.4	9.9	12.2	12.9	13.1	14.2	14.8	15.1	15.4	14.3	13.3	12.3	11.7	10.8	10.3	9.2	15.4																						
14-Oct	9.2	8.7	8.8	8.3	8.8	8.7	8.4	8.2	8.2	8.5	10.3	12.2	13.5	14.9	15.5	15.4	15.9	15.6	15.4	15.2	14.9	14.5	13.9	13.4	11.9	15.9																						
15-Oct	12.8	12.2	12.4	12.6	12.2	11.2	10.3	9.4	9.3	9.7	10.9	12.4	13.9	15.1	16.0	16.0	15.6	14.8	13.9	13.3	12.2	11.3	10.3	9.2	12.4	16.0																						
16-Oct	8.1	7.9	7.0	4.8	4.1	3.5	2.8	2.3	2.4	3.6	5.2	6.2	6.9	7.2	7.6	7.2	6.9	6.6	6.0	6.0	5.8	5.8	6.0	5.8	5.7	8.1																						
17-Oct	5.9	5.8	6.0	6.4	6.7	6.8	7.1	7.0	6.7	6.4	6.4	6.0	6.4	6.7	6.9	6.6	6.6	6.0	5.8	5.6	5.6	5.0	4.6	4.4	6.1	7.1																						
18-Oct	4.0	3.2	2.4	2.1	1.5	1.0	0.3	-0.2	0.1	1.5	3.1	4.1	6.3	8.9	10.0	10.6	10.6	10.0	9.3	7.9	7.4	6.8	6.0	5.7	5.1	10.6																						
19-Oct	5.6	4.0	3.0	2.8	2.3	2.0	1.4	1.0	1.1	1.6	1.9	2.7	3.9	3.8	4.1	3.9	3.6	3.1	2.8	2.4	1.8	1.5	1.1	1.0	2.6	5.6																						
20-Oct	0.8	0.3	-0.3	-0.8	-1.2	-1.3	-1.4	-1.5	-1.4	-1.1	-0.8	-0.3	0.3	0.7	0.7	1.0	0.7	0.0	-0.5	-0.9	-1.1	-1.2	-1.4	-1.6	-0.5	1.0																						
21-Oct	-1.8	-2.2	-2.3	-2.4	-2.5	-2.6	-3.0	-3.0	-2.8	-2.8	-2.8	-2.5	-1.7	-1.6	-1.6	-1.7	-1.8	-2.2	-2.4	-2.6	-2.8	-3.1	-3.4	-3.5	-2.5	-1.6																						
22-Oct	-3.8	-3.9	-3.8	-3.9	-3.6	-3.5	-3.4	-3.1	-3.0	-2.6	-1.8	-1.0	0.2	1.2	1.9	2.6	2.7	2.7	2.6	2.7	2.9	3.3	3.8	4.0	-0.3	4.0																						
23-Oct	4.2	4.4	4.3	4.0	3.4	2.6	2.5	2.0	2.1	2.9	4.1	5.3	6.2	6.6	6.9	6.6	6.3	5.9	5.5	5.3	5.1	4.8	4.2	3.9	4.5	6.9																						
24-Oct	3.2	3.2	2.9	2.8	2.7	2.4	2.1	2.0	2.1	2.4	4.1	5.9	6.6	7.2	7.7	7.7	7.2	6.5	5.1	3.8	3.1	2.8	2.3	1.9	4.1	7.7																						
25-Oct	1.0	0.0	-0.2	-0.7	-1.5	-1.6	-1.6	-1.9	-1.2	-0.3	0.9	2.9	4.5	5.3	6.1	6.7	6.3	5.5	3.7	2.7	1.8	-0.3	-1.4	-2.3	1.4	6.7																						
26-Oct	-3.4	-4.2	-4.8	-5.5	-6.0	-6.3	-6.6	-6.7	-5.8	-4.0	-2.3	0.0	1.2	3.1	3.3	4.3	5.1	4.7	4.3	4.2	3.9	4.1	4.2	4.2	-0.4	5.1																						
27-Oct	4.4	4.2	4.0	3.8	3.6	3.2	2.6	2.4	2.3	2.6	3.2	3.8	4.7	4.7	5.0	4.9	4.6	3.6	2.4	1.5	0.5	0.3	0.2	0.4	3.0	5.0																						
28-Oct	1.2	2.2	1.9	2.0	1.9	1.8	1.7	1.8	1.7	1.9	2.2	2.4	2.5	2.1	1.8	1.4	1.2	0.8	0.5	-0.2	-0.7	-0.7	-0.9	-1.2	1.2	2.5																						
29-Oct	-2.0	-1.9	-2.2	-3.2	-3.7	-4.1	-4.3	-4.4	-4.4	-4.3	-4.2	-4.2	-3.6	-3.0	-2.1	-1.5	-1.3	-1.4	-1.3	-1.9	-2.0	-2.1	-2.2	-2.7	-2.8	-1.3																						
30-Oct	-2.9	-3.3	-3.7	-4.3	-4.8	-5.2	-5.0	-4.8	-4.9	-4.7	-4.2	-3.6	-3.2	-2.6	-2.4	-2.6	-2.8	-3.0	-3.2	-3.5	-3.7	-4.2	-4.5	-5.1	-3.8	-2.4																						
31-Oct	-5.7	-6.3	-5.8	-5.7	-5.8	-6.3	-6.7	-6.9	-6.8	-6.4	-5.7	-5.0	-4.7	-4.0	-3.5	-3.0	-2.5	-2.7	-2.7	-2.7	-2.6	-2.5	-2.5	-2.6	-4.6	-2.5																						
																								3.7	3.3	3.0	2.6	2.2	1.9	1.6	1.5	1.8	2.6	3.7	5.0	6.1	7.0	7.6	7.9	7.8	7.4	6.7	6.0	5.3	4.7	4.2	3.8	Diurnal Average
																								13.9	13.3	12.7	12.6	12.2	11.2	10.3	9.4	9.9	10.8	12.4	13.9	15.1	17.2	19.0	19.9	20.4	20.5	19.8	18.4	17.2	16.5	15.4	14.4	Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 45m (AT45) - C  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	160	21.51	21.51
0 - 10	455	61.16	82.66
10 - 20	127	17.07	99.73
> 20	2	0.27	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

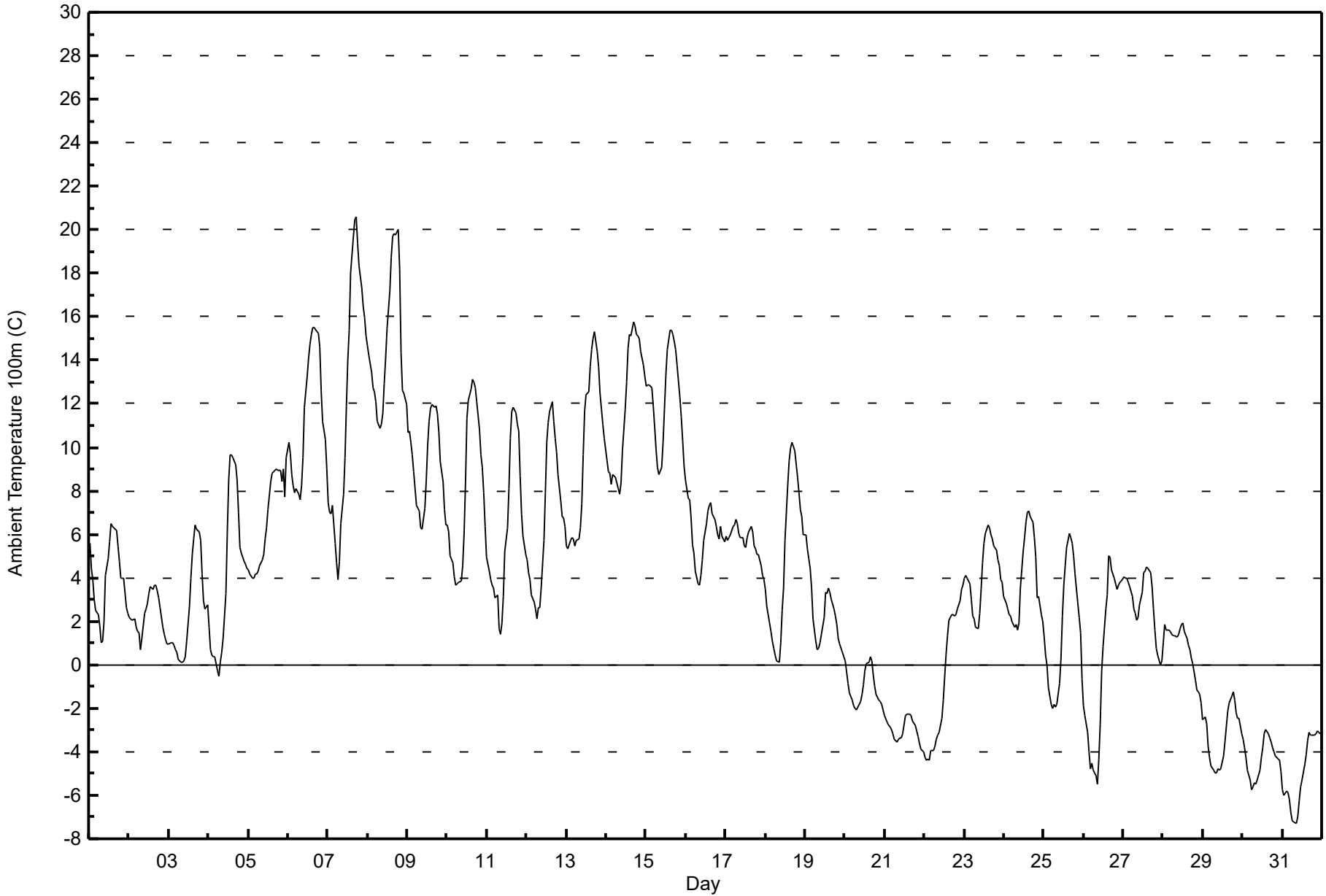
**Ambient Temperature 100m (AT100) - C**  
**Lower Camp Met Tower - October 2024**

Maximum Value: 20.6 C on Oct 7 18:00		Maximum Daily Average: 14.7 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -7.3 C on Oct 31 09:00		Minimum Daily Average: -5.0 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 7.5 C at hour 16		Minimum Diurnal Average: 1.7 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: 4.42 C		Percentiles: P <sub>1</sub> = -5.9 P <sub>10</sub> = -3.2 Q <sub>1</sub> = 0.7 Median = 4.0 Q <sub>3</sub> = 8.1 P <sub>90</sub> = 12.5 P <sub>99</sub> = 19.1		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-Oct	5.6	4.4	3.9	3.0	2.5	2.3	1.8	1.0	1.1	2.0	4.1	4.9	5.7	6.5	6.4	6.3	6.2	5.4	4.8	4.0	4.0	4.0	2.6	2.4	4.0	6.5																						
2-Oct	2.2	2.1	2.0	2.1	1.7	1.5	1.5	0.7	1.2	2.4	2.6	2.8	3.3	3.6	3.4	3.7	3.7	3.4	3.1	2.6	1.7	1.4	1.1	0.9	2.3	3.7																						
3-Oct	0.9	1.0	1.0	0.9	0.7	0.5	0.2	0.1	0.1	0.2	0.4	1.1	2.7	4.0	5.1	5.8	6.4	6.3	6.1	5.7	4.1	2.9	2.6	2.7	2.6	6.4																						
4-Oct	1.7	0.7	0.4	0.4	0.4	-0.3	-0.5	0.1	0.6	1.2	3.3	6.1	8.5	9.6	9.7	9.5	9.2	8.5	7.0	5.4	5.2	4.8	4.7	4.5	4.2	9.7																						
5-Oct	4.3	4.2	4.0	4.0	4.2	4.1	4.3	4.5	4.8	5.1	5.8	6.3	7.1	8.4	8.7	8.9	8.9	9.0	8.9	8.9	8.4	9.0	7.7	9.5	6.6	9.5																						
6-Oct	10.2	9.7	8.7	8.3	7.9	8.1	7.9	7.6	8.2	9.5	11.8	13.3	14.1	14.7	15.2	15.5	15.5	15.3	15.3	14.6	12.6	11.2	10.4	9.0	11.4	15.5																						
7-Oct	7.4	7.0	6.9	7.3	5.6	4.7	3.9	4.8	6.5	7.8	9.5	11.9	14.0	15.4	18.0	19.7	20.5	20.6	19.4	18.3	17.3	16.5	15.9	15.1	12.3	20.6																						
8-Oct	14.7	14.2	13.5	12.8	12.6	12.1	11.2	10.9	11.0	11.6	12.9	14.1	15.5	17.2	18.7	19.7	19.9	19.7	20.0	18.2	14.4	12.6	12.5	12.0	14.7	20.0																						
9-Oct	10.7	10.7	10.2	9.6	8.9	7.3	7.2	7.0	6.3	6.2	7.2	8.5	10.1	11.2	11.8	12.0	11.8	11.9	11.5	10.7	9.3	8.4	7.2	6.4	9.3	12.0																						
10-Oct	6.4	6.1	5.0	4.7	4.1	3.6	3.7	3.8	3.8	4.5	6.1	8.4	11.3	12.2	12.7	13.1	13.0	12.8	12.1	10.8	9.7	9.0	7.9	6.4	8.0	13.1																						
11-Oct	5.0	4.3	3.9	3.6	3.6	3.0	3.2	1.7	1.4	1.9	3.1	5.2	6.3	8.1	10.4	11.6	11.8	11.6	11.1	10.8	8.6	7.0	5.9	5.1	6.2	11.8																						
12-Oct	4.8	4.2	3.9	3.2	2.9	2.6	2.1	2.6	2.6	3.5	5.7	7.9	10.2	11.1	11.6	12.1	11.2	10.4	9.8	8.8	7.5	6.8	6.7	6.3	6.6	12.1																						
13-Oct	5.4	5.3	5.7	5.8	5.8	5.5	5.7	5.8	6.3	7.4	9.6	11.6	12.4	12.5	13.7	14.5	15.0	15.3	14.4	13.7	12.5	11.8	11.0	10.4	9.9	15.3																						
14-Oct	9.4	8.9	8.8	8.3	8.7	8.6	8.3	8.1	7.8	8.3	9.9	11.8	13.0	14.6	15.2	15.1	15.8	15.6	15.2	15.1	15.0	14.4	13.8	13.2	11.8	15.8																						
15-Oct	12.8	12.9	12.9	12.7	11.9	11.0	9.9	9.1	8.8	9.1	10.2	11.8	13.3	14.5	15.4	15.4	15.2	14.9	14.5	13.7	12.3	11.4	10.3	9.2	12.2	15.4																						
16-Oct	8.5	7.6	7.6	6.8	5.5	5.1	4.3	3.7	3.6	4.1	4.8	5.7	6.5	7.0	7.3	7.5	7.0	6.7	6.4	6.0	5.8	6.4	5.9	5.7	6.1	8.5																						
17-Oct	5.9	5.8	5.8	6.0	6.3	6.4	6.7	6.5	6.0	5.8	5.9	5.5	5.4	5.9	6.1	6.4	6.1	5.5	5.3	5.1	5.1	4.5	4.1	3.9	5.7	6.7																						
18-Oct	3.5	2.7	2.0	1.6	1.1	0.8	0.4	0.2	0.1	1.0	2.5	3.5	5.7	8.3	9.4	10.0	10.2	10.0	9.8	8.6	7.9	7.1	6.8	6.0	5.0	10.2																						
19-Oct	6.0	5.4	4.9	4.4	3.6	2.1	1.1	0.7	0.7	1.0	1.4	2.1	3.3	3.3	3.5	3.3	3.0	2.6	2.3	1.9	1.2	1.0	0.6	0.4	2.5	6.0																						
20-Oct	0.2	-0.3	-0.8	-1.3	-1.7	-1.9	-2.0	-2.1	-1.9	-1.7	-1.3	-0.9	-0.3	0.1	0.1	0.4	0.2	-0.5	-1.0	-1.3	-1.6	-1.7	-1.8	-2.1	-1.1	0.4																						
21-Oct	-2.3	-2.7	-2.8	-2.9	-3.0	-3.1	-3.5	-3.5	-3.4	-3.3	-3.4	-3.1	-2.3	-2.2	-2.2	-2.2	-2.3	-2.6	-2.8	-3.1	-3.3	-3.6	-3.9	-4.0	-3.0	-2.2																						
22-Oct	-4.3	-4.4	-4.3	-4.4	-3.9	-3.9	-3.7	-3.4	-3.2	-3.1	-2.5	-1.6	-0.5	0.5	1.3	2.1	2.3	2.3	2.3	2.3	2.6	3.0	3.5	3.7	-0.7	3.7																						
23-Oct	4.0	4.1	4.0	3.7	3.0	2.3	2.1	1.7	1.7	2.3	3.4	4.7	5.6	6.0	6.4	6.3	6.0	5.8	5.5	5.3	4.8	4.6	3.9	3.8	4.2	6.4																						
24-Oct	3.1	2.8	2.6	2.3	2.2	2.0	1.8	1.8	1.6	1.9	3.5	5.2	5.9	6.5	7.0	7.1	6.8	6.6	5.8	5.0	3.1	3.1	2.3	2.0	3.8	7.1																						
25-Oct	1.3	0.4	0.0	-1.1	-1.8	-2.0	-1.8	-2.0	-1.8	-0.9	0.3	2.2	3.7	4.6	5.4	6.0	5.9	5.6	5.0	4.2	2.8	2.1	1.5	-0.7	1.6	6.0																						
26-Oct	-1.9	-2.3	-3.1	-4.0	-4.8	-4.5	-4.8	-5.1	-5.5	-4.3	-2.7	-0.3	0.8	2.6	3.2	5.0	5.0	4.3	4.0	3.7	3.5	3.7	3.8	3.8	0.0	5.0																						
27-Oct	4.0	4.0	4.0	3.8	3.6	3.2	2.6	2.4	2.0	2.2	2.7	3.3	4.2	4.3	4.5	4.4	4.2	3.6	2.6	1.6	0.7	0.4	0.0	0.2	2.9	4.5																						
28-Oct	1.0	1.8	1.6	1.6	1.5	1.4	1.3	1.3	1.3	1.4	1.7	1.8	1.9	1.5	1.2	0.9	0.7	0.3	0.0	-0.7	-1.2	-1.2	-1.4	-1.8	0.8	1.9																						
29-Oct	-2.5	-2.4	-2.7	-3.8	-4.3	-4.6	-4.8	-5.0	-5.0	-4.8	-4.8	-4.8	-4.2	-3.6	-2.8	-2.2	-1.8	-1.4	-1.3	-1.6	-2.2	-2.5	-2.5	-3.2	-3.3	-1.3																						
30-Oct	-3.4	-3.8	-4.3	-4.8	-5.3	-5.8	-5.6	-5.4	-5.5	-5.3	-4.8	-4.2	-3.8	-3.2	-3.0	-3.2	-3.4	-3.6	-3.8	-4.0	-4.2	-4.3	-4.4	-4.9	-4.3	-3.0																						
31-Oct	-5.7	-6.0	-5.8	-5.9	-6.2	-6.8	-7.1	-7.2	-7.3	-7.0	-6.3	-5.6	-5.3	-4.6	-4.1	-3.5	-3.1	-3.2	-3.2	-3.3	-3.2	-3.0	-3.1	-3.1	-5.0	-3.0																						
																								3.8	3.5	3.2	2.9	2.5	2.1	1.8	1.7	1.7	2.3	3.3	4.5	5.6	6.5	7.1	7.5	7.4	7.2	6.8	6.2	5.3	4.9	4.4	4.0	Diurnal Average
																								14.7	14.2	13.5	12.8	12.6	12.1	11.2	10.9	11.0	11.6	12.9	14.1	15.5	17.2	18.7	19.7	20.5	20.6	20.0	18.3	17.3	16.5	15.9	15.1	Diurnal Maximum



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

**Ambient Temperature 100m (AT100) - C**  
**Lower Camp Met Tower - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 100m (AT100) - C  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	157	21.10	21.10
0 - 10	458	61.56	82.66
10 - 20	127	17.07	99.73
> 20	2	0.27	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

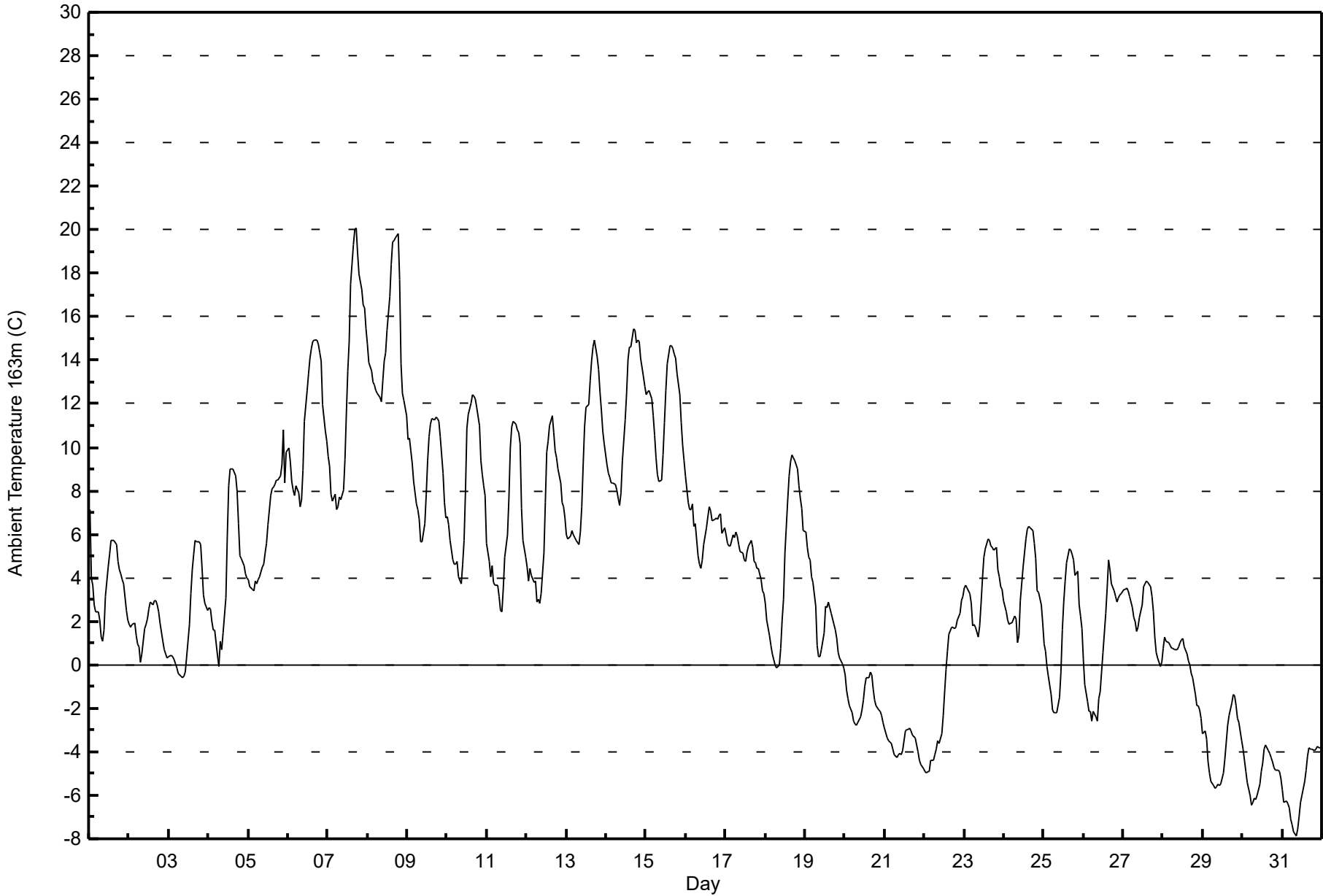
**Ambient Temperature 163m (AT163) - C**  
**Lower Camp Met Tower - October 2024**

Maximum Value: 20.1 C on Oct 7 18:00      Maximum Daily Average: 14.8 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -7.8 C on Oct 31 09:00      Minimum Daily Average: -5.6 C on Oct 31 Maximum Diurnal Average: 6.9 C at hour 17      Minimum Diurnal Average: 1.6 C at hour 9 Monthly Average: 4.19 C      Percentiles: P <sub>1</sub> = -6.4 P <sub>10</sub> = -3.8 Q <sub>1</sub> = 0.4 Median = 3.8 Q <sub>3</sub> = 8.0 P <sub>90</sub> = 12.3 P <sub>99</sub> = 18.7																				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-Oct	7.1	4.0	3.7	2.8	2.4	2.4	2.1	1.3	1.1	1.6	3.1	4.5	5.1	5.7	5.7	5.5	4.8	4.3	4.2	3.9	3.7	2.5	2.1	3.7	7.1	
2-Oct	1.9	1.7	1.9	1.9	1.3	1.0	0.8	0.1	0.5	1.6	1.8	2.1	2.5	2.9	2.7	3.0	3.0	2.8	2.4	1.9	1.1	0.7	0.5	0.3	1.7	3.0
3-Oct	0.4	0.4	0.4	0.3	0.1	-0.1	-0.4	-0.5	-0.6	-0.5	-0.4	0.4	1.8	3.3	4.4	5.1	5.7	5.7	5.5	4.4	3.2	2.8	2.5	2.1	5.7	
4-Oct	2.7	2.5	2.0	1.6	1.6	0.5	-0.1	1.1	0.7	1.4	3.1	5.9	8.2	9.0	9.0	9.0	8.7	8.0	6.5	5.0	4.9	4.5	4.2	4.0	4.3	9.0
5-Oct	3.9	3.6	3.5	3.4	3.9	3.7	3.9	4.1	4.5	4.6	5.1	5.6	6.4	7.8	8.1	8.2	8.3	8.5	8.5	8.7	9.2	10.8	8.4	9.7	6.4	10.8
6-Oct	9.9	9.3	8.4	8.1	7.8	8.2	7.9	7.3	7.6	8.9	11.2	12.6	13.4	14.1	14.5	14.9	14.9	14.9	14.7	14.4	13.9	12.0	10.8	10.3	11.3	14.9
7-Oct	9.6	9.1	7.9	7.5	7.8	7.2	7.3	7.7	7.6	8.0	9.5	11.6	13.5	14.9	17.5	19.3	20.0	20.1	18.9	18.0	17.2	16.5	16.4	15.4	12.8	20.1
8-Oct	14.7	13.9	13.5	13.0	12.8	12.6	12.5	12.3	12.1	13.1	14.0	14.3	15.4	16.9	18.4	19.4	19.5	19.6	19.8	17.7	13.9	12.5	12.2	11.5	14.8	19.8
9-Oct	10.3	10.4	9.8	9.2	8.4	7.4	7.1	6.7	5.7	5.6	6.5	7.8	9.4	10.5	11.1	11.3	11.3	11.4	11.3	11.2	10.5	8.8	7.4	6.8	9.0	11.4
10-Oct	6.8	6.4	5.7	4.8	4.6	4.6	4.8	4.1	3.7	4.6	5.7	8.0	10.9	11.5	12.0	12.4	12.4	12.3	11.9	11.0	9.4	8.8	8.2	7.8	8.0	12.4
11-Oct	5.6	4.8	4.0	4.5	3.8	3.7	3.7	3.2	2.5	2.4	3.5	4.9	6.0	7.6	10.0	10.9	11.2	11.0	10.8	10.7	10.2	7.2	5.7	4.9	6.4	11.2
12-Oct	4.5	3.8	4.4	4.1	3.8	3.9	2.9	3.0	2.8	3.3	5.1	7.4	9.8	10.3	11.0	11.5	10.7	9.9	9.5	9.0	8.4	7.4	7.2	6.8	6.7	11.5
13-Oct	6.0	5.8	5.9	6.2	6.0	5.9	5.7	5.5	6.1	7.3	9.2	11.0	11.8	12.0	13.1	13.9	14.6	15.0	14.2	13.6	12.5	11.7	10.8	10.2	9.7	15.0
14-Oct	9.2	8.8	8.6	8.3	8.4	8.3	8.0	7.7	7.3	7.9	9.4	11.2	12.5	14.0	14.6	14.6	15.4	15.4	14.8	14.9	14.8	14.1	13.3	12.8	11.4	15.4
15-Oct	12.4	12.6	12.6	12.2	11.4	10.5	9.5	8.7	8.4	8.5	9.6	11.1	12.6	13.8	14.7	14.7	14.5	14.3	14.1	13.4	12.4	11.1	10.1	9.4	11.8	14.7
16-Oct	8.7	7.5	7.1	7.1	7.4	6.4	6.5	5.0	4.6	4.4	4.8	5.5	6.3	6.8	7.3	7.1	6.6	6.7	6.7	6.7	6.9	6.9	6.1	6.3	6.5	8.7
17-Oct	6.0	5.6	5.4	5.4	6.0	5.9	6.1	5.9	5.5	5.2	5.1	4.8	4.7	5.2	5.4	5.7	5.4	4.8	4.7	4.4	4.4	3.9	3.4	3.3	5.1	6.1
18-Oct	2.8	2.1	1.3	0.9	0.5	0.3	0.0	-0.2	0.0	0.8	2.0	3.0	5.1	7.6	8.7	9.3	9.6	9.5	9.4	9.0	8.2	7.6	7.2	6.2	4.6	9.6
19-Oct	6.1	5.4	5.0	4.8	4.0	3.8	2.7	0.9	0.4	0.3	0.7	1.5	2.7	2.6	2.9	2.7	2.4	1.9	1.6	1.2	0.6	0.3	0.1	-0.1	2.3	6.1
20-Oct	-0.5	-1.2	-1.5	-1.9	-2.2	-2.6	-2.8	-2.8	-2.7	-2.4	-2.0	-1.6	-1.0	-0.6	-0.6	-0.3	-0.5	-1.1	-1.6	-1.9	-2.1	-2.2	-2.3	-2.7	-1.7	-0.3
21-Oct	-2.9	-3.3	-3.5	-3.5	-3.6	-3.9	-4.1	-4.2	-4.1	-4.1	-4.1	-3.9	-3.1	-3.0	-3.0	-2.9	-3.1	-3.2	-3.4	-3.7	-4.0	-4.4	-4.6	-4.8	-3.7	-2.9
22-Oct	-4.9	-5.0	-4.9	-4.9	-4.4	-4.4	-4.1	-3.9	-3.5	-3.6	-3.1	-2.3	-1.2	-0.2	0.6	1.4	1.7	1.7	1.7	1.7	2.0	2.4	2.9	3.1	-1.3	3.1
23-Oct	3.5	3.6	3.5	3.3	2.8	1.8	1.9	1.7	1.2	1.8	2.8	4.0	4.9	5.3	5.8	5.7	5.5	5.4	5.3	5.4	4.4	4.1	3.6	3.5	3.8	5.8
24-Oct	2.9	2.4	2.0	1.8	1.9	1.9	2.2	2.1	1.0	1.4	2.9	4.5	5.1	5.8	6.3	6.4	6.3	6.2	5.6	4.9	3.4	3.3	2.7	1.9	3.5	6.4
25-Oct	1.0	0.6	-0.1	-0.5	-1.4	-2.1	-2.2	-2.2	-2.2	-1.5	-0.3	1.6	2.9	3.9	4.7	5.4	5.2	5.1	4.8	4.1	4.3	2.8	2.2	1.7	1.6	5.4
26-Oct	0.3	-0.9	-1.7	-2.1	-2.1	-2.6	-2.1	-2.4	-2.6	-1.6	-1.2	-0.4	0.6	2.4	3.5	4.8	4.4	3.7	3.4	3.1	2.9	3.1	3.2	3.3	0.8	4.8
27-Oct	3.4	3.5	3.5	3.4	3.1	2.7	2.2	2.0	1.5	1.7	2.2	2.8	3.6	3.7	3.8	3.8	3.6	3.2	2.4	1.2	0.6	0.3	-0.1	0.1	2.4	3.8
28-Oct	0.7	1.3	1.1	1.0	0.9	0.8	0.8	0.7	0.7	0.8	1.0	1.1	1.2	0.8	0.5	0.2	0.0	-0.4	-0.6	-1.4	-1.9	-1.9	-2.1	-2.5	0.1	1.3
29-Oct	-3.2	-3.0	-3.4	-4.5	-5.0	-5.3	-5.5	-5.7	-5.6	-5.5	-5.6	-5.5	-5.0	-4.3	-3.5	-2.8	-2.3	-1.7	-1.3	-1.4	-1.9	-2.5	-2.7	-3.5	-3.8	-1.3
30-Oct	-3.9	-4.4	-4.9	-5.4	-6.0	-6.4	-6.3	-6.1	-6.2	-6.0	-5.5	-4.9	-4.5	-3.9	-3.7	-3.9	-4.1	-4.3	-4.5	-4.7	-4.8	-4.9	-4.9	-5.2	-5.0	-3.7
31-Oct	-5.8	-6.3	-6.3	-6.4	-6.6	-7.1	-7.4	-7.7	-7.8	-7.6	-7.0	-6.3	-6.0	-5.3	-4.8	-4.2	-3.8	-3.9	-3.9	-4.0	-3.9	-3.7	-3.8	-3.8	-5.6	-3.7
3.8   3.4   3.1   2.8   2.6   2.2   2.0   1.8   1.6   2.0   2.9   3.9   5.0   5.8   6.5   6.8   6.9   6.7   6.4   5.9   5.4   4.8   4.2   3.9																								Diurnal Average		
14.7   13.9   13.5   13.0   12.8   12.6   12.5   12.3   12.1   13.1   14.0   14.3   15.4   16.9   18.4   19.4   20.0   20.1   19.8   18.0   17.2   16.5   16.4   15.4																								Diurnal Maximum		



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

**Ambient Temperature 163m (AT163) - C**  
**Lower Camp Met Tower - October 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

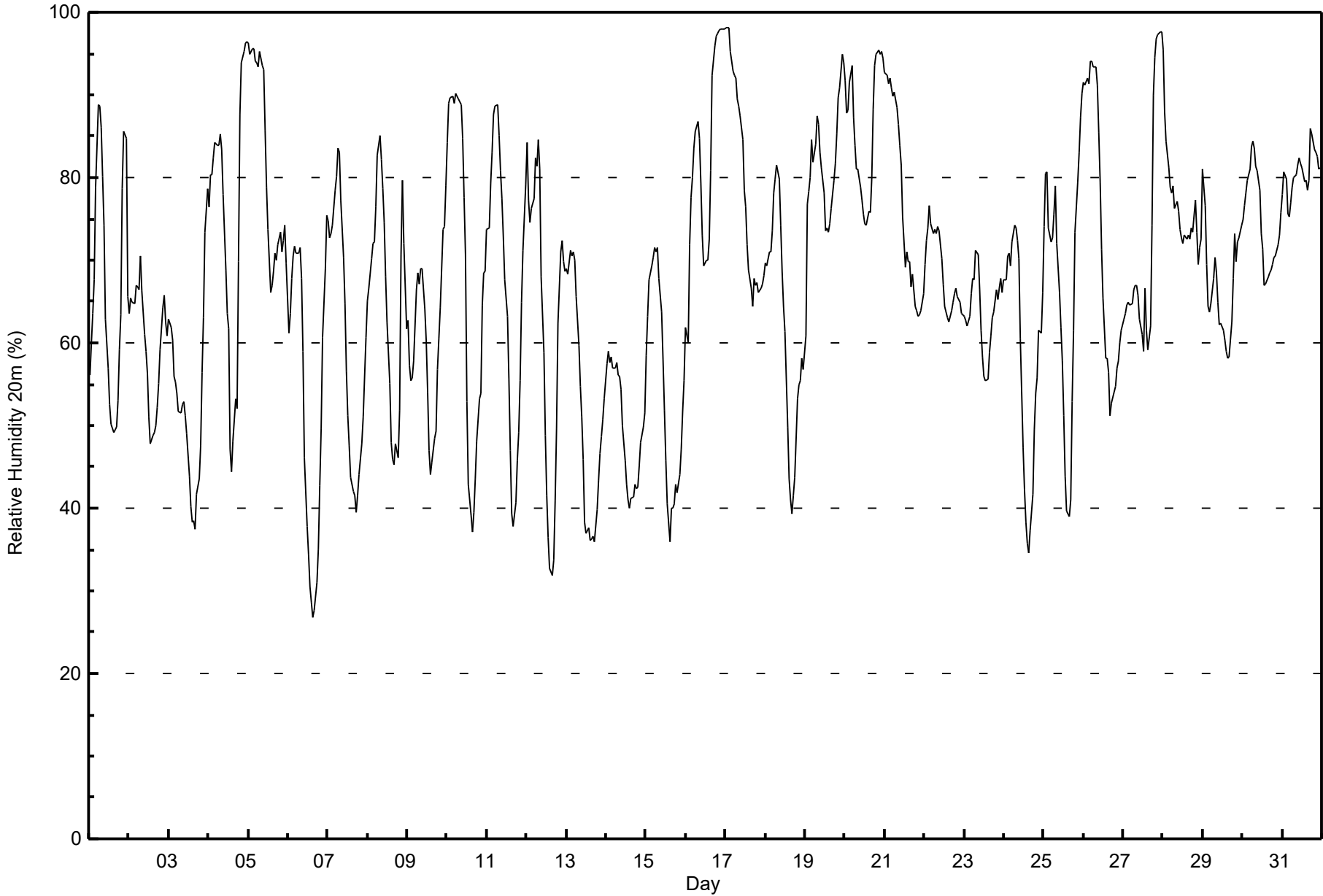
**Ambient Temperature 163m (AT163) - C  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	173	23.25	23.25
0 - 10	447	60.08	83.33
10 - 20	122	16.40	99.73
> 20	2	0.27	100.00

Total Number of Valid Hours: 744  
Total Number of Hours: 744



Maximum Value: 98.2 % on Oct 17 02:00      Maximum Daily Average: 85.6 % on Oct 20																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 26.7 % on Oct 6 16:00      Minimum Daily Average: 49.8 % on Oct 14 Maximum Diurnal Average: 78.2 % at hour 8      Minimum Diurnal Average: 52.8 % at hour 16 Monthly Average: 67.72 %      Percentiles: P <sub>1</sub> = 34.1 P <sub>10</sub> = 44.0 Q <sub>1</sub> = 57.2 Median = 68.7 Q <sub>3</sub> = 79.0 P <sub>90</sub> = 88.9 P <sub>99</sub> = 97.6																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	56.1	60.1	63.6	67.6	78.8	88.8	88.6	86.1	80.2	74.3	62.8	57.0	50.1	49.7	49.2	49.8	53.1	59.2	63.3	78.7	85.5	84.8	65.7	66.9	88.8	
2-Oct	63.5	65.4	64.9	64.7	66.9	66.8	66.4	70.5	66.2	61.0	58.9	56.2	51.0	47.8	48.9	49.1	50.0	52.2	55.0	59.2	64.3	65.7	62.5	60.8	59.9	70.5
3-Oct	62.8	61.9	60.4	55.9	55.2	54.0	51.7	51.4	52.6	53.0	51.2	49.0	43.9	40.1	38.3	38.6	37.4	41.8	43.5	47.5	56.4	63.1	73.3	78.6	52.6	78.6
4-Oct	76.5	80.4	80.3	82.4	84.3	83.9	83.9	85.3	83.4	78.0	68.7	63.5	61.6	47.2	44.4	48.1	53.2	52.0	69.9	87.7	93.9	95.2	96.3	96.4	74.9	96.4
5-Oct	96.2	95.0	95.6	95.5	94.0	93.9	93.4	95.2	93.6	93.1	85.8	78.7	73.8	66.0	67.0	68.6	70.8	71.8	73.4	71.0	72.4	74.2	69.7	81.6	96.2	96.2
6-Oct	61.1	63.5	67.9	70.5	71.6	70.8	70.9	71.6	67.9	59.1	46.1	37.9	34.4	30.5	28.7	26.7	27.7	31.1	35.0	42.7	49.6	60.6	69.0	75.4	52.9	75.4
7-Oct	74.8	72.6	73.3	74.2	78.5	80.1	83.6	83.0	77.2	70.4	64.8	56.6	51.1	47.6	43.7	42.0	41.6	39.5	41.5	44.0	47.8	51.0	55.9	60.6	60.6	83.6
8-Oct	65.1	66.5	70.2	72.0	72.1	76.5	82.8	85.0	82.2	78.6	74.6	67.9	62.5	55.1	47.9	46.0	45.2	47.9	46.0	51.9	70.6	79.7	72.0	61.7	65.8	85.0
9-Oct	62.7	57.3	55.4	55.8	57.8	66.5	68.5	67.1	69.0	69.1	64.1	60.1	54.1	46.9	44.1	45.6	48.4	49.3	56.8	60.6	64.3	73.8	74.0	79.0	60.4	79.0
10-Oct	84.2	88.9	89.7	89.8	89.1	90.1	89.9	89.5	88.8	84.7	77.7	70.6	52.9	42.9	39.1	37.1	39.5	43.5	48.1	53.3	53.9	64.6	68.5	68.7	68.5	90.1
11-Oct	73.8	73.9	79.3	83.1	87.6	88.7	88.9	85.1	80.9	77.4	72.9	67.6	63.3	55.7	47.0	39.4	37.8	40.6	45.8	49.1	55.5	65.0	71.1	79.2	67.0	88.9
12-Oct	84.2	77.3	74.5	76.3	77.4	82.5	81.3	84.7	81.0	67.9	58.8	48.8	41.6	36.5	32.7	31.9	33.8	40.8	49.6	62.4	71.0	72.4	69.9	68.6	62.7	84.7
13-Oct	69.0	68.3	71.1	70.6	71.0	70.0	65.6	59.6	54.7	51.0	46.0	38.3	36.9	37.7	36.0	36.3	36.6	35.9	39.8	43.4	46.6	48.7	50.8	53.2	51.5	71.1
14-Oct	57.4	59.0	57.6	58.3	57.0	57.0	57.7	56.2	55.9	54.5	50.0	45.8	42.9	41.0	40.0	41.2	41.3	42.9	42.3	42.6	45.0	48.1	49.9	51.5	49.8	59.0
15-Oct	58.5	63.2	67.6	69.3	70.4	71.5	70.9	71.6	67.7	63.7	58.0	51.8	45.9	40.6	35.9	40.1	40.0	40.4	42.8	41.9	44.0	47.0	51.6	55.5	54.6	71.6
16-Oct	61.9	59.9	71.9	77.7	79.9	83.5	85.6	86.7	84.7	79.4	73.0	69.4	70.0	70.0	72.6	80.8	92.3	96.0	97.2	97.5	97.8	98.0	98.0	98.0	82.6	98.0
17-Oct	98.1	98.2	98.1	95.2	93.0	92.4	92.0	89.5	88.7	87.5	84.5	78.4	76.5	71.8	68.8	66.6	64.5	67.8	66.9	67.2	66.1	66.7	67.2	68.2	79.7	98.2
18-Oct	69.7	69.4	71.0	71.0	73.5	78.1	79.9	81.5	79.8	74.3	68.6	64.4	61.3	49.8	43.6	41.1	39.3	41.5	43.7	53.3	54.9	55.4	58.2	56.8	61.7	81.5
19-Oct	60.8	76.7	78.3	80.0	84.5	81.9	84.1	87.5	86.5	83.0	81.2	78.2	73.6	73.9	73.4	74.3	76.2	79.6	81.8	85.3	89.7	90.8	94.9	93.8	81.3	94.9
20-Oct	91.6	87.7	88.1	91.6	93.6	87.4	83.9	81.0	81.0	78.8	77.3	75.6	74.4	74.2	75.9	75.8	80.0	88.4	93.6	94.9	95.4	94.9	95.3	94.3	85.6	95.4
21-Oct	92.6	92.4	91.3	92.0	90.8	89.8	90.3	88.6	86.4	83.8	81.6	75.3	69.1	71.0	69.7	69.8	66.8	68.3	64.5	64.0	63.2	63.4	63.9	65.9	77.3	92.6
22-Oct	69.5	72.4	73.9	76.5	74.4	73.2	73.7	73.2	74.1	73.6	70.1	67.1	64.4	63.8	63.0	62.5	64.0	64.9	65.9	66.6	65.6	64.9	63.5	63.5	68.5	76.5
23-Oct	63.2	62.8	62.0	63.2	65.9	67.8	67.6	71.3	70.6	66.4	61.6	58.3	56.0	55.5	55.7	58.8	60.8	63.0	63.7	66.4	65.2	66.6	67.9	66.1	63.6	71.3
24-Oct	67.7	67.6	70.5	70.9	69.4	72.2	74.2	73.9	72.3	70.2	60.6	47.3	42.3	38.4	35.8	34.6	37.4	41.7	49.5	53.9	55.7	61.5	61.3	66.1	58.1	74.2
25-Oct	74.2	80.5	80.6	74.0	72.3	72.8	75.6	79.0	72.0	66.1	61.9	57.7	51.3	43.9	39.7	39.0	41.0	52.8	61.5	73.4	79.4	83.1	87.3	90.2	67.0	90.2
26-Oct	91.5	91.2	92.0	91.3	94.0	94.1	93.4	93.4	91.2	85.4	79.6	71.3	65.4	58.2	58.2	56.5	51.2	52.7	54.1	54.7	57.0	57.8	60.0	61.5	73.2	94.1
27-Oct	62.9	63.5	64.5	64.9	64.6	64.7	66.5	66.9	66.9	65.8	62.9	61.1	59.0	66.5	61.5	59.2	62.1	74.3	90.0	94.5	96.8	97.3	97.6	97.6	72.1	97.6
28-Oct	95.5	87.9	84.4	81.3	78.8	78.1	78.9	76.2	77.1	75.9	73.7	72.8	72.0	73.1	72.6	73.1	72.6	73.8	73.3	77.2	73.4	69.5	71.6	72.5	76.5	95.5
29-Oct	81.0	76.7	69.5	64.4	63.8	64.7	67.8	70.4	68.5	65.0	62.1	62.4	61.6	60.3	59.0	58.1	58.3	62.5	67.8	73.2	69.8	72.2	72.7	74.2	66.9	81.0
30-Oct	74.8	76.7	78.1	79.7	81.1	83.7	84.3	83.5	81.4	80.8	78.5	73.3	71.3	67.0	67.1	67.9	68.4	68.9	69.4	70.4	70.5	71.8	73.0	75.8	74.9	84.3
31-Oct	78.0	80.6	79.8	75.6	75.2	76.9	78.8	80.0	80.3	81.6	82.3	81.7	81.2	79.5	79.7	78.5	79.7	86.0	85.3	83.3	83.1	82.6	81.1	81.1	80.5	86.0
73.5 74.1 75.0 75.3 76.3 77.5 78.1 78.2 76.2 72.7 67.7 62.7 58.6 54.9 52.9 52.8 53.8 56.9 60.5 64.5 67.6 70.6 72.2 72.6																								Diurnal Average		
98.1 98.2 98.1 95.5 94.0 94.1 93.4 95.2 93.6 93.1 85.8 81.7 81.2 79.5 79.7 80.8 92.3 96.0 97.2 97.5 97.8 98.0 98.0 98.0																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 20m (RH20) - %  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	38	5.11	5.11
40 - 60	177	23.79	28.90
60 - 80	361	48.52	77.42
80 - 100	168	22.58	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



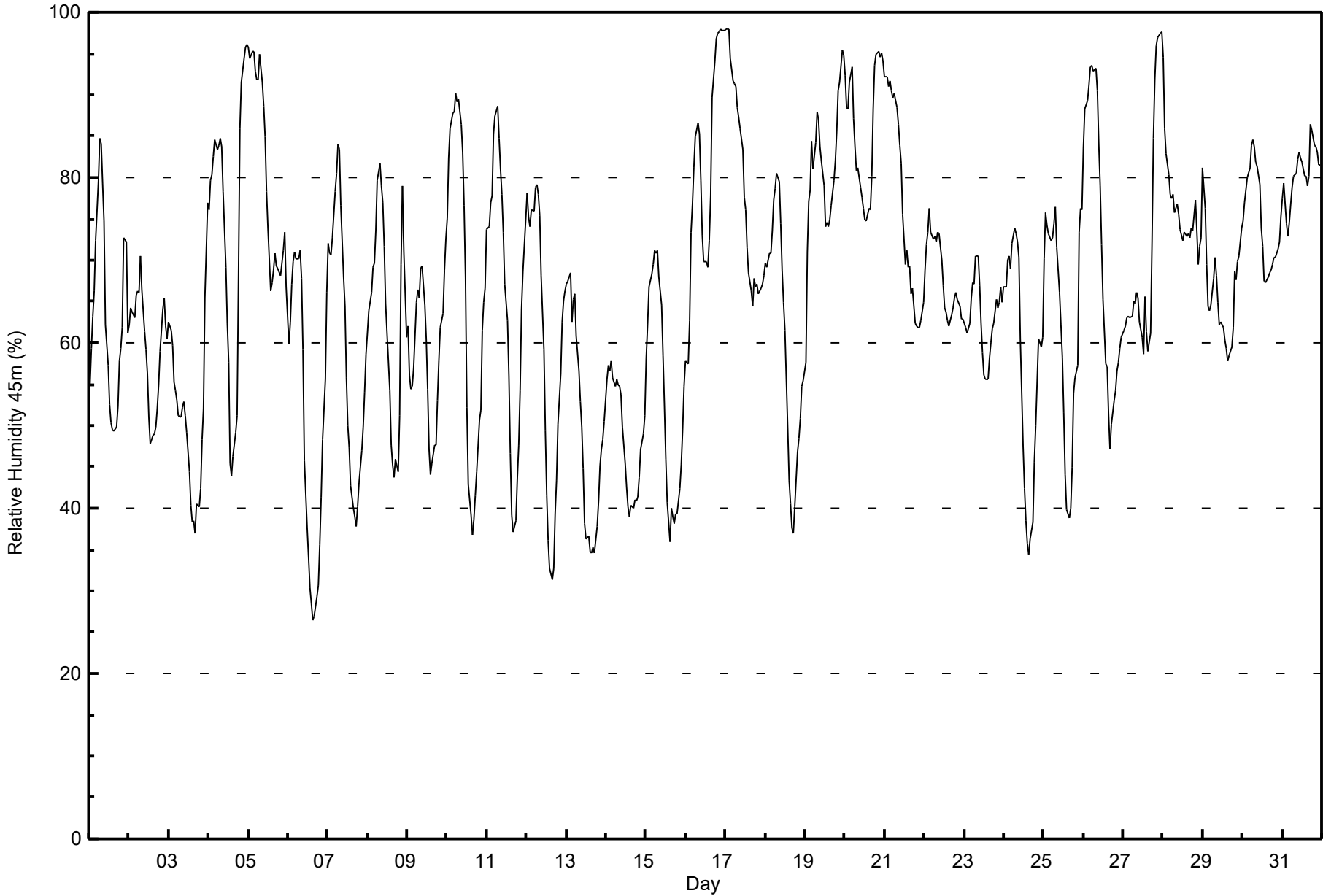
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity 45m (RH45) - %**

**Lower Camp Met Tower - October 2024**

Maximum Value: 98.0 % on Oct 17 02:00																				Maximum Daily Average: 85.7 % on Oct 20					Hours in Service: 744	
Minimum Value: 26.5 % on Oct 6 16:00																				Minimum Daily Average: 48.7 % on Oct 14					Hours of Data: 744	
Maximum Diurnal Average: 77.3 % at hour 8																				Minimum Diurnal Average: 52.2 % at hour 16					Hours of Missing Data: 0	
Monthly Average: 66.42 %																				Percentiles: P <sub>1</sub> = 32.7 P <sub>10</sub> = 43.2 Q <sub>1</sub> = 55.6 Median = 67.2 Q <sub>3</sub> = 77.5 P <sub>90</sub> = 87.7 P <sub>99</sub> = 97.5					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-Oct	54.9	59.3	63.2	66.3	72.4	79.4	84.8	84.0	79.3	74.8	62.3	57.4	50.3	49.6	49.3	49.9	52.5	57.8	59.4	61.8	72.8	72.2	61.1	63.6	84.8	
2-Oct	62.1	64.2	63.8	63.1	65.7	66.2	66.1	70.5	66.4	61.3	59.2	56.3	51.0	47.7	48.8	49.0	49.8	52.0	54.9	59.0	64.1	65.5	62.1	60.5	59.6	70.5
3-Oct	62.5	61.5	59.6	55.2	54.2	53.1	51.1	51.0	52.2	52.8	51.2	49.2	44.5	40.3	38.4	38.5	37.0	40.5	40.1	42.4	48.4	52.1	65.4	76.9	50.8	76.9
4-Oct	76.1	79.7	80.4	82.5	84.7	83.4	83.8	84.8	83.7	78.3	69.2	62.4	57.6	45.4	43.9	46.3	49.1	51.1	68.3	86.0	91.6	94.3	95.7	96.1	73.9	96.1
5-Oct	95.8	94.5	95.3	95.2	92.9	91.9	91.9	95.0	91.5	88.6	84.9	78.3	74.0	66.3	67.3	68.9	70.8	69.3	69.1	68.1	69.7	71.1	73.5	66.8	80.4	95.8
6-Oct	59.8	62.5	67.2	69.8	71.0	70.1	70.2	71.2	67.9	59.1	45.7	37.6	34.1	30.3	28.4	26.5	27.0	29.4	30.6	35.6	41.3	48.2	55.6	66.2	50.2	71.2
7-Oct	72.1	70.8	70.6	72.8	78.3	80.6	84.1	83.4	76.7	68.0	64.4	55.8	50.0	47.2	42.8	40.0	38.9	37.8	40.2	43.1	46.9	49.8	54.0	58.6	59.5	84.1
8-Oct	61.1	63.9	66.2	69.2	69.7	73.5	79.6	81.7	79.0	76.9	71.6	64.8	61.2	54.2	47.5	45.3	43.7	46.0	44.4	51.2	69.5	79.0	71.1	60.7	63.8	81.7
9-Oct	62.0	56.1	54.4	54.8	57.0	64.9	66.5	65.4	68.9	69.4	64.6	60.5	54.3	47.1	44.1	45.4	47.6	47.6	53.0	57.8	61.9	63.5	68.9	72.5	58.7	72.5
10-Oct	75.0	82.4	85.9	87.9	88.0	90.2	89.2	89.5	86.5	83.1	76.7	68.0	52.3	42.8	39.1	36.8	38.7	41.5	44.4	50.7	51.9	61.5	64.9	66.6	66.4	90.2
11-Oct	73.7	74.0	76.9	77.7	85.3	87.4	88.6	84.7	81.0	78.0	73.4	67.1	62.8	56.0	46.7	39.1	37.2	38.5	43.6	47.6	54.3	64.0	68.6	74.9	65.9	88.6
12-Oct	78.1	75.3	74.2	76.1	75.9	78.9	79.1	78.0	75.5	68.1	59.1	49.3	41.6	36.1	32.7	31.4	32.7	39.3	43.5	50.2	56.3	62.6	65.0	66.3	59.4	79.1
13-Oct	67.2	67.4	68.5	62.6	65.2	65.9	60.8	56.6	52.8	49.9	44.8	38.1	36.3	36.7	34.8	34.6	35.2	34.5	37.8	40.9	45.0	47.1	48.3	50.5	49.2	68.5
14-Oct	55.5	57.3	56.6	57.8	55.8	54.8	55.5	54.9	54.7	53.7	49.8	45.5	42.5	40.3	39.0	40.3	40.0	41.0	40.8	41.4	43.7	47.1	49.0	51.2	48.7	57.8
15-Oct	58.1	62.2	66.8	68.4	69.4	71.3	70.8	71.2	68.0	64.5	58.5	52.4	45.9	40.6	35.9	40.0	39.0	38.1	39.4	39.4	42.3	45.2	49.5	54.7	53.8	71.3
16-Oct	57.7	57.5	62.6	73.4	76.7	81.2	84.9	86.6	85.2	79.7	73.1	69.8	69.8	69.2	72.4	77.9	89.7	94.1	96.8	97.4	97.7	97.9	97.9	97.9	81.1	97.9
17-Oct	97.9	98.0	97.9	94.5	91.8	91.4	91.0	88.5	87.3	86.0	83.4	77.7	76.0	71.5	68.5	66.3	64.3	67.9	66.9	67.2	66.0	66.6	67.1	68.2	79.2	98.0
18-Oct	69.6	69.2	70.8	70.9	73.5	77.2	78.7	80.5	79.5	74.4	68.9	65.0	61.5	49.7	43.3	40.6	37.5	36.9	40.1	46.8	48.5	50.8	54.8	55.5	60.2	80.5
19-Oct	57.7	71.1	77.2	78.5	84.4	81.1	84.2	88.0	87.0	83.7	82.1	79.0	74.0	74.6	74.0	74.9	76.6	79.7	82.0	85.7	90.5	91.6	95.5	94.8	81.1	95.5
20-Oct	92.4	88.4	88.4	91.6	93.4	87.2	83.8	80.8	81.1	78.9	77.6	76.2	75.0	74.8	76.3	76.1	80.2	88.4	93.5	94.9	95.2	94.7	95.0	94.1	85.7	95.2
21-Oct	92.3	92.1	91.1	91.7	90.6	89.7	90.2	88.5	86.5	83.9	81.7	75.5	69.4	71.2	69.2	69.4	65.9	66.6	62.4	62.0	61.8	61.9	62.7	65.0	76.7	92.3
22-Oct	68.9	71.9	73.5	76.2	73.4	72.5	72.9	72.2	73.4	73.2	70.0	67.0	64.3	63.7	62.8	62.1	63.4	64.2	65.5	66.2	65.2	64.4	62.8	62.8	68.0	76.2
23-Oct	62.3	61.9	61.2	62.4	65.4	67.4	67.2	70.5	70.5	66.9	62.3	58.8	56.1	55.5	55.5	58.1	60.0	61.6	62.4	65.2	64.3	64.9	66.8	65.0	63.0	70.5
24-Oct	66.7	66.8	69.9	70.4	69.0	72.0	73.9	73.2	72.2	70.4	60.5	47.5	42.4	38.5	35.8	34.4	36.2	38.4	45.6	50.0	55.2	60.5	59.4	60.7	57.1	73.9
25-Oct	70.1	75.8	74.3	73.2	72.4	72.7	74.4	76.5	71.6	66.2	62.2	58.3	51.5	44.1	39.8	38.9	40.1	45.0	53.9	55.8	57.3	73.4	76.3	76.1	62.5	76.5
26-Oct	83.6	88.4	89.4	91.1	93.5	93.6	92.9	93.2	90.5	84.1	78.9	71.8	65.3	57.5	57.1	51.4	47.2	50.2	53.1	54.3	56.6	57.6	59.3	60.7	71.7	93.6
27-Oct	61.6	62.0	63.1	63.3	63.1	65.1	64.8	66.2	65.4	62.5	60.6	58.6	65.5	61.3	59.0	61.2	72.3	84.8	91.9	95.9	96.9	97.4	97.6	71.0	97.6	
28-Oct	94.5	85.9	82.9	80.3	78.0	77.5	78.0	75.7	76.8	75.7	73.7	73.0	72.4	73.4	72.9	73.3	72.7	74.0	73.5	77.3	73.5	69.5	71.7	72.7	76.2	94.5
29-Oct	81.1	76.3	69.5	64.4	63.8	64.6	67.8	70.4	68.2	64.9	62.2	62.6	61.9	60.4	59.3	57.9	58.4	59.5	61.9	68.6	67.6	69.8	70.4	73.8	66.1	81.1
30-Oct	74.8	76.9	78.4	80.0	81.2	83.9	84.7	83.8	81.8	81.3	79.2	73.9	71.7	67.5	67.3	68.0	68.4	68.9	69.5	70.4	70.3	71.3	72.2	75.2	75.0	84.7
31-Oct	77.5	79.4	74.4	72.9	74.6	76.8	78.8	80.1	80.6	82.2	83.1	82.4	81.8	80.2	80.2	78.9	80.2	86.4	85.7	83.9	83.7	83.1	81.5	81.6	80.4	86.4
71.7 72.7 73.4 74.0 75.2 76.2 77.1 77.3 75.6 72.4 67.6 62.6 58.5 54.8 52.7 52.2 52.9 55.3 58.2 61.6 64.5 67.7 69.5 70.5																								Diurnal Average		
97.9 98.0 97.9 95.2 93.5 93.6 92.9 95.0 91.5 88.6 84.9 82.4 81.8 80.2 80.2 78.9 89.7 94.1 96.8 97.4 97.7 97.9 97.9 97.9																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 45m (RH45) - %  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	51	6.85	6.85
40 - 60	184	24.73	31.59
60 - 80	358	48.12	79.70
80 - 100	151	20.30	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

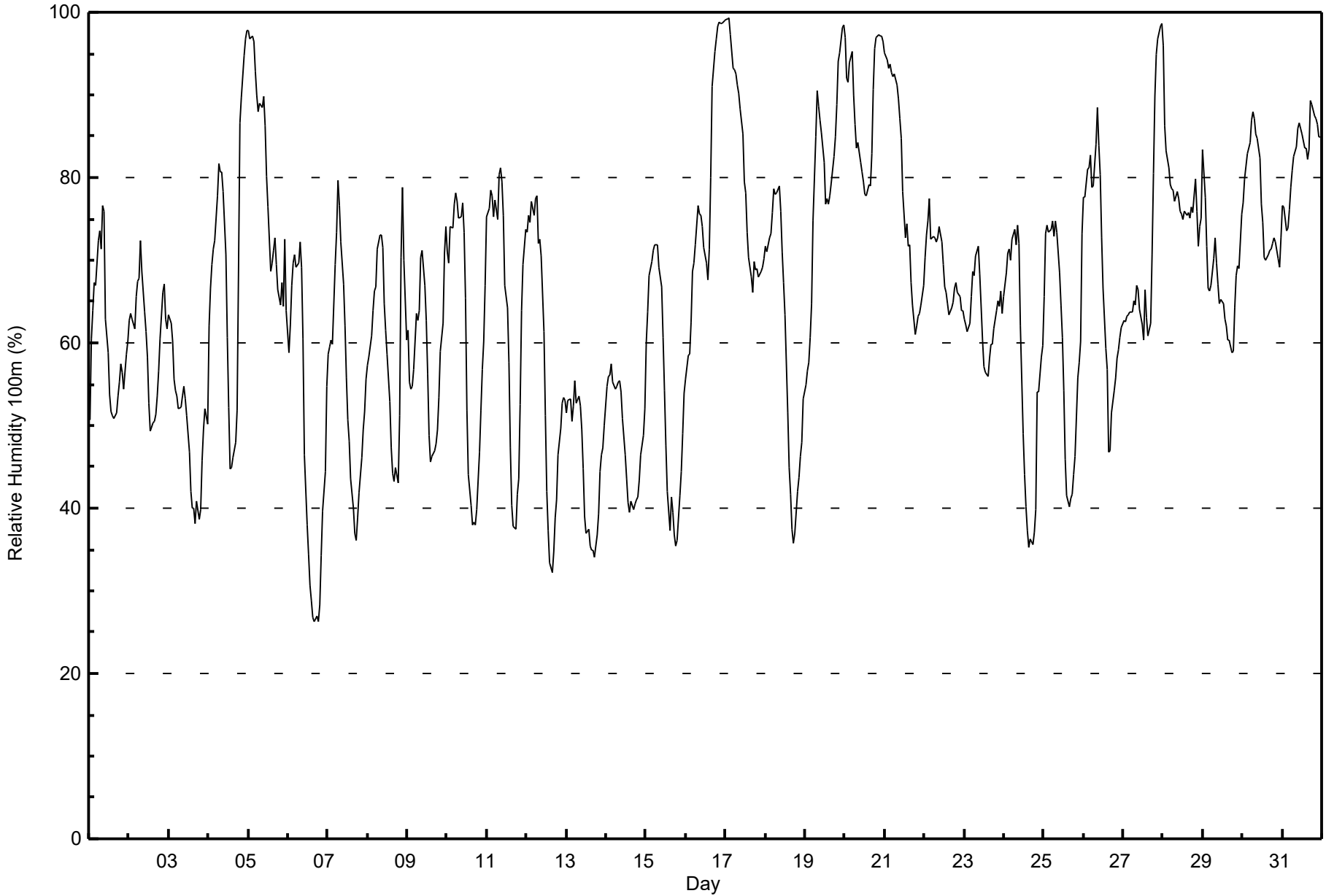


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 100m (RH100) - %**  
**Lower Camp Met Tower - October 2024**

Maximum Value: 99.3 % on Oct 17 03:00																						Maximum Daily Average: 88.5 % on Oct 20																						Hours in Service: 744	
Minimum Value: 26.3 % on Oct 6 17:00																						Minimum Daily Average: 45.2 % on Oct 13																						Hours of Data: 744	
Maximum Diurnal Average: 75.2 % at hour 9																						Minimum Diurnal Average: 53.4 % at hour 16																						Hours of Missing Data: 0	
Monthly Average: 65.69 %																						Percentiles: P <sub>1</sub> = 32.7 P <sub>10</sub> = 41.9 Q <sub>1</sub> = 54.2 Median = 66.9 Q <sub>3</sub> = 76.3 P <sub>90</sub> = 87.1 P <sub>99</sub> = 98.6																						Hours of Calibration: 0	
																																												Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Oct	50.6	60.6	63.8	67.3	66.9	72.3	73.6	71.3	76.6	75.9	62.9	58.8	53.8	51.7	51.2	50.8	51.6	53.5	55.2	57.5	56.4	54.4	58.6	60.2	60.6	76.6																			
2-Oct	62.8	63.5	62.9	61.8	65.6	67.5	67.8	72.3	68.6	63.7	61.4	58.3	52.7	49.3	50.4	50.5	51.3	53.5	56.5	60.4	66.1	67.1	62.9	61.7	60.8	72.3																			
3-Oct	63.5	62.5	60.1	55.5	54.3	53.6	52.0	52.2	53.6	54.7	53.3	51.3	46.8	42.1	39.9	40.1	38.1	40.8	38.6	39.8	45.7	49.5	52.1	50.1	49.6	63.5																			
4-Oct	62.0	66.7	69.5	71.4	72.4	77.7	81.8	80.7	80.8	78.3	70.7	60.6	52.1	44.7	44.9	46.1	47.9	51.8	68.7	86.6	89.7	94.7	96.8	97.8	70.6	97.8																			
5-Oct	97.8	96.7	97.1	96.5	92.9	89.9	88.0	89.0	88.4	89.8	86.2	80.2	76.4	68.6	69.7	71.2	72.7	69.6	66.4	64.6	67.2	64.3	72.6	63.9	80.0	97.8																			
6-Oct	58.9	62.2	67.0	69.7	70.7	69.2	69.6	72.2	69.2	60.5	46.4	37.9	34.4	30.6	28.8	26.8	26.3	26.9	26.3	28.3	34.2	39.7	44.4	54.8	48.1	72.2																			
7-Oct	58.6	59.4	60.3	59.9	69.4	73.3	79.7	76.6	72.2	67.0	62.1	55.8	50.8	48.1	43.6	40.0	37.0	36.1	38.8	41.8	46.0	49.5	51.8	55.5	55.6	79.7																			
8-Oct	57.4	58.3	60.8	63.8	66.3	66.9	71.3	73.1	73.0	71.5	64.8	61.5	58.6	52.9	47.3	44.3	43.2	45.0	43.1	51.3	70.3	78.7	70.0	60.4	60.6	78.7																			
9-Oct	61.5	55.3	54.3	54.7	56.8	63.5	62.7	64.0	70.3	71.1	66.9	62.7	56.3	48.8	45.6	46.3	46.9	47.8	49.5	53.5	58.9	62.3	70.9	74.1	58.5	74.1																			
10-Oct	71.1	69.6	74.0	74.0	76.8	78.1	77.1	75.1	75.3	77.0	73.5	65.5	51.9	44.1	40.3	38.0	38.3	38.0	39.9	46.8	51.9	56.7	60.2	67.0	60.8	78.1																			
11-Oct	75.2	76.3	78.5	77.7	75.2	77.3	74.9	80.4	81.1	79.5	75.4	66.9	64.2	57.5	47.2	40.3	37.9	37.4	41.8	43.6	52.5	63.9	69.5	73.7	64.5	81.1																			
12-Oct	73.3	75.5	74.7	77.2	75.5	77.4	77.8	72.0	72.6	70.6	61.4	51.2	42.0	37.3	33.4	32.2	34.7	38.8	41.1	46.5	49.7	52.7	53.4	53.0	57.2	77.8																			
13-Oct	51.5	53.0	53.2	50.5	52.3	55.5	52.7	53.5	52.4	49.6	44.7	39.1	37.0	37.4	35.4	34.9	35.0	34.0	36.7	39.3	44.4	46.4	47.4	50.1	45.2	55.5																			
14-Oct	54.7	56.0	56.1	57.5	55.2	54.4	54.8	55.3	55.4	54.0	50.8	46.4	43.5	40.6	39.4	40.8	39.9	40.5	41.1	41.3	43.4	46.4	48.8	52.1	48.7	57.5																			
15-Oct	60.0	63.8	68.2	69.9	71.1	71.8	71.8	71.9	69.1	66.7	60.7	54.3	47.7	42.1	37.2	41.3	39.5	36.8	35.5	36.1	41.6	44.4	48.9	53.9	54.3	71.9																			
16-Oct	55.6	58.5	58.6	62.5	68.7	69.7	71.9	76.6	75.6	75.5	74.0	71.6	69.6	67.6	71.4	80.0	91.0	95.3	96.8	98.2	98.7	98.7	98.7	99.0	78.5	99.0																			
17-Oct	99.1	99.2	99.3	97.2	93.3	93.1	92.6	91.1	90.2	88.4	85.3	79.5	78.1	73.4	70.3	68.0	66.1	69.8	68.8	69.0	68.0	68.6	69.1	70.2	81.2	99.3																			
18-Oct	71.6	71.1	72.7	73.2	75.8	78.7	78.0	78.2	78.9	75.9	71.0	67.3	63.4	51.5	44.8	41.6	37.4	35.7	36.9	42.0	43.7	46.3	48.0	53.1	59.9	78.9																			
19-Oct	54.9	56.7	57.7	60.7	64.8	74.8	84.8	90.6	88.6	87.0	85.4	81.8	76.8	77.5	76.8	77.8	79.4	82.6	84.9	88.8	94.1	95.1	98.1	98.6	79.9	98.6																			
20-Oct	96.9	92.1	91.5	93.9	95.3	90.1	86.5	83.6	84.3	81.8	80.6	79.5	78.0	77.7	79.2	79.0	82.9	90.6	95.6	97.0	97.3	97.0	97.1	96.4	88.5	97.3																			
21-Oct	95.0	94.3	93.2	93.7	92.7	92.1	92.5	91.3	89.6	87.1	84.7	78.3	72.7	74.4	71.7	71.9	67.3	64.5	61.0	62.0	63.2	63.5	64.5	67.0	78.7	95.0																			
22-Oct	70.4	73.0	74.7	77.5	72.6	72.9	72.8	72.3	72.6	74.1	72.2	69.4	66.8	66.1	64.8	63.4	64.2	64.9	66.5	67.2	66.1	65.7	63.9	63.9	69.1	77.5																			
23-Oct	63.0	62.2	61.3	62.3	65.6	68.6	68.1	70.5	71.6	68.4	64.4	60.4	57.2	56.4	56.0	58.1	59.9	59.8	61.8	63.9	65.1	64.4	66.3	63.5	63.3	71.6																			
24-Oct	65.7	68.5	70.8	71.3	69.9	72.6	73.8	71.9	74.3	72.1	62.1	49.1	44.1	40.2	37.3	35.3	36.2	35.6	37.1	39.9	54.1	54.0	58.4	59.6	56.4	74.3																			
25-Oct	65.6	73.2	74.2	73.4	73.7	74.8	72.8	74.7	73.4	68.4	64.6	60.7	54.3	46.0	41.6	40.1	41.1	41.7	44.0	46.4	55.8	57.6	60.2	73.2	60.5	74.8																			
26-Oct	77.6	77.6	80.9	81.2	82.7	78.8	78.9	84.0	88.5	83.9	80.3	72.8	66.5	59.3	56.7	46.8	46.9	51.6	54.3	55.8	58.2	59.1	60.6	61.9	68.5	88.5																			
27-Oct	62.8	62.5	63.2	63.4	63.8	63.6	65.1	64.6	67.0	66.5	64.0	62.2	60.3	66.4	63.0	60.8	62.3	70.7	80.5	89.8	94.9	96.7	98.2	98.7	71.3	98.7																			
28-Oct	96.0	86.3	83.2	81.2	79.1	78.7	78.5	77.1	78.3	77.4	75.9	75.5	74.9	75.9	75.4	75.8	75.0	76.5	75.8	79.8	76.0	71.7	74.1	75.2	78.0	96.0																			
29-Oct	83.4	77.7	71.8	66.6	66.2	66.9	70.1	72.6	69.7	67.0	64.7	65.3	64.7	62.9	62.0	60.3	60.3	58.8	59.0	64.2	68.1	69.3	69.0	75.6	67.3	83.4																			
30-Oct	77.0	79.9	81.4	82.9	84.2	87.0	88.0	87.1	85.2	84.7	82.4	76.8	74.6	70.3	70.0	70.7	71.1	71.4	72.1	72.8	72.2	70.1	69.1	72.7	77.2	88.0																			
31-Oct	76.6	76.5	73.6	73.8	76.1	78.9	80.9	82.6	83.8	86.0	86.6	85.9	85.3	83.6	83.6	82.2	83.5	89.3	88.8	87.4	87.1	86.5	84.9	85.0	82.8	89.3																			
70.0 70.6 71.2 71.7 72.4 73.9 74.5 75.1 75.2 73.4 69.0 64.1 59.9 56.3 54.2 53.4 53.7 55.1 56.9 60.0 63.9 65.6 67.4 69.1																						Diurnal Average																							
99.1 99.2 99.3 97.2 95.3 93.1 92.6 91.3 90.2 89.8 86.6 85.9 85.3 83.6 83.6 82.2 91.0 95.3 96.8 98.2 98.7 98.7 98.7 99.0																						Diurnal Maximum																							







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 100m (RH100) - %  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	55	7.39	7.39
40 - 60	196	26.34	33.74
60 - 80	364	48.92	82.66
80 - 100	129	17.34	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

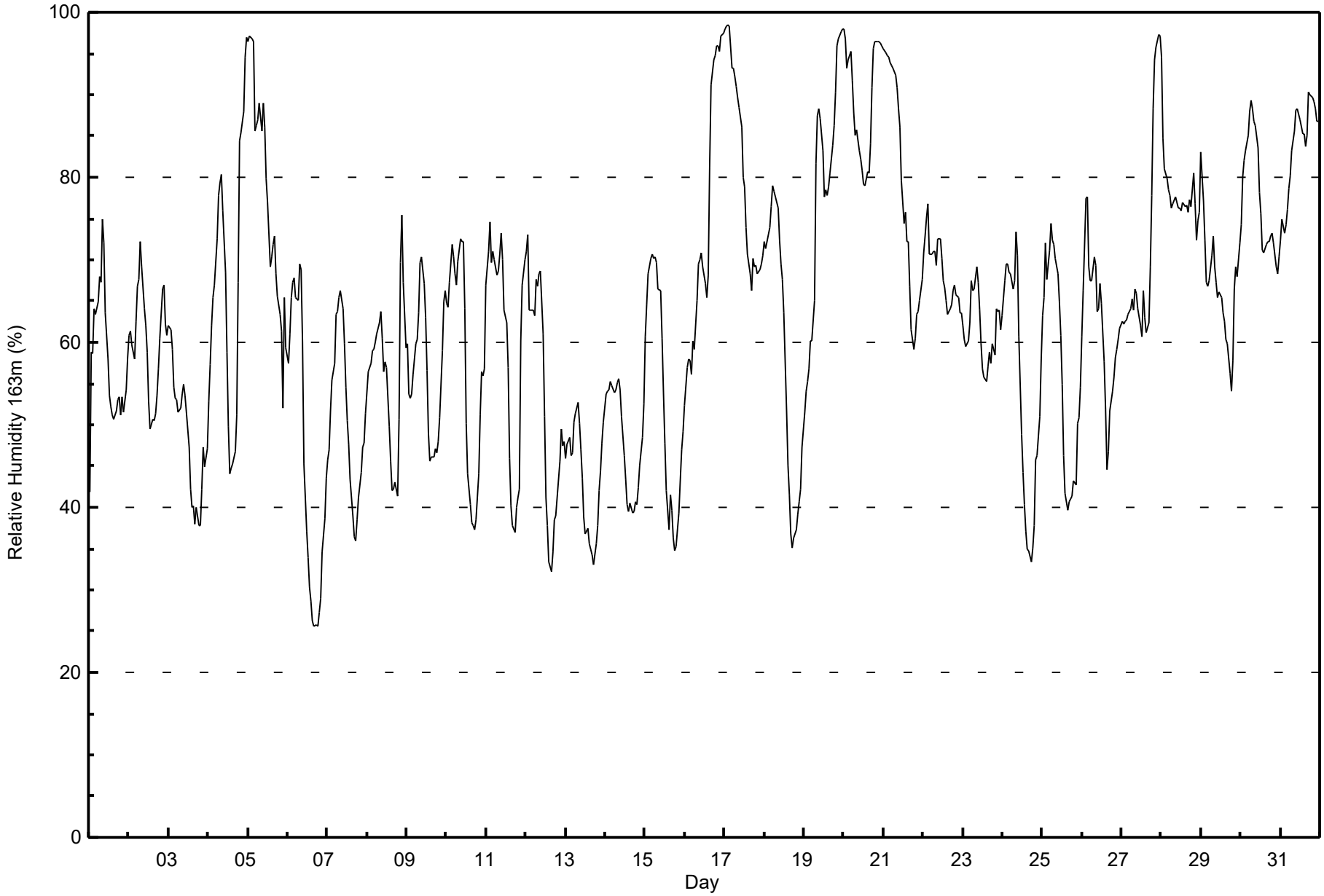
**Relative Humidity 163m (RH163) - %**  
**Lower Camp Met Tower - October 2024**

Maximum Value: 98.4 % on Oct 17 03:00      Maximum Daily Average: 89.4 % on Oct 20																						Hours in Service: 744 Hours of Data: 744																										
Minimum Value: 25.5 % on Oct 6 17:00      Minimum Daily Average: 43.3 % on Oct 13 Maximum Diurnal Average: 72.6 % at hour 9      Minimum Diurnal Average: 53.4 % at hour 16 Monthly Average: 63.79 %      Percentiles: P <sub>1</sub> = 31.1 P <sub>10</sub> = 41.1 Q <sub>1</sub> = 51.7 Median = 64.1 Q <sub>3</sub> = 73.0 P <sub>90</sub> = 87.4 P <sub>99</sub> = 97.4																						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-Oct	41.9	58.8	58.7	64.0	63.4	64.8	68.0	67.3	74.9	72.0	63.6	57.9	53.6	52.2	51.2	50.7	51.6	53.0	53.4	51.2	53.4	51.5	54.2	58.1	57.9	74.9																						
2-Oct	60.8	61.3	59.7	58.0	62.6	66.8	67.7	72.2	69.1	64.1	62.0	58.8	52.9	49.5	50.6	50.5	51.4	53.6	56.7	60.5	66.4	66.9	62.2	60.9	60.2	72.2																						
3-Oct	62.0	61.5	59.1	54.5	53.2	53.1	51.6	52.0	53.7	54.9	53.6	51.5	47.2	42.2	40.0	40.1	37.9	40.0	37.9	37.7	42.2	47.3	44.9	47.1	48.6	62.0																						
4-Oct	52.9	57.3	62.1	65.5	67.0	72.6	77.8	79.3	80.3	76.0	68.4	58.7	49.8	44.0	44.7	45.2	46.7	51.2	67.2	84.4	85.4	88.0	94.5	96.9	67.3	96.9																						
5-Oct	96.5	97.1	96.8	96.5	85.6	86.2	86.9	89.1	85.6	89.0	86.1	79.8	77.0	69.1	70.3	71.9	72.8	68.4	65.5	63.3	61.4	52.1	65.4	59.4	78.0	97.1																						
6-Oct	57.5	61.0	65.4	67.3	67.8	65.4	65.1	69.5	68.9	60.0	45.3	37.2	33.9	30.4	28.7	26.3	25.5	25.8	25.7	27.2	28.9	34.5	38.6	43.6	45.8	69.5																						
7-Oct	45.7	47.0	51.7	55.4	57.4	63.4	63.7	65.5	66.2	64.1	59.8	54.5	50.4	47.7	43.4	38.9	36.4	35.9	38.4	41.2	44.3	47.3	47.8	51.4	50.7	66.2																						
8-Oct	53.8	56.5	57.5	58.9	59.2	60.1	61.1	62.3	63.8	60.4	56.5	57.6	57.0	49.8	45.7	42.1	42.3	43.0	41.4	50.7	69.7	75.4	67.2	59.4	56.3	75.4																						
9-Oct	59.9	53.8	53.2	53.7	56.1	59.9	60.4	63.5	69.7	70.3	67.1	63.1	56.7	48.9	45.6	46.0	46.1	47.1	46.7	47.9	50.8	58.9	65.0	66.2	56.5	70.3																						
10-Oct	64.8	64.2	67.2	71.8	70.4	68.3	67.0	69.8	72.5	72.2	72.2	64.1	50.2	44.1	40.4	38.1	37.8	37.3	38.4	44.0	51.2	56.4	55.9	56.8	57.3	72.5																						
11-Oct	67.0	71.1	74.6	69.7	70.9	70.0	68.1	68.6	70.6	73.2	70.1	63.9	62.3	57.0	46.0	40.2	37.8	36.9	39.9	41.2	42.3	60.3	67.0	70.0	59.9	74.6																						
12-Oct	71.1	73.1	64.0	63.8	63.8	63.3	67.6	66.8	68.3	68.6	61.0	50.9	41.2	37.8	33.4	32.2	34.6	38.5	39.0	41.2	45.5	49.4	47.5	47.9	53.0	73.1																						
13-Oct	46.0	47.7	48.5	46.3	46.7	50.4	51.4	52.7	50.2	47.0	43.6	38.8	36.8	37.4	35.6	34.9	34.2	33.1	35.6	37.8	42.0	44.4	47.8	50.3	43.3	52.7																						
14-Oct	53.7	54.1	54.3	55.3	54.7	53.9	54.3	55.0	55.6	54.2	51.1	46.2	43.5	40.4	39.5	40.5	39.4	39.4	40.4	42.3	45.1	48.4	48.4	52.6	48.1	55.6																						
15-Oct	60.7	64.6	68.3	70.2	70.6	70.2	70.4	69.7	66.5	66.3	60.5	53.8	47.8	42.0	37.3	41.5	39.7	36.3	34.8	35.2	39.4	43.2	47.0	49.1	53.5	70.6																						
16-Oct	52.5	57.0	58.0	57.7	56.1	60.3	59.1	65.1	69.5	69.9	70.8	69.1	67.1	65.4	68.1	81.1	91.2	94.2	94.8	95.9	95.9	95.3	97.2	97.5	74.5	97.5																						
17-Oct	97.9	98.3	98.4	98.2	93.3	93.2	92.3	91.0	89.6	88.5	86.2	80.0	78.9	73.9	70.6	68.2	66.2	70.2	69.1	69.4	68.3	68.9	69.5	70.6	81.3	98.4																						
18-Oct	72.1	71.3	73.1	74.0	76.4	79.0	78.3	77.6	76.2	72.4	69.4	67.6	63.6	51.7	45.1	41.6	36.7	35.1	36.3	37.2	39.1	40.7	42.2	47.3	58.5	79.0																						
19-Oct	51.6	54.0	55.3	56.8	60.2	60.1	65.1	81.7	87.4	88.4	87.2	83.2	77.6	78.5	77.8	78.9	80.5	83.9	86.3	90.4	96.0	96.7	97.6	97.9	78.0	97.9																						
20-Oct	98.0	96.8	93.3	94.2	95.2	91.7	87.8	85.0	85.8	83.3	82.2	80.9	79.2	79.0	80.6	80.4	84.1	90.9	95.6	96.5	96.5	96.4	96.3	96.0	89.4	98.0																						
21-Oct	95.6	95.2	94.7	94.5	93.9	93.5	93.2	92.4	90.8	88.4	86.2	79.7	74.3	75.7	72.2	72.2	66.8	61.5	59.1	60.5	63.4	63.8	65.0	67.7	79.2	95.6																						
22-Oct	70.8	72.9	75.0	76.7	70.8	70.7	71.1	71.0	69.3	72.6	72.6	70.1	67.5	66.7	65.0	63.3	64.0	64.7	66.2	66.9	65.8	65.4	63.5	63.5	68.6	76.7																						
23-Oct	62.0	60.3	59.5	60.2	62.4	67.4	66.3	66.4	69.2	67.3	63.9	59.9	56.8	55.8	55.3	57.2	58.8	57.5	59.9	58.5	64.1	63.7	63.8	61.6	61.6	69.2																						
24-Oct	63.3	67.4	69.5	69.4	68.5	68.4	66.4	67.5	73.4	70.5	60.7	48.9	44.2	40.4	37.2	34.9	34.8	33.3	35.1	37.7	45.8	46.3	51.0	57.9	53.9	73.4																						
25-Oct	63.2	65.4	72.0	67.7	71.1	74.3	72.5	71.9	70.1	68.3	65.0	60.9	54.9	46.2	41.7	39.6	40.7	41.0	41.3	43.3	42.7	50.1	50.9	54.5	57.1	74.3																						
26-Oct	60.8	66.2	77.5	77.7	69.1	67.5	67.5	70.4	69.3	63.8	64.0	67.1	64.8	57.6	51.9	44.6	46.8	51.8	54.0	55.8	58.1	59.2	60.3	61.8	62.0	77.7																						
27-Oct	62.5	62.2	62.5	62.7	63.4	64.1	65.2	64.0	66.5	66.0	64.0	62.1	60.7	66.2	63.1	61.1	62.4	69.2	77.8	88.3	94.3	95.8	97.3	97.2	70.8	97.3																						
28-Oct	94.6	84.8	81.0	79.8	78.4	77.7	76.3	76.8	77.5	76.9	76.2	76.2	75.9	76.9	76.4	76.7	75.8	77.3	76.4	80.5	76.8	72.4	74.8	75.8	78.0	94.6																						
29-Oct	83.0	77.1	72.4	67.2	66.8	67.5	70.5	72.9	69.1	67.3	65.5	66.0	65.4	63.5	62.5	60.3	59.8	56.3	54.1	57.9	66.5	69.1	68.1	72.0	66.7	83.0																						
30-Oct	74.2	79.9	82.0	83.2	85.1	88.0	89.3	88.4	86.8	86.3	83.5	78.1	75.7	71.2	70.9	71.8	72.2	72.3	72.9	73.3	72.0	69.2	68.2	70.4	77.7	89.3																						
31-Oct	72.4	74.9	73.2	74.2	76.1	78.7	80.2	83.3	85.6	88.1	88.4	87.6	87.0	85.3	85.3	83.7	85.1	90.3	90.1	89.6	89.1	88.3	86.7	86.8	83.7	90.3																						
																								66.7	68.2	69.0	69.2	68.9	70.0	70.4	71.9	72.6	71.3	68.0	63.7	59.8	56.3	54.1	53.4	53.6	54.5	55.8	58.2	61.3	63.3	64.7	66.1	Diurnal Average
																								98.0	98.3	98.4	98.2	95.2	93.5	93.2	92.4	90.8	89.0	88.4	87.6	87.0	85.3	85.3	83.7	91.2	94.2	95.6	96.5	96.5	96.7	97.6	97.9	Diurnal Maximum



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

**Relative Humidity 163m (RH163) - %**  
**Lower Camp Met Tower - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 163m (RH163) - %  
Lower Camp Met Tower - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	64	8.60	8.60
40 - 60	225	30.24	38.84
60 - 80	335	45.03	83.87
80 - 100	120	16.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 26 km/h on Oct 13 12:00	Maximum Daily Speed Average: 15.9 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 8 11:00	Minimum Daily Speed Average: 1.2 km/h on Oct 16	Hours of Data: 744
Maximum Diurnal Speed Average: 4.4 km/h at hour 14	Minimum Diurnal Speed Average: 1.6 km/h at hour 1	Hours of Missing Data: 0
Monthly Average Velocity: 2.9 km/h 232.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 6 Median = 10 Q <sub>3</sub> = 14 P <sub>90</sub> = 18 P <sub>99</sub> = 24	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-Oct	WSW8	ESE1	WNW4	NW5	NW2	N2	NW3	NW1	N2	NNE2	N6	NE2	NNE8	N9	N7	NNE6	NE6	NNE7	NNE3	NNW3	NNW2	NNW2	NNW1	NNW5	N3.2	N9
2-Oct	NNW8	NW7	NW11	WNW14	WNW14	WNW12	WNW16	W11	WNW14	WNW18	WNW19	WNW15	NW17	NW18	NW19	NW15	NW16	NW17	NW16	NW12	NNW13	NW12	NW12	NW11	NW13.6	WNW19
3-Oct	NW11	NW12	NW9	NW10	NW9	NW11	NW12	NW10	NW9	NW11	NW11	NW9	W5	WSW12	WSW12	WSW15	WSW13	WSW12	SSW8	SW6	SSE5	SE7	ESE4	SE7	W5.9	WSW15
4-Oct	SE8	SE8	ESE7	ESE9	SE9	ESE7	ESE4	SSE4	SE8	SE4	WNW2	NNW6	NNW8	E6	ENE7	N5	N6	N5	N5	NW5	NNW6	NNW8	NNW7	NNW9	ENE2.0	SE9
5-Oct	NNW10	NNW11	NNW7	NW6	NW4	NW4	NW3	NE1	ESE3	ESE5	SSW5	SW10	SW13	SW13	SW13	SSW10	S11	S10	SSE12	SSE16	SSE24	SSE22	SE9	SE8	\$4.7	SSE24
6-Oct	SW15	WSW16	WSW16	WSW20	WSW22	WSW22	W18	WSW12	SW15	SW19	SW23	WSW24	WSW22	WSW18	WSW17	W16	W14	W11	WSW12	WSW5	NNE2	SE3	SE5	SE5	WSW13.4	WSW24
7-Oct	ESE6	ESE7	SE12	SE8	ESE6	ESE6	ESE3	SE6	ESE6	SE9	SE8	SE12	SE16	SE14	SE12	SE11	SSE9	S14	SSE18	S17	SSE10	SE6	ESE9	SE5	SE9.2	SSE18
8-Oct	SE8	SE11	SE9	SE9	SE8	SE5	SE2	SE3	SE5	ESE1	NW0	SE4	SE7	SSE8	SE5	SSE6	SE11	SE11	SSE16	WSW18	W10	SW18	SW19	SW19	\$6.0	SW19
9-Oct	SW17	SW22	SW23	SW18	SSW11	SSE7	SSW12	SW17	WSW15	WSW11	WSW15	SW17	SW17	WSW17	WSW15	SW13	SW10	SSW10	WNW1	NW2	S1	SE4	SE6	SE9	SW10.5	SW23
10-Oct	SE9	SE7	SE6	SE10	SE10	SE9	SE7	ESE9	SE10	SE9	SE11	SE11	S6	WSW22	WSW16	SW15	WSW19	WSW12	WSW12	W8	NW3	WSW4	SSW3	SSW2	\$5.0	WSW22
11-Oct	SSE3	SE3	SE4	SE9	SE11	SE9	ESE9	SE9	SE7	ESE8	ESE8	SE13	SE16	SE13	S6	SW13	SW13	SSW13	SSW18	SSW21	SW19	SSW5	SSE6	SSE6	SSE7.8	SSW21
12-Oct	SE5	SSW6	WSW6	WSW5	W3	SSE2	SW2	SE5	SSE4	SW9	SW6	ESE2	N3	NNW3	N4	NNE3	ESE3	ESE4	SE5	ESE2	SE2	ESE3	SE7	SE9	SSE1.8	SW9
13-Oct	SE9	SE5	SE5	SE11	SE13	SE10	SE13	SE14	SE19	SE17	SE25	SSE26	SSE22	SE22	SE20	SE18	SE15	SSE19	SE19	SE17	SE15	SE16	SE12	SE12	SE15.5	SSE26
14-Oct	SE6	SE8	SE7	SE4	SE11	SE13	SE14	SE19	SE18	SE14	SE13	SSE12	SSE18	SE14	SE17	SE14	ESE14	SE16	SE16	SSE19	SSE17	SSE12	SSE10	SSE15	SE13.0	SE19
15-Oct	SE9	SE13	SE13	SE10	SSE6	SW7	SW5	WSW11	W12	WSW11	SW18	WSW17	SW15	SW12	SW11	SW12	SSW9	SW9	SW6	SSW11	SW11	WSW2	SSW4	S2	SW7.6	SW18
16-Oct	SE3	SE4	SE7	SE8	SE4	SE6	ESE6	SE5	ESE3	ESE3	SSE1	SE1	N1	N4	NW1	N6	N7	NNW7	NNW6	NNW4	NNW6	NNW5	NNW5	NNW3	NE1.2	SE8
17-Oct	NNW3	NW3	W0	W6	W10	WSW14	WSW17	WSW23	WSW20	WSW19	WSW21	W21	WSW18	W20	W22	W21	W24	W24	W21	W19	WNW21	WNW19	WNW22	WNW16	W15.9	W24
18-Oct	WNW14	WNW15	NW12	WNW13	WNW6	SW10	SSW14	SSW17	SSW13	S8	SSE9	SE13	SSE13	S15	SSW15	S17	S14	S15	SSE17	SE15	SE16	SE16	SE9	SE5	\$8.0	S17
19-Oct	NNW3	NNW5	NNW3	NW3	NNW3	NNW5	NW6	NW6	NW5	NNW5	NNW7	N9	NNW9	NNW6	NNW6	N6	N9	N10	NNW8	N11	N11	N11	NNW12	NNW12	NNW6.9	NNW12
20-Oct	NNW11	NNW14	NNW12	NNW10	NNW10	NNW11	N11	N10	N7	NNE8	NNE8	NNE6	NNE7	NNE10	NNE10	NNE11	N11	N9	N10	NNW12	NNW13	NNW14	NNW15	NNW16	N10.4	NNW16
21-Oct	N19	NNW20	NNW20	NNW18	NNW19	NNW19	NNW18	NNW17	NNW15	NNW16	NNW17	NNW16	NNW13	NNW10	NNW5	N7	NNW6	NW6	NW11	WNW9	W10	WSW13	WSW14	WSW13	NNW11.8	NNW20
22-Oct	SSW13	S13	S12	SSW11	S15	S17	S18	S19	S19	S16	SW15	SSW15	SSW14	SSW16	S17	S17	SSW17	S18	S17	SSW18	SSW14	SW12	SW18	SW17	SSW15.0	S19
23-Oct	SW16	WSW18	WSW20	WSW24	WSW25	W16	WSW12	WSW15	WSW14	WSW14	WSW12	WSW15	WSW21	WSW19	WSW17	WSW18	WSW19	WSW13	WSW18	WSW16	S5	SSE9	SE8	SSW10	WSW14.4	WSW25
24-Oct	S7	SSE6	SW8	WSW10	WSW12	W10	WSW13	WSW15	SW11	WSW9	SW12	W14	WNW17	WNW14	WNW14	WNW14	W9	W7	W11	WSW11	NNW1	WSW4	N3	NNW1	W8.4	WNW17
25-Oct	WNW2	ESE1	SSE5	SSE6	SSE8	SSE8	SE6	SSE3	SSW5	S5	SW9	W7	WNW7	W11	W8	W8	W4	SSW2	ESE1	ESE1	SE1	E1	N1	N2	SW2.5	W11
26-Oct	NNW3	NW1	NNW2	NW3	NW3	NW2	NW3	NW3	NNW6	NNW6	NNW5	NNW5	NW8	NNW7	NNW5	NW2	NNE2	NE4	E5	E10	E7	ESE9	SE13	SE15	NNE1.9	SE15
27-Oct	SE17	SE17	SE16	SE15	SE15	SE12	SE8	ESE10	ESE12	SE12	ESE7	ESE7	ESE11	ESE8	ESE9	ESE13	ESE9	NNW3	NNW5	NNW6	NNW3	NNW5	NNW6	NW4	ESE7.1	SE17
28-Oct	WNW3	WNW14	WNW15	WNW15	WNW16	WNW16	WNW12	WNW14	WNW13	WNW15	WNW15	WNW14	NW15	NW15	NW14	WNW13	NW13	NW13	NW14	WNW17	NW16	NW12	WNW14	WNW15	WNW13.8	WNW17
29-Oct	WNW12	WNW13	NW15	WNW17	NW17	WNW14	NW12	NW10	NNW7	WNW8	W8	WSW13	WSW10	SW11	WSW5	ENE1	ESE2	E3	ENE2	NNE1	E3	N1	NNW4	NNW7	WNW6.3	WNW17
30-Oct	NNW6	NNW9	NNW8	NNW9	NNW12	NNW12	NNW11	N10	N10	N11	N11	N10	N9	NNE9	NNE10	NNE11	NE9	NE7	NE8	NE8	NE6	NE7	NE5	NE4	N8.0	NNW12
31-Oct	ENE3	NE2	ENE5	ENE5	E4	SE2	SE2	SE3	E6	E7	ESE10	SE14	SE15	ESE8	SE7	S5	SE8	SSE12	SSE15	SSE15	SSE15	S13	S13	SSW9	SE6.6	SSE15

SW1.6	WSW1.9	WSW2.1	WSW2.9	WSW2.8	WSW2.3	WSW2.9	SW3.2	SW2.6	SW2.6	WSW3.8	SW4.0	SW3.8	WSW4.4	WSW4.1	SW3.5	SW3.3	SSW3.8	SW4.0	SSW2.1	SSW1.8	SW1.7	SW1.6	Diurnal Average					
N19	SW22	SW23	WSW24	WSW25	WSW22	S18	WSW23	WSW20	WSW19	SE25	SSE26	WSW22	SE22	W22	W21	W24	W24	W21	SSW21	SSE24	SSE22	WNW22	SW19	Diurnal Maximum				

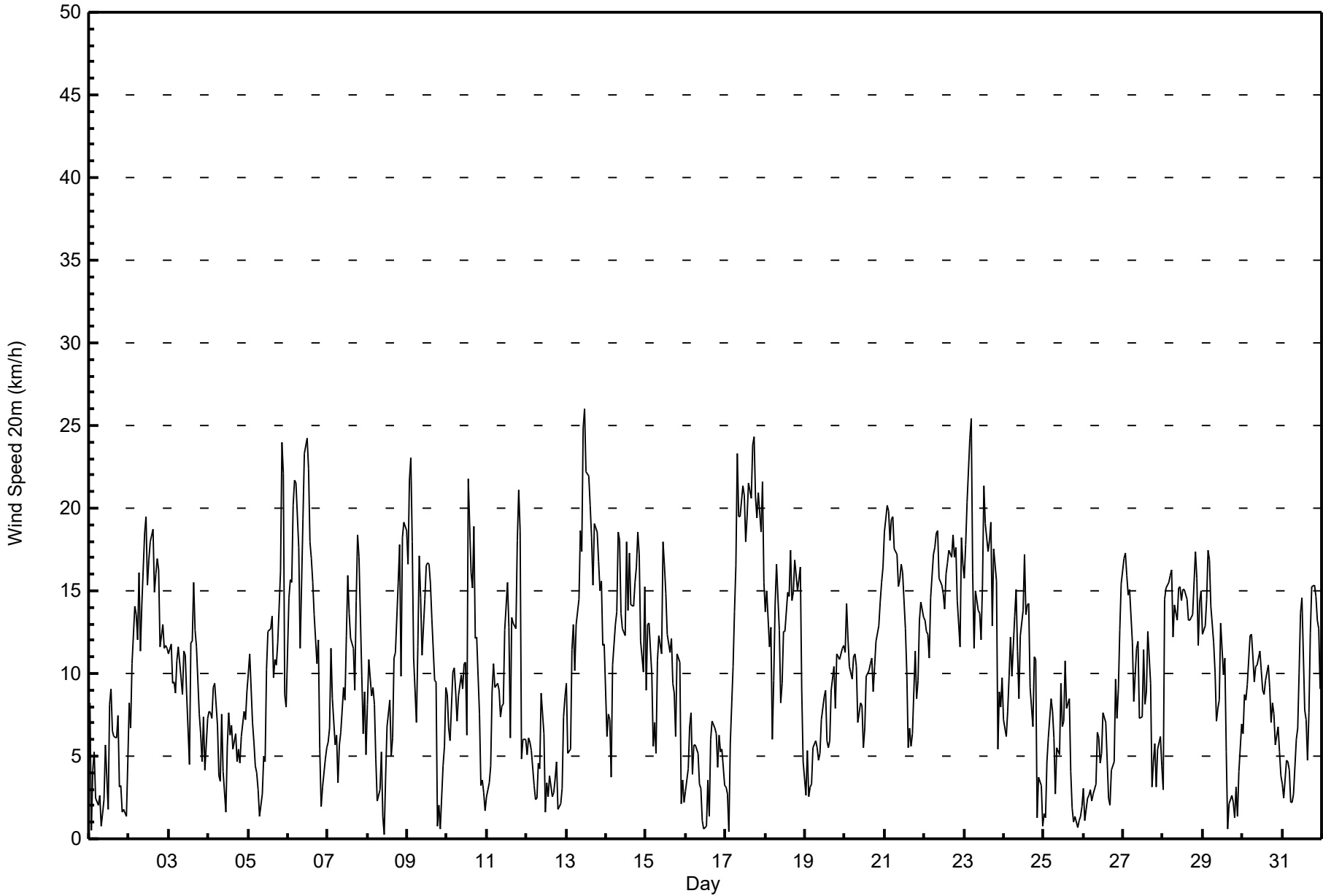
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 20m (WS20) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Oct 17 17:00 Minimum Value: 1 km/h on Oct 5 08:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 6 P <sub>99</sub> = 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-Oct	7	2	3	2	1	1	1	1	1	1	2	2	3	3	3	3	4	4	2	1	1	1	1	2	7
2-Oct	3	3	3	5	5	5	6	4	5	7	7	6	6	6	6	5	6	6	6	4	6	5	4	3	7
3-Oct	3	3	3	3	3	3	4	3	3	5	4	4	4	4	4	5	5	4	2	2	2	2	2	5	
4-Oct	2	2	2	2	2	2	1	2	2	3	1	2	4	5	3	3	2	2	2	2	3	2	3	5	
5-Oct	4	4	3	2	1	1	1	1	1	1	3	3	3	4	5	2	3	2	3	3	3	4	4	5	
6-Oct	4	4	5	7	7	7	6	5	5	5	6	7	6	6	6	6	5	4	2	3	1	3	2	7	
7-Oct	2	3	3	3	3	3	2	2	2	2	3	3	3	5	3	2	3	2	3	2	5	2	2	5	
8-Oct	3	2	3	2	2	3	2	2	2	3	1	2	2	2	2	2	4	3	4	9	6	5	4	9	
9-Oct	4	4	4	5	3	3	5	3	6	4	5	3	3	4	3	3	2	2	2	1	1	2	2	6	
10-Oct	2	1	1	2	3	2	3	3	3	3	3	3	3	5	4	4	5	3	2	5	2	1	2	5	
11-Oct	2	2	2	4	2	3	2	2	3	3	2	3	4	3	3	4	3	3	4	3	4	4	1	4	
12-Oct	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	1	1	2	3	2	2	3	4	
13-Oct	3	2	2	4	3	3	3	5	5	5	6	6	5	5	6	5	3	4	3	3	3	4	4	6	
14-Oct	3	3	5	3	6	5	5	6	6	4	5	4	5	5	5	5	4	5	4	3	3	5	4	6	
15-Oct	3	2	3	3	2	3	3	5	6	5	3	4	3	2	3	2	2	1	2	3	4	2	2	6	
16-Oct	2	2	2	2	1	2	2	2	2	2	1	1	1	1	1	2	2	2	3	2	2	2	1	3	
17-Oct	1	1	1	3	3	4	5	6	6	6	6	7	6	7	7	7	9	9	7	8	7	7	8	9	
18-Oct	4	5	4	5	4	4	3	3	5	2	2	3	3	3	4	3	3	2	2	2	2	3	3	5	
19-Oct	3	2	2	1	1	3	3	2	2	2	2	3	3	3	2	2	3	3	3	5	4	4	4	5	
20-Oct	5	5	5	4	4	4	4	4	3	3	3	3	2	4	3	4	3	3	3	4	4	4	5	5	
21-Oct	5	6	6	6	6	7	6	6	6	6	6	6	4	3	2	2	3	3	3	3	4	4	5	7	
22-Oct	3	2	2	3	3	3	3	3	3	2	3	3	3	3	4	3	3	3	4	3	3	4	4	4	
23-Oct	4	6	7	8	9	7	5	5	5	5	4	5	6	6	5	4	5	3	4	4	3	2	2	9	
24-Oct	3	2	3	3	5	5	7	5	3	3	4	6	6	5	5	5	3	3	3	4	2	3	3	7	
25-Oct	2	1	2	3	2	2	3	2	3	2	2	3	4	4	3	3	1	2	1	1	1	1	1	4	
26-Oct	1	1	1	1	1	1	1	1	2	3	2	2	3	3	2	1	1	2	3	4	3	4	5	5	
27-Oct	5	5	4	4	4	6	3	4	4	4	4	4	5	4	5	6	4	1	2	2	2	2	2	6	
28-Oct	2	5	5	5	5	5	4	5	4	5	5	5	5	5	5	5	4	5	5	6	6	4	5	6	
29-Oct	4	5	5	6	5	5	4	4	3	3	3	4	4	4	3	1	1	1	1	1	2	1	2	6	
30-Oct	2	3	3	4	4	4	3	3	3	4	3	3	3	4	4	4	4	3	3	3	2	2	2	4	
31-Oct	2	1	1	2	2	1	2	1	3	3	4	5	6	3	3	2	3	2	5	3	2	3	2	6	
Diurnal Maximum																									







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 20m (WS20) - km/h  
Lower Camp Met Tower - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	174	23.39	23.39
6 - 11	267	35.89	59.27
12 - 19	268	36.02	95.30
20 - 28	35	4.70	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

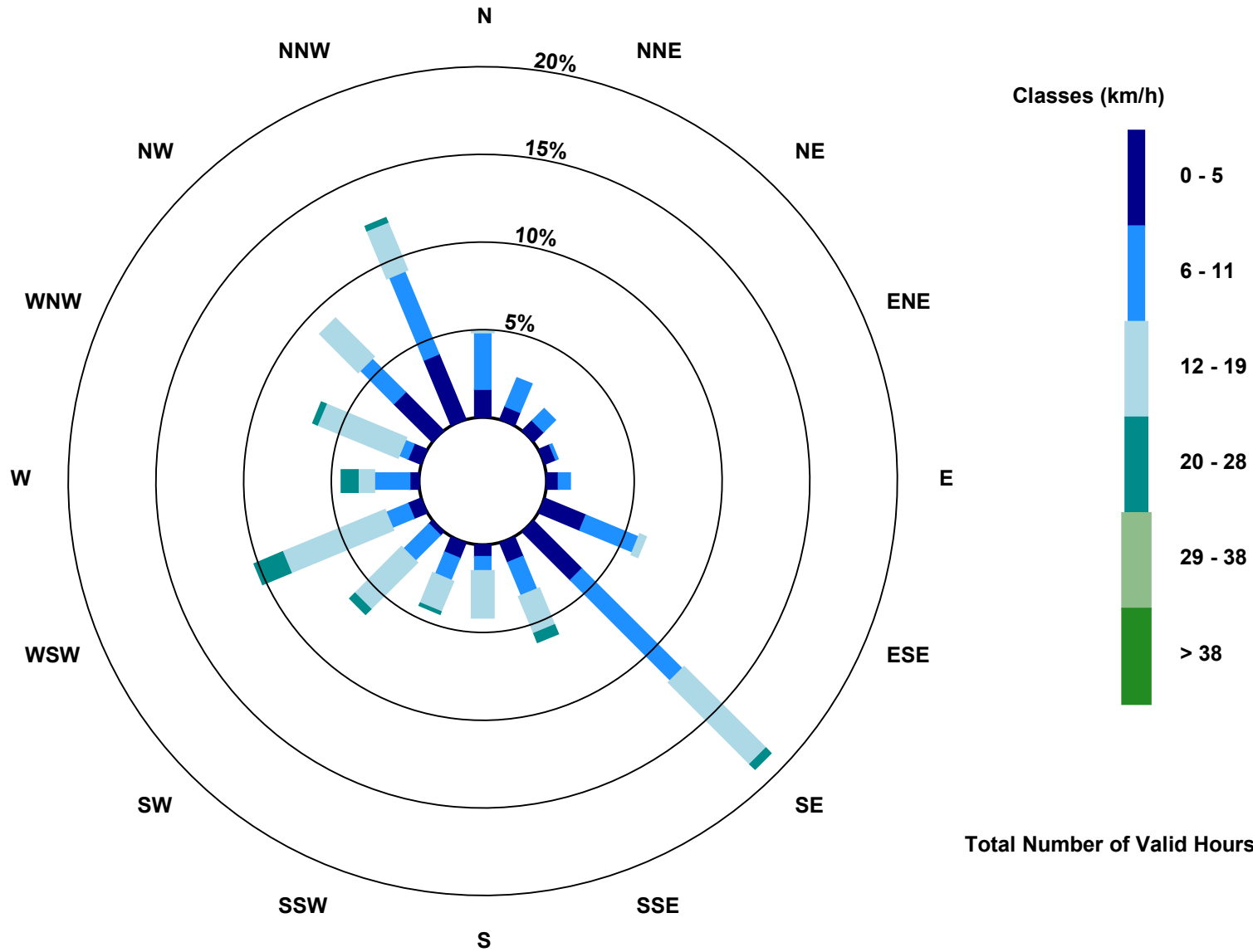
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 20m (WS20) - km/h  
Lower Camp Met Tower





Maximum Speed: 35 km/h on Oct 23 05:00	Maximum Daily Speed Average: 22.4 km/h on Oct 13	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 29 16:00	Minimum Daily Speed Average: 1.7 km/h on Oct 16	Hours of Data: 744
Maximum Diurnal Speed Average: 6.1 km/h at hour 20	Minimum Diurnal Speed Average: 1.9 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 3.7 km/h 236.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 14 Q <sub>3</sub> = 20 P <sub>90</sub> = 24 P <sub>99</sub> = 31	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	WSW16	NNW1	W8	NW7	NNW5	NNW3	NNW4	N1	N2	NNE3	N6	NNE3	N11	N11	N9	NNE9	NE10	NNE12	NNE7	NNW6	NW5	NNW6	NNW7	NNW9	NNW5.2	WSW16
2-Oct	NW13	NW11	NW17	WNW22	WNW22	WNW18	WNW23	W17	WNW20	WNW25	WNW27	WNW21	NW22	NW24	NW25	NW20	NW23	NW23	NW23	NW17	NNW20	NNW18	NW16	NW16	NW19.5	WNW27
3-Oct	WNW16	NW17	NW14	NW13	NW13	NW15	NW17	NW14	NW13	NW16	NW15	NW12	W6	WSW13	WSW14	WSW19	WSW17	WSW16	SW13	SSW12	S6	SE7	SE8	SE10	W8.6	WSW19
4-Oct	SE11	SE9	SE11	SE14	SE13	SE10	SE6	SE4	SE9	ESE5	NNW2	NNW6	NNW8	E10	ENE11	NNE9	NNE10	NNE8	N8	NW7	NNW11	NNW13	NNW12	NNW15	ENE3.5	NNW15
5-Oct	NNW17	NNW18	NNW12	NNW10	NNW8	NNW7	NNW5	N1	SE1	SSE4	SW6	WSW12	SW14	SW15	SW15	SSW10	S12	SSW13	SSE15	SSE22	SSE29	S28	SE15	S10	SSW5.3	SSE29
6-Oct	SW19	WSW22	WSW22	WSW31	WSW34	WSW32	WSW26	WSW17	SW18	SW23	SW27	WSW29	WSW27	WSW25	WSW24	W23	W21	W17	WSW19	SW13	SSW3	SE7	SE11	ESE10	WSW18.6	WSW34
7-Oct	SE12	SE12	SE15	SE12	ESE10	ESE8	SE7	SE9	SE10	SSE9	SE11	SE16	SE20	SE17	SSE15	SSE13	S11	S19	S22	S21	S14	SE9	SE11	SE9	SE12.3	S22
8-Oct	SE14	SE16	SE11	SE12	SE12	SSE6	SE7	SE8	SE9	ESE3	SSE2	SE6	SE10	SE10	SE7	SE8	SE18	SE17	SSE21	WSW25	W15	SW24	SW24	SW23	SSE8.2	WSW25
9-Oct	SW21	SW28	SW29	SW24	SW15	S9	SW16	SW23	WSW21	WSW16	WSW18	SW18	SW18	WSW19	WSW18	SW15	SW12	SSW13	SW6	WSW5	SW3	SSE4	SSE4	SSE6	SW14.2	SW29
10-Oct	SSE7	SE11	SE10	SE13	SE15	SE13	SE9	SE13	SE12	SE11	ESE12	SE12	S6	SW25	WSW19	SW17	WSW24	WSW19	WSW18	W13	NW7	W6	SW6	SW6	SSW6.9	WSW25
11-Oct	SSW3	S4	S3	SSE7	SE13	SE12	SE14	SE12	SE11	ESE11	ESE11	SE15	SE18	SE16	S8	SW15	SW16	SSW17	SSW24	SSW28	SSW24	SSW8	SSE7	SE9	SSE10.0	SSW28
12-Oct	SE8	SW8	WSW7	W7	WSW6	WSW5	WSW6	S4	SSW5	SW10	WSW6	E1	N4	N4	NNW5	NNE3	E3	E6	SE9	ESE7	SE7	SE9	SE13	ESE14	SSE2.6	ESE14
13-Oct	SE14	SE9	SE10	SE16	SE17	SE15	SE25	SE27	SE31	SE26	SE32	SSE29	SE28	SE31	SE31	SE27	SE20	SSE23	SSE22	SE22	SE22	SE22	SE23	SE23	SE22.4	SE32
14-Oct	SE12	SE12	SE15	ESE10	SE20	SE27	SE25	SE27	SE29	SE22	SE20	SSE15	SSE21	SE23	SE27	SE22	ESE23	SE25	SE24	SSE22	SSE20	S15	SSE13	SSE18	SE19.9	SE29
15-Oct	SSE9	SE13	SE11	S7	SSW7	SW10	WSW8	WSW17	WSW21	WSW15	SW20	WSW20	SW16	SW13	SW13	SW14	SW12	SW14	SSW11	SSW16	SW15	SW6	SW7	SW4	SW10.8	WSW21
16-Oct	S5	SSE6	SE8	SE11	SE8	SE9	SE9	SE8	SE5	ESE3	ESE1	ENE1	NNW1	NNW4	NW1	N8	N9	NNW10	NNW11	NNW8	NNW10	NNW9	NNW8	NNW5	NE1.7	SE11
17-Oct	NNW5	NNW4	WSW3	WSW9	WSW17	WSW19	WSW23	WSW30	WSW27	WSW28	WSW30	W29	WSW25	W27	W30	W29	W33	W33	W29	W27	WNW29	WNW25	WNW29	WNW21	W22.3	W33
18-Oct	WNW19	WNW21	NW17	WNW18	WNW8	SW13	SW19	SSW21	SSW15	S8	SE11	SE15	SSE15	S16	SSW16	S20	SSW18	S20	SSE23	SSE21	SSE20	SSE20	SE15	SE9	SSW10.0	SSE23
19-Oct	NNE1	NNW8	NNW4	NNW5	NNW6	NNW10	NW10	NNW9	NNW8	NNW8	NNW9	NNW11	NNW12	NNW8	NNW8	NNE8	N13	N16	N13	N17	N16	N16	NNW16	N17	NNW10.1	N17
20-Oct	NNW17	NNW21	NNW18	NNW16	NNW15	NNW16	N16	N15	N10	NNE12	NNE12	NNE8	NNE9	NNE13	NNE15	NNE16	N16	N13	N16	NNW18	N20	NNW21	NNW23	N24	N15.5	N24
21-Oct	N27	N29	N28	N27	N28	NNW28	NNW25	NNW25	NNW22	NNW22	NNW25	NNW23	N18	N13	NNW8	N10	NNW8	NW10	NW16	WNW13	W14	WSW18	WSW20	WSW18	NNW16.8	N29
22-Oct	SSW15	S14	S14	SSW13	SSW17	S20	S20	S21	S21	S17	SW18	SSW17	SSW15	SSW17	S18	SSW20	SSW20	S21	SSW20	SSW20	SW17	SW15	SW23	SW21	SSW17.3	SW23
23-Oct	SW21	WSW25	WSW29	WSW35	WSW35	W24	WSW16	WSW21	WSW20	WSW20	WSW17	WSW21	WSW28	WSW26	WSW23	WSW23	WSW25	WSW19	WSW24	WSW22	S7	SSE10	SSE9	SSW13	WSW20.3	WSW35
24-Oct	SSW9	S7	SW11	WSW14	WSW18	WSW18	WSW22	WSW22	SW14	WSW10	WSW14	W19	WNW22	WNW18	WNW19	WNW20	WNW14	W13	W17	WSW18	W4	WSW7	NNW6	NNE1	W12.6	WSW22
25-Oct	W4	SSE2	SSE6	S8	S9	SSE8	SSE7	SSW3	SW8	SSW6	SW10	W9	WNW9	W14	W11	W11	W5	WSW4	SW2	SSW5	SSE2	SE6	E1	N2	SW3.9	W14
26-Oct	NNW5	NNW3	NNW5	NNW5	NNW5	NNW4	NNW4	NNW6	NNW8	NNW8	NNW6	NNW6	NW10	NNW9	NNW7	NNE3	E4	ENE7	E8	ESE15	ESE13	ESE14	SE20	SE25	NE3.2	SE25
27-Oct	SE26	SE28	SE26	SE24	SE25	SE22	SE14	ESE19	SE19	SE19	ESE13	ESE12	ESE17	ESE14	ESE14	ESE18	ESE15	NE3	NNW5	NNW8	NNW6	NNW9	NNW9	NW7	ESE11.9	SE28
28-Oct	W7	WNW23	WNW23	WNW23	WNW24	WNW25	WNW19	WNW22	WNW21	WNW22	WNW22	WNW19	NW20	NW20	NW20	WNW19	NW18	NW18	NW18	WNW25	WNW21	NW17	WNW20	WNW22	WNW20.0	WNW25
29-Oct	WNW17	WNW18	NW20	WNW23	NW23	WNW20	WNW16	NW14	NNW11	NW10	W11	WSW15	WSW11	SW12	WSW6	SE1	ESE3	ESE5	ESE5	ESE4	ESE6	ENE2	N6	NNW11	WNW8.0	WNW23
30-Oct	N9	NNW14	NNW13	NNW15	N18	N18	N16	N14	N15	N14	N16	N14	N13	NNE13	NNE15	NNE16	NE14	NE12	NE12	NE12	NE10	NE11	NE11	NE8	NNE12.2	N18
31-Oct	ENE6	ENE5	E9	E9	E8	ESE5	ESE4	ESE5	E9	E11	ESE15	ESE18	ESE19	ESE10	SE9	S6	SE9	SSE13	SSE17	SSE17	SSE16	S14	S14	SSW10	SE8.8	ESE19

WSW2.4	W2.8	W3.1	WSW4.2	WSW3.9	WSW3.5	WSW3.9	SW4.2	SW3.5	WSW3.3	WSW4.2	WSW4.6	SW4.1	WSW4.7	WSW4.8	WSW4.5	SW4.1	SW4.3	SW5.3	SW6.1	SW3.0	SW2.6	SW2.1	SW1.9	Diurnal Average	
N27	N29	WSW29	WSW35	WSW35	WSW32	WSW26	WSW30	SE31	WSW28	SE32	WSW29	WSW28	SE31	SE31	W29	W33	W33	W29	SSW28	SSE29	S28	WNW29	SE25	Diurnal Maximum	

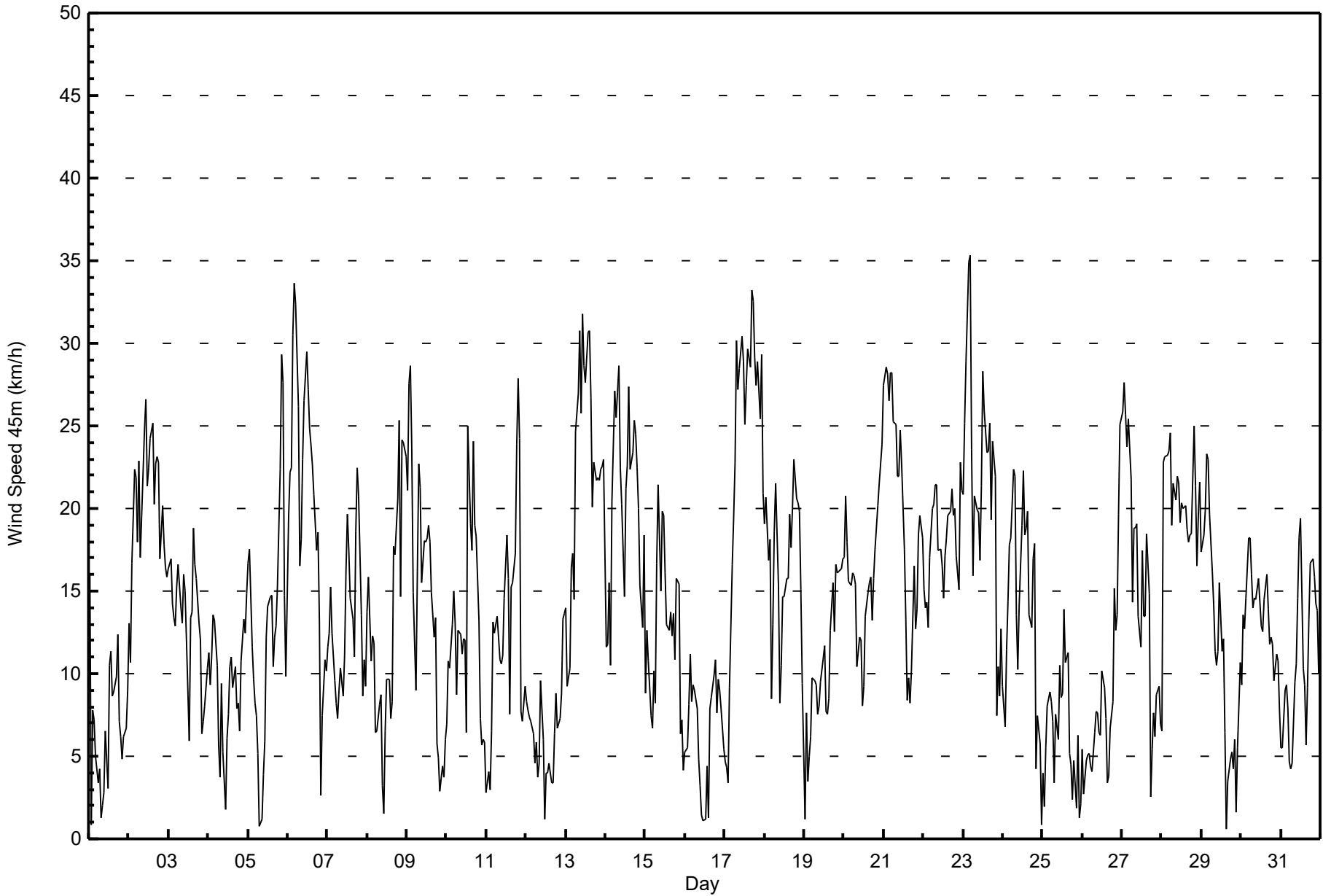
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 45m (WS45) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Oct 17 17:00 Minimum Value: 1 km/h on Oct 1 06:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 8																	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-Oct	9	2	4	2	1	1	1	1	1	1	3	2	2	3	2	3	4	4	3	2	1	2	2	1	9
2-Oct	2	4	4	4	5	5	6	4	5	8	6	6	6	6	7	5	6	6	5	4	6	5	4	3	8
3-Oct	3	3	4	3	3	3	4	3	3	5	5	4	4	4	4	4	4	2	2	2	2	1	2	5	
4-Oct	2	2	2	2	2	2	2	2	3	3	1	2	4	6	3	3	3	3	3	2	2	2	3	3	6
5-Oct	3	3	3	2	1	1	2	1	1	1	3	3	3	5	5	2	3	2	3	3	3	4	4	5	5
6-Oct	4	4	4	6	6	6	6	5	5	4	6	5	5	5	6	5	4	4	2	3	2	4	1	2	6
7-Oct	2	3	3	3	3	2	3	2	2	3	2	3	2	4	2	2	3	2	3	3	4	3	2	3	4
8-Oct	2	2	2	1	2	3	3	3	2	4	1	3	3	1	2	2	4	3	4	9	7	5	4	4	9
9-Oct	4	4	4	6	4	3	6	3	7	4	4	2	3	3	3	2	2	1	4	2	2	2	2	2	7
10-Oct	2	2	1	2	2	3	4	2	2	2	2	2	2	4	3	4	3	3	2	7	2	2	2	3	7
11-Oct	2	2	2	3	2	2	2	2	2	3	2	3	3	3	3	4	3	3	4	4	4	6	1	1	6
12-Oct	2	4	2	3	2	2	3	3	2	2	2	2	3	2	2	2	2	1	2	2	2	2	1	2	4
13-Oct	2	2	2	4	2	2	4	4	4	4	5	6	5	5	5	5	3	4	3	3	3	4	4	4	6
14-Oct	4	3	9	5	9	5	5	8	7	4	5	5	4	5	5	5	3	6	5	3	3	6	5	3	9
15-Oct	3	2	3	2	2	3	3	6	6	5	3	3	2	2	2	1	1	2	3	4	3	3	2	6	
16-Oct	3	2	3	1	1	2	3	2	2	2	1	1	1	2	1	3	1	2	4	2	2	2	2	2	4
17-Oct	1	2	3	3	3	3	4	5	5	5	5	6	5	7	7	8	9	8	7	7	8	8	8	6	9
18-Oct	5	5	4	5	5	5	3	3	6	2	2	3	3	4	4	4	3	3	2	2	2	3	2	3	6
19-Oct	3	2	2	3	2	3	3	3	2	2	2	3	3	3	2	2	3	3	4	5	5	4	4	3	5
20-Oct	5	5	5	5	4	4	4	3	3	3	3	3	2	3	3	3	3	3	3	4	4	4	4	4	5
21-Oct	4	5	6	5	5	6	6	6	6	6	6	6	5	3	3	2	3	3	4	3	4	4	4	4	6
22-Oct	3	3	3	3	3	3	3	3	3	3	4	4	3	4	4	4	3	3	4	4	4	4	4	3	4
23-Oct	4	6	7	7	8	8	6	4	5	5	4	5	5	5	5	3	4	3	3	3	4	2	2	3	8
24-Oct	3	2	4	3	5	5	6	5	3	2	4	6	5	5	6	6	3	2	3	3	4	5	4	1	6
25-Oct	1	1	3	3	2	2	4	3	4	3	2	3	4	3	3	4	2	1	2	2	1	3	1	2	4
26-Oct	2	2	2	1	1	1	1	1	2	3	2	2	3	3	3	2	2	2	5	4	3	5	7	5	7
27-Oct	4	4	3	4	5	7	5	4	4	4	4	4	5	5	6	6	4	2	1	2	2	3	2	2	7
28-Oct	4	5	4	4	5	5	3	4	4	4	4	5	5	5	5	5	4	6	5	6	6	5	5	5	6
29-Oct	4	5	6	6	5	5	4	4	3	4	4	4	3	4	3	1	1	1	2	1	2	1	3	2	6
30-Oct	2	3	3	3	3	3	3	3	3	3	3	3	3	4	3	4	4	3	3	2	2	2	2	2	4
31-Oct	2	2	2	3	3	3	3	2	3	4	4	5	4	4	3	2	3	2	5	3	2	3	2	2	5
Diurnal Maximum																									





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 45m (WS45) - km/h  
Lower Camp Met Tower - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	84	11.29	11.29
6 - 11	212	28.49	39.78
12 - 19	256	34.41	74.19
20 - 28	166	22.31	96.51
29 - 38	26	3.49	100.00
> 38	0	0.00	100.00

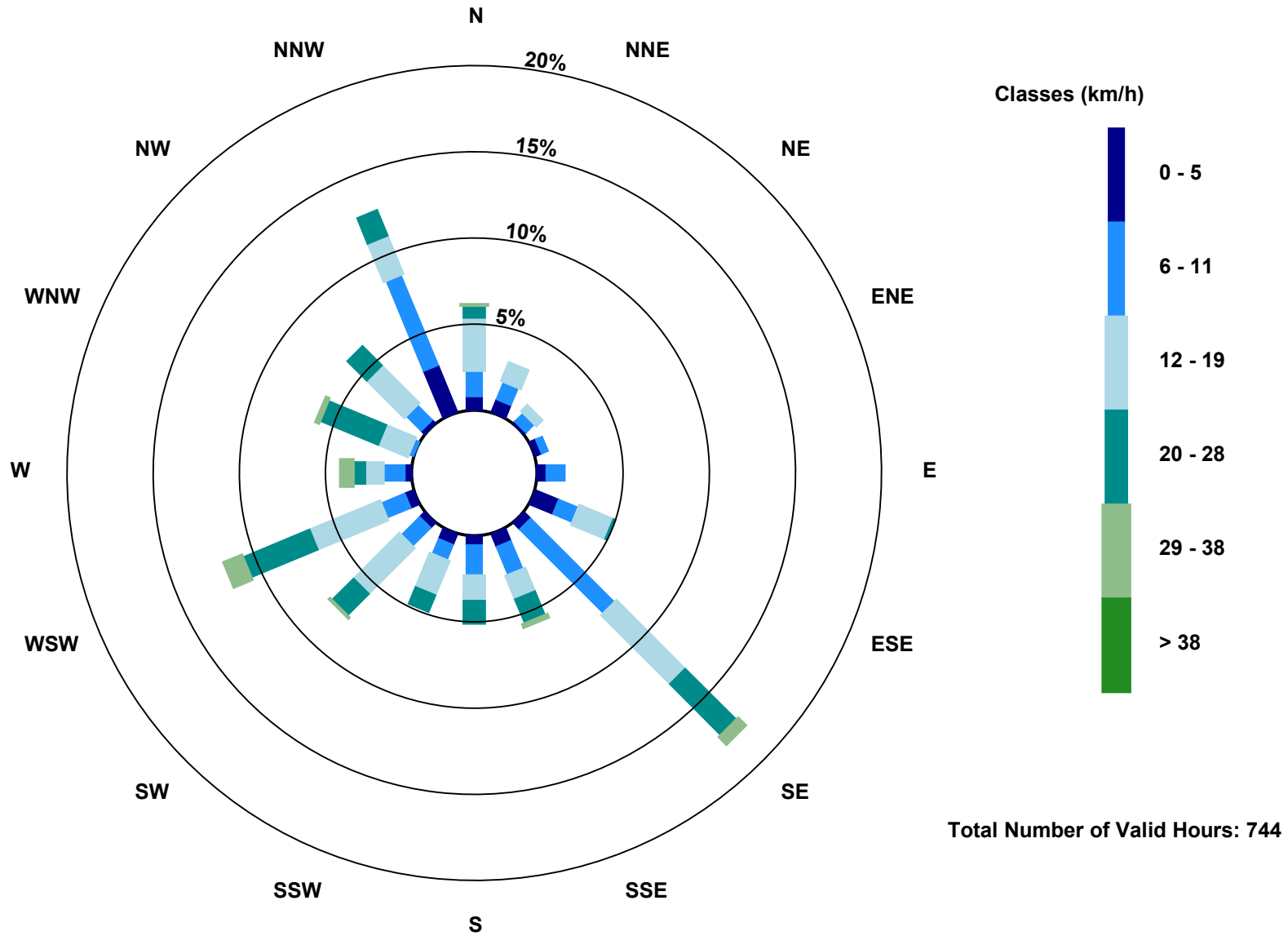
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 45m (WS45) - km/h  
Lower Camp Met Tower





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 100m (WS100) - km/h

## Lower Camp Met Tower - October 2024

Maximum Speed: 47 km/h on Oct 23 05:00	Maximum Daily Speed Average: 29.2 km/h on Oct 13	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 12 12:00	Minimum Daily Speed Average: 0.8 km/h on Oct 16	Hours of Data: 744
Maximum Diurnal Speed Average: 9.3 km/h at hour 20	Minimum Diurnal Speed Average: 4.1 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 6.1 km/h 238.3 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 17 Q <sub>3</sub> = 25 P <sub>90</sub> = 31 P <sub>99</sub> = 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-Oct	W25	WNW6	WSW15	W11	WNW5	WSW7	NNW4	N3	NW2	NNW2	N6	N4	N10	N12	N9	NNE10	NE11	NNE16	NNE16	N11	NNW8	NW11	NW15	NW14	NNW6.7	W25	
2-Oct	NW17	NW18	NW27	WNW32	WNW29	WNW24	WNW29	W22	WNW24	WNW30	WNW30	WNW26	NW27	NW31	NW32	NW25	NW29	NW30	NW30	NW23	NNW25	NNW23	NW23	NW22	NW25.5	WNW32	
3-Oct	NW23	NW23	NW19	NW19	NW18	NW21	NW23	NW19	NW16	NW19	NW18	NW15	W7	WSW15	WSW16	WSW21	WSW19	WSW20	SW18	SW18	SW11	SSW7	SSE5	SSE10	WNW12.7	NW23	
4-Oct	SSE9	S10	S10	SSE12	SSE15	SSE13	SE10	ESE8	SSE9	ESE10	ENE3	E6	E8	ESE15	ENE13	NE13	NE15	NE13	NE13	N8	N11	N16	NNW17	NNW19	ENE4.7	NNW19	
5-Oct	N22	N22	N16	NNW14	NNW11	NNW12	NNW9	NW6	W5	SW6	SW8	WSW14	SW15	SW15	SW16	SW16	SW12	S15	SSW18	S21	SSE31	S40	SSW40	S19	SSW20	SW8.0	SSW40
6-Oct	SW30	WSW32	WSW33	WSW42	WSW45	W43	W36	WSW24	WSW22	SW27	SW30	WSW34	WSW31	WSW29	W29	W28	W28	W26	W24	WSW21	SW13	SSE7	S8	SE15	WSW25.5	WSW45	
7-Oct	SSE18	SSE17	SSE19	SSE19	SSE15	SSE9	SSE12	SSE12	SSE12	SE17	SE20	SSE20	SSE21	SSE16	S14	SSW14	S26	S31	S31	S23	S14	S11	SSE10	SSE16.4	S31		
8-Oct	SSE12	SSE11	SSE13	SSE10	SE10	SSE8	SSE7	SSE12	SSE10	SSE7	ESE9	SE12	SE17	SE14	SE12	ESE17	SE25	SE23	SSE28	WSW34	W20	WSW33	SW34	SW30	S11.2	SW34	
9-Oct	SW30	SW38	SW37	SW33	SW23	SSW16	SW24	WSW31	WSW28	WSW21	WSW21	SW19	SW19	WSW21	WSW20	WSW17	SW17	SW16	SW16	SW16	SW11	SW6	WSW8	SW6	SW20.3	SW38	
10-Oct	SW8	SW7	S8	SSW11	S11	S13	S9	S12	S10	S9	S9	S11	SSW8	WSW27	WSW21	SW19	WSW29	WSW28	WSW26	W21	NW13	WNW8	WSW12	WSW15	SW11.5	WSW29	
11-Oct	WSW10	WSW12	WSW8	SW8	S10	SSE13	SSE12	SSE14	SE12	SE12	SE11	SE13	SE16	SE15	SSW10	SW17	SW19	SSW21	SSW32	SSW40	SW36	SW14	SSW8	S7	SSW12.6	SSW40	
12-Oct	SSW6	WSW11	W12	W11	W12	WSW12	WSW13	WSW10	WSW9	WSW10	WSW6	E1	N4	NNW5	NNW5	NNE4	E4	E11	ESE13	SE13	SE16	SE16	SE17	SSE18	SSW3.9	SSE18	
13-Oct	SSE19	SE21	SE23	SE25	SE25	SE26	SE37	SE35	SE35	SE31	SE35	SSE33	SE31	SE34	SE35	SE32	SE25	SSE29	SSE28	SSE30	SE26	SE27	SE31	SE31	SE29.2	SE37	
14-Oct	SE21	SE21	SE25	SE21	SE32	SE35	SE35	SE33	SE34	SE31	SE27	SSW18	SSE25	SE31	SE35	SE30	SE31	SE33	SE30	SSE28	S26	S23	S18	S20	SE26.7	SE35	
15-Oct	SSW9	S11	SSW9	SW10	SW12	WSW18	WSW16	WSW25	WSW32	WSW20	WSW21	SSW22	SW17	SW14	SW14	SW15	SW15	SW17	SW16	SW22	SW22	SW15	WSW15	WSW11	SW16.1	WSW32	
16-Oct	SW12	SSW10	SSW7	S9	SSE8	SSE9	SSE11	SSE8	SSE7	SSE4	SE5	E3	E1	N4	ENE2	ENE6	ENE9	NNE7	N12	NNW11	N11	NNE7	NNW8	NNW7	ESE0.8	SW12	
17-Oct	W4	WNW4	WSW8	WSW13	WSW22	WSW25	WSW31	WSW37	WSW34	WSW35	WSW37	W35	WSW30	W33	W35	W35	W42	W41	W36	W35	WNW35	WNW32	WNW37	WNW27	W28.3	W42	
18-Oct	WNW24	WNW27	NW22	WNW22	W12	WSW16	SW21	SW24	SW19	SSW9	SSE11	SE14	SSE16	SSW18	SSW18	SSW23	SSW23	S24	S30	SSE31	SSE30	SSE30	SSE26	SE16	SSW13.3	SSE31	
19-Oct	SE9	N3	N4	ENE1	NNW7	NNW13	NNW12	NNW12	N10	NNW10	NNW10	NNW11	NNW12	NNW8	N8	NNE9	N13	N17	N15	N19	N18	N19	NNW19	N19	N10.9	NNW19	
20-Oct	N20	NNW25	NNW21	NNW20	NNW20	N19	N19	N18	N12	NNE14	NNE13	NNE9	NNE10	NNE14	NNE16	NNE18	NNE19	NNE17	N19	N20	N24	N25	N27	N28	N18.1	N28	
21-Oct	N30	N33	N33	N32	N33	N34	NNW32	NNW31	N27	NNW27	NNW29	NNW27	N19	N15	NNW11	N11	NNW11	NW16	NW21	WNW16	W16	WSW21	WSW22	WSW22	NNW19.9	N34	
22-Oct	SW18	SSW18	SSW20	SSW19	SSW23	S25	SSW25	SSW26	SSW27	SSW22	SW21	SSW19	SSW17	SSW19	SSW21	SSW24	SSW26	SSW27	SSW26	SSW26	SW24	SW21	WSW29	WSW27	SSW22.3	WSW29	
23-Oct	WSW27	WSW35	WSW40	WSW47	WSW47	W31	W22	WSW28	WSW27	WSW26	WSW22	WSW27	WSW35	WSW33	WSW30	WSW30	WSW33	WSW28	WSW34	WSW31	SSW12	SSW14	SSW13	SSW19	WSW28.1	WSW47	
24-Oct	SW16	SW9	WSW18	WSW21	WSW24	WSW27	WSW30	WSW28	WSW18	WSW13	WSW16	W24	WNW26	WNW21	WNW23	WNW25	WNW18	WNW18	W23	W23	WSW13	WSW13	NW10	NNE5	W17.7	WSW30	
25-Oct	W5	SW6	SSW7	SSW14	SW13	SSW10	SSW8	SW10	SW13	SW9	WSW11	WNW11	WNW10	W16	W13	W15	WNW7	W3	WSW7	SW6	WSW3	S4	SE6	SE7	WSW6.9	W16	
26-Oct	SE5	ESE4	E3	NNE2	N4	NE4	NNE6	NNW10	NNW12	NNW8	NNW8	NNW7	NNW11	NNW10	N8	ENE10	E7	E11	ESE13	ESE21	ESE19	SE19	SE26	SE33	E5.3	SE33	
27-Oct	SE31	SE35	SE34	SE32	SE31	SE30	SE23	SE27	SE26	SE25	ESE19	ESE17	ESE22	ESE18	ESE18	ESE23	SE21	ESE8	ENE5	NE4	NNW3	NNW9	NNW14	NW9	SE17.0	SE35	
28-Oct	W13	WNW31	WNW31	WNW31	WNW31	WNW32	WNW26	WNW28	WNW28	WNW28	WNW26	WNW23	NW25	NW25	NW26	WNW23	NW23	NW24	WNW24	WNW30	WNW28	NW21	WNW24	WNW26	WNW25.7	WNW32	
29-Oct	WNW21	WNW23	NW24	WNW28	NW28	WNW23	NW20	NW18	NW16	NW13	W14	WSW17	WSW13	WSW13	WSW8	S3	SE6	SE8	SE10	SE10	ESE11	ESE5	NNE3	N12	WNW8.8	WNW28	
30-Oct	N12	N18	N16	N19	N21	N21	N18	N16	N16	N16	N17	NNE15	NNE14	NNE14	NNE16	NE17	NE17	NE15	NE15	NE15	ENE12	ENE16	ENE17	NE16	NNE14.5	N21	
31-Oct	ENE11	E10	ESE17	ESE16	ESE15	ESE12	ESE11	ESE9	ESE15	ESE15	ESE17	SE21	SE21	ESE13	SE11	S7	SE11	SSE14	SSE19	SSE18	SSE17	S16	S16	SSW11	SE12.1	SE21	

WSW5.7	WSW6.1	WSW6.8	WSW8.1	WSW7.7	WSW6.9	WSW6.7	WSW7.2	SW6.8	WSW5.4	WSW5.3	WSW5.8	SW5.0	WSW5.5	WSW5.7	SW5.4	SW5.6	SW6.1	SW7.7	SW9.3	SW6.3	SW5.6	SW5.0	SW4.1	Diurnal Average
SE31	SW38	WSW40	WSW47	WSW47	W43	SE37	WSW37	SE35	WSW35	WSW37	W35	WSW35	SE34	SE35	W35	W42	W41	W36	SSW40	S40	SSW40	WNW37	SE33	Diurnal Maximum

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

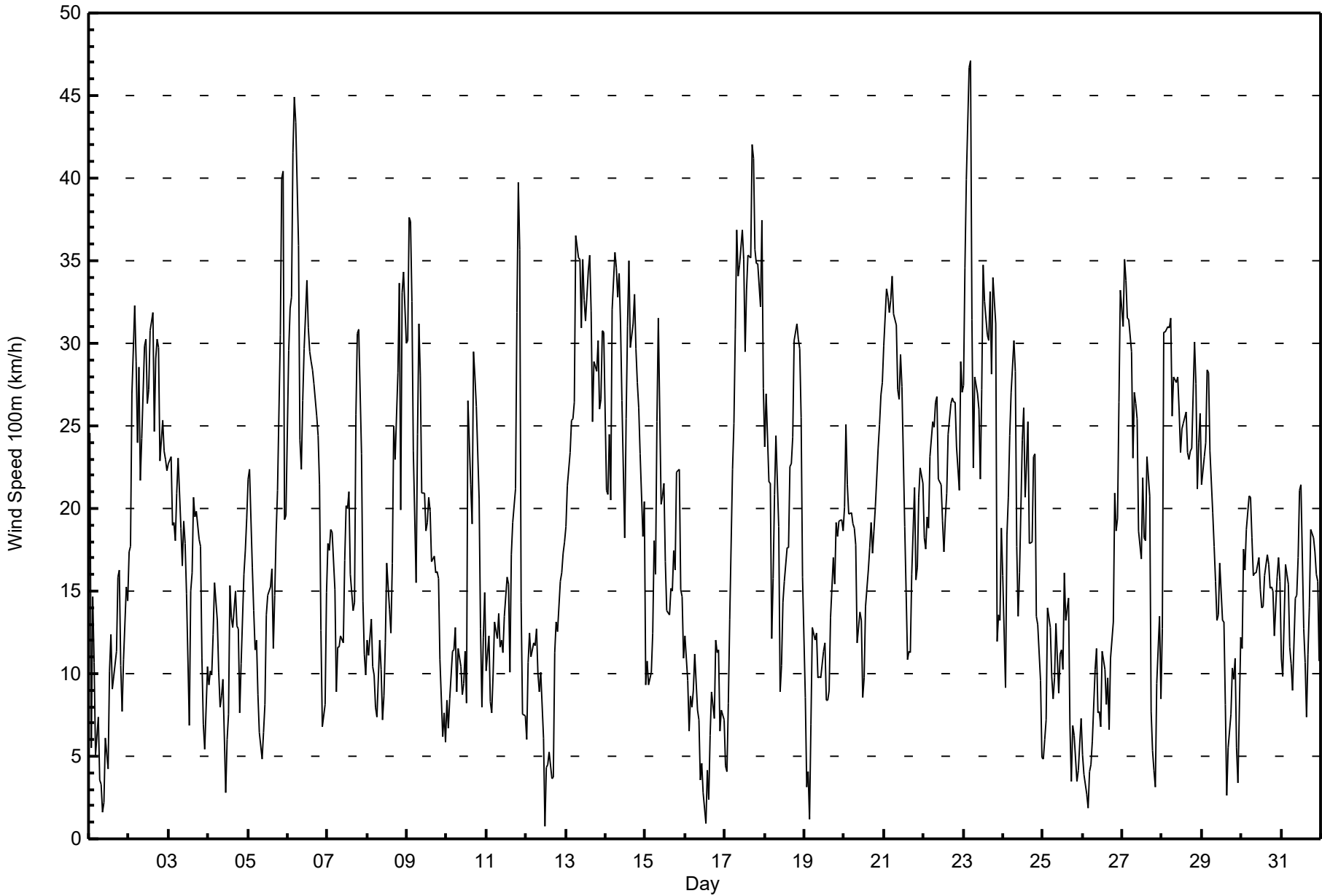




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 100m (WS100) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Oct 14 08:00 Minimum Value: 1 km/h on Oct 17 01:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 8																	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-Oct	8	4	4	3	2	1	1	1	1	1	2	2	2	3	2	2	4	3	1	3	1	4	2	2	8
2-Oct	2	4	3	3	6	5	6	4	4	8	5	5	5	5	6	5	6	5	5	4	5	5	3	3	8
3-Oct	3	3	3	3	2	3	3	3	2	5	5	5	4	4	4	3	3	3	1	1	4	2	2	1	5
4-Oct	1	2	2	3	2	4	2	2	2	2	2	3	3	5	3	3	4	4	4	3	1	2	2	2	5
5-Oct	2	3	2	2	2	1	2	1	2	2	3	3	3	5	5	2	3	3	1	4	2	3	6	6	6
6-Oct	3	3	3	4	4	5	5	4	5	5	5	4	4	4	5	4	3	3	2	2	5	2	1	4	5
7-Oct	2	3	2	3	4	3	2	2	2	2	2	3	3	4	3	2	5	3	3	3	4	5	5	2	5
8-Oct	2	1	2	2	1	2	3	2	2	3	1	3	2	2	2	3	4	5	5	8	9	5	3	4	9
9-Oct	3	3	3	4	4	4	5	2	7	3	4	2	3	3	3	2	1	1	1	1	3	2	3	1	7
10-Oct	1	2	2	1	2	2	2	1	2	1	2	2	3	3	3	4	3	1	1	8	2	2	3	2	8
11-Oct	3	3	3	3	2	2	2	3	2	1	1	2	2	2	3	3	2	2	6	1	4	9	2	2	9
12-Oct	2	4	3	3	2	2	4	3	3	1	2	2	2	2	2	2	2	2	1	1	1	3	2	2	4
13-Oct	2	3	2	2	3	4	2	3	4	3	5	7	6	3	3	4	3	5	4	5	3	4	2	2	7
14-Oct	4	3	7	5	7	4	4	9	8	3	4	5	5	4	4	4	2	4	6	3	3	6	3	3	9
15-Oct	3	2	2	3	4	3	4	5	4	4	2	3	2	2	2	2	1	1	1	2	3	2	5	3	5
16-Oct	3	3	2	1	2	4	4	2	2	1	1	2	1	1	2	2	1	2	2	1	3	2	3	2	4
17-Oct	1	1	2	3	3	3	3	4	5	4	4	7	4	6	6	8	9	8	8	6	8	7	7	6	9
18-Oct	4	4	4	4	6	4	2	2	6	2	2	2	3	3	4	4	3	3	1	1	2	2	4	4	6
19-Oct	4	3	2	2	2	3	4	2	1	2	2	2	2	3	1	2	3	2	3	3	4	3	3	2	4
20-Oct	4	4	4	3	3	4	3	3	3	3	2	3	2	3	4	3	3	4	3	3	3	3	3	3	4
21-Oct	4	4	5	4	4	5	5	5	5	6	5	5	4	3	3	2	3	2	3	4	4	3	3	4	6
22-Oct	3	2	2	2	2	2	2	3	2	2	2	4	4	3	4	4	4	2	3	4	3	4	4	3	4
23-Oct	3	6	7	5	8	9	7	3	4	4	4	6	4	4	4	3	3	2	2	2	7	3	2	2	9
24-Oct	4	4	3	3	4	3	4	3	3	3	3	6	5	6	6	5	3	2	3	3	5	5	5	3	6
25-Oct	2	3	5	4	3	3	4	4	4	3	2	4	3	3	3	5	3	1	2	2	2	2	3	2	5
26-Oct	3	2	1	1	3	2	1	2	2	2	2	2	2	2	2	3	3	4	5	4	4	6	5	4	6
27-Oct	4	3	3	4	5	6	4	3	3	3	5	5	5	6	6	6	3	4	2	2	2	6	1	1	6
28-Oct	6	3	4	4	4	4	3	4	3	4	4	4	4	4	5	5	4	6	4	5	6	5	5	4	6
29-Oct	4	5	5	5	5	5	3	3	3	4	3	3	3	3	3	1	1	2	2	1	2	2	2	2	5
30-Oct	2	2	2	2	3	2	2	2	2	2	2	3	2	3	3	3	4	3	3	2	2	1	1	2	4
31-Oct	3	2	4	2	3	4	3	4	3	3	4	4	4	4	2	2	3	3	5	3	2	3	2	2	5
Diurnal Maximum																									





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 100m (WS100) - km/h  
Lower Camp Met Tower - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	43	5.78	5.78
6 - 11	158	21.24	27.02
12 - 19	238	31.99	59.01
20 - 28	181	24.33	83.33
29 - 38	113	15.19	98.52
> 38	11	1.48	100.00

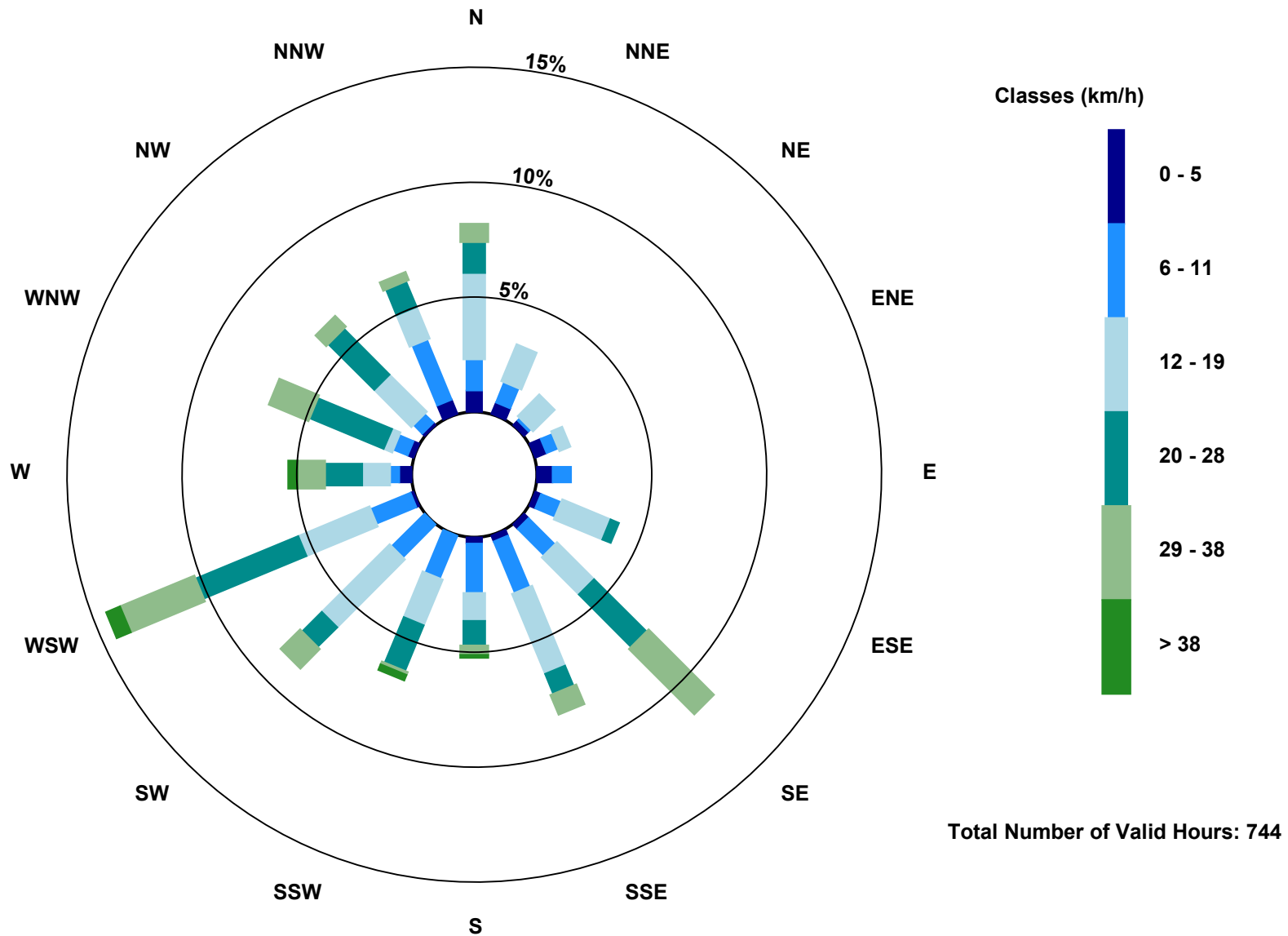
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 100m (WS100) - km/h  
Lower Camp Met Tower





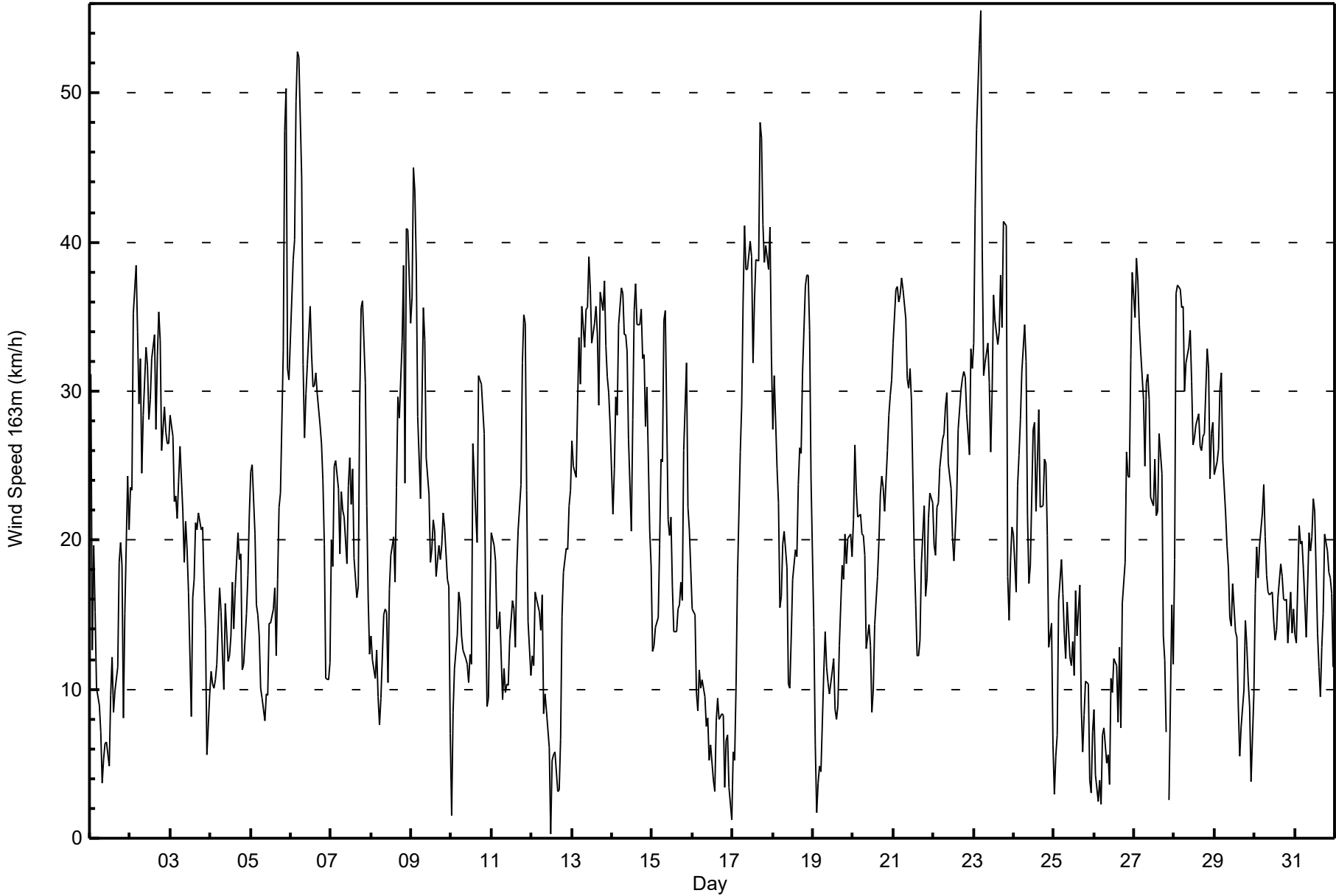
Maximum Speed: 56 km/h on Oct 23 05:00		Maximum Daily Speed Average: 33.6 km/h on Oct 23		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on Oct 12 12:00		Minimum Daily Speed Average: 2.6 km/h on Oct 12		Hours of Data: 743																						
Maximum Diurnal Speed Average: 10.5 km/h at hour 20		Minimum Diurnal Speed Average: 5.6 km/h at hour 13		Hours of Missing Data: 1																						
Monthly Average Velocity: 7.7 km/h 244.5 deg		Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 9 Q <sub>1</sub> = 13 Median = 20 Q <sub>3</sub> = 29 P <sub>90</sub> = 35 P <sub>99</sub> = 48		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-Oct	WNW31	W13	W20WNW15WNW10	WNW9	NW7	NW4	WSW5	WNW6	NNW6	N5	N10	N12	N8	NNE10	NE12	NNE19	NNE20	N18	N8	NW15	NW24	NW21	NNW9.5	WNW31		
2-Oct	NW24	NW23	NW35	NW38WNW34WNW29WNW32WNW25WNW28WNW33WNW32WNW28	NW29	NW32	NW34	NW27	NW32	NW35	NW33	NW26	NNW29	NNW27	NNW26	NW26	NW29.3	NW38								
3-Oct	NW28	NW27	NW23	NW23	NW21	NW24	NW26	NW22	NW18	NW21	NW19	NW17	W8WSW16WSW17WSW21WSW21WSW22WSW21WSW21WSW17WSW14	SW6	S10	NNW16.0	NW28									
4-Oct	SSW11	SSW10	SSW10	SSW11	S12	SSE17	SSE15	SSE12	S10	SE16	ESE12	ESE12	ESE14	ESE17	ENE14	NE17	NE20	NE19	ENE19	NE11	NE12	NNE15	N18	N22	E7.1	N28
5-Oct	N25	N25	N20	N16	N15	NNW14	NNW10	NW9	W8WSW10WSW10WSW14WSW14	SW15	SW17	SSW12	SSW17	SW22	SSW23	S33	SSW47	SSW50	SSW32	SW31	SW10.1	SSW50				
6-Oct	SW36WSW39WSW40WSW49	W53	W52	W44WSW32WSW27WSW30WSW32WSW36WSW32WSW30	W30	W31	W30	W28	W26	W24WSW20	SW11	SSW11	SSE12	WSW30.2	W53											
7-Oct	SSE20	SSE18	SSE25	SSE25	SSE23	SSE19	SE23	SSE22	SSE22	SSE18	SSE24	SSE25	SSE22	SSE25	S19	SSW16	SSW17	SSW29	SSW36	SSW36	SSW31	SSW22	SW16	S12	S21.1	SSW36
8-Oct	SSW14	SSW12	SSW11	SSW13	SSW9	S8	S9	SSE15	SSE15	SSE15	SE10	SE17	SE19	SE20	SE17	SE24	SE30	SSE28	SSE33WSW38WNW24WSW41WSW41	SW35	S13.8	WSW41				
9-Oct	SW36WSW45WSW43WSW38WSW28	SW23WSW29WSW36	W33WSW26WSW23WSW18WSW19WSW21WSW21WSW18WSW20WSW19WSW20WSW22WSW21WSW17WSW17	W7	WSW24.8	WSW45																				
10-Oct	SW2	SW8	SW11	SW14	SW17	SW16	SW14	SW13	SW12	SW12	SSW10	SSW12	SW12WSW26WSW22WSW20WSW31	W31	W30WNW27	NNW16	NW9	W9	W16	WSW14.1	WSW31					
11-Oct	WSW20WSW20WSW19WSW14	SW14	SW15	SSW9	S11	S10	S10	S10	SSE13	SSE16	SSE15	SSW13	SW18	SW21	SW24	SW32	SW35	SW35	SW23	SW14	SW11	SW15.5	SW35			
12-Oct	WSW12	W12WNW16WNW16WNW15WNW14	W16	W8	W10	W9	W6	ENE0	N5	NNW6	NNW6	NNE3	E3	E7	ESE15	SE18	SE19	SE19	SSE22	SSE23	SW2.6	SSE23				
13-Oct	SSE27	SE25	SE24	SSE29	SSE34	SSE30	SE36	SSE33	SSE35	SSE36	SSE39	SSE37	SSE33	SE35	SE36	SE34	SE29	SSE37	SSE35	SSE37	SSE33	SSE31	SE30	SE28	SSE32.4	SSE39
14-Oct	SE22	SE25	SE30	SE28	SE34	SE37	SE37	SE34	SE34	SE33	SE27	SSE21	SSE28	SE35	SE37	SE34	SE34	SE35	SE32	SSE32	S28	S30	S21	S18	SSE29.1	SE37
15-Oct	SW13	SW13WSW14WSW15WSW20WSW25WSW25WSW35	W35WSW21WSW20WSW22WSW17WSW17WSW14WSW14	SW15	SW16WSW17	SW16	SW26WSW32WSW22WSW21	W18	WSW19.9	W35																
16-Oct	WSW15	SW15	SW10	SSW9	S11	SSW10	SSW11	S9	SSE8	SSE8	SSE5	SE6	SE4	ENE3	E8	E9	E8	E8	ENE8	ENE3	E7	ESE7	NNW3	WNW1	SSE4.1	WSW15
17-Oct	W6	W5WSW10WSW17	W26WSW29WSW36WSW41WSW38	W38WSW40	W39	W32	W36	W39	W39	W48	W47	W41	W39WNW40WNW38WNW41WNW32	W32.2	W48											
18-Oct	WNW27WNW31	NW25WNW23WNW15WSW16WSW20WSW21WSW18	SW10	SSE10	SSE13	SSE17	SSW19	SSW19	SSW24	SSW26	SSW26	S31	S37	S38	S38	SSE34	SSE24	SSW15.5	S38							
19-Oct	SE14	SE6	SE2	SSE4	WSW5	NW5	N11	NNE14	N11	N10	NNW10	NNW11	N12	N9	N8	NNE9	N13	N18	N17	N20	N18	N20	N20	N19	N9.7	N20
20-Oct	N21	N26	N23	N22	N22	N20	N20	N19	NNE13	NNE14	NNE13	NE8	NNE10	NNE14	NNE18	NNE20	NE23	NE24	NNE24	NNE22	NNE26	NNE28	N30	NNE31	NNE19.8	NNE31
21-Oct	N33	N37	N37	N36	N36	N38	N37	N35	N31	N30	N32	N29	N19	N16	NNW12	N12	NNW13	NW18	NW22WNW16	W18WSW21WSW23WSW22	NNW21.5	N38				
22-Oct	SW20	SW19	SW22	SW22	SW25	SSW27	SW27	SW29	SW30	SW25	SW23	SW20	SSW19	SSW21	SSW23	SSW27	SSW30	SSW31	SSW31	SW31	SW28WSW26WSW33WSW31	SW25.1	WSW33			
23-Oct	WSW33WSW42WSW48WSW53WSW56	W39	W31	W32WSW33	W31	W26WSW30WSW36WSW35WSW33WSW34WSW38WSW34WSW41WSW41	SW18	SW15	SW19	SW21	WSW33.6	WSW56														
24-Oct	WSW20WSW17WSW24WSW26	W28	W31	W34	W32WSW22	W17	W18	W27WNW28WNW22WNW25WNW29WNW22WNW22WNW25WNW25	W20	W13	NW14	NNE6	W21.4	W34												
25-Oct	WNW3	SW5	SW7	SSW16WSW19WSW16WSW14WSW12WSW16WSW12	W12WNW13WNW11WNW17WNW14	W17	NNW9	WNW6	WSW8WSW11	W10	WSW4	SW3	S7	WSW9.6	WSW19											
26-Oct	S9	S4	SE2	ESE4	E2	E7	ENE7	ENE5	E6	NE4	N11	N10	N12	N12	NE8	E13	E7	ESE16	ESE19	ESE26	ESE24	SE24	SE32	SE38	ESE8.9	SE38
27-Oct	SE35	SE39	SE37	SE34	SE33	SE29	SE25	SE31	SE31	SE29	ESE23	ESE22	ESE25	ESE22	ESE22	SE27	SE25	SE14	ESE12	ESE7	UO	WNW3	NNW16	NW12	SE21.2	SE39
28-Oct	W19WNW37WNW37WNW37WNW36WNW36	NW30WNW32WNW33WNW34WNW31WNW26	NW27	NW28	NW28WNW26	NW26	NW27	NW27WNW33	NW32	NW24WNW27WNW28	NNW29.8	WNW37														
29-Oct	WNW24WNW25	NW26WNW30	NW31WNW25	NW22	NW20	NW18	NW15	W14WSW17WSW14WSW13	WSW9	S5	SE8	SSE10	S15	SSE13	SSE11	SE9	ESE4	NNE10	WNW9.4	NW31						
30-Oct	NNE16	N20	N17	N20	N22	N24	N20	N18	N16	N16	N17	NNE15	NNE13	NE14	NNE16	NE18	NE18	ENE16	ENE16	ENE16	ENE13	ENE17	E14	ENE15	NNE15.3	N24
31-Oct	E14	ESE13	ESE21	SE20	ESE20	ESE18	ESE16	SE13	SE21	ESE19	ESE20	SE23	SE22	SE14	SE11	S9	SE13	SSE15	SSE20	S19	S18	S17	S16	SSW12	SE15.1	SE23
WSW7.9 W8.6 W9.2 W10.5 W10.4WSW9.5 W9.1WSW8.8WSW8.3WSW7.1WSW6.3WSW6.4 SW5.6 SW5.9WSW6.1 SW6.0 SW6.7 SW7.2 SW8.6SW10.5 SW9.4 SW8.4WSW7.8WSW6.0																								Diurnal Average		
SW36WSW45WSW48WSW53WSW56 W52 W44WSW41WSW38 W38WSW40 W39WSW36 W36 W39 W39 W48 W47WSW41WSW41 SSW47 SSW50WNW41 SE38																								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 163m (WS163) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Oct 8 21:00 Minimum Value: 1 km/h on Oct 10 01:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 8																	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-Oct	4	4	2	3	3	1	1	3	1	1	2	3	2	2	3	2	4	3	1	2	2	7	2	3	7
2-Oct	3	4	4	3	5	5	6	4	4	8	5	5	5	5	6	4	6	5	4	4	4	4	3	2	8
3-Oct	2	2	3	3	2	2	3	3	2	5	5	4	5	4	4	3	3	3	1	2	2	2	3	2	5
4-Oct	1	1	2	1	4	4	3	2	2	2	2	4	3	4	4	3	4	5	4	5	2	1	2	3	5
5-Oct	2	3	3	2	2	1	1	1	2	1	3	2	3	5	5	2	4	3	1	5	4	2	6	6	6
6-Oct	3	3	2	4	3	4	5	5	4	5	5	3	4	3	4	4	2	3	2	1	3	2	1	5	5
7-Oct	3	4	3	3	3	3	2	2	3	3	3	3	3	4	4	2	6	3	3	3	3	5	4	3	6
8-Oct	2	2	1	1	2	1	3	2	2	2	1	4	2	2	3	5	4	5	5	8	10	5	3	4	10
9-Oct	4	3	3	5	4	3	4	2	6	3	3	2	3	2	2	3	1	1	1	2	2	2	3	4	6
10-Oct	1	3	2	1	1	3	2	2	1	2	1	2	4	3	2	4	3	1	1	4	3	1	2	5	5
11-Oct	2	3	3	2	3	2	2	3	2	1	2	2	2	2	3	3	2	2	4	2	4	9	2	2	9
12-Oct	3	2	2	1	2	2	3	2	2	1	2	1	2	3	2	3	2	2	2	1	2	2	3	3	3
13-Oct	3	3	2	5	4	4	4	3	4	5	7	7	6	4	3	3	4	5	4	3	4	5	2	3	7
14-Oct	2	3	5	5	5	4	4	8	7	3	4	5	5	3	4	4	3	3	6	3	4	5	2	2	8
15-Oct	3	2	2	3	4	2	3	4	4	4	1	2	2	2	2	2	1	1	5	4	3	3	3	3	5
16-Oct	3	1	2	1	1	2	2	3	2	2	2	1	2	2	4	4	3	3	2	2	3	4	2	1	4
17-Oct	1	1	2	4	1	3	2	3	4	3	3	5	4	6	6	8	8	7	7	6	8	8	6	6	8
18-Oct	5	4	3	4	6	4	1	2	2	3	2	3	3	3	4	3	3	2	2	1	1	3	1	7	7
19-Oct	3	3	2	1	1	2	2	1	1	2	2	2	2	2	2	2	3	2	3	3	4	3	3	3	4
20-Oct	4	3	3	4	3	4	3	3	2	3	2	3	2	3	4	3	3	4	4	3	3	4	4	4	4
21-Oct	4	5	5	5	5	5	5	4	5	5	5	5	4	3	3	2	3	1	3	3	3	2	3	4	5
22-Oct	3	2	2	2	2	3	2	3	3	2	4	4	3	4	3	4	3	3	4	3	4	4	4	3	4
23-Oct	4	6	5	5	6	9	6	2	4	3	3	5	3	2	3	3	2	3	2	9	3	2	1	9	
24-Oct	3	5	2	2	2	2	5	3	2	3	3	6	5	6	7	6	4	2	3	2	2	2	5	2	7
25-Oct	1	2	3	3	2	2	3	4	2	3	2	4	3	3	3	5	4	1	2	3	3	2	1	3	5
26-Oct	3	2	2	1	1	2	2	2	2	2	2	2	2	3	3	4	4	5	5	4	4	6	4	4	6
27-Oct	4	3	4	5	5	6	3	3	3	3	6	5	6	5	6	5	3	4	2	3	UO	3	1	2	6
28-Oct	6	2	2	3	3	3	2	2	3	4	4	5	4	4	4	4	4	6	4	4	6	5	4	3	6
29-Oct	3	5	6	5	4	4	3	3	2	4	3	3	3	3	2	2	1	2	2	2	2	2	2	4	6
30-Oct	2	2	2	2	3	3	2	3	2	3	2	3	3	3	3	3	3	2	2	2	2	2	3	2	3
31-Oct	3	2	3	2	1	3	2	4	3	3	3	3	3	4	2	3	3	2	4	2	2	3	2	2	4
Diurnal Maximum																									
UO - Unstable Operation																									





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 163m (WS163) - km/h  
Lower Camp Met Tower - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	32	4.31	4.31
6 - 11	106	14.27	18.57
12 - 19	213	28.67	47.24
20 - 28	200	26.92	74.16
29 - 38	160	21.53	95.69
> 38	32	4.31	100.00

Total Number of Valid Hours: 743

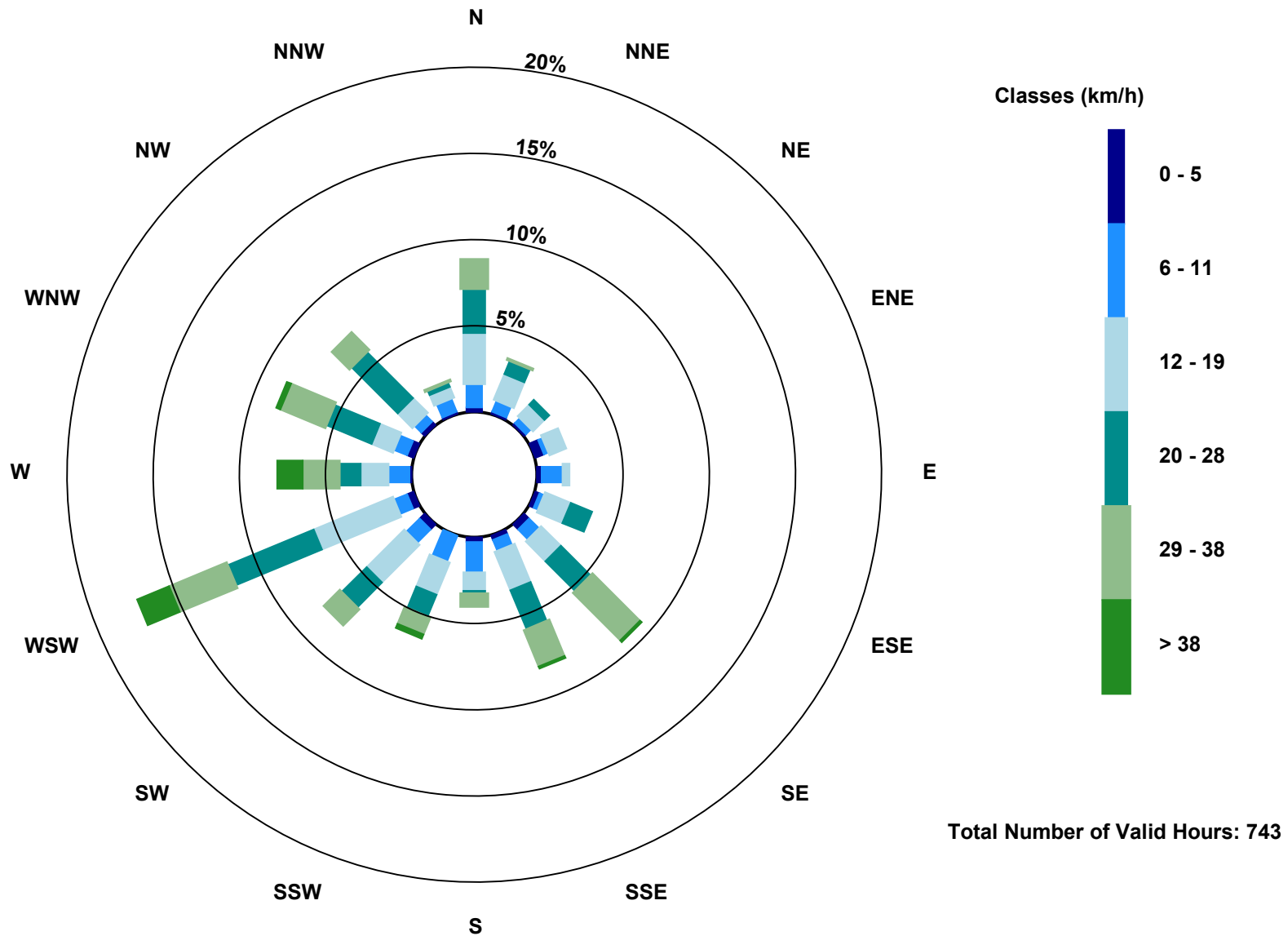
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 163m (WS163) - km/h  
Lower Camp Met Tower





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

**Wind Direction 20m (WD20) - deg**  
**Lower Camp Met Tower - October 2024**

Direction of Maximum Speed: 157 deg on Oct 13 12:00		Hours in Service: 744
Direction of Maximum Daily Speed Average: 268.4 deg on Oct 17		Hours of Data: 744
Direction of Minimum Speed: 321 deg on Oct 8 11:00	Direction of Minimum Daily Speed Average: 1.2 deg on Oct 16	Hours of Missing Data: 0
Monthly Average Direction: 232.6 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-Oct	256	113	298	320	322	8	324	325	355	13	2	46	14	1	4	23	35	26	14	327	342	335	328	340	353.5
2-Oct	329	325	315	291	283	290	286	275	296	300	288	296	306	311	313	308	311	308	313	319	333	326	313	310	304.9
3-Oct	305	307	314	312	307	314	314	315	320	311	317	312	277	239	238	241	246	237	210	220	147	125	121	126	280.2
4-Oct	131	135	121	121	127	120	114	147	134	130	288	347	345	92	63	5	352	354	350	306	328	334	331	334	56.6
5-Oct	336	339	336	319	314	317	315	41	114	114	209	236	234	227	221	200	177	187	153	148	161	164	139	142	189.9
6-Oct	215	243	250	255	255	258	261	244	234	235	235	240	239	251	258	267	262	264	242	240	14	142	144	126	245.3
7-Oct	120	122	131	130	113	109	110	125	122	140	134	136	137	140	143	146	153	174	168	169	164	124	121	140	141.9
8-Oct	138	139	138	134	140	138	127	127	143	119	321	129	146	155	142	151	135	133	160	248	281	234	224	219	174.5
9-Oct	215	229	231	232	207	152	210	225	257	250	242	230	230	237	239	235	223	208	291	322	179	128	128	136	224.7
10-Oct	127	127	127	128	128	125	129	122	129	124	127	126	170	237	239	234	241	250	243	273	323	244	212	206	185.4
11-Oct	148	146	131	131	128	126	121	130	125	118	115	138	138	135	186	229	220	196	198	203	218	192	152	148	164.7
12-Oct	139	208	246	256	267	159	214	125	151	222	223	111	5	347	350	24	102	109	135	105	130	115	124	124	163.4
13-Oct	127	133	131	134	135	134	134	130	128	133	141	157	147	138	135	136	141	148	143	141	137	138	128	131	138.2
14-Oct	140	142	129	125	127	131	135	140	134	125	131	160	158	130	131	125	123	133	134	154	148	168	161	152	139.5
15-Oct	141	130	130	139	162	218	225	255	261	247	235	240	233	226	234	233	212	216	224	205	222	242	204	180	215.3
16-Oct	139	138	135	130	135	139	122	130	121	123	160	142	350	349	325	349	349	348	343	337	345	336	342	329	45.7
17-Oct	346	323	265	261	261	250	248	242	252	258	255	268	258	262	261	263	270	272	277	273	288	300	293	301	268.4
18-Oct	302	303	312	294	287	219	212	209	204	181	147	135	150	188	198	187	187	172	166	143	144	143	133	132	186.9
19-Oct	330	342	332	314	332	332	318	326	322	328	335	349	339	337	343	11	349	353	348	349	357	357	343	348	343.2
20-Oct	346	340	340	336	335	342	352	359	360	12	14	33	12	15	15	14	9	3	349	345	346	344	343	346	353.6
21-Oct	349	345	346	345	347	343	340	342	343	339	340	341	347	346	331	352	336	318	310	285	270	254	252	253	330.1
22-Oct	207	181	186	193	191	180	180	179	181	181	214	209	193	197	187	189	193	182	189	196	212	229	235	233	195.8
23-Oct	236	247	251	254	253	265	252	247	251	257	258	252	247	248	243	242	248	238	241	170	158	146	193	243.8	
24-Oct	186	160	225	244	257	262	258	250	227	237	236	270	289	295	291	291	280	273	259	254	331	255	353	299	261.0
25-Oct	285	106	165	162	166	160	142	149	199	191	235	268	285	276	274	274	270	203	117	111	126	95	356	354	221.8
26-Oct	333	311	340	326	325	323	316	323	346	341	333	330	323	330	341	320	15	50	82	100	98	115	128	126	33.2
27-Oct	133	128	126	129	129	128	142	115	120	126	112	109	118	112	106	120	120	346	335	345	332	338	327	309	117.9
28-Oct	298	290	289	289	286	288	286	286	286	289	295	300	309	310	311	300	308	307	306	292	305	313	290	289	296.4
29-Oct	291	291	305	300	304	299	304	311	328	302	271	244	239	235	244	69	105	95	75	33	100	354	336	339	292.6
30-Oct	348	339	340	340	347	347	348	350	353	358	352	7	11	28	22	30	43	51	39	41	49	41	47	43	8.8
31-Oct	68	51	57	76	80	128	124	127	90	99	104	124	125	118	132	180	138	147	166	168	161	178	183	204	140.9

231.6 252.8 255.1 253.0 246.1 245.8 245.9 227.8 220.4 235.2 241.1 232.6 230.1 236.7 240.4 237.5 232.4 219.1 212.4 219.9 210.9 205.3 224.3 218.0  
 Diurnal Average

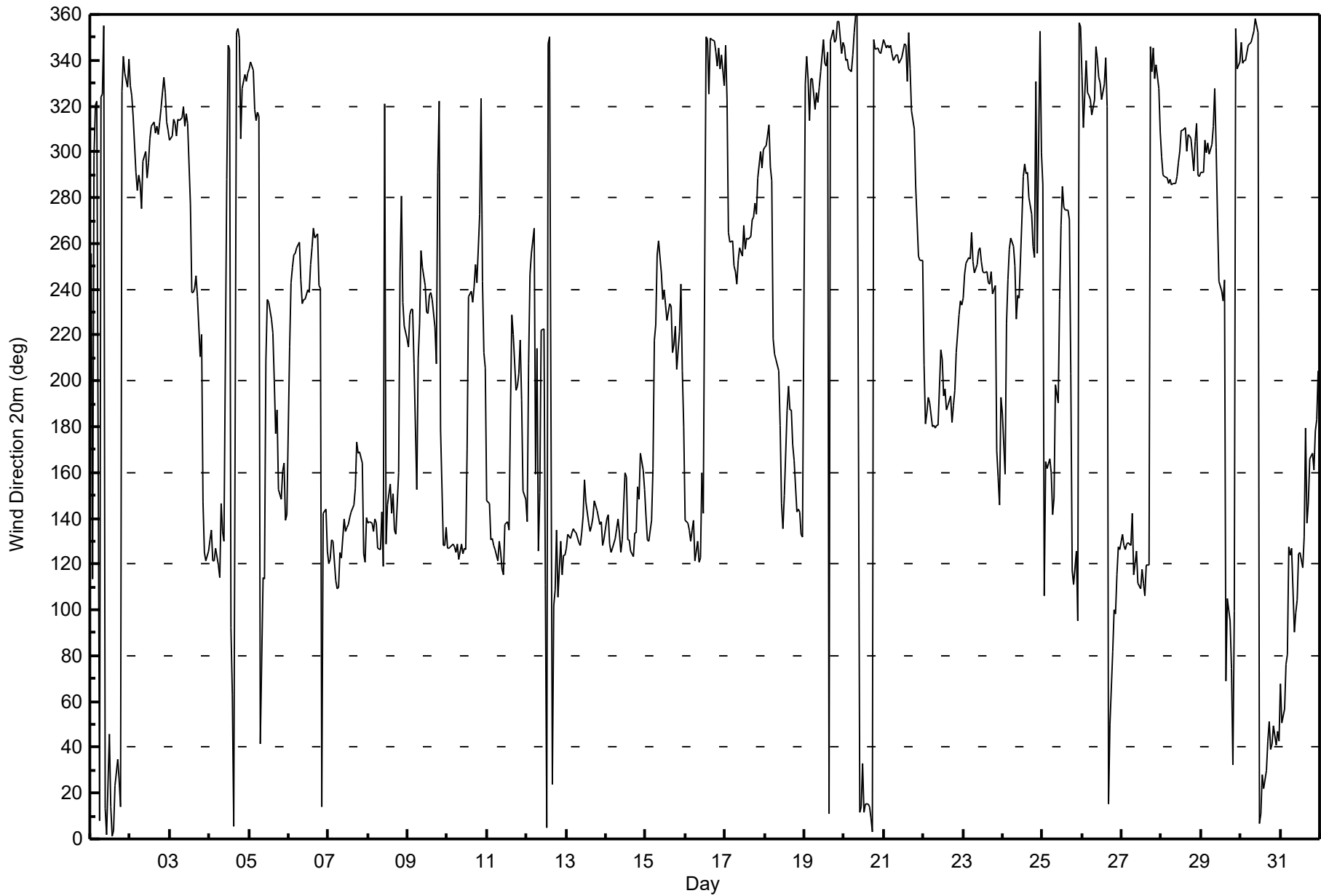
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 20m (WD20) - deg**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 106 deg on Oct 8 10:00 Minimum Value: 5 deg on Oct 18 18:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 14 Median = 18 Q <sub>3</sub> = 25 P <sub>90</sub> = 48 P <sub>99</sub> = 89		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-Oct	89	98	48	26	36	29	25	89	38	39	26	87	18	27	33	28	34	24	42	31	58	47	51	16	98	
2-Oct	16	23	16	18	17	21	21	21	19	18	20	23	17	17	16	17	17	16	16	16	17	18	15	14	23	
3-Oct	15	15	15	16	14	14	15	16	18	21	20	28	78	25	19	20	22	16	9	16	37	13	14	12	78	
4-Oct	14	13	15	12	13	20	28	31	18	42	70	24	19	56	27	28	23	44	33	34	19	16	16	17	70	
5-Oct	15	16	17	16	12	12	25	27	32	14	55	18	13	17	23	22	23	10	11	8	8	8	28	35	55	
6-Oct	19	15	15	16	16	17	18	22	14	11	9	13	12	16	19	20	17	16	10	40	60	55	14	11	60	
7-Oct	24	25	13	13	20	15	39	22	23	10	16	12	10	15	13	11	24	6	6	7	30	30	13	17	39	
8-Oct	15	9	10	8	10	43	60	63	23	106	97	32	16	12	18	18	16	10	13	53	38	10	9	10	106	
9-Oct	13	10	9	10	14	40	22	10	20	21	17	10	10	13	12	10	14	9	81	58	88	37	23	9	88	
10-Oct	7	12	11	9	11	15	21	16	13	13	11	11	56	10	14	12	13	13	9	49	23	23	42	90	90	
11-Oct	61	51	39	17	13	14	15	14	19	19	17	12	10	13	58	16	9	14	8	7	12	58	16	12	61	
12-Oct	22	35	20	20	37	46	72	49	35	10	35	68	59	76	48	41	31	17	44	93	58	48	16	15	93	
13-Oct	14	26	27	17	8	10	15	16	15	14	12	11	15	14	14	12	11	9	8	10	11	12	18	17	27	
14-Oct	21	21	37	76	32	20	20	17	18	17	18	17	18	18	15	16	15	15	15	8	8	13	26	8	76	
15-Oct	20	7	9	20	35	23	39	24	31	31	10	13	10	10	14	9	9	11	10	15	29	79	47	73	79	
16-Oct	49	27	13	7	14	11	20	16	23	44	79	85	84	30	65	11	10	14	25	33	17	24	21	23	85	
17-Oct	19	32	98	24	18	13	12	12	14	16	15	17	15	19	18	17	19	19	19	20	19	18	17	18	98	
18-Oct	17	16	20	19	39	30	9	10	10	15	17	13	17	18	12	11	10	5	8	8	8	7	13	34	39	
19-Oct	67	18	40	34	23	17	20	16	17	25	19	19	19	24	23	24	14	15	23	18	20	24	17	16	67	
20-Oct	20	16	17	19	19	17	18	19	22	22	23	29	23	19	20	18	17	20	15	15	16	14	14	13	29	
21-Oct	14	13	14	15	14	15	16	16	17	17	17	17	17	18	26	22	21	18	12	21	24	18	17	20	26	
22-Oct	15	11	11	11	9	7	8	7	7	8	17	13	10	10	10	12	9	8	10	9	13	16	11	12	17	
23-Oct	12	16	17	15	18	22	23	14	17	18	20	18	14	14	14	11	11	13	11	11	51	9	15	11	51	
24-Oct	26	27	33	17	24	35	26	14	14	21	20	24	19	22	20	20	15	17	13	23	91	71	78	102	102	
25-Oct	74	74	51	27	16	15	36	61	41	33	15	36	36	24	29	21	19	76	76	61	89	78	88	63	89	
26-Oct	48	67	45	26	21	34	16	18	17	25	30	25	19	19	30	30	60	34	50	19	20	21	19	16	67	
27-Oct	15	14	14	14	14	20	25	19	20	17	24	25	24	31	29	20	21	41	26	15	59	19	15	31	59	
28-Oct	43	17	17	17	16	16	16	16	16	16	16	16	17	16	16	15	18	15	15	17	17	17	18	17	43	
29-Oct	17	18	18	17	16	17	18	18	18	23	30	18	23	17	32	88	35	27	48	62	28	52	14	15	88	
30-Oct	18	15	17	17	15	15	16	18	16	18	16	19	20	24	22	21	19	22	17	18	20	18	24	35	35	
31-Oct	29	49	17	17	48	75	82	54	32	28	21	21	19	25	19	45	23	10	13	10	9	14	16	22	82	
		89	98	98	76	48	75	82	89	41	106	97	87	84	76	65	88	60	76	81	93	91	79	88	102	
		Diurnal Maximum																								





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

**Wind Direction 45m (WD45) - deg**  
**Lower Camp Met Tower - October 2024**

Direction of Maximum Speed: 251 deg on Oct 23 05:00		Hours in Service: 744
Direction of Maximum Daily Speed Average: 134.0 deg on Oct 13		Hours of Data: 744
Direction of Minimum Speed: 137 deg on Oct 29 16:00	Direction of Minimum Daily Speed Average: 1.7 deg on Oct 16	Hours of Missing Data: 0
Monthly Average Direction: 236.3 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-Oct	255	342	275	306	327	342	348	351	356	14	359	25	7	357	1	24	36	25	24	335	321	333	335	329	346.1
2-Oct	321	315	313	291	284	288	283	273	295	299	288	295	305	310	312	306	310	307	313	320	334	327	315	311	303.8
3-Oct	303	306	312	311	307	313	313	315	320	310	315	311	280	243	241	242	248	238	214	210	176	145	134	132	279.6
4-Oct	130	134	132	128	131	127	125	138	130	123	331	348	342	98	67	18	12	14	10	325	335	337	333	337	57.5
5-Oct	340	342	342	328	327	332	332	350	138	148	220	237	234	225	222	201	181	195	160	153	165	169	144	170	199.4
6-Oct	219	241	249	253	253	256	258	246	236	234	233	238	239	250	258	266	262	264	243	224	195	132	131	123	243.5
7-Oct	127	128	132	127	122	122	125	130	126	150	131	133	138	140	149	156	171	177	174	175	170	145	124	132	145.2
8-Oct	132	134	145	134	131	148	128	126	126	112	161	133	132	144	133	130	130	130	157	254	279	234	224	220	166.7
9-Oct	217	228	231	231	214	174	214	226	254	250	243	231	230	237	239	236	225	212	220	245	215	154	166	157	227.1
10-Oct	153	127	129	132	132	130	136	127	131	126	122	133	176	236	239	234	242	251	240	268	314	264	229	225	192.2
11-Oct	200	187	169	149	133	134	128	132	125	119	116	135	134	130	188	228	219	202	201	204	213	200	159	143	168.4
12-Oct	140	221	257	260	258	238	241	171	200	225	237	99	1	350	343	23	94	95	130	121	132	130	124	123	165.7
13-Oct	127	130	124	130	128	127	129	127	128	131	138	156	142	131	129	132	133	149	147	143	133	136	125	125	134.0
14-Oct	126	133	124	111	126	129	130	134	130	124	126	151	152	125	128	125	123	127	131	154	154	173	168	155	134.8
15-Oct	158	137	142	171	202	228	240	255	257	247	235	240	233	228	234	231	217	218	212	209	222	220	223	220	222.9
16-Oct	186	159	135	126	130	136	130	131	127	114	115	75	333	340	321	352	4	346	346	341	345	338	334	332	44.2
17-Oct	343	334	257	256	256	247	245	241	249	255	252	267	258	262	262	269	270	276	271	288	298	291	297	297	266.6
18-Oct	300	300	310	292	286	221	215	211	207	185	144	130	147	189	200	189	192	178	168	155	153	150	135	128	191.5
19-Oct	24	336	339	328	342	335	325	332	329	331	336	348	341	341	347	12	352	355	352	354	359	359	345	352	346.5
20-Oct	348	342	342	341	339	347	355	1	2	12	14	31	13	15	13	15	10	8	354	348	349	347	345	350	355.9
21-Oct	353	350	350	349	350	346	343	345	345	341	341	345	350	349	335	352	336	315	307	284	267	254	253	252	332.7
22-Oct	210	185	190	196	195	181	184	183	185	186	215	209	196	197	189	192	197	185	193	199	214	231	235	234	199.0
23-Oct	235	244	248	250	251	263	255	245	250	255	257	250	245	246	246	242	241	246	237	239	184	167	161	196	243.0
24-Oct	197	179	234	245	255	257	253	249	231	241	240	269	288	296	290	292	284	276	259	253	271	247	334	22	261.6
25-Oct	260	157	168	170	177	167	153	201	216	204	236	276	289	278	275	273	276	239	214	193	157	135	94	7	226.7
26-Oct	340	337	345	345	344	345	343	339	340	339	336	328	326	330	338	18	90	75	95	104	102	117	127	125	49.5
27-Oct	130	128	128	127	128	124	126	120	124	127	112	110	116	114	108	117	121	38	345	344	333	333	327	308	118.0
28-Oct	281	289	289	289	286	288	288	287	288	290	295	299	307	309	310	299	307	306	304	290	302	311	290	290	295.4
29-Oct	291	291	305	300	304	297	303	310	327	304	271	244	241	235	246	137	106	108	123	107	106	65	353	347	293.8
30-Oct	352	341	341	343	349	350	351	353	356	358	355	8	10	27	18	30	43	50	41	42	51	44	48	41	11.3
31-Oct	63	61	92	97	87	104	102	111	95	97	105	123	123	117	130	179	135	147	165	167	161	178	184	204	133.4

241.0 261.2 258.8 257.2 249.5 248.0 243.4 227.2 223.2 240.6 244.9 238.1 234.3 238.5 243.4 241.5 233.8 225.7 215.7 223.6 223.2 216.9 224.4 219.5  
 Diurnal Average

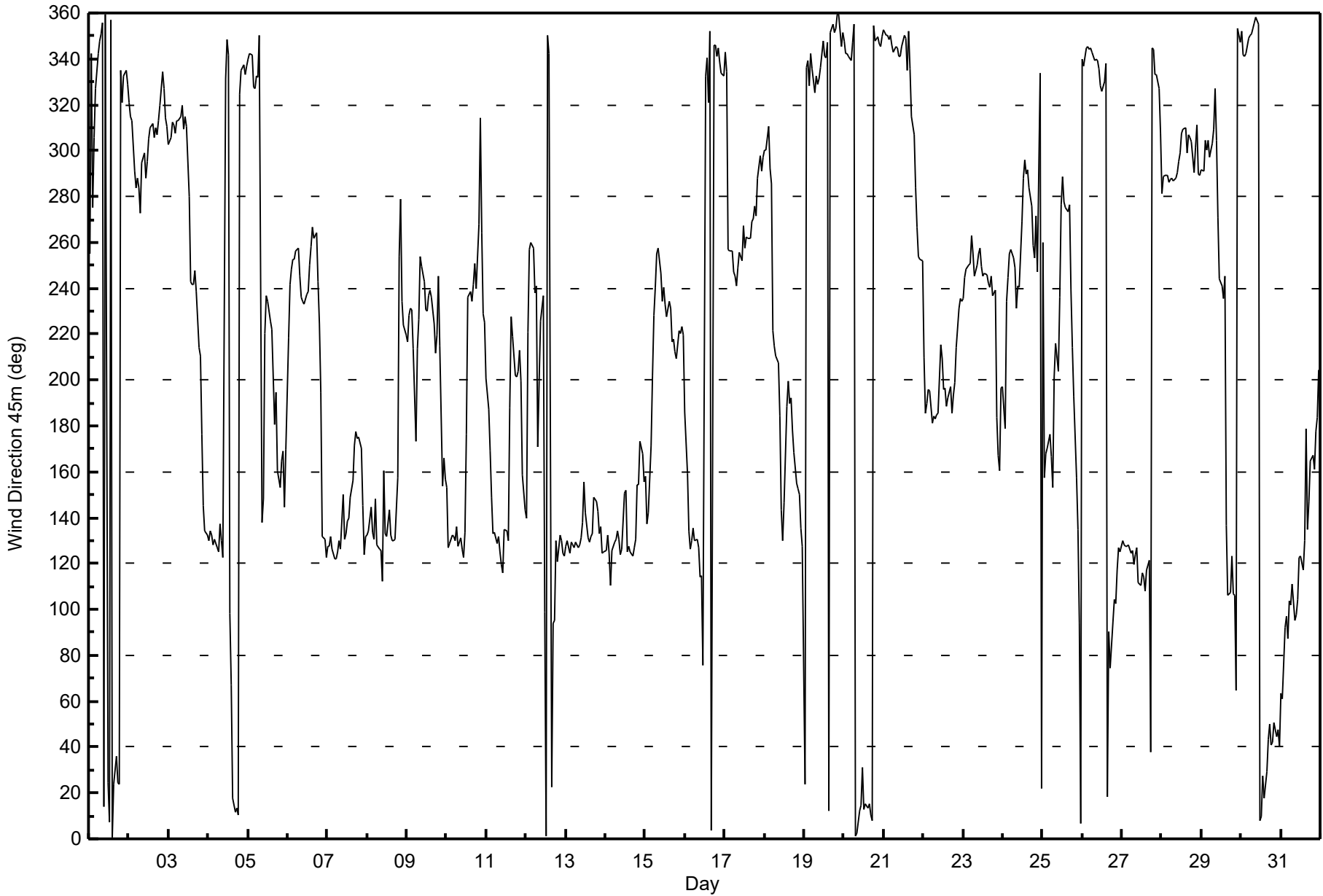
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 45m (WD45) - deg**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Oct 1 02:00 Minimum Value: 3 deg on Oct 16 04:00 Percentiles: P <sub>1</sub> = 5 P <sub>10</sub> = 7 Q <sub>1</sub> = 9 Median = 12 Q <sub>3</sub> = 17 P <sub>90</sub> = 32 P <sub>99</sub> = 75																	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-Oct	43	98	36	21	12	19	14	69	31	29	19	77	11	20	20	20	20	12	20	23	8	10	8	9	98
2-Oct	10	16	13	9	10	15	15	15	13	13	12	16	13	13	12	12	14	12	13	11	11	12	10	10	16
3-Oct	11	10	12	12	10	10	12	11	11	15	16	21	62	23	17	16	17	12	6	7	33	18	7	8	62
4-Oct	6	9	7	7	7	10	20	30	13	40	75	26	22	43	18	19	16	27	28	35	11	8	10	9	75
5-Oct	8	8	11	10	7	7	17	66	72	27	37	12	9	15	20	22	24	9	12	5	8	6	16	32	72
6-Oct	12	11	9	9	8	9	11	14	10	8	7	9	8	11	13	13	9	9	7	10	75	23	4	5	75
7-Oct	8	10	8	7	11	11	16	12	11	20	11	8	9	12	14	12	23	5	5	7	14	33	13	12	33
8-Oct	6	4	8	6	7	44	19	6	7	73	75	16	10	10	11	16	12	7	13	49	31	7	8	8	75
9-Oct	11	8	6	8	10	34	13	7	13	12	11	7	8	9	8	8	12	6	38	29	45	23	40	16	45
10-Oct	12	4	4	4	5	8	23	7	9	11	6	9	57	7	9	10	9	7	4	41	11	17	16	33	57
11-Oct	61	44	79	28	8	9	8	8	9	12	10	8	5	8	58	14	7	11	6	5	9	39	15	7	79
12-Oct	12	30	15	19	17	22	27	53	37	10	36	79	47	60	42	33	32	9	9	12	9	6	5	5	79
13-Oct	6	11	9	7	4	5	6	7	6	9	8	10	15	8	7	7	8	9	9	10	7	10	7	7	15
14-Oct	12	13	19	22	15	7	8	11	10	8	10	19	18	10	7	8	7	8	9	9	8	12	20	8	22
15-Oct	22	9	16	26	30	15	25	16	15	16	7	9	8	8	11	8	7	7	9	11	9	16	37	41	41
16-Oct	38	32	18	3	6	6	11	9	18	42	56	68	68	25	67	5	11	7	10	12	9	15	13	11	68
17-Oct	10	16	70	15	9	8	8	8	8	9	8	11	9	13	12	12	13	14	13	13	14	13	12	14	70
18-Oct	13	12	15	15	27	19	7	8	8	16	16	10	17	17	12	11	8	7	8	5	6	8	8	9	27
19-Oct	87	9	37	26	10	8	11	9	9	14	14	12	12	16	16	17	10	8	11	9	14	18	11	10	87
20-Oct	13	10	12	15	12	11	12	12	14	14	16	21	15	12	13	13	11	15	10	9	8	8	8	8	21
21-Oct	7	8	8	9	8	9	11	11	11	11	12	14	12	15	17	18	16	13	9	17	20	12	12	14	20
22-Oct	13	9	10	10	8	7	7	6	6	8	15	11	10	10	9	12	8	8	10	8	12	13	8	8	15
23-Oct	8	10	10	9	13	17	17	8	11	11	13	11	9	8	9	7	7	8	7	6	48	12	17	10	48
24-Oct	21	29	19	10	15	14	11	7	12	14	16	19	14	16	16	16	11	9	10	7	68	65	44	84	84
25-Oct	32	63	62	24	18	16	31	56	29	31	11	28	32	21	25	16	21	27	65	17	49	10	64	40	65
26-Oct	32	21	14	9	10	9	10	8	10	17	20	19	12	15	18	48	36	21	31	13	12	13	11	8	48
27-Oct	7	6	6	7	7	10	14	8	10	8	12	16	16	20	16	12	13	54	24	14	13	13	9	25	54
28-Oct	30	9	9	10	10	9	8	9	10	10	11	12	12	11	12	12	10	12	13	11	13	15	12	11	30
29-Oct	11	12	14	12	12	12	12	13	11	21	28	14	19	11	24	76	25	14	14	13	12	54	26	9	76
30-Oct	12	9	11	10	9	8	8	11	11	11	11	12	14	20	14	15	13	13	11	11	10	11	11	13	20
31-Oct	22	16	14	12	22	37	41	34	18	15	13	15	13	19	15	41	20	10	12	9	7	14	15	22	41
87 98 79 28 30 44 41 69 72 73 75 79 68 60 67 76 36 54 65 49 75 65 64 84																									
Diurnal Maximum																									





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

**Wind Direction 100m (WD100) - deg**  
**Lower Camp Met Tower - October 2024**

Direction of Maximum Speed: 251 deg on Oct 23 05:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 141.3 deg on Oct 13		Hours of Data:	744
Direction of Minimum Speed: 82 deg on Oct 12 12:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 0.8 deg on Oct 16		Percent Operational Time:	100.0
Monthly Average Direction: 238.3 deg			

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	263	283	258	279	287	255	338	352	308	335	349	4	6	357	355	26	36	27	30	358	331	313	322	314	331.2
2-Oct	309	308	315	294	286	288	285	278	296	299	291	298	305	311	313	306	310	307	314	320	336	329	319	315	305.1
3-Oct	307	310	311	313	311	313	312	318	319	311	315	310	277	250	246	244	251	245	234	233	223	199	153	163	283.5
4-Oct	160	174	176	165	161	155	142	120	149	118	78	80	90	102	73	40	35	35	39	6	4	350	342	348	78.1
5-Oct	349	350	351	342	338	333	329	305	270	227	233	239	235	224	222	202	189	205	183	167	180	192	170	203	217.5
6-Oct	226	245	249	252	253	260	259	249	241	234	234	239	241	251	259	266	262	266	259	244	224	163	169	140	246.6
7-Oct	151	150	151	150	148	159	151	154	156	157	145	145	153	150	168	181	193	187	187	190	186	185	173	147	165.3
8-Oct	149	165	165	159	145	158	151	154	154	147	111	135	128	127	133	120	137	144	159	254	278	240	231	227	176.2
9-Oct	225	233	236	236	227	205	229	237	255	251	246	236	232	239	240	240	233	229	231	236	235	224	238	228	235.0
10-Oct	218	217	190	198	181	170	178	177	180	179	172	173	204	238	239	235	246	256	251	278	317	299	245	243	228.8
11-Oct	242	237	237	226	186	166	162	150	140	130	129	146	140	135	196	226	223	213	211	212	220	222	203	170	194.6
12-Oct	198	242	262	264	263	257	250	244	239	239	255	82	352	345	338	14	89	90	118	131	132	145	145	150	197.1
13-Oct	153	135	135	140	143	138	132	137	140	142	144	157	145	135	133	136	138	152	154	152	145	145	132	133	141.3
14-Oct	135	136	134	129	134	136	137	139	134	132	133	150	150	131	133	130	130	132	137	159	169	181	182	172	141.1
15-Oct	200	188	204	217	231	240	250	253	255	248	239	244	236	232	236	232	224	233	233	224	236	236	240	245	235.9
16-Oct	228	205	195	178	158	162	165	157	158	158	125	98	97	350	73	77	58	24	4	347	357	13	330	333	111.2
17-Oct	277	301	247	254	258	249	247	244	249	256	253	267	257	262	262	261	269	270	276	273	289	296	291	295	266.2
18-Oct	297	297	307	292	281	238	235	228	224	203	152	134	154	193	203	194	200	188	178	164	161	160	156	142	201.0
19-Oct	131	7	358	65	336	341	337	347	349	338	338	346	346	347	355	14	356	358	358	359	2	2	348	355	353.7
20-Oct	350	346	346	345	346	352	356	0	5	12	14	33	17	18	19	20	20	23	5	358	359	357	356	359	1.6
21-Oct	0	357	354	354	354	350	348	348	349	345	343	347	352	351	337	349	332	312	304	283	267	255	253	254	335.6
22-Oct	219	199	201	207	212	190	199	199	200	199	218	212	199	200	193	198	203	194	202	207	221	236	239	240	207.9
23-Oct	240	246	248	250	251	262	260	250	254	257	250	245	247	246	244	243	245	240	242	213	195	196	213	245.0	
24-Oct	219	225	242	247	258	256	254	254	239	249	250	271	290	297	291	292	287	288	270	272	258	257	306	27	265.8
25-Oct	267	220	194	199	214	207	200	236	227	224	243	287	288	280	278	270	291	277	249	235	254	169	145	128	239.2
26-Oct	132	107	101	27	349	47	14	345	339	335	337	335	336	338	353	74	90	94	109	111	112	124	131	129	84.6
27-Oct	132	133	135	136	137	134	132	128	129	130	117	115	118	119	111	120	127	109	71	43	346	330	343	314	124.8
28-Oct	270	290	291	290	288	290	293	288	291	293	296	298	308	310	309	300	307	305	303	290	302	308	292	292	295.9
29-Oct	293	292	305	301	305	299	304	309	322	304	271	244	242	238	240	175	124	127	146	131	120	114	33	359	290.3
30-Oct	3	351	352	351	354	356	357	360	0	1	359	12	13	29	22	36	47	53	47	48	61	61	63	56	19.6
31-Oct	70	96	113	114	102	105	105	119	112	104	109	126	126	120	134	177	136	152	166	168	166	180	186	207	133.0

241.6 256.0 252.3 252.0 249.4 246.8 245.9 239.3 235.8 240.6 242.4 238.3 230.6 237.1 242.2 233.4 231.2 229.0 222.5 227.5 226.3 226.9 236.2 230.3  
 Diurnal Average

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

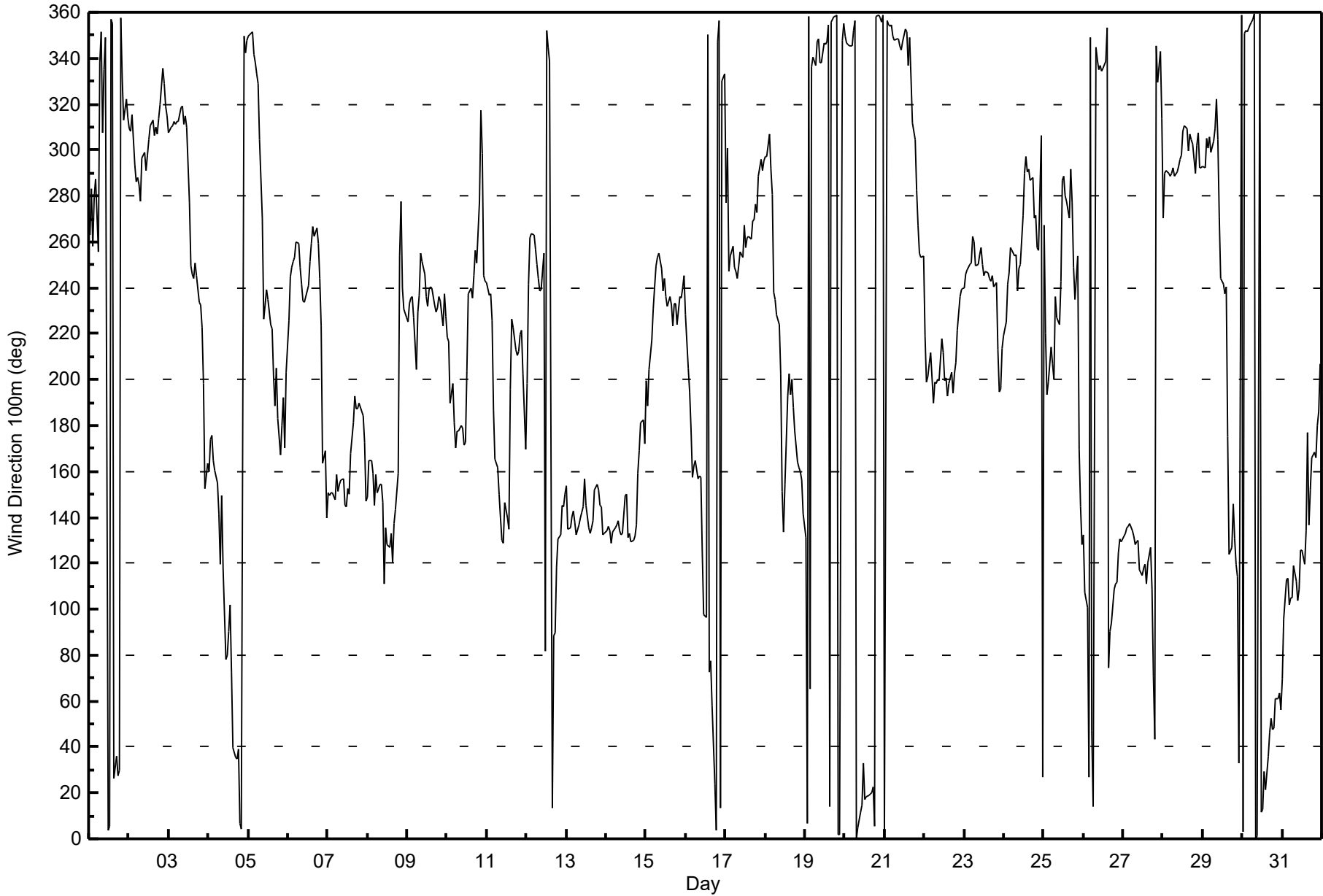




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 100m (WD100) - deg**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 89 deg on Oct 16 13:00 Minimum Value: 2 deg on Oct 13 07:00 Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 14 P <sub>90</sub> = 21 P <sub>99</sub> = 55																	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-Oct	10	57	13	25	34	7	41	39	52	41	20	49	14	15	16	17	16	9	4	15	7	7	4	7	57
2-Oct	6	15	9	6	6	10	10	12	10	11	9	13	10	9	8	9	11	8	10	7	9	9	6	6	15
3-Oct	7	6	8	8	7	7	8	7	8	12	13	18	52	19	15	14	14	8	3	4	21	22	21	7	52
4-Oct	6	10	9	9	5	9	20	15	13	20	78	33	24	11	14	14	12	19	20	47	21	5	6	5	78
5-Oct	5	5	7	8	5	4	6	8	37	18	19	8	7	13	17	21	22	5	10	4	8	4	13	15	37
6-Oct	8	7	5	4	4	6	6	9	8	7	6	6	6	7	10	8	5	6	4	6	16	22	9	6	22
7-Oct	7	11	6	8	10	21	11	10	7	10	9	9	9	10	13	10	15	3	4	4	8	25	17	10	25
8-Oct	10	10	7	6	9	18	26	6	8	23	8	9	5	8	7	8	9	8	10	44	24	6	5	7	44
9-Oct	7	4	4	4	6	17	10	5	10	8	8	6	7	8	5	8	9	5	5	6	11	20	22	15	22
10-Oct	11	13	13	9	10	11	24	11	13	11	11	16	46	5	6	8	8	3	3	20	8	13	9	7	46
11-Oct	16	13	27	19	14	13	8	11	10	10	8	8	7	8	51	11	5	7	3	3	5	20	17	15	51
12-Oct	28	17	9	11	9	9	14	17	11	11	27	86	44	51	36	28	21	3	14	8	8	9	6	5	86
13-Oct	6	8	4	7	5	5	2	5	5	7	8	10	13	6	4	5	8	8	6	6	7	7	3	3	13
14-Oct	5	6	7	8	6	4	4	6	7	4	5	16	14	5	4	6	4	4	8	11	9	10	13	6	16
15-Oct	17	13	20	15	13	7	14	9	5	9	6	6	7	8	9	6	4	8	8	9	6	8	19	13	20
16-Oct	13	20	18	14	10	8	7	13	7	27	19	25	89	16	51	17	7	31	11	9	11	22	15	23	89
17-Oct	17	31	15	9	4	5	4	6	5	5	6	7	6	9	9	8	10	10	12	10	12	11	8	10	31
18-Oct	10	8	11	13	21	11	5	6	6	19	16	9	14	15	13	9	6	8	7	4	3	4	7	10	21
19-Oct	31	75	29	86	16	4	7	7	8	11	10	8	9	12	13	14	8	6	8	7	10	13	7	7	86
20-Oct	8	6	8	10	8	8	8	8	10	10	14	15	13	10	10	10	9	14	9	7	7	7	7	7	15
21-Oct	6	7	7	6	6	6	7	7	8	8	10	8	9	12	13	14	12	6	6	16	17	8	8	11	17
22-Oct	10	7	5	6	6	6	8	6	4	5	11	9	7	9	7	10	6	6	7	6	9	11	6	6	11
23-Oct	6	6	6	5	8	10	10	5	6	6	9	7	5	5	4	4	4	4	4	3	40	12	11	8	40
24-Oct	11	24	9	5	10	5	6	6	9	11	11	15	10	14	12	12	10	7	11	9	20	14	40	49	49
25-Oct	23	52	40	16	12	19	22	16	15	17	13	20	24	18	20	16	25	24	18	17	54	25	21	12	54
26-Oct	22	18	18	45	55	22	15	10	6	13	14	13	8	11	22	14	21	13	15	9	9	9	8	5	55
27-Oct	6	3	4	5	5	5	6	5	5	4	8	11	15	16	13	8	6	35	31	33	59	29	5	29	59
28-Oct	14	5	5	6	6	5	5	6	7	7	8	9	9	8	8	9	7	8	10	7	10	12	9	7	14
29-Oct	8	9	12	10	9	10	8	9	8	17	26	13	14	9	17	55	14	10	10	8	6	14	41	6	55
30-Oct	11	7	7	6	6	6	6	7	7	8	8	10	11	15	11	11	9	9	7	9	6	4	4	5	15
31-Oct	12	7	6	6	7	12	13	17	14	9	10	11	10	15	11	25	17	11	11	8	6	13	13	21	25
																	Diurnal Maximum								





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

**Wind Direction 163m (WD163) - deg**  
**Lower Camp Met Tower - October 2024**

Direction of Maximum Speed: 258 deg on Oct 23 05:00															Hours in Service: 744						
Direction of Maximum Daily Speed Average: 251.8 deg on Oct 23															Hours of Data: 743						
Direction of Minimum Speed: 58 deg on Oct 12 12:00										Direction of Minimum Daily Speed Average: 2.6 deg on Oct 12										Hours of Missing Data: 1	
Monthly Average Direction: 244.5 deg															Percent Operational Time: 99.9						

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-Oct	282	275	270	287	296	289	324	317	242	294	331	358	1	353	354	28	34	32	31	8	2	320	326	319	328.0	
2-Oct	314	321	323	305	298	293	291	290	300	303	295	300	307	313	315	307	314	309	317	323	339	335	328	322	310.5	
3-Oct	315	316	311	317	317	316	315	323	321	314	318	311	273	255	251	248	254	251	248	257	255	245	218	191	289.5	
4-Oct	195	198	208	208	171	161	158	149	170	131	118	108	105	77	55	51	53	58	47	47	23	2	7	94.3		
5-Oct	5	1	3	357	358	348	330	314	281	249	244	246	237	225	223	205	199	214	198	184	198	210	196	216	229.3	
6-Oct	235	251	256	258	262	270	269	257	248	239	238	242	245	255	263	269	265	270	268	262	243	222	209	164	254.1	
7-Oct	166	167	158	156	153	148	144	147	149	154	155	156	163	161	180	197	202	194	196	199	199	208	214	188	173.4	
8-Oct	196	200	202	204	196	186	172	168	167	165	129	142	135	130	139	128	143	152	164	258	282	249	240	236	189.5	
9-Oct	236	239	242	244	238	225	242	246	259	257	250	246	238	243	244	245	242	245	252	254	252	248	255	269	245.1	
10-Oct	230	227	227	229	223	218	222	224	222	224	206	200	223	240	243	238	251	261	263	296	334	322	269	264	246.4	
11-Oct	256	254	252	256	232	217	211	181	180	174	175	161	155	152	203	227	226	223	221	222	235	233	229	230	219.3	
12-Oct	242	259	288	297	302	293	278	280	280	271	278	58	351	337	341	14	93	90	115	134	140	142	147	148	225.4	
13-Oct	152	143	144	150	150	148	142	147	151	152	152	159	151	142	140	142	146	154	159	156	153	150	143	143	149.0	
14-Oct	142	141	141	140	141	143	145	146	141	141	142	152	152	137	139	135	139	141	143	166	184	188	191	191	148.8	
15-Oct	226	220	237	238	245	251	255	256	262	256	248	254	241	239	241	235	228	239	236	248	249	251	261	261	246.3	
16-Oct	249	230	215	194	191	201	208	172	157	166	164	144	142	64	98	100	89	99	67	70	97	102	329	283	164.4	
17-Oct	262	259	246	254	267	255	253	250	254	260	258	272	261	266	266	265	273	273	280	279	291	297	294	297	269.9	
18-Oct	299	299	307	295	282	249	252	238	241	220	161	147	164	198	206	198	205	196	185	177	175	172	163	156	208.7	
19-Oct	141	137	137	162	256	322	3	16	10	351	343	347	354	358	10	22	5	6	8	9	9	9	355	1	6.0	
20-Oct	355	351	353	353	354	358	1	6	12	18	25	41	26	28	30	29	34	37	21	16	14	14	10	12	12.3	
21-Oct	11	6	3	2	3	357	355	355	355	352	349	351	358	355	343	350	335	318	307	282	270	258	257	257	342.7	
22-Oct	230	215	215	221	229	206	217	214	219	214	223	215	204	204	198	203	209	202	210	216	230	243	246	247	218.4	
23-Oct	247	251	252	256	258	266	270	265	257	260	260	253	249	251	249	248	247	249	246	251	235	219	222	233	251.8	
24-Oct	244	246	247	252	268	269	270	270	248	261	262	276	294	300	293	293	292	297	286	291	268	271	314	27	275.5	
25-Oct	282	231	217	213	245	240	240	245	238	239	259	297	293	282	282	273	305	293	254	253	275	258	215	173	255.9	
26-Oct	169	170	128	108	80	92	66	65	92	39	10	356	353	360	42	81	92	103	118	119	121	130	134	133	105.5	
27-Oct	136	139	143	145	145	143	141	135	132	131	122	122	122	123	116	125	133	125	115	111	UO	292	339	314	132.1	
28-Oct	280	298	299	296	295	298	305	296	298	301	300	301	311	314	311	302	310	306	305	294	305	309	297	297	301.0	
29-Oct	296	297	306	303	309	302	307	309	321	305	273	247	243	239	240	190	146	159	169	153	150	132	111	23	284.8	
30-Oct	20	8	9	7	5	7	8	11	10	11	11	11	20	23	36	31	45	55	61	58	60	74	76	81	74	30.5
31-Oct	99	119	122	125	117	117	119	129	125	118	118	130	129	125	140	173	142	158	168	172	171	183	189	211	139.1	

253.7 261.0 260.7 259.0 259.6 256.3 259.2 248.8 242.9 243.2 243.5 238.7 229.7 234.9 239.3 230.7 232.6 231.1 226.0 234.1 234.8 233.3 244.9 244.0  
 Diurnal Average

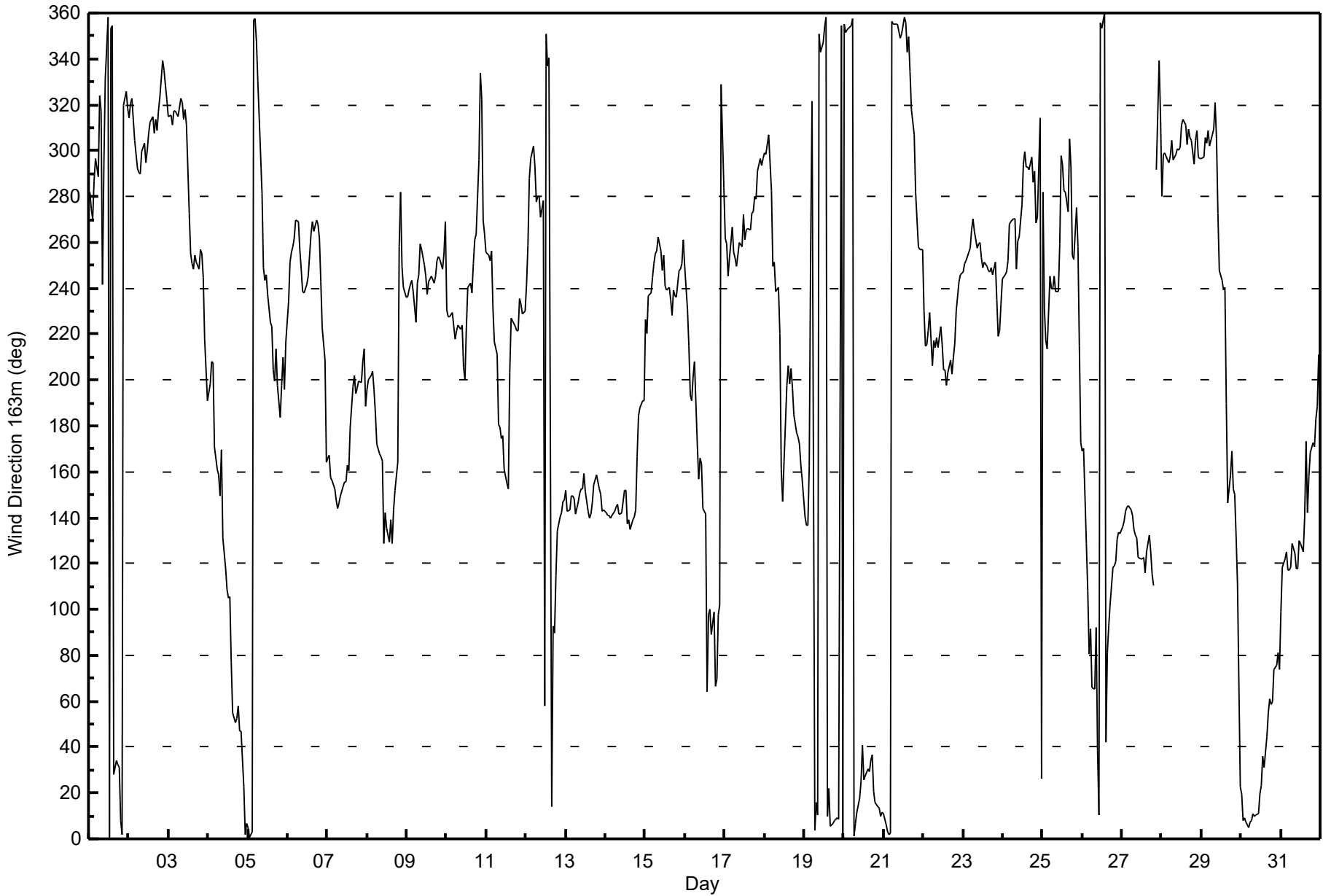
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 163m (WD163) - deg**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Oct 12 12:00 Minimum Value: 2 deg on Oct 9 20:00 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> = 52																	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-Oct	4	25	9	19	22	12	20	58	15	16	20	44	17	16	18	15	15	5	5	7	23	5	3	5	58		
2-Oct	7	15	8	4	6	8	9	10	8	9	7	11	8	8	7	8	10	7	9	6	8	6	5	5	15		
3-Oct	4	4	7	6	6	6	6	6	7	10	11	15	46	18	15	14	12	6	2	4	11	10	34	12	46		
4-Oct	9	10	10	9	11	7	13	9	18	8	11	13	10	8	11	9	8	11	10	57	16	7	8	7	57		
5-Oct	7	5	6	8	6	5	14	4	27	11	11	6	8	13	15	20	21	4	7	3	7	2	8	8	27		
6-Oct	6	6	3	4	2	4	4	7	6	7	6	6	5	6	9	6	4	7	4	3	12	8	11	21	21		
7-Oct	13	13	4	5	5	5	4	4	6	6	6	6	7	8	13	7	12	3	3	3	4	9	10	10	13		
8-Oct	11	10	9	6	14	19	16	8	6	6	7	8	6	5	7	5	9	7	9	42	19	6	5	6	42		
9-Oct	5	3	4	4	5	9	6	4	7	5	6	7	8	7	5	9	6	3	4	2	3	4	7	28	28		
10-Oct	35	11	7	6	7	7	10	8	9	11	8	15	31	5	5	8	8	2	5	10	10	10	14	7	35		
11-Oct	6	7	6	15	8	8	13	13	10	10	11	15	8	11	39	9	5	4	4	3	3	6	6	8	39		
12-Oct	13	19	7	7	3	8	11	27	18	12	23	99	26	42	28	60	22	6	9	5	3	4	5	5	99		
13-Oct	5	6	5	5	5	6	5	5	7	7	8	9	12	7	5	5	9	6	5	5	5	5	4	4	12		
14-Oct	4	4	4	5	5	4	4	6	5	4	6	10	11	4	4	5	4	5	8	16	12	9	10	11	16		
15-Oct	13	11	12	12	8	4	7	4	5	7	6	6	9	9	10	5	4	6	7	10	3	5	7	7	13		
16-Oct	10	7	12	8	5	12	5	13	7	9	12	10	30	34	13	13	8	18	13	34	16	30	24	58	58		
17-Oct	14	15	6	6	5	5	3	4	4	4	5	5	5	7	7	7	7	8	9	8	10	9	6	7	15		
18-Oct	8	6	8	12	17	12	6	4	5	19	13	12	13	13	11	9	5	8	5	4	2	4	3	8	19		
19-Oct	8	31	70	43	11	32	9	9	10	9	10	7	10	12	14	12	8	6	8	8	9	12	6	8	70		
20-Oct	7	5	6	7	7	8	8	7	10	9	15	14	13	9	10	9	7	9	8	7	6	7	7	7	15		
21-Oct	6	6	7	7	6	6	6	6	7	6	8	6	9	10	9	13	9	4	6	17	15	7	7	10	17		
22-Oct	10	6	4	5	6	8	8	7	4	5	9	8	6	8	6	8	5	5	6	6	9	10	5	6	10		
23-Oct	5	4	4	4	5	7	6	5	5	4	5	5	3	3	4	3	3	3	3	2	24	9	6	6	24		
24-Oct	7	11	5	3	10	6	4	6	7	7	9	12	9	13	11	10	10	7	9	7	15	12	25	23	25		
25-Oct	66	26	32	15	6	6	12	9	5	9	17	17	20	17	18	15	21	15	15	11	31	39	34	12	66		
26-Oct	19	10	28	19	39	25	12	16	15	40	8	14	7	13	39	9	17	11	10	7	8	7	6	5	40		
27-Oct	7	3	5	5	6	5	5	6	4	4	7	9	14	14	10	7	5	8	8	16	UO	78	7	22	78		
28-Oct	11	4	4	4	4	4	6	5	5	5	7	8	8	7	6	8	6	7	9	6	8	10	7	5	11		
29-Oct	6	8	11	8	7	7	7	7	8	15	24	12	13	8	13	32	13	8	10	7	9	5	26	17	32		
30-Oct	7	7	7	6	7	6	7	8	8	7	7	10	12	13	10	10	7	6	6	7	6	3	5	4	13		
31-Oct	9	7	4	4	4	5	4	11	10	7	8	9	8	12	12	19	16	11	10	7	6	11	11	20	20		
																	Diurnal Maximum										
UO - Unstable Operation																											





Maximum Value: 0.3 km/h on Oct 15 20:00																				Maximum Daily Average: 0.0 km/h on Oct 16					Hours in Service: 744				
Minimum Value: -1.2 km/h on Oct 23 05:00																				Minimum Daily Average: -0.7 km/h on Oct 17					Hours of Data: 744				
Maximum Diurnal Average: -0.2 km/h at hour 24																				Minimum Diurnal Average: -0.4 km/h at hour 13					Hours of Missing Data: 0				
Monthly Average: -0.28 km/h																				Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.7 Q <sub>1</sub> = -0.5 Median = -0.2 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.3					Hours of Calibration: 0				
																				Percent Operational Time: 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-Oct	-0.2	0.0	-0.1	-0.2	-0.1	0.1	-0.1	0.0	-0.1	-0.3	0.0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.1	-0.1	0.0	-0.2	-0.1	0.1			
2-Oct	-0.4	-0.2	-0.2	-0.4	-0.5	-0.4	-0.8	-0.5	-0.6	-0.9	-0.8	-0.4	-0.8	-0.8	-0.9	-0.9	-0.4	-0.6	-0.6	-0.5	-0.2	-0.1	-0.5	-0.5	-0.5	-0.5			
3-Oct	-0.4	-0.5	-0.3	-0.4	-0.4	-0.5	-0.5	-0.4	-0.2	-0.4	-0.4	-0.3	-0.2	-0.5	-0.4	-0.6	-0.4	-0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1			
4-Oct	-0.1	-0.1	0.0	-0.2	-0.2	-0.4	-0.2	0.1	-0.2	-0.2	0.3	-0.3	-0.4	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.2	0.0	0.0	0.0	0.0			
5-Oct	-0.2	-0.3	-0.1	0.0	-0.1	-0.1	-0.1	0.0	0.0	0.1	-0.2	-0.3	-0.6	-0.2	-0.3	-0.4	-0.4	-0.4	0.0	0.2	-0.6	-0.6	0.0	-0.1	-0.1	0.1			
6-Oct	-0.3	-0.5	-0.8	-0.9	-0.8	-1.0	-0.7	-0.4	-0.7	-0.8	-1.0	-0.9	-0.9	-0.6	-0.7	-0.6	-0.5	-0.5	-0.3	0.0	0.1	0.0	0.1	0.1	0.1	0.1			
7-Oct	0.0	-0.2	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.4	-0.6	-0.4	-0.3	0.0	0.0	-0.7	-0.8	-0.6	0.0	-0.1	-0.1	0.1	0.1	0.1			
8-Oct	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.0	-0.1	-0.4	-0.1	-0.2	-0.3	-0.3	-0.5	-0.8	-0.3	-0.3	-0.5	-0.6	-0.6	-0.6			
9-Oct	-0.6	-0.4	-0.5	-0.2	-0.2	-0.3	-0.2	-0.3	-0.6	-0.3	-0.4	-0.6	-0.6	-0.7	-0.6	-0.5	-0.2	0.0	0.1	0.0	-0.1	0.0	0.3	0.3	0.3	0.3			
10-Oct	0.1	0.1	0.1	0.2	0.0	0.1	-0.1	0.1	-0.1	-0.1	-0.3	-0.2	-0.3	-0.8	-0.7	-0.7	-0.7	-0.4	-0.3	-0.2	-0.1	0.0	0.0	0.1	0.1	0.1			
11-Oct	-0.2	-0.1	0.1	0.3	0.2	0.1	0.0	-0.4	-0.3	-0.3	-0.3	-0.5	-0.7	-0.6	-0.3	-0.4	-0.4	-0.4	-0.5	-0.6	-0.2	0.2	0.2	0.1	0.1	0.1			
12-Oct	0.0	-0.1	-0.2	-0.2	-0.1	0.1	0.0	0.1	0.0	-0.6	-0.3	-0.1	-0.1	0.1	0.0	0.3	-0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.0			
13-Oct	0.0	-0.2	0.0	-0.2	-0.3	-0.3	-0.3	-0.3	-0.8	-0.7	-1.0	-0.7	-0.7	-0.8	-0.4	-0.5	-0.5	-0.3	-0.3	-0.1	-0.6	-0.7	-0.3	0.0	0.0	0.0			
14-Oct	-0.2	-0.2	0.1	0.0	-0.1	0.0	-0.4	-0.7	-0.4	-0.5	-0.1	-0.3	-0.7	-0.1	-0.6	-0.4	-0.4	-0.2	-0.5	-0.3	-0.1	-0.5	-0.2	-0.3	-0.3	-0.3			
15-Oct	-0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.4	-0.5	0.0	-0.2	-0.7	-0.5	-0.6	-0.6	-0.5	-0.3	-0.3	-0.1	0.0	0.3	0.0	0.0	-0.1	-0.1	-0.1	-0.1			
16-Oct	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	0.0	-0.1	0.0	0.0			
17-Oct	-0.1	0.0	0.0	-0.2	-0.2	-0.5	-0.5	-0.5	-0.7	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-1.0	-0.7	-0.8	-0.7	-0.7	-1.0	-0.7	-0.7	-0.7			
18-Oct	-0.5	-0.6	-0.5	-0.6	-0.4	-0.1	-0.2	-0.3	-0.7	-0.5	-0.3	-0.5	-0.4	-0.7	-0.6	-0.9	-0.6	-0.7	-0.6	0.2	0.1	-0.2	-0.1	-0.1	-0.1	-0.1			
19-Oct	0.0	-0.2	0.0	-0.1	-0.2	-0.1	-0.2	0.0	0.0	0.2	0.0	-0.2	-0.2	-0.1	0.1	-0.1	-0.3	-0.4	-0.1	-0.3	0.0	0.0	-0.4	-0.3	-0.3	-0.3			
20-Oct	-0.1	-0.4	-0.2	-0.2	0.0	-0.2	-0.2	-0.1	0.0	0.2	0.1	0.0	0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.3	-0.3	-0.5	-0.3	-0.5	-0.6	-0.6	-0.6			
21-Oct	-0.7	-0.8	-0.8	-0.6	-0.7	-0.7	-0.3	-0.5	-0.4	-0.4	-0.2	-0.6	-0.5	-0.3	0.2	-0.1	0.0	-0.2	-0.6	-0.3	-0.2	-0.5	-0.6	-0.6	-0.6	-0.6			
22-Oct	-0.4	-0.6	-0.5	-0.2	-0.5	-0.8	-0.9	-1.0	-1.1	-0.8	-0.4	-0.6	-0.7	-0.5	-0.9	-0.7	-0.8	-1.0	-0.7	-0.7	-0.5	-0.3	-0.4	-0.3	-0.3	-0.3			
23-Oct	-0.5	-0.6	-0.7	-0.9	-1.2	-0.6	-0.6	-0.5	-0.4	-0.4	-0.3	-0.5	-0.8	-0.7	-0.7	-0.7	-0.6	-0.4	-0.4	-0.5	-0.2	0.0	0.0	-0.1	0.0	0.0			
24-Oct	0.0	0.0	0.1	-0.4	-0.6	0.1	-0.3	-0.5	-0.2	-0.4	-0.3	-0.4	-0.8	-0.5	-0.7	-0.5	-0.5	-0.3	-0.4	-0.3	0.2	-0.1	0.0	0.1	0.1	0.1			
25-Oct	0.0	0.0	-0.1	-0.2	-0.4	0.0	-0.1	0.0	0.0	-0.1	-0.5	-0.1	-0.2	-0.5	-0.3	-0.5	-0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0			
26-Oct	0.0	0.0	0.1	-0.1	-0.1	0.0	-0.2	-0.1	-0.3	-0.2	0.1	0.0	0.3	0.0	-0.2	0.0	0.0	0.0	-0.2	-0.4	0.0	-0.3	-0.5	-0.3	-0.3	-0.3			
27-Oct	-0.5	-0.4	-0.5	-0.5	-0.4	-0.2	-0.3	-0.2	-0.2	-0.5	-0.1	-0.2	-0.5	-0.1	-0.3	-0.3	-0.3	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	-0.1			
28-Oct	0.0	-0.3	-0.4	-0.5	-0.5	-0.3	-0.4	-0.4	-0.2	-0.6	-0.7	-0.6	-0.7	-0.8	-0.5	-0.5	-0.6	-0.7	-0.6	-0.8	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3			
29-Oct	-0.6	-0.4	-0.5	-0.7	-0.9	-0.5	-0.4	-0.4	0.1	-0.4	-0.4	-0.6	-0.4	-0.4	0.0	-0.1	-0.1	0.1	0.0	0.1	0.0	0.1	-0.2	-0.1	-0.1	-0.1			
30-Oct	-0.1	-0.2	-0.1	-0.2	-0.4	-0.3	-0.2	-0.1	-0.3	-0.2	-0.4	-0.1	0.0	0.0	0.2	0.1	-0.2	0.1	-0.3	-0.1	0.0	0.0	0.1	-0.1	-0.1	-0.1			
31-Oct	-0.2	-0.1	-0.2	-0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.4	-0.5	-0.5	-0.3	-0.3	0.0	-0.3	-0.3	-0.6	-0.9	-0.7	-0.6	-0.5	-0.4	-0.4	-0.4			
																								Diurnal Average					
																								Diurnal Maximum					



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

**Vertical Wind Speed 20m (VW20) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.7 km/h on Oct 17 17:00		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Minimum Value: 0.1 km/h on Oct 5 08:00																									
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.0 Median = 1.6 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.9 P <sub>99</sub> = 3.9																									
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-Oct	2.2	1.0	1.3	0.9	0.4	0.2	0.3	0.2	0.5	0.9	1.8	1.6	1.9	2.2	1.6	1.5	1.6	1.8	0.9	0.5	0.1	0.3	0.4	0.7	2.2
2-Oct	1.3	1.2	1.9	2.6	2.5	2.5	3.1	2.3	2.7	3.6	3.6	3.1	3.1	3.2	3.3	2.7	3.0	3.0	2.9	2.2	2.7	2.4	2.0	2.0	3.6
3-Oct	1.9	2.0	1.7	1.6	1.4	1.9	2.1	1.8	1.7	2.3	2.2	2.2	2.1	2.2	1.9	2.2	2.1	1.6	0.8	0.9	0.7	0.8	0.5	0.9	2.3
4-Oct	1.2	0.9	1.1	1.3	1.4	1.3	0.8	0.6	1.3	1.0	1.2	1.2	1.3	2.0	1.7	1.2	1.3	1.4	1.4	0.9	1.0	1.4	1.5	1.8	2.0
5-Oct	1.9	2.1	1.5	1.1	0.6	0.4	0.3	0.1	0.3	0.7	0.8	1.4	1.6	1.9	2.0	1.1	1.1	1.0	0.8	1.3	1.9	2.0	1.9	1.4	2.1
6-Oct	1.9	2.3	2.6	3.6	3.9	4.0	3.2	2.2	1.8	2.3	2.5	3.0	2.8	3.1	3.1	3.1	2.5	1.8	1.2	0.9	0.6	0.4	0.3	0.5	4.0
7-Oct	0.9	1.4	1.6	1.3	1.2	0.7	0.8	1.2	1.5	1.1	1.6	1.9	2.0	2.0	1.6	1.1	0.6	0.8	1.1	1.3	1.2	1.1	0.7	0.5	2.0
8-Oct	0.8	1.1	0.9	0.8	0.9	0.5	0.4	0.5	0.6	0.7	0.4	0.8	0.9	1.0	1.0	0.9	1.8	1.3	1.3	4.1	2.2	2.1	2.1	2.1	4.1
9-Oct	2.1	2.3	2.4	2.2	1.6	1.3	1.4	1.7	2.9	2.2	2.3	1.6	1.8	2.1	1.9	1.4	1.0	0.8	0.6	0.7	0.5	0.5	0.9	0.6	2.9
10-Oct	0.6	0.5	0.4	1.1	1.5	1.3	1.1	1.3	1.5	1.4	1.6	1.5	1.7	2.2	2.0	1.7	2.2	1.8	1.2	1.6	0.5	0.4	0.5	0.8	2.2
11-Oct	1.1	1.2	1.0	0.8	1.1	1.2	1.3	1.2	1.4	1.7	1.7	1.9	2.1	2.2	1.9	1.6	1.3	1.0	1.8	2.2	2.0	0.9	0.7	0.5	2.2
12-Oct	0.6	0.9	0.9	1.0	0.7	0.4	0.8	0.6	0.7	1.2	1.3	1.3	1.6	1.6	1.5	1.2	0.7	0.4	0.3	0.4	0.5	0.5	1.3	1.4	1.6
13-Oct	1.5	1.1	1.1	1.4	1.3	1.1	2.3	2.9	3.5	3.0	3.2	2.9	3.1	3.6	3.5	2.6	1.8	2.1	1.6	1.6	2.0	2.2	2.3	2.4	3.6
14-Oct	1.3	1.2	2.2	1.6	2.9	3.0	2.8	3.0	3.4	2.9	2.9	1.8	2.2	3.0	3.4	2.7	2.5	2.8	2.6	1.5	1.3	1.0	0.8	1.2	3.4
15-Oct	0.9	1.0	1.2	0.9	1.1	1.3	1.5	2.2	3.3	2.3	1.7	2.3	1.6	1.3	1.3	1.2	0.7	0.7	0.5	1.3	1.0	0.6	0.9	0.6	3.3
16-Oct	0.6	0.9	0.5	0.4	0.4	0.6	0.9	0.8	0.6	1.0	0.7	0.7	0.5	0.8	0.4	0.7	0.7	0.7	1.1	0.9	1.1	1.0	0.8	0.6	1.1
17-Oct	0.5	0.4	0.5	1.0	2.0	2.1	2.5	3.0	3.1	3.5	3.6	3.7	3.1	3.6	3.9	3.8	4.7	4.6	3.9	3.8	3.9	3.5	3.8	2.9	4.7
18-Oct	2.4	2.6	2.0	2.2	1.4	1.2	1.5	1.7	1.5	1.2	1.5	2.1	1.9	1.7	1.6	1.7	1.4	0.6	1.0	1.1	1.2	1.3	1.3	1.1	2.6
19-Oct	0.7	0.8	0.5	0.4	0.6	1.1	1.1	1.1	1.0	1.3	1.5	1.7	1.8	1.3	1.3	1.2	1.5	1.7	1.6	2.0	2.1	2.2	2.1	2.0	2.2
20-Oct	2.1	2.7	2.3	2.0	2.0	2.1	2.2	2.1	1.6	1.7	1.9	1.4	1.5	1.9	2.1	2.1	2.0	1.9	1.9	2.0	2.4	2.4	2.7	2.7	2.7
21-Oct	3.1	3.2	3.1	3.1	3.1	3.4	3.1	3.2	2.8	2.9	3.1	2.9	2.2	1.7	1.3	1.3	1.2	1.2	1.7	1.6	1.9	2.1	2.3	2.2	3.4
22-Oct	1.6	1.4	1.5	1.7	1.7	1.7	1.7	1.7	1.6	1.6	2.1	1.9	1.7	1.9	1.7	2.0	1.8	1.7	2.0	2.0	1.8	1.7	2.0	2.1	2.1
23-Oct	2.0	2.9	3.6	4.0	4.3	3.5	2.1	2.2	2.5	2.6	2.5	2.8	3.3	3.0	2.7	2.3	2.4	1.9	2.0	1.9	1.2	0.8	1.0	1.1	4.3
24-Oct	1.0	1.0	1.5	1.7	2.4	2.6	2.8	2.3	1.4	1.4	1.7	3.0	3.1	2.8	2.6	2.7	1.4	0.9	1.6	1.7	1.2	1.1	1.0	0.3	3.1
25-Oct	0.3	0.4	0.6	1.4	1.4	1.1	0.8	0.9	1.4	1.2	1.4	1.7	1.8	2.2	1.8	1.6	0.6	0.3	0.2	0.2	0.2	0.3	0.2	0.2	2.2
26-Oct	0.3	0.1	0.2	0.3	0.4	0.3	0.2	0.4	1.0	1.3	1.4	1.3	1.7	1.6	1.1	0.4	0.7	0.9	1.3	1.9	1.8	1.9	2.5	3.1	3.1
27-Oct	2.9	2.9	2.8	2.5	2.7	2.6	1.8	2.0	2.3	2.5	1.9	1.7	2.3	1.9	2.0	2.6	1.7	0.4	0.6	0.8	0.7	0.9	1.1	0.8	2.9
28-Oct	0.9	2.7	2.8	2.9	2.8	2.9	2.2	2.5	2.5	2.6	2.8	2.6	2.6	2.7	2.6	2.5	2.4	2.4	2.4	3.2	3.0	2.2	2.7	2.8	3.2
29-Oct	2.2	2.4	2.6	3.0	2.9	2.6	2.1	1.9	1.6	1.5	1.7	1.9	1.7	1.4	1.4	0.6	0.5	0.3	0.3	0.3	0.6	0.3	0.6	1.2	3.0
30-Oct	1.2	1.6	1.6	1.8	2.1	2.2	2.0	1.8	1.8	1.9	1.9	2.1	1.8	1.9	2.1	2.1	1.9	1.7	1.6	1.5	1.2	1.3	1.3	0.9	2.2
31-Oct	0.8	0.6	0.7	0.9	1.4	1.0	1.0	0.8	1.6	1.8	2.2	2.6	2.5	1.8	1.3	1.2	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.1	2.6
Diurnal Maximum																									



Maximum Value: 1.2 km/h on Oct 14 07:00																				Maximum Daily Average: 0.5 km/h on Oct 14					Hours in Service:	744
Minimum Value: -0.8 km/h on Oct 2 13:00																				Minimum Daily Average: -0.4 km/h on Oct 2					Hours of Data:	744
Maximum Diurnal Average: 0.3 km/h at hour 23																				Minimum Diurnal Average: 0.1 km/h at hour 13					Hours of Missing Data:	0
Monthly Average: 0.17 km/h																				Percentiles: P <sub>1</sub> = -0.6 P <sub>10</sub> = -0.3 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.6 P <sub>99</sub> = 0.9					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-Oct	0.7	0.1	0.2	-0.3	0.1	0.2	0.2	0.1	0.1	-0.2	0.3	0.2	-0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.7
2-Oct	-0.5	0.0	-0.1	-0.2	-0.3	0.0	-0.3	0.1	-0.3	-0.7	-0.8	0.2	-0.8	-0.7	-0.7	-0.7	-0.3	-0.4	-0.7	-0.3	-0.2	-0.1	-0.4	-0.3	-0.4	0.2
3-Oct	-0.3	-0.5	-0.4	-0.2	-0.4	-0.4	-0.3	-0.4	-0.3	-0.4	-0.4	0.1	0.2	0.0	0.3	0.0	0.2	0.6	0.6	0.7	0.5	0.4	0.8	0.7	0.0	0.8
4-Oct	0.4	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.1	-0.1	0.6	0.0	-0.1	0.2	0.1	0.2	0.4	0.3	0.1	0.1	-0.1	0.0	0.2	0.1	0.2	0.6
5-Oct	0.1	-0.1	0.2	0.0	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.6	0.0	0.7	0.6	0.1	0.0	0.1	0.3	0.8	-0.2	-0.1	0.7	0.5	0.2	0.8
6-Oct	0.2	0.1	0.0	-0.3	-0.2	-0.2	-0.2	0.1	0.1	0.1	-0.1	0.4	0.0	0.0	-0.1	-0.1	0.0	0.1	0.4	1.0	0.4	0.4	0.7	0.5	0.1	1.0
7-Oct	0.4	0.1	-0.2	-0.1	0.1	-0.1	0.2	0.2	0.4	0.3	0.2	-0.1	0.2	0.3	0.6	0.1	0.5	-0.2	-0.3	0.0	0.6	0.3	0.4	0.6	0.2	0.6
8-Oct	0.8	0.9	0.8	0.7	0.6	0.3	0.4	0.5	0.5	0.3	0.2	0.2	0.4	0.0	0.1	0.5	0.6	0.3	0.1	-0.4	0.0	0.4	0.3	0.2	0.4	0.9
9-Oct	0.2	0.5	0.5	0.7	0.3	0.0	0.4	0.7	0.2	0.3	0.2	0.1	0.0	0.1	0.0	-0.1	0.3	0.6	0.6	0.2	0.1	0.2	0.3	0.3	0.3	0.7
10-Oct	0.2	0.9	0.7	1.1	0.6	0.8	0.3	0.7	0.6	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.4	0.3	0.0	0.2	0.2	0.1	0.3	1.1	0.7
11-Oct	-0.1	-0.2	0.1	0.4	0.9	0.9	0.7	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.2	0.3	0.3	0.4	0.5	0.5	0.7	0.6	0.4	0.6	0.3	0.9
12-Oct	0.7	0.1	0.0	-0.1	0.4	0.3	0.1	0.5	0.2	-0.3	0.1	0.1	0.5	0.6	-0.2	0.2	0.2	0.3	0.6	0.4	0.2	0.6	0.7	0.6	0.3	0.7
13-Oct	0.5	0.3	0.3	0.2	-0.3	-0.1	0.8	0.7	0.2	0.4	0.8	0.0	0.4	0.8	0.8	0.8	0.4	0.5	0.3	0.5	0.4	0.7	0.8	0.9	0.5	0.9
14-Oct	0.3	0.4	0.5	0.6	1.1	1.0	1.2	0.6	0.8	0.6	0.6	0.7	0.4	0.8	0.6	0.4	0.5	1.0	0.6	0.3	0.2	-0.1	-0.1	0.1	0.5	1.2
15-Oct	0.2	0.4	0.4	0.0	0.1	0.1	-0.1	-0.2	0.9	0.5	0.2	0.2	-0.3	-0.1	0.0	0.1	0.2	0.4	0.4	0.9	0.7	0.3	0.3	0.1	0.2	0.9
16-Oct	0.5	0.1	0.5	0.7	0.4	0.4	0.5	0.4	0.3	0.1	0.2	0.1	0.3	0.1	0.2	0.0	-0.1	-0.1	-0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.7
17-Oct	0.1	0.1	0.3	0.2	0.3	0.3	0.5	0.6	0.1	-0.2	-0.2	-0.6	-0.6	-0.4	-0.3	-0.3	-0.3	-0.6	-0.4	-0.3	-0.3	-0.5	-0.6	-0.5	-0.2	0.6
18-Oct	-0.5	-0.6	-0.4	-0.5	-0.2	0.5	0.7	0.8	0.0	-0.1	0.1	0.1	0.4	-0.2	0.1	-0.4	-0.1	-0.1	-0.2	0.5	0.6	0.5	0.7	0.3	0.1	0.8
19-Oct	0.2	-0.1	0.2	0.0	0.1	0.0	-0.1	0.1	0.2	0.1	0.1	0.0	-0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.1	0.0	0.1	0.4
20-Oct	0.4	0.1	0.2	0.2	0.1	0.3	0.3	0.4	0.5	0.4	0.5	0.3	0.4	0.2	0.5	0.4	0.4	0.4	0.3	0.1	0.3	0.3	0.1	0.2	0.3	0.5
21-Oct	0.2	0.3	0.0	0.1	0.0	0.2	-0.1	0.2	0.5	0.0	0.0	0.2	-0.1	0.2	0.5	0.0	0.2	0.0	-0.4	-0.1	0.3	0.0	0.0	0.1	0.1	0.5
22-Oct	0.3	-0.1	0.2	0.3	0.2	-0.2	0.0	-0.4	-0.3	0.0	0.2	0.1	0.0	0.0	-0.2	0.0	0.0	-0.2	-0.1	0.1	0.1	0.1	0.3	0.5	0.0	0.5
23-Oct	0.1	0.4	0.4	0.1	0.0	-0.6	-0.3	0.5	0.1	0.1	-0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.5	0.4	0.3	0.2	0.6	0.2	0.6
24-Oct	0.6	0.1	0.9	0.3	0.1	1.1	0.6	0.4	0.4	0.0	0.4	0.3	-0.6	-0.2	-0.3	-0.2	-0.3	0.1	0.2	0.3	0.6	0.3	0.3	0.2	0.2	1.1
25-Oct	0.2	0.2	0.2	-0.2	-0.2	0.2	0.3	0.2	0.7	0.3	0.0	0.4	0.2	-0.4	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.7
26-Oct	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	-0.1	0.2	0.3	0.6	0.4	0.2	0.0	0.2	0.2	0.0	0.1	0.3	0.3	0.0	0.4	0.5	0.2	0.6
27-Oct	0.5	0.2	0.6	0.7	0.9	0.7	0.6	0.6	0.3	0.5	0.5	0.4	0.4	0.5	0.3	0.3	0.3	0.2	0.2	0.0	-0.1	0.3	0.5	0.0	0.4	0.9
28-Oct	0.3	-0.2	-0.6	-0.3	-0.3	-0.5	-0.5	-0.3	-0.2	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.3	-0.6	-0.5	-0.4	-0.6	-0.2	-0.1	-0.3	-0.3	-0.4	0.3
29-Oct	-0.4	-0.5	-0.5	-0.6	-0.8	-0.4	-0.4	-0.4	0.2	-0.1	0.1	-0.1	0.1	0.0	0.1	0.0	0.1	0.3	0.2	0.3	0.3	0.3	0.0	0.3	-0.1	0.3
30-Oct	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.1	0.4	0.1	0.4	0.3	0.1	0.2	-0.1	0.0	0.2	0.2	0.4	0.3	0.2	0.4
31-Oct	0.0	0.0	0.0	-0.1	0.4	0.5	0.4	0.3	0.4	0.3	0.4	0.5	0.2	0.4	0.2	0.6	0.2	0.2	-0.2	-0.6	-0.4	-0.1	0.1	0.1	0.1	0.6
																								Diurnal Average		
																								Diurnal Maximum		





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

**Vertical Wind Speed 45m (VW45) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5.0 km/h on Oct 17 17:00		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Minimum Value: 0.2 km/h on Oct 5 08:00																									
Percentiles: $P_1 = 0.3$ $P_{10} = 0.6$ $Q_1 = 1.0$ Median = 1.6 $Q_3 = 2.1$ $P_{90} = 2.7$ $P_{99} = 3.9$																									
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-Oct	1.9	1.3	1.6	1.2	0.3	0.3	0.3	0.3	0.5	1.0	1.8	1.8	1.8	2.1	1.6	1.5	1.6	1.7	1.0	0.7	0.2	0.5	0.5	0.7	2.1
2-Oct	1.1	1.5	2.0	2.1	2.2	2.5	3.0	2.5	2.6	3.5	3.2	3.4	3.1	3.4	3.5	2.9	3.1	3.2	3.0	2.3	2.6	2.6	2.3	1.9	3.5
3-Oct	1.9	2.0	1.8	1.6	1.3	1.9	2.2	1.8	1.7	2.5	2.4	2.4	2.1	2.5	2.1	2.2	2.1	1.5	0.9	1.2	1.1	1.2	0.6	0.8	2.5
4-Oct	1.0	0.8	1.1	1.1	1.3	1.2	0.9	0.7	1.1	0.9	1.2	0.8	1.0	1.9	1.7	1.3	1.5	1.7	1.7	1.2	0.8	1.2	1.4	1.6	1.9
5-Oct	1.6	1.7	1.4	1.1	0.6	0.4	0.2	0.2	0.3	0.8	1.1	1.4	1.5	2.2	2.3	1.4	1.4	1.3	0.9	1.4	2.0	2.1	1.9	2.0	2.3
6-Oct	2.2	2.3	2.5	3.0	3.4	3.8	3.4	2.1	2.0	2.1	2.3	2.8	2.4	2.7	2.9	3.1	2.3	1.7	0.8	0.8	0.9	0.6	0.4	0.5	3.8
7-Oct	0.9	1.4	1.4	1.1	1.1	0.9	1.2	1.3	1.3	0.8	1.2	1.6	1.7	2.1	1.7	1.0	0.6	0.9	1.3	1.6	1.5	1.5	0.7	0.6	2.1
8-Oct	0.7	0.7	0.7	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.4	0.6	0.9	0.9	1.0	1.4	1.9	1.3	1.5	4.3	2.4	2.0	2.4	2.4	4.3
9-Oct	2.4	2.3	2.3	2.1	1.8	1.7	1.6	1.6	2.8	2.3	2.2	1.6	1.9	1.9	1.7	1.3	1.1	0.8	1.0	1.0	0.8	0.8	1.1	0.7	2.8
10-Oct	0.6	0.6	0.4	0.9	1.1	1.1	1.0	1.0	1.1	1.0	1.0	0.9	1.8	1.9	1.9	1.5	1.8	1.5	0.9	1.5	0.7	0.5	0.9	1.2	1.9
11-Oct	1.5	1.6	1.2	1.0	0.9	1.0	1.0	1.1	1.1	1.5	1.4	1.4	1.2	1.6	1.9	1.6	1.4	1.0	1.8	2.3	2.2	1.2	1.1	0.8	2.3
12-Oct	0.9	1.0	1.2	1.2	1.0	0.9	1.4	0.9	0.8	1.2	1.4	1.4	1.8	1.8	1.8	1.2	0.8	0.5	0.5	0.6	0.5	0.6	0.8	1.0	1.8
13-Oct	1.0	1.0	0.9	1.0	1.0	1.1	1.9	2.5	2.3	2.5	2.9	3.7	2.9	2.6	2.5	1.9	1.6	2.5	1.9	1.9	1.7	2.0	1.9	2.1	3.7
14-Oct	1.6	1.5	2.1	2.1	2.7	2.3	2.3	2.0	2.4	2.1	2.5	2.1	2.3	2.6	2.5	2.2	1.8	2.3	1.9	1.6	1.4	1.2	0.8	1.2	2.7
15-Oct	1.1	0.8	1.1	1.0	1.4	1.5	2.0	2.6	3.2	2.3	1.6	2.0	1.6	1.5	1.3	1.1	0.7	0.7	0.7	1.5	1.0	1.0	1.1	1.0	3.2
16-Oct	0.9	1.3	0.8	0.4	0.4	0.6	0.7	0.7	0.6	0.9	0.7	0.7	0.5	0.6	0.5	0.5	0.6	0.4	0.8	0.8	0.9	0.8	0.5	0.7	1.3
17-Oct	0.5	0.4	0.7	1.0	1.6	1.8	2.3	2.6	2.8	3.0	3.2	3.7	2.9	3.5	3.9	3.7	5.0	5.0	4.4	4.0	3.9	3.8	3.8	3.1	5.0
18-Oct	2.4	2.8	2.0	2.0	1.7	1.2	1.5	1.6	1.6	1.4	1.4	1.6	1.8	2.0	2.2	2.0	1.7	0.7	0.9	1.2	1.4	1.5	1.4	0.9	2.8
19-Oct	0.7	0.7	0.5	0.4	0.5	0.8	1.0	1.0	1.0	1.4	1.4	1.6	1.7	1.3	1.2	1.1	1.1	1.3	1.3	1.5	2.0	1.9	1.8	1.6	2.0
20-Oct	1.9	2.4	2.1	1.8	2.0	2.0	1.9	1.8	1.5	1.6	1.7	1.5	1.6	1.7	1.9	1.9	1.9	2.0	1.7	1.5	1.9	2.1	2.2	2.2	2.4
21-Oct	2.3	2.6	2.6	2.6	2.5	3.0	2.7	2.9	2.8	2.7	2.7	2.7	1.9	1.6	1.5	1.2	1.4	1.3	1.7	1.5	1.9	2.0	2.2	2.1	3.0
22-Oct	1.9	1.4	1.8	1.9	2.1	1.8	1.8	1.7	1.5	1.8	2.5	2.2	2.1	2.2	2.0	2.3	2.1	2.0	2.4	2.5	2.2	2.0	2.1	2.1	2.5
23-Oct	1.9	2.9	3.6	3.7	4.2	3.5	2.4	1.9	2.2	2.5	2.5	2.8	3.0	2.7	2.4	2.0	2.1	1.6	1.6	1.5	1.4	1.1	1.3	1.3	4.2
24-Oct	1.3	1.3	1.8	1.7	2.1	2.8	2.4	1.8	1.5	1.6	1.8	3.4	3.1	3.1	2.8	2.9	1.3	0.8	1.3	1.3	1.7	1.2	1.3	0.4	3.4
25-Oct	0.4	0.6	0.8	1.9	1.7	1.3	1.2	1.1	1.7	1.3	1.2	1.9	2.0	2.3	2.0	1.8	0.9	0.4	0.4	0.4	0.3	0.4	0.2	0.2	2.3
26-Oct	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.9	1.3	1.4	1.5	1.8	1.6	0.9	0.7	0.9	1.2	1.5	2.0	1.8	1.9	2.1	2.4	2.4
27-Oct	1.9	1.9	2.0	2.0	2.2	2.3	2.1	1.6	2.1	1.9	1.7	1.5	2.1	1.7	2.0	2.5	1.5	0.6	0.8	0.8	0.7	0.8	1.2	0.8	2.5
28-Oct	1.1	2.4	2.4	2.7	2.8	2.4	1.8	2.3	2.4	2.4	2.7	2.6	2.7	2.8	2.9	2.6	2.4	2.6	2.5	2.8	3.2	2.5	2.6	2.5	3.2
29-Oct	2.2	2.2	2.6	3.0	3.1	2.7	2.1	1.9	1.8	1.7	1.7	1.9	2.0	1.5	1.4	0.6	0.6	0.4	0.5	0.5	0.6	0.5	0.6	1.0	3.1
30-Oct	1.0	1.6	1.4	1.6	1.6	1.7	1.6	1.5	1.7	1.7	1.5	1.7	1.7	1.8	1.8	2.0	2.1	1.7	1.5	1.5	1.2	1.4	1.4	1.1	2.1
31-Oct	0.9	0.7	0.9	1.1	1.5	1.4	1.3	1.1	1.7	1.7	2.0	2.2	1.9	1.6	1.5	1.5	1.5	1.5	1.8	1.7	1.5	1.7	1.6	1.2	2.2
Diurnal Maximum																									
2.4 2.9 3.6 3.7 4.2 3.8 3.4 2.9 3.2 3.5 3.2 3.7 3.1 3.5 3.9 3.7 5.0 5.0 4.4 4.3 3.9 3.8 3.8 3.1																									



Maximum Value: 2.6 km/h on Oct 14 07:00																				Maximum Daily Average: 1.2 km/h on Oct 13					Hours in Service: 744		
Minimum Value: -1.7 km/h on Oct 17 23:00																				Minimum Daily Average: -0.9 km/h on Oct 2					Hours of Data: 744		
Maximum Diurnal Average: 0.2 km/h at hour 9																				Minimum Diurnal Average: -0.1 km/h at hour 2					Hours of Missing Data: 0		
Monthly Average: 0.07 km/h																				Percentiles: P <sub>1</sub> = -1.2 P <sub>10</sub> = -0.7 Q <sub>1</sub> = -0.2 Median = 0.0 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.9					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-Oct	1.7	0.4	0.6	-0.4	-0.1	0.0	0.0	0.0	-0.2	-0.2	-0.3	0.6	-0.6	-0.1	-0.2	0.0	0.0	0.0	0.8	0.1	-0.1	-0.3	-0.3	-0.4	0.0	1.7	
2-Oct	-1.4	-0.1	-0.5	-1.0	-0.6	-0.3	-0.7	-0.2	-0.7	-1.1	-1.5	-0.1	-1.4	-1.6	-1.5	-1.0	-1.1	-1.2	-1.2	-0.7	-0.7	-0.8	-0.7	-0.7	-0.9	-0.1	
3-Oct	-0.9	-1.2	-0.7	-0.7	-0.9	-1.1	-1.1	-0.7	-0.8	-0.6	-1.0	-0.1	0.5	-0.3	-0.1	-0.3	0.1	0.4	0.4	0.7	0.4	-0.3	0.2	-0.2	-0.3	0.7	
4-Oct	0.1	-0.3	-0.4	-0.2	-0.5	-0.1	-0.1	0.1	0.0	-0.1	0.2	-0.1	0.1	0.0	-0.2	0.0	0.4	0.6	0.0	0.0	-0.4	-0.3	-0.2	0.0	-0.1	0.6	
5-Oct	-0.2	-0.2	0.1	-0.1	0.0	-0.1	-0.2	-0.2	-0.1	0.1	0.6	0.9	0.1	1.0	0.8	0.1	-0.2	0.1	0.0	0.3	0.0	1.2	1.6	0.9	0.3	1.6	
6-Oct	0.4	0.0	-0.2	-0.1	-0.1	0.2	-0.4	0.0	0.0	0.0	-0.1	0.3	-0.3	-0.5	-0.4	-0.4	-0.4	-0.3	0.3	0.9	0.5	0.0	-0.1	0.5	0.0	0.9	
7-Oct	0.4	0.2	-0.2	-0.3	0.5	-0.6	0.3	0.0	1.3	0.2	-0.1	0.0	0.3	0.3	0.3	-0.1	0.1	-0.3	-0.3	0.5	1.4	0.7	-0.1	0.2	0.2	1.4	
8-Oct	0.2	-0.1	0.1	0.0	0.3	0.0	0.2	0.2	0.2	0.1	0.2	0.3	0.6	-0.1	-0.1	1.3	1.7	1.5	0.7	-0.8	-0.4	0.3	0.4	0.3	0.3	1.7	
9-Oct	0.6	0.5	0.5	0.7	0.6	0.0	0.4	0.7	0.3	0.4	0.2	-0.1	-0.2	-0.2	-0.2	-0.3	0.1	0.4	1.0	0.8	0.7	0.2	-0.6	-0.1	0.3	1.0	
10-Oct	-0.1	0.0	-0.2	-0.4	-0.4	0.1	-0.3	-0.1	0.1	-0.2	-0.1	-0.3	-0.1	-0.3	-0.4	-0.1	-0.1	0.0	-0.1	0.4	-0.4	-0.1	0.2	-0.1	-0.1	0.4	
11-Oct	-0.6	-0.9	-0.3	-0.3	-0.2	0.3	0.1	-0.6	0.0	-0.2	-0.3	0.2	-0.2	-0.1	0.1	0.4	0.1	0.4	0.9	1.2	1.2	0.9	0.3	-0.1	0.1	1.2	
12-Oct	0.2	-0.2	-0.4	-0.3	0.1	0.1	-0.2	0.4	-0.1	-0.5	0.2	0.3	0.5	0.6	-0.6	0.1	0.1	0.1	0.4	0.3	0.5	0.8	1.1	1.2	0.2	1.2	
13-Oct	0.8	0.6	1.3	1.1	0.8	0.5	1.1	1.9	1.0	1.4	1.9	-0.1	1.1	1.9	1.8	1.6	0.7	1.1	0.3	0.7	1.5	2.4	1.8	1.7	1.2	2.4	
14-Oct	1.0	1.6	1.7	1.6	2.6	2.0	2.6	1.0	1.4	1.0	1.1	1.8	1.2	1.5	0.6	0.2	0.4	1.5	1.2	0.6	-0.4	-0.2	-0.4	-0.5	1.1	2.6	
15-Oct	0.0	-0.3	0.0	-0.3	-0.3	-0.1	-0.5	-0.1	2.2	0.8	0.1	0.5	-0.8	-0.4	-0.4	-0.2	0.1	0.3	0.4	0.9	0.4	0.4	0.2	-0.1	0.1	2.2	
16-Oct	0.5	-0.3	-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	-0.2	-0.6	-0.4	-0.2	0.0	-0.3	0.0	-0.2	-0.1	-0.1	0.5	
17-Oct	-0.1	-0.1	0.4	0.0	0.4	0.1	0.3	0.4	0.1	-0.2	0.0	-0.8	-0.8	-0.7	-0.4	-0.3	-0.9	-0.9	-0.2	-0.7	-0.6	-0.7	-1.7	-1.1	-0.4	0.4	
18-Oct	-0.8	-1.3	-1.0	-0.9	-0.2	0.4	0.7	0.9	-0.1	-0.2	-0.1	0.1	0.5	0.0	0.0	-0.6	-0.3	-0.3	-0.3	0.3	0.3	0.7	1.3	0.5	0.0	1.3	
19-Oct	0.3	-0.2	0.0	0.0	-0.2	-0.1	-0.1	-0.1	0.1	-0.3	0.2	-0.7	-0.6	-0.2	0.0	0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.0	-0.1	-0.1	0.3	
20-Oct	0.1	-0.3	0.1	-0.2	0.0	0.2	-0.1	0.3	0.3	0.2	0.4	0.0	0.3	-0.2	0.4	0.1	0.1	0.3	0.3	0.1	0.3	0.3	0.0	0.2	0.1	0.4	
21-Oct	0.1	0.0	-0.4	-0.1	-0.4	0.1	0.0	0.0	0.5	-0.2	-0.7	0.3	-0.2	0.1	0.0	0.1	0.0	-0.1	-1.0	-0.2	0.2	-0.2	-0.3	0.0	-0.1	0.5	
22-Oct	0.1	-0.2	0.0	0.4	0.2	-0.2	0.0	-0.4	-0.6	-0.3	0.4	0.0	-0.1	0.2	-0.1	0.0	0.0	-0.4	0.0	0.0	0.0	-0.3	0.1	0.1	0.0	0.4	
23-Oct	0.0	0.4	0.6	0.2	0.6	-0.5	-0.8	0.2	-0.1	-0.3	-0.7	0.3	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.2	0.6	0.1	0.6	
24-Oct	1.0	0.2	1.3	0.4	0.6	2.5	1.3	0.4	0.4	0.1	0.5	0.1	-1.0	-0.2	0.0	-0.4	-0.3	-0.3	0.1	0.2	2.1	0.0	0.2	-0.1	0.4	2.5	
25-Oct	0.0	0.0	0.3	-0.3	-1.0	0.5	0.4	-0.2	1.4	0.5	0.0	0.6	0.5	-0.2	0.4	0.4	-0.1	0.1	0.0	-0.1	0.0	0.1	0.2	0.1	0.1	1.4	
26-Oct	0.1	0.0	0.0	0.0	0.1	0.0	0.1	-0.1	-0.3	0.0	0.0	0.2	-0.2	-0.4	-0.2	-0.1	0.0	0.0	0.1	0.3	0.4	0.0	0.6	0.4	0.0	0.6	
27-Oct	0.5	-0.1	0.9	1.2	1.7	1.8	2.0	0.7	0.3	0.6	0.8	0.5	0.7	0.5	0.3	0.4	-0.1	0.5	0.4	0.0	-0.2	-0.1	-0.3	-0.3	0.5	2.0	
28-Oct	0.3	-0.7	-1.0	-0.9	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.6	-0.8	-0.9	-1.1	-1.1	-0.9	-0.9	-0.8	-1.0	-0.8	-0.3	-0.3	-0.9	-0.8	0.3
29-Oct	-0.9	-1.0	-0.9	-0.8	-1.0	-0.6	-1.1	-1.0	-0.6	-0.2	0.2	-0.2	-0.3	-0.4	-0.1	-0.3	0.0	0.1	0.1	0.3	0.2	0.2	-0.1	0.0	-0.3	0.3	
30-Oct	0.3	0.2	0.1	0.1	0.2	0.0	-0.1	0.0	0.3	0.2	0.2	-0.2	0.2	0.0	0.2	0.3	-0.3	-0.1	-0.4	-0.2	-0.2	0.1	0.5	0.5	0.1	0.5	
31-Oct	0.2	0.2	0.0	-0.3	1.3	1.3	1.1	0.4	0.6	0.7	0.5	0.4	0.3	0.6	0.2	0.8	0.6	0.2	-0.4	-0.9	-0.9	-0.3	-0.2	0.0	0.3	1.3	
																								Diurnal Average			
																								Diurnal Maximum			



**Wood Buffalo Environmental Association**

**Summary of Hour Standard Deviations**

**Vertical Wind Speed 100m (VW100) - km/h**

**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.8 km/h on Oct 17 18:00																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0					
Minimum Value: 0.2 km/h on Oct 26 03:00																									
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.0 Median = 1.6 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.6 P <sub>99</sub> = 3.9																									
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-Oct	2.2	1.8	2.0	1.7	0.4	0.3	0.3	0.3	0.5	0.7	1.4	2.2	1.5	2.1	1.8	1.7	1.8	1.5	0.8	1.0	0.2	0.7	0.7	0.9	2.2
2-Oct	1.3	1.7	1.6	1.5	1.9	2.7	2.8	2.5	3.0	3.8	3.0	3.4	2.9	3.0	3.3	2.8	3.0	3.1	2.9	2.1	2.6	2.5	1.8	1.6	3.8
3-Oct	1.7	1.6	1.8	1.4	1.0	1.5	1.8	1.6	1.4	2.6	2.6	2.6	2.6	2.7	2.2	2.5	2.2	1.6	0.5	1.0	1.3	1.7	0.6	0.6	2.7
4-Oct	0.6	0.7	0.8	0.7	0.8	1.1	1.1	0.8	0.8	0.8	1.3	1.0	1.3	2.0	1.6	1.6	2.1	2.4	2.3	1.5	0.9	0.8	1.0	1.2	2.4
5-Oct	1.3	1.4	1.3	0.8	0.4	0.3	0.2	0.2	0.3	0.9	1.4	1.4	1.6	2.7	2.5	1.5	1.4	1.0	0.6	0.6	1.3	1.3	2.1	2.6	2.7
6-Oct	1.9	1.7	1.9	2.0	2.0	3.0	2.8	1.9	1.9	2.3	2.1	2.5	2.2	2.1	2.3	2.6	1.6	1.2	0.6	0.7	1.4	0.7	0.5	0.7	3.0
7-Oct	1.1	1.5	1.2	1.4	1.3	0.8	1.2	1.0	1.1	1.1	1.6	2.1	2.1	2.4	2.1	1.3	0.8	0.8	1.1	1.5	1.6	1.8	1.0	0.7	2.4
8-Oct	1.2	0.9	0.8	0.7	0.6	0.5	0.5	0.7	0.6	0.8	0.6	0.7	0.8	1.0	1.2	1.8	2.1	1.9	1.7	4.6	2.6	1.3	1.9	2.3	4.6
9-Oct	1.7	1.8	1.8	1.6	1.5	1.8	1.1	1.1	2.5	2.0	2.1	1.5	2.0	1.9	1.6	1.2	0.7	0.6	0.8	0.8	0.9	1.0	1.6	0.8	2.5
10-Oct	0.4	0.4	0.4	0.7	0.7	0.9	0.8	0.9	0.9	0.7	1.0	1.2	1.9	1.8	1.6	1.5	1.3	0.8	0.6	1.7	0.8	0.5	1.0	1.2	1.9
11-Oct	2.0	2.1	1.5	1.0	0.8	1.2	1.0	1.0	0.8	1.1	0.9	1.4	1.4	1.8	1.8	1.6	1.2	0.6	0.9	0.7	1.2	1.4	1.3	1.0	2.1
12-Oct	1.2	1.0	1.3	1.2	1.1	0.9	1.7	0.9	0.6	1.0	1.7	1.4	1.6	2.0	2.0	1.3	0.7	0.3	0.5	0.6	0.5	0.6	1.0	1.0	2.0
13-Oct	1.2	1.0	1.0	1.3	1.6	1.5	1.4	2.2	2.6	2.8	3.9	4.5	3.4	2.7	2.3	1.9	1.9	3.2	2.5	2.5	2.3	2.4	1.4	1.4	4.5
14-Oct	1.4	1.5	1.8	2.2	2.0	1.7	2.0	2.1	2.0	1.6	2.1	2.4	2.8	2.2	2.3	1.9	1.6	2.0	2.3	1.9	1.1	1.2	0.8	0.8	2.8
15-Oct	1.2	0.9	1.2	1.3	1.7	1.4	2.3	2.1	1.8	2.0	1.4	1.8	1.7	1.5	1.3	1.1	0.4	0.3	0.4	0.9	0.7	0.8	1.4	1.3	2.3
16-Oct	1.1	1.6	1.0	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.7	0.6	0.4	0.5	0.5	0.5	0.6	0.6	0.4	0.6	0.6	0.8	0.4	0.3	1.6
17-Oct	0.2	0.3	0.7	1.0	1.1	1.3	1.8	2.3	2.3	2.2	2.5	3.3	2.4	3.2	3.7	3.6	4.7	4.8	4.6	3.9	4.2	4.0	3.5	3.3	4.8
18-Oct	2.4	2.6	2.0	2.0	2.0	0.8	0.9	0.6	1.1	1.3	1.6	1.6	2.3	2.6	2.5	2.0	1.7	0.5	0.3	0.7	1.0	1.2	1.9	1.6	2.6
19-Oct	1.0	0.8	0.6	0.5	0.4	0.4	0.7	0.5	0.7	1.3	1.6	1.4	1.7	1.4	1.3	1.2	1.0	1.3	1.3	1.6	2.1	1.9	1.7	1.6	2.1
20-Oct	2.1	2.2	2.1	1.4	1.7	2.1	2.0	2.1	1.9	2.1	2.0	1.9	1.7	1.9	2.2	2.1	2.0	2.4	2.0	1.4	1.8	2.1	2.0	2.3	2.4
21-Oct	2.5	2.9	2.9	2.7	2.5	2.7	2.8	2.9	3.0	2.7	2.6	2.7	2.6	1.9	1.7	1.6	1.4	1.0	1.2	1.5	2.0	1.9	2.1	2.1	3.0
22-Oct	1.8	1.3	1.2	1.5	1.5	1.2	1.5	1.3	1.3	1.5	2.4	2.1	1.9	2.2	1.9	2.0	1.7	1.9	2.6	2.4	2.3	2.2	2.0	1.9	2.6
23-Oct	1.7	2.5	3.1	3.0	3.4	3.4	2.6	1.6	1.8	1.9	2.1	2.4	2.1	2.1	1.8	1.5	1.5	1.1	1.1	1.1	1.5	1.2	1.5	0.9	3.4
24-Oct	1.2	1.6	1.7	1.4	2.0	1.6	1.8	0.9	1.5	1.6	1.9	3.5	3.1	3.5	3.3	2.8	1.8	1.0	1.6	0.8	1.8	1.2	1.6	0.5	3.5
25-Oct	0.6	0.9	1.0	2.3	1.4	1.6	1.5	1.3	1.6	1.4	1.1	2.2	2.4	2.5	2.2	1.9	1.1	0.4	0.5	0.5	0.4	0.4	0.3	0.3	2.5
26-Oct	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.9	1.2	1.5	1.6	1.3	1.0	1.3	1.4	1.8	1.8	2.3	2.0	2.1	2.2	2.3	2.3
27-Oct	2.4	1.7	2.1	2.3	2.3	2.0	2.0	1.7	1.8	1.6	1.6	1.8	2.5	2.0	2.4	2.4	1.4	0.9	0.8	1.1	0.9	0.6	0.5	0.7	2.5
28-Oct	1.3	2.0	2.0	2.3	2.3	1.8	1.5	1.8	2.0	2.4	2.8	2.9	2.8	2.5	2.5	2.6	2.2	2.6	2.2	2.6	3.2	2.4	2.7	2.3	3.2
29-Oct	2.1	1.9	2.7	3.2	3.2	2.8	1.8	1.6	1.5	1.8	1.8	2.3	2.3	1.7	1.6	0.8	0.7	0.7	0.9	0.6	0.6	0.6	0.5	0.8	3.2
30-Oct	1.1	1.2	1.3	1.4	1.6	1.7	1.7	1.7	1.7	2.0	1.6	2.0	2.0	2.3	2.2	2.5	2.1	2.0	1.7	1.5	0.9	0.6	0.7	1.0	2.5
31-Oct	1.0	0.6	1.0	1.1	1.6	1.8	1.9	1.5	2.0	1.9	2.2	2.3	2.4	1.8	1.6	1.7	1.7	1.8	2.0	1.9	1.4	2.0	1.7	1.3	2.4
Diurnal Maximum																									
2.5 2.9 3.1 3.2 3.4 3.4 2.8 2.9 3.0 3.8 3.9 4.5 3.4 3.5 3.7 3.6 4.7 4.8 4.6 4.6 4.2 4.0 3.5 3.3																									



Maximum Value: 5.3 km/h on Oct 24 06:00		Maximum Daily Average: 1.9 km/h on Oct 23		Hours in Service: 744																						
Minimum Value: -0.9 km/h on Oct 30 18:00		Minimum Daily Average: 0.0 km/h on Oct 30		Hours of Data: 743																						
Maximum Diurnal Average: 1.1 km/h at hour 21		Minimum Diurnal Average: 0.5 km/h at hour 13		Hours of Missing Data: 1																						
Monthly Average: 0.78 km/h		Percentiles: P <sub>1</sub> = -0.8 P <sub>10</sub> = -0.1 Q <sub>1</sub> = 0.1 Median = 0.5 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 2.1 P <sub>99</sub> = 3.4		Hours of Calibration: 0																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	4.1	2.1	2.1	0.6	0.3	0.1	0.1	0.2	0.3	0.1	-0.4	0.8	-0.5	0.2	0.0	-0.1	0.5	0.4	1.2	0.2	0.1	0.2	0.1	0.3	0.5	4.1
2-Oct	-0.9	0.9	0.5	0.0	0.5	1.0	0.9	1.5	0.1	0.1	0.2	0.9	-0.7	-0.5	-0.8	-0.1	-0.2	-0.3	-0.2	0.0	-0.2	-0.3	-0.1	-0.2	0.1	1.5
3-Oct	-0.4	-0.5	-0.1	-0.2	-0.3	-0.6	-0.4	-0.2	-0.5	-0.1	-0.3	0.5	1.4	0.8	0.8	0.9	1.0	1.5	1.1	1.7	1.6	-0.1	0.2	0.1	0.3	1.7
4-Oct	0.4	0.2	0.2	0.2	-0.1	0.6	0.4	0.4	0.3	0.0	0.0	0.3	0.4	-0.5	-0.3	-0.4	0.1	0.3	0.2	-0.6	0.0	-0.2	0.0	0.1	0.6	
5-Oct	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.4	0.7	1.3	2.0	0.9	1.7	1.7	1.0	0.5	1.0	0.9	1.2	2.1	2.9	4.0	2.9	1.1	4.0
6-Oct	2.2	1.8	2.1	2.6	2.3	2.2	1.3	1.6	1.4	1.6	1.5	1.9	1.0	1.0	1.2	0.9	0.9	1.1	1.7	2.2	1.5	0.6	0.5	0.5	1.5	2.6
7-Oct	0.7	0.5	0.0	0.2	1.3	0.2	1.1	1.2	2.1	0.8	0.4	0.7	0.6	0.7	1.4	0.8	0.6	0.4	0.7	1.6	3.3	2.4	0.8	0.3	1.0	3.3
8-Oct	0.4	0.4	0.7	0.4	0.3	0.2	0.4	0.6	0.6	0.6	0.5	1.0	0.8	0.2	0.5	1.5	2.8	2.6	1.6	1.3	1.0	2.1	2.1	1.9	1.0	2.8
9-Oct	2.3	2.5	2.5	2.4	2.1	1.4	1.6	2.3	2.6	2.0	1.5	0.8	0.6	0.6	0.3	0.4	1.0	1.0	2.1	2.7	2.7	1.6	0.2	0.4	1.6	2.7
10-Oct	0.1	0.4	0.5	0.6	0.8	0.8	0.4	0.6	0.8	0.5	0.6	0.0	0.3	0.8	0.5	0.9	1.5	1.5	1.6	1.6	0.2	0.3	0.7	0.7	0.7	1.6
11-Oct	0.4	0.1	0.5	0.5	0.7	0.6	0.2	-0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.7	1.2	1.1	1.5	2.1	2.4	2.5	2.8	1.6	0.9	0.9	2.8
12-Oct	1.0	0.5	0.3	0.3	0.5	0.5	0.2	0.7	0.3	0.2	0.5	0.7	0.4	1.3	-0.9	0.1	0.2	0.2	0.2	0.3	1.2	1.3	1.9	1.9	0.6	1.9
13-Oct	1.9	1.6	2.0	1.9	1.7	1.6	1.8	2.1	1.7	2.0	2.1	0.0	1.9	2.8	2.5	2.3	1.6	1.2	0.9	1.3	2.7	3.0	1.9	1.3	1.8	3.0
14-Oct	1.0	2.1	2.3	2.4	3.1	2.6	3.1	1.4	2.1	1.3	1.4	2.8	2.5	2.4	1.0	0.2	0.5	2.0	1.3	1.3	0.5	0.7	0.3	0.3	1.6	3.1
15-Oct	0.8	0.4	0.7	0.3	0.6	1.1	0.8	1.9	5.3	2.5	1.4	1.8	-0.1	0.2	0.3	0.6	0.8	1.1	1.1	1.9	1.7	1.7	1.8	1.2	1.2	5.3
16-Oct	1.4	1.0	0.4	0.3	0.4	0.3	0.3	0.2	0.4	0.2	0.3	0.6	0.2	0.2	0.2	0.0	-0.2	0.2	-0.3	0.2	0.1	0.2	0.2	0.2	0.3	1.4
17-Oct	0.4	0.4	1.0	1.3	1.8	1.8	2.2	2.4	2.2	2.2	2.3	1.4	0.9	1.1	1.5	1.4	1.5	1.4	2.0	1.1	1.0	0.7	-0.1	0.0	1.3	2.4
18-Oct	-0.1	-0.4	-0.1	-0.1	0.5	1.2	1.6	1.9	0.5	0.5	0.1	0.1	0.7	0.6	0.8	0.2	0.6	0.4	0.5	1.1	1.1	1.8	2.8	2.3	0.8	2.8
19-Oct	0.9	0.1	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.0	0.5	-0.9	-0.6	-0.1	0.2	0.1	-0.1	-0.1	0.1	0.0	0.1	0.0	0.2	-0.2	0.1	0.9
20-Oct	0.1	-0.1	0.1	0.0	0.1	0.1	-0.3	0.2	0.3	0.1	0.3	0.0	0.3	-0.3	0.3	0.0	0.1	0.4	0.4	0.2	0.7	0.4	-0.1	0.2	0.1	0.7
21-Oct	0.1	-0.1	-0.7	-0.4	-0.8	-0.1	-0.2	0.2	0.5	0.1	-0.5	0.3	-0.1	0.2	0.3	0.4	0.5	0.6	-0.2	0.7	1.3	0.9	1.0	1.4	0.2	1.4
22-Oct	1.1	0.8	0.9	1.6	1.3	0.9	1.0	0.7	0.7	0.8	1.4	0.9	0.6	1.1	0.7	1.1	0.9	0.4	1.3	1.2	1.3	1.1	1.5	1.6	1.0	1.6
23-Oct	1.5	2.8	3.2	3.4	3.7	1.7	0.4	2.0	1.8	1.4	0.8	2.0	1.9	1.9	1.5	1.6	1.9	1.7	2.0	2.5	1.3	1.0	1.6	1.6	1.9	3.7
24-Oct	2.1	1.2	3.3	2.1	2.6	5.3	3.6	2.2	1.7	1.1	1.7	1.7	0.1	1.2	1.4	0.9	1.1	0.7	1.1	1.2	4.8	0.9	0.7	0.2	1.8	5.3
25-Oct	0.3	0.5	0.8	0.6	-0.6	2.0	1.8	0.7	3.0	1.7	1.2	1.3	0.9	1.0	1.9	1.8	0.8	0.4	0.6	0.5	0.6	0.3	0.3	0.2	0.9	3.0
26-Oct	0.3	0.1	0.1	0.1	0.1	0.0	-0.1	-0.1	0.1	0.1	0.0	0.0	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	0.2	-0.1	0.1	0.2	0.6	0.4	0.1	0.6
27-Oct	0.4	-0.1	1.1	1.4	2.3	2.3	2.5	0.7	0.2	0.3	0.7	0.3	0.5	0.5	0.3	0.3	-0.4	0.6	0.7	0.4	UO	0.3	0.1	0.3	0.7	2.5
28-Oct	1.6	0.7	0.2	0.4	0.3	0.3	0.1	0.3	0.3	0.1	0.0	0.5	-0.2	0.0	-0.2	-0.1	0.0	0.1	0.0	0.4	0.2	0.3	0.7	0.0	0.3	1.6
29-Oct	0.0	0.0	-0.1	0.3	-0.2	-0.1	-0.6	-0.5	-0.3	0.8	1.1	0.6	0.2	0.2	0.6	-0.2	0.2	0.2	0.5	0.7	0.4	0.3	0.2	0.2	0.2	1.1
30-Oct	0.7	0.3	0.3	0.1	0.1	-0.1	-0.2	-0.1	0.3	0.1	0.6	0.0	0.1	0.0	0.1	0.0	-0.8	-0.9	-0.9	-0.7	-0.2	-0.2	0.4	0.1	0.0	0.7
31-Oct	0.2	0.3	-0.4	-0.6	1.5	2.4	1.6	0.6	0.7	1.0	0.5	0.2	0.1	0.6	0.2	1.3	1.4	1.0	0.0	-0.7	-0.7	0.3	0.3	0.7	0.5	2.4
																								Diurnal Average		
																								Diurnal Maximum		
0.8 0.7 0.8 0.7 0.9 1.0 0.8 0.8 1.0 0.7 0.7 0.7 0.5 0.6 0.6 0.6 0.7 0.7 0.8 0.9 1.1 0.9 0.8 0.7																										
4.1 2.8 3.3 3.4 3.7 5.3 3.6 2.4 5.3 2.5 2.3 2.8 2.5 2.8 2.5 2.3 2.8 2.6 2.1 2.7 4.8 3.0 4.0 2.9																										
UO - Unstable Operation																										



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

**Vertical Wind Speed 163m (VW163) - km/h**  
**Lower Camp Met Tower - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.6 km/h on Oct 13 12:00		Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9																								
Minimum Value: 0.2 km/h on Oct 26 02:00																										
Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.9 Median = 1.5 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.9																										
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-Oct	2.9	2.7	1.9	1.8	0.5	0.4	0.5	0.3	0.4	0.5	1.1	2.3	1.7	2.6	1.8	1.8	1.9	1.2	0.7	1.1	0.2	0.9	1.0	1.0	2.9	
2-Oct	1.2	1.6	1.1	0.8	1.6	2.8	3.2	2.7	2.9	4.1	3.3	3.5	2.7	3.0	3.0	2.7	3.2	3.0	2.7	2.1	2.2	2.1	1.6	1.3	4.1	
3-Oct	1.3	1.2	1.7	1.3	0.9	1.3	1.6	1.5	1.4	2.7	2.8	3.0	2.8	3.0	2.4	2.9	2.2	1.5	0.5	0.9	0.9	1.0	0.7	0.6	3.0	
4-Oct	0.5	0.7	0.6	0.6	0.7	1.0	1.0	0.8	0.9	0.7	1.2	0.9	1.5	1.9	1.4	1.6	2.0	2.4	2.3	1.8	1.0	0.8	1.1	1.4	2.4	
5-Oct	1.2	1.4	1.3	1.2	0.6	0.4	0.3	0.2	0.5	0.7	1.3	1.3	1.8	2.6	2.7	1.8	1.4	0.8	0.6	0.6	1.1	1.0	2.0	2.4	2.7	
6-Oct	1.9	1.7	1.5	1.9	1.5	2.4	2.0	1.6	1.8	2.3	2.3	2.5	2.3	2.2	2.3	1.9	1.2	0.9	0.8	0.9	1.3	0.7	0.6	1.0	2.5	
7-Oct	0.9	1.3	1.5	1.9	1.4	1.2	1.4	1.2	1.4	1.5	2.0	2.1	2.2	2.2	2.1	1.5	1.1	0.9	1.2	1.5	1.4	1.6	1.2	0.7	2.2	
8-Oct	1.2	1.0	0.9	0.6	0.9	0.6	0.5	0.8	0.9	0.9	0.5	0.8	1.2	1.2	1.4	1.5	2.5	2.5	1.7	4.4	2.5	1.2	1.6	2.5	4.4	
9-Oct	1.6	1.7	2.0	1.9	1.5	1.7	1.2	1.4	2.3	1.5	1.8	1.5	2.1	2.0	1.3	1.3	0.5	0.5	0.4	0.6	0.7	0.7	1.2	0.7	2.3	
10-Oct	0.3	0.4	0.5	0.5	0.8	1.0	0.8	1.1	0.8	0.9	0.9	0.9	1.3	1.9	1.8	1.6	1.6	1.3	0.9	0.8	1.8	0.9	0.6	0.7	0.8	1.9
11-Oct	2.6	2.2	1.4	1.0	0.6	1.0	0.8	1.1	0.9	0.9	0.9	1.0	1.4	1.7	2.1	1.6	1.3	0.6	0.8	0.5	0.6	1.5	0.9	0.9	2.6	
12-Oct	1.5	1.0	0.8	0.6	0.5	0.7	1.1	0.8	0.5	1.1	1.5	1.5	1.4	2.3	1.9	1.2	0.8	0.5	0.4	0.5	0.7	0.9	1.3	1.4	2.3	
13-Oct	1.6	1.7	1.7	1.6	2.4	2.4	2.4	2.7	3.4	3.5	4.3	4.6	3.7	3.2	2.7	2.5	2.1	3.2	2.5	2.1	2.6	2.4	2.1	2.0	4.6	
14-Oct	1.6	1.7	1.8	2.3	2.6	2.0	2.4	2.8	2.7	2.3	2.5	2.7	3.0	2.5	2.9	1.9	2.2	2.7	3.2	1.9	0.8	1.0	0.7	1.2	3.2	
15-Oct	1.5	1.1	1.5	1.7	1.7	1.3	1.8	1.6	1.5	2.0	1.1	1.4	1.5	1.4	1.5	1.2	0.5	0.3	0.3	0.7	0.8	1.1	1.3	1.2	2.0	
16-Oct	0.7	1.0	0.9	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.5	0.5	0.7	0.9	0.6	0.6	0.6	0.5	0.6	0.3	1.0	
17-Oct	0.3	0.4	0.7	0.7	1.0	1.1	1.4	2.0	1.8	2.0	2.3	2.8	2.5	3.1	3.3	3.1	3.7	4.3	4.3	3.7	4.1	4.1	3.0	3.0	4.3	
18-Oct	2.4	2.4	1.9	2.0	1.9	0.9	0.8	0.5	1.0	1.1	1.6	1.6	2.3	2.8	2.6	2.0	1.7	0.4	0.4	0.5	0.7	0.6	0.8	1.8	2.8	
19-Oct	1.3	1.4	0.8	0.5	0.4	0.2	0.7	0.5	0.7	1.1	1.7	1.2	1.6	1.4	1.2	1.1	1.0	1.3	1.3	1.7	2.1	1.9	1.8	1.6	2.1	
20-Oct	2.3	1.9	1.8	1.4	1.6	2.1	2.0	2.1	2.0	2.2	2.0	1.9	1.7	1.9	2.1	2.0	1.7	2.1	2.4	1.9	2.0	2.6	2.5	2.9	2.9	
21-Oct	2.8	3.2	3.3	3.1	2.9	2.7	2.8	2.8	3.1	2.8	2.5	2.8	2.7	1.9	1.5	1.7	1.2	0.8	1.1	1.7	2.2	2.0	2.4	2.5	3.3	
22-Oct	1.9	1.2	1.1	1.1	1.1	0.8	1.2	1.0	1.2	1.4	2.5	2.0	1.8	2.2	1.6	1.7	1.6	2.0	2.5	2.3	2.4	2.4	2.1	2.1	2.5	
23-Oct	1.9	2.4	2.8	2.6	2.9	3.0	2.5	1.4	1.6	1.7	1.7	1.9	1.6	1.5	1.6	1.3	1.6	1.3	1.1	0.8	1.9	1.2	1.1	0.8	3.0	
24-Oct	1.2	1.7	1.3	1.0	1.9	1.6	1.8	0.9	1.4	1.3	1.8	3.1	3.3	3.6	3.3	2.5	1.7	1.4	1.8	1.1	2.1	1.5	1.5	0.6	3.6	
25-Oct	0.5	0.6	1.2	1.8	0.7	1.1	1.5	1.1	1.5	1.3	1.2	2.4	2.4	2.5	2.4	1.8	1.2	0.6	0.6	0.7	0.7	0.4	0.3	0.3	2.5	
26-Oct	0.3	0.2	0.3	0.3	0.2	0.4	0.4	0.6	0.9	0.6	0.8	1.1	1.1	1.0	1.1	1.2	1.8	1.8	2.1	2.1	2.1	2.2	2.3	2.2	2.3	
27-Oct	2.7	1.9	2.8	3.2	3.0	2.7	2.3	1.9	1.9	1.6	1.7	2.0	2.6	2.2	2.3	2.3	1.4	1.0	1.1	1.2	UO	0.9	0.4	0.8	3.2	
28-Oct	1.4	1.5	1.3	1.8	1.9	1.5	1.3	1.5	1.6	2.2	2.7	3.1	2.8	2.4	2.4	2.7	2.1	2.6	2.0	2.1	3.1	2.5	2.6	1.9	3.1	
29-Oct	1.6	2.0	2.5	3.1	2.8	2.6	1.7	1.5	1.3	2.0	2.2	2.4	2.4	1.7	1.6	0.9	0.8	0.8	0.9	0.8	0.6	0.4	0.4	0.8	3.1	
30-Oct	1.2	1.2	1.3	1.5	1.7	1.6	1.8	1.7	1.9	2.0	1.9	2.1	2.2	2.7	2.4	2.2	1.6	1.4	1.2	1.1	0.6	0.4	0.6	0.6	2.7	
31-Oct	0.7	0.8	0.9	1.0	1.7	1.4	1.7	1.6	2.0	1.7	2.0	2.3	2.6	1.7	1.6	1.9	1.8	1.9	2.5	2.1	1.6	2.2	1.8	1.3	2.6	
Diurnal Maximum																										
UO - Unstable Operation																										



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS04 BUFFALO VIEWPOINT OCTOBER 2024**

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

November 29, 2024

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

OCTOBER 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	707	34	37	99.6	21.1	0	4.3	0
H2S (ppb) Average	706	35	38	99.6	5.8	0	0.8	0
THC (ppm) Average	705	34	39	99.33	3.3	-	2.3	-
NMHC(ppm) Average	705	34	39	99.33	0.044	-	0.003	-
CH4(ppm) Average	705	34	39	99.33	3.3	-	2.3	-
O3(ppb) Average	706	35	38	99.6	37	0	31.8	-
NO2(ppb) Average	682	40	62	97.04	20.7	0	11.2	-
NO(ppb) Average	682	40	62	97.04	51.4	-	11.5	-
NOX(ppb) Average	682	40	62	97.04	66.9	-	22.7	-
PM2.5(ug/m3) Average	739	2	5	99.6	25.1	0	7.1	0
Temperature (C) Average	744	0	0	100	19.8	-	13	-
Relative Humidity (%) Average	744	0	0	100	98.3	-	94	-
Wind Speed 10 m (km/h) Average	742	2	2	100	31	-	18	-
Wind Direction 10 m (deg) Average	742	2	2	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)  
OCTOBER 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	707	0.45	2	-	0	0	0	0.1	0.2	0.4	21.1
H2S (ppb) Average	706	0.15	0.3	-	0	0	0.1	0.1	0.1	0.2	5.8
THC (ppm) Average	705	2.1	0.1	-	2	2	2.1	2.1	2.1	2.2	3.3
NMHC(ppm) Average	705	0	0.002	-	0	0	0	0	0	0	0.044
CH4(ppm) Average	705	2.1	0.1	-	2	2	2.1	2.1	2.1	2.2	3.3
O3(ppb) Average	706	22.74	8	-	2	10.9	17.9	23.9	28.8	32.4	37
NO2(ppb) Average	682	2.77	4	-	0	0	0.3	1.1	3.7	8.4	20.7
NO(ppb) Average	682	1.07	4.4	-	0	0	0	0.1	0.4	1.2	51.4
NOX(ppb) Average	682	3.84	7.6	-	0	0.1	0.4	1.2	4.1	9	66.9
PM2.5(ug/m3) Average	739	3.29	2.6	-	0.3	1	1.9	2.8	3.9	5.6	25.1
Temperature 2 m (C) Average	744	3.7	5.6	-	-7.7	-3.4	0	3	6.8	11.6	19.8
Relative Humidity (%) Average	744	69.99	16.4	-	27.9	45.4	58.7	71.1	81.9	93	98.3
Wind Speed 10 m (km/h) Average	742	10.1	5	-	1	5	6	9	13	17	31
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-



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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	04 Oct 2024 13:00	04 Oct 2024 15:00	3	Station power failure
THC/NMHC/CH4	23 Oct 2024 07:00	23 Oct 2024 08:00	2	Maintenance - replaced support gas cylinder
NO2	16 Oct 2024 13:00	17 Oct 2024 07:00	19	Maintenance - install extra dryer



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Buffalo Viewpoint - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.1 ppb on Oct 12 13:00	Maximum Daily Average: 4.3 ppb on Oct 12		Hours of Data:	707
Minimum Value: 0.0 ppb on Oct 1 01:00	Minimum Daily Average: 0.0 ppb on Oct 17		Hours of Missing Data:	37
Maximum Diurnal Average: 1.3 ppb at hour 13	Minimum Diurnal Average: 0.1 ppb at hour 9		Hours of Calibration:	34
Monthly Average: 0.45 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> = 0.4 P <sub>99</sub> = 12.8		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-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	5.9	2.2	1.3	0.5	5.2	1.4	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.7	5.9	
2-Oct	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	0.1	0.2	1.4	12.0	5.0	0.8	12.0	
3-Oct	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	
4-Oct	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	PF	PF	PF	0.4	0.4	0.3	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.4	
5-Oct	0.2	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
6-Oct	0.2	0.1	0.2	Z	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.1	0.2	
7-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.2	0.4	0.8	0.6	0.6	0.3	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.8	
8-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.5	0.5	0.7	0.6	0.7	0.4	0.0	0.1	0.1	0.1	0.2	0.7	
9-Oct	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	
10-Oct	0.0	Z	0.0	0.0	0.0	0.0	C	C	C	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	
11-Oct	0.0	0.1	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.2	
12-Oct	0.0	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	1.9	21.1	14.9	16.6	18.8	7.3	8.9	1.7	1.0	0.6	0.8	1.4	2.0	4.3	21.1	
13-Oct	2.0	1.4	1.0	0.8	Z	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.4	2.0	
14-Oct	0.2	0.1	0.1	0.1	0.2	Z	0.2	0.3	0.2	0.2	0.3	0.4	0.5	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.5
15-Oct	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.3
16-Oct	0.0	Z	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.9	2.1	1.7	0.7	0.6	0.2	0.1	0.2	0.1	0.1	0.0	0.3	2.1	
17-Oct	0.1	0.1	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
18-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.2	
19-Oct	0.2	0.3	0.5	0.3	Z	0.4	0.5	0.4	0.2	0.3	2.4	4.1	9.9	5.9	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	1.2	9.9	
20-Oct	0.0	0.0	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
21-Oct	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.4	0.8	1.9	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2	1.9	
22-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	
23-Oct	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.4	
24-Oct	0.2	0.2	0.2	Z	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
25-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	
26-Oct	0.0	0.1	0.1	16.5	5.1	1.3	Z	0.6	0.5	0.5	0.4	0.3	0.4	0.3	0.3	2.6	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.0	1.3	16.5	
27-Oct	Z	0.1	0.0	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	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
28-Oct	0.3	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
29-Oct	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	
30-Oct	0.1	0.3	0.3	Z	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.0	6.5	2.7	12.8	15.4	1.8	15.4	
31-Oct	14.4	3.3	0.3	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.4	0.3	0.8	14.4	

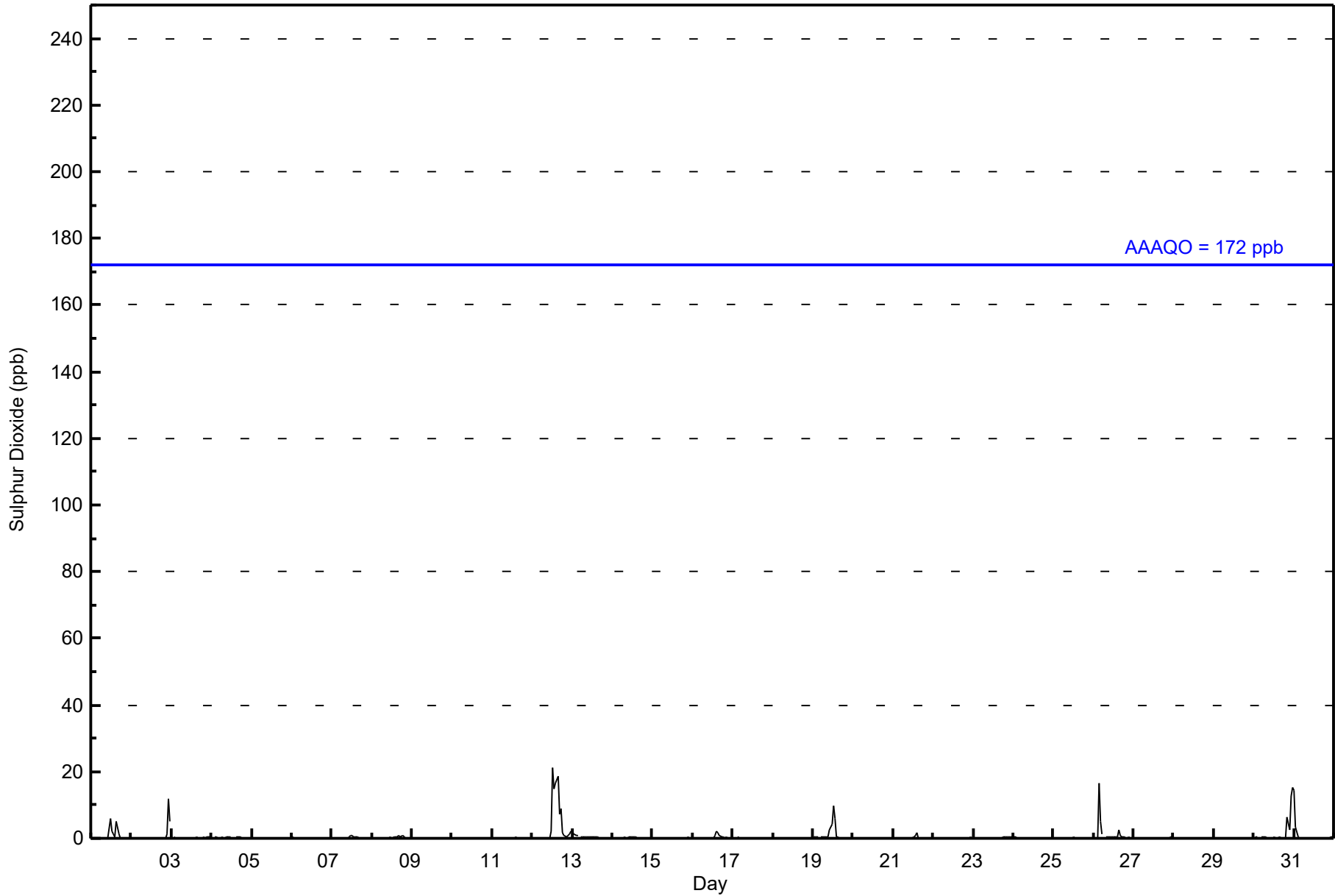
0.7	0.3	0.1	0.7	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.5	1.3	0.9	0.8	1.0	0.4	0.4	0.1	0.1	0.3	0.2	0.9	0.8	Diurnal Average	
14.4	3.3	1.0	16.5	5.1	1.3	0.5	0.6	0.5	0.5	0.5	2.4	5.9	21.1	14.9	16.6	18.8	7.3	8.9	1.7	1.0	6.5	2.7	12.8	15.4	Diurnal Maximum	

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  
Buffalo Viewpoint - October 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	698	98.73	98.73
11 - 20	8	1.13	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: 707

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Buffalo Viewpoint - October 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	55	40	13	9	6	28	41	119	47	42	47	73	68	56	38	14	696
11 - 20	0	0	2	4	0	0	0	0	0	0	0	0	0	1	0	1	8
21 - 60	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	55	41	15	13	6	28	41	119	47	42	47	73	68	57	38	15	705

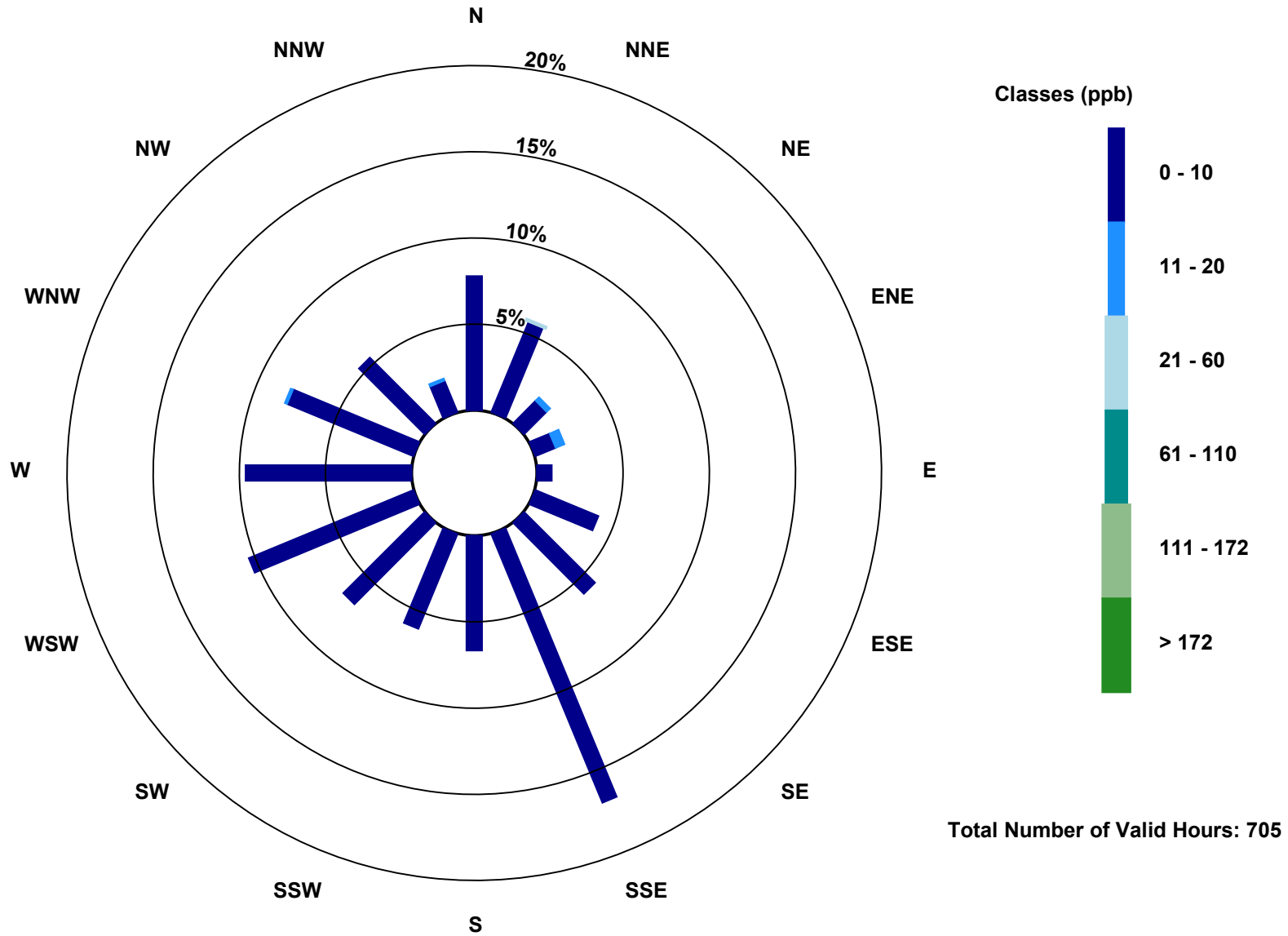
Total Number of Valid Hours: 705

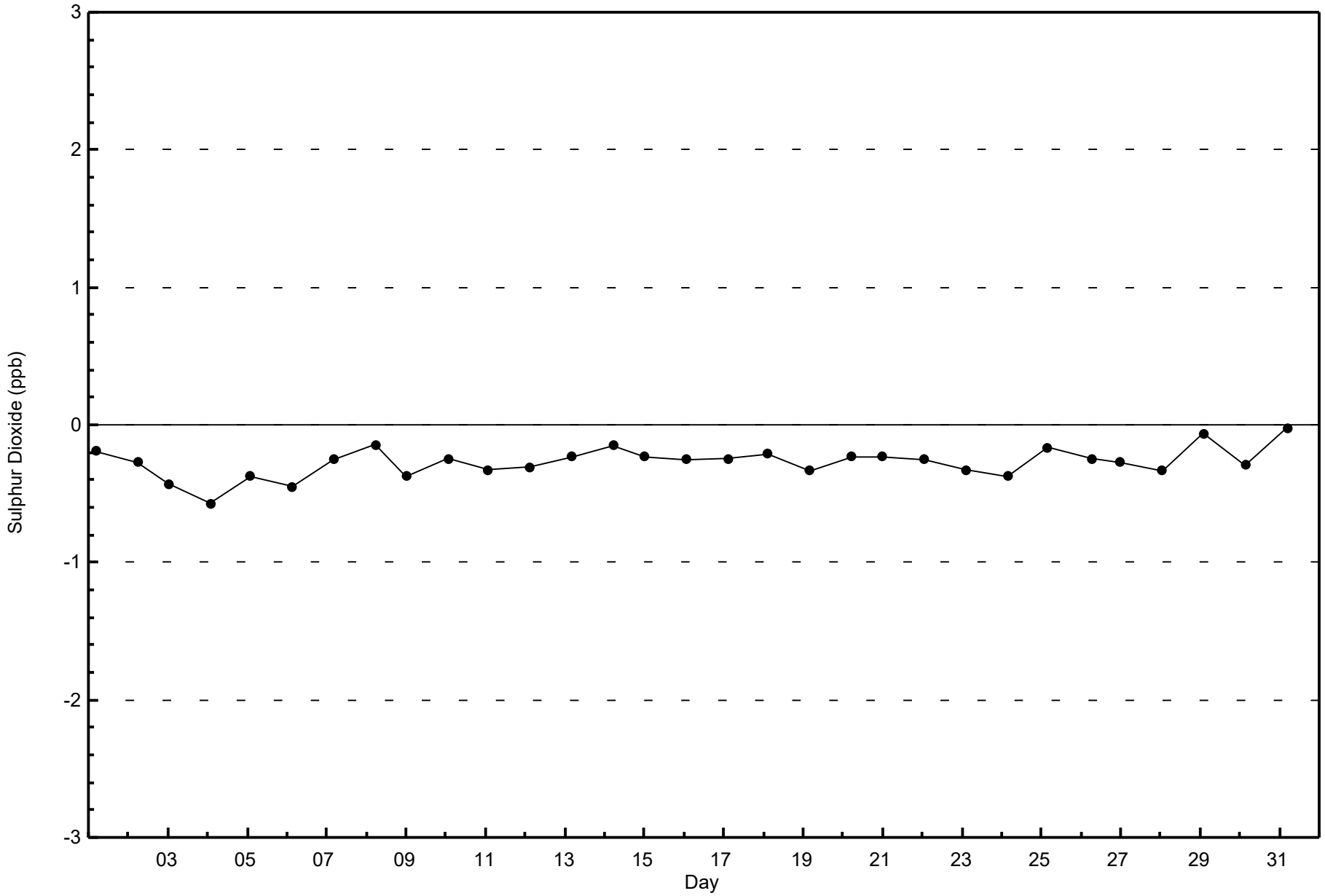
Total Number of Hours: 744

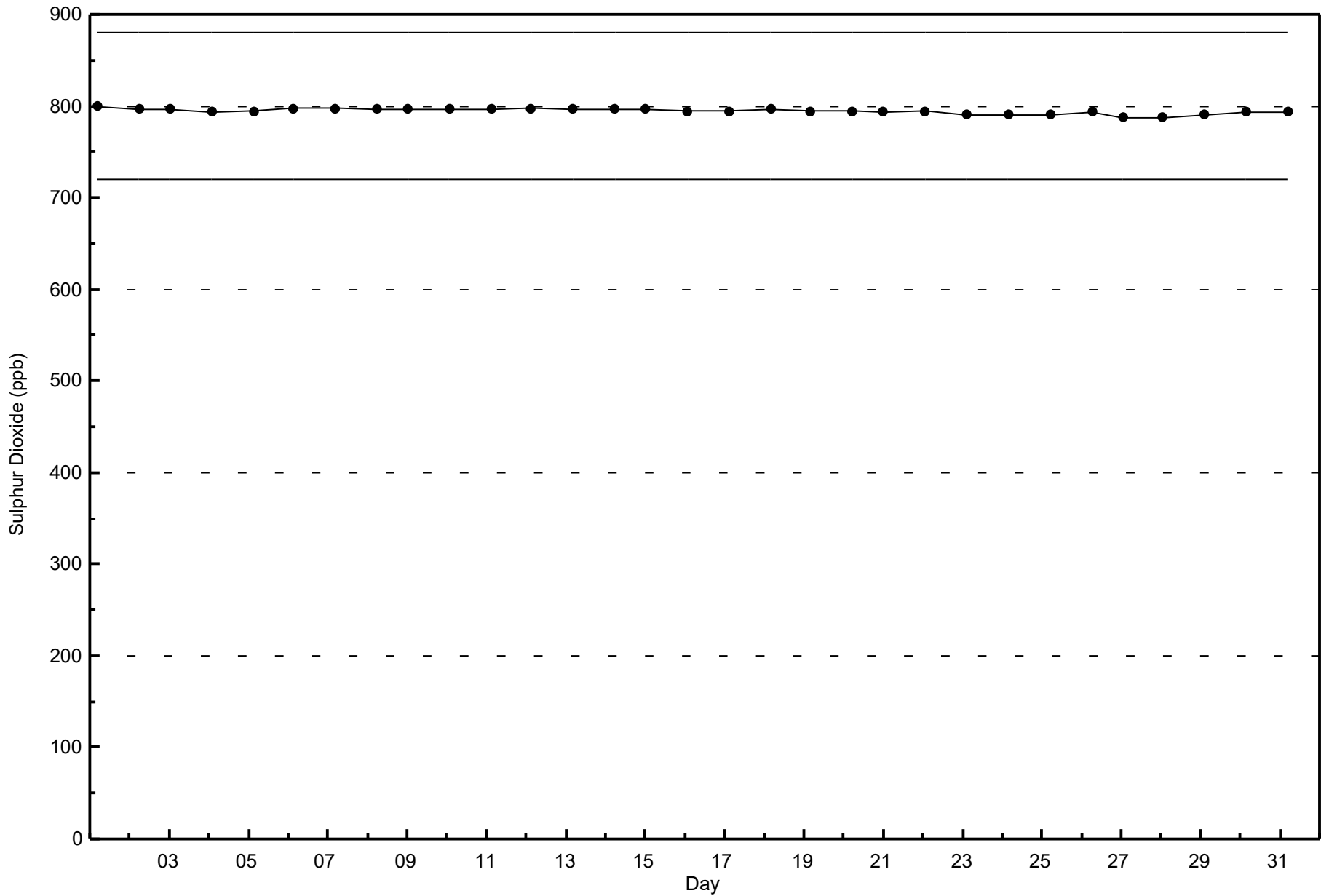


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











Wood Buffalo Environmental Association

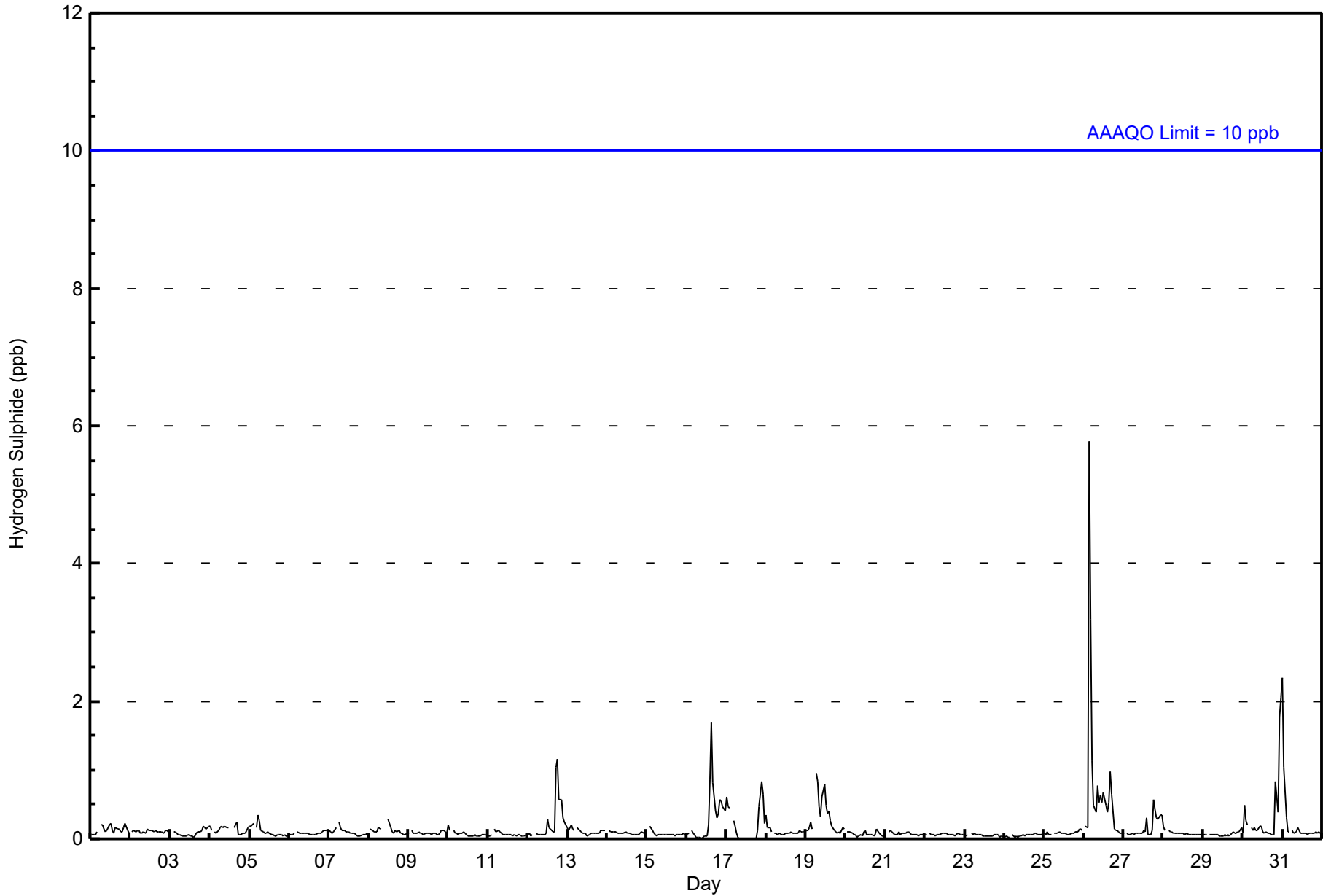
Summary of Hour Averages

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

Buffalo Viewpoint - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0														Hours in Service: 744																	
Maximum Value: 5.8 ppb on Oct 26 04:00														Maximum Daily Average: 0.8 ppb on Oct 26																	
Minimum Value: 0.0 ppb on Oct 17 10:00														Minimum Daily Average: 0.0 ppb on Oct 24																	
Maximum Diurnal Average: 0.3 ppb at hour 4														Minimum Diurnal Average: 0.1 ppb at hour 10																	
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> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 1.1																	
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-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.1	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	0.1	0.2					
2-Oct	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					
3-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2					
4-Oct	0.2	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	PF	PF	PF	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2					
5-Oct	0.2	0.2	0.2	Z	0.2	0.3	0.3	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	0.0	0.1	0.0	0.1	0.3					
6-Oct	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					
7-Oct	0.1	0.1	0.1	0.1	0.2	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	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2					
8-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	C	C	C	C	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	0.3					
9-Oct	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					
10-Oct	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2					
11-Oct	0.0	0.0	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	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1					
12-Oct	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	1.0	1.2	0.6	0.6	0.3	0.2	0.2	0.2	1.2					
13-Oct	0.2	0.1	0.2	0.2	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2					
14-Oct	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					
15-Oct	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2					
16-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	1.7	0.8	0.4	0.3	0.4	0.6	0.5	0.5	0.4	0.3	1.7					
17-Oct	0.6	0.5	0.5	Z	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	0.1	0.5	0.8	0.7	0.2	0.2	0.8					
18-Oct	0.3	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	0.3					
19-Oct	0.1	0.1	0.2	0.2	0.1	Z	1.0	0.8	0.5	0.3	0.6	0.8	0.5	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	1.0					
20-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1					
21-Oct	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	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1					
22-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1					
23-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1					
24-Oct	0.0	0.0	0.0	0.0	Z	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	0.1	0.1	0.1	0.1	0.1	0.0	0.1					
25-Oct	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					
26-Oct	Z	0.2	0.2	5.8	3.2	1.1	0.5	0.4	0.8	0.5	0.6	0.5	0.7	0.5	0.4	0.5	1.0	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.8	5.8					
27-Oct	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	0.3	0.1	0.1	0.1	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.6					
28-Oct	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	0.2					
29-Oct	0.1	0.1	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2					
30-Oct	0.1	0.5	0.3	0.2	Z	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.4	1.8	2.1	0.3	2.1				
31-Oct	2.3	1.0	0.3	0.1	0.1	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	0.2	2.3					
																								Diurnal Average				Diurnal Maximum			
																								0.2				2.3			
																								0.2				1.0			
																								0.1				0.5			
																								0.3				5.8			
																								0.2				3.2			
																								0.1				1.1			
																								0.1				1.0			
																								0.1				0.8			
																								0.1				0.8			
																								0.1				0.5			
																								0.1				0.6			
																								0.1				0.8			
																								0.1				0.7			
																								0.1				0.5			
																								0.1				0.9			
																								0.1				1.7			
																								0.1				1.0			
																								0.1				1.0			
																								0.1				1.2			
																								0.2				0.6			
																								0.2				0.8			
																								0.2				1.8			
																								0.2				2.1			

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**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	704	99.72	99.72
3 - 4	1	0.14	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	54	42	15	12	6	28	41	114	50	41	48	73	68	56	39	15	702
3 - 4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5 - 7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	54	43	15	13	6	28	41	114	50	41	48	73	68	56	39	15	704

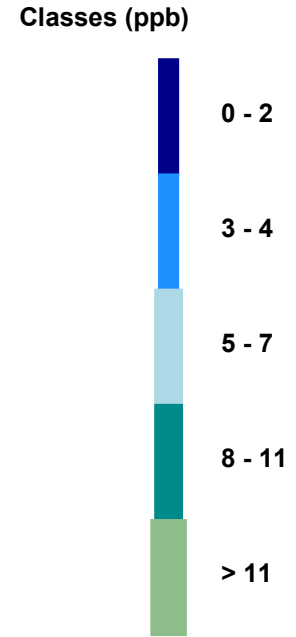
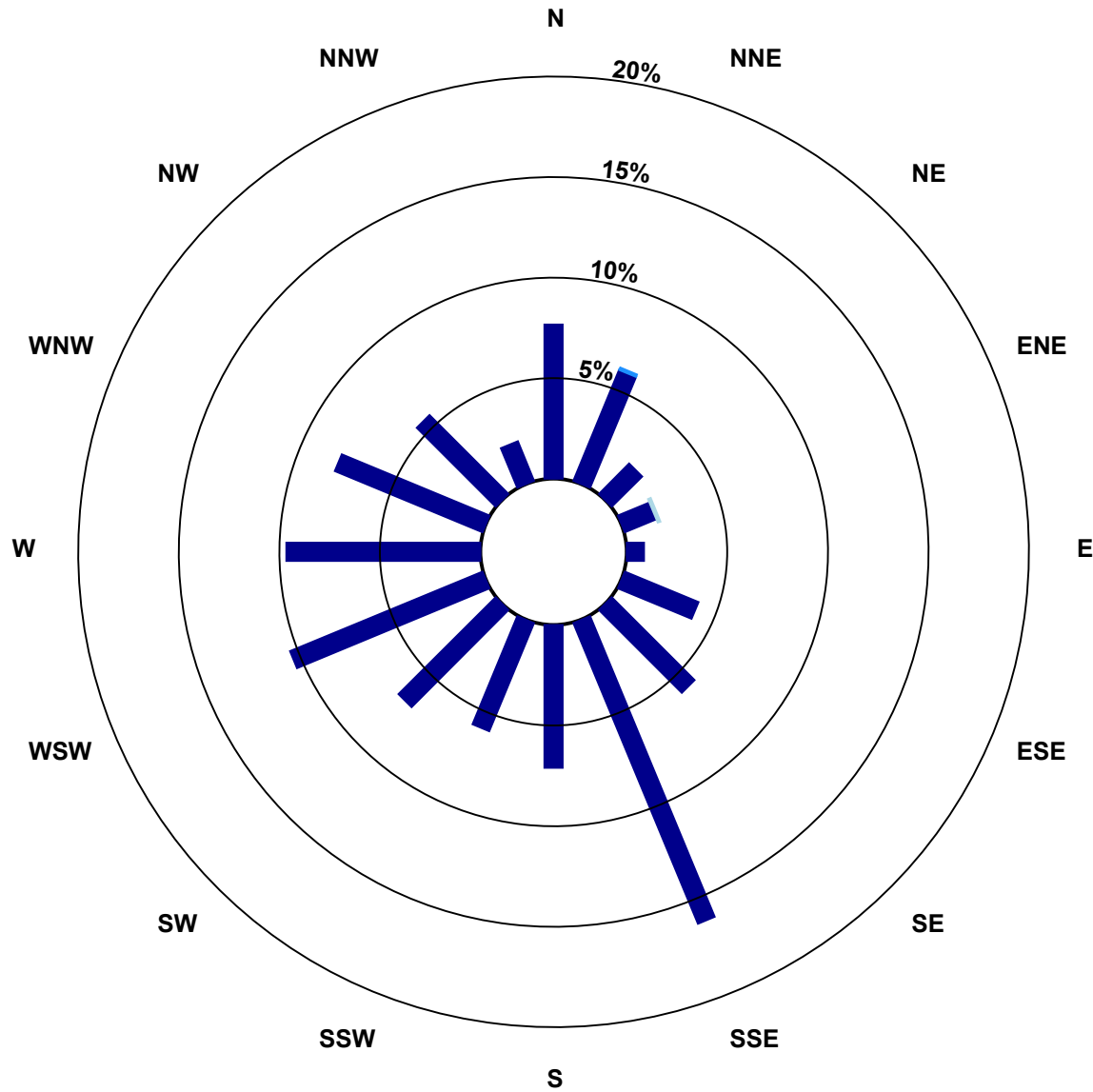
Total Number of Valid Hours: 704

Total Number of Hours: 744

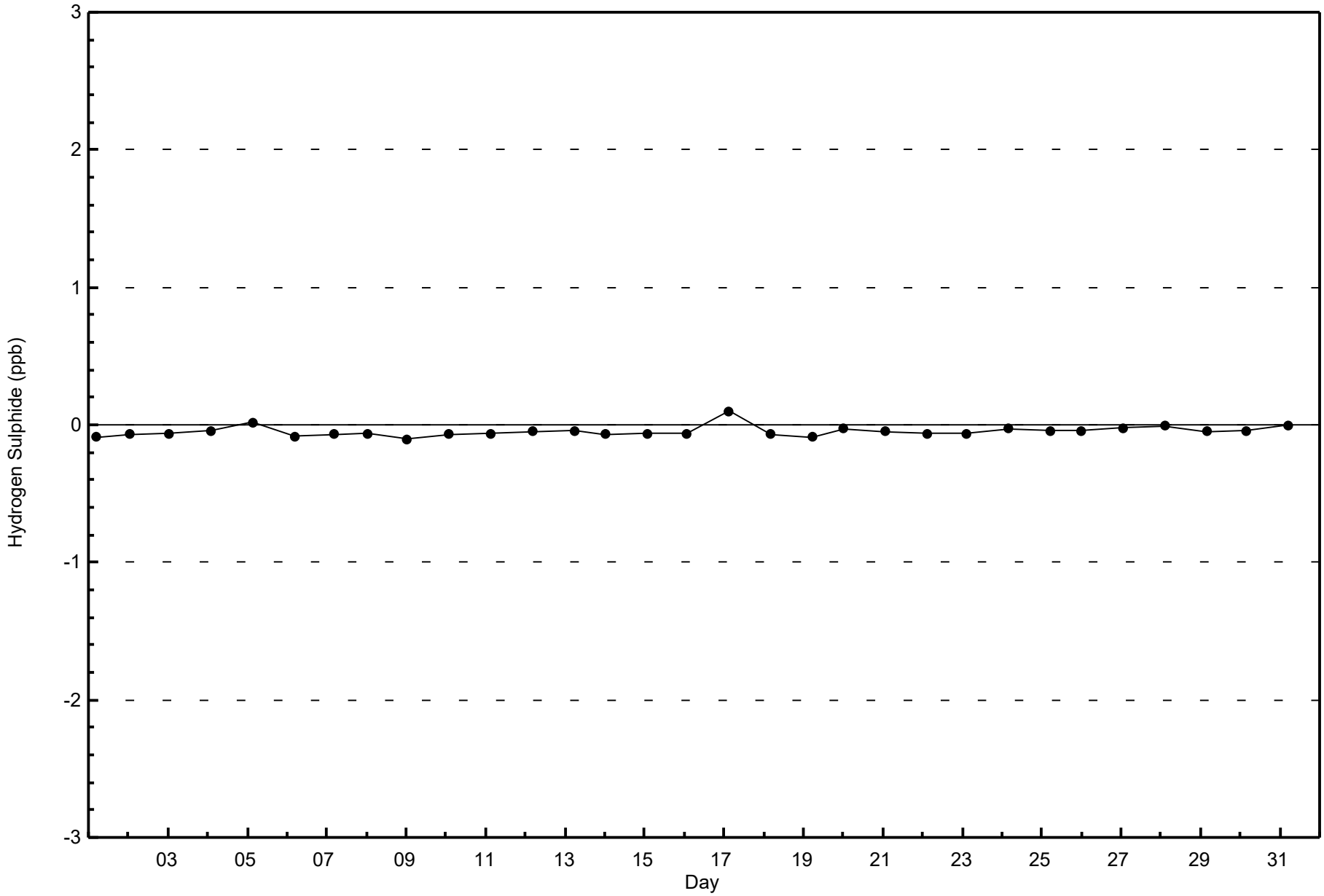


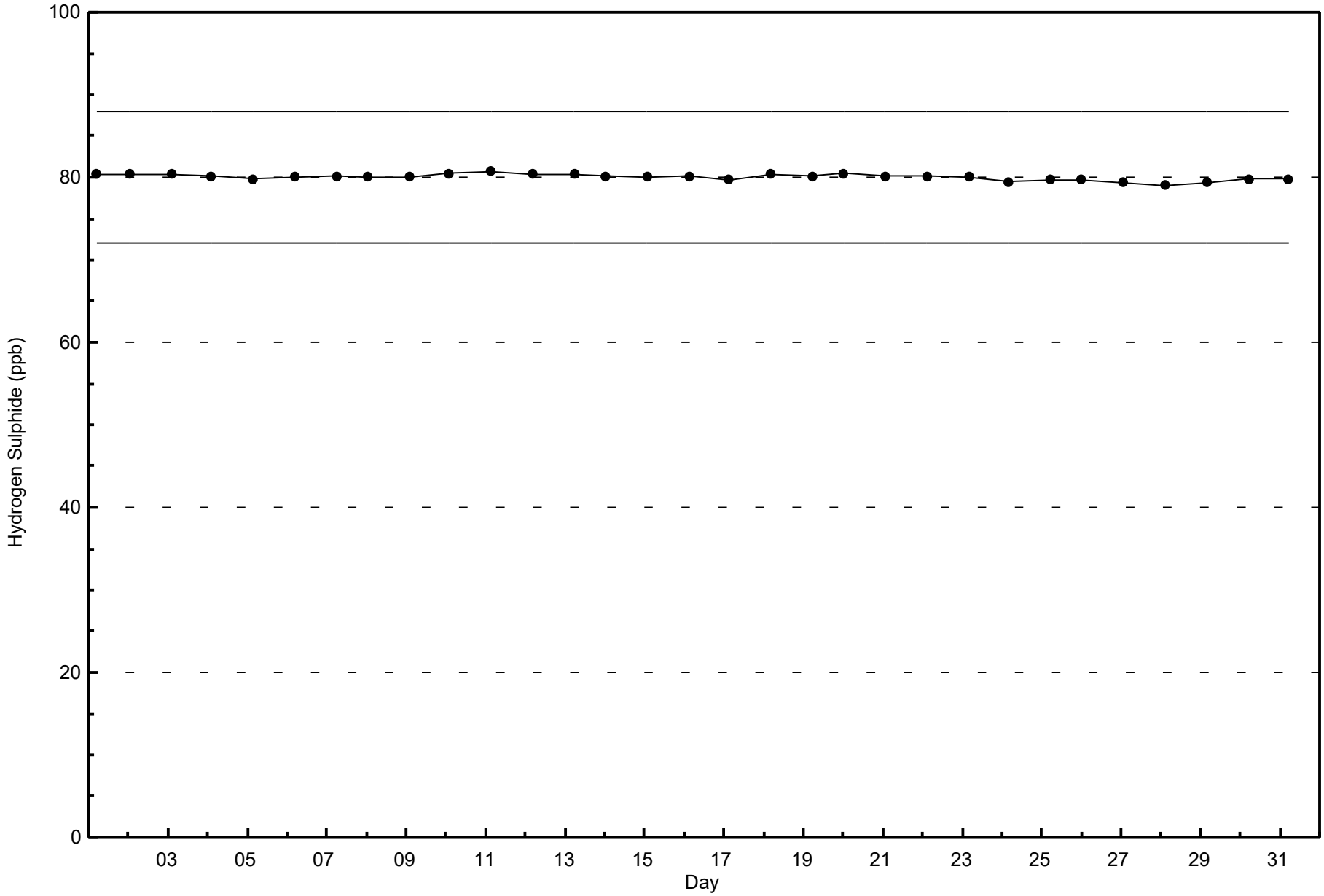
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 704





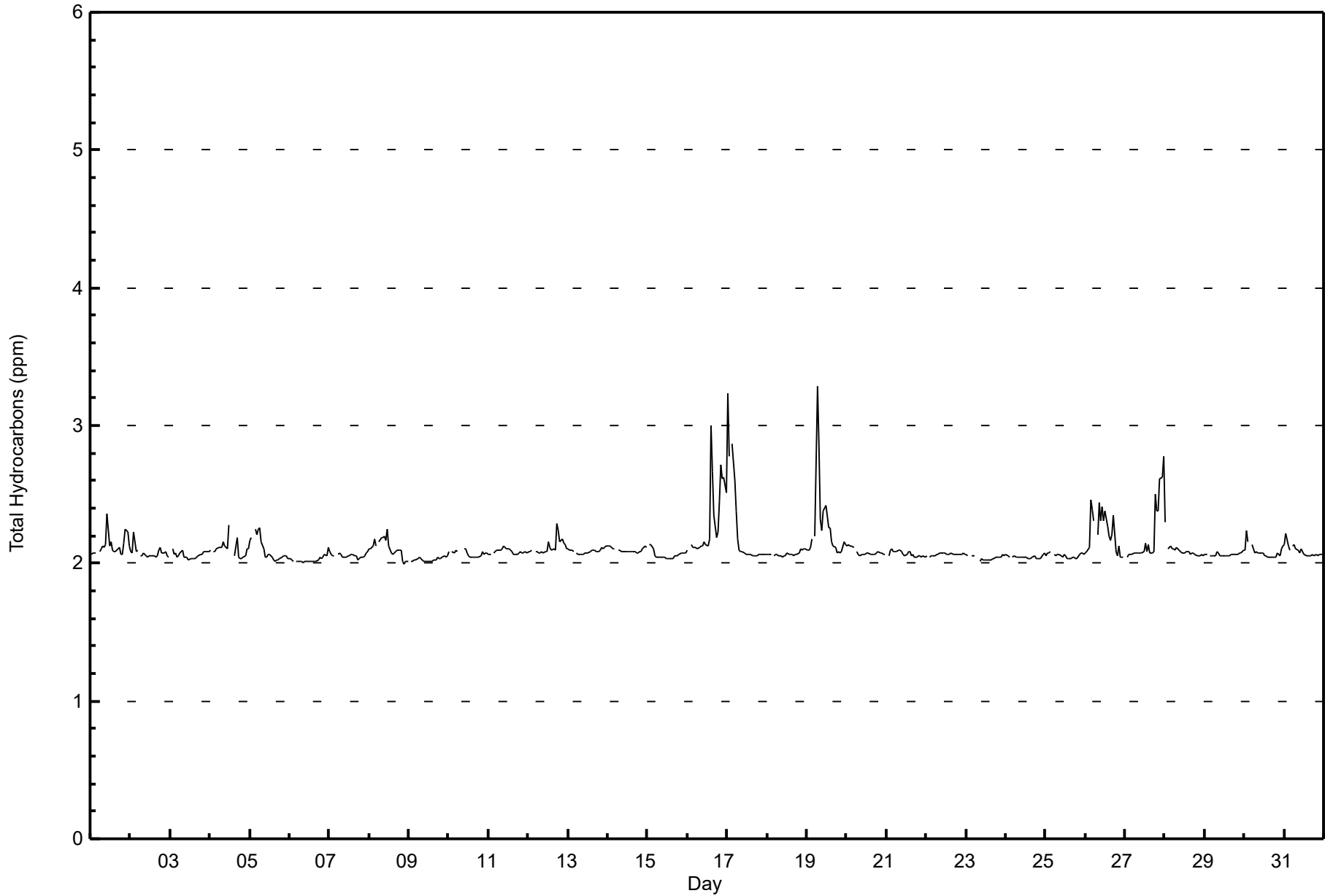






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	158	22.41	22.41
2.1 - 3.0	545	77.30	99.72
3.1 - 10.0	2	0.28	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**

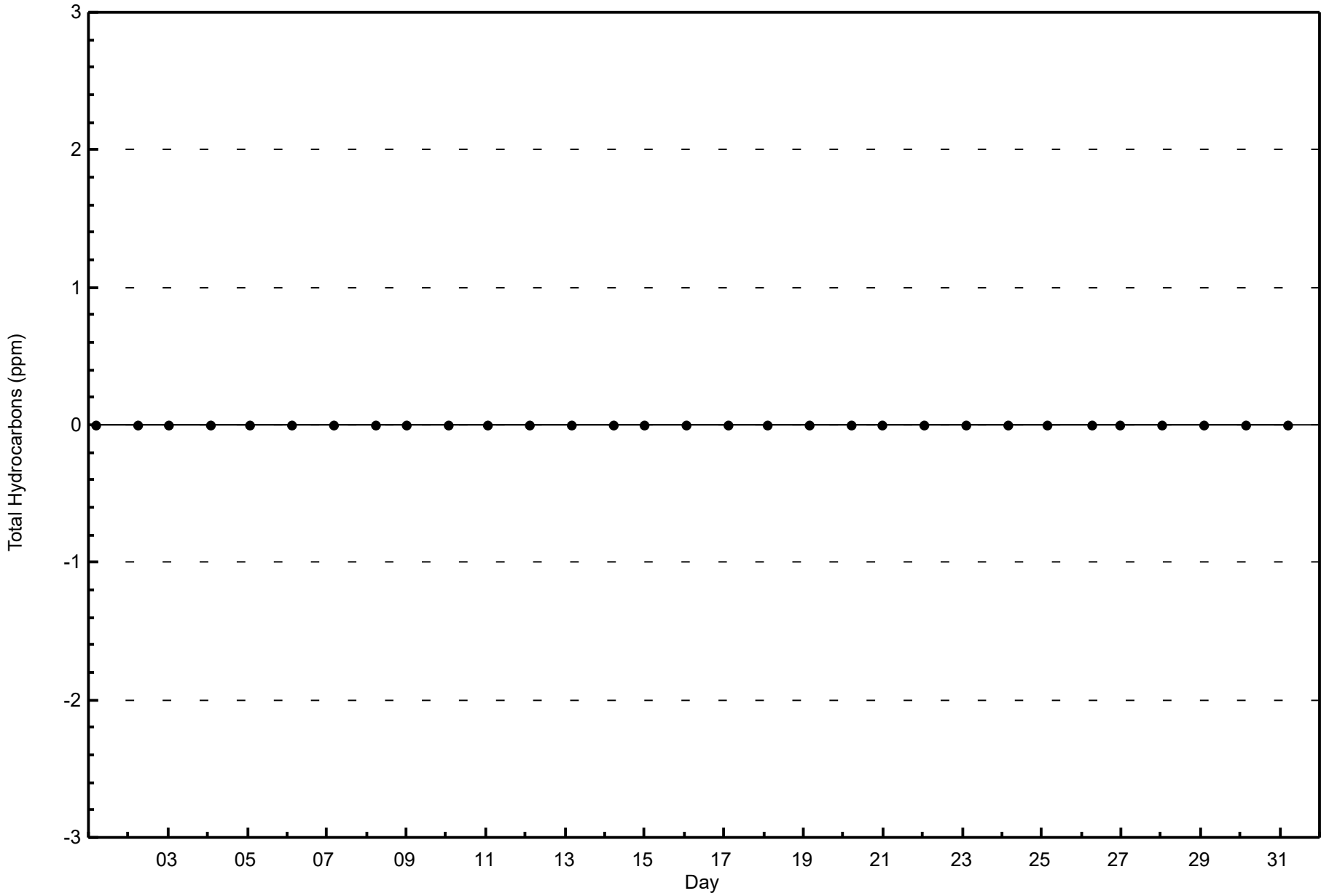
**Total Hydrocarbons (THC) - ppm  
Buffalo Viewpoint - October 2024**

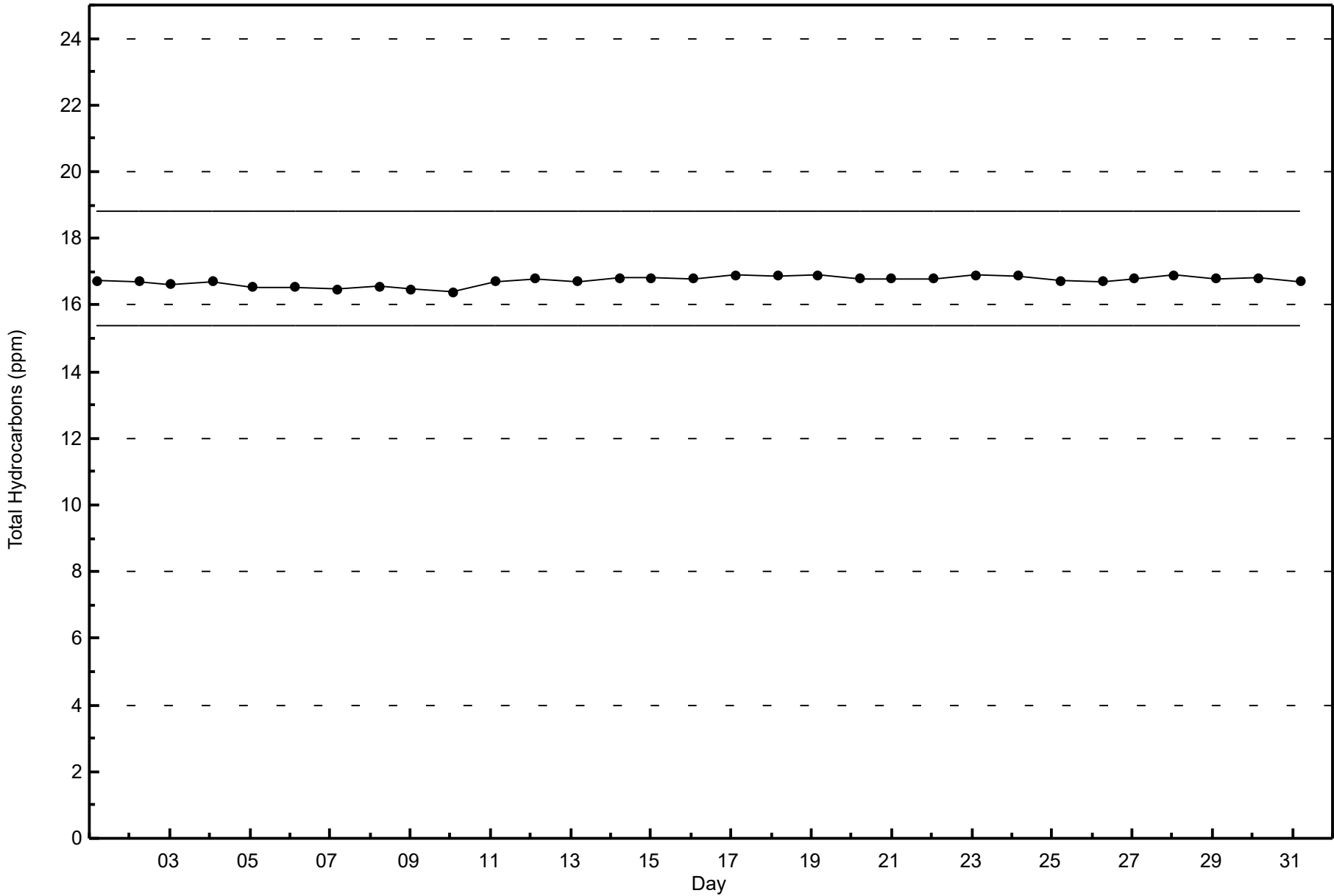
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	4	6	0	0	2	3	8	9	10	16	49	29	14	5	1	156
2.1 - 3.0	54	37	9	13	6	26	38	111	38	32	31	23	37	43	33	14	545
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	55	41	15	13	6	28	41	119	47	42	47	72	67	57	38	15	703

Total Number of Valid Hours: 703

Total Number of Hours: 744





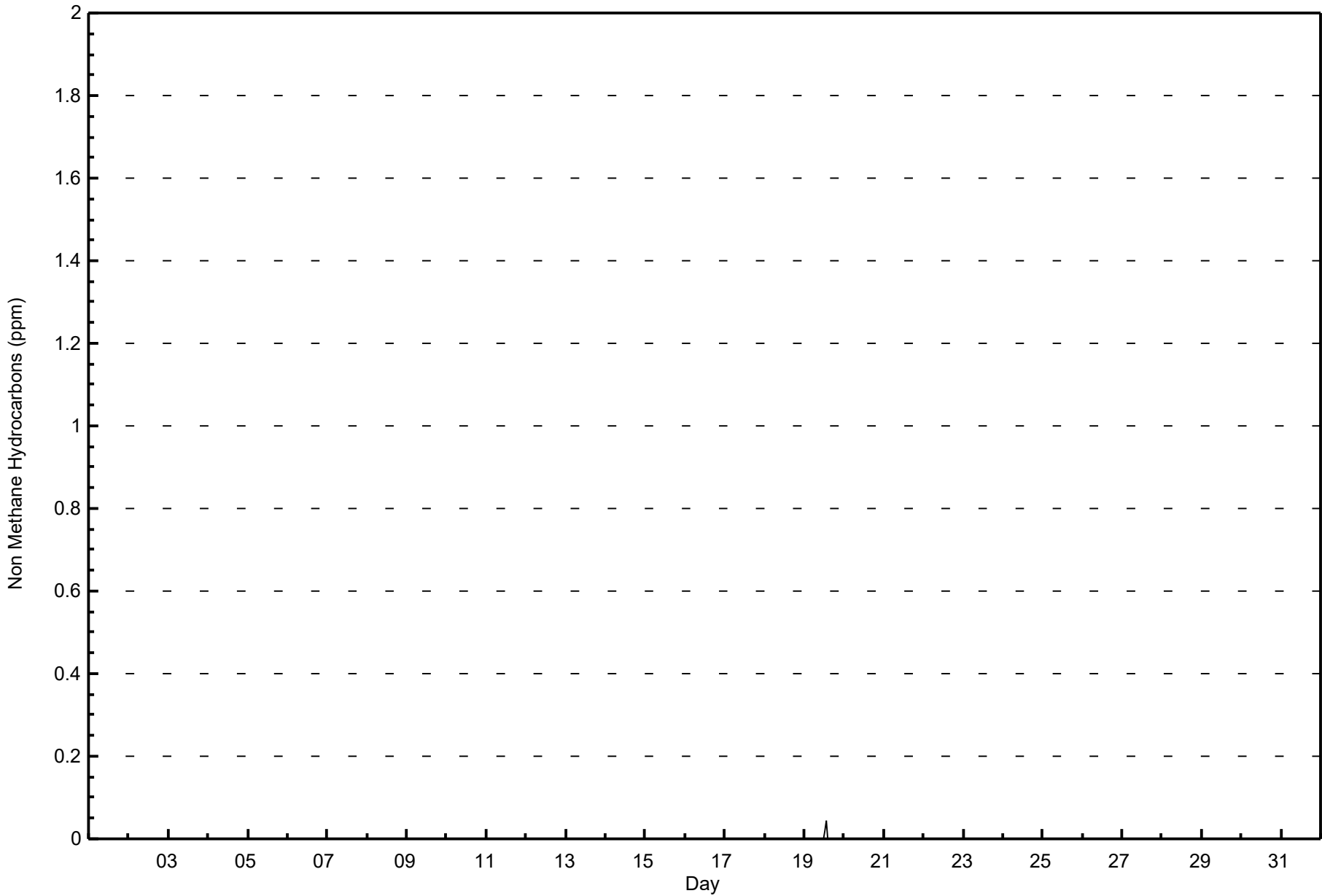






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	703	99.72	99.72
0.006 - 0.05	2	0.28	100.00
0.06 - 0.1	0	0.00	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  
Buffalo Viewpoint - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 0.005	54	40	15	13	6	28	41	119	47	42	47	72	67	57	38	15	701
0.006 - 0.05	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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>	<b>55</b>	<b>41</b>	<b>15</b>	<b>13</b>	<b>6</b>	<b>28</b>	<b>41</b>	<b>119</b>	<b>47</b>	<b>42</b>	<b>47</b>	<b>72</b>	<b>67</b>	<b>57</b>	<b>38</b>	<b>15</b>	<b>703</b>

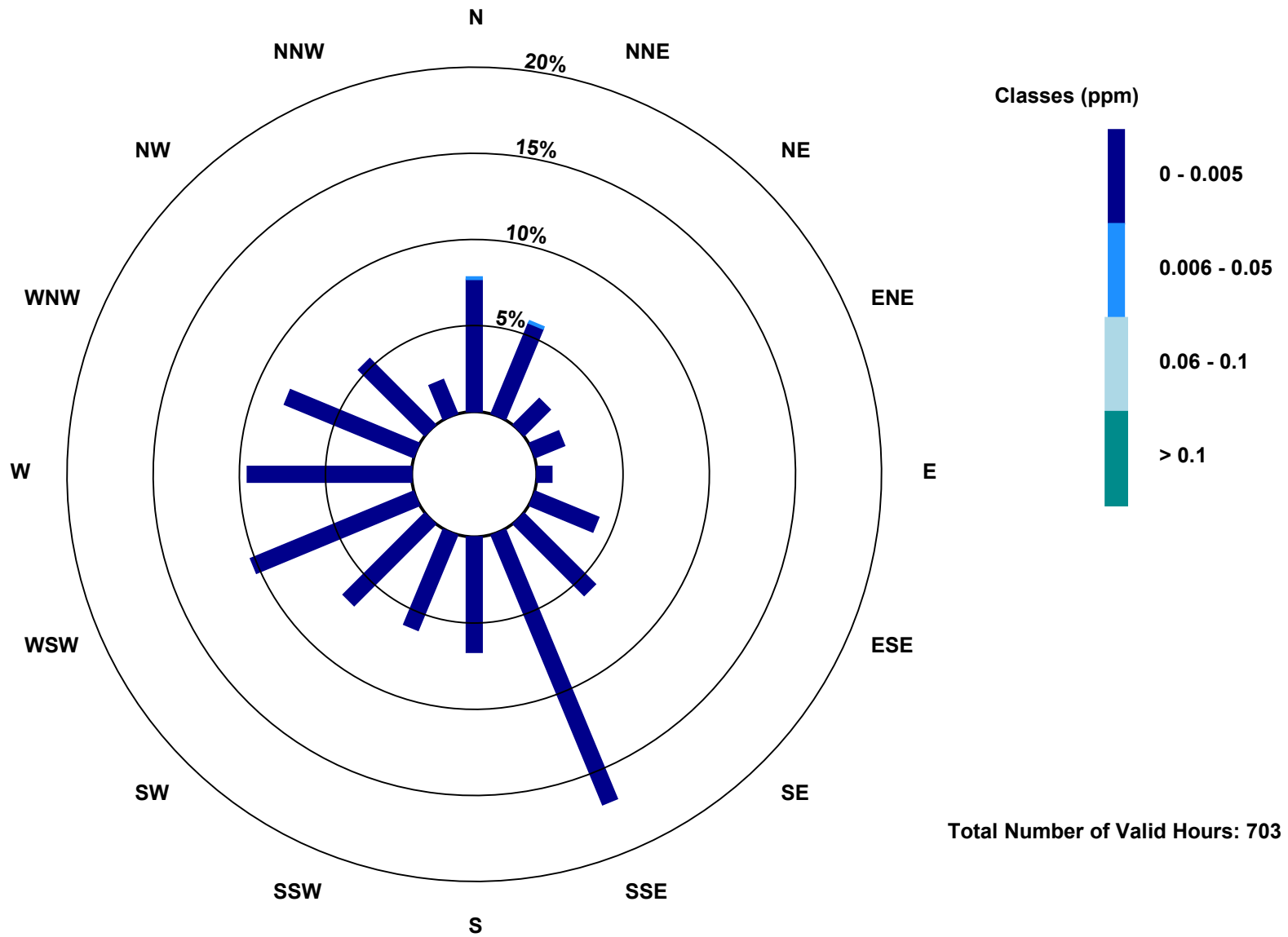
Total Number of Valid Hours: 703

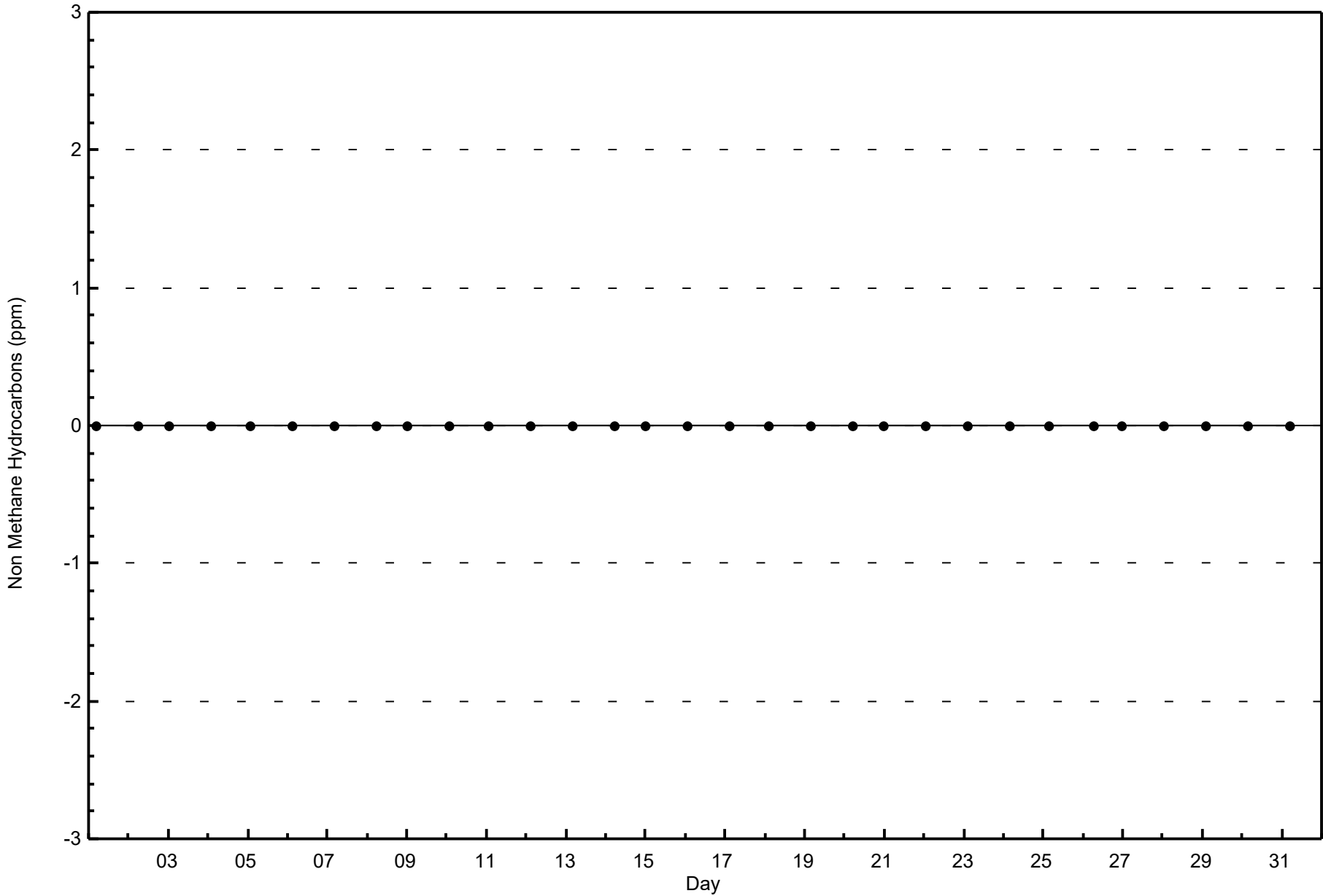
Total Number of Hours: 744

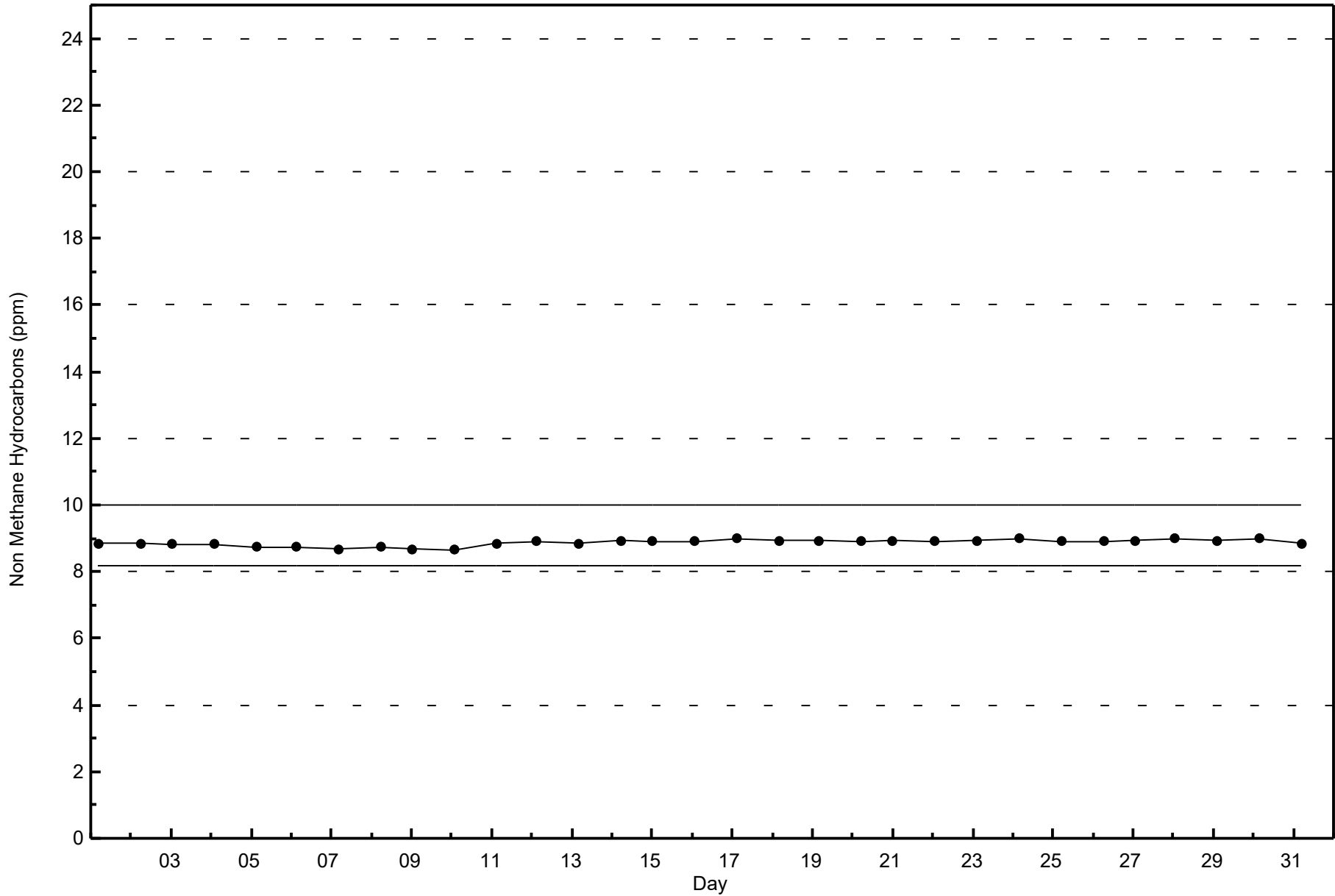


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

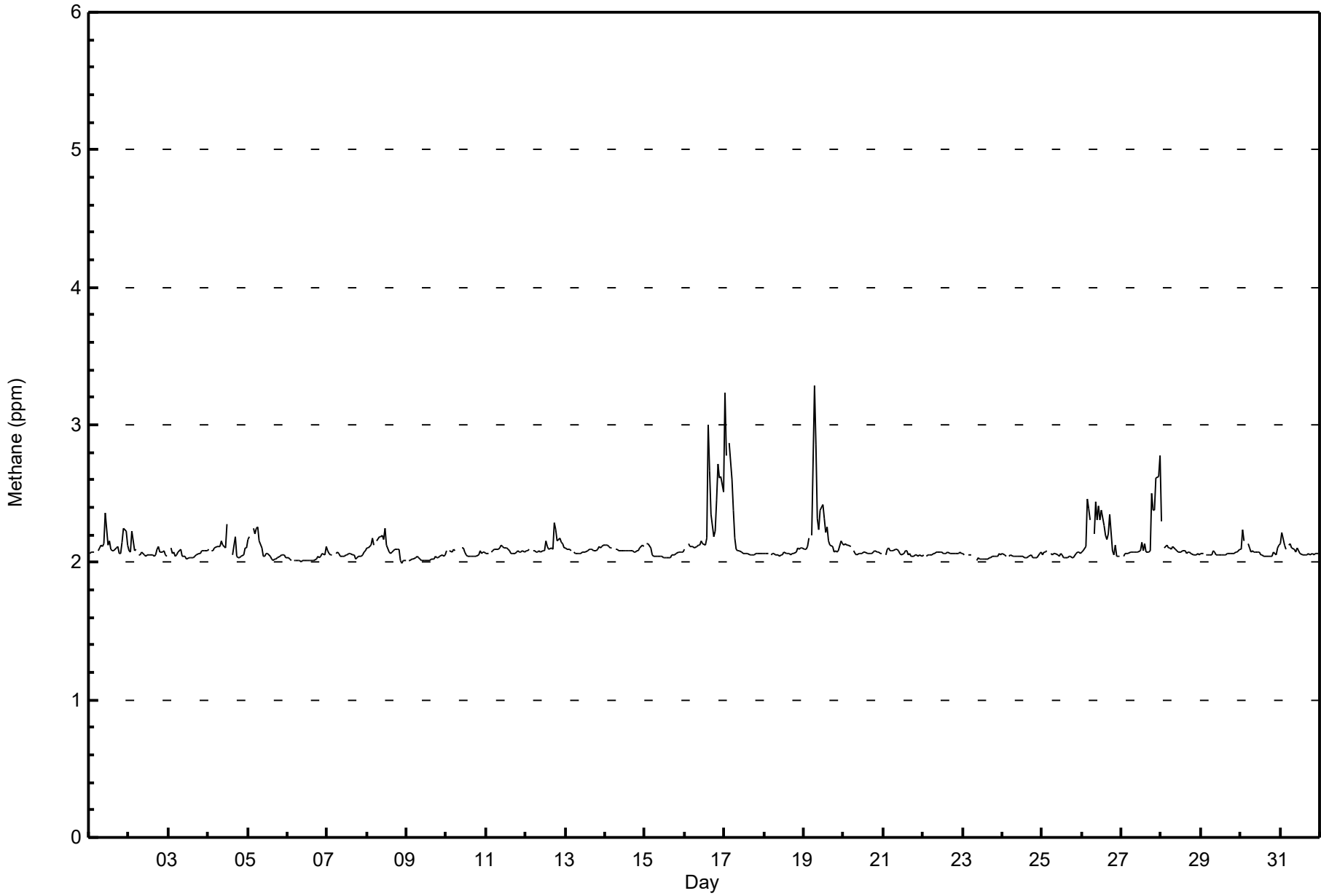
Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	158	22.41	22.41
2.1 - 3.0	545	77.30	99.72
3.1 - 10.0	2	0.28	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**  
**Buffalo Viewpoint - October 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	6	0	0	2	3	8	9	10	16	49	29	14	5	1	156
2.1 - 3.0	54	37	9	13	6	26	38	111	38	32	31	23	37	43	33	14	545
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	1	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>	55	41	15	13	6	28	41	119	47	42	47	72	67	57	38	15	703

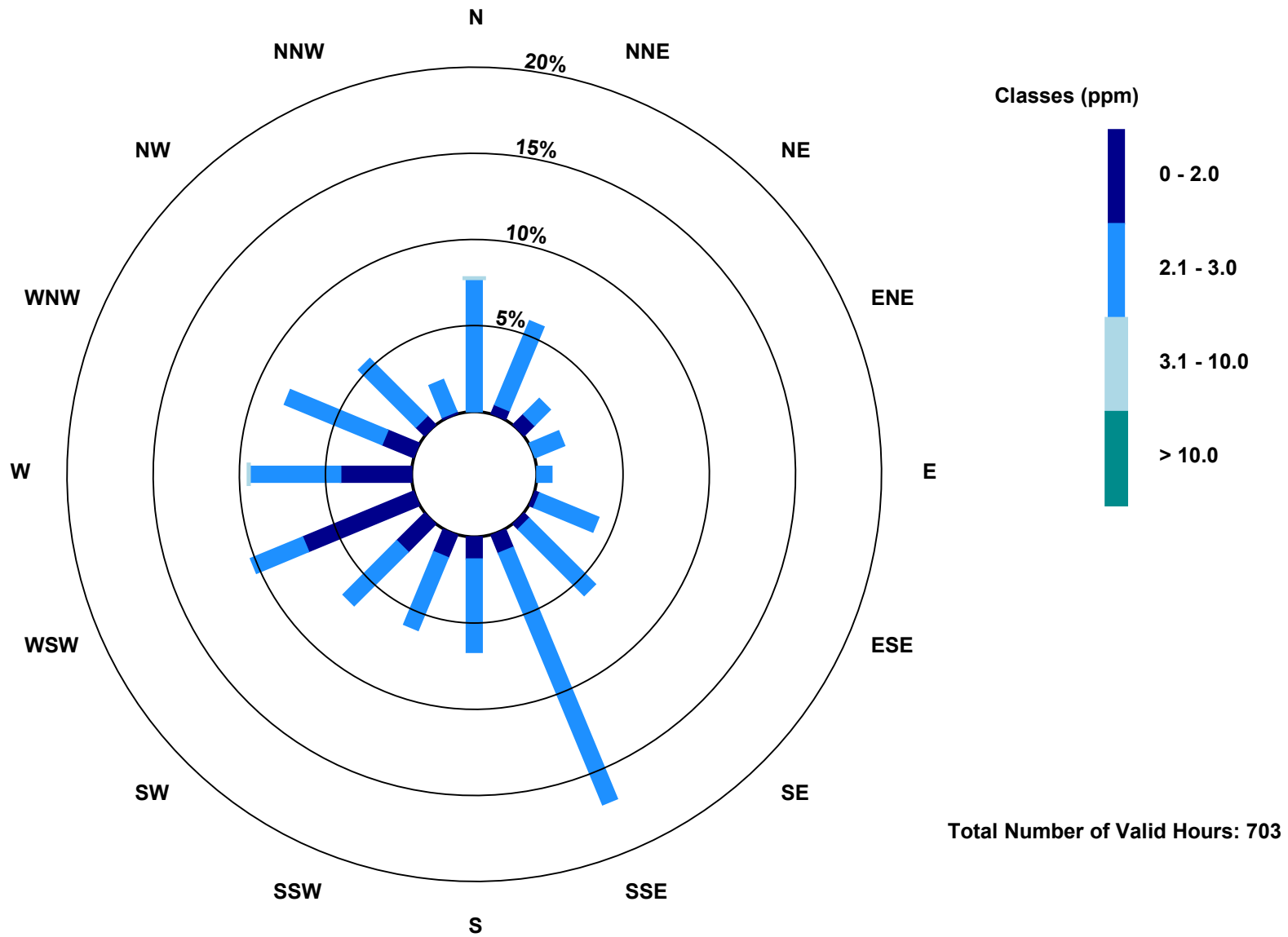
Total Number of Valid Hours: 703

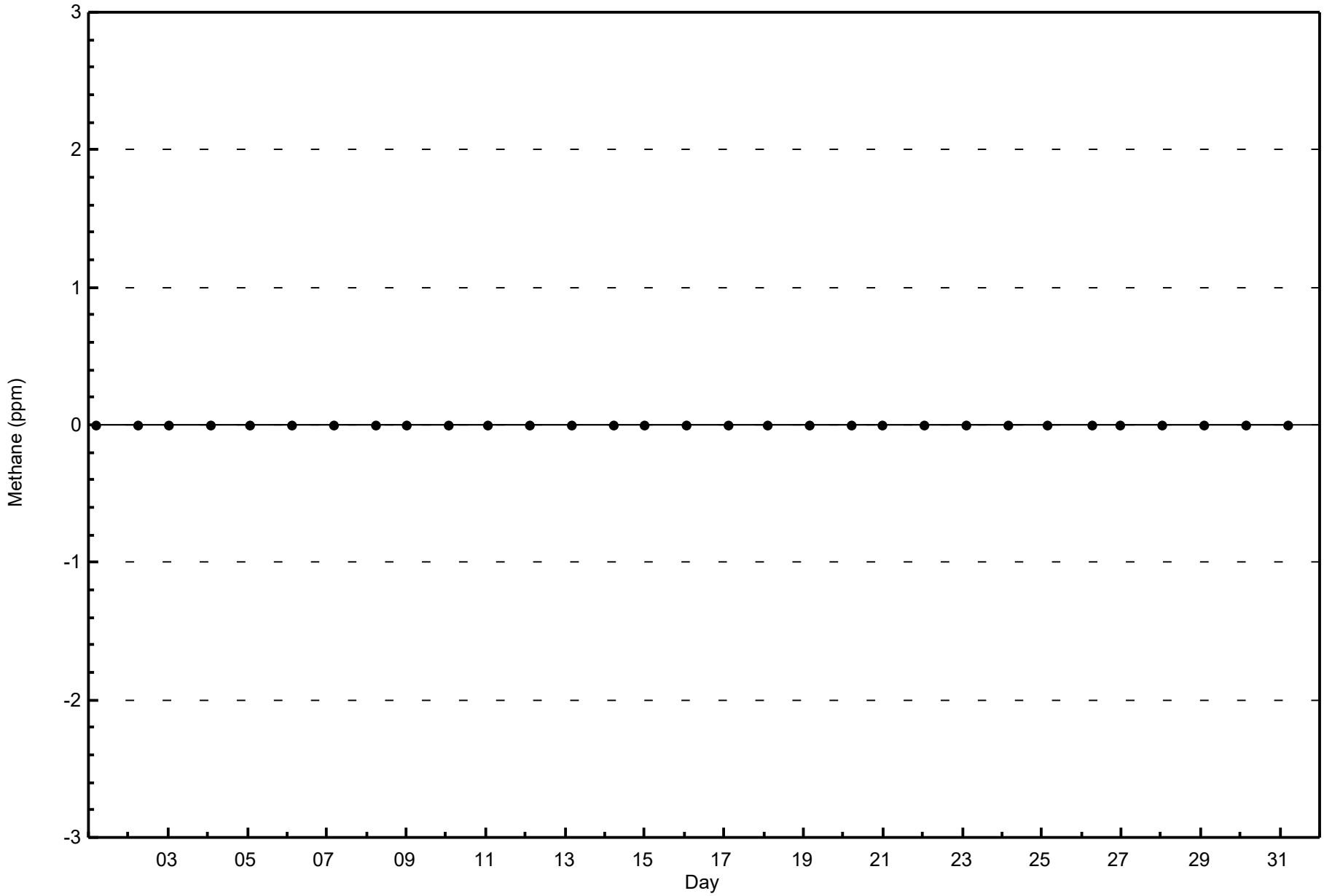
Total Number of Hours: 744

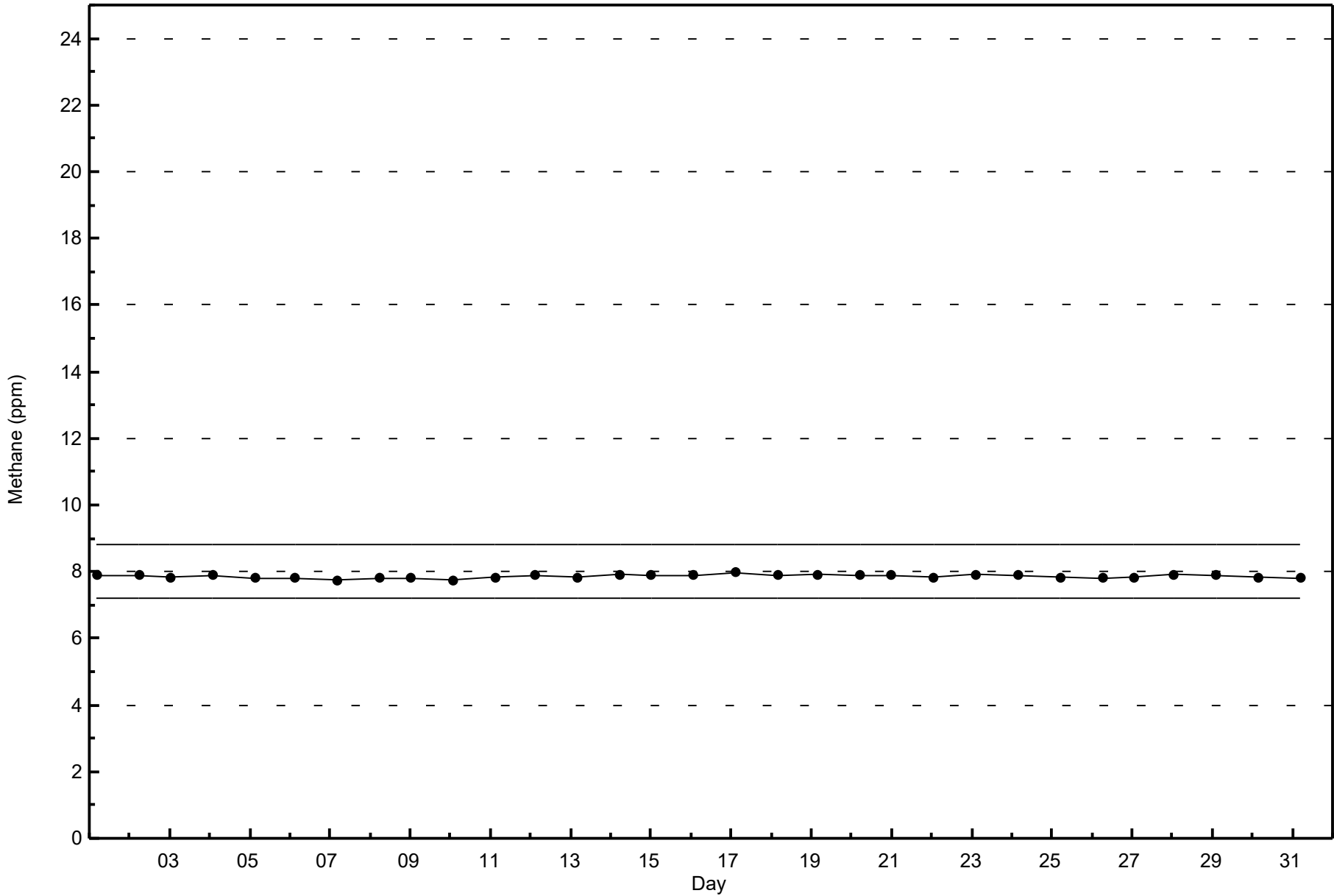


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

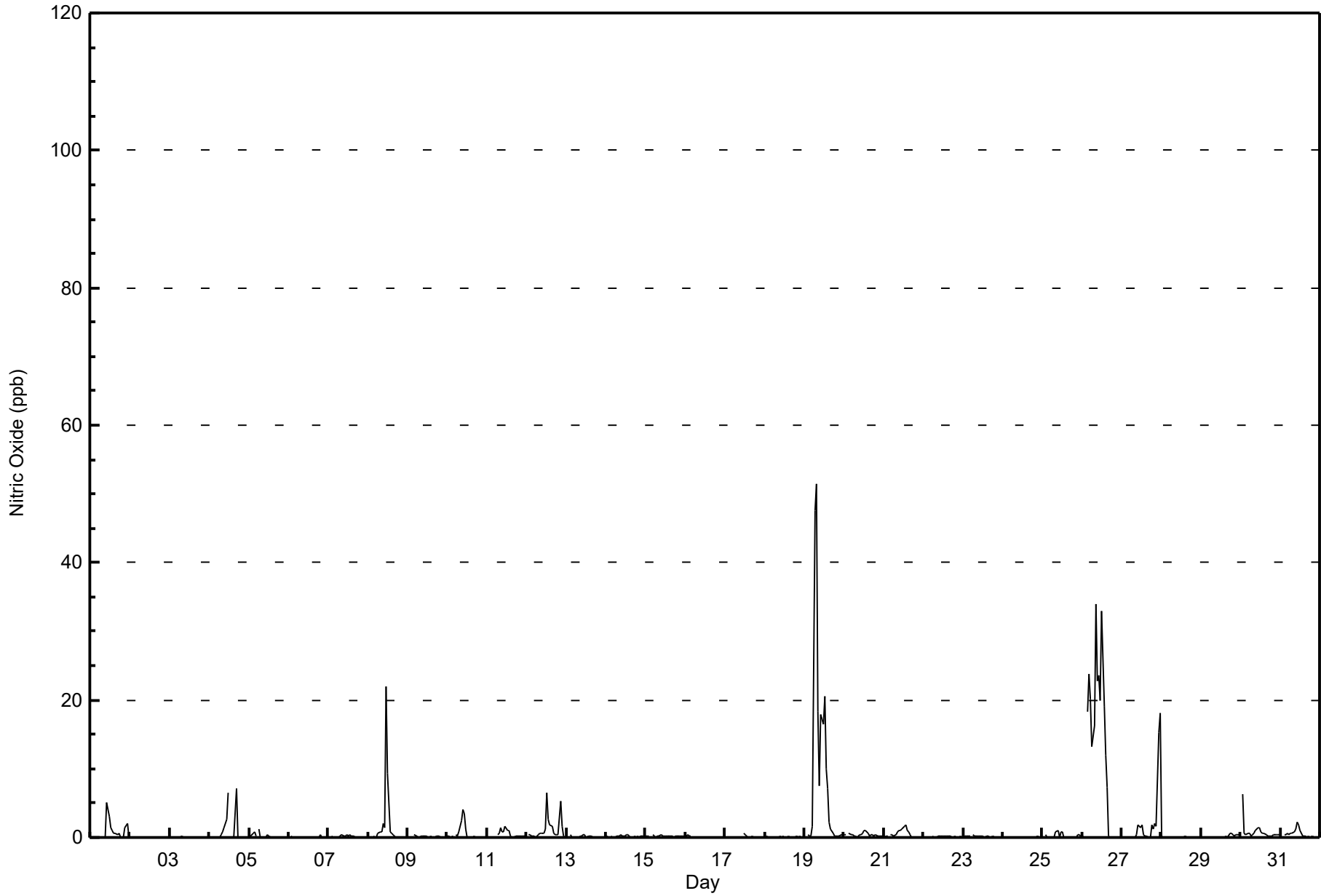








Maximum Value: 51.4 ppb on Oct 19 08:00		Maximum Daily Average: 11.5 ppb on Oct 26		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.0 ppb on Oct 2		Hours of Data: 682																																													
Maximum Diurnal Average: 2.8 ppb at hour 13		Minimum Diurnal Average: 0.1 ppb at hour 1		Hours of Missing Data: 62																																													
Monthly Average: 1.07 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> = 1.2 P <sub>99</sub> = 22.1		Hours of Calibration: 40																																													
				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-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	3.0	1.4	0.9	0.5	0.6	0.4	0.6	0.0	0.0	0.0	1.4	2.0	0.0	0.7	5.1																							
2-Oct	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																						
3-Oct	0.0	0.0	0.0	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	0.1																						
4-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.5	0.8	1.4	2.7	6.4	PF	PF	PF	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	7.0																						
5-Oct	0.1	0.2	0.7	0.8	0.2	Z	1.3	0.0	0.0	0.1	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3																						
6-Oct	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	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
7-Oct	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																						
8-Oct	0.0	0.0	Z	0.2	0.1	0.1	0.6	0.9	0.9	2.1	1.5	21.9	9.3	0.9	0.7	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	21.9																						
9-Oct	0.0	0.0	0.1	Z	0.3	0.1	0.0	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.3	0.3																						
10-Oct	0.2	0.2	0.1	0.2	Z	0.5	0.2	0.9	2.5	4.1	3.4	1.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.6	4.1																						
11-Oct	0.1	0.0	0.0	0.0	0.0	Z	0.3	0.7	1.4	0.8	0.7	1.7	1.1	0.9	0.1	0.1	0.0	0.2	0.2	0.2	0.3	0.2	0.1	0.3	0.4	1.7	1.7																						
12-Oct	Z	0.4	0.4	0.3	0.2	0.1	0.2	0.3	0.7	0.6	0.6	1.3	6.5	2.7	1.8	1.6	0.7	0.4	0.4	0.5	5.3	1.6	0.3	0.1	1.2	6.5																							
13-Oct	0.0	Z	0.4	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.4	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.5	0.5																						
14-Oct	0.1	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.4	0.3	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.2	0.1	0.2	0.1	0.2	0.4																						
15-Oct	0.2	0.1	0.2	Z	0.4	0.3	0.0	0.2	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.0	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.4	0.4																						
16-Oct	0.1	0.4	0.1	0.3	Z	0.3	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	--	0.4																						
17-Oct	M	M	M	M	M	M	M	C	C	C	C	C	0.7	0.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	--	0.7																							
18-Oct	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.0	0.0	0.1	0.2	0.2																						
19-Oct	0.1	Z	0.4	0.3	0.3	1.7	47.6	51.4	18.3	7.6	17.9	16.5	20.4	10.0	7.1	2.3	1.3	0.5	0.1	0.2	0.2	0.1	0.5	0.4	8.9	51.4																							
20-Oct	0.3	0.3	Z	0.6	0.4	0.3	0.2	0.2	0.1	0.5	0.4	0.7	1.0	1.0	0.6	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.1	0.2	0.4	1.0	1.0																						
21-Oct	0.1	0.2	0.2	Z	0.5	0.4	0.3	0.4	0.8	1.1	1.0	1.1	1.7	1.8	1.1	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.8	1.8																						
22-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
23-Oct	0.1	0.2	0.2	0.2	0.1	Z	0.5	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.5																						
24-Oct	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.2																						
25-Oct	0.0	Z	0.4	0.0	0.0	0.0	0.0	0.0	0.8	0.9	0.1	0.8	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.2	0.2	0.9	0.9																						
26-Oct	0.1	0.2	Z	18.2	23.8	20.2	13.2	16.3	34.0	22.8	23.6	20.0	33.0	19.1	12.0	7.4	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	11.5	34.0	34.0																						
27-Oct	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	1.8	1.3	1.9	0.5	0.3	0.2	0.1	0.1	1.8	1.2	2.0	1.6	15.2	18.2	2.0	18.2	18.2																						
28-Oct	0.3	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
29-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	0.5	0.4	0.3	0.4	0.5	0.5	0.2	0.6	0.6																						
30-Oct	Z	6.4	0.6	0.5	0.5	0.5	0.3	0.4	0.6	1.0	1.4	1.4	0.7	0.6	0.5	0.4	0.3	0.2	0.3	0.2	0.4	0.5	0.4	0.4	0.8	6.4	6.4																						
31-Oct	0.3	Z	0.5	0.5	0.5	0.5	0.7	0.7	0.9	1.2	2.2	1.7	1.0	0.1	0.1	0.2	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.5	2.2	2.2																						
																								0.1	0.4	0.2	0.9	1.1	1.0	2.3	2.6	2.2	1.6	2.2	2.7	2.8	1.4	0.9	0.5	0.4	0.1	0.1	0.2	0.3	0.2	0.7	0.7	Diurnal Average	
																								0.3	6.4	0.7	18.2	23.8	20.2	47.6	51.4	34.0	22.8	23.6	21.9	33.0	19.1	12.0	7.4	7.0	0.6	1.8	1.2	5.3	1.6	15.2	18.2	Diurnal Maximum	
Z - zerospan			C - Calibration				M - Maintenance				PF - Power Failure																																						





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	674	98.83	98.83
21 - 40	6	0.88	99.71
41 - 80	2	0.29	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 682

Total Number of Hours: 744



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

**Nitric Oxide (NO) - ppb**  
**Buffalo Viewpoint - October 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	51	36	13	10	5	27	41	109	50	42	48	69	66	54	39	12	672
21 - 40	1	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6
11 - 80	2	0	0	0	0	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>	54	40	13	10	5	27	42	109	50	42	48	69	66	54	39	12	680

Total Number of Valid Hours: 680

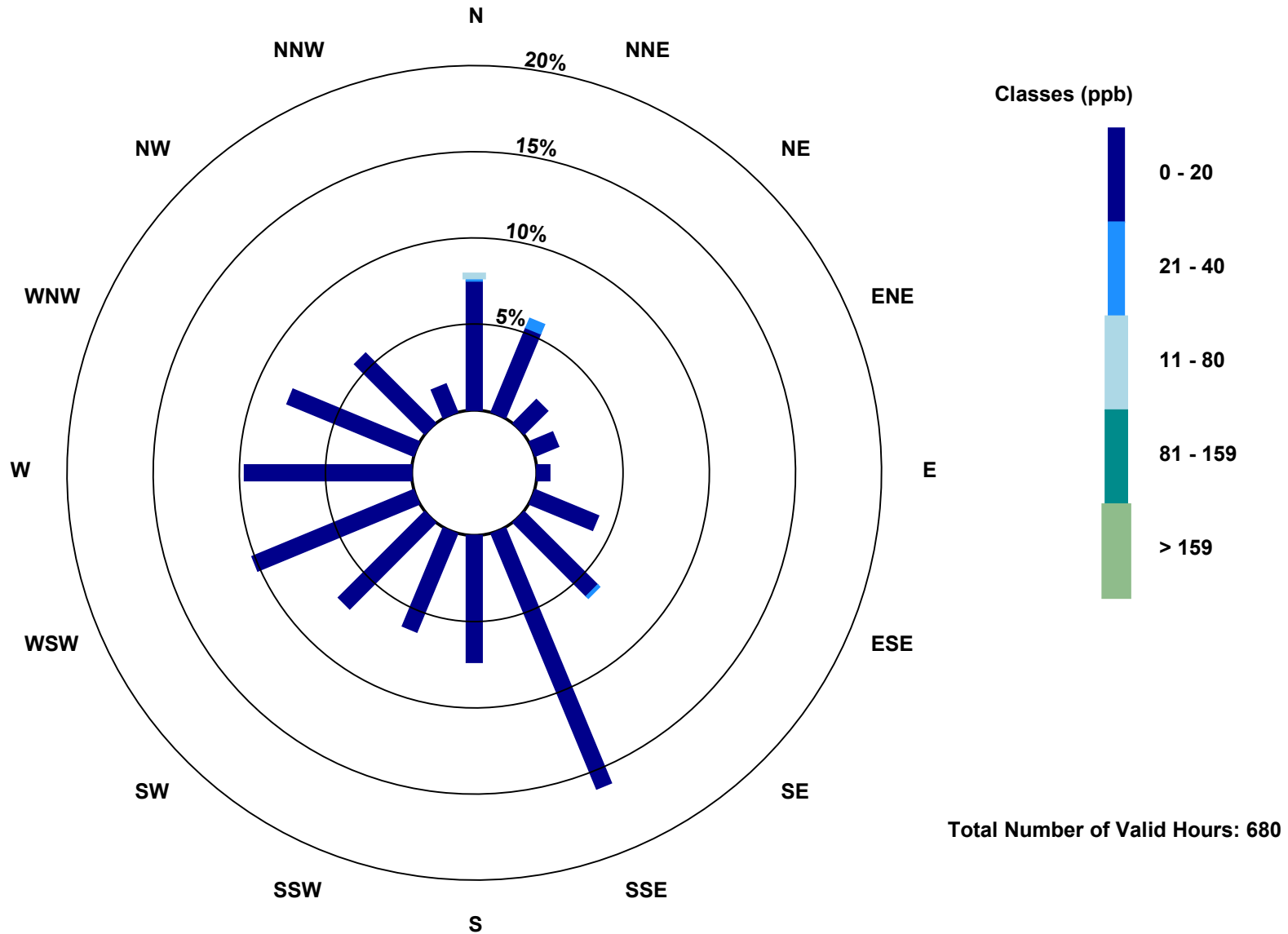
Total Number of Hours: 744

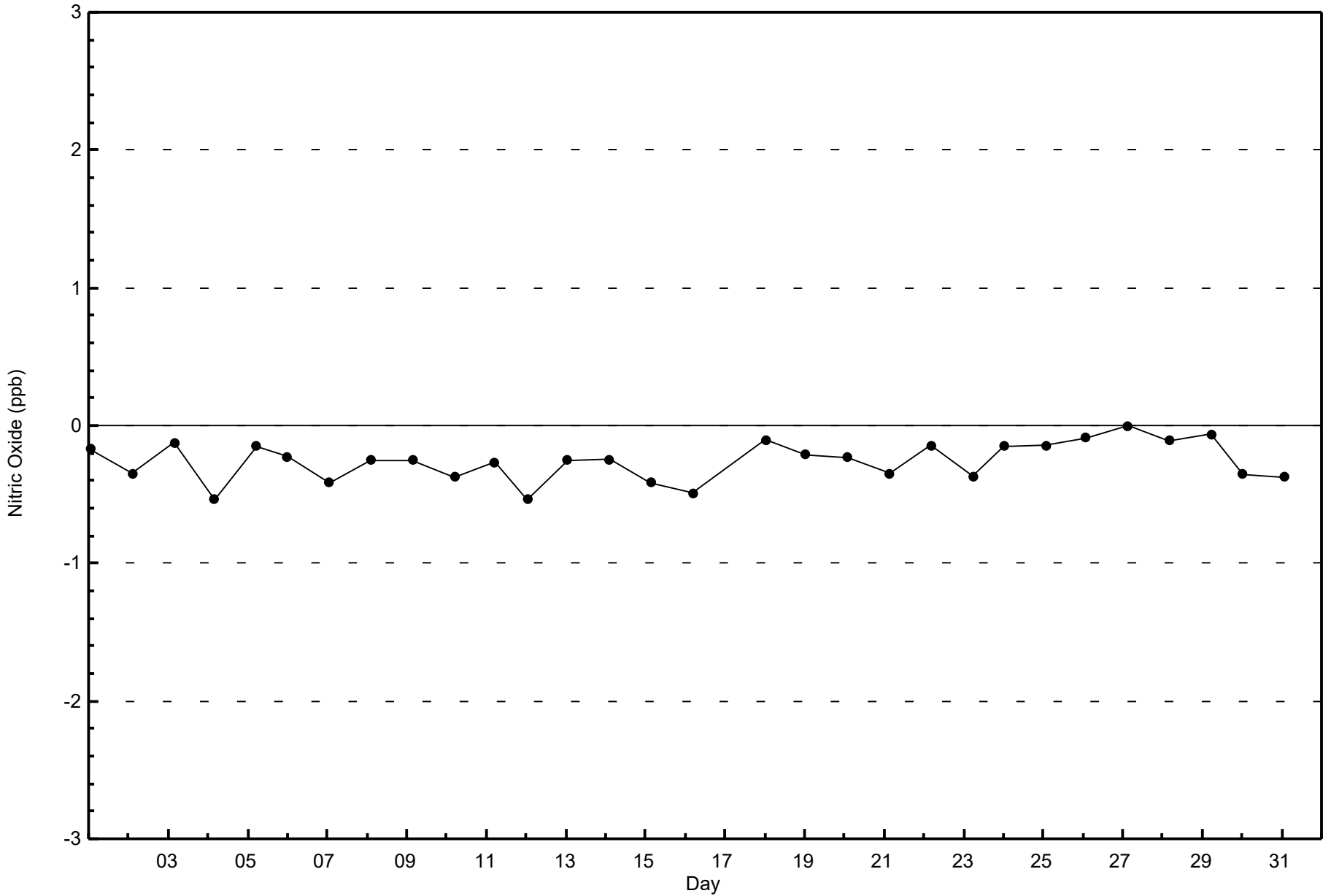


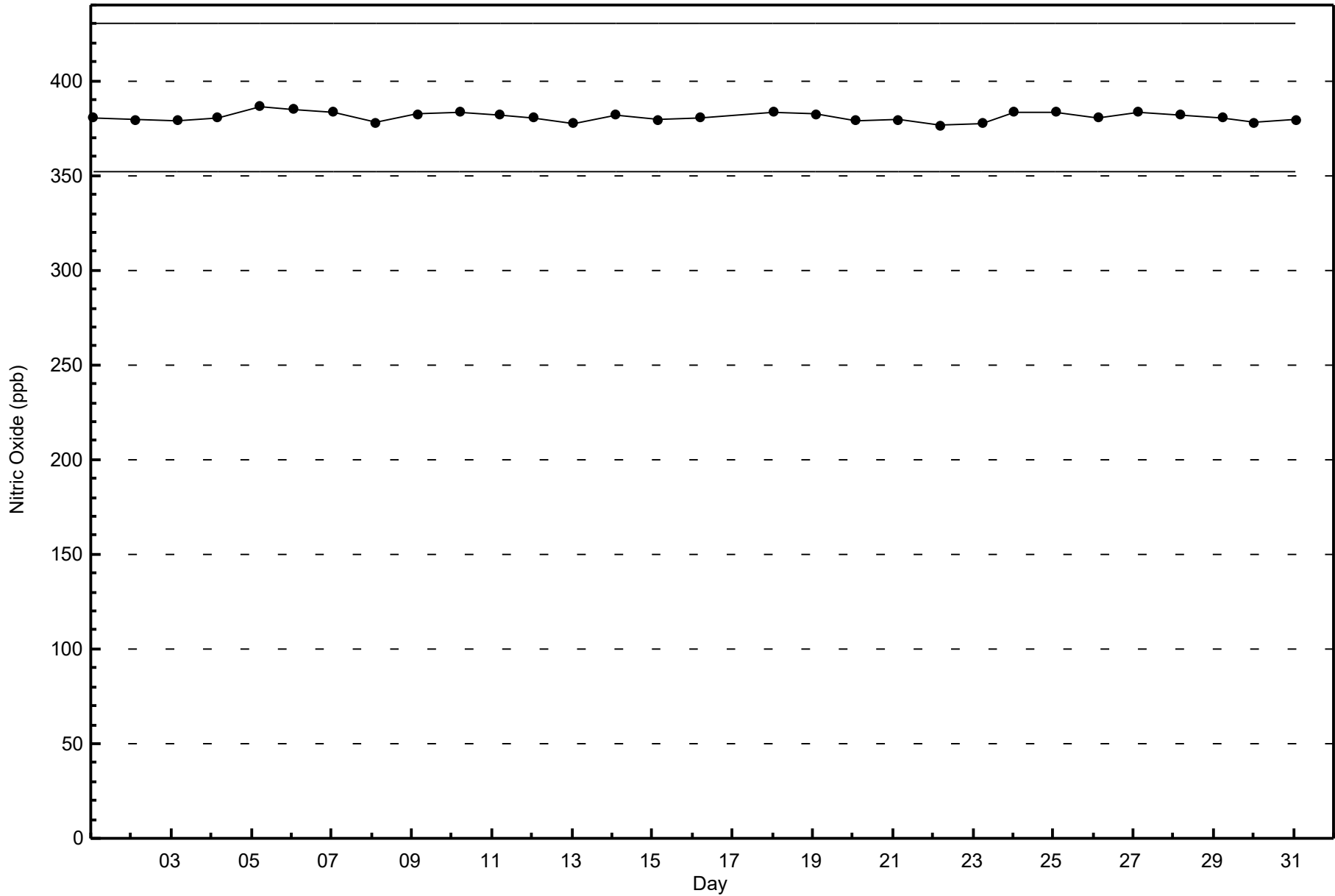


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Buffalo Viewpoint









# Wood Buffalo Environmental Association

## Summary of Hour Averages

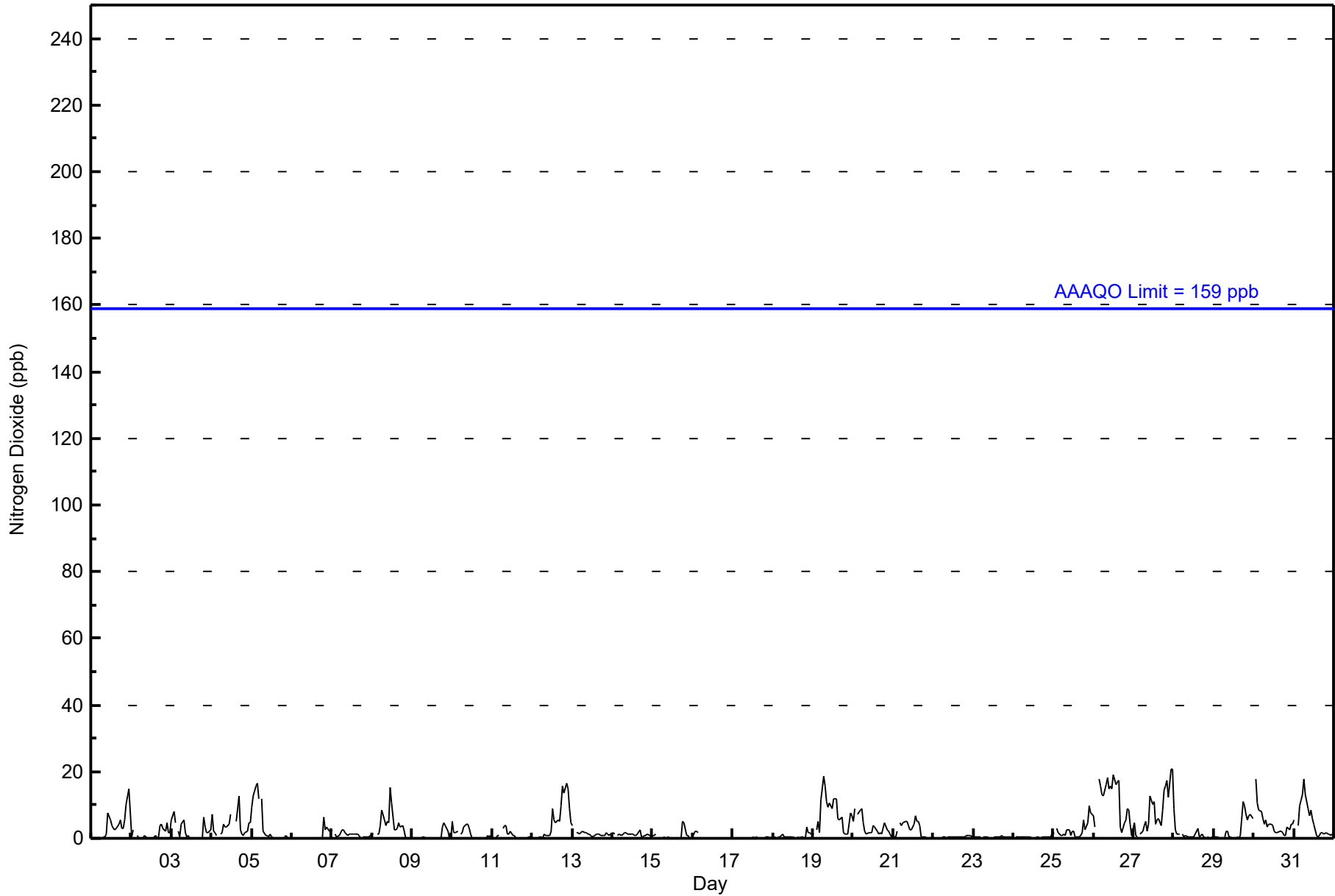
# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

## Buffalo Viewpoint - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 20.7 ppb on Oct 27 23:00	Maximum Daily Average: 11.2 ppb on Oct 26		Hours of Data:	682
Minimum Value: 0.0 ppb on Oct 1 01:00	Minimum Daily Average: 0.4 ppb on Oct 23		Hours of Missing Data:	62
Maximum Diurnal Average: 3.7 ppb at hour 7	Minimum Diurnal Average: 1.9 ppb at hour 17		Hours of Calibration:	40
Monthly Average: 2.77 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.3 Median = 1.1 Q <sub>3</sub> = 3.7 P <sub>90</sub> = 8.4 P <sub>99</sub> = 17.8		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-Oct	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.4	0.6	1.2	7.6	5.6	3.9	2.8	2.6	3.1	4.3	5.6	2.9	3.1	5.6	10.1	15.0	7.7	3.6	15.0																							
2-Oct	0.4	2.6	Z	0.7	0.0	0.0	0.0	0.1	0.7	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.3	3.9	4.4	3.0	2.3	4.6	1.8	1.7	1.2	4.6																							
3-Oct	5.7	8.1	4.8	Z	2.3	0.4	4.3	5.3	1.8	0.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	3.5	1.8	1.9	2.7	2.2	8.1																							
4-Oct	7.0	2.2	1.5	0.7	Z	1.1	1.8	4.1	3.3	3.6	4.1	7.2	PF	PF	PF	4.9	12.5	2.4	1.1	1.0	1.8	2.0	4.6	4.5	3.6	12.5																							
5-Oct	9.4	12.7	15.7	16.5	11.8	Z	11.8	2.0	1.0	0.8	0.6	1.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.4	0.0	0.0	3.7	16.5																							
6-Oct	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	6.4	2.6	3.2	2.0	2.0	0.7	6.4																							
7-Oct	2.5	Z	1.3	0.4	0.9	1.7	2.4	2.5	1.6	1.0	1.1	1.2	1.3	1.2	1.1	1.1	0.7	0.1	0.2	0.3	0.4	0.6	0.4	1.0	1.1	2.5																							
8-Oct	1.1	1.1	Z	1.1	1.4	3.9	8.3	5.4	3.7	5.0	4.7	15.1	10.4	2.5	2.6	3.1	4.5	3.6	3.7	2.0	0.0	0.0	0.0	0.0	3.6	15.1																							
9-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	3.2	4.5	3.7	2.2	0.0	0.2	0.6	4.5																							
10-Oct	5.1	1.5	1.6	2.2	Z	1.2	1.6	3.2	4.1	4.3	3.1	1.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.6	0.8	1.4	5.1																							
11-Oct	0.1	0.1	0.2	1.0	0.9	Z	2.9	4.0	3.7	1.3	1.2	2.0	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.9	4.0																							
12-Oct	Z	0.2	0.2	0.2	0.3	0.3	0.0	1.4	0.8	0.8	0.7	2.0	9.1	5.5	4.7	5.5	5.1	9.8	15.5	13.7	16.7	15.0	8.9	4.7	5.3	16.7																							
13-Oct	4.0	Z	1.7	1.6	1.2	1.9	2.0	1.8	1.5	1.1	1.1	0.9	0.3	0.7	1.1	1.1	1.2	0.9	0.9	0.9	1.7	1.1	1.0	1.3	1.3	4.0																							
14-Oct	1.8	1.3	Z	0.7	1.1	1.0	1.4	1.9	1.5	1.3	1.1	1.2	1.2	0.9	0.9	1.4	2.5	0.5	0.5	0.7	1.0	1.2	0.7	0.5	1.1	2.5																							
15-Oct	0.7	0.7	1.3	Z	0.0	0.0	0.0	0.5	0.2	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	4.7	0.7	0.7	0.0	0.0	0.7	5.1																							
16-Oct	0.4	2.0	2.0	1.8	Z	1.8	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	2.0																							
17-Oct	M	M	M	M	M	M	M	C	C	C	C	C	0.1	0.4	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.3	0.3	0.1	0.4	--	0.4																						
18-Oct	Z	0.5	0.2	0.5	0.6	0.8	1.1	0.5	0.4	0.6	0.5	0.3	0.3	0.2	0.2	0.4	0.2	0.4	0.4	0.2	3.3	1.7	1.6	1.4	0.7	3.3																							
19-Oct	1.4	Z	2.6	5.0	1.7	11.3	18.6	15.5	11.1	9.2	10.5	9.1	12.0	12.0	11.8	5.8	5.4	6.3	1.5	1.3	1.4	1.3	7.7	6.8	7.4	18.6																							
20-Oct	5.0	9.0	Z	7.1	8.4	8.7	4.5	2.3	1.3	1.8	1.6	1.9	4.0	3.6	2.0	1.3	1.6	1.2	3.1	4.8	2.6	2.2	1.3	0.5	3.5	9.0																							
21-Oct	0.4	0.3	2.1	Z	4.5	4.0	4.5	5.2	5.0	3.8	2.7	2.4	4.1	6.9	5.0	5.1	3.7	0.5	0.4	0.4	0.2	0.1	0.1	0.5	2.7	6.9																							
22-Oct	0.2	0.2	0.1	0.2	Z	0.5	0.3	0.4	0.1	0.5	0.5	0.4	0.4	0.3	0.5	0.6	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.6	0.4	0.8																							
23-Oct	0.6	0.6	0.5	0.3	0.3	Z	0.4	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.6	0.8	0.6	0.5	0.5	0.6	0.4	0.5	0.4	0.8																							
24-Oct	Z	0.6	0.5	0.5	0.4	0.5	0.5	0.3	0.3	0.5	0.5	0.1	0.2	0.2	0.3	0.4	0.1	0.5	0.5	0.3	0.3	0.4	0.6	2.4	0.5	2.4																							
25-Oct	1.2	Z	3.1	1.6	1.0	0.8	1.3	0.9	2.5	2.5	0.7	2.0	2.2	0.6	0.4	0.4	0.7	1.9	5.3	2.7	4.5	9.6	7.5	7.0	2.6	9.6																							
26-Oct	6.8	3.5	Z	17.8	15.8	13.2	12.9	16.0	18.3	15.0	15.6	15.0	19.0	16.2	16.9	17.5	3.4	1.7	4.7	5.7	8.9	8.5	4.2	0.7	11.2	19.0																							
27-Oct	4.5	0.8	0.3	Z	1.1	2.3	3.9	5.0	2.2	4.4	12.7	10.2	10.9	4.1	5.7	5.9	3.8	8.5	14.4	15.6	17.2	12.3	20.7	20.7	8.1	20.7																							
28-Oct	9.0	2.6	1.1	1.1	Z	1.1	0.6	0.8	0.6	0.4	0.3	0.3	0.4	1.4	2.8	0.5	1.0	1.1	0.3	0.2	0.3	0.2	0.2	0.3	1.2	9.0																							
29-Oct	0.3	0.3	0.6	0.0	0.1	Z	0.4	2.1	2.3	0.4	0.4	0.2	0.1	0.2	0.4	0.1	0.9	11.2	9.7	7.1	5.7	6.7	7.4	6.0	2.7	11.2																							
30-Oct	Z	17.9	10.5	8.5	8.2	6.0	4.4	5.6	3.5	4.3	4.2	3.8	2.2	1.6	1.9	2.2	2.0	1.8	0.9	0.9	3.3	2.7	4.2	4.3	4.6	17.9																							
31-Oct	5.5	Z	3.9	9.9	11.4	13.2	17.8	13.1	8.8	6.9	8.3	6.0	4.1	0.7	0.6	0.8	1.8	1.8	1.1	1.6	1.1	1.1	0.7	1.3	5.3	17.8																							
																								2.9	2.9	2.2	3.2	2.9	2.9	3.7	3.5	2.8	2.5	2.9	3.0	3.0	2.2	2.2	2.1	1.9	2.2	2.7	2.9	3.0	3.1	3.2	2.7	Diurnal Average	
																								9.4	17.9	15.7	17.8	15.8	13.2	18.6	16.0	18.3	15.0	15.6	15.1	19.0	16.2	16.9	17.5	12.5	11.2	15.5	15.6	17.2	15.0	20.7	20.7	Diurnal Maximum	

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	680	99.71	99.71
21 - 40	2	0.29	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: 682

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Buffalo Viewpoint - October 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	54	40	13	10	5	27	42	109	50	42	48	69	66	53	39	11	678
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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>	54	40	13	10	5	27	42	109	50	42	48	69	66	54	39	12	680

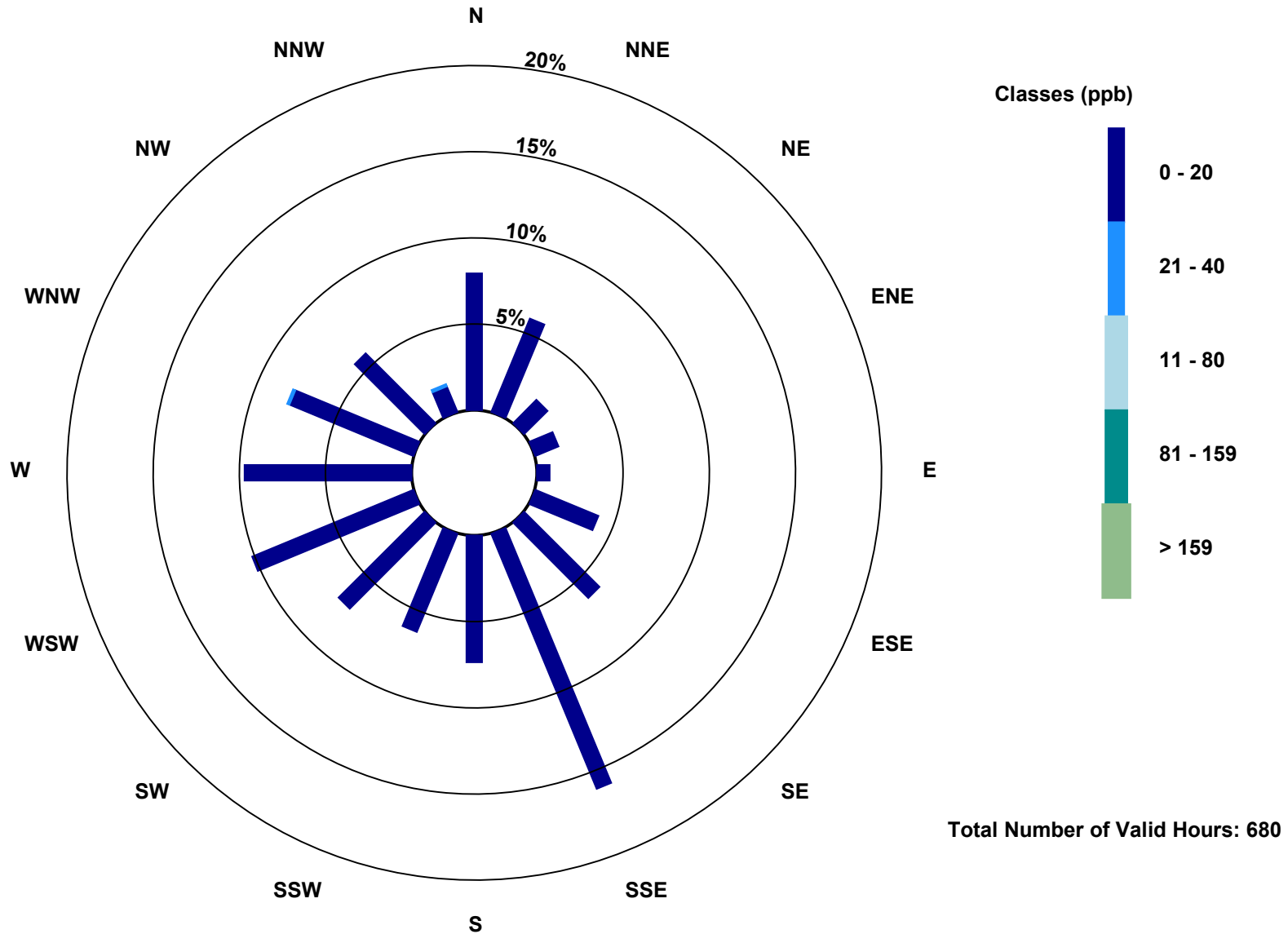
Total Number of Valid Hours: 680

Total Number of Hours: 744

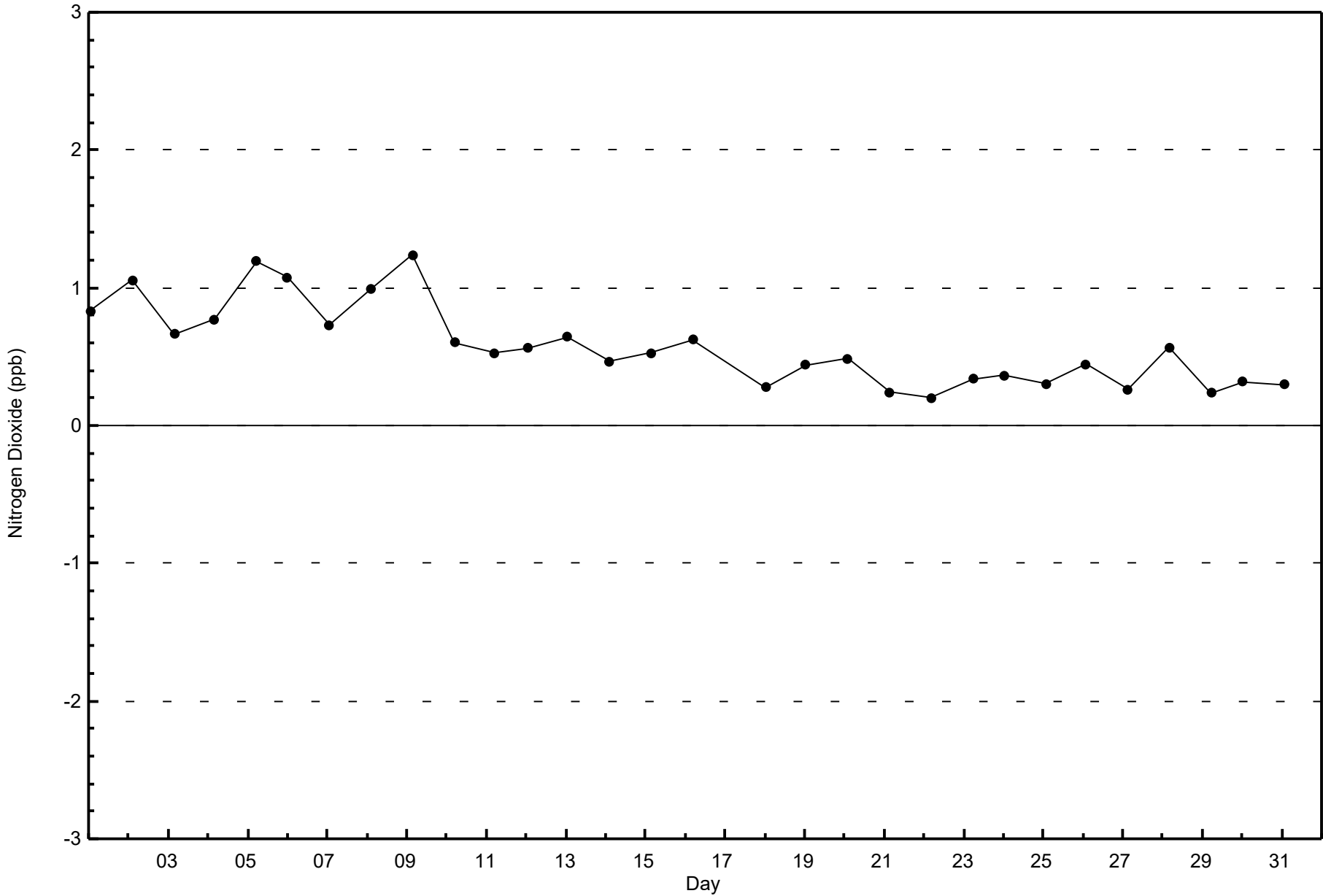


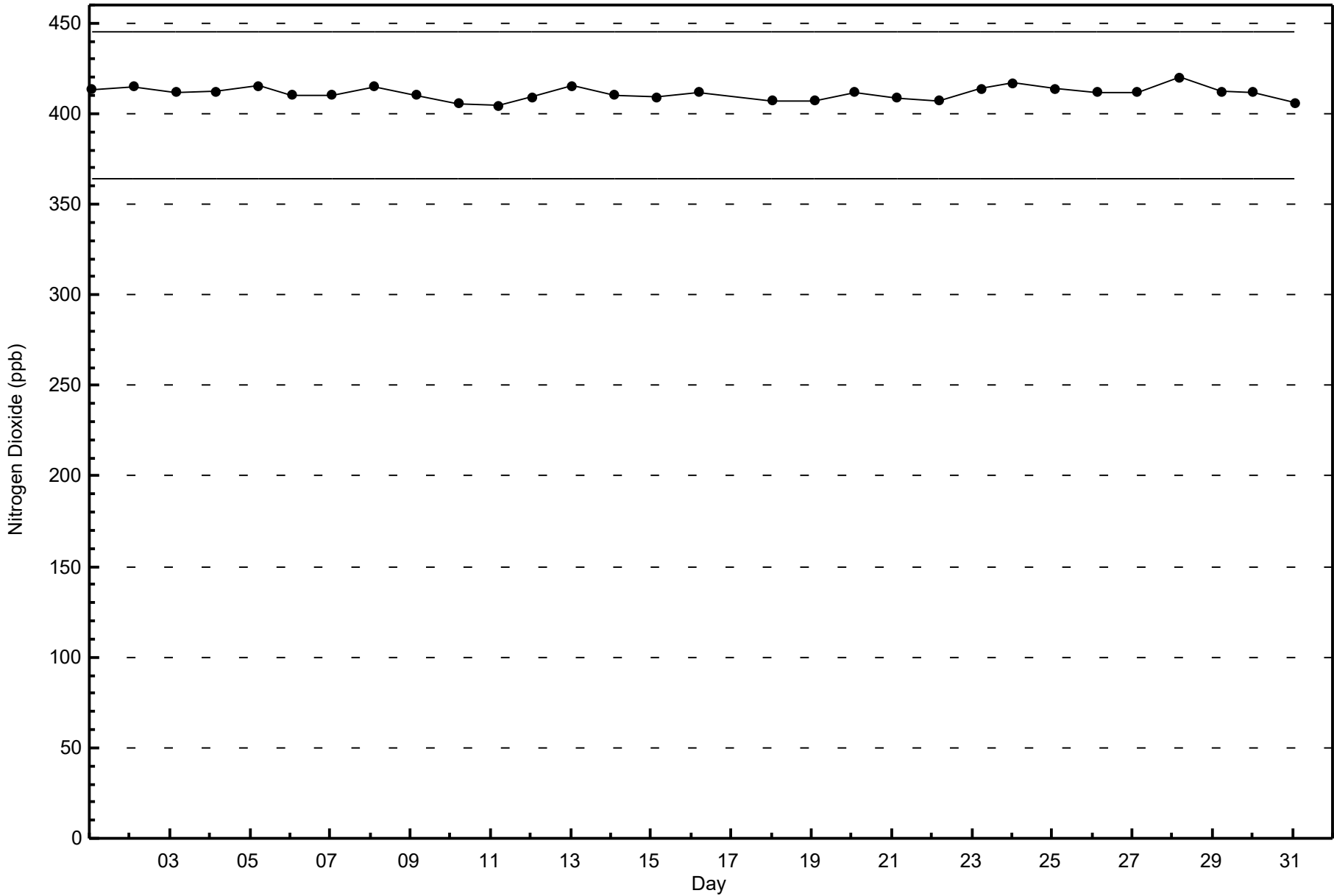
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

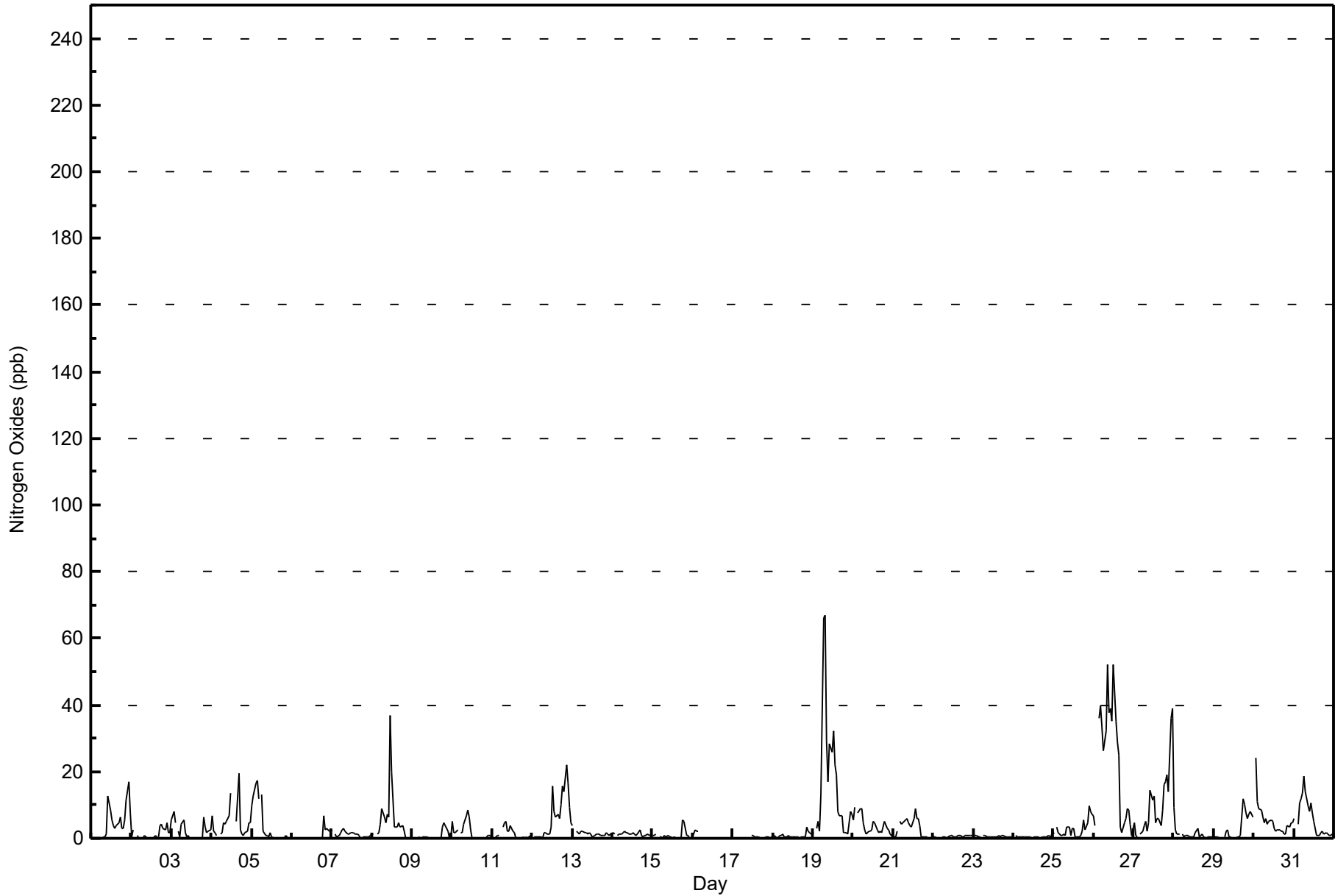
## Buffalo Viewpoint - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 66.9 ppb on Oct 19 08:00		Maximum Daily Average: 22.7 ppb on Oct 26																			Hours of Data:	682																											
Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.5 ppb on Oct 24																			Hours of Missing Data:	62																											
Maximum Diurnal Average: 6.0 ppb at hour 8		Minimum Diurnal Average: 2.3 ppb at hour 17																			Hours of Calibration:	40																											
Monthly Average: 3.84 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.4 Median = 1.2 Q <sub>3</sub> = 4.1 P <sub>90</sub> = 9.0 P <sub>99</sub> = 38.0																			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-Oct	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.4	0.6	1.2	12.7	8.6	5.3	3.7	3.1	3.7	4.7	6.2	2.9	3.1	5.6	11.5	17.0	7.7	4.3	17.0																							
2-Oct	0.4	Z	0.7	0.0	0.0	0.0	0.0	0.1	0.7	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.3	3.9	4.4	3.0	2.3	4.6	1.8	1.7	1.2	4.6																							
3-Oct	5.7	8.1	4.8	Z	2.3	0.4	4.3	5.4	1.8	0.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	3.5	1.8	1.9	2.7	2.2	8.1																							
4-Oct	7.0	2.2	1.5	0.7	Z	1.1	1.8	4.6	4.1	5.0	6.8	13.6	PF	PF	PF	4.9	19.5	2.4	1.1	1.0	1.8	2.0	4.6	4.5	4.5	19.5																							
5-Oct	9.5	12.9	16.4	17.3	12.0	Z	13.1	2.0	1.0	0.9	0.6	1.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.4	0.0	0.0	3.9	17.3																							
6-Oct	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	2.6	3.2	2.0	2.0	0.7	6.7																							
7-Oct	2.5	Z	1.5	0.4	0.9	1.7	2.4	2.8	2.0	1.3	1.4	1.6	1.6	1.6	1.3	1.3	0.7	0.1	0.2	0.3	0.4	0.6	0.4	1.0	1.2	2.8																							
8-Oct	1.1	1.1	Z	1.3	1.5	4.0	8.9	6.3	4.6	7.1	6.2	37.0	19.7	3.4	3.3	3.5	4.7	3.6	3.7	2.0	0.0	0.0	0.0	0.0	5.4	37.0																							
9-Oct	0.0	0.0	0.1	Z	0.3	0.1	0.3	0.6	0.2	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	3.3	4.7	3.8	2.3	0.0	0.3	0.8	4.7																							
10-Oct	5.3	1.7	1.7	2.4	Z	1.7	1.8	4.1	6.6	8.4	6.5	2.6	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.7	0.7	0.8	2.0	8.4																							
11-Oct	0.2	0.1	0.2	1.0	0.9	Z	3.2	4.7	5.1	2.1	1.9	3.7	2.1	1.6	0.1	0.1	0.0	0.2	0.2	0.2	0.3	0.2	0.4	0.7	1.3	5.1																							
12-Oct	Z	0.6	0.6	0.5	0.5	0.4	0.2	1.7	1.5	1.4	1.3	3.3	15.6	8.2	6.5	7.1	5.8	10.2	15.9	14.2	22.0	16.6	9.2	4.8	6.4	22.0																							
13-Oct	4.0	Z	2.1	1.6	1.3	2.0	2.1	1.9	1.7	1.3	1.6	1.3	0.3	0.8	1.3	1.2	1.2	0.9	0.9	1.0	1.7	1.1	1.0	1.3	1.5	4.0																							
14-Oct	1.9	1.3	Z	0.9	1.2	1.1	1.5	2.0	1.7	1.7	1.4	1.5	1.6	1.2	1.0	1.5	2.6	0.7	0.5	0.8	1.0	1.4	0.8	0.7	1.3	2.6																							
15-Oct	0.9	0.8	1.5	Z	0.4	0.3	0.0	0.7	0.4	0.9	0.4	0.2	0.2	0.3	0.2	0.1	0.1	0.0	5.3	4.9	1.0	0.9	0.2	0.1	0.9	5.3																							
16-Oct	0.5	2.4	2.1	2.1	Z	2.1	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	2.4																							
17-Oct	M	M	M	M	M	M	M	C	C	C	C	C	0.8	0.8	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.3	0.3	0.1	0.4	--	0.8																						
18-Oct	Z	0.6	0.2	0.5	0.6	0.8	1.2	0.5	0.5	0.8	0.6	0.5	0.4	0.3	0.3	0.4	0.2	0.4	0.5	0.4	3.4	1.9	1.6	1.4	0.8	3.4																							
19-Oct	1.5	Z	3.0	5.3	2.0	13.0	66.2	66.9	29.4	16.8	28.4	25.6	32.4	22.0	18.9	8.1	6.7	6.8	1.6	1.5	1.6	1.4	8.2	7.2	16.3	66.9																							
20-Oct	5.3	9.3	Z	7.7	8.8	9.0	4.7	2.5	1.4	2.3	2.0	2.6	5.0	4.6	2.6	1.6	1.9	1.5	3.3	5.1	2.8	2.5	1.4	0.7	3.9	9.3																							
21-Oct	0.5	0.5	2.3	Z	5.0	4.4	4.8	5.6	5.8	4.9	3.7	3.5	5.8	8.7	6.1	5.9	4.0	0.5	0.4	0.4	0.2	0.1	0.1	0.5	3.2	8.7																							
22-Oct	0.2	0.2	0.1	0.2	Z	0.6	0.3	0.4	0.1	0.6	0.7	0.6	0.5	0.5	0.6	0.7	0.7	0.5	0.6	0.7	0.8	0.9	0.9	0.7	0.5	0.9																							
23-Oct	0.7	0.8	0.7	0.5	0.4	Z	0.9	0.8	0.5	0.4	0.3	0.4	0.4	0.4	0.7	0.6	0.8	0.7	0.5	0.5	0.6	0.4	0.6	0.6	0.6	0.9																							
24-Oct	Z	0.7	0.5	0.5	0.4	0.5	0.5	0.3	0.3	0.6	0.5	0.1	0.2	0.2	0.3	0.4	0.1	0.5	0.5	0.3	0.3	0.6	0.6	2.4	0.5	2.4																							
25-Oct	1.2	Z	3.5	1.6	1.0	0.8	1.3	0.9	3.3	3.4	0.8	2.8	3.0	0.6	0.5	0.4	0.7	1.9	5.3	2.7	4.5	9.9	8.0	7.2	2.8	9.9																							
26-Oct	6.9	3.7	Z	36.0	39.6	33.4	26.1	32.3	52.3	37.8	39.2	35.0	52.0	35.3	28.9	24.9	3.6	1.7	4.7	5.8	9.0	8.6	4.2	0.7	22.7	52.3																							
27-Oct	4.6	0.8	0.3	Z	1.1	2.3	3.9	5.0	2.3	4.8	14.5	11.5	12.8	4.6	6.0	6.1	3.9	8.6	16.2	16.8	19.2	13.9	35.9	38.9	10.2	38.9																							
28-Oct	9.3	2.7	1.1	1.1	Z	1.2	0.6	0.8	0.6	0.4	0.3	0.3	0.4	1.5	2.9	0.5	1.0	1.2	0.3	0.2	0.3	0.2	0.2	0.3	1.2	9.3																							
29-Oct	0.3	0.3	0.6	0.0	0.1	Z	0.5	2.2	2.4	0.4	0.4	0.2	0.1	0.2	0.4	0.3	0.9	11.8	10.2	7.5	6.0	7.1	7.9	6.5	2.9	11.8																							
30-Oct	Z	24.3	11.1	9.0	8.7	6.5	4.7	6.0	4.1	5.3	5.6	5.2	2.9	2.2	2.4	2.6	2.3	2.0	1.2	1.1	3.7	3.2	4.6	4.7	5.4	24.3																							
31-Oct	5.8	Z	4.4	10.4	11.9	13.7	18.5	13.8	9.7	8.1	10.5	7.7	5.1	0.8	0.7	1.0	1.8	1.9	1.1	1.8	1.2	1.1	0.7	1.4	5.8	18.5																							
																								3.0	3.2	2.4	4.1	4.0	3.9	6.0	6.0	5.0	4.1	5.2	5.7	5.8	3.6	3.1	2.6	2.3	2.3	2.8	3.1	3.4	3.3	3.8	3.4	Diurnal Average	
																								9.5	24.3	16.4	36.0	39.6	33.4	66.2	66.9	52.3	37.8	39.2	37.0	52.0	35.3	28.9	24.9	19.5	11.8	16.2	16.8	22.0	16.6	35.9	38.9	Diurnal Maximum	
Z - zerospan			C - Calibration				M - Maintenance				PF - Power Failure																																						



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	657	96.33	96.33
21 - 40	21	3.08	99.41
41 - 80	4	0.59	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 682

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Buffalo Viewpoint - October 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	32	12	9	5	27	40	109	50	42	48	69	66	53	39	10	655
21 - 40	7	7	1	1	0	0	2	0	0	0	0	0	0	1	0	2	21
11 - 80	3	1	0	0	0	0	0	0	0	0	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>	54	40	13	10	5	27	42	109	50	42	48	69	66	54	39	12	680

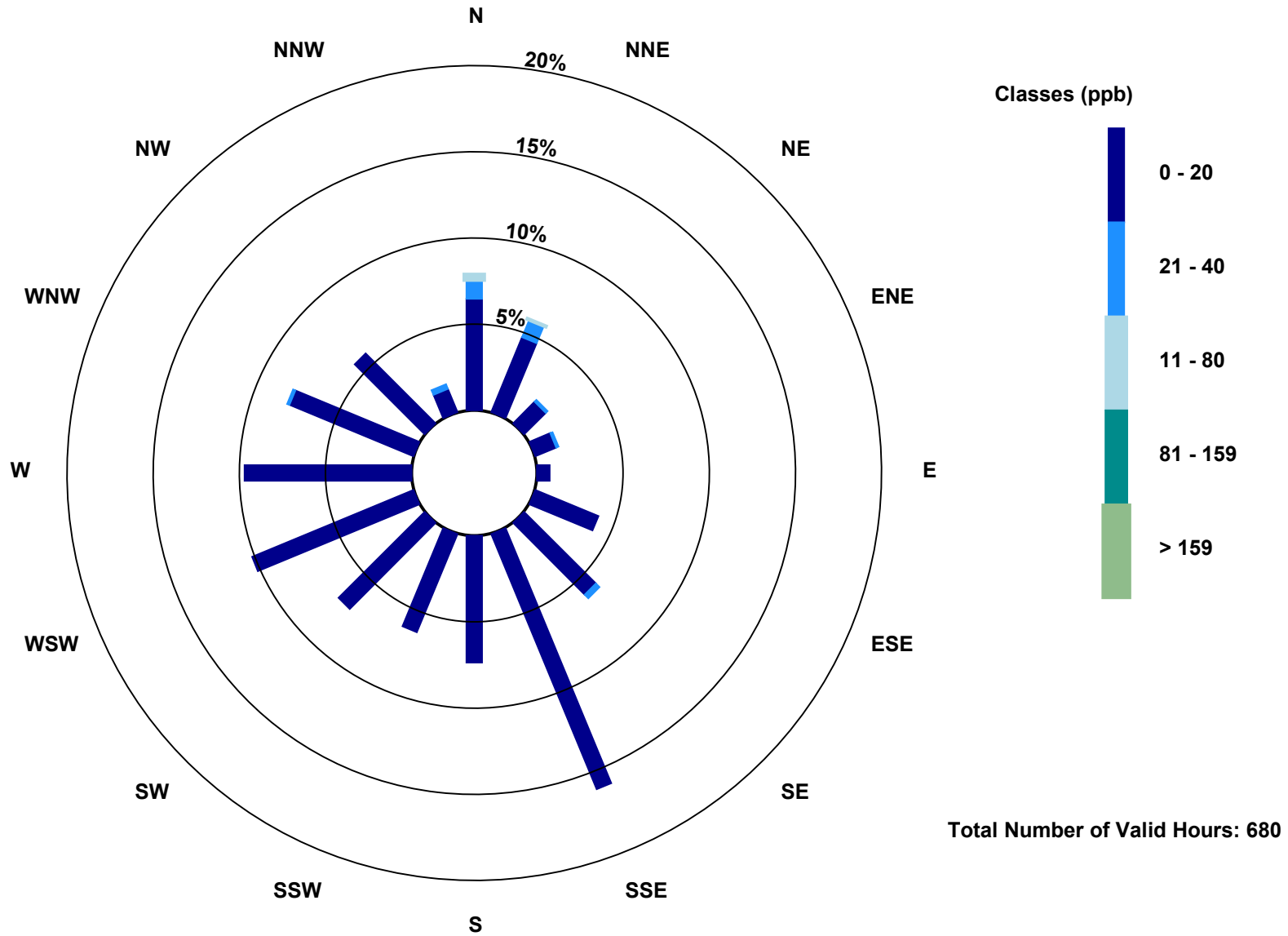
Total Number of Valid Hours: 680

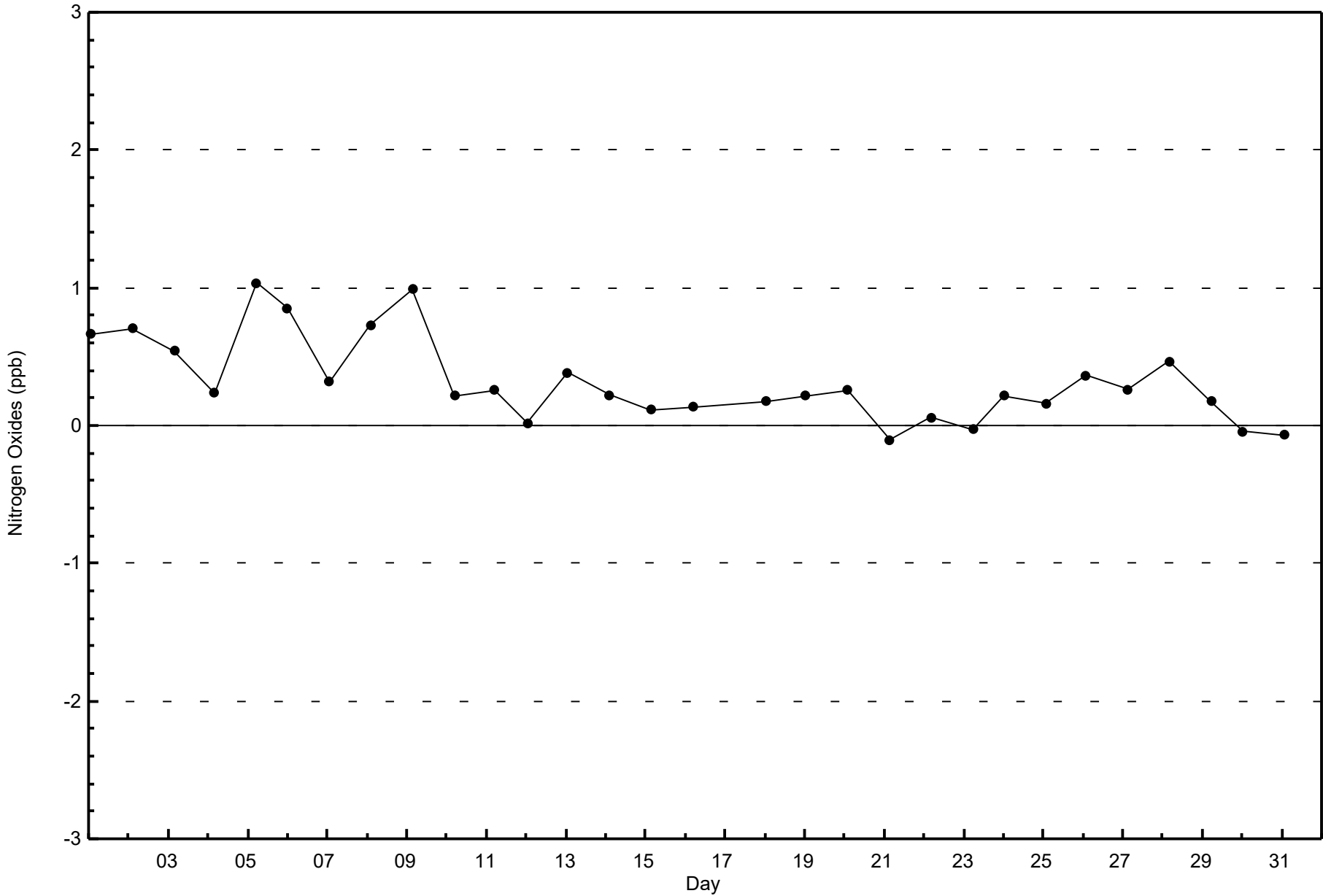
Total Number of Hours: 744



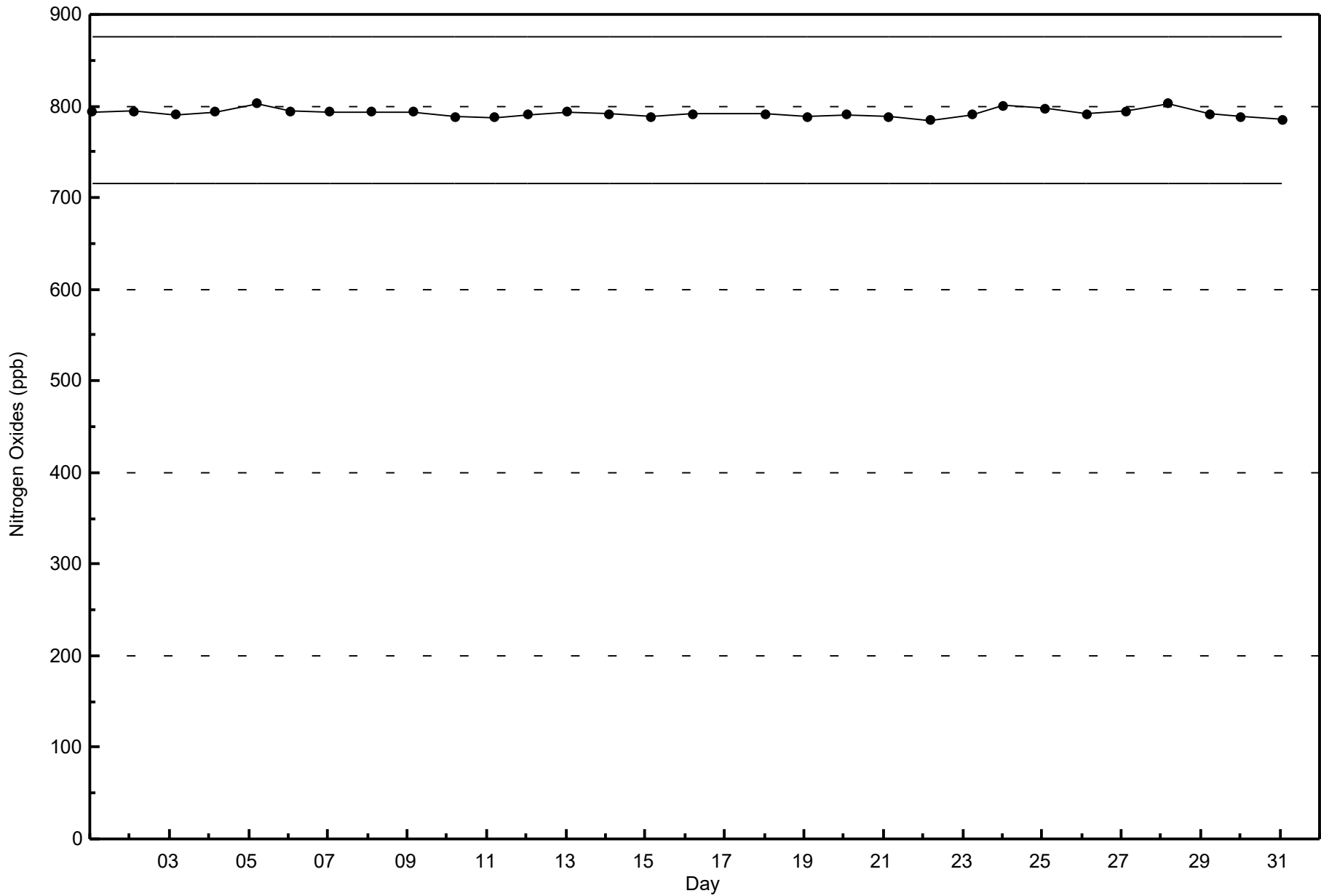
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











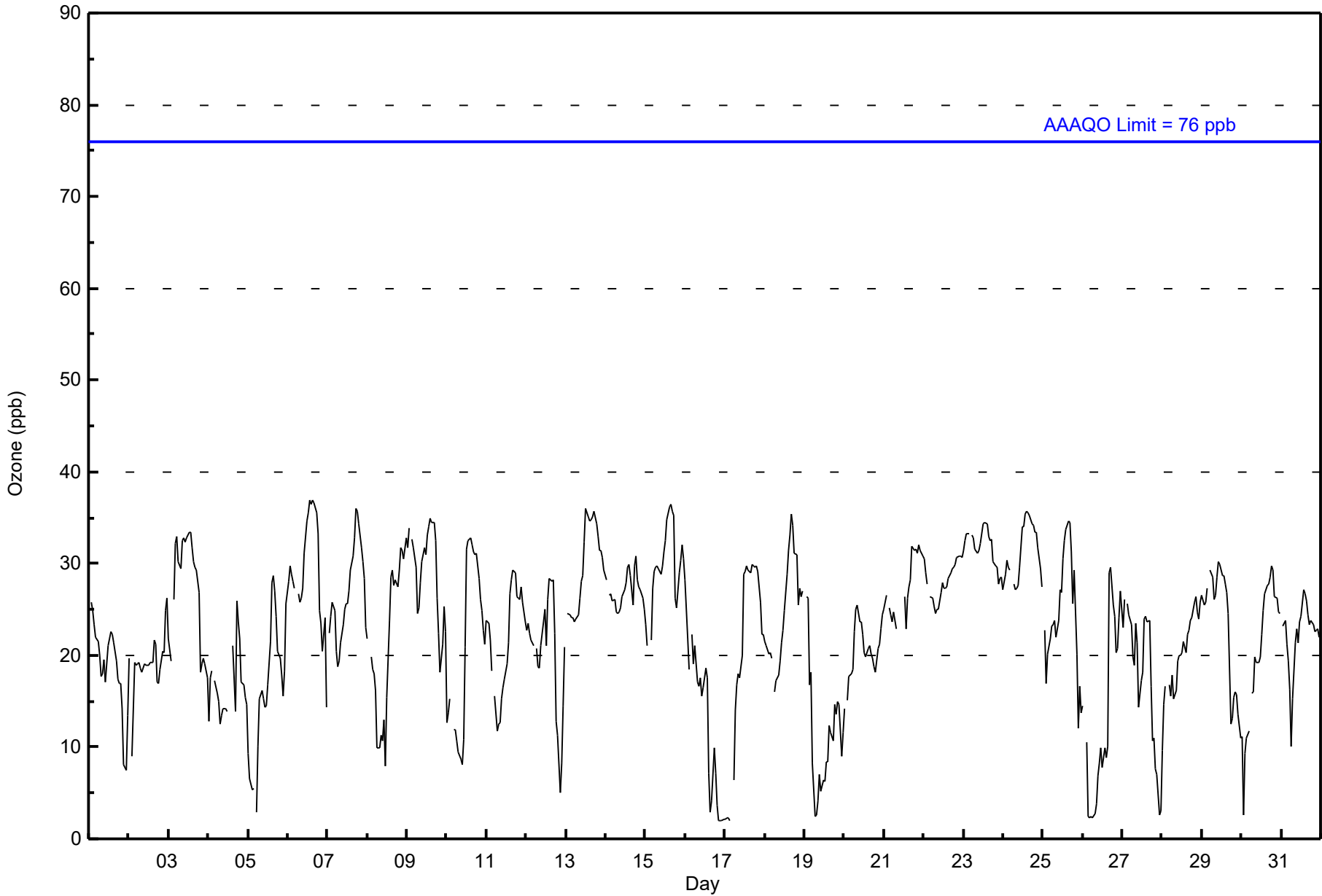
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Buffalo Viewpoint - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744							
Maximum Value: 37.0 ppb on Oct 6 16:00		Maximum Daily Average: 31.8 ppb on Oct 23																	Hours of Data:	706									
Minimum Value: 2.0 ppb on Oct 16 22:00		Minimum Daily Average: 11.3 ppb on Oct 19																	Hours of Missing Data:	38									
Maximum Diurnal Average: 27.1 ppb at hour 17		Minimum Diurnal Average: 19.2 ppb at hour 8																	Hours of Calibration:	35									
Monthly Average: 22.74 ppb		Percentiles: P <sub>1</sub> = 2.3 P <sub>10</sub> = 10.9 Q <sub>1</sub> = 17.9 Median = 23.9 Q <sub>3</sub> = 28.8 P <sub>90</sub> = 32.4 P <sub>99</sub> = 36.0																	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-Oct	Z	25.7	24.9	23.4	22.0	21.6	20.0	17.6	18.0	19.6	17.0	21.0	21.7	22.6	22.2	21.4	19.4	17.4	17.0	17.0	14.1	8.0	7.5	13.5	18.8	25.7			
2-Oct	19.7	Z	9.1	19.2	18.9	19.1	19.2	18.5	18.2	19.0	18.9	18.8	18.9	19.2	19.2	21.6	21.3	17.1	17.0	18.5	20.4	20.3	24.8	26.3	19.3	26.3			
3-Oct	21.8	19.4	Z	26.1	32.1	32.9	30.2	29.5	32.5	32.8	32.4	32.8	33.4	33.4	31.8	30.2	29.6	29.2	26.9	18.1	19.0	19.7	19.0	17.6	27.4	33.4			
4-Oct	12.8	17.6	18.4	Z	17.2	15.8	14.9	12.5	13.4	14.2	14.2	13.8	PF	PF	PF	21.1	13.9	25.9	23.6	21.8	17.1	16.8	15.4	14.6	16.8	25.9			
5-Oct	9.3	6.6	5.3	5.5	Z	2.8	10.0	15.3	16.2	15.3	14.4	14.5	16.8	21.4	28.0	28.6	27.0	24.3	20.4	19.6	17.9	15.6	18.3	25.7	16.5	28.6			
6-Oct	28.1	29.7	28.8	28.1	27.3	Z	26.6	25.8	26.2	27.3	31.0	34.6	35.5	36.9	36.5	37.0	36.6	35.5	33.2	24.9	23.5	20.4	24.1	14.3	29.2	37.0			
7-Oct	Z	22.4	24.3	25.8	24.9	20.5	18.8	19.3	21.4	23.3	25.0	25.6	25.6	27.0	29.2	30.7	32.7	36.0	35.8	34.3	31.8	30.1	28.3	23.1	26.8	36.0			
8-Oct	21.8	Z	19.8	18.4	18.0	16.1	10.0	10.0	11.2	10.7	12.9	7.9	15.4	23.8	28.5	29.3	27.6	28.3	27.5	29.2	31.8	31.4	30.4	32.9	21.4	32.9			
9-Oct	31.7	33.8	Z	32.6	31.7	29.5	24.6	25.2	27.9	30.3	31.7	31.0	33.1	34.0	34.9	34.4	34.4	32.5	26.3	22.4	18.2	21.3	25.3	22.6	29.1	34.9			
10-Oct	12.7	13.7	15.2	Z	11.9	12.0	10.7	9.5	8.7	8.0	10.9	20.9	31.6	32.5	32.8	32.0	31.3	30.9	31.0	28.4	26.1	24.9	22.8	21.3	20.9	32.8			
11-Oct	23.8	23.5	21.7	18.4	Z	15.5	11.7	12.5	12.7	15.3	16.4	17.4	19.1	21.3	26.8	28.2	29.3	28.9	26.3	26.3	26.2	27.4	25.7	23.6	21.6	29.3			
12-Oct	22.7	23.5	22.4	21.7	21.0	Z	20.8	18.8	18.6	21.0	23.7	25.0	21.0	26.1	28.4	28.1	28.2	22.5	12.8	11.3	5.0	8.3	14.5	20.9	20.3	28.4			
13-Oct	Z	24.6	24.5	24.1	24.2	23.7	23.9	24.5	26.3	28.0	28.7	32.3	36.0	35.1	34.7	34.8	35.1	35.8	34.4	32.9	31.5	31.4	30.6	29.3	29.8	36.0			
14-Oct	28.3	Z	26.5	26.8	26.0	26.1	24.7	24.5	24.7	25.1	26.4	27.1	27.9	29.6	29.9	28.7	25.5	29.8	30.7	28.2	27.5	27.2	26.3	25.0	27.1	30.7			
15-Oct	23.3	21.1	Z	21.7	27.4	29.1	29.6	29.8	29.4	28.8	29.8	31.3	32.6	34.8	36.2	36.4	35.7	35.3	26.2	25.1	28.9	30.4	32.1	30.5	29.8	36.4			
16-Oct	28.2	21.8	18.4	Z	22.3	19.0	21.1	17.0	16.6	17.5	15.5	16.5	18.6	17.5	7.1	2.9	4.1	9.9	7.2	3.6	2.0	2.0	2.0	2.1	12.7	28.2			
17-Oct	2.2	2.3	2.2	2.0	Z	6.4	14.1	16.8	18.0	17.6	20.0	28.8	29.1	29.7	29.2	29.1	29.9	29.7	29.6	29.8	29.1	25.9	22.3	22.2	20.3	29.9			
18-Oct	21.6	21.1	20.2	20.3	19.6	Z	16.1	17.3	17.9	19.3	21.4	22.7	24.9	28.8	31.5	33.1	35.5	34.1	31.1	31.0	25.4	27.3	26.4	27.1	24.9	35.5			
19-Oct	Z	26.4	26.3	16.8	18.1	8.2	2.5	2.5	4.1	7.1	5.2	6.3	6.3	8.4	8.5	12.4	11.5	10.7	14.7	13.5	15.0	14.7	9.0	11.6	11.3	26.4			
20-Oct	14.2	Z	15.1	17.7	17.9	18.5	22.5	25.0	25.4	23.7	23.7	22.2	20.3	19.8	20.7	21.0	20.1	19.7	18.8	18.2	20.7	21.3	22.9	24.5	20.6	25.4			
21-Oct	25.0	26.6	Z	25.2	24.4	23.7	24.7	22.9	C	C	C	C	26.4	22.9	26.2	27.5	28.3	31.8	31.4	31.6	31.1	32.1	31.5	30.9	27.6	32.1			
22-Oct	30.6	29.0	27.7	Z	26.3	26.3	25.4	24.5	25.0	25.0	26.9	28.0	27.3	27.2	27.5	28.4	28.9	29.4	29.7	29.9	30.6	30.8	30.9	30.7	28.1	30.9			
23-Oct	31.4	32.5	33.2	33.3	Z	33.1	32.8	31.6	31.1	31.4	32.3	33.3	34.2	34.5	34.4	33.0	32.6	32.7	30.2	29.8	29.6	27.7	28.3	28.5	31.8	34.5			
24-Oct	27.2	28.8	30.4	29.5	29.3	Z	27.7	27.2	27.4	27.6	29.6	34.0	34.0	35.4	35.8	35.5	35.2	34.4	34.1	33.4	33.4	31.8	29.5	27.4	31.2	35.8			
25-Oct	Z	22.7	16.9	20.2	21.9	23.3	23.4	23.8	21.9	23.8	27.1	26.8	30.5	32.4	33.7	34.6	34.4	31.3	25.6	29.3	20.1	12.0	16.7	13.8	24.6	34.6			
26-Oct	14.4	Z	10.6	2.5	2.3	2.4	2.3	2.7	3.8	6.9	8.2	9.9	7.8	9.9	8.8	10.1	29.0	29.7	25.5	24.2	20.3	20.7	24.1	27.0	13.2	29.7			
27-Oct	23.0	26.1	Z	25.7	24.4	23.3	19.8	19.0	23.5	21.3	14.3	17.2	18.1	23.9	24.2	23.6	23.7	16.6	10.6	11.0	7.6	7.0	2.5	3.1	17.8	26.1			
28-Oct	9.6	14.7	16.6	Z	16.7	15.5	17.9	15.3	16.2	19.3	20.1	20.0	20.4	21.5	20.3	22.3	22.7	23.8	24.1	25.8	26.4	24.7	24.0	25.8	20.2	26.4			
29-Oct	26.5	25.5	25.7	27.3	Z	29.3	28.5	26.1	26.5	28.5	30.3	30.0	28.7	28.7	27.7	26.9	24.5	12.5	13.1	15.3	16.0	15.7	13.6	11.0	23.4	30.3			
30-Oct	11.1	2.7	9.3	10.9	11.7	Z	15.9	16.0	19.8	19.2	19.2	19.9	22.2	24.9	26.7	27.6	27.8	28.6	29.8	29.3	26.4	26.2	24.7	24.5	20.6	29.8			
31-Oct	Z	23.2	23.8	21.2	19.4	16.3	10.0	15.2	21.4	22.8	21.4	23.6	24.3	27.2	26.8	25.9	24.5	23.4	23.8	23.3	22.7	22.7	22.9	22.0	22.1	27.2			
		20.8	21.7	19.9	20.9	21.4	19.6	19.4	19.2	20.1	21.0	21.6	23.1	24.7	26.4	26.9	27.0	27.1	26.7	24.8	23.8	22.4	21.8	21.8	21.7	Diurnal Average			
		31.7	33.8	33.2	33.3	32.1	33.1	32.8	31.6	32.5	32.8	32.4	34.6	36.0	36.9	36.5	37.0	36.6	36.0	35.8	34.3	33.4	32.1	32.1	32.9	Diurnal Maximum			
Z - zerospan		C - Calibration		PF - Power Failure																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr		76 ppb																									





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	250	35.41	35.41
21 - 50	456	64.59	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Buffalo Viewpoint - October 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	42	26	6	5	3	12	19	46	15	6	5	11	9	20	16	9	250
21 - 50	10	18	9	7	3	17	20	71	36	36	43	64	57	36	23	4	454
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>	52	44	15	12	6	29	39	117	51	42	48	75	66	56	39	13	704

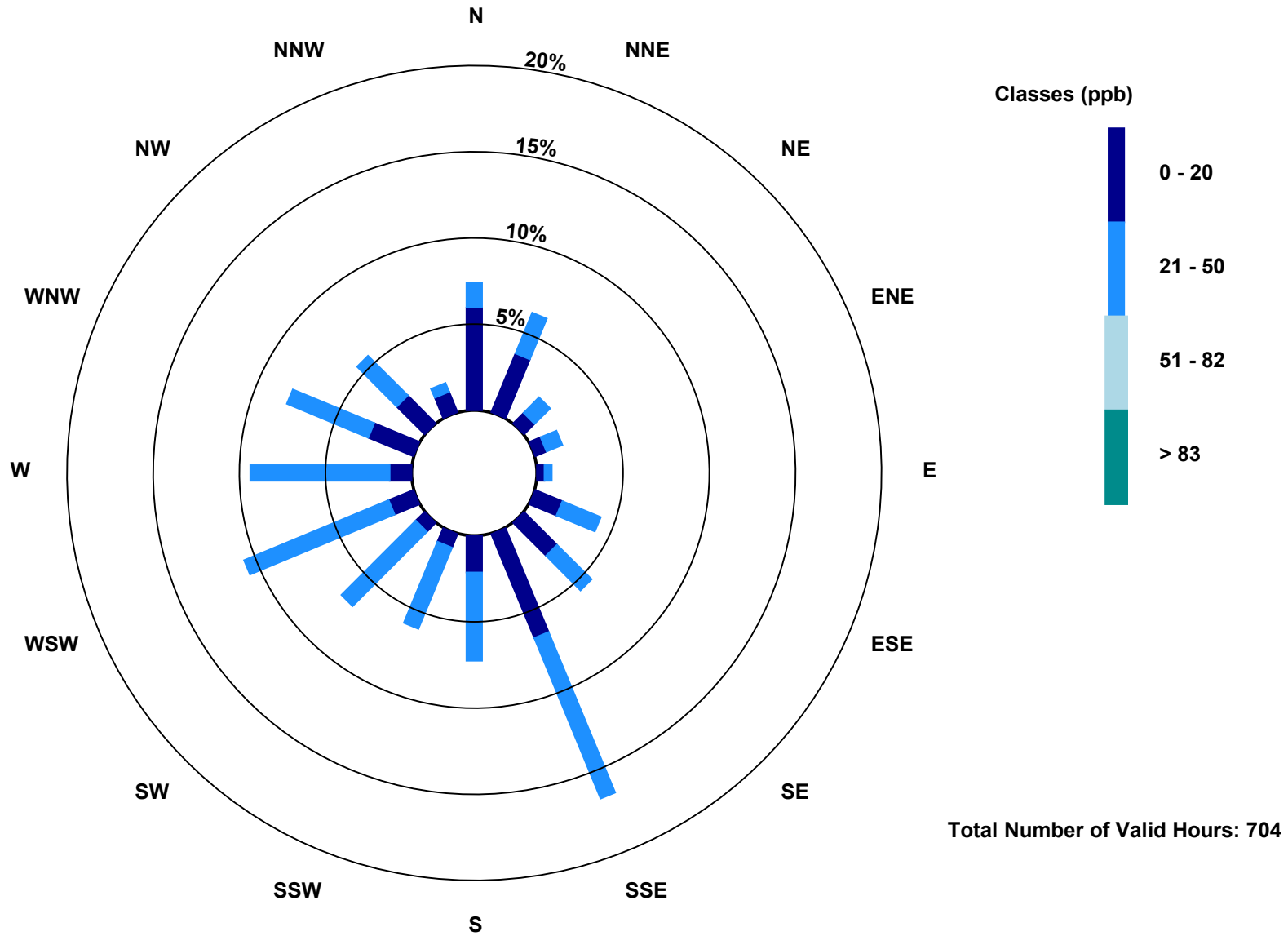
Total Number of Valid Hours: 704

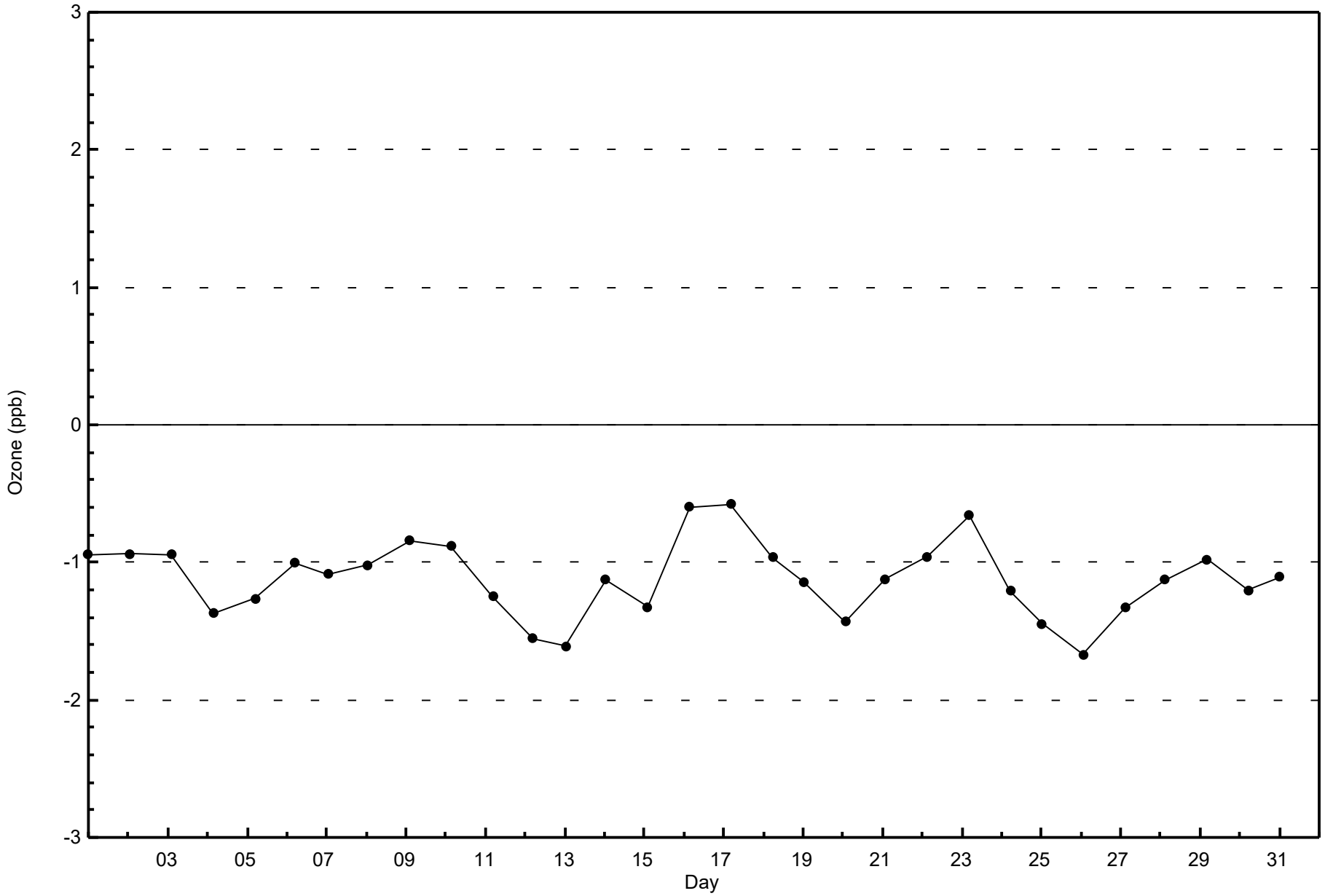
Total Number of Hours: 744

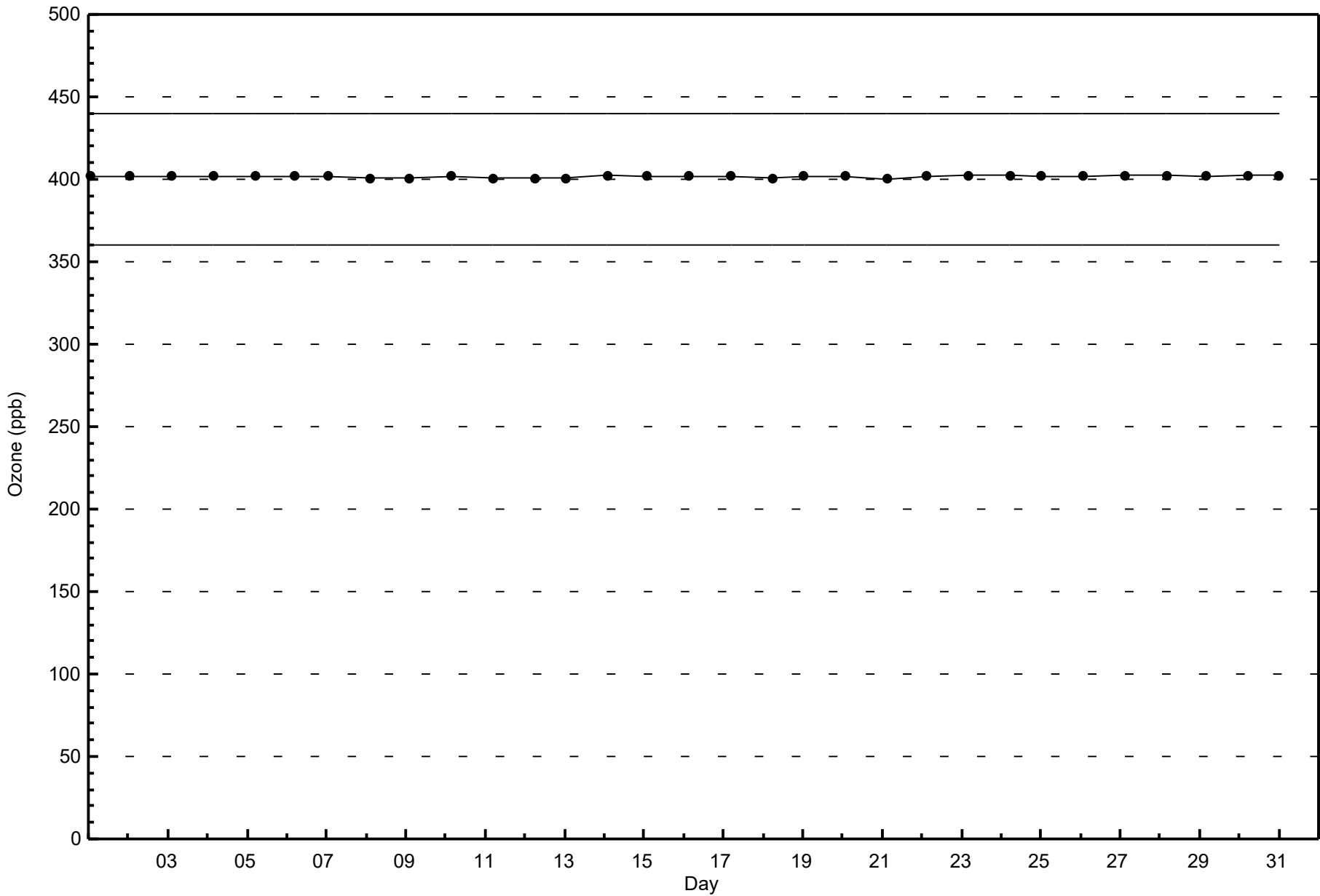


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

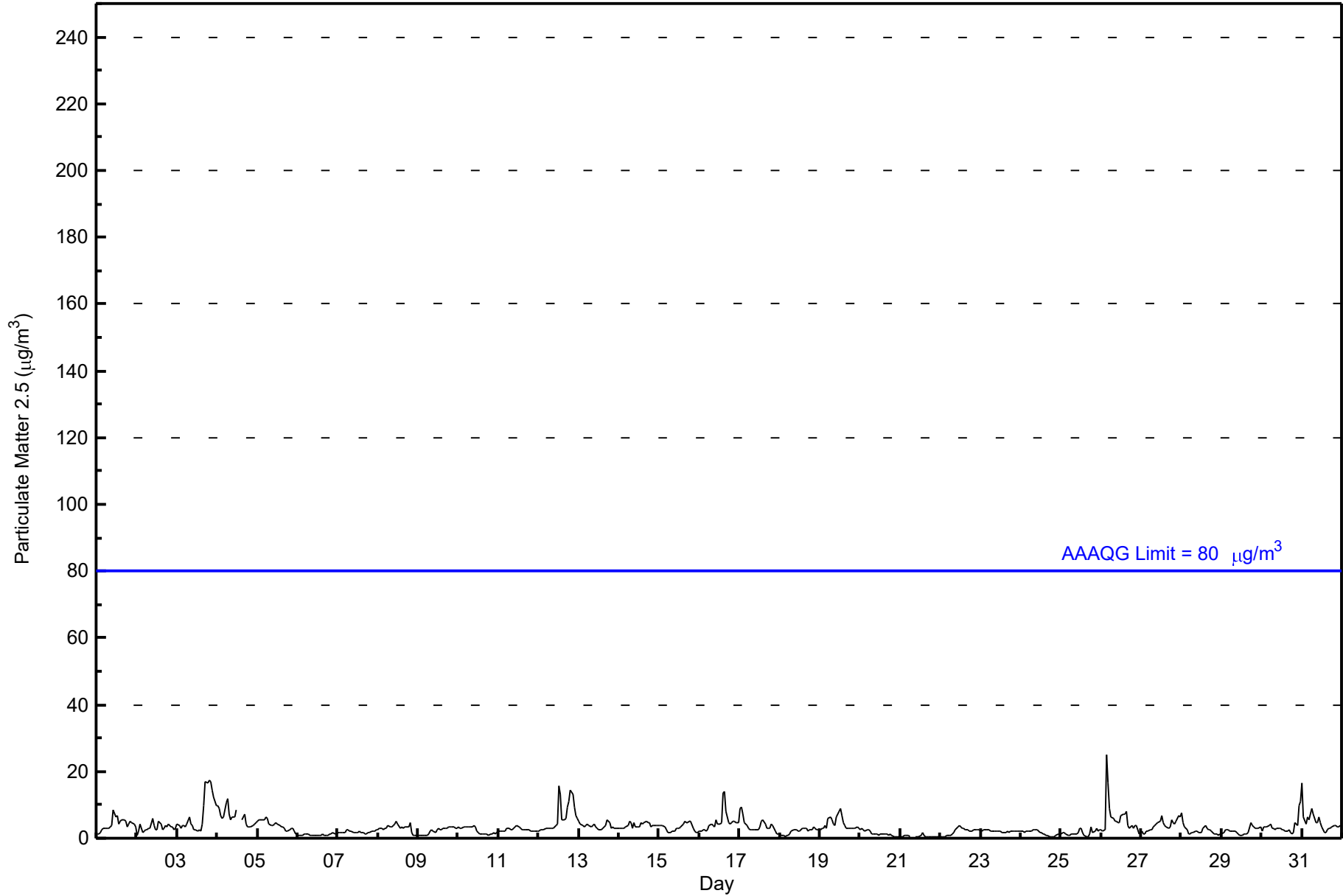
Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Buffalo Viewpoint - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 25.1 µg/m <sup>3</sup> on Oct 26 04:00	Maximum Daily Average: 7.1 µg/m <sup>3</sup> on Oct 3		Hours of Data:	739
Minimum Value: 0.3 µg/m <sup>3</sup> on Oct 21 18:00	Minimum Daily Average: 0.6 µg/m <sup>3</sup> on Oct 21		Hours of Missing Data:	5
Maximum Diurnal Average: 3.6 µg/m <sup>3</sup> at hour 20	Minimum Diurnal Average: 2.7 µg/m <sup>3</sup> at hour 3		Hours of Calibration:	2
Monthly Average: 3.29 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.9 Median = 2.8 Q <sub>3</sub> = 3.9 P <sub>90</sub> = 5.6 P <sub>99</sub> = 15.2		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-Oct	1.2	1.2	1.5	2.4	3.0	3.1	3.1	3.1	3.3	3.7	8.7	6.2	6.6	4.3	4.9	5.5	5.4	4.9	3.4	4.0	5.2	4.8	4.2	3.2	4.0	8.7																						
2-Oct	1.0	2.2	4.3	1.5	2.2	2.4	2.7	3.1	3.1	5.9	3.8	2.4	2.6	5.2	4.1	2.4	3.1	3.7	3.4	4.2	3.3	3.6	2.7	3.1	3.2	5.9																						
3-Oct	4.2	3.8	2.8	3.6	3.6	3.2	4.1	6.5	4.4	4.0	2.6	2.6	2.2	2.4	2.3	4.1	9.7	16.9	16.7	17.3	17.0	14.5	12.2	9.7	7.1	17.3																						
4-Oct	9.6	8.7	6.8	6.1	6.4	10.7	12.0	7.0	5.6	6.4	6.3	8.4	PF	PF	PF	5.6	7.4	4.3	3.3	3.4	3.4	3.7	4.2	4.6	6.4	12.0																						
5-Oct	5.0	5.6	5.6	5.6	5.6	6.5	5.9	4.3	3.9	3.7	4.0	4.5	4.4	4.0	3.6	3.4	3.1	2.1	2.2	2.4	3.1	2.9	2.1	1.2	4.0	6.5																						
6-Oct	0.9	0.7	0.7	0.8	1.1	1.2	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.9	0.9	1.3	0.7	0.6	0.7	1.1	1.3	1.5	1.2	1.4	1.0	1.5																						
7-Oct	1.6	1.7	1.5	1.5	1.6	2.6	2.5	2.0	2.0	1.8	1.8	1.7	1.9	2.1	1.8	1.7	1.4	1.2	1.5	1.7	2.0	2.2	2.3	2.6	1.9	2.6																						
8-Oct	2.7	2.8	2.8	2.7	3.0	3.1	3.8	3.6	3.3	3.7	4.1	5.2	4.1	3.1	3.3	3.2	3.3	3.5	3.5	4.8	1.7	0.9	0.8	0.7	3.1	5.2																						
9-Oct	0.7	0.7	0.8	0.8	0.8	0.9	1.2	2.1	2.6	1.9	1.8	2.6	2.9	2.6	2.4	2.9	2.8	2.8	3.2	3.4	3.5	3.3	3.1	3.0	2.2	3.5																						
10-Oct	3.4	3.1	3.2	3.3	3.4	3.2	3.4	3.3	3.5	3.9	3.5	2.3	1.6	1.4	1.3	1.2	1.3	1.4	1.0	1.1	1.2	1.7	1.5	1.5	2.3	3.9																						
11-Oct	2.0	1.9	2.0	1.9	2.1	3.1	2.8	2.7	2.7	2.9	3.5	3.8	3.3	3.0	2.7	2.7	2.5	2.3	2.5	2.2	2.3	2.0	2.1	2.1	2.5	3.8																						
12-Oct	2.0	2.3	2.4	2.5	2.8	2.9	2.8	2.8	2.9	3.0	4.0	4.3	15.6	13.3	5.4	5.7	5.8	9.4	11.1	14.3	13.2	9.1	6.8	6.1	6.3	15.6																						
13-Oct	5.3	4.2	3.9	3.4	3.9	4.2	3.7	3.2	3.7	4.2	3.4	2.8	2.6	2.7	3.0	3.2	3.7	5.3	4.6	3.1	3.2	2.9	2.9	2.9	3.6	5.3																						
14-Oct	2.9	2.8	2.9	2.9	3.4	3.9	5.3	4.6	3.1	4.6	3.5	3.5	3.4	4.5	4.3	4.8	4.9	4.8	4.6	3.6	3.7	3.9	3.9	3.9	3.9	5.3																						
15-Oct	3.9	3.9	3.8	3.4	2.4	1.7	1.5	1.7	2.0	2.1	2.8	2.9	3.2	3.4	4.3	5.0	4.7	4.5	5.0	4.9	3.1	2.0	1.5	1.8	3.1	5.0																						
16-Oct	2.1	2.0	2.5	2.7	2.3	2.5	3.8	4.2	3.7	3.5	5.7	4.4	4.3	4.8	13.5	13.9	8.0	4.7	4.4	4.6	5.1	5.2	4.5	4.6	4.9	13.9																						
17-Oct	8.7	9.3	7.2	4.6	3.7	2.9	2.6	2.4	2.5	2.4	2.4	2.6	3.4	5.2	5.6	4.0	3.1	3.0	3.1	4.2	3.8	2.1	1.1	1.1	3.8	9.3																						
18-Oct	1.1	1.0	0.7	0.5	0.7	1.0	1.3	2.0	2.4	2.4	2.5	2.0	2.2	2.9	3.0	3.2	2.8	2.3	2.4	2.4	3.2	2.8	2.7	2.6	2.1	3.2																						
19-Oct	2.6	2.8	2.8	4.0	2.8	6.1	6.4	5.3	4.1	3.9	6.2	7.9	9.1	6.8	4.6	3.7	3.1	2.9	2.8	2.9	2.9	2.8	3.2	3.1	4.3	9.1																						
20-Oct	2.4	3.0	2.5	2.3	2.5	2.7	1.9	1.4	1.3	1.4	1.2	1.0	1.2	1.3	1.3	1.5	1.3	1.0	1.1	0.8	0.6	0.5	0.5	0.4	1.5	3.0																						
21-Oct	0.4	0.5	0.7	0.8	0.8	0.7	0.6	C	C	0.5	0.5	0.5	0.9	1.9	1.1	0.5	0.5	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	1.9																						
22-Oct	0.5	0.5	0.5	0.6	0.8	0.8	1.0	1.4	1.7	2.4	3.5	3.7	3.3	3.0	2.9	2.7	2.6	2.3	2.2	2.3	2.4	2.4	2.4	2.4	2.0	3.7																						
23-Oct	2.3	2.2	2.4	2.5	2.5	2.4	2.2	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.8	1.9	1.9	1.8	2.0	2.2	2.2	2.1	2.2	2.3	2.1	2.5																						
24-Oct	2.0	1.9	1.9	1.9	2.1	2.2	2.3	2.6	2.7	2.7	2.4	1.7	1.6	1.2	1.4	0.9	0.7	0.5	0.4	0.5	0.6	0.9	1.1	1.4	1.6	2.7																						
25-Oct	1.4	1.8	1.8	1.2	1.0	1.0	1.2	1.4	1.4	1.3	1.8	2.8	2.8	1.7	1.0	0.6	0.6	1.1	3.3	1.6	2.2	2.8	2.0	2.4	1.7	3.3																						
26-Oct	2.7	2.3	2.4	25.1	16.6	8.9	6.4	5.8	5.1	5.1	4.7	4.8	6.6	7.1	7.3	8.2	3.7	3.1	3.7	3.1	3.7	3.8	2.5	1.3	6.0	25.1																						
27-Oct	2.0	1.5	1.5	1.9	2.2	2.5	2.7	3.2	3.9	4.1	4.7	5.2	6.9	4.6	3.8	3.5	3.1	3.6	5.6	4.7	4.3	5.2	7.0	6.6	3.9	7.0																						
28-Oct	7.7	4.8	3.2	2.6	1.4	1.3	1.7	1.9	2.2	2.1	1.9	1.5	1.6	3.1	3.6	3.1	2.6	2.7	2.1	1.3	1.4	1.1	1.0	1.3	2.4	7.7																						
29-Oct	1.3	1.9	2.4	2.7	2.7	2.2	2.0	2.1	2.0	1.9	1.4	0.8	1.0	1.2	1.4	1.5	1.7	4.7	3.9	3.4	3.2	2.8	2.9	3.3	2.3	4.7																						
30-Oct	2.3	3.5	3.4	3.2	3.9	4.1	3.1	3.0	2.4	2.8	3.0	2.9	2.6	2.4	2.1	2.2	2.4	1.9	1.4	1.9	4.9	3.8	9.6	11.0	3.5	11.0																						
31-Oct	16.7	6.5	4.4	6.4	5.7	7.4	8.9	7.3	4.8	4.8	6.3	4.8	3.5	1.9	1.9	2.6	2.8	3.0	3.4	3.7	3.6	3.5	3.4	3.7	5.0	16.7																						
																								3.3	2.9	2.7	3.4	3.1	3.3	3.4	3.2	3.0	3.1	3.4	3.3	3.6	3.5	3.3	3.4	3.2	3.4	3.5	3.6	3.6	3.3	3.2	3.1	Diurnal Average
																								16.7	9.3	7.2	25.1	16.6	10.7	12.0	7.3	5.6	6.4	8.7	8.4	15.6	13.3	13.5	13.9	9.7	16.9	16.7	17.3	17.0	14.5	12.2	11.0	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>) -  $\mu\text{g}/\text{m}^3$**   
**Buffalo Viewpoint - October 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	657	88.90	88.90
6 - 15	74	10.01	98.92
16 - 25	8	1.08	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 739

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 - October 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	47	36	10	6	4	21	35	111	50	43	48	75	68	54	36	11	655
6 - 15	9	6	5	5	2	8	7	12	2	0	0	2	3	4	5	4	74
16 - 25	0	2	0	2	0	0	1	1	0	1	1	0	0	0	0	0	8
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>	56	44	15	13	6	29	43	124	52	44	49	77	71	58	41	15	737

Total Number of Valid Hours: 737

Total Number of Hours: 744

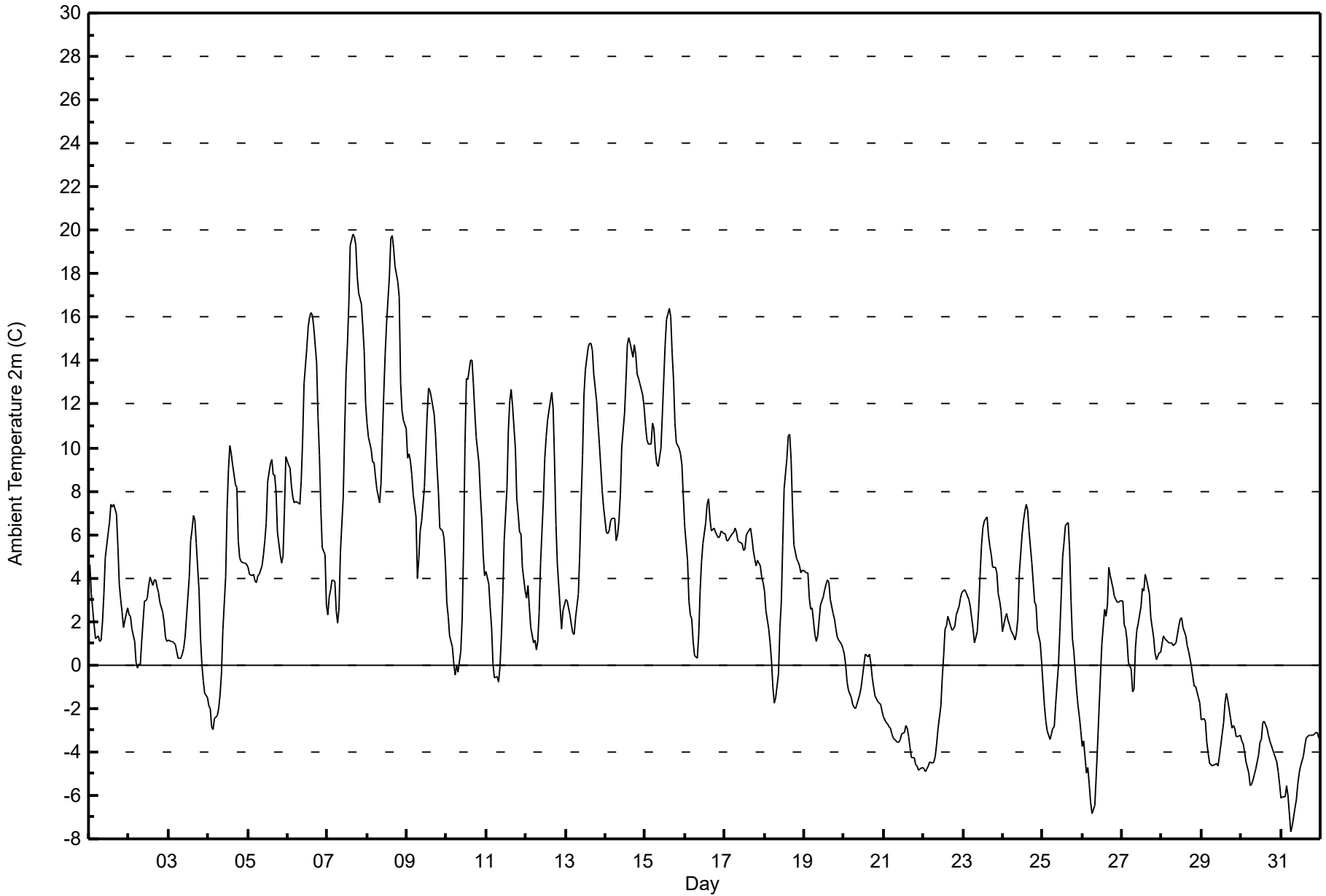




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Buffalo Viewpoint - October 2024**

Maximum Value: 19.8 C on Oct 7 16:00      Maximum Daily Average: 13.0 C on Oct 8																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -7.7 C on Oct 31 07:00      Minimum Daily Average: -4.9 C on Oct 31 Maximum Diurnal Average: 7.6 C at hour 15      Minimum Diurnal Average: 0.5 C at hour 7 Monthly Average: 3.70 C      Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -3.4 Q <sub>1</sub> = 0.0 Median = 3.0 Q <sub>3</sub> = 6.8 P <sub>90</sub> = 11.6 P <sub>99</sub> = 18.2																										
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-Oct	4.6	3.3	2.5	1.8	1.2	1.3	1.1	1.1	2.0	3.3	4.9	6.1	6.5	7.4	7.2	7.4	6.9	5.5	3.7	3.0	2.4	1.7	2.4	2.6	3.8	7.4
2-Oct	2.3	2.2	1.7	1.1	0.1	-0.2	0.1	0.0	1.1	3.0	3.0	3.1	3.7	4.0	3.7	3.9	3.9	3.6	3.3	2.9	2.5	2.0	1.3	1.1	2.2	4.0
3-Oct	1.2	1.1	1.1	1.0	0.9	0.7	0.3	0.3	0.5	0.8	1.3	2.2	4.0	5.7	6.2	6.9	6.7	5.6	3.4	1.3	0.0	-0.8	-1.3	-1.5	2.0	6.9
4-Oct	-1.9	-2.0	-2.9	-3.0	-2.5	-2.3	-2.0	-1.4	-0.4	1.6	4.0	7.1	9.0	10.1	9.7	9.2	8.3	8.2	5.7	5.0	4.7	4.7	4.7	4.6	3.3	10.1
5-Oct	4.5	4.2	4.1	4.2	3.9	3.8	4.1	4.2	4.6	5.1	5.7	6.5	8.4	9.2	9.4	8.7	8.8	8.0	6.1	5.1	4.7	5.0	7.1	9.6	6.0	9.6
6-Oct	9.2	9.1	8.3	7.7	7.5	7.5	7.4	8.5	10.4	13.0	14.6	15.6	16.0	16.2	16.1	15.5	13.9	11.4	9.6	7.2	5.4	5.1	2.8	10.2	16.2	
7-Oct	2.3	3.1	3.4	3.9	3.9	2.5	1.9	2.7	5.2	7.7	10.7	13.4	14.8	16.6	19.3	19.8	19.7	19.3	17.9	17.1	16.6	15.6	14.4	12.0	11.0	19.8
8-Oct	11.1	10.5	9.9	9.3	9.3	8.7	8.1	7.4	8.3	10.5	12.5	14.4	15.8	17.9	19.6	19.7	19.2	18.4	17.6	16.9	13.0	11.7	11.3	10.9	13.0	19.7
9-Oct	9.5	9.7	9.4	8.7	7.9	6.8	4.0	4.9	6.1	6.6	8.1	9.9	11.6	12.8	12.6	12.3	11.5	10.5	9.2	8.0	6.3	6.2	5.8	4.7	8.5	12.8
10-Oct	2.9	2.2	1.3	0.9	0.0	-0.5	0.0	-0.3	0.6	2.2	5.4	10.1	13.2	13.1	14.1	14.0	13.0	11.7	10.5	9.2	7.8	6.7	5.0	4.1	6.1	14.1
11-Oct	4.3	3.7	2.6	1.7	0.1	-0.6	-0.5	-0.8	-0.1	1.3	3.2	5.7	8.2	10.8	12.2	12.6	11.9	10.0	7.6	6.9	6.1	6.0	4.5	3.4	5.0	12.6
12-Oct	3.1	3.6	2.6	1.7	1.0	1.1	0.7	1.1	2.5	4.7	7.6	9.5	10.5	11.3	11.7	12.5	11.8	9.3	6.4	4.6	2.6	1.7	2.5	2.8	5.3	12.5
13-Oct	3.0	3.0	2.3	1.8	1.5	1.4	2.2	3.3	5.1	7.6	9.6	12.4	13.6	14.6	14.8	14.8	14.5	13.4	12.1	11.1	10.1	9.1	8.0	7.2	8.2	14.8
14-Oct	6.1	6.0	6.2	6.6	6.8	6.8	5.8	6.0	6.6	7.8	10.0	11.6	13.0	14.8	15.0	14.8	14.2	14.8	14.3	13.4	13.2	12.9	12.4	11.8	10.4	15.0
15-Oct	11.0	10.4	10.2	10.1	11.1	10.8	9.8	9.3	9.1	10.0	11.5	13.1	14.8	15.9	16.4	16.0	14.4	13.2	11.1	10.2	10.0	9.7	9.2	7.7	11.5	16.4
16-Oct	6.3	4.8	2.9	2.3	2.1	1.1	0.4	0.3	1.4	3.4	4.8	5.6	6.5	7.4	7.7	6.7	6.2	6.3	6.1	6.0	5.9	5.9	6.2	6.0	4.7	7.7
17-Oct	6.0	5.7	5.7	5.8	6.1	6.1	6.3	6.1	5.7	5.6	5.6	5.3	5.4	6.0	6.1	6.3	5.9	5.3	4.9	4.6	4.8	4.5	4.0	3.8	5.5	6.3
18-Oct	3.4	2.5	1.7	1.0	0.2	-1.1	-1.8	-1.5	-0.4	1.7	2.9	5.6	8.1	9.5	10.5	10.6	9.4	7.3	5.5	4.9	4.8	4.6	4.3	4.4	4.1	10.6
19-Oct	4.3	4.2	4.2	3.1	2.6	2.6	1.4	1.1	1.3	2.1	2.7	3.2	3.4	3.8	3.9	3.8	3.0	2.4	2.1	1.6	1.3	1.1	0.9	0.7	2.5	4.3
20-Oct	0.5	0.0	-0.8	-1.2	-1.5	-1.8	-1.9	-2.0	-1.8	-1.4	-1.0	-0.5	0.0	0.5	0.4	0.5	0.0	-0.6	-1.0	-1.4	-1.7	-1.7	-1.8	-2.2	-0.9	0.5
21-Oct	-2.4	-2.6	-2.7	-2.8	-2.9	-3.2	-3.4	-3.5	-3.5	-3.6	-3.4	-3.1	-3.1	-2.8	-2.9	-3.3	-3.8	-4.2	-4.3	-4.6	-4.6	-4.8	-4.8	-4.7	-3.6	-2.4
22-Oct	-4.8	-4.9	-4.8	-4.6	-4.4	-4.5	-4.5	-4.2	-3.6	-2.9	-1.9	-0.6	0.5	1.6	1.8	2.2	1.8	1.6	1.7	1.8	2.3	2.7	3.1	3.3	-0.9	3.3
23-Oct	3.4	3.4	3.3	3.0	2.7	2.2	1.6	1.0	1.5	2.5	4.1	5.4	6.3	6.6	6.8	6.0	5.5	5.1	4.5	4.5	4.2	3.3	3.0	2.5	3.9	6.8
24-Oct	1.5	2.2	2.4	2.1	1.9	1.6	1.4	1.2	1.4	2.1	4.2	6.0	6.6	7.1	7.4	7.1	6.2	4.7	3.8	2.9	2.8	1.6	1.0	0.1	3.3	7.4
25-Oct	-0.9	-1.9	-2.6	-3.1	-3.4	-3.2	-2.9	-2.9	-1.8	0.0	1.6	3.2	5.0	5.7	6.4	6.5	5.3	2.9	1.2	0.6	-1.2	-1.9	-2.4	-3.1	0.3	6.5
26-Oct	-3.8	-3.5	-5.0	-4.7	-5.5	-6.3	-6.9	-6.4	-5.1	-3.6	-2.1	-0.6	0.9	2.5	2.2	2.7	4.5	4.1	3.6	3.1	3.0	2.9	2.9	2.9	-0.7	4.5
27-Oct	3.0	1.8	1.6	1.2	0.1	-0.2	-1.2	-1.1	0.7	1.6	1.9	2.7	3.5	3.4	4.2	3.9	3.3	2.2	1.7	1.3	0.6	0.3	0.6	0.6	1.6	4.2
28-Oct	0.9	1.4	1.2	1.1	1.0	1.0	1.0	0.9	1.0	1.4	1.8	2.1	2.2	1.7	1.3	0.9	0.7	0.3	-0.1	-1.0	-1.0	-1.2	-1.5	-1.8	0.6	2.2
29-Oct	-2.5	-2.5	-2.6	-3.6	-4.1	-4.5	-4.6	-4.6	-4.6	-4.5	-4.6	-4.2	-3.2	-2.7	-1.7	-1.3	-1.6	-2.5	-2.9	-2.8	-2.9	-3.3	-3.3	-3.2	-3.3	-1.3
30-Oct	-3.5	-3.6	-4.0	-4.4	-5.0	-5.6	-5.5	-5.3	-5.1	-4.8	-4.2	-3.6	-3.4	-2.6	-2.6	-2.9	-3.2	-3.5	-3.7	-3.9	-4.1	-4.5	-4.9	-5.5	-4.1	-2.6
31-Oct	-6.1	-6.1	-6.1	-5.6	-6.0	-6.9	-7.7	-7.4	-6.6	-6.2	-5.5	-4.9	-4.6	-4.2	-3.7	-3.4	-3.3	-3.2	-3.2	-3.2	-3.2	-3.1	-3.1	-3.4	-4.9	-3.1
2.5   2.3   1.8   1.5   1.2   0.8   0.5   0.5   1.3   2.5   3.8   5.2   6.3   7.2   7.6   7.6   7.1   6.2   5.2   4.5   3.8   3.4   3.1   2.7																								Diurnal Average		
11.1   10.5   10.2   10.1   11.1   10.8   9.8   9.3   9.1   10.5   13.0   14.6   15.8   17.9   19.6   19.8   19.7   19.3   17.9   17.1   16.6   15.6   14.4   12.0																								Diurnal Maximum		





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

**Ambient Temperature 2m (AT2) - C**  
**Buffalo Viewpoint - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	187	25.13	25.13
0 - 10	450	60.48	85.62
10 - 20	107	14.38	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

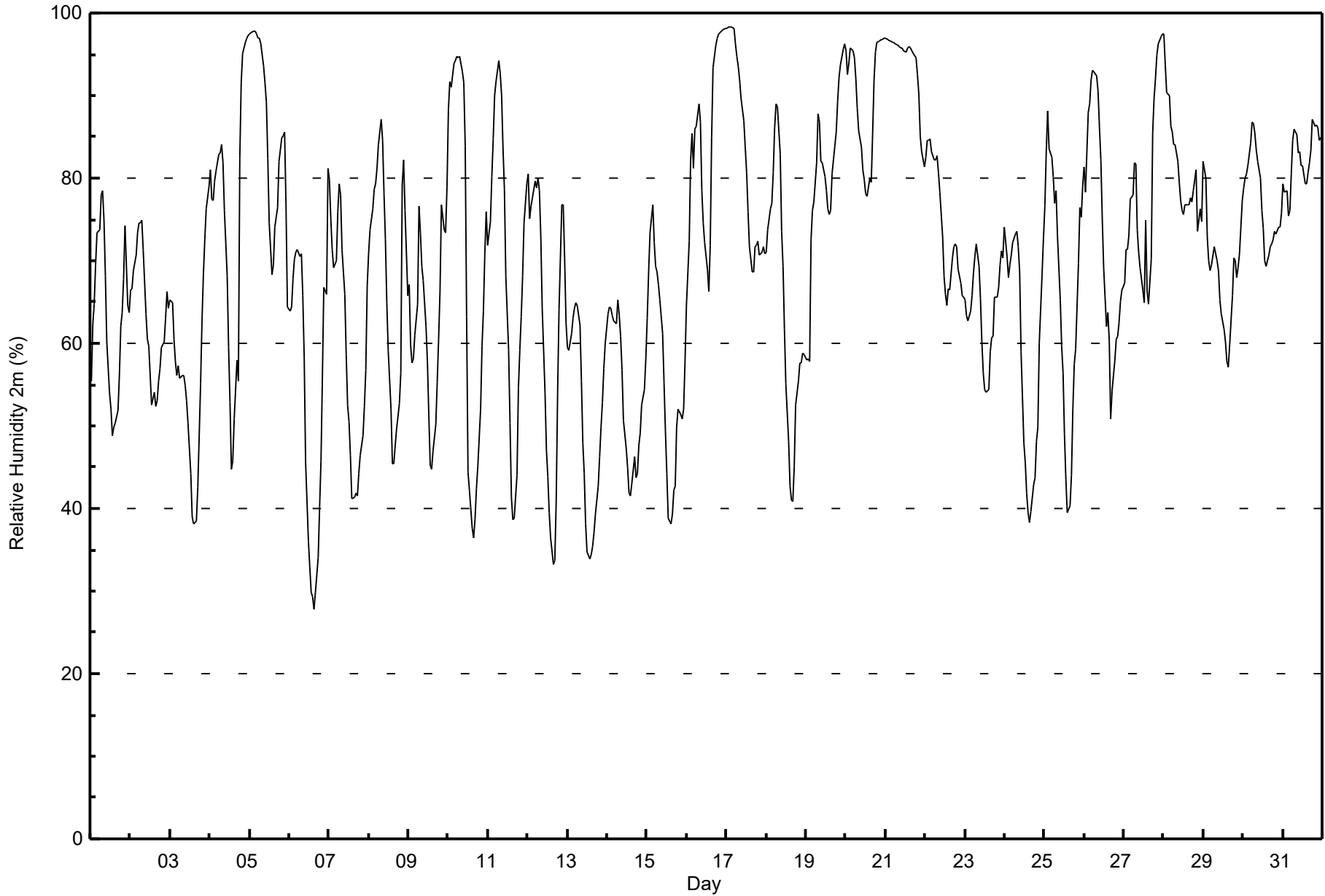




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**  
**Buffalo Viewpoint - October 2024**

Maximum Value: 98.3 % on Oct 17 03:00      Maximum Daily Average: 94.0 % on Oct 21																						Hours in Service: 744 Hours of Data: 744																										
Minimum Value: 27.9 % on Oct 6 16:00      Minimum Daily Average: 50.3 % on Oct 13 Maximum Diurnal Average: 81.0 % at hour 7      Minimum Diurnal Average: 54.8 % at hour 15 Monthly Average: 69.99 %      Percentiles: P <sub>1</sub> = 33.9 P <sub>10</sub> = 45.4 Q <sub>1</sub> = 58.7 Median = 71.1 Q <sub>3</sub> = 81.9 P <sub>90</sub> = 93.0 P <sub>99</sub> = 97.8																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Oct	55.4	62.1	64.7	69.5	73.3	73.8	78.0	78.5	74.9	68.1	60.2	54.0	52.0	48.8	49.9	50.3	51.8	56.1	62.1	63.8	67.9	74.2	64.5	63.8	63.2	78.5																						
2-Oct	66.5	66.6	68.8	70.7	73.3	74.6	74.6	74.8	71.4	63.6	60.5	59.7	56.1	52.5	54.0	52.4	53.0	55.5	57.0	59.5	60.2	63.0	66.3	64.3	63.3	74.8																						
3-Oct	65.3	64.9	60.5	57.8	56.1	57.3	55.7	56.2	56.1	55.0	53.1	50.4	44.2	39.1	38.1	38.3	38.5	42.6	55.1	62.8	68.3	72.5	76.2	79.0	56.0	79.0																						
4-Oct	81.1	77.5	77.3	79.6	80.8	82.9	83.1	84.0	81.8	76.1	68.1	59.4	53.0	44.7	45.7	50.9	57.9	55.5	82.5	91.6	95.2	96.5	97.0	97.3	75.0	97.3																						
5-Oct	97.5	97.7	97.8	97.8	97.4	96.9	96.9	96.3	93.6	91.5	89.1	82.4	74.6	68.2	69.5	74.2	75.3	76.4	82.1	84.9	85.2	85.6	76.8	64.4	85.5	97.8																						
6-Oct	64.0	64.3	67.9	70.2	71.1	71.3	70.6	70.8	65.8	58.3	45.6	36.0	33.0	29.8	29.4	27.9	29.8	34.0	40.2	45.7	55.9	66.7	66.0	81.2	54.0	81.2																						
7-Oct	79.7	75.1	71.4	69.2	70.0	75.9	79.3	78.0	71.3	66.0	58.6	52.5	50.5	46.5	41.2	41.3	41.9	41.6	44.2	46.5	48.8	52.4	56.8	66.9	59.4	79.7																						
8-Oct	70.8	73.8	76.3	78.7	79.3	81.1	84.0	87.1	84.6	78.1	72.5	64.9	59.2	52.0	45.5	45.4	47.6	49.7	52.7	56.5	79.1	82.2	76.1	65.8	68.5	87.1																						
9-Oct	67.1	59.7	57.6	58.2	60.9	64.7	76.7	73.4	69.3	67.6	62.0	57.8	51.4	45.2	44.7	46.9	50.1	55.2	60.5	66.2	76.8	73.8	73.4	78.9	62.4	78.9																						
10-Oct	88.3	91.6	91.0	93.9	94.3	94.7	94.5	94.8	92.9	91.6	84.0	63.3	44.3	42.2	37.6	36.5	38.6	42.5	45.0	52.0	59.7	64.0	70.8	76.0	70.2	94.8																						
11-Oct	71.8	74.7	80.1	84.7	89.9	91.6	94.3	92.8	89.9	83.6	78.6	68.1	59.2	50.3	41.3	38.6	38.8	44.0	54.5	59.2	63.2	68.1	74.5	79.3	69.6	94.3																						
12-Oct	80.4	75.1	76.6	77.7	79.7	78.8	80.1	78.5	72.8	64.2	54.1	47.1	43.8	39.5	36.4	33.2	33.7	41.1	54.1	64.0	76.8	76.8	70.4	62.5	62.4	80.4																						
13-Oct	59.5	59.2	61.1	63.1	64.2	65.0	64.5	62.1	55.4	47.9	44.2	38.1	34.7	33.9	34.4	35.4	37.1	39.3	42.6	46.3	49.8	52.9	57.0	60.1	50.3	65.0																						
14-Oct	63.6	64.5	64.2	63.4	62.8	62.4	65.3	63.4	60.8	56.9	50.7	47.3	44.9	41.9	41.5	43.0	46.2	43.8	44.3	47.6	49.2	52.6	54.4	58.1	53.9	65.3																						
15-Oct	63.0	68.7	73.4	76.9	72.2	69.4	68.7	67.1	65.2	61.1	55.2	49.3	44.3	38.9	38.1	39.3	42.3	42.7	49.9	52.0	51.4	50.8	52.1	57.8	56.2	76.9																						
16-Oct	64.6	72.3	82.2	85.5	81.1	86.0	86.3	88.9	86.8	78.4	74.6	72.3	69.0	66.3	71.8	85.0	93.4	96.1	97.0	97.4	97.7	97.9	98.0	98.1	84.4	98.1																						
17-Oct	98.2	98.3	98.3	98.3	98.1	96.2	94.8	93.5	91.9	89.7	87.0	83.7	80.8	75.9	71.8	68.6	68.6	71.7	71.8	72.3	70.7	71.0	71.6	70.8	83.1	98.3																						
18-Oct	71.1	73.7	76.2	76.9	80.7	86.0	89.0	88.7	82.8	73.5	69.4	61.6	55.0	48.1	42.7	41.1	40.8	45.1	52.5	55.4	57.7	57.6	58.7	58.7	64.3	89.0																						
19-Oct	58.0	58.2	57.8	72.5	76.2	77.1	81.8	87.8	86.7	82.1	81.8	80.2	78.5	76.2	75.5	76.2	80.5	83.9	85.6	89.2	92.2	93.7	95.5	96.2	80.1	96.2																						
20-Oct	95.4	92.5	93.8	95.8	95.5	94.5	92.1	88.4	85.7	83.7	81.1	79.8	78.2	77.9	80.1	79.6	85.3	91.9	95.3	96.4	96.7	96.7	96.8	96.9	89.6	96.9																						
21-Oct	96.9	96.8	96.7	96.6	96.5	96.4	96.2	96.1	95.9	95.8	95.7	95.4	95.3	95.8	95.9	95.7	95.4	95.0	94.5	92.6	90.2	85.2	83.2	81.4	94.0	96.9																						
22-Oct	82.6	84.6	84.6	84.7	83.2	82.2	82.3	82.7	80.7	78.3	72.8	68.1	66.0	64.6	66.7	66.4	70.3	71.7	72.0	71.7	69.0	67.2	65.8	65.6	74.3	84.7																						
23-Oct	65.3	63.4	62.7	63.8	65.8	68.5	70.4	72.1	69.3	65.5	60.2	56.5	54.5	54.0	54.4	59.1	60.7	60.9	65.7	65.7	66.7	69.5	71.2	70.4	64.0	72.1																						
24-Oct	74.0	70.5	68.0	69.5	70.7	72.3	73.2	73.5	71.8	68.6	58.9	48.0	45.5	41.8	39.6	38.2	39.7	42.8	43.8	48.2	49.9	60.1	68.4	72.7	58.7	74.0																						
25-Oct	76.7	83.3	88.1	83.6	82.5	80.1	76.9	78.5	73.0	65.2	59.7	56.4	49.0	43.6	39.5	40.4	44.1	52.1	57.4	59.3	69.7	76.5	75.3	79.0	66.3	88.1																						
26-Oct	81.4	78.4	88.0	89.0	91.9	93.0	92.9	92.4	90.4	86.1	82.3	75.1	69.2	62.0	63.7	60.3	50.8	54.2	57.9	60.4	60.8	62.6	65.0	66.4	73.9	93.0																						
27-Oct	67.3	71.3	71.4	73.0	77.5	78.0	81.9	81.7	73.7	70.9	69.2	66.4	65.0	74.9	66.4	64.8	70.2	85.4	89.6	92.0	94.9	96.3	97.1	97.4	78.2	97.4																						
28-Oct	97.5	93.7	90.4	89.9	86.3	85.6	84.0	84.1	82.1	79.5	77.3	76.1	75.6	76.8	76.9	76.8	77.6	77.1	78.5	80.9	73.6	74.9	76.2	74.8	81.1	97.5																						
29-Oct	82.1	80.0	72.9	69.9	68.8	69.4	71.8	70.8	70.1	68.8	65.2	63.6	61.6	60.2	57.8	57.1	59.9	65.7	70.4	70.0	68.0	69.2	70.8	77.2	68.4	82.1																						
30-Oct	78.7	80.0	80.6	81.6	84.3	86.8	86.6	85.5	83.3	82.0	80.0	76.1	73.9	70.1	69.3	70.6	71.7	72.1	72.5	73.5	73.2	74.1	74.1	75.8	77.3	86.8																						
31-Oct	79.4	78.3	78.5	75.5	76.2	80.6	84.7	85.9	85.3	83.1	83.3	81.5	81.5	79.3	79.3	80.7	81.8	83.3	87.2	86.2	86.4	86.0	84.6	85.0	82.2	87.2																						
																								75.6	75.8	76.7	78.0	78.7	79.8	81.0	80.9	77.9	73.6	68.9	63.6	59.5	56.2	54.8	55.3	57.2	60.3	65.1	68.1	71.1	73.2	73.7	74.9	Diurnal Average
																								98.2	98.3	98.3	98.3	98.1	96.9	96.9	96.3	95.9	95.8	95.7	95.4	95.3	95.8	95.9	95.7	95.4	96.1	97.0	97.4	97.7	97.9	98.0	98.1	Diurnal Maximum





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

**Wind Speed 10m (WS10) - km/h**  
**Buffalo Viewpoint - October 2024**

Maximum Speed: 31 km/h on Oct 23 05:00	Maximum Daily Speed Average: 17.5 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 29 23:00	Minimum Daily Speed Average: 1.6 km/h on Oct 12	Hours of Data: 742
Maximum Diurnal Speed Average: 4.8 km/h at hour 5	Minimum Diurnal Speed Average: 1.9 km/h at hour 21	Hours of Missing Data: 2
Monthly Average Velocity: 3.3 km/h 259.7 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 17 P <sub>99</sub> = 25	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-Oct	W12	W9	W11	WNW9	W5	WSW5	WSW3	SSW3	W6	NW7	NW8	WNW7	NW8	NW9	NW8	NNE5	NE6	NE11	NE7	NNE4	WNW4	WNW7	NW11	NW12	NW5.5	W12	
2-Oct	NW12	NW12	NW15	WNW12	W13	W13	W15	W15	WNW10	NW21	WNW18	WNW17	WNW15	NW18	NW18	WNW16	NW16	NW18	NW18	NNW18	NNW19	NNW16	NNW16	NNW16	NW14.8	NW21	
3-Oct	NW15	NW11	NW13	NW12	NW12	WNW11	NW13	NW11	WNW12	NW15	NW12	NW9	WNW7	W10	WSW13	WSW12	WSW12	SW8	SSW7	SSE8	SE8	SSE8	SE9	SE8	WNW6.1	NW15	
4-Oct	SSE6	S7	S8	SSE7	SSE7	SSE7	SSE5	SSE5	SSE7	SE7	SE5	E7	E7	E10	ENE11	NE10	NNE9	NE13	NNE9	NNE7	NNE8	N9	N11	N12	ENE3.6	NE13	
5-Oct	N13	N13	N11	N10	NNW7	NNW5	NW5	W3	SW4	SW4	SW4	SW5	WSW10	SW9	SW12	SW10	SSW6	SSW6	SSW7	SSE5	SSE7	SSE8	SSE7	S8	WSW2.8	SSW14	
6-Oct	SW15	WSW16	WSW17	WSW21	WSW24	W26	W27	WSW20	WSW17	SW15	SW14	WSW17	WSW17	W18	W18	W16	W12	W9	SW7	SW10	SSE8	SE10	SE8	SSE6	WSW13.3	W27	
7-Oct	SSE8	SSE9	SSE8	SSE8	SSE9	SSE7	SSE6	SSE8	SSE7	SSE9	SSE11	SSE11	SSE10	S12	S9	SSE5	S5	S8	S10	S9	S8	SSE6	SSE6	SSE6	SSE7.9	S12	
8-Oct	SSE8	SE8	SSE7	SSE7	SE7	S3	SSE4	SSE6	SSE6	SSE4	SSE4	SE5	SE8	SE8	SE8	SE7	SSE8	SSE7	S8	W20	W11	WSW15	SW13	SW13	S5.2	W20	
9-Oct	SW11	SW15	WSW15	WSW12	SW11	SSW10	S8	SSW8	WSW16	WSW12	WSW15	WSW13	WSW13	W13	WSW12	WSW8	SW6	SSW6	S7	SSW6	SSE5	SW6	W6	SW2	SW8.8	WSW16	
10-Oct	SE6	S7	SSE8	SSE8	S8	SSE8	S7	SSE7	SSE6	S6	SSE5	S6	WSW11	WSW15	WSW12	WSW12	WSW15	WSW11	WSW9	W12	WNW7	W4	S4	SW6	SW6.0	WSW15	
11-Oct	WSW7	WSW6	SW3	SSW4	SSE7	SSE7	SE7	SSE6	SSE7	SSE6	SE6	SSE7	SSE7	SSE6	SW11	SW10	SW10	SSW7	SSW8	SSW8	SSW9	SW11	SSW6	S6	SSW5.9	SW11	
12-Oct	SSW3	W10	W10	W9	W7	WSW6	SW3	S4	WSW4	WSW6	WNW5	NW6	NNE4	NE6	NE5	WNW3	ENE1	E5	SE6	SSE6	SE6	SSE6	SE7	SSE7	SW1.6	W10	
13-Oct	SSE9	SSE10	SSE8	SSE9	SSE9	SSE9	SSE10	SSE10	SSE13	SSE14	SSE16	SSE16	SSE17	SE14	SE14	SE12	SE9	SSE8	SSE9	SSE8	SSE9	SSE8	SSE6	SSE7	SSE10.5	SSE17	
14-Oct	S6	S7	SSE7	SSE7	SSE7	SSE8	SSE7	SSE9	SSE9	SSE9	SSE11	S8	SSE8	SE11	SE11	SE7	SE6	SSE8	SSE4	S6	SSE7	S7	S6	SSE6	SSE7.5	SSE11	
15-Oct	SE5	SSE6	SE8	SSE5	WSW10	W17	W19	WSW23	WSW21	W16	W14	W15	W12	WSW10	WSW10	WSW8	SW6	SW7	S6	S7	SSW6	SW5	SW7	WSW7	WSW8.5	WSW23	
16-Oct	SSW4	SSW6	SSE6	SE7	SSE7	SSE7	SSE8	SSE6	SSE5	SSE5	SSE4	SE4	ESE4	ESE2	E3	NE5	NE7	NNE5	NNE6	N5	NNE7	NNW4	N5	N3	ESE2.0	SSE8	
17-Oct	W4	WNW4	WSW4	W6	W11	WSW13	WSW15	WSW17	WSW18	WSW21	WSW22	W21	W20	W21	W25	W26	W29	W28	W25	W21	WNW21	WNW23	WNW20	WNW19	W17.5	W29	
18-Oct	WNW16	WNW13	WNW14	NW13	WSW7	SSW6	S7	SSW8	SSW7	S6	S8	S8	S10	SSW12	SW11	SSW12	SSW10	S5	SSE6	SSE7	SSE8	SE9	SSE7	SSE7	SSW5.6	WNW16	
19-Oct	SSE6	ENE3	E1	SSW3	NNE2	NNE5	N7	N10	N8	N8	NNW6	N8	N8	NNE6	NNE6	NNE6	N10	N12	N11	N11	N14	N13	N13	N14	N7.0	N14	
20-Oct	N15	NNW15	N13	N12	N14	N14	N12	N12	NNE10	NNE10	NNE11	NNE6	NNE7	NNE10	NNE12	NNE13	NNE14	NNE13	NNE14	NNE14	NNE14	NNE14	NNE17	N19	NNE21	N12.7	NNE21
21-Oct	N22	N24	N22	N22	N20	N23	N23	N23	N22	N23	N20	N17	N11	N7	NNW9	NW12	NW11	WNW10	WNW9	W10	W11	W12	W11	WSW11	NNW13.5	N24	
22-Oct	SW8	S7	SSW8	SSW9	SSW8	S7	S6	S8	S8	SSW10	SW14	SW13	SW13	SW13	SSW13	SSW14	SSW11	SSW10	SSW11	SSW11	SW14	WSW15	SW16	SW17	SSW10.4	WSW17	
23-Oct	SW17	WSW20	WSW22	WSW26	W31	W27	W22	WSW19	C	C	W17	WSW18	WSW18	WSW18	WSW14	WSW14	WSW13	WSW13	WSW13	WSW12	SW9	S7	SSW9	S7	WSW15.8	W31	
24-Oct	SSE6	SW8	WSW17	WSW15	W19	W20	W18	WSW16	WSW14	W15	W13	W18	WNW15	WNW16	W16	WNW15	W9	W9	WSW11	W11	WSW12	W6	WNW6	S5	W12.0	W20	
25-Oct	SW3	S4	SSW6	S7	SSW5	SSW5	SW4	WNW5	SW5	SW4	W6	WNW5	WN9	NNW10	WNW9	WNW10	W7	SW4	SSW5	WSW3	SW3	S4	SSE4	SE4	WSW3.5	NW10	
26-Oct	SSE5	SE5	ENE2	ENE4	NNE4	NNE4	NNE3	NNE8	NNE8	NNE7	NNE8	N8	N9	N9	N9	NE8	E9	E11	ESE8	ESE9	ESE9	ESE9	SE10	SE10	ENE4.6	E11	
27-Oct	SE9	SE7	SSE7	SSE7	SSE5	S5	SSE5	SE6	SE7	SE10	ESE12	ESE12	ESE11	ESE10	ESE12	ESE11	ESE5	ENE3	ENE4	E4	ENE3	NNW5	NNW7	WNW8	ESE5.2	ESE12	
28-Oct	W9	WNW15	WNW14	WNW15	WNW17	WNW16	WNW14	WNW13	WNW14	WNW17	WNW16	WNW15	NW17	NW17	NW17	NW16	NW14	NW17	WNW16	WNW17	NW18	WNW16	WNW14	WNW14	WNW15.1	NW18	
29-Oct	W13	W14	NW17	WNW17	WNW18	WNW15	WNW12	NW13	WNW9	WNW11	W10	WSW10	W11	W9	SW7	S5	ESE4	ESE6	SE5	SSE5	S5	S5	ESE1	N8	WNW6.3	WNW18	
30-Oct	NNE10	N14	N13	N13	N13	N15	N13	NNE12	N12	N13	N13	N13	N12	NNE11	NNE10	NNE11	NE13	NE12	NE11	NE11	NE10	ENE8	ENE9	ENE8	ENE9	NNE10.8	N15
31-Oct	ENE8	ENE6	ESE3	ESE8	ESE8	ESE4	ESE5	ESE6	ESE10	ESE8	ESE11	ESE11	ESE10	ESE7	SE4	SSE5	S5	SSE5	SSE6	SSE6	SSE5	S6	SSW6	WSW7	SE5.2	ESE11	
WSW2.4 W3.3 W3.9 W4.0 W4.8 W4.7 W4.1 WSW3.9 WSW3.6 W3.5 WSW3.7 W4.2 W3.8 W4.2 W4.2 W3.6 W3.1 W1.9 SW2.0 WSW2.8 WSW1.9 WSW2.4 WSW2.1 WSW2.4																								Diurnal Average			
NNE22 N24 N22 WSW26 W31 W27 W27 WSW23 N22 N23 WSW22 W21 W20 W21 W25 W26 W29 W28 W25 W21 WNW21 WNW23 WNW20 NNE21																								Diurnal Maximum			

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



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

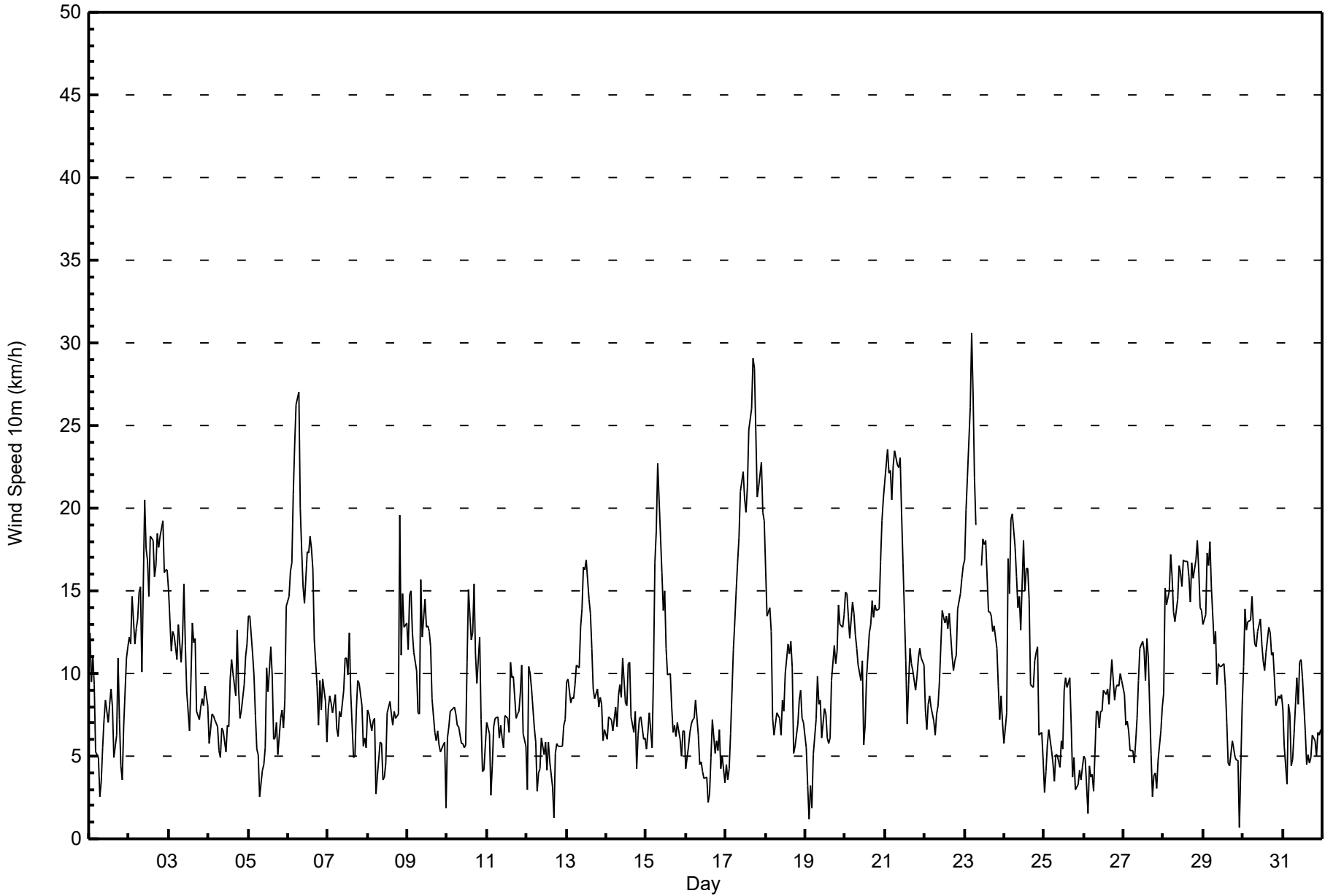
**Wind Speed 10m (WS10) - km/h**  
**Buffalo Viewpoint - October 2024**

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



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

**Wind Speed 10m (WS10) - km/h**  
**Buffalo Viewpoint - October 2024**





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

**Wind Speed 10m (WS10) - km/h**  
**Buffalo Viewpoint - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	116	15.63	15.63
6 - 11	379	51.08	66.71
12 - 19	205	27.63	94.34
20 - 28	40	5.39	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 10m (WS10) - km/h  
Buffalo Viewpoint - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	9	2	7	3	9	8	22	13	8	13	5	4	6	1	3	116
6 - 11	20	23	10	7	5	17	32	97	38	31	22	19	25	16	13	4	379
12 - 19	25	10	3	0	0	3	3	5	1	5	14	43	26	33	26	8	205
20 - 28	10	2	0	0	0	0	0	0	0	0	0	10	14	3	1	0	40
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	2	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>	58	44	15	14	8	29	43	124	52	44	49	77	71	58	41	15	742

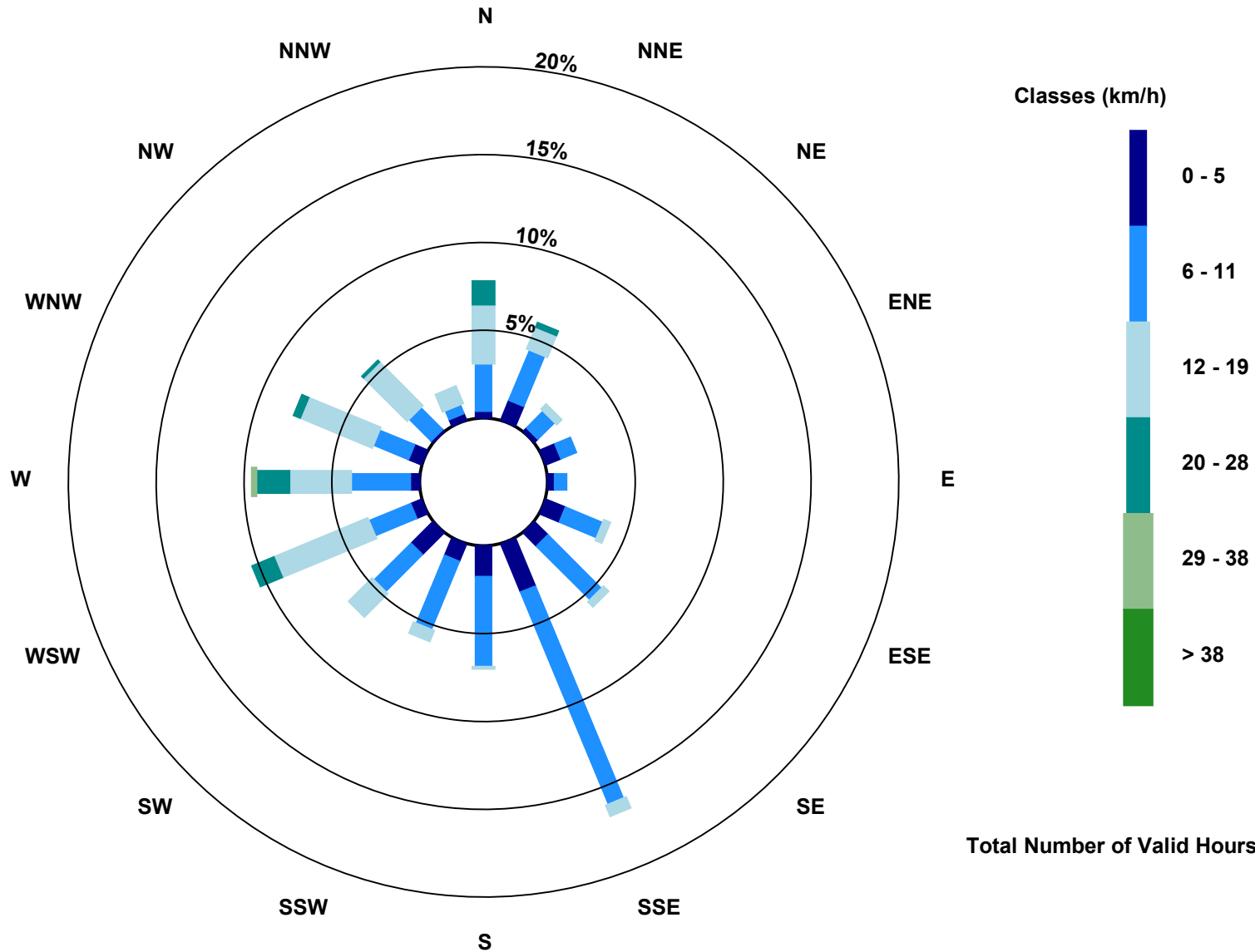
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Buffalo Viewpoint







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

**Wind Direction 10m (WD10) - deg**  
**Buffalo Viewpoint - October 2024**

Direction of Maximum Speed: 259 deg on Oct 23 05:00		Hours in Service: 744
Direction of Maximum Daily Speed Average: 269.5 deg on Oct 17		Hours of Data: 742
Direction of Minimum Speed: 119 deg on Oct 29 23:00	Direction of Minimum Daily Speed Average: 1.6 deg on Oct 12	Hours of Missing Data: 2
Monthly Average Direction: 259.7 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-Oct	268	278	273	289	272	257	241	211	266	307	317	299	322	305	314	21	34	35	37	32	295	294	308	308	305.7
2-Oct	306	313	317	290	273	271	270	269	285	308	300	290	296	309	318	296	309	317	319	328	327	332	331	329	306.1
3-Oct	325	321	317	315	313	297	321	321	298	320	307	313	296	261	247	258	253	236	193	162	146	150	135	137	288.3
4-Oct	153	180	172	158	166	157	153	159	151	137	126	95	81	100	74	35	25	37	29	32	12	356	352	354	77.1
5-Oct	359	357	355	353	342	335	304	268	235	235	223	257	229	225	223	197	203	193	157	160	156	154	175	209	239.8
6-Oct	218	242	245	251	254	259	260	251	244	232	230	241	252	264	271	281	267	274	236	221	168	138	138	155	245.7
7-Oct	157	150	153	153	153	168	161	163	167	153	151	153	155	171	180	156	191	191	182	181	172	161	162	154	163.8
8-Oct	156	143	147	151	142	171	160	157	156	163	149	144	138	141	145	126	149	149	181	273	270	241	224	229	181.5
9-Oct	222	233	238	238	224	204	183	200	257	257	256	256	253	263	253	251	230	200	187	198	164	221	269	219	235.2
10-Oct	142	173	159	159	178	149	170	168	158	181	159	180	248	240	248	244	255	254	241	269	286	264	184	232	216.8
11-Oct	247	245	215	211	166	152	141	165	153	155	145	147	162	150	231	235	228	199	196	198	200	216	192	191	191.5
12-Oct	209	277	281	271	264	240	230	190	248	255	301	313	22	40	39	291	62	101	131	162	139	148	141	155	235.0
13-Oct	151	153	154	160	163	160	147	153	151	156	153	168	165	145	140	142	143	154	157	157	153	163	160	166	154.4
14-Oct	179	171	166	165	155	157	156	161	158	154	152	176	165	146	146	129	135	161	158	177	159	182	170	161	159.2
15-Oct	146	148	135	156	251	260	259	257	257	261	260	261	260	257	253	249	225	222	173	188	197	231	233	257	242.6
16-Oct	205	200	160	144	154	153	155	152	161	162	158	133	110	104	97	37	43	32	17	356	16	332	8	1	115.6
17-Oct	281	285	244	263	266	249	250	248	251	256	258	270	262	264	265	266	270	272	274	281	289	298	297	285	269.5
18-Oct	298	288	302	305	258	193	182	194	205	181	170	177	184	212	215	207	200	176	165	157	147	146	154	155	208.2
19-Oct	151	69	94	210	23	26	8	357	353	3	334	358	3	20	16	23	6	2	8	0	10	358	352	4	5.3
20-Oct	357	348	349	353	352	354	5	11	12	13	23	30	23	19	24	21	23	27	21	15	23	18	11	13	11.0
21-Oct	11	8	1	357	355	352	350	350	350	351	353	359	9	356	330	326	315	285	297	276	267	274	268	253	341.0
22-Oct	215	191	199	206	200	185	185	190	191	199	225	223	217	214	202	208	201	193	199	206	227	246	234	236	211.9
23-Oct	234	245	247	255	259	260	261	253	C	C	259	255	251	257	246	249	244	242	242	249	218	178	198	181	247.5
24-Oct	165	230	255	255	260	260	260	255	254	262	265	280	289	287	281	287	277	267	254	261	253	281	303	189	264.7
25-Oct	234	183	196	183	192	196	224	291	234	234	263	293	304	310	288	288	271	214	192	250	221	174	155	134	244.1
26-Oct	151	132	75	60	26	30	17	18	19	18	13	8	359	354	7	50	83	90	117	111	113	120	130	125	65.1
27-Oct	138	137	149	152	155	171	147	140	136	125	117	118	117	115	111	122	107	60	65	80	68	337	330	287	122.8
28-Oct	278	299	298	293	295	294	296	290	296	301	301	301	308	314	313	304	313	314	295	291	306	289	287	290	299.2
29-Oct	279	281	307	300	303	302	300	312	300	282	263	255	263	264	228	183	122	123	129	150	177	176	119	8	282.1
30-Oct	12	7	5	6	6	7	11	13	9	11	5	9	18	18	20	35	40	48	47	50	68	60	61	60	23.0
31-Oct	60	78	119	114	104	120	122	115	105	104	113	119	115	120	135	162	181	156	166	167	161	185	205	243	129.2

257.0 268.3 270.1 264.9 262.4 259.4 261.3 254.9 254.0 267.4 258.7 259.6 258.8 260.5 262.1 267.7 266.6 261.8 231.7 248.8 241.1 251.4 258.7 258.1  
 Diurnal Average

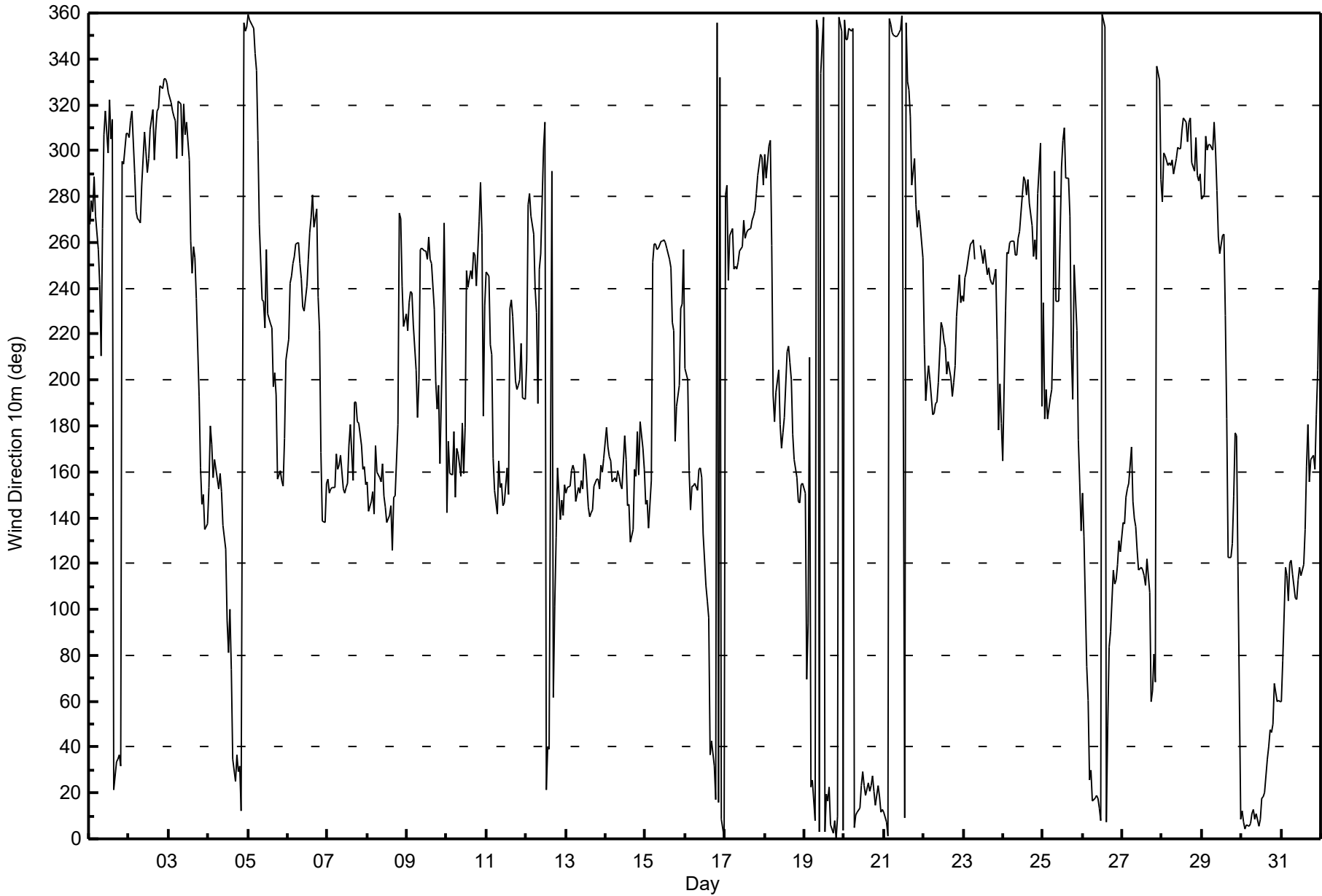
C - Calibration  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 10m (WD10) - deg**  
**Buffalo Viewpoint - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 86 deg on Oct 26 03:00 Minimum Value: 5 deg on Oct 16 05:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 14 Q <sub>1</sub> = 18 Median = 22 Q <sub>3</sub> = 27 P <sub>90</sub> = 33 P <sub>99</sub> = 69																	Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 2 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-Oct	22	15	15	20	49	29	58	33	33	24	24	31	26	27	25	52	25	18	17	25	39	31	18	20	58		
2-Oct	21	21	20	24	15	15	15	17	23	23	24	24	24	23	21	22	23	21	20	20	20	21	19	19	24		
3-Oct	20	22	22	22	22	26	21	22	25	23	27	28	46	36	23	25	19	18	8	14	14	17	7	9	46		
4-Oct	21	14	11	12	13	17	31	35	26	31	32	25	37	21	21	19	23	20	23	17	19	22	19	20	37		
5-Oct	20	20	20	19	18	12	22	37	27	28	27	17	28	20	21	23	31	20	23	28	26	21	27	17	37		
6-Oct	16	19	17	15	14	13	12	16	18	19	18	18	18	19	20	15	12	26	14	31	13	7	22	31			
7-Oct	19	12	16	24	27	24	28	28	29	29	28	29	29	27	29	30	27	19	25	23	24	21	23	18	30		
8-Oct	7	10	18	8	15	64	66	12	16	42	28	39	32	29	32	24	29	27	28	46	24	16	16	17	66		
9-Oct	16	17	17	17	14	26	32	41	16	17	17	20	22	21	24	22	17	14	14	23	19	23	25	73	73		
10-Oct	20	8	16	18	11	16	18	16	27	18	26	34	34	20	22	19	14	14	16	26	14	46	23	31	46		
11-Oct	14	20	54	45	17	20	20	14	15	22	26	25	34	41	23	22	17	17	12	15	16	14	22	34	54		
12-Oct	74	19	16	14	15	27	73	55	64	24	32	32	41	35	55	46	78	20	15	13	16	20	26	28	78		
13-Oct	25	28	31	30	27	27	25	29	28	30	29	29	29	31	28	28	27	27	27	28	29	25	29	29	31		
14-Oct	24	26	26	27	27	26	27	31	28	28	29	28	33	30	30	26	25	28	36	26	26	25	24	32	36		
15-Oct	37	26	19	37	20	12	13	12	14	14	17	15	22	22	25	21	16	14	11	22	29	43	20	29	43		
16-Oct	38	17	28	11	5	11	7	11	16	26	32	28	23	51	51	17	14	17	17	19	14	26	18	28	51		
17-Oct	21	32	24	16	18	16	16	17	17	14	14	15	14	15	15	16	16	17	18	20	22	22	22	22	32		
18-Oct	21	23	21	23	27	37	34	20	18	31	24	30	33	21	22	19	19	22	24	26	27	25	27	27	37		
19-Oct	46	35	60	61	71	10	18	18	19	19	30	23	23	22	25	25	21	20	21	20	20	21	20	21	71		
20-Oct	21	20	18	19	19	21	21	20	20	20	20	26	24	20	21	20	19	18	17	18	17	20	20	20	26		
21-Oct	20	21	23	23	22	21	22	22	20	21	21	22	21	22	23	20	21	23	24	21	19	16	19	19	24		
22-Oct	19	23	22	16	20	27	25	25	24	20	20	20	19	21	19	19	21	22	20	19	19	18	19	19	27		
23-Oct	17	17	17	14	12	13	13	14	C	C	17	16	18	16	18	17	17	17	17	15	17	22	11	16	22		
24-Oct	25	39	15	16	12	12	13	15	15	16	20	21	23	23	21	21	17	14	13	12	17	24	29	38	39		
25-Oct	56	39	23	14	25	29	73	50	44	43	28	29	23	21	23	20	13	43	26	42	36	54	51	39	73		
26-Oct	18	12	86	28	13	54	36	7	11	10	17	17	19	21	17	23	15	17	23	22	24	28	30	25	86		
27-Oct	29	24	26	29	28	24	23	25	28	24	22	22	31	29	23	25	20	36	18	20	23	27	18	23	36		
28-Oct	19	22	23	21	21	22	20	22	21	22	22	22	22	21	22	22	22	22	24	21	22	23	21	22	24		
29-Oct	19	20	24	23	22	22	25	24	25	23	21	25	25	25	28	34	13	9	17	18	23	20	78	17	78		
30-Oct	18	19	20	20	20	19	19	20	21	19	22	21	21	25	21	22	19	18	19	19	17	15	14	12	25		
31-Oct	11	18	38	24	21	20	16	24	20	21	21	25	23	33	40	38	27	27	32	29	30	27	29	18	40		
																	74 39 86 61 71 64 73 55 64 43 32 39 46 51 55 52 78 43 36 46 39 54 78 73										
																	Diurnal Maximum										
C - Calibration																											





## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS05  
MANNIX  
OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
OCTOBER 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	78.4	0	14.6	0
H2S (ppb) Average	708	36	36	100	4	0	1.3	0
THC (ppm) Average	673	37	71	95.43	4.5	-	2.4	-
NMHC(ppm) Average	673	37	71	95.43	0.211	-	0.033	-
CH4(ppm) Average	673	37	71	95.43	4.5	-	2.4	-
Temperature 2 m (C) Average	744	0	0	100	20.1	-	12.7	-
Temperature 20 m (C) Average	744	0	0	100	20.2	-	13.9	-
Temperature 45 m (C) Average	744	0	0	100	20.3	-	14.1	-
Temperature 75 m (C) Average	744	0	0	100	20.2	-	14.5	-
Temperature 90 m (C) Average	744	0	0	100	20.2	-	14.8	-
Relative Humidity 2 m (%) Average	744	0	0	100	98	-	89	-
Relative Humidity 20 m (%) Average	704	0	40	94.62	99	-	82	-
Relative Humidity 45 m (%) Average	744	0	0	100	99	-	90	-
Relative Humidity 75 m (%) Average	682	0	62	91.67	98	-	86	-
Relative Humidity 90 m (%) Average	712	0	32	95.7	100	-	86	-
Wind Speed 20 m (km/h) Average	744	0	0	100	36	-	21	-
Wind Speed 45 m (km/h) Average	742	0	2	99.73	42	-	26	-
Wind Speed 75 m (km/h) Average	744	0	0	100	46	-	29	-
Wind Speed 90 m (km/h) Average	744	0	0	100	46	-	30	-
Wind Direction 20 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 45 m (deg) Average	742	0	2	99.73	-	-	-	-
Wind Direction 75 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 90 m (deg) Average	744	0	0	100	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	744	0	0	100	1.5	-	0.8	-
Vertical Wind Speed 45 m (km/h) Average	742	0	2	99.73	2	-	0.8	-
Vertical Wind Speed 75 m (km/h) Average	744	0	0	100	2	-	0.5	-
Vertical Wind Speed 90 m (km/h) Average	744	0	0	100	2.2	-	0.8	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
OCTOBER 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	1.87	7.2	-	0	0	0	0.1	0.3	3.4	78.4
H2S (ppb) Average	708	0.3	0.6	-	0	0.1	0.1	0.1	0.2	0.6	4
THC (ppm) Average	673	2.16	0.2	-	1.9	2.1	2.1	2.1	2.2	2.3	4.5
NMHC(ppm) Average	673	0.005	0.018	-	0	0	0	0	0	0	0.211
CH4(ppm) Average	673	2.16	0.2	-	1.9	2.1	2.1	2.1	2.2	2.2	4.5
Temperature 2 m (C) Average	744	3.48	5.5	-	-7.3	-3.3	-0.1	2.8	6.7	11.4	20.1
Temperature 20 m (C) Average	744	4.04	5.5	-	-7.1	-3.3	0.5	3.6	7.5	11.7	20.2
Temperature 45 m (C) Average	744	4.04	5.6	-	-7.4	-3.6	0.3	3.7	7.5	11.9	20.3
Temperature 75 m (C) Average	744	4.06	5.7	-	-7.7	-3.8	0.2	3.9	7.6	11.9	20.2
Temperature 90 m (C) Average	744	4.17	5.7	-	-7.6	-3.8	0.3	4	7.8	12.3	20.2
Relative Humidity 2 m (%) Average	744	71.2	16	-	29	47	60	73	83	93	98
Relative Humidity 20 m (%) Average	704	65.8	15	-	28	43	54	68	76	85	99
Relative Humidity 45 m (%) Average	744	66.1	16	-	27	43	54	68	77	87	99
Relative Humidity 75 m (%) Average	682	63.3	15	-	27	42	52	65	73	82	98
Relative Humidity 90 m (%) Average	712	63.9	16	-	27	42	52	65	74	85	100
Wind Speed 20 m (km/h) Average	744	12.5	6	-	1	6	9	12	16	20	36
Wind Speed 45 m (km/h) Average	742	17.1	7	-	1	8	12	17	21	26	42
Wind Speed 75 m (km/h) Average	744	19.2	8	-	2	9	13	19	25	29	46
Wind Speed 90 m (km/h) Average	744	20	9	-	2	9	13	20	26	31	46
Wind Direction 20 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-
Wind Direction 75 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 90 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	744	0.09	0.4	-	-1.3	-0.4	-0.2	0	0.4	0.7	1.5
Vertical Wind Speed 45 m (km/h) Average	742	-0.09	0.5	-	-1.2	-0.7	-0.5	-0.2	0.3	0.7	2
Vertical Wind Speed 75 m (km/h) Average	744	0.16	0.4	-	-1	-0.3	-0.1	0.1	0.4	0.6	2
Vertical Wind Speed 90 m (km/h) Average	744	-0.02	0.6	-	-1.6	-0.7	-0.4	-0.1	0.4	0.8	2.2

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	06 Oct 2024 07:00	07 Oct 2024 11:00	29	Usntable Operations - support gas cylinder depleted
THC/NMHC/CH4	07 Oct 2024 12:00	07 Oct 2024 14:00	3	Maintenance - replaced analyzer
THC/NMHC/CH4	28 Oct 2024 12:00	28 Oct 2024 13:00	2	Maintenance - replaced support gas cylinder
Relative Humidity, 20m	04 Oct 2024 23:00	05 Oct 2024 05:00	7	Sensor operated out of range
Relative Humidity, 20m	05 Oct 2024 08:00	05 Oct 2024 10:00	3	Sensor operated out of range
Relative Humidity, 20m	16 Oct 2024 17:00	16 Oct 2024 17:00	1	Sensor operated out of range
Relative Humidity, 20m	16 Oct 2024 19:00	17 Oct 2024 05:00	11	Sensor operated out of range
Relative Humidity, 20m	19 Oct 2024 22:00	20 Oct 2024 02:00	5	Sensor operated out of range
Relative Humidity, 20m	20 Oct 2024 19:00	21 Oct 2024 00:00	6	Sensor operated out of range
Relative Humidity, 20m	26 Oct 2024 06:00	26 Oct 2024 06:00	1	Sensor operated out of range
Relative Humidity, 20m	27 Oct 2024 22:00	28 Oct 2024 02:00	5	Sensor operated out of range
Relative Humidity, 20m	31 Oct 2024 19:00	31 Oct 2024 19:00	1	Sensor operated out of range
Relative Humidity, 75m	04 Oct 2024 23:00	05 Oct 2024 05:00	7	Sensor operated out of range
Relative Humidity, 75m	05 Oct 2024 08:00	05 Oct 2024 11:00	4	Sensor operated out of range
Relative Humidity, 75m	16 Oct 2024 17:00	17 Oct 2024 10:00	18	Sensor operated out of range
Relative Humidity, 75m	19 Oct 2024 21:00	20 Oct 2024 06:00	10	Sensor operated out of range
Relative Humidity, 75m	20 Oct 2024 18:00	21 Oct 2024 08:00	15	Sensor operated out of range
Relative Humidity, 75m	27 Oct 2024 21:00	28 Oct 2024 02:00	6	Sensor operated out of range
Relative Humidity, 75m	31 Oct 2024 18:00	31 Oct 2024 19:00	2	Sensor operated out of range
Relative Humidity, 90m	05 Oct 2024 00:00	05 Oct 2024 04:00	5	Sensor operated out of range
Relative Humidity, 90m	16 Oct 2024 20:00	16 Oct 2024 20:00	1	Sensor operated out of range
Relative Humidity, 90m	16 Oct 2024 23:00	17 Oct 2024 06:00	8	Sensor operated out of range
Relative Humidity, 90m	19 Oct 2024 21:00	20 Oct 2024 05:00	9	Sensor operated out of range
Relative Humidity, 90m	20 Oct 2024 19:00	20 Oct 2024 23:00	5	Sensor operated out of range
Relative Humidity, 90m	27 Oct 2024 23:00	28 Oct 2024 02:00	4	Sensor operated out of range
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	27 Oct 2024 22:00	27 Oct 2024 22:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	28 Oct 2024 01:00	28 Oct 2024 01:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Mannix - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 78.4 ppb on Oct 21 04:00	Maximum Daily Average: 14.6 ppb on Oct 21		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 4 18:00	Minimum Daily Average: 0.0 ppb on Oct 18		Hours of Missing Data:	35
Maximum Diurnal Average: 5.7 ppb at hour 4	Minimum Diurnal Average: 0.3 ppb at hour 22		Hours of Calibration:	35
Monthly Average: 1.87 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 3.4 P <sub>99</sub> = 36.5		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-Oct	Z	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	1.4	15.6	29.2	27.2	14.9	6.9	1.7	0.5	0.1	0.3	9.3	0.5	0.5	1.3	4.8	29.2																						
2-Oct	0.3	Z	4.2	2.0	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.1	1.5	0.1	5.6	9.5	12.2	3.6	6.0	1.3	0.7	0.3	2.1	12.2																						
3-Oct	4.3	12.7	Z	17.7	10.8	1.2	7.6	38.7	16.4	1.4	4.6	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.1	5.1	38.7																						
4-Oct	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.4	0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.9	3.0	6.4	0.6	6.4																						
5-Oct	10.6	3.0	4.6	2.9	Z	2.2	0.4	0.3	0.2	0.0	0.1	0.2	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	10.6																						
6-Oct	0.0	0.0	0.0	0.0	0.0	Z	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	0.0	0.0	0.1																						
7-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.7	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7																						
8-Oct	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.4	0.5	0.6	0.6	0.8	0.7	0.5	0.2	0.1	0.0	0.0	0.1	0.3	0.8																						
9-Oct	0.1	0.1	Z	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	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1																						
10-Oct	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2																						
11-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1																						
12-Oct	0.1	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.3	7.2	20.5	13.6	6.5	11.7	14.1	9.5	0.6	0.7	1.0	1.3	1.2	1.1	1.4	4.0	20.5																						
13-Oct	Z	1.0	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.2	0.5	1.0	0.5																						
14-Oct	0.3	Z	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.4																						
15-Oct	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1																						
16-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.3	0.3	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.3																						
17-Oct	0.2	0.2	0.1	0.2	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
18-Oct	0.1	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
19-Oct	Z	0.1	0.0	0.0	0.0	0.6	5.4	2.8	9.8	8.1	0.8	1.8	10.8	8.2	6.7	4.7	1.1	2.7	0.7	2.8	4.8	0.6	16.1	11.6	4.4	16.1																						
20-Oct	4.5	3.5	Z	4.5	2.9	5.7	29.5	10.1	4.1	0.9	0.5	0.5	0.5	0.4	0.3	0.3	0.2	0.1	0.1	0.3	0.5	1.4	10.9	20.7	4.5	29.5																						
21-Oct	29.9	77.8	73.7	78.4	45.5	5.5	1.8	Z	1.1	1.6	2.5	2.8	1.1	2.1	3.4	4.3	2.9	1.1	0.4	0.3	0.2	0.1	0.1	0.1	14.6	78.4																						
22-Oct	0.0	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2																						
23-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2																						
24-Oct	0.0	0.0	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.3	0.1	0.3																						
25-Oct	Z	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3																						
26-Oct	0.0	Z	0.0	0.0	0.1	0.1	0.7	0.4	1.3	5.8	14.4	18.6	10.1	8.7	12.2	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.1	3.3	18.6																						
27-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2																						
28-Oct	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	3.4	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.4																						
29-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	1.0	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	0.3	3.9	0.2	3.9																						
30-Oct	3.1	24.9	35.7	41.8	31.7	49.6	36.5	7.5	7.2	Z	1.7	1.7	0.7	0.6	0.4	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	10.6	49.6																						
31-Oct	Z	0.1	0.1	0.0	0.1	0.0	0.1	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	0.2	0.0	0.2																						
																								2.2	4.6	4.6	5.7	3.6	2.5	2.7	2.1	1.4	0.7	1.2	2.1	2.3	2.0	1.8	1.1	0.8	0.6	0.5	0.3	0.8	0.3	1.1	1.5	Diurnal Average
																								29.9	77.8	73.7	78.4	45.5	49.6	36.5	38.7	16.4	8.1	14.4	20.5	29.2	27.2	14.9	14.1	9.5	9.5	12.2	3.6	9.3	1.4	16.1	20.7	Diurnal Maximum

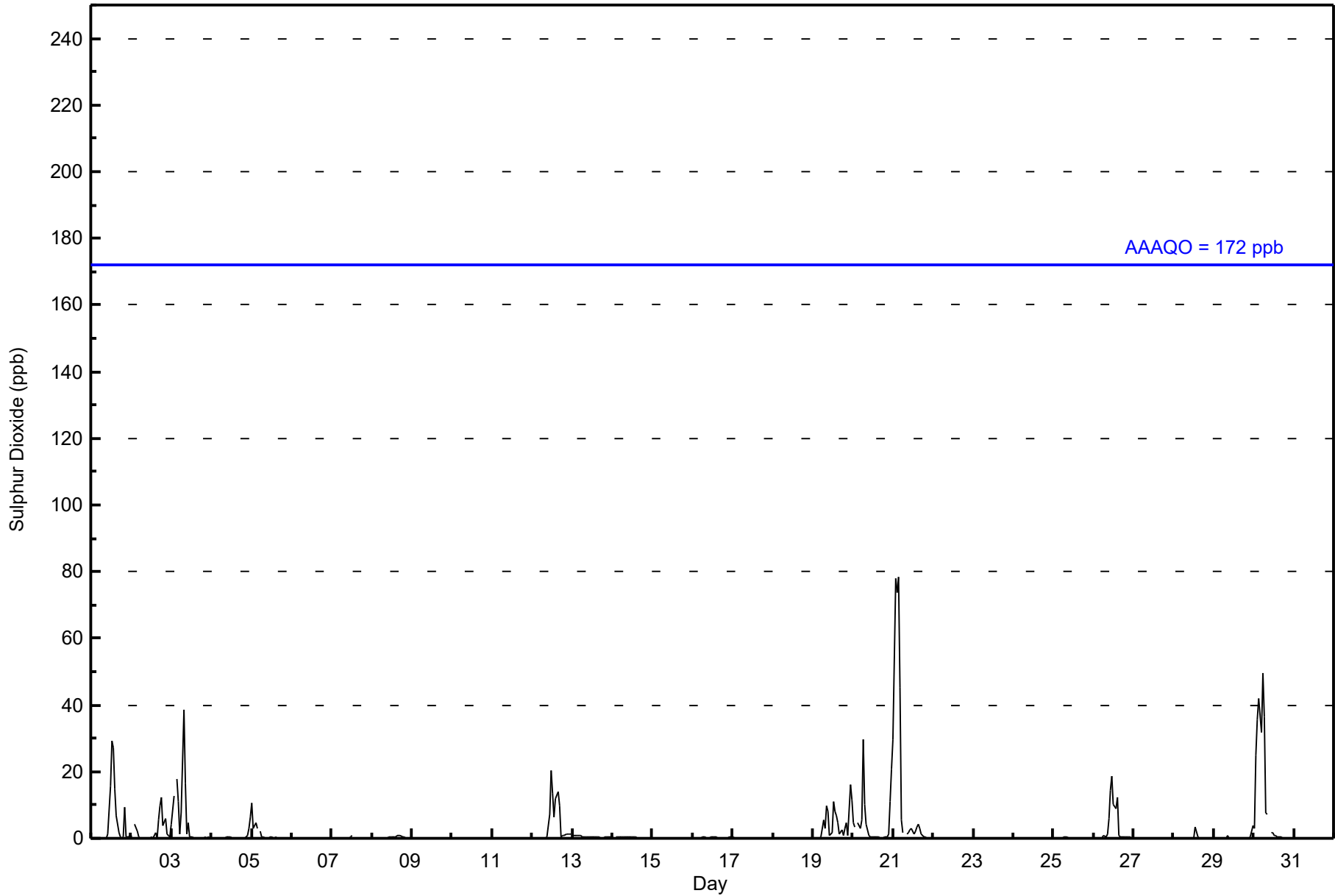
Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb





Wood Buffalo Environmental Association  
Hourly Averages

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	674	95.06	95.06
11 - 20	18	2.54	97.60
21 - 60	14	1.97	99.58
61 - 110	3	0.42	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 - October 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	19	28	12	13	14	14	75	115	39	43	38	95	69	58	18	24	674
11 - 20	5	2	0	0	0	0	0	0	0	0	0	0	0	3	4	4	18
21 - 60	7	3	0	0	0	0	0	0	0	0	0	0	0	1	3	0	14
61 - 110	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	33	12	13	14	14	75	115	39	43	38	95	69	62	25	28	709

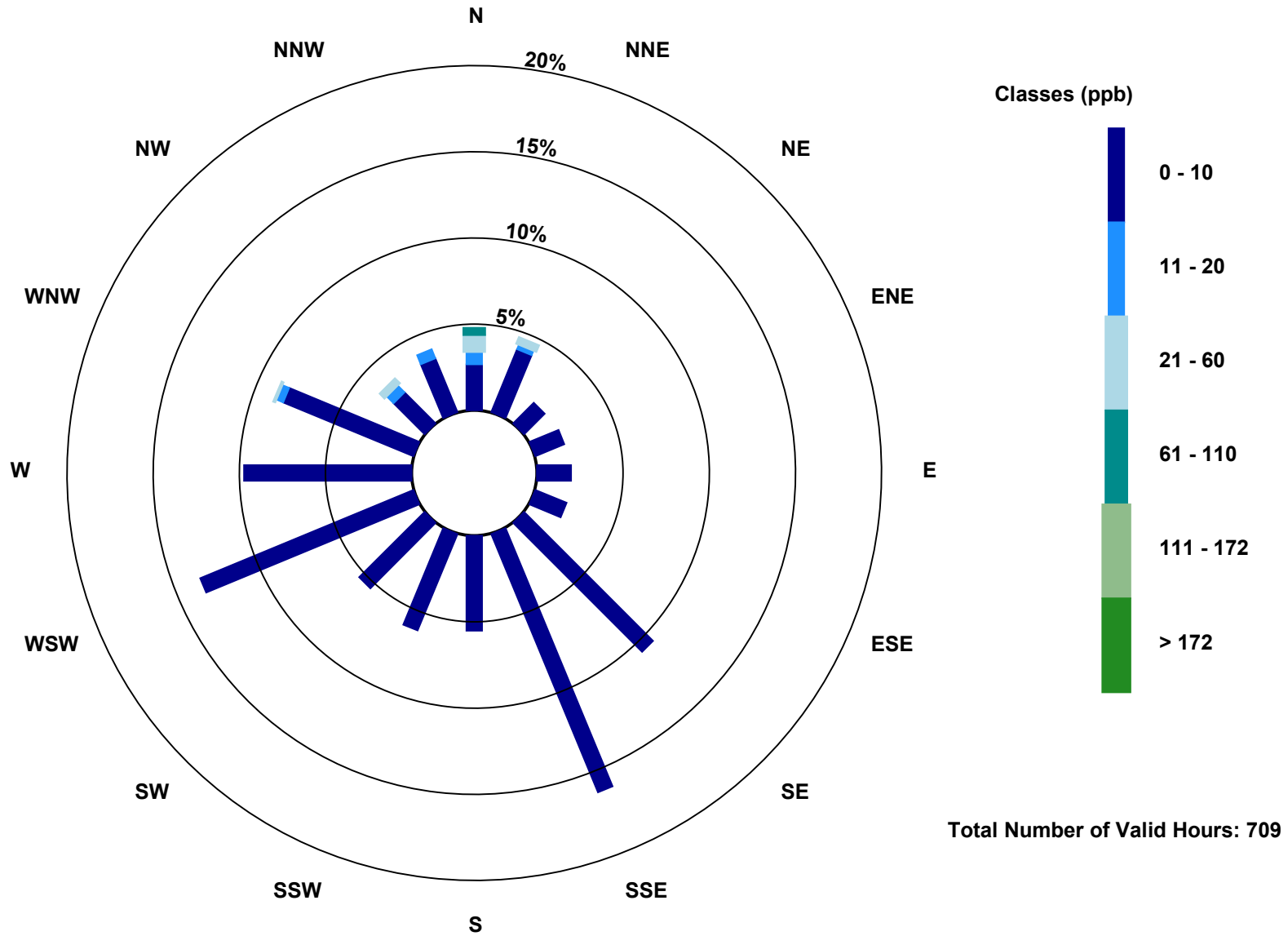
Total Number of Valid Hours: 709

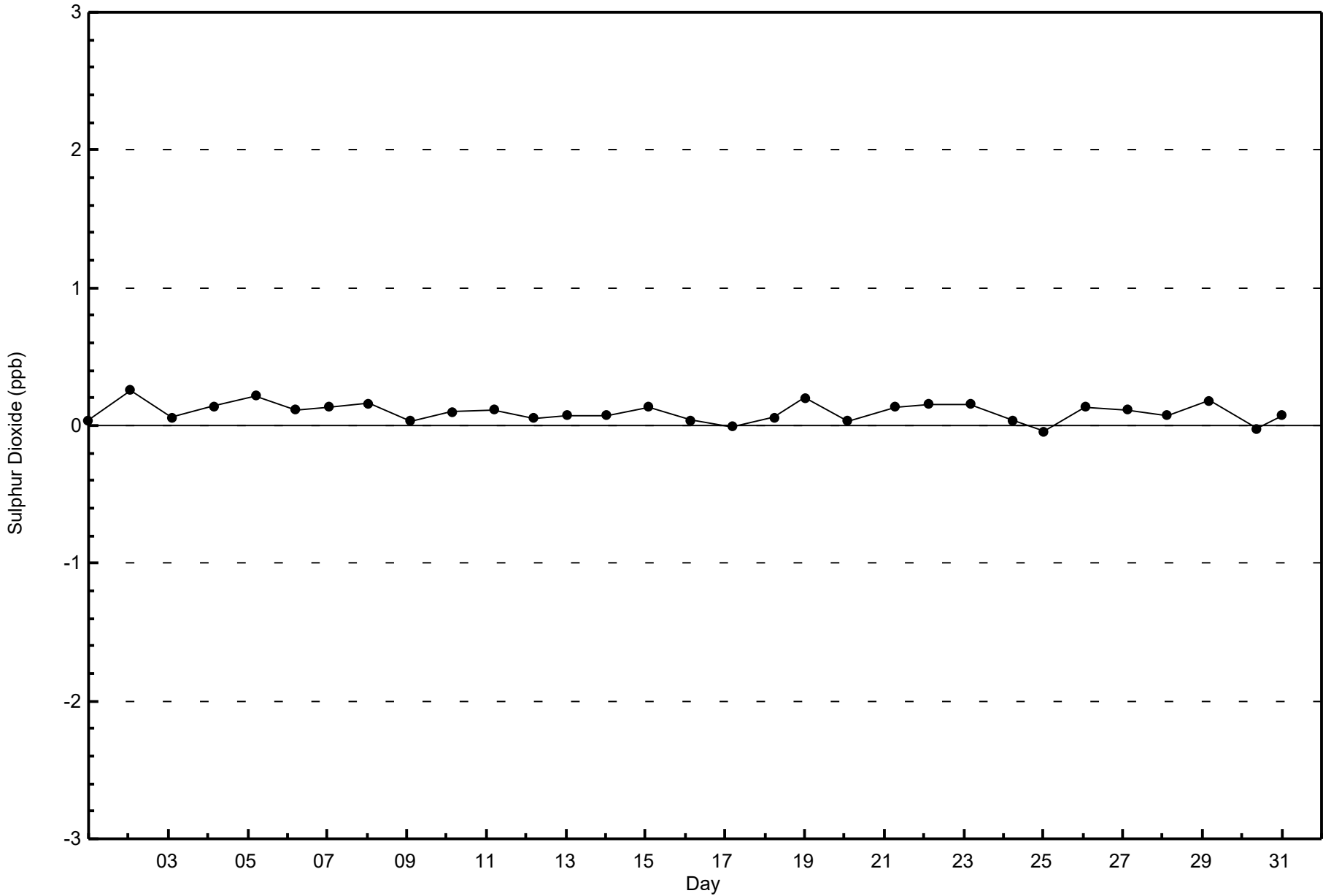
Total Number of Hours: 744

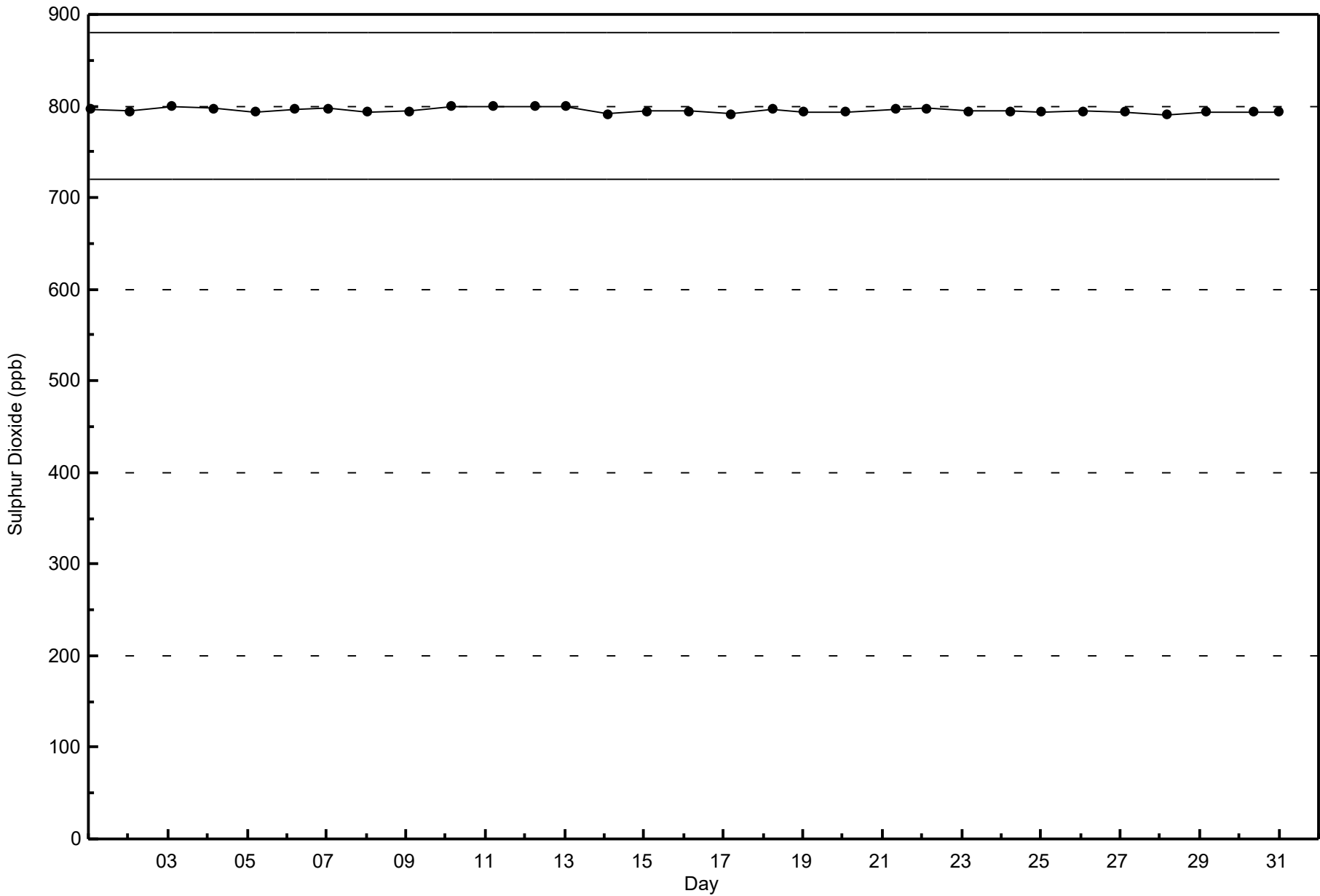


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

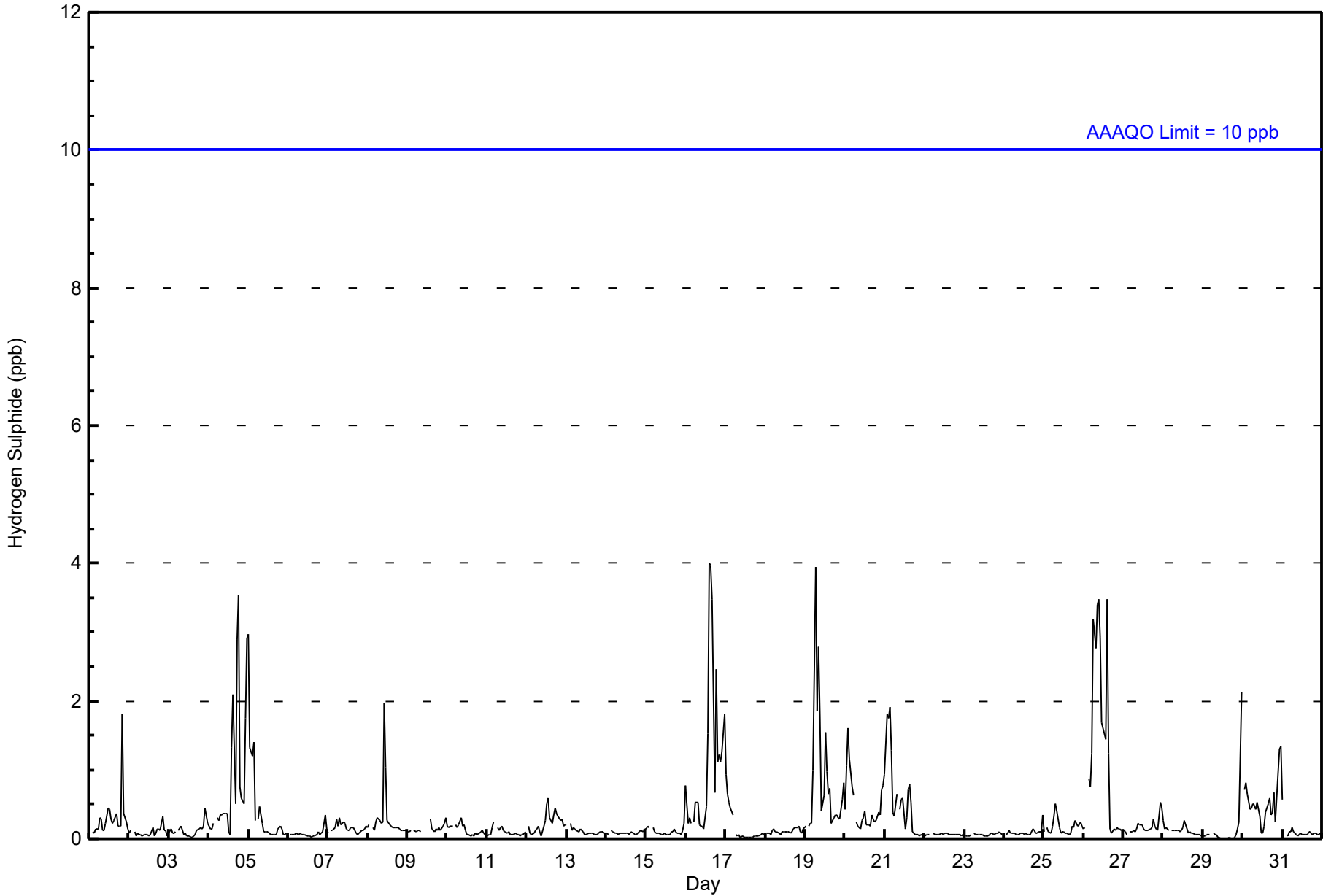








Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 4.0 ppb on Oct 16 15:00		Maximum Daily Average: 1.3 ppb on Oct 26																	Hours of Data: 708																														
Minimum Value: 0.0 ppb on Oct 29 12:00		Minimum Daily Average: 0.1 ppb on Oct 22																	Hours of Missing Data: 36																														
Maximum Diurnal Average: 0.4 ppb at hour 24		Minimum Diurnal Average: 0.2 ppb at hour 20																	Hours of Calibration: 36																														
Monthly Average: 0.30 ppb		Percentiles: P <sub>1</sub> = 0.0 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> = 0.6 P <sub>99</sub> = 3.4																	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-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.1	0.2	0.4	0.4	0.3	0.2	0.3	0.4	0.2	0.2	0.2	1.8	0.4	0.3	0.1	0.3	1.8																							
2-Oct	0.1	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.3	0.3																						
3-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.2	0.1	0.4																							
4-Oct	0.2	0.1	0.1	0.2	Z	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.1	0.1	1.3	2.1	0.5	2.9	3.5	0.8	0.6	0.5	1.8	2.9	0.9	3.5																							
5-Oct	3.0	1.3	1.2	1.4	0.3	Z	0.3	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.4	3.0																							
6-Oct	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	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.3																							
7-Oct	0.1	Z	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.2	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	0.2	0.3																							
8-Oct	0.2	0.2	Z	0.2	0.1	0.2	0.3	0.3	0.2	0.3	2.0	1.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	2.0																							
9-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3																							
10-Oct	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
11-Oct	0.0	0.1	0.1	0.2	0.2	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	0.0	0.1	0.1	0.1	0.1	0.2																							
12-Oct	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.3	0.5	0.6	0.3	0.2	0.3	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.6																							
13-Oct	0.2	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
14-Oct	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	0.2	0.1	0.2																							
15-Oct	0.1	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2																							
16-Oct	0.8	0.2	0.3	0.2	Z	0.2	0.5	0.5	0.2	0.2	0.2	0.1	0.5	1.5	4.0	4.0	3.5	0.7	2.5	1.1	1.2	1.1	1.3	1.8	1.2	4.0																							
17-Oct	0.9	0.7	0.5	0.5	0.3	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.9																							
18-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2																							
19-Oct	0.2	Z	0.2	0.2	0.2	1.0	4.0	1.9	2.8	1.8	0.4	0.6	1.5	1.0	0.6	0.7	0.2	0.3	0.3	0.4	0.3	0.3	0.6	0.8	0.9	4.0																							
20-Oct	0.4	1.1	1.6	1.2	0.7	0.6	Z	0.3	0.2	0.1	0.3	0.3	0.4	0.2	0.2	0.2	0.4	0.3	0.2	0.3	0.4	0.3	0.7	0.8	0.5	1.6																							
21-Oct	0.9	1.8	1.7	1.9	1.3	0.4	0.3	0.6	Z	0.4	0.6	0.6	0.1	0.3	0.7	0.8	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.6	1.9																							
22-Oct	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1																							
23-Oct	0.1	0.0	0.0	0.0	0.1	Z	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	0.1	0.1	0.1	0.1	0.1																							
24-Oct	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	0.4	0.1	0.4																							
25-Oct	0.1	Z	0.2	0.1	0.1	0.2	0.3	0.5	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.5																							
26-Oct	0.1	0.2	Z	0.9	0.8	1.2	3.2	2.8	3.4	3.5	2.9	1.7	1.6	1.4	3.5	1.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	1.3	3.5																							
27-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.5	0.4	0.2	0.5																							
28-Oct	0.3	0.2	0.2	0.1	Z	0.1	0.1	0.1	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	0.0	0.1	0.3																							
29-Oct	0.0	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	2.1	0.1	2.1																							
30-Oct	Z	0.7	0.8	0.6	0.4	0.4	0.5	0.5	0.4	0.5	0.3	0.1	0.1	0.2	0.4	0.5	0.6	0.3	0.4	0.7	0.3	1.0	1.3	1.3	0.5	1.3																							
31-Oct	0.6	Z	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6																							
																								0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.4	Diurnal Average		
																								3.0	1.8	1.7	1.9	1.3	1.2	4.0	2.8	3.4	3.5	2.9	1.7	1.6	1.5	4.0	4.0	3.5	2.9	3.5	1.1	1.8	1.1	1.8	2.9	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  
Mannix - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	693	97.88	97.88
3 - 4	15	2.12	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  
Mannix - October 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	29	30	10	11	14	13	73	119	38	44	39	90	71	61	23	28	693
3 - 4	5	2	2	2	1	0	0	0	0	0	0	0	0	1	1	1	15
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	32	12	13	15	13	73	119	38	44	39	90	71	62	24	29	708

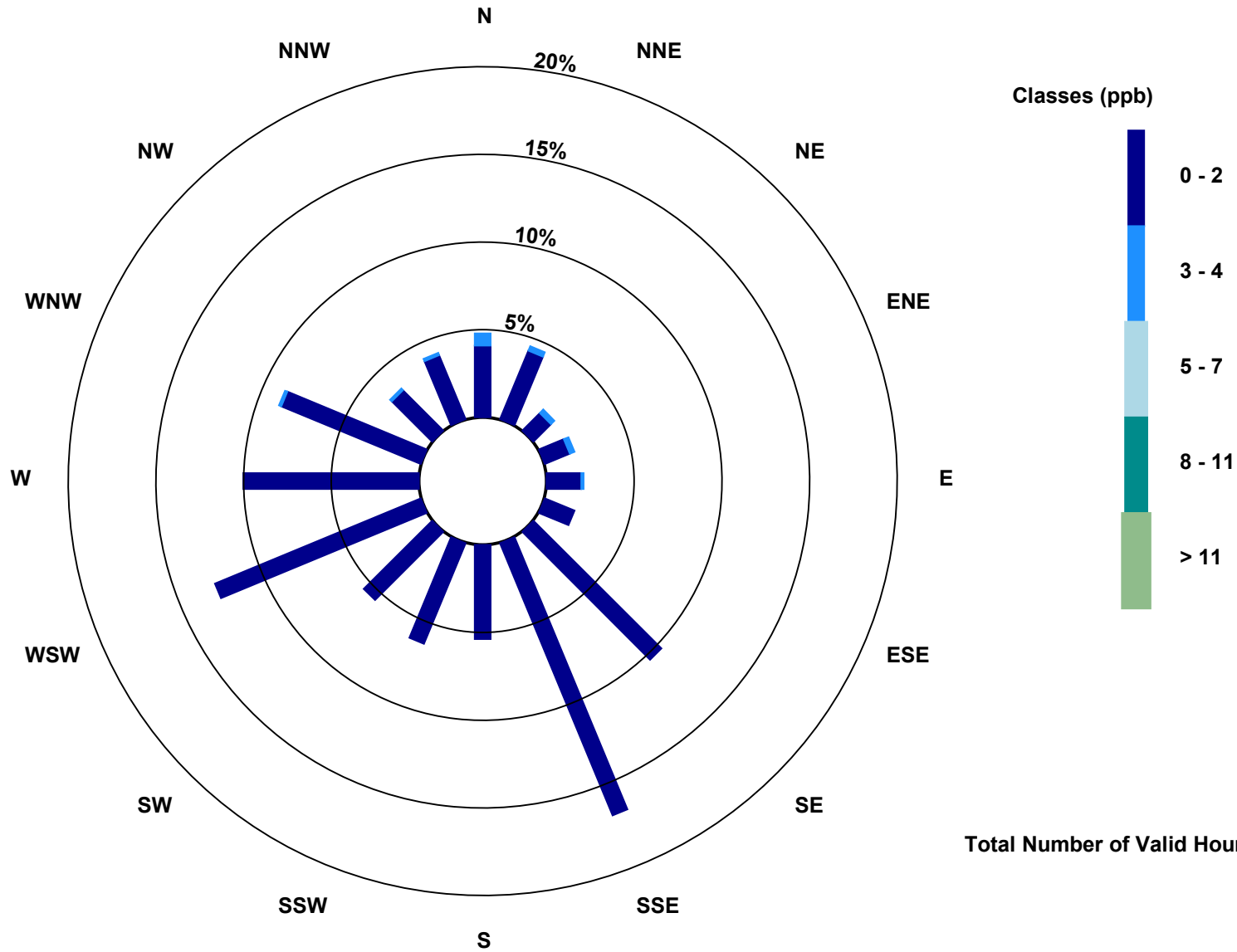
Total Number of Valid Hours: 708

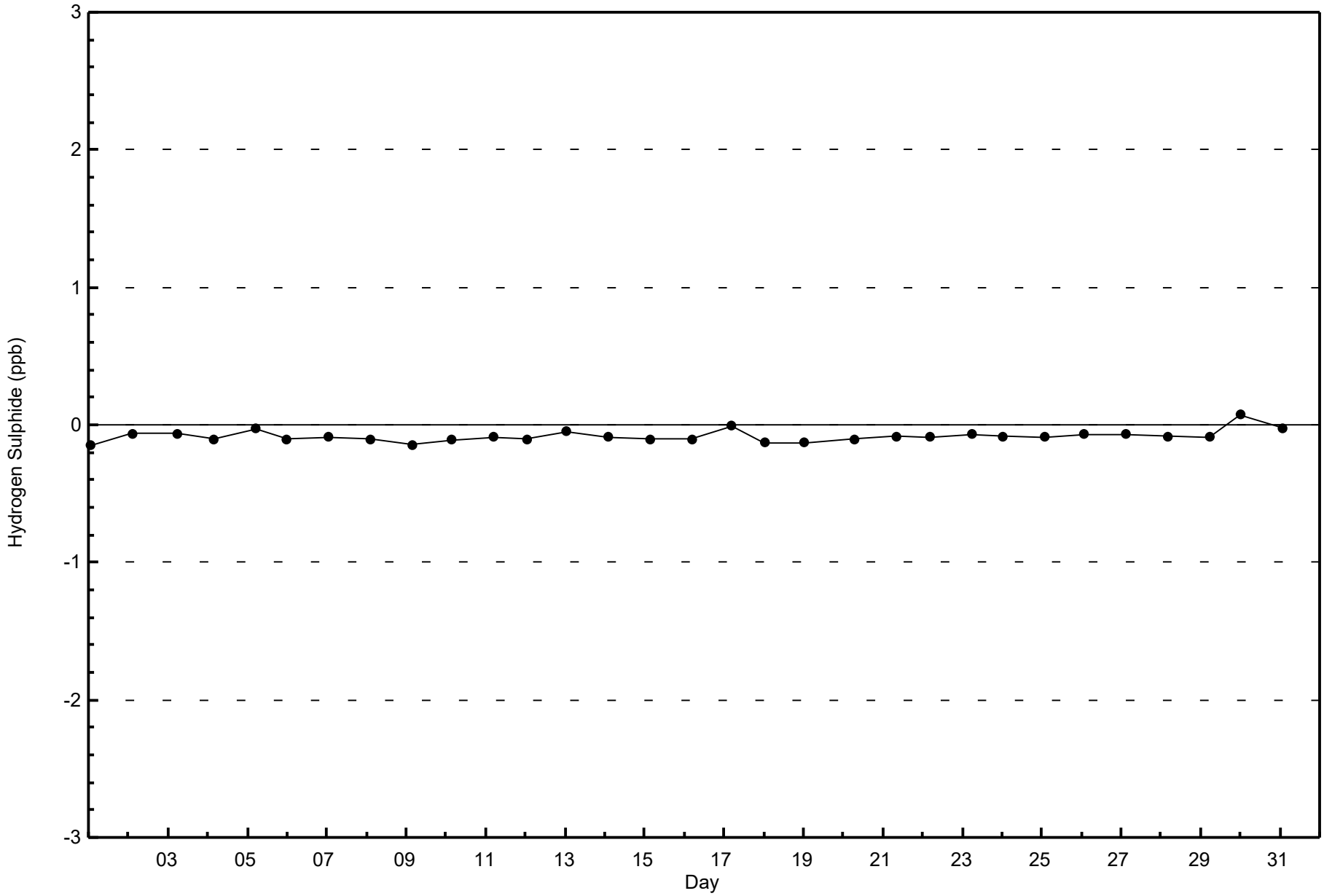
Total Number of Hours: 744

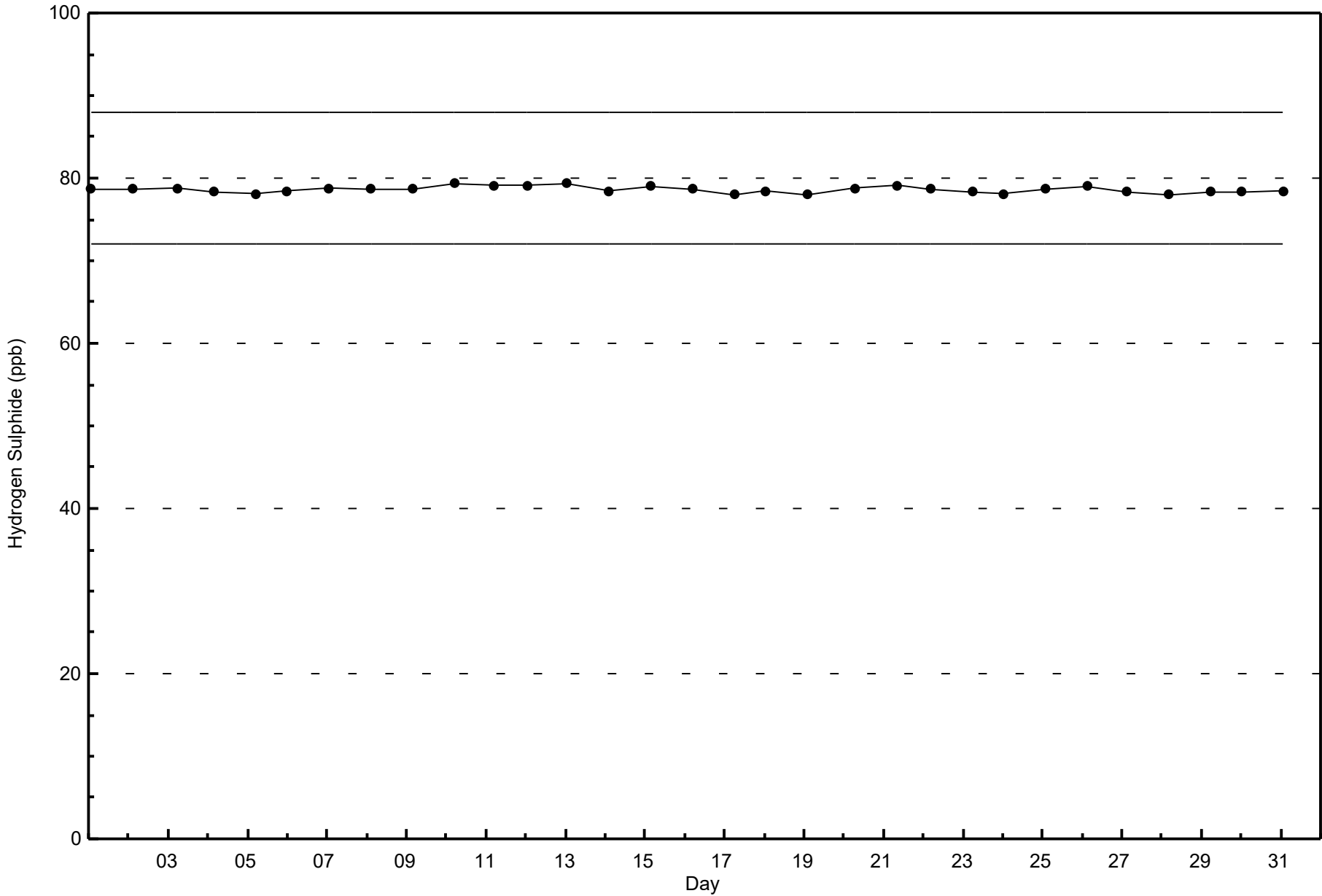


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









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

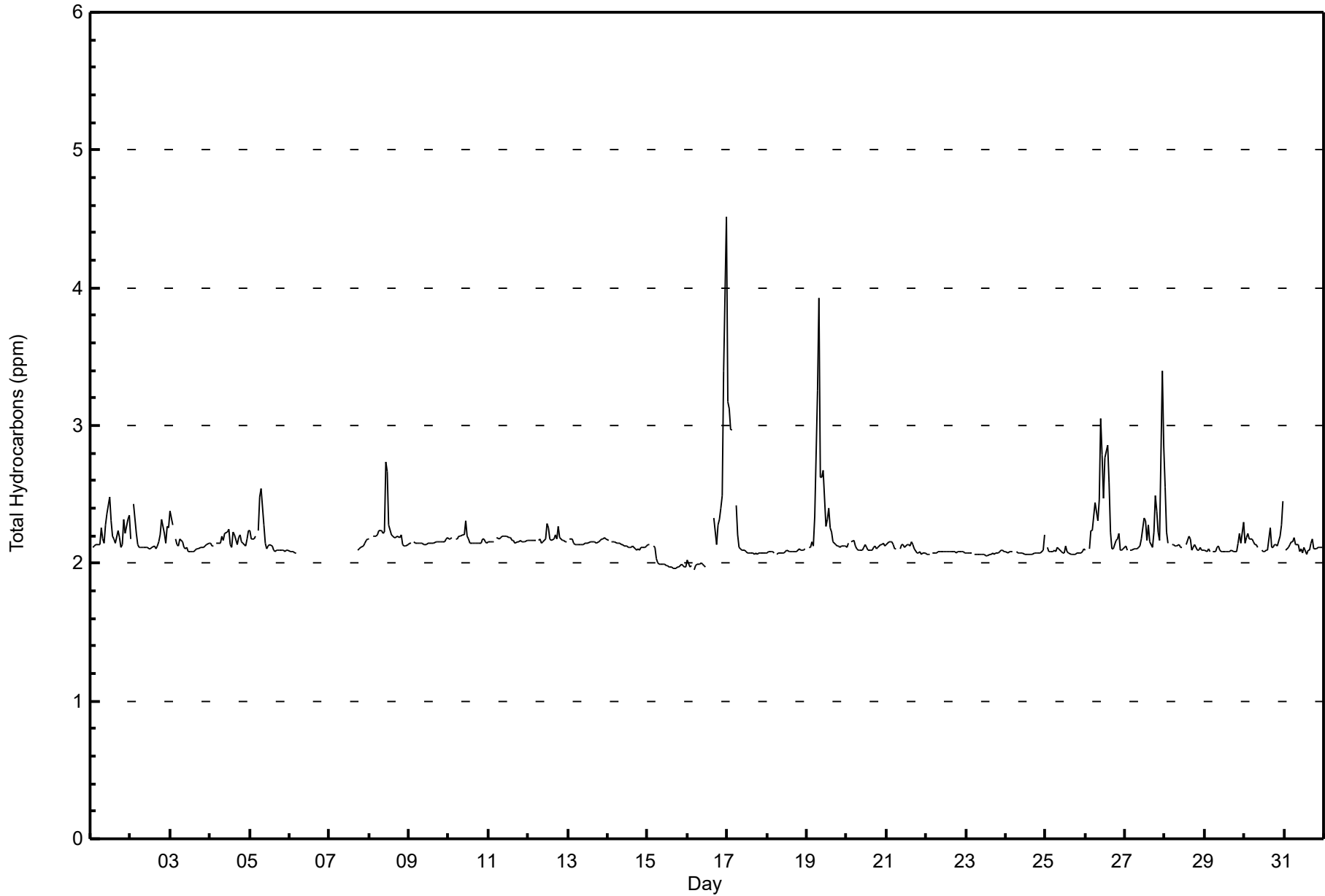
**Total Hydrocarbons (THC) - ppm**  
**Mannix - October 2024**

Maximum Value: 4.5 ppm on Oct 17 00:00		Maximum Daily Average: 2.4 ppm on Oct 19		Hours in Service: 744																																													
Minimum Value: 1.9 ppm on Oct 16 05:00		Minimum Daily Average: 2.0 ppm on Oct 15		Hours of Data: 673																																													
Maximum Diurnal Average: 2.3 ppm at hour 24		Minimum Diurnal Average: 2.1 ppm at hour 18		Hours of Missing Data: 71																																													
Monthly Average: 2.16 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.3 P <sub>99</sub> = 3.1		Hours of Calibration: 37																																													
				Percent Operational Time: 95.4																																													
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-Oct	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.1	2.3	2.4	2.5	2.3	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.3	2.2	2.3	2.3	2.2	2.5																							
2-Oct	2.2	Z	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.1	2.3	2.3	2.2	2.4																							
3-Oct	2.4	2.3	Z	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																							
4-Oct	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.3																							
5-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.5	2.5	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	2.1	2.2	2.5																							
6-Oct	2.1	2.1	2.1	2.1	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.1																						
7-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.2	2.2	--	2.2																						
8-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7	2.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.7	2.2	2.7																					
9-Oct	2.1	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																					
10-Oct	2.2	2.2	2.2	Z	2.2	2.2	2.2	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	2.2	2.2	2.2	2.1	2.2	2.3	2.2	2.3																					
11-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																					
12-Oct	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																					
13-Oct	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	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																					
14-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																					
15-Oct	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																					
16-Oct	2.0	2.0	2.0	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	C	C	C	C	2.3	2.1	2.3	2.3	2.4	2.5	3.4	4.5	2.3	4.5	2.3	4.5																					
17-Oct	3.2	3.1	3.0	3.0	Z	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.2	2.3	3.2																				
18-Oct	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																				
19-Oct	Z	2.1	2.1	2.2	2.1	2.3	3.3	3.9	2.6	2.6	2.7	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	3.9	2.4	3.9																				
20-Oct	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																				
21-Oct	2.1	2.2	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	2.1	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-Oct	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																				
23-Oct	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																				
24-Oct	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	2.2																				
25-Oct	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																				
26-Oct	2.1	Z	2.1	2.2	2.2	2.3	2.4	2.3	2.5	3.0	2.8	2.5	2.8	2.9	2.6	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.4	3.0	2.4	3.0																				
27-Oct	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.3	2.2	2.1	2.2	2.5	2.4	2.2	2.2	3.4	2.8	2.3	3.4	2.3	3.4	2.3	3.4																			
28-Oct	2.6	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	M	M	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.6	2.2	2.6	2.2	2.6																			
29-Oct	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	2.3	2.1	2.3																		
30-Oct	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	Z	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	2.1	2.1	2.2	2.5	2.2	2.5	2.2	2.5																		
31-Oct	Z	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	2.1	2.1	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	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	2.3	Diurnal Average	
																								3.2	3.1	3.0	3.0	2.2	2.4	3.3	3.9	2.6	3.0	2.8	2.7	2.8	2.9	2.6	2.3	2.3	2.2	2.5	2.4	2.4	2.5	3.4	4.5	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	30	4.46	4.46
2.1 - 3.0	636	94.50	98.96
3.1 - 10.0	7	1.04	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 673

Total Number of Hours: 744





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

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

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	10	2	3	3	9	3	0	0	0	30
2.1 - 3.0	34	33	11	12	12	14	73	93	36	40	33	79	58	59	22	27	636
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	1	7
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	33	11	12	12	14	73	103	38	43	36	88	63	60	25	28	673

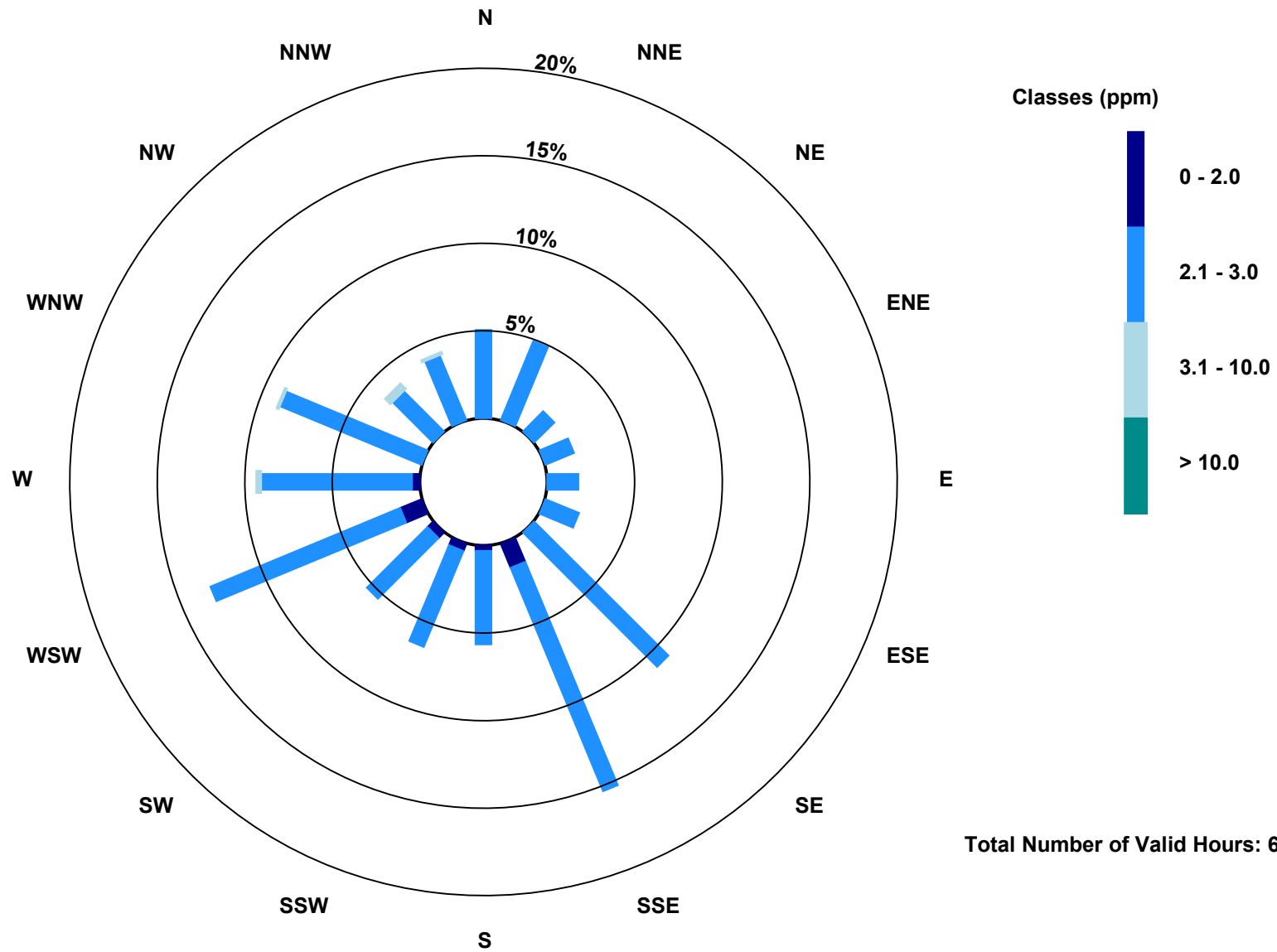
Total Number of Valid Hours: 673

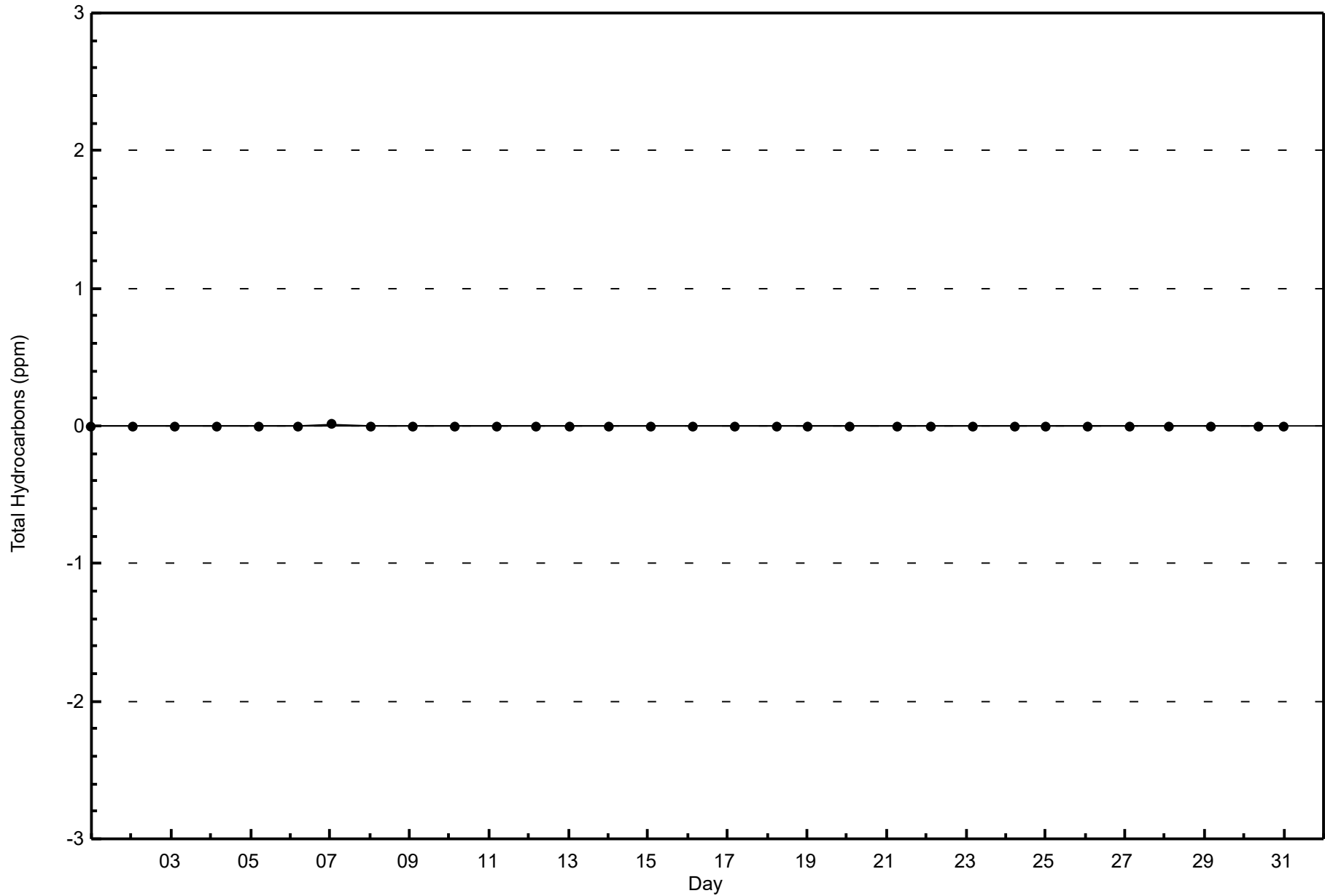
Total Number of Hours: 744

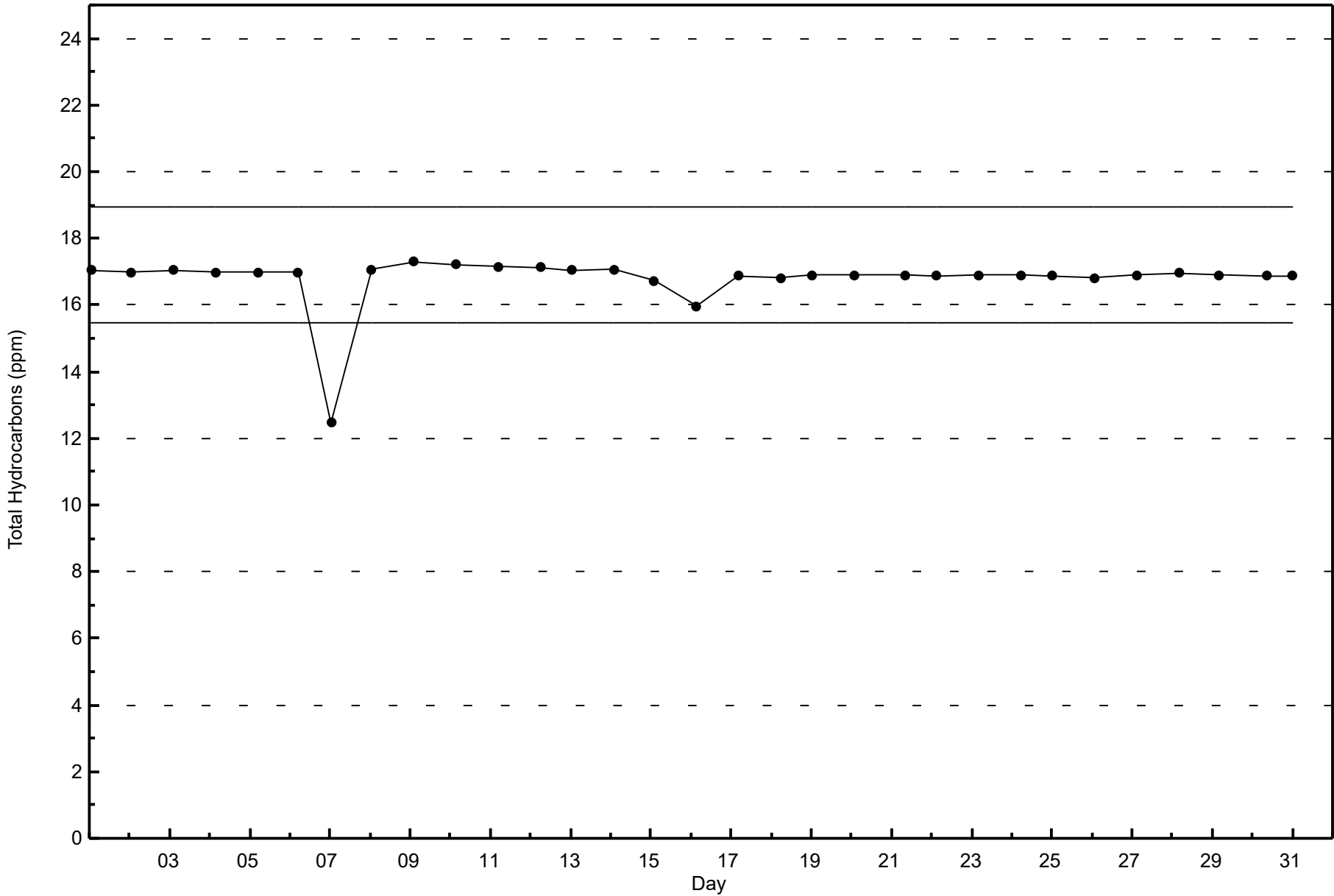


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

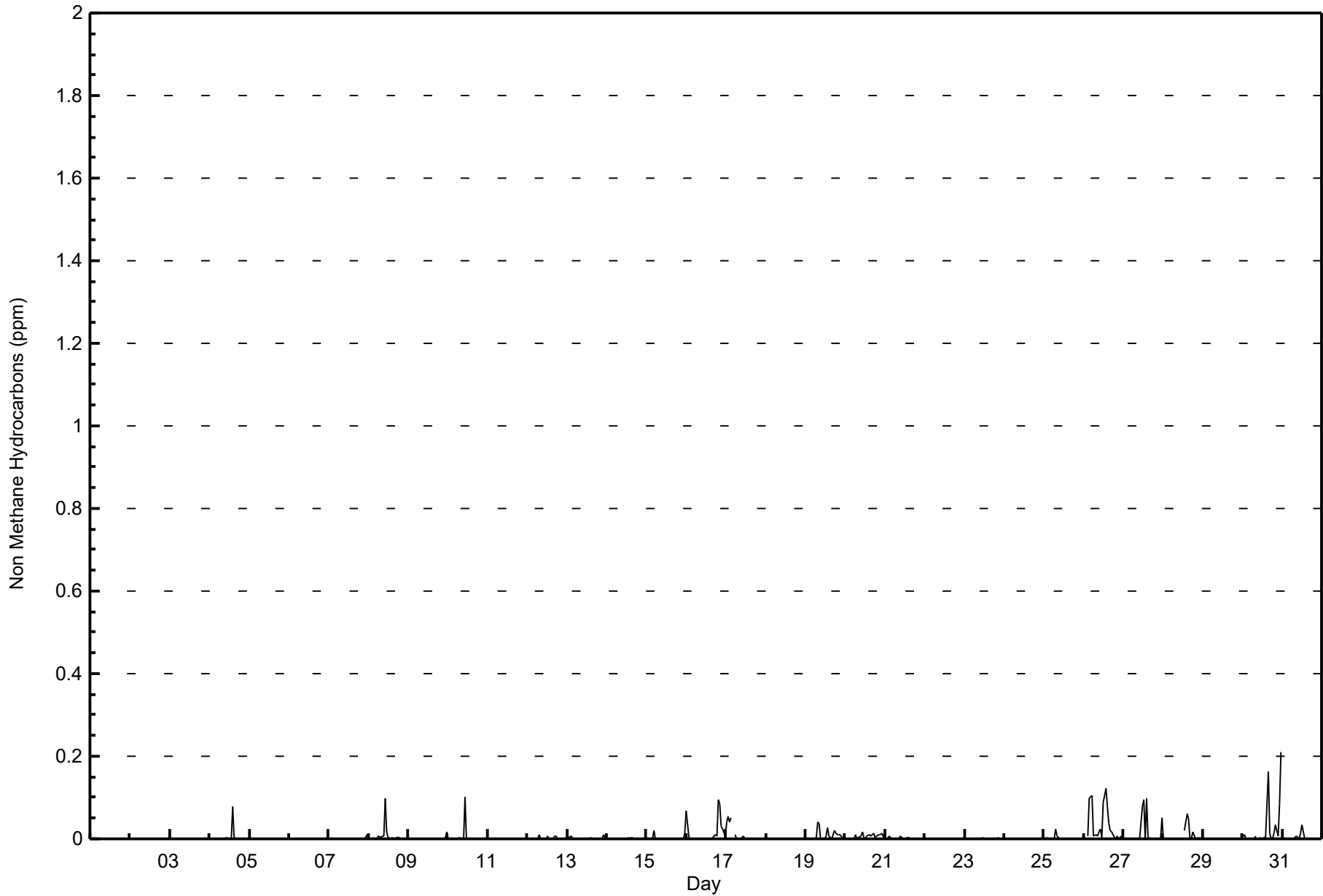
Total Hydrocarbons (THC) - ppm  
Mannix













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	582	86.48	86.48
0.006 - 0.05	71	10.55	97.03
0.06 - 0.1	18	2.67	99.70
> 0.1	2	0.30	100.00

Total Number of Valid Hours: 673

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Mannix - October 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	28	12	9	2	2	11	67	94	35	43	36	83	61	54	23	22	582
0.006 - 0.05	6	19	1	3	9	0	6	8	2	0	0	5	1	5	2	4	71
0.06 - 0.1	0	2	0	6	1	3	0	1	1	0	0	0	1	1	0	2	18
> 0.1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Totals</b>	34	33	11	12	12	14	73	103	38	43	36	88	63	60	25	28	673

Total Number of Valid Hours: 673

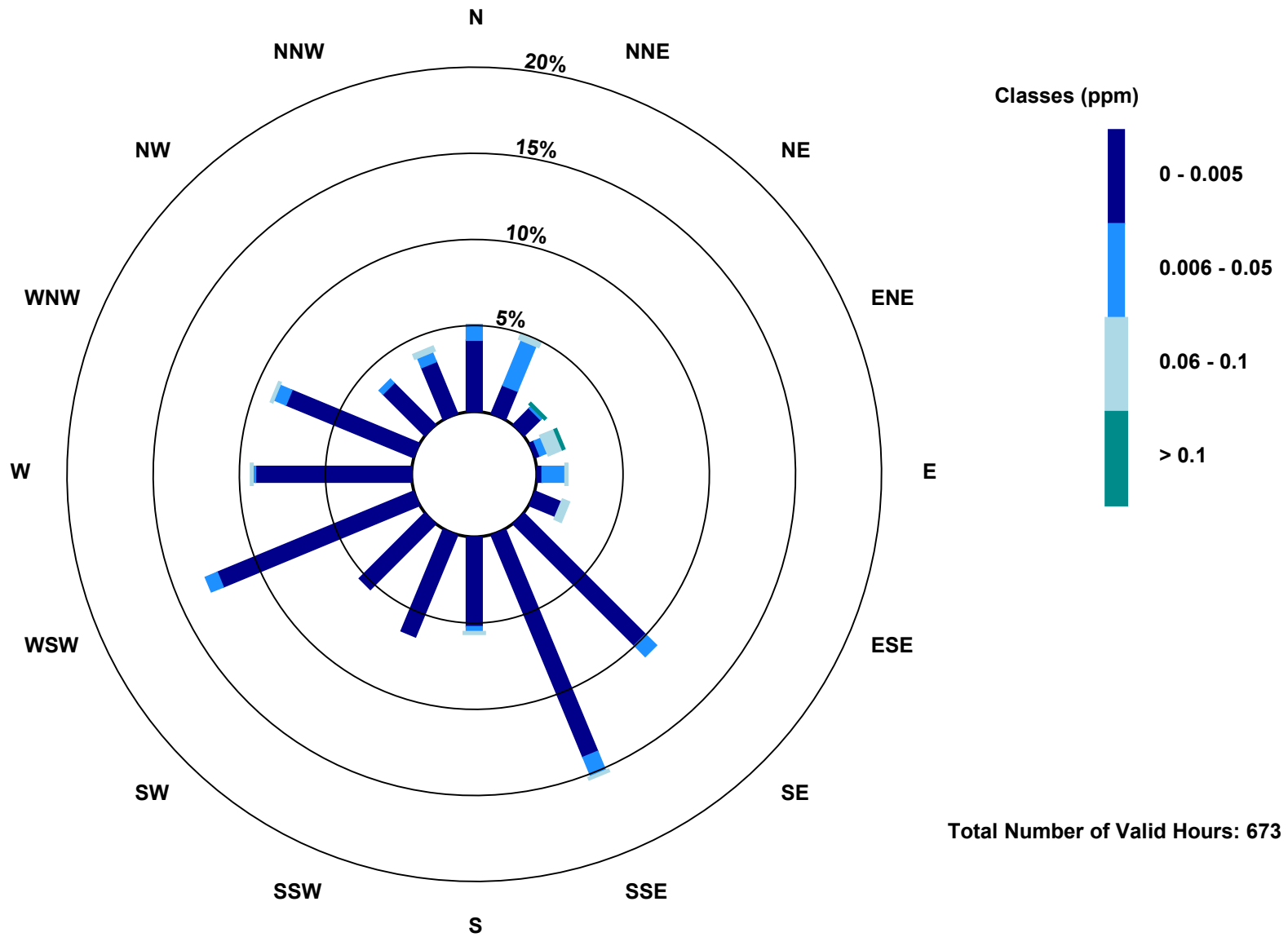
Total Number of Hours: 744

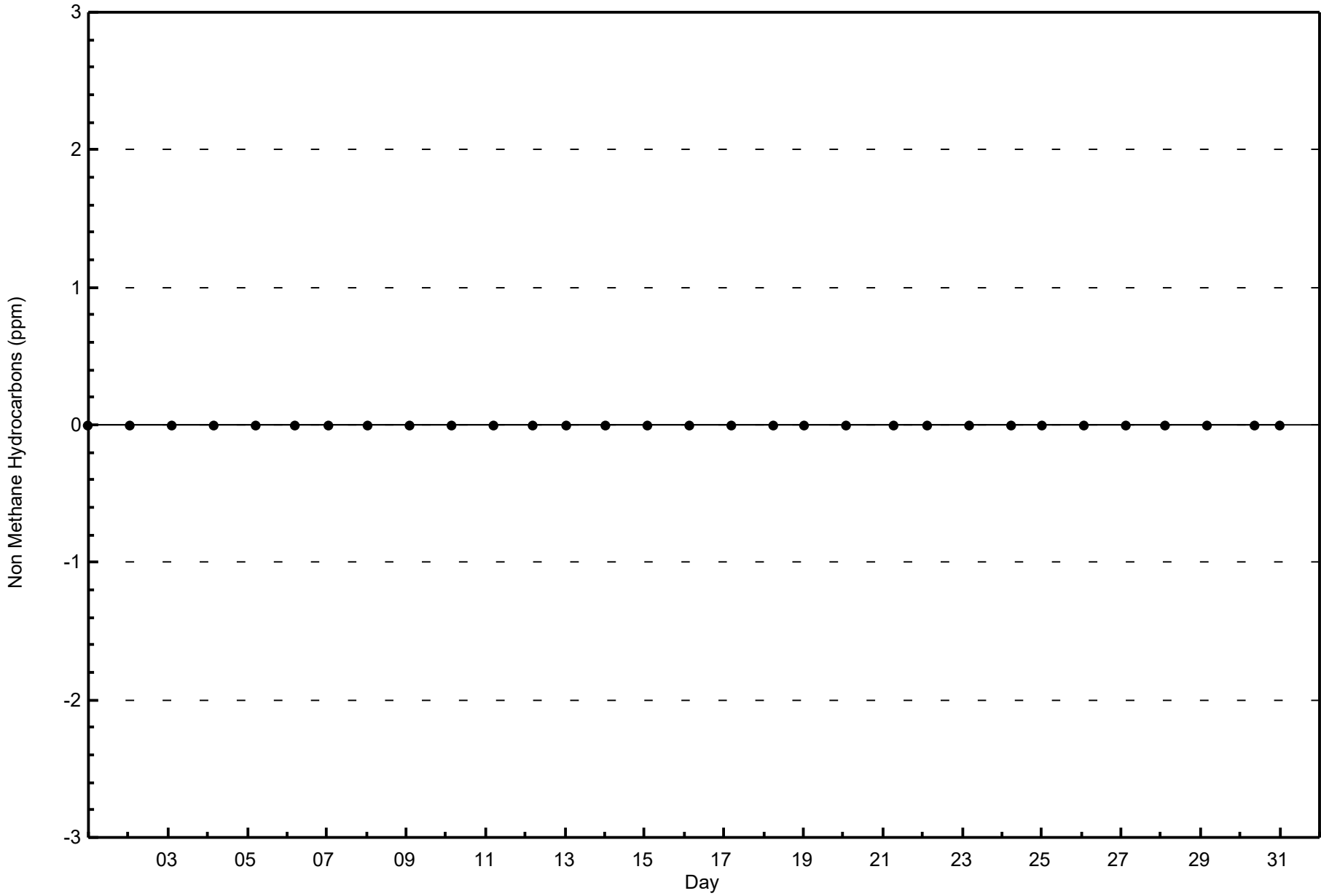


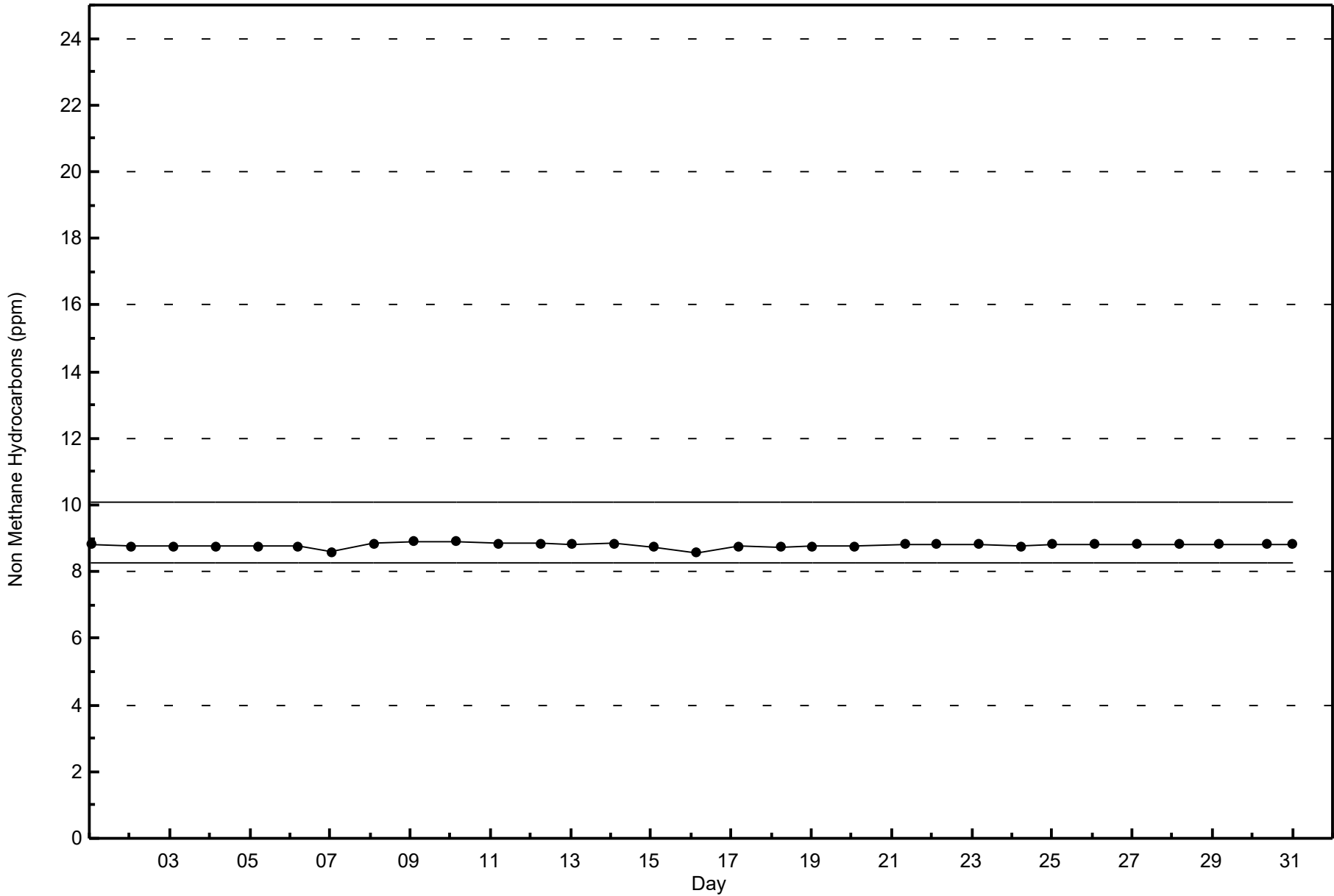


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mannix









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

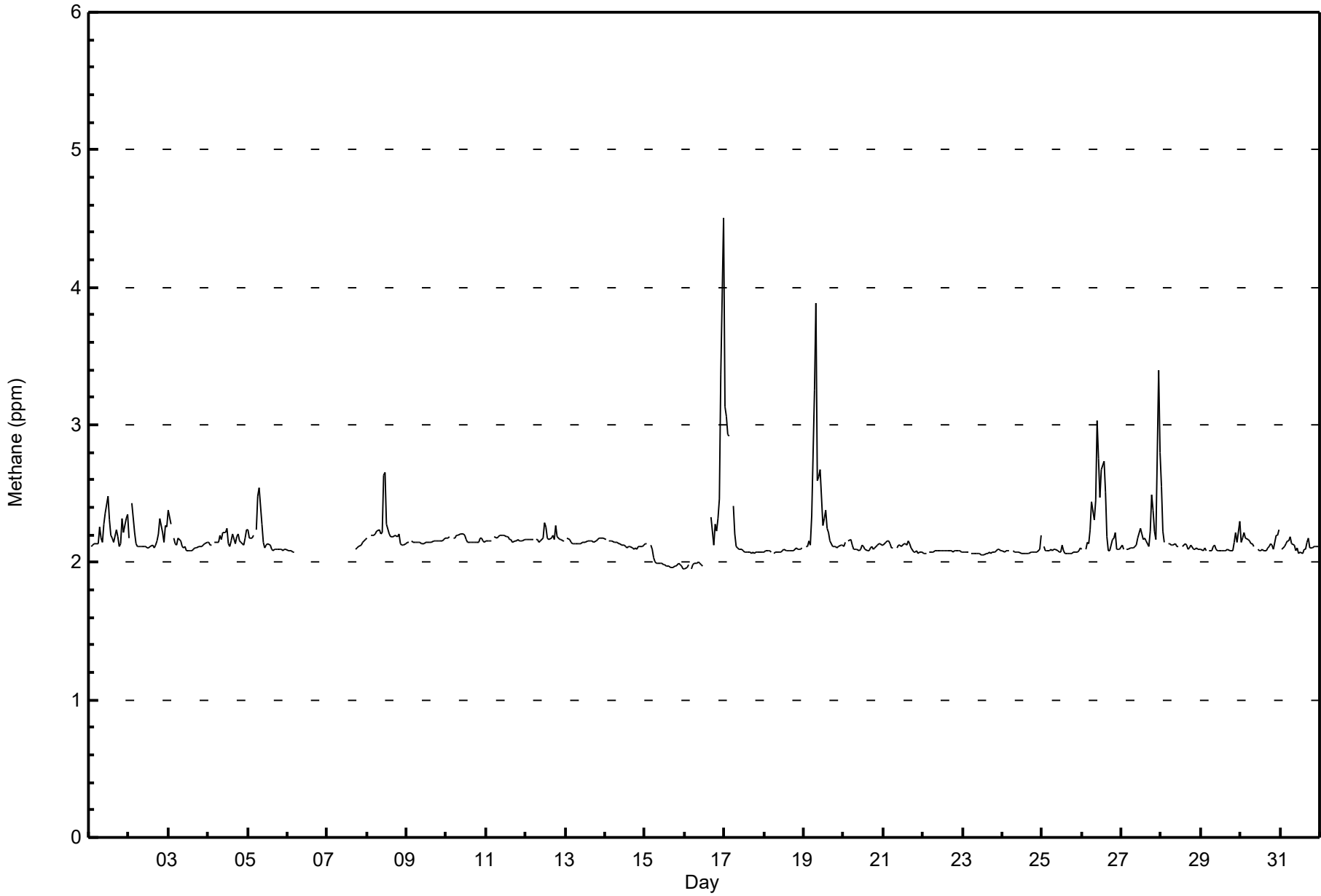
Mannix - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 4.5 ppm on Oct 17 00:00		Maximum Daily Average: 2.4 ppm on Oct 19		Hours of Data: 673														673								
Minimum Value: 1.9 ppm on Oct 16 05:00		Minimum Daily Average: 2.0 ppm on Oct 15		Hours of Missing Data: 71														71								
Maximum Diurnal Average: 2.2 ppm at hour 24		Minimum Diurnal Average: 2.1 ppm at hour 18		Hours of Calibration: 37														37								
Monthly Average: 2.16 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.1 Median = 2.1 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.2 P <sub>99</sub> = 3.0		Percent Operational Time: 95.4														95.4								
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-Oct	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.1	2.3	2.4	2.5	2.3	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.3	2.2	2.3	2.3	2.2	2.5
2-Oct	2.2	Z	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.1	2.3	2.3	2.2	2.4
3-Oct	2.4	2.3	Z	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
4-Oct	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.3
5-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.5	2.5	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	2.1	2.2	2.5
6-Oct	2.1	2.1	2.1	2.1	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.1
7-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	C	C	C	C	2.1	2.1	2.1	2.1	2.2	2.2	--	2.2
8-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6	2.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.7
9-Oct	2.1	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2
10-Oct	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2
11-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
12-Oct	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3
13-Oct	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	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
14-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
15-Oct	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
16-Oct	2.0	2.0	2.0	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	C	C	C	C	2.3	2.1	2.3	2.2	2.3	2.5	3.4	4.5	2.3	4.5
17-Oct	3.1	3.1	2.9	2.9	Z	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.1
18-Oct	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
19-Oct	Z	2.1	2.1	2.2	2.1	2.3	3.2	3.9	2.6	2.6	2.7	2.3	2.3	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4	3.9
20-Oct	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
21-Oct	2.1	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
22-Oct	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
23-Oct	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
24-Oct	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	2.2	2.1	2.2
25-Oct	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
26-Oct	2.1	Z	2.1	2.1	2.1	2.2	2.4	2.3	2.5	3.0	2.8	2.5	2.7	2.7	2.5	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.3	3.0
27-Oct	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.5	2.4	2.2	2.2	3.4	2.8	2.3	3.4
28-Oct	2.6	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6
29-Oct	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	2.2	2.1	2.3	2.1	2.3
30-Oct	2.1	2.2	2.2	2.2	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	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2
31-Oct	Z	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan																										
C - Calibration																										
M - Maintenance																										
UO - Unstable Operation																										



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	30	4.46	4.46
2.1 - 3.0	636	94.50	98.96
3.1 - 10.0	7	1.04	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 673

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mannix - October 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	10	2	3	3	9	3	0	0	0	30
2.1 - 3.0	34	33	11	12	12	14	73	93	36	40	33	79	58	59	22	27	636
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	1	7
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	33	11	12	12	14	73	103	38	43	36	88	63	60	25	28	673

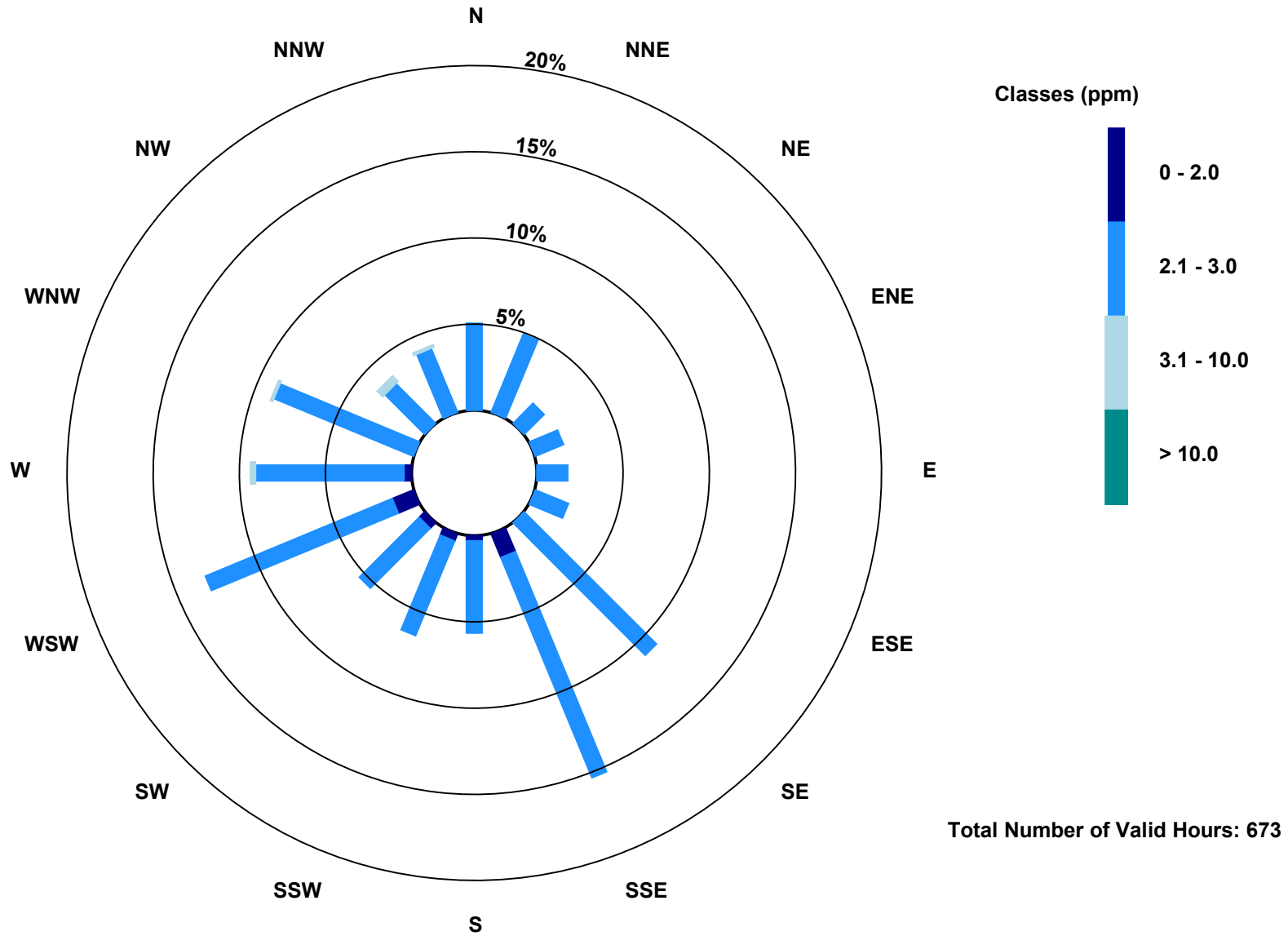
Total Number of Valid Hours: 673

Total Number of Hours: 744

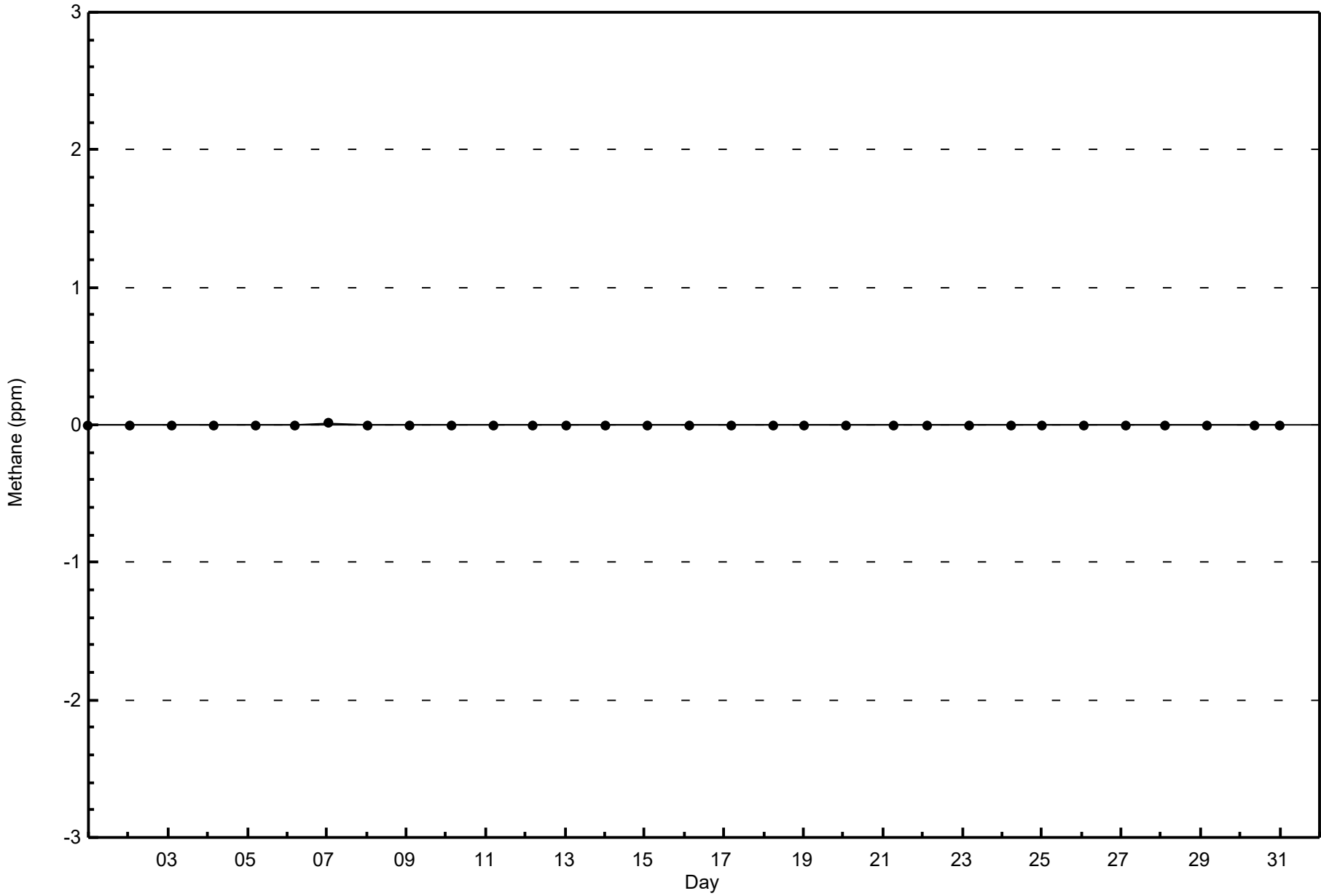


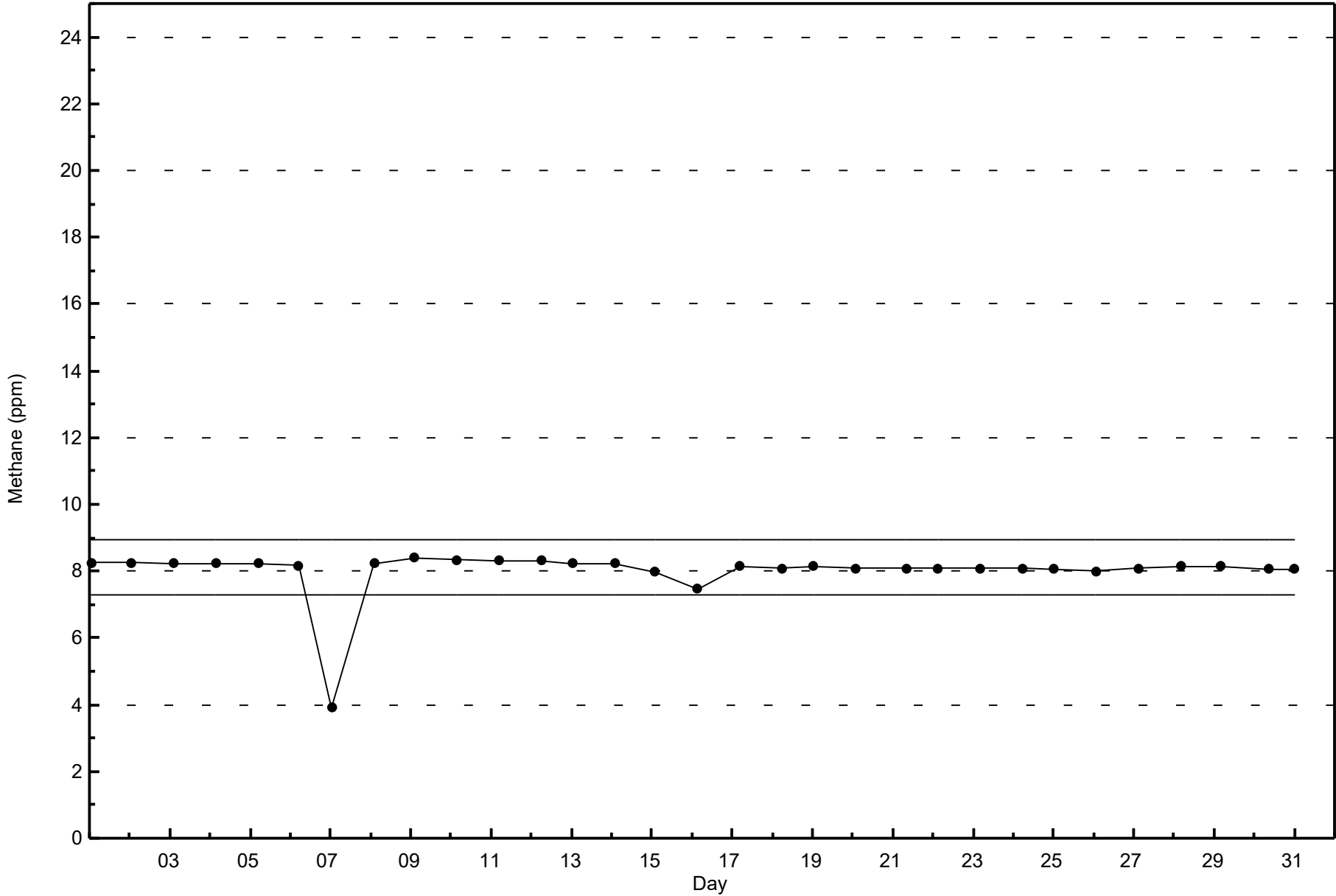
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









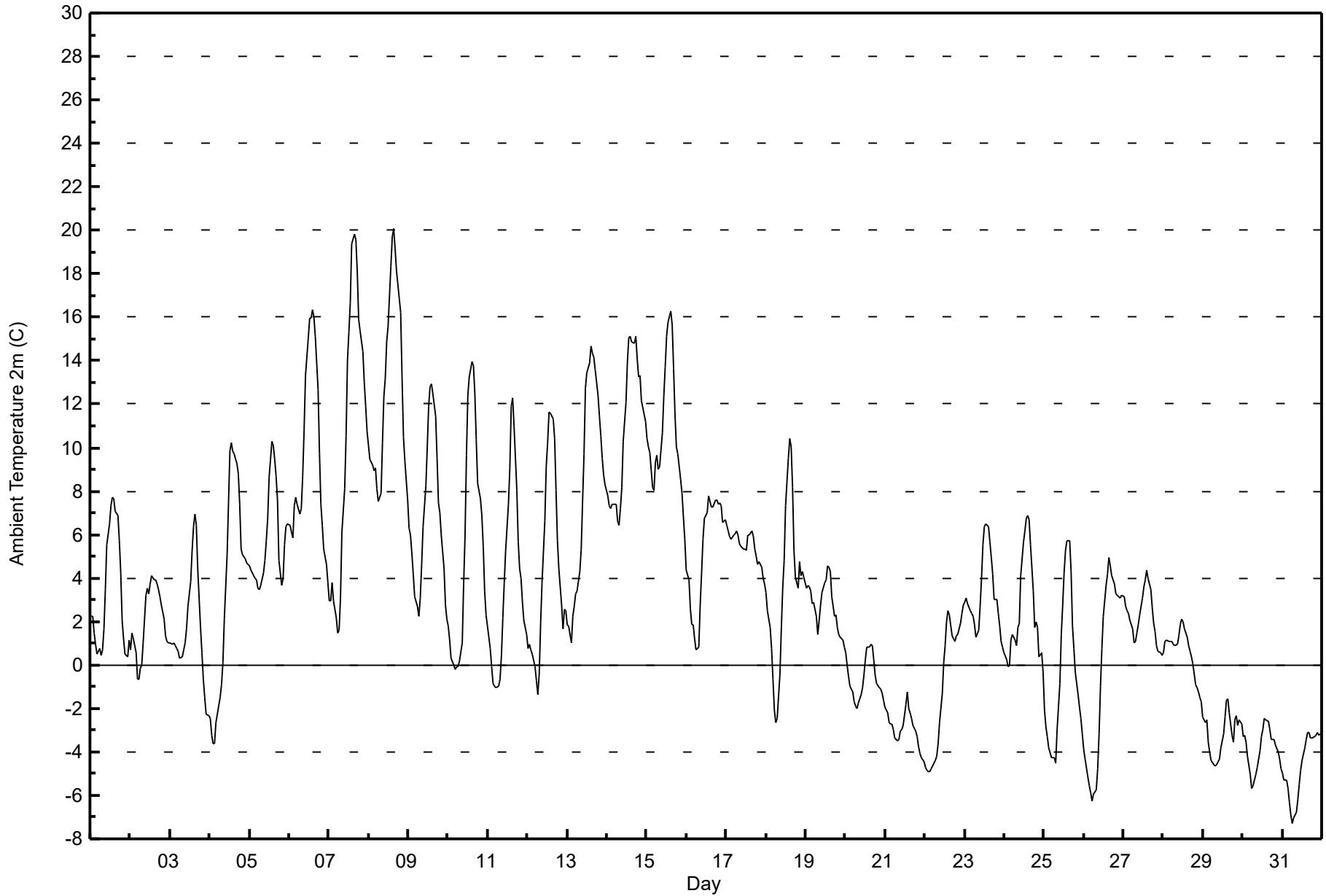


Maximum Value: 20.1 C on Oct 8 16:00		Maximum Daily Average: 12.7 C on Oct 8		Hours in Service: 744																																													
Minimum Value: -7.3 C on Oct 31 07:00		Minimum Daily Average: -4.7 C on Oct 31		Hours of Data: 744																																													
Maximum Diurnal Average: 7.8 C at hour 15		Minimum Diurnal Average: 0.4 C at hour 7		Hours of Missing Data: 0																																													
Monthly Average: 3.48 C		Percentiles: P <sub>1</sub> = -5.9 P <sub>10</sub> = -3.3 Q <sub>1</sub> = -0.1 Median = 2.8 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 11.4 P <sub>99</sub> = 18.1		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-Oct	2.3	2.2	1.5	1.0	0.5	0.8	0.4	0.7	1.6	3.5	5.5	6.5	7.3	7.7	7.6	7.1	6.9	5.7	4.2	2.1	1.2	0.5	0.4	1.1	3.3	7.7																							
2-Oct	0.7	1.5	1.2	0.5	-0.6	-0.6	-0.2	0.0	1.0	3.2	3.5	3.3	3.7	4.1	3.9	3.9	3.7	3.4	3.2	2.8	2.1	1.3	1.1	1.0	2.0	4.1																							
3-Oct	1.0	1.0	1.0	0.9	0.8	0.7	0.3	0.4	0.7	1.0	1.7	2.7	3.9	5.2	6.4	7.0	6.4	4.4	1.7	0.6	-0.6	-1.5	-2.2	-2.3	1.7	7.0																							
4-Oct	-2.4	-3.2	-3.6	-3.6	-2.6	-1.9	-1.5	-0.9	0.1	2.1	5.1	7.5	9.8	10.2	9.8	9.7	9.3	8.8	7.4	5.3	5.1	4.9	4.7	4.6	3.5	10.2																							
5-Oct	4.6	4.3	4.1	4.0	3.9	3.5	3.5	3.7	4.3	4.8	5.7	6.8	8.6	10.3	10.1	9.5	8.7	7.6	4.8	3.7	4.0	5.5	6.4	6.5	5.8	10.3																							
6-Oct	6.5	6.1	5.9	7.3	7.7	7.4	7.0	7.2	8.7	10.8	13.3	15.1	16.0	16.0	16.3	16.0	15.2	12.7	9.7	7.4	6.5	5.3	4.6	3.8	9.7	16.3																							
7-Oct	3.0	3.0	3.8	3.0	2.2	1.5	1.6	3.1	6.1	8.1	10.6	14.0	15.3	16.7	19.4	19.8	19.6	18.1	15.9	15.4	14.4	13.0	11.9	10.7	10.4	19.8																							
8-Oct	10.1	9.4	9.2	8.9	9.1	8.1	7.5	7.9	10.2	12.4	13.2	14.8	15.6	18.4	19.7	20.1	19.2	18.2	16.8	16.2	13.2	10.5	9.4	7.6	12.7	20.1																							
9-Oct	6.3	6.0	5.1	4.2	3.1	2.7	2.3	3.1	4.7	6.4	8.2	10.0	11.9	12.8	13.0	12.5	11.4	9.5	7.4	7.0	6.0	4.4	2.8	2.1	6.8	13.0																							
10-Oct	1.8	1.1	0.3	0.0	-0.2	-0.1	-0.1	0.2	1.0	3.7	6.0	9.6	12.4	13.3	13.9	13.7	12.5	10.4	8.4	7.7	6.9	5.4	3.4	2.3	5.6	13.9																							
11-Oct	1.8	0.7	-0.1	-0.8	-1.0	-1.0	-0.9	-0.7	0.4	2.1	3.8	5.2	7.4	9.1	11.9	12.3	11.0	8.0	5.6	4.5	4.0	2.9	2.1	1.4	3.7	12.3																							
12-Oct	0.7	1.0	0.7	0.5	-0.1	-0.7	-1.3	-0.4	1.9	3.8	6.6	9.1	10.2	11.6	11.6	11.3	10.4	8.0	5.7	4.4	2.8	1.7	2.6	2.5	4.4	11.6																							
13-Oct	1.9	1.8	1.0	2.2	2.7	3.3	3.4	4.3	5.3	7.6	9.7	12.7	13.4	13.9	14.7	14.4	14.2	13.6	12.4	11.4	10.6	9.5	8.8	8.3	8.4	14.7																							
14-Oct	7.8	7.3	7.2	7.4	7.4	7.4	6.6	6.4	7.2	8.2	10.3	12.1	13.9	15.1	15.1	14.9	14.8	15.1	14.1	13.3	13.3	12.2	11.5	11.2	10.8	15.1																							
15-Oct	10.4	10.1	9.8	8.2	8.0	9.3	9.6	9.0	9.1	10.7	12.3	13.7	15.1	15.8	16.3	15.7	13.6	11.5	10.0	9.7	8.5	7.9	6.8	5.8	10.7	16.3																							
16-Oct	4.4	3.9	2.6	1.9	1.9	1.2	0.7	0.9	2.8	4.3	5.8	6.7	7.0	7.8	7.5	7.2	7.3	7.6	7.6	7.4	7.4	7.3	6.5	6.7	5.2	7.8																							
17-Oct	6.4	6.1	5.9	5.8	6.0	6.0	6.1	6.0	5.6	5.5	5.4	5.3	5.3	5.9	6.0	6.2	5.9	5.3	5.0	4.6	4.8	4.5	4.0	3.7	5.5	6.4																							
18-Oct	3.3	2.5	1.7	0.8	-0.7	-2.0	-2.6	-2.4	-0.4	1.7	3.6	4.8	7.3	9.5	10.4	10.1	8.1	5.3	4.0	3.5	4.7	4.1	4.3	4.0	3.6	10.4																							
19-Oct	3.5	3.7	3.6	3.4	2.8	2.9	2.3	1.4	2.1	2.8	3.4	3.8	3.9	4.5	4.5	4.3	3.1	2.2	2.3	1.7	1.4	1.3	1.2	0.8	2.8	4.5																							
20-Oct	0.6	0.0	-0.6	-1.0	-1.2	-1.7	-1.9	-2.0	-1.7	-1.4	-1.1	-0.5	0.3	0.8	0.8	0.9	0.9	0.3	-0.5	-0.8	-1.0	-1.1	-1.3	-1.6	-0.6	0.9																							
21-Oct	-2.0	-2.2	-2.6	-2.7	-2.7	-3.0	-3.4	-3.5	-3.4	-3.0	-3.0	-2.8	-1.8	-1.3	-2.0	-2.2	-2.5	-2.8	-3.0	-3.3	-3.8	-4.1	-4.3	-4.5	-2.9	-1.3																							
22-Oct	-4.7	-4.8	-4.9	-4.9	-4.8	-4.5	-4.4	-4.2	-3.7	-2.7	-1.3	0.1	0.9	2.0	2.5	2.3	1.3	1.2	1.1	1.4	1.4	1.9	2.3	2.8	-1.0	2.8																							
23-Oct	2.9	3.1	2.8	2.5	2.4	2.3	1.8	1.3	1.6	2.7	4.0	5.5	6.4	6.5	6.3	5.6	4.9	4.2	3.0	3.0	2.3	1.8	1.1	0.8	3.3	6.5																							
24-Oct	0.6	0.2	-0.1	0.0	1.2	1.4	1.1	0.9	1.7	1.9	4.1	5.7	6.2	6.7	6.9	6.7	5.5	3.4	1.8	2.0	1.7	0.4	0.6	-0.4	2.5	6.9																							
25-Oct	-2.1	-2.9	-3.3	-3.8	-4.3	-4.3	-4.3	-4.5	-3.0	-0.9	1.4	2.8	4.2	5.2	5.7	5.7	4.3	1.8	0.8	-0.3	-1.3	-2.0	-2.5	-3.1	-0.4	5.7																							
26-Oct	-3.9	-4.3	-5.1	-5.6	-5.9	-6.3	-6.0	-5.8	-4.8	-3.2	-1.0	0.7	2.2	3.6	4.2	5.0	4.6	4.1	3.7	3.3	3.2	3.1	3.1	3.2	-0.3	5.0																							
27-Oct	3.2	2.7	2.5	2.4	2.0	1.6	1.0	1.1	1.5	1.8	2.3	3.1	3.6	3.9	4.3	4.0	3.4	2.6	1.9	1.5	0.9	0.6	0.6	0.4	2.2	4.3																							
28-Oct	0.5	1.1	1.1	1.1	1.1	1.1	1.0	0.9	1.0	1.4	1.9	2.1	2.0	1.7	1.3	0.9	0.6	0.4	0.0	-0.9	-1.1	-1.2	-1.5	-1.7	0.6	2.1																							
29-Oct	-2.4	-2.6	-2.5	-3.5	-4.0	-4.4	-4.6	-4.7	-4.6	-4.4	-4.4	-3.8	-3.2	-2.4	-1.6	-1.6	-2.2	-3.2	-3.6	-2.6	-2.3	-2.8	-2.5	-2.7	-3.2	-1.6																							
30-Oct	-3.3	-3.2	-3.5	-4.2	-5.0	-5.7	-5.6	-5.3	-5.0	-4.7	-3.9	-3.3	-3.0	-2.5	-2.5	-2.6	-3.0	-3.4	-3.5	-3.5	-3.7	-4.0	-4.4	-4.8	-3.9	-2.5																							
31-Oct	-5.0	-5.3	-5.3	-5.7	-6.3	-6.9	-7.3	-7.0	-6.8	-6.2	-5.5	-4.8	-4.4	-3.8	-3.5	-3.1	-3.1	-3.4	-3.4	-3.3	-3.3	-3.1	-3.2	-3.2	-4.7	-3.1																							
																								1.9	1.6	1.3	1.0	0.7	0.6	0.4	0.5	1.5	2.7	4.1	5.4	6.5	7.4	7.8	7.7	7.0	5.8	4.7	4.0	3.5	2.9	2.5	2.2	Diurnal Average	
																								10.4	10.1	9.8	8.9	9.1	9.3	9.6	9.0	10.2	12.4	13.3	15.1	16.0	18.4	19.7	20.1	19.6	18.2	16.8	16.2	14.4	13.0	11.9	11.2	Diurnal Maximum	



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

**Ambient Temperature 2m (AT2) - C**  
**Mannix - October 2024**





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

**Ambient Temperature 2m (AT2) - C**  
**Mannix - October 2024**

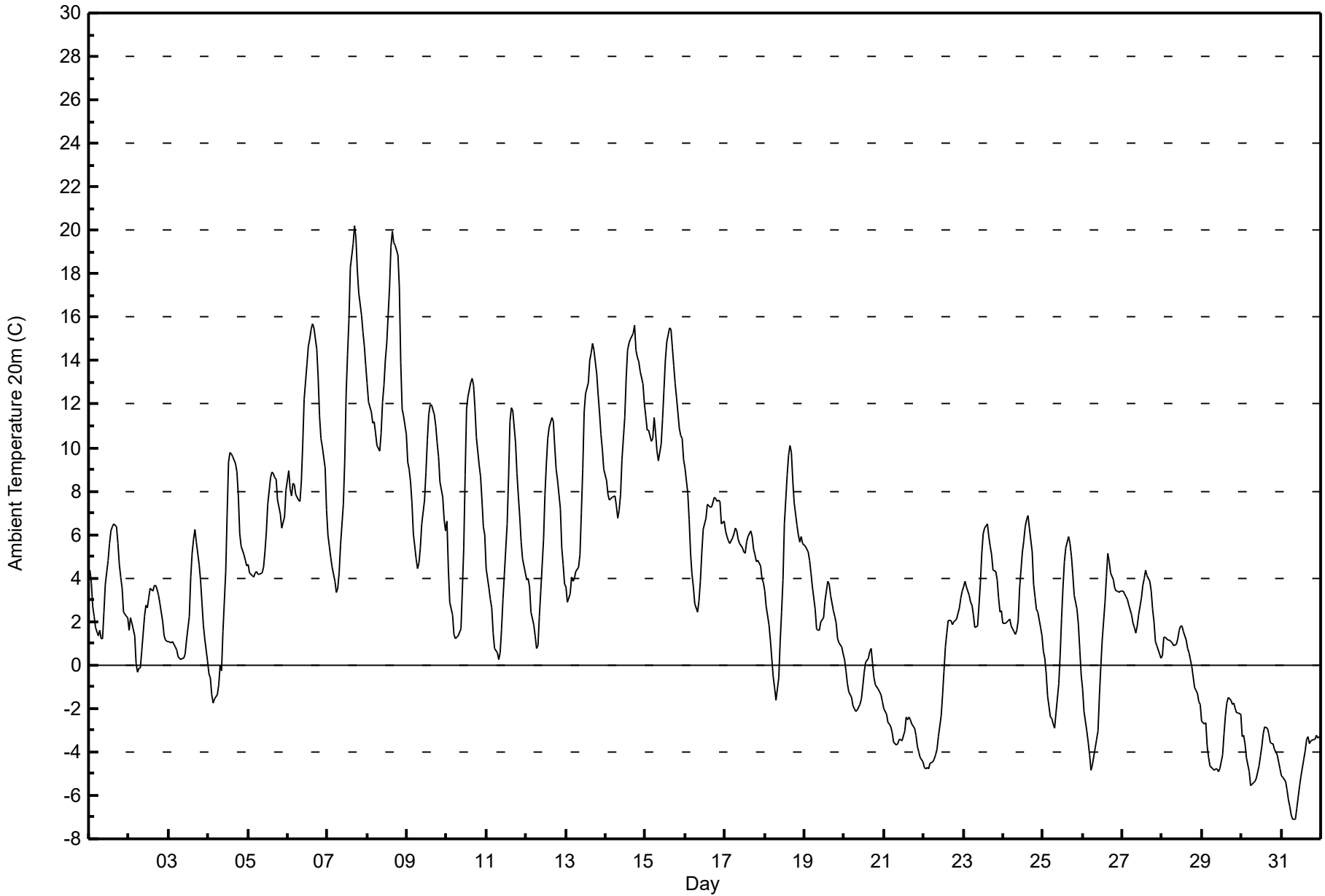
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	191	25.67	25.67
0 - 10	454	61.02	86.69
10 - 20	98	13.17	99.87
> 20	1	0.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 20.2 C on Oct 7 17:00      Maximum Daily Average: 13.9 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -7.1 C on Oct 31 08:00      Minimum Daily Average: -4.9 C on Oct 31 Maximum Diurnal Average: 7.4 C at hour 16      Minimum Diurnal Average: 1.1 C at hour 8 Monthly Average: 4.04 C      Percentiles: P <sub>1</sub> = -5.7 P <sub>10</sub> = -3.3 Q <sub>1</sub> = 0.5 Median = 3.6 Q <sub>3</sub> = 7.5 P <sub>90</sub> = 11.7 P <sub>99</sub> = 18.6																				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-Oct	4.3	3.8	2.7	2.2	1.7	1.3	1.6	1.2	1.2	2.5	3.7	4.8	5.6	6.2	6.4	6.5	6.4	5.6	4.6	4.0	3.5	2.4	2.2	2.2	3.6	6.5
2-Oct	1.6	2.1	1.9	1.3	0.0	-0.3	-0.1	-0.1	0.6	2.3	2.8	2.6	3.1	3.5	3.4	3.7	3.7	3.5	3.2	2.8	2.0	1.3	1.2	1.1	2.0	3.7
3-Oct	1.1	1.0	1.1	1.0	0.8	0.7	0.4	0.2	0.3	0.3	0.5	1.2	2.2	4.0	5.1	5.8	6.3	5.6	4.6	3.9	2.9	1.9	1.2	0.2	2.2	6.3
4-Oct	-0.4	-0.6	-1.3	-1.7	-1.6	-1.4	-0.9	0.0	-0.3	1.5	4.3	6.9	9.4	9.8	9.7	9.6	9.3	8.9	7.8	6.1	5.5	5.1	4.8	4.6	4.0	9.8
5-Oct	4.6	4.2	4.1	4.1	4.2	4.3	4.2	4.1	4.2	4.5	5.2	6.1	7.4	8.6	8.8	8.8	8.6	8.5	7.6	7.0	6.3	6.5	6.8	8.0	6.1	8.8
6-Oct	8.9	8.1	7.8	8.4	8.3	7.9	7.6	7.5	8.5	10.2	12.3	13.8	14.7	15.0	15.5	15.7	15.5	14.6	13.3	11.4	10.4	10.0	9.0	7.2	10.9	15.7
7-Oct	6.0	5.5	5.0	4.5	3.9	3.3	3.5	4.2	5.5	7.4	9.4	12.5	14.3	15.9	18.3	19.3	20.2	19.6	18.1	17.1	16.1	15.3	14.7	13.8	11.4	20.2
8-Oct	12.9	12.1	11.6	11.1	11.2	10.6	10.1	9.9	10.7	12.1	12.9	14.0	14.8	17.3	19.2	20.0	19.4	19.3	18.9	17.4	13.9	11.8	11.4	10.6	13.9	20.0
9-Oct	9.3	9.0	8.4	7.4	6.1	4.9	4.4	4.7	5.4	6.5	7.6	8.8	10.4	11.5	12.0	11.9	11.5	11.0	10.2	9.6	8.4	7.7	6.7	6.2	8.3	12.0
10-Oct	6.6	4.4	2.9	2.3	1.4	1.2	1.3	1.3	1.7	3.5	5.4	8.7	11.8	12.4	13.0	13.2	12.9	11.9	10.5	9.2	8.7	7.6	6.4	6.0	6.8	13.2
11-Oct	4.4	3.5	3.0	2.6	1.5	0.8	0.6	0.2	0.6	1.7	3.0	4.2	6.5	8.6	11.2	11.8	11.7	10.2	8.8	7.8	6.8	5.7	4.9	4.3	5.2	11.8
12-Oct	3.9	4.0	3.6	2.4	1.8	1.3	0.7	0.9	2.3	3.4	5.8	7.8	9.2	10.4	10.9	11.4	11.2	10.0	9.0	8.5	7.2	5.4	4.6	3.7	5.8	11.4
13-Oct	3.6	2.9	3.3	4.0	3.9	4.0	4.3	4.5	5.1	7.0	9.0	11.6	12.5	13.0	14.1	14.4	14.8	14.5	13.4	12.4	11.6	10.6	9.9	9.0	8.9	14.8
14-Oct	8.5	7.9	7.6	7.6	7.7	7.8	7.3	6.8	7.2	7.9	9.5	11.4	13.2	14.5	14.8	15.0	15.3	15.6	14.5	14.2	14.0	13.5	12.9	12.0	11.1	15.6
15-Oct	11.4	10.8	10.8	10.3	10.4	11.4	10.7	9.8	9.4	10.2	11.3	12.7	14.0	14.9	15.5	15.4	14.6	13.8	12.9	12.3	10.8	10.5	10.4	9.5	11.8	15.5
16-Oct	9.1	7.9	6.7	5.1	4.2	3.6	2.8	2.4	2.9	3.8	5.2	6.2	6.7	7.4	7.3	7.3	7.2	7.7	7.7	7.5	7.6	7.5	6.5	6.6	6.1	9.1
17-Oct	6.2	5.9	5.7	5.6	5.9	6.0	6.3	6.1	5.8	5.6	5.4	5.2	5.1	5.7	5.9	6.1	5.9	5.3	5.0	4.7	4.8	4.6	4.0	3.8	5.4	6.3
18-Oct	3.4	2.7	1.9	1.2	0.3	-0.5	-1.1	-1.6	-0.6	1.1	2.4	3.9	6.5	8.7	9.6	10.1	9.8	8.5	7.5	6.4	6.0	5.6	5.9	5.6	4.3	10.1
19-Oct	5.5	5.4	5.2	4.8	4.2	3.6	2.6	1.7	1.6	1.6	2.0	2.2	2.9	3.4	3.8	3.7	3.2	2.5	2.2	1.9	1.2	1.0	0.8	0.5	2.8	5.5
20-Oct	0.2	-0.3	-0.8	-1.2	-1.5	-1.9	-2.0	-2.2	-2.1	-1.8	-1.5	-1.0	-0.4	0.1	0.3	0.6	0.7	0.1	-0.6	-0.9	-1.1	-1.2	-1.4	-1.7	-0.9	0.7
21-Oct	-2.0	-2.3	-2.6	-2.7	-2.8	-3.1	-3.5	-3.7	-3.6	-3.4	-3.5	-3.5	-3.0	-2.4	-2.5	-2.4	-2.5	-2.7	-2.9	-3.2	-3.7	-4.0	-4.2	-4.5	-3.1	-2.0
22-Oct	-4.7	-4.8	-4.7	-4.8	-4.5	-4.5	-4.3	-4.1	-3.9	-3.3	-2.4	-1.3	-0.3	0.8	1.5	2.1	2.0	1.9	2.0	2.0	2.1	2.6	3.0	3.4	-1.0	3.4
23-Oct	3.6	3.8	3.6	3.2	2.9	2.7	2.3	1.7	1.8	2.7	3.8	5.1	6.1	6.3	6.5	5.9	5.5	5.1	4.4	4.3	3.9	3.1	2.4	2.5	3.9	6.5
24-Oct	1.9	1.9	2.0	2.1	2.1	1.8	1.5	1.4	1.6	2.0	3.5	5.2	5.7	6.4	6.7	6.9	6.3	5.2	3.7	3.2	2.5	2.5	1.8	1.3	3.3	6.9
25-Oct	0.7	0.3	-0.4	-1.4	-2.4	-2.5	-2.7	-2.9	-2.2	-0.9	0.5	2.2	3.6	4.8	5.4	5.9	5.6	5.0	4.2	3.2	2.5	1.9	0.7	-0.5	1.3	5.9
26-Oct	-1.1	-2.1	-3.1	-3.6	-4.1	-4.8	-4.6	-3.8	-3.5	-3.1	-1.5	-0.1	1.1	2.9	4.1	5.1	4.7	4.3	3.9	3.5	3.4	3.4	3.3	3.4	0.3	5.1
27-Oct	3.4	3.3	3.2	3.0	2.7	2.3	1.9	1.7	1.5	1.8	2.3	3.1	3.7	4.0	4.3	4.1	3.8	3.4	2.6	2.0	1.1	0.9	0.5	0.3	2.5	4.3
28-Oct	0.4	1.3	1.3	1.1	1.2	1.1	1.0	0.9	1.0	1.2	1.6	1.8	1.8	1.5	1.2	0.8	0.6	0.3	-0.1	-1.1	-1.2	-1.3	-1.7	-1.8	0.5	1.8
29-Oct	-2.6	-2.7	-2.7	-3.7	-4.2	-4.6	-4.8	-4.8	-4.8	-4.8	-4.9	-4.8	-4.1	-3.2	-2.3	-1.8	-1.5	-1.6	-1.8	-1.8	-2.0	-2.2	-2.2	-2.3	-3.2	-1.5
30-Oct	-3.3	-3.2	-3.6	-4.3	-4.9	-5.5	-5.5	-5.4	-5.4	-5.2	-4.7	-4.2	-3.7	-3.2	-2.9	-2.9	-3.2	-3.6	-3.6	-3.7	-3.9	-4.2	-4.5	-4.8	-4.1	-2.9
31-Oct	-5.1	-5.2	-5.4	-5.7	-6.2	-6.5	-6.9	-7.1	-7.1	-6.6	-6.0	-5.6	-5.1	-4.3	-3.9	-3.4	-3.3	-3.6	-3.5	-3.4	-3.4	-3.2	-3.4	-3.3	-4.9	-3.2
3.3 2.9 2.5 2.1 1.7 1.4 1.2 1.1 1.5 2.3 3.4 4.6 5.7 6.6 7.2 7.4 7.3 6.8 6.1 5.4 4.8 4.3 3.8 3.4																								Diurnal Average		
12.9 12.1 11.6 11.1 11.2 11.4 10.7 9.9 10.7 12.1 12.9 14.0 14.8 17.3 19.2 20.0 20.2 19.6 18.9 17.4 16.1 15.3 14.7 13.8																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 20m (AT20) - C  
Mannix - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	170	22.85	22.85
0 - 10	456	61.29	84.14
10 - 20	117	15.73	99.87
> 20	1	0.13	100.00

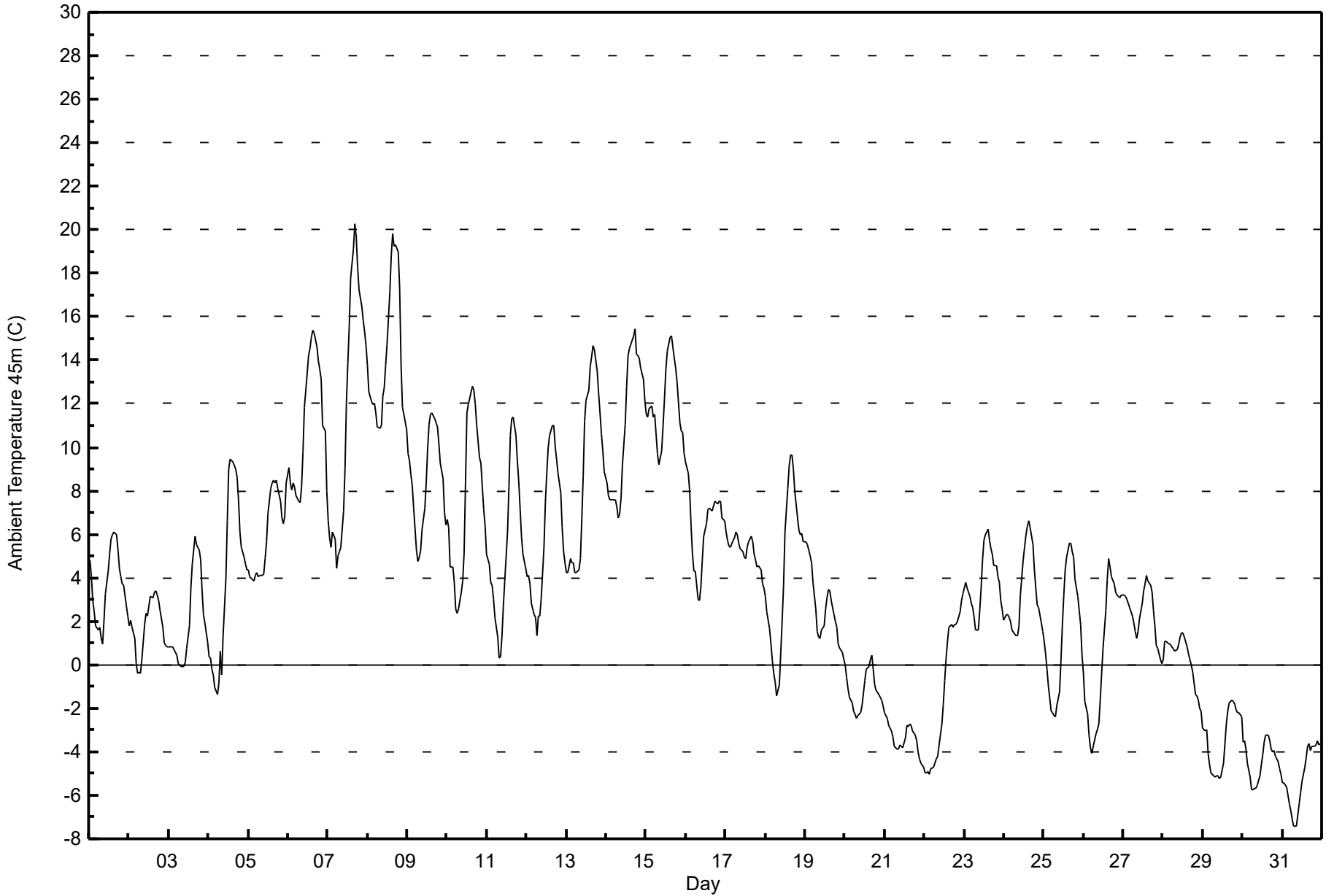
Total Number of Valid Hours: 744

Total Number of Hours: 744





Maximum Value: 20.3 C on Oct 7 17:00		Maximum Daily Average: 14.1 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -7.4 C on Oct 31 09:00		Minimum Daily Average: -5.2 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 7.1 C at hour 16		Minimum Diurnal Average: 1.3 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: 4.04 C		Percentiles: P <sub>1</sub> = -6.0 P <sub>10</sub> = -3.6 Q <sub>1</sub> = 0.3 Median = 3.7 Q <sub>3</sub> = 7.5 P <sub>90</sub> = 11.9 P <sub>99</sub> = 18.6		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Oct	4.8	4.0	2.9	2.5	1.8	1.6	1.7	1.2	0.9	2.1	3.3	4.3	5.1	5.8	6.0	6.1	6.0	5.3	4.4	4.0	3.7	3.7	2.7	2.3	3.6	6.1																						
2-Oct	1.8	2.1	1.7	1.2	0.1	-0.4	-0.3	-0.4	0.3	1.8	2.4	2.3	2.7	3.2	3.1	3.3	3.4	3.2	2.9	2.5	1.7	1.0	0.9	0.8	1.7	3.4																						
3-Oct	0.8	0.8	0.8	0.7	0.6	0.4	0.1	-0.1	-0.1	-0.1	0.1	0.7	1.8	3.5	4.7	5.3	5.9	5.5	5.3	4.8	3.4	2.3	1.9	1.0	2.1	5.9																						
4-Oct	0.4	0.3	-0.2	-0.4	-1.0	-1.3	-0.9	0.6	-0.5	1.4	4.0	6.6	9.0	9.5	9.4	9.3	9.0	8.6	7.6	6.1	5.4	4.9	4.7	4.4	4.0	9.5																						
5-Oct	4.4	4.0	3.9	3.9	4.1	4.2	4.1	4.1	4.1	4.2	4.9	5.7	7.0	8.1	8.3	8.5	8.4	8.5	8.1	7.5	6.7	6.5	6.8	8.4	6.0	8.5																						
6-Oct	9.1	8.4	8.1	8.4	8.2	7.8	7.5	7.4	8.2	9.8	11.8	13.4	14.2	14.6	15.1	15.4	15.3	14.6	13.9	13.5	13.1	11.0	10.8	8.0	11.1	15.4																						
7-Oct	6.6	5.8	5.4	6.1	5.8	4.4	5.0	5.2	5.4	7.1	9.0	12.0	13.8	15.5	17.8	19.1	20.3	19.7	18.3	17.2	16.5	15.9	15.3	14.7	11.7	20.3																						
8-Oct	13.8	12.6	12.1	12.0	12.0	11.6	11.0	10.8	11.0	12.4	12.7	13.8	14.8	17.1	18.8	19.8	19.2	19.3	19.0	17.3	13.9	11.8	11.5	10.8	14.1	19.8																						
9-Oct	9.7	9.4	8.8	8.2	7.2	5.3	4.8	4.9	5.3	6.2	7.2	8.4	10.0	11.0	11.5	11.6	11.3	11.1	11.0	10.1	9.3	8.5	7.0	6.4	8.5	11.6																						
10-Oct	6.7	6.3	4.5	4.5	3.8	2.6	2.4	2.6	3.3	3.9	5.2	8.4	11.6	12.0	12.6	12.8	12.6	12.0	11.0	9.5	9.3	8.2	7.1	6.3	7.5	12.8																						
11-Oct	5.1	4.6	3.8	3.6	3.0	2.2	1.3	0.3	0.4	1.3	2.7	3.8	6.1	8.2	10.6	11.3	11.4	10.5	9.4	8.4	7.1	5.9	5.0	4.4	5.4	11.4																						
12-Oct	4.0	4.1	3.7	2.8	2.3	2.2	1.3	2.3	2.2	3.0	5.4	7.5	8.8	9.9	10.5	11.0	11.0	10.0	9.4	8.8	7.9	6.3	5.2	4.7	6.0	11.0																						
13-Oct	4.2	4.2	4.9	4.7	4.7	4.2	4.3	4.4	4.9	6.7	8.7	11.2	12.1	12.6	13.7	14.2	14.7	14.5	13.5	12.5	11.6	10.6	9.8	8.9	9.0	14.7																						
14-Oct	8.3	7.8	7.6	7.6	7.6	7.6	7.3	6.8	7.0	7.6	9.2	11.1	12.8	14.2	14.6	14.8	15.1	15.5	14.3	14.2	14.1	13.6	13.1	12.1	11.0	15.5																						
15-Oct	11.5	11.4	11.8	11.9	11.4	11.5	10.6	9.7	9.2	9.8	11.0	12.2	13.6	14.4	15.1	15.1	14.6	14.1	13.6	13.0	11.2	10.8	10.6	9.7	12.0	15.1																						
16-Oct	9.3	8.8	8.0	6.4	5.1	4.3	4.3	3.0	3.0	3.6	4.8	5.9	6.5	7.2	7.2	7.1	7.1	7.5	7.5	7.4	7.5	7.5	6.8	6.6	6.3	9.3																						
17-Oct	6.1	5.7	5.5	5.4	5.7	5.8	6.1	6.0	5.6	5.4	5.2	5.0	4.9	5.4	5.6	5.9	5.6	5.1	4.8	4.5	4.6	4.3	3.7	3.5	5.2	6.1																						
18-Oct	3.2	2.5	1.6	1.0	0.2	-0.4	-0.8	-1.4	-0.9	0.6	2.0	3.7	6.1	8.1	9.1	9.6	9.7	9.0	7.9	6.8	6.2	6.0	6.1	5.7	4.2	9.7																						
19-Oct	5.6	5.5	5.3	5.0	4.7	3.8	2.6	1.5	1.3	1.2	1.6	1.8	2.6	3.1	3.5	3.4	3.0	2.3	2.0	1.7	0.9	0.7	0.5	0.3	2.7	5.6																						
20-Oct	0.0	-0.6	-1.1	-1.5	-1.8	-2.2	-2.3	-2.5	-2.4	-2.2	-1.9	-1.3	-0.7	-0.2	-0.1	0.3	0.4	-0.2	-0.9	-1.2	-1.4	-1.5	-1.6	-1.9	-1.2	0.4																						
21-Oct	-2.2	-2.4	-2.8	-2.9	-3.0	-3.3	-3.8	-3.9	-3.9	-3.7	-3.8	-3.8	-3.4	-2.8	-2.8	-2.7	-2.8	-3.0	-3.2	-3.5	-4.0	-4.3	-4.5	-4.7	-3.4	-2.2																						
22-Oct	-4.9	-5.0	-4.9	-5.0	-4.8	-4.7	-4.5	-4.3	-4.2	-3.7	-2.7	-1.8	-0.7	0.3	1.1	1.7	1.9	1.7	1.8	1.9	2.0	2.5	2.9	3.3	-1.3	3.3																						
23-Oct	3.5	3.8	3.5	3.2	2.8	2.6	2.2	1.6	1.6	2.5	3.5	4.8	5.7	6.0	6.2	5.7	5.3	5.1	4.5	4.6	4.1	3.8	2.9	2.6	3.8	6.2																						
24-Oct	2.1	2.3	2.3	2.2	2.0	1.6	1.4	1.3	1.4	1.8	3.2	4.8	5.4	6.0	6.4	6.6	6.3	5.5	4.3	3.5	2.8	2.6	1.9	1.5	3.3	6.6																						
25-Oct	1.1	0.5	-0.2	-0.9	-2.2	-2.2	-2.3	-2.4	-1.9	-1.3	0.2	1.8	3.2	4.4	5.0	5.6	5.6	5.2	4.9	3.9	3.2	2.5	1.9	0.5	1.5	5.6																						
26-Oct	-0.4	-1.7	-2.3	-3.2	-3.8	-4.1	-3.7	-3.2	-3.0	-2.7	-1.6	-0.4	0.8	2.5	3.9	4.9	4.5	4.1	3.7	3.3	3.2	3.2	3.1	3.2	0.4	4.9																						
27-Oct	3.2	3.1	3.0	2.8	2.6	2.2	1.9	1.6	1.2	1.5	2.1	2.8	3.4	3.7	4.1	3.8	3.6	3.3	2.5	1.8	0.9	0.7	0.2	0.0	2.4	4.1																						
28-Oct	0.3	1.1	1.1	0.9	0.9	0.8	0.8	0.6	0.7	0.9	1.3	1.5	1.5	1.2	0.9	0.5	0.3	0.0	-0.3	-1.4	-1.4	-1.6	-2.0	-2.1	0.3	1.5																						
29-Oct	-2.9	-3.0	-3.0	-4.1	-4.6	-5.0	-5.1	-5.2	-5.1	-5.1	-5.2	-5.2	-4.5	-3.6	-2.7	-2.1	-1.7	-1.6	-1.7	-1.8	-2.0	-2.2	-2.2	-2.4	-3.4	-1.6																						
30-Oct	-3.5	-3.5	-3.9	-4.5	-5.2	-5.8	-5.8	-5.7	-5.7	-5.6	-5.1	-4.6	-4.1	-3.5	-3.2	-3.3	-3.5	-3.9	-4.0	-4.0	-4.2	-4.4	-4.8	-5.0	-4.4	-3.2																						
31-Oct	-5.4	-5.4	-5.6	-6.0	-6.4	-6.7	-7.1	-7.4	-7.4	-6.9	-6.4	-5.9	-5.4	-4.7	-4.2	-3.7	-3.6	-3.9	-3.8	-3.7	-3.7	-3.5	-3.7	-3.6	-5.2	-3.5																						
																								3.4	3.1	2.8	2.5	2.1	1.6	1.4	1.3	1.3	2.0	3.1	4.2	5.3	6.2	6.8	7.1	7.1	6.7	6.2	5.6	4.9	4.4	4.0	3.6	Diurnal Average
																								13.8	12.6	12.1	12.0	12.0	11.6	11.0	10.8	11.0	12.4	12.7	13.8	14.8	17.1	18.8	19.8	20.3	19.7	19.0	17.3	16.5	15.9	15.3	14.7	Diurnal Maximum





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

**Ambient Temperature 45m (AT45) - C**  
**Mannix - October 2024**

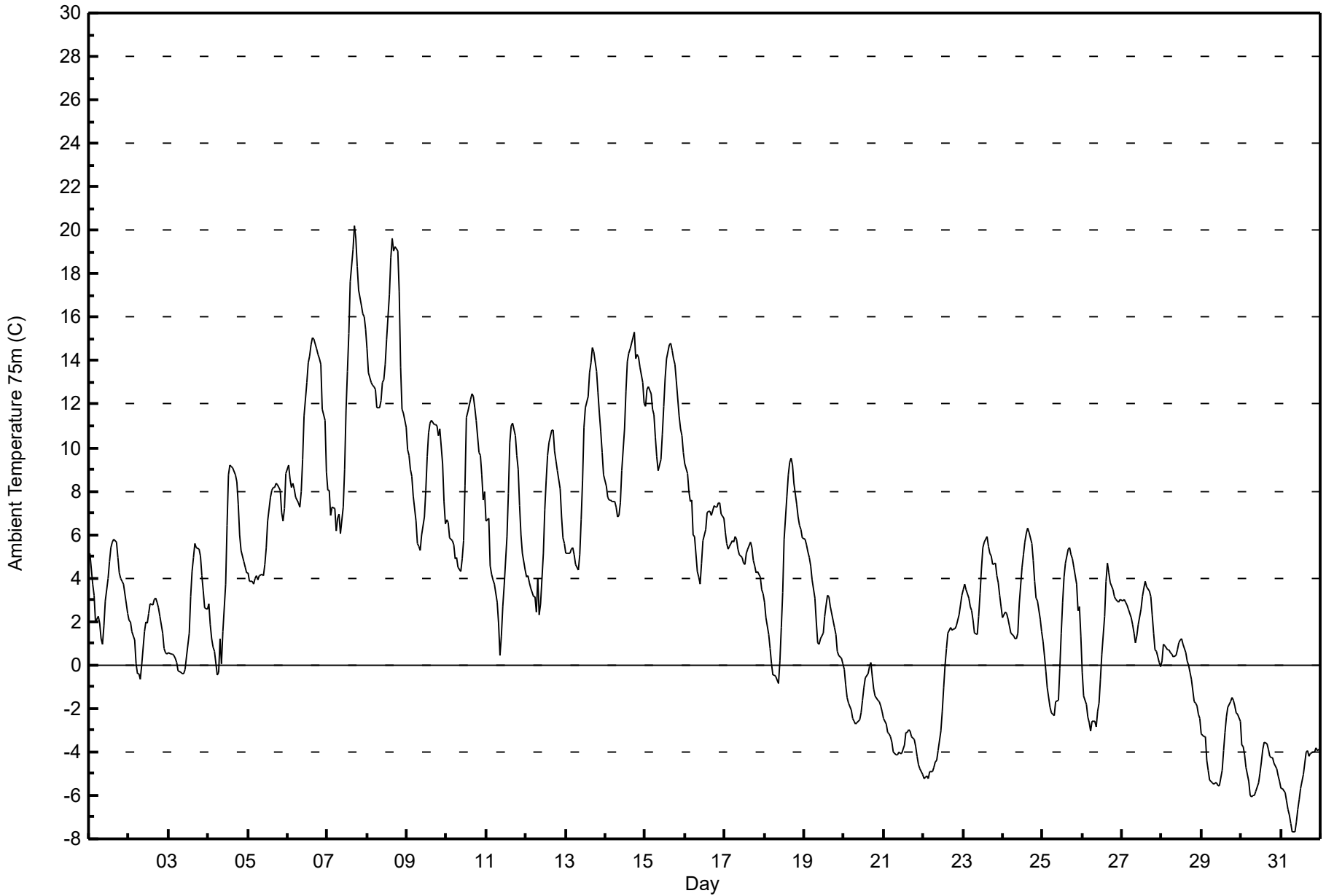
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	174	23.39	23.39
0 - 10	454	61.02	84.41
10 - 20	115	15.46	99.87
> 20	1	0.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 20.2 C on Oct 7 17:00		Maximum Daily Average: 14.5 C on Oct 8		Hours in Service: 744																							
Minimum Value: -7.7 C on Oct 31 09:00		Minimum Daily Average: -5.5 C on Oct 31		Hours of Data: 744																							
Maximum Diurnal Average: 6.9 C at hour 17		Minimum Diurnal Average: 1.4 C at hour 9		Hours of Missing Data: 0																							
Monthly Average: 4.06 C		Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -3.8 Q <sub>1</sub> = 0.2 Median = 3.9 Q <sub>3</sub> = 7.6 P <sub>90</sub> = 11.9 P <sub>99</sub> = 18.6		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	5.2	4.4	3.7	3.2	2.0	2.3	1.9	1.2	1.0	1.8	3.0	4.0	4.8	5.4	5.6	5.8	5.7	4.9	4.2	4.0	3.9	3.7	2.8	2.4	3.6	5.8	
2-Oct	2.0	2.0	1.5	1.2	0.1	-0.4	-0.4	-0.7	0.0	1.5	2.0	1.9	2.4	2.8	2.7	3.0	3.1	2.9	2.7	2.2	1.4	0.8	0.6	0.5	1.5	3.1	
3-Oct	0.5	0.5	0.5	0.5	0.3	0.1	-0.2	-0.4	-0.4	-0.4	-0.2	0.4	1.5	3.2	4.3	4.9	5.6	5.4	5.3	5.0	4.1	3.4	2.6	2.6	2.0	5.6	
4-Oct	2.8	1.8	1.2	0.8	0.6	-0.4	-0.3	1.2	0.1	1.5	3.7	6.4	8.8	9.2	9.1	9.1	8.7	8.4	7.4	6.0	5.3	4.7	4.5	4.2	4.4	9.2	
5-Oct	4.3	3.9	3.8	3.7	4.0	4.1	3.9	4.1	4.2	4.1	4.6	5.4	6.6	7.7	8.0	8.2	8.2	8.4	8.3	8.0	7.0	6.6	7.2	8.8	6.0	8.8	
6-Oct	9.2	8.5	8.2	8.3	8.1	7.7	7.4	7.3	7.9	9.4	11.5	13.0	13.9	14.2	14.7	15.1	15.0	14.5	14.3	14.1	13.8	11.8	11.2	8.8	11.2	15.1	
7-Oct	8.0	8.1	6.9	7.3	7.2	6.2	6.8	7.0	6.1	7.3	9.0	11.7	13.5	15.3	17.6	19.1	20.2	19.6	18.3	17.2	16.5	16.1	16.0	15.4	12.4	20.2	
8-Oct	14.5	13.4	13.0	12.9	12.8	12.7	11.8	11.8	12.2	13.0	13.1	13.8	15.0	17.1	18.7	19.6	19.1	19.3	19.0	17.2	13.7	11.8	11.6	10.9	14.5	19.6	
9-Oct	9.9	9.7	9.0	8.7	7.8	6.6	5.6	5.5	5.3	6.0	6.8	8.0	9.6	10.7	11.1	11.3	11.1	11.0	11.0	10.5	10.8	9.3	7.5	6.5	8.7	11.3	
10-Oct	6.7	6.6	5.9	5.7	5.5	4.9	5.0	4.5	4.3	4.9	5.7	8.2	11.4	11.6	12.2	12.5	12.3	11.9	11.2	9.8	9.6	8.7	7.6	8.0	8.1	12.5	
11-Oct	6.6	6.7	4.6	4.1	3.9	3.7	2.9	1.9	0.5	1.3	2.7	3.7	5.9	7.9	10.2	11.0	11.1	10.5	9.6	9.0	7.3	6.0	5.1	4.3	5.9	11.1	
12-Oct	4.0	4.1	3.8	3.5	3.1	3.1	2.5	4.0	2.3	2.8	5.2	7.1	8.5	9.6	10.2	10.8	10.8	9.8	9.4	8.9	8.1	6.8	5.8	5.6	6.2	10.8	
13-Oct	5.1	5.1	5.2	5.3	5.4	5.1	4.6	4.4	5.1	6.7	8.5	10.9	11.9	12.4	13.4	13.9	14.6	14.4	13.5	12.6	11.6	10.7	9.8	8.8	9.1	14.6	
14-Oct	8.2	7.7	7.6	7.6	7.5	7.5	7.2	6.8	6.9	7.5	8.9	10.9	12.6	14.0	14.3	14.6	15.0	15.3	14.1	14.3	14.2	13.7	13.0	12.0	10.9	15.3	
15-Oct	11.9	12.6	12.8	12.5	11.8	11.5	10.5	9.6	9.0	9.5	10.6	11.9	13.2	14.1	14.7	14.8	14.5	14.1	13.8	13.1	11.5	10.9	10.6	9.8	12.0	14.8	
16-Oct	9.2	8.8	8.0	7.5	7.6	6.0	5.9	4.3	4.0	3.7	4.7	5.7	6.3	7.0	7.1	7.1	6.9	7.3	7.3	7.2	7.5	7.5	6.9	6.7	6.7	9.2	
17-Oct	6.1	5.6	5.4	5.5	5.7	5.6	5.9	5.8	5.4	5.1	4.9	4.7	4.6	5.1	5.4	5.6	5.4	4.8	4.5	4.3	4.3	4.1	3.5	3.3	5.0	6.1	
18-Oct	2.9	2.2	1.4	0.8	0.0	-0.4	-0.5	-0.5	-0.8	0.2	1.7	3.3	5.8	7.8	8.8	9.3	9.5	9.2	8.4	7.4	6.8	6.4	6.2	5.8	4.2	9.5	
19-Oct	5.8	5.5	5.2	5.0	4.6	3.9	3.1	2.0	1.0	0.9	1.2	1.5	2.3	2.7	3.2	3.1	2.7	2.0	1.7	1.4	0.7	0.4	0.3	0.1	2.5	5.8	
20-Oct	-0.2	-0.9	-1.5	-1.8	-2.0	-2.4	-2.6	-2.7	-2.7	-2.5	-2.2	-1.6	-1.0	-0.6	-0.4	0.0	0.1	-0.5	-1.1	-1.5	-1.6	-1.7	-1.9	-2.2	-1.5	0.1	
21-Oct	-2.5	-2.7	-3.1	-3.2	-3.3	-3.6	-4.0	-4.1	-4.2	-4.0	-4.1	-4.1	-3.7	-3.1	-3.1	-3.0	-3.1	-3.3	-3.5	-3.8	-4.2	-4.6	-4.8	-5.0	-3.7	-2.5	
22-Oct	-5.2	-5.2	-5.1	-5.2	-4.9	-4.9	-4.7	-4.5	-4.4	-4.0	-3.0	-2.2	-1.1	0.0	0.8	1.5	1.7	1.6	1.6	1.6	1.8	2.3	2.8	3.2	-1.5	3.2	
23-Oct	3.4	3.7	3.4	3.1	2.7	2.5	2.1	1.5	1.4	2.2	3.3	4.4	5.4	5.6	5.9	5.5	5.2	5.0	4.6	4.7	4.1	3.8	3.2	2.7	3.7	5.9	
24-Oct	2.2	2.4	2.3	2.1	1.8	1.5	1.3	1.2	1.2	1.5	2.8	4.5	5.1	5.7	6.1	6.3	6.1	5.6	4.8	3.8	3.1	3.0	2.1	1.5	3.3	6.3	
25-Oct	1.1	0.4	-0.3	-1.1	-1.9	-2.2	-2.3	-2.4	-1.7	-1.6	-0.1	1.5	2.9	4.1	4.7	5.3	5.4	5.1	4.9	4.5	3.7	2.5	2.7	1.3	1.5	5.4	
26-Oct	-0.4	-1.4	-1.8	-2.4	-2.7	-3.1	-2.6	-2.6	-2.8	-2.2	-1.8	-0.7	0.5	2.3	3.9	4.7	4.2	3.8	3.5	3.1	3.0	2.9	2.9	3.0	0.6	4.7	
27-Oct	3.0	3.0	2.9	2.7	2.6	2.2	1.9	1.5	1.0	1.3	1.9	2.6	3.2	3.5	3.9	3.6	3.4	3.1	2.3	1.5	0.7	0.7	0.1	-0.1	2.2	3.9	
28-Oct	0.2	0.9	0.9	0.7	0.7	0.6	0.5	0.4	0.5	0.7	1.0	1.2	1.2	1.0	0.6	0.2	0.0	-0.3	-0.6	-1.7	-1.7	-1.9	-2.3	-2.4	0.0	1.2	
29-Oct	-3.2	-3.3	-3.3	-4.4	-4.9	-5.3	-5.4	-5.5	-5.4	-5.4	-5.6	-5.5	-4.8	-4.0	-3.1	-2.4	-1.9	-1.7	-1.5	-1.6	-1.9	-2.2	-2.3	-2.6	-3.6	-1.5	
30-Oct	-3.7	-3.7	-4.1	-4.7	-5.4	-6.0	-6.1	-6.0	-6.0	-5.8	-5.4	-5.0	-4.5	-3.9	-3.6	-3.6	-3.9	-4.2	-4.3	-4.3	-4.5	-4.8	-5.1	-5.3	-4.7	-3.6	
31-Oct	-5.7	-5.7	-5.9	-6.3	-6.6	-6.9	-7.3	-7.7	-7.7	-7.2	-6.7	-6.2	-5.7	-5.0	-4.5	-4.0	-3.9	-4.2	-4.1	-4.0	-4.0	-3.8	-4.0	-3.9	-5.5	-3.8	
		3.6	3.4	3.0	2.7	2.4	2.0	1.8	1.6	1.4	1.9	2.8	3.9	5.0	5.9	6.5	6.9	6.9	6.6	6.2	5.6	5.0	4.5	4.1	3.7	Diurnal Average	
		14.5	13.4	13.0	12.9	12.8	12.7	11.8	11.8	12.2	13.0	13.1	13.8	15.0	17.1	18.7	19.6	20.2	19.6	19.0	17.2	16.5	16.1	16.0	15.4	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 75m (AT75) - C  
Mannix - October 2024**

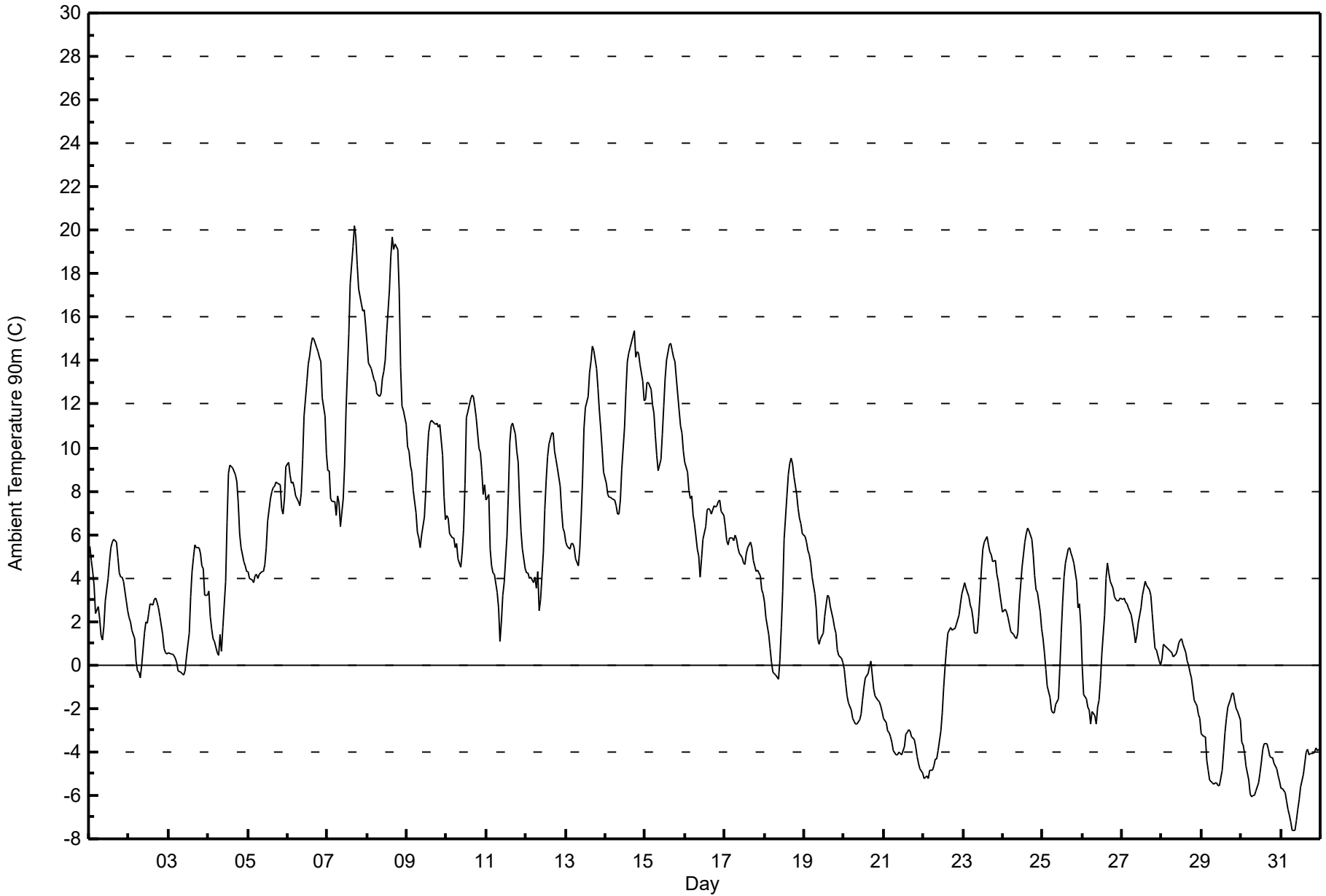
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	178	23.92	23.92
0 - 10	450	60.48	84.41
10 - 20	115	15.46	99.87
> 20	1	0.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 20.2 C on Oct 7 17:00		Maximum Daily Average: 14.8 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -7.6 C on Oct 31 09:00		Minimum Daily Average: -5.4 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 6.9 C at hour 17		Minimum Diurnal Average: 1.5 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: 4.17 C		Percentiles: P <sub>1</sub> = -6.2 P <sub>10</sub> = -3.8 Q <sub>1</sub> = 0.3 Median = 4.0 Q <sub>3</sub> = 7.8 P <sub>90</sub> = 12.3 P <sub>99</sub> = 18.6		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Oct	5.4	4.8	4.3	3.7	2.3	2.7	2.1	1.3	1.1	1.8	3.0	4.0	4.7	5.4	5.6	5.8	5.7	4.9	4.3	4.1	4.0	3.8	2.9	2.5	3.8	5.8																						
2-Oct	2.2	2.0	1.6	1.2	0.2	-0.3	-0.3	-0.6	0.0	1.5	2.0	1.9	2.4	2.8	2.7	3.0	3.1	2.9	2.7	2.2	1.4	0.8	0.6	0.5	1.5	3.1																						
3-Oct	0.5	0.5	0.5	0.5	0.3	0.1	-0.2	-0.4	-0.4	-0.4	-0.2	0.4	1.4	3.1	4.3	4.9	5.6	5.4	5.4	5.2	4.6	4.4	3.2	3.2	2.2	5.6																						
4-Oct	3.4	2.3	1.6	1.2	1.1	0.6	0.4	1.4	0.6	1.7	3.8	6.6	8.8	9.2	9.1	9.1	8.8	8.4	7.4	6.1	5.4	4.8	4.6	4.3	4.6	9.2																						
5-Oct	4.3	4.0	3.9	3.8	4.1	4.2	4.0	4.2	4.3	4.3	4.7	5.4	6.6	7.7	8.0	8.1	8.2	8.4	8.3	8.3	7.2	6.9	7.7	9.1	6.1	9.1																						
6-Oct	9.3	8.7	8.3	8.4	8.2	7.8	7.5	7.3	7.9	9.4	11.5	13.0	13.8	14.2	14.7	15.1	15.0	14.6	14.4	14.2	13.9	12.3	11.4	9.7	11.3	15.1																						
7-Oct	8.9	8.9	7.7	7.5	7.5	6.9	7.8	7.5	6.4	7.6	9.2	11.7	13.5	15.3	17.6	19.2	20.2	19.7	18.4	17.3	16.6	16.3	16.3	15.7	12.7	20.2																						
8-Oct	14.8	13.9	13.6	13.4	13.1	13.0	12.5	12.4	12.5	13.2	13.5	14.0	15.3	17.2	18.8	19.7	19.1	19.4	19.1	17.2	13.7	11.9	11.7	11.0	14.8	19.7																						
9-Oct	10.0	9.9	9.2	8.9	8.0	7.0	6.1	5.8	5.4	6.0	6.8	8.0	9.6	10.7	11.1	11.2	11.1	11.1	11.1	10.9	11.1	9.6	7.8	6.7	8.9	11.2																						
10-Oct	6.8	6.7	6.0	5.9	5.8	5.4	5.6	4.9	4.5	5.2	6.2	8.3	11.4	11.6	12.2	12.4	12.4	11.9	11.4	10.0	9.8	8.9	7.9	8.3	8.3	12.4																						
11-Oct	7.6	7.8	5.3	4.6	4.2	4.2	3.3	2.6	1.1	2.0	3.2	3.8	5.9	7.9	10.2	11.0	11.1	10.6	9.9	9.3	7.5	6.2	5.3	4.4	6.2	11.1																						
12-Oct	4.2	4.3	4.0	4.1	3.8	4.1	3.5	4.3	2.5	3.0	5.2	7.1	8.5	9.6	10.1	10.7	10.7	9.8	9.4	9.1	8.2	7.1	6.3	6.1	6.5	10.7																						
13-Oct	5.7	5.5	5.3	5.6	5.6	5.4	4.9	4.6	5.3	6.8	8.6	10.9	11.9	12.3	13.4	14.0	14.7	14.5	13.6	12.7	11.7	10.9	9.9	8.9	9.3	14.7																						
14-Oct	8.3	7.8	7.7	7.7	7.6	7.6	7.3	6.9	7.0	7.6	9.0	10.9	12.6	14.0	14.4	14.6	15.1	15.4	14.1	14.4	14.3	13.8	13.1	12.2	11.0	15.4																						
15-Oct	12.2	13.0	13.0	12.7	11.9	11.6	10.6	9.6	9.0	9.4	10.6	11.9	13.2	14.1	14.7	14.8	14.5	14.2	14.0	13.2	11.7	11.0	10.7	9.9	12.1	14.8																						
16-Oct	9.3	8.9	8.0	7.7	7.8	6.9	6.5	5.3	5.0	4.1	4.9	5.8	6.4	7.1	7.2	7.1	6.9	7.3	7.3	7.3	7.5	7.6	7.1	6.9	6.9	9.3																						
17-Oct	6.3	5.7	5.5	5.8	5.9	5.7	6.0	5.8	5.4	5.1	4.9	4.7	4.6	5.1	5.4	5.7	5.4	4.8	4.6	4.3	4.3	4.1	3.5	3.3	5.1	6.3																						
18-Oct	2.9	2.2	1.4	0.8	0.1	-0.3	-0.4	-0.5	-0.7	0.2	1.7	3.4	5.8	7.8	8.7	9.3	9.5	9.3	8.7	7.8	7.2	6.7	6.5	6.1	4.3	9.5																						
19-Oct	5.9	5.6	5.3	5.1	4.7	4.1	3.3	2.6	1.2	1.0	1.2	1.5	2.2	2.7	3.2	3.1	2.7	2.1	1.8	1.4	0.7	0.5	0.3	0.1	2.6	5.9																						
20-Oct	-0.2	-0.9	-1.4	-1.8	-2.0	-2.4	-2.6	-2.7	-2.7	-2.5	-2.2	-1.6	-1.1	-0.6	-0.4	-0.1	0.2	-0.5	-1.1	-1.4	-1.6	-1.7	-1.9	-2.1	-1.5	0.2																						
21-Oct	-2.4	-2.7	-3.1	-3.1	-3.3	-3.5	-4.0	-4.1	-4.1	-4.0	-4.1	-4.1	-3.7	-3.1	-3.1	-3.0	-3.1	-3.3	-3.4	-3.7	-4.2	-4.5	-4.8	-5.0	-3.6	-2.4																						
22-Oct	-5.2	-5.2	-5.1	-5.2	-4.8	-4.8	-4.6	-4.4	-4.3	-3.9	-3.1	-2.2	-1.1	0.0	0.8	1.5	1.7	1.6	1.7	1.7	1.8	2.3	2.8	3.2	-1.4	3.2																						
23-Oct	3.5	3.8	3.5	3.1	2.8	2.5	2.1	1.5	1.4	2.2	3.3	4.5	5.4	5.6	5.9	5.5	5.2	5.1	4.8	4.8	4.2	3.8	3.3	2.9	3.8	5.9																						
24-Oct	2.4	2.6	2.4	2.2	1.9	1.5	1.4	1.3	1.2	1.5	2.8	4.5	5.1	5.6	6.1	6.3	6.2	5.8	5.0	4.1	3.5	3.4	2.4	1.6	3.4	6.3																						
25-Oct	1.2	0.6	-0.2	-1.0	-1.5	-2.1	-2.2	-2.2	-1.8	-1.6	-0.1	1.5	2.9	4.0	4.7	5.3	5.4	5.2	5.0	4.7	3.9	2.6	2.8	1.8	1.6	5.4																						
26-Oct	-0.1	-1.3	-1.5	-2.0	-2.1	-2.7	-2.1	-2.3	-2.7	-1.9	-1.6	-0.7	0.5	2.3	4.0	4.7	4.3	3.8	3.5	3.2	3.0	3.0	2.9	3.0	0.7	4.7																						
27-Oct	3.0	3.1	2.9	2.8	2.6	2.3	1.9	1.5	1.0	1.4	1.9	2.6	3.2	3.5	3.9	3.6	3.5	3.2	2.4	1.5	0.8	0.7	0.2	0.0	2.2	3.9																						
28-Oct	0.3	1.0	0.9	0.7	0.7	0.6	0.5	0.4	0.5	0.7	1.0	1.1	1.2	1.0	0.6	0.2	0.0	-0.3	-0.6	-1.7	-1.7	-1.9	-2.3	-2.4	0.0	1.2																						
29-Oct	-3.2	-3.3	-3.3	-4.4	-4.9	-5.3	-5.4	-5.5	-5.4	-5.4	-5.6	-5.6	-4.8	-4.0	-3.1	-2.4	-1.9	-1.6	-1.3	-1.3	-1.7	-2.0	-2.2	-2.5	-3.6	-1.3																						
30-Oct	-3.6	-3.7	-4.1	-4.7	-5.3	-6.0	-6.1	-6.0	-6.0	-5.8	-5.4	-5.0	-4.5	-3.9	-3.6	-3.6	-3.9	-4.2	-4.3	-4.3	-4.5	-4.8	-5.1	-5.4	-4.7	-3.6																						
31-Oct	-5.7	-5.7	-5.9	-6.3	-6.6	-6.9	-7.2	-7.6	-7.6	-7.2	-6.7	-6.2	-5.6	-5.0	-4.5	-4.0	-3.9	-4.2	-4.1	-4.0	-4.0	-3.8	-4.0	-3.9	-5.4	-3.8																						
																								3.8	3.6	3.2	2.9	2.6	2.2	2.0	1.8	1.5	2.0	2.9	3.9	5.0	5.9	6.5	6.9	6.9	6.6	6.2	5.8	5.2	4.7	4.2	3.9	Diurnal Average
																								14.8	13.9	13.6	13.4	13.1	13.0	12.5	12.4	12.5	13.2	13.5	14.0	15.3	17.2	18.8	19.7	20.2	19.7	19.1	17.3	16.6	16.3	16.3	15.7	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 90m (AT90) - C  
Mannix - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	175	23.52	23.52
0 - 10	452	60.75	84.27
10 - 20	116	15.59	99.87
> 20	1	0.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

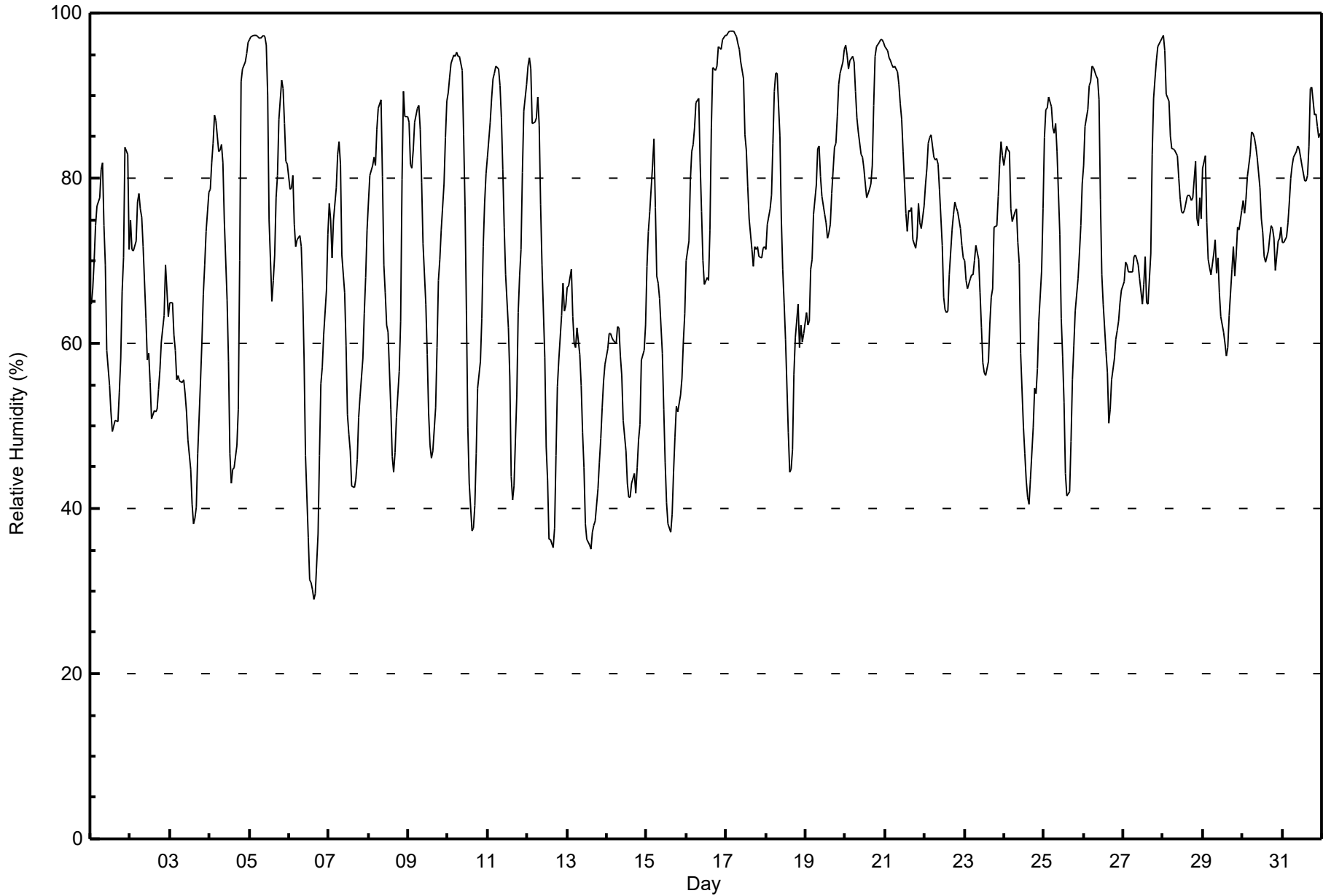
**Mannix - October 2024**

Maximum Value: 98 % on Oct 17 04:00																		Maximum Daily Average: 89.2 % on Oct 20																		Hours in Service: 744							
Minimum Value: 29 % on Oct 6 16:00																		Minimum Daily Average: 50.6 % on Oct 13																		Hours of Data: 744							
Maximum Diurnal Average: 81.9 % at hour 7																		Minimum Diurnal Average: 54.3 % at hour 15																		Hours of Missing Data: 0							
Monthly Average: 71.2 %																		Percentiles: P <sub>1</sub> = 36 P <sub>10</sub> = 47 Q <sub>1</sub> = 60 Median = 73 Q <sub>3</sub> = 83 P <sub>90</sub> = 93 P <sub>99</sub> = 97																		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-Oct	65	67	70	74	77	78	81	82	74	69	59	55	52	49	50	51	51	54	58	66	70	84	83	71	66.2	84																	
2-Oct	75	71	71	72	77	78	76	75	72	63	58	59	55	51	52	52	52	54	57	60	63	69	66	63	64.3	78																	
3-Oct	65	65	61	59	56	56	55	55	56	54	52	48	45	41	38	39	40	47	55	60	66	70	74	78	55.6	78																	
4-Oct	79	82	84	88	87	83	83	84	82	75	65	58	47	43	45	45	48	52	70	92	93	94	95	96	73.7	96																	
5-Oct	97	97	97	97	97	97	97	97	97	97	96	90	75	65	68	71	78	80	87	92	91	87	82	82	88.1	97																	
6-Oct	79	79	80	74	72	73	73	72	66	58	46	36	31	31	30	29	30	37	46	55	57	61	66	73	56.5	80																	
7-Oct	77	75	70	75	79	83	84	82	71	66	60	51	49	47	43	43	44	46	51	54	58	64	68	74	63.0	84																	
8-Oct	77	80	82	83	82	86	88	89	80	69	66	62	61	52	46	44	47	51	57	63	80	91	88	88	71.3	91																	
9-Oct	87	82	81	83	87	89	89	86	80	72	65	59	51	48	46	47	52	59	68	70	74	79	85	89	72.0	89																	
10-Oct	90	92	94	95	95	95	95	95	93	85	77	64	50	43	37	38	40	47	55	58	63	72	77	81	72.0	95																	
11-Oct	83	87	90	92	93	94	93	91	87	81	74	68	62	56	44	41	43	54	64	68	71	81	88	91	74.8	94																	
12-Oct	94	95	93	87	87	87	90	86	77	69	58	47	43	36	36	35	38	47	55	58	63	67	64	65	65.7	95																	
13-Oct	67	67	69	63	60	60	62	59	55	49	45	38	36	36	35	37	38	39	42	46	49	52	55	57	50.6	69																	
14-Oct	59	61	61	61	60	60	62	62	59	56	51	47	43	41	41	43	44	42	45	48	50	58	59	62	53.2	62																	
15-Oct	69	74	76	81	85	76	68	67	65	59	52	46	41	38	37	39	44	49	52	52	54	56	60	64	58.5	85																	
16-Oct	70	72	80	83	84	86	89	90	82	76	70	67	68	68	74	86	93	93	93	96	96	96	97	97	83.6	97																	
17-Oct	97	98	98	98	98	97	97	96	96	94	92	85	83	79	75	71	69	72	71	72	70	70	72	72	84.3	98																	
18-Oct	71	74	76	78	84	91	93	93	85	75	69	65	60	49	44	45	47	56	61	65	59	62	60	61	67.7	93																	
19-Oct	64	62	63	69	70	76	79	84	84	80	78	76	75	73	73	74	78	84	84	87	91	93	94	96	78.6	96																	
20-Oct	96	95	93	94	95	94	91	87	86	83	82	81	79	78	79	79	82	89	95	96	96	97	97	97	89.2	97																	
21-Oct	96	95	95	94	94	93	94	93	91	89	87	83	76	74	76	76	76	73	71	73	77	75	74	77	83.4	96																	
22-Oct	79	81	84	85	85	82	82	82	82	79	72	66	64	64	64	68	74	76	77	76	76	74	72	70	75.6	85																	
23-Oct	70	68	67	68	68	68	70	72	70	66	62	58	56	56	58	62	66	67	74	74	78	82	84	83	68.6	84																	
24-Oct	82	84	83	83	76	75	76	76	72	70	59	50	47	43	41	41	43	50	55	54	57	63	69	76	63.5	84																	
25-Oct	85	88	89	90	89	86	85	87	83	73	63	58	53	44	41	42	48	56	60	64	68	71	74	79	69.9	90																	
26-Oct	81	86	88	91	92	94	93	92	92	90	77	68	65	59	56	50	52	56	58	60	61	63	65	66	73.3	94																	
27-Oct	67	70	69	69	69	69	71	71	70	69	68	65	67	70	65	65	71	83	90	92	94	96	97	97	75.5	97																	
28-Oct	97	95	90	89	85	84	84	83	83	80	77	76	76	76	78	78	78	77	78	82	75	74	78	75	81.2	97																	
29-Oct	81	83	75	70	69	68	71	73	69	70	66	63	61	60	58	60	63	69	72	68	71	74	74	76	69.3	83																	
30-Oct	77	76	77	80	83	86	85	85	84	83	79	75	73	70	70	71	73	74	74	73	69	72	73	74	76.5	86																	
31-Oct	72	72	73	75	77	80	82	82	83	84	84	83	82	80	80	80	84	91	91	88	88	86	85	85	81.9	91																	
																		79.0	79.8	80.0	80.7	80.9	81.4	81.9	81.6	78.2	73.7	68.0	62.8	58.9	55.5	54.3	54.9	57.6	61.9	66.6	69.7	71.9	75.2	76.6	77.9	Diurnal Average	
																		97	98	98	98	98	97	97	97	97	97	96	90	83	80	80	86	93	93	95	96	96	97	97	97	Diurnal Maximum	



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

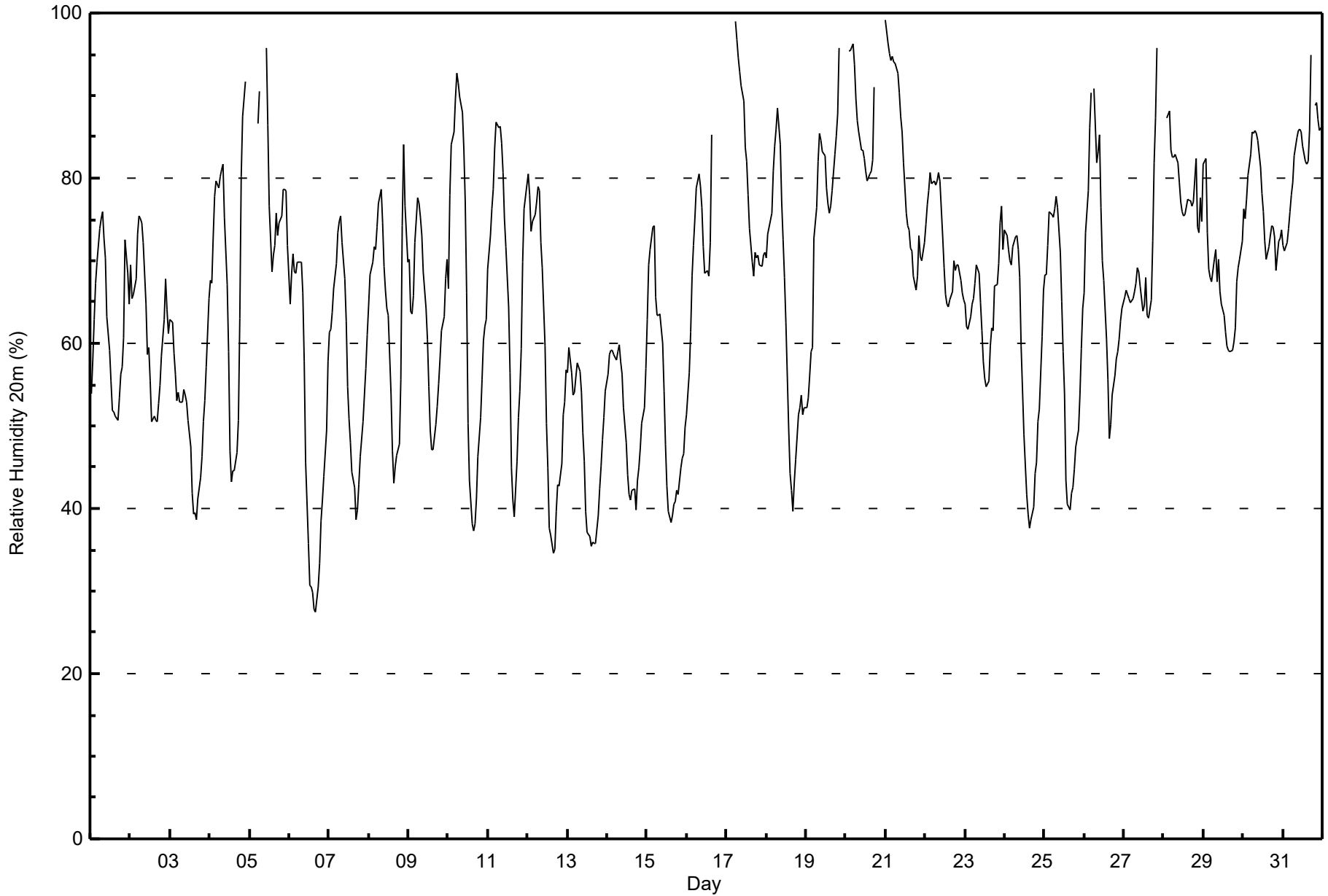
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	25	3.36	3.36
40 - 60	160	21.51	24.87
60 - 80	311	41.80	66.67
80 - 100	248	33.33	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 99 % on Oct 21 01:00																		Maximum Daily Average: 82.4 % on Oct 31						Hours in Service: 744			
Minimum Value: 28 % on Oct 6 17:00																		Minimum Daily Average: 47.3 % on Oct 13						Hours of Data: 704			
Maximum Diurnal Average: 77.5 % at hour 7																		Minimum Diurnal Average: 53.8 % at hour 17						Hours of Missing Data: 40			
Monthly Average: 65.8 %																		Percentiles: P <sub>1</sub> = 35 P <sub>10</sub> = 43 Q <sub>1</sub> = 54 Median = 68 Q <sub>3</sub> = 76 P <sub>90</sub> = 85 P <sub>99</sub> = 96						Hours of Calibration: 0			
																								Percent Operational Time: 94.6			
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-Oct	54	58	63	67	70	74	75	76	73	70	63	59	56	52	52	51	51	53	56	57	61	72	68	65	62.3	76	
2-Oct	69	65	66	68	73	75	75	75	72	65	59	59	55	50	51	51	50	53	55	58	63	68	64	61	62.6	75	
3-Oct	63	63	59	56	53	54	53	53	54	54	53	51	47	42	39	39	39	41	44	46	51	53	57	65	51.2	65	
4-Oct	68	67	73	78	80	79	80	81	82	75	67	59	47	43	45	45	47	51	63	80	88	92	OR	OR	67.6	92	
5-Oct	OR	OR	OR	OR	OR	87	91	OR	OR	OR	96	86	77	69	71	72	76	73	75	75	79	78	72	--	96		
6-Oct	65	69	71	69	68	70	70	70	66	58	46	36	31	31	30	28	28	30	33	38	41	44	49	58	49.9	71	
7-Oct	61	62	64	67	70	73	75	75	72	68	63	55	51	48	44	43	39	40	43	46	50	54	57	61	57.5	75	
8-Oct	65	68	70	72	71	74	77	79	75	69	66	64	63	54	47	43	45	46	48	56	74	84	77	70	64.9	84	
9-Oct	70	64	63	66	72	78	77	75	73	69	64	60	55	49	47	47	50	52	55	58	62	63	68	70	62.9	78	
10-Oct	67	78	84	86	90	93	92	90	88	84	77	66	50	43	38	37	38	41	46	51	56	60	62	63	65.8	93	
11-Oct	69	73	76	79	83	87	86	86	84	81	75	72	64	57	45	41	39	46	51	54	59	70	76	79	68.0	87	
12-Oct	81	78	73	75	76	77	79	79	72	69	60	50	45	38	37	35	35	40	43	43	45	51	53	57	57.9	81	
13-Oct	56	60	56	54	54	56	58	57	54	49	46	40	37	37	35	36	36	36	39	42	45	48	51	54	47.3	60	
14-Oct	56	59	59	59	59	58	59	60	58	56	52	48	44	42	41	42	42	40	43	45	47	50	52	57	51.2	60	
15-Oct	63	69	71	74	74	66	63	63	64	60	54	48	43	40	38	39	41	41	42	42	45	46	47	50	53.4	74	
16-Oct	51	56	61	68	72	75	79	81	79	77	72	69	69	68	72	85	OR	96	OR	OR	OR	OR	OR	OR	--	96	
17-Oct	OR	OR	OR	OR	OR	99	97	95	93	91	89	84	82	78	74	70	68	71	70	71	70	69	71	71	79.6	99	
18-Oct	70	73	75	76	81	84	86	88	84	77	72	68	63	50	44	42	40	43	46	51	52	54	51	52	63.5	88	
19-Oct	52	53	56	59	60	73	76	82	85	85	83	83	79	77	76	77	79	83	85	88	96	OR	OR	OR	75.5	96	
20-Oct	OR	OR	95	95	96	94	90	87	86	83	83	82	81	80	80	81	82	91	OR	OR	OR	OR	OR	OR	--	96	
21-Oct	99	96	95	94	95	94	94	93	90	87	86	82	76	74	74	71	71	68	67	68	73	71	70	72	81.7	99	
22-Oct	74	77	78	81	79	80	79	80	81	80	73	69	66	65	64	65	66	70	69	69	69	68	66	65	72.2	81	
23-Oct	65	62	62	63	65	65	67	70	69	65	61	58	56	55	55	60	62	61	67	67	70	75	77	71	64.4	77	
24-Oct	74	73	71	70	69	72	73	73	71	68	60	49	45	42	39	38	39	40	44	46	50	52	61	66	57.7	74	
25-Oct	68	68	72	76	76	75	76	78	76	71	65	59	54	43	40	40	42	42	45	47	50	54	59	64	60.1	78	
26-Oct	66	73	78	86	90	OR	91	82	83	85	76	70	68	61	56	48	50	54	56	58	59	60	63	64	68.6	91	
27-Oct	66	66	66	65	65	65	66	67	69	69	67	64	65	68	63	63	65	72	82	87	96	OR	OR	OR	69.4	96	
28-Oct	OR	OR	87	88	83	82	83	83	82	79	77	76	75	76	77	77	77	77	77	82	74	73	78	75	79.1	88	
29-Oct	82	82	73	69	68	67	70	71	67	70	66	65	63	61	60	59	59	59	60	62	67	69	70	72	67.3	82	
30-Oct	76	75	77	80	83	86	85	86	85	85	81	78	76	72	70	72	73	74	74	73	69	72	73	74	77.1	86	
31-Oct	72	71	72	74	76	78	80	83	85	86	86	86	84	82	82	82	86	95	OR	89	89	87	86	86	82.4	95	
																		Diurnal Average						66.0			
																		Diurnal Maximum						86			
OR - Out of Range																											





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

**Relative Humidity 20m (RH20) - %**  
**Mannix - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	40	5.68	5.68
40 - 60	203	28.84	34.52
60 - 80	338	48.01	82.53
80 - 100	123	17.47	100.00

Total Number of Valid Hours: 704

Total Number of Hours: 744



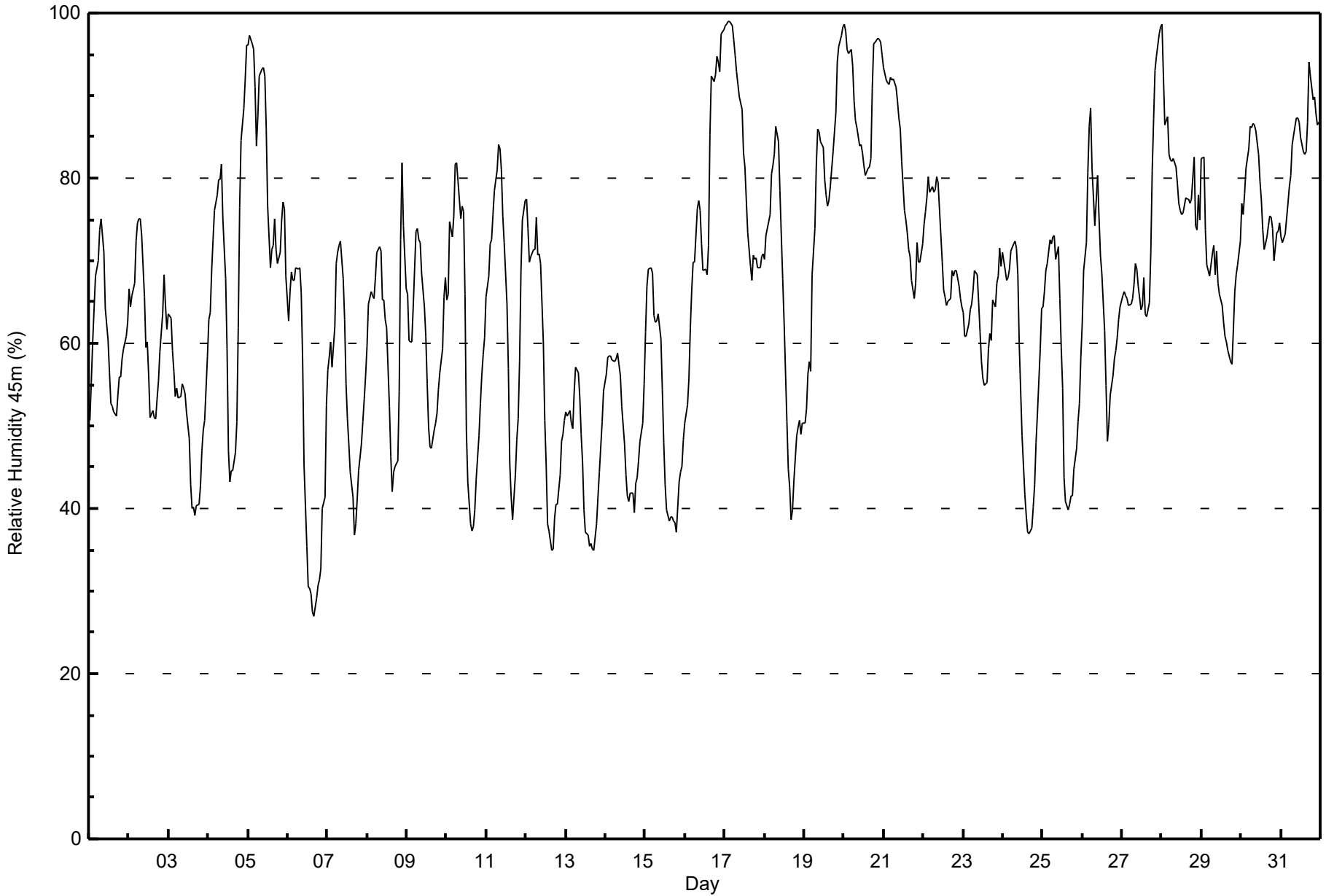
Maximum Value: 99 % on Oct 17 04:00																		Maximum Daily Average: 90.2 % on Oct 20																		Hours in Service: 744													
Minimum Value: 27 % on Oct 6 17:00																		Minimum Daily Average: 45.9 % on Oct 13																		Hours of Data: 744													
Maximum Diurnal Average: 75.7 % at hour 8																		Minimum Diurnal Average: 54.2 % at hour 16																		Hours of Missing Data: 0													
Monthly Average: 66.1 %																		Percentiles: P <sub>1</sub> = 32 P <sub>10</sub> = 43 Q <sub>1</sub> = 54 Median = 68 Q <sub>3</sub> = 77 P <sub>90</sub> = 87 P <sub>99</sub> = 98																		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-Oct	51	55	60	64	68	70	74	75	73	71	64	60	56	53	52	52	51	54	56	56	58	59	61	63	60.7	75																							
2-Oct	67	64	66	67	72	75	75	75	73	66	59	60	56	51	52	51	51	53	55	59	64	68	64	62	62.7	75																							
3-Oct	63	63	59	57	54	55	53	54	55	55	54	52	48	43	40	40	39	40	40	43	47	49	51	58	50.5	63																							
4-Oct	63	64	69	73	76	78	80	80	82	75	68	59	47	43	45	45	47	51	62	77	85	89	92	96	68.4	96																							
5-Oct	96	97	96	96	91	84	88	92	93	93	92	86	77	69	71	72	75	71	70	71	75	77	76	68	82.4	97																							
6-Oct	63	66	69	68	68	69	69	69	66	58	45	35	31	30	30	27	27	29	31	31	33	40	41	52	47.8	69																							
7-Oct	57	58	60	57	62	70	71	72	72	68	63	55	51	48	44	41	37	38	41	45	48	51	53	56	54.9	72																							
8-Oct	60	65	66	66	65	68	71	72	71	65	65	63	62	52	46	42	44	45	46	54	72	82	74	67	61.9	82																							
9-Oct	66	60	60	60	64	74	74	72	72	68	64	61	55	50	47	47	49	50	52	54	56	59	66	68	60.5	74																							
10-Oct	65	66	75	73	75	82	82	80	75	77	76	66	49	43	38	37	38	40	44	49	53	56	59	61	60.7	82																							
11-Oct	66	68	72	73	76	78	81	84	84	81	75	72	65	57	45	41	39	44	48	51	58	69	75	77	65.8	84																							
12-Oct	77	74	70	70	71	71	75	71	71	70	60	51	45	38	37	35	35	39	41	40	44	48	49	51	55.6	77																							
13-Oct	52	51	52	50	50	54	57	56	54	49	46	40	37	37	35	36	35	38	41	44	47	51	54	54	45.9	57																							
14-Oct	56	58	59	58	58	58	58	59	58	56	52	48	44	41	41	42	42	39	43	44	46	48	50	55	50.6	59																							
15-Oct	61	67	69	69	68	63	62	63	64	60	54	48	43	40	38	39	39	38	38	37	43	44	45	48	51.8	69																							
16-Oct	50	53	56	62	66	70	70	76	77	76	72	69	69	68	72	85	92	92	93	95	94	93	98	98	76.9	98																							
17-Oct	98	99	99	99	98	97	95	93	91	90	88	83	81	77	73	69	68	71	70	70	69	69	71	71	82.9	99																							
18-Oct	70	73	75	76	80	81	83	86	84	79	73	68	63	51	45	42	39	40	43	49	50	51	49	50	62.5	86																							
19-Oct	50	52	56	58	57	68	74	81	86	86	84	84	80	78	77	77	79	83	86	88	94	96	97	98	77.9	98																							
20-Oct	99	98	96	95	96	94	89	87	86	84	84	83	81	80	81	81	82	91	96	96	97	97	96	95	90.2	99																							
21-Oct	93	92	92	91	92	92	92	91	89	87	86	82	76	75	73	71	70	68	65	67	72	70	70	72	80.4	93																							
22-Oct	74	76	78	80	78	79	78	79	80	80	73	70	66	66	65	65	65	69	68	69	69	67	65	64	71.8	80																							
23-Oct	64	61	61	62	64	65	67	69	68	65	61	58	56	55	55	59	61	60	65	64	67	68	72	69	63.2	72																							
24-Oct	71	69	68	68	69	71	72	72	72	68	60	49	45	42	39	37	37	38	40	43	48	51	59	64	56.4	72																							
25-Oct	64	66	69	70	72	72	73	73	70	72	65	60	55	44	41	40	41	42	42	45	47	51	53	58	57.6	73																							
26-Oct	62	69	72	81	86	88	81	74	77	80	75	71	68	61	55	48	50	54	56	58	59	61	63	64	67.3	88																							
27-Oct	66	66	66	65	65	65	65	67	70	69	67	64	65	68	64	63	65	71	81	87	93	95	97	98	72.6	98																							
28-Oct	99	92	86	87	83	82	82	82	81	79	77	76	76	76	78	78	77	77	77	83	74	74	78	75	80.4	99																							
29-Oct	82	83	74	69	69	68	71	72	68	71	67	66	65	63	61	60	59	58	57	62	66	68	70	72	67.5	83																							
30-Oct	77	76	78	81	84	86	86	87	87	86	83	80	77	74	71	73	74	75	75	74	70	73	73	75	78.1	87																							
31-Oct	73	72	73	75	77	79	80	84	86	87	87	87	85	83	83	83	87	94	92	90	90	88	87	87	83.7	94																							
																								69.6	70.1	70.9	71.6	72.8	74.4	75.1	75.7	75.4	73.2	69.2	64.6	60.4	56.6	54.7	54.2	54.7	56.4	58.5	61.0	64.1	66.4	67.9	69.3	Diurnal Average	
																								99	99	99	99	98	97	95	93	93	93	92	87	85	83	83	85	92	94	96	96	97	97	98	98	Diurnal Maximum	





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

**Relative Humidity 45m (RH45) - %**  
**Mannix - October 2024**





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

**Relative Humidity 45m (RH45) - %**  
**Mannix - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	47	6.32	6.32
40 - 60	207	27.82	34.14
60 - 80	340	45.70	79.84
80 - 100	150	20.16	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

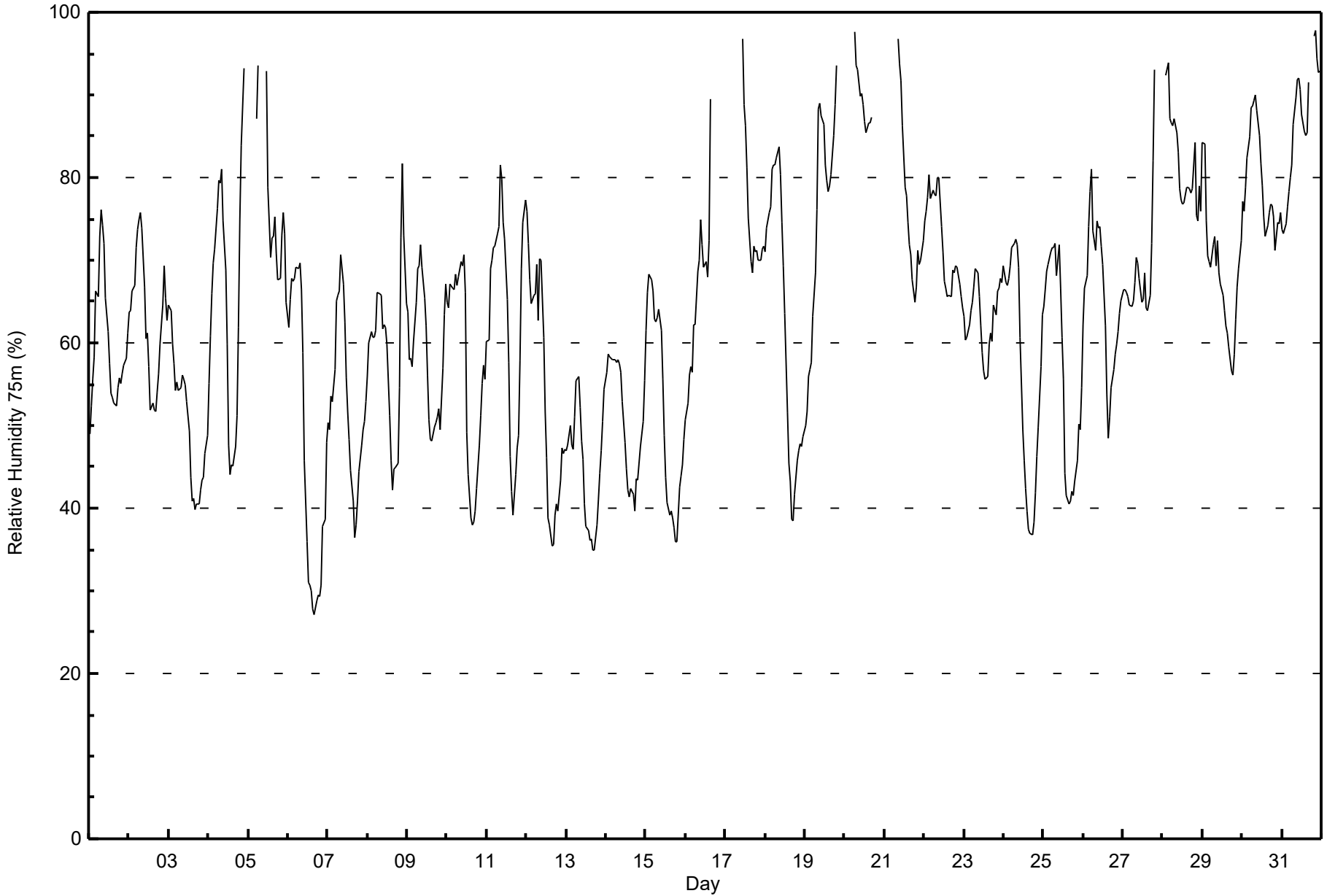


Maximum Value: 98 % on Oct 31 21:00																	Maximum Daily Average: 86.3 % on Oct 31																	Hours in Service: 744	
Minimum Value: 27 % on Oct 6 17:00																	Minimum Daily Average: 45.0 % on Oct 13																	Hours of Data: 682	
Maximum Diurnal Average: 74.3 % at hour 9																	Minimum Diurnal Average: 52.8 % at hour 18																	Hours of Missing Data: 62	
Monthly Average: 63.3 %																	Percentiles: P <sub>1</sub> = 31 P <sub>10</sub> = 42 Q <sub>1</sub> = 52 Median = 65 Q <sub>3</sub> = 73 P <sub>90</sub> = 82 P <sub>99</sub> = 94																	Hours of Calibration: 0	
																																		Percent Operational Time: 91.7	
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-Oct	49	52	56	58	66	66	73	76	74	72	65	61	57	54	53	53	52	55	56	55	56	57	58	61	59.9	76									
2-Oct	64	64	66	67	72	74	75	76	74	67	61	61	57	52	53	52	52	54	56	60	65	69	65	63	63.2	76									
3-Oct	65	64	60	57	54	55	54	55	56	56	55	53	49	44	41	41	40	40	41	42	43	44	47	49	50.2	65									
4-Oct	55	61	66	70	71	76	80	79	81	75	69	60	48	44	45	45	47	51	62	75	84	93	OR	OR	65.3	93									
5-Oct	OR	OR	OR	OR	OR	87	93	OR	OR	OR	OR	93	79	70	73	73	75	71	68	68	73	76	73	65	--	93									
6-Oct	62	65	68	67	68	69	69	70	66	59	46	36	31	31	30	28	27	29	30	29	31	38	39	48	47.3	70									
7-Oct	50	49	54	53	57	65	66	66	71	67	62	56	52	48	45	41	36	38	41	44	48	49	50	53	52.6	71									
8-Oct	56	60	61	61	61	61	66	66	66	62	62	62	60	51	46	42	45	45	45	55	73	82	73	65	59.4	82									
9-Oct	64	58	58	57	60	65	69	69	72	69	65	62	56	51	48	48	50	50	51	52	50	57	63	67	58.9	72									
10-Oct	65	64	67	67	66	68	67	68	70	69	71	66	49	44	39	38	38	40	42	48	51	55	57	56	56.9	71									
11-Oct	60	60	69	70	72	72	73	74	82	80	75	73	65	58	46	42	39	44	47	49	58	69	75	77	63.7	82									
12-Oct	76	72	68	65	66	66	69	63	70	70	61	52	46	39	38	35	36	39	40	40	43	47	47	47	53.9	76									
13-Oct	47	48	50	48	47	51	55	56	52	48	46	40	38	37	36	36	35	35	38	41	44	47	50	54	45.0	56									
14-Oct	57	59	58	58	58	58	58	58	58	56	53	48	45	42	41	42	42	40	44	43	45	47	50	55	50.6	59									
15-Oct	62	66	68	68	66	63	63	63	64	62	56	49	44	41	39	40	39	38	36	36	42	44	45	48	51.7	68									
16-Oct	51	53	56	57	56	62	62	69	70	75	72	69	70	68	72	89	OR	OR	OR	OR	OR	OR	OR	OR	--	89									
17-Oct	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	97	89	86	81	75	70	68	72	71	71	70	70	71	72	--	97									
18-Oct	71	74	76	76	81	82	82	82	84	80	75	69	63	52	45	43	39	39	42	46	47	48	47	49	62.1	84									
19-Oct	50	52	56	57	58	63	68	76	88	89	87	87	82	80	78	79	80	85	89	94	OR	OR	OR	OR	74.9	94									
20-Oct	OR	OR	OR	OR	OR	OR	98	94	93	90	90	89	87	85	87	87	87	87	OR	OR	OR	OR	OR	OR	--	98									
21-Oct	OR	OR	OR	OR	OR	OR	OR	OR	97	94	92	86	79	78	75	72	71	68	65	67	71	70	70	72	--	97									
22-Oct	75	76	78	80	78	78	78	78	80	80	74	71	68	67	66	66	66	69	68	69	69	67	66	64	72.0	80									
23-Oct	63	60	61	62	64	65	67	69	69	66	62	59	57	56	56	60	61	60	64	63	66	67	68	67	63.0	69									
24-Oct	69	67	67	68	69	71	72	73	72	69	61	50	46	42	40	37	37	38	42	46	50	57	63	63	56.0	73									
25-Oct	64	66	69	70	71	72	71	72	68	72	67	61	56	44	42	40	41	42	42	43	46	50	50	55	57.2	72									
26-Oct	62	67	68	74	78	81	74	71	75	74	74	72	69	62	54	49	51	55	57	59	60	61	64	65	65.6	81									
27-Oct	66	66	66	66	65	64	65	67	70	70	68	65	65	69	64	64	66	72	82	93	OR	OR	OR	OR	68.7	93									
28-Oct	OR	OR	92	94	87	87	86	87	85	83	79	77	77	77	79	79	79	78	79	84	75	75	79	76	81.6	94									
29-Oct	84	84	75	71	70	69	72	73	69	72	68	67	66	64	62	61	59	57	56	59	63	67	69	72	67.9	84									
30-Oct	77	76	79	82	85	88	89	89	90	88	85	82	79	75	73	74	76	77	77	75	71	75	74	76	79.7	90									
31-Oct	74	73	74	76	78	80	81	86	90	92	92	91	88	86	85	85	91	OR	OR	97	98	94	93	93	86.3	98									
																	63.0 63.8 66.1 66.6 67.5 70.0 72.3 72.3 74.3 72.6 69.6 66.3 61.7 57.7 55.7 55.2 54.2 52.8 54.5 58.6 58.8 61.8 61.6 62.8																	Diurnal Average	
																	84 84 92 94 87 88 98 94 97 94 97 93 88 86 87 89 91 85 89 97 98 94 93 93																	Diurnal Maximum	
OR - Out of Range																																			



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

**Relative Humidity 75m (RH75) - %**  
**Mannix - October 2024**





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

**Relative Humidity 75m (RH75) - %**  
**Mannix - October 2024**

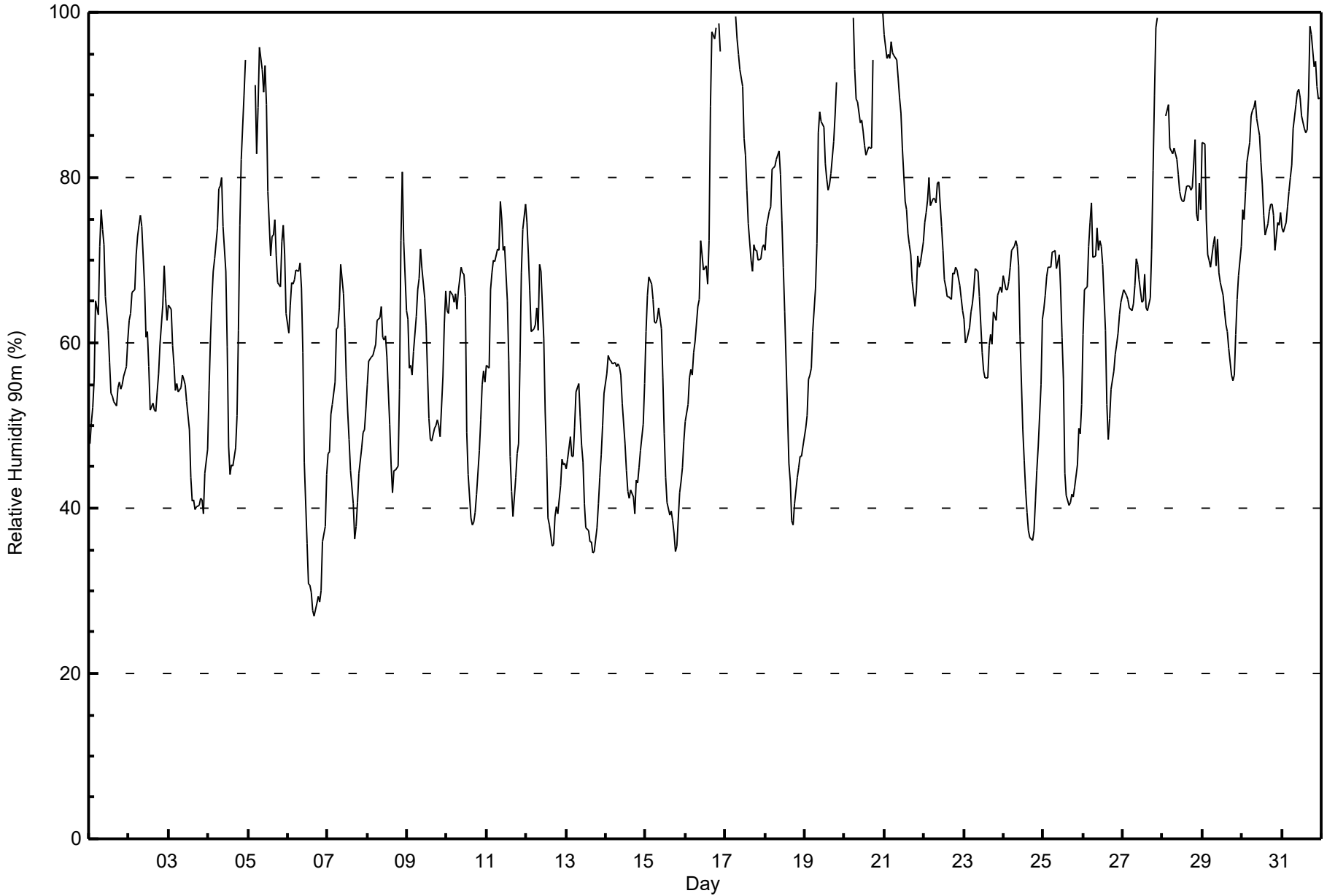
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	47	6.89	6.89
40 - 60	217	31.82	38.71
60 - 80	334	48.97	87.68
80 - 100	84	12.32	100.00

Total Number of Valid Hours: 682

Total Number of Hours: 744



Maximum Value: 100 % on Oct 21 00:00																			Maximum Daily Average: 86.3 % on Oct 31						Hours in Service: 744	
Minimum Value: 27 % on Oct 6 17:00																			Minimum Daily Average: 44.3 % on Oct 13						Hours of Data: 712	
Maximum Diurnal Average: 74.5 % at hour 9																			Minimum Diurnal Average: 55.1 % at hour 16						Hours of Missing Data: 32	
Monthly Average: 63.9 %																			Percentiles: P <sub>1</sub> = 31 P <sub>10</sub> = 42 Q <sub>1</sub> = 52 Median = 65 Q <sub>3</sub> = 74 P <sub>90</sub> = 85 P <sub>99</sub> = 98						Hours of Calibration: 0	
																									Percent Operational Time: 95.7	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	48	50	52	56	65	63	72	76	74	72	66	62	58	54	54	53	52	55	55	54	55	56	57	60	59.1	76
2-Oct	63	63	66	66	71	73	74	75	74	67	61	61	57	52	53	52	52	54	56	60	65	69	65	63	63.0	75
3-Oct	65	64	60	57	54	55	54	55	56	56	55	53	49	44	41	41	40	40	40	41	41	39	44	47	49.6	65
4-Oct	54	60	65	69	70	74	79	79	80	74	69	59	48	44	45	45	47	51	62	74	82	90	94	OR	65.8	94
5-Oct	OR	OR	OR	OR	91	83	88	96	93	90	94	89	78	71	73	73	75	70	67	67	72	74	71	64	78.9	96
6-Oct	61	65	67	67	68	69	69	70	67	59	46	36	31	31	30	28	27	28	29	29	30	36	38	44	46.8	70
7-Oct	47	47	51	53	55	62	62	64	69	66	62	56	52	48	45	41	36	38	41	44	47	49	49	52	51.5	69
8-Oct	55	58	58	59	59	60	63	63	64	61	60	61	58	50	45	42	45	45	45	54	72	81	72	64	58.1	81
9-Oct	63	57	57	56	59	63	67	68	71	69	65	62	56	51	48	48	50	50	51	50	49	56	62	66	58.1	71
10-Oct	64	64	66	66	65	66	64	66	69	68	68	66	49	44	39	38	38	39	42	47	51	55	57	55	56.1	69
11-Oct	57	57	66	69	70	70	71	71	77	75	71	72	65	58	46	42	39	44	47	48	58	68	74	77	62.1	77
12-Oct	75	71	66	61	62	62	64	62	69	69	60	52	46	39	38	35	36	39	40	39	43	46	45	45	52.7	75
13-Oct	45	46	49	46	46	50	54	55	51	48	46	40	38	37	36	36	35	35	38	41	44	46	50	54	44.3	55
14-Oct	56	58	58	58	58	58	57	57	57	56	53	48	45	42	41	42	41	39	43	43	45	47	50	55	50.3	58
15-Oct	61	66	68	67	65	62	62	63	64	62	56	49	44	41	39	40	38	37	35	35	42	43	45	48	51.4	68
16-Oct	51	53	56	57	56	59	60	64	65	72	71	69	69	67	72	89	98	97	98	OR	99	95	OR	OR	72.2	99
17-Oct	OR	OR	OR	OR	OR	OR	100	97	95	93	91	85	83	79	74	70	69	72	71	71	70	70	71	72	79.5	100
18-Oct	71	74	76	76	81	81	81	82	83	80	75	69	64	52	45	43	38	38	41	44	45	46	46	47	61.7	83
19-Oct	50	51	56	56	57	61	67	72	86	88	87	86	82	80	78	79	80	84	88	92	OR	OR	OR	OR	74.0	92
20-Oct	OR	OR	OR	OR	OR	99	93	89	89	87	87	86	84	83	84	84	84	94	OR	OR	OR	OR	OR	100	--	100
21-Oct	97	94	95	94	96	95	95	94	92	90	88	84	77	76	73	72	71	67	64	66	70	69	70	72	81.8	97
22-Oct	75	76	77	80	77	78	77	77	79	80	74	71	68	67	66	66	65	68	68	69	69	67	65	64	71.8	80
23-Oct	63	60	60	62	64	65	66	69	69	66	62	59	57	56	60	61	60	64	63	66	66	67	66	66	62.7	69
24-Oct	68	66	66	67	69	71	72	72	72	69	61	49	46	42	39	37	36	36	37	41	45	48	55	63	55.4	72
25-Oct	64	66	68	69	69	71	71	71	69	71	66	61	56	44	41	40	41	42	41	43	45	50	49	53	56.7	71
26-Oct	61	66	67	72	75	77	70	71	74	71	72	72	69	62	53	48	51	54	57	59	60	61	63	65	64.5	77
27-Oct	66	66	66	65	64	64	65	67	70	70	68	65	65	68	64	64	65	71	81	90	98	99	OR	OR	71.0	99
28-Oct	OR	OR	87	89	84	83	83	84	82	80	78	78	77	77	79	79	79	78	79	85	76	75	79	76	80.3	89
29-Oct	84	84	75	71	70	69	72	73	69	73	69	67	66	64	62	61	59	56	55	56	61	65	68	72	67.6	84
30-Oct	76	75	78	82	84	87	88	89	89	87	85	82	79	75	73	74	76	77	77	75	71	75	74	76	79.4	89
31-Oct	74	73	75	76	78	80	81	86	89	90	91	90	87	86	85	86	90	98	97	93	94	91	89	90	86.3	98
																			63.4 64.1 66.2 66.7 68.3 70.4 72.3 73.4 74.5 72.8 69.5 65.7 61.4 57.5 55.5 55.1 55.3 56.7 57.0 57.7 60.8 63.2 61.9 63.3						Diurnal Average	
																			97 94 95 94 96 99 100 97 95 93 94 90 87 86 85 89 98 98 98 93 99 99 94 100						Diurnal Maximum	
OR - Out of Range																										





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

**Relative Humidity 90m (RH90) - %**  
**Mannix - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	48	6.74	6.74
40 - 60	227	31.88	38.62
60 - 80	327	45.93	84.55
80 - 100	109	15.31	99.86

Total Number of Valid Hours: 712

Total Number of Hours: 744





Maximum Speed: 36 km/h on Oct 17 18:00		Maximum Daily Speed Average: 20.7 km/h on Oct 17		Hours in Service: 744																						
Minimum Speed Value: 1 km/h on Oct 16 13:00		Minimum Daily Speed Average: 2.9 km/h on Oct 12		Hours of Data: 744																						
Maximum Diurnal Speed Average: 5.5 km/h at hour 14		Minimum Diurnal Speed Average: 2.7 km/h at hour 18		Hours of Missing Data: 0																						
Monthly Average Velocity: 4.0 km/h 234.7 deg		Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 6 Q <sub>1</sub> = 9 Median = 12 Q <sub>3</sub> = 16 P <sub>90</sub> = 20 P <sub>99</sub> = 29		Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	W13	W14	W15	W11	W8	W7	NW2	SW5	WSW7	NW7	NW6	NW5	NW7	NW8	NNW6	NE6	NE8	NNE12	NE10	N7	NW6	W9	WNW9	WNW10	WNW5.6	W15
2-Oct	W12	WNW12	NW12	WNW15	W14	W16	W15	W18	WNW15	WNW21	WNW23	W24	WNW21	WNW24	WNW23	WNW20	WNW19	WNW23	NW21	NW20	NNW19	NNW16	NW15	NW16	WNW17.1	W24
3-Oct	NW15	NW14	WNW16	WNW14	WNW13	WNW13	NW15	WNW14	WNW12	WNW17	WNW14	WNW12	WNW10	W11	WSW16	WSW16	WSW15	WSW10	SSW9	SSW8	SW7	SSW6	SE5	SE9	W9.6	WNW17
4-Oct	SSE8	SSE12	SSE11	SSE9	SSE8	SSE10	SE8	SE5	SSE8	SE8	SE6	E9	ESE13	ESE13	ENE14	ENE15	NNE13	NE10	NE7	N9	NNE11	N11	N12	N9	E5.2	ENE15
5-Oct	N12	N15	N12	NNW9	NNW5	NNW7	NW5	W5	WSW4	WSW7	SW7	WSW9	WSW10	SW12	SW11	SSW7	S8	SSW9	SSE10	SSE13	SSE14	S12	S13	SSW12	SW4.0	N15
6-Oct	SW16	SW17	WSW14	WSW23	W29	W29	W22	WSW12	WSW13	SW19	WSW23	WSW25	WSW24	W24	W22	W22	W19	W11	WSW10	SW13	SW12	SSE6	SSE9	SE10	WSW16.0	W29
7-Oct	SSE12	SSE11	SE11	SSE11	SSE12	SSE10	SSE12	SSE12	SSE9	SSE13	SSE15	SSE16	S14	SSE16	SSE11	SSE9	SSW11	S11	S12	S11	S12	S10	SSE9	SSE12	SSE11.5	SSE16
8-Oct	SSE9	SSE9	SSE10	SSE8	SSE9	SSE10	SSE9	SSE9	SSE7	SE5	ENE2	SE7	SSE9	SE10	SSE8	SE14	SE16	SE12	SSE10	W30	W15	WSW16	SW16	SSW12	S7.3	W30
9-Oct	SSW12	SW13	SW13	SSW11	S10	S12	SSW11	SW16	WSW11	WSW13	WSW15	WSW14	WSW13	WSW16	WSW14	WSW12	WSW8	SW7	SW11	SW10	WSW10	WSW9	SSW6	SSE5	SW10.5	SW16
10-Oct	S5	S6	S7	SSE9	SSE12	SSE9	SSE9	SSE9	SSE9	SSE7	SSE7	SE6	SW5	WSW18	WSW17	WSW16	WSW17	WSW11	WSW11	W13	WNW11	W8	WSW8	WSW10	SW7.3	WSW18
11-Oct	WSW12	WSW12	SW8	S7	SSE11	SSE10	SSE10	SSE10	SSE8	SSE6	SSE10	SSE11	SSE11	SSE10	SSW11	SW11	SW12	SSW11	SSW13	SSW13	SW13	SW10	SW9	S7	S8.6	SSW13
12-Oct	SSE7	SSE4	WSW9	W11	W10	W7	WSW9	WSW5	WSW10	W12	W10	NW5	N6	NNW8	NNW6	NNW3	E5	E8	SSE6	SE10	SSE13	SSE11	SSE12	SSE11	SW2.9	SSE13
13-Oct	SSE11	SSE13	SSE14	SSE12	SSE15	SE15	SE18	SE19	SE17	SSE17	SSE20	SSE23	SSE21	SE21	SE19	SE17	SE14	SE17	SSE17	SSE15	SE14	SE12	SE15	SE18	SE16.2	SSE23
14-Oct	SE15	SE13	SE13	SE14	SE12	SE15	SE14	SE17	SE16	SE14	SSW15	SSE11	SSE13	SE19	SE18	SE16	SE16	SE19	SE18	SSE11	SSE14	S10	S10	SSE12	SSE14.3	SE20
15-Oct	SSE9	SSE10	SSE10	SSE8	SSE5	WSW10	WSW12	WSW15	WSW16	WSW11	WSW14	W16	W14	W11	WSW12	WSW11	WSW8	SW8	SSW9	SSW10	SW9	SSW7	SW8	S3	SW8.2	W16
16-Oct	S3	SSE6	SSE8	SSE11	SSE8	SSE9	SSE9	SSE8	SSE7	SSE7	SSE6	SSE4	E1	NE2	E3	ENE7	ENE10	E11	ENE9	E3	ENE7	E2	NNW4	NW2	SE4.1	SSE11
17-Oct	W5	W7	WSW7	WSW7	W11	WSW12	WSW17	WSW22	WSW21	WSW22	WSW22	W27	WSW19	WSW20	W24	W25	W35	W36	W36	W31	W28	WNW29	WNW26	WNW21	W20.7	W36
18-Oct	WNW23	WNW18	WNW14	WNW14	SW5	SSW9	SSW11	SSW11	SSW8	S8	SSE10	SE9	SSE11	SSW14	SSW15	SSW14	SSW11	S12	SSE12	SSE12	SSE13	SSE13	SSE13	SSE9	SSW7.8	WNW23
19-Oct	SSE9	SE6	SE4	SSW5	SSW4	N3	NW5	NNW7	N7	NW8	NW8	NNW8	NNW7	NNW6	N4	N7	N9	N14	NNE15	NNE15	NNE15	N14	N12	N11	N5.9	NNE15
20-Oct	N13	NNW16	NNW12	NNW12	NNW11	N13	NNE16	NNE17	NNE12	NNE12	NNE11	NE7	NNE7	NNE11	NNE14	NNE13	NNE14	NNE13	NNE16	NNE18	NNE19	NNE19	NNE21	NNE27	NNE13.8	NNE27
21-Oct	N28	N31	N30	N27	N20	NNW22	NNW23	NNW22	NNW23	NNW21	NNW21	NNW20	NNW16	NNW11	NNW9	NNW9	NW7	WNW10	WNW11	W11	WSW11	W11	WSW12	WSW12	NNW14.2	N31
22-Oct	SW10	SSW8	SSW9	SSW8	SSW9	S12	S11	S12	S11	S10	SW18	SSW14	SW15	SSW16	SSW14	SSW14	SSW15	S12	SSW14	SSW16	SW13	SW16	WSW17	WSW17	SSW12.4	SW18
23-Oct	WSW19	WSW23	WSW24	WSW26	WSW28	W23	W21	W20	WSW20	W20	W18	WSW18	WSW21	WSW24	WSW20	WSW17	WSW18	WSW14	WSW17	WSW13	S6	SSE8	S8	SSW8	WSW17.1	WSW28
24-Oct	S8	SSW8	S6	SW4	WSW10	WSW12	WSW14	WSW14	SW6	WSW10	W11	W22	W25	W21	W24	W20	W14	W11	WSW11	W14	W11	WSW7	WNW7	S3	W11.1	W25
25-Oct	SW7	WSW6	SSW6	SSW10	SSW9	S8	S7	SSE6	SSE4	S4	WSW6	W9	WNW5	WNW14	WNW11	W11	W9	SW7	SW7	WSW6	WSW5	SSE7	SSE6	SSE6	SW5.2	WNW14
26-Oct	S7	SSE3	SE3	ENE1	ENE1	NNE2	N5	NNE5	NNW2	WNW4	N5	NW5	NNW8	NNW7	NNE9	E14	E16	E18	ESE13	ESE14	SE15	SE19	SE20	SE20	ESE5.5	SE20
27-Oct	SE18	SE17	SE16	SE18	SE17	SE14	SE12	SE17	SE20	SE18	ESE14	ESE14	ESE19	ESE15	ESE15	SE18	SE11	SE8	ESE4	SE7	SSE6	SSW1	NW7	WNW7	SE11.7	SE20
28-Oct	W11	W19	WNW19	WNW20	WNW20	WNW20	WNW16	WNW16	WNW16	WNW19	WNW22	WNW21	WNW22	NW21	WNW19	WNW19	WNW18	WNW20	WNW19	W23	WNW21	WNW18	W21	W21	WNW18.9	W23
29-Oct	W19	W18	WNW19	WNW22	WNW21	WNW20	WNW19	WNW14	WNW14	WNW13	W14	WSW11	WSW8	SW11	SW9	S5	SE6	SE8	SSE9	SE8	SSE9	SE6	SSE2	N5	W7.9	WNW22
30-Oct	NNE12	NNE14	N14	N12	N15	N18	N19	NNE15	N14	NNE16	N13	NNE12	NNE11	NNE11	NE12	NE14	NE14	NE12	NE11	ENE12	E14	ENE10	ENE13	ENE9	NNE12.0	N19
31-Oct	E12	ESE9	ESE10	SE10	SE10	SE13	SE13	SE10	E14	E11	ESE13	SE14	SE14	SSE10	SSE6	S8	SE11	SE10	SSE13	SSE11	SSE11	SSE12	S11	SW8	SE9.8	SE14
SW3.7WSW3.8WSW3.5WSW4.4 SW4.8WSW4.7WSW4.2 SW4.1 SW3.8WSW4.4WSW4.7WSW5.1WSW4.5WSW5.5WSW5.0 SW3.9 SW3.5 SW2.7 SW4.1 SW4.6 SW3.3 SW3.4 SW3.2SSW2.9																								Diurnal Average		
N28 N31 N30 N27 WSW29 W29NNW23 NNW22 NNW23 WSW22WNW23 W27 W25 W24 W24 W25 W35 W36 W36 W31 W28WNW29WNW26 NNE27																								Diurnal Maximum		
All monthly, daily, and diurnal averages have been calculated using vector methods																										



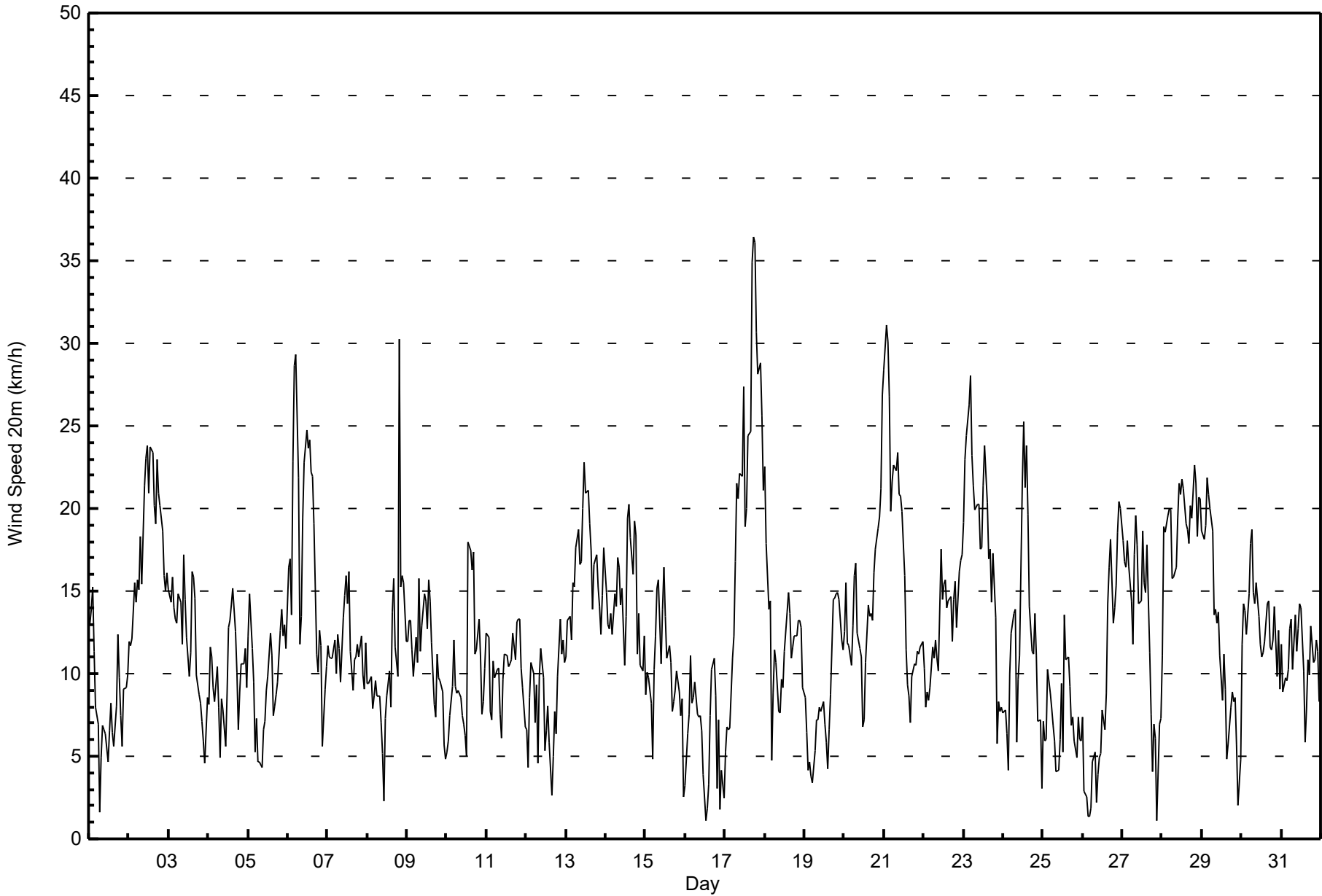
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed 20m (WS20) - km/h

Mannix - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 13 km/h on Oct 8 20:00 Minimum Value: 1 km/h on Oct 26 04:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 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-Oct	2	2	2	3	2	3	1	1	2	3	2	3	3	4	4	3	3	3	3	2	3	1	2	2	4
2-Oct	2	3	4	3	3	3	3	4	4	7	7	5	6	6	7	6	6	6	6	6	6	5	5	5	7
3-Oct	5	4	4	4	4	4	5	4	4	5	4	4	4	5	5	4	4	3	2	2	1	2	2	5	
4-Oct	2	2	2	2	2	3	3	2	3	3	3	2	3	4	4	4	3	5	5	3	2	4	3	5	
5-Oct	4	4	3	3	2	2	3	2	1	2	2	3	4	4	4	3	3	2	2	3	3	4	3	4	
6-Oct	4	3	3	6	6	6	5	3	4	5	6	6	6	5	5	4	4	3	1	2	2	2	1	3	
7-Oct	3	3	3	2	3	2	2	3	3	4	4	4	5	5	4	3	4	3	3	3	2	1	2	5	
8-Oct	1	2	2	2	2	2	3	2	2	3	2	3	2	4	2	5	4	3	3	13	5	3	4	13	
9-Oct	3	3	3	2	2	4	3	4	4	3	4	4	3	4	4	3	2	2	2	1	1	2	2	4	
10-Oct	1	1	2	3	1	2	2	2	2	2	2	2	6	5	4	5	4	3	2	2	2	3	4	6	
11-Oct	1	1	2	3	2	3	3	3	2	2	3	3	3	4	4	4	3	3	3	3	3	2	2	4	
12-Oct	1	2	3	2	1	2	2	3	2	2	2	2	3	3	3	2	2	2	2	2	2	1	2	3	
13-Oct	2	2	1	2	3	4	4	5	4	4	5	7	6	6	6	4	4	4	4	3	3	3	4	7	
14-Oct	4	4	3	3	4	4	4	4	4	4	4	3	4	6	6	5	4	5	5	3	3	4	3	6	
15-Oct	2	2	2	3	2	4	3	4	4	4	4	3	3	3	3	3	2	2	2	2	1	3	1	4	
16-Oct	2	1	1	2	2	3	2	2	2	3	2	2	1	1	1	2	2	3	4	2	2	2	1	4	
17-Oct	1	2	1	2	2	3	4	5	4	5	5	6	5	7	6	7	8	7	6	7	6	7	5	8	
18-Oct	5	4	4	3	4	2	2	3	3	3	3	3	4	5	5	5	3	2	2	2	2	2	2	5	
19-Oct	1	2	2	2	2	2	2	2	2	3	2	3	2	2	2	2	3	4	4	5	4	4	4	5	
20-Oct	4	4	4	3	3	4	4	3	3	4	3	2	2	3	4	3	3	3	3	4	4	4	7	7	
21-Oct	6	7	9	8	6	6	6	6	6	6	6	5	5	4	3	3	2	2	2	3	3	2	3	9	
22-Oct	4	2	3	3	3	4	3	4	3	3	6	5	4	5	5	5	4	5	5	4	4	4	5	6	
23-Oct	5	6	5	6	7	6	6	3	4	4	5	5	6	5	5	4	4	3	3	3	2	1	2	7	
24-Oct	2	2	2	1	3	3	4	3	3	3	3	6	6	5	5	4	4	2	2	1	3	2	4	6	
25-Oct	1	1	2	2	1	2	3	3	2	2	2	3	2	5	3	4	3	2	1	1	2	3	2	5	
26-Oct	1	2	1	1	1	1	2	2	1	1	2	2	2	2	2	4	3	4	4	4	5	5	6	6	
27-Oct	5	4	4	4	4	4	3	5	5	5	5	5	5	5	5	5	3	2	2	3	3	2	2	5	
28-Oct	2	4	4	4	5	5	3	3	4	4	5	5	6	6	5	4	4	5	4	5	5	4	4	6	
29-Oct	4	3	5	5	5	5	4	4	4	3	3	4	4	4	3	2	1	2	2	2	2	3	2	5	
30-Oct	3	4	4	4	5	5	4	4	3	3	4	3	3	3	3	3	4	3	3	4	3	3	2	5	
31-Oct	3	4	4	3	4	3	4	4	3	3	4	5	5	4	2	3	3	3	4	3	3	3	3	5	
Diurnal Maximum																									





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

**Wind Speed 20m (WS20) - km/h**  
**Mannix - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	60	8.06	8.06
6 - 11	303	40.73	48.79
12 - 19	289	38.84	87.63
20 - 28	82	11.02	98.66
29 - 38	10	1.34	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 20m (WS20) - km/h**  
**Mannix - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	4	3	1	3	5	1	5	7	6	3	4	3	2	3	7	3	60
6 - 11	9	7	7	6	4	3	23	83	23	28	21	33	23	9	9	15	303
12 - 19	16	22	4	4	6	10	44	35	10	15	15	43	21	32	6	6	289
20 - 28	3	2	0	0	0	0	5	3	0	0	0	17	21	21	3	7	82
29 - 38	2	0	0	0	0	0	0	0	0	0	0	1	6	1	0	0	10
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	34	12	13	15	14	77	128	39	46	40	97	73	66	25	31	744

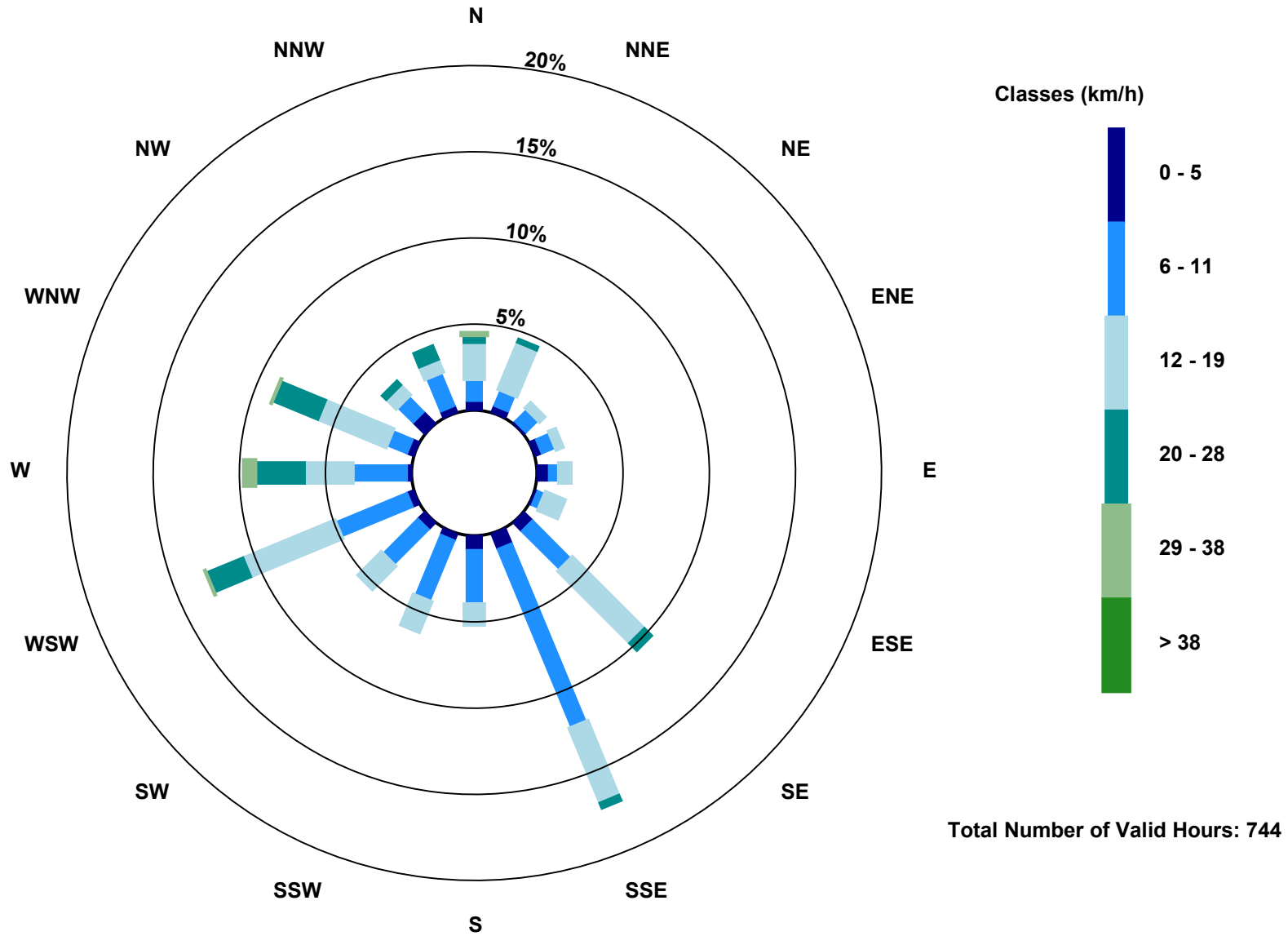
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 20m (WS20) - km/h  
Mannix





Maximum Speed: 42 km/h on Oct 17 18:00	Maximum Daily Speed Average: 25.4 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 16 13:00	Minimum Daily Speed Average: 3.7 km/h on Oct 12	Hours of Data: 742
Maximum Diurnal Speed Average: 7.2 km/h at hour 20	Minimum Diurnal Speed Average: 4.4 km/h at hour 24	Hours of Missing Data: 2
Monthly Average Velocity: 5.6 km/h 228.3 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 8 Q <sub>1</sub> = 12 Median = 17 Q <sub>3</sub> = 21 P <sub>90</sub> = 26 P <sub>99</sub> = 36	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-Oct	W21	W20	W22	W18	W12WNW13	NNW3	WSW5	WSW9	NW9	WNW8	NW6	NW8	NW11	NNW9	NNE7	NNE10	NNE17	NNE16	N11	NW8WNW14WNW16WNW16	WNW8.7	W22				
2-Oct	WNW19WNW18	NW19WNW22	W20	W21	W20	W22	W20WNW28WNW31	W29WNW26WNW30WNW32WNW27WNW27WNW32WNW30	NW29	NNW27	NNW22	NW22	NW24	WNW23.6	WNW32											
3-Oct	NW22WNW20WNW22WNW20WNW19WNW18WNW22WNW21WNW16WNW23WNW19WNW15WNW12	W13WSW19WSW20WSW18WSW15	SW15	SSW16	SW14	SSW13	SSE7	SSE14	W13.4	WNW23																
4-Oct	SSE16	SSE19	SSE18	SSE17	SSE17	SSE18	SE14	SE8	SSE13	ESE10	SE7	E10	E14	ESE16	ENE17	NE20	NNE17	NE15	NE10	NNE11	NNE15	N15	N17	N13	E7.5	NE20
5-Oct	N18	N21	N17	NNW14	NNW10	NNW12	NW9	W7	W7	WSW9	SW9WSW11WSW11	SW15	SW15	S11	S13	SSW15	SSE17	SSE22	SSE23	S20	S22	SSW21	SW5.7	SSE23		
6-Oct	SW26	SW25WSW21WSW31WSW36WSW36WSW27WSW16	SW18	SW24	SW28WSW31WSW29WSW29	W26WSW26	W23	W16WSW16	SW20	SW21	S9	SSE11	SE17	WSW21.4	WSW36											
7-Oct	SE21	SE20	SE20	SE21	SE20	SE17	SE22	SE21	SSE15	SSE19	SSE20	SSE20	SSE21	SSE15	SSE13	S19	S19	S21	S19	S19	S16	SSE16	SSE18	SE22	SE18.2	SE22
8-Oct	SSE16	SSE16	SSE16	S11	SSE14	SSE16	SE15	SSE16	SSE13	SE9	ENE3	SE10	SE12	SE14	SE11	SE19	SE21	SE18	SSE16WSW38	W21WSW22	SW23	SSW19	S11.4	WSW38		
9-Oct	SSW20	SW21	SW21	SW21	SSW18	S24	SSW21	SW26WSW17WSW17WSW18WSW17WSW15WSW18WSW18WSW15	SW12	SW12	SW17WSW15WSW17WSW16	SW10	S3	SW16.1	SW26											
10-Oct	SSW4	SSW6	S13	S8	SSE16	SSE15	SSE15	SSE13	SSE12	SSE10	SSE9	SSE8	SW7WSW22WSW21	SW20WSW22WSW17	SW19	W20WNW17	W11WSW10WSW15	SW10.0	WSW22							
11-Oct	WSW16WSW15WSW14	SW8	SSE12	SSE15	SSE16	SSE17	SSE11	SSE8	SSE11	SE13	SE13	SSE13	S14	SW14	SW17	SSW20	SSW24	SSW25	SW22	SW17	SW16	SSW11	SSW12.4	SSW25		
12-Oct	S9	SSW3	W12	W17	W16	W14	W15	W12WSW12WSW13	W10	NW6	N8	NNW11	NNW7	NNW4	ENE5	E11	SE11	SE15	SE19	SE18	SE18	SSE19	SW3.7	SE19		
13-Oct	SSE19	SE20	SE20	SE20	SE26	SE25	SE25	SE26	SE24	SE24	SE26	SSE28	SE27	SE26	SE24	SE23	SE20	SE24	SSE25	SE23	SE22	SE19	SE21	SE24	SE23.1	SSE28
14-Oct	SE21	SE19	SE20	SE21	SE18	SE21	SE21	SE24	SE22	SE20	SE18	SE14	SE17	SE25	SE26	SE22	SE22	SE25	SE24	SSE18	SSE21	S18	S17	SSE17	SE19.8	SE26
15-Oct	SSE14	SSE15	SSE13	S11	SW7WSW16WSW18WSW20WSW20WSW13WSW15WSW19	W15	W13WSW13WSW13WSW12	SW14	SW16	SW18	SW16	SW12	SW13	SW6	SW12.2	WSW20										
16-Oct	SSW5	S7	S6	SSE17	SSE13	SSE15	SSE15	SSE15	SSE12	SSE10	SSE7	SSE5	E1	NNE2	E4	ENE10	ENE13	E13	ENE11	E6	ENE11	ESE4	WSW4	NW3	SE6.0	SSE17
17-Oct	W6	W7	WSW8WSW10	W16WSW17WSW22WSW27WSW27WSW29WSW28	W32WSW23WSW24WSW29WSW30	W41	W42	W42	W36	W34	W36WNW32	W27	W25.4	W42												
18-Oct	WNW29WNW23WNW18WNW19	WSW8	SW14	SSW20	SSW20	SSW12	S10	SSE12	SE11	SSE14	SSW20	SSW21	SSW20	SSW18	S20	SSE19	SSE19	SSE20	SSE21	SSE20	SSE14	SSW11.9	WNW29			
19-Oct	SE13	SE11	SE8	SSE6	SSE6	NNW5	NW8	NNW11	N9	NW9	NW9	NW10	NNW8	NNW7	N5	N8	N12	N20	N20	N20	NNE20	N20	N16	N16	N7.7	N20
20-Oct	NNW17	NNW21	NNW16	NNW16	NNW15	N17	N22	N21	N15	NNE15	NNE13	NE8	NNE8	NNE13	NNE18	NNE17	NNE18	NNE16	NNE21	NNE22	NNE24	NNE25	N28	N35	N17.7	N35
21-Oct	N38	N41	N39	N35	N26	NNW29	NNW30	NNW30	NNW32	NNW28	NNW27	NNW26	NNW20	NNW15	NNW13	NNW11	NW10WNW12	W14	W13WSW15WSW14WSW14WSW15	NNW18.8	N41					
22-Oct	SW14	SSW13	SSW15	SSW14	SSW15	S19	S17	S20	S17	S16	SW23	SSW20	SSW20	SSW22	SSW21	SSW22	SSW23	S19	SSW23	SSW23	SW19	SW21WSW22WSW23	SSW18.5	WSW23		
23-Oct	WSW26WSW31WSW32WSW34WSW36WSW29	W27WSW25WSW26WSW25WSW21WSW21WSW26WSW29WSW26WSW22WSW23WSW20	SW25WSW21	SSW10	S12	S14	SSW15	WSW22.9	WSW36																	
24-Oct	SSW13	SSW13	SW10	SW8WSW14WSW17WSW19WSW19	SW8WSW12	W13	W26	W30	W25	W28	W23	W19	W16WSW20	W20WSW17WSW11WNW11	ESE2	WSW15.4	W30									
25-Oct	SW9	WSW9	SW9	SSW16	SW14	SSW12	S10	SSE5	SSE4	S5	SW7	W11	WNW7	W16WNW13	W14	W13	WSW9	SW11WSW12	W7	SE7	SSE9	SSE10	SW7.4	SSW16		
26-Oct	SSE12	SE7	SE6	E2	NE2	NNE4	NNE8	NE8	NE3	NW3	NNW5	NW6	NNW9	NNW8	NE11	ENE17	E19	E21	ESE15	ESE16	ESE17	SE21	SE25	SE24	E7.7	SE25
27-Oct	SE22	SE23	SE23	SE24	SE24	SE22	SE19	SE23	SE25	SE20	ESE16	ESE16	ESE23	ESE19	ESE17	SE21	SE14	SE10	ESE5	SE8	SE8	UO	NW10	WNW9	SE15.6	SE25
28-Oct	UO	W25WNW25	W25WNW26	W26	W20	W20WNW22WNW25WNW28WNW26WNW28WNW27WNW26WNW24WNW23WNW27WNW25	W27WNW27WNW24	W23	W24	WNW24.8	WNW28															
29-Oct	W22	W20WNW24WNW28WNW26WNW25	W23WNW17WNW18	W15	W16WSW13	SW10	SW14	SW11	S7	SE7	SE11	SE14	SE13	SE12	SE8	E2	N6	W9.2	WNW28							
30-Oct	NNE15	N19	N19	N17	N20	N24	N25	N19	N18	N18	N17	N14	N13	NNE14	NNE15	NE17	NE17	NE15	NE15	ENE14	ENE16	ENE12	ENE14	ENE10	NNE15.2	N25
31-Oct	E14	ESE10	ESE11	ESE11	SE12	SE15	SE15	ESE12	E15	E13	ESE15	ESE16	ESE16	SE12	SE7	SSE10	SE13	SE12	SSE16	SSE13	SSE13	SSE16	S15	SW11	SE11.6	SSE16

SW5.3	SW5.3	WSW5.3	WSW6.6	SW6.8	SW6.7	SW5.8	SW5.7	SW5.2	WSW5.5	WSW5.9	WSW6.2	WSW5.4	WSW6.7	WSW6.2	SW5.0	SW5.1	SSW4.5	SSW6.6	SW7.2	SW5.2	SW5.4	SW5.0	SSW4.4	Diurnal Average
N38	N41	N39	N35	WSW36	WSW36	NNW30	NNW30	NNW32	WSW29	WNW31	W32	W30	WNW30	WNW32	WSW30	W41	W42	W42	WSW38	W34	W36	WNW32	N35	Diurnal Maximum

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

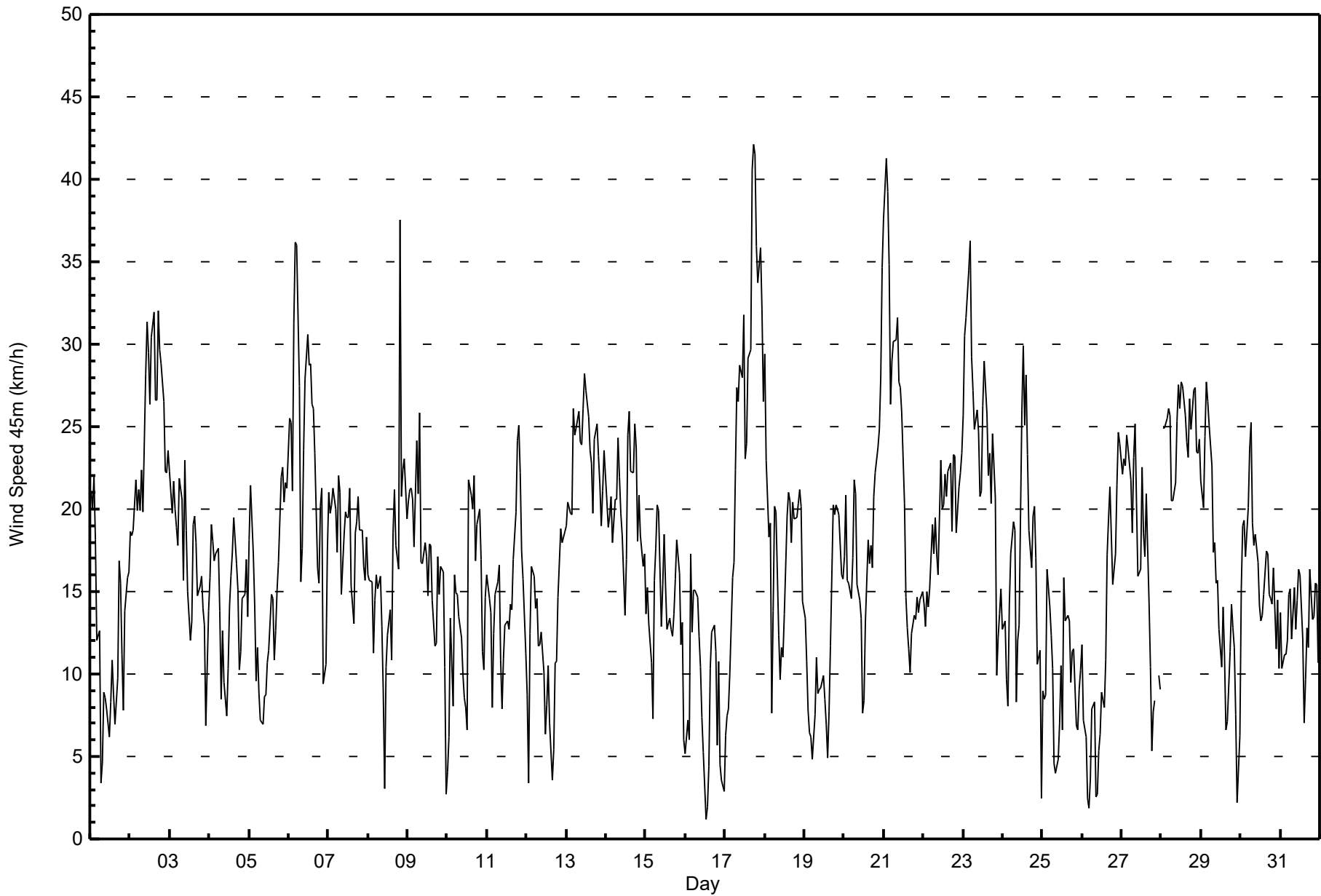


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 45m (WS45) - km/h**  
**Mannix - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 12 km/h on Oct 8 20:00 Minimum Value: 1 km/h on Oct 26 06:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																		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-Oct	1	1	2	2	3	3	3	2	1	2	2	3	3	4	4	3	3	3	3	3	3	3	2	2	4		
2-Oct	3	3	5	2	2	3	3	3	4	8	7	4	5	5	6	5	5	6	5	6	6	5	5	4	8		
3-Oct	4	3	4	3	5	4	4	3	3	4	4	4	4	5	5	4	4	2	1	1	1	3	2	5			
4-Oct	2	2	1	3	2	2	3	3	4	3	3	3	3	4	4	4	3	6	6	4	2	3	3	6			
5-Oct	5	3	3	3	3	2	3	1	1	2	2	3	4	3	2	2	2	2	1	3	3	3	3	5			
6-Oct	4	3	3	6	6	5	5	3	4	4	5	6	5	5	5	5	4	3	1	2	1	3	2	6			
7-Oct	2	2	3	2	2	2	2	2	4	3	3	3	4	4	4	2	4	3	3	3	2	2	1	4			
8-Oct	2	2	2	1	3	1	3	2	2	6	2	4	3	3	2	5	4	2	4	12	5	4	3	12			
9-Oct	3	3	2	2	2	3	4	3	4	3	4	3	3	4	3	3	2	1	1	1	2	2	4	4			
10-Oct	1	1	2	1	3	2	2	3	3	1	2	2	7	5	4	5	4	2	2	2	3	4	2	7			
11-Oct	1	1	2	2	5	4	3	3	2	2	2	2	2	4	3	4	3	3	2	3	2	2	2	5			
12-Oct	2	1	4	2	1	2	2	5	2	2	2	2	3	3	3	2	3	2	2	2	1	1	1	5			
13-Oct	2	1	2	2	2	3	4	5	4	4	4	7	6	5	5	4	4	4	3	3	3	4	4	7			
14-Oct	4	3	4	4	4	5	4	3	4	4	4	3	4	6	6	6	5	5	3	3	3	2	2	6			
15-Oct	1	2	2	3	2	5	4	4	4	5	4	4	3	3	3	3	2	1	2	2	1	2	3	5			
16-Oct	2	1	2	2	1	3	4	2	2	3	2	2	1	1	2	2	2	3	4	3	2	3	2	4			
17-Oct	1	1	1	3	2	3	4	5	4	5	5	6	5	7	6	7	8	7	6	7	6	6	7	8			
18-Oct	5	4	4	3	4	3	2	2	3	2	2	3	3	4	4	4	3	2	2	2	2	2	2	5			
19-Oct	2	3	3	3	3	1	2	2	2	2	2	2	2	2	2	2	3	5	4	5	4	3	4	5			
20-Oct	4	4	4	3	3	4	4	2	3	4	3	3	2	4	4	3	3	3	3	3	4	4	7	7			
21-Oct	5	6	8	9	6	6	6	5	6	6	5	5	4	3	3	3	2	2	2	3	3	2	3	9			
22-Oct	4	2	2	2	2	3	2	3	3	2	5	4	4	4	4	5	4	3	4	4	3	4	5	5			
23-Oct	5	6	6	6	7	6	6	3	4	4	5	5	6	5	5	3	3	3	2	3	4	2	2	7			
24-Oct	1	1	2	2	3	3	4	3	3	4	3	7	5	4	4	4	4	2	2	1	3	1	5	7			
25-Oct	1	2	2	2	1	2	4	2	2	2	2	3	3	4	3	4	2	1	1	1	3	3	4	4			
26-Oct	2	2	3	1	1	1	2	2	2	2	1	2	2	2	3	4	3	4	4	5	5	6	5	6			
27-Oct	5	4	4	4	4	4	3	5	5	6	5	5	5	5	5	6	3	3	2	3	3	UO	2	6			
28-Oct	UO	4	4	4	4	4	3	3	4	4	4	4	6	5	4	4	3	4	4	4	5	4	4	6			
29-Oct	3	3	6	4	5	5	4	3	3	2	3	4	4	4	3	2	1	2	1	2	3	4	1	6			
30-Oct	3	4	4	5	5	6	3	4	3	2	4	3	3	3	3	3	4	3	3	4	4	3	2	6			
31-Oct	3	4	4	4	4	4	4	4	4	3	4	5	5	4	2	3	3	3	4	3	3	3	3	5			
																		Diurnal Maximum									
UO - Unstable Operation																											







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

**Wind Speed 45m (WS45) - km/h**  
**Mannix - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	30	4.04	4.04
6 - 11	136	18.33	22.37
12 - 19	304	40.97	63.34
20 - 28	230	31.00	94.34
29 - 38	37	4.99	99.33
> 38	5	0.67	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 45m (WS45) - km/h  
Mannix - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1	2	2	2	4	3	0	3	2	3	0	2	0	0	2	4	30
6 - 11	5	5	4	4	3	5	16	17	11	3	16	12	7	5	13	10	136
12 - 19	19	14	5	7	6	12	32	56	18	16	24	45	22	20	0	8	304
20 - 28	11	5	1	0	1	2	53	13	6	20	15	32	27	33	3	8	230
29 - 38	3	0	0	0	0	0	0	0	0	0	0	16	6	7	1	4	37
> 38	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5
<b>Totals</b>	41	26	12	13	14	22	101	89	37	42	55	107	65	65	19	34	742

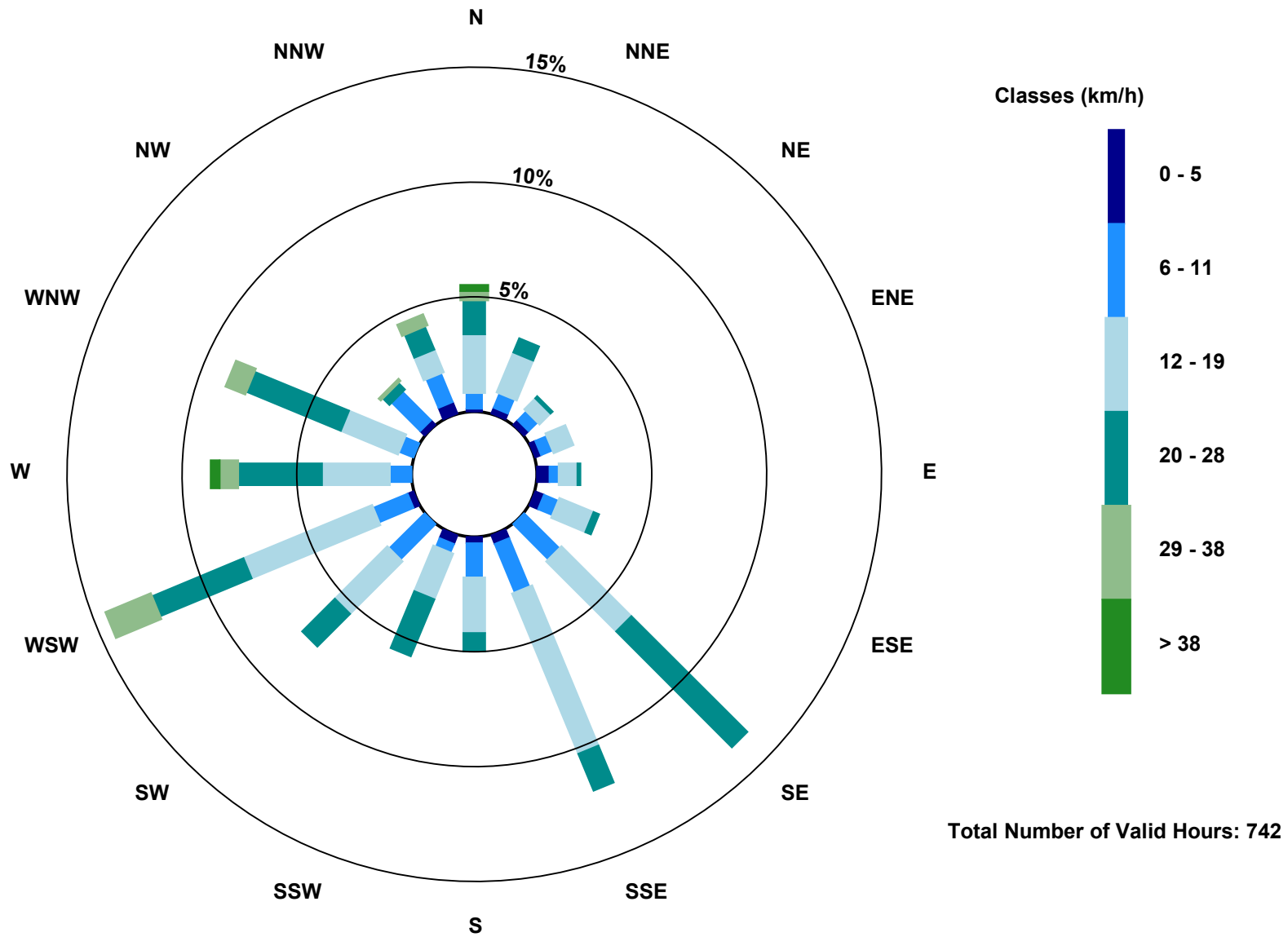
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 45m (WS45) - km/h  
Mannix





Maximum Speed: 46 km/h on Oct 21 02:00	Maximum Daily Speed Average: 28.2 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 2 km/h on Oct 16 13:00	Minimum Daily Speed Average: 3.7 km/h on Oct 12	Hours of Data: 744
Maximum Diurnal Speed Average: 8.9 km/h at hour 20	Minimum Diurnal Speed Average: 5.6 km/h at hour 16	Hours of Missing Data: 0
Monthly Average Velocity: 6.8 km/h 234.4 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 9 Q <sub>1</sub> = 13 Median = 19 Q <sub>3</sub> = 25 P <sub>90</sub> = 29 P <sub>99</sub> = 42	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-Oct	W28	W24	W27WNW25WNW15WNW14	NNW6	W3	W11	NW9	NW8	NW6	NW9	NW11	NNW9	NNE7	NNE10	NNE19	NNE20	N14	NNW11WNW14	NW20WNW20							NW10.5	W28
2-Oct	WNW23	NW21	NW22WNW25	W24	W26	W24	W25WNW22WNW30WNW33	W30WNW27WNW32WNW35WNW28WNW28WNW35	NW32	NW31	NNW29	NNW25	NW24	NW27	WNW26.1	WNW35											
3-Oct	NW24	NW21WNW23WNW21WNW21WNW19	NW24WNW22WNW16WNW24WNW19WNW16WNW12	W14WSW20WSW21WSW20WSW18	SW17	SW18	SW18	SW18	SSW11	S10	W15.6	NW24	NW27	W15.6	NW24												
4-Oct	S13	S15	S11	SSE13	SSE20	SSE25	SSE20	SE11	SSE16	ESE8	SE8	E10	E12	ESE13	ENE19	NE22	NE19	NE18	NE13	NE12	NNE15	NNE17	N19	N16	E7.8	SSE25	
5-Oct	N21	N24	N20	N17	NNW13	NNW15	NW12	WNW9	W9WSW11	SW10WSW11WSW12	SW15	SW15	S12	SSW15	SSW19	S21	SSE29	S29	S28	S30	SSW28	SW6.8	S30	SW6.8	S30		
6-Oct	SW32WSW31WSW27WSW37WSW42	W41	W32WSW19WSW20	SW25	SW30WSW33WSW31WSW31	W28WSW28	W25	W20	W19WSW20	SW18	SSW14	S8	SSE18	WSW24.5	WSW42												
7-Oct	SSE23	SSE25	SSE30	SSE28	SE24	SE22	SE27	SE27	SE22	SSE24	SSE24	SSE21	SSE21	SSE23	SSE17	SSE15	SSW23	S24	S27	S23	S22	SSW18	S15	S16	SSE21.4	SSE30	
8-Oct	SSW14	S15	S15	SSW14	S11	S11	SSE16	SSE17	SSE18	SE10	E5	SE12	SE14	SE15	SE13	SE19	SE25	SE22	SSE21WSW41	W23WSW28	SW29	SW24	S12.8	WSW41			
9-Oct	SW25	SW28	SW27	SW26	SW21	SSW28	SW29	SW34WSW22WSW20WSW20WSW18WSW15WSW19WSW19WSW15WSW14	SW14WSW18WSW19WSW23WSW23WSW15	WSW4	SW20.0	SW34															
10-Oct	WSW4	SW5	SSW8	SW8	SSW11	S12	S11	S9	SSW8	SSW8	S9	SSE9	SW8WSW23WSW22	SW22WSW25WSW21WSW24	W26	NW21WNW13	W12	W18	WSW11.5	W26					WSW11.5	W26	
11-Oct	W20	W22WSW20WSW13	SSW11	SSW13	SSE11	SSE17	SSE15	SSE11	SSE12	SSE13	SSE14	SSE14	S15	SW15	SW19	SSW24	SSW30	SSW34	SW29	SW24	SW22	SSW15	SSW15.1	SSW34			
12-Oct	SW10	WSW5	W16	W22	W21WNW19	W20	W14	W13	W13	W10	NW7	N9	NNW11	NNW7	NNW4	ENE5	E10	SE11	SE15	SE20	SE20	SE21	SE24	WSW3.7	SE24		
13-Oct	SSE26	SE25	SE23	SE26	SE32	SE33	SE29	SE32	SE31	SE29	SE31	SSE31	SSE29	SE27	SE25	SE25	SE24	SSE29	SSE31	SE30	SE27	SE25	SE24	SE27	SE27.8	SE33	
14-Oct	SE25	SE24	SE26	SE27	SE23	SE25	SE26	SE30	SE27	SE25	SE21	SSE16	SE18	SE25	SE28	SE20	SE26	SE29	SE26	SSE24	S27	S24	S20	S21	SE23.6	SE30	
15-Oct	S14	N14	SSW10	SW10WSW13WSW20WSW22WSW25WSW23WSW15WSW16WSW19	W16	W13WSW14WSW14WSW15	SW17	SW17	SW22	SW22	SW15	SW15	WSW9	WSW15.2	WSW25												
16-Oct	SW7	SW8	SW6	SSE12	S11	S10	S10	SSE14	SSE13	SSE15	SSE9	SSE7	E2	ENE2	E5	E12	ENE13	E13	E13	ESE7	E12	ESE7	SSW4	SSW2	SE6.1	SSE15	
17-Oct	W6	W7	WSW9WSW15	W20WSW21WSW27WSW32WSW31WSW33WSW32	W34WSW26WSW27WSW32WSW33	W44	W45	W43	W38	W36WNW39WNW35	W29	W28.2	W45														
18-Oct	WNW32WNW25WNW20WNW22WSW11	SW16	SW22	SW26	SW17	S10	SSE12	SE11	SSE15	SSW21	SSW23	SSW23	SSW21	S26	SSE27	SSE28	SSE28	SSE29	SSE26	SSE20	SSW14.6	WNW32					
19-Oct	SE17	SE12	SE8	SSE8	SSE7	NNW3	NW6	N13	N10	NW9	NW9	NNW10	NNW8	N7	N5	N8	N13	N23	NNE22	N22	NNE22	N22	N18	N18	N8.3	N23	
20-Oct	N20	NNW23	NNW18	NNW18	NNW17	N19	N24	N22	NNE16	NNE16	NNE14	NE8	NNE9	NNE14	NNE20	NNE18	NNE20	NNE19	NNE23	NNE25	NNE27	NNE28	NNE32	N38	N19.7	N38	
21-Oct	N42	N46	N43	N38	N30	N33	NNW35	NNW34	NNW36	NNW31	NNW30	NNW29	NNW22	NNW16	NNW15	NNW12	NW11WNW13WNW15	W15WSW17	W15WSW16WSW17	NNW21.0	N46						
22-Oct	SW16	SSW16	SSW18	SSW17	SSW19	S24	S21	S24	S21	S19	SW25	SSW22	SSW22	SSW24	SSW22	SSW26	SSW27	S23	SSW27	SSW27	SW22	SW25WSW26WSW28	SSW21.8	WSW28			
23-Oct	WSW31WSW36WSW37WSW40WSW43WSW34	W31	W28WSW30WSW28WSW23WSW24WSW29WSW32WSW29WSW25WSW28WSW25WSW30WSW26	SW13	SSW14	SSW18	SSW20	WSW27.3	WSW43	WSW34	W31	W28WSW30WSW28WSW23WSW24WSW29WSW32WSW29WSW25WSW28WSW25WSW30WSW26	SW13	SSW14	SSW18	SSW20	WSW27.3	WSW43									
24-Oct	SSW16	SW16	SW13WSW11WSW18WSW21WSW23WSW22WSW12WSW14	W14	W28	W31	W26	W29	W25	W21	W21	W26	W26WSW23	W15WNW14	ENE4	W18.4	W31										
25-Oct	SW8WSW10	SW10	SW17	SW19	SW15	SW12	SSW2	WSW3	SW5	WSW8	W11	WNW7	W16WNW14	W14	W15WSW10WSW13WSW16	W10	SE4	SE4	SSE11	WSW8.8	SW19						
26-Oct	SSE13	SE11	SE10	ESE4	NE4	NE5	ENE8	ENE10	ENE5	ENE3	N5	NNW6	NNW9	N8	NE13	E19	E18	E18	ESE12	ESE12	ESE13	SE18	SE21	SE19	E8.2	SE21	
27-Oct	SE21	SE25	SE27	SE29	SE28	SE24	SE25	SE24	SE15	ESE12	ESE13	ESE20	ESE15	ESE13	SE17	SE13	SE7	SE5	ESE6	SE10	S5	NW11WNW12	SE14.8	SE29			
28-Oct	W19	W28WNW28WNW29WNW30WNW29WNW24WNW23WNW25WNW28WNW29WNW28WNW29WNW29WNW28WNW26WNW25WNW29WNW27	W29WNW29WNW26	W25	W25	WNW26.7	WNW30																				
29-Oct	W23	W22WNW26WNW30WNW28WNW27WNW24WNW18WNW19WNW16	W16WSW13	SW12	SW15	SW12	S7	SSE8	SSE12	SSE16	SE15	SE10	SE7	E3	NNE7	W10.0	WNW30										
30-Oct	NNE18	N22	N22	N19	N23	N26	N27	NNE21	N19	NNE19	N18	NNE15	NNE14	NNE15	NE16	NE19	NE20	NE18	NE17	ENE15	ENE17	ENE13	ENE16	ENE12	NNE16.9	N27	
31-Oct	E14	ESE8	ESE10	ESE9	ESE9	SE11	SE11	SE12	E12	E11	ESE12	ESE13	SE13	SE13	SSE8	SSE11	SE13	SE11	SSE18	SSE15	SSE15	SSE17	S17	SW12	SE10.8	SSE18	

WSW6.9WSW6.9WSW6.9WSW8.3WSW8.4WSW8.0WSW7.1	SW6.7	SW6.3WSW6.4WSW6.6WSW6.9WSW6.1WSW7.3WSW6.7	SW5.6	SW6.2	SW5.8	SW7.9	SW8.9	SW6.6	SW6.8	SW6.4	SW5.7	Diurnal Average					
N42	N46	N43	WSW40WSW43	W41	NNW35	NNW34	NNW36	WSW33WNW33	W34	WSW31WNW32WNW35WSW33	W44	W45	W43	WSW41	W36WNW39WNW35	N38	Diurnal Maximum

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



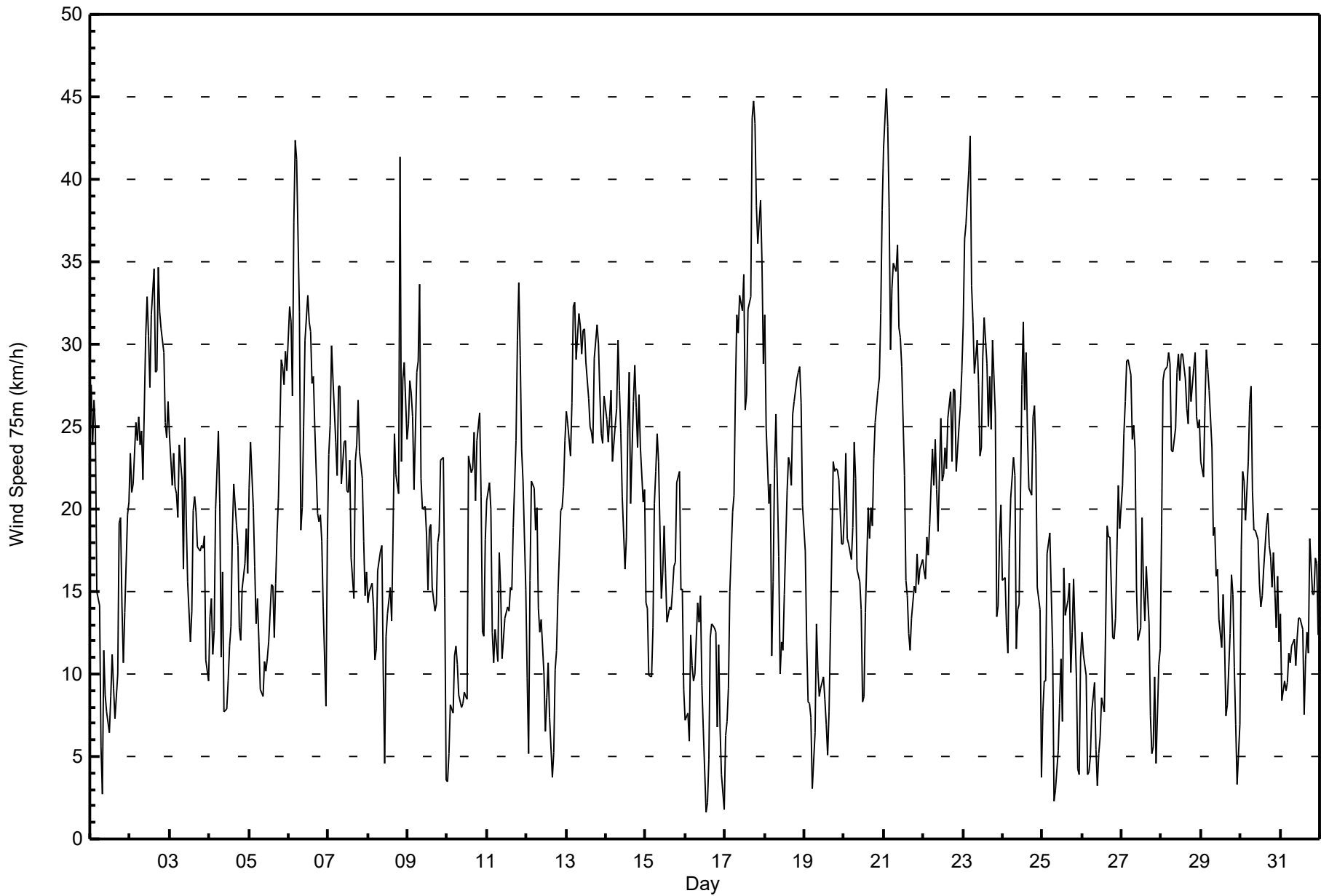
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed 75m (WS75) - km/h

Mannix - October 2024

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





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

**Wind Speed 75m (WS75) - km/h**  
**Mannix - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	30	4.03	4.03
6 - 11	117	15.73	19.76
12 - 19	241	32.39	52.15
20 - 28	255	34.27	86.42
29 - 38	89	11.96	98.39
> 38	12	1.61	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





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

**Wind Speed 75m (WS75) - km/h**  
**Mannix - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2	0	2	5	3	2	2	1	1	3	2	4	1	0	0	2	30
6 - 11	5	4	1	2	3	8	15	11	12	10	8	9	7	2	11	9	117
12 - 19	12	14	9	7	10	10	19	28	13	15	28	30	19	18	1	8	241
20 - 28	13	11	2	0	0	1	45	19	16	17	17	40	31	31	9	3	255
29 - 38	4	1	0	0	0	0	12	7	2	2	6	20	10	16	2	7	89
> 38	3	0	0	0	0	0	0	0	0	0	0	4	4	1	0	0	12
<b>Totals</b>	39	30	14	14	16	21	93	66	44	47	61	107	72	68	23	29	744

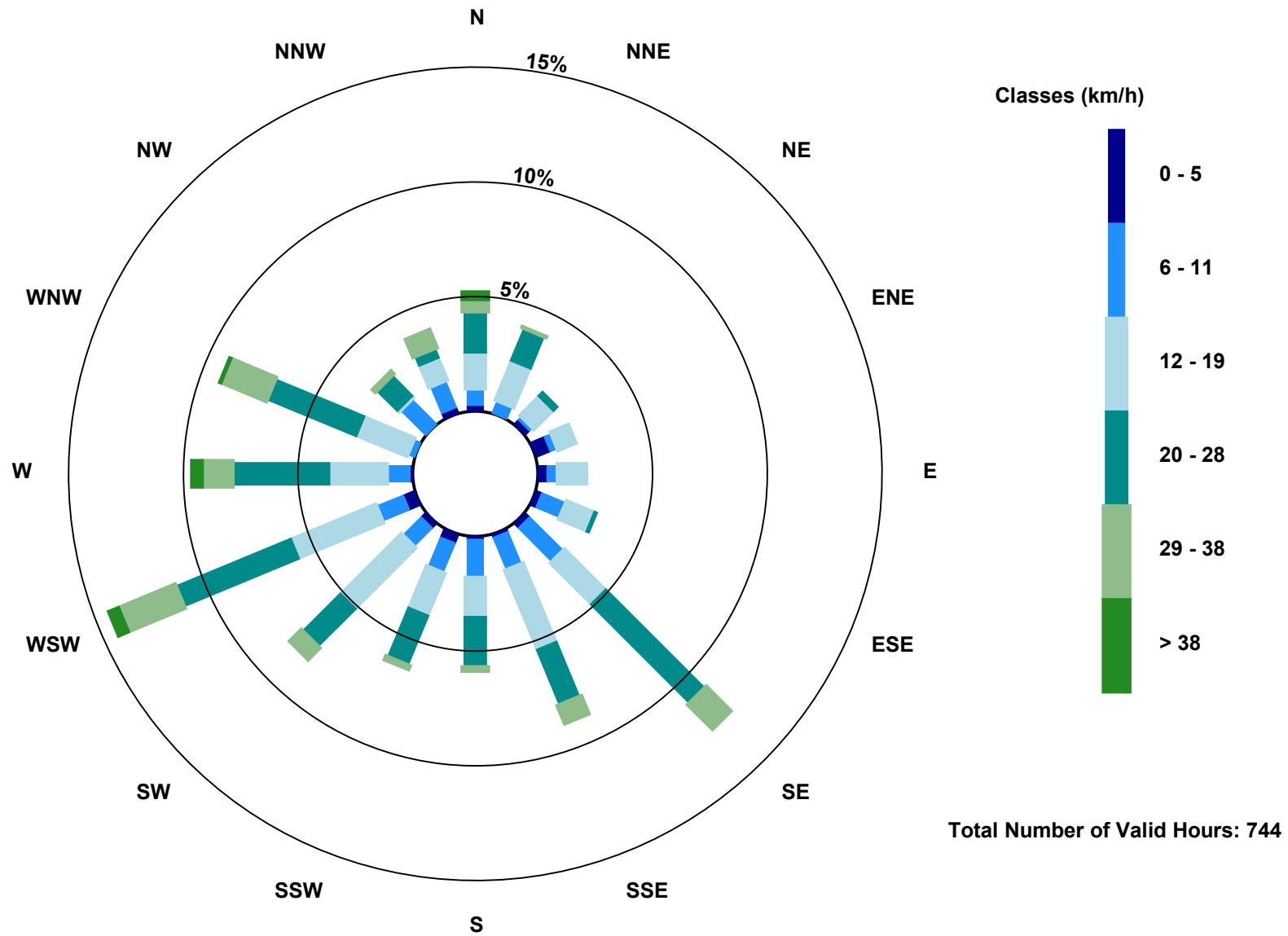
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 75m (WS75) - km/h  
Mannix



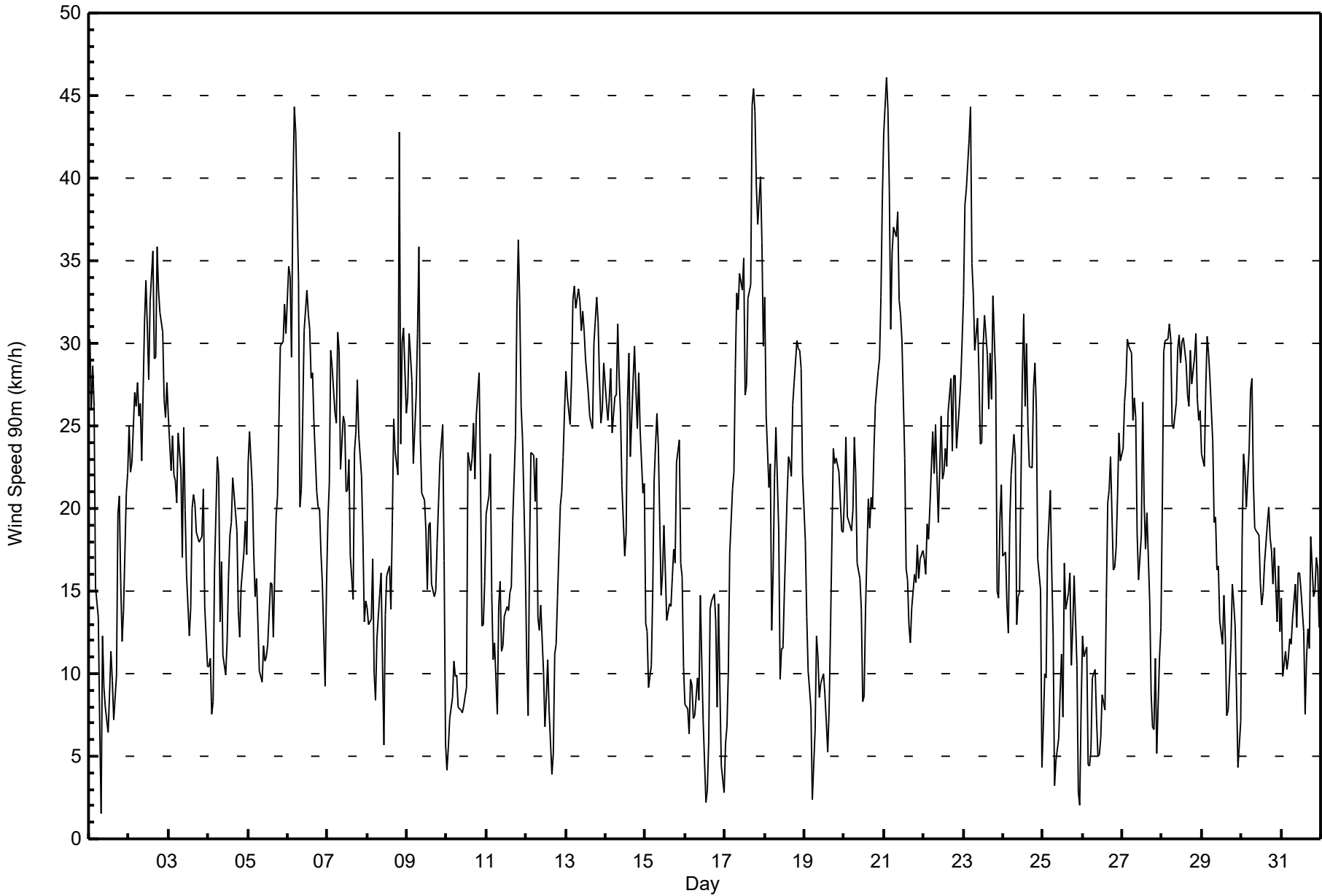


Maximum Speed: 46 km/h on Oct 21 02:00		Maximum Daily Speed Average: 29.2 km/h on Oct 17		Hours in Service: 744																																					
Minimum Speed Value: 2 km/h on Oct 1 08:00		Minimum Daily Speed Average: 3.7 km/h on Oct 12		Hours of Data: 744																																					
Maximum Diurnal Speed Average: 9.4 km/h at hour 20		Minimum Diurnal Speed Average: 5.6 km/h at hour 16		Hours of Missing Data: 0																																					
Monthly Average Velocity: 7.1 km/h 238.4 deg		Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 9 Q <sub>1</sub> = 13 Median = 20 Q <sub>3</sub> = 26 P <sub>90</sub> = 31 P <sub>99</sub> = 43		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-Oct	W30	W26	W29WNW26WNW15	NW13	NNW7	W2	W12	NW9	NW8	NW6	NW9	NW11	NNW10	NNE7	NNE10	NNE20	NNE21	N15	NNW12	NW14	NW21	WNW22		NW11.4	W30																
2-Oct	WNW25	NW22	NW23WNW27	W26	W28	W26	W26WNW23WNW31WNW34	W31WNW28WNW33WNW36WNW29WNW29WNW36	NW33	NW32	NNW31	NNW27	NW25	NW28	WNW27.3	WNW36																									
3-Oct	NW26	NW22WNW24WNW22WNW22WNW20	NW25WNW22WNW17WNW25WNW20WNW16WNW12	W14WSW20WSW21WSW20WSW19	SW18	SW18WSW18	SW21	SW14	SSW10															W16.8	NW26																
4-Oct	SSW10	S11	SSW8	SSE8	SSE16	SSE23	SSE22	SE13	SE17	ESE11	SE10	E12	E16	ESE18	ENE19	NE22	NE20	NE19	NE14	NE12	NE15	NNE17	N19	N17	E8.3	SSE23															
5-Oct	N23	N25	N21	N17	NNW15	NNW16	NW13WNW10	WNW9	W12WSW11WSW11WSW12	SW15	SW15	S12	SSW16	SSW19	S21	SSE30	S30	S30	SSW32	SSW31					SW7.4	SSW32															
6-Oct	SW35WSW34WSW29WSW39WSW44	W43	W34WSW20WSW21	SW25WSW31WSW33WSW32	W31	W28	W28	W25	W21	W20WSW20	SW17	SW16	SSW9	SSE15	WSW25.7	WSW44																									
7-Oct	SSE19	SSE22	SSE30	SSE29	SE26	SE25	SE31	SE30	SE22	SSE26	SSE25	SSE21	S21	SSE23	SSE17	S14	SSW24	S25	S28	S24	S22	SSW18	SSW13	S14	SSE21.4	SE31															
8-Oct	SSW14	SSW13	SSW13	SW17	SSW10	S8	SSE12	SSE15	S16	SSE11	ESE6	SE14	SE16	SE17	SE14	SE19	SE25	SE23	SSE22WSW43	W24WSW30	SW31	SW26			S12.4	WSW43															
9-Oct	SW27	SW31	SW29	SW28	SW23	SSW27	SW31	SW36WSW24WSW21WSW21WSW19WSW15WSW19WSW19WSW15WSW15	SW15WSW18WSW20WSW23WSW25WSW17	W6														WSW21.3	SW36																
10-Oct	W4	WSW5	SSW7	SW9	SSW11	SSW10	SSW10	SSW8	SW8	SW8	SSW8	S9	SW9WSW23WSW22	SW23WSW25WSW22WSW26	W28	NW22	NW13	W13	W16						WSW12.1	W28															
11-Oct	W20	W21WSW23WSW15	SSW11	SSW12	SSE8	SSE14	S16	S11	SSE12	SSE13	SSE14	SSE14	SSW15	SW15	SW19	SSW25	SSW32	SSW36	SW32	SW26	SW24	SW17			SSW15.8	SSW36															
12-Oct	SW11	W7	W17WNW23WNW23WNW20	W23WNW13	W13	W14WNW10	NW7	N9	NNW11	NNW8	NNW4	ENE5	E11	SE12	SE15	SE20	SE21	SE23	SE26						WSW3.7	SE26															
13-Oct	SSE28	SE27	SE25	SE28	SE33	SE33	SE32	SE33	SE33	SE31	SE32	SSE31	SSE29	SE27	SE26	SE25	SE25	SSE30	SSE33	SE31	SE28	SE25	SE26	SE29	SE29.0	SE33															
14-Oct	SE26	SE25	SE27	SE28	SE25	SE27	SE31	SE28	SE26	SE17	SE18	SE27	SE29	SE23	SE28	SE30	SE27	SSE25	S28	S25	S21	S22			SE24.5	SE31															
15-Oct	S13	SSW13	SW9	SW10WSW15WSW22WSW24WSW26WSW24WSW15WSW16WSW19	W16	W13WSW14WSW14WSW16	SW18	SW17	SW23	SW24WSW17WSW16WSW10															WSW16.1	WSW26															
16-Oct	SW8	SW8	SW6	S10	S9	SSW7	S7	SSE10	SSE8	SSE15	SSE11	SSE7	E2	E3	ESE6	E14	ENE14	E15	E13	ESE8	E14	ESE9	S4	S3	SE6.0	E15															
17-Oct	W6	W7WSW10WSW17	W21WSW22WSW28WSW33WSW32WSW34WSW33	W35WSW27WSW27WSW33WSW34	W44	W45	W44	W40	W37WNW40WNW36	W30															W29.2	W45															
18-Oct	WNW33WNW26WNW21WNW23	W13WSW16	SW22	SW25	SW19	S10	SSE12	SE11	SSE15	SSW21	SSW23	SSW23	SSW22	S26	S28	SSE30	SSE30	SSE30	SSE28	SSE22					SSW15.1	WNW33															
19-Oct	SE18	SE13	SE10	SE9	SSE8	NNW2	NW7	N12	N11	NW9	NW9	NNW10	NNW9	N7	N5	N8	N13	N24	N23	N23	NNE23	N22	N19	N19	N8.4	N24															
20-Oct	NNW21	NNW24	NNW20	NNW19	NNW19	N20	N24	N22	NNE17	NNE16	NNE14	NE8	NNE9	NNE14	NNE21	NNE19	NNE21	NNE20	NNE24	NNE26	NNE28	NNE29	N33	N39	N20.3	N39															
21-Oct	N43	N46	N44	N39	N31	N36	NNW37	NNW36	NNW38	NNW33	NNW32	NNW30	NNW23	NNW16	NNW16	NNW13	NW12WNW14WNW16	W16WSW18	W16WSW17WSW17						NNW22.1	N46															
22-Oct	SW17	SSW16	SSW19	SSW18	SSW20	S25	SSW22	SSW25	SSW22	SSW19	SW26	SSW22	SSW22	SSW24	SSW23	SSW26	SSW28	SSW23	SSW28	SSW28	SW24	SW26WSW28WSW30			SSW22.5	WSW30															
23-Oct	WSW33WSW38WSW39WSW42WSW44WSW35	W33	W30WSW31WSW28WSW24WSW24WSW30WSW32WSW29WSW26WSW29WSW27WSW33WSW28	SW15	SSW15	SSW19	SSW21																			WSW28.7	WSW44														
24-Oct	SW17	SW17WSW14WSW12	W19	W22WSW25WSW23WSW13WSW15	W15	W28	W32	W26	W30	W25	W23	W22	W27	W29	W26	W17WNW15	NE4								W19.7	W32															
25-Oct	SSW7WSW10	SW10	SW17WSW21	SW16	SW12	W3	W5	SW6	WSW9	W11	WNW7	W17WNW14	W15	W16	W10WSW13WSW16	W11	SSE3	SE2	SSE8						WSW9.5	WSW21															
26-Oct	SSE12	SE11	SE12	ESE5	NNE4	ENE5	E10	ENE10	ENE7	ENE5	NNE5	NNW6	NNW9	N8	ENE15	E20	E21	E23	ESE16	ESE16	ESE18	ESE21	SE25	ESE23	E10.2	SE25															
27-Oct	SE24	SE26	SE28	SE30	SE30	SE29	SE25	SE27	SE25	ESE18	ESE16	ESE18	ESE26	ESE20	ESE18	ESE20	SE14	ESE9	ESE7	ESE7	SE11	S5	NW11WNW13		SE16.8	SE30															
28-Oct	W20WNW29WNW30WNW30WNW31WNW30WNW25WNW25WNW26WNW30WNW30WNW29WNW30WNW30WNW29WNW27WNW26WNW30WNW28	W29WNW31WNW27	W25	W26																					WNW27.9	WNW31															
29-Oct	W23	W23WNW27WNW30WNW29WNW28WNW24WNW19WNW19WNW16	W17WSW13WSW12	SW15	SW12	S7	SSE8	SSE12	SSE15	SE14	SE13	ESE9	E4	NNE7											W10.2	WNW30															
30-Oct	NNE18	N23	N22	N20	N24	N27	N28	N22	N19	N19	N18	N15	N14	NNE15	NNE17	NE19	NE20	NE18	NE17	ENE15	ENE18	ENE13	ENE17	ENE13	NNE17.2	N28															
31-Oct	E15	ESE10	ESE11	ESE10	ESE11	ESE12	ESE12	ESE13	ESE15	ESE13	ESE16	ESE16	ESE15	SE13	SSE8	SSE11	SE13	SE12	SSE18	SSE15	SSE15	SSE17	S16	SW13	SE11.7	SSE18															
WSW7.4WSW7.6WSW7.8WSW9.1WSW9.1WSW8.4WSW7.7																								SW6.7	SW6.5WSW6.5WSW6.7WSW6.9WSW5.9WSW7.1WSW6.6	SW5.6	SW6.3	SW5.9	SW8.2	SW9.4	SW7.0	SW7.4	SW7.0	SW6.0	Diurnal Average						
N43																								N46	N44	WSW42WSW44	W43	NNW37	NNW36	NNW38	WSW34WNW34	W35	W32WNW33WNW36WSW34	W44	W45	W44	WSW43	W37WNW40WNW36	N39	Diurnal Maximum	

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



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





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

**Wind Speed 90m (WS90) - km/h**  
**Mannix - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	23	3.09	3.09
6 - 11	115	15.46	18.55
12 - 19	229	30.78	49.33
20 - 28	247	33.20	82.53
29 - 38	113	15.19	97.72
> 38	17	2.28	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

**Wind Speed 90m (WS90) - km/h**  
**Mannix - October 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	1	2	1	3	3	1	1	1	3	0	0	2	3	0	0	2	23
6 - 11	5	4	1	2	2	13	6	12	9	14	12	6	7	5	9	8	115
12 - 19	13	9	7	8	6	17	19	22	6	17	25	34	20	13	5	8	229
20 - 28	17	10	2	0	3	5	40	12	13	21	16	36	29	30	8	5	247
29 - 38	1	2	0	0	0	0	17	10	2	4	6	24	13	25	1	8	113
> 38	5	0	0	0	0	0	0	0	0	0	0	6	5	1	0	0	17
<b>Totals</b>	42	27	11	13	14	36	83	57	33	56	59	108	77	74	23	31	744

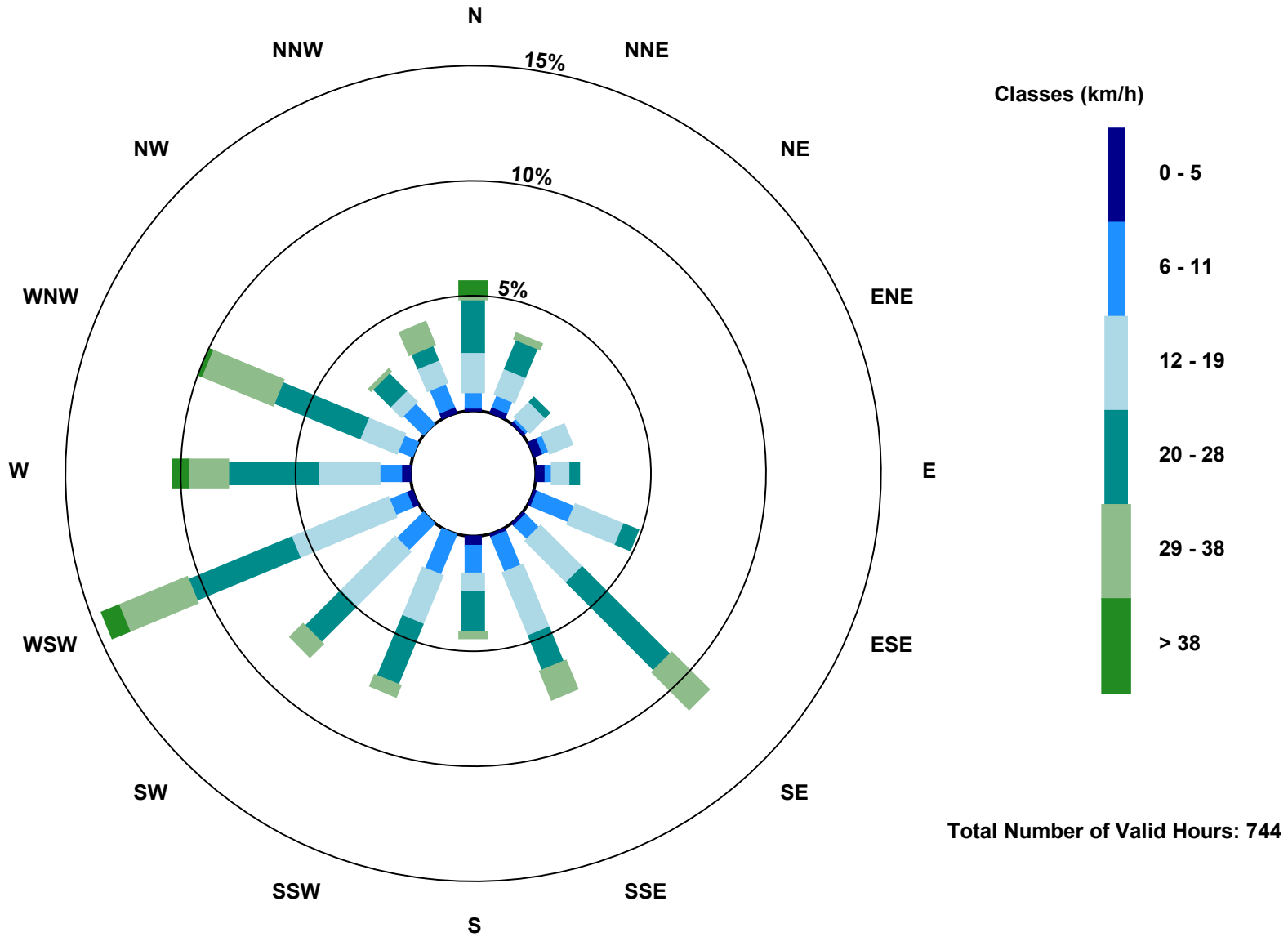
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 90m (WS90) - km/h  
Mannix







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

**Wind Direction 20m (WD20) - deg**  
**Mannix - October 2024**

Direction of Maximum Speed: 269 deg on Oct 17 18:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 265.1 deg on Oct 17																						Hours of Data: 744			
Direction of Minimum Speed: 92 deg on Oct 16 13:00											Direction of Minimum Daily Speed Average: 2.9 deg on Oct 12											Hours of Missing Data: 0			
Monthly Average Direction: 234.7 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-Oct	261	264	262	277	268	279	304	229	249	306	308	324	323	319	334	34	36	33	35	356	314	281	287	283	300.4
2-Oct	280	303	306	282	264	268	266	274	282	290	296	281	286	293	299	289	299	302	305	319	334	341	322	324	296.0
3-Oct	313	306	295	301	297	291	304	303	290	297	298	290	298	269	255	249	254	240	212	203	214	203	138	146	277.7
4-Oct	151	166	164	159	156	154	145	144	165	132	125	83	102	107	76	59	31	43	41	9	16	8	2	356	91.2
5-Oct	353	351	349	346	329	338	318	261	245	240	231	242	243	227	221	193	186	208	165	163	165	176	173	194	224.6
6-Oct	223	236	241	253	259	262	263	242	238	236	238	242	246	263	265	261	263	264	243	225	226	164	153	143	245.6
7-Oct	148	147	143	150	155	158	155	159	157	158	156	159	172	167	150	151	193	182	180	177	169	170	152	159	161.2
8-Oct	163	153	156	155	148	156	149	156	148	146	69	146	149	142	152	137	139	138	166	262	277	239	225	207	175.8
9-Oct	206	226	217	209	189	190	209	221	237	255	256	257	241	247	246	245	240	215	220	233	239	239	208	148	228.8
10-Oct	181	179	177	167	168	161	168	154	156	163	151	140	219	241	250	239	248	247	237	269	289	276	241	250	217.7
11-Oct	245	239	224	178	161	156	153	155	154	147	151	148	148	150	194	222	225	203	206	210	216	219	219	185	190.6
12-Oct	166	166	252	265	263	260	256	253	257	262	264	310	9	337	346	348	86	91	148	145	153	158	149	154	217.6
13-Oct	168	157	152	153	148	143	136	140	142	147	147	156	150	146	140	136	140	146	155	147	141	142	134	136	145.7
14-Oct	139	142	145	145	143	138	143	151	148	144	147	151	148	136	139	134	137	139	139	165	164	186	173	162	146.4
15-Oct	157	157	154	157	162	242	248	255	256	255	255	263	269	270	251	254	239	221	211	211	215	210	220	181	232.3
16-Oct	177	165	158	164	167	152	166	157	154	154	154	152	92	36	91	63	65	88	74	92	63	94	300	308	129.5
17-Oct	259	275	246	253	268	250	248	245	247	253	250	265	258	257	260	260	266	269	273	277	277	284	287	283	265.1
18-Oct	288	287	291	290	236	212	212	208	205	178	152	139	157	198	205	202	198	175	162	156	152	156	156	156	199.5
19-Oct	156	145	140	196	194	353	320	343	358	317	315	329	334	343	11	6	357	5	14	12	17	10	358	358.5	
20-Oct	350	346	348	341	342	355	12	13	12	17	27	39	29	21	21	17	23	27	16	17	19	16	16	13	11.5
21-Oct	10	8	10	9	1	347	344	344	345	343	339	338	343	343	344	334	326	290	284	269	252	260	254	243	339.8
22-Oct	226	194	200	199	199	187	190	186	187	190	225	211	214	210	201	200	207	189	204	207	216	236	240	241	209.0
23-Oct	242	244	247	249	250	261	266	264	258	259	260	250	244	250	244	241	244	242	240	238	179	162	169	194	246.2
24-Oct	187	194	190	214	252	255	254	256	229	246	262	278	279	279	275	275	275	266	254	270	259	252	286	186	261.2
25-Oct	234	243	213	206	205	190	169	157	158	178	238	275	298	283	287	281	272	235	230	251	243	158	149	168	230.4
26-Oct	174	165	135	73	74	25	11	17	343	289	358	325	328	337	31	83	92	96	117	118	124	133	134	131	102.9
27-Oct	137	133	135	137	142	145	144	136	134	132	117	114	120	118	117	133	136	138	122	138	151	197	326	286	132.4
28-Oct	260	279	290	284	285	285	285	283	286	289	291	290	297	304	296	294	293	297	289	281	294	291	270	277	287.7
29-Oct	278	271	291	290	296	287	286	294	295	286	266	250	241	222	235	180	146	146	147	142	149	145	163	349	267.2
30-Oct	17	12	7	357	4	4	8	14	10	12	11	13	12	25	38	45	46	43	45	70	84	67	72	65	27.4
31-Oct	85	121	113	127	136	139	138	124	99	97	109	126	131	152	150	170	141	140	158	154	154	168	173	219	135.9
230.0	240.5	240.0	240.8	233.3	237.7	239.0	231.3	232.0	245.7	247.1	247.2	242.9	244.8	246.7	232.9	235.9	216.8	213.8	231.6	218.4	219.0	216.6	213.4		
Diurnal Average																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



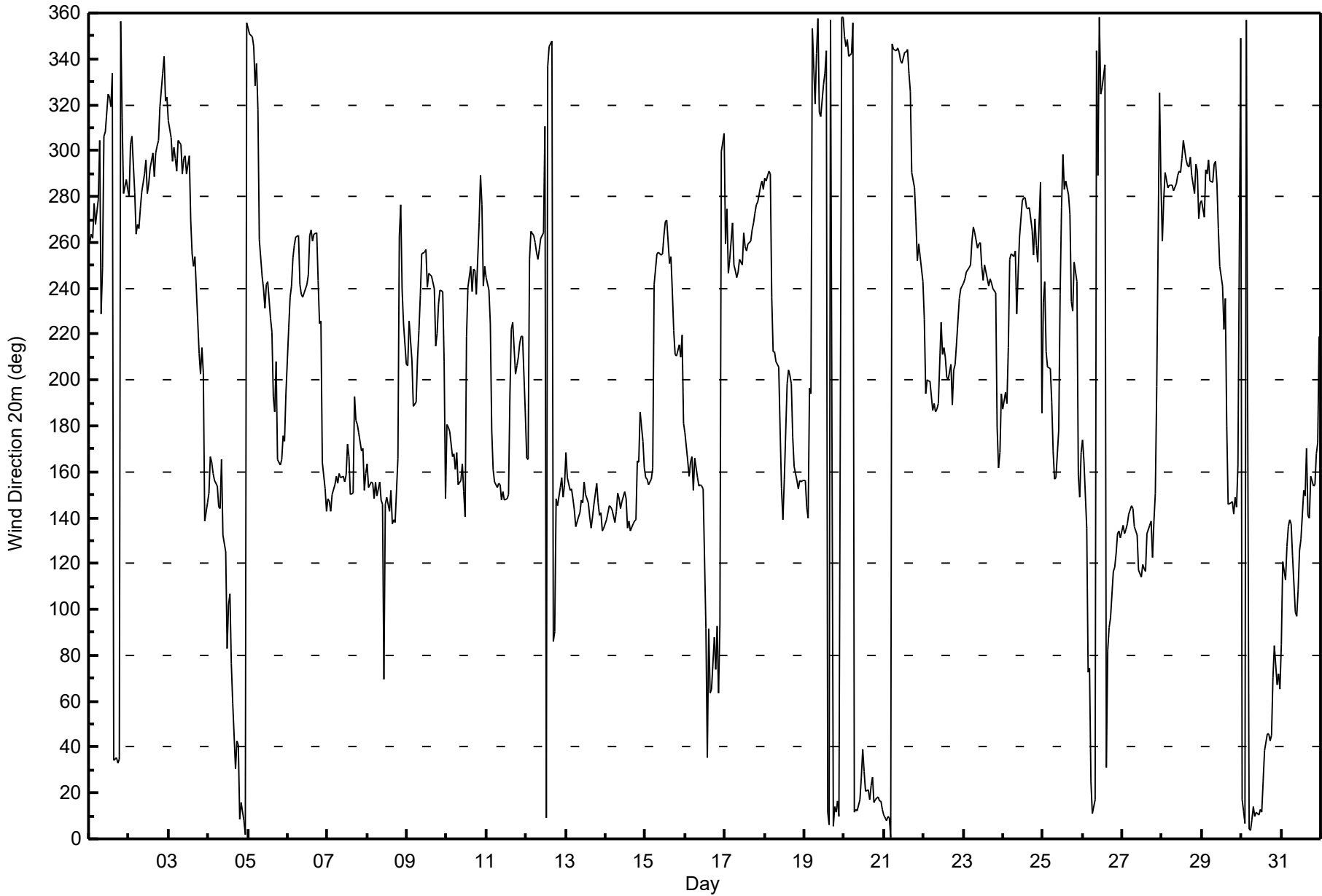
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction 20m (WD20) - deg

Mannix - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 88 deg on Oct 16 22:00 Minimum Value: 4 deg on Oct 10 05:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 8 Q <sub>1</sub> = 10 Median = 13 Q <sub>3</sub> = 16 P <sub>90</sub> = 25 P <sub>99</sub> = 68																	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-Oct	9	6	7	12	16	23	83	15	18	26	23	50	35	33	38	40	25	15	18	16	37	10	10	12	83
2-Oct	9	16	16	15	9	8	13	10	11	15	13	11	13	13	13	12	16	12	13	14	20	14	15	14	20
3-Oct	14	13	11	12	13	13	13	14	15	15	16	21	26	24	16	22	14	11	9	8	10	23	13	9	26
4-Oct	11	6	6	8	11	12	15	30	26	18	28	17	12	11	15	14	17	23	50	20	12	16	16	15	50
5-Oct	15	11	12	14	20	15	21	15	19	13	14	14	22	18	19	29	23	14	10	7	10	12	12	16	29
6-Oct	11	8	12	10	10	9	10	15	13	11	10	12	12	15	15	13	12	13	15	6	5	28	7	12	28
7-Oct	10	10	10	9	10	11	7	12	11	10	10	12	14	14	14	11	22	14	13	12	8	9	7	7	22
8-Oct	10	8	8	8	8	11	12	8	11	39	66	19	11	13	12	10	10	10	21	33	23	9	13	13	66
9-Oct	12	12	9	10	12	15	15	13	16	13	15	17	19	17	16	16	18	8	8	6	6	8	38	26	38
10-Oct	6	14	18	13	4	16	22	14	9	9	14	19	69	13	16	14	12	10	6	13	13	40	20	8	69
11-Oct	6	4	11	17	9	9	10	10	11	15	11	10	13	18	26	21	13	12	11	10	9	9	9	18	26
12-Oct	15	42	18	10	6	15	15	58	9	10	11	41	31	28	37	77	19	13	20	6	5	8	10	14	77
13-Oct	12	6	7	10	7	9	8	9	10	11	10	11	14	12	11	9	9	9	8	9	9	9	8	8	14
14-Oct	9	10	10	10	11	10	10	9	9	10	10	13	13	10	10	9	9	10	16	13	16	19	7	19	19
15-Oct	8	9	7	15	21	25	15	12	11	17	14	13	16	20	18	15	11	8	11	12	9	9	10	45	45
16-Oct	41	22	9	8	7	11	8	6	10	11	16	27	59	44	32	16	20	14	17	67	15	88	31	48	88
17-Oct	15	17	12	18	14	11	10	9	10	10	10	9	12	12	12	12	9	10	8	9	10	11	12	11	18
18-Oct	10	12	11	11	36	10	11	11	18	20	16	15	22	20	17	18	14	7	6	6	7	6	7	6	36
19-Oct	8	13	21	39	70	36	23	26	23	18	18	20	31	32	32	23	16	16	12	12	12	16	16	16	70
20-Oct	16	14	13	14	14	15	12	9	12	14	16	22	24	17	12	12	15	12	9	10	11	10	10	9	24
21-Oct	10	10	11	11	15	12	12	13	12	13	13	12	14	16	14	14	18	10	9	15	10	11	12	12	18
22-Oct	21	14	13	13	15	13	13	12	14	14	17	17	15	16	16	17	14	16	15	13	15	13	11	12	21
23-Oct	9	10	12	11	12	13	11	8	10	10	11	13	11	11	10	9	10	7	10	38	13	13	15	38	
24-Oct	9	12	18	26	14	11	11	11	24	17	17	13	13	13	11	10	9	7	7	8	8	52	73	73	
25-Oct	24	24	43	12	11	14	38	25	38	30	25	16	33	14	15	12	9	19	12	10	52	15	25	13	52
26-Oct	8	39	44	42	68	35	20	34	42	35	27	32	18	25	21	14	9	10	16	17	14	9	9	8	68
27-Oct	10	8	8	9	9	10	10	8	9	10	15	13	20	16	16	11	8	13	17	13	21	73	13	35	73
28-Oct	9	11	9	10	9	10	10	9	10	10	10	11	11	10	10	10	10	10	13	10	11	14	9	8	14
29-Oct	9	9	15	11	12	12	11	12	12	13	17	19	26	17	21	27	11	6	7	9	11	21	80	18	80
30-Oct	14	11	12	14	14	12	10	11	11	9	13	15	15	17	15	13	13	12	12	18	12	15	10	15	18
31-Oct	12	21	17	18	15	8	8	25	12	12	11	16	16	16	20	17	10	10	13	12	9	11	16	25	25
Diurnal Maximum																									





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

**Wind Direction 45m (WD45) - deg**  
**Mannix - October 2024**

Direction of Maximum Speed: 263 deg on Oct 17 18:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 260.6 deg on Oct 17	Hours of Data: 742
Direction of Minimum Speed: 85 deg on Oct 16 13:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 3.7 deg on Oct 12	Percent Operational Time: 99.7
Monthly Average Direction: 228.3 deg	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	259	263	263	276	275	285	338	242	250	304	302	312	319	314	334	29	30	26	29	356	324	292	295	287	300.9
2-Oct	284	301	304	282	266	267	265	270	280	286	290	277	282	288	295	285	294	298	301	315	329	336	318	319	293.4
3-Oct	310	303	293	297	295	288	300	300	287	292	295	285	296	264	251	244	248	239	219	211	216	207	166	150	271.8
4-Oct	154	165	161	156	153	151	140	129	157	122	124	83	98	102	70	52	27	40	41	17	18	7	0	352	94.7
5-Oct	351	349	350	345	332	340	319	275	259	242	227	239	237	222	215	187	186	207	168	157	164	173	174	194	218.4
6-Oct	219	233	239	249	254	257	258	241	236	232	235	238	241	258	260	256	259	263	254	230	225	188	159	137	241.3
7-Oct	146	146	146	142	137	142	138	143	147	156	152	154	167	161	149	153	191	180	179	178	170	176	160	158	156.9
8-Oct	166	153	162	173	154	156	143	154	148	136	72	139	135	136	143	131	134	135	160	256	272	237	223	209	171.5
9-Oct	210	227	221	218	200	187	206	218	237	252	250	253	238	241	241	241	236	219	225	237	239	244	233	173	227.4
10-Oct	199	195	175	190	167	161	163	156	164	164	154	147	215	237	243	235	244	246	236	264	295	276	252	255	218.3
11-Oct	252	253	243	228	165	164	150	151	150	149	148	144	146	147	189	216	220	197	203	205	214	217	219	200	193.8
12-Oct	188	203	260	268	270	269	263	262	258	258	267	311	359	332	340	335	76	83	137	135	139	144	142	147	220.5
13-Oct	159	143	131	142	142	138	129	135	138	143	142	151	145	141	136	131	137	143	150	142	137	137	128	130	139.7
14-Oct	134	136	139	137	136	132	137	143	141	137	140	146	142	131	134	126	132	134	134	162	164	179	173	163	141.9
15-Oct	158	159	160	178	217	246	246	252	253	249	251	257	263	265	245	248	238	225	214	216	217	221	225	221	230.1
16-Oct	206	188	184	162	167	153	165	153	147	149	155	156	85	32	89	69	63	84	71	98	75	110	258	307	133.9
17-Oct	263	271	244	254	265	248	244	242	244	249	247	259	253	253	255	255	260	263	268	272	273	280	282	279	260.6
18-Oct	283	282	288	287	250	220	210	206	206	178	149	137	156	194	200	196	194	175	160	152	150	153	150	150	195.1
19-Oct	144	130	126	159	160	345	319	342	356	311	311	325	331	342	4	4	355	3	10	7	12	6	355	356	0.4
20-Oct	347	342	343	336	337	351	8	8	9	14	23	36	24	15	17	14	20	25	12	12	14	12	10	7	6.8
21-Oct	6	3	5	4	357	344	341	341	342	339	336	335	340	339	342	328	322	285	278	266	250	257	251	239	336.5
22-Oct	222	192	197	197	199	183	186	183	183	186	220	207	208	204	196	194	201	186	200	203	214	232	237	238	203.8
23-Oct	239	241	243	245	246	255	260	258	252	254	254	246	241	245	241	237	240	238	235	237	197	178	183	194	241.0
24-Oct	194	209	219	234	255	254	253	255	233	245	259	273	275	274	270	270	271	263	252	266	256	256	288	122	258.1
25-Oct	226	242	218	208	218	207	187	157	164	188	233	271	293	279	282	275	268	242	233	244	259	144	148	150	231.1
26-Oct	148	139	127	85	55	27	25	36	39	323	345	326	329	338	35	77	87	92	111	113	116	125	127	124	95.7
27-Oct	130	128	131	133	138	141	138	130	128	124	113	110	115	112	110	124	129	126	120	127	141	UO	322	291	126.5
28-Oct	UO	278	285	280	282	281	281	278	282	285	287	287	292	299	291	289	288	292	285	276	289	287	267	274	284.3
29-Oct	274	267	288	286	290	283	281	289	291	280	261	246	235	218	228	178	146	146	146	134	132	127	83	0	261.8
30-Oct	12	7	3	355	0	1	3	8	6	8	7	7	8	20	32	40	41	36	38	65	77	59	65	60	21.5
31-Oct	80	115	106	119	124	129	128	118	95	93	103	117	122	145	144	164	134	133	153	148	148	163	169	214	130.4

222.0 236.0 237.1 238.4 229.6 229.2 228.6 221.6 224.3 239.6 243.9 242.3 237.8 238.9 240.4 224.8 228.6 213.2 209.9 223.2 215.5 216.8 216.1 209.4  
 Diurnal Average

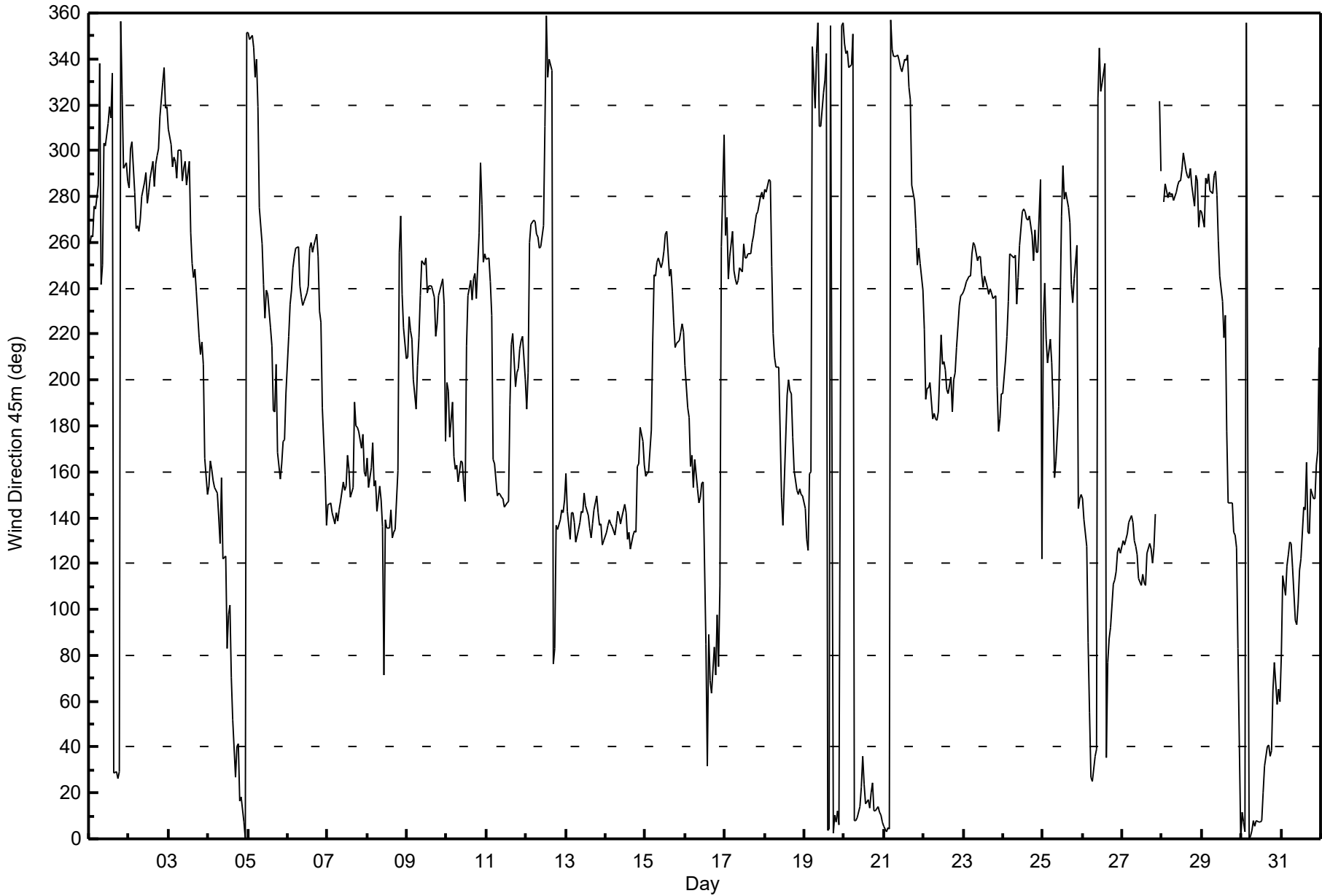
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 45m (WD45) - deg**  
**Mannix - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 77 deg on Oct 26 09:00														Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7											
Minimum Value: 2 deg on Oct 12 05:00																									
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 6 Q <sub>1</sub> = 7 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 20 P <sub>99</sub> = 59																									
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-Oct	5	3	4	8	7	11	65	23	13	20	19	35	28	27	32	36	18	9	8	16	24	7	6	7	65
2-Oct	6	13	12	13	5	5	9	9	9	12	10	8	11	11	9	10	13	8	9	9	18	9	11	9	18
3-Oct	10	10	8	8	9	11	9	9	11	12	13	18	21	22	15	17	11	8	6	3	4	10	22	6	22
4-Oct	6	3	3	5	5	7	12	19	20	13	19	15	10	9	13	10	13	18	38	18	12	11	12	11	38
5-Oct	12	7	10	9	13	12	10	16	19	10	10	10	16	13	14	25	21	8	10	4	7	6	7	12	25
6-Oct	7	6	8	8	7	6	7	13	10	8	8	9	10	12	12	10	9	11	13	5	4	25	11	8	25
7-Oct	7	6	6	6	8	6	4	5	9	6	7	9	8	8	10	7	14	7	8	7	5	5	6	5	14
8-Oct	9	4	7	10	6	8	9	4	5	39	55	18	9	10	8	7	6	7	18	32	20	7	10	9	55
9-Oct	9	8	6	6	12	9	8	9	12	10	12	13	16	12	14	14	13	5	8	3	3	3	22	62	62
10-Oct	15	12	7	16	12	11	16	13	8	6	9	17	64	10	11	12	10	6	4	11	12	21	14	7	64
11-Oct	4	3	8	30	16	17	8	6	9	10	8	6	10	17	22	17	9	8	6	3	5	5	6	11	30
12-Oct	12	48	11	5	2	8	9	16	8	9	10	36	24	20	30	64	23	10	14	4	4	5	8	9	64
13-Oct	7	9	2	9	3	6	5	7	6	7	7	9	12	9	9	6	8	6	6	6	6	5	4	5	12
14-Oct	6	7	7	7	8	7	7	7	6	7	7	9	10	8	7	9	6	7	8	15	11	11	13	5	15
15-Oct	6	7	9	21	19	12	11	9	8	13	12	9	14	16	16	13	8	5	10	5	4	11	8	15	21
16-Oct	20	25	23	6	8	6	12	4	5	8	12	14	56	42	33	15	19	14	14	39	12	73	65	37	73
17-Oct	10	14	11	11	6	8	7	7	7	7	8	8	9	10	10	10	8	8	7	8	8	9	9	9	14
18-Oct	7	10	8	9	19	9	5	5	11	15	12	11	20	13	11	12	9	4	7	4	4	4	4	5	20
19-Oct	8	8	10	27	45	25	14	18	20	13	14	13	26	29	26	20	12	11	7	7	9	11	13	13	45
20-Oct	13	10	10	11	12	13	8	5	9	10	12	20	17	12	9	9	13	9	5	7	7	6	7	6	20
21-Oct	6	7	8	8	11	10	9	9	9	10	9	9	11	12	10	11	15	10	8	11	7	9	10	10	15
22-Oct	18	8	7	6	10	6	6	6	7	8	13	11	10	11	10	11	10	11	9	9	12	10	8	9	18
23-Oct	7	8	9	8	9	11	9	7	8	8	9	10	8	8	7	6	6	7	5	5	37	12	7	10	37
24-Oct	6	10	12	13	9	7	7	8	18	15	14	11	10	12	9	8	6	8	5	6	5	6	44	68	68
25-Oct	23	17	22	9	6	14	30	30	27	26	22	12	25	11	13	10	6	18	8	8	46	19	7	7	46
26-Oct	4	9	17	29	27	14	8	10	77	37	19	24	15	22	21	12	7	9	13	13	12	8	8	7	77
27-Oct	9	5	5	6	6	7	6	6	6	9	12	12	18	14	14	9	7	9	14	11	17	UO	10	34	34
28-Oct	UO	9	7	7	7	8	7	7	7	8	8	8	8	7	8	8	7	7	12	7	9	11	7	7	12
29-Oct	7	7	12	9	10	9	9	11	10	10	14	17	19	13	17	19	12	4	4	7	7	14	49	22	49
30-Oct	10	8	7	10	10	8	6	8	7	6	8	10	11	14	11	9	10	8	9	15	10	12	9	12	15
31-Oct	11	19	15	16	14	8	6	22	10	12	10	15	15	13	17	14	8	8	11	11	8	9	13	23	23
23 48 23 30 45 25 65 30 77 39 55 36 64 42 33 64 23 18 38 39 46 73 65 68																								Diurnal Maximum	
UO - Unstable Operation																									





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

**Wind Direction 75m (WD75) - deg**  
**Mannix - October 2024**

Direction of Maximum Speed: 7 deg on Oct 21 02:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 262.1 deg on Oct 17	Hours of Data: 744
Direction of Minimum Speed: 91 deg on Oct 16 13:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 3.7 deg on Oct 12	Percent Operational Time: 100.0
Monthly Average Direction: 234.4 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-Oct	261	269	271	284	284	298	338	267	265	305	306	316	326	319	337	28	33	28	32	3	337	303	304	296	307.6
2-Oct	293	307	309	288	273	273	271	273	285	290	293	279	284	291	298	287	296	301	304	319	333	339	323	322	297.2
3-Oct	315	306	296	299	298	291	304	303	289	296	298	287	293	265	251	245	250	241	229	227	234	225	206	178	274.4
4-Oct	179	178	177	163	156	156	151	132	151	123	128	95	100	103	73	56	34	48	51	34	32	17	8	359	96.1
5-Oct	360	356	359	351	343	347	326	297	279	255	232	242	239	223	216	186	194	210	180	163	171	180	185	203	221.0
6-Oct	222	237	244	251	256	260	260	246	239	234	236	239	242	258	261	258	261	268	265	242	225	210	191	147	245.0
7-Oct	160	161	156	148	139	134	135	136	141	158	154	157	168	163	159	166	194	185	184	185	181	195	182	179	162.0
8-Oct	194	175	184	211	178	172	152	168	166	145	100	141	135	137	142	134	138	141	162	257	274	240	227	216	183.6
9-Oct	220	234	229	230	221	203	217	225	242	254	252	255	241	240	241	242	238	229	237	247	248	250	253	256	235.3
10-Oct	239	235	196	224	195	184	186	191	202	198	177	165	218	239	244	235	246	250	244	268	308	299	263	264	238.1
11-Oct	263	262	252	249	195	192	157	159	162	162	156	152	154	154	191	216	221	200	207	207	216	220	223	210	204.8
12-Oct	215	256	269	278	280	283	274	280	269	267	279	315	1	335	345	335	76	84	134	134	135	138	139	145	242.1
13-Oct	153	140	135	143	142	140	134	138	141	145	145	153	147	143	140	136	143	147	153	146	141	140	134	135	142.4
14-Oct	137	139	140	139	138	136	140	142	138	141	147	145	135	137	130	136	139	137	166	171	180	178	171	171	145.3
15-Oct	176	189	196	214	242	250	248	253	256	249	253	257	264	267	247	249	240	233	224	224	225	236	234	238	238.5
16-Oct	228	216	214	168	188	173	178	161	154	152	162	158	91	71	101	81	74	89	79	107	90	120	197	206	140.9
17-Oct	264	272	245	254	263	249	247	243	245	250	249	262	255	255	257	257	262	266	270	274	276	282	284	281	262.1
18-Oct	285	284	292	290	257	234	221	216	215	185	154	143	163	195	201	197	197	181	168	158	158	158	153	150	198.0
19-Oct	139	133	130	149	152	335	325	357	2	315	313	329	338	351	6	11	1	6	14	11	15	10	358	360	8.6
20-Oct	350	346	347	341	341	354	11	11	14	18	25	40	27	18	21	19	27	31	18	16	17	15	13	11	10.5
21-Oct	9	7	7	7	1	349	346	347	347	344	340	339	344	344	345	331	325	287	282	269	253	260	253	241	340.4
22-Oct	224	198	202	202	205	187	191	189	188	191	221	209	209	205	196	196	203	190	203	205	218	234	239	240	206.6
23-Oct	241	243	245	247	248	256	262	259	254	256	254	247	242	247	242	239	241	240	237	241	215	197	201	205	243.2
24-Oct	212	228	236	245	258	258	256	257	242	250	259	275	276	275	272	272	274	267	259	269	258	265	297	70	262.1
25-Oct	219	249	227	215	233	223	214	209	241	214	239	274	293	280	282	276	272	255	241	250	270	142	146	158	243.8
26-Oct	147	141	139	103	35	56	70	65	72	59	5	338	343	357	54	79	89	95	114	116	118	128	130	128	97.8
27-Oct	133	133	136	137	140	143	140	134	131	125	118	114	114	113	125	131	126	125	122	144	180	324	294	131.8	
28-Oct	266	281	288	284	285	284	285	282	285	289	290	289	295	301	294	291	291	295	288	278	292	289	270	277	286.8
29-Oct	276	270	291	288	292	285	284	293	294	283	262	247	235	220	227	180	157	160	158	140	130	125	89	13	263.4
30-Oct	16	11	8	2	4	7	7	12	9	12	10	12	12	25	35	43	45	42	44	69	78	63	70	66	25.7
31-Oct	85	114	107	120	122	128	128	124	101	100	105	119	125	146	149	164	137	136	155	150	152	166	172	215	135.7

236.3 247.0 247.8 248.4 242.9 239.0 237.7 227.6 229.2 241.4 244.3 243.7 240.0 240.5 240.4 227.3 228.2 219.2 215.2 226.1 222.3 223.8 227.2 221.8  
 Diurnal Average

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



Wood Buffalo Environmental Association

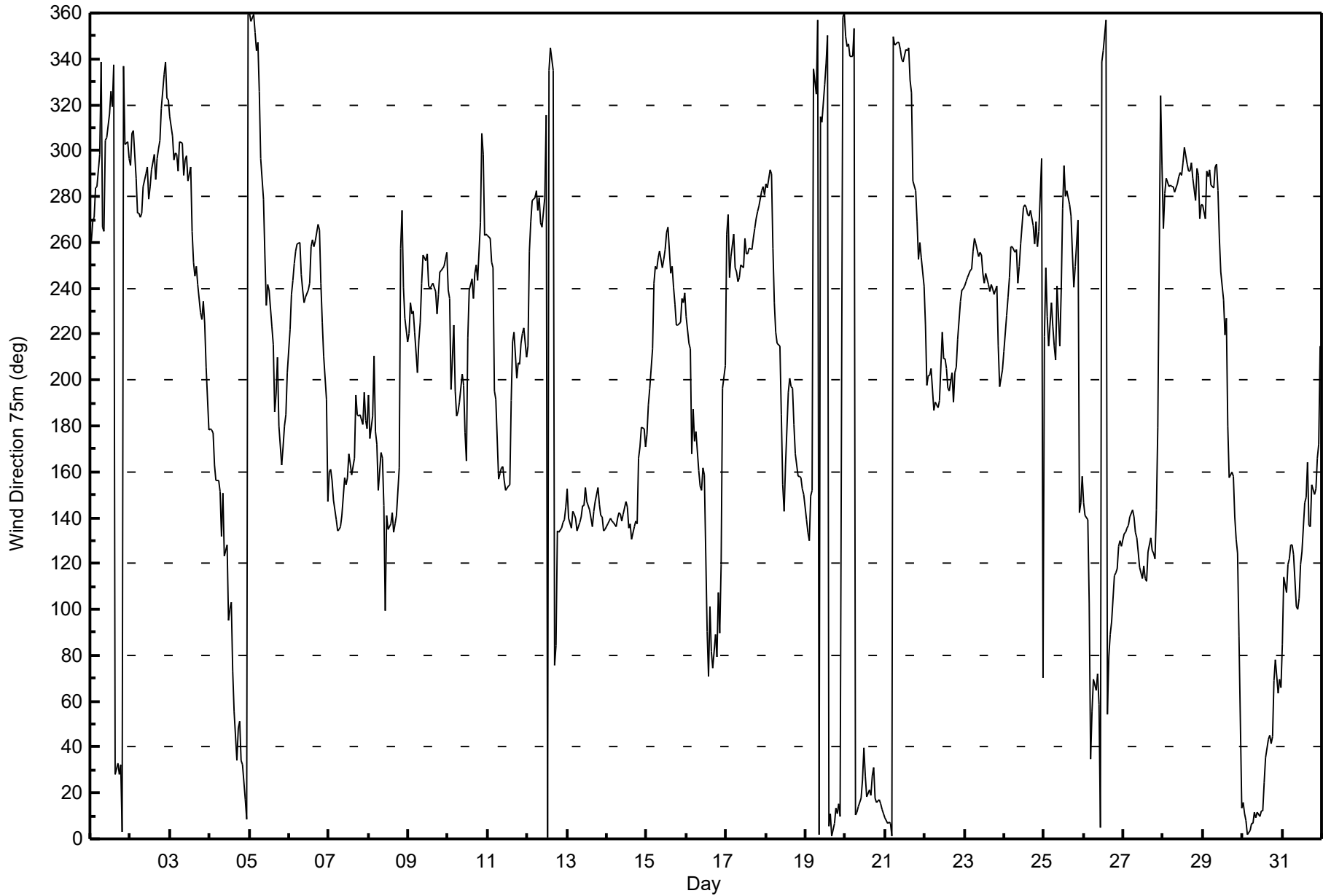
Summary of Hour Standard Deviations

Wind Direction 75m (WD75) - deg

Mannix - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 74 deg on Oct 17 00:00 Minimum Value: 2 deg on Oct 9 22:00 Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 12 P <sub>90</sub> = 19 P <sub>99</sub> = 60																	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-Oct	4	3	3	9	7	14	65	59	7	18	18	36	24	27	24	31	15	7	5	15	15	5	4	6	65
2-Oct	4	12	10	11	4	4	7	8	8	11	10	8	10	11	8	9	13	7	9	9	16	8	9	8	16
3-Oct	9	9	8	8	7	10	8	8	11	11	13	17	21	21	15	16	10	5	5	4	5	9	12	13	21
4-Oct	7	6	7	8	5	4	10	7	15	13	15	15	12	11	13	9	12	15	39	21	13	10	12	9	39
5-Oct	10	6	10	6	11	12	9	10	17	8	10	10	13	12	14	22	20	7	7	4	6	5	6	8	22
6-Oct	6	6	7	6	6	6	7	11	9	7	7	8	9	11	11	10	8	11	10	8	2	19	11	10	19
7-Oct	7	6	4	4	4	3	2	2	7	4	5	9	7	7	10	8	10	6	6	6	5	5	8	8	10
8-Oct	11	7	13	9	14	14	7	4	6	30	31	14	8	8	7	7	5	6	15	32	19	6	8	8	32
9-Oct	7	6	5	5	10	6	6	6	11	9	10	12	13	11	12	14	11	4	7	3	2	2	6	45	45
10-Oct	18	15	10	15	11	14	23	23	15	11	9	17	56	10	10	11	9	5	3	10	12	19	9	6	56
11-Oct	6	6	7	19	20	18	20	6	5	7	7	6	9	16	20	16	9	6	4	2	4	4	4	7	20
12-Oct	9	30	8	3	2	10	10	16	10	10	12	33	23	18	25	69	42	10	14	5	4	4	4	5	69
13-Oct	5	5	3	6	2	3	3	4	4	6	6	8	11	8	7	4	7	4	4	4	4	4	4	4	11
14-Oct	4	4	4	4	5	5	5	5	5	5	6	8	9	8	6	10	4	6	6	14	11	9	10	4	14
15-Oct	8	13	16	20	11	9	9	8	7	10	11	8	13	14	15	13	7	4	9	5	2	10	9	12	20
16-Oct	17	19	26	7	14	20	9	3	3	5	11	12	46	36	29	12	16	15	13	28	11	50	60	74	74
17-Oct	19	15	11	5	5	7	5	6	6	6	6	7	9	10	9	10	7	8	7	7	8	9	9	8	19
18-Oct	6	10	7	9	14	9	5	5	9	16	10	10	18	13	9	11	7	4	7	3	2	3	2	4	18
19-Oct	4	8	11	19	12	62	20	12	18	15	13	12	24	28	25	20	10	9	5	6	8	10	12	10	62
20-Oct	12	8	8	9	10	13	6	5	8	8	10	17	14	9	7	7	10	7	5	5	6	5	6	5	17
21-Oct	5	5	6	7	9	8	7	8	7	9	8	8	9	10	7	10	15	11	8	10	6	9	10	9	15
22-Oct	16	8	5	5	9	5	6	6	5	7	11	10	8	10	9	10	8	10	7	7	11	9	8	8	16
23-Oct	6	6	7	7	7	9	8	6	7	8	8	8	7	8	6	6	5	6	4	4	30	11	4	8	30
24-Oct	7	8	8	9	8	6	6	7	14	13	13	10	9	11	8	7	6	9	6	6	5	7	42	58	58
25-Oct	33	9	19	9	4	10	18	60	66	27	18	14	25	11	12	9	5	19	8	11	39	40	25	10	66
26-Oct	5	5	7	40	18	13	17	10	31	41	23	20	12	22	17	10	7	10	14	14	14	10	10	10	41
27-Oct	10	5	4	4	4	4	4	6	7	11	13	14	17	15	15	12	10	13	15	16	16	64	8	27	64
28-Oct	5	8	6	6	6	7	7	6	6	7	7	8	8	7	7	7	6	6	11	7	9	10	7	7	11
29-Oct	6	7	12	8	9	8	8	10	10	9	14	16	15	11	16	16	13	7	8	7	8	15	37	26	37
30-Oct	8	6	5	8	7	6	4	6	6	5	7	8	10	12	9	8	8	6	7	13	9	10	9	11	13
31-Oct	12	19	15	16	15	11	11	20	13	14	13	16	15	11	15	11	8	9	9	10	8	8	11	22	22
Diurnal Maximum																									







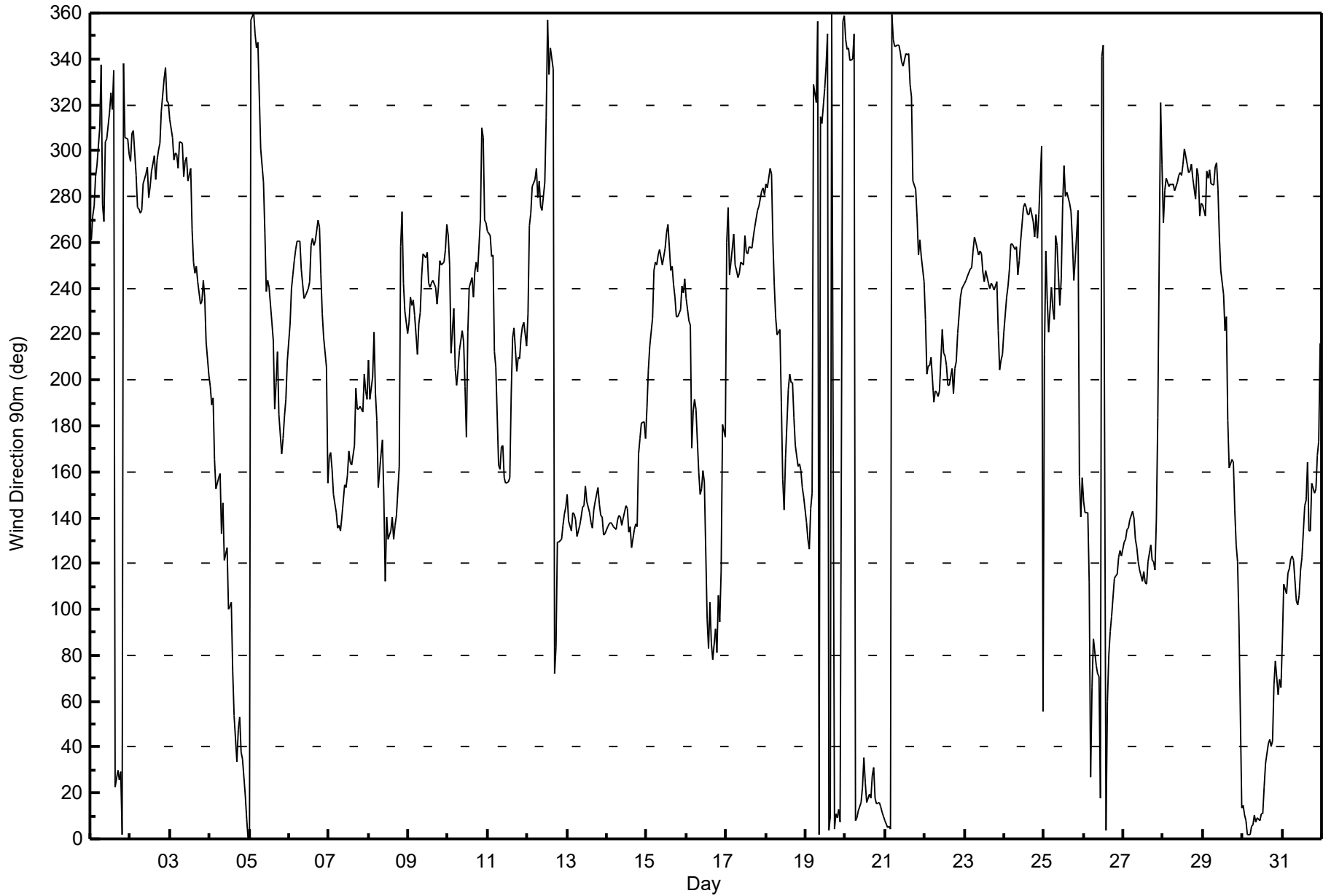
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction 90m (WD90) - deg

Mannix - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																	Hours in Service: 744								
Maximum Value: 88 deg on Oct 1 08:00																	Hours of Data: 744								
Minimum Value: 2 deg on Oct 9 22:00																	Hours of Missing Data: 0								
Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 12 P <sub>90</sub> = 18 P <sub>99</sub> = 55																	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-Oct	4	3	3	10	8	15	25	88	5	17	16	33	23	26	22	28	14	6	4	14	12	6	4	6	88
2-Oct	4	10	8	9	4	4	6	7	8	10	9	7	9	11	7	8	12	6	9	8	16	7	8	7	16
3-Oct	8	9	7	8	6	10	7	7	10	10	12	15	18	21	15	14	9	5	4	4	5	7	7	8	21
4-Oct	10	9	10	13	7	4	9	6	11	10	14	12	9	8	13	9	12	15	32	26	14	10	13	9	32
5-Oct	10	6	9	5	11	12	10	5	15	7	10	10	13	11	13	21	20	7	7	4	6	5	6	6	21
6-Oct	5	6	6	6	6	6	7	10	9	7	6	7	9	11	11	9	8	10	9	7	4	16	8	14	16
7-Oct	8	7	5	4	4	5	5	2	5	4	5	9	7	6	12	9	9	6	6	6	5	5	11	10	12
8-Oct	9	9	10	7	15	21	12	8	8	29	24	12	6	8	7	7	4	5	15	32	18	6	7	8	32
9-Oct	6	6	4	4	8	6	6	5	10	8	10	11	12	11	11	13	10	3	6	2	2	2	5	27	27
10-Oct	19	16	12	12	8	13	24	25	17	16	13	20	53	9	9	10	9	5	3	11	11	16	7	7	53
11-Oct	4	6	6	16	19	14	31	8	5	7	9	6	9	16	19	15	8	5	3	2	4	3	3	7	31
12-Oct	10	15	9	4	3	11	10	17	9	8	12	28	23	17	20	61	42	9	13	4	3	6	3	3	61
13-Oct	3	5	2	6	2	4	3	4	4	5	6	8	11	8	8	5	7	4	3	3	4	3	3	3	11
14-Oct	3	4	4	4	5	4	4	5	4	4	6	7	9	7	6	9	3	6	6	15	12	9	9	4	15
15-Oct	11	12	15	17	9	8	9	7	7	11	11	8	12	14	14	12	6	3	7	5	2	8	9	11	17
16-Oct	15	16	27	10	15	19	10	8	9	3	11	13	42	29	27	12	16	14	13	22	9	39	59	35	59
17-Oct	24	16	8	6	4	7	5	5	5	6	6	7	8	9	9	10	7	7	7	7	8	8	8	7	24
18-Oct	6	9	7	9	12	9	4	6	8	18	12	10	19	13	8	10	7	5	7	4	2	4	2	5	19
19-Oct	3	7	7	16	10	68	17	20	17	14	12	12	22	26	23	18	10	8	5	6	7	9	12	9	68
20-Oct	11	7	8	8	10	13	6	4	8	7	9	15	13	9	7	7	9	7	5	5	5	5	5	5	15
21-Oct	4	5	6	7	9	7	7	7	7	8	7	7	8	9	7	10	14	10	7	9	5	8	9	9	14
22-Oct	15	8	4	5	8	5	6	6	5	6	10	10	8	10	9	9	7	9	7	7	11	9	7	8	15
23-Oct	5	6	7	6	7	9	8	6	6	7	8	7	6	7	6	6	5	5	3	4	25	11	3	7	25
24-Oct	7	7	7	8	7	6	6	7	12	13	12	9	9	10	8	7	6	9	6	7	5	7	39	57	57
25-Oct	35	9	21	10	3	9	18	46	33	24	17	12	24	10	11	8	5	20	8	10	22	67	64	14	67
26-Oct	5	5	7	41	14	18	17	11	18	27	27	17	11	22	15	11	7	9	11	10	10	9	9	8	41
27-Oct	9	4	4	4	4	4	4	5	6	8	10	10	14	12	11	9	8	10	14	15	16	62	9	25	62
28-Oct	5	7	5	6	6	6	6	6	6	6	6	7	8	6	6	6	6	6	10	7	8	10	7	6	10
29-Oct	6	7	11	8	9	8	7	10	9	8	13	15	14	10	15	16	13	8	8	9	6	12	34	24	34
30-Oct	7	6	5	7	6	6	4	5	6	5	6	8	9	12	8	7	8	5	7	13	9	10	9	11	13
31-Oct	13	16	13	14	12	10	10	18	11	11	10	13	12	11	16	11	8	9	10	10	8	8	11	21	21
																	35 16 27 41 19 68 31 88 33 29 27 33 53 29 27 61 42 20 32 32 25 67 64 57								
																	Diurnal Maximum								





Summary of Hour Averages

Mannix - October 2024

Maximum Value: 1.5 km/h on Oct 27 11:00		Maximum Daily Average: 0.8 km/h on Oct 13		Hours in Service: 744																									
Minimum Value: -1.3 km/h on Oct 21 00:00		Minimum Daily Average: -0.6 km/h on Oct 21		Hours of Data: 744																									
Maximum Diurnal Average: 0.2 km/h at hour 12		Minimum Diurnal Average: 0.0 km/h at hour 6		Hours of Missing Data: 0																									
Monthly Average: 0.09 km/h		Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.4 Q <sub>1</sub> = -0.2 Median = 0.0 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.7 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-Oct	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	0.1	0.2	-0.2	-0.1	-0.3	-0.1	-0.1	-0.2	-0.1	-0.1	0.2	0.2		
2-Oct	-0.1	-0.3	-0.3	-0.3	-0.1	-0.2	-0.2	-0.2	0.1	-0.4	-0.6	-0.1	-0.3	-0.6	-0.7	-0.3	-0.5	-0.7	-0.6	-0.8	-0.7	-0.4	-0.4	-0.5	-0.4	-0.4	-0.5	-0.4	0.1
3-Oct	-0.4	-0.5	-0.4	-0.3	-0.2	-0.1	-0.4	-0.4	-0.1	-0.3	-0.2	-0.2	-0.3	-0.2	-0.3	0.1	0.0	-0.1	-0.1	0.0	-0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.3	0.3
4-Oct	0.3	0.5	0.5	0.5	0.5	0.6	0.5	0.2	0.3	0.5	0.4	0.3	0.7	0.8	0.4	0.2	-0.2	0.1	0.1	-0.4	-0.3	-0.4	-0.3	-0.3	-0.2	0.2	0.2	0.2	0.2
5-Oct	-0.3	-0.5	-0.2	-0.4	-0.1	-0.2	0.0	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.5	0.7	0.7	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1
6-Oct	0.0	0.0	-0.1	-0.2	-0.2	-0.4	-0.1	-0.2	0.1	0.1	0.1	0.1	-0.2	-0.2	-0.1	-0.2	-0.2	0.0	-0.1	-0.1	0.0	0.1	0.4	0.6	0.0	0.0	0.0	0.0	0.6
7-Oct	0.6	0.7	0.5	0.5	0.7	0.5	0.7	0.5	0.4	0.6	0.6	0.8	0.4	0.6	0.8	0.6	0.2	0.2	0.2	0.2	0.5	0.4	0.5	0.7	0.5	0.5	0.5	0.7	0.8
8-Oct	0.4	0.5	0.5	0.3	0.4	0.5	0.5	0.4	0.3	0.3	0.0	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.3	-0.3	-0.1	-0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.6
9-Oct	0.0	0.1	-0.1	-0.1	0.1	0.2	0.1	0.0	0.0	0.0	-0.2	0.0	0.0	-0.3	0.2	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.2
10-Oct	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.4	0.3	0.2	0.4	0.5	0.1	0.0	-0.2	0.1	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	0.0	-0.1	0.1	0.1	0.1	0.1	0.5
11-Oct	-0.1	0.0	0.0	0.1	0.3	0.4	0.6	0.6	0.4	0.5	0.5	0.6	0.6	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.7	0.7
12-Oct	0.2	0.1	-0.1	-0.1	-0.2	-0.1	-0.1	0.1	-0.1	-0.3	-0.2	-0.2	0.1	0.4	0.1	0.2	0.2	0.4	0.6	0.6	0.7	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.7
13-Oct	0.4	0.6	0.6	0.6	0.6	0.7	0.9	0.9	0.9	0.8	0.9	1.2	1.1	1.2	1.1	0.9	0.9	0.8	1.0	0.9	0.8	0.6	0.8	0.9	0.8	0.8	0.8	0.8	1.2
14-Oct	0.6	0.6	0.7	0.8	0.5	0.5	0.7	0.8	0.8	0.8	0.7	0.4	0.7	0.9	0.9	0.8	1.0	1.0	0.5	0.7	0.2	0.4	0.7	0.7	0.7	0.7	0.7	0.7	1.0
15-Oct	0.4	0.4	0.4	0.3	0.1	0.0	0.0	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.1	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.4
16-Oct	0.0	0.1	0.3	0.6	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.2	0.0	0.1	0.1	0.2	0.0	0.5	0.2	0.4	0.1	0.3	-0.1	-0.1	0.2	0.2	0.2	0.2	0.6
17-Oct	0.0	0.0	0.0	0.0	0.1	-0.3	-0.3	-0.4	-0.2	-0.2	-0.2	-0.3	-0.1	-0.1	-0.4	-0.2	-0.3	-0.6	-0.5	-0.4	-0.2	-0.5	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2	0.1
18-Oct	-0.3	-0.3	-0.2	-0.2	0.0	-0.1	0.0	0.0	0.0	0.3	0.6	0.5	0.7	0.1	0.2	0.2	0.2	0.2	0.7	0.7	0.8	0.8	0.8	0.5	0.3	0.3	0.3	0.3	0.8
19-Oct	0.4	0.4	0.3	-0.1	0.0	-0.1	-0.1	-0.2	-0.3	-0.2	0.1	0.0	-0.1	0.0	0.1	-0.1	-0.4	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.1	-0.1	-0.1	-0.1	0.4
20-Oct	-0.4	-0.7	-0.5	-0.5	-0.3	-0.6	-0.4	-0.8	-0.4	-0.1	0.0	0.2	0.0	-0.1	-0.1	-0.3	-0.3	-0.3	-0.7	-0.7	-0.9	-0.8	-0.6	-1.3	-0.4	-0.4	-0.4	-0.4	0.2
21-Oct	-1.2	-1.3	-1.2	-1.0	-0.9	-0.9	-1.2	-1.0	-1.0	-0.9	-0.9	-0.9	-0.7	-0.3	-0.4	-0.3	-0.1	-0.2	-0.1	0.0	-0.2	0.1	-0.1	0.0	-0.6	-0.6	-0.6	-0.6	0.1
22-Oct	0.1	0.0	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	-0.1	0.3	0.3	0.3	0.1	0.2	0.2	0.1	0.0	-0.1	-0.1	-0.1	0.1	0.1	0.1	0.1	0.3
23-Oct	-0.3	-0.2	-0.3	-0.2	-0.3	-0.1	-0.3	0.0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	-0.3	-0.3	-0.1	-0.2	0.3	0.3	0.3	0.1	-0.1	-0.1	-0.1	-0.1	0.3
24-Oct	0.0	0.1	0.1	0.1	-0.2	-0.1	-0.2	-0.1	0.1	0.0	0.0	-0.2	-0.4	-0.3	-0.2	-0.1	0.0	0.0	-0.2	-0.1	-0.2	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.1
25-Oct	0.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.2	0.2	0.3	-0.2	0.0	0.0	-0.2	-0.2	-0.2	0.0	-0.1	0.0	0.0	0.1	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.4
26-Oct	0.2	0.2	0.1	0.1	0.1	0.1	-0.2	-0.1	0.0	0.0	0.1	0.5	0.0	0.1	-0.2	0.4	0.5	0.5	1.0	1.3	1.3	0.9	0.8	0.8	0.3	0.3	0.3	0.3	1.3
27-Oct	0.8	0.8	0.9	1.0	0.9	0.8	0.6	0.9	1.0	1.1	1.5	1.2	1.0	0.9	1.3	1.1	0.5	0.9	0.3	0.7	0.2	0.1	-0.2	0.0	0.8	0.8	0.8	0.8	1.5
28-Oct	0.0	-0.1	-0.3	-0.2	-0.2	-0.3	-0.3	-0.1	-0.1	-0.2	-0.4	-0.3	-0.5	-0.6	-0.3	-0.4	-0.4	-0.5	-0.3	-0.1	-0.5	-0.1	0.0	0.0	-0.3	-0.3	-0.3	-0.3	0.0
29-Oct	-0.1	0.0	-0.2	-0.3	-0.4	-0.1	-0.4	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	0.0	0.3	0.4	0.5	0.5	0.5	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.6
30-Oct	-0.4	-0.5	-0.4	-0.5	-0.7	-1.0	-0.8	-0.7	-0.6	-0.8	-0.3	-0.2	-0.2	-0.2	0.0	0.2	-0.1	0.1	0.1	0.6	0.5	0.6	0.0	0.7	-0.2	-0.2	-0.2	-0.2	0.7
31-Oct	0.3	0.7	0.9	0.9	1.0	1.0	1.0	0.8	0.6	0.6	0.7	1.0	1.1	0.4	0.1	0.2	0.5	0.4	0.6	0.8	0.6	0.6	0.4	0.0	0.6	0.6	0.6	0.6	1.1
																								Diurnal Average					
																								Diurnal Maximum					



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.0 km/h on Oct 21 03:00		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Minimum Value: 0.2 km/h on Oct 26 04:00																									
Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.9 Median = 1.5 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.4 P <sub>99</sub> = 3.3																									
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-Oct	1.0	0.9	1.0	0.9	0.6	0.8	0.6	0.4	0.9	1.3	1.4	1.6	1.6	1.8	1.6	1.4	1.6	2.0	1.6	0.8	0.5	0.5	0.8	1.1	2.0
2-Oct	1.1	1.6	1.8	1.6	1.3	1.3	1.6	1.8	2.0	2.8	2.9	2.6	2.5	2.6	2.8	2.4	2.5	2.9	2.8	3.0	2.9	2.5	2.4	2.5	3.0
3-Oct	2.2	1.9	1.9	1.8	1.9	1.7	2.1	2.0	1.6	2.3	2.1	1.9	1.8	2.1	2.1	2.0	1.8	1.1	0.8	0.7	0.4	0.5	0.5	0.9	2.3
4-Oct	0.8	1.0	0.9	0.8	1.0	1.3	1.2	0.7	1.3	1.4	1.3	1.5	1.7	1.9	1.8	2.1	1.8	2.1	1.8	0.8	1.2	1.4	1.8	1.5	2.1
5-Oct	2.1	2.1	1.8	1.4	1.0	1.2	0.9	0.4	0.6	0.8	1.0	1.3	1.5	1.9	1.8	1.2	1.2	1.2	0.6	1.0	1.4	1.7	1.7	1.6	2.1
6-Oct	2.0	1.6	1.6	2.9	3.2	2.8	2.1	1.6	1.8	2.3	2.5	2.8	2.9	2.5	2.1	2.3	1.8	1.1	0.5	0.6	0.5	0.5	0.5	1.0	3.2
7-Oct	1.2	1.3	1.4	1.2	1.2	0.8	1.0	1.2	1.2	1.5	1.7	2.0	2.1	2.0	1.7	1.1	1.7	1.5	1.6	1.4	1.0	0.8	0.6	0.8	2.1
8-Oct	0.6	0.6	0.6	0.5	0.7	0.8	0.7	0.8	0.8	0.9	0.7	1.1	1.2	1.4	1.2	1.6	1.9	1.3	1.1	3.5	1.5	1.8	1.8	1.6	3.5
9-Oct	1.3	1.6	1.4	1.2	1.1	1.8	1.5	1.8	1.5	1.7	2.0	1.9	1.8	1.9	1.9	1.5	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.5	2.0
10-Oct	0.4	0.5	0.5	0.4	0.6	0.9	0.9	0.8	0.6	0.8	1.1	1.3	1.5	2.1	2.1	2.1	2.1	1.0	0.7	0.9	0.7	0.5	0.5	0.4	2.1
11-Oct	0.5	0.4	0.3	0.3	0.5	0.7	0.9	1.1	0.9	1.0	1.1	1.2	1.4	1.6	1.8	1.6	1.5	1.2	1.5	1.6	1.3	1.1	1.0	0.8	1.8
12-Oct	0.4	0.4	0.5	0.6	0.6	0.5	0.4	0.4	0.9	1.1	1.2	1.5	1.7	1.9	1.5	1.2	0.7	0.7	0.7	0.7	0.5	0.5	0.9	0.9	1.9
13-Oct	0.7	0.8	0.7	0.9	1.5	1.8	2.0	2.3	2.1	2.1	2.5	2.5	2.6	2.4	2.4	1.9	1.6	1.8	1.7	1.8	1.6	1.4	1.7	2.0	2.6
14-Oct	1.8	1.6	1.5	1.7	1.5	1.8	1.7	1.8	1.8	1.9	1.7	1.3	1.6	2.3	2.3	1.8	2.2	2.2	1.3	1.3	1.2	0.9	0.9	0.9	2.3
15-Oct	0.7	0.8	0.8	0.7	0.7	1.7	1.9	2.0	1.9	1.6	1.6	1.7	1.7	1.5	1.6	2.3	1.2	0.7	0.5	0.8	0.9	0.8	0.6	0.8	2.0
16-Oct	0.5	0.6	0.5	0.6	0.5	0.7	0.6	0.5	0.8	1.0	1.0	0.9	0.6	0.7	0.7	1.1	1.3	1.6	1.3	0.9	1.2	1.1	0.6	0.4	1.6
17-Oct	0.6	0.6	0.6	0.6	1.4	1.5	2.1	2.5	2.6	2.7	2.8	2.5	2.2	2.2	2.7	2.5	3.3	3.1	2.9	2.6	2.7	3.0	2.8	2.3	3.3
18-Oct	2.5	1.8	1.5	1.6	0.7	0.8	1.3	1.3	1.3	1.4	1.5	1.5	1.8	2.4	2.3	2.3	1.6	0.9	0.7	0.8	1.0	1.0	1.1	0.7	2.5
19-Oct	0.5	0.7	0.7	0.4	0.4	0.4	0.6	1.1	1.2	1.1	1.3	1.5	1.4	1.2	1.0	1.1	1.0	2.0	2.0	2.0	2.0	2.0	1.8	1.8	2.0
20-Oct	2.1	2.3	1.8	1.7	1.8	2.0	2.1	1.8	1.7	1.7	1.7	1.4	1.3	1.6	2.0	1.8	1.7	1.7	1.8	2.1	2.3	2.2	2.6	3.0	3.0
21-Oct	3.5	3.8	4.0	3.4	2.9	2.9	3.2	3.1	3.4	2.9	2.8	2.6	2.3	1.9	1.5	1.2	1.0	1.0	1.0	1.1	1.3	1.2	1.4	1.2	4.0
22-Oct	1.4	1.1	1.3	1.3	1.3	1.6	1.6	1.7	1.6	1.6	2.3	2.2	2.1	2.3	2.3	2.3	2.1	1.8	2.2	2.3	1.8	1.9	2.0	2.3	2.3
23-Oct	2.3	2.7	2.9	3.2	3.4	2.6	2.1	1.8	2.4	2.2	2.0	2.3	2.6	2.8	2.4	1.8	2.0	1.5	1.5	1.1	0.9	0.6	0.6	1.1	3.4
24-Oct	0.7	0.7	0.6	0.6	1.3	1.5	1.4	1.3	1.1	1.4	1.6	2.4	2.4	2.0	2.3	1.7	1.3	0.6	0.8	0.7	0.8	0.3	0.7	0.5	2.4
25-Oct	0.3	0.2	0.5	0.8	0.7	0.7	0.6	0.4	0.6	1.0	1.2	1.3	1.5	1.5	1.4	1.1	0.7	0.4	0.4	0.3	0.3	0.4	0.3	0.4	1.5
26-Oct	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.6	1.0	1.2	1.4	1.4	1.1	1.7	1.6	1.8	2.0	1.9	2.2	2.3	2.4	2.3	2.4
27-Oct	2.1	1.8	1.8	2.0	2.0	1.8	1.5	1.9	2.2	2.1	2.0	2.2	2.4	2.3	2.2	2.3	1.2	1.1	0.8	1.1	0.9	0.6	0.9	0.9	2.4
28-Oct	1.1	1.9	2.1	2.1	2.2	2.1	1.7	1.6	1.9	2.2	2.4	2.4	2.4	2.3	2.2	2.0	2.0	2.3	2.1	2.2	2.4	2.0	1.6	1.9	2.4
29-Oct	1.6	1.4	2.1	2.4	2.3	2.2	1.9	1.6	1.6	1.4	1.4	1.5	1.5	1.6	1.5	0.9	0.6	0.6	0.7	0.9	1.0	0.6	0.4	0.5	2.4
30-Oct	1.4	1.8	2.0	1.9	2.0	2.3	2.4	1.9	1.8	1.7	1.9	1.8	1.7	1.7	1.8	2.0	2.0	1.7	1.7	1.8	1.7	1.5	1.5	1.4	2.4
31-Oct	1.4	1.3	1.6	1.4	1.4	1.3	1.3	1.6	1.9	1.7	1.9	2.0	1.9	1.4	1.0	1.1	1.2	1.2	1.5	1.3	1.1	1.4	1.4	1.1	2.0
3.5 3.8 4.0 3.4 3.4 2.9 3.2 3.1 3.4 2.9 2.9 2.8 2.9 2.8 2.8 2.5 3.3 3.1 2.9 3.5 2.9 3.0 2.8 3.0																									
Diurnal Maximum																									



Maximum Value: 2.0 km/h on Oct 27 11:00		Maximum Daily Average: 0.8 km/h on Oct 13		Hours in Service: 744																						
Minimum Value: -1.2 km/h on Oct 21 07:00		Minimum Daily Average: -0.7 km/h on Oct 23		Hours of Data: 742																						
Maximum Diurnal Average: 0.0 km/h at hour 12		Minimum Diurnal Average: -0.2 km/h at hour 4		Hours of Missing Data: 2																						
Monthly Average: -0.09 km/h		Percentiles: P <sub>1</sub> = -1.1 P <sub>10</sub> = -0.7 Q <sub>1</sub> = -0.5 Median = -0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 1.3		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-Oct	-0.7	-0.5	-0.6	-0.6	-0.4	-0.3	-0.1	-0.2	-0.3	0.1	-0.1	-0.2	-0.2	0.1	0.2	0.3	0.5	0.1	0.1	-0.3	-0.2	-0.5	-0.6	-0.5	-0.2	0.5
2-Oct	-0.5	-0.5	-0.4	-0.6	-0.5	-0.6	-0.5	-0.5	-0.3	-0.6	-0.4	-0.6	-0.6	-0.9	-0.9	-0.6	-0.7	-0.8	-0.5	-0.7	-1.0	-0.8	-0.3	-0.6	-0.6	-0.3
3-Oct	-0.4	-0.3	-0.5	-0.3	-0.5	-0.5	-0.6	-0.6	-0.3	-0.3	-0.4	0.1	-0.6	-0.4	-0.9	-0.3	-0.5	-0.5	-0.5	-0.5	-0.5	-0.3	0.0	0.2	-0.4	0.2
4-Oct	0.3	0.2	0.3	0.4	0.7	0.7	0.5	0.2	0.2	0.6	0.3	0.4	0.6	0.6	0.8	0.5	-0.1	0.3	0.2	-0.1	0.0	-0.2	-0.2	-0.4	0.3	0.8
5-Oct	-0.1	-0.7	-0.3	-0.6	-0.4	-0.4	-0.2	-0.1	-0.2	-0.2	-0.1	0.1	0.1	-0.2	0.0	0.2	0.0	-0.4	0.2	0.6	0.6	0.2	0.3	-0.4	-0.1	0.6
6-Oct	-0.7	-0.7	-0.7	-0.9	-1.2	-1.0	-0.8	-0.5	-0.6	-0.6	-0.6	-0.8	-1.1	-0.8	-0.3	-0.6	-0.7	-0.5	-0.5	-0.6	-0.6	-0.1	0.2	0.7	-0.6	0.7
7-Oct	0.7	0.9	0.5	0.8	1.1	0.5	1.1	0.8	0.4	0.6	0.5	0.8	0.5	0.8	1.0	0.5	-0.2	0.0	-0.1	0.0	0.3	0.2	0.3	0.6	0.5	1.1
8-Oct	0.2	0.5	0.2	0.0	0.2	0.5	0.7	0.4	0.3	0.4	0.1	0.2	0.1	0.1	0.2	0.3	0.7	0.6	0.2	-0.8	-0.6	-0.8	-0.5	-0.7	0.1	0.7
9-Oct	-0.5	-0.5	-0.6	-0.6	-0.4	-0.1	-0.5	-0.7	-0.5	-0.4	-0.5	-0.1	-0.2	-0.9	-0.3	-0.3	-0.4	-0.4	-0.6	-0.5	-0.6	-0.6	-0.4	0.0	-0.4	0.0
10-Oct	-0.1	-0.1	0.0	-0.2	0.0	0.1	0.2	0.2	-0.1	-0.1	0.3	0.3	0.0	-0.3	-0.7	-0.4	-0.6	-0.7	-0.6	-0.6	-0.6	-0.3	-0.3	-0.4	-0.2	0.3
11-Oct	-0.5	-0.3	-0.4	-0.3	0.0	0.1	0.4	0.8	0.2	0.3	0.4	0.4	0.5	0.9	-0.1	-0.3	-0.4	-0.4	-0.7	-0.8	-0.7	-0.5	-0.6	-0.3	-0.1	0.9
12-Oct	-0.1	-0.1	-0.5	-0.4	-0.6	-0.4	-0.4	-0.2	-0.5	-0.4	-0.3	-0.6	0.1	0.3	0.1	-0.1	0.2	0.6	1.2	0.7	0.5	0.4	0.4	0.4	0.0	1.2
13-Oct	0.3	0.5	0.6	0.5	0.5	0.7	0.8	0.6	0.7	0.6	0.9	1.0	1.2	1.1	1.1	0.7	1.0	0.7	1.0	0.8	0.7	0.6	0.7	0.8	0.8	1.2
14-Oct	0.5	0.5	0.6	0.5	0.4	0.5	0.8	0.6	0.8	0.7	0.5	0.3	0.5	0.6	0.6	0.3	0.7	0.9	0.7	0.4	0.5	0.0	0.1	0.4	0.5	0.9
15-Oct	0.3	0.1	0.0	-0.1	-0.2	-0.3	-0.5	-0.5	-0.4	-0.2	-0.5	-0.5	-0.2	0.1	-0.3	-0.2	-0.4	-0.5	-0.5	-0.6	-0.5	-0.5	-0.4	-0.2	-0.3	0.3
16-Oct	-0.1	-0.1	0.0	0.4	0.1	0.4	0.2	0.4	0.5	0.3	0.2	0.1	-0.2	0.0	0.0	0.4	0.2	0.4	0.3	0.7	0.2	0.5	0.0	-0.2	0.2	0.7
17-Oct	-0.2	-0.2	-0.2	-0.4	-0.5	-0.7	-0.8	-1.0	-0.9	-1.0	-0.7	-0.6	-0.7	-0.3	-0.9	-0.8	-1.1	-1.0	-1.1	-0.9	-0.7	-0.9	-0.7	-0.4	-0.7	-0.2
18-Oct	-0.6	-0.5	-0.5	-0.5	-0.3	-0.6	-0.6	-0.6	-0.5	0.2	0.4	0.5	0.9	-0.4	-0.4	-0.2	-0.2	0.0	0.4	0.5	0.7	0.7	0.7	0.4	0.0	0.9
19-Oct	0.3	0.4	0.4	0.1	0.1	-0.1	-0.2	-0.2	-0.3	-0.4	0.5	0.1	0.0	0.1	0.0	0.2	-0.4	-0.3	-0.2	-0.4	0.0	0.0	-0.3	-0.4	0.0	0.5
20-Oct	-0.4	-0.8	-0.6	-0.7	-0.5	-0.7	0.0	-0.7	-0.2	0.0	0.0	0.4	0.1	0.1	0.1	0.1	0.1	0.1	-0.6	-0.6	-0.5	-0.6	-0.3	-0.8	-0.3	0.4
21-Oct	-0.4	-1.0	-0.6	-0.3	-0.1	-0.9	-1.2	-1.1	-1.1	-1.0	-1.1	-1.1	-0.7	-0.4	-0.5	-0.5	-0.2	-0.4	-0.2	-0.2	-0.6	-0.4	-0.4	-0.5	-0.6	-0.1
22-Oct	-0.4	-0.2	-0.3	-0.2	-0.5	0.0	-0.1	-0.1	0.0	-0.1	-0.3	-0.4	-0.6	-0.2	-0.2	-0.1	-0.4	0.0	-0.4	-0.6	-0.3	-0.6	-0.9	-0.5	-0.3	0.0
23-Oct	-0.9	-1.1	-1.1	-1.2	-1.1	-0.6	-0.7	-0.6	-0.7	-0.7	-0.4	-0.6	-0.8	-1.2	-0.9	-0.7	-0.9	-0.9	-0.9	-0.7	0.1	0.0	0.0	-0.3	-0.7	0.1
24-Oct	-0.3	-0.4	-0.3	-0.3	-0.6	-0.5	-0.7	-0.6	-0.1	-0.4	-0.2	-0.8	-0.8	-0.7	-0.7	-0.4	-0.3	-0.5	-0.7	-0.6	-0.7	-0.3	-0.5	0.0	-0.5	0.0
25-Oct	-0.2	-0.3	-0.2	-0.5	-0.7	-0.4	-0.2	0.0	0.1	0.3	-0.3	-0.1	-0.2	-0.5	-0.4	-0.5	-0.3	-0.3	-0.3	-0.4	-0.2	0.1	0.3	0.3	-0.2	0.3
26-Oct	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	1.0	0.3	0.2	0.3	0.5	0.1	0.1	1.2	1.1	1.4	0.7	0.4	-0.1	0.3	1.4
27-Oct	0.3	0.7	0.9	0.7	0.6	0.6	0.5	0.6	0.5	0.9	2.0	1.5	0.7	0.9	1.7	0.8	0.0	1.1	0.6	0.9	0.0	UO	-0.1	-0.2	0.7	2.0
28-Oct	UO	-0.6	-0.7	-0.6	-0.6	-0.7	-0.6	-0.4	-0.5	-0.6	-0.9	-0.5	-1.0	-0.6	-0.4	-0.8	-0.7	-0.6	-0.6	-0.5	-0.8	-0.4	-0.4	-0.3	-0.6	-0.3
29-Oct	-0.5	-0.4	-0.4	-0.7	-0.4	-0.3	-0.6	-0.4	-0.5	-0.3	-0.4	-0.5	-0.2	-0.5	-0.1	0.1	0.2	0.4	0.4	0.5	0.5	0.4	-0.1	0.0	-0.2	0.5
30-Oct	-0.2	-0.3	-0.2	-0.2	-0.2	-0.4	-0.4	-0.2	-0.3	-0.6	0.1	-0.1	0.0	-0.1	0.3	0.3	0.4	0.3	0.4	1.2	0.7	1.0	0.0	1.1	0.1	1.2
31-Oct	0.4	1.1	1.6	1.8	1.5	1.2	1.1	0.7	0.7	0.9	0.7	1.2	1.4	0.4	-0.1	-0.1	0.1	0.0	0.4	0.7	0.4	0.5	0.3	-0.3	0.7	1.8
																								Diurnal Average		
																								Diurnal Maximum		
UO - Unstable Operation																										



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.0 km/h on Oct 21 03:00		Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7																							
Minimum Value: 0.2 km/h on Oct 25 02:00																									
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.8 Median = 1.6 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.6 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-Oct	0.7	0.6	0.5	0.7	0.5	0.6	0.4	0.2	0.8	1.5	1.8	2.1	2.2	2.3	2.0	1.5	1.9	1.8	1.4	1.0	0.5	0.4	0.7	1.0	2.3
2-Oct	1.0	1.3	1.7	1.4	1.1	1.2	1.5	2.0	2.0	2.9	2.8	2.5	2.4	2.6	2.6	2.5	2.3	2.8	2.9	2.9	2.7	2.7	2.5	2.6	2.9
3-Oct	2.4	1.8	1.8	1.7	1.7	1.8	2.1	1.7	1.6	2.3	2.2	2.3	2.3	2.3	2.5	2.1	2.0	1.2	0.2	0.2	0.4	0.5	0.6	0.5	2.5
4-Oct	0.6	0.4	0.4	0.4	0.6	1.0	1.2	0.8	1.2	1.4	1.6	1.5	1.9	2.2	1.9	1.9	1.9	2.2	2.0	0.9	1.1	1.5	1.6	1.6	2.2
5-Oct	2.0	1.9	1.8	1.2	1.1	1.2	0.9	0.3	0.4	0.8	1.2	1.6	2.1	2.3	2.1	1.3	1.2	0.9	0.5	0.9	1.1	1.5	1.5	1.4	2.3
6-Oct	1.8	1.7	1.7	3.1	3.3	3.0	2.5	2.1	2.2	2.4	2.6	3.1	3.2	2.7	2.3	2.6	2.0	1.0	0.3	0.2	0.2	0.7	0.4	0.7	3.3
7-Oct	0.8	1.2	1.2	0.8	1.4	0.6	0.8	1.0	1.2	1.4	1.7	2.2	1.9	2.0	1.8	1.0	1.5	1.3	1.4	1.4	0.8	0.4	0.5	0.6	2.2
8-Oct	0.4	0.4	0.4	0.5	0.4	0.7	0.5	0.5	0.5	0.6	0.7	1.0	1.2	1.4	1.2	1.7	2.1	1.4	1.1	3.5	1.5	2.0	1.7	1.6	3.5
9-Oct	1.0	1.7	1.3	1.0	1.0	1.4	1.1	1.4	1.7	2.0	2.3	2.4	2.5	2.3	2.1	1.7	0.9	0.3	0.2	0.2	0.2	0.3	0.5	0.6	2.5
10-Oct	0.2	0.4	0.3	0.3	0.4	0.6	0.6	0.7	0.5	0.5	0.9	1.3	1.7	2.5	2.3	2.4	2.2	0.9	0.5	0.9	0.5	0.6	0.5	0.4	2.5
11-Oct	0.2	0.3	0.4	0.3	0.4	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.6	1.9	2.1	1.8	1.5	0.7	0.9	0.9	1.1	1.0	1.0	0.9	2.1
12-Oct	0.5	0.5	0.5	0.3	0.3	0.5	0.2	0.6	0.6	1.0	1.3	1.7	2.2	2.4	2.1	1.4	0.9	0.7	0.9	0.6	0.4	0.4	0.6	0.5	2.4
13-Oct	0.7	0.5	0.5	0.8	1.0	1.7	1.8	2.3	2.3	2.3	2.7	3.0	3.1	3.1	2.9	2.0	1.8	1.8	1.8	1.9	1.6	1.5	1.5	2.0	3.1
14-Oct	1.9	1.6	1.6	2.0	1.8	1.9	1.7	1.8	2.0	2.2	2.2	1.5	2.1	2.5	2.7	2.4	1.7	2.6	2.6	1.2	1.2	1.0	0.7	0.8	2.7
15-Oct	0.5	0.5	0.8	0.9	1.1	2.0	2.3	2.3	2.0	1.9	1.9	1.8	2.1	1.7	2.0	1.6	0.6	0.3	0.2	0.6	0.6	0.5	0.8	0.6	2.3
16-Oct	0.7	0.7	0.5	0.4	0.3	0.4	0.5	0.4	0.7	1.1	1.0	0.9	0.6	0.6	1.1	1.1	1.2	2.0	1.6	1.2	1.4	1.2	0.6	0.3	2.0
17-Oct	0.4	0.5	0.5	0.5	0.9	1.6	2.2	2.6	2.7	2.8	2.8	3.0	2.7	2.9	3.1	3.0	3.6	3.8	3.6	3.0	3.0	3.1	2.8	2.5	3.8
18-Oct	2.4	1.9	1.6	1.7	0.8	0.4	0.7	0.8	1.2	1.5	1.6	2.0	2.1	2.5	2.3	2.1	1.3	0.5	0.7	0.9	0.8	0.8	1.1	0.8	2.5
19-Oct	0.6	0.7	0.8	0.5	0.3	0.3	0.5	0.9	1.2	1.3	1.7	1.9	1.5	1.6	1.3	1.5	0.9	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.9
20-Oct	2.2	2.5	2.0	1.9	2.0	2.2	2.0	1.4	1.8	1.8	1.7	1.6	1.6	1.7	2.1	1.8	1.7	1.7	1.5	2.0	2.1	2.1	2.5	2.6	2.6
21-Oct	2.9	3.3	4.0	3.6	3.1	3.4	3.4	3.4	3.6	3.0	2.8	2.9	2.5	2.2	1.5	1.1	1.2	0.9	1.0	1.2	1.2	1.2	1.6	1.4	4.0
22-Oct	1.5	1.0	1.0	1.0	1.1	1.6	1.4	1.6	1.5	1.5	2.3	2.3	2.2	2.3	2.0	2.2	2.0	2.0	2.3	2.4	2.2	2.2	2.3	2.7	2.7
23-Oct	2.5	2.9	3.3	3.4	3.8	3.1	2.4	2.1	2.6	2.5	2.3	2.6	2.9	2.9	2.5	1.9	2.0	1.4	1.3	0.9	0.9	0.8	0.6	0.9	3.8
24-Oct	0.5	0.5	0.8	0.8	1.4	1.4	1.2	1.2	1.4	1.9	1.9	2.7	2.4	2.2	2.5	1.9	1.3	0.6	0.5	0.7	0.6	0.3	0.7	0.5	2.7
25-Oct	0.3	0.2	0.5	0.4	0.6	0.7	0.7	0.6	0.6	1.1	1.5	1.6	1.9	1.9	1.7	1.3	0.7	0.3	0.3	0.3	0.3	0.5	0.3	0.3	1.9
26-Oct	0.3	0.5	0.5	0.3	0.2	0.2	0.4	0.7	0.5	0.5	1.2	1.5	1.8	1.6	1.4	1.8	1.8	2.1	2.4	2.4	2.9	2.7	2.6	2.4	2.9
27-Oct	2.4	1.7	1.8	2.1	2.0	2.1	1.6	1.9	2.3	2.6	2.6	2.8	2.8	2.9	2.8	2.9	1.5	1.5	1.1	1.4	0.9	UO	1.1	0.9	2.9
28-Oct	UO	2.0	2.0	2.1	2.2	2.2	1.6	1.7	1.9	2.3	2.5	2.5	2.4	2.3	2.3	2.0	1.9	2.4	2.2	2.4	2.5	2.1	1.9	2.0	2.5
29-Oct	1.7	1.7	2.1	2.4	2.2	2.4	1.8	1.6	1.6	1.6	1.8	1.8	1.9	1.9	1.9	1.1	0.7	0.4	0.5	0.9	1.1	0.9	0.5	0.5	2.4
30-Oct	1.2	1.6	1.6	1.8	1.9	2.1	2.0	1.8	1.6	1.3	1.9	1.8	1.8	2.0	2.0	2.0	2.0	1.8	1.7	2.0	2.0	1.9	1.7	1.7	2.1
31-Oct	1.8	1.7	2.0	1.8	1.9	1.8	1.9	2.1	2.3	2.1	2.4	2.5	2.9	1.8	1.4	1.2	1.4	1.3	1.7	1.6	1.4	1.4	1.3	1.1	2.9
Diurnal Maximum																									
2.9 3.3 4.0 3.6 3.8 3.4 3.4 3.4 3.6 3.0 2.8 3.1 3.2 3.1 3.1 3.0 3.6 3.8 3.6 3.5 3.0 3.1 2.8 2.7																									
UO - Unstable Operation																									



Maximum Value: 2.0 km/h on Oct 31 04:00		Maximum Daily Average: 0.5 km/h on Oct 31		Hours in Service: 744																																												
Minimum Value: -1.0 km/h on Oct 26 18:00		Minimum Daily Average: -0.1 km/h on Oct 22		Hours of Data: 744																																												
Maximum Diurnal Average: 0.3 km/h at hour 12		Minimum Diurnal Average: 0.0 km/h at hour 17		Hours of Missing Data: 0																																												
Monthly Average: 0.16 km/h		Percentiles: P <sub>1</sub> = -0.6 P <sub>10</sub> = -0.3 Q <sub>1</sub> = -0.1 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.2		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-Oct	0.0	0.1	0.1	0.2	0.1	0.4	0.1	0.2	0.2	0.5	0.5	0.1	0.1	0.5	0.7	0.4	0.5	0.1	0.3	0.0	0.1	0.2	0.2	0.5	0.2	0.7																						
2-Oct	0.5	0.4	0.3	0.4	0.1	0.3	0.3	0.3	0.5	0.4	1.1	0.3	0.5	0.4	0.4	0.5	0.5	0.5	0.7	0.3	-0.2	-0.3	0.4	-0.1	0.3	1.1																						
3-Oct	0.6	0.5	0.4	0.5	0.3	0.4	0.3	0.2	0.4	0.7	0.4	0.9	-0.2	0.1	-0.4	0.2	0.0	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.1	0.2	0.9																						
4-Oct	0.2	0.3	0.2	0.4	1.0	1.1	0.6	0.0	0.3	0.4	0.3	0.3	0.0	0.3	0.6	0.3	-0.2	0.5	0.5	0.2	0.2	0.2	0.2	0.1	0.3	1.1																						
5-Oct	0.7	-0.2	0.3	-0.3	0.1	0.0	0.2	0.3	0.1	0.2	0.1	0.5	0.5	0.1	0.5	0.4	0.1	-0.2	0.2	0.9	0.7	0.2	0.3	-0.4	0.2	0.9																						
6-Oct	-0.3	-0.2	0.0	0.2	-0.1	-0.2	0.0	0.0	0.1	0.1	0.1	0.0	-0.3	0.0	0.6	0.4	0.2	0.2	0.1	0.0	-0.1	0.0	0.1	0.4	0.1	0.6																						
7-Oct	0.7	1.0	0.5	0.6	0.4	0.0	0.3	0.1	0.3	0.7	0.5	0.7	0.6	0.8	1.2	0.4	-0.1	0.1	0.1	0.1	0.4	0.1	0.2	0.4	0.4	1.2																						
8-Oct	0.1	0.4	0.1	0.0	0.2	0.4	0.7	0.3	0.5	0.4	0.4	0.0	-0.2	-0.2	-0.1	-0.5	-0.1	-0.1	0.2	0.3	0.3	-0.3	-0.1	-0.4	0.1	0.7																						
9-Oct	-0.2	0.0	-0.1	-0.2	0.0	-0.2	-0.3	-0.3	0.0	0.1	0.2	0.5	0.5	-0.6	0.1	0.2	0.0	-0.1	-0.2	-0.1	-0.1	0.0	0.2	0.2	0.0	0.5																						
10-Oct	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	-0.1	0.2	0.3	0.3	0.4	-0.2	0.1	0.1	0.0	-0.1	0.1	0.1	0.4	0.1	0.2	0.1	0.4																						
11-Oct	0.1	0.3	0.2	0.1	0.0	0.1	0.3	0.9	0.5	0.5	0.4	0.3	0.4	0.5	0.1	0.0	-0.1	-0.3	-0.7	-0.8	-0.5	-0.2	-0.4	-0.1	0.1	0.9																						
12-Oct	0.0	0.1	0.0	0.2	0.0	0.2	0.2	0.5	0.0	0.3	0.0	-0.1	0.3	0.8	0.6	0.0	0.5	0.4	0.7	0.1	-0.1	0.0	0.0	0.3	0.2	0.8																						
13-Oct	0.5	-0.1	-0.3	0.0	-0.1	-0.1	-0.2	-0.3	-0.1	0.1	0.2	0.7	0.6	0.4	0.1	-0.3	0.1	0.2	0.8	0.2	-0.1	-0.1	-0.3	-0.2	0.1	0.8																						
14-Oct	-0.3	-0.2	-0.1	-0.4	-0.3	-0.4	-0.1	-0.2	-0.1	-0.2	0.0	0.0	0.1	-0.5	-0.3	-0.3	-0.2	0.0	-0.2	0.3	0.5	0.2	0.3	0.4	-0.1	0.5																						
15-Oct	0.2	0.0	0.1	0.0	0.2	0.3	0.3	0.2	0.2	0.4	0.0	0.1	0.4	0.7	0.4	0.1	0.0	-0.2	-0.2	-0.3	-0.2	-0.1	0.0	0.2	0.1	0.7																						
16-Oct	0.1	0.1	0.2	0.4	0.2	0.3	0.2	0.6	0.7	0.5	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.3	0.8	0.1	0.5	0.4	0.2	0.3	0.8																						
17-Oct	0.1	0.2	0.1	0.0	0.1	-0.1	-0.2	-0.2	0.0	-0.2	0.3	0.4	-0.1	0.5	-0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.4	0.6	0.7	0.2	0.7																						
18-Oct	0.4	0.6	0.4	0.3	0.2	-0.2	-0.3	-0.4	-0.3	0.2	0.4	0.3	1.1	-0.2	-0.4	-0.1	0.0	0.2	0.5	0.7	0.9	1.0	0.7	0.4	0.3	1.1																						
19-Oct	0.0	0.0	0.1	0.3	0.3	0.2	0.2	0.4	0.0	0.1	1.0	0.5	0.3	0.3	0.2	0.7	-0.2	0.2	0.2	-0.1	0.3	0.4	0.4	0.0	0.2	1.0																						
20-Oct	0.1	-0.2	-0.1	-0.4	-0.2	-0.3	0.4	-0.7	0.0	0.1	0.2	0.6	0.2	0.4	0.3	0.4	0.3	0.2	-0.5	-0.4	-0.5	-0.5	-0.1	-0.4	0.0	0.6																						
21-Oct	-0.2	-0.7	-0.2	0.3	0.8	-0.2	-0.5	-0.7	-0.4	-0.3	-0.5	-0.5	-0.3	-0.1	-0.2	-0.1	0.2	0.2	0.4	0.4	0.0	0.1	0.1	0.1	-0.1	0.8																						
22-Oct	-0.1	-0.1	-0.2	-0.2	-0.3	0.0	0.0	-0.1	0.0	0.1	0.1	-0.2	-0.3	-0.1	0.0	0.1	-0.3	0.1	-0.4	-0.6	0.1	-0.2	-0.2	-0.1	-0.1	0.1																						
23-Oct	-0.1	-0.2	-0.1	-0.3	0.1	0.5	0.2	0.1	0.1	0.2	0.3	0.0	0.1	-0.4	-0.1	-0.1	-0.3	-0.3	-0.4	-0.2	0.3	0.0	-0.1	-0.1	0.0	0.5																						
24-Oct	-0.3	-0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.1	0.4	0.0	0.1	0.1	0.2	0.7	0.4	0.1	0.0	0.0	-0.1	0.1	-0.1	0.3	0.1	0.7																						
25-Oct	0.2	0.0	0.2	-0.2	-0.4	-0.3	0.0	0.1	0.1	0.3	0.1	0.5	0.1	0.0	0.2	-0.1	0.3	0.1	0.0	0.0	0.2	0.2	0.2	0.4	0.1	0.5																						
26-Oct	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.3	0.4	1.7	0.9	0.7	0.4	0.1	-0.7	-1.0	1.2	0.8	1.1	-0.2	-0.5	-0.9	0.2	1.7																						
27-Oct	-0.6	-0.4	-0.2	-0.5	-0.2	-0.1	0.0	-0.3	-0.5	0.3	1.6	1.0	-0.2	0.3	1.3	0.1	-0.5	0.9	0.6	0.9	-0.2	0.2	0.1	0.1	0.2	1.6																						
28-Oct	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.5	0.3	0.2	0.6	0.3	0.6	0.7	0.2	0.4	0.5	0.4	0.4	0.4	0.5	0.3	0.5	0.4	0.7																						
29-Oct	0.3	0.3	0.7	0.2	0.7	0.8	0.3	0.6	0.3	0.3	0.2	-0.1	-0.1	-0.2	0.4	0.2	0.2	0.4	0.4	0.1	0.0	0.2	0.1	0.2	0.3	0.8																						
30-Oct	0.2	0.0	0.3	0.5	0.4	0.1	0.0	0.2	-0.1	-0.5	0.2	0.2	0.2	-0.1	0.3	0.3	0.4	0.1	0.3	1.2	0.5	0.9	0.0	0.8	0.3	1.2																						
31-Oct	0.1	1.2	2.0	2.0	1.5	0.9	0.7	0.5	0.5	0.6	0.4	0.9	1.2	0.3	-0.3	-0.1	-0.5	-0.5	0.2	0.5	0.3	0.5	0.3	-0.1	0.5	2.0																						
																								0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	Diurnal Average
																								0.7	1.2	2.0	2.0	1.5	1.1	0.7	0.9	0.7	0.7	1.6	1.7	1.2	0.8	1.3	0.7	0.5	0.9	1.2	1.2	1.1	1.0	0.7	0.8	Diurnal Maximum





Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.2 km/h on Oct 17 18:00		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Value: 0.1 km/h on Oct 6 21:00																										
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.8 Median = 1.5 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.7																										
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-Oct	0.7	0.4	0.2	0.4	0.5	0.6	0.4	0.3	0.6	1.5	2.0	2.4	2.5	2.6	2.2	1.7	2.1	1.5	1.1	1.2	0.6	0.5	0.7	0.9	2.6	
2-Oct	0.8	1.4	1.8	1.4	1.1	1.1	1.6	2.1	2.1	2.7	3.1	2.5	2.5	2.7	2.6	2.4	2.4	2.9	2.8	2.8	2.5	2.6	2.5	2.3	3.1	
3-Oct	2.4	1.9	1.8	1.8	1.6	1.8	2.1	1.7	1.7	2.5	2.4	2.6	2.5	2.8	2.7	2.4	1.9	1.0	0.2	0.2	0.2	0.4	0.7	0.5	2.8	
4-Oct	0.5	0.5	0.4	0.5	0.5	0.5	0.9	1.0	0.9	1.6	1.8	1.9	2.9	3.1	2.1	2.1	2.0	2.4	2.4	1.1	1.3	1.7	1.8	1.7	3.1	
5-Oct	2.1	1.6	2.1	1.0	1.0	1.1	0.7	0.4	0.3	0.6	0.9	1.6	2.1	2.4	2.4	1.4	1.2	0.8	0.3	0.8	1.2	1.5	1.4	1.2	2.4	
6-Oct	1.7	1.8	2.0	3.2	3.7	3.2	2.8	2.4	2.3	2.4	2.5	3.2	3.4	2.8	2.4	2.7	2.0	1.0	0.2	0.2	0.1	0.8	0.5	0.5	3.7	
7-Oct	0.7	0.7	0.7	0.6	1.5	0.9	1.0	0.8	0.8	1.0	1.3	2.1	1.9	2.0	1.9	1.0	1.4	1.3	1.4	1.4	1.0	0.6	0.6	0.9	2.1	
8-Oct	0.6	0.5	0.4	0.6	0.5	0.6	0.5	0.4	0.4	0.7	0.8	0.8	1.1	1.3	1.1	1.6	1.8	1.3	1.2	3.8	1.6	2.0	1.8	1.7	3.8	
9-Oct	1.2	2.0	1.4	1.2	1.3	0.9	0.6	1.0	1.8	2.0	2.3	2.5	2.7	2.5	2.1	1.9	0.8	0.3	0.2	0.3	0.2	0.3	0.4	0.8	2.7	
10-Oct	0.3	0.4	0.3	0.6	0.4	0.5	0.5	0.7	0.7	0.5	0.6	1.1	1.7	2.5	2.3	2.4	2.2	0.9	0.5	0.9	0.6	0.6	0.4	0.3	2.5	
11-Oct	0.3	0.3	0.3	0.3	0.4	0.7	0.5	0.6	0.7	0.9	0.9	1.1	1.6	1.7	2.1	2.0	1.5	0.4	0.6	0.6	1.1	0.8	0.8	0.8	2.1	
12-Oct	0.5	0.7	0.5	0.4	0.4	0.6	0.3	0.6	0.5	0.9	1.3	2.0	2.4	2.7	2.4	1.6	1.1	0.9	1.1	0.9	0.8	0.6	0.5	0.4	2.7	
13-Oct	0.6	0.5	0.7	0.7	0.6	0.9	1.4	2.0	1.7	1.9	2.5	3.2	3.3	3.2	2.6	1.8	1.5	1.5	1.5	1.3	1.2	1.1	1.4	1.7	3.3	
14-Oct	1.5	1.3	1.3	1.6	1.7	1.6	1.3	1.6	1.5	1.8	2.0	1.4	2.0	2.5	2.5	1.5	2.3	2.5	1.0	1.1	0.9	0.7	0.7	0.7	2.5	
15-Oct	0.6	0.5	1.0	1.3	1.4	2.3	2.5	2.4	2.0	1.7	1.8	1.9	2.1	2.1	2.3	1.7	0.6	0.2	0.2	0.5	0.3	0.6	1.1	1.0	2.5	
16-Oct	1.0	1.0	0.6	0.4	0.3	0.3	0.5	0.3	0.3	0.7	0.8	0.9	0.6	0.6	1.4	1.2	1.8	2.6	2.0	1.6	1.8	1.8	0.8	0.4	2.6	
17-Oct	0.3	0.5	0.3	0.4	0.9	1.5	2.0	2.4	2.4	2.8	2.8	2.9	2.6	3.1	3.5	3.4	4.1	4.2	3.8	3.4	3.2	3.0	2.7	2.6	4.2	
18-Oct	2.4	1.9	1.7	1.6	0.8	0.3	0.5	0.3	0.9	1.4	1.6	2.0	2.3	2.7	2.2	2.2	1.3	0.4	0.6	0.7	0.6	0.5	0.9	0.7	2.7	
19-Oct	0.6	0.9	1.1	0.6	0.3	0.3	0.4	0.7	1.1	1.3	1.7	2.0	1.8	1.6	1.6	1.6	0.8	1.5	1.5	1.7	1.6	1.7	1.9	1.7	2.0	
20-Oct	2.2	2.1	1.9	1.8	1.9	1.9	1.8	1.4	1.9	1.7	1.8	1.7	1.6	1.9	1.8	1.7	1.5	1.6	1.3	1.7	1.9	2.1	2.3	2.4	2.4	
21-Oct	2.5	2.9	4.0	3.7	3.6	3.5	3.3	3.2	3.3	3.0	2.7	2.6	2.4	2.3	1.2	1.2	1.3	0.9	1.0	1.1	0.9	1.2	1.5	1.5	4.0	
22-Oct	1.4	1.0	0.9	0.9	1.0	1.4	1.3	1.2	1.2	1.5	2.5	2.2	2.0	2.5	2.0	2.1	1.8	2.1	2.3	2.3	2.3	2.4	2.5	2.8	2.8	
23-Oct	2.5	2.8	3.3	3.1	3.7	3.3	2.6	2.2	2.7	2.6	2.3	2.5	2.6	2.8	2.2	1.8	2.0	1.5	1.4	0.9	0.9	0.9	0.6	0.6	3.7	
24-Oct	0.4	0.7	1.0	1.0	1.6	1.4	1.1	1.3	1.7	1.9	2.0	2.8	2.5	2.5	2.7	2.2	1.3	0.7	0.4	0.6	0.6	0.4	0.7	0.7	2.8	
25-Oct	0.4	0.2	0.5	0.4	0.5	0.7	0.8	0.7	0.7	1.0	1.4	1.8	1.9	2.0	1.7	1.3	0.8	0.3	0.4	0.3	0.3	0.6	0.5	0.3	2.0	
26-Oct	0.3	0.4	0.5	0.4	0.3	0.4	0.8	0.9	0.7	0.7	1.0	1.7	1.9	1.5	1.4	2.0	2.4	3.0	3.2	3.2	3.5	2.9	2.5	2.4	3.5	
27-Oct	2.3	1.6	1.7	1.8	1.5	1.6	1.3	1.7	2.2	3.0	3.2	3.5	3.5	3.7	3.5	3.2	1.6	1.8	1.4	1.6	0.8	0.3	0.8	0.7	3.7	
28-Oct	0.8	1.9	2.0	1.9	2.2	2.1	1.7	1.7	2.0	2.3	2.5	2.5	2.4	2.3	2.0	2.1	1.9	2.3	2.1	2.4	2.5	2.3	2.1	2.0	2.5	
29-Oct	1.6	1.8	2.0	2.3	2.3	2.4	1.8	1.7	1.5	1.6	2.1	1.9	2.1	1.8	2.1	1.2	0.5	0.3	0.4	0.5	1.2	1.3	0.9	0.5	2.4	
30-Oct	0.9	1.3	1.5	1.8	1.7	2.1	1.6	1.7	1.6	1.3	1.9	1.9	1.8	2.0	1.7	1.9	1.7	1.3	1.4	2.2	2.2	2.1	1.5	1.9	2.2	
31-Oct	2.3	2.1	2.7	2.2	2.5	2.3	2.3	2.5	3.0	2.8	3.4	3.2	3.2	1.9	1.5	1.3	1.5	1.5	1.8	1.5	1.3	1.3	1.3	1.1	3.4	
		2.5	2.9	4.0	3.7	3.7	3.5	3.3	3.2	3.3	3.0	3.4	3.5	3.5	3.7	3.5	3.4	4.1	4.2	3.8	3.8	3.5	3.0	2.7	2.8	
		Diurnal Maximum																								



Maximum Value: 2.2 km/h on Oct 31 04:00      Maximum Daily Average: 0.8 km/h on Oct 30																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -1.6 km/h on Oct 11 20:00      Minimum Daily Average: -0.8 km/h on Oct 22 Maximum Diurnal Average: 0.1 km/h at hour 12      Minimum Diurnal Average: -0.1 km/h at hour 16 Monthly Average: -0.02 km/h      Percentiles: P <sub>1</sub> = -1.2 P <sub>10</sub> = -0.7 Q <sub>1</sub> = -0.4 Median = -0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.5																						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-Oct	-0.6	-0.4	-0.4	-0.1	-0.2	0.2	0.1	0.0	-0.1	0.4	0.4	0.0	0.0	0.5	0.7	0.5	0.6	0.6	1.0	0.4	0.1	0.0	-0.1	0.3	0.2	1.0
2-Oct	0.1	0.2	0.2	-0.1	-0.3	-0.3	-0.2	-0.3	-0.1	-0.1	0.6	-0.3	0.0	-0.1	0.0	-0.1	0.2	0.1	0.4	0.4	0.1	-0.1	0.4	0.0	0.0	0.6
3-Oct	0.6	0.3	0.0	0.1	0.0	0.2	0.1	0.0	-0.1	0.3	0.1	0.6	-0.4	-0.3	-0.9	-0.4	-0.5	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.3	-0.2	0.6
4-Oct	-0.3	-0.3	-0.2	0.0	0.5	0.6	0.4	0.2	0.4	0.2	0.3	0.5	0.2	0.2	1.1	0.7	0.3	1.1	0.9	0.3	0.5	0.6	0.6	0.6	0.4	1.1
5-Oct	1.2	0.5	0.8	0.0	0.4	0.3	0.2	0.2	-0.1	0.0	-0.2	0.0	0.0	-0.5	-0.1	0.0	-0.4	-0.8	-0.3	0.0	-0.1	-0.6	-0.7	-1.2	-0.1	1.2
6-Oct	-1.2	-1.1	-0.8	-0.5	-1.2	-1.2	-0.7	-0.6	-0.6	-0.6	-0.9	-0.9	-1.2	-0.8	-0.1	-0.2	-0.3	-0.3	-0.3	-0.5	-0.6	-0.4	-0.3	0.4	-0.6	0.4
7-Oct	0.0	0.2	-0.1	0.8	1.3	1.0	1.5	1.2	1.0	0.4	0.1	0.2	0.1	0.2	0.9	-0.1	-0.8	-0.6	-0.6	-0.5	-0.4	-0.6	-0.4	-0.2	0.2	1.5
8-Oct	-0.4	-0.1	-0.4	-0.5	-0.3	-0.1	0.4	-0.1	-0.1	0.3	0.4	0.2	-0.3	0.0	-0.1	-0.5	0.5	0.4	-0.1	-0.5	-0.3	-1.1	-0.9	-1.0	-0.2	0.5
9-Oct	-0.9	-0.8	-0.9	-0.9	-0.6	-0.9	-0.9	-1.2	-0.5	-0.4	-0.3	0.2	0.1	-1.2	-0.4	-0.2	-0.5	-0.6	-0.6	-0.5	-0.6	-0.5	-0.1	0.0	-0.5	0.2
10-Oct	-0.2	-0.1	-0.2	-0.2	-0.4	-0.3	-0.2	-0.2	-0.3	-0.4	-0.2	-0.1	0.1	-0.1	-0.8	-0.6	-0.5	-0.5	-0.6	-0.4	-0.1	0.2	-0.2	-0.2	-0.3	0.2
11-Oct	-0.3	-0.1	-0.3	-0.2	-0.3	-0.3	0.0	0.3	0.0	0.1	0.1	0.0	0.2	0.4	-0.4	-0.6	-0.6	-1.0	-1.4	-1.6	-1.3	-0.8	-0.9	-0.6	-0.4	0.4
12-Oct	-0.3	-0.1	-0.4	-0.2	-0.4	0.0	-0.1	0.2	-0.3	0.1	-0.3	-0.3	0.3	0.9	0.7	-0.2	0.6	0.7	0.8	0.0	0.2	0.6	0.8	0.9	0.2	0.9
13-Oct	0.4	0.7	0.6	0.7	0.8	1.0	0.5	0.9	0.9	0.5	0.5	0.5	0.7	0.7	0.4	0.3	0.6	0.3	0.6	0.6	0.7	0.6	0.3	0.6	0.6	1.0
14-Oct	0.6	0.5	0.7	0.5	0.2	0.3	0.6	0.6	0.6	0.5	0.3	0.1	0.1	-0.1	0.3	-0.6	0.6	0.6	0.3	-0.1	-0.2	-0.4	-0.3	-0.2	0.2	0.7
15-Oct	-0.3	-0.4	-0.4	-0.4	-0.1	-0.3	-0.2	-0.2	-0.4	0.0	-0.6	-0.4	0.0	0.3	0.1	-0.3	-0.4	-0.6	-0.6	-0.8	-0.8	-0.5	-0.4	-0.2	-0.3	0.3
16-Oct	-0.2	-0.3	0.0	0.0	-0.1	-0.1	-0.1	0.1	0.2	0.3	-0.1	0.0	-0.1	-0.1	0.1	0.6	0.5	0.3	0.7	0.9	0.4	0.5	0.2	0.0	0.2	0.9
17-Oct	-0.1	0.0	-0.2	-0.5	-0.4	-0.6	-0.8	-1.0	-1.0	-1.0	-0.7	-0.6	-0.9	-0.2	-1.0	-0.6	-0.9	-0.8	-0.6	-0.5	-0.4	-0.1	0.0	0.1	-0.5	0.1
18-Oct	-0.2	0.2	0.2	-0.1	-0.1	-0.6	-0.8	-1.0	-0.7	-0.2	0.2	0.2	1.0	-0.7	-1.2	-0.6	-0.6	-0.5	-0.2	0.0	0.1	0.2	0.4	0.3	-0.2	1.0
19-Oct	0.6	0.1	0.0	0.2	0.2	0.1	0.1	0.8	0.2	-0.1	0.8	0.4	0.2	0.3	0.1	0.8	0.0	0.8	0.8	0.5	1.0	1.1	0.9	0.4	0.4	1.1
20-Oct	0.5	0.3	0.2	-0.2	0.0	0.1	1.2	-0.2	0.2	0.5	0.5	0.8	0.4	0.7	0.9	0.8	0.9	0.8	0.2	0.3	0.3	0.4	0.9	0.9	0.5	1.2
21-Oct	1.1	0.4	1.1	1.5	1.9	0.5	0.2	-0.1	0.4	0.4	-0.1	-0.2	0.0	0.0	0.0	-0.2	0.2	-0.1	0.1	0.0	-0.4	-0.3	-0.4	-0.4	0.2	1.9
22-Oct	-0.7	-0.6	-0.8	-0.7	-0.8	-0.7	-0.7	-0.8	-0.6	-0.5	-0.5	-0.8	-0.9	-0.8	-0.5	-0.6	-1.1	-0.5	-1.2	-1.3	-0.7	-0.9	-0.9	-0.9	-0.8	-0.5
23-Oct	-0.9	-1.1	-1.0	-1.2	-1.0	-0.3	-0.5	-0.7	-0.7	-0.5	-0.2	-0.7	-0.8	-1.2	-0.8	-0.8	-1.1	-0.9	-1.2	-0.8	-0.2	-0.5	-0.6	-0.7	-0.8	-0.2
24-Oct	-0.7	-0.5	-0.3	-0.3	-0.5	-0.4	-0.6	-0.6	0.0	-0.3	0.0	-0.7	-0.5	-0.4	-0.5	0.2	0.0	-0.3	-0.5	-0.5	-0.7	-0.2	-0.2	0.3	-0.4	0.3
25-Oct	-0.1	-0.2	-0.1	-0.7	-1.0	-0.7	-0.4	0.0	-0.1	0.0	-0.3	0.1	-0.1	-0.3	-0.1	-0.4	-0.1	-0.2	-0.4	-0.4	0.0	0.0	0.0	0.1	-0.2	0.1
26-Oct	0.2	0.3	0.2	0.4	0.1	0.2	0.2	0.2	0.2	0.4	0.4	1.5	0.8	0.9	0.9	0.7	0.0	-0.1	1.2	0.9	1.1	-0.6	-0.9	-1.5	0.3	1.5
27-Oct	-0.3	-0.2	0.5	0.5	0.7	0.5	0.7	0.1	-0.8	-0.1	1.5	1.0	0.5	0.6	1.5	-0.4	-0.5	0.8	0.5	0.8	-0.3	-0.1	0.0	-0.1	0.3	1.5
28-Oct	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.1	0.0	-0.2	-0.2	0.0	-0.1	0.3	0.4	-0.2	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.2	0.0	-0.1	0.4
29-Oct	-0.3	-0.3	0.2	-0.3	0.2	0.2	-0.2	0.2	-0.1	-0.1	-0.3	-0.6	-0.5	-0.8	0.0	-0.1	0.0	0.0	-0.1	0.4	0.1	0.2	0.1	0.3	-0.1	0.4
30-Oct	0.7	0.6	1.0	1.1	1.0	0.9	0.8	0.8	0.3	-0.2	0.7	0.5	0.6	0.2	0.7	0.9	1.0	0.6	0.9	1.7	0.9	1.2	0.5	1.0	0.8	1.7
31-Oct	0.4	1.5	2.2	2.2	1.6	1.0	0.8	0.5	0.7	0.8	0.6	1.1	1.2	0.2	-0.6	-0.6	-0.6	-0.5	-0.1	0.5	0.1	0.1	-0.2	-0.7	0.5	2.2
																						Diurnal Average				
																						Diurnal Maximum				



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.4 km/h on Oct 17 18:00  Minimum Value: 0.2 km/h on Oct 9 21:00  Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.8 Median = 1.6 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.7 P <sub>99</sub> = 3.8																				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-Oct	0.6	0.4	0.2	0.4	0.5	0.5	0.4	0.2	0.6	1.6	2.3	2.7	2.8	3.0	2.5	1.9	2.2	1.4	1.0	1.3	0.7	0.5	0.7	0.8	3.0
2-Oct	0.8	1.4	1.8	1.3	1.0	1.0	1.6	2.1	2.0	2.8	3.2	2.6	2.5	2.8	2.7	2.4	2.4	2.9	2.9	2.8	2.4	2.4	2.5	2.3	3.2
3-Oct	2.4	2.0	1.8	1.9	1.6	1.8	2.1	1.7	1.7	2.6	2.5	2.8	2.7	3.1	2.8	2.7	2.0	1.1	0.2	0.3	0.2	0.3	0.7	0.5	3.1
4-Oct	0.5	0.4	0.4	0.4	0.4	0.6	0.6	0.7	0.8	1.6	2.0	1.5	2.3	2.2	2.0	2.2	2.1	2.6	2.5	1.3	1.4	1.9	2.0	1.7	2.6
5-Oct	2.2	1.7	2.3	1.0	1.1	1.2	0.6	0.4	0.2	0.5	0.9	1.6	2.1	2.6	2.4	1.5	1.2	0.8	0.3	0.7	1.3	1.5	1.2	1.3	2.6
6-Oct	1.8	1.9	2.2	3.3	3.8	3.4	3.0	2.5	2.5	2.5	2.6	3.3	3.6	3.0	2.6	2.8	2.1	1.0	0.2	0.2	0.2	0.8	0.5	0.6	3.8
7-Oct	0.7	0.5	0.6	0.6	1.3	0.7	0.7	0.6	0.7	0.8	1.2	2.2	1.9	2.1	2.1	1.0	1.3	1.4	1.5	1.4	1.1	0.7	0.8	1.0	2.2
8-Oct	0.6	0.5	0.4	0.5	0.5	0.6	0.6	0.3	0.4	0.7	0.8	0.8	1.0	1.2	1.1	1.7	1.8	1.3	1.3	4.2	1.7	2.0	1.8	1.9	4.2
9-Oct	1.4	2.0	1.6	1.4	1.4	1.0	0.5	0.9	1.7	2.0	2.3	2.7	3.0	2.6	2.3	2.1	0.9	0.3	0.2	0.3	0.2	0.3	0.4	0.8	3.0
10-Oct	0.4	0.4	0.4	0.6	0.4	0.5	0.7	0.7	0.8	0.5	0.6	1.1	1.9	2.7	2.5	2.5	2.2	0.9	0.6	0.8	0.7	0.6	0.3	0.3	2.7
11-Oct	0.3	0.3	0.3	0.3	0.4	0.7	0.4	0.4	0.6	0.9	0.8	1.1	1.6	1.7	2.3	2.1	1.6	0.4	0.5	0.6	1.0	0.8	0.8	0.7	2.3
12-Oct	0.6	0.8	0.6	0.4	0.4	0.6	0.3	0.6	0.4	0.8	1.2	2.2	2.7	3.0	2.7	2.1	1.2	0.7	1.2	0.7	0.6	0.5	0.8	0.6	3.0
13-Oct	0.4	0.7	0.5	0.8	0.8	0.8	1.2	1.7	1.6	1.8	2.5	3.3	3.5	3.3	2.6	1.7	1.6	1.6	1.4	1.2	1.2	1.1	1.2	1.4	3.5
14-Oct	1.4	1.2	1.3	1.5	1.6	1.4	1.3	1.5	1.5	1.5	2.0	1.5	2.1	2.5	2.6	2.5	1.4	2.4	2.6	1.1	1.0	0.8	0.6	0.7	2.6
15-Oct	0.6	0.6	1.1	1.5	1.5	2.4	2.6	2.5	2.0	1.8	1.9	2.0	2.2	2.3	2.5	1.7	0.5	0.2	0.2	0.5	0.3	0.7	1.4	1.3	2.6
16-Oct	1.2	1.2	0.7	0.4	0.2	0.2	0.5	0.3	0.3	0.7	0.9	0.9	0.7	0.8	1.3	1.0	1.7	2.3	1.9	1.6	1.5	1.7	0.9	0.6	2.3
17-Oct	0.2	0.4	0.3	0.4	0.8	1.5	2.0	2.6	2.6	2.7	2.8	2.9	2.6	3.2	3.7	3.5	4.2	4.4	4.1	3.6	3.3	3.1	2.7	2.7	4.4
18-Oct	2.4	1.9	1.8	1.6	0.8	0.4	0.6	0.3	0.8	1.3	1.7	2.0	2.6	2.9	2.2	2.3	1.3	0.4	0.4	0.5	0.3	0.4	0.7	0.7	2.9
19-Oct	0.6	0.8	1.0	0.6	0.3	0.3	0.4	0.8	1.0	1.3	1.8	2.0	1.8	1.6	1.7	1.8	0.8	1.5	1.5	1.7	1.6	1.8	2.1	1.8	2.1
20-Oct	2.1	2.0	1.9	1.7	1.8	2.0	1.9	1.6	2.0	1.7	2.0	1.8	1.8	1.9	1.8	1.7	1.5	1.5	1.3	1.7	1.9	2.0	2.3	2.6	2.6
21-Oct	2.6	3.2	4.4	4.0	3.8	3.4	3.3	3.1	3.2	3.1	2.6	2.5	2.4	2.2	1.2	1.2	1.4	0.9	0.9	1.1	1.0	1.3	1.6	1.6	4.4
22-Oct	1.4	1.1	0.8	0.9	1.0	1.3	1.2	1.1	1.1	1.4	2.6	2.3	2.1	2.6	2.1	2.1	1.7	2.1	2.3	2.4	2.5	2.6	2.7	2.9	2.9
23-Oct	2.5	2.9	3.2	3.2	3.8	3.4	2.5	2.3	2.7	2.7	2.3	2.6	2.6	2.9	2.3	2.0	2.1	1.5	1.4	1.0	1.0	0.9	0.6	0.5	3.8
24-Oct	0.4	0.7	1.1	1.1	1.6	1.4	1.1	1.4	1.8	2.1	2.1	3.0	2.7	2.5	2.8	2.2	1.3	0.8	0.4	0.6	0.5	0.4	0.7	0.7	3.0
25-Oct	0.4	0.3	0.5	0.4	0.5	0.8	0.9	0.8	0.8	1.1	1.4	1.8	2.1	2.1	1.9	1.4	0.8	0.3	0.5	0.3	0.3	0.7	0.4	0.3	2.1
26-Oct	0.3	0.4	0.4	0.4	0.3	0.4	0.8	1.0	0.8	0.9	0.9	1.7	1.9	1.6	1.6	1.9	2.0	2.5	3.2	3.1	3.6	3.0	2.5	2.3	3.6
27-Oct	2.5	1.6	1.6	1.7	1.6	1.6	1.3	1.6	2.2	3.2	3.2	3.2	2.7	3.3	3.4	3.4	1.6	1.9	1.5	1.7	0.8	0.2	0.7	0.7	3.4
28-Oct	0.7	1.8	1.9	1.8	2.1	2.2	1.6	1.7	1.9	2.2	2.5	2.6	2.5	2.3	2.0	1.9	1.9	2.3	2.1	2.4	2.5	2.4	2.1	1.9	2.6
29-Oct	1.5	1.7	2.1	2.2	2.4	2.5	1.9	1.7	1.5	1.6	2.2	2.1	2.3	1.8	2.4	1.3	0.6	0.2	0.4	0.5	1.0	1.4	0.9	0.5	2.5
30-Oct	0.8	1.4	1.5	1.8	1.7	2.2	1.7	1.8	1.6	1.3	1.9	2.0	1.9	2.0	1.7	2.1	1.6	1.1	1.4	2.3	2.0	2.1	1.5	1.9	2.3
31-Oct	2.2	2.2	2.5	2.3	2.6	2.6	2.4	2.6	2.6	2.4	3.0	3.2	3.3	2.0	1.8	1.3	1.6	1.5	1.8	1.6	1.4	1.3	1.4	1.1	3.3
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS06**  
**PATRICIA MCINNES**  
**OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
OCTOBER 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	35.9	0	5.1	0
TRS (ppb) Average	707	37	37	100	1.2	0	0.5	0
THC (ppm) Average	655	34	89	92.61	2.8	-	2.1	-
NMHC(ppm) Average	655	34	89	92.61	0.134	-	0.031	-
CH4(ppm) Average	655	34	89	92.61	2.8	-	2.1	-
O3 (ppb) Average	709	35	35	100	40	0	31.5	-
NO2 (ppb) Average	707	37	37	100	21.8	0	8.6	-
NO (ppb) Average	707	37	37	100	38.1	-	8.2	-
NOX (ppb) Average	707	37	37	100	57.1	-	16.7	-
NH3 (ppb) Average	654	44	90	93.82	0	0	0	-
PM2.5 (ug/m3) Average	743	1	1	100	20.1	0	6.4	0
Temperature 2 m (C) Average	744	0	0	100	21	-	13.6	-
Relative Humidity (%) Average	744	0	0	100	98.5	-	90.5	-
Wind Speed 10 m (km/h) Average	744	0	0	100	34	-	19	-
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 - PATRICIA McINNES (AMS06)  
OCTOBER 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	0.52	2.1	-	0	0	0	0.1	0.2	0.7	35.9
TRS (ppb) Average	707	0.17	0.1	-	0	0.1	0.1	0.1	0.2	0.2	1.2
THC (ppm) Average	655	2.03	0.1	-	1.9	2	2	2	2.1	2.1	2.8
NMHC(ppm) Average	655	0.015	0.016	-	0	0	0	0	0	0	0.134
CH4(ppm) Average	655	2.02	0.1	-	1.9	2	2	2	2	2.1	2.8
O3 (ppb) Average	709	23.73	7.5	-	3.1	13.5	18.9	24.6	29.1	32.9	40
NO2 (ppb) Average	707	3.32	3.6	-	0	0.1	0.5	2.3	4.7	8.2	21.8
NO (ppb) Average	707	1.1	2.7	-	0	0	0.1	0.4	1.1	2.2	38.1
NOX (ppb) Average	707	4.42	5.8	-	0	0.2	0.7	2.9	5.6	10.1	57.1
NH3 (ppb) Average	654	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	743	3.34	2.5	-	0.3	1.1	2	2.9	3.9	5.6	20.1
Temperature 2 m (C) Average	744	3.56	5.7	-	-8.7	-3.4	-0.3	2.9	6.8	11.5	21
Relative Humidity (%) Average	744	70.01	15.8	-	29.2	46.4	59.3	72.2	81.1	89.9	98.5
Wind Speed 10 m (km/h) Average	744	11.1	6	-	1	4	7	10	14	19	34
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA MCINNES (AMS06)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	06 Oct 2024 14:00	06 Oct 2024 15:00	2	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	06 Oct 2024 17:00	06 Oct 2024 17:00	1	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	07 Oct 2024 12:00	07 Oct 2024 17:00	6	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	07 Oct 2024 19:00	07 Oct 2024 19:00	1	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	07 Oct 2024 21:00	07 Oct 2024 21:00	1	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	07 Oct 2024 23:00	08 Oct 2024 00:00	2	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	08 Oct 2024 02:00	08 Oct 2024 02:00	1	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	08 Oct 2024 04:00	08 Oct 2024 04:00	1	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	08 Oct 2024 07:00	08 Oct 2024 08:00	2	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	08 Oct 2024 09:00	08 Oct 2024 12:00	4	Maintenance - analyzer recalibrated
THC/NMHC/CH4	22 Oct 2024 04:00	23 Oct 2024 10:00	31	Unstable Operation - AMD noncompliance
THC/NMHC/CH4	23 Oct 2024 11:00	23 Oct 2024 13:00	3	Maintenance - analyzer recalibrated
NH3	01 Sep 2024 01:00	30 Sep 2024 03:00	46	Stabilization after daily span



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Patricia McInnes - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 35.9 ppb on Oct 19 16:00	Maximum Daily Average: 5.1 ppb on Oct 19		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 2 12:00	Minimum Daily Average: 0.0 ppb on Oct 6		Hours of Missing Data:	35
Maximum Diurnal Average: 1.7 ppb at hour 16	Minimum Diurnal Average: 0.2 ppb at hour 20		Hours of Calibration:	35
Monthly Average: 0.52 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.7 P <sub>99</sub> = 9.1		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-Oct	0.3	0.2	0.4	0.5	0.5	Z	0.3	0.3	0.4	0.5	0.4	0.2	0.2	0.2	0.0	0.5	0.2	3.0	1.1	0.2	0.1	0.0	0.2	0.2	0.4	3.0
2-Oct	Z	0.1	0.1	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	0.1	0.2	0.1	0.1	0.1	0.2	0.4	1.9	0.2	1.9
3-Oct	0.2	Z	0.1	0.2	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2
4-Oct	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	C	C	C	C	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.5	0.1	0.5
5-Oct	1.7	2.4	5.9	Z	2.9	1.5	1.3	0.5	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.8	5.9
6-Oct	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-Oct	0.0	0.0	0.0	0.2	0.2	Z	0.3	0.2	0.3	0.2	0.4	0.4	0.5	0.5	0.4	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.5	0.5	0.3	0.5
8-Oct	Z	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.7	0.5	0.5	0.8	0.9	1.2	1.0	1.0	0.8	0.2	0.1	0.1	0.1	0.0	0.5	1.2
9-Oct	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
10-Oct	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	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.3	0.1	0.3
11-Oct	0.1	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3
12-Oct	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.3	0.3	0.1	0.9	5.8	16.9	11.1	9.3	7.5	5.5	3.2	2.3	2.1	1.5	1.8	1.3	3.1	16.9
13-Oct	1.0	0.9	0.9	0.9	0.7	Z	0.8	0.7	0.7	0.7	0.6	0.2	0.3	0.2	0.4	0.3	0.1	0.2	0.2	0.2	0.4	0.6	0.6	0.4	0.5	1.0
14-Oct	Z	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.4	0.2	0.2	0.0	0.2	0.2	0.2	0.1	0.1	0.3	0.6
15-Oct	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	0.1	0.1	0.1	0.0	0.1
16-Oct	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.5	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.5
17-Oct	0.0	0.1	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
18-Oct	0.0	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.3	0.2	0.3	0.5	0.2	0.5
19-Oct	0.5	0.3	0.3	0.2	0.2	Z	0.2	0.2	0.4	0.6	1.0	0.6	2.8	5.0	17.3	35.9	21.2	6.1	1.3	0.4	1.3	11.6	5.8	3.7	5.1	35.9
20-Oct	Z	0.6	0.2	0.3	0.4	0.4	1.5	1.9	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.3	1.9
21-Oct	0.1	Z	5.3	7.9	9.3	6.6	2.0	1.2	1.3	1.8	0.6	0.4	0.3	1.4	3.6	4.3	0.4	0.2	0.2	0.1	0.1	0.2	0.0	0.1	2.1	9.3
22-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1
23-Oct	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	0.1	0.1	0.0	0.0	0.1	0.0	0.1
24-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3
25-Oct	0.1	0.0	0.1	0.1	0.0	Z	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2
26-Oct	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
27-Oct	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	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
28-Oct	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
29-Oct	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	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.0	0.2
30-Oct	0.1	1.1	1.2	4.7	Z	6.3	6.2	2.2	0.8	0.8	0.5	0.5	0.5	0.5	0.6	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.2	6.3
31-Oct	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	0.4	1.3	0.1	1.3
	0.2	0.3	0.6	0.6	0.6	0.7	0.5	0.3	0.2	0.2	0.2	0.2	0.4	0.9	1.2	1.7	1.1	0.6	0.3	0.2	0.2	0.5	0.4	0.4	Diurnal Average	
	1.7	2.4	5.9	7.9	9.3	6.6	6.2	2.2	1.3	1.8	1.0	0.9	5.8	16.9	17.3	35.9	21.2	6.1	3.2	2.3	2.1	11.6	5.8	3.7	Diurnal Maximum	

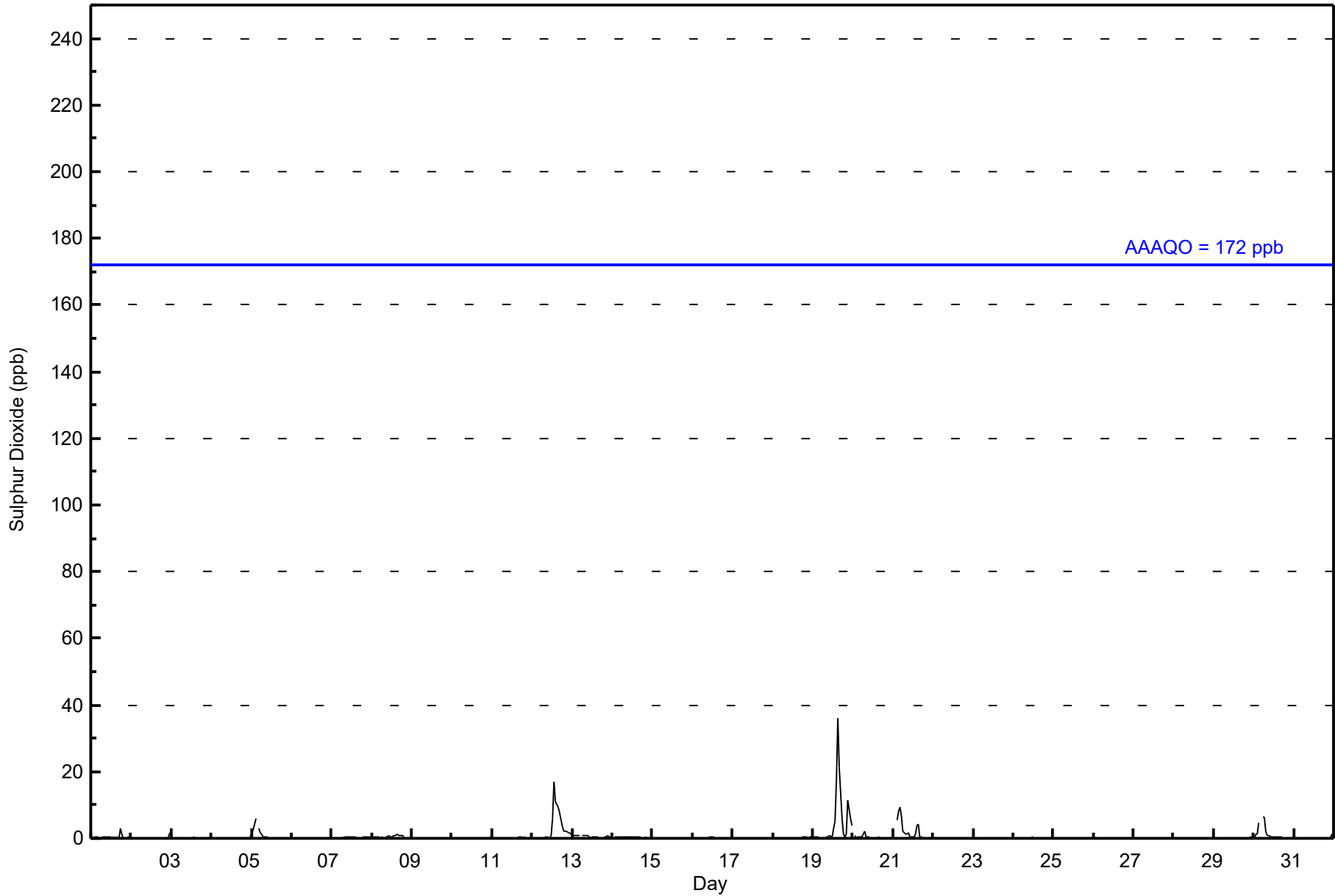
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb





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

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





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Patricia McInnes - October 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	4	0.56	99.72
21 - 60	2	0.28	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**  
**Patricia McInnes - October 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	43	25	6	24	17	41	64	27	37	57	94	79	68	71	31	19	703
11 - 20	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
21 - 60	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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	28	6	26	17	41	64	27	37	57	94	79	68	71	31	19	709

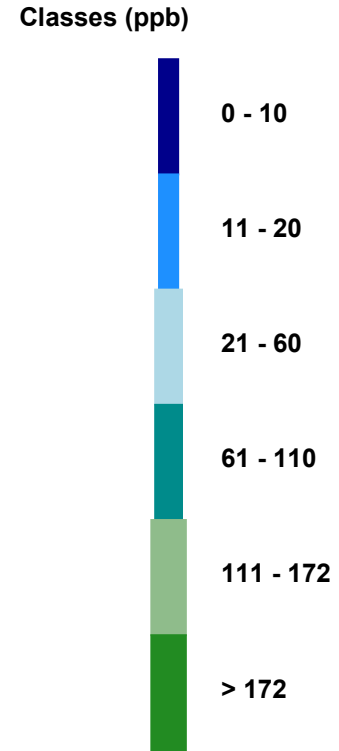
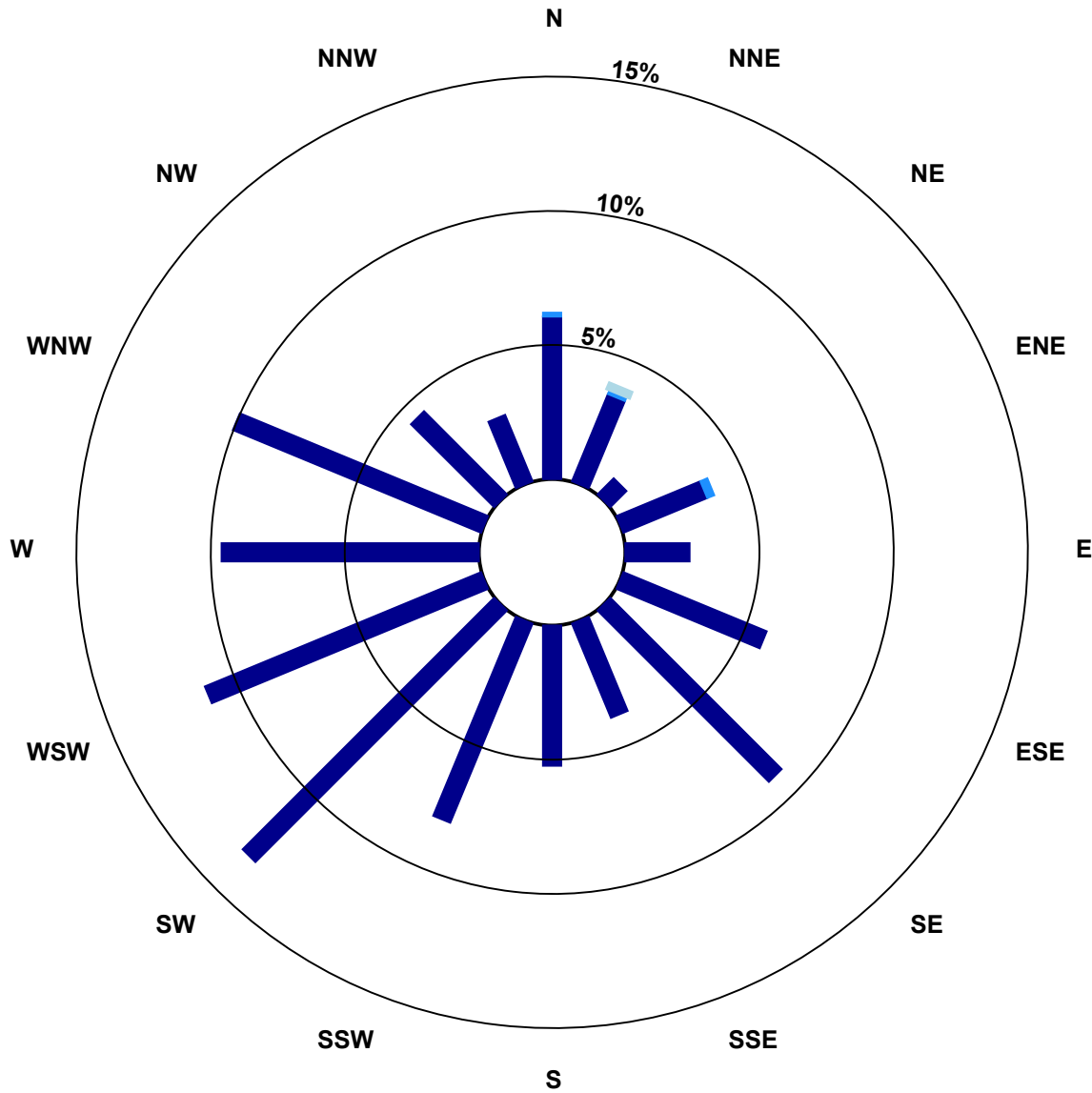
Total Number of Valid Hours: 709

Total Number of Hours: 744

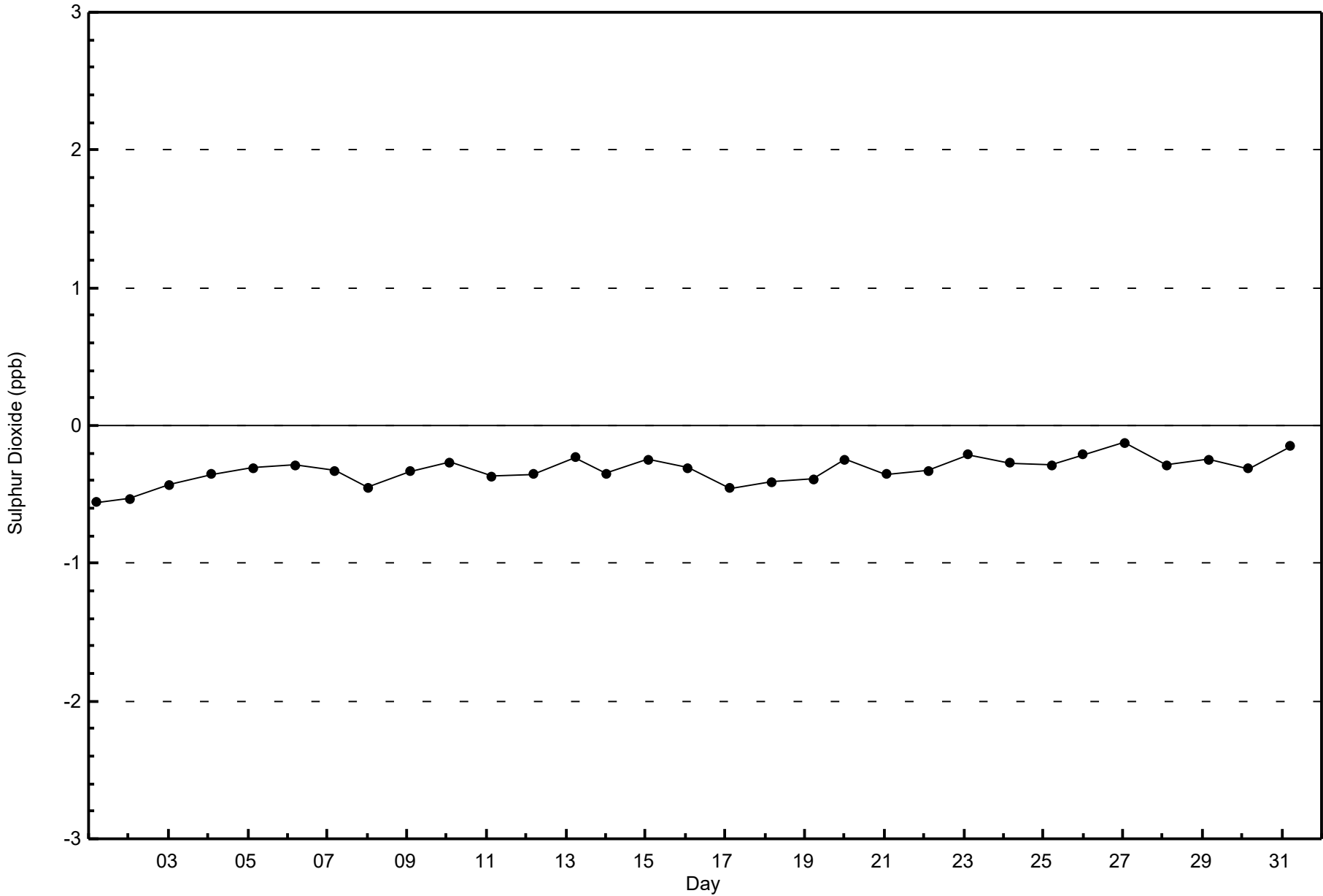


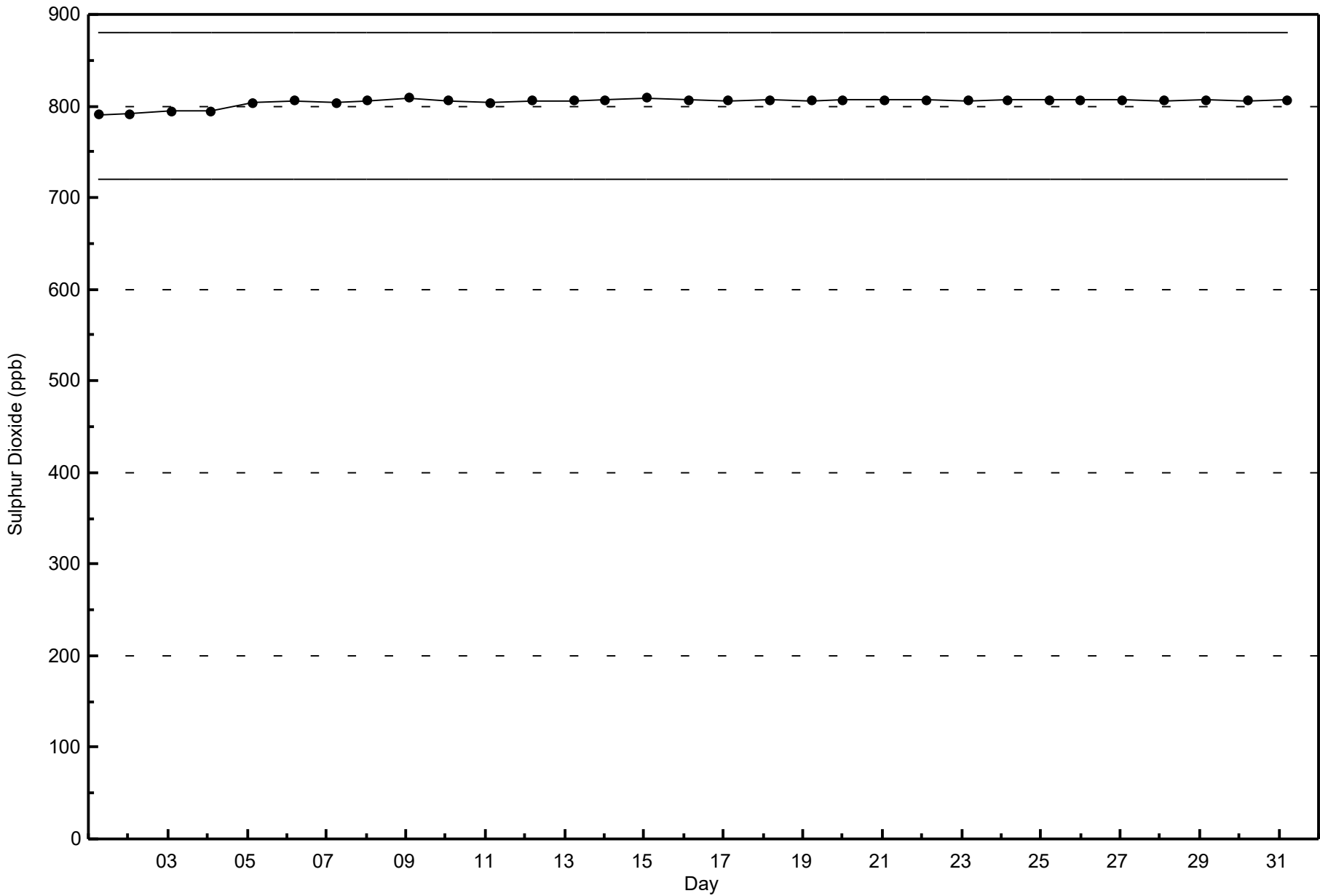
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

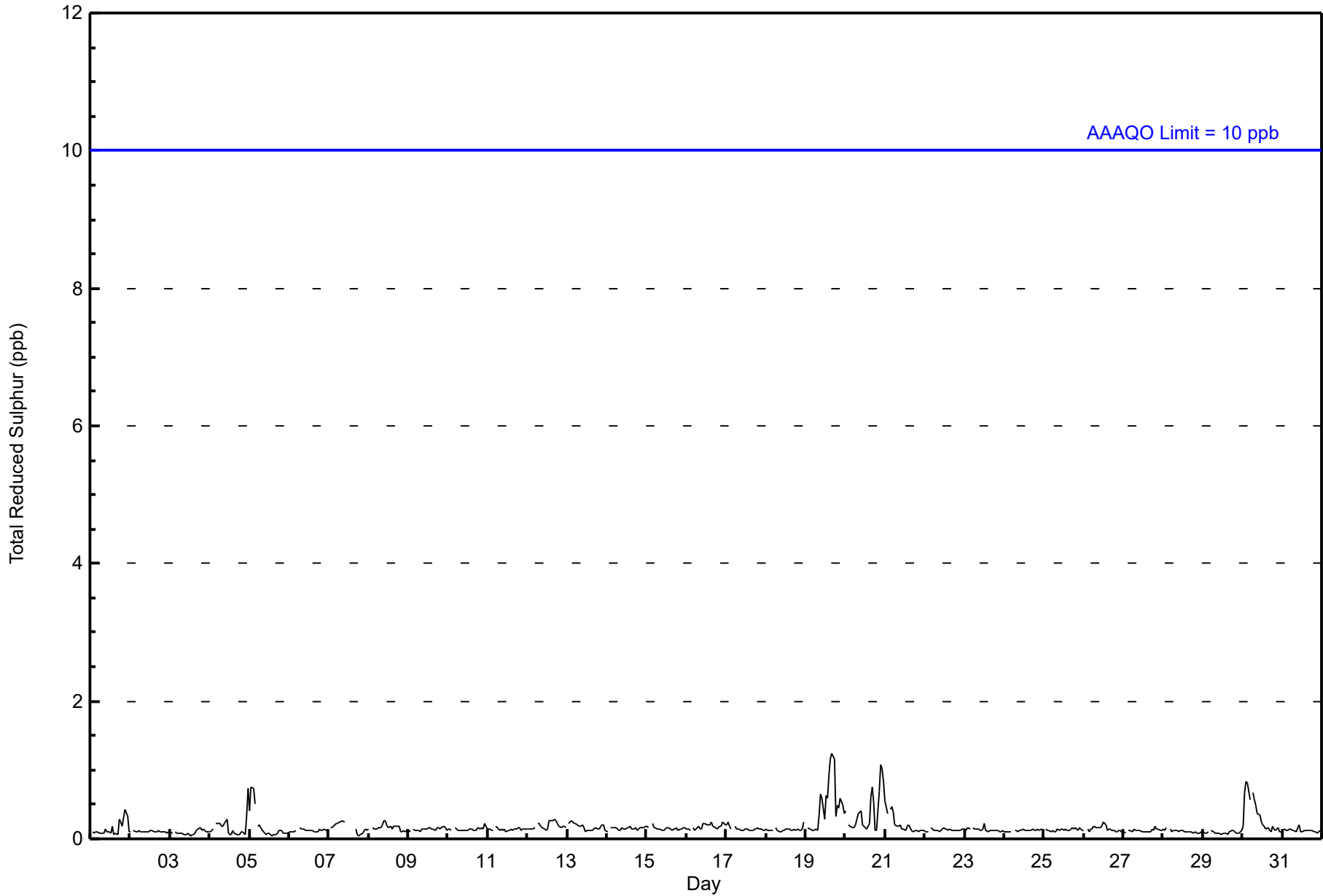


Total Number of Valid Hours: 709













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

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

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	44	28	6	26	17	45	60	25	37	53	98	78	67	74	30	19	707
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>	44	28	6	26	17	45	60	25	37	53	98	78	67	74	30	19	707

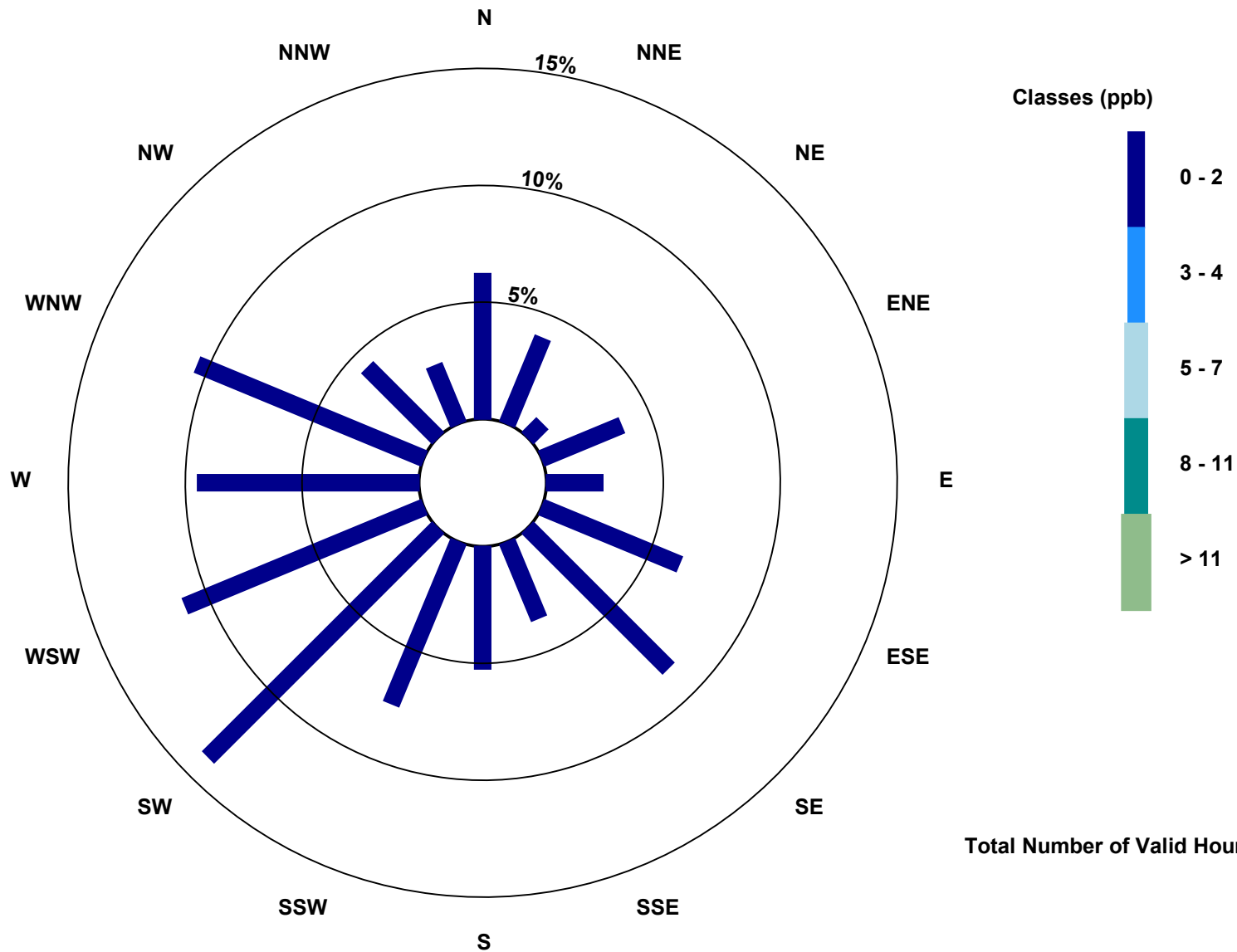
Total Number of Valid Hours: 707

Total Number of Hours: 744

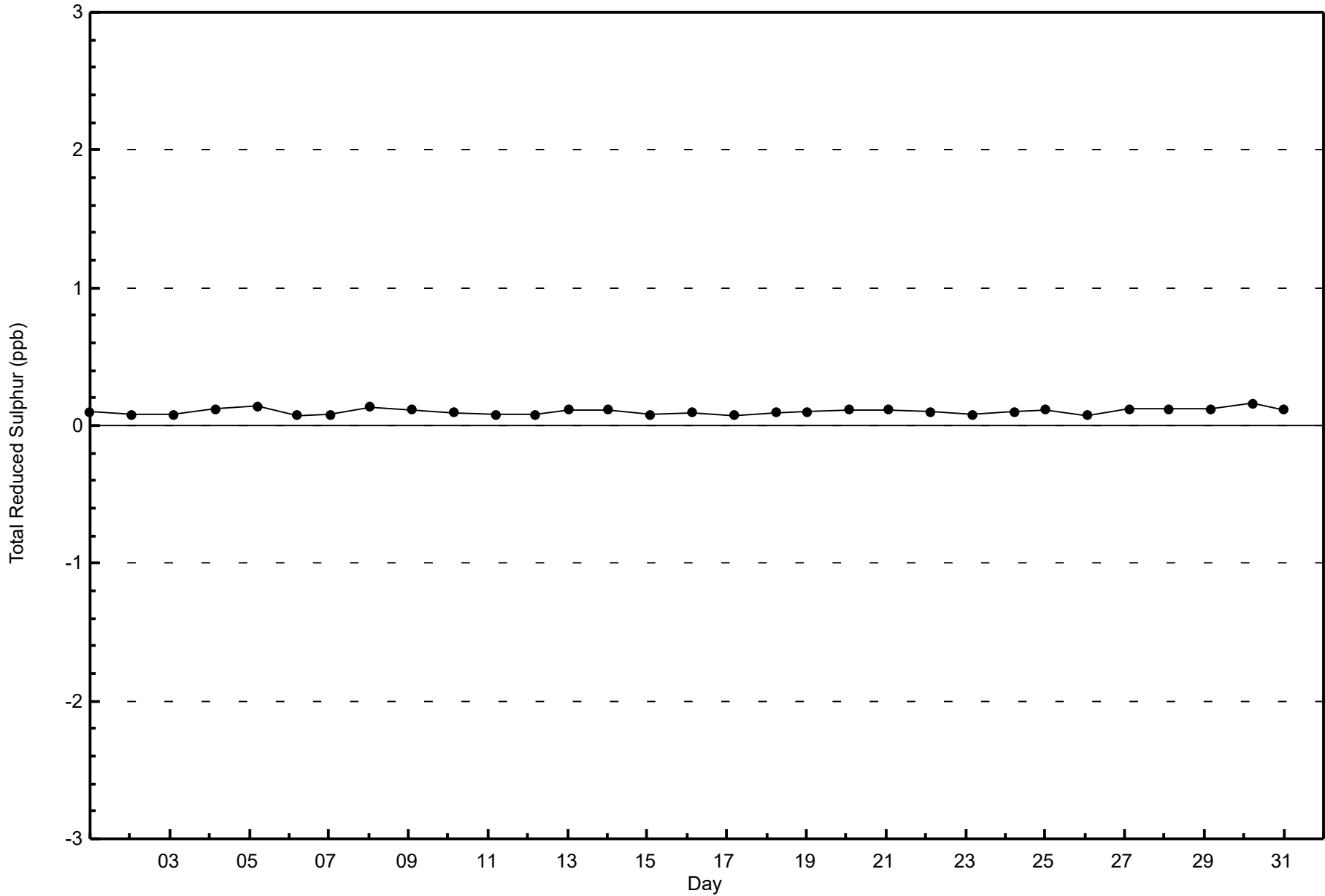


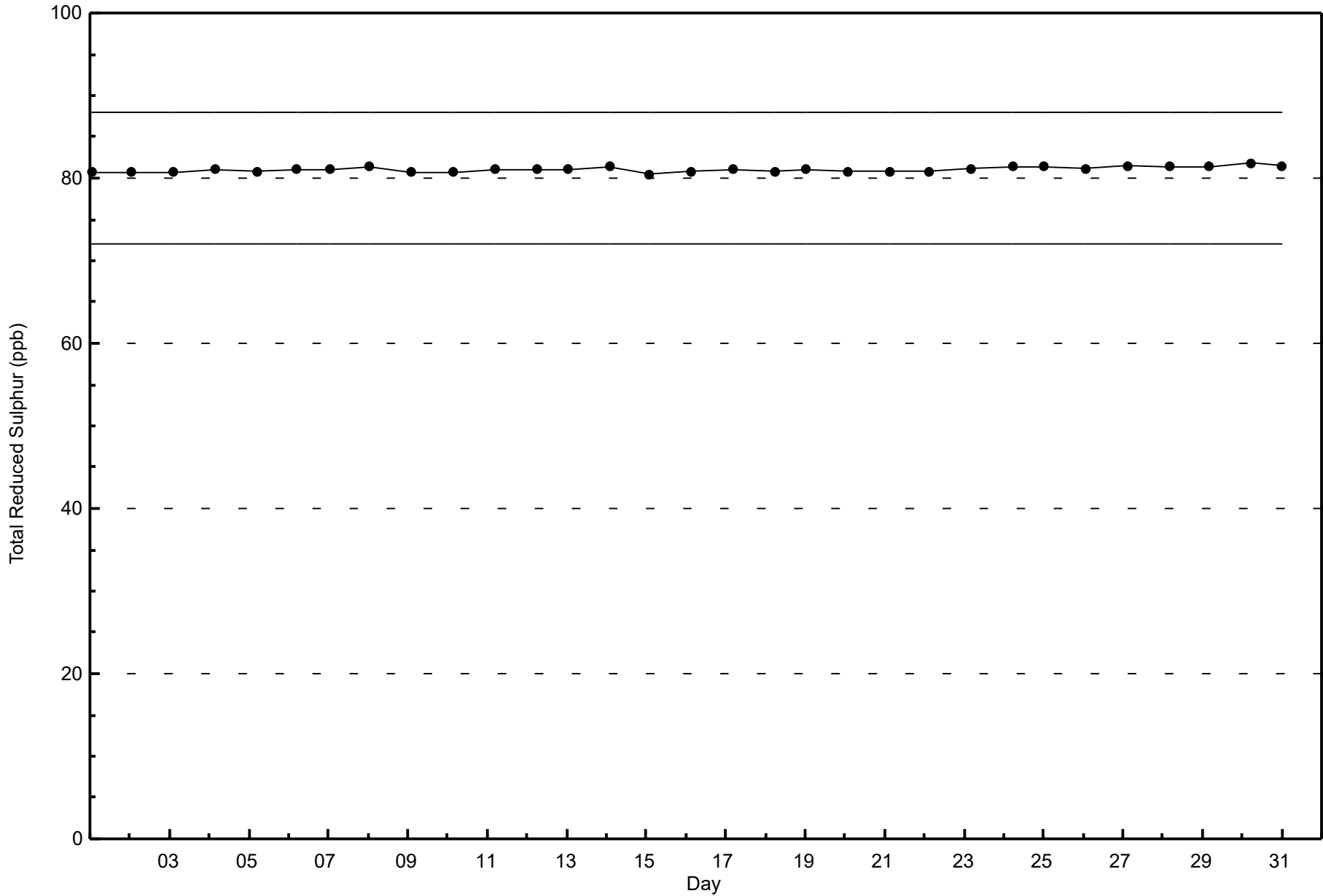
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes



Total Number of Valid Hours: 707







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

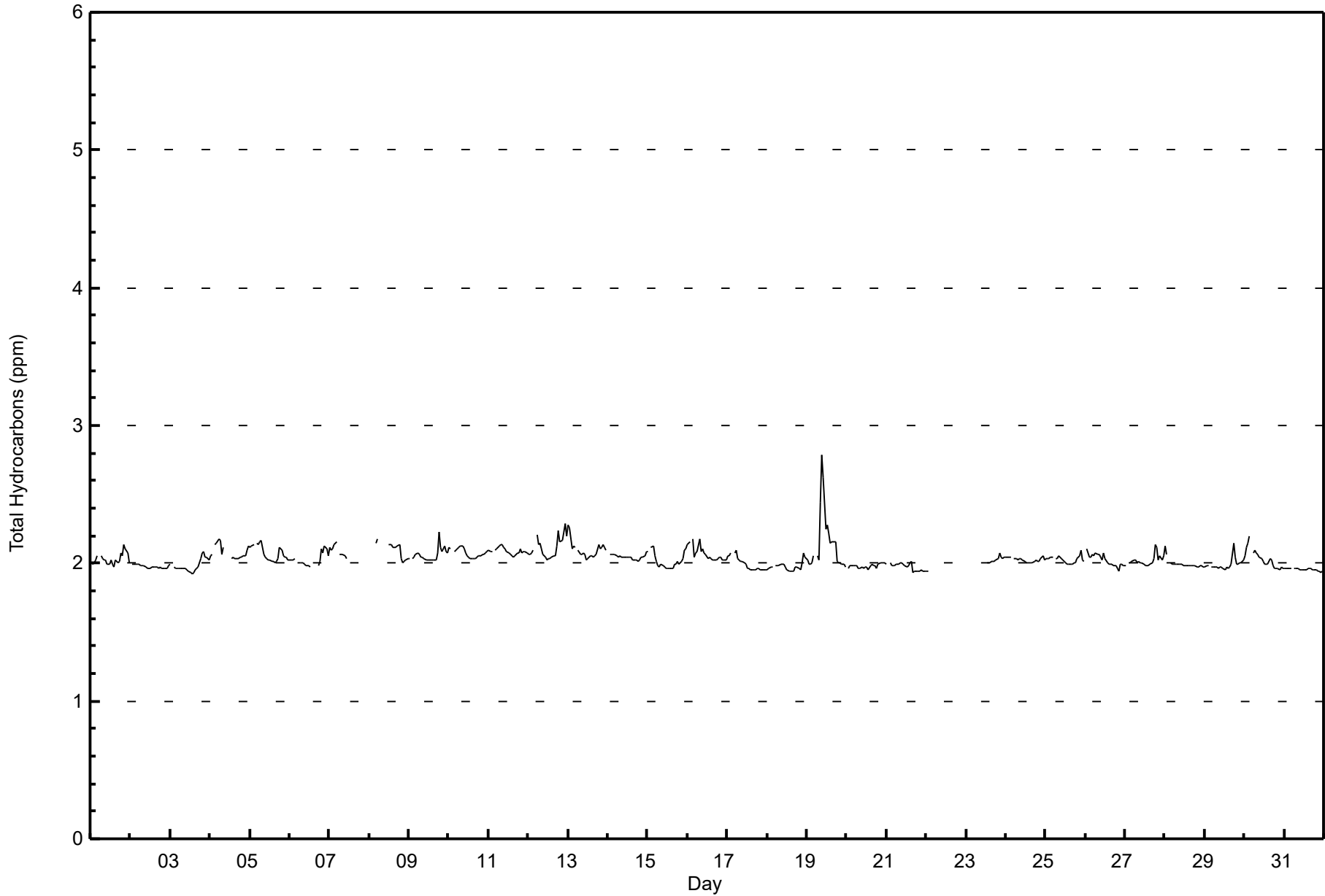
**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - October 2024**

Maximum Value: 2.8 ppm on Oct 19 10:00		Maximum Daily Average: 2.1 ppm on Oct 19		Hours in Service: 744																																														
Minimum Value: 1.9 ppm on Oct 3 14:00		Minimum Daily Average: 2.0 ppm on Oct 31		Hours of Data: 655																																														
Maximum Diurnal Average: 2.1 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 89																																														
Monthly Average: 2.03 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2		Hours of Calibration: 34																																														
				Percent Operational Time: 92.6																																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Oct	2.0	2.0	2.0	2.0	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	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1																								
2-Oct	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																							
3-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1																								
4-Oct	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2																								
5-Oct	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.2																								
6-Oct	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	UO	UO	2.0	UO	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1																								
7-Oct	2.1	2.1	2.1	2.1	2.2	Z	2.1	2.1	2.1	2.0	2.0	UO	UO	UO	UO	UO	UO	2.0	UO	2.0	UO	2.1	UO	UO	--	2.2																								
8-Oct	Z	UO	2.1	UO	2.1	2.2	UO	UO	M	M	M	M	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	--	2.2																							
9-Oct	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
10-Oct	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
11-Oct	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	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
12-Oct	2.1	2.1	2.1	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	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.3																							
13-Oct	2.3	2.3	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																							
14-Oct	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1																							
15-Oct	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	2.0	2.1	2.1	2.1	2.0	2.1																							
16-Oct	2.1	2.2	Z	2.2	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2																							
17-Oct	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	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
18-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	2.0	2.1	2.0	2.0	2.1																								
19-Oct	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.0	2.4	2.8	2.6	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.8																							
20-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
21-Oct	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0																							
22-Oct	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	--	1.9																							
23-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	--	2.1																							
24-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1																							
25-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1																							
26-Oct	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.1																							
27-Oct	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	2.0	2.1																								
28-Oct	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
29-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
30-Oct	2.1	2.1	2.1	2.2	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	2.2																							
31-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0																							
																								2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	Diurnal Average	
																								2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.4	2.8	2.6	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.0	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																		



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	446	68.09	68.09
2.1 - 3.0	209	31.91	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 655

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Patricia McInnes - October 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	31	19	4	24	15	35	21	11	14	20	43	58	51	61	27	12	446
2.1 - 3.0	13	9	2	2	2	5	36	16	20	30	33	12	9	9	4	7	209
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	28	6	26	17	40	57	27	34	50	76	70	60	70	31	19	655

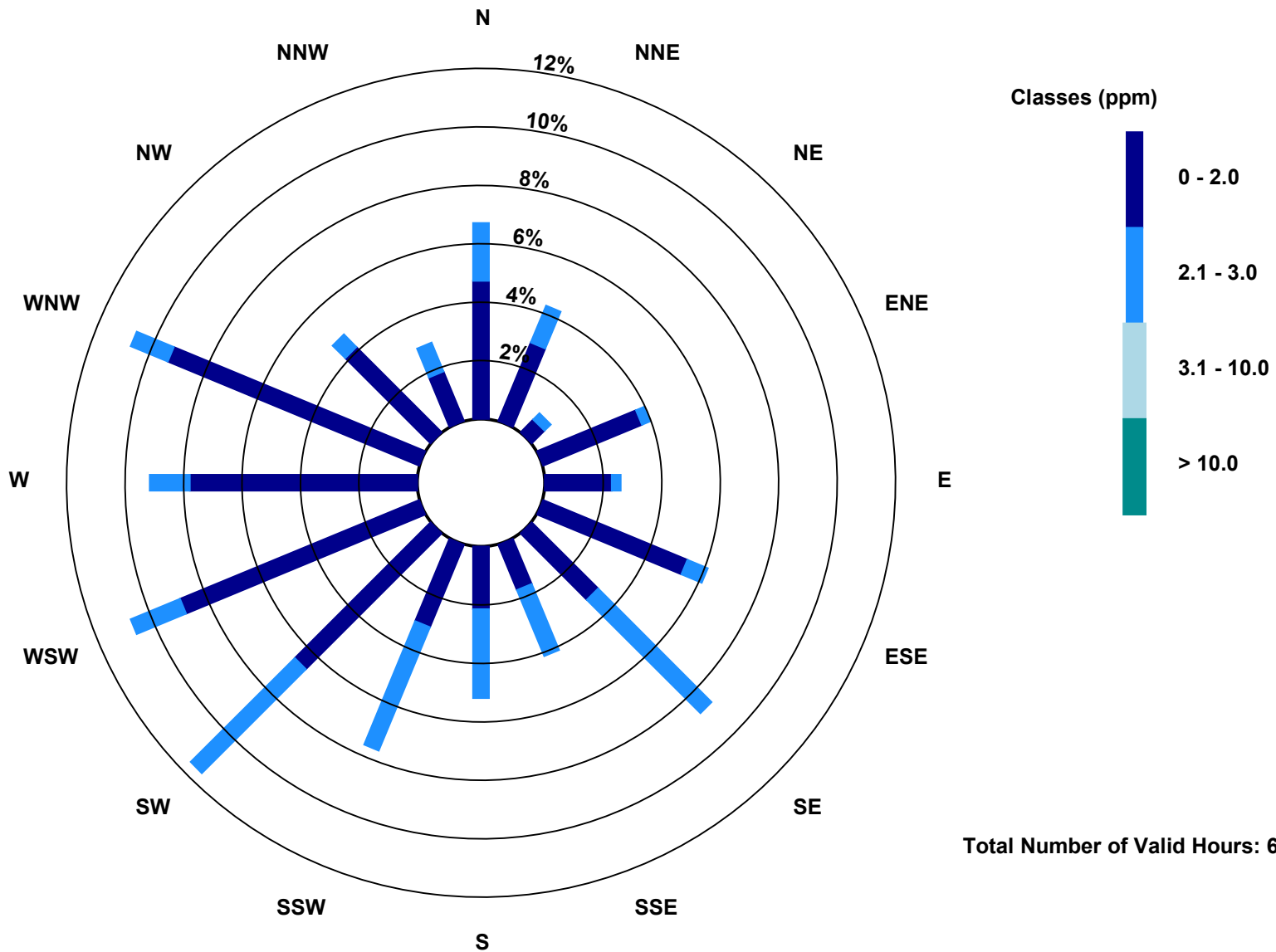
Total Number of Valid Hours: 655

Total Number of Hours: 744

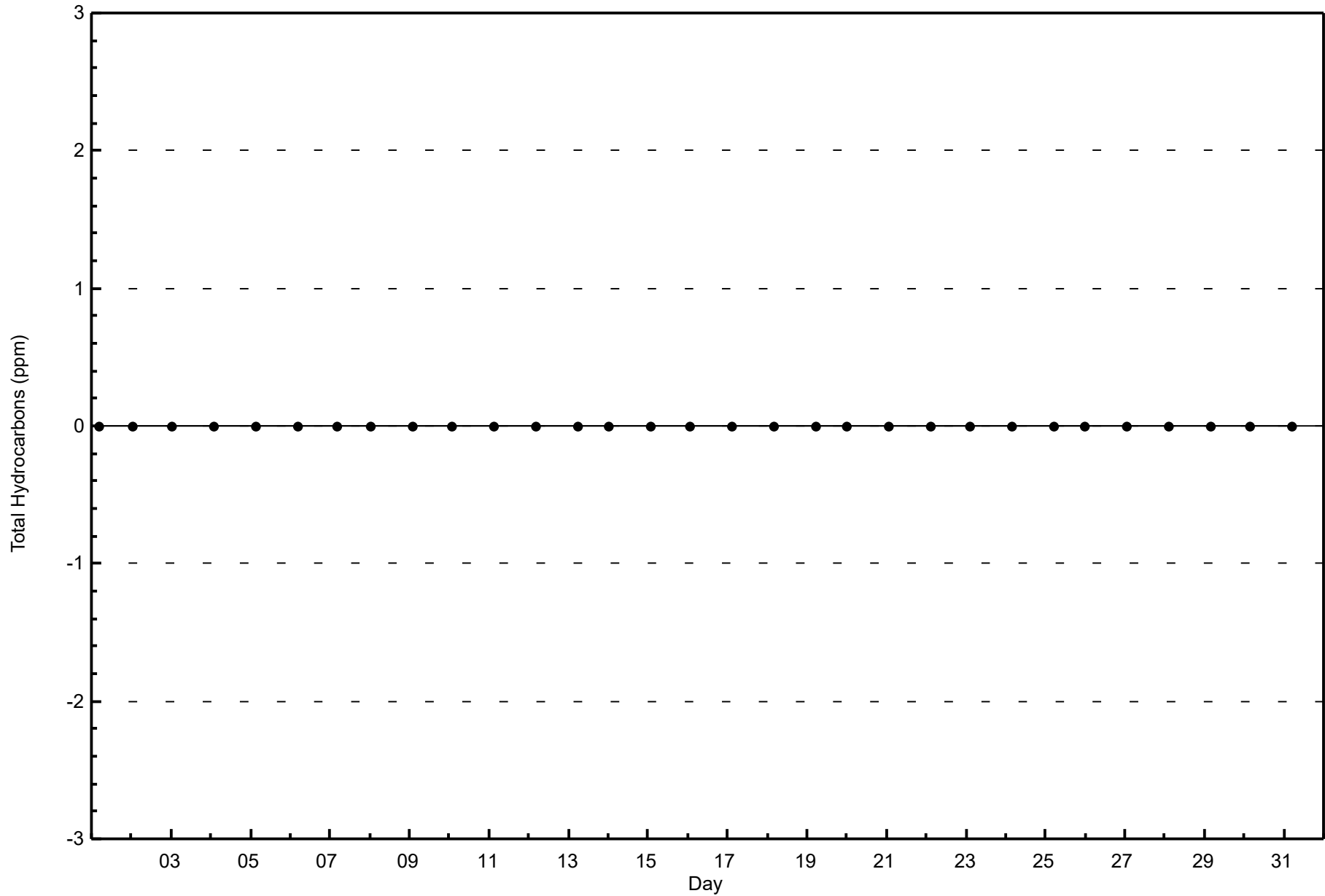


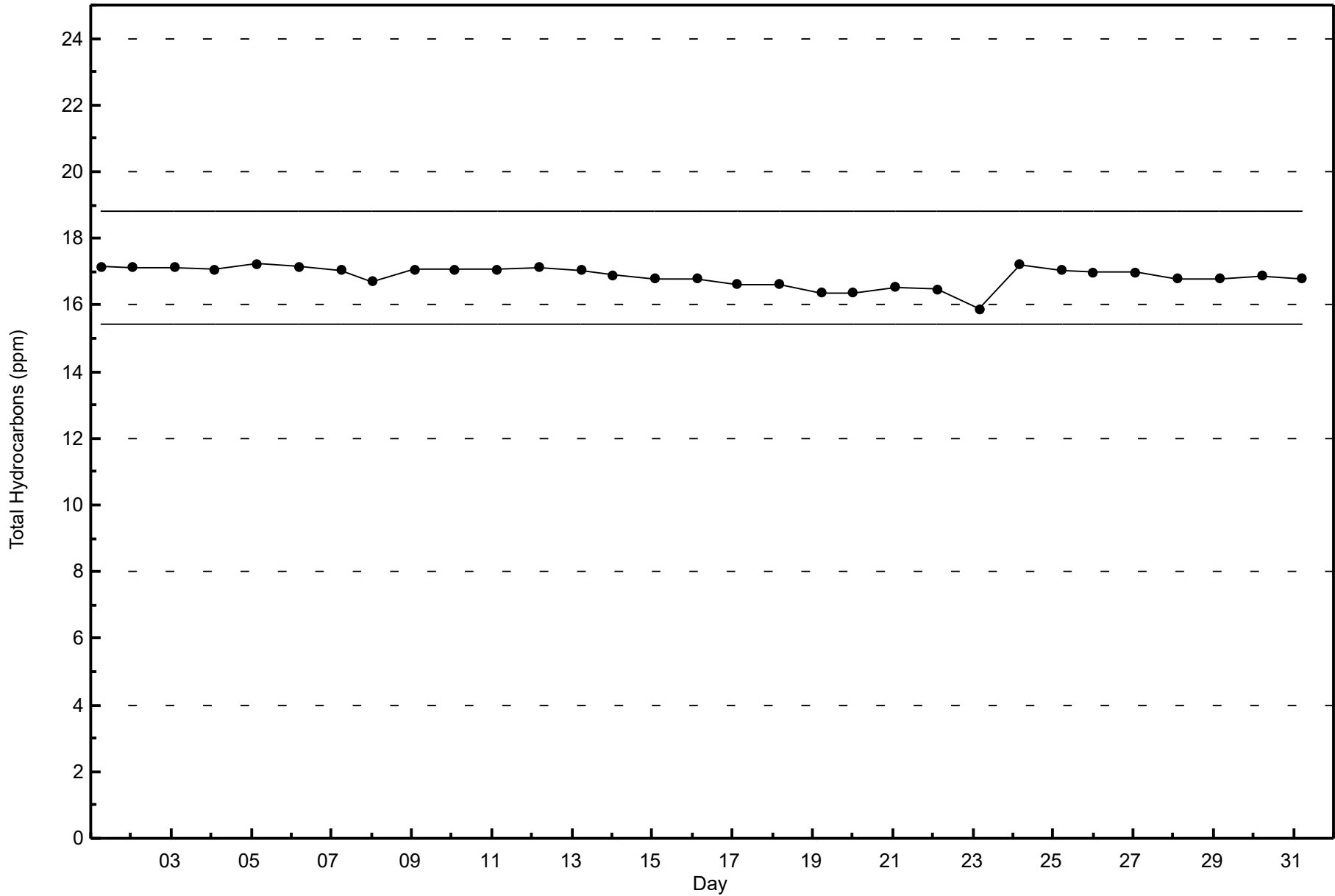
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Patricia McInnes



Total Number of Valid Hours: 655



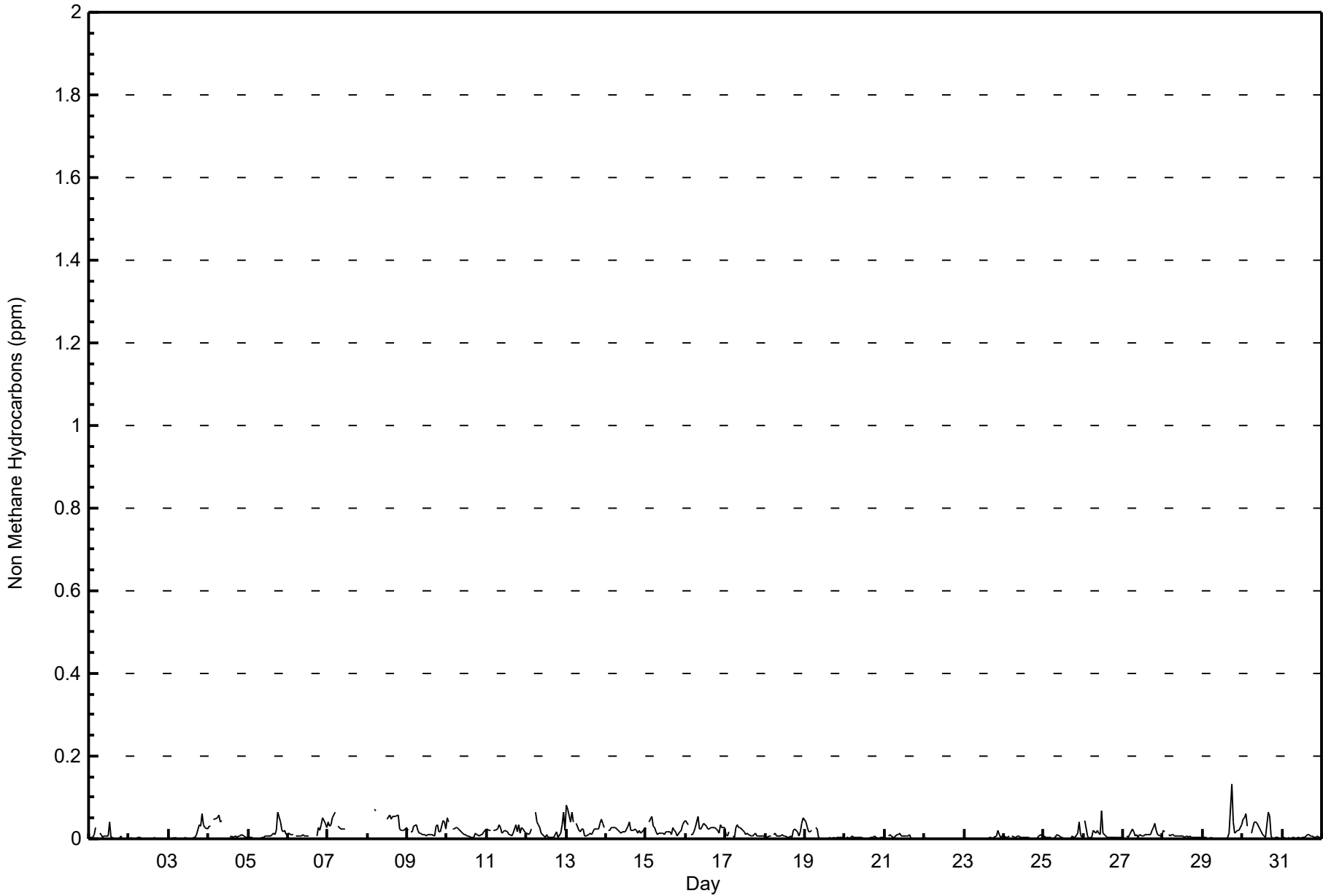




Summary of Hour Averages

Patricia McInnes - October 2024

Maximum Value: 0.134 ppm on Oct 29 18:00		Maximum Daily Average: 0.031 ppm on Oct 13		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Oct 1 19:00		Minimum Daily Average: 0.001 ppm on Oct 2		Hours of Data: 655																							
Maximum Diurnal Average: 0.020 ppm at hour 1		Minimum Diurnal Average: 0.009 ppm at hour 15		Hours of Missing Data: 89																							
Monthly Average: 0.015 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.1		Hours of Calibration: 34																							
				Percent Operational Time: 92.6																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	0.002	0.002	0.002	0.009	0.027	Z	0.015	0.009	0.005	0.008	0.007	0.006	0.041	0.004	0.003	0.000	0.001	0.001	0.000	0.008	0.002	0.001	0.001	0.000	0.007	0.041	
2-Oct	Z	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.001	0.000	0.001	0.001	0.000	0.001	0.001	0.000	0.001	0.002	
3-Oct	0.001	Z	0.002	0.001	0.002	0.001	0.001	0.000	0.001	0.002	0.002	0.000	0.000	0.001	0.001	0.002	0.003	0.011	0.034	0.030	0.060	0.034	0.026	0.022	0.010	0.060	
4-Oct	0.029	0.032	Z	0.049	0.047	0.052	0.059	0.042	0.045	C	C	C	C	0.004	0.006	0.003	0.006	0.004	0.008	0.007	0.011	0.007	0.003	0.003	0.022	0.059	
5-Oct	0.002	0.003	0.003	Z	0.000	0.001	0.000	0.000	0.002	0.004	0.007	0.008	0.006	0.008	0.010	0.012	0.011	0.021	0.063	0.040	0.019	0.018	0.022	0.012	0.012	0.063	
6-Oct	0.012	0.009	0.010	0.011	Z	0.005	0.006	0.007	0.007	0.009	0.006	0.006	0.005	UO	UO	0.003	UO	0.008	0.027	0.021	0.032	0.053	0.038	0.028	0.015	0.053	
7-Oct	0.042	0.032	0.035	0.051	0.063	Z	0.029	0.028	0.024	0.022	0.023	UO	UO	UO	UO	UO	UO	0.046	UO	0.037	UO	0.053	UO	UO	--	0.063	
8-Oct	Z	UO	0.047	UO	0.070	0.066	UO	UO	M	M	M	M	0.049	0.058	0.048	0.055	0.054	0.056	0.058	0.024	0.019	0.021	0.020	0.026	--	0.070	
9-Oct	0.020	Z	0.017	0.016	0.029	0.032	0.021	0.013	0.013	0.011	0.009	0.007	0.011	0.010	0.010	0.009	0.006	0.032	0.033	0.016	0.016	0.045	0.039	0.025	0.019	0.045	
10-Oct	0.050	0.041	Z	0.022	0.023	0.027	0.027	0.022	0.016	0.015	0.009	0.010	0.005	0.008	0.005	0.004	0.005	0.014	0.010	0.006	0.010	0.009	0.017	0.021	0.016	0.050	
11-Oct	0.024	0.021	0.019	Z	0.022	0.019	0.024	0.034	0.026	0.014	0.017	0.020	0.018	0.012	0.010	0.008	0.015	0.032	0.018	0.033	0.014	0.026	0.024	0.013	0.020	0.034	
12-Oct	0.012	0.010	0.013	0.023	Z	0.065	0.042	0.034	0.027	0.014	0.007	0.004	0.012	0.003	0.003	0.005	0.003	0.010	0.018	0.003	0.012	0.034	0.064	0.020	0.019	0.065	
13-Oct	0.081	0.072	0.040	0.063	0.042	Z	0.036	0.022	0.018	0.025	0.024	0.005	0.007	0.012	0.014	0.009	0.016	0.024	0.025	0.022	0.036	0.049	0.037	0.026	0.031	0.081	
14-Oct	Z	0.019	0.020	0.027	0.026	0.026	0.023	0.021	0.015	0.015	0.016	0.018	0.025	0.029	0.040	0.020	0.020	0.025	0.019	0.015	0.019	0.015	0.021	0.026	0.022	0.040	
15-Oct	0.025	Z	0.040	0.056	0.030	0.026	0.016	0.011	0.014	0.012	0.012	0.009	0.016	0.018	0.016	0.010	0.027	0.020	0.017	0.008	0.018	0.021	0.035	0.040	0.022	0.056	
16-Oct	0.046	0.032	Z	0.011	0.012	0.017	0.028	0.055	0.025	0.025	0.029	0.038	0.031	0.024	0.024	0.027	0.028	0.026	0.023	0.021	0.013	0.034	0.029	0.027	0.027	0.055	
17-Oct	0.011	0.006	0.018	Z	0.007	0.005	0.027	0.033	0.028	0.026	0.022	0.018	0.012	0.012	0.010	0.008	0.007	0.009	0.012	0.008	0.006	0.008	0.007	0.005	0.013	0.033	
18-Oct	0.004	0.004	0.006	0.006	Z	0.011	0.014	0.007	0.007	0.005	0.009	0.007	0.007	0.005	0.005	0.006	0.004	0.021	0.025	0.017	0.008	0.016	0.039	0.051	0.012	0.051	
19-Oct	0.040	0.026	0.018	0.018	0.020	Z	0.029	0.025	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.001	0.004	0.001	0.002	0.002	0.004	0.002	0.002	0.009	0.040	
20-Oct	Z	0.002	0.002	0.001	0.006	0.003	0.002	0.003	0.003	0.003	0.003	0.002	0.000	0.001	0.000	0.000	0.002	0.004	0.005	0.005	0.003	0.001	0.003	0.003	0.003	0.006	
21-Oct	0.003	Z	0.008	0.010	0.006	0.005	0.003	0.011	0.012	0.012	0.008	0.008	0.007	0.008	0.006	0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.012	
22-Oct	0.001	0.002	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.002
23-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	0.001	0.002	0.002	0.003	0.001	0.003	0.008	0.022	0.010	0.005	0.005	--	0.022	
24-Oct	0.006	0.004	0.005	0.007	Z	0.008	0.004	0.004	0.008	0.008	0.004	0.004	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.007	0.011	0.002	0.004	0.011	
25-Oct	0.007	0.003	0.002	0.004	0.003	Z	0.004	0.002	0.012	0.008	0.004	0.002	0.001	0.002	0.001	0.001	0.001	0.008	0.002	0.005	0.014	0.042	0.011	0.004	0.006	0.042	
26-Oct	Z	0.044	0.007	0.002	0.004	0.003	0.019	0.013	0.021	0.013	0.010	0.067	0.015	0.007	0.004	0.004	0.003	0.004	0.002	0.003	0.004	0.003	0.003	0.002	0.011	0.067	
27-Oct	0.002	Z	0.006	0.005	0.010	0.023	0.019	0.007	0.012	0.005	0.009	0.005	0.007	0.009	0.009	0.009	0.010	0.021	0.029	0.037	0.020	0.009	0.008	0.008	0.012	0.037	
28-Oct	0.020	0.016	Z	0.009	0.008	0.010	0.010	0.005	0.008	0.007	0.007	0.005	0.007	0.004	0.006	0.005	0.005	0.002	0.004	0.003	0.003	0.004	0.005	0.002	0.007	0.020	
29-Oct	0.003	0.003	0.003	Z	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.000	0.001	0.001	0.003	0.013	0.134	0.040	0.012	0.017	0.020	0.021	0.014	0.134	
30-Oct	0.048	0.050	0.062	0.032	Z	0.015	0.028	0.040	0.041	0.036	0.023	0.016	0.010	0.008	0.005	0.063	0.055	0.006	0.001	0.002	0.003	0.002	0.002	0.001	0.024	0.063	
31-Oct	0.002	0.002	0.001	0.001	0.003	Z	0.004	0.004	0.001	0.002	0.002	0.001	0.003	0.004	0.007	0.010	0.011	0.008	0.007	0.004	0.005	0.007	0.002	0.003	0.004	0.011	
		0.020	0.018	0.015	0.018	0.019	0.018	0.016	0.014	0.011	0.010	0.010	0.011	0.009	0.009	0.010	0.011	0.018	0.017	0.013	0.013	0.018	0.017	0.014	Diurnal Average		
		0.081	0.072	0.062	0.063	0.070	0.066	0.059	0.055	0.045	0.036	0.029	0.067	0.049	0.058	0.048	0.063	0.055	0.134	0.063	0.040	0.060	0.053	0.064	0.051	Diurnal Maximum	
Z - zerospan		C - Calibration					M - Maintenance					UO - Unstable Operation															





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	250	38.17	38.17
0.006 - 0.05	384	58.63	96.79
0.06 - 0.1	21	3.21	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 655

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes - October 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	25	15	3	13	13	12	4	1	3	4	14	25	23	57	25	13	250
0.006 - 0.05	19	13	3	11	4	27	46	23	28	44	60	45	37	13	6	5	384
0.06 - 0.1	0	0	0	2	0	1	7	3	3	2	2	0	0	0	0	1	21
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	44	28	6	26	17	40	57	27	34	50	76	70	60	70	31	19	655

Total Number of Valid Hours: 655

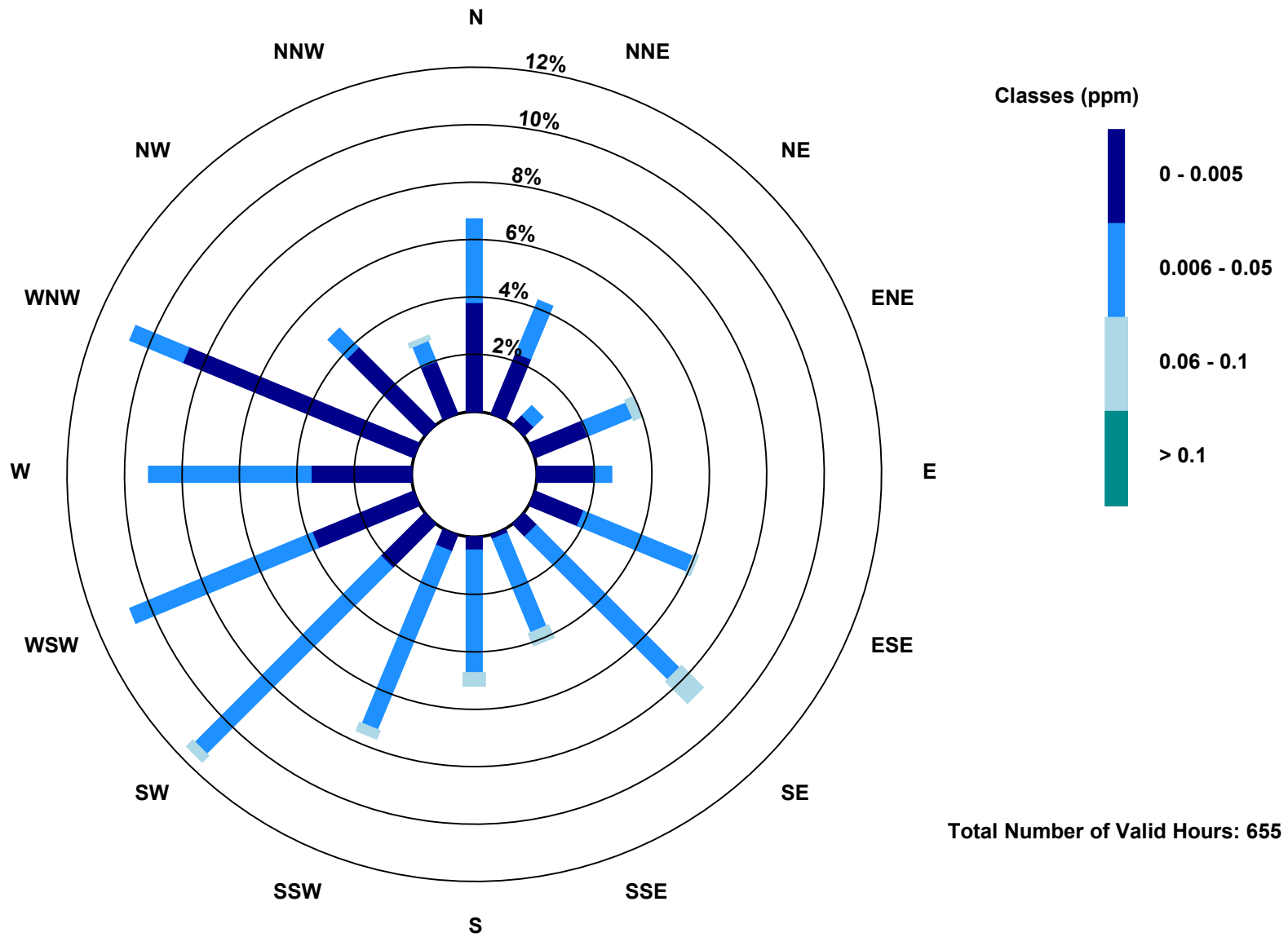
Total Number of Hours: 744

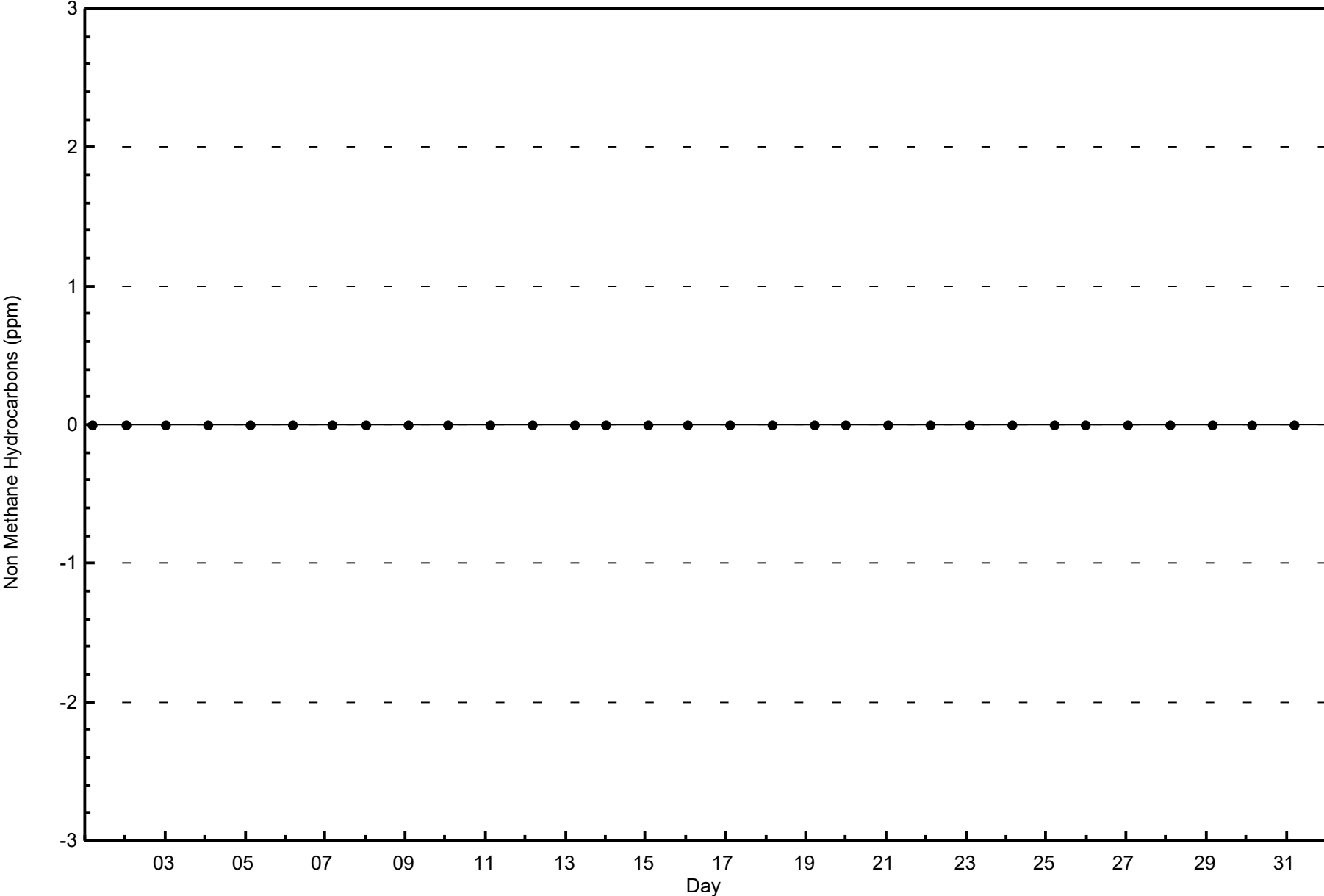


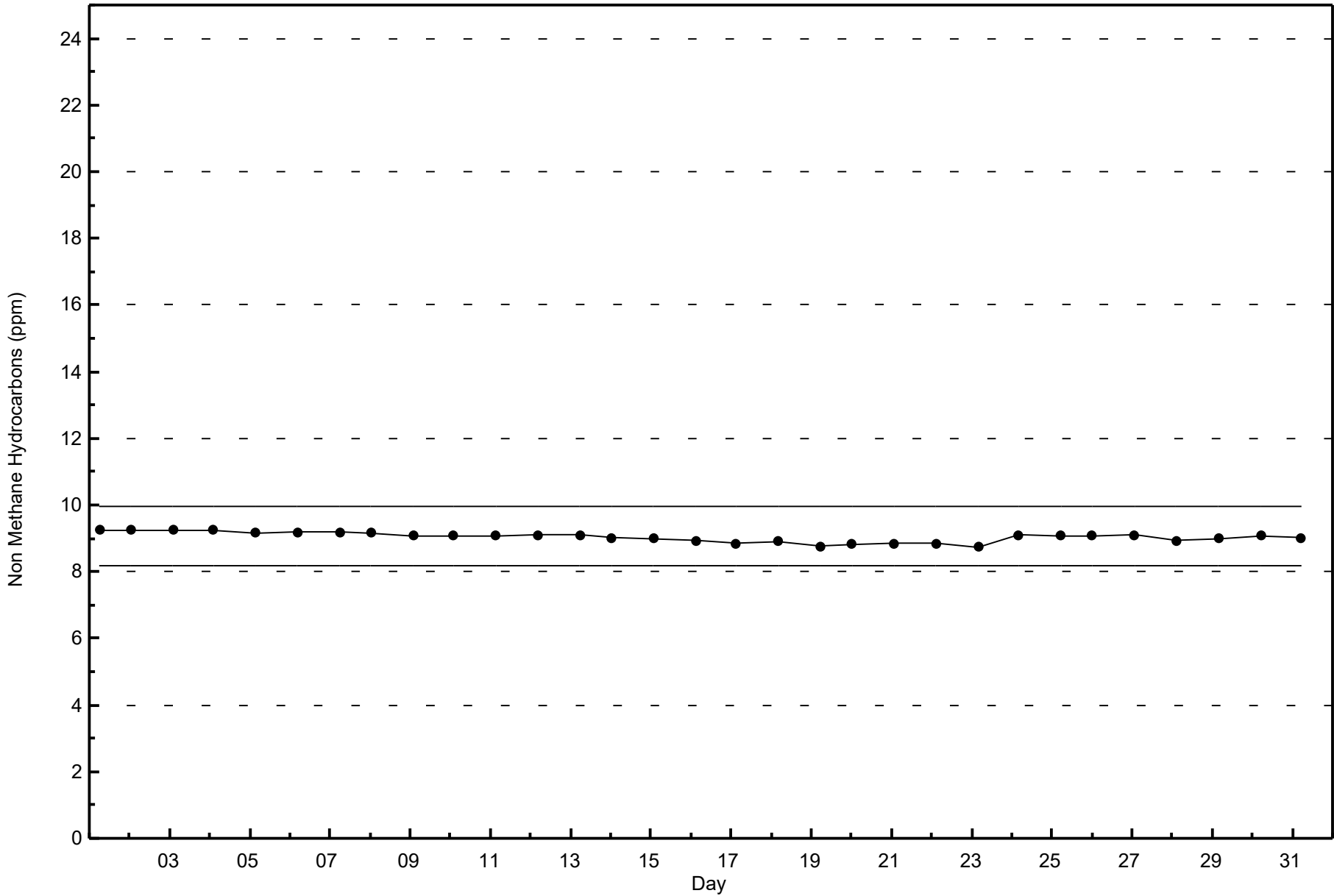


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes









Wood Buffalo Environmental Association

Summary of Hour Averages

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

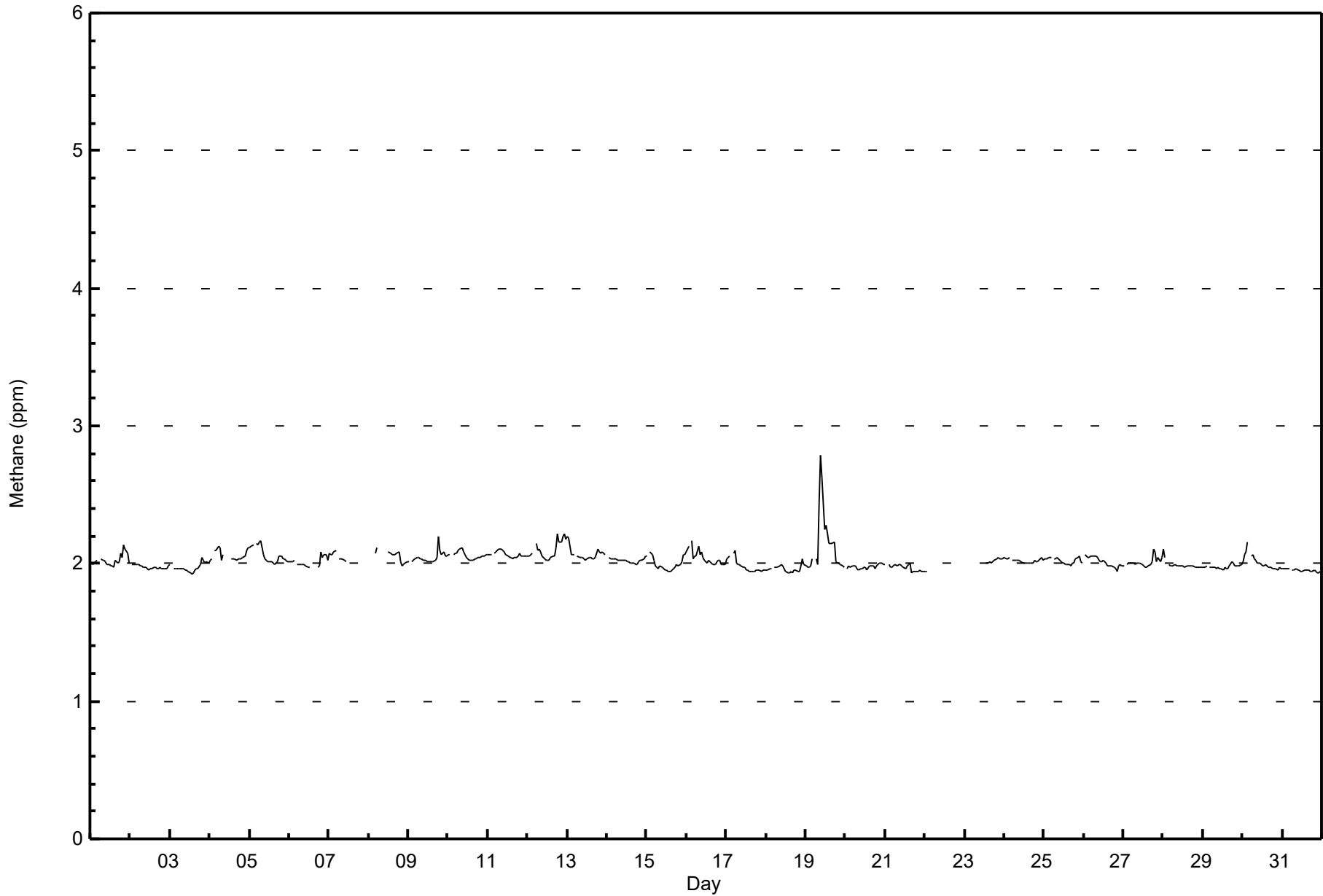
Patricia McInnes - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.8 ppm on Oct 19 10:00	Maximum Daily Average: 2.1 ppm on Oct 19		Hours of Data:	655
Minimum Value: 1.9 ppm on Oct 3 14:00	Minimum Daily Average: 2.0 ppm on Oct 31		Hours of Missing Data:	89
Maximum Diurnal Average: 2.0 ppm at hour 10	Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Calibration:	34
Monthly Average: 2.02 ppm	Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2		Percent Operational Time:	92.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	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	2.0	2.1	2.1	2.1	2.0	2.0	2.1
2-Oct	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
3-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
4-Oct	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.0	2.1	C	C	C	C	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
5-Oct	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1
6-Oct	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	UO	UO	2.0	UO	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.1
7-Oct	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	UO	UO	UO	UO	UO	UO	2.0	UO	2.0	UO	2.0	UO	UO	2.0	2.1
8-Oct	Z	UO	2.0	UO	2.1	2.1	UO	UO	M	M	M	M	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	2.1
9-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.1
10-Oct	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	2.1	2.1	2.1	2.1	2.1	2.1
11-Oct	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
12-Oct	2.1	2.1	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	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
13-Oct	2.2	2.2	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
14-Oct	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
15-Oct	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	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0
16-Oct	2.1	2.1	Z	2.2	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
17-Oct	2.0	2.0	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.1
18-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0
19-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.4	2.8	2.6	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
20-Oct	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
21-Oct	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
22-Oct	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	1.9
23-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
24-Oct	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
25-Oct	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	2.1	2.0	2.0	2.0
26-Oct	Z	2.1	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	1.9	2.0	2.0	2.0	2.0	2.1
27-Oct	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	2.0	2.0	2.0	2.0	2.1
28-Oct	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
29-Oct	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
30-Oct	2.0	2.1	2.1	2.2	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	2.2
31-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0

2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	Diurnal Average
2.2	2.2	2.1	2.2	2.1	2.1	2.2	2.2	2.4	2.8	2.6	2.2	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	Diurnal Maximum

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





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

**Methane (CH<sub>4</sub>) - ppm**  
**Patricia McInnes - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	508	77.56	77.56
2.1 - 3.0	147	22.44	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 655

Total Number of Hours: 744



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

**Methane (CH<sub>4</sub>) - ppm**  
**Patricia McInnes - October 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	34	21	5	25	15	35	38	15	19	26	56	62	53	63	28	13	508
2.1 - 3.0	10	7	1	1	2	5	19	12	15	24	20	8	7	7	3	6	147
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	28	6	26	17	40	57	27	34	50	76	70	60	70	31	19	655

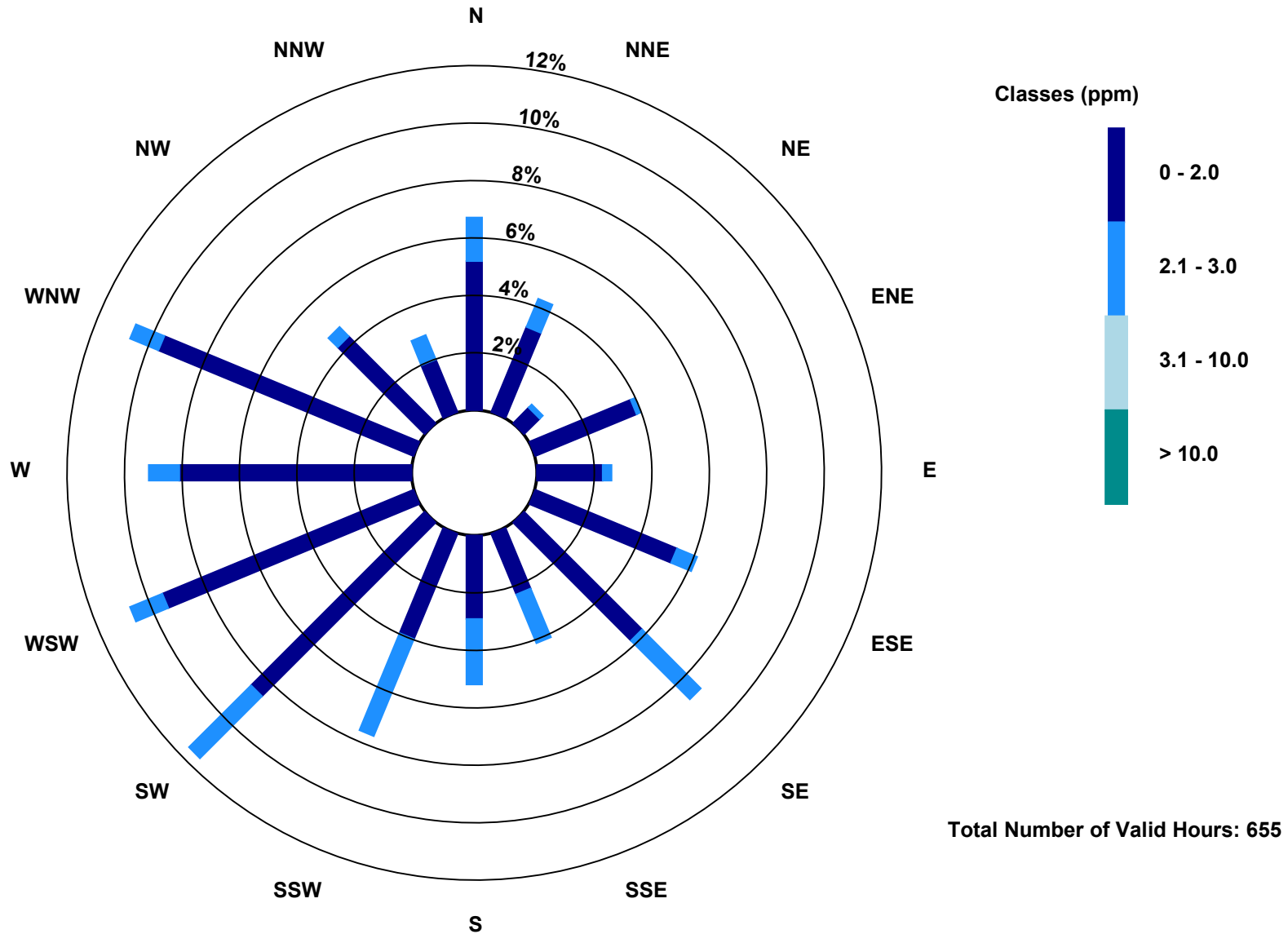
Total Number of Valid Hours: 655

Total Number of Hours: 744

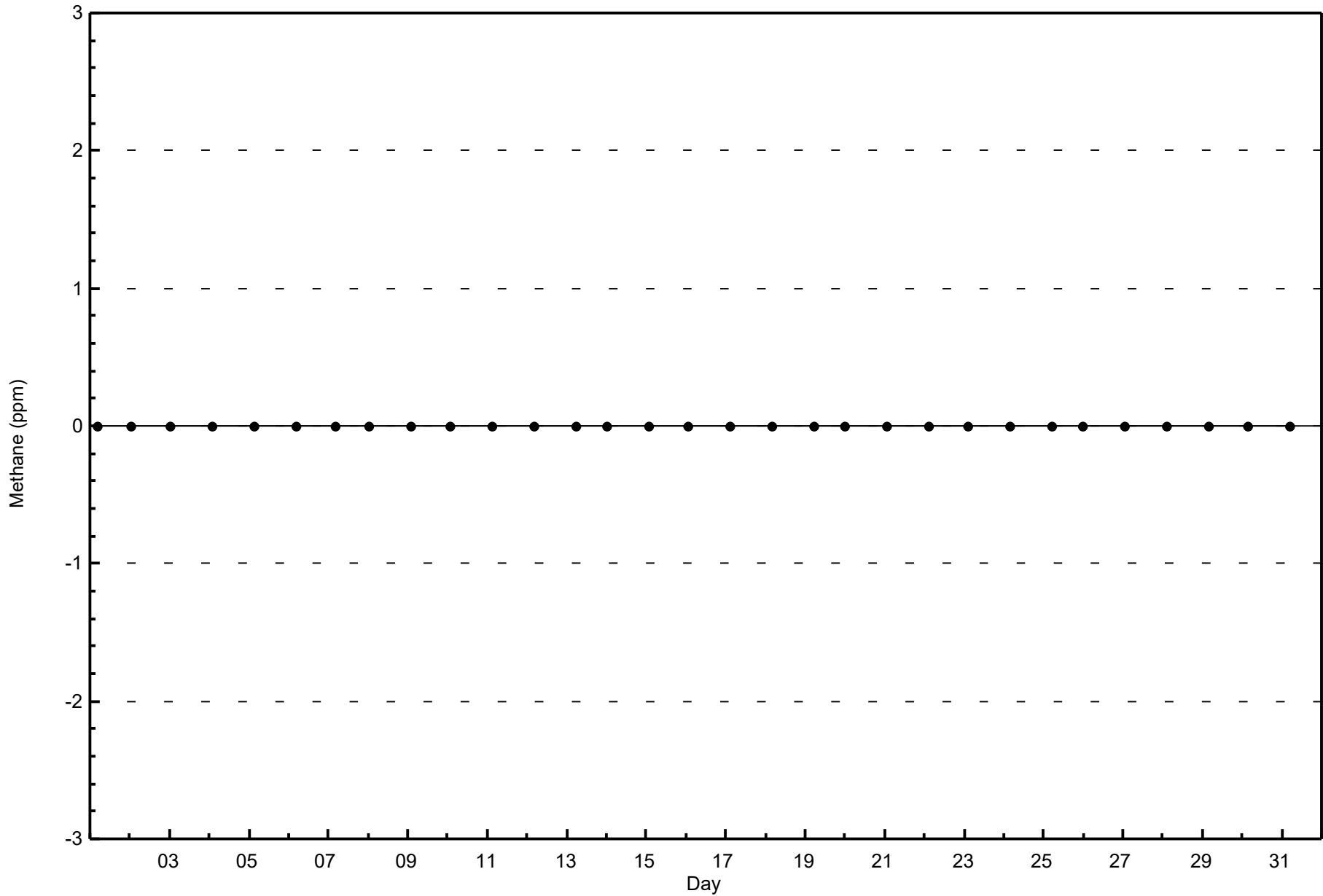


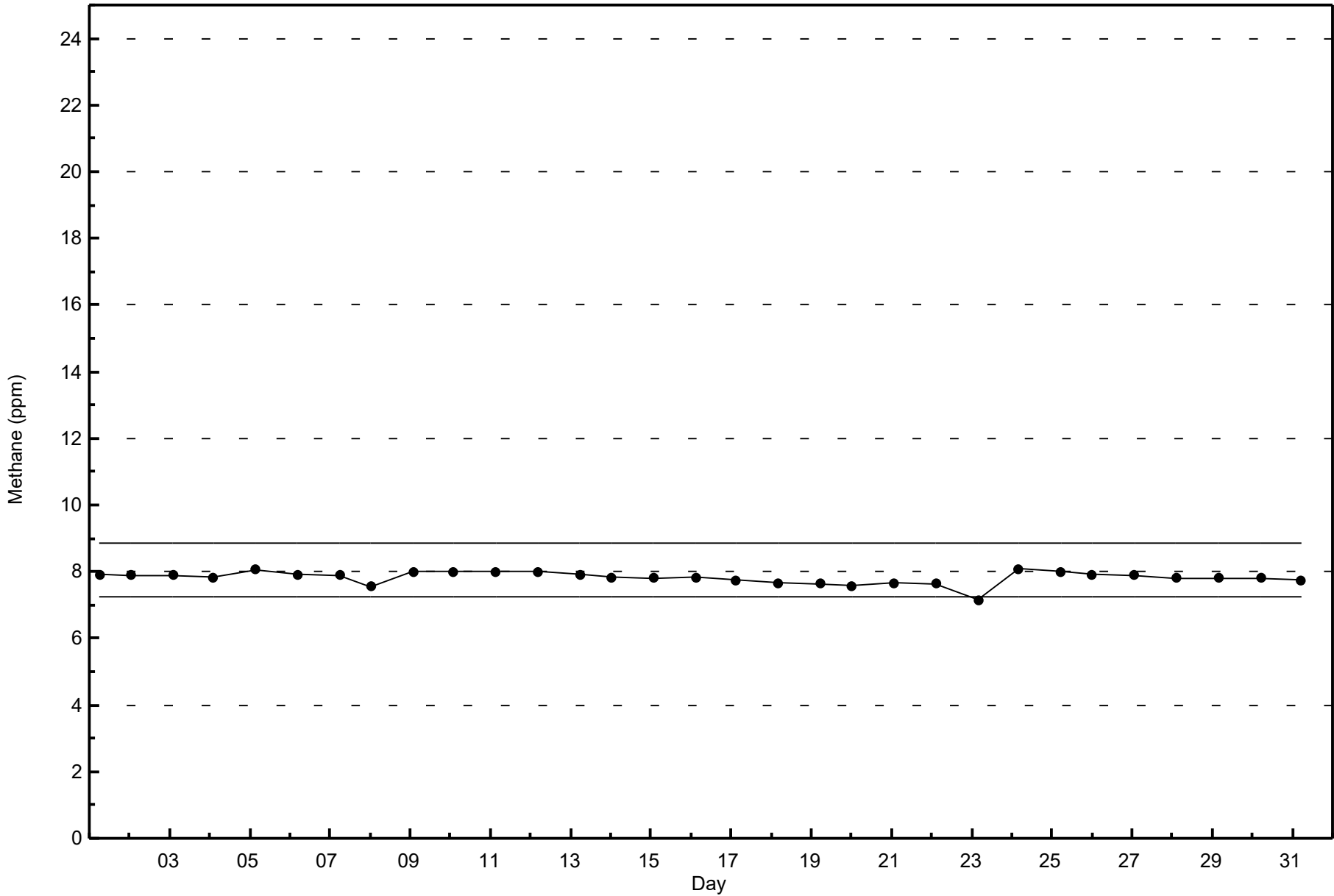
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

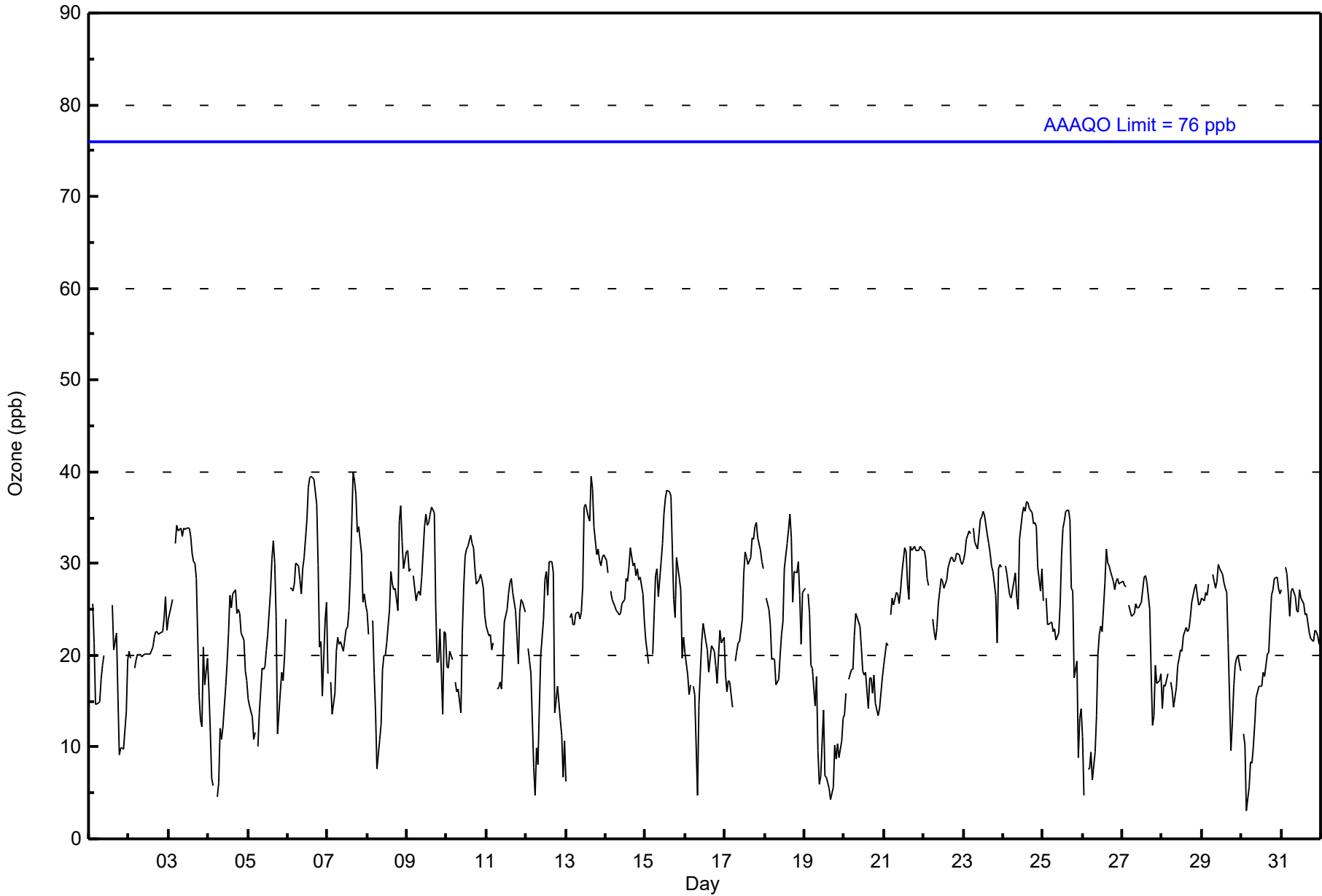
Ozone (O<sub>3</sub>) - ppb

Patricia McInnes - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 40.0 ppb on Oct 7 16:00	Maximum Daily Average: 31.5 ppb on Oct 23		Hours of Data:	709
Minimum Value: 3.1 ppb on Oct 30 04:00	Minimum Daily Average: 12.3 ppb on Oct 19		Hours of Missing Data:	35
Maximum Diurnal Average: 28.9 ppb at hour 16	Minimum Diurnal Average: 19.8 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 23.73 ppb	Percentiles: P <sub>1</sub> = 5.6 P <sub>10</sub> = 13.5 Q <sub>1</sub> = 18.9 Median = 24.6 Q <sub>3</sub> = 29.1 P <sub>90</sub> = 32.9 P <sub>99</sub> = 38.2		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-Oct	27.3	Z	25.6	21.4	14.6	14.7	15.0	17.4	19.0	19.9	C	C	C	C	25.4	20.6	22.5	15.6	9.2	10.0	9.9	9.7	13.9	19.5	17.4	27.3																							
2-Oct	20.4	19.7	Z	18.6	19.5	20.2	20.0	20.1	19.9	20.2	20.1	20.1	20.2	20.9	22.0	22.6	22.6	22.3	22.4	22.5	24.0	26.3	22.7	21.2	26.3																								
3-Oct	23.9	25.3	26.1	Z	32.2	34.2	33.5	33.9	33.0	33.9	33.8	33.9	33.0	31.1	30.2	30.0	28.3	15.6	13.0	12.1	20.8	16.8	19.7	27.3	34.2																								
4-Oct	16.2	11.6	6.6	5.8	Z	4.5	6.1	12.1	10.8	12.2	16.6	19.2	22.5	26.5	25.2	26.7	27.1	24.5	25.0	24.6	22.4	21.7	18.3	17.3	17.5																								
5-Oct	15.3	14.5	13.3	10.8	11.6	Z	10.0	13.7	18.7	18.4	18.7	20.6	22.2	27.0	30.5	32.6	30.1	24.2	11.4	16.0	18.2	17.3	19.8	24.0	19.1	32.6																							
6-Oct	Z	27.3	27.3	27.0	27.7	30.1	29.7	28.3	26.6	29.4	30.7	34.8	38.2	39.4	39.5	39.4	39.1	36.5	29.9	20.9	21.5	15.6	23.8	25.8	29.9	39.5																							
7-Oct	18.0	Z	17.1	13.6	15.9	20.5	21.9	21.2	21.5	20.5	21.7	22.9	23.1	24.9	28.7	40.0	39.0	37.6	33.5	34.0	31.1	25.7	26.8	25.4	25.4	40.0																							
8-Oct	24.7	22.3	Z	23.7	18.2	13.9	7.6	10.9	12.4	18.4	19.9	19.9	21.4	25.1	29.1	27.8	27.2	27.3	24.9	34.6	36.3	32.3	29.4	31.2	23.4	36.3																							
9-Oct	31.4	29.1	29.5	Z	28.7	25.9	26.7	27.0	26.5	28.6	34.0	35.4	34.2	34.5	35.3	36.1	35.5	25.4	19.3	19.4	22.9	13.5	22.5	22.5	28.0	36.1																							
10-Oct	18.7	18.6	20.4	19.5	Z	17.1	16.0	16.3	13.7	22.5	27.5	30.9	31.6	31.9	33.1	32.2	31.7	29.4	27.7	28.2	28.9	28.2	27.3	24.3	25.0	33.1																							
11-Oct	23.3	22.1	22.3	20.6	21.3	Z	16.3	16.5	17.1	16.3	20.0	23.6	25.1	26.6	27.9	28.4	26.8	24.8	22.1	19.0	24.6	26.1	25.8	24.8	22.7	28.4																							
12-Oct	Z	20.7	19.4	18.0	7.7	4.7	9.9	8.1	14.2	20.0	23.9	28.3	29.1	26.5	30.2	30.2	29.0	13.8	15.1	16.6	12.9	11.3	6.8	10.7	17.7	30.2																							
13-Oct	6.2	Z	24.1	24.6	23.4	23.4	24.5	24.8	23.9	24.6	27.5	36.1	36.4	35.1	34.7	39.5	38.2	34.0	30.9	31.6	30.3	29.8	30.6	31.0	28.9	39.5																							
14-Oct	30.3	29.0	Z	27.0	26.1	25.3	24.9	24.7	24.4	24.5	25.6	26.1	28.3	28.0	29.6	31.7	29.8	30.0	28.6	29.4	28.2	28.5	26.7	23.8	27.4	31.7																							
15-Oct	21.7	20.4	19.1	Z	20.1	24.5	28.6	29.4	26.4	30.2	32.2	35.4	37.1	37.9	37.9	37.3	31.5	26.0	24.1	30.7	28.4	27.1	19.6	22.0	28.2	37.9																							
16-Oct	20.2	17.9	15.8	16.7	Z	16.7	15.8	4.7	14.6	18.1	21.5	23.5	21.5	20.6	18.2	19.7	21.1	20.4	18.9	16.9	20.0	22.7	21.4	22.0	18.7	23.5																							
17-Oct	17.9	15.9	17.3	17.0	14.3	Z	19.4	20.4	21.3	21.6	23.9	28.8	31.2	30.7	30.0	30.7	32.8	32.7	34.0	34.5	32.8	31.4	30.3	29.5	26.0	34.5																							
18-Oct	Z	26.3	25.0	23.3	19.5	19.7	19.5	16.8	17.4	20.0	22.2	23.6	29.4	32.2	33.8	35.3	32.8	25.8	29.1	29.0	30.2	26.6	21.2	26.8	25.5	35.3																							
19-Oct	27.3	Z	26.7	24.5	18.9	18.7	14.4	17.7	9.6	6.0	6.9	14.0	6.8	6.7	6.1	5.5	4.3	5.6	10.3	8.7	10.4	8.8	10.7	13.1	12.3	27.3																							
20-Oct	13.6	15.8	Z	17.4	18.5	18.5	22.2	24.5	24.0	23.1	20.9	18.3	17.9	18.1	14.3	17.5	17.6	15.8	17.8	14.7	13.5	14.1	15.8	17.5	17.9	24.5																							
21-Oct	18.9	21.4	21.0	Z	24.4	26.2	25.4	26.9	26.8	25.7	27.0	29.0	31.8	31.2	27.8	26.0	31.9	31.5	31.8	31.3	31.4	31.5	31.9	31.4	27.9	31.9																							
22-Oct	31.4	30.4	28.4	27.6	Z	24.0	22.6	21.6	23.0	25.6	28.3	28.1	27.3	27.7	28.2	29.6	30.7	30.6	30.2	30.3	31.1	31.0	30.2	29.9	28.2	31.4																							
23-Oct	30.4	31.1	32.7	33.5	33.3	Z	33.9	32.4	31.6	33.1	34.8	35.0	35.7	35.2	33.1	32.3	31.1	29.8	29.2	26.6	21.3	29.4	29.8	29.6	31.5	35.7																							
24-Oct	Z	29.7	28.8	27.6	26.6	26.2	28.1	29.0	26.2	25.0	32.6	35.4	36.1	35.7	36.8	36.7	36.0	35.5	34.4	34.5	34.1	29.6	26.9	29.4	31.3	36.8																							
25-Oct	25.9	Z	26.3	23.4	23.5	23.6	22.6	22.8	21.7	22.5	25.5	30.9	33.9	34.6	35.7	35.9	34.8	27.3	27.0	17.5	19.4	8.9	13.1	14.2	24.8	35.9																							
26-Oct	11.1	4.7	Z	7.7	7.7	9.5	6.4	9.5	13.4	20.1	22.2	23.2	22.6	27.9	31.6	30.1	29.8	29.1	28.1	27.2	28.1	28.3	27.7	27.9	20.6	31.6																							
27-Oct	28.1	27.6	27.5	Z	25.5	24.3	24.4	24.6	25.6	25.1	25.2	25.7	27.2	28.5	28.7	27.9	25.0	18.1	12.3	13.3	18.9	16.9	17.3	17.9	23.3	28.7																							
28-Oct	14.1	16.7	16.6	18.0	Z	17.1	16.2	14.4	16.5	19.0	19.7	20.6	20.4	22.1	23.0	22.6	22.9	24.1	25.8	27.2	27.8	26.6	25.5	25.7	21.0	27.8																							
29-Oct	26.3	25.9	26.9	26.5	27.8	Z	28.8	28.0	27.4	28.1	29.9	29.4	28.9	28.0	27.3	26.9	21.4	9.6	12.6	16.5	18.9	19.6	20.0	18.3	24.0	29.9																							
30-Oct	Z	11.5	10.3	3.1	5.6	8.3	8.2	10.1	12.5	15.4	16.6	16.6	16.6	18.1	17.7	20.1	20.4	23.6	26.6	27.1	28.4	28.6	27.2	26.8	17.4	28.6																							
31-Oct	27.1	Z	29.5	28.8	26.7	24.3	27.0	27.3	26.5	24.9	24.8	27.1	26.2	25.6	24.3	24.6	23.5	22.5	21.9	21.5	22.7	22.6	22.1	21.2	24.9	29.5																							
																								21.9	21.4	22.4	20.2	20.7	19.8	20.2	20.5	20.8	22.4	24.5	26.5	27.2	28.0	28.2	28.9	28.3	25.2	23.5	23.5	23.8	22.8	22.8	23.4	Diurnal Average	
																								31.4	31.1	32.7	33.5	33.3	34.2	33.9	33.9	33.0	33.9	34.8	36.1	38.2	39.4	39.5	40.0	39.1	37.6	34.4	34.6	36.3	32.3	31.9	31.4	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**  
**Patricia McInnes - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	233	32.86	32.86
21 - 50	476	67.14	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**  
**Patricia McInnes - October 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	29	20	2	6	1	12	10	14	20	28	19	11	5	30	12	14	233
21 - 50	15	6	4	20	13	33	53	14	17	28	79	66	61	42	19	6	476
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>	44	26	6	26	14	45	63	28	37	56	98	77	66	72	31	20	709

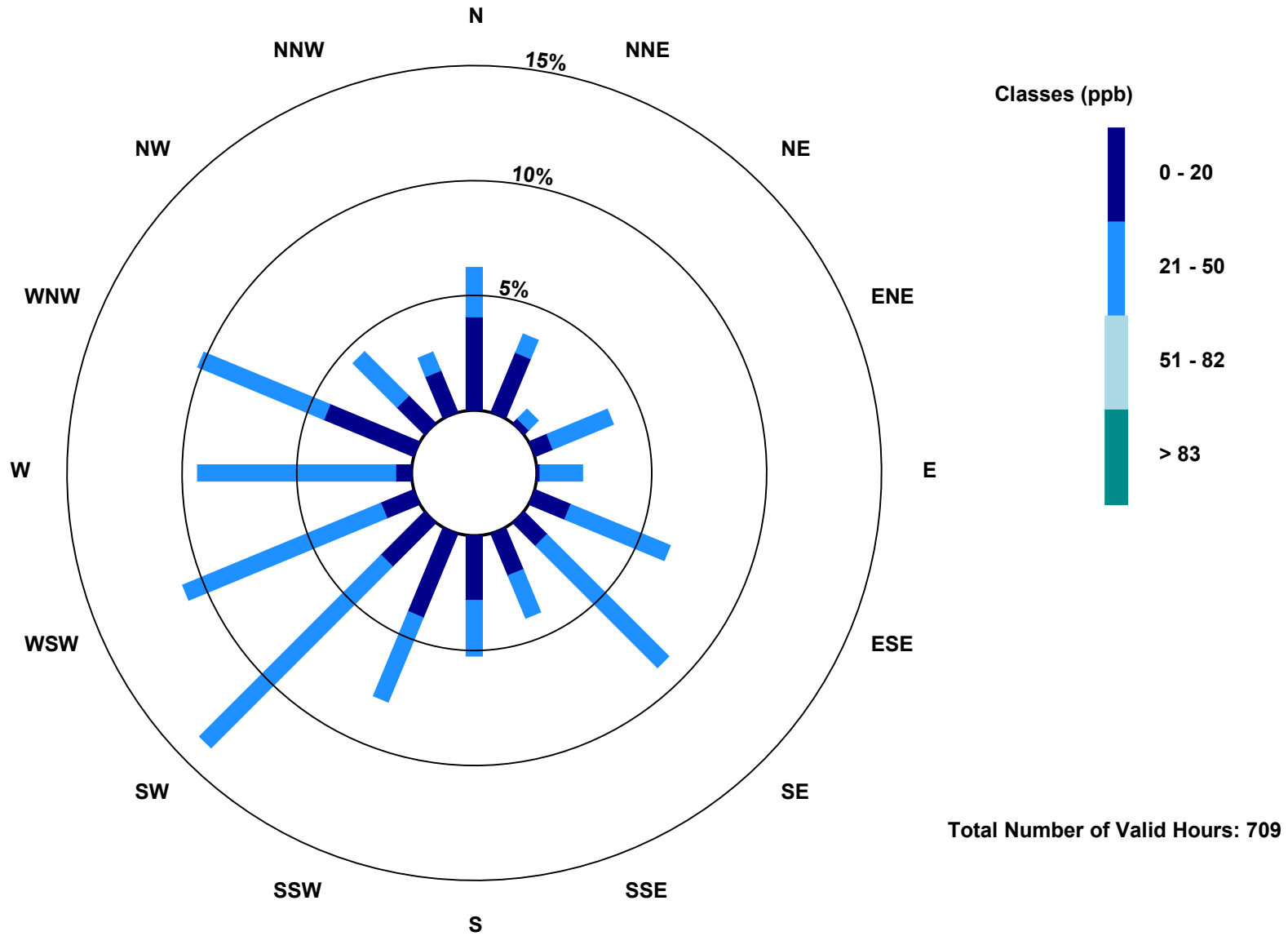
Total Number of Valid Hours: 709

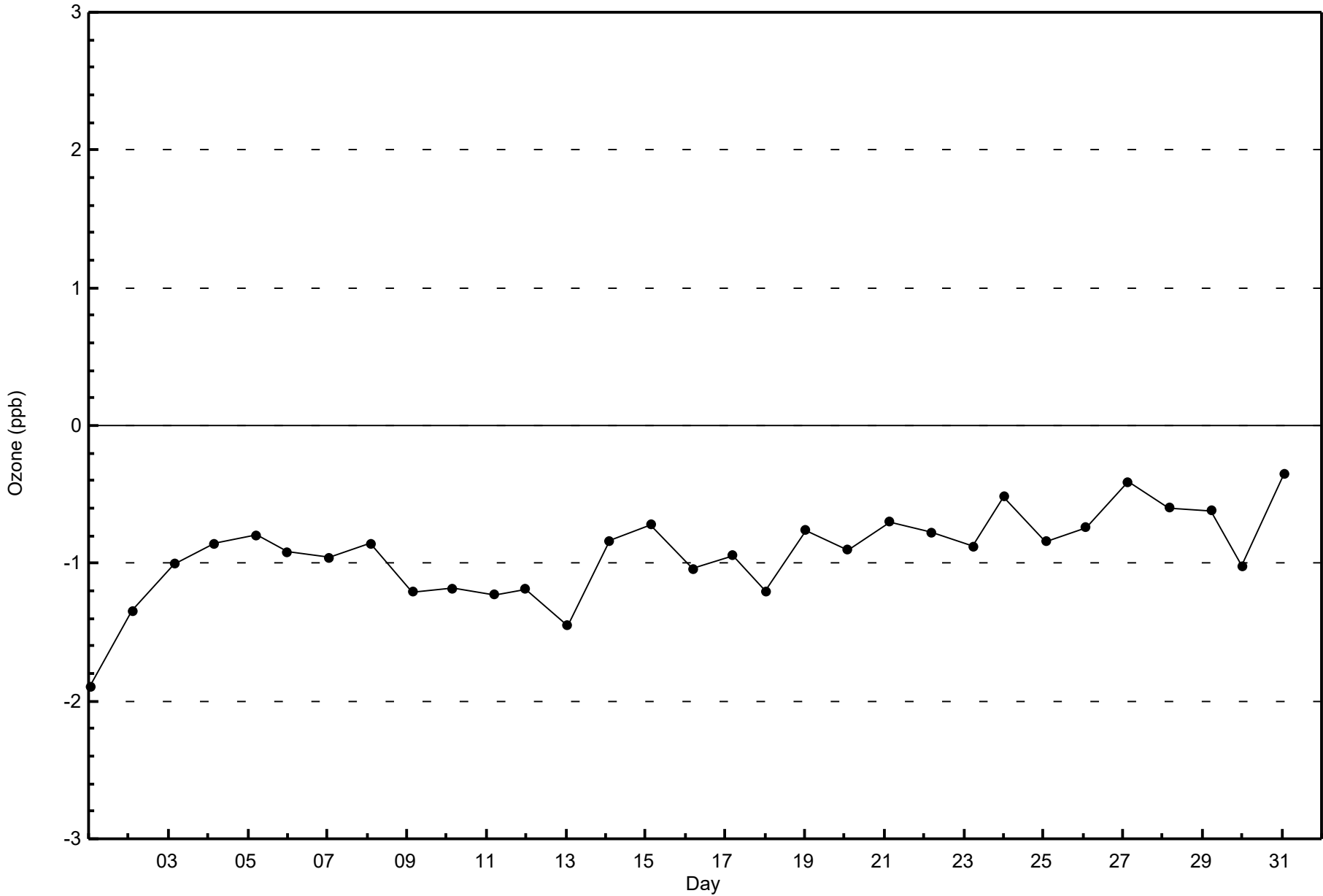
Total Number of Hours: 744



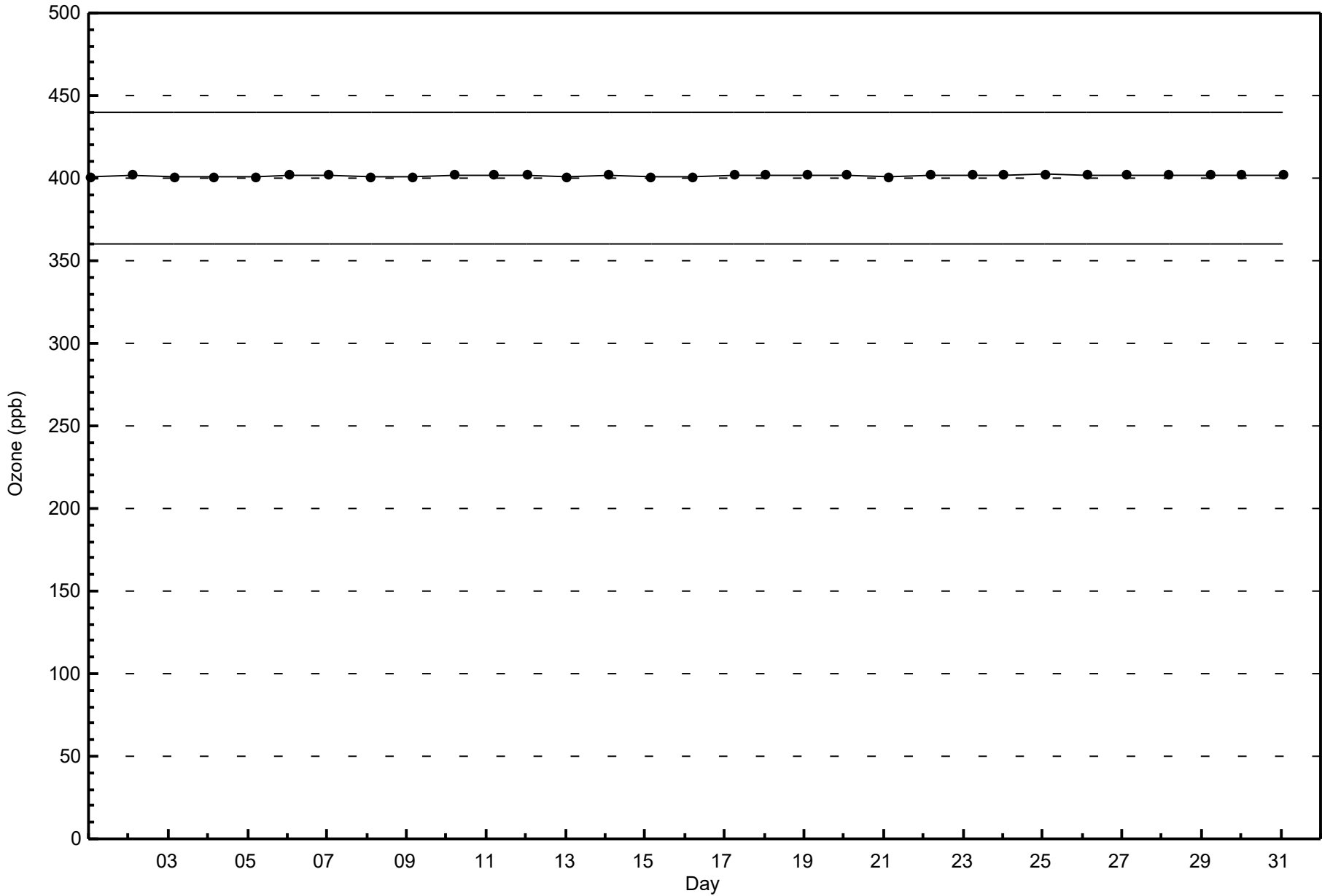
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

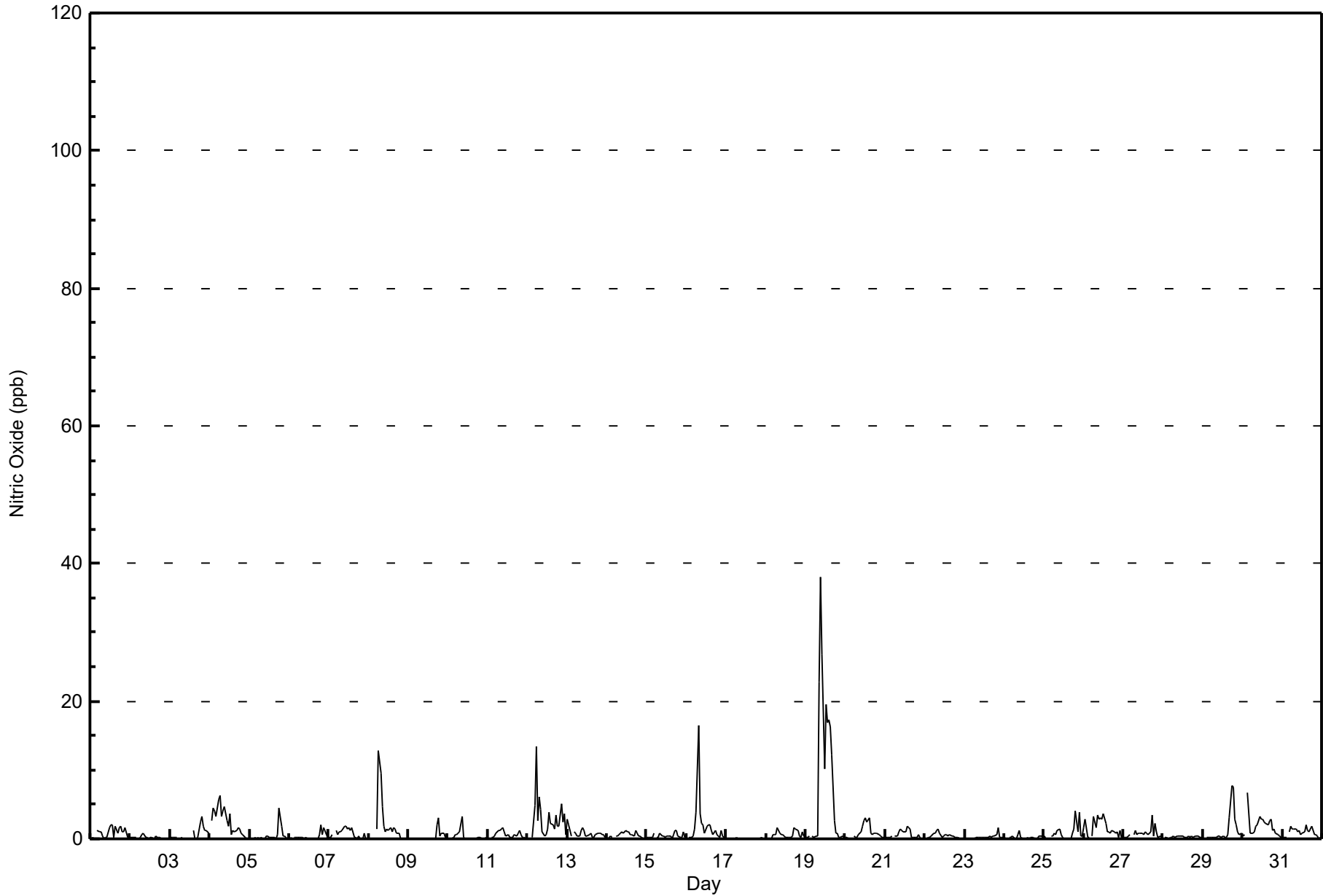
Patricia McInnes - October 2024

Maximum Value: 38.1 ppb on Oct 19 10:00																				Maximum Daily Average: 8.2 ppb on Oct 19					Hours in Service: 744								
Minimum Value: 0.0 ppb on Oct 2 21:00																				Minimum Daily Average: 0.0 ppb on Oct 17					Hours of Data: 707								
Maximum Diurnal Average: 2.3 ppb at hour 10																				Minimum Diurnal Average: 0.2 ppb at hour 24					Hours of Missing Data: 37								
Monthly Average: 1.10 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> = 1.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 16.0					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-Oct	0.1	0.1	0.0	Z	1.2	1.0	0.9	0.4	0.1	0.3	0.2	1.6	2.1	2.1	0.2	1.8	0.8	1.7	1.7	1.1	1.1	1.5	0.2	0.1	0.9	2.1							
2-Oct	0.2	0.2	0.2	0.1	Z	0.1	0.2	0.7	0.8	0.3	0.1	0.1	0.2	0.2	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.8							
3-Oct	0.2	0.3	0.1	0.2	0.1	Z	0.1	0.1	C	C	C	C	C	C	1.1	0.1	0.1	0.3	2.5	3.2	1.8	1.1	1.2	0.7	--	3.2							
4-Oct	Z	2.7	4.4	4.2	3.3	5.6	6.3	3.3	4.1	4.7	2.6	1.8	3.6	0.7	1.2	1.0	1.1	1.6	1.4	0.7	0.6	0.3	0.1	0.0	2.4	6.3							
5-Oct	0.0	Z	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.3	0.4	0.1	0.2	0.3	0.1	0.1	0.6	4.5	1.9	0.5	0.4	0.2	0.0	0.4	4.5							
6-Oct	0.0	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.1	0.7	1.7	0.7	0.2	0.3	2.1							
7-Oct	0.3	0.2	0.6	Z	1.2	0.7	1.1	1.0	1.2	1.8	1.8	1.4	1.7	1.3	1.5	0.2	0.2	0.1	0.3	0.1	0.0	0.7	0.0	0.0	0.8	1.8							
8-Oct	0.0	0.0	0.1	0.0	Z	1.4	12.7	9.5	4.6	1.8	1.1	1.4	1.3	1.6	1.0	1.7	1.4	0.7	0.8	0.0	0.0	0.0	0.0	0.0	1.8	12.7							
9-Oct	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	0.0	0.0	2.1	3.0	0.3	0.7	0.9	0.1	0.1	0.3	3.0							
10-Oct	Z	0.0	0.0	0.2	0.6	0.6	0.8	1.0	3.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.3	0.3	3.2							
11-Oct	0.0	Z	0.2	0.1	0.4	0.8	1.3	1.1	1.4	1.7	0.9	0.4	0.5	0.2	0.2	0.2	0.6	0.5	0.8	1.2	0.5	0.1	0.1	0.1	0.6	1.7							
12-Oct	0.1	0.0	Z	0.2	4.9	13.5	2.7	6.1	4.2	0.9	0.4	0.6	1.4	3.8	2.2	2.0	1.5	3.5	1.8	1.8	5.0	2.5	3.6	0.7	2.8	13.5							
13-Oct	2.8	1.9	0.3	Z	1.0	0.8	0.5	0.5	1.2	1.6	1.3	0.3	0.3	0.6	0.8	0.2	0.2	0.7	0.7	0.8	0.9	0.5	0.6	0.2	0.8	2.8							
14-Oct	0.1	0.1	0.3	0.2	Z	0.3	0.4	0.6	0.8	1.0	0.8	1.3	1.0	1.0	0.7	0.6	0.5	1.3	0.9	0.5	0.4	0.3	0.1	0.1	0.6	1.3							
15-Oct	0.2	0.2	0.2	0.3	0.8	Z	0.2	0.1	0.9	0.5	0.4	0.2	0.4	0.4	0.4	0.1	0.7	1.2	1.1	0.5	0.3	0.2	1.0	0.2	0.5	1.2							
16-Oct	Z	0.3	0.1	0.3	0.4	1.3	3.8	16.4	3.7	2.3	2.0	0.9	1.8	2.0	2.0	1.2	0.7	1.3	0.7	0.4	0.3	1.2	0.4	0.1	1.9	16.4							
17-Oct	0.2	Z	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	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2							
18-Oct	0.0	0.0	Z	0.0	0.7	0.7	0.7	1.6	0.9	0.6	0.5	0.5	0.3	0.1	0.2	0.2	0.5	1.5	1.4	1.1	0.5	0.2	1.1	0.5	0.6	1.6							
19-Oct	0.2	0.1	0.3	Z	0.5	0.2	0.4	0.4	22.9	38.1	26.9	10.2	19.6	16.9	17.2	16.2	12.3	2.6	0.9	0.9	0.2	0.3	0.3	0.3	8.2	38.1							
20-Oct	0.2	0.2	0.0	0.0	Z	0.3	0.1	0.2	0.6	0.9	1.8	2.7	3.1	2.5	3.0	0.9	0.5	0.9	0.8	0.7	0.6	0.4	0.3	0.2	0.9	3.1							
21-Oct	0.2	0.1	0.2	0.2	0.3	Z	0.5	0.5	1.1	1.4	1.3	1.0	1.0	1.7	1.6	1.4	0.1	0.2	0.2	0.2	0.5	0.1	0.1	0.1	0.6	1.7							
22-Oct	Z	0.1	0.2	0.2	0.4	0.8	0.8	1.3	1.4	0.9	0.3	0.5	0.6	0.6	0.4	0.6	0.4	0.4	0.2	0.2	0.2	0.1	0.0	0.0	0.4	1.4							
23-Oct	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.3	0.3	0.6	1.6	0.2	0.3	0.2	0.2	1.6							
24-Oct	0.2	0.1	Z	0.2	0.3	0.4	0.1	0.0	0.6	1.3	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.4	0.3	0.1	0.2	1.3							
25-Oct	0.4	0.0	0.1	Z	0.3	0.4	0.7	0.6	1.2	1.4	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.8	1.5	4.2	1.1	3.8	0.3	0.4	0.8	4.2							
26-Oct	1.7	2.8	0.1	0.2	Z	0.4	3.2	1.6	3.5	2.8	3.1	2.8	3.7	2.2	1.0	1.0	0.8	1.3	1.0	0.9	0.9	0.2	1.1	0.1	1.6	3.7							
27-Oct	0.2	0.2	0.3	0.3	0.6	Z	0.6	1.1	0.7	0.8	0.8	0.8	0.7	1.0	0.8	0.6	1.1	3.4	0.4	2.3	1.0	0.2	0.5	0.1	0.8	3.4							
28-Oct	Z	0.2	0.2	0.1	0.2	0.2	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.2	0.2	0.3	0.4						
29-Oct	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.2	0.5	0.2	0.3	0.6	3.1	7.6	7.6	2.9	2.1	1.1	0.6	0.7	1.3	7.6							
30-Oct	0.4	0.5	Z	6.8	0.8	0.8	0.8	1.0	1.7	2.0	3.2	2.9	2.9	2.5	2.2	2.1	2.6	2.8	1.2	1.4	0.8	0.5	0.3	0.1	1.8	6.8							
31-Oct	0.1	0.2	0.2	Z	1.0	1.7	1.4	1.3	1.4	1.0	1.3	0.7	0.8	1.0	2.1	1.2	1.0	1.5	1.8	0.7	0.6	0.4	0.0	0.1	0.9	2.1							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration																																	



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

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	704	99.58	99.58
21 - 40	3	0.42	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**  
**Patricia McInnes - October 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	42	28	6	27	16	45	65	26	38	56	97	76	65	70	26	21	704
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	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>	42	28	6	27	16	45	65	26	38	56	97	76	66	70	28	21	707

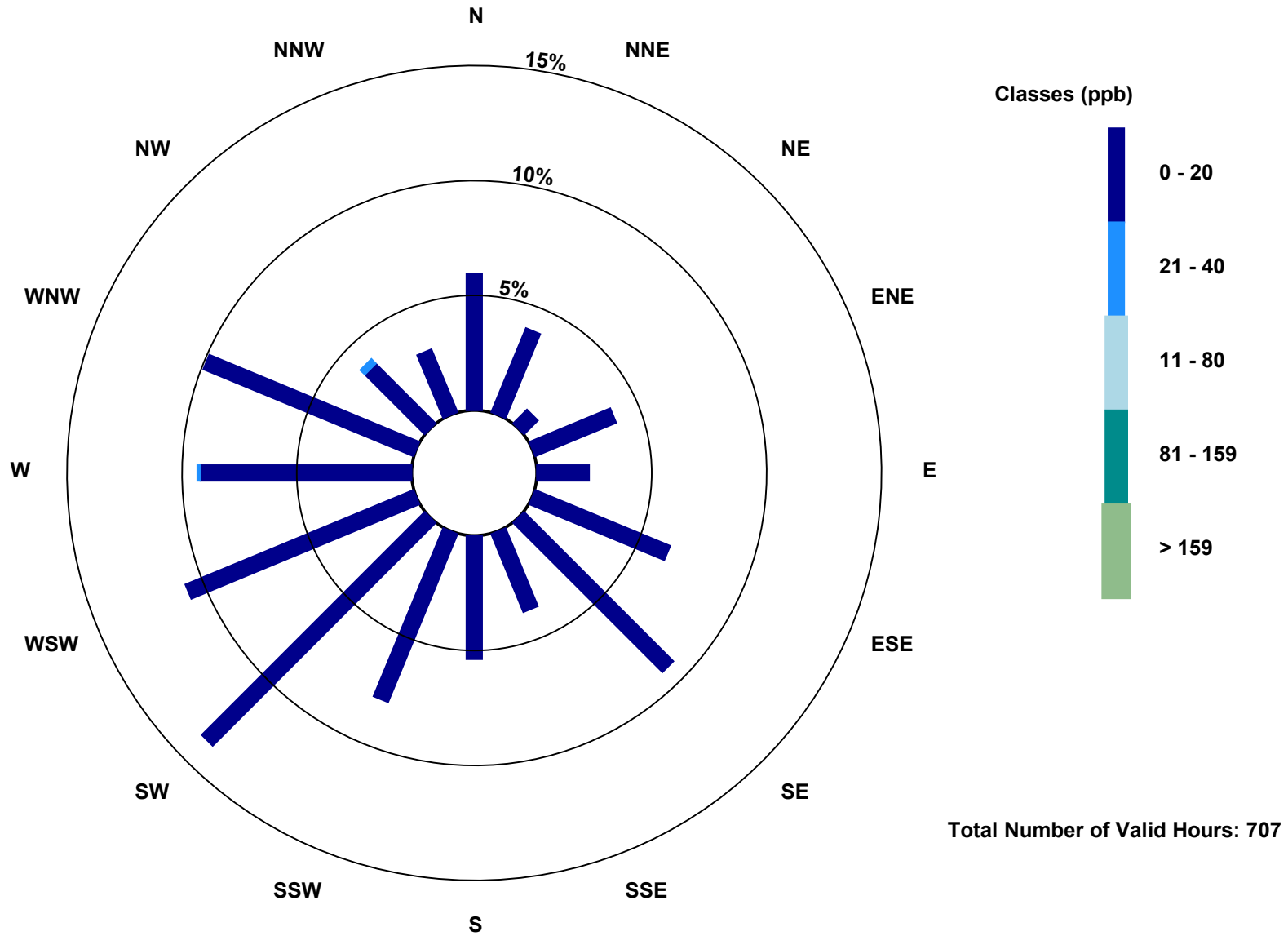
Total Number of Valid Hours: 707

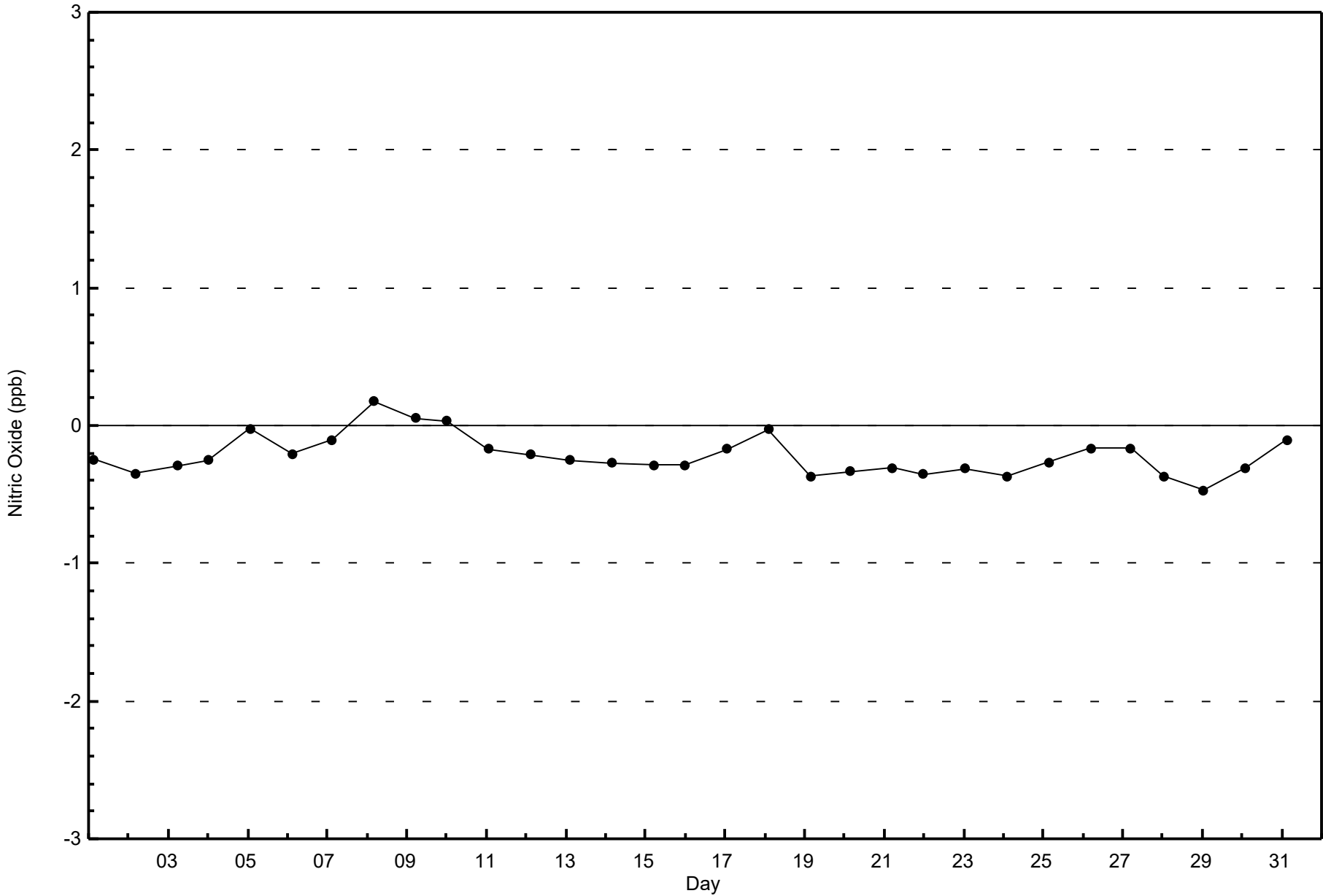
Total Number of Hours: 744

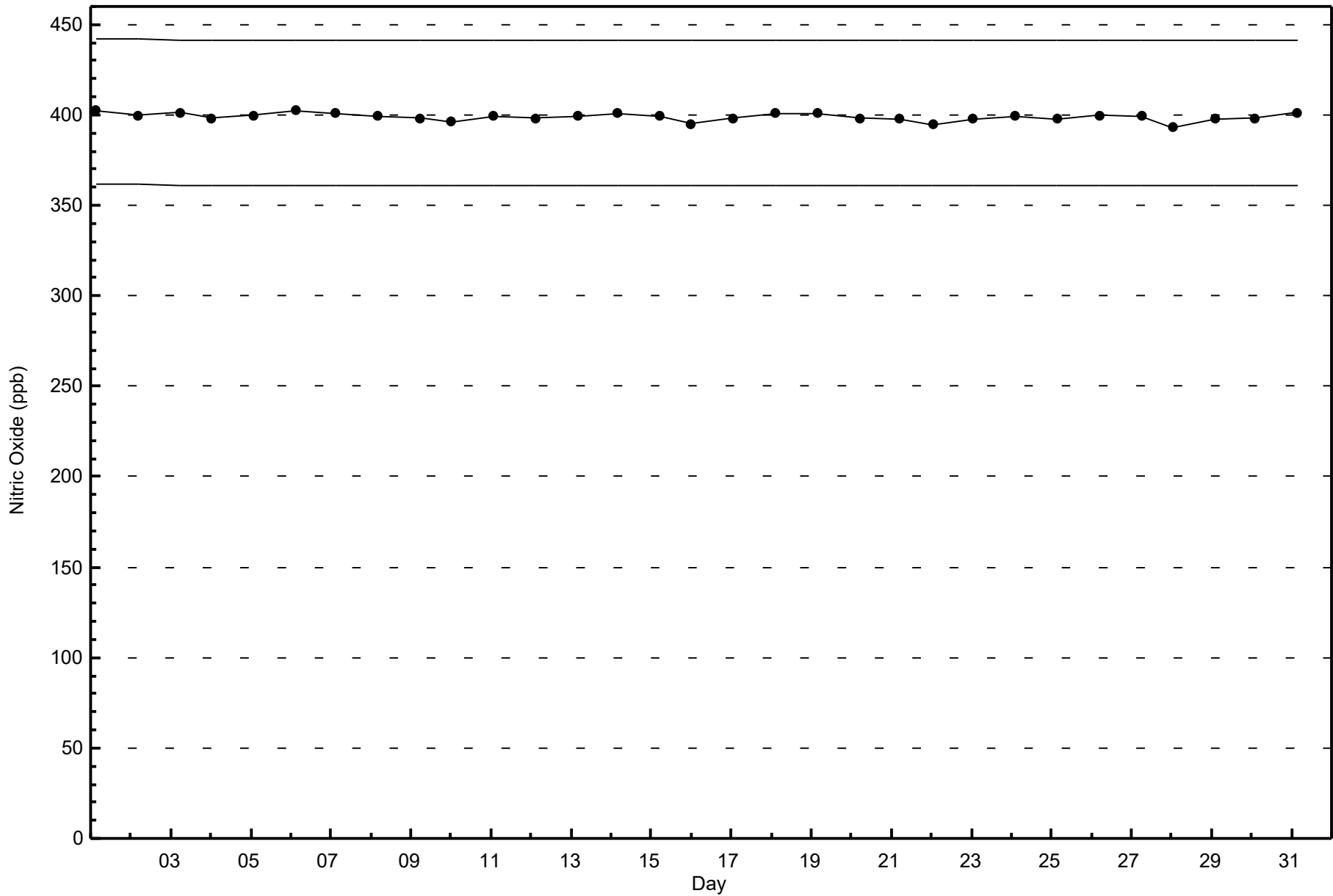


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Patricia McInnes











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Patricia McInnes - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.8 ppb on Oct 29 18:00	Maximum Daily Average: 8.6 ppb on Oct 19		Hours of Data:	707
Minimum Value: 0.0 ppb on Oct 2 03:00	Minimum Daily Average: 0.2 ppb on Oct 2		Hours of Missing Data:	37
Maximum Diurnal Average: 5.9 ppb at hour 19	Minimum Diurnal Average: 2.0 ppb at hour 12		Hours of Calibration:	37
Monthly Average: 3.32 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.5 Median = 2.3 Q <sub>3</sub> = 4.7 P <sub>90</sub> = 8.2 P <sub>99</sub> = 16.5		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-Oct	0.1	0.1	0.2	Z	8.9	6.5	5.1	1.5	0.3	0.6	0.6	2.3	3.1	3.1	0.5	4.7	2.6	9.2	14.7	10.7	6.1	4.9	1.9	0.9	3.9	14.7
2-Oct	0.3	0.1	0.0	0.0	Z	0.1	0.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.3	2.9	0.2	2.9
3-Oct	2.3	0.3	0.1	0.0	0.1	Z	0.2	0.2	C	C	C	C	C	C	0.2	0.0	0.0	1.6	12.4	7.2	10.6	5.6	5.8	4.4	--	12.4
4-Oct	Z	8.5	13.2	13.9	9.9	14.9	12.8	6.6	6.1	4.6	2.6	2.4	3.0	1.9	3.4	3.5	3.4	4.6	3.5	2.6	2.9	1.3	3.3	3.6	5.8	14.9
5-Oct	4.3	Z	6.4	9.0	9.1	7.9	9.1	6.9	0.9	0.2	0.3	0.3	0.2	0.1	0.5	1.1	0.6	3.2	16.6	8.7	2.6	1.6	1.3	0.9	4.0	16.6
6-Oct	0.5	0.4	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	2.0	6.0	7.3	6.4	8.6	3.5	2.7	1.6	8.6
7-Oct	7.4	5.5	8.3	Z	9.2	5.3	4.0	4.3	3.0	3.5	2.5	2.8	3.4	2.9	3.0	1.5	2.1	2.6	4.7	1.6	1.7	4.6	2.2	2.6	3.9	9.2
8-Oct	2.2	3.2	1.8	1.9	Z	8.9	14.9	9.4	9.3	5.3	4.2	3.6	3.4	3.5	3.8	7.1	8.2	7.8	10.4	0.3	0.0	0.0	0.4	0.1	4.8	14.9
9-Oct	0.0	0.1	0.4	0.6	1.4	Z	2.2	1.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.0	8.2	5.4	2.7	3.5	9.9	3.4	2.9	1.8	9.9
10-Oct	Z	2.8	1.2	2.1	4.1	2.8	3.0	2.9	5.4	0.9	0.4	0.1	0.0	0.2	0.2	0.1	0.2	1.8	2.7	1.1	0.7	0.6	0.6	1.8	1.6	5.4
11-Oct	1.5	Z	1.5	2.2	2.0	2.7	5.1	4.5	3.6	3.6	1.7	1.0	1.1	0.6	0.4	0.5	2.3	3.8	6.3	8.1	2.8	2.3	1.7	1.2	2.6	8.1
12-Oct	0.8	0.6	Z	1.8	12.6	17.4	9.9	12.4	6.3	1.6	0.8	0.9	2.5	6.4	5.5	5.9	6.9	18.9	10.9	7.1	8.0	6.0	12.1	8.0	7.1	18.9
13-Oct	12.0	13.0	3.5	Z	4.6	4.5	3.2	2.5	2.7	2.6	2.6	0.8	1.0	1.5	2.1	1.3	1.7	4.4	6.1	4.5	4.5	4.2	3.2	1.8	3.8	13.0
14-Oct	1.1	1.3	1.6	1.9	Z	2.9	3.1	2.6	2.5	2.3	2.1	2.3	2.5	2.8	2.8	2.6	3.3	3.7	3.3	3.0	3.5	2.2	1.4	1.7	2.5	3.7
15-Oct	1.5	1.8	3.4	3.4	3.6	Z	0.8	0.0	2.2	0.4	0.2	0.0	0.1	0.2	0.1	0.1	5.4	10.0	8.9	3.6	4.5	3.0	8.8	6.0	3.0	10.0
16-Oct	Z	3.7	2.7	2.4	3.4	7.0	9.3	19.7	8.2	6.3	5.2	4.0	4.9	4.8	8.4	8.1	8.6	8.9	7.1	6.7	4.2	4.8	4.5	2.5	6.3	19.7
17-Oct	1.3	Z	1.1	0.4	1.5	1.4	0.5	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	1.5
18-Oct	0.0	0.0	Z	0.7	3.2	3.6	4.1	3.8	1.5	1.1	0.8	0.7	0.5	0.5	0.7	4.0	10.2	6.6	5.2	2.6	3.8	8.4	4.2	2.9	10.2	
19-Oct	3.4	2.7	2.9	Z	4.7	1.4	3.7	2.7	13.2	19.0	20.0	12.4	13.4	11.0	11.8	13.9	15.1	11.9	6.5	7.4	4.1	6.7	5.5	3.8	8.6	20.0
20-Oct	3.3	2.1	5.2	5.3	Z	6.9	4.9	2.9	2.8	4.0	5.4	6.9	6.7	5.5	8.9	4.9	4.4	6.5	5.0	7.6	5.8	4.9	4.4	4.4	5.2	8.9
21-Oct	4.0	3.0	5.0	5.5	5.8	Z	3.7	4.3	4.0	4.2	4.0	2.8	1.7	3.2	5.6	6.6	0.2	0.4	0.3	0.5	0.7	0.6	0.2	0.2	2.9	6.6
22-Oct	Z	1.1	1.7	1.0	2.3	3.9	5.2	5.9	4.3	1.8	0.6	0.6	0.7	0.8	0.8	1.1	1.2	1.2	1.0	1.0	1.0	0.9	0.6	0.6	1.7	5.9
23-Oct	0.5	Z	0.4	0.4	0.4	0.3	0.4	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.6	0.4	0.9	1.1	3.6	9.5	2.1	1.3	1.7	1.1	9.5
24-Oct	1.4	0.8	Z	1.0	1.4	1.9	0.9	0.4	2.3	3.0	0.4	0.2	0.1	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.3	3.8	4.7	1.4	1.1	4.7
25-Oct	3.1	0.9	0.9	Z	1.7	1.3	1.8	1.4	3.3	2.4	1.0	0.6	0.1	0.0	0.0	0.2	0.8	8.1	5.3	7.3	4.5	12.3	3.9	2.6	2.8	12.3
26-Oct	6.6	10.8	3.1	1.0	Z	1.2	7.8	6.3	8.3	5.4	4.7	4.5	5.4	3.4	2.0	2.6	2.6	2.9	3.0	3.3	2.1	1.5	1.6	1.0	4.0	10.8
27-Oct	0.9	1.0	1.1	1.5	2.4	Z	3.2	2.8	1.5	1.9	1.9	1.5	1.4	1.7	1.5	1.9	4.2	10.2	10.4	11.8	6.8	2.1	1.1	1.7	3.2	11.8
28-Oct	Z	1.9	0.9	0.7	0.5	0.6	0.5	0.3	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.3	1.9
29-Oct	0.0	Z	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	1.4	7.2	21.8	15.6	10.2	6.2	4.5	3.6	4.3	3.3	21.8
30-Oct	6.3	6.7	Z	16.9	13.2	10.6	10.8	8.8	7.1	5.6	5.4	5.5	5.6	5.2	6.8	4.9	6.2	6.4	4.5	4.1	3.4	2.8	3.2	3.2	6.7	16.9
31-Oct	2.8	1.4	1.7	Z	4.3	6.9	3.9	3.5	3.7	4.3	3.8	1.8	2.0	2.5	3.5	3.2	3.4	4.1	3.9	3.5	2.1	1.3	1.0	2.0	3.1	6.9

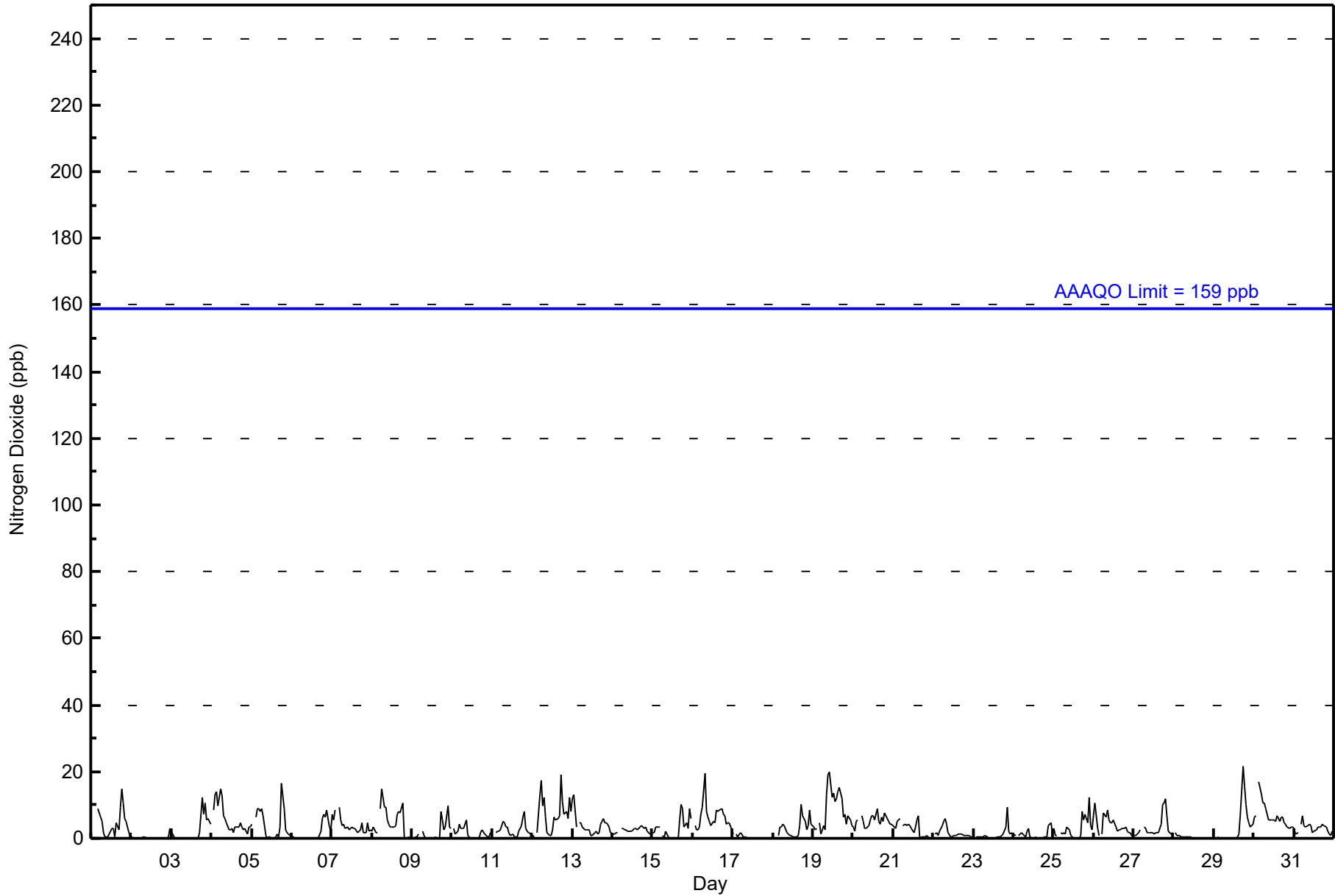
2.6	2.8	2.6	3.0	4.2	4.7	4.3	3.8	3.5	2.9	2.4	2.0	2.1	2.1	2.4	2.5	3.1	5.7	5.9	4.6	3.6	3.5	3.0	2.4	Diurnal Average	
12.0	13.0	13.2	16.9	13.2	17.4	14.9	19.7	13.2	19.0	20.0	12.4	13.4	11.0	11.8	13.9	15.1	21.8	16.6	11.8	10.6	12.3	12.1	8.0	Diurnal Maximum	

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  
Patricia McInnes - October 2024





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

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

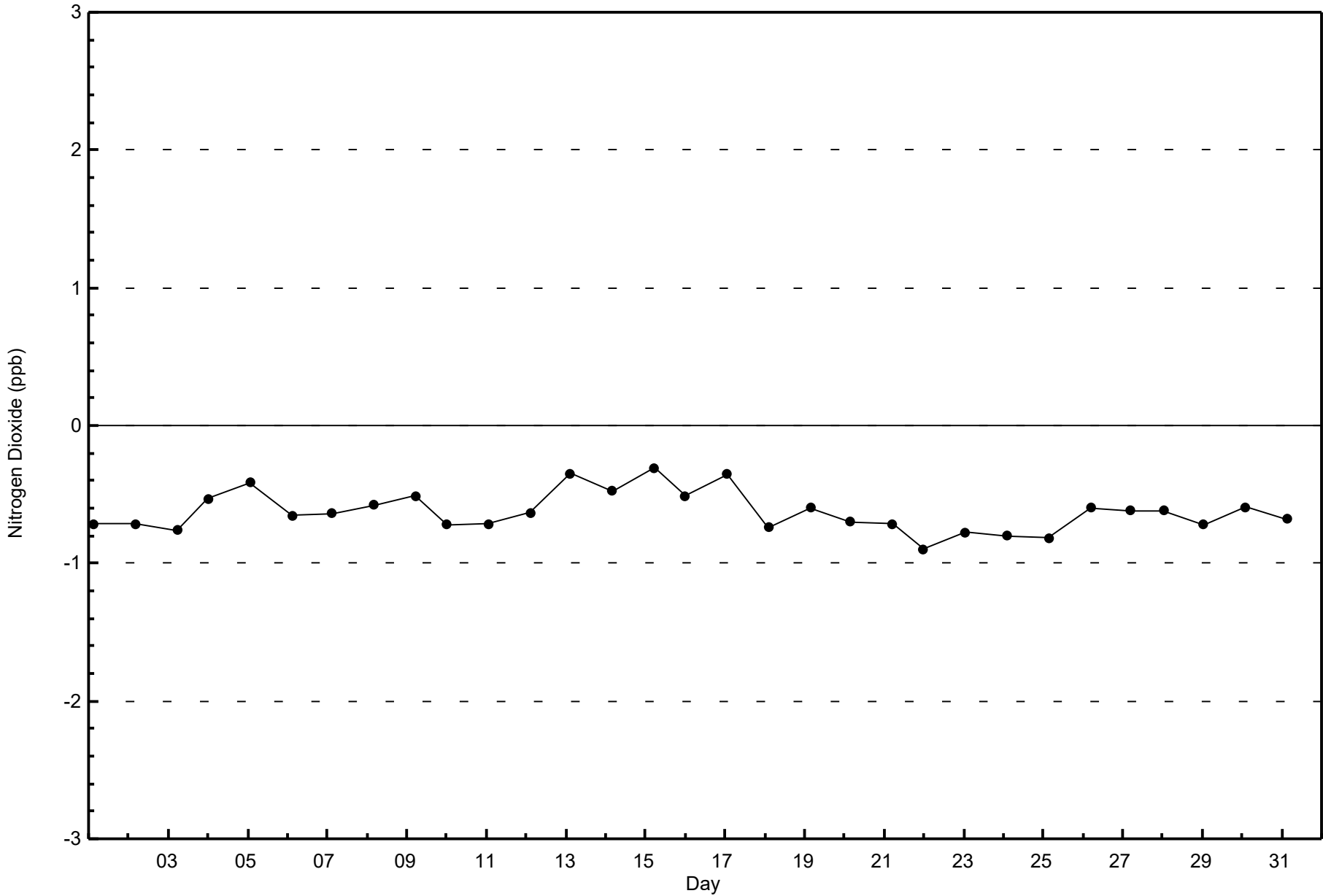
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Patricia McInnes - October 2024**

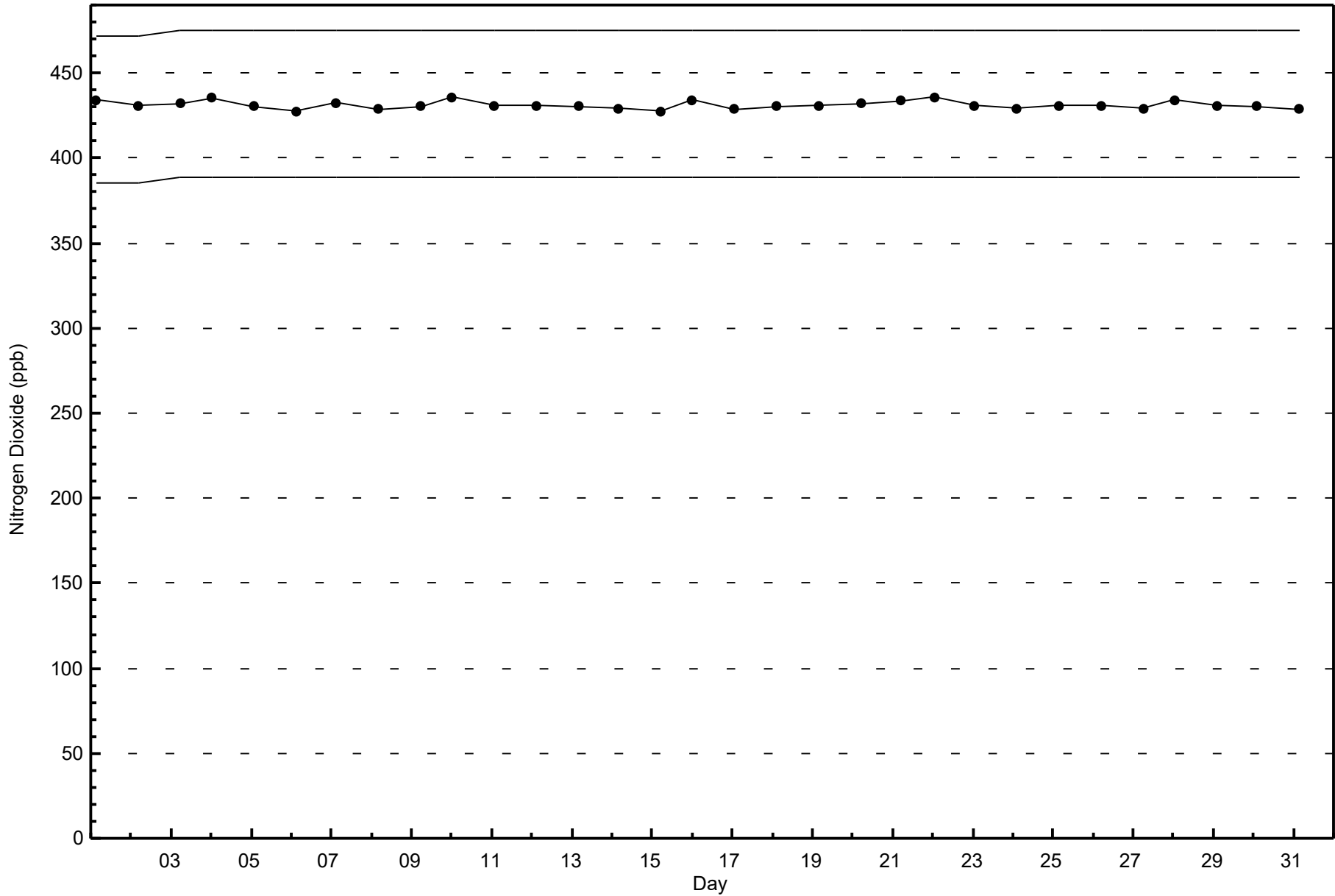
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	42	28	6	27	16	45	64	26	38	56	97	76	66	70	28	21	706
21 - 40	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	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>	42	28	6	27	16	45	65	26	38	56	97	76	66	70	28	21	707

Total Number of Valid Hours: 707

Total Number of Hours: 744









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

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

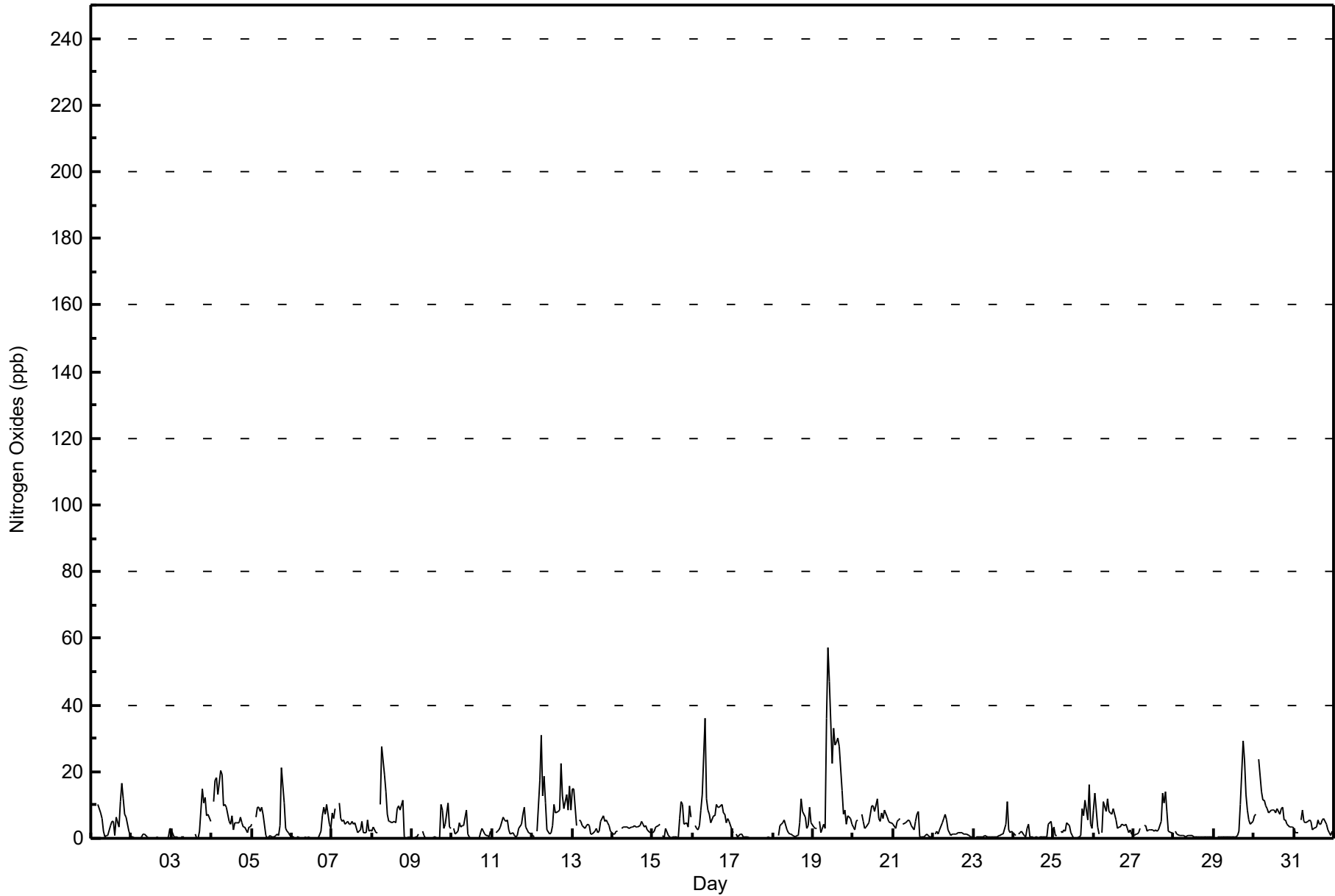
Maximum Value: 57.1 ppb on Oct 19 10:00																				Maximum Daily Average: 16.7 ppb on Oct 19					Hours in Service: 744				
Minimum Value: 0.0 ppb on Oct 2 21:00																				Minimum Daily Average: 0.4 ppb on Oct 17					Hours of Data: 707				
Maximum Diurnal Average: 7.1 ppb at hour 19																				Minimum Diurnal Average: 2.6 ppb at hour 24					Hours of Missing Data: 37				
Monthly Average: 4.42 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.7 Median = 2.9 Q <sub>3</sub> = 5.6 P <sub>90</sub> = 10.1 P <sub>99</sub> = 29.4					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-Oct	0.2	0.2	0.2	Z	10.1	7.5	6.0	1.9	0.4	0.9	0.8	3.9	5.2	5.2	0.7	6.5	3.4	10.9	16.4	11.8	7.2	6.4	2.1	1.0	4.7	16.4			
2-Oct	0.5	0.3	0.2	0.1	Z	0.2	0.4	1.1	1.2	0.3	0.1	0.1	0.2	0.2	0.1	0.5	0.1	0.1	0.2	0.1	0.0	0.0	0.3	2.9	0.4	2.9			
3-Oct	2.5	0.6	0.2	0.2	0.2	Z	0.3	0.3	C	C	C	C	C	C	1.3	0.1	0.1	1.9	14.9	10.4	12.4	6.7	7.0	5.1	--	14.9			
4-Oct	Z	11.2	17.6	18.1	13.2	20.5	19.1	9.9	10.2	9.3	5.2	4.2	6.6	2.6	4.6	4.5	4.5	6.2	4.9	3.3	3.5	1.6	3.4	3.6	8.2	20.5			
5-Oct	4.3	Z	6.4	9.1	9.1	8.0	9.1	7.1	0.9	0.2	0.6	0.7	0.3	0.3	0.8	1.2	0.7	3.8	21.1	10.6	3.1	2.0	1.5	0.9	4.4	21.1			
6-Oct	0.5	0.5	Z	0.3	0.2	0.2	0.1	0.2	0.4	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	2.0	6.6	9.4	7.1	10.3	4.2	2.9	2.0	10.3			
7-Oct	7.7	5.7	8.9	Z	10.4	6.0	5.1	5.3	4.2	5.3	4.3	4.2	5.1	4.2	4.5	1.7	2.3	2.7	5.0	1.7	1.7	5.3	2.2	2.6	4.6	10.4			
8-Oct	2.2	3.2	1.9	1.9	Z	10.3	27.6	18.9	13.9	7.1	5.3	5.0	4.7	5.1	4.8	8.8	9.6	8.5	11.2	0.3	0.0	0.0	0.4	0.1	6.6	27.6			
9-Oct	0.0	0.1	0.4	0.6	1.4	Z	2.2	1.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.0	0.0	10.3	8.4	3.0	4.2	10.8	3.5	3.0	2.2	10.8			
10-Oct	Z	2.8	1.2	2.3	4.7	3.4	3.8	3.9	8.6	1.2	0.5	0.1	0.0	0.2	0.2	0.1	0.2	1.8	3.0	1.3	0.8	0.6	0.6	2.1	1.9	8.6			
11-Oct	1.5	Z	1.7	2.3	2.4	3.5	6.4	5.6	5.0	5.3	2.6	1.4	1.6	0.8	0.6	0.7	2.9	4.3	7.1	9.3	3.3	2.4	1.8	1.3	3.2	9.3			
12-Oct	0.9	0.6	Z	2.0	17.5	30.9	12.6	18.5	10.5	2.5	1.2	1.5	3.9	10.2	7.7	7.9	8.4	22.4	12.7	8.9	13.0	8.5	15.7	8.7	9.9	30.9			
13-Oct	14.8	14.9	3.8	Z	5.6	5.3	3.7	3.0	3.9	4.2	3.9	1.1	1.3	2.1	2.9	1.5	1.9	5.1	6.8	5.3	5.4	4.7	3.8	2.0	4.7	14.9			
14-Oct	1.2	1.4	1.9	2.1	Z	3.2	3.5	3.2	3.3	3.3	2.9	3.6	3.5	3.8	3.5	3.2	3.8	5.0	4.2	3.5	3.9	2.5	1.5	1.8	3.0	5.0			
15-Oct	1.7	2.0	3.6	3.7	4.4	Z	1.0	0.1	3.1	0.9	0.6	0.2	0.5	0.6	0.5	0.2	6.1	11.2	10.0	4.1	4.8	3.2	9.8	6.2	3.4	11.2			
16-Oct	Z	4.0	2.8	2.7	3.8	8.3	13.1	36.1	11.9	8.6	7.2	4.9	6.7	6.8	10.4	9.3	9.3	10.2	7.8	7.1	4.5	6.0	4.9	2.6	8.2	36.1			
17-Oct	1.5	Z	1.2	0.4	1.5	1.4	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	0.4	0.0	0.0	0.0	0.4	1.5			
18-Oct	0.0	0.0	Z	0.7	3.9	4.3	4.8	5.4	2.4	1.7	1.3	1.2	0.8	0.6	0.7	0.9	4.5	11.7	8.0	6.3	3.1	4.0	9.5	4.7	3.5	11.7			
19-Oct	3.6	2.8	3.2	Z	5.2	1.6	4.1	3.1	36.1	57.1	46.9	22.6	33.0	27.9	29.0	30.1	27.4	14.5	7.4	8.3	4.3	7.0	5.8	4.1	16.7	57.1			
20-Oct	3.5	2.3	5.2	5.3	Z	7.2	5.0	3.1	3.4	4.9	7.2	9.6	9.8	8.0	11.9	5.8	4.9	7.4	5.8	8.3	6.4	5.3	4.7	4.6	6.1	11.9			
21-Oct	4.2	3.1	5.2	5.7	6.1	Z	4.2	4.8	5.1	5.6	5.3	3.8	2.7	4.9	7.2	8.0	0.3	0.6	0.5	0.7	1.2	0.7	0.3	0.3	3.5	8.0			
22-Oct	Z	1.2	1.9	1.2	2.7	4.7	6.0	7.2	5.7	2.7	0.9	1.1	1.3	1.4	1.2	1.7	1.6	1.6	1.2	1.2	1.2	1.0	0.6	0.6	2.2	7.2			
23-Oct	0.6	Z	0.5	0.4	0.4	0.3	0.4	1.0	0.4	0.3	0.4	0.4	0.4	0.3	0.6	0.9	0.6	1.2	1.4	4.2	11.1	2.3	1.6	1.9	1.4	11.1			
24-Oct	1.6	0.9	Z	1.2	1.7	2.3	1.0	0.4	2.9	4.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.4	0.3	0.3	0.3	4.2	5.0	1.5	1.3	5.0			
25-Oct	3.5	0.9	1.0	Z	2.0	1.7	2.5	2.0	4.5	3.8	1.7	0.8	0.1	0.0	0.0	0.2	0.8	8.9	6.8	11.5	5.6	16.1	4.2	3.0	3.6	16.1			
26-Oct	8.3	13.6	3.2	1.2	Z	1.6	11.0	7.9	11.8	8.2	7.8	7.3	9.1	5.6	3.0	3.6	3.4	4.2	4.0	4.2	3.0	1.7	2.7	1.1	5.6	13.6			
27-Oct	1.1	1.2	1.4	1.8	3.0	Z	3.8	3.9	2.2	2.7	2.7	2.3	2.1	2.7	2.3	2.5	5.3	13.6	10.8	14.1	7.8	2.3	1.6	1.8	4.0	14.1			
28-Oct	Z	2.1	1.1	0.8	0.7	0.8	0.9	0.5	0.8	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.6	0.3	0.3	0.6	2.1			
29-Oct	0.2	Z	0.5	0.3	0.2	0.3	0.2	0.2	0.2	0.5	0.5	0.2	0.5	0.2	0.6	2.0	10.3	29.4	23.2	13.1	8.3	5.6	4.2	5.0	4.6	29.4			
30-Oct	6.7	7.2	Z	23.7	14.0	11.4	11.6	9.8	8.8	7.6	8.6	8.4	8.5	7.7	9.0	7.0	8.8	9.2	5.7	5.5	4.2	3.3	3.5	3.3	8.4	23.7			
31-Oct	2.9	1.6	1.9	Z	5.3	8.6	5.3	4.8	5.1	5.3	5.1	2.5	2.8	3.5	5.6	4.4	4.4	5.6	5.7	4.2	2.7	1.7	1.0	2.1	4.0	8.6			
2.9 3.3 3.0 3.5 5.0 5.9 5.6 5.5 5.6 5.2 4.2 3.1 3.7 3.5 3.7 3.7 4.1 6.9 7.1 5.6 4.3 4.1 3.5 2.6																								Diurnal Average					
14.8 14.9 17.6 23.7 17.5 30.9 27.6 36.1 36.1 57.1 46.9 22.6 33.0 27.9 29.0 30.1 27.4 29.4 23.2 14.1 13.0 16.1 15.7 8.7																								Diurnal Maximum					
Z - zerospan C - Calibration																													





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

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	690	97.60	97.60
21 - 40	15	2.12	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Patricia McInnes - October 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	41	24	5	27	16	43	64	25	35	55	97	76	65	70	26	21	690
21 - 40	1	4	1	0	0	2	1	1	3	1	0	0	0	0	1	0	15
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>42</b>	<b>28</b>	<b>6</b>	<b>27</b>	<b>16</b>	<b>45</b>	<b>65</b>	<b>26</b>	<b>38</b>	<b>56</b>	<b>97</b>	<b>76</b>	<b>66</b>	<b>70</b>	<b>28</b>	<b>21</b>	<b>707</b>

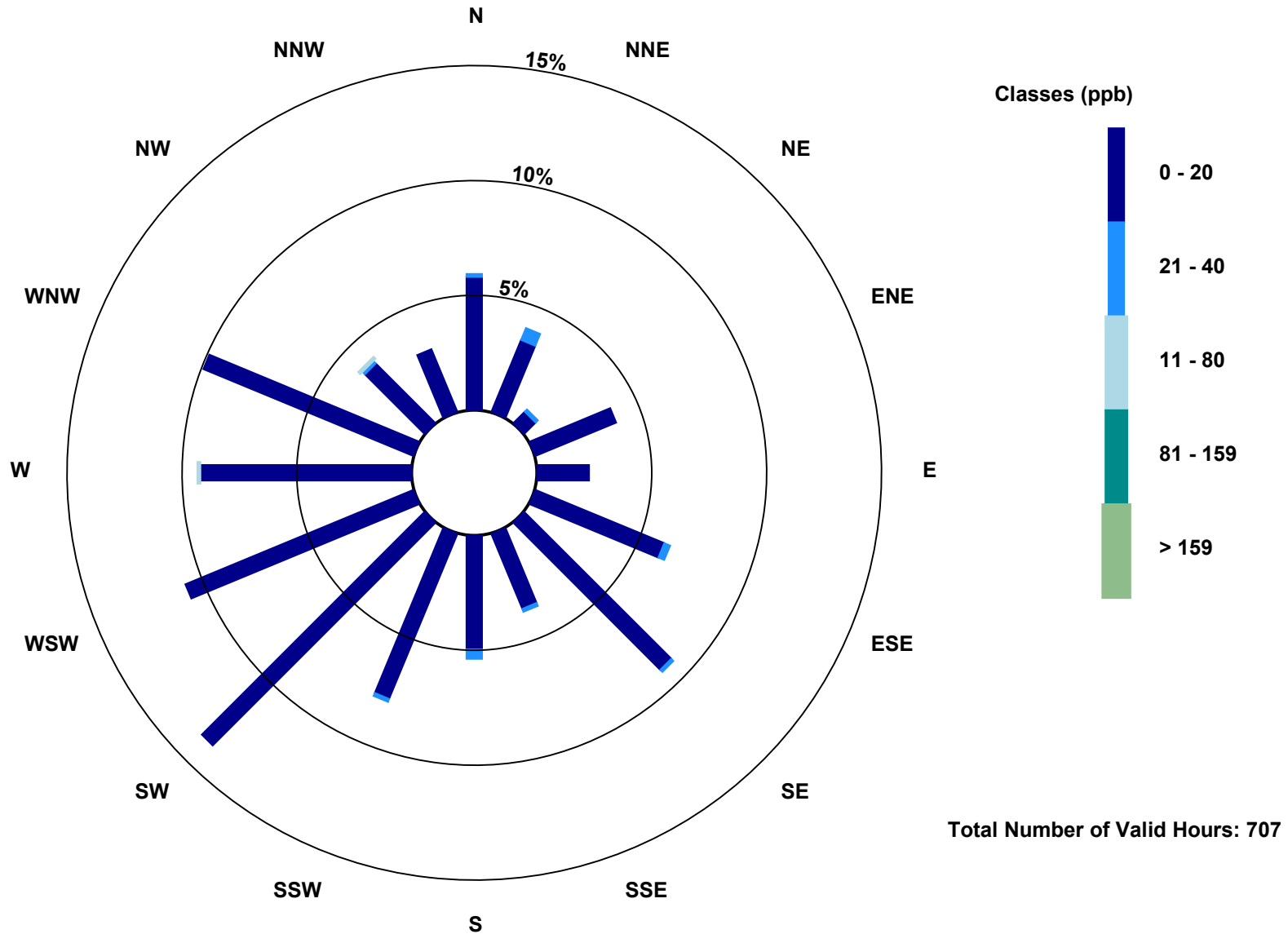
Total Number of Valid Hours: 707

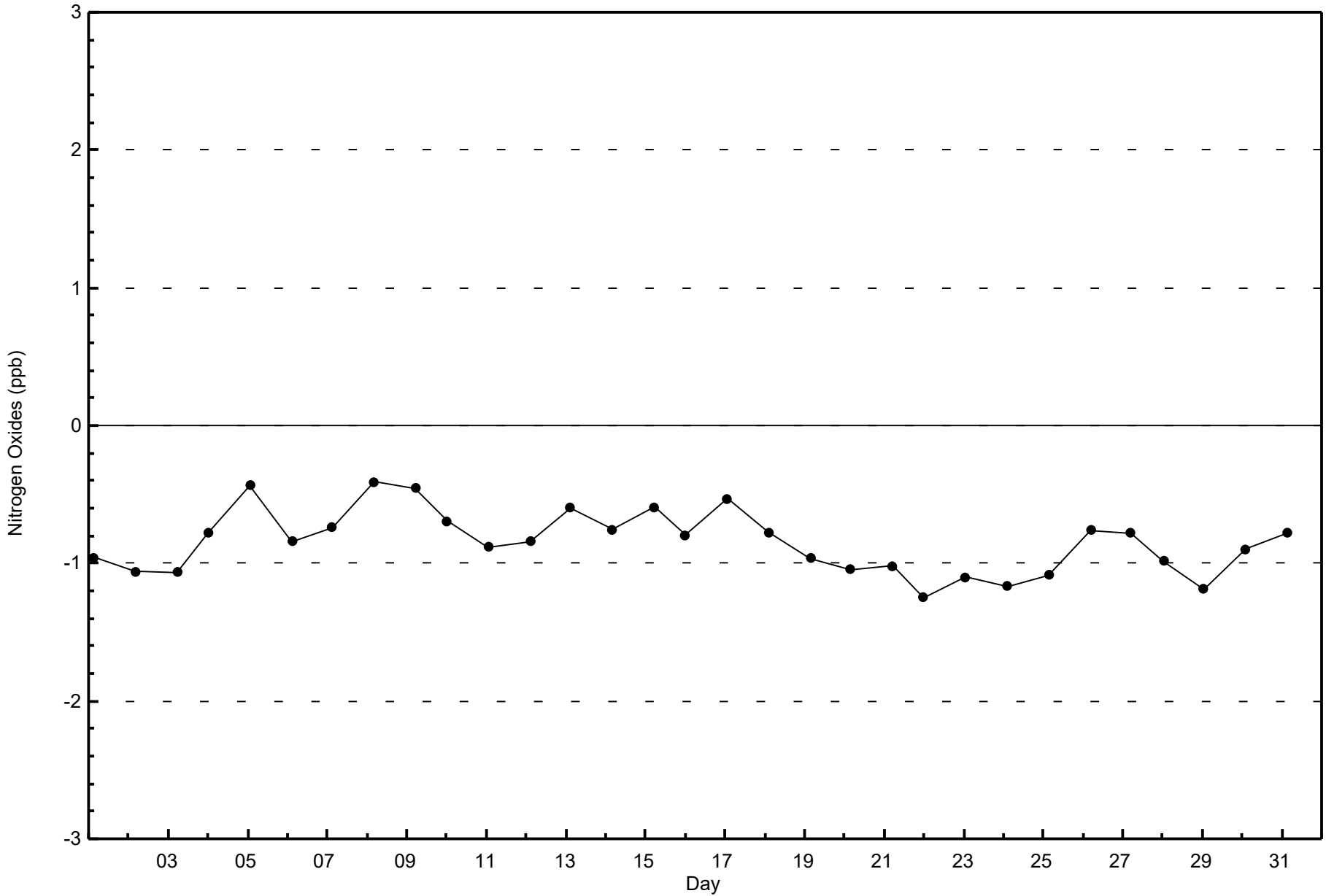
Total Number of Hours: 744

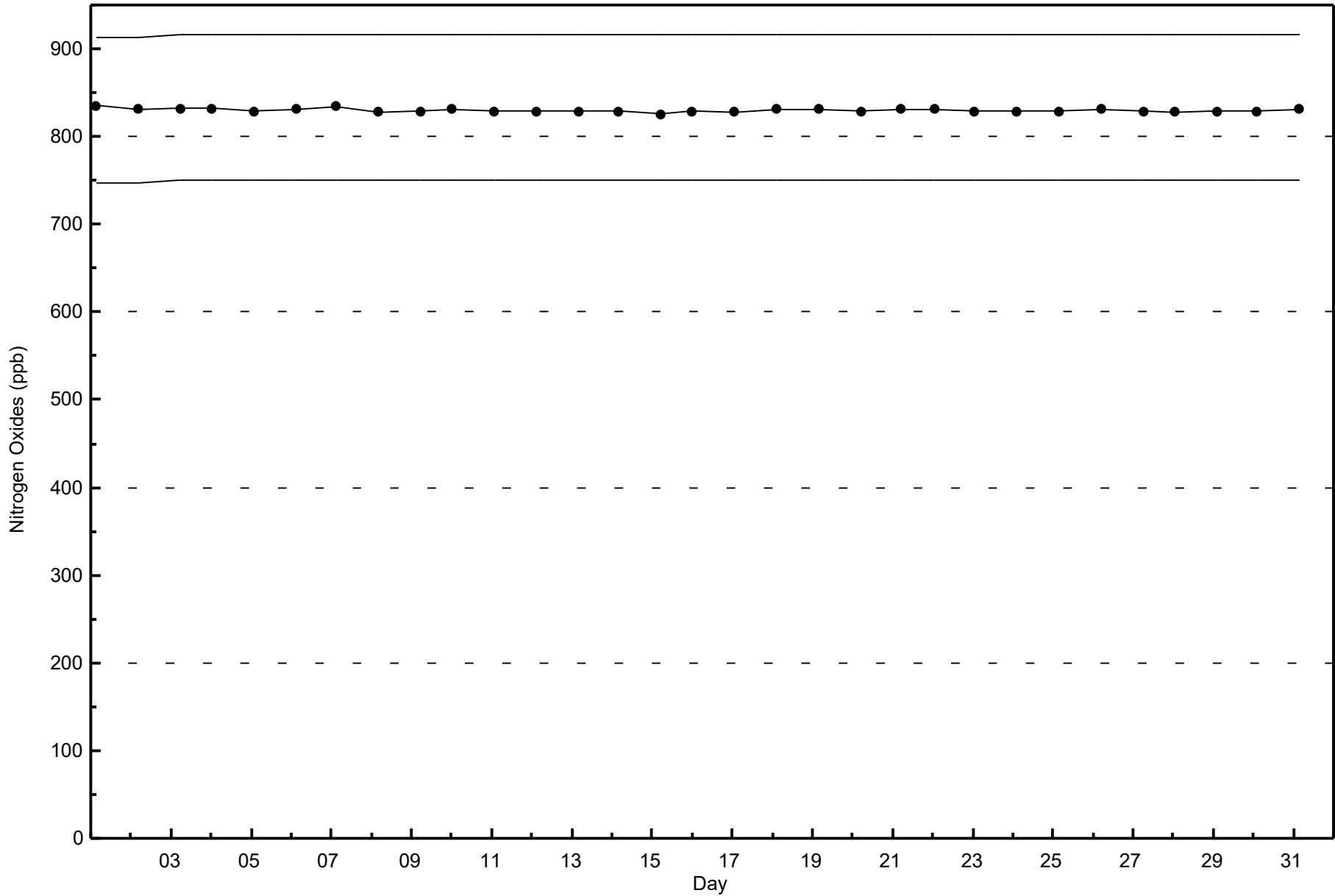


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

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

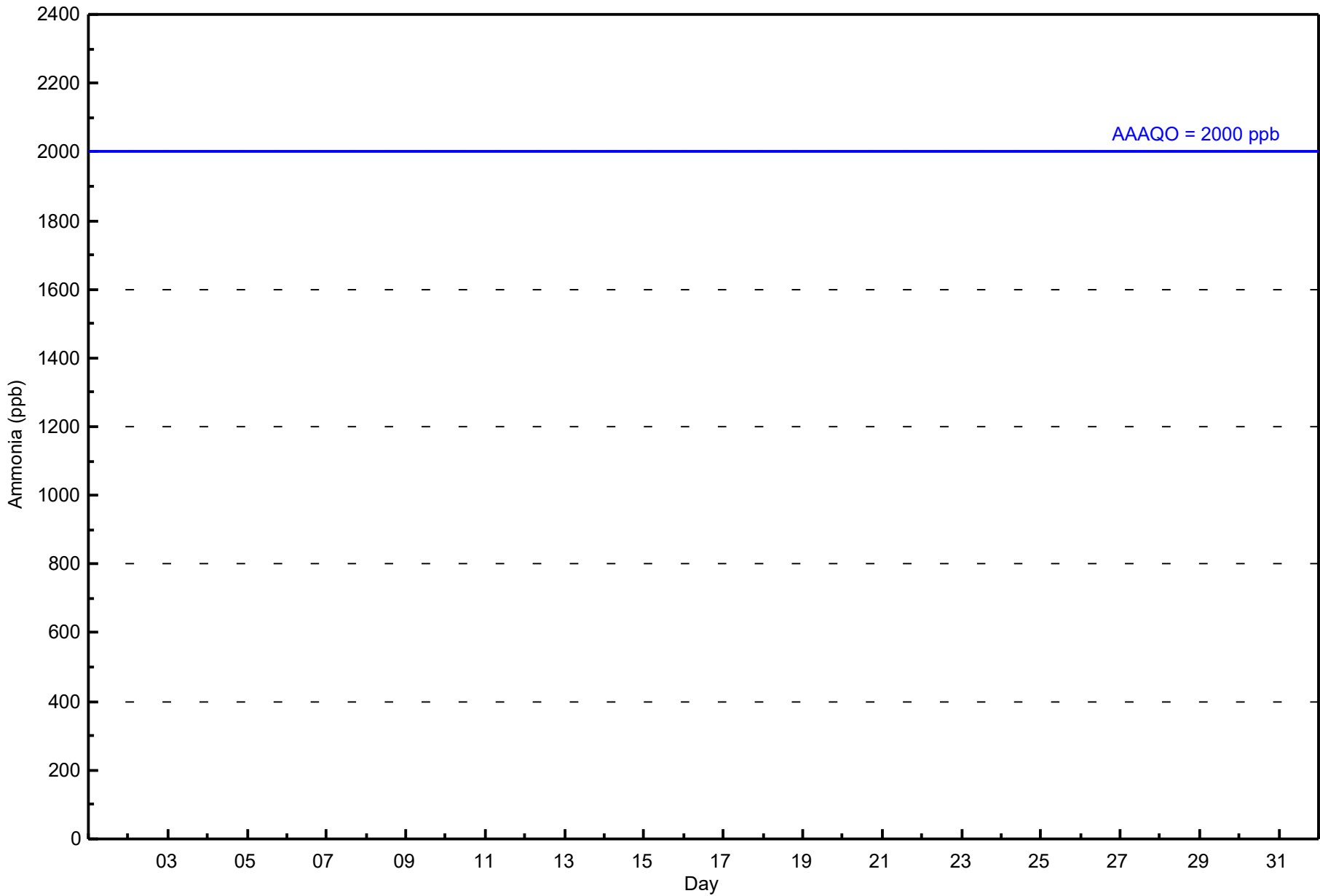
Patricia McInnes - October 2024

Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744																									
Maximum Value: 0.0 ppb on Oct 1 01:00		Maximum Daily Average: 0.0 ppb on Oct 1																									
Minimum Value: 0.0 ppb on Oct 1 01:00		Hours of Data: 654																									
Maximum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 90																									
Monthly Average: 0.00 ppb		Hours of Calibration: 44																									
Minimum Daily Average: 0.0 ppb on Oct 1		Percent Operational Time: 93.8																									
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-Oct	0.0	0.0	Z	RE	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-Oct	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
3-Oct	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
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	RE	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
5-Oct	Z	RE	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-Oct	0.0	Z	RE	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-Oct	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
8-Oct	0.0	0.0	0.0	Z	RE	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-Oct	0.0	0.0	0.0	0.0	Z	RE	RE	0.0	C	C	C	C	C	C	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0
10-Oct	0.0	0.0	0.0	0.0	0.0	Z	RE	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
11-Oct	Z	RE	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
12-Oct	0.0	Z	RE	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-Oct	0.0	0.0	Z	RE	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-Oct	0.0	0.0	0.0	Z	RE	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-Oct	0.0	0.0	0.0	0.0	Z	RE	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-Oct	0.0	0.0	0.0	0.0	0.0	Z	RE	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
17-Oct	Z	RE	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-Oct	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
19-Oct	0.0	0.0	Z	RE	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-Oct	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
21-Oct	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
22-Oct	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
23-Oct	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
24-Oct	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
25-Oct	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
26-Oct	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
27-Oct	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
28-Oct	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
29-Oct	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
30-Oct	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
31-Oct	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																								Diurnal Average			
0.0																								Diurnal Maximum			
Z - zerospan C - Calibration RE - Recovery																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 2000 ppb																											



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

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







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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	654	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: 654

Total Number of Hours: 744



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

**Ammonia (NH<sub>3</sub>) - ppb**  
**Patricia McInnes - October 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 - 5	38	28	6	27	16	44	58	24	36	51	85	66	61	65	30	19	654
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>	38	28	6	27	16	44	58	24	36	51	85	66	61	65	30	19	654

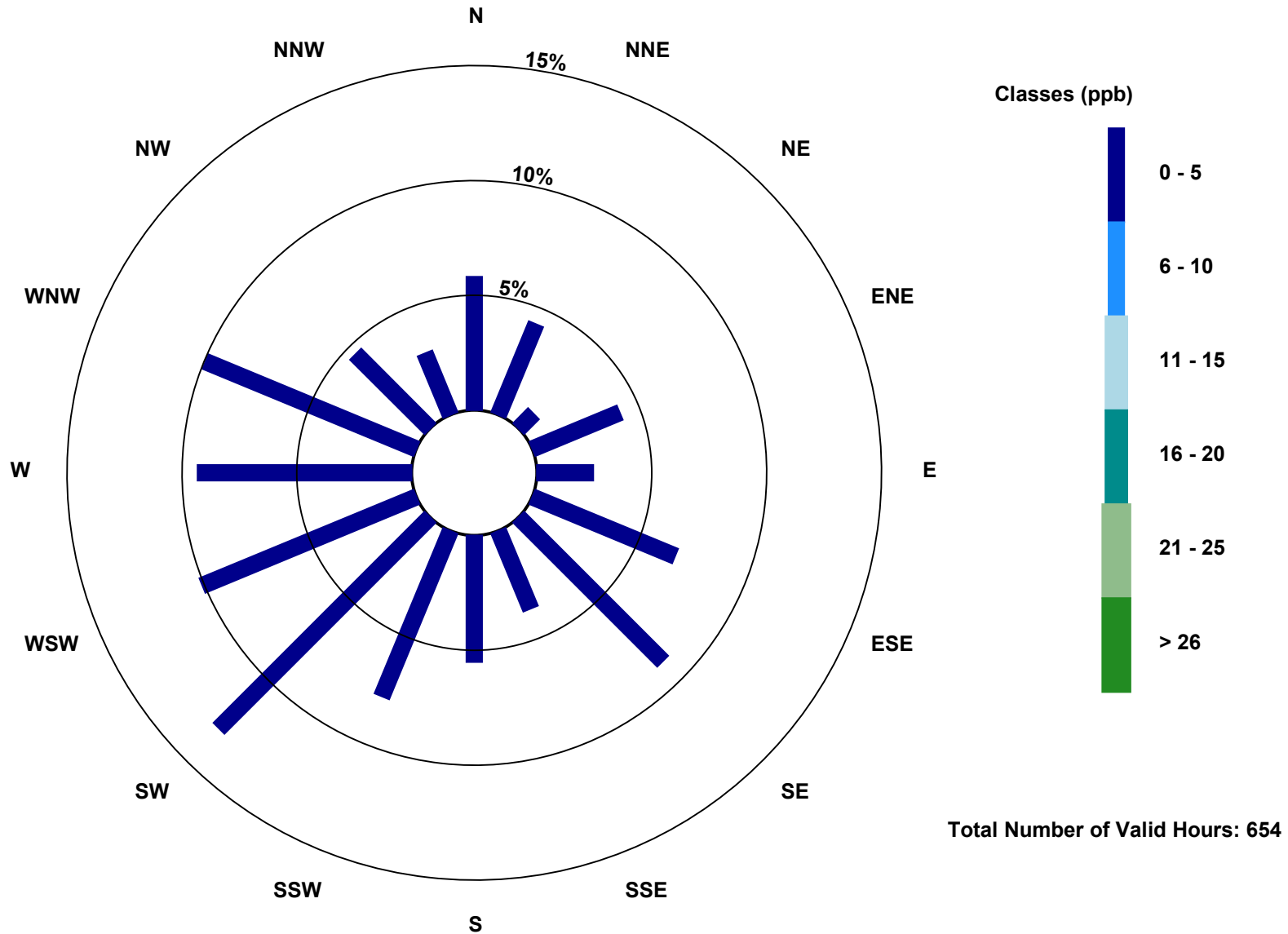
Total Number of Valid Hours: 654

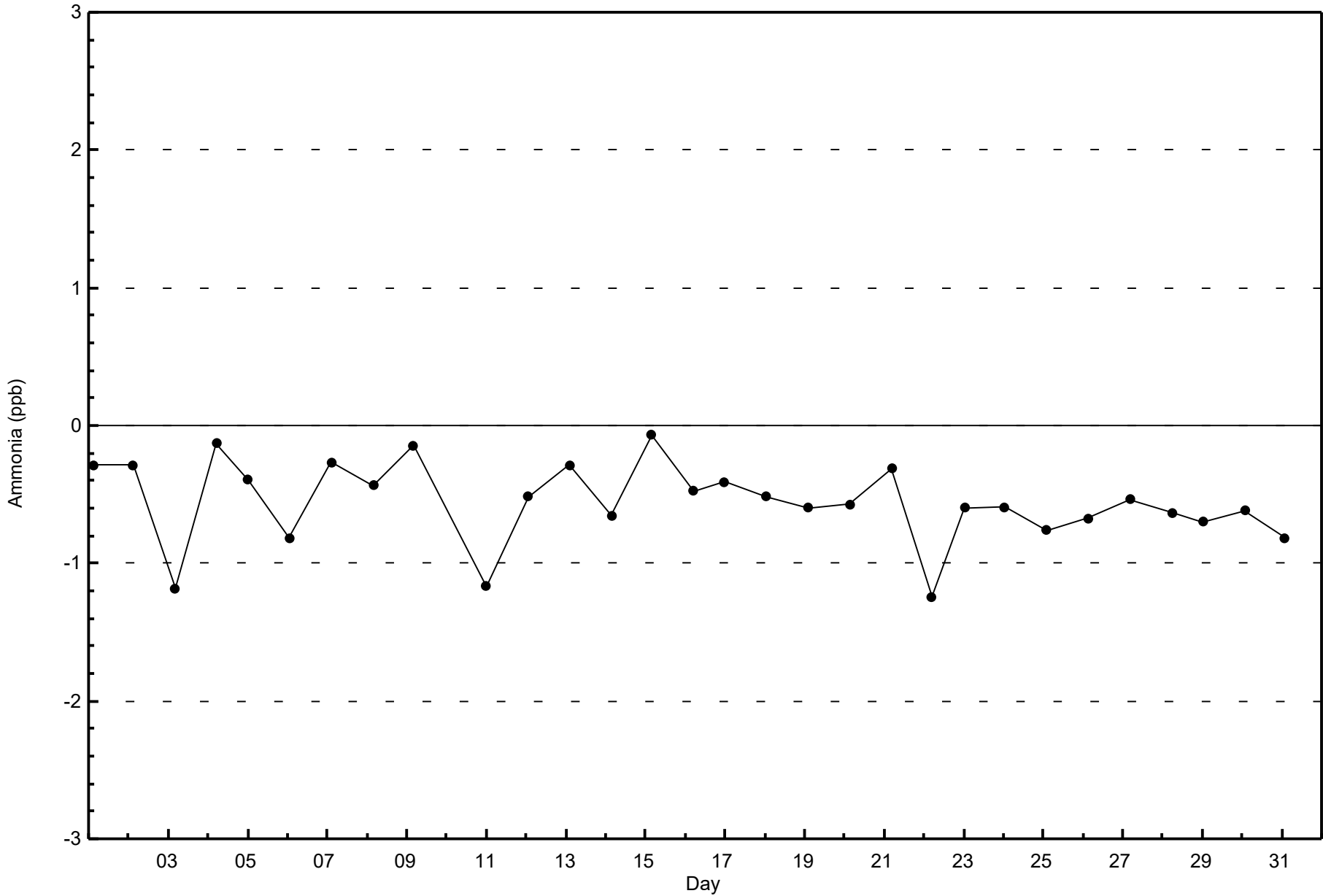
Total Number of Hours: 744

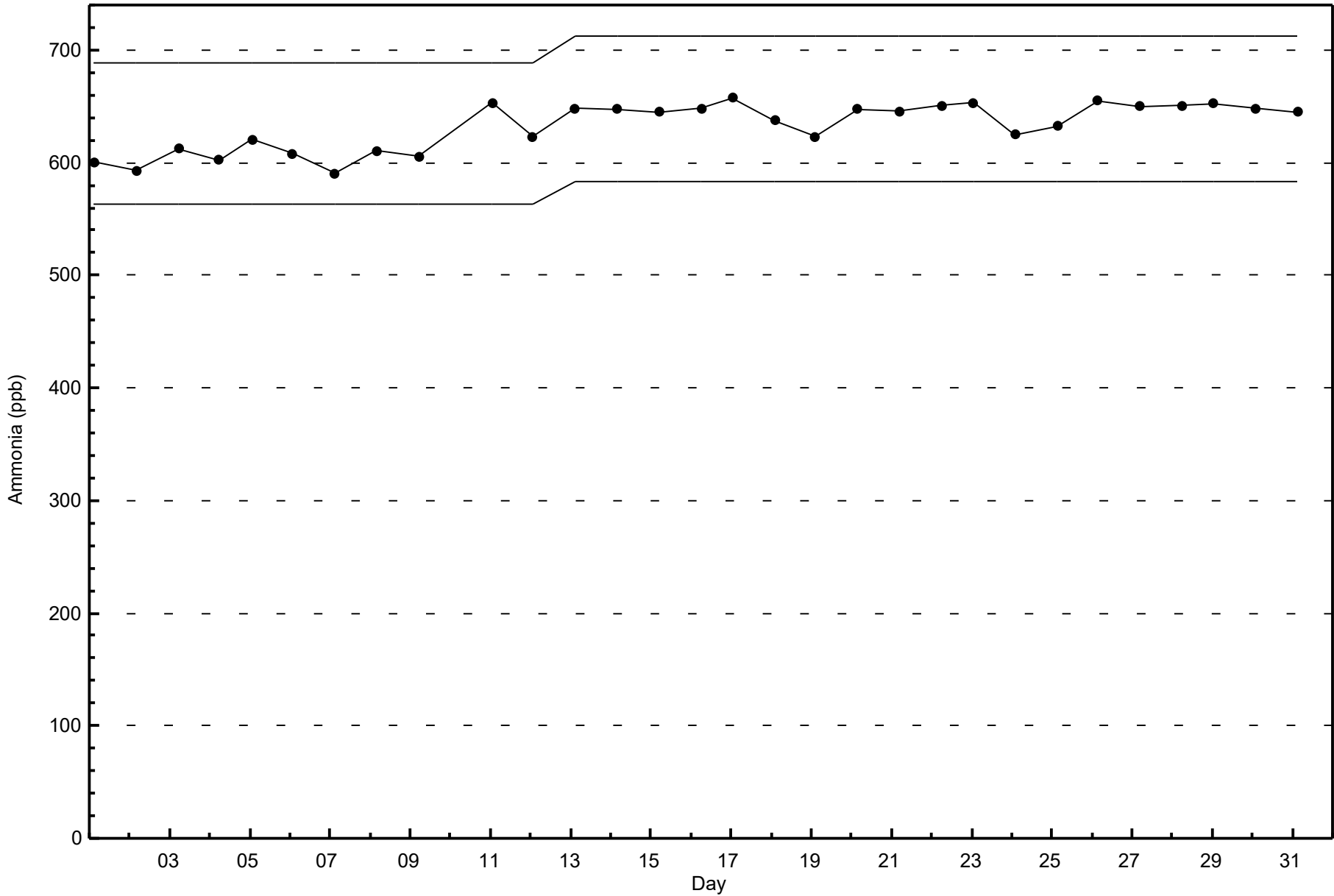


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

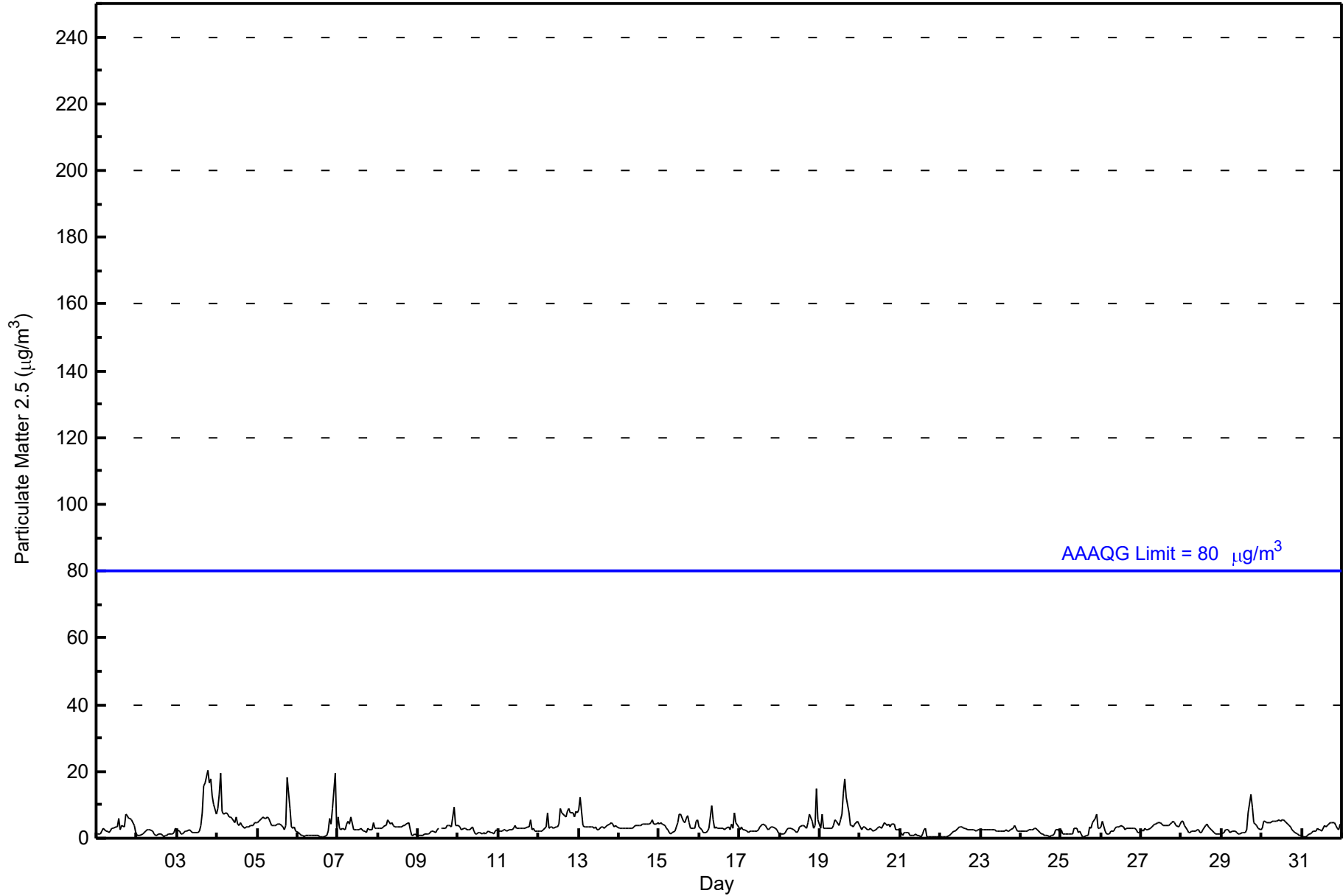
Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Patricia McInnes - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 20.1 µg/m <sup>3</sup> on Oct 3 19:00	Maximum Daily Average: 6.4 µg/m <sup>3</sup> on Oct 3		Hours of Data:	743
Minimum Value: 0.3 µg/m <sup>3</sup> on Oct 21 18:00	Minimum Daily Average: 1.1 µg/m <sup>3</sup> on Oct 21		Hours of Missing Data:	1
Maximum Diurnal Average: 4.7 µg/m <sup>3</sup> at hour 19	Minimum Diurnal Average: 2.6 µg/m <sup>3</sup> at hour 4		Hours of Calibration:	1
Monthly Average: 3.34 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 2.0 Median = 2.9 Q <sub>3</sub> = 3.9 P <sub>90</sub> = 5.6 P <sub>99</sub> = 16.0		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-Oct	1.4	1.4	1.5	2.2	2.8	2.2	2.3	1.9	2.1	3.1	3.1	3.5	3.6	5.9	2.5	3.7	3.3	7.4	6.8	6.1	5.9	5.6	3.8	1.7	3.5	7.4																						
2-Oct	1.0	0.9	1.0	1.3	1.6	2.0	2.5	2.7	2.3	2.2	1.3	0.9	0.8	1.4	1.2	0.6	0.6	0.7	0.9	1.2	1.3	1.4	1.6	2.9	1.4	2.9																						
3-Oct	2.7	1.9	1.2	1.3	1.6	2.0	2.1	2.4	2.3	1.7	1.7	1.5	1.6	2.0	3.7	7.6	15.6	16.6	20.1	16.4	17.8	12.5	10.2	7.4	6.4	20.1																						
4-Oct	8.8	13.2	19.3	8.0	7.0	7.4	7.3	6.4	6.4	5.9	4.8	6.3	4.1	3.6	4.5	4.0	3.1	3.4	3.5	3.6	3.6	3.6	4.8	4.6	6.1	19.3																						
5-Oct	4.5	5.0	5.8	6.2	6.0	5.9	6.4	5.8	3.9	3.8	3.8	3.9	4.0	4.1	3.8	3.4	2.4	3.8	18.4	8.7	3.3	2.9	3.4	2.1	5.1	18.4																						
6-Oct	1.5	1.1	0.9	0.7	0.6	0.8	0.9	0.8	0.8	1.0	1.0	0.9	0.7	0.6	0.5	0.6	0.5	0.8	2.3	5.9	4.1	9.1	19.5	2.5	2.4	19.5																						
7-Oct	6.5	2.8	2.4	2.8	2.7	4.1	5.1	4.3	6.2	2.5	2.3	2.4	2.5	2.5	2.8	2.2	2.0	1.8	2.8	2.5	2.7	4.6	3.1	3.0	3.2	6.5																						
8-Oct	3.0	3.0	3.1	3.3	3.8	3.7	5.4	4.4	4.5	3.7	3.4	3.5	3.6	3.5	3.5	3.6	4.0	4.1	4.7	2.6	0.9	0.9	1.1	0.9	3.3	5.4																						
9-Oct	0.9	0.9	0.8	1.0	1.1	1.3	1.4	1.6	2.1	2.2	1.7	2.5	2.9	C	2.9	2.9	2.9	3.6	3.9	3.6	3.3	9.4	4.0	3.8	2.6	9.4																						
10-Oct	3.6	3.2	2.7	3.0	3.1	2.7	2.6	2.6	3.2	2.0	1.5	1.4	1.5	1.8	1.5	1.5	1.5	1.7	1.9	1.7	1.7	1.5	1.9	2.6	2.2	3.6																						
11-Oct	2.1	2.2	2.3	2.3	2.3	2.3	2.6	2.6	2.8	3.0	3.7	3.1	2.9	2.9	2.9	2.8	3.1	3.2	3.6	5.3	2.6	2.8	2.3	2.1	2.8	5.3																						
12-Oct	2.1	2.0	2.2	2.4	3.4	7.6	3.1	3.5	3.5	3.0	3.3	3.5	4.4	9.0	7.8	6.8	6.5	8.2	8.7	7.6	7.5	6.2	8.0	7.5	5.3	9.0																						
13-Oct	8.3	12.2	3.9	3.4	3.3	3.2	3.2	3.3	3.3	3.1	3.4	2.7	2.6	3.2	3.5	3.1	3.4	3.7	4.3	4.6	4.3	3.6	3.9	3.4	4.0	12.2																						
14-Oct	3.0	2.9	3.0	3.0	3.0	3.1	3.0	3.1	3.1	3.3	3.6	3.8	3.8	3.9	4.1	4.2	4.4	4.4	4.4	4.7	5.5	4.3	4.2	4.8	3.8	5.5																						
15-Oct	4.1	4.7	4.4	4.0	3.1	2.3	1.7	1.4	1.8	2.0	3.3	4.8	7.2	7.3	4.9	4.5	6.0	6.6	4.8	2.9	2.9	2.9	5.2	5.6	4.1	7.3																						
16-Oct	3.5	2.7	1.6	1.6	1.7	2.3	2.9	9.9	5.5	3.0	3.2	2.9	3.2	2.9	3.2	2.7	3.1	3.2	2.7	4.2	3.1	7.6	4.7	3.5	3.5	9.9																						
17-Oct	2.7	3.2	2.6	2.5	2.1	1.6	2.0	2.3	1.9	2.2	2.2	2.6	3.3	4.0	4.3	3.6	3.1	2.7	3.0	3.5	3.2	3.2	2.4	1.8	2.7	4.3																						
18-Oct	1.1	1.1	1.4	1.6	2.4	2.8	3.0	3.0	2.6	1.9	1.7	2.3	3.3	3.7	3.7	3.4	3.0	4.6	7.4	5.0	2.9	3.8	14.9	5.5	3.6	14.9																						
19-Oct	2.8	7.1	2.8	3.0	3.1	2.8	3.2	3.0	4.0	5.5	5.2	3.8	5.5	7.1	13.4	17.8	12.1	7.5	4.0	3.8	3.4	4.4	4.9	4.1	5.6	17.8																						
20-Oct	3.5	2.5	3.4	3.2	2.7	2.6	2.8	2.4	2.1	2.5	2.8	3.3	3.4	3.1	4.6	4.2	3.8	4.2	3.2	4.1	4.1	2.7	2.5	2.7	3.2	4.6																						
21-Oct	1.9	1.0	1.6	1.6	1.6	1.7	0.9	0.9	1.0	1.2	0.9	0.8	0.5	1.3	2.5	3.1	0.4	0.3	0.3	0.4	0.5	0.6	0.6	0.5	1.1	3.1																						
22-Oct	0.6	0.6	0.6	0.5	0.6	0.8	1.2	1.8	2.0	2.3	3.0	3.4	3.3	3.2	3.0	2.8	2.6	2.4	2.5	2.4	2.5	2.3	2.4	2.4	2.0	3.4																						
23-Oct	2.4	2.4	2.4	2.5	2.3	2.4	2.4	2.4	2.4	2.3	2.2	2.1	2.1	2.0	2.2	2.3	2.3	2.3	2.4	2.8	3.9	2.9	2.2	2.3	2.4	3.9																						
24-Oct	2.1	2.0	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.0	2.5	1.8	1.4	1.4	1.0	0.8	0.8	0.5	0.6	1.0	1.3	2.5	2.4	1.3	1.8	3.0																						
25-Oct	2.4	1.2	1.2	1.4	1.1	1.1	1.1	1.1	3.1	3.1	1.8	2.1	1.1	0.6	0.5	0.6	0.8	3.5	2.8	4.7	5.7	7.0	2.8	2.9	2.2	7.0																						
26-Oct	3.6	4.9	2.1	1.1	1.3	1.2	2.3	2.1	2.8	3.3	3.5	3.5	3.8	3.3	2.7	3.1	3.0	3.0	3.1	3.1	2.9	2.5	1.9	1.7	2.7	4.9																						
27-Oct	2.3	2.1	2.9	2.4	2.6	2.9	3.3	3.7	4.1	4.2	4.7	4.6	4.1	3.9	3.9	3.9	3.7	4.1	4.9	4.9	4.7	3.7	3.3	4.1	3.7	4.9																						
28-Oct	5.2	5.0	3.7	2.6	1.8	1.9	2.1	2.2	2.3	2.3	2.3	1.8	1.5	2.6	3.7	4.0	3.5	3.1	2.4	1.7	1.4	1.1	1.1	1.2	2.5	5.2																						
29-Oct	1.4	1.8	2.5	2.6	2.6	1.6	2.0	2.2	2.1	1.7	1.2	1.3	1.5	1.7	1.9	2.7	7.6	13.3	9.2	4.9	4.4	3.9	3.0	2.7	3.3	13.3																						
30-Oct	2.8	5.0	5.0	4.7	4.5	4.7	5.1	5.1	5.0	5.0	5.4	5.1	5.6	5.5	5.1	4.2	3.8	3.3	2.6	1.9	1.7	1.1	0.9	0.8	3.9	5.6																						
31-Oct	0.7	0.6	0.6	1.0	1.3	1.5	1.7	2.0	2.0	2.9	2.4	2.6	2.2	3.7	3.5	3.8	4.2	4.6	4.7	4.5	3.8	2.9	2.7	4.3	2.7	4.7																						
																								3.0	3.2	2.9	2.6	2.6	2.7	2.9	3.0	3.0	2.9	2.8	2.9	3.0	3.4	3.5	3.7	3.8	4.3	4.7	4.2	3.8	4.0	4.2	3.1	Diurnal Average
																								8.8	13.2	19.3	8.0	7.0	7.6	7.3	9.9	6.4	5.9	5.4	6.3	7.2	9.0	13.4	17.8	15.6	16.6	20.1	16.4	17.8	12.5	19.5	7.5	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>) -  $\mu\text{g}/\text{m}^3$**   
**Patricia McInnes - October 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	664	89.37	89.37
6 - 15	70	9.42	98.79
16 - 25	9	1.21	100.00
26 - 80	0	0.00	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>) -  $\mu\text{g}/\text{m}^3$**   
**Patricia McInnes - October 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	41	21	5	25	15	39	57	19	31	53	92	80	63	74	31	18	664
6 - 15	4	6	1	2	2	6	11	7	9	5	6	0	4	2	1	4	70
16 - 25	0	1	0	0	0	0	0	2	0	0	4	0	2	0	0	0	9
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>	45	28	6	27	17	45	68	28	40	58	102	80	69	76	32	22	743

Total Number of Valid Hours: 743

Total Number of Hours: 744





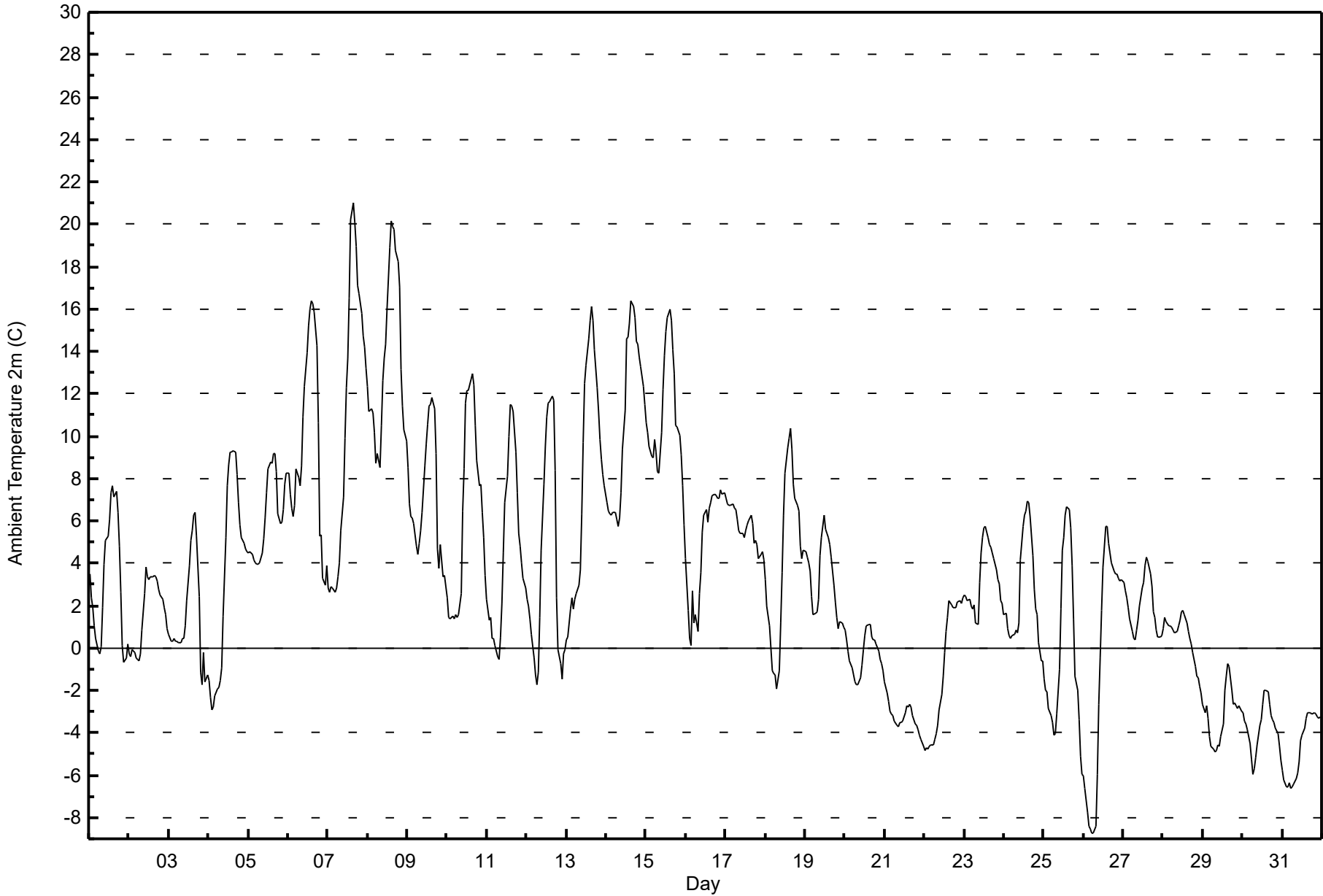
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**

**Patricia McInnes - October 2024**

Maximum Value: 21.0 C on Oct 7 16:00		Maximum Daily Average: 13.6 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -8.7 C on Oct 26 06:00		Minimum Daily Average: -4.7 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 7.7 C at hour 16		Minimum Diurnal Average: 0.5 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: 3.56 C		Percentiles: P <sub>1</sub> = -6.6 P <sub>10</sub> = -3.4 Q <sub>1</sub> = -0.3 Median = 2.9 Q <sub>3</sub> = 6.8 P <sub>90</sub> = 11.5 P <sub>99</sub> = 18.8		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-Oct	3.5	2.4	1.9	1.1	0.5	-0.1	-0.3	0.1	1.9	4.0	5.1	5.3	6.1	7.3	7.7	7.1	7.4	6.4	4.8	2.7	0.1	-0.7	-0.5	0.2	3.1	7.7																						
2-Oct	-0.3	-0.4	-0.1	-0.2	-0.5	-0.5	-0.6	-0.3	0.9	2.6	3.8	3.4	3.2	3.3	3.4	3.4	3.4	3.1	2.7	2.5	2.3	1.9	1.6	0.9	1.7	3.8																						
3-Oct	0.6	0.3	0.3	0.5	0.4	0.3	0.2	0.3	0.5	0.5	1.0	2.2	3.9	5.1	5.6	6.3	6.4	5.3	2.4	-1.1	-1.7	-0.2	-1.6	-1.2	1.5	6.4																						
4-Oct	-1.5	-2.3	-2.9	-2.8	-2.2	-1.9	-1.8	-1.5	-0.9	1.5	5.2	7.7	8.7	9.3	9.3	9.2	8.2	6.9	5.8	5.2	5.0	4.7	4.5	3.4	9.3	9.3																						
5-Oct	4.5	4.6	4.4	4.1	4.0	4.0	4.0	4.0	4.5	5.2	6.1	7.3	8.4	8.8	8.7	9.2	9.2	8.3	6.4	5.9	6.0	6.5	7.7	8.3	6.3	9.2																						
6-Oct	8.2	7.3	6.6	6.2	6.8	8.4	8.1	7.7	8.6	10.9	12.4	13.9	15.2	16.0	16.4	16.3	15.9	14.2	10.6	5.3	5.4	3.3	3.0	3.9	9.6	16.4																						
7-Oct	2.8	2.6	2.9	2.8	2.6	2.9	3.3	4.0	5.6	7.1	9.9	12.3	13.7	16.5	20.2	21.0	20.1	19.0	17.1	16.7	15.8	14.7	14.2	13.2	10.9	21.0																						
8-Oct	12.4	11.2	11.3	11.1	10.2	8.7	9.2	8.5	10.5	12.6	13.7	14.3	16.0	18.9	20.2	19.9	19.8	18.7	18.3	17.1	13.2	11.4	10.3	9.8	13.6	20.2																						
9-Oct	8.5	6.8	6.2	6.1	5.9	4.8	4.4	5.0	5.6	6.4	8.6	9.6	10.6	11.5	11.5	11.8	11.3	9.2	4.7	3.7	4.9	3.4	3.4	2.9	6.9	11.8																						
10-Oct	2.4	1.5	1.4	1.5	1.4	1.5	1.5	1.6	2.6	6.5	8.5	11.6	12.1	12.1	12.7	12.9	12.4	10.5	8.8	7.7	7.7	6.4	5.2	3.4	6.4	12.9																						
11-Oct	2.3	1.3	1.4	0.5	0.5	0.1	-0.4	-0.5	0.5	2.1	4.5	6.9	8.1	10.0	11.5	11.4	11.1	9.2	7.3	5.4	4.8	4.0	3.3	2.8	4.5	11.5																						
12-Oct	2.3	2.0	1.4	0.6	-0.5	-1.2	-1.7	-1.1	1.4	4.6	7.7	9.5	10.9	11.5	11.6	11.9	11.7	8.4	2.3	0.0	-0.8	-1.5	-0.3	-0.1	3.8	11.9																						
13-Oct	0.4	0.5	1.8	2.3	1.9	2.3	2.5	2.9	3.7	6.3	9.7	12.5	13.3	14.6	15.5	16.1	15.5	14.1	12.3	11.2	9.8	8.9	8.2	7.7	8.1	16.1																						
14-Oct	6.9	6.5	6.3	6.2	6.4	6.4	6.1	5.7	6.1	7.3	9.4	11.2	14.6	14.7	15.3	16.4	16.1	15.6	14.5	14.3	13.7	13.3	12.3	11.5	10.7	16.4																						
15-Oct	10.7	10.2	9.5	9.0	9.0	9.8	9.2	8.3	8.2	10.2	12.2	13.8	14.9	15.6	16.0	15.4	14.1	12.9	10.5	10.4	10.0	9.1	7.7	5.8	10.9	16.0																						
16-Oct	4.2	1.7	0.5	0.1	2.7	1.2	1.6	0.8	2.5	3.6	5.5	6.3	6.6	5.9	6.6	6.9	7.2	7.3	7.2	7.1	7.1	7.4	7.3	7.3	4.8	7.4																						
17-Oct	7.1	6.8	6.7	6.7	6.8	6.6	6.5	6.1	5.6	5.4	5.4	5.2	5.6	5.8	6.0	6.3	5.8	5.0	5.1	4.9	4.3	4.4	4.6	4.2	5.7	7.1																						
18-Oct	3.2	2.0	1.1	0.0	-1.1	-1.2	-1.3	-1.9	-1.1	1.2	3.5	6.3	8.2	9.5	9.9	10.3	9.4	7.7	7.0	6.7	6.5	4.8	4.2	4.6	4.2	10.3																						
19-Oct	4.5	4.3	4.0	3.6	2.4	1.6	1.7	1.7	2.3	4.3	5.2	6.2	5.6	5.4	5.2	4.9	4.3	3.0	2.2	1.5	0.9	1.2	1.2	1.0	3.3	6.2																						
20-Oct	0.8	0.4	-0.2	-0.6	-0.9	-1.2	-1.6	-1.8	-1.8	-1.4	-0.8	-0.1	0.6	1.0	1.1	1.1	0.5	0.4	0.4	0.2	-0.1	-0.6	-0.7	-1.1	-0.3	1.1																						
21-Oct	-1.6	-2.1	-2.5	-3.0	-3.1	-3.2	-3.5	-3.7	-3.7	-3.5	-3.5	-3.4	-3.0	-2.7	-2.8	-2.6	-2.8	-3.2	-3.6	-3.7	-3.8	-4.1	-4.3	-4.7	-3.3	-1.6																						
22-Oct	-4.9	-4.7	-4.7	-4.6	-4.5	-4.6	-4.3	-4.1	-3.7	-2.9	-2.2	-1.3	-0.2	0.8	1.5	2.3	2.0	1.9	1.9	1.9	2.2	2.2	2.1	2.3	-1.1	2.3																						
23-Oct	2.5	2.4	2.3	2.3	2.0	1.8	2.1	1.2	1.1	3.1	4.5	5.2	5.7	5.8	5.2	4.9	4.7	4.5	4.2	3.7	3.2	3.0	2.3	2.1	3.3	5.8																						
24-Oct	1.6	1.7	0.9	0.6	0.5	0.6	0.6	0.9	0.7	1.2	4.2	5.8	6.2	6.5	6.9	6.9	6.2	4.3	2.8	1.9	1.6	0.3	-0.6	-0.6	2.6	6.9																						
25-Oct	-1.4	-2.0	-2.1	-2.9	-3.2	-3.5	-4.1	-4.0	-3.1	-1.0	1.8	4.6	5.2	6.3	6.7	6.6	5.7	3.9	1.3	-1.4	-2.0	-3.4	-5.1	-5.9	-0.1	6.7																						
26-Oct	-6.0	-6.6	-7.8	-8.4	-8.5	-8.7	-8.7	-8.4	-6.0	-2.6	-0.5	1.8	3.8	5.8	5.8	4.9	4.5	4.0	3.6	3.5	3.5	3.3	3.2	3.2	-0.9	5.8																						
27-Oct	3.1	2.7	2.3	1.9	1.4	0.8	0.5	0.4	0.9	1.3	2.0	2.9	3.1	3.9	4.3	4.1	3.5	2.9	1.7	1.5	0.8	0.5	0.5	0.6	2.0	4.3																						
28-Oct	0.9	1.5	1.3	1.0	1.0	1.0	0.9	0.7	0.8	1.1	1.3	1.7	1.8	1.6	1.2	0.8	0.5	0.2	-0.2	-0.9	-1.4	-1.4	-1.8	-2.2	0.5	1.8																						
29-Oct	-2.6	-3.1	-2.7	-3.3	-4.2	-4.6	-4.8	-4.9	-4.8	-4.5	-4.6	-4.1	-3.6	-2.0	-1.4	-0.7	-0.9	-2.0	-2.7	-2.6	-2.7	-2.8	-2.7	-3.0	-3.1	-0.7																						
30-Oct	-3.0	-3.4	-3.6	-3.9	-4.5	-5.3	-6.0	-5.7	-5.2	-4.6	-3.7	-3.4	-2.6	-2.0	-2.0	-2.1	-2.6	-3.2	-3.4	-3.5	-3.8	-4.1	-4.6	-5.3	-3.8	-2.0																						
31-Oct	-5.8	-6.2	-6.5	-6.6	-6.4	-6.6	-6.5	-6.4	-6.2	-5.9	-5.4	-4.4	-4.1	-3.8	-3.3	-3.0	-3.0	-3.1	-3.1	-3.1	-3.1	-3.3	-3.3	-3.3	-4.7	-3.0																						
																								2.1	1.6	1.3	1.0	0.9	0.6	0.5	0.5	1.2	2.7	4.2	5.5	6.4	7.2	7.6	7.7	7.4	6.3	5.0	4.0	3.5	3.0	2.6	2.3	Diurnal Average
																								12.4	11.2	11.3	11.1	10.2	9.8	9.2	8.5	10.5	12.6	13.7	14.3	16.0	18.9	20.2	21.0	20.1	19.0	18.3	17.1	15.8	14.7	14.2	13.2	Diurnal Maximum





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

**Ambient Temperature 2m (AT2) - C**  
**Patricia McInnes - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	200	26.88	26.88
0 - 10	444	59.68	86.56
10 - 20	96	12.90	99.46
> 20	4	0.54	100.00

Total Number of Valid Hours: 744

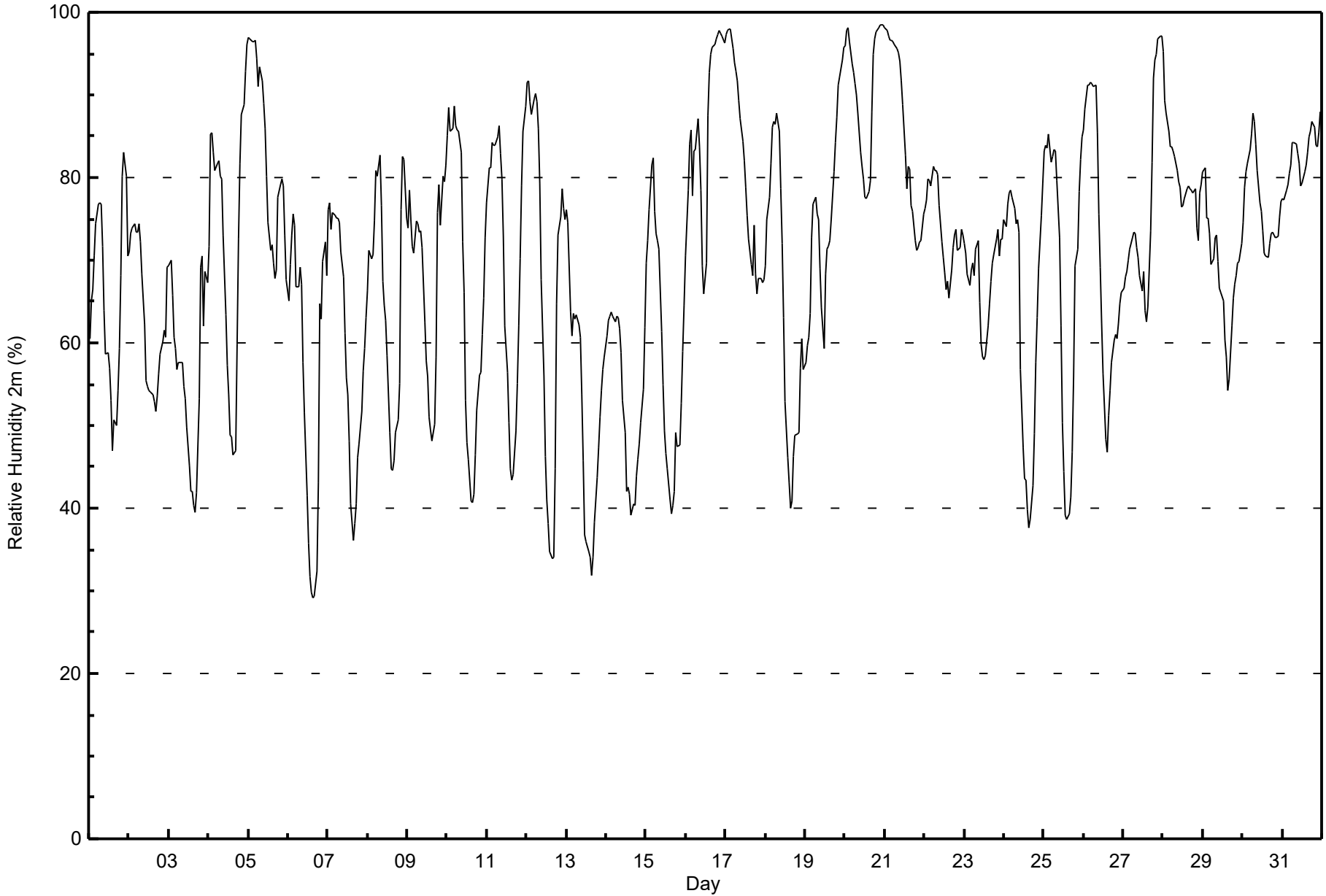
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Patricia McInnes - October 2024**

Maximum Value: 98.5 % on Oct 20 23:00      Maximum Daily Average: 90.5 % on Oct 20 Minimum Value: 29.2 % on Oct 6 16:00      Minimum Daily Average: 51.9 % on Oct 13 Maximum Diurnal Average: 79.6 % at hour 6      Minimum Diurnal Average: 54.6 % at hour 16 Monthly Average: 70.01 %      Percentiles: P <sub>1</sub> = 34.0 P <sub>10</sub> = 46.4 Q <sub>1</sub> = 59.3 Median = 72.2 Q <sub>3</sub> = 81.1 P <sub>90</sub> = 89.9 P <sub>99</sub> = 97.9																						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-Oct	60.4	65.1	66.4	70.6	74.4	76.8	76.9	76.8	71.6	63.9	58.7	58.7	57.0	53.0	47.0	50.6	49.9	54.2	59.3	68.1	80.1	83.1	80.2	70.6	65.6	83.1
2-Oct	71.1	73.3	73.9	74.5	73.3	73.5	74.4	72.2	68.3	62.3	55.5	54.7	54.3	54.1	53.7	52.9	51.7	53.5	56.2	58.7	60.2	61.5	60.6	69.2	63.1	74.5
3-Oct	69.3	70.0	65.8	60.7	59.3	56.8	57.7	57.6	57.7	54.7	53.2	49.8	45.1	42.1	42.0	40.4	39.5	41.9	53.2	69.1	70.6	62.0	68.6	67.3	56.4	70.6
4-Oct	71.7	85.2	85.4	83.0	80.8	81.8	82.1	80.1	79.9	73.0	63.3	57.3	53.7	48.8	48.6	46.4	47.0	59.9	72.6	81.7	87.6	88.8	92.9	96.1	72.8	96.1
5-Oct	97.0	96.8	96.5	96.5	96.6	94.5	91.0	93.4	91.7	89.1	86.0	80.1	74.5	71.1	71.9	69.6	67.8	68.7	77.7	79.2	79.9	79.0	73.0	67.6	82.9	97.0
6-Oct	65.1	69.5	73.0	75.7	74.3	66.8	66.8	69.1	67.1	57.7	51.5	41.5	35.7	31.6	29.8	29.2	29.4	32.4	43.0	64.7	63.0	69.9	72.1	68.1	56.1	75.7
7-Oct	76.1	77.0	73.8	75.8	75.4	75.1	75.1	74.6	71.1	68.0	61.1	55.7	53.7	48.2	40.4	36.2	38.1	40.6	46.0	47.9	51.7	56.6	59.3	63.0	60.0	77.0
8-Oct	66.3	71.2	70.2	70.7	74.8	80.9	80.2	82.7	76.6	67.5	64.5	62.7	58.4	49.1	44.8	44.6	45.8	49.2	50.7	55.2	76.1	82.6	82.3	75.0	65.9	82.7
9-Oct	73.9	78.5	75.0	71.7	70.9	74.7	74.5	73.4	73.5	71.4	62.5	57.8	55.9	51.0	49.5	48.1	50.2	58.2	75.8	79.2	74.3	80.1	79.5	81.6	68.4	81.6
10-Oct	85.1	88.5	85.7	86.0	88.6	86.3	85.7	85.7	83.1	72.2	66.1	53.1	48.0	45.9	40.8	40.7	41.8	46.4	51.9	56.2	56.4	61.1	65.5	72.7	66.4	88.6
11-Oct	76.9	81.2	81.1	84.3	83.8	84.0	85.0	86.2	82.9	79.9	72.9	62.0	56.5	50.4	44.8	43.4	44.0	49.3	55.0	62.0	70.1	78.9	85.6	88.6	70.4	88.6
12-Oct	91.6	91.7	89.1	87.6	89.5	90.1	89.2	85.8	79.4	67.7	56.0	46.2	41.0	38.1	34.7	33.8	34.0	44.7	64.8	73.1	75.2	78.7	76.2	74.9	68.1	91.7
13-Oct	76.1	74.6	63.7	60.8	63.6	62.9	63.5	62.3	60.7	53.7	45.7	36.7	35.9	34.8	34.0	31.9	34.1	38.3	43.7	47.3	51.1	54.3	56.8	58.4	51.9	76.1
14-Oct	60.9	62.7	63.2	63.7	63.1	62.6	63.2	63.1	61.8	58.8	53.0	49.2	42.0	42.5	41.6	39.1	40.5	40.3	43.9	45.9	47.9	50.3	54.4	61.9	53.1	63.7
15-Oct	69.7	72.3	76.1	81.5	82.4	76.0	73.2	72.3	71.3	61.3	54.9	49.3	46.6	44.7	41.1	39.3	40.4	42.0	49.2	47.4	47.7	52.7	59.0	64.6	59.0	82.4
16-Oct	70.4	78.4	84.1	85.8	77.8	83.2	83.4	87.1	83.7	78.4	69.3	65.9	69.7	87.4	92.7	95.0	95.7	96.1	96.7	97.3	97.8	97.5	97.1	96.3	86.1	97.8
17-Oct	97.3	97.8	98.0	97.9	95.6	94.0	92.8	91.8	89.3	87.2	84.4	82.0	78.7	75.5	72.6	69.5	68.1	74.3	68.3	65.9	67.8	67.8	67.3	67.7	81.3	98.0
18-Oct	69.3	74.9	77.7	81.7	86.1	86.7	86.5	87.9	85.6	78.6	72.0	63.0	52.8	46.1	43.1	39.9	40.8	46.2	48.8	48.9	49.1	56.9	60.5	56.7	64.2	87.9
19-Oct	57.7	59.6	60.7	63.6	72.7	76.8	77.7	75.6	74.9	68.9	64.3	59.3	68.3	71.4	71.7	72.4	74.8	80.7	84.3	87.3	91.2	92.1	94.2	95.7	74.8	95.7
20-Oct	96.0	97.9	98.1	96.5	93.8	92.8	91.4	90.1	87.8	83.0	81.3	79.9	77.6	77.4	78.2	79.7	88.0	95.0	96.7	97.6	98.2	98.5	98.5	98.4	90.5	98.5
21-Oct	98.2	97.7	97.2	96.7	96.6	96.4	96.1	95.7	95.0	94.1	91.6	88.9	82.8	78.7	81.4	81.1	76.6	75.9	72.4	71.2	71.5	72.2	72.4	75.5	85.7	98.2
22-Oct	76.3	77.3	79.9	79.7	79.0	81.3	80.8	80.9	80.4	76.7	72.2	70.3	68.5	66.4	67.4	65.5	68.8	71.5	73.1	73.7	71.3	71.5	73.7	73.0	74.1	81.3
23-Oct	72.0	70.8	68.4	66.9	68.8	69.7	68.1	71.4	72.4	64.9	59.8	58.3	57.9	58.5	62.0	64.7	67.4	69.7	70.7	72.5	73.7	70.6	72.6	72.5	67.7	73.7
24-Oct	74.9	74.1	76.8	78.2	78.4	77.7	76.2	74.4	75.0	73.4	56.8	47.3	43.6	43.4	39.9	37.7	38.6	42.6	49.0	57.6	63.1	68.9	75.5	79.3	62.6	79.3
25-Oct	83.3	84.0	83.6	85.2	81.8	82.5	83.4	83.3	79.7	72.7	62.1	50.4	44.4	39.2	38.7	39.3	41.4	46.7	56.0	69.3	71.3	78.3	82.2	85.0	67.6	85.2
26-Oct	85.8	88.3	91.2	91.3	91.6	91.4	91.0	91.2	85.4	75.5	69.1	62.4	56.2	48.2	46.8	51.2	54.3	57.6	60.3	61.0	60.5	62.3	64.8	66.1	71.0	91.6
27-Oct	66.7	68.0	68.7	70.1	71.3	72.6	73.4	73.2	71.6	70.4	68.2	66.2	68.7	63.9	62.5	64.5	73.6	81.8	92.0	94.3	94.9	96.8	97.2	97.1	76.1	97.2
28-Oct	95.2	89.2	87.8	85.6	83.7	83.7	83.3	82.5	80.9	79.5	78.8	76.5	76.7	77.4	78.6	79.0	78.7	78.5	78.2	78.6	73.9	72.4	78.1	79.1	80.7	95.2
29-Oct	80.7	81.1	75.1	75.1	73.3	69.5	70.1	72.6	73.0	69.8	66.7	66.0	65.2	60.4	58.3	54.2	55.7	62.0	65.5	67.1	68.1	69.7	69.8	72.1	68.4	81.1
30-Oct	74.6	78.8	80.7	81.7	83.4	85.3	87.8	86.8	84.1	80.8	77.0	75.9	73.6	70.9	70.6	70.4	72.0	73.3	73.4	73.0	72.6	73.0	75.2	77.2	77.2	87.8
31-Oct	77.4	77.4	78.5	79.2	80.4	81.6	84.2	84.2	84.0	82.8	81.7	78.9	79.4	80.7	81.6	83.1	85.0	85.5	86.7	86.0	84.0	83.7	85.5	87.9	82.5	87.9
77.0 79.1 78.9 79.3 79.5 79.6 79.5 79.5 77.4 72.2 66.5 61.5 58.8 56.5 55.2 54.6 55.9 59.9 65.0 68.9 71.0 73.3 75.2 76.1																								Diurnal Average		
98.2 97.9 98.1 97.9 96.6 96.4 96.1 95.7 95.0 94.1 91.6 88.9 82.8 87.4 92.7 95.0 95.7 96.1 96.7 97.6 98.2 98.5 98.5 98.4																								Diurnal Maximum		





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

**Wind Speed 10m (WS10) - km/h**  
**Patricia McInnes - October 2024**

Maximum Speed: 34 km/h on Oct 8 20:00      Maximum Daily Speed Average: 18.7 km/h on Oct 17		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Percent Operational Time: 100.0																																													
Minimum Speed Value: 1 km/h on Oct 27 21:00      Minimum Daily Speed Average: 1.3 km/h on Oct 12 Maximum Diurnal Speed Average: 4.8 km/h at hour 6      Minimum Diurnal Speed Average: 2.8 km/h at hour 19 Monthly Average Velocity: 3.9 km/h 256.1 deg      Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 14 P <sub>90</sub> = 19 P <sub>99</sub> = 26																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Oct	W15	W13	W11	SW4	S2	SSW5	SW5	WSW7	WNW7	N6	NNE5	ENE6	E7	E8	NW6	NE8	N6	NNE9	NNE10	N6	NW6	WNW6	WNW9	WNW12	WNW3.3	W15																					
2-Oct	WNW12	NW11	WNW11	WNW12	WNW13	WNW15	WNW17	WNW20	WNW23	WNW26	NW28	NW25	WNW23	WNW22	NW20	WNW18	WNW17	WNW18	WNW13	WNW14	NW14	NNW16	NNW12	NNW9	WNW16.7	NW28																					
3-Oct	NW7	WNW6	WNW8	WNW11	WNW9	WNW13	WNW11	WNW13	NW12	NW17	ESE10	NW13	W13	WNW16	W16	W15	W12	W7	SW5	SW4	SW6	SW7	SSW5	SSW6	WNW9.2	NW17																					
4-Oct	S5	S4	SSE6	SE6	SE5	S4	SE5	SSE7	SE3	ESE5	ESE10	ESE12	ESE13	E14	ENE15	ENE13	ENE14	E13	ENE12	ENE13	NE9	NNE11	N12	N13	E6.6	ENE15																					
5-Oct	N14	N16	N16	NNW15	NNW14	NNW8	NNW8	WNW6	WNW5	WSW5	WSW8	WSW9	WSW11	WSW11	SW9	SW9	SW12	SW7	SSE6	S7	S8	S8	SSW8	SW11	W4.5	N16																					
6-Oct	WSW16	WSW15	WSW18	WSW20	W20	W25	W22	W16	WSW14	W19	WSW18	WSW19	WSW19	W20	W20	WNW20	W14	WSW8	WSW7	W6	SW7	SSW5	SW7	SSW6	WSW14.2	W25																					
7-Oct	SSE5	S6	SSE7	SSE6	SSE7	SE8	SE12	SE9	SE9	SSE9	SSE8	SE8	SE8	SE8	SE6	SSW13	SSW10	SSW9	SSW8	SW13	SSW10	S4	SW9	SW7	S7.0	SW13																					
8-Oct	SW7	SW6	WSW9	SW8	SSW5	SW3	S3	SW1	SE4	ESE4	SE6	SE8	ESE8	SE11	SE10	ESE10	SE9	SE8	SSW8	W34	W15	WSW15	SW13	SW11	SSW4.5	W34																					
9-Oct	SW12	SW10	SW10	SW10	SW10	SW7	SW9	WSW13	WSW15	W15	W17	W14	SW13	WSW16	SW14	WSW10	W6	W3	WSW5	WSW7	WSW8	SSW4	SW7	S4	WSW9.4	W17																					
10-Oct	S5	SW5	SW7	SSW7	S5	SSW7	SSW8	SSW7	S6	SW9	WSW12	WSW13	WSW18	SW18	WSW18	WSW17	WSW16	WSW9	WSW8	W12	WNW13	WNW9	W8	WSW9	WSW9.2	WSW18																					
11-Oct	SW6	SW8	SW7	SW7	SW10	SW11	SSW7	SSW6	SSW6	S6	SSW8	SSW9	SSW10	SW12	SW11	SW12	SSW10	SSW8	SW7	SW7	SW9	SW10	SW10	SW12	SW8.5	SW12																					
12-Oct	WSW14	WSW15	W7	W3	WNW1	S4	SSW4	SSE4	SSW5	SW3	NNE1	NNE7	NNE8	ENE8	ENE8	E7	SE5	ESE4	SSE3	SW2	S4	SSW2	SE3	SSE4	S1.3	WSW15																					
13-Oct	SSE4	SE4	SE9	SE8	SE10	SE11	SE14	SE15	SE14	SE13	SE13	S23	SSE21	SE17	SE15	SSE17	SSE15	SSE10	SSE10	SE10	SE11	SE10	ESE12	ESE13	SE11.8	S23																					
14-Oct	SE14	SE14	SE14	SE13	SE14	SE13	SE11	SE14	SE12	ESE14	ESE15	SE14	ESE16	SE18	SE15	SE17	SE14	SE13	SE12	S9	SSE8	S9	SSW7	SSW7	SE12.0	SE18																					
15-Oct	SSW7	S6	S5	S5	SSW7	SW8	SW13	WSW13	SW7	W13	W12	W14	W14	W13	W11	WSW9	SW5	SW6	WSW6	WSW8	SSW5	S3	SE2	SW6	WSW7.1	W14																					
16-Oct	SSW5	SSW3	S3	SSW5	SW8	SW5	SSW5	S4	SSE5	SSE5	SSE5	SE5	ESE7	ESE5	ENE6	NE5	NE4	ENE3	NNE3	NNE5	NW2	ESE4	SSW1	SSW1	SSE2.0	SW8																					
17-Oct	NW1	WSW5	SW6	WSW10	WSW11	W14	WSW17	WSW19	WSW22	WSW24	W25	W22	W23	W25	W25	W25	W32	W32	W26	W19	W15	W18	WNW21	WNW21	W18.7	W32																					
18-Oct	WNW16	WNW14	WNW12	W9	SW7	SSW9	SW8	SW9	SSW8	SSW8	SSW9	S11	SSW15	SW15	SW17	SW15	SSW11	S7	SSE9	S9	S9	S3	SE5	ESE7	SW7.7	SW17																					
19-Oct	SE7	SE7	SE7	SSE3	NNW3	WNW4	SW3	WNW3	NW6	NW5	W4	SSW2	NE8	NNE11	NNE9	NNE10	NNE9	N11	N11	NNW10	NNW15	N14	N14	N13	N5.0	NNW15																					
20-Oct	NNW13	NNW13	NNW14	NNW12	N15	NNW14	N14	N13	N12	NNE11	NNE10	N6	NNE4	NNE10	N10	N10	N10	NNE8	NNE9	NNE10	N11	N12	N15	N15	N10.9	N15																					
21-Oct	N17	N20	N21	N22	N22	N22	N22	N20	N21	N19	NNW18	NNW17	NNW18	N16	N8	N7	NW10	WNW9	WNW9	WSW8	W11	W10	W12	WSW12	NNW13.2	N22																					
22-Oct	WSW9	SW10	SW8	SW11	SSW8	S8	SSW7	S7	SSW8	SW11	SW22	SW20	SW16	SW19	SW18	SW22	SW18	SW18	SW23	SW23	SW18	SW16	WSW22	WSW23	SW14.7	SW23																					
23-Oct	WSW18	WSW21	WSW21	WSW24	WSW27	W26	W21	W12	W20	W22	W24	WSW23	WSW20	WSW18	WSW17	WSW18	WSW19	WSW16	WSW13	SW8	SSW5	SW10	SW10	SW10	WSW17.2	WSW27																					
24-Oct	SW10	SW13	WSW14	SW13	SW13	WSW11	WSW12	W13	SSW7	SSW8	W13	W24	WNW28	WNW24	WNW22	WNW20	WNW12	W11	WSW14	WSW14	W12	SW5	WSW4	WSW4	W12.2	WNW28																					
25-Oct	SSW7	WSW10	WSW8	SW7	SW12	SW14	SW15	SW13	SW5	S7	S6	NW8	WNW10	WNW13	WNW13	W12	W7	WSW7	WSW8	WSW6	SW5	S3	SSW4	SW4	WSW7.2	SW15																					
26-Oct	S2	S3	SSW1	NW2	WNW3	NNW4	NNE4	N4	NNE4	W2	ENE4	ENE5	NE7	E12	E17	E16	E15	E15	ESE12	ESE13	ESE14	ESE13	ESE14	ESE15	E6.6	E17																					
27-Oct	SE15	SE14	SE14	SE14	SE11	SE10	ESE8	ESE11	ESE17	ESE17	ESE16	ESE21	ESE20	ESE18	ESE17	ESE13	ESE7	ENE3	ENE2	E3	ESE1	NW4	NW6	WNW9	ESE9.6	ESE21																					
28-Oct	W9	WNW15	WNW18	WNW19	WNW18	WNW19	WNW19	WNW16	WNW19	NW19	NW21	NW21	NW21	NW20	NW19	NW18	NW16	WNW17	WNW18	WNW22	WNW19	WNW19	WNW17	WNW15	WNW18.0	WNW22																					
29-Oct	WNW14	WNW13	WNW14	NW18	NW20	NW16	NW12	NW9	WNW7	W12	WNW14	W11	W11	WSW11	SW11	SSW8	S6	SE6	ESE6	ESE6	ESE6	ESE7	ESE6	ESE2	WNW5.7	NW20																					
30-Oct	NNE5	N10	NNW11	N12	NNW14	NNW14	N15	N15	N13	NNE15	NNE14	NNE13	N12	NNE12	NNE13	ENE13	ENE11	E10	ENE12	ENE11	ENE11	ENE10	NE9	ENE9	NNE9.8	N15																					
31-Oct	ENE9	E11	ESE10	E9	ENE9	ENE10	E11	E11	E10	ENE9	ENE9	ESE13	ESE12	ESE8	SSE8	SSE11	SSE9	SE9	SE9	SE9	SSE11	SSW9	SW3	S1	ESE7.4	ESE13																					
WSW4.0																								WSW4.6	W4.4	W4.5	W4.3	W4.8	W4.4	W3.9	WSW3.3	W4.0	W4.6	WSW4.3	WSW4.5	WSW3.9	WSW3.9	WSW4.2	WSW3.9	WSW2.8	SW2.8	WSW4.2	WSW3.5	WSW3.1	W3.5	WSW3.6	Diurnal Average
WSW18																								WSW21	WSW21	WSW24	WSW27	W26	N22	WNW20	WNW23	WNW26	NW28	NW25	WNW28	W25	W25	W25	W32	W32	W26	W34	WNW19	WNW19	WSW22	WSW23	Diurnal Maximum

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





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

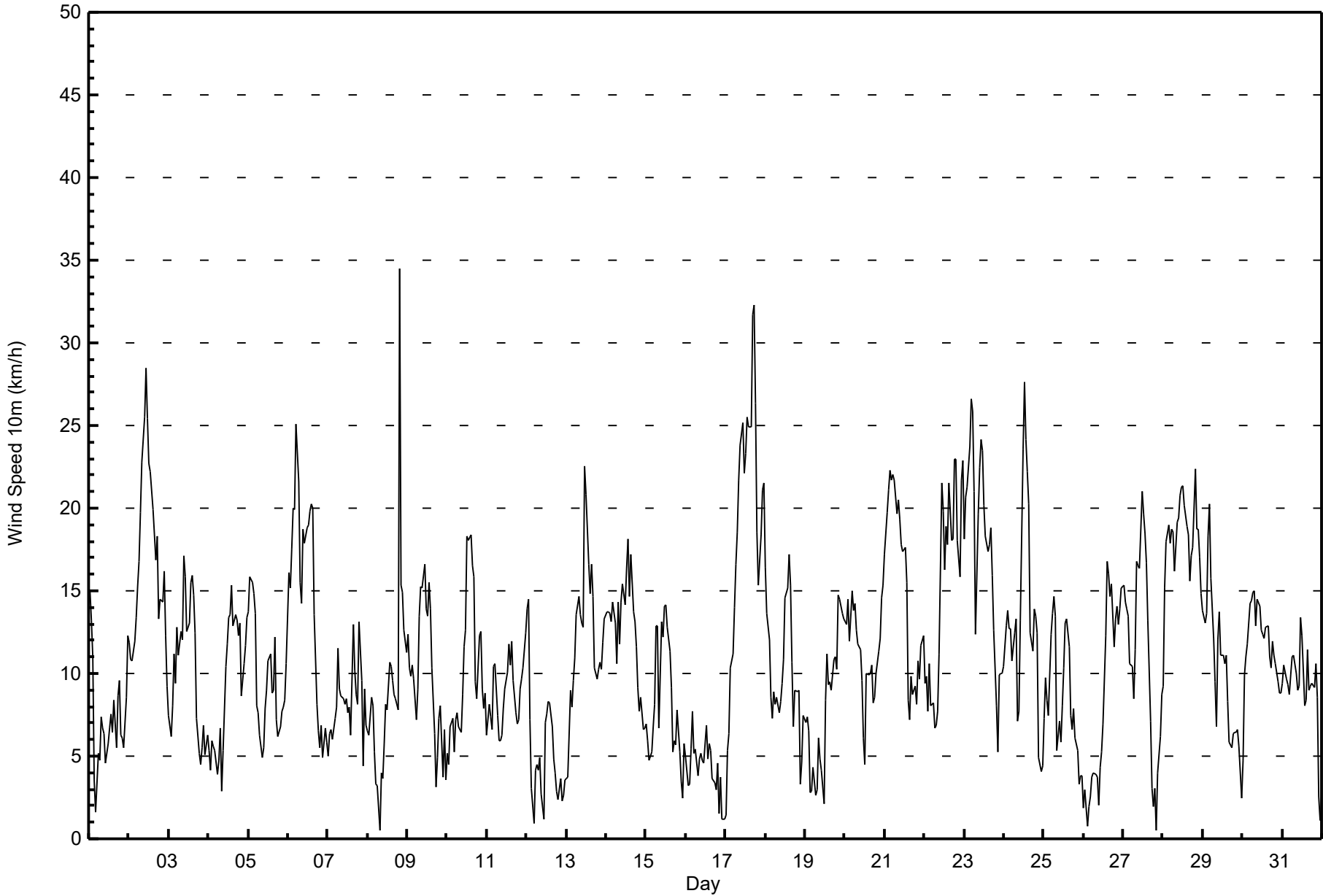
**Wind Speed 10m (WS10) - km/h**  
**Patricia McInnes - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on Oct 8 20:00 Minimum Value: 0 km/h on Oct 19 07:00 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: 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-Oct	3	2	2	3	2	1	1	2	1	2	2	2	1	2	3	2	3	2	2	1	1	1	2	1	3
2-Oct	1	1	2	2	2	3	4	4	5	5	5	5	5	5	4	4	5	4	3	3	3	4	3	2	5
3-Oct	1	1	2	2	2	4	3	3	4	3	3	4	4	5	4	4	3	3	1	1	1	2	2	1	5
4-Oct	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	3	4	3	3	2	2	2	3	4
5-Oct	3	3	3	2	3	1	2	2	1	2	2	2	3	2	3	3	3	4	1	1	2	2	2	2	3
6-Oct	3	2	3	3	3	5	5	3	3	3	3	4	5	5	4	5	4	1	1	1	1	1	3	2	5
7-Oct	2	2	1	1	1	2	2	2	3	2	2	2	2	2	3	4	3	2	2	3	3	1	2	1	4
8-Oct	1	1	1	2	1	2	2	1	2	1	2	2	2	3	2	2	2	2	4	11	6	3	2	2	11
9-Oct	2	2	1	2	2	1	2	3	3	3	4	3	4	4	3	2	2	1	1	1	1	1	2	2	4
10-Oct	2	1	2	3	2	2	2	2	2	3	3	4	4	4	4	3	3	2	1	2	2	1	2	2	4
11-Oct	2	2	2	2	2	2	2	1	1	1	2	2	3	3	3	3	3	2	1	2	1	2	2	2	3
12-Oct	2	3	3	1	1	2	1	2	2	1	2	2	3	2	3	2	1	1	1	1	1	1	2	1	3
13-Oct	1	1	2	2	2	2	3	3	3	3	5	6	6	4	4	4	4	2	2	2	2	2	2	3	6
14-Oct	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	3	3	3	2	2	2	2	2	4
15-Oct	2	1	1	2	2	2	3	4	2	4	3	3	3	3	4	3	1	1	1	1	1	1	1	1	4
16-Oct	1	1	2	2	2	2	2	1	2	1	2	1	2	1	2	2	1	1	1	1	1	2	2	1	2
17-Oct	2	1	1	2	2	2	3	3	4	4	5	5	5	5	5	6	7	7	6	4	3	5	6	5	7
18-Oct	5	3	3	2	1	2	1	2	2	2	2	3	4	4	4	4	4	1	2	4	3	2	2	2	5
19-Oct	1	1	2	2	1	1	0	2	1	2	2	2	2	2	2	2	2	2	2	2	2	3	4	3	4
20-Oct	2	3	3	3	3	3	3	3	2	2	2	3	3	2	2	2	2	1	2	2	2	2	3	3	3
21-Oct	3	4	4	5	4	5	5	4	4	4	4	4	3	4	2	1	2	1	3	2	2	2	3	3	5
22-Oct	3	3	1	2	2	2	2	2	2	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	5
23-Oct	3	3	3	4	4	5	5	5	3	4	4	4	5	3	3	3	3	3	2	2	2	2	1	1	5
24-Oct	2	2	2	2	2	2	3	3	2	2	2	5	5	5	5	5	3	2	2	2	2	2	1	2	7
25-Oct	3	2	1	2	2	2	2	5	2	1	2	6	3	3	3	3	2	1	1	2	2	2	1	1	6
26-Oct	1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	4	3	4	3	3	3	3	3	3	4
27-Oct	4	3	3	3	2	2	2	3	4	4	4	5	5	5	5	4	2	2	1	1	2	1	1	2	5
28-Oct	2	3	3	3	3	3	4	3	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	3	4
29-Oct	3	3	3	4	4	4	3	2	1	4	3	3	4	4	3	2	1	1	1	1	1	2	1	1	4
30-Oct	2	2	2	2	2	3	3	3	2	3	3	2	2	2	3	3	3	3	2	2	2	2	2	1	3
31-Oct	2	2	2	2	2	2	2	2	2	2	2	3	3	2	3	3	3	2	2	2	3	3	2	1	3
																	Diurnal Maximum								



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

**Wind Speed 10m (WS10) - km/h**  
**Patricia McInnes - October 2024**





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

**Wind Speed 10m (WS10) - km/h**  
**Patricia McInnes - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	121	16.26	16.26
6 - 11	301	40.46	56.72
12 - 19	252	33.87	90.59
20 - 28	67	9.01	99.60
29 - 38	3	0.40	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 10m (WS10) - km/h  
Patricia McInnes - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	1	8	2	5	1	7	10	9	21	19	17	5	4	5	5	2	121
6 - 11	13	15	4	15	9	15	31	16	18	37	55	28	15	16	9	5	301
12 - 19	23	5	0	7	7	21	27	2	0	2	26	36	29	41	11	15	252
20 - 28	8	0	0	0	0	2	0	1	1	0	4	12	18	14	7	0	67
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	3	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>	45	28	6	27	17	45	68	28	40	58	102	81	69	76	32	22	744

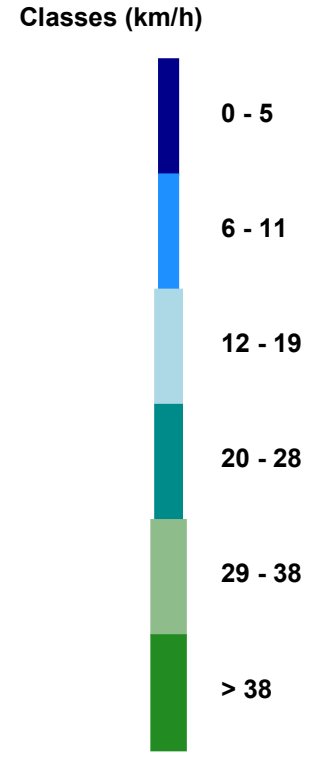
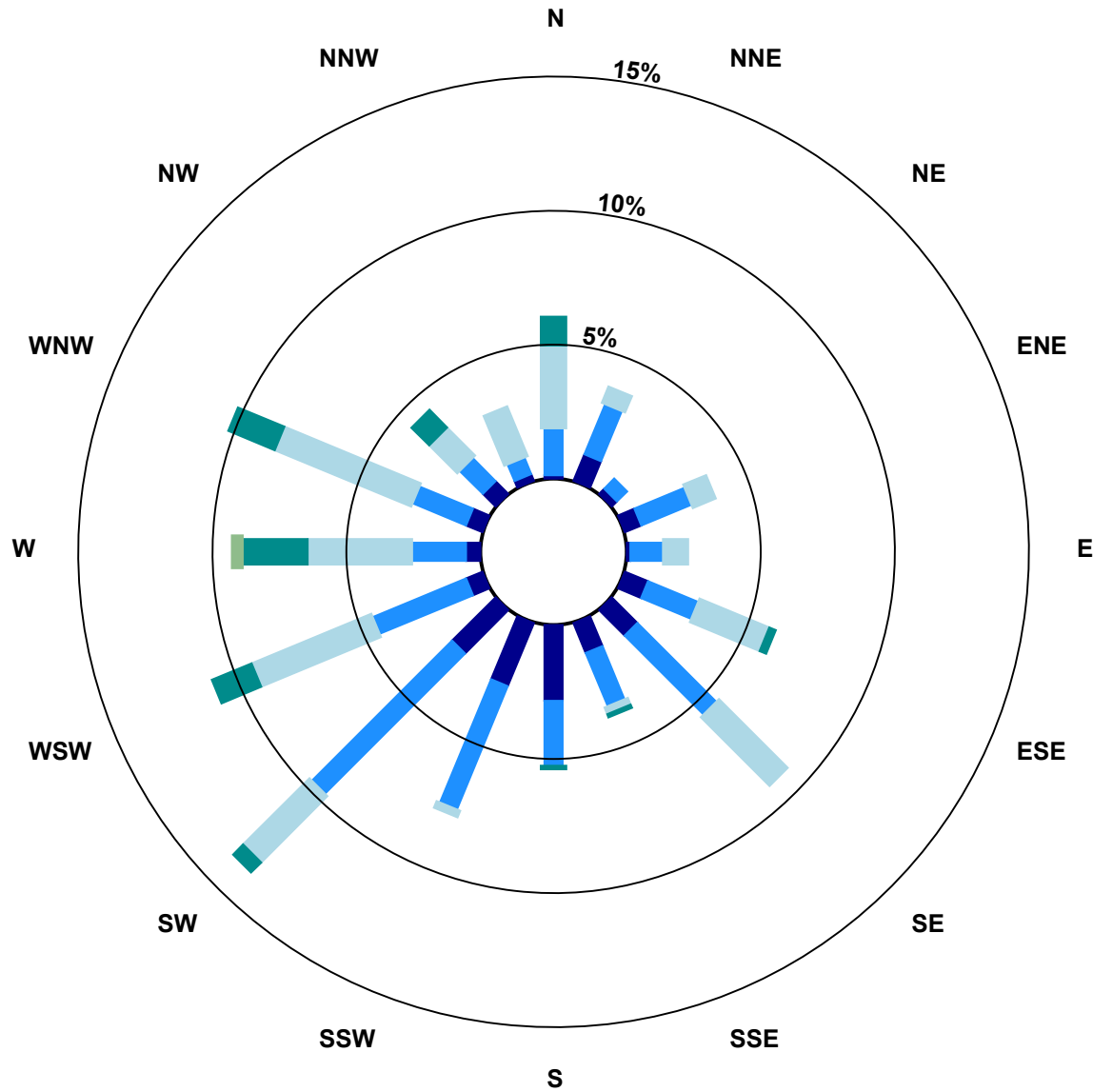
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Patricia McInnes



Total Number of Valid Hours: 744



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

**Wind Direction 10m (WD10) - deg**  
**Patricia McInnes - October 2024**

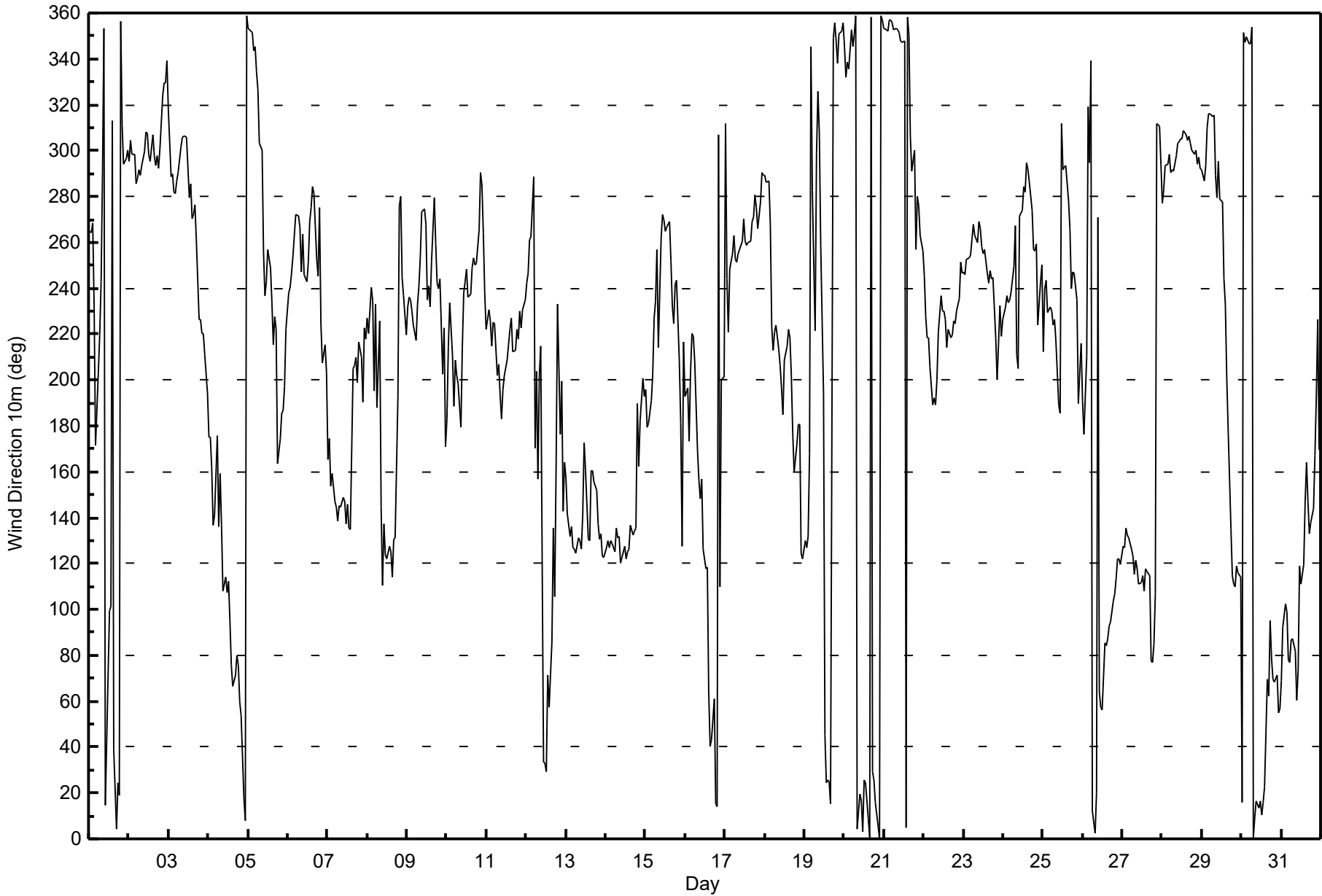
Direction of Maximum Speed: 276 deg on Oct 8 20:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 265.6 deg on Oct 17																						Hours of Data: 744			
Direction of Minimum Speed: 107 deg on Oct 27 21:00											Direction of Minimum Daily Speed Average: 1.3 deg on Oct 12											Hours of Missing Data: 0			
Monthly Average Direction: 256.1 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-Oct	265	264	268	232	172	203	220	243	290	353	15	72	100	101	313	39	4	24	19	356	311	294	297	300	309.3
2-Oct	295	305	298	298	286	288	292	289	293	300	308	307	298	296	307	297	293	298	292	301	324	330	329	339	301.7
3-Oct	318	289	290	282	282	287	291	301	305	307	306	306	280	286	270	272	276	261	226	227	220	220	211	194	281.3
4-Oct	175	175	162	137	141	176	136	159	137	108	114	108	112	95	76	66	71	80	76	60	54	18	8	359	86.1
5-Oct	353	353	351	344	345	335	327	303	300	256	237	243	257	249	234	215	228	222	164	175	185	187	197	222	272.8
6-Oct	238	240	246	254	263	272	272	266	247	264	246	243	252	269	275	284	281	253	245	275	225	207	215	203	257.2
7-Oct	165	174	154	159	147	145	139	145	144	149	147	137	146	135	135	205	206	210	199	217	210	191	223	218	172.6
8-Oct	227	220	240	234	195	233	188	226	144	111	137	124	122	128	125	114	131	131	193	276	280	245	236	220	206.4
9-Oct	232	236	235	230	224	217	233	241	254	274	275	268	235	241	232	251	279	259	242	240	244	203	223	171	243.6
10-Oct	183	214	234	210	189	209	202	198	179	214	238	243	248	236	237	249	253	250	251	265	290	285	264	238	239.3
11-Oct	222	231	226	215	225	225	202	207	194	183	196	202	209	215	222	227	212	213	222	218	230	223	230	235	217.5
12-Oct	242	247	261	262	289	170	204	157	202	215	33	33	29	71	57	86	136	106	163	233	176	199	143	164	182.8
13-Oct	158	141	132	136	127	126	125	131	130	126	141	173	160	131	130	161	160	156	152	137	131	133	123	123	140.5
14-Oct	127	130	127	130	129	125	136	131	132	120	123	128	122	125	126	137	133	134	135	190	162	182	201	193	134.9
15-Oct	196	179	181	191	202	227	234	257	214	262	272	270	265	266	269	252	233	225	242	243	208	181	128	217	240.4
16-Oct	193	196	173	203	220	219	208	169	156	149	157	126	118	118	64	40	43	61	15	14	307	110	200	201	149.2
17-Oct	312	244	221	248	255	263	252	252	255	257	260	271	261	259	260	261	269	271	281	275	266	278	291	289	265.6
18-Oct	289	286	287	268	223	213	221	224	213	207	196	185	209	215	222	218	202	177	160	172	181	181	125	122	215.7
19-Oct	130	127	132	168	345	283	222	299	326	307	259	194	45	24	26	25	15	349	356	348	338	351	352	356	0.4
20-Oct	345	332	339	336	352	345	351	359	5	20	17	3	26	25	9	1	358	29	26	16	5	0	359	357	359.6
21-Oct	353	353	352	357	357	356	353	353	353	351	348	347	348	5	358	350	306	291	300	257	280	276	263	257	339.7
22-Oct	245	228	218	218	205	189	192	189	200	221	236	230	230	226	214	222	218	220	226	224	230	236	251	247	225.7
23-Oct	247	246	253	253	255	261	268	263	260	269	266	258	255	257	246	242	247	244	245	218	200	216	233	219	251.7
24-Oct	227	232	237	233	235	238	249	267	211	205	271	274	285	282	294	291	286	274	257	256	259	224	243	250	261.8
25-Oct	212	240	243	230	232	230	224	226	216	189	185	312	292	293	293	278	266	240	247	246	235	190	203	216	244.6
26-Oct	191	176	210	319	295	339	12	2	20	271	64	57	56	86	84	87	93	94	104	107	114	122	122	120	94.4
27-Oct	127	127	135	133	131	127	123	115	122	118	111	111	115	108	118	117	115	77	77	85	107	312	311	294	118.3
28-Oct	277	283	293	294	298	290	292	291	298	304	304	305	305	309	307	305	306	303	300	298	300	294	297	293	298.5
29-Oct	291	287	293	310	316	316	315	316	289	279	295	279	278	244	233	202	179	135	115	111	110	119	116	114	286.0
30-Oct	16	351	347	350	346	347	354	1	9	16	13	16	10	16	23	70	62	95	78	69	69	71	55	57	24.7
31-Oct	69	92	103	99	78	77	86	87	82	61	73	119	111	120	147	164	147	133	138	144	167	193	226	170	112.9
252.8	255.1	260.3	260.8	264.8	264.0	260.4	260.9	258.5	270.1	267.6	256.8	253.8	254.1	257.7	244.7	246.7	237.5	236.2	252.2	249.2	248.6	261.3	253.4		
Diurnal Average																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



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

**Wind Direction 10m (WD10) - deg**  
**Patricia McInnes - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 102 deg on Oct 12 11:00 Minimum Value: 5 deg on Oct 9 20:00 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> = 28 P <sub>99</sub> = 81		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-Oct	14	9	12	66	75	21	18	12	25	26	47	35	20	22	58	25	41	14	13	14	18	13	9	7	75	
2-Oct	8	8	9	11	11	11	11	11	11	12	12	14	13	13	12	13	13	12	10	10	17	13	19	15	19	
3-Oct	13	13	12	12	11	13	13	12	15	14	16	19	28	23	20	21	16	12	14	9	10	15	16	14	28	
4-Oct	13	18	8	18	27	27	21	27	53	28	17	16	15	16	14	18	19	17	16	14	18	12	14	17	53	
5-Oct	14	15	14	12	12	15	12	11	13	18	16	15	15	18	23	26	14	21	8	14	16	16	16	17	26	
6-Oct	12	10	10	9	10	11	11	11	13	11	14	14	19	18	19	14	16	9	8	36	18	12	17	38	38	
7-Oct	17	13	11	10	11	11	12	14	16	16	17	17	19	18	37	18	16	14	16	15	16	30	16	12	37	
8-Oct	11	13	9	16	17	47	26	82	67	25	17	14	12	16	16	17	12	14	26	22	22	13	12	13	82	
9-Oct	14	11	10	10	12	18	12	10	11	13	15	17	23	18	17	18	16	30	7	5	9	18	23	48	48	
10-Oct	23	14	19	19	26	21	17	17	19	19	16	18	14	13	15	15	18	9	11	15	9	20	21	21	26	
11-Oct	21	22	17	17	13	14	16	14	17	15	25	18	18	19	26	18	18	12	10	11	10	11	11	9	26	
12-Oct	9	13	29	37	97	34	25	29	28	43	102	30	36	32	24	32	19	9	18	25	19	27	39	17	102	
13-Oct	21	20	13	15	11	12	12	14	13	13	26	15	16	18	19	15	13	11	12	12	11	12	11	11	26	
14-Oct	12	14	14	13	13	14	17	13	14	12	12	14	13	13	13	13	13	13	17	18	21	15	23	20	23	
15-Oct	17	17	25	32	16	14	13	16	29	25	17	17	19	21	13	17	17	11	9	10	16	30	49	15	49	
16-Oct	20	21	15	15	11	20	32	16	18	17	22	21	17	20	20	17	24	37	40	17	85	35	81	70	85	
17-Oct	46	17	16	11	10	10	11	11	11	11	10	13	11	11	11	12	11	12	13	13	10	14	13	12	46	
18-Oct	12	13	15	21	24	11	10	13	19	17	18	19	18	15	16	15	17	12	12	18	15	56	16	13	56	
19-Oct	13	14	12	59	33	19	22	56	13	29	32	82	22	14	13	14	16	14	16	13	10	13	15	16	82	
20-Oct	14	11	11	10	14	12	12	15	14	15	15	44	45	19	16	15	15	14	13	11	13	14	16	15	45	
21-Oct	15	15	16	17	17	18	15	16	16	16	14	14	13	15	16	17	11	16	10	10	15	15	13	13	18	
22-Oct	20	17	11	12	18	13	16	16	17	18	13	13	15	13	13	12	13	13	11	11	13	14	11	9	20	
23-Oct	9	9	9	9	8	10	14	25	9	10	10	10	10	11	10	11	9	9	10	21	16	10	9	9	25	
24-Oct	10	11	10	10	13	10	13	14	32	18	33	12	14	12	12	11	11	8	7	8	9	36	27	40	40	
25-Oct	19	13	10	19	10	9	9	26	31	14	21	87	25	19	17	13	13	9	8	17	11	44	13	16	87	
26-Oct	69	36	85	58	41	17	19	11	37	56	38	31	27	16	13	13	12	13	13	12	13	13	14	11	85	
27-Oct	15	13	13	13	12	12	14	13	12	13	14	14	15	15	17	14	22	55	17	30	60	17	11	14	60	
28-Oct	11	10	10	10	10	11	10	10	10	10	10	10	10	10	10	11	10	10	10	10	10	12	11	11	12	
29-Oct	10	12	11	11	11	11	14	14	15	15	19	25	22	30	18	20	11	12	11	16	13	13	19	44	44	
30-Oct	29	12	11	12	10	11	14	14	11	11	14	13	13	17	13	17	16	13	16	13	13	15	12	12	29	
31-Oct	16	12	13	11	18	16	14	13	14	17	16	17	14	22	24	19	20	16	15	15	19	19	44	80	80	
		69	36	85	66	97	47	32	82	67	56	102	87	45	32	58	32	41	55	40	36	85	56	81	80	
		Diurnal Maximum																								







## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS07 ATHABASCA VALLEY OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
OCTOBER 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	26.9	0	4.3	0
TRS (ppb) Average	708	36	36	100	1.8	0	0.7	0
THC (ppm) Average	706	38	38	100	2.9	-	2.2	-
NMHC (ppm) Average	706	38	38	100	0.237	-	0.011	-
CH4(ppm) Average	706	38	38	100	2.9	-	2.2	-
O3 (ppb) Average	709	35	35	100	39.5	0	29.7	-
NO2 (ppb) Average	707	37	37	100	32.6	0	11.2	-
NO (ppb) Average	707	37	37	100	42.6	-	8.5	-
NOX (ppb) Average	707	37	37	100	71.1	-	19	-
PM2.5 (ug/m3) Average	742	2	2	100	25.6	0	9.3	0
CO(ppm) Average	709	35	35	100	0.4	0	0.2	-
Temperature 2 m (C) Average	744	0	0	100	21.3	-	13.7	-
Relative Humidity (%) Average	744	0	0	100	100	-	88.6	-
Barometric Pressure (inHg) Average	744	0	0	100	29.4	-	29.3	-
Wind Speed 10 m (km/h) Average	739	2	5	99.6	32	-	19	-
Wind Direction 10 m (deg) Average	739	2	5	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
OCTOBER 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	2	-	0	0	0	0.1	0.2	0.5	26.9
TRS (ppb) Average	708	0.21	0.2	-	0	0.1	0.1	0.1	0.2	0.4	1.8
THC (ppm) Average	706	2.1	0.1	-	1.9	2	2.1	2.1	2.1	2.2	2.9
NMHC (ppm) Average	706	0.001	0.01	-	0	0	0	0	0	0	0.237
CH4(ppm) Average	706	2.1	0.1	-	1.9	2	2.1	2.1	2.1	2.2	2.9
O3 (ppb) Average	709	21.05	8.6	-	3.1	8.6	14.3	21.9	28.1	31.4	39.5
NO2 (ppb) Average	707	5.92	4.9	-	0.4	1	1.9	4.6	8.4	13.6	32.6
NO (ppb) Average	707	2.48	4.4	-	0	0.1	0.3	0.9	2.5	6.9	42.6
NOX (ppb) Average	707	8.4	8.4	-	0.4	1.3	2.3	5.7	11.6	19.7	71.1
PM2.5 (ug/m3) Average	742	5.08	3.3	-	0.8	2.1	3.2	4.4	6.1	8.3	25.6
CO(ppm) Average	709	0.15	0	-	0.1	0.1	0.1	0.1	0.2	0.2	0.4
Temperature 2 m (C) Average	744	4.43	5.5	-	-7.2	-2.4	0.8	3.8	7.4	12.3	21.3
Relative Humidity (%) Average	744	68.09	15.8	-	28.5	44.2	57.3	69.5	79.3	87.7	100
Barometric Pressure (inHg) Average	744	28.95	0.2	-	28.4	28.7	28.8	29	29.1	29.2	29.4
Wind Speed 10 m (km/h) Average	739	9.9	6	-	0	3	5	9	14	19	32
Wind Direction 10 m (deg) Average	739	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	21 Oct 2024 15:00	21 Oct 2024 17:00	3	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

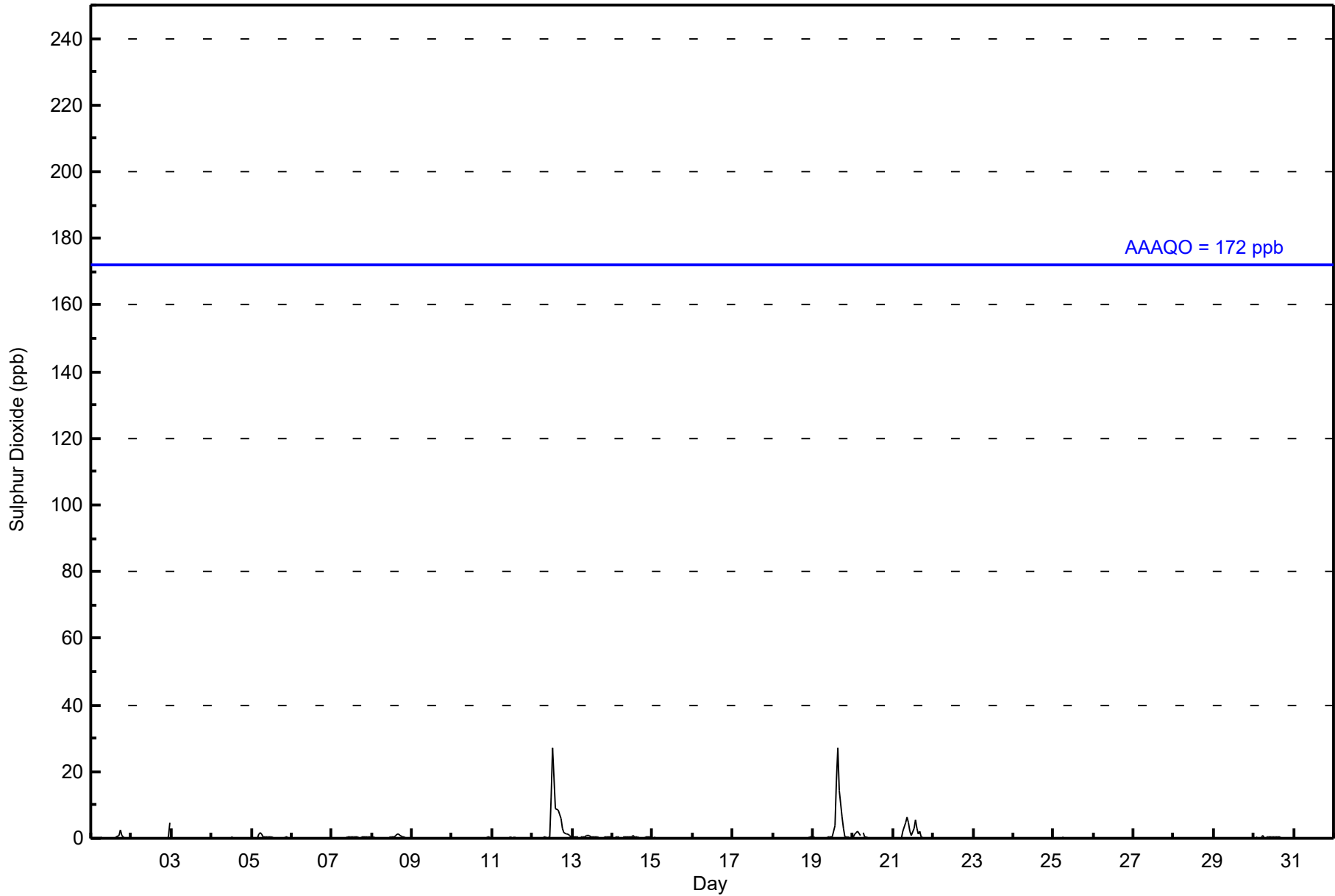
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																											
Maximum Value: 26.9 ppb on Oct 12 13:00		Maximum Daily Average: 4.3 ppb on Oct 12																	709																													
Minimum Value: 0.0 ppb on Oct 2 04:00		Minimum Daily Average: 0.0 ppb on Oct 3																	35																													
Maximum Diurnal Average: 1.3 ppb at hour 16		Minimum Diurnal Average: 0.1 ppb at hour 1																	35																													
Monthly Average: 0.44 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 8.4																	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-Oct	0.0	0.1	0.0	0.1	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.5	0.9	2.6	0.9	0.2	0.1	0.0	0.0	0.1	0.3	2.6																						
2-Oct	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	0.5	4.7	0.2	4.7																						
3-Oct	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1																						
4-Oct	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.3																						
5-Oct	0.4	0.1	Z	0.1	1.2	1.5	1.2	0.6	0.4	0.4	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.4	1.5																						
6-Oct	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	0.0	0.0	0.1	0.1																						
7-Oct	0.1	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.3	0.2	0.2	0.4	0.4	0.4	0.5	0.5	0.4	0.3	0.5																						
8-Oct	0.3	0.3	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.5	1.0	1.4	1.1	0.8	0.5	0.2	0.1	0.1	0.1	0.1	0.4	1.4																						
9-Oct	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
10-Oct	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.3																						
11-Oct	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2																						
12-Oct	0.1	0.0	0.0	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.2	12.4	26.9	18.3	8.7	8.5	7.4	6.0	3.1	1.5	1.2	1.2	0.7	0.6	4.3	26.9																						
13-Oct	0.6	0.5	0.4	0.3	Z	0.4	0.4	0.5	0.7	0.9	1.0	0.6	0.5	0.5	0.6	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.2	0.4	1.0																						
14-Oct	0.2	0.2	0.2	0.3	0.3	Z	0.3	0.2	0.2	0.4	0.5	0.5	0.7	0.6	0.4	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.7																						
15-Oct	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2																						
16-Oct	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	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2																						
17-Oct	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1																						
18-Oct	0.0	0.0	0.1	Z	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	0.2	0.1	0.1	0.1	0.3	0.4	0.1	0.4																						
19-Oct	0.2	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.5	0.5	0.3	2.0	3.8	17.3	26.9	14.4	6.4	2.8	0.6	0.3	0.2	0.2	0.2	3.4	26.9																						
20-Oct	0.6	1.5	1.7	2.1	1.0	Z	1.6	0.5	0.2	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	0.5	2.1																						
21-Oct	Z	0.0	0.0	0.0	0.0	0.0	2.1	4.9	6.4	4.5	2.3	0.8	3.0	5.7	2.9	1.2	2.1	0.3	0.1	0.1	0.1	0.1	0.0	0.0	1.6	6.4																						
22-Oct	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
23-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1																						
24-Oct	0.0	0.0	0.0	Z	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	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1																						
25-Oct	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
26-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.2	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	0.1	0.2																						
27-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1																						
28-Oct	0.1	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
29-Oct	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	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1																						
30-Oct	0.1	0.1	0.3	Z	0.3	0.8	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.8																					
31-Oct	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1																						
																								0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.6	1.2	1.1	1.1	1.3	0.9	0.6	0.3	0.2	0.1	0.1	0.1	0.3	Diurnal Average
																								0.6	1.5	1.7	2.1	1.2	1.5	2.1	4.9	6.4	4.5	2.3	12.4	26.9	18.3	17.3	26.9	14.4	6.4	3.1	1.5	1.2	1.2	0.7	4.7	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  
Athabasca Valley - October 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - October 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	4	0.56	99.72
21 - 60	2	0.28	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**  
**Athabasca Valley - October 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	4	10	22	23	66	155	30	24	50	50	58	54	47	26	65	698
11 - 20	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	4
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
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>	15	4	11	22	23	66	155	30	24	50	50	58	54	47	26	69	704

Total Number of Valid Hours: 704

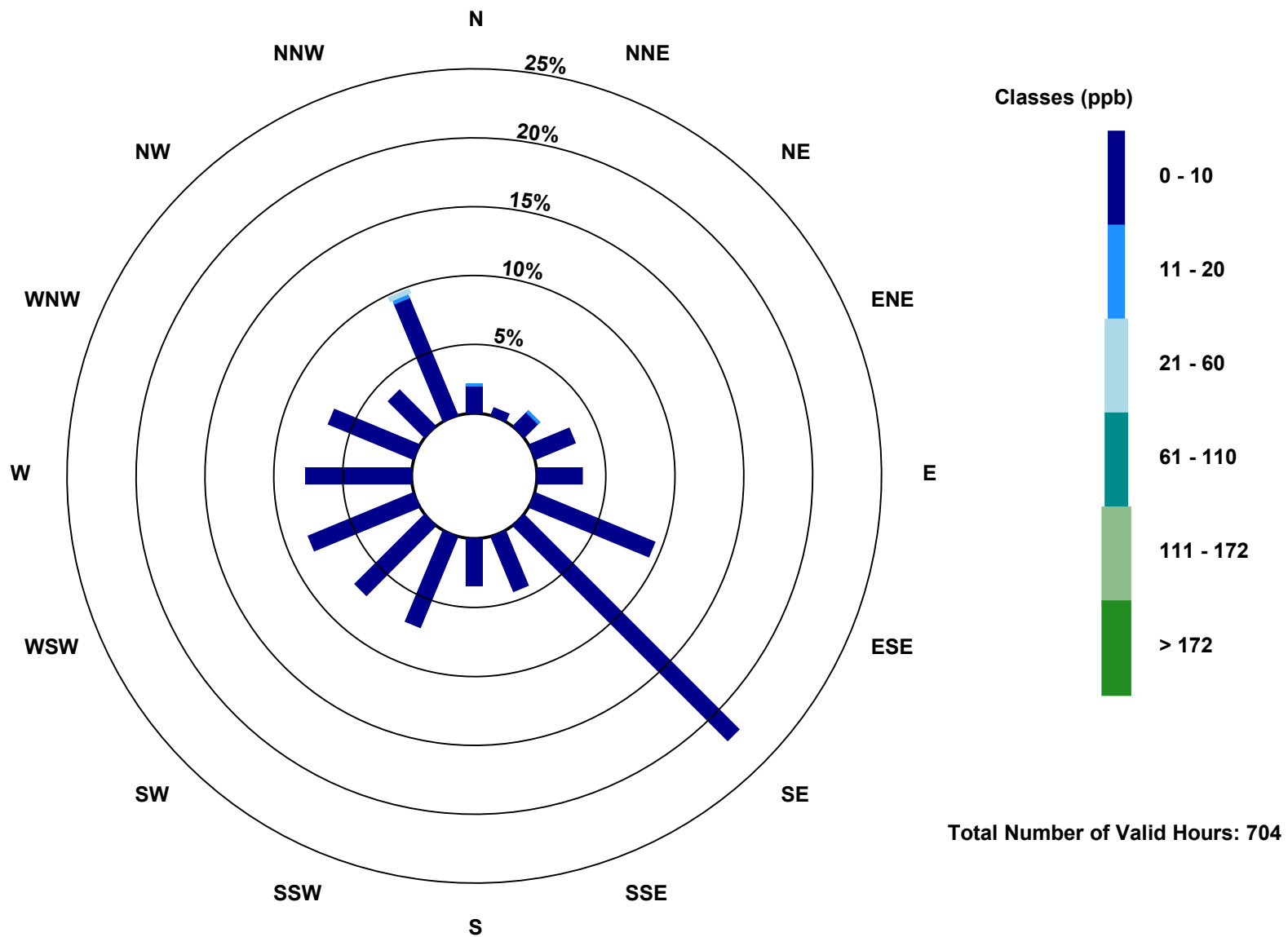
Total Number of Hours: 744

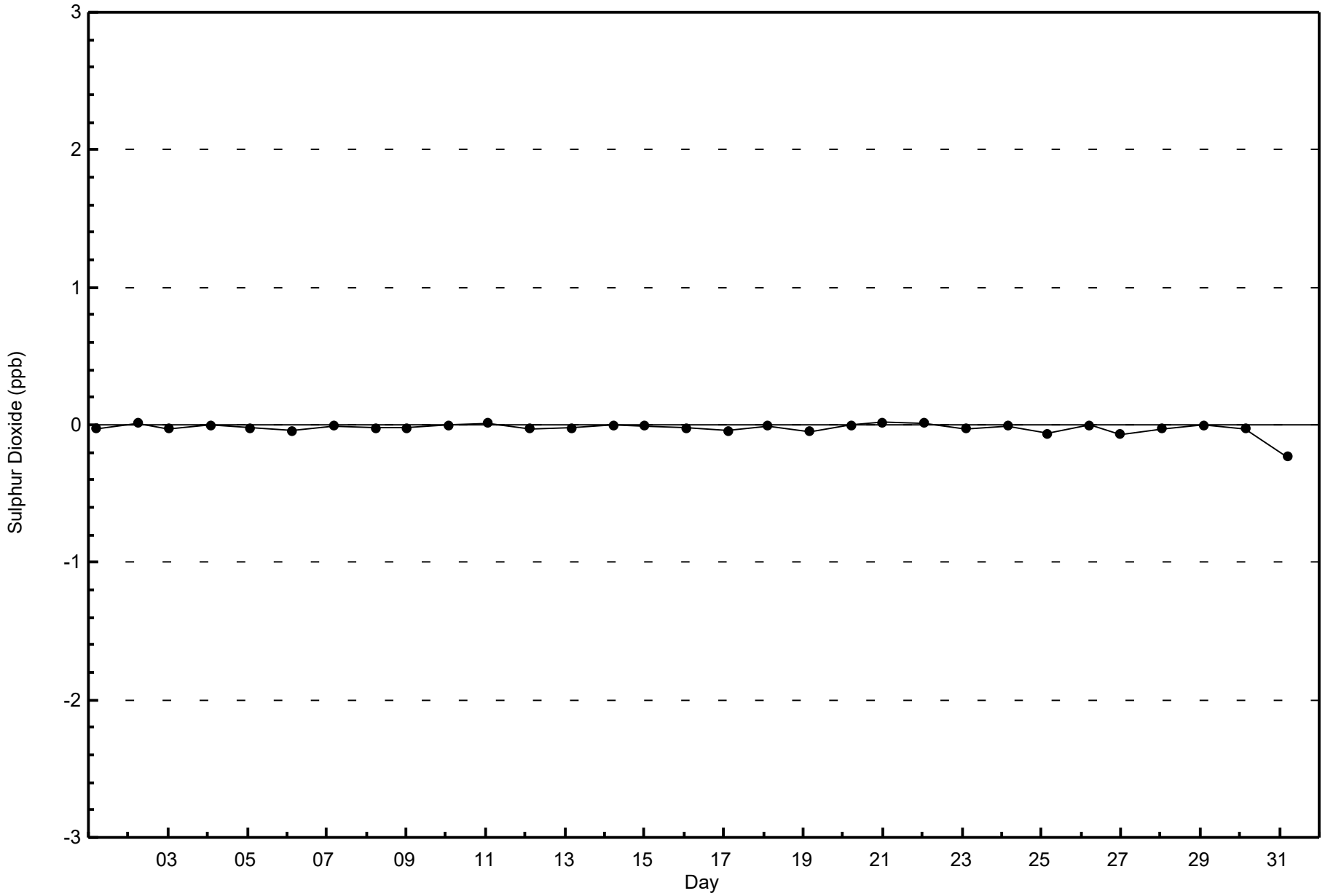


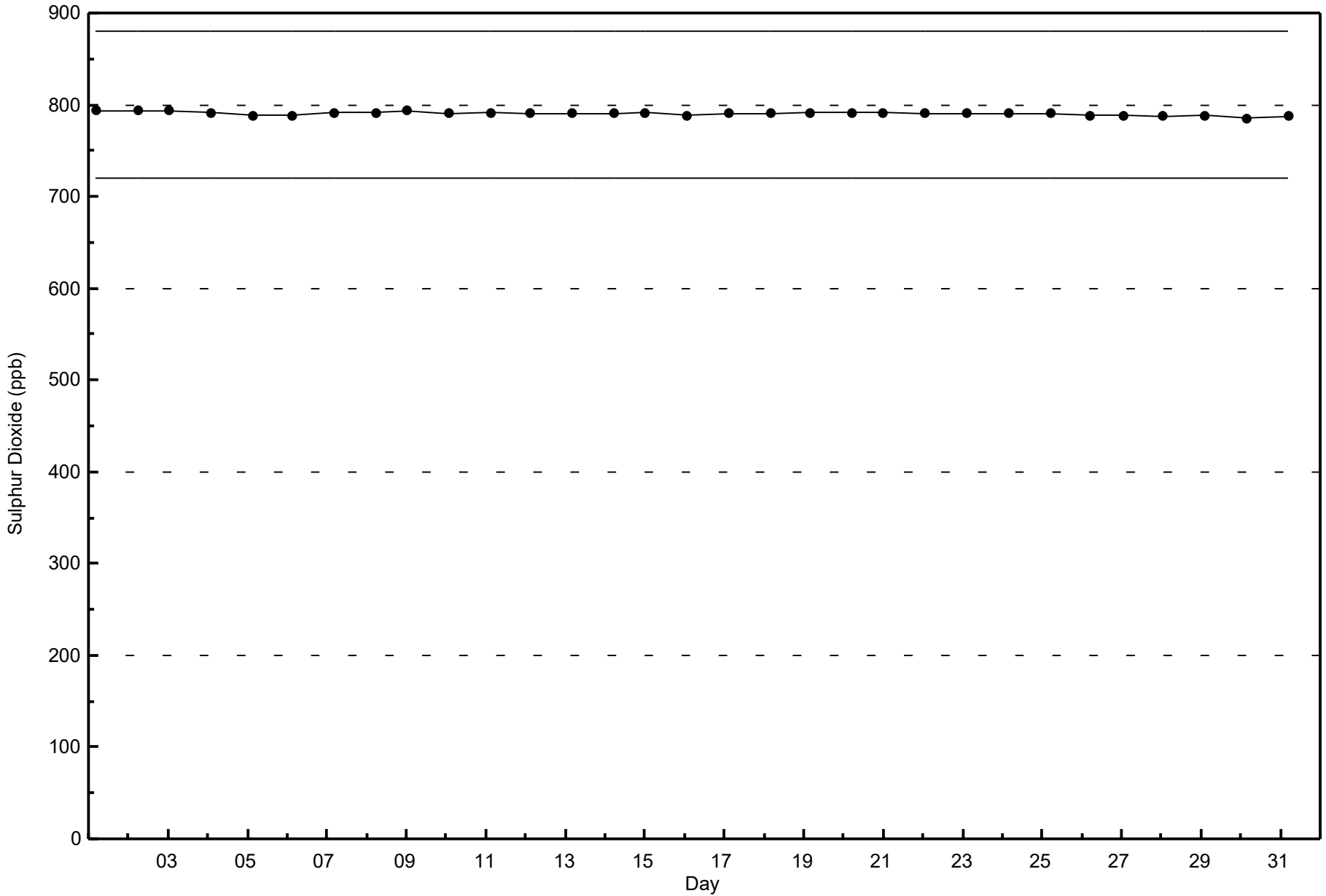


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

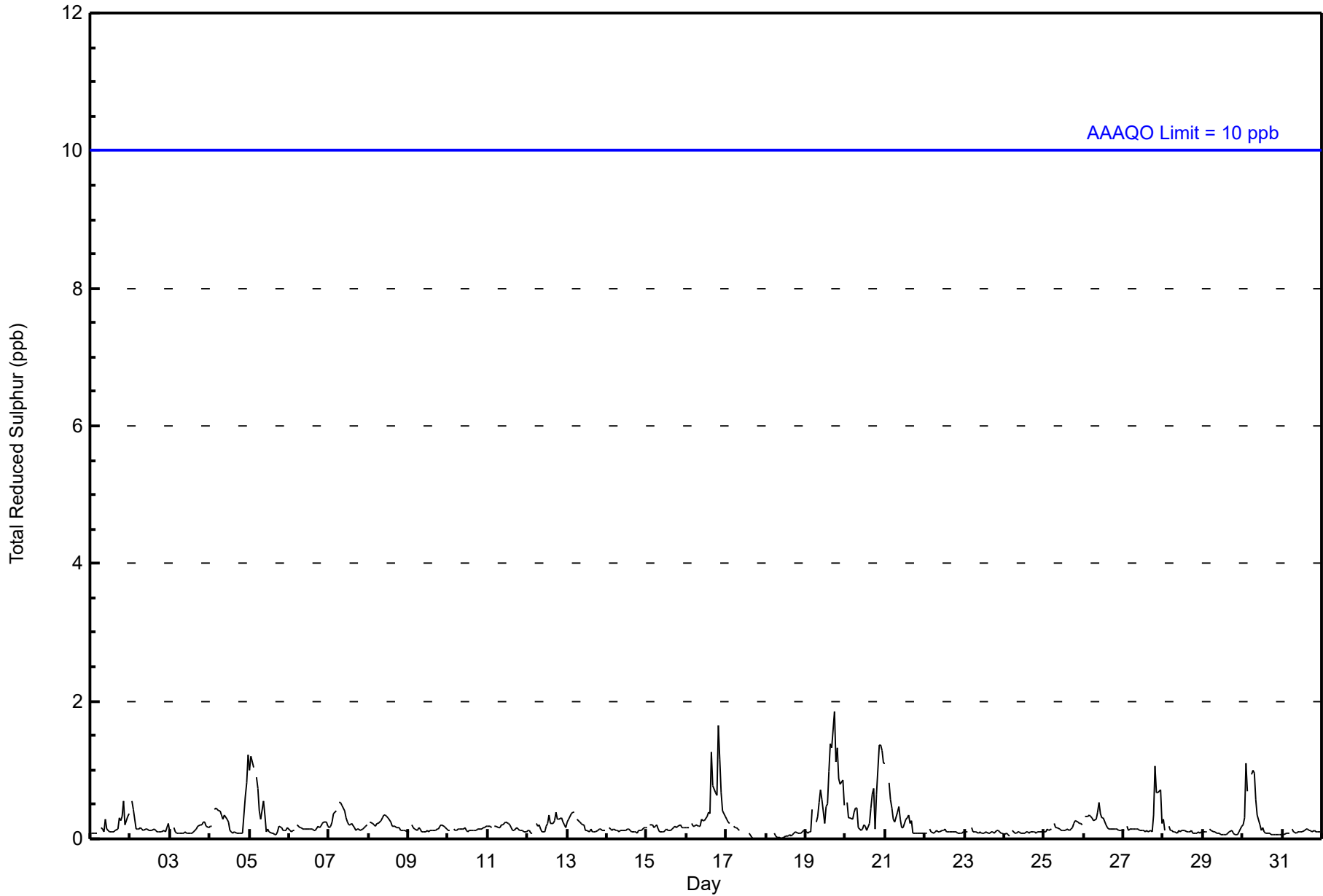
Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Athabasca Valley - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 1.8 ppb on Oct 19 18:00		Maximum Daily Average: 0.7 ppb on Oct 19		Hours of Data: 708														Hours of Missing Data: 36		Hours of Calibration: 36							
Minimum Value: 0.0 ppb on Oct 17 17:00		Minimum Daily Average: 0.0 ppb on Oct 18		Hours of Calibration: 36														Percent Operational Time: 100.0									
Maximum Diurnal Average: 0.3 ppb at hour 3		Minimum Diurnal Average: 0.2 ppb at hour 12		Percentiles: P <sub>1</sub> = 0.0 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> = 0.4 P <sub>99</sub> = 1.3																							
Monthly Average: 0.21 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-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.5	0.2	0.3	0.4	0.2	0.5	
2-Oct	Z	0.5	0.4	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	0.2	0.2	0.2	0.2	0.5
3-Oct	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
4-Oct	0.2	0.2	Z	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.8	1.2	0.3	1.2	
5-Oct	1.0	1.2	1.0	Z	0.9	0.7	0.4	0.3	0.5	0.3	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	0.2	0.3	1.2	
6-Oct	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	
7-Oct	0.2	0.2	0.3	0.4	0.4	Z	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.5	
8-Oct	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
9-Oct	0.1	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	
10-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	
11-Oct	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	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
12-Oct	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	
13-Oct	0.2	0.3	0.4	0.4	0.4	Z	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
14-Oct	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	0.2	0.2	0.1	0.2	
15-Oct	0.2	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
16-Oct	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	1.3	0.8	0.7	0.6	1.6	1.2	0.7	0.4	0.3	0.5	1.6	
17-Oct	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
18-Oct	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	
19-Oct	0.1	0.1	0.1	0.1	0.4	Z	0.2	0.3	0.5	0.7	0.6	0.2	0.5	0.5	1.0	1.4	1.3	1.8	1.1	1.3	0.9	0.8	0.9	0.5	0.7	1.8	
20-Oct	Z	0.5	0.3	0.3	0.3	0.4	0.5	0.5	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.4	0.7	0.7	0.1	0.6	1.4	1.4	1.3	1.1	0.5	1.4	
21-Oct	1.1	Z	0.8	0.6	0.4	0.3	0.2	0.4	0.5	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.1	
22-Oct	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	
23-Oct	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	0.2	
24-Oct	0.1	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
25-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	
26-Oct	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	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	0.2	0.5	
27-Oct	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	0.3	1.1	0.7	0.7	0.7	0.2	0.3	1.1	
28-Oct	0.3	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	0.3	
29-Oct	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	0.2	0.1	0.2	
30-Oct	0.2	0.3	1.1	0.7	Z	0.9	1.0	1.0	0.6	0.3	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	0.3	1.1	
31-Oct	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
																								Diurnal Average		Diurnal Maximum	
																								0.2		1.1	
																								0.2		1.2	
																								0.3		1.1	
																								0.2		0.7	
																								0.2		0.9	
																								0.2		0.9	
																								0.2		1.0	
																								0.2		1.0	
																								0.2		0.6	
																								0.2		0.7	
																								0.2		0.6	
																								0.2		0.3	
																								0.2		0.5	
																								0.2		0.5	
																								0.2		1.0	
																								0.2		1.4	
																								0.2		1.3	
																								0.2		1.8	
																								0.2		1.1	
																								0.3		1.6	
																								0.3		1.4	
																								0.2		1.4	
																								0.2		1.3	
																								0.2		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**

**Total Reduced Sulphur (TRS) - ppb**  
**Athabasca Valley - October 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  
Athabasca Valley - October 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	4	11	22	24	63	155	32	25	49	50	53	53	51	26	69	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>	16	4	11	22	24	63	155	32	25	49	50	53	53	51	26	69	703

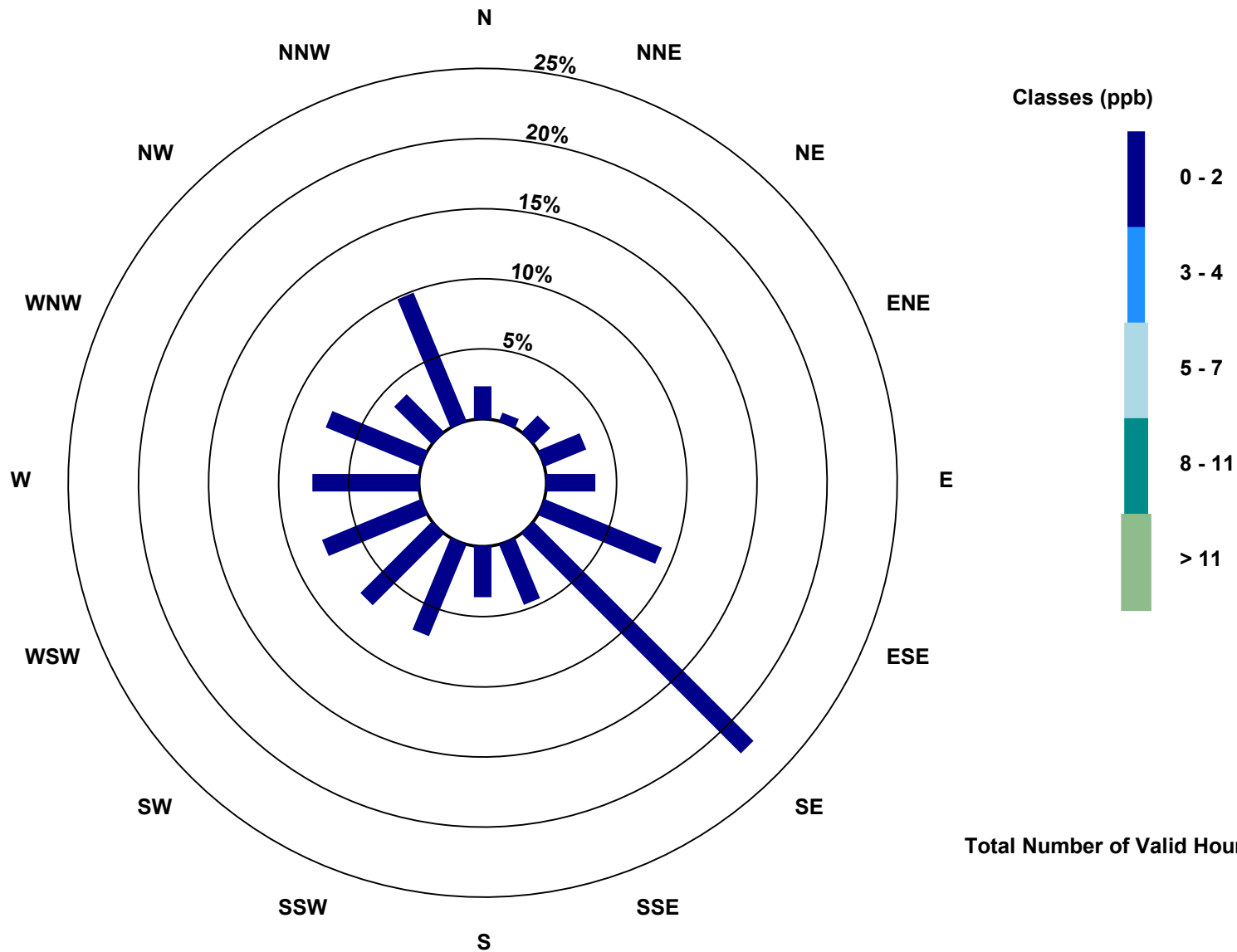
Total Number of Valid Hours: 703

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley

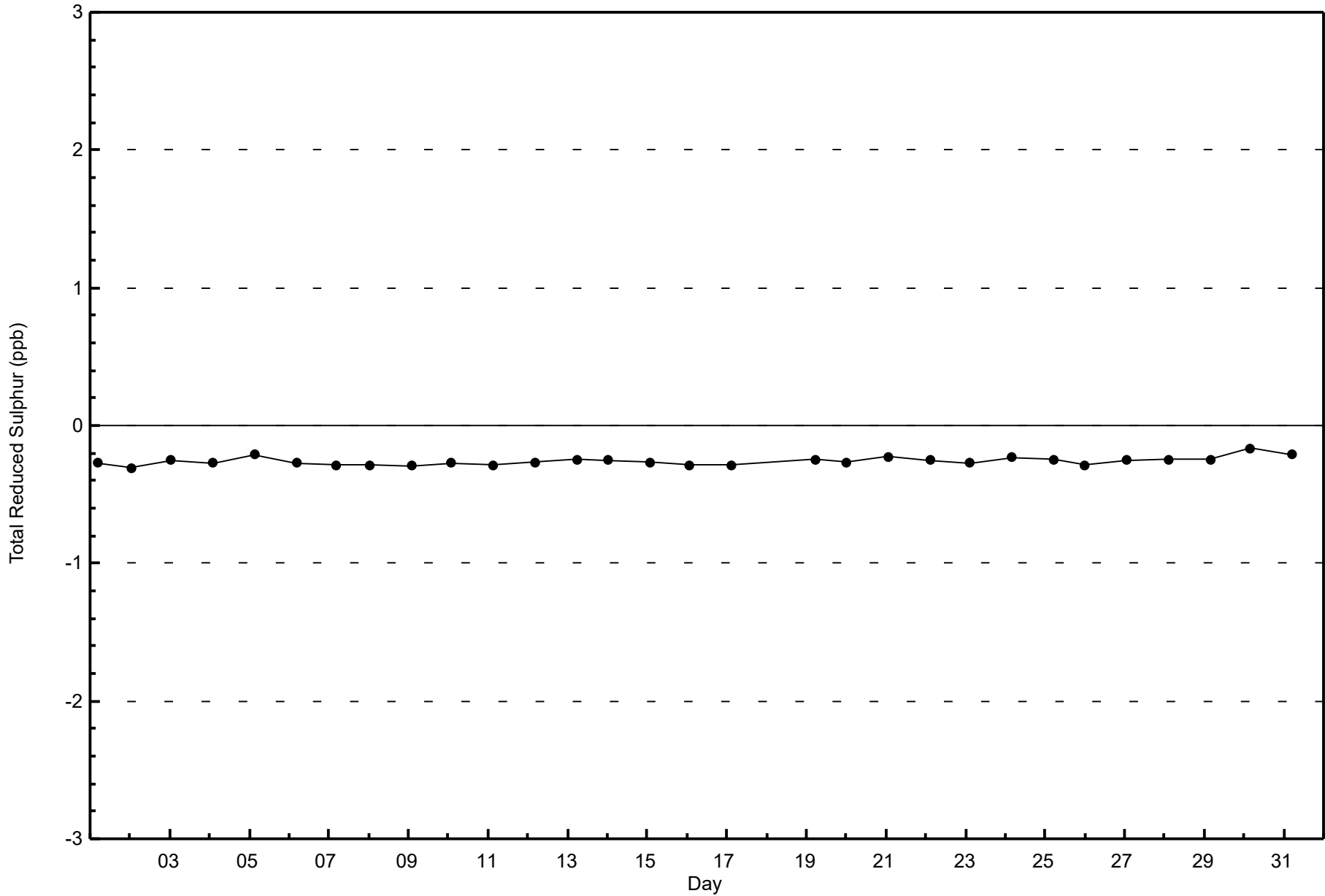


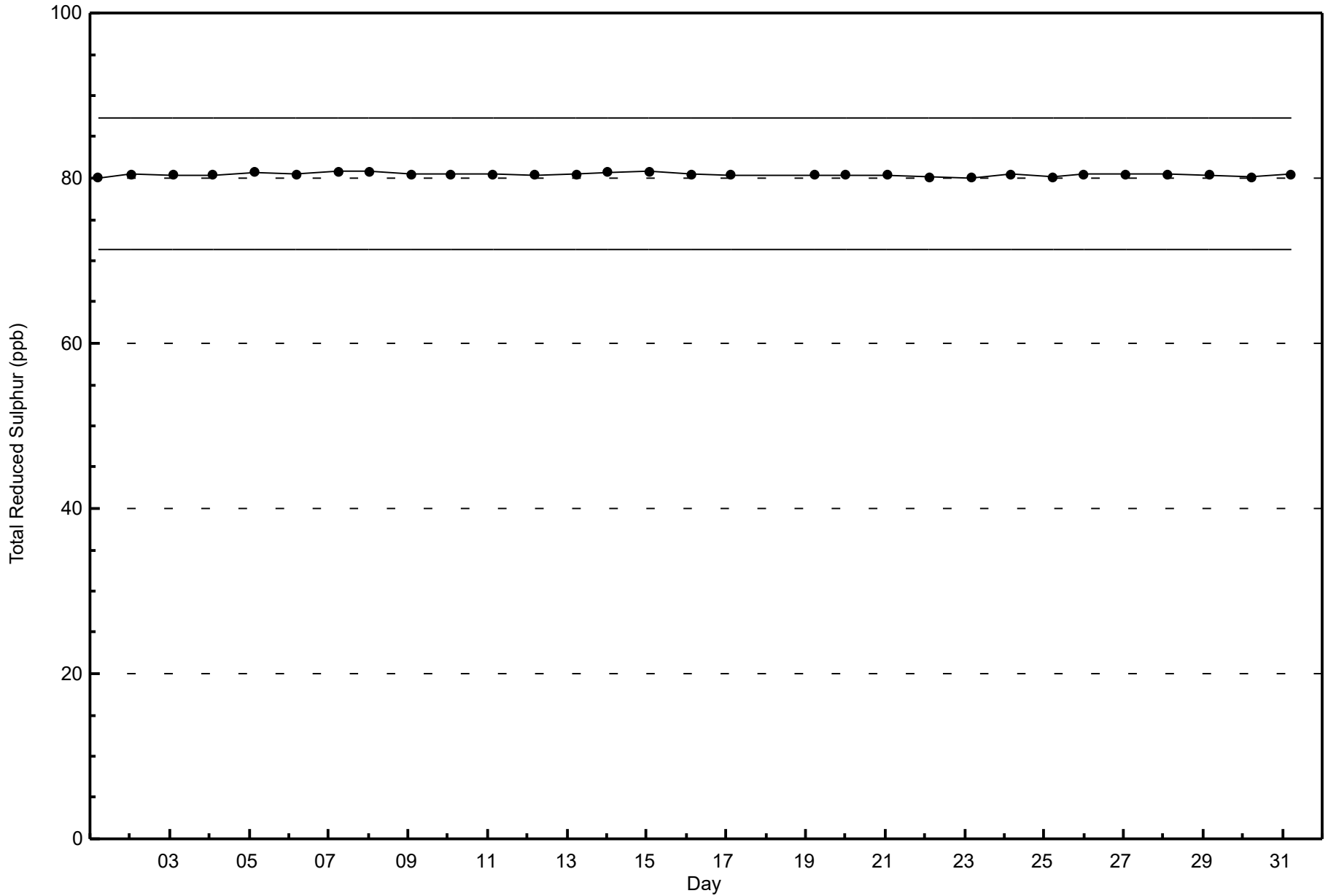




**Wood Buffalo Environmental Association**  
**Zero Responses**

**Total Reduced Sulphur (TRS) - ppb**  
**Athabasca Valley - October 2024**



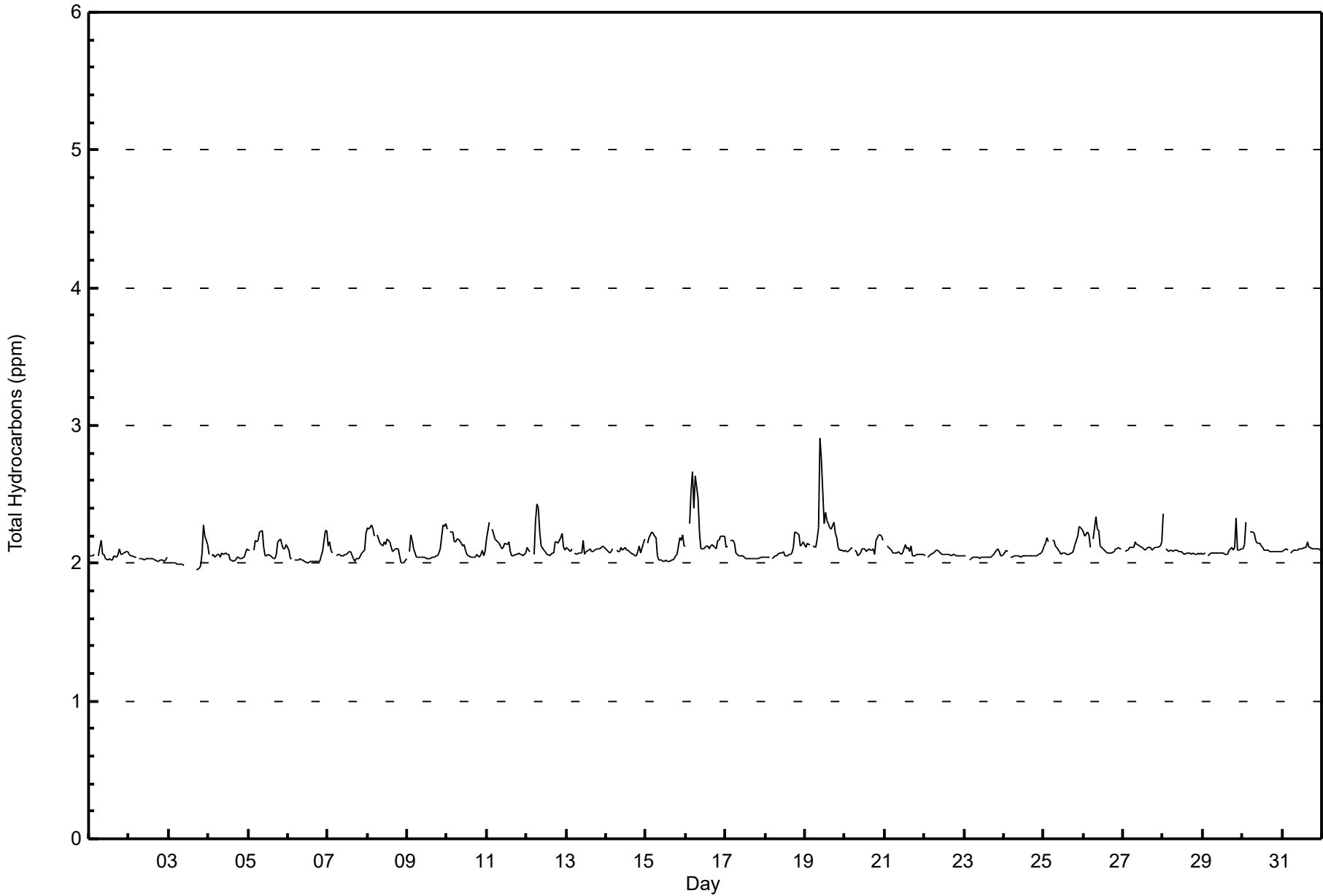






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Athabasca Valley - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	149	21.10	21.10
2.1 - 3.0	557	78.90	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  
Athabasca Valley - October 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	3	1	1	4	1	1	3	1	4	14	24	37	25	22	5	3	149
2.1 - 3.0	12	3	10	18	22	65	152	29	20	36	26	21	27	24	21	66	552
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>	15	4	11	22	23	66	155	30	24	50	50	58	52	46	26	69	701

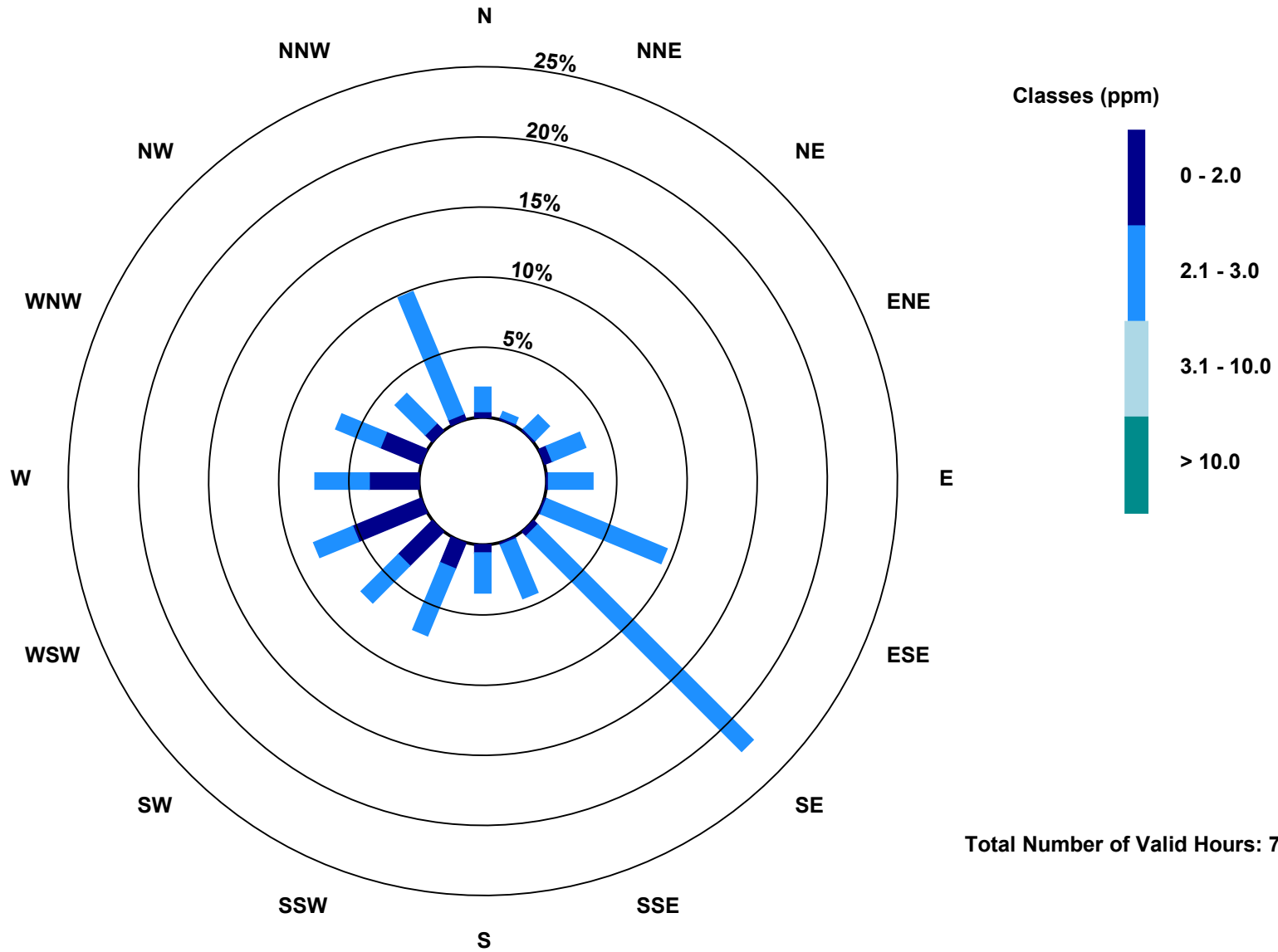
Total Number of Valid Hours: 701

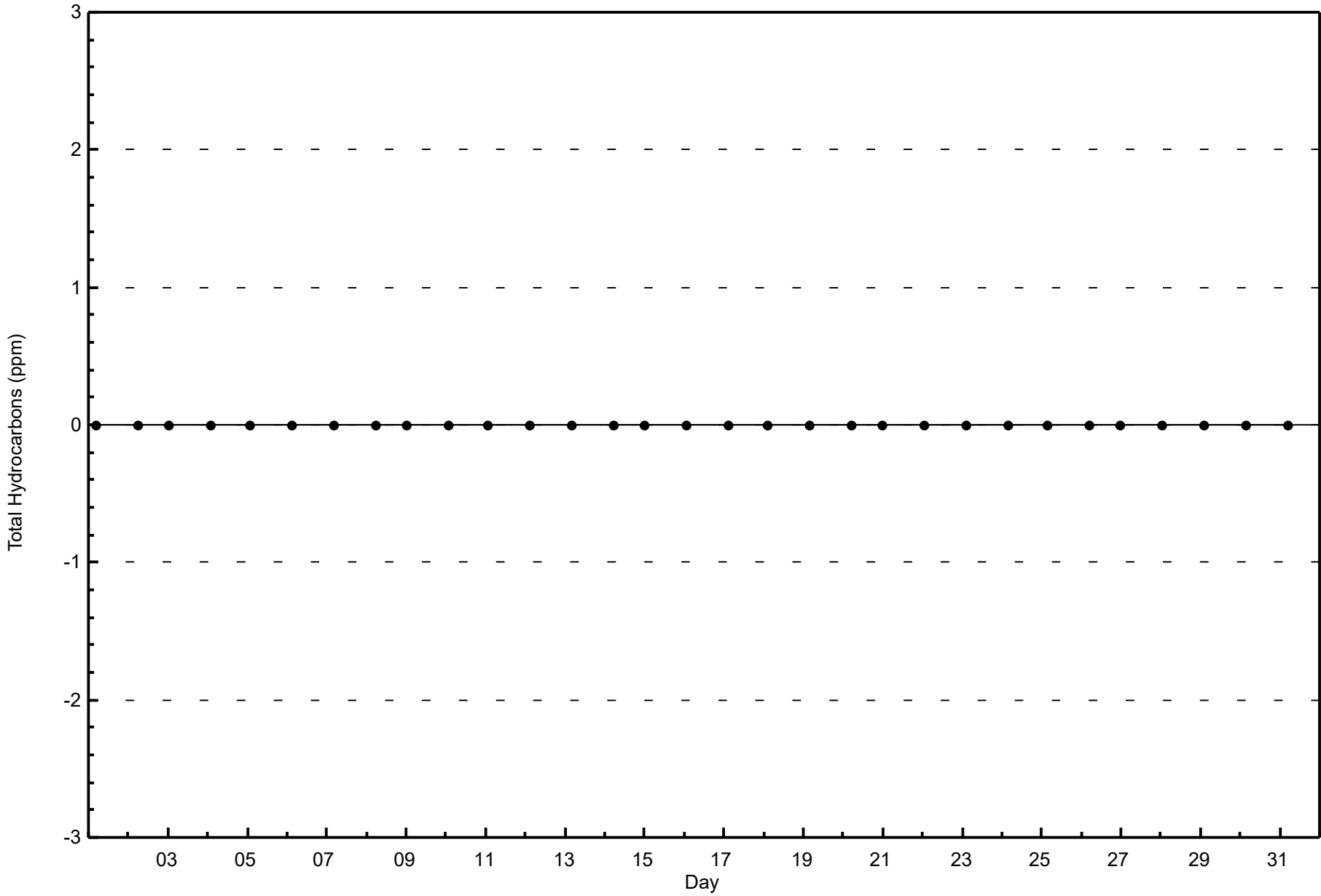
Total Number of Hours: 744



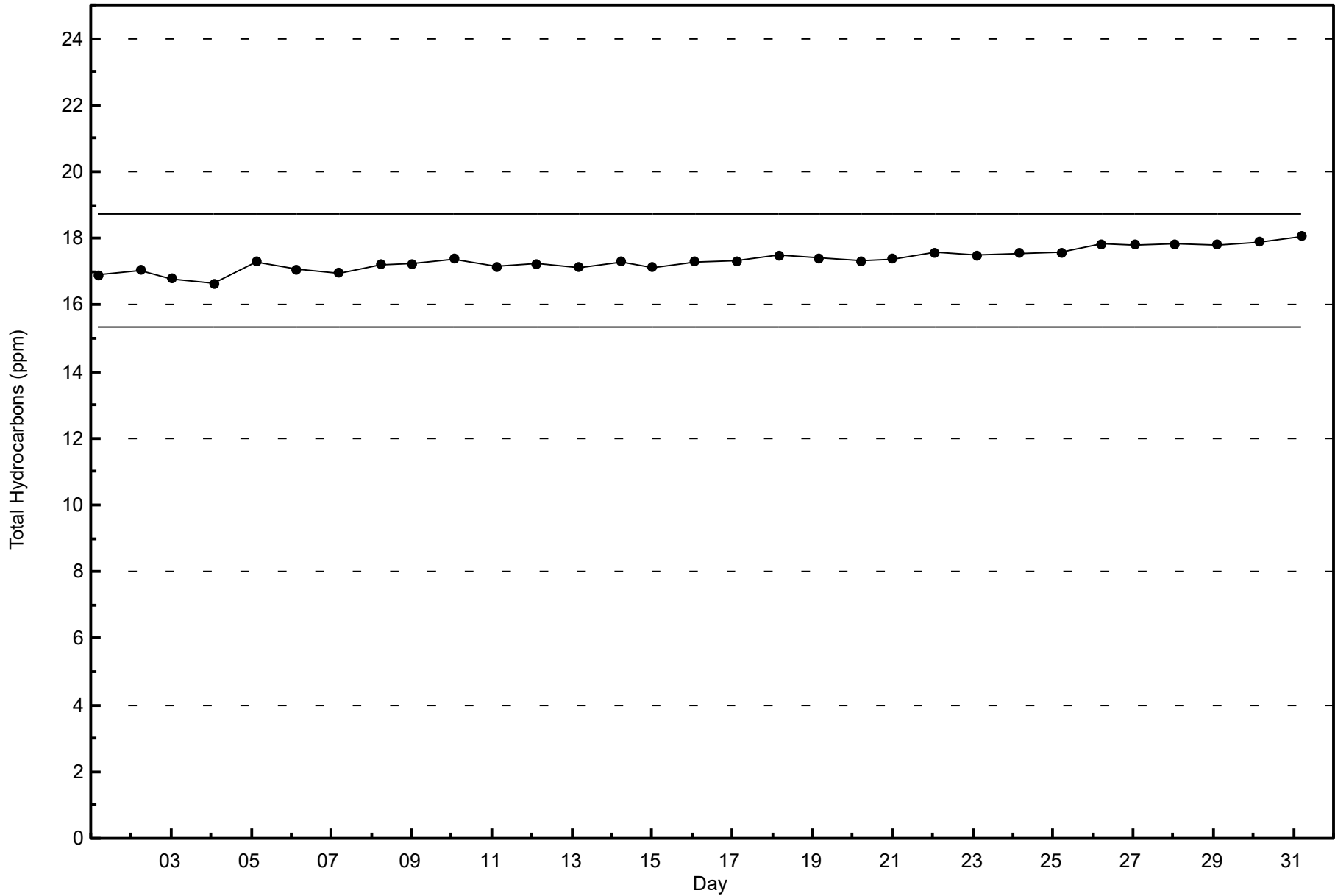
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Athabasca Valley

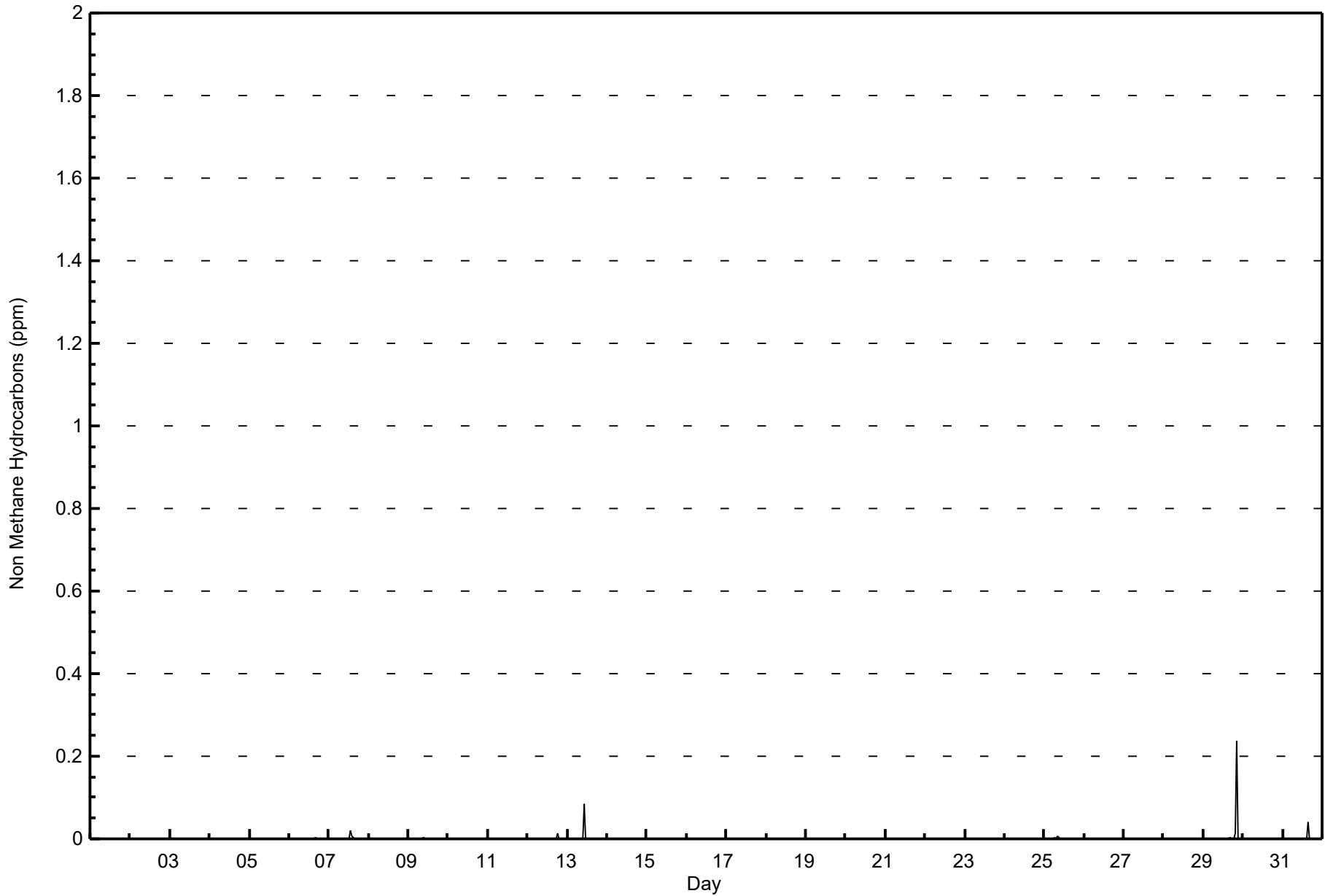














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	699	99.01	99.01
0.006 - 0.05	5	0.71	99.72
0.06 - 0.1	1	0.14	99.86
> 0.1	1	0.14	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - October 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	15	4	11	22	23	66	149	30	23	50	50	58	52	46	26	69	694
0.006 - 0.05	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	5
0.06 - 0.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
> 0.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	15	4	11	22	23	66	155	30	24	50	50	58	52	46	26	69	701

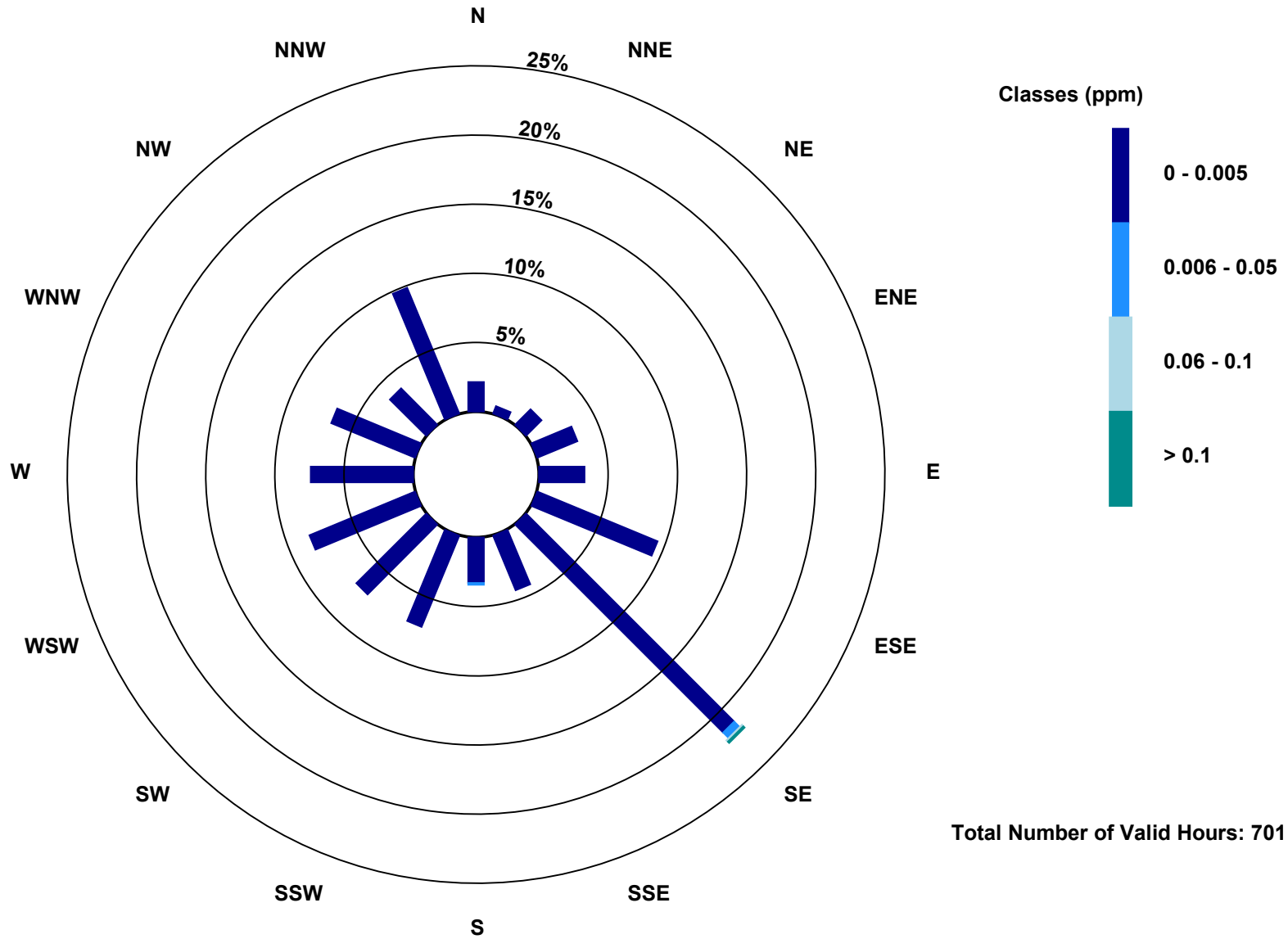
Total Number of Valid Hours: 701

Total Number of Hours: 744

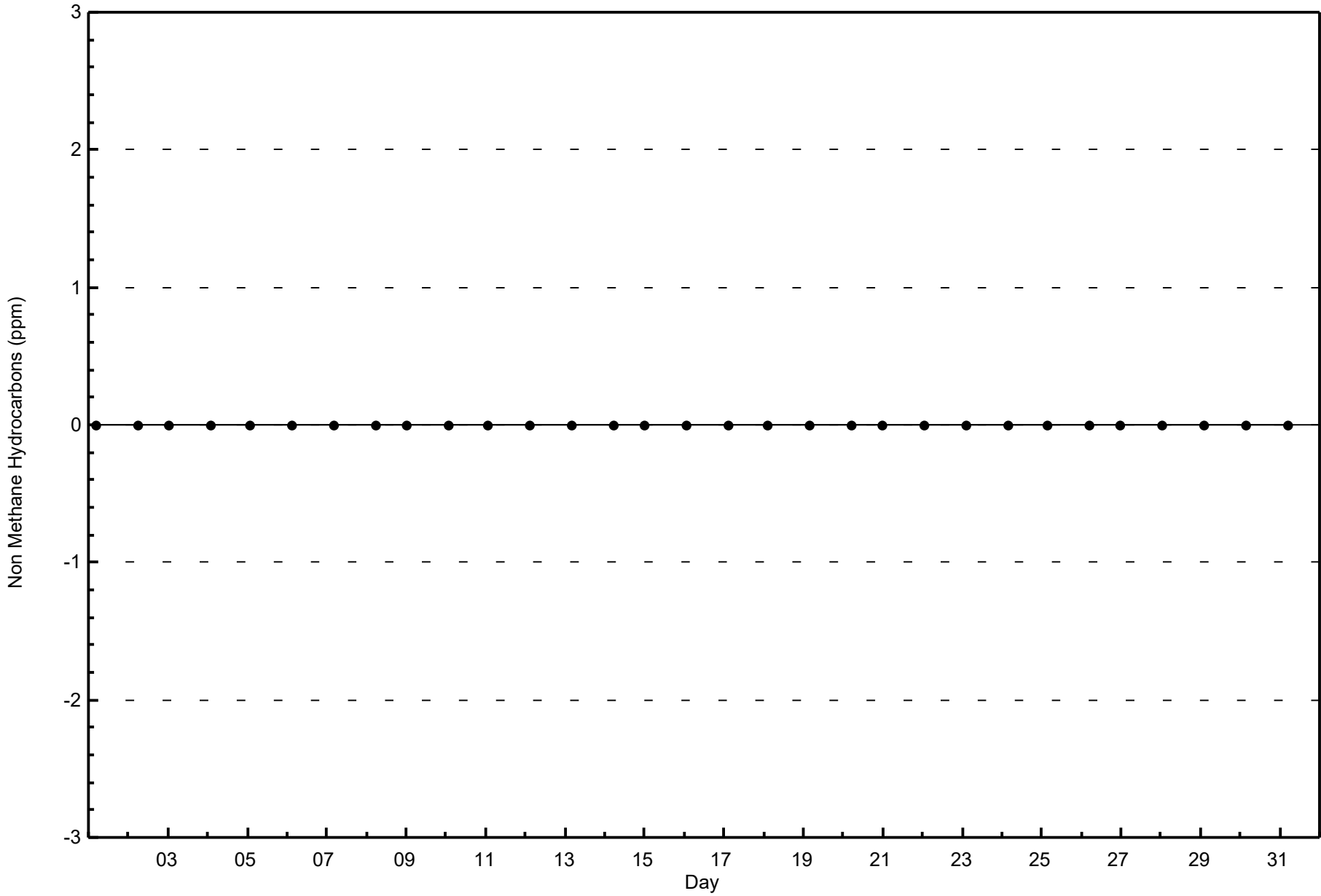


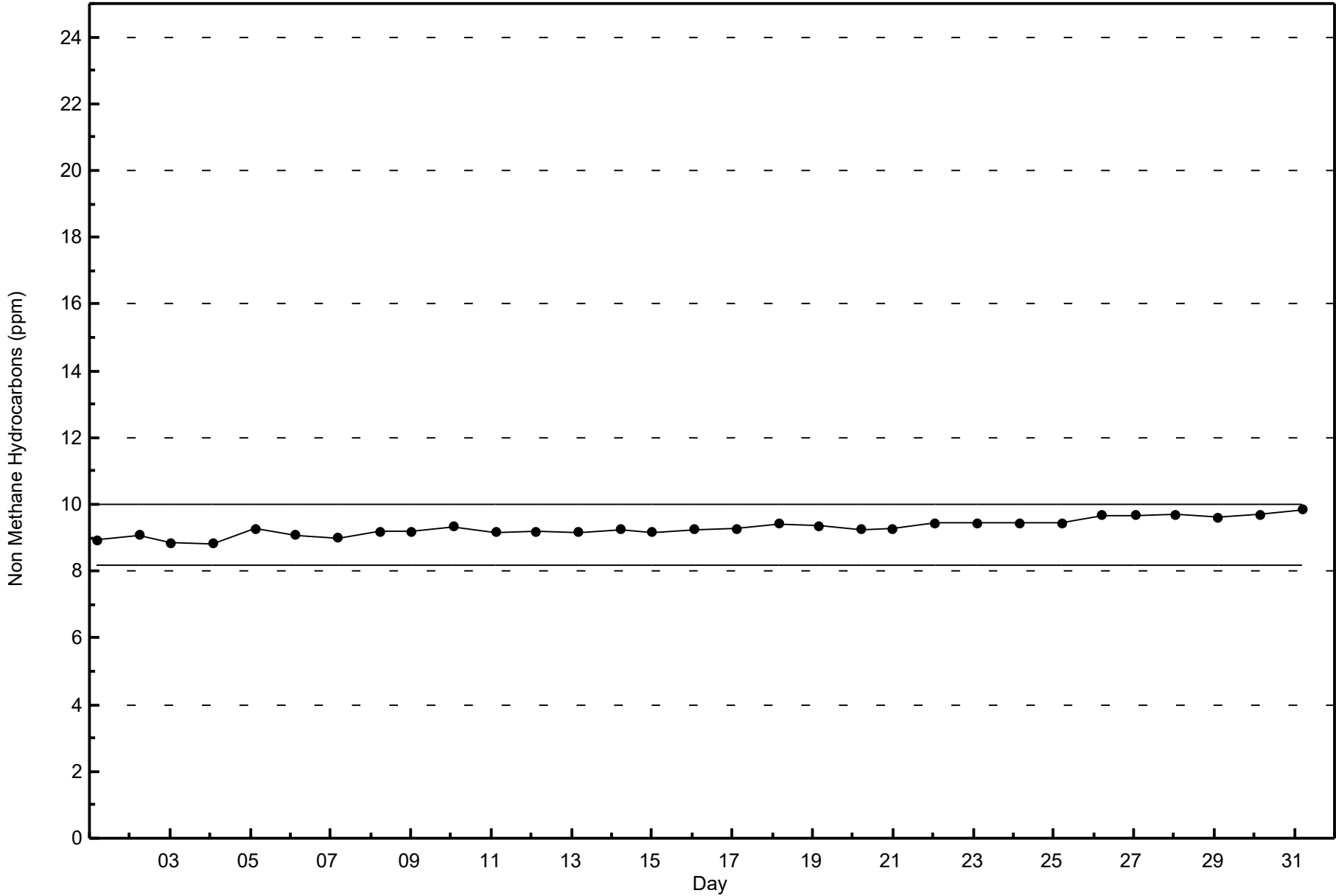
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley



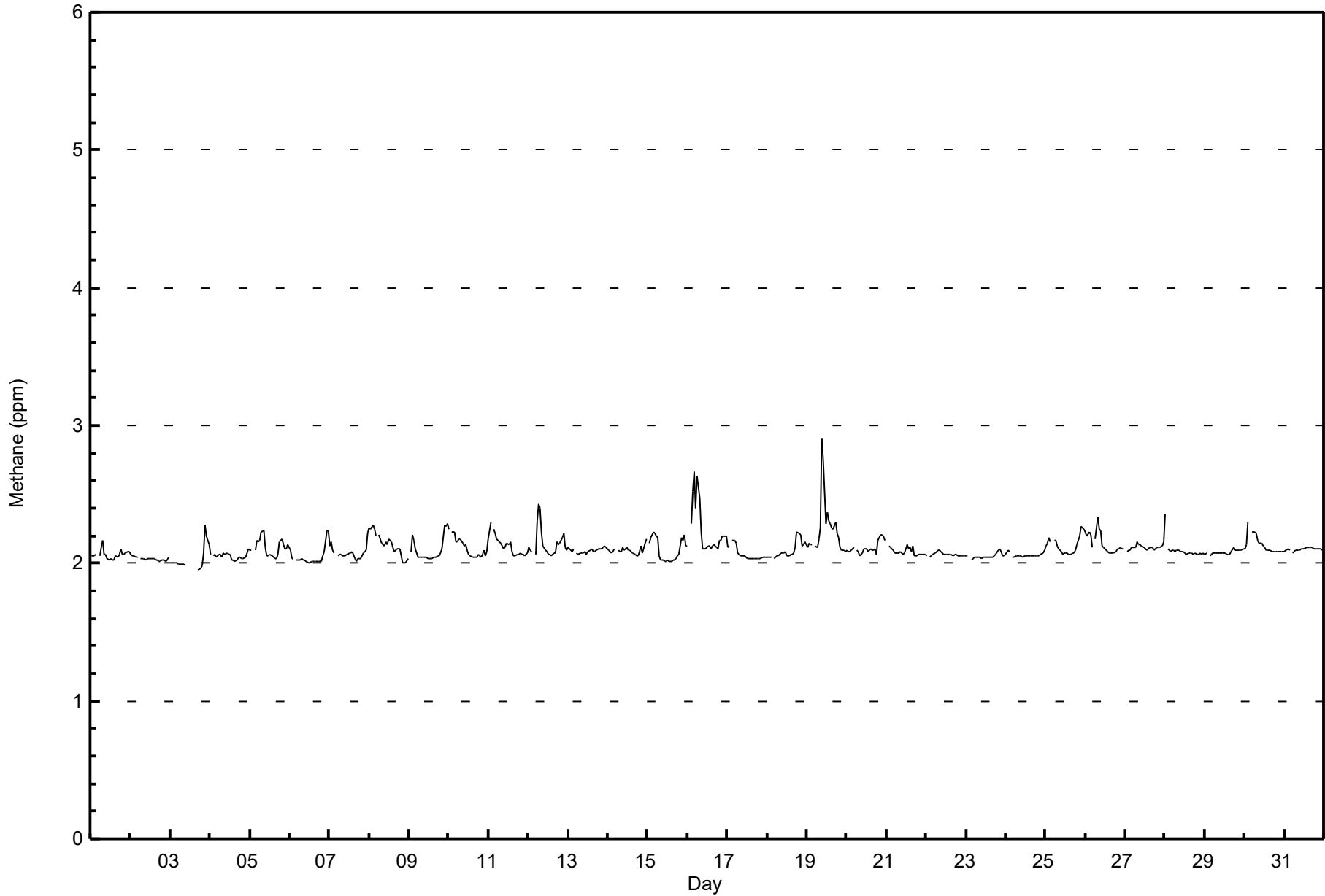
Total Number of Valid Hours: 701













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Athabasca Valley - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	149	21.10	21.10
2.1 - 3.0	557	78.90	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**  
**Athabasca Valley - October 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	3	1	1	4	1	1	3	1	4	14	24	37	25	22	5	3	149
2.1 - 3.0	12	3	10	18	22	65	152	29	20	36	26	21	27	24	21	66	552
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>	15	4	11	22	23	66	155	30	24	50	50	58	52	46	26	69	701

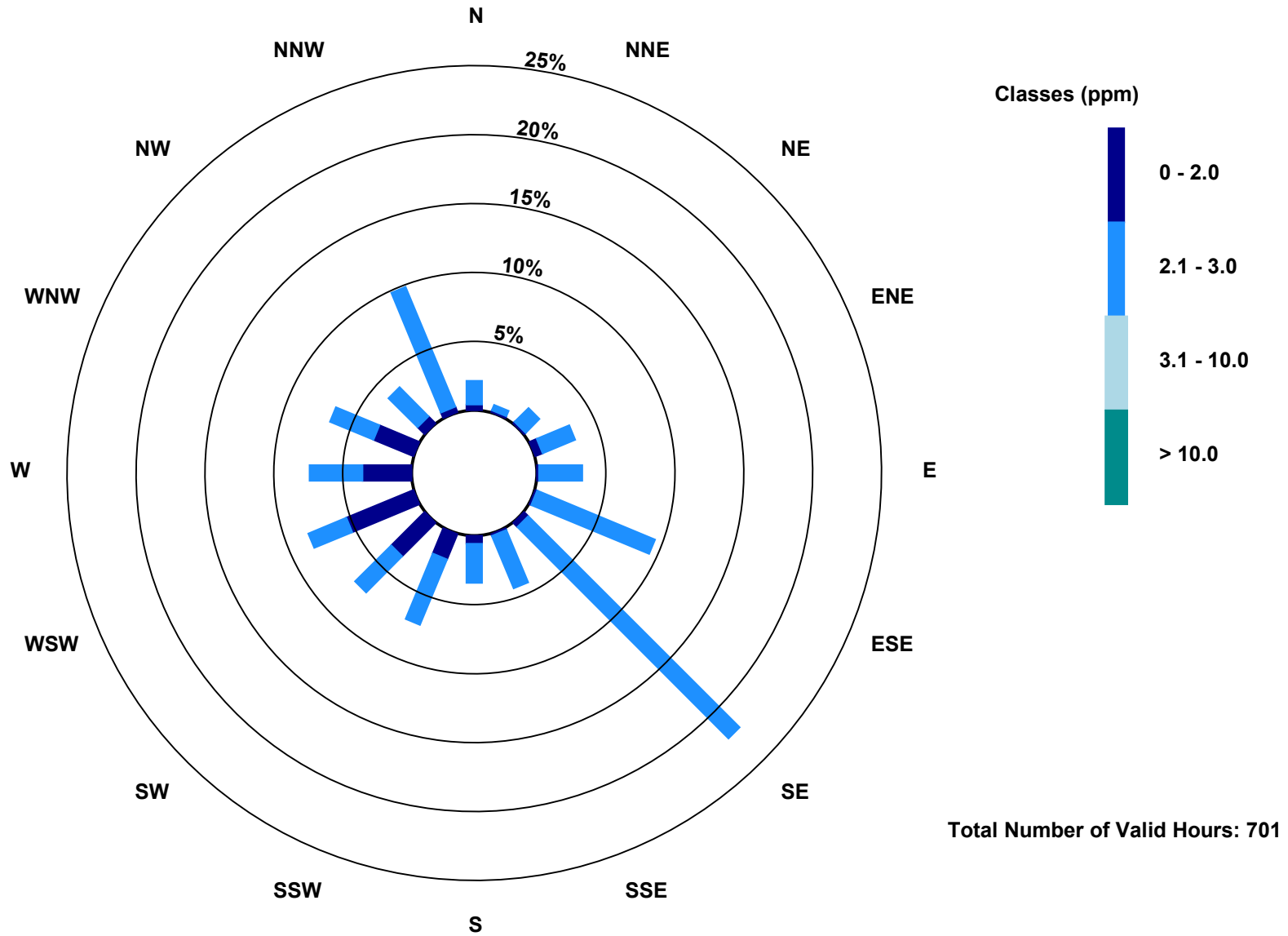
Total Number of Valid Hours: 701

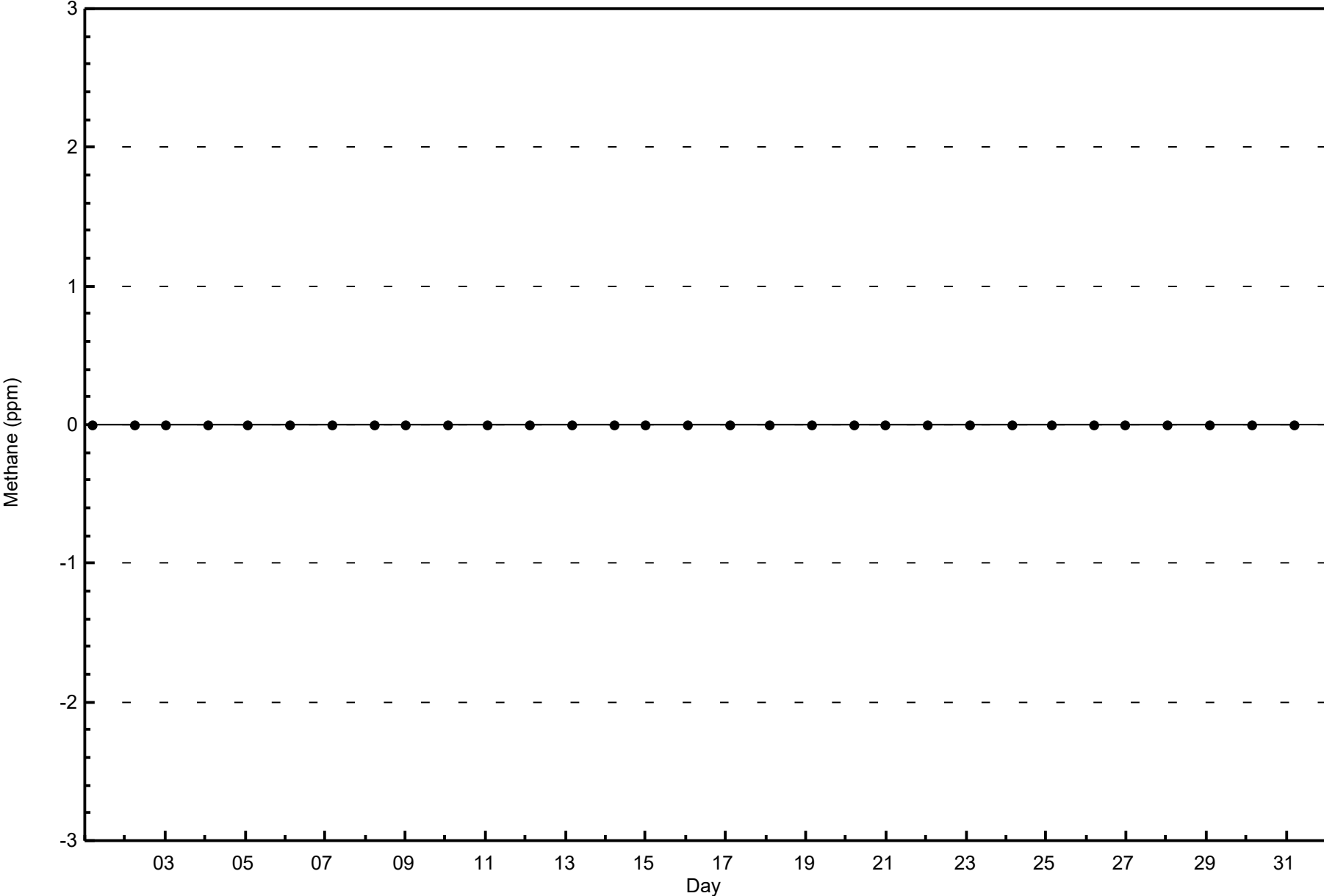
Total Number of Hours: 744

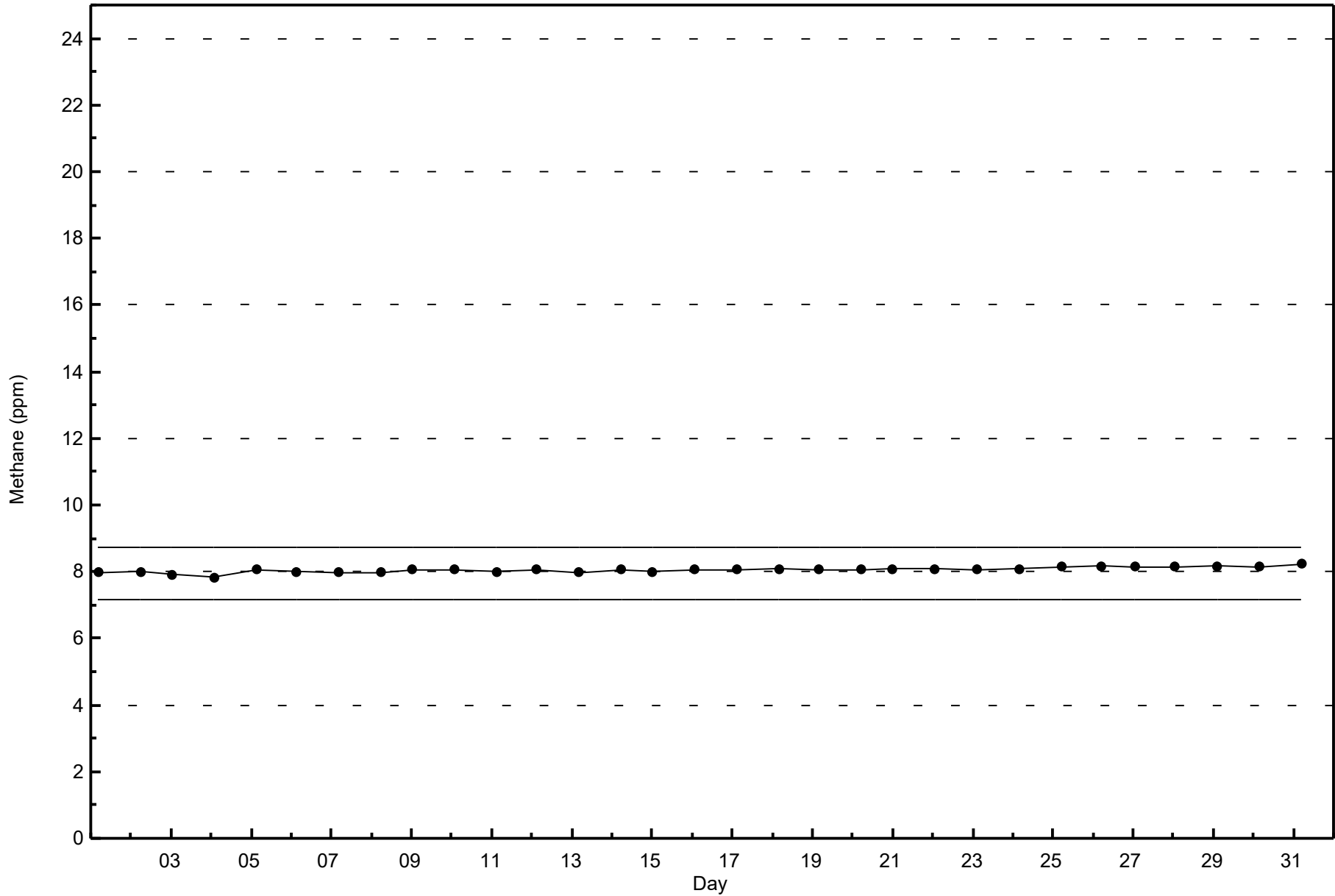


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

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

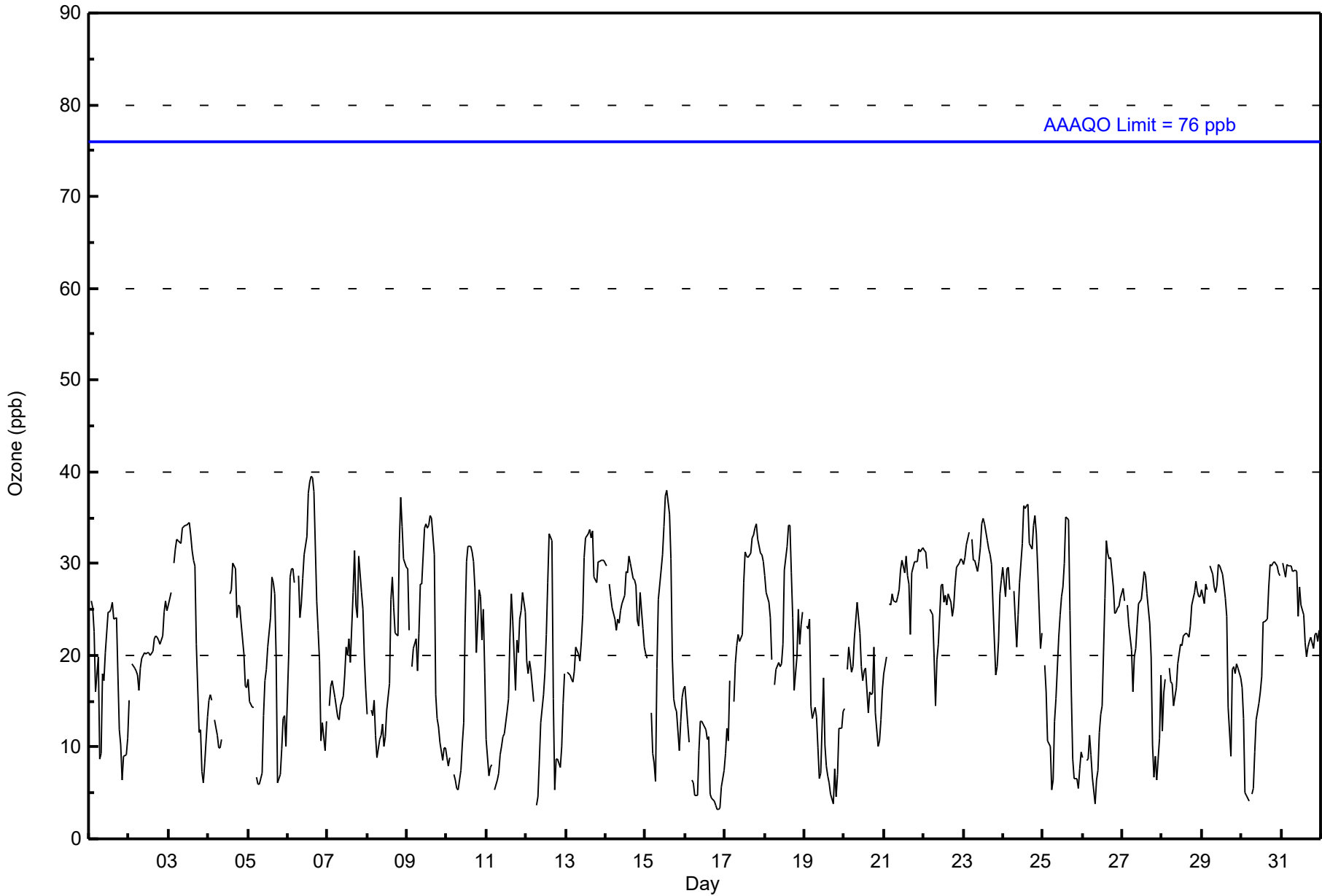
Athabasca Valley - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 39.5 ppb on Oct 6 15:00	Maximum Daily Average: 29.7 ppb on Oct 24		Hours of Data:	709
Minimum Value: 3.1 ppb on Oct 16 20:00	Minimum Daily Average: 8.0 ppb on Oct 16		Hours of Missing Data:	35
Maximum Diurnal Average: 27.4 ppb at hour 15	Minimum Diurnal Average: 16.0 ppb at hour 7		Hours of Calibration:	35
Monthly Average: 21.05 ppb	Percentiles: P <sub>1</sub> = 4.1 P <sub>10</sub> = 8.6 Q <sub>1</sub> = 14.3 Median = 21.9 Q <sub>3</sub> = 28.1 P <sub>90</sub> = 31.4 P <sub>99</sub> = 37.1		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-Oct	Z	25.9	25.2	22.5	16.0	19.9	8.7	9.3	18.1	17.2	20.2	24.7	24.8	25.0	25.8	23.9	24.2	17.9	12.0	10.2	6.5	9.0	9.2	11.0	17.7	25.9																							
2-Oct	15.1	Z	19.1	18.7	18.4	17.9	16.2	18.5	19.6	20.3	20.2	20.3	20.3	20.0	20.4	21.8	22.2	22.0	21.7	21.2	22.1	24.7	25.9	24.9	20.5	25.9																							
3-Oct	25.5	26.9	Z	30.0	31.6	32.6	32.5	32.1	33.9	34.0	34.1	34.2	34.4	33.2	31.4	30.4	29.7	21.2	11.7	11.9	7.3	6.1	8.2	13.3	25.5	34.4																							
4-Oct	15.1	15.7	15.0	Z	13.0	11.3	10.0	10.0	10.8	C	C	C	C	26.8	27.2	30.1	29.5	24.1	25.5	25.3	23.5	20.1	16.6	16.5	19.3	30.1																							
5-Oct	17.4	15.0	14.3	14.3	Z	6.7	6.0	5.9	7.2	13.4	17.2	18.5	20.8	24.1	28.5	28.0	26.7	20.0	6.1	7.0	9.7	13.2	13.5	10.0	14.9	28.5																							
6-Oct	20.1	28.5	29.4	29.4	27.9	Z	28.7	24.1	25.7	28.4	30.9	33.0	37.6	38.9	39.5	39.4	37.9	26.0	22.7	19.4	10.6	12.7	9.5	12.8	26.7	39.5																							
7-Oct	Z	14.4	16.7	17.3	15.4	14.4	13.3	13.0	14.5	15.6	17.8	20.8	20.0	21.9	19.2	26.8	31.4	25.5	24.2	30.8	26.9	25.0	19.8	16.4	20.0	31.4																							
8-Oct	13.5	Z	14.1	13.4	15.1	11.2	8.9	10.9	11.3	12.4	10.0	11.1	14.0	16.9	26.2	28.6	25.2	22.5	22.1	32.3	37.2	34.0	30.5	29.5	19.6	37.2																							
9-Oct	29.4	22.8	Z	18.7	20.7	21.8	18.3	22.4	27.7	27.7	33.9	34.4	33.9	34.2	35.3	34.9	31.0	15.7	13.1	12.2	10.5	8.6	9.9	9.9	22.9	35.3																							
10-Oct	8.8	7.9	8.8	Z	7.0	6.3	5.5	5.3	7.4	10.4	12.6	23.5	30.2	31.9	31.9	31.3	30.2	27.2	20.3	27.2	26.4	21.6	25.1	18.1	18.5	31.9																							
11-Oct	10.8	6.9	7.7	8.1	Z	5.3	6.4	7.1	9.1	10.1	11.2	11.4	13.9	15.2	22.0	26.7	23.7	16.2	21.6	20.3	23.9	24.9	26.8	24.7	15.4	26.8																							
12-Oct	19.4	18.0	19.4	18.3	14.9	Z	3.6	4.5	8.5	12.7	15.8	18.1	22.2	27.9	33.2	32.5	15.2	5.4	8.8	8.7	7.8	10.1	14.8	18.0	15.6	33.2																							
13-Oct	Z	18.1	17.8	17.4	17.1	18.3	20.9	20.2	19.4	21.5	24.5	30.6	32.7	33.2	33.7	32.8	33.6	28.5	28.0	30.3	30.2	30.3	30.4	30.4	26.1	33.7																							
14-Oct	29.7	Z	27.8	26.4	25.2	23.9	22.7	23.9	23.5	24.8	25.6	26.5	29.2	29.0	30.9	30.1	28.4	28.3	27.6	23.7	23.1	26.9	22.9	20.9	26.1	30.9																							
15-Oct	20.2	19.7	Z	13.7	9.3	8.3	6.2	18.7	26.0	29.3	30.9	34.1	37.3	37.9	35.4	30.5	19.6	15.3	14.4	13.9	9.6	12.8	15.4	16.3	20.6	37.9																							
16-Oct	16.6	12.6	10.6	Z	6.5	6.1	4.7	4.7	9.6	12.9	12.9	12.5	11.9	10.8	11.2	4.9	4.4	4.1	3.7	3.1	3.2	3.4	5.6	7.5	8.0	16.6																							
17-Oct	9.3	12.0	10.7	17.2	Z	15.0	19.1	21.0	22.2	21.5	22.3	27.9	31.3	30.8	30.7	31.2	32.8	33.1	33.9	34.3	32.6	31.1	30.9	30.1	25.3	34.3																							
18-Oct	28.6	26.9	25.9	24.1	19.5	Z	16.8	18.4	19.2	18.8	19.1	21.2	29.3	31.9	34.2	34.2	29.0	24.1	16.1	19.9	25.0	21.2	23.4	24.7	24.0	34.2																							
19-Oct	Z	23.2	22.9	23.9	14.5	13.1	14.4	13.2	9.9	6.6	7.2	17.5	10.2	7.9	6.8	6.0	5.0	3.9	7.6	4.6	7.0	12.0	12.1	13.8	11.5	23.9																							
20-Oct	14.2	Z	18.5	20.9	18.1	18.8	21.9	23.8	25.8	22.4	18.8	17.3	18.2	18.7	13.7	16.0	15.6	15.9	20.9	13.7	10.1	10.8	12.9	16.2	17.5	25.8																							
21-Oct	18.0	19.9	Z	25.6	25.5	26.7	25.9	25.8	26.4	27.2	29.3	30.3	29.0	30.9	28.7	27.7	22.3	29.0	30.3	30.1	30.3	31.6	31.3	31.7	27.5	31.7																							
22-Oct	31.4	31.2	29.5	Z	25.0	24.4	19.7	14.5	19.5	21.3	27.5	27.8	25.8	26.6	25.5	26.7	25.8	24.2	25.2	28.0	29.6	30.0	30.5	30.4	26.1	31.4																							
23-Oct	29.9	30.7	32.0	33.4	Z	32.7	30.3	30.4	29.1	30.2	31.7	34.3	34.9	34.3	32.5	31.6	30.9	29.8	25.6	17.8	18.7	21.5	26.7	28.2	29.4	34.9																							
24-Oct	29.6	26.4	29.5	29.6	27.2	Z	27.0	23.8	20.9	24.3	28.0	32.2	36.4	36.1	36.3	36.4	32.3	31.5	34.2	35.2	33.3	29.5	20.7	22.4	29.7	36.4																							
25-Oct	Z	19.0	16.0	10.7	10.1	5.4	6.4	12.7	15.3	21.9	24.4	26.5	27.5	30.1	35.1	34.8	24.9	15.8	8.7	6.5	6.6	5.5	7.6	9.4	16.6	35.1																							
26-Oct	8.8	Z	8.6	8.6	11.3	9.2	6.6	3.9	6.4	7.4	11.5	13.6	14.4	26.3	32.5	31.2	30.5	30.6	27.4	24.5	24.7	25.1	25.2	26.3	18.0	32.5																							
27-Oct	27.4	25.9	Z	25.5	23.3	20.6	16.0	19.8	20.8	23.4	25.6	26.0	27.6	29.1	28.6	26.7	23.4	19.8	10.3	6.7	9.0	6.4	11.0	17.8	20.5	29.1																							
28-Oct	11.8	15.9	17.3	Z	18.7	17.1	17.0	14.5	16.5	19.0	20.1	21.2	21.1	22.0	22.5	22.3	22.0	23.2	25.5	26.9	28.1	27.0	26.5	26.5	21.0	28.1																							
29-Oct	27.1	25.6	27.7	27.1	Z	29.7	28.8	27.5	26.8	27.6	30.0	29.7	28.9	27.7	26.2	24.3	14.4	9.1	18.5	18.7	18.1	19.1	18.6	17.5	23.8	30.0																							
30-Oct	16.5	13.1	5.1	4.8	4.1	Z	4.9	5.5	9.4	12.9	14.8	16.0	17.8	23.6	23.6	24.0	27.4	29.8	29.8	30.1	30.1	29.8	29.0	28.7	18.7	30.1																							
31-Oct	Z	30.1	28.5	30.0	29.8	29.7	29.8	29.1	29.3	29.2	24.2	27.4	25.5	24.5	21.3	19.8	20.9	21.5	21.9	20.7	22.3	22.4	21.6	22.7	25.3	30.1																							
																								19.8	20.5	19.2	20.4	17.9	17.2	16.0	16.6	18.4	20.1	21.7	24.1	25.4	26.7	27.4	27.3	24.8	21.3	20.0	19.8	19.5	19.6	19.7	20.2	Diurnal Average	
																								31.4	31.2	32.0	33.4	31.6	32.7	32.5	32.1	33.9	34.0	34.1	34.4	37.6	38.9	39.5	39.4	37.9	33.1	34.2	35.2	37.2	34.0	31.3	31.7	Diurnal Maximum	

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







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

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	321	45.28	45.28
21 - 50	388	54.72	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**  
**Athabasca Valley - October 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	9	3	2	8	13	32	99	18	6	20	14	4	16	12	12	51	319
21 - 50	6	1	10	14	9	31	54	13	18	30	36	54	38	39	13	19	385
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>	15	4	12	22	22	63	153	31	24	50	50	58	54	51	25	70	704

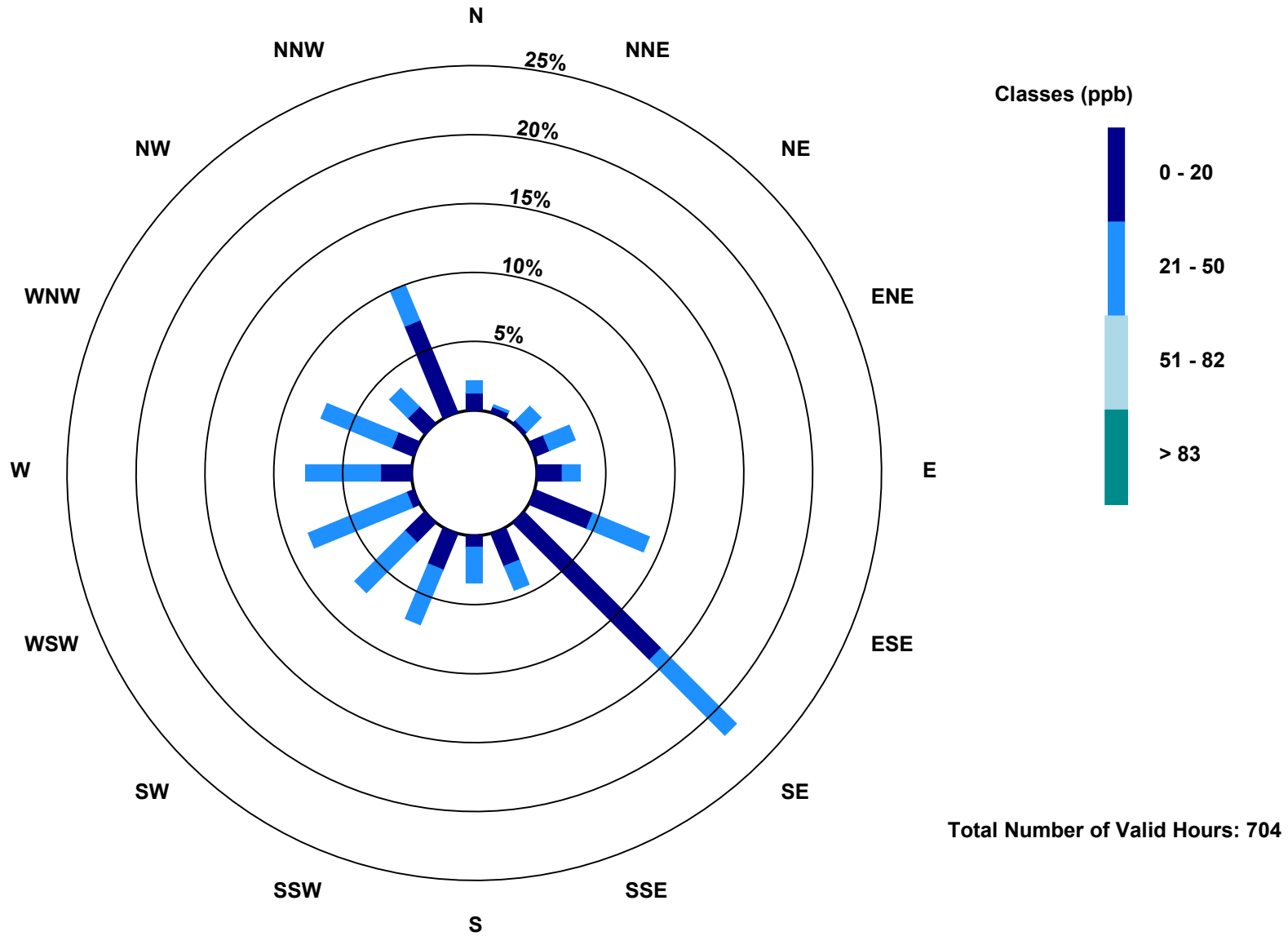
Total Number of Valid Hours: 704

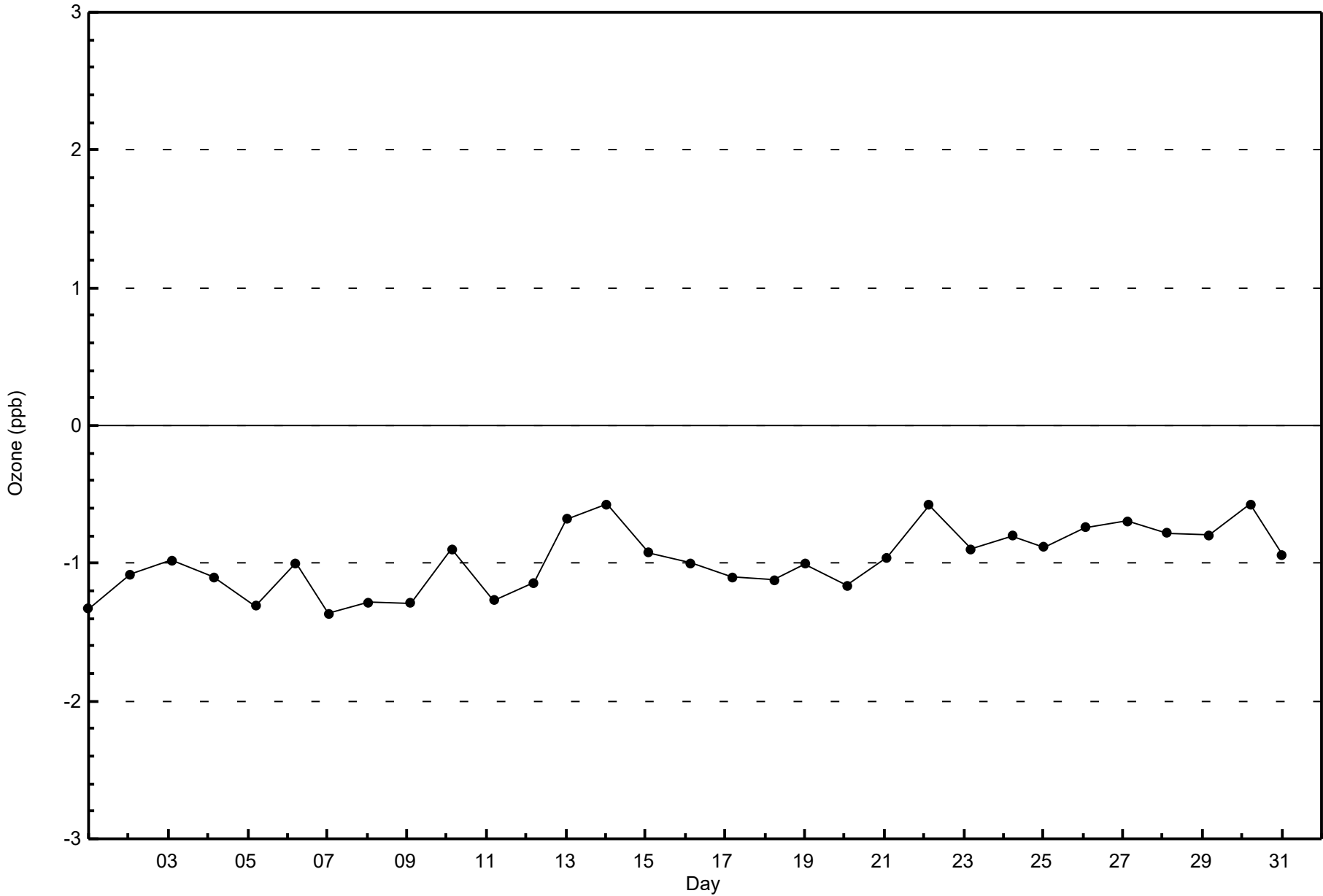
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

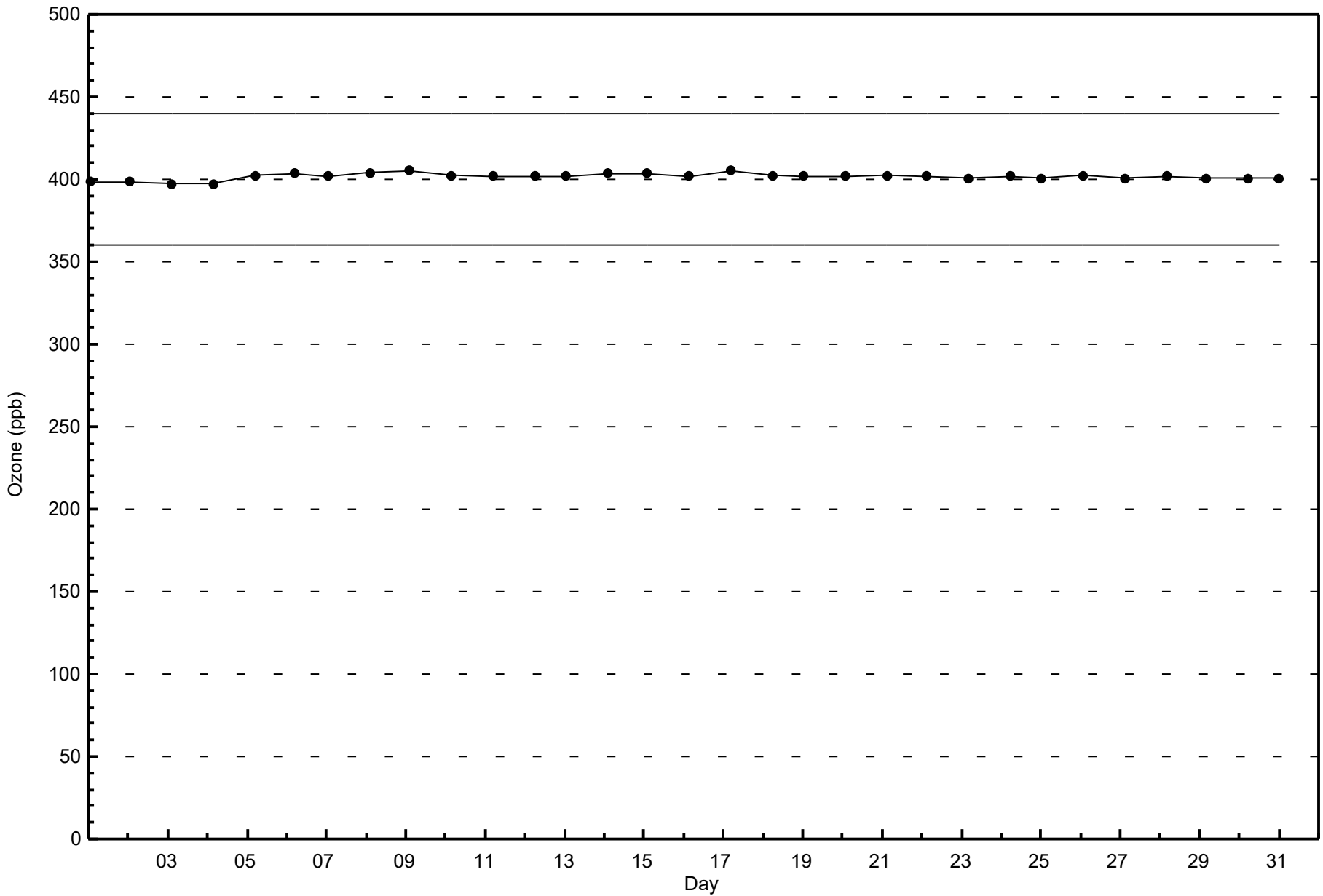






**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - October 2024**





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

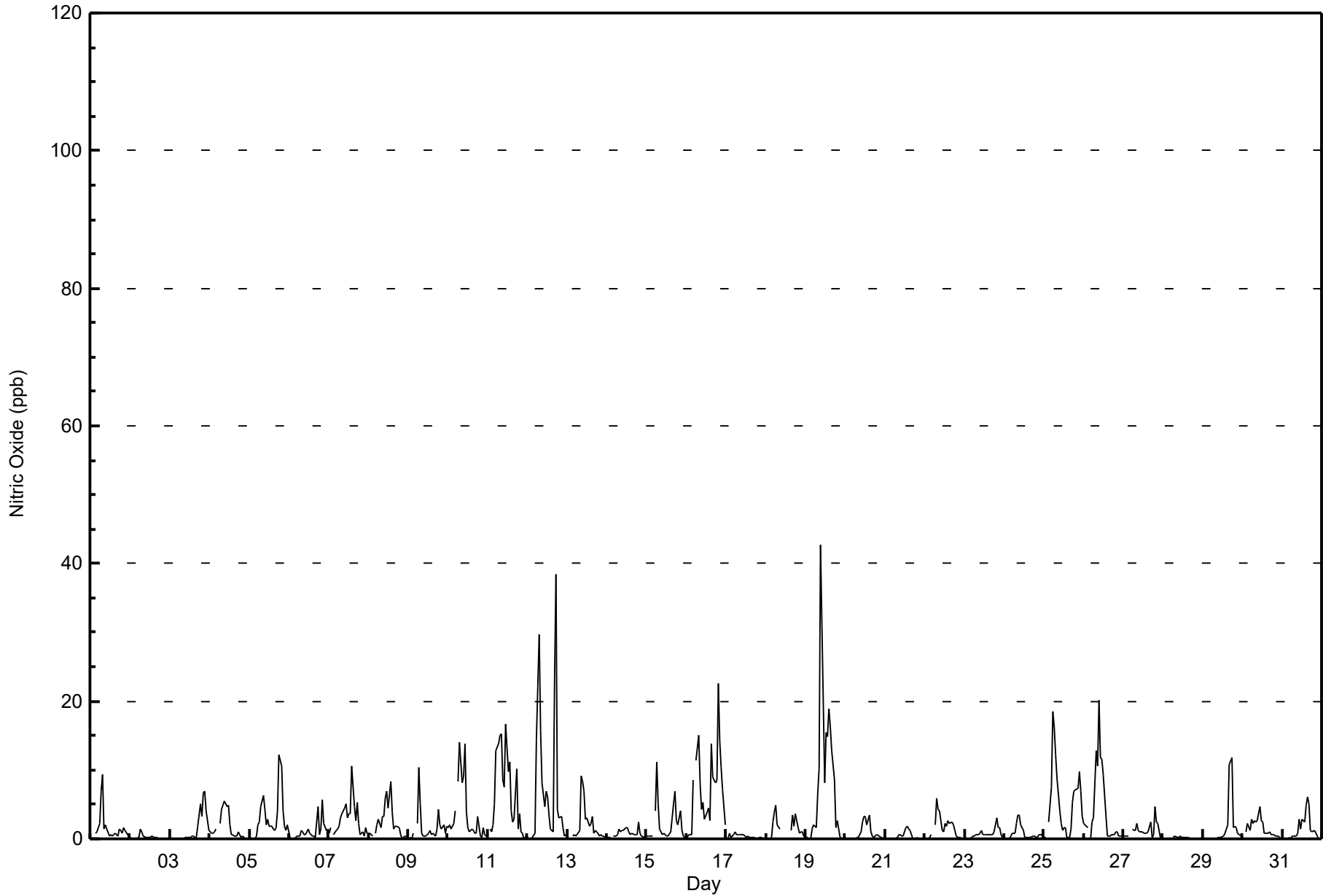
Athabasca Valley - October 2024

Maximum Value: 42.6 ppb on Oct 19 10:00																				Maximum Daily Average: 8.5 ppb on Oct 19					Hours in Service: 744								
Minimum Value: 0.0 ppb on Oct 2 02:00																				Minimum Daily Average: 0.1 ppb on Oct 28					Hours of Data: 707								
Maximum Diurnal Average: 5.2 ppb at hour 8																				Minimum Diurnal Average: 0.4 ppb at hour 3					Hours of Missing Data: 37								
Monthly Average: 2.48 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.3 Median = 0.9 Q <sub>3</sub> = 2.5 P <sub>90</sub> = 6.9 P <sub>99</sub> = 20.1					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-Oct	0.1	0.1	Z	0.8	1.0	2.3	6.9	9.5	1.5	2.0	1.3	0.4	0.6	0.5	0.8	0.4	1.4	1.2	0.8	1.7	1.2	0.7	0.3	1.6	9.5								
2-Oct	0.1	0.0	0.0	Z	0.3	0.3	1.4	1.0	0.4	0.3	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	1.4								
3-Oct	0.1	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.5	0.3	0.3	1.8	5.1	3.2	6.6	7.0	4.1	1.3	1.4	7.0							
4-Oct	1.0	0.9	0.8	1.0	1.4	Z	2.2	4.2	5.0	5.5	4.7	4.9	2.1	0.7	0.6	0.3	0.5	1.0	0.5	0.3	0.3	0.0	0.0	0.0	1.7	5.5							
5-Oct	Z	0.0	0.0	0.1	0.4	2.1	2.5	4.7	6.2	4.2	2.0	2.9	1.8	1.8	1.4	1.3	1.6	4.2	12.3	10.5	4.0	1.7	1.2	2.0	3.0	12.3							
6-Oct	0.2	Z	0.1	0.1	0.3	0.5	0.3	1.3	1.1	0.5	0.6	1.4	0.8	0.5	0.4	0.3	0.3	4.6	0.7	1.5	5.8	2.1	1.1	1.0	1.1	5.8							
7-Oct	0.9	1.6	Z	0.7	1.2	1.4	1.8	3.0	3.6	4.4	5.1	3.1	3.6	3.6	10.6	4.8	2.7	5.2	2.2	0.5	1.1	0.3	1.5	0.7	2.8	10.6							
8-Oct	0.9	0.9	0.3	Z	0.8	2.0	2.9	1.6	3.2	3.2	5.9	6.9	4.4	8.4	3.9	1.4	1.9	1.7	1.6	0.6	0.1	0.1	0.4	0.3	2.3	8.4							
9-Oct	0.1	0.1	0.0	0.8	Z	2.3	10.4	5.1	0.8	0.4	0.4	0.5	0.9	1.2	0.7	0.7	0.5	1.5	4.3	2.1	1.4	2.1	0.8	1.7	1.7	10.4							
10-Oct	1.6	2.1	1.5	2.3	4.1	Z	8.4	14.0	8.2	9.2	13.9	3.8	1.6	1.0	1.5	1.2	0.8	0.7	3.2	0.4	0.2	1.6	0.5	0.4	3.6	14.0							
11-Oct	Z	1.5	1.1	2.1	5.0	12.8	13.8	15.0	15.2	8.5	7.5	16.7	9.7	11.2	4.1	2.5	2.9	10.2	1.4	3.7	1.0	0.8	0.1	0.4	6.4	16.7							
12-Oct	0.3	Z	0.0	0.2	0.8	14.5	22.2	29.7	15.8	8.0	4.7	6.8	6.1	3.4	1.4	1.0	23.3	38.5	4.4	3.1	3.3	1.7	0.5	0.5	8.3	38.5							
13-Oct	0.6	0.6	Z	0.5	0.7	0.4	0.6	1.3	9.1	8.3	6.9	2.7	3.1	1.8	2.2	3.3	0.9	1.1	0.7	0.4	0.6	0.4	0.3	0.2	2.0	9.1							
14-Oct	0.2	0.2	0.3	Z	0.3	0.5	0.6	1.4	1.0	1.2	1.2	1.6	1.5	1.0	0.7	0.7	0.6	0.6	0.5	2.4	0.7	0.3	0.3	0.3	0.8	2.4							
15-Oct	0.3	0.3	0.5	0.5	Z	4.0	11.3	5.0	1.5	0.7	0.8	0.6	0.4	0.4	1.0	3.0	5.1	7.0	2.7	2.0	4.0	1.3	0.4	0.1	2.3	11.3							
16-Oct	0.0	0.6	0.6	0.6	8.6	Z	11.5	15.1	7.9	4.2	5.3	2.8	3.8	4.5	2.6	13.9	8.9	8.1	8.6	22.6	14.2	10.4	7.1	2.0	7.1	22.6							
17-Oct	Z	0.3	0.7	0.1	0.6	1.0	0.7	0.7	0.6	0.6	0.6	0.4	0.3	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.3	1.0							
18-Oct	0.0	Z	0.0	0.2	2.4	3.8	5.0	2.1	1.5	C	C	C	C	C	C	1.2	3.4	1.9	3.6	1.7	0.9	1.0	1.0	0.3	--	5.0							
19-Oct	0.3	0.2	Z	0.1	1.3	2.0	1.7	6.5	10.3	42.6	31.1	8.1	15.5	14.8	18.9	16.3	12.9	8.5	1.5	2.5	1.4	0.1	0.0	0.0	8.5	42.6							
20-Oct	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.2	1.1	2.4	3.3	3.3	2.0	3.5	1.1	0.4	0.3	0.3	0.6	0.5	0.2	0.1	0.1	0.9	3.5							
21-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.5	0.5	0.5	0.5	1.6	1.8	1.4	1.2	0.6	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.4	1.8							
22-Oct	0.0	0.0	0.1	0.2	0.7	Z	2.0	5.9	4.3	4.0	1.1	1.0	2.3	1.8	2.7	2.3	2.4	2.1	1.2	0.4	0.3	0.2	0.0	0.0	1.5	5.9							
23-Oct	Z	0.1	0.0	0.1	0.2	0.4	0.5	0.6	0.6	0.9	1.1	0.5	0.5	0.6	0.7	0.7	0.6	0.7	1.1	3.0	1.6	1.7	0.6	0.2	0.7	3.0							
24-Oct	0.0	Z	0.0	0.1	0.4	0.8	0.9	2.2	3.5	3.4	2.0	1.3	0.3	0.3	0.2	0.3	0.4	0.4	0.2	0.3	0.5	0.7	0.3	0.3	0.8	3.5							
25-Oct	0.2	0.2	Z	2.5	7.6	18.6	16.3	12.2	8.7	4.1	2.3	1.2	1.7	1.5	0.2	0.3	1.4	5.4	6.9	7.2	7.3	9.7	6.9	3.2	5.5	18.6							
26-Oct	2.2	2.0	1.6	Z	0.0	2.4	3.0	12.9	10.6	20.1	11.8	11.6	9.3	3.2	0.3	0.5	0.4	0.5	0.6	0.9	1.1	0.5	0.5	0.4	4.2	20.1							
27-Oct	0.4	0.3	0.4	0.5	Z	1.3	1.2	1.2	2.2	1.2	1.1	0.9	0.9	0.8	0.9	1.1	2.4	0.2	0.7	4.6	2.5	2.3	0.1	0.0	1.2	4.6							
28-Oct	0.0	0.1	0.0	0.0	0.1	Z	0.2	0.5	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.5							
29-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.4	0.7	1.4	2.0	10.8	11.9	1.6	1.8	1.5	0.8	0.5	0.5	1.5	11.9							
30-Oct	0.3	Z	1.1	2.2	1.3	2.8	2.3	2.7	2.4	2.6	4.7	2.6	2.5	0.8	0.8	0.9	0.9	0.7	0.7	0.6	0.4	0.3	0.3	0.0	1.5	4.7							
31-Oct	0.0	0.0	Z	0.1	0.2	0.0	0.5	0.5	0.3	0.8	2.8	1.4	2.9	2.4	4.9	6.0	5.0	1.2	0.9	1.1	0.7	0.4	0.1	0.0	1.4	6.0							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration																																	



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

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - October 2024**







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

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	700	99.01	99.01
21 - 40	6	0.85	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**

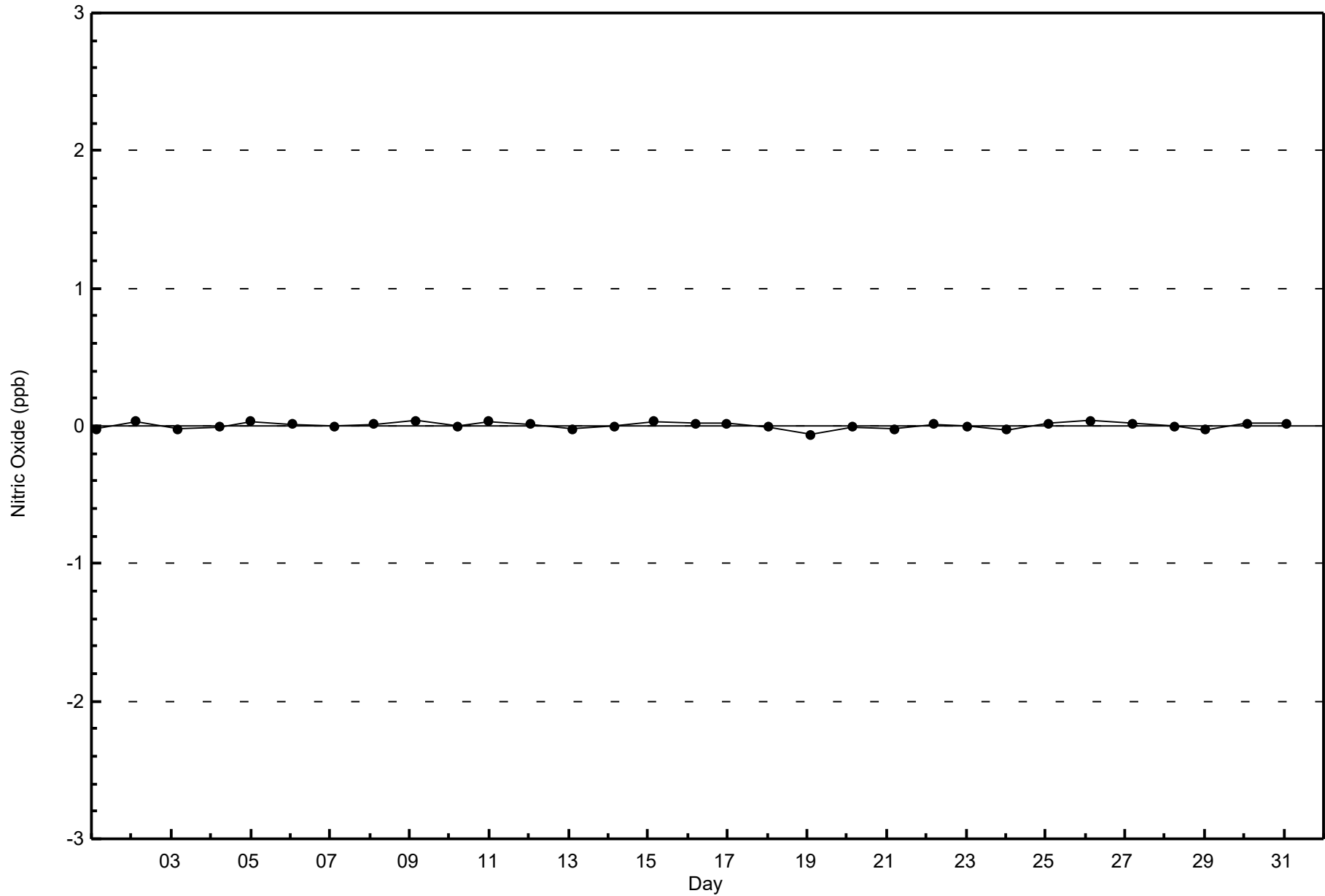
**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - October 2024**

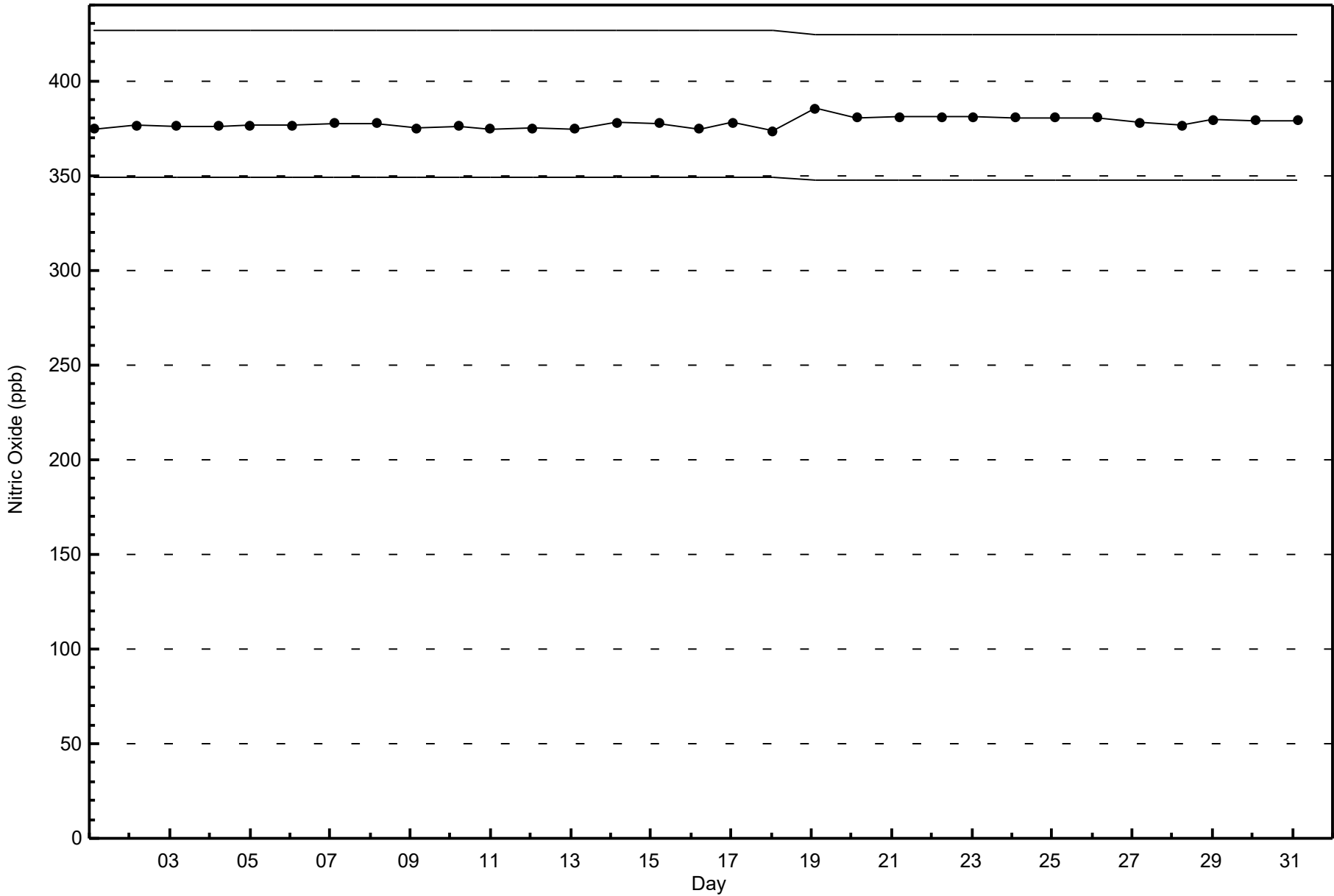
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	14	4	10	22	23	60	152	31	25	49	48	59	50	52	26	70	695
21 - 40	0	0	0	0	0	1	2	0	0	1	0	0	1	0	0	1	6
41 - 80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	15	4	10	22	23	61	154	31	25	50	48	59	51	52	26	71	702

Total Number of Valid Hours: 702

Total Number of Hours: 744









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Athabasca Valley - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 32.6 ppb on Oct 12 18:00	Maximum Daily Average: 11.2 ppb on Oct 16		Hours of Data:	707
Minimum Value: 0.4 ppb on Oct 2 11:00	Minimum Daily Average: 1.6 ppb on Oct 2		Hours of Missing Data:	37
Maximum Diurnal Average: 9.9 ppb at hour 18	Minimum Diurnal Average: 3.6 ppb at hour 14		Hours of Calibration:	37
Monthly Average: 5.92 ppb	Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.9 Median = 4.6 Q <sub>3</sub> = 8.4 P <sub>90</sub> = 13.6 P <sub>99</sub> = 19.4		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-Oct	0.7	0.9	Z	2.7	6.9	4.2	14.5	12.8	3.9	4.3	2.5	1.0	1.3	1.2	1.5	3.2	2.8	8.1	13.0	12.6	14.7	7.8	7.3	5.0	5.8	14.7
2-Oct	3.6	2.1	1.0	Z	1.8	2.9	4.1	2.7	1.2	0.5	0.4	0.5	0.7	0.9	1.0	1.0	1.3	1.5	1.5	1.9	1.2	0.5	1.4	2.6	1.6	4.1
3-Oct	2.7	1.3	0.9	0.7	Z	2.2	2.2	2.4	1.4	0.9	0.6	0.6	0.5	0.8	1.0	0.9	1.5	9.3	15.2	9.4	14.6	17.7	14.9	7.9	4.8	17.7
4-Oct	4.4	3.5	3.8	3.7	4.7	Z	5.9	6.2	5.3	4.6	3.8	5.5	4.4	1.7	0.7	0.9	0.9	5.4	2.3	1.0	1.4	2.4	4.4	4.3	3.5	6.2
5-Oct	Z	4.3	5.6	5.3	9.9	12.5	14.5	15.5	14.7	7.4	2.5	3.1	2.7	2.8	3.8	5.6	6.6	9.4	22.2	19.0	12.5	7.3	5.8	7.2	8.7	22.2
6-Oct	2.7	Z	0.6	0.6	0.7	1.2	1.3	3.9	1.9	1.0	0.9	2.0	1.6	1.2	1.3	1.3	2.5	12.7	8.9	6.8	11.9	9.1	11.0	10.6	4.2	12.7
7-Oct	5.6	7.1	Z	3.3	4.8	5.4	5.7	5.8	5.3	5.9	5.7	5.0	7.1	7.2	11.7	12.2	11.6	16.8	15.5	6.6	7.7	7.4	9.6	10.8	8.0	16.8
8-Oct	12.7	11.1	7.0	Z	5.8	6.5	9.7	5.1	6.2	5.0	7.9	8.7	7.2	9.4	8.4	8.1	11.6	14.3	13.3	3.1	1.0	1.0	3.1	3.1	7.4	14.3
9-Oct	3.5	5.3	5.7	8.6	Z	8.5	11.9	7.4	1.8	1.7	1.1	1.4	1.5	2.2	1.9	2.8	6.0	17.9	13.4	8.6	11.6	13.7	10.8	10.2	6.8	17.9
10-Oct	10.8	11.0	8.3	8.0	9.3	Z	9.6	10.3	6.1	6.0	7.7	3.8	2.5	1.7	2.3	2.4	2.9	5.4	9.0	1.9	2.9	6.8	2.7	4.6	5.9	11.0
11-Oct	Z	12.9	12.1	11.9	14.3	17.0	15.3	12.0	8.2	6.5	6.5	9.8	7.6	9.5	5.1	3.7	6.7	14.9	7.1	8.2	4.3	3.5	2.0	2.7	8.8	17.0
12-Oct	5.2	Z	1.6	0.9	2.8	12.0	14.1	15.6	11.3	6.8	4.6	7.3	8.6	6.7	4.1	4.5	23.2	32.6	19.3	14.8	15.0	13.4	7.1	5.4	10.3	32.6
13-Oct	5.1	4.1	Z	3.9	4.3	3.9	3.4	4.8	7.3	7.1	7.0	5.0	4.7	3.2	4.5	8.0	6.9	10.6	9.7	6.6	5.7	4.9	4.1	2.9	5.6	10.6
14-Oct	2.3	2.4	2.3	Z	4.0	5.0	5.8	4.7	4.5	3.6	3.5	3.9	3.7	3.3	3.1	4.0	5.4	6.0	4.3	8.0	9.0	5.1	6.4	6.8	4.7	9.0
15-Oct	5.9	5.3	6.1	6.6	Z	8.9	11.6	9.3	4.5	1.6	2.1	1.8	1.2	1.5	2.8	7.0	17.3	20.0	14.2	10.0	15.7	14.1	10.3	5.3	8.0	20.0
16-Oct	3.1	5.2	6.4	7.8	15.2	Z	14.7	14.5	10.3	6.9	7.5	6.0	7.9	9.7	7.8	14.6	13.9	13.6	14.7	16.8	17.4	16.3	14.5	13.4	11.2	17.4
17-Oct	Z	6.1	7.7	1.2	1.1	2.6	1.6	1.7	1.4	1.3	1.3	1.5	1.4	1.1	0.9	0.9	1.1	1.1	1.2	1.6	1.2	1.1	0.5	0.4	1.7	7.7
18-Oct	0.5	Z	0.8	0.9	4.4	7.8	6.0	3.5	2.1	C	C	C	C	C	C	3.0	9.7	13.5	18.9	12.9	6.7	10.1	7.1	6.4	--	18.9
19-Oct	6.3	5.6	Z	3.0	9.1	8.9	7.9	8.7	12.7	19.1	19.4	9.1	13.1	11.6	13.2	14.5	14.9	16.3	10.5	14.0	10.0	4.1	5.2	4.0	10.5	19.4
20-Oct	3.8	3.4	3.4	Z	6.9	7.9	5.8	4.6	2.6	5.3	7.7	8.4	7.2	5.9	10.5	7.3	7.5	6.7	1.4	8.5	9.9	8.6	7.1	5.9	6.4	10.5
21-Oct	5.0	4.1	3.4	2.7	Z	3.9	4.0	4.9	5.0	3.0	1.9	1.8	4.6	3.6	5.4	5.2	10.0	3.8	2.6	3.4	2.4	1.3	1.4	0.5	3.6	10.0
22-Oct	0.7	0.6	1.1	1.2	3.6	Z	9.9	15.5	8.9	6.7	1.6	1.3	2.5	2.2	3.6	4.0	6.6	7.6	5.1	2.5	1.9	2.2	1.0	0.9	4.0	15.5
23-Oct	Z	1.0	0.9	0.9	1.0	1.4	3.3	2.7	3.1	2.6	2.3	1.1	1.2	1.7	1.4	1.5	1.6	1.5	5.5	13.5	10.8	8.6	3.0	2.0	3.2	13.5
24-Oct	1.6	Z	1.9	1.7	3.5	2.5	2.0	5.6	8.3	5.6	3.0	2.1	0.7	0.7	1.1	1.2	4.5	4.7	1.8	1.1	2.3	4.8	8.2	7.0	3.3	8.3
25-Oct	7.3	8.0	Z	13.8	14.1	20.8	20.7	14.7	10.8	5.0	3.0	1.9	2.6	3.1	1.2	1.9	10.9	15.5	17.4	16.3	17.5	18.1	16.8	13.3	11.1	20.8
26-Oct	11.5	8.2	9.0	Z	3.3	3.9	6.9	12.2	9.2	10.6	8.8	10.1	8.4	4.0	1.0	1.1	1.7	1.5	3.9	7.0	6.3	5.4	4.7	3.3	6.2	12.2
27-Oct	2.3	3.1	2.9	3.3	Z	8.0	12.0	8.1	7.2	4.9	2.7	2.6	2.7	2.3	3.0	4.2	6.9	6.8	12.7	17.2	14.8	15.0	8.4	3.6	6.7	17.2
28-Oct	8.7	3.6	1.6	1.4	1.5	Z	1.8	2.1	1.5	1.7	1.5	1.1	1.1	1.1	1.6	1.7	2.2	2.1	1.4	1.0	1.0	1.0	0.6	0.5	1.8	8.7
29-Oct	Z	1.1	0.8	0.8	1.1	1.0	1.5	1.9	2.1	1.4	0.8	1.0	0.9	1.3	2.3	4.6	14.8	20.0	8.5	7.2	6.7	4.1	4.0	4.6	4.0	20.0
30-Oct	4.8	Z	13.2	13.9	15.3	15.4	15.0	14.1	10.6	7.9	7.2	5.9	5.4	1.8	1.8	1.9	0.9	0.7	0.8	1.2	1.5	1.8	1.7	0.8	6.2	15.4
31-Oct	0.5	0.9	Z	1.1	0.8	0.9	1.1	1.3	0.9	0.8	5.4	2.3	4.0	5.2	8.1	9.3	7.4	6.0	4.9	5.1	2.9	2.1	2.5	1.2	3.2	9.3

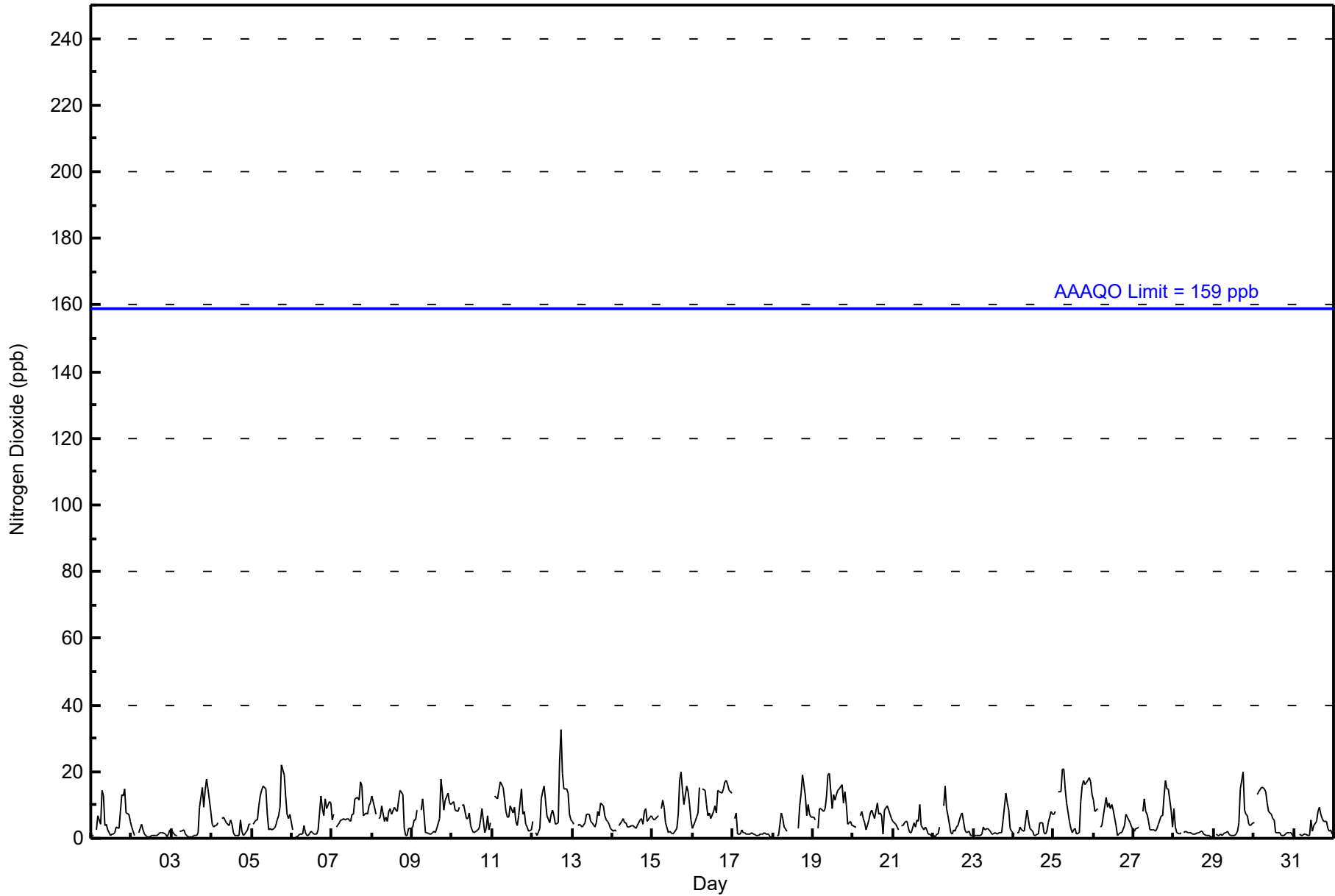
4.7	4.7	4.3	4.2	5.8	6.7	7.9	7.6	5.8	4.9	4.4	3.9	4.0	3.6	3.9	4.6	7.2	9.9	9.0	8.0	7.8	7.1	6.1	5.1	Diurnal Average	
12.7	12.9	13.2	13.9	15.3	20.8	20.7	15.6	14.7	19.1	19.4	10.1	13.1	11.6	13.2	14.6	23.2	32.6	22.2	19.0	17.5	18.1	16.8	13.4	Diurnal Maximum	

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



Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - October 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	702	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: 707

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	15	4	10	22	23	61	150	31	25	49	48	59	51	52	26	71	697
21 - 40	0	0	0	0	0	0	4	0	0	1	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>	15	4	10	22	23	61	154	31	25	50	48	59	51	52	26	71	702

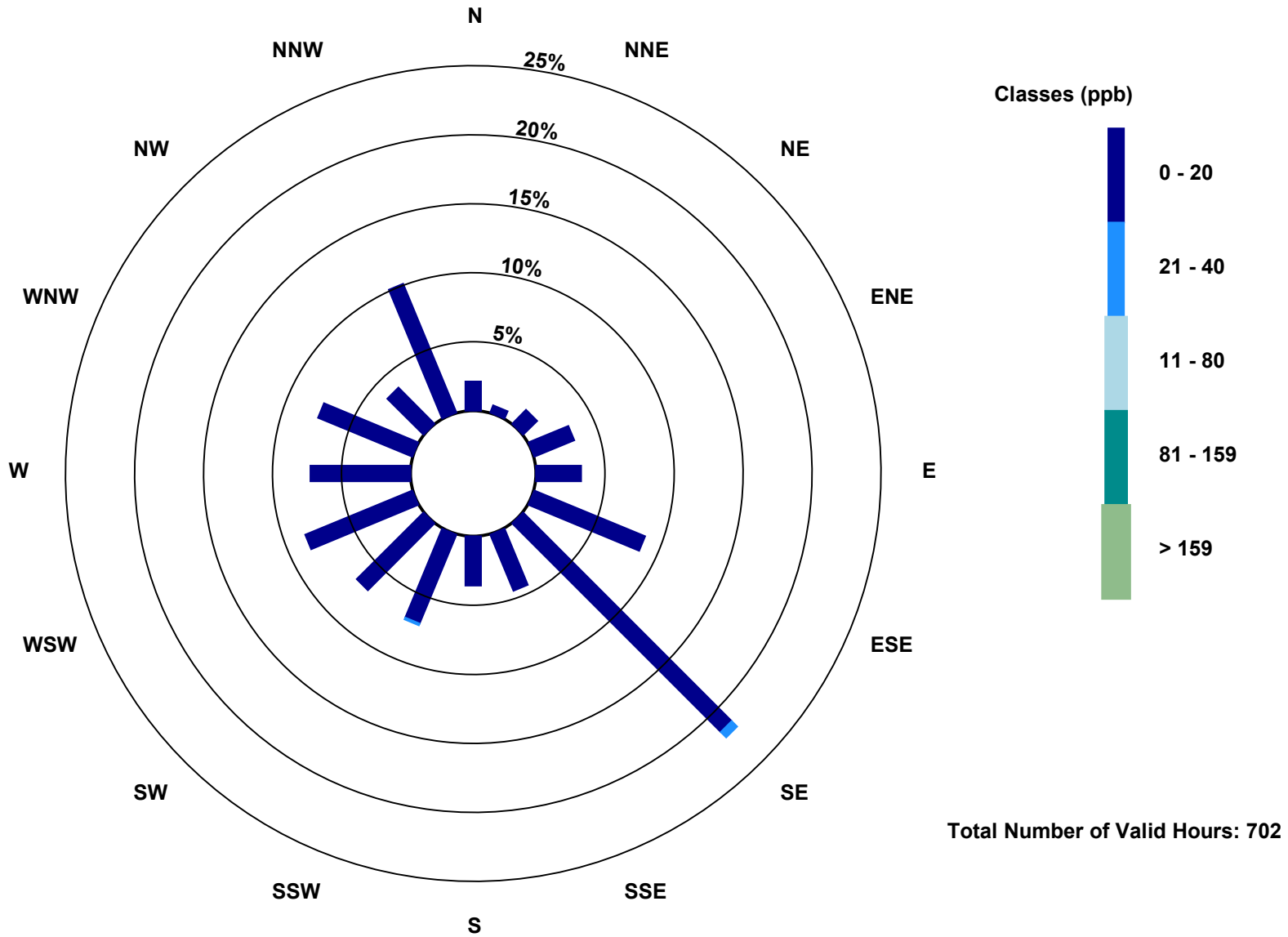
Total Number of Valid Hours: 702

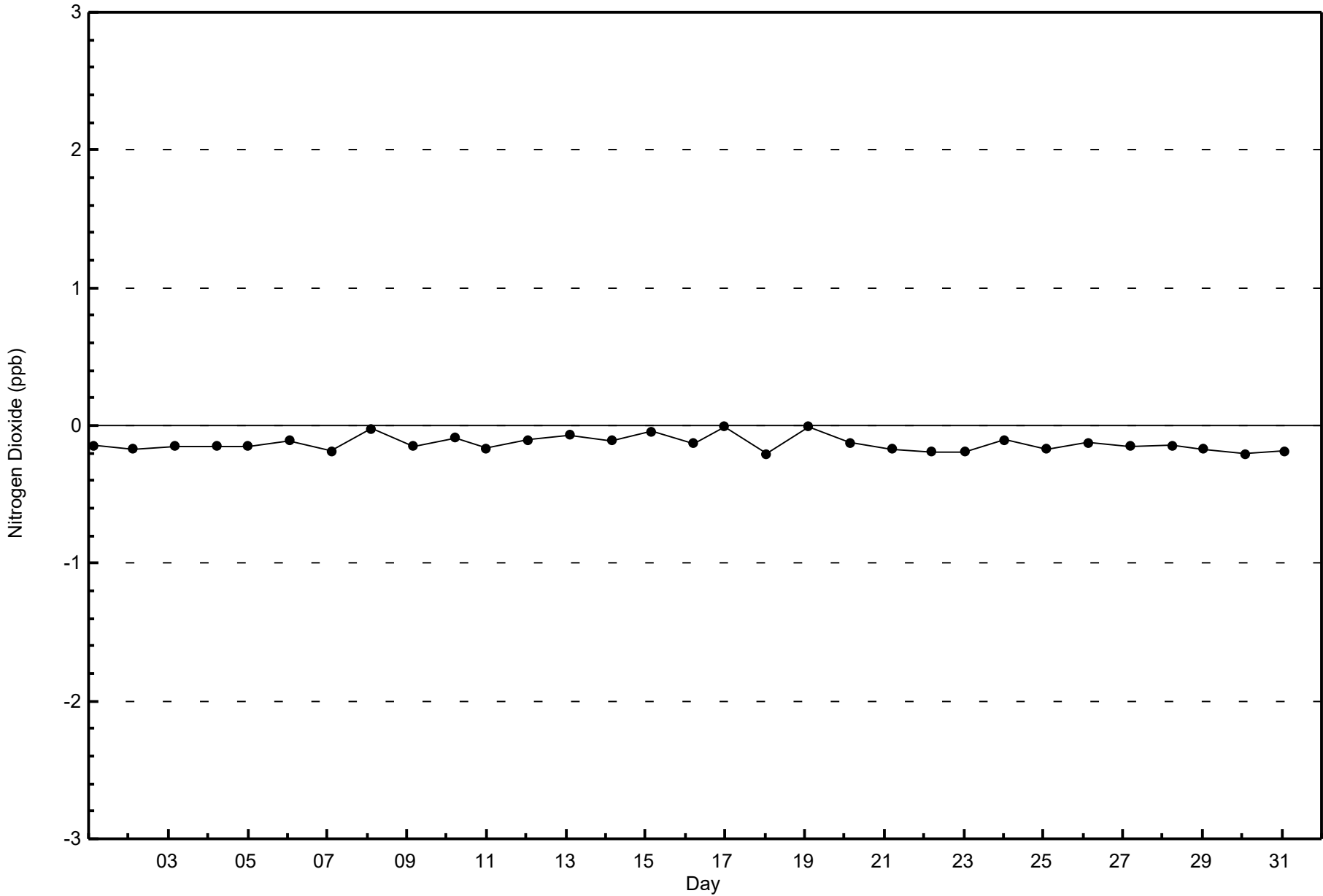
Total Number of Hours: 744

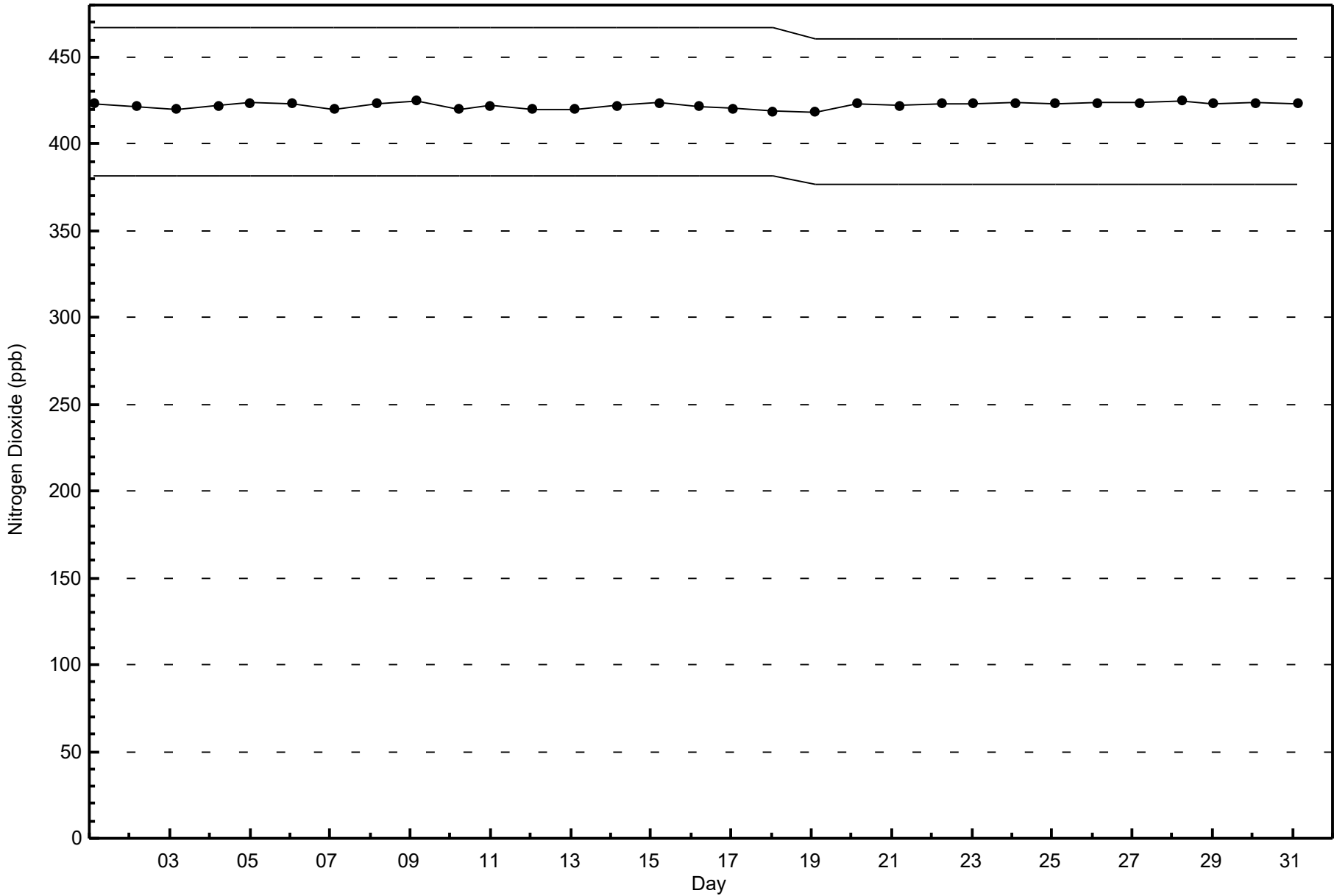


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





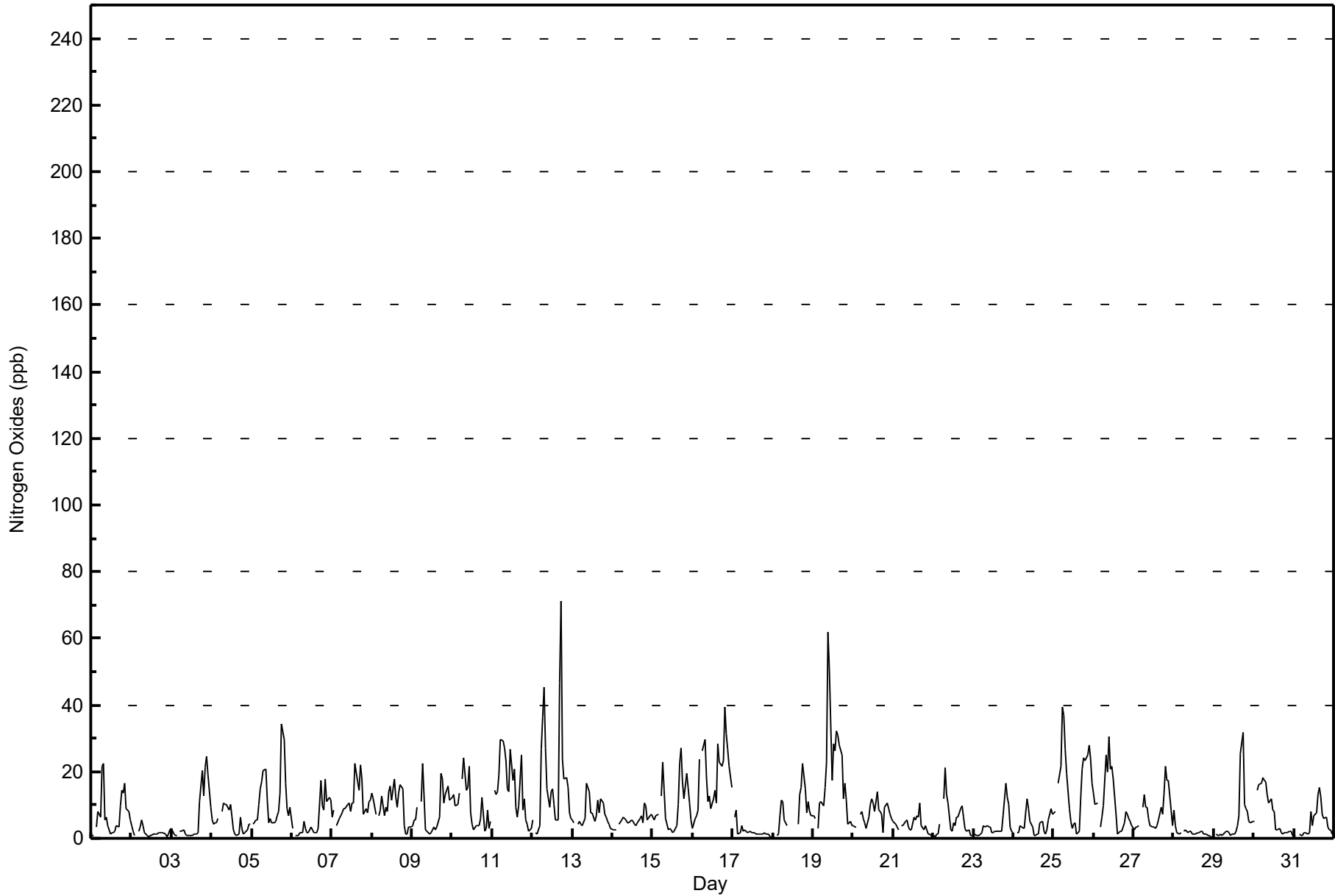




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - October 2024**

Maximum Value: 71.1 ppb on Oct 12 18:00		Maximum Daily Average: 19.0 ppb on Oct 19		Hours in Service: 744																						
Minimum Value: 0.4 ppb on Oct 18 00:00		Minimum Daily Average: 1.8 ppb on Oct 2		Hours of Data: 707																						
Maximum Diurnal Average: 13.8 ppb at hour 18		Minimum Diurnal Average: 4.7 ppb at hour 3		Hours of Missing Data: 37																						
Monthly Average: 8.40 ppb		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 2.3 Median = 5.7 Q <sub>3</sub> = 11.6 P <sub>90</sub> = 19.7 P <sub>99</sub> = 37.0		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-Oct	0.8	1.0	Z	3.5	7.9	6.5	21.4	22.3	5.4	6.3	3.8	1.4	1.9	1.7	2.0	4.0	3.2	9.5	14.2	13.4	16.4	9.0	8.0	5.3	7.3	22.3
2-Oct	3.7	2.1	1.0	Z	2.1	3.2	5.5	3.7	1.6	0.8	0.6	0.7	0.9	1.3	1.3	1.2	1.5	1.6	1.5	1.9	1.2	0.5	1.4	2.7	1.8	5.5
3-Oct	2.8	1.3	0.9	0.7	Z	2.3	2.2	2.5	1.5	1.0	0.7	0.8	0.7	1.2	1.5	1.2	1.8	11.1	20.3	12.6	21.2	24.7	19.0	9.2	6.1	24.7
4-Oct	5.4	4.4	4.6	4.7	6.1	Z	8.1	10.4	10.3	10.1	8.5	10.4	6.5	2.4	1.3	1.0	1.4	6.4	2.8	1.3	1.7	2.4	4.4	4.3	5.2	10.4
5-Oct	Z	4.3	5.6	5.4	10.3	14.6	17.0	20.2	20.9	11.6	4.5	6.0	4.5	4.6	5.2	6.9	8.2	13.6	34.5	29.5	16.5	9.0	7.0	9.2	11.7	34.5
6-Oct	2.9	Z	0.7	0.7	1.0	1.7	1.6	5.2	3.0	1.5	1.5	3.4	2.4	1.7	1.7	1.6	2.8	17.3	9.6	8.3	17.7	11.2	12.1	11.6	5.3	17.7
7-Oct	6.5	8.7	Z	4.0	6.0	6.8	7.5	8.8	8.9	10.3	10.8	8.1	10.7	10.8	22.3	17.0	14.3	22.0	17.7	7.1	8.8	7.7	11.1	11.5	10.8	22.3
8-Oct	13.6	12.0	7.3	Z	6.6	8.5	12.6	6.7	9.4	8.2	13.8	15.6	11.6	17.8	12.3	9.5	13.5	16.0	14.9	3.7	1.1	1.1	3.5	3.4	9.7	17.8
9-Oct	3.6	5.4	5.7	9.4	Z	10.8	22.3	12.5	2.6	2.1	1.5	1.9	2.4	3.4	2.6	3.5	6.5	19.4	17.7	10.7	13.0	15.8	11.6	11.9	8.5	22.3
10-Oct	12.4	13.1	9.8	10.3	13.4	Z	18.0	24.3	14.3	15.2	21.6	7.6	4.1	2.7	3.8	3.6	3.7	6.1	12.2	2.3	3.1	8.4	3.2	5.0	9.5	24.3
11-Oct	Z	14.4	13.2	14.0	19.3	29.8	29.1	27.0	23.4	15.0	14.0	26.5	17.3	20.7	9.2	6.2	9.6	25.1	8.5	11.9	5.3	4.3	2.1	3.1	15.2	29.8
12-Oct	5.5	Z	1.6	1.1	3.6	26.5	36.3	45.3	27.1	14.8	9.3	14.1	14.7	10.1	5.5	5.5	46.5	71.1	23.7	17.9	18.3	15.1	7.6	5.9	18.6	71.1
13-Oct	5.7	4.7	Z	4.4	5.0	4.3	4.0	6.1	16.4	15.4	13.9	7.7	7.8	5.0	6.7	11.3	7.8	11.7	10.4	7.0	6.3	5.3	4.4	3.1	7.6	16.4
14-Oct	2.5	2.6	2.6	Z	4.3	5.5	6.4	6.1	5.5	4.8	4.7	5.5	5.2	4.3	3.8	4.7	6.0	6.6	4.8	10.4	9.7	5.4	6.7	7.1	5.4	10.4
15-Oct	6.2	5.6	6.6	7.1	Z	12.9	22.9	14.3	6.0	2.3	2.9	2.4	1.6	1.9	3.8	10.0	22.4	27.0	16.9	12.0	19.7	15.4	10.7	5.4	10.3	27.0
16-Oct	3.1	5.8	7.0	8.4	23.8	Z	26.2	29.6	18.2	11.1	12.8	8.8	11.7	14.2	10.4	28.5	22.8	21.7	23.3	39.4	31.6	26.7	21.6	15.4	18.4	39.4
17-Oct	Z	6.4	8.4	1.3	1.7	3.6	2.3	2.4	2.0	1.9	1.9	1.9	1.7	1.5	1.2	1.2	1.3	1.2	1.3	1.6	1.3	1.2	0.5	0.4	2.1	8.4
18-Oct	0.5	Z	0.8	1.1	6.8	11.6	11.0	5.6	3.6	C	C	C	C	C	C	4.2	13.1	15.4	22.5	14.6	7.6	11.1	8.1	6.7	--	22.5
19-Oct	6.6	5.8	Z	3.1	10.4	10.9	9.6	15.2	23.0	61.7	50.5	17.2	28.6	26.4	32.1	30.8	27.8	24.8	12.0	16.5	11.4	4.2	5.2	4.0	19.0	61.7
20-Oct	3.8	3.4	3.4	Z	7.0	8.0	5.8	4.7	2.8	6.4	10.1	11.7	10.5	7.9	14.0	8.4	7.9	7.0	1.7	9.1	10.4	8.8	7.2	6.0	7.2	14.0
21-Oct	5.0	4.1	3.4	2.7	Z	4.0	4.0	5.0	5.5	3.5	2.4	2.3	6.2	5.4	6.8	6.4	10.6	3.9	2.6	3.6	2.4	1.3	1.4	0.5	4.0	10.6
22-Oct	0.7	0.6	1.2	1.4	4.3	Z	11.9	21.4	13.2	10.7	2.7	2.3	4.8	4.0	6.3	6.3	9.0	9.7	6.3	2.9	2.2	2.4	1.0	0.9	5.5	21.4
23-Oct	Z	1.1	0.9	1.0	1.2	1.8	3.8	3.3	3.7	3.5	3.4	1.6	1.7	2.3	2.1	2.2	2.2	2.2	6.6	16.5	12.4	10.3	3.6	2.2	3.9	16.5
24-Oct	1.6	Z	1.9	1.8	3.9	3.3	2.9	7.8	11.8	9.0	5.0	3.4	1.0	1.0	1.4	1.4	4.8	5.1	2.2	1.3	2.6	5.3	8.9	7.3	4.1	11.8
25-Oct	7.5	8.2	Z	16.3	21.7	39.4	37.0	26.9	19.5	9.1	5.3	3.1	4.3	4.6	1.4	2.2	12.3	20.9	24.3	23.5	24.8	27.8	23.7	16.5	16.5	39.4
26-Oct	13.7	10.2	10.6	Z	3.3	6.3	9.9	25.1	19.8	30.7	20.6	21.7	17.7	7.2	1.3	1.6	2.1	2.0	4.5	7.9	7.4	5.9	5.2	3.7	10.4	30.7
27-Oct	2.7	3.4	3.3	3.8	Z	9.3	13.2	9.3	9.4	6.1	3.8	3.5	3.6	3.1	3.9	5.3	9.3	7.0	13.4	21.8	17.3	17.3	8.5	3.6	7.9	21.8
28-Oct	8.7	3.7	1.6	1.4	1.6	Z	2.0	2.6	1.8	2.0	1.9	1.4	1.3	1.3	1.8	1.8	2.3	2.1	1.4	1.1	1.0	1.0	0.6	0.5	2.0	8.7
29-Oct	Z	1.1	0.8	0.8	1.1	1.0	1.5	1.9	2.2	1.6	0.9	1.2	1.3	2.0	3.7	6.6	25.6	31.9	10.1	9.0	8.2	4.9	4.5	5.1	5.5	31.9
30-Oct	5.1	Z	14.3	16.1	16.6	18.2	17.3	16.8	13.0	10.5	11.9	8.5	7.9	2.6	2.6	2.8	1.8	1.4	1.5	1.8	1.9	2.1	2.0	0.8	7.7	18.2
31-Oct	0.5	0.9	Z	1.2	1.0	0.9	1.6	1.8	1.2	1.6	8.2	3.7	6.9	7.6	13.0	15.3	12.4	7.2	5.8	6.2	3.6	2.5	2.6	1.2	4.6	15.3
																								Diurnal Average		
																								Diurnal Maximum		
5.0 5.2 4.7 4.8 7.3 9.7 12.1 12.7 9.9 9.6 8.5 6.8 6.7 6.0 6.2 6.9 10.1 13.8 11.3 10.6 9.9 8.7 7.0 5.6																										
13.7 14.4 14.3 16.3 23.8 39.4 37.0 45.3 27.1 61.7 50.5 26.5 28.6 26.4 32.1 30.8 46.5 71.1 34.5 39.4 31.6 27.8 23.7 16.5																										
Z - zerospan C - Calibration																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	639	90.38	90.38
21 - 40	63	8.91	99.29
41 - 80	5	0.71	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  
Athabasca Valley - October 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	14	3	10	20	21	55	124	28	23	44	47	59	49	50	25	62	634
21 - 40	0	1	0	2	2	6	28	3	2	5	1	0	1	2	1	9	63
41 - 80	1	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	5
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>	15	4	10	22	23	61	154	31	25	50	48	59	51	52	26	71	702

Total Number of Valid Hours: 702

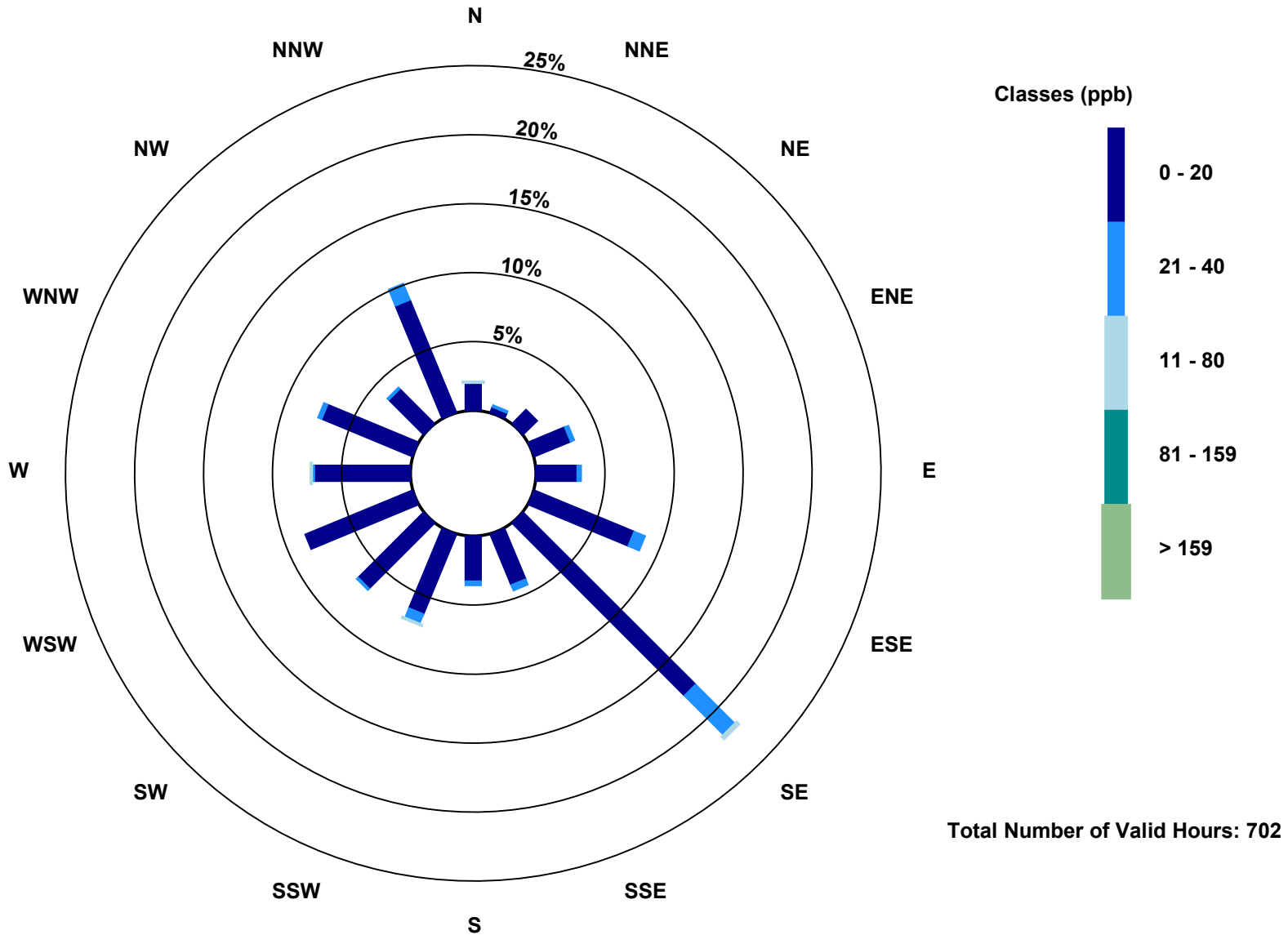
Total Number of Hours: 744

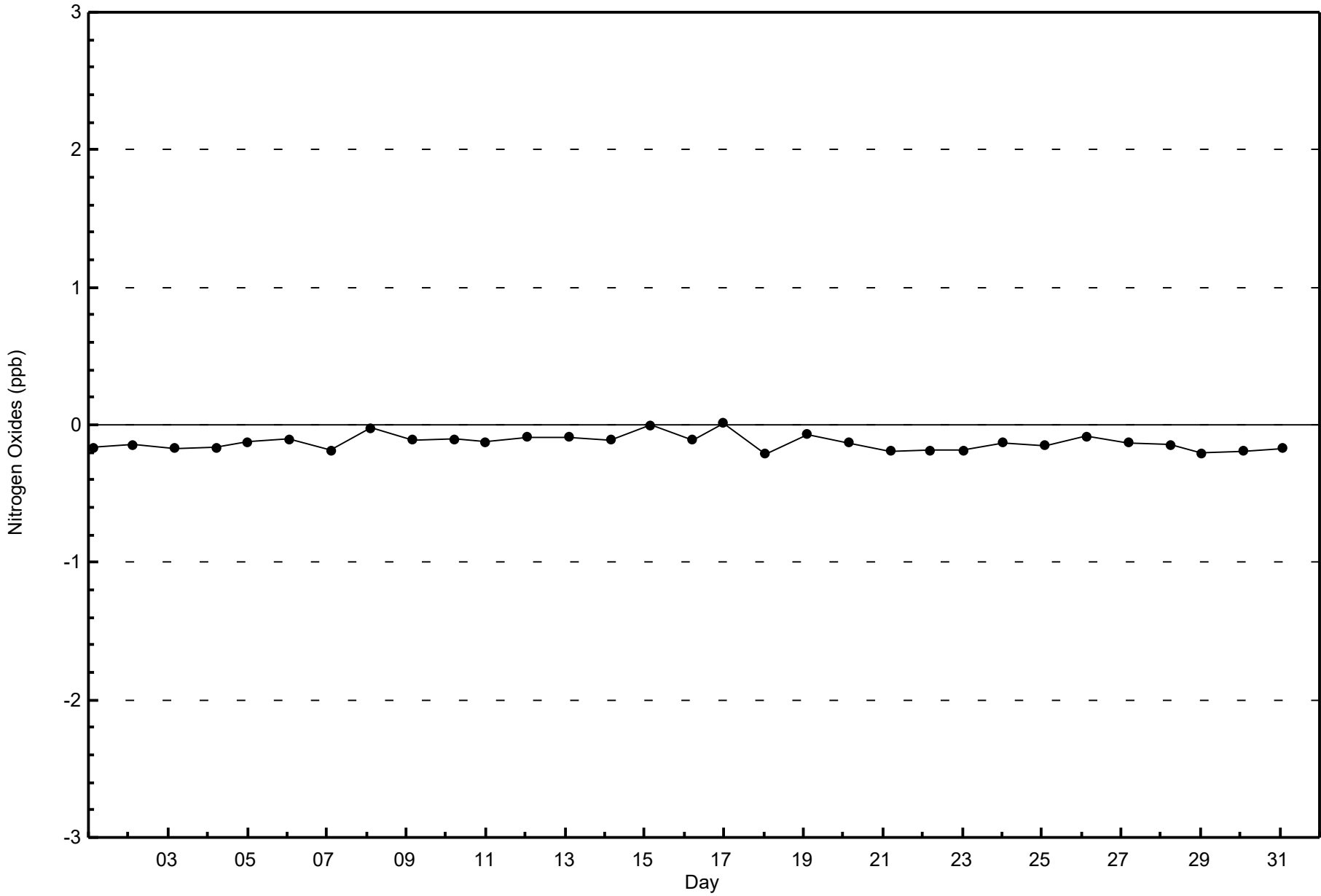


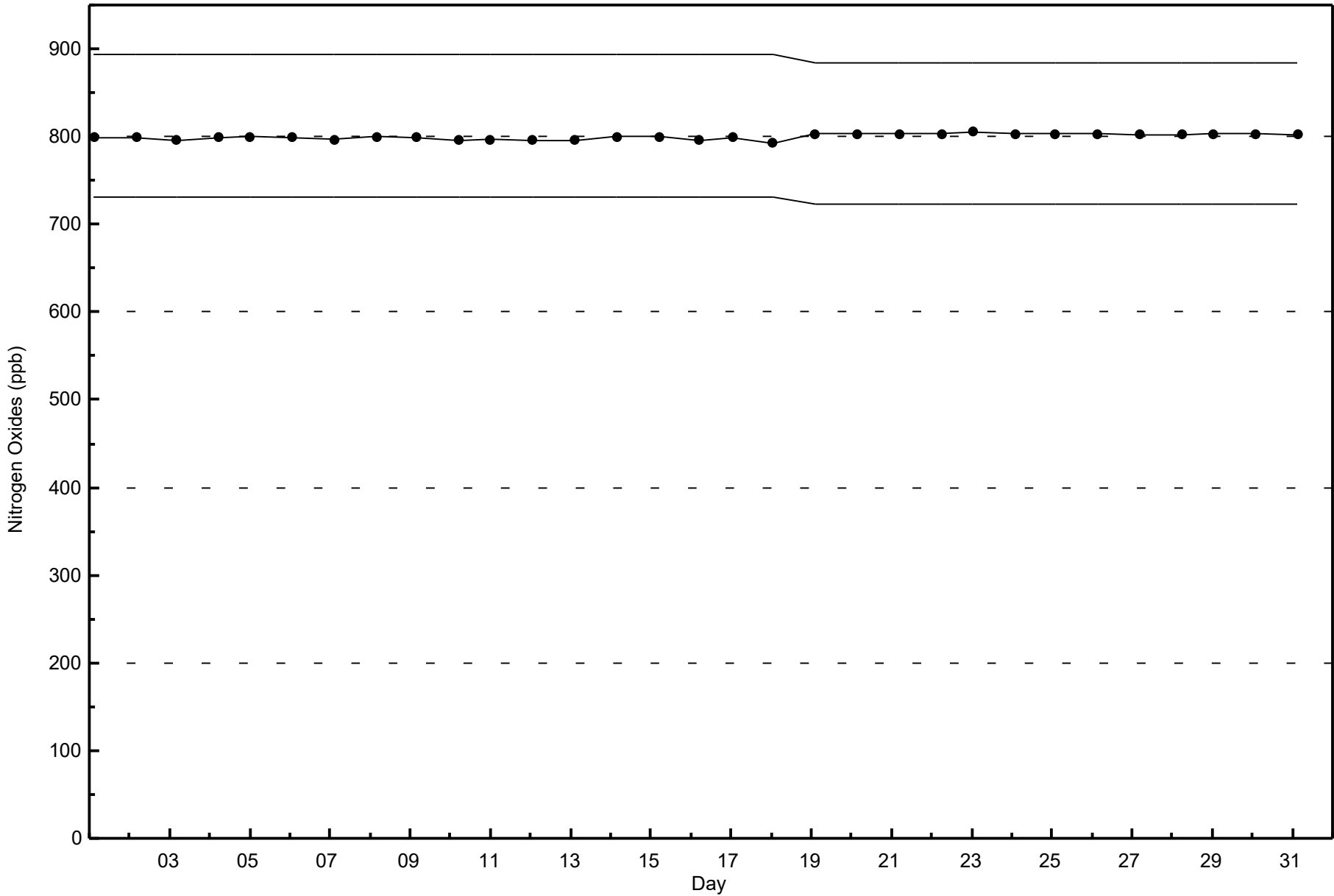


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

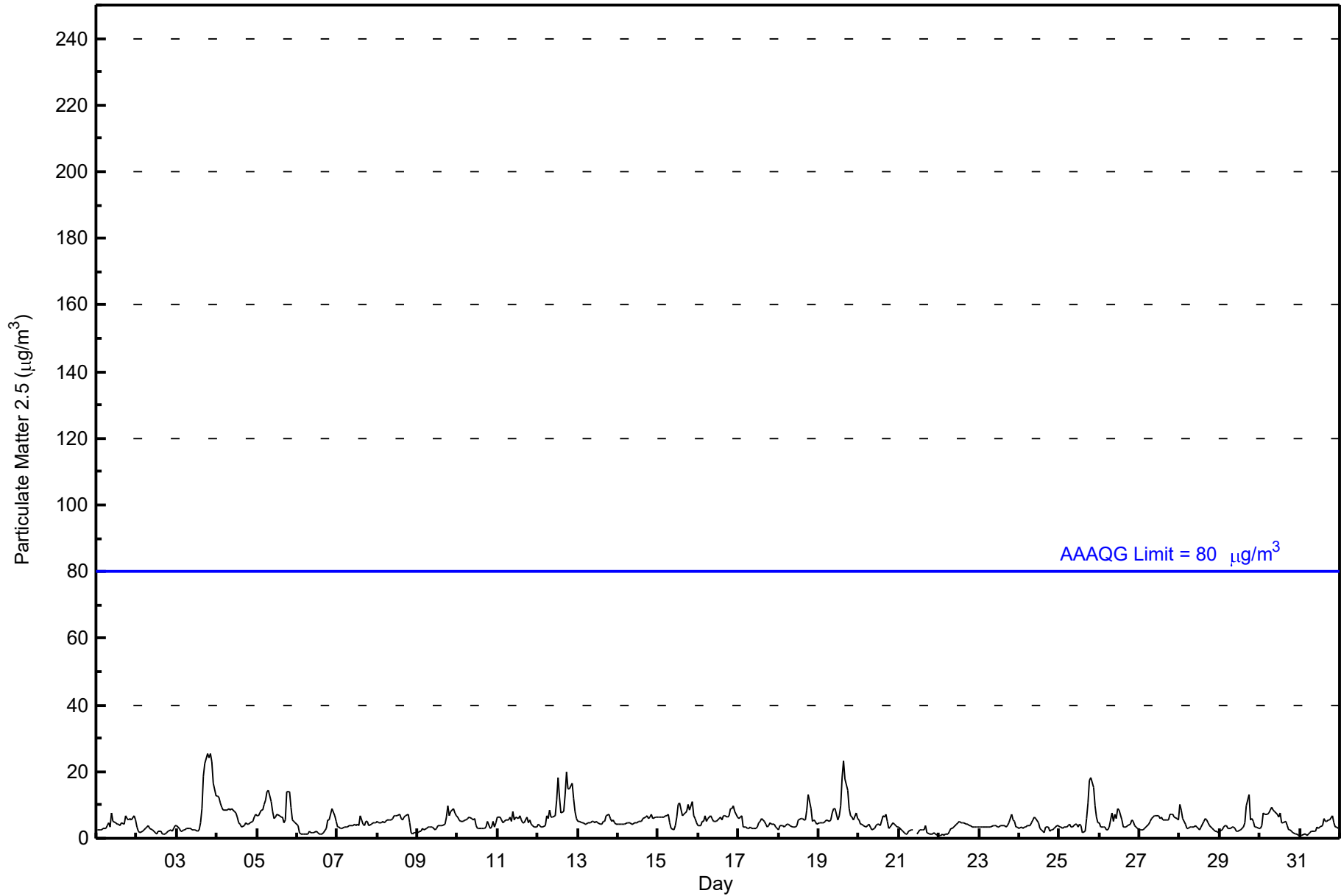








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 25.6 µg/m <sup>3</sup> on Oct 3 21:00		Maximum Daily Average: 9.3 µg/m <sup>3</sup> on Oct 12				Hours of Data:		742																																								
Minimum Value: 0.8 µg/m <sup>3</sup> on Oct 31 01:00		Minimum Daily Average: 2.0 µg/m <sup>3</sup> on Oct 21				Hours of Missing Data:		2																																								
Maximum Diurnal Average: 7.1 µg/m <sup>3</sup> at hour 19		Minimum Diurnal Average: 3.9 µg/m <sup>3</sup> at hour 4				Hours of Calibration:		2																																								
Monthly Average: 5.08 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 3.2 Median = 4.4 Q <sub>3</sub> = 6.1 P <sub>90</sub> = 8.3 P <sub>99</sub> = 18.6				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-Oct	2.4	2.4	2.4	2.6	3.0	2.9	4.0	4.7	3.4	7.5	5.1	4.7	4.4	4.3	3.7	4.5	4.4	6.8	5.7	5.4	5.9	5.5	6.7	5.7	4.5	7.5																						
2-Oct	3.6	2.2	1.7	1.9	2.4	2.9	3.4	3.8	3.0	2.4	2.1	1.5	1.2	2.0	2.1	1.2	1.1	1.4	1.6	2.2	2.4	2.0	2.9	3.9	2.3	3.9																						
3-Oct	3.6	3.0	2.2	2.0	2.6	2.7	3.0	3.1	3.1	2.7	2.5	2.4	2.3	2.6	4.5	8.9	18.8	22.4	25.2	24.2	25.6	22.9	16.7	12.7	9.2	25.6																						
4-Oct	12.6	12.1	10.4	9.4	8.3	8.4	8.4	8.7	8.6	9.0	8.1	7.8	6.4	4.8	4.4	3.6	3.7	4.5	4.4	4.5	4.9	6.2	7.0	7.1	7.1	12.6																						
5-Oct	6.6	6.7	8.3	8.4	10.0	11.2	13.9	14.5	11.2	8.2	6.0	6.5	7.0	6.9	6.3	6.3	4.8	5.4	13.8	14.0	9.3	5.3	5.0	4.8	8.3	14.5																						
6-Oct	3.7	1.9	1.5	1.1	1.1	1.3	1.5	2.2	1.9	1.8	1.8	2.1	1.9	1.3	1.3	1.3	1.7	3.0	5.3	5.4	7.2	8.7	6.7	4.9	2.9	8.7																						
7-Oct	3.2	3.3	3.1	3.0	3.2	3.2	3.4	3.8	3.8	3.9	4.3	3.6	4.1	3.9	6.6	4.3	3.7	5.0	5.3	3.9	4.2	4.5	4.6	4.8	4.0	6.6																						
8-Oct	5.0	4.8	4.8	4.9	4.7	5.0	5.4	5.4	5.6	5.9	6.7	6.8	7.0	7.3	5.9	5.4	6.4	6.8	7.0	4.6	1.6	1.4	1.8	1.9	5.1	7.3																						
9-Oct	1.7	2.0	2.1	2.8	2.6	2.8	3.2	3.2	3.3	3.3	2.7	3.0	3.7	4.0	3.9	3.9	4.3	6.3	9.8	7.0	8.0	8.8	7.7	6.8	4.5	9.8																						
10-Oct	6.2	5.7	5.3	5.2	5.7	5.3	5.9	6.4	5.9	5.5	5.9	3.9	2.9	3.0	2.8	2.8	2.9	3.2	5.2	3.1	3.4	4.9	3.5	4.6	4.5	6.4																						
11-Oct	6.5	6.5	5.5	4.8	5.3	5.5	5.4	6.4	5.3	7.9	5.6	6.5	5.8	6.6	5.5	4.6	4.6	6.2	4.6	5.3	4.4	3.9	3.5	3.4	5.4	7.9																						
12-Oct	4.1	4.0	3.5	3.4	3.9	6.8	5.8	8.3	6.4	6.2	6.7	11.5	18.3	12.3	7.5	8.2	13.3	20.1	14.7	15.0	16.4	11.9	8.1	5.9	9.3	20.1																						
13-Oct	5.2	4.9	4.7	4.5	4.4	4.4	4.5	4.6	5.0	5.0	4.8	5.2	4.6	4.1	4.3	5.2	5.1	6.8	7.4	6.0	4.9	5.5	4.5	4.3	5.0	7.4																						
14-Oct	4.1	4.0	4.1	4.2	4.3	4.5	4.5	4.5	4.4	4.3	4.6	4.8	5.0	5.0	5.2	5.7	6.4	6.9	5.9	6.4	7.1	6.0	6.2	6.4	5.2	7.1																						
15-Oct	6.4	6.3	6.3	6.5	6.8	6.7	7.3	4.6	2.9	2.5	3.7	6.4	10.3	10.8	6.6	7.1	7.7	7.9	10.0	8.5	11.0	6.8	6.0	4.7	6.8	11.0																						
16-Oct	3.8	3.9	4.9	5.2	6.7	5.1	6.0	6.9	6.1	5.0	5.3	5.0	5.8	6.4	5.5	6.7	6.6	6.5	6.6	8.9	9.0	9.9	7.8	6.2	6.2	9.9																						
17-Oct	6.1	6.3	6.8	3.2	3.3	2.8	3.0	3.3	2.9	2.9	3.1	3.6	4.7	5.3	5.8	5.1	4.2	3.6	3.8	4.8	4.4	4.3	3.5	2.8	4.1	6.8																						
18-Oct	2.3	3.8	3.7	3.6	3.9	4.3	4.4	4.0	3.5	3.3	3.5	3.7	5.3	6.1	6.0	5.6	5.6	8.4	13.3	9.0	5.2	5.3	5.1	4.1	5.1	13.3																						
19-Oct	4.6	4.7	4.6	4.6	5.0	5.3	5.2	5.5	7.6	9.0	8.9	5.4	6.9	9.6	18.3	23.2	17.9	14.5	8.7	6.9	6.4	5.7	7.8	6.0	8.4	23.2																						
20-Oct	5.4	4.2	4.1	3.9	3.6	3.9	4.1	3.4	2.6	3.2	3.9	4.1	4.1	3.9	6.6	6.2	7.0	5.1	2.8	3.5	4.7	4.3	3.7	3.5	4.2	7.0																						
21-Oct	3.3	2.3	2.1	1.5	1.2	1.2	1.9	2.4	2.5	C	C	1.3	2.7	2.7	2.7	2.6	3.8	1.6	1.1	1.3	1.3	1.7	1.3	1.0	2.0	3.8																						
22-Oct	1.0	1.0	1.1	1.0	1.1	1.4	2.3	3.0	3.0	3.2	4.2	4.8	4.9	4.8	4.7	4.5	4.1	4.1	3.8	3.6	3.4	3.4	3.3	3.3	3.1	4.9																						
23-Oct	3.3	3.4	3.3	3.4	3.3	3.4	3.4	3.5	3.6	3.7	3.9	3.5	3.5	3.6	3.7	3.6	3.6	3.6	4.7	7.1	5.6	5.2	3.6	3.3	3.9	7.1																						
24-Oct	3.1	3.4	3.2	3.3	3.5	3.8	3.7	4.7	5.7	6.3	5.7	4.5	2.8	2.6	2.3	1.9	3.3	3.3	2.2	2.3	2.6	3.1	3.9	3.8	3.6	6.3																						
25-Oct	3.4	3.5	3.2	3.3	3.3	3.9	4.1	3.5	3.2	4.1	4.0	3.4	4.1	3.9	1.8	2.0	6.0	10.7	17.3	18.3	15.3	9.9	6.4	4.6	6.0	18.3																						
26-Oct	4.6	3.3	3.3	3.2	2.6	2.7	3.3	7.7	5.1	7.1	5.8	9.1	8.4	5.6	3.2	3.2	3.4	3.7	4.1	5.5	4.9	3.8	3.2	2.8	4.6	9.1																						
27-Oct	2.6	2.6	2.6	3.0	3.5	4.1	5.2	6.1	6.4	6.8	6.6	6.6	6.0	6.2	5.4	5.6	5.6	5.5	7.0	7.4	7.1	6.6	5.8	5.7	5.4	7.4																						
28-Oct	10.3	8.3	6.0	4.2	3.0	2.9	3.2	3.3	3.6	3.6	3.6	3.1	2.7	3.6	5.3	6.1	5.5	4.7	3.8	2.9	2.5	2.1	1.9	1.8	4.1	10.3																						
29-Oct	2.2	2.5	3.4	3.6	4.0	2.8	3.1	3.6	3.5	3.1	2.3	2.1	2.7	2.9	3.4	4.5	9.8	13.1	5.6	6.1	5.2	3.5	3.3	3.1	4.1	13.1																						
30-Oct	3.1	3.7	7.8	7.2	7.1	7.8	8.6	9.3	8.5	8.0	7.1	6.3	7.4	4.7	4.6	5.0	3.7	2.7	2.6	2.2	1.8	1.4	1.1	0.9	5.1	9.3																						
31-Oct	0.8	0.9	1.1	1.1	1.0	1.1	1.6	1.9	2.1	2.1	3.5	2.8	3.4	4.0	5.9	5.3	5.0	5.7	5.5	6.7	4.8	3.4	3.5	3.1	3.2	6.7																						
																								4.4	4.1	4.1	3.9	4.0	4.2	4.6	5.0	4.6	4.9	4.7	4.7	5.2	5.0	5.0	5.3	5.9	6.8	7.1	6.8	6.5	5.7	5.0	4.4	Diurnal Average
																								12.6	12.1	10.4	9.4	10.0	11.2	13.9	14.5	11.2	9.0	8.9	11.5	18.3	12.3	18.3	23.2	18.8	22.4	25.2	24.2	25.6	22.9	16.7	12.7	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>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - October 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	498	67.12	67.12
6 - 15	229	30.86	97.98
16 - 25	14	1.89	99.87
26 - 80	1	0.13	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>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - October 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	9	1	11	16	15	38	85	22	18	39	43	58	44	46	18	32	495
6 - 15	7	3	1	6	9	27	73	10	7	12	10	2	10	6	9	35	227
16 - 25	0	0	0	0	0	2	5	0	0	1	0	0	2	0	0	4	14
26 - 80	0	0	0	0	0	0	1	0	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>	16	4	12	22	24	67	164	32	25	52	53	60	56	52	27	71	737

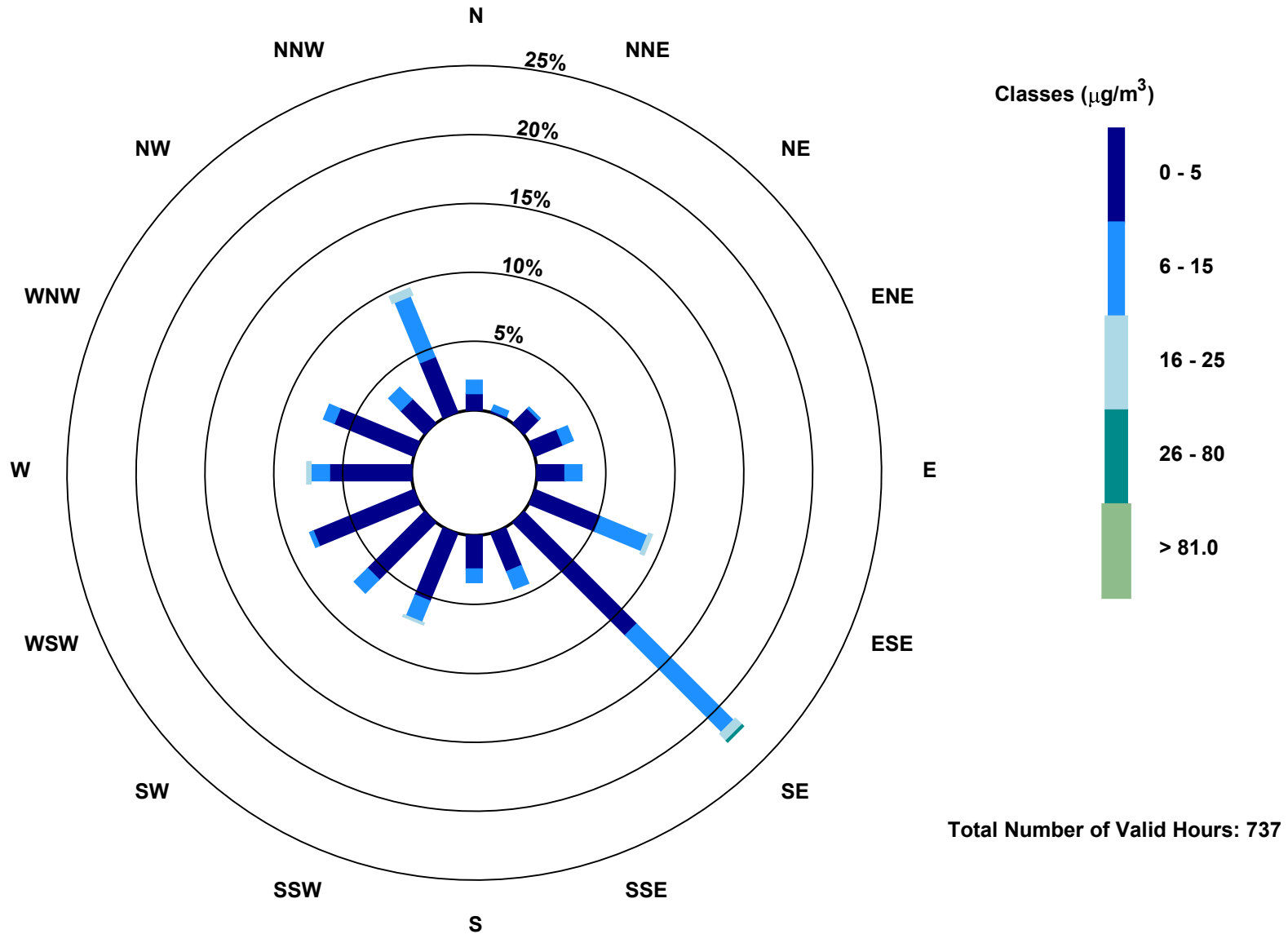
Total Number of Valid Hours: 737

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



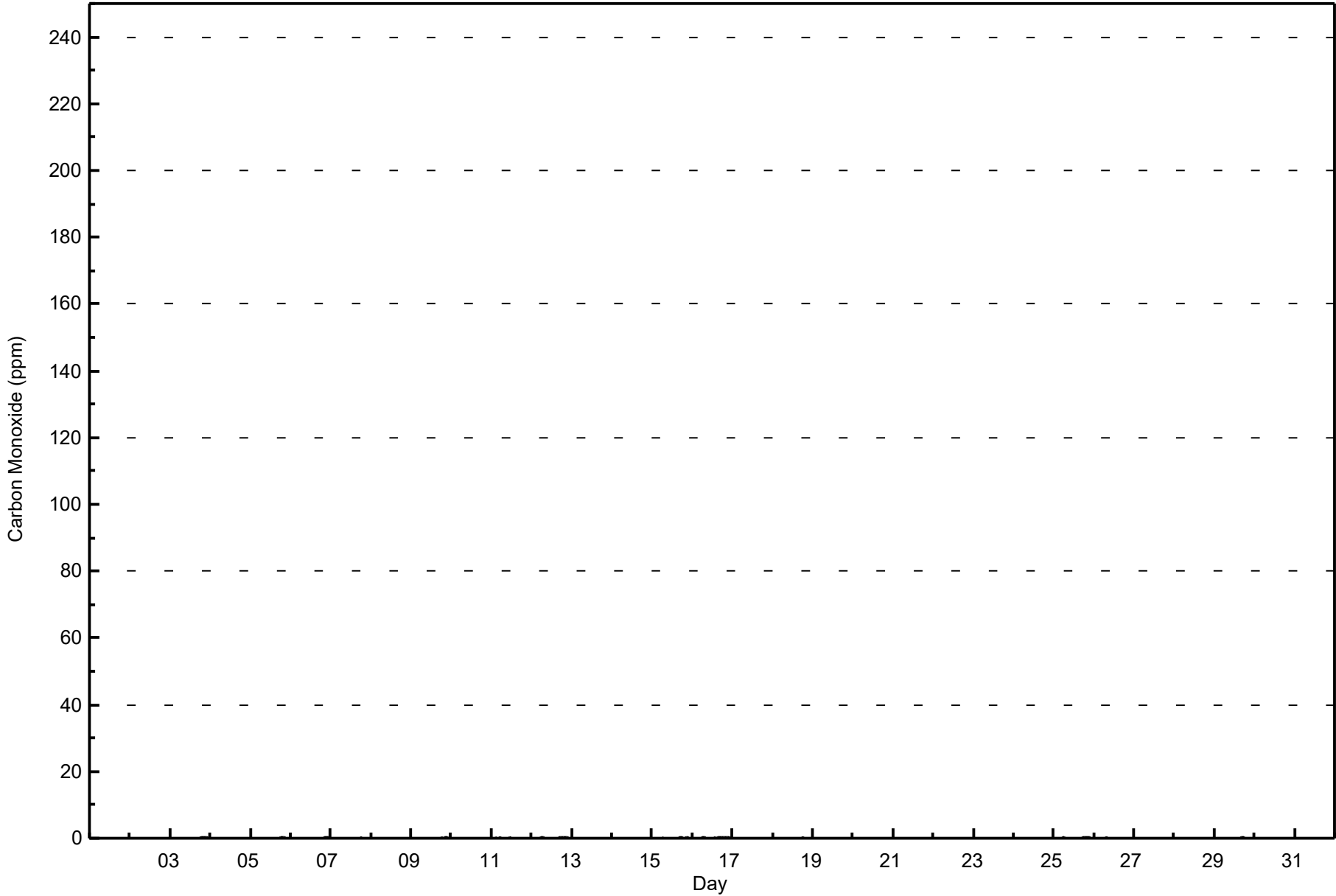






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - October 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	708	99.86	99.86
0.4 - 0.5	1	0.14	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**  
**Athabasca Valley - October 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	16	4	12	20	24	65	156	29	23	50	51	57	52	49	27	68	703
0.4 - 0.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
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>	16	4	12	20	24	65	157	29	23	50	51	57	52	49	27	68	704

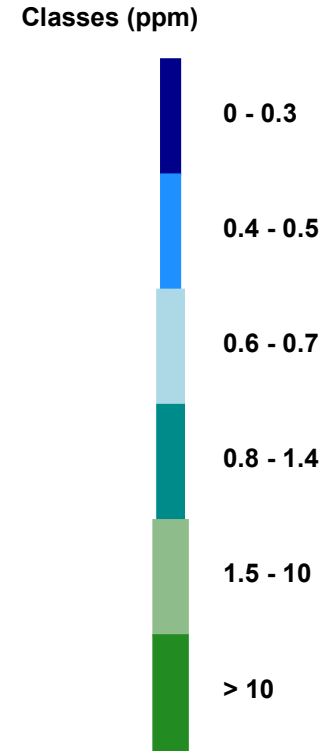
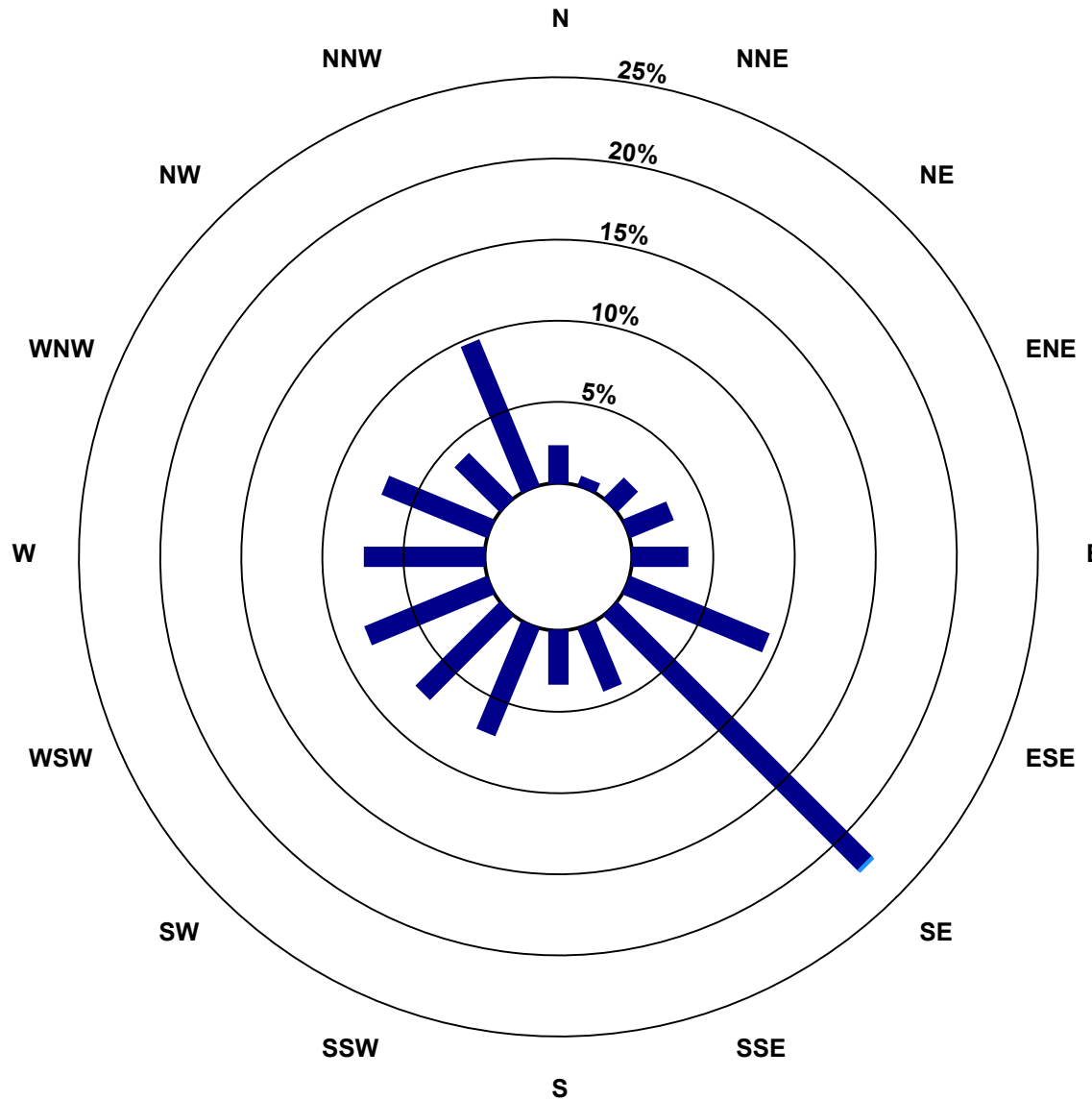
Total Number of Valid Hours: 704

Total Number of Hours: 744

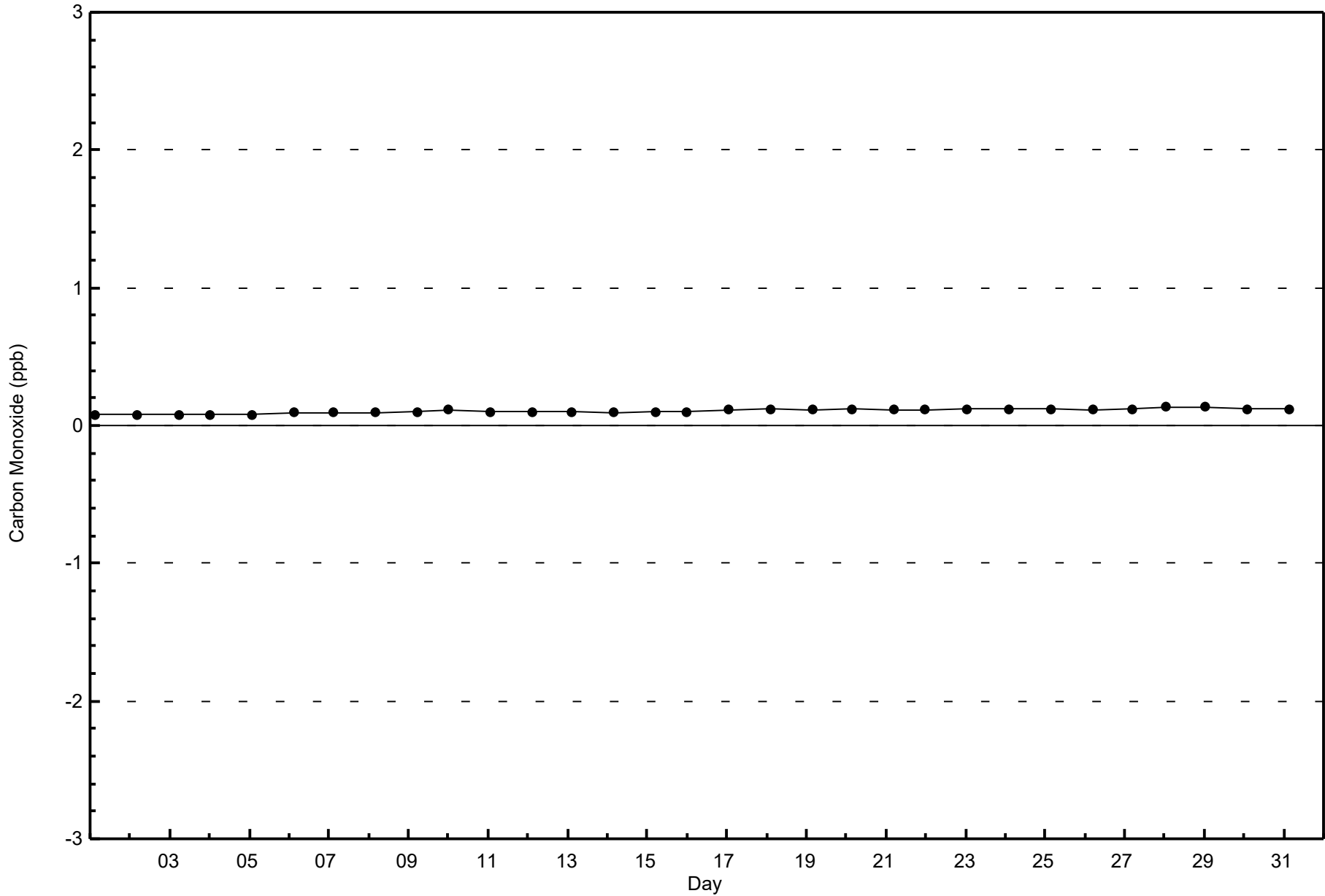


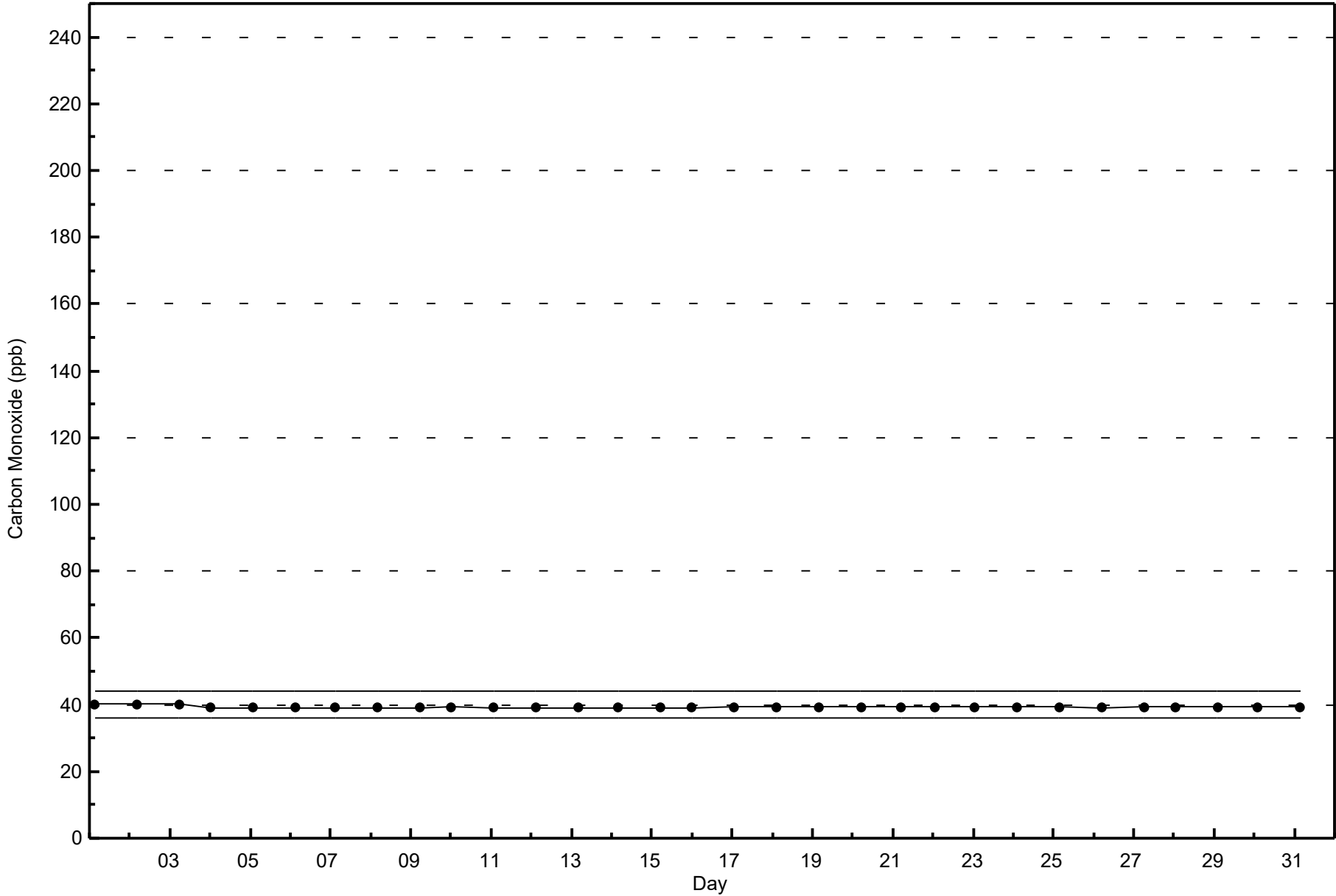
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Carbon Monoxide (CO) - ppm  
Athabasca Valley



Total Number of Valid Hours: 704





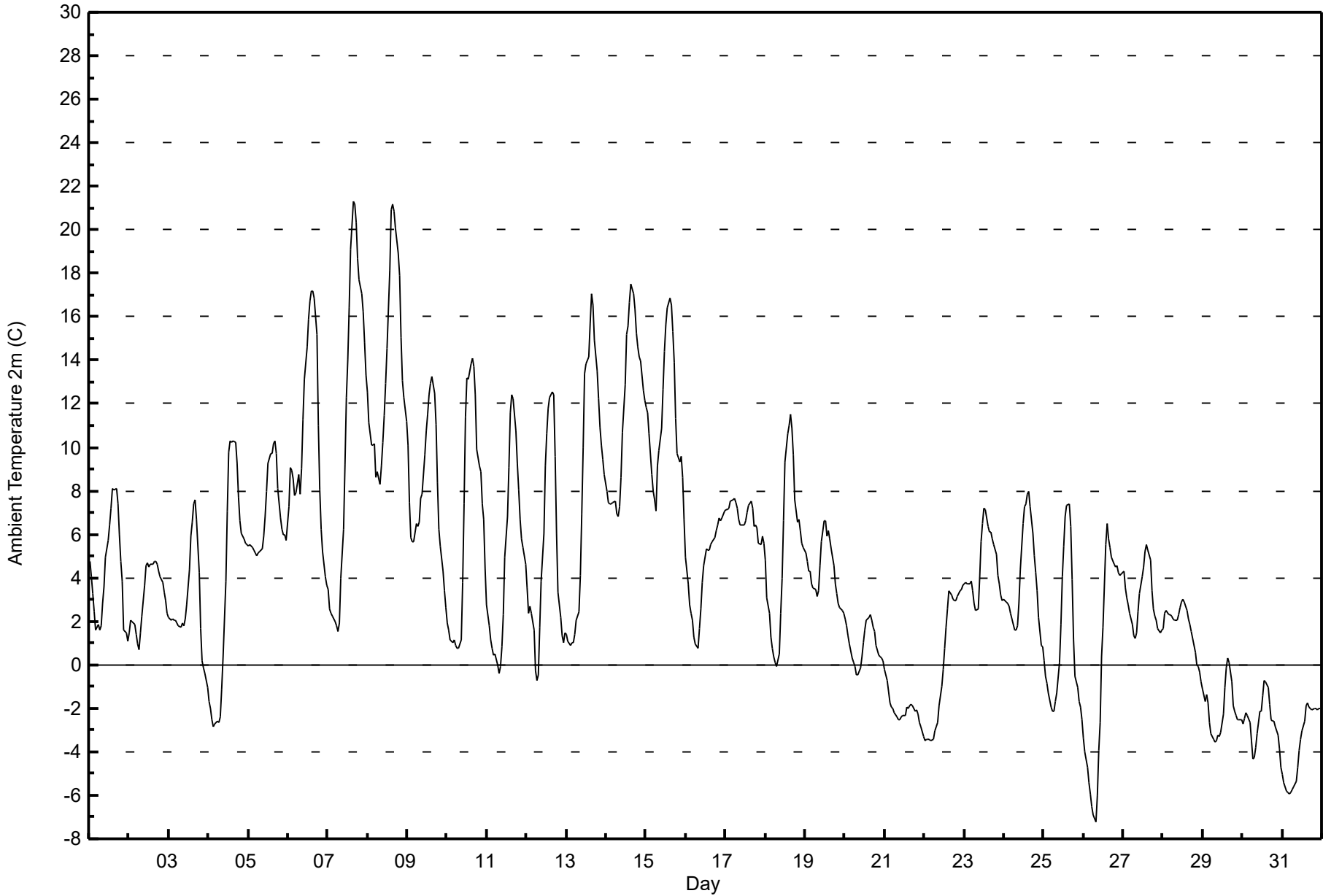


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Athabasca Valley - October 2024**

Maximum Value: 21.3 C on Oct 7 16:00		Maximum Daily Average: 13.7 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -7.2 C on Oct 26 08:00		Minimum Daily Average: -3.7 C on Oct 31		Hours of Data: 744																																												
Maximum Diurnal Average: 8.7 C at hour 16		Minimum Diurnal Average: 1.3 C at hour 7		Hours of Missing Data: 0																																												
Monthly Average: 4.43 C		Percentiles: P <sub>1</sub> = -5.8 P <sub>10</sub> = -2.4 Q <sub>1</sub> = 0.8 Median = 3.8 Q <sub>3</sub> = 7.4 P <sub>90</sub> = 12.3 P <sub>99</sub> = 19.0		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-Oct	4.7	4.1	3.3	2.4	1.6	1.9	1.6	1.8	2.8	3.6	4.9	5.7	6.4	7.2	8.1	8.0	8.1	7.4	6.0	4.8	3.8	1.6	1.5	1.1	4.3	8.1																						
2-Oct	1.4	2.0	2.0	1.8	1.4	1.0	0.7	1.4	2.2	3.7	4.5	4.7	4.5	4.6	4.6	4.8	4.8	4.6	4.3	4.1	3.8	3.4	3.0	2.3	3.2	4.8																						
3-Oct	2.2	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.9	1.8	2.1	2.8	4.4	5.9	6.5	7.4	7.6	6.7	4.3	1.7	0.2	-0.2	-0.4	-1.0	2.8	7.6																						
4-Oct	-1.7	-2.0	-2.5	-2.9	-2.7	-2.6	-2.4	-1.1	0.4	3.9	7.0	9.7	10.3	10.2	10.3	10.3	9.3	7.7	6.6	6.1	5.8	5.6	5.5	5.5	3.7	10.3																						
5-Oct	5.5	5.5	5.4	5.2	5.1	5.0	5.1	5.2	5.4	5.9	6.8	8.0	9.3	9.7	10.1	10.3	9.7	8.1	6.8	6.2	6.0	6.0	5.7	5.7	6.9	10.3																						
6-Oct	7.2	9.0	8.9	8.5	7.8	7.9	8.7	7.8	9.0	11.2	13.1	14.6	15.9	16.7	17.2	17.2	16.9	15.2	11.0	8.1	6.2	5.2	4.1	3.6	10.5	17.2																						
7-Oct	3.5	2.6	2.4	2.3	2.0	1.8	1.5	1.9	4.0	6.2	9.2	12.3	14.0	16.4	19.1	21.3	21.2	20.3	18.7	17.7	17.1	16.2	14.8	13.3	10.8	21.3																						
8-Oct	12.5	11.2	10.1	10.1	10.2	8.6	8.9	8.3	9.1	10.2	11.4	12.9	14.5	18.1	20.9	21.2	20.9	20.1	19.0	17.9	15.1	13.0	12.3	11.2	13.7	21.2																						
9-Oct	10.1	7.4	5.9	5.7	5.6	6.5	6.4	6.6	7.7	7.8	9.6	10.8	11.5	12.4	13.0	13.2	12.5	11.1	8.4	6.3	5.5	4.3	3.4	2.6	8.1	13.2																						
10-Oct	1.9	1.6	1.1	1.0	1.1	0.9	0.8	0.7	1.1	3.8	7.4	11.4	13.2	13.2	13.9	14.1	13.7	12.4	9.9	9.1	8.9	7.4	6.7	4.4	6.7	14.1																						
11-Oct	2.7	1.8	1.1	0.7	0.4	0.5	0.0	-0.4	-0.1	0.8	2.3	5.0	6.8	9.1	11.6	12.4	12.2	10.7	9.3	8.0	6.7	5.8	5.4	4.6	4.9	12.4																						
12-Oct	3.5	2.4	2.7	2.4	1.6	-0.3	-0.7	-0.5	1.7	3.8	6.0	9.1	10.6	11.7	12.3	12.5	12.4	9.6	6.0	3.4	2.2	1.3	1.0	1.4	4.8	12.5																						
13-Oct	1.4	1.1	0.9	1.0	1.0	1.4	2.0	2.4	4.1	6.9	10.0	13.4	13.9	14.2	15.7	17.1	16.5	14.9	13.5	12.2	10.9	10.1	9.5	8.7	8.5	17.1																						
14-Oct	8.0	7.5	7.4	7.4	7.5	7.5	6.9	6.8	7.3	8.6	10.7	12.9	15.2	15.6	16.7	17.5	17.0	16.4	15.3	14.6	14.1	13.9	12.6	12.2	11.6	17.5																						
15-Oct	11.8	11.6	10.6	8.7	8.0	7.6	7.1	9.1	9.9	10.9	12.7	14.4	15.7	16.4	16.9	16.5	15.3	13.9	11.3	9.7	9.3	9.6	8.6	6.7	11.3	16.9																						
16-Oct	5.0	3.7	2.8	2.4	2.1	1.3	0.9	0.8	1.6	2.6	3.8	4.5	5.4	5.3	5.5	5.7	5.9	6.1	6.4	6.7	6.6	6.8	7.1	7.1	4.3	7.1																						
17-Oct	7.1	7.1	7.2	7.5	7.6	7.6	7.5	7.2	6.7	6.4	6.5	6.4	6.6	7.0	7.3	7.5	7.2	6.4	6.5	6.3	5.6	5.6	5.9	5.6	6.8	7.6																						
18-Oct	4.8	3.1	2.3	1.3	0.8	0.4	0.1	-0.1	0.5	2.4	4.0	6.6	9.3	10.6	11.0	11.5	10.9	9.7	7.6	6.5	6.7	6.2	5.6	5.4	5.3	11.5																						
19-Oct	5.1	4.8	4.3	4.3	3.8	3.5	3.5	3.1	3.4	4.6	5.7	6.6	6.6	5.9	6.2	5.8	5.3	4.6	3.7	3.3	2.8	2.6	2.5	2.4	4.3	6.6																						
20-Oct	2.1	1.8	1.3	0.9	0.3	0.1	-0.1	-0.5	-0.5	-0.2	0.4	1.0	1.6	2.0	2.2	2.3	2.0	1.7	1.5	0.9	0.4	0.4	0.3	0.1	0.9	2.3																						
21-Oct	-0.2	-0.7	-1.2	-1.7	-1.9	-2.0	-2.2	-2.4	-2.5	-2.5	-2.4	-2.4	-2.3	-1.9	-2.0	-1.9	-1.8	-1.9	-2.1	-2.1	-2.3	-2.7	-2.9	-3.3	-2.1	-0.2																						
22-Oct	-3.5	-3.4	-3.4	-3.4	-3.5	-3.4	-3.1	-2.8	-2.7	-1.9	-1.0	-0.2	0.7	1.7	2.5	3.4	3.2	3.0	2.9	3.0	3.1	3.4	3.5	3.7	0.1	3.7																						
23-Oct	3.7	3.8	3.7	3.8	3.9	3.4	2.8	2.5	2.6	4.0	5.7	6.5	7.2	7.1	6.4	6.1	6.1	5.8	5.5	5.1	4.1	3.7	3.2	2.9	4.6	7.2																						
24-Oct	3.0	2.9	2.8	2.7	2.4	2.1	1.6	1.6	1.8	2.8	4.4	6.5	7.3	7.4	7.9	8.0	7.3	6.0	5.0	4.2	3.4	2.2	0.9	0.8	4.0	8.0																						
25-Oct	0.2	-0.5	-0.8	-1.3	-2.0	-2.1	-2.1	-1.7	-1.3	0.1	1.9	4.0	5.4	6.8	7.3	7.4	6.4	3.9	1.1	-0.5	-1.1	-1.7	-1.9	-2.5	1.0	7.4																						
26-Oct	-3.4	-4.0	-4.7	-5.4	-5.9	-6.5	-6.9	-7.2	-6.0	-3.9	-2.6	0.4	1.7	5.6	6.5	5.8	5.4	4.9	4.6	4.5	4.6	4.3	4.1	4.2	0.0	6.5																						
27-Oct	4.3	3.5	3.1	2.7	2.4	1.8	1.4	1.2	1.5	2.4	3.3	4.0	4.5	5.2	5.5	5.3	4.8	3.4	2.5	2.2	2.0	1.7	1.5	1.6	3.0	5.5																						
28-Oct	1.6	2.3	2.5	2.3	2.3	2.2	2.1	2.0	2.1	2.3	2.6	2.9	3.0	2.9	2.5	2.1	1.8	1.5	1.2	0.6	0.0	-0.1	-0.3	-0.8	1.7	3.0																						
29-Oct	-1.1	-1.7	-1.3	-1.7	-2.7	-3.2	-3.4	-3.6	-3.5	-3.2	-3.3	-3.1	-2.2	-1.1	-0.2	0.3	0.1	-0.8	-1.9	-2.2	-2.3	-2.5	-2.5	-2.6	-2.1	0.3																						
30-Oct	-2.7	-2.5	-2.2	-2.3	-2.7	-3.5	-4.3	-4.3	-3.8	-3.2	-2.1	-2.1	-1.4	-0.7	-0.8	-1.1	-1.8	-2.5	-2.6	-2.6	-2.8	-3.2	-3.9	-4.7	-2.7	-0.7																						
31-Oct	-5.0	-5.4	-5.8	-5.9	-5.9	-5.9	-5.7	-5.6	-5.3	-4.7	-3.9	-3.4	-3.1	-2.6	-1.9	-1.8	-1.9	-2.0	-2.1	-2.0	-2.0	-2.1	-2.0	-2.0	-3.7	-1.8																						
																								3.1	2.7	2.3	2.0	1.7	1.5	1.3	1.3	1.9	3.0	4.4	5.9	7.0	7.8	8.5	8.7	8.4	7.5	6.2	5.3	4.7	4.1	3.7	3.2	Diurnal Average
																								12.5	11.6	10.6	10.1	10.2	8.6	8.9	9.1	9.9	11.2	13.1	14.6	15.9	18.1	20.9	21.3	21.2	20.3	19.0	17.9	17.1	16.2	14.8	13.3	Diurnal Maximum







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

**Ambient Temperature 2m (AT2) - C**  
**Athabasca Valley - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	156	20.97	20.97
0 - 10	473	63.58	84.54
10 - 20	108	14.52	99.06
> 20	7	0.94	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

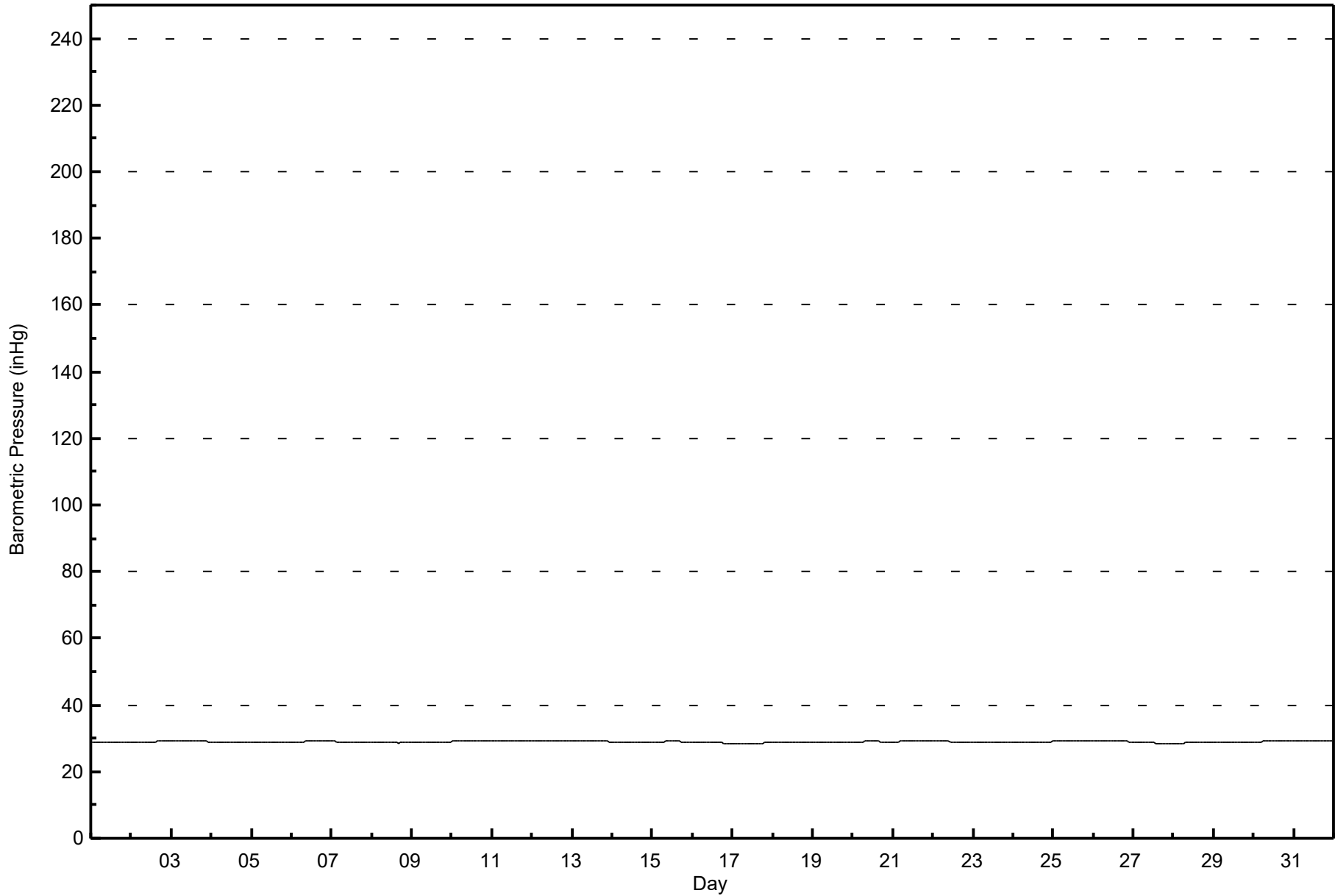
**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - October 2024**

Maximum Value: 29.4 inHg on Oct 12 16:00		Maximum Daily Average: 29.3 inHg on Oct 12		Hours in Service: 744																												
Minimum Value: 28.4 inHg on Oct 17 06:00		Minimum Daily Average: 28.5 inHg on Oct 17		Hours of Data: 744																												
Maximum Diurnal Average: 29.0 inHg at hour 10		Minimum Diurnal Average: 28.9 inHg at hour 18		Hours of Missing Data: 0																												
Monthly Average: 28.95 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> = 29.1 P <sub>90</sub> = 29.2 P <sub>99</sub> = 29.4		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-Oct	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	29.0
2-Oct	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
3-Oct	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
4-Oct	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.7	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	28.7
5-Oct	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9
6-Oct	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1
7-Oct	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
8-Oct	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	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	28.8	28.8	28.7
9-Oct	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	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
10-Oct	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1
11-Oct	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	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
12-Oct	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	29.4	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	29.3	29.3	29.3
13-Oct	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	29.1	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	29.2
14-Oct	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	28.8	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
15-Oct	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	29.0	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
16-Oct	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.8
17-Oct	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	28.5	28.5	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.5	
18-Oct	28.8	28.8	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	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	28.7	28.9
19-Oct	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	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.8
20-Oct	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
21-Oct	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	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
22-Oct	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	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	29.0
23-Oct	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8
24-Oct	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	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	28.9
25-Oct	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2
26-Oct	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	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.2
27-Oct	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.7
28-Oct	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7
29-Oct	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0
30-Oct	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1
31-Oct	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	29.1	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
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 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																												Diurnal Average				
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 29.4 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 29.3 29.3																												Diurnal Maximum				



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

**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - October 2024**





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

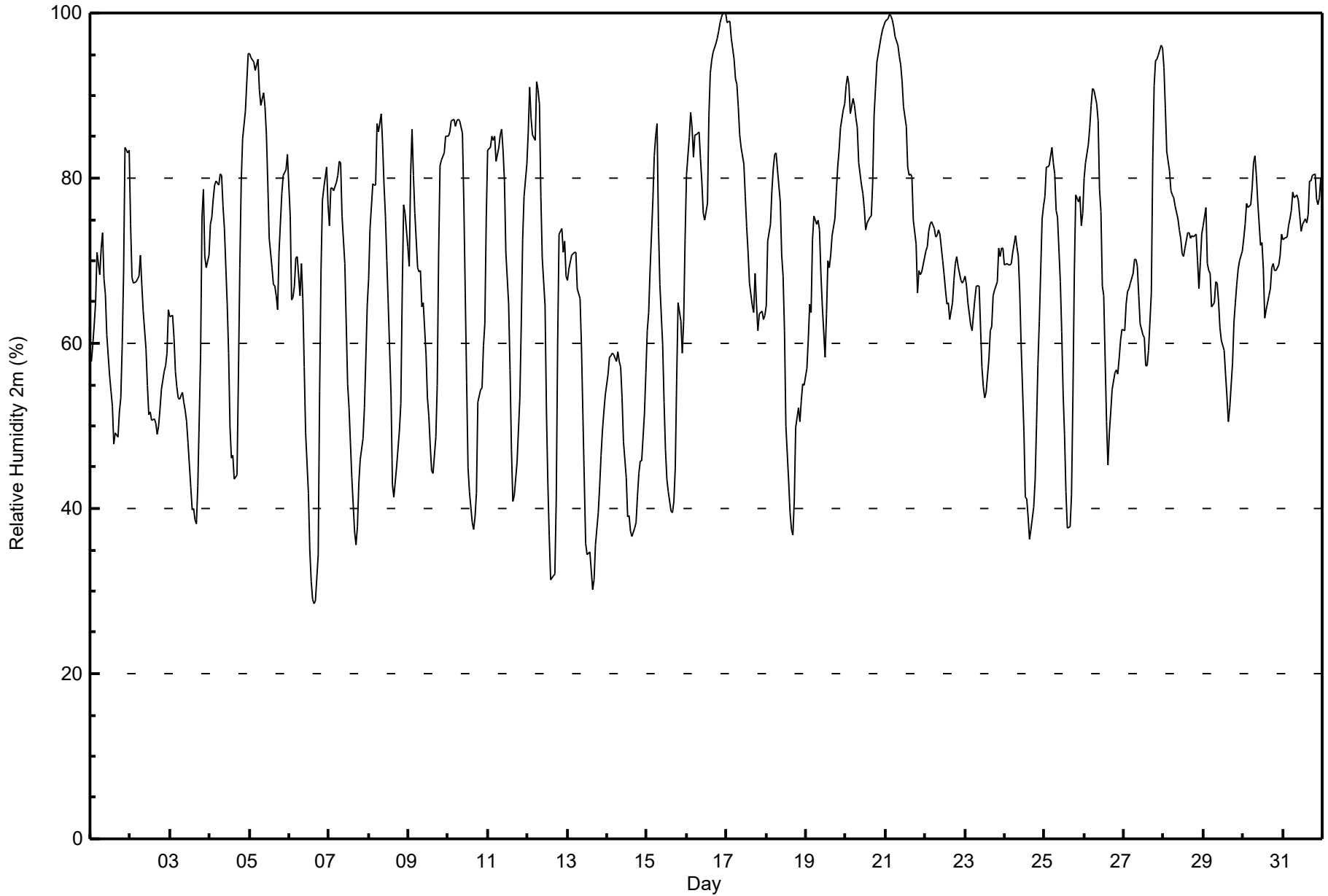
**Relative Humidity 2m (RH2) - %**  
**Athabasca Valley - October 2024**

Maximum Value: 100.0 % on Oct 17 00:00		Maximum Daily Average: 88.6 % on Oct 16		Hours in Service: 744																																												
Minimum Value: 28.5 % on Oct 6 16:00		Minimum Daily Average: 49.2 % on Oct 14		Hours of Data: 744																																												
Maximum Diurnal Average: 77.9 % at hour 7		Minimum Diurnal Average: 52.0 % at hour 16		Hours of Missing Data: 0																																												
Monthly Average: 68.09 %		Percentiles: P <sub>1</sub> = 32.0 P <sub>10</sub> = 44.2 Q <sub>1</sub> = 57.3 Median = 69.5 Q <sub>3</sub> = 79.3 P <sub>90</sub> = 87.7 P <sub>99</sub> = 99.0		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-Oct	57.8	59.9	62.2	64.9	71.0	68.3	71.5	73.4	67.8	66.0	61.1	56.1	54.2	52.4	47.9	49.1	48.7	51.7	53.4	59.7	68.4	83.7	83.1	83.4	63.1	83.7																						
2-Oct	74.4	68.0	67.4	67.5	67.8	68.2	70.7	67.1	63.8	59.3	54.9	51.3	51.6	50.8	50.9	50.4	49.0	49.9	52.1	54.4	56.6	57.3	58.9	64.0	59.4	74.4																						
3-Oct	63.3	63.4	60.6	56.6	54.7	53.4	53.3	54.1	52.9	51.8	50.4	48.0	42.5	39.8	39.9	38.7	38.1	42.8	58.7	75.3	78.6	70.5	69.1	70.7	55.3	78.6																						
4-Oct	74.3	75.3	77.5	79.2	79.7	79.1	80.5	80.3	76.6	73.9	64.8	58.8	49.8	46.1	46.5	43.6	44.1	55.9	69.2	79.5	84.7	88.2	91.7	95.1	70.6	95.1																						
5-Oct	95.1	94.6	94.1	93.1	93.8	94.5	90.6	88.9	90.4	88.6	85.3	79.4	72.7	69.1	67.2	67.0	65.7	64.0	71.1	78.2	80.3	80.7	81.0	82.8	82.0	95.1																						
6-Oct	75.4	65.2	65.5	66.9	70.3	70.4	65.7	69.7	65.4	57.2	49.1	41.9	35.0	31.2	29.1	28.5	28.9	34.4	54.2	68.7	77.3	78.8	81.3	76.9	57.8	81.3																						
7-Oct	74.2	78.8	78.8	78.4	79.5	80.4	82.0	81.9	75.4	69.7	62.4	55.1	52.2	47.9	43.7	37.1	35.6	37.8	43.1	45.9	48.5	52.1	58.1	64.6	61.0	82.0																						
8-Oct	67.8	73.9	79.4	79.1	79.2	86.6	85.7	87.8	84.1	79.2	75.5	70.0	64.8	53.7	42.8	41.3	43.2	45.0	49.5	52.7	66.2	76.7	75.8	71.6	68.0	87.8																						
9-Oct	69.3	80.5	85.9	80.3	75.7	69.1	68.6	68.8	64.4	64.9	58.6	53.4	51.1	47.6	44.6	44.2	48.7	55.0	70.8	81.5	82.2	83.1	85.1	85.2	67.4	85.9																						
10-Oct	85.2	85.7	86.9	87.0	86.2	87.0	87.1	86.9	85.4	76.9	66.1	55.2	44.8	42.1	38.4	37.4	39.0	41.9	52.8	54.3	54.6	59.7	62.4	75.1	65.8	87.1																						
11-Oct	83.5	83.7	85.1	84.6	85.0	82.0	83.8	85.2	86.0	83.3	79.6	71.0	64.7	56.7	47.1	40.8	41.5	45.6	49.5	53.3	62.2	72.6	77.8	81.8	70.3	86.0																						
12-Oct	85.6	91.0	87.3	85.2	84.6	91.7	90.8	89.1	77.8	70.3	64.5	51.8	43.0	36.6	31.3	31.9	32.1	41.2	60.1	73.3	73.9	71.1	72.4	68.1	66.9	91.7																						
13-Oct	67.6	69.0	70.7	70.9	71.0	71.1	66.6	65.4	59.6	51.5	43.5	35.7	34.4	34.7	32.5	30.2	31.3	35.5	39.5	42.6	46.5	49.4	51.6	53.8	51.0	71.1																						
14-Oct	56.2	58.2	58.5	58.8	58.6	57.7	59.1	57.8	57.0	53.4	48.2	43.8	39.0	39.1	37.3	36.6	37.6	38.3	41.5	44.2	45.7	45.8	51.6	56.4	49.2	59.1																						
15-Oct	61.5	63.8	68.8	77.3	82.7	85.1	86.6	74.1	67.1	59.9	52.9	47.2	43.5	42.1	39.7	39.5	40.9	44.9	55.7	65.0	62.7	58.8	62.7	72.5	60.6	86.6																						
16-Oct	80.4	84.9	87.9	86.1	82.6	85.2	85.2	85.6	82.3	79.5	75.7	74.9	76.9	87.5	92.7	94.2	95.3	96.3	97.0	97.7	98.7	99.5	100.0	100.0	88.6	100.0																						
17-Oct	98.9	98.9	99.0	97.0	94.4	92.0	91.3	88.7	85.2	83.8	81.8	77.7	74.1	71.0	67.3	64.6	63.7	68.5	64.8	61.5	63.6	64.0	62.8	63.5	78.2	99.0																						
18-Oct	64.6	72.4	74.4	78.6	81.2	82.9	83.0	80.9	77.2	70.6	68.2	61.5	50.0	43.3	39.5	37.5	36.8	41.0	49.8	52.1	50.6	53.0	55.1	55.0	60.8	83.0																						
19-Oct	57.0	60.4	64.8	63.8	72.6	75.5	74.4	75.0	73.6	68.4	64.5	58.3	63.6	70.0	69.1	70.7	73.0	75.1	78.3	81.4	83.3	86.0	88.2	89.0	72.3	89.0																						
20-Oct	91.2	92.5	91.3	87.7	89.7	88.9	87.3	86.0	81.9	79.1	78.2	76.3	73.7	74.6	75.3	75.4	79.5	87.6	90.8	94.1	96.1	97.2	97.9	98.5	86.3	98.5																						
21-Oct	99.0	99.3	99.8	99.6	99.2	98.4	97.2	96.1	94.8	93.8	91.7	88.6	86.2	81.3	80.3	80.5	80.2	74.9	72.0	66.2	68.8	68.2	68.6	70.4	85.6	99.8																						
22-Oct	71.2	71.7	73.5	74.5	74.7	73.9	72.9	73.0	73.7	73.3	70.0	68.4	66.4	64.7	65.0	62.9	64.9	67.6	69.7	70.5	69.3	67.6	67.4	67.6	69.8	74.7																						
23-Oct	68.1	66.9	65.0	62.3	61.5	63.6	65.4	66.9	66.9	62.0	57.1	54.8	53.4	54.1	58.1	61.6	62.0	65.7	66.4	67.4	71.5	70.5	71.6	71.5	63.9	71.6																						
24-Oct	69.6	69.6	69.5	69.4	69.7	71.0	73.1	71.7	70.5	66.2	59.8	49.3	41.4	41.1	38.9	36.3	37.4	40.1	43.4	50.1	57.4	62.8	75.1	76.5	58.8	76.5																						
25-Oct	77.7	81.3	81.3	81.6	83.7	81.9	80.5	76.1	75.3	67.4	61.4	53.9	48.9	42.0	37.6	37.8	41.7	53.7	68.5	78.0	77.1	77.9	74.3	75.7	67.3	83.7																						
26-Oct	80.1	81.9	84.1	86.2	88.8	90.9	90.7	89.1	86.9	78.7	75.9	66.9	65.8	50.4	45.2	49.2	51.7	54.4	56.4	56.7	56.2	58.2	60.4	61.8	69.4	90.9																						
27-Oct	61.5	64.8	66.3	66.7	67.2	68.5	70.1	70.2	69.2	65.7	62.4	61.1	60.7	57.3	57.2	59.2	66.2	82.1	91.2	94.3	94.5	95.0	96.1	95.7	72.6	96.1																						
28-Oct	93.5	88.6	83.2	80.8	78.4	77.9	77.6	76.6	75.0	73.7	72.7	70.8	70.5	71.5	73.3	73.4	72.7	73.1	72.8	73.3	70.1	66.6	69.8	73.2	75.4	93.5																						
29-Oct	74.3	76.4	69.7	68.8	68.5	64.4	64.9	67.4	67.3	65.2	61.9	60.4	59.1	56.3	53.5	50.5	52.2	57.7	62.5	64.9	67.2	69.0	70.0	71.1	64.3	76.4																						
30-Oct	72.6	74.5	76.9	76.5	76.8	78.9	81.9	82.8	80.4	77.0	71.9	72.2	69.0	63.0	64.0	65.7	66.7	69.1	69.7	68.8	68.9	69.5	70.7	73.3	72.5	82.8																						
31-Oct	72.6	72.8	72.9	74.2	75.1	76.0	78.2	77.7	77.9	77.4	75.5	73.6	74.4	75.1	74.7	75.6	79.6	79.7	80.4	80.5	77.5	76.8	77.7	80.0	76.5	80.5																						
																								74.9	76.4	77.0	76.9	77.6	77.9	77.9	77.2	74.6	70.6	66.0	60.9	57.3	54.6	52.6	52.0	53.2	57.1	63.1	67.3	69.6	71.3	73.2	75.0	Diurnal Average
																								99.0	99.3	99.8	99.6	99.2	98.4	97.2	96.1	94.8	93.8	91.7	88.6	86.2	87.5	92.7	94.2	95.3	96.3	97.0	97.7	98.7	99.5	100.0	100.0	Diurnal Maximum



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

**Relative Humidity 2m (RH2) - %**  
**Athabasca Valley - October 2024**





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

**Wind Speed 10m (WS10) - km/h**  
**Athabasca Valley - October 2024**

Maximum Speed: 32 km/h on Oct 8 20:00      Maximum Daily Speed Average: 18.9 km/h on Oct 28		Hours in Service: 744 Hours of Data: 739 Hours of Missing Data: 5 Percent Operational Time: 99.6																								
Minimum Speed Value: 0 km/h on Oct 16 00:00 Maximum Diurnal Speed Average: 5.0 km/h at hour 16 Monthly Average Velocity: 2.9 km/h 248.6 deg		Minimum Daily Speed Average: 1.6 km/h on Oct 12 Minimum Diurnal Speed Average: 1.5 km/h at hour 24 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 9 Q <sub>3</sub> = 14 P <sub>90</sub> = 19 P <sub>99</sub> = 26																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	SW10	SSW5	SSW10	SSW8	SSE4	SSW8	SE4	SE2	W3	NNW6	N5	NNW5	N4	WVW3	N2	NNW9	NNW7	N7	NNE7	N6	NW4	S1	SW4	SW4	WNW1.7	SW10
2-Oct	W6	WNW10	NW9	W7	W11	WVW7	SW5	W13	WVW12	WVW23	NW31	NW29	WVW26	WVW27	WVW23	WVW24	WVW21	WVW22	WVW17	WVW15	NW18	NW21	NW17	NW14	WNW16.4	NW31
3-Oct	NW14	WVW11	W12	W15	W14	W16	WVW13	WVW14	WVW16	WVW20	WVW18	WVW15	WVW12	W16	W19	WVW17	W17	W7	SSW1	SE2	SE3	ESE5	SE6	SE8	WNW10.0	WVW20
4-Oct	SE12	SE11	SE9	SE10	SE9	SE8	SE8	SE8	SE8	SE5	E4	SE4	ESE9	E11	ENE12	ENE10	ENE10	ESE6	ENE5	NE7	NNE4	NNW8	NNW7	NNW15	E5.7	NNW15
5-Oct	NNW15	NNW17	NNW18	NNW17	NNW14	NW8	NW8	NW6	NNW2	SW5	SSW8	SSW7	SW7	SW12	SW8	S4	SW7	SSW5	SE6	SE7	SE9	SE10	SE11	SE7	W2.1	NNW18
6-Oct	SW10	SW18	WSW21	WSW25	WSW21	WSW16	WSW18	SSW7	SW13	WSW20	WSW18	SW16	WSW17	WSW18	W20	W20	W15	SW7	WSW4	SW4	SSE2	SSE3	SSE3	SE4	WSW12.3	WSW25
7-Oct	SSE7	SE6	SE7	SE9	SE9	SE8	SE9	ESE7	SE8	SE9	SE9	SE9	SSE8	SE7	SE5	SW4	SSW8	S7	SSE5	S7	SSE9	SSE7	SSE4	ESE5	SE6.7	SE9
8-Oct	SE7	SE5	SE5	SE6	SE8	SE4	SE6	E6	ESE5	ENE4	E4	ENE3	ENE4	SSE3	SE8	ESE10	SE10	SE9	SSE6	W32	WVW9	SW13	SW8	S8	SSE3.5	W32
9-Oct	S6	ESE3	ESE3	ESE3	SE5	SSW7	SW9	SW13	WSW16	WVW10	W14	WSW13	SW13	SW13	WSW11	W11	WVW7	W5	SW2	ESE2	SE2	SE2	ESE2	ESE2	SW5.1	WSW16
10-Oct	SSE4	SE4	SE6	SE7	SE8	SE9	SE9	SE10	C	C	SE8	S4	SW16	WSW19	WSW16	WSW15	WSW14	WSW10	SW7	WSW13	WSW11	SSW6	SSW7	SSE3	SSW6.2	WSW19
11-Oct	SE3	SE5	ESE5	SE5	SE5	SE6	SE8	SE10	SE10	SE8	SE8	SE7	ESE6	ESE5	S5	SW13	SW9	SSW5	SSW6	S9	SSW11	SSW7	SSE4	SE2	SSE5.3	SW13
12-Oct	ESE3	E5	SW8	SW10	SSW6	ESE4	ESE4	SE5	ESE6	E5	ENE6	NE3	NNW7	N9	N7	NW4	SSW3	SE3	S1	SE1	ESE4	ESE4	ESE5	SE7	ESE1.6	SW10
13-Oct	SE7	SE8	ESE9	ESE7	SE7	ESE8	ESE12	ESE11	SE15	SE14	SE15	SSE16	SE18	ESE20	ESE17	SE12	SE12	SE11	SE10	SE12	SE13	SE12	SE13	ESE15	SE12.1	ESE20
14-Oct	ESE15	ESE15	SE13	SE8	SE9	SE10	SE9	SE12	SE10	ESE14	SE11	SE12	ESE18	ESE18	SE15	SE13	SE12	SE10	SE13	SE11	SE10	SE10	ESE6	SE6	SE11.5	ESE18
15-Oct	SE8	SE7	SE7	SE5	ESE4	ESE3	E3	E1	SW8	SW10	W12	W13	W15	W14	WSW11	SSW10	SSW5	SSW4	SSE2	S1	ESE3	SE3	ESE2	SW0	SSW3.5	W15
16-Oct	S2	SSE2	ESE2	E2	SE5	SE3	SE4	SE5	SE7	SE7	SE5	E4	E3	E3	NNE2	ENE3	ENE1	SSW1	WVW1	NNW2	NNE1	SE3	SE3	SE2	ESE2.4	SE7
17-Oct	W1	S2	SSW1	WSW10	SW12	WSW13	WSW17	WSW17	WSW21	WSW21	WSW18	W21	WSW17	WSW21	WSW21	WSW23	W31	W30	W26	W17	WSW13	W14	W22	WVW19	WSW16.5	W31
18-Oct	W17	SW9	SW8	SW11	SW9	SSW7	SSW9	SSW10	SSW8	SSW4	NE2	NE3	SW12	SW13	SW17	SW14	S9	SE9	SE5	E3	SSE8	S1	ESE3	SE4	SSW6.0	SW17
19-Oct	SE4	ESE2	ESE3	SE1	NNW3	SW4	SSW4	WSW4	NW5	N4	W3	SSW6	NNW8	NNW14	NNW11	NNW12	NNW11	NNW13	NNW13	NNW12	NNW14	NNW17	NNW20	NNW15	NNW6.5	NNW20
20-Oct	NW16	NW16	NW17	NW16	NNW16	NNW14	NNW17	NNW15	NNW13	NNW11	NNW9	NW8	NNW6	NNW12	NW14	NNW11	NNW11	N7	N6	NNW8	NNW10	NNW10	NNW15	NNW15	NNW12.0	NNW17
21-Oct	NNW15	NNW18	NNW20	NNW22	NNW21	NNW22	NNW21	NNW20	NNW19	NNW18	NNW12	NNW16	NNW12	UO	UO	UO	W11	W16	WSW10	W14	W13	W10	WSW15	NW14.4	NNW22	
22-Oct	WSW11	SW9	SSW8	SSW11	S9	SSE9	SSE6	SSE7	SSE7	S6	SW17	SW17	SW12	SW14	SSW11	SSW13	S10	S10	S8	SSW10	SSW10	SW8	WSW16	WSW18	SSW9.5	WSW18
23-Oct	WSW16	WSW21	WSW22	WSW25	WSW26	WSW21	SW6	WSW12	W12	WSW9	SW9	WSW21	WSW22	WSW15	WSW19	WSW19	WSW19	SW17	SSW6	SE7	SE4	S4	SSW7	SSW7	WSW13.5	WSW26
24-Oct	SE4	ESE4	SSE3	SSW4	SW8	SW12	SW13	SSW7	S6	SSW8	SSW11	WSW14	NNW31	W29	WVW22	WVW20	W11	WSW12	WSW18	WSW18	SW9	SSW6	SE1	SSE2	WSW9.1	WVW31
25-Oct	S4	SE3	SE3	SSE3	SE4	SE4	SE5	ESE4	ESE3	SSW9	SSW8	SSE3	E4	NE3	WVW14	WVW13	W7	SSW4	SE2	SE2	SE2	SE4	SE5	SE6	S2.1	NNW14
26-Oct	SE4	SE5	SSE4	ESE3	ENE3	E4	E4	E4	ENE2	SSE1	WVW2	W0	WVW3	E9	E15	E12	E10	E11	ESE6	ESE6	SE8	SE7	SE8	SE10	ESE4.9	E15
27-Oct	SE14	SE11	SE11	SE9	SE7	SE6	SSW3	SE6	SE7	ESE9	ESE13	ESE14	ESE15	ESE14	ESE12	ESE9	ESE5	NNW2	NW3	NNW4	N2	NNW5	NNW6	NW9	ESE5.5	ESE15
28-Oct	NNW4	W14	W21	W20	W19	W21	W24	W20	W21	WVW20	WVW20	WVW23	WVW21	NW20	WVW18	WVW19	WVW15	WVW16	WVW21	WVW22	WVW23	WVW19	WVW21	W20	WNW18.9	W24
29-Oct	W18	W14	WVW16	NW19	NW21	NW21	NW15	NW11	WVW10	W13	WVW16	NW9	W10	WSW8	SSW8	SSW7	SE2	SE8	ESE10	SE7	SE6	SE7	SE6	SE5	WNW6.1	NW21
30-Oct	ESE3	N4	NNW9	N6	NNW14	NNW17	NNW17	NNW15	NNW12	NNW12	NNW11	NNW14	N9	NE8	NE9	ENE12	ENE12	ENE10	ENE8	ENE10	NE8	NE8	NE7	N5	N7.7	NNW17
31-Oct	N3	ENE3	ESE6	ENE5	NE5	NE3	ENE8	E8	ENE6	ENE8	E6	ESE12	ESE9	SE7	SSE10	SE8	SE9	SE10	SE10	SSE9	S10	S7	ESE1	WSW2	ESE5.2	ESE12
SW1.9 SW1.9 WSW2.4 WSW3.5 WSW3.0 WSW3.2 WSW2.4 SW1.9 WSW2.5 W3.1 W3.6 WSW4.0 W4.5 WSW4.6 WSW4.6 WSW5.0 WSW4.0 SW3.0 SW2.2 WSW2.8 SW1.9 SW1.6 W1.6 WSW1.5																								Diurnal Average		
W18 WSW21 WSW22 WSW25 WSW26 NNW22 W24 NNW21 W21 WNW23 NW31 WNW29 WNW31 W29 WNW23 WNW24 W31 W30 W26 W32 WNW23 NW21 WNW22 W20																								Diurnal Maximum		
C - Calibration      UO - Unstable Operation All monthly, daily, and diurnal averages have been calculated using vector methods																										

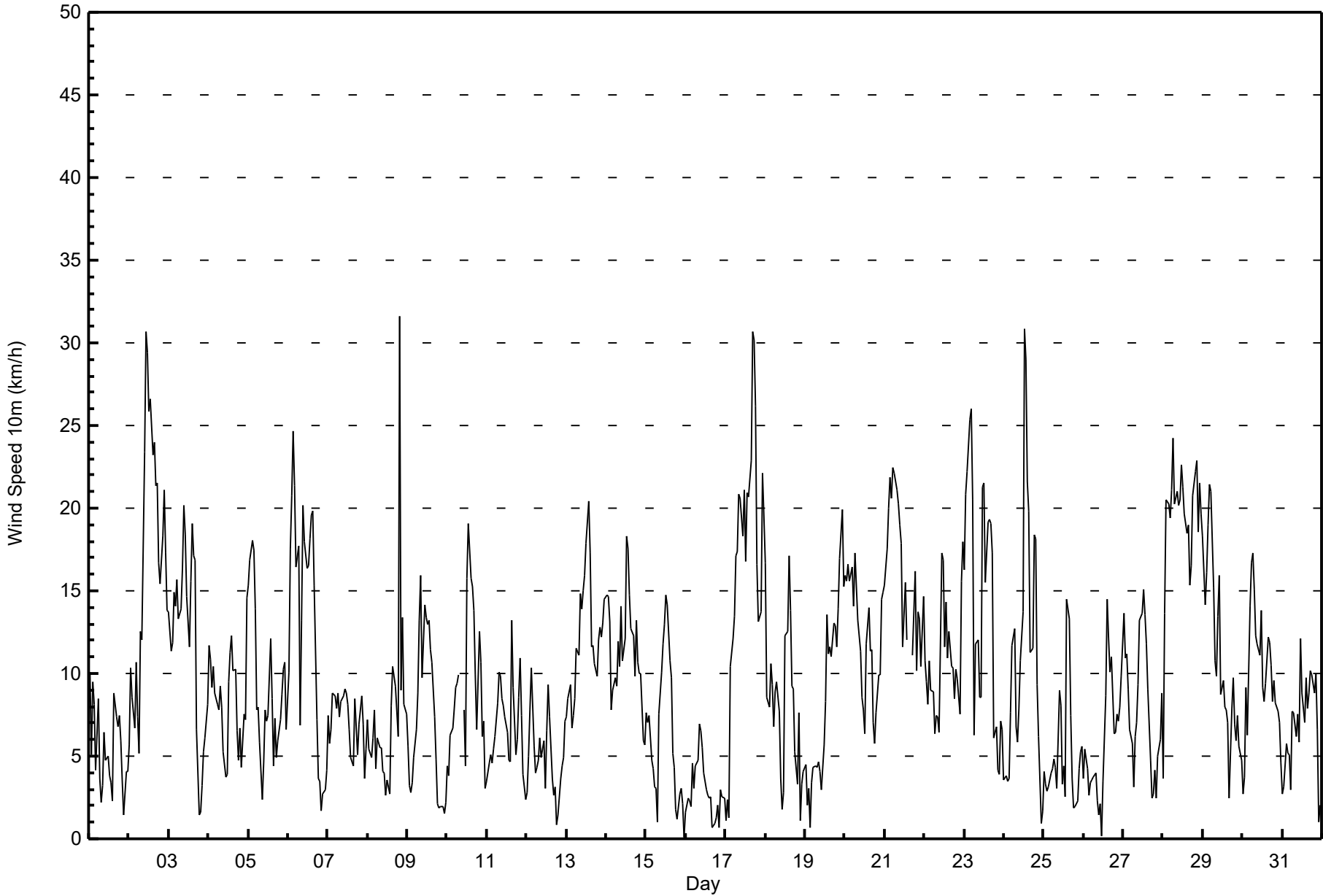


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Athabasca Valley - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 14 km/h on Oct 8 20:00 Minimum Value: 1 km/h on Oct 27 18:00 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: 739 Hours of Missing Data: 5 Hours of Calibration: 2 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-Oct	5	3	3	2	2	2	1	1	2	2	2	2	2	1	2	3	2	2	2	1	2	2	2	1	5
2-Oct	2	2	4	3	4	3	3	4	4	6	6	6	6	5	4	4	4	4	3	2	4	4	3	2	6
3-Oct	3	2	2	2	2	4	2	3	4	3	4	4	5	5	4	5	4	3	1	1	1	1	2	5	
4-Oct	2	3	2	3	3	2	3	2	3	2	2	2	3	4	4	4	4	3	2	2	2	2	3	6	
5-Oct	3	4	4	3	3	2	1	2	1	2	1	2	2	2	2	2	3	3	1	2	1	2	2	4	
6-Oct	5	3	4	4	4	3	3	4	6	4	4	4	5	5	6	5	4	3	1	2	2	1	1	6	
7-Oct	2	2	3	2	2	2	3	2	2	2	2	2	2	2	2	3	3	2	3	2	2	2	2	3	
8-Oct	1	1	1	2	2	2	2	1	1	1	2	2	1	2	3	3	2	2	3	14	5	3	3	14	
9-Oct	2	2	1	1	3	2	3	4	4	4	4	3	4	3	3	3	4	1	1	1	1	1	1	4	
10-Oct	2	1	2	1	2	2	2	2	C	C	2	3	5	4	5	4	4	2	2	3	4	4	2	5	
11-Oct	1	1	1	1	1	1	2	2	2	2	2	2	2	1	4	3	3	1	1	2	2	3	2	4	
12-Oct	1	1	3	2	2	1	1	1	2	2	2	1	2	2	3	1	1	1	1	2	1	2	2	3	
13-Oct	2	2	2	2	2	2	2	3	3	3	3	7	5	5	6	3	3	2	2	2	3	3	2	7	
14-Oct	3	3	4	3	3	4	3	3	3	4	3	4	4	4	4	4	3	2	3	4	2	2	2	4	
15-Oct	2	2	2	2	2	2	1	1	3	3	4	3	3	4	4	3	1	1	1	1	2	1	1	4	
16-Oct	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	
17-Oct	1	1	1	3	2	2	3	3	4	4	4	5	4	5	5	6	8	6	5	4	3	3	6	8	
18-Oct	6	2	2	2	3	1	3	2	2	2	2	2	4	5	4	4	3	2	3	2	4	2	2	6	
19-Oct	2	2	1	1	1	1	2	1	2	2	2	2	3	3	2	2	3	2	2	2	3	3	3	3	
20-Oct	3	3	2	3	3	3	3	3	3	3	2	2	2	3	2	2	2	2	1	2	2	2	3	4	
21-Oct	3	3	4	4	4	4	4	4	4	4	5	5	3	4	UO	UO	UO	3	4	2	2	3	3	5	
22-Oct	5	4	2	2	2	1	2	1	2	3	5	4	4	4	3	4	3	3	3	3	3	3	4	5	
23-Oct	4	4	4	4	5	6	4	4	4	3	3	5	5	4	3	4	4	3	5	2	1	2	3	6	
24-Oct	2	1	2	2	3	3	3	1	2	3	2	5	6	5	5	5	2	2	4	4	5	4	1	6	
25-Oct	3	2	2	1	1	1	2	2	2	3	2	2	1	2	3	3	3	2	1	2	1	2	2	3	
26-Oct	2	2	1	1	1	1	1	1	1	1	1	1	1	6	4	3	3	3	2	2	3	2	2	6	
27-Oct	3	3	2	3	2	3	1	3	2	4	4	4	5	4	4	4	3	1	1	3	1	2	1	5	
28-Oct	1	5	3	4	3	5	4	3	3	4	4	4	4	4	3	3	3	4	4	4	5	4	3	5	
29-Oct	2	3	3	5	5	4	3	2	2	4	3	4	5	3	2	3	1	2	2	1	2	2	2	5	
30-Oct	1	3	2	2	3	3	3	3	2	3	3	2	2	2	2	3	2	2	2	2	2	2	1	3	
31-Oct	1	1	2	2	1	2	2	2	2	3	3	3	3	3	3	2	2	3	2	2	3	3	1	3	
																		Diurnal Maximum							
C - Calibration																		UO - Unstable Operation							







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Athabasca Valley - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	204	27.60	27.60
6 - 11	283	38.29	65.90
12 - 19	186	25.17	91.07
20 - 28	59	7.98	99.05
29 - 38	7	0.95	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 739

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Athabasca Valley - October 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	3	6	10	15	32	53	19	11	15	8	3	5	4	4	8	204
6 - 11	8	1	6	9	7	19	93	12	14	36	23	10	10	7	8	20	283
12 - 19	0	0	0	3	2	15	18	1	0	1	22	31	26	20	10	37	186
20 - 28	0	0	0	0	0	1	0	0	0	0	0	16	11	19	4	8	59
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	4	2	1	0	7
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	16	4	12	22	24	67	164	32	25	52	53	60	56	52	27	73	739

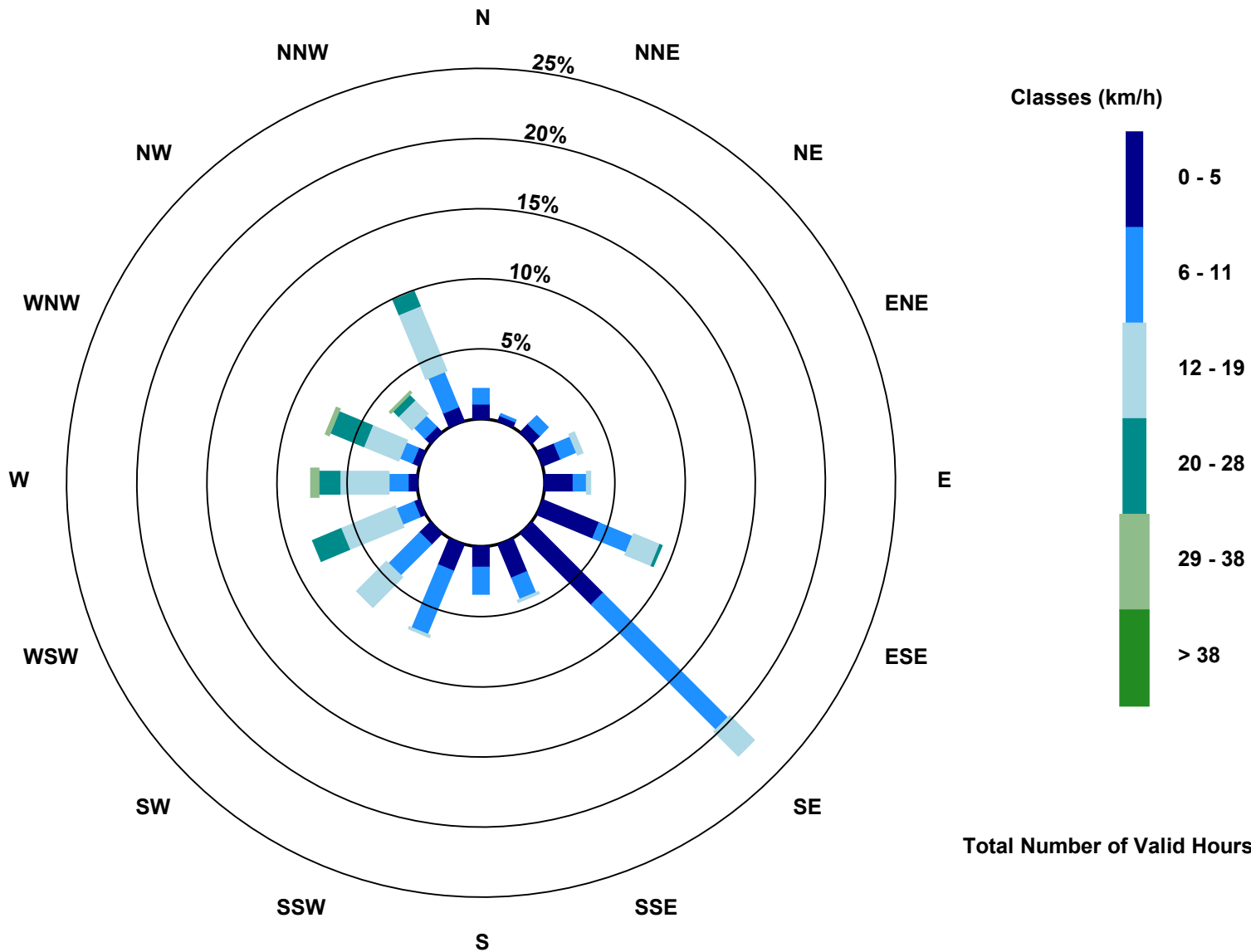
Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Athabasca Valley



Total Number of Valid Hours: 739



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

**Wind Direction 10m (WD10) - deg**  
**Athabasca Valley - October 2024**

Direction of Maximum Speed: 268 deg on Oct 8 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 287.0 deg on Oct 28	Hours of Data: 739
Direction of Minimum Speed: 220 deg on Oct 16 00:00	Hours of Missing Data: 5
Direction of Minimum Daily Speed Average: 1.6 deg on Oct 12	Percent Operational Time: 99.6
Monthly Average Direction: 248.6 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-Oct	234	206	208	209	159	208	146	146	274	337	8	345	350	283	353	344	341	7	19	353	321	183	232	227	286.3
2-Oct	263	290	311	264	270	285	236	265	291	301	304	304	297	287	295	293	285	291	282	284	313	318	322	316	295.0
3-Oct	307	288	279	276	275	278	282	290	299	296	293	289	289	270	272	282	281	268	194	135	127	123	135	124	282.0
4-Oct	129	125	125	126	132	131	128	142	126	126	91	145	119	91	74	72	75	116	59	46	21	344	345	344	97.8
5-Oct	338	338	337	335	336	324	317	314	334	215	211	211	225	224	216	191	215	204	144	132	140	139	134	145	274.7
6-Oct	231	235	239	244	241	241	248	196	235	255	238	218	237	250	270	279	269	228	247	233	167	168	148	142	242.7
7-Oct	147	142	133	137	134	131	126	118	125	129	136	140	147	132	127	214	197	174	165	179	159	149	148	122	144.2
8-Oct	136	141	131	132	130	126	124	98	109	66	80	77	63	157	129	123	132	136	155	268	289	232	220	172	157.0
9-Oct	172	117	107	122	131	211	218	224	248	284	281	254	232	227	243	259	284	264	220	103	128	138	116	120	235.9
10-Oct	158	129	126	132	137	138	134	135	C	C	126	173	230	237	237	242	248	253	230	242	257	201	213	159	206.9
11-Oct	125	128	118	132	132	131	130	129	124	127	128	125	119	105	190	215	223	198	192	190	203	204	165	132	156.5
12-Oct	103	87	229	224	204	118	120	126	112	96	75	38	342	352	357	309	192	131	176	145	121	113	113	128	113.2
13-Oct	130	130	121	120	126	108	120	122	129	131	130	155	134	120	121	145	142	138	145	133	131	135	128	121	130.1
14-Oct	118	123	125	141	137	137	143	128	132	119	130	124	121	121	124	133	129	132	136	134	133	141	121	136	128.6
15-Oct	139	133	130	128	122	104	93	87	224	235	261	260	259	244	208	206	192	147	174	112	137	123	220	212.8	
16-Oct	183	150	120	94	141	134	144	131	137	135	127	87	94	84	33	72	70	213	288	346	29	125	136	132	121.8
17-Oct	263	184	209	238	232	249	240	244	244	242	245	261	258	255	255	255	263	267	273	273	242	259	281	282	256.7
18-Oct	279	233	226	230	221	207	206	202	206	211	40	50	214	227	230	219	185	143	133	99	147	188	110	146	210.2
19-Oct	145	109	102	135	343	233	198	238	316	353	263	213	347	342	337	336	337	335	335	330	331	334	336	335	330.7
20-Oct	326	320	316	322	334	327	333	339	346	343	330	320	346	337	324	331	342	354	351	346	341	343	336	334	333.4
21-Oct	334	334	333	333	333	334	336	336	334	334	338	344	333	342	UO	UO	UO	277	281	257	274	278	262	249	319.7
22-Oct	257	231	196	206	174	167	162	163	159	180	235	228	223	223	209	210	188	174	179	198	209	217	249	244	210.0
23-Oct	246	246	248	247	247	220	237	263	257	232	256	258	251	239	238	243	234	211	142	140	182	211	199	241.3	
24-Oct	136	110	153	198	225	224	226	205	188	195	207	253	283	276	283	284	272	256	247	249	236	213	138	162	250.0
25-Oct	169	140	131	149	144	138	133	121	111	202	204	148	88	41	300	282	266	209	136	132	124	146	144	138	177.5
26-Oct	139	137	149	118	69	88	80	90	73	163	286	280	296	82	82	84	88	88	105	116	124	143	134	124	104.0
27-Oct	132	128	140	131	145	141	204	124	134	122	121	111	117	108	117	116	111	327	319	346	2	345	333	305	119.1
28-Oct	331	262	276	277	280	277	275	271	277	288	291	300	302	304	300	295	295	291	286	288	292	300	282	280	287.0
29-Oct	279	269	285	307	313	312	309	318	291	279	289	311	277	247	212	197	144	126	123	128	130	131	125	138	283.7
30-Oct	118	351	334	357	338	332	336	336	337	341	346	337	355	43	49	59	74	75	67	58	55	52	36	9	9.9
31-Oct	8	71	104	75	36	43	74	79	69	65	96	103	112	132	150	136	131	138	132	155	180	171	104	250	114.7

233.0 227.3 241.8 248.3 253.4 252.3 240.6 224.5 250.1 265.2 260.5 258.1 260.7 257.9 255.5 254.6 247.3 230.9 231.7 243.4 229.2 224.2 259.7 245.8  
 Diurnal Average

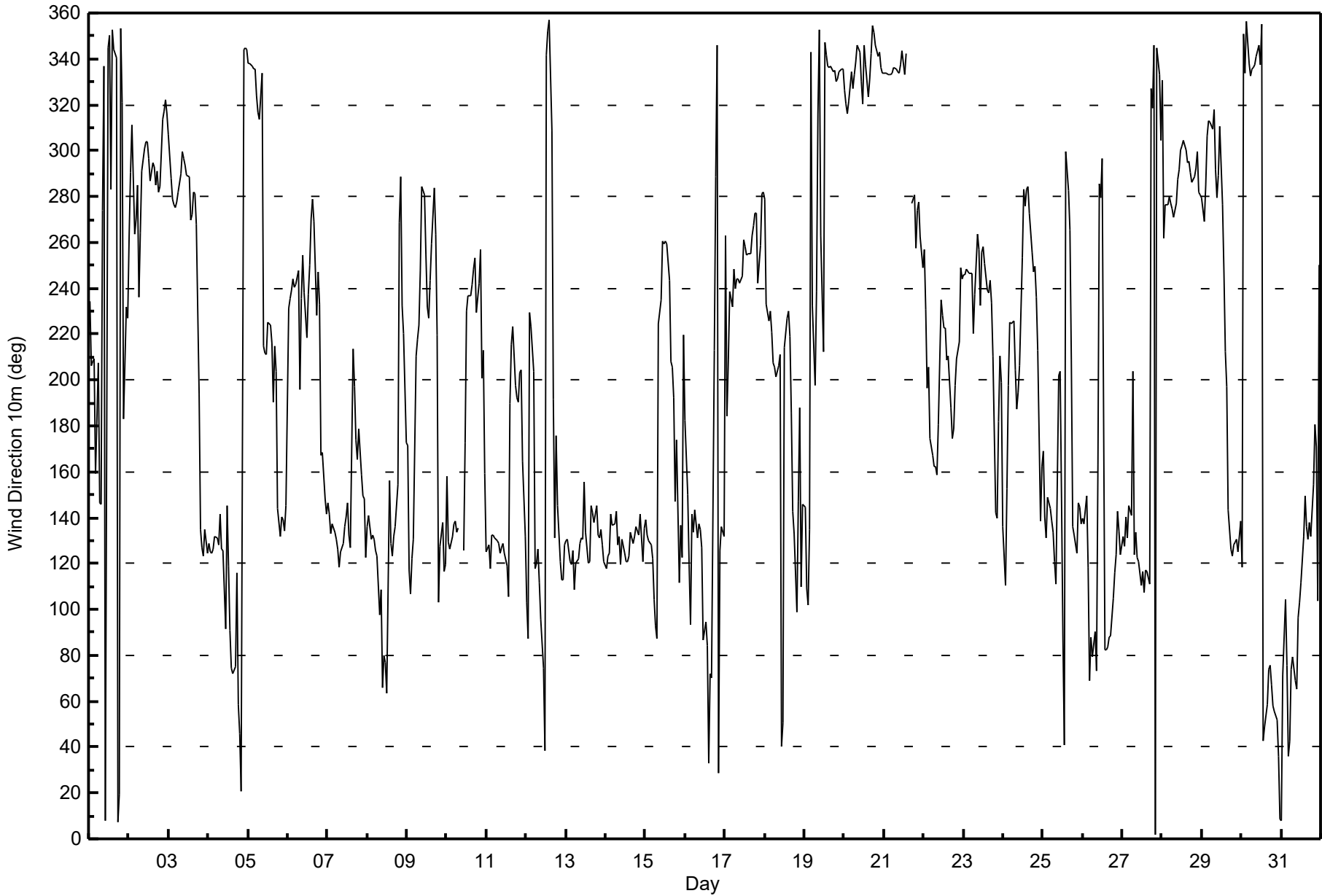
C - Calibration UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 10m (WD10) - deg**  
**Athabasca Valley - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 105 deg on Oct 16 00:00 Minimum Value: 8 deg on Oct 21 18:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 19 Q <sub>3</sub> = 32 P <sub>90</sub> = 57 P <sub>99</sub> = 90		Hours in Service: 744 Hours of Data: 739 Hours of Missing Data: 5 Hours of Calibration: 2 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-Oct	45	65	19	15	54	15	37	60	60	21	42	36	55	57	70	22	15	20	14	25	58	80	64	27	80
2-Oct	28	14	36	35	17	35	73	25	21	13	12	14	14	14	11	14	14	13	11	9	12	10	17	11	73
3-Oct	10	18	12	9	11	12	10	13	14	14	18	27	33	25	15	17	11	32	68	65	47	26	18	16	68
4-Oct	13	13	16	16	17	18	20	21	26	39	50	81	22	20	16	21	27	44	53	24	41	16	23	22	81
5-Oct	13	13	13	10	11	12	9	22	65	40	12	13	18	14	14	38	20	41	9	15	10	12	11	56	65
6-Oct	68	9	10	10	10	13	13	39	30	12	14	14	22	19	14	18	10	25	29	43	65	50	48	45	68
7-Oct	27	27	25	18	15	18	23	23	22	19	14	17	17	26	39	83	19	20	37	23	18	24	46	26	83
8-Oct	9	14	22	34	17	38	24	23	30	18	45	68	14	88	24	16	15	14	63	49	54	12	19	20	88
9-Oct	29	36	31	37	33	26	23	15	14	22	18	16	21	23	21	19	12	8	55	79	70	52	76	58	79
10-Oct	29	28	13	16	11	11	16	13	C	C	22	64	19	13	19	17	18	14	13	12	65	56	21	52	65
11-Oct	37	25	22	24	21	15	12	13	14	15	17	15	16	26	69	12	14	15	17	16	16	47	90	78	90
12-Oct	56	26	56	14	56	28	30	20	22	28	10	50	32	21	37	39	44	26	78	68	43	37	31	22	78
13-Oct	16	18	19	24	20	21	16	18	16	16	17	22	22	14	15	17	16	14	15	14	14	14	12	11	24
14-Oct	13	13	17	26	24	21	22	19	17	15	20	18	13	13	16	17	15	15	17	16	13	18	29	30	30
15-Oct	18	23	15	29	42	49	59	91	37	18	15	16	16	15	26	13	14	20	61	74	50	62	68	105	105
16-Oct	63	48	45	76	27	36	28	29	21	23	29	31	40	50	38	39	91	103	74	72	90	41	62	82	103
17-Oct	81	60	78	14	9	11	10	11	11	11	13	15	15	15	15	14	13	12	11	11	13	15	13	12	81
18-Oct	19	14	13	11	14	16	17	12	15	47	87	71	19	18	13	18	23	13	32	52	28	95	54	39	95
19-Oct	24	70	41	92	35	30	24	43	44	67	54	39	27	13	10	9	11	10	9	9	10	10	9	10	92
20-Oct	9	12	9	11	9	10	10	16	16	16	17	19	20	12	9	12	13	21	21	17	15	17	11	8	21
21-Oct	8	8	8	8	8	8	9	9	9	8	14	21	10	17	UO	UO	UO	8	8	16	13	11	19	15	21
22-Oct	20	28	19	18	16	12	27	12	18	28	15	15	19	17	20	19	25	25	35	30	24	37	15	13	37
23-Oct	12	11	10	10	10	15	60	24	16	30	33	13	13	16	10	10	11	8	47	16	24	48	25	57	60
24-Oct	66	40	64	63	25	18	14	19	29	27	17	33	16	11	16	13	14	11	10	11	71	38	86	76	86
25-Oct	55	55	61	27	28	28	30	47	45	21	13	59	33	63	15	16	23	49	57	69	64	25	23	20	69
26-Oct	35	26	30	39	16	15	14	33	49	75	61	96	22	85	13	12	16	16	32	32	23	26	20	16	96
27-Oct	16	15	15	19	22	40	46	25	24	23	19	23	20	22	23	20	45	38	57	45	31	18	10	20	57
28-Oct	33	17	9	10	10	11	9	10	10	13	13	11	13	10	12	11	13	13	12	11	11	12	11	11	33
29-Oct	9	13	11	17	11	10	13	15	16	16	18	34	36	35	20	25	51	13	14	17	20	16	21	25	51
30-Oct	38	76	12	24	12	8	9	11	12	14	18	10	24	24	20	15	10	10	14	10	12	14	14	26	76
31-Oct	51	51	23	39	27	70	14	20	20	16	28	20	23	29	25	20	17	19	17	19	21	24	85	54	85
81 76 78 92 56 70 73 91 65 75 87 96 55 88 70 83 91 103 78 79 90 95 90 105																									
Diurnal Maximum																									
C - Calibration UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS08 FORT CHIPEWYAN OCTOBER 2024**

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

November 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
OCTOBER 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	4.1	0	1.9	0
TRS (ppb) Average	708	36	36	100	0.4	0	0.3	0
O3(ppb) Average	708	35	36	99.87	37.3	0	32.2	-
NO2(ppb) Average	708	36	36	100	10	0	4.3	-
NO(ppb) Average	708	36	36	100	9.2	-	1.5	-
NOX(ppb) Average	708	36	36	100	17.7	-	4.6	-
PM2.5(ug/m3) Average	743	1	1	100	23.5	0	12.2	0
CO(ppm) Average	709	34	35	99.87	0.2	0	0.1	-
CO2(ppm) Average	706	36	38	99.73	458.4	-	444.8	-
Temperature 2 m (C) Average	744	0	0	100	15.7	-	10.4	-
Relative Humidity (%) Average	744	0	0	100	99	-	94.9	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	40	-	24	-
Wind Direction 10 m (deg) Average	743	0	1	99.87	-	-	-	-
PC(mm) Total	744	0	0	100	1.7	-	6.8	-
Leaf Wetness (% of range) Average	743	0	1	99.87	87.2	-	17.6	-
Global Solar Radiation (W/m2) Average	744	0	0	100	456.2	-	122.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
OCTOBER 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	0.12	0.4	-	0	0	0	0	0	0.2	4.1
TRS (ppb) Average	708	0.15	0	-	0.1	0.1	0.1	0.1	0.2	0.2	0.4
O3(ppb) Average	708	25.55	5.6	-	8.2	17.8	21.5	26.3	29.9	32.5	37.3
NO2(ppb) Average	708	0.81	1.5	-	0	0	0	0.2	0.7	2.5	10
NO(ppb) Average	708	0.19	0.6	-	0	0	0	0	0.2	0.4	9.2
NOX(ppb) Average	708	1.01	1.9	-	0	0	0.1	0.4	0.9	2.7	17.7
PM2.5(ug/m3) Average	743	3.02	2.8	-	0.3	0.6	1.1	2.4	3.7	6.1	23.5
CO(ppm) Average	709	0.05	0	-	0	0	0	0	0.1	0.1	0.2
CO2(ppm) Average	706	429.94	5.9	-	419.6	423.6	426	429.1	432.9	437.2	458.4
Temperature 2 m (C) Average	744	1.83	5.5	-	-9.3	-5.5	-1.8	1	5.8	9.9	15.7
Relative Humidity (%) Average	744	76.32	13.5	-	35.4	57.1	68.8	78.3	85.9	92.6	99
Wind Speed 10 m (km/h) Average	743	13.9	7	-	1	5	8	13	19	24	40
Wind Direction 10 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	18.96	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	743	3.96	8.1	-	1	1.4	1.6	1.8	2	5.5	87.2
Global Solar Radiation (W/m2) Average	744	62.55	105.8	-	0	0	0	0.1	85.8	233.6	456.2

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
OCTOBER 2024

OPERATIONAL NOTES

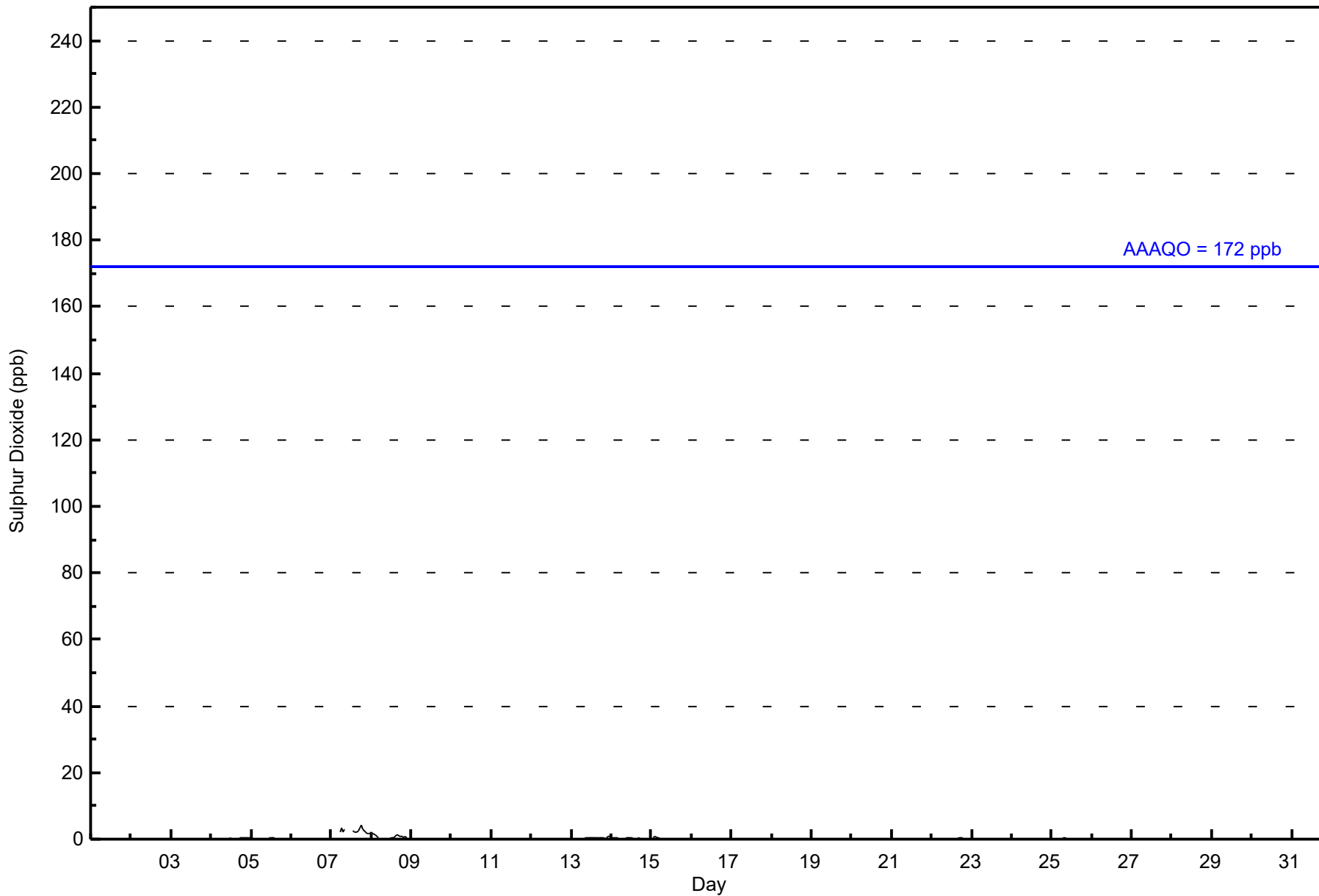
Parameter	Period Start	Period End	Duration (Hours)	Notes
CO	18 Oct 2024 09:00	18 Oct 2024 09:00	1	Maintenance - verify daily QA response
CO2	18 Oct 2024 08:00	18 Oct 2024 09:00	2	Maintenance - verify daily QA response
O3	07 Oct 2024 10:00	07 Oct 2024 10:00	1	Maintenance - verify daily QA response
Surface Leaf Wetness	27 Oct 2024 22:00	27 Oct 2024 22:00	1	Sensor operated out of range
Wind Speed, Wind Direction	11 Oct 2024 18:00	11 Oct 2024 18:00	1	Flat line in sensor output signal - Sensor frozen





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Chipewyan - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - October 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**  
**Fort Chipewyan - October 2024**

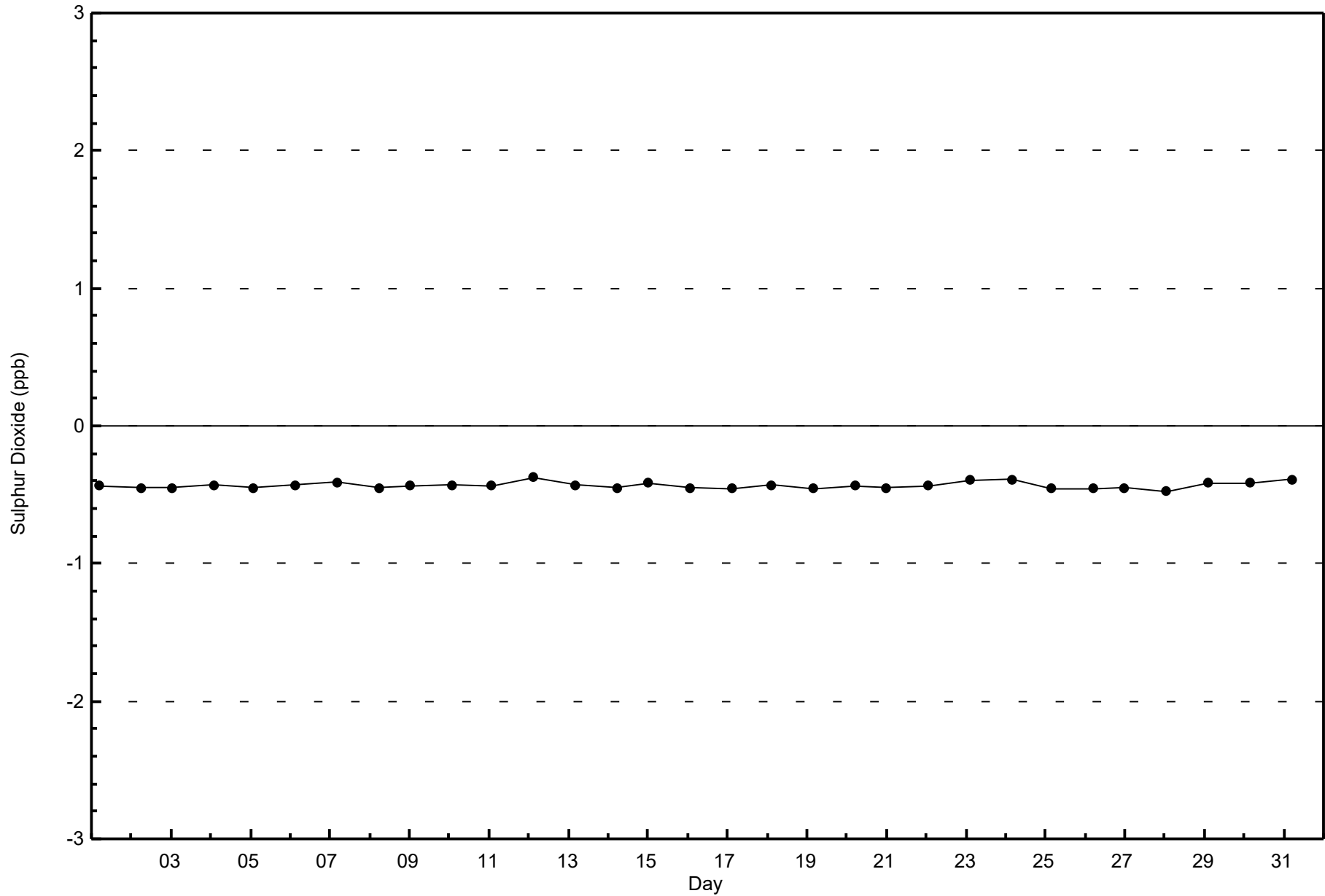
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	35	21	15	47	74	45	22	27	28	26	41	49	93	114	30	41	708
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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>	35	21	15	47	74	45	22	27	28	26	41	49	93	114	30	41	708

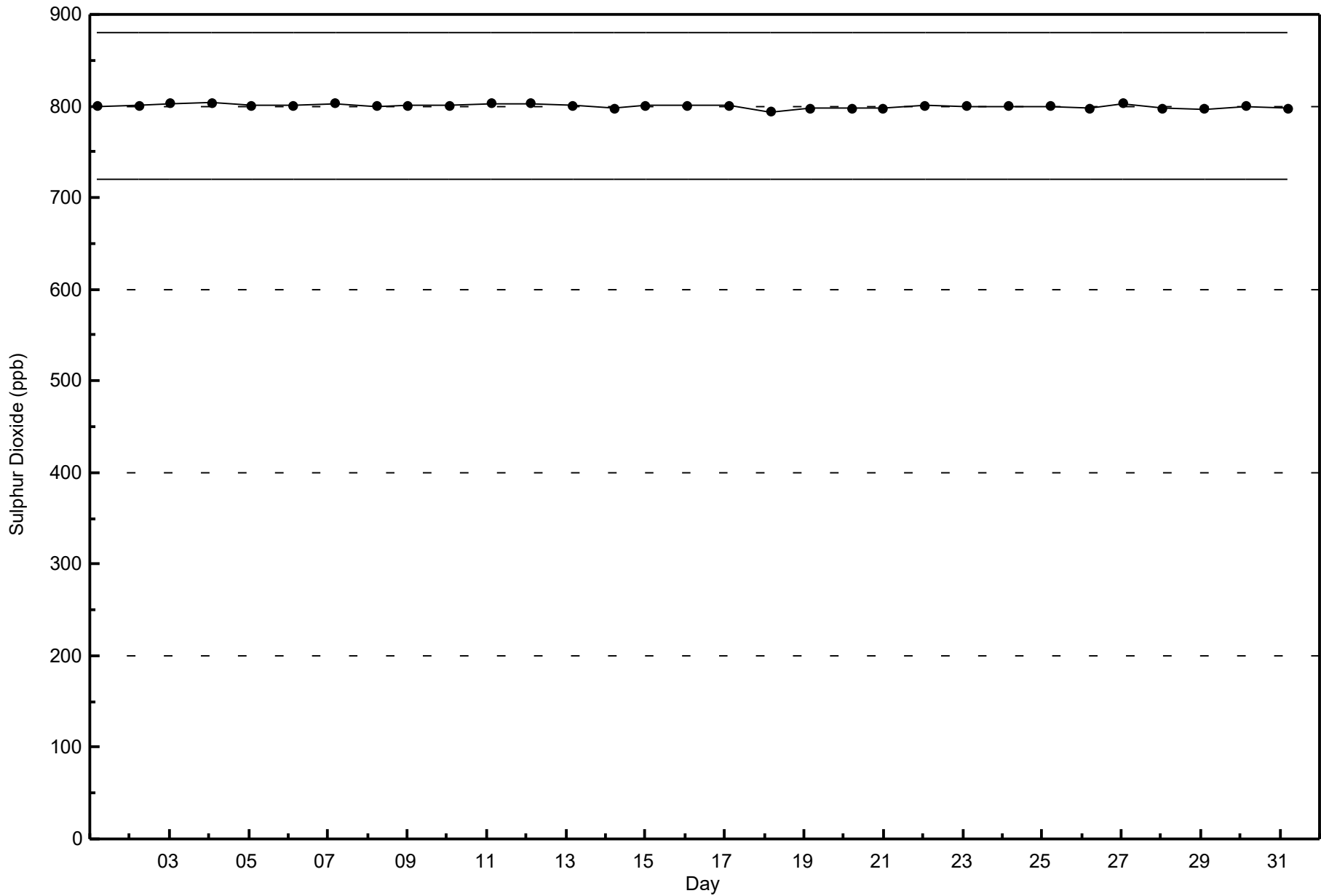
Total Number of Valid Hours: 708

Total Number of Hours: 744







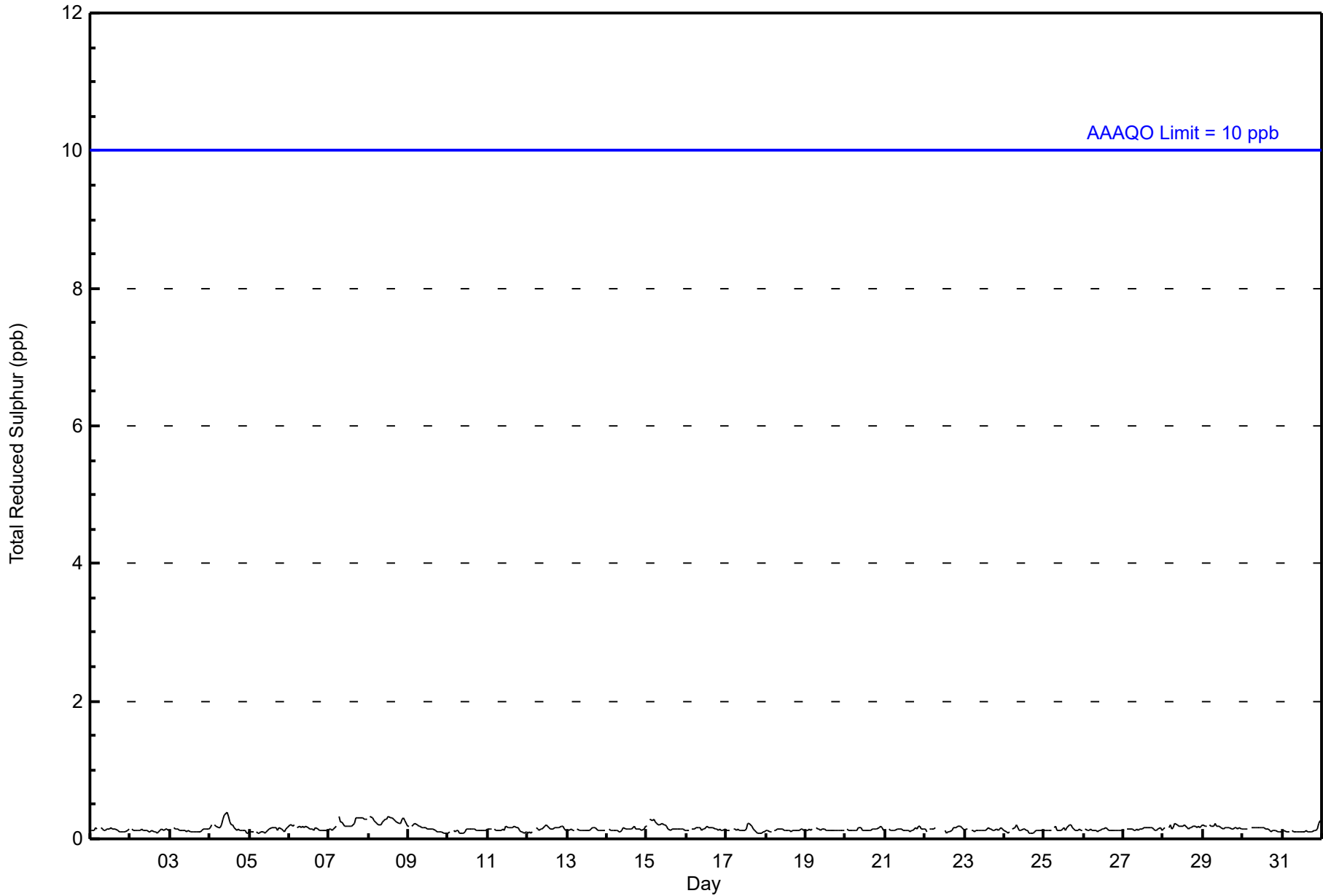






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Chipewyan - October 2024**





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

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Chipewyan - October 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 - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	34	21	16	46	77	46	21	30	26	23	41	49	95	113	30	39	707
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	34	21	16	46	77	46	21	30	26	23	41	49	95	113	30	39	707

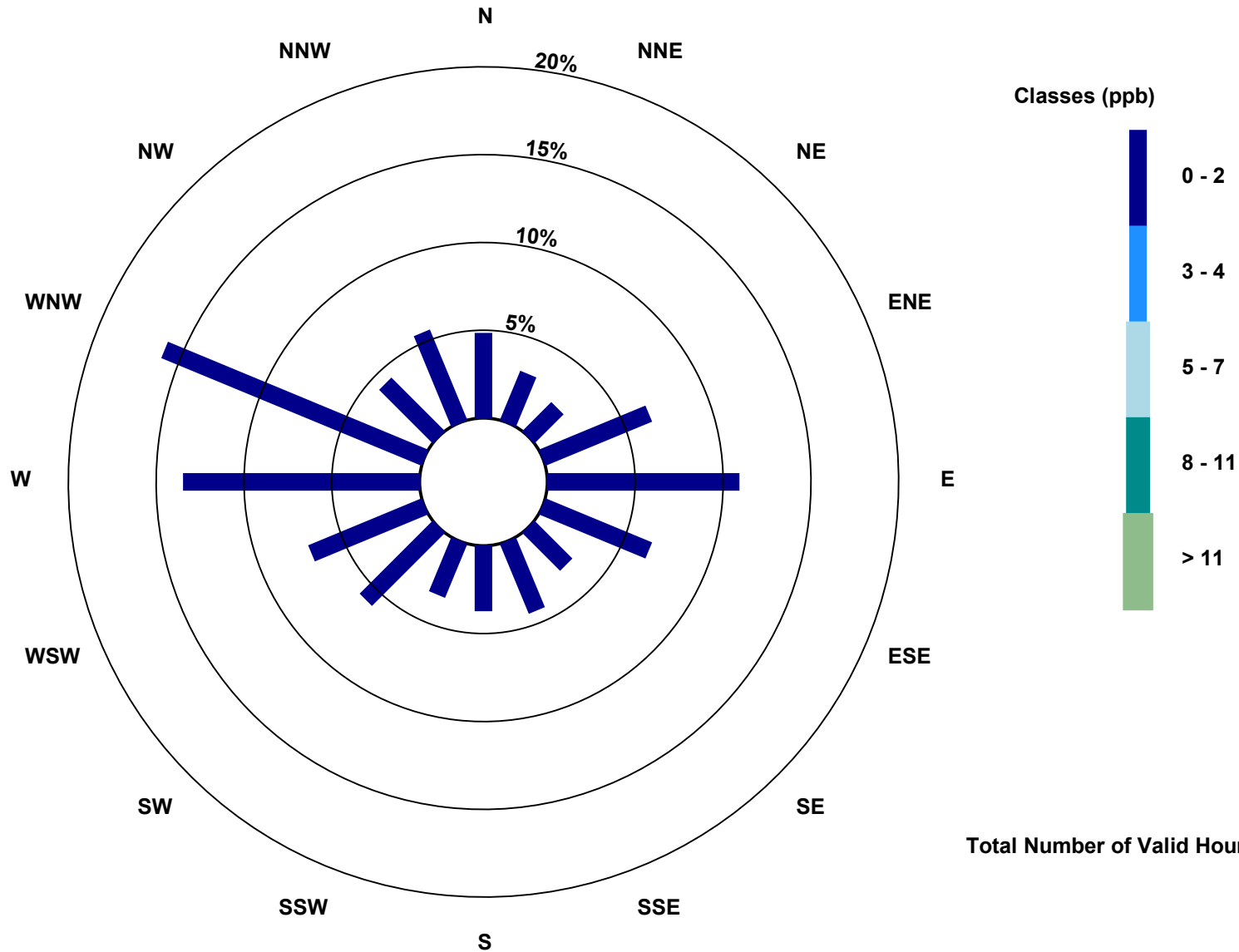
Total Number of Valid Hours: 707

Total Number of Hours: 744

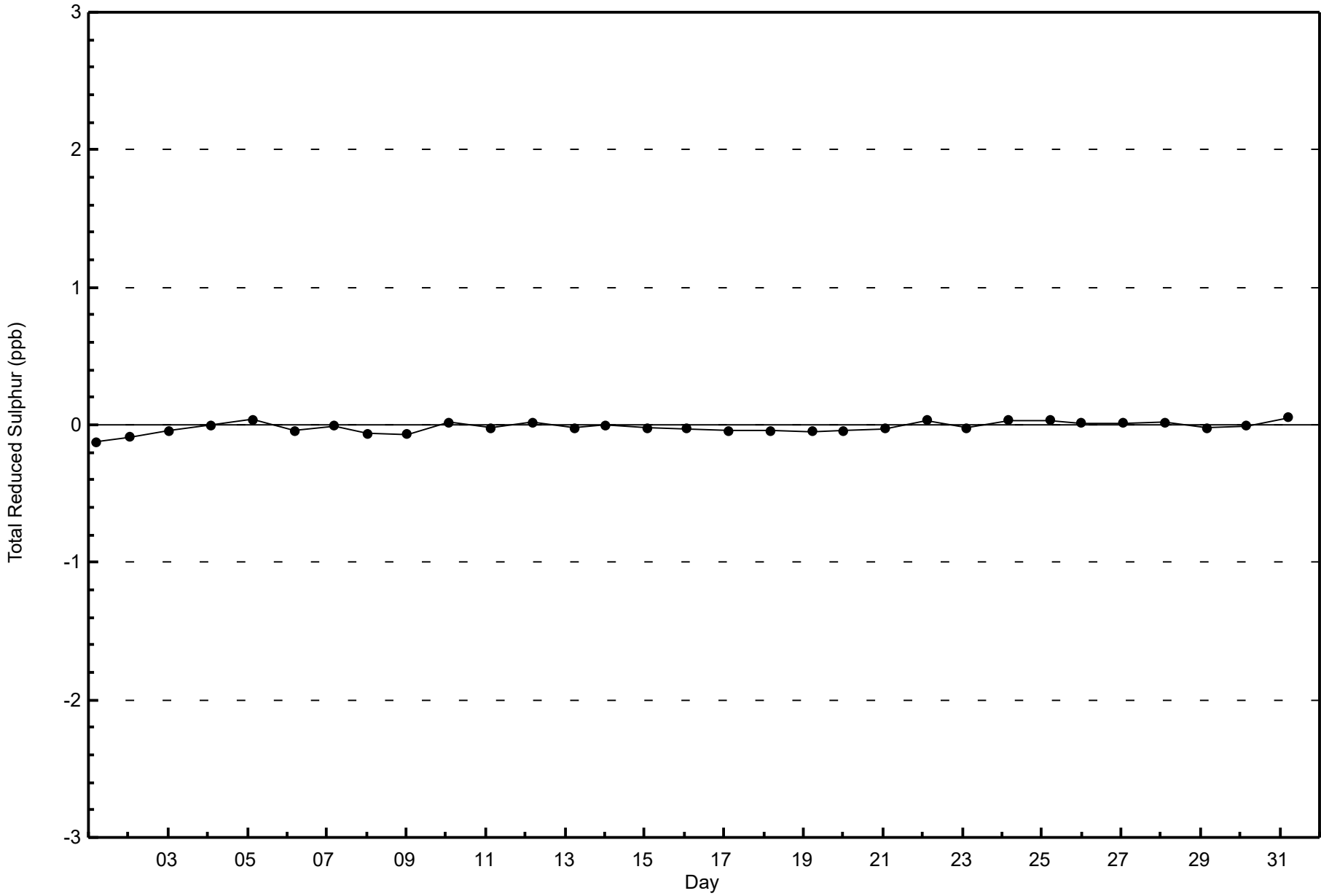


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

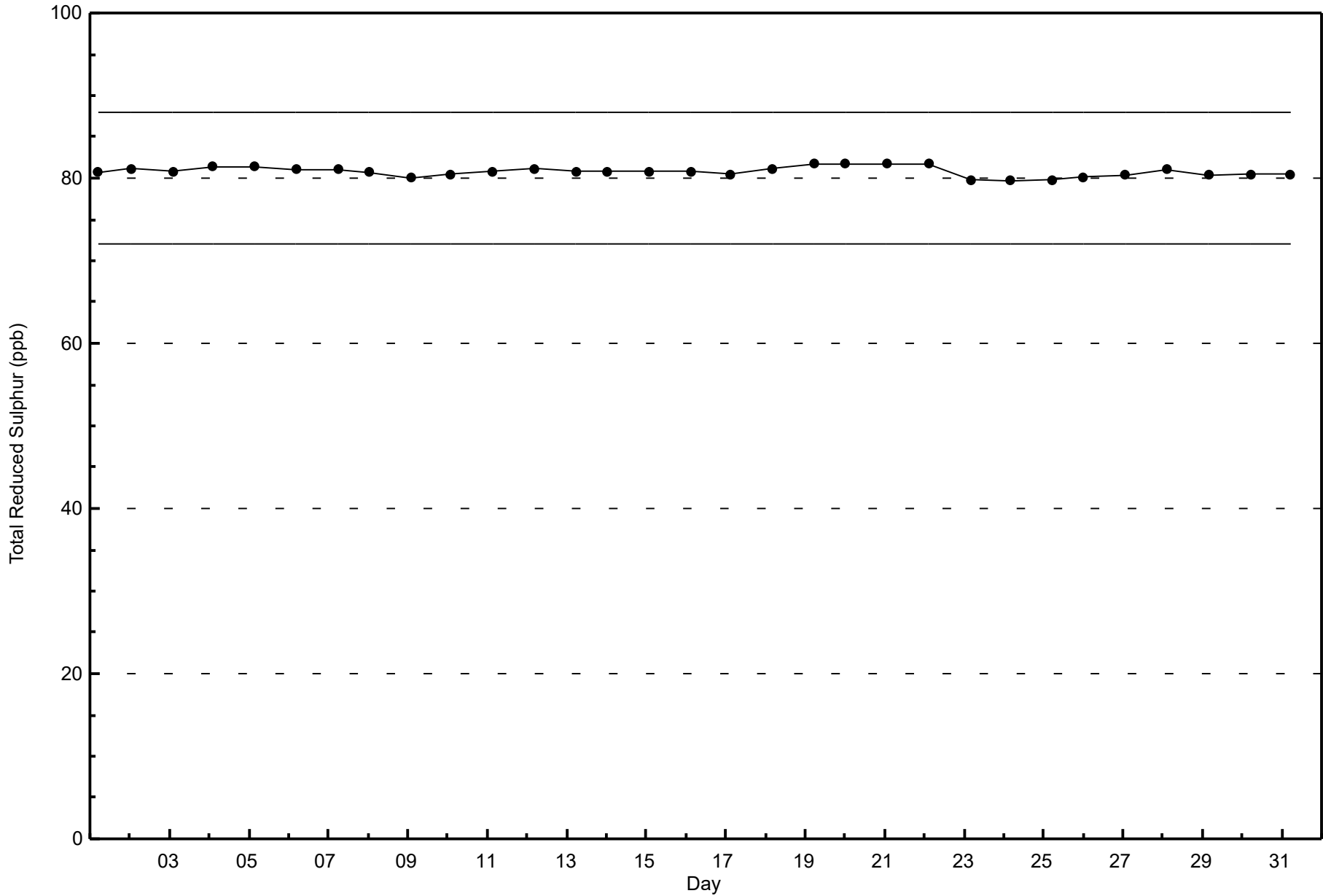
Total Reduced Sulphur (TRS) - ppb  
Fort Chipewyan



Total Number of Valid Hours: 707





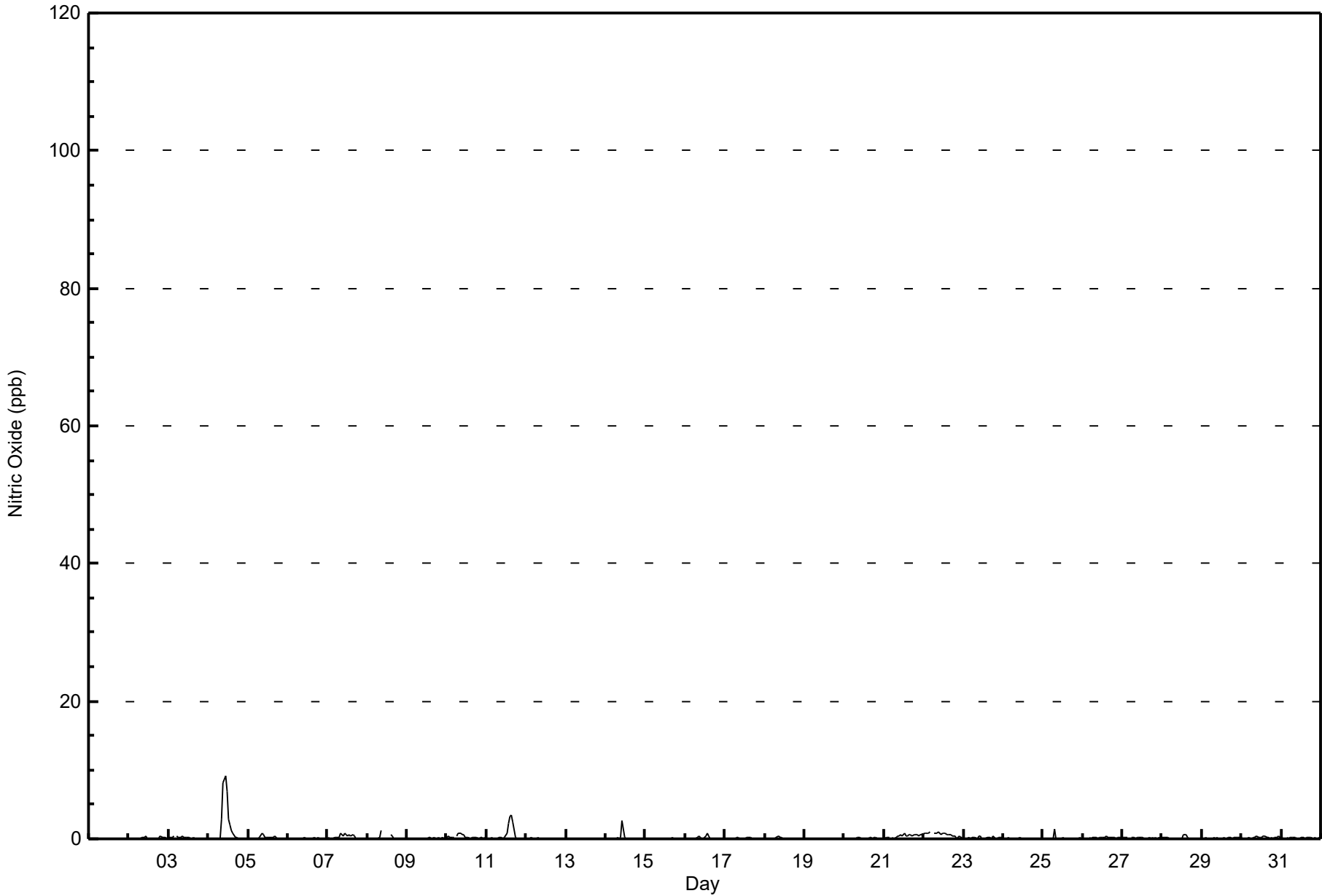






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Chipewyan - October 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	37	19	14	46	72	46	21	28	29	25	43	50	92	114	31	40	707
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	37	19	14	46	72	46	21	28	29	25	43	50	92	114	31	40	707

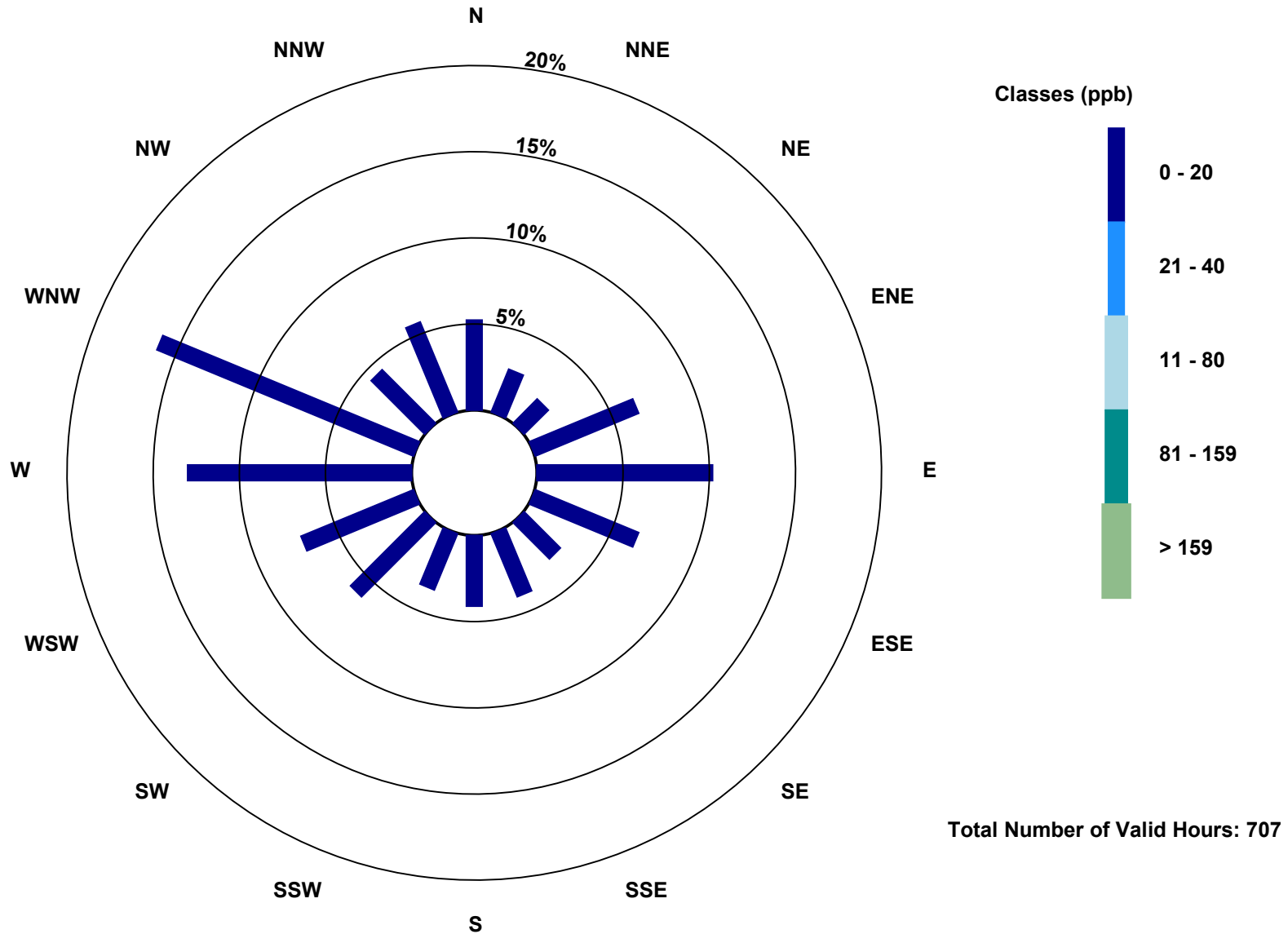
Total Number of Valid Hours: 707

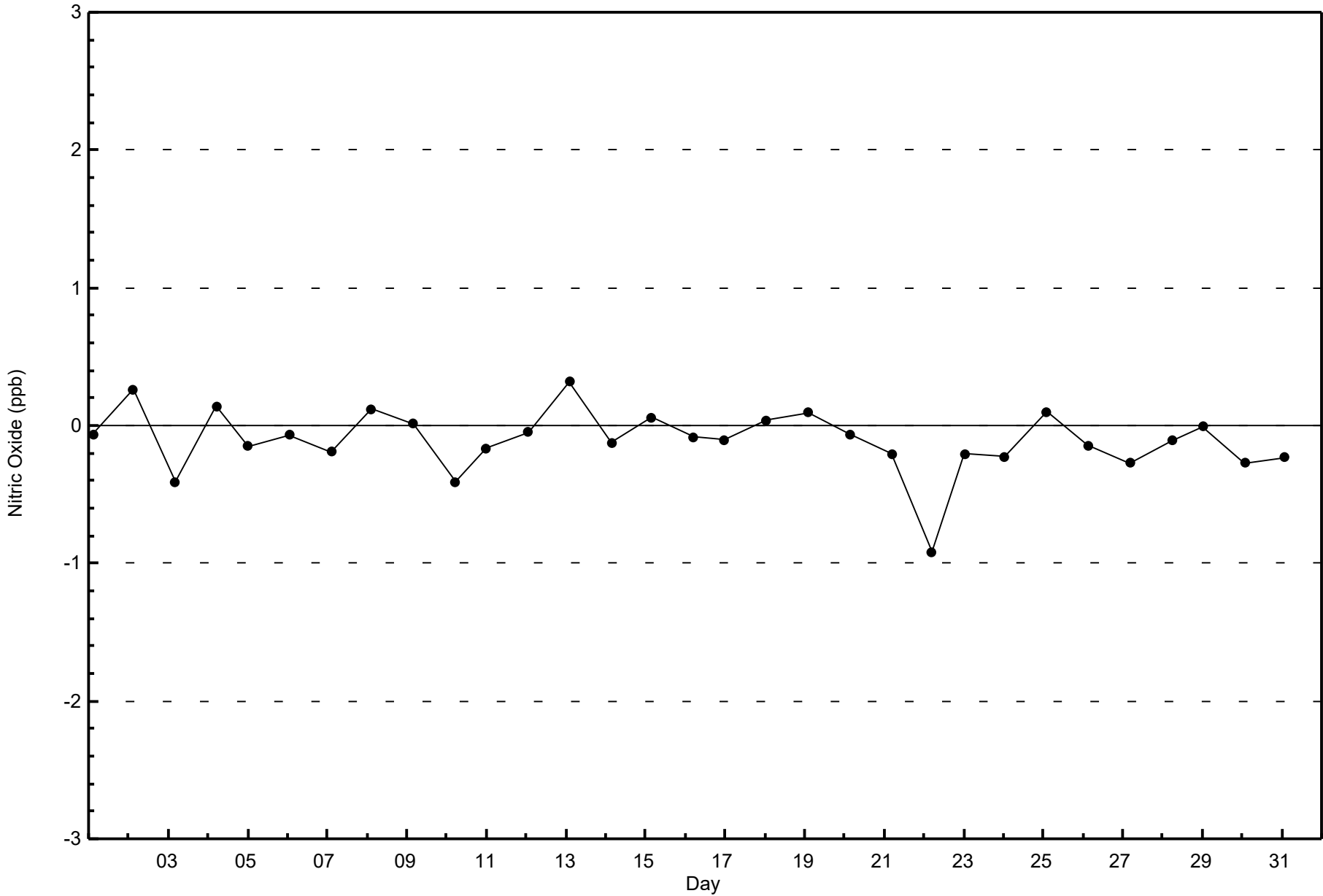
Total Number of Hours: 744

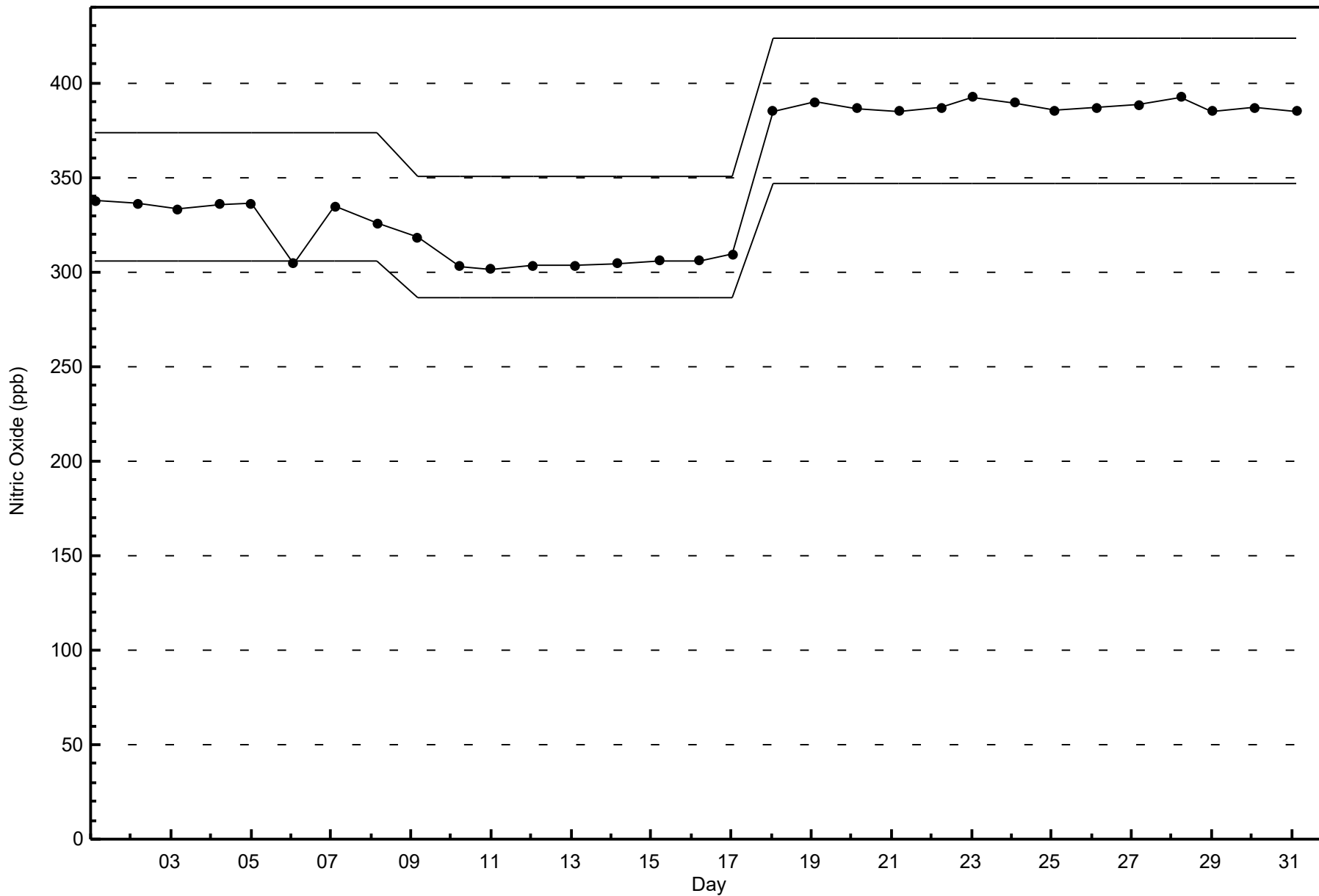


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Fort Chipewyan







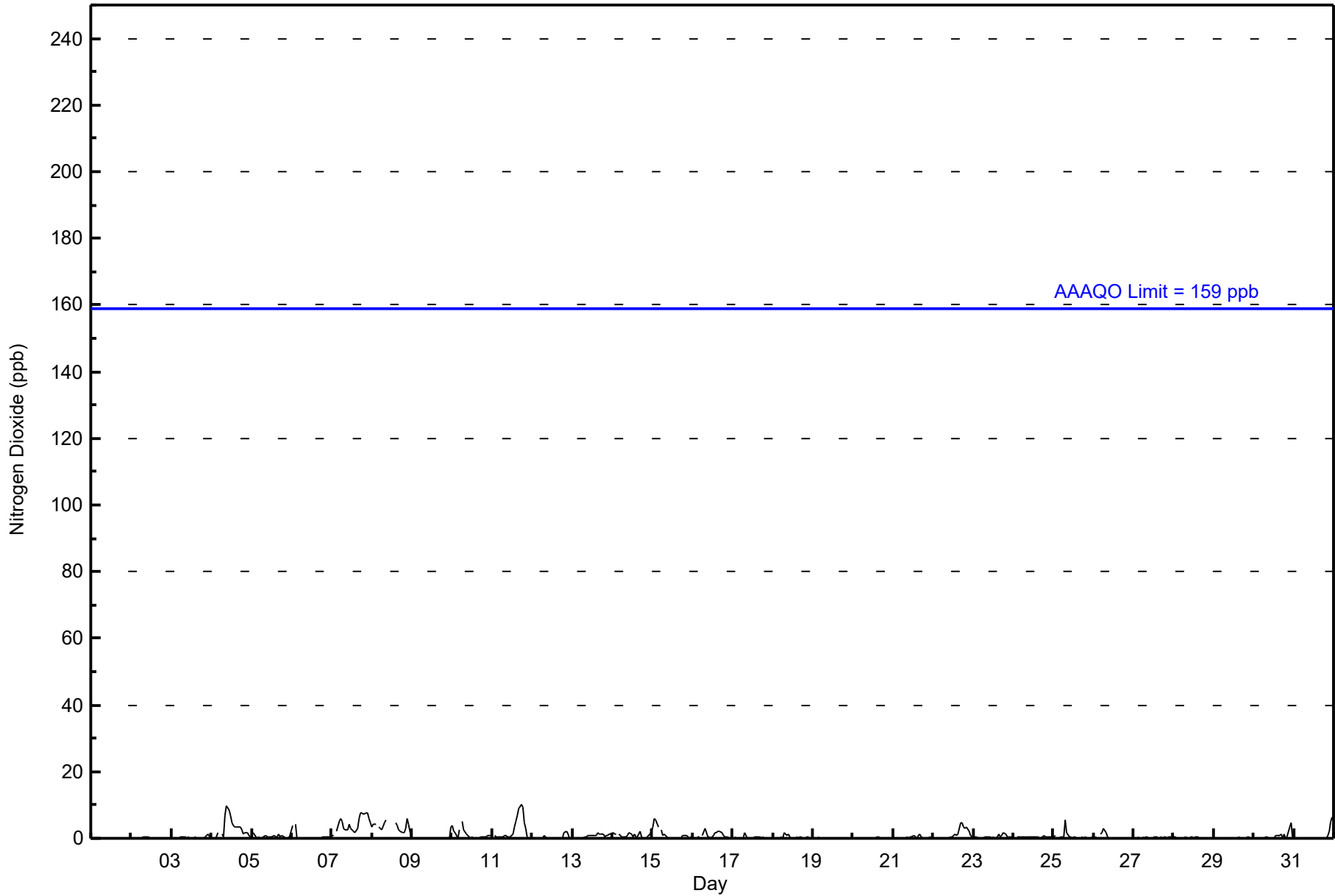






Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - October 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	37	19	14	46	72	46	21	28	29	25	43	50	92	114	31	40	707
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	37	19	14	46	72	46	21	28	29	25	43	50	92	114	31	40	707

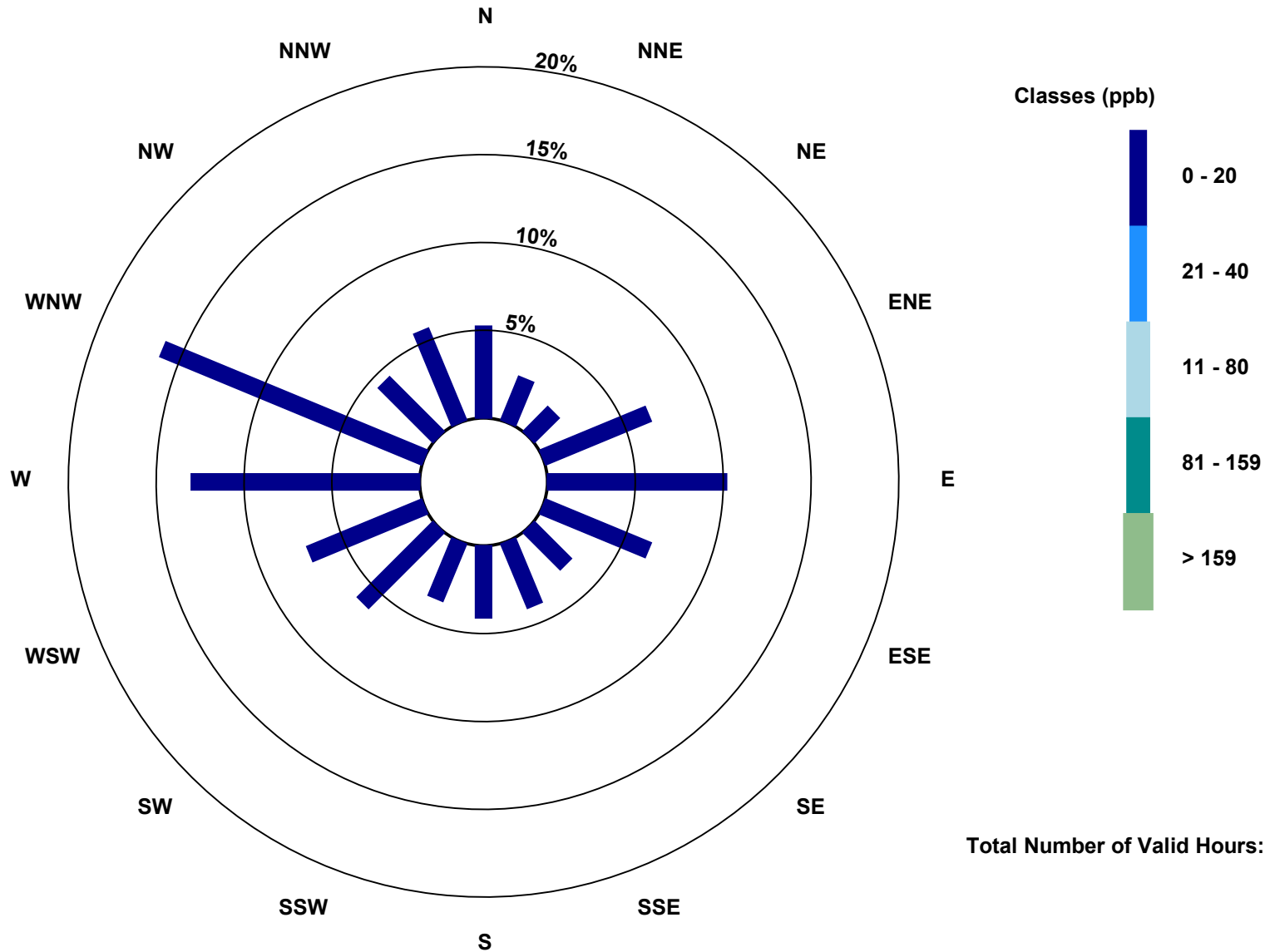
Total Number of Valid Hours: 707

Total Number of Hours: 744

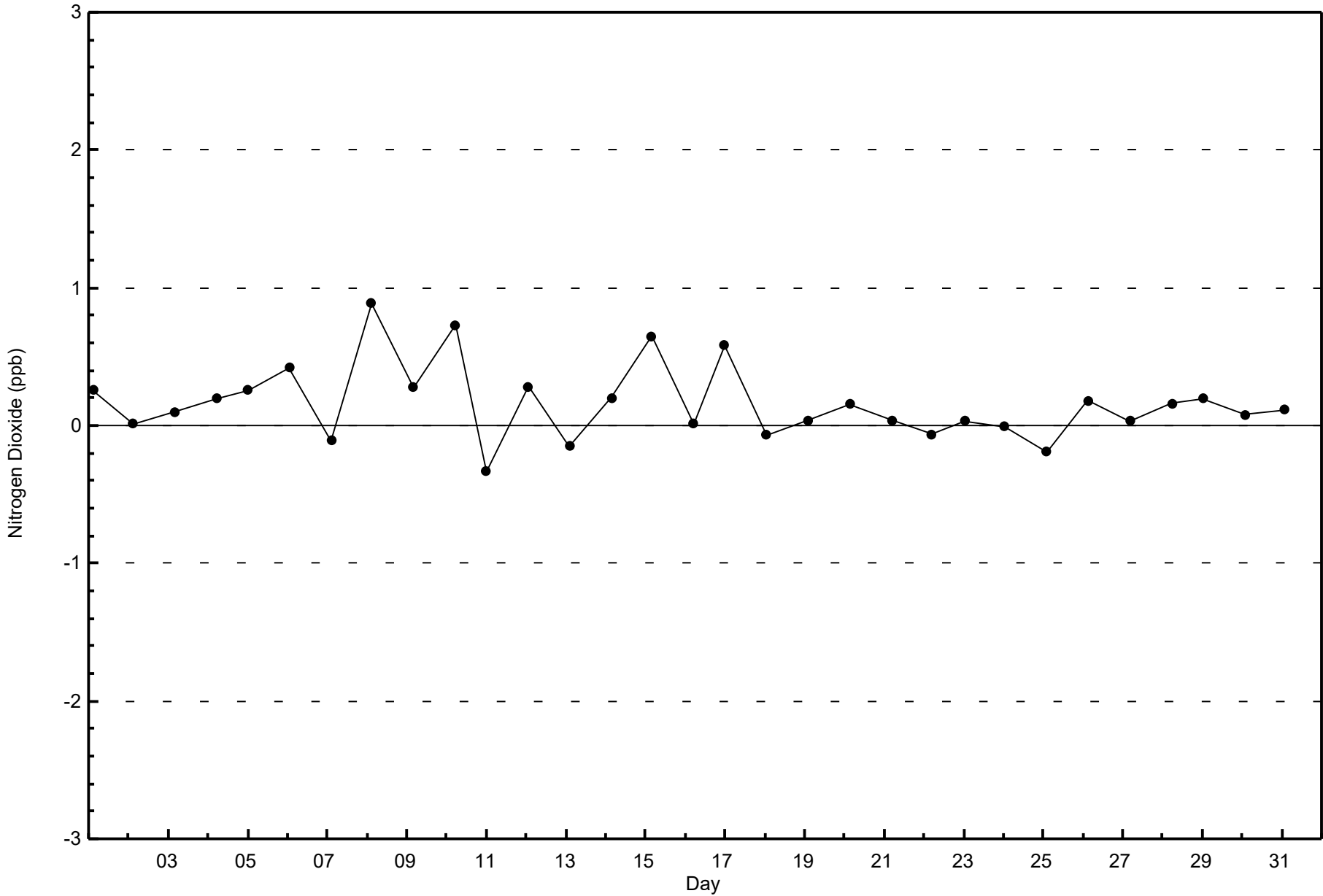


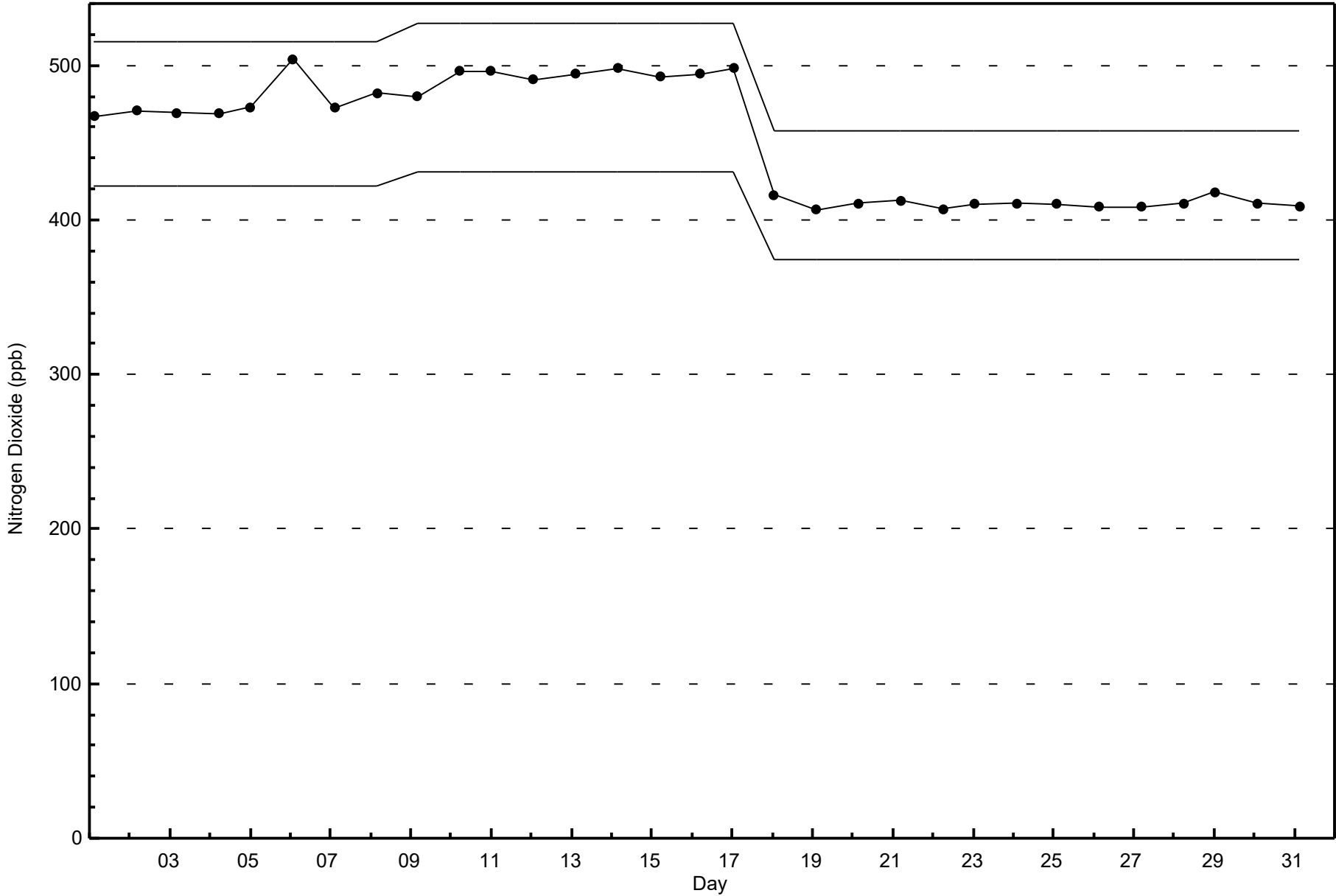
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 707





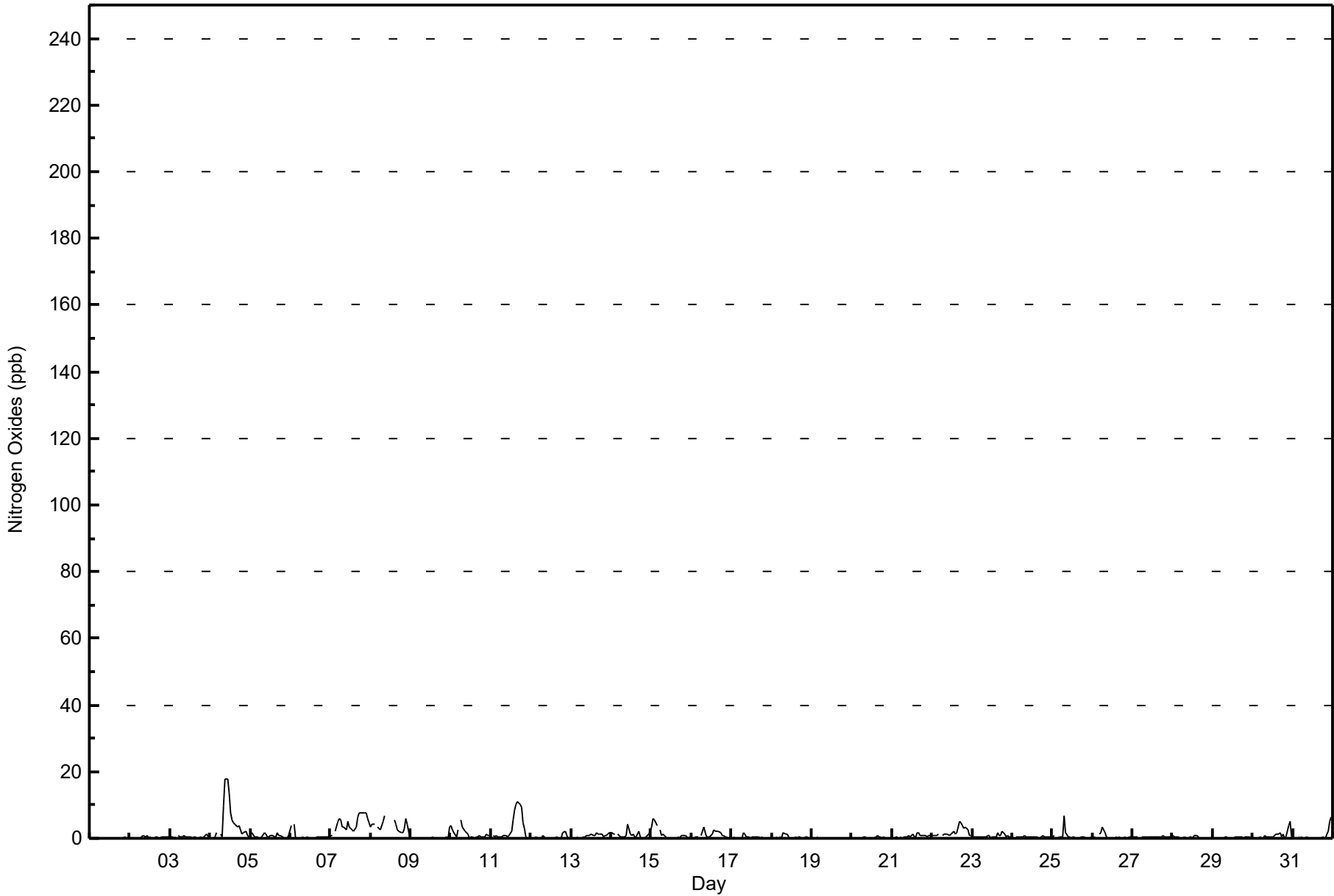






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - October 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	37	19	14	46	72	46	21	28	29	25	43	50	92	114	31	40	707
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	37	19	14	46	72	46	21	28	29	25	43	50	92	114	31	40	707

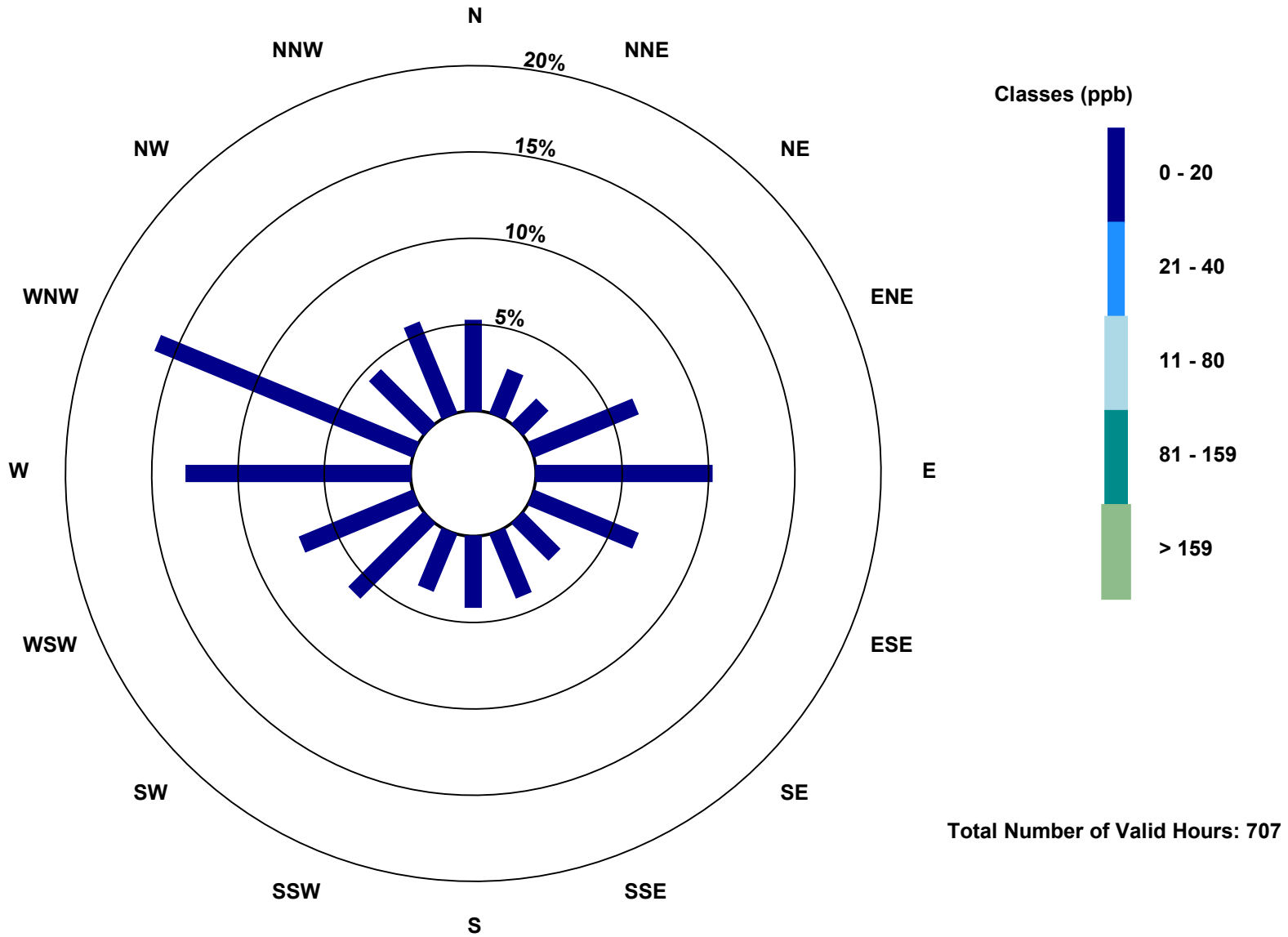
Total Number of Valid Hours: 707

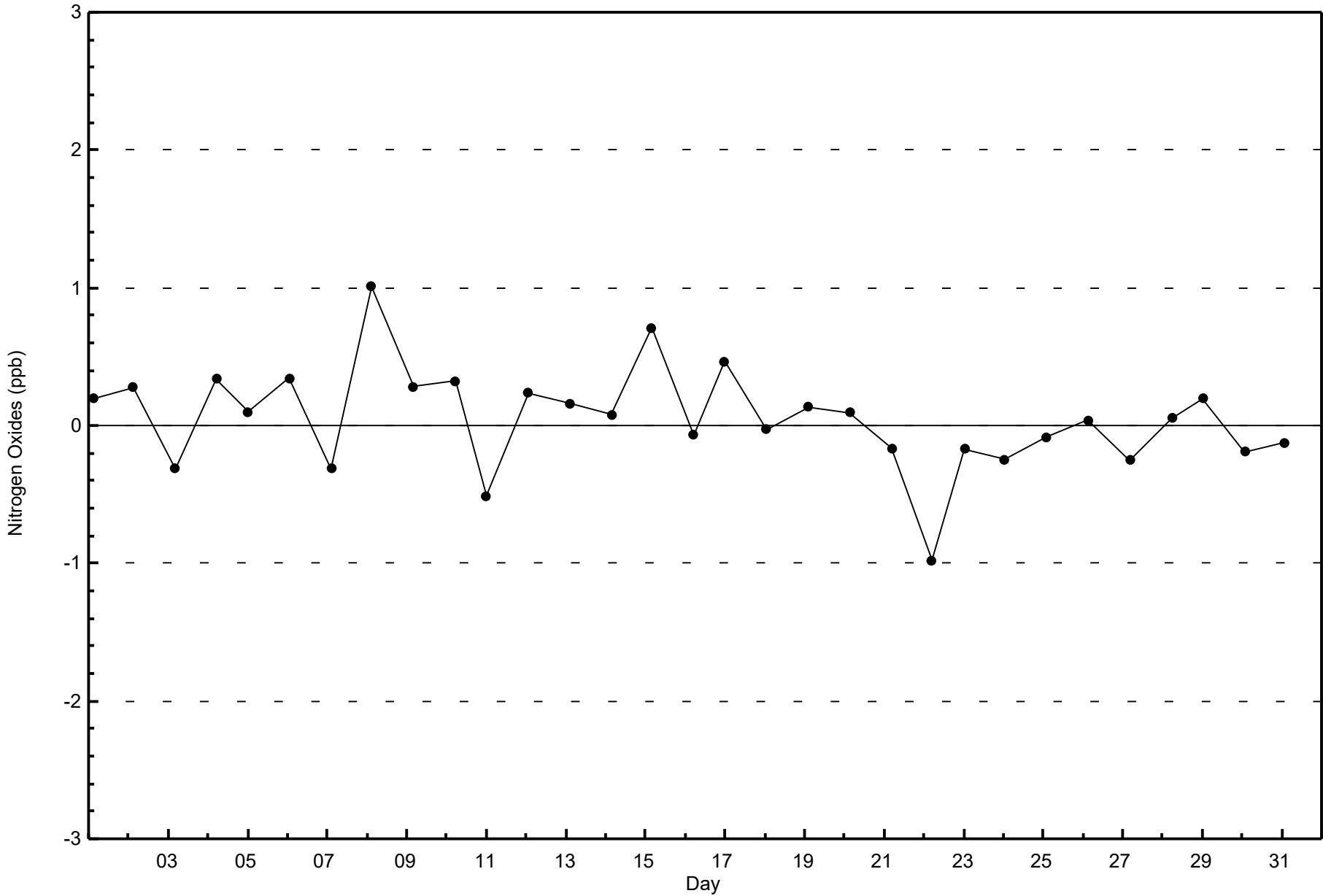
Total Number of Hours: 744

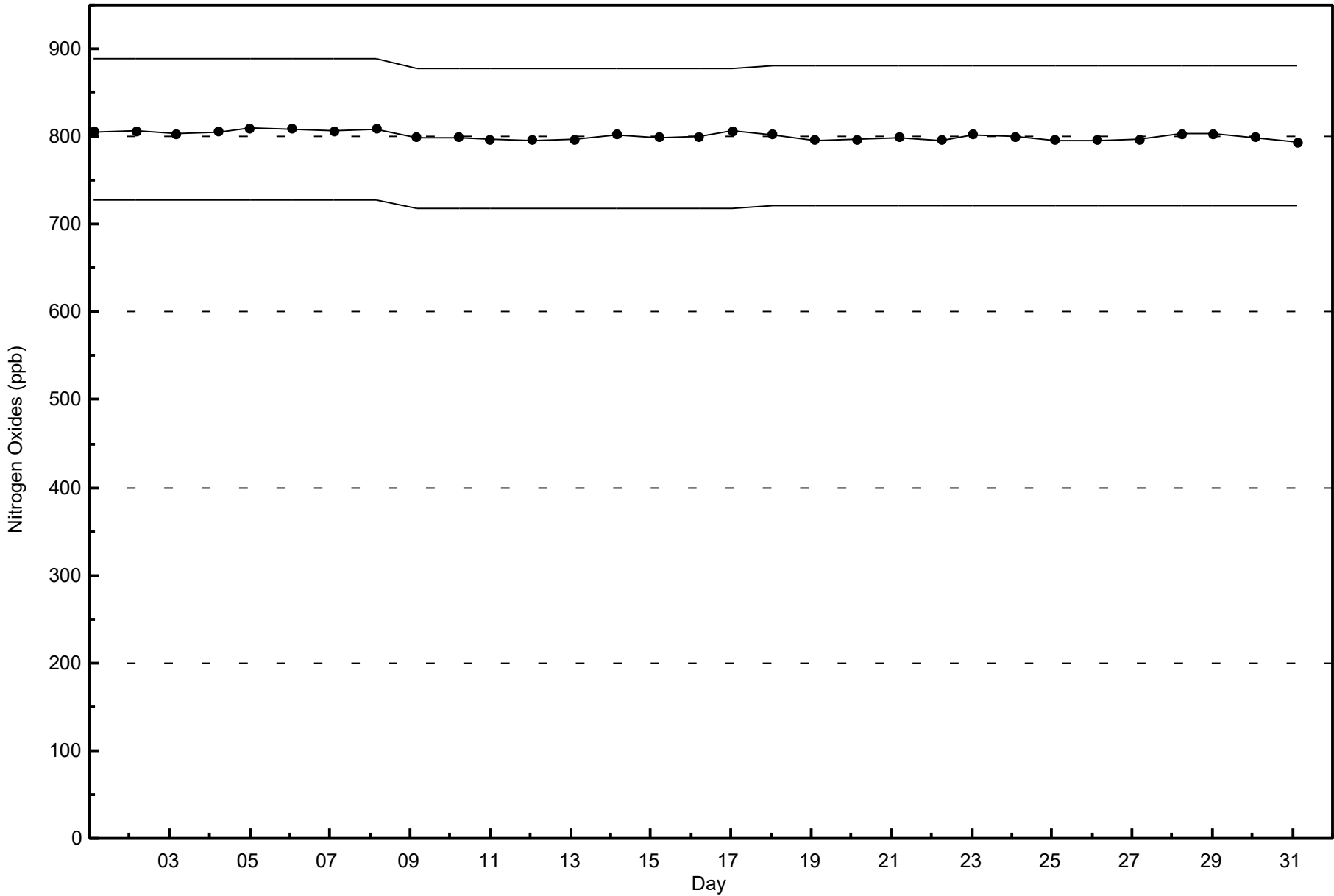


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

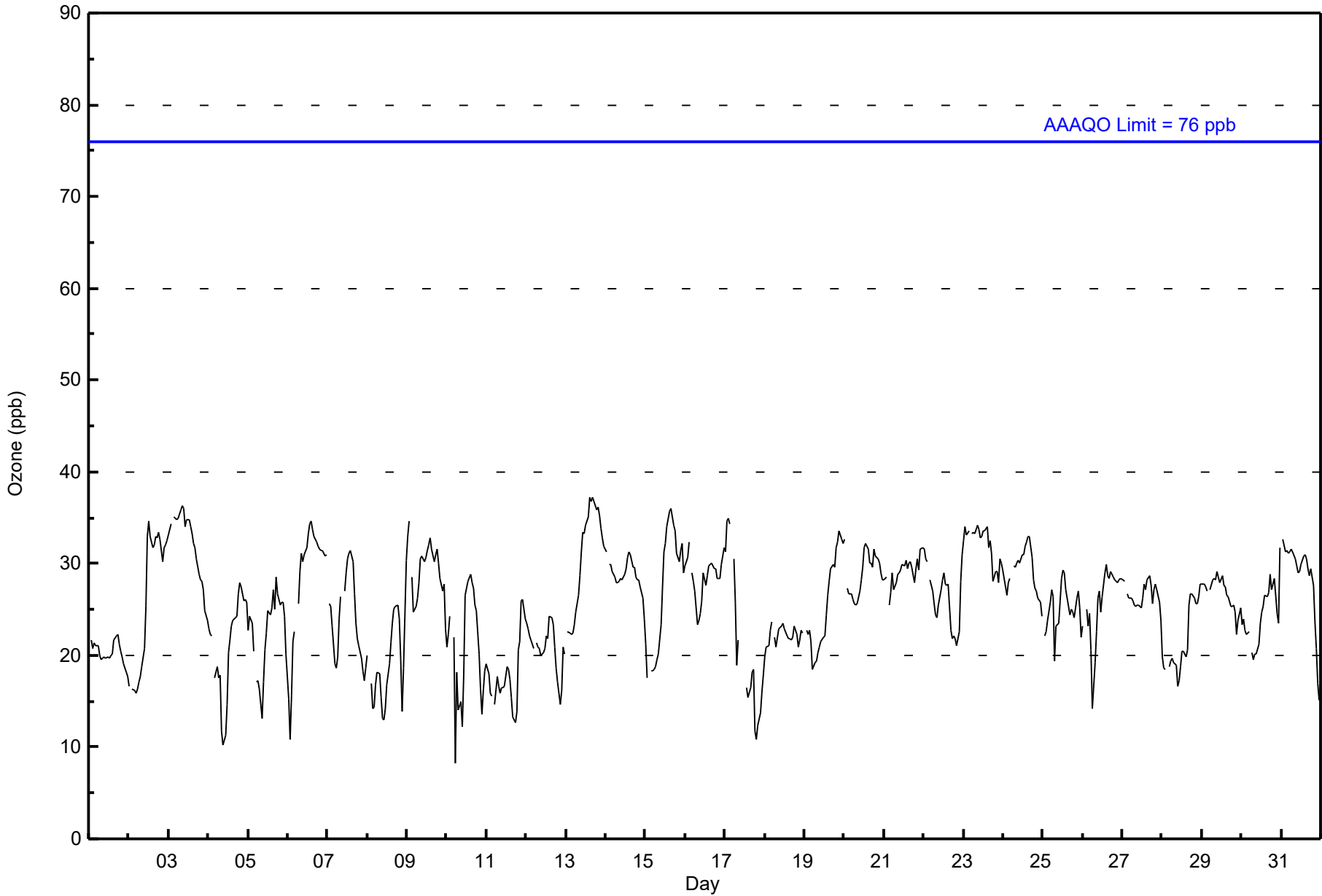
Ozone (O<sub>3</sub>) - ppb

Fort Chipewyan - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 37.3 ppb on Oct 13 15:00	Maximum Daily Average: 32.2 ppb on Oct 3		Hours of Data:	708
Minimum Value: 8.2 ppb on Oct 10 06:00	Minimum Daily Average: 17.9 ppb on Oct 11		Hours of Missing Data:	36
Maximum Diurnal Average: 27.9 ppb at hour 15	Minimum Diurnal Average: 23.1 ppb at hour 8		Hours of Calibration:	35
Monthly Average: 25.55 ppb	Percentiles: P <sub>1</sub> = 12.2 P <sub>10</sub> = 17.8 Q <sub>1</sub> = 21.5 Median = 26.3 Q <sub>3</sub> = 29.9 P <sub>90</sub> = 32.5 P <sub>99</sub> = 35.9		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-Oct	Z	21.7	20.8	21.3	21.1	21.0	20.0	19.5	19.6	19.8	19.6	19.8	19.6	20.0	20.2	21.7	22.1	22.3	21.2	20.4	19.8	19.0	18.2	17.6	20.3	22.3
2-Oct	16.7	Z	16.3	16.2	15.9	16.3	17.1	17.6	18.8	20.7	25.3	33.0	34.6	32.9	31.8	32.1	32.9	32.8	33.4	32.7	30.3	31.7	32.0	32.5	26.2	34.6
3-Oct	33.1	34.3	Z	35.1	35.0	34.7	34.9	35.9	36.3	35.9	34.0	34.8	34.8	34.1	33.3	32.2	31.7	30.5	28.8	28.3	28.1	27.1	24.9	23.8	32.2	36.3
4-Oct	22.9	22.2	22.1	Z	17.5	18.7	17.5	17.9	11.7	10.2	11.3	14.7	20.2	21.6	23.1	23.7	24.1	24.3	26.6	27.9	27.4	26.0	26.1	25.8	21.0	27.9
5-Oct	22.7	24.3	23.4	20.4	Z	17.1	17.2	16.3	13.1	17.1	20.7	22.4	24.8	24.3	25.1	27.1	24.9	28.5	26.6	25.4	25.8	25.7	24.3	20.2	22.5	28.5
6-Oct	15.3	10.8	15.6	21.5	22.6	Z	25.7	29.1	31.2	30.3	31.0	31.8	33.3	34.3	34.7	33.7	32.9	32.4	31.9	31.6	31.4	31.4	30.9	31.0	28.4	34.7
7-Oct	Z	25.6	25.3	23.1	19.0	18.6	19.8	23.9	26.4	M	27.0	29.0	30.6	31.1	31.4	30.2	26.6	23.4	21.9	21.1	19.6	18.2	17.3	18.6	24.0	31.4
8-Oct	20.0	Z	16.9	14.2	14.4	16.7	18.2	18.0	15.3	13.1	13.0	14.2	16.8	19.1	21.3	23.5	25.0	25.4	25.4	24.0	19.5	13.9	18.7	30.4	19.0	30.4
9-Oct	32.9	34.6	Z	28.5	24.6	25.3	26.3	28.0	30.5	30.8	30.2	30.6	31.4	32.0	32.8	31.5	30.2	30.9	31.5	30.0	28.4	27.1	27.8	22.9	29.5	34.6
10-Oct	20.9	22.3	24.2	Z	22.0	8.2	18.2	14.0	14.9	12.2	17.9	26.5	27.4	28.1	28.8	28.0	27.3	25.4	24.9	20.1	16.4	13.6	16.2	18.2	20.7	28.8
11-Oct	19.1	18.1	15.9	15.6	Z	14.7	17.7	16.6	15.9	16.4	16.4	16.6	18.7	18.5	17.4	15.4	13.2	12.6	13.9	20.6	21.5	25.9	26.1	23.9	17.9	26.1
12-Oct	23.5	22.9	22.2	21.6	20.7	Z	21.4	20.8	20.7	20.0	20.2	20.8	22.1	21.9	24.2	24.1	23.4	20.9	18.6	17.1	14.7	16.2	20.9	20.1	20.8	24.2
13-Oct	Z	22.5	22.4	22.3	22.4	23.3	24.6	26.6	28.7	31.3	33.4	33.3	34.2	35.0	37.3	36.7	37.2	36.7	35.9	36.2	35.3	33.9	32.7	31.9	31.0	37.3
14-Oct	31.3	Z	29.9	29.9	29.1	28.5	28.0	27.8	28.0	28.4	28.2	28.9	29.4	30.6	31.2	31.0	29.6	29.5	28.6	28.2	28.3	27.4	26.2	23.9	28.8	31.3
15-Oct	21.2	17.5	Z	18.4	18.4	18.4	18.7	19.5	20.2	23.3	27.5	31.2	32.2	34.0	35.6	36.0	35.2	34.1	33.6	31.1	30.1	31.5	32.2	29.0	27.3	36.0
16-Oct	29.7	30.7	32.3	Z	28.9	28.1	27.1	23.3	23.8	24.6	25.9	28.9	27.6	28.6	29.8	29.9	30.1	29.5	29.4	28.4	28.3	28.3	29.9	31.7	28.5	32.3
17-Oct	31.3	34.7	34.9	34.4	Z	30.5	25.8	18.9	21.6	C	C	C	C	16.4	15.4	16.4	18.1	18.4	11.8	10.8	12.3	13.8	16.0	17.9	21.0	34.9
18-Oct	19.9	21.0	21.1	22.8	23.7	Z	21.9	21.0	22.9	23.1	23.3	23.5	22.9	22.1	21.8	21.8	21.7	22.0	23.2	22.2	20.9	21.6	22.7	22.5	22.1	23.7
19-Oct	Z	22.7	22.2	22.7	21.5	18.4	19.2	19.3	20.3	20.9	21.5	22.0	22.1	24.4	26.5	28.0	29.5	30.0	29.5	31.8	32.3	33.6	32.7	32.2	25.4	33.6
20-Oct	32.6	Z	27.4	26.7	26.8	26.0	25.6	25.5	25.7	27.1	28.2	29.6	31.8	32.2	31.6	30.0	30.0	29.6	31.6	30.8	30.6	30.1	28.9	28.3	29.0	32.6
21-Oct	28.2	28.5	Z	25.4	26.8	29.0	27.1	27.9	28.9	29.0	29.2	29.9	29.8	30.4	29.4	30.1	30.1	29.6	27.9	29.5	30.5	29.3	31.5	31.8	29.1	31.8
22-Oct	31.5	30.5	30.1	Z	28.3	27.0	25.6	24.3	24.1	25.5	27.1	28.3	29.0	27.8	27.7	27.7	22.8	21.8	22.1	21.9	21.1	22.6	28.1	31.0	26.3	31.5
23-Oct	32.6	34.1	33.1	33.5	Z	33.3	33.4	33.3	34.1	33.7	32.9	33.0	33.6	33.6	34.0	31.7	32.5	31.1	28.0	29.2	29.2	27.9	30.5	30.1	32.1	34.1
24-Oct	29.3	27.4	26.5	28.0	28.4	Z	29.8	29.7	30.1	30.4	30.1	30.9	31.0	31.8	32.3	33.0	33.0	30.6	28.2	27.4	27.0	26.2	25.7	24.2	29.2	33.0
25-Oct	Z	22.2	22.6	23.8	25.7	27.1	26.4	19.4	23.1	23.4	25.9	28.3	29.3	28.9	27.1	25.3	24.3	25.0	24.7	24.1	26.2	27.0	25.2	21.9	25.1	29.3
26-Oct	23.2	Z	25.0	23.2	24.6	20.6	14.2	19.2	22.5	26.3	27.1	24.7	26.4	28.9	29.9	28.7	28.4	29.1	28.6	28.2	28.1	27.9	28.3	28.4	25.7	29.9
27-Oct	28.2	28.1	Z	26.6	26.3	26.2	25.9	25.5	25.2	25.4	25.5	25.2	26.2	27.7	27.1	28.2	28.7	27.6	25.6	27.2	27.7	27.1	25.7	23.7	26.6	28.7
28-Oct	19.8	18.7	18.4	Z	18.8	19.4	19.7	19.3	18.8	16.7	17.3	18.8	20.4	20.5	19.8	20.7	25.5	26.7	26.7	26.3	25.6	25.6	26.4	27.8	21.6	27.8
29-Oct	27.8	27.7	27.5	27.1	Z	27.1	28.2	28.4	28.3	29.2	28.5	28.0	28.7	27.6	27.4	26.6	26.4	25.4	25.3	25.5	24.7	22.3	23.8	25.1	26.8	29.2
30-Oct	23.4	24.0	22.7	22.3	22.5	Z	20.3	19.6	20.2	20.2	21.2	23.4	24.7	25.3	26.6	26.4	26.8	28.8	27.1	27.8	28.4	24.6	23.5	31.7	24.4	31.7
31-Oct	Z	32.6	31.3	31.4	31.1	31.3	31.6	31.2	30.5	29.7	29.0	29.1	29.9	30.8	31.0	30.4	29.4	28.7	29.4	27.6	23.6	20.7	16.9	15.0	28.4	32.6
	25.5	25.4	24.2	24.5	23.7	23.3	23.5	23.1	23.6	24.0	24.9	26.4	27.4	27.6	27.9	27.8	27.5	27.2	26.5	26.2	25.6	25.1	25.5	25.6		Diurnal Average
	33.1	34.7	34.9	35.1	35.0	34.7	34.9	35.9	36.3	35.9	34.0	34.8	34.8	35.0	37.3	36.7	37.2	36.7	35.9	36.2	35.3	33.9	32.7	32.5		Diurnal Maximum

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







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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	146	20.62	20.62
21 - 50	562	79.38	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**  
**Fort Chipewyan - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	5	1	0	8	23	8	4	1	5	6	11	1	18	38	7	9	145
21 - 50	31	20	16	40	51	36	19	27	24	20	32	49	69	74	24	30	562
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>	36	21	16	48	74	44	23	28	29	26	43	50	87	112	31	39	707

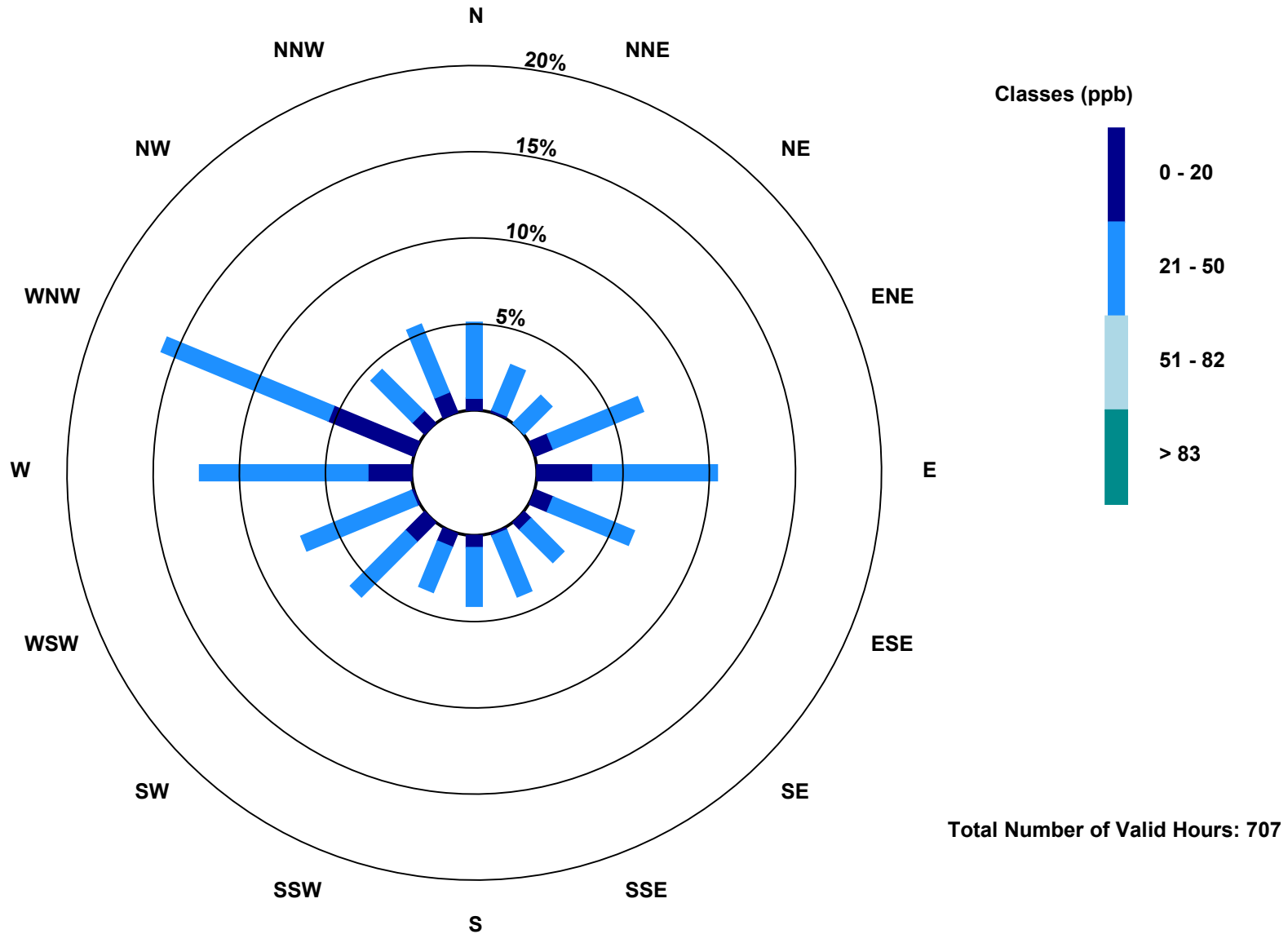
Total Number of Valid Hours: 707

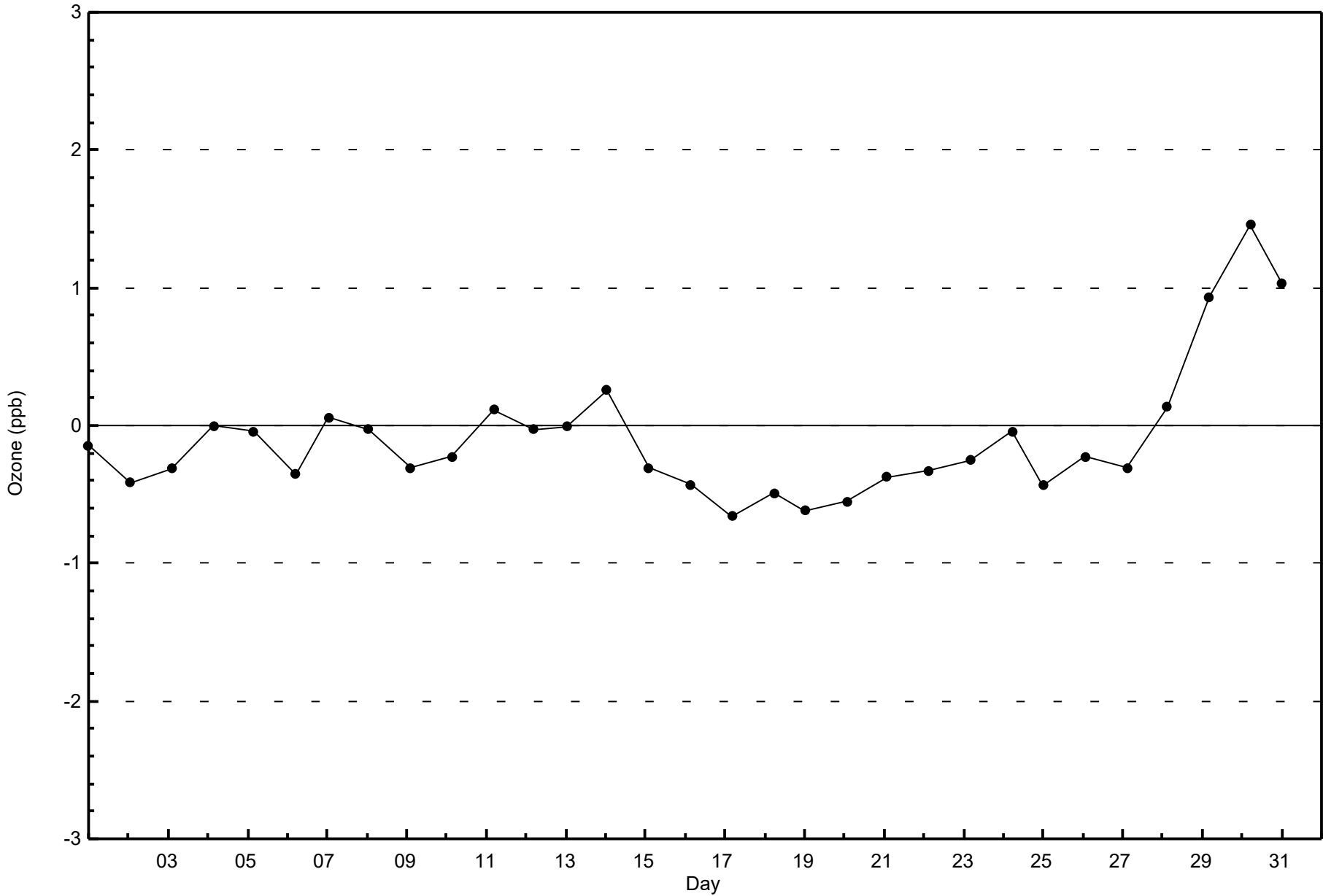
Total Number of Hours: 744

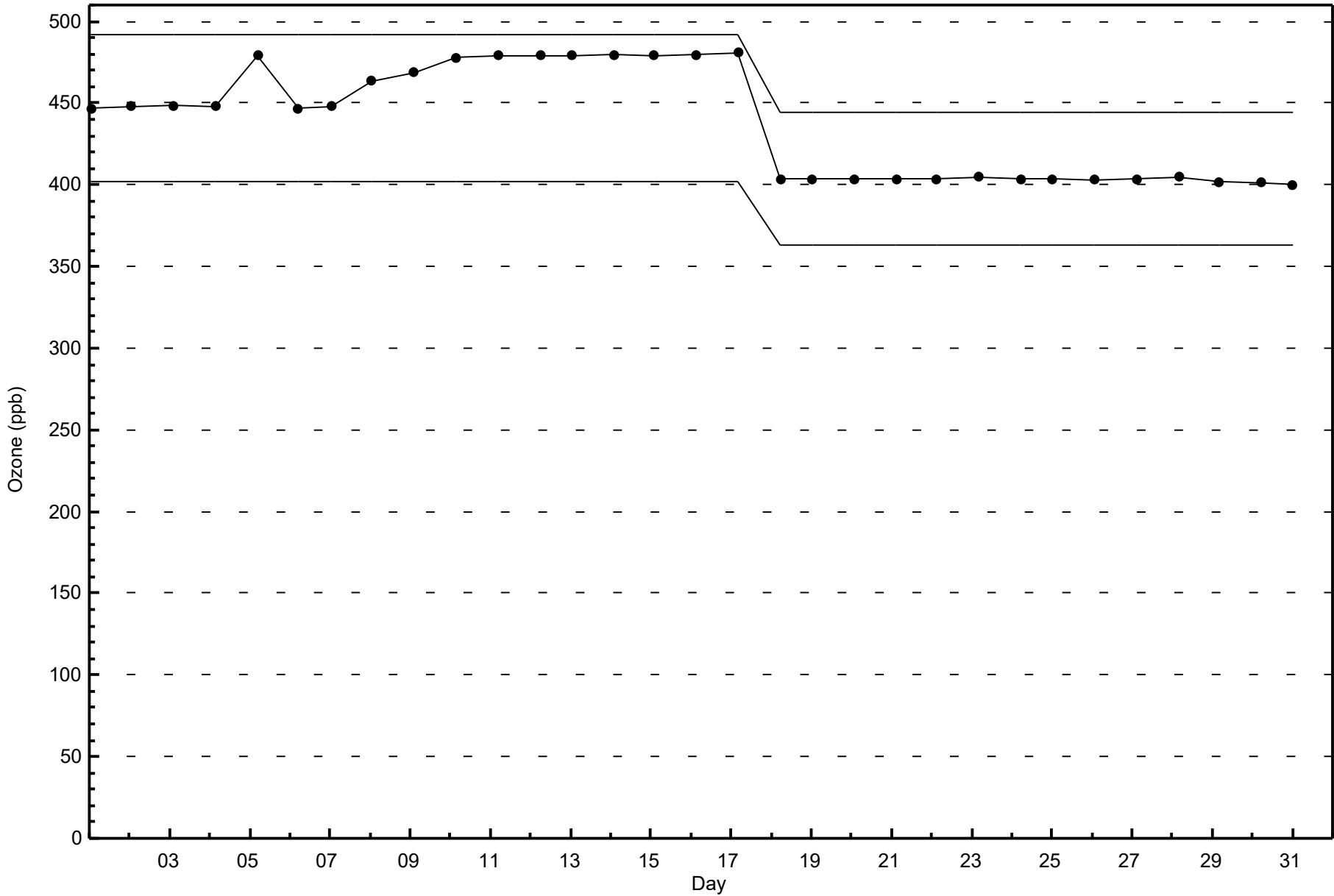


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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







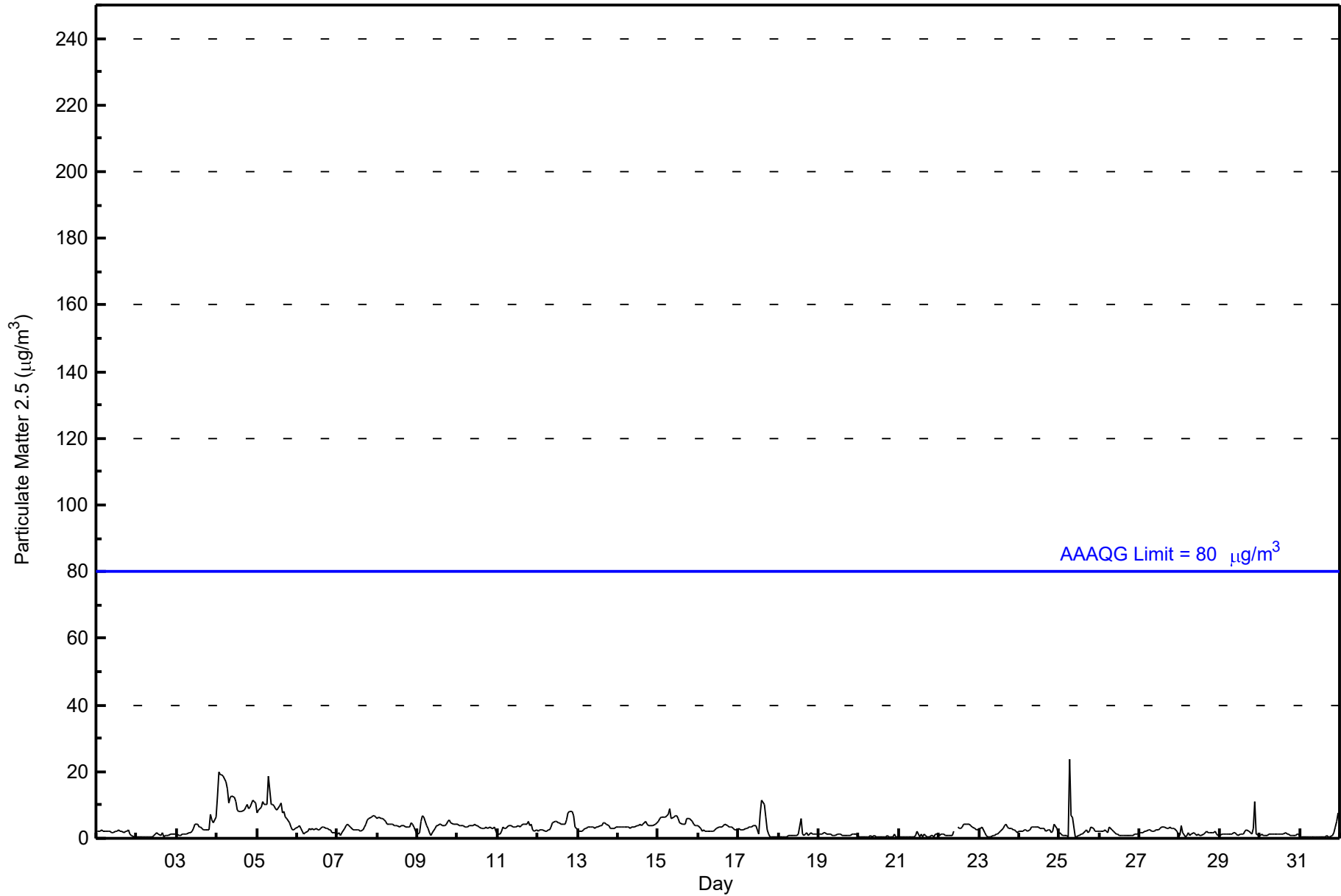


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 23.5 µg/m <sup>3</sup> on Oct 25 07:00		Maximum Daily Average: 12.2 µg/m <sup>3</sup> on Oct 4																	Hours of Data: 743		Hours of Missing Data: 1																												
Minimum Value: 0.3 µg/m <sup>3</sup> on Oct 2 08:00		Minimum Daily Average: 0.6 µg/m <sup>3</sup> on Oct 20																	Hours of Calibration: 1		Percent Operational Time: 100.0																												
Maximum Diurnal Average: 3.6 µg/m <sup>3</sup> at hour 7		Minimum Diurnal Average: 2.5 µg/m <sup>3</sup> at hour 1																																															
Monthly Average: 3.02 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.1 Median = 2.4 Q <sub>3</sub> = 3.7 P <sub>90</sub> = 6.1 P <sub>99</sub> = 14.1																																															
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-Oct	2.1	2.1	2.2	2.7	2.3	1.9	2.0	2.1	2.1	1.7	1.9	2.2	2.1	2.4	2.3	2.0	1.5	2.0	2.2	2.4	1.4	0.8	0.5	0.4	1.9	2.7																							
2-Oct	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.9	1.4	1.8	1.2	1.0	1.5	0.5	0.7	0.8	0.9	1.1	1.3	1.2	1.2	0.8	1.8																							
3-Oct	1.2	1.0	0.9	1.1	1.3	1.3	1.4	1.6	1.7	2.3	3.1	4.3	4.1	3.6	3.2	2.9	2.7	2.6	2.5	2.6	7.3	5.4	4.7	6.4	2.9	7.3																							
4-Oct	12.6	19.8	19.0	19.3	18.7	17.0	15.0	10.5	12.4	12.8	12.4	11.1	8.7	7.8	8.1	8.1	8.4	9.4	10.3	9.0	9.2	11.3	11.0	10.7	12.2	19.8																							
5-Oct	7.8	8.5	9.3	11.2	10.3	10.1	10.3	18.7	10.1	10.3	9.8	8.9	8.4	9.7	10.4	7.5	8.1	6.4	5.8	4.7	3.6	2.7	2.5	2.9	8.3	18.7																							
6-Oct	3.6	3.7	3.1	2.0	1.4	1.5	2.2	2.8	2.7	2.9	2.8	2.8	2.6	2.6	2.9	3.2	3.3	3.1	2.9	2.7	2.6	1.8	1.6	1.4	2.6	3.7																							
7-Oct	1.5	1.5	1.0	1.5	2.9	3.9	4.1	3.8	3.6	2.5	2.4	2.4	2.4	2.4	2.3	2.6	3.3	4.4	5.4	6.1	6.2	6.9	6.8	6.2	3.6	6.9																							
8-Oct	6.0	6.3	6.0	5.8	5.4	4.9	4.3	4.2	4.0	4.1	3.8	3.6	3.6	3.5	3.8	3.9	3.6	3.5	3.4	3.5	4.5	4.4	3.5	1.1	4.2	6.3																							
9-Oct	1.3	1.6	4.9	6.9	6.5	4.0	2.8	1.5	1.0	1.8	3.2	3.9	3.9	4.1	4.2	3.9	4.0	4.3	5.3	5.4	4.7	4.4	4.4	4.0	3.8	6.9																							
10-Oct	4.2	3.9	3.9	3.9	3.5	3.5	3.5	3.8	3.7	3.8	4.1	3.7	3.7	3.3	3.1	3.1	3.0	3.3	3.1	3.5	2.9	3.0	3.6	2.0	3.5	4.2																							
11-Oct	1.2	1.4	2.1	3.2	3.0	3.0	3.8	3.7	3.7	3.5	3.5	3.6	3.6	3.6	3.8	4.0	4.0	4.4	5.2	4.0	4.2	2.6	2.1	2.3	3.3	5.2																							
12-Oct	2.3	2.4	2.5	2.4	2.3	2.3	2.6	2.7	3.6	4.8	5.1	5.2	4.7	4.6	4.1	4.1	4.4	5.6	7.4	7.9	7.9	7.0	3.4	3.0	4.3	7.9																							
13-Oct	2.7	2.0	2.0	2.6	2.9	3.1	3.3	3.3	3.3	3.2	3.1	3.4	3.4	3.8	3.7	4.7	4.5	4.2	3.8	2.8	2.9	2.9	3.1	3.3	3.2	4.7																							
14-Oct	3.5	3.4	3.3	3.3	3.4	3.2	3.3	3.2	3.3	3.4	3.4	3.7	3.7	4.2	3.9	4.1	5.0	4.0	3.8	3.8	3.8	4.0	4.3	4.6	3.8	5.0																							
15-Oct	5.2	6.1	6.3	6.2	6.6	6.6	7.2	8.8	6.0	6.3	6.9	6.6	6.0	4.8	4.1	4.2	4.4	5.7	5.9	6.1	5.1	4.3	3.8	3.8	5.7	8.8																							
16-Oct	3.7	3.2	2.3	2.6	2.3	2.2	2.2	2.1	2.3	2.2	2.4	3.1	3.3	3.5	3.3	4.0	4.2	3.7	3.4	3.4	3.3	3.0	2.7	2.6	3.0	4.2																							
17-Oct	2.8	2.7	2.6	2.6	2.9	3.1	3.2	3.3	3.2	3.8	3.9	2.4	1.4	7.2	11.5	10.0	6.3	2.4	1.1	0.3	0.4	0.3	0.4	0.3	3.3	11.5																							
18-Oct	0.3	0.3	0.3	0.3	0.5	0.5	0.7	0.8	1.0	1.0	0.7	0.9	1.1	6.0	1.5	1.1	1.2	1.8	1.0	1.7	1.5	1.2	1.3	1.2	1.2	6.0																							
19-Oct	1.3	1.3	1.4	1.6	1.5	1.2	1.2	1.2	1.0	0.9	0.9	1.1	1.1	1.2	0.8	0.9	0.8	0.8	0.8	0.9	1.1	1.3	1.1	0.8	1.1	1.6																							
20-Oct	0.6	0.5	0.5	0.5	0.5	0.5	0.5	1.0	0.6	0.8	0.5	0.6	0.4	0.4	0.5	0.6	0.4	0.7	0.6	0.4	0.4	1.4	0.5	0.4	0.6	1.4																							
21-Oct	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.5	1.0	2.2	0.6	1.4	0.4	1.2	0.8	0.4	0.6	0.8	0.6	0.6	1.1	1.1	0.7	2.2																							
22-Oct	1.0	1.1	1.2	1.1	1.0	0.9	0.8	0.9	1.1	2.3	C	3.5	3.0	3.0	3.3	4.1	4.2	4.1	4.1	3.6	3.3	3.1	2.7	2.6	2.4	4.2																							
23-Oct	3.0	3.1	3.4	1.8	0.7	0.6	0.6	0.6	0.9	0.9	1.1	1.4	1.6	2.2	2.8	3.9	4.0	3.4	3.0	3.0	2.6	2.7	2.3	1.9	2.2	4.0																							
24-Oct	2.0	2.1	2.3	2.6	2.4	2.2	2.7	3.2	3.5	3.4	3.4	3.2	3.2	3.1	2.9	2.9	2.1	2.5	2.5	1.9	1.9	4.1	2.9	1.4	2.7	4.1																							
25-Oct	1.7	1.1	1.0	0.8	0.7	0.6	23.5	6.9	6.5	0.4	0.4	0.9	1.1	1.2	1.4	2.0	2.5	1.8	2.1	3.3	2.8	2.0	2.2	2.0	2.9	23.5																							
26-Oct	2.0	1.9	2.3	2.5	2.0	1.7	3.3	2.7	2.3	1.5	1.3	1.5	1.0	0.8	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.1	1.2	1.3	1.5	3.3																							
27-Oct	1.5	1.7	1.8	2.0	2.3	2.5	2.3	2.3	2.1	2.3	2.5	2.6	2.8	3.5	3.5	3.3	3.0	3.1	3.4	3.1	3.1	2.9	2.0	0.9	2.5	3.5																							
28-Oct	1.0	3.9	1.7	0.5	0.7	1.6	1.0	1.2	1.8	1.1	1.0	1.2	0.9	0.8	1.2	1.7	2.0	1.5	1.7	1.6	1.8	2.0	1.2	1.0	1.4	3.9																							
29-Oct	0.8	1.1	1.1	1.1	1.1	1.2	1.1	1.1	1.6	1.6	1.4	0.9	1.1	1.4	1.3	2.1	2.7	2.2	1.9	1.2	2.9	11.2	1.4	1.0	1.9	11.2																							
30-Oct	0.9	1.1	1.0	1.0	1.0	1.1	1.2	1.3	1.5	1.2	1.5	1.2	1.2	1.5	1.4	1.5	1.4	1.2	0.9	0.8	0.7	0.9	1.1	1.3	1.2	1.5																							
31-Oct	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.9	0.6	0.6	0.7	1.8	3.3	5.2	7.5	1.2	7.5																							
																								2.5	2.9	2.9	3.0	2.9	2.8	3.6	3.2	3.0	2.9	3.0	3.0	2.8	3.2	3.2	3.2	3.2	3.1	3.1	3.0	3.1	3.4	2.8	2.6	Diurnal Average	
																								12.6	19.8	19.0	19.3	18.7	17.0	23.5	18.7	12.4	12.8	12.4	11.1	8.7	9.7	11.5	10.0	8.4	9.4	10.3	9.0	9.2	11.3	11.0	10.7	Diurnal Maximum	
C - Calibration																																																	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																																																	



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

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





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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Fort Chipewyan - October 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	657	88.43	88.43
6 - 15	79	10.63	99.06
16 - 25	7	0.94	100.00
26 - 80	0	0.00	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 - October 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	34	20	13	38	67	42	22	26	23	23	36	49	77	116	29	41	656
6 - 15	3	1	3	11	9	4	0	4	5	2	8	3	20	2	2	2	79
16 - 25	0	0	0	0	1	1	1	0	1	1	0	0	0	1	1	0	7
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>	37	21	16	49	77	47	23	30	29	26	44	52	97	119	32	43	742

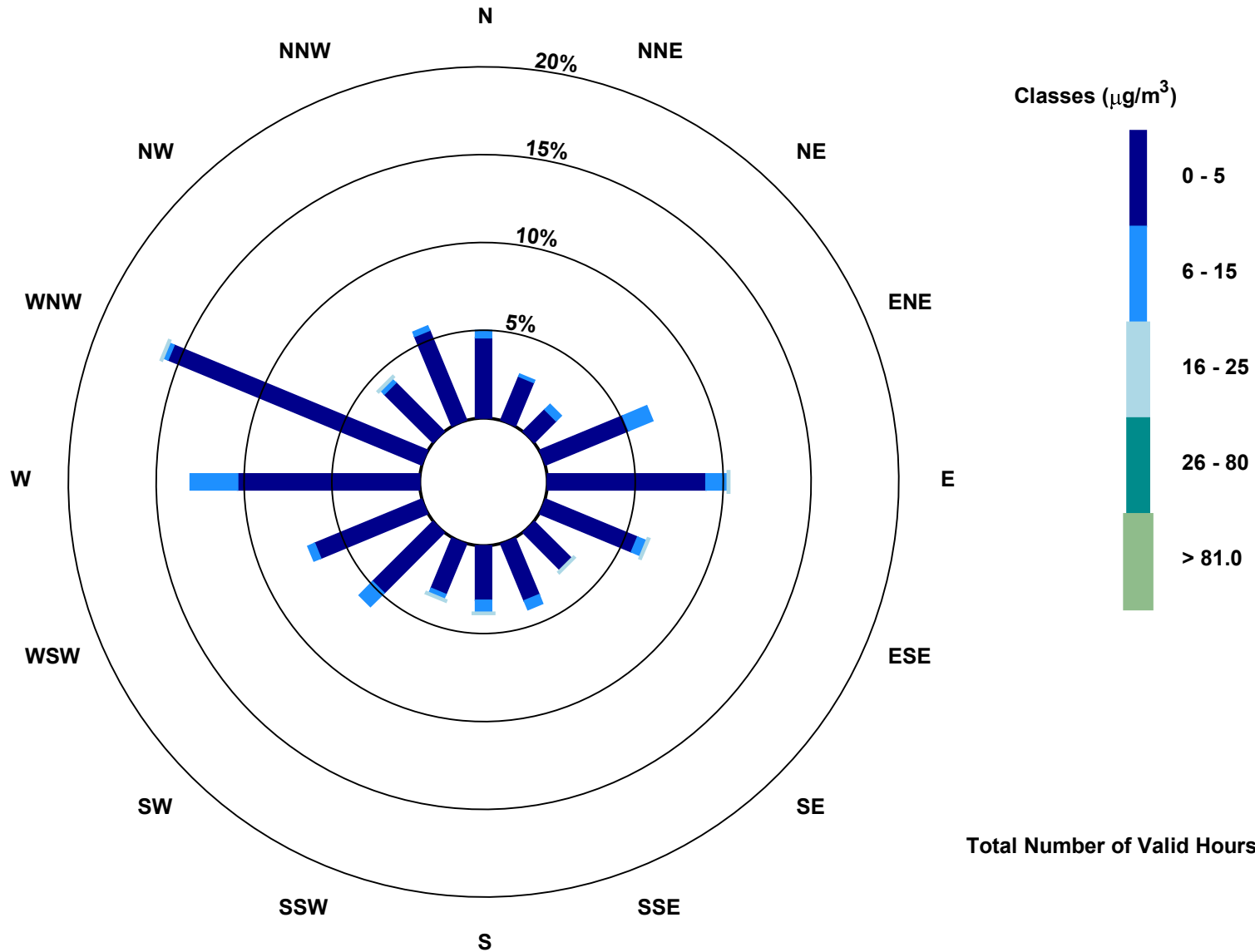
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 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**

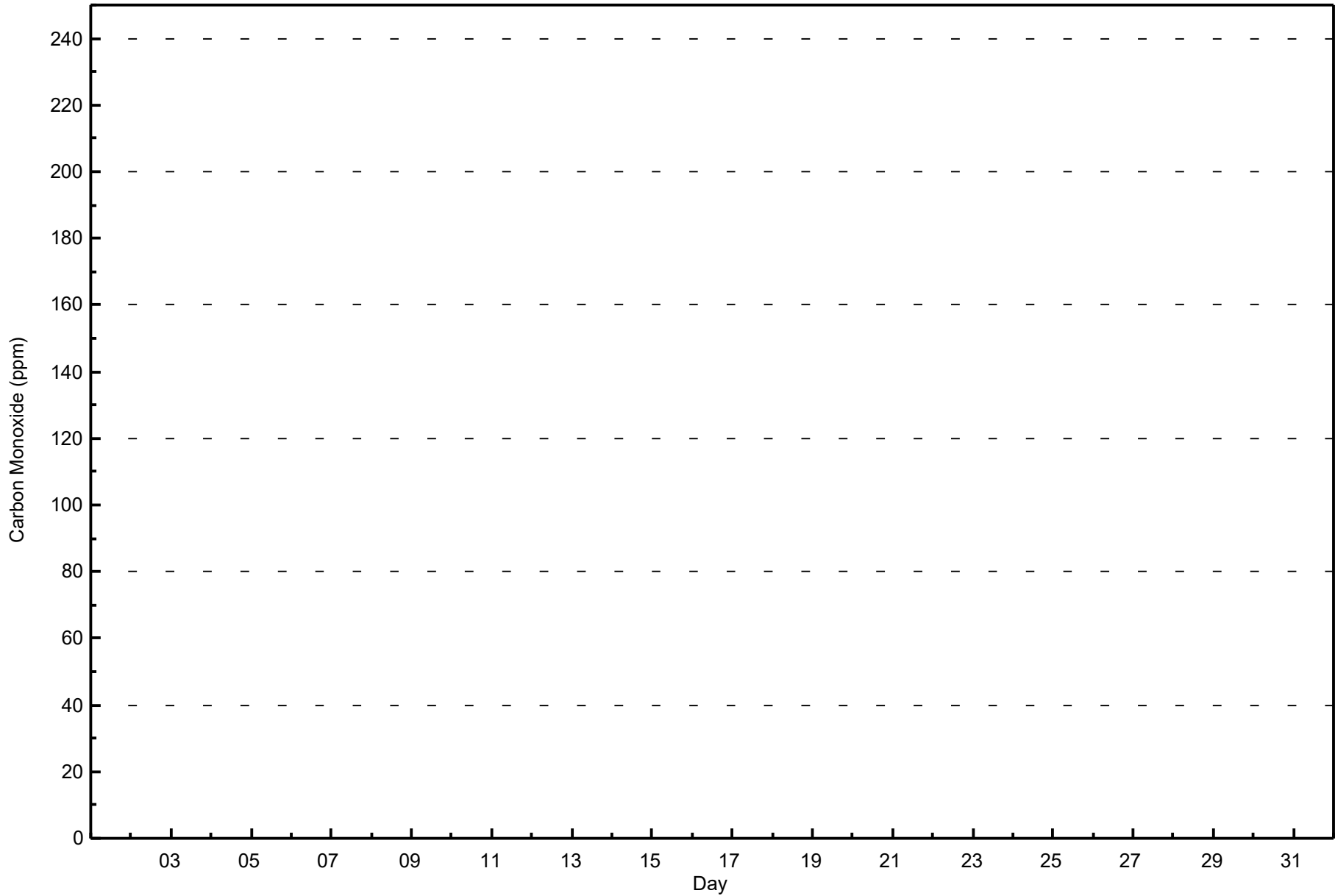
**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - October 2024**

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744				
Maximum Value: 0.2 ppm on Oct 4 02:00		Maximum Daily Average: 0.1 ppm on Oct 20																	Hours of Data:	709						
Minimum Value: 0.0 ppm on Oct 7 16:00		Minimum Daily Average: 0.0 ppm on Oct 27																	Hours of Missing Data:	35						
Maximum Diurnal Average: 0.1 ppm at hour 17		Minimum Diurnal Average: 0.0 ppm at hour 1																	Hours of Calibration:	34						
Monthly Average: 0.05 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> = 0.2																	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-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
2-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1
3-Oct	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
4-Oct	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5-Oct	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	0.0	0.0	0.0	0.1	0.1
6-Oct	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
7-Oct	0.1	0.0	0.0	Z	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
8-Oct	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	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-Oct	0.0	0.0	0.0	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
10-Oct	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	0.1	0.0	0.0	0.0	0.1
11-Oct	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1
12-Oct	0.0	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
13-Oct	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
14-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Oct	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	0.1	0.1	0.0	0.0	0.0	0.1
16-Oct	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
17-Oct	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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Oct	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	M	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
19-Oct	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
20-Oct	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21-Oct	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	0.2	0.2	0.1	0.2
22-Oct	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23-Oct	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
24-Oct	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
25-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
26-Oct	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
27-Oct	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
28-Oct	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-Oct	0.0	Z	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
30-Oct	0.1	0.1	Z	0.0	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	0.0	0.0	0.0	0.1	0.1	0.1	0.1
31-Oct	0.1	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.0																								Diurnal Average		
0.2																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																										



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

**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Fort Chipewyan - October 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 - October 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	35	21	15	44	74	46	21	29	29	25	42	49	92	114	32	40	708
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>	35	21	15	44	74	46	21	29	29	25	42	49	92	114	32	40	708

Total Number of Valid Hours: 708

Total Number of Hours: 744





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - October 2024**

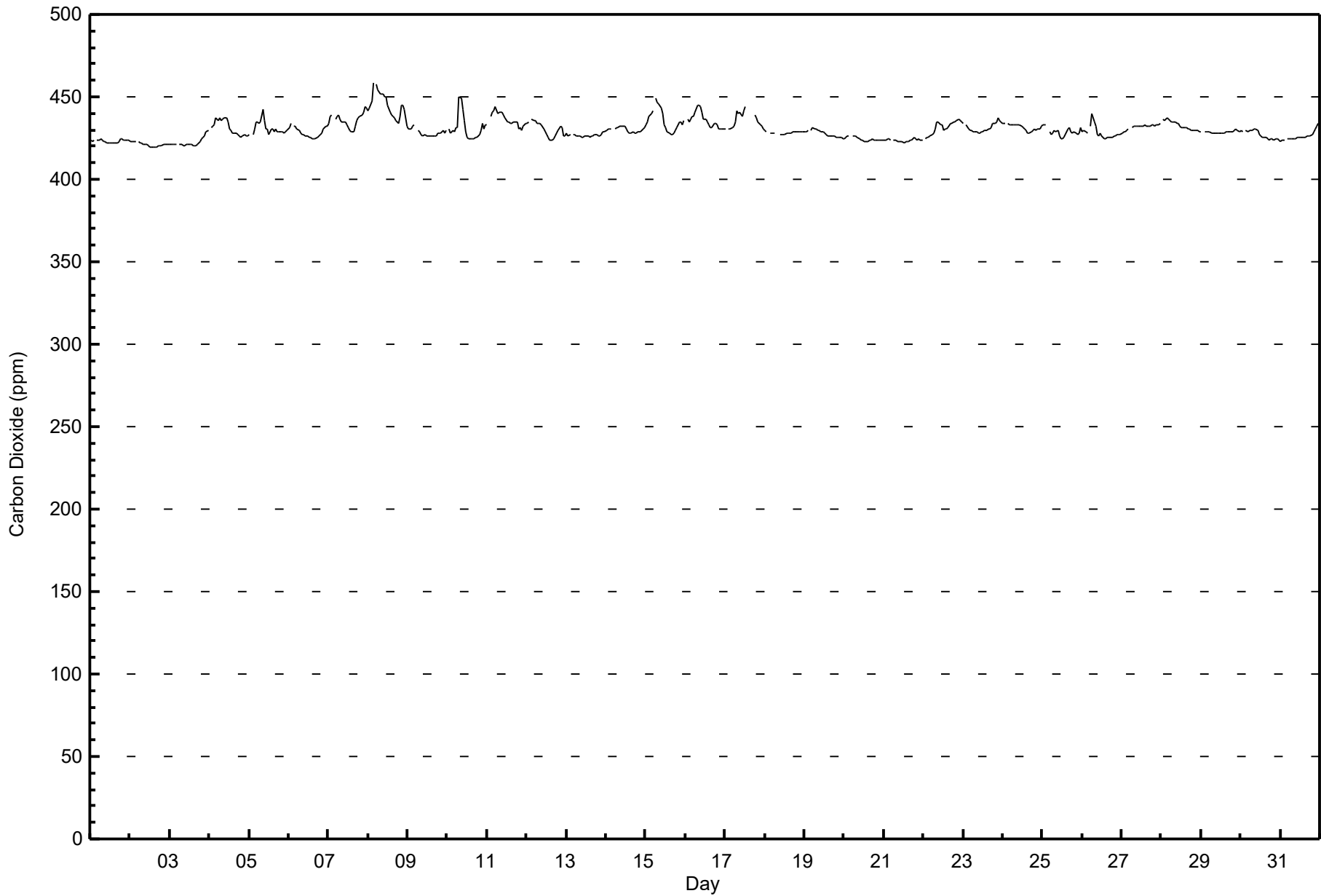
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744					
Maximum Value: 458.4 ppm on Oct 8 04:00		Maximum Daily Average: 444.8 ppm on Oct 8																	Hours of Data:		706					
Minimum Value: 419.6 ppm on Oct 2 16:00		Minimum Daily Average: 421.1 ppm on Oct 2																	Hours of Missing Data:		38					
Maximum Diurnal Average: 432.9 ppm at hour 8		Minimum Diurnal Average: 427.4 ppm at hour 16																	Hours of Calibration:		36					
Monthly Average: 429.94 ppm		Percentiles: P <sub>1</sub> = 420.2 P <sub>10</sub> = 423.6 Q <sub>1</sub> = 426.0 Median = 429.1 Q <sub>3</sub> = 432.9 P <sub>90</sub> = 437.2 P <sub>99</sub> = 450.1																	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-Oct	423.6	423.1	423.7	Z	423.4	423.4	424.3	424.0	422.9	422.7	422.4	421.9	421.7	422.1	422.3	421.9	421.9	422.7	424.2	424.7	423.9	424.0	424.1	423.6	423.1	424.7
2-Oct	423.1	422.8	422.9	422.9	Z	422.7	422.4	422.0	421.2	421.0	420.8	420.2	419.8	419.7	419.6	419.6	419.8	420.0	420.1	420.2	421.2	421.2	421.3	421.4	421.1	423.1
3-Oct	421.4	421.1	420.9	421.0	421.1	Z	421.3	421.1	420.7	420.6	421.3	420.9	421.1	420.9	420.4	420.2	420.4	421.3	423.0	424.3	425.3	426.5	428.7	429.3	422.3	429.3
4-Oct	Z	431.6	431.8	433.1	437.7	435.7	437.6	435.5	436.3	437.3	437.3	434.9	430.4	429.6	428.4	428.0	427.7	427.5	426.3	425.7	426.1	427.3	426.5	426.1	431.2	437.7
5-Oct	427.0	Z	427.5	430.9	434.5	435.2	434.1	435.1	442.0	435.2	430.9	430.2	427.4	430.6	430.8	429.2	430.7	428.9	428.7	428.9	429.1	428.0	428.5	430.0	431.0	442.0
6-Oct	431.3	433.9	Z	432.3	432.2	430.6	429.3	428.1	426.9	426.9	426.7	426.1	425.6	425.1	424.7	424.8	425.0	425.5	426.6	427.4	428.2	430.2	432.6	432.4	428.4	433.9
7-Oct	433.8	438.0	438.8	Z	436.6	437.8	439.0	436.3	434.5	434.8	435.0	433.4	431.4	429.9	429.0	429.2	431.9	435.5	437.2	438.0	439.1	440.6	443.9	443.6	436.0	443.9
8-Oct	441.8	443.2	447.6	458.4	Z	457.9	454.2	451.7	452.0	451.8	450.1	449.7	445.1	440.6	439.2	438.0	437.3	435.4	433.9	437.8	444.7	445.1	442.2	431.9	444.8	458.4
9-Oct	430.7	430.2	430.2	432.0	433.0	Z	429.8	428.8	427.4	426.6	426.7	426.4	426.2	426.2	426.0	426.0	426.2	426.4	427.6	428.4	428.4	429.8	428.0	429.3	428.3	433.0
10-Oct	Z	430.3	428.1	429.6	429.2	431.7	431.7	450.4	448.8	442.7	435.5	428.5	425.7	424.8	424.3	424.6	424.8	425.7	425.3	426.9	429.5	433.7	430.6	433.3	431.1	450.4
11-Oct	433.3	Z	438.1	440.3	441.3	443.6	440.0	440.6	440.6	440.3	438.9	437.5	434.8	435.1	434.0	434.3	434.6	435.0	435.1	430.8	431.5	429.7	432.0	434.1	436.3	443.6
12-Oct	434.0	434.6	Z	436.3	436.0	435.8	434.2	433.8	433.6	432.7	430.9	429.0	426.8	425.5	423.9	423.8	424.2	425.9	428.0	429.6	432.6	431.4	426.0	426.6	430.2	436.3
13-Oct	427.8	426.6	426.9	Z	426.9	426.7	426.5	426.1	426.1	425.5	425.6	426.4	426.5	426.3	425.6	426.5	426.7	426.7	427.3	426.7	426.6	427.4	428.6	429.1	426.7	429.1
14-Oct	429.7	430.2	430.6	430.6	Z	430.9	431.2	431.5	432.0	432.2	432.0	432.0	430.2	429.2	428.1	427.8	428.9	428.2	428.3	428.7	428.7	429.2	430.1	431.6	430.1	432.2
15-Oct	432.8	434.9	437.8	440.0	441.8	Z	449.4	446.9	445.9	443.6	439.5	433.3	431.1	429.0	427.6	426.9	427.2	428.2	429.3	431.6	434.6	434.8	432.8	435.9	435.4	449.4
16-Oct	Z	436.2	435.1	436.3	437.9	438.2	440.3	445.2	445.2	444.0	440.6	436.7	436.6	434.5	432.7	431.6	431.7	433.7	433.6	433.4	430.7	430.5	430.9	430.3	435.9	445.2
17-Oct	430.3	Z	430.2	430.9	431.5	432.5	434.9	441.6	439.8	440.3	438.0	441.7	444.0	C	C	C	C	C	438.9	437.6	434.9	433.2	431.8	430.6	435.7	444.0
18-Oct	429.8	429.2	Z	428.2	427.7	427.7	428.4	M	M	427.2	427.1	427.1	427.3	427.8	428.1	427.9	427.9	428.5	428.6	429.1	429.2	428.7	428.5	428.7	428.2	429.8
19-Oct	428.9	429.2	429.4	Z	429.9	431.1	430.7	430.6	430.0	429.5	429.0	428.6	428.3	427.1	426.3	426.0	426.0	426.2	426.2	425.8	425.7	425.2	425.1	424.9	427.8	431.1
20-Oct	424.6	425.5	426.1	426.1	Z	426.3	426.3	426.2	425.8	424.8	424.1	423.5	422.8	422.5	422.9	423.6	423.9	424.5	423.9	423.9	424.0	424.1	424.0	424.0	424.5	426.3
21-Oct	423.8	423.7	424.3	424.8	424.1	Z	423.9	423.6	423.2	423.0	423.0	422.6	422.4	422.5	423.1	423.2	423.4	424.0	425.4	424.5	424.0	424.5	423.8	423.8	423.7	425.4
22-Oct	Z	424.7	425.1	425.5	426.4	426.8	428.2	430.9	434.4	434.5	433.3	433.2	429.9	430.3	430.7	431.0	433.8	434.2	434.4	434.9	435.8	436.5	435.6	434.5	431.5	436.5
23-Oct	434.0	Z	433.3	430.6	429.8	429.4	429.1	428.9	428.5	428.2	428.3	428.9	429.2	429.5	429.6	430.5	430.7	431.2	433.7	433.7	434.7	437.0	435.9	434.5	431.3	437.0
24-Oct	433.9	434.1	Z	433.5	433.4	432.9	433.0	433.3	433.3	433.0	432.7	431.9	431.1	430.5	429.6	428.1	427.9	428.7	429.9	430.5	430.0	430.6	430.6	431.9	431.5	434.1
25-Oct	433.3	433.3	433.1	Z	429.1	427.1	427.7	429.9	428.7	429.5	426.7	424.9	424.6	425.0	427.5	430.7	431.3	428.8	428.4	428.5	427.6	427.1	428.2	431.0	428.8	433.3
26-Oct	429.2	429.9	428.4	428.0	Z	432.5	440.1	435.2	432.4	427.3	426.0	427.9	426.6	425.0	424.6	425.1	425.1	425.0	425.4	426.0	426.5	426.9	427.3	427.4	428.2	440.1
27-Oct	427.9	428.5	429.0	429.9	430.6	Z	431.5	431.9	432.1	432.0	432.0	432.1	432.2	432.6	432.7	432.5	432.4	432.0	432.9	432.7	432.5	432.7	433.1	433.8	431.7	433.8
28-Oct	Z	436.2	436.0	436.9	436.2	435.2	434.5	434.6	434.6	434.2	433.7	432.6	431.4	431.1	431.8	431.7	430.5	430.1	430.0	430.0	430.0	429.9	429.5	429.1	432.6	436.9
29-Oct	428.9	Z	428.9	429.0	429.0	428.7	428.2	428.0	427.9	427.7	428.1	428.3	428.1	428.4	428.3	428.6	428.9	429.1	429.1	428.9	429.5	430.7	429.5	428.9	428.7	430.7
30-Oct	429.5	429.2	Z	429.5	429.1	429.3	429.6	429.7	430.1	430.8	429.7	427.2	425.9	425.5	425.2	425.1	424.6	424.1	424.3	424.3	424.0	424.2	424.6	423.5	426.9	430.8
31-Oct	423.1	423.4	423.9	Z	424.3	424.2	424.2	424.2	424.6	425.0	425.2	425.3	425.2	425.2	425.2	425.6	426.2	426.2	426.2	426.9	428.8	430.4	432.1	434.2	426.1	434.2
429.5 430.1 430.3 431.9 431.3 432.1 432.1 432.9 432.7 431.8 430.7 429.8 428.7 427.7 427.4 427.4 427.7 428.0 428.8 429.0 429.6 430.0 429.9 430.0																								Diurnal Average		
441.8 443.2 447.6 458.4 441.8 457.9 454.2 451.7 452.0 451.8 450.1 449.7 445.1 440.6 439.2 438.0 437.3 435.5 438.9 438.0 444.7 445.1 443.9 443.6																								Diurnal Maximum		
Z - zerospan            C - Calibration            M - Maintenance																										





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - October 2024**





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	12	1.70	1.70
420 - 440	655	92.78	94.48
440 - 460	39	5.52	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan - October 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	3	5	4	0	12
420 - 440	35	21	15	43	66	44	20	28	29	22	36	48	76	105	27	39	654
440 - 460	0	0	0	4	8	2	1	1	0	3	6	1	9	2	1	1	39
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>	35	21	15	47	74	46	21	29	29	25	42	49	88	112	32	40	705

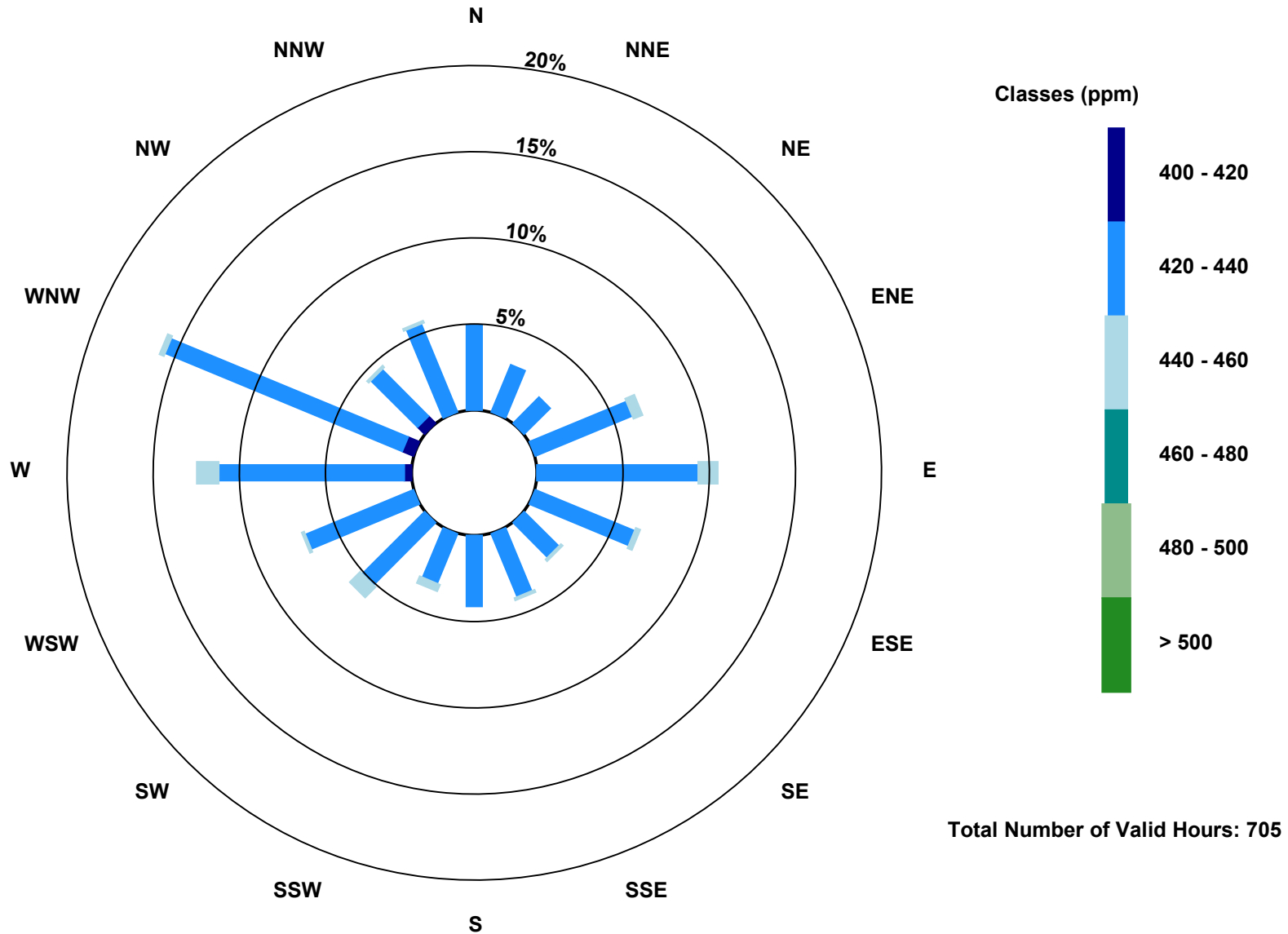
Total Number of Valid Hours: 705

Total Number of Hours: 744



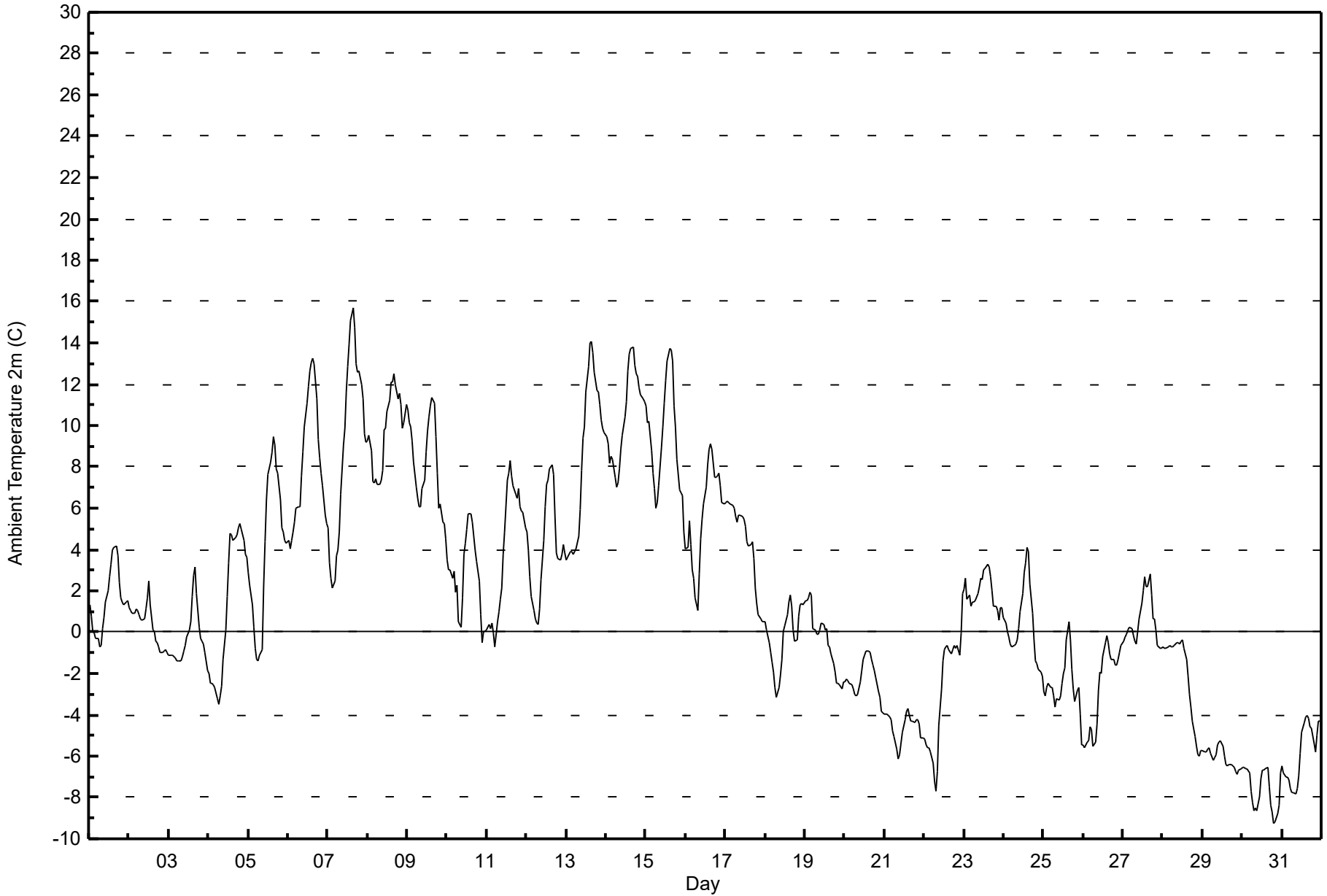
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan





Maximum Value: 15.7 C on Oct 7 16:00      Maximum Daily Average: 10.4 C on Oct 14																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: -9.3 C on Oct 30 20:00      Minimum Daily Average: -7.6 C on Oct 30 Maximum Diurnal Average: 4.3 C at hour 16      Minimum Diurnal Average: -0.2 C at hour 8 Monthly Average: 1.83 C      Percentiles: P <sub>1</sub> = -8.4 P <sub>10</sub> = -5.5 Q <sub>1</sub> = -1.8 Median = 1.0 Q <sub>3</sub> = 5.8 P <sub>90</sub> = 9.9 P <sub>99</sub> = 13.7																										
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-Oct	1.3	0.7	0.1	-0.1	-0.3	-0.3	-0.7	-0.6	0.2	0.7	1.4	2.0	2.7	3.3	4.0	4.1	4.1	3.7	2.4	1.7	1.4	1.3	1.4	1.5	1.5	4.1
2-Oct	1.2	1.1	0.9	0.9	1.2	1.0	0.9	0.6	0.5	0.6	1.1	1.6	2.5	1.4	0.1	0.1	-0.4	-0.5	-0.7	-1.0	-1.0	-0.9	-0.8	-1.0	0.4	2.5
3-Oct	-1.1	-1.1	-1.1	-1.2	-1.3	-1.4	-1.4	-1.4	-1.2	-0.9	-0.7	-0.2	0.1	0.5	1.7	2.7	3.2	1.9	0.2	-0.3	-0.5	-0.6	-1.0	-1.9	-0.3	3.2
4-Oct	-2.0	-2.5	-2.4	-2.5	-2.7	-3.2	-3.5	-3.1	-2.6	-1.3	0.1	1.7	3.3	4.8	4.7	4.5	4.6	4.7	5.0	5.2	5.0	4.4	3.7	3.6	1.2	5.2
5-Oct	2.9	2.3	1.4	0.2	-0.8	-1.3	-1.4	-1.1	-0.9	2.2	4.4	6.4	7.6	8.2	8.7	9.4	9.0	7.9	7.7	6.4	5.0	4.8	4.4	4.3	4.1	9.4
6-Oct	4.4	4.0	4.4	4.9	5.3	6.0	6.1	6.1	7.6	8.7	9.9	11.1	11.9	12.7	13.0	13.3	13.0	11.3	9.3	8.5	7.7	7.1	5.7	5.2	8.2	13.3
7-Oct	5.0	3.4	2.6	2.1	2.5	3.7	3.9	4.9	6.7	9.1	9.8	11.6	12.9	14.0	15.1	15.7	14.7	13.0	12.6	12.7	12.0	11.3	9.6	9.2	9.1	15.7
8-Oct	9.2	9.5	8.8	7.3	7.2	7.4	7.2	7.2	7.3	7.8	9.8	9.9	10.6	11.2	12.1	12.1	12.5	12.0	11.3	11.5	11.0	9.9	10.2	11.0	9.8	12.5
9-Oct	10.7	10.1	9.9	9.3	8.2	7.0	6.5	6.1	6.1	7.0	7.3	8.7	9.8	10.4	10.9	11.3	11.1	9.5	7.7	6.0	6.2	5.4	5.2	4.5	8.1	11.3
10-Oct	3.5	3.0	3.0	2.6	2.9	1.9	2.3	0.5	0.3	1.7	3.7	4.3	5.0	5.7	5.8	5.3	4.6	3.9	3.4	2.5	0.9	-0.5	0.1	0.0	2.8	5.8
11-Oct	0.1	0.4	0.1	0.4	0.0	-0.7	0.5	1.0	1.6	2.1	3.7	4.9	7.3	7.7	8.3	7.6	7.1	6.7	6.5	7.0	6.1	5.9	5.8	5.0	4.0	8.3
12-Oct	4.9	4.0	2.7	1.7	1.1	0.7	0.4	0.4	1.1	2.5	4.4	6.1	7.1	7.4	7.9	8.1	7.6	5.6	3.8	3.6	3.5	3.8	4.2	3.8	4.0	8.1
13-Oct	3.5	3.6	3.9	3.9	3.8	3.9	4.1	4.6	5.9	7.8	9.4	9.9	11.6	12.8	14.0	14.1	13.5	12.6	11.7	11.6	11.0	10.3	9.9	9.7	8.6	14.1
14-Oct	9.5	9.1	8.2	8.5	8.4	7.5	7.0	7.3	7.9	8.8	9.6	10.4	11.2	12.7	13.5	13.7	13.8	12.9	12.5	12.4	11.8	11.5	11.3	11.2	10.4	13.8
15-Oct	10.9	10.2	10.2	8.8	7.7	6.9	6.0	6.3	7.1	8.9	9.9	11.1	12.2	13.1	13.7	13.7	13.1	10.9	10.0	8.4	6.9	6.7	6.6	4.8	9.3	13.7
16-Oct	4.0	4.1	5.4	4.2	3.0	2.6	1.6	1.1	2.8	4.5	5.4	6.2	7.0	8.1	8.8	9.1	8.9	7.5	7.5	7.6	7.7	7.1	6.3	6.2	5.7	9.1
17-Oct	6.2	6.4	6.3	6.2	6.1	6.0	5.6	5.3	5.6	5.7	5.6	5.5	5.1	4.3	4.2	4.2	4.3	3.6	2.2	1.4	0.9	0.6	0.5	0.5	4.3	6.4
18-Oct	0.5	0.1	-0.5	-1.0	-1.5	-2.0	-2.7	-3.2	-2.7	-2.1	-1.3	0.0	0.3	0.8	1.5	1.8	1.3	0.1	-0.4	-0.4	0.8	1.3	1.4	1.3	-0.3	1.8
19-Oct	1.5	1.5	1.7	1.9	1.8	0.2	0.1	-0.1	-0.1	0.1	0.5	0.4	0.1	0.1	-0.7	-0.7	-1.1	-1.5	-1.9	-2.5	-2.5	-2.6	-2.7	-2.4	-0.4	1.9
20-Oct	-2.4	-2.3	-2.3	-2.5	-2.5	-2.7	-3.0	-3.1	-3.0	-2.4	-1.8	-1.3	-1.1	-0.9	-0.9	-1.0	-1.3	-1.6	-1.9	-2.2	-2.9	-3.1	-3.8	-3.9	-2.3	-0.9
21-Oct	-4.0	-4.0	-4.0	-4.1	-4.3	-4.8	-5.1	-5.7	-6.1	-6.0	-5.4	-4.9	-4.2	-3.9	-3.7	-4.0	-4.3	-4.3	-4.4	-4.2	-4.2	-4.4	-5.1	-5.1	-4.6	-3.7
22-Oct	-5.2	-5.5	-5.6	-5.6	-5.8	-6.4	-7.2	-7.7	-6.7	-4.5	-2.8	-1.4	-0.9	-0.7	-0.6	-0.8	-1.1	-0.8	-0.7	-0.8	-0.6	-1.1	0.0	1.8	-2.9	1.8
23-Oct	2.1	2.6	1.6	1.8	1.3	1.5	1.5	1.5	1.9	2.2	2.6	2.5	3.0	3.1	3.3	3.2	2.7	2.0	1.3	1.2	1.1	0.6	1.2	1.2	2.0	3.3
24-Oct	0.7	0.4	0.1	-0.2	-0.5	-0.7	-0.7	-0.6	-0.4	0.2	1.0	1.8	2.9	3.4	4.1	3.9	2.3	0.9	-0.4	-1.4	-1.5	-1.8	-1.9	-2.2	0.4	4.1
25-Oct	-2.9	-3.1	-2.7	-2.5	-2.6	-2.7	-3.1	-3.6	-3.2	-3.3	-3.1	-2.5	-2.0	-1.7	-0.3	0.5	-0.4	-1.8	-2.7	-3.4	-2.8	-2.7	-3.9	-5.4	-2.6	0.5
26-Oct	-5.5	-5.6	-5.3	-5.2	-4.5	-4.7	-5.5	-5.3	-4.4	-2.8	-1.9	-2.0	-1.2	-0.5	-0.1	-0.5	-1.1	-1.3	-1.3	-1.6	-1.6	-1.3	-1.0	-0.6	-2.7	-0.1
27-Oct	-0.4	-0.2	-0.1	0.1	0.2	0.2	-0.2	-0.5	-0.6	0.0	0.6	1.4	2.0	2.7	2.2	2.2	2.8	1.8	0.6	0.6	0.1	-0.7	-0.8	-0.8	0.6	2.8
28-Oct	-0.7	-0.8	-0.7	-0.7	-0.6	-0.7	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.4	-0.8	-1.3	-2.1	-3.0	-3.7	-4.3	-5.1	-5.5	-5.9	-6.0	-5.8	-2.1	-0.4
29-Oct	-5.7	-5.8	-5.8	-5.6	-5.6	-5.8	-6.2	-6.1	-5.9	-5.5	-5.3	-5.2	-5.5	-6.0	-6.4	-6.5	-6.4	-6.4	-6.5	-6.6	-6.7	-6.9	-6.7	-6.6	-6.1	-5.2
30-Oct	-6.5	-6.6	-6.6	-6.6	-6.8	-7.7	-8.2	-8.6	-8.5	-8.7	-8.0	-7.1	-6.7	-6.6	-6.6	-6.6	-7.5	-8.4	-8.7	-9.3	-9.2	-8.8	-8.4	-6.8	-7.6	-6.5
31-Oct	-6.5	-6.8	-7.0	-7.0	-7.2	-7.6	-7.7	-7.8	-7.8	-7.5	-6.9	-5.8	-4.9	-4.3	-4.1	-4.1	-4.2	-4.6	-4.7	-5.4	-5.8	-5.0	-4.3	-4.3	-5.9	-4.1
	1.3	1.0	0.9	0.7	0.4	0.1	-0.1	-0.2	0.3	1.1	2.0	2.8	3.5	4.0	4.3	4.3	4.0	3.1	2.5	2.1	1.8	1.5	1.3	1.2	Diurnal Average	
	10.9	10.2	10.2	9.3	8.4	7.5	7.2	7.3	7.9	9.1	9.9	11.6	12.9	14.0	15.1	15.7	14.7	13.0	12.6	12.7	12.0	11.5	11.3	11.2	Diurnal Maximum	





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

**Ambient Temperature 2m (AT2) - C**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	306	41.13	41.13
0 - 10	370	49.73	90.86
10 - 20	68	9.14	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 2m (RH2) - %**  
**Fort Chipewyan - October 2024**

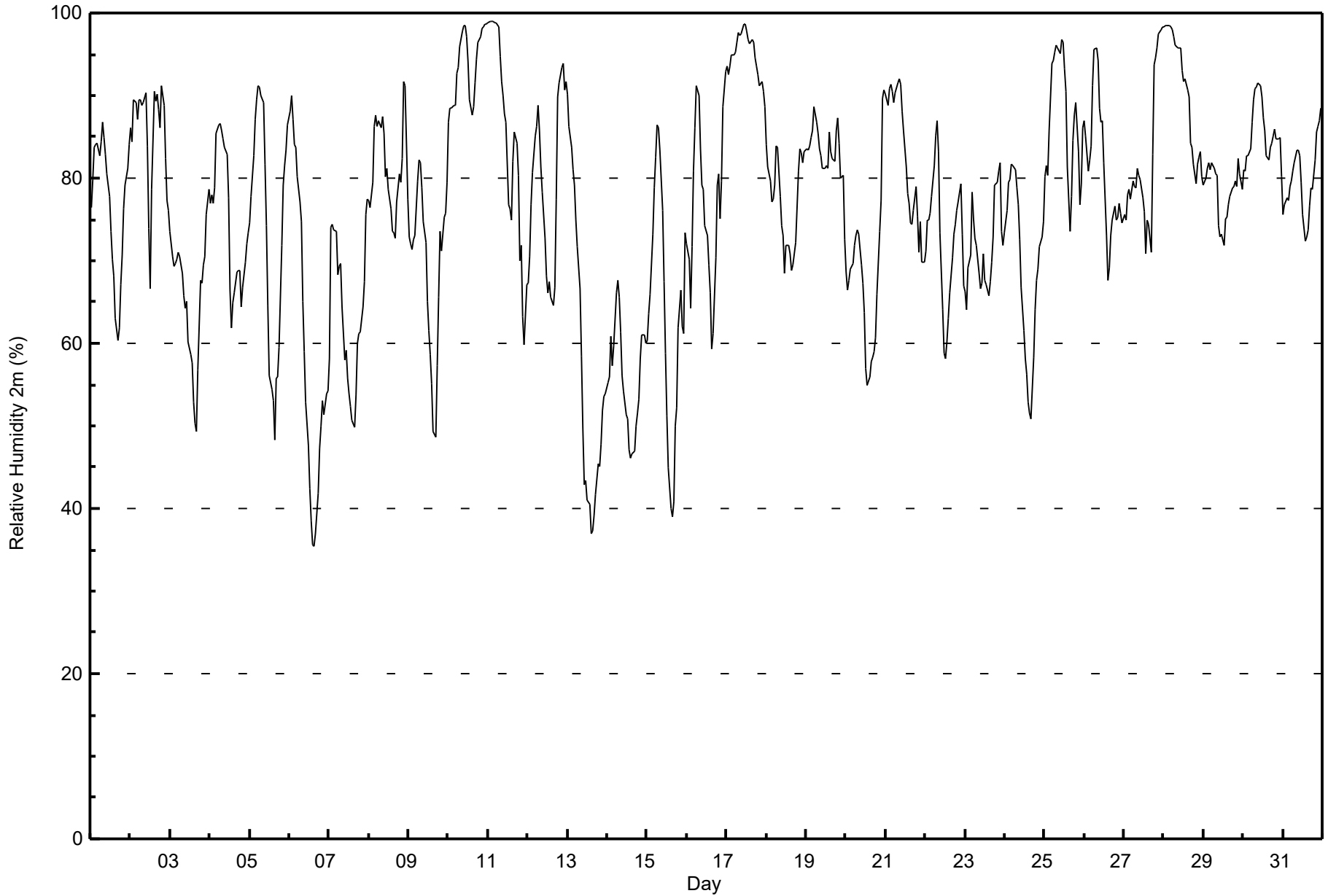
Maximum Value: 99.0 % on Oct 11 04:00      Maximum Daily Average: 94.9 % on Oct 17																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 35.4 % on Oct 6 16:00      Minimum Daily Average: 56.0 % on Oct 14 Maximum Diurnal Average: 84.6 % at hour 7      Minimum Diurnal Average: 66.1 % at hour 16 Monthly Average: 76.32 %      Percentiles: P <sub>1</sub> = 39.5 P <sub>10</sub> = 57.1 Q <sub>1</sub> = 68.8 Median = 78.3 Q <sub>3</sub> = 85.9 P <sub>90</sub> = 92.6 P <sub>99</sub> = 98.6																						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-Oct	76.5	79.9	83.7	84.1	84.3	82.8	84.5	86.9	84.9	82.8	80.6	77.8	73.5	70.2	68.1	63.0	60.3	61.9	67.1	70.6	76.2	79.1	81.1	84.1	76.8	86.9
2-Oct	86.2	84.5	89.5	89.2	87.1	89.5	89.5	88.8	89.2	90.3	83.8	73.9	66.7	78.6	90.5	89.3	90.2	88.3	86.1	91.1	88.9	82.3	77.3	76.1	85.3	91.1
3-Oct	73.5	70.4	69.3	69.6	70.2	71.1	70.4	68.4	65.8	64.3	65.1	60.1	58.6	57.7	52.9	50.3	49.3	56.7	67.6	67.3	69.4	70.5	75.6	78.7	65.5	78.7
4-Oct	76.9	77.9	76.9	78.8	85.4	86.5	86.6	85.8	84.7	83.8	82.9	77.6	66.4	61.8	64.9	66.1	68.7	68.8	68.9	64.3	66.8	69.8	72.1	73.3	74.8	86.6
5-Oct	74.6	77.8	82.7	87.1	89.5	91.1	91.0	90.0	89.2	81.6	74.2	64.6	56.1	54.4	53.1	48.3	55.8	56.0	59.5	71.9	79.2	81.5	83.4	86.4	74.1	91.1
6-Oct	88.2	90.0	87.1	84.1	83.7	80.2	77.2	74.8	65.1	58.9	52.8	47.6	42.3	38.5	35.7	35.4	37.0	41.9	47.4	50.0	53.0	51.3	53.9	54.3	59.6	90.0
7-Oct	58.2	74.1	74.4	73.7	73.5	68.3	69.3	69.7	64.4	58.0	59.2	55.8	53.9	52.4	50.7	49.8	53.7	60.0	61.2	61.3	64.4	67.5	75.5	77.4	63.6	77.4
8-Oct	77.2	76.5	79.5	86.3	87.6	86.3	87.0	86.2	87.5	85.4	80.1	81.3	78.6	76.3	73.5	73.4	72.8	77.2	80.4	79.5	82.4	91.7	91.3	77.4	81.5	91.7
9-Oct	72.9	72.1	71.4	72.5	73.0	79.6	82.2	81.9	78.7	74.7	72.2	65.1	61.5	58.6	55.2	49.3	48.6	57.3	65.5	73.5	71.2	75.3	75.8	79.5	69.5	82.2
10-Oct	86.9	88.5	88.6	88.8	88.9	92.8	93.4	95.9	97.8	98.4	98.5	97.2	94.1	89.5	87.6	88.7	91.5	94.5	96.4	97.2	98.1	98.4	98.6	98.7	93.7	98.7
11-Oct	98.8	98.9	98.9	99.0	98.9	98.7	98.3	94.8	91.7	90.0	87.9	86.7	76.7	76.2	74.9	82.0	85.7	84.3	80.3	70.0	71.8	63.2	59.8	67.2	84.8	99.0
12-Oct	67.3	70.5	76.8	80.7	85.2	86.2	88.8	85.8	81.4	78.4	72.7	68.1	66.1	67.5	65.6	64.6	66.8	77.5	89.9	91.6	93.3	93.9	90.7	91.7	79.2	93.9
13-Oct	90.2	86.2	83.7	81.1	79.1	74.9	71.7	66.6	58.4	49.7	43.0	43.4	41.0	40.4	37.0	37.3	39.1	41.7	45.4	45.1	47.8	51.8	53.6	54.0	56.8	90.2
14-Oct	55.2	55.9	60.9	57.3	59.7	66.2	67.7	65.7	61.4	56.1	54.2	51.3	50.9	47.1	46.0	46.6	47.0	50.1	51.5	53.1	58.2	61.0	61.0	60.0	56.0	67.7
15-Oct	60.3	63.6	65.8	73.3	78.8	82.6	86.4	86.1	83.4	76.2	67.4	58.8	51.3	44.9	40.0	39.0	40.9	50.1	52.1	61.9	66.4	62.1	61.2	73.4	63.6	86.4
16-Oct	72.0	70.1	64.2	71.7	80.9	86.1	91.2	90.1	83.5	79.1	78.6	74.3	73.0	69.5	66.0	59.4	61.2	70.4	79.1	80.5	75.1	79.7	88.7	92.8	76.6	92.8
17-Oct	93.6	92.6	93.6	94.9	94.9	95.2	96.4	97.6	97.3	97.5	98.6	98.6	97.8	96.8	96.3	96.7	96.5	94.5	93.5	92.6	91.2	91.6	90.5	88.7	94.9	98.6
18-Oct	84.0	81.3	79.7	77.2	77.4	79.2	83.9	83.7	77.8	74.3	73.1	68.5	71.8	71.9	70.8	68.9	69.4	70.9	72.3	80.9	83.5	83.0	81.9	83.2	77.0	84.0
19-Oct	83.6	83.4	83.9	84.9	85.8	88.6	86.8	85.5	83.5	82.7	81.2	81.1	81.5	81.3	85.6	83.3	82.4	82.0	85.7	87.2	84.3	80.0	80.3	72.5	83.2	88.6
20-Oct	68.7	66.5	67.6	69.0	69.7	71.9	73.1	73.7	73.3	69.5	67.3	63.7	57.0	54.9	55.9	57.8	58.4	58.9	60.6	65.9	73.6	77.3	89.6	90.7	68.1	90.7
21-Oct	90.2	88.8	90.9	91.3	90.6	89.2	90.3	91.6	92.0	91.3	88.1	85.8	81.3	78.2	77.0	74.5	74.4	76.1	78.9	75.5	70.9	74.8	69.8	69.9	82.6	92.0
22-Oct	71.3	74.9	74.8	75.8	77.7	81.5	85.1	86.9	83.2	73.4	64.1	58.8	58.1	60.1	63.1	66.1	70.4	73.2	74.4	76.1	77.1	79.2	73.2	67.0	72.7	86.9
23-Oct	66.3	64.1	69.2	70.6	78.3	75.1	72.7	71.9	68.5	66.7	67.2	70.8	67.7	67.1	65.8	67.5	69.9	72.9	79.1	79.6	80.8	81.8	73.5	71.9	71.6	81.8
24-Oct	73.5	76.1	79.6	79.9	81.6	81.5	81.0	78.8	76.8	72.6	66.8	61.5	58.1	56.4	52.9	51.5	50.9	58.3	64.0	67.7	68.9	71.6	73.0	74.7	69.1	81.6
25-Oct	80.1	81.5	80.3	85.8	93.9	94.3	95.2	96.1	95.8	95.1	96.8	96.5	93.2	90.5	81.4	73.6	77.8	84.5	87.7	89.1	83.2	76.8	79.2	86.0	87.3	96.8
26-Oct	86.9	85.1	80.8	82.2	83.9	91.2	95.6	95.8	94.2	88.5	86.7	86.9	81.9	73.1	67.6	69.1	73.1	74.8	76.6	74.9	75.3	76.9	75.8	74.5	81.3	95.8
27-Oct	75.6	75.0	77.9	78.6	77.5	79.7	79.0	78.7	81.3	80.4	79.8	77.7	76.0	70.8	75.0	74.4	71.0	82.9	93.8	94.6	95.8	97.4	98.1	98.3	82.0	98.3
28-Oct	98.4	98.5	98.5	98.5	98.4	97.9	97.1	96.1	95.8	95.8	95.8	93.1	91.6	92.0	90.8	89.8	84.3	83.8	81.6	79.3	81.6	82.5	83.2	80.1	91.0	98.5
29-Oct	79.1	80.1	81.2	81.9	81.1	81.8	81.2	80.5	80.3	74.3	72.9	73.3	71.9	75.1	75.3	76.7	77.8	78.9	79.1	79.7	79.1	82.3	80.6	78.6	78.5	82.3
30-Oct	81.1	80.8	82.7	82.7	83.5	86.8	89.4	90.8	91.0	91.6	91.1	89.8	87.3	85.8	82.7	82.2	83.7	84.2	85.2	86.0	84.8	84.8	85.0	80.2	85.5	91.6
31-Oct	75.5	76.8	77.7	77.3	78.9	79.6	80.8	81.9	83.4	83.4	82.7	79.5	75.5	72.4	72.9	73.8	76.5	78.8	78.6	82.2	85.6	86.3	87.0	88.5	79.8	88.5
78.2 78.8 79.7 80.9 82.5 83.8 84.6 84.1 82.0 78.9 76.3 73.2 69.7 68.1 66.9 66.1 67.3 70.7 73.9 75.5 76.7 77.6 78.1 78.4																								Diurnal Average		
98.8 98.9 98.9 99.0 98.9 98.7 98.3 97.6 97.8 98.4 98.6 98.6 97.8 96.8 96.3 96.7 96.5 94.5 96.4 97.2 98.1 98.4 98.6 98.7																								Diurnal Maximum		





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

**Relative Humidity 2m (RH2) - %**  
**Fort Chipewyan - October 2024**





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

**Relative Humidity 2m (RH2) - %**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	9	1.21	1.21
40 - 60	90	12.10	13.31
60 - 80	319	42.88	56.18
80 - 100	326	43.82	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



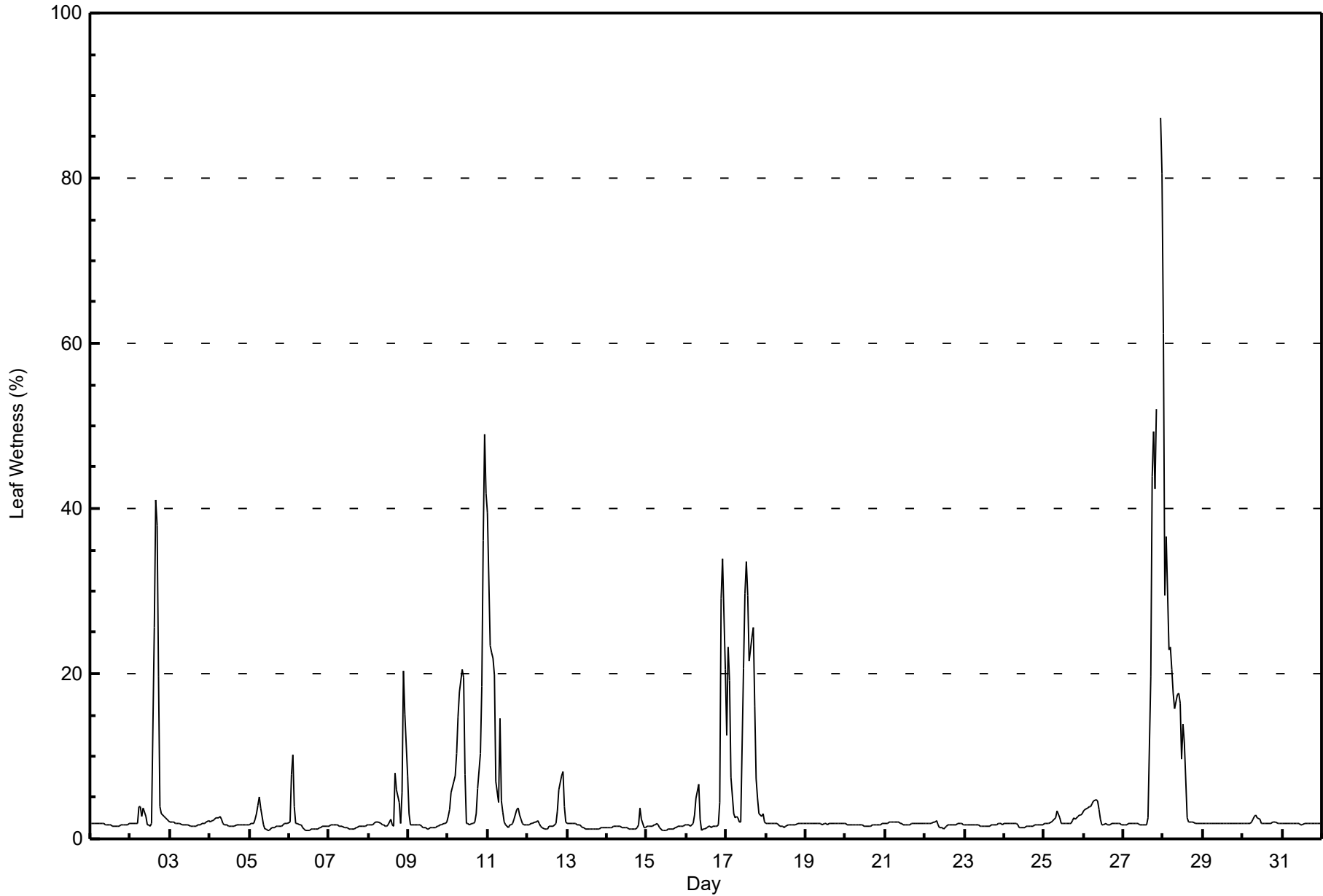
Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

Fort Chipewyan - October 2024

Maximum Value: 87.2 % on Oct 27 23:00																				Maximum Daily Average: 17.6 % on Oct 27					Hours in Service: 744		
Minimum Value: 1.0 % on Oct 6 12:00																				Minimum Daily Average: 1.4 % on Oct 15					Hours of Data: 743		
Maximum Diurnal Average: 7.7 % at hour 23																				Minimum Diurnal Average: 2.7 % at hour 12					Hours of Missing Data: 1		
Monthly Average: 3.96 %																				Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 1.6 Median = 1.8 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 5.5 P <sub>99</sub> = 42.2					Hours of Calibration: 0		
																									Percent Operational Time: 99.9		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.9	1.7	1.9		
2-Oct	1.9	1.8	1.9	1.9	1.8	3.9	3.9	2.7	3.6	2.8	1.8	1.7	1.6	1.8	25.6	41.0	38.0	19.7	3.9	3.0	2.7	2.5	2.3	2.2	7.3	41.0	
3-Oct	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.6	1.5	1.5	1.6	1.8	1.8	1.9	1.8	2.0	2.3	1.8	2.3	
4-Oct	2.1	2.1	2.2	2.3	2.5	2.6	2.7	2.4	1.9	1.7	1.6	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.9	2.7	
5-Oct	1.8	1.8	1.9	2.4	3.1	4.1	5.1	3.7	1.6	1.2	1.2	1.0	1.1	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.7	1.9	1.9	1.9	2.0	5.1	
6-Oct	2.0	7.9	10.1	3.9	1.8	1.8	1.8	1.6	1.3	1.1	1.1	1.0	1.0	1.2	1.1	1.1	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	2.1	10.1	
7-Oct	1.5	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.7	
8-Oct	1.6	1.6	1.7	1.9	2.0	2.0	2.0	1.8	1.7	1.7	1.6	1.6	1.7	2.4	1.8	1.6	7.9	6.0	4.4	1.8	5.6	20.3	15.1	7.7	4.1	20.3	
9-Oct	3.1	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.4	1.4	1.2	1.3	1.4	1.4	1.4	1.4	1.5	1.6	1.7	1.7	1.9	1.9	2.1	1.6	3.1	
10-Oct	2.8	3.6	5.6	7.0	7.6	10.3	14.7	17.8	20.6	19.5	7.8	1.8	1.8	1.7	1.8	1.8	2.0	3.1	6.2	10.4	18.6	36.1	49.0	41.9	12.2	49.0	
11-Oct	39.5	23.3	22.5	21.9	19.9	6.9	4.3	14.7	4.6	3.2	2.0	1.6	1.4	1.7	1.7	1.8	2.3	3.5	3.7	2.9	2.4	1.8	1.7	1.7	8.0	39.5	
12-Oct	1.7	1.7	1.8	1.9	2.0	2.0	2.1	1.8	1.5	1.3	1.2	1.2	1.3	1.6	1.6	1.6	1.6	1.9	3.3	5.9	7.7	8.1	3.9	2.0	2.5	8.1	
13-Oct	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.9	
14-Oct	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.7	3.7	2.4	1.4	1.4	1.5	3.7
15-Oct	1.4	1.5	1.5	1.6	1.7	1.7	1.8	1.7	1.4	1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.5	1.5	1.5	1.6	1.4	1.8	
16-Oct	1.7	1.7	1.6	1.7	1.8	2.9	5.0	6.7	2.3	1.1	1.2	1.2	1.3	1.5	1.5	1.4	1.5	1.5	1.6	1.6	4.4	29.2	33.8	20.5	5.4	33.8	
17-Oct	12.5	23.2	19.1	7.5	3.1	2.6	2.7	2.5	2.1	2.0	20.7	29.7	33.6	29.5	21.5	24.4	25.5	16.2	7.2	4.9	3.1	2.6	3.1	2.0	12.5	33.6	
18-Oct	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.6	1.5	1.5	1.4	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.7	1.9	
19-Oct	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	
20-Oct	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.9	1.9	1.7	1.9	
21-Oct	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.0	1.9	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.9	2.1	
22-Oct	1.8	1.8	1.8	1.8	1.8	2.0	2.1	2.2	1.7	1.4	1.3	1.2	1.4	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	2.2	
23-Oct	1.7	1.6	1.7	1.7	1.8	1.7	1.7	1.7	1.6	1.5	1.6	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.9	1.8	1.8	1.7	1.9	
24-Oct	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.6	1.4	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.7	1.9	
25-Oct	1.8	1.9	1.8	1.9	2.1	2.1	2.3	2.6	3.4	2.6	1.9	1.8	1.8	1.8	1.8	1.8	1.9	2.2	2.5	2.4	2.7	2.8	2.9	3.1	2.2	3.4	
26-Oct	3.3	3.6	3.7	3.8	4.0	4.2	4.5	4.8	4.6	3.6	2.3	1.7	1.7	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7	4.8	
27-Oct	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	2.5	19.7	43.9	49.3	42.4	52.0	OR	87.2	80.5	17.6	87.2	
28-Oct	61.1	29.6	36.6	22.9	23.2	20.6	17.6	15.7	17.4	17.6	16.4	9.7	13.8	11.6	2.5	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	13.9	61.1	
29-Oct	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	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	
30-Oct	1.9	1.9	1.9	1.9	1.9	2.1	2.4	2.7	2.9	2.6	2.4	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	2.1	2.9	
31-Oct	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	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	
																								Diurnal Average			
																								Diurnal Maximum			
OR - Out of Range																											





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

**Leaf Wetness (LW) - %**  
**Fort Chipewyan - October 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	98	13.19	13.19
1.5 - 10	571	76.85	90.04
> 10	57	7.67	97.71

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

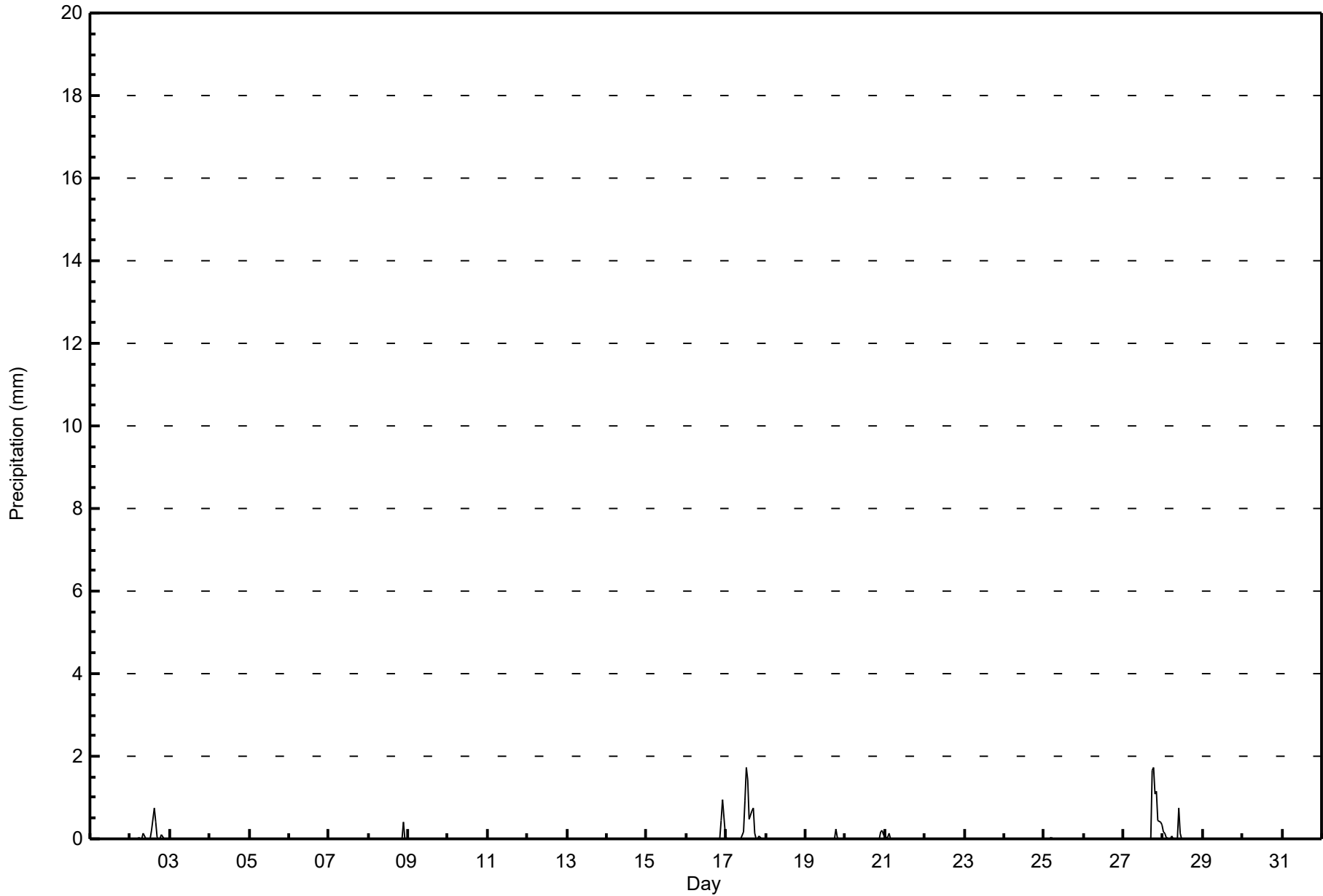
**Fort Chipewyan - October 2024**

Maximum Value: 1.7 mm on Oct 17 13:00      Maximum Daily Total: 6.8 mm on Oct 27																				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 mm on Oct 1 01:00      Minimum Daily Total: 0.0 mm on Oct 1 Maximum Diurnal Total: 2.0 mm at hour 19      Minimum Diurnal Total: 0.0 mm at hour 4 Monthly Total: 18.96 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> = 0.8																												
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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.7	0.4	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
3-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
9-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	0.1	0.0	0.0	0.0	0.0	0.0
17-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	1.7	1.4	0.5	0.7	0.7	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0
20-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
21-Oct	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	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
26-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	1.1	1.1	0.5	0.4	0.3	0.0	0.0	0.0	0.0
28-Oct	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.7	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
29-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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**  
**Fort Chipewyan - October 2024**





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

**Precipitation (PC) - mm**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	726	97.58	97.58
0.4 - 0.5	6	0.81	98.39
0.6 - 0.7	4	0.54	98.92
0.8 - 1.4	5	0.67	99.60
1.5 - 10	3	0.40	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

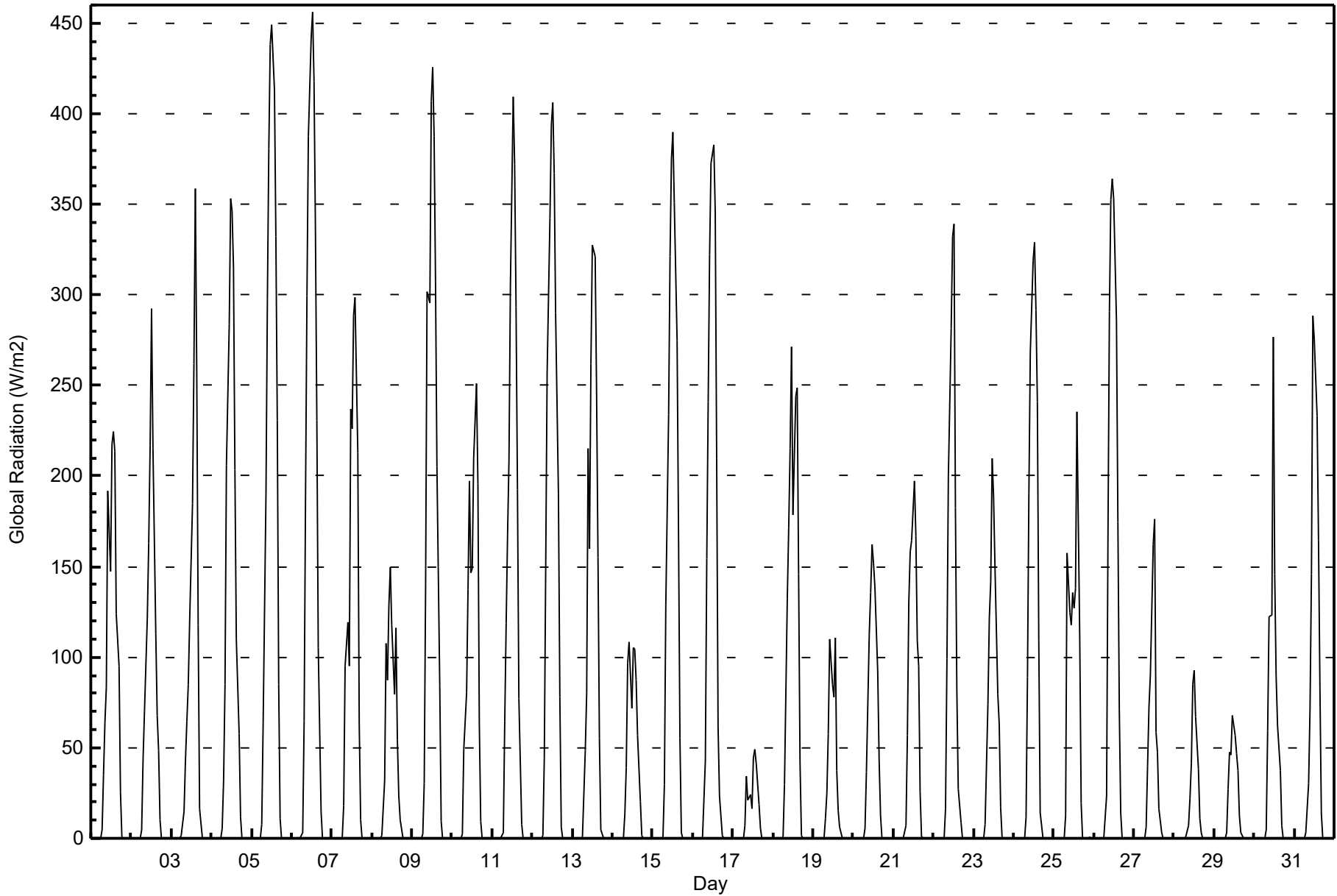




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Global Radiation (GR) - W/m2**  
**Fort Chipewyan - October 2024**

Maximum Value: 456.2 W/m2 on Oct 6 13:00      Maximum Daily Average: 122.9 W/m2 on Oct 6																						Hours in Service:	744			
Minimum Value: 0.0 W/m2 on Oct 1 05:00      Minimum Daily Average: 10.9 W/m2 on Oct 17																						Hours of Data:	744			
Maximum Diurnal Average: 245.8 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 6																						Hours of Missing Data:	0			
Monthly Average: 62.55 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> = 85.8 P <sub>90</sub> = 233.6 P <sub>99</sub> = 408.1																						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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	4.9	35.0	63.7	83.4	192.1	147.0	217.5	224.9	213.9	123.8	95.1	25.8	0.5	0.0	0.0	0.0	0.0	0.0	59.5	224.9
2-Oct	0.0	0.0	0.0	0.0	0.0	0.0	4.8	43.3	70.1	121.6	163.2	216.9	292.0	215.3	113.0	67.6	48.7	10.2	0.2	0.0	0.0	0.0	0.0	0.0	57.0	292.0
3-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.4	14.4	43.2	64.5	85.0	120.6	184.6	261.7	358.5	256.4	118.0	16.7	0.3	0.0	0.0	0.0	0.0	0.0	63.6	358.5
4-Oct	0.0	0.0	0.0	0.0	0.0	0.0	5.2	31.6	84.9	206.1	283.7	353.1	346.3	314.7	203.8	109.8	57.8	11.4	0.0	0.0	0.0	0.0	0.0	0.0	83.7	353.1
5-Oct	0.0	0.0	0.0	0.0	0.0	0.0	7.7	64.3	190.2	298.0	380.6	438.4	449.3	413.1	332.4	230.8	84.6	10.7	0.1	0.0	0.0	0.0	0.0	0.0	120.8	449.3
6-Oct	0.0	0.0	0.0	0.0	0.0	0.0	3.3	64.5	189.7	299.8	387.5	442.3	456.2	417.7	336.1	231.1	105.4	15.2	0.1	0.0	0.0	0.0	0.0	0.0	122.9	456.2
7-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.1	17.9	95.1	119.6	94.8	236.9	225.9	288.5	298.4	213.0	62.8	10.5	0.0	0.0	0.0	0.0	0.0	0.0	69.4	298.4
8-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.5	31.9	107.4	87.0	128.8	150.0	117.9	79.9	116.2	54.6	23.2	10.2	0.0	0.0	0.0	0.0	0.0	0.0	37.9	150.0
9-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.0	30.6	141.4	302.1	295.3	406.7	425.8	387.4	306.9	204.7	84.6	9.7	0.0	0.1	0.0	0.0	0.0	0.0	108.2	425.8
10-Oct	0.0	0.1	0.0	0.0	0.0	0.0	2.6	49.2	80.2	136.9	197.0	146.9	149.0	210.1	250.7	195.7	63.5	9.4	0.0	0.0	0.0	0.0	0.0	0.0	62.1	250.7
11-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.9	64.9	118.5	167.8	209.1	305.0	409.2	372.2	293.5	192.3	76.9	7.7	0.1	0.0	0.0	0.0	0.0	0.0	92.5	409.2
12-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.3	44.8	150.9	257.2	342.6	393.7	406.1	367.1	289.9	190.4	78.2	6.4	0.0	0.0	0.0	0.0	0.0	0.0	105.4	406.1
13-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.0	48.6	80.5	215.3	159.5	261.7	327.3	321.5	246.1	155.5	55.5	5.1	0.0	0.0	0.0	0.0	0.0	0.0	78.2	327.3
14-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.2	13.0	39.0	96.8	108.5	72.0	104.9	104.8	87.6	56.9	20.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	29.4	108.5
15-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.7	29.3	129.0	233.7	321.3	374.9	389.5	351.0	274.3	169.4	55.5	3.5	0.1	0.0	0.0	0.0	0.0	0.0	97.2	389.5
16-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.6	42.9	154.5	241.1	322.0	373.1	382.8	345.1	209.6	62.0	23.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	89.9	382.8
17-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.8	34.6	20.8	24.2	16.0	44.2	49.3	41.3	18.5	5.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	10.9	49.3
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.4	29.7	132.9	171.8	215.2	271.6	178.3	244.0	249.0	145.9	42.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	70.1	271.6
19-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	24.9	57.7	109.8	85.1	78.0	110.4	37.7	15.2	5.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	22.3	110.4
20-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	36.6	111.9	135.8	162.3	152.2	138.6	91.9	42.9	12.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	37.1	162.3
21-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.1	7.0	56.6	129.8	158.1	164.4	197.2	166.5	109.5	95.0	25.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	46.3	197.2
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.1	16.7	99.2	199.7	281.2	331.8	339.1	182.2	81.9	27.0	8.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	65.3	339.1
23-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	73.9	121.7	142.3	209.6	188.8	149.7	79.4	63.1	17.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	43.9	209.6
24-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	88.9	190.6	267.9	319.1	329.4	291.4	241.1	108.8	14.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	77.6	329.4
25-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	157.6	124.8	117.6	135.7	126.9	137.7	235.8	109.8	19.4	0.3	0.0	0.1	0.2	0.5	0.3	0.0	49.1	235.8
26-Oct	0.1	0.0	0.0	0.0	0.0	0.0	0.1	23.3	169.9	290.5	352.8	364.3	353.5	285.5	174.9	70.6	13.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	87.5	364.3
27-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	40.1	72.4	90.7	162.2	176.1	58.8	47.7	16.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	176.1
28-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.2	21.5	41.5	85.4	92.9	67.3	38.1	11.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	92.9
29-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	27.4	47.5	46.4	68.0	56.7	46.6	37.4	12.4	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	68.0
30-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	59.4	122.4	122.8	277.0	145.8	89.3	62.5	37.3	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.7	277.0
31-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	30.2	71.6	146.1	288.5	275.3	233.4	164.2	83.7	13.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	54.6	288.5
																								Diurnal Average		
																								Diurnal Maximum		





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

**Global Radiation (GR) - W/m2**  
**Fort Chipewyan - October 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	470	63.17	63.17
21 - 100	101	13.58	76.75
101 - 300	130	17.47	94.22
301 - 600	43	5.78	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 Standard Deviations**

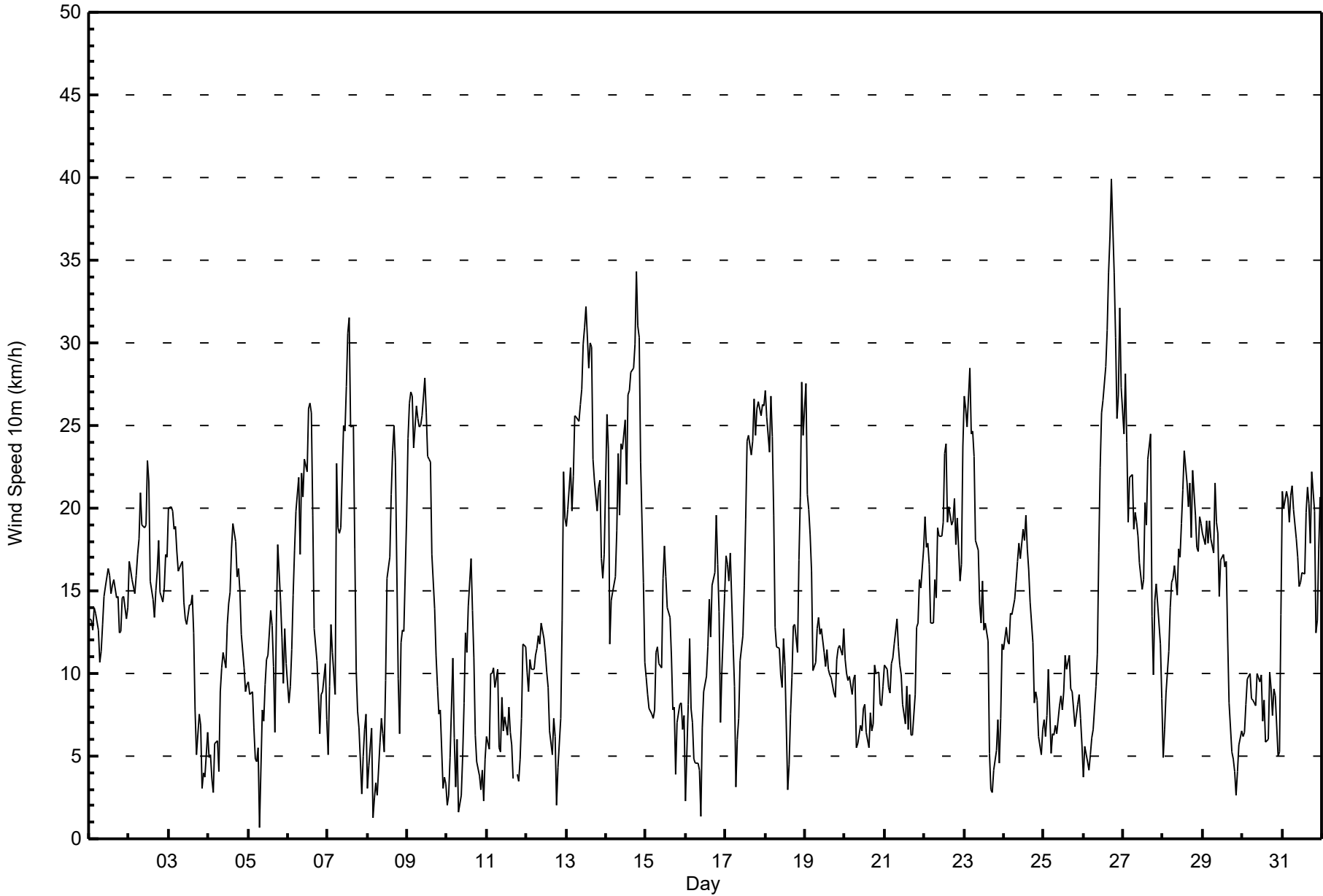
**Wind Speed 10m (WS10) - km/h**  
**Fort Chipewyan - October 2024**

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



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

**Wind Speed 10m (WS10) - km/h**  
**Fort Chipewyan - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Fort Chipewyan - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	78	10.50	10.50
6 - 11	246	33.11	43.61
12 - 19	255	34.32	77.93
20 - 28	144	19.38	97.31
29 - 38	19	2.56	99.87
> 38	1	0.13	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Fort Chipewyan - October 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	6	5	2	5	10	5	3	3	3	7	6	4	4	3	7	5	78
6 - 11	25	14	11	11	24	9	1	0	5	7	26	18	25	22	13	35	246
12 - 19	6	2	2	20	24	17	4	7	8	13	10	15	49	65	10	3	255
20 - 28	0	0	1	12	12	16	14	16	7	0	2	15	19	28	2	0	144
29 - 38	0	0	0	1	6	0	1	4	6	0	0	0	0	1	0	0	19
> 38	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	<b>37</b>	<b>21</b>	<b>16</b>	<b>49</b>	<b>77</b>	<b>47</b>	<b>23</b>	<b>30</b>	<b>29</b>	<b>27</b>	<b>44</b>	<b>52</b>	<b>97</b>	<b>119</b>	<b>32</b>	<b>43</b>	<b>743</b>

Total Number of Valid Hours: 743

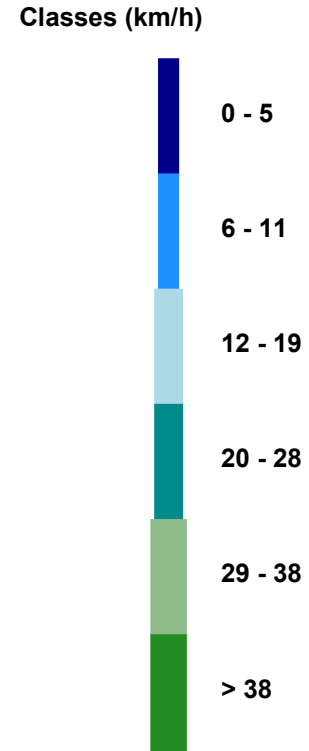
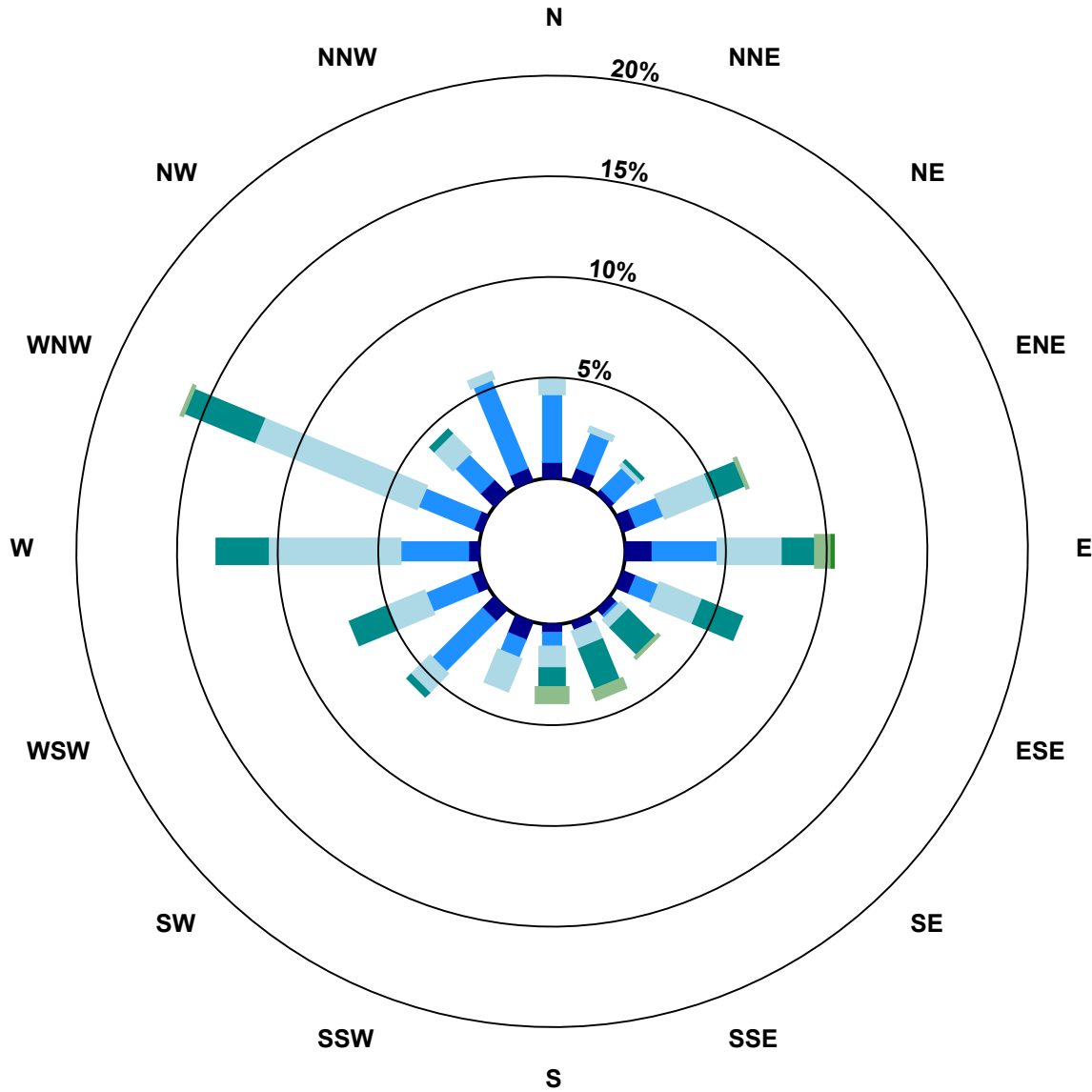
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Fort Chipewyan



Total Number of Valid Hours: 743



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

**Wind Direction 10m (WD10) - deg**  
**Fort Chipewyan - October 2024**

Direction of Maximum Speed: 85 deg on Oct 26 18:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 143.3 deg on Oct 13	Hours of Data: 743
Direction of Minimum Speed: 317 deg on Oct 5 08:00	Hours of Missing Data: 1
Direction of Minimum Daily Speed Average: 3.7 deg on Oct 11	Percent Operational Time: 99.9
Monthly Average Direction: 255.3 deg	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	278	282	276	280	280	285	295	276	275	271	271	279	286	284	287	286	299	287	284	295	290	289	296	306	284.8
2-Oct	304	301	295	295	292	291	295	292	293	287	292	298	303	319	315	314	305	296	299	297	282	286	285	284	296.3
3-Oct	282	282	284	286	284	285	286	286	283	289	281	282	277	271	274	274	278	219	216	221	159	119	95	211	276.2
4-Oct	204	198	187	113	86	146	96	110	117	104	96	83	79	75	76	71	67	60	65	69	64	50	51	43	79.8
5-Oct	16	359	353	335	317	340	357	317	278	271	268	219	231	225	231	226	178	157	156	195	210	193	183	178	221.1
6-Oct	182	215	235	256	264	262	263	265	271	271	275	263	264	258	258	258	260	258	258	255	240	232	222	214	256.7
7-Oct	89	90	98	81	79	139	131	116	142	161	160	164	169	170	170	167	158	188	203	187	180	106	88	81	148.6
8-Oct	75	259	289	151	98	96	108	76	82	71	73	83	82	79	78	77	78	84	104	222	235	253	219	231	94.7
9-Oct	244	248	246	251	253	256	256	251	256	257	258	256	263	259	260	258	255	256	272	302	336	356	32	53	257.5
10-Oct	258	328	350	350	13	27	71	207	322	342	63	87	69	87	92	87	83	57	19	358	271	283	125	223	58.0
11-Oct	209	211	224	215	221	227	221	204	194	206	102	105	89	89	93	83	76	UO	86	213	214	235	256	279	202.2
12-Oct	310	306	284	288	293	281	290	297	293	301	294	303	306	297	312	272	265	256	228	83	75	81	105	107	301.7
13-Oct	108	116	127	132	129	133	127	128	130	134	153	145	147	142	159	156	158	153	141	158	168	172	169	162	143.3
14-Oct	171	166	118	147	132	113	107	123	134	142	145	162	154	159	162	168	168	169	173	176	176	186	188	207	158.6
15-Oct	227	233	261	277	272	274	277	279	279	260	266	264	271	266	264	254	236	224	94	71	78	113	87	95	259.9
16-Oct	165	245	259	268	288	251	248	231	223	140	94	90	84	91	83	70	69	61	70	64	88	87	77	67	77.8
17-Oct	64	65	66	70	80	98	196	292	296	272	275	270	266	263	263	266	273	284	287	286	285	283	284	284	285.2
18-Oct	283	285	285	286	287	296	284	288	278	280	245	226	223	176	63	40	39	32	33	37	59	63	69	66	320.7
19-Oct	69	61	54	51	37	339	345	356	5	356	3	4	360	9	8	23	19	3	357	353	1	356	352	357	17.8
20-Oct	351	340	340	334	331	325	329	330	337	352	0	8	20	44	46	27	3	15	19	24	24	11	353	354	358.6
21-Oct	354	350	347	348	340	341	334	329	330	326	320	319	322	302	337	299	263	228	232	241	248	246	249	246	300.7
22-Oct	235	233	229	206	193	201	210	211	203	200	201	190	174	183	169	162	162	177	181	195	195	206	235	261	199.4
23-Oct	263	264	281	297	288	288	289	294	299	301	263	236	236	244	262	285	250	145	106	91	105	93	236	255	274.2
24-Oct	267	275	275	266	261	256	255	271	271	270	275	272	272	261	271	304	303	306	301	309	313	294	286	264	276.7
25-Oct	282	301	269	247	263	245	283	290	277	244	237	237	240	223	224	236	271	253	269	301	329	338	337	327	266.6
26-Oct	326	343	12	49	67	73	94	94	103	93	91	81	85	77	80	81	83	85	91	94	96	91	86	87	84.6
27-Oct	83	77	80	82	81	87	98	107	111	103	93	82	93	108	84	79	75	98	82	93	89	78	66	49	87.2
28-Oct	3	308	310	302	306	302	299	301	299	291	294	299	299	298	300	301	312	305	299	308	304	293	279	280	299.5
29-Oct	284	283	287	283	285	292	289	282	281	279	273	265	264	268	271	288	291	306	322	344	314	316	319	327	284.2
30-Oct	331	330	336	336	338	341	341	341	341	341	337	344	19	48	46	27	27	27	357	356	8	8	13	103	0.8
31-Oct	107	110	118	119	114	111	108	107	112	120	119	113	112	110	111	113	115	104	99	115	140	163	183	191	119.1

275.9 278.5 284.3 286.3 289.5 271.8 274.3 272.8 264.1 254.6 247.4 234.5 230.7 212.9 206.7 166.1 96.1 129.5 123.5 163.5 193.1 230.0 220.0 249.7  
 Diurnal Average

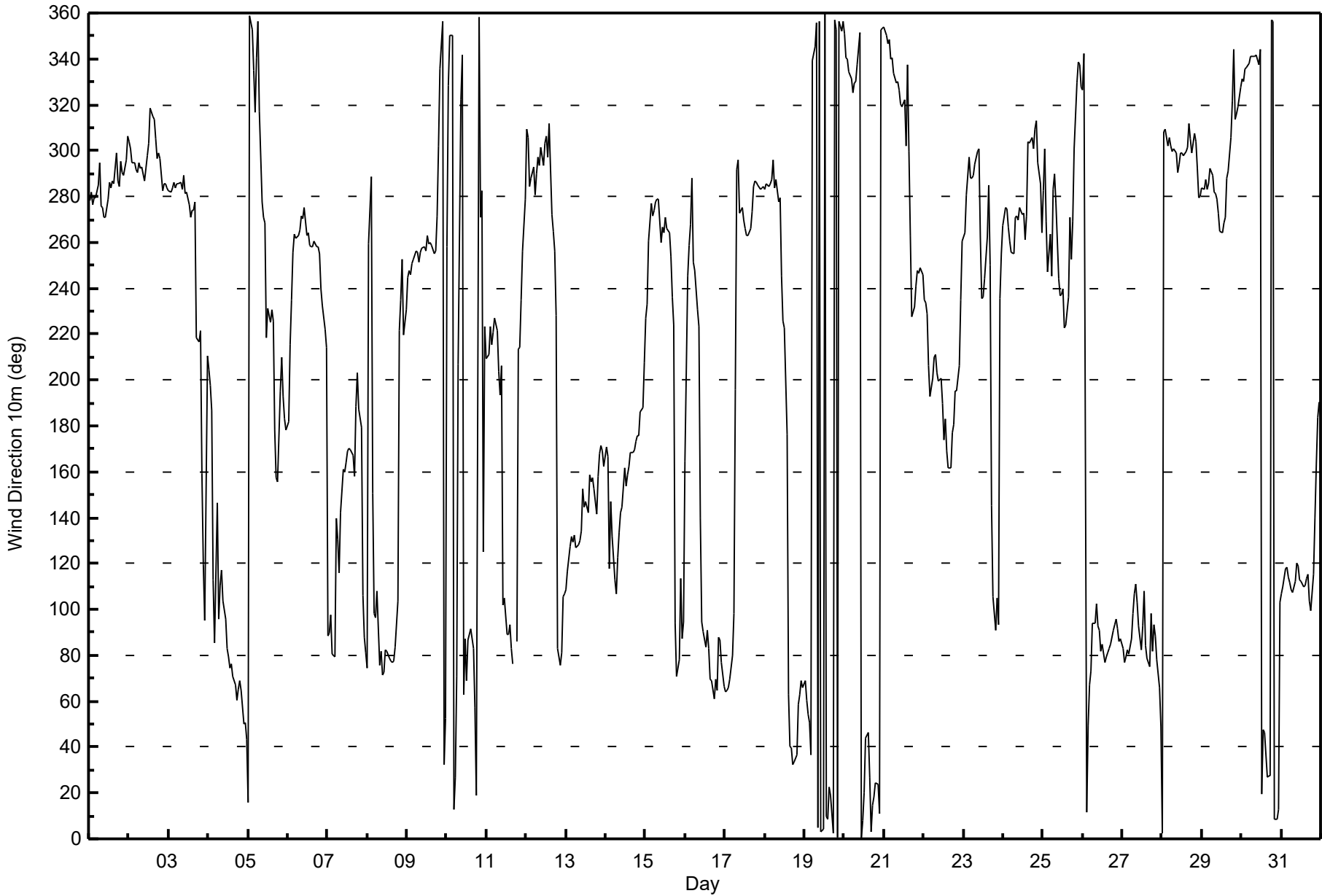
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 10m (WD10) - deg**  
**Fort Chipewyan - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 89 deg on Oct 16 10:00 Minimum Value: 4 deg on Oct 27 12:00 Percentiles: P <sub>1</sub> = 5 P <sub>10</sub> = 7 Q <sub>1</sub> = 10 Median = 15 Q <sub>3</sub> = 20 P <sub>90</sub> = 29 P <sub>99</sub> = 67																	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-Oct	13	14	16	15	15	17	20	16	16	16	16	16	19	17	18	16	18	15	14	15	15	15	17	18	20
2-Oct	18	18	17	17	16	16	17	16	17	16	17	17	21	29	25	25	20	16	18	18	15	15	15	14	29
3-Oct	15	15	14	15	14	15	15	15	16	17	17	18	22	23	19	18	17	36	13	12	52	38	36	18	52
4-Oct	20	17	16	32	10	37	51	9	15	9	12	8	5	8	6	7	8	10	9	7	8	7	7	9	51
5-Oct	20	15	15	19	24	36	16	71	16	19	21	21	24	14	18	15	31	8	10	13	10	16	8	13	71
6-Oct	16	12	15	13	14	15	15	16	15	16	16	16	15	16	16	16	15	20	14	28	13	13	9	18	28
7-Oct	32	11	9	9	31	8	9	8	16	9	9	8	8	8	8	10	8	29	25	35	60	46	8	6	60
8-Oct	67	37	10	87	61	47	48	34	10	12	13	8	6	5	6	6	6	7	22	64	18	17	14	14	87
9-Oct	16	15	15	15	16	16	15	15	16	15	16	17	17	16	15	16	15	13	17	14	17	66	39	59	66
10-Oct	64	64	20	13	12	41	14	79	72	35	33	14	15	10	7	7	8	19	13	37	79	44	46	23	79
11-Oct	14	21	9	10	11	10	10	51	42	16	38	12	24	10	9	9	19	UO	8	41	20	10	14	21	51
12-Oct	17	17	10	14	12	12	13	10	13	16	21	20	21	23	37	40	16	17	67	25	9	13	5	5	67
13-Oct	6	7	9	7	7	6	6	6	7	9	12	9	9	11	11	10	11	10	10	11	11	7	8	9	12
14-Oct	8	8	24	15	14	10	8	9	13	10	11	9	11	9	13	8	13	9	7	8	7	9	9	13	24
15-Oct	14	22	14	10	11	10	14	11	16	21	15	17	16	17	18	16	15	12	47	6	11	27	32	12	47
16-Oct	63	19	12	19	15	23	39	26	29	89	26	9	9	6	7	7	9	8	9	8	18	20	14	8	89
17-Oct	8	8	8	8	12	11	40	12	16	14	14	14	15	14	14	15	15	14	15	14	14	14	14	14	40
18-Oct	13	15	15	14	15	15	15	14	16	17	22	17	15	70	47	24	10	11	11	15	13	9	8	9	70
19-Oct	8	10	10	11	27	19	20	23	23	23	23	26	25	25	24	22	21	24	24	24	21	23	23	23	27
20-Oct	23	20	20	19	23	20	22	28	27	31	35	28	30	37	29	19	21	18	20	17	16	19	21	22	37
21-Oct	22	23	22	23	22	22	20	23	25	27	28	31	30	28	32	22	20	16	13	14	14	14	15	14	32
22-Oct	15	14	12	13	10	9	8	8	9	10	12	12	12	9	12	9	9	8	8	11	9	11	17	15	17
23-Oct	14	14	16	17	16	15	16	16	18	23	22	15	16	17	13	35	42	53	20	18	12	25	19	13	53
24-Oct	14	12	13	12	14	13	14	13	14	14	14	15	17	16	17	17	15	15	15	18	18	33	21	33	33
25-Oct	13	9	15	19	32	18	21	11	20	20	22	26	23	20	14	16	15	12	14	17	13	12	10	29	32
26-Oct	51	34	29	35	17	11	9	11	15	15	6	7	6	5	5	5	5	5	5	5	6	4	5	4	51
27-Oct	6	5	6	5	5	6	7	5	5	6	6	4	13	9	6	4	6	20	7	14	7	6	8	10	20
28-Oct	28	17	20	18	19	17	16	15	16	15	16	16	16	15	17	18	19	18	16	20	19	19	14	14	28
29-Oct	14	15	15	15	15	16	15	14	15	15	16	15	15	17	19	15	17	21	26	24	38	16	11	13	38
30-Oct	16	15	15	14	14	15	15	16	19	23	23	27	31	22	39	27	17	20	23	22	22	33	24	25	39
31-Oct	7	6	7	7	6	5	6	7	7	7	8	7	9	8	8	6	5	5	5	16	10	17	10	9	17
67 64 29 87 61 47 51 79 72 89 38 31 31 70 47 40 42 53 67 64 79 66 46 59																									
Diurnal Maximum																									
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS09 BARGE LANDING OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
OCTOBER 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	14.6	0	1.8	0
TRS(ppb) Average	708	36	36	100	2.8	0	1.3	0
THC(ppm) Average	710	34	34	100	3.3	-	2.4	-
NMHC(ppm) Average	710	34	34	100	0.429	-	0.07	-
CH4(ppm) Average	710	34	34	100	3.1	-	2.4	-
NO2 (ppb) Average	709	35	35	100	28.8	0	18.1	-
NO (ppb) Average	709	35	35	100	124.5	-	31.6	-
NOX (ppb) Average	709	35	35	100	153.3	-	49.7	-
PM2.5(ug/m3) Average	742	2	2	100	48.7	0	20.9	0
Temperature (C) Average	744	0	0	100	19.8	-	12.2	-
Relative Humidity (%) Average	744	0	0	100	99.8	-	90.9	-
Barometric Pressure (inHg) Average	744	0	0	100	29.3	-	29.2	-
Wind Speed 10 m (km/h) Average	696	2	48	93.82	16	-	10	-
Wind Direction 10 m (deg) Average	696	2	48	93.82	-	-	-	-
Wind Speed 20 m (km/h) Average	741	0	3	99.6	25	-	15	-
Wind Direction 20 m (deg) Average	741	0	3	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
OCTOBER 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	0.41	1.3	-	0	0	0	0.1	0.2	0.7	14.6	
TRS(ppb) Average	708	0.43	0.4	-	0.1	0.2	0.2	0.3	0.4	1	2.8	
THC(ppm) Average	710	2.06	0.2	-	1.9	1.9	1.9	2	2.1	2.2	3.3	
NMHC(ppm) Average	710	0.009	0.045	-	0	0	0	0	0	0	0.429	
CH4(ppm) Average	710	2.05	0.2	-	1.9	1.9	1.9	2	2.1	2.2	3.1	
NO2 (ppb) Average	709	7.89	6.8	-	0	0.2	1	6.9	12.7	18.2	28.8	
NO (ppb) Average	709	6.33	13.8	-	0	0	0	0.6	6	19.3	124.5	
NOX (ppb) Average	709	14.22	18.7	-	0	0.2	1.3	8.2	19.3	36.3	153.3	
PM2.5(ug/m3) Average	742	7.22	7.5	-	0.4	1.4	2.6	4.8	8.9	15.4	48.7	
Temperature (C) Average	744	3.31	5.7	-	-9.4	-3.6	-0.7	2.1	6.7	12	19.8	
Relative Humidity (%) Average	744	73.36	16.5	-	30.3	49.1	62.9	74.8	85.8	94.3	99.8	
Barometric Pressure (inHg) Average	744	28.85	0.2	-	28.3	28.6	28.7	28.9	29	29.1	29.3	
Wind Speed 10 m (km/h) Average	696	5.8	3	-	0	2	4	5	8	10	16	
Wind Direction 10 m (deg) Average	696	240.3	-	-	-	-	-	-	-	-	-	
Wind Speed 20 m (km/h) Average	741	10.3	5	-	0	5	7	10	13	16	25	
Wind Direction 20 m (deg) Average	741	246.8	-	-	-	-	-	-	-	-	-	

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction 10m	05 Oct 2024 06:00	05 Oct 2024 07:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	08 Oct 2024 14:00	08 Oct 2024 19:00	6	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	26 Oct 2024 05:00	26 Oct 2024 05:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Oct 2024 00:00	30 Oct 2024 10:00	35	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	30 Oct 2024 11:00	30 Oct 2024 11:00	1	Maintenance - De-ice sensors
Wind Speed, Wind Direction 10m	31 Oct 2024 23:00	31 Oct 2024 23:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	27 Oct 2024 23:00	28 Oct 2024 01:00	3	Flat line in sensor output signal - Sensor frozen





Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Barge Landing - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 14.6 ppb on Oct 14 12:00	Maximum Daily Average: 1.8 ppb on Oct 7		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 1 02:00	Minimum Daily Average: 0.0 ppb on Oct 17		Hours of Missing Data:	35
Maximum Diurnal Average: 1.5 ppb at hour 12	Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Calibration:	35
Monthly Average: 0.41 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.7 P <sub>99</sub> = 5.8		Percent Operational Time:	100.0

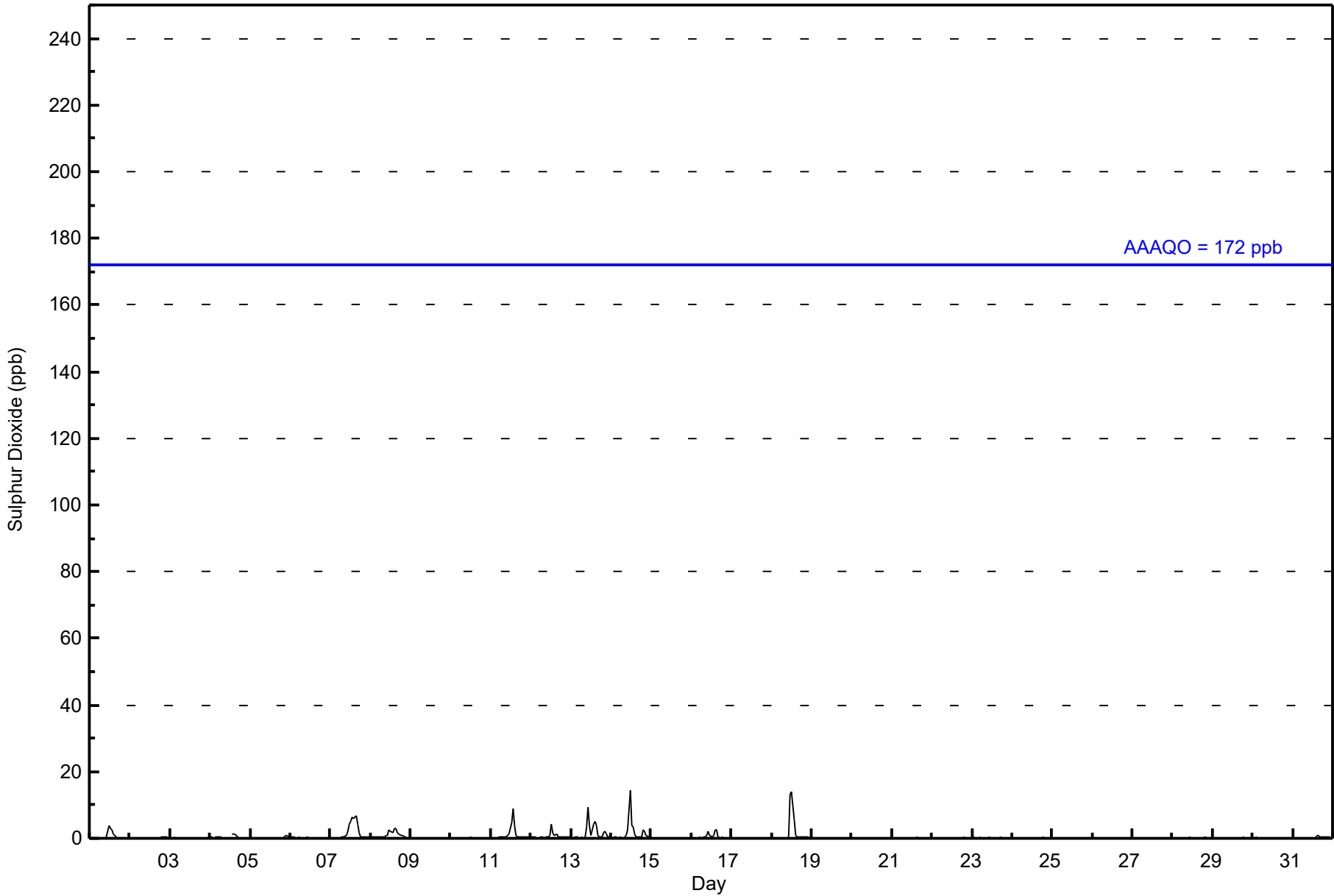
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.5	3.7	2.8	2.5	1.1	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.7																							
2-Oct	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	0.6	0.4	0.5	0.2	0.1	0.1	0.6																							
3-Oct	0.1	Z	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3																							
4-Oct	0.2	0.4	Z	0.2	0.3	0.3	0.4	0.2	0.0	C	C	C	C	1.2	1.2	1.1	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2																							
5-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.3	0.8	1.0	0.6	0.1	1.0																							
6-Oct	0.3	0.2	0.3	0.2	Z	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	0.0	0.1	0.1	0.1	0.3																							
7-Oct	0.1	0.1	0.1	0.1	0.0	Z	0.5	0.3	0.6	0.9	2.1	4.4	5.0	6.5	5.9	6.7	4.1	1.6	0.6	0.5	0.4	0.4	0.3	0.3	1.8	6.7																							
8-Oct	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.9	2.4	2.2	1.5	3.0	2.9	1.8	1.3	1.0	0.8	0.2	0.3	0.2	0.1	1.0	3.0																							
9-Oct	0.1	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1																							
10-Oct	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	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.3																							
11-Oct	0.0	0.1	0.1	Z	0.2	0.2	0.3	0.4	0.4	0.6	0.9	1.1	4.6	8.9	4.0	0.9	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.2	1.1	8.9																							
12-Oct	0.3	0.3	0.2	0.3	Z	0.3	0.2	0.3	0.1	0.2	0.6	0.7	4.2	1.7	0.9	1.1	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.6	4.2																							
13-Oct	0.3	0.2	0.3	0.3	0.2	Z	0.3	0.2	0.4	3.3	9.2	3.6	0.8	4.2	5.1	3.7	0.7	0.4	0.5	1.9	2.0	1.2	0.5	0.4	1.7	9.2																							
14-Oct	Z	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.5	0.8	2.7	14.6	3.8	3.6	1.1	0.6	0.4	0.3	0.2	2.7	2.3	0.9	0.3	0.2	1.6	14.6																							
15-Oct	0.2	Z	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
16-Oct	0.0	0.0	Z	0.0	0.0	0.3	0.2	0.2	0.5	0.8	2.3	0.8	0.6	0.9	2.5	2.7	0.4	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.6	2.7																							
17-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1																							
18-Oct	0.1	0.2	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.3	13.2	14.2	5.7	0.7	0.4	0.3	0.3	0.3	0.6	0.3	0.3	0.4	0.2	1.7	14.2																							
19-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.2																							
20-Oct	Z	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	0.0	0.0	0.1																							
21-Oct	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.2																							
22-Oct	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.0	0.2	0.1	0.1	0.2																							
23-Oct	0.2	0.2	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.3																							
24-Oct	0.2	0.2	0.1	0.2	Z	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2																							
25-Oct	0.0	0.2	0.1	0.0	0.0	Z	0.1	0.2	0.1	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	0.0	0.0	0.1	0.2																							
26-Oct	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	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	0.2																							
27-Oct	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	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.2																							
28-Oct	0.2	0.0	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.3																							
29-Oct	0.1	0.2	0.1	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.2																							
30-Oct	0.1	0.1	0.3	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3																							
31-Oct	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.1	0.8	0.7	0.3	0.3	0.4	0.5	0.6	0.3	0.2	0.2	0.2	0.8																							
																								0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7	1.5	1.3	1.2	0.9	0.7	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.1	Diurnal Average		
																								0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	3.3	9.2	14.6	14.2	8.9	5.9	6.7	4.1	1.6	1.0	2.7	2.3	1.2	1.0	0.6	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - October 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	706	99.58	99.58
11 - 20	3	0.42	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 - October 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	57	32	22	18	9	17	41	75	57	77	58	61	49	58	31	41	703
11 - 20	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
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	32	22	18	9	17	41	76	59	77	58	61	49	58	31	41	706

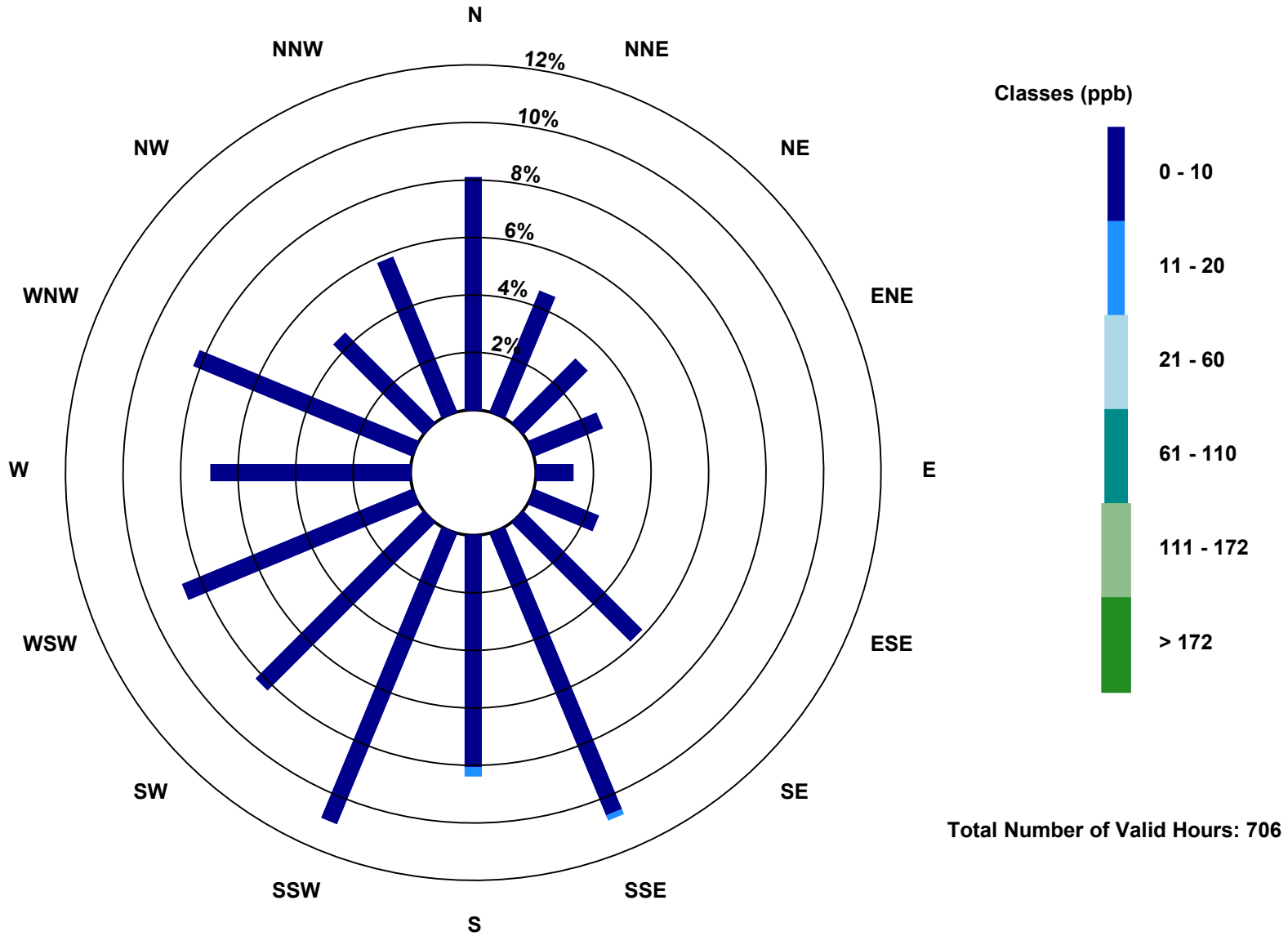
Total Number of Valid Hours: 706

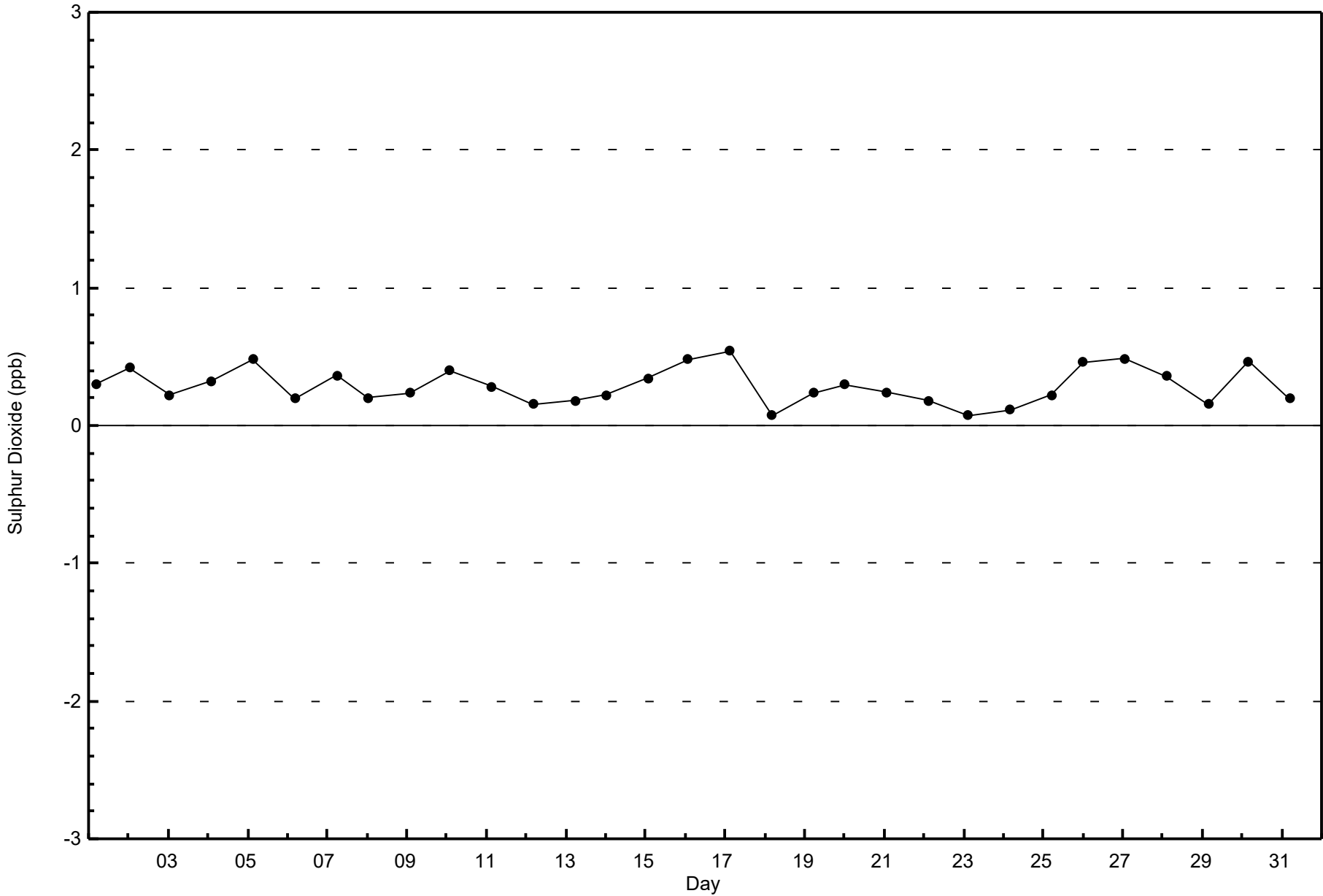
Total Number of Hours: 744

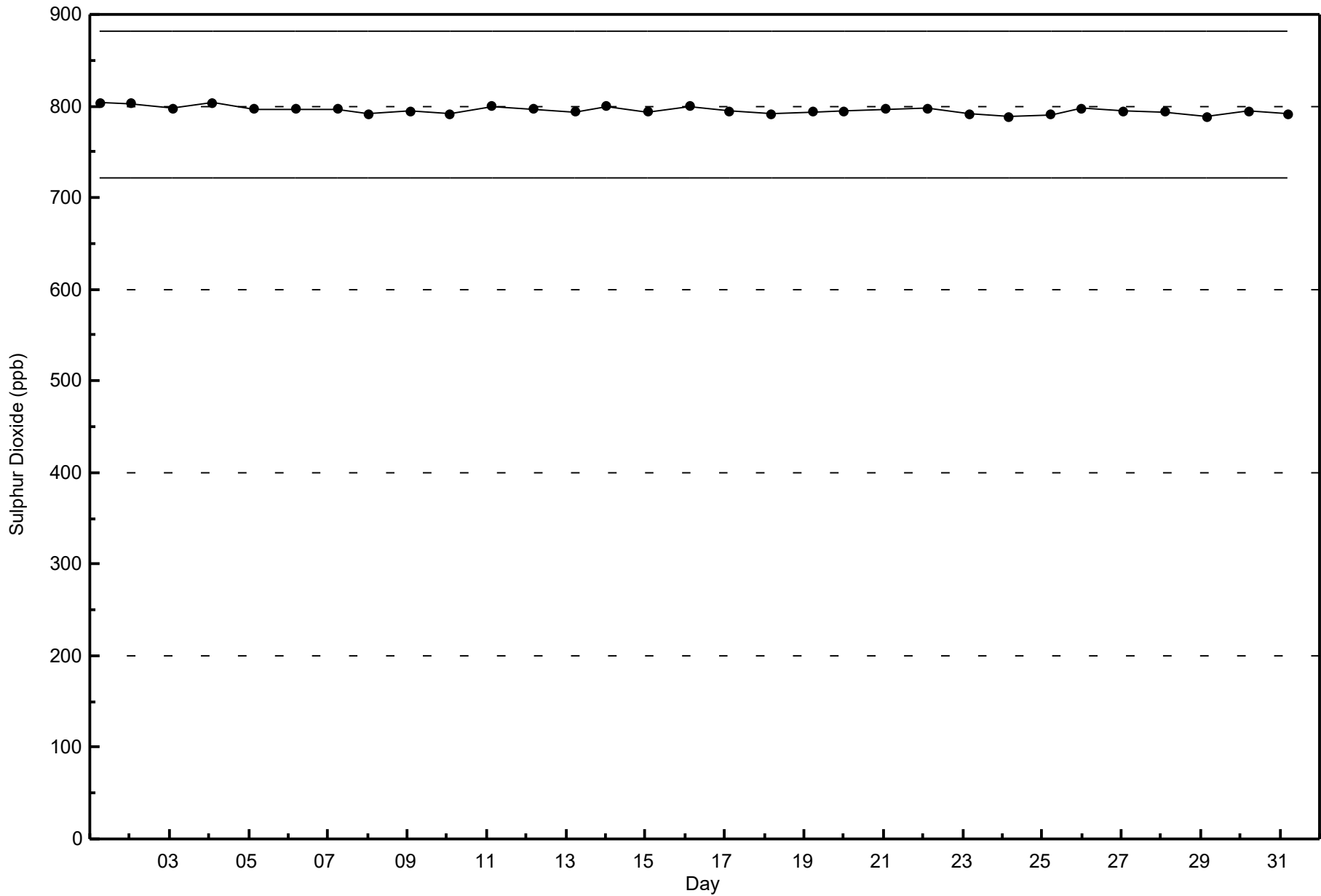


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

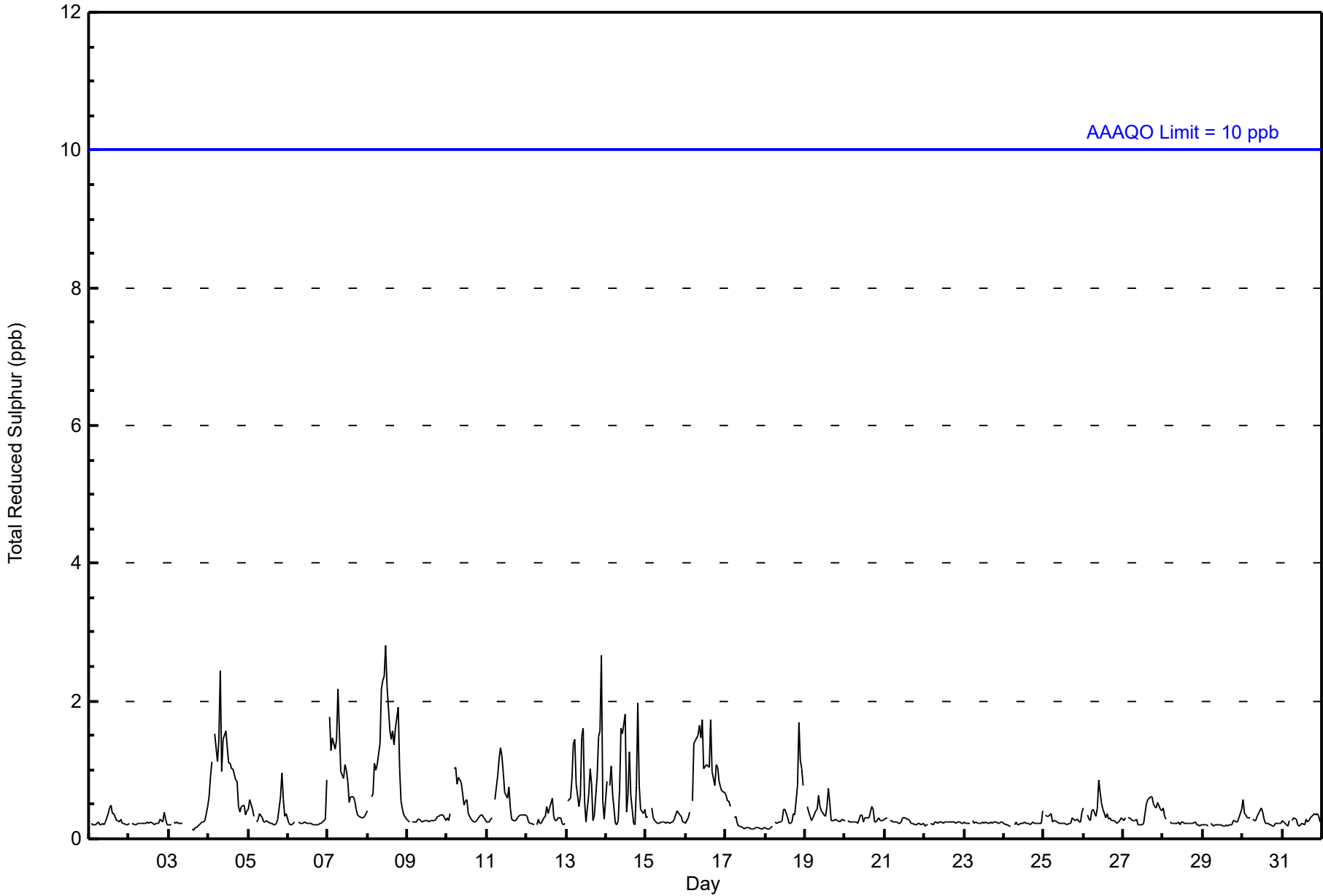














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Barge Landing - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	706	99.72	99.72
3 - 4	2	0.28	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  
Barge Landing - October 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	55	33	22	18	8	16	40	73	65	75	58	62	48	54	30	46	703
3 - 4	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	55	33	22	18	8	16	40	74	65	75	59	62	48	54	30	46	705

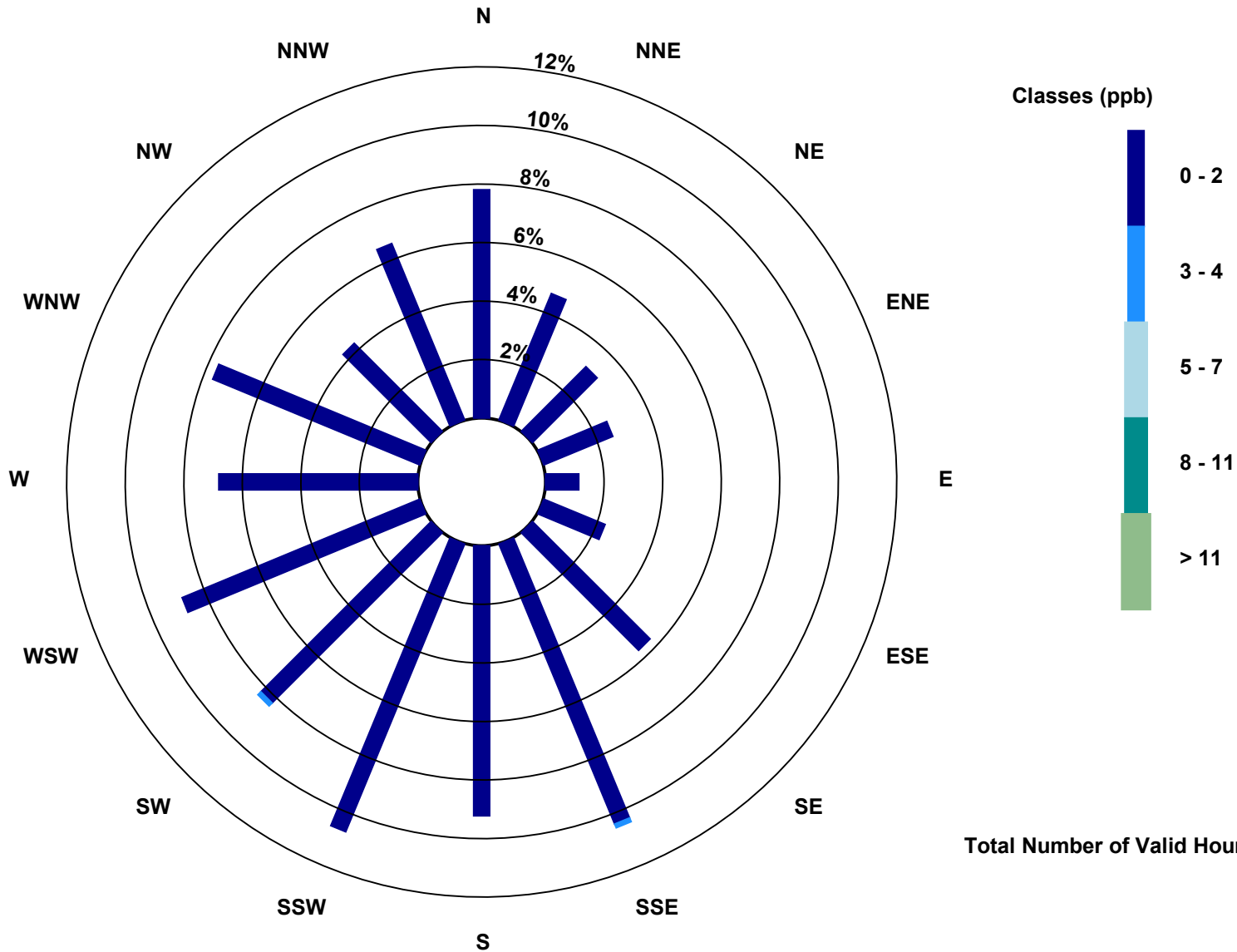
Total Number of Valid Hours: 705

Total Number of Hours: 744

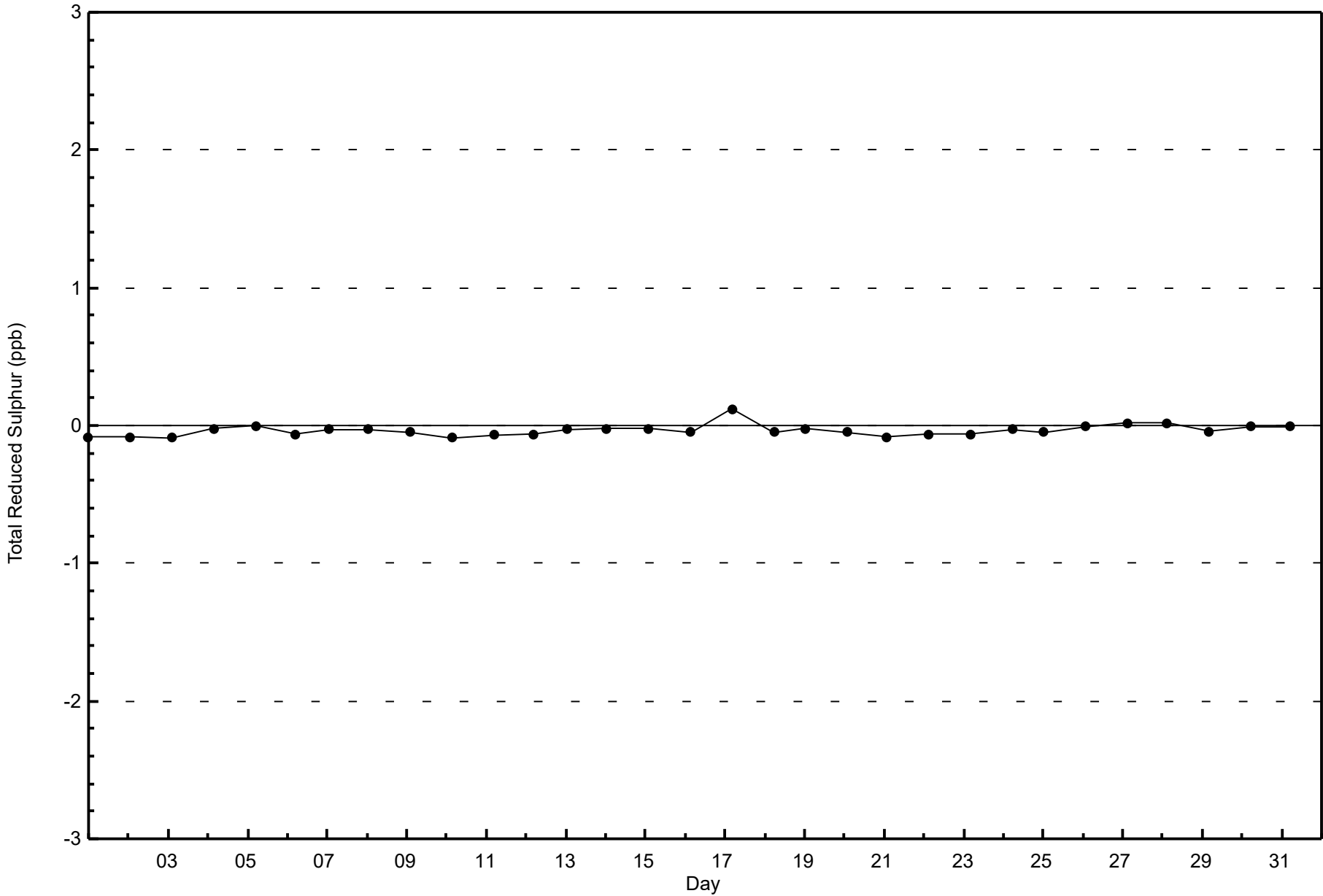


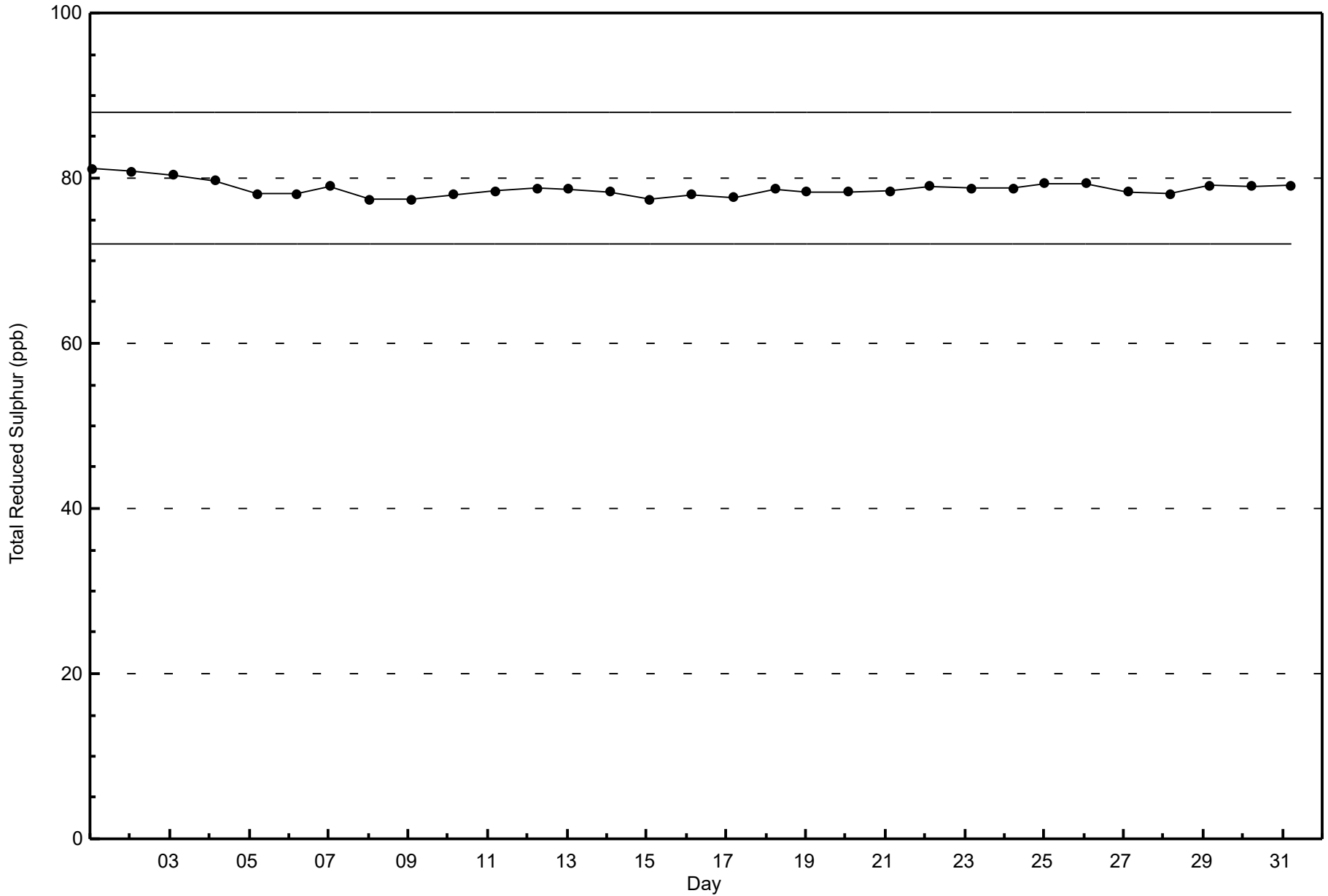
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Barge Landing



Total Number of Valid Hours: 705



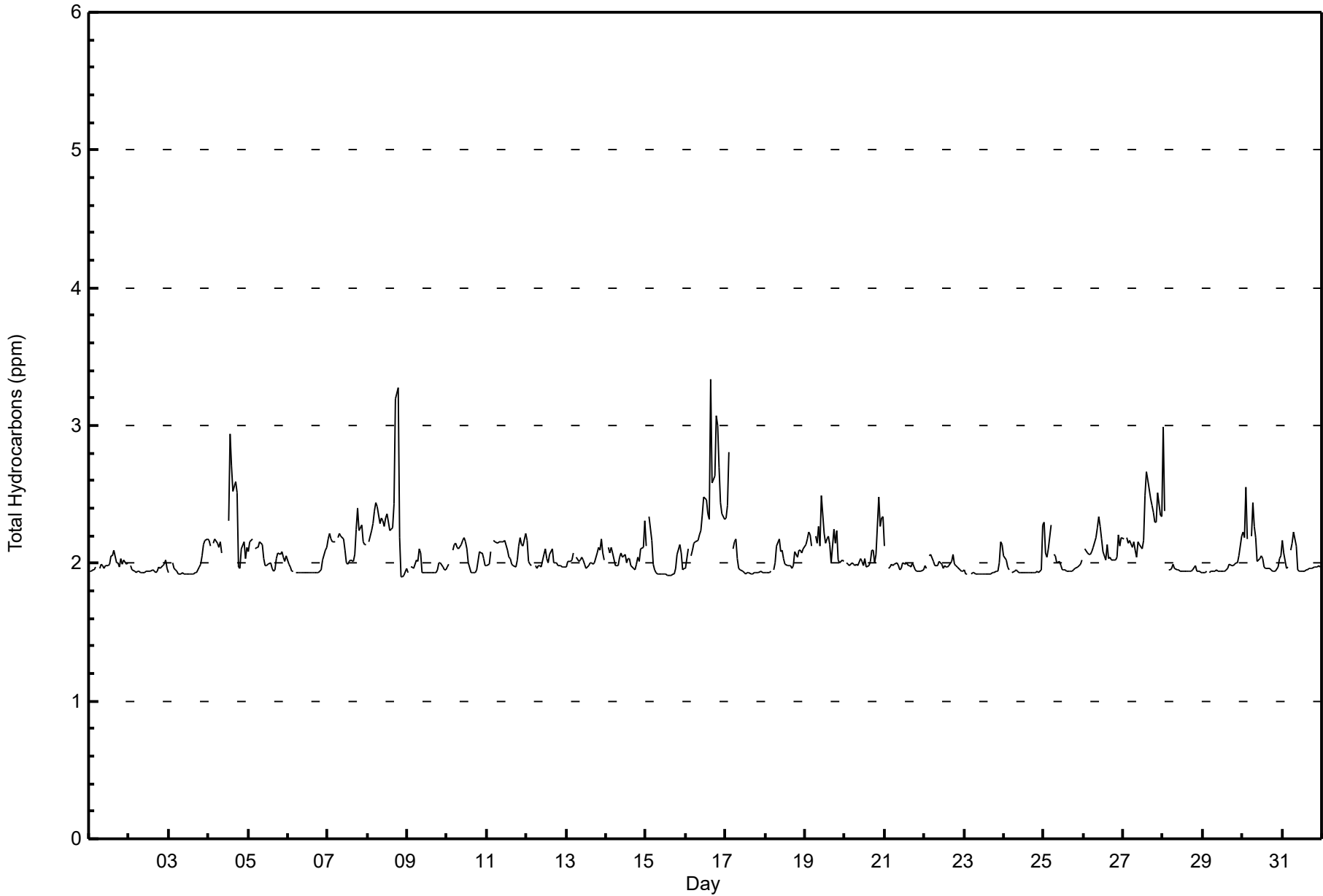






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - October 2024**







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

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	445	62.68	62.68
2.1 - 3.0	261	36.76	99.44
3.1 - 10.0	4	0.56	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  
Barge Landing - October 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	23	18	13	9	7	9	24	28	22	54	51	57	45	56	19	10	445
2.1 - 3.0	34	14	8	9	2	8	17	47	37	23	7	4	4	2	12	30	258
3.1 - 10.0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	57	32	22	18	9	17	41	76	59	77	58	61	49	58	31	42	707

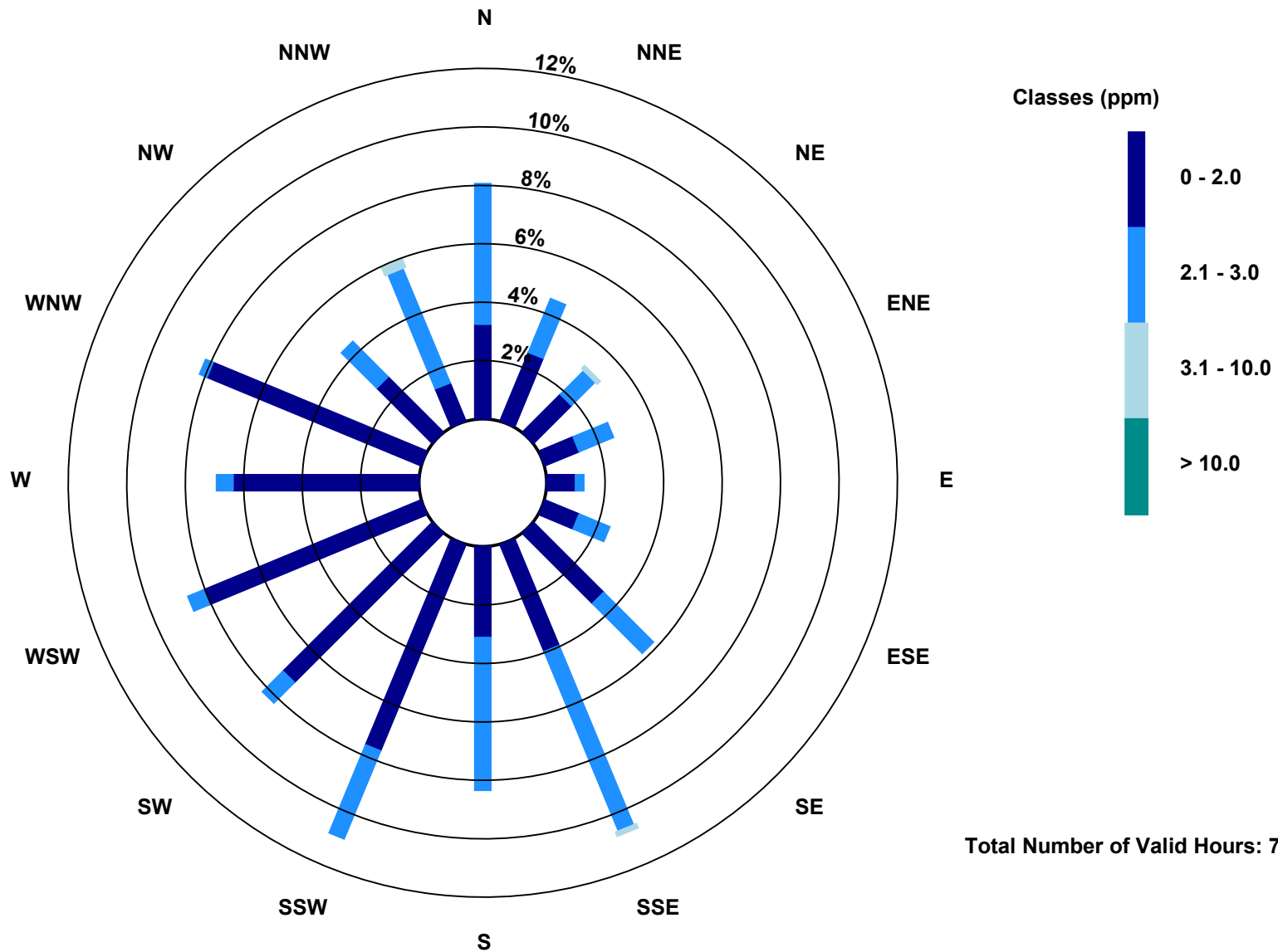
Total Number of Valid Hours: 707

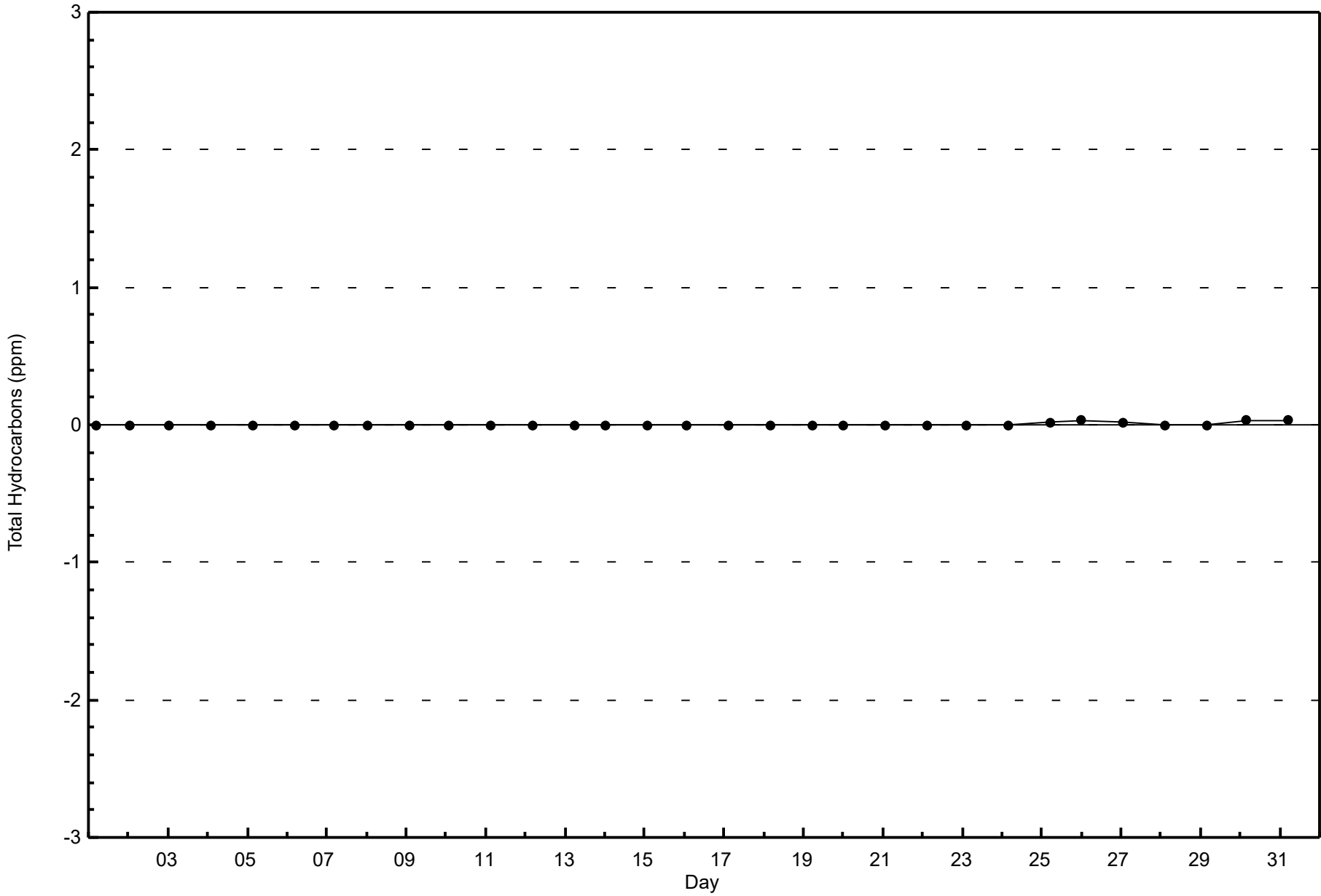
Total Number of Hours: 744

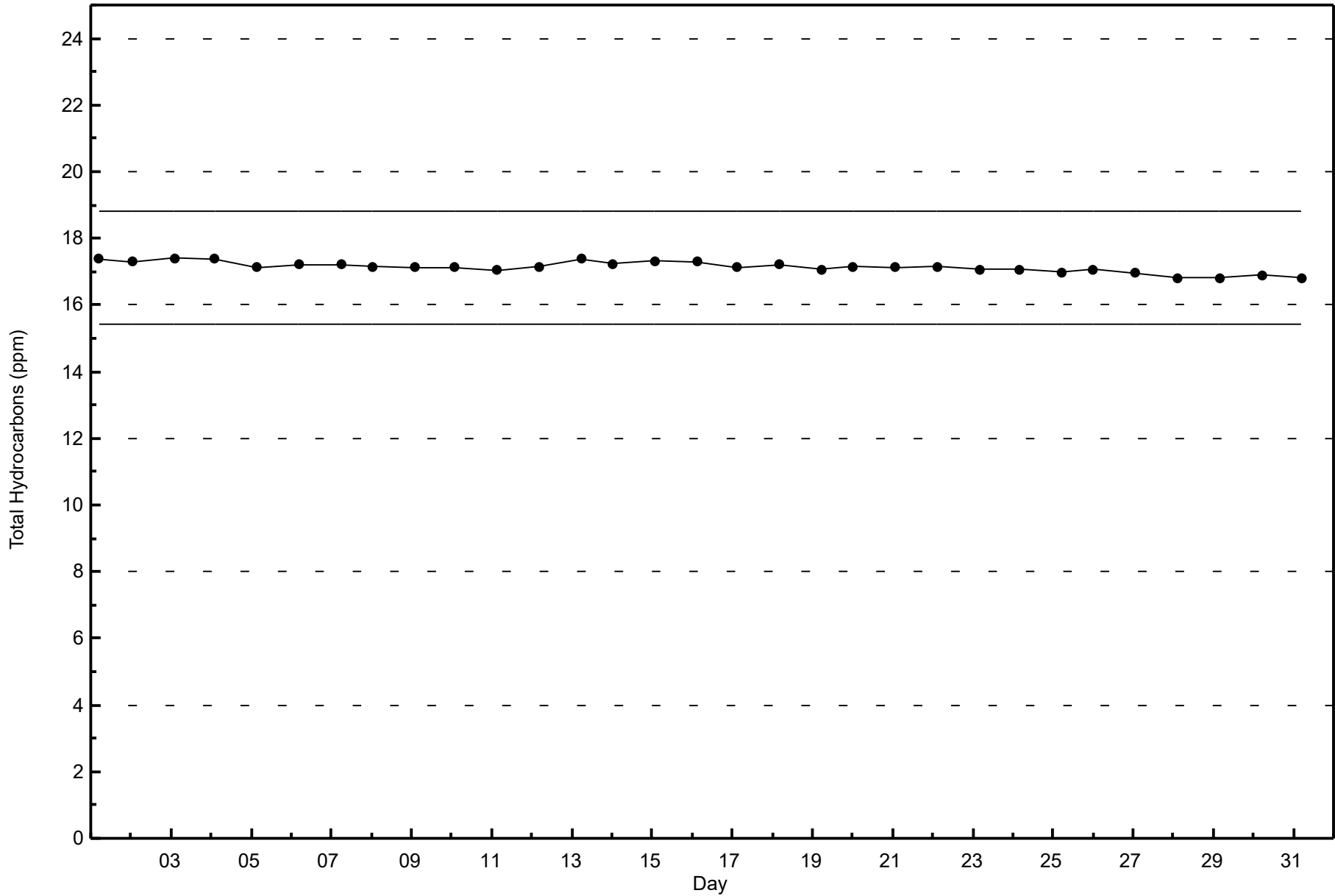


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

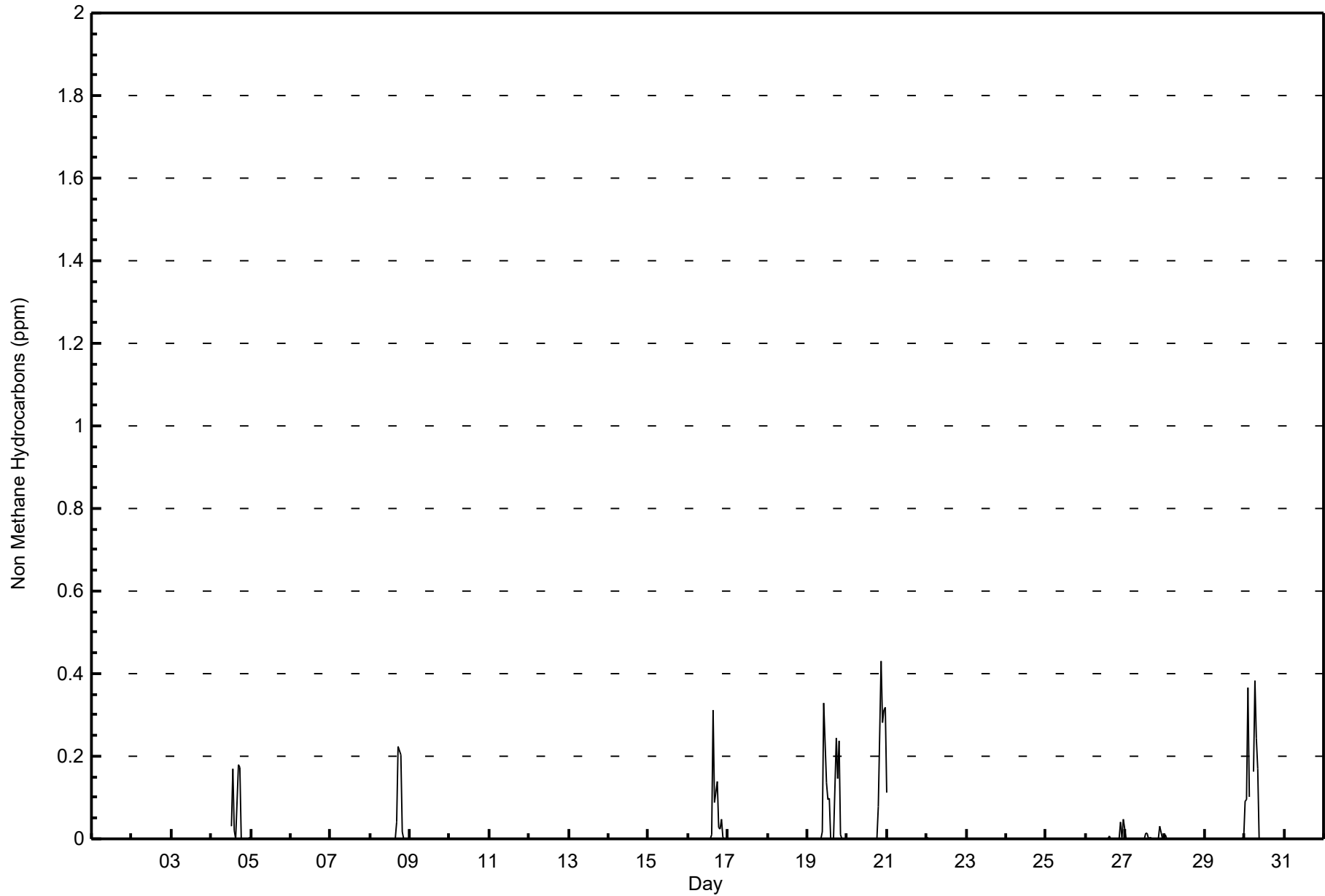
Total Hydrocarbons (THC) - ppm  
Barge Landing













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	663	93.38	93.38
0.006 - 0.05	18	2.54	95.92
0.06 - 0.1	11	1.55	97.46
> 0.1	18	2.54	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744





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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Barge Landing - October 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	35	26	19	16	9	17	41	75	59	77	58	61	48	58	29	34	662
0.006 - 0.05	4	2	1	2	0	0	0	0	0	0	0	0	1	0	2	4	16
0.06 - 0.1	6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	11
> 0.1	12	2	1	0	0	0	0	1	0	0	0	0	0	0	0	2	18
<b>Totals</b>	57	32	22	18	9	17	41	76	59	77	58	61	49	58	31	42	707

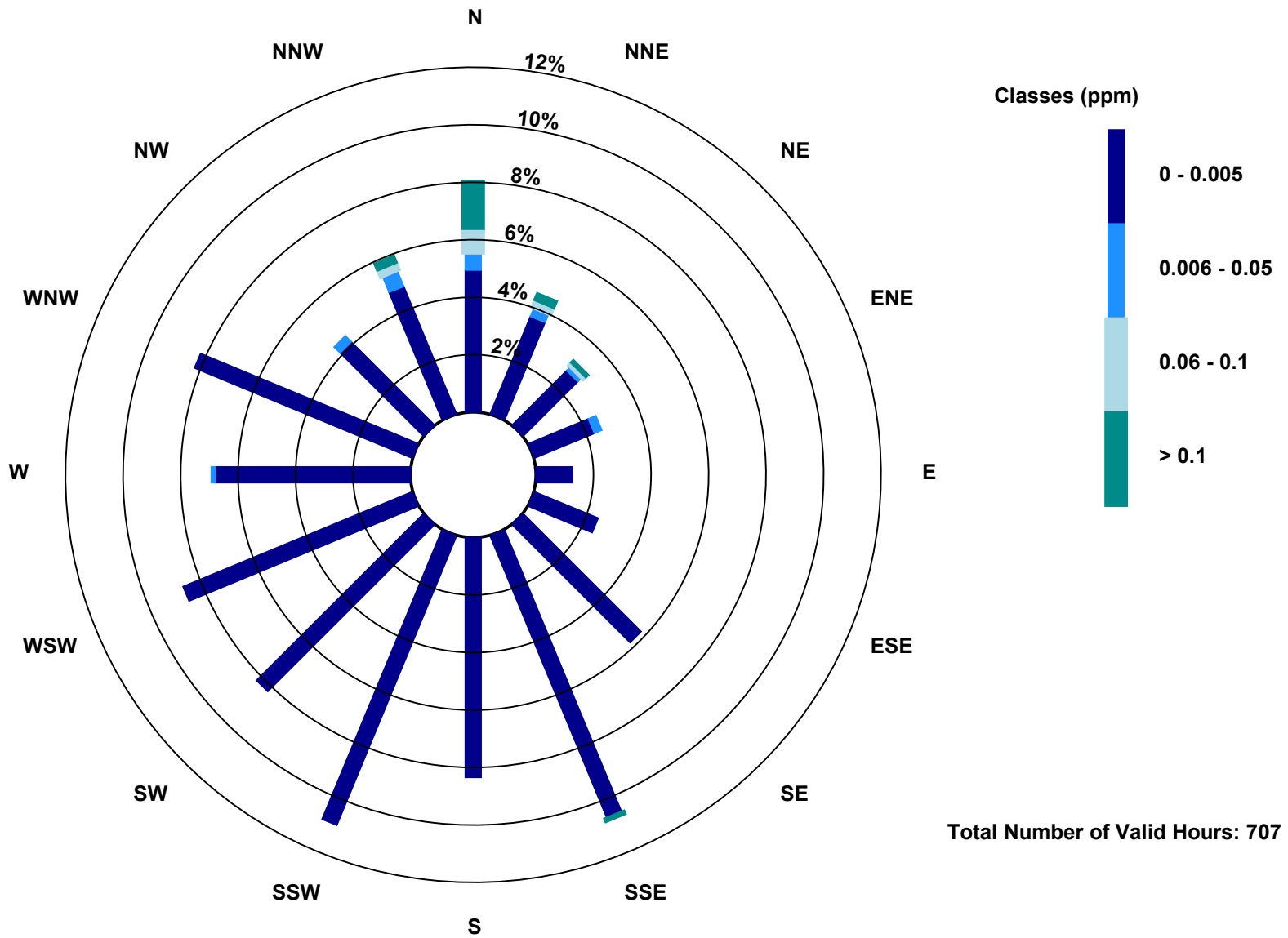
Total Number of Valid Hours: 707

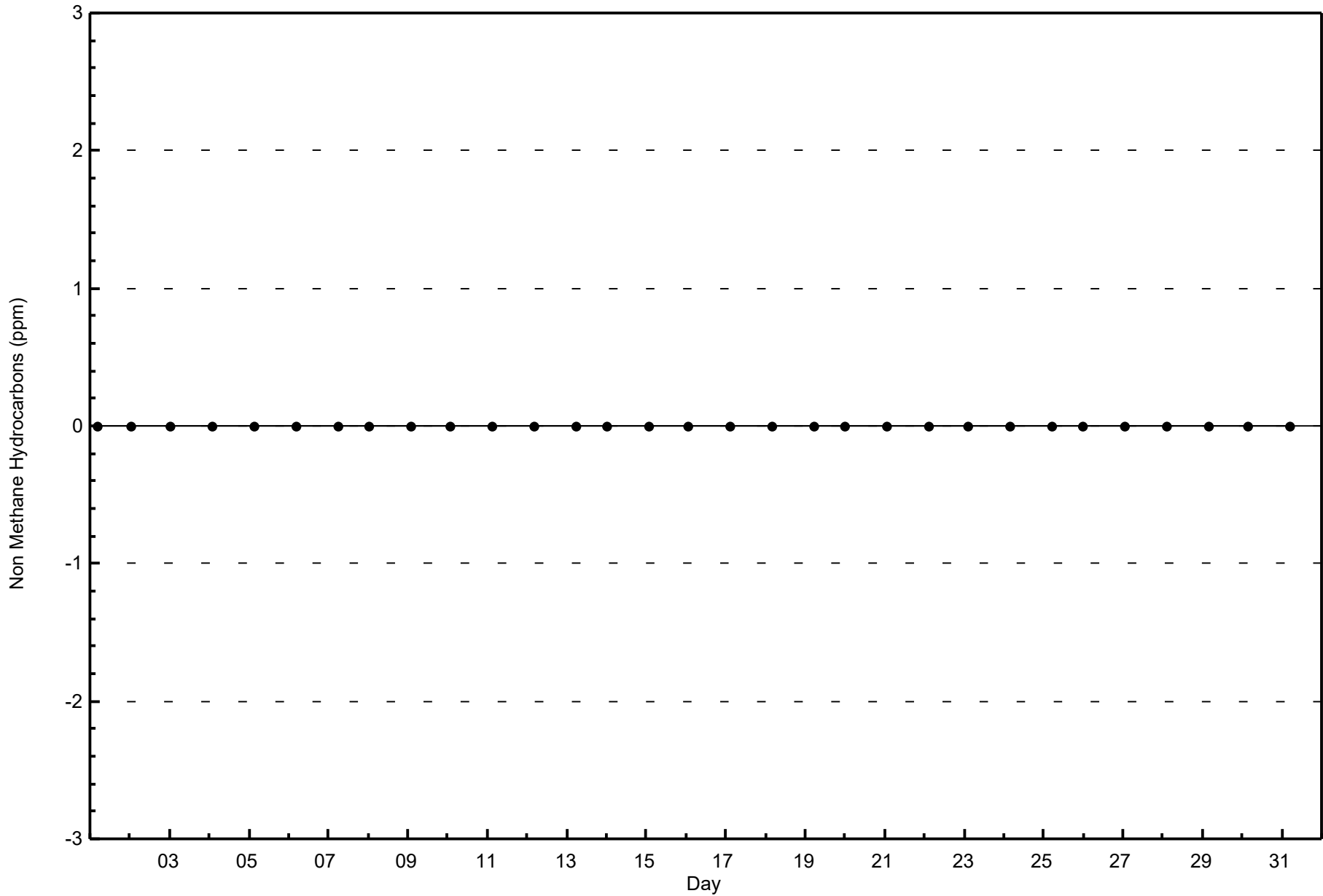
Total Number of Hours: 744

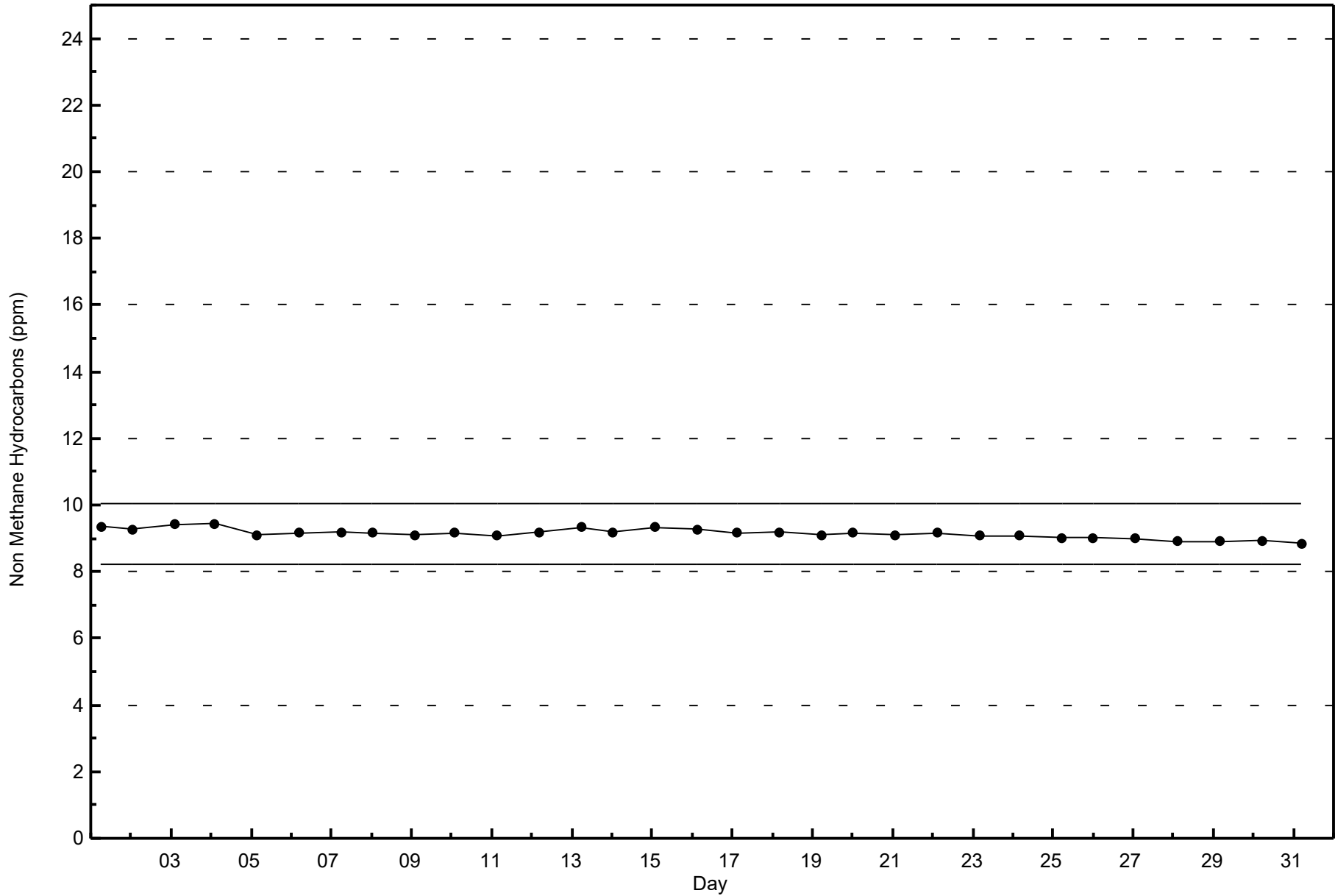


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing





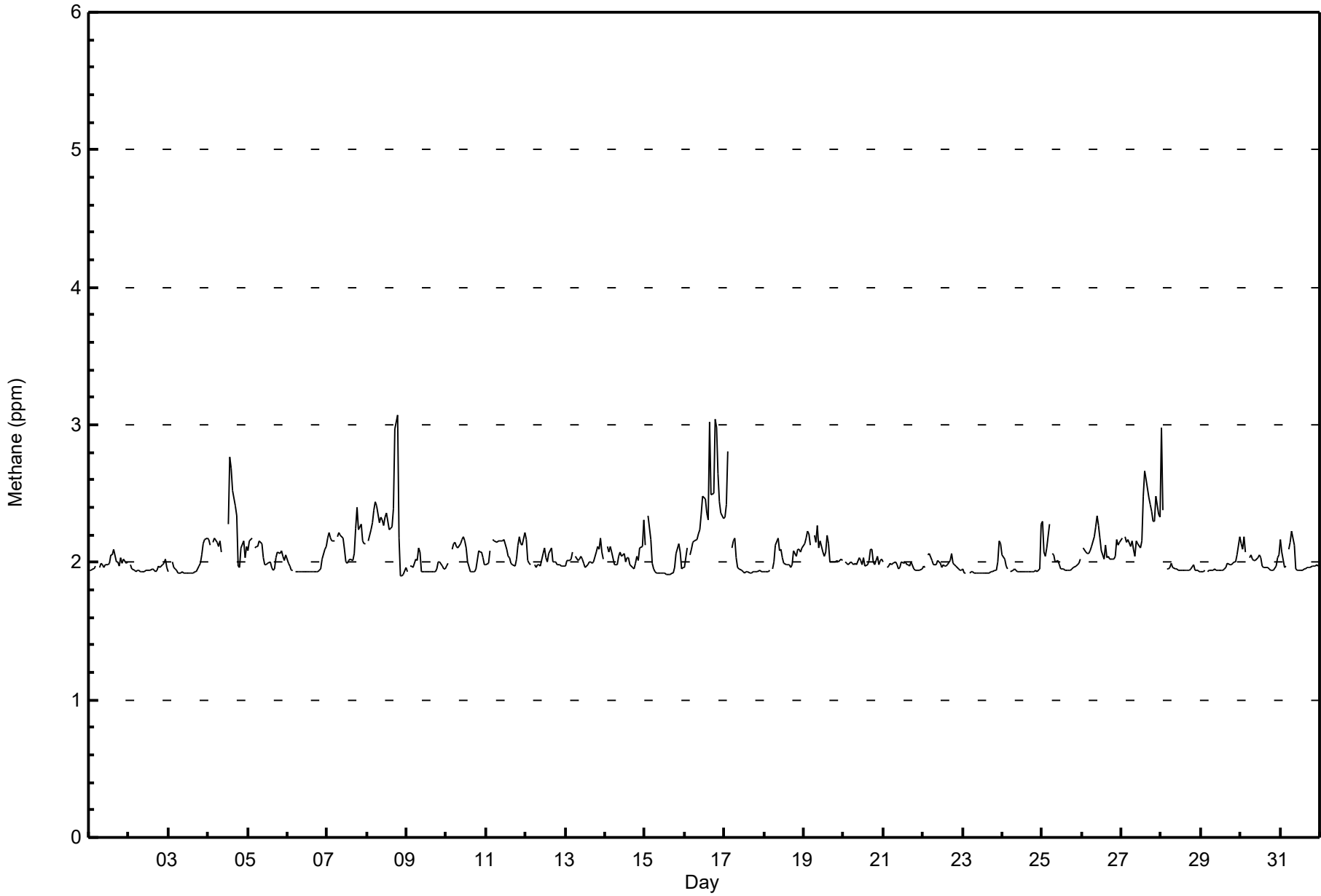






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - October 2024**





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

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	458	64.51	64.51
2.1 - 3.0	251	35.35	99.86
3.1 - 10.0	1	0.14	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**  
**Barge Landing - October 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	34	20	13	9	7	9	24	28	22	54	51	57	45	56	19	10	458
2.1 - 3.0	23	12	9	9	2	8	17	47	37	23	7	4	4	2	12	32	248
3.1 - 10.0	0	0	0	0	0	0	0	1	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>	57	32	22	18	9	17	41	76	59	77	58	61	49	58	31	42	707

Total Number of Valid Hours: 707

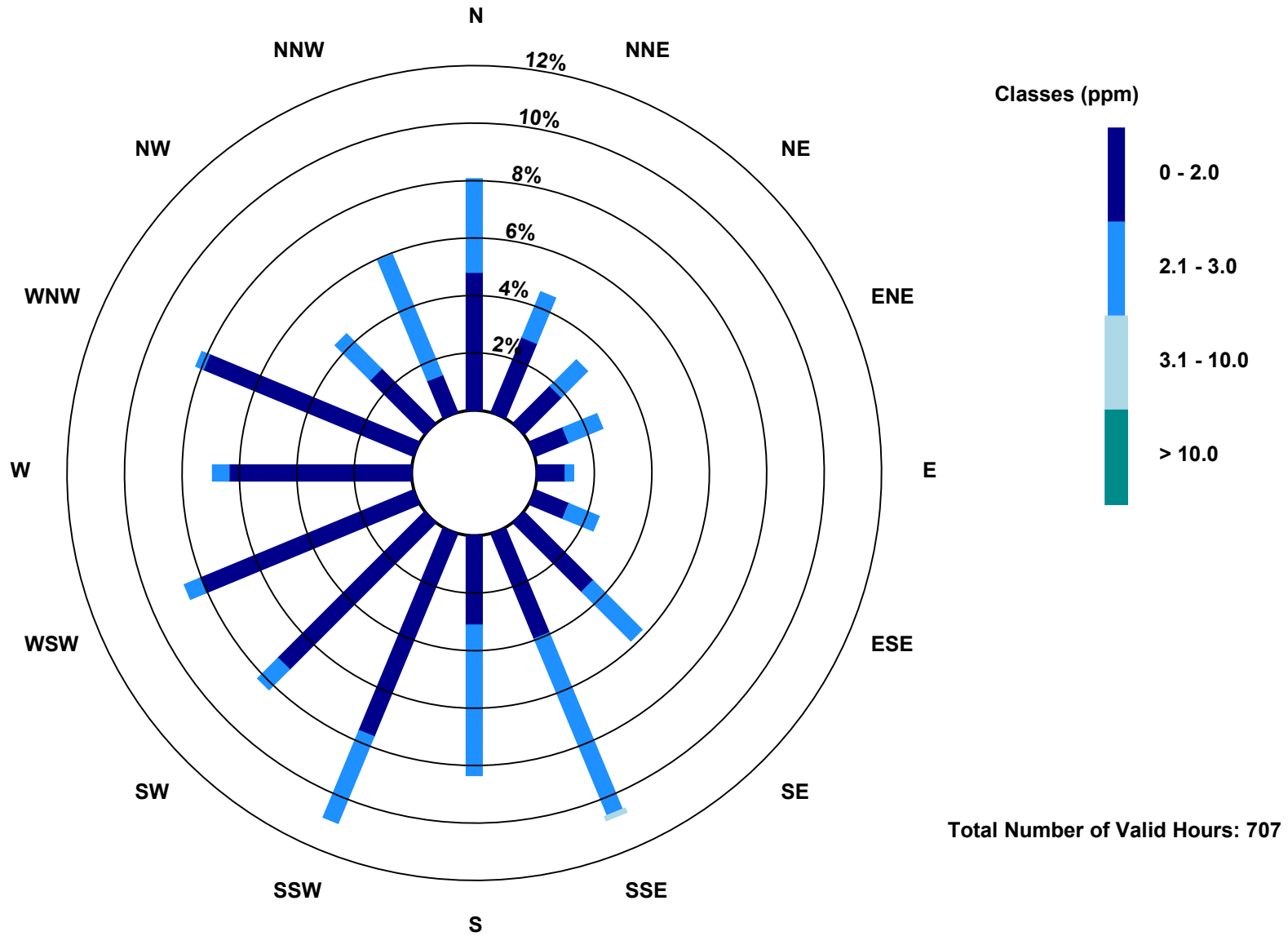
Total Number of Hours: 744

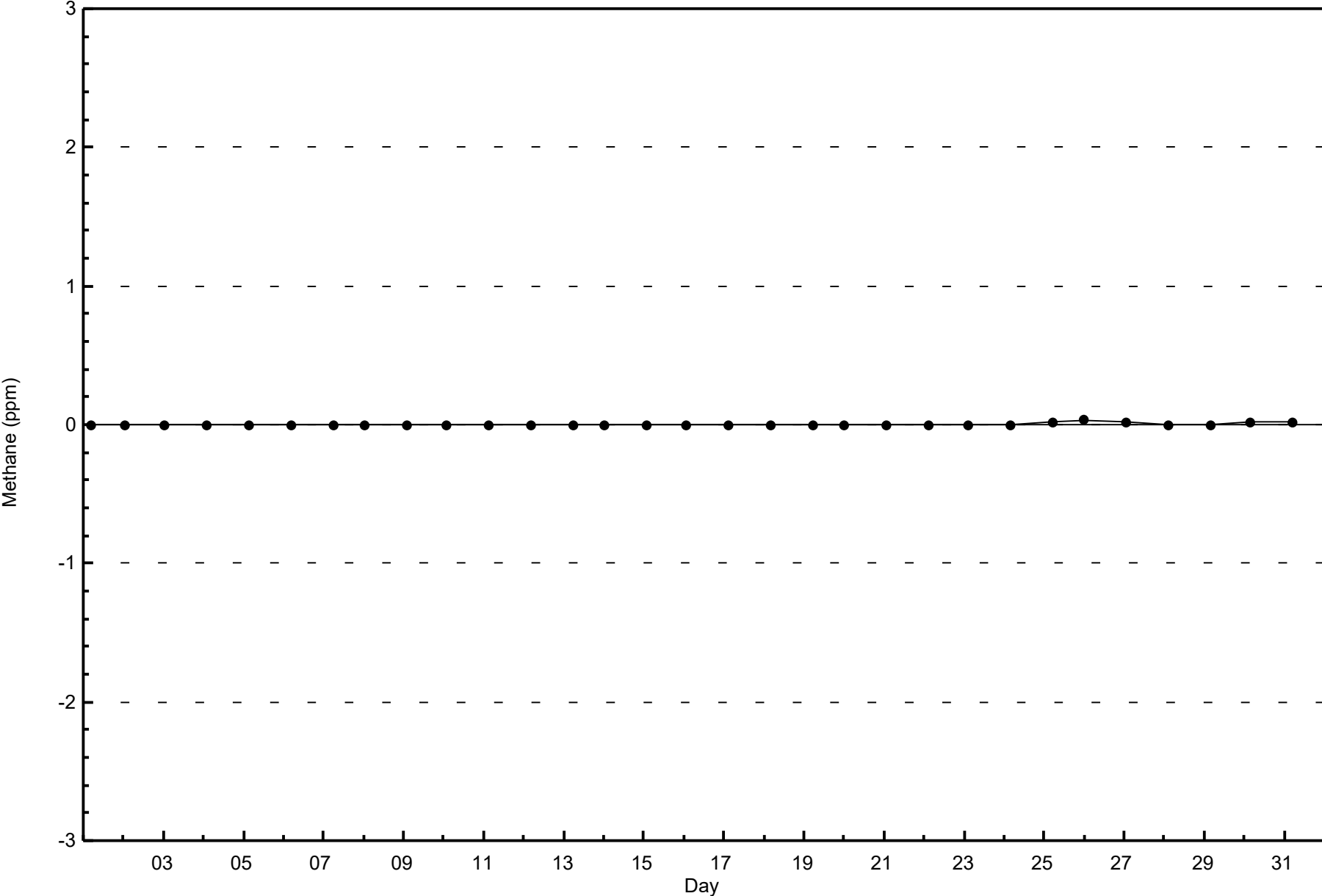




Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

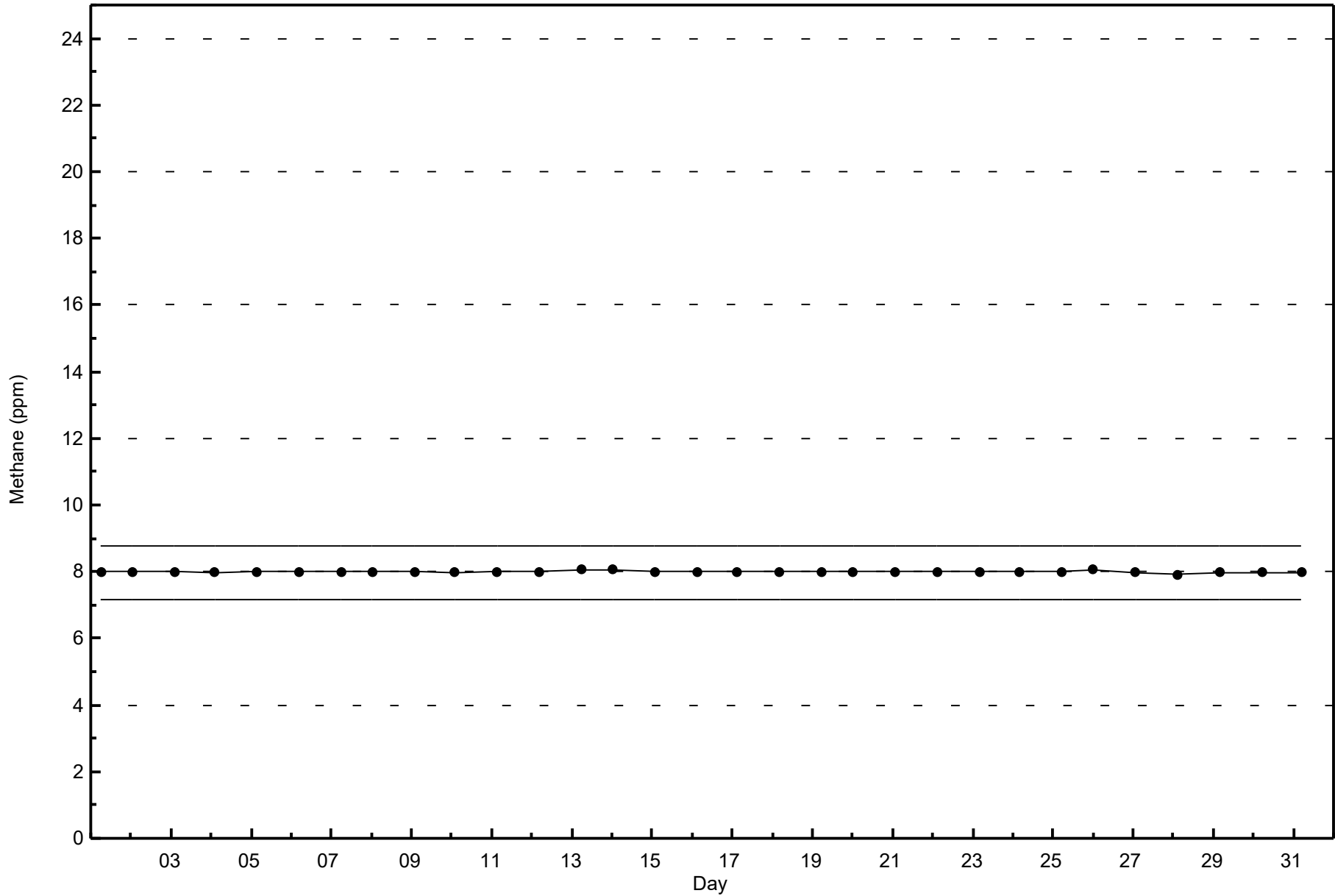






**Wood Buffalo Environmental Association**  
**Span Responses**

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - October 2024**





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

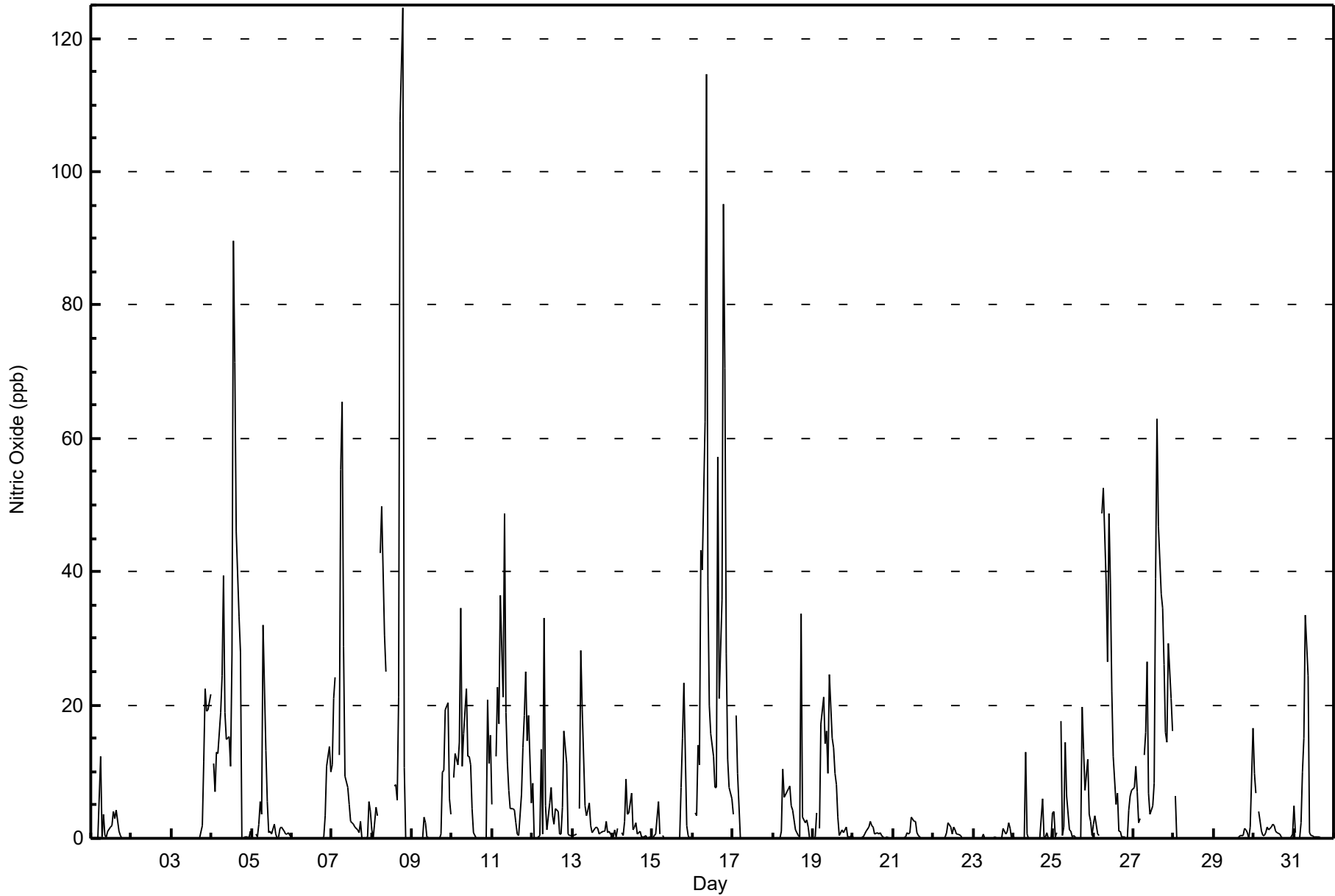
Barge Landing - October 2024

Maximum Value: 124.5 ppb on Oct 8 19:00																				Maximum Daily Average: 31.6 ppb on Oct 16					Hours in Service: 744				
Minimum Value: 0.0 ppb on Oct 1 01:00																				Minimum Daily Average: 0.0 ppb on Oct 2					Hours of Data: 709				
Maximum Diurnal Average: 14.3 ppb at hour 8																				Minimum Diurnal Average: 2.3 ppb at hour 1					Hours of Missing Data: 35				
Monthly Average: 6.33 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.6 Q <sub>3</sub> = 6.0 P <sub>90</sub> = 19.3 P <sub>99</sub> = 65.4					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-Oct	0.0	0.0	0.0	Z	0.0	12.4	0.3	3.5	0.3	0.3	1.0	1.7	1.9	4.0	2.9	4.3	1.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	1.5	12.4			
2-Oct	0.0	0.0	0.0	0.0	Z	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	0.0	0.0	0.1	0.1		
3-Oct	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	1.9	11.4	22.6	19.0	19.3	21.7	4.2	22.6			
4-Oct	Z	11.3	7.1	12.8	12.8	18.9	24.4	39.3	18.8	14.8	15.2	10.8	27.4	89.7	71.3	46.0	33.3	28.1	0.1	0.0	0.2	0.1	0.1	1.0	21.0	89.7			
5-Oct	0.2	Z	0.7	0.3	2.0	5.6	3.5	32.0	13.1	5.6	0.8	1.1	0.7	2.1	0.6	0.1	0.1	1.4	1.7	1.1	0.6	0.5	0.8	0.4	3.3	32.0			
6-Oct	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	0.1	0.0	0.1	0.0	0.0	0.0	0.3	3.3	10.9	13.8	9.9	1.7	13.8			
7-Oct	11.0	20.9	24.1	Z	12.5	55.3	65.6	28.8	9.3	7.6	5.1	2.6	2.3	2.0	1.7	1.2	0.9	2.6	0.1	0.0	0.0	0.2	5.4	4.0	11.4	65.6			
8-Oct	1.2	0.0	4.6	3.3	Z	42.9	49.8	30.5	24.9	C	C	C	C	7.9	8.0	5.7	21.2	107.6	124.5	10.6	0.0	0.0	0.0	0.0	23.3	124.5			
9-Oct	0.0	0.0	0.0	0.0	0.1	Z	0.1	3.1	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6	9.9	10.3	19.3	20.3	5.9	3.6	3.3	20.3				
10-Oct	Z	9.0	12.7	11.0	14.5	34.5	10.9	15.6	22.4	12.4	12.4	11.1	4.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	11.2	15.6	9.5	34.5			
11-Oct	5.1	Z	12.4	22.6	17.2	36.3	21.3	48.8	18.8	11.5	7.1	4.5	4.4	4.2	2.4	0.7	0.5	6.6	13.5	18.4	25.0	14.6	18.5	5.2	13.9	48.8			
12-Oct	8.3	0.1	Z	0.0	0.4	13.5	0.6	33.1	4.9	1.2	5.3	7.5	3.4	2.1	4.5	4.0	0.7	0.6	4.7	16.0	11.2	0.7	0.4	0.4	5.4	33.1			
13-Oct	0.4	0.4	0.6	Z	4.4	28.2	19.3	4.8	3.3	4.3	5.3	1.8	0.8	1.4	1.7	1.4	0.6	0.9	1.0	1.1	2.6	0.8	1.0	0.6	3.8	28.2			
14-Oct	0.2	1.4	0.3	1.6	Z	0.8	0.4	2.6	8.9	3.6	3.9	6.9	1.4	1.7	2.4	0.7	1.2	0.3	0.2	0.3	0.4	0.0	0.1	0.0	1.7	8.9			
15-Oct	0.0	0.4	0.6	5.4	0.7	Z	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	7.6	15.1	23.3	1.8	0.5	0.0	0.2	2.4	23.3			
16-Oct	Z	3.9	3.4	14.0	11.0	43.2	40.3	62.5	114.7	38.0	20.0	15.8	12.4	7.6	7.7	57.3	20.9	35.8	95.2	70.6	27.7	12.0	7.6	5.9	31.6	114.7			
17-Oct	3.6	Z	18.5	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	18.5			
18-Oct	0.0	0.0	Z	0.0	0.0	1.0	10.5	6.2	6.9	7.4	7.8	4.9	4.3	1.3	0.9	0.3	0.2	33.6	3.2	2.3	2.7	1.7	0.0	0.0	4.1	33.6			
19-Oct	0.0	0.1	3.9	Z	1.4	17.2	21.2	14.3	16.1	9.8	24.5	15.0	13.6	9.7	8.0	3.1	0.4	1.4	0.8	1.2	1.8	0.2	0.2	0.6	7.2	24.5			
20-Oct	0.1	0.0	0.0	0.0	Z	0.1	0.2	0.6	1.1	1.7	2.5	1.8	1.8	0.7	0.8	0.6	0.8	0.4	0.1	0.1	0.2	0.0	0.0	0.0	0.6	2.5			
21-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.8	0.6	0.9	3.3	2.5	2.5	0.7	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.3			
22-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.8	2.2	1.8	0.6	1.8	1.3	0.7	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.2			
23-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	1.4	0.7	1.0	2.2	1.6	0.1	0.4	2.2			
24-Oct	0.1	0.1	Z	0.0	0.0	0.0	0.1	12.9	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.2	0.3	0.9	0.0	0.0	3.8	1.1	12.9			
25-Oct	3.9	0.3	0.9	Z	17.6	0.3	1.7	14.3	6.3	1.4	1.0	0.2	0.5	0.3	0.0	0.0	0.0	19.7	13.4	7.2	12.0	3.6	2.5	0.5	4.7	19.7			
26-Oct	2.1	3.3	0.5	0.3	Z	48.7	52.5	38.4	26.4	48.7	38.5	22.0	12.4	5.2	6.8	1.1	1.0	0.2	0.2	0.1	0.0	4.3	6.4	7.3	14.2	52.5			
27-Oct	7.7	10.9	7.0	2.3	2.9	Z	12.4	16.0	26.6	6.7	3.6	4.9	8.3	38.9	62.9	46.8	36.7	34.6	26.1	16.0	14.4	29.2	21.0	16.1	19.6	62.9			
28-Oct	Z	6.4	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	0.0	0.0	0.0	0.0	0.0	0.0	0.3	6.4			
29-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.5	1.6	1.2	0.8	0.1	1.7	16.6	1.0	16.6			
30-Oct	9.8	6.8	Z	3.9	1.0	0.5	0.5	0.8	1.6	1.2	1.8	2.1	1.9	1.0	0.7	0.7	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.7	1.5	9.8			
31-Oct	4.9	0.9	Z	0.0	2.3	10.0	15.1	33.6	24.3	0.9	0.4	0.4	0.3	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	33.6			
2.3 2.9 3.9 3.4 3.9 14.2 11.3 14.3 11.4 6.0 5.3 4.0 3.6 6.0 6.0 5.7 3.9 9.3 10.2 6.2 4.8 4.6 3.8 3.7																								Diurnal Average					
11.0 20.9 24.1 22.6 17.6 55.3 65.6 62.5 114.7 48.7 38.5 22.0 27.4 89.7 71.3 57.3 36.7 107.6 124.5 70.6 27.7 29.2 21.0 21.7																								Diurnal Maximum					
Z - zerospan C - Calibration																													



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

**Nitric Oxide (NO) - ppb**  
**Barge Landing - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Barge Landing - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	643	90.69	90.69
21 - 40	45	6.35	97.04
41 - 80	16	2.26	99.29
81 - 159	5	0.71	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Barge Landing - October 2024**

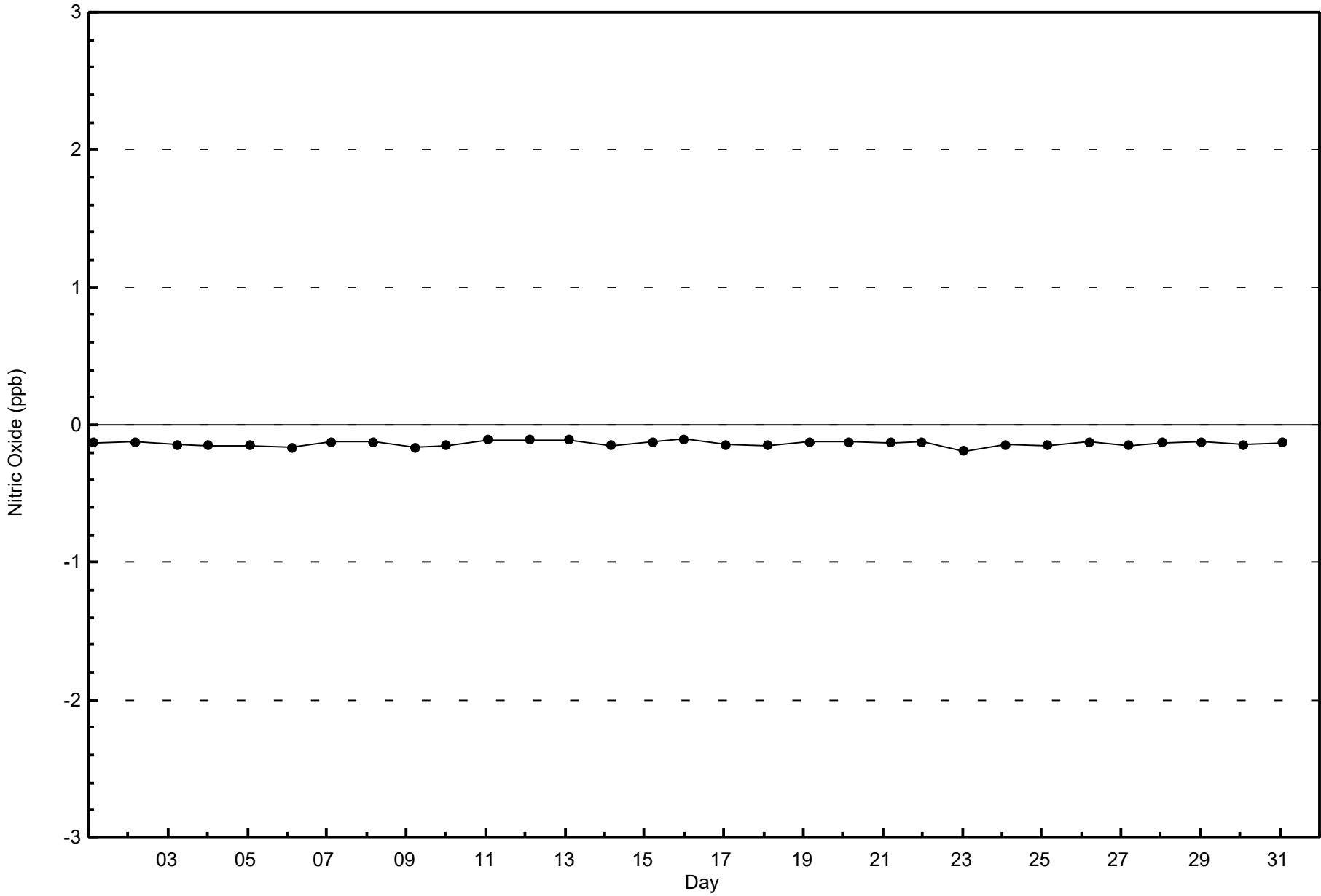
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	50	31	20	17	9	15	31	65	54	70	59	62	47	57	29	26	642
21 - 40	4	2	1	1	0	2	8	5	7	2	0	1	0	0	2	9	44
11 - 80	2	0	1	0	0	0	0	4	2	1	0	0	0	0	0	6	16
81 - 159	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3	5
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	56	33	22	18	9	17	39	75	64	73	59	63	47	57	31	44	707

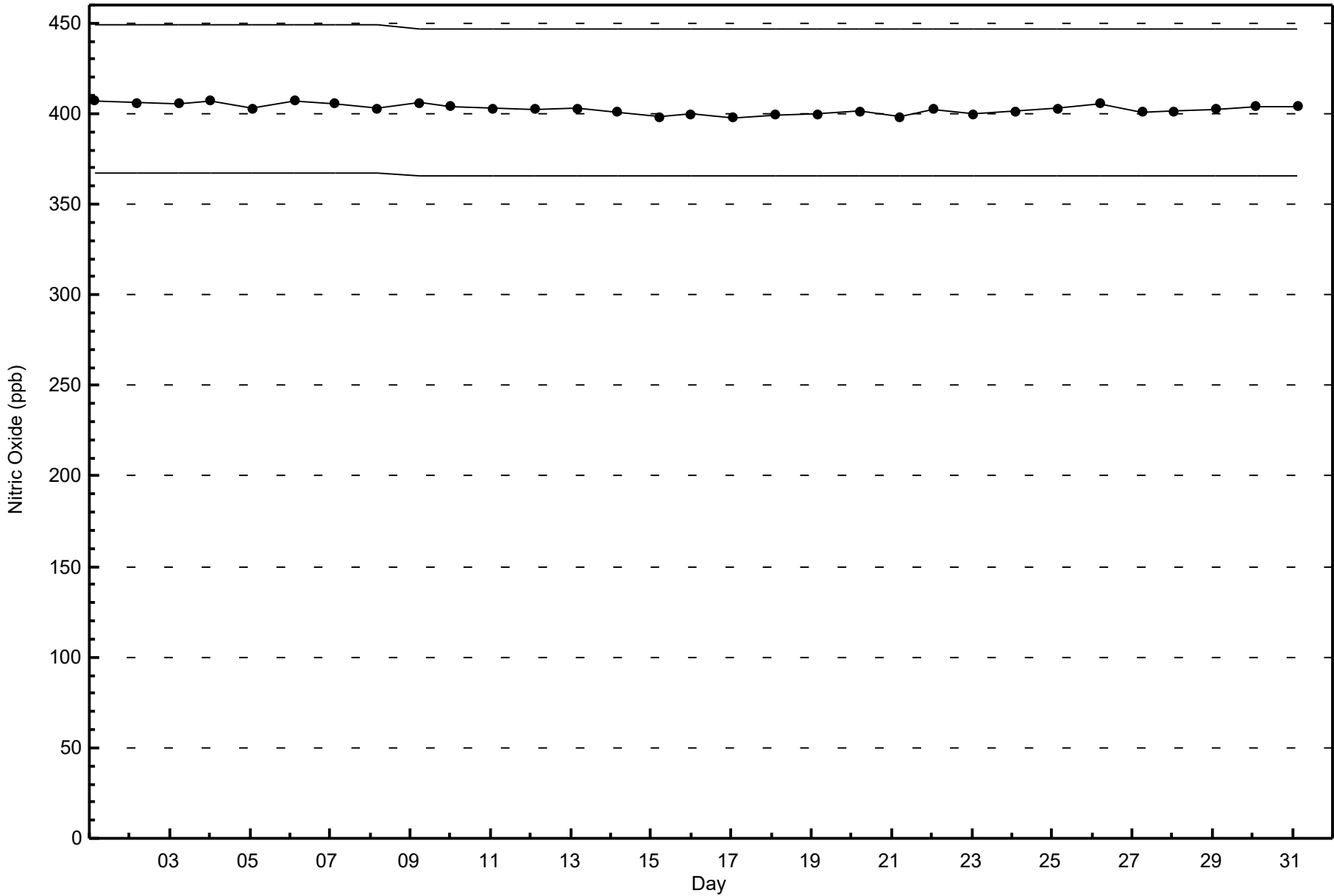
Total Number of Valid Hours: 707

Total Number of Hours: 744











Wood Buffalo Environmental Association

Summary of Hour Averages

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

Barge Landing - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 28.8 ppb on Oct 8 19:00	Maximum Daily Average: 18.1 ppb on Oct 16		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 2 04:00	Minimum Daily Average: 1.1 ppb on Oct 28		Hours of Missing Data:	35
Maximum Diurnal Average: 10.3 ppb at hour 20	Minimum Diurnal Average: 4.5 ppb at hour 13		Hours of Calibration:	35
Monthly Average: 7.89 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 1.0 Median = 6.9 Q <sub>3</sub> = 12.7 P <sub>90</sub> = 18.2 P <sub>99</sub> = 24.2		Percent Operational Time:	100.0

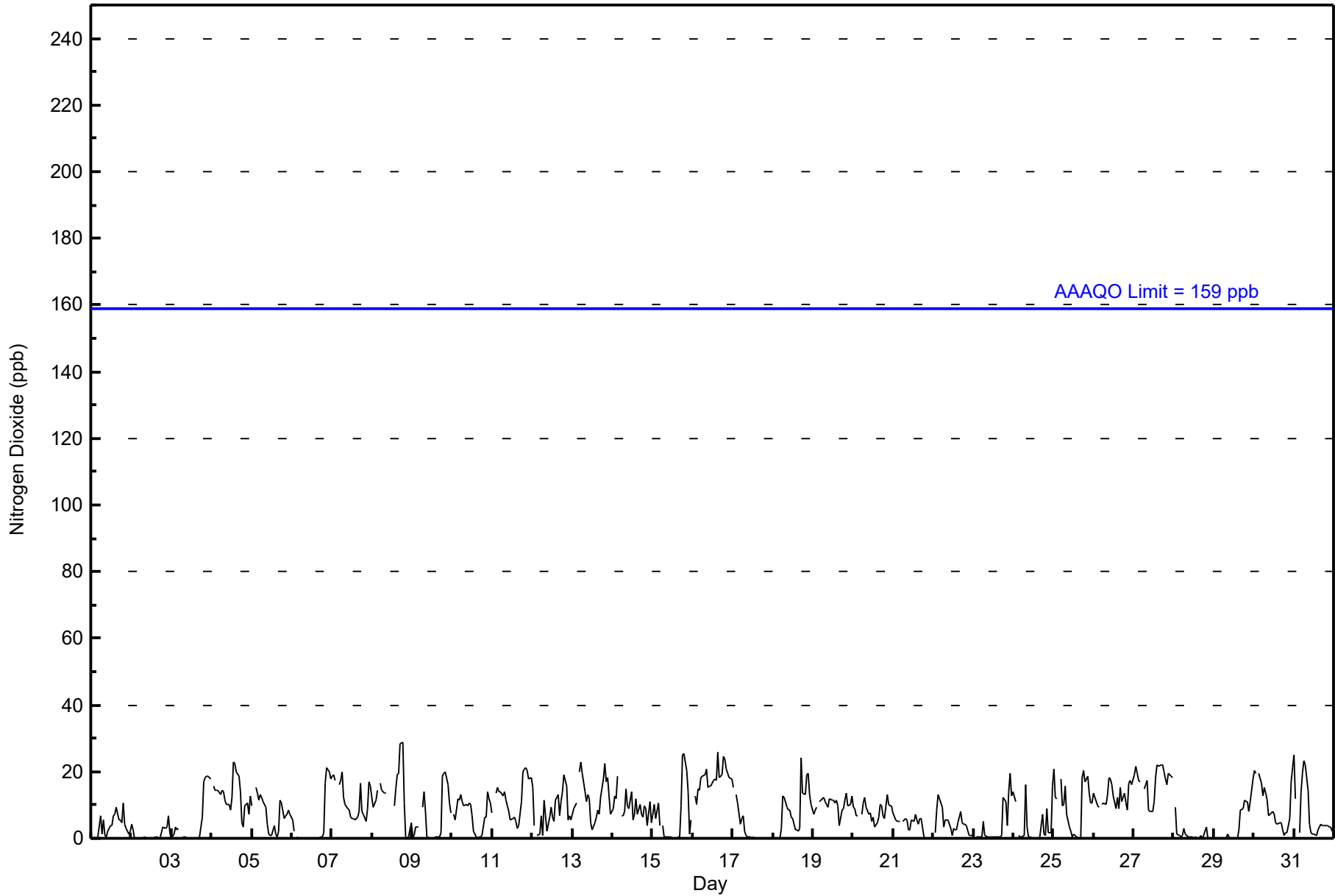
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	0.2	0.2	0.2	Z	0.3	6.7	1.4	5.6	1.0	0.6	2.0	3.7	3.7	6.6	7.2	9.4	5.3	5.6	4.8	10.5	4.2	3.1	1.4	2.2	3.7	10.5																							
2-Oct	4.1	2.4	0.2	0.0	Z	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.1	0.2	1.7	3.4	3.0	3.4	6.6	1.9	1.3	6.6																							
3-Oct	0.2	1.3	3.3	2.7	2.9	Z	0.2	0.4	0.5	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.3	6.2	16.9	18.4	18.8	18.8	17.6	4.8	18.8																							
4-Oct	Z	15.5	14.2	14.3	14.6	13.1	14.2	14.1	11.3	10.2	10.2	8.5	12.1	22.7	22.4	20.1	18.8	14.1	4.8	3.4	9.8	10.6	7.0	12.6	13.0	22.7																							
5-Oct	9.9	Z	15.3	13.4	11.5	13.1	12.2	10.9	9.2	4.3	1.3	1.0	1.0	4.0	1.4	0.3	2.0	11.6	10.8	6.1	6.6	7.2	8.5	7.1	7.3	15.3																							
6-Oct	5.6	2.0	Z	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.5	0.3	1.7	16.7	21.2	20.1	17.8	3.8	21.2																							
7-Oct	18.8	19.1	17.3	Z	16.2	17.4	20.1	12.3	10.0	8.8	8.4	6.5	5.9	5.9	5.6	6.3	8.0	16.7	8.0	7.4	5.2	8.7	16.9	15.6	11.5	20.1																							
8-Oct	12.1	9.3	11.3	14.3	Z	16.4	14.2	13.4	13.4	C	C	C	C	9.7	15.0	19.2	19.7	28.5	28.8	10.7	0.3	0.2	0.4	4.6	12.7	28.8																							
9-Oct	0.4	0.9	3.6	3.2	3.5	Z	9.3	14.1	7.9	0.4	0.2	0.1	0.1	0.1	0.3	0.4	0.5	1.9	18.8	19.5	19.9	16.3	10.6	7.8	6.1	19.9																							
10-Oct	Z	7.0	5.7	11.8	11.3	13.1	11.0	9.6	10.1	9.9	10.4	10.0	6.7	2.2	0.3	0.2	0.3	0.4	1.0	6.2	6.2	14.0	12.0	10.4	7.4	14.0																							
11-Oct	7.7	Z	13.4	15.2	14.1	14.0	12.5	13.9	11.3	9.8	8.2	5.6	5.9	6.2	4.9	2.8	3.9	11.0	20.0	20.9	21.1	20.4	17.8	18.1	12.1	21.1																							
12-Oct	15.1	3.8	Z	0.8	1.2	6.6	0.8	11.5	6.7	2.0	6.2	9.4	6.3	5.2	11.3	13.2	6.9	11.1	13.9	19.0	15.6	5.5	6.6	5.5	8.0	19.0																							
13-Oct	7.1	9.0	10.5	Z	19.8	22.7	19.3	14.1	11.1	13.0	11.8	4.8	2.7	4.8	6.4	8.4	7.0	12.1	17.6	22.4	17.1	18.4	12.8	7.2	12.2	22.7																							
14-Oct	9.1	12.7	12.0	18.7	Z	6.6	6.7	8.1	14.7	9.8	9.0	13.8	5.3	7.2	11.9	7.3	10.2	7.3	6.2	9.8	8.9	4.0	11.0	4.7	9.3	18.7																							
15-Oct	7.1	10.0	6.0	10.7	3.8	Z	3.7	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.3	9.9	25.1	25.5	20.2	14.1	1.4	5.4	6.3	25.5																							
16-Oct	Z	12.7	10.1	15.0	14.4	18.2	18.6	19.0	20.6	15.1	15.7	15.7	17.2	17.7	17.3	25.9	18.4	19.0	24.6	23.6	20.9	19.7	18.4	17.7	18.1	25.9																							
17-Oct	15.4	Z	13.1	10.5	4.1	6.0	6.9	2.1	0.7	0.6	0.6	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	2.7	15.4																							
18-Oct	0.0	0.0	Z	0.1	0.2	3.0	12.6	12.1	9.4	8.3	8.4	6.4	6.1	2.5	2.6	2.2	3.1	24.3	13.5	13.2	18.9	19.5	13.2	10.2	8.3	24.3																							
19-Oct	7.4	8.4	9.3	Z	11.1	11.6	12.1	10.9	10.3	9.4	12.0	11.4	11.4	10.4	11.3	9.7	4.0	8.5	9.0	11.4	13.7	9.6	10.0	12.8	10.2	13.7																							
20-Oct	9.2	8.7	6.9	6.7	Z	7.2	10.6	12.2	9.5	7.3	7.5	5.0	6.2	3.4	4.5	6.3	10.2	9.8	6.7	6.1	13.2	10.2	9.8	9.8	8.1	13.2																							
21-Oct	7.8	5.5	5.0	5.0	4.9	Z	5.1	6.0	5.7	2.6	2.5	5.3	5.0	7.0	5.4	4.1	6.0	6.0	0.5	0.1	0.1	0.1	0.1	0.1	3.9	7.8																							
22-Oct	Z	1.9	8.6	13.0	12.0	9.4	3.5	5.4	5.4	5.5	3.1	1.0	3.0	2.7	2.7	4.6	8.1	4.5	4.1	4.2	3.7	1.0	0.7	0.8	4.7	13.0																							
23-Oct	1.1	Z	0.6	0.4	0.3	0.3	5.2	0.8	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.6	0.9	12.2	11.2	3.8	14.1	19.4	12.8	3.8	19.4																							
24-Oct	13.8	11.1	Z	0.9	0.5	0.5	0.8	16.2	3.5	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.4	7.1	1.2	0.7	8.7	1.7	1.8	15.8	3.8	16.2																							
25-Oct	20.8	12.4	12.0	Z	17.8	9.9	10.1	15.5	7.4	3.3	2.0	0.6	1.2	0.9	0.3	0.1	0.1	18.1	20.5	16.9	18.8	13.5	10.7	10.6	9.7	20.8																							
26-Oct	13.5	12.2	9.7	9.5	Z	10.1	10.5	10.3	13.3	18.1	17.8	16.1	12.8	8.8	12.3	8.8	15.1	11.0	13.7	10.7	8.5	16.7	17.2	15.9	12.7	18.1																							
27-Oct	19.0	21.7	19.7	17.4	16.8	Z	14.7	16.1	17.4	8.4	7.9	8.0	11.0	18.2	22.1	21.5	22.2	22.0	19.8	18.0	16.3	19.3	18.7	18.2	17.1	22.2																							
28-Oct	Z	9.3	1.3	0.7	0.6	0.9	3.0	1.1	0.6	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.8	0.2	1.0	3.2	0.1	0.1	0.1	0.1	1.1	9.3																							
29-Oct	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.2	1.3	0.4	0.1	0.1	0.1	0.2	0.2	2.4	8.6	8.9	11.4	11.1	11.2	7.9	11.1	17.7	4.1	17.7																							
30-Oct	20.4	19.4	Z	19.3	16.6	12.9	15.1	13.5	11.6	6.6	7.5	8.1	7.4	4.5	4.4	4.6	4.8	2.4	1.0	1.5	1.8	6.0	16.8	21.2	9.9	21.2																							
31-Oct	24.9	11.8	Z	1.9	14.0	19.7	23.5	22.2	14.3	4.4	1.6	1.2	1.2	0.9	2.5	3.2	4.3	4.0	3.7	3.9	3.9	3.3	3.3	2.3	7.7	24.9																							
																								9.6	8.8	8.4	7.9	8.2	9.2	9.0	9.4	7.7	5.4	5.2	4.8	4.5	4.9	5.6	5.9	6.1	9.0	10.0	10.3	10.2	10.0	9.8	9.8	Diurnal Average	
																								24.9	21.7	19.7	19.3	19.8	22.7	23.5	22.2	20.6	18.1	17.8	16.1	17.2	22.7	22.4	25.9	22.2	28.5	28.8	25.5	21.1	21.2	20.1	21.2	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**  
**Barge Landing - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Barge Landing - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	681	96.05	96.05
21 - 40	28	3.95	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Barge Landing - October 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	33	18	16	9	16	38	72	58	72	59	63	47	57	30	37	679
21 - 40	2	0	4	2	0	1	1	3	6	1	0	0	0	0	1	7	28
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>	56	33	22	18	9	17	39	75	64	73	59	63	47	57	31	44	707

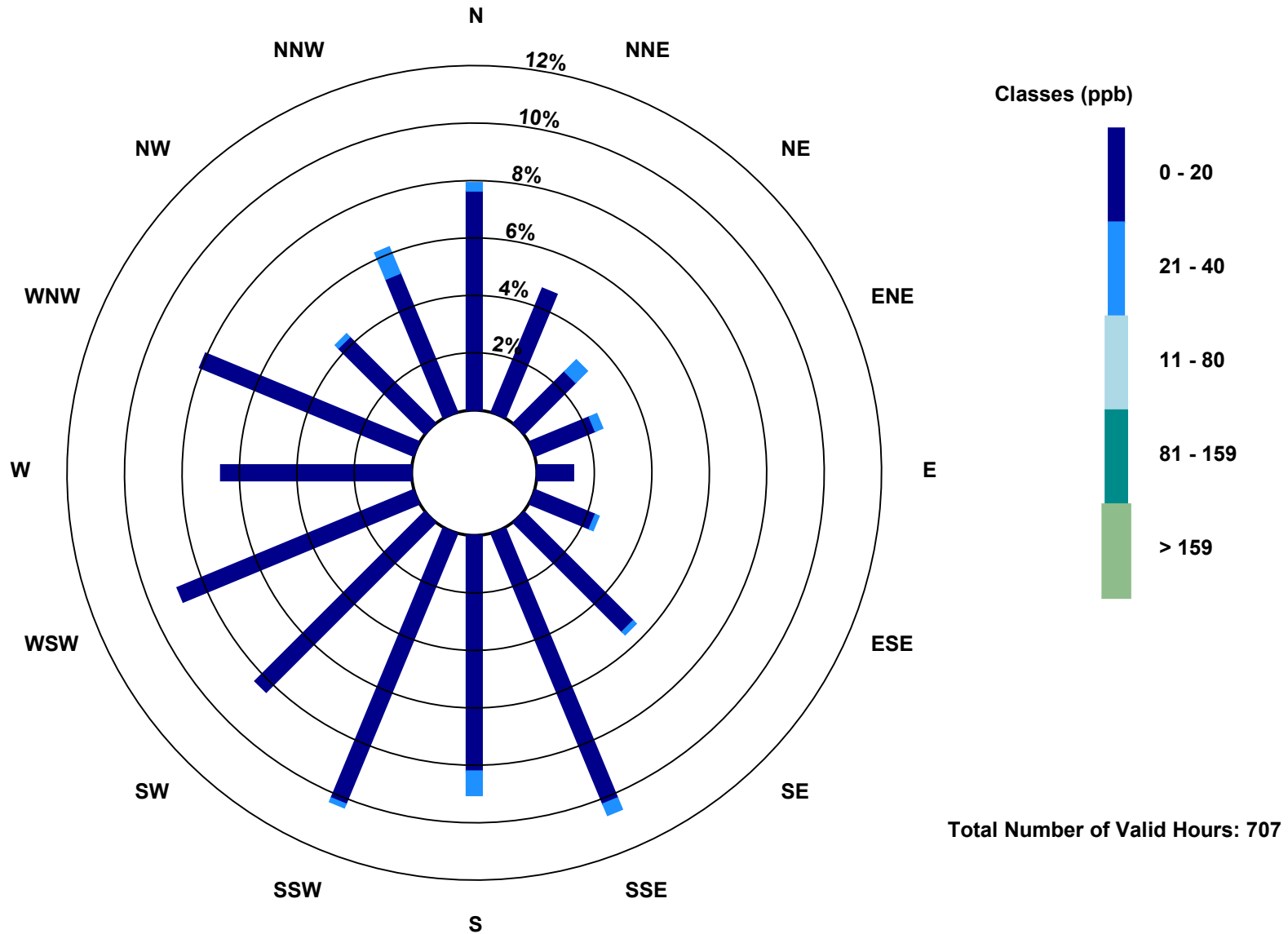
Total Number of Valid Hours: 707

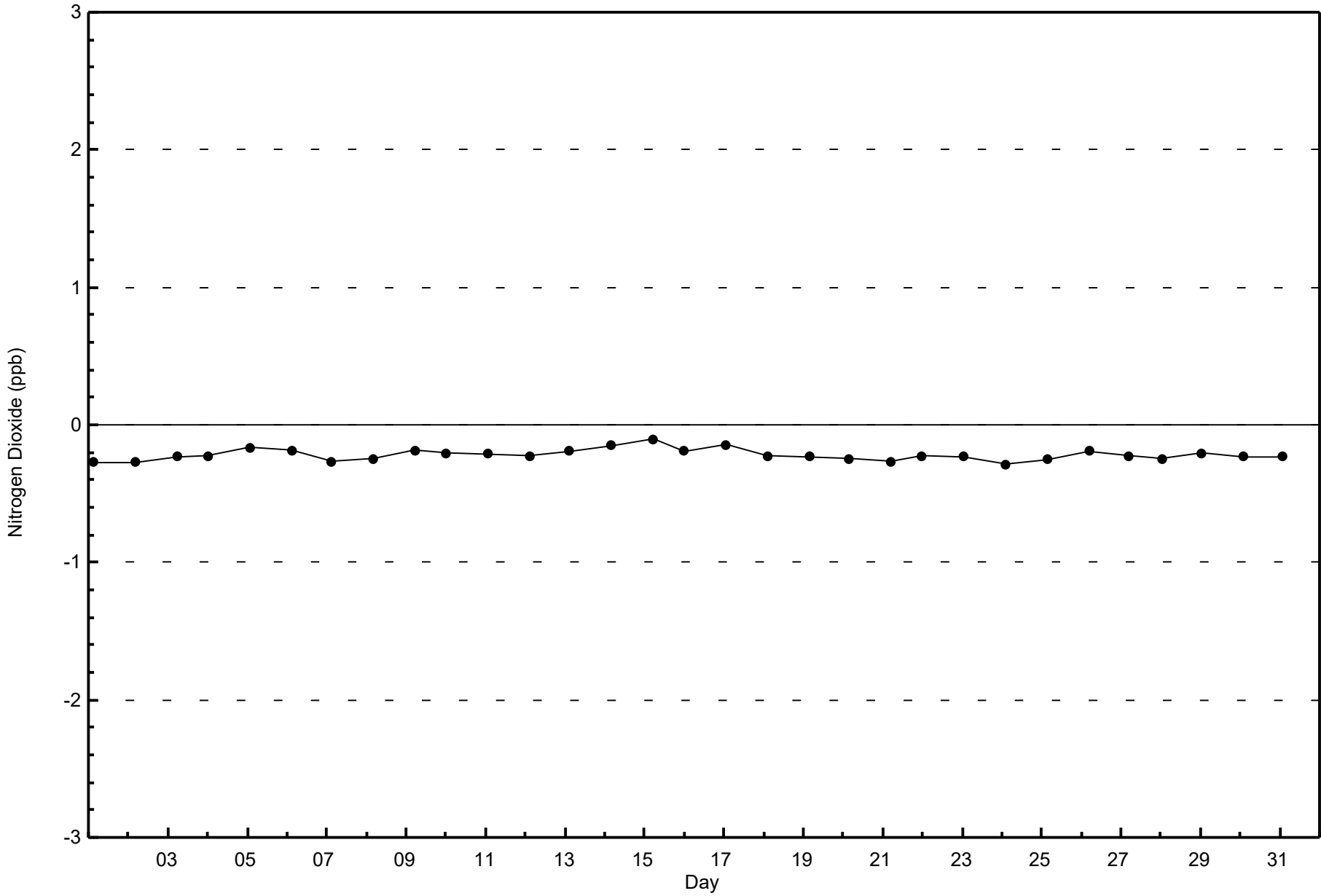
Total Number of Hours: 744



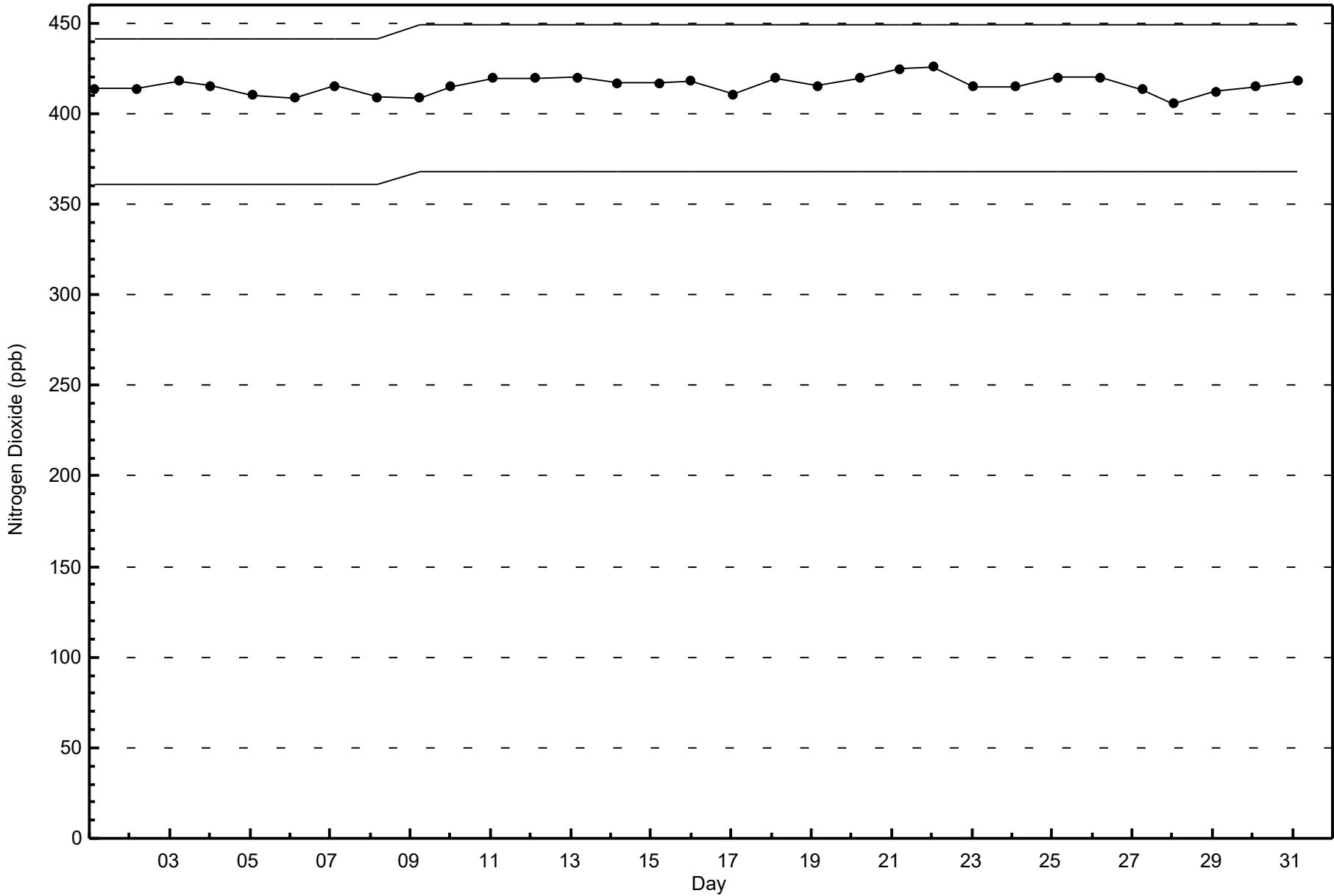
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











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

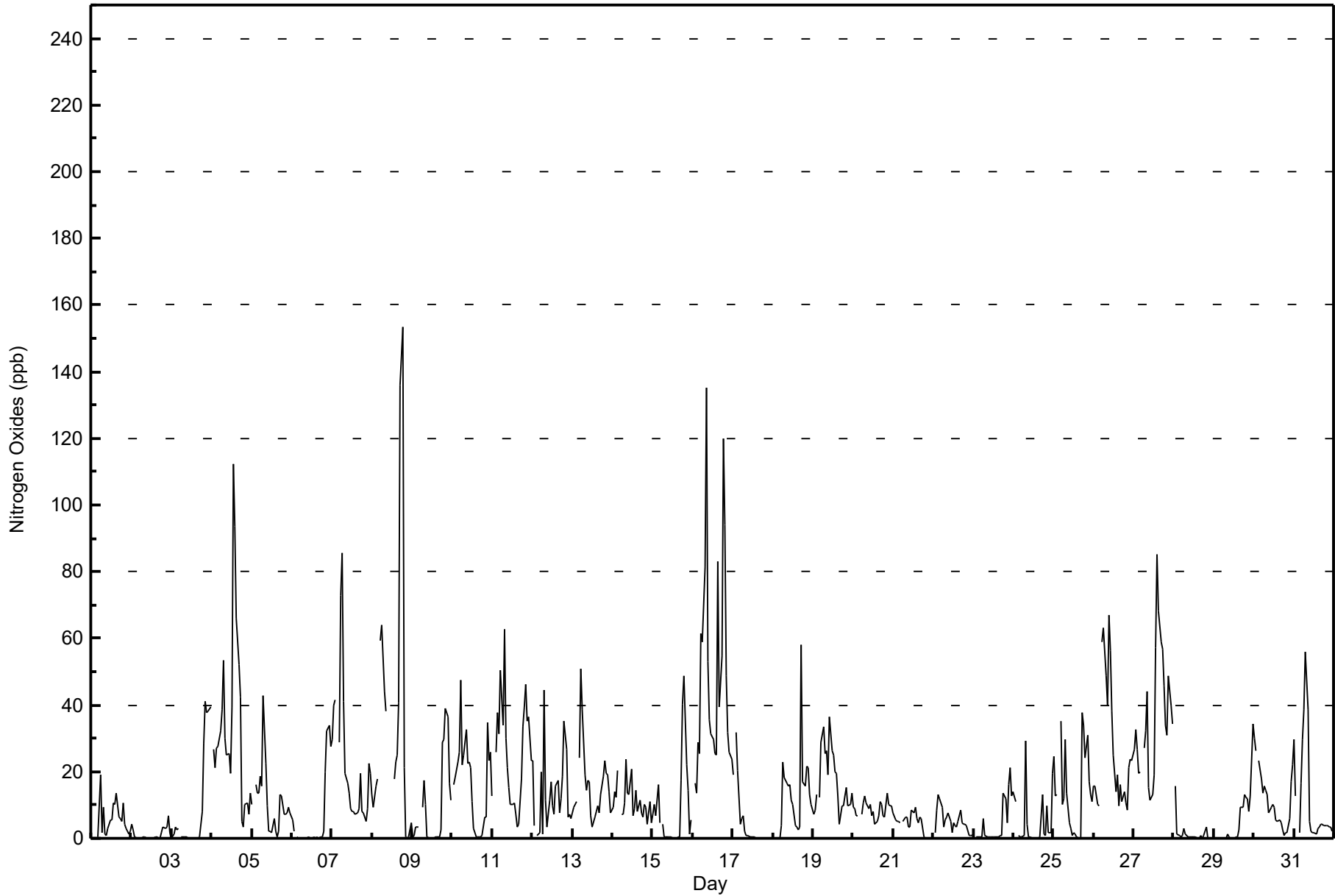
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - October 2024**

Maximum Value: 153.3 ppb on Oct 8 19:00		Maximum Daily Average: 49.7 ppb on Oct 16		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Oct 18 02:00		Minimum Daily Average: 1.3 ppb on Oct 2		Hours of Data: 709																																													
Maximum Diurnal Average: 23.7 ppb at hour 8		Minimum Diurnal Average: 8.0 ppb at hour 13		Hours of Missing Data: 35																																													
Monthly Average: 14.22 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 1.3 Median = 8.2 Q <sub>3</sub> = 19.3 P <sub>90</sub> = 36.3 P <sub>99</sub> = 85.6		Hours of Calibration: 35																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	0.2	0.2	0.2	Z	0.3	19.1	1.7	9.1	1.3	0.9	3.0	5.4	5.6	10.6	10.1	13.7	6.3	6.0	4.9	10.5	4.2	3.1	1.4	2.2	5.2	19.1																							
2-Oct	4.1	2.4	0.2	0.0	Z	0.2	0.1	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.1	0.2	1.7	3.4	3.0	3.4	6.6	1.9	1.3	6.6																							
3-Oct	0.2	1.3	3.3	2.7	2.9	Z	0.2	0.4	0.5	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.3	8.1	28.3	41.0	37.8	38.1	39.3	8.9	41.0																							
4-Oct	Z	26.8	21.3	27.1	27.4	32.0	38.6	53.4	30.1	25.0	25.4	19.3	39.5	112.4	93.7	66.1	52.1	42.2	4.9	3.4	10.0	10.7	7.1	13.6	34.0	112.4																							
5-Oct	10.1	Z	16.0	13.7	13.5	18.7	15.7	42.9	22.3	9.9	2.1	2.1	1.7	6.1	2.0	0.4	2.1	13.0	12.5	7.2	7.2	7.7	9.3	7.5	10.6	42.9																							
6-Oct	5.6	2.0	Z	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.5	0.3	2.0	20.0	32.1	33.9	27.7	5.5	33.9																							
7-Oct	29.8	40.0	41.4	Z	28.7	72.7	85.7	41.1	19.3	16.4	13.5	9.1	8.2	7.9	7.3	7.5	8.9	19.3	8.1	7.4	5.2	8.9	22.3	19.6	23.0	85.7																							
8-Oct	13.3	9.3	15.9	17.6	Z	59.3	64.0	43.9	38.3	C	C	C	C	17.6	23.0	24.9	40.9	136.1	153.3	21.3	0.3	0.2	0.4	4.6	36.0	153.3																							
9-Oct	0.4	0.9	3.6	3.2	3.6	Z	9.4	17.2	10.3	0.5	0.2	0.1	0.1	0.1	0.3	0.4	0.6	2.5	28.7	29.8	39.2	36.6	16.5	11.4	9.4	39.2																							
10-Oct	Z	16.0	18.4	22.8	25.8	47.6	21.9	25.2	32.5	22.3	22.8	21.1	11.0	3.0	0.3	0.2	0.3	0.4	1.0	6.2	6.2	34.8	23.2	26.0	16.9	47.6																							
11-Oct	12.8	Z	25.8	37.8	31.3	50.3	33.8	62.7	30.1	21.3	15.3	10.1	10.3	10.4	7.3	3.5	4.4	17.6	33.5	39.3	46.1	35.0	36.3	23.3	26.0	62.7																							
12-Oct	23.4	3.9	Z	0.8	1.6	20.1	1.4	44.6	11.6	3.2	11.5	16.9	9.7	7.3	15.8	17.2	7.6	11.7	18.6	35.0	26.8	6.2	7.0	5.9	13.4	44.6																							
13-Oct	7.5	9.4	11.1	Z	24.2	50.9	38.6	18.9	14.4	17.3	17.1	6.6	3.5	6.2	8.1	9.8	7.6	13.0	18.6	23.5	19.7	19.2	13.8	7.8	16.0	50.9																							
14-Oct	9.3	14.1	12.3	20.3	Z	7.4	7.1	10.7	23.6	13.4	12.9	20.7	6.7	8.9	14.3	8.0	11.4	7.6	6.4	10.1	9.3	4.0	11.1	4.7	11.1	23.6																							
15-Oct	7.1	10.4	6.6	16.1	4.5	Z	4.0	0.5	0.5	0.4	0.3	0.4	0.2	0.2	0.2	0.4	0.3	17.5	40.2	48.8	22.0	14.6	1.4	5.6	8.8	48.8																							
16-Oct	Z	16.6	13.5	29.0	25.4	61.4	58.9	81.5	135.3	53.1	35.7	31.5	29.6	25.3	25.0	83.2	39.3	54.8	119.8	94.2	48.6	31.7	26.0	23.6	49.7	135.3																							
17-Oct	19.0	Z	31.6	20.3	4.1	6.0	6.9	2.1	0.7	0.6	0.6	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	4.1	31.6																							
18-Oct	0.0	0.0	Z	0.1	0.2	4.0	23.1	18.3	16.3	15.7	16.2	11.3	10.4	3.8	3.5	2.5	3.3	57.9	16.7	15.5	21.6	21.2	13.2	10.2	12.4	57.9																							
19-Oct	7.4	8.5	13.2	Z	12.5	28.8	33.3	25.2	26.4	19.2	36.5	26.4	25.0	20.1	19.3	12.8	4.4	9.9	9.8	12.6	15.5	9.8	10.2	13.4	17.4	36.5																							
20-Oct	9.3	8.7	6.9	6.7	Z	7.3	10.8	12.8	10.6	9.0	10.0	6.8	8.0	4.1	5.3	6.9	11.0	10.2	6.8	6.2	13.4	10.2	9.8	9.8	8.7	13.4																							
21-Oct	7.8	5.5	5.0	5.0	4.9	Z	5.1	6.2	6.5	3.2	3.4	8.6	7.5	9.5	6.1	4.5	6.3	6.0	0.5	0.1	0.1	0.1	0.1	0.1	4.4	9.5																							
22-Oct	Z	1.9	8.6	13.0	12.0	9.4	3.5	5.5	6.2	7.7	4.9	1.6	4.8	4.0	3.4	5.2	8.6	4.6	4.1	4.2	3.7	1.0	0.7	0.8	5.2	13.0																							
23-Oct	1.1	Z	0.6	0.4	0.3	0.3	5.9	0.9	0.6	0.5	0.4	0.4	0.4	0.5	0.3	0.5	0.6	0.9	13.6	11.9	4.8	16.3	21.0	12.9	4.1	21.0																							
24-Oct	13.9	11.2	Z	0.9	0.5	0.5	0.9	29.1	4.1	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.4	13.1	1.4	1.0	9.6	1.7	1.8	19.6	4.8	29.1																							
25-Oct	24.7	12.7	12.9	Z	35.4	10.2	11.8	29.8	13.7	4.7	3.0	0.8	1.7	1.2	0.3	0.1	0.1	37.8	33.9	24.1	30.8	17.1	13.2	11.1	14.4	37.8																							
26-Oct	15.6	15.5	10.2	9.8	Z	58.8	63.0	48.7	39.7	66.8	56.3	38.1	25.2	14.0	19.1	9.9	16.1	11.2	13.9	10.8	8.5	21.0	23.6	23.2	26.9	66.8																							
27-Oct	26.7	32.6	26.7	19.7	19.7	Z	27.1	32.1	44.0	15.1	11.5	12.9	19.3	57.1	85.0	68.3	58.9	56.6	45.9	34.0	30.7	48.5	39.7	34.3	36.8	85.0																							
28-Oct	Z	15.7	1.3	0.7	0.6	0.9	3.0	1.1	0.6	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.8	0.2	1.0	3.2	0.1	0.1	0.1	0.1	1.4	15.7																							
29-Oct	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.2	1.3	0.5	0.1	0.1	0.1	0.2	0.2	2.7	9.1	9.4	13.0	12.3	12.0	8.0	12.8	34.3	5.1	34.3																							
30-Oct	30.2	26.2	Z	23.2	17.6	13.4	15.6	14.3	13.2	7.8	9.3	10.2	9.3	5.5	5.1	5.3	4.9	2.5	1.0	1.6	1.8	6.0	17.0	21.9	11.4	30.2																							
31-Oct	29.8	12.7	Z	1.9	16.3	29.7	38.6	55.8	38.6	5.3	2.0	1.6	1.5	1.1	2.8	3.4	4.3	4.0	3.7	3.9	3.9	3.3	3.3	2.3	11.7	55.8																							
																								11.9	11.7	12.3	11.3	12.1	23.4	20.3	23.7	19.1	11.4	10.5	8.8	8.0	10.9	11.6	11.6	10.0	18.3	20.2	16.5	15.0	14.5	13.6	13.5	Diurnal Average	
																								30.2	40.0	41.4	37.8	35.4	72.7	85.7	81.5	135.3	66.8	56.3	38.1	39.5	112.4	93.7	83.2	58.9	136.1	153.3	94.2	48.6	48.5	39.7	39.3	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	542	76.45	76.45
21 - 40	117	16.50	92.95
41 - 80	39	5.50	98.45
81 - 159	10	1.41	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

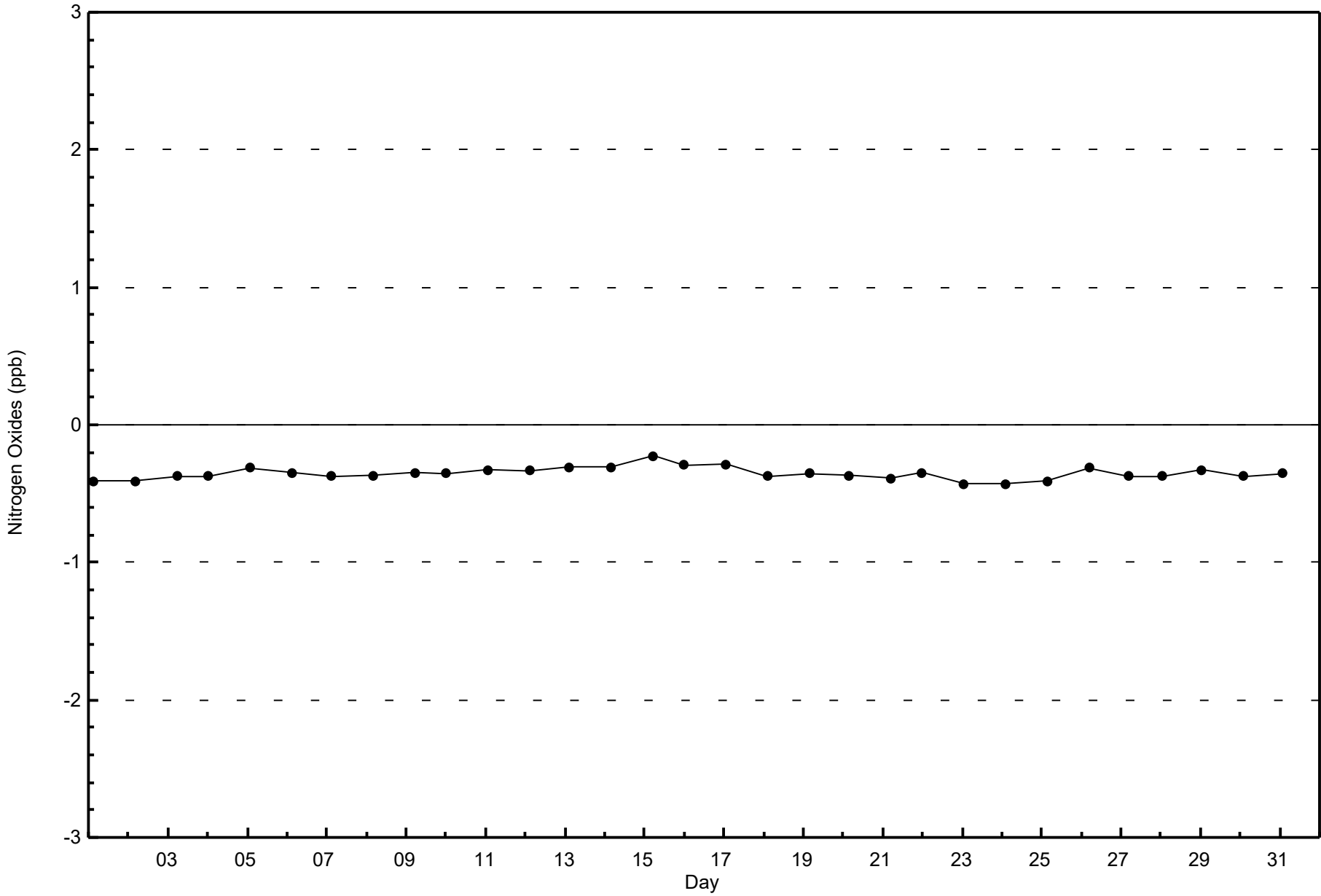
**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - October 2024**

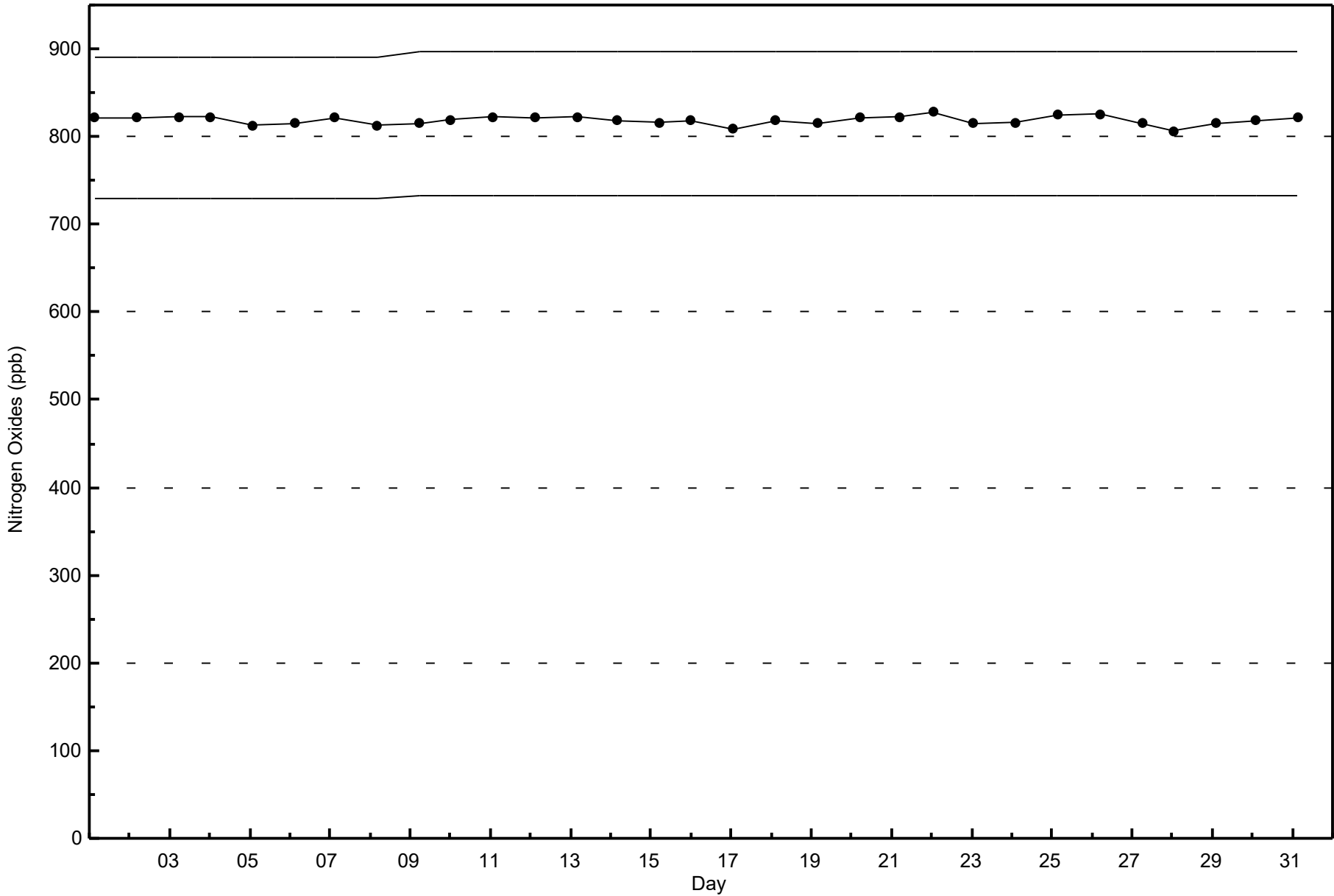
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	44	29	17	12	9	10	21	44	40	58	54	58	46	56	25	19	542
21 - 40	8	2	3	5	0	6	13	22	17	12	5	5	1	1	4	11	115
11 - 80	3	2	1	1	0	1	5	7	5	3	0	0	0	0	2	9	39
81 - 159	1	0	1	0	0	0	0	1	2	0	0	0	0	0	0	5	10
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	56	33	22	18	9	17	39	74	64	73	59	63	47	57	31	44	706

Total Number of Valid Hours: 707

Total Number of Hours: 744











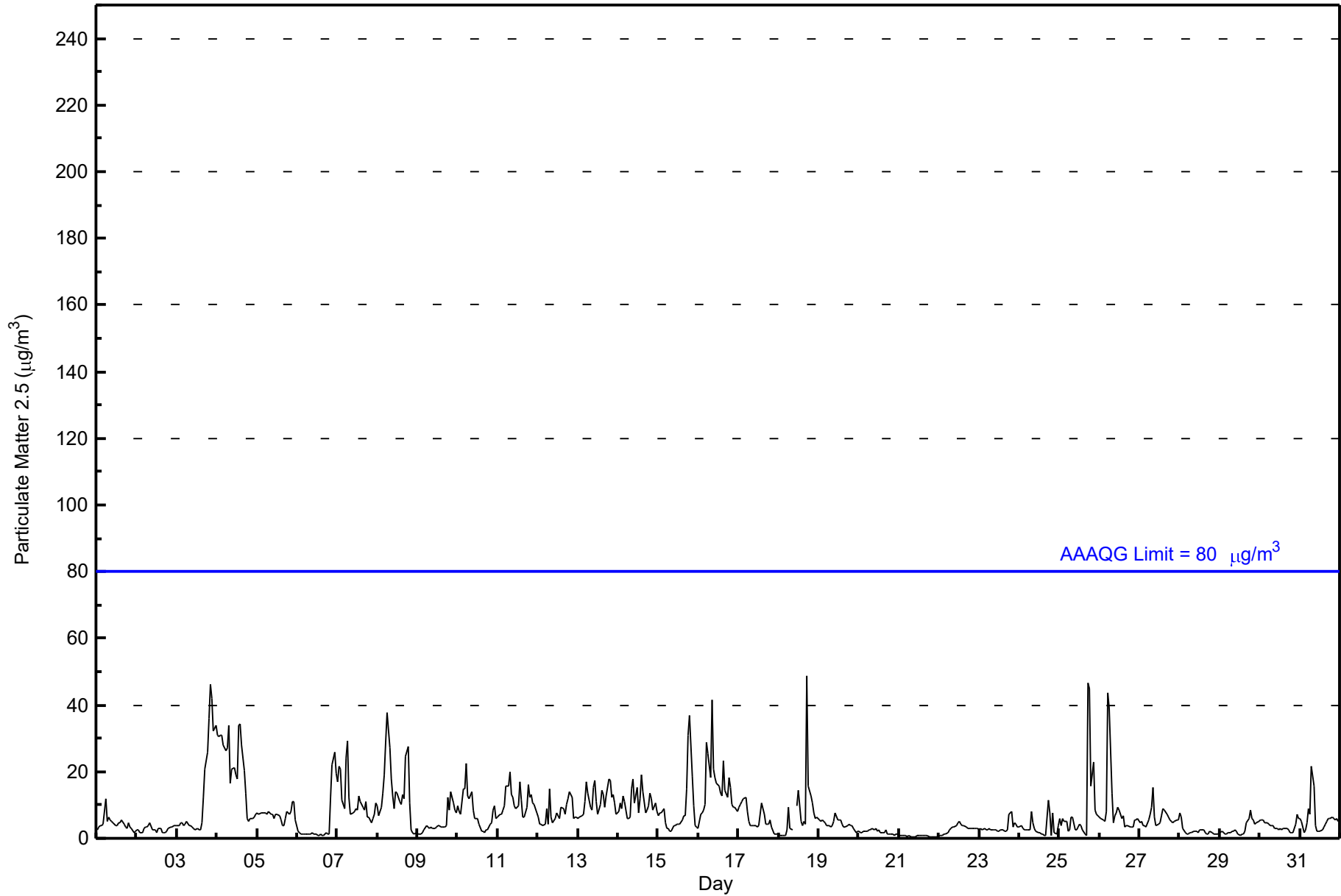
Summary of Hour Averages

Barge Landing - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 48.7 µg/m <sup>3</sup> on Oct 18 18:00	Maximum Daily Average: 20.9 µg/m <sup>3</sup> on Oct 4		Hours of Data:	742
Minimum Value: 0.4 µg/m <sup>3</sup> on Oct 21 21:00	Minimum Daily Average: 0.7 µg/m <sup>3</sup> on Oct 21		Hours of Missing Data:	2
Maximum Diurnal Average: 10.2 µg/m <sup>3</sup> at hour 19	Minimum Diurnal Average: 5.4 µg/m <sup>3</sup> at hour 17		Hours of Calibration:	2
Monthly Average: 7.22 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 2.6 Median = 4.8 Q <sub>3</sub> = 8.9 P <sub>90</sub> = 15.4 P <sub>99</sub> = 38.4		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-Oct	2.6	3.3	3.7	4.0	4.2	12.0	4.9	6.2	5.3	5.3	4.7	3.9	3.9	4.8	4.8	5.4	4.1	3.4	3.0	4.7	3.2	2.8	1.9	2.0	4.3	12.0																						
2-Oct	2.4	2.4	1.6	1.6	2.8	3.2	3.3	3.9	4.6	2.7	2.6	2.5	1.6	3.0	2.9	1.9	1.8	1.8	2.1	2.9	3.5	3.2	3.7	3.8	2.7	4.6																						
3-Oct	4.0	3.9	4.9	4.5	3.9	4.1	5.2	3.9	3.9	3.4	3.0	2.4	3.0	2.4	2.6	4.5	12.3	20.8	25.7	36.0	46.1	42.0	32.1	33.9	12.9	46.1																						
4-Oct	30.8	30.5	31.1	31.1	27.9	26.2	27.3	33.7	16.7	20.8	21.2	19.1	17.6	34.0	34.3	28.0	20.3	13.4	5.8	5.3	5.9	5.9	6.5	7.2	20.9	34.3																						
5-Oct	7.5	7.1	7.5	7.7	7.7	7.4	7.3	8.1	7.0	7.3	5.9	7.3	7.3	6.8	5.3	3.9	3.9	5.7	7.9	7.4	8.1	11.1	10.8	5.4	7.1	11.1																						
6-Oct	2.3	1.9	1.2	1.2	1.2	1.3	1.5	1.4	1.4	1.5	1.3	1.2	1.0	1.0	1.1	1.0	1.0	1.8	1.4	1.4	12.4	21.8	25.8	19.3	4.4	25.8																						
7-Oct	17.1	21.4	20.9	11.6	9.0	24.2	29.3	12.4	7.3	7.6	7.9	9.1	8.3	12.8	11.2	9.4	8.3	11.0	6.3	6.3	4.6	5.7	7.3	10.7	11.7	29.3																						
8-Oct	9.9	6.7	9.2	13.7	19.1	28.9	37.5	27.1	18.0	12.6	9.1	13.9	13.7	10.8	10.1	13.0	11.9	24.5	27.5	10.6	2.4	1.8	1.4	1.5	14.0	37.5																						
9-Oct	1.2	1.2	1.3	1.8	2.4	3.9	3.4	2.8	3.2	2.8	2.8	3.3	3.7	3.6	3.5	3.6	3.5	3.9	12.2	8.4	13.8	10.4	8.5	7.8	4.7	13.8																						
10-Oct	9.8	7.9	7.2	14.7	15.0	22.4	12.9	11.9	13.8	8.6	5.9	6.1	6.0	4.3	2.0	2.0	1.8	2.4	2.6	4.3	4.7	8.6	9.9	6.0	8.0	22.4																						
11-Oct	6.1	7.2	7.4	8.3	9.9	15.6	15.8	19.8	13.0	12.2	9.6	8.9	9.7	16.7	11.5	6.3	6.3	9.5	16.2	12.4	13.2	10.7	10.4	7.7	11.0	19.8																						
12-Oct	6.5	4.1	4.1	4.0	4.3	9.0	4.2	15.0	6.2	4.5	5.9	7.5	6.9	5.9	9.1	9.0	7.2	10.3	11.7	13.9	12.1	6.1	6.2	6.5	7.5	15.0																						
13-Oct	6.0	6.4	6.8	7.2	11.1	17.0	13.4	9.2	8.3	15.1	17.2	11.0	7.2	10.3	14.4	13.1	9.4	12.6	18.0	17.4	12.4	13.2	10.4	7.2	11.4	18.0																						
14-Oct	8.2	10.7	9.0	12.8	11.2	6.1	5.8	6.5	14.8	17.8	10.6	15.1	7.5	11.9	19.1	14.2	7.8	8.6	9.8	13.7	11.8	8.6	10.7	8.1	10.8	19.1																						
15-Oct	6.9	7.7	7.6	9.0	4.7	3.1	2.9	2.3	2.3	3.7	3.9	4.4	4.4	4.4	5.7	6.9	6.8	15.0	31.1	37.0	18.4	9.8	3.6	3.3	8.5	37.0																						
16-Oct	3.0	7.0	7.6	8.5	10.3	28.7	25.5	18.4	41.5	20.7	18.4	16.6	15.6	13.6	12.6	23.4	14.5	12.4	18.4	15.4	10.0	9.1	9.2	8.0	15.3	41.5																						
17-Oct	9.3	10.2	11.0	11.9	12.4	8.2	5.0	3.8	3.6	3.6	3.8	3.2	3.7	7.0	10.4	7.1	4.2	4.1	4.2	5.6	3.3	1.3	1.1	1.4	5.8	12.4																						
18-Oct	1.4	1.0	0.9	0.8	1.0	2.5	9.1	3.1	2.6	C	C	9.7	14.6	4.9	3.7	5.0	4.1	48.7	15.8	12.6	10.8	7.6	6.0	6.4	7.8	48.7																						
19-Oct	5.5	5.3	5.3	5.0	4.5	4.0	3.7	3.5	4.0	4.9	7.8	5.6	5.4	5.7	4.2	3.6	3.2	3.9	4.1	4.0	3.7	2.9	1.8	2.1	4.3	7.8																						
20-Oct	2.0	1.5	1.7	1.9	2.2	2.0	2.4	2.6	3.0	2.4	3.1	2.2	2.5	1.7	1.9	1.9	2.3	1.2	1.1	1.1	1.1	1.0	1.1	1.1	1.9	3.1																						
21-Oct	0.9	1.1	1.0	1.0	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.5	0.4	0.4	0.5	0.5	0.5	0.7	1.1																						
22-Oct	0.8	0.8	0.9	1.2	1.3	1.8	2.5	2.9	3.2	3.3	3.8	4.7	4.9	4.3	3.6	3.6	3.3	3.2	3.1	2.9	2.9	2.9	2.9	2.9	2.8	4.9																						
23-Oct	2.8	2.8	2.7	2.8	2.6	2.6	2.8	2.5	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.3	2.1	2.5	7.4	7.9	3.3	4.5	4.4	3.5	3.2	7.9																						
24-Oct	3.3	3.6	2.8	2.5	2.6	2.7	2.7	8.2	4.5	2.8	2.3	1.7	1.6	1.5	1.2	1.0	0.9	11.4	7.7	1.0	7.5	1.7	1.4	3.9	3.4	11.4																						
25-Oct	5.8	3.8	5.9	4.9	5.2	2.3	2.7	6.4	6.3	2.4	2.7	3.4	4.2	3.7	2.4	1.1	0.9	46.8	44.8	15.5	22.8	8.4	7.1	6.8	9.0	46.8																						
26-Oct	6.4	6.0	5.3	5.0	8.1	43.5	39.1	13.6	4.8	7.0	7.7	9.2	8.5	5.9	6.7	3.2	3.8	3.8	3.5	3.5	3.3	5.6	5.3	5.8	8.9	43.5																						
27-Oct	4.8	4.9	4.0	3.7	3.6	5.3	7.2	9.2	15.3	6.2	3.8	4.0	4.9	6.8	9.1	8.4	7.1	6.2	5.5	4.9	4.5	4.9	5.3	5.5	6.0	15.3																						
28-Oct	7.8	6.4	3.0	1.7	1.1	1.1	1.8	1.9	2.1	2.2	2.1	1.9	2.7	2.7	2.5	1.6	1.2	1.5	2.2	1.7	1.4	1.3	1.2	1.4	2.3	7.8																						
29-Oct	1.7	2.3	1.5	1.1	1.3	1.9	1.8	2.2	2.3	2.5	2.1	1.2	1.0	1.1	1.4	2.2	4.8	5.9	8.5	5.9	5.7	4.1	4.6	5.0	3.0	8.5																						
30-Oct	5.7	5.5	5.6	4.8	4.9	4.1	3.7	3.8	4.0	2.9	2.8	2.8	3.0	2.7	2.8	2.8	2.9	2.4	1.6	1.6	1.8	4.4	7.4	6.1	3.8	7.4																						
31-Oct	6.0	5.1	1.6	2.4	4.5	8.9	7.1	21.4	15.9	3.6	2.2	2.1	2.3	2.4	3.4	4.3	5.2	5.8	5.8	6.4	5.9	5.5	5.9	5.1	5.8	21.4																						
																								6.1	6.1	5.9	6.2	6.5	9.8	9.4	8.7	7.8	6.4	5.9	6.0	5.8	6.4	6.7	6.3	5.4	9.9	10.2	8.8	8.4	7.3	6.9	6.3	Diurnal Average
																								30.8	30.5	31.1	31.1	27.9	43.5	39.1	33.7	41.5	20.8	21.2	19.1	17.6	34.0	34.3	28.0	20.3	48.7	44.8	37.0	46.1	42.0	32.1	33.9	Diurnal Maximum

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





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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Barge Landing - October 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	409	55.12	55.12
6 - 15	260	35.04	90.16
16 - 25	41	5.53	95.69
26 - 80	32	4.31	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 - October 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	47	28	12	10	3	4	6	2	13	44	45	58	40	59	18	18	407
6 - 15	11	4	9	8	6	10	24	52	42	26	16	6	10	1	13	21	259
16 - 25	0	1	1	1	0	2	7	16	3	3	1	1	0	0	1	4	41
26 - 80	1	0	0	0	0	1	5	8	7	5	0	1	0	0	0	4	32
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	59	33	22	19	9	17	42	78	65	78	62	66	50	60	32	47	739

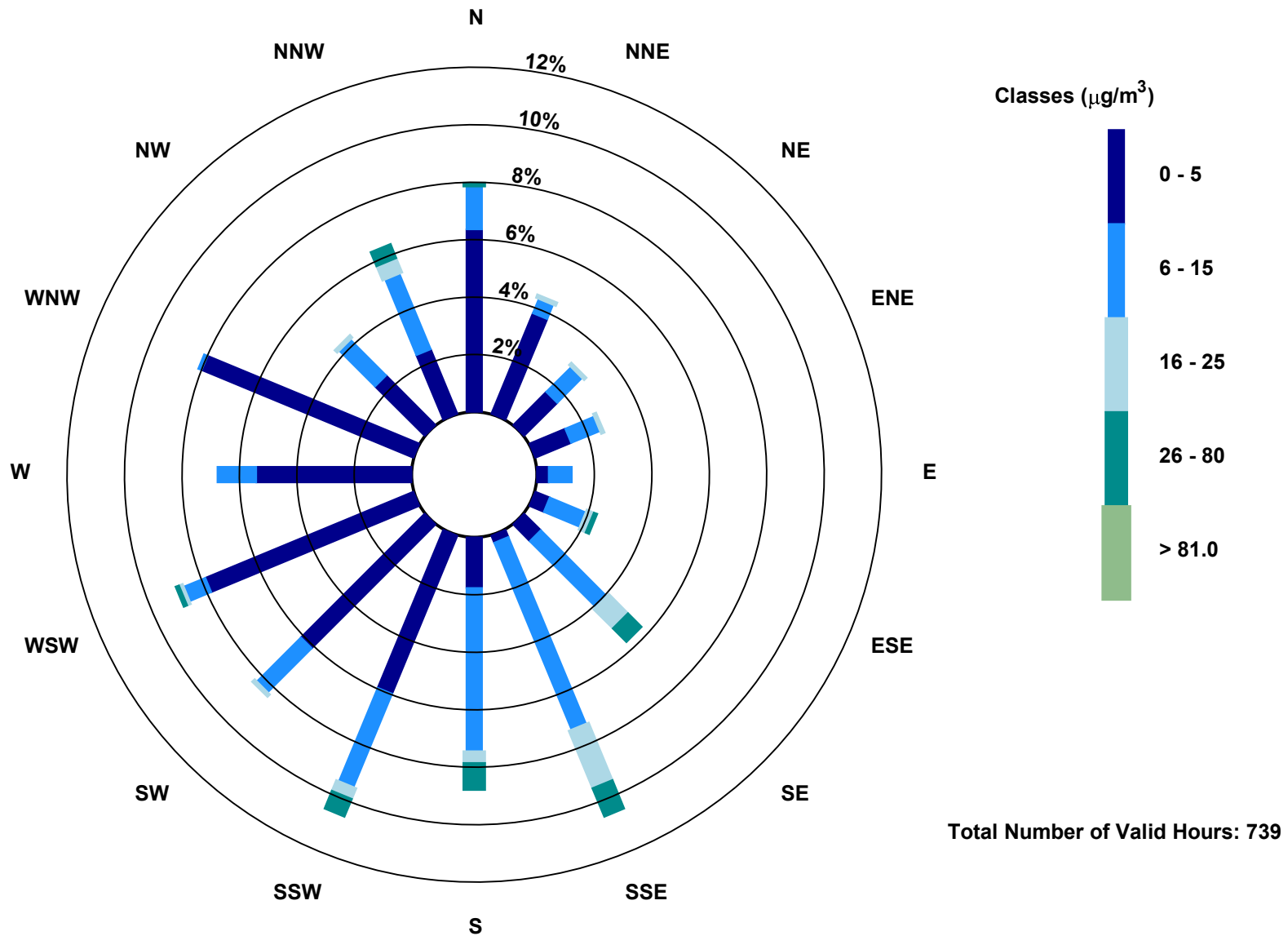
Total Number of Valid Hours: 739

Total Number of Hours: 744



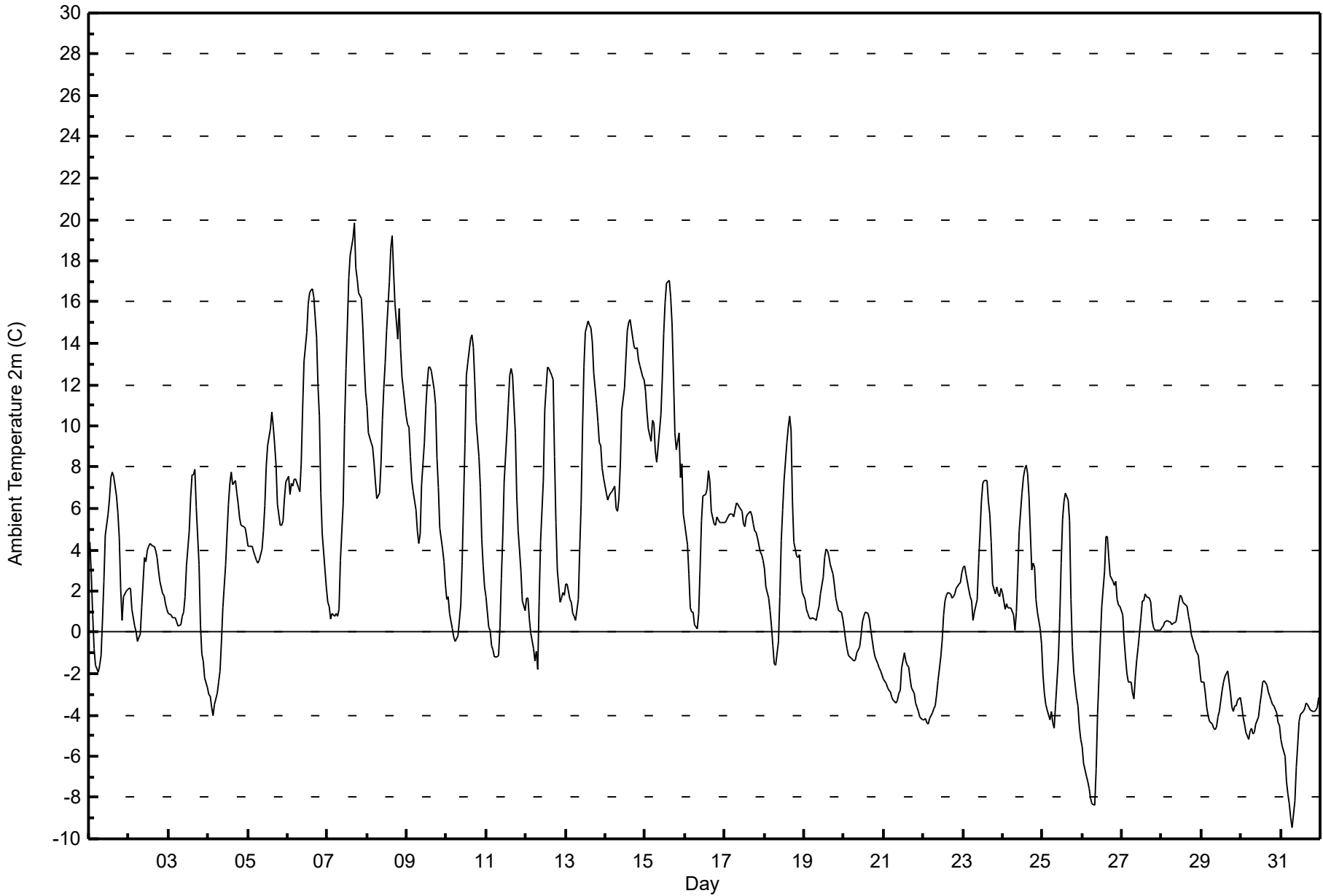
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





Maximum Value: 19.8 C on Oct 7 17:00		Maximum Daily Average: 12.2 C on Oct 8		Hours in Service: 744																						
Minimum Value: -9.4 C on Oct 31 08:00		Minimum Daily Average: -5.3 C on Oct 31		Hours of Data: 744																						
Maximum Diurnal Average: 7.8 C at hour 15		Minimum Diurnal Average: -0.1 C at hour 8		Hours of Missing Data: 0																						
Monthly Average: 3.31 C		Percentiles: P <sub>1</sub> = -7.7 P <sub>10</sub> = -3.6 Q <sub>1</sub> = -0.7 Median = 2.1 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 12.0 P <sub>99</sub> = 17.2		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	4.4	2.8	0.8	-0.8	-1.6	-1.9	-1.6	-1.1	0.6	2.5	4.7	5.7	6.5	7.5	7.8	7.6	6.6	5.8	4.6	2.1	0.6	1.7	2.0	2.1	2.9	7.8
2-Oct	2.1	2.1	1.1	0.3	0.0	-0.4	-0.3	-0.1	1.2	3.6	3.4	4.0	4.1	4.3	4.2	4.2	4.0	3.6	3.1	2.4	1.9	1.8	1.4	1.1	2.2	4.3
3-Oct	0.9	0.9	0.7	0.7	0.7	0.5	0.3	0.4	0.8	1.0	1.7	3.2	4.9	6.6	7.7	7.7	7.9	6.1	3.3	0.4	-1.0	-1.4	-2.2	-2.6	2.0	7.9
4-Oct	-3.0	-3.1	-3.6	-4.0	-3.5	-2.9	-2.4	-1.9	-0.4	1.2	3.3	4.8	6.2	7.2	7.7	7.2	7.3	6.7	6.2	5.5	5.2	5.2	5.1	4.7	2.4	7.7
5-Oct	4.2	4.1	4.2	3.9	3.7	3.5	3.4	3.5	4.1	4.9	6.1	8.0	9.0	9.9	10.7	10.0	9.1	8.1	6.2	5.2	5.2	5.4	6.5	7.3	6.1	10.7
6-Oct	7.6	6.7	7.2	7.1	7.4	7.4	7.0	6.8	8.2	10.8	13.1	14.6	15.9	16.5	16.6	16.7	16.2	14.3	11.9	10.5	6.7	4.8	3.0	2.1	10.0	16.7
7-Oct	1.5	1.3	0.7	0.9	0.8	0.9	0.8	1.1	3.5	6.3	10.1	12.8	15.0	17.2	18.3	19.1	19.8	17.7	17.1	16.4	16.1	14.8	13.1	11.6	9.9	19.8
8-Oct	10.9	9.7	9.2	9.0	8.3	7.3	6.5	6.8	8.2	10.3	11.8	13.1	14.6	17.0	18.6	19.3	17.5	15.9	14.2	15.7	13.7	12.4	11.8	10.5	12.2	19.3
9-Oct	10.1	9.9	8.5	7.3	6.8	5.9	4.9	4.3	4.8	7.2	9.2	10.8	12.1	12.8	12.9	12.7	11.7	11.0	8.4	7.0	5.0	4.0	3.4	2.3	8.1	12.9
10-Oct	1.6	1.7	0.9	0.2	-0.2	-0.5	-0.3	-0.2	1.3	3.4	6.3	9.1	12.4	13.1	14.2	14.4	13.8	12.2	10.2	8.5	7.0	4.5	3.2	2.2	5.8	14.4
11-Oct	1.7	0.2	0.1	-0.6	-0.9	-1.2	-1.2	-1.1	0.2	2.6	4.6	7.3	9.8	11.1	12.4	12.8	12.5	9.7	6.6	4.9	4.0	3.0	1.5	1.1	4.2	12.8
12-Oct	1.7	1.7	0.6	-0.1	-0.8	-1.4	-0.9	-1.8	1.6	4.4	7.4	10.8	11.8	12.8	12.8	12.4	12.3	8.5	5.3	3.0	1.5	1.6	1.9	1.8	4.5	12.8
13-Oct	2.4	2.3	1.6	1.5	0.9	0.8	0.5	1.6	4.0	6.2	9.9	12.9	14.6	15.1	14.9	14.7	14.1	12.6	11.1	10.2	9.2	9.1	8.0	7.5	7.7	15.1
14-Oct	6.7	6.4	6.6	6.8	6.8	7.1	6.0	5.8	6.5	8.1	10.7	11.9	13.3	14.6	15.0	15.1	14.2	13.8	13.8	13.2	12.9	12.4	12.3	10.6	10.6	15.1
15-Oct	11.7	10.7	9.9	9.2	10.3	10.2	8.8	8.2	9.0	10.6	12.3	14.4	16.0	16.9	17.0	16.2	14.9	12.4	9.6	8.8	9.6	7.5	8.2	5.7	11.2	17.0
16-Oct	5.2	4.3	2.8	1.2	1.0	1.0	0.3	0.1	0.9	3.1	5.4	6.6	6.7	7.0	7.9	7.3	5.8	5.3	5.2	5.6	5.5	5.3	5.3	5.3	4.3	7.9
17-Oct	5.3	5.5	5.6	5.7	5.8	5.6	5.9	6.2	6.2	6.1	5.9	5.3	5.2	5.6	5.7	5.8	5.6	5.3	4.9	4.9	4.6	3.9	3.7	3.5	5.3	6.2
18-Oct	3.1	2.2	1.6	1.0	0.3	-0.6	-1.5	-1.6	-0.4	1.8	4.4	5.9	7.4	9.2	9.9	10.5	9.8	6.4	4.4	3.7	3.6	3.8	2.5	1.9	3.7	10.5
19-Oct	1.6	1.1	0.9	0.7	0.6	0.7	0.6	0.6	1.0	1.3	1.8	2.7	3.6	4.1	4.0	3.7	3.3	2.8	2.3	1.7	1.3	1.1	1.0	0.7	1.8	4.1
20-Oct	0.2	-0.4	-0.8	-1.1	-1.3	-1.3	-1.4	-1.3	-1.0	-0.7	-0.2	0.5	0.8	1.0	0.9	0.6	0.1	-0.4	-0.8	-1.2	-1.5	-1.7	-1.9	-2.1	-0.6	1.0
21-Oct	-2.3	-2.5	-2.7	-2.8	-2.9	-3.2	-3.3	-3.4	-3.3	-2.9	-2.8	-1.8	-1.0	-1.4	-1.6	-1.7	-2.2	-2.7	-3.0	-3.4	-3.6	-3.8	-4.1	-4.2	-2.8	-1.0
22-Oct	-4.2	-4.1	-4.4	-4.5	-4.2	-3.9	-3.7	-3.6	-3.0	-2.4	-1.2	-0.4	0.8	1.5	1.8	1.9	1.9	1.6	1.7	1.9	2.1	2.3	2.4	2.9	-0.7	2.9
23-Oct	3.1	3.2	2.8	2.1	1.7	1.5	0.6	1.0	1.6	3.3	4.8	6.3	7.2	7.4	7.3	6.3	5.7	4.4	2.3	1.9	2.2	1.9	1.7	2.1	3.4	7.4
24-Oct	1.9	1.1	1.4	1.2	1.2	1.2	0.8	0.1	1.0	2.9	4.9	6.7	7.5	7.9	8.1	7.7	6.6	3.0	3.3	3.1	1.6	1.0	0.2	-0.6	3.1	8.1
25-Oct	-2.1	-2.9	-3.5	-3.8	-4.2	-3.8	-4.4	-4.7	-3.5	-1.3	0.7	3.3	5.4	6.3	6.8	6.4	5.4	1.6	-0.7	-1.9	-3.1	-3.5	-4.6	-5.2	-0.7	6.8
26-Oct	-5.6	-6.4	-7.0	-7.2	-7.5	-8.0	-8.3	-8.4	-6.6	-4.0	-2.2	-0.4	1.2	2.9	4.6	4.7	3.6	2.7	2.5	2.3	2.5	1.6	1.3	1.2	-1.7	4.7
27-Oct	0.8	-0.4	-1.3	-2.0	-2.4	-2.4	-3.0	-3.2	-2.2	-1.3	-0.7	0.7	1.6	1.5	1.9	1.8	1.7	1.5	0.6	0.2	0.1	0.1	0.1	0.1	-0.3	1.9
28-Oct	0.2	0.3	0.5	0.6	0.5	0.5	0.4	0.5	0.5	0.9	1.4	1.8	1.7	1.5	1.3	1.3	0.8	0.4	-0.1	-0.6	-0.8	-1.0	-1.1	-1.8	0.4	1.8
29-Oct	-2.4	-2.4	-3.0	-3.7	-4.0	-4.3	-4.4	-4.6	-4.7	-4.6	-4.1	-3.8	-2.8	-2.4	-2.1	-2.0	-1.9	-2.9	-3.6	-3.8	-3.6	-3.5	-3.3	-3.2	-3.4	-1.9
30-Oct	-3.6	-4.1	-4.4	-4.8	-5.2	-4.7	-4.7	-4.9	-4.9	-4.5	-4.1	-3.5	-3.0	-2.4	-2.3	-2.5	-2.9	-3.1	-3.3	-3.5	-3.6	-3.9	-4.4	-4.5	-3.9	-2.3
31-Oct	-5.2	-5.5	-6.0	-7.2	-7.8	-8.3	-9.0	-9.4	-8.1	-6.6	-5.5	-4.3	-4.0	-3.9	-3.7	-3.4	-3.5	-3.6	-3.7	-3.8	-3.8	-3.8	-3.6	-3.2	-5.3	-3.2
																								Diurnal Average		
																								Diurnal Maximum		





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

**Ambient Temperature 2m (AT2) - C**  
**Barge Landing - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	209	28.09	28.09
0 - 10	431	57.93	86.02
10 - 20	104	13.98	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 2m (RH2) - %**

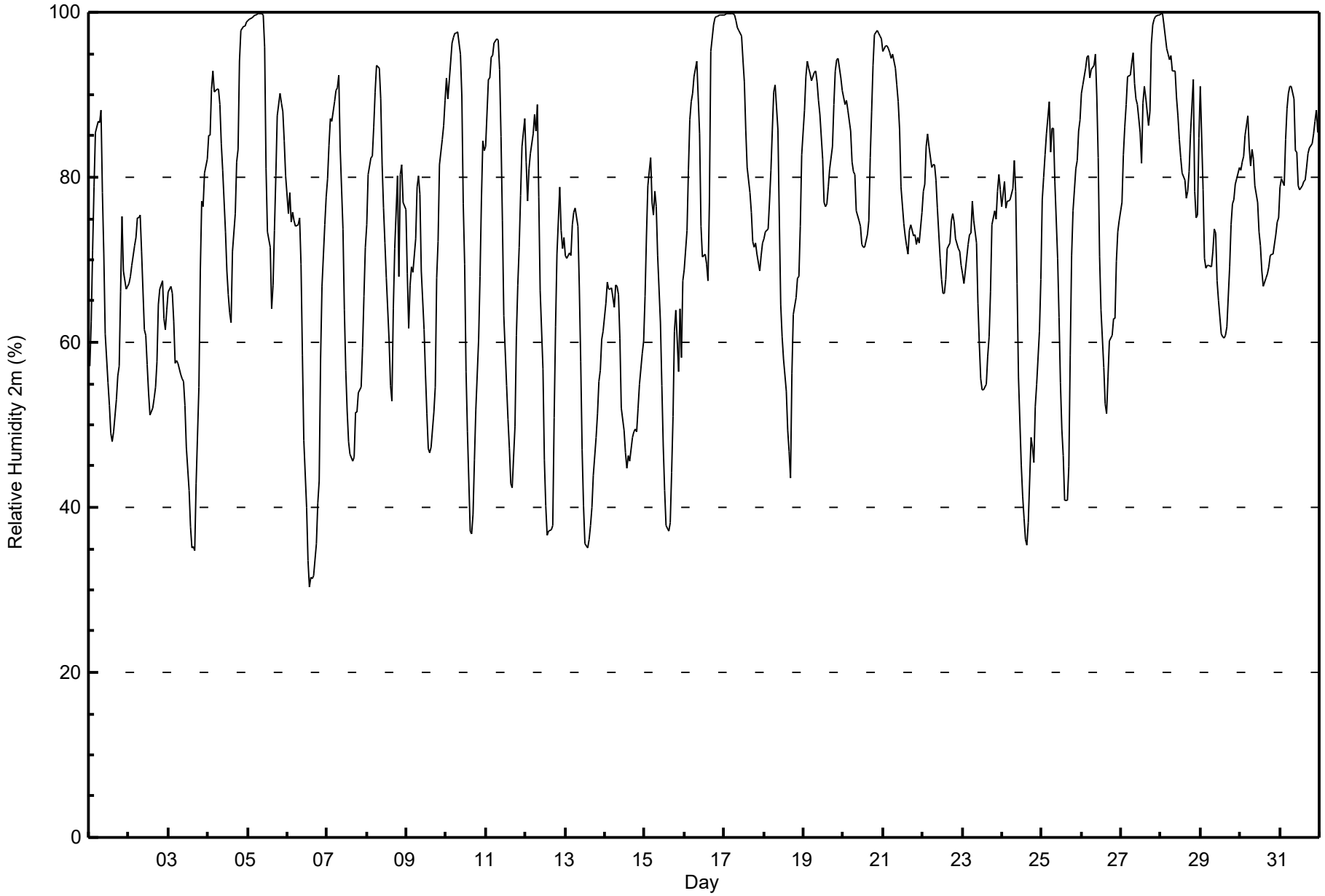
**Barge Landing - October 2024**

Maximum Value: 99.8 % on Oct 5 09:00      Maximum Daily Average: 90.9 % on Oct 27																						Hours in Service:	744			
Minimum Value: 30.3 % on Oct 6 14:00      Minimum Daily Average: 56.5 % on Oct 13																						Hours of Data:	744			
Maximum Diurnal Average: 85.5 % at hour 8      Minimum Diurnal Average: 55.8 % at hour 15																						Hours of Missing Data:	0			
Monthly Average: 73.36 %      Percentiles: P <sub>1</sub> = 35.2 P <sub>10</sub> = 49.1 Q <sub>1</sub> = 62.9 Median = 74.8 Q <sub>3</sub> = 85.8 P <sub>90</sub> = 94.3 P <sub>99</sub> = 99.8																						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-Oct	57.1	62.6	71.3	78.9	85.4	86.7	86.6	88.1	78.1	70.7	61.1	55.1	52.4	49.0	47.9	49.1	53.0	55.9	57.2	66.1	75.3	68.6	66.5	66.7	66.2	88.1
2-Oct	67.1	67.9	69.3	71.6	72.7	75.0	75.1	75.5	71.1	61.5	60.8	57.3	53.8	51.3	52.1	53.2	54.6	57.6	64.5	66.5	67.4	62.9	61.5	63.9	63.9	75.5
3-Oct	66.2	66.8	66.0	62.6	57.5	57.7	57.4	56.1	55.5	55.3	52.4	47.4	42.1	37.7	35.0	35.3	34.8	43.0	54.6	68.6	77.1	76.5	80.4	82.2	57.0	82.2
4-Oct	85.2	85.0	90.7	92.9	90.4	90.6	90.7	88.8	84.0	80.8	73.4	68.7	65.7	63.5	62.3	71.1	75.6	81.9	83.3	94.2	97.9	98.4	98.3	98.8	83.8	98.8
5-Oct	99.1	99.2	99.4	99.5	99.6	99.7	99.8	99.8	99.8	99.7	95.8	81.1	73.4	71.5	64.1	66.9	73.6	80.2	87.5	90.1	89.0	88.1	84.5	80.1	88.4	99.8
6-Oct	75.6	78.1	74.6	75.7	74.7	74.0	74.2	75.1	69.5	58.5	48.2	40.0	33.6	30.3	31.5	31.3	31.7	35.6	40.4	43.2	58.0	66.8	74.2	77.7	57.2	78.1
7-Oct	79.8	84.0	87.1	86.8	89.2	90.6	90.9	92.5	83.5	73.7	63.9	56.6	51.7	47.9	46.4	45.7	46.1	51.6	51.6	53.9	54.5	59.3	65.7	71.5	67.7	92.5
8-Oct	74.2	80.3	82.4	82.6	86.1	90.3	93.5	93.2	89.5	81.6	76.3	72.0	67.7	60.2	54.7	52.9	64.1	71.3	80.2	67.9	80.3	81.6	76.9	76.2	76.5	93.5
9-Oct	68.2	61.6	67.0	69.1	68.5	72.6	78.8	80.1	78.0	68.7	61.6	56.1	51.3	47.2	46.6	47.2	51.5	54.6	67.8	72.2	81.6	84.5	86.3	89.3	67.1	89.3
10-Oct	92.1	89.5	91.6	96.3	96.9	97.5	97.5	97.7	94.9	89.8	76.7	69.5	56.4	49.2	37.1	36.8	39.1	45.8	51.8	60.4	67.9	77.4	84.3	83.2	74.1	97.7
11-Oct	83.7	91.9	92.0	94.7	94.8	96.2	96.8	96.5	93.1	85.0	74.7	63.3	54.7	50.8	47.1	42.9	42.4	49.8	60.8	66.9	71.5	77.8	83.7	87.0	74.9	96.8
12-Oct	81.9	77.2	81.1	82.9	85.2	87.6	85.5	88.8	77.6	66.3	56.8	45.7	40.2	36.7	37.1	37.3	37.9	50.8	61.9	70.7	78.8	73.6	71.3	72.7	66.1	88.8
13-Oct	70.6	70.3	70.9	70.5	74.3	75.8	76.2	74.0	66.7	57.5	46.9	40.2	35.6	35.1	36.0	37.8	40.1	43.9	48.4	51.3	55.2	56.5	60.3	61.4	56.5	76.2
14-Oct	64.8	67.3	66.4	66.4	66.5	64.2	67.0	66.8	65.8	60.5	52.0	49.3	46.6	44.8	46.2	45.5	48.5	49.2	49.5	49.1	52.0	54.9	58.6	60.1	56.8	67.3
15-Oct	65.6	72.9	79.0	82.3	76.9	75.4	78.2	76.5	70.5	62.4	54.7	47.4	42.0	37.9	37.1	38.1	44.2	51.0	61.3	63.9	56.4	64.1	58.1	67.4	61.0	82.3
16-Oct	68.9	73.5	80.9	86.9	89.2	90.1	92.2	94.0	89.7	85.3	74.1	70.3	70.7	69.5	67.4	76.9	95.3	98.5	99.3	99.5	99.5	99.6	99.7	99.7	86.3	99.7
17-Oct	99.7	99.8	99.8	99.8	99.8	99.8	99.7	98.9	98.1	97.8	97.1	94.3	91.5	85.8	81.1	78.1	75.7	72.1	71.5	72.1	70.7	68.7	70.5	72.0	87.3	99.8
18-Oct	72.6	73.4	73.7	77.0	80.9	85.7	90.4	91.2	85.8	74.9	64.6	60.7	57.9	54.1	49.3	46.8	43.6	56.3	63.4	65.4	67.7	68.0	74.1	82.6	69.2	91.2
19-Oct	88.1	92.3	94.1	93.1	92.5	91.6	92.7	92.9	91.5	89.3	87.7	82.1	77.0	76.4	76.8	78.8	81.0	83.8	88.8	92.8	94.2	94.3	92.0	90.6	88.1	94.3
20-Oct	89.7	88.8	89.3	88.1	85.6	81.9	80.7	80.3	75.9	74.7	74.0	71.8	71.5	71.5	73.0	74.8	82.4	88.0	93.5	97.2	97.8	97.5	97.2	96.8	84.3	97.8
21-Oct	95.3	95.9	96.0	95.6	95.2	94.5	94.8	93.2	91.2	89.2	85.7	78.9	74.4	72.9	71.7	70.7	73.6	74.2	72.8	73.0	71.8	72.8	72.0	75.8	82.5	96.0
22-Oct	78.4	79.2	83.8	85.3	83.7	81.3	81.6	81.6	79.6	76.3	70.2	67.7	65.9	66.0	67.6	71.3	72.1	74.7	75.6	74.6	72.5	71.3	71.0	69.4	75.0	85.3
23-Oct	68.3	67.1	68.7	71.9	73.1	73.3	77.1	74.8	72.0	64.7	59.8	55.6	54.3	54.3	54.9	58.3	60.6	66.1	74.3	75.9	74.9	78.3	80.4	78.6	68.2	80.4
24-Oct	76.4	79.5	76.3	77.1	77.2	77.3	78.6	82.0	78.3	67.1	55.8	45.1	41.3	38.7	36.1	35.4	38.1	48.4	47.2	45.4	52.3	54.9	61.3	67.6	59.9	82.0
25-Oct	77.3	80.1	82.7	85.3	89.2	83.1	85.9	85.9	79.4	70.1	63.1	55.1	49.5	46.3	40.9	40.9	44.9	58.5	70.5	76.0	81.0	82.0	85.7	87.0	70.8	89.2
26-Oct	90.2	91.2	93.2	94.5	94.7	92.0	93.1	93.6	94.9	89.8	82.4	70.4	63.9	57.0	52.6	51.3	55.7	60.2	60.8	62.9	62.9	69.9	73.3	74.7	76.1	94.9
27-Oct	77.0	82.7	86.1	88.9	92.2	92.4	94.0	95.1	91.4	89.5	88.8	85.5	81.7	89.0	91.0	89.7	86.3	88.0	96.1	98.6	99.2	99.5	99.7	99.7	90.9	99.7
28-Oct	99.8	99.8	98.5	95.6	94.9	94.3	94.8	92.8	92.8	89.6	87.4	84.5	82.4	80.5	79.7	77.5	78.2	80.7	85.3	91.8	78.3	75.0	75.4	84.7	87.3	99.8
29-Oct	91.0	78.4	70.1	68.9	69.3	69.4	69.1	71.0	73.7	73.3	67.5	65.1	61.0	60.7	60.5	60.9	61.9	69.2	74.2	76.9	77.4	79.1	79.8	81.1	71.2	91.0
30-Oct	80.9	81.8	82.6	85.1	87.4	83.6	81.3	83.3	82.2	79.0	76.9	73.4	71.7	68.6	66.7	67.8	68.2	69.2	70.5	70.6	70.7	73.1	74.6	75.1	76.0	87.4
31-Oct	78.9	79.9	79.0	84.5	88.3	90.2	91.1	91.0	89.5	83.3	83.0	79.0	78.5	79.0	79.6	79.7	81.2	83.0	83.6	84.1	85.3	86.7	88.2	85.4	83.8	91.1
																						Diurnal Average			79.3	
																						Diurnal Maximum			99.7	



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

**Relative Humidity 2m (RH2) - %**  
**Barge Landing - October 2024**





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - inHg**

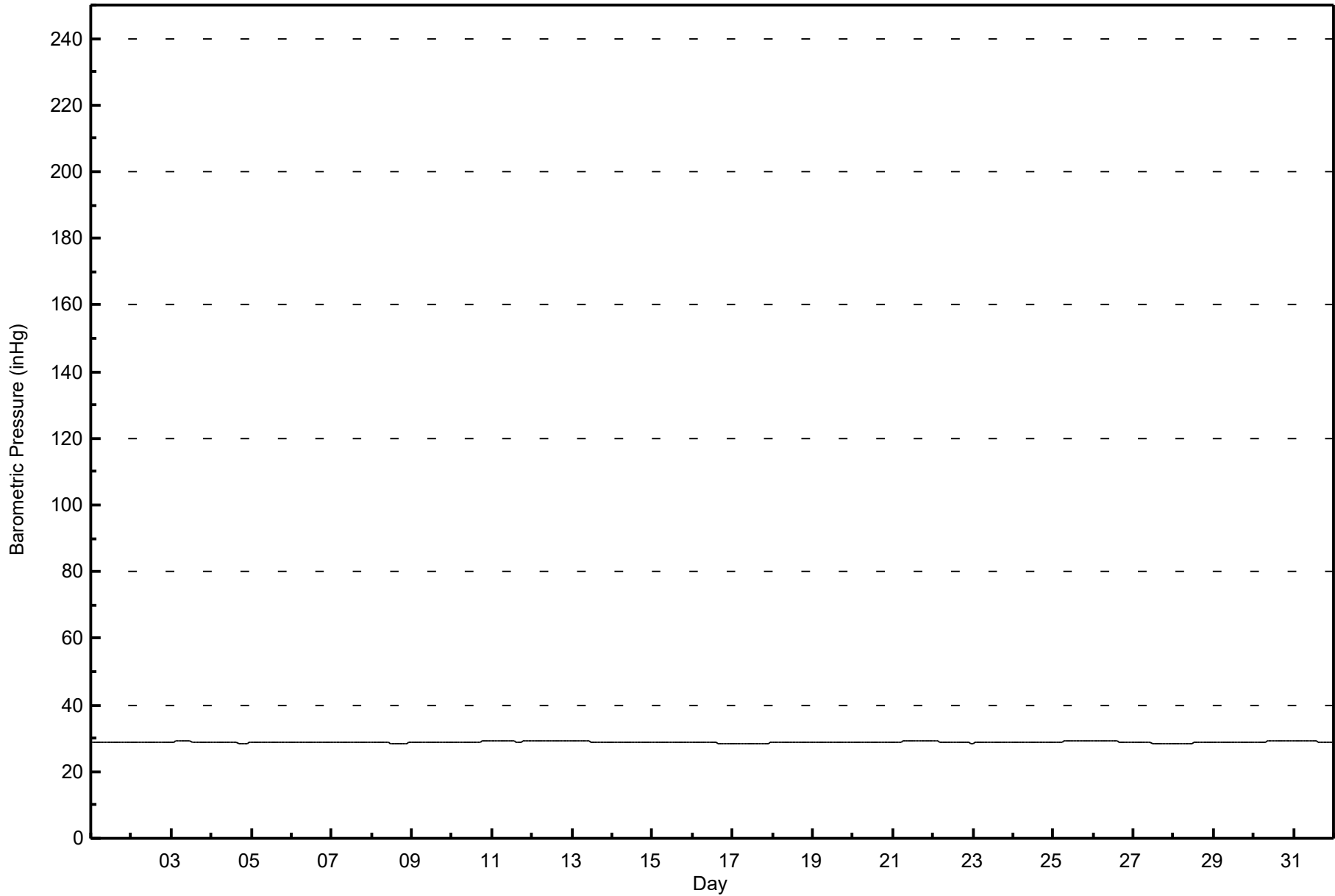
**Barge Landing - October 2024**

Maximum Value: 29.3 inHg on Oct 12 20:00      Maximum Daily Average: 29.2 inHg on Oct 12																						Hours in Service:	744			
Minimum Value: 28.3 inHg on Oct 17 07:00      Minimum Daily Average: 28.4 inHg on Oct 17																						Hours of Data:	744			
Maximum Diurnal Average: 28.9 inHg at hour 10      Minimum Diurnal Average: 28.8 inHg at hour 18																						Hours of Missing Data:	0			
Monthly Average: 28.85 inHg      Percentiles: P <sub>1</sub> = 28.3 P <sub>10</sub> = 28.6 Q <sub>1</sub> = 28.7 Median = 28.9 Q <sub>3</sub> = 29.0 P <sub>90</sub> = 29.1 P <sub>99</sub> = 29.2																						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-Oct	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.9
2-Oct	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	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	28.9	29.0
3-Oct	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	28.9	28.9	28.9	28.9	29.0	29.0
4-Oct	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.9
5-Oct	28.6	28.7	28.7	28.7	28.7	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
6-Oct	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9
7-Oct	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.9
8-Oct	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.7
9-Oct	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.9
10-Oct	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.1
11-Oct	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	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1
12-Oct	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	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.3
13-Oct	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.2
14-Oct	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	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9
15-Oct	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
16-Oct	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.4	28.4	28.4	28.7	28.9
17-Oct	28.4	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.4	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.6	28.6	28.7	28.4	28.7
18-Oct	28.7	28.7	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	28.7	28.7	28.7	28.7	28.7	28.8	28.9
19-Oct	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8
20-Oct	28.8	28.8	28.8	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0
21-Oct	28.9	28.9	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
22-Oct	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.8	29.1
23-Oct	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8
24-Oct	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.9
25-Oct	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	29.1	29.1	29.2	29.2	29.2	29.2	29.1	29.2
26-Oct	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	29.1	29.2	
27-Oct	28.9	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.6	28.5	28.5	28.5	28.4	28.5	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.6	28.9
28-Oct	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.6	28.8
29-Oct	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	28.9
30-Oct	28.9	28.9	28.9	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	29.1	29.1	29.1	29.0	29.1
31-Oct	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1
																						Diurnal Average				
																						Diurnal Maximum				



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

**Barometric Pressure (BP) - inHg**  
**Barge Landing - October 2024**





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

## Barge Landing - October 2024

Maximum Speed: 16 km/h on Oct 23 04:00		Maximum Daily Speed Average: 8.6 km/h on Oct 17		Hours in Service: 744																							
Minimum Speed Value: 0 km/h on Oct 8 13:00		Minimum Daily Speed Average: 0.2 km/h on Oct 16		Hours of Data: 696																							
Maximum Diurnal Speed Average: 3.4 km/h at hour 11		Minimum Diurnal Speed Average: 0.3 km/h at hour 19		Hours of Missing Data: 48																							
Monthly Average Velocity: 1.8 km/h 240.5 deg		Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 5 Q <sub>3</sub> = 8 P <sub>90</sub> = 10 P <sub>99</sub> = 14		Percent Operational Time: 93.8																							
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-Oct	WNW5	W4	W4	WNW3	WSW2	WSW1	WNW1	NW1	WSW4	W3	NNW4	NNW4	NNW4	NNW2	N4	NE5	NNE6	NNE4	N4	NNW2	W2	NW3	NNW4	NW4	NW2.4	NNE6	
2-Oct	WNW4	NW5	WNW5	W6	W6	WSW7	WSW7	WSW6	WSW7	WNW11	W10	NW9	NW10	WNW12	NW11	WNW9	WNW10	NW9	NW9	NNW11	NNW9	NNW9	NW7	WNW5	WNW7.5	WNW12	
3-Oct	WNW4	NW4	NW3	WNW5	NW6	W6	W6	WNW7	NW6	WNW7	W8	WNW7	WSW9	WSW8	W7	W9	WSW8	SW5	SSW4	SE4	E3	SSE4	ESE2	SSE2	W4.1	W9	
4-Oct	SE4	SE4	SE3	ESE4	SE3	SE4	ESE5	ESE5	S2	SSE2	WSW1	NNW4	NNW5	NNW5	NNW6	NNW5	N5	NNE5	NE8	NE5	N5	N6	N6	NNW6	NNE2.1	NE8	
5-Oct	NNW7	NNW8	NNW5	NW2	WNW2	UO	UO	SSE2	SSE3	S3	SSW4	SW8	SSW7	SSW6	SW9	SW8	SSW5	S5	SSE5	SSE7	SSE7	SSE5	SSE5	S6	SSW3.1	SW9	
6-Oct	SSW5	SW8	WSW12	WSW13	WSW15	WSW16	WSW14	WSW9	SW8	SSW8	SW11	SW14	WSW14	WSW15	WSW14	WSW12	SW12	WSW8	WSW6	WSW5	ESE4	ESE4	ESE4	ESE4	SW8.4	WSW16	
7-Oct	SE4	ESE4	ESE4	ESE4	NNE1	SSE3	S2	WSW1	SW2	SW4	S5	SSE8	SSE8	SSE8	SSE7	SE5	S4	SSE6	S5	SSE7	S7	SSE5	SSE4	SSE5	SSE4.2	SSE8	
8-Oct	SSE3	SW1	SSE3	SSE4	S2	SE3	ESE5	ESE4	ESE3	SE5	C	C	NW0	UO	UO	UO	UO	UO	UO	UO	W12	W7	WSW11	SW9	SSW7	---	W12
9-Oct	SW9	SW8	SSW7	SSW5	SW6	SSW6	SSW5	SSW6	SW9	WSW10	WSW11	WSW10	WSW11	WSW11	SW10	SW7	SSW4	SW4	SE4	SSE2	ESE2	SSW2	SSW2	SSW4	SW5.8	WSW11	
10-Oct	S3	SW5	S2	SE4	SE4	SSE5	SSE4	SE4	SSE4	SSE4	SSW5	SSE5	S7	SW7	WSW12	WSW10	WSW11	WSW8	W5	NNW4	NW2	SW3	SW1	SW4	SSW3.4	WSW12	
11-Oct	SW2	SE2	SSE3	SE4	ESE4	SE4	ESE5	SE3	SE5	SSE5	SSE7	SSE7	SSE8	SSE9	S9	SSW9	SSW8	S5	SSE4	SE5	SE4	SSE3	ESE4	ESE4	SSE4.6	SSW9	
12-Oct	SSW3	WSW2	WSW3	WSW4	WSW3	WSW5	WSW3	SE3	S3	SSW4	SSW4	ESE3	ENE2	NNE4	ENE5	NE5	E3	E4	E5	ESE4	ESE5	ESE6	ESE5	SE5	SE1.6	ESE6	
13-Oct	SE6	SE6	SE6	SSE5	SSE4	SSE3	SE5	SE4	S4	S7	SSE11	SSE13	S14	SSE13	SE14	SSE9	SE8	SE7	SE7	SSE6	SSE5	SE7	SE6	SSE7.1	SE14		
14-Oct	SE6	SE5	SE4	SSE3	SE5	SSE6	SE5	SSE5	SSE5	SSE7	SSE9	S7	S7	S6	SSE5	SSE5	SE5	SSE3	SSE7	SSE8	SSE6	SW6	S6	SSW7	SSE5.5	SSE9	
15-Oct	SSW7	S5	SE4	SE4	SSW6	SSW5	S4	SW5	WSW10	WSW10	WSW8	SW7	SSW6	SW7	SW7	SW7	SW5	SSW3	SE4	SSE5	SSW4	SSE2	SW4	SSE4	SSW4.8	WSW10	
16-Oct	S4	SSE3	SSE4	S4	SSE3	SE3	ESE4	SE2	SE1	SE3	SSW1	WSW1	WNW2	NW2	ENE1	NNE1	N4	NNW5	NNW4	NNW3	NW3	NNW4	NNW4	NNW4	N0.2	NNW5	
17-Oct	NW3	W2	WSW4	SW4	SW5	SW7	SW9	WSW11	WSW10	WSW10	WSW11	WSW10	WSW9	W11	W10	W12	W12	W14	W13	W11	WNW12	WNW13	WNW10	WNW8	W8.6	W14	
18-Oct	WNW9	WNW10	WNW8	W3	WSW5	SSW3	S4	SSW4	SSW5	SSW5	SSE6	S7	S9	SSW9	SSW10	S7	SSW7	SSE5	SE5	ESE5	ESE6	SE5	NNW2	NNW4	SSW3.2	WNW10	
19-Oct	NNW2	NNW2	NNW2	NNW4	NW3	NNW6	NNW5	W1	NNE3	NNE4	N4	NNW6	N7	NE7	NNE5	NE5	NNE5	N7	N8	N8	N6	N7	N8	N8	N4.8	N8	
20-Oct	N9	N10	N8	NNW9	N8	N9	N8	N6	NNE7	NNE7	NNE7	NE6	NE6	NE7	NE8	NE7	NNE8	NNE8	NNE9	NNE8	N9	N10	N10	N11	NNE7.8	N11	
21-Oct	N13	N12	N11	N12	N12	N12	N12	N11	N10	N11	N10	NNE8	N6	N5	N5	NW4	NW4	WNW3	WNW5	WNW4	W6	WSW7	WSW7	SW5	NNW6.6	N13	
22-Oct	SSW7	SW6	SSW5	SSW5	SSW6	SSW7	SSW6	SSW7	SSW8	SSW10	SW11	SW10	SSW10	SSW10	SSW10	SSW8	SSW10	SSW9	SSW11	SSW12	SSW9	SW8	SW11	SW13	SSW8.5	SW13	
23-Oct	SW12	WSW15	WSW16	WSW16	WSW15	WSW9	S4	SW10	SW9	SSW5	SW6	SW7	WSW12	WSW13	WSW13	WSW11	WSW11	WSW6	SE3	SSE3	SW4	S5	SE4	S6	SW8.1	WSW16	
24-Oct	S4	SSW3	WSW6	WSW5	WSW5	SW6	SSW4	SE3	S3	WSW7	W11	WNW12	WNW11	W12	WNW11	WNW10	NW5	W3	W7	W4	NW1	WSW4	N3	ENE3	W4.6	WNW12	
25-Oct	SE4	S3	S3	S4	SW3	SW4	SSW3	S3	SSW5	SW6	SSW2	E5	NNE2	W6	WNW7	WNW4	SSE2	ESE2	ESE3	SE2	E3	SE2	NE1	SSW1.7	WNW7		
26-Oct	NNE2	ESE2	NNE2	W0	UO	ENE1	NNW1	NNW2	NNW4	NNW6	NNW7	NNW7	NNW6	NNW7	NNE6	NE6	NE4	NNE4	NE4	ENE3	NE3	NE2	NNE2	NE3	N3.1	NNW7	
27-Oct	NNW4	N4	N4	N2	N3	ENE1	NNE2	E2	SE2	NNW3	NNW4	NNW1	NNW4	NNW4	NNW4	NNW3	N3	NNW3	NNW4	N3	NW2	NNW4	NW2	WSW3	NNW2.4	NNW4	
28-Oct	WSW2	WNW4	W6	W6	W6	WNW5	WNW5	W4	W4	WNW5	WNW7	WNW8	NW8	NW9	NW8	NW8	NW7	NW6	NW5	NW4	WNW9	WNW8	WNW8	UO	WNW6.0	NW9	
29-Oct	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-Oct	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-Oct	ENE5	E5	E3	ESE0	ENE1	ENE3	ENE2	E3	ESE4	ESE7	SE8	SE7	SE8	SE7	SE6	ESE2	WSW1	NW1	NW1	NW2	NNW1	NNW1	UO	SW6	ESE2.5	SE8	
WSW1.2WSW1.4WSW1.8WSW2.0WSW2.2 SW2.1 SW1.5 SW1.8 SW2.4 SW2.5WSW3.4WSW2.7WSW2.7WSW3.0WSW2.7WSW2.6 W2.1WSW1.3WSW0.3 SW0.3WSW0.4 W0.9 W0.8SSW1.0																								Diurnal Average			
N13 WSW15WSW16WSW16WSW15WSW16WSW14WSW11 N10WNW11 SSE11 SW14WSW14WSW15 SE14WSW12 W12 W14 W13 W12WNW12WNW13 SW11 SW13																								Diurnal Maximum			
C - Calibration M - Maintenance UO - Unstable Operation																											
All monthly, daily, and diurnal averages have been calculated using vector methods																											



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

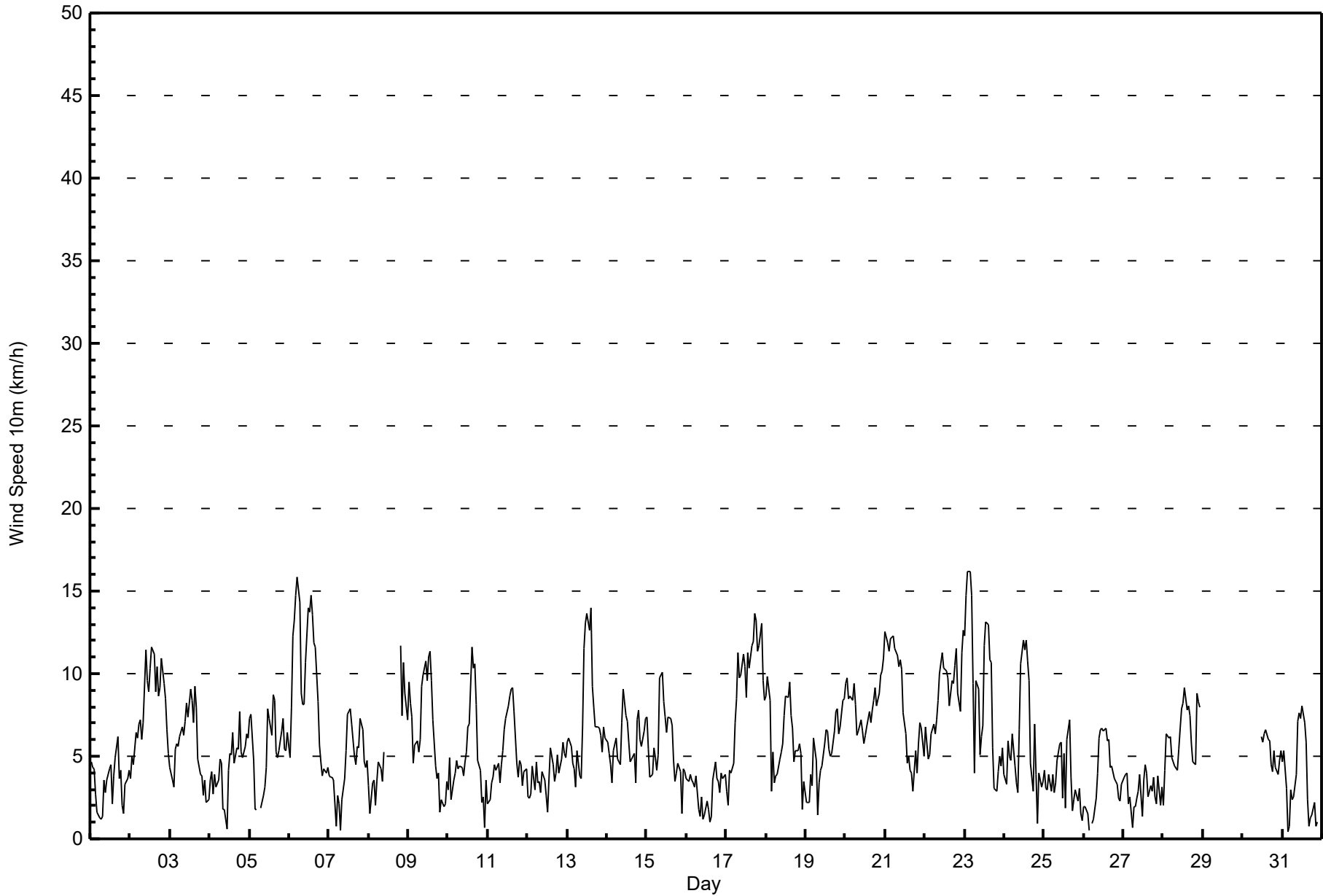
**Wind Speed 10m (WS10) - km/h**  
**Barge Landing - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Oct 8 20:00 Minimum Value: 1 km/h on Oct 27 18:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 696 Hours of Missing Data: 48 Hours of Calibration: 2 Percent Operational Time: 93.8								
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-Oct	2	2	1	1	1	1	1	1	1	1	2	1	2	2	1	3	2	1	1	1	1	1	1	1	3
2-Oct	1	3	2	2	2	2	2	2	2	5	4	3	4	4	4	4	4	3	3	4	3	3	3	2	5
3-Oct	2	2	1	2	2	2	2	3	2	3	3	3	3	4	3	3	3	2	1	1	1	1	1	4	
4-Oct	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2
5-Oct	2	2	2	1	1	UO	UO	1	1	1	2	2	3	2	3	3	2	1	1	2	2	2	2	3	
6-Oct	2	4	4	4	5	5	5	4	3	3	4	4	4	5	4	4	4	3	1	1	1	1	1	5	
7-Oct	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	2	2	2	2	2	2	1	1	3	
8-Oct	1	1	1	1	1	1	1	1	1	1	C	C	1	UO	UO	UO	UO	UO	UO	6	4	3	3	6	
9-Oct	3	3	3	2	2	2	2	2	2	3	3	3	3	3	3	2	1	1	1	1	1	1	1	3	
10-Oct	1	2	2	1	1	1	1	1	1	1	2	2	2	3	4	4	3	3	2	1	1	1	1	4	
11-Oct	2	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	1	1	1	1	1	1	3	
12-Oct	2	1	1	1	1	2	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	2	
13-Oct	1	1	1	1	1	1	2	2	1	3	5	5	5	5	5	3	2	2	1	2	2	1	1	5	
14-Oct	1	1	1	1	3	2	2	2	2	3	3	3	3	2	2	2	1	1	2	2	2	2	2	3	
15-Oct	2	2	1	1	2	2	2	1	2	2	3	2	2	3	2	2	1	1	1	1	1	2	3	3	
16-Oct	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-Oct	1	1	1	2	1	2	3	4	3	3	4	3	2	4	4	4	5	6	6	4	5	5	4	6	
18-Oct	4	4	4	2	2	2	1	1	2	2	2	3	3	3	4	3	3	1	1	1	1	1	1	4	
19-Oct	1	1	1	1	1	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	
20-Oct	3	3	3	3	2	3	3	3	2	2	2	2	2	2	3	2	2	2	3	3	3	3	3	3	
21-Oct	4	4	3	3	4	4	4	3	4	4	4	2	2	1	2	2	1	1	2	2	2	2	2	4	
22-Oct	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3	4	4	3	3	4	4	
23-Oct	4	5	5	5	4	5	2	3	3	2	2	2	4	4	4	3	3	2	1	1	1	2	1	5	
24-Oct	2	2	2	2	2	2	2	1	2	3	4	5	4	5	4	2	1	2	2	2	2	1	1	5	
25-Oct	1	1	1	2	2	2	2	1	2	2	1	2	2	1	3	3	2	1	1	1	2	1	2	3	
26-Oct	1	2	1	1	UO	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	2	
27-Oct	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	
28-Oct	2	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	3	3	3	3	
29-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	3	2	3	3	3	2	2	2	2	2	1	1	2	
31-Oct	2	1	2	1	1	1	1	1	1	2	3	2	3	2	2	2	1	1	1	1	1	1	UO	3	
Diurnal Maximum																									
C - Calibration      M - Maintenance      UO - Unstable Operation																									



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

**Wind Speed 10m (WS10) - km/h**  
**Barge Landing - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Barge Landing - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	381	54.74	54.74
6 - 11	273	39.22	93.97
12 - 19	42	6.03	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: 696

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Barge Landing - October 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	15	12	16	10	33	44	44	26	30	19	21	13	19	23	41	381
6 - 11	27	13	11	0	0	3	15	22	13	32	32	37	19	21	13	15	273
12 - 19	6	0	0	0	0	0	1	2	1	1	3	18	5	5	0	0	42
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>	48	28	23	16	10	36	60	68	40	63	54	76	37	45	36	56	696

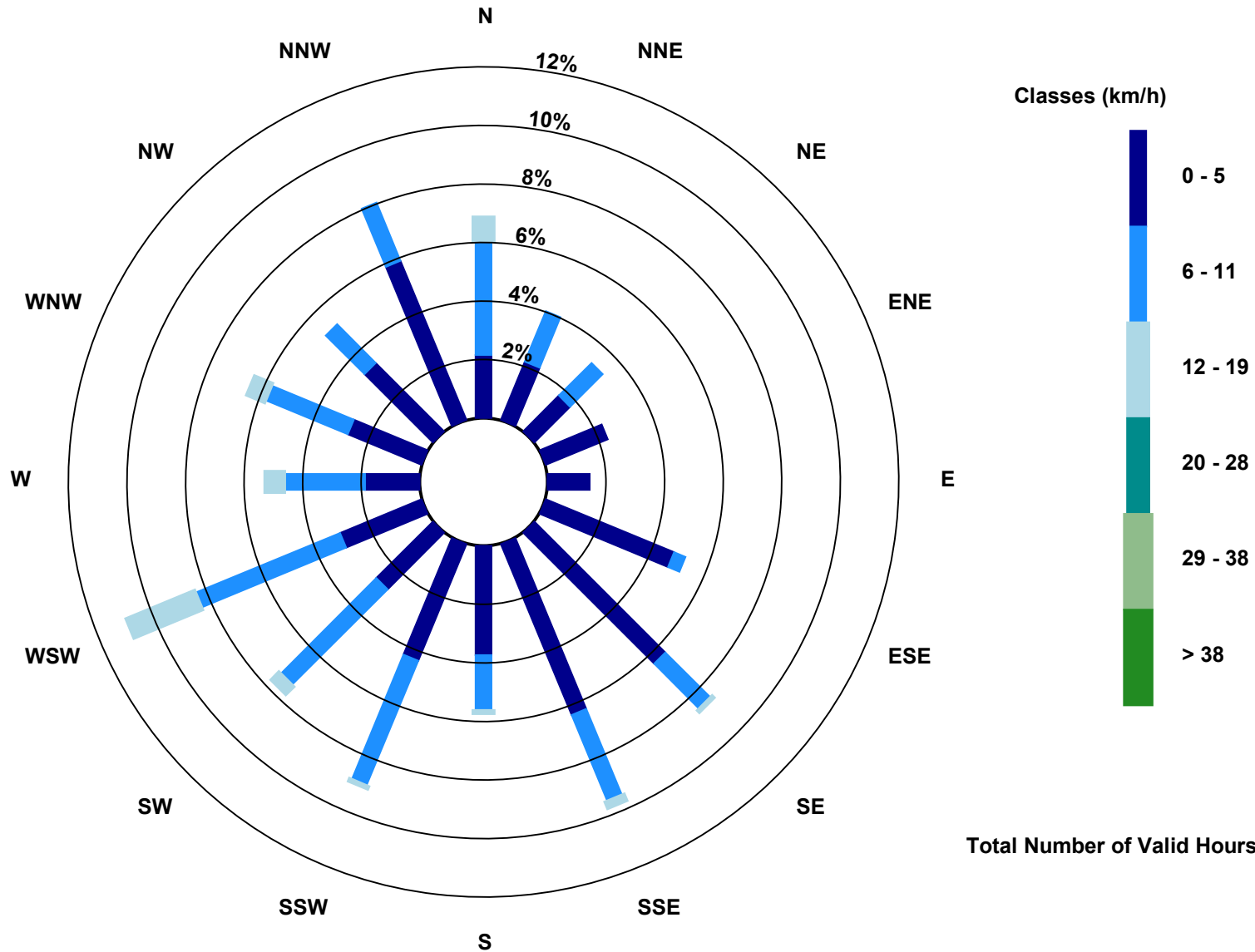
Total Number of Valid Hours: 696

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Barge Landing



Total Number of Valid Hours: 696



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

**Wind Direction 10m (WD10) - deg**  
**Barge Landing - October 2024**

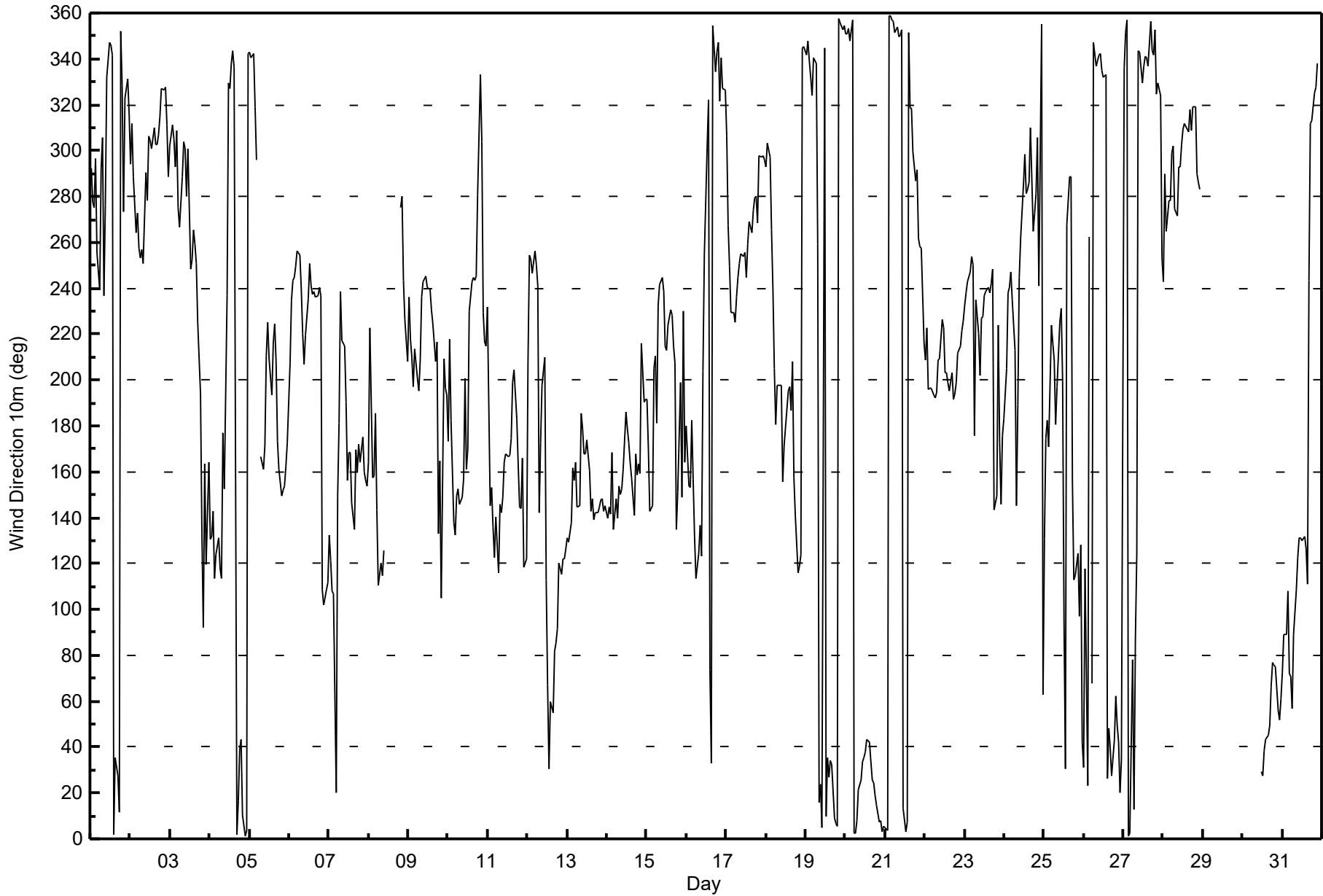
Direction of Maximum Speed: 247 deg on Oct 23 04:00																						Hours in Service: 744				
Direction of Maximum Daily Speed Average: 266.1 deg on Oct 17																						Hours of Data: 696				
Direction of Minimum Speed: 316 deg on Oct 8 13:00											Direction of Minimum Daily Speed Average: 0.2 deg on Oct 16											Hours of Missing Data: 48				
Monthly Average Direction: 240.5 deg																						Percent Operational Time: 93.8				
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-Oct	293	278	275	297	256	239	292	306	237	276	332	347	346	342	2	35	28	12	352	329	273	323	331	316	324.9	
2-Oct	294	312	288	264	273	257	253	257	251	291	278	306	304	301	310	302	303	307	315	327	327	328	311	289	296.8	
3-Oct	302	311	305	293	309	275	267	289	304	301	280	301	249	252	265	259	251	225	194	134	92	164	119	164	269.6	
4-Oct	131	132	142	114	124	131	118	114	177	153	237	329	327	338	343	336	2	17	39	43	11	1	4	342	28.4	
5-Oct	343	340	342	319	296	UO	UO	166	161	172	211	225	210	194	216	224	208	173	161	149	152	154	162	173	196.9	
6-Oct	207	235	243	245	250	256	254	240	220	207	220	236	250	241	237	238	236	237	241	237	108	102	109	112	235.8	
7-Oct	133	121	108	107	20	149	181	238	217	215	190	156	168	168	147	135	170	160	172	164	175	160	156	154	159.7	
8-Oct	164	223	157	158	185	143	110	120	115	126	C	C	316	UO	UO	UO	UO	UO	UO	275	280	243	226	208	--	
9-Oct	236	218	210	197	214	201	195	209	236	243	245	240	240	240	230	225	208	217	133	165	105	209	196	194	222.6	
10-Oct	173	218	183	138	132	149	152	146	149	157	201	161	170	230	243	244	243	246	280	333	304	229	217	215	209.5	
11-Oct	232	145	153	136	123	140	116	146	142	149	164	168	167	167	175	199	204	183	163	145	144	166	118	122	160.2	
12-Oct	208	255	253	246	256	250	241	142	173	198	210	113	67	30	60	55	82	86	92	120	115	122	122	126	134.1	
13-Oct	131	130	138	161	156	164	145	145	185	179	168	168	174	161	142	148	139	142	142	144	148	148	143	145	153.0	
14-Oct	140	145	142	168	135	149	140	154	150	152	161	186	179	172	164	157	141	168	158	163	159	216	190	192	162.7	
15-Oct	192	170	143	145	205	210	181	233	242	245	239	215	213	224	230	228	215	207	135	152	199	149	230	164	209.0	
16-Oct	180	154	153	182	157	132	114	125	137	124	204	255	302	322	74	33	354	334	343	347	322	340	327	327	2.7	
17-Oct	306	267	250	229	230	225	236	244	251	255	254	256	245	259	269	264	274	280	280	268	298	297	298	296	266.1	
18-Oct	293	303	297	265	240	205	181	197	198	198	156	172	180	195	197	187	208	157	141	116	119	124	345	346	198.2	
19-Oct	342	348	339	332	324	340	338	259	16	24	5	345	10	36	27	34	33	9	7	5	357	356	353	355	1.8	
20-Oct	351	351	353	348	357	3	3	8	21	26	33	36	38	43	42	34	26	25	19	15	7	8	3	6	12.8	
21-Oct	5	4	359	359	357	356	352	354	350	350	353	14	3	7	352	319	319	300	287	292	262	258	258	216	343.5	
22-Oct	209	223	196	197	197	194	192	194	209	209	226	223	203	203	199	195	203	192	194	199	212	215	222	226	206.5	
23-Oct	233	238	243	247	254	250	176	235	220	202	227	228	237	239	240	238	242	249	143	149	224	173	146	175	231.5	
24-Oct	183	205	238	241	247	235	213	145	189	245	262	285	299	281	283	286	310	265	273	281	306	241	355	63	265.7	
25-Oct	131	174	182	171	224	216	209	181	197	225	231	199	95	30	268	289	288	155	113	115	124	97	128	42	194.7	
26-Oct	31	118	23	262	UO	68	347	337	339	342	342	335	332	333	27	48	40	27	43	62	49	42	20	34	10.3	
27-Oct	336	352	357	1	3	78	13	87	124	344	343	330	337	341	341	337	356	344	342	353	325	329	324	253	345.2	
28-Oct	243	290	265	278	278	299	302	275	271	293	293	303	310	312	309	308	318	309	319	319	290	286	283	UO	296.0	
29-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	29	27	38	43	45	49	66	77	76	75	56	52	61	--
31-Oct	73	89	89	108	72	71	57	89	109	123	131	131	130	132	126	111	243	312	313	325	328	338	UO	222	115.9	
243.0 254.3 248.1 242.3 248.5 233.1 217.6 215.2 221.9 231.0 236.8 239.8 238.1 243.5 244.6 250.6 259.0 256.4 249.5 215.2 254.8 261.8 269.1 213.3																										
Diurnal Average																										
C - Calibration M - Maintenance 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 10m (WD10) - deg**  
**Barge Landing - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 105 deg on Oct 4 11:00 Minimum Value: 7 deg on Oct 19 00:00 Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 17 Q <sub>1</sub> = 20 Median = 25 Q <sub>3</sub> = 32 P <sub>90</sub> = 43 P <sub>99</sub> = 86		Hours in Service: 744 Hours of Data: 696 Hours of Missing Data: 48 Hours of Calibration: 2 Percent Operational Time: 93.8																								
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-Oct	39	29	22	25	58	67	28	45	24	46	59	41	49	90	43	38	22	22	16	30	42	33	20	17	90	
2-Oct	33	28	32	26	30	27	24	25	22	31	33	30	27	31	24	30	27	26	23	23	21	21	25	32	33	
3-Oct	32	38	34	29	26	30	27	32	30	36	33	36	39	40	44	31	25	26	19	26	31	29	38	37	44	
4-Oct	31	11	38	8	21	22	14	15	52	59	105	34	19	21	16	16	19	24	21	24	20	22	17	17	105	
5-Oct	17	16	16	25	36	UO	UO	39	26	34	31	24	32	36	31	25	26	21	18	16	19	23	24	25	39	
6-Oct	36	26	22	22	22	24	23	31	31	31	28	20	22	21	22	21	19	19	23	30	19	14	11	17	36	
7-Oct	18	23	12	12	73	37	61	79	37	40	47	30	34	33	28	27	26	20	25	23	25	19	17	15	79	
8-Oct	33	59	31	23	46	30	9	12	11	12	C	C	45	UO	UO	UO	UO	UO	UO	43	35	20	25	33	59	
9-Oct	21	29	25	34	31	29	28	22	18	21	21	22	27	22	24	22	23	22	11	54	15	44	63	24	63	
10-Oct	24	30	37	19	20	22	32	20	23	30	33	35	34	31	22	27	19	17	40	20	43	22	91	27	91	
11-Oct	88	34	32	23	13	24	12	24	16	25	27	31	35	33	31	29	23	24	18	11	19	22	17	17	88	
12-Oct	60	39	24	12	21	35	26	41	50	38	47	63	88	60	30	29	22	12	8	18	14	11	12	11	88	
13-Oct	10	13	10	28	21	18	16	37	43	27	29	30	31	30	22	24	18	14	12	16	16	15	11	14	43	
14-Oct	13	18	25	34	22	27	23	35	20	24	28	33	32	33	29	26	15	32	23	24	20	26	24	24	35	
15-Oct	24	25	25	28	30	34	36	30	14	19	18	29	39	30	28	21	20	24	19	23	23	80	26	26	80	
16-Oct	23	27	16	23	27	24	12	51	86	27	77	88	33	53	89	37	20	17	20	17	41	17	25	20	89	
17-Oct	23	37	17	23	21	22	22	21	21	23	20	24	20	25	27	25	29	31	30	26	28	27	31	30	37	
18-Oct	26	24	31	69	39	48	36	31	29	35	38	36	33	34	29	30	24	13	12	8	9	8	40	7	69	
19-Oct	22	18	20	20	18	15	27	66	40	26	32	30	27	25	29	25	23	19	19	18	24	22	19	20	66	
20-Oct	20	20	21	19	20	21	22	26	22	21	24	29	23	23	22	20	18	18	19	20	18	18	19	19	29	
21-Oct	20	21	20	21	19	20	19	20	19	20	21	20	24	24	23	21	23	37	27	37	27	21	27	26	37	
22-Oct	24	24	23	26	25	26	26	26	25	23	27	30	31	29	26	27	25	26	25	27	27	28	24	21	31	
23-Oct	19	18	19	18	21	28	53	19	29	43	28	27	20	18	19	20	19	24	44	39	27	28	27	25	53	
24-Oct	25	45	22	28	30	27	36	29	50	35	26	31	29	31	31	32	22	38	27	34	84	44	26	41	84	
25-Oct	30	33	20	19	36	34	62	24	32	23	19	66	31	73	47	31	29	57	51	45	74	29	71	62	74	
26-Oct	25	71	36	74	UO	64	45	53	13	15	18	21	20	19	26	18	22	17	21	27	32	35	57	39	74	
27-Oct	17	10	16	37	38	85	32	57	48	46	15	74	45	25	19	40	23	12	9	13	21	16	28	25	85	
28-Oct	42	24	25	28	26	33	25	28	33	29	28	28	27	22	26	26	22	30	27	29	30	27	30	UO	42	
29-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	21	21	22	21	21	20	21	18	20	20	20	21	22	22
31-Oct	22	17	39	60	31	12	13	21	15	15	23	23	25	26	22	27	60	50	19	17	26	26	UO	28	60	
Diurnal Maximum																										
C - Calibration      M - Maintenance      UO - Unstable Operation																										





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 20m (WS20) - km/h

## Barge Landing - October 2024

Maximum Speed: 25 km/h on Oct 23 04:00	Maximum Daily Speed Average: 14.5 km/h on Oct 20	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 4 11:00	Minimum Daily Speed Average: 0.6 km/h on Oct 16	Hours of Data: 741
Maximum Diurnal Speed Average: 4.4 km/h at hour 5	Minimum Diurnal Speed Average: 1.2 km/h at hour 19	Hours of Missing Data: 3
Monthly Average Velocity: 3.0 km/h 243.7 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 13 P <sub>90</sub> = 16 P <sub>99</sub> = 23	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-Oct	WNW8	W7	W8	WNW7	W4	WSW5	WNW5	NW4	WSW4	W4	NNW5	N5	N6	N2	N5	NNE9	NNE12	NNE8	N9	NNW6	WNW5	NW7	NNW7	NW8	NW4.6	NNE12
2-Oct	WNW7	NW9	WNW9	W12	W11	W12	W12	W10	W10	WNW19	W16	WNW16	WNW18	WNW21	WNW19	WNW16	WNW18	WNW15	NW16	NW19	NW17	NW15	NW12	WNW10	WNW13.4	WNW21
3-Oct	WNW8	NW6	WNW6	WNW10	W10	W11	WNW11	WNW11	WNW13	WNW14	WNW11	WSW12	WSW12	W11	W14	W12	SW9	SSW9	SSW6	SE3	SSW7	SSE5	S6	W7.6	WNW14	
4-Oct	SSE8	SSE9	S7	SE7	SSE7	SSE8	SE9	ESE8	S3	SSE2	SE0	NNW6	NNW8	NNW9	NNW12	NNW9	NNE12	NNE13	NE18	NE12	NNE11	N11	N12	NNW12	NNE3.7	NE18
5-Oct	NNW14	NNW15	NNW10	NNW6	NNW5	NNW4	W3	SSW4	S5	S5	SSW6	SW11	NNW10	SSW9	SW13	SW12	SSW8	S9	S12	SSE14	SSE15	SSE12	SSE11	S13	SSW4.7	SSE15
6-Oct	SSW10	WSW14	WSW19	WSW21	WSW23	W25	W22	WSW14	SW12	SSW12	SW15	WSW19	WSW20	WSW21	WSW19	WSW17	WSW17	WSW13	WSW12	WSW10	SE6	SE9	SE9	SE8	WSW13.1	W25
7-Oct	SSE9	SSE8	SE8	SE8	S4	S7	S7	SSW4	S4	SSW5	S8	SSE12	SSE12	SSE13	SSE10	SE7	S8	S12	S11	S14	S13	S10	S10	S11	SSE8.6	S14
8-Oct	S9	SSW6	S8	S7	SSW6	SSW7	SSE8	SE9	SE7	SE8	SSE6	SW2	NW2	W3	SSW3	SSE1	N5	NNW4	SSE8	W20	W14	WSW17	SW15	SSW13	SSW4.9	W20
9-Oct	SW15	SW13	SSW13	SSW9	SW10	SSW12	SSW11	SSW12	SW15	WSW14	WSW15	WSW13	WSW15	WSW16	SW13	SW11	SSW9	SW8	S6	SW6	SSW2	SW4	SW6	SSW7	SW10.2	WSW16
10-Oct	S7	SSW10	S6	SSE8	SSE8	SSE10	SSE10	SSE10	S8	SSE7	SSW7	SSE8	SSE10	SW9	WSW16	WSW15	WSW15	WSW13	W9	NW9	NW6	WSW7	WSW6	SW7	SSW6.6	WSW16
11-Oct	SW7	SSW5	SSW6	S6	SSE7	SSE9	SE9	SSE9	SSE9	SSE9	SSE10	SSE11	SSE13	SSE14	S15	SSW14	SSW12	SSW9	S8	S9	S9	SSW8	SSE6	SSE7	S8.8	S15
12-Oct	SW6	WSW5	WSW6	WSW8	WSW7	WSW10	WSW7	S7	S5	S5	S5	ESE4	ENE3	NE5	ENE9	ENE7	E6	E10	E11	ESE8	SE9	SE11	SE10	SE9	SE3.1	E11
13-Oct	SE11	SE12	SE12	SSE11	SSE10	SSE8	SE12	SSE9	SSE8	SSE12	SSE19	SSE22	S22	SSE22	SE23	SSE16	SE13	SE13	SSE13	SSE13	SSE13	SSE11	SE14	SSE13	SSE13.5	SE23
14-Oct	SSE11	SSE10	SSE9	SSE7	SE10	SSE11	SE9	SSE9	SSE9	SSE12	SSE16	S11	S11	SSE9	SSE8	SSE9	SE9	SSE8	SSE14	SSE14	SSE12	SSW10	SSW12	S12	SSE10.1	SSE16
15-Oct	S12	S10	SSE8	S7	SSW11	SW9	SSW7	SW8	WSW14	WSW14	SW10	SSW9	SSW8	SW10	SSW9	SW10	SW9	SW8	S8	S10	SSW9	SW5	SW8	S8	SSW8.6	WSW14
16-Oct	SSW9	S8	S9	S10	S9	SSE7	SE7	SSE4	S4	SE3	SSW1	WSW1	NW3	NW3	ENE3	NE4	N7	NNW9	NNW7	N8	NW5	NNW8	NW7	NW7	SW0.6	S10
17-Oct	NW5	W4	WSW6	SW6	SW7	SW11	WSW13	WSW17	WSW15	WSW16	WSW17	WSW16	WSW13	WSW18	W17	W19	W21	W24	W23	W19	WNW21	WNW23	WNW17	WNW15	W14.3	W24
18-Oct	WNW15	WNW18	WNW16	W5	SW10	SW7	SSW8	SSW8	SSW8	S7	SSE8	SSE11	S13	S12	SSW14	S12	SSW12	S10	SSE11	SE11	SE11	SE10	ESE1	N8	SSW6.1	WNW18
19-Oct	N8	NE5	NNW5	NNW8	NW6	NNW12	NNW9	WNW3	NNE6	NNE7	N7	NNW9	NNE11	NE11	NNE9	NNE10	NNE10	N12	N13	N13	N11	N12	N14	N15	N8.8	N15
20-Oct	NNW16	NNW17	N15	NNW15	N15	N16	N14	N11	NNE12	NNE14	NNE12	NNE10	NNE11	NE13	NE14	NNE14	NNE16	NNE18	NNE19	NNE16	N16	N19	N18	N20	N14.5	N20
21-Oct	N23	N22	N21	N22	N22	N23	N21	N20	NNW20	NNW20	N19	NNE14	NNE10	N8	N9	NW7	NW8	WNW6	W10	WNW7	W10	WSW11	WSW11	SW8	NNW11.9	N23
22-Oct	SSW11	SW9	SSW8	SSW9	SSW11	SSW12	S11	SSW12	SSW13	SSW16	SW16	SW15	SSW15	SSW15	SSW15	SSW13	SSW16	S16	SSW17	SSW20	SSW14	SSW12	SW19	SW19	SSW13.7	SSW20
23-Oct	SW19	SW22	WSW24	WSW25	WSW23	WSW15	SSW6	SW14	SW13	SSW7	SW8	SW9	SW16	WSW19	WSW18	WSW17	WSW16	WSW11	SSW5	S5	SW8	S10	S9	S11	SW12.8	WSW25
24-Oct	SSW8	SSW7	SW10	WSW9	WSW8	SW10	SW8	S6	SSW6	WSW9	W16	W21	WNW19	W20	W19	W17	WNW9	W7	W14	WNW9	NW5	SW8	NNW7	NE10	W8.5	W21
25-Oct	ESE8	SSE7	SSW8	S9	SW7	SW8	SSW5	SSW7	SSW9	SW8	SW7	SSW3	E8	NNE2	W9	WNW12	WNW8	WSW5	SSW4	SE5	ESE5	ESE6	ESE4	ENE5	SSW3.2	WNW12
26-Oct	NNE5	E7	N5	NNW4	NNW4	N5	NNW5	NNW7	NNW8	NNW10	NNW11	NNW10	NNW11	NNW11	NNE12	NE13	NE10	NNE11	NE9	ENE7	ENE7	ENE7	ENE4	NE7	NNE6.3	NE13
27-Oct	NNW6	NNW7	N5	SE4	ESE6	SSE4	ESE4	ESE8	SE7	NE3	N6	ENE5	N6	NNW8	NNW8	NNW5	N5	NE3	NNW7	N6	NNW4	NW7	UO	UO	NNE3.0	NNW8
28-Oct	UO	WNW8	W12	W12	W12	WNW9	WNW10	W9	W8	WNW10	WNW12	WNW15	WNW15	WNW16	WNW13	WNW14	NW13	WNW10	NW9	NW8	WNW15	W14	W14	W11	WNW11.4	WNW16
29-Oct	W9	WNW16	WNW17	WNW15	WNW15	WNW14	WNW14	WNW12	WNW9	W8	W9	WSW11	SW10	SW10	SW10	S5	ESE4	E8	E9	ESE9	ESE6	N5	N5	N7	W5.4	WNW17
30-Oct	N11	N12	N13	N13	N12	N14	N14	N16	N14	NNE16	NNE16	NNE15	NNE13	NNE14	NE14	NE13	NE13	ENE10	ENE9	ENE10	ENE8	NE8	NE10	NE11	NNE11.4	NNE16
31-Oct	ENE11	E10	E7	E4	ENE4	ENE8	NE7	ENE6	ESE7	ESE10	SE11	SE11	SE12	SE10	SE8	ESE4	SW1	NW2	NW3	NW4	NW2	NNW2	SSW5	SW10	ESE4.0	SE12

WSW2.6	WSW3.0	WSW3.9	WSW4.2	WSW4.4	WSW4.1	SW2.8	SW3.1	SW3.5	SW3.2	WSW4.1	WSW3.9	WSW3.8	WSW4.4	WSW3.8	WSW3.6	W3.1	WSW2.1	SW1.2	SW1.3	WSW1.3	WSW2.2	WSW2.1	SW1.9	Diurnal Average
N23	WSW22	WSW24	WSW25	WSW23	W25	WSW22	N20	NNW20	NNW20	N19	SSE22	S22	SSE22	SE23	W19	W21	W24	W23	W20	WNW21	WNW23	SW19	N20	Diurnal Maximum

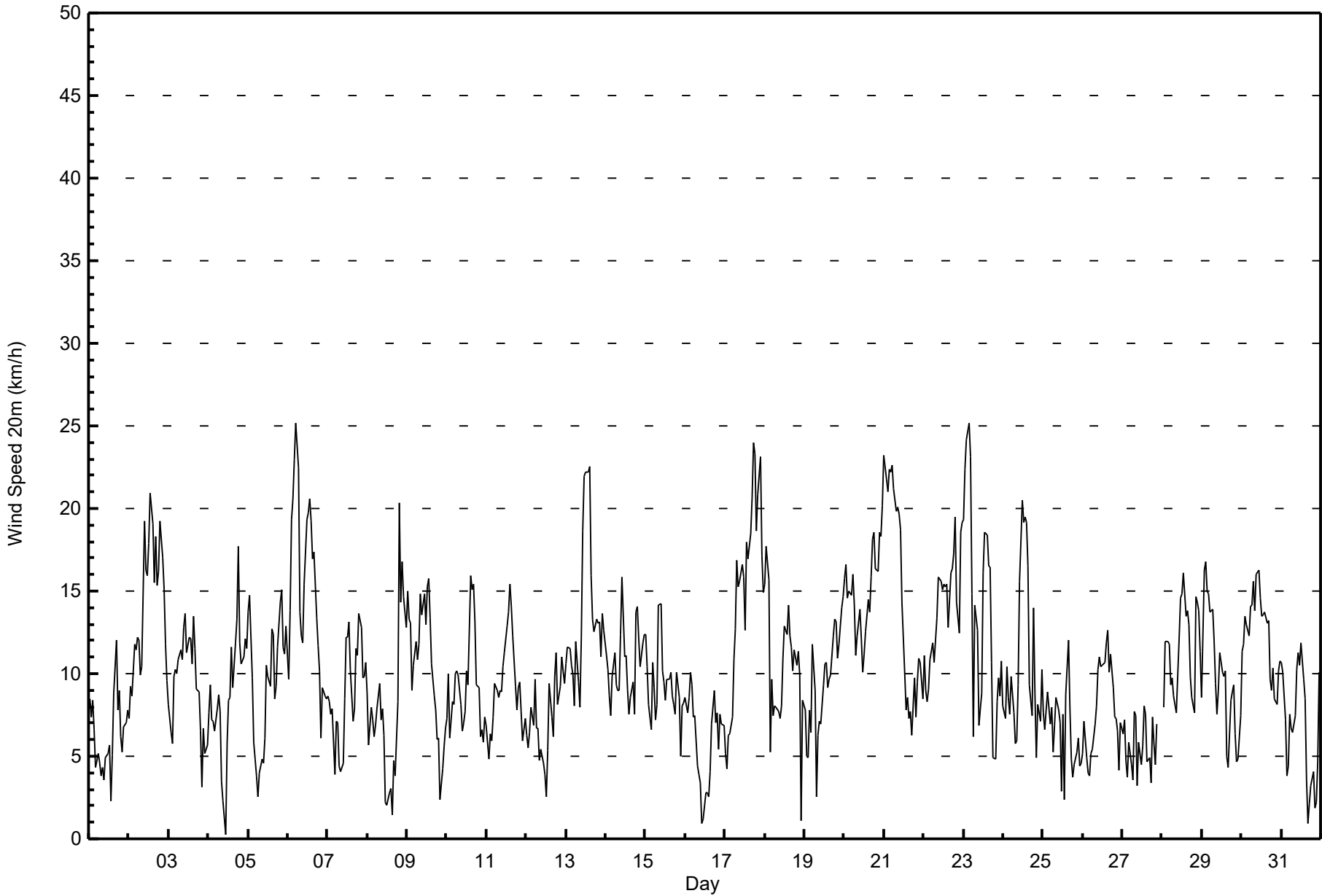
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 20m (WS20) - km/h**  
**Barge Landing - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Oct 8 20:00 Minimum Value: 1 km/h on Oct 26 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> = 5 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-Oct	4	2	1	1	1	2	1	1	1	1	2	2	2	2	2	6	3	2	2	2	1	2	2	2	6
2-Oct	2	3	2	3	3	3	3	2	2	7	5	5	5	6	6	5	6	5	5	5	5	5	3	3	7
3-Oct	2	2	2	3	3	3	3	3	3	4	4	4	4	5	4	4	3	2	1	1	2	2	1	1	5
4-Oct	2	1	1	1	1	1	1	1	2	1	1	2	2	2	2	2	3	5	4	3	3	3	3	3	5
5-Oct	3	3	2	1	1	1	1	1	1	1	2	3	3	2	5	4	2	2	1	2	2	2	2	2	5
6-Oct	4	5	5	5	5	6	5	6	4	4	5	5	5	6	6	4	4	3	2	2	3	1	1	1	6
7-Oct	1	1	1	2	2	1	2	1	1	2	4	3	4	4	3	2	2	3	2	3	3	2	1	1	4
8-Oct	2	1	1	1	2	1	1	1	2	1	2	1	1	1	1	1	1	2	4	8	5	4	4	3	8
9-Oct	4	4	3	3	3	3	2	2	2	3	3	4	4	4	3	3	1	1	1	1	1	2	1	1	4
10-Oct	1	3	2	2	1	2	2	1	2	2	2	2	2	3	4	4	4	3	2	2	1	1	2	2	4
11-Oct	4	2	1	2	1	2	2	1	1	2	2	3	3	3	4	3	3	2	1	1	1	1	1	1	4
12-Oct	2	2	1	1	1	2	2	2	2	1	1	1	2	3	3	2	1	2	1	1	1	1	1	1	3
13-Oct	1	1	1	2	1	1	2	2	2	3	5	6	6	6	5	4	3	2	1	2	2	2	1	2	6
14-Oct	1	2	1	2	4	2	2	3	2	4	4	3	3	3	3	2	1	2	3	3	2	2	2	2	4
15-Oct	3	2	2	2	3	3	2	2	3	3	2	2	3	2	3	3	1	1	1	2	1	3	3	2	3
16-Oct	1	2	1	2	1	2	1	1	1	1	1	1	1	1	2	1	1	2	1	1	2	1	2	2	2
17-Oct	1	1	1	2	1	3	3	4	3	4	5	4	3	5	4	4	7	7	7	5	7	7	5	4	7
18-Oct	5	5	5	3	3	3	2	2	2	2	2	3	3	4	4	3	3	2	1	1	1	1	2	1	5
19-Oct	3	1	1	2	1	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	4	4	4
20-Oct	4	5	4	5	4	5	5	4	3	4	3	3	3	3	4	4	4	4	5	5	4	5	5	5	5
21-Oct	6	6	6	6	6	6	5	5	5	6	5	4	3	2	3	2	2	2	2	3	3	3	3	2	6
22-Oct	3	3	2	2	3	3	3	3	3	4	5	4	4	4	4	3	4	3	4	5	4	3	5	5	5
23-Oct	4	5	6	5	5	7	3	4	4	2	2	3	5	5	4	4	4	2	2	1	2	2	2	2	7
24-Oct	2	2	2	3	3	3	3	1	2	4	5	6	6	6	6	5	3	2	3	3	2	3	2	2	6
25-Oct	2	2	2	2	2	2	2	1	2	2	1	2	2	2	4	4	3	1	1	2	2	2	2	1	4
26-Oct	2	2	1	1	1	1	2	2	1	2	2	2	3	2	3	2	2	2	1	2	2	2	3	2	3
27-Oct	1	1	2	2	2	3	1	2	2	1	1	2	3	2	2	2	1	1	2	1	2	1	UO	UO	3
28-Oct	UO	2	2	3	2	2	2	2	2	3	3	4	4	4	4	4	4	3	4	3	4	4	3	3	4
29-Oct	2	6	4	5	5	4	4	3	3	2	3	4	3	4	3	2	2	1	1	1	1	2	1	3	6
30-Oct	3	3	4	3	4	3	4	4	4	4	4	4	4	4	3	3	3	3	2	3	3	2	2	2	4
31-Oct	2	2	3	1	1	1	1	1	1	2	3	3	3	2	2	2	1	1	1	1	1	1	3	3	3
Diurnal Maximum																									
UO - Unstable Operation																									







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 20m (WS20) - km/h  
Barge Landing - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	104	14.04	14.04
6 - 11	376	50.74	64.78
12 - 19	226	30.50	95.28
20 - 28	35	4.72	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 20m (WS20) - km/h**  
**Barge Landing - October 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	10	2	5	6	1	7	4	6	11	12	4	5	6	3	12	10	104
6 - 11	17	13	9	13	8	10	30	51	42	43	41	16	18	24	14	27	376
12 - 19	23	18	8	0	0	0	7	20	12	22	17	36	19	30	6	8	226
20 - 28	9	0	0	0	0	0	1	2	1	1	0	9	7	3	0	2	35
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>	59	33	22	19	9	17	42	79	66	78	62	66	50	60	32	47	741

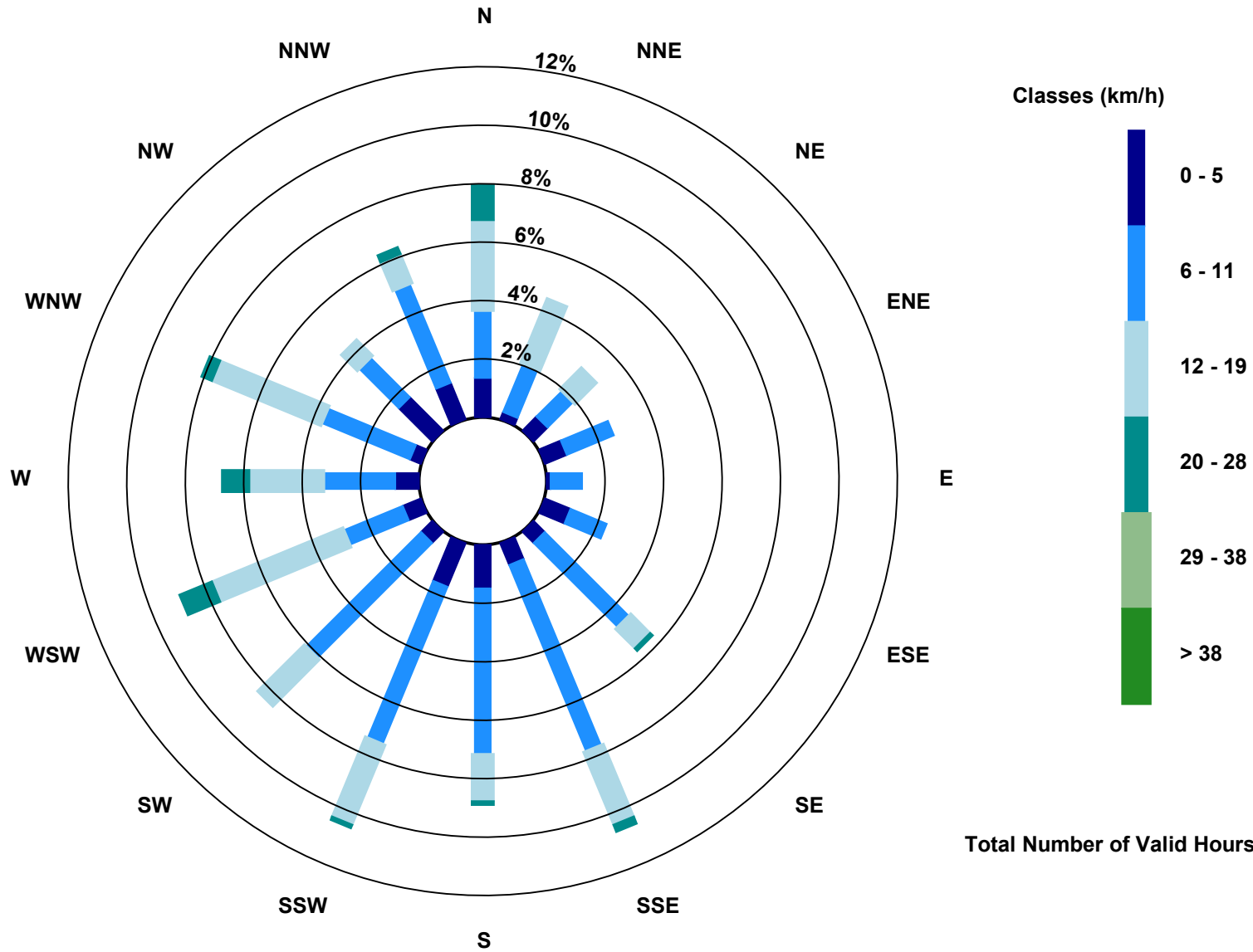
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 20m (WS20) - km/h  
Barge Landing



Total Number of Valid Hours: 741



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20m (WD20) - deg

Barge Landing - October 2024

Direction of Maximum Speed: 246 deg on Oct 23 04:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 10.3 deg on Oct 20		Hours of Data:	741
Direction of Minimum Speed: 127 deg on Oct 4 11:00		Hours of Missing Data:	3
Direction of Minimum Daily Speed Average: 0.6 deg on Oct 16		Percent Operational Time:	99.6
Monthly Average Direction: 243.7 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-Oct	283	276	276	283	272	247	303	308	243	275	335	355	6	354	11	30	26	13	358	333	296	318	329	315	323.6
2-Oct	295	305	287	270	273	263	262	262	261	287	276	300	297	294	303	292	294	299	309	324	326	326	305	286	293.9
3-Oct	294	307	301	290	301	276	270	286	298	295	282	295	255	256	270	260	259	228	212	203	137	194	164	173	267.2
4-Oct	168	165	170	142	148	154	133	111	174	148	127	332	333	341	347	346	13	24	38	42	20	10	10	345	33.4
5-Oct	345	344	345	331	308	340	279	207	184	186	207	225	205	192	215	223	211	180	171	160	159	162	167	182	201.8
6-Oct	210	237	249	250	255	259	259	247	223	205	219	237	254	244	240	238	239	237	245	246	130	130	125	128	237.1
7-Oct	151	157	138	141	186	181	184	204	188	206	182	159	167	166	155	140	170	171	175	171	178	173	176	171	168.6
8-Oct	174	193	180	181	202	204	150	146	137	135	151	236	315	279	210	168	5	338	162	269	277	240	224	208	207.1
9-Oct	236	219	209	205	218	200	194	204	232	241	243	238	239	239	224	222	212	227	187	226	204	227	216	204	222.4
10-Oct	186	210	177	167	157	166	166	157	171	165	194	163	167	225	241	244	243	244	279	325	320	243	238	228	210.6
11-Oct	232	198	204	183	157	164	139	156	156	158	165	164	166	167	171	193	202	195	188	169	175	200	168	160	174.9
12-Oct	218	253	257	250	258	248	241	172	178	181	180	111	77	43	60	60	80	86	94	120	126	132	132	141	143.0
13-Oct	138	134	146	162	163	163	141	147	164	168	165	167	171	160	146	149	143	144	148	150	155	152	145	151	153.8
14-Oct	154	153	151	165	142	150	143	152	155	160	180	174	167	161	156	142	161	159	161	160	209	209	192	189	162.5
15-Oct	191	172	161	185	210	216	203	231	238	244	234	211	207	219	222	224	216	219	178	173	209	217	231	187	210.1
16-Oct	199	180	173	182	176	162	146	148	186	157	194	250	307	317	74	40	6	332	348	353	325	337	325	325	232.1
17-Oct	304	274	246	227	225	222	237	245	253	255	255	256	245	258	268	266	273	276	277	269	289	290	288	287	265.4
18-Oct	285	292	289	267	236	216	192	202	194	185	161	168	175	186	193	181	207	173	153	131	127	131	108	349	197.8
19-Oct	359	39	345	330	321	336	336	287	13	19	360	342	23	36	26	28	26	8	5	4	356	352	353	351	1.4
20-Oct	347	348	350	345	356	360	2	5	18	21	26	32	32	37	35	27	23	22	18	13	5	7	3	3	10.3
21-Oct	5	2	357	356	354	355	349	349	346	346	349	20	14	8	350	308	305	290	281	285	262	257	257	214	342.0
22-Oct	207	220	196	197	196	193	190	193	204	205	219	217	198	198	195	193	201	189	193	196	209	213	219	221	203.0
23-Oct	228	236	242	246	254	254	194	233	217	195	219	219	234	237	238	237	241	249	194	190	230	189	171	182	230.5
24-Oct	192	210	234	238	248	232	217	176	211	247	264	280	289	279	279	281	298	272	274	282	312	234	346	51	265.0
25-Oct	103	154	198	179	223	216	212	194	201	218	223	197	91	24	275	285	283	251	207	133	108	113	119	60	197.7
26-Oct	19	89	7	339	330	351	342	333	336	337	340	330	330	331	28	45	39	31	48	71	58	73	59	42	13.3
27-Oct	339	341	356	129	121	149	102	110	127	56	356	70	355	337	345	344	350	37	342	356	330	326	UO	UO	12.1
28-Oct	UO	282	267	275	276	291	291	276	276	285	285	293	297	301	299	298	306	295	310	311	282	280	279	279	288.5
29-Oct	280	292	290	284	287	288	292	288	288	263	263	244	236	226	235	188	105	90	97	102	102	5	353	6	278.0
30-Oct	354	352	357	354	357	10	4	6	11	23	23	23	23	32	37	40	43	63	73	68	71	49	48	52	25.0
31-Oct	61	81	79	87	65	65	56	77	103	123	133	136	130	133	129	114	226	315	308	316	316	329	199	218	107.0

252.5 257.4 255.3 247.9 250.7 243.5 234.5 223.5 227.2 236.2 238.7 240.1 237.8 244.2 246.0 251.6 267.2 257.9 230.8 226.6 239.3 248.3 240.1 226.2  
Diurnal Average

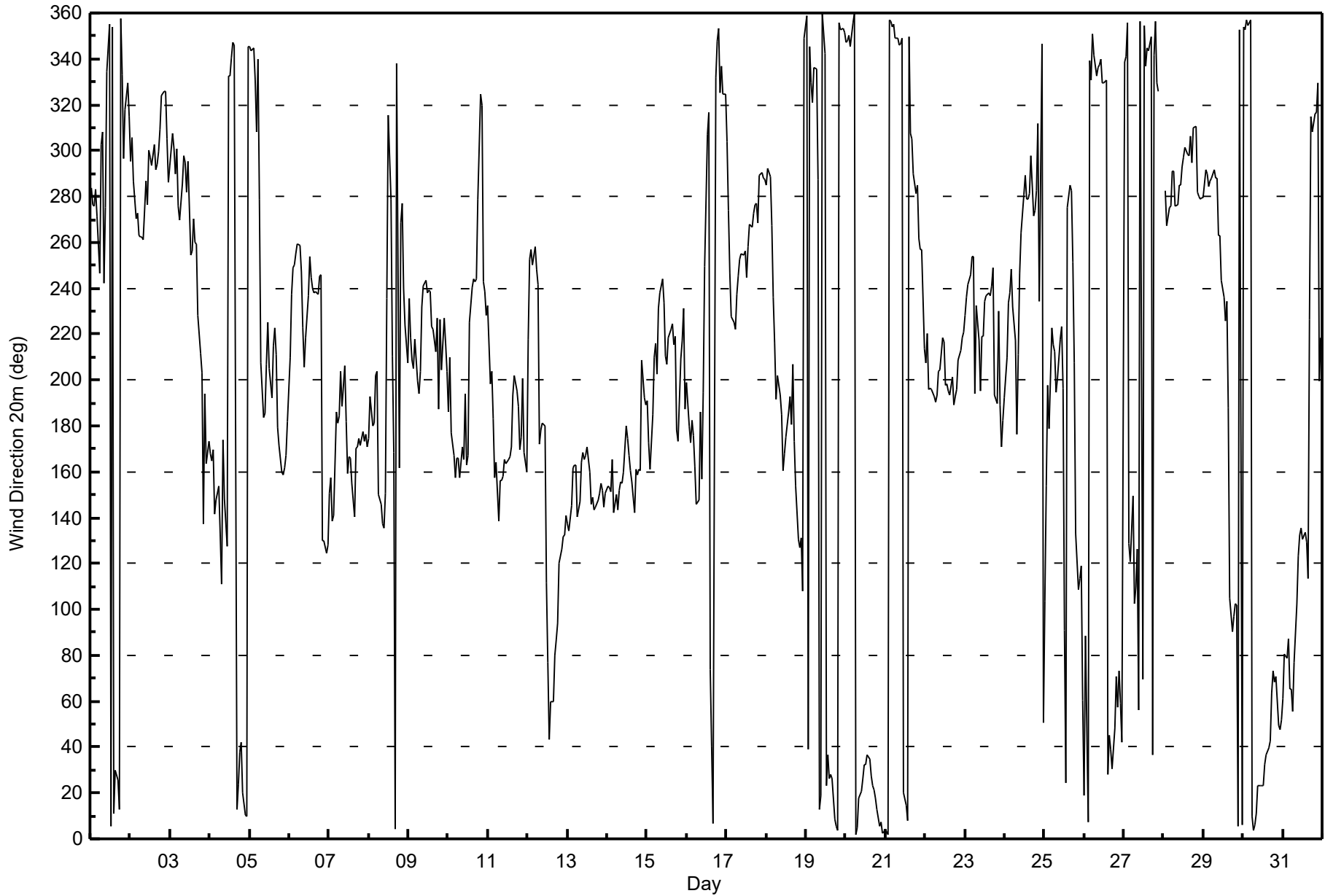
UO - Unstable Operation  
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 20m (WD20) - deg**  
**Barge Landing - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 102 deg on Oct 4 11:00 Minimum Value: 3 deg on Oct 12 19:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 16 Q <sub>3</sub> = 21 P <sub>90</sub> = 31 P <sub>99</sub> = 74																	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-Oct	23	19	13	11	34	22	11	31	24	38	44	43	46	95	43	28	14	16	14	23	24	24	13	13	95
2-Oct	21	19	17	14	15	13	14	14	15	19	17	20	16	17	17	18	16	17	15	17	16	15	18	17	21
3-Oct	17	27	23	17	16	16	14	18	16	21	19	23	30	29	32	21	18	18	8	18	45	23	36	34	45
4-Oct	16	6	13	9	17	17	18	10	42	54	102	23	13	17	12	16	13	18	14	15	14	15	14	14	102
5-Oct	13	12	11	13	21	14	21	24	22	24	22	17	25	27	24	16	17	10	10	7	8	12	10	16	27
6-Oct	19	14	15	16	14	15	14	22	21	22	20	17	16	17	18	16	14	12	13	12	33	13	16	10	33
7-Oct	17	17	12	7	46	17	25	26	26	39	33	17	20	18	16	20	14	11	13	12	12	11	9	8	46
8-Oct	10	13	11	12	19	14	15	7	7	9	22	59	60	50	53	81	21	49	21	37	22	14	17	24	81
9-Oct	15	19	15	17	22	18	13	11	15	18	16	18	21	18	17	16	14	10	13	23	40	35	23	16	40
10-Oct	9	21	10	9	10	12	19	10	14	16	24	22	18	26	17	19	14	12	33	19	32	16	22	18	33
11-Oct	20	28	19	24	22	11	11	15	8	14	14	18	22	20	19	19	14	15	15	12	9	12	20	16	28
12-Oct	18	13	10	8	8	10	17	27	38	23	37	42	78	73	17	17	17	6	3	10	12	6	10	6	78
13-Oct	7	9	5	15	13	8	6	13	23	14	15	17	17	18	13	14	12	8	7	9	9	11	5	7	23
14-Oct	10	12	14	19	15	15	14	22	11	13	13	20	19	20	17	15	9	18	11	12	10	18	14	14	22
15-Oct	13	16	12	26	15	17	25	18	11	14	16	22	32	22	27	15	11	12	14	10	14	36	15	13	36
16-Oct	11	16	9	7	11	14	8	11	39	29	97	83	33	39	76	25	24	11	20	13	33	9	17	17	97
17-Oct	14	19	12	16	15	14	16	14	14	15	14	14	15	16	15	14	16	16	16	15	18	16	18	17	19
18-Oct	15	15	16	44	29	34	21	18	16	23	26	23	20	23	20	17	14	8	9	5	4	6	72	3	72
19-Oct	16	18	14	13	13	10	16	55	27	17	27	22	29	15	21	16	18	14	15	14	19	18	15	17	55
20-Oct	17	15	16	15	17	17	15	17	16	13	15	23	16	16	14	14	12	12	12	15	15	15	16	17	23
21-Oct	16	17	19	17	17	17	16	16	15	16	17	21	34	22	20	17	15	17	15	17	16	14	18	18	34
22-Oct	14	16	13	14	15	15	15	16	15	15	21	24	20	18	17	16	15	15	14	15	17	17	15	15	24
23-Oct	14	13	14	13	13	18	45	15	22	31	24	23	18	15	14	14	14	12	40	31	16	15	17	13	45
24-Oct	13	28	13	16	20	18	23	20	24	31	16	18	18	18	18	16	13	22	14	13	35	29	23	24	35
25-Oct	24	31	8	11	20	21	35	16	17	18	15	65	21	71	33	18	15	24	24	26	37	19	59	27	71
26-Oct	19	29	27	29	31	8	18	12	9	11	15	13	17	13	23	11	15	11	11	17	21	16	52	40	52
27-Oct	26	11	45	46	15	76	44	15	12	34	24	40	49	27	15	39	29	31	10	12	21	11	UO	UO	76
28-Oct	UO	13	13	12	14	17	12	15	16	16	15	16	16	13	15	16	16	19	22	23	16	14	15	16	23
29-Oct	17	19	16	16	16	17	15	15	16	16	20	23	29	27	20	28	23	9	5	7	13	38	18	19	38
30-Oct	16	15	16	15	16	14	15	15	16	12	13	14	14	16	15	15	14	19	12	16	14	14	11	12	19
31-Oct	12	12	17	20	11	8	8	12	12	13	15	19	20	19	17	28	66	52	17	14	19	22	29	21	66
Diurnal Maximum																									
26 31 45 46 46 76 45 55 42 54 102 83 78 95 76 81 66 52 40 37 45 38 72 40																									
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS11 LOWER CAMP OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
OCTOBER 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	151	0	49.1	1
H2S (ppb) Average	705	36	39	99.6	16.6	20	7.4	2
THC (ppm) Average	708	36	36	100	3.1	-	2.3	-
CH4(ppm) Average	708	36	36	100	3.1	-	2.3	-
NMHC(ppm) Average	708	36	36	100	0.179	-	0.056	-
Temperature (C) Average	744	0	0	100	19.8	-	13.3	-
Relative Humidity (%) Average	744	0	0	100	99.9	-	88.6	-
Barometric Pressure (inHg) Average	744	0	0	100	29.5	-	29.4	-
Wind Speed 10 m (km/h) Average	744	0	0	100	30	-	19	-
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 - LOWER CAMP (AMS11)  
OCTOBER 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	6.91	20.3	-	0	0	0.1	0.4	2.4	16.1	151
H2S (ppb) Average	705	1.11	2.5	-	0	0	0.1	0.3	0.8	2.6	16.6
THC (ppm) Average	708	2.05	0.2	-	1.9	1.9	1.9	2	2.1	2.3	3.1
CH4(ppm) Average	708	2.04	0.2	-	1.9	1.9	1.9	2	2.1	2.2	3.1
NMHC(ppm) Average	708	0.012	0.023	-	0	0	0	0	0	0	0.179
Temperature 2 m (C) Average	744	4.36	5.4	-	-6.9	-2.4	0.9	3.7	7.6	12.2	19.8
Relative Humidity (%) Average	744	72.03	16	-	28.6	49.1	62.1	73.3	83.8	93.4	99.9
Barometric Pressure (inHg) Average	744	29.04	0.2	-	28.5	28.8	28.9	29.1	29.2	29.3	29.5
Wind Speed 10 m (km/h) Average	744	10.3	6	-	0	3	6	10	14	19	30
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S	01 Oct 2024 18:00	01 Oct 2024 18:00	1	Unstable Operation - flatline in analyzer output signal
H2S	02 Oct 2024 17:00	02 Oct 2024 18:00	2	Unstable Operation - flatline in analyzer output signal



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Lower Camp - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 1	Hours in Service:	744
Maximum Value: 151.0 ppb on Oct 15 20:00	Maximum Daily Average: 49.1 ppb on Oct 22		Hours of Data:	708
Minimum Value: 0.0 ppb on Oct 2 00:00	Minimum Daily Average: 0.0 ppb on Oct 20		Hours of Missing Data:	36
Maximum Diurnal Average: 18.4 ppb at hour 20	Minimum Diurnal Average: 2.2 ppb at hour 11		Hours of Calibration:	36
Monthly Average: 6.91 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> = 2.4 P <sub>90</sub> = 16.1 P <sub>99</sub> = 108.1		Percent Operational Time:	100.0

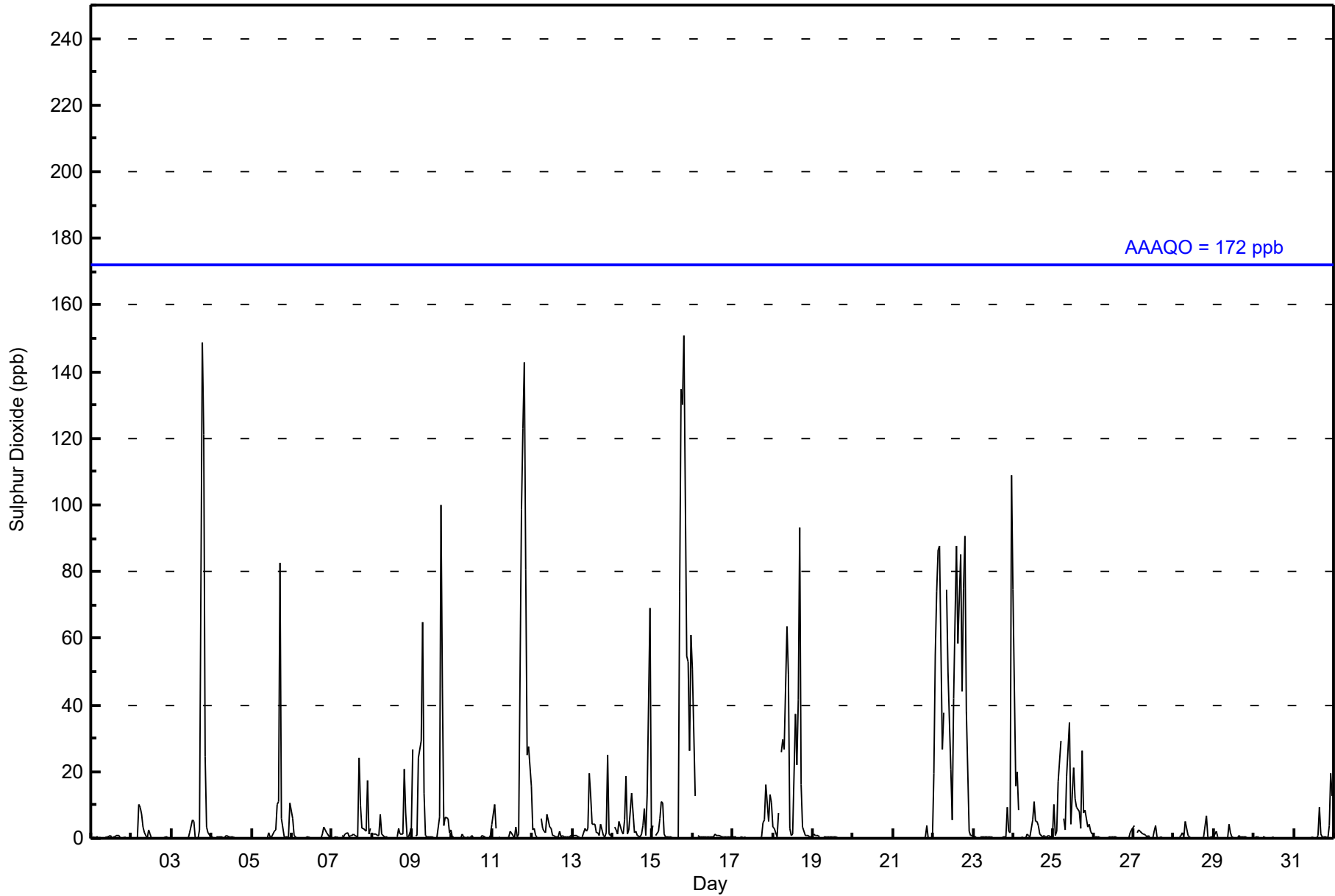
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.1	0.3	0.1	0.3	0.2	Z	0.2	0.1	0.1	0.4	0.4	1.0	0.2	0.2	0.6	0.8	0.8	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.3	1.0
2-Oct	Z	0.0	0.0	0.0	10.2	9.5	7.1	3.5	1.9	0.2	2.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.0	1.6	10.2	
3-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	5.6	5.0	0.1	0.1	0.0	2.4	148.9	121.2	24.6	3.4	1.7	0.6	13.7	148.9
4-Oct	0.3	0.2	Z	0.2	0.2	0.4	0.2	0.2	0.2	0.7	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.7
5-Oct	0.0	0.0	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.1	1.9	0.6	0.4	2.0	2.6	10.0	10.8	82.4	6.1	0.6	0.4	0.6	0.3	10.7	5.6	82.4
6-Oct	6.1	0.6	0.3	0.2	Z	0.2	0.1	0.1	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.3	3.5	2.5	1.6	0.5	0.2	0.8	6.1
7-Oct	0.2	0.1	0.4	0.3	0.2	Z	0.7	0.6	1.4	1.8	0.6	0.8	0.8	1.1	0.8	0.6	24.2	9.9	3.1	2.9	2.0	17.2	1.1	3.2	3.2	24.2
8-Oct	Z	1.4	1.1	0.7	0.7	7.3	1.5	0.6	0.5	0.4	C	C	C	C	C	0.5	2.9	1.4	1.3	20.7	7.7	0.6	0.6	2.8	2.9	20.7
9-Oct	26.6	Z	1.0	0.9	24.1	29.2	64.9	13.7	1.0	0.4	0.3	0.2	0.3	0.1	0.1	0.1	6.5	99.9	45.0	3.9	6.4	5.9	1.5	2.6	14.5	99.9
10-Oct	0.6	0.4	Z	0.2	0.1	0.1	1.2	0.2	0.2	0.2	0.2	0.3	0.8	0.1	0.1	0.2	0.1	0.1	0.7	0.3	0.2	0.1	0.2	1.0	0.3	1.2
11-Oct	4.3	10.3	2.8	Z	0.3	0.1	0.1	0.1	0.1	0.2	0.2	2.0	0.9	0.2	3.2	0.5	1.1	98.6	122.9	142.7	80.3	25.2	27.4	15.7	23.4	142.7
12-Oct	2.4	3.1	0.7	0.3	Z	6.0	3.2	2.3	1.5	7.2	3.5	3.0	0.8	0.6	0.5	0.5	2.2	0.6	0.7	0.4	0.4	0.3	0.6	0.7	1.8	7.2
13-Oct	0.8	0.7	0.6	0.5	0.5	Z	0.4	3.1	2.2	2.8	19.6	12.6	4.4	4.4	1.8	1.5	0.9	4.2	1.0	0.5	1.8	25.0	1.3	0.8	4.0	25.0
14-Oct	Z	3.4	2.5	1.3	4.9	2.1	1.5	5.5	18.6	1.4	2.7	13.4	7.6	1.7	2.0	0.7	0.6	1.2	4.0	8.9	0.8	13.0	69.1	1.1	7.3	69.1
15-Oct	3.7	Z	0.8	2.1	6.0	10.8	10.5	1.1	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	74.2	134.7	129.9	151.0	54.8	53.0	26.4	60.9	31.4	151.0
16-Oct	50.9	12.9	Z	1.0	0.6	0.5	0.3	0.2	0.3	0.4	0.4	0.4	0.4	1.3	0.9	0.7	0.7	0.3	0.3	0.3	0.4	0.4	0.3	0.3	3.2	50.9
17-Oct	0.2	0.2	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.2	4.5	5.6	16.1	5.2	12.9	10.8	2.5	16.1
18-Oct	3.4	3.2	0.4	7.8	Z	25.7	29.5	26.7	63.4	49.2	2.9	0.9	1.3	37.4	22.0	41.4	93.2	16.3	3.3	1.0	0.8	0.7	0.5	0.6	18.8	93.2
19-Oct	1.2	0.8	0.7	0.7	0.6	Z	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.4	1.2
20-Oct	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21-Oct	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	0.1	0.0	0.0	0.0	0.3	3.9	0.2	0.1	0.1	0.2	3.9
22-Oct	19.7	55.3	74.1	86.2	87.7	26.9	37.6	Z	74.4	50.0	20.6	5.7	41.9	65.8	87.6	58.7	85.2	44.2	75.1	90.5	38.3	2.2	1.0	0.8	49.1	90.5
23-Oct	0.7	0.5	0.4	Z	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.5	0.6	9.3	2.3	1.7	108.7	5.5	108.7
24-Oct	74.4	15.6	20.1	8.3	Z	0.3	0.1	0.1	1.2	0.7	0.5	5.6	10.9	5.0	5.2	3.8	1.4	0.5	1.0	0.2	0.3	0.9	0.3	1.0	6.8	74.4
25-Oct	10.1	0.9	2.2	17.0	29.1	Z	5.8	2.7	18.6	34.7	4.4	13.2	21.3	12.0	9.3	8.0	3.1	26.3	7.4	8.5	3.6	4.2	2.2	1.1	10.7	34.7
26-Oct	Z	0.6	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	1.9	2.7	0.4	2.7
27-Oct	3.8	Z	1.8	2.5	2.1	1.1	1.1	0.7	0.6	0.7	0.2	0.2	2.0	3.9	0.2	0.1	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.9	3.9
28-Oct	0.1	0.0	Z	0.4	0.8	1.6	0.4	5.1	0.8	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.3	6.7	0.4	0.2	0.3	0.5	0.8	6.7
29-Oct	0.4	1.9	0.3	Z	0.2	0.2	0.1	0.1	0.1	4.4	1.5	0.3	0.2	0.1	0.2	0.9	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.5	4.4
30-Oct	0.1	0.2	0.3	0.2	Z	0.3	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
31-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.9	9.3	1.3	0.5	0.6	0.4	0.1	3.8	19.3	12.6	2.1	19.3
8.1 4.3 4.1 5.1 6.5 4.9 5.4 2.3 6.1 5.1 2.2 2.2 3.4 4.8 4.6 4.5 10.0 16.9 18.0 18.4 8.3 5.4 5.5 7.7																								Diurnal Average		
74.4 55.3 74.1 86.2 87.7 29.2 64.9 26.7 74.4 50.0 20.6 13.4 41.9 65.8 87.6 58.7 93.2 134.7 148.9 151.0 80.3 53.0 69.1 108.7																								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  
Lower Camp - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Lower Camp - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	620	87.57	87.57
11 - 20	26	3.67	91.24
21 - 60	34	4.80	96.05
61 - 110	21	2.97	99.01
111 - 172	7	0.99	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**  
**Lower Camp - October 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	35	15	14	8	17	45	116	24	8	2	13	77	54	82	59	51	620
11 - 20	0	0	0	0	0	1	8	4	4	1	2	0	2	4	0	0	26
21 - 60	0	0	0	0	0	1	4	3	10	7	5	1	2	1	0	0	34
61 - 110	0	0	0	0	0	0	0	1	8	10	2	0	0	0	0	0	21
111 - 172	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	7
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	35	15	14	8	17	47	128	32	30	26	23	78	58	87	59	51	708

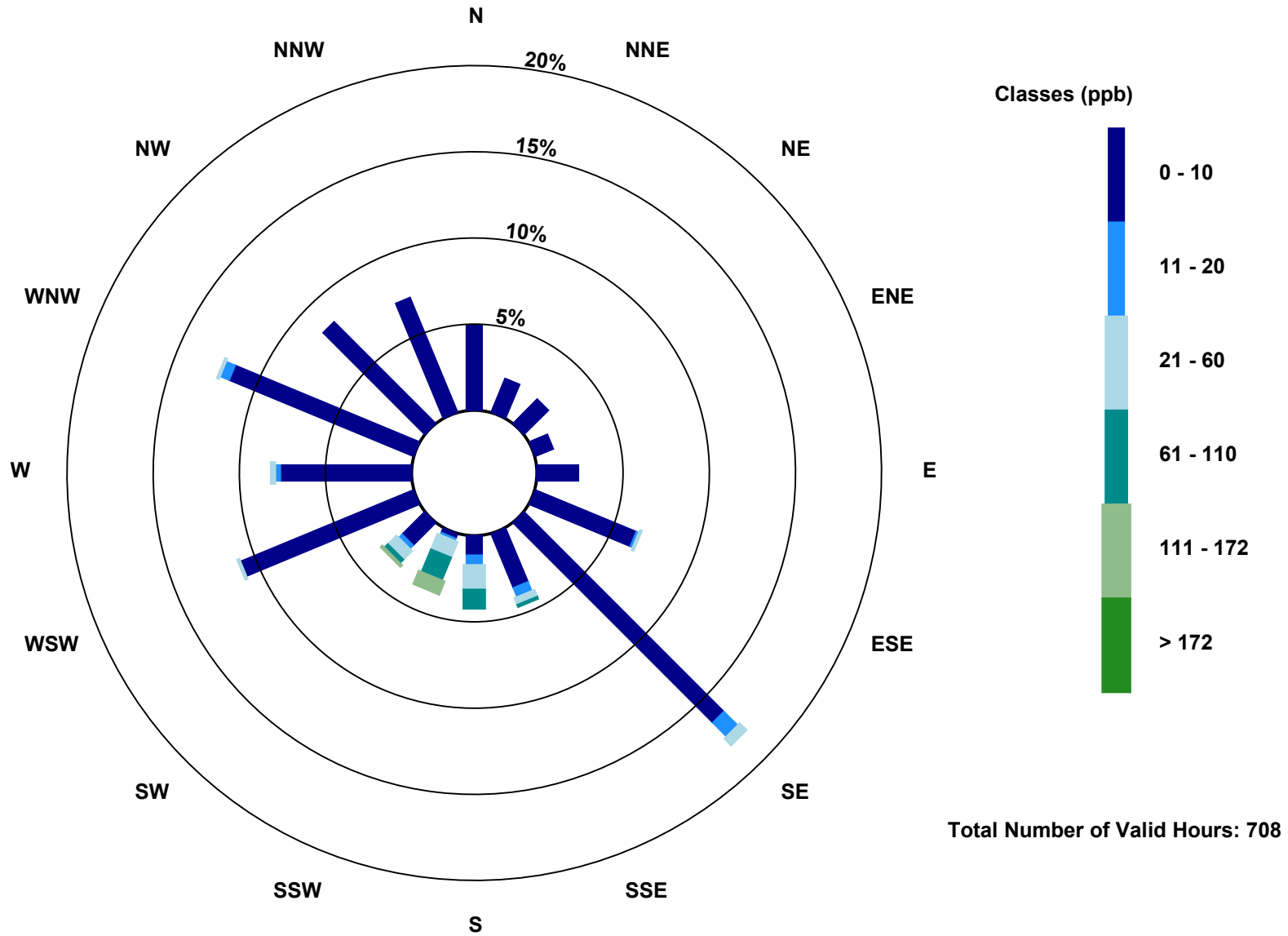
Total Number of Valid Hours: 708

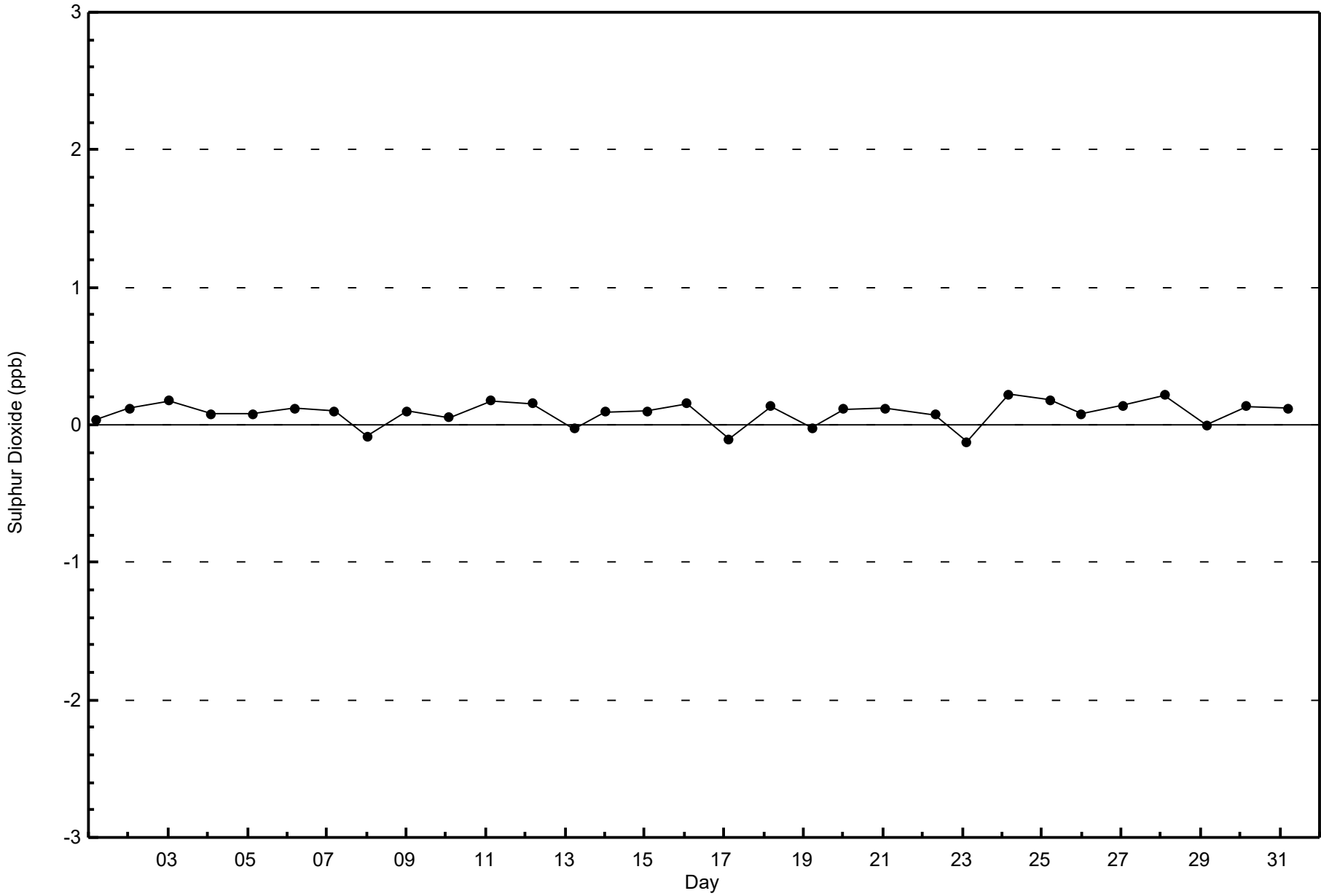
Total Number of Hours: 744



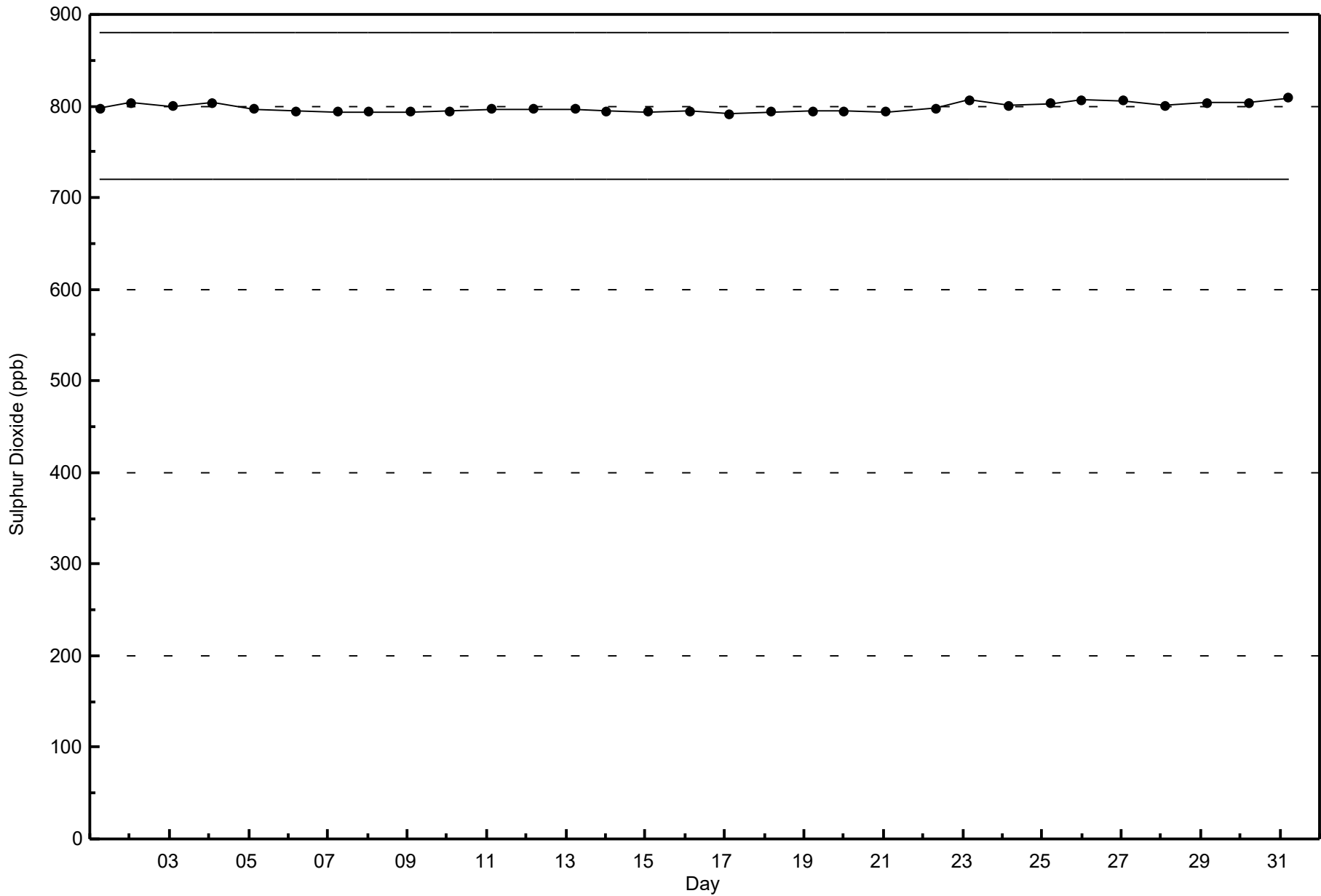
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











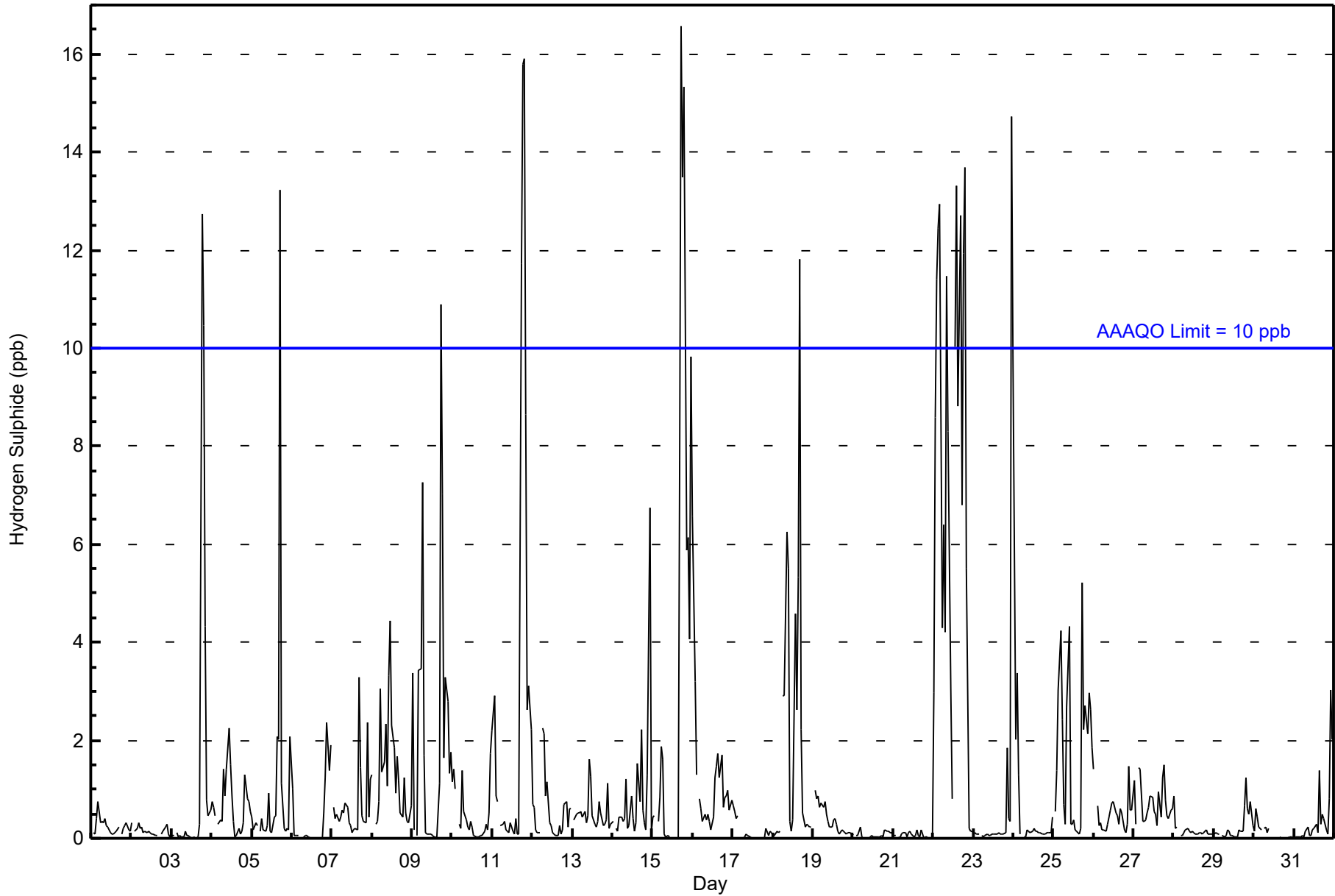
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Lower Camp - October 2024

Number of Exceedences (AAAQO):		1-hr: 20	24-hr: 2	Hours in Service: 744																	Daily Average		Daily Maximum																									
Maximum Value: 16.6 ppb on Oct 15 18:00		Maximum Daily Average: 7.4 ppb on Oct 22																	Hours of Data: 705		Hours of Missing Data: 39																											
Minimum Value: 0.0 ppb on Oct 6 13:00		Minimum Daily Average: 0.1 ppb on Oct 21																	Hours of Calibration: 36		Percent Operational Time: 99.6																											
Maximum Diurnal Average: 2.6 ppb at hour 18		Minimum Diurnal Average: 0.3 ppb at hour 13																																														
Monthly Average: 1.11 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 2.6 P <sub>99</sub> = 13.3																																														
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-Oct	Z	0.1	0.1	0.4	0.7	0.3	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	UO	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.7																					
2-Oct	0.3	Z	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	UO	UO	0.1	0.2	0.2	0.3	0.1	0.0	0.2	0.2	0.3																					
3-Oct	0.0	0.0	Z	0.1	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	0.3	12.7	10.5	4.3	0.8	0.5	0.6	1.3	12.7																						
4-Oct	0.8	0.6	0.5	Z	0.3	0.4	0.4	1.4	0.9	1.4	2.2	1.5	0.9	0.3	0.0	0.1	0.2	0.1	0.1	0.3	1.3	0.8	0.8	0.5	0.7	2.2																						
5-Oct	0.4	0.2	0.3	0.3	Z	0.1	0.4	0.2	0.1	0.2	0.9	0.1	0.1	0.4	0.5	2.1	2.0	13.2	1.1	0.2	0.2	0.2	2.1	1.1	13.2																							
6-Oct	1.0	0.1	0.1	0.1	0.1	Z	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	0.5	1.2	2.4	1.4	1.9	0.4	2.4																						
7-Oct	Z	0.6	0.4	0.5	0.3	0.4	0.6	0.5	0.7	0.6	0.3	0.3	0.1	0.2	0.2	0.2	3.3	1.4	0.5	0.4	0.3	2.4	0.4	1.2	0.7	3.3																						
8-Oct	1.3	Z	0.3	0.3	0.8	3.0	1.4	1.6	2.3	1.1	3.3	4.4	2.3	1.8	0.9	1.7	1.2	0.5	0.4	1.2	0.5	0.3	0.3	0.7	1.4	4.4																						
9-Oct	3.4	0.2	Z	0.0	3.4	3.5	7.3	1.7	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	1.1	10.9	7.0	1.7	3.3	2.8	1.3	1.8	2.2	10.9																						
10-Oct	1.1	1.4	1.0	Z	0.3	0.2	1.4	0.6	0.4	0.2	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.5	1.7	0.5	1.7																						
11-Oct	2.2	2.9	0.9	0.8	Z	0.3	0.3	0.3	0.2	0.2	0.1	0.3	0.1	0.1	0.4	0.1	0.1	11.7	15.8	15.9	8.6	2.6	3.1	2.2	3.0	15.9																						
12-Oct	0.7	0.6	0.2	0.1	0.1	Z	2.2	2.1	0.9	1.2	0.3	0.3	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.7	0.7	0.2	0.6	0.6	0.5	2.2																						
13-Oct	Z	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.3	0.5	1.6	1.3	0.5	0.3	0.2	0.3	0.8	0.5	0.3	0.3	0.4	1.1	0.2	0.3	0.5	1.6																						
14-Oct	0.4	Z	0.2	0.2	0.4	0.4	0.3	0.4	1.2	0.2	0.3	0.9	0.4	0.1	0.3	1.5	0.7	2.2	0.6	0.3	0.2	1.3	6.8	0.1	0.8	6.8																						
15-Oct	0.4	0.5	Z	0.4	0.8	1.9	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	16.6	13.5	15.3	5.9	6.1	4.0	9.8	3.7	16.6																						
16-Oct	6.6	3.2	1.3	Z	0.8	0.6	0.4	0.5	0.4	0.5	0.4	0.2	0.4	1.2	1.5	1.7	1.2	1.7	0.6	0.8	0.9	1.0	0.6	0.8	1.2	6.6																						
17-Oct	0.7	0.5	0.4	0.5	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	0.2	0.1	0.1	0.1	0.1	0.7																						
18-Oct	0.1	0.1	0.1	0.1	0.1	Z	2.9	2.9	6.3	5.5	0.3	0.1	0.4	4.6	2.6	5.3	11.8	2.2	0.5	0.2	0.3	0.3	0.2	0.2	2.1	11.8																						
19-Oct	Z	1.0	0.8	0.9	0.6	0.7	0.6	0.8	0.5	0.3	0.2	0.2	0.4	0.4	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.4	1.0																						
20-Oct	0.1	Z	0.1	0.1	0.2	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	0.2	0.1	0.1	0.1	0.1	0.2																						
21-Oct	0.1	0.1	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
22-Oct	3.0	8.6	11.4	12.5	13.0	4.3	6.4	4.2	11.5	8.3	3.0	0.8	Z	10.0	13.3	8.8	12.7	6.8	11.9	13.7	5.5	0.2	0.2	0.1	7.4	13.7																						
23-Oct	0.1	0.1	0.1	0.1	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	0.1	0.1	0.1	1.8	0.4	0.3	14.7	0.8	14.7																						
24-Oct	9.9	2.0	3.4	1.3	0.1	Z	0.0	0.0	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	0.4	0.8	9.9																						
25-Oct	Z	0.6	1.4	3.0	4.2	2.4	0.7	0.3	2.7	4.3	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0.2	5.2	2.2	2.7	2.1	3.0	2.6	1.8	5.2																						
26-Oct	1.4	Z	0.7	0.2	0.3	0.2	0.2	0.1	0.3	0.4	0.6	0.7	0.7	0.5	0.5	0.3	0.6	0.5	0.2	0.1	0.3	1.5	0.6	0.6	0.5	1.5																						
27-Oct	1.2	0.3	Z	1.4	1.4	0.4	0.3	0.4	0.5	0.6	0.9	0.8	0.5	0.5	0.3	0.9	0.4	1.2	1.5	0.8	0.5	0.4	0.6	0.6	0.7	1.5																						
28-Oct	0.9	0.2	0.2	Z	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.9																						
29-Oct	0.1	0.1	0.1	0.1	Z	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.7	1.2	0.6	0.5	0.7	0.3	0.2	1.2																						
30-Oct	0.1	0.6	0.4	0.2	0.2	Z	0.2	0.2	0.1	0.2	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																						
31-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.1	1.4	0.3	0.5	0.4	0.2	0.1	0.8	3.0	2.0	0.4	3.0																						
																								1.4	1.0	1.0	0.9	1.1	0.8	0.9	0.6	1.0	0.9	0.5	0.5	0.3	0.7	0.7	0.8	1.5	2.6	2.3	2.2	1.3	1.0	1.0	1.5	Diurnal Average
																								9.9	8.6	11.4	12.5	13.0	4.3	7.3	4.2	11.5	8.3	3.3	4.4	2.3	10.0	13.3	8.8	12.7	16.6	15.8	15.9	8.6	6.1	6.8	14.7	Diurnal Maximum
Z - zerospan                      C - Calibration                      UO - Unstable Operation																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb      24-hr 3 ppb																																																





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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Lower Camp - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	632	89.65	89.65
3 - 4	31	4.40	94.04
5 - 7	14	1.99	96.03
8 - 11	9	1.28	97.31
> 11	19	2.70	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp - October 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	33	13	13	8	15	45	123	29	9	3	15	76	56	86	57	51	632
3 - 4	0	0	0	0	1	4	6	3	6	5	3	0	1	0	2	0	31
5 - 7	0	0	0	0	0	0	1	1	5	2	3	1	1	0	0	0	14
8 - 11	0	0	0	0	0	0	0	0	5	3	1	0	0	0	0	0	9
> 11	0	0	0	0	0	0	0	0	6	12	1	0	0	0	0	0	19
<b>Totals</b>	<b>33</b>	<b>13</b>	<b>13</b>	<b>8</b>	<b>16</b>	<b>49</b>	<b>130</b>	<b>33</b>	<b>31</b>	<b>25</b>	<b>23</b>	<b>77</b>	<b>58</b>	<b>86</b>	<b>59</b>	<b>51</b>	<b>705</b>

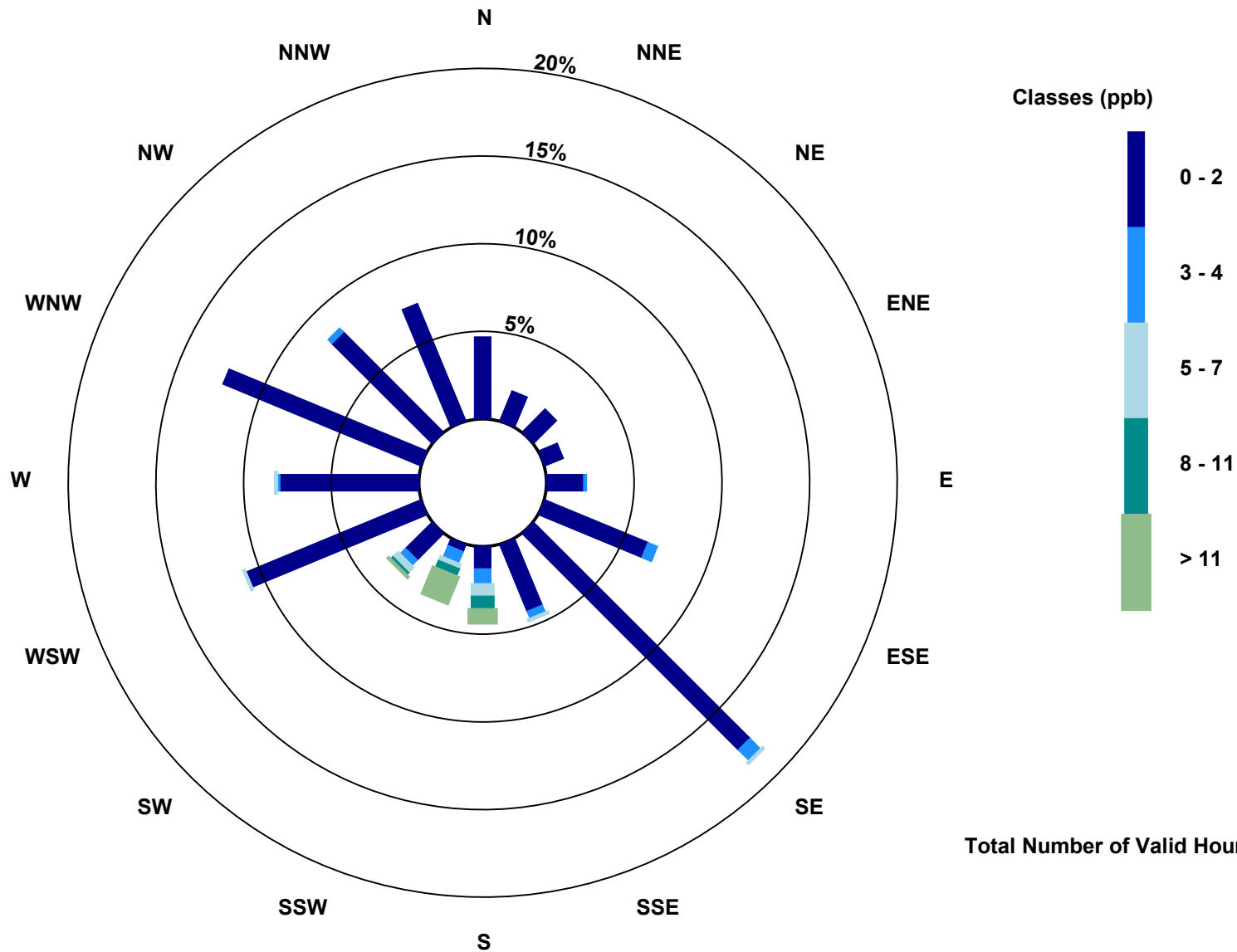
Total Number of Valid Hours: 705

Total Number of Hours: 744

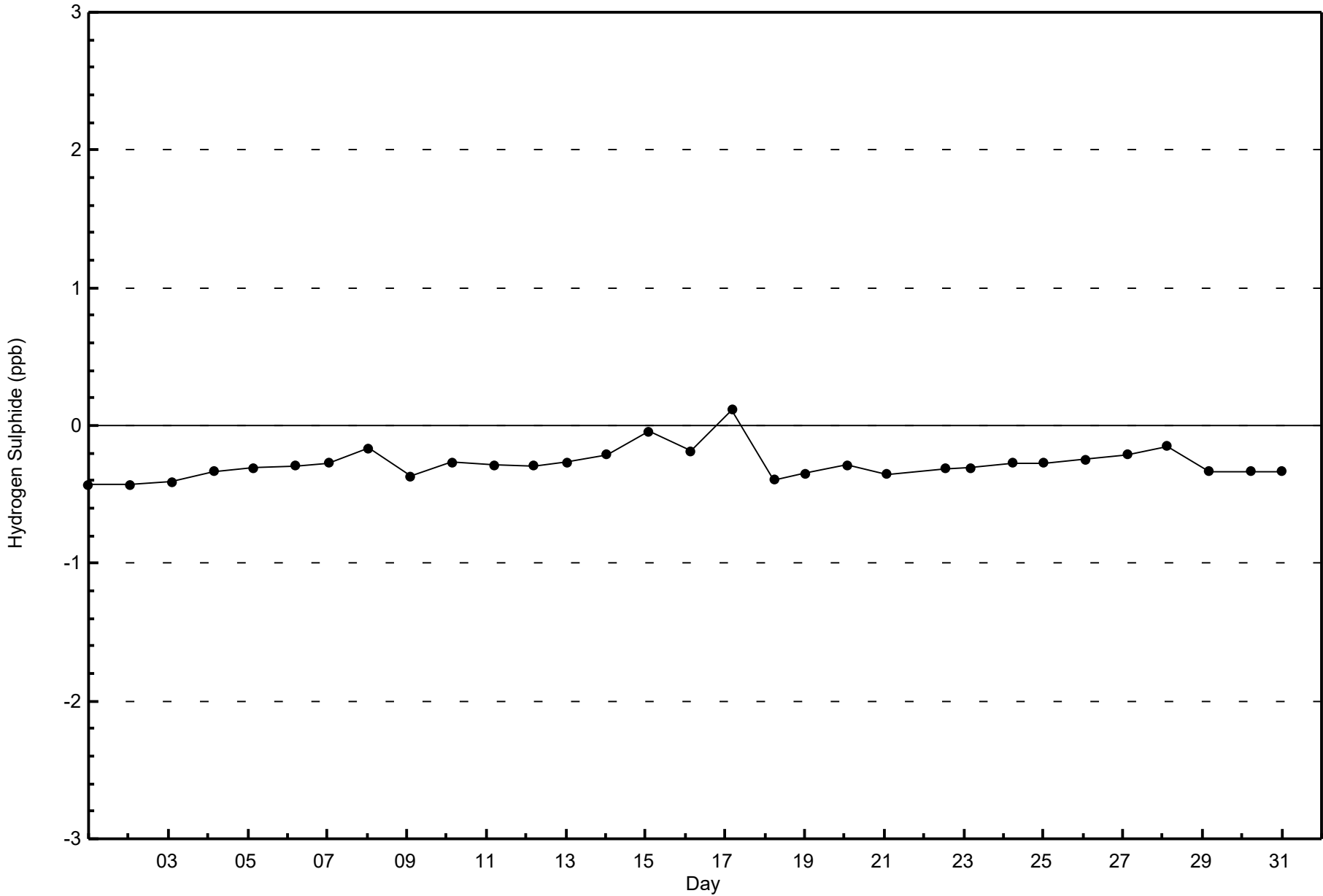


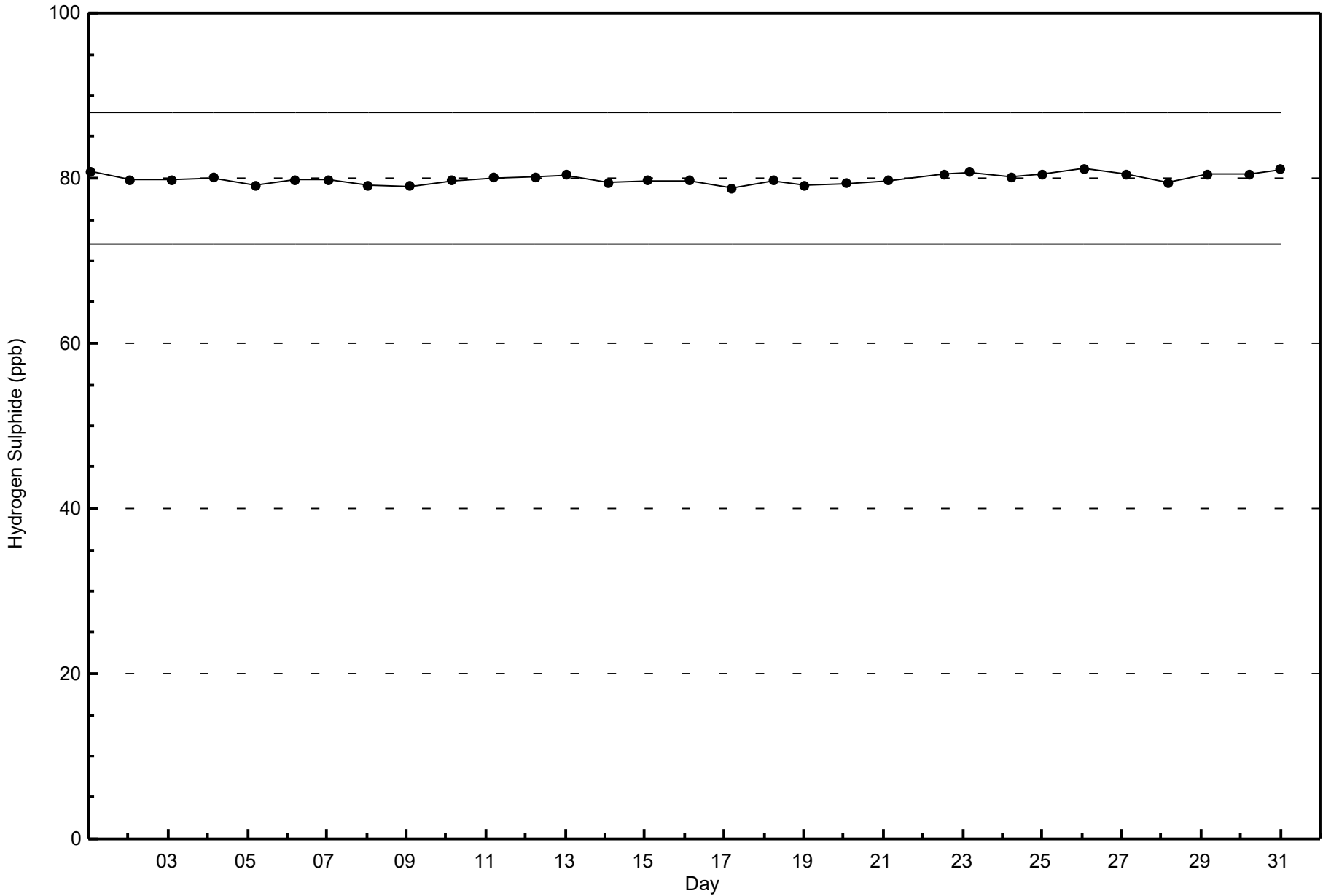
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 705





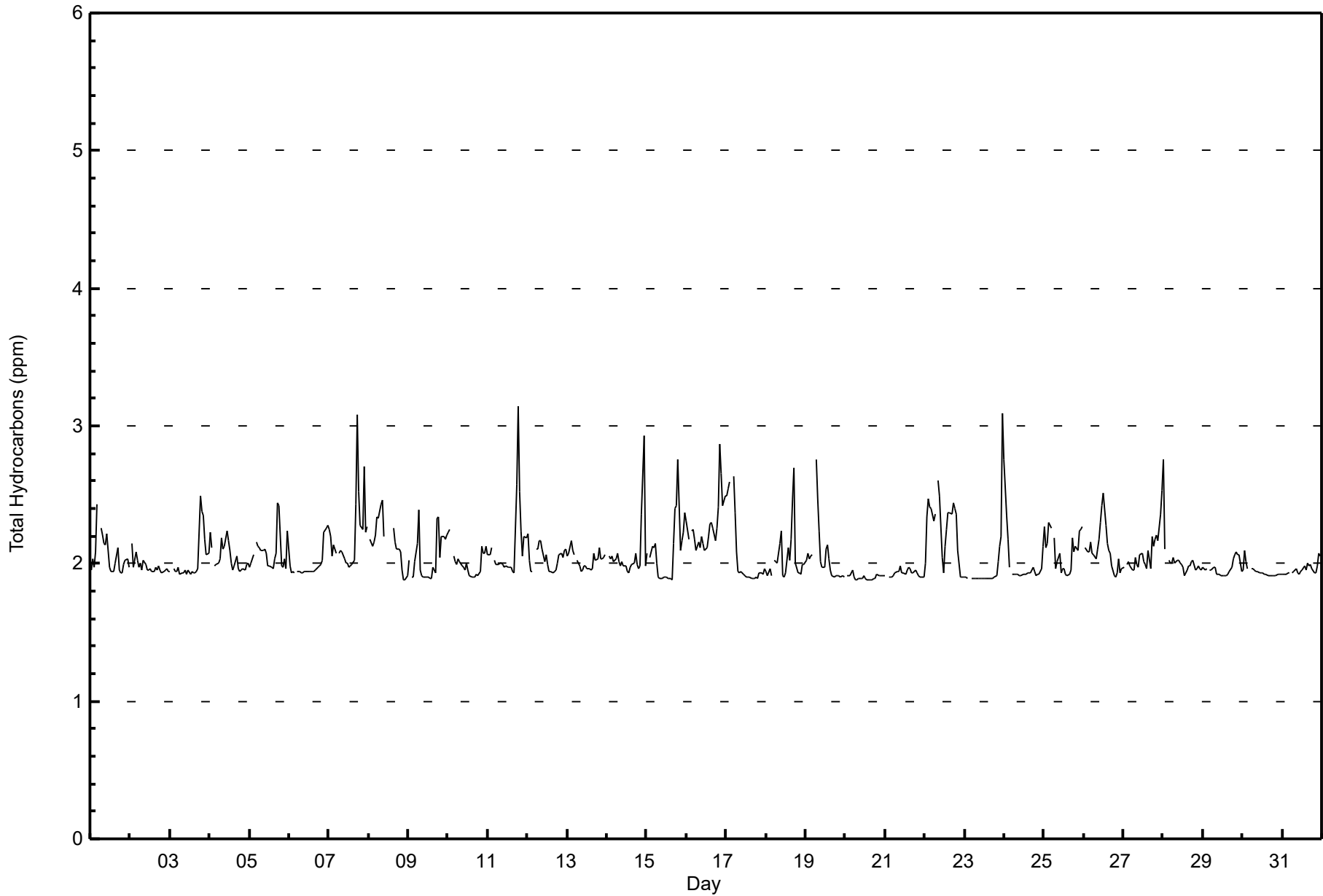






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - October 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	462	65.25	65.25
2.1 - 3.0	243	34.32	99.58
3.1 - 10.0	3	0.42	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Lower Camp - October 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	33	13	9	7	9	28	69	11	6	5	18	74	52	59	33	36	462
2.1 - 3.0	2	2	5	1	8	19	59	21	23	19	5	4	6	28	26	15	243
3.1 - 10.0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	35	15	14	8	17	47	128	32	30	26	23	78	58	87	59	51	708

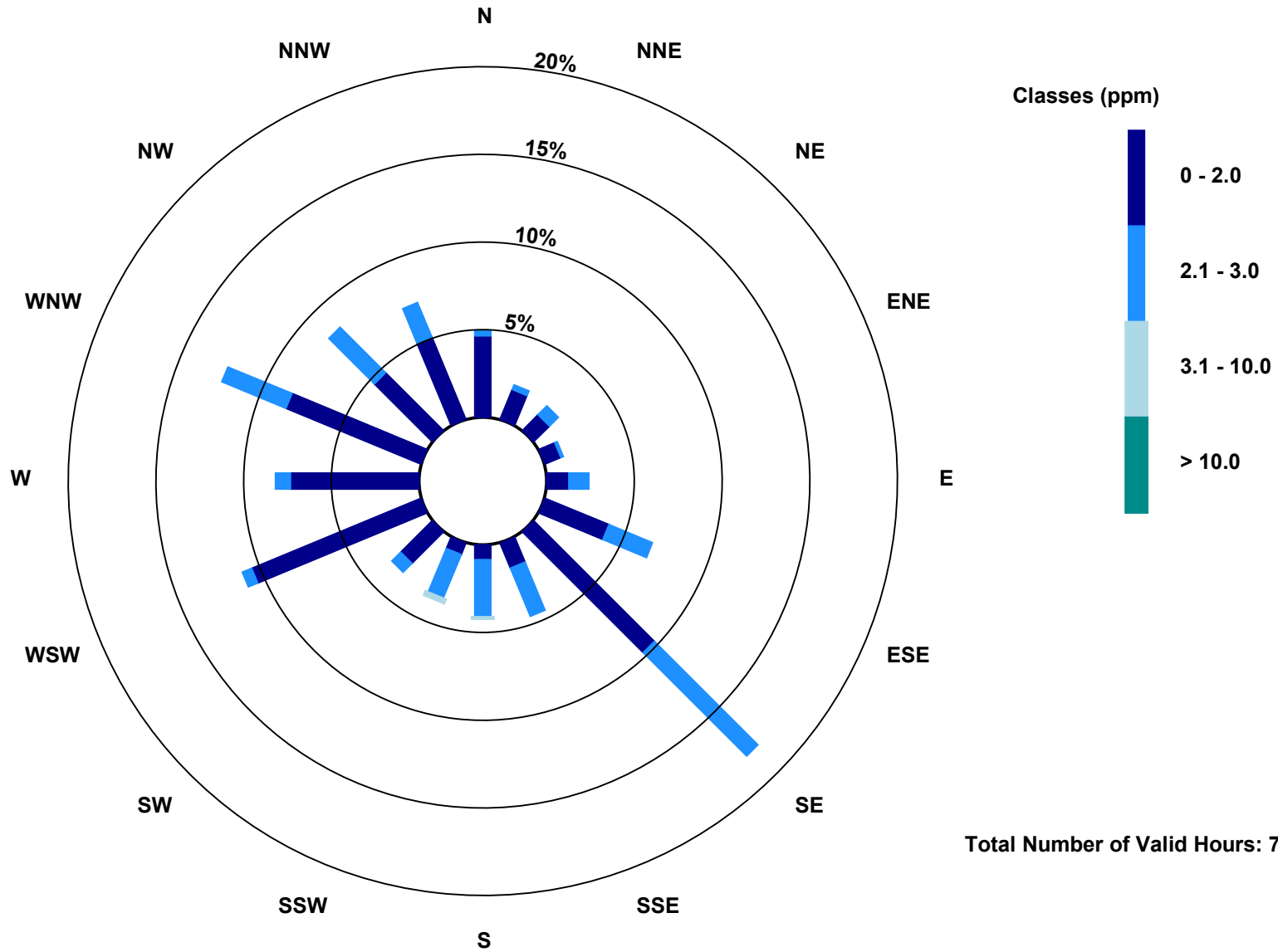
Total Number of Valid Hours: 708

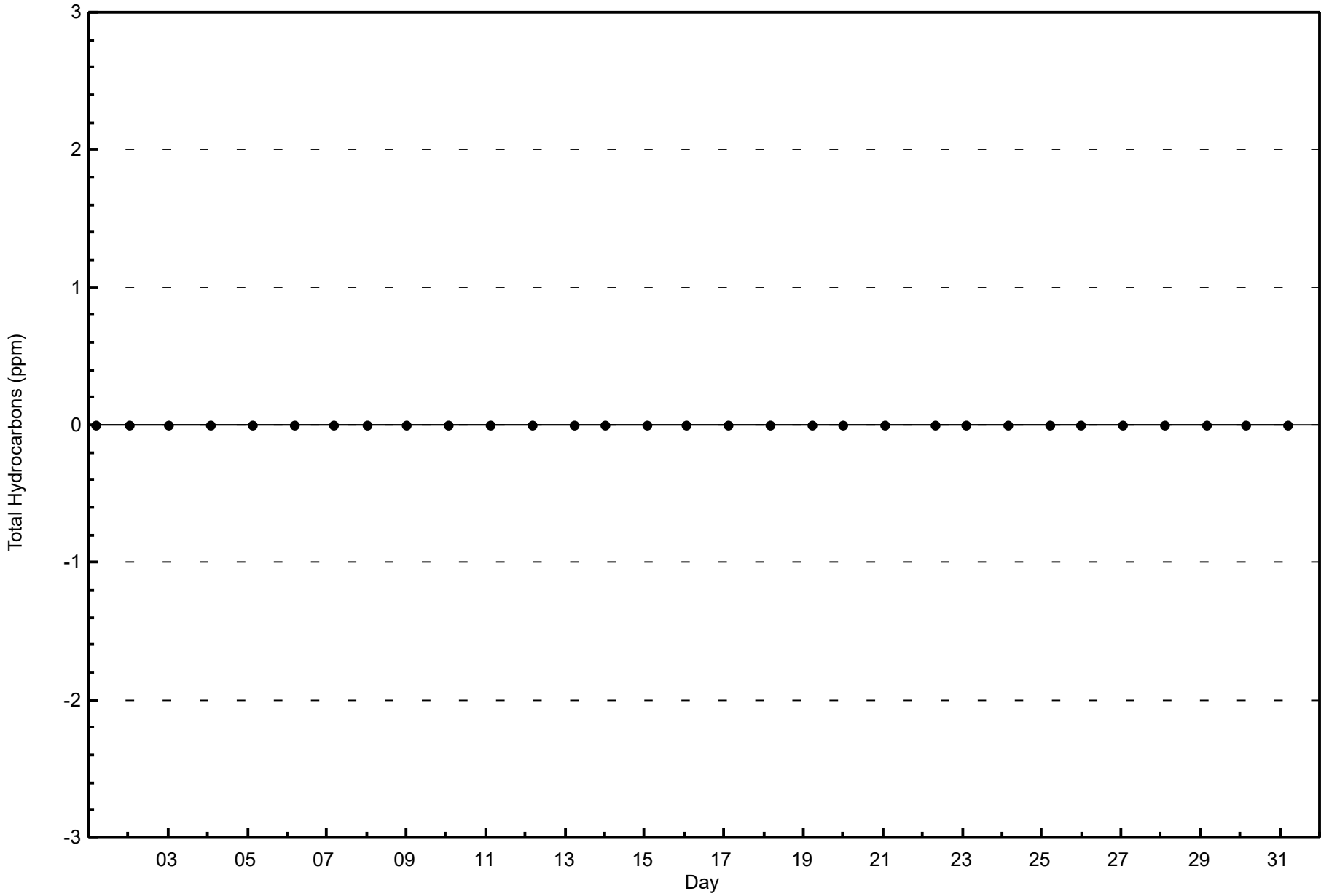
Total Number of Hours: 744

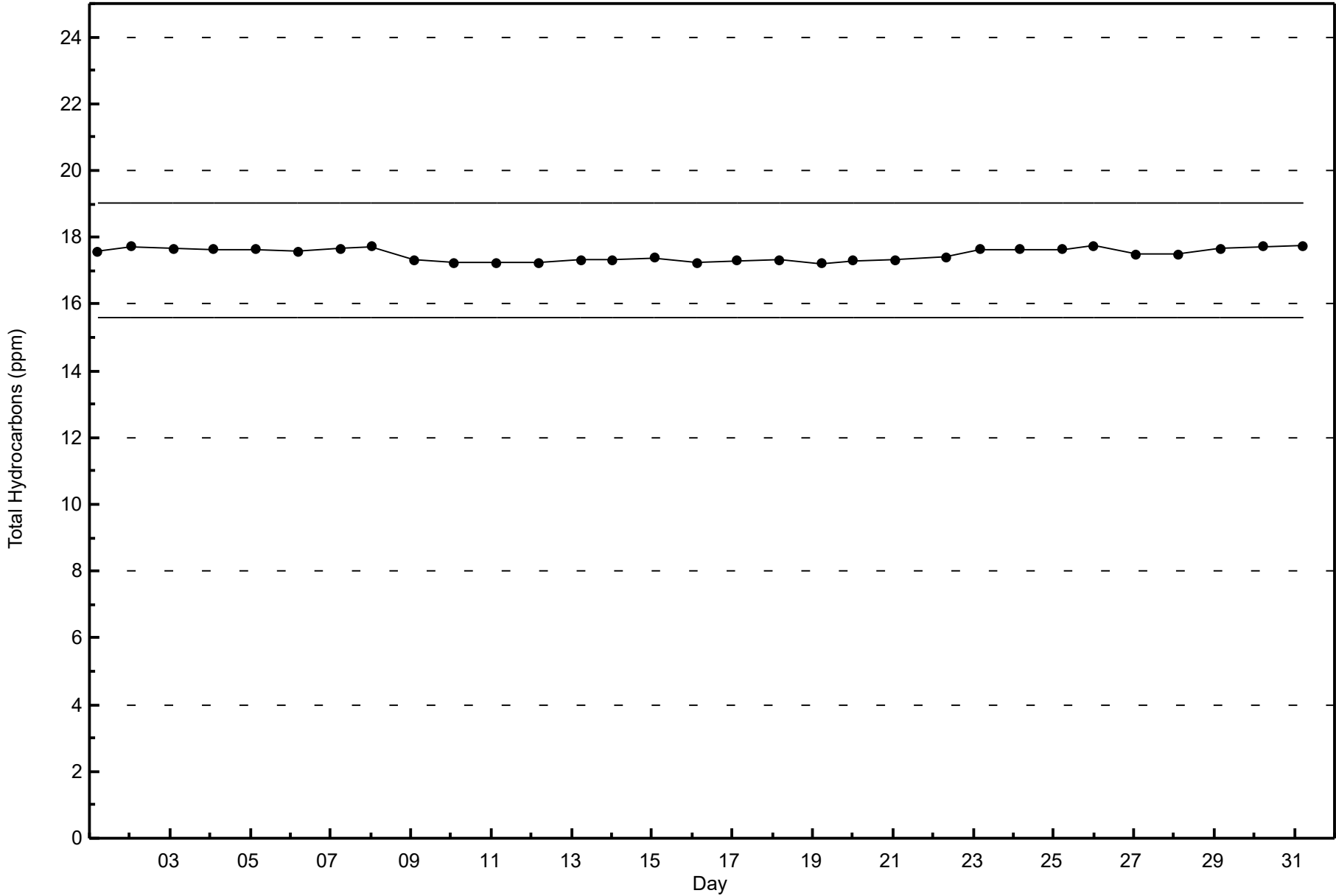


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Lower Camp







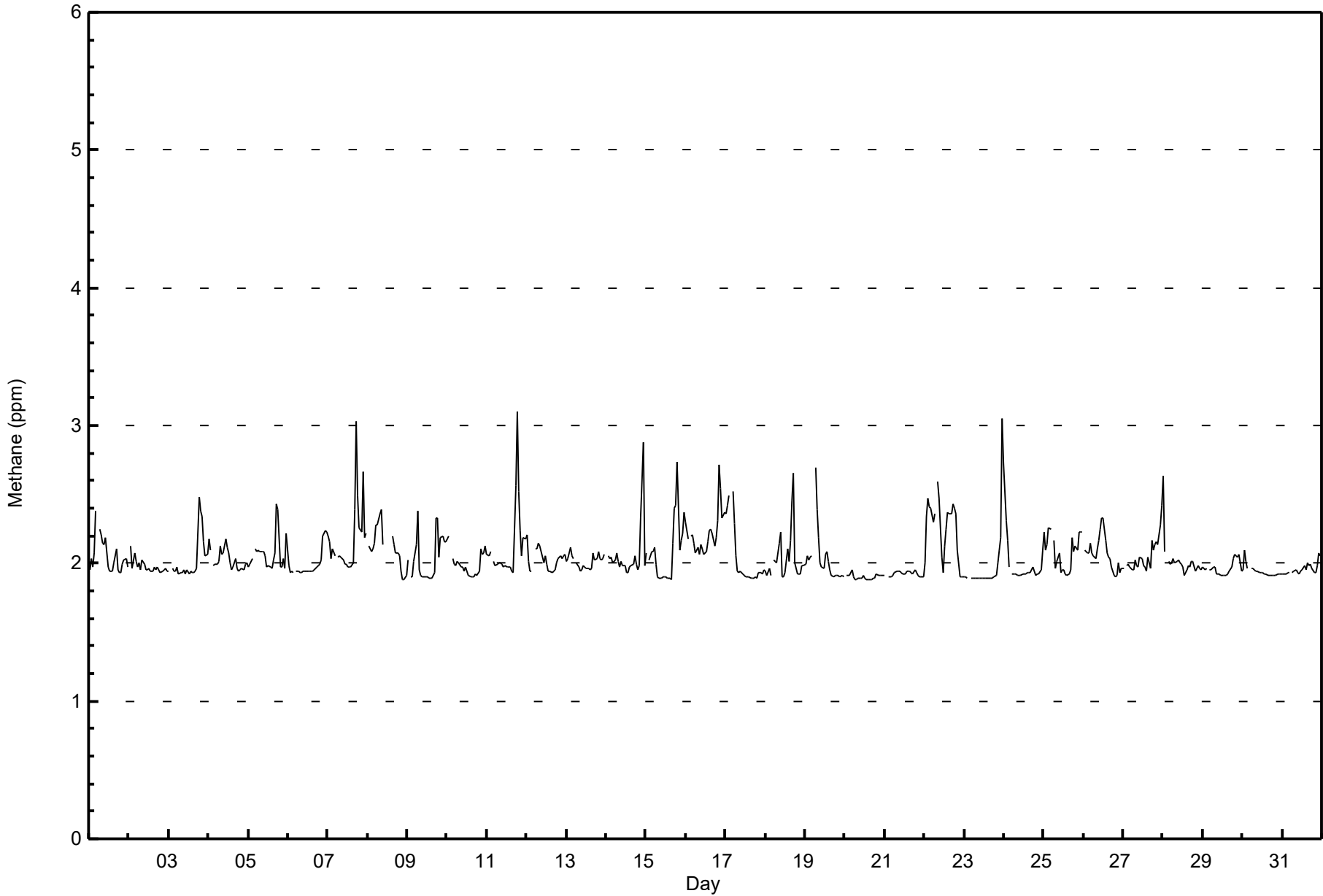






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - October 2024**





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

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	482	68.08	68.08
2.1 - 3.0	225	31.78	99.86
3.1 - 10.0	1	0.14	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

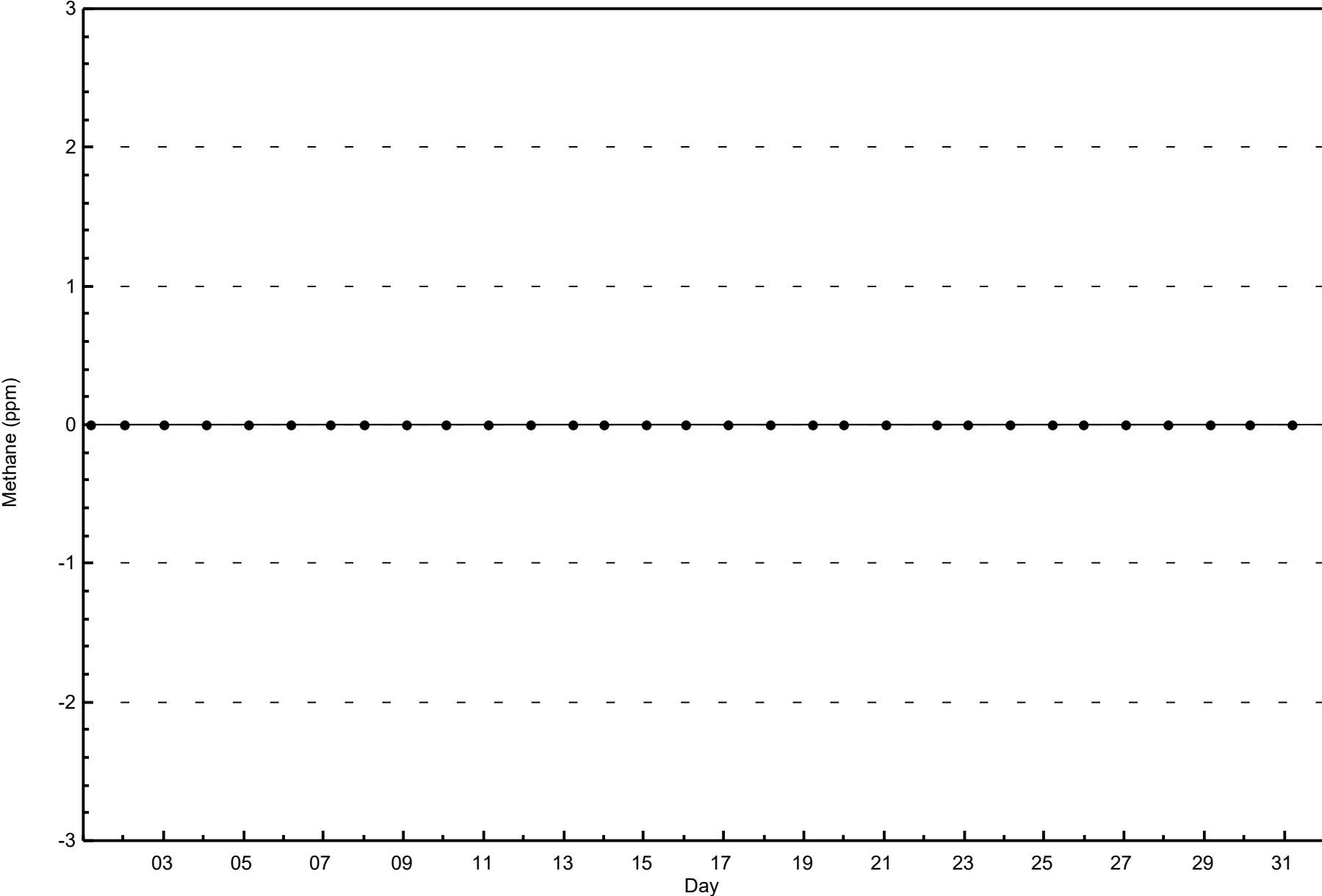
**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - October 2024**

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	34	14	9	7	9	32	76	11	6	5	18	74	54	60	34	39	482
2.1 - 3.0	1	1	5	1	8	15	52	21	24	20	5	4	4	27	25	12	225
3.1 - 10.0	0	0	0	0	0	0	0	0	0	1	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>	35	15	14	8	17	47	128	32	30	26	23	78	58	87	59	51	708

Total Number of Valid Hours: 708

Total Number of Hours: 744

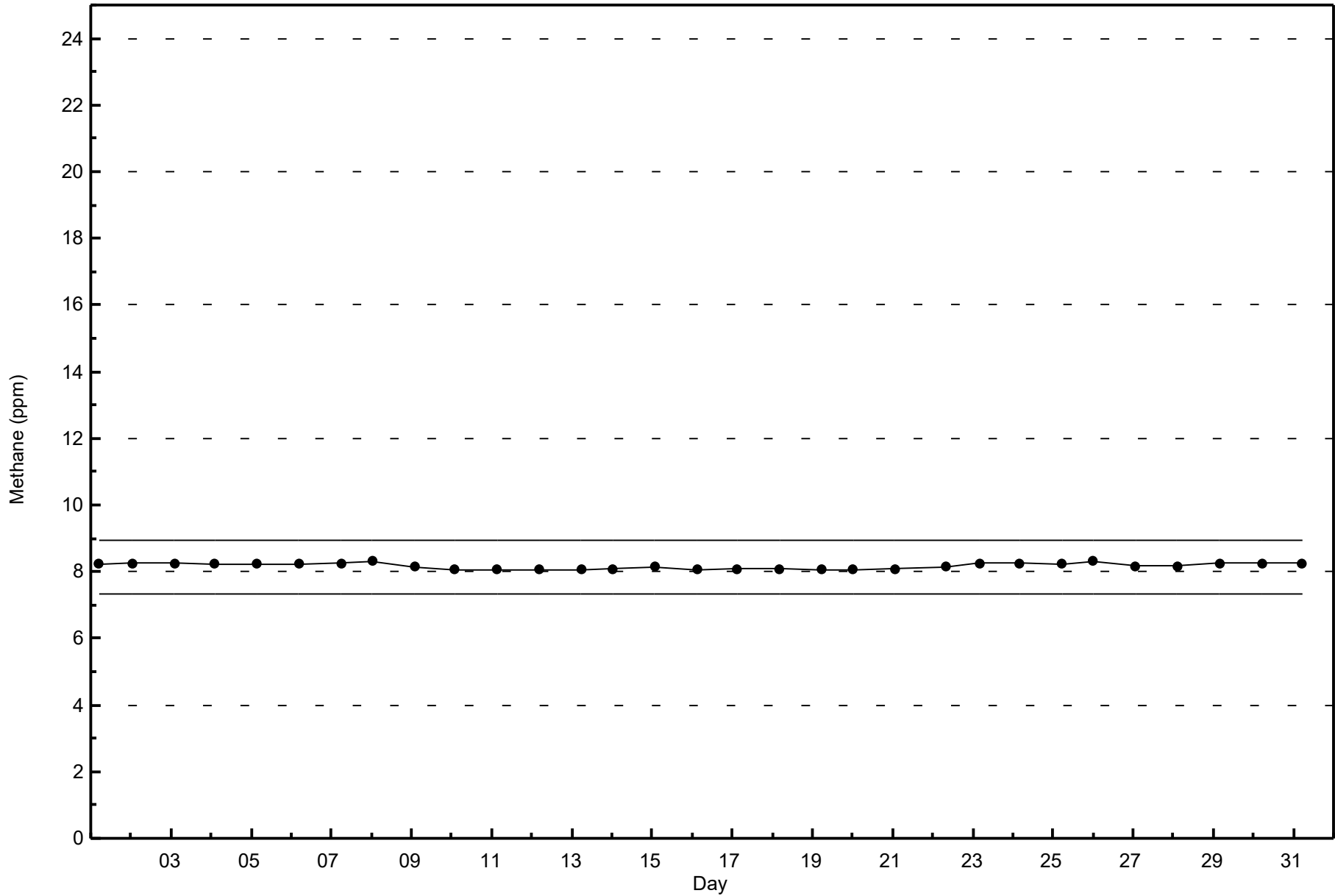






Wood Buffalo Environmental Association  
Span Responses

Methane (CH<sub>4</sub>) - ppm  
Lower Camp - October 2024

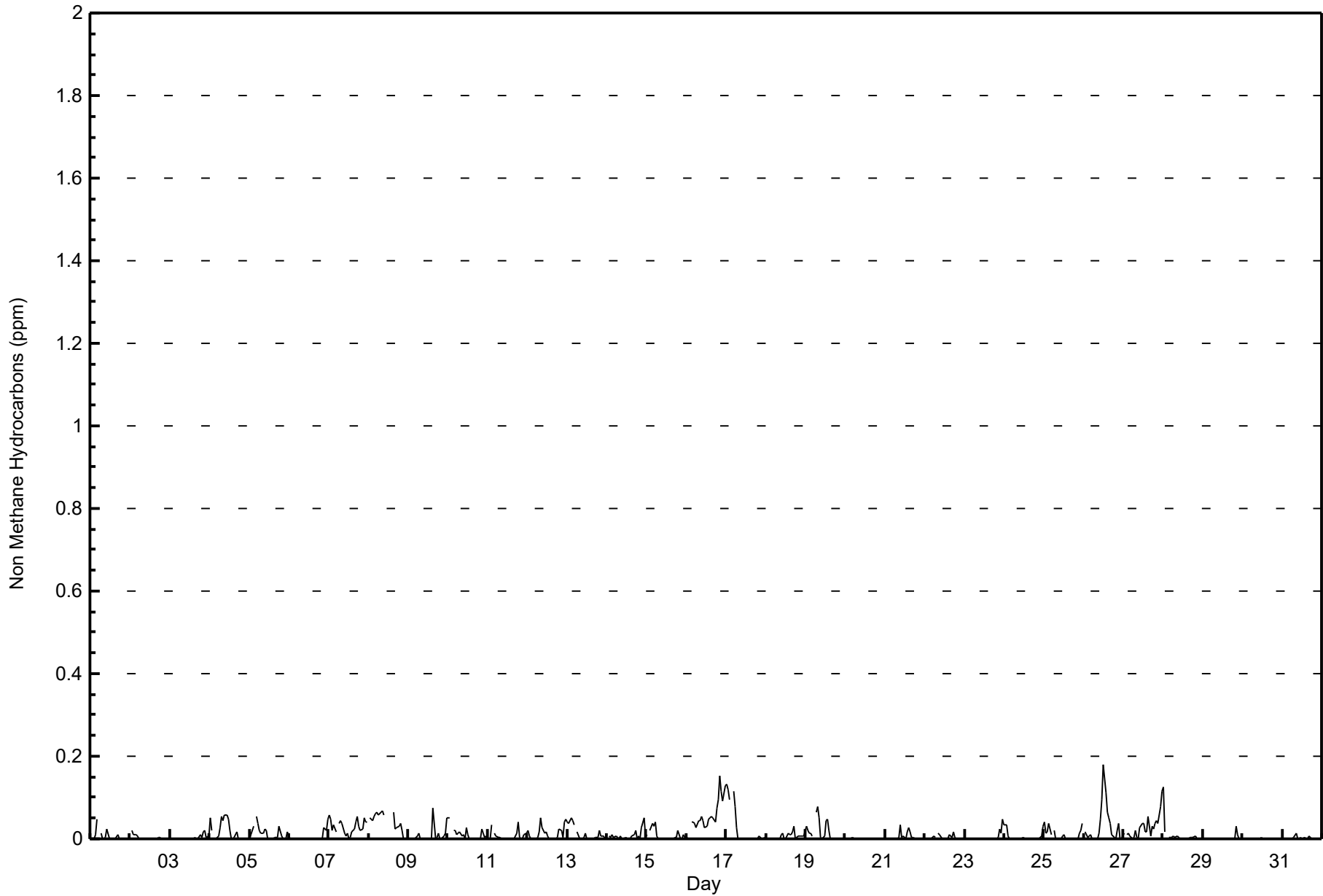




Summary of Hour Averages

Lower Camp - October 2024

Maximum Value: 0.179 ppm on Oct 26 13:00		Maximum Daily Average: 0.056 ppm on Oct 16		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Oct 1 01:00		Minimum Daily Average: 0.000 ppm on Oct 20		Hours of Data: 708																							
Maximum Diurnal Average: 0.023 ppm at hour 1		Minimum Diurnal Average: 0.007 ppm at hour 15		Hours of Missing Data: 36																							
Monthly Average: 0.012 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.1		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	0.000	0.000	0.000	0.011	0.049	Z	0.014	0.000	0.000	0.002	0.025	0.000	0.000	0.000	0.000	0.001	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.049	
2-Oct	Z	0.019	0.010	0.011	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.005	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.019	
3-Oct	0.001	Z	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.004	0.000	0.000	0.009	0.003	0.017	0.021	0.002	0.008	0.003	0.021	0.021	
4-Oct	0.050	0.020	Z	0.001	0.000	0.005	0.027	0.056	0.043	0.056	0.059	0.046	0.019	0.001	0.000	0.003	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.059	0.059	
5-Oct	0.000	0.011	0.032	Z	0.053	0.039	0.019	0.015	0.014	0.022	0.022	0.001	0.001	0.000	0.000	0.003	0.005	0.003	0.030	0.007	0.000	0.000	0.001	0.017	0.013	0.053	
6-Oct	0.001	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	0.001	0.026	0.020	0.048	0.004	0.048		
7-Oct	0.057	0.047	0.020	0.033	0.016	Z	0.037	0.043	0.037	0.014	0.008	0.013	0.001	0.004	0.017	0.023	0.042	0.056	0.031	0.021	0.023	0.049	0.042	0.029	0.057	0.057	
8-Oct	Z	0.050	0.042	0.054	0.060	0.066	0.056	0.064	0.069	0.058	C	C	C	C	C	0.065	0.023	0.026	0.030	0.038	0.019	0.001	0.000	0.040	0.069		
9-Oct	0.001	Z	0.000	0.000	0.000	0.007	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074	0.000	0.002	0.013	0.000	0.001	0.005	0.014	0.050	0.008	0.074		
10-Oct	0.051	0.050	Z	0.022	0.019	0.010	0.012	0.017	0.008	0.009	0.002	0.026	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.025	0.013	0.003	0.006	0.012	0.051	
11-Oct	0.001	0.002	0.034	Z	0.012	0.007	0.003	0.003	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.014	0.039	0.002	0.000	0.001	0.012	0.012	0.006	0.039	0.039	
12-Oct	0.019	0.007	0.000	0.000	Z	0.000	0.003	0.018	0.049	0.027	0.013	0.016	0.006	0.000	0.000	0.000	0.000	0.003	0.024	0.022	0.004	0.042	0.047	0.013	0.049		
13-Oct	0.040	0.037	0.050	0.043	0.034	Z	0.018	0.001	0.001	0.000	0.004	0.014	0.002	0.001	0.000	0.000	0.001	0.002	0.002	0.021	0.007	0.006	0.008	0.002	0.013	0.050	
14-Oct	Z	0.008	0.003	0.011	0.002	0.005	0.004	0.001	0.008	0.000	0.000	0.005	0.001	0.001	0.000	0.007	0.010	0.021	0.000	0.005	0.001	0.026	0.052	0.003	0.008	0.052	
15-Oct	0.010	Z	0.022	0.039	0.031	0.040	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.002	0.021	0.000	0.000	0.009	0.003	0.008	0.040		
16-Oct	0.004	0.001	Z	0.039	0.042	0.037	0.026	0.044	0.043	0.054	0.046	0.027	0.032	0.046	0.052	0.054	0.050	0.040	0.074	0.096	0.154	0.115	0.092	0.127	0.056	0.154	
17-Oct	0.132	0.119	0.096	Z	0.116	0.077	0.028	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.001	0.002	0.025	0.132	0.132	
18-Oct	0.000	0.000	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.009	0.013	0.000	0.000	0.012	0.009	0.010	0.017	0.032	0.000	0.005	0.008	0.008	0.006	0.006	0.006	0.032	
19-Oct	0.030	0.019	0.012	0.012	0.007	Z	0.064	0.079	0.050	0.005	0.000	0.006	0.045	0.047	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.079	0.079	
20-Oct	Z	0.000	0.002	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	0.000	0.000	0.000	0.000	0.000	0.003	
21-Oct	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.035	0.004	0.008	0.000	0.016	0.029	0.018	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.005	0.035	0.035	
22-Oct	0.000	0.000	0.001	0.001	0.001	0.007	0.004	Z	0.013	0.011	0.001	0.000	0.000	0.001	0.001	0.010	0.002	0.018	0.005	0.002	0.001	0.000	0.000	0.003	0.018	0.018	
23-Oct	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	0.004	0.024	0.013	0.047	0.004	0.047	
24-Oct	0.034	0.035	0.007	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.004	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.006	0.032	0.005	0.035	0.035	
25-Oct	0.039	0.014	0.017	0.038	0.011	Z	0.020	0.001	0.000	0.001	0.001	0.008	0.012	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.020	0.037	0.010	0.039	0.039	
26-Oct	Z	0.017	0.004	0.007	0.010	0.001	0.001	0.000	0.001	0.014	0.048	0.095	0.179	0.112	0.066	0.051	0.038	0.010	0.003	0.001	0.021	0.037	0.002	0.000	0.031	0.179	
27-Oct	0.012	Z	0.009	0.015	0.007	0.000	0.002	0.020	0.004	0.000	0.028	0.038	0.036	0.018	0.019	0.055	0.008	0.030	0.024	0.038	0.046	0.036	0.079	0.115	0.028	0.115	
28-Oct	0.125	0.019	Z	0.002	0.005	0.003	0.008	0.003	0.006	0.002	0.000	0.000	0.001	0.000	0.000	0.001	0.005	0.004	0.005	0.007	0.000	0.001	0.000	0.000	0.009	0.125	
29-Oct	0.000	0.000	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.012	0.000	0.000	0.002	0.030	
30-Oct	0.000	0.002	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.003	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	0.003	
31-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.002	0.012	0.000	0.000	0.003	0.001	0.003	0.000	0.000	0.007	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.012	0.012	
		0.023	0.018	0.013	0.013	0.019	0.012	0.012	0.012	0.010	0.009	0.011	0.012	0.009	0.007	0.012	0.008	0.009	0.009	0.009	0.012	0.013	0.014	0.020	Diurnal Average		
		0.132	0.119	0.096	0.054	0.116	0.077	0.064	0.079	0.069	0.058	0.059	0.095	0.179	0.112	0.066	0.074	0.050	0.056	0.074	0.096	0.154	0.115	0.092	0.127	Diurnal Maximum	
Z - zerospan		C - Calibration																									







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	446	62.99	62.99
0.006 - 0.05	229	32.34	95.34
0.06 - 0.1	31	4.38	99.72
> 0.1	2	0.28	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

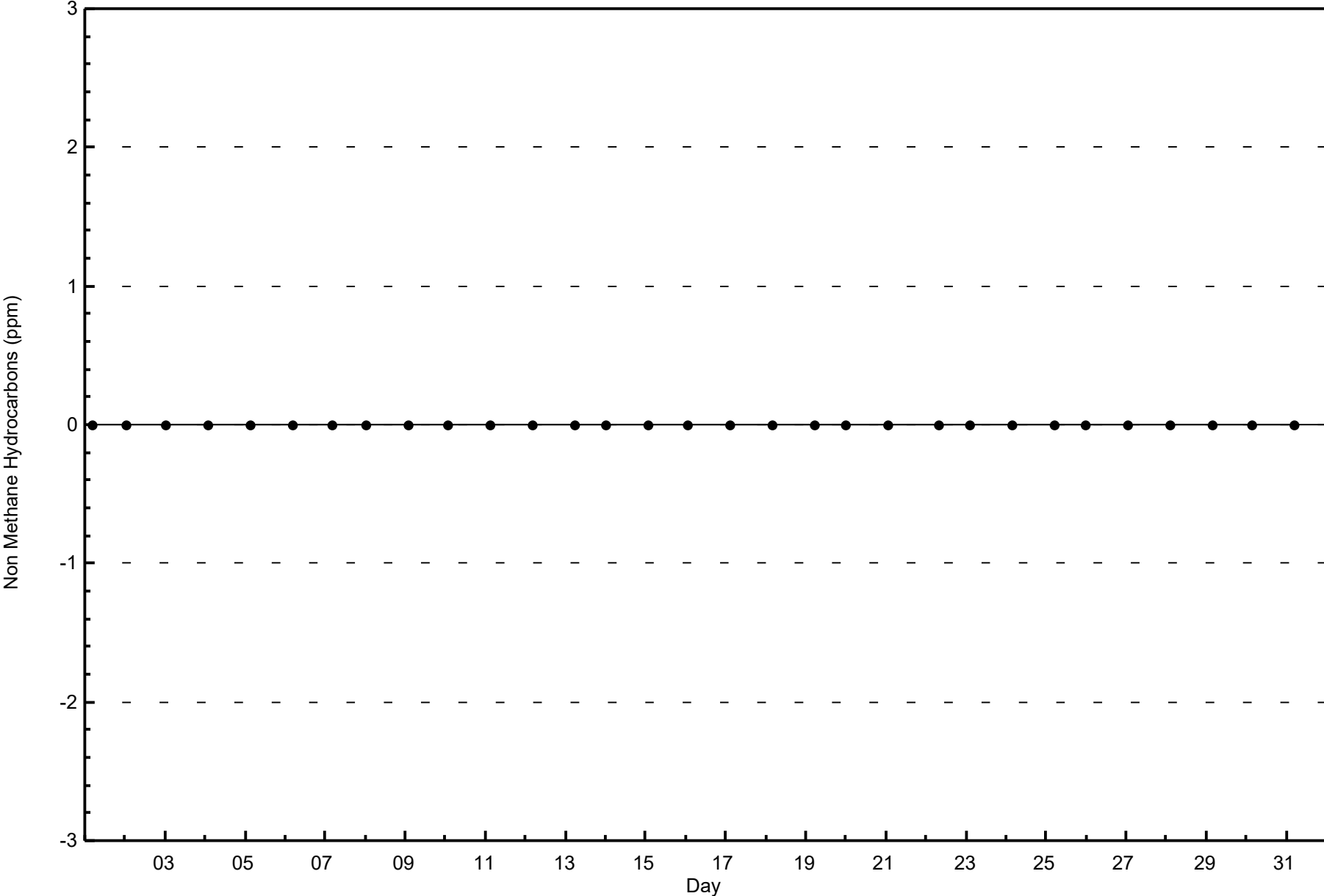
**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - October 2024**

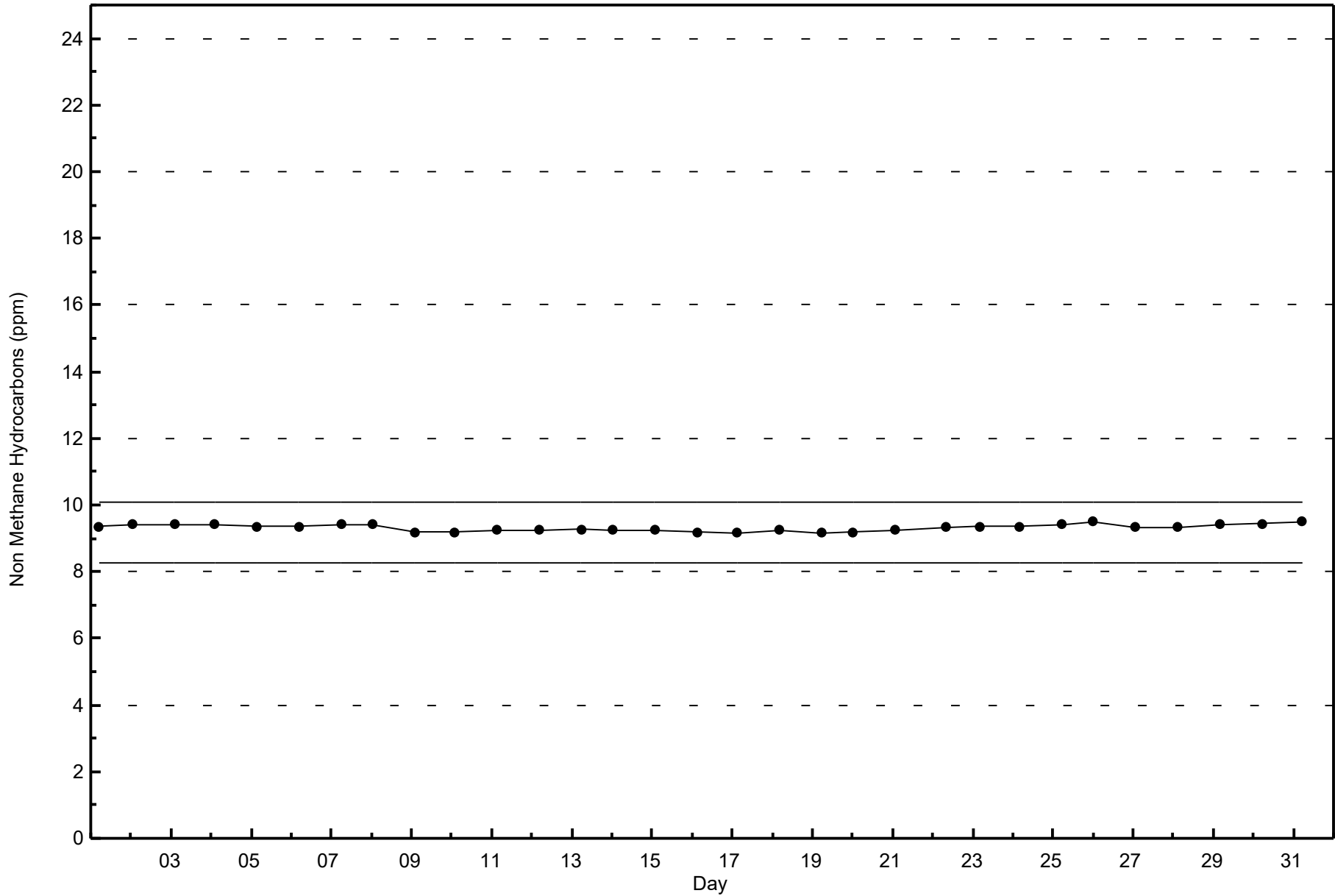
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	31	13	10	7	10	18	48	9	19	18	20	73	48	58	33	31	446
0.006 - 0.05	4	2	4	0	6	29	76	19	10	8	3	3	8	25	15	17	229
0.06 - 0.1	0	0	0	1	1	0	4	4	1	0	0	2	2	4	9	3	31
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
<b>Totals</b>	35	15	14	8	17	47	128	32	30	26	23	78	58	87	59	51	708

Total Number of Valid Hours: 708

Total Number of Hours: 744









**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**

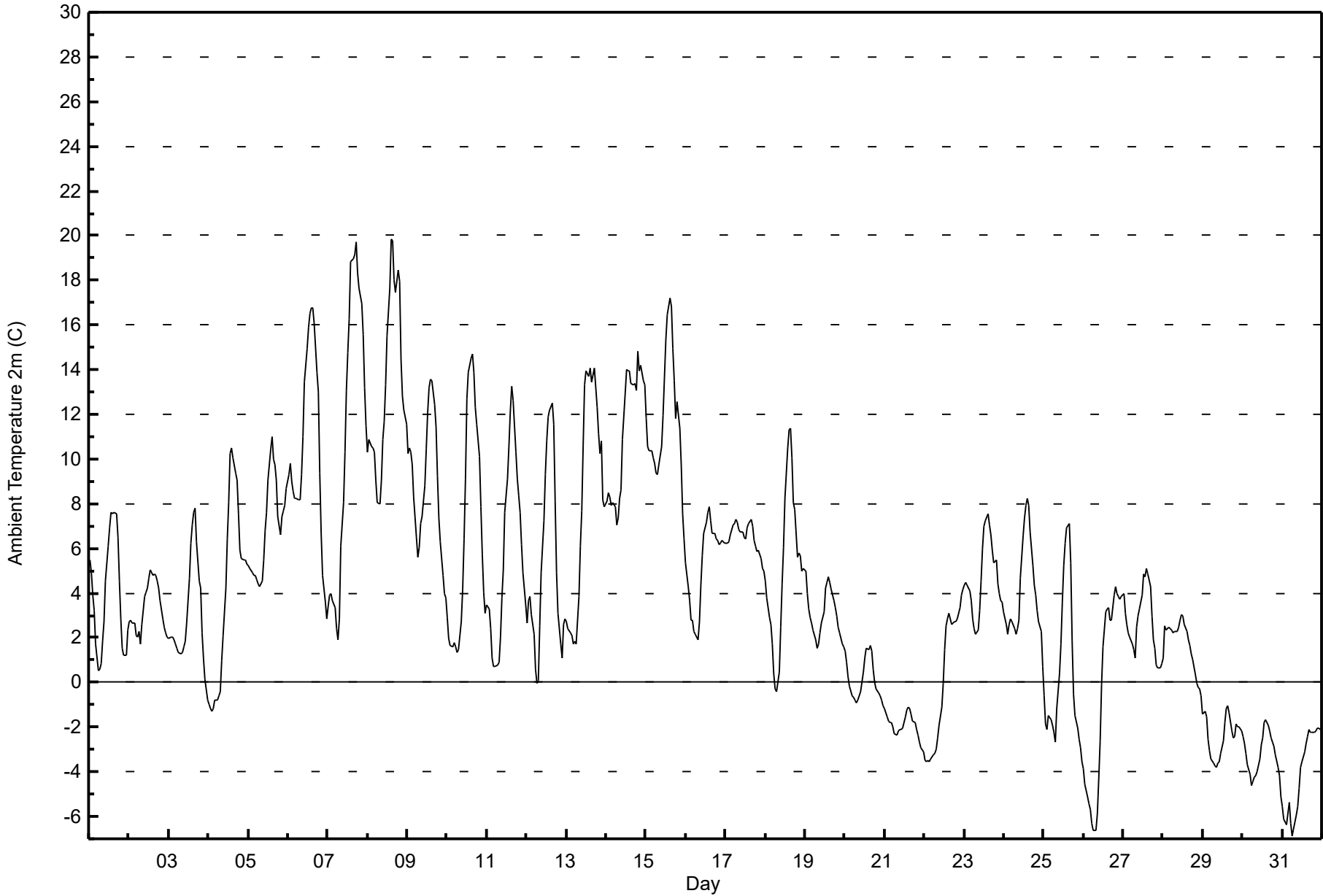
**Lower Camp - October 2024**

Maximum Value: 19.8 C on Oct 8 15:00		Maximum Daily Average: 13.3 C on Oct 8		Hours in Service: 744																						
Minimum Value: -6.9 C on Oct 31 07:00		Minimum Daily Average: -4.1 C on Oct 31		Hours of Data: 744																						
Maximum Diurnal Average: 8.3 C at hour 15		Minimum Diurnal Average: 1.3 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: 4.36 C		Percentiles: P <sub>1</sub> = -6.0 P <sub>10</sub> = -2.4 Q <sub>1</sub> = 0.9 Median = 3.7 Q <sub>3</sub> = 7.6 P <sub>90</sub> = 12.2 P <sub>99</sub> = 18.2		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-Oct	5.5	4.9	3.9	3.2	1.7	0.5	0.6	0.8	1.9	2.7	4.5	6.1	6.9	7.6	7.6	7.6	7.5	6.5	4.6	2.9	1.5	1.2	1.2	2.3	3.9	7.6
2-Oct	2.7	2.8	2.7	2.7	2.1	2.0	2.3	1.7	2.6	3.9	4.1	4.2	4.7	5.0	4.8	4.9	4.8	4.5	4.2	3.7	2.8	2.5	2.2	2.0	3.3	5.0
3-Oct	2.0	2.1	2.0	1.9	1.7	1.5	1.3	1.3	1.3	1.6	1.8	2.6	4.7	6.2	7.0	7.6	7.8	6.3	4.5	4.2	2.2	1.1	0.2	-0.8	3.0	7.8
4-Oct	-1.0	-1.2	-1.3	-1.2	-0.8	-0.8	-0.6	-0.4	1.0	2.1	4.2	6.4	8.1	10.3	10.5	10.0	9.4	9.1	7.6	5.9	5.6	5.5	5.5	5.3	4.1	10.5
5-Oct	5.2	5.1	4.9	4.8	4.8	4.6	4.4	4.3	4.6	5.4	6.8	7.6	9.0	10.4	11.0	10.0	9.7	9.1	7.4	6.6	7.4	7.7	7.9	8.7	7.0	11.0
6-Oct	9.3	9.8	9.0	8.6	8.3	8.3	8.2	8.2	9.3	11.0	13.4	15.0	15.9	16.5	16.8	16.8	16.1	13.9	13.0	9.3	6.7	4.8	3.6	2.8	10.6	16.8
7-Oct	3.4	3.9	4.0	3.6	3.3	2.4	1.9	2.9	6.1	8.0	10.3	13.1	14.8	16.3	18.8	18.9	19.1	19.7	18.3	17.7	17.0	15.6	13.2	11.5	11.0	19.7
8-Oct	10.3	10.9	10.6	10.5	10.3	9.0	8.1	8.0	9.0	10.9	11.7	13.3	15.5	17.7	19.8	19.8	18.0	17.4	18.5	18.0	14.4	12.8	12.2	11.6	13.3	19.8
9-Oct	10.2	10.5	10.3	9.7	8.3	6.5	5.6	6.1	7.1	7.4	8.8	10.4	12.1	13.2	13.5	13.5	12.5	11.4	9.2	7.4	6.3	4.8	4.0	3.8	8.9	13.5
10-Oct	2.9	2.0	1.6	1.6	1.8	1.6	1.3	1.5	2.7	4.2	6.4	9.1	12.7	13.9	14.5	14.7	13.9	12.3	11.6	10.1	7.8	5.7	4.0	3.1	6.7	14.7
11-Oct	3.5	3.3	2.4	1.1	0.7	0.7	0.7	0.9	2.0	3.8	5.0	7.6	9.1	10.6	12.1	13.3	12.6	10.3	9.1	8.3	7.6	6.1	4.9	3.5	5.8	13.3
12-Oct	2.7	3.7	3.8	3.0	2.2	0.6	-0.1	0.1	2.5	4.9	7.2	9.3	10.8	11.9	12.2	12.5	11.6	8.1	4.9	3.1	1.7	1.1	2.6	2.9	5.1	12.5
13-Oct	2.7	2.4	2.2	2.1	1.7	1.9	1.7	3.8	6.1	7.7	10.6	13.3	13.9	13.7	14.1	13.5	13.8	14.1	12.3	11.1	10.2	10.8	8.2	7.9	8.3	14.1
14-Oct	8.1	8.5	8.3	7.9	8.0	7.9	7.1	7.4	8.2	8.6	10.9	12.9	14.0	14.0	13.9	13.4	13.3	13.4	13.1	14.8	14.0	14.2	13.5	13.3	11.2	14.8
15-Oct	11.8	10.6	10.4	10.4	10.1	9.8	9.3	9.3	9.8	10.6	12.0	13.7	15.3	16.5	17.2	16.8	15.0	13.5	11.8	12.5	11.4	9.7	7.6	6.4	11.7	17.2
16-Oct	5.4	4.3	3.7	2.8	2.8	2.3	2.1	1.9	2.7	4.4	5.6	6.7	7.2	7.6	7.9	7.2	6.7	6.7	6.4	6.4	6.2	6.2	6.4	6.2	5.2	7.9
17-Oct	6.2	6.2	6.3	6.6	7.1	7.1	7.3	7.2	6.9	6.7	6.8	6.5	6.4	6.9	7.1	7.3	7.0	6.4	6.1	5.9	5.9	5.6	5.1	5.0	6.5	7.3
18-Oct	4.5	3.8	2.9	2.6	1.7	0.4	-0.3	-0.4	0.4	2.5	4.4	6.0	8.2	10.5	11.3	11.4	10.0	8.1	7.7	5.6	5.8	5.7	5.0	5.1	5.1	11.4
19-Oct	5.0	3.9	3.3	2.9	2.7	2.3	1.9	1.5	1.7	2.2	2.7	3.2	4.2	4.5	4.7	4.5	4.2	3.6	3.3	3.0	2.5	2.2	1.7	1.6	3.1	5.0
20-Oct	1.4	0.9	0.3	-0.1	-0.6	-0.7	-0.8	-0.9	-0.8	-0.4	0.0	0.5	1.1	1.5	1.5	1.7	1.4	0.6	0.0	-0.3	-0.5	-0.6	-0.8	-1.0	0.1	1.7
21-Oct	-1.2	-1.6	-1.7	-1.8	-1.8	-2.0	-2.3	-2.4	-2.2	-2.1	-2.1	-2.1	-1.6	-1.2	-1.1	-1.2	-1.4	-1.7	-1.8	-2.1	-2.4	-2.7	-2.9	-3.1	-1.9	-1.1
22-Oct	-3.5	-3.6	-3.5	-3.6	-3.4	-3.2	-3.2	-3.0	-2.5	-1.9	-1.1	-0.1	1.5	2.6	2.8	3.1	2.6	2.6	2.7	2.7	2.9	3.3	3.9	4.2	0.1	4.2
23-Oct	4.3	4.5	4.4	4.1	3.6	2.8	2.4	2.1	2.4	3.2	4.5	6.0	7.0	7.3	7.5	7.0	6.6	5.9	5.4	5.5	4.4	4.0	3.7	3.6	4.7	7.5
24-Oct	3.2	2.6	2.1	2.6	2.9	2.7	2.4	2.2	2.4	2.8	4.7	6.5	7.3	7.9	8.3	7.9	6.7	5.2	4.3	3.9	3.2	2.7	2.3	0.7	4.1	8.3
25-Oct	-0.6	-1.9	-2.1	-1.5	-1.7	-1.9	-2.2	-2.7	-1.2	0.4	1.7	3.6	5.2	6.2	6.9	7.1	5.3	1.8	-0.5	-1.5	-2.1	-2.5	-2.9	-3.5	0.4	7.1
26-Oct	-3.9	-4.6	-5.1	-5.4	-5.7	-6.3	-6.6	-6.6	-5.9	-4.3	-2.6	-0.1	1.6	3.2	3.3	3.3	2.8	2.8	3.9	4.3	4.0	3.9	3.7	3.9	-0.7	4.3
27-Oct	4.0	3.1	2.6	2.2	2.1	1.7	1.5	1.1	2.5	2.9	3.3	3.9	4.9	4.8	5.1	4.8	4.3	2.9	1.9	1.5	0.8	0.6	0.7	0.9	2.7	5.1
28-Oct	1.1	2.5	2.3	2.5	2.4	2.3	2.2	2.3	2.3	2.5	2.8	3.1	3.0	2.6	2.3	1.9	1.7	1.3	1.0	0.3	-0.1	-0.2	-0.3	-0.6	1.7	3.1
29-Oct	-1.4	-1.3	-1.5	-2.5	-3.0	-3.4	-3.6	-3.8	-3.8	-3.6	-3.5	-3.2	-2.6	-1.8	-1.2	-1.1	-1.3	-2.1	-2.5	-2.4	-1.9	-2.0	-2.0	-2.2	-2.4	-1.1
30-Oct	-2.4	-2.7	-3.1	-3.7	-4.1	-4.6	-4.4	-4.2	-4.2	-4.0	-3.4	-2.8	-2.5	-1.8	-1.7	-1.9	-2.2	-2.5	-2.6	-2.9	-3.2	-3.8	-4.2	-5.1	-3.3	-1.7
31-Oct	-5.6	-6.1	-6.4	-5.9	-5.4	-6.3	-6.9	-6.6	-6.0	-5.6	-4.7	-3.8	-3.5	-3.1	-2.8	-2.4	-2.1	-2.3	-2.2	-2.2	-2.2	-2.1	-2.1	-2.1	-4.1	-2.1
																								Diurnal Average		
																								Diurnal Maximum		



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

**Ambient Temperature 2m (AT2) - C**  
**Lower Camp - October 2024**





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

**Ambient Temperature 2m (AT2) - C**  
**Lower Camp - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	163	21.91	21.91
0 - 10	456	61.29	83.20
10 - 20	125	16.80	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

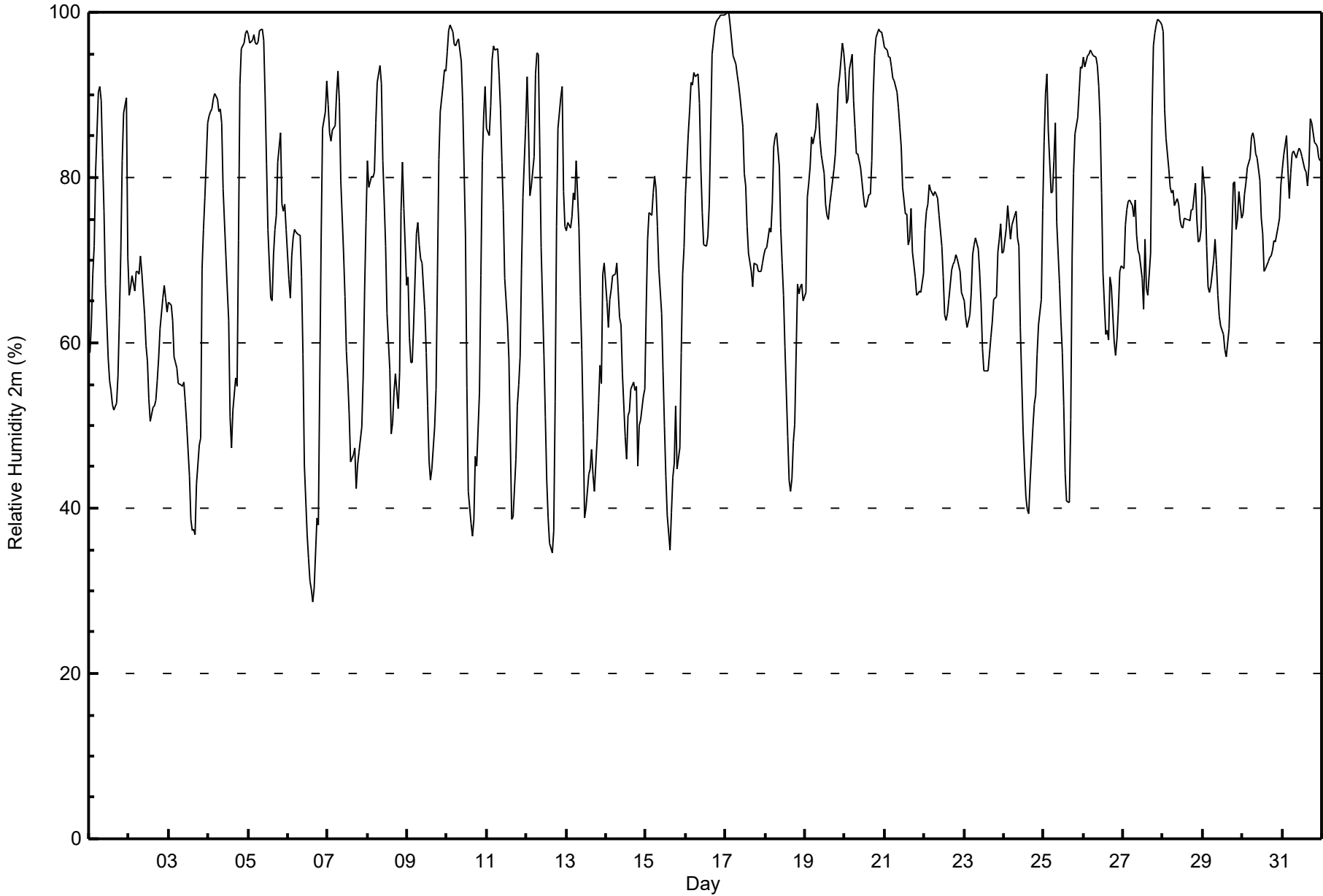




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**  
**Lower Camp - October 2024**

Maximum Value: 99.9 % on Oct 17 02:00      Maximum Daily Average: 88.6 % on Oct 16																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 28.6 % on Oct 6 16:00      Minimum Daily Average: 55.3 % on Oct 3 Maximum Diurnal Average: 83.2 % at hour 7      Minimum Diurnal Average: 54.9 % at hour 15 Monthly Average: 72.03 %      Percentiles: P <sub>1</sub> = 36.1 P <sub>10</sub> = 49.1 Q <sub>1</sub> = 62.1 Median = 73.3 Q <sub>3</sub> = 83.8 P <sub>90</sub> = 93.4 P <sub>99</sub> = 99.2																						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-Oct	58.8	62.4	68.3	71.8	80.7	90.4	91.0	89.3	82.4	76.0	67.1	58.2	55.4	54.2	52.6	51.8	52.7	56.0	63.0	71.1	82.0	87.9	89.7	70.3	70.1	91.0
2-Oct	65.7	66.7	68.1	66.2	68.7	68.7	68.3	70.5	68.5	63.3	59.6	57.7	53.2	50.4	52.1	52.3	53.1	55.4	58.1	61.7	65.4	67.0	65.5	63.7	62.1	70.5
3-Oct	64.9	64.6	62.8	58.3	57.6	57.0	55.1	54.9	54.7	55.3	52.9	50.2	43.9	38.7	37.2	37.4	36.8	42.9	47.6	48.5	69.0	73.8	77.6	86.7	55.3	86.7
4-Oct	87.5	88.1	88.3	89.5	90.1	89.6	88.0	88.2	86.6	78.6	70.4	66.5	62.7	51.0	47.4	51.8	55.7	54.7	72.4	91.2	95.7	96.4	97.5	97.8	78.6	97.8
5-Oct	97.4	96.2	96.6	97.3	96.3	96.0	96.4	97.7	98.0	96.6	89.8	81.7	73.7	65.5	65.1	70.8	73.8	75.4	81.8	95.3	76.7	76.0	76.8	73.7	84.8	98.0
6-Oct	67.5	65.3	70.5	72.8	73.7	73.3	73.0	73.0	68.0	58.7	45.2	36.9	33.8	31.1	30.2	28.6	30.3	38.8	37.9	55.7	72.6	85.9	88.0	91.8	58.5	91.8
7-Oct	88.9	85.5	84.3	85.7	86.2	90.1	92.9	89.1	79.6	70.8	65.6	59.0	55.6	51.3	45.5	46.4	47.3	42.4	45.2	46.8	49.9	55.9	66.3	74.6	66.9	92.9
8-Oct	82.0	78.8	80.1	79.9	80.7	86.7	91.5	93.6	91.4	82.1	77.2	71.8	63.6	56.8	48.9	50.3	54.0	56.2	52.0	56.5	75.9	81.9	76.2	66.9	72.3	93.6
9-Oct	68.0	60.7	57.7	57.7	62.3	73.2	74.6	71.9	70.1	69.6	64.0	58.8	52.4	45.8	43.4	44.8	49.8	54.3	68.2	82.3	87.9	91.2	93.1	92.9	66.5	93.1
10-Oct	95.2	97.8	98.5	97.6	96.1	96.0	96.5	96.7	94.0	89.2	81.1	72.9	54.6	42.1	38.2	36.6	38.6	46.2	45.1	54.0	68.2	82.0	87.4	91.0	74.8	98.5
11-Oct	85.9	85.0	88.7	94.2	95.9	95.4	95.6	92.4	88.4	81.8	76.1	67.9	62.4	58.1	48.1	38.6	39.1	46.0	52.4	54.9	58.3	69.0	77.6	86.5	72.4	95.9
12-Oct	92.2	85.8	77.8	79.0	82.5	92.6	95.2	95.0	83.9	71.5	58.5	51.1	43.5	38.7	35.7	34.6	37.4	52.9	74.1	85.9	89.6	91.0	78.3	74.0	70.9	95.2
13-Oct	73.6	74.6	74.0	75.3	78.1	77.3	82.1	73.9	65.6	59.1	50.4	38.9	39.9	44.1	44.8	47.1	44.1	42.1	48.5	52.8	57.3	55.2	68.3	69.6	59.9	82.1
14-Oct	64.9	61.9	65.2	66.5	68.2	68.3	69.6	66.3	63.0	62.1	56.3	48.6	45.9	51.2	51.8	54.5	55.3	54.3	54.8	45.0	50.1	50.8	53.5	54.4	57.6	69.6
15-Oct	64.2	72.5	75.7	75.4	78.1	80.2	78.7	74.1	69.0	63.5	56.7	49.9	43.9	39.2	34.9	39.5	43.7	45.4	52.4	44.7	47.3	58.8	68.2	71.5	59.5	80.2
16-Oct	77.9	85.3	88.1	91.6	91.2	92.7	92.1	92.6	88.9	81.2	75.8	71.8	71.7	72.9	76.7	85.8	95.0	98.1	98.8	99.2	99.4	99.6	99.6	99.7	88.6	99.7
17-Oct	99.9	99.9	99.8	98.4	94.8	94.3	93.8	92.3	91.2	89.7	86.2	80.5	79.1	74.0	70.8	68.7	66.7	69.6	69.4	69.5	68.7	68.7	69.6	70.7	81.9	99.9
18-Oct	71.4	71.5	73.9	73.4	77.0	83.7	85.0	85.5	81.4	73.9	69.7	65.8	59.5	48.7	43.4	42.1	43.6	48.0	50.2	67.0	66.0	66.7	67.1	65.1	65.8	85.5
19-Oct	66.2	77.7	79.2	81.4	84.8	84.0	85.9	89.0	87.9	84.5	82.7	80.4	76.7	75.5	74.9	76.8	78.1	81.1	83.0	86.5	90.8	92.2	96.2	95.2	82.9	96.2
20-Oct	93.0	89.0	89.5	93.0	94.9	89.4	86.1	82.9	82.9	81.3	79.4	77.8	76.5	76.4	77.9	78.0	82.1	90.0	94.8	97.0	98.0	97.6	97.6	96.8	87.6	98.0
21-Oct	95.8	95.4	94.5	94.6	93.4	92.0	91.8	90.4	88.4	86.1	83.8	78.8	75.6	75.6	71.8	72.5	76.3	71.0	68.0	65.7	65.9	66.2	66.2	68.5	80.3	95.8
22-Oct	73.7	76.0	76.8	79.1	78.5	77.7	78.3	78.0	77.4	75.5	71.7	68.0	63.4	62.6	63.6	65.2	68.9	69.5	69.8	70.7	70.2	68.6	66.1	65.6	71.5	79.1
23-Oct	65.1	63.1	61.9	63.3	66.1	70.7	71.9	72.7	71.3	68.5	64.7	59.4	56.7	56.6	56.6	58.6	60.7	62.5	65.3	65.6	71.0	72.5	74.4	70.9	65.4	74.4
24-Oct	71.0	73.9	76.6	74.5	72.5	74.2	75.5	75.9	72.6	71.7	61.9	49.4	45.0	41.4	39.8	39.3	43.2	49.8	52.5	53.7	58.6	62.3	65.2	76.2	61.5	76.6
25-Oct	84.4	90.2	92.6	85.5	78.2	78.3	82.1	86.6	74.5	67.1	62.6	58.9	52.3	44.2	40.8	40.7	50.7	70.6	80.4	85.3	87.2	90.4	93.4	93.3	73.8	93.4
26-Oct	94.6	93.5	94.8	94.9	95.5	95.1	94.8	94.6	93.5	91.0	86.8	78.1	68.5	61.0	61.5	60.4	67.9	66.8	60.1	58.4	60.6	64.1	68.6	69.4	78.1	95.5
27-Oct	69.0	74.3	76.1	77.1	77.2	76.6	75.3	77.3	73.1	71.2	70.7	67.8	64.1	72.5	66.5	65.8	70.8	87.3	96.0	97.5	98.5	99.1	98.9	98.4	79.2	99.1
28-Oct	97.6	88.3	84.7	80.9	78.8	78.1	78.5	76.7	77.5	76.8	74.9	74.1	73.9	75.1	74.9	75.0	74.8	76.1	76.1	79.4	75.0	72.2	72.4	73.8	77.7	97.6
29-Oct	81.4	77.7	71.7	66.8	66.2	66.9	70.0	72.5	69.5	65.8	63.3	62.0	61.0	59.1	58.3	60.0	61.6	72.9	79.3	79.5	73.8	74.9	78.3	75.1	69.5	81.4
30-Oct	75.6	78.0	79.4	81.1	82.4	84.9	85.5	84.6	82.9	82.3	79.7	75.1	73.3	68.7	69.0	69.8	70.4	70.4	71.3	72.3	72.3	74.1	75.1	79.1	76.6	85.5
31-Oct	81.1	82.7	85.1	80.9	77.5	80.5	83.0	83.3	82.4	83.1	83.6	83.2	82.5	81.1	80.8	79.1	81.4	87.1	86.6	84.2	84.1	83.7	82.3	82.1	82.6	87.1
79.2 79.4 80.0 80.1 80.8 82.4 83.2 82.6 79.3 75.1 69.9 64.5 60.1 56.9 54.9 55.6 58.2 62.4 66.3 69.9 73.7 76.6 78.6 78.9																								Diurnal Average		
99.9 99.9 99.8 98.4 96.3 96.0 96.5 97.7 98.0 96.6 89.8 83.2 82.5 81.1 80.8 85.8 95.0 98.1 98.8 99.2 99.4 99.6 99.6 99.7																								Diurnal Maximum		





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Barometric Pressure (BP) - inHg**

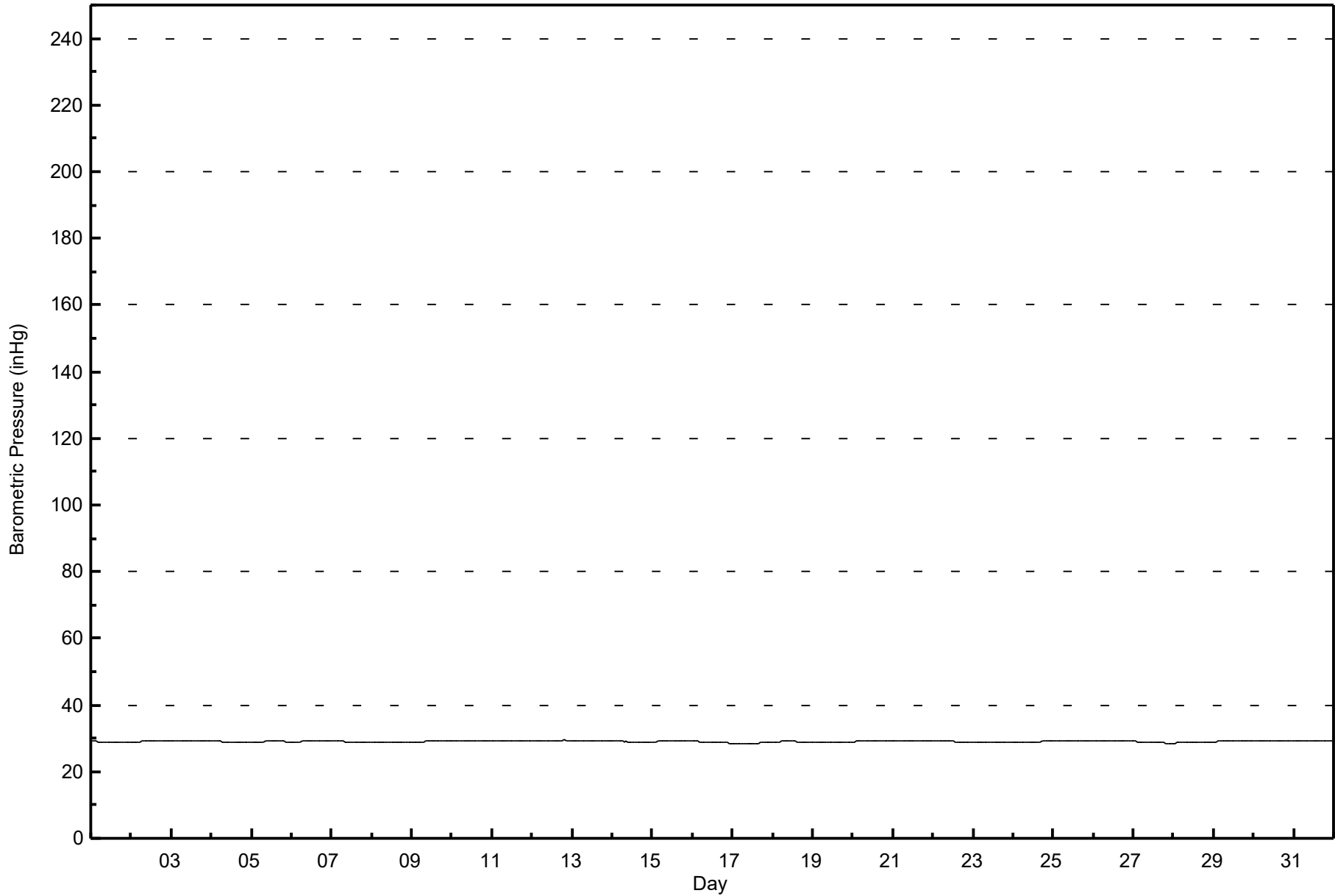
**Lower Camp - October 2024**

Maximum Value: 29.5 inHg on Oct 12 20:00      Maximum Daily Average: 29.4 inHg on Oct 12																						Hours in Service:	744						
Minimum Value: 28.5 inHg on Oct 17 07:00      Minimum Daily Average: 28.6 inHg on Oct 17																						Hours of Data:	744						
Maximum Diurnal Average: 29.1 inHg at hour 10      Minimum Diurnal Average: 29.0 inHg at hour 18																						Hours of Missing Data:	0						
Monthly Average: 29.04 inHg      Percentiles: P <sub>1</sub> = 28.5 P <sub>10</sub> = 28.8 Q <sub>1</sub> = 28.9 Median = 29.1 Q <sub>3</sub> = 29.2 P <sub>90</sub> = 29.3 P <sub>99</sub> = 29.4																						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-Oct	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0
2-Oct	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	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
3-Oct	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	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2
4-Oct	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.8	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	29.1	29.1
5-Oct	28.8	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	29.1	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
6-Oct	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
7-Oct	29.1	29.1	29.1	29.1	29.1	29.1	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	29.0	29.1	29.1
8-Oct	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.9	28.8
9-Oct	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	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	29.0	29.1	29.1
10-Oct	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.2	29.3	29.3	29.3
11-Oct	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3
12-Oct	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	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5
13-Oct	29.4	29.4	29.4	29.4	29.4	29.4	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	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.4
14-Oct	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1
15-Oct	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	29.1	29.1	29.1
16-Oct	29.1	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	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.9	29.1	29.1
17-Oct	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.8	28.8	28.9	28.6	28.9	28.9
18-Oct	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.8	29.0	29.1	29.1
19-Oct	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.9	28.9
20-Oct	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2
21-Oct	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	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
22-Oct	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.0	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	29.0	29.3	29.3
23-Oct	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	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	29.0
24-Oct	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.1	29.1
25-Oct	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	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.4	29.4
26-Oct	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.3	29.4	29.4
27-Oct	29.1	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.8	29.1	29.1
28-Oct	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	28.8	29.0
29-Oct	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	29.1	29.1	29.1	29.1
30-Oct	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	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.3	29.3
31-Oct	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3
29.0																						Diurnal Average							
29.4																						Diurnal Maximum							



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

**Barometric Pressure (BP) - inHg**  
**Lower Camp - October 2024**





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

## Lower Camp - October 2024

Maximum Speed: 30 km/h on Oct 17 18:00		Maximum Daily Speed Average: 18.6 km/h on Oct 17		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on Oct 12 20:00		Minimum Daily Speed Average: 0.4 km/h on Oct 16		Hours of Data: 744																						
Maximum Diurnal Speed Average: 3.7 km/h at hour 12		Minimum Diurnal Speed Average: 1.4 km/h at hour 24		Hours of Missing Data: 0																						
Monthly Average Velocity: 2.6 km/h 253.1 deg		Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 6 Median = 10 Q <sub>3</sub> = 14 P <sub>90</sub> = 19 P <sub>99</sub> = 25		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-Oct	W14	NW7	W9	WNW8	WNW3	NNE1	WNW3	NNW1	NE3	NNE3	N6	NNW4	N9	N11	N8	NE8	NE10	NNE9	NE4	WNW3	W2	WNW3	W2	NNW5	NNW3.7	W14
2-Oct	NW9	NW8	NW13	WNW18	W15	W15	W18	W16	WNW18	WNW23	WNW22	WNW22	WNW20	WNW20	NW21	WNW17	WNW20	WNW20	NW19	NW14	NW14	NW15	NW14	WNW14	WNW16.5	WNW23
3-Oct	WNW15	WNW14	NW12	NW11	WNW11	NW13	NW14	NW11	NW10	NW15	NW13	WNW11	WNW8	WSW11	W11	WSW14	WSW12	SW9	SSW6	SSW6	ESE4	SE7	SE5	SE8	WNW7.3	WNW15
4-Oct	SE6	SE6	SE8	SE10	SE10	ESE9	ESE6	SSE3	SE10	E3	NW3	NNW5	NW6	E8	ENE10	N6	NNW6	NNW5	N7	WNW6	NW7	NW8	NW9	NW8	ENE1.6	ENE10
5-Oct	NW10	NNW10	NNW7	WNW7	WNW6	WNW5	WNW3	NE1	SE3	ESE5	SSW4	WSW9	WSW10	SW10	SW12	SSW6	S5	S5	SSE6	SE9	SSE12	SSE12	SE12	SE5	SSW3.0	SSE12
6-Oct	SW11	WSW16	WSW15	WSW20	WSW24	W25	W21	WSW10	WSW12	WSW17	WSW20	WSW23	WSW21	WSW19	W19	W18	W15	W9	WSW11	WNW3	N2	ESE2	NE1	ESE3	WSW13.2	W25
7-Oct	SE8	SE12	SE12	ESE13	ESE11	ESE7	SE8	SE9	SE10	SE10	SE12	SE13	SE13	SE12	SE11	SE8	SSE6	S7	SSE8	SSE9	SSE8	SSE5	SE6	SSE1	SE8.9	SE13
8-Oct	SE4	SE6	SE8	SE8	SE7	SE3	SSE0	ENE1	SSE3	SE7	NW1	SE5	SE7	SE7	SE7	SSE4	SE11	SE10	SSE9	W20	W11	WSW16	SW15	SW12	S4.6	W20
9-Oct	SW10	SW16	WSW18	SW15	SSW7	SE4	SW7	SW11	WSW16	WSW13	WSW13	WSW13	WSW14	WSW15	WSW13	WSW11	SW7	SSW6	WSW1	N3	ESE2	ESE3	ESE4	SE5	SW8.0	WSW18
10-Oct	ESE4	ESE4	ESE3	SE9	SE10	SE10	SE7	SE10	SE12	SE11	SE13	SE13	SSE6	WSW18	WSW15	WSW13	WSW16	WSW12	WSW13	W10	WNW3	NW1	E1	E2	S4.4	WSW18
11-Oct	S3	S4	SE6	SE7	SE9	SE10	SE10	SE10	ESE13	ESE16	ESE13	SE13	SE16	SE15	S7	SW11	SW10	SSW6	SSW9	SSW10	SSW13	S2	SSE4	SE4	SSE7.3	SE16
12-Oct	ESE1	SW4	W7	W7	W6	SE3	SE2	SE5	SE5	SSE1	W5	NE1	NNE2	N3	NNW5	N3	ESE4	SE2	ESE2	NNW0	NNE1	ENE2	SE11	SE12	SSE0.9	SE12
13-Oct	SE11	SE11	SE11	SE12	SE13	SE12	SE13	ESE18	ESE22	ESE18	ESE21	SSE14	SE20	SE24	SE25	SE18	SE12	SE13	SE12	SE12	SE12	SE14	SE13	SE13	SE15.1	SE25
14-Oct	SE8	SE10	SE16	ESE13	SE21	SE22	SE20	SE18	SE23	ESE19	SE18	SE10	SE13	SE20	SE22	ESE18	ESE14	SE16	SE16	SSE10	SE11	SSE6	SSE5	SSE8	SE14.5	SE23
15-Oct	SE7	SE10	SE10	SE8	SE6	SE4	SW1	W11	W17	W11	WSW14	WSW15	WSW12	WSW10	WSW10	WSW10	SW6	SW6	SSW5	SSW7	SW8	W1	SE2	S2	SW5.6	W17
16-Oct	SE3	SE3	SE4	ESE5	E1	SE3	SE7	SE6	SE5	SE5	ESE3	SSE1	NW1	NNW4	NNW2	NW3	NNW4	NNW5	NNW6	NW4	NW5	WNW4	NNW5	NW4	NNE0.4	SE7
17-Oct	NW4	WNW4	W1	W4	W12	WSW14	WSW19	WSW22	WSW20	W21	WSW23	W24	W19	W22	W24	W29	W30	W27	W24	WNW24	WNW26	WNW23	WNW21	W18.6	W30	
18-Oct	WNW20	WNW22	NW14	WNW15	W9	SW8	SW9	SSW11	SSW9	S5	SE11	SE16	SE11	S8	SSW9	S8	S6	S7	SSE8	SE9	SE11	SE12	SE11	SE7	SSW4.5	WNW22
19-Oct	W3	WNW5	NW3	WNW4	WNW4	WNW6	WNW8	NW7	NW7	NW8	NW8	NNW9	NNW10	NNW7	NNW7	N8	N9	N10	NNW8	N11	N12	N13	NNW12	N11	NNW7.3	N13
20-Oct	NNW13	NNW14	NNW12	NNW12	NNW11	N12	N12	N12	N8	NNE11	NNE10	NE7	NNE8	NNE11	NNE13	NNE12	NNE11	N9	NNW10	NNW10	N12	NNW12	NNW11	NNW13	N10.4	NNW14
21-Oct	N15	NNW16	NNW17	NNW15	NNW16	NNW18	NNW16	NNW16	N17	NNW15	NNW17	NNW18	N13	N10	NNW8	N8	N5	NW7	NW13	WNW11	W12	WSW13	WSW14	WSW13	NNW11.3	NNW18
22-Oct	SW8	S6	S7	SSW7	S7	S8	S8	S7	SSW7	S7	SW11	SW10	SSW8	SSW9	S9	S7	SSW7	S8	S8	SSW8	SW9	WSW9	WSW13	WSW12	SSW7.7	WSW13
23-Oct	WSW13	WSW18	WSW23	WSW27	WSW30	W21	W14	WSW15	WSW15	W15	W13	WSW16	WSW19	WSW19	WSW18	WSW16	WSW18	WSW14	WSW15	WSW15	SSE4	SSE6	SE7	SSW5	WSW14.6	WSW30
24-Oct	S4	SSE4	SE3	SW6	W12	WSW15	WSW16	WSW14	SW6	WSW6	WSW13	W19	WNW19	WNW17	W17	W15	W11	W9	W11	WSW11	WNW5	W5	WNW3	WSW1	W9.2	W19
25-Oct	WNW2	E2	SSE3	ESE2	SSE4	SSE6	SE4	SE3	S4	SSW3	W5	W9	WNW9	W13	W11	W11	W6	SSW1	WNW1	E1	NW1	W1	NW2	WSW2.5	W13	
26-Oct	WNW3	WNW2	WNW2	WNW4	WNW4	WNW3	WNW4	WNW5	NW6	NW7	NW6	NW8	NW9	NW8	NW5	W5	NW2	NNW3	E6	E16	E13	ESE12	SE20	SE23	NE0.7	SE23
27-Oct	SE22	ESE21	ESE19	ESE15	SE16	ESE15	SE8	ESE14	ESE20	SE21	ESE17	ESE12	ESE17	ESE15	ESE15	ESE19	ESE14	NW3	WNW3	WNW4	WNW4	NW5	NW8	WNW6	ESE10.2	SE22
28-Oct	NNW1	WNW20	WNW18	WNW20	WNW21	WNW20	WNW17	WNW18	WNW18	WNW19	WNW19	WNW19	WNW20	NW18	NW17	WNW17	WNW16	WNW16	WNW15	WNW19	WNW22	NW15	WNW18	WNW19	WNW17.5	WNW22
29-Oct	WNW15	WNW16	WNW19	WNW22	WNW22	WNW19	WNW14	NW14	NW10	WNW11	W11	WSW12	WSW9	WSW10	W6	N1	SE3	WNW1	NW2	WNW2	E5	N0	NW5	NNW7	WNW8.6	WNW22
30-Oct	NNW7	NNW9	NNW9	NNW9	NNW11	NNW12	NNW11	N10	N11	N12	N13	NNE11	N11	NE12	NNE13	NE15	NE12	NE12	NE11	NE10	ENE8	NE7	ENE6	ENE2	NNE8.7	NE15
31-Oct	E5	NE3	ENE7	ENE6	E7	ESE6	SSE4	E4	E13	E12	ESE15	SE20	ESE19	ESE12	SE8	S3	SE7	SSE9	SSE9	S8	S8	S6	S5	SSW4	ESE6.9	ESE20
W2.0 W2.6 W2.3 W3.4WSW3.4WSW2.6WSW3.1WSW2.6 SW1.7WSW1.7WSW2.7WSW3.7WSW3.1WSW3.3WSW3.4 W3.5WSW2.9WSW2.8WSW2.8WSW3.6WSW1.7 W1.6WSW1.5WSW1.4																								Diurnal Average		
SE22WNW22WSW23WSW27WSW30 W25 W21WSW22 SE23WNW23WSW23 W24WSW21 SE24 SE25 W24 W29 W30 W27 W24WNW24WNW26WNW23 SE23																								Diurnal Maximum		

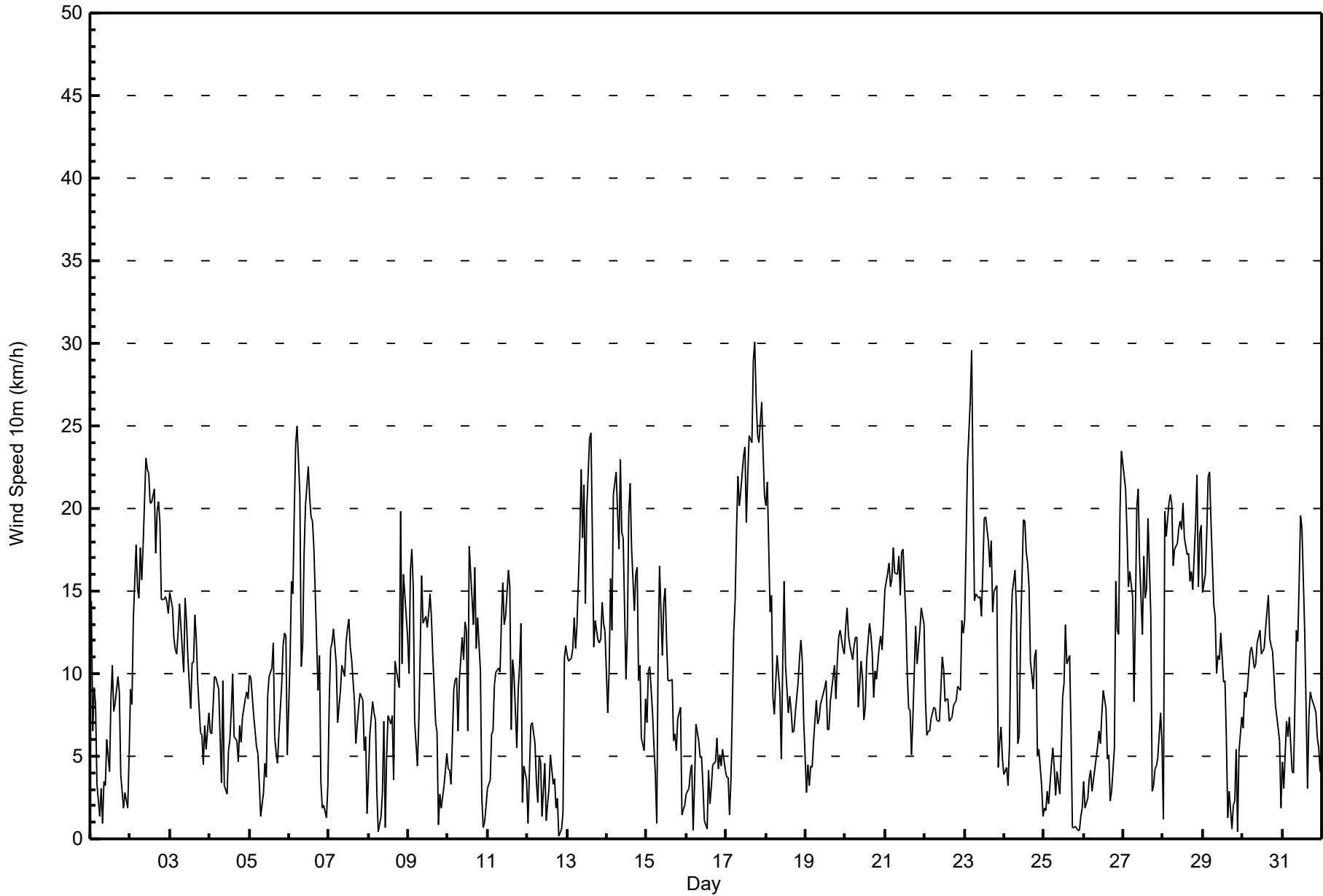
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 10m (WS10) - km/h**  
**Lower Camp - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on Oct 8 20:00 Minimum Value: 1 km/h on Oct 5 06:00 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> = 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 Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	4	2	2	2	2	1	1	1	2	1	2	2	2	3	2	2	2	3	1	1	1	2	2	1	4
2-Oct	2	3	3	4	3	3	4	3	4	6	5	4	5	4	5	3	5	4	4	3	4	4	3	3	6
3-Oct	3	3	3	3	2	3	3	2	2	4	4	4	4	3	3	3	3	3	2	2	2	2	1	2	4
4-Oct	2	2	2	2	2	2	2	1	3	3	1	1	2	4	3	2	2	2	2	1	1	2	2	2	4
5-Oct	2	3	2	1	1	1	1	1	1	1	2	2	3	4	4	3	2	2	2	2	3	3	3	2	4
6-Oct	5	3	3	5	5	5	5	4	4	4	5	5	5	4	4	4	3	2	2	2	2	1	1	3	5
7-Oct	3	2	2	2	3	3	3	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	3	2	3
8-Oct	4	3	2	1	2	2	1	1	3	2	1	2	2	2	2	1	3	2	3	11	5	5	4	4	11
9-Oct	3	4	4	5	3	3	4	4	4	3	4	3	3	3	3	2	2	1	2	1	1	2	1	1	5
10-Oct	2	1	1	3	2	3	3	2	3	2	2	2	4	4	4	3	3	3	2	5	2	1	1	1	5
11-Oct	1	1	2	1	2	2	2	3	3	2	2	3	2	2	4	3	3	1	3	3	4	3	1	1	4
12-Oct	1	2	2	1	1	1	1	3	2	1	2	1	1	1	2	1	2	2	2	1	1	1	2	2	3
13-Oct	2	2	2	2	2	2	3	4	4	3	4	5	7	4	3	4	3	3	2	2	3	3	3	3	7
14-Oct	3	3	5	6	6	4	4	7	6	3	3	4	4	3	4	5	3	5	5	3	3	2	2	3	7
15-Oct	2	2	3	3	2	2	2	4	4	3	3	3	3	2	3	2	2	1	2	2	2	2	1	2	4
16-Oct	1	1	1	2	1	3	2	2	2	2	1	1	1	1	1	1	2	2	2	1	1	1	1	1	3
17-Oct	1	1	1	3	2	3	4	5	4	4	5	5	4	5	6	6	7	7	6	5	5	6	6	4	7
18-Oct	4	4	3	3	4	3	3	3	4	2	3	2	3	3	3	3	2	2	2	2	2	2	2	2	4
19-Oct	1	2	1	1	1	2	2	2	1	2	2	2	2	2	2	2	3	2	2	4	3	3	3	3	4
20-Oct	3	4	3	3	3	3	3	2	2	2	2	2	2	2	3	2	2	2	2	2	3	3	3	3	4
21-Oct	3	4	4	4	4	5	5	4	5	4	4	4	3	2	2	2	3	2	3	2	3	3	3	3	5
22-Oct	4	2	2	2	3	3	2	2	3	2	5	3	3	3	3	3	2	3	3	4	3	3	4	3	5
23-Oct	3	5	5	6	7	6	5	4	4	3	3	4	5	4	4	3	4	3	3	3	2	2	2	2	7
24-Oct	2	1	2	3	3	4	3	4	3	3	3	4	4	5	4	4	2	2	2	2	4	4	4	2	5
25-Oct	2	1	1	2	2	2	1	1	2	1	2	3	3	3	3	3	2	2	1	1	1	1	1	1	3
26-Oct	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	4	3	3	4	4	3	4
27-Oct	4	3	3	4	4	5	4	3	4	3	4	5	4	4	4	5	3	2	2	2	2	2	1	1	5
28-Oct	1	5	3	4	4	4	3	3	4	4	4	4	4	4	4	3	3	4	3	4	4	3	4	3	5
29-Oct	3	4	5	4	4	4	3	3	2	3	3	3	2	3	2	2	2	1	1	1	2	1	1	2	5
30-Oct	1	2	2	2	3	3	2	2	2	2	2	2	2	2	3	3	2	2	2	2	1	1	2	2	3
31-Oct	2	2	2	2	2	3	2	3	3	2	3	4	3	3	3	2	3	3	3	3	2	2	2	2	4
																	Diurnal Maximum 5 5 5 6 7 6 5 7 6 6 5 5 7 5 6 6 7 7 6 11 5 6 6 4								





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

**Wind Speed 10m (WS10) - km/h**  
**Lower Camp - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	181	24.33	24.33
6 - 11	274	36.83	61.16
12 - 19	225	30.24	91.40
20 - 28	61	8.20	99.60
29 - 38	3	0.40	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 10m (WS10) - km/h  
Lower Camp - October 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	6	4	6	3	10	16	26	15	11	6	2	3	9	31	18	15	181
6 - 11	18	9	4	5	3	5	64	15	20	19	18	15	20	13	25	21	274
12 - 19	11	3	4	0	4	26	35	3	0	1	4	51	20	28	17	18	225
20 - 28	0	0	0	0	0	4	14	0	0	0	0	10	11	21	1	0	61
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>	35	16	14	8	17	51	139	33	31	26	24	80	62	93	61	54	744

Total Number of Valid Hours: 744

Total Number of Hours: 744





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Direction 10m (WD10) - deg

## Lower Camp - October 2024

Direction of Maximum Speed: 275 deg on Oct 17 18:00																							Hours in Service: 744		
Direction of Maximum Daily Speed Average: 271.3 deg on Oct 17																							Hours of Data: 744		
Direction of Minimum Speed: 344 deg on Oct 12 20:00											Direction of Minimum Daily Speed Average: 0.4 deg on Oct 16												Hours of Missing Data: 0		
Monthly Average Direction: 253.1 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-Oct	261	304	277	296	300	14	285	342	36	13	11	348	11	3	1	34	41	33	45	291	278	289	281	330	340.8
2-Oct	323	313	305	289	278	276	278	270	295	297	287	292	301	303	306	303	303	301	306	312	326	320	305	302	298.6
3-Oct	296	299	308	306	302	311	307	307	316	307	312	296	284	257	261	250	255	236	202	211	117	134	134	131	284.7
4-Oct	138	139	136	132	134	120	116	167	126	97	324	331	323	85	70	11	342	332	355	294	316	326	320	318	57.4
5-Oct	325	333	329	299	286	296	293	34	133	122	200	238	241	230	220	209	178	186	148	146	155	154	143	140	206.8
6-Oct	227	250	258	258	258	260	264	255	242	244	242	247	251	257	263	272	267	261	238	286	358	109	45	109	254.5
7-Oct	133	128	128	120	116	120	128	132	125	134	130	132	132	131	137	143	153	170	160	158	155	148	129	147	134.8
8-Oct	126	141	136	136	142	144	161	69	147	132	324	135	142	143	136	164	134	136	160	263	273	240	227	220	177.0
9-Oct	219	235	237	236	208	139	214	224	258	257	257	245	242	254	256	248	229	210	242	7	121	122	111	128	236.0
10-Oct	112	103	102	135	134	135	146	131	133	132	132	131	159	246	251	248	247	250	243	266	295	313	84	87	184.8
11-Oct	172	173	140	128	136	136	133	135	119	118	118	128	129	127	175	235	227	198	197	203	211	186	151	142	151.5
12-Oct	121	224	277	276	265	135	137	125	124	167	260	53	17	351	338	349	113	135	122	344	32	75	135	135	154.1
13-Oct	136	135	138	138	137	136	124	121	123	125	133	150	135	130	129	131	137	141	140	137	135	135	127	132	132.7
14-Oct	140	139	126	115	127	128	129	127	128	118	122	142	145	124	125	122	132	132	129	153	143	168	161	152	130.2
15-Oct	144	130	132	142	143	141	231	266	267	259	247	249	248	242	238	240	219	215	207	208	219	264	143	175	222.9
16-Oct	146	127	124	119	94	137	134	130	135	124	121	153	318	331	329	312	330	329	331	309	317	294	331	305	27.9
17-Oct	323	300	281	273	263	251	248	246	254	261	257	272	263	268	267	265	273	275	277	273	283	298	292	300	271.3
18-Oct	298	302	310	294	279	217	214	213	211	178	131	127	136	186	208	188	187	172	160	141	141	138	137	137	196.8
19-Oct	264	303	313	286	295	298	303	309	306	314	325	344	329	331	346	11	352	352	348	351	1	356	343	350	334.8
20-Oct	344	335	334	334	327	349	355	357	3	16	33	34	25	25	26	15	13	10	346	344	349	343	338	346	356.6
21-Oct	350	346	347	345	347	342	339	340	350	340	338	343	2	357	335	358	4	322	306	282	269	255	254	256	330.6
22-Oct	217	182	190	193	190	174	178	177	193	181	222	221	207	196	187	186	192	177	184	193	216	238	245	244	202.4
23-Oct	247	253	254	255	255	271	264	251	257	263	265	257	253	255	254	250	248	250	244	241	167	150	136	192	251.3
24-Oct	172	151	142	228	262	256	254	253	223	252	240	271	283	284	279	279	276	261	265	253	297	259	289	246	262.4
25-Oct	288	83	147	110	155	152	146	145	183	194	264	265	283	270	271	267	263	208	282	91	95	325	274	312	247.9
26-Oct	284	299	296	283	288	297	286	286	316	322	310	306	311	315	319	260	307	346	80	101	98	113	126	126	51.2
27-Oct	130	123	122	123	124	122	131	112	123	130	115	116	115	114	115	118	113	318	290	296	291	311	314	301	120.2
28-Oct	341	289	288	289	287	286	284	285	286	286	292	294	302	304	304	295	300	300	296	283	299	305	290	292	292.8
29-Oct	290	289	300	297	302	295	303	311	324	292	270	253	252	258	266	349	138	284	312	286	100	1	310	334	292.8
30-Oct	345	329	328	331	347	345	348	352	355	358	3	17	10	42	33	39	49	54	45	50	58	49	78	63	16.1
31-Oct	80	46	58	57	91	121	147	101	97	97	106	124	123	118	129	185	133	148	167	171	170	176	182	207	123.5
260.0	271.3	268.1	265.3	252.5	249.4	253.5	242.8	215.1	244.3	247.7	251.2	251.3	252.8	256.0	260.2	255.6	254.1	248.4	249.7	255.7	261.2	237.7	249.0		
Diurnal Average																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



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

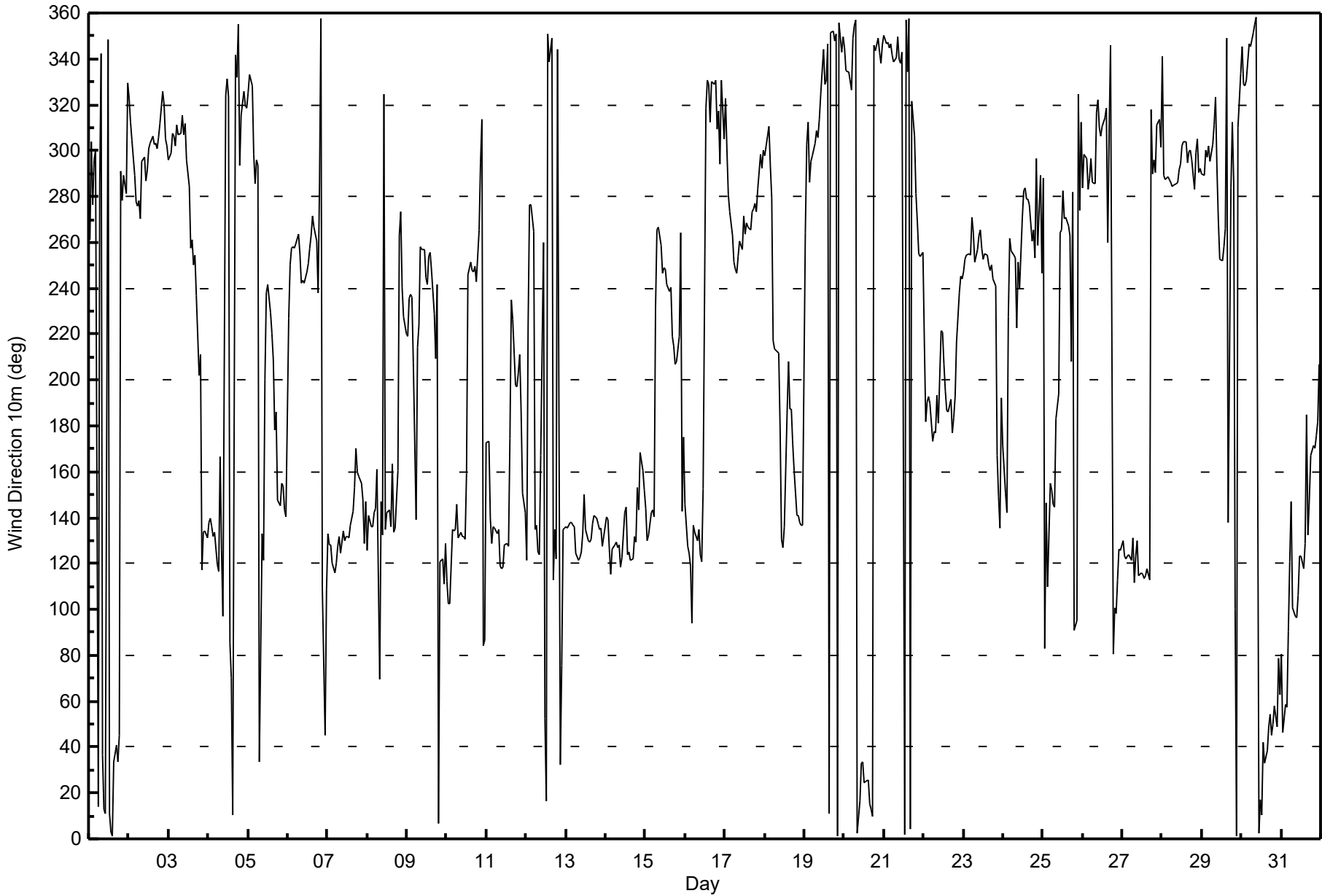
**Wind Direction 10m (WD10) - deg**  
**Lower Camp - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Oct 16 05:00 Minimum Value: 6 deg on Oct 10 11:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 19 Q <sub>3</sub> = 30 P <sub>90</sub> = 60 P <sub>99</sub> = 96		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-Oct	16	32	19	20	39	69	34	75	59	42	20	46	18	19	24	32	17	18	59	29	45	21	20	28	75	
2-Oct	16	24	14	12	12	12	15	13	13	12	12	13	14	15	13	13	12	12	13	11	16	16	12	12	24	
3-Oct	11	11	14	14	13	12	13	12	14	15	17	23	52	27	19	18	16	18	22	48	56	16	19	19	56	
4-Oct	23	21	18	17	17	22	30	42	17	88	39	29	21	71	20	31	29	50	33	31	16	14	13	15	88	
5-Oct	16	19	19	17	11	14	22	77	45	17	52	22	20	28	26	36	35	28	16	16	20	21	17	55	77	
6-Oct	27	15	14	13	13	13	13	22	17	15	14	15	15	14	14	13	11	14	10	57	84	66	76	75	84	
7-Oct	23	11	17	11	15	40	26	13	11	9	9	9	11	15	15	15	26	22	21	25	51	32	101	101		
8-Oct	94	35	11	15	26	78	99	89	65	12	92	56	16	20	15	46	17	11	27	51	29	14	18	23	99	
9-Oct	27	16	14	17	25	72	75	20	16	15	16	15	16	16	15	20	18	94	61	81	65	32	20	94		
10-Oct	26	28	35	20	13	20	36	16	11	10	6	6	63	14	16	17	13	11	11	37	33	91	97	82	97	
11-Oct	61	54	14	20	20	15	15	21	11	8	9	10	7	7	57	19	18	24	24	23	24	87	32	54	87	
12-Oct	102	51	18	12	19	64	76	50	44	88	36	93	66	62	35	39	41	82	50	90	78	69	11	7	102	
13-Oct	11	13	11	11	11	12	15	13	9	13	12	30	20	9	8	9	15	17	12	11	15	16	12	13	30	
14-Oct	26	17	16	31	10	8	10	18	12	8	9	32	28	9	8	8	12	12	13	22	14	28	30	21	32	
15-Oct	32	8	26	24	29	61	93	30	15	22	15	14	15	21	20	15	18	17	24	25	22	75	89	76	93	
16-Oct	57	69	28	44	103	79	22	24	27	45	55	84	92	32	37	51	26	36	25	25	19	26	23	17	103	
17-Oct	19	20	58	49	12	13	12	13	13	13	13	11	13	13	13	13	12	12	12	11	14	12	12	11	58	
18-Oct	11	11	17	15	20	20	20	23	23	50	15	8	20	42	33	33	27	19	20	10	12	10	9	26	50	
19-Oct	46	21	21	14	18	22	15	13	11	15	21	19	21	25	25	13	20	18	21	20	19	22	21	21	46	
20-Oct	20	18	18	21	19	22	20	17	20	15	25	32	20	17	16	15	15	23	21	20	19	20	19	19	32	
21-Oct	19	19	19	20	21	19	21	20	19	21	21	21	17	26	26	24	42	18	11	19	14	15	16	21	42	
22-Oct	26	27	34	33	32	28	29	29	30	30	26	27	28	35	33	34	31	28	33	32	27	18	18	16	35	
23-Oct	17	14	15	13	15	15	14	13	15	14	15	15	13	13	13	12	13	13	14	13	57	23	15	33	57	
24-Oct	49	28	62	49	14	15	13	18	33	31	17	14	16	15	14	12	11	11	17	14	44	46	92	89	92	
25-Oct	67	80	62	94	44	27	47	69	47	76	45	20	21	14	17	14	18	88	67	103	99	93	70	45	103	
26-Oct	44	59	41	28	17	41	16	16	16	19	20	16	15	18	26	10	42	56	69	12	11	15	10	8	69	
27-Oct	8	7	10	14	12	16	31	11	11	7	11	17	16	14	12	10	13	50	30	21	21	19	13	23	50	
28-Oct	83	12	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	15	14	11	14	12	10	83	
29-Oct	12	14	14	12	13	12	15	12	14	23	18	19	22	18	23	81	71	77	36	40	30	98	12	19	98	
30-Oct	23	16	18	18	19	20	19	19	18	15	18	19	15	23	21	14	15	14	11	13	13	18	28	94	94	
31-Oct	54	73	16	17	32	62	50	67	16	13	14	13	12	13	24	63	30	22	30	30	29	34	33	41	73	
		102	80	62	94	103	79	99	89	65	88	92	93	92	71	57	81	71	88	94	103	99	98	97	101	
		Diurnal Maximum																								



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

**Wind Direction 10m (WD10) - deg**  
**Lower Camp - October 2024**





## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS13 FORT MCKAY SOUTH OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
OCTOBER 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	710	34	34	100	28.8	0	5	0
TRS(ppb) Average	707	36	37	99.87	3.2	0	1	0
THC(ppm) Average	675	33	69	95.16	3.4	-	2.6	-
NMHC(ppm) Average	675	33	69	95.16	0.132	-	0.019	-
CH4(ppm) Average	675	33	69	95.16	3.3	-	2.6	-
O3(ppb) Average	708	35	36	99.87	35.4	0	26.2	-
NO2(ppb) Average	708	35	36	99.87	28.8	0	14.2	-
NO(ppb) Average	708	35	36	99.87	98	-	19.6	-
NOX(ppb) Average	708	35	36	99.87	126.8	-	33.7	-
PM2.5(ug/m3) Average	742	2	2	100	19.2	0	9.8	0
ET(C) Average	744	0	0	100	19.5	-	11.2	-
RH(%) Average	744	0	0	100	100	-	91.2	-
WS(km/h) Average	730	2	14	98.39	23	-	13	-
WD(deg) Average	730	2	14	98.39	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
OCTOBER 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	0.94	2.5	-	0	0.1	0.2	0.3	0.6	1.5	28.8
TRS(ppb) Average	707	0.46	0.3	-	0.2	0.3	0.3	0.4	0.4	0.7	3.2
THC(ppm) Average	675	2.2	0.2	-	2	2	2.1	2.1	2.3	2.4	3.4
NMHC(ppm) Average	675	0.003	0.014	-	0	0	0	0	0	0	0.132
CH4(ppm) Average	675	2.19	0.2	-	2	2	2.1	2.1	2.2	2.4	3.3
O3(ppb) Average	708	15.33	9.9	-	0.1	2.1	5.9	15.9	24.2	28.1	35.4
NO2(ppb) Average	708	5.66	5.7	-	0	0	0.5	4.3	8.8	13.7	28.8
NO(ppb) Average	708	4.47	11.6	-	0	0	0	0.2	1.9	13.1	98
NOX(ppb) Average	708	10.13	15	-	0	0	0.6	5.1	12.7	26.2	126.8
PM2.5(ug/m3) Average	742	3.73	3	-	0.3	0.9	1.7	3	4.7	7.6	19.2
Temperature 2 m (C) Average	744	2.76	6	-	-11.3	-4.1	-1.7	1.8	6.6	11.4	19.5
Relative Humidity (%) Average	744	74.13	16.8	-	29.9	49.5	63	76.5	87.8	94.7	100
Wind Speed 10 m (km/h) Average	730	7.2	4	-	0	2	4	7	10	12	23
Wind Direction 10 m (deg) Average	730	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
TRS/NO2/O3	09 Oct 2024 11:00	09 Oct 2024 11:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	01 Oct 2024 07:00	02 Oct 2024 09:00	27	Unstable Operation - inconsistent response
THC/NMHC/CH4	02 Oct 2024 10:00	02 Oct 2024 10:00	1	Maintenance - zero air generator replaced
THC/NMHC/CH4	10 Oct 2024 09:00	10 Oct 2024 09:00	1	Unstable Operation - inconsistent response
THC/NMHC/CH4	10 Oct 2024 13:00	10 Oct 2024 13:00	1	Unstable Operation - inconsistent response
THC/NMHC/CH4	10 Oct 2024 17:00	10 Oct 2024 17:00	1	Unstable Operation - inconsistent response
THC/NMHC/CH4	11 Oct 2024 02:00	11 Oct 2024 02:00	1	Unstable Operation - inconsistent response
THC/NMHC/CH4	11 Oct 2024 05:00	11 Oct 2024 07:00	3	Unstable Operation - inconsistent response
THC/NMHC/CH4	11 Oct 2024 10:00	11 Oct 2024 10:00	1	Maintenance - zero air generator replaced
WS/WD	01 Oct 2024 08:00	01 Oct 2024 08:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	07 Oct 2024 09:00	07 Oct 2024 09:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	08 Oct 2024 01:00	08 Oct 2024 01:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	08 Oct 2024 04:00	08 Oct 2024 05:00	2	Unstable Operation - flatline in analyzer output signal
WS/WD	09 Oct 2024 22:00	09 Oct 2024 22:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	10 Oct 2024 02:00	10 Oct 2024 02:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	10 Oct 2024 06:00	10 Oct 2024 06:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	10 Oct 2024 09:00	10 Oct 2024 09:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	10 Oct 2024 11:00	10 Oct 2024 11:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	16 Oct 2024 10:00	16 Oct 2024 10:00	1	Unstable Operation - flatline in analyzer output signal
WS/WD	29 Oct 2024 19:00	29 Oct 2024 19:00	1	Unstable Operation - flatline in analyzer output signal



Wood Buffalo Environmental Association

Summary of Hour Averages

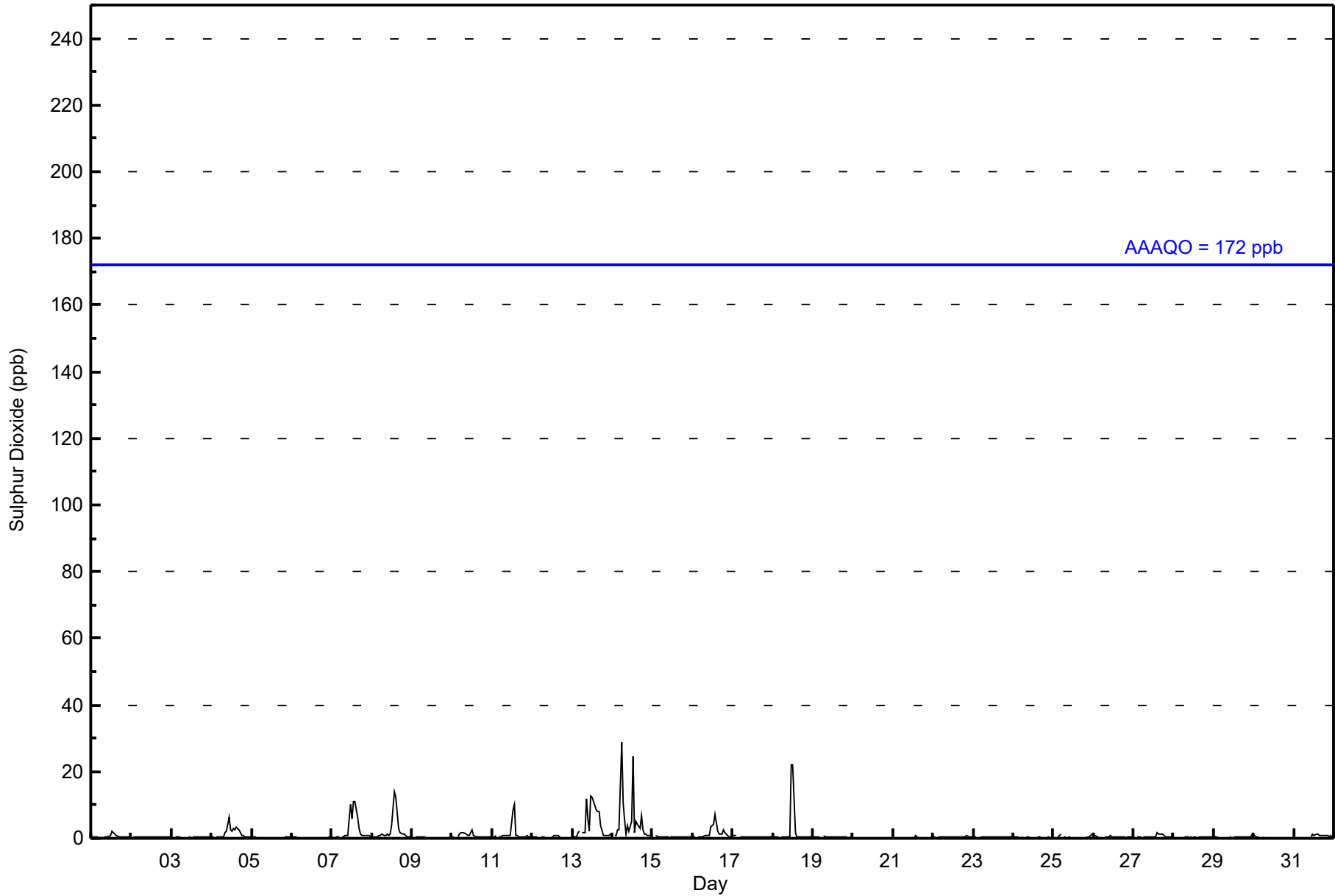
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Fort McKay South - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 28.8 ppb on Oct 14 06:00	Maximum Daily Average: 5.0 ppb on Oct 14		Hours of Data:	710
Minimum Value: 0.0 ppb on Oct 5 09:00	Minimum Daily Average: 0.1 ppb on Oct 20		Hours of Missing Data:	34
Maximum Diurnal Average: 3.0 ppb at hour 13	Minimum Diurnal Average: 0.4 ppb at hour 1		Hours of Calibration:	34
Monthly Average: 0.94 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.5 P <sub>99</sub> = 12.2		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-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.2	0.2	0.3	0.2	0.3	0.7	2.1	1.6	1.2	1.1	0.6	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.6	2.1																							
2-Oct	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4																						
3-Oct	0.3	Z	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.4	0.4																						
4-Oct	0.5	0.4	Z	0.3	0.5	0.4	0.4	0.4	1.6	1.9	6.6	2.6	2.0	2.8	2.5	3.4	2.5	1.9	0.9	0.7	0.6	0.6	0.5	0.5	1.5	6.6	6.6																						
5-Oct	0.5	0.4	0.4	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.3	0.3	0.4	0.2	0.5	0.5																						
6-Oct	0.3	0.3	0.3	0.3	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	0.3	0.3	0.2	0.3	0.3																						
7-Oct	0.3	0.2	0.2	0.3	0.4	Z	0.4	0.4	0.7	1.0	5.7	10.4	6.1	11.0	10.9	6.4	3.0	1.1	0.8	0.7	0.7	0.7	0.7	0.6	2.7	11.0	11.0																						
8-Oct	Z	0.6	0.6	0.6	0.9	1.1	1.1	0.9	0.9	1.1	1.0	1.3	4.0	14.0	12.4	7.5	2.9	1.8	1.2	1.3	0.8	0.6	0.6	0.5	2.5	14.0	14.0																						
9-Oct	0.5	Z	0.5	0.4	0.5	0.4	0.5	0.6	0.5	C	C	C	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.6	0.6																						
10-Oct	0.2	0.2	Z	0.6	1.4	1.6	1.5	1.5	1.4	1.0	0.8	1.8	2.6	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.9	2.6	2.6																						
11-Oct	0.4	0.4	0.6	Z	0.3	0.6	0.7	0.8	0.8	0.7	0.7	0.7	8.3	10.0	0.8	0.7	0.6	0.5	0.5	0.5	0.6	0.7	0.5	0.4	1.3	10.0	10.0																						
12-Oct	0.4	0.4	0.3	0.3	Z	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	1.0	1.0	0.7	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.3	1.0	1.0																						
13-Oct	0.2	0.5	0.5	1.9	2.2	Z	1.5	1.5	11.7	6.0	2.0	12.7	12.3	9.8	8.4	7.9	8.1	3.7	1.0	0.8	0.7	0.7	0.9	1.3	4.2	12.7	12.7																						
14-Oct	Z	0.6	0.9	2.4	2.4	28.8	10.6	5.3	1.2	3.7	2.1	4.9	24.4	1.8	5.2	4.1	2.8	6.9	2.7	1.1	1.1	0.9	0.9	0.8	5.0	28.8	28.8																						
15-Oct	0.7	Z	0.7	0.6	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.5	0.4	0.3	0.3	0.2	0.4	0.7	0.7																						
16-Oct	0.2	0.2	Z	0.2	0.3	0.4	0.4	0.6	0.8	0.7	0.7	3.4	4.1	7.3	4.9	2.0	1.2	1.4	2.4	1.9	1.1	0.8	0.6	0.6	1.6	7.3	7.3																						
17-Oct	0.8	1.0	0.7	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	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.5	1.0	1.0																						
18-Oct	0.4	0.4	0.3	0.4	Z	0.3	0.3	0.2	0.3	0.5	0.3	22.0	21.9	1.7	0.5	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	2.3	22.0	22.0																						
19-Oct	0.2	0.3	0.2	0.2	0.5	Z	0.7	0.5	0.5	0.4	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0.7	0.7																						
20-Oct	Z	0.2	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2																						
21-Oct	0.2	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.7	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.7	0.7																						
22-Oct	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.7	0.6	0.6	0.5	0.4	0.7	0.7																						
23-Oct	0.6	0.5	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.6	0.6																						
24-Oct	0.3	0.3	0.4	0.3	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	0.3	0.2	0.2	0.2	0.4	0.4																						
25-Oct	0.2	0.1	0.2	0.5	1.1	Z	0.4	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.5	0.9	1.3	0.3	1.3	1.3																						
26-Oct	Z	0.8	0.3	0.1	0.0	0.0	0.1	0.3	0.4	0.6	0.6	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.8	0.8																						
27-Oct	0.4	Z	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.5	0.4	0.3	0.4	1.6	1.3	1.2	1.1	0.9	0.5	0.4	0.4	0.4	0.8	0.6	1.6	1.6																						
28-Oct	0.5	0.2	Z	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.5	0.5																						
29-Oct	0.3	0.4	0.4	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1.1	0.3	1.1	1.1																						
30-Oct	0.8	0.5	0.6	0.6	Z	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.8	0.8																						
31-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	1.1	0.9	1.2	1.1	1.0	1.0	0.7	0.7	0.7	0.6	0.5	0.9	0.5	0.5	1.2	1.2																						
																								0.4	0.4	0.4	0.5	0.5	1.5	0.7	0.5	0.8	0.7	0.8	2.2	3.0	2.2	1.8	1.3	1.0	0.8	0.5	0.5	0.4	0.4	0.4	0.5	Diurnal Average	
																								0.8	1.0	0.9	2.4	2.4	28.8	10.6	5.3	11.7	6.0	6.6	22.0	24.4	14.0	12.4	7.9	8.1	6.9	2.7	1.9	1.1	0.9	0.9	1.3	Diurnal Maximum	

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	698	98.31	98.31
11 - 20	8	1.13	99.44
21 - 60	4	0.56	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 McKay South - October 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	79	43	17	7	1	7	7	20	77	65	77	92	49	61	49	34	685
11 - 20	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	8
21 - 60	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	4
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>	79	43	17	7	1	7	7	25	84	65	77	92	49	61	49	34	697

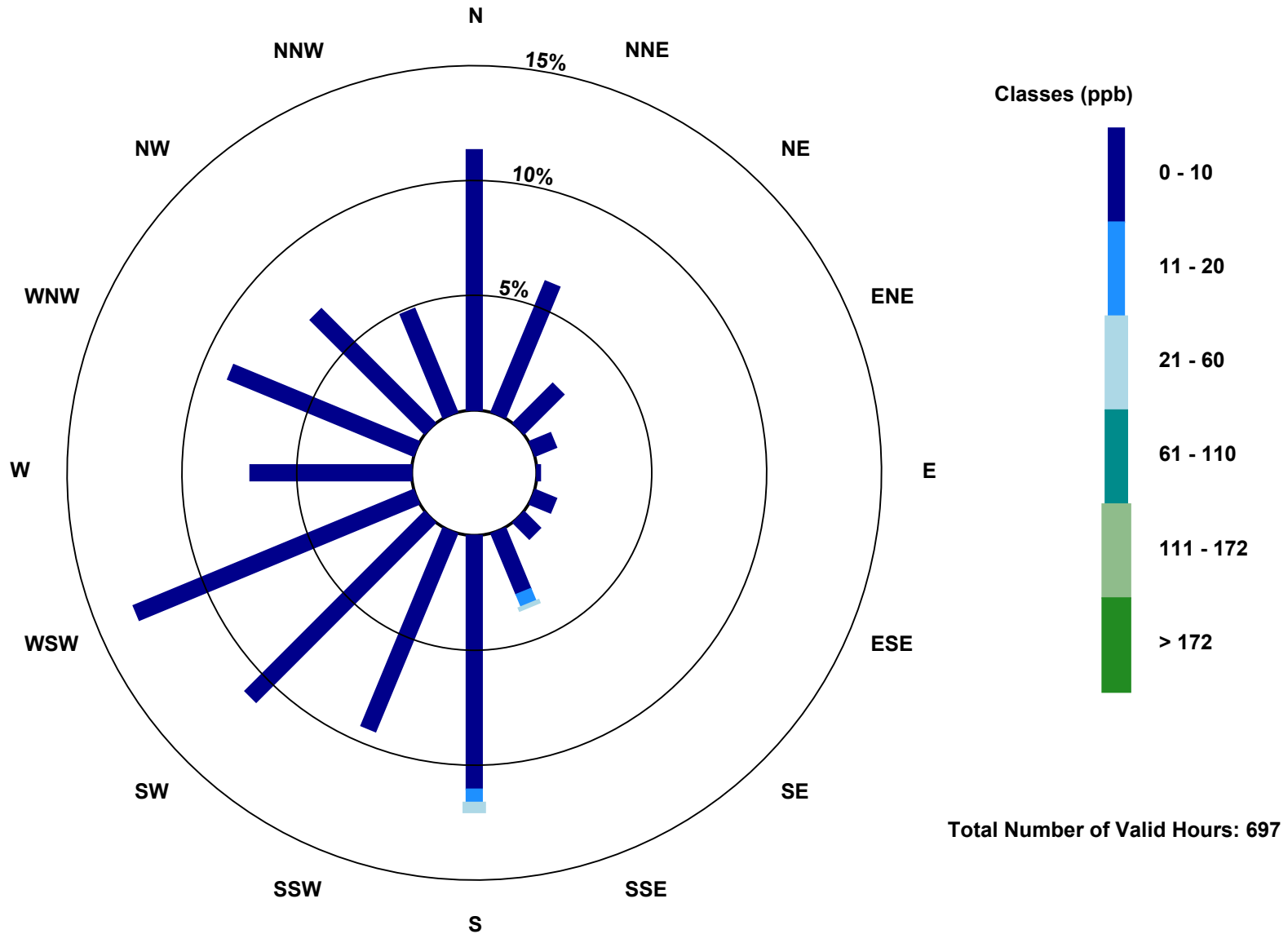
Total Number of Valid Hours: 697

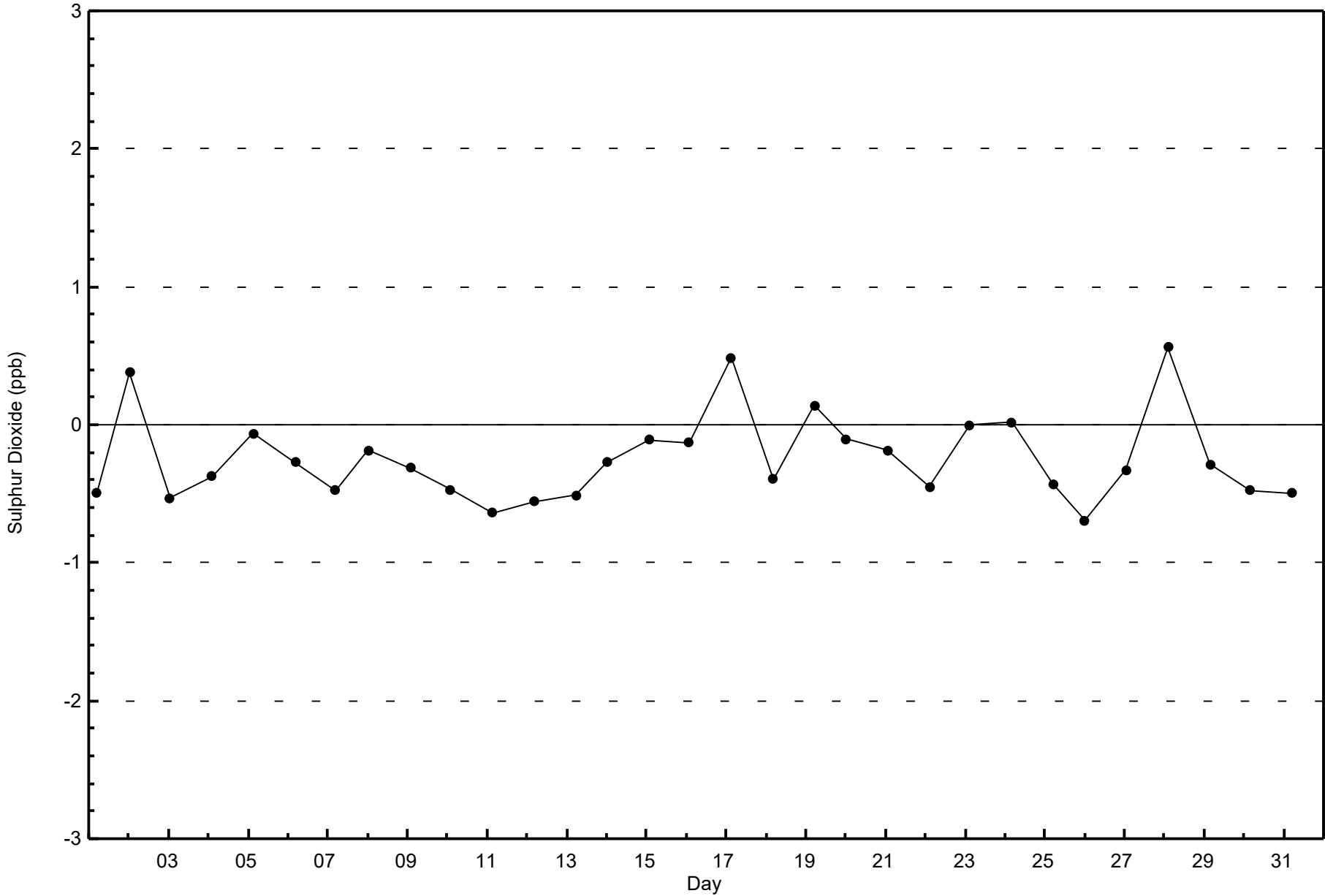
Total Number of Hours: 744

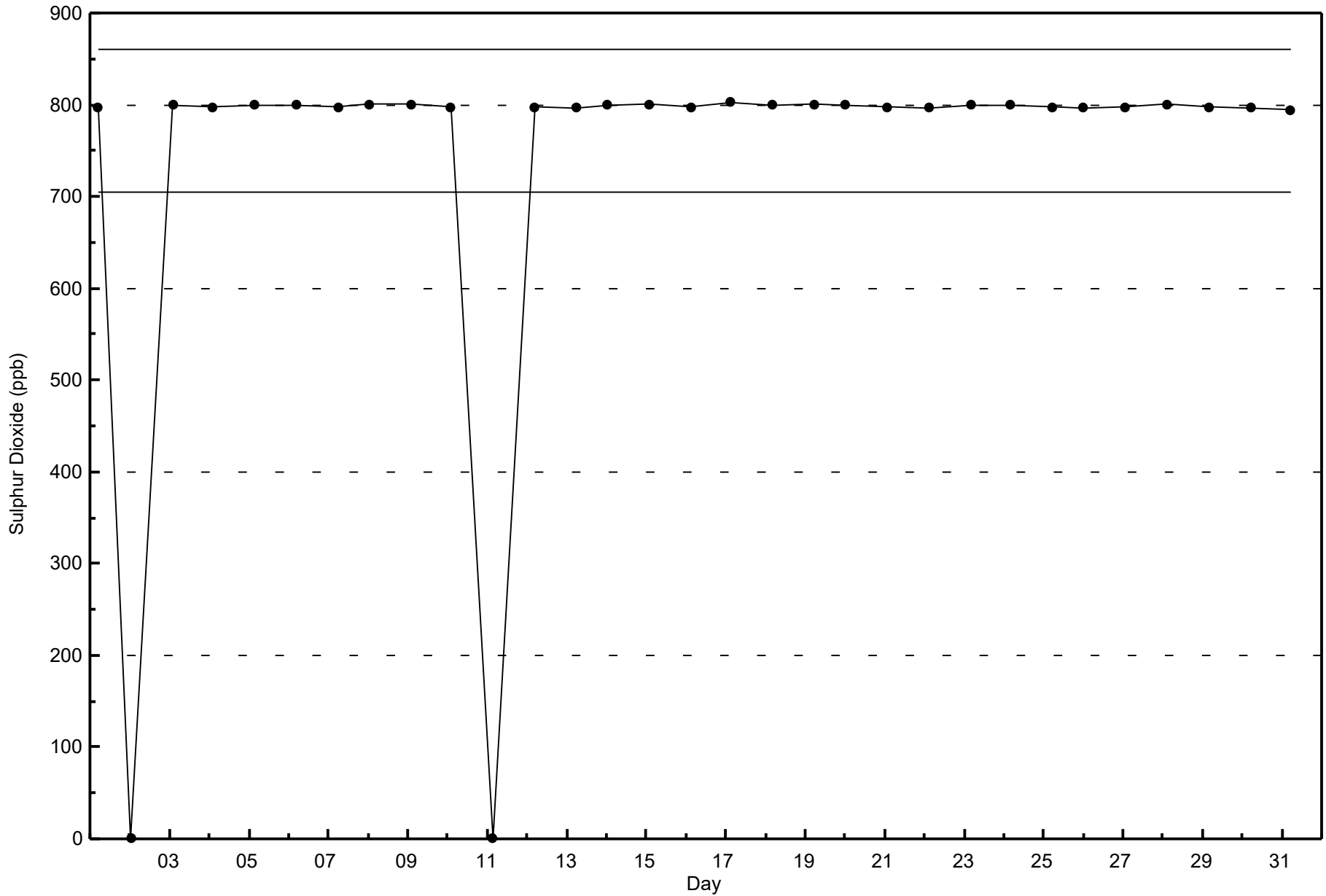


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

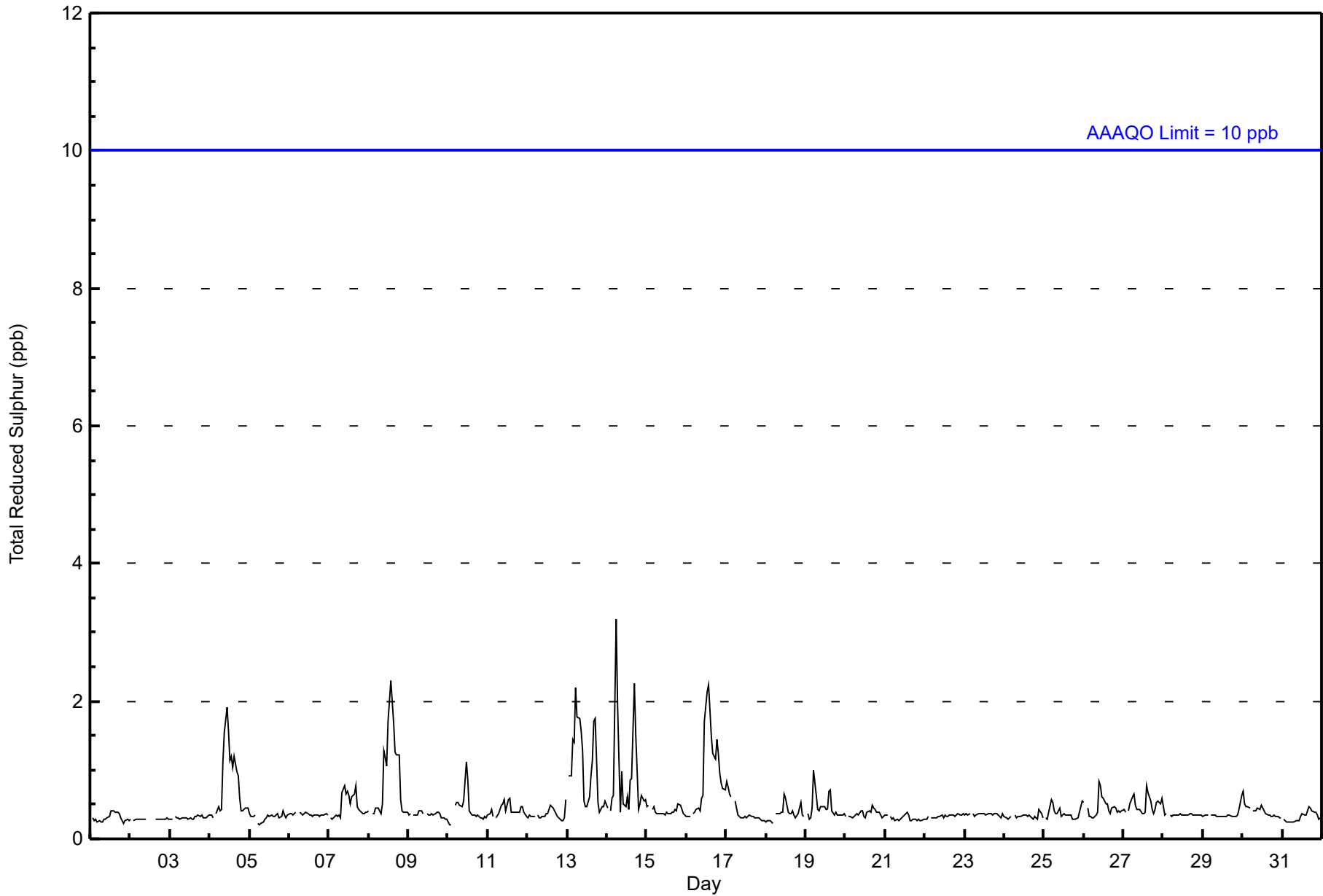














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay South - October 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  
Fort McKay South - October 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	80	43	17	6	1	7	8	25	82	66	76	93	49	61	44	34	692
3 - 4	0	0	0	0	0	0	0	0	1	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>	80	43	17	6	1	7	8	25	83	66	76	93	49	61	44	34	693

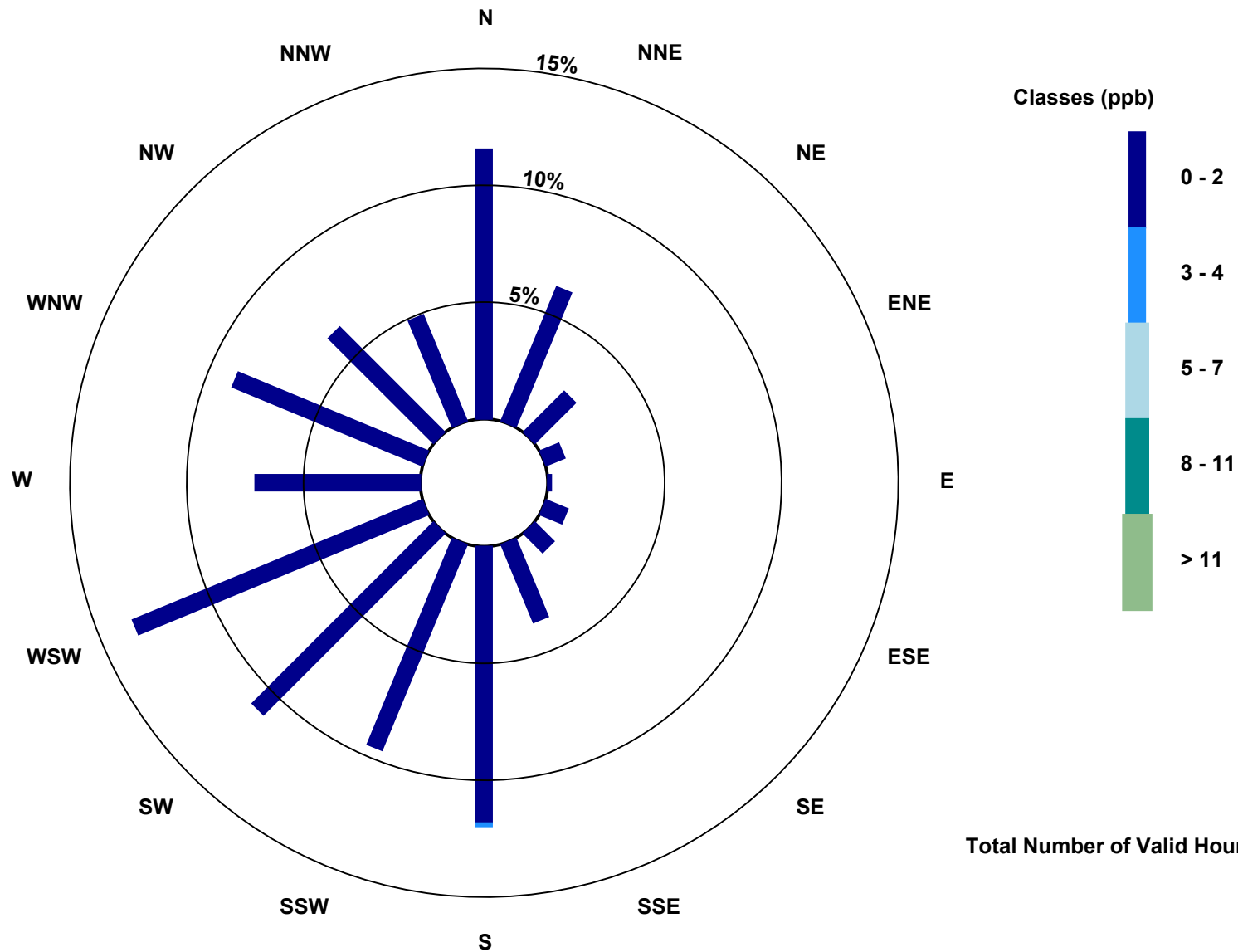
Total Number of Valid Hours: 693

Total Number of Hours: 744

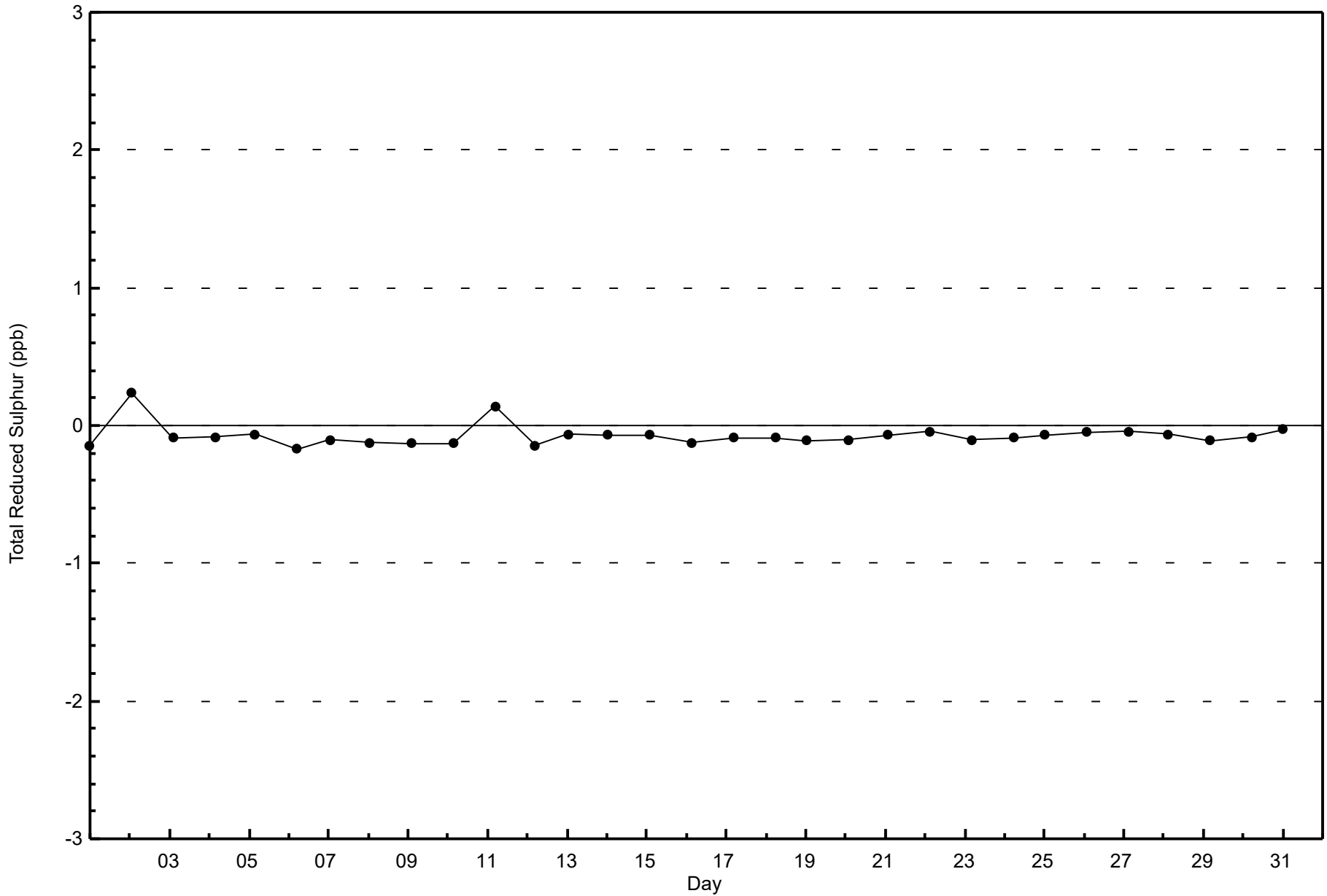


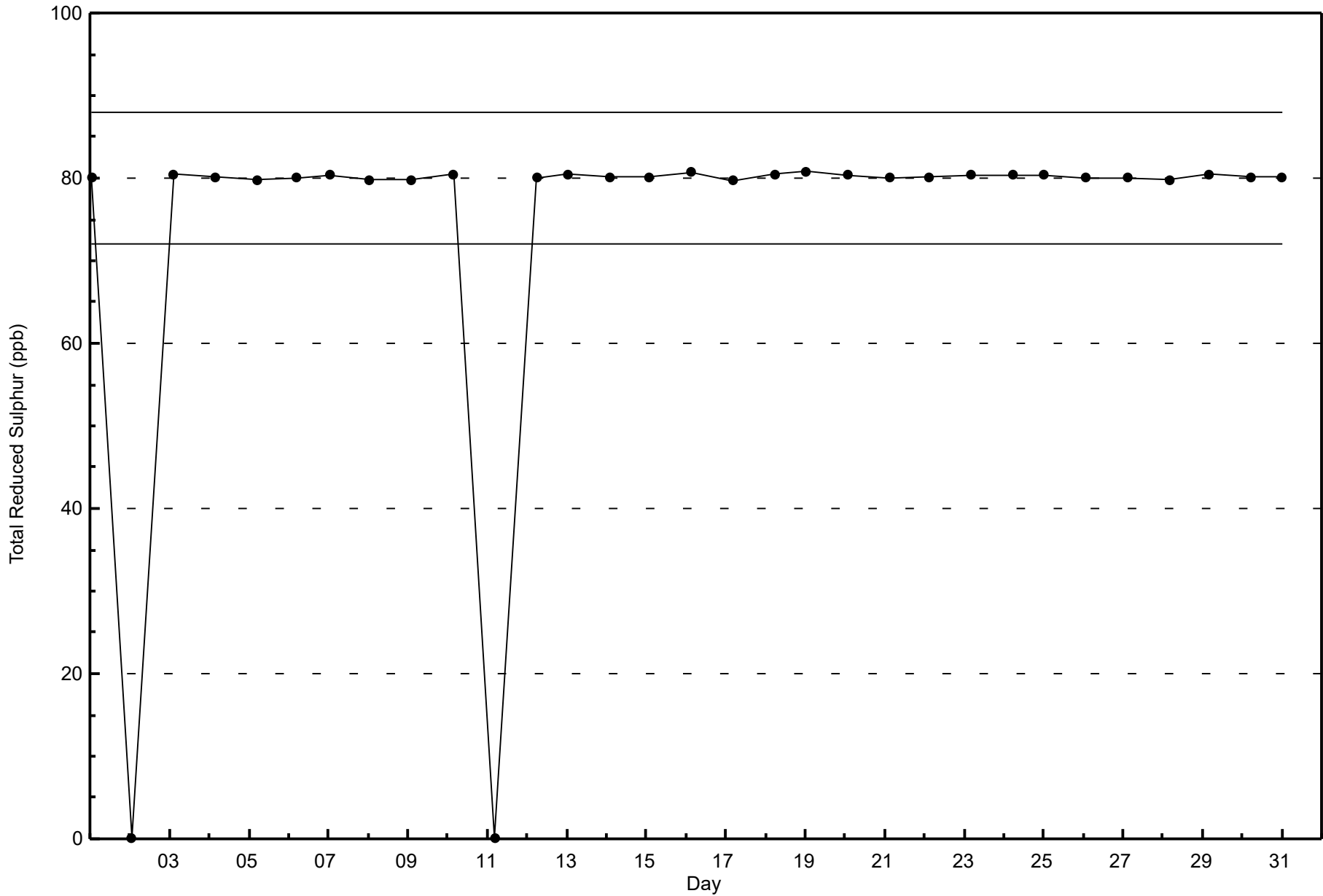
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Fort McKay South



Total Number of Valid Hours: 693







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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - October 2024**

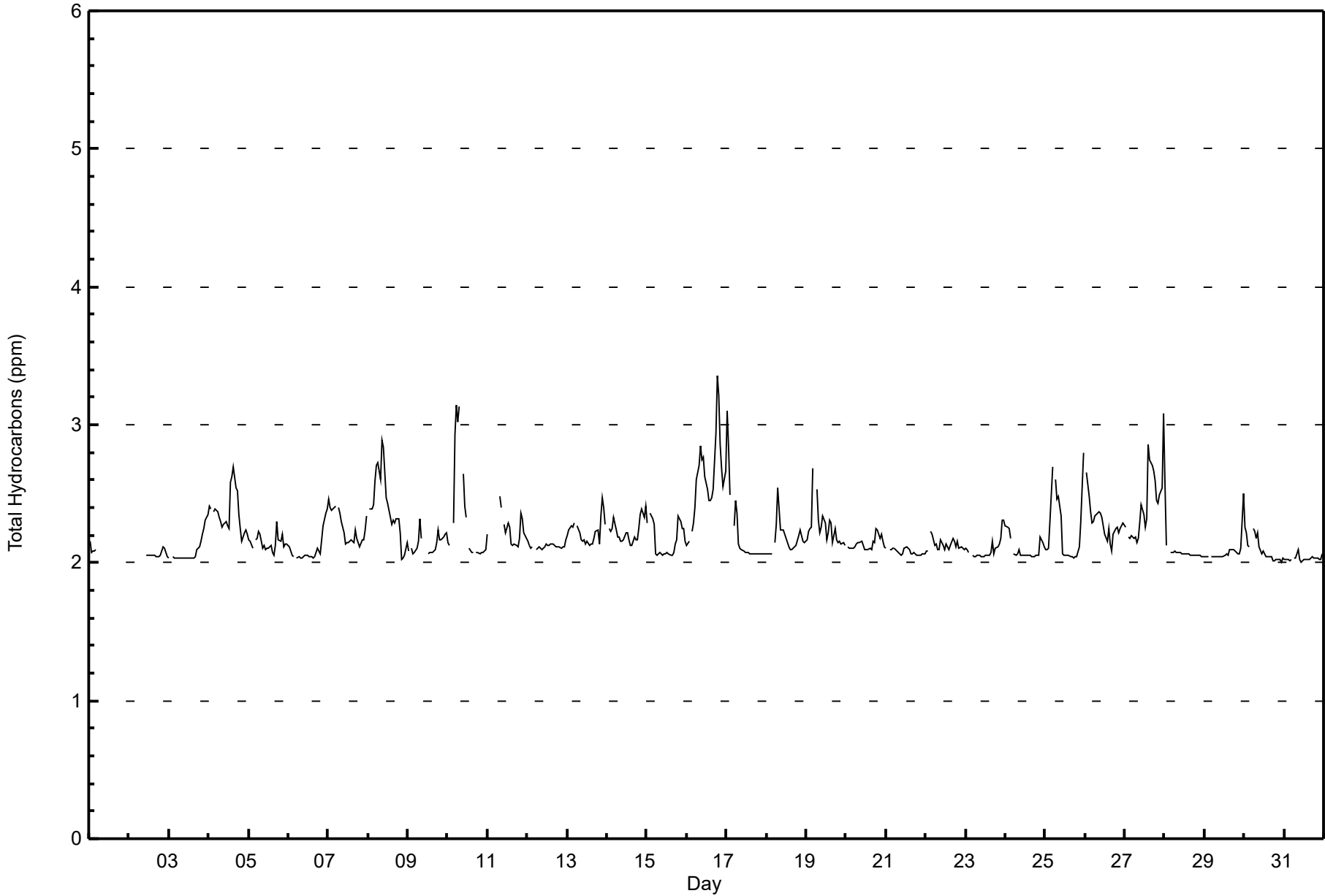
Maximum Value: 3.4 ppm on Oct 16 19:00		Maximum Daily Average: 2.6 ppm on Oct 16		Hours in Service: 744																																													
Minimum Value: 2.0 ppm on Oct 31 11:00		Minimum Daily Average: 2.0 ppm on Oct 31		Hours of Data: 675																																													
Maximum Diurnal Average: 2.3 ppm at hour 5		Minimum Diurnal Average: 2.1 ppm at hour 14		Hours of Missing Data: 69																																													
Monthly Average: 2.20 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> = 2.4 P <sub>99</sub> = 3.0		Hours of Calibration: 33																																													
				Percent Operational Time: 95.2																																													
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-Oct	2.2	2.1	2.1	2.1	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.2																							
2-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	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	2.0	--	2.1																							
3-Oct	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	2.2	2.2	2.3	2.3	2.3	2.1	2.3																							
4-Oct	2.4	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.6	2.6	2.7	2.5	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.7																							
5-Oct	2.2	2.2	2.1	Z	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	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.3																							
6-Oct	2.1	2.1	2.1	2.0	Z	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	2.1	2.2	2.3	2.4	2.4	2.1	2.4	2.4																							
7-Oct	2.5	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.5																							
8-Oct	Z	2.4	2.4	2.4	2.6	2.7	2.7	2.6	2.9	2.8	2.7	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.0	2.0	2.1	2.1	2.4	2.9																							
9-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.2	C	C	C	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.3																							
10-Oct	2.1	2.1	Z	2.3	2.9	3.1	3.0	3.1	UO	2.6	2.4	2.3	UO	2.1	2.1	2.1	UO	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.1																							
11-Oct	2.2	UO	2.4	Z	UO	UO	UO	2.5	2.4	M	2.3	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.3	2.2	2.2	2.2	2.5																							
12-Oct	2.2	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	2.2	2.1	2.2																							
13-Oct	2.2	2.2	2.3	2.3	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.3	2.5	2.4	2.3	2.2	2.5																							
14-Oct	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.4	2.2	2.4																							
15-Oct	2.3	Z	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.4																							
16-Oct	2.1	2.2	Z	2.2	2.3	2.4	2.6	2.7	2.8	2.7	2.8	2.6	2.5	2.5	2.5	2.5	2.5	2.9	3.4	3.2	2.9	2.7	2.6	2.7	2.6	3.4																							
17-Oct	3.1	2.8	2.5	Z	2.3	2.5	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.1																							
18-Oct	2.1	2.1	2.1	2.1	Z	2.1	2.3	2.5	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.5																							
19-Oct	2.2	2.2	2.2	2.3	2.7	Z	2.5	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.3	2.7																							
20-Oct	Z	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	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2																							
21-Oct	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																						
22-Oct	2.1	2.1	Z	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2																							
23-Oct	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.1	2.3																							
24-Oct	2.3	2.3	2.2	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.3																							
25-Oct	2.1	2.1	2.1	2.3	2.7	Z	2.6	2.5	2.5	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.5	2.8	2.2	2.2	2.8																							
26-Oct	Z	2.7	2.5	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.7																							
27-Oct	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.4	2.3	2.3	2.3	2.9	2.7	2.7	2.7	2.6	2.5	2.4	2.5	2.5	3.1	2.4	3.1																							
28-Oct	2.6	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	2.0	2.1	2.0	2.0	2.1	2.6																							
29-Oct	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	2.5	2.1	2.5																							
30-Oct	2.3	2.2	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																							
31-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1																							
																								2.2	2.2	2.2	2.2	2.3	2.2	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	2.3	Diurnal Average		
																								3.1	2.8	2.5	2.4	2.9	3.1	3.0	3.1	2.9	2.8	2.8	2.6	2.5	2.6	2.9	2.7	2.7	2.9	3.4	3.2	2.9	2.7	2.6	3.1	Diurnal Maximum	
Z - zerospan				C - Calibration				M - Maintenance				UO - Unstable Operation																																					





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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - October 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	96	14.22	14.22
2.1 - 3.0	573	84.89	99.11
3.1 - 10.0	6	0.89	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - October 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	2	5	5	4	0	3	3	1	0	1	7	18	10	16	15	6	96
2.1 - 3.0	75	34	8	3	1	3	4	23	84	62	70	66	34	38	31	27	563
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	5
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	78	39	13	7	1	6	7	24	84	63	77	86	44	55	46	34	664

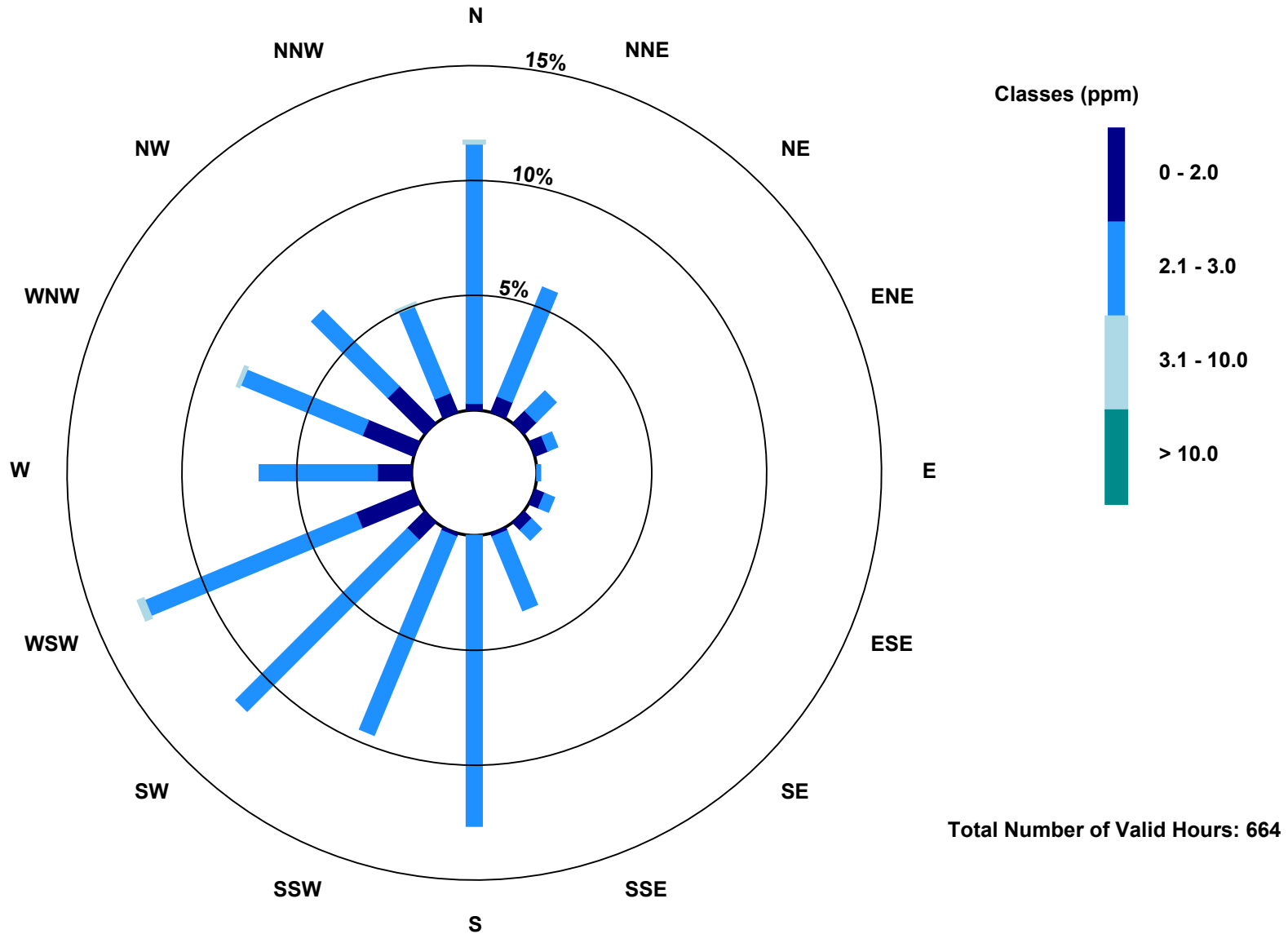
Total Number of Valid Hours: 664

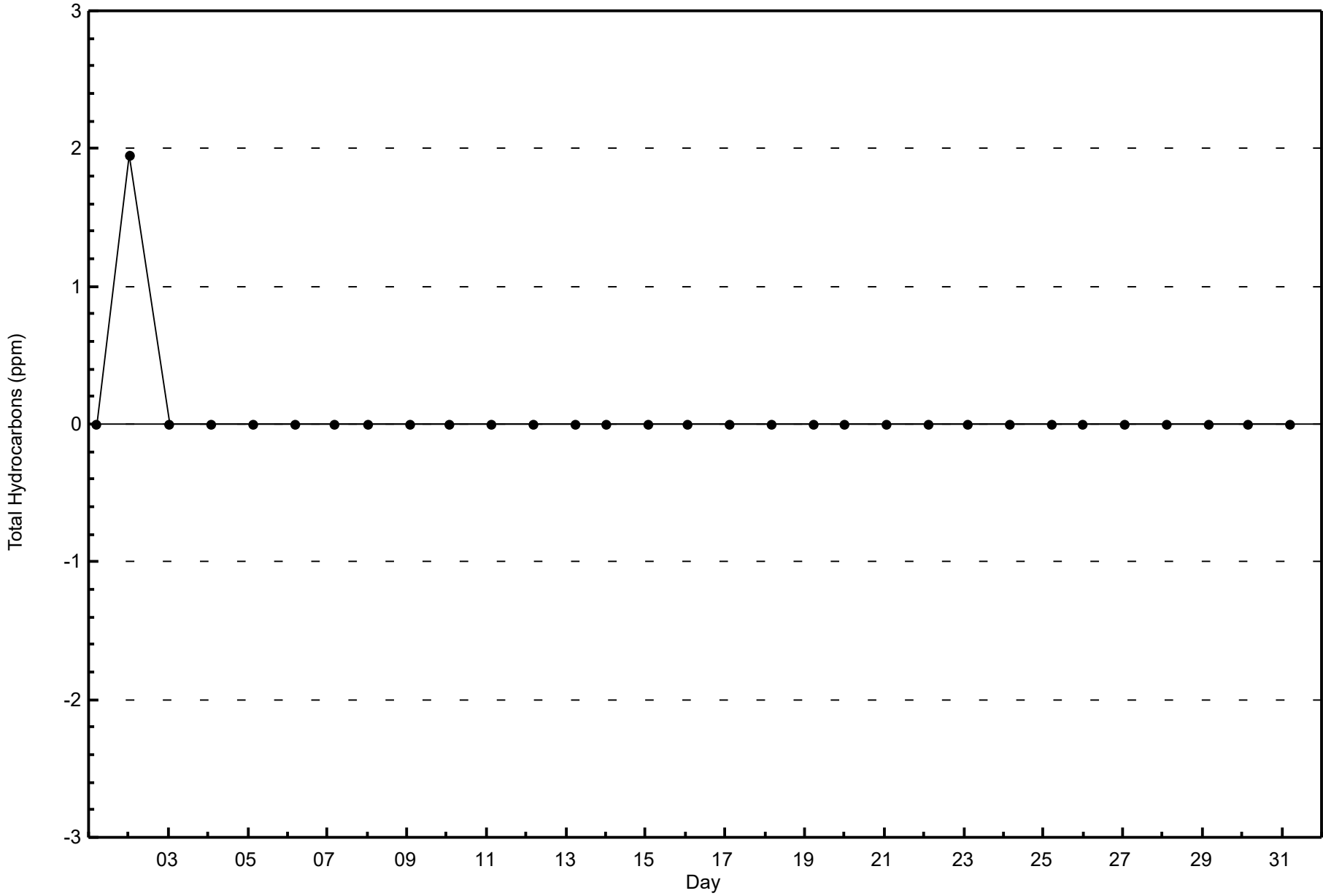
Total Number of Hours: 744

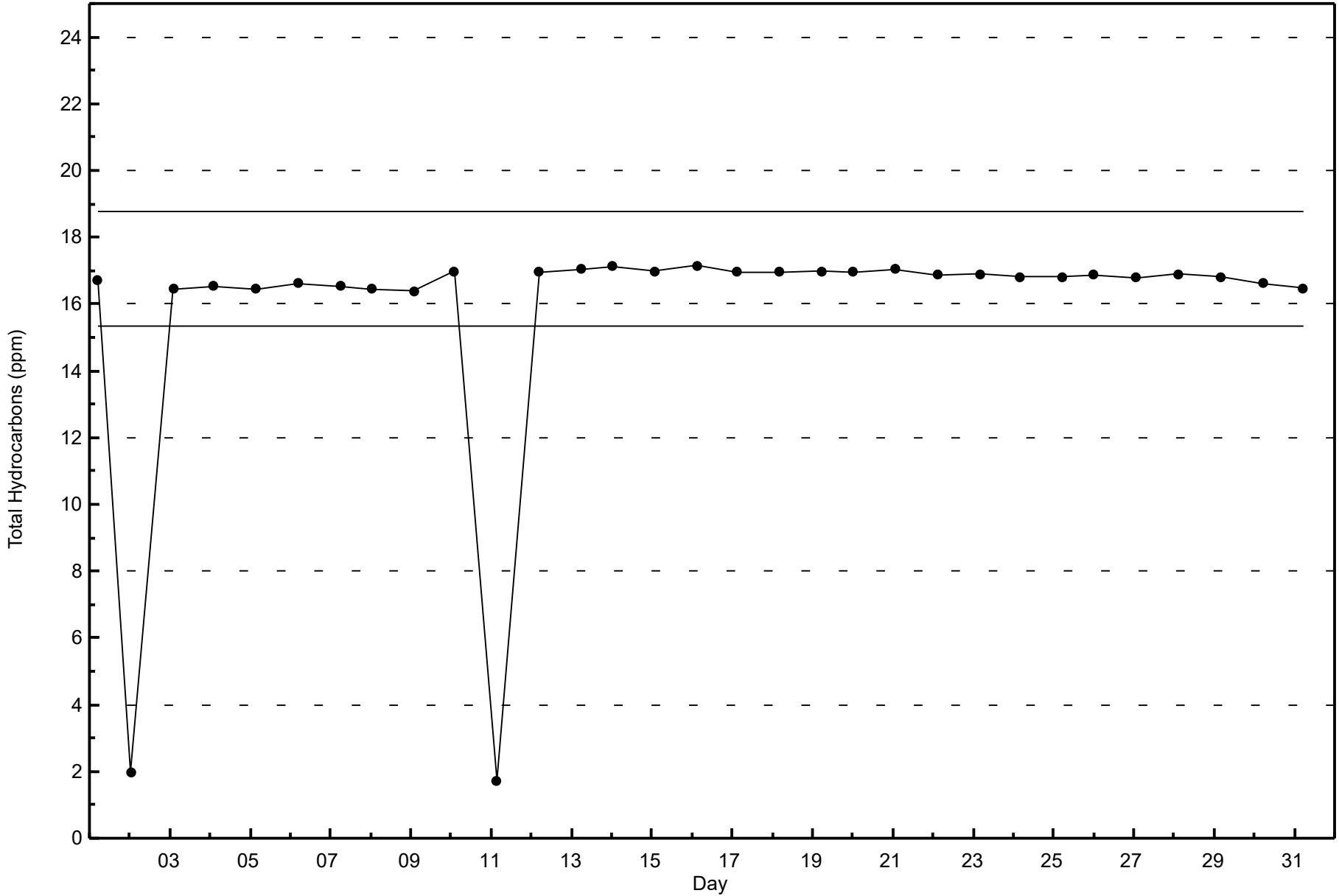


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Fort McKay South

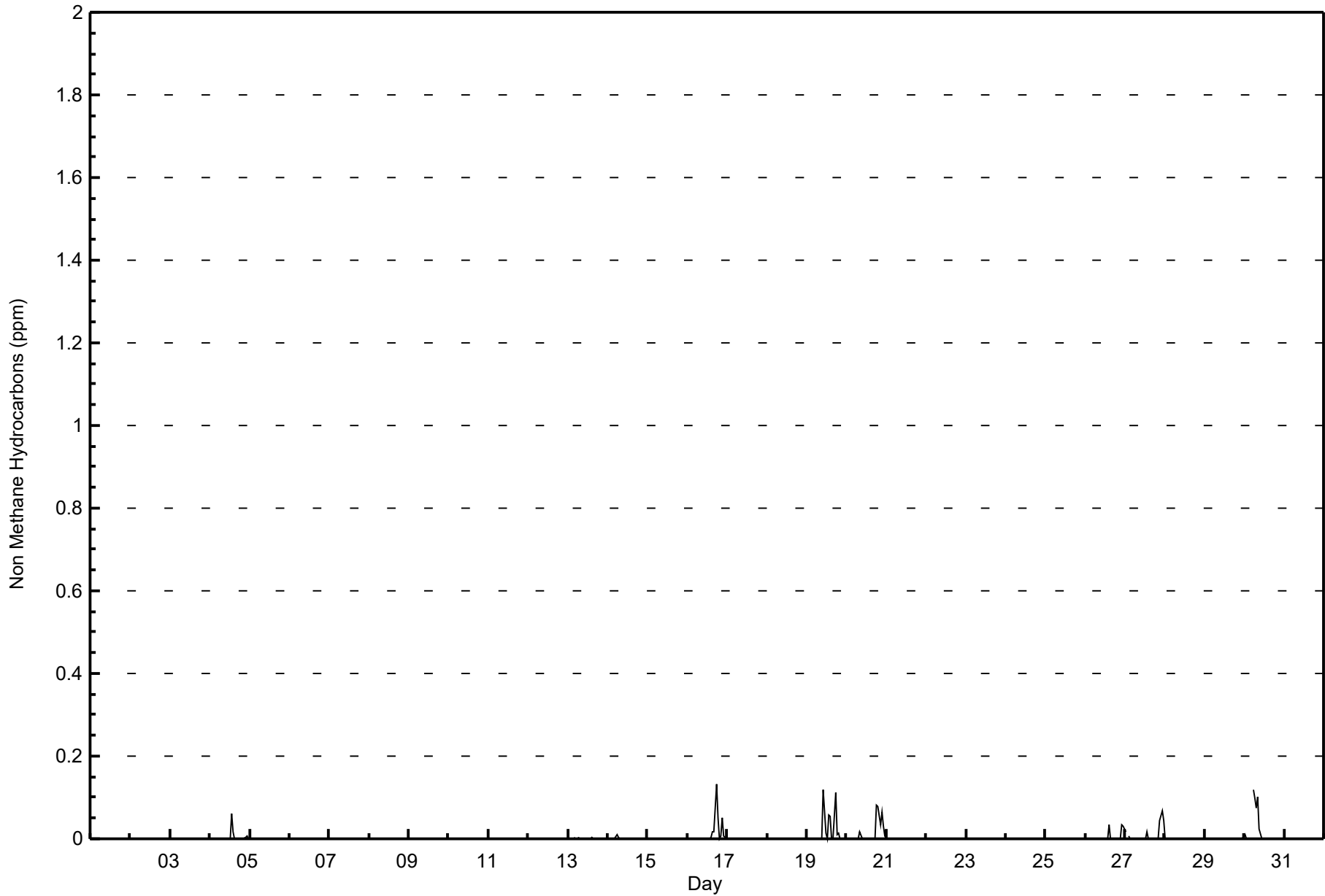








Maximum Value: 0.132 ppm on Oct 16 18:00																								Hours in Service: 744																								
Maximum Daily Average: 0.019 ppm on Oct 30																								Hours of Data: 675																								
Minimum Value: 0.000 ppm on Oct 1 01:00																								Hours of Missing Data: 69																								
Minimum Daily Average: 0.000 ppm on Oct 3																								Hours of Calibration: 33																								
Maximum Diurnal Average: 0.008 ppm at hour 18																								Percent Operational Time: 95.2																								
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																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Oct	0.000	0.000	0.000	0.000	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000																						
2-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	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																						
3-Oct	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																						
4-Oct	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	0.060	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.007	0.000	0.004	0.060																					
5-Oct	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
6-Oct	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																					
7-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
8-Oct	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
9-Oct	0.000	Z	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
10-Oct	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	UO	0.000	0.000	0.000	UO	0.000	0.000	0.000	UO	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
11-Oct	0.002	UO	0.000	Z	UO	UO	UO	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002																					
12-Oct	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	0.001	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																					
13-Oct	0.000	0.000	0.000	0.001	0.004	Z	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.004																					
14-Oct	Z	0.001	0.000	0.001	0.000	0.011	0.002	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	0.001	0.001	0.011																					
15-Oct	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
16-Oct	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	0.004	0.016	0.018	0.132	0.051	0.000	0.008	0.052	0.008	0.000	0.000	0.013	0.132	0.000																					
17-Oct	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.001	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																					
18-Oct	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																					
19-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.118	0.012	0.000	0.059	0.055	0.000	0.000	0.112	0.009	0.012	0.000	0.000	0.000	0.000	0.016	0.118	0.000																					
20-Oct	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.082	0.078	0.033	0.066	0.030	0.008	0.014	0.082	0.000																					
21-Oct	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																					
22-Oct	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																					
23-Oct	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																					
24-Oct	0.000	0.000	0.000	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001																					
25-Oct	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																					
26-Oct	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	0.033	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.032	0.031	0.004	0.004	0.033	0.000																					
27-Oct	0.016	Z	0.006	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.067	0.043	0.008	0.067	0.067	0.000																					
28-Oct	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001																					
29-Oct	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	0.001	0.003	0.000	0.003	0.000																					
30-Oct	0.011	0.001	0.000	0.000	Z	0.117	0.098	0.075	0.103	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.117	0.000																					
31-Oct	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																					
0.001																								0.000	0.000	0.000	0.000	0.006	0.004	0.003	0.004	0.001	0.004	0.000	0.005	0.004	0.001	0.001	0.008	0.005	0.003	0.001	0.006	0.005	0.003	Diurnal Average		
0.016																								0.001	0.006	0.001	0.004	0.117	0.098	0.075	0.103	0.025	0.118	0.012	0.000	0.060	0.055	0.016	0.018	0.132	0.082	0.078	0.033	0.066	0.067	0.043	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	635	94.07	94.07
0.006 - 0.05	26	3.85	97.93
0.06 - 0.1	14	2.07	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South - October 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	57	30	13	7	1	6	7	24	83	63	77	85	44	55	43	29	624
0.006 - 0.05	14	3	0	0	0	0	0	0	1	0	0	1	0	0	2	5	26
0.06 - 0.1	7	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	14
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>78</b>	<b>39</b>	<b>13</b>	<b>7</b>	<b>1</b>	<b>6</b>	<b>7</b>	<b>24</b>	<b>84</b>	<b>63</b>	<b>77</b>	<b>86</b>	<b>44</b>	<b>55</b>	<b>46</b>	<b>34</b>	<b>664</b>

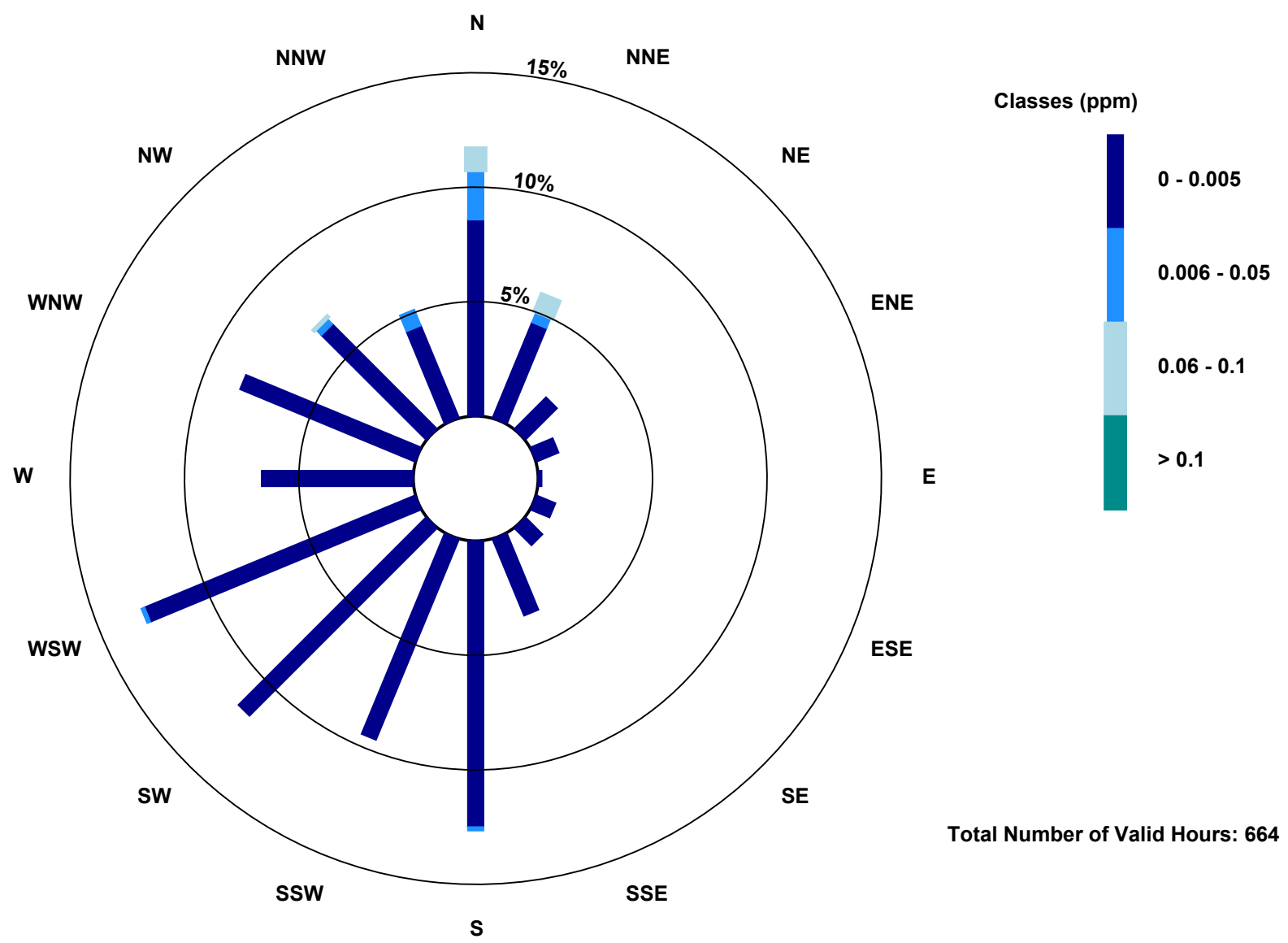
Total Number of Valid Hours: 664

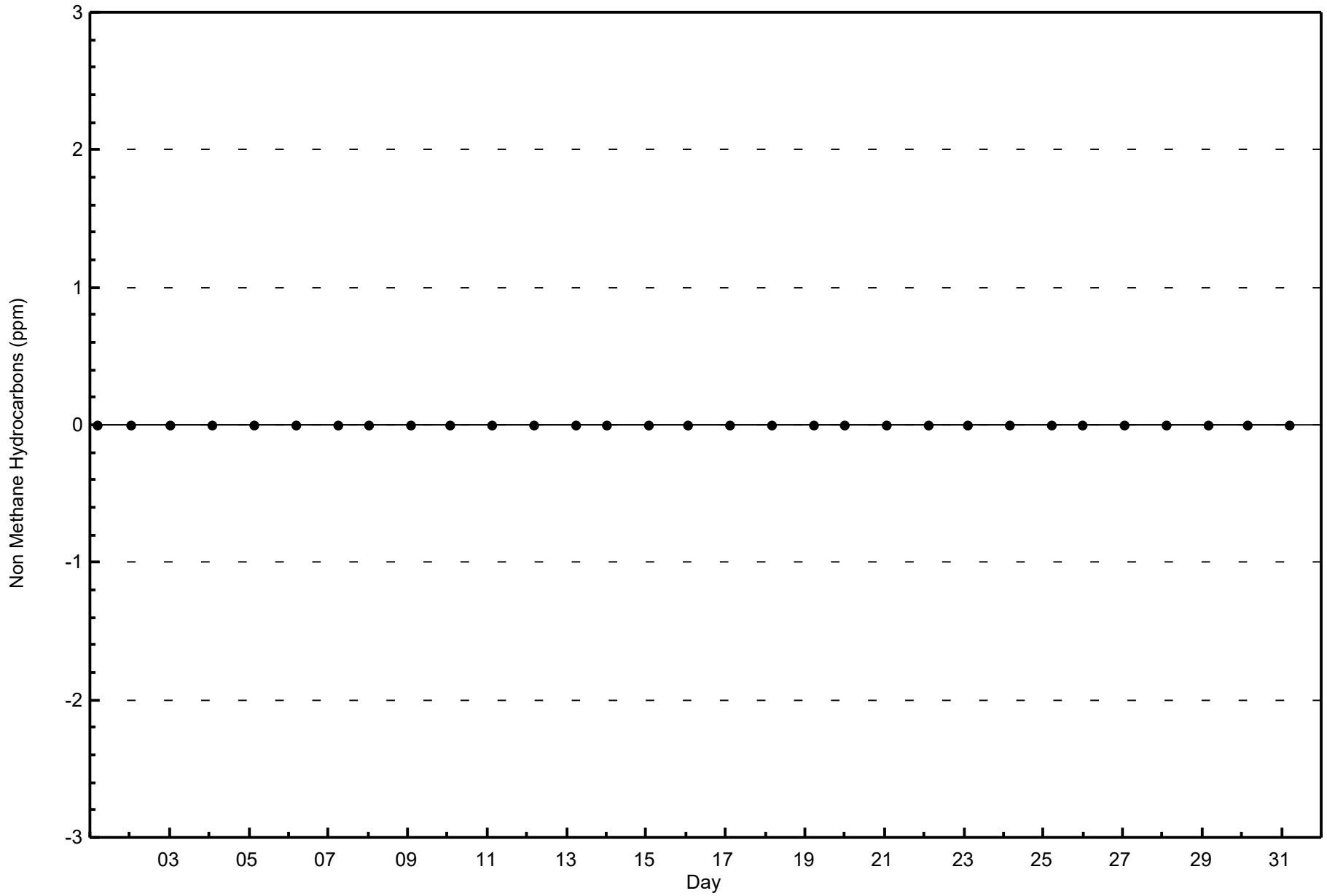
Total Number of Hours: 744

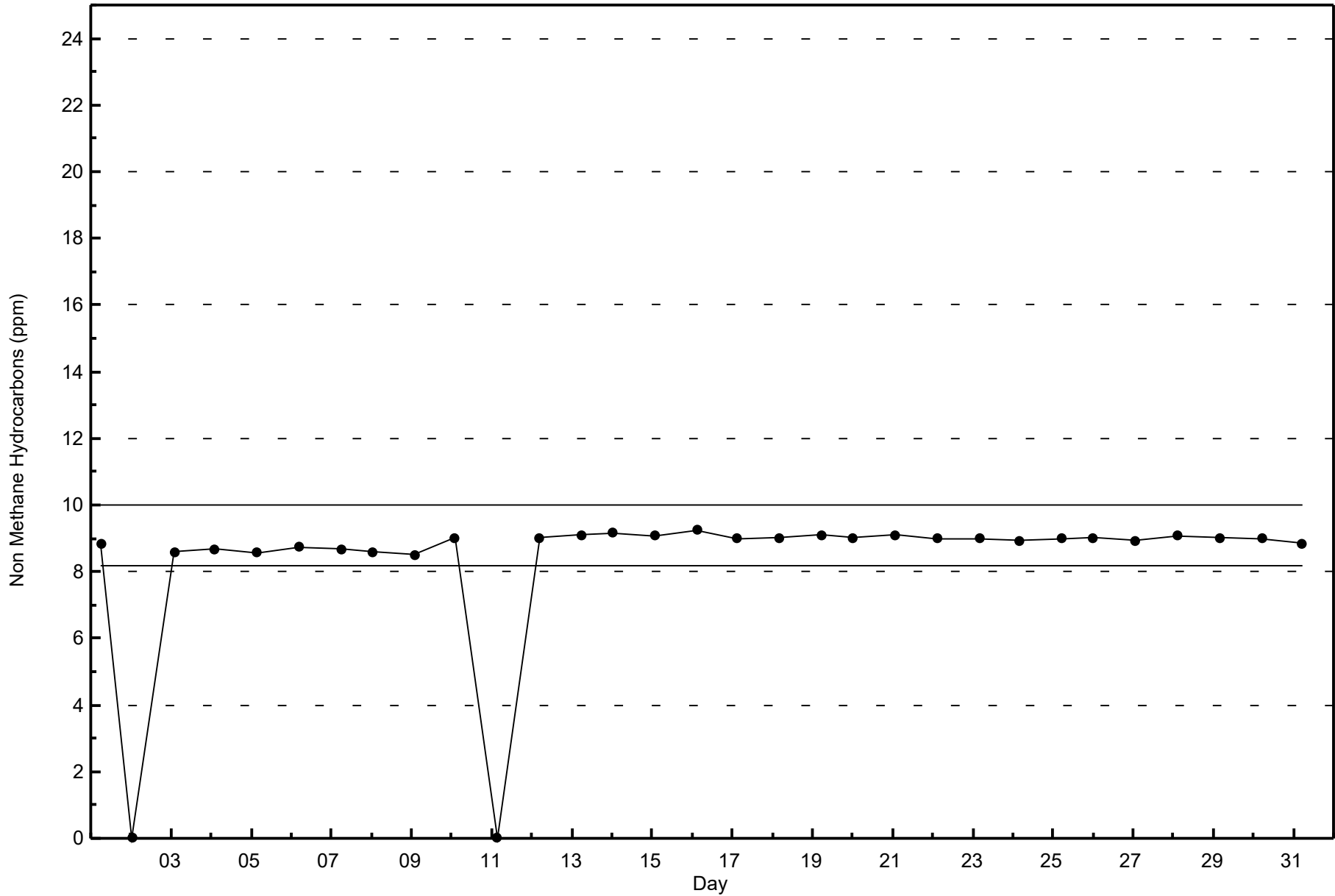


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South









Wood Buffalo Environmental Association

Summary of Hour Averages

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

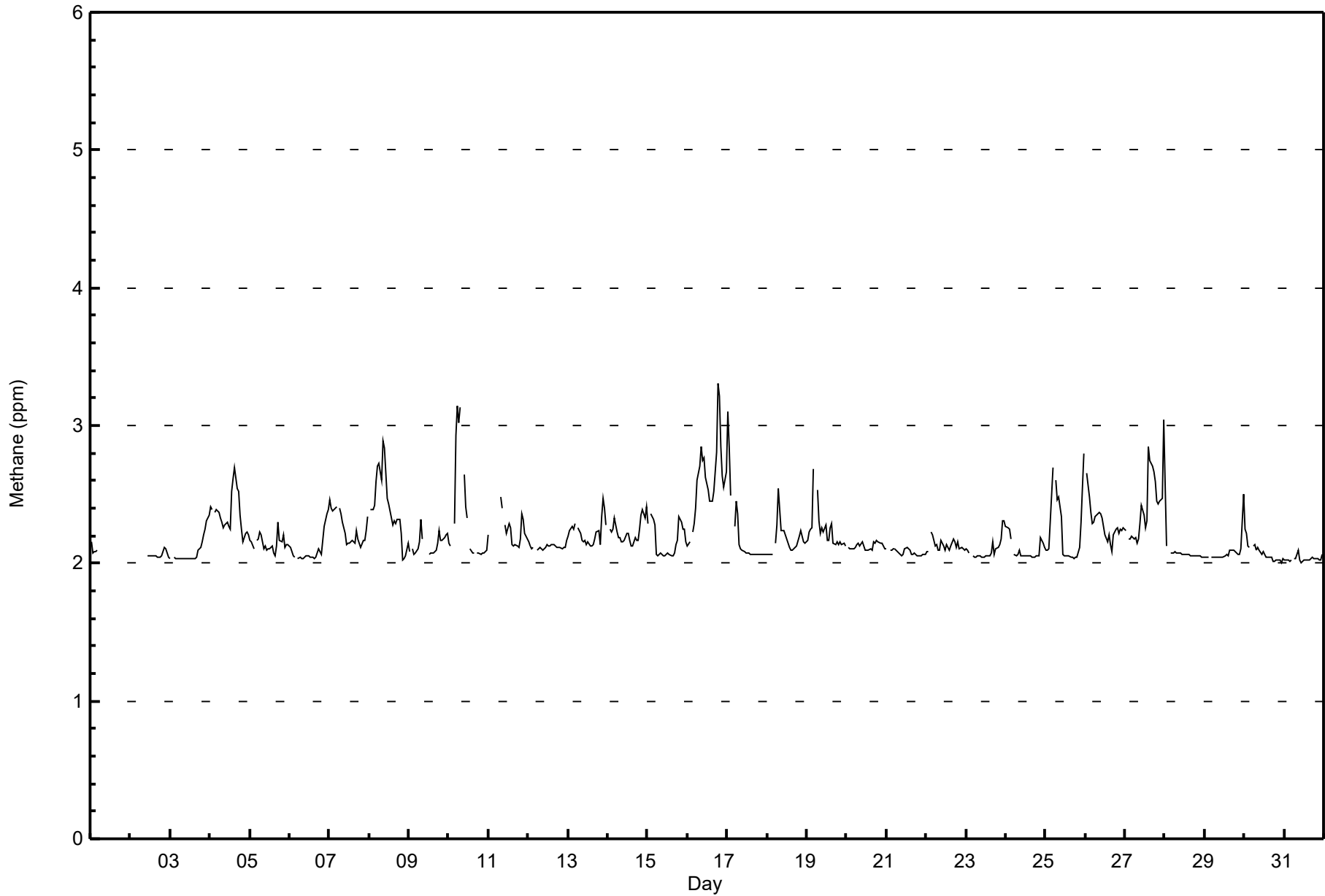
Fort McKay South - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.3 ppm on Oct 16 19:00	Maximum Daily Average: 2.6 ppm on Oct 16		Hours of Data:	675
Minimum Value: 2.0 ppm on Oct 31 11:00	Minimum Daily Average: 2.0 ppm on Oct 31		Hours of Missing Data:	69
Maximum Diurnal Average: 2.3 ppm at hour 5	Minimum Diurnal Average: 2.1 ppm at hour 14		Hours of Calibration:	33
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> = 3.0		Percent Operational Time:	95.2

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-Oct	2.2	2.1	2.1	2.1	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.2	
2-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	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	2.0	--	2.1	
3-Oct	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	2.2	2.2	2.3	2.3	2.3	2.1	2.3	
4-Oct	2.4	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.5	2.6	2.7	2.5	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.7	
5-Oct	2.2	2.2	2.1	Z	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	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.3	
6-Oct	2.1	2.1	2.1	2.0	Z	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	2.1	2.2	2.3	2.4	2.4	2.1	2.4	2.4	
7-Oct	2.5	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.5	
8-Oct	Z	2.4	2.4	2.4	2.6	2.7	2.7	2.6	2.9	2.8	2.7	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.0	2.0	2.1	2.1	2.4	2.9	
9-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.2	C	C	C	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.3	
10-Oct	2.1	2.1	Z	2.3	2.9	3.1	3.0	3.1	UO	2.6	2.4	2.3	UO	2.1	2.1	2.1	UO	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	3.1	
11-Oct	2.2	UO	2.4	Z	UO	UO	UO	2.5	2.4	M	2.3	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.3	2.2	2.2	2.2	2.5	
12-Oct	2.2	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	2.2	2.1	2.2	
13-Oct	2.2	2.2	2.3	2.3	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.3	2.5	2.4	2.3	2.2	2.5	
14-Oct	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.4	2.2	2.4	
15-Oct	2.3	Z	2.4	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.4	
16-Oct	2.1	2.2	Z	2.2	2.3	2.4	2.6	2.7	2.8	2.7	2.8	2.6	2.5	2.5	2.4	2.5	2.5	2.8	3.3	3.2	2.8	2.6	2.5	2.7	2.6	3.3	
17-Oct	3.1	2.8	2.5	Z	2.3	2.5	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.1	
18-Oct	2.1	2.1	2.1	2.1	Z	2.1	2.3	2.5	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	2.2	2.1	2.2	2.5	
19-Oct	2.2	2.2	2.2	2.3	2.7	Z	2.5	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.3	2.3	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.7	
20-Oct	Z	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	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	
21-Oct	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
22-Oct	2.1	2.1	Z	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	
23-Oct	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.1	2.3	
24-Oct	2.3	2.3	2.2	Z	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.3	
25-Oct	2.1	2.1	2.1	2.3	2.7	Z	2.6	2.5	2.5	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.5	2.8	2.2	2.8	
26-Oct	Z	2.7	2.5	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.7	
27-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.4	2.3	2.3	2.3	2.9	2.7	2.7	2.7	2.6	2.5	2.4	2.4	2.5	3.0	2.4	3.0	
28-Oct	2.6	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	2.0	2.1	2.0	2.0	2.1	2.6	
29-Oct	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	2.5	2.1	2.5	
30-Oct	2.3	2.2	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	2.1	2.3	
31-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	

2.2	2.2	2.2	2.2	2.3	2.2	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	2.3	Diurnal Average	
3.1	2.8	2.5	2.4	2.9	3.1	3.0	3.1	2.9	2.8	2.8	2.6	2.5	2.5	2.9	2.7	2.7	2.8	3.3	3.2	2.8	2.6	2.5	3.0	Diurnal Maximum		

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





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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	96	14.22	14.22
2.1 - 3.0	574	85.04	99.26
3.1 - 10.0	5	0.74	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 744





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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - October 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	2	5	5	4	0	3	3	1	0	1	7	18	10	16	15	6	96
2.1 - 3.0	75	34	8	3	1	3	4	23	84	62	70	67	34	38	31	27	564
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	78	39	13	7	1	6	7	24	84	63	77	86	44	55	46	34	664

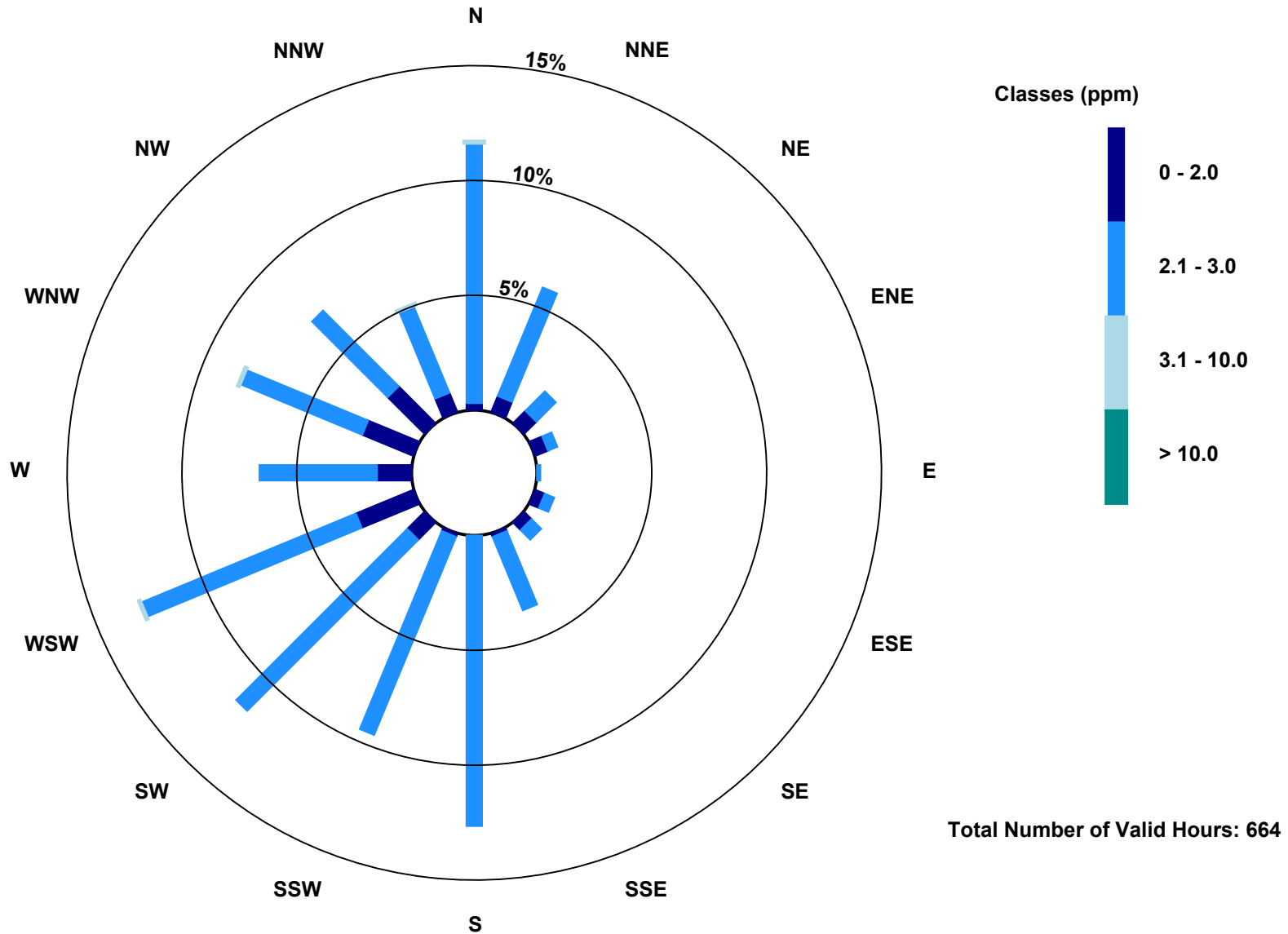
Total Number of Valid Hours: 664

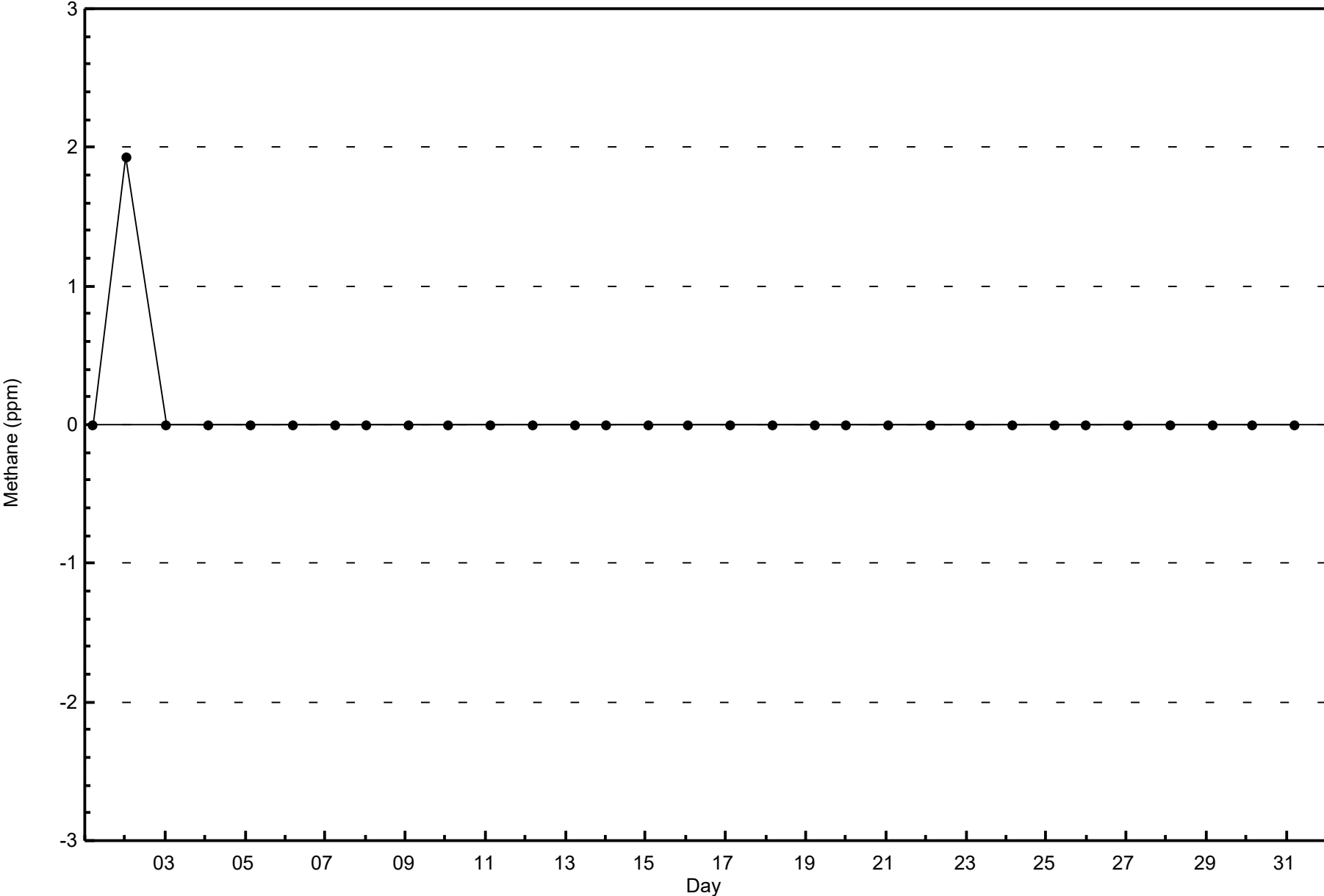
Total Number of Hours: 744

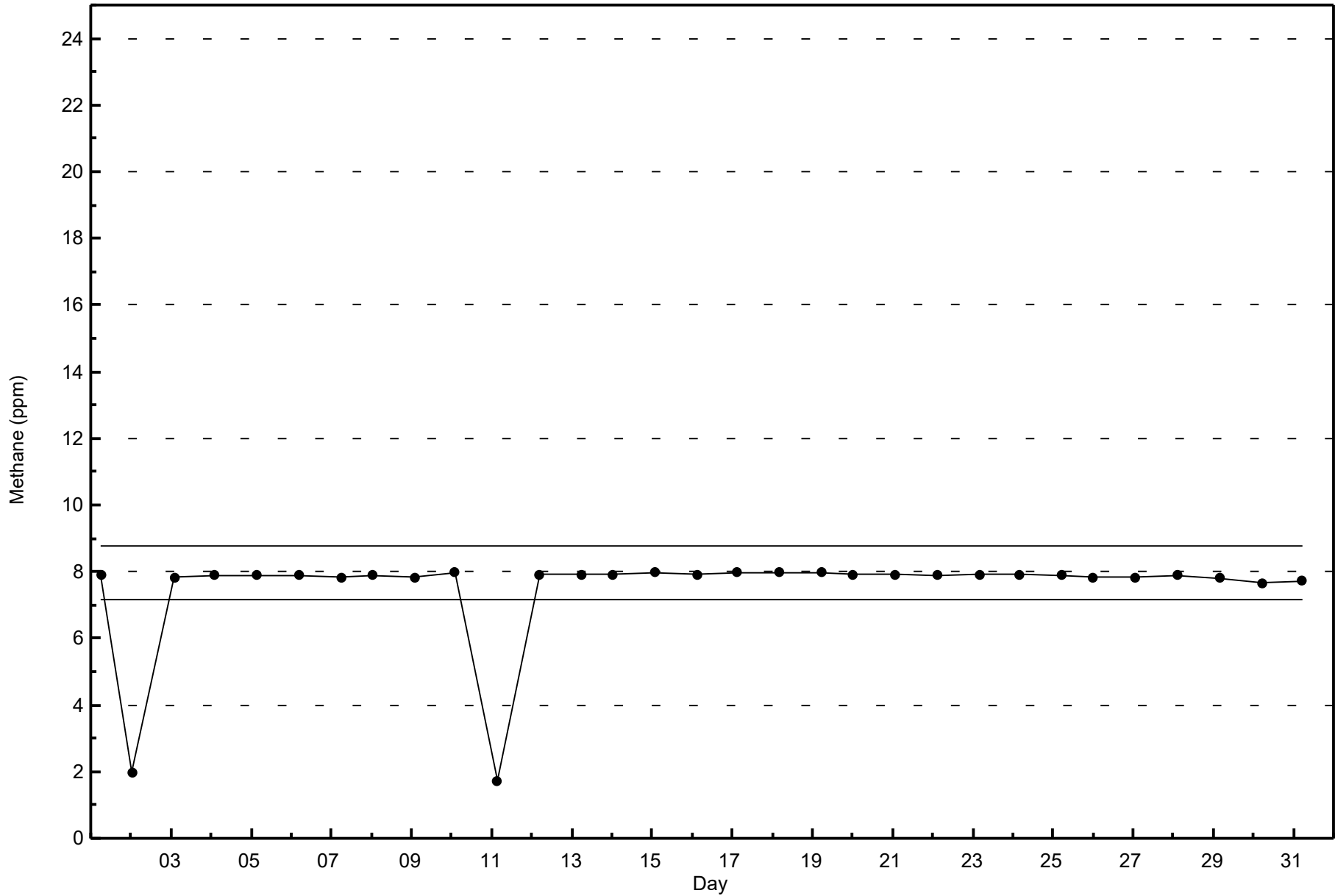


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









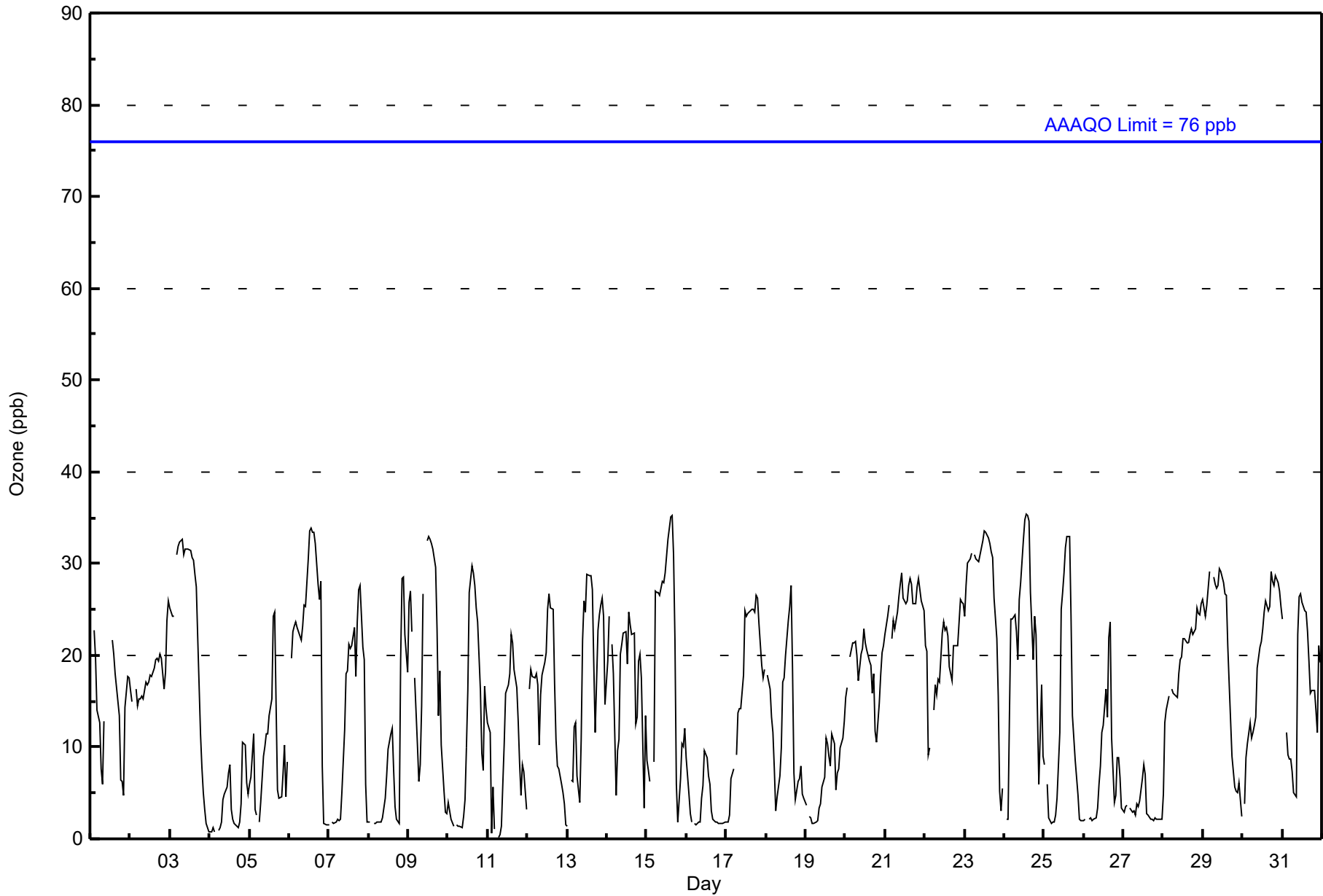
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Fort McKay South - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 744																									
Maximum Value: 35.4 ppb on Oct 24 14:00		Maximum Daily Average: 26.2 ppb on Oct 23																									
Minimum Value: 0.1 ppb on Oct 11 07:00		Hours of Data: 708																									
Maximum Diurnal Average: 22.8 ppb at hour 15		Hours of Missing Data: 36																									
Monthly Average: 15.33 ppb		Hours of Calibration: 35																									
		Percent Operational Time: 99.9																									
		Minimum Daily Average: 3.4 ppb on Oct 27																									
		Minimum Diurnal Average: 10.9 ppb at hour 4																									
		Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 5.9 Median = 15.9 Q <sub>3</sub> = 24.2 P <sub>90</sub> = 28.1 P <sub>99</sub> = 33.6																									
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-Oct	17.7	Z	22.8	19.7	14.1	12.7	7.6	5.9	12.8	C	C	C	C	21.7	20.1	18.1	14.9	13.4	6.4	6.2	4.7	14.4	17.7	17.5	14.1	22.8	
2-Oct	16.2	14.9	Z	16.3	14.5	15.2	15.3	15.5	15.3	17.1	16.8	17.2	17.8	17.6	18.6	19.5	19.7	19.4	20.1	19.7	16.3	18.2	23.7	25.9	17.9	25.9	
3-Oct	25.2	24.2	24.3	Z	31.0	31.9	32.4	32.7	31.0	31.5	31.6	31.5	31.4	30.6	30.4	28.8	27.4	22.0	11.5	7.7	5.1	3.1	1.7	0.8	23.0	32.7	
4-Oct	0.7	0.8	1.3	0.8	Z	0.9	1.3	1.8	4.3	5.0	5.6	7.2	8.1	3.3	2.1	1.6	1.4	1.2	1.9	3.8	10.5	10.2	6.2	4.8	3.7	10.5	
5-Oct	5.9	6.7	11.5	3.3	2.6	Z	1.8	3.9	9.0	10.1	11.4	11.4	13.4	15.2	24.3	24.8	14.7	5.4	4.4	4.6	7.2	10.2	4.6	8.3	9.3	24.8	
6-Oct	Z	19.6	22.6	23.2	23.6	23.1	22.1	21.6	23.2	25.5	25.3	30.5	33.5	33.9	33.4	33.4	32.2	27.7	26.0	28.0	7.9	1.7	1.6	1.5	22.7	33.9	
7-Oct	1.6	Z	1.9	1.7	1.9	2.2	2.0	2.1	5.1	11.9	18.0	18.3	21.2	20.8	21.1	23.0	17.6	23.6	27.2	27.6	21.0	19.5	6.0	1.9	12.9	27.6	
8-Oct	1.8	1.8	Z	1.7	1.7	1.8	1.8	1.9	2.2	3.4	4.4	6.9	9.8	11.4	12.0	7.5	3.6	2.2	1.7	19.5	28.4	28.6	22.3	18.1	8.4	28.6	
9-Oct	25.7	27.0	22.6	Z	17.6	10.3	6.2	8.1	14.5	26.7	M	32.5	32.9	32.7	32.2	31.6	29.7	22.9	13.4	18.4	10.2	5.2	2.9	2.7	19.4	32.9	
10-Oct	4.0	3.0	2.1	1.4	Z	1.5	1.4	1.4	1.2	2.5	4.3	9.8	16.2	26.8	29.8	29.1	27.6	25.2	23.7	16.1	9.3	7.5	16.6	14.3	11.9	29.8	
11-Oct	12.7	11.6	0.6	5.6	1.1	Z	0.1	0.4	1.4	6.0	10.4	15.9	16.8	18.0	22.3	21.3	18.5	16.4	12.8	8.2	4.7	8.1	7.4	3.2	9.7	22.3	
12-Oct	Z	16.3	18.5	17.7	17.5	18.1	16.7	10.2	15.7	17.8	19.2	20.3	25.1	26.8	25.2	25.0	16.9	10.8	7.9	7.6	6.0	5.1	3.7	1.5	15.2	26.8	
13-Oct	1.4	Z	6.4	6.2	12.2	12.7	6.9	4.0	10.8	21.6	26.0	24.7	28.8	28.7	28.7	27.1	19.1	11.7	22.7	24.4	25.5	26.2	24.3	14.7	18.0	28.8	
14-Oct	19.3	24.3	Z	21.2	18.0	4.7	9.6	10.8	20.2	21.2	22.4	22.6	19.1	24.8	23.3	22.3	22.4	12.4	13.2	19.4	20.2	17.5	3.4	13.4	17.6	24.8	
15-Oct	8.5	7.4	6.3	Z	8.4	27.1	26.9	26.9	26.5	28.1	27.9	29.0	30.8	32.7	35.1	35.2	31.0	21.6	6.0	1.8	6.5	10.3	10.1	12.0	19.8	35.2	
16-Oct	8.9	4.9	2.8	1.8	Z	1.7	1.5	1.8	1.9	4.5	5.8	9.6	8.9	6.9	5.9	3.1	2.1	1.8	1.8	1.8	1.7	1.7	1.6	1.8	3.7	9.6	
17-Oct	1.9	1.8	2.6	6.5	7.6	Z	9.2	13.7	14.1	14.2	17.8	24.9	24.2	24.6	24.7	25.0	25.0	24.7	26.6	26.2	23.5	18.9	17.6	18.5	17.1	26.6	
18-Oct	Z	17.8	16.3	13.2	11.7	7.6	3.0	4.7	6.8	10.0	17.0	17.5	20.0	23.9	25.3	27.6	18.7	7.2	4.2	6.3	6.5	8.0	4.9	4.5	12.3	27.6	
19-Oct	3.6	Z	2.4	2.3	1.7	1.7	1.8	2.0	3.3	3.9	5.7	6.7	11.0	10.4	9.0	7.9	11.5	10.3	5.4	7.1	7.6	9.9	11.0	12.8	6.5	12.8	
20-Oct	15.4	16.5	Z	19.8	21.3	21.4	21.5	20.0	17.3	20.1	20.7	22.9	21.4	20.6	19.4	19.0	15.8	17.9	11.7	10.5	14.8	17.9	20.3	21.0	18.6	22.9	
21-Oct	22.3	24.2	25.5	Z	21.8	23.8	22.8	24.8	26.4	27.7	29.0	26.2	25.6	25.9	27.5	28.4	27.7	25.7	25.6	27.5	28.4	27.1	25.9	24.8	25.8	29.0	
22-Oct	21.1	20.4	9.2	9.9	Z	14.1	16.8	15.7	17.4	17.1	22.4	23.6	22.8	23.0	22.1	18.7	17.2	21.1	21.1	21.1	21.0	26.1	25.7	25.6	19.7	26.1	
23-Oct	24.2	27.6	30.0	30.5	31.2	Z	31.0	30.5	30.2	30.9	31.8	32.5	33.6	33.4	32.9	32.3	31.3	30.6	26.2	21.7	15.5	5.2	3.1	5.5	26.2	33.6	
24-Oct	Z	2.2	2.2	13.4	23.9	24.0	24.5	22.6	19.5	26.0	28.0	32.6	34.9	35.4	35.2	34.6	26.9	19.5	24.3	22.2	13.9	6.0	16.7	9.0	21.6	35.4	
25-Oct	8.2	Z	5.9	2.3	1.7	1.8	1.8	2.5	4.5	11.6	25.1	26.9	29.0	31.7	32.9	33.0	24.3	13.5	11.0	8.5	4.7	2.1	1.9	2.0	12.5	33.0	
26-Oct	2.0	2.1	Z	2.2	2.2	2.0	2.1	2.2	3.4	5.9	7.9	11.6	12.3	16.3	13.3	22.0	23.7	11.0	4.0	4.7	8.9	8.9	6.7	3.4	7.8	23.7	
27-Oct	2.9	3.5	3.7	Z	3.4	2.9	3.1	2.6	3.8	3.5	4.1	6.5	8.1	7.0	2.7	2.6	2.1	2.1	2.0	2.3	2.2	2.2	2.2	2.2	3.4	8.1	
28-Oct	4.9	12.7	14.1	15.6	Z	16.4	15.9	15.7	15.4	18.0	19.5	19.8	21.8	21.9	21.3	21.3	22.3	22.8	22.3	22.8	25.2	24.5	24.4	25.6	19.3	25.6	
29-Oct	26.1	24.2	25.5	27.4	29.2	Z	28.5	27.7	27.4	27.6	29.4	29.2	27.9	26.8	26.5	21.1	16.9	9.0	7.3	5.6	5.1	5.0	6.1	2.4	20.1	29.4	
30-Oct	Z	3.8	8.8	10.4	12.6	10.9	11.6	12.3	13.2	18.7	20.9	21.5	22.9	24.7	25.9	24.9	25.4	29.1	28.1	27.6	28.7	27.9	27.0	25.4	20.1	29.1	
31-Oct	23.9	Z	11.7	9.2	8.7	8.6	7.4	5.0	4.6	22.2	26.3	26.6	25.8	24.8	24.8	22.5	19.3	15.9	16.1	16.2	14.1	11.6	21.0	19.1	16.8	26.6	
		11.8	12.8	11.6	10.9	13.1	11.5	11.4	11.3	13.0	16.3	18.4	20.5	21.8	22.6	22.8	22.3	19.6	16.1	14.1	14.4	13.1	12.5	11.9	11.1	Diurnal Average	
		26.1	27.6	30.0	30.5	31.2	31.9	32.4	32.7	31.0	31.5	31.8	32.6	34.9	35.4	35.2	35.2	32.2	30.6	28.1	28.0	28.7	28.6	27.0	25.9	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb																											





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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort McKay South - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	450	63.56	63.56
21 - 50	258	36.44	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**  
**Fort McKay South - October 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	65	27	6	2	1	4	4	11	59	50	43	42	27	32	29	34	436
21 - 50	15	14	10	4	0	3	4	13	24	17	34	51	21	30	16	2	258
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>	80	41	16	6	1	7	8	24	83	67	77	93	48	62	45	36	694

Total Number of Valid Hours: 694

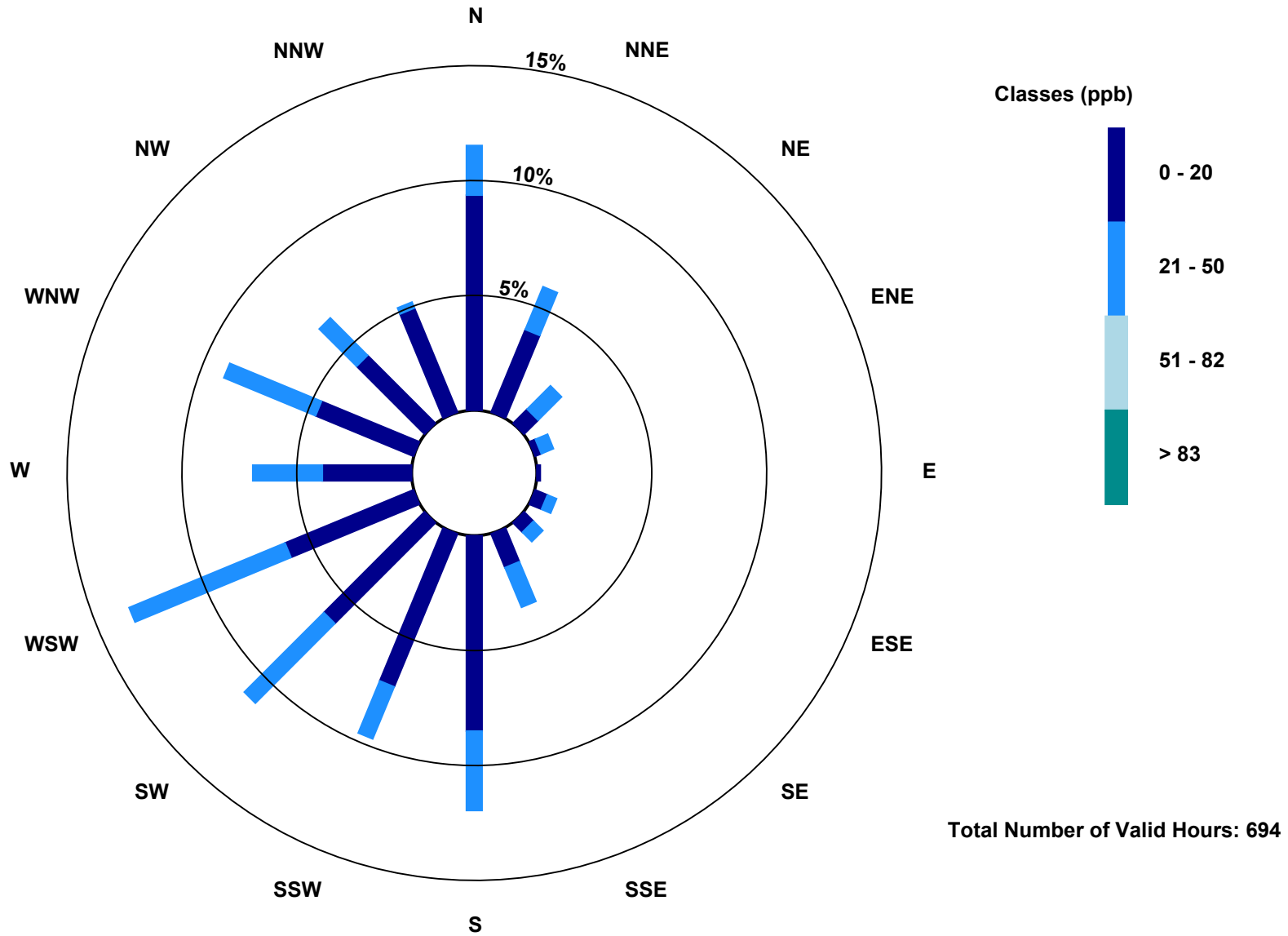
Total Number of Hours: 744

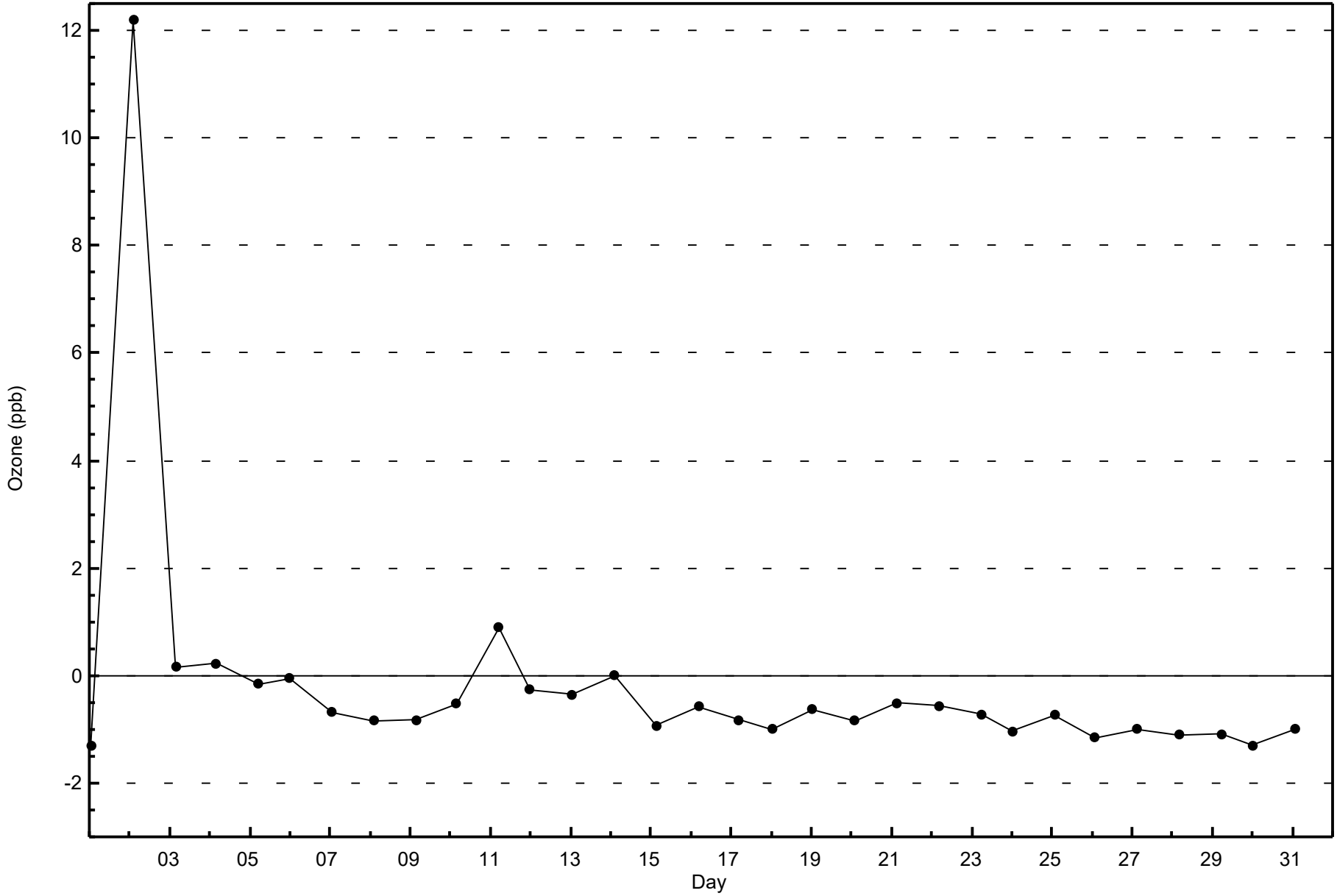


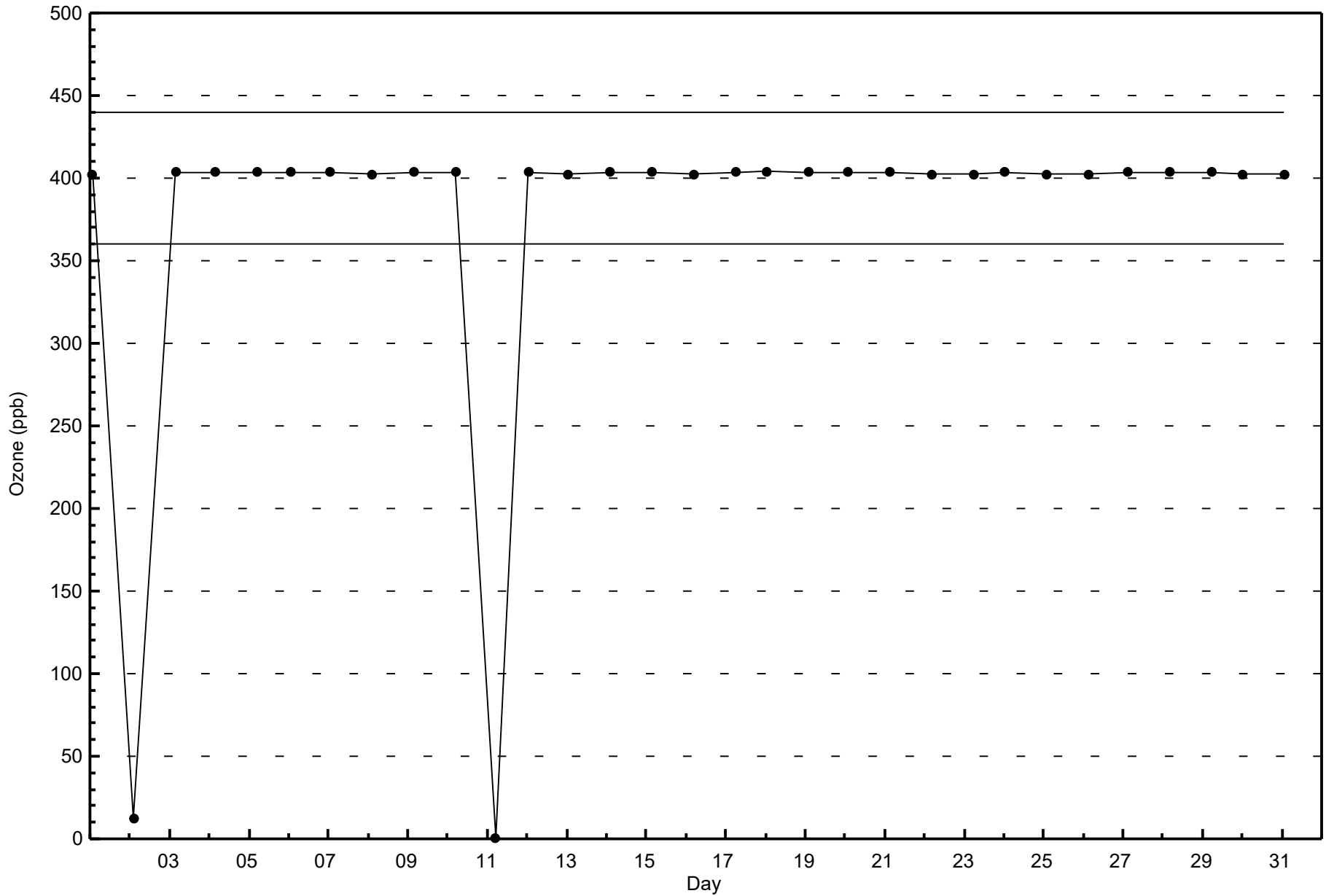


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

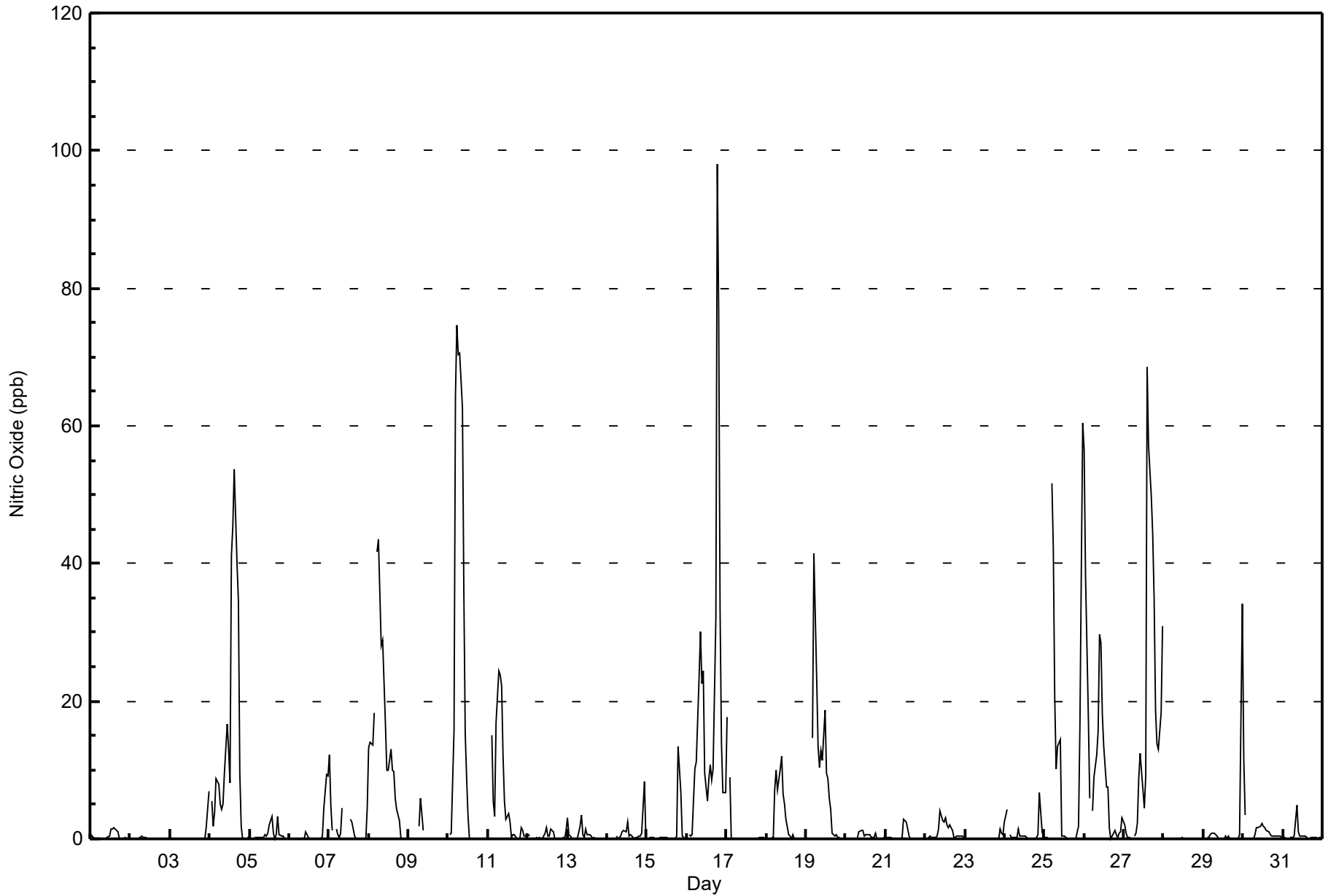
Fort McKay South - October 2024

Maximum Value: 98.0 ppb on Oct 16 19:00																				Maximum Daily Average: 19.6 ppb on Oct 16					Hours in Service: 744	
Minimum Value: 0.0 ppb on Oct 1 05:00																				Minimum Daily Average: 0.0 ppb on Oct 28					Hours of Data: 708	
Maximum Diurnal Average: 9.6 ppb at hour 6																				Minimum Diurnal Average: 2.0 ppb at hour 22					Hours of Missing Data: 36	
Monthly Average: 4.47 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> = 1.9 P <sub>90</sub> = 13.1 P <sub>99</sub> = 62.5					Hours of Calibration: 35	
																									Percent Operational Time: 99.9	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.6	0.3	0.3	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.4	1.4	1.6	1.4	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	1.6
2-Oct	0.0	0.0	0.0	0.0	Z	0.2	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	0.0	0.0	0.0	0.0	0.0	0.1	0.3
3-Oct	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	1.7	6.9	0.4	6.9
4-Oct	Z	5.4	1.9	3.9	8.7	8.0	5.1	4.3	5.2	9.6	16.6	13.0	8.1	41.0	45.4	53.6	40.0	34.6	9.7	1.9	0.0	0.0	0.0	0.1	13.7	53.6
5-Oct	0.2	Z	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.7	0.4	0.8	2.0	3.3	0.9	0.1	0.7	3.2	0.6	0.4	0.4	0.0	0.1	0.1	0.7	3.3
6-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.6	9.4	9.2	1.1	9.4	
7-Oct	12.1	4.8	1.2	Z	1.4	0.6	0.1	0.7	4.5	C	C	C	C	2.9	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	4.5	1.9	12.1	
8-Oct	13.3	14.1	13.7	18.4	Z	41.7	43.5	28.2	28.8	22.9	16.7	9.9	10.0	13.0	9.9	9.7	6.0	4.2	2.5	0.2	0.0	0.0	0.0	13.3	43.5	
9-Oct	0.0	0.0	0.0	0.0	0.0	Z	1.9	5.8	3.7	1.3	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	5.8	
10-Oct	Z	0.6	0.8	15.8	64.2	74.7	70.3	70.6	62.6	36.1	15.2	8.8	3.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	74.7	
11-Oct	0.1	Z	15.1	5.6	3.2	16.8	24.4	23.8	22.3	11.9	5.5	2.8	3.7	2.5	0.1	0.5	0.5	0.0	0.0	0.0	1.7	1.2	0.3	0.5	6.2	24.4
12-Oct	0.5	0.5	Z	0.0	0.0	0.2	0.0	0.2	0.1	0.1	0.8	1.7	0.4	0.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.2	0.4	1.7
13-Oct	3.0	0.7	0.1	Z	0.0	0.0	0.0	1.8	3.4	0.7	0.2	1.4	0.7	0.7	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.4	
14-Oct	0.0	0.0	0.0	0.0	Z	0.3	0.0	0.3	0.3	0.9	1.1	0.9	2.5	0.4	0.7	0.4	0.1	0.2	0.2	0.3	0.4	0.9	8.3	0.0	0.8	8.3
15-Oct	0.0	0.0	0.1	0.2	0.2	Z	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.4	13.5	6.8	0.3	0.2	0.0	1.0	13.5
16-Oct	Z	0.7	0.5	0.6	5.5	10.2	11.1	23.4	30.0	22.5	24.3	9.6	5.6	8.8	10.7	8.6	10.3	32.2	98.0	76.7	33.2	13.9	6.7	6.8	19.6	98.0
17-Oct	17.6	Z	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.1	1.2	17.6
18-Oct	0.0	0.0	Z	0.2	0.2	7.1	9.9	7.1	10.3	12.0	6.4	5.2	2.8	0.6	0.4	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	12.0
19-Oct	0.1	0.1	0.1	Z	14.7	41.5	23.1	13.4	10.4	12.8	11.5	18.7	9.5	8.8	6.0	4.2	0.8	0.3	0.6	0.3	0.2	0.0	0.0	0.0	7.7	41.5
20-Oct	0.0	0.1	0.1	0.0	Z	0.0	0.0	0.1	1.0	1.2	1.3	0.5	0.6	0.6	0.7	0.2	0.2	0.2	0.7	0.1	0.0	0.0	0.1	0.1	0.3	1.3
21-Oct	0.1	0.2	0.2	0.2	0.1	Z	0.0	0.1	0.0	0.0	0.2	2.8	2.4	1.5	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.4	2.8
22-Oct	Z	0.1	0.3	0.4	0.2	0.2	0.2	0.4	1.3	4.1	2.6	2.4	3.0	2.0	1.6	2.0	1.2	0.3	0.3	0.4	0.5	0.4	0.5	0.1	1.1	4.1
23-Oct	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	1.4	0.9	0.6	0.1	1.4
24-Oct	2.5	4.3	Z	0.7	0.2	0.2	0.3	0.2	1.5	0.3	0.4	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.6	6.8	1.1	0.2	0.9	6.8
25-Oct	0.1	0.3	0.2	Z	51.6	42.2	20.5	10.2	13.5	14.5	0.4	0.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.9	16.5	39.0	60.4	11.8	60.4
26-Oct	56.5	38.2	17.9	5.9	Z	4.0	9.0	12.3	15.7	29.8	28.5	18.0	13.5	7.6	7.6	1.7	0.0	0.4	1.2	0.7	0.2	0.8	0.9	3.1	11.9	56.5
27-Oct	2.1	0.7	0.3	0.2	0.3	Z	0.5	0.9	2.2	8.8	12.5	7.1	4.4	9.1	68.6	57.1	49.7	44.1	34.7	18.7	13.8	13.1	18.4	31.0	17.3	68.6
28-Oct	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
29-Oct	0.0	Z	0.1	0.3	0.7	0.8	0.8	0.7	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	34.2	1.7	34.2
30-Oct	11.7	3.4	Z	0.0	0.0	0.0	0.0	0.5	1.6	1.6	1.9	2.3	1.7	1.6	1.2	1.0	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	1.4	11.7
31-Oct	0.2	0.1	0.0	Z	0.2	0.2	0.2	0.4	4.8	0.9	0.5	0.5	0.4	0.4	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.4	4.8
																								Diurnal Average		
																								Diurnal Maximum		
4.6 2.9 2.4 2.1 5.8 9.6 7.1 6.6 7.2 6.4 5.1 3.6 2.6 3.5 5.2 4.6 3.6 3.9 4.8 3.7 2.0 2.0 2.9 5.2																								Diurnal Average		
56.5 38.2 17.9 18.4 64.2 74.7 70.3 70.6 62.6 36.1 28.5 18.7 13.5 41.0 68.6 57.1 49.7 44.1 98.0 76.7 33.2 16.5 39.0 60.4																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



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

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort McKay South - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	663	93.64	93.64
21 - 40	24	3.39	97.03
41 - 80	20	2.82	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**  
**Fort McKay South - October 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	68	42	16	7	1	7	8	23	80	58	73	92	47	59	45	29	655
21 - 40	5	1	1	0	0	0	0	0	3	3	2	1	1	2	2	2	23
11 - 80	4	0	0	0	0	0	0	0	0	4	3	1	0	1	2	3	18
81 - 159	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	78	43	17	7	1	7	8	23	83	65	78	94	48	62	49	34	697

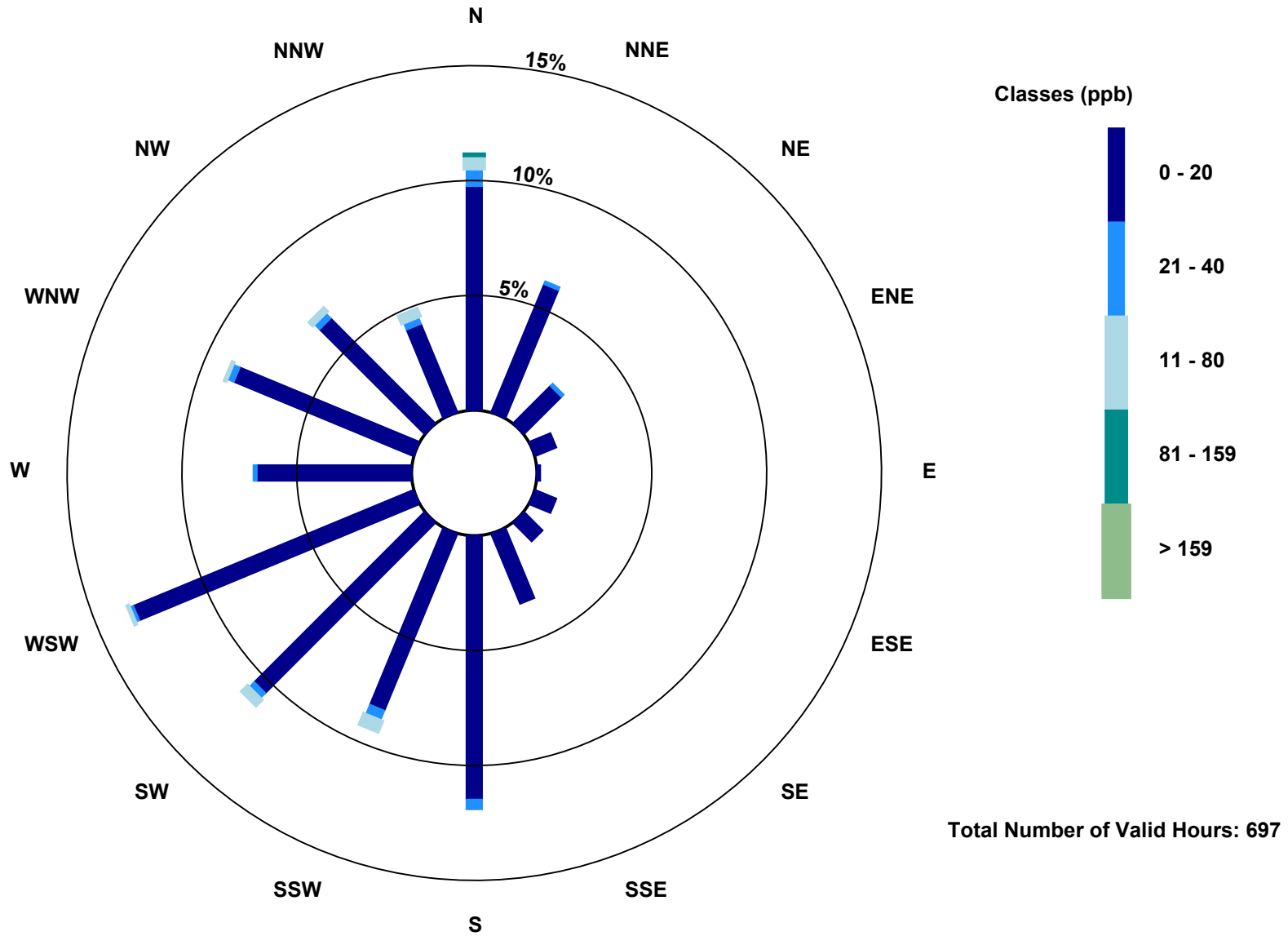
Total Number of Valid Hours: 697

Total Number of Hours: 744

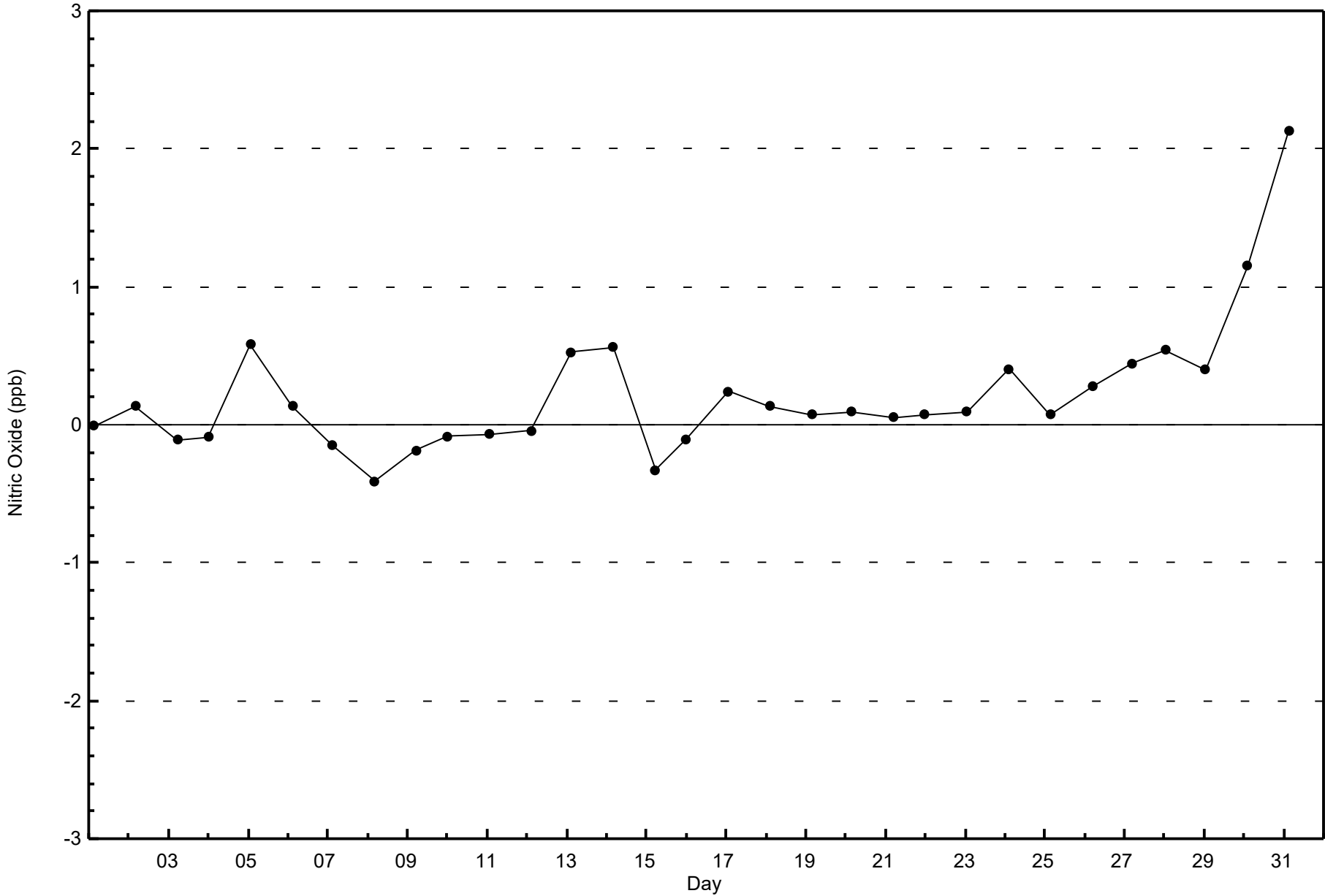


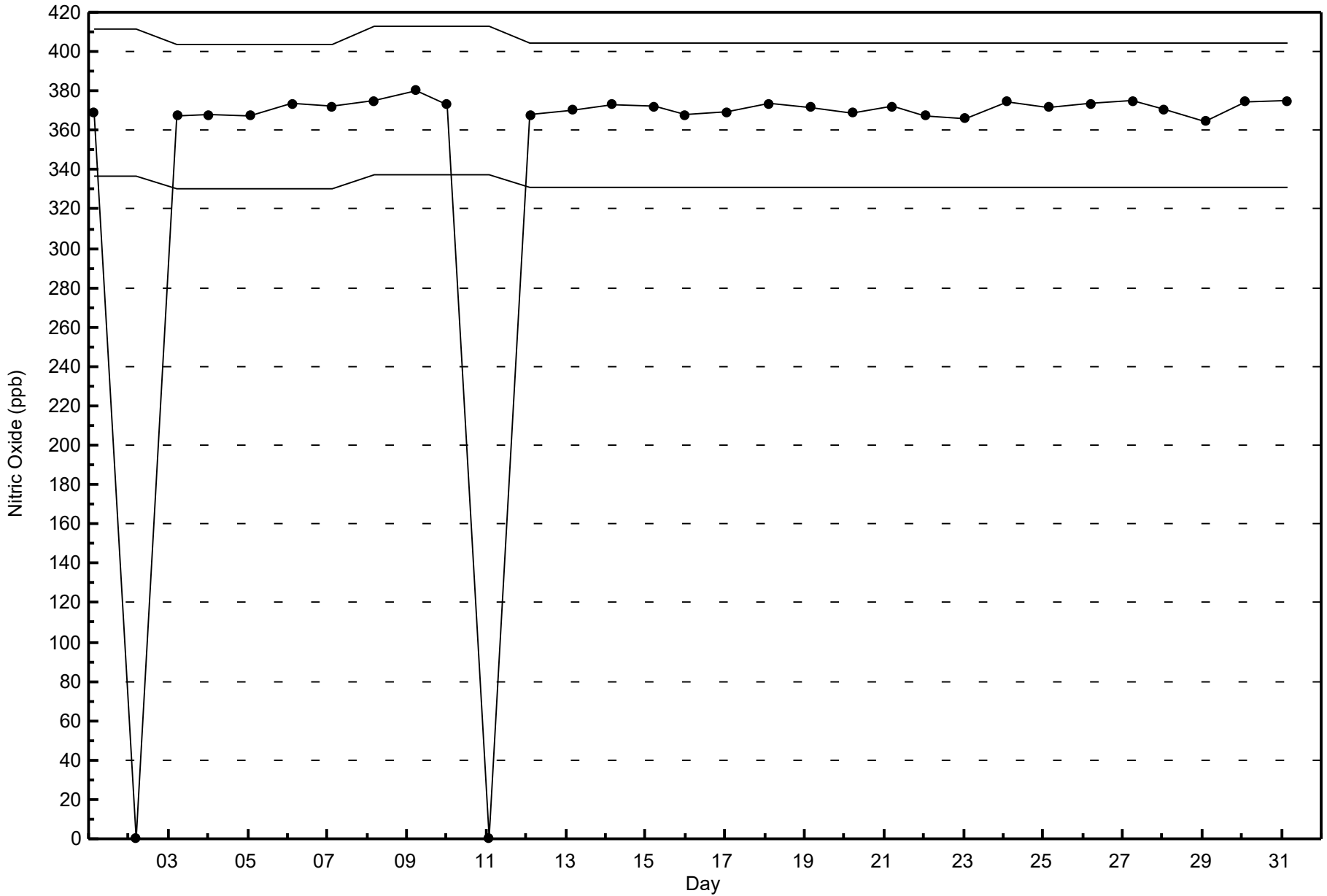
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Fort McKay South











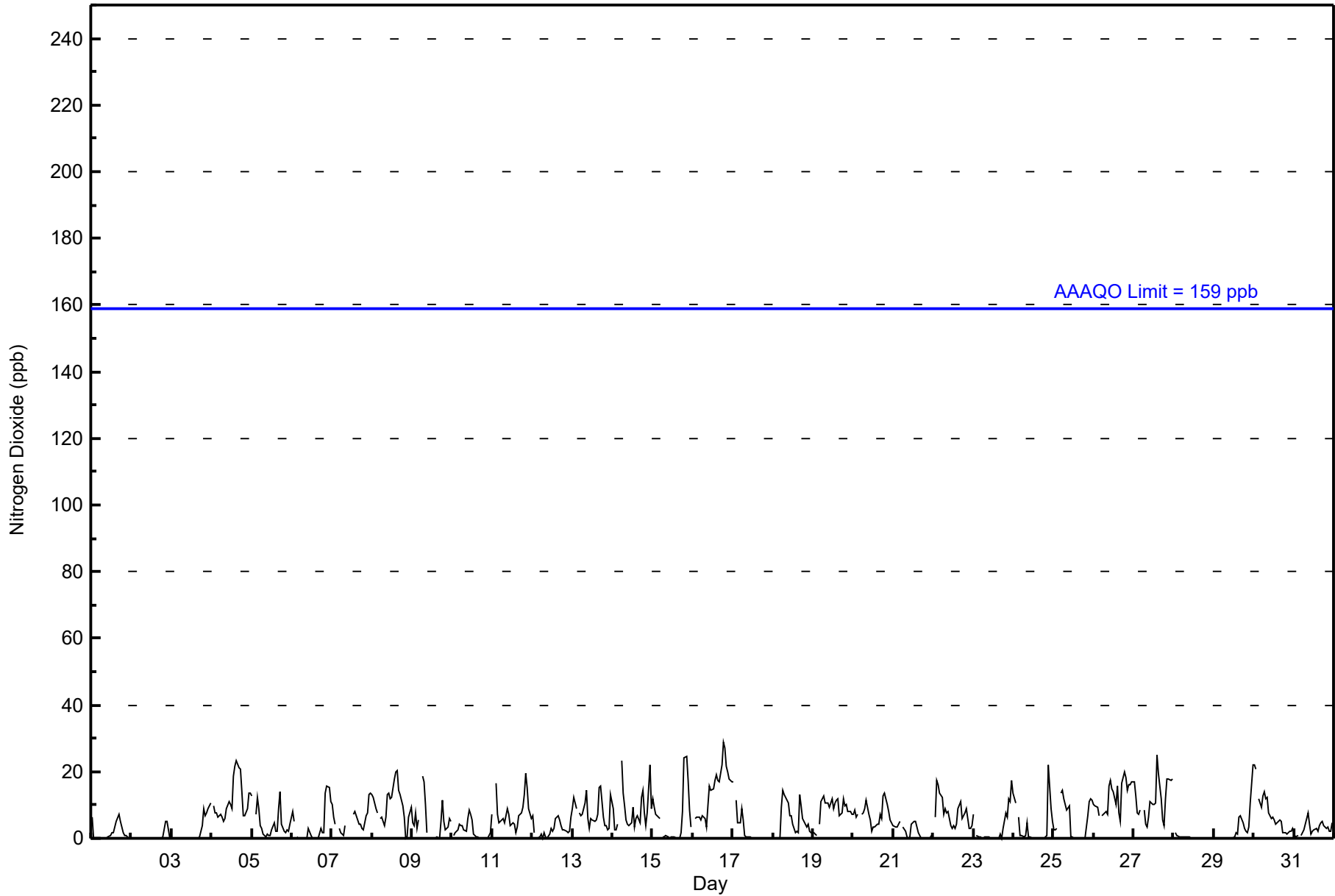
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Fort McKay South - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 28.8 ppb on Oct 16 19:00		Maximum Daily Average: 14.2 ppb on Oct 16																	Hours of Data: 708																														
Minimum Value: 0.0 ppb on Oct 1 02:00		Minimum Daily Average: 0.3 ppb on Oct 28																	Hours of Missing Data: 36																														
Maximum Diurnal Average: 7.8 ppb at hour 1		Minimum Diurnal Average: 4.2 ppb at hour 13																	Hours of Calibration: 35																														
Monthly Average: 5.66 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.5 Median = 4.3 Q <sub>3</sub> = 8.8 P <sub>90</sub> = 13.7 P <sub>99</sub> = 22.1																	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-Oct	6.2	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.5	0.7	1.7	1.8	3.4	5.1	7.1	5.1	3.3	1.8	0.8	0.8	0.0	0.0	1.7	7.1																							
2-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.2	5.1	2.5	0.1	0.6	5.2																							
3-Oct	0.0	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	0.0	0.0	0.6	3.7	8.7	6.7	7.6	9.1	10.6	2.0	10.6																							
4-Oct	Z	9.6	7.7	7.8	6.5	7.0	6.2	4.9	6.0	8.8	11.1	10.1	8.8	18.8	21.6	23.3	21.2	20.6	14.0	6.8	6.7	8.8	13.7	13.5	11.5	23.3																							
5-Oct	12.8	Z	7.0	12.1	8.9	3.9	3.0	1.2	0.4	1.4	0.7	1.0	2.4	4.8	2.1	2.0	8.7	14.0	4.3	2.0	1.7	2.7	2.3	4.4	4.5	14.0																							
6-Oct	8.0	5.2	Z	0.4	0.2	0.0	0.0	0.1	0.1	0.2	2.8	1.0	0.0	0.0	0.0	0.0	0.0	3.1	1.6	1.6	13.6	15.7	15.3	11.2	3.5	15.7																							
7-Oct	10.3	6.3	4.4	Z	3.1	1.7	1.3	1.0	3.9	C	C	C	C	7.4	8.1	5.5	4.2	4.4	3.0	2.4	6.9	7.7	13.0	13.7	5.7	13.7																							
8-Oct	13.2	12.4	9.1	7.7	Z	5.9	6.2	3.7	6.2	13.1	13.4	11.8	12.3	17.6	20.1	20.4	14.3	13.0	9.6	6.4	0.2	0.3	6.2	9.3	10.1	20.4																							
9-Oct	4.6	3.8	7.5	3.0	5.4	Z	18.7	17.1	10.1	1.7	M	0.0	0.0	0.0	0.0	0.4	0.0	5.1	11.6	5.1	2.4	3.5	5.9	4.9	5.0	18.7																							
10-Oct	Z	0.9	1.5	2.5	4.1	3.9	4.0	2.5	2.3	5.9	8.4	7.3	5.5	1.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.6	2.3	8.4																							
11-Oct	7.4	Z	16.7	7.4	4.5	5.1	5.8	4.6	6.9	9.1	7.2	3.7	4.7	4.2	1.7	3.3	6.6	7.8	9.2	13.2	19.6	15.2	8.9	6.0	7.8	19.6																							
12-Oct	6.9	1.9	Z	0.0	0.4	1.1	0.2	1.6	0.5	0.1	1.2	2.9	2.1	3.1	5.8	6.8	5.3	3.9	2.7	2.4	2.1	1.8	2.1	6.2	2.7	6.9																							
13-Oct	8.9	12.4	8.8	Z	7.6	6.9	7.0	10.4	14.4	5.9	3.0	6.0	5.3	5.2	5.3	7.2	15.3	15.6	6.5	3.9	3.9	2.4	2.8	13.0	7.7	15.6																							
14-Oct	8.8	2.4	2.4	4.4	Z	23.3	13.5	9.6	5.3	4.1	3.8	4.7	9.2	3.2	5.8	6.6	4.8	12.3	14.4	7.5	3.7	7.8	22.0	8.9	8.2	23.3																							
15-Oct	11.8	9.3	7.1	6.5	5.9	Z	0.3	0.4	0.7	0.3	0.2	0.3	0.6	0.5	0.0	0.0	0.0	1.9	7.9	24.3	24.5	17.4	8.6	3.3	5.7	24.5																							
16-Oct	Z	5.8	6.2	6.2	6.5	5.6	6.7	5.8	3.6	9.9	15.7	14.3	15.0	17.2	18.9	17.2	16.9	21.9	28.8	27.3	21.7	19.9	17.8	16.9	14.2	28.8																							
17-Oct	17.1	Z	11.4	4.8	4.7	8.7	5.4	1.0	0.6	0.5	0.3	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	2.4	17.1																							
18-Oct	0.0	0.0	Z	0.1	0.0	9.5	14.3	13.0	11.5	10.8	6.8	6.6	4.2	1.7	2.2	1.7	13.1	9.6	6.0	4.3	3.3	4.3	2.2	1.9	5.5	14.3																							
19-Oct	1.6	1.2	0.7	Z	4.1	11.0	12.9	10.6	10.5	10.4	9.4	11.7	8.9	10.7	11.6	11.9	6.9	7.5	11.8	9.7	10.0	8.2	8.1	7.3	8.6	12.9																							
20-Oct	7.2	8.5	6.3	7.0	Z	7.1	7.8	8.9	11.3	7.2	5.7	2.3	3.4	3.6	4.4	4.4	7.4	5.9	12.8	13.4	10.1	8.1	5.6	4.8	7.1	13.4																							
21-Oct	4.0	3.3	3.2	4.1	5.0	Z	3.4	2.1	0.6	0.2	0.5	4.1	5.0	4.9	3.3	1.7	0.8	0.2	0.1	0.1	0.0	0.1	0.0	1.3	2.1	5.0																							
22-Oct	Z	6.4	17.5	16.3	13.7	12.4	7.4	8.9	7.7	8.1	3.9	3.1	3.7	3.1	4.2	9.0	10.9	5.9	6.8	7.5	8.8	2.9	3.1	3.9	7.6	17.5																							
23-Oct	7.2	Z	0.8	0.3	0.4	0.2	0.2	0.3	0.6	0.3	0.2	0.2	0.1	0.0	0.0	0.1	1.1	0.0	3.0	7.6	6.2	11.7	11.2	17.2	3.0	17.2																							
24-Oct	13.7	10.6	Z	6.5	1.0	0.7	0.4	1.0	4.5	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.9	21.9	9.0	4.9	3.3	21.9																							
25-Oct	2.6	2.6	2.9	Z	13.7	14.3	11.8	10.1	8.5	9.6	0.4	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	6.8	11.2	11.9	11.5	5.2	14.3																							
26-Oct	10.2	9.9	9.4	6.8	Z	6.9	7.4	7.9	7.1	15.8	17.2	15.0	13.9	10.3	15.7	7.7	4.9	16.7	20.1	18.3	14.2	16.1	16.1	16.8	12.4	20.1																							
27-Oct	16.8	12.7	7.6	7.0	8.3	Z	8.6	4.4	3.3	6.2	11.1	10.0	10.0	10.5	25.1	19.7	11.7	5.3	3.9	11.9	17.7	17.8	17.4	17.7	11.5	25.1																							
28-Oct	Z	1.6	1.0	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	1.6																							
29-Oct	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.4	1.5	1.4	6.3	6.8	4.5	3.0	2.0	1.7	3.6	10.7	22.1	2.8	22.1																							
30-Oct	21.9	20.9	Z	11.8	9.4	12.8	13.8	11.9	12.2	7.5	5.8	6.5	5.3	4.3	4.7	5.3	5.0	1.5	1.8	1.9	1.3	2.1	2.2	2.9	7.5	21.9																							
31-Oct	1.4	0.6	0.7	Z	1.0	1.6	2.5	4.3	7.5	4.4	1.2	2.0	2.6	2.9	2.3	3.8	4.8	5.1	3.8	2.9	3.4	2.3	2.2	4.6	3.0	7.5																							
																								7.8	5.7	5.4	4.9	4.4	5.8	5.5	4.8	4.7	4.7	4.5	4.2	4.2	4.5	5.4	5.5	5.7	6.2	6.3	6.3	6.6	7.3	7.4	7.8	Diurnal Average	
																								21.9	20.9	17.5	16.3	13.7	23.3	18.7	17.1	14.4	15.8	17.2	15.0	15.0	18.8	25.1	23.3	21.2	21.9	28.8	27.3	24.5	21.9	22.0	22.1	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  
Fort McKay South - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	691	97.60	97.60
21 - 40	17	2.40	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**

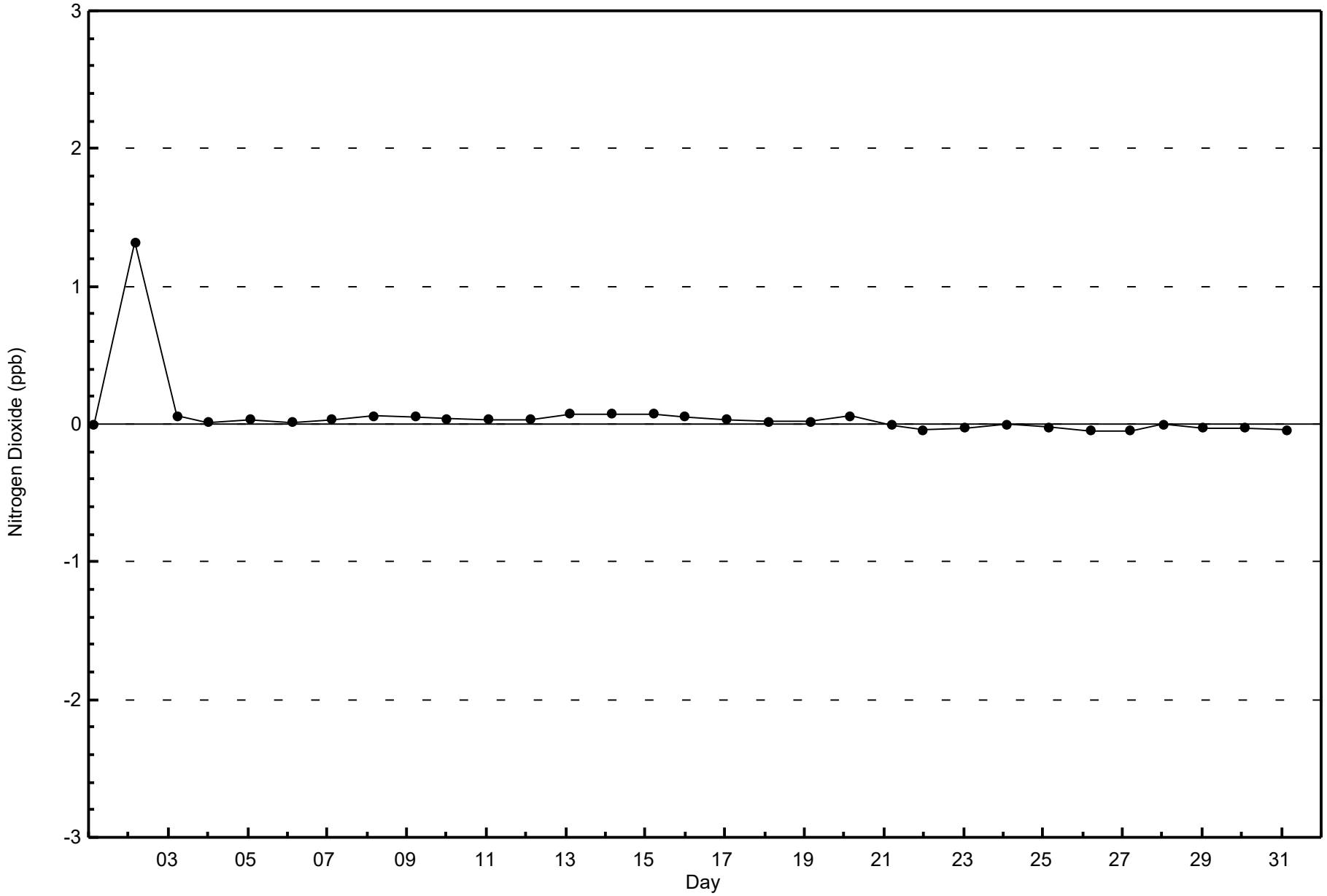
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay South - October 2024**

<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	68	43	17	7	1	7	8	23	81	64	77	93	48	62	49	32	680
21 - 40	10	0	0	0	0	0	0	0	2	1	1	1	0	0	0	2	17
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>	78	43	17	7	1	7	8	23	83	65	78	94	48	62	49	34	697

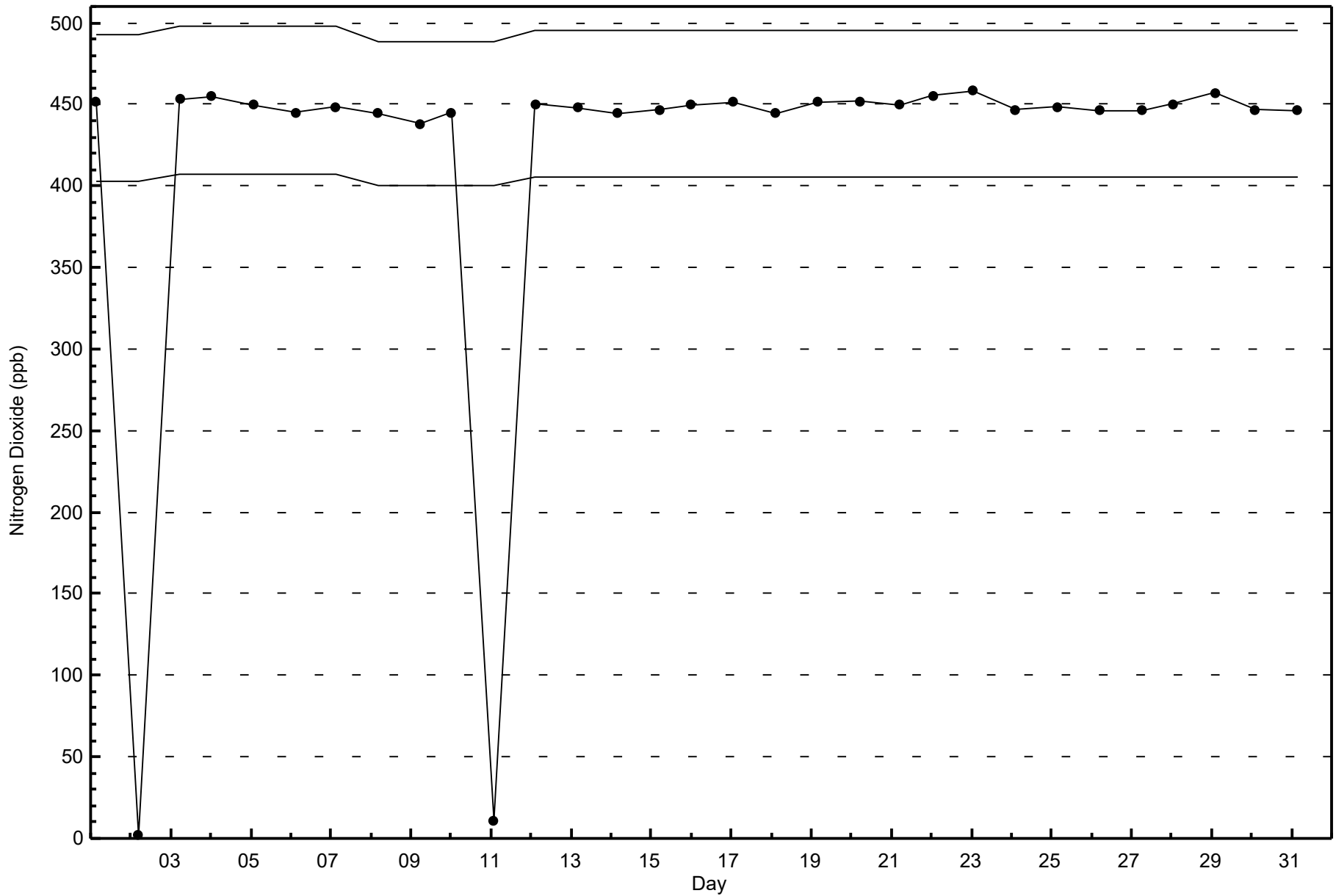
Total Number of Valid Hours: 697

Total Number of Hours: 744











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

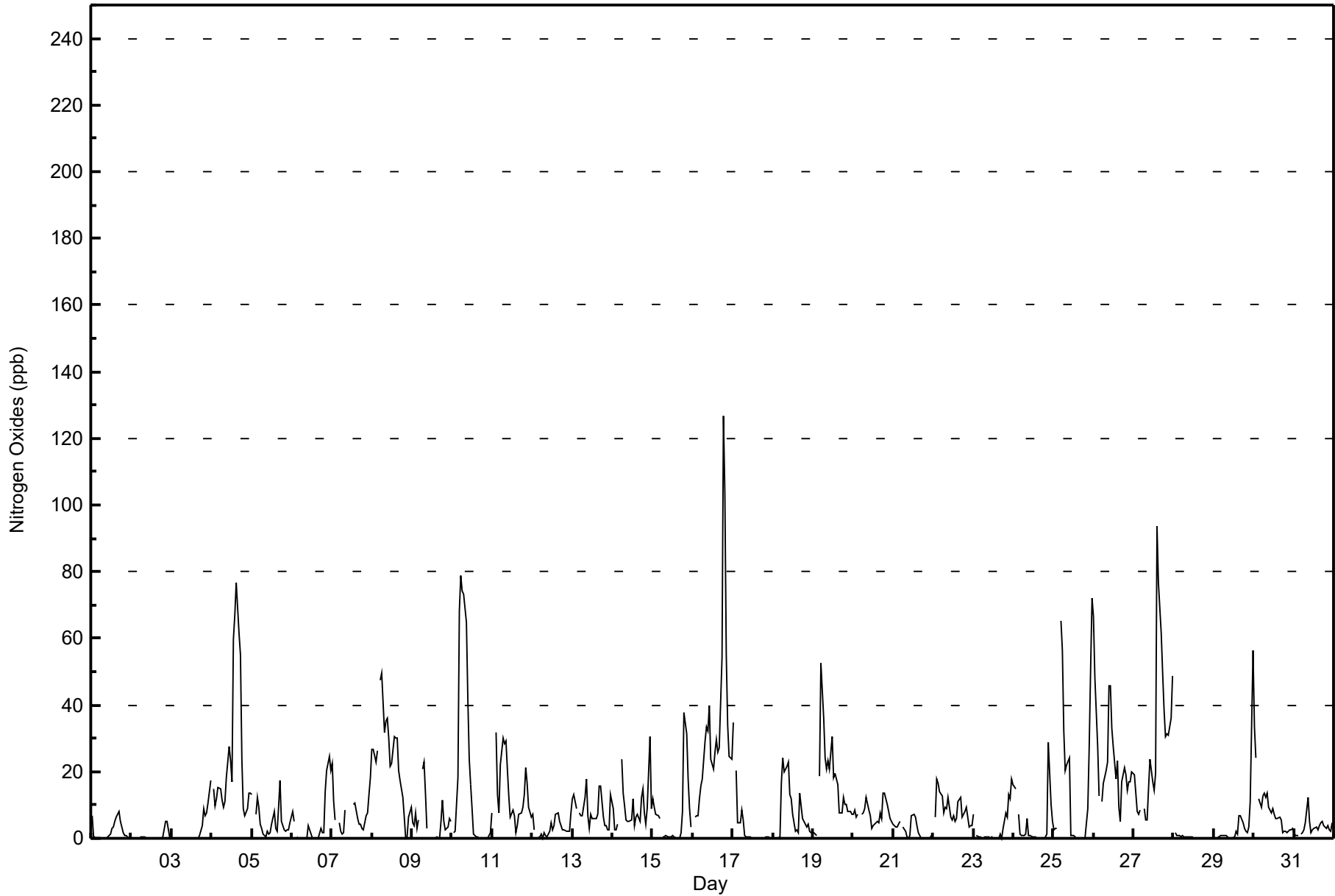
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - October 2024**

Maximum Value: 126.8 ppb on Oct 16 19:00      Maximum Daily Average: 33.7 ppb on Oct 16 Minimum Value: 0.0 ppb on Oct 1 05:00      Minimum Daily Average: 0.3 ppb on Oct 28 Maximum Diurnal Average: 15.4 ppb at hour 6      Minimum Diurnal Average: 6.7 ppb at hour 13 Monthly Average: 10.13 ppb      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.6 Median = 5.1 Q <sub>3</sub> = 12.7 P <sub>90</sub> = 26.2 P <sub>99</sub> = 73.0																								Hours in Service:	744	
																								Hours of Data:	708	
																								Hours of Missing Data:	36	
																								Hours of Calibration:	35	
																								Percent Operational Time:	99.9	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	6.8	0.3	0.3	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.6	1.2	3.1	3.2	5.0	6.5	8.1	5.1	3.3	1.8	0.8	0.9	0.0	0.0	2.1	8.1
2-Oct	0.0	0.0	0.0	0.0	Z	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	0.6	5.2	5.1	2.5	0.1	0.6	5.2
3-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.7	8.7	6.7	7.6	10.8	17.5	2.4	17.5
4-Oct	Z	15.0	9.6	11.7	15.2	15.0	11.3	9.2	11.2	18.4	27.7	23.1	16.9	59.8	67.0	76.9	61.2	55.2	23.7	8.7	6.7	8.8	13.7	13.6	25.2	76.9
5-Oct	13.0	Z	7.1	12.3	9.1	4.2	3.2	1.4	0.6	2.1	1.1	1.8	4.4	8.1	3.0	2.1	9.4	17.2	4.9	2.4	2.1	2.7	2.4	4.5	5.2	17.2
6-Oct	8.0	5.2	Z	0.4	0.2	0.0	0.0	0.1	0.1	0.2	3.9	1.2	0.0	0.0	0.0	0.0	0.0	3.1	1.6	1.6	14.0	20.3	24.7	20.4	4.6	24.7
7-Oct	22.4	11.1	5.6	Z	4.5	2.3	1.4	1.7	8.4	C	C	C	C	10.3	10.6	5.9	4.2	4.4	3.0	2.4	6.9	7.7	13.1	18.2	7.6	22.4
8-Oct	26.5	26.5	22.8	26.1	Z	47.6	49.7	31.9	35.0	36.0	30.1	21.7	22.3	30.6	30.0	30.1	20.3	17.2	12.1	6.6	0.2	0.3	6.2	9.3	23.4	49.7
9-Oct	4.6	3.8	7.5	3.0	5.4	Z	20.6	22.9	13.8	3.0	M	0.0	0.0	0.0	0.0	0.4	0.0	5.1	11.6	5.1	2.4	3.5	5.9	5.1	5.6	22.9
10-Oct	Z	1.5	2.3	18.3	68.3	78.6	74.3	73.1	64.9	42.0	23.6	16.1	8.7	1.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.6	20.7	78.6
11-Oct	7.5	Z	31.8	13.0	7.7	21.9	30.2	28.4	29.2	21.0	12.7	6.5	8.4	6.7	1.8	3.8	7.1	7.8	9.2	13.2	21.3	16.4	9.2	6.5	14.0	31.8
12-Oct	7.4	2.4	Z	0.0	0.4	1.3	0.2	1.8	0.6	0.2	2.0	4.6	2.5	3.6	7.3	7.8	5.3	3.9	2.7	2.4	2.1	1.9	2.2	7.4	3.0	7.8
13-Oct	11.9	13.1	8.9	Z	7.6	6.9	7.0	12.2	17.8	6.6	3.2	7.4	6.0	5.9	5.7	7.2	15.6	15.6	6.5	3.9	3.9	2.4	2.8	13.0	8.3	17.8
14-Oct	8.8	2.4	2.4	4.4	Z	23.6	13.5	9.9	5.6	5.0	4.9	5.6	11.7	3.6	6.5	7.0	4.9	12.5	14.6	7.8	4.1	8.7	30.3	8.9	9.0	30.3
15-Oct	11.8	9.3	7.2	6.7	6.1	Z	0.3	0.4	0.8	0.4	0.4	0.4	0.8	0.5	0.0	0.0	0.0	1.9	8.3	37.8	31.3	17.7	8.8	3.3	6.7	37.8
16-Oct	Z	6.5	6.7	6.8	12.0	15.8	17.8	29.2	33.6	32.4	40.0	23.9	20.6	26.0	29.6	25.8	27.2	54.1	126.8	104.0	54.9	33.8	24.5	23.7	33.7	126.8
17-Oct	34.7	Z	20.4	4.8	4.7	8.7	5.4	1.0	0.6	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.1	3.6	34.7
18-Oct	0.0	0.0	Z	0.3	0.2	16.6	24.2	20.1	21.8	22.8	13.2	11.8	7.0	2.3	2.6	1.7	13.7	9.6	6.0	4.3	3.3	4.3	2.2	1.9	8.3	24.2
19-Oct	1.7	1.3	0.8	Z	18.8	52.5	36.0	24.0	20.9	23.2	20.9	30.4	18.4	19.5	17.6	16.1	7.7	7.8	12.4	10.0	10.2	8.2	8.1	7.3	16.2	52.5
20-Oct	7.2	8.6	6.4	7.0	Z	7.1	7.8	9.0	12.3	8.4	7.0	2.8	4.0	4.2	5.1	4.6	7.6	6.1	13.5	13.5	10.1	8.1	5.7	4.9	7.4	13.5
21-Oct	4.1	3.5	3.4	4.3	5.1	Z	3.4	2.2	0.6	0.2	0.7	6.9	7.4	6.4	3.8	1.7	0.8	0.2	0.1	0.2	0.1	0.1	0.0	1.3	2.5	7.4
22-Oct	Z	6.5	17.8	16.7	13.9	12.6	7.6	9.3	9.0	12.2	6.5	5.5	6.7	5.1	5.8	11.0	12.1	6.2	7.1	7.9	9.3	3.3	3.6	4.0	8.7	17.8
23-Oct	7.2	Z	0.8	0.3	0.4	0.2	0.2	0.3	0.6	0.3	0.2	0.2	0.1	0.0	0.0	0.1	1.1	0.0	3.0	7.6	6.2	13.1	12.1	17.8	3.1	17.8
24-Oct	16.2	14.9	Z	7.2	1.2	0.9	0.7	1.2	6.0	0.7	0.7	0.6	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.6	1.5	28.7	10.1	5.1	4.2	28.7
25-Oct	2.7	2.9	3.1	Z	65.3	56.5	32.3	20.3	22.0	24.1	0.8	0.8	0.7	0.5	0.1	0.0	0.0	0.0	0.0	0.0	8.7	27.7	50.9	71.9	17.0	71.9
26-Oct	66.7	48.1	27.3	12.7	Z	10.9	16.4	20.2	22.8	45.6	45.7	33.0	27.4	17.9	23.3	9.4	4.9	17.1	21.3	19.0	14.4	16.9	17.0	19.9	24.3	66.7
27-Oct	18.9	13.4	7.9	7.2	8.6	Z	9.1	5.3	5.5	15.0	23.6	17.1	14.4	19.6	93.7	76.8	61.4	49.4	38.6	30.6	31.5	30.9	35.8	48.7	28.8	93.7
28-Oct	Z	1.6	1.0	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	1.6
29-Oct	0.0	Z	0.3	0.4	0.8	0.9	0.9	0.8	0.5	0.1	0.0	0.0	0.4	1.9	1.4	6.7	6.8	4.5	3.0	2.0	1.7	3.6	11.2	56.3	4.5	56.3
30-Oct	33.6	24.3	Z	11.8	9.4	12.8	13.8	12.4	13.8	9.1	7.7	8.8	7.0	5.9	5.9	6.3	5.5	1.9	2.2	2.3	1.6	2.4	2.5	3.2	8.9	33.6
31-Oct	1.6	0.7	0.7	Z	1.2	1.8	2.7	4.7	12.3	5.3	1.7	2.5	3.0	3.3	2.4	3.9	4.8	5.2	4.0	3.1	3.6	2.4	2.3	4.7	3.4	12.3
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay South - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	602	85.03	85.03
21 - 40	74	10.45	95.48
41 - 80	29	4.10	99.58
81 - 159	3	0.42	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  
Fort McKay South - October 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	37	16	6	0	5	7	19	75	52	68	88	44	58	42	23	597
21 - 40	11	5	1	1	1	2	1	4	8	8	6	4	4	3	4	7	70
11 - 80	8	1	0	0	0	0	0	0	0	5	4	2	0	1	3	3	27
81 - 159	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>78</b>	<b>43</b>	<b>17</b>	<b>7</b>	<b>1</b>	<b>7</b>	<b>8</b>	<b>23</b>	<b>83</b>	<b>65</b>	<b>78</b>	<b>94</b>	<b>48</b>	<b>62</b>	<b>49</b>	<b>34</b>	<b>697</b>

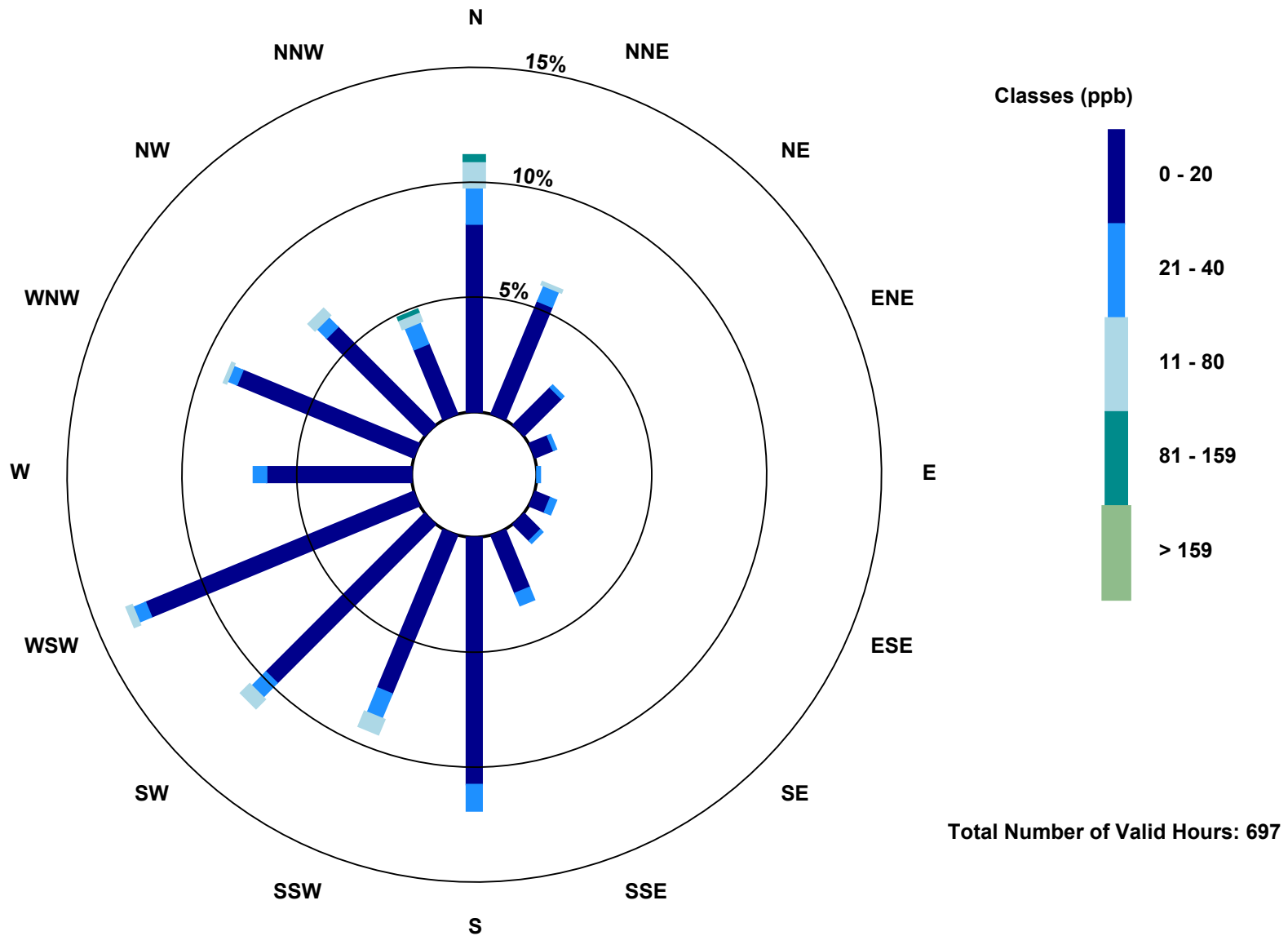
Total Number of Valid Hours: 697

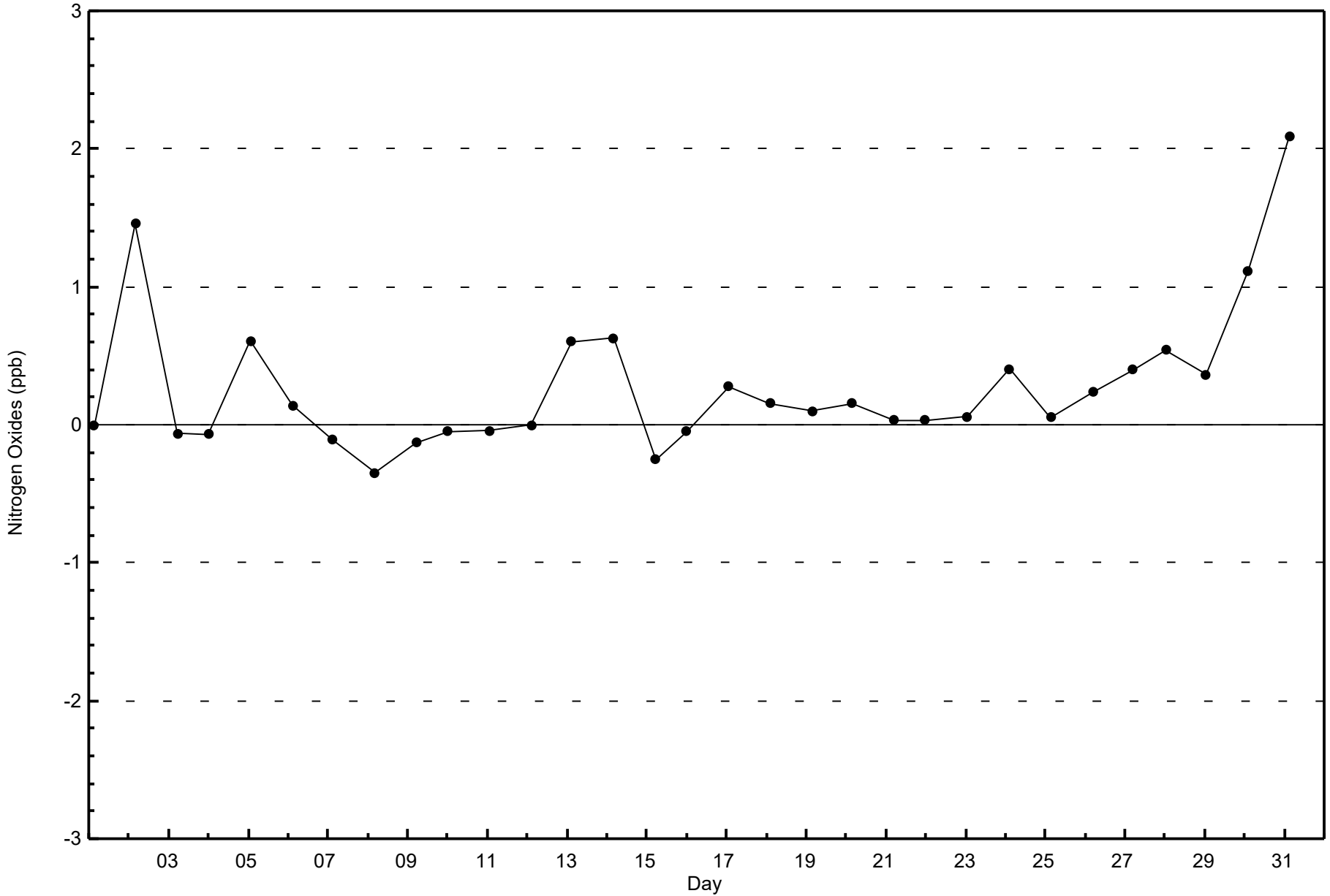
Total Number of Hours: 744

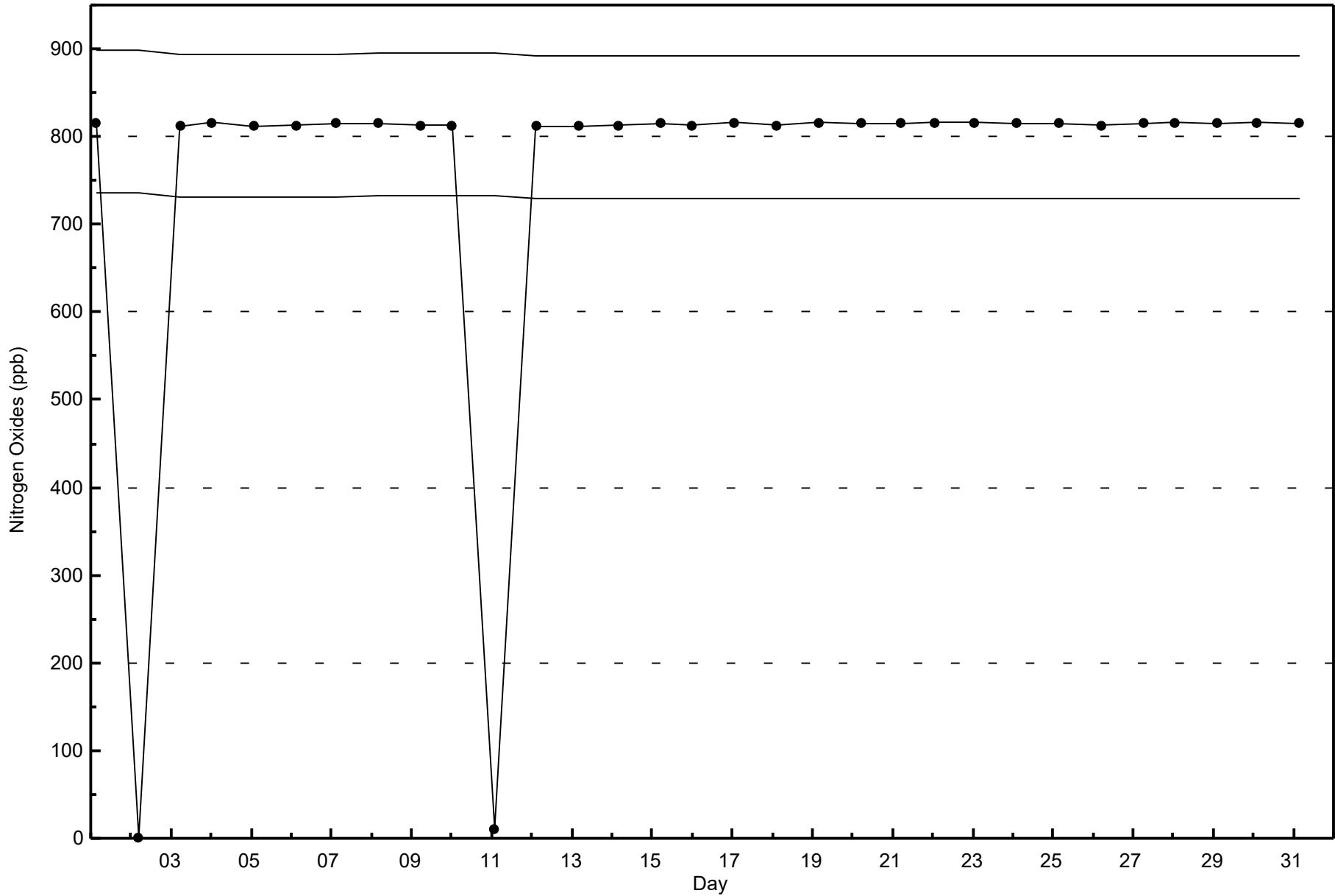


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











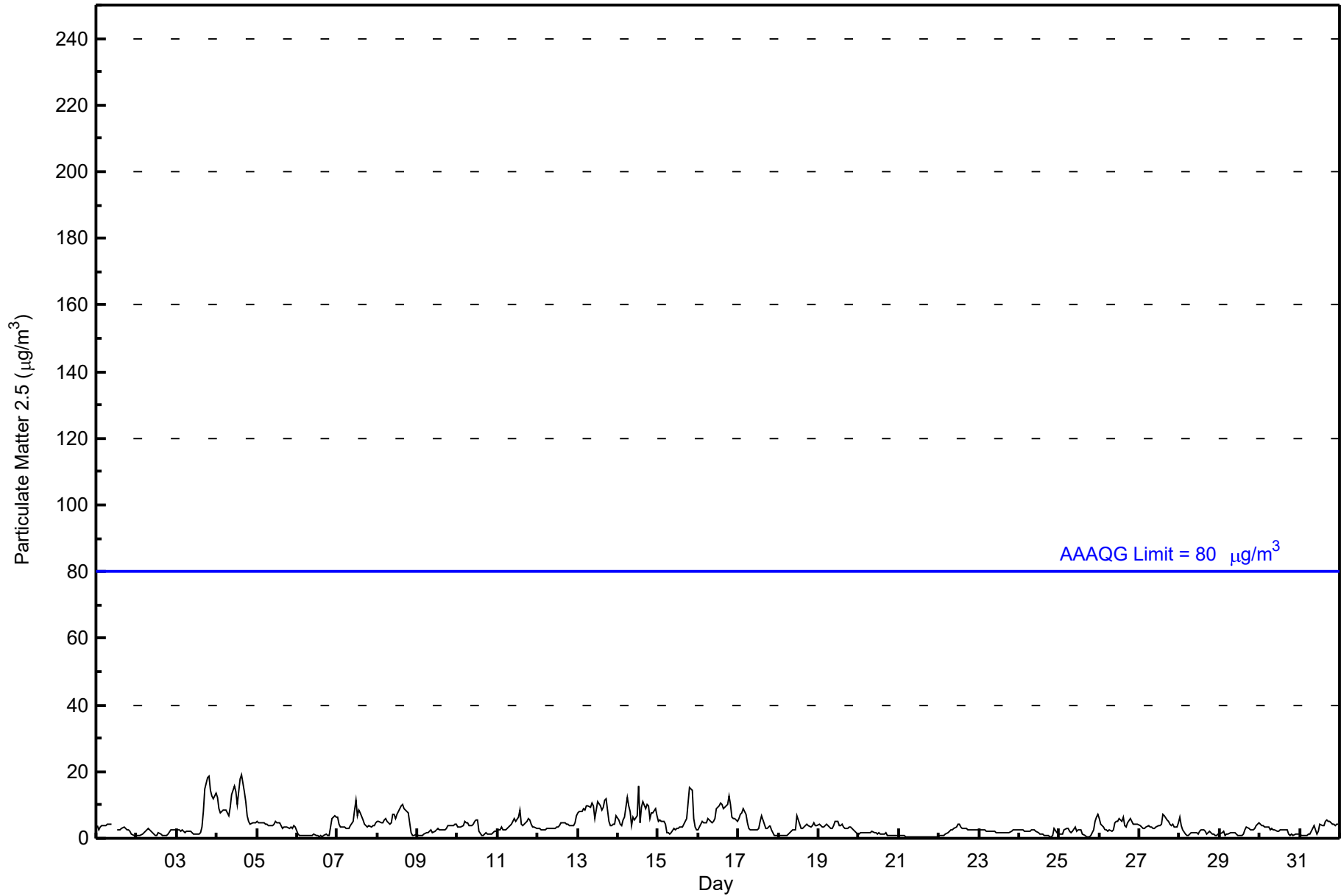
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Fort McKay South - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 19.2 µg/m <sup>3</sup> on Oct 4 16:00		Maximum Daily Average: 9.8 µg/m <sup>3</sup> on Oct 4				Hours of Data:		742																																									
Minimum Value: 0.3 µg/m <sup>3</sup> on Oct 21 21:00		Minimum Daily Average: 0.5 µg/m <sup>3</sup> on Oct 21				Hours of Missing Data:		2																																									
Maximum Diurnal Average: 4.4 µg/m <sup>3</sup> at hour 18		Minimum Diurnal Average: 3.1 µg/m <sup>3</sup> at hour 3				Hours of Calibration:		2																																									
Monthly Average: 3.73 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.7 Median = 3.0 Q <sub>3</sub> = 4.7 P <sub>90</sub> = 7.6 P <sub>99</sub> = 14.8				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-Oct	3.7	2.4	3.4	3.7	3.8	4.0	4.3	4.3	4.3	4.4	C	C	2.7	2.6	2.7	3.0	3.3	2.8	2.6	2.4	2.0	1.3	0.8	0.6	3.0	4.4																							
2-Oct	0.7	0.8	0.9	1.1	1.6	2.1	2.3	2.8	2.7	1.7	1.2	0.9	0.9	1.6	1.1	0.7	0.9	0.9	1.0	1.2	2.4	2.5	2.6	2.6	1.5	2.8																							
3-Oct	2.6	2.4	2.3	2.6	2.1	1.9	2.0	2.1	2.0	1.6	1.4	1.4	1.4	1.2	1.6	3.4	8.3	15.0	18.3	18.5	14.4	12.6	12.0	13.6	6.0	18.5																							
4-Oct	12.2	8.9	7.5	8.0	8.6	8.5	7.4	6.9	9.5	13.0	15.5	13.8	10.3	14.0	17.7	19.2	13.9	11.1	6.9	5.1	4.2	4.5	4.7	4.8	9.8	19.2																							
5-Oct	5.0	4.6	4.5	4.8	4.7	4.3	4.2	3.9	3.6	3.8	4.2	5.1	4.8	4.5	3.6	3.0	3.3	3.5	3.2	3.0	3.3	2.8	3.6	3.5	4.0	5.1																							
6-Oct	1.3	0.9	0.8	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.0	0.6	0.6	0.7	0.6	0.8	1.3	0.8	0.9	3.6	6.0	6.9	6.3	1.7	6.9																							
7-Oct	6.2	4.1	3.2	3.2	3.3	3.0	3.1	3.1	3.8	4.9	8.5	11.3	6.7	8.4	7.6	5.5	4.4	3.8	3.4	3.8	3.5	3.7	3.8	4.8	4.9	11.3																							
8-Oct	5.1	5.0	4.6	4.8	5.5	5.9	4.9	4.1	4.6	7.3	7.1	6.0	7.1	8.9	9.7	10.4	8.8	8.5	7.6	4.8	1.6	1.0	1.1	1.1	5.7	10.4																							
9-Oct	1.0	0.9	1.0	1.0	1.1	1.5	1.9	2.1	2.6	1.9	2.1	2.7	2.8	2.6	2.6	2.5	2.5	3.0	3.8	3.8	3.7	3.8	4.2	4.4	2.5	4.4																							
10-Oct	3.6	3.4	3.3	3.9	4.9	4.7	4.5	3.9	3.9	4.1	5.2	5.7	5.5	2.1	1.0	0.8	1.1	1.7	1.3	1.2	1.4	1.6	2.0	2.2	3.0	5.7																							
11-Oct	2.5	2.7	3.3	2.7	2.6	2.7	3.2	3.7	4.3	5.1	6.0	5.2	6.4	8.5	4.2	3.7	4.4	5.0	5.9	5.4	4.0	3.5	3.2	3.1	4.2	8.5																							
12-Oct	3.1	2.8	2.5	2.6	2.7	2.8	2.8	3.0	2.8	2.8	3.1	3.4	3.5	3.6	4.7	4.8	4.7	4.4	4.0	3.8	3.7	3.7	4.5	6.7	3.6	6.7																							
13-Oct	7.5	7.9	8.0	9.1	8.6	9.7	9.7	9.3	10.7	9.6	5.9	8.3	10.9	9.6	8.3	9.2	11.5	12.0	5.1	3.8	3.9	4.1	4.2	6.6	8.1	12.0																							
14-Oct	5.6	4.3	4.0	5.4	6.2	12.4	9.7	7.9	3.7	6.3	5.7	6.7	15.7	4.8	9.4	11.0	8.9	10.2	9.8	6.0	7.5	7.8	8.7	6.7	7.7	15.7																							
15-Oct	5.3	5.6	5.1	5.0	4.2	1.8	1.5	1.3	1.5	2.9	2.7	2.8	3.1	3.4	3.5	4.4	5.0	5.9	10.6	15.3	14.2	6.0	3.4	2.4	4.9	15.3																							
16-Oct	2.4	4.3	5.0	4.7	4.5	4.9	5.9	5.2	4.5	5.1	5.9	9.1	9.9	10.6	10.1	9.1	9.2	10.4	12.6	10.0	6.4	5.8	5.9	5.0	6.9	12.6																							
17-Oct	5.9	7.3	7.8	8.8	7.0	4.8	3.1	2.7	2.6	2.7	2.6	2.5	3.1	5.3	6.7	4.4	3.1	2.9	3.3	3.6	2.5	0.8	0.8	1.0	4.0	8.8																							
18-Oct	0.8	0.8	0.7	0.7	0.7	0.9	1.2	1.6	2.3	2.4	2.4	7.0	5.3	2.8	3.2	3.6	4.0	4.1	3.8	3.3	3.6	4.6	3.8	4.0	2.8	7.0																							
19-Oct	4.4	3.8	3.2	3.4	3.8	4.4	3.2	2.9	2.9	3.8	5.2	4.9	3.6	4.0	4.1	3.4	2.9	3.0	3.2	3.3	3.1	2.7	1.6	1.2	3.4	5.2																							
20-Oct	1.4	1.9	1.6	1.5	1.7	1.7	1.7	1.8	2.2	1.9	1.9	1.3	1.5	1.3	1.3	1.3	1.7	1.0	1.0	0.9	0.8	0.8	0.6	0.6	1.4	2.2																							
21-Oct	0.7	0.7	0.7	0.7	0.5	0.6	0.5	0.5	0.4	0.3	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.7	0.7																						
22-Oct	0.7	0.7	0.9	0.9	1.2	1.7	2.0	2.6	2.6	2.9	3.3	4.2	4.1	3.5	3.1	3.0	2.8	2.7	2.6	2.5	2.6	2.5	2.6	2.6	2.4	4.2	4.2																						
23-Oct	2.6	2.4	2.3	2.4	2.3	2.2	2.2	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.9	2.3	2.3	2.4	2.7	2.7	2.1	2.7																							
24-Oct	2.6	2.6	2.5	2.3	2.1	2.1	2.3	2.5	2.7	2.4	2.1	1.5	1.2	1.3	1.1	0.8	0.7	0.7	0.6	0.6	0.9	3.1	1.8	1.4	1.7	3.1																							
25-Oct	1.1	1.3	1.4	2.6	3.1	2.8	2.3	1.8	2.3	3.2	2.0	2.6	2.7	2.3	1.4	0.7	0.6	0.6	0.6	0.7	2.4	5.1	6.6	7.4	2.4	7.4																							
26-Oct	5.8	4.4	3.2	2.4	2.4	2.3	2.4	2.3	2.6	4.7	5.2	4.9	6.0	5.3	6.4	4.0	3.6	4.8	5.7	4.9	4.3	4.2	4.3	4.3	4.2	6.4																							
27-Oct	3.9	3.4	3.0	2.9	3.4	3.6	3.6	3.2	3.0	3.1	3.5	3.7	3.8	4.2	7.1	6.9	5.7	4.9	4.3	4.0	4.1	3.3	3.5	4.7	4.0	7.1																							
28-Oct	6.3	3.7	2.5	1.4	0.8	0.9	1.3	1.6	1.8	1.7	1.6	1.4	2.2	2.5	2.6	2.1	1.3	1.8	2.0	1.1	1.1	0.9	0.9	1.1	1.9	6.3																							
29-Oct	1.4	1.5	2.0	0.9	1.2	1.4	1.7	1.9	1.9	1.9	1.3	0.8	0.8	1.1	1.3	2.4	3.3	3.1	2.6	2.5	2.7	3.0	3.7	4.5	2.0	4.5																							
30-Oct	4.3	3.7	3.7	3.6	3.4	3.3	2.7	2.9	2.7	2.7	2.0	2.3	2.4	2.4	2.3	2.5	2.5	1.3	1.1	1.2	0.9	1.1	1.2	1.4	2.4	4.3																							
31-Oct	1.1	0.9	0.8	0.8	1.0	1.1	1.3	2.1	3.6	2.5	1.3	2.2	4.2	3.9	3.6	4.9	5.4	5.3	5.1	4.4	4.3	3.9	4.3	4.2	3.0	5.4																							
																								3.6	3.2	3.1	3.2	3.2	3.4	3.2	3.1	3.3	3.7	3.7	4.2	4.4	4.2	4.4	4.3	4.2	4.4	4.4	4.0	3.7	3.5	3.6	3.7	Diurnal Average	
																								12.2	8.9	8.0	9.1	8.6	12.4	9.7	9.3	10.7	13.0	15.5	13.8	15.7	14.0	17.7	19.2	13.9	15.0	18.3	18.5	14.4	12.6	12.0	13.6	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>) -  $\mu\text{g}/\text{m}^3$**   
**Fort McKay South - October 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	613	82.61	82.61
6 - 15	123	16.58	99.19
16 - 25	6	0.81	100.00
26 - 80	0	0.00	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 - October 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	69	38	15	6	0	4	6	6	55	60	64	90	47	62	49	30	601
6 - 15	12	3	2	1	0	3	2	19	31	7	17	9	5	2	2	6	121
16 - 25	2	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	6
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>	<b>83</b>	<b>41</b>	<b>17</b>	<b>7</b>	<b>1</b>	<b>7</b>	<b>8</b>	<b>25</b>	<b>87</b>	<b>68</b>	<b>82</b>	<b>99</b>	<b>52</b>	<b>64</b>	<b>51</b>	<b>36</b>	<b>728</b>

Total Number of Valid Hours: 728

Total Number of Hours: 744

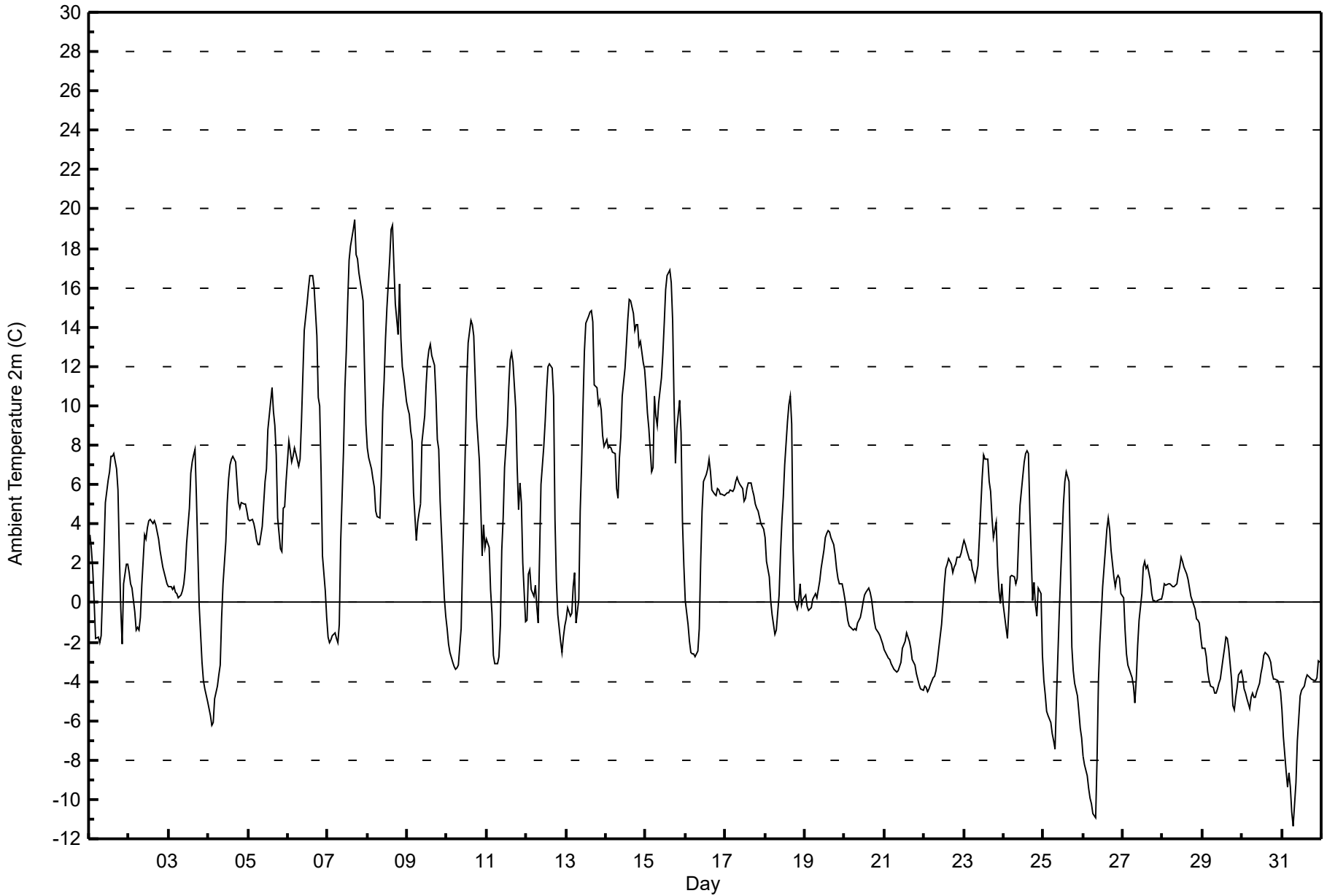




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Fort McKay South - October 2024**

Maximum Value: 19.5 C on Oct 7 17:00		Maximum Daily Average: 11.2 C on Oct 8		Hours in Service: 744																						
Minimum Value: -11.3 C on Oct 31 08:00		Minimum Daily Average: -5.9 C on Oct 31		Hours of Data: 744																						
Maximum Diurnal Average: 7.7 C at hour 15		Minimum Diurnal Average: -0.9 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: 2.76 C		Percentiles: P <sub>1</sub> = -9.3 P <sub>10</sub> = -4.1 Q <sub>1</sub> = -1.7 Median = 1.8 Q <sub>3</sub> = 6.6 P <sub>90</sub> = 11.4 P <sub>99</sub> = 17.4		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-Oct	3.5	2.7	1.7	0.0	-1.8	-1.8	-2.0	-1.7	0.5	2.7	5.1	6.2	6.6	7.4	7.5	7.6	6.8	5.7	2.4	-0.3	-2.1	1.0	1.9	1.9	2.6	7.6
2-Oct	1.5	0.9	0.7	-0.5	-1.4	-1.3	-1.4	-0.7	0.9	3.5	3.3	3.8	4.2	4.3	4.0	4.2	4.0	3.6	3.2	2.7	1.8	1.6	1.2	0.9	1.9	4.3
3-Oct	0.8	0.8	0.7	0.8	0.6	0.5	0.2	0.4	0.6	0.9	1.7	3.0	4.8	6.6	7.2	7.5	7.8	5.4	-0.2	-1.6	-3.0	-4.0	-4.4	-5.0	1.3	7.8
4-Oct	-5.4	-5.8	-6.2	-6.1	-4.9	-4.2	-3.7	-3.2	-0.8	0.9	3.1	5.1	6.3	7.0	7.3	7.5	7.1	6.1	5.1	4.8	5.1	5.0	5.0	4.6	1.7	7.5
5-Oct	4.3	4.2	4.2	4.0	3.7	3.2	2.9	3.0	3.8	5.0	6.2	6.8	8.8	10.2	10.9	9.7	9.0	7.5	4.3	2.8	2.6	4.8	4.9	6.2	5.5	10.9
6-Oct	8.2	7.8	7.2	7.5	7.9	7.6	6.9	7.3	9.2	11.6	13.9	15.2	16.0	16.6	16.6	16.1	13.6	10.5	10.0	6.7	2.4	0.6	-0.8	9.8	16.6	
7-Oct	-1.7	-2.0	-1.9	-1.7	-1.6	-1.9	-2.0	-1.1	3.1	7.7	10.9	12.7	15.3	17.4	18.1	18.9	19.5	17.7	17.5	16.8	15.8	15.3	12.0	9.1	8.9	19.5
8-Oct	7.8	7.4	6.8	6.3	5.9	4.7	4.3	4.3	6.4	9.7	11.3	13.4	15.0	17.5	19.0	19.2	17.1	15.2	13.6	16.2	13.4	12.0	11.5	10.2	11.2	19.2
9-Oct	9.9	9.6	8.7	8.2	5.6	3.2	4.1	4.6	5.0	8.1	9.5	11.1	12.3	12.9	13.1	12.5	12.1	10.5	8.3	7.8	5.2	1.8	0.2	-0.7	7.6	13.1
10-Oct	-1.3	-2.1	-2.5	-3.0	-3.2	-3.4	-3.3	-3.2	-1.4	2.0	4.7	8.0	11.3	13.2	14.3	14.1	13.5	11.5	9.4	7.2	4.9	2.4	3.9	2.8	4.2	14.3
11-Oct	3.2	2.8	0.7	-0.5	-2.7	-3.1	-3.1	-2.7	-1.1	2.7	4.3	6.9	9.0	11.0	12.4	12.7	12.2	9.8	6.9	4.7	6.1	5.1	2.1	-1.0	4.1	12.7
12-Oct	-0.9	1.5	1.7	0.7	0.3	0.9	-0.2	-1.1	2.5	6.0	7.9	9.2	10.8	12.0	12.1	11.9	10.5	4.2	1.1	-0.6	-2.0	-2.5	-1.8	-1.2	3.5	12.1
13-Oct	-0.8	-0.2	-0.7	-0.5	0.8	1.6	-1.0	0.1	4.6	7.0	10.0	12.8	14.2	14.6	14.8	14.8	14.3	11.1	10.9	10.1	10.3	9.8	8.5	7.9	7.3	14.8
14-Oct	8.3	7.9	7.9	7.9	7.6	7.6	5.8	5.3	7.4	8.4	10.5	11.9	13.1	14.4	15.4	15.4	14.7	13.8	14.1	14.1	13.0	13.2	12.2	11.9	10.9	15.4
15-Oct	10.8	9.6	8.9	6.6	6.9	10.5	9.5	9.0	10.1	11.4	12.6	14.2	15.9	16.6	16.9	16.3	14.3	10.2	7.1	8.9	10.2	8.7	4.1	1.9	10.5	16.9
16-Oct	0.1	-1.1	-2.0	-2.5	-2.6	-2.6	-2.7	-2.5	-1.3	2.0	4.7	6.1	6.5	6.8	7.3	6.6	5.7	5.5	5.4	5.8	5.7	5.5	5.5	5.5	2.8	7.3
17-Oct	5.5	5.6	5.6	5.7	5.7	5.8	6.2	6.4	6.2	6.0	5.8	5.2	5.3	5.8	6.1	6.1	5.7	5.5	5.0	4.8	4.7	4.0	3.9	3.7	5.4	6.4
18-Oct	3.3	2.1	1.3	0.1	-0.6	-1.1	-1.6	-1.4	0.4	2.6	4.1	5.4	7.0	9.2	10.1	10.5	9.1	2.7	0.2	-0.3	0.0	1.0	-0.1	0.2	2.7	10.5
19-Oct	0.4	-0.1	-0.4	-0.3	-0.3	0.2	0.5	0.2	0.7	1.1	1.7	2.6	3.3	3.5	3.7	3.6	3.3	3.0	2.5	1.8	1.2	1.0	0.9	0.6	1.4	3.7
20-Oct	0.2	-0.4	-0.9	-1.2	-1.3	-1.4	-1.4	-1.4	-1.0	-0.7	-0.4	0.0	0.4	0.5	0.7	0.5	0.2	-0.4	-1.0	-1.3	-1.5	-1.7	-1.9	-2.1	-0.7	0.7
21-Oct	-2.4	-2.7	-2.8	-2.9	-3.1	-3.3	-3.4	-3.5	-3.4	-3.2	-3.0	-2.3	-1.9	-1.5	-1.7	-1.9	-2.3	-2.9	-3.2	-3.6	-3.9	-4.2	-4.4	-4.5	-3.0	-1.5
22-Oct	-4.3	-4.3	-4.5	-4.4	-4.1	-3.8	-3.7	-3.5	-2.9	-2.3	-1.1	-0.1	1.0	1.8	2.0	2.2	1.9	1.5	1.8	1.9	2.3	2.3	2.5	2.9	-0.6	2.9
23-Oct	3.2	3.0	2.7	2.1	2.2	1.7	1.4	1.1	1.9	3.3	4.9	6.4	7.5	7.3	7.3	6.1	5.6	4.3	3.3	4.1	1.9	0.6	-0.1	1.0	3.4	7.5
24-Oct	-0.1	-1.2	-1.8	-0.4	1.3	1.4	1.3	0.9	1.2	3.2	4.9	6.4	7.1	7.5	7.7	7.6	4.7	0.1	1.1	-0.1	-0.7	0.7	0.5	-2.7	2.1	7.7
25-Oct	-4.0	-4.7	-5.5	-5.7	-6.1	-6.7	-7.0	-7.5	-5.0	-0.6	1.4	3.2	5.0	6.2	6.7	6.1	2.1	-2.2	-3.4	-4.1	-4.7	-5.5	-6.4	-6.9	-2.3	6.7
26-Oct	-7.8	-8.2	-8.8	-9.4	-9.9	-10.3	-10.7	-10.9	-7.9	-4.0	-2.0	-0.6	0.8	2.7	3.7	4.3	3.7	2.7	1.3	0.8	1.2	1.4	1.2	0.4	-2.8	4.3
27-Oct	0.2	-1.4	-2.6	-3.2	-3.4	-3.8	-4.3	-5.1	-3.9	-2.2	-0.9	0.4	1.8	2.1	1.7	1.9	1.1	0.4	0.1	0.1	0.1	0.1	0.2	0.2	-0.8	2.1
28-Oct	0.5	0.9	0.9	1.0	0.9	0.9	0.8	0.8	1.0	1.4	1.8	2.3	2.1	1.8	1.4	1.2	0.8	0.3	0.1	-0.3	-0.9	-0.9	-1.0	-1.8	0.7	2.3
29-Oct	-2.4	-2.3	-2.7	-3.5	-4.0	-4.2	-4.3	-4.6	-4.6	-4.4	-4.1	-3.9	-2.8	-2.3	-1.8	-1.8	-2.3	-3.9	-5.2	-5.4	-4.8	-4.3	-3.7	-3.5	-3.6	-1.8
30-Oct	-3.8	-4.4	-4.6	-4.9	-5.3	-4.8	-4.6	-4.8	-4.8	-4.5	-4.1	-3.6	-3.2	-2.7	-2.5	-2.7	-2.8	-3.1	-3.6	-3.9	-3.9	-3.9	-4.2	-4.5	-4.0	-2.5
31-Oct	-5.4	-6.8	-8.6	-9.3	-8.6	-9.3	-10.7	-11.3	-9.1	-7.0	-5.9	-4.7	-4.4	-4.2	-3.9	-3.6	-3.7	-3.8	-3.9	-4.0	-3.9	-3.8	-2.9	-3.0	-5.9	-2.9
	1.0	0.6	0.1	-0.3	-0.5	-0.6	-0.9	-0.9	0.6	2.5	4.0	5.3	6.4	7.3	7.7	7.6	6.8	5.0	3.7	3.2	2.6	2.2	1.7	1.1		Diurnal Average
	10.8	9.6	8.9	8.2	7.9	10.5	9.5	9.0	10.1	11.6	13.9	15.2	16.0	17.5	19.0	19.2	19.5	17.7	17.5	16.8	15.8	15.3	12.2	11.9		Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C  
Fort McKay South - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	260	34.95	34.95
0 - 10	384	51.61	86.56
10 - 20	100	13.44	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**

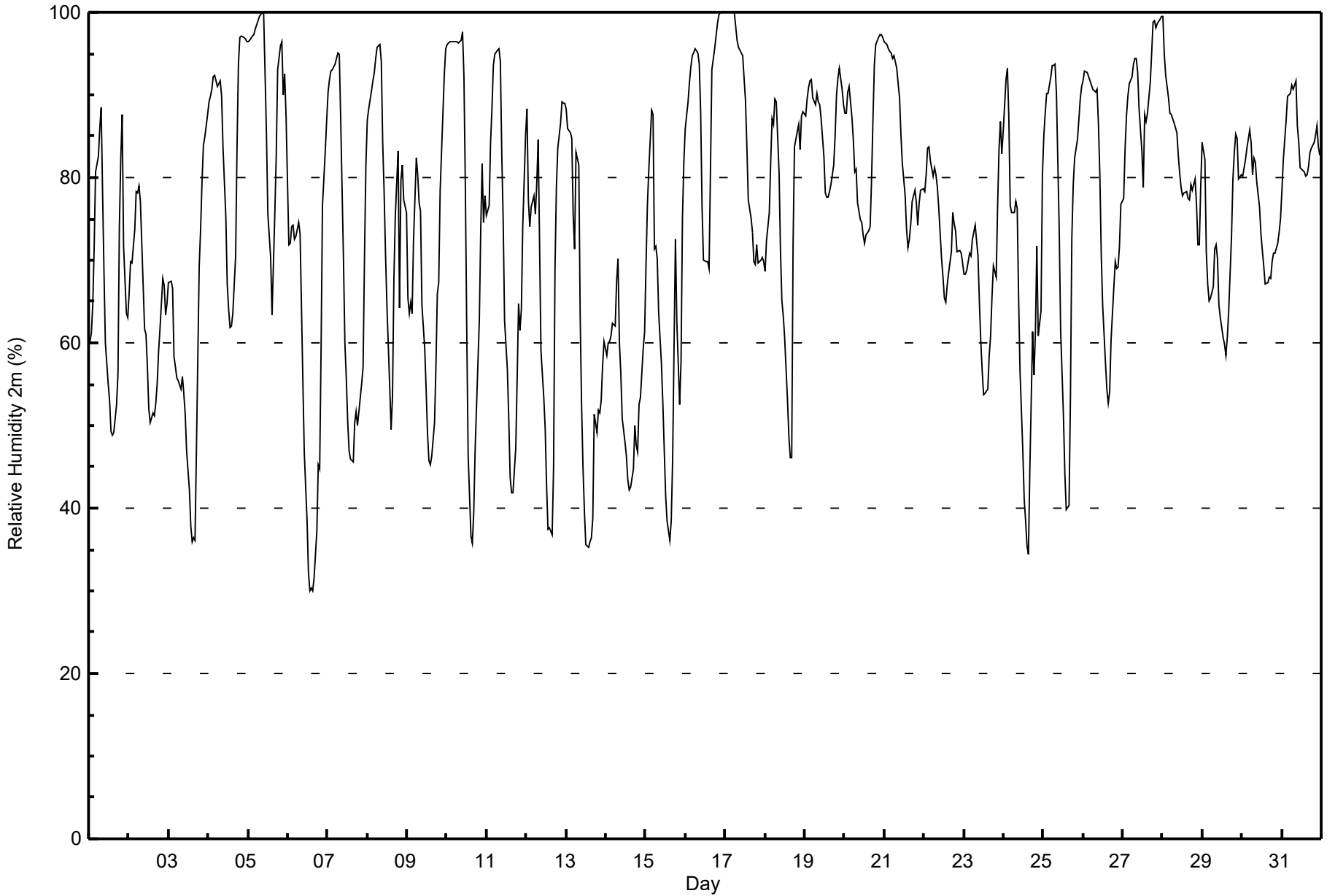
**Relative Humidity 2m (RH2) - %**  
**Fort McKay South - October 2024**

Maximum Value: 100.0 % on Oct 5 09:00      Maximum Daily Average: 91.2 % on Oct 27 Minimum Value: 29.9 % on Oct 6 14:00      Minimum Daily Average: 54.5 % on Oct 14 Maximum Diurnal Average: 85.1 % at hour 8      Minimum Diurnal Average: 55.0 % at hour 15 Monthly Average: 74.13 %      Percentiles: P <sub>1</sub> = 35.5 P <sub>10</sub> = 49.5 Q <sub>1</sub> = 63.0 Median = 76.5 Q <sub>3</sub> = 87.8 P <sub>90</sub> = 94.7 P <sub>99</sub> = 100.0																						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-Oct	60.1	61.3	64.6	71.5	80.6	82.5	85.9	88.5	78.3	68.6	60.0	55.0	53.1	49.4	48.9	49.1	52.5	56.3	74.1	82.4	87.7	71.6	63.6	63.1	67.0	88.5																					
2-Oct	66.0	69.8	69.6	73.8	78.2	78.2	79.0	77.1	72.0	61.8	61.0	57.1	52.0	50.4	51.5	51.2	52.7	55.1	58.9	61.7	67.7	66.9	63.4	64.8	64.2	79.0																					
3-Oct	67.2	67.5	66.7	58.4	57.1	55.8	55.5	54.4	56.0	53.9	51.4	46.9	42.2	37.8	35.9	36.4	36.2	46.9	69.3	73.7	79.5	83.8	84.9	87.7	58.5	87.7																					
4-Oct	89.1	89.8	90.7	92.2	92.3	91.1	91.4	91.7	89.8	83.6	75.3	67.1	64.1	61.9	62.0	63.6	70.5	83.7	93.8	96.9	97.1	97.0	96.7	96.5	84.5	97.1																					
5-Oct	96.4	96.7	97.2	97.3	98.0	98.5	99.0	99.5	100.0	99.8	92.7	85.3	75.6	70.3	63.4	69.6	75.7	82.8	93.1	96.0	96.5	90.0	92.5	87.5	89.7	100.0																					
6-Oct	71.8	72.0	74.0	74.2	72.5	73.0	74.6	73.2	64.4	55.4	46.8	38.5	32.3	29.9	30.4	30.0	31.5	37.3	45.3	44.7	59.1	76.6	83.2	87.0	57.4	87.0																					
7-Oct	90.3	91.8	92.8	93.1	93.7	94.4	95.2	94.9	87.2	70.1	60.0	55.8	50.6	46.9	45.9	45.6	50.3	51.6	50.1	51.8	55.2	57.1	70.4	81.5	69.8	95.2																					
8-Oct	87.0	88.4	90.6	91.7	92.8	94.5	95.7	96.0	94.0	84.2	78.4	70.9	64.5	54.8	49.6	53.6	67.8	75.4	83.2	64.2	79.7	81.6	77.3	75.8	78.8	96.0																					
9-Oct	65.5	63.5	64.9	63.6	72.4	82.3	80.4	77.0	75.9	64.6	59.3	54.4	49.0	45.8	45.2	46.4	50.3	57.1	65.9	67.3	78.3	87.8	92.5	95.6	66.9	95.6																					
10-Oct	96.1	96.2	96.5	96.5	96.5	96.4	96.5	96.2	96.6	97.6	92.2	78.9	61.5	46.4	36.6	35.8	39.5	47.1	52.5	62.9	73.7	81.8	74.6	77.8	76.1	97.6																					
11-Oct	75.5	76.7	84.3	88.3	93.6	94.9	95.3	95.6	94.0	83.0	75.0	62.7	56.7	50.8	43.7	41.8	41.8	47.4	55.8	64.7	61.5	64.1	74.2	85.0	71.1	95.6																					
12-Oct	88.3	77.2	74.0	76.5	77.7	75.6	79.3	84.6	71.8	59.1	53.4	49.7	42.7	37.5	37.5	36.9	45.2	68.9	78.8	83.6	86.6	89.2	89.0	88.9	68.8	89.2																					
13-Oct	88.3	85.9	85.4	84.7	75.3	71.4	83.1	81.4	63.1	52.3	44.8	39.7	35.6	35.3	35.9	36.5	38.8	51.3	49.2	51.8	51.5	53.1	57.3	60.2	58.8	88.3																					
14-Oct	58.4	60.0	60.2	60.8	62.3	62.0	67.5	70.3	60.0	56.3	50.9	48.0	46.3	43.4	42.2	42.6	44.8	50.0	47.6	46.8	52.5	53.4	59.4	61.3	54.5	70.3																					
15-Oct	69.5	76.8	81.0	88.1	87.6	71.3	71.8	70.1	63.8	57.4	52.7	47.1	41.5	38.4	36.1	38.4	46.0	59.5	72.6	62.6	52.5	57.7	75.1	81.9	62.5	88.1																					
16-Oct	86.0	89.2	91.5	93.5	94.7	95.1	95.6	95.1	93.8	88.0	76.4	70.0	69.9	69.8	68.9	80.8	93.1	95.5	97.1	98.6	99.6	100.0	100.0	100.0	89.3	100.0																					
17-Oct	100.0	100.0	100.0	100.0	100.0	100.0	98.3	96.7	95.8	95.5	94.7	92.0	89.3	83.8	77.3	75.1	73.4	69.8	69.5	71.8	69.7	70.1	70.4	69.9	86.0	100.0																					
18-Oct	68.7	72.4	75.8	81.9	87.1	86.4	89.4	89.1	80.6	71.0	65.1	63.2	60.5	53.1	48.7	46.0	46.1	72.2	83.7	85.6	86.5	83.3	87.5	87.9	73.8	89.4																					
19-Oct	87.5	89.4	90.9	91.7	91.9	89.7	88.8	90.2	89.2	88.9	87.1	82.6	78.1	77.6	77.6	78.3	79.2	81.6	85.1	90.0	92.1	93.2	90.6	88.8	86.7	93.2																					
20-Oct	87.8	87.8	90.3	91.0	87.3	84.5	80.6	81.0	77.0	75.0	74.5	73.1	72.1	73.1	73.5	74.0	79.7	87.0	93.5	96.1	96.9	97.3	97.2	97.0	84.5	97.3																					
21-Oct	96.4	96.1	95.6	95.2	95.2	94.3	94.7	93.3	91.3	89.6	85.1	81.7	77.8	73.7	71.4	72.5	74.5	77.1	78.5	76.9	74.3	76.9	78.6	78.6	84.1	96.4																					
22-Oct	78.3	80.4	83.6	83.7	82.1	80.1	81.3	80.4	78.8	76.3	70.2	68.0	65.5	64.9	67.0	68.5	71.0	75.7	74.4	73.5	71.1	71.3	70.9	69.6	74.4	83.7																					
23-Oct	68.2	68.2	68.8	70.8	70.5	72.5	73.4	74.2	70.6	64.9	60.2	56.6	53.7	53.9	54.5	58.4	60.9	65.6	69.3	67.9	76.5	83.5	86.8	82.9	68.0	86.8																					
24-Oct	85.6	91.8	93.2	87.4	76.7	75.7	75.7	77.1	76.3	65.5	56.7	46.9	41.0	38.5	35.4	34.5	44.5	61.3	56.0	61.4	71.8	60.9	63.9	80.3	64.9	93.2																					
25-Oct	85.1	87.7	90.2	90.2	92.2	93.5	93.6	93.7	90.1	73.6	61.5	56.4	51.2	44.2	39.8	40.3	53.4	72.6	79.2	82.3	84.6	86.9	89.4	91.1	76.0	93.7																					
26-Oct	91.7	92.8	92.7	92.2	91.6	91.3	90.7	90.3	90.6	86.4	80.4	70.6	64.6	57.6	54.3	52.7	54.0	60.3	66.8	69.9	69.1	69.2	71.7	76.9	76.2	92.8																					
27-Oct	77.4	83.3	87.5	89.8	91.3	92.2	93.7	94.4	94.4	92.7	88.3	83.2	78.7	87.7	86.7	87.7	91.6	95.0	98.8	98.9	98.1	98.7	99.1	99.5	91.2	99.5																					
28-Oct	99.5	95.0	92.4	89.7	87.8	87.6	87.2	86.6	85.5	82.7	80.5	78.7	77.9	78.1	78.3	77.4	77.3	79.1	78.5	79.9	76.8	71.8	71.9	78.9	82.5	99.5																					
29-Oct	84.2	82.2	71.0	67.0	65.0	65.3	66.8	71.3	71.9	70.2	64.7	63.0	60.7	59.9	58.5	60.6	64.0	72.9	79.9	83.1	85.2	84.7	79.9	80.3	71.3	85.2																					
30-Oct	80.2	81.2	82.2	83.6	85.8	84.2	80.3	82.5	81.9	79.4	76.4	73.2	71.2	69.3	67.1	67.3	68.0	67.8	69.8	70.9	70.8	72.1	73.5	75.1	75.6	85.8																					
31-Oct	78.5	82.2	87.0	89.8	90.0	90.2	91.1	90.7	91.7	86.3	84.2	81.2	81.1	80.6	80.1	80.3	81.3	83.1	83.5	84.3	85.0	86.3	83.7	82.7	84.8	91.7																					
																						81.4	82.4	83.4	84.1	84.5	84.0	84.9	85.1	81.5	75.3	69.7	64.4	60.0	56.9	55.0	55.9	59.9	67.3	72.7	74.3	77.0	78.0	79.6	81.7	Diurnal Average	
																						100.0	100.0	100.0	100.0	100.0	100.0	99.0	99.5	100.0	99.8	94.7	92.0	89.3	87.7	86.7	87.7	93.1	95.5	98.8	98.9	99.6	100.0	100.0	100.0	Diurnal Maximum	



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

**Relative Humidity 2m (RH2) - %**  
**Fort McKay South - October 2024**





Maximum Speed: 23 km/h on Oct 21 03:00	Maximum Daily Speed Average: 12.3 km/h on Oct 20	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 1 06:00	Minimum Daily Speed Average: 0.4 km/h on Oct 12	Hours of Data: 730
Maximum Diurnal Speed Average: 3.3 km/h at hour 6	Minimum Diurnal Speed Average: 1.9 km/h at hour 17	Hours of Missing Data: 14
Monthly Average Velocity: 2.5 km/h 265.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 10 P <sub>90</sub> = 12 P <sub>99</sub> = 20	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-Oct	W10	W10	W9	WNW4	WNW1	SE0	N1	UO	W3	NW4	NNE5	NNE7	NE9	NE7	NE6	NE2	NNE9	NNE6	NW3	WNW3	WSW4	WNW7	WNW8	WNW7	NW3.0	W10
2-Oct	WNW7	NW5	WNW6	W7	W8	WSW7	WSW8	W5	W6	WNW11	WNW10	WNW10	NW13	NW12	NW12	NW11	NW11	NW10	NW14	NNW12	NNW11	NNW9	NW8	WNW6	NW8.3	NW14
3-Oct	WNW5	WNW5	NW5	NW7	NW5	WNW7	WNW6	NW8	WNW5	WNW8	WNW8	NW10	WSW7	WSW7	W8	WSW9	WSW7	SW6	SSW4	SW5	W2	SW3	WSW2	WSW1	W4.9	NW10
4-Oct	SW3	SSW2	WSW2	SW2	SW1	SSW2	S1	WSW2	SSW2	NE2	E2	NNE4	N9	N10	N9	N11	N9	N7	WSW1	NW4	NNW7	NNW8	N9	NNW11	N3.6	NNW11
5-Oct	N12	N9	N6	NW3	W2	WSW1	W2	SSW1	SSW3	SSW2	SW5	WSW8	SSW8	SSW11	SSW11	SSW7	S6	S6	S6	S4	S8	SSE8	NNE3	SSW3	SW2.8	N12
6-Oct	SSW10	SW9	WSW13	WSW15	WSW15	WSW15	WSW14	WSW11	WSW13	SW12	SSW11	WSW12	WSW14	WSW12	WSW13	SW11	SW9	SW7	WSW7	WSW8	WSW4	WSW2	W2	SW2	WSW9.7	WSW15
7-Oct	SW2	SW1	SW1	SW1	NW2	SW2	W1	WNW1	UO	SSE5	C	C	SSE9	S12	SSE8	SE4	SSW4	S10	SSW10	S12	S9	S6	S5	SW1	S4.6	S12
8-Oct	UO	SW3	WSW2	UO	UO	SSW3	SSW2	SSW3	S3	S2	S3	SSE1	SE4	SSE7	SSE7	ESE2	N2	NNW2	SW2	W12	W7	SW10	SSW10	SSW9	SSW3.0	W12
9-Oct	SW8	SW10	SSW11	SW9	S5	S6	SSW8	SSW9	SW6	WSW8	WSW11	WSW10	WSW11	WSW11	WSW8	SW6	SW5	SW5	SW6	WSW7	W3	UO	S2	S2	SW6.7	WSW11
10-Oct	S3	UO	SW1	SW3	SW2	UO	SW3	WSW2	UO	SSW2	UO	SE4	ESE6	WSW7	SW11	SW12	WSW9	SW6	W6	NW6	W2	WSW4	W9	WSW6	WSW4.3	SW12
11-Oct	WSW9	WSW7	SSW5	SSW5	SSW3	WSW1	SSW2	SW2	S4	SSE6	S8	S10	S13	S13	S15	S12	SSW9	SW7	SW6	SW7	SW8	SW7	SSW2	N1	SSW6.0	S15
12-Oct	W1	NW2	NW2	WNW5	W7	W11	WSW4	S2	SSW5	S4	SE5	ESE6	NE5	NE7	ENE7	NE5	ENE3	WSW1	WSW3	WSW2	SW2	WSW1	SSW2	S3	WSW0.4	W11
13-Oct	S2	SSE6	S4	S6	S9	S8	S5	S6	SSE11	SSE15	SSE20	S20	S22	SSE19	SSE18	SSE14	SSE10	S6	S10	S10	S13	S12	S9	S9	S10.8	S22
14-Oct	S10	S8	S10	S11	S9	S9	S6	S5	S13	S14	SSE16	S11	S11	S9	SSE11	SSE9	SSE8	S7	S11	S10	S7	SSW8	S8	S9	S9.5	SSE16
15-Oct	S8	S7	S2	S3	SSW5	WSW7	WSW8	WSW8	WSW7	WSW10	WSW9	WSW10	SW9	WSW9	SW9	SW7	SW5	SW5	SW4	SSW7	SW6	SW4	SSW2	SSW4	SW5.9	WSW10
16-Oct	SSW4	SSW3	W2	WSW2	SW3	WNW1	SW2	W1	WNW1	UO	NE2	ESE2	ENE2	NNE2	NNE3	NNW3	N5	N6	N7	NNW7	NNW7	NNW5	NW4	NW3	NNW1.8	NNW7
17-Oct	WNW2	W2	WSW4	WSW4	SW4	WSW8	WSW8	WSW9	WSW10	WSW9	WSW11	WSW10	WSW9	W11	W13	W11	WNW12	WNW16	W14	W9	WNW13	WNW9	WNW10	NW10	W8.4	WNW16
18-Oct	NW10	NW7	W4	SSW3	SW5	SW6	SSW6	SW6	SW7	S8	SSE10	S10	S14	S13	SSW11	S11	SSW7	SSW5	S4	SSW2	SSW3	S3	WSW1	N4	SSW5.0	S14
19-Oct	NNW2	NW1	WSW1	NNW2	NNW2	NNW7	NNW8	NNW5	NNW6	N7	N7	NNE10	NNE11	NNE11	NNE8	NNE8	NNE9	NNE11	N11	N14	N11	N12	N14	N14	N7.7	N14
20-Oct	N15	N14	N12	N10	N13	N13	N12	N12	NNE9	NNE11	NNE11	NNE9	NE8	NNE11	NNE11	NNE12	NNE12	NNE13	NNE13	N13	N15	N16	N18	N20	NNE12.3	N20
21-Oct	N20	N22	N23	N22	N21	N21	N19	N19	N17	N17	N17	NNE10	NNE8	N8	NNW9	NNW7	NW6	W5	WNW5	W7	WSW6	WSW5	SW3	SSW5	N10.4	N23
22-Oct	SSW8	SSW5	S6	S7	S7	S11	S8	S10	SSW11	SSW12	SW14	SW11	SSW14	SSW14	S13	SSW12	SSW12	S11	S13	S14	SSW10	SSW8	SSW11	SW12	SSW10.4	S14
23-Oct	SW11	SW11	SW12	WSW12	WSW12	W12	W16	WSW11	WSW13	WSW13	WSW11	WSW9	WSW12	WSW13	SW12	SW10	SW9	SW7	SW8	SW8	WNW2	S6	S6	S7	WSW9.6	W16
24-Oct	S4	WNW1	SW1	SW5	W12	WSW10	WSW8	SW4	WSW5	W7	W9	WNW12	WNW13	WNW12	WNW9	WNW4	W5	WNW6	WSW7	W4	WSW8	NW4	WNW2	W6.2	WNW13	
25-Oct	WSW3	WSW4	SW4	S4	SSW2	SSW2	WNW1	SW4	S2	SSW5	WSW7	WSW7	W7	W8	W7	NW7	W4	WSW4	SW2	W2	W1	W2	SW2	WNW2	WSW3.2	W8
26-Oct	SW2	NW2	W2	WSW2	WSW2	WSW2	W2	WNW2	N2	N6	NNE9	NNE10	N10	N10	N9	NNE8	NNE7	N7	N6	N6	N6	NNE6	N5	N5	N4.6	N10
27-Oct	NW3	NNW3	NNW4	NW3	N4	NNW3	N3	NNW2	NW2	N4	N5	N4	N5	N5	N7	NW2	NNW2	NW2	NW2	N3	NNW3	NNW4	NW2	W3	NNW3.1	N7
28-Oct	W5	WNW8	WNW8	WNW8	WNW8	WNW7	WNW6	WNW6	WNW8	WNW10	NW10	NW11	NW12	NW11	NW9	WNW9	NW8	WNW9	WNW6	WNW9	WNW11	WNW10	WNW8	WNW9	WNW8.4	NW12
29-Oct	W7	NW6	NW8	NW13	NW13	NW10	WNW7	WNW6	NW5	WNW5	W8	WSW8	SW7	SW9	SSW8	SSE2	NE2	NE1	UO	NNW2	NNW2	NNW3	N6	N8	WNW4.5	NW13
30-Oct	N11	N12	N13	N14	N11	N12	N13	N13	NNE12	NNE12	NNE13	NNE12	NNE10	NNE11	NNE12	NE10	NE9	ENE7	NE7	ENE6	NE6	NE6	NNE5	NNE5	NNE9.5	N14
31-Oct	ENE3	ENE2	NNW1	N2	NNE3	N2	NNW3	NW2	N3	ESE5	SE7	SE7	SSE11	SE8	ESE6	ESE2	NNW2	N3	NNW3	NNW3	NNW2	SW1	SSW8	SW8	SE1.2	SSE11

W2.6	WNW2.6	WNW2.7	W3.0	W3.1	W3.3	W3.2	W2.8	WSW2.8	WSW2.4	WSW2.5	WSW2.3	SW2.1	WSW2.6	WSW2.5	WSW2.2	W1.9	W2.2	WSW2.6	W3.0	W2.5	W2.3	WNW2.2	WNW2.1	Diurnal Average	
N20	N22	N23	N22	N21	N21	N19	N19	N17	N17	SSE20	S20	S22	SSE19	SSE18	SSE14	WNW12	WNW16	NW14	N14	N15	N16	N18	N20	Diurnal Maximum	

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



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

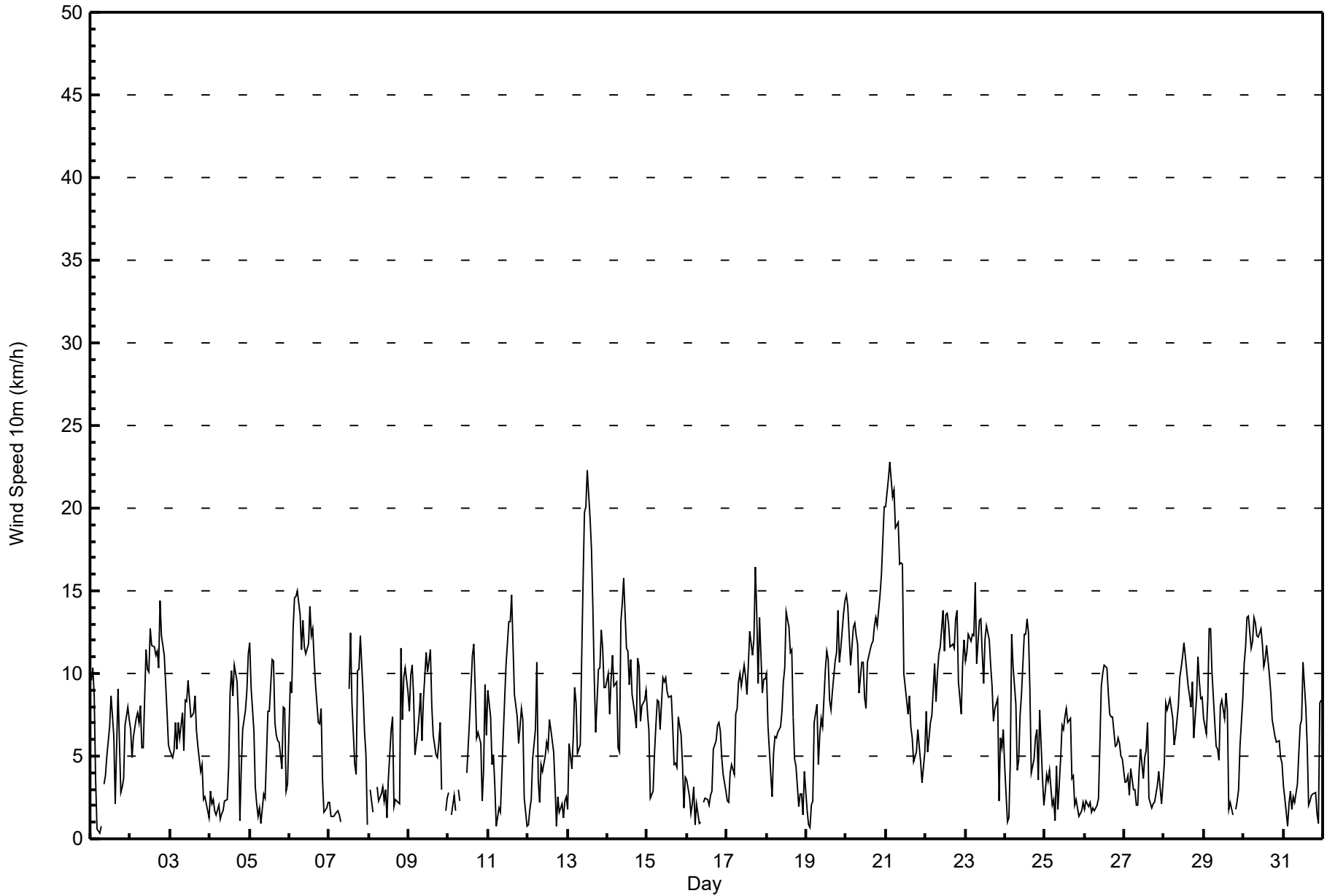
**Wind Speed 10m (WS10) - km/h**  
**Fort McKay South - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Oct 17 18:00 Minimum Value: 1 km/h on Oct 31 08:00 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																	Hours in Service: 744 Hours of Data: 730 Hours of Missing Data: 14 Hours of Calibration: 2 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-Oct	3	3	3	3	1	1	1	UO	2	2	2	3	3	3	2	2	3	2	1	1	1	2	2	2	3
2-Oct	2	2	2	2	2	2	2	2	3	5	4	4	4	5	4	4	5	4	4	4	4	3	2	2	5
3-Oct	2	1	2	2	2	3	2	3	3	3	4	4	4	4	4	3	3	1	1	1	1	1	1	4	
4-Oct	1	2	2	1	2	1	1	1	2	1	1	2	2	2	2	2	3	4	2	2	2	2	2	4	
5-Oct	2	2	1	1	1	1	1	1	1	2	2	3	2	3	4	2	2	1	1	1	2	2	1	4	
6-Oct	3	3	4	4	5	5	5	4	5	4	4	4	5	5	5	4	4	2	1	2	3	1	1	5	
7-Oct	2	2	1	1	2	1	1	1	UO	2	C	C	3	3	3	2	2	2	2	2	2	2	1	3	
8-Oct	UO	2	2	UO	UO	2	2	2	2	2	1	1	3	2	3	2	2	2	2	5	3	3	3	5	
9-Oct	3	3	3	3	1	2	2	2	2	4	4	4	4	4	3	2	1	1	1	1	3	UO	1	4	
10-Oct	2	UO	2	1	1	UO	1	1	UO	2	UO	2	2	3	4	4	3	2	1	1	2	1	2	4	
11-Oct	2	2	1	2	2	2	1	1	1	2	2	2	3	3	3	3	2	2	1	2	2	2	1	3	
12-Oct	2	2	2	3	3	4	3	2	2	1	1	2	2	2	2	2	1	1	1	2	1	1	1	4	
13-Oct	1	1	2	2	3	2	1	1	3	3	4	4	5	5	4	3	2	2	2	2	2	3	2	5	
14-Oct	3	2	2	2	4	3	2	3	3	4	4	3	3	3	5	3	2	2	4	3	1	2	2	5	
15-Oct	1	1	2	2	1	3	3	3	2	4	3	3	3	3	3	2	1	1	1	2	1	2	1	4	
16-Oct	1	1	1	1	2	2	2	1	1	UO	1	1	1	2	2	1	1	1	1	2	1	2	1	2	
17-Oct	1	1	1	2	2	2	3	3	3	3	4	3	3	4	5	4	5	7	5	4	5	5	4	7	
18-Oct	3	2	2	1	1	1	2	2	2	2	3	3	3	4	3	3	2	1	2	1	1	1	1	4	
19-Oct	2	2	1	2	1	2	2	1	1	2	2	2	3	2	2	2	2	3	3	3	2	3	3	3	
20-Oct	4	3	3	3	3	4	3	3	2	3	3	2	2	3	3	3	3	4	3	3	3	3	4	4	
21-Oct	4	5	6	5	5	5	5	4	5	5	5	3	2	2	3	2	2	1	1	2	2	2	1	6	
22-Oct	2	2	1	2	1	3	2	2	2	3	5	4	3	3	3	3	3	3	3	3	3	2	3	5	
23-Oct	3	3	4	4	5	4	4	4	4	4	4	4	4	4	4	3	3	2	2	3	1	1	1	5	
24-Oct	2	1	2	3	3	3	2	3	3	3	4	5	4	5	4	2	2	2	1	2	2	2	1	5	
25-Oct	1	1	2	1	1	2	1	2	1	3	2	3	3	4	3	4	1	1	2	1	2	1	1	4	
26-Oct	2	1	1	1	1	1	1	1	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	3	
27-Oct	1	1	1	1	1	1	2	2	2	1	1	2	2	2	3	1	1	1	1	1	1	1	2	3	
28-Oct	3	2	2	3	3	2	2	2	2	3	3	4	4	4	3	3	2	3	2	4	4	3	3	4	
29-Oct	2	3	3	4	4	3	3	2	2	2	3	3	3	3	3	1	1	1	UO	1	1	2	1	4	
30-Oct	2	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3	2	3	2	2	2	2	2	3	
31-Oct	1	1	1	1	1	1	1	1	1	2	2	3	2	2	2	2	1	1	1	1	1	2	2	3	
Diurnal Maximum																									
C - Calibration      UO - Unstable Operation																									



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

**Wind Speed 10m (WS10) - km/h**  
**Fort McKay South - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Fort McKay South - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	275	37.67	37.67
6 - 11	341	46.71	84.38
12 - 19	104	14.25	98.63
20 - 28	10	1.37	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 730

Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Fort McKay South - October 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	20	8	7	4	1	4	5	4	23	35	41	32	24	20	24	23	275
6 - 11	30	25	10	3	0	3	3	15	47	27	36	51	22	37	20	12	341
12 - 19	26	10	0	0	0	0	0	5	15	6	5	16	6	7	7	1	104
20 - 28	7	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	10
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	83	43	17	7	1	7	8	25	87	68	82	99	52	64	51	36	730

Total Number of Valid Hours: 730

Total Number of Hours: 744







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

**Wind Direction 10m (WD10) - deg**  
**Fort McKay South - October 2024**

Direction of Maximum Speed: 6 deg on Oct 21 03:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 12.0 deg on Oct 20	Hours of Data: 730
Direction of Minimum Speed: 135 deg on Oct 1 06:00	Hours of Missing Data: 14
Direction of Minimum Daily Speed Average: 0.4 deg on Oct 12	Percent Operational Time: 98.4
Monthly Average Direction: 265.4 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-Oct	259	264	269	289	288	135	4	UO	260	316	18	21	34	40	54	55	19	12	316	287	256	296	300	291	323.2
2-Oct	283	304	288	263	259	257	253	272	274	297	287	303	320	317	312	312	311	310	326	334	342	333	324	302	304.4
3-Oct	295	301	319	307	307	300	285	325	287	302	303	308	257	256	263	249	242	215	210	221	277	219	247	237	279.2
4-Oct	223	213	238	235	234	204	183	242	192	42	80	21	10	0	356	354	3	359	256	325	343	343	354	347	349.4
5-Oct	349	350	350	311	272	252	265	206	213	192	234	238	207	192	207	206	191	185	181	180	174	168	14	197	214.9
6-Oct	207	234	249	248	252	254	258	248	239	215	213	237	244	240	238	232	233	227	241	244	238	251	268	236	239.3
7-Oct	236	222	215	224	326	221	264	303	UO	155	C	C	152	170	158	138	192	190	192	187	180	185	175	223	180.8
8-Oct	UO	234	248	UO	UO	206	196	208	177	174	179	166	127	157	163	118	11	337	217	278	274	227	206	205	211.0
9-Oct	223	214	212	214	175	184	207	210	230	247	249	257	247	247	240	223	221	233	236	253	270	UO	186	172	228.2
10-Oct	191	UO	217	235	233	UO	223	243	UO	194	UO	140	123	243	229	232	244	236	265	304	260	242	259	253	237.4
11-Oct	253	247	197	200	202	255	208	215	179	165	174	180	170	173	181	191	205	216	225	215	224	232	196	354	198.6
12-Oct	279	312	309	283	273	264	246	180	208	174	129	103	55	37	57	52	68	243	245	250	232	251	207	174	241.5
13-Oct	187	160	169	175	184	182	177	191	166	167	167	174	175	161	151	158	164	189	181	182	180	181	182	184	172.1
14-Oct	178	175	179	186	174	173	171	181	173	174	168	183	187	173	163	167	157	172	169	181	179	202	184	187	176.3
15-Oct	178	181	189	177	193	237	238	237	256	258	242	237	218	238	232	231	223	231	232	209	228	223	200	196	225.5
16-Oct	197	197	275	238	215	289	229	261	297	UO	52	119	61	13	18	343	359	356	354	342	342	342	318	317	337.6
17-Oct	299	266	254	242	218	238	238	241	252	254	255	255	241	259	269	269	282	286	275	264	296	300	295	312	268.0
18-Oct	314	305	273	202	220	219	213	218	220	189	167	169	170	186	195	185	204	200	187	193	206	185	240	359	202.2
19-Oct	343	321	239	340	348	347	344	335	345	356	10	21	29	15	14	15	19	14	5	4	1	357	1	2	4.4
20-Oct	1	1	355	353	3	4	5	8	17	27	23	30	45	33	30	22	21	20	13	6	7	9	6	6	12.0
21-Oct	7	6	6	4	0	0	355	359	358	356	7	28	18	4	341	333	312	268	283	262	253	258	236	198	354.0
22-Oct	199	199	191	191	188	190	187	190	196	196	222	215	199	201	190	195	194	185	190	191	207	202	213	214	198.2
23-Oct	216	217	227	238	252	259	259	254	254	258	250	237	238	239	236	234	233	232	228	234	296	184	182	178	237.5
24-Oct	182	282	228	219	259	249	253	227	248	269	271	290	299	301	293	298	302	261	283	254	269	257	309	300	272.7
25-Oct	243	242	226	170	212	192	288	228	184	199	249	240	261	271	271	317	276	242	224	262	261	267	233	296	248.8
26-Oct	219	314	264	252	255	253	276	298	354	359	16	16	7	358	360	15	16	8	352	6	357	19	357	358	359.0
27-Oct	312	348	348	322	357	330	357	348	306	6	358	355	358	2	6	311	329	315	315	7	333	335	324	259	342.9
28-Oct	269	288	284	291	289	287	285	287	294	300	305	311	317	318	312	303	313	302	298	292	295	298	299	290	298.8
29-Oct	280	305	317	318	307	315	295	295	318	286	259	244	217	222	211	156	40	53	UO	345	335	336	353	1	294.9
30-Oct	356	353	358	3	359	8	9	11	15	25	19	23	31	23	25	36	35	69	54	71	49	41	33	29	20.1
31-Oct	60	75	335	0	14	8	330	324	3	105	141	139	147	141	119	118	333	353	328	330	344	219	203	218	130.1

273.7 284.4 281.6 272.3 273.2 270.5 272.4 269.7 257.4 253.8 249.4 250.4 223.8 242.6 240.1 253.0 280.2 268.0 258.0 262.5 280.2 273.5 283.0 283.7  
 Diurnal Average

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



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

**Wind Direction 10m (WD10) - deg**  
**Fort McKay South - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 96 deg on Oct 12 02:00	Hours of Data: 730
Minimum Value: 6 deg on Oct 5 19:00	Hours of Missing Data: 14
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 13 Q <sub>1</sub> = 17 Median = 24 Q <sub>3</sub> = 34 P <sub>90</sub> = 52 P <sub>99</sub> = 79	Hours of Calibration: 2
	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-Oct	19	20	24	62	88	93	67	UO	52	49	44	46	34	39	35	88	21	23	32	21	14	18	18	19	93
2-Oct	22	30	23	19	21	25	20	31	40	29	28	32	24	26	24	24	26	24	20	20	18	17	20	22	40
3-Oct	23	19	26	22	25	24	27	24	27	31	36	44	63	53	45	34	34	18	12	11	51	42	25	50	63
4-Oct	27	68	42	29	54	18	79	47	60	35	58	52	16	16	17	15	20	78	77	41	13	13	16	14	79
5-Oct	15	15	14	31	24	32	34	62	39	37	34	23	25	22	25	22	15	10	6	18	8	9	32	78	78
6-Oct	19	25	24	22	28	28	27	31	27	28	29	29	28	33	33	27	23	17	13	11	72	71	52	41	72
7-Oct	41	68	53	56	36	48	32	43	UO	20	C	C	20	17	28	34	13	10	13	12	10	18	10	50	68
8-Oct	UO	29	52	UO	UO	38	55	28	41	38	30	68	43	25	26	68	23	49	41	39	39	24	20	24	68
9-Oct	25	22	22	22	18	19	14	15	25	35	30	36	34	31	31	23	22	14	11	10	55	UO	47	37	55
10-Oct	48	UO	70	10	27	UO	29	23	UO	61	UO	38	57	41	30	25	22	20	23	23	64	43	13	42	70
11-Oct	15	29	33	42	50	75	50	67	13	13	14	19	18	19	15	17	17	15	12	11	16	17	53	64	75
12-Oct	65	96	72	49	50	26	66	76	43	38	32	29	46	32	33	27	27	59	21	44	39	45	44	27	96
13-Oct	63	8	17	18	12	11	15	15	10	11	12	15	14	19	13	13	13	12	9	12	10	8	12	12	63
14-Oct	18	20	15	10	17	17	20	33	12	12	13	20	18	18	19	19	12	16	15	16	13	17	12	10	33
15-Oct	10	11	65	56	24	26	27	25	31	30	31	30	29	29	31	25	15	10	9	12	14	52	79	24	79
16-Oct	26	22	52	60	26	53	39	60	56	UO	54	43	38	50	48	26	12	13	14	24	19	28	23	28	60
17-Oct	36	33	22	22	29	21	21	24	25	27	26	26	30	30	33	30	31	32	31	31	29	30	29	28	36
18-Oct	25	25	43	50	19	26	35	17	23	22	20	22	18	19	22	13	14	9	17	49	24	31	71	13	71
19-Oct	56	65	62	46	29	15	18	27	16	18	22	15	17	20	18	18	16	17	15	16	18	16	16	17	65
20-Oct	18	17	17	16	17	17	17	18	19	18	16	21	26	18	18	17	15	18	17	16	15	16	16	17	26
21-Oct	16	16	18	17	17	18	18	17	16	18	17	20	20	23	20	18	23	17	24	20	18	24	28	15	28
22-Oct	17	23	15	13	13	12	13	13	15	16	24	26	19	17	14	15	13	11	13	15	25	24	21	21	26
23-Oct	20	21	23	24	28	28	20	30	26	26	30	32	25	24	23	21	20	20	20	23	58	17	13	10	58
24-Oct	9	79	61	52	19	18	21	63	61	34	37	33	28	29	28	22	23	20	12	56	16	57	41	79	79
25-Oct	38	26	39	25	59	26	82	22	56	35	31	31	38	45	37	23	27	11	61	47	67	47	65	47	82
26-Oct	65	66	48	38	41	52	48	34	19	17	16	15	17	19	17	16	16	12	12	15	12	19	28	25	66
27-Oct	47	36	14	33	18	26	26	14	51	11	14	38	42	28	23	49	71	22	13	18	41	15	48	31	71
28-Oct	31	22	23	24	28	23	25	25	22	22	21	22	20	20	23	22	23	21	26	30	26	25	23	28	31
29-Oct	27	36	24	23	25	24	31	30	25	41	29	35	43	30	27	63	26	35	UO	33	20	59	13	13	63
30-Oct	15	14	16	15	15	16	15	18	17	19	18	19	23	21	19	21	17	23	21	26	26	19	23	24	26
31-Oct	32	31	46	22	20	33	25	27	20	35	24	27	19	25	24	72	20	21	24	28	45	74	17	21	74
	65	96	72	62	88	93	82	76	61	61	58	68	63	53	48	88	71	78	77	49	72	74	79	78	

Diurnal Maximum

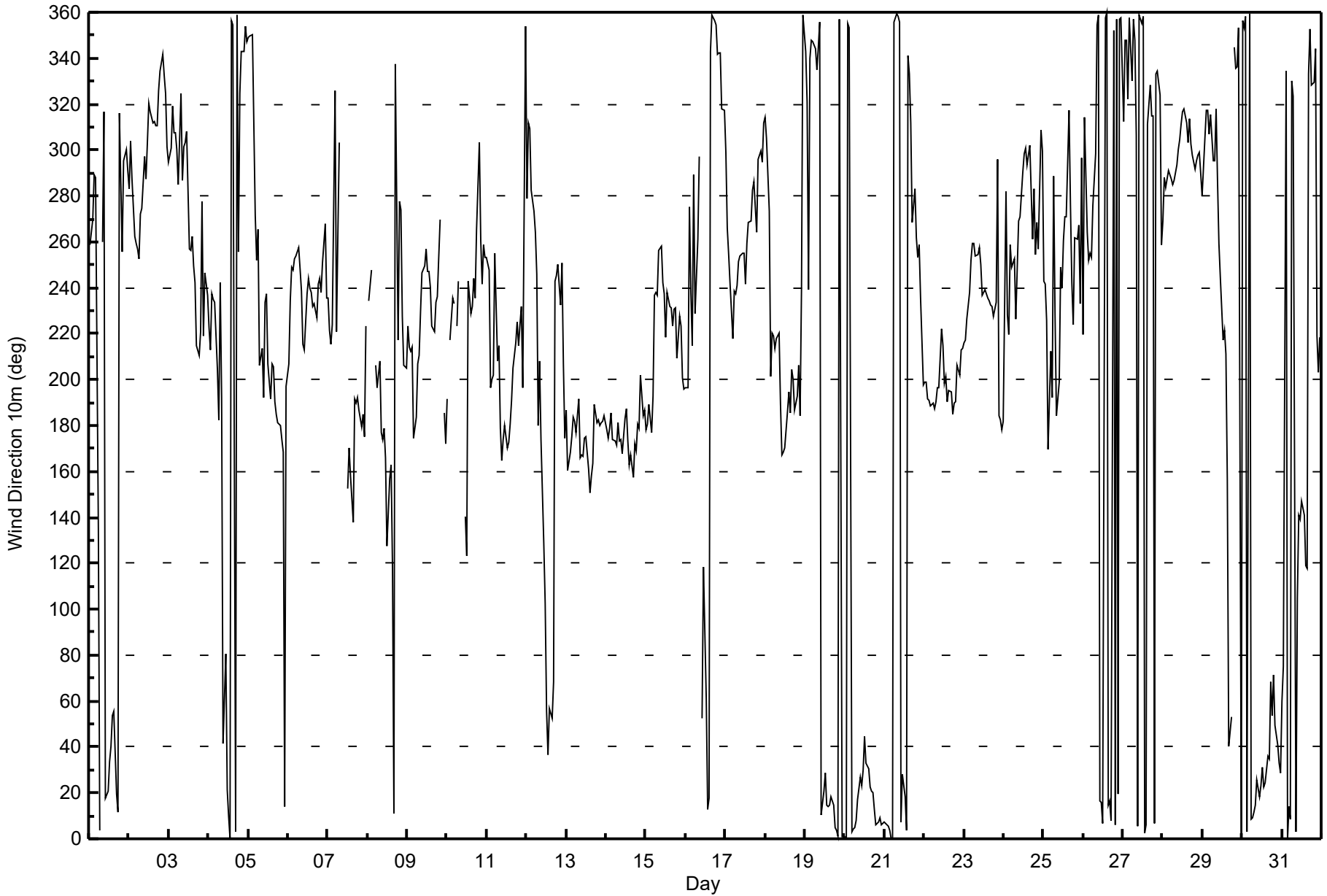
C - Calibration

UO - Unstable Operation



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

**Wind Direction 10m (WD10) - deg**  
**Fort McKay South - October 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS14  
ANZAC  
OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
OCTOBER 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	669	33	75	94.35	4.4	0	1	0
TRS(ppb) Average	682	35	62	96.37	0.9	0	0.2	0
THC(ppm) Average	689	34	55	97.18	2.5	-	2.1	-
NMHC(ppm) Average	689	34	55	97.18	0.287	-	0.046	-
CH4(ppm) Average	689	34	55	97.18	2.2	-	2.1	-
NO2(ppb) Average	707	37	37	100	16.9	0	4.2	-
NO(ppb) Average	707	37	37	100	25.1	-	2.2	-
NOX(ppb) Average	707	37	37	100	34.4	-	6.4	-
O3(ppb) Average	708	36	36	100	37.1	0	31.8	-
PM2.5(ug/m3) Average	744	0	0	100	50	0	5.7	0
AT 2m(C) Average	744	0	0	100	19.8	-	14.2	-
RH(%) Average	744	0	0	100	99.9	-	93.8	-
WS(km/h) Average	728	0	16	97.85	32	-	21	-
WD(deg) Average	728	0	16	97.85	-	-	-	-
Leaf Wetness (% of range) Average	744	0	0	100	77.5	-	18.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
OCTOBER 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	669	0.24	0.4	-	0	0	0.1	0.1	0.3	0.5	4.4
TRS(ppb) Average	682	0.14	0.1	-	0.1	0.1	0.1	0.1	0.1	0.2	0.9
THC(ppm) Average	689	2.04	0.1	-	2	2	2	2	2.1	2.1	2.5
NMHC (ppm) Average	689	0.004	0.021	-	0	0	0	0	0	0	0.287
CH4(ppm) Average	689	2.04	0	-	2	2	2	2	2.1	2.1	2.2
NO2(ppb) Average	707	1.49	1.8	-	0	0.3	0.5	1	1.8	3.1	16.9
NO(ppb) Average	707	0.47	1.8	-	0	0	0	0.1	0.3	0.9	25.1
NOX(ppb) Average	707	1.96	3.2	-	0	0.3	0.6	1.1	2.1	3.8	34.4
O3(ppb) Average	708	23.08	7	-	0	13.2	18.5	23.8	28.2	31.7	37.1
PM2.5(ug/m3) Average	744	2.84	2.7	-	0.1	1.1	1.7	2.6	3.2	4.1	50
Temperature 2 m (C) Average	744	3.09	5.7	-	-9.6	-4.5	-0.4	2.5	6.7	10.9	19.8
Relative Humidity (%) Average	744	72.12	16.7	-	31.3	48.5	60.3	71.7	86.2	94.5	99.9
Wind Speed 20 m (km/h) Average	728	12.5	5	-	1	6	8	12	16	20	32
Wind Direction 20 m (deg) Average	728	225.2	-	-	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	3.2	10.1	-	0	0	0	0	0.1	6.8	77.5

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	16 Oct 2024 20:00	18 Oct 2024 12:00	41	Unstable Operation - flatline in analyzer output signal
SO2	18 Oct 2024 13:00	18 Oct 2024 13:00	1	Maintenance - analyzer rebooted
TRS	03 Oct 2024 09:00	04 Oct 2024 11:00	27	Unstable Operation - flatline in analyzer output signal
THC/NMHC/CH4	06 Oct 2024 06:00	06 Oct 2024 10:00	5	Unstable Operation - flatline in analyzer output signal
THC/NMHC/CH4	06 Oct 2024 11:00	06 Oct 2024 11:00	1	Maintenance - analyzer rebooted
THC/NMHC/CH4	07 Oct 2024 22:00	08 Oct 2024 09:00	12	Unstable Operation - flatline in analyzer output signal
THC/NMHC/CH4	08 Oct 2024 10:00	08 Oct 2024 10:00	1	Maintenance - analyzer rebooted
THC/NMHC/CH4	25 Oct 2024 11:00	25 Oct 2024 12:00	2	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction	21 Oct 2024 00:00	21 Oct 2024 15:00	16	Flat line in sensor output signal - Sensor frozen



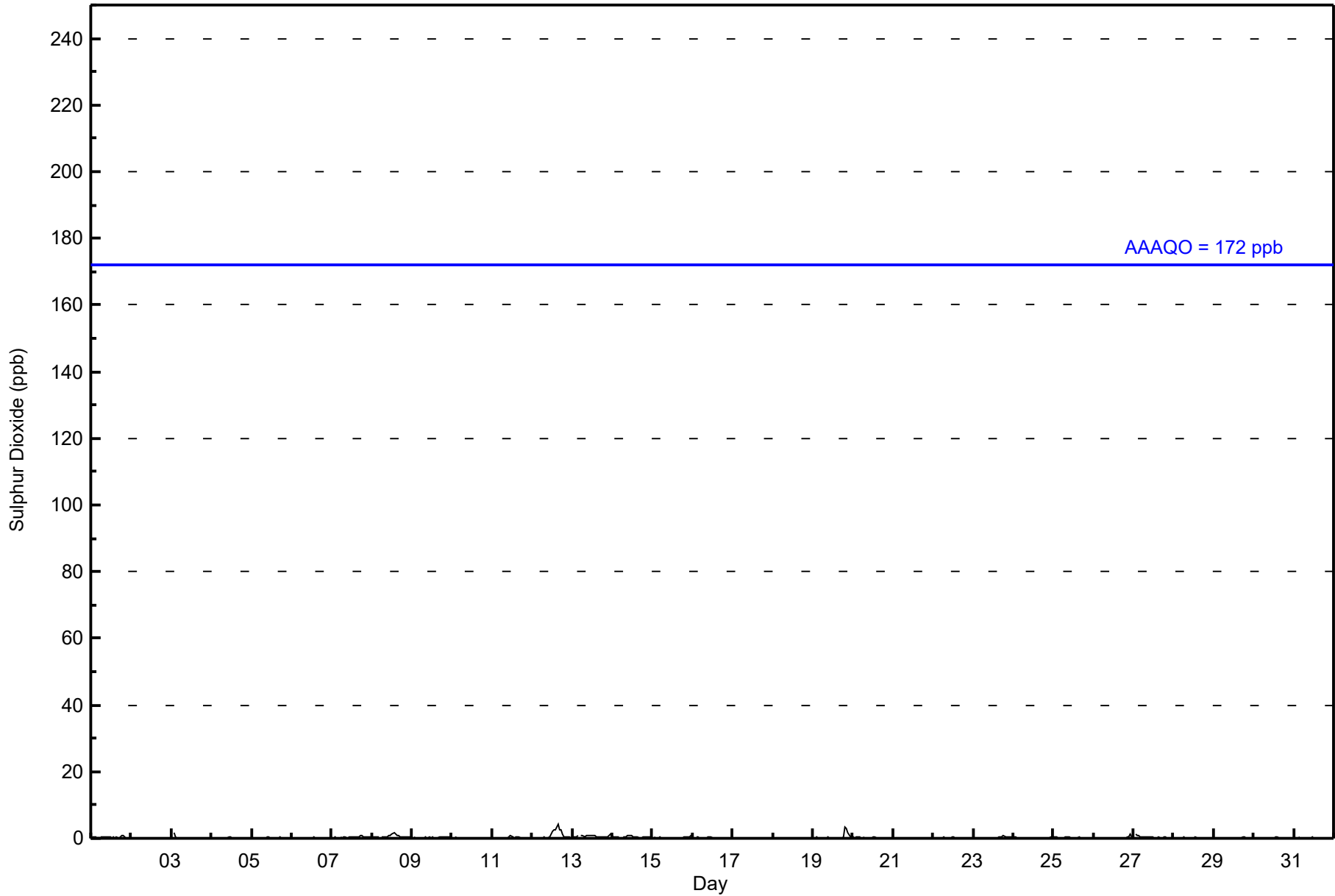
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 4.4 ppb on Oct 12 16:00		Maximum Daily Average: 1.0 ppb on Oct 12																	Hours of Data:	669							
Minimum Value: 0.0 ppb on Oct 2 01:00		Minimum Daily Average: 0.0 ppb on Oct 2																	Hours of Missing Data:	75							
Maximum Diurnal Average: 0.4 ppb at hour 16		Minimum Diurnal Average: 0.1 ppb at hour 6																	Hours of Calibration:	33							
Monthly Average: 0.24 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> = 0.3 P <sub>90</sub> = 0.5 P <sub>99</sub> = 2.2																	Percent Operational Time:	94.4							
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-Oct	0.3	0.4	0.4	0.5	Z	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.1	0.3	0.2	0.3	0.2	0.3	0.9	0.8	0.2	0.0	0.1	0.1	0.3	0.9	
2-Oct	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
3-Oct	Z	1.5	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.2	1.5	
4-Oct	0.1	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.3	0.2	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
5-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.5	
6-Oct	0.2	0.1	0.1	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.5	0.1	0.5	
7-Oct	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.7	0.7	0.5	0.6	0.4	0.4	0.3	0.4	0.7	
8-Oct	0.4	0.4	0.5	0.4	0.5	Z	0.4	0.4	0.3	0.5	1.0	1.0	1.1	1.8	1.2	1.0	0.7	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.6	1.8	
9-Oct	Z	0.3	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	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	
10-Oct	0.2	Z	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
11-Oct	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.7	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.7	
12-Oct	0.1	0.2	0.1	Z	0.1	0.2	0.1	0.2	0.1	0.2	0.3	1.2	2.1	2.5	2.6	4.4	2.7	2.7	1.2	0.5	0.3	0.3	0.3	0.2	1.0	4.4	
13-Oct	0.4	0.4	0.6	0.8	Z	0.7	0.6	0.6	0.7	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.3	0.5	0.5	0.4	0.4	0.4	0.9	1.3	0.6	1.3	
14-Oct	0.4	0.4	0.3	0.3	0.3	Z	0.3	0.6	0.5	0.7	0.7	0.5	0.3	0.3	0.3	0.2	0.2	0.5	0.6	0.2	0.3	0.3	0.3	0.3	0.4	0.7	
15-Oct	Z	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.3	0.4	0.7	0.2	0.7	
16-Oct	0.5	Z	0.3	0.3	0.1	0.1	0.0	0.0	0.1	0.2	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	UO	UO	UO	UO	UO	0.1	0.5	
17-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	C	C	C	C	0.0	0.0	0.0	0.0	0.1	0.1	0.1	--	0.1	
19-Oct	0.1	0.1	0.2	0.1	Z	0.0	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	3.3	2.8	1.8	0.4	0.3	0.5	3.3	
20-Oct	0.2	0.2	0.3	0.2	0.3	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
21-Oct	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	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.2	
22-Oct	0.1	Z	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.5	0.4	0.2	0.1	0.1	0.1	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.5	
23-Oct	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.3	0.6	0.7	0.6	0.4	0.5	0.2	0.4	0.2	0.7	
24-Oct	0.2	0.4	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	0.2	0.2	0.5	0.4	0.4	0.1	0.5	
25-Oct	0.4	0.4	0.2	0.2	Z	0.2	0.2	0.4	0.5	0.6	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.6	
26-Oct	0.1	0.1	0.0	0.1	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.2	1.2	0.4	0.2	1.2	
27-Oct	Z	1.1	1.0	0.9	0.5	0.3	0.2	0.2	0.4	0.6	0.4	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	1.1	
28-Oct	0.2	Z	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	
29-Oct	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	0.2	0.1	0.2	0.2	0.0	0.1	0.1	0.2	0.1	0.1	0.2
30-Oct	0.1	0.1	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	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.3
31-Oct	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	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	
																								Diurnal Average			
																								Diurnal Maximum			
0.2 0.3 0.2 0.2 0.2 0.1 0.2 0.2 0.2 0.2 0.3 0.3 0.3 0.3 0.3 0.4 0.2 0.3 0.3 0.3 0.3 0.2 0.2 0.2																											
0.5 1.5 1.0 0.9 0.5 0.7 0.6 0.6 0.7 0.9 1.0 1.2 2.1 2.5 2.6 4.4 2.7 2.7 1.2 3.3 2.8 1.8 1.2 1.3																											
Z - zerospan C - Calibration M - Maintenance 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  
Anzac - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	669	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: 669

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	11	5	2	10	27	42	56	68	36	38	39	45	119	91	47	18	654
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	11	5	2	10	27	42	56	68	36	38	39	45	119	91	47	18	654

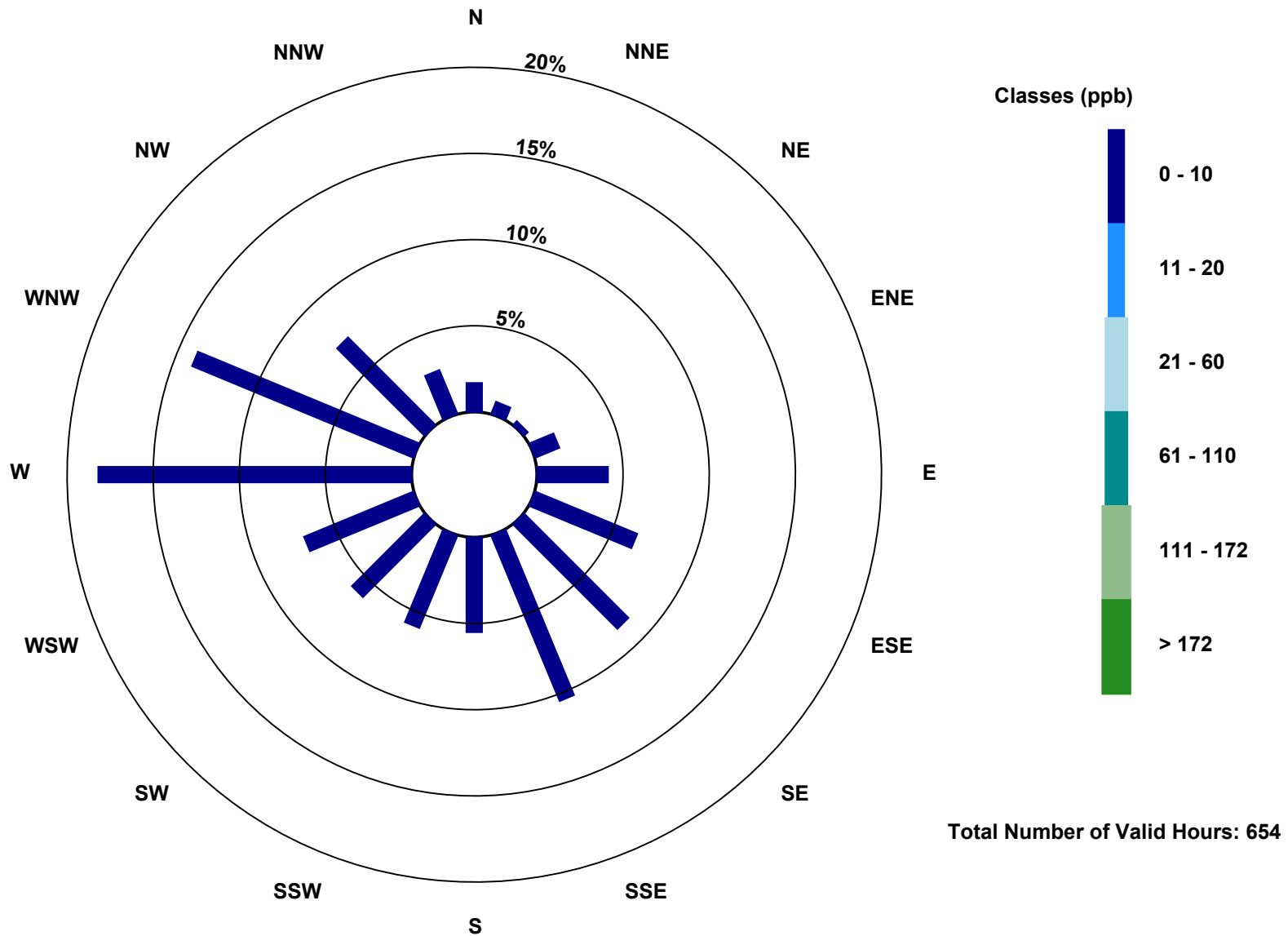
Total Number of Valid Hours: 654

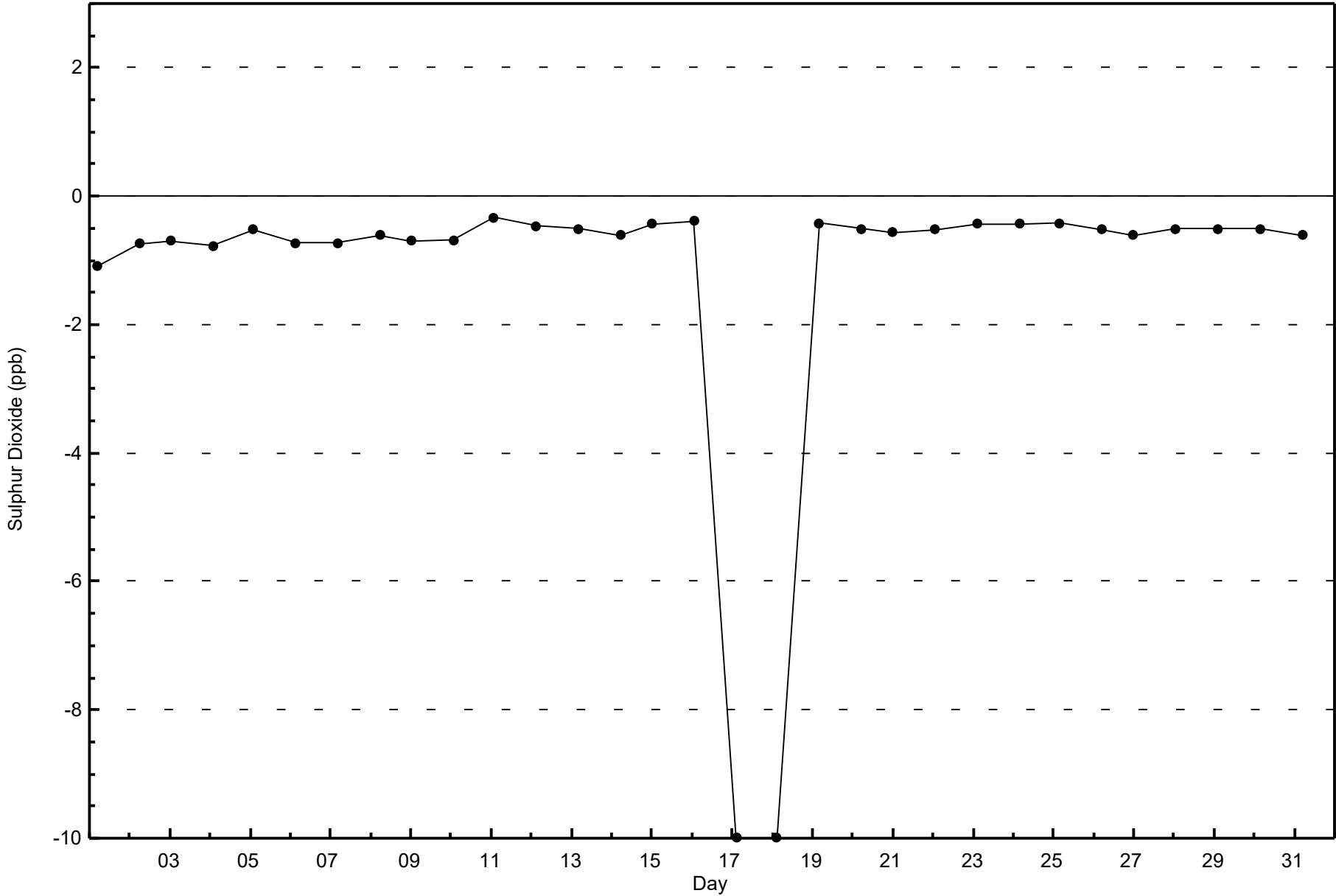
Total Number of Hours: 744

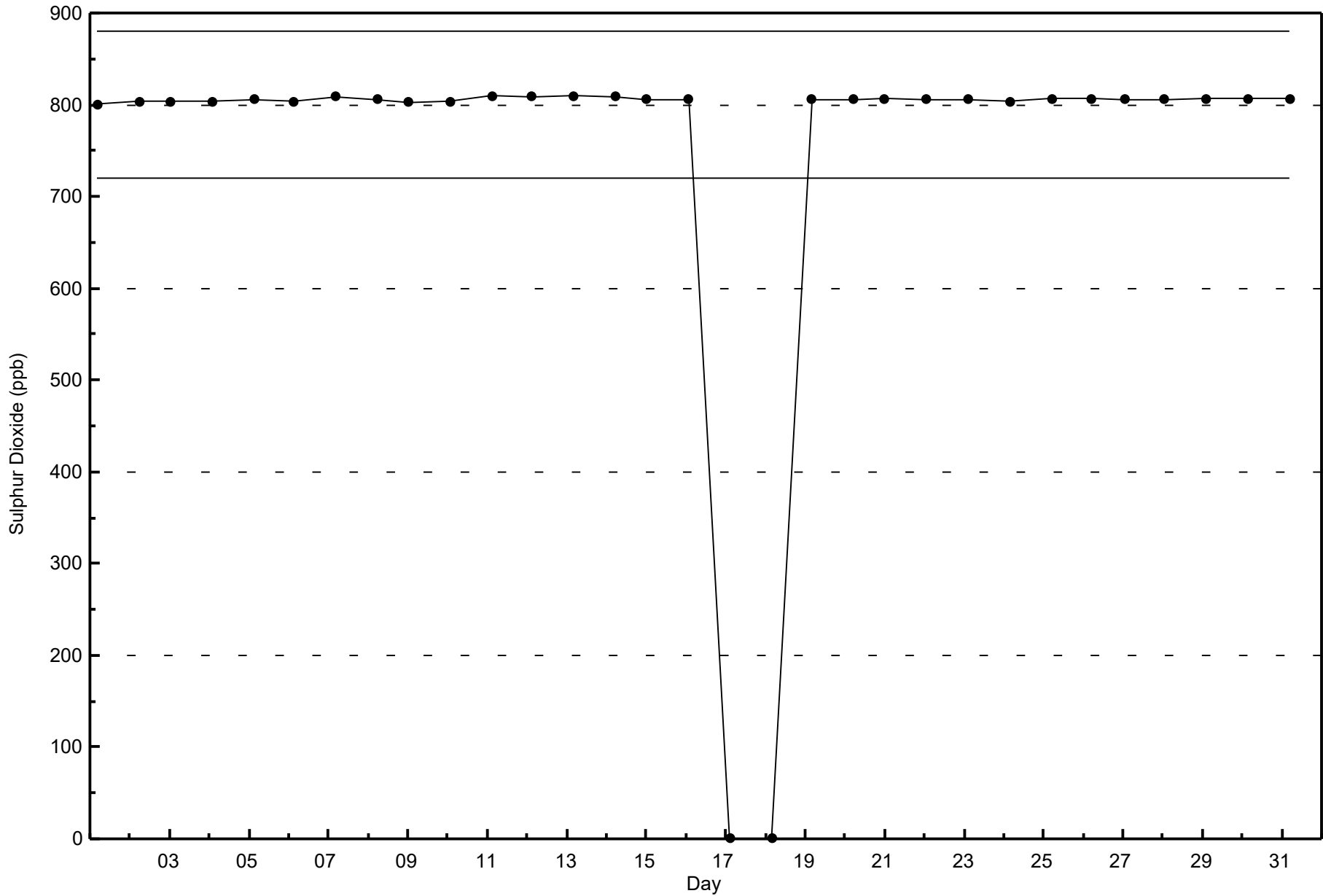


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

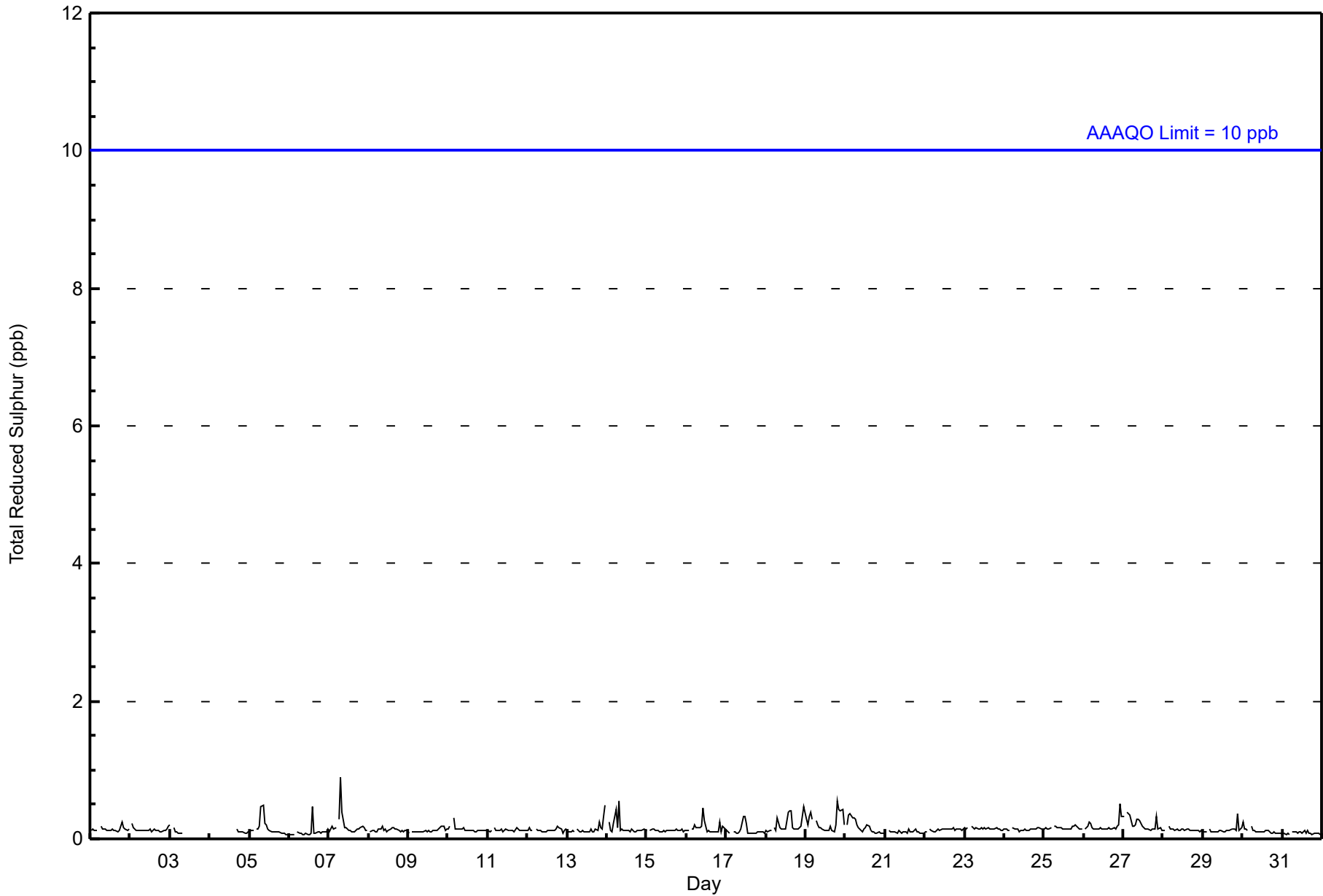
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Anzac















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

**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	682	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: 682

Total Number of Hours: 744



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

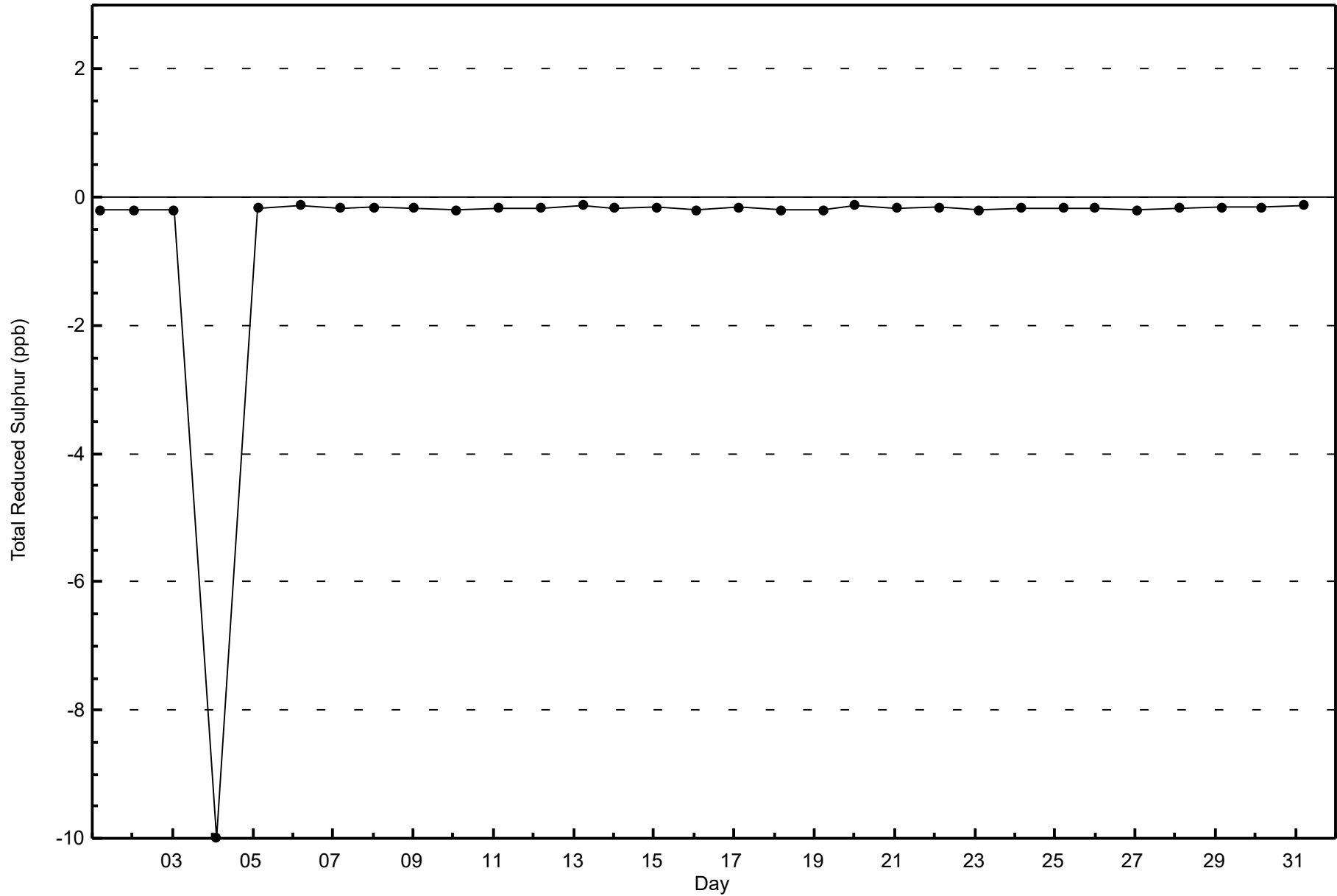
**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - October 2024**

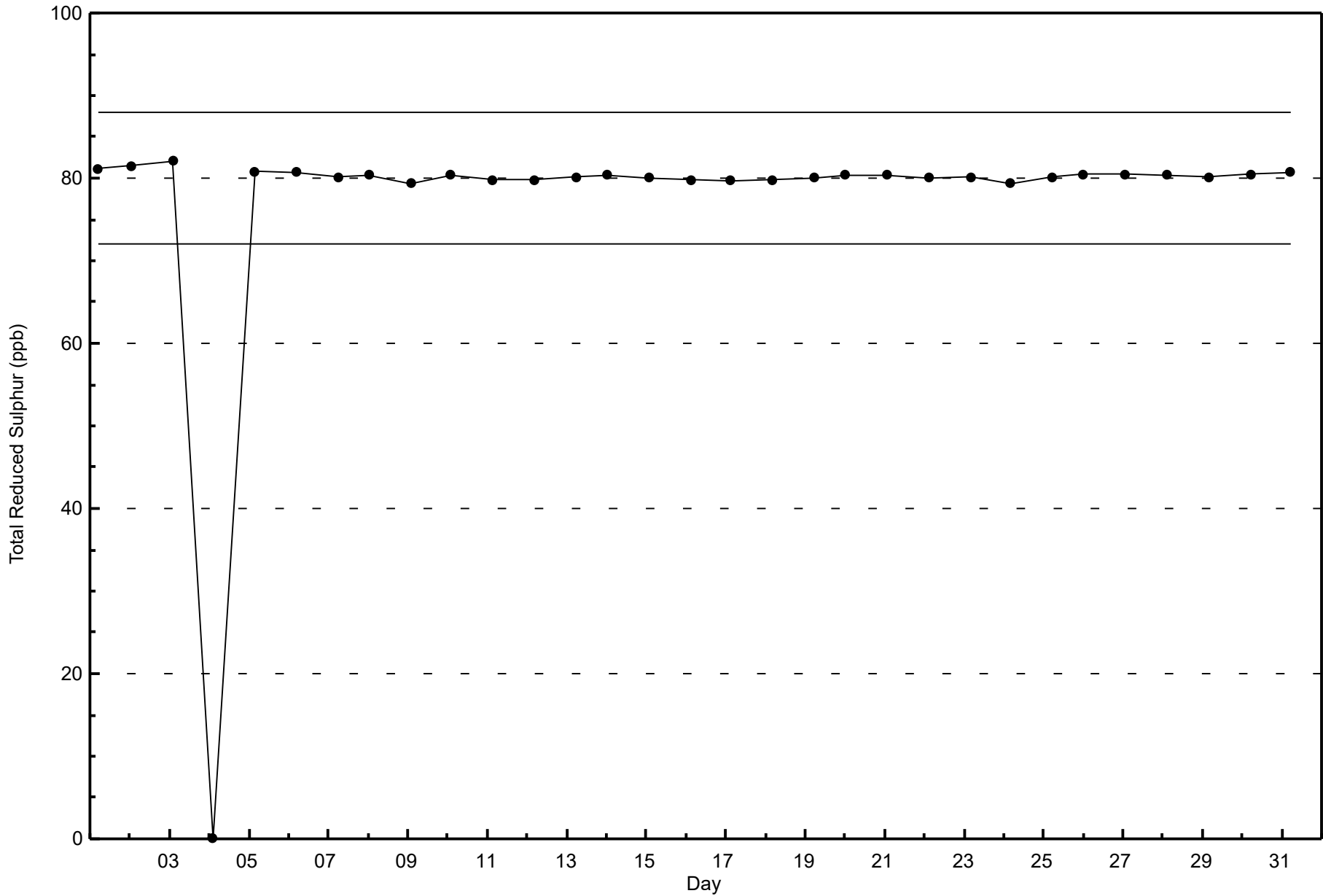
<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	10	6	3	10	24	43	59	62	33	35	41	53	136	90	43	19	667
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	10	6	3	10	24	43	59	62	33	35	41	53	136	90	43	19	667

Total Number of Valid Hours: 667

Total Number of Hours: 744





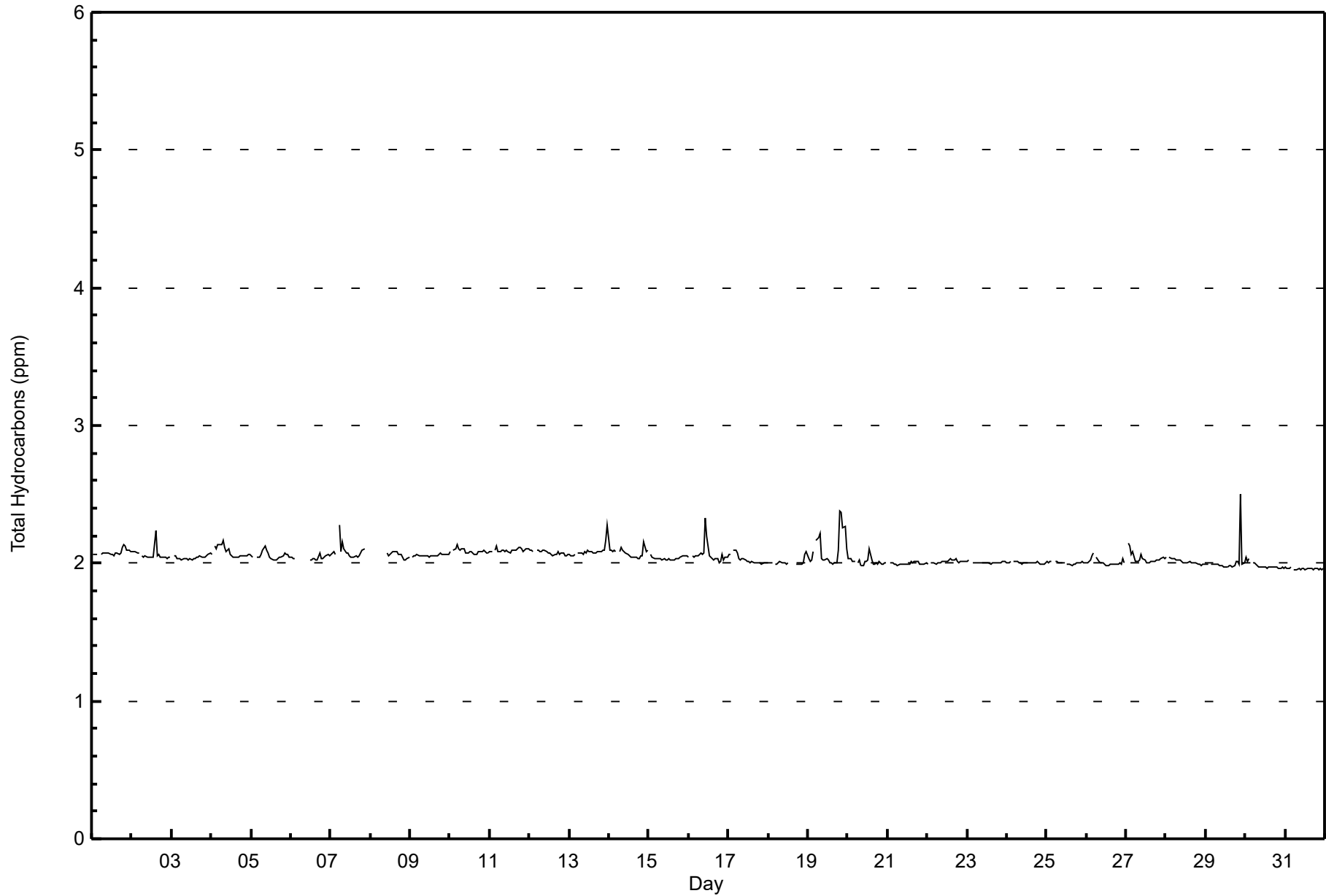






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Anzac - October 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Anzac - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	425	61.68	61.68
2.1 - 3.0	264	38.32	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 689

Total Number of Hours: 744





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

**Total Hydrocarbons (THC) - ppm**  
**Anzac - October 2024**

<b>Concentration</b> <b>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	3	3	1	7	24	35	35	20	10	15	24	34	95	58	34	12	410
2.1 - 3.0	8	2	1	3	3	10	23	44	27	19	15	15	42	33	13	6	264
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>	11	5	2	10	27	45	58	64	37	34	39	49	137	91	47	18	674

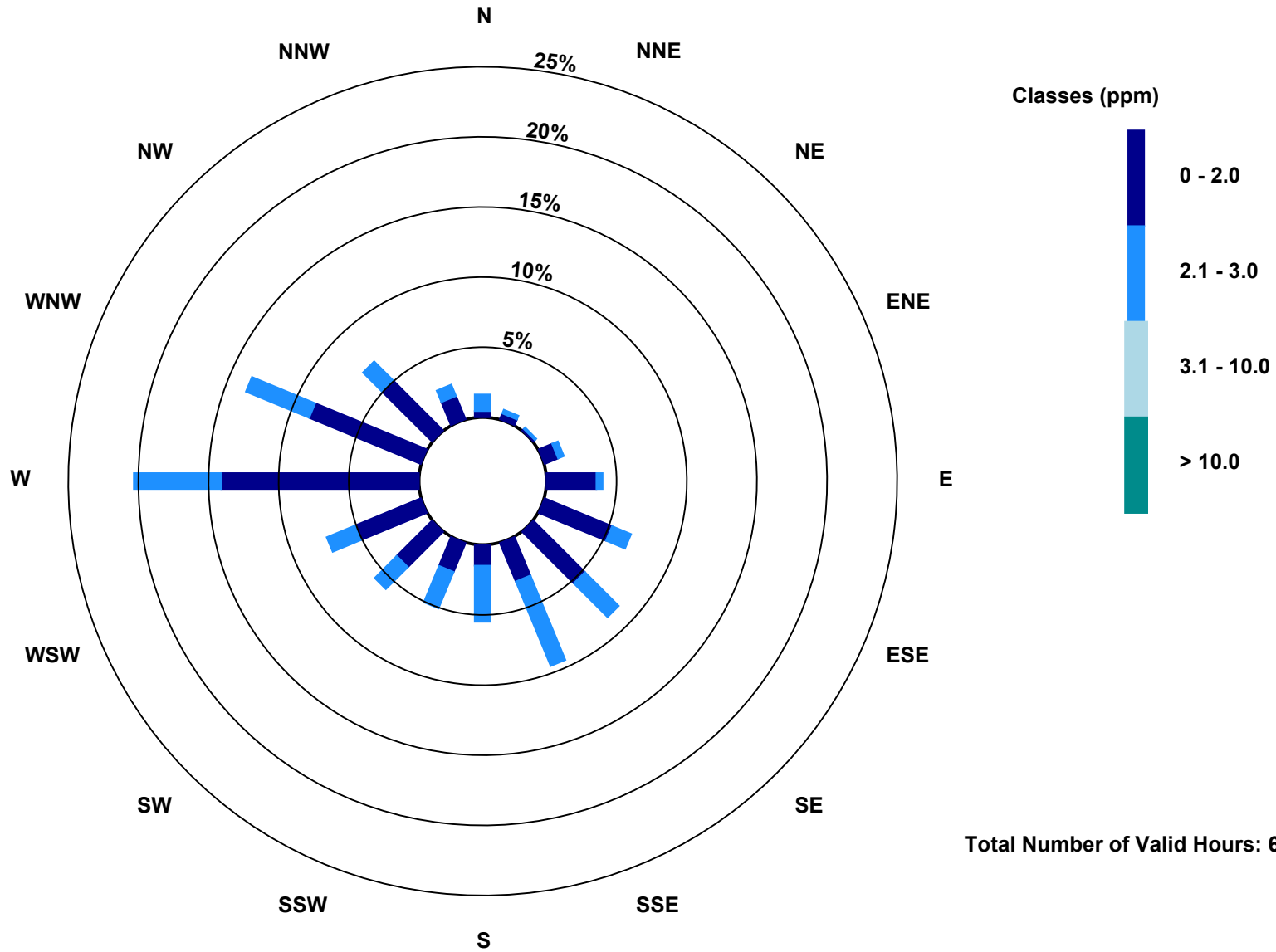
Total Number of Valid Hours: 674

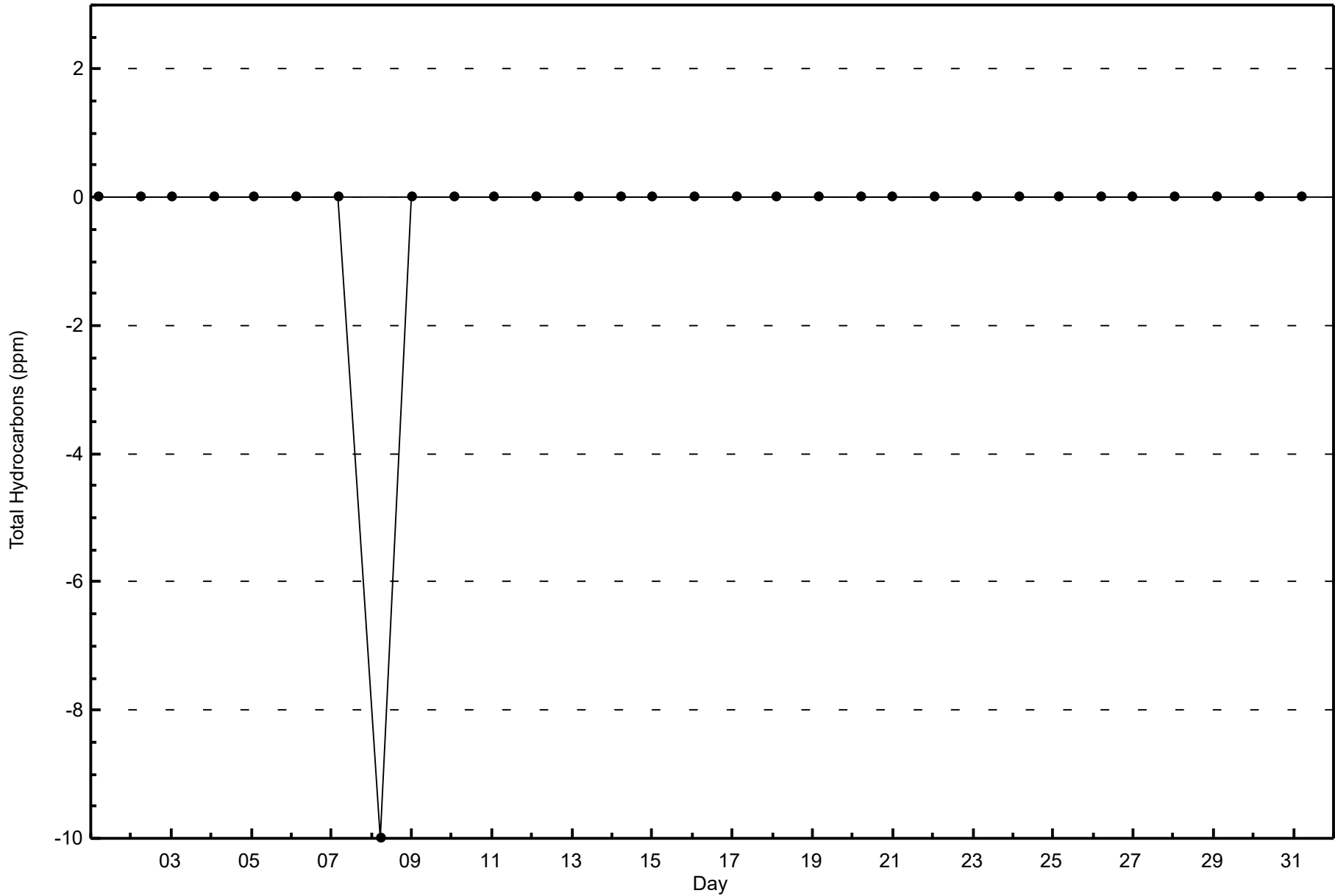
Total Number of Hours: 744

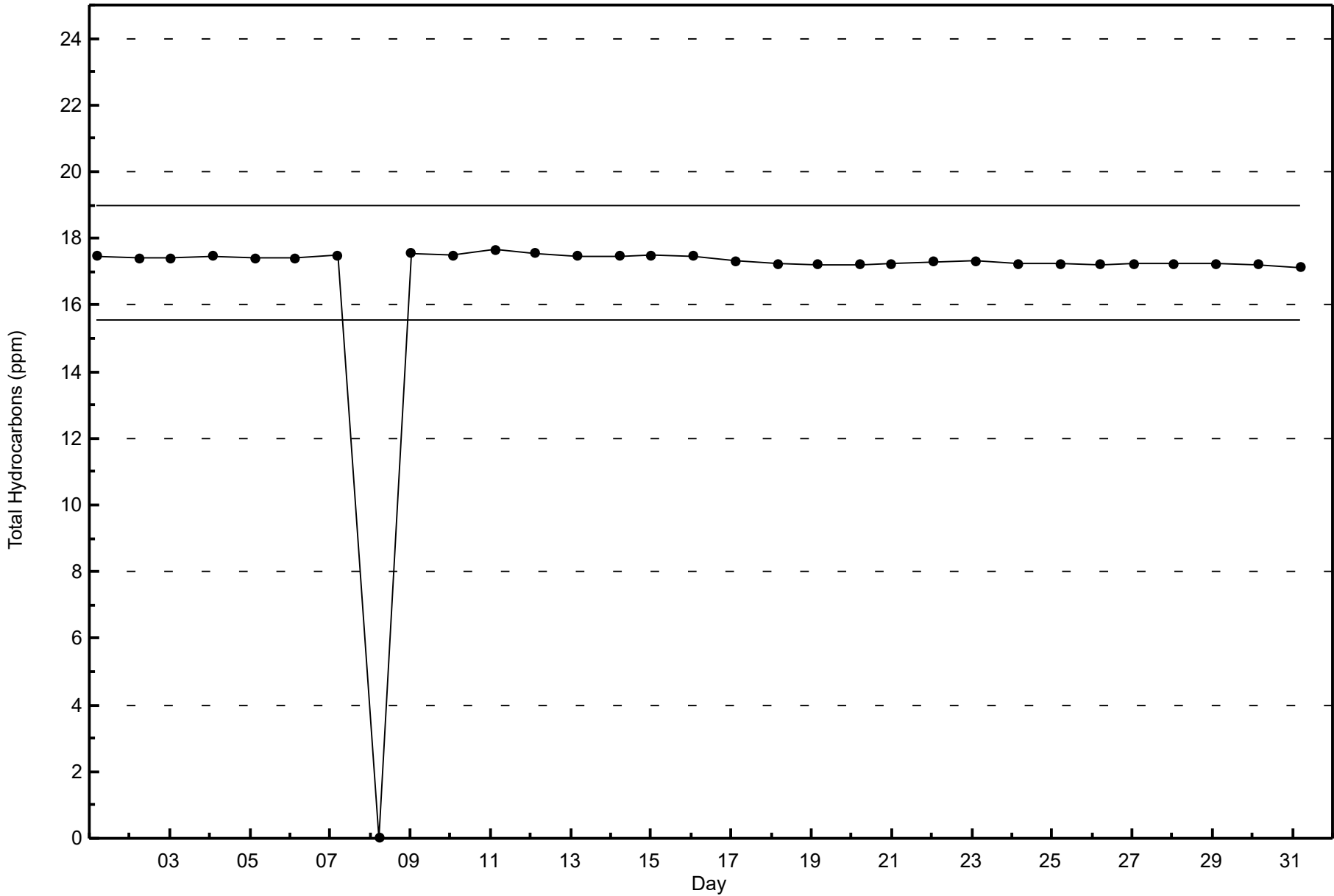


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

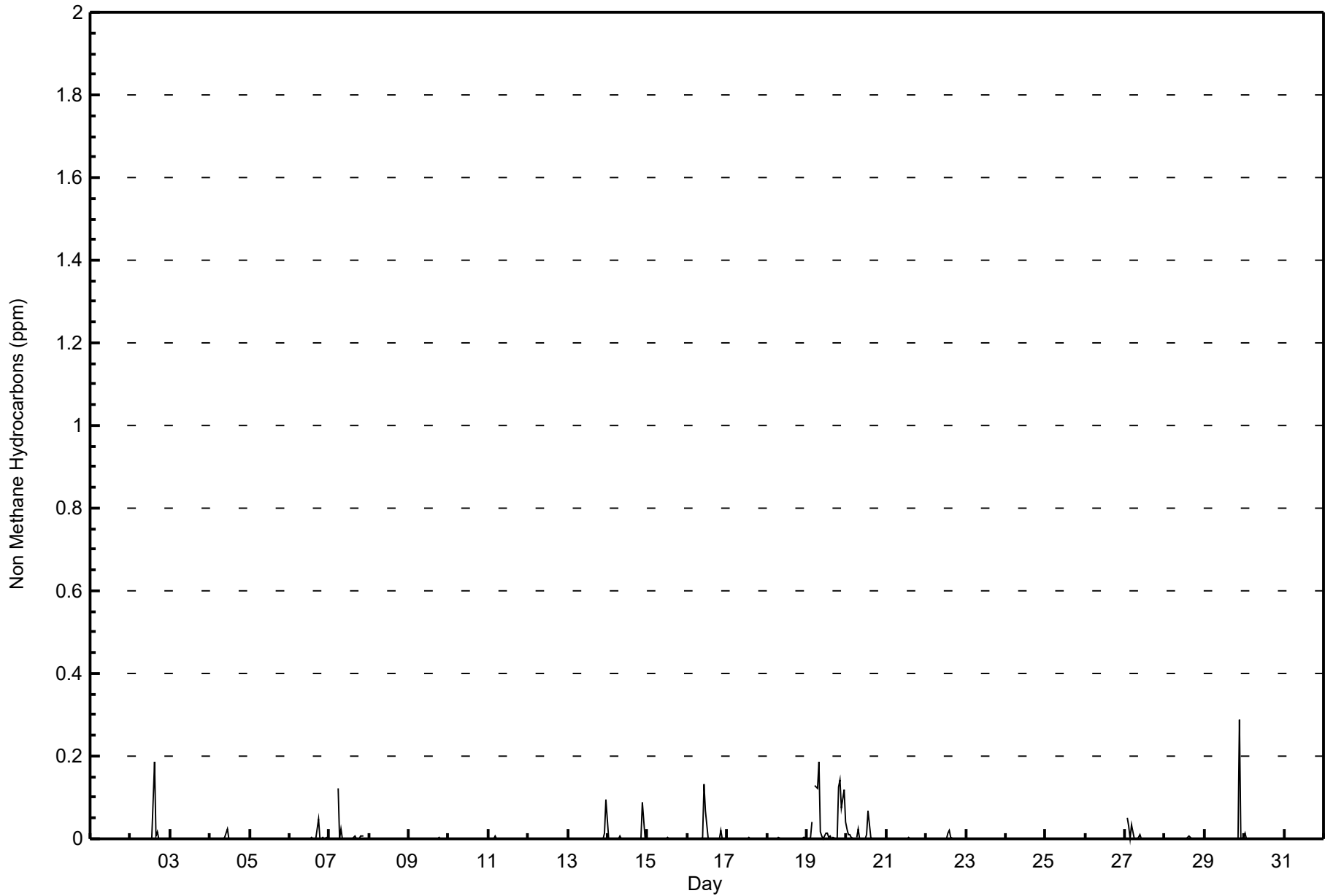
Total Hydrocarbons (THC) - ppm  
Anzac













**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Anzac - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	642	93.18	93.18
0.006 - 0.05	32	4.64	97.82
0.06 - 0.1	12	1.74	99.56
> 0.1	3	0.44	100.00

Total Number of Valid Hours: 689

Total Number of Hours: 744



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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Anzac - October 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	11	5	2	10	26	39	49	61	36	32	36	47	136	80	40	17	627
0.006 - 0.05	0	0	0	0	0	3	8	1	0	2	3	2	1	8	4	0	32
0.06 - 0.1	0	0	0	0	1	2	1	2	1	0	0	0	0	2	2	1	12
> 0.1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	3
<b>Totals</b>	11	5	2	10	27	45	58	64	37	34	39	49	137	91	47	18	674

Total Number of Valid Hours: 674

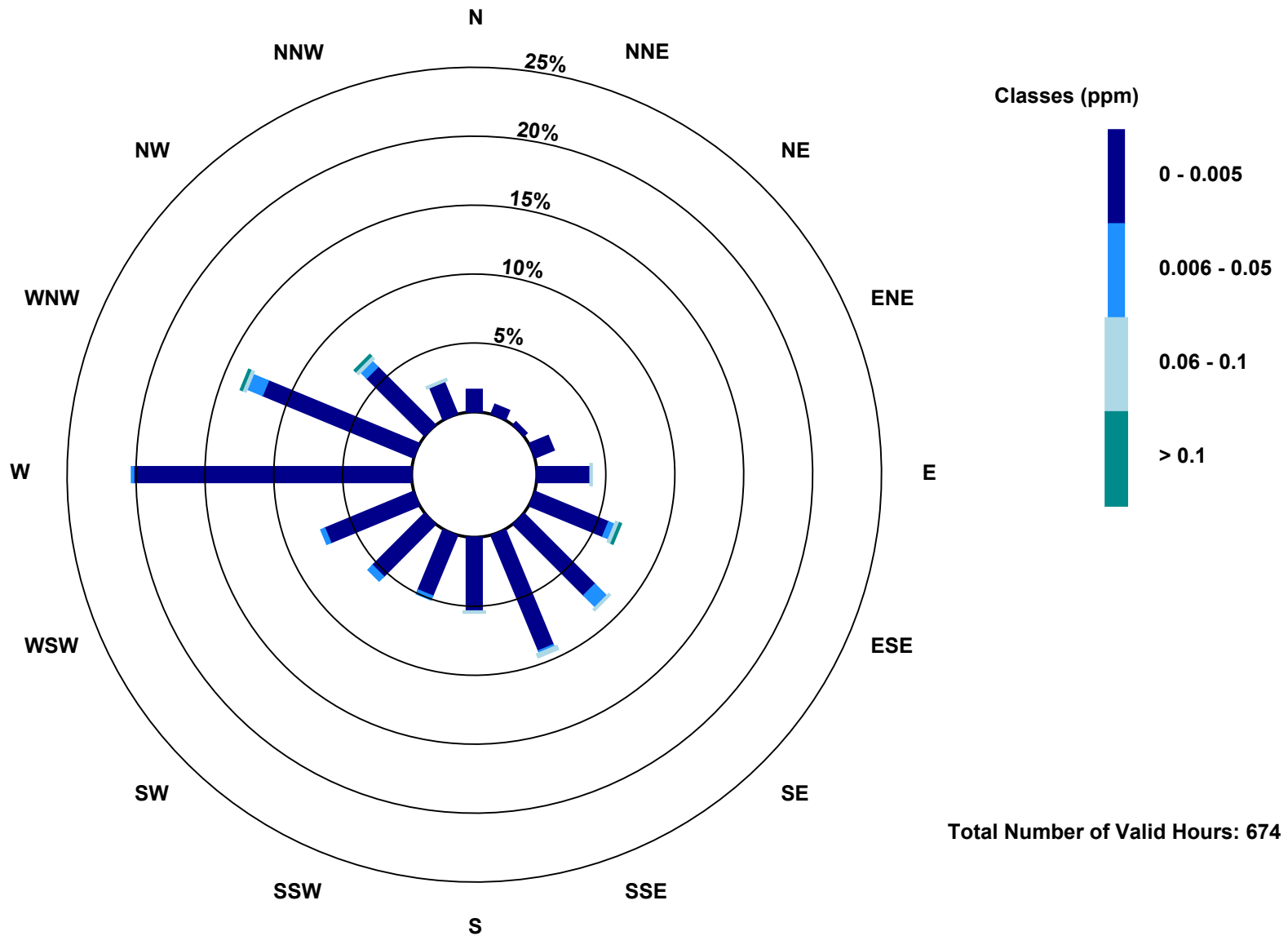
Total Number of Hours: 744

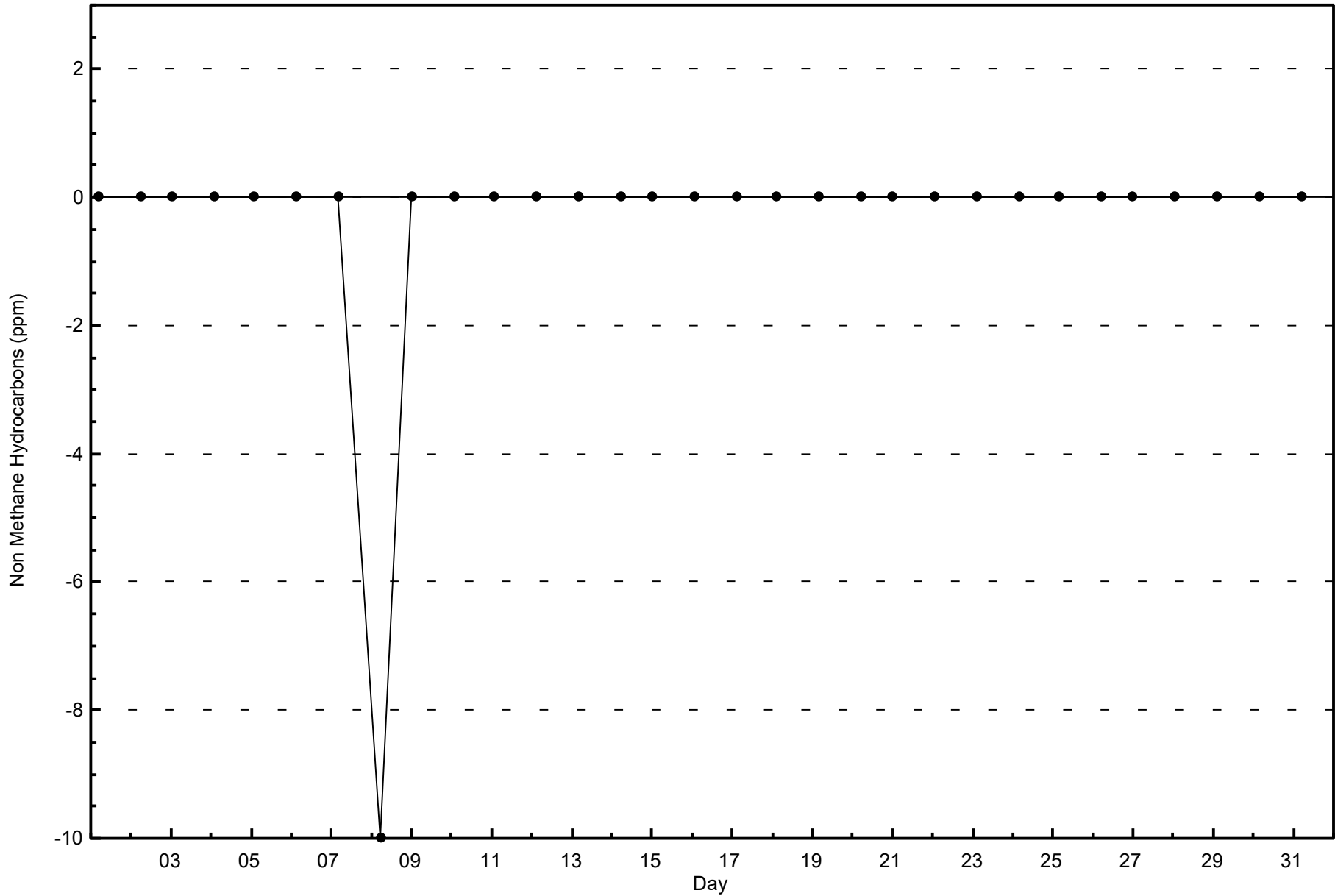


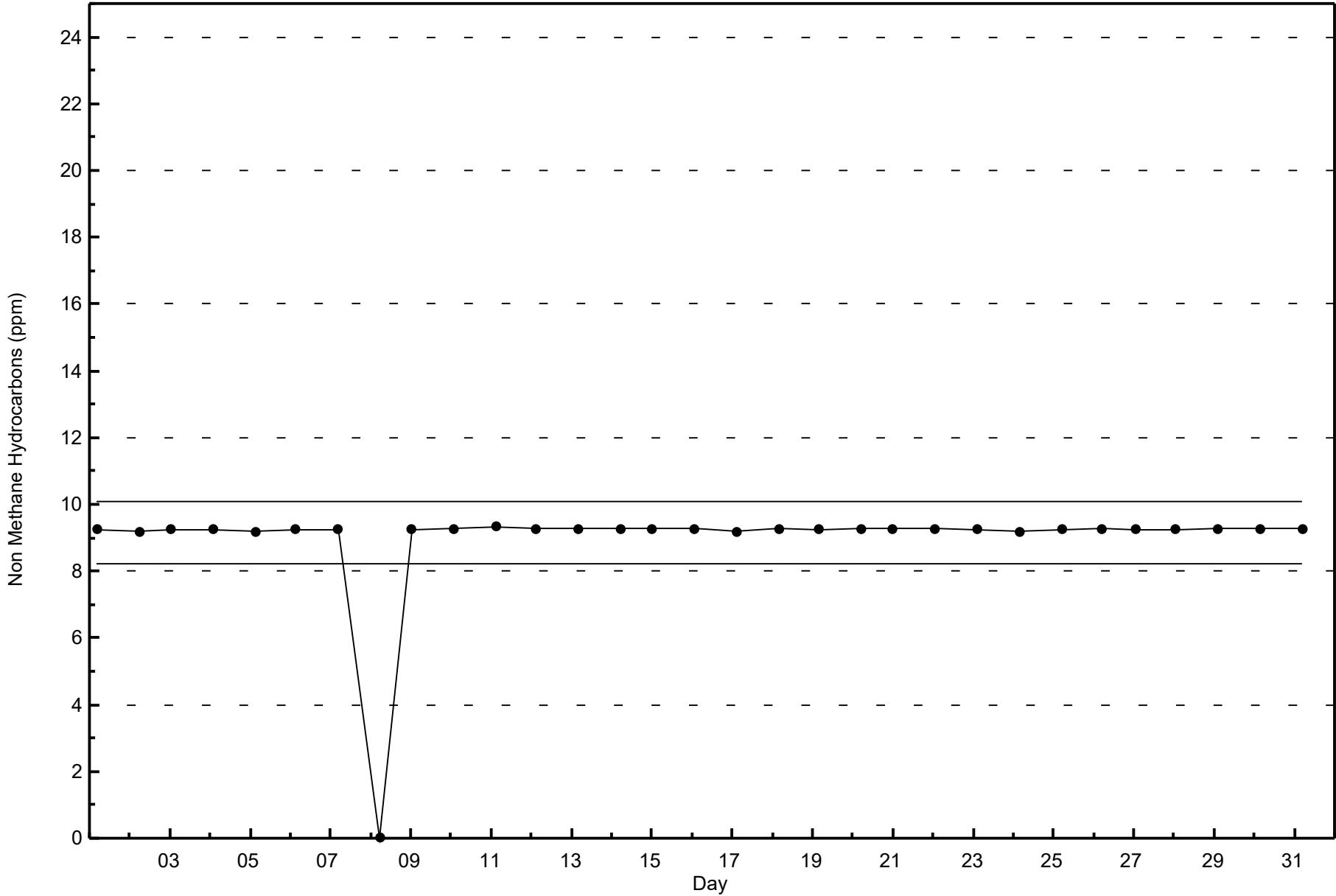


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Anzac









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

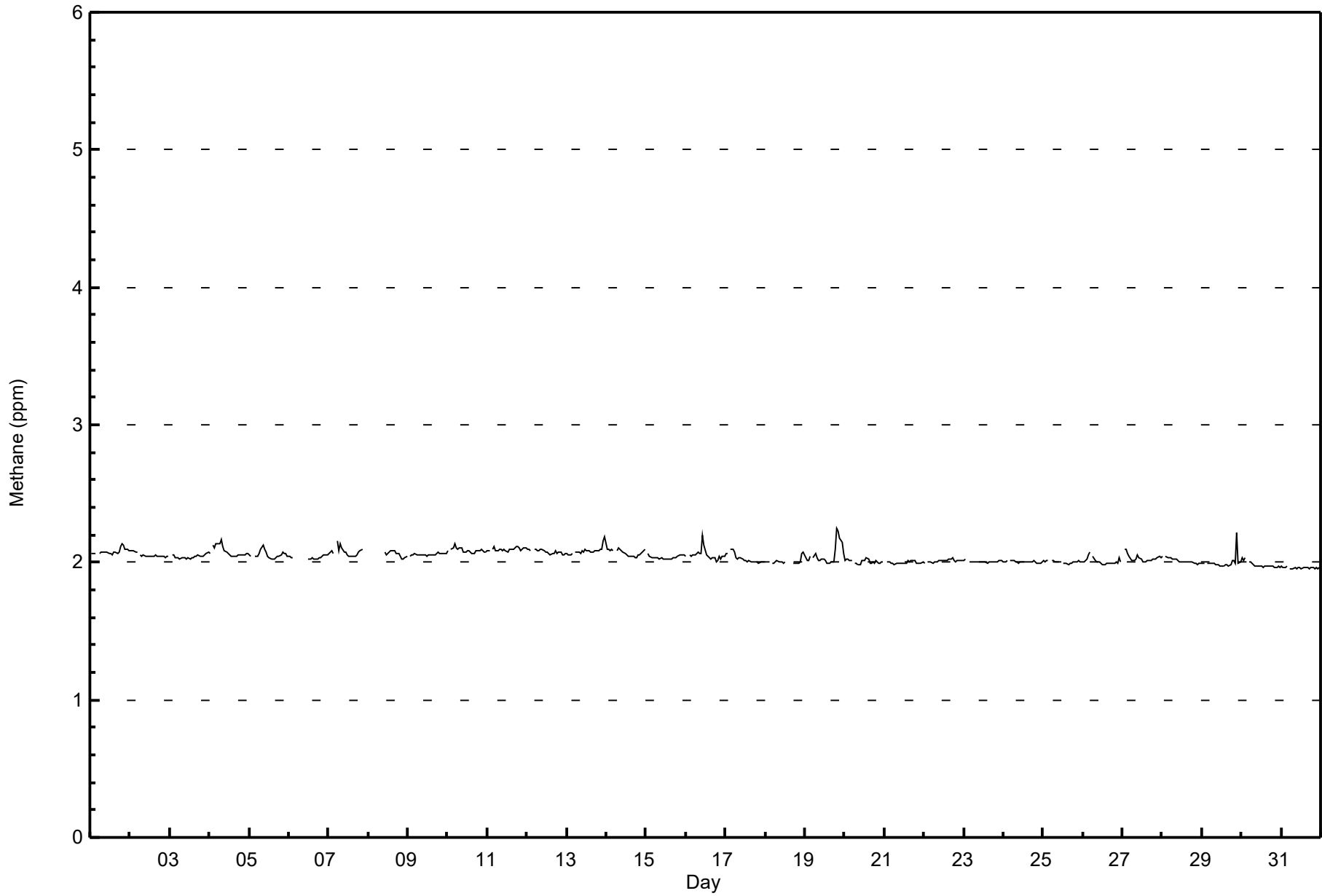
**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.2 ppm on Oct 19 20:00      Maximum Daily Average: 2.1 ppm on Oct 11		Hours in Service: 744 Hours of Data: 689 Hours of Missing Data: 55 Hours of Calibration: 34 Percent Operational Time: 97.2																										
Minimum Value: 2.0 ppm on Oct 31 18:00 Maximum Diurnal Average: 2.0 ppm at hour 5 Monthly Average: 2.04 ppm		Minimum Daily Average: 2.0 ppm on Oct 31 Minimum Diurnal Average: 2.0 ppm at hour 16 Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 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-Oct	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-Oct	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.0	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
3-Oct	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0
4-Oct	2.1	Z	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Oct	2.1	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
6-Oct	2.0	2.0	2.0	Z	2.0	UO	UO	UO	UO	UO	M	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	--
7-Oct	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	UO	UO	UO	UO	UO	2.1	2.2
8-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	--
9-Oct	Z	2.0	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
10-Oct	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
11-Oct	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
12-Oct	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
13-Oct	2.1	2.1	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	2.1	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-Oct	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	2.0	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
15-Oct	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	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.0
16-Oct	2.0	Z	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
17-Oct	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	2.0	2.0	2.0	2.0	2.0	2.0
18-Oct	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	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1
19-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	
20-Oct	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
21-Oct	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
22-Oct	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
23-Oct	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
24-Oct	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
25-Oct	2.0	2.0	2.0	2.0	Z	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	2.0	2.0	2.0	2.0	2.0
26-Oct	2.0	2.0	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
27-Oct	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
28-Oct	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
29-Oct	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	2.2	2.0	2.0	2.0	2.0	2.0	2.0
30-Oct	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
31-Oct	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	2.0
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerospan      C - Calibration      M - Maintenance      UO - Unstable Operation																												



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

**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Anzac - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	434	62.99	62.99
2.1 - 3.0	255	37.01	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 689

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Anzac - October 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	3	1	7	25	36	36	21	11	15	24	35	95	60	35	12	419
2.1 - 3.0	8	2	1	3	2	9	22	43	26	19	15	14	42	31	12	6	255
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>	11	5	2	10	27	45	58	64	37	34	39	49	137	91	47	18	674

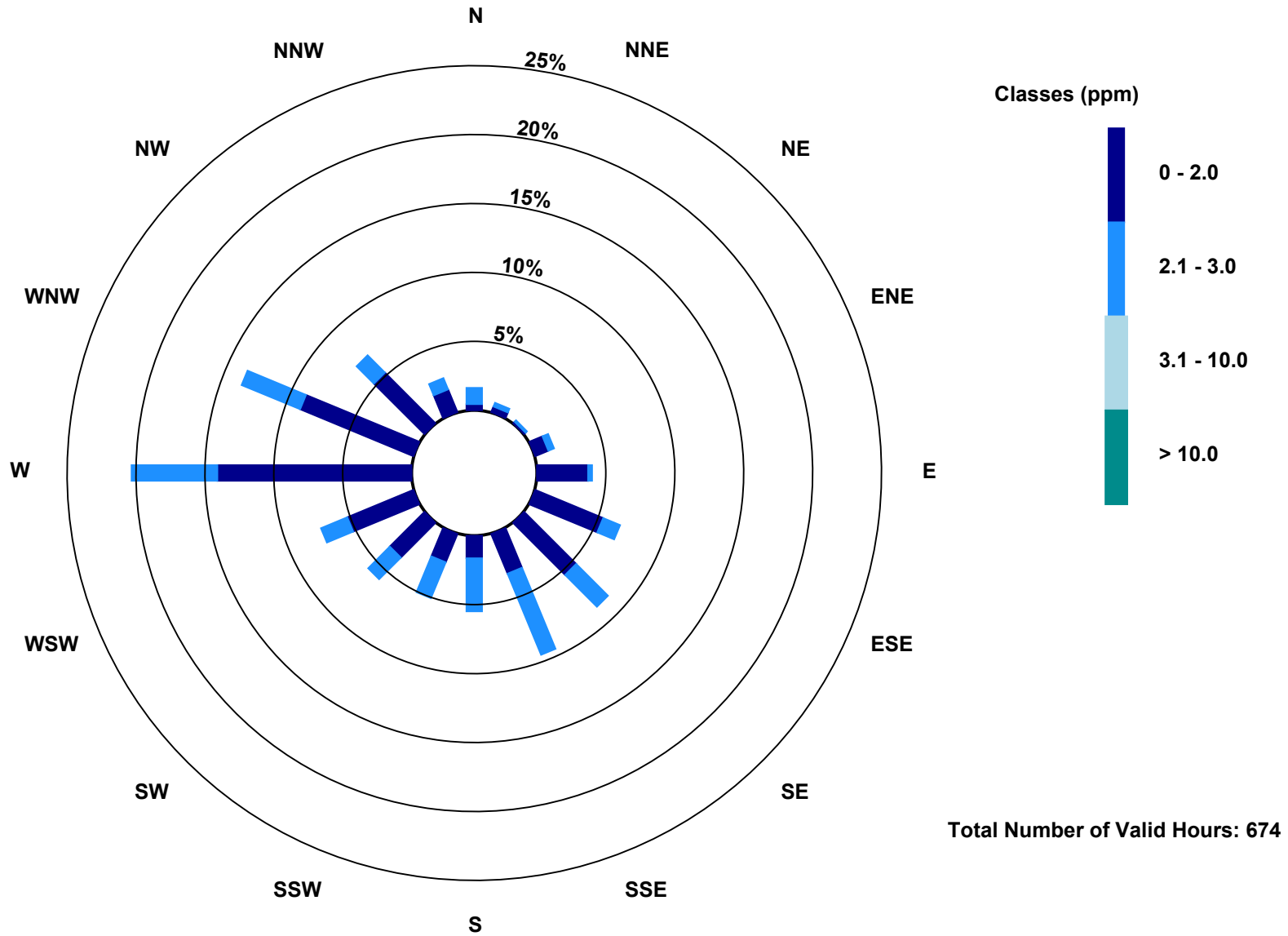
Total Number of Valid Hours: 674

Total Number of Hours: 744

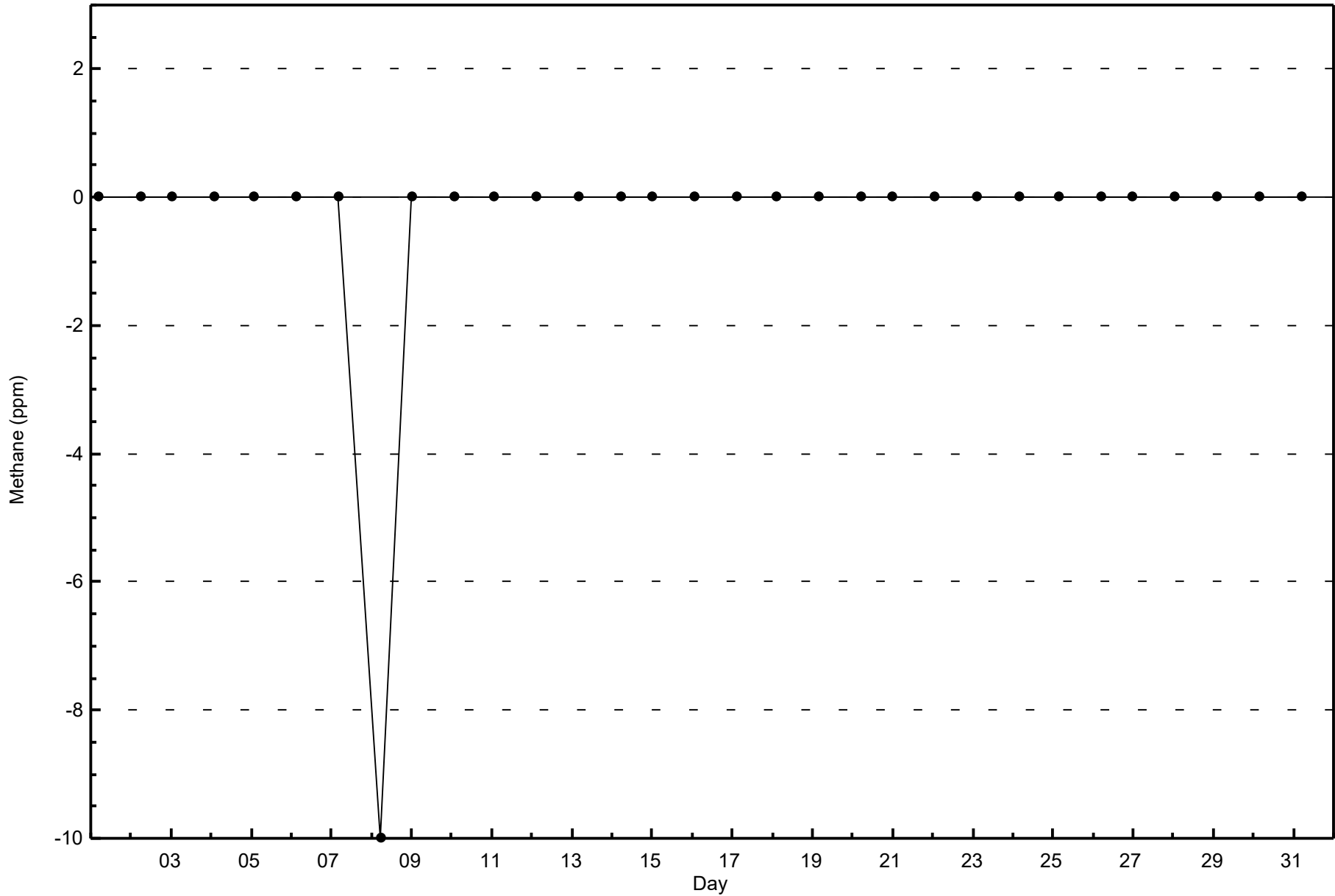


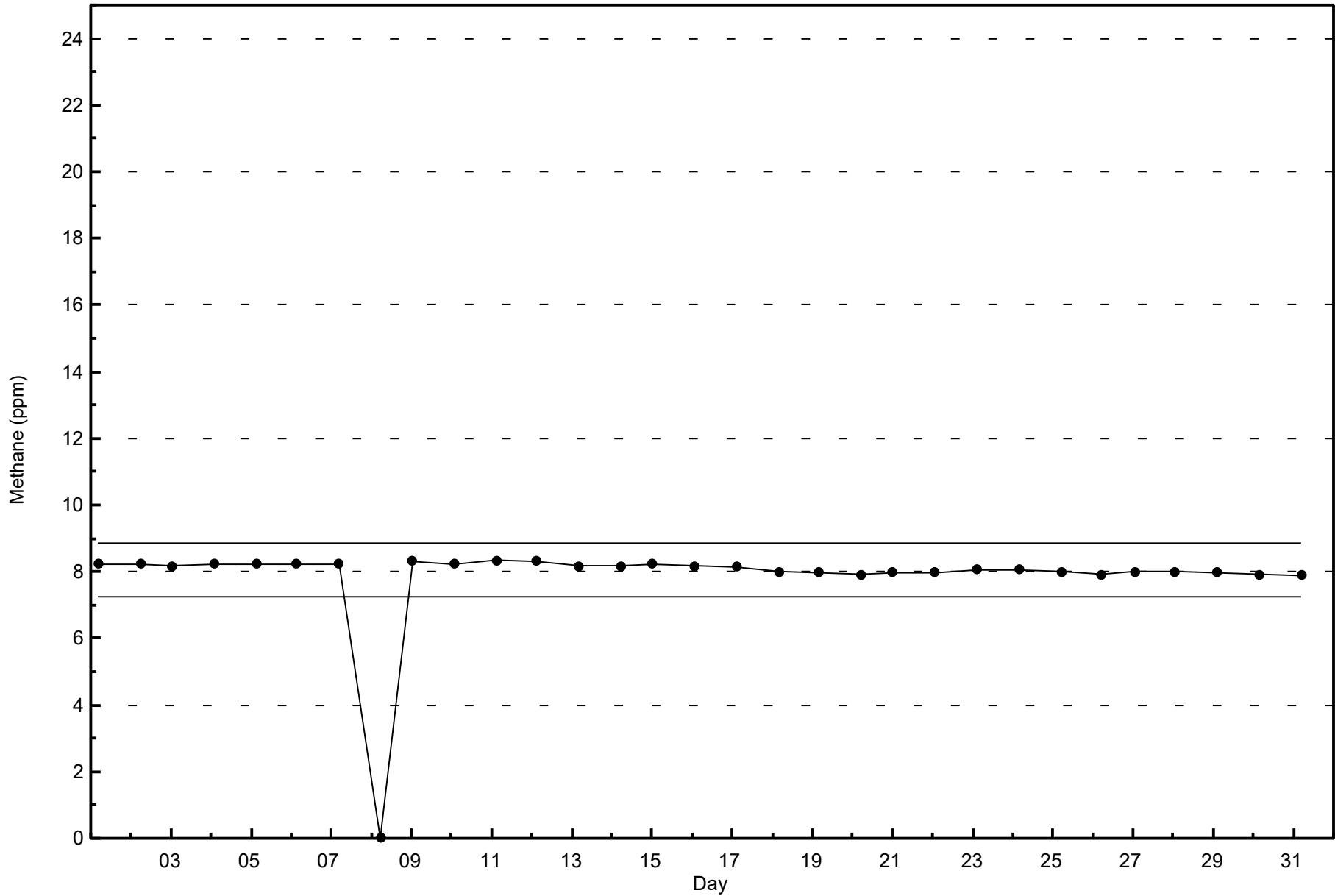
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











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

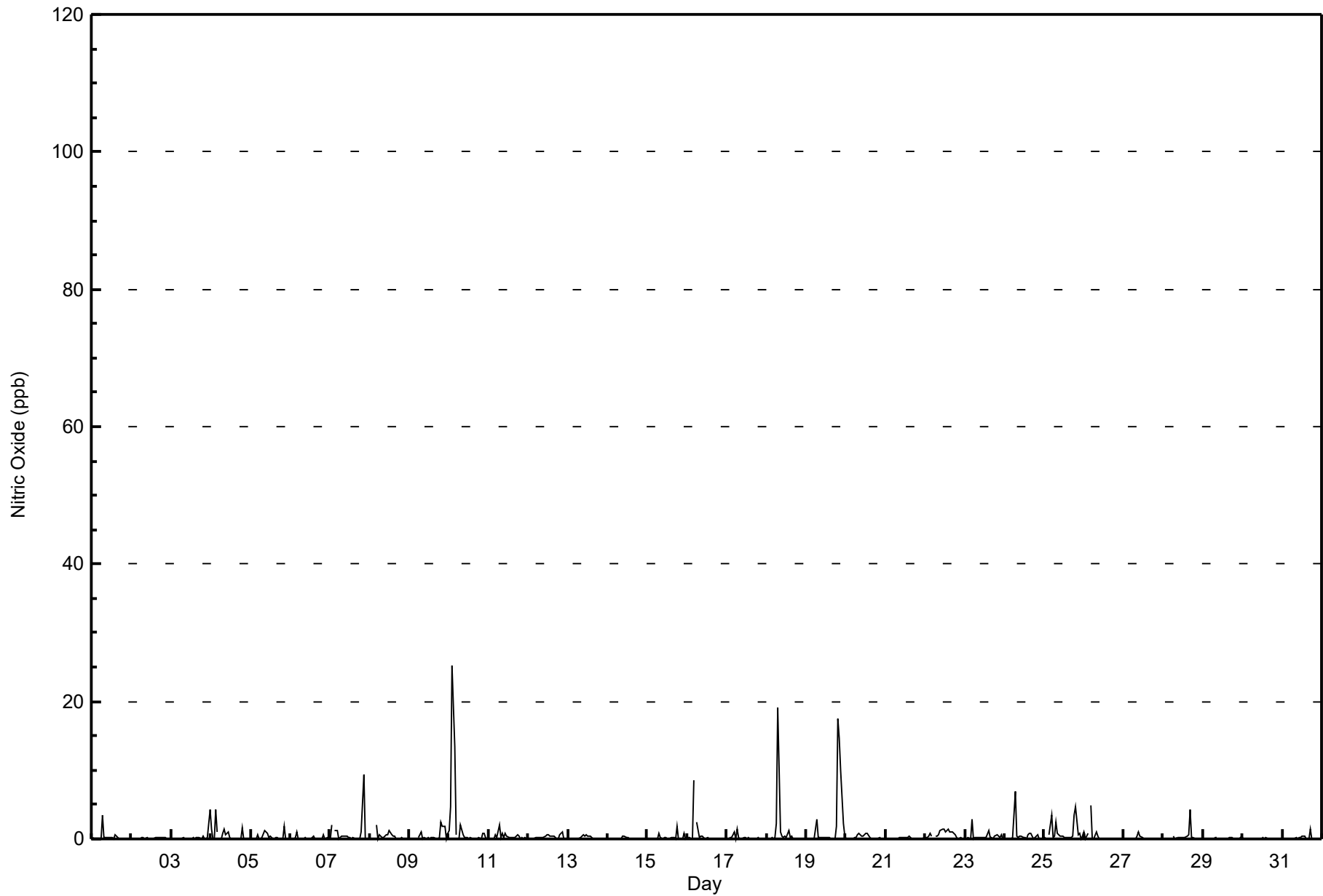
**Nitric Oxide (NO) - ppb**  
**Anzac - October 2024**

Maximum Value: 25.1 ppb on Oct 10 03:00		Maximum Daily Average: 2.2 ppb on Oct 19		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Oct 4 15:00		Minimum Daily Average: 0.0 ppb on Oct 30		Hours of Data: 707																							
Maximum Diurnal Average: 1.1 ppb at hour 5		Minimum Diurnal Average: 0.1 ppb at hour 6		Hours of Missing Data: 37																							
Monthly Average: 0.47 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.9 P <sub>99</sub> = 8.4		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-Oct	0.2	0.0	Z	0.0	0.1	0.1	3.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.3	
2-Oct	0.0	0.0	0.1	Z	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	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
3-Oct	0.1	0.1	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	0.2	0.1	0.1	0.0	0.3	0.0	0.0	0.3	4.3	4.3	0.3	
4-Oct	1.4	0.0	0.0	4.3	1.1	Z	0.1	0.9	1.4	0.7	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.6	
5-Oct	Z	0.0	0.0	0.0	0.5	0.0	0.0	0.3	1.3	1.0	0.9	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.0	1.8	0.1	0.1	0.0	0.0	0.3	
6-Oct	0.0	Z	0.0	0.1	1.0	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.1	0.1	0.0	0.6	0.0	0.2	0.0	0.0	0.2	
7-Oct	0.0	2.1	Z	1.1	1.2	0.0	0.1	0.4	0.4	0.4	0.4	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.1	1.0	9.3	0.0	0.1	0.0	0.0	0.8	
8-Oct	0.0	0.0	0.0	Z	2.0	0.0	0.7	0.1	0.3	0.4	0.6	0.5	1.3	0.7	0.4	0.3	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3	
9-Oct	0.0	0.0	0.0	0.0	Z	0.2	0.7	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.1	2.5	1.9	1.8	0.1	0.9	0.4		
10-Oct	1.1	4.7	25.1	13.4	0.5	Z	0.1	2.0	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.8	0.8	0.1	0.1	0.1	2.2	
11-Oct	Z	0.0	0.1	0.0	0.7	0.3	2.1	0.3	0.8	0.2	0.8	0.4	0.3	0.3	0.2	0.2	0.1	0.6	0.5	0.0	0.1	0.1	0.1	0.0	0.0	0.4	
12-Oct	0.2	Z	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.4	0.5	0.6	0.5	0.4	0.4	0.2	0.0	0.0	0.7	1.1	0.0	0.0	0.0	0.0	0.3	
13-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.5	0.6	0.4	0.5	0.5	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
14-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
15-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.8	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.0	1.9	0.0	0.1	0.0	0.8	0.0	0.0	0.2	
16-Oct	0.1	0.1	0.0	0.1	8.5	Z	2.4	0.2	0.5	0.3	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	
17-Oct	Z	0.0	0.3	0.2	0.9	0.1	1.5	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	
18-Oct	0.0	Z	0.1	0.1	0.1	0.2	2.2	19.1	1.0	0.4	0.2	0.3	0.2	1.3	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.1	
19-Oct	0.0	0.0	Z	0.0	0.0	0.0	2.8	0.1	0.3	0.2	0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.0	1.8	17.5	14.7	10.0	2.2	0.3	0.3	2.2	
20-Oct	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.6	0.9	0.5	0.4	0.6	0.8	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	
21-Oct	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	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	
22-Oct	0.2	0.2	0.4	0.9	0.4	Z	0.5	0.4	0.6	1.2	1.4	1.4	1.1	1.3	1.5	1.1	1.0	0.7	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.7	
23-Oct	Z	0.1	0.1	0.0	2.8	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	1.2	0.2	0.1	0.1	0.4	0.5	0.5	0.2	0.5	0.0	0.0	0.4	
24-Oct	0.0	Z	0.0	0.1	0.1	0.2	6.8	0.5	0.3	0.3	0.4	0.2	0.1	0.1	0.6	0.9	0.7	0.0	0.1	0.5	0.6	0.0	0.0	0.0	0.0	0.5	
25-Oct	0.1	0.1	Z	0.7	3.4	0.2	0.3	2.4	0.9	0.3	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.4	3.6	4.7	0.7	0.8	0.0	0.5	0.0	0.9	
26-Oct	1.1	0.0	0.8	Z	4.9	0.0	0.0	1.1	0.5	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	
27-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.4	1.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
28-Oct	0.0	0.1	0.0	0.0	0.0	Z	0.4	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.4	0.6	4.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
29-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	C	C	C	C	C	C	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.5	--	0.5	
30-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
31-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.4	0.4	0.1	0.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
		0.2	0.3	1.1	0.8	1.1	0.1	0.8	1.0	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.1	0.3	1.0	1.1	0.5	0.2	0.2	Diurnal Average		
		1.4	4.7	25.1	13.4	8.5	0.3	6.8	19.1	1.4	1.2	1.4	1.4	1.3	1.3	1.5	1.1	4.2	1.4	3.6	17.5	14.7	10.0	2.2	4.3	Diurnal Maximum	
Z - zerspan		C - Calibration																									



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

**Nitric Oxide (NO) - ppb**  
**Anzac - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Anzac - October 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
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  
Anzac - October 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	10	6	3	10	27	45	62	64	38	39	42	50	140	91	45	19	691
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	10	6	3	10	27	45	62	64	38	39	42	50	141	91	45	19	692

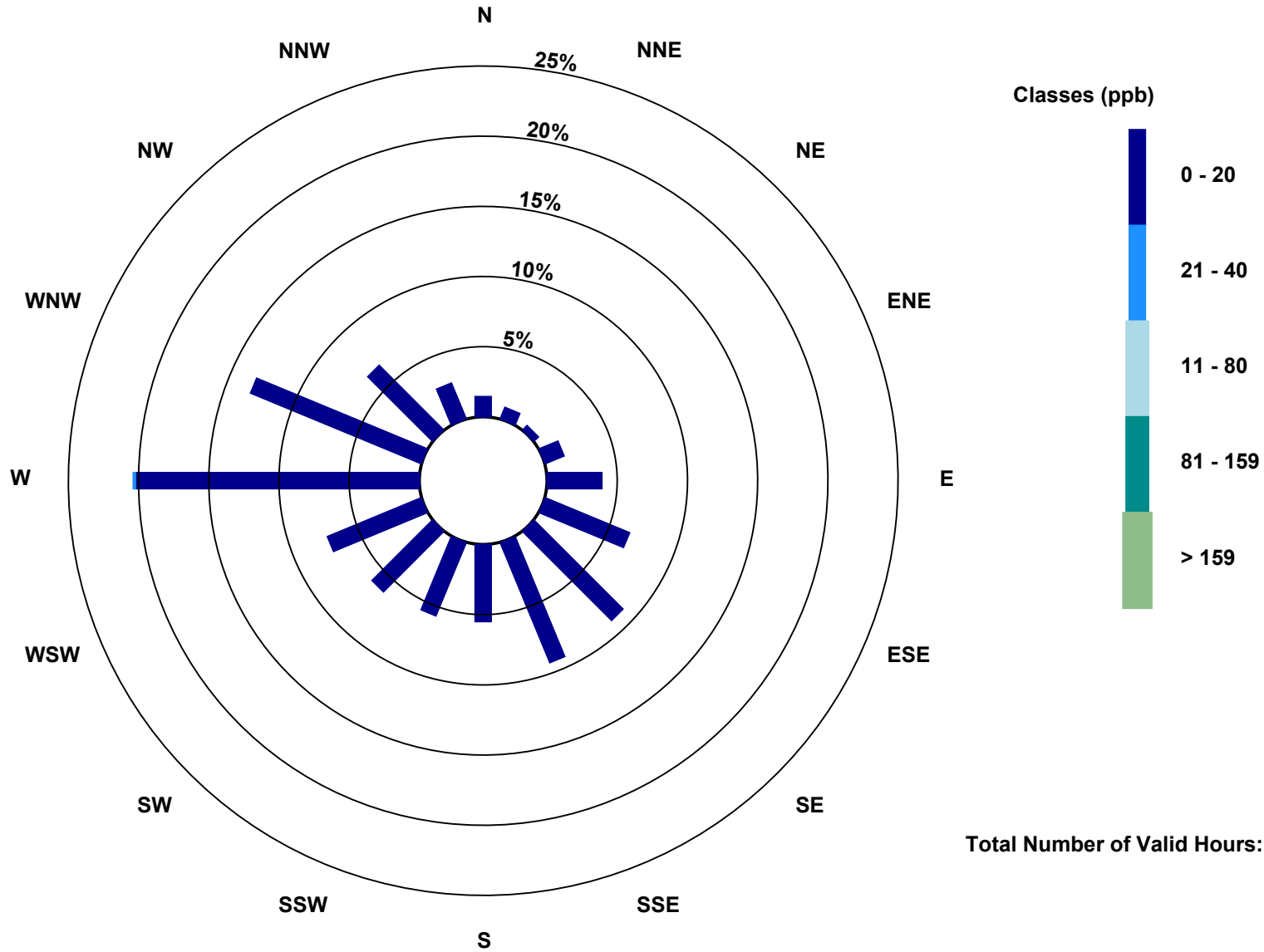
Total Number of Valid Hours: 692

Total Number of Hours: 744

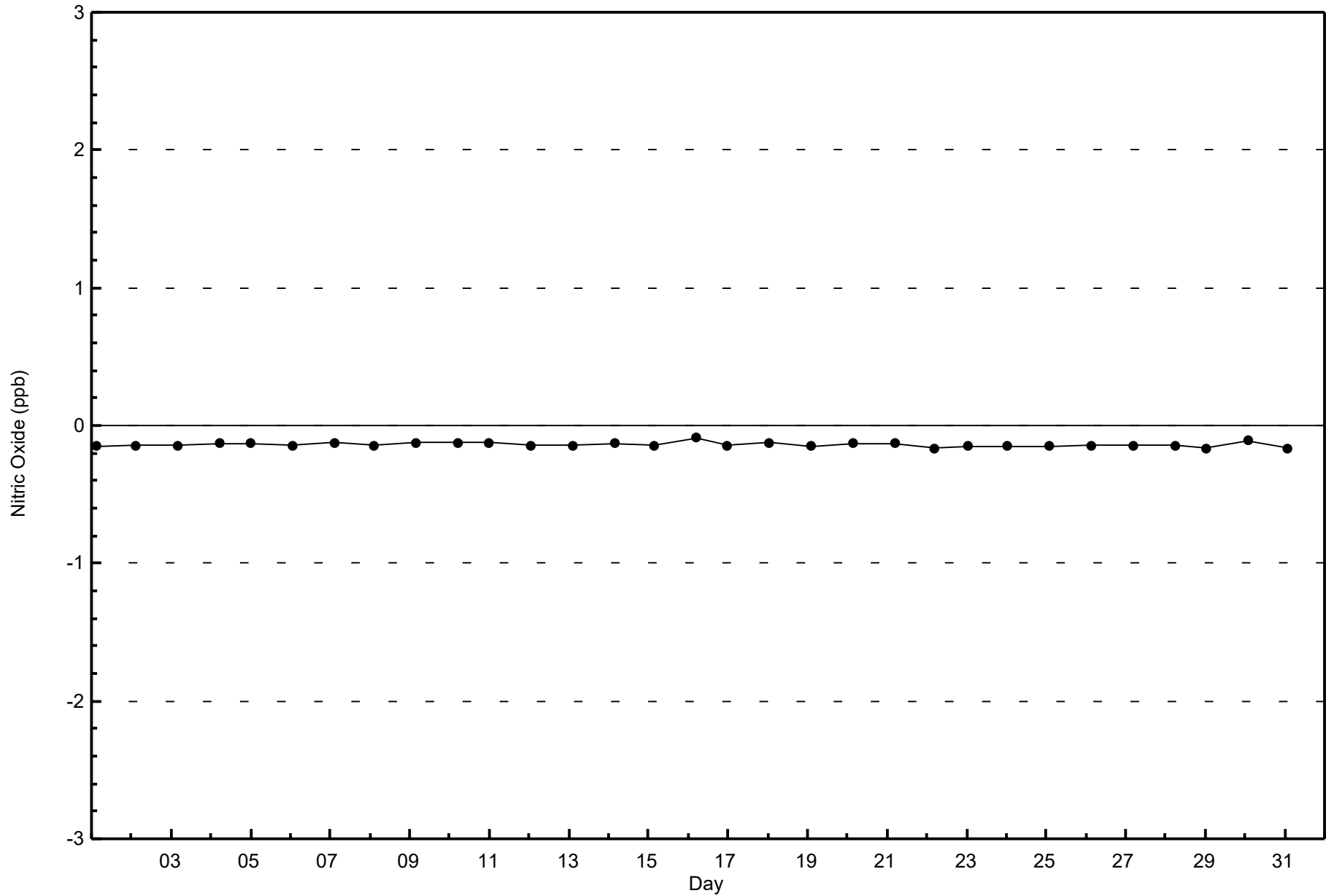


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

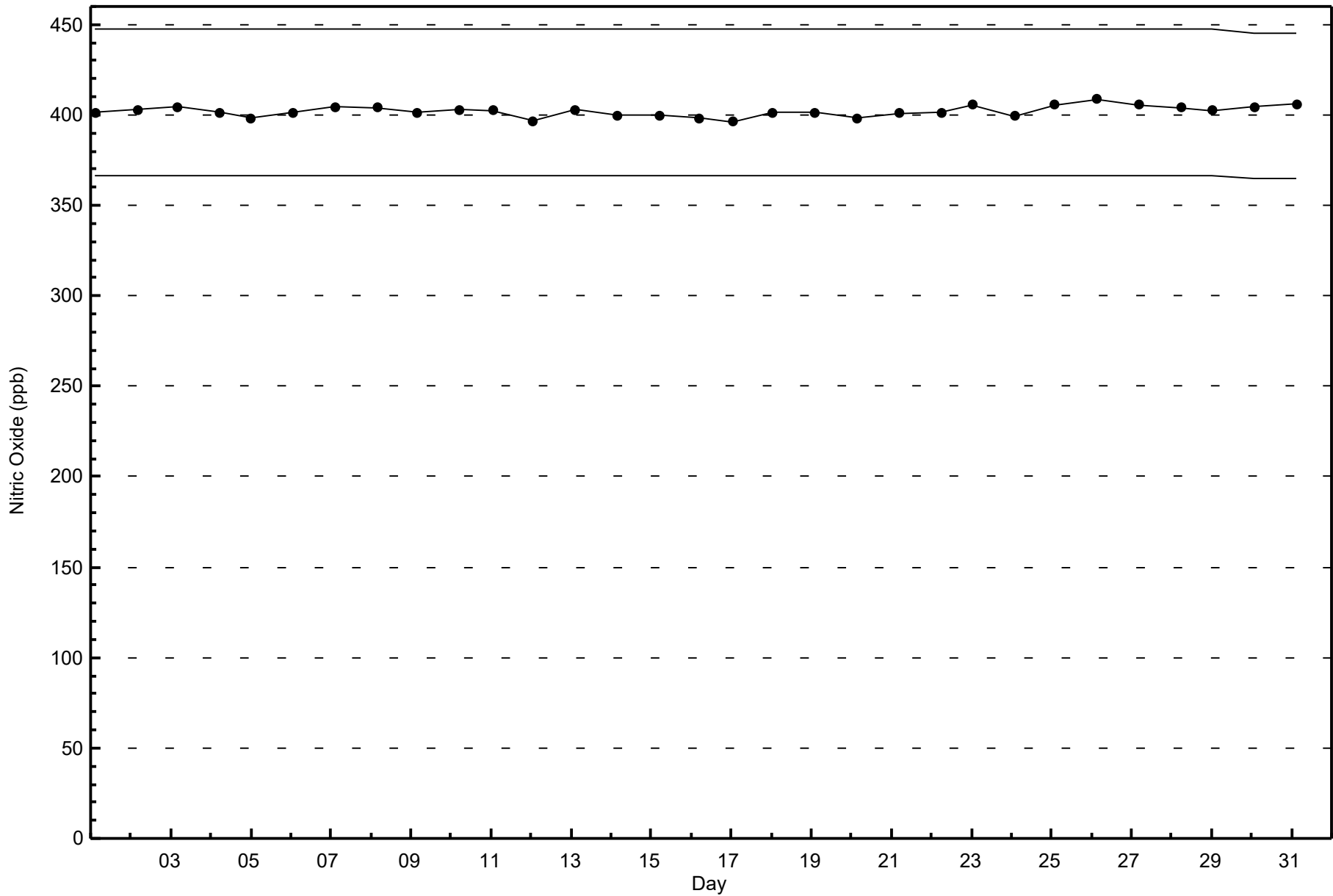
Nitric Oxide (NO) - ppb  
Anzac



Total Number of Valid Hours: 692









Wood Buffalo Environmental Association

Summary of Hour Averages

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

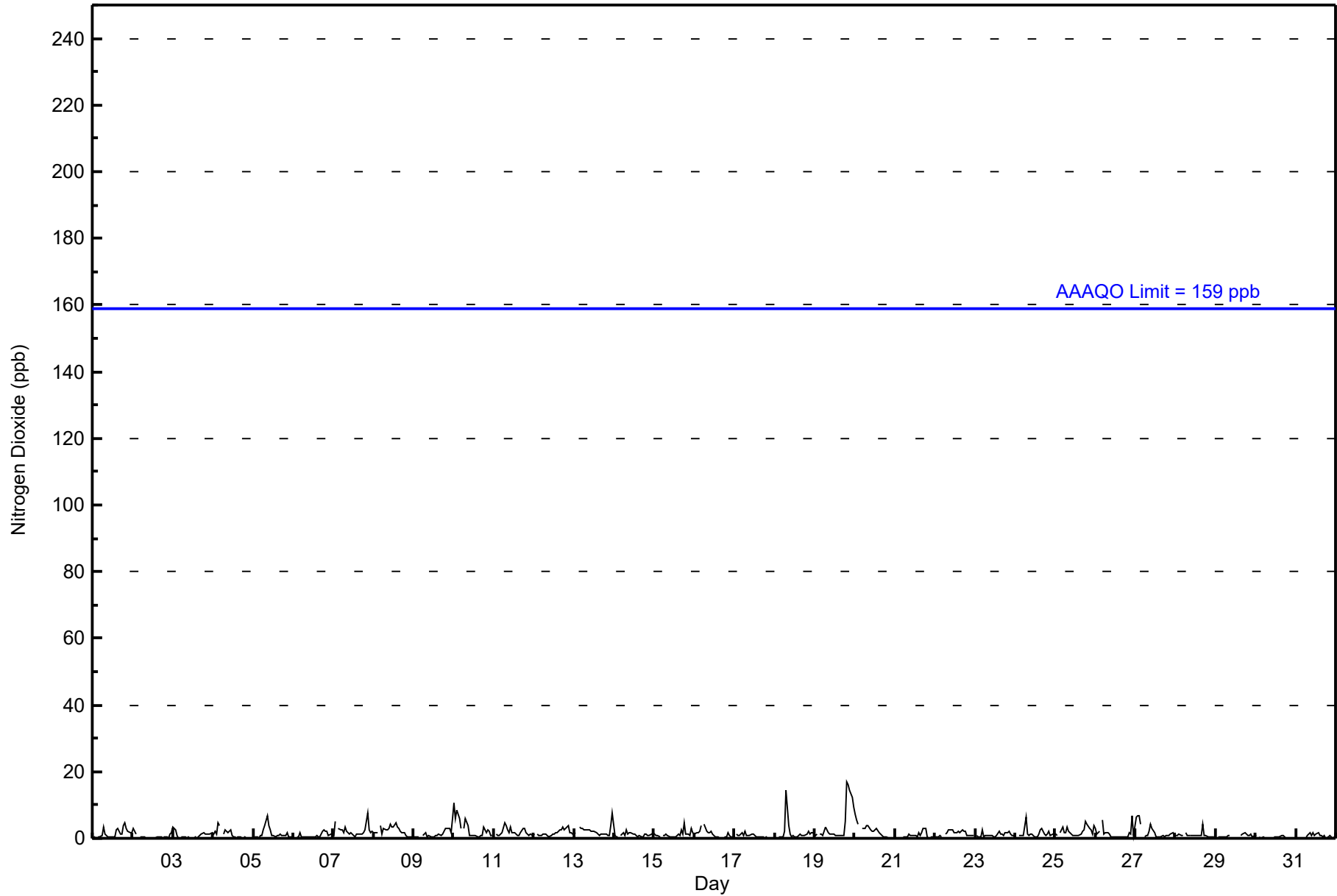
Anzac - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 16.9 ppb on Oct 19 20:00		Maximum Daily Average: 4.2 ppb on Oct 19																	Hours of Data: 707																														
Minimum Value: 0.0 ppb on Oct 21 02:00		Minimum Daily Average: 0.3 ppb on Oct 30																	Hours of Missing Data: 37																														
Maximum Diurnal Average: 2.3 ppb at hour 8		Minimum Diurnal Average: 0.9 ppb at hour 13																	Hours of Calibration: 37																														
Monthly Average: 1.49 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.5 Median = 1.0 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 3.1 P <sub>99</sub> = 8.3																	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-Oct	0.5	0.4	Z	0.6	0.5	0.7	3.5	1.1	0.7	0.6	0.6	0.5	0.5	0.5	2.7	2.8	1.1	1.3	3.9	4.8	3.1	2.0	1.5	1.7	1.5	4.8																							
2-Oct	2.8	2.0	1.2	Z	0.5	0.3	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.6	0.3	0.3	0.2	0.3	0.3	0.2	1.1	1.6	0.6	2.8																							
3-Oct	3.5	2.6	1.0	0.2	Z	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.3	0.2	0.6	0.8	1.2	1.6	1.3	1.2	1.3	1.1	1.7	0.9	3.5																							
4-Oct	1.2	2.3	1.3	4.6	4.0	Z	1.4	2.4	2.1	1.6	2.6	1.0	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.4	0.2	0.2	0.2	0.2	1.2	4.6																							
5-Oct	Z	0.3	0.3	0.2	0.9	0.9	2.4	4.0	6.6	3.8	2.7	0.9	0.8	0.6	0.7	0.7	1.1	0.8	0.8	0.8	1.5	0.6	0.6	0.6	1.4	6.6																							
6-Oct	0.5	Z	0.5	0.4	1.7	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.3	0.5	0.9	0.4	0.3	2.0	2.6	2.0	2.0	0.8	1.3	1.2	0.9	2.6																							
7-Oct	1.0	5.1	Z	2.9	2.5	2.5	1.8	3.5	2.0	1.4	1.5	1.1	0.8	0.6	1.1	1.1	1.1	1.3	1.6	2.4	7.8	2.4	1.9	2.0	2.1	7.8																							
8-Oct	1.8	1.7	1.5	Z	3.7	1.4	2.9	2.6	2.7	2.9	4.1	3.2	3.5	4.6	3.6	2.8	2.0	1.6	1.5	0.7	0.5	0.5	0.4	0.4	2.2	4.6																							
9-Oct	0.4	0.4	0.3	0.4	Z	0.9	1.3	1.7	0.6	0.7	0.4	0.6	0.5	0.7	0.9	1.2	0.9	1.3	2.3	2.8	3.0	2.9	1.8	5.8	1.4	5.8																							
10-Oct	10.6	6.1	8.3	6.1	2.9	Z	3.0	5.9	3.7	1.0	0.9	0.8	0.7	0.7	0.5	0.5	0.7	0.9	3.5	1.8	2.7	2.0	0.9	1.0	2.8	10.6																							
11-Oct	Z	1.2	0.9	0.8	1.2	1.9	4.6	4.0	2.6	1.7	3.2	1.9	1.5	1.4	0.9	1.0	1.5	3.0	2.9	1.8	1.2	1.0	1.2	1.0	1.8	4.6																							
12-Oct	1.4	Z	1.1	0.7	0.8	1.1	1.2	1.1	0.8	0.6	0.8	1.1	1.4	1.5	1.5	2.4	2.4	3.3	2.6	3.1	3.9	1.9	1.5	1.3	1.6	3.9																							
13-Oct	1.4	1.6	Z	3.3	3.1	3.0	2.7	2.5	2.6	2.4	2.0	2.1	2.0	1.6	1.1	1.0	1.1	1.2	1.4	1.1	1.0	1.0	3.9	7.8	2.2	7.8																							
14-Oct	0.7	0.6	0.5	Z	0.7	1.6	0.8	2.4	1.2	1.8	1.7	1.4	1.2	0.7	0.5	0.7	0.4	0.5	1.2	1.4	0.7	1.0	1.4	1.5	1.1	2.4																							
15-Oct	1.3	1.0	0.7	0.5	Z	0.7	0.8	1.2	0.7	0.6	0.6	0.5	0.5	1.1	1.0	2.6	1.2	4.5	1.4	1.2	1.0	3.1	1.7	1.2	4.5																								
16-Oct	1.3	1.7	1.5	2.0	4.0	Z	4.4	2.1	1.8	1.7	2.3	1.4	0.6	0.3	0.3	0.2	0.2	0.2	0.3	0.4	1.6	0.8	0.6	0.3	1.3	4.4																							
17-Oct	Z	1.1	0.8	0.7	1.6	0.7	2.2	0.9	0.8	0.8	1.4	1.4	0.8	0.5	0.4	0.4	0.4	0.3	0.2	0.4	0.2	0.1	0.1	0.2	0.7	2.2																							
18-Oct	0.3	Z	0.4	0.4	0.4	0.6	2.1	14.5	3.9	1.3	0.6	0.8	0.5	0.5	1.0	1.1	0.8	0.8	0.9	1.3	2.0	1.4	1.6	1.7	1.7	14.5																							
19-Oct	0.9	1.1	Z	1.4	1.1	0.8	3.3	2.6	1.6	1.2	1.2	1.4	1.0	0.9	0.8	0.7	1.0	0.7	5.1	16.9	16.0	14.6	12.4	9.2	4.2	16.9																							
20-Oct	7.1	5.6	4.1	Z	3.0	3.1	3.0	4.0	3.8	2.5	2.3	2.3	2.6	2.8	1.9	1.1	0.8	0.6	0.5	0.4	0.2	0.1	0.1	0.1	2.3	7.1																							
21-Oct	0.1	0.0	0.1	0.1	Z	0.6	0.5	0.5	1.1	0.7	0.8	0.8	1.0	0.5	1.7	1.0	1.5	2.8	3.1	0.6	0.2	0.2	0.3	0.5	0.8	3.1																							
22-Oct	0.4	0.5	0.6	0.9	0.6	Z	1.4	1.7	2.6	2.5	2.5	1.8	1.5	1.7	2.2	1.7	2.4	2.3	2.0	1.0	0.7	0.9	0.7	0.7	1.4	2.6																							
23-Oct	Z	0.7	0.6	0.5	2.4	0.5	0.9	0.8	0.9	0.7	0.7	0.5	0.5	0.7	2.1	1.3	1.1	0.9	1.6	1.5	2.0	1.1	0.7	0.7	1.0	2.4																							
24-Oct	0.6	Z	0.9	0.8	0.8	0.9	6.5	1.2	0.9	1.1	1.1	0.6	0.4	0.3	1.3	2.4	2.8	1.4	0.9	1.1	2.1	1.0	1.1	0.9	1.4	6.5																							
25-Oct	1.2	0.8	Z	1.6	3.6	1.6	1.8	3.3	2.1	1.1	0.9	1.0	0.7	0.7	0.8	1.3	2.1	2.5	4.9	4.1	2.8	2.6	1.4	3.7	2.0	4.9																							
26-Oct	3.1	1.2	2.0	Z	5.7	1.3	1.6	1.5	1.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	1.8	1.1	6.9	0.8	1.4	6.9																							
27-Oct	6.2	6.6	6.6	4.4	Z	0.5	1.0	1.0	2.1	4.4	3.0	1.6	0.5	0.5	0.4	0.5	0.7	0.6	0.8	0.7	0.9	1.1	1.6	1.0	2.0	6.6																							
28-Oct	0.9	1.0	1.1	1.0	0.9	Z	1.5	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.8	1.0	4.3	0.8	0.7	0.4	0.3	0.3	0.3	0.3	0.9	4.3																							
29-Oct	Z	0.5	0.5	0.5	0.4	0.4	0.4	0.7	0.8	C	C	C	C	C	C	0.9	1.2	1.5	1.3	0.9	0.7	1.2	0.6	1.0	--	1.5																							
30-Oct	0.9	Z	0.6	0.2	0.4	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.6	0.8	0.7	0.3	0.1	0.1	0.0	0.0	0.1	0.1	0.3	0.9																							
31-Oct	0.1	0.2	Z	0.2	0.1	0.2	0.1	0.8	1.8	0.7	1.5	0.9	1.2	1.7	0.7	0.9	0.4	0.8	0.2	0.5	0.7	0.6	0.2	0.6	0.7	1.8																							
																								1.9	1.8	1.5	1.4	1.8	1.0	1.9	2.3	1.7	1.3	1.4	1.1	0.9	0.9	1.1	1.1	1.2	1.2	1.7	1.8	2.0	1.5	1.6	1.7	Diurnal Average	
																								10.6	6.6	8.3	6.1	5.7	3.1	6.5	14.5	6.6	4.4	4.1	3.2	3.5	4.6	3.6	2.8	4.3	3.3	5.1	16.9	16.0	14.6	12.4	9.2	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  
Anzac - October 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Anzac - October 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  
Anzac - October 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	10	6	3	10	27	45	62	64	38	39	42	50	141	91	45	19	692
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>	10	6	3	10	27	45	62	64	38	39	42	50	141	91	45	19	692

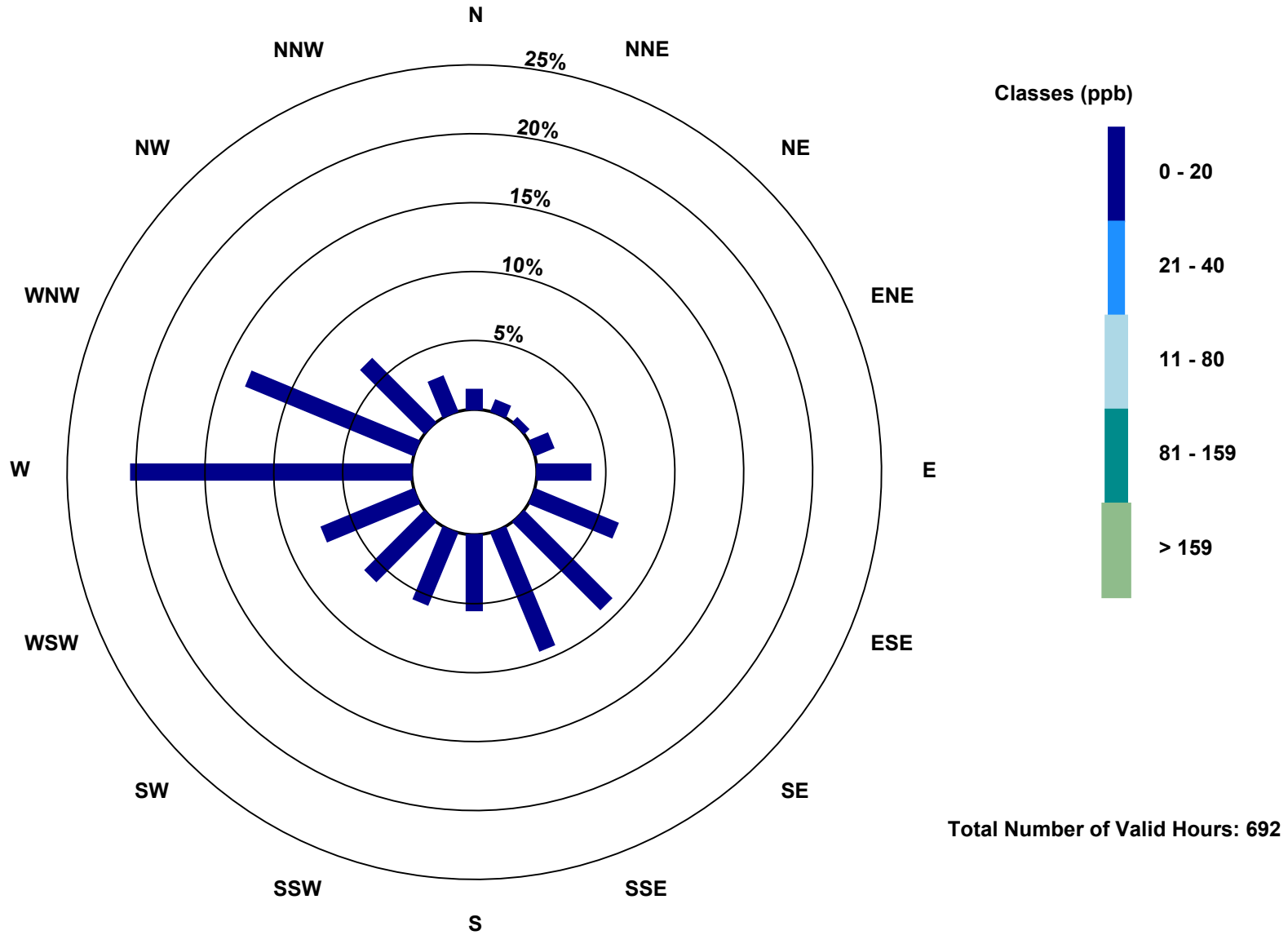
Total Number of Valid Hours: 692

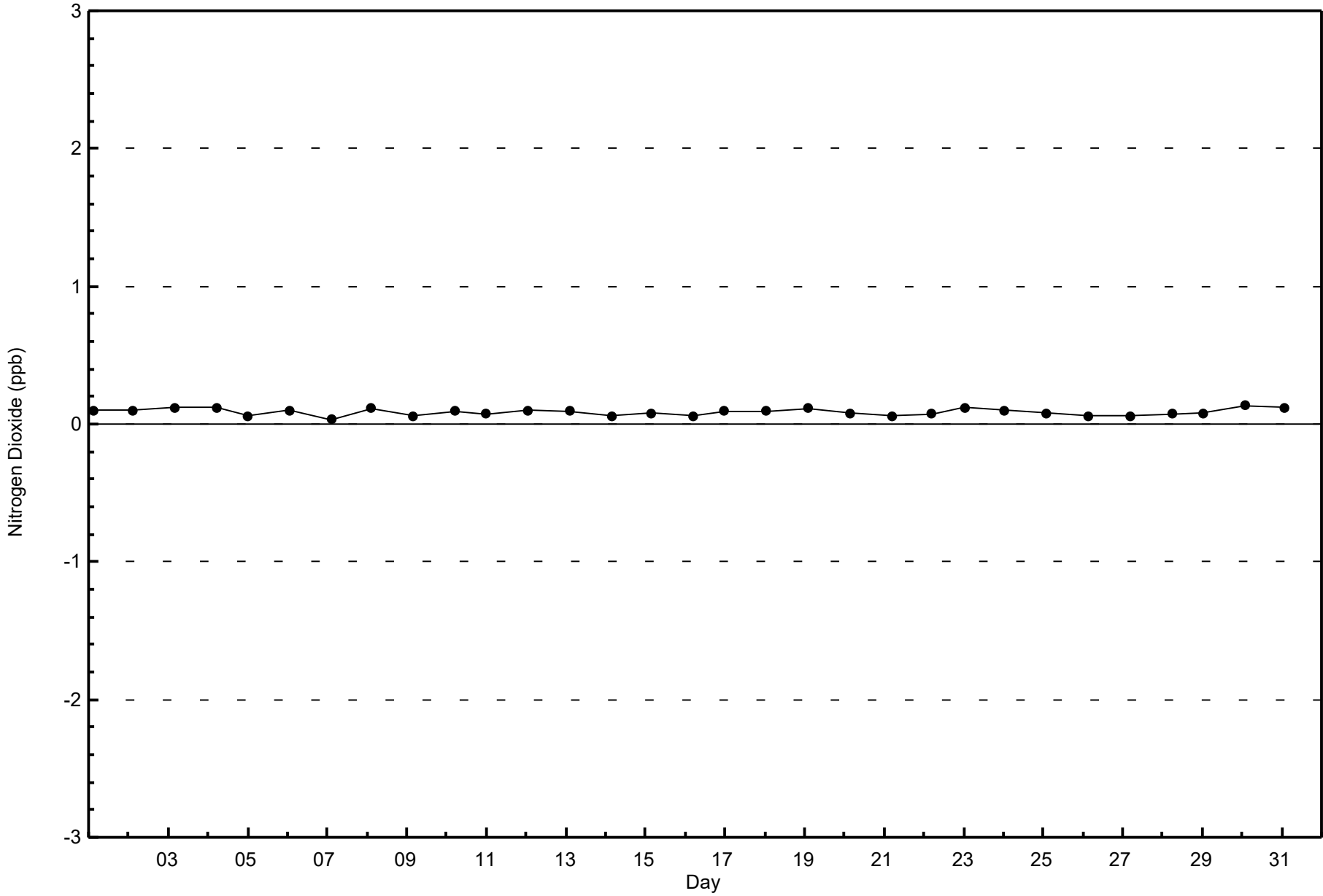
Total Number of Hours: 744

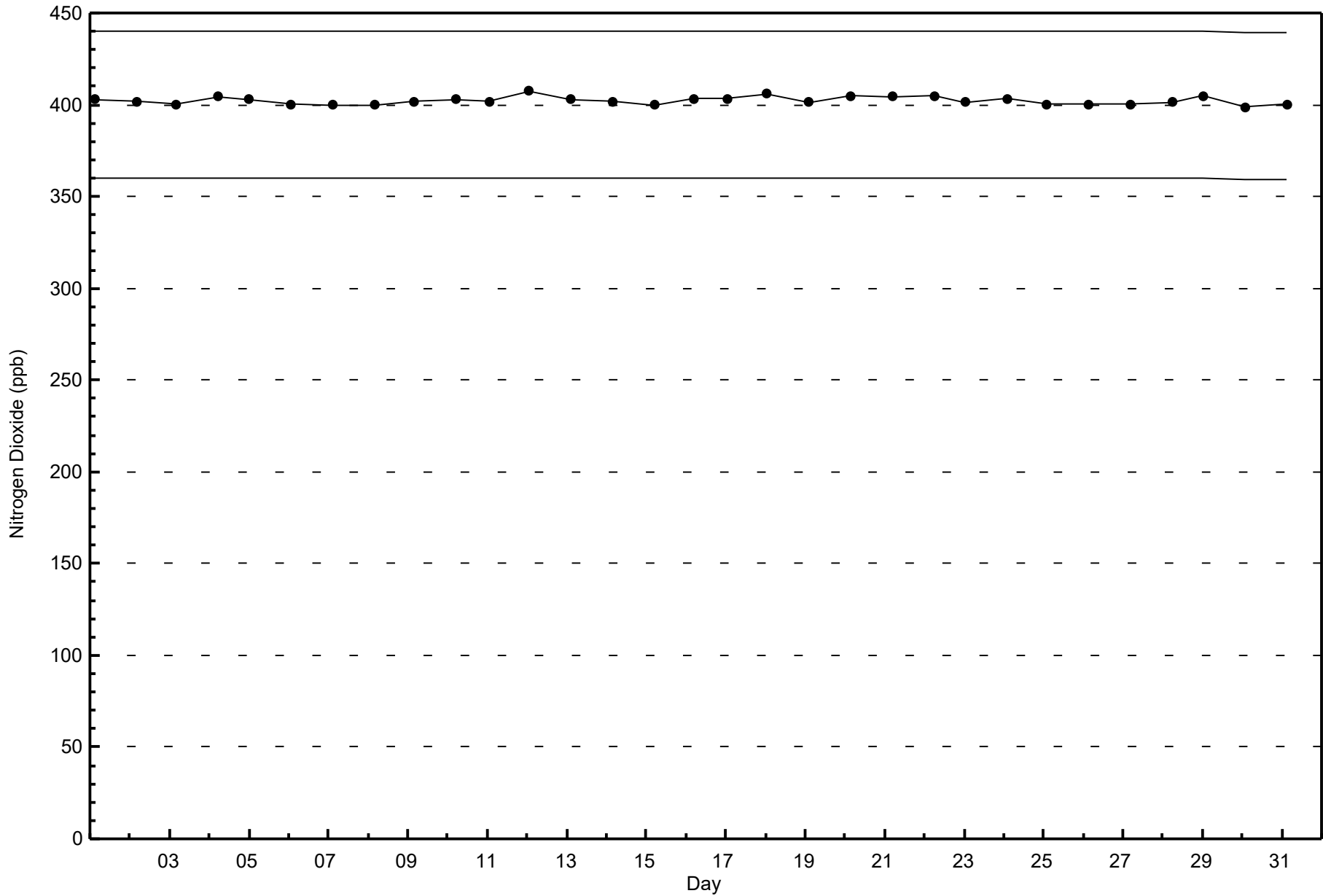


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



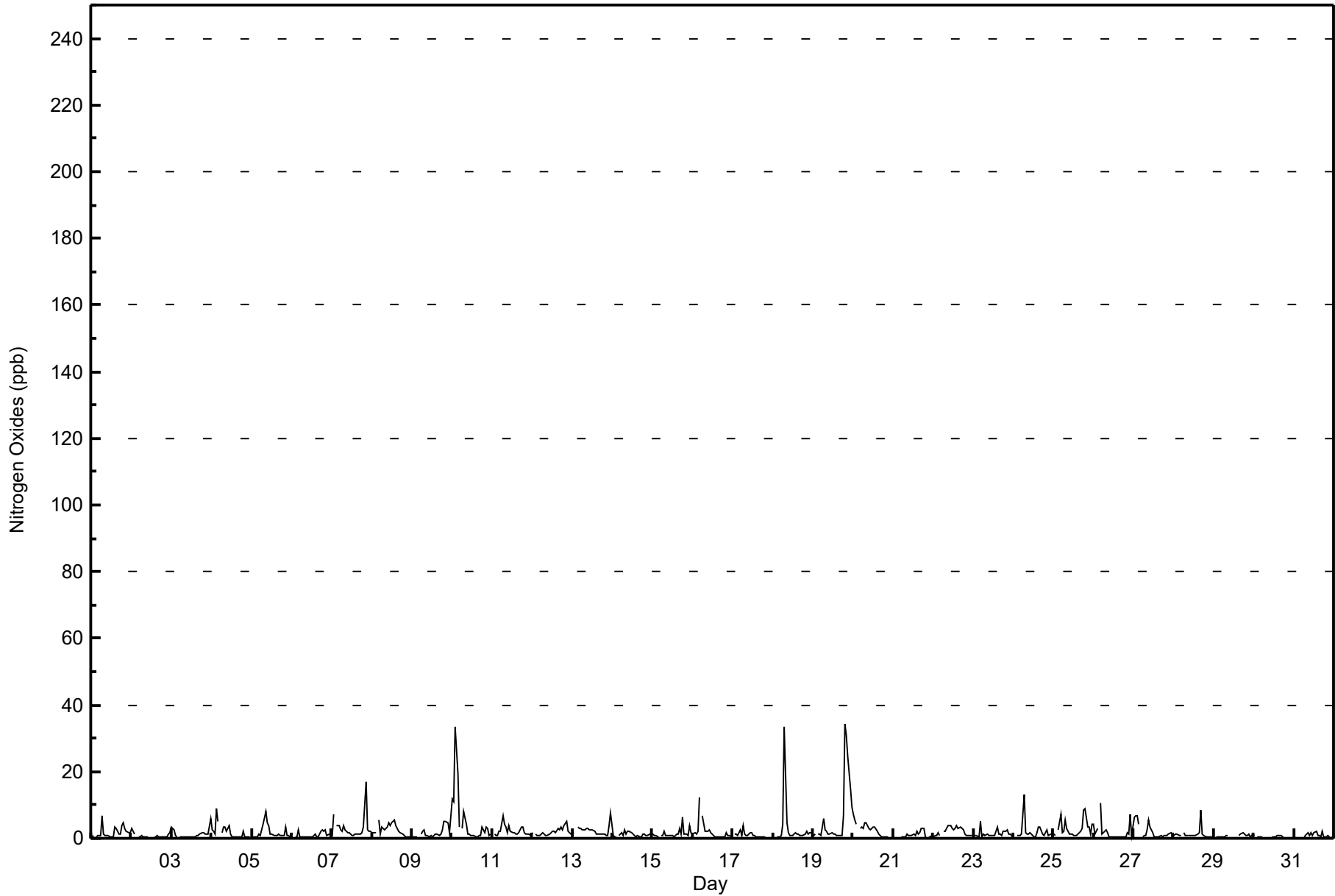








Maximum Value: 34.4 ppb on Oct 19 20:00																				Maximum Daily Average: 6.4 ppb on Oct 19					Hours in Service: 744		
Minimum Value: 0.0 ppb on Oct 30 21:00																				Minimum Daily Average: 0.3 ppb on Oct 30					Hours of Data: 707		
Maximum Diurnal Average: 3.3 ppb at hour 8																				Minimum Diurnal Average: 1.1 ppb at hour 6					Hours of Missing Data: 37		
Monthly Average: 1.96 ppb																				Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.6 Median = 1.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 3.8 P <sub>99</sub> = 14.6					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-Oct	0.7	0.4	Z	0.6	0.6	0.8	7.0	1.4	0.8	0.7	0.7	0.6	0.6	0.6	3.4	3.1	1.2	1.3	3.9	4.8	3.1	2.0	1.6	1.8	1.8	7.0	
2-Oct	2.8	2.0	1.3	Z	0.5	0.4	0.7	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.6	0.9	0.5	0.4	0.3	0.4	0.4	0.3	1.2	1.7	0.7	2.8	
3-Oct	3.6	2.7	1.0	0.2	Z	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.2	0.4	0.3	0.8	0.9	1.3	1.6	1.6	1.2	1.3	1.4	6.0	1.2	6.0	
4-Oct	2.6	2.3	1.3	8.9	5.1	Z	1.5	3.3	3.5	2.3	3.6	1.3	0.4	0.3	0.2	0.3	0.3	0.2	0.2	2.0	0.2	0.2	0.2	0.2	1.8	8.9	
5-Oct	Z	0.3	0.3	0.2	1.4	0.9	2.4	4.3	7.9	4.8	3.6	1.2	1.1	0.7	0.8	0.8	1.3	0.9	0.8	0.8	3.3	0.7	0.7	0.6	1.7	7.9	
6-Oct	0.5	Z	0.5	0.5	2.7	0.5	0.4	0.5	0.5	0.6	0.4	0.5	0.4	0.7	1.2	0.4	0.3	2.1	2.7	2.0	2.6	0.8	1.5	1.2	1.0	2.7	
7-Oct	1.0	7.2	Z	4.0	3.7	2.5	1.9	3.9	2.4	1.8	1.9	1.4	1.0	0.7	1.3	1.2	1.2	1.3	1.7	3.4	17.1	2.4	2.0	2.0	2.9	17.1	
8-Oct	1.8	1.7	1.5	Z	5.7	1.4	3.6	2.7	3.0	3.3	4.7	3.7	4.8	5.3	4.0	3.1	2.1	1.7	1.5	0.9	0.5	0.5	0.4	0.4	2.5	5.7	
9-Oct	0.4	0.4	0.3	0.4	Z	1.1	2.0	2.7	0.7	0.8	0.5	0.7	0.6	0.8	1.1	1.4	1.0	1.3	2.4	5.3	4.9	4.7	1.9	6.7	1.8	6.7	
10-Oct	11.7	10.8	33.4	19.5	3.4	Z	3.1	7.9	4.3	1.2	1.1	1.0	0.8	0.8	0.6	0.5	0.7	0.9	3.6	1.9	3.5	2.8	1.0	1.1	5.0	33.4	
11-Oct	Z	1.2	1.0	0.8	1.9	2.2	6.7	4.3	3.4	1.9	4.0	2.3	1.8	1.7	1.1	1.2	1.6	3.6	3.4	1.8	1.3	1.1	1.3	1.0	2.2	6.7	
12-Oct	1.6	Z	1.2	0.8	0.9	1.3	1.5	1.3	1.0	0.9	1.2	1.6	2.0	2.0	1.9	2.8	2.6	3.3	2.6	3.8	5.0	1.9	1.5	1.3	1.9	5.0	
13-Oct	1.4	1.6	Z	3.3	3.1	3.0	2.7	2.7	3.1	3.0	2.4	2.6	2.5	2.0	1.2	1.1	1.1	1.2	1.4	1.1	1.0	1.0	3.9	7.8	2.4	7.8	
14-Oct	0.7	0.6	0.5	Z	0.7	1.6	0.8	2.5	1.3	2.1	2.1	1.7	1.4	0.8	0.5	0.7	0.4	0.5	1.2	1.4	0.7	1.0	1.4	1.5	1.1	2.5	
15-Oct	1.3	1.0	0.7	0.5	Z	0.7	0.8	2.0	0.8	0.7	0.7	0.7	0.6	0.5	1.3	1.1	2.8	1.2	6.4	1.4	1.3	1.0	3.9	1.7	1.4	6.4	
16-Oct	1.4	1.8	1.5	2.1	12.5	Z	6.8	2.3	2.3	2.0	2.4	1.5	0.8	0.4	0.3	0.2	0.2	0.2	0.3	0.4	1.6	0.8	0.6	0.3	1.8	12.5	
17-Oct	Z	1.1	1.1	0.9	2.5	0.8	3.7	1.2	0.9	0.9	1.5	1.5	0.9	0.7	0.5	0.5	0.5	0.4	0.3	0.5	0.2	0.1	0.1	0.2	0.9	3.7	
18-Oct	0.3	Z	0.5	0.5	0.5	0.8	4.3	33.6	4.9	1.7	0.8	1.1	0.7	1.8	1.1	1.4	0.8	0.8	0.9	1.3	2.1	1.4	1.6	1.7	2.8	33.6	
19-Oct	0.9	1.1	Z	1.4	1.1	0.8	6.1	2.7	1.9	1.4	1.4	1.6	1.3	1.1	0.9	0.7	1.0	0.7	6.9	34.4	30.7	24.6	14.6	9.5	6.4	34.4	
20-Oct	7.2	5.7	4.1	Z	3.1	3.2	3.1	4.6	4.7	3.0	2.7	2.9	3.4	3.6	2.2	1.2	0.8	0.6	0.5	0.4	0.4	0.1	0.1	0.1	2.5	7.2	
21-Oct	0.1	0.0	0.1	0.1	Z	0.6	0.5	0.5	1.2	0.9	1.0	1.0	1.2	0.7	2.1	1.2	1.6	2.8	3.1	0.6	0.2	0.2	0.3	0.8	0.9	3.1	
22-Oct	0.6	0.7	1.0	1.8	1.0	Z	1.9	2.1	3.2	3.7	3.9	3.2	2.6	3.0	3.7	2.8	3.4	3.0	2.7	1.1	0.8	1.0	0.7	0.7	2.1	3.9	
23-Oct	Z	0.8	0.7	0.5	5.2	0.6	1.1	1.0	1.1	0.9	0.9	0.7	0.6	0.8	3.3	1.5	1.2	1.0	2.0	2.0	2.5	1.3	1.2	0.7	1.4	5.2	
24-Oct	0.6	Z	0.9	0.9	0.9	1.1	13.3	1.7	1.2	1.4	1.5	0.8	0.5	0.4	1.9	3.3	3.5	1.4	1.0	1.6	2.7	1.0	1.1	0.9	1.9	13.3	
25-Oct	1.3	0.9	Z	2.3	7.0	1.8	2.1	5.7	3.0	1.4	1.3	1.4	0.9	0.9	1.0	1.5	2.3	2.9	8.5	8.8	3.5	3.4	1.4	4.2	2.9	8.8	
26-Oct	4.2	1.2	2.8	Z	10.6	1.3	1.6	2.6	1.7	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	1.8	1.1	7.0	0.8	1.8	10.6	
27-Oct	6.2	6.6	6.6	4.4	Z	0.5	1.0	1.0	2.5	5.4	3.4	1.8	0.5	0.5	0.4	0.5	0.7	0.6	0.8	0.7	0.9	1.1	1.6	1.0	2.1	6.6	
28-Oct	0.9	1.1	1.1	1.0	0.9	Z	1.9	0.9	0.9	1.0	0.8	0.8	0.9	1.0	1.2	1.6	8.5	1.1	0.9	0.4	0.3	0.3	0.3	0.3	1.2	8.5	
29-Oct	Z	0.5	0.5	0.5	0.4	0.4	0.4	0.8	0.9	C	C	C	C	C	C	C	1.0	1.3	1.7	1.4	0.9	0.7	1.2	0.6	1.5	--	1.7
30-Oct	0.9	Z	0.6	0.2	0.4	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.9	0.7	0.3	0.1	0.1	0.0	0.0	0.1	0.1	0.3	0.9	
31-Oct	0.1	0.2	Z	0.2	0.1	0.2	0.1	0.8	1.9	0.8	1.8	1.1	1.6	2.1	0.8	1.0	0.4	2.2	0.2	0.5	0.7	0.6	0.2	0.6	0.8	2.2	
																								Diurnal Average			
																								Diurnal Maximum			
2.1 2.1 2.6 2.2 2.9 1.1 2.7 3.3 2.1 1.7 1.7 1.3 1.2 1.2 1.3 1.3 1.5 1.3 2.1 2.8 3.1 1.9 1.8 1.9																											
11.7 10.8 33.4 19.5 12.5 3.2 13.3 33.6 7.9 5.4 4.7 3.7 4.8 5.3 4.0 3.3 8.5 3.6 8.5 34.4 30.7 24.6 14.6 9.5																											
Z - zerospan C - Calibration																											





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	702	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: 707

Total Number of Hours: 744



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - October 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	10	6	3	10	27	45	62	64	38	39	42	49	140	89	45	18	687
21 - 40	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	1	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>	10	6	3	10	27	45	62	64	38	39	42	50	141	91	45	19	692

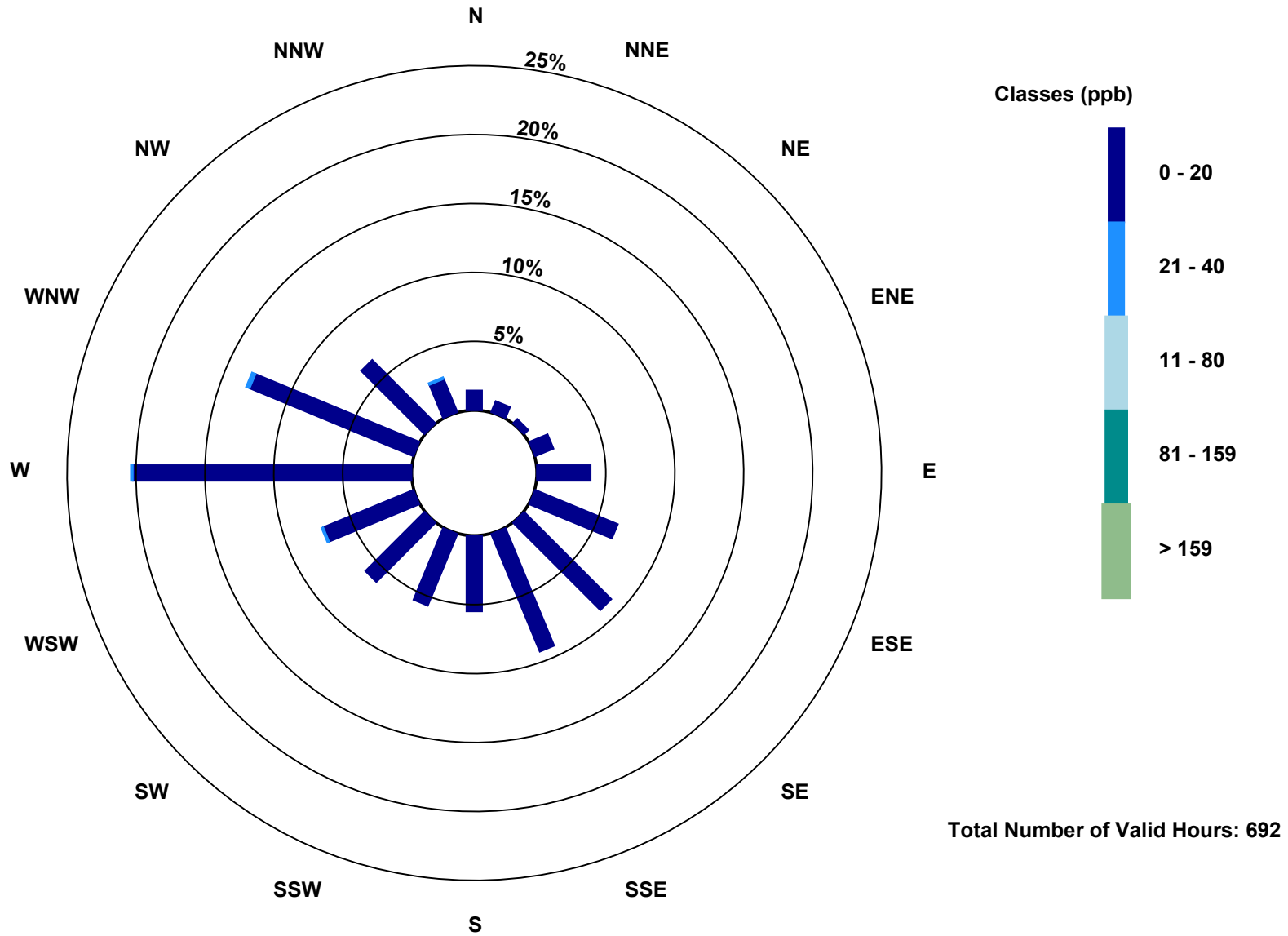
Total Number of Valid Hours: 692

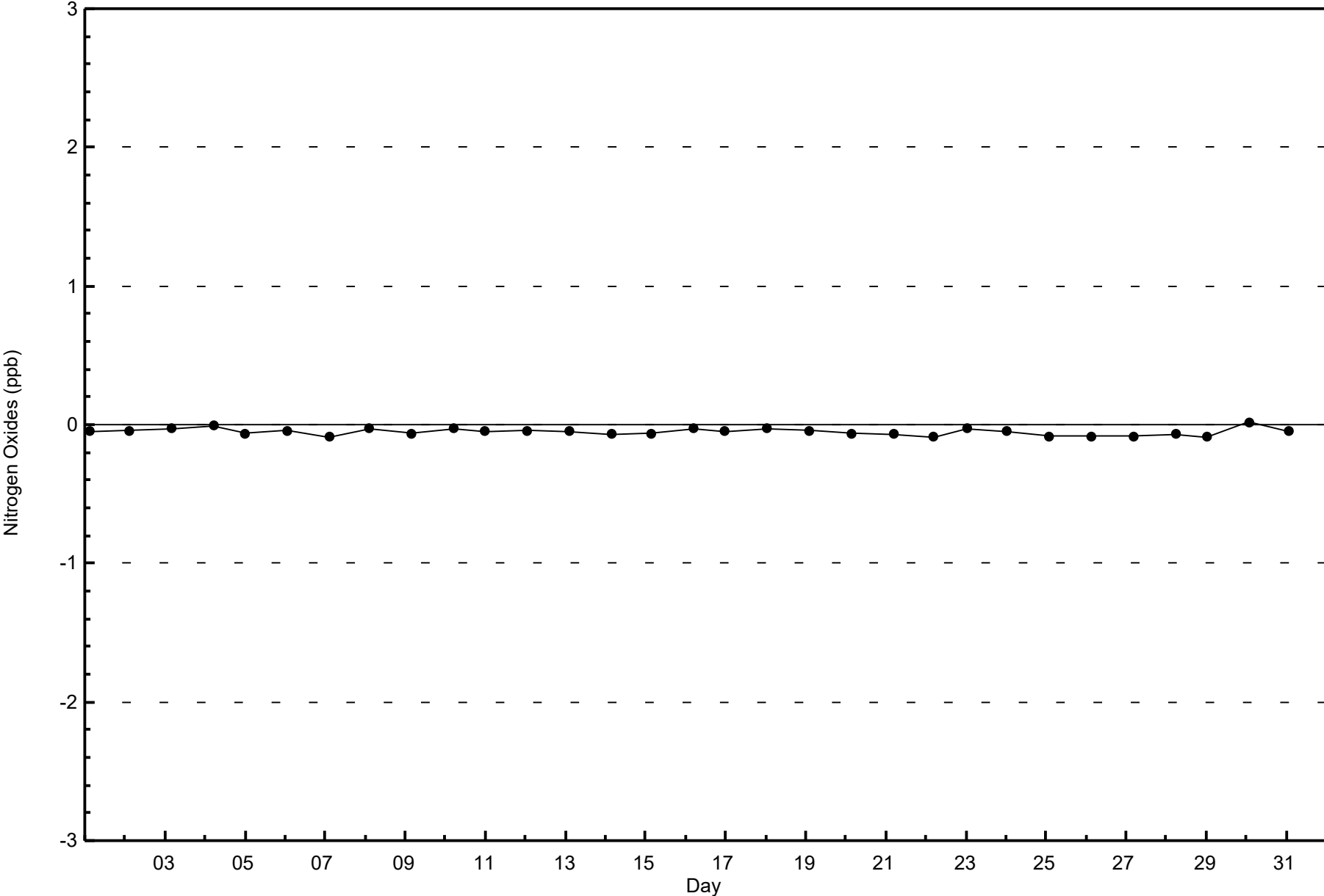
Total Number of Hours: 744

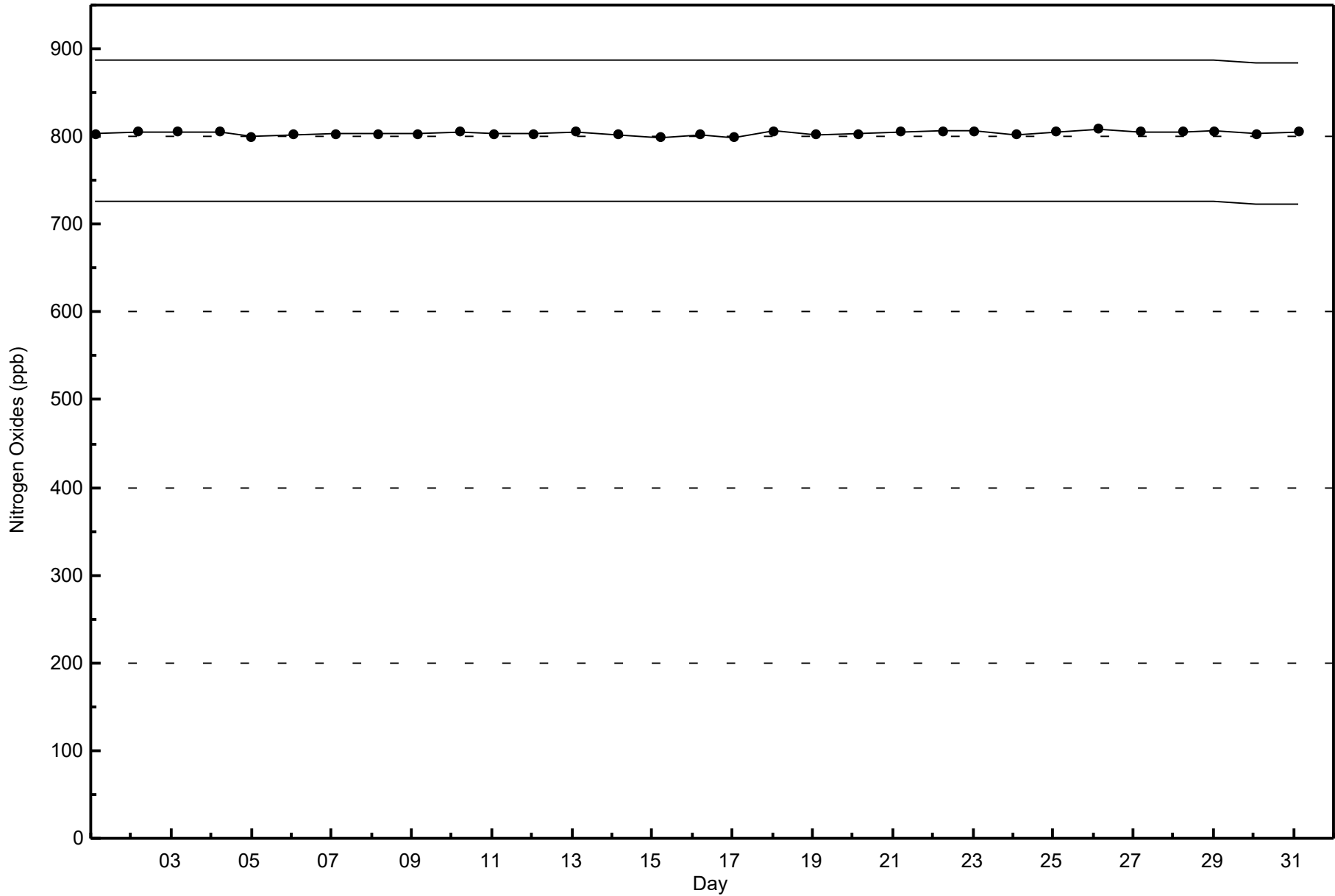


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Anzac - October 2024

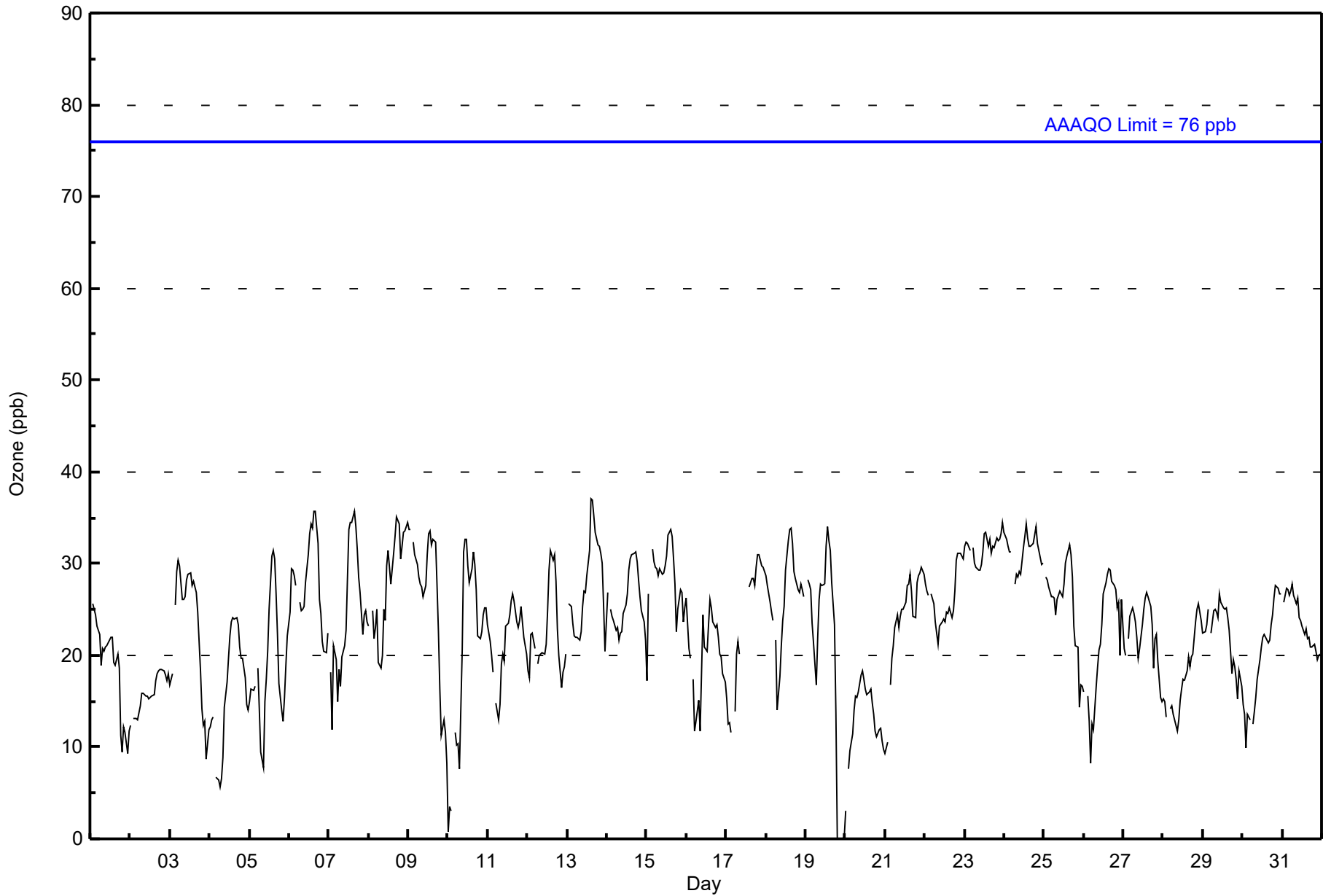
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 37.1 ppb on Oct 13 15:00		Maximum Daily Average: 31.8 ppb on Oct 23																	708								
Minimum Value: 0.0 ppb on Oct 19 20:00		Minimum Daily Average: 13.3 ppb on Oct 20																	36								
Maximum Diurnal Average: 28.1 ppb at hour 16		Minimum Diurnal Average: 19.6 ppb at hour 1																	36								
Monthly Average: 23.08 ppb		Percentiles: P <sub>1</sub> = 3.1 P <sub>10</sub> = 13.2 Q <sub>1</sub> = 18.5 Median = 23.8 Q <sub>3</sub> = 28.2 P <sub>90</sub> = 31.7 P <sub>99</sub> = 34.5																	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-Oct	Z	25.6	25.0	24.3	23.2	22.3	18.8	20.7	20.4	20.8	21.1	21.7	21.9	22.0	19.3	18.9	20.2	18.6	11.2	9.5	12.3	11.5	9.4	11.8	18.7	25.6	
2-Oct	12.4	Z	13.1	13.1	13.0	13.8	14.5	15.9	15.9	15.5	15.6	15.3	15.4	15.5	15.7	17.3	18.0	18.3	18.5	18.5	18.3	17.9	17.2	17.9	15.9	18.5	
3-Oct	16.8	17.9	Z	25.5	29.1	30.3	29.7	26.1	26.1	26.4	28.2	28.8	29.0	27.7	28.0	27.4	26.8	24.8	18.2	14.3	12.3	12.9	8.8	11.9	22.9	30.3	
4-Oct	12.3	12.9	13.2	Z	6.7	6.4	5.6	6.5	8.8	14.4	17.0	19.7	22.1	23.6	24.1	24.0	24.0	23.4	20.9	19.6	19.7	17.5	14.6	14.0	16.1	24.1	
5-Oct	14.9	16.3	16.1	16.7	Z	18.5	14.2	9.5	7.8	14.9	17.4	20.5	25.0	30.8	31.4	30.6	26.7	22.2	16.9	14.0	12.8	15.4	19.0	22.2	18.9	31.4	
6-Oct	24.7	29.4	29.2	28.7	27.6	Z	25.8	24.9	25.0	25.3	27.9	30.9	33.2	34.4	33.9	35.7	35.7	32.2	26.1	24.5	21.5	20.5	20.3	22.5	27.8	35.7	
7-Oct	Z	18.2	11.8	21.0	19.5	15.0	18.4	16.7	19.9	21.0	22.8	28.4	33.8	34.5	34.5	35.7	34.0	31.6	28.5	26.8	22.3	24.4	24.8	23.7	24.7	35.7	
8-Oct	23.2	Z	24.9	21.9	23.1	25.0	19.2	18.7	20.0	25.1	23.8	29.8	31.5	27.8	29.5	31.1	33.0	35.1	34.2	30.5	31.9	33.4	33.6	34.5	27.9	35.1	
9-Oct	33.7	33.7	Z	32.3	31.0	29.9	28.5	27.7	27.4	26.4	27.7	30.9	33.2	33.5	32.1	32.6	32.3	27.7	22.5	16.4	11.3	13.0	11.6	8.2	26.2	33.7	
10-Oct	0.8	3.4	3.1	Z	11.5	10.2	10.3	7.7	20.7	31.3	32.6	32.7	29.8	27.9	29.4	31.2	29.9	27.2	22.1	21.8	22.6	24.5	25.1	25.1	20.9	32.7	
11-Oct	23.3	21.5	20.1	18.2	Z	14.7	13.0	14.7	19.1	20.2	19.4	23.2	23.4	24.5	25.9	26.7	25.9	23.7	23.1	23.7	25.4	23.6	22.0	20.2	21.5	26.7	
12-Oct	18.2	17.5	22.2	22.4	20.8	Z	19.1	19.9	20.2	20.3	20.1	21.3	24.8	29.3	31.5	30.4	30.9	28.1	22.8	20.0	16.5	18.2	18.8	20.2	22.3	31.5	
13-Oct	Z	25.6	25.3	23.5	22.1	21.9	22.0	21.7	22.6	25.3	27.0	26.8	28.7	31.5	37.1	36.9	35.2	33.4	32.0	31.8	31.2	30.1	25.5	20.4	27.7	37.1	
14-Oct	26.9	Z	25.0	24.2	23.8	22.7	23.0	21.6	22.5	22.6	24.6	25.5	26.6	29.3	30.5	30.9	31.1	31.3	30.2	28.2	26.4	24.9	23.6	21.7	26.0	31.3	
15-Oct	17.2	26.6	Z	31.6	30.2	29.6	29.4	28.7	29.5	28.9	29.1	29.8	30.9	33.1	33.7	33.0	30.5	27.7	22.6	25.0	27.2	26.9	23.7	25.2	28.3	33.7	
16-Oct	26.2	20.8	19.6	Z	17.4	11.8	12.9	15.1	11.7	18.2	24.3	20.9	20.5	23.4	26.2	25.2	23.6	23.0	23.3	21.9	20.1	19.9	18.1	17.1	20.1	26.2	
17-Oct	15.3	12.5	12.7	11.5	Z	13.9	20.1	21.5	20.2	Z	Z	Z	Z	Z	27.5	28.3	28.4	27.6	29.5	31.0	31.0	29.8	29.5	29.2	23.3	31.0	
18-Oct	28.7	27.6	25.8	24.6	23.8	Z	21.7	14.0	17.7	21.0	23.9	25.3	29.2	32.5	33.7	33.8	32.2	29.1	28.4	27.1	26.9	27.8	27.1	26.4	26.5	33.8	
19-Oct	Z	28.2	27.8	27.1	23.4	21.4	16.7	21.9	26.0	27.8	27.7	27.8	31.8	34.0	32.5	31.4	27.9	23.3	13.8	0.0	0.0	0.0	0.0	0.3	20.5	34.0	
20-Oct	3.0	Z	7.6	9.6	11.4	14.0	15.5	15.4	16.0	17.9	18.3	17.5	16.3	15.7	16.1	16.3	14.9	13.5	11.7	11.2	11.8	12.0	10.6	9.8	13.3	18.3	
21-Oct	9.2	10.5	Z	16.7	19.7	21.0	23.1	24.4	23.0	24.3	25.0	25.0	25.8	27.5	27.7	28.9	27.0	24.3	24.1	27.9	28.6	28.9	29.6	28.8	24.0	29.6	
22-Oct	27.8	27.0	26.5	Z	26.7	25.6	23.7	22.4	21.2	23.1	23.6	24.0	23.6	24.8	24.5	25.2	24.1	24.9	27.0	30.4	31.0	31.1	30.8	30.5	26.1	31.1	
23-Oct	31.9	32.3	32.1	31.4	Z	31.7	30.1	29.6	29.2	29.3	29.8	31.3	33.3	33.4	31.9	32.6	31.2	31.8	31.8	32.8	32.4	32.6	33.2	34.5	31.8	34.5	
24-Oct	33.4	32.6	31.9	31.2	31.2	Z	27.7	28.9	28.5	29.1	28.8	31.7	32.9	34.3	32.8	31.9	31.8	32.1	33.1	34.0	32.1	31.5	30.0	30.0	31.4	34.3	
25-Oct	Z	28.6	28.2	27.4	26.4	26.4	26.3	24.4	26.0	27.1	26.7	26.4	27.8	30.0	30.9	32.0	31.0	28.5	23.2	21.0	20.9	14.4	16.8	16.6	25.5	32.0	
26-Oct	16.0	Z	15.6	12.8	8.2	12.5	11.9	16.6	18.8	20.6	21.2	23.3	26.8	27.9	28.8	29.4	29.2	28.0	27.6	27.2	25.2	25.7	20.0	26.1	21.7	29.4	
27-Oct	20.7	20.1	Z	21.9	24.3	25.2	24.5	23.7	21.9	19.6	20.8	23.4	25.0	26.3	26.8	26.5	25.3	23.3	18.6	21.9	22.2	19.3	15.3	14.9	22.2	26.8	
28-Oct	15.2	14.9	13.2	Z	14.2	14.4	13.6	13.0	11.7	12.9	15.1	16.3	17.3	17.2	18.3	19.9	18.7	19.8	20.2	23.6	25.0	25.6	24.7	23.8	17.8	25.6	
29-Oct	22.4	22.6	23.3	25.0	Z	22.5	24.9	25.1	24.7	24.2	26.7	25.8	25.1	24.9	25.2	24.2	22.7	18.0	19.6	18.7	17.4	15.2	18.4	16.6	22.3	26.7	
30-Oct	14.6	13.6	10.0	13.6	13.0	Z	12.5	13.8	15.3	17.3	19.6	20.9	21.9	22.3	21.9	21.4	21.6	23.4	24.5	26.2	27.6	27.2	26.8	26.7	19.8	27.6	
31-Oct	Z	25.8	27.3	27.1	26.6	27.0	27.7	26.6	25.6	26.2	24.1	23.8	23.2	22.3	22.8	21.9	22.0	20.9	20.9	21.3	20.5	19.5	19.9	20.1	23.6	27.7	
		19.6	21.8	20.4	22.4	21.1	20.3	20.1	19.9	20.8	22.6	23.7	25.0	26.3	27.4	27.9	28.1	27.3	25.7	23.5	22.6	22.1	21.8	20.9	21.0	Diurnal Average	
		33.7	33.7	32.1	32.3	31.2	31.7	30.1	29.6	29.5	31.3	32.6	32.7	33.8	34.5	37.1	36.9	35.7	35.1	34.2	34.0	32.4	33.4	33.6	34.5	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 - October 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	233	32.91	32.91
21 - 50	475	67.09	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**  
**Anzac - October 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	9	6	2	5	4	14	18	24	20	14	11	11	13	43	22	12	228
21 - 50	2	0	1	5	22	31	43	44	18	25	29	42	122	52	24	5	465
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>11</b>	<b>6</b>	<b>3</b>	<b>10</b>	<b>26</b>	<b>45</b>	<b>61</b>	<b>68</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>53</b>	<b>135</b>	<b>95</b>	<b>46</b>	<b>17</b>	<b>693</b>

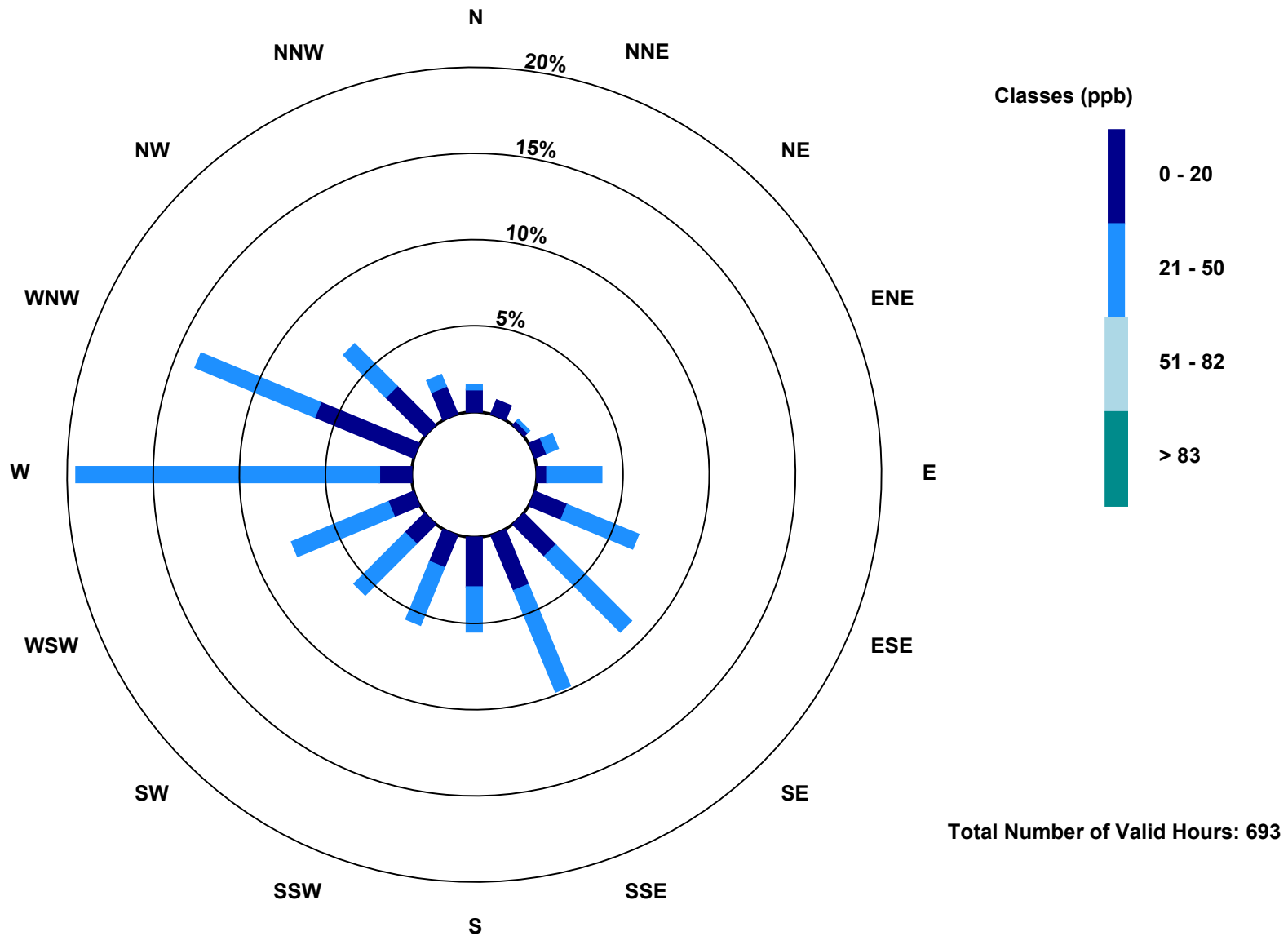
Total Number of Valid Hours: 693

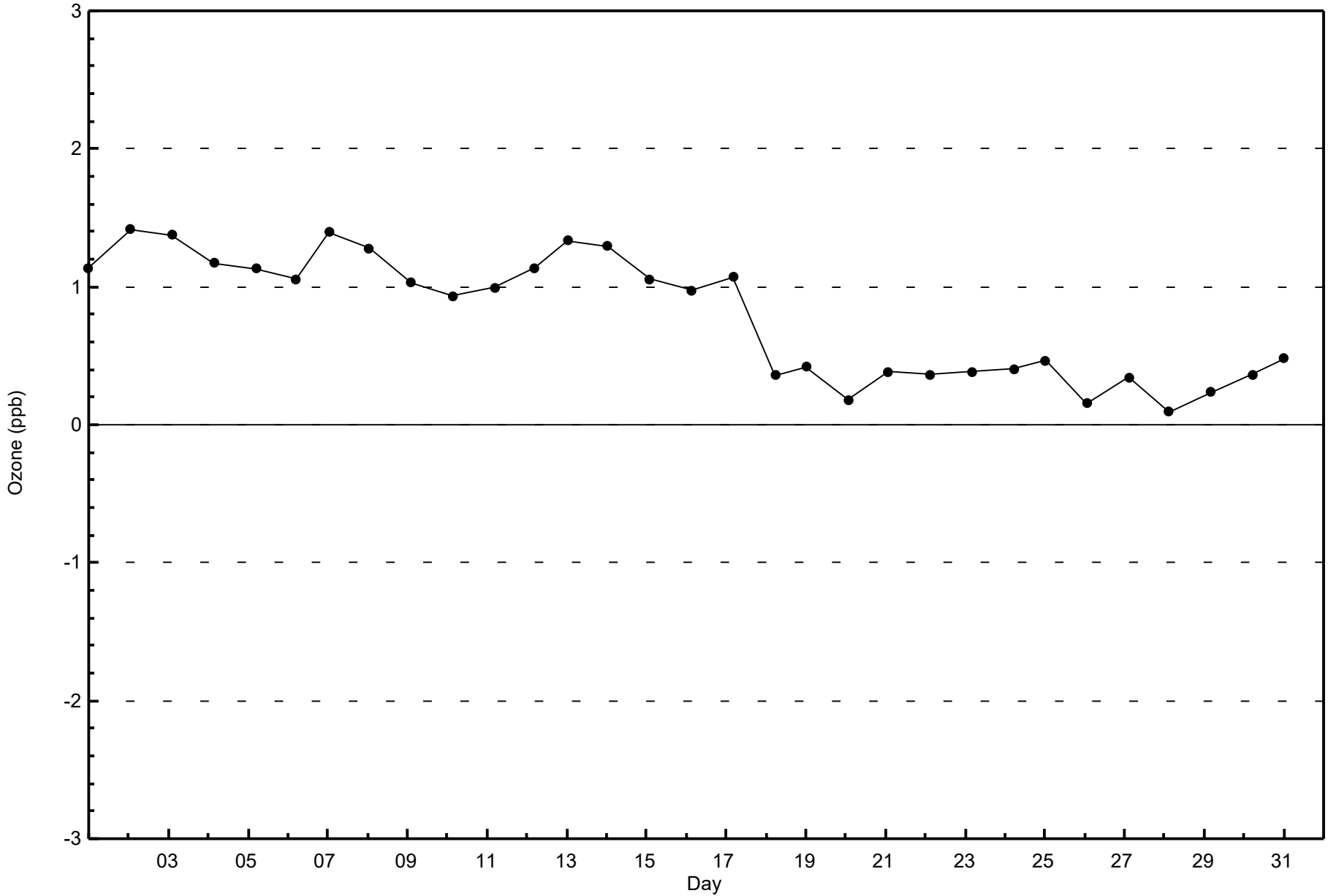
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

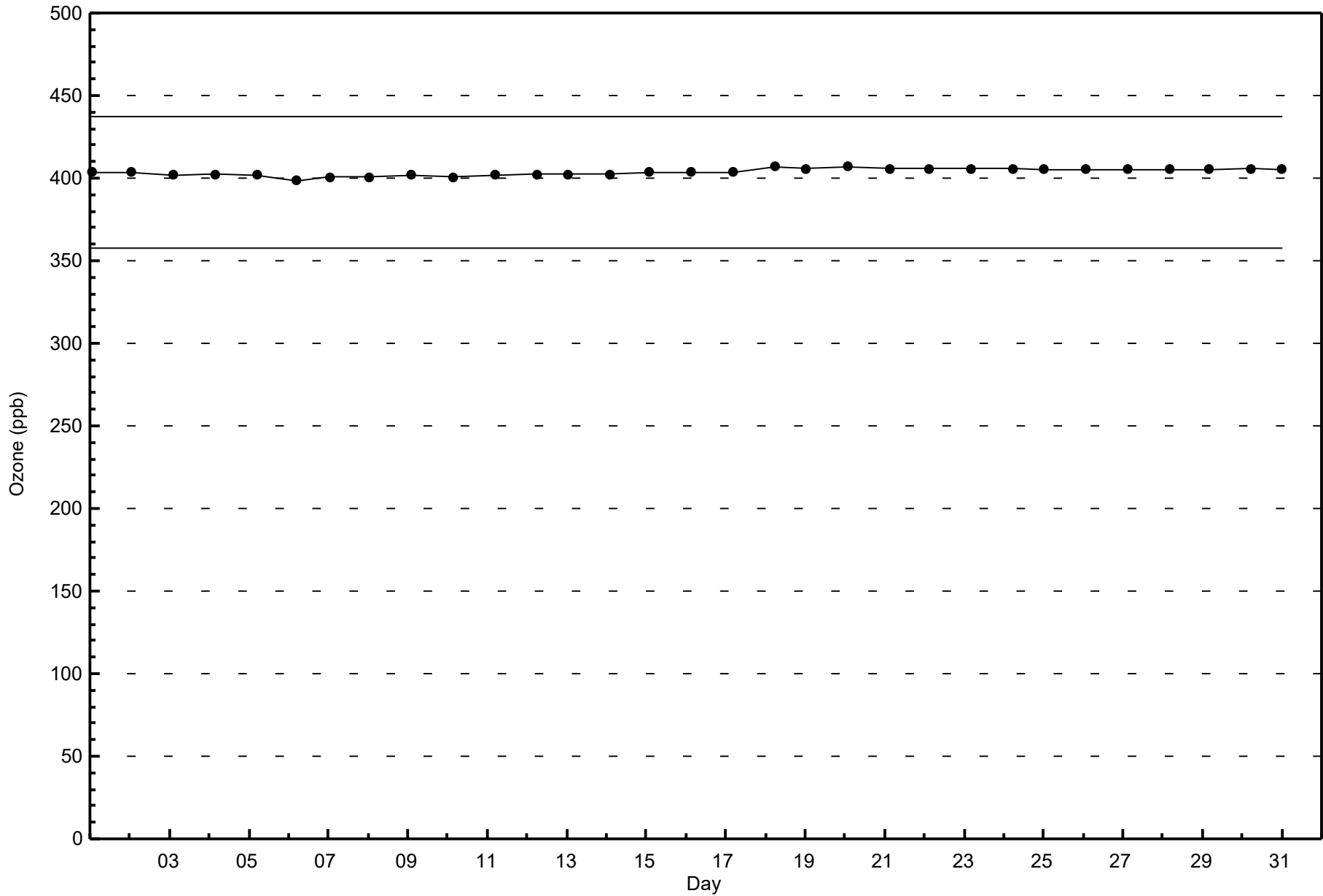






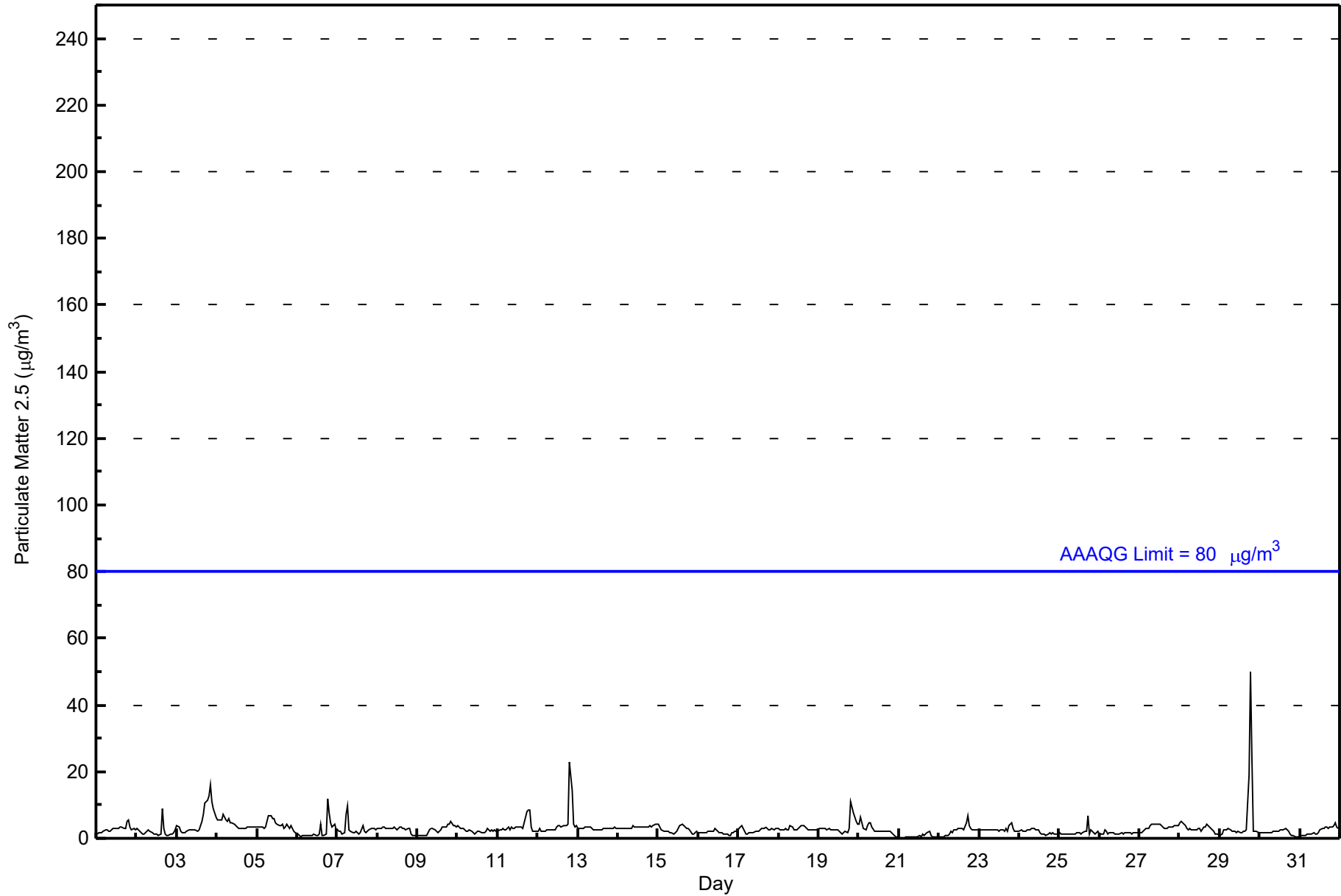
Wood Buffalo Environmental Association  
Span Responses

Ozone (O<sub>3</sub>) - ppb  
Anzac - October 2024





Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																												
Maximum Value: 50.0 µg/m <sup>3</sup> on Oct 29 19:00		Maximum Daily Average: 5.7 µg/m <sup>3</sup> on Oct 29														Hours of Data:		744																														
Minimum Value: 0.1 µg/m <sup>3</sup> on Oct 21 02:00		Minimum Daily Average: 0.6 µg/m <sup>3</sup> on Oct 21														Hours of Missing Data:		0																														
Maximum Diurnal Average: 5.1 µg/m <sup>3</sup> at hour 19		Minimum Diurnal Average: 2.2 µg/m <sup>3</sup> at hour 5														Hours of Calibration:		0																														
Monthly Average: 2.84 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.7 Median = 2.6 Q <sub>3</sub> = 3.2 P <sub>90</sub> = 4.1 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-Oct	1.4	1.6	1.7	1.8	2.2	2.5	2.6	2.1	2.1	2.5	2.8	2.8	2.9	2.8	3.4	3.3	3.0	2.9	5.1	5.5	3.4	2.7	2.8	2.6	2.8	5.5																						
2-Oct	3.1	2.7	2.0	1.4	1.2	1.5	2.0	2.4	2.2	1.8	1.3	1.2	1.1	1.0	1.4	8.9	3.1	1.3	0.9	1.0	1.2	1.2	1.7	2.5	2.0	8.9																						
3-Oct	4.0	3.3	2.1	1.6	1.8	1.9	2.3	2.6	2.6	2.7	2.7	2.5	2.3	2.7	3.7	5.1	7.1	10.6	11.6	12.6	16.2	10.9	8.7	6.5	5.3	16.2																						
4-Oct	5.6	5.5	5.5	5.5	7.1	5.7	5.0	5.8	4.8	4.6	4.1	3.7	3.4	3.1	3.0	3.0	2.9	3.4	3.6	3.4	3.4	3.4	3.5	3.5	4.3	7.1																						
5-Oct	3.5	3.3	3.4	3.2	3.1	3.5	5.1	6.7	6.7	6.1	6.0	4.5	4.1	4.0	3.8	4.3	2.8	3.4	4.1	3.1	4.0	2.9	2.3	1.7	4.0	6.7																						
6-Oct	1.3	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.9	0.9	1.1	1.0	0.7	1.2	4.3	0.9	0.8	1.4	11.8	7.6	4.6	3.5	4.3	2.5	2.2	11.8																						
7-Oct	2.3	2.0	2.1	1.5	1.5	7.3	9.5	2.6	2.1	1.9	1.9	2.1	1.6	1.4	1.8	3.9	2.0	1.9	2.1	2.5	2.9	3.1	2.8	2.6	2.7	9.5																						
8-Oct	2.8	3.1	3.2	3.3	3.3	2.9	3.1	3.1	3.2	2.9	3.3	2.9	2.6	3.3	3.3	3.1	2.9	2.7	2.9	2.9	1.3	0.9	0.7	0.7	2.7	3.3																						
9-Oct	0.7	0.8	0.8	0.9	1.0	1.0	1.5	2.4	3.1	2.9	2.4	1.9	1.9	2.0	2.7	3.2	3.5	3.6	4.1	4.0	5.0	3.8	3.9	3.5	2.5	5.0																						
10-Oct	3.8	3.4	3.1	3.0	2.7	2.3	2.2	2.4	2.1	1.6	1.5	1.5	1.9	2.2	1.8	1.8	1.7	1.9	3.0	2.3	2.5	2.3	2.4	2.2	2.3	3.8																						
11-Oct	2.3	2.5	2.6	2.8	2.6	2.5	3.4	2.6	3.4	3.0	3.0	3.2	3.5	3.3	3.3	3.2	4.6	7.9	8.5	8.5	3.3	2.2	2.2	2.1	3.6	8.5																						
12-Oct	2.2	3.1	2.2	2.2	2.2	2.4	2.6	2.7	2.6	2.6	2.7	3.2	3.6	3.6	3.3	3.9	3.7	3.8	4.3	22.7	14.5	4.2	3.5	4.0	4.4	22.7																						
13-Oct	3.2	3.0	3.0	3.1	3.3	3.3	3.3	3.2	3.0	2.7	2.6	2.7	2.6	2.6	2.7	2.8	2.9	2.9	2.9	2.8	2.9	3.0	3.4	3.0	2.9	3.4																						
14-Oct	2.9	3.0	3.0	3.0	3.0	3.0	2.9	3.1	3.0	3.7	3.2	3.3	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.7	4.1	4.4	3.4	4.4																						
15-Oct	4.2	3.2	2.7	2.1	1.9	2.0	1.9	1.7	1.5	1.4	1.6	2.2	2.9	3.9	4.2	4.0	3.2	3.0	2.9	2.5	1.4	1.1	1.5	2.1	2.5	4.2																						
16-Oct	1.9	1.8	1.7	1.7	1.9	1.8	2.1	2.1	1.9	2.3	3.1	2.7	1.7	1.7	1.6	1.5	1.1	1.1	0.9	1.0	1.5	1.7	2.2	2.3	1.8	3.1																						
17-Oct	3.0	3.5	4.0	3.1	1.4	1.2	1.9	1.9	1.7	1.7	2.0	2.2	2.1	2.6	3.1	3.1	3.3	3.1	2.7	2.6	2.9	2.7	2.8	2.9	2.6	4.0																						
18-Oct	2.9	2.7	2.7	2.8	2.8	2.6	2.7	3.8	3.4	2.5	2.4	2.5	3.1	3.9	4.0	3.7	3.2	2.8	2.6	2.4	2.4	2.5	2.6	2.7	2.9	4.0																						
19-Oct	2.8	2.8	2.8	2.9	2.9	2.7	2.8	2.7	2.4	2.5	2.5	2.5	2.0	1.6	1.4	1.6	2.2	1.8	3.2	11.0	9.1	7.7	5.2	4.1	3.5	11.0																						
20-Oct	4.4	6.3	4.8	3.1	2.7	4.0	4.7	4.8	3.4	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	1.9	1.2	0.7	0.4	0.2	2.6	6.3																						
21-Oct	0.1	0.1	0.1	0.2	0.5	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8	0.5	1.5	1.0	1.2	1.8	2.2	0.7	0.4	0.6	0.4	0.5	0.6	2.2																						
22-Oct	0.4	0.5	0.5	0.4	0.7	0.8	1.2	2.0	1.9	2.4	2.7	2.8	3.0	2.9	2.8	2.7	4.5	6.9	3.6	2.8	2.6	2.6	2.5	2.6	2.3	6.9																						
23-Oct	2.4	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.6	2.7	2.7	2.5	2.3	2.4	2.4	2.1	3.0	2.3	3.7	4.7	3.1	2.3	2.2	2.3	2.6	4.7																						
24-Oct	2.1	2.4	2.3	2.2	2.2	2.4	2.7	2.8	2.9	2.8	2.7	2.4	1.9	1.2	1.2	1.1	1.0	1.2	1.5	1.3	1.7	1.2	1.2	1.2	1.9	2.9																						
25-Oct	1.7	1.2	1.1	1.1	1.3	1.1	1.1	1.3	1.3	1.3	1.5	1.6	1.5	1.3	1.7	1.9	2.2	6.9	1.4	2.4	1.5	1.4	1.8	2.1	1.7	6.9																						
26-Oct	1.5	1.2	1.4	2.6	2.1	1.4	1.7	1.7	1.5	1.4	1.5	1.4	1.4	1.6	1.5	1.5	1.7	1.6	1.5	1.4	1.6	1.6	1.8	1.8	1.6	2.6																						
27-Oct	1.8	1.9	2.3	2.6	2.8	3.0	3.7	4.2	4.3	4.2	4.3	4.4	4.1	3.8	3.3	3.1	3.2	3.3	3.3	3.3	3.5	3.7	3.8	3.8	3.4	4.4																						
28-Oct	4.5	4.9	4.6	3.7	2.9	2.6	2.9	2.7	2.6	2.6	2.6	2.9	2.8	2.1	3.4	3.5	4.1	3.9	3.3	2.5	1.9	1.4	1.3	1.3	3.0	4.9																						
29-Oct	1.0	1.3	2.4	2.6	2.5	2.9	2.5	2.1	2.2	2.1	1.7	1.9	1.9	1.9	2.0	2.2	2.4	19.1	50.0	24.0	2.3	2.1	2.0	1.8	5.7	50.0																						
30-Oct	1.9	1.9	1.9	1.7	1.8	1.7	1.7	1.7	2.0	2.0	2.1	2.3	2.3	2.5	2.7	2.8	2.7	2.2	1.4	1.0	0.7	0.6	0.6	0.6	1.8	2.8																						
31-Oct	0.6	0.7	0.9	1.0	1.1	1.4	1.5	1.3	1.7	1.4	1.3	1.8	2.5	2.9	2.9	3.4	3.3	3.2	3.6	3.2	3.7	4.5	3.6	2.8	2.3	4.5																						
																								2.5	2.5	2.4	2.3	2.2	2.4	2.7	2.7	2.6	2.4	2.4	2.4	2.4	2.4	2.7	3.0	2.9	3.8	5.1	4.9	3.6	2.8	2.6	2.5	Diurnal Average
																								5.6	6.3	5.5	5.5	7.1	7.3	9.5	6.7	6.7	6.1	6.0	4.5	4.1	4.0	4.3	8.9	7.1	19.1	50.0	24.0	16.2	10.9	8.7	6.5	Diurnal Maximum
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 - October 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	707	95.03	95.03
6 - 15	32	4.30	99.33
16 - 25	4	0.54	99.87
26 - 80	1	0.13	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 744

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 - October 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	11	5	3	10	27	46	63	62	33	36	38	53	147	92	47	18	691
6 - 15	0	1	0	0	0	0	0	5	6	3	5	1	2	7	1	1	32
16 - 25	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	4
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>	11	6	3	10	27	46	63	70	40	40	43	54	149	99	48	19	728

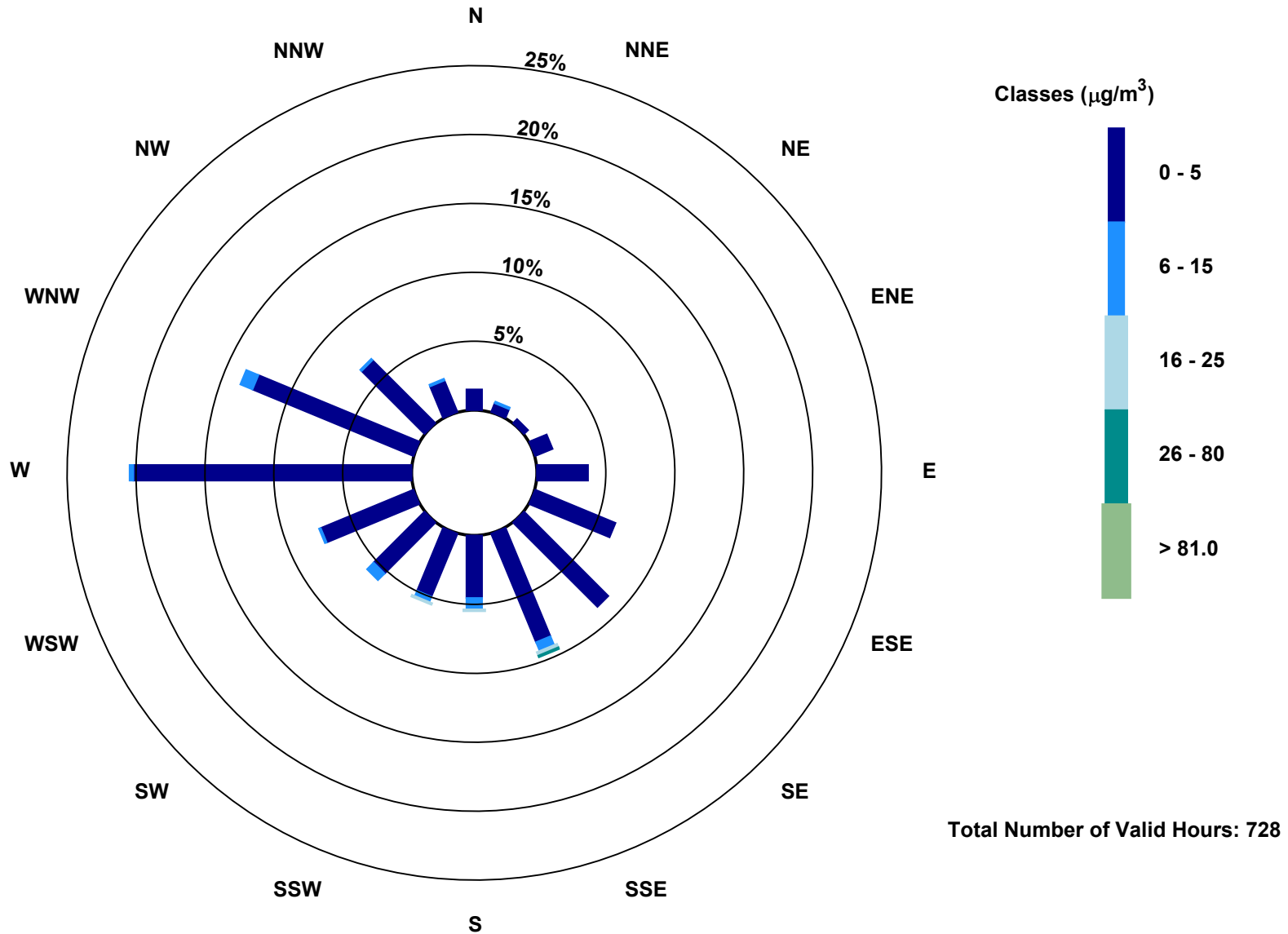
Total Number of Valid Hours: 728

Total Number of Hours: 744



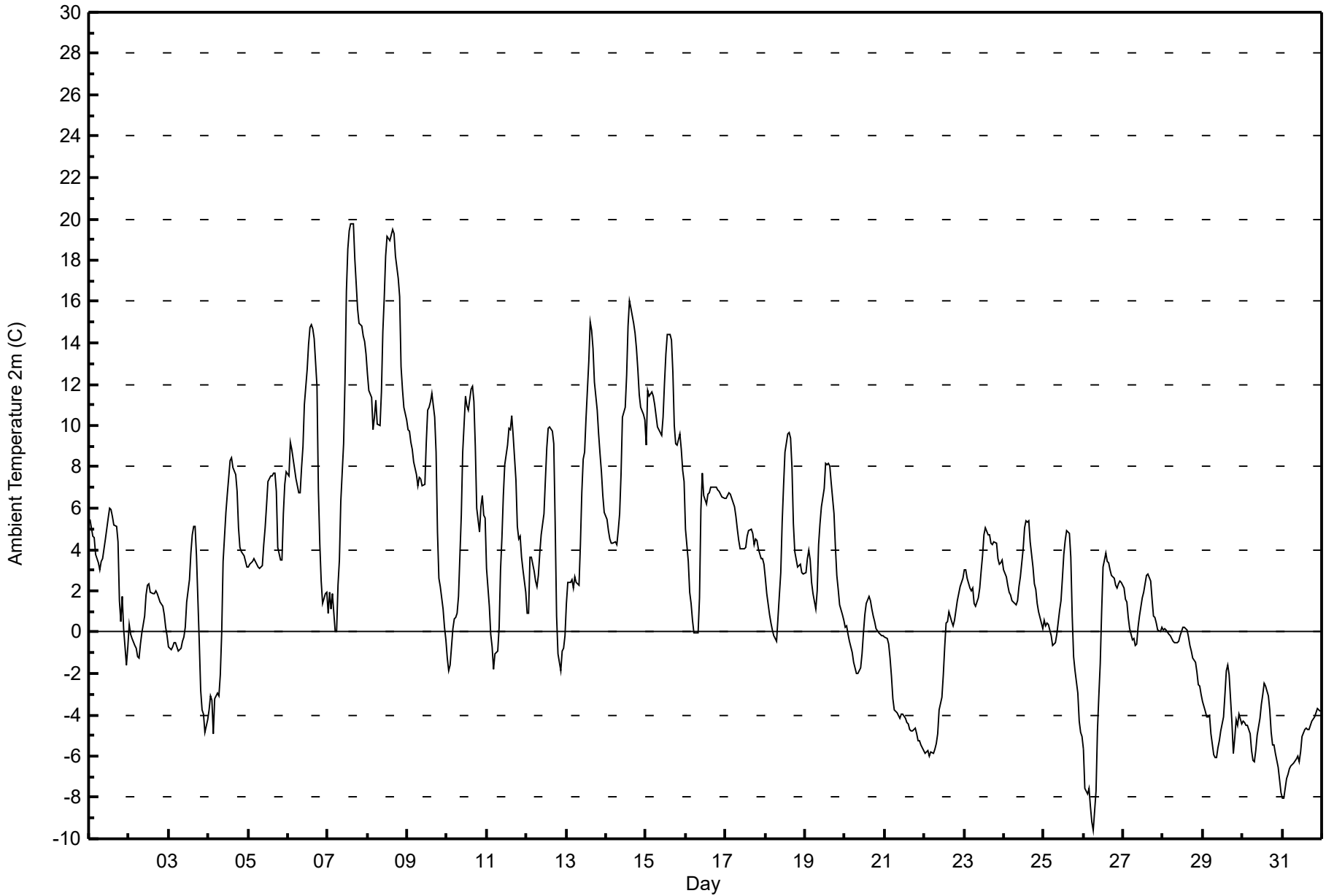
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





Maximum Value: 19.8 C on Oct 7 16:00      Maximum Daily Average: 14.2 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -9.6 C on Oct 26 07:00      Minimum Daily Average: -5.5 C on Oct 31 Maximum Diurnal Average: 6.8 C at hour 15      Minimum Diurnal Average: 0.5 C at hour 7 Monthly Average: 3.09 C      Percentiles: P <sub>1</sub> = -7.7 P <sub>10</sub> = -4.5 Q <sub>1</sub> = -0.4 Median = 2.5 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 10.9 P <sub>99</sub> = 18.8																				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-Oct	5.5	5.1	4.7	4.6	3.7	3.4	3.0	3.4	3.6	4.0	4.5	5.5	6.0	6.0	5.6	5.2	5.1	4.4	1.5	0.5	1.8	0.2	-1.6	-0.7	3.5	6.0
2-Oct	0.4	-0.1	-0.3	-0.7	-0.8	-1.2	-1.2	-0.6	0.0	0.8	1.8	2.3	2.4	1.9	1.9	1.9	2.0	1.9	1.6	1.4	1.2	0.9	0.3	-0.2	0.7	2.4
3-Oct	-0.7	-0.8	-0.7	-0.5	-0.5	-0.7	-0.9	-0.8	-0.4	-0.2	0.3	1.5	2.5	3.8	4.7	5.1	5.1	3.7	-0.5	-2.8	-3.8	-4.0	-4.9	-4.2	0.0	5.1
4-Oct	-3.8	-3.1	-3.3	-4.9	-3.2	-3.0	-3.1	-2.0	0.0	3.4	5.8	6.7	7.5	8.3	8.4	8.0	7.6	6.8	5.1	4.1	3.9	3.7	3.4	3.2	2.5	8.4
5-Oct	3.2	3.3	3.4	3.5	3.4	3.3	3.1	3.1	3.2	4.2	5.0	6.1	7.3	7.6	7.5	7.7	7.7	6.8	4.1	3.5	3.5	5.7	7.1	7.8	5.0	7.8
6-Oct	7.6	9.2	8.9	8.4	7.9	7.4	6.8	6.8	7.9	9.0	11.0	12.7	13.9	14.7	14.9	14.7	14.2	11.9	6.9	4.3	2.5	1.4	1.9	1.9	8.6	14.9
7-Oct	0.9	2.0	1.1	1.9	0.0	0.0	2.3	3.5	6.3	9.1	12.1	16.5	18.6	19.4	19.8	19.8	18.1	16.8	15.6	14.9	14.8	14.3	14.1	13.4	10.6	19.8
8-Oct	12.5	11.7	11.3	9.8	10.4	11.2	10.1	10.0	11.6	14.6	16.2	18.2	19.2	19.0	19.2	19.5	19.3	18.2	17.1	16.2	12.9	11.7	10.9	10.3	14.2	19.5
9-Oct	9.8	9.8	9.2	8.8	8.2	7.6	7.1	7.5	7.4	7.1	7.1	9.2	10.7	10.9	11.1	11.6	10.4	8.7	4.8	2.6	2.2	1.1	0.3	-0.4	7.2	11.6
10-Oct	-1.2	-1.9	-1.6	0.2	0.7	0.7	0.9	1.7	5.7	8.7	10.1	11.4	10.9	10.8	11.8	11.9	11.2	9.0	6.0	4.8	6.0	6.6	5.7	5.5	5.6	11.9
11-Oct	3.1	1.3	-0.1	-0.7	-1.8	-1.0	-0.9	0.2	3.0	4.6	6.6	8.1	9.1	9.9	9.8	10.5	9.5	7.4	5.1	4.5	4.6	3.6	3.0	2.0	4.2	10.5
12-Oct	0.9	0.9	3.6	3.6	2.9	2.5	2.2	2.7	3.8	4.7	5.7	7.4	8.9	9.9	9.9	9.7	9.2	5.2	0.8	-1.0	-1.8	-0.9	-0.8	-0.1	3.8	9.9
13-Oct	1.4	2.4	2.4	2.5	2.1	2.7	2.4	2.3	4.3	6.7	8.3	8.7	10.4	13.1	15.0	14.6	13.7	12.1	10.8	9.6	8.6	7.8	6.6	5.8	7.3	15.0
14-Oct	5.5	4.9	4.5	4.3	4.3	4.4	4.2	4.9	5.7	7.6	10.4	10.9	12.5	14.8	16.1	15.7	15.0	14.5	13.7	12.7	11.5	10.9	10.5	10.3	9.6	16.1
15-Oct	9.0	11.7	11.4	11.6	11.4	11.0	10.5	9.9	9.8	9.6	10.4	12.0	13.4	14.4	14.4	14.1	12.5	10.0	9.1	9.0	9.6	8.8	7.9	7.3	10.8	14.4
16-Oct	5.0	3.4	1.9	1.4	0.6	0.0	0.0	-0.1	1.6	5.9	7.7	6.6	6.2	6.7	6.8	7.0	7.0	7.0	7.0	6.9	6.8	6.7	6.6	6.5	4.8	7.7
17-Oct	6.5	6.6	6.8	6.7	6.3	6.0	5.6	5.0	4.4	4.1	4.0	4.1	4.7	4.9	5.0	4.8	4.2	4.5	4.4	4.0	3.6	3.6	3.3	4.9	6.8	
18-Oct	2.6	1.9	0.9	0.4	0.1	-0.1	-0.3	-0.4	1.8	2.9	5.3	7.1	8.7	9.6	9.7	9.4	8.0	5.3	3.9	3.1	3.2	3.3	2.9	2.8	3.8	9.7
19-Oct	2.9	3.6	4.0	3.5	2.4	1.9	1.1	2.0	4.3	5.3	6.1	6.9	8.2	8.1	8.2	8.0	7.2	5.7	4.1	2.7	2.1	1.3	0.8	0.6	4.2	8.2
20-Oct	0.3	0.3	-0.1	-0.4	-1.0	-1.5	-1.7	-2.0	-2.0	-1.7	-1.1	-0.1	0.8	1.4	1.7	1.5	1.2	0.8	0.5	0.2	0.0	-0.1	-0.2	-0.2	-0.1	1.7
21-Oct	-0.2	-0.3	-0.6	-1.2	-2.2	-3.2	-3.8	-3.9	-4.0	-4.2	-3.9	-4.0	-4.1	-4.3	-4.4	-4.7	-4.8	-4.8	-4.7	-4.9	-5.3	-5.3	-5.4	-5.7	-3.8	-0.2
22-Oct	-5.9	-5.8	-5.7	-6.0	-5.8	-5.8	-5.7	-5.4	-4.9	-3.8	-3.2	-2.1	-0.7	0.4	0.5	1.0	0.5	0.3	0.6	1.1	1.5	2.2	2.4	2.6	-2.0	2.6
23-Oct	3.0	3.0	2.6	2.1	2.0	2.1	1.4	1.3	1.7	2.1	3.0	3.7	4.7	5.0	4.7	4.7	4.3	4.3	4.4	4.3	3.6	3.3	3.4	3.5	3.3	5.0
24-Oct	3.0	2.7	2.3	1.9	1.8	1.5	1.4	1.4	1.5	2.2	2.7	4.1	5.0	5.4	5.4	5.4	4.4	3.1	2.4	2.1	1.4	1.0	0.5	0.1	2.6	5.4
25-Oct	0.6	0.3	0.5	0.3	-0.2	-0.7	-0.6	-0.5	-0.1	1.1	1.5	2.6	3.8	4.4	4.9	4.8	3.6	0.8	-1.2	-1.8	-2.9	-4.3	-4.9	-5.0	0.3	4.9
26-Oct	-5.7	-7.6	-7.8	-7.6	-8.4	-9.2	-9.6	-7.7	-4.8	-3.1	-1.5	1.0	3.1	3.8	3.4	3.4	3.0	2.8	2.6	2.3	2.2	2.3	2.5	2.4	-1.6	3.8
27-Oct	2.2	1.6	1.5	0.7	0.2	-0.4	-0.3	-0.7	-0.6	0.3	0.8	1.7	1.9	2.4	2.8	2.8	2.5	1.6	0.8	0.7	0.5	0.1	0.1	0.2	1.0	2.8
28-Oct	0.1	0.1	0.1	-0.1	-0.2	-0.3	-0.4	-0.5	-0.5	-0.4	-0.2	0.1	0.3	0.2	0.1	-0.2	-0.7	-0.9	-1.3	-1.5	-1.9	-2.5	-2.6	-3.0	-0.7	0.3
29-Oct	-3.4	-3.8	-4.1	-4.1	-4.0	-4.9	-5.9	-6.1	-6.1	-5.6	-5.2	-4.8	-4.1	-3.0	-1.8	-1.6	-2.1	-4.4	-5.8	-5.2	-4.2	-4.5	-4.0	-4.5	-4.3	-1.6
30-Oct	-4.3	-4.4	-4.5	-4.5	-4.9	-5.7	-6.2	-6.3	-5.7	-5.0	-4.2	-3.5	-3.0	-2.5	-2.6	-3.1	-3.8	-4.9	-5.4	-5.5	-5.8	-6.5	-7.2	-7.8	-4.9	-2.5
31-Oct	-8.1	-8.0	-7.1	-6.9	-6.6	-6.4	-6.4	-6.4	-6.1	-6.0	-6.3	-5.8	-5.1	-4.7	-4.7	-4.7	-4.7	-4.5	-4.3	-4.1	-3.9	-3.7	-3.8	-3.8	-5.5	-3.7
1.7 1.6 1.5 1.3 0.9 0.7 0.5 0.7 1.7 2.8 3.9 5.0 5.9 6.5 6.8 6.7 6.2 5.0 3.5 2.9 2.5 2.2 1.9 1.7																								Diurnal Average		
12.5 11.7 11.4 11.6 11.4 11.2 10.5 10.0 11.6 14.6 16.2 18.2 19.2 19.4 19.8 19.8 19.3 18.2 17.1 16.2 14.8 14.3 14.1 13.4																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C  
Anzac - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	222	29.84	29.84
0 - 10	430	57.80	87.63
10 - 20	92	12.37	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

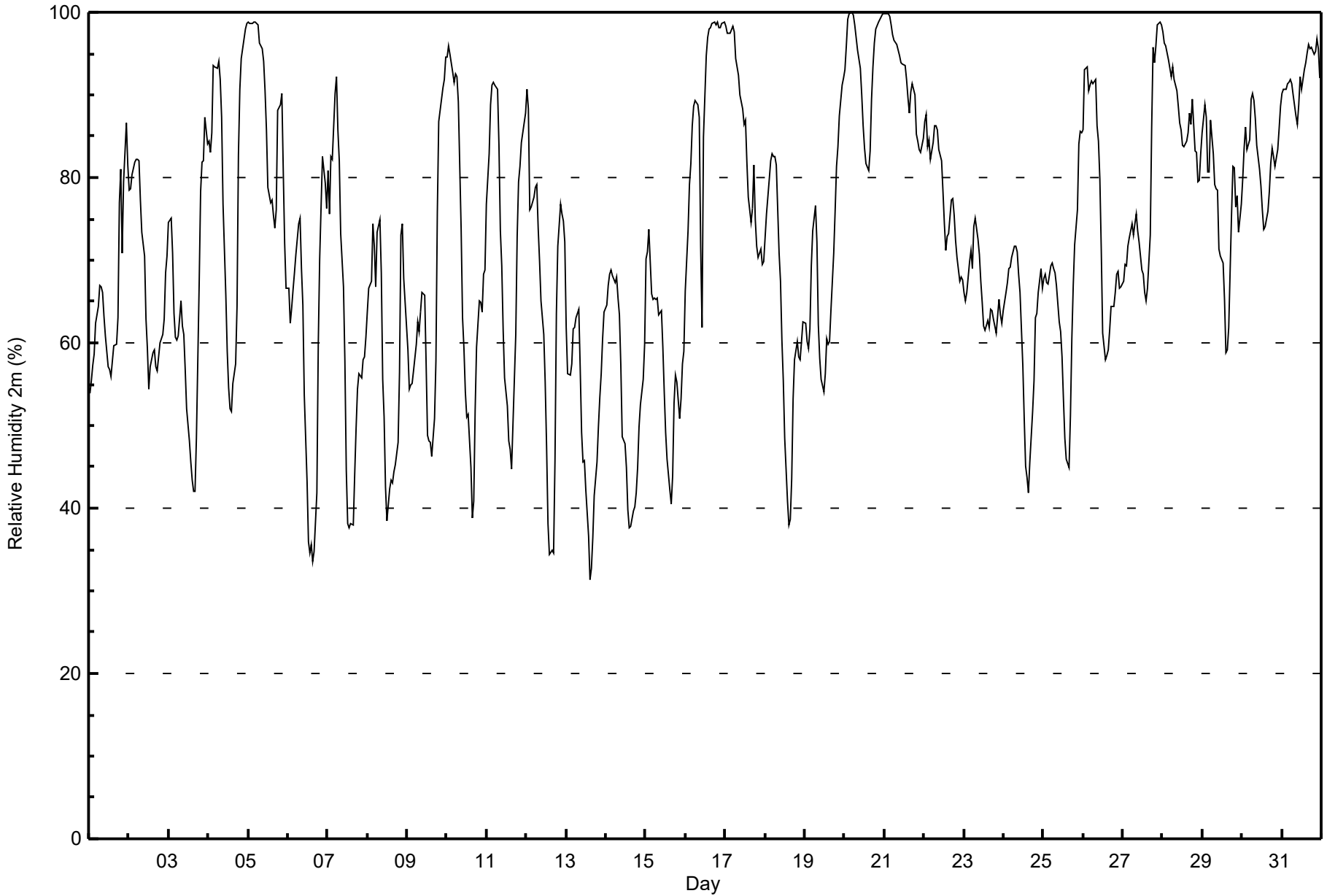
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Anzac - October 2024**

Maximum Value: 99.9 % on Oct 20 05:00      Maximum Daily Average: 93.8 % on Oct 20 Minimum Value: 31.3 % on Oct 13 15:00      Minimum Daily Average: 51.2 % on Oct 13 Maximum Diurnal Average: 81.2 % at hour 7      Minimum Diurnal Average: 57.7 % at hour 16 Monthly Average: 72.12 %      Percentiles: P <sub>1</sub> = 35.2 P <sub>10</sub> = 48.5 Q <sub>1</sub> = 60.3 Median = 71.7 Q <sub>3</sub> = 86.2 P <sub>90</sub> = 94.5 P <sub>99</sub> = 99.5																						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 Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	53.9	55.4	57.3	58.6	62.3	64.4	66.9	66.8	66.1	63.2	60.8	57.2	56.8	55.9	57.7	59.6	59.8	63.1	76.9	81.0	70.9	79.4	86.6	81.5	65.1	86.6
2-Oct	78.5	78.7	80.4	81.8	82.3	82.2	82.0	77.3	73.3	70.5	62.8	59.3	54.5	57.1	58.7	59.1	57.1	56.6	58.4	60.0	61.0	62.9	68.4	70.4	68.1	82.3
3-Oct	74.6	75.1	70.9	63.6	60.6	60.3	60.9	65.0	62.0	61.0	56.8	52.0	48.2	45.6	43.3	42.0	42.0	48.5	67.5	78.3	81.9	82.1	87.3	84.1	63.1	87.3
4-Oct	84.3	83.1	85.4	93.6	93.5	93.2	94.1	91.9	87.2	76.8	65.8	59.0	54.6	52.0	51.8	55.0	57.4	64.5	82.7	90.7	94.5	96.8	98.0	98.7	79.4	98.7
5-Oct	98.8	98.7	98.7	98.9	98.8	98.7	98.4	96.2	95.7	94.1	90.4	85.8	78.9	77.0	77.3	75.5	74.0	76.1	88.1	88.9	90.1	80.9	72.0	66.6	87.4	98.9
6-Oct	66.6	62.4	64.2	66.4	68.5	70.7	74.5	75.0	69.0	64.5	53.8	43.2	36.0	34.5	35.5	33.6	34.7	41.9	59.9	70.1	76.5	82.6	79.4	76.3	60.0	82.6
7-Oct	80.8	75.6	82.5	82.2	90.2	92.2	85.8	82.1	73.2	66.9	57.8	44.6	38.2	37.6	38.1	38.0	44.0	49.6	54.4	56.3	55.7	57.9	58.3	60.6	62.6	92.2
8-Oct	63.8	66.7	67.4	74.4	71.8	66.8	73.3	75.0	68.5	55.6	50.9	42.5	38.5	42.5	43.4	43.0	44.3	45.3	47.9	56.4	73.1	74.4	67.9	62.1	59.0	75.0
9-Oct	59.1	54.3	55.0	55.1	56.6	59.9	62.5	61.4	63.7	66.2	65.8	57.4	48.8	48.2	48.0	46.3	50.9	57.9	75.7	86.8	88.1	90.9	91.8	94.5	64.4	94.5
10-Oct	94.6	96.0	95.0	92.7	91.6	92.6	92.2	89.1	73.7	63.1	59.3	54.1	51.1	51.4	45.0	38.9	40.8	51.8	59.5	65.0	64.9	63.7	68.3	68.8	69.3	96.0
11-Oct	76.8	82.9	88.8	91.2	91.5	91.1	90.7	83.9	73.6	69.3	61.6	55.8	52.4	48.1	47.2	44.7	50.1	61.1	72.9	79.4	81.4	84.2	85.4	87.7	73.0	91.5
12-Oct	90.7	88.4	76.1	76.4	77.6	78.8	79.1	74.0	69.7	65.1	61.0	55.3	47.5	38.1	34.4	35.0	34.6	45.8	63.6	71.7	76.8	75.5	74.8	72.3	65.1	90.7
13-Oct	61.9	56.3	56.1	57.5	61.6	61.8	63.1	64.0	57.0	49.2	45.6	45.7	42.3	36.6	31.3	32.7	36.4	41.5	45.6	49.8	53.4	56.2	60.4	63.7	51.2	64.0
14-Oct	64.6	67.0	68.3	68.9	68.2	67.4	68.1	65.5	63.4	57.3	48.7	47.9	45.0	39.8	37.7	37.9	39.6	40.2	41.9	44.9	49.9	52.6	55.5	59.8	54.2	68.9
15-Oct	70.1	71.1	73.7	66.0	65.3	65.4	65.3	65.5	63.4	63.9	59.6	54.1	49.1	46.0	42.1	40.5	43.9	52.7	56.2	55.2	50.8	53.3	57.5	59.0	57.9	73.7
16-Oct	66.3	73.6	79.2	81.7	86.2	88.6	89.3	88.9	87.3	71.6	61.9	84.9	94.7	97.0	97.9	98.2	98.7	98.8	98.5	98.8	98.1	98.2	98.7	98.8	89.0	98.8
17-Oct	98.3	97.5	97.4	97.5	98.3	97.6	94.5	93.4	92.3	90.0	88.4	86.4	87.0	81.8	77.6	74.6	76.2	81.5	75.0	71.6	70.3	71.3	69.5	69.8	84.9	98.3
18-Oct	72.7	75.6	79.8	82.0	82.9	82.6	82.5	81.5	70.9	67.5	60.4	55.5	48.5	40.8	37.9	38.7	43.6	53.2	57.9	60.1	58.3	58.0	60.1	62.6	63.1	82.9
19-Oct	62.4	60.2	59.3	61.8	69.3	73.5	76.6	72.2	62.2	58.1	55.6	54.0	56.3	60.6	59.8	60.2	63.9	70.8	76.0	81.4	83.7	87.5	91.3	92.1	68.7	92.1
20-Oct	93.1	96.0	99.2	99.8	99.9	99.7	98.4	97.0	95.5	93.3	90.1	86.3	83.6	81.7	80.9	83.1	89.6	93.4	96.2	97.9	98.9	99.2	99.5	99.8	93.8	99.9
21-Oct	99.8	99.8	99.8	99.4	98.5	97.2	96.7	96.1	95.4	94.7	93.9	93.8	93.6	91.8	89.7	87.9	90.4	91.3	90.0	85.2	84.4	83.4	83.1	84.8	92.5	99.8
22-Oct	86.8	87.7	83.8	84.6	82.2	84.2	86.3	86.3	85.8	83.4	82.1	78.2	74.4	71.1	72.9	73.2	77.3	77.5	75.4	72.4	70.3	67.5	68.0	67.7	78.3	87.7
23-Oct	66.1	65.2	66.0	69.9	71.1	69.0	74.1	75.1	72.6	70.7	67.5	64.9	62.0	61.5	62.7	61.8	64.1	64.0	62.8	61.2	63.3	65.2	63.4	62.3	66.1	75.1
24-Oct	63.8	66.1	67.4	69.0	69.1	70.4	71.7	71.8	71.1	68.3	66.1	57.4	50.9	45.2	43.7	41.9	45.5	51.6	55.4	63.1	63.5	66.1	69.0	66.7	61.4	71.8
25-Oct	67.7	68.2	67.3	67.1	69.3	69.7	69.0	68.4	66.9	62.5	61.3	58.3	53.1	48.4	46.0	44.9	51.1	60.5	66.9	71.9	76.2	84.0	85.7	85.4	65.4	85.7
26-Oct	85.8	93.0	93.4	90.5	91.1	91.7	91.4	91.8	86.3	84.4	79.8	71.4	61.2	58.0	58.5	59.1	61.5	64.4	64.5	66.1	68.4	68.6	66.6	66.7	75.6	93.4
27-Oct	67.5	69.5	69.3	71.7	72.8	74.4	73.1	74.5	75.6	73.6	72.3	68.8	68.3	66.1	65.1	66.6	73.0	86.0	95.8	94.0	96.0	98.5	98.9	98.5	77.9	98.9
28-Oct	97.7	96.3	96.0	94.2	93.1	92.2	93.3	91.9	90.5	88.6	86.7	85.8	83.9	83.7	84.5	85.4	87.9	86.4	89.4	83.2	83.0	79.4	79.6	82.9	88.1	97.7
29-Oct	85.4	88.8	87.2	80.7	80.7	87.0	82.9	79.2	78.7	78.4	71.4	70.5	69.7	65.3	58.8	59.2	61.9	75.4	81.4	81.2	76.5	77.8	73.4	76.8	76.2	88.8
30-Oct	79.8	83.6	86.1	83.4	84.6	89.5	90.2	89.4	87.1	83.9	81.0	79.0	76.0	73.7	74.0	75.9	78.3	81.7	83.6	82.6	81.3	83.4	86.0	88.6	82.6	90.2
31-Oct	90.1	90.7	90.6	91.3	91.5	91.8	91.4	90.0	87.5	86.5	88.8	92.2	90.7	93.0	93.9	95.1	96.2	95.7	95.8	95.0	95.3	96.8	95.6	92.1	92.4	96.8
77.5 78.2 78.8 79.1 80.0 80.8 81.2 80.0 76.3 72.3 68.0 64.5 61.2 59.0 57.9 57.7 60.3 65.4 71.5 74.2 75.4 76.7 77.4 77.5																								Diurnal Average		
99.8 99.8 99.8 99.8 99.9 99.7 98.4 97.0 95.7 94.7 93.9 93.8 94.7 97.0 97.9 98.2 98.7 98.8 98.5 98.8 98.9 99.2 99.5 99.8																								Diurnal Maximum		







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %  
Anzac - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	25	3.36	3.36
40 - 60	157	21.10	24.46
60 - 80	290	38.98	63.44
80 - 100	272	36.56	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Leaf Wetness (LW) - %**

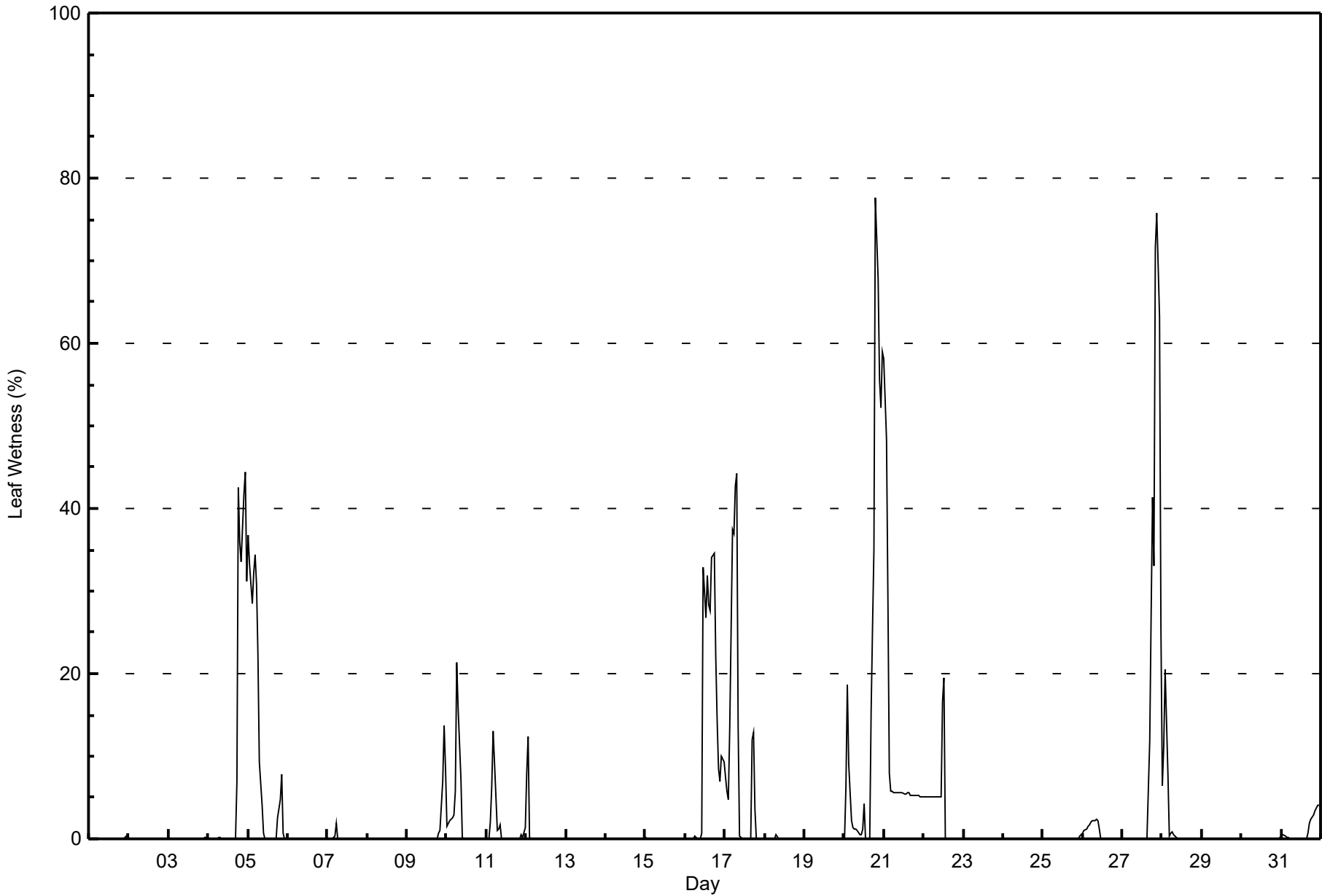
**Anzac - October 2024**

Maximum Value: 77.5 % on Oct 20 20:00																				Maximum Daily Average: 18.1 % on Oct 20					Hours in Service: 744			
Minimum Value: 0.0 % on Oct 1 01:00																				Minimum Daily Average: 0.0 % on Oct 2					Hours of Data: 744			
Maximum Diurnal Average: 6.4 % at hour 21																				Minimum Diurnal Average: 0.4 % at hour 11					Hours of Missing Data: 0			
Monthly Average: 3.20 %																				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> = 6.8 P <sub>99</sub> = 54.2					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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.4		
2-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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		
4-Oct	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	42.6	36.0	33.6	41.7	44.4	31.2	9.9	44.4	
5-Oct	36.8	33.2	28.5	32.2	34.5	30.9	22.4	9.4	4.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	4.7	7.8	0.6	0.0	0.0	10.3	36.8	
6-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.9	
8-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.9	6.9	13.7	8.5			1.3	13.7	
10-Oct	1.6	1.9	2.2	2.6	2.9	5.8	21.4	15.7	7.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	21.4	
11-Oct	0.0	0.0	2.0	6.2	13.1	9.1	1.1	1.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	1.3		1.5	13.1	
12-Oct	7.9	12.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	12.4	
13-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
16-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.7	32.8	26.8	31.9	28.3	27.7	34.0	34.6	22.3	14.3	8.5	6.9	10.0	9.4		12.0	34.6	
17-Oct	7.5	5.8	4.8	13.5	37.4	37.0	42.6	44.2	13.7	0.3	0.0	0.0	0.0	0.0	0.0	12.0	12.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	44.2	
18-Oct	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
19-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	6.2	18.7	8.9	2.2	1.4	1.2	1.2	1.0	0.5	0.4	1.2	4.2	0.1	0.0	0.0	15.5	25.7	35.1	77.5	67.8	55.6	52.2	58.9		18.1	77.5	
21-Oct	58.1	48.3	28.8	8.0	5.8	5.7	5.7	5.7	5.6	5.6	5.6	5.5	5.5	5.5	5.6	5.6	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.1		10.5	58.1	
22-Oct	5.1	5.1	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.0	5.1	16.5	19.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	19.5	
23-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.5		0.0	0.5	
26-Oct	0.7	0.9	1.2	1.5	1.7	2.0	2.1	2.3	2.4	2.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.4	
27-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	27.1	41.4	33.0	71.5	75.8	63.2	25.4		14.6	75.8		
28-Oct	6.5	11.1	20.4	7.8	0.4	0.6	0.8	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	20.4	
29-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	
31-Oct	0.4	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.8	2.4	2.8	3.3	3.8	4.1	4.0		1.0	4.1		
4.0 4.1 3.6 2.8 3.3 3.2 3.3 2.8 1.3 0.5 0.4 1.8 1.8 1.2 1.1 1.1 2.6 3.7 5.0 5.6 6.4 6.4 6.3 4.7																								Diurnal Average				
58.1 48.3 28.8 32.2 37.4 37.0 42.6 44.2 13.7 5.6 5.6 32.8 26.8 31.9 28.3 27.7 34.0 34.6 42.6 77.5 71.5 75.8 63.2 58.9																								Diurnal Maximum				



Wood Buffalo Environmental Association  
Hourly Averages

Leaf Wetness (LW) - %  
Anzac - October 2024





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

**Leaf Wetness (LW) - %**  
**Anzac - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	573	77.02	77.02
0.4 - 0.5	10	1.34	78.36
0.6 - 0.7	8	1.08	79.44
0.8 - 1.4	13	1.75	81.18
1.5 - 10	80	10.75	91.94
> 10	59	7.93	99.87

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 20m (WS20) - km/h

## Anzac - October 2024

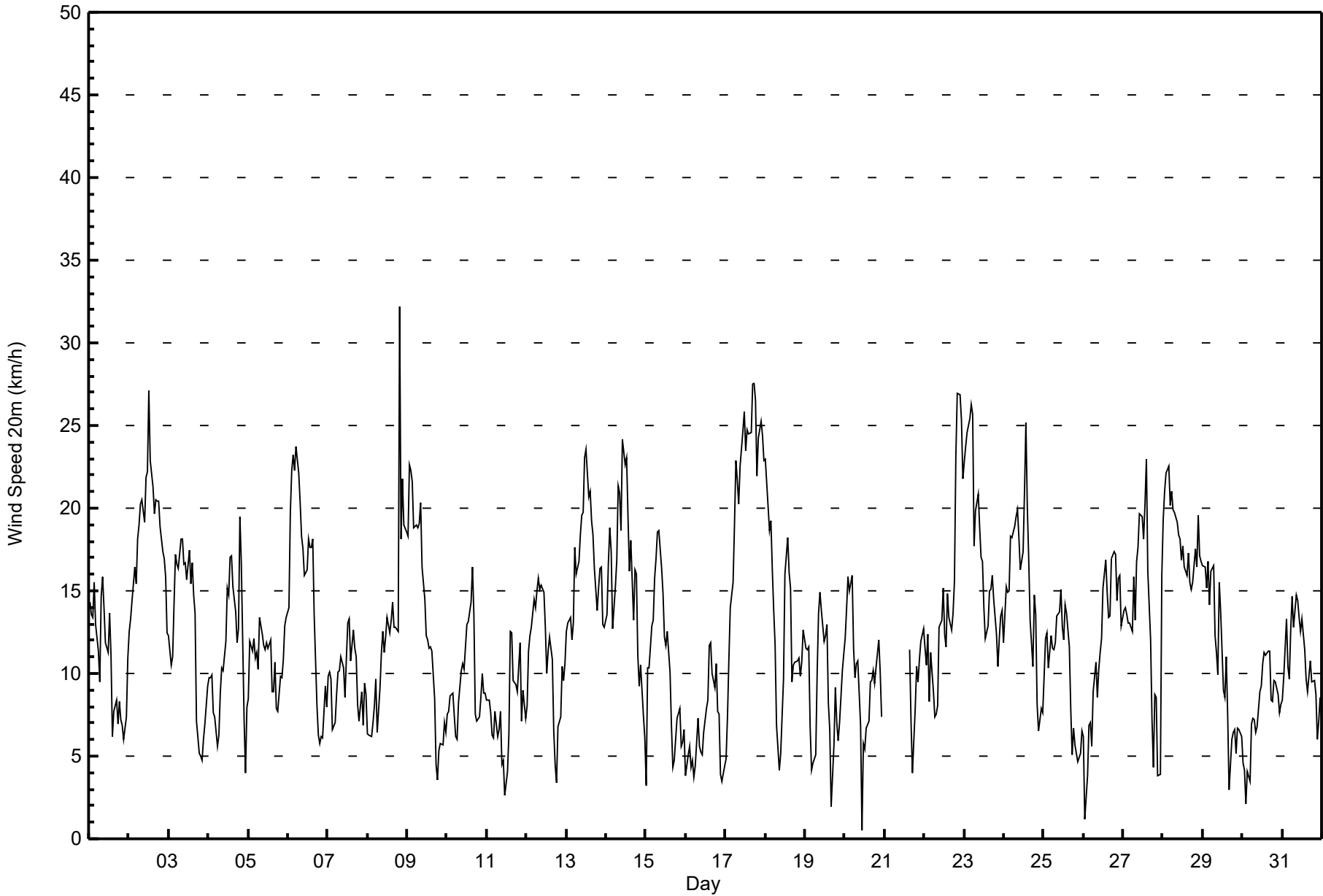
Maximum Speed: 32 km/h on Oct 8 20:00      Maximum Daily Speed Average: 20.9 km/h on Oct 17 Minimum Speed Value: 1 km/h on Oct 20 11:00      Minimum Daily Speed Average: 2.3 km/h on Oct 20 Maximum Diurnal Speed Average: 7.4 km/h at hour 5      Minimum Diurnal Speed Average: 3.5 km/h at hour 18 Monthly Average Velocity: 5.1 km/h 250.9 deg      Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 6 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 16 P <sub>90</sub> = 20 P <sub>99</sub> = 26		Hours in Service: 744 Hours of Data: 728 Hours of Missing Data: 16 Percent Operational Time: 97.9																																														
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-Oct	W14	W14	W13	W16	W13	W11	WSW10	W15	WNW16	WNW14	WNW12	NW11	NW14	NW11	NNW6	N8	N8	N7	NNE8	NNE7	N7	NNW6	NW7	WNW11	WNW8.9	WNW16																						
2-Oct	WNW13	WNW13	WNW14	WNW16	WNW15	WNW18	WNW19	WNW20	WNW21	WNW19	NW22	WNW22	NW27	NW23	NW21	WNW20	WNW20	WNW20	WNW20	WNW19	NW17	NW17	NNW16	NNW12	WNW18.3	NW27																						
3-Oct	NNW12	NW11	NW11	NW14	NW17	WNW17	WNW16	WNW18	WNW18	WNW17	NW17	WNW16	WNW17	WNW15	WNW17	W15	W14	W7	SW5	SW5	SSW5	S6	S7	S9	WNW10.6	WNW18																						
4-Oct	S10	SSE10	SSE10	S8	S7	SSE6	SSE6	SSE9	SSE10	SE10	SE12	ESE15	ESE15	E17	E15	E14	E12	E13	ENE19	ENE17	ENE17	NNW4	N8	ESE8.4	ENE19																							
5-Oct	N8	NNE12	NNE11	N12	NNW11	NNW11	NW10	NW13	WNW12	WNW12	WNW11	W12	W12	W12	WSW9	SW9	SW11	SW8	S8	S10	S10	SSW11	SSW13	SSW13	W5.6	NW13																						
6-Oct	SW14	WSW20	W22	W23	W22	W24	W22	WNW20	WNW18	W18	W16	W16	W18	W18	W18	W14	WSW8	SW6	WSW6	SW6	S6	S9	SSW8	W14.3	W24																							
7-Oct	S10	S10	S10	SE7	SE7	SSE9	SSE10	SE10	SSE11	SSE10	SSE9	S11	S13	S13	SSW11	SSW13	S12	S11	S8	SSW7	SW9	SW7	SW9	SSW9	S8.9	S13																						
8-Oct	SSW6	SSW6	SSW6	S7	S8	S10	SSE6	SSE9	SSE11	SSE13	SE11	SSE12	SSE13	SE12	SSE13	SE14	SSE13	SSE13	SSW13	W32	W18	W22	WSW19	WSW19	SSW7.9	W32																						
9-Oct	W18	W23	W22	W22	W19	W19	W19	W19	WNW20	W16	WNW15	W12	W12	W11	W12	WNW11	WNW8	WNW4	WSW4	SSW5	SSW6	SW6	WSW7	WSW6	W12.6	W23																						
10-Oct	WSW8	W8	W9	W9	W7	WSW6	WSW6	W8	W10	W11	W10	WNW12	W13	W13	WNW14	W16	W14	W8	SW7	SW7	W9	W10	WNW9	W9	W9.4	W16																						
11-Oct	WSW8	WSW8	WSW8	SSW6	SW6	WSW8	SW6	SSW7	SW8	SSW4	SW5	WSW3	SSW4	WSW6	SW13	SW12	SW10	SSW9	SSW9	SSW10	SW12	WSW7	SW9	SSW7	SW7.4	SW13																						
12-Oct	SW8	W11	W12	W13	WNW14	WNW14	W15	W16	WNW15	W15	WNW15	W13	W10	NW11	NNW12	NNW11	N7	NE4	SE3	S7	S7	S10	SSE10	SSE11	W7.1	W16																						
13-Oct	SSE13	SSE13	SSE13	SSE12	SE13	SSE18	SSE16	SSE17	SSE18	SSE20	SSE20	SSE23	SSE24	SSE21	S21	S19	S18	SSE16	SSE14	SE15	SE16	SE16	ESE13	SE13	SSE16.4	SSE24																						
14-Oct	SE14	SSE17	SSE19	SSE17	ESE13	SE15	SE17	SE21	SE21	SE19	SSE24	SSE23	SSE23	SSE19	SE16	SE18	SE13	SSE16	SSE16	SSE11	SSE9	SSE11	SSW7	S6	SSE15.8	SSE24																						
15-Oct	WNW3	W10	W10	W13	W13	W16	W17	W19	W19	W16	W15	W12	W12	WNW13	WNW10	WNW7	W4	SW5	SSW6	SSW7	SW8	SW6	SSW6	S7	W9.5	W19																						
16-Oct	SSE4	SSW5	SSW6	SW4	SSW5	SW4	S4	SSE7	SSE6	SE5	ESE5	ESE6	E8	E8	E12	E12	E10	ESE9	ESE11	ESE8	ESE8	ESE4	SE3	S4	SE5.0	E12																						
17-Oct	WNW5	W7	W11	W14	W16	W19	W23	W22	WSW20	WSW23	W25	W26	W23	W25	W24	W25	W28	W28	W27	W22	W24	W25	W24	W23	W20.9	W28																						
18-Oct	WNW23	WNW22	W19	WNW19	W16	W14	WSW12	WSW7	SW4	SE5	S7	S10	SW16	SW18	WSW16	SW15	SSW9	S11	SSE11	SSE11	SSE11	SE10	SE11	ESE13	SW7.8	WNW23																						
19-Oct	SE12	SE11	SSE12	SSE7	SSE4	S5	NW5	WNW10	WNW14	W15	W14	WNW12	WNW12	W13	WNW8	NNW7	N2	ENE6	N9	NNW7	WNW6	WNW7	NW10	NW11	WNW4.3	W15																						
20-Oct	NW12	WNW14	NW16	NW15	NNW16	NW12	NW10	NW11	NNW11	NNW7	SSW1	S6	ESE5	E7	SE7	ESE10	ESE10	ESE10	ESE9	SE10	ESE12	E10	ENE7	UO	NNE2.3	NNW16																						
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNW11	NNW7	NW4	NW8	NW10	NW9	NW11	WNW12	W13	---	W13																						
22-Oct	WSW12	WSW11	W12	SW8	WSW11	SSW9	SSW7	SSW8	SSW8	WSW13	WSW13	WSW15	WSW12	WSW12	SW15	SW13	SW13	SW14	SW16	WSW23	WSW27	W27	W25	W22	WSW13.8	WSW27																						
23-Oct	W23	W24	W25	W25	W26	W26	W18	WNW20	WNW21	W19	W17	W17	W14	W12	W13	WSW15	WSW15	WSW16	WSW14	WSW12	WSW10	W12	W13	W14	W17.2	W26																						
24-Oct	WSW12	WSW15	WSW15	WSW15	W18	W19	W19	W20	W18	W16	W17	W21	WNW25	NW20	WNW17	WNW13	W10	W15	W14	WSW8	WSW7	WSW8	WSW8	W14.8	WNW25																							
25-Oct	W10	W12	W12	W10	W12	WSW12	W11	W12	W13	W14	WNW15	W13	W12	WNW14	WNW14	WNW12	W8	SW5	SW7	SW6	SSW5	SW5	SW5	SSW7	W9.5	WNW15																						
26-Oct	SSW6	E1	ESE4	SSE7	S7	SE6	ESE9	E11	ESE9	ESE10	ESE11	ESE12	E15	E17	E15	E13	ESE14	ESE17	ESE17	ESE17	SE14	SE16	SE16	SE13	ESE10.6	ESE17																						
27-Oct	SE14	SE14	SE14	ESE13	SE13	SE13	SE16	SE13	SE17	SE18	SE20	SE20	ESE18	ESE20	ESE23	SE16	ESE12	SE7	SE4	SE9	SE9	S4	WSW4	WNW16	SE11.8	ESE23																						
28-Oct	WNW19	WNW21	WNW22	WNW23	WNW20	WNW21	WNW20	WNW20	WNW19	WNW18	WNW18	WNW17	WNW18	WNW16	WNW16	NW17	NW15	WNW15	WNW15	NW18	NW16	NW20	NW17	NW17	WNW18.2	WNW23																						
29-Oct	WNW17	WNW16	WNW15	NW17	NW14	NW16	NW17	NW12	NW11	NW10	WNW16	WNW14	WNW9	W9	W11	W8	SSW3	SSE6	SSE6	SSE7	SE5	ESE7	ESE7	SE6	WNW6.7	NW17																						
30-Oct	SE5	S4	NNW2	NE4	NW3	NNW7	N7	NNE7	NNE6	NE7	ENE9	ENE9	ENE11	E11	ENE11	ENE11	E11	E8	E8	ESE10	E10	E9	E8	E8	ENE6.2	ENE11																						
31-Oct	E8	ESE10	ESE13	E10	ESE10	ESE13	ESE15	SE13	SE15	SE14	ESE13	SE13	SE13	SE11	ESE10	SE9	SSE10	SSE11	SSE10	SSE10	SSE9	SSE6	SE7	SSE9	SE10.3	SE15																						
WSW5.8																								WSW6.8	WSW7.0	W7.0	W7.4	W7.2	W6.5	W6.7	W6.7	WSW6.0	WSW5.5	WSW5.4	WSW5.0	WSW4.7	WSW4.5	WSW4.0	SW3.6	SSW3.5	SSW3.8	SW4.2	SW3.8	SW4.1	WSW4.4	WSW5.1	Diurnal Average	
WNW23																								W24	W25	W25	W26	W26	W23	W22	SE21	WSW23	W25	W26	NW27	WNW25	W24	W25	W28	W28	W27	W32	WSW27	W27	W25	W23	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 20m (WS20) - km/h**  
**Anzac - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Oct 8 20:00 Minimum Value: 0 km/h on Oct 9 21:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																	Hours in Service: 744 Hours of Data: 728 Hours of Missing Data: 16 Hours of Calibration: 0 Percent Operational Time: 97.9								
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-Oct	4	4	4	4	3	3	3	4	4	4	4	3	3	3	2	2	2	1	1	1	2	1	1	2	4
2-Oct	3	3	4	4	4	4	5	6	5	5	6	6	6	6	6	5	6	6	6	5	5	4	4	3	6
3-Oct	3	2	3	4	5	5	4	5	5	5	5	4	5	4	4	4	2	1	1	1	1	1	1	5	
4-Oct	1	1	1	2	1	1	1	2	2	3	3	4	4	4	5	4	4	3	3	4	4	3	1	2	5
5-Oct	2	3	3	2	2	2	2	4	3	2	3	3	3	3	3	2	3	2	2	2	2	3	3	4	4
6-Oct	5	5	6	7	6	6	5	5	4	5	4	4	5	5	5	4	4	3	1	2	2	2	1	2	7
7-Oct	1	1	1	2	2	3	2	2	2	2	2	4	4	4	3	4	3	2	2	3	3	2	3	2	4
8-Oct	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	2	2	5	10	6	6	5	5	10
9-Oct	5	6	6	6	5	5	5	5	5	5	3	4	3	3	3	3	2	1	1	1	0	1	1	1	6
10-Oct	1	1	1	1	1	1	1	2	2	3	3	4	4	4	4	4	4	3	1	2	2	2	2	2	4
11-Oct	1	2	1	1	1	1	1	1	2	2	2	1	1	4	4	4	3	3	2	3	4	2	2	1	4
12-Oct	1	3	2	3	3	3	3	3	4	3	3	3	3	4	3	3	2	1	1	1	1	1	1	1	4
13-Oct	1	2	2	2	2	3	3	4	4	4	4	5	6	6	5	5	5	3	3	3	3	3	3	3	6
14-Oct	3	3	4	4	3	3	3	4	4	4	5	5	6	5	4	4	3	3	3	3	2	2	2	1	6
15-Oct	3	2	2	3	3	4	4	5	5	4	4	3	3	3	3	2	1	1	1	1	2	2	1	1	5
16-Oct	1	1	1	1	1	1	2	1	1	1	1	1	2	2	3	3	2	2	3	2	1	2	1	1	3
17-Oct	1	2	3	4	4	5	6	6	5	6	6	7	6	7	7	7	7	8	7	6	6	7	6	6	8
18-Oct	6	6	5	5	5	4	3	2	1	1	2	3	5	6	5	5	3	1	1	1	2	1	2	2	6
19-Oct	2	2	2	3	2	2	1	2	3	4	4	3	3	3	2	3	1	1	3	3	1	2	2	2	4
20-Oct	3	3	3	4	4	3	2	2	2	3	1	1	2	2	2	2	3	2	2	2	2	3	1	UO	4
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	2	1	1	2	2	3	3	4	4
22-Oct	4	4	4	2	3	2	2	2	2	4	3	4	4	4	4	3	3	4	5	7	6	8	7	6	8
23-Oct	7	7	7	7	7	7	5	5	6	5	4	4	4	3	4	4	4	4	3	4	2	3	4	4	7
24-Oct	4	4	4	3	4	5	5	5	5	4	5	5	7	7	5	4	3	5	4	2	2	2	2	2	7
25-Oct	2	2	3	3	3	2	2	2	3	4	3	3	3	4	3	3	2	1	1	1	1	1	1	2	4
26-Oct	1	1	2	1	1	2	2	2	2	3	3	3	4	4	4	3	3	4	4	4	3	3	4	3	4
27-Oct	3	3	3	2	2	2	3	3	3	4	4	4	4	5	6	6	3	3	2	2	2	1	2	6	6
28-Oct	5	6	6	5	5	5	5	5	5	5	4	5	5	4	4	4	4	4	4	4	4	5	4	5	6
29-Oct	4	4	4	4	3	4	4	2	2	4	4	4	3	3	3	3	1	1	1	1	2	2	2	1	4
30-Oct	2	1	2	2	1	1	1	2	1	1	2	2	2	2	2	3	3	2	2	2	2	2	1	1	3
31-Oct	1	2	3	2	3	3	4	3	4	4	3	3	3	3	2	2	3	3	3	3	3	2	2	2	4
Diurnal Maximum																									
UO - Unstable Operation																									





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 20m (WS20) - km/h  
Anzac - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	53	7.28	7.28
6 - 11	284	39.01	46.29
12 - 19	307	42.17	88.46
20 - 28	83	11.40	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 728

Total Number of Hours: 744





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

**Wind Speed 20m (WS20) - km/h**  
**Anzac - October 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	1	0	2	0	1	4	7	3	4	9	10	3	1	3	3	2	53
6 - 11	9	5	1	8	14	21	18	36	30	27	21	24	29	12	17	12	284
12 - 19	1	1	0	2	12	19	34	23	5	4	12	22	82	63	22	5	307
20 - 28	0	0	0	0	0	2	4	8	1	0	0	5	36	21	6	0	83
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>	11	6	3	10	27	46	63	70	40	40	43	54	149	99	48	19	728

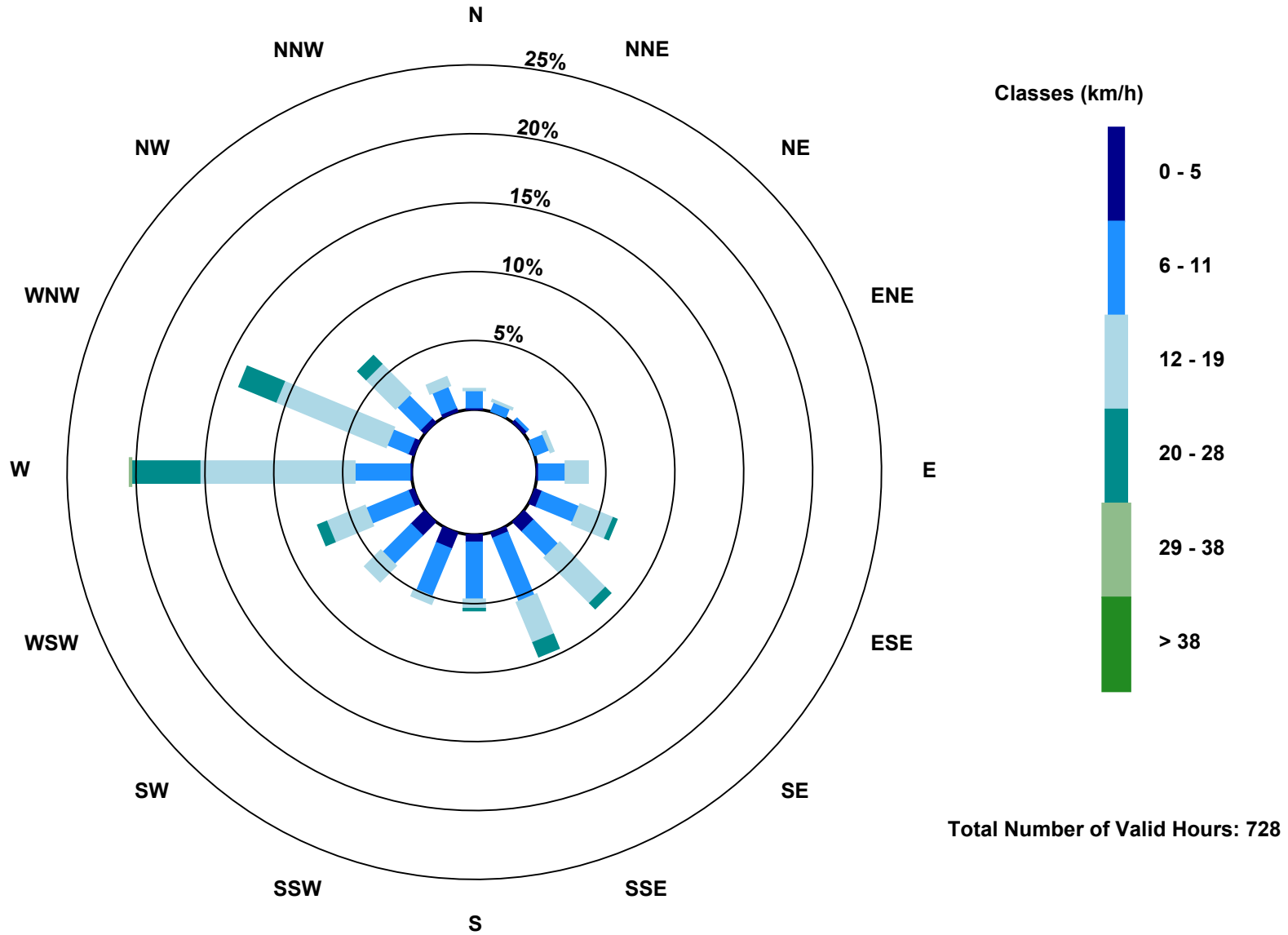
Total Number of Valid Hours: 728

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 20m (WS20) - km/h  
Anzac





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

**Wind Direction 20m (WD20) - deg**  
**Anzac - October 2024**

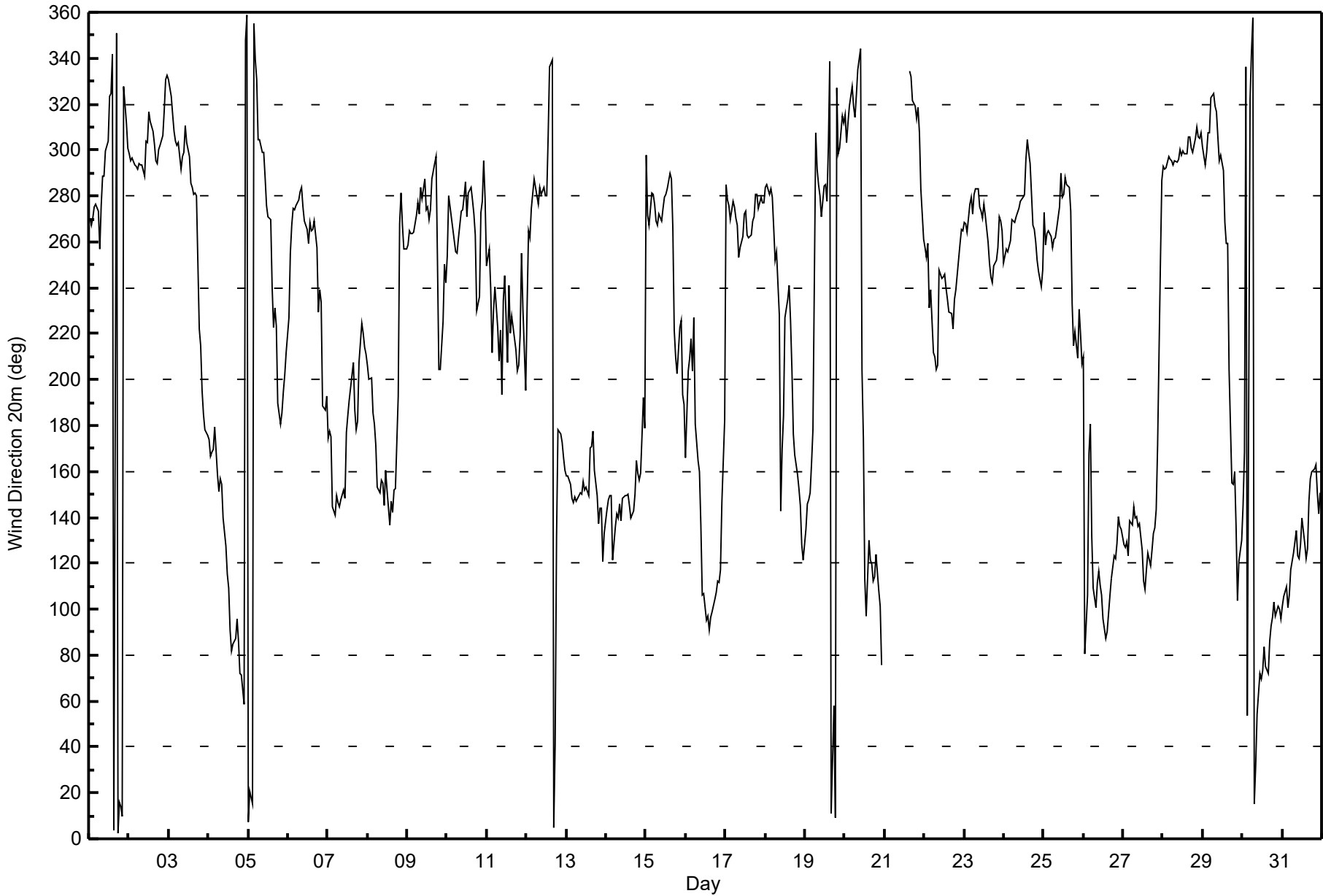
Direction of Maximum Speed: 268 deg on Oct 8 20:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 270.7 deg on Oct 17																						Hours of Data: 728			
Direction of Minimum Speed: 204 deg on Oct 20 11:00											Direction of Minimum Daily Speed Average: 2.3 deg on Oct 20											Hours of Missing Data: 16			
Monthly Average Direction: 250.9 deg																						Percent Operational Time: 97.9			
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-Oct	270	267	271	275	277	273	257	276	288	289	299	304	323	324	342	4	351	2	16	14	10	328	312	301	301.0
2-Oct	298	295	296	294	293	292	294	293	294	289	304	303	317	313	308	303	296	294	300	302	307	317	330	333	302.5
3-Oct	331	323	316	308	304	302	303	292	297	299	310	303	297	286	284	281	281	280	222	215	195	185	178	176	291.7
4-Oct	174	167	168	170	179	159	151	157	154	140	128	115	109	91	82	85	87	96	86	72	71	59	348	359	109.4
5-Oct	7	21	15	355	339	331	305	304	299	299	288	276	271	269	240	223	231	223	190	181	186	195	202	212	273.5
6-Oct	227	255	267	275	274	276	278	282	284	275	269	266	259	268	265	265	269	258	229	239	234	189	187	193	263.2
7-Oct	174	177	175	145	141	149	147	144	148	152	148	177	184	191	196	207	187	178	182	208	224	220	214	211	178.7
8-Oct	206	200	201	185	181	172	153	150	156	155	145	160	152	137	147	142	152	152	193	268	281	267	257	257	194.4
9-Oct	259	265	264	263	264	272	277	272	284	279	287	274	275	270	274	287	294	297	252	204	204	225	250	242	268.8
10-Oct	254	280	275	266	260	255	255	262	273	274	279	286	271	281	284	278	272	263	230	236	273	277	295	279	271.6
11-Oct	250	257	240	212	230	241	222	208	222	193	234	246	208	241	221	228	223	213	204	206	219	255	231	196	224.6
12-Oct	233	265	262	275	288	284	280	277	284	281	284	280	280	306	336	339	5	41	131	178	176	173	166	160	273.8
13-Oct	158	158	155	148	146	149	147	149	151	150	156	152	153	150	170	171	178	160	150	137	144	144	121	133	152.2
14-Oct	143	148	149	149	121	136	142	140	146	138	148	150	149	150	145	140	143	150	165	159	156	159	192	179	147.8
15-Oct	298	272	267	281	281	276	269	267	272	269	275	280	280	283	290	287	266	222	210	202	223	226	193	189	265.8
16-Oct	166	204	209	218	204	227	180	165	160	137	106	107	95	97	91	96	99	105	108	112	112	117	146	183	127.2
17-Oct	285	278	276	270	277	275	270	268	253	258	262	272	273	263	262	263	269	271	281	281	275	279	277	277	270.7
18-Oct	284	285	280	283	279	266	252	255	228	143	169	184	227	235	241	226	205	176	167	158	152	145	128	121	230.8
19-Oct	135	146	148	151	164	178	308	292	285	280	271	284	285	278	302	339	11	58	9	327	299	301	315	312	287.2
20-Oct	315	303	312	319	328	319	314	324	335	344	204	175	113	97	130	121	120	113	114	124	108	101	75	UO	12.5
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	335	332	322	319	314	319	308	283	261	--
22-Oct	258	253	260	231	239	212	210	205	206	248	244	245	246	240	235	229	229	222	235	239	246	259	266	265	242.9
23-Oct	269	268	264	276	280	272	281	283	283	275	274	270	277	272	260	251	245	242	250	252	258	271	269	265	268.3
24-Oct	251	257	256	258	260	270	268	271	273	274	277	279	281	296	304	299	294	268	265	260	252	247	241	248	272.3
25-Oct	273	259	263	265	263	258	261	262	266	275	290	279	281	288	285	284	273	233	215	221	209	231	220	207	264.7
26-Oct	210	80	106	168	181	132	109	101	112	116	110	106	96	87	90	98	106	113	123	122	129	140	136	135	117.5
27-Oct	128	127	129	123	138	137	144	140	140	136	137	126	112	109	117	124	119	126	133	136	143	172	251	287	131.1
28-Oct	293	292	293	297	296	295	294	295	294	296	300	298	300	298	298	306	305	301	299	305	310	306	305	307	299.0
29-Oct	302	294	299	308	308	323	324	319	317	306	295	298	291	269	259	260	204	155	154	160	136	103	121	130	296.1
30-Oct	145	169	336	53	322	343	358	15	32	54	72	69	73	84	75	72	86	93	97	103	97	101	100	96	75.0
31-Oct	101	105	110	101	106	117	121	125	134	124	122	128	140	129	122	127	147	157	160	161	163	150	141	151	129.6
253.1 257.1 258.3 266.7 268.7 265.6 263.5 261.9 260.2 256.1 256.4 250.3 253.1 258.7 251.9 250.7 236.2 203.6 206.6 218.7 220.0 236.2 239.8 239.8																									
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 20m (WD20) - deg**  
**Anzac - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Oct 20 11:00 Minimum Value: 4 deg on Oct 12 22:00 Percentiles: P <sub>1</sub> = 5 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 16 Q <sub>3</sub> = 18 P <sub>90</sub> = 21 P <sub>99</sub> = 43																	Hours in Service: 744 Hours of Data: 728 Hours of Missing Data: 16 Hours of Calibration: 0 Percent Operational Time: 97.9																								
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-Oct	17	20	18	16	15	15	18	17	17	17	19	23	17	18	35	14	14	14	8	9	13	9	14	10	35																
2-Oct	13	16	16	16	16	16	16	17	18	17	18	18	16	15	16	17	17	18	16	16	14	14	14	17	18																
3-Oct	13	16	13	17	17	18	16	18	17	19	21	24	20	21	21	21	19	24	13	14	15	12	8	4	24																
4-Oct	4	5	5	7	4	17	7	14	9	15	20	16	17	18	16	17	20	21	14	13	15	24	34	16	34																
5-Oct	16	15	15	15	13	14	17	14	14	14	17	18	19	21	21	17	19	19	13	10	13	17	18	19	21																
6-Oct	23	17	18	18	17	15	16	16	17	17	17	17	18	19	19	18	17	12	16	21	20	36	10	14	36																
7-Oct	8	4	4	17	11	12	10	11	11	11	17	30	17	22	23	21	19	13	17	32	21	17	18	16	32																
8-Oct	13	15	13	6	7	6	30	13	9	13	15	15	17	16	14	14	12	11	29	21	16	16	15	15	30																
9-Oct	16	16	16	17	17	16	16	17	17	19	17	20	19	19	17	15	16	13	40	10	7	9	14	14	40																
10-Oct	18	9	8	7	7	6	14	16	14	19	19	20	19	17	18	16	16	16	14	18	15	15	16	16	20																
11-Oct	14	16	11	11	13	12	9	10	14	22	22	48	36	34	19	20	19	16	14	15	21	26	16	14	48																
12-Oct	13	12	12	14	15	13	12	11	14	13	15	19	29	32	24	20	20	22	41	7	8	4	8	8	41																
13-Oct	8	8	9	11	12	10	11	11	11	13	12	13	14	16	15	13	14	13	13	12	12	12	15	16	16																
14-Oct	12	11	11	13	13	14	13	12	12	13	14	13	13	16	15	15	14	13	12	15	14	15	24	13	24																
15-Oct	68	15	14	15	16	18	16	17	16	16	17	19	17	16	17	20	20	13	15	17	15	16	10	8	68																
16-Oct	16	20	12	26	13	16	23	5	8	23	15	17	15	15	14	16	18	16	15	15	13	25	36	29	36																
17-Oct	23	17	17	17	16	16	17	17	16	16	16	17	17	17	17	16	16	16	16	17	17	16	16	16	23																
18-Oct	16	17	16	16	16	18	16	13	43	23	24	31	19	18	19	18	21	7	6	7	10	10	11	10	43																
19-Oct	12	14	12	26	25	41	16	12	13	15	15	16	17	19	21	23	40	15	21	23	14	17	12	15	41																
20-Oct	15	14	15	13	13	15	15	13	14	30	98	23	38	25	21	17	15	13	14	16	15	16	14	UO	98																
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	14	14	29	16	13	13	20	22	23	29																
22-Oct	22	23	23	18	17	16	16	17	22	18	16	15	19	19	16	17	16	18	18	16	14	15	16	17	23																
23-Oct	19	17	18	17	17	18	19	17	18	17	15	15	18	17	18	17	16	16	14	20	14	15	16	16	20																
24-Oct	21	14	15	14	15	16	17	16	15	15	17	17	18	17	16	16	19	17	17	16	13	16	15	16	21																
25-Oct	16	15	16	22	16	12	12	12	13	16	16	18	18	19	16	16	16	17	19	11	14	14	11	12	22																
26-Oct	9	68	43	10	6	22	15	15	18	16	15	16	15	14	17	15	15	15	14	15	16	13	14	13	68																
27-Oct	14	13	14	12	14	12	12	13	14	15	15	15	14	14	15	17	16	15	13	12	13	49	20	16	49																
28-Oct	16	15	16	15	15	15	17	15	15	16	15	15	15	16	15	14	15	15	15	15	16	15	15	15	17																
29-Oct	15	15	17	16	16	14	13	14	14	21	19	20	24	26	19	22	44	9	11	9	30	19	13	24	44																
30-Oct	26	11	66	36	21	13	19	13	16	22	17	19	19	20	17	16	14	13	15	15	15	11	11	9	66																
31-Oct	9	12	14	14	16	14	14	19	17	17	19	20	16	18	18	16	19	15	15	14	16	14	16	15	20																
																	68	68	66	36	25	41	30	19	43	30	98	48	38	34	35	23	44	29	41	32	30	49	36	29	
Diurnal Maximum																																									
UO - Unstable Operation																																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS17  
WAPASU  
OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
OCTOBER 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	707	35	37	99.73	17.5	0	4.6	0
H2S (ppb) Average	704	37	40	99.6	1.4	0	0.3	0
THC (ppm) Average	706	35	38	99.6	2.9	-	2.4	-
O3 (ppb) Average	709	35	35	100	42.6	0	37.4	-
NO2 (ppb) Average	704	37	40	99.6	19	0	7.1	-
NO (ppb) Average	704	37	40	99.6	24.4	-	5.3	-
NOX (ppb) Average	704	37	40	99.6	35.3	-	10.1	-
PM2.5 (ug/m3) Average	743	1	1	100	15.5	0	5.4	0
Temperature 2 m (C) Average	744	0	0	100	19.4	-	13.3	-
Relative Humidity (%) Average	727	0	17	97.72	100	-	97.4	-
Wind Speed 10 m (km/h) Average	703	1	41	94.62	21	-	16	-
Wind Direction 10 m (deg) Average	703	1	41	94.62	-	-	-	-
Precipitation (mm) Total	744	0	0	100	3.5	-	18.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
OCTOBER 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	707	0.91	2.2	-	0	0	0	0.1	0.5	2.8	17.5
H2S (ppb) Average	704	0.13	0.2	-	0	0	0	0.1	0.2	0.3	1.4
THC (ppm) Average	706	2.31	0.1	-	2.1	2.2	2.3	2.3	2.3	2.4	2.9
O3 (ppb) Average	709	26.77	7.9	-	5.9	15.6	21.8	27.7	33.1	35.9	42.6
NO2 (ppb) Average	704	3.22	3.3	-	0.1	0.3	0.8	2.1	4.3	7.9	19
NO (ppb) Average	704	0.55	1.9	-	0	0	0	0	0.2	1.3	24.4
NOX (ppb) Average	704	3.76	4.5	-	0.1	0.3	0.8	2.3	5.2	8.9	35.3
PM2.5 (ug/m3) Average	743	2.81	1.7	-	0.1	0.8	1.7	2.7	3.5	4.7	15.5
Temperature 2 m (C) Average	744	2.25	6	-	-10.2	-5.2	-1.8	1.6	6.3	10.5	19.4
Relative Humidity (%) Average	727	75.71	17.3	-	32.3	49.7	61.8	78.5	90.8	97.2	100
Wind Speed 10 m (km/h) Average	703	9	4	-	1	4	6	8	12	15	21
Wind Direction 10 m (deg) Average	703	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	41.74	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
OCTOBER 2024

OPERATIONAL NOTES

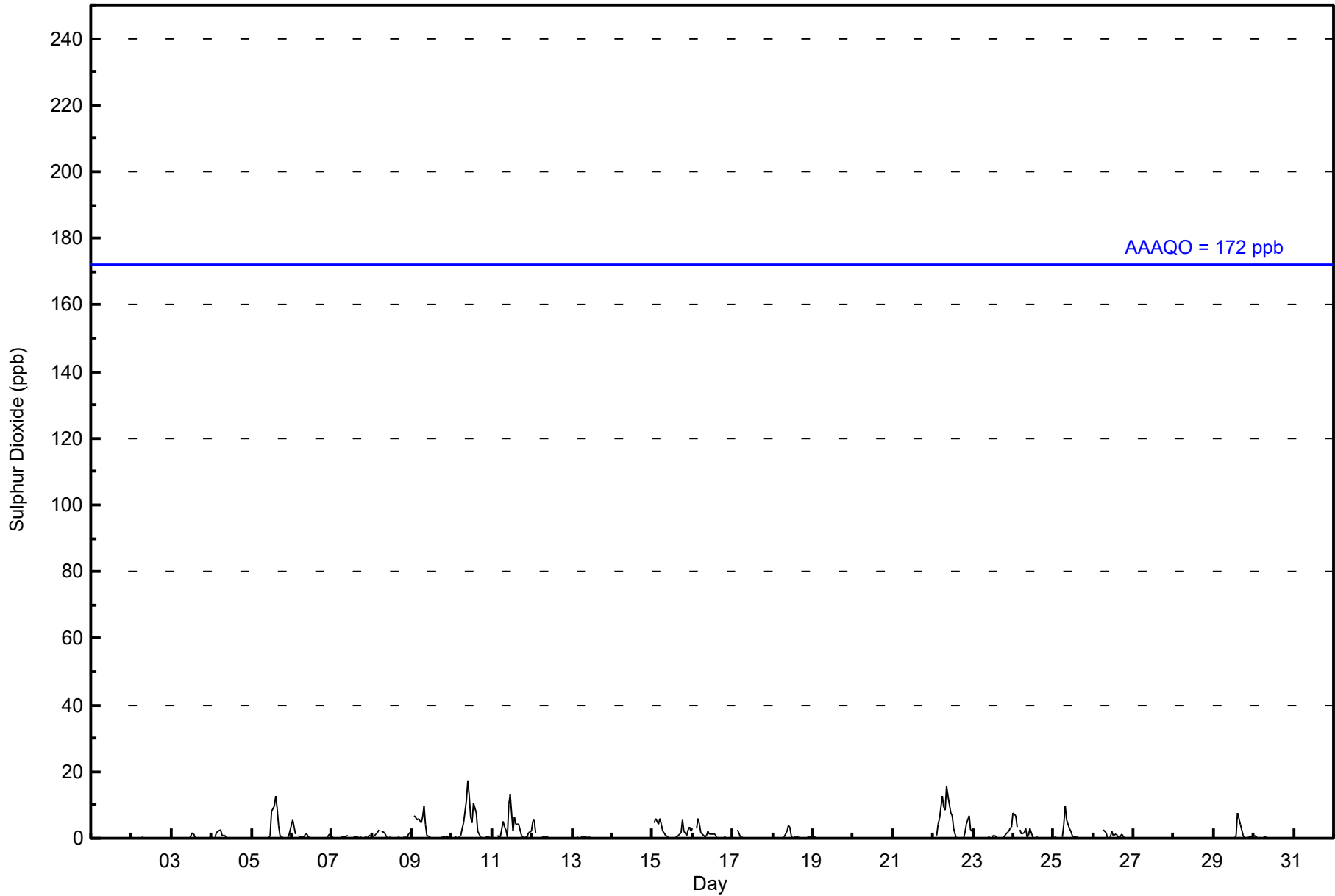
Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2, SO2, THC	15 Oct 2024 11:00	15 Oct 2024 12:00	2	Maintenance - sample manifold cleaned
H2S, NO2, THC	03 Oct 2024 11:00	03 Oct 2024 11:00	1	DAS Failure - data not recorded
Relative Humidity	17 Oct 2024 06:00	17 Oct 2024 11:00	6	Sensor operated out of range
Relative Humidity	20 Oct 2024 00:00	20 Oct 2024 03:00	4	Sensor operated out of range
Relative Humidity	28 Oct 2024 02:00	28 Oct 2024 08:00	7	Sensor operated out of range
Wind Speed, Wind Direction	18 Oct 2024 07:00	18 Oct 2024 09:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	20 Oct 2024 01:00	21 Oct 2024 13:00	37	Flat line in sensor output signal - Sensor frozen





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Wapasu - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	699	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: 707

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - October 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	20	9	13	17	15	28	50	151	65	40	75	52	31	24	43	27	660
11 - 20	0	0	0	0	0	0	0	0	2	1	5	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>	20	9	13	17	15	28	50	151	67	41	80	52	31	24	43	27	668

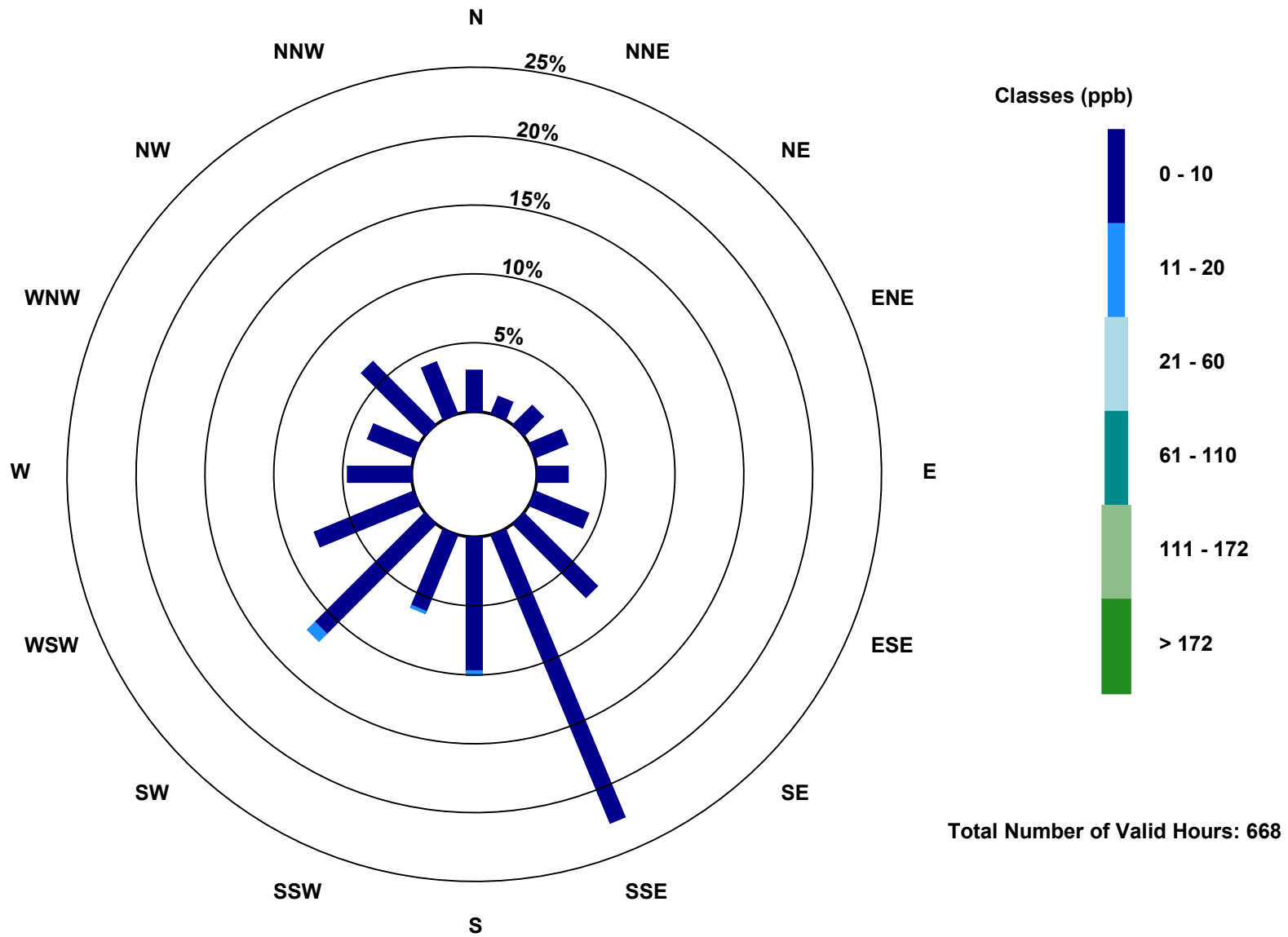
Total Number of Valid Hours: 668

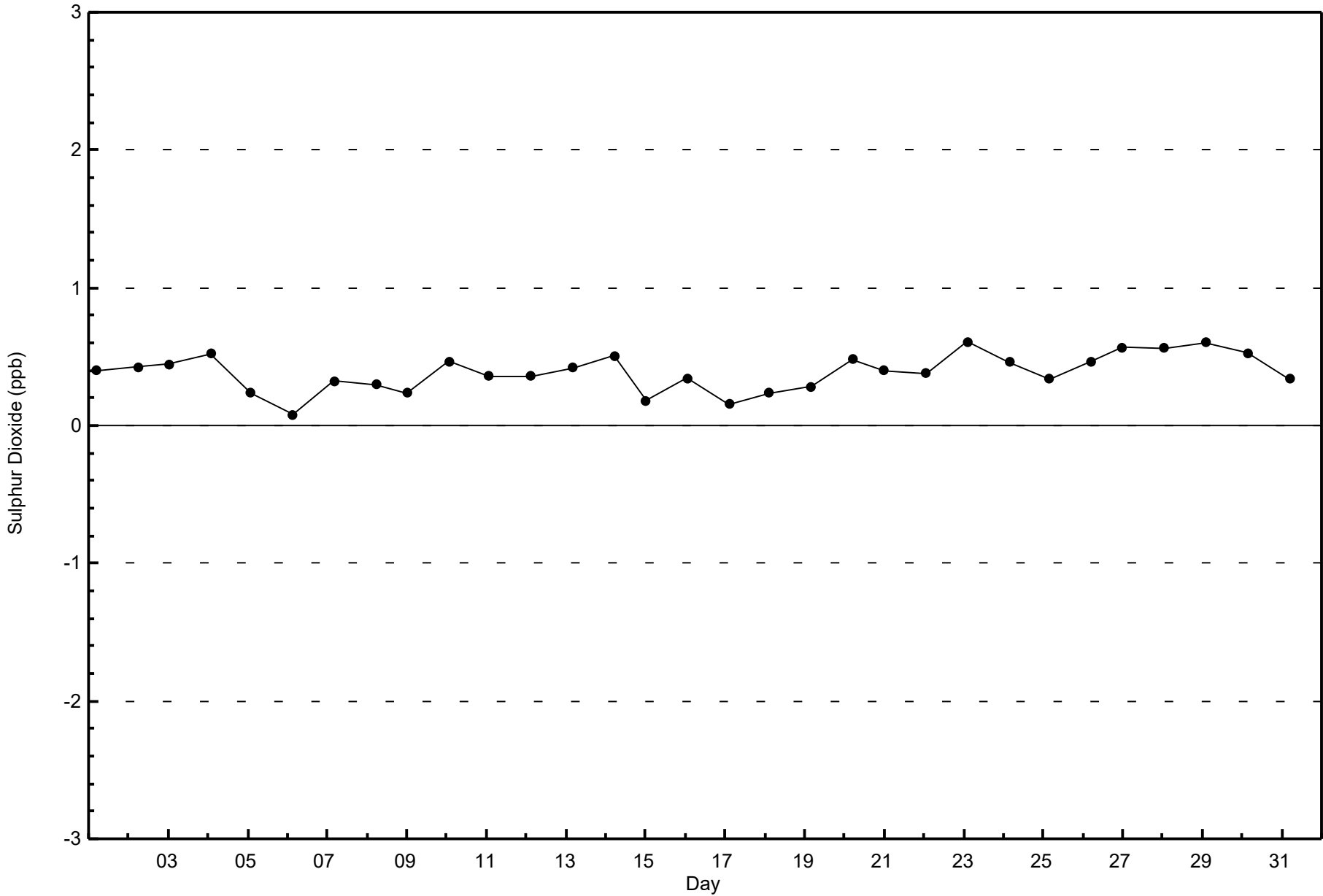
Total Number of Hours: 744

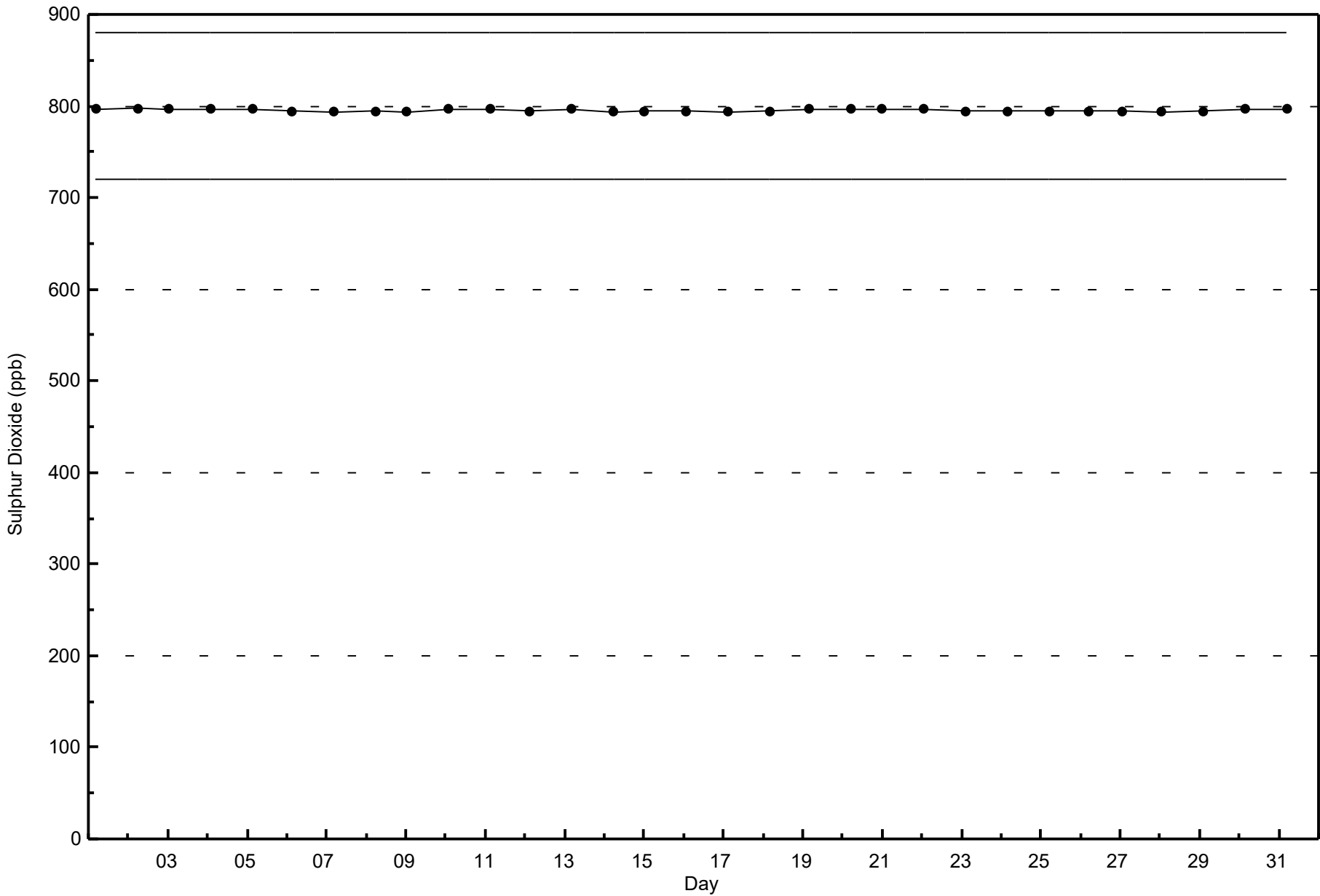


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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







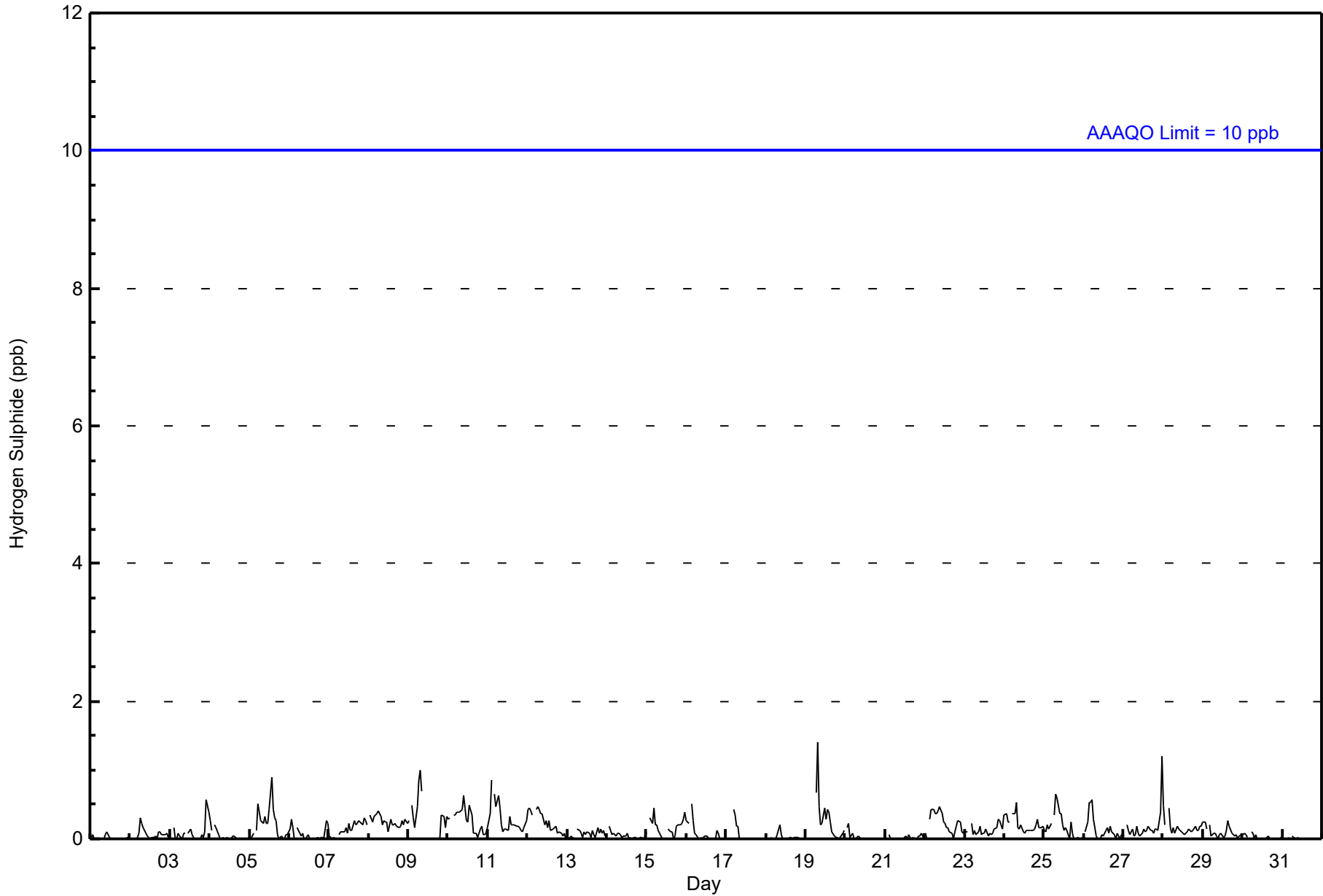






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Wapasu - October 2024**





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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Wapasu - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	704	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: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Wapasu - October 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	20	10	12	17	15	28	50	153	70	40	78	48	33	23	40	28	665
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>	20	10	12	17	15	28	50	153	70	40	78	48	33	23	40	28	665

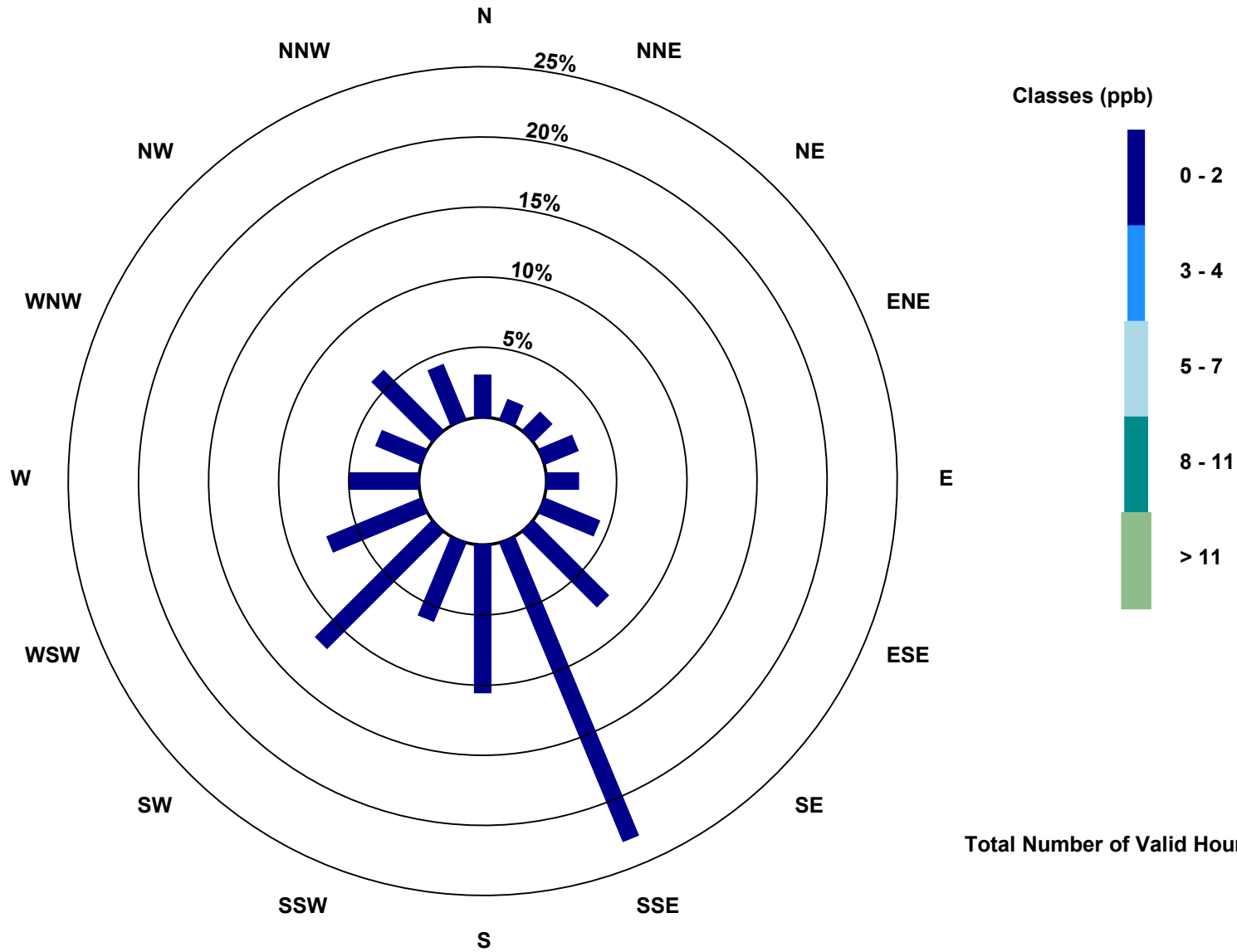
Total Number of Valid Hours: 665

Total Number of Hours: 744

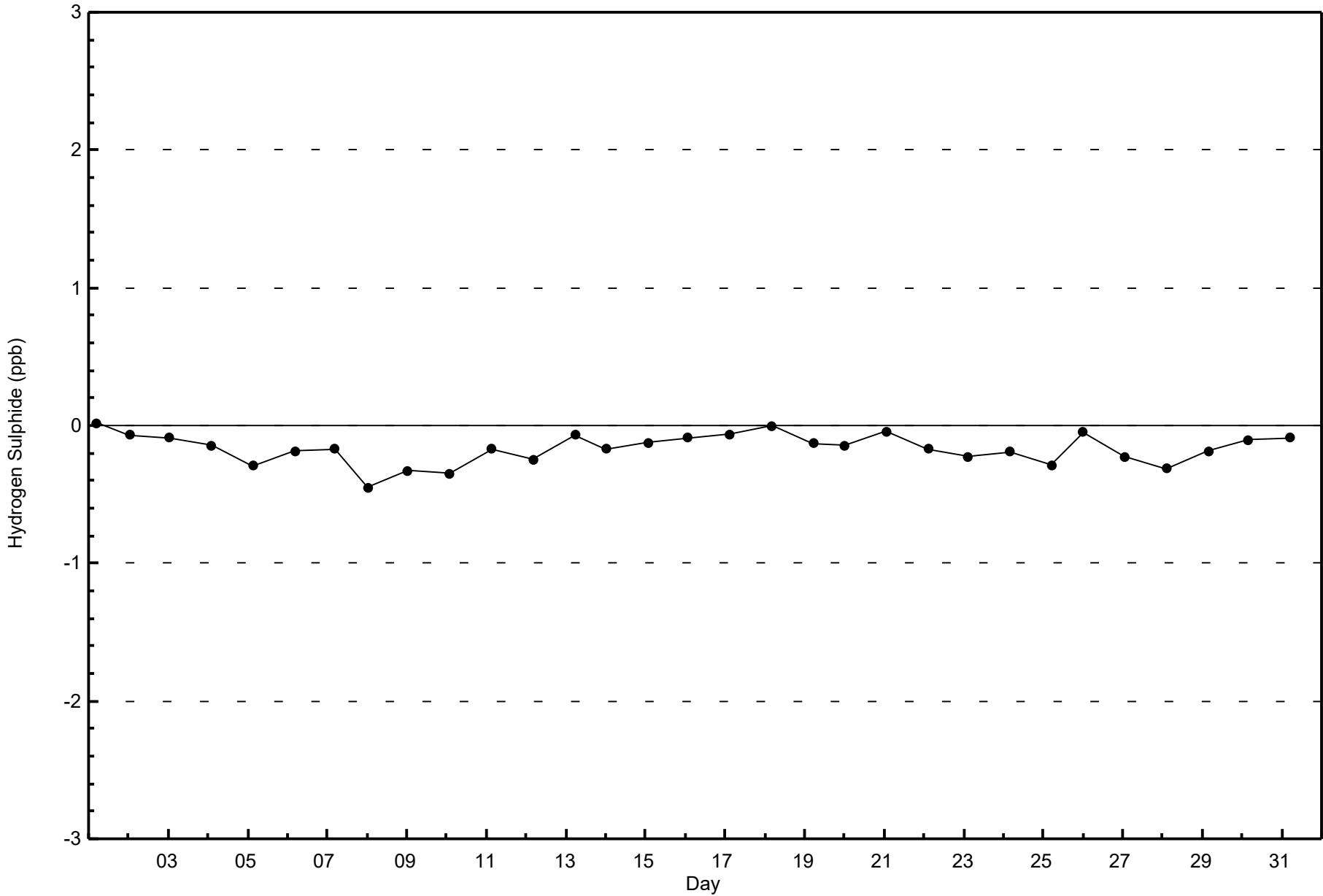


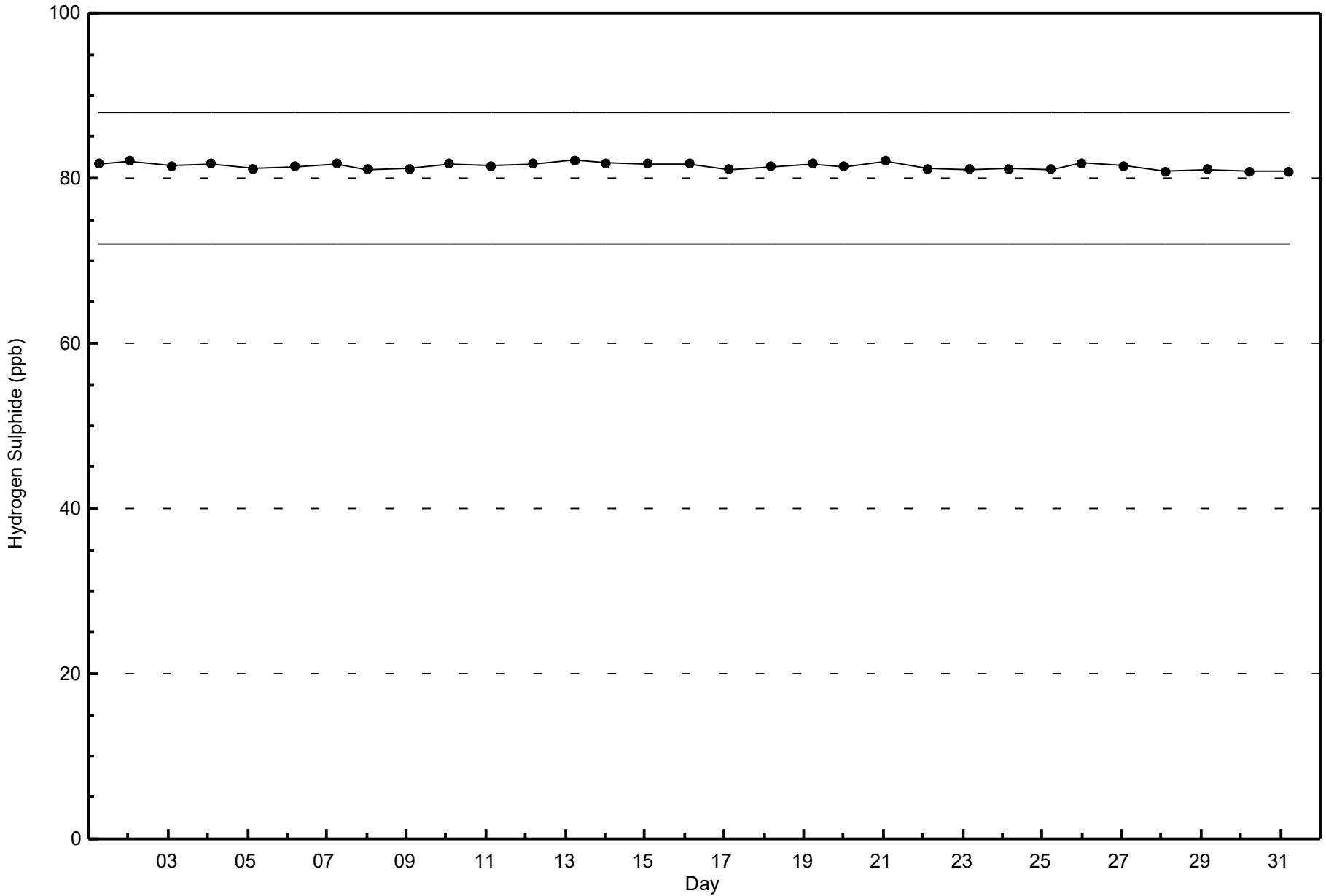
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 665







Wood Buffalo Environmental Association

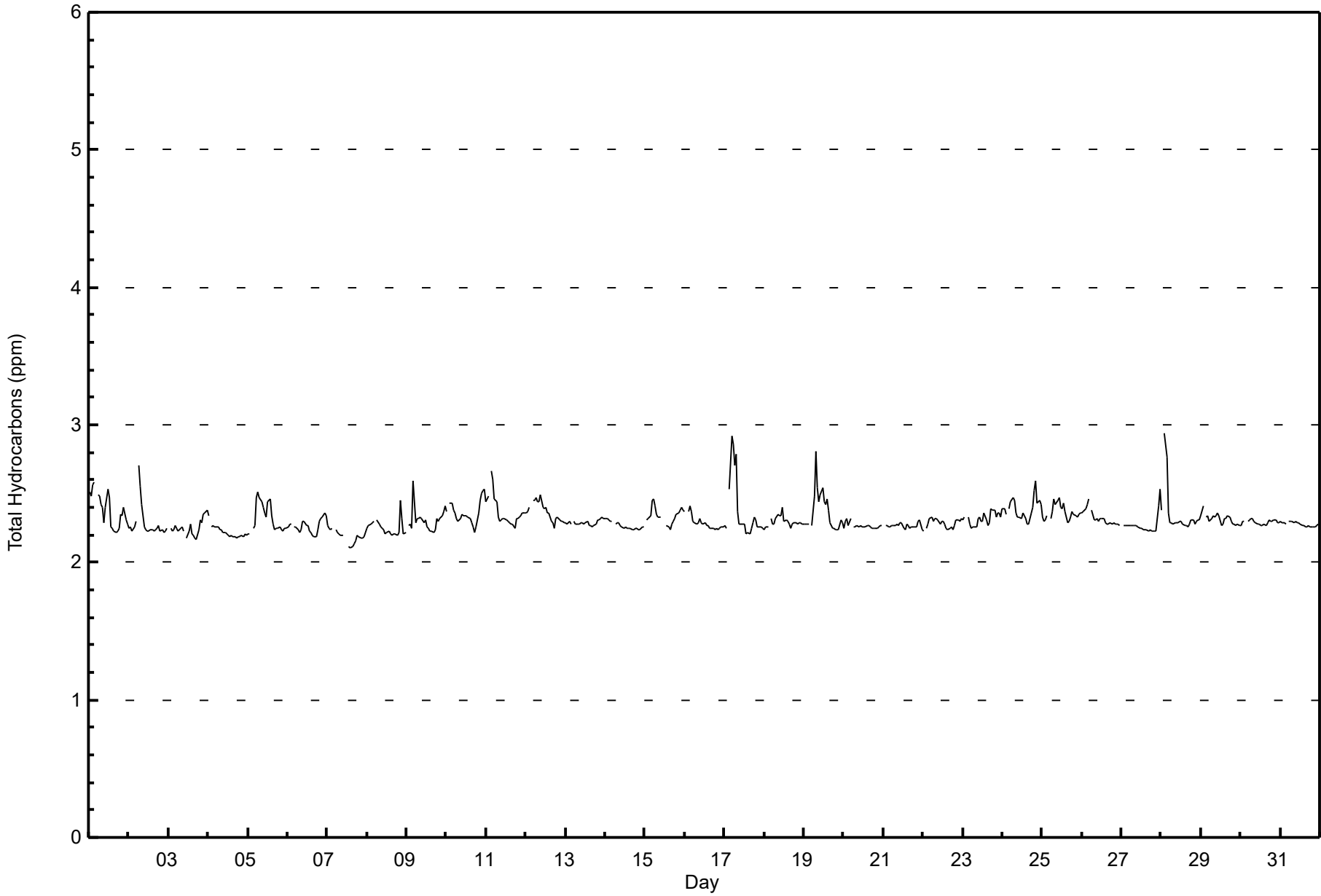
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Wapasu - October 2024

Maximum Value: 2.9 ppm on Oct 28 03:00		Maximum Daily Average: 2.4 ppm on Oct 24		Hours in Service: 744																						
Minimum Value: 2.1 ppm on Oct 7 15:00		Minimum Daily Average: 2.2 ppm on Oct 7		Hours of Data: 706																						
Maximum Diurnal Average: 2.4 ppm at hour 5		Minimum Diurnal Average: 2.2 ppm at hour 17		Hours of Missing Data: 38																						
Monthly Average: 2.31 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> = 2.3 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.7		Hours of Calibration: 35																						
				Percent Operational Time: 99.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	2.5	2.5	2.6	2.6	Z	2.5	2.5	2.4	2.4	2.3	2.4	2.5	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.4	2.3	2.3	2.4	2.6
2-Oct	2.2	2.3	2.2	2.3	2.3	Z	2.7	2.6	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.7
3-Oct	Z	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2	DF	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.4
4-Oct	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
5-Oct	2.2	2.2	Z	2.3	2.3	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.4	2.5	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.5
6-Oct	2.3	2.3	2.3	Z	2.3	2.3	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	2.3	2.3	2.3	2.4	2.3	2.3	2.4
7-Oct	2.3	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	C	C	C	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
8-Oct	2.2	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.3	2.2	2.2	2.3	2.5
9-Oct	Z	2.3	2.3	2.2	2.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.6
10-Oct	2.4	Z	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	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.5
11-Oct	2.4	2.5	Z	2.7	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.7
12-Oct	2.4	2.4	2.4	Z	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5
13-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
14-Oct	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
15-Oct	Z	2.3	2.3	2.3	2.5	2.5	2.4	2.3	2.3	2.3	M	M	C	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.5
16-Oct	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4
17-Oct	2.3	2.2	Z	2.5	2.9	2.9	2.7	2.8	2.4	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	2.2	2.9
18-Oct	2.2	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
19-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.5	2.8	2.5	2.4	2.5	2.5	2.4	2.4	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.8
20-Oct	2.2	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
21-Oct	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3
22-Oct	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
23-Oct	2.3	2.3	Z	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.4
24-Oct	2.4	2.4	2.4	Z	2.4	2.4	2.5	2.5	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.4	2.5	2.4	2.4	2.6
25-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.4	2.5	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.5
26-Oct	2.4	2.4	2.4	2.4	2.5	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	2.5
27-Oct	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.3	2.5
28-Oct	2.4	Z	2.9	2.8	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.9
29-Oct	2.3	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
30-Oct	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	2.3
31-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure																										







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

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - October 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	706	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: 706

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - October 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	20	9	13	17	15	28	50	151	67	41	80	52	31	23	43	27	667
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>	20	9	13	17	15	28	50	151	67	41	80	52	31	23	43	27	667

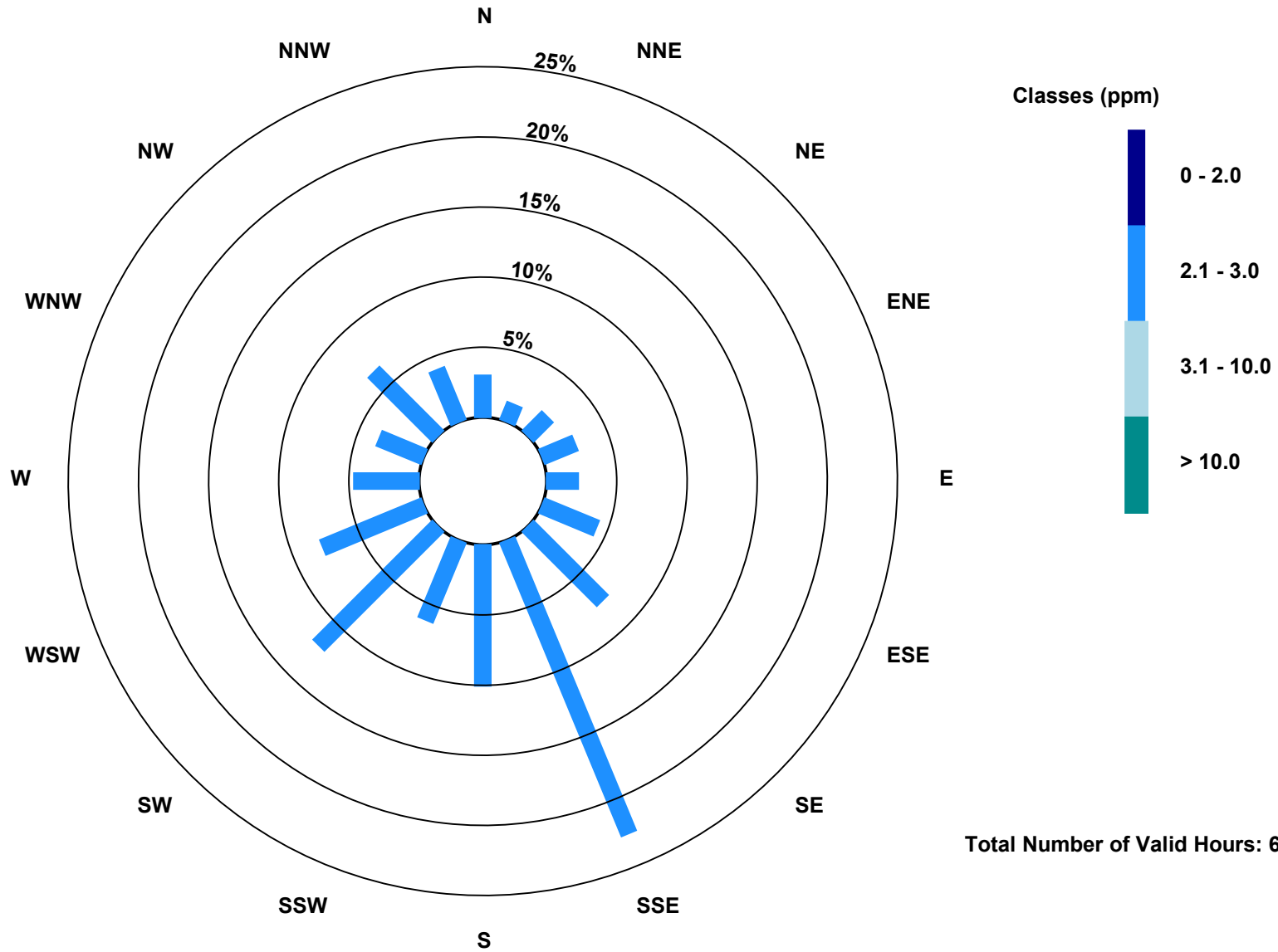
Total Number of Valid Hours: 667

Total Number of Hours: 744

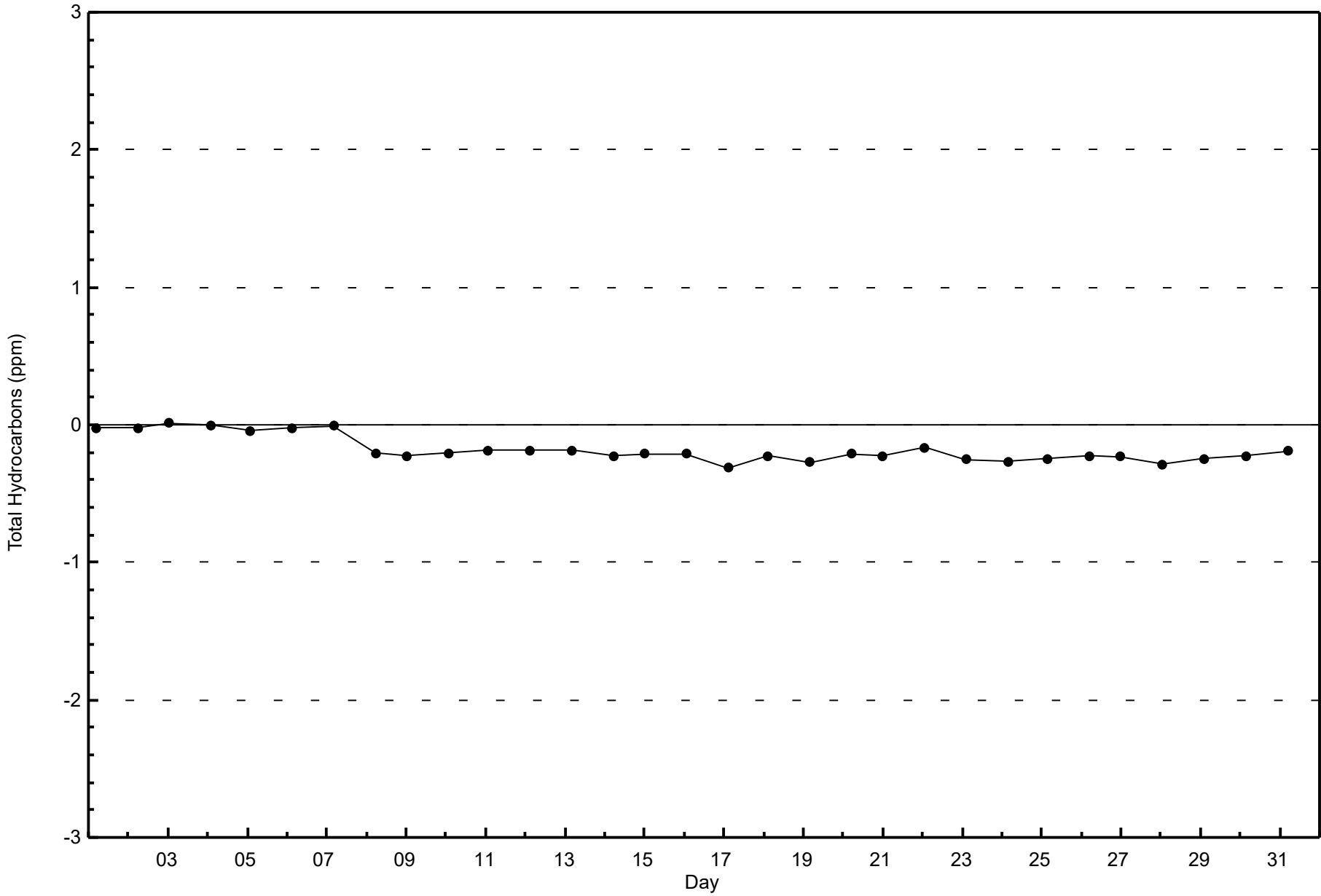


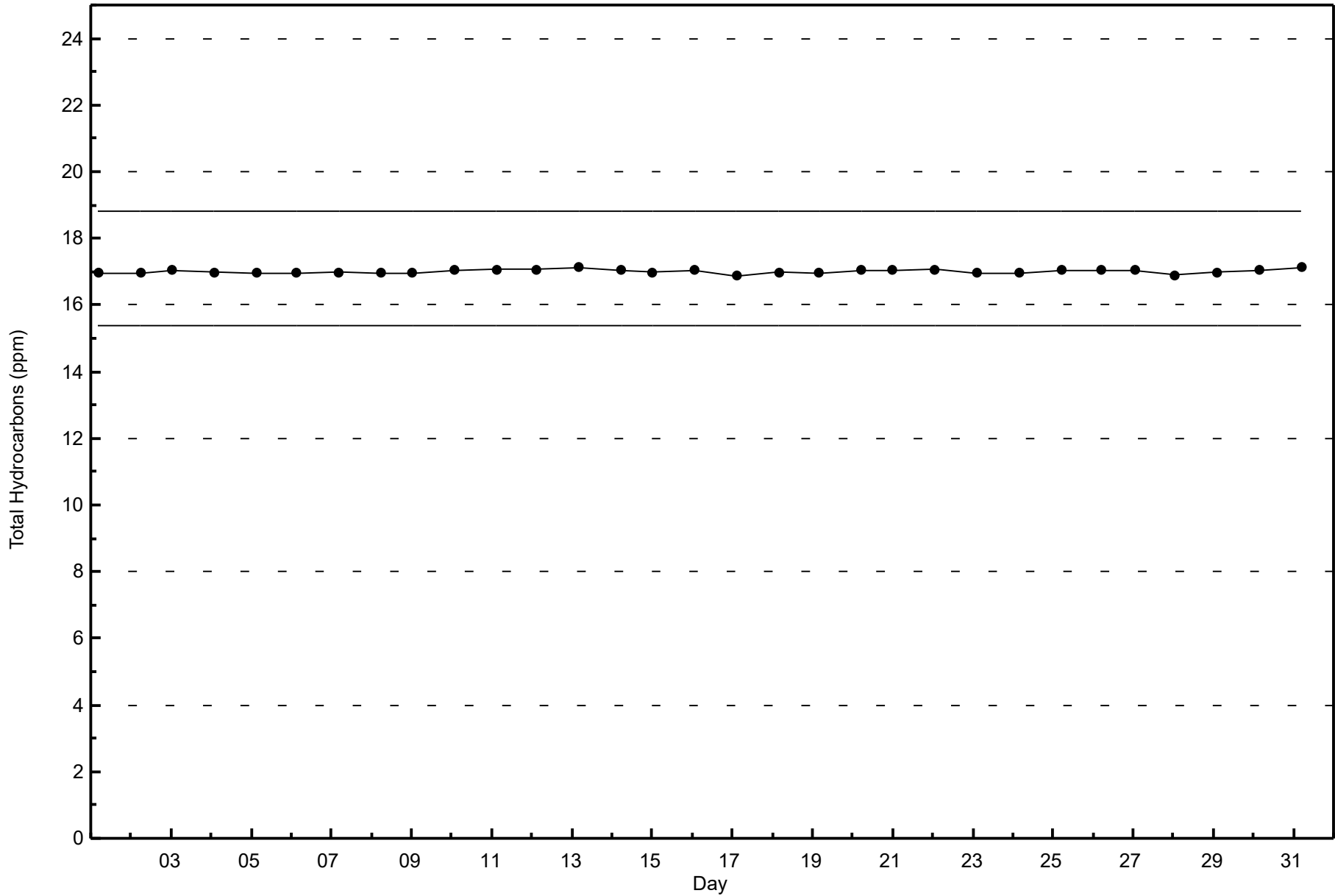
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Wapasu



Total Number of Valid Hours: 667







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

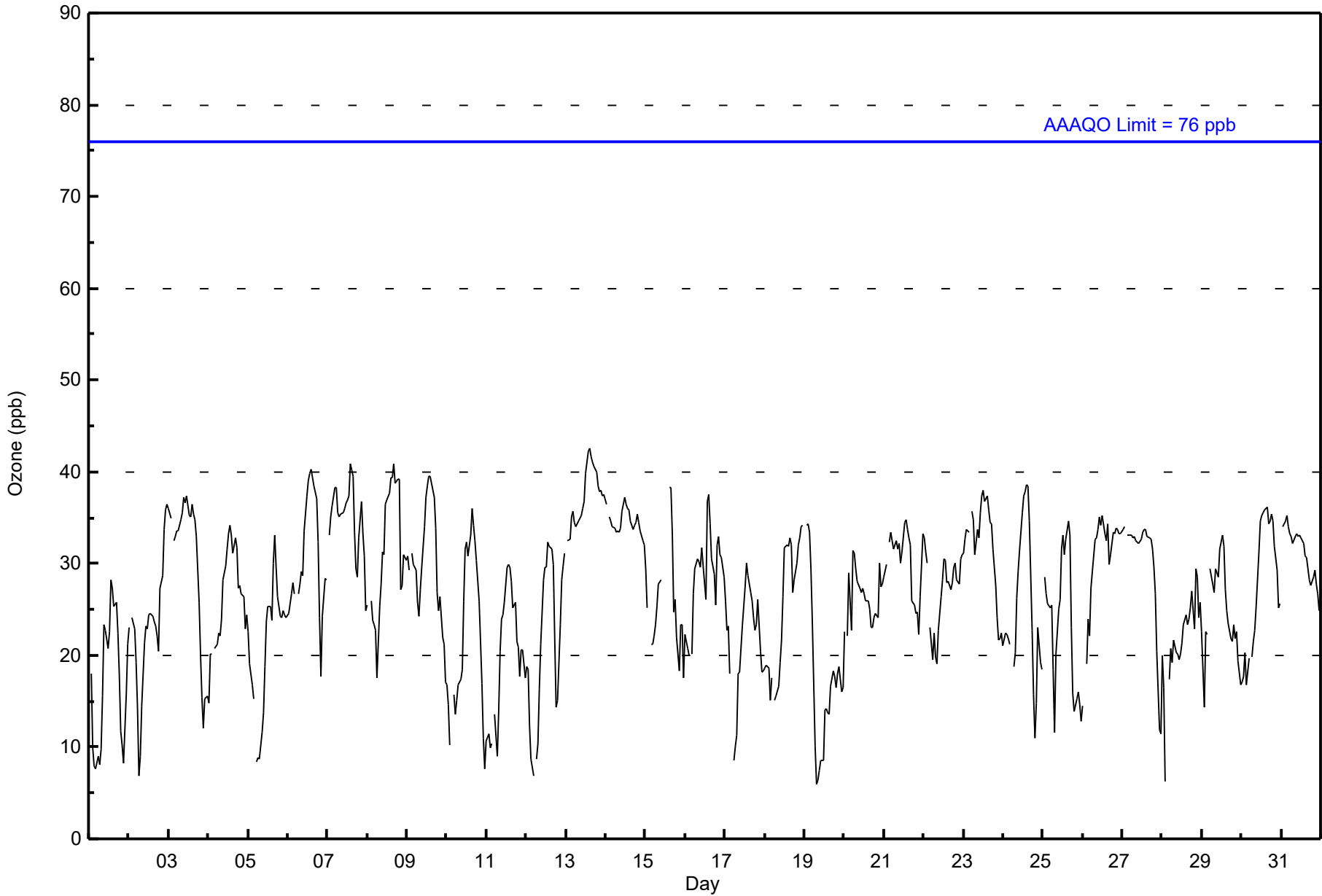
Wapasu - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 709						
Maximum Value: 42.6 ppb on Oct 13 15:00		Maximum Daily Average: 37.4 ppb on Oct 13		Hours of Missing Data: 35																	Hours of Calibration: 35						
Minimum Value: 5.9 ppb on Oct 19 08:00		Minimum Daily Average: 16.9 ppb on Oct 1		Hours of Operational Time: 100.0																							
Maximum Diurnal Average: 32.5 ppb at hour 15		Minimum Diurnal Average: 22.3 ppb at hour 7																									
Monthly Average: 26.77 ppb		Percentiles: P <sub>1</sub> = 7.7 P <sub>10</sub> = 15.6 Q <sub>1</sub> = 21.8 Median = 27.7 Q <sub>3</sub> = 33.1 P <sub>90</sub> = 35.9 P <sub>99</sub> = 40.3																									
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-Oct	Z	17.9	10.0	8.0	7.6	9.0	8.1	9.7	15.6	23.3	22.7	20.8	22.6	28.3	27.4	25.4	25.8	22.4	17.8	11.8	10.2	8.2	15.9	21.2	16.9	28.3	
2-Oct	23.1	Z	24.1	22.9	19.2	14.1	6.8	9.1	14.5	21.3	23.2	22.9	24.3	24.6	24.3	23.6	23.2	22.1	20.4	27.3	28.7	33.8	35.9	36.4	22.9	36.4	
3-Oct	36.1	34.9	Z	32.5	33.0	33.5	33.6	34.8	35.6	37.2	36.6	37.3	35.2	35.2	36.4	35.4	34.8	32.9	25.8	20.2	15.4	12.0	15.2	15.6	30.4	37.3	
4-Oct	14.8	20.1	20.2	Z	20.7	21.2	22.5	22.2	23.9	28.2	29.7	31.6	33.3	34.2	33.1	31.1	32.7	31.8	27.3	27.6	26.7	26.5	22.8	24.4	26.4	34.2	
5-Oct	22.6	19.1	16.7	15.2	Z	8.4	8.9	8.7	11.6	13.8	18.7	23.7	25.3	25.4	23.8	30.1	33.2	29.6	26.4	24.3	24.2	24.9	24.4	24.1	21.0	33.2	
6-Oct	24.6	25.7	26.8	28.0	26.7	Z	26.6	27.7	29.1	28.7	33.6	37.3	39.1	39.8	40.3	39.3	38.4	37.0	32.4	24.1	17.7	24.2	28.4	28.3	30.6	40.3	
7-Oct	Z	33.1	35.1	36.3	38.2	38.3	35.6	35.1	35.3	35.5	36.0	36.6	36.9	37.4	40.9	39.6	33.5	29.4	28.6	32.7	36.7	33.3	30.7	24.9	34.8	40.9	
8-Oct	25.5	Z	26.0	23.8	23.4	22.7	17.6	25.3	27.7	31.3	31.0	36.5	36.9	37.6	39.3	39.4	40.9	38.7	39.2	39.2	27.2	27.7	31.0	30.3	31.2	40.9	
9-Oct	30.8	29.2	Z	31.2	29.9	29.3	25.7	24.2	27.2	29.6	34.0	37.3	38.5	39.5	39.5	38.8	37.2	33.8	26.9	24.9	26.3	21.9	21.2	17.1	30.2	39.5	
10-Oct	16.8	14.6	10.3	Z	15.8	13.6	15.1	16.7	17.4	18.5	25.9	31.5	32.3	30.8	33.1	36.0	34.1	32.5	30.3	26.0	21.6	16.9	11.1	7.6	22.1	36.0	
11-Oct	10.7	11.4	9.9	10.4	Z	13.5	9.0	14.0	20.5	23.9	24.5	25.8	29.6	29.8	29.6	28.1	25.1	25.9	21.5	21.0	17.7	20.5	20.6	17.6	20.0	29.8	
12-Oct	18.8	18.4	12.3	8.7	6.9	Z	8.7	10.3	16.4	21.3	28.2	29.6	29.6	32.3	31.9	31.6	29.8	21.8	14.3	15.1	23.4	28.3	29.7	31.1	21.7	32.3	
13-Oct	Z	32.4	32.7	35.0	35.7	34.5	34.0	34.7	35.0	35.2	36.0	36.7	39.8	42.2	42.6	41.7	41.1	40.6	40.0	38.4	37.8	38.0	37.3	37.5	37.4	42.6	
14-Oct	36.5	Z	35.1	34.6	34.0	33.8	33.5	33.5	33.8	33.8	35.7	37.3	36.5	36.1	35.9	34.6	33.8	34.2	34.4	35.3	34.4	33.5	32.5	32.0	34.5	37.3	
15-Oct	29.4	25.2	Z	21.3	21.2	22.1	23.4	25.4	27.7	28.3	C	C	C	C	38.3	38.2	33.2	24.8	26.1	22.0	18.3	23.3	23.3	17.6	25.7	38.3	
16-Oct	22.3	20.8	20.0	Z	20.1	26.7	29.5	30.5	30.2	29.6	31.7	29.8	26.2	36.8	37.5	34.4	30.5	28.9	25.4	32.0	33.0	30.9	30.7	28.6	29.0	37.5	
17-Oct	25.9	22.7	23.3	18.1	Z	8.6	10.0	11.3	18.0	18.2	23.2	25.3	27.5	30.1	28.6	26.8	25.9	24.2	22.8	23.3	26.1	20.4	18.1	18.4	21.6	30.1	
18-Oct	18.6	18.9	18.6	15.1	17.5	Z	15.1	15.5	16.6	19.3	21.6	26.5	31.8	32.0	31.8	32.8	32.1	26.8	28.2	30.0	32.0	32.7	34.0	34.1	25.3	34.1	
19-Oct	Z	34.2	34.3	33.4	29.4	23.7	10.0	5.9	6.4	7.5	8.6	8.5	14.0	14.1	13.7	13.6	16.6	18.4	17.7	16.5	18.0	18.7	16.0	16.6	17.2	34.3	
20-Oct	22.6	Z	22.1	29.0	22.7	31.4	31.1	29.4	28.0	27.3	26.8	27.3	26.7	25.9	25.9	25.0	23.0	23.1	24.1	24.6	24.1	30.0	27.4	27.8	26.3	31.4	
21-Oct	28.5	29.9	Z	32.4	33.5	32.4	31.5	32.5	31.6	32.2	30.0	31.3	34.4	34.7	33.7	32.9	32.0	26.0	25.5	24.5	24.7	22.3	26.4	33.2	30.3	34.7	
22-Oct	32.9	31.2	30.1	Z	23.1	19.5	22.4	19.8	19.0	22.7	26.4	28.2	30.5	30.3	27.9	28.0	27.2	27.9	29.5	30.0	28.3	27.8	30.5	31.0	27.1	32.9	
23-Oct	31.0	32.6	33.7	33.4	Z	35.6	34.7	30.9	33.8	32.8	35.5	37.4	37.9	36.7	37.4	35.8	34.5	34.3	31.6	27.6	24.1	21.6	21.8	22.4	32.1	37.9	
24-Oct	21.1	22.4	22.2	21.8	21.3	Z	18.7	20.3	26.2	29.2	31.4	35.5	37.4	37.9	38.6	38.5	34.6	22.8	15.7	10.9	14.9	23.0	19.2	18.4	25.3	38.6	
25-Oct	Z	28.5	26.7	25.6	25.2	25.5	18.4	11.5	20.2	25.0	26.0	31.5	33.1	31.0	32.7	34.7	33.1	23.1	15.8	13.9	15.3	16.1	14.7	12.8	23.5	34.7	
26-Oct	14.5	Z	19.0	24.0	22.1	27.3	29.1	32.6	32.8	33.6	35.0	34.2	35.2	33.3	32.5	34.3	29.9	31.0	33.4	33.2	33.8	33.8	33.2	33.3	30.5	35.2	
27-Oct	33.6	34.0	Z	33.1	33.1	33.1	32.8	32.9	32.5	32.3	32.3	32.6	33.4	33.7	33.8	32.9	32.7	32.6	31.6	29.6	26.7	20.4	11.9	11.5	30.1	34.0	
28-Oct	20.0	16.4	6.3	Z	17.4	20.8	19.2	21.7	20.3	20.1	19.5	20.2	21.3	23.3	24.3	23.4	23.9	25.2	27.0	22.9	29.5	28.5	24.1	25.8	21.8	29.5	
29-Oct	22.6	14.4	22.6	22.3	Z	29.5	27.8	26.8	29.4	29.0	28.6	31.6	33.1	31.9	27.2	24.9	23.4	21.8	21.6	23.3	21.8	22.5	19.3	16.8	24.9	33.1	
30-Oct	17.1	17.8	20.3	16.8	19.7	Z	19.8	21.5	22.7	25.4	31.3	34.7	35.3	35.5	35.9	36.2	34.4	34.7	35.4	34.7	31.9	29.4	25.2	25.7	27.9	36.2	
31-Oct	Z	34.1	34.6	35.3	34.1	33.3	32.9	32.2	33.0	33.2	33.0	33.1	32.8	32.2	30.8	30.7	29.5	28.2	27.5	28.6	29.2	27.8	26.6	24.9	31.2	35.3	
		24.0	24.6	22.8	24.9	24.3	24.7	22.3	22.8	24.9	26.7	28.6	30.4	31.7	32.4	32.5	32.2	31.0	28.6	26.6	25.7	25.1	25.1	24.5	24.1	Diurnal Average	
		36.5	34.9	35.1	36.3	38.2	38.3	35.6	35.1	35.6	37.2	36.6	37.4	39.8	42.2	42.6	41.7	41.1	40.6	40.0	39.2	37.8	38.0	37.3	37.5	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 - October 2024







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

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	153	21.58	21.58
21 - 50	556	78.42	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 - October 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	9	8	7	2	2	2	13	35	14	5	6	7	12	9	9	10	150
21 - 50	11	2	5	15	13	25	39	114	58	36	74	42	21	14	33	18	520
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	10	12	17	15	27	52	149	72	41	80	49	33	23	42	28	670

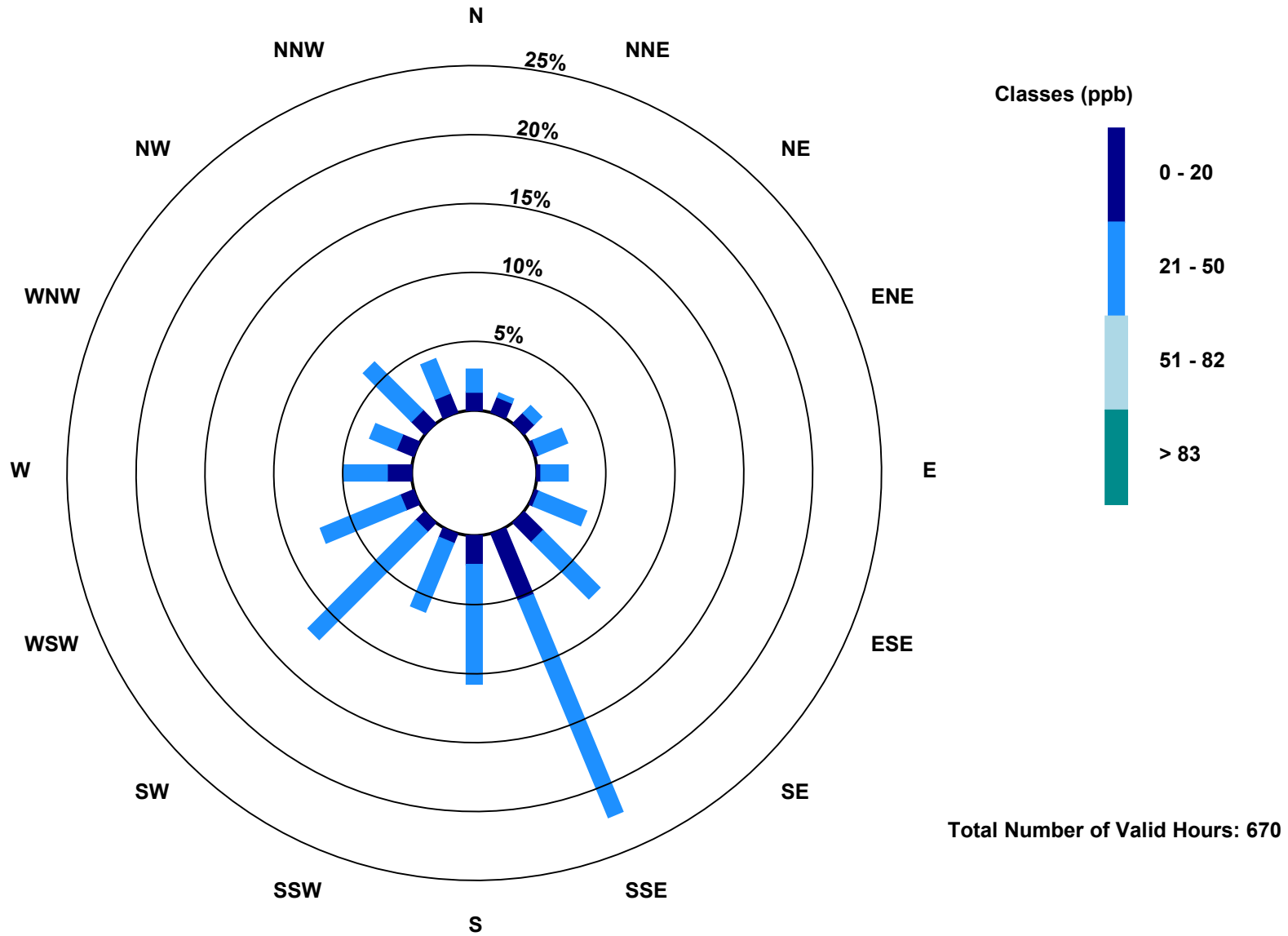
Total Number of Valid Hours: 670

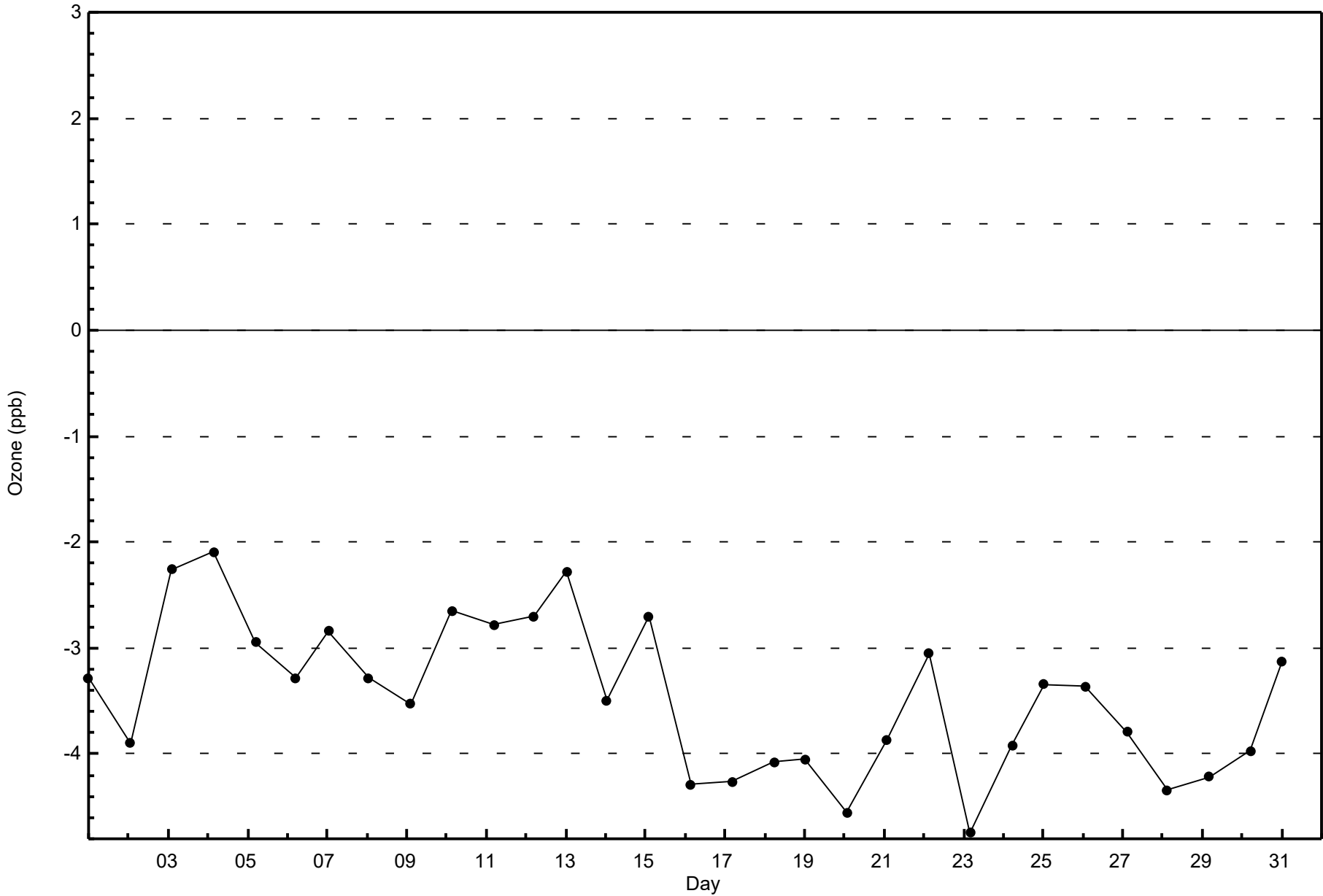
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

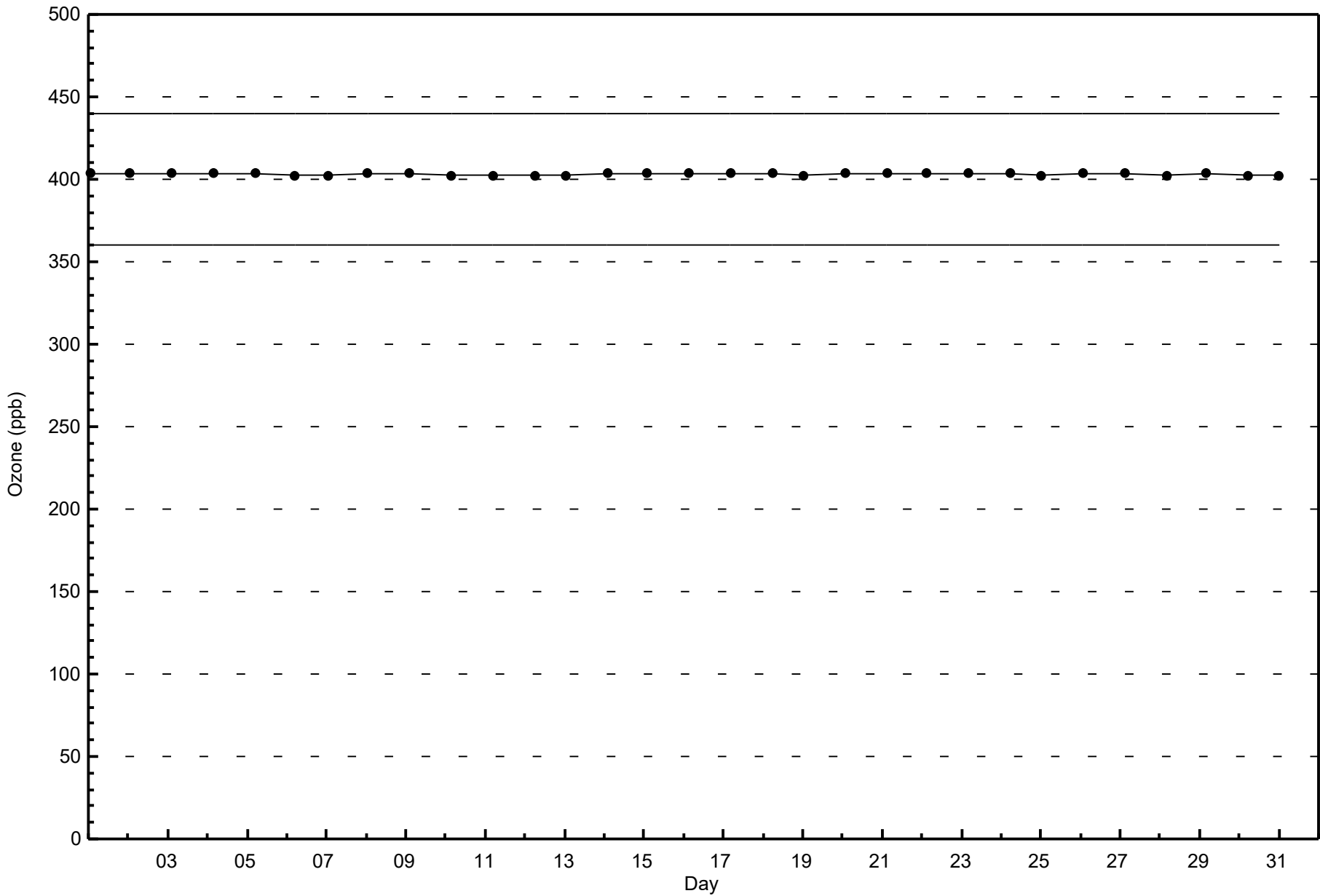






**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - October 2024**





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

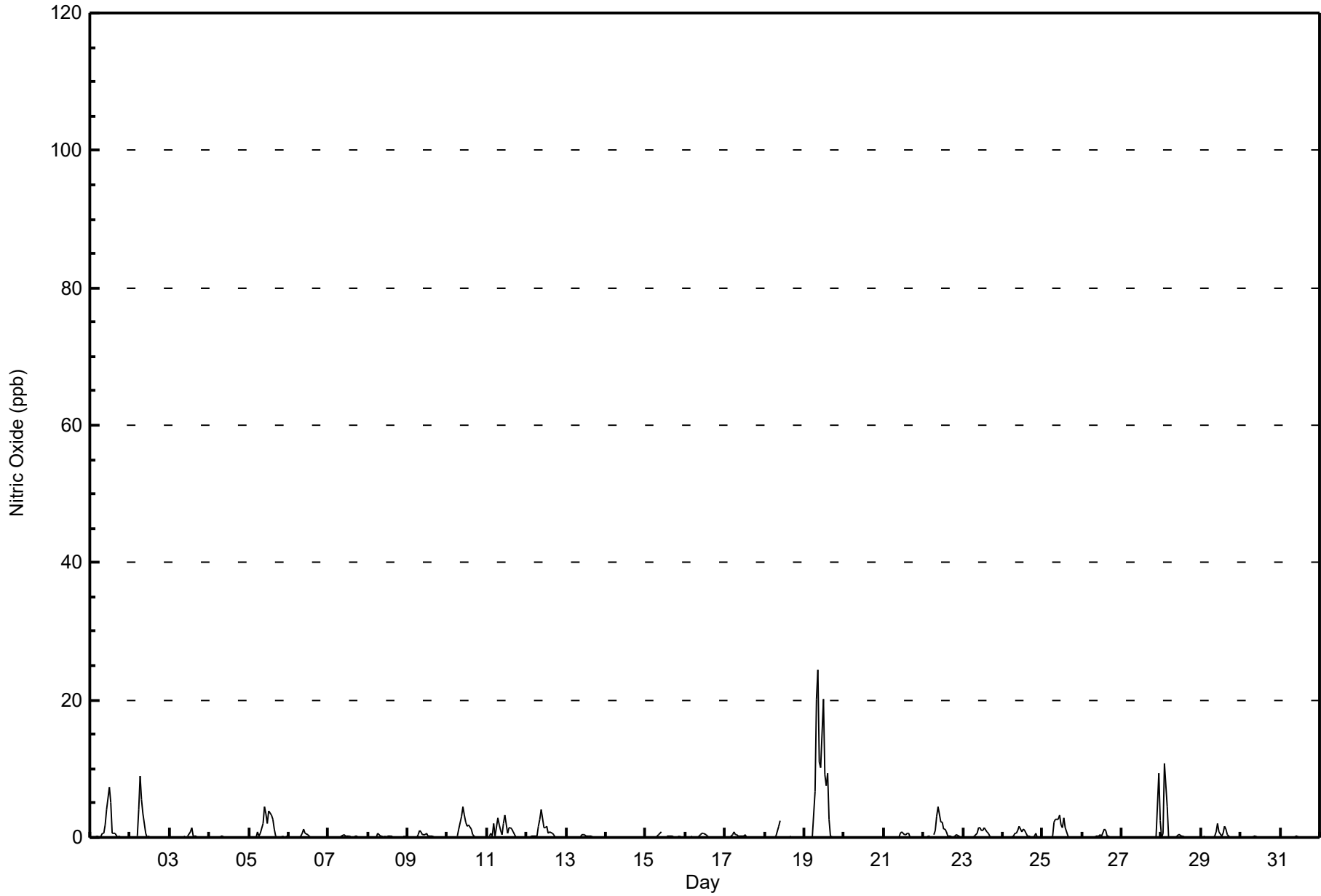
**Nitric Oxide (NO) - ppb**  
**Wapasu - October 2024**

Maximum Value: 24.4 ppb on Oct 19 09:00																				Maximum Daily Average: 5.3 ppb on Oct 19					Hours in Service: 744																																														
Minimum Value: 0.0 ppb on Oct 2 00:00										Minimum Daily Average: 0.0 ppb on Oct 20										Hours of Data: 704																																																			
Maximum Diurnal Average: 1.6 ppb at hour 12										Minimum Diurnal Average: 0.0 ppb at hour 19										Hours of Missing Data: 40																																																			
Monthly Average: 0.55 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> = 1.3 P <sub>99</sub> = 9.3										Hours of Calibration: 37																																																			
																				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-Oct	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.6	0.5	1.8	4.1	7.2	5.1	0.6	0.6	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	7.2																																													
2-Oct	0.0	0.0	0.0	Z	0.1	4.0	9.0	5.4	3.5	0.6	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	1.0	9.0																																													
3-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	DF	0.3	0.8	1.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	1.3																																													
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	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	0.3																																													
5-Oct	Z	0.0	0.0	0.0	0.1	0.8	0.1	0.6	2.0	4.5	3.4	2.0	3.8	3.3	2.6	1.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.2	1.1	4.5																																													
6-Oct	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.6	1.2	0.7	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																																													
7-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.4																																													
8-Oct	0.1	0.0	0.0	Z	0.0	0.1	0.6	0.3	0.2	0.1	0.3	0.1	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.6																																													
9-Oct	0.0	0.1	0.1	0.0	Z	0.0	0.4	1.1	0.8	0.5	0.5	0.7	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.1																																													
10-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	1.1	3.1	4.5	3.3	2.2	1.6	1.9	1.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.5																																													
11-Oct	Z	0.1	0.7	0.3	2.0	0.2	2.8	1.8	1.0	0.5	2.1	3.3	0.6	1.4	1.4	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	3.3																																													
12-Oct	0.0	Z	0.0	0.1	0.1	0.1	0.2	1.6	2.7	4.1	1.4	1.4	1.7	0.6	0.9	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.1																																													
13-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	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	0.1	0.5																																													
14-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																																												
15-Oct	0.0	0.0	0.0	0.1	Z	0.1	0.1	0.2	0.5	0.8	M	M	C	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.8																																													
16-Oct	0.0	0.0	0.1	0.0	0.2	Z	0.0	0.0	0.1	0.4	0.5	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																																													
17-Oct	Z	0.0	0.0	0.1	0.4	0.9	0.4	0.4	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	0.1	0.9																																													
18-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	1.7	2.5	C	C	C	C	C	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5																																													
19-Oct	0.0	0.0	Z	0.0	0.0	0.0	6.8	20.0	24.4	11.0	10.1	20.1	9.1	7.5	9.3	2.6	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	5.3	24.4																																													
20-Oct	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																																													
21-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.6	0.8	0.5	0.4	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																																													
22-Oct	0.0	0.0	0.0	0.2	0.2	Z	0.5	1.0	3.1	4.4	2.2	2.2	1.3	1.1	0.7	0.3	0.2	0.0	0.0	0.1	0.3	0.3	0.1	0.1	0.8	4.4																																													
23-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	1.5	1.4	1.0	1.1	1.5	0.8	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.5																																													
24-Oct	0.3	Z	0.0	0.0	0.0	0.0	0.2	0.6	0.6	1.0	1.7	0.7	1.1	1.0	0.6	0.3	0.2	0.0	0.0	0.3	0.6	0.1	0.0	0.1	0.4	1.7																																													
25-Oct	0.0	0.0	Z	0.1	0.0	0.0	0.1	2.2	2.5	2.7	3.3	1.7	1.3	2.8	1.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.3																																													
26-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.2	1.2	1.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2																																													
27-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	2.5	0.5	9.3																																													
28-Oct	0.0	0.6	10.7	4.5	0.1	Z	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	0.0	0.0	0.8	10.7																																													
29-Oct	Z	0.3	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.8	2.0	0.9	0.2	0.6	1.6	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	2.0																																													
30-Oct	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																																													
31-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	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		0.5		0.2		0.1		0.3		0.7		1.2		1.6		1.4		1.4		1.6		1.1		0.9		0.8		0.4		0.1		0.0		0.0		0.0		0.0		0.3		0.1		Diurnal Average			
0.3																								0.6		10.7		4.5		2.0		4.0		9.0		20.0		24.4		11.0		10.1		20.1		9.1		7.5		9.3		2.6		0.7		0.1		0.1		0.3		0.6		0.3		9.3		2.5		Diurnal Maximum	
Z - zerospan			C - Calibration			M - Maintenance			DF - DAS Failure																																																														



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

**Nitric Oxide (NO) - ppb**  
**Wapasu - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Wapasu - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	703	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: 704

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Wapasu - October 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	21	9	13	16	14	28	52	151	69	36	80	52	33	22	42	26	664
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>	21	9	13	16	14	28	52	151	69	36	80	52	33	22	42	27	665

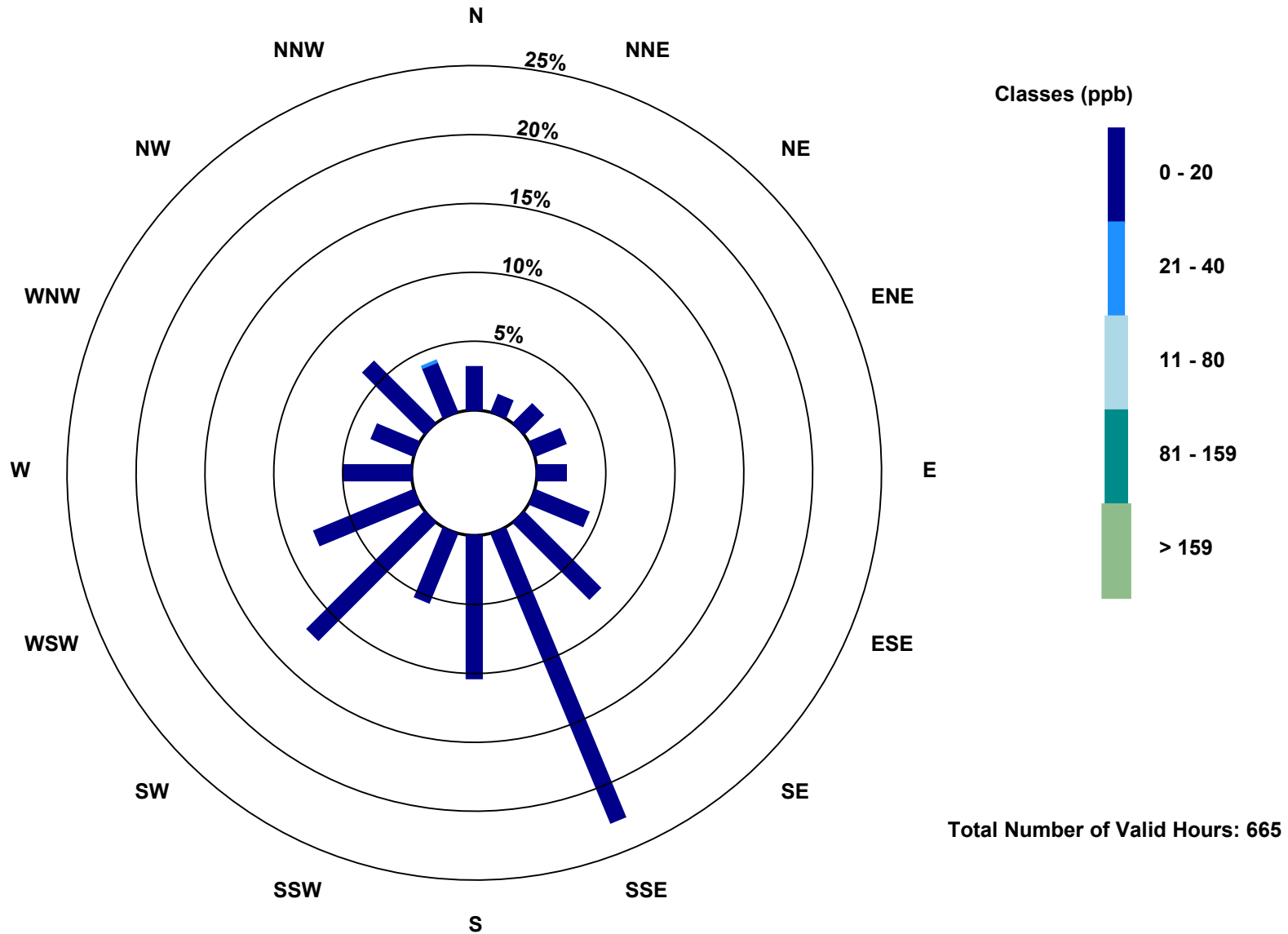
Total Number of Valid Hours: 665

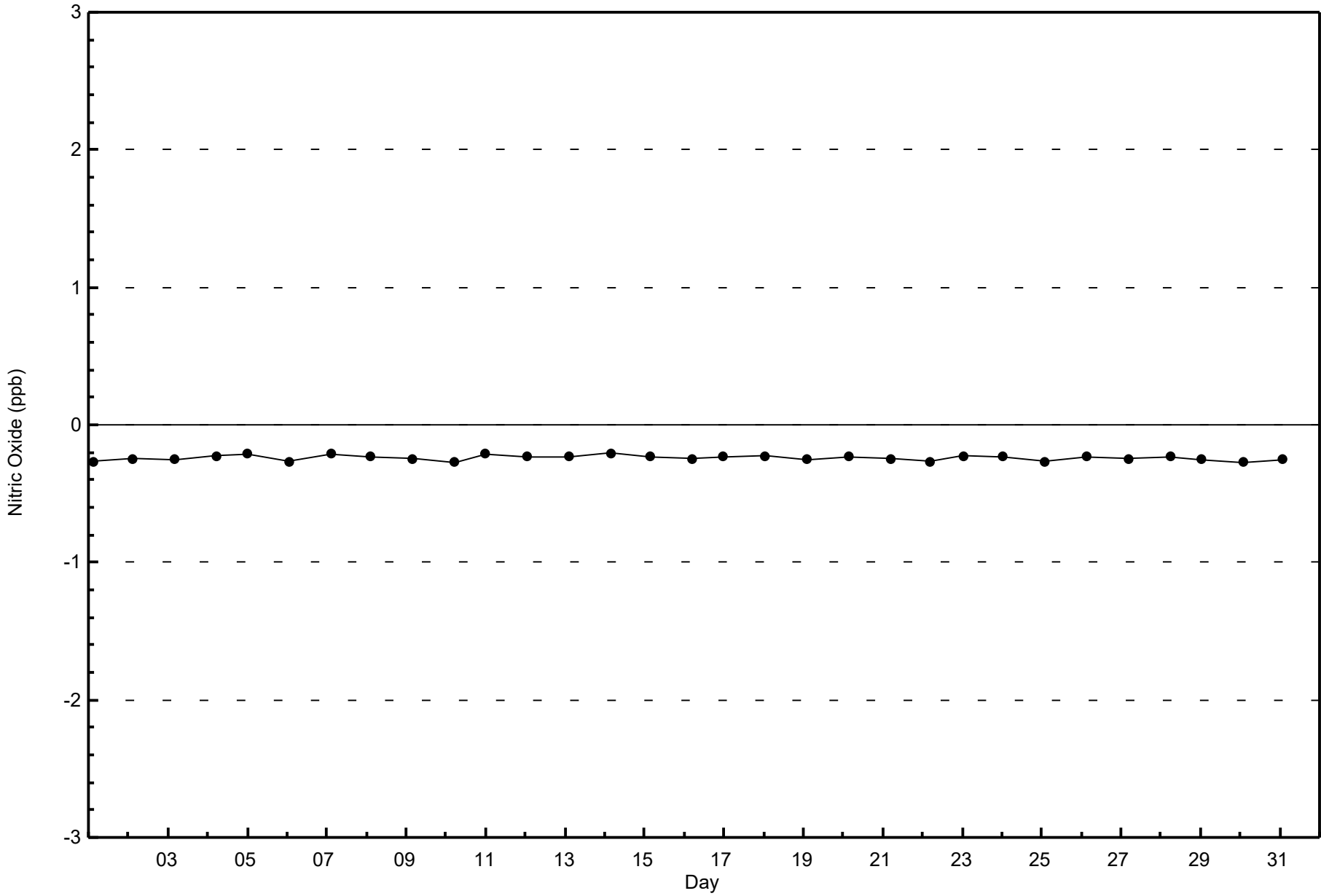
Total Number of Hours: 744

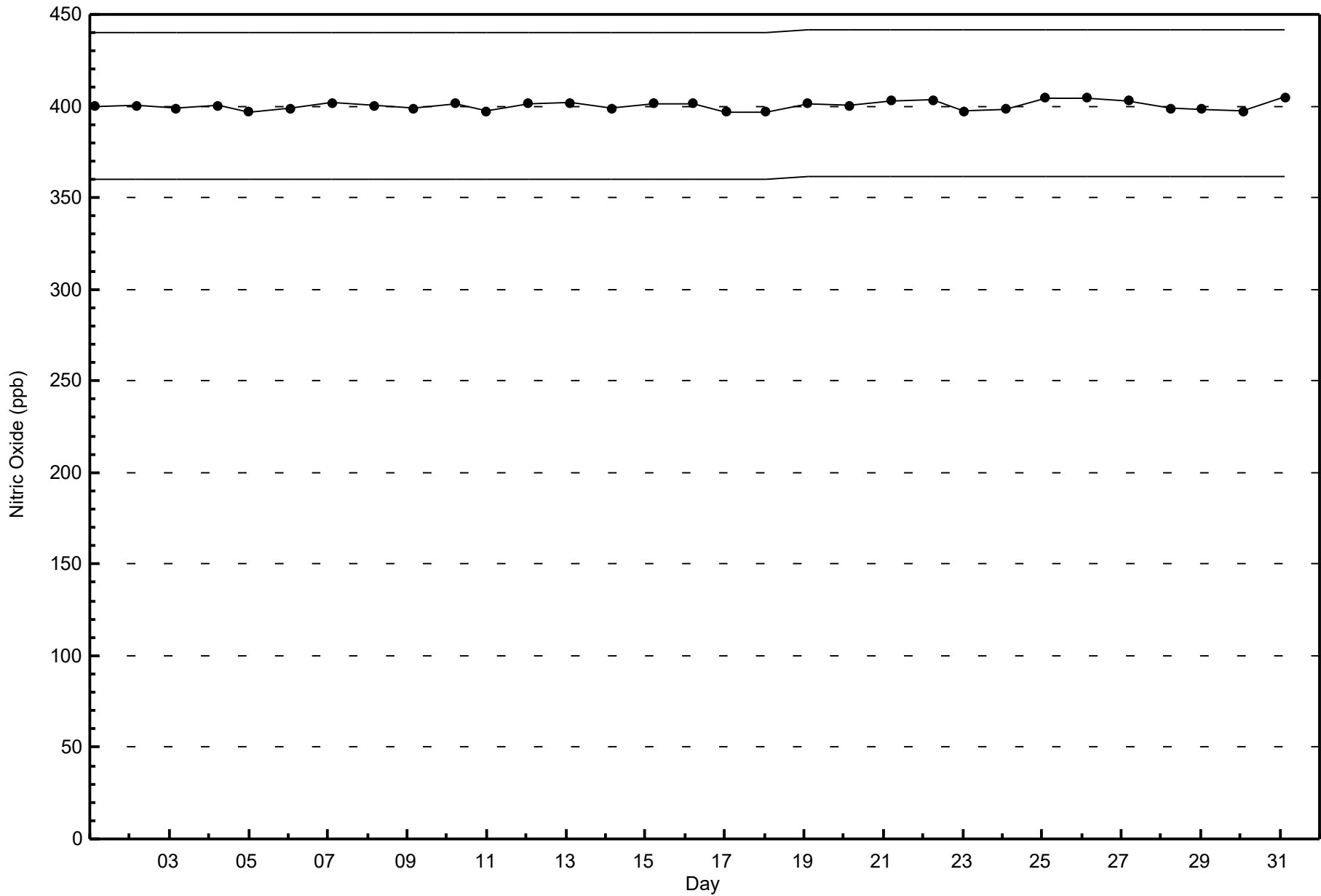


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Wapasu









# Wood Buffalo Environmental Association

## Summary of Hour Averages

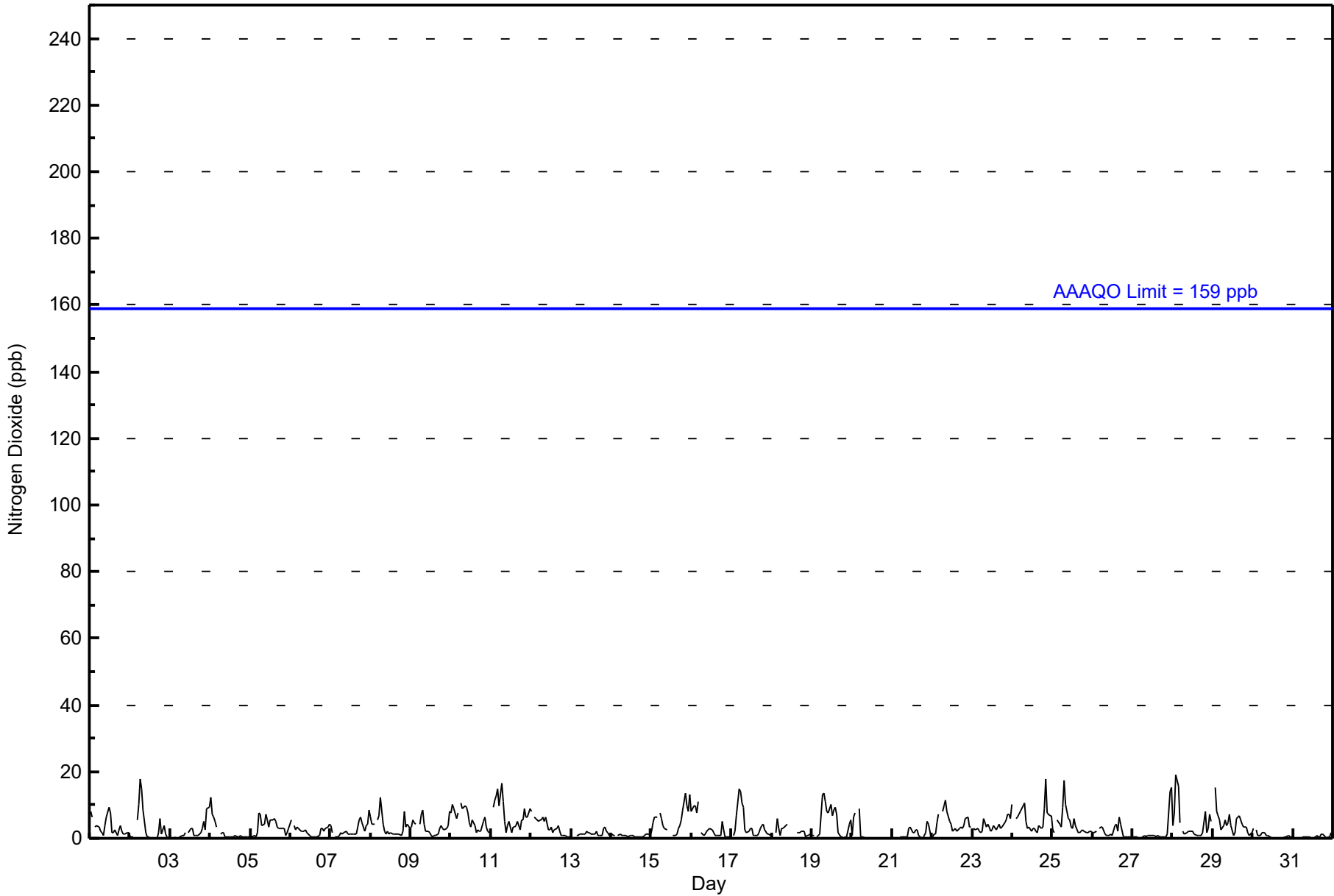
# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

## Wapasu - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 19.0 ppb on Oct 28 03:00	Maximum Daily Average: 7.1 ppb on Oct 11		Hours of Data:	704
Minimum Value: 0.1 ppb on Oct 2 13:00	Minimum Daily Average: 0.5 ppb on Oct 31		Hours of Missing Data:	40
Maximum Diurnal Average: 5.3 ppb at hour 7	Minimum Diurnal Average: 1.9 ppb at hour 16		Hours of Calibration:	37
Monthly Average: 3.22 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.8 Median = 2.1 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 7.9 P <sub>99</sub> = 15.3		Percent Operational Time:	99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	8.1	6.5	Z	3.4	3.8	3.5	2.3	1.5	0.7	4.0	6.2	9.4	7.7	1.9	1.8	2.4	1.0	2.5	3.8	2.1	1.3	1.3	1.8	1.6	3.4	9.4																							
2-Oct	0.3	0.4	0.6	Z	5.5	10.3	17.7	14.8	8.6	1.7	0.4	0.6	0.1	0.2	0.2	0.2	0.2	1.5	5.8	1.4	4.0	1.2	0.3	0.2	3.3	17.7																							
3-Oct	0.1	0.1	0.1	0.3	Z	0.2	0.5	0.7	1.0	1.6	DF	1.5	2.9	3.0	0.7	1.0	0.9	0.7	1.5	3.0	5.2	2.5	9.1	9.3	2.1	9.3																							
4-Oct	12.1	7.1	6.4	5.2	3.3	Z	1.2	1.8	1.8	0.5	0.3	0.4	0.4	0.5	1.0	0.4	0.4	0.9	0.3	0.3	0.3	0.3	0.3	0.3	2.0	12.1																							
5-Oct	Z	0.3	0.9	0.6	1.5	7.7	7.2	4.0	4.3	7.3	5.7	3.4	5.4	5.7	6.1	5.0	3.4	3.0	3.1	3.0	2.9	0.8	1.5	3.0	3.7	7.7																							
6-Oct	5.6	Z	3.9	2.7	3.3	2.9	2.3	2.3	2.1	2.6	1.8	1.0	0.6	0.3	0.4	0.5	0.4	1.0	2.8	3.1	2.3	3.0	3.5	4.3	2.3	5.6																							
7-Oct	3.7	1.7	Z	0.5	0.4	0.9	1.9	1.4	1.5	2.1	1.4	1.3	1.2	1.1	1.2	1.3	3.2	5.7	6.4	4.5	2.1	3.8	4.4	8.3	2.6	8.3																							
8-Oct	6.5	4.2	4.3	Z	5.3	6.8	12.3	4.3	2.3	1.1	2.1	1.1	1.9	1.2	1.3	1.4	1.4	1.1	1.0	2.3	8.0	3.4	4.3	3.0	3.5	12.3																							
9-Oct	3.6	5.5	4.8	4.3	Z	4.2	7.1	8.5	4.2	2.2	2.0	1.7	0.8	0.5	0.8	0.9	1.2	3.0	3.9	2.8	2.4	2.8	3.7	8.1	3.4	8.5																							
10-Oct	7.8	10.3	8.9	6.0	7.5	Z	10.4	9.1	9.7	9.3	7.7	4.5	3.6	5.6	4.0	1.9	2.4	2.1	2.1	4.9	6.5	3.6	2.3	1.9	5.7	10.4																							
11-Oct	Z	9.2	11.6	12.7	15.0	9.9	16.5	11.1	4.9	1.7	3.7	5.1	1.7	3.2	3.3	3.9	5.0	2.7	5.6	5.7	9.0	6.2	6.4	9.1	7.1	16.5																							
12-Oct	8.1	Z	6.3	5.9	5.2	5.3	5.5	6.3	5.1	6.4	2.7	2.7	3.4	1.6	2.7	2.9	3.8	2.1	0.9	0.9	0.8	0.6	0.5	0.4	3.5	8.1																							
13-Oct	0.2	0.2	Z	0.7	0.8	1.2	1.1	1.1	1.3	2.2	1.7	1.7	1.3	1.3	1.2	2.0	1.0	0.8	0.9	3.0	3.4	2.0	1.8	1.0	1.4	3.4																							
14-Oct	1.1	0.9	0.9	Z	1.0	1.1	1.0	0.9	1.0	1.0	0.5	0.8	1.0	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.9	1.2	1.3	0.8	0.8	1.3																							
15-Oct	2.2	4.8	6.5	6.3	Z	7.7	5.9	4.0	2.8	2.7	M	M	C	1.0	0.8	1.4	3.1	3.9	5.3	8.5	13.7	9.7	8.1	13.3	5.6	13.7																							
16-Oct	8.2	9.7	9.7	7.6	11.1	Z	1.9	1.0	1.3	2.2	2.4	2.9	2.6	1.8	1.0	0.9	0.7	0.9	5.0	2.7	0.4	0.3	0.3	0.3	3.3	11.1																							
17-Oct	Z	0.8	2.2	6.7	14.9	13.9	10.5	9.3	2.7	1.5	2.2	2.8	2.9	0.7	0.9	0.7	1.5	3.1	3.8	4.1	2.6	1.1	1.2	0.8	4.0	14.9																							
18-Oct	1.1	Z	1.6	5.9	3.0	0.8	2.9	3.1	3.9	4.2	C	C	C	C	C	1.8	1.7	1.6	2.3	2.1	0.3	1.0	1.0	1.1	2.2	5.9																							
19-Oct	0.9	0.7	Z	0.6	0.7	1.2	13.1	13.5	10.9	7.9	7.6	10.1	6.8	8.4	9.5	7.2	1.7	0.4	0.3	0.2	0.4	0.4	4.1	5.4	4.9	13.5																							
20-Oct	0.9	6.2	7.5	Z	8.7	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2	8.7																							
21-Oct	0.1	0.1	0.1	0.1	Z	0.4	0.4	0.4	0.5	0.5	3.1	3.4	1.8	1.5	2.5	2.7	0.8	0.3	0.2	1.0	1.7	5.0	4.2	0.2	1.3	5.0																							
22-Oct	0.6	1.4	1.4	4.6	7.1	Z	8.2	9.9	11.5	8.2	5.2	4.2	2.1	2.4	2.8	2.1	3.0	3.4	3.0	3.9	5.9	6.2	3.6	3.3	4.5	11.5																							
23-Oct	Z	2.8	2.6	3.1	2.1	1.5	2.3	5.8	3.2	4.3	3.2	2.3	2.6	3.7	2.7	3.3	4.4	3.1	3.5	4.5	5.6	7.1	7.3	5.9	3.8	7.3																							
24-Oct	10.0	Z	6.0	6.4	7.0	8.0	9.8	10.4	5.2	3.0	3.6	2.0	3.0	2.8	2.2	1.8	3.8	3.1	3.2	9.0	17.9	7.7	6.9	6.9	6.1	17.9																							
25-Oct	2.7	1.9	Z	5.4	4.2	3.2	9.5	17.3	10.0	6.1	5.6	3.4	3.0	5.8	4.0	1.5	1.8	2.2	2.4	2.3	1.9	1.7	2.1	2.1	4.4	17.3																							
26-Oct	1.9	1.7	2.2	Z	3.1	3.3	3.2	1.2	1.0	0.8	0.7	1.1	0.8	3.8	4.4	2.2	6.2	4.1	0.4	0.5	0.5	0.4	0.4	0.3	1.9	6.2																							
27-Oct	0.3	0.4	0.4	0.5	Z	0.5	0.5	0.7	0.6	0.7	0.7	0.9	0.7	0.8	0.6	0.8	0.6	0.4	0.4	0.5	0.5	1.1	14.0	15.3	1.8	15.3																							
28-Oct	4.0	7.5	19.0	15.5	4.5	Z	2.0	1.1	1.5	2.2	2.3	2.0	2.1	1.2	0.7	0.7	1.0	0.8	1.7	8.1	1.7	3.1	7.4	5.2	4.1	19.0																							
29-Oct	Z	15.4	8.1	6.9	5.3	2.6	4.0	5.4	3.9	4.5	7.0	4.0	1.0	1.8	5.8	6.3	6.7	4.1	3.4	3.6	3.6	1.6	0.9	1.5	4.7	15.4																							
30-Oct	3.0	Z	2.5	0.9	0.7	1.5	1.8	1.5	1.0	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.5	0.6	0.8	0.3	0.3	0.8	3.0																							
31-Oct	0.3	0.2	Z	0.2	0.2	0.2	0.4	0.4	0.6	0.4	0.3	0.2	0.2	0.3	0.8	0.6	0.5	1.1	1.2	0.3	0.2	0.3	0.5	1.7	0.5	1.7																							
																								3.6	3.8	4.7	4.3	4.8	3.8	5.3	4.9	3.5	3.0	2.9	2.6	2.1	2.1	1.9	2.0	1.9	2.4	2.9	3.4	2.6	3.3	3.7	Diurnal Average		
																								12.1	15.4	19.0	15.5	15.0	13.9	17.7	17.3	11.5	9.3	7.7	10.1	7.7	8.4	9.5	7.2	6.7	5.7	6.4	9.0	17.9	9.7	14.0	15.3	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**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Wapasu - October 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  
Wapasu - October 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	21	9	13	16	14	28	52	151	69	36	80	52	33	22	42	27	665
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>	21	9	13	16	14	28	52	151	69	36	80	52	33	22	42	27	665

Total Number of Valid Hours: 665

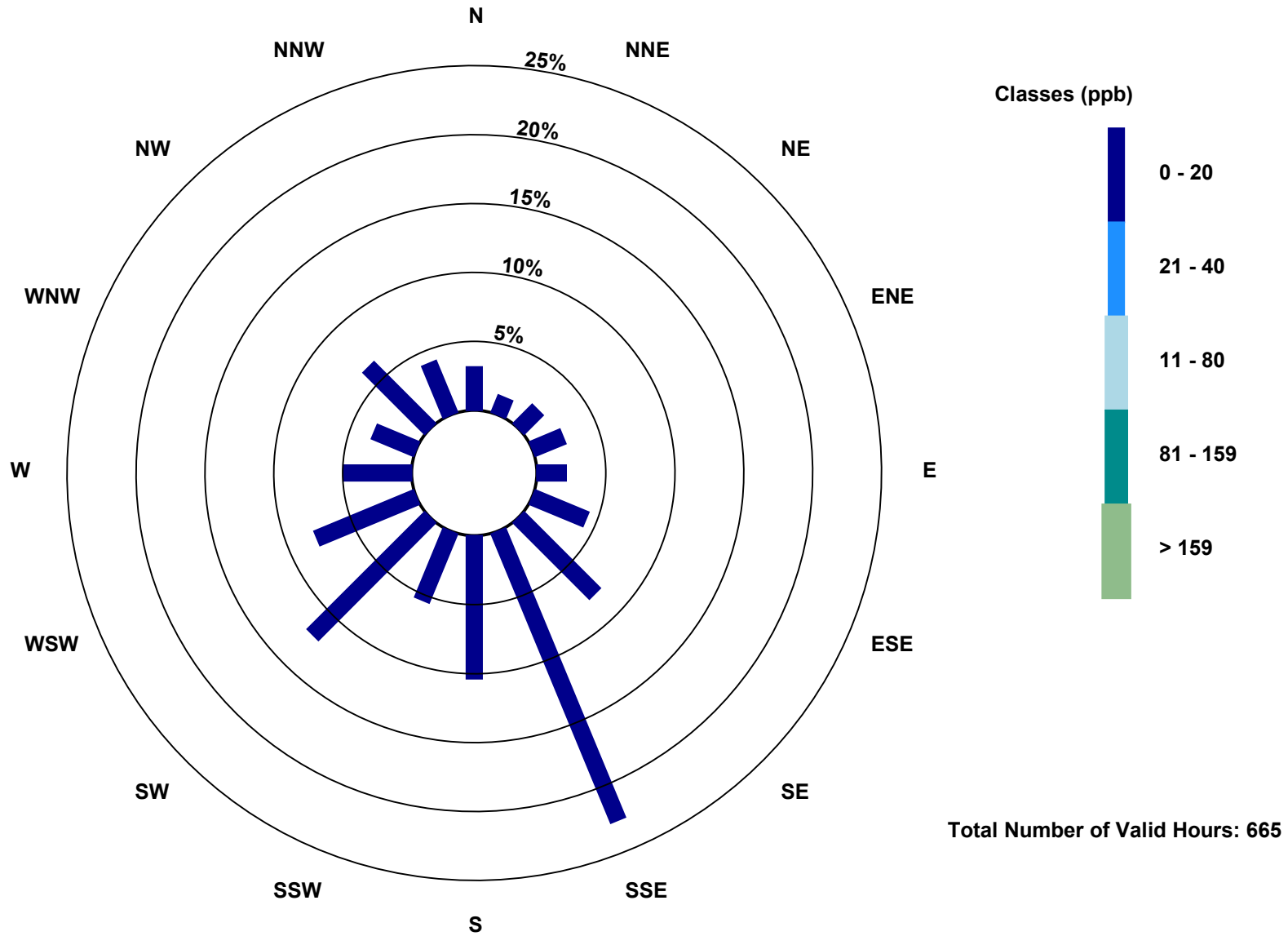
Total Number of Hours: 744

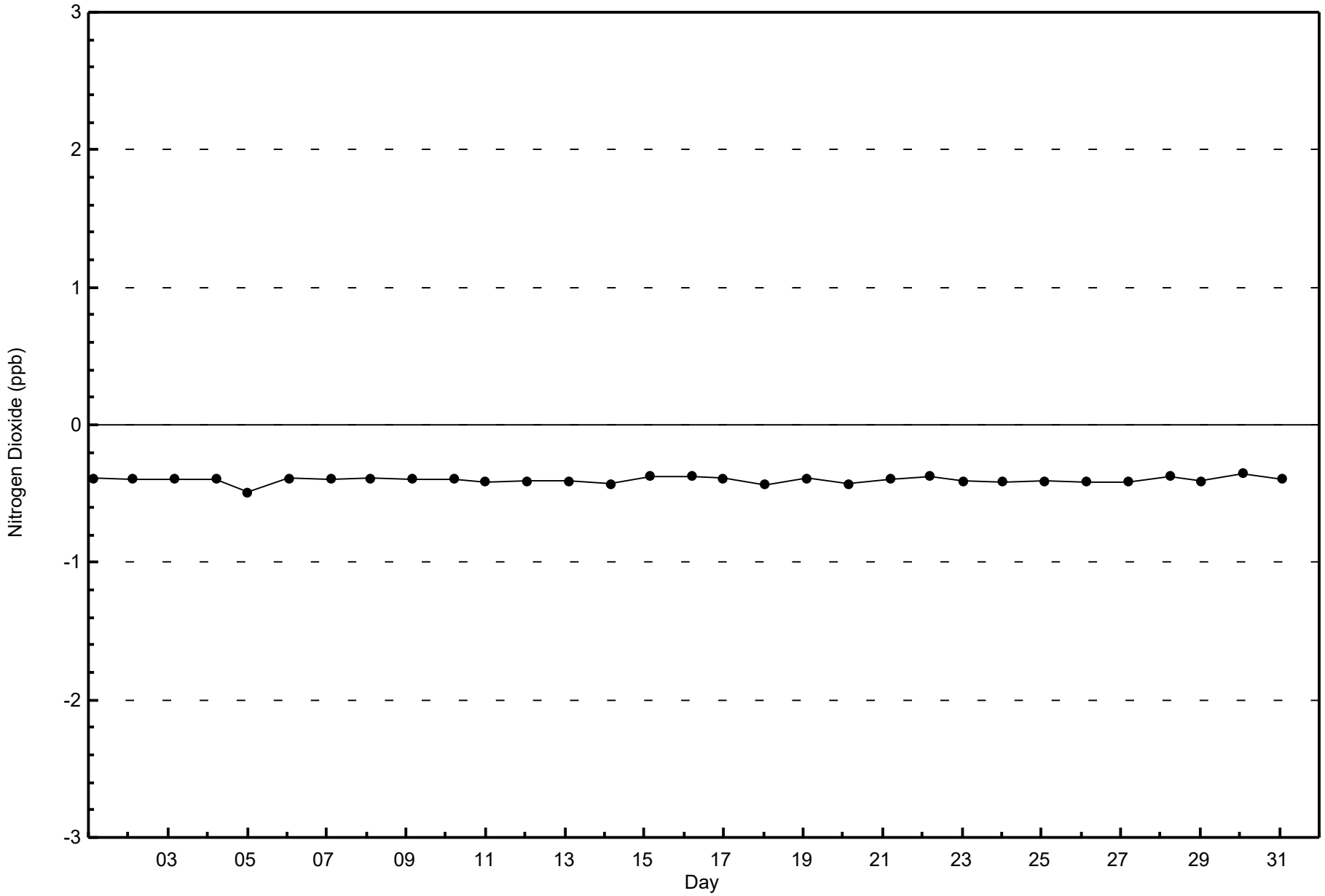


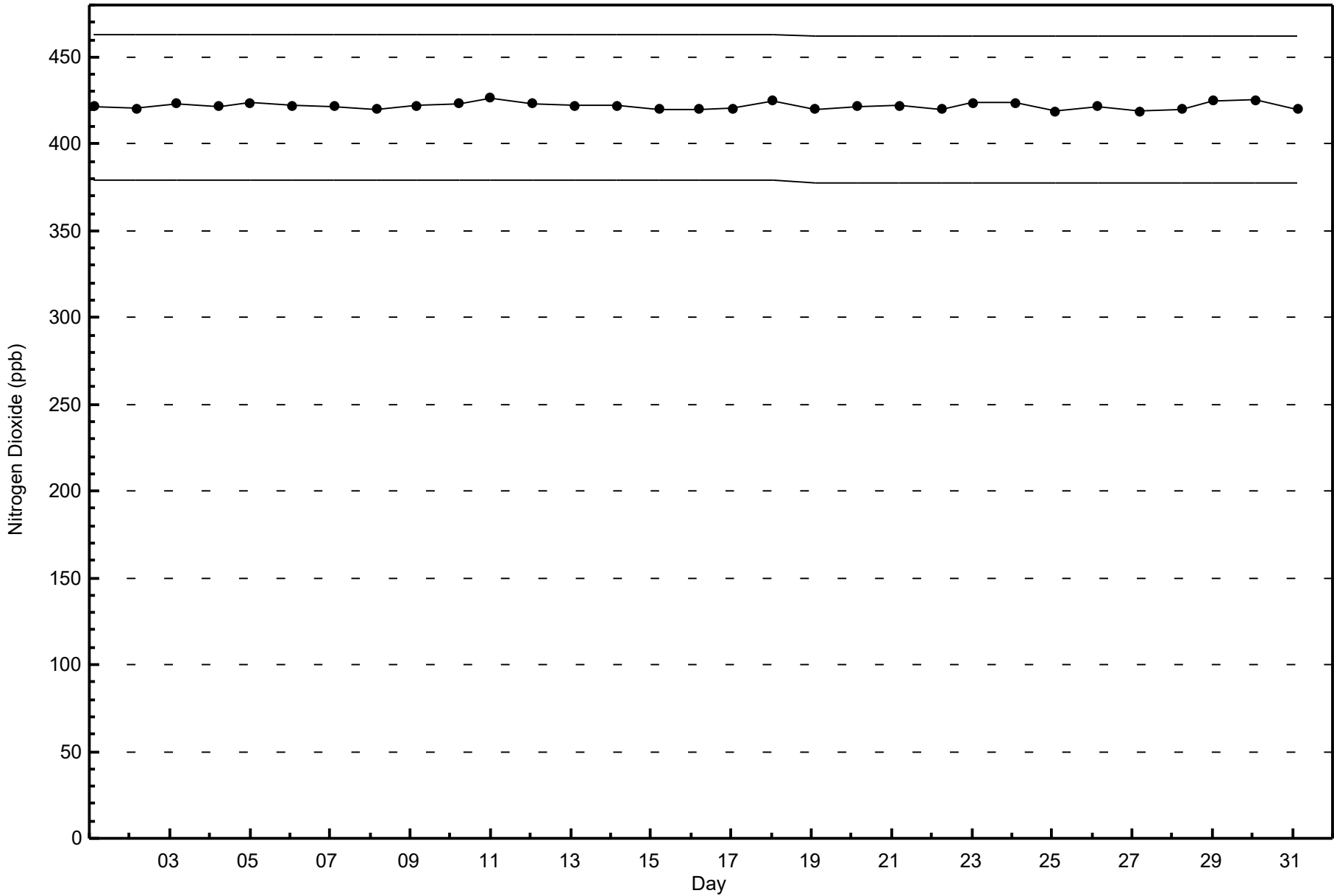


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









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

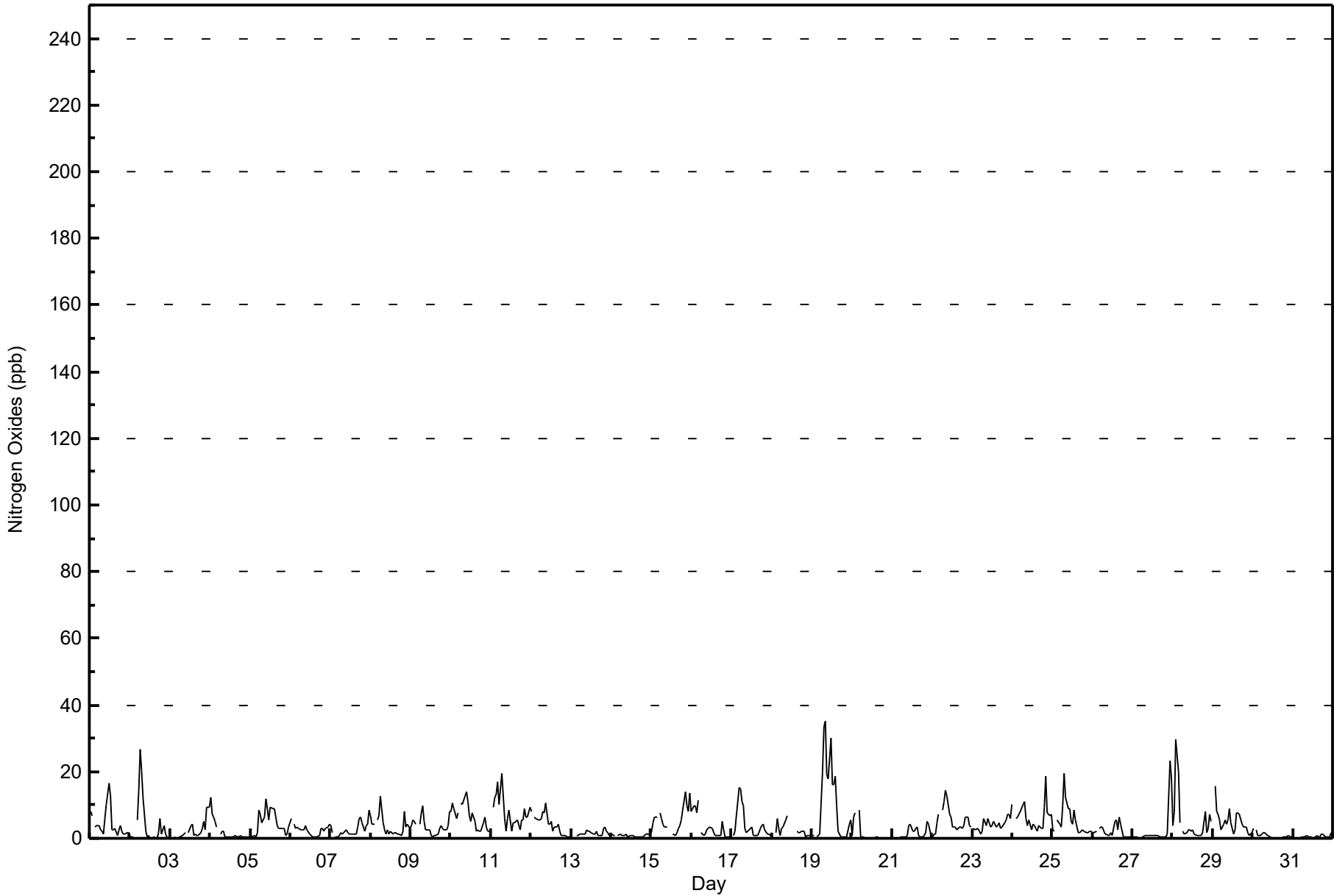
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - October 2024**

Maximum Value: 35.3 ppb on Oct 19 09:00		Maximum Daily Average: 10.1 ppb on Oct 19		Hours in Service: 744																																													
Minimum Value: 0.1 ppb on Oct 21 04:00		Minimum Daily Average: 0.5 ppb on Oct 31		Hours of Data: 704																																													
Maximum Diurnal Average: 6.2 ppb at hour 8		Minimum Diurnal Average: 1.9 ppb at hour 18		Hours of Missing Data: 40																																													
Monthly Average: 3.76 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.8 Median = 2.3 Q <sub>3</sub> = 5.2 P <sub>90</sub> = 8.9 P <sub>99</sub> = 20.0		Hours of Calibration: 37																																													
				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-Oct	8.1	6.6	Z	3.5	3.9	3.6	2.4	2.1	1.2	5.8	10.3	16.6	12.8	2.5	2.4	3.1	1.1	2.6	3.8	2.1	1.3	1.3	1.8	1.6	4.4	16.6																							
2-Oct	0.3	0.4	0.6	Z	5.6	14.3	26.7	20.2	12.1	2.3	0.5	0.7	0.1	0.2	0.2	0.2	0.2	1.5	5.8	1.4	4.0	1.2	0.3	0.2	4.3	26.7																							
3-Oct	0.1	0.1	0.1	0.3	Z	0.2	0.5	0.7	1.1	1.7	DF	1.8	3.7	4.3	0.9	1.2	1.0	0.7	1.5	3.0	5.2	2.5	9.2	9.3	2.2	9.3																							
4-Oct	12.1	7.1	6.4	5.2	3.3	Z	1.2	2.0	2.1	0.5	0.3	0.4	0.4	0.4	0.5	1.0	0.4	0.4	0.9	0.3	0.3	0.3	0.3	0.3	2.0	12.1																							
5-Oct	Z	0.3	0.9	0.6	1.6	8.5	7.3	4.6	6.3	11.8	9.1	5.4	9.2	9.0	8.7	6.2	3.6	3.0	3.1	3.0	3.0	0.8	1.5	3.2	4.8	11.8																							
6-Oct	5.8	Z	4.0	2.8	3.4	3.0	2.4	2.5	2.7	3.8	2.5	1.3	0.7	0.4	0.4	0.5	0.4	1.0	2.8	3.1	2.3	3.0	3.5	4.3	2.5	5.8																							
7-Oct	3.7	1.7	Z	0.5	0.4	0.9	1.9	1.4	1.7	2.5	1.6	1.5	1.4	1.3	1.3	1.4	3.4	5.8	6.5	4.5	2.1	3.8	4.4	8.4	2.7	8.4																							
8-Oct	6.6	4.2	4.3	Z	5.3	6.9	12.9	4.6	2.5	1.2	2.4	1.2	2.2	1.4	1.5	1.5	1.4	1.1	1.0	2.3	8.1	3.4	4.4	3.0	3.6	12.9																							
9-Oct	3.6	5.6	4.9	4.3	Z	4.2	7.5	9.6	5.0	2.7	2.5	2.4	1.0	0.6	1.0	1.0	1.3	3.0	3.9	2.8	2.4	2.8	3.7	8.2	3.7	9.6																							
10-Oct	7.9	10.4	9.0	6.1	7.6	Z	10.6	10.2	12.8	13.8	11.0	6.7	5.2	7.5	5.2	2.2	2.6	2.1	2.1	4.9	6.5	3.6	2.3	1.9	6.6	13.8																							
11-Oct	Z	9.3	12.3	13.0	17.0	10.1	19.3	12.9	5.9	2.2	5.8	8.4	2.3	4.6	4.7	5.1	5.7	2.7	5.6	5.7	9.0	6.2	6.4	9.2	8.0	19.3																							
12-Oct	8.1	Z	6.3	6.0	5.3	5.4	5.7	7.9	7.8	10.5	4.1	4.1	5.1	2.2	3.6	3.6	4.2	2.1	0.9	0.9	0.8	0.6	0.5	0.4	4.2	10.5																							
13-Oct	0.2	0.2	Z	0.7	0.8	1.2	1.1	1.1	1.4	2.5	2.2	2.1	1.6	1.5	1.3	2.1	1.0	0.8	0.9	3.0	3.4	2.0	1.8	1.0	1.5	3.4																							
14-Oct	1.1	0.9	0.9	Z	1.0	1.1	1.0	0.9	1.0	1.1	0.5	0.8	1.1	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.9	1.2	1.3	0.8	0.8	1.3																							
15-Oct	2.2	4.8	6.5	6.4	Z	7.8	6.0	4.2	3.3	3.5	M	M	C	1.2	0.9	1.5	3.2	3.9	5.3	8.5	13.8	9.7	8.2	13.4	5.7	13.8																							
16-Oct	8.2	9.7	9.8	7.6	11.3	Z	1.9	1.0	1.4	2.6	2.9	3.5	3.0	1.9	1.0	0.9	0.7	0.9	5.0	2.7	0.4	0.3	0.3	0.3	3.4	11.3																							
17-Oct	Z	0.8	2.2	6.8	15.3	14.8	10.9	9.7	2.8	1.6	2.4	3.0	3.2	0.7	0.9	0.7	1.5	3.1	3.8	4.1	2.6	1.1	1.2	0.8	4.1	15.3																							
18-Oct	1.1	Z	1.6	5.9	3.0	0.8	2.9	3.3	5.6	6.7	C	C	C	C	C	2.0	1.7	1.6	2.3	2.1	0.3	1.0	1.0	1.1	2.4	6.7																							
19-Oct	0.9	0.7	Z	0.6	0.7	1.2	19.9	33.5	35.3	18.9	17.7	30.2	15.9	15.9	18.8	9.8	1.9	0.4	0.3	0.2	0.4	0.4	4.2	5.4	10.1	35.3																							
20-Oct	0.9	6.2	7.5	Z	8.7	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2	8.7																							
21-Oct	0.1	0.1	0.1	0.1	Z	0.4	0.4	0.4	0.5	0.6	3.7	4.2	2.3	1.9	3.1	3.3	0.9	0.3	0.2	1.0	1.7	5.0	4.2	0.2	1.5	5.0																							
22-Oct	0.6	1.4	1.4	4.8	7.3	Z	8.7	10.9	14.6	12.6	7.4	6.4	3.4	3.5	3.5	2.4	3.2	3.4	3.0	4.0	6.2	6.5	3.7	3.4	5.3	14.6																							
23-Oct	Z	2.8	2.6	3.1	2.1	1.5	2.3	6.1	3.8	5.8	4.6	3.3	3.7	5.2	3.5	3.8	4.6	3.1	3.5	4.5	5.6	7.1	7.3	5.9	4.2	7.3																							
24-Oct	10.3	Z	6.0	6.4	7.0	8.0	10.0	11.0	5.8	4.0	5.3	2.7	4.1	3.8	2.8	2.1	4.0	3.1	3.2	9.3	18.5	7.8	6.9	7.0	6.5	18.5																							
25-Oct	2.7	1.9	Z	5.5	4.2	3.2	9.6	19.5	12.5	8.8	8.9	5.1	4.3	8.6	5.4	1.7	1.9	2.2	2.4	2.3	1.9	1.7	2.1	2.1	5.2	19.5																							
26-Oct	1.9	1.7	2.2	Z	3.1	3.3	3.2	1.2	1.1	1.0	0.8	1.5	1.0	5.0	5.5	2.4	6.4	4.1	0.4	0.5	0.5	0.4	0.4	0.3	2.1	6.4																							
27-Oct	0.3	0.4	0.4	0.5	Z	0.5	0.5	0.7	0.6	0.7	0.7	1.0	0.8	0.8	0.6	0.8	0.6	0.4	0.4	0.5	0.5	1.1	23.3	17.8	2.3	23.3																							
28-Oct	4.0	8.1	29.7	20.0	4.6	Z	2.0	1.1	1.6	2.4	2.6	2.3	2.4	1.3	0.7	0.7	1.0	0.8	1.7	8.1	1.7	3.1	7.4	5.2	4.9	29.7																							
29-Oct	Z	15.7	8.2	7.0	5.4	2.6	4.0	5.5	4.2	5.3	9.0	4.9	1.2	2.4	7.4	7.6	7.1	4.1	3.4	3.6	3.6	1.6	0.9	1.6	5.1	15.7																							
30-Oct	3.1	Z	2.5	0.9	0.7	1.5	1.8	1.5	1.1	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.5	0.6	0.8	0.3	0.3	0.8	3.1																							
31-Oct	0.3	0.2	Z	0.2	0.2	0.2	0.4	0.4	0.7	0.5	0.4	0.3	0.2	0.3	0.9	0.6	0.5	1.1	1.2	0.3	0.2	0.3	0.5	1.7	0.5	1.7																							
																								3.6	3.9	5.2	4.6	4.9	4.1	6.0	6.2	5.1	4.5	4.3	4.2	3.2	3.0	2.9	2.3	2.1	1.9	2.4	2.9	3.5	2.6	3.7	3.8	Diurnal Average	
																								12.1	15.7	29.7	20.0	17.0	14.8	26.7	33.5	35.3	18.9	17.7	30.2	15.9	15.9	18.8	9.8	7.1	5.8	6.5	9.3	18.5	9.7	23.3	17.8	Diurnal Maximum	
Z - zerospan			C - Calibration			M - Maintenance			DF - DAS Failure																																								



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - October 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	698	99.15	99.15
21 - 40	6	0.85	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**  
**Wapasu - October 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	20	9	13	16	14	28	52	151	69	36	80	52	32	21	42	24	659
21 - 40	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	6
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>	21	9	13	16	14	28	52	151	69	36	80	52	33	22	42	27	665

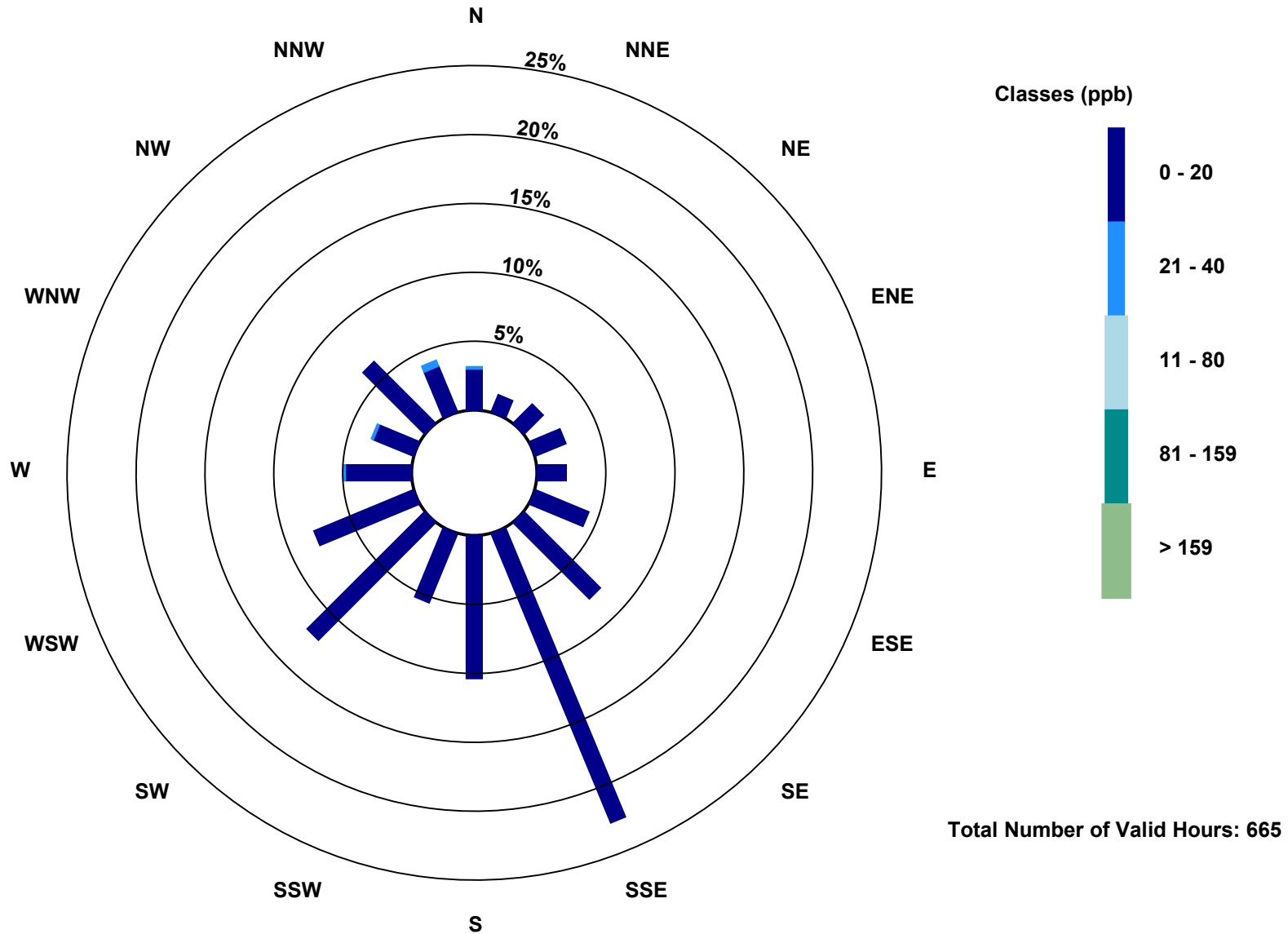
Total Number of Valid Hours: 665

Total Number of Hours: 744

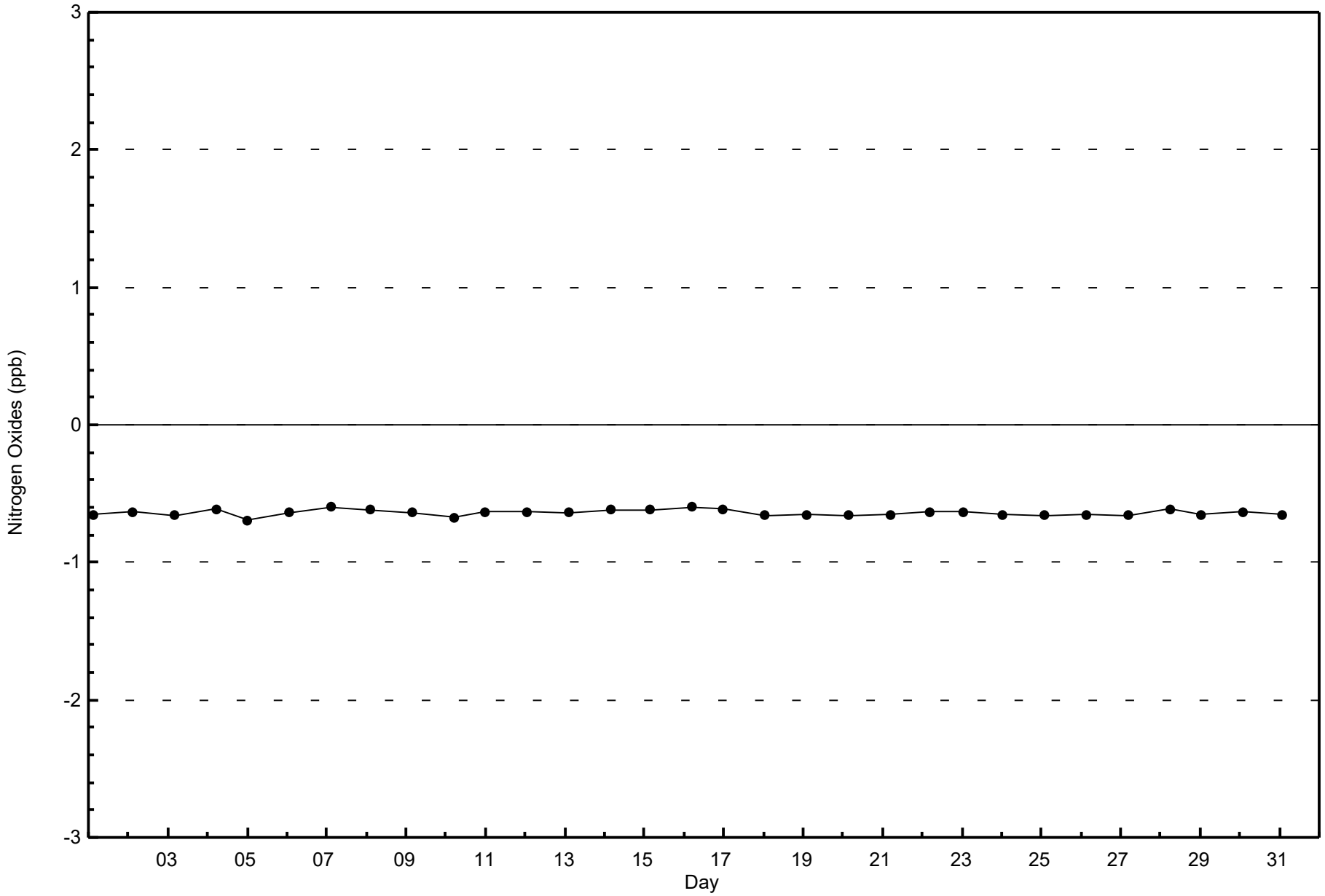


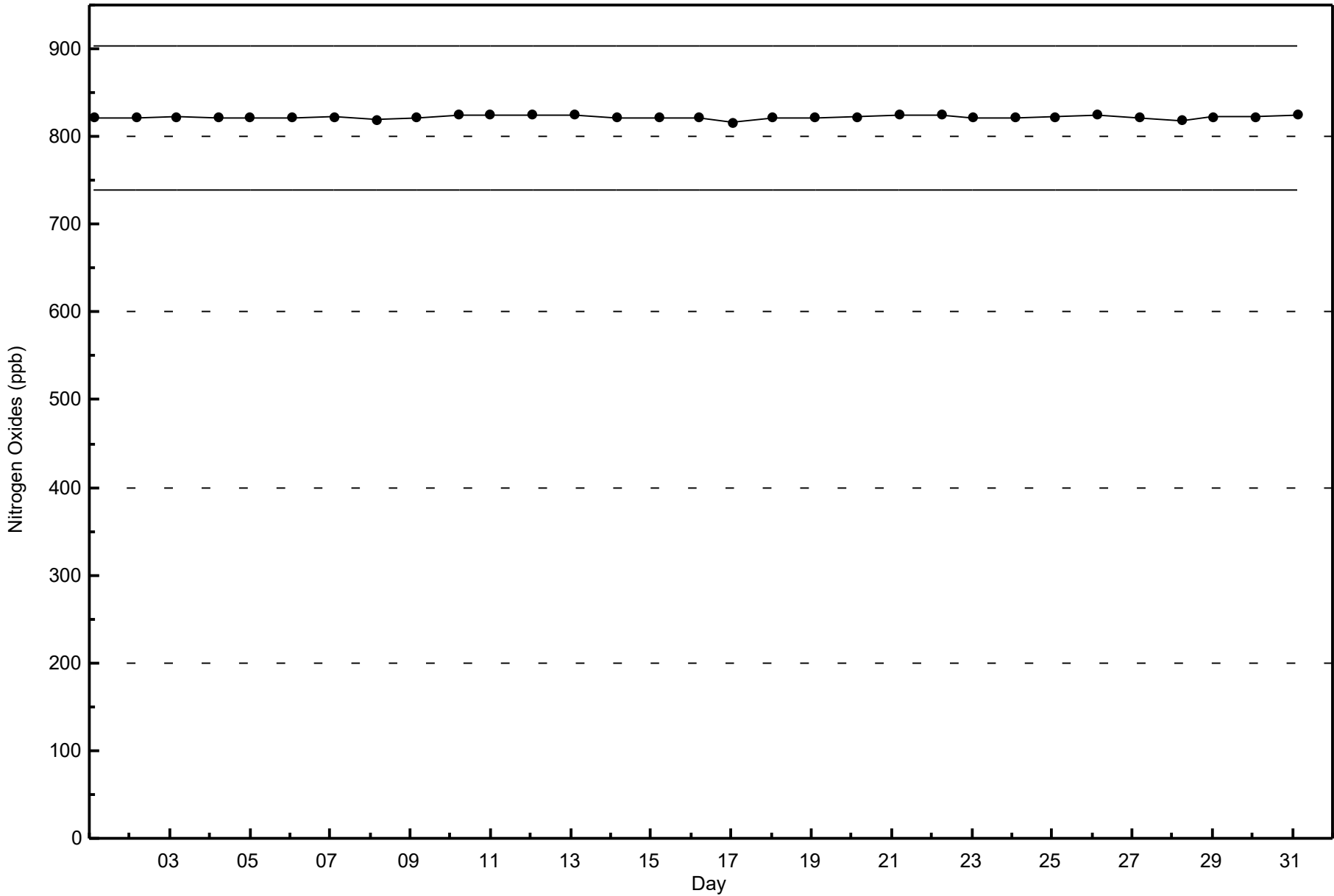
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











Wood Buffalo Environmental Association

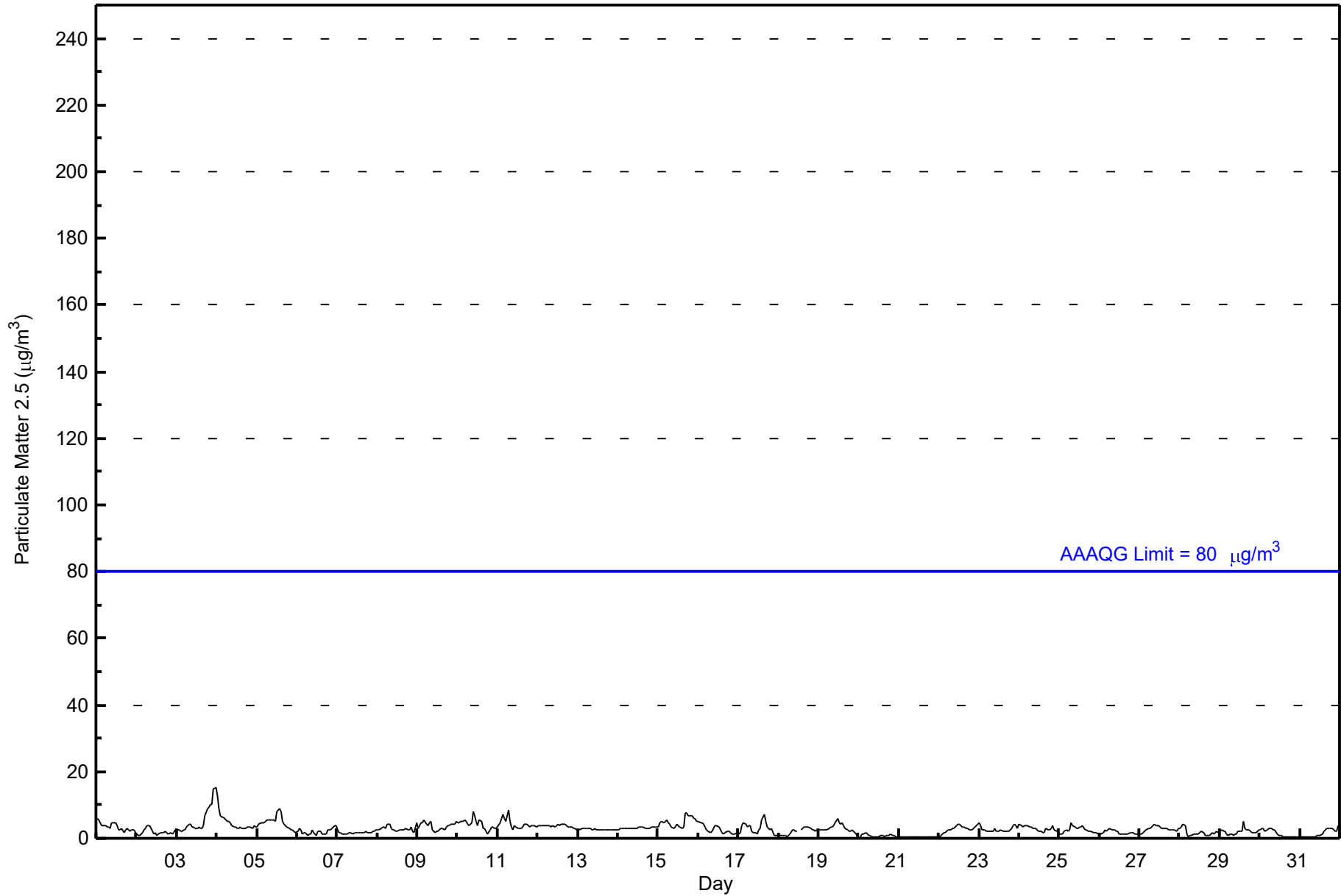
Summary of Hour Averages

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

Wapasu - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 15.5 µg/m <sup>3</sup> on Oct 4 00:00		Maximum Daily Average: 5.4 µg/m <sup>3</sup> on Oct 3		Hours of Data: 743														Hours of Missing Data: 1		Hours of Calibration: 1							
Minimum Value: 0.1 µg/m <sup>3</sup> on Oct 20 01:00		Minimum Daily Average: 0.4 µg/m <sup>3</sup> on Oct 21		Hours of Calibration: 1														Percent Operational Time: 100.0									
Maximum Diurnal Average: 3.0 µg/m <sup>3</sup> at hour 4		Minimum Diurnal Average: 2.6 µg/m <sup>3</sup> at hour 16		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.7 Median = 2.7 Q <sub>3</sub> = 3.5 P <sub>90</sub> = 4.7 P <sub>99</sub> = 9.0																							
Monthly Average: 2.81 µg/m <sup>3</sup>																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	5.8	5.4	4.5	4.0	3.8	3.8	3.5	3.3	2.9	4.8	4.8	4.6	3.8	2.6	2.4	3.1	1.8	2.5	2.9	2.4	2.3	2.4	2.4	1.7	3.4	5.8	
2-Oct	1.2	1.0	1.0	1.6	2.5	3.1	3.9	3.9	3.7	2.0	1.4	1.6	0.8	1.2	1.6	1.7	1.7	2.1	1.9	1.2	1.6	1.4	1.8	2.6	1.9	3.9	
3-Oct	2.7	2.5	2.1	2.2	2.5	2.8	3.4	4.1	4.2	3.4	3.2	2.8	3.2	3.5	2.9	3.0	3.8	6.8	9.0	9.4	10.3	10.3	15.0	15.5	5.4	15.5	
4-Oct	12.6	9.1	6.8	6.4	6.4	5.4	5.2	4.9	4.5	3.8	3.4	3.2	3.0	3.1	3.3	3.1	2.8	2.8	3.4	3.4	3.4	3.2	3.7	3.4	4.6	12.6	
5-Oct	3.4	4.3	4.5	4.5	4.7	5.0	5.3	5.6	5.4	5.5	5.6	5.0	8.1	8.9	7.9	5.1	4.2	3.8	3.4	3.0	2.7	2.4	2.1	1.8	4.7	8.9	
6-Oct	2.1	3.0	2.7	1.1	1.8	1.7	1.0	1.2	1.1	2.4	1.6	1.0	2.3	2.2	2.1	1.5	1.3	1.3	2.5	2.7	2.4	3.0	3.9	3.8	2.1	3.9	
7-Oct	2.6	1.8	1.5	1.3	1.2	1.2	1.3	1.5	1.5	1.4	1.6	1.8	1.8	1.7	1.7	1.8	1.8	1.9	1.9	1.8	1.8	2.0	2.3	2.5	1.7	2.6	
8-Oct	2.6	2.7	2.9	3.3	3.3	3.1	4.2	4.0	3.1	2.7	2.7	2.2	2.3	2.4	2.5	2.6	2.6	2.8	2.7	2.7	3.3	2.2	1.7	4.8	2.9	4.8	
9-Oct	3.1	3.8	4.6	4.7	5.5	4.0	3.9	4.8	4.9	2.7	1.5	2.1	2.3	2.6	2.8	2.8	2.6	3.2	3.9	3.9	4.1	4.3	4.4	4.9	3.6	5.5	
10-Oct	4.6	4.6	5.0	4.9	5.5	5.0	4.1	4.0	4.5	8.1	6.6	4.9	3.9	5.6	4.9	2.8	2.9	2.0	1.3	2.4	3.5	3.2	3.1	3.1	4.2	8.1	
11-Oct	3.4	4.5	6.0	7.2	5.9	5.2	8.7	5.3	3.6	2.5	3.8	3.4	2.9	2.9	3.1	3.2	4.3	4.2	4.0	3.4	3.7	3.6	3.7	3.5	4.2	8.7	
12-Oct	4.0	3.9	3.7	3.7	3.9	3.9	3.8	3.6	3.5	3.7	3.4	4.0	4.2	3.9	4.0	4.2	4.3	3.9	3.4	3.4	3.5	3.2	2.9	2.7	3.7	4.3	
13-Oct	2.6	2.7	2.8	2.9	2.9	3.1	3.1	3.1	2.7	2.6	2.8	2.7	2.6	2.7	2.6	2.6	2.5	2.5	2.4	2.6	2.6	2.6	2.7	2.7	2.7	3.1	
14-Oct	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9	3.0	3.2	3.1	3.1	3.2	3.3	3.3	3.2	3.1	3.1	3.0	3.1	3.2	3.3	3.2	3.3	3.0	3.3	
15-Oct	3.6	4.5	5.1	4.8	5.2	5.6	4.7	4.2	3.2	3.0	3.5	4.3	4.0	3.2	2.9	3.4	7.5	7.4	6.9	6.8	6.8	5.7	6.1	5.2	4.9	7.5	
16-Oct	4.9	4.6	4.6	4.2	3.5	2.6	2.0	1.7	2.1	2.9	3.6	3.8	3.4	2.7	1.6	1.3	1.7	2.0	2.1	1.6	1.3	1.2	1.4	1.6	2.6	4.9	
17-Oct	1.4	1.5	3.9	4.9	4.1	3.3	3.9	3.7	2.2	1.9	1.5	1.5	2.6	3.1	5.3	7.0	5.1	3.5	3.1	2.7	3.0	0.9	0.9	0.7	3.0	7.0	
18-Oct	0.7	0.7	0.7	0.7	0.8	0.6	0.7	1.2	2.4	2.7	2.2	2.1	C	2.5	2.8	3.3	3.4	3.3	3.3	3.0	2.7	2.4	2.3	2.4	2.0	3.4	
19-Oct	2.6	2.5	2.5	2.5	2.6	2.6	2.9	3.3	3.5	3.7	4.5	6.0	4.9	4.2	4.8	3.8	2.9	2.5	2.2	2.2	2.7	2.0	1.5	0.3	3.0	6.0	
20-Oct	0.1	0.6	1.4	1.3	1.8	1.2	0.8	0.6	0.6	0.6	0.6	0.5	0.6	0.7	0.7	0.6	0.7	0.8	1.0	1.1	1.0	0.8	0.6	0.3	0.8	1.8	
21-Oct	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.6	0.6	0.4	0.4	0.5	0.4	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.4	0.4	0.6	
22-Oct	0.4	0.9	1.3	1.6	1.7	2.4	2.6	2.5	2.9	2.8	3.9	4.2	4.1	3.7	3.6	3.3	3.0	2.8	2.5	2.5	2.6	3.4	3.8	4.4	2.8	4.4	
23-Oct	4.8	3.7	2.7	2.5	2.3	2.2	2.1	2.0	2.1	3.0	2.3	2.0	2.0	2.7	2.2	2.1	2.2	2.1	2.3	3.2	3.7	4.1	3.6	2.9	2.7	4.8	
24-Oct	4.1	3.7	3.4	3.8	3.9	3.9	3.5	3.5	2.9	2.9	3.2	2.1	2.2	2.2	1.9	1.6	2.9	2.6	2.5	3.1	3.9	2.5	1.9	1.8	2.9	4.1	
25-Oct	1.4	1.4	1.4	2.0	2.6	2.0	2.5	4.8	3.9	3.3	3.2	3.0	3.4	3.4	3.7	2.7	2.4	2.1	2.0	2.0	1.6	1.5	1.6	1.4	2.5	4.8	
26-Oct	1.5	1.5	1.9	2.5	2.2	2.4	2.8	2.5	2.7	2.7	2.1	2.0	1.4	1.4	1.3	1.2	1.2	1.4	1.5	1.6	1.5	1.5	1.4	1.2	1.8	2.8	
27-Oct	1.2	1.5	1.8	2.1	2.6	3.0	3.2	3.4	3.6	4.0	3.9	3.8	3.4	3.2	2.9	2.8	2.8	2.7	2.6	2.5	2.5	2.5	2.1	3.0	2.8	4.0	
28-Oct	3.2	3.4	4.3	3.8	1.1	0.6	0.6	1.0	1.2	1.4	1.4	1.3	1.7	2.2	1.5	0.8	0.8	1.0	1.0	1.5	1.3	1.7	2.1	1.7	1.7	4.3	
29-Oct	2.1	2.7	2.1	2.3	1.2	0.9	1.1	1.1	0.9	1.2	1.2	2.0	1.9	2.3	4.9	2.8	2.6	2.5	2.1	1.8	1.7	1.8	1.8	2.3	2.0	4.9	
30-Oct	2.7	3.0	3.0	2.2	2.4	2.9	2.8	2.8	2.6	2.5	1.4	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	1.5	3.0	
31-Oct	0.6	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.7	0.7	1.0	1.3	2.1	2.6	2.8	3.0	3.0	3.0	2.4	2.0	2.3	3.6	1.5	3.6	
																								Diurnal Average		Diurnal Maximum	
																								2.9		12.6	
																								2.9		9.1	
																								3.0		6.8	
																								3.0		7.2	
																								3.0		6.4	
																								2.8		5.6	
																								2.9		8.7	
																								2.9		5.6	
																								2.8		5.4	
																								2.8		8.1	
																								2.7		6.6	
																								2.7		6.0	
																								2.7		8.1	
																								2.8		8.9	
																								2.6		7.0	
																								2.7		7.5	
																								2.7		7.4	
																								2.7		9.0	
																								2.7		9.4	
																								2.8		10.3	
																								2.6		10.3	
																								2.8		15.0	
																								2.9		15.5	

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 - October 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	707	95.15	95.15
6 - 15	36	4.85	100.00
16 - 25	0	0.00	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 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 - October 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	21	10	13	16	15	29	53	145	68	38	80	50	32	25	44	27	666
6 - 15	0	0	0	1	0	0	0	15	6	2	6	4	1	0	0	1	36
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	21	10	13	17	15	29	53	160	74	40	86	54	33	25	44	28	702

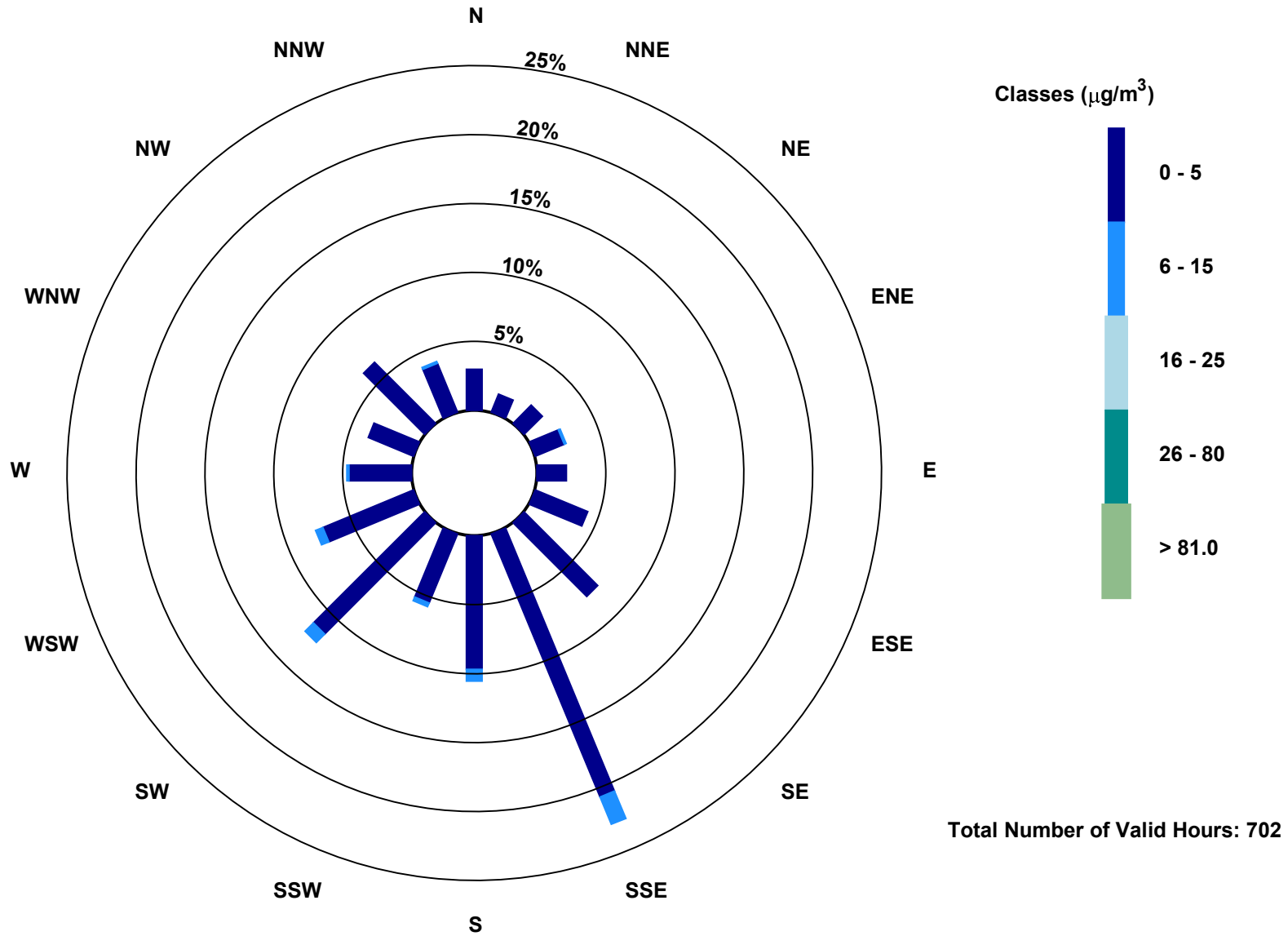
Total Number of Valid Hours: 702

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





Wood Buffalo Environmental Association

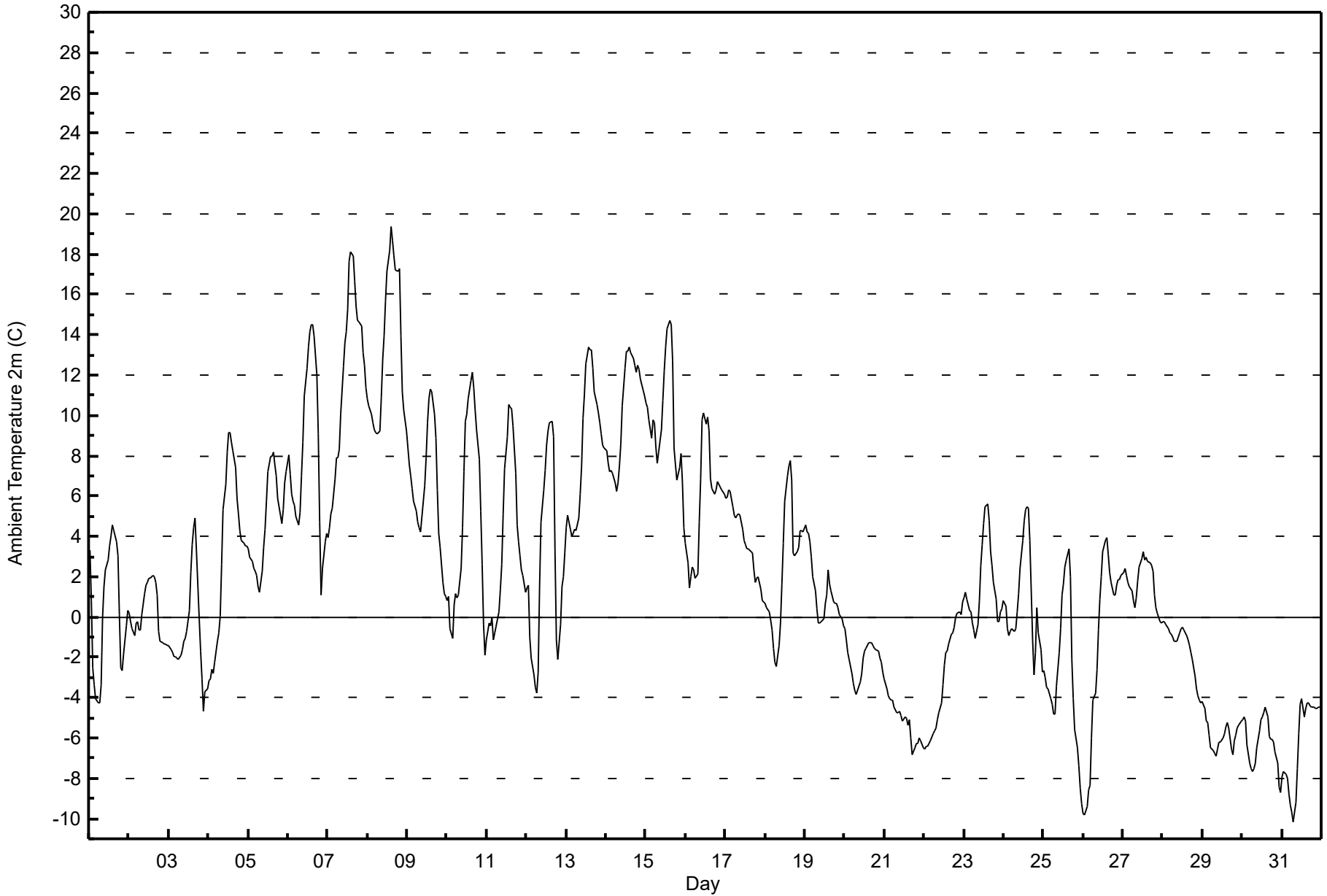
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C

Wapasu - October 2024

Maximum Value: 19.4 C on Oct 8 15:00		Maximum Daily Average: 13.3 C on Oct 8		Hours in Service: 744																							
Minimum Value: -10.2 C on Oct 31 08:00		Minimum Daily Average: -6.3 C on Oct 30		Hours of Data: 744																							
Maximum Diurnal Average: 5.9 C at hour 15		Minimum Diurnal Average: -0.2 C at hour 7		Hours of Missing Data: 0																							
Monthly Average: 2.25 C		Percentiles: P <sub>1</sub> = -9.0 P <sub>10</sub> = -5.2 Q <sub>1</sub> = -1.8 Median = 1.6 Q <sub>3</sub> = 6.3 P <sub>90</sub> = 10.5 P <sub>99</sub> = 17.2		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	3.3	0.8	-2.5	-3.4	-4.0	-4.2	-4.3	-3.3	0.0	1.5	2.3	2.8	3.6	4.0	4.6	4.3	3.8	3.0	0.1	-2.5	-2.7	-1.9	-0.4	0.4	0.2	4.6	
2-Oct	0.2	-0.2	-0.6	-0.9	-0.3	-0.2	-0.6	-0.6	0.1	1.1	1.6	1.8	1.9	1.9	2.1	2.0	1.7	1.1	-0.7	-1.2	-1.3	-1.3	-1.4	-1.4	0.2	2.1	
3-Oct	-1.4	-1.7	-1.8	-1.9	-2.0	-2.0	-2.1	-1.9	-1.6	-1.2	-1.0	-0.7	0.3	2.2	3.6	4.4	4.9	3.3	-0.1	-1.7	-3.1	-4.6	-3.7	-3.6	-0.7	4.9	
4-Oct	-3.1	-3.1	-2.6	-2.8	-2.3	-1.2	-0.8	0.0	2.6	5.3	6.6	8.2	9.2	9.2	8.7	8.3	7.4	5.9	5.1	4.3	3.8	3.6	3.5	3.5	3.3	9.2	
5-Oct	3.4	3.0	2.8	2.4	2.3	2.0	1.5	1.2	2.3	3.5	4.4	5.8	7.2	8.0	7.9	8.2	7.5	7.0	5.9	5.1	4.6	5.3	6.7	7.2	4.8	8.2	
6-Oct	8.1	7.0	6.1	5.8	5.5	4.9	4.6	5.2	7.0	8.7	11.0	12.4	13.4	14.1	14.5	14.5	13.9	12.0	9.1	4.7	1.1	2.4	3.8	4.1	8.1	14.5	
7-Oct	4.0	4.5	5.1	5.4	6.9	7.9	7.9	8.3	10.0	12.4	13.6	14.2	15.3	17.6	18.1	17.9	16.6	15.4	14.7	14.7	14.4	13.1	12.5	11.4	11.7	18.1	
8-Oct	10.8	10.5	10.0	9.7	9.3	9.2	9.1	9.2	10.9	12.7	13.9	15.7	17.2	18.2	19.4	18.7	17.9	17.2	17.2	17.3	14.0	11.2	10.3	9.2	13.3	19.4	
9-Oct	8.4	7.6	7.0	6.4	5.8	5.2	4.7	4.4	4.2	5.0	6.5	7.9	9.6	10.8	11.3	11.2	10.1	8.9	6.3	4.2	3.5	1.7	1.2	1.0	6.4	11.3	
10-Oct	0.8	1.0	-0.6	-1.0	0.6	1.2	1.0	1.1	2.4	4.4	7.2	9.7	10.1	10.8	11.8	12.1	11.4	10.3	9.3	7.8	5.3	2.6	-0.4	-1.9	4.9	12.1	
11-Oct	-1.1	-0.3	-0.4	0.0	-1.1	-0.8	-0.1	0.2	1.4	2.6	5.1	7.4	8.9	10.6	10.4	10.3	9.5	7.2	4.5	3.7	3.0	2.3	2.0	1.2	3.6	10.6	
12-Oct	1.5	1.6	-1.0	-2.0	-2.9	-3.5	-3.8	-2.7	1.5	4.7	6.3	7.3	8.5	9.2	9.6	9.7	8.9	3.3	-1.2	-2.1	-0.4	1.5	2.0	3.2	2.5	9.7	
13-Oct	4.4	5.0	4.3	4.0	4.1	4.3	4.3	4.9	6.1	7.5	9.9	11.0	12.6	13.4	13.3	13.3	12.4	11.2	10.5	10.1	9.7	9.1	8.5	8.4	8.4	13.4	
14-Oct	8.2	7.6	7.2	7.3	7.2	6.7	6.2	6.7	7.5	8.6	10.5	12.4	13.2	13.2	13.4	13.1	12.8	12.5	12.2	12.5	12.3	11.8	11.3	10.9	10.2	13.4	
15-Oct	10.6	10.4	9.8	8.8	9.8	9.6	8.5	7.6	8.2	9.3	10.8	12.2	13.4	14.3	14.7	14.5	12.7	8.4	7.5	6.8	7.4	8.1	6.6	4.4	9.8	14.7	
16-Oct	3.6	2.7	1.5	2.0	2.5	2.3	1.9	2.1	4.7	6.8	9.8	10.1	9.6	9.9	9.2	6.8	6.4	6.1	6.3	6.7	6.6	6.5	6.3	6.1	5.7	10.1	
17-Oct	5.9	6.0	6.3	6.3	5.4	5.0	4.9	5.0	5.1	5.1	4.4	3.8	3.6	3.4	3.4	3.2	3.2	2.3	1.7	1.9	2.0	1.4	0.8	0.7	3.8	6.3	
18-Oct	0.6	0.5	0.3	-0.1	-0.6	-1.5	-2.3	-2.5	-1.4	-0.3	1.6	3.7	5.7	7.0	7.5	7.8	6.8	3.2	3.0	3.2	3.4	4.3	4.3	4.2	2.4	7.8	
19-Oct	4.6	4.2	4.1	3.7	3.0	2.0	1.3	0.4	-0.3	-0.3	-0.2	-0.1	0.7	1.1	2.3	1.6	1.3	0.8	0.7	0.6	0.4	0.1	-0.1	-0.4	1.3	4.6	
20-Oct	-0.5	-1.1	-1.7	-2.1	-2.8	-3.3	-3.7	-3.8	-3.6	-3.2	-2.8	-2.1	-1.7	-1.5	-1.3	-1.2	-1.3	-1.4	-1.5	-1.6	-1.7	-2.0	-2.2	-2.7	-2.1	-0.5	
21-Oct	-3.1	-3.5	-3.9	-4.1	-4.1	-4.1	-4.5	-4.7	-4.8	-4.6	-4.9	-5.2	-5.0	-5.0	-5.3	-5.1	-6.0	-6.8	-6.5	-6.3	-6.3	-6.0	-6.1	-6.5	-5.1	-3.1	
22-Oct	-6.5	-6.4	-6.4	-6.3	-6.2	-5.8	-5.6	-5.5	-5.1	-4.8	-4.3	-3.4	-2.4	-1.7	-1.7	-1.3	-0.9	-0.8	-0.5	0.0	0.2	0.2	0.1	0.8	-3.1	0.8	
23-Oct	1.0	1.2	0.9	0.3	0.3	-0.3	-0.6	-1.1	-0.3	0.8	2.5	3.6	4.6	5.5	5.6	4.7	3.2	2.6	1.7	0.9	-0.3	-0.2	0.3	0.4	1.6	5.6	
24-Oct	0.8	0.5	-0.6	-0.9	-0.7	-0.6	-0.7	-0.6	0.2	1.1	2.4	3.8	4.8	5.3	5.5	5.4	3.8	-1.1	-2.9	-1.7	0.5	-0.8	-1.6	-2.8	0.8	5.5	
25-Oct	-2.7	-3.0	-3.5	-3.5	-4.1	-4.3	-4.8	-4.8	-3.4	-1.8	-0.6	1.1	1.6	2.5	2.8	3.4	2.0	-2.1	-4.1	-5.6	-6.5	-7.4	-8.5	-9.3	-2.8	3.4	
26-Oct	-9.7	-9.8	-9.4	-8.6	-8.4	-6.0	-4.1	-3.8	-2.6	-0.7	0.9	2.0	3.3	3.8	3.9	3.1	2.2	1.7	1.1	1.1	1.6	1.9	1.8	2.1	-1.4	3.9	
27-Oct	2.2	2.4	2.1	1.7	1.5	1.3	0.8	0.5	0.9	1.8	2.5	2.9	3.3	2.9	3.0	2.7	2.7	2.6	2.3	1.1	0.4	0.2	-0.2	-0.3	1.7	3.3	
28-Oct	-0.2	-0.2	-0.4	-0.5	-0.8	-0.9	-1.0	-1.2	-1.2	-1.0	-0.8	-0.6	-0.5	-0.7	-0.9	-1.1	-1.4	-1.7	-2.1	-3.0	-3.6	-3.9	-4.2	-4.2	-1.5	-0.2	
29-Oct	-4.2	-4.5	-5.2	-5.2	-5.8	-6.5	-6.6	-6.8	-6.9	-6.6	-6.2	-6.2	-6.0	-5.8	-5.5	-5.2	-5.5	-6.6	-6.8	-6.2	-5.8	-5.5	-5.3	-5.2	-5.8	-4.2	
30-Oct	-5.1	-5.0	-5.2	-6.3	-7.2	-7.5	-7.7	-7.5	-7.2	-6.5	-5.7	-5.1	-5.0	-4.7	-4.5	-4.9	-6.0	-6.1	-6.0	-6.2	-6.7	-7.2	-8.4	-8.7	-6.3	-4.5	
31-Oct	-7.9	-7.6	-7.8	-8.0	-8.8	-9.4	-9.7	-10.2	-9.2	-7.5	-5.8	-4.4	-4.1	-4.9	-4.5	-4.3	-4.3	-4.4	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-6.2	-4.1	
		1.2	1.0	0.5	0.2	0.1	0.0	-0.2	-0.1	0.9	2.1	3.3	4.3	5.1	5.6	5.9	5.7	5.1	3.7	2.7	2.1	1.7	1.4	1.1	0.9	Diurnal Average	
		10.8	10.5	10.0	9.7	9.8	9.6	9.1	9.2	10.9	12.7	13.9	15.7	17.2	18.2	19.4	18.7	17.9	17.2	17.2	17.3	14.4	13.1	12.5	11.4	Diurnal Maximum	







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

**Ambient Temperature 2m (AT2) - C**  
**Wapasu - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	292	39.25	39.25
0 - 10	364	48.92	88.17
10 - 20	88	11.83	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



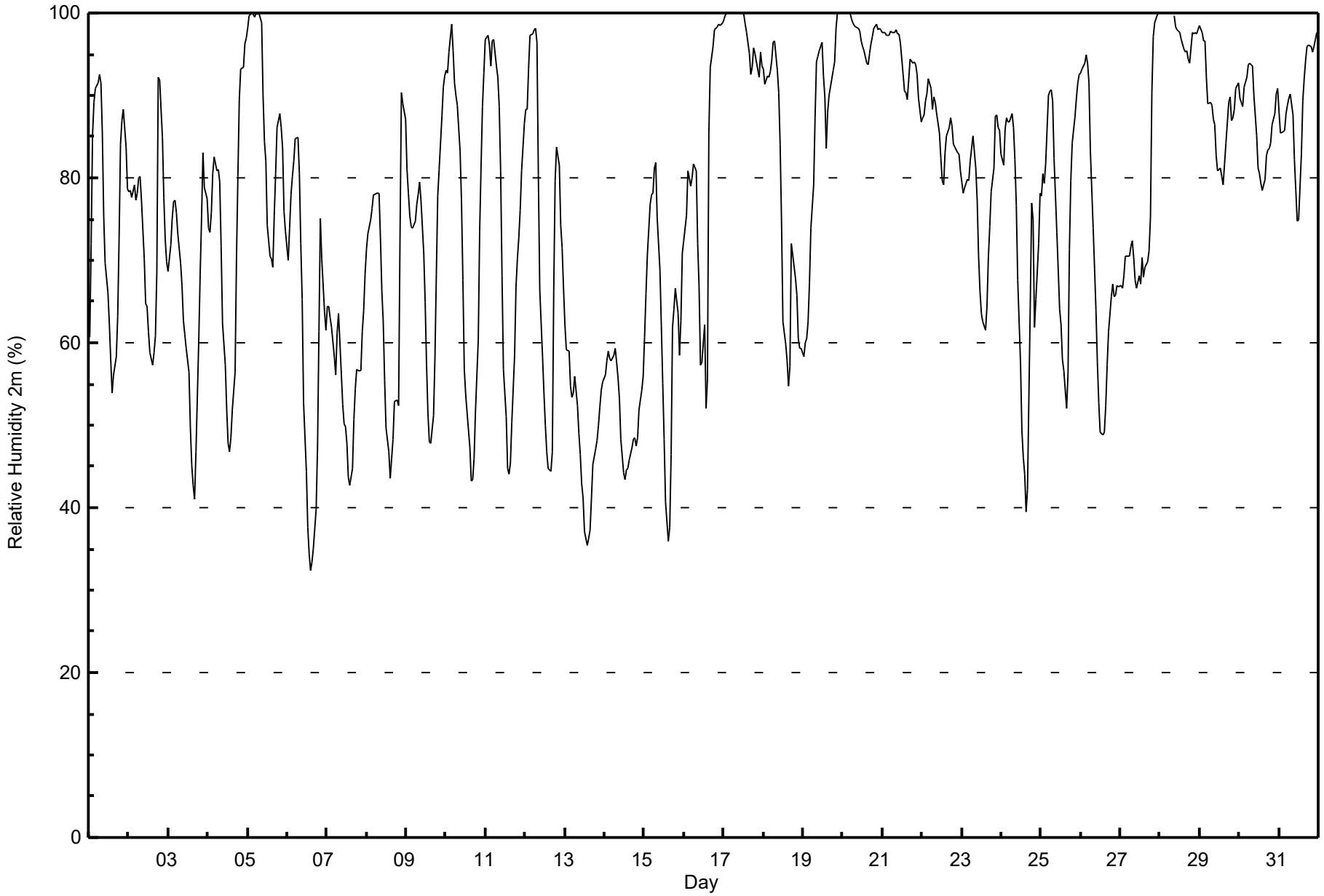
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 2m (RH2) - %

Wapasu - October 2024

Maximum Value: 100.0 % on Oct 5 06:00      Maximum Daily Average: 97.4 % on Oct 20																						Hours in Service: 744 Hours of Data: 727				
Minimum Value: 32.3 % on Oct 6 15:00      Minimum Daily Average: 48.7 % on Oct 13																						Hours of Missing Data: 17 Hours of Calibration: 0				
Maximum Diurnal Average: 84.0 % at hour 7      Minimum Diurnal Average: 60.6 % at hour 15																						Percent Operational Time: 97.7				
Monthly Average: 75.71 %      Percentiles: P <sub>1</sub> = 37.1 P <sub>10</sub> = 49.7 Q <sub>1</sub> = 61.8 Median = 78.5 Q <sub>3</sub> = 90.8 P <sub>90</sub> = 97.2 P <sub>99</sub> = 100.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	60.7	72.0	85.2	89.2	90.9	91.6	92.5	91.6	85.4	75.2	69.7	66.1	62.3	58.0	53.9	56.2	58.3	63.3	72.8	84.1	87.0	88.3	83.7	78.7	75.7	92.5
2-Oct	78.4	78.4	77.7	79.1	77.2	78.1	80.0	80.1	77.3	70.1	64.8	64.4	61.3	58.8	57.2	58.7	60.8	68.6	92.2	91.9	84.9	77.6	72.5	69.8	73.3	92.2
3-Oct	68.7	71.9	75.1	77.1	77.2	75.8	73.1	69.7	67.0	62.7	61.0	59.2	56.5	49.7	45.1	42.8	41.0	46.8	60.3	68.3	75.1	83.0	78.8	77.4	65.1	83.0
4-Oct	73.9	73.4	75.8	80.5	82.5	80.9	81.0	79.6	71.7	62.3	57.3	51.9	47.9	46.9	48.5	51.9	56.4	70.4	80.2	89.6	93.3	93.4	96.2	97.0	72.6	97.0
5-Oct	98.2	99.6	100.0	99.8	99.5	100.0	99.9	100.0	98.7	90.0	84.3	82.0	74.2	70.6	70.1	69.2	75.5	80.5	86.1	87.8	86.1	83.5	75.9	73.6	86.9	100.0
6-Oct	70.0	74.0	77.9	80.2	82.1	84.7	84.9	80.4	72.1	65.3	52.7	44.4	37.7	34.5	32.3	33.4	35.2	39.8	47.5	61.4	75.1	70.2	63.7	61.6	60.9	84.9
7-Oct	64.4	64.5	63.1	61.8	58.2	56.1	61.2	63.5	60.1	52.5	50.2	49.8	47.9	43.8	42.6	44.8	50.7	54.4	56.8	56.6	56.6	61.3	63.9	68.3	56.4	68.3
8-Oct	71.3	73.2	75.0	76.3	78.0	78.0	78.1	78.1	72.7	66.2	62.6	55.5	49.6	46.8	43.5	46.0	48.3	52.8	53.0	52.3	72.7	90.3	89.0	87.0	66.5	90.3
9-Oct	81.0	78.2	75.5	74.0	73.8	74.7	76.7	78.0	79.6	77.2	70.9	64.9	57.3	51.3	48.0	47.7	51.2	58.1	68.3	77.7	81.0	87.4	91.0	92.4	71.5	92.4
10-Oct	93.1	92.7	95.3	98.6	95.4	91.5	90.0	88.8	83.2	77.1	67.7	56.8	53.8	51.5	47.3	43.1	43.4	45.9	51.7	60.4	73.5	81.3	88.7	92.8	73.5	98.6
11-Oct	96.8	97.3	96.1	93.6	96.5	96.7	93.6	92.2	88.7	80.9	68.2	56.8	51.1	44.7	44.1	45.5	50.4	58.4	66.8	70.2	72.7	76.0	80.9	86.6	75.2	97.3
12-Oct	88.2	88.2	93.2	97.3	97.5	98.1	98.1	96.5	80.3	66.4	58.2	53.9	49.9	46.8	44.8	44.4	46.8	66.2	79.7	83.8	81.5	74.2	71.5	66.6	73.8	98.1
13-Oct	62.1	59.1	59.0	54.7	53.4	54.0	56.0	52.4	48.9	46.5	42.9	41.2	37.1	35.4	36.3	37.3	41.3	45.2	47.1	48.1	50.0	52.2	54.3	55.3	48.7	62.1
14-Oct	56.1	57.9	59.0	58.1	57.8	58.4	59.3	57.7	55.8	53.3	48.4	44.2	43.3	44.5	44.8	45.7	47.3	48.3	48.5	47.5	48.5	51.9	54.3	55.9	51.9	59.3
15-Oct	60.6	66.0	70.7	76.8	78.0	78.1	81.2	81.9	75.2	68.8	62.1	55.1	48.2	40.7	36.0	37.6	46.5	61.8	64.1	66.5	63.6	58.5	62.7	70.8	63.0	81.9
16-Oct	72.3	75.4	80.8	80.1	79.0	80.0	81.6	80.9	72.0	66.7	57.4	57.7	62.2	52.1	55.7	85.5	93.4	96.0	98.0	98.1	98.3	98.6	98.5	98.8	80.0	98.8
17-Oct	99.3	99.8	100.0	100.0	100.0	OR	OR	OR	OR	OR	OR	100.0	99.8	98.7	97.6	95.1	92.6	93.4	95.8	95.1	94.1	92.2	95.3	93.5	96.8	100.0
18-Oct	93.2	91.4	92.4	92.2	92.9	94.3	96.5	96.6	93.1	90.3	84.1	74.8	62.5	59.8	57.8	54.8	57.1	72.0	70.6	67.8	65.8	60.6	59.3	59.3	76.6	96.6
19-Oct	58.4	60.1	60.5	62.6	67.2	73.8	79.1	87.3	94.1	94.8	95.4	96.5	92.3	89.8	83.6	88.0	90.0	92.1	93.1	94.0	98.1	100.0	100.0	OR	84.8	100.0
20-Oct	OR	OR	OR	100.0	100.0	99.4	98.9	98.5	98.4	98.1	97.8	96.6	95.9	95.4	93.9	93.8	95.1	96.3	97.1	98.1	98.6	98.0	98.2	98.0	97.4	100.0
21-Oct	97.7	97.6	97.4	97.3	97.2	97.7	97.6	97.7	97.9	97.5	97.5	96.4	92.6	90.5	90.3	89.5	91.8	94.5	93.8	94.0	93.7	92.6	89.6	86.7	94.6	97.9
22-Oct	87.2	87.6	89.4	90.1	92.0	90.9	88.3	89.9	89.1	87.8	85.5	82.4	79.7	79.2	83.1	85.1	86.2	87.3	86.2	84.1	83.7	83.0	82.9	80.8	85.9	92.0
23-Oct	79.4	78.1	78.8	79.9	79.7	82.1	83.6	85.1	81.1	77.2	70.5	66.3	63.5	62.5	61.5	64.4	70.3	74.1	78.4	81.2	87.5	87.6	86.1	85.7	76.9	87.6
24-Oct	82.8	81.6	86.0	87.4	86.7	86.7	87.8	86.2	82.2	76.6	67.6	57.6	49.4	46.1	44.1	39.4	42.2	64.7	77.0	74.9	61.9	65.2	72.0	78.2	70.2	87.8
25-Oct	77.9	80.6	79.4	81.6	90.0	90.5	90.7	89.4	82.3	73.4	68.9	64.0	62.2	57.9	56.7	52.0	56.2	71.4	79.7	84.3	87.5	89.6	91.5	92.5	77.1	92.5
26-Oct	92.7	93.2	93.9	94.9	94.0	91.5	83.1	73.9	69.1	64.0	57.7	52.7	49.1	48.7	49.2	52.3	57.2	61.4	65.6	67.1	65.7	65.7	67.0	66.7	69.8	94.9
27-Oct	66.9	66.6	68.1	70.5	70.5	70.5	71.7	72.4	70.3	67.6	66.6	68.1	67.1	70.3	67.9	69.1	69.8	71.1	75.3	90.3	97.0	98.9	99.9	100.0	75.3	100.0
28-Oct	100.0	OR	OR	OR	OR	OR	OR	OR	99.6	98.3	98.0	97.9	97.6	96.8	95.6	95.3	95.4	94.5	93.9	97.6	97.5	97.6	97.5	98.0	--	100.0
29-Oct	98.4	97.6	96.6	96.6	92.1	89.0	89.2	88.8	87.1	86.5	82.7	80.9	81.2	80.1	79.2	81.7	84.3	89.2	89.9	87.0	87.3	88.3	90.9	91.5	88.2	98.4
30-Oct	89.6	89.1	88.7	91.1	92.2	93.8	93.9	93.7	93.5	90.0	85.0	81.2	80.5	79.3	78.5	79.7	82.8	83.4	83.5	84.2	86.4	87.8	90.2	90.8	87.0	93.9
31-Oct	87.9	85.4	85.5	85.7	87.8	88.8	89.6	90.1	87.6	82.1	78.5	74.8	74.9	83.0	89.4	92.0	94.3	95.9	96.2	95.9	95.2	95.9	96.8	97.7	88.8	97.7
																								Diurnal Average		
																								Diurnal Maximum		
OR - Out of Range																										





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

**Relative Humidity 2m (RH2) - %**  
**Wapasu - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	13	1.79	1.79
40 - 60	150	20.63	22.42
60 - 80	221	30.40	52.82
80 - 100	332	45.67	98.49

Total Number of Valid Hours: 727

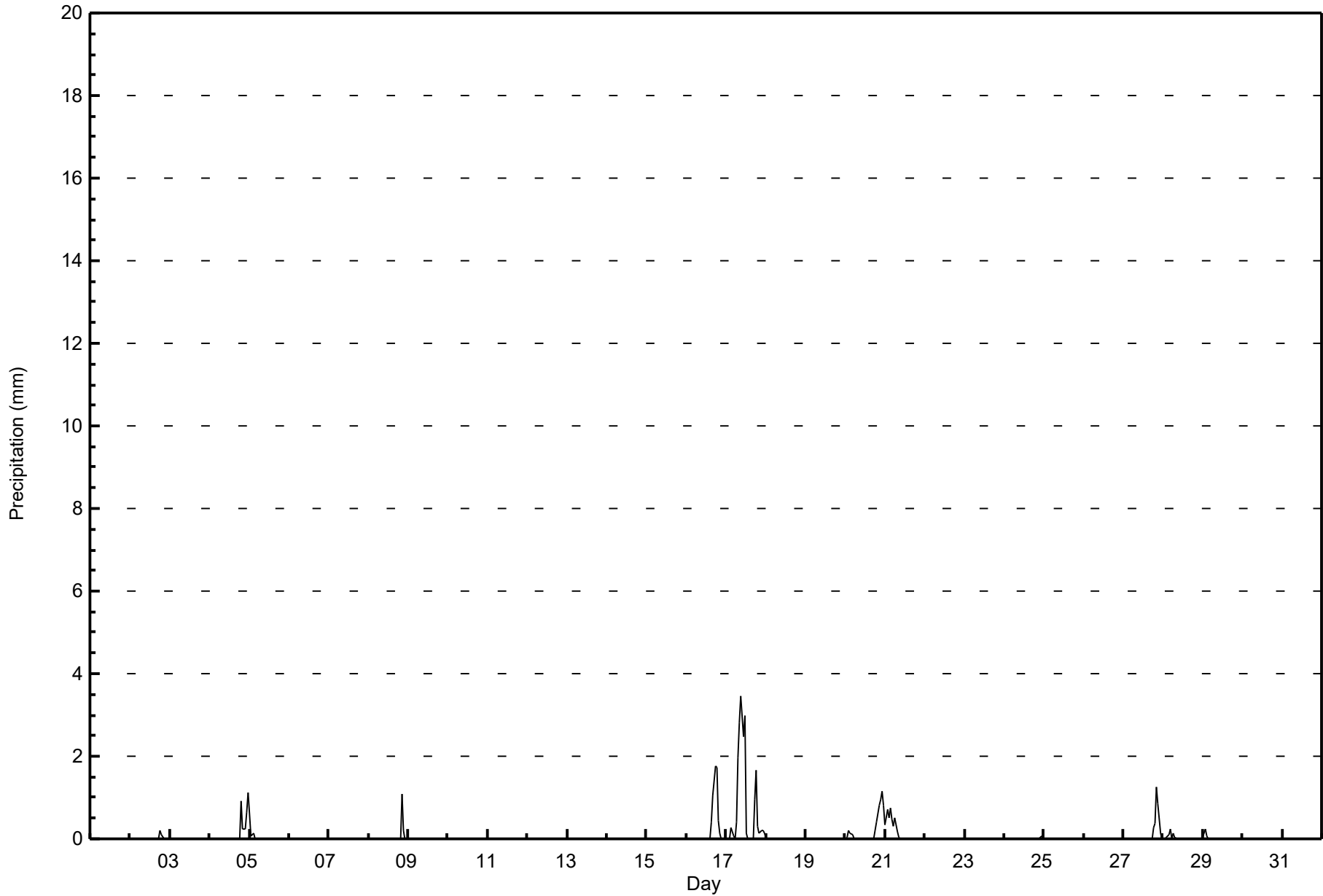
Total Number of Hours: 744





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

**Precipitation (PC) - mm**  
**Wapasu - October 2024**





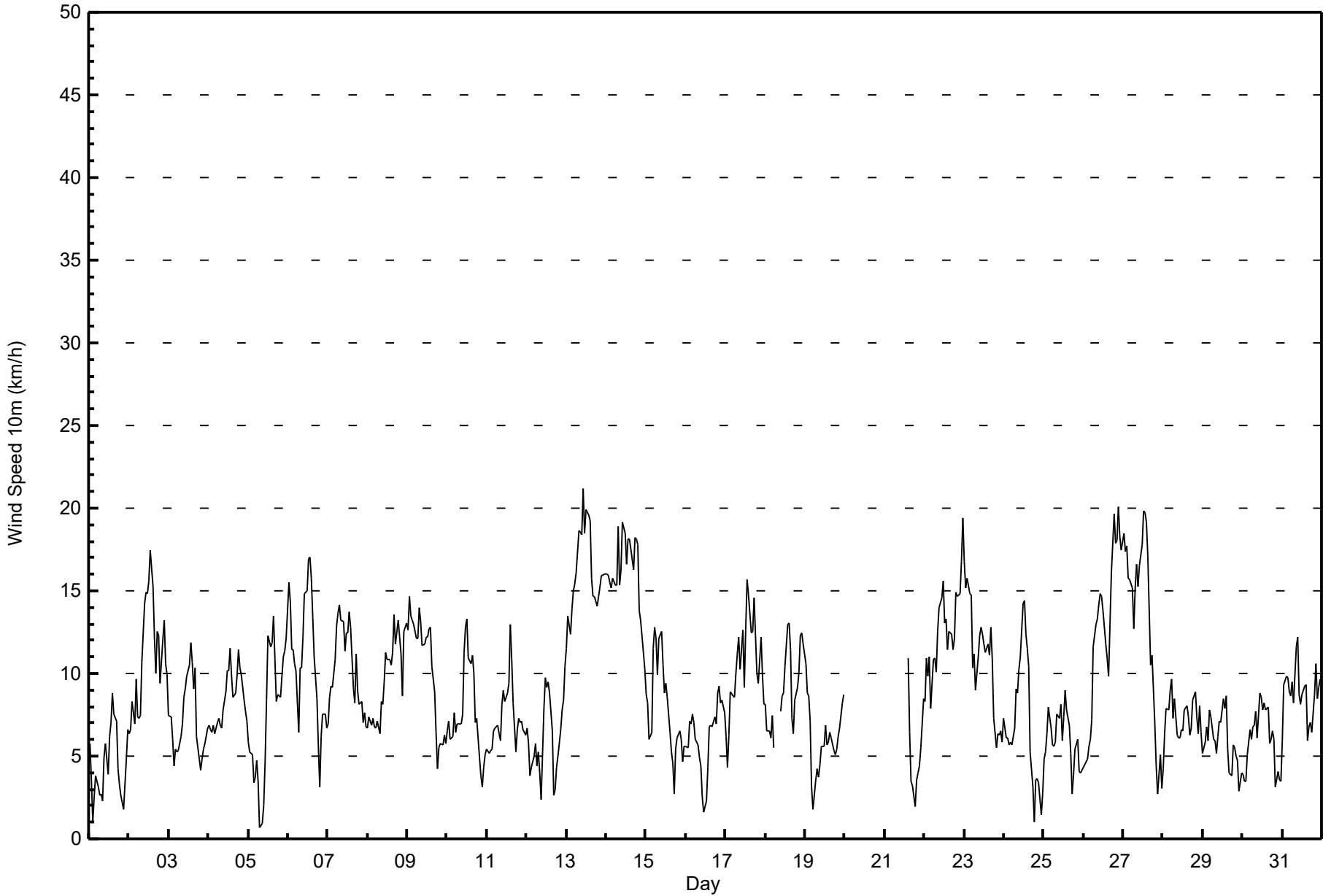
Maximum Speed: 21 km/h on Oct 13 11:00	Maximum Daily Speed Average: 16.1 km/h on Oct 13	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 5 08:00	Minimum Daily Speed Average: 1.5 km/h on Oct 12	Hours of Data: 703
Maximum Diurnal Speed Average: 5.5 km/h at hour 14	Minimum Diurnal Speed Average: 3.6 km/h at hour 18	Hours of Missing Data: 41
Monthly Average Velocity: 4.3 km/h 191.2 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 12 P <sub>90</sub> = 15 P <sub>99</sub> = 19	Percent Operational Time: 94.6

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-Oct	WSW6	WSW4	SSE1	SE3	SE4	SE3	SE3	E3	S2	WSW5	W6	NW4	NNW6	N7	NNW9	NNE8	N7	NNW4	NNE3	SE3	SE2	WNW2	NNW5	NNW7	NNW1.7	NNW9	
2-Oct	NW6	NW7	NW8	WNW7	NW10	WNW7	W7	W7	WNW11	NW14	NW15	NW15	NW16	NW17	NW15	NW12	NW10	NNW13	NNW12	NNW9	NNW12	NNW13	NW11	NW10	NW10.6	NW17	
3-Oct	NW7	NW7	NW6	NW4	NW5	NW5	NW5	NW6	NW7	NW9	WNW9	NNW10	W11	W12	WSW11	W9	WSW10	WSW6	SSW5	S4	SSE5	SSE5	SSE6	SSE7	W4.6	W12	
4-Oct	SSE7	SSE7	SSE6	SSE7	SSE6	SSE7	SSE7	SE7	SSE7	SSE8	SSE9	SE10	SE10	ESE12	ESE10	E9	E9	E10	E11	E10	E10	ENE8	ENE8	ENE7	ESE7.2	ESE12	
5-Oct	NNE6	NNE5	N5	N3	N4	N5	NW3	ENE1	S1	WSW2	W5	SW8	SW12	SW12	SW12	SW14	SW11	SSW8	SSW9	S9	S10	S11	SSW11	SSW12	SW4.6	SW14	
6-Oct	SW16	SW14	SW11	SW11	SW11	SW10	SSW6	SW10	SW10	SW12	WSW15	WSW15	WSW17	WSW17	W16	WSW13	WSW11	WSW8	SW6	SSW3	SE6	SSE8	SSE8	SSE7	SW9.5	WSW17	
7-Oct	SSE7	SSE9	SSE9	SSE9	SSE11	SSE13	SSE14	SSE14	SSE13	S13	S11	S12	S12	SSW14	SSW13	SSW9	SSE8	SSE11	SSE9	SSE8	S8	S7	S8	SSE7	S10.0	SSE14	
8-Oct	S7	S7	S7	S7	S7	S7	SSE7	SSE6	SSE8	SSE8	SSE10	SE11	SSE11	SSE11	SSE11	SSE11	SSE14	SSE12	SSE13	SSW12	W11	WSW9	SW13	SW13	S8.1	SSE14	
9-Oct	SW13	SW15	SW14	SW13	SW13	SW12	SW12	SW14	SW13	SW12	SW12	WSW12	WSW12	WSW13	WSW13	WSW10	SW9	SW6	S4	SSE6	SSE6	SSE6	SSE6	SSE6	SW9.4	SW15	
10-Oct	SSE7	SSE7	SSE6	SSE6	SSE8	S6	SSE7	SSE7	S7	S8	SW11	SW13	SW13	SW11	WSW11	WSW11	WSW10	SW7	SW7	WNN5	NNW4	SSE3	SE4	SSE5	SSW5.8	SW13	
11-Oct	SSE5	S5	SSE5	S5	SSE6	SSE7	SSE7	SSE6	S6	S8	S9	SSW8	S9	SW9	SW13	SW11	SSW8	SSW5	S7	S7	S7	S7	S7	SSE6	S6.8	SW13	
12-Oct	S7	SSW6	SSE4	SSE4	SSE5	SSE6	SSE4	SSE5	SSE4	WNN2	NNW8	NNW10	N9	NNW9	NNW9	N7	N3	E3	SE4	SE5	SE7	SE8	SE8	SSE10	SE1.5	SSE10	
13-Oct	SSE11	SSE14	SSE12	SSE14	SSE15	SSE15	SSE16	SSE19	SSE19	SSE18	SSE21	S19	S20	S20	S19	S16	SSE15	SSE15	SSE14	SSE15	SSE15	SSE16	SSE16	SSE16	SSE16.1	SSE21	
14-Oct	SSE16	SSE16	SSE15	SSE15	SSE16	SSE15	SSE15	SSE19	SSE15	SSE16	SSE19	SSE18	SSE17	SSE18	SSE18	SSE18	SSE16	SSE18	SSE18	SSE18	S14	S13	S11	S10	SSE16.0	SSE19	
15-Oct	S9	S8	S6	S6	SW12	SW13	SW12	SW10	SW15	SW12	SW13	SW11	SW9	SW9	WSW9	W6	WSW5	SSW5	SSE3	SSE5	SSE6	S7	S6	S5	S6	SSW7.0	SW13
16-Oct	S6	SSE6	SSE7	SSE7	SSE8	SSE7	SSE6	SE6	SSE5	SE4	SSE3	WNN2	NW2	S4	SSE7	SE7	ESE7	ESE7	E7	ESE9	ESE9	ESE8	ESE8	SE8	SE5.3	ESE9	
17-Oct	SE6	S4	SW6	SW9	WSW9	WSW9	SW10	WSW11	W12	W10	W13	WNN9	WSW13	WSW16	WSW15	WSW12	W13	W15	W12	W10	W9	WNN12	W10	W8	WSW9.5	WSW16	
18-Oct	WNN8	WNN7	W7	W6	WSW7	SW5	UO	UO	UO	SSW8	SSW9	S9	SSW10	SSW13	SSW13	SSW11	S7	SSE6	SSE8	SSE9	SSE10	SSE12	SSE12	SSE12	SSW6.8	SSW13	
19-Oct	SSE11	SSE9	SSE9	SSE7	SSE3	NW2	NNE4	N4	NW4	NNW4	N6	NNW6	N7	NNW6	N6	N6	NNE6	NNE5	NE5	NNE5	NNE6	N7	NNW8	N9	NNE2.9	SSE11	
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	N11	
22-Oct	SW8	SW11	SW10	SW11	SSW8	SW11	SW11	SSW10	SW13	SW14	SW15	SW16	SSW13	SSW13	SSW11	S13	SSW12	SSW11	SSW12	SSW15	SSW15	SW15	SW17	SW19	SW12.3	SW19	
23-Oct	WSW17	WSW15	SW16	WSW15	WSW15	WSW10	WSW11	SW9	SW11	SW12	SW13	SW12	SW12	SW11	SW12	SW11	SW13	SW11	SW7	S6	SE6	SSE6	S7	S6	SW10.2	WSW17	
24-Oct	SSW7	S6	S6	S6	SSW6	SSE6	SSW7	SW9	SW9	SW10	SW11	WSW14	W14	WNN12	W12	WNN10	W5	W3	WSW1	W4	NW4	N3	WSW1	NE3	WSW5.3	W14	
25-Oct	SE5	SE5	S6	S8	S7	S6	S6	SSW6	SW8	WSW7	WSW8	W6	W7	WNN9	WSW8	WSW7	SW5	SW3	SE4	SSE5	SE6	SE4	SE4	SE4	SSW3.9	WNN9	
26-Oct	ESE4	ESE5	ESE5	E6	E6	ESE7	ESE12	ESE13	ESE13	ESE14	ESE15	ESE15	ESE14	ESE12	ESE11	E10	ESE13	ESE16	ESE20	SE18	SE18	SE20	SE18	SE17	ESE12.2	SE20	
27-Oct	SE19	SE17	SE18	SSE16	SSE16	SSE15	SSE13	SE15	SE17	SE15	SE17	SE18	SE20	SE20	ESE19	SE17	SSE10	SE11	SSE9	SSE7	SSE4	NW3	NNW5	NW3	SE12.4	SE20	
28-Oct	W4	W6	WNN8	WNN8	NW9	NW10	NW7	NW8	NW6	WNN6	WNN6	NW7	NW7	NW8	NW8	NW7	NW6	NW7	NNW8	N9	N7	N6	NNW8	NNW6	NW6.8	NW10	
29-Oct	NNW5	NNW6	NNW7	NW6	WNN8	WNN7	WNN6	WNN6	WNN5	W6	W7	WSW7	WSW8	WSW8	SW9	SW5	SSW4	SSE4	SSE6	SSE6	SSE5	SE5	E3	NE4	W3.1	SW9	
30-Oct	NE4	ENE3	NE3	NNE5	NE7	NE6	NE7	NE7	NE8	NE6	ENE9	ENE9	ENE8	ENE8	ENE8	ENE8	ENE8	ENE6	ENE6	ENE7	ENE6	ENE3	NE4	ENE4	E3	ENE5.8	ENE9
31-Oct	ESE6	ESE9	ESE10	SE10	SE9	SE9	SE10	SE8	SE12	SE12	SE9	SSE8	SSE9	SSE9	S9	S6	S7	SSE7	S6	S9	S11	SSW8	SSW9	SSW10	SSE7.8	SE12	

S4.4	S4.4	S4.2	S4.6	S4.5	S4.5	S4.7	S4.8	SSW5.2	SSW5.4	SSW5.5	SW5.0	SW5.3	SW5.5	SW5.0	SSW4.0	SSW3.8	S3.6	SSE4.3	SSE4.7	SSE4.2	S3.8	S3.8	S3.8	Diurnal Average
SE19	SE17	SSE18	SSE16	SSE16	SSE15	SSE16	SSE19	SSE19	SSE18	SSE21	S19	S20	SE20	S19	SSE18	SSE16	SSE18	ESE20	SE18	SE18	SE20	SE18	SW19	Diurnal Maximum

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







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

**Wind Speed 10m (WS10) - km/h**  
**Wapasu - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	127	18.07	18.07
6 - 11	388	55.19	73.26
12 - 19	181	25.75	99.00
20 - 28	7	1.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Wapasu - October 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	6	6	7	4	5	4	16	23	10	6	4	7	5	5	11	8	127
6 - 11	15	4	6	13	10	12	20	83	54	23	41	28	19	18	26	16	388
12 - 19	0	0	0	0	0	12	14	53	8	12	41	19	9	2	7	4	181
20 - 28	0	0	0	0	0	1	3	1	2	0	0	0	0	0	0	0	7
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>	21	10	13	17	15	29	53	160	74	41	86	54	33	25	44	28	703

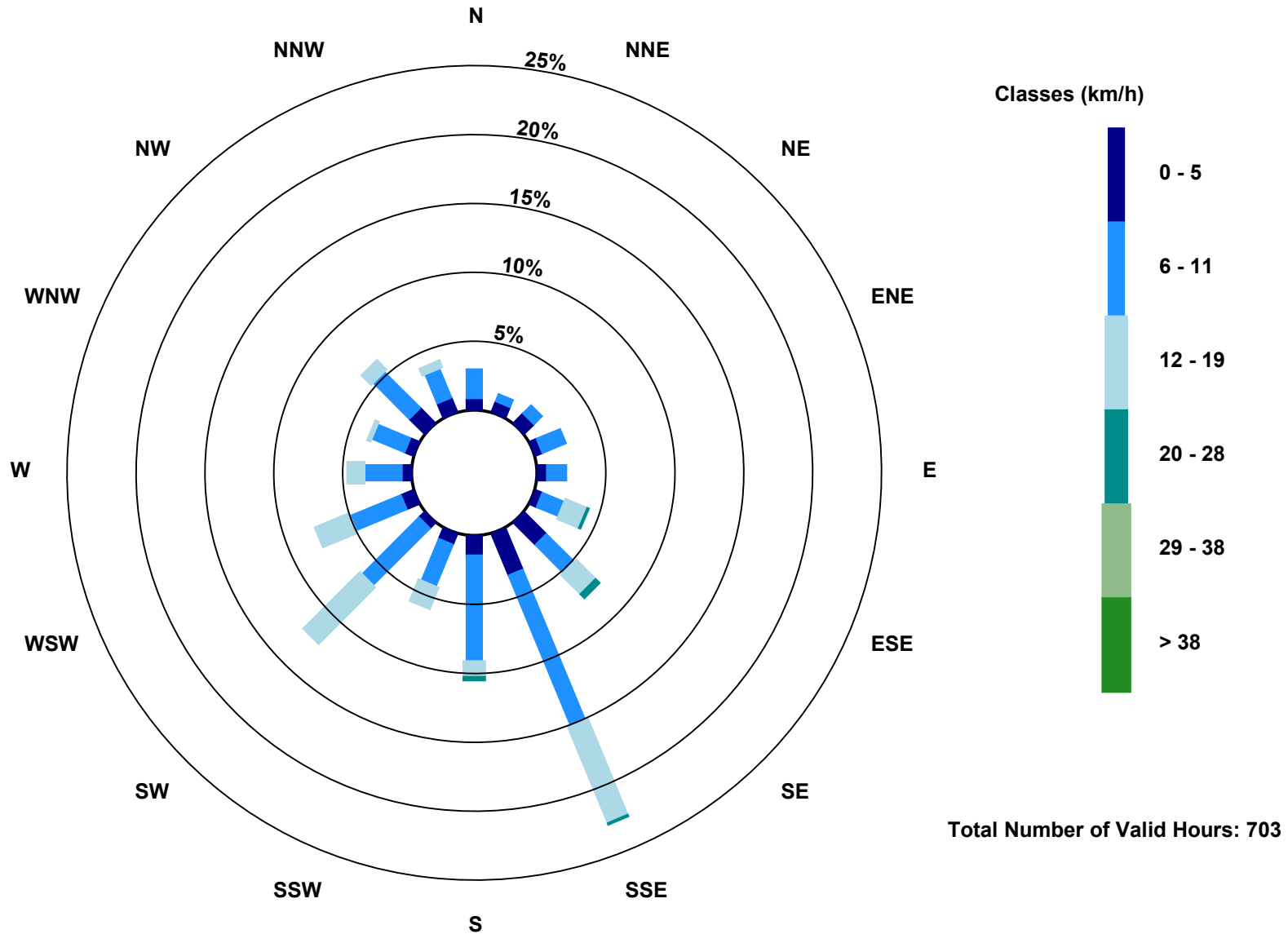
Total Number of Valid Hours: 703

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Wapasu





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

**Wind Speed 10m (WS10) - km/h**  
**Wapasu - October 2024**

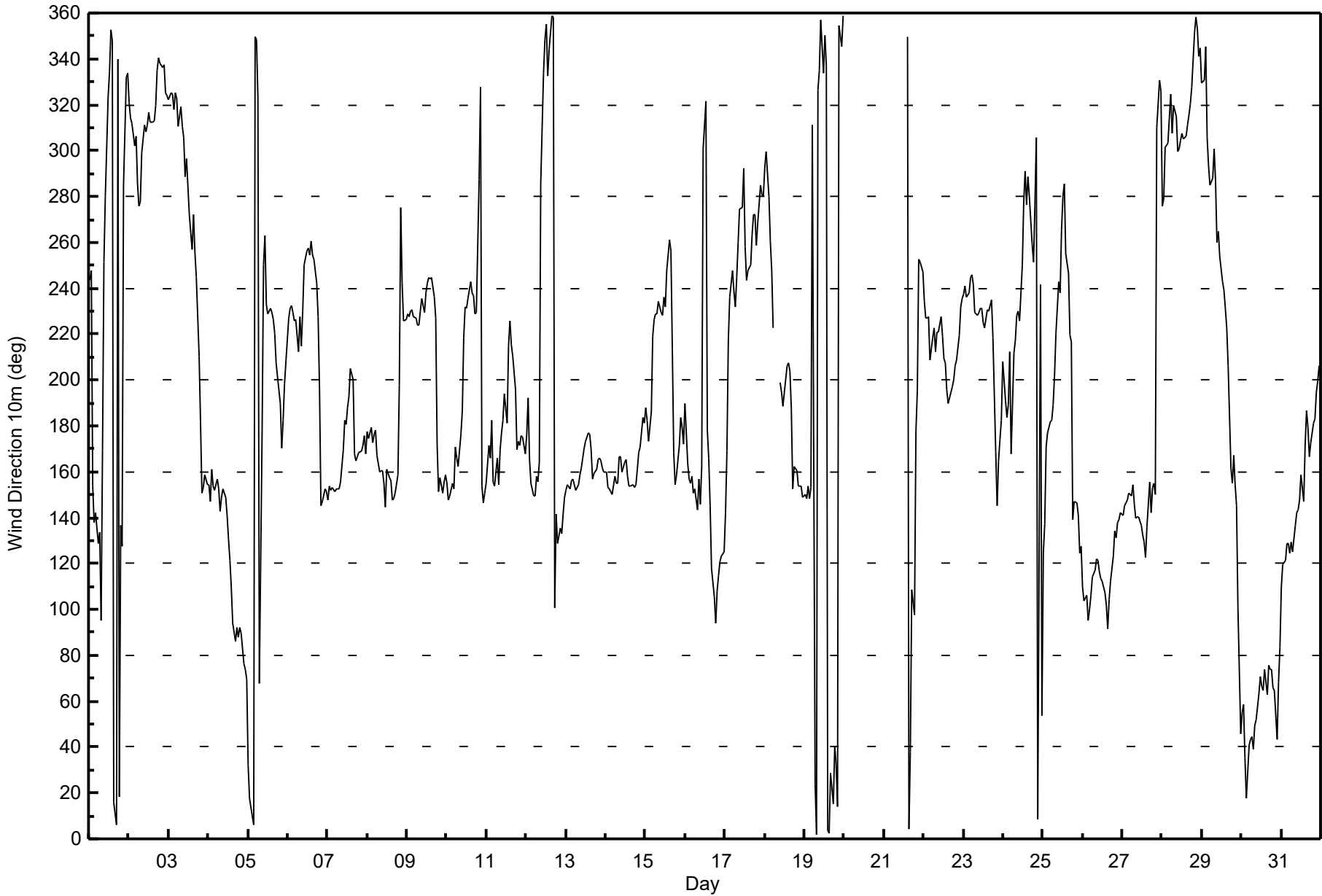
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Oct 8 21:00 Minimum Value: 0 km/h on Oct 1 08:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 5 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 703 Hours of Missing Data: 41 Hours of Calibration: 1 Percent Operational Time: 94.6																								
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-Oct	2	1	1	1	1	1	0	0	1	2	2	2	2	2	3	3	2	1	1	1	1	1	1	2	3																
2-Oct	2	2	2	2	3	3	2	2	4	5	5	5	5	6	5	4	3	4	3	2	4	3	4	3	6																
3-Oct	2	2	2	1	2	2	2	2	2	3	3	3	4	4	4	3	3	2	1	1	1	1	1	1	4																
4-Oct	1	1	1	1	1	1	1	1	1	2	3	3	3	3	4	3	3	3	3	3	3	2	3	2	4																
5-Oct	2	2	2	1	2	1	1	1	1	2	1	2	3	3	3	5	3	3	3	2	3	4	4	4	5																
6-Oct	4	3	3	3	3	3	2	2	3	3	4	5	5	6	5	4	4	2	1	1	2	1	1	1	6																
7-Oct	1	2	2	2	2	3	3	3	4	4	4	4	4	5	5	4	2	3	2	2	2	2	2	2	5																
8-Oct	2	2	2	1	2	2	2	1	2	2	3	3	3	4	3	3	4	3	4	5	8	4	3	4	8																
9-Oct	3	4	3	3	3	3	3	4	4	3	3	4	4	4	4	3	3	1	1	1	1	1	1	1	4																
10-Oct	1	1	1	1	1	1	1	1	2	2	4	3	4	3	4	3	3	2	1	2	1	1	1	1	4																
11-Oct	1	1	1	1	1	1	1	1	2	3	3	3	3	3	4	4	3	1	1	1	1	1	2	1	4																
12-Oct	2	2	1	1	1	1	1	1	1	2	3	3	3	3	3	3	1	0	1	1	1	1	1	2	3																
13-Oct	3	3	3	4	4	4	4	5	5	6	7	7	7	6	7	5	4	4	4	5	5	5	4	4	7																
14-Oct	4	4	4	4	4	4	4	6	5	6	6	6	5	5	6	5	5	5	5	6	5	5	4	3	6																
15-Oct	2	3	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2	1	1	1	2	1	1	1	3																
16-Oct	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	3	3	2	2	2	3																
17-Oct	2	1	3	3	2	2	2	3	4	4	5	4	4	4	4	4	5	5	5	3	3	4	3	3	5																
18-Oct	3	2	2	2	2	2	UO	UO	UO	3	3	3	4	4	4	4	2	1	2	2	2	3	3	3	4																
19-Oct	3	2	2	2	2	2	1	2	1	1	2	1	2	2	2	2	2	2	2	2	2	2	3	3	3																
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--																
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	3	2	2	1	1	1	1	1	2	2	3																
22-Oct	3	3	2	3	3	3	3	3	4	4	4	5	4	5	4	4	4	4	4	5	5	5	5	5	5																
23-Oct	4	4	4	4	4	3	3	2	3	3	3	3	3	3	3	3	3	3	2	2	1	1	1	2	4																
24-Oct	3	2	2	2	2	2	2	3	2	3	3	5	5	4	4	4	3	1	1	1	1	2	1	2	5																
25-Oct	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	2	1	1	1	1	1	1	1	1	3																
26-Oct	1	1	1	1	1	2	3	3	3	4	4	4	4	4	4	3	4	5	6	6	6	6	5	5	6																
27-Oct	5	5	5	4	4	4	4	4	4	5	5	5	6	6	6	5	4	4	3	2	2	1	1	1	6																
28-Oct	1	2	3	3	3	3	2	3	2	2	2	2	3	2	2	2	2	2	2	3	2	2	2	2	3																
29-Oct	1	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	1	1	3																
30-Oct	1	1	1	2	2	2	2	2	2	2	3	3	3	2	3	2	2	2	2	2	1	1	1	1	3																
31-Oct	1	2	3	3	2	2	2	2	3	3	3	2	3	4	3	2	2	3	2	3	4	3	3	3	4																
																	5	5	5	4	4	4	4	6	5	6	7	7	7	6	7	5	5	5	6	6	8	6	5	5	
																	Diurnal Maximum																								
C - Calibration																	UO - Unstable Operation																								



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

**Wind Direction 10m (WD10) - deg**  
**Wapasu - October 2024**

Direction of Maximum Speed: 166 deg on Oct 13 11:00																				Hours in Service: 744						
Direction of Maximum Daily Speed Average: 162.4 deg on Oct 13																				Hours of Data: 703						
Direction of Minimum Speed: 68 deg on Oct 5 08:00										Direction of Minimum Daily Speed Average: 1.5 deg on Oct 12										Hours of Missing Data: 41						
Monthly Average Direction: 191.2 deg																				Percent Operational Time: 94.6						
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-Oct	243	247	154	138	142	129	133	95	170	252	280	323	335	353	348	16	6	340	18	137	127	285	332	334	337.0	
2-Oct	321	314	312	302	306	286	276	278	299	311	308	311	317	313	313	313	320	335	340	338	336	338	325	324	315.8	
3-Oct	322	325	325	318	325	323	310	319	310	306	289	296	272	264	257	272	255	244	211	182	151	153	159	154	278.6	
4-Oct	154	147	161	154	152	157	152	143	149	152	149	141	131	121	109	94	86	92	88	92	90	76	74	69	119.6	
5-Oct	32	17	10	6	350	349	323	68	178	250	263	233	229	231	229	227	220	207	202	190	170	183	199	208	220.1	
6-Oct	227	231	233	229	226	226	213	228	215	230	250	256	257	255	261	254	253	242	228	196	145	147	152	151	232.6	
7-Oct	148	154	152	153	151	153	153	153	155	170	182	181	188	193	205	200	168	165	167	168	169	171	176	168	168.8	
8-Oct	178	175	179	173	176	178	167	160	161	161	155	145	161	158	156	148	148	150	159	198	275	242	226	226	175.0	
9-Oct	229	228	230	230	228	227	224	224	230	236	230	238	242	245	244	245	236	227	172	152	157	151	155	158	224.6	
10-Oct	155	148	149	155	153	171	166	163	177	187	219	232	231	236	243	238	237	229	229	287	327	154	146	151	203.4	
11-Oct	155	171	166	182	156	154	166	155	169	177	183	194	182	215	226	215	210	196	169	173	171	176	175	168	182.8	
12-Oct	176	192	165	155	149	149	158	156	164	286	334	348	355	332	344	359	358	101	141	129	135	133	142	149	128.8	
13-Oct	152	155	152	156	157	154	152	154	159	162	166	171	174	177	176	169	157	159	161	165	166	165	162	160	162.4	
14-Oct	160	153	152	151	150	158	155	155	166	167	160	164	165	158	154	154	154	153	154	161	169	171	184	181	159.6	
15-Oct	188	182	173	186	219	227	229	229	234	229	229	236	232	248	261	256	213	168	154	159	171	184	179	172	213.4	
16-Oct	190	163	157	155	158	151	153	143	157	146	163	301	322	178	166	145	118	106	94	108	115	121	123	125	139.0	
17-Oct	142	169	217	236	248	238	232	245	260	274	275	292	258	243	248	250	264	272	272	259	268	285	280	280	257.3	
18-Oct	293	299	280	261	248	223	UO	UO	UO	199	195	189	194	206	207	204	187	152	163	160	154	154	154	149	193.0	
19-Oct	150	148	154	148	153	311	24	2	326	335	357	334	350	337	4	3	29	15	40	33	14	354	345	359	15.9	
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	349	4	38	109	98	177	195	253	251	247	--
22-Oct	235	227	227	228	208	219	223	212	221	221	228	219	209	207	196	190	195	197	200	206	208	220	232	236	215.7	
23-Oct	237	241	236	238	245	246	242	229	229	229	232	231	225	223	231	230	232	235	219	169	145	165	174	182	227.4	
24-Oct	208	191	184	189	212	168	212	217	228	230	226	250	277	291	276	289	280	259	251	277	306	9	242	54	244.3	
25-Oct	124	137	171	177	182	182	189	202	220	243	238	265	280	286	255	247	220	216	139	147	146	141	124	128	202.5	
26-Oct	110	104	106	95	100	106	114	117	122	121	117	113	113	108	102	92	105	112	123	134	131	138	139	142	119.3	
27-Oct	141	145	146	148	151	150	154	146	140	141	141	137	132	129	123	136	155	142	153	155	150	310	331	326	141.8	
28-Oct	276	279	302	303	314	325	307	320	315	300	301	305	308	305	307	311	315	320	328	351	358	353	341	345	317.3	
29-Oct	329	331	345	306	294	285	288	301	287	260	265	254	243	239	231	222	206	162	155	167	154	146	100	46	259.2	
30-Oct	55	59	35	18	41	43	45	39	49	52	64	71	67	65	74	63	75	74	74	66	65	43	69	83	58.5	
31-Oct	110	120	121	129	129	125	129	125	137	142	144	147	159	147	171	187	179	166	173	181	183	195	200	206	153.2	
185.1	184.5	184.3	187.4	189.9	187.6	184.8	181.3	191.7	202.5	209.5	213.9	216.8	218.9	221.1	213.3	196.9	175.0	161.9	164.3	161.9	169.0	178.6	178.6			
Diurnal Average																										
C - Calibration      UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										





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

**Wind Direction 10m (WD10) - deg**  
**Wapasu - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 93 deg on Oct 16 12:00 Minimum Value: 5 deg on Oct 25 21:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 15 Q <sub>1</sub> = 18 Median = 22 Q <sub>3</sub> = 27 P <sub>90</sub> = 31 P <sub>99</sub> = 64		Hours in Service: 744 Hours of Data: 703 Hours of Missing Data: 41 Hours of Calibration: 1 Percent Operational Time: 94.6																							
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-Oct	21	37	77	41	20	31	14	21	35	30	43	60	38	39	33	32	29	20	32	37	26	40	18	17	77
2-Oct	20	23	26	29	26	32	27	27	28	25	28	26	25	25	25	24	23	21	18	19	17	16	21	22	32
3-Oct	22	20	23	28	26	25	27	24	28	28	29	32	34	32	32	31	29	21	17	22	10	9	10	8	34
4-Oct	9	9	14	14	13	15	15	14	17	18	24	22	24	22	25	25	27	26	24	24	24	23	22	22	27
5-Oct	29	31	27	27	27	21	22	64	77	47	35	21	17	21	21	21	19	28	25	27	24	30	29	27	77
6-Oct	17	17	17	18	18	18	24	16	24	19	24	29	28	26	26	25	25	20	21	43	8	6	7	10	43
7-Oct	9	16	17	16	17	17	20	18	22	27	31	28	29	32	27	28	23	23	22	22	23	23	28	25	32
8-Oct	29	24	23	19	19	20	18	16	18	21	22	21	26	26	25	22	19	18	22	37	53	26	18	17	53
9-Oct	16	16	16	15	16	16	18	17	17	20	22	23	29	28	24	25	18	15	24	8	8	7	7	12	29
10-Oct	7	7	7	8	11	19	18	13	26	25	24	20	21	21	22	22	18	15	42	36	32	17	7	42	
11-Oct	7	11	15	22	9	9	14	13	25	27	29	30	31	31	21	24	26	21	12	16	15	18	19	13	31
12-Oct	20	29	19	10	8	8	12	11	24	63	29	28	29	33	37	35	56	20	10	12	9	11	11	15	63
13-Oct	17	19	18	19	19	19	20	20	22	23	26	29	29	28	27	21	22	23	24	24	23	22	21	29	29
14-Oct	22	19	20	20	19	21	20	21	26	27	23	26	26	21	22	21	21	20	21	24	26	28	29	29	29
15-Oct	27	27	23	23	19	16	15	17	17	19	24	27	26	32	38	29	40	35	9	10	19	22	20	15	40
16-Oct	17	12	8	9	12	11	14	11	15	18	51	93	58	27	26	22	18	21	21	22	20	19	18	21	93
17-Oct	21	34	26	19	23	17	17	21	26	29	30	29	28	19	22	22	28	28	28	27	28	28	28	30	34
18-Oct	29	29	29	26	22	23	UO	UO	UO	29	28	30	29	25	27	27	27	13	18	19	16	18	17	17	30
19-Oct	19	16	19	18	36	80	37	39	36	24	26	28	31	31	29	25	30	28	30	32	33	24	18	26	80
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	22	26	38	21	66	22	28	23	26	21	66
22-Oct	21	16	16	16	25	21	22	22	20	20	21	22	24	27	27	28	29	30	26	25	24	21	21	16	30
23-Oct	15	18	18	17	20	21	17	16	17	17	17	17	18	22	19	20	17	17	22	31	20	20	20	26	31
24-Oct	28	28	24	27	33	31	27	21	17	18	17	25	31	29	30	29	28	25	73	31	27	37	74	63	74
25-Oct	32	23	17	27	26	25	29	22	19	23	25	42	38	31	30	24	18	23	18	6	5	14	27	17	42
26-Oct	22	17	16	11	12	18	18	20	20	20	22	24	23	24	26	26	24	23	21	22	21	22	20	19	26
27-Oct	20	20	21	21	19	21	21	19	19	19	21	21	20	20	21	22	26	26	23	27	41	37	16	30	41
28-Oct	24	27	25	27	22	20	24	22	24	29	25	25	26	27	26	23	23	21	21	23	24	25	18	18	29
29-Oct	20	19	19	30	28	28	29	30	30	28	28	26	23	24	18	24	20	19	16	25	15	15	20	19	30
30-Oct	17	20	19	28	24	26	22	25	24	32	26	26	27	26	30	25	22	23	27	23	24	18	14	18	32
31-Oct	17	19	19	20	17	18	18	19	18	21	23	27	31	29	29	29	30	27	29	29	28	30	29	25	31
32 37 77 41 36 80 37 64 77 63 51 93 58 39 38 35 56 35 73 43 53 40 74 63 Diurnal Maximum																									
C - Calibration      UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS18 STONY MOUNTAIN OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
OCTOBER 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	707	35	37	99.73	2.5	0	0.7	0
TRS(ppb) Average	706	36	38	99.73	0.7	0	0.5	0
THC(ppm) Average	705	35	39	99.46	2.3	-	2.1	-
NMHC(ppm) Average	705	35	39	99.46	0.078	-	0.027	-
CH4(ppm) Average	705	35	39	99.46	2.2	-	2.1	-
O3 (ppb) Average	707	35	37	99.73	41.4	0	32.3	-
NO2 (ppb) Average	687	36	57	97.18	8.5	0	2.8	-
NO (ppb) Average	687	36	57	97.18	2.5	-	0.9	-
NOX (ppb) Average	687	36	57	97.18	8.8	-	3	-
PM2.5 (ug/m3) Average	740	2	4	99.73	9	0	4.6	0
CO(ppm) Average	707	35	37	99.73	0.3	0	0.2	0
CO2(ppm) Average	707	35	37	99.73	453.8	0	443	0
Temperature 2 m (C) Average	744	0	0	100	20.6	-	13.9	-
Relative Humidity (%) Average	691	0	53	92.88	100	-	95.3	-
Wind Speed 10 m (km/h) Average	694	0	50	93.28	16	-	12	-
Wind Speed 20 m (km/h) Average	472	2	272	63.71	23	-	18	-
Wind Direction 10 m (deg) Average	694	0	50	93.28	-	-	0	-
Wind Direction 20 m (deg) Average	472	2	272	63.71	-	-	0	-
Precipitation (mm) Total	744	0	0	100	2.8	-	9.6	-
Leaf Wetness (% of range) Average	744	0	0	100	59.4	-	27.3	-
Global Solar Radiation (W/m2) Average	744	0	0	100	570.8	-	147.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
OCTOBER 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	707	0.17	0.2	-	0	0	0	0.1	0.2	0.4	2.5
TRS (ppb) Average	706	0.34	0.1	-	0.2	0.3	0.3	0.3	0.4	0.4	0.7
THC (ppm) Average	705	2.04	0	-	2	2	2	2	2.1	2.1	2.3
NMHC(ppm) Average	705	0.005	0.01	-	0	0	0	0	0	0	0.078
CH4(ppm) Average	705	2.04	0	-	2	2	2	2	2.1	2.1	2.2
O3 (ppb) Average	707	25.85	6.3	-	4.6	17.5	21.5	26.2	30.6	33.8	41.4
NO2 (ppb) Average	687	0.63	0.9	-	0	0	0	0.4	0.9	1.7	8.5
NO (ppb) Average	687	0.31	0.5	-	0	0	0	0	0.5	1	2.5
NOX (ppb) Average	687	0.94	1	-	0	0	0.1	0.7	1.4	2.2	8.8
PM2.5 (ug/m3) Average	740	2.32	1.2	-	0.1	0.9	1.4	2.2	2.9	3.9	9
CO(ppm) Average	707	0.17	0	-	0.1	0.1	0.2	0.2	0.2	0.2	0.3
CO2(ppm) Average	707	435.23	5.6	-	424.3	428.3	430.9	434.9	438.7	443.2	453.8
Temperature 2 m (C) Average	744	3.3	5.3	-	-8	-3.2	-0.5	2.9	6.4	10.3	20.6
Relative Humidity (%) Average	691	70.76	16.8	-	31	47	60.4	70.4	84.6	94.5	100
Wind Speed 10 m (km/h) Average	694	7.2	3	-	1	4	5	7	9	11	16
Wind Speed 20 m (km/h) Average	472	11.6	4	-	1	7	9	12	14	16	23
Wind Direction 10 m (deg) Average	694	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	472	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	42.38	-	-	-	-	-	-	-
Surface Wetness (% of range) Average	744	6.25	10.4	-	0.6	1.3	1.5	1.8	4.1	21.9	59.4
Global Solar Radiation (W/m2) Average	744	66.89	120.5	-	0	0.2	0.5	0.8	81.2	257.8	570.8

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
OCTOBER 2024

MONTHLY SUMMARY

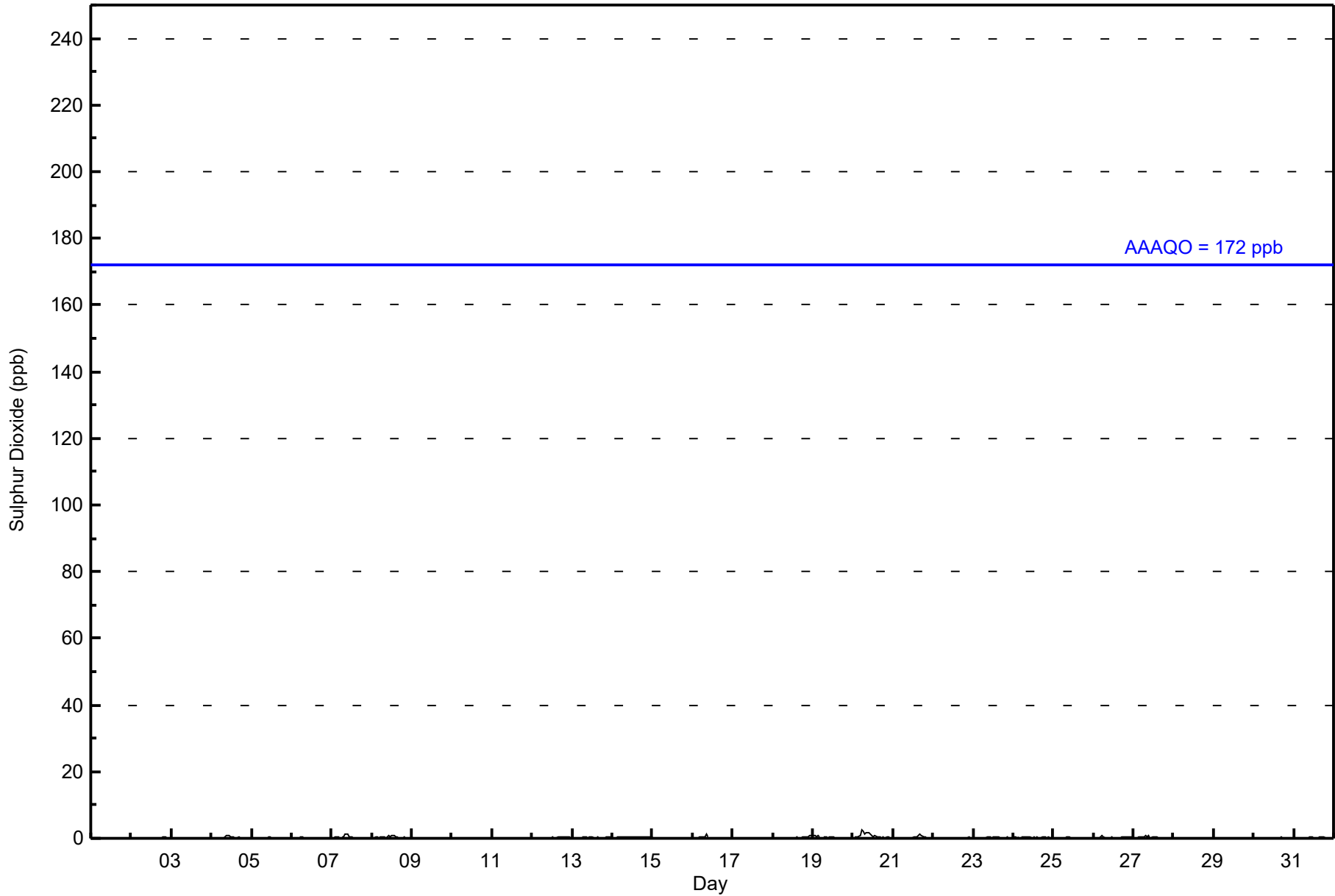
Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	17 Oct 2024 12:00	17 Oct 2024 13:00	2	Maintenance - station router replaced
THC/NMHC/CH4	14 Oct 2024 08:00	14 Oct 2024 09:00	2	Unstable Operations - excessive baseline noise
NO2	28 Oct 2024 15:00	29 Oct 2024 08:00	18	Unstable Operations - flatline in analyzer output signal
NO2	29 Oct 2024 09:00	29 Oct 2024 09:00	1	Maintenance - analyzer rebooted
Relative Humidity	05 Oct 2024 01:00	05 Oct 2024 11:00	11	Sensor operated out of range
Relative Humidity	12 Oct 2024 01:00	12 Oct 2024 04:00	4	Sensor operated out of range
Relative Humidity	16 Oct 2024 13:00	17 Oct 2024 01:00	13	Sensor operated out of range
Relative Humidity	20 Oct 2024 09:00	21 Oct 2024 09:00	25	Sensor operated out of range
Wind Speed, Wind Direction 10m	21 Oct 2024 00:00	21 Oct 2024 16:00	17	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	28 Oct 2024 06:00	29 Oct 2024 13:00	32	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Oct 2024 19:00	29 Oct 2024 19:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	02 Oct 2024 05:00	02 Oct 2024 09:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	21 Oct 2024 00:00	01 Nov 2024 00:00	265	Sensor Failure - inconsistent response





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - October 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	707	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: 707

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - October 2024**

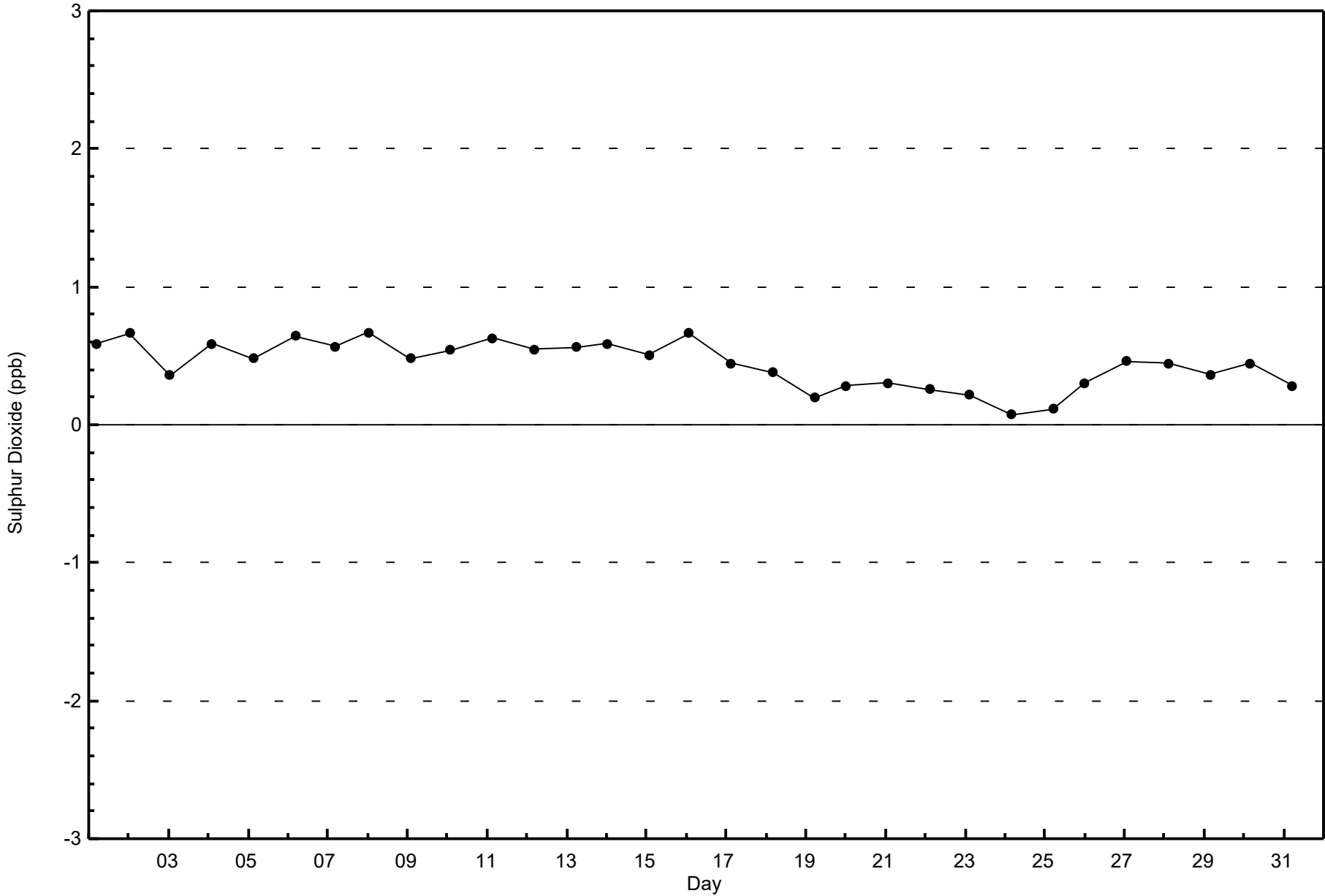
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	5	4	1	10	21	8	1	22	47	39	59	60	87	45	18	19	446
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 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>	5	4	1	10	21	8	1	22	47	39	59	60	87	45	18	19	446

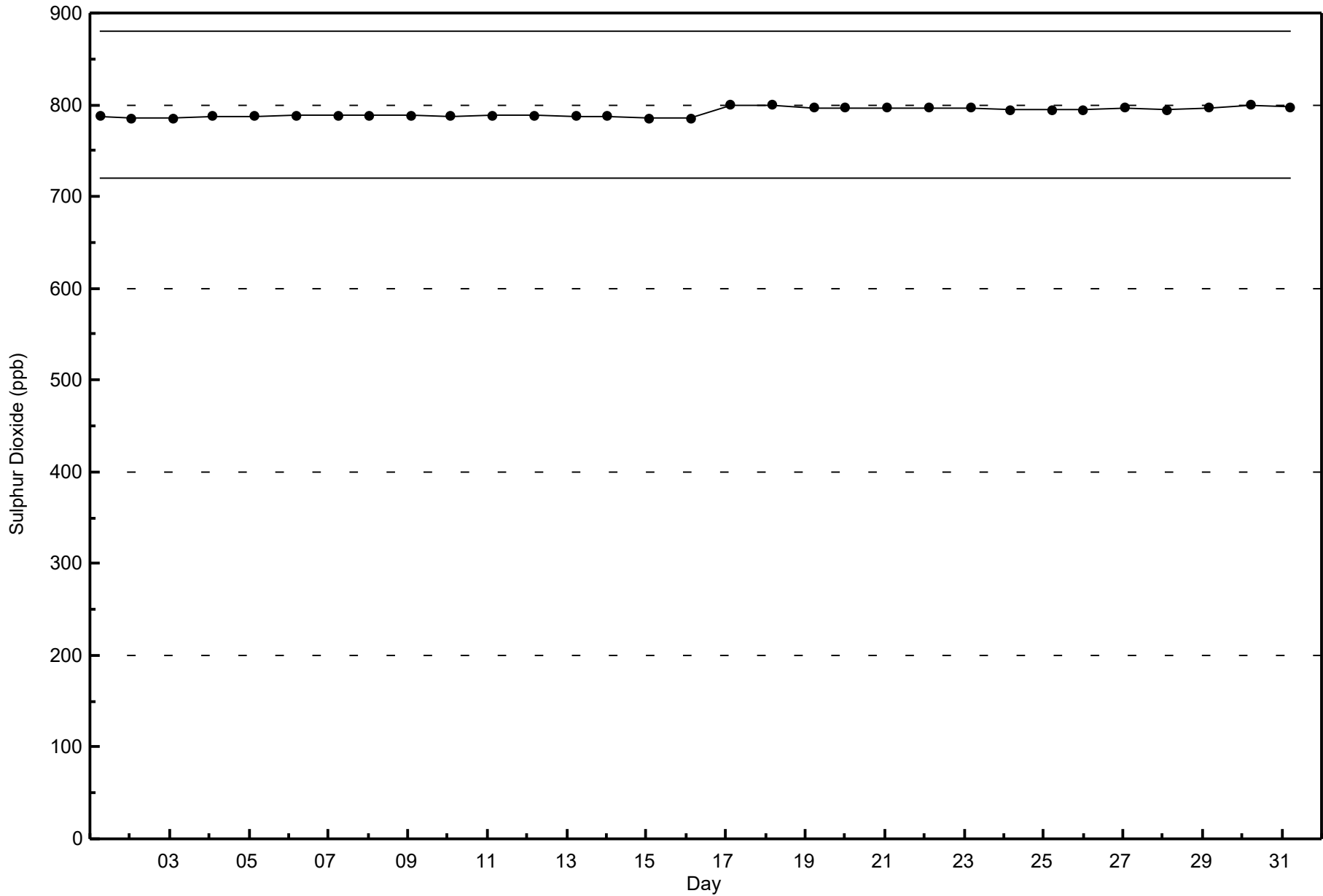
Total Number of Valid Hours: 446

Total Number of Hours: 744











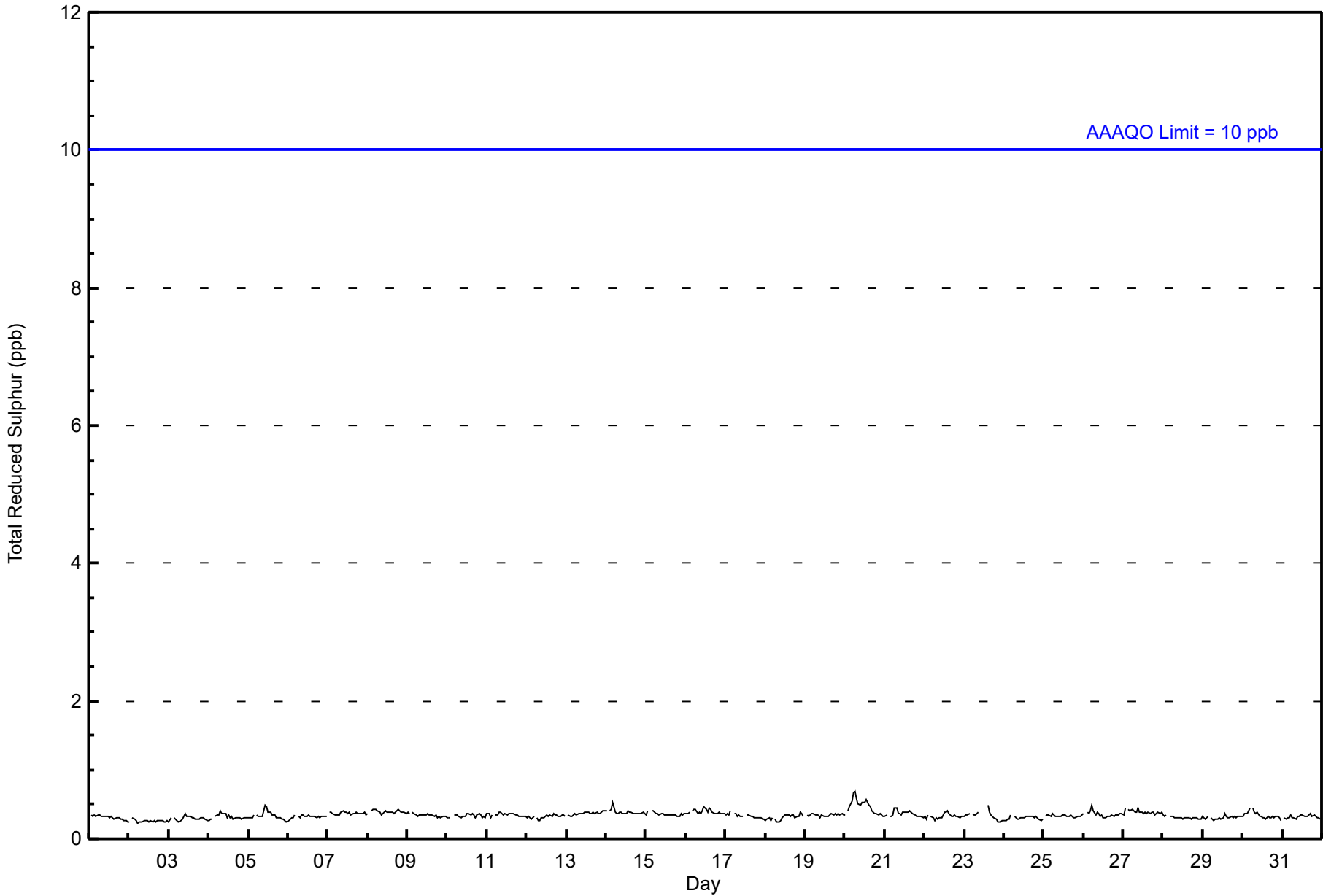
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Stony Mountain - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.7 ppb on Oct 20 07:00      Maximum Daily Average: 0.5 ppb on Oct 20		Hours in Service: 744 Hours of Data: 706 Hours of Missing Data: 38 Hours of Calibration: 36 Percent Operational Time: 99.7																								
Minimum Value: 0.2 ppb on Oct 2 06:00 Maximum Diurnal Average: 0.4 ppb at hour 6 Monthly Average: 0.34 ppb		Minimum Daily Average: 0.3 ppb on Oct 2 Minimum Diurnal Average: 0.3 ppb at hour 24 Percentiles: $P_1 = 0.2$ $P_{10} = 0.3$ $Q_1 = 0.3$ Median = 0.3 $Q_3 = 0.4$ $P_{90} = 0.4$ $P_{99} = 0.5$																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	Z	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4
2-Oct	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3
3-Oct	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
4-Oct	0.3	0.3	0.3	Z	0.3	0.4	0.3	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
5-Oct	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.5
6-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
7-Oct	Z	0.4	0.4	0.4	0.3	0.4	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	0.4	0.4	0.4	0.4
8-Oct	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	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	0.4	0.4
9-Oct	0.4	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	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	0.4
10-Oct	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4
11-Oct	0.4	0.4	0.3	0.3	Z	0.4	0.3	0.4	0.4	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	0.4
12-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
13-Oct	Z	0.3	0.3	0.3	0.4	0.4	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	0.4	0.4	0.4	0.4
14-Oct	0.4	Z	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	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
15-Oct	0.4	0.4	Z	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	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
16-Oct	0.4	0.4	0.4	Z	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	0.4	0.4	0.4	0.5
17-Oct	0.4	0.4	0.3	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	M	M	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
18-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.4
19-Oct	Z	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4
20-Oct	0.3	Z	0.4	0.5	0.6	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.7
21-Oct	0.3	0.4	Z	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
22-Oct	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
23-Oct	0.3	0.3	0.3	0.4	Z	0.4	0.3	0.4	0.4	C	C	C	C	C	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
24-Oct	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
25-Oct	Z	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
26-Oct	0.4	Z	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5
27-Oct	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
28-Oct	0.4	0.3	0.4	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
29-Oct	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
30-Oct	0.3	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
31-Oct	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
																								Diurnal Average		
																								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  
Stony Mountain - October 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  
Stony Mountain - October 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	5	4	1	11	23	8	1	22	45	41	59	61	86	45	19	19	450
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>	<b>5</b>	<b>4</b>	<b>1</b>	<b>11</b>	<b>23</b>	<b>8</b>	<b>1</b>	<b>22</b>	<b>45</b>	<b>41</b>	<b>59</b>	<b>61</b>	<b>86</b>	<b>45</b>	<b>19</b>	<b>19</b>	<b>450</b>

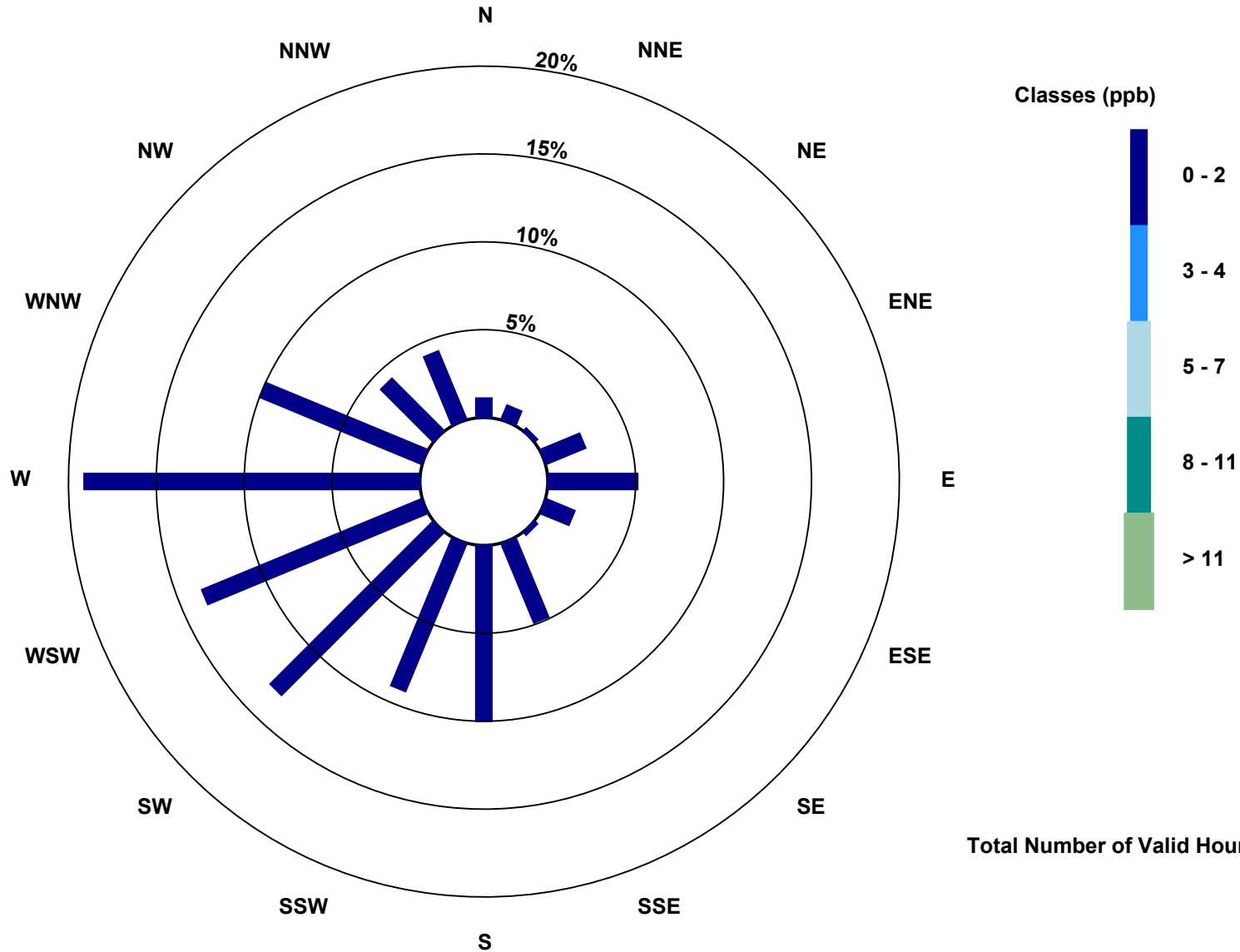
Total Number of Valid Hours: 450

Total Number of Hours: 744



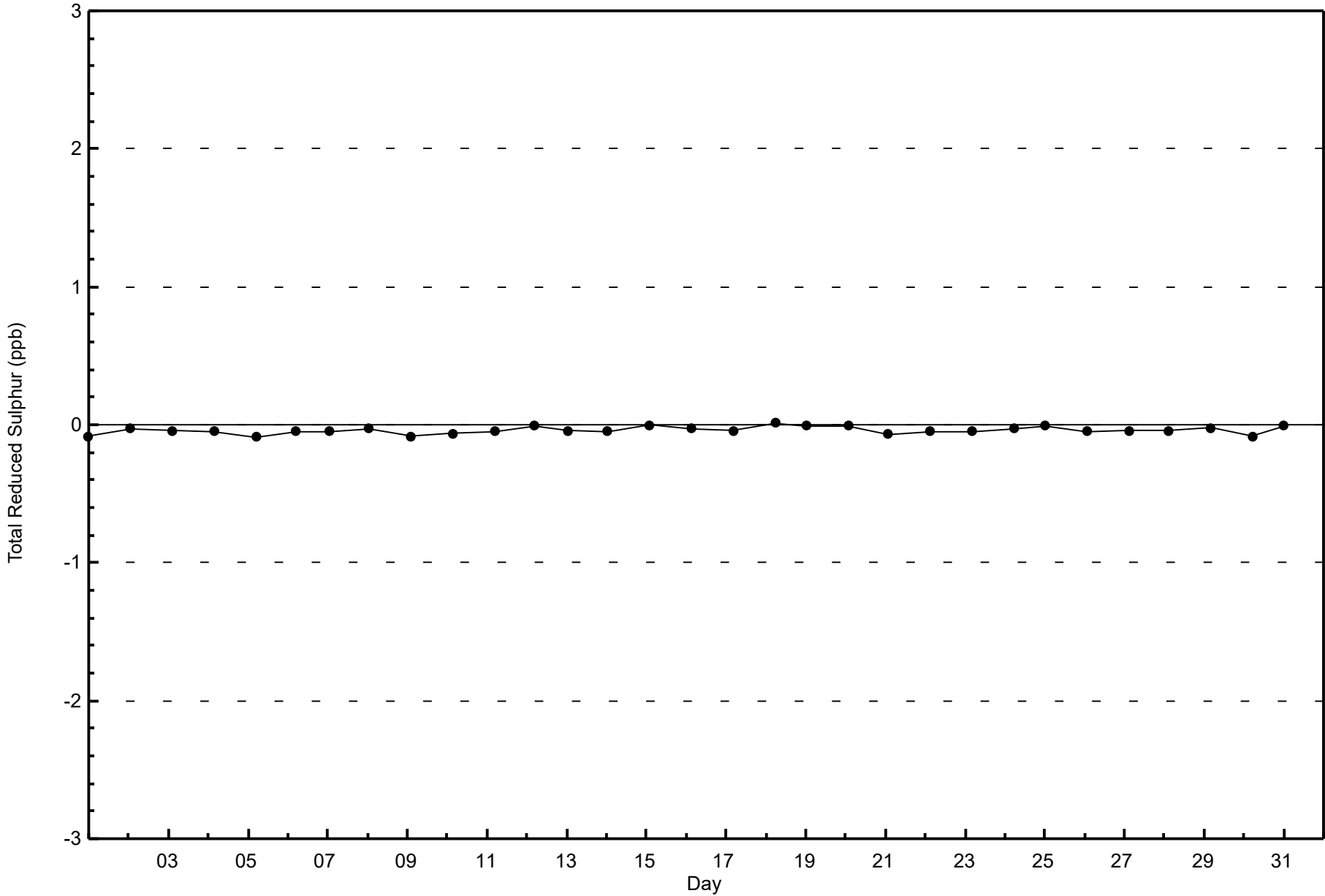
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

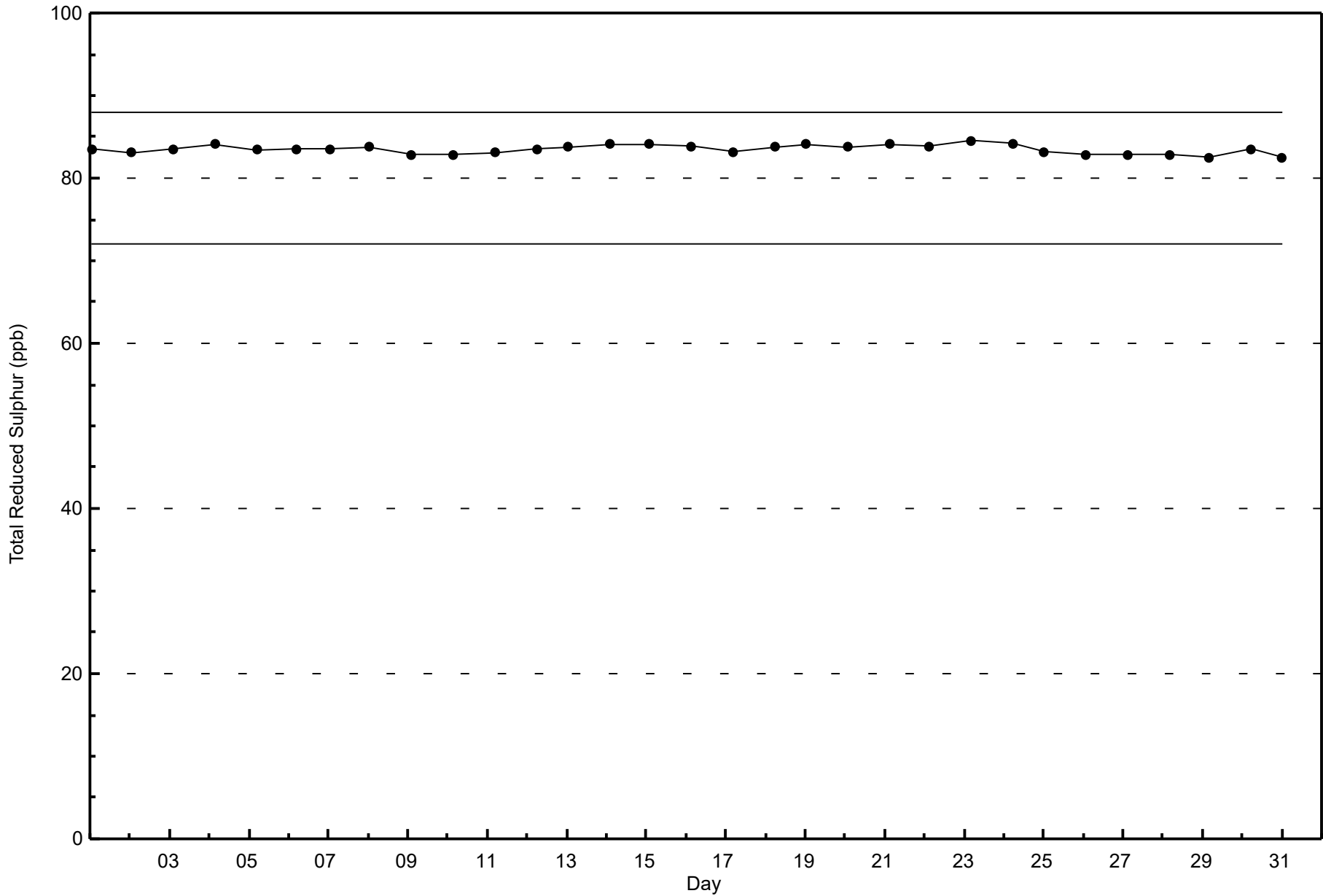
Total Reduced Sulphur (TRS) - ppb  
Stony Mountain



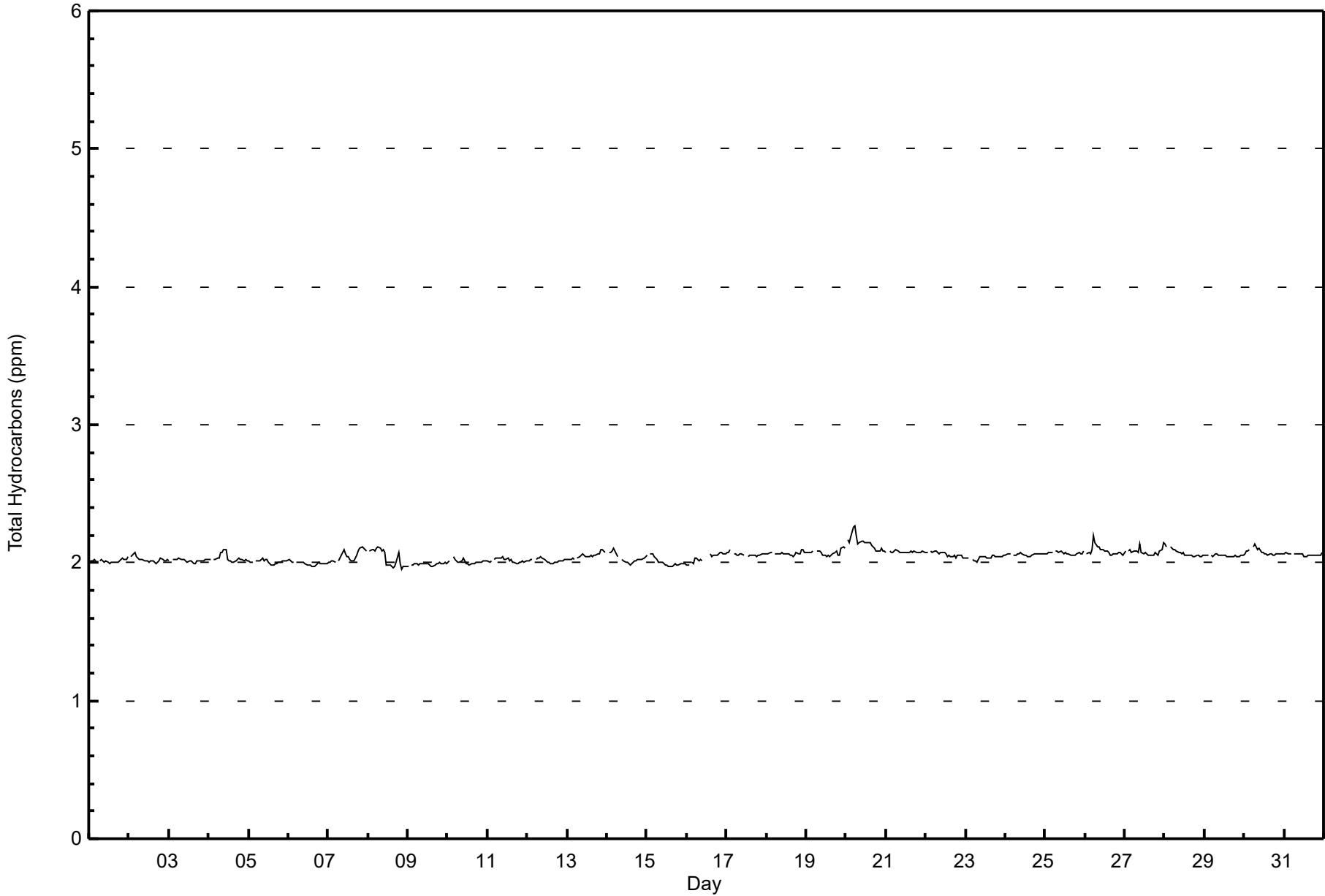
Total Number of Valid Hours: 450













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

**Total Hydrocarbons (THC) - ppm**  
**Stony Mountain - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	368	52.20	52.20
2.1 - 3.0	337	47.80	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  
Stony Mountain - October 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	3	1	8	10	1	0	10	26	29	39	44	66	43	16	13	312
2.1 - 3.0	2	1	0	2	11	7	1	12	19	10	20	16	21	2	2	6	132
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	5	4	1	10	21	8	1	22	45	39	59	60	87	45	18	19	444

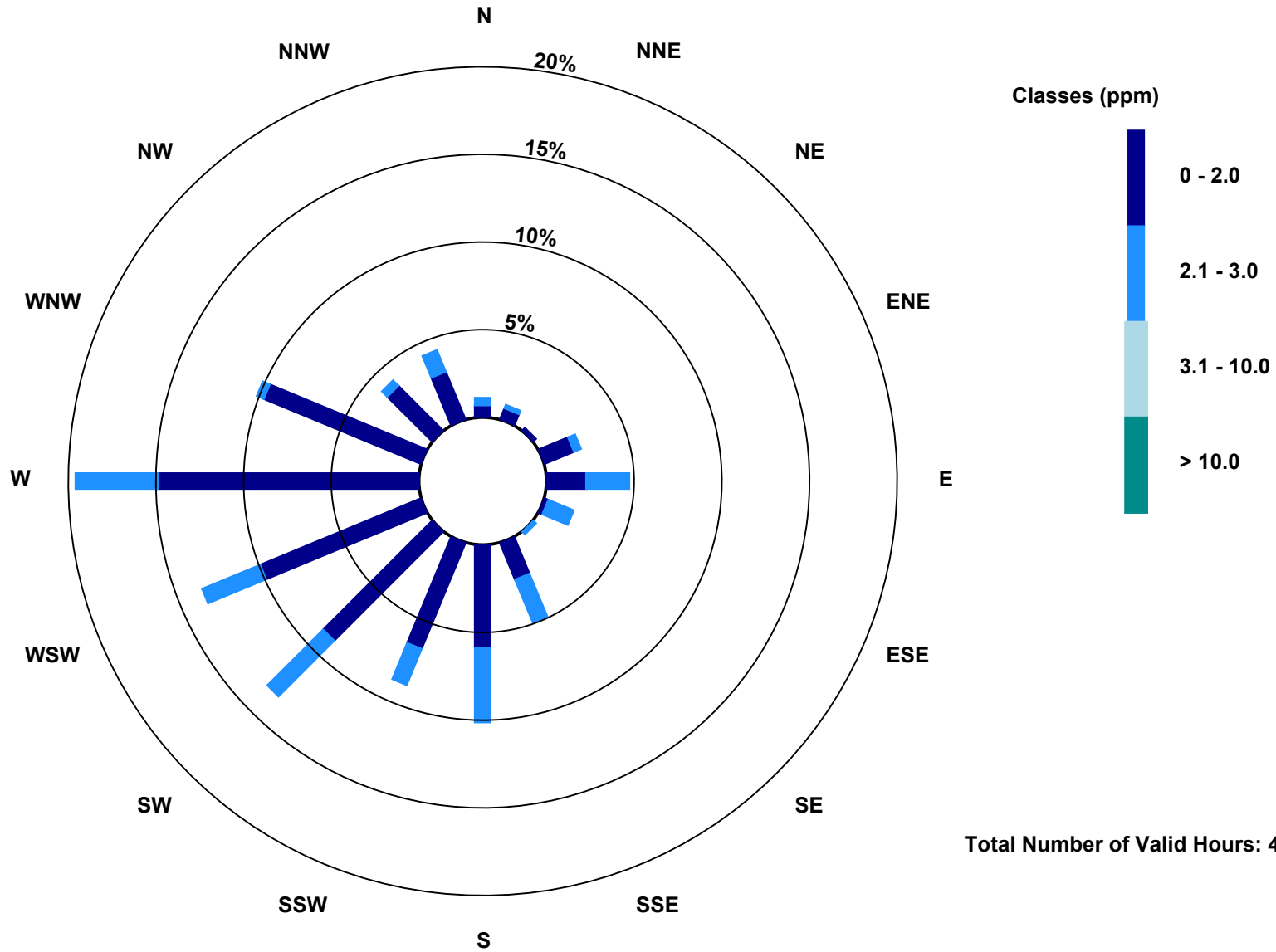
Total Number of Valid Hours: 444

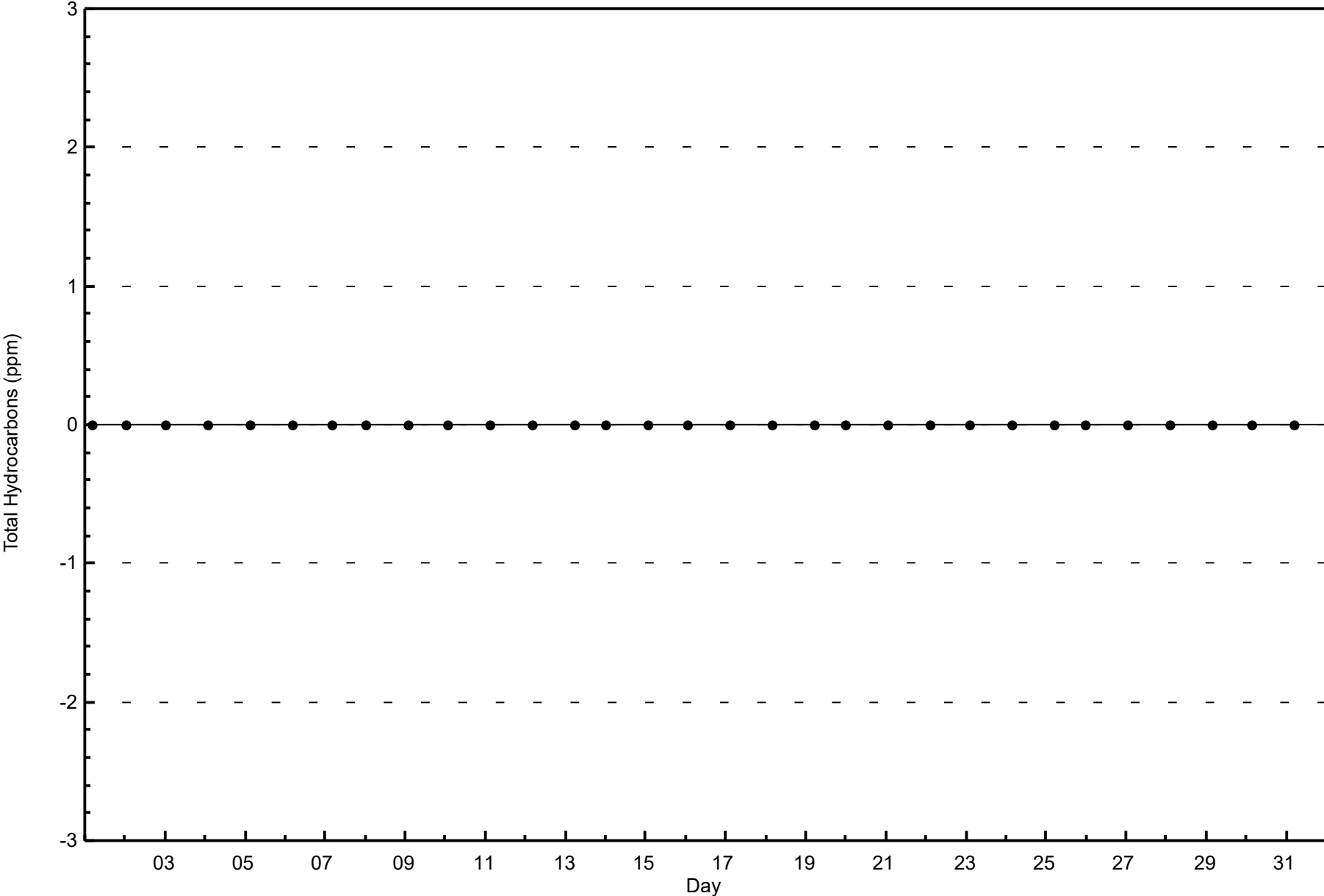
Total Number of Hours: 744



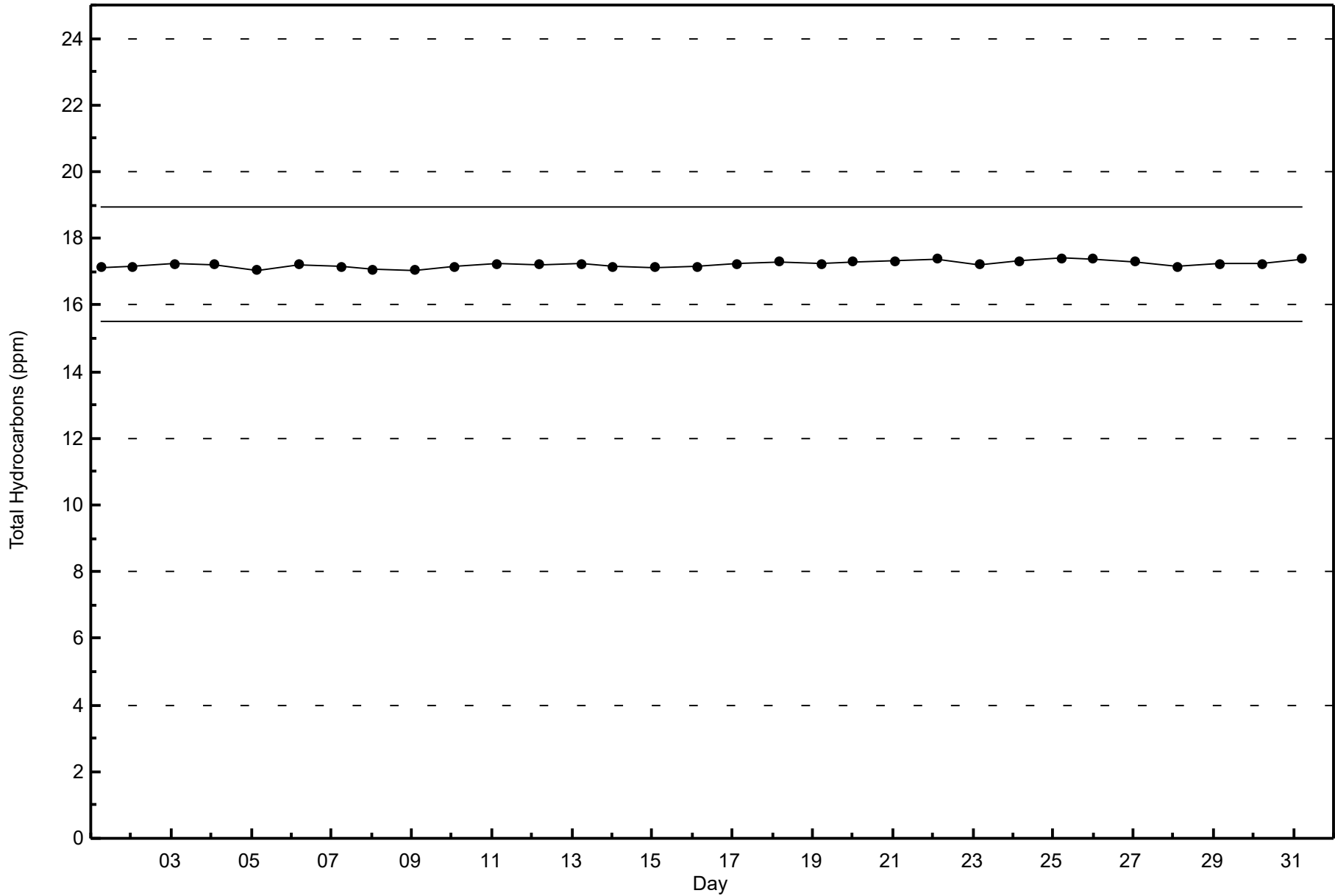
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Stony Mountain







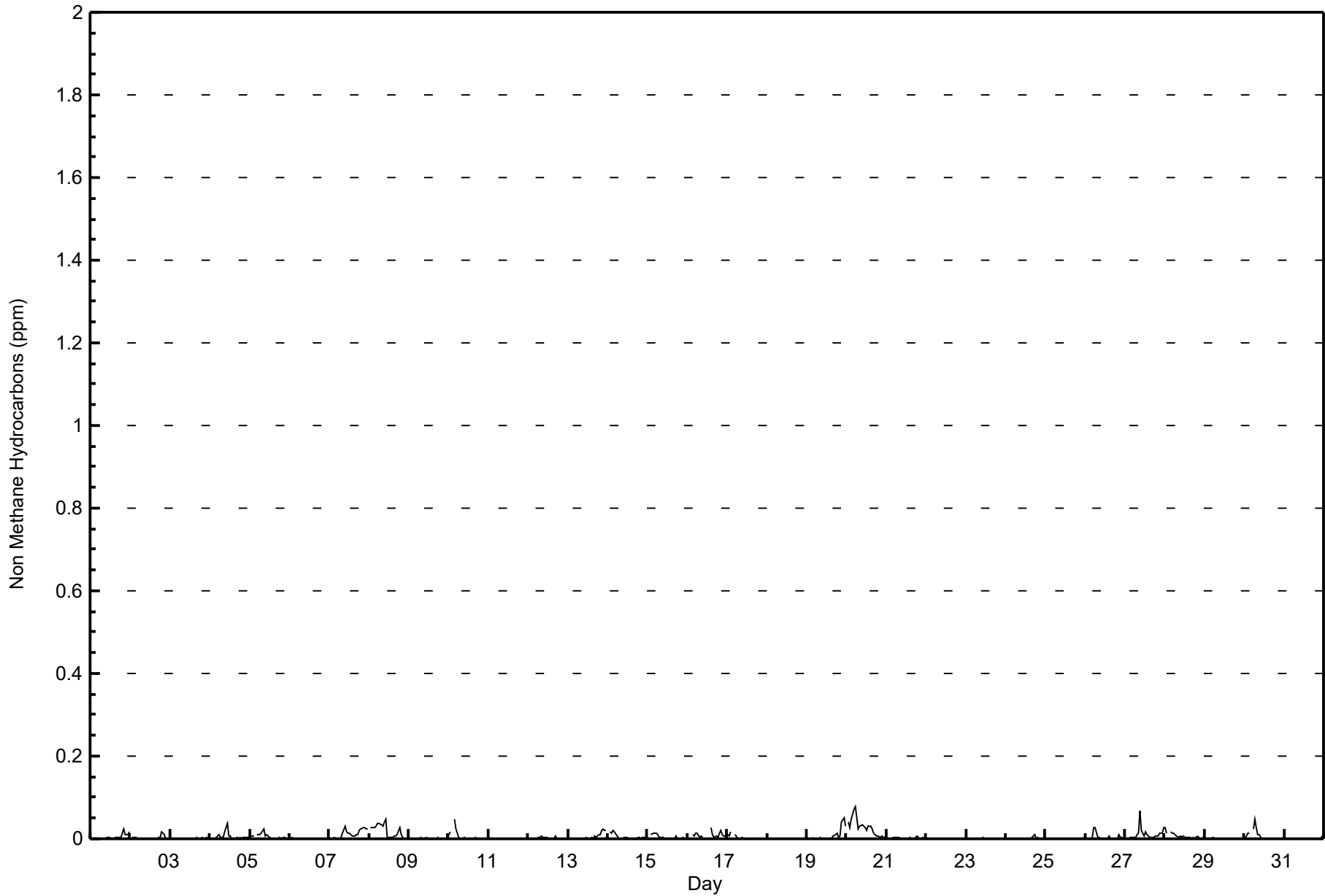




Summary of Hour Averages

Stony Mountain - October 2024

Maximum Value: 0.078 ppm on Oct 20 06:00		Maximum Daily Average: 0.027 ppm on Oct 20		Hours in Service: 744																						
Minimum Value: 0.000 ppm on Oct 1 01:00		Minimum Daily Average: 0.000 ppm on Oct 22		Hours of Data: 705																						
Maximum Diurnal Average: 0.011 ppm at hour 6		Minimum Diurnal Average: 0.002 ppm at hour 14		Hours of Missing Data: 39																						
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> = 0.0		Hours of Calibration: 35																						
				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-Oct	0.000	0.000	0.001	0.000	0.001	Z	0.000	0.001	0.001	0.001	0.002	0.002	0.000	0.001	0.002	0.002	0.003	0.002	0.003	0.015	0.022	0.009	0.010	0.016	0.004	0.022
2-Oct	Z	0.003	0.004	0.003	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.004	0.018	0.010	0.001	0.001	0.001	0.002	0.018
3-Oct	0.000	Z	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.000	0.003	0.002	0.000	0.002	0.001	0.001	0.003
4-Oct	0.001	0.000	Z	0.000	0.004	0.012	0.003	0.003	0.004	0.017	0.037	0.005	0.008	0.001	0.001	0.002	0.002	0.001	0.003	0.001	0.002	0.002	0.002	0.002	0.005	0.037
5-Oct	0.003	0.006	0.006	Z	0.012	0.010	0.011	0.014	0.025	0.007	0.010	0.008	0.004	0.001	0.000	0.000	0.000	0.001	0.004	0.002	0.003	0.002	0.001	0.001	0.006	0.025
6-Oct	0.001	0.002	0.001	0.000	Z	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.000	0.000	0.001	0.000	0.000	0.001	0.002
7-Oct	0.000	0.001	0.001	0.003	0.001	Z	0.001	0.005	0.014	0.029	0.016	0.013	0.013	0.009	0.005	0.006	0.009	0.009	0.019	0.024	0.027	0.026	0.024	0.023	0.012	0.029
8-Oct	Z	0.026	0.026	0.029	0.031	0.036	0.038	0.035	0.032	0.042	0.048	0.003	0.004	0.004	0.002	0.007	0.007	0.011	0.028	0.010	0.002	0.001	0.001	0.001	0.018	0.048
9-Oct	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.004
10-Oct	0.011	0.019	Z	0.047	0.024	0.012	0.004	0.001	0.001	0.002	0.001	0.000	0.001	0.001	0.001	0.001	0.003	0.000	0.002	0.001	0.001	0.000	0.001	0.001	0.006	0.047
11-Oct	0.000	0.001	0.001	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.002
12-Oct	0.001	0.000	0.000	0.001	Z	0.002	0.005	0.003	0.007	0.003	0.002	0.002	0.000	0.000	0.000	0.001	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.007
13-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.001	0.001	0.000	0.002	0.001	0.001	0.002	0.002	0.006	0.005	0.010	0.011	0.021	0.024	0.021	0.020	0.006	0.024
14-Oct	Z	0.017	0.015	0.020	0.018	0.008	0.002	UO	UO	0.000	0.003	0.002	0.001	0.001	0.000	0.002	0.000	0.002	0.002	0.003	0.001	0.002	0.002	0.002	0.005	0.020
15-Oct	0.003	Z	0.010	0.013	0.013	0.012	0.010	0.004	0.003	0.002	0.001	0.001	0.000	0.001	0.000	0.002	0.001	0.006	0.000	0.000	0.000	0.002	0.001	0.001	0.004	0.013
16-Oct	0.000	0.000	Z	0.009	0.005	0.013	0.014	0.004	0.006	0.004	C	C	C	C	0.027	0.012	0.005	0.005	0.005	0.014	0.022	0.011	0.008	0.007	0.009	0.027
17-Oct	0.010	0.008	0.017	Z	0.009	0.005	0.000	0.001	0.001	0.002	0.000	M	M	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.003	0.017
18-Oct	0.000	0.001	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001
19-Oct	0.001	0.001	0.001	0.002	0.003	Z	0.000	0.001	0.002	0.001	0.000	0.000	0.001	0.002	0.001	0.001	0.008	0.009	0.014	0.004	0.006	0.041	0.051	0.029	0.008	0.051
20-Oct	Z	0.040	0.029	0.047	0.070	0.078	0.052	0.025	0.029	0.035	0.031	0.026	0.022	0.029	0.032	0.024	0.015	0.010	0.008	0.008	0.005	0.008	0.004	0.002	0.027	0.078
21-Oct	0.002	Z	0.001	0.001	0.002	0.002	0.003	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.003	0.001	0.000	0.000	0.007	0.002	0.001	0.000	0.003	0.000	0.001	0.007
22-Oct	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001
23-Oct	0.000	0.000	0.000	Z	0.000	0.001	0.000	0.001	0.000	0.001	0.002	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
24-Oct	0.000	0.000	0.000	0.001	Z	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.001	0.002	0.009	0.002	0.004	0.001	0.000	0.000	0.000	0.001	0.009
25-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.004	0.000	0.004
26-Oct	Z	0.000	0.001	0.000	0.002	0.027	0.004	0.003	0.001	0.000	0.001	0.000	0.001	0.008	0.000	0.000	0.000	0.001	0.000	0.010	0.005	0.002	0.002	0.004	0.004	0.027
27-Oct	0.003	Z	0.001	0.002	0.002	0.002	0.011	0.013	0.067	0.021	0.008	0.016	0.010	0.006	0.003	0.004	0.002	0.007	0.006	0.005	0.013	0.015	0.027	0.011	0.067	
28-Oct	0.028	0.014	Z	0.015	0.015	0.012	0.010	0.008	0.005	0.006	0.003	0.006	0.002	0.002	0.003	0.003	0.001	0.002	0.001	0.006	0.004	0.001	0.001	0.002	0.006	0.028
29-Oct	0.002	0.000	0.000	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	0.002
30-Oct	0.000	0.006	0.013	0.014	Z	0.023	0.049	0.028	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.007	0.049
31-Oct	0.000	0.000	0.000	0.001	0.000	Z	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.006	0.000	0.006
																								Diurnal Average		
																								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 - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	549	77.87	77.87
0.006 - 0.05	153	21.70	99.57
0.06 - 0.1	3	0.43	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**  
**Stony Mountain - October 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	2	3	1	7	8	2	1	17	29	26	49	55	78	35	8	6	327
0.006 - 0.05	3	1	0	3	13	6	0	5	16	13	10	5	9	10	8	13	115
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	5	4	1	10	21	8	1	22	45	39	59	60	87	45	18	19	444

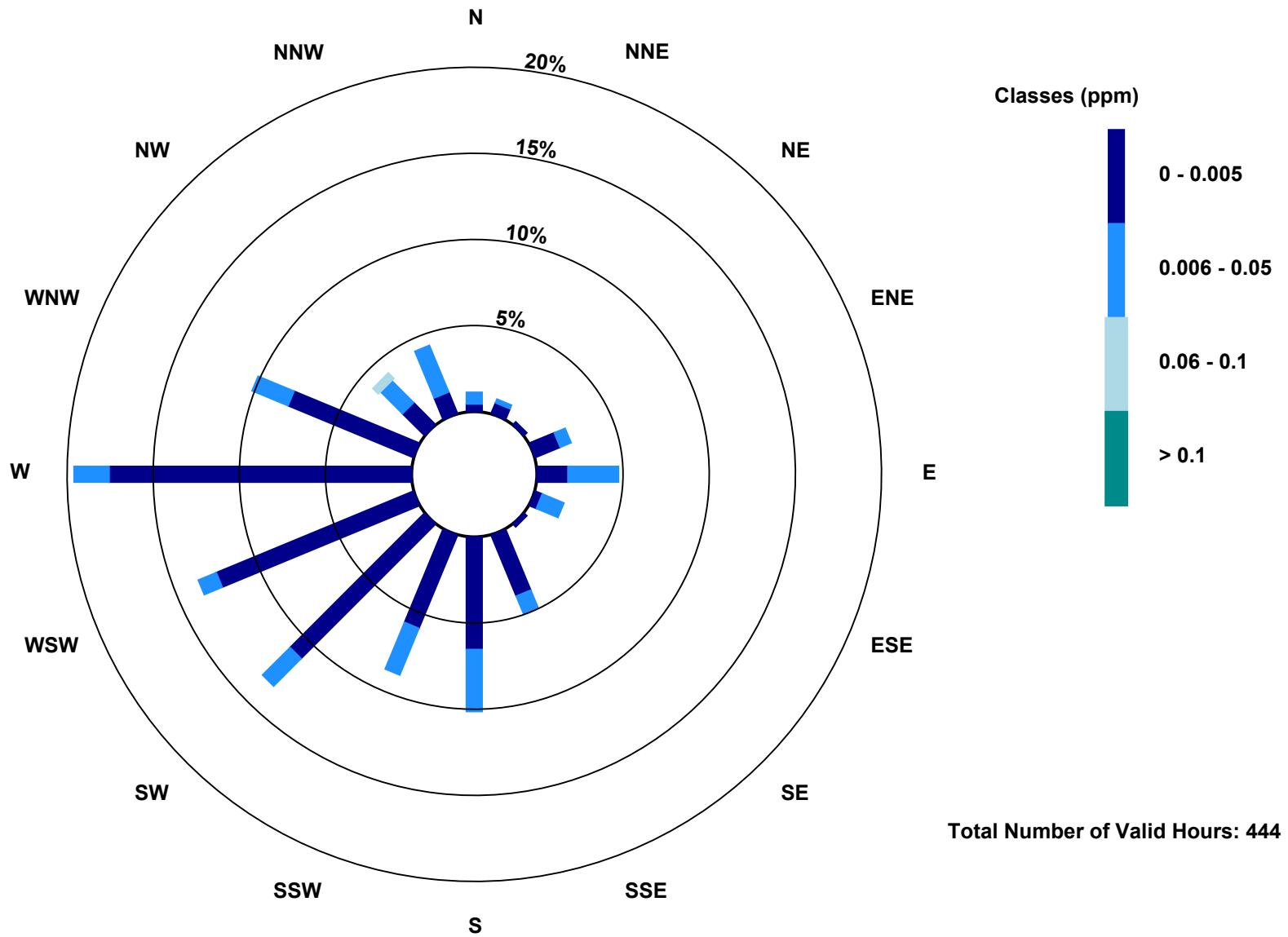
Total Number of Valid Hours: 444

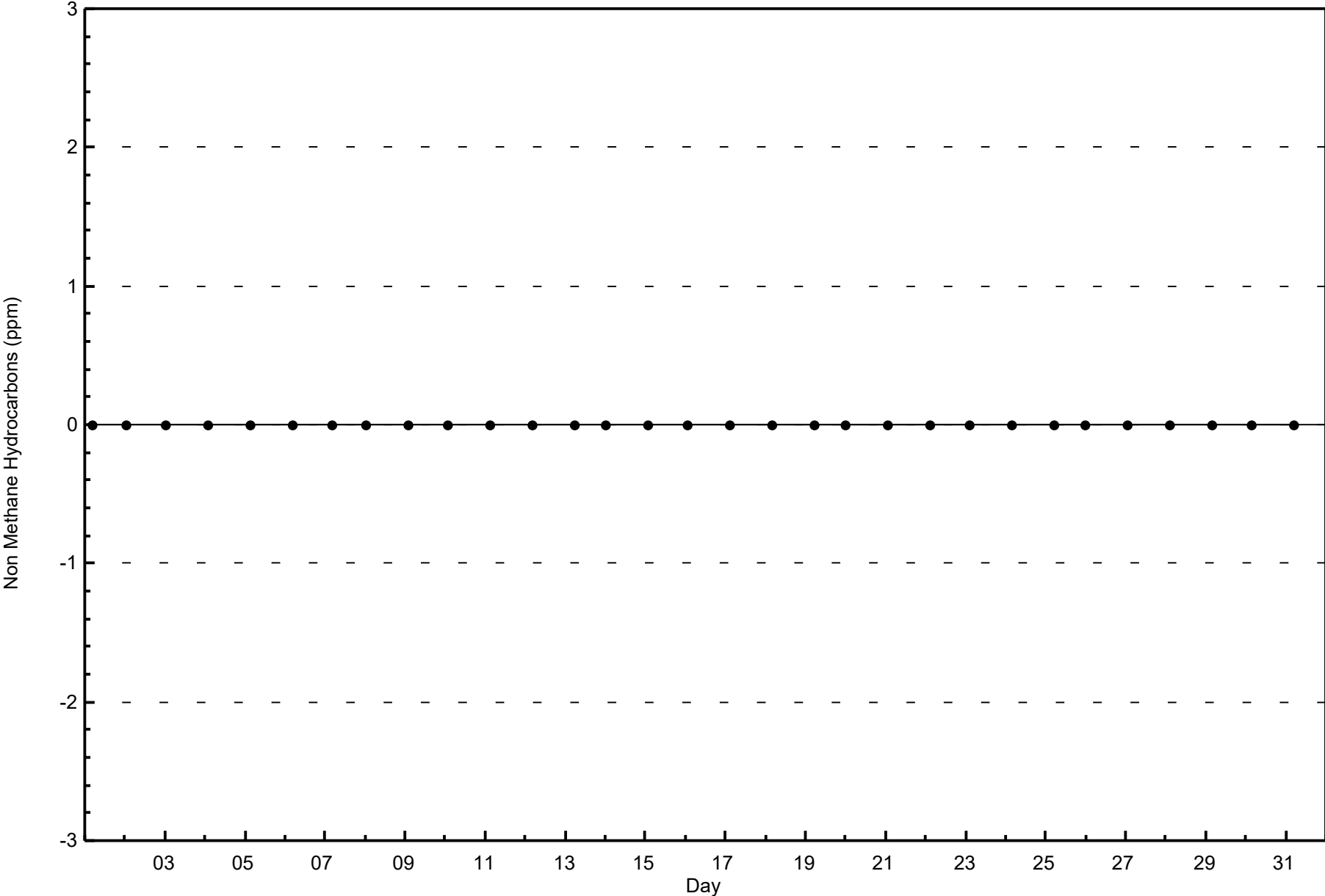
Total Number of Hours: 744

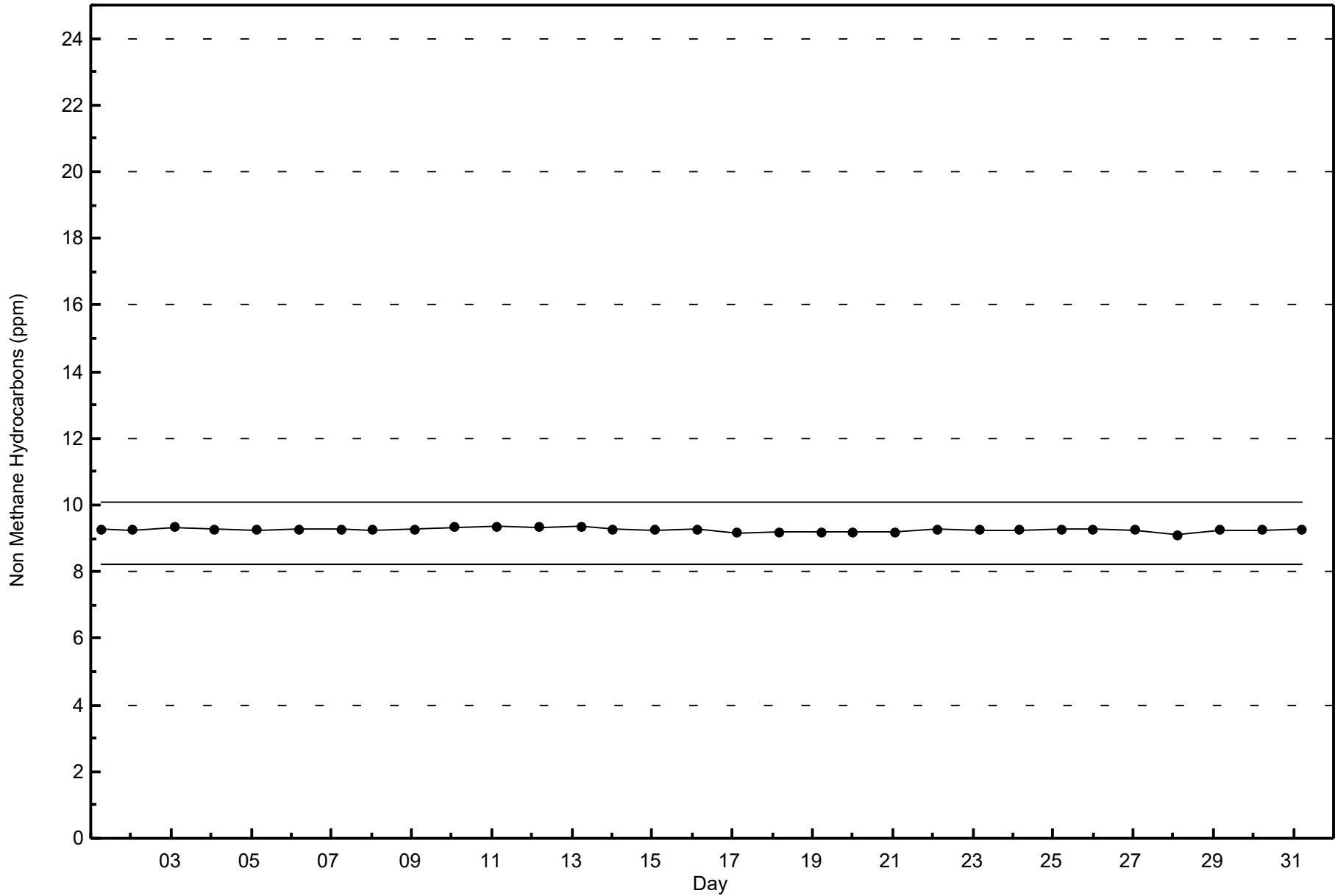


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Stony Mountain

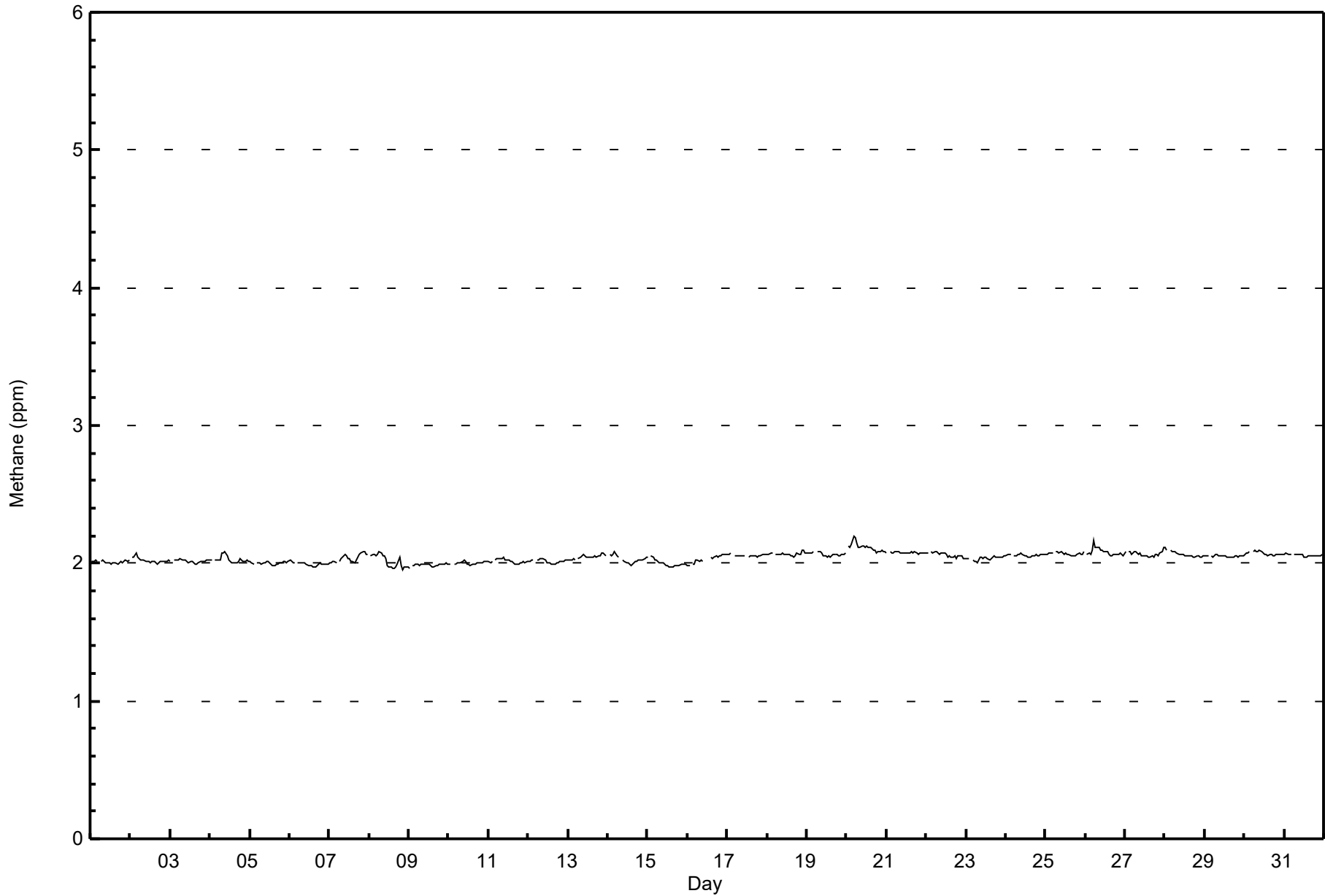














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Stony Mountain - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	379	53.76	53.76
2.1 - 3.0	326	46.24	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**  
**Stony Mountain - October 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	3	3	1	9	10	2	0	11	27	30	39	47	66	43	16	13	320
2.1 - 3.0	2	1	0	1	11	6	1	11	18	9	20	13	21	2	2	6	124
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>	5	4	1	10	21	8	1	22	45	39	59	60	87	45	18	19	444

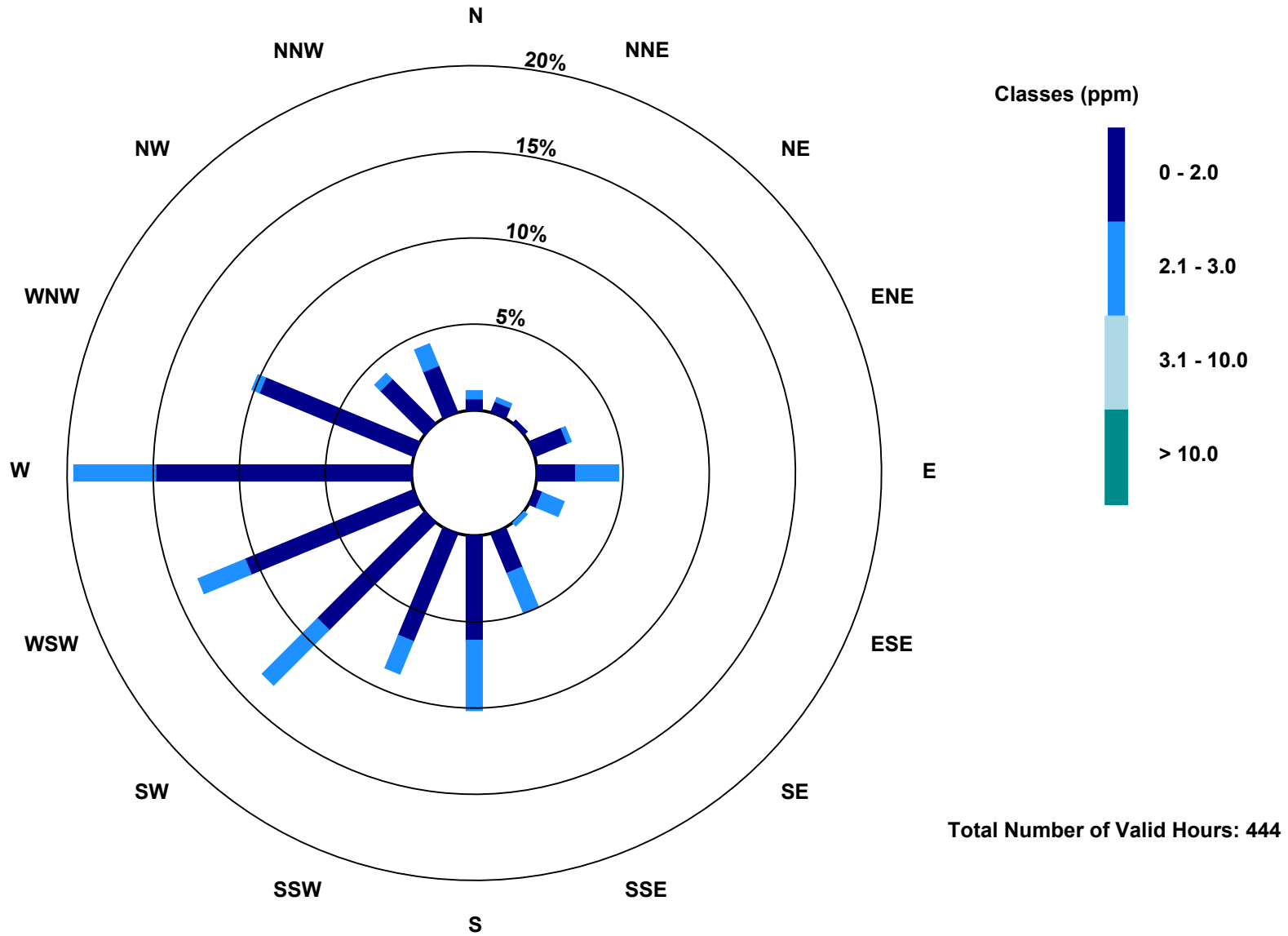
Total Number of Valid Hours: 444

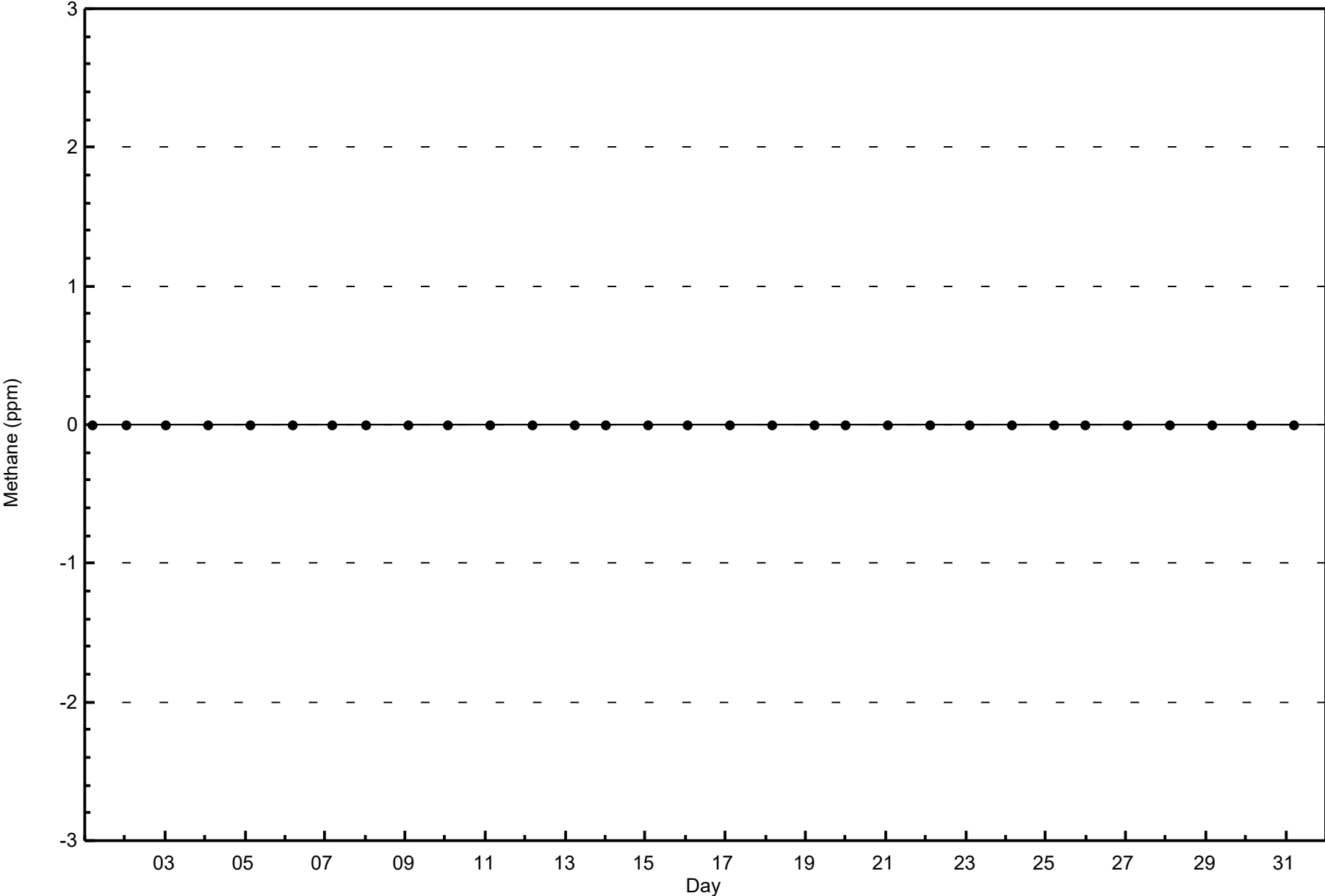
Total Number of Hours: 744

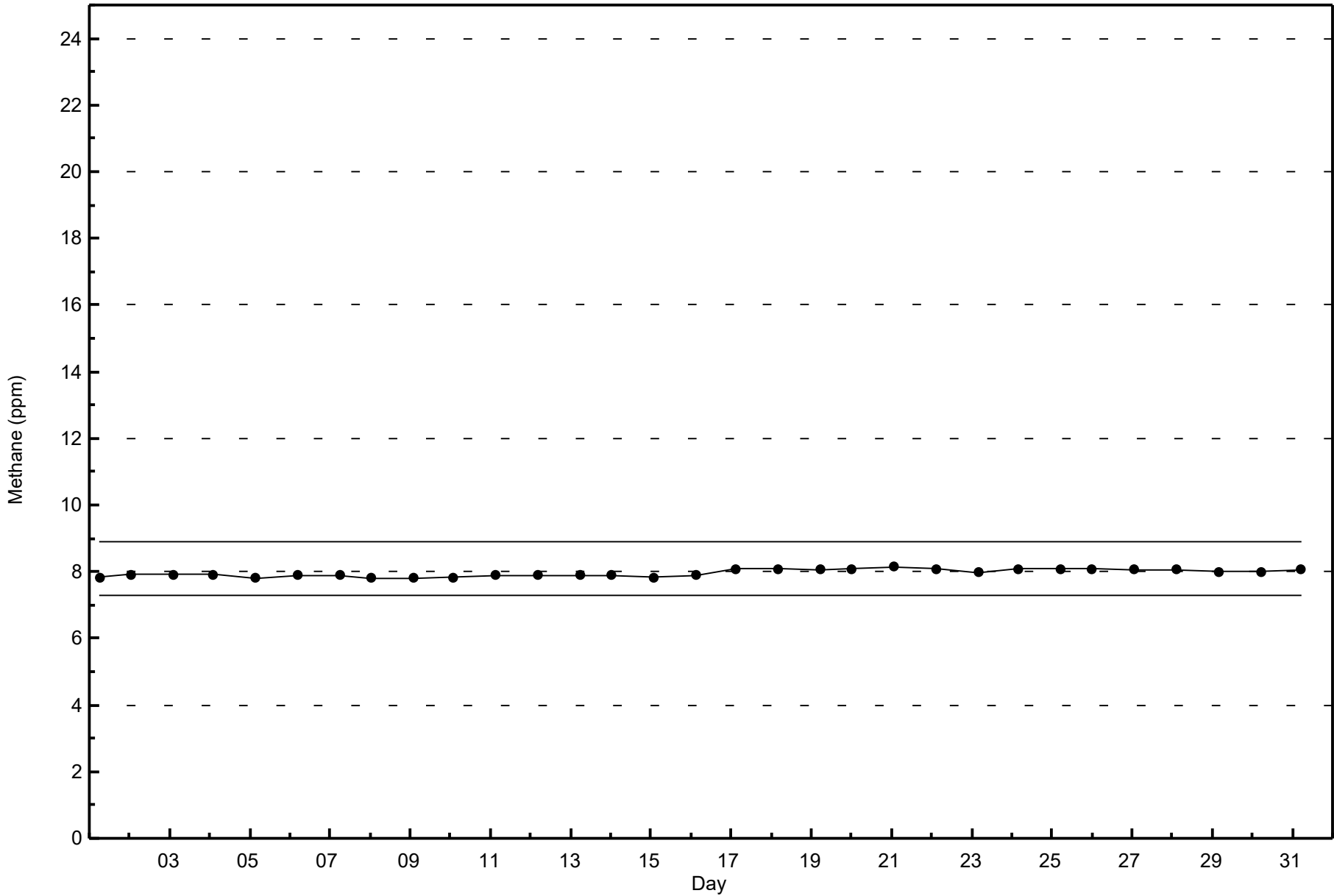


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









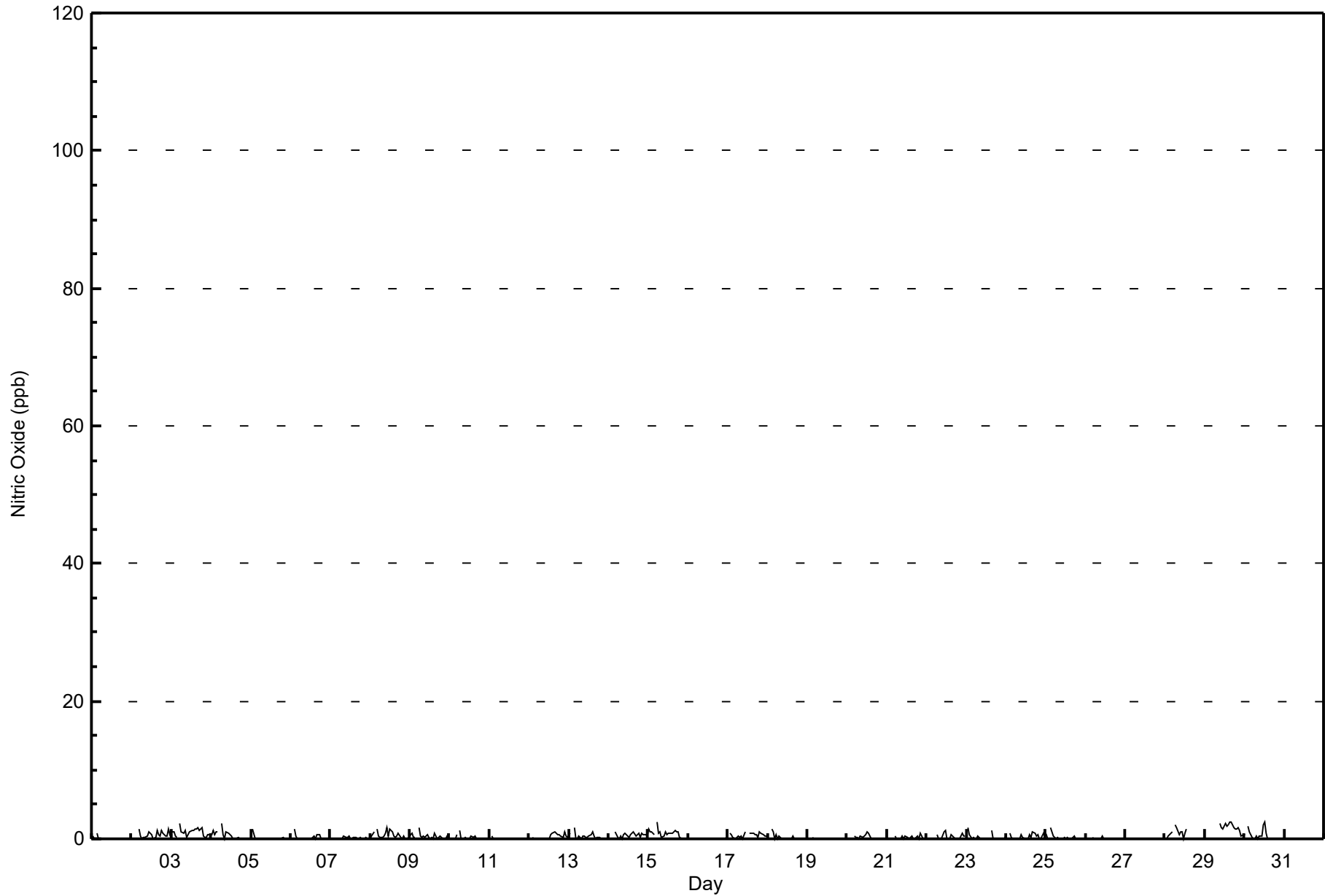
Maximum Value: 2.5 ppb on Oct 15 06:00		Maximum Daily Average: 0.9 ppb on Oct 3		Hours in Service: 744																																												
Minimum Value: 0.0 ppb on Oct 1 02:00		Minimum Daily Average: 0.0 ppb on Oct 31		Hours of Data: 687																																												
Maximum Diurnal Average: 0.5 ppb at hour 16		Minimum Diurnal Average: 0.2 ppb at hour 24		Hours of Missing Data: 57																																												
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 = 0.0 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 1.0 P <sub>99</sub> = 2.2		Hours of Calibration: 36																																												
				Percent Operational Time: 97.2																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Oct	0.4	0.0	Z	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9																						
2-Oct	0.0	0.0	0.0	Z	1.4	0.4	0.0	0.1	0.2	0.3	1.1	0.8	0.7	0.0	0.2	1.2	0.7	0.5	1.2	0.7	0.5	0.5	1.4	0.6	0.5	1.4																						
3-Oct	1.0	0.9	0.4	0.1	Z	2.2	1.1	0.8	1.2	0.2	0.6	1.0	1.2	1.2	1.5	1.4	1.6	1.1	1.7	0.3	0.3	0.2	0.6	0.6	0.9	2.2																						
4-Oct	0.6	1.2	0.7	1.0	1.0	Z	2.3	0.6	0.0	1.0	0.9	0.5	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.3																						
5-Oct	Z	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	1.5																						
6-Oct	0.0	Z	1.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4																						
7-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.4																						
8-Oct	0.0	0.3	0.9	Z	1.4	0.5	0.2	0.2	0.4	0.8	1.5	0.5	1.5	1.1	0.4	0.2	0.4	0.8	0.1	0.0	0.5	0.0	0.0	0.2	0.5	1.5																						
9-Oct	0.5	0.7	0.3	0.2	Z	1.5	0.4	0.3	0.5	0.2	0.7	0.2	0.0	0.2	0.1	0.8	0.0	0.3	0.4	0.2	0.0	0.0	0.3	0.3	0.4	1.5																						
10-Oct	0.0	0.1	0.0	0.0	0.6	Z	1.3	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3																						
11-Oct	Z	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5																						
12-Oct	0.0	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.8	0.9	0.9	0.6	0.5	0.4	0.2	1.0	0.3	0.3	0.3	0.3	1.0																						
13-Oct	0.7	0.8	Z	1.7	0.0	0.0	0.4	0.0	0.4	0.4	0.2	0.3	0.3	0.6	0.9	0.4	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	1.7																						
14-Oct	0.0	0.0	0.0	Z	1.0	0.2	0.0	0.5	0.0	0.7	0.8	0.4	0.3	0.6	0.8	1.1	0.4	0.5	0.8	0.2	0.7	0.7	0.5	0.4	0.5	1.1																						
15-Oct	1.4	1.1	1.0	0.5	Z	2.5	0.9	1.0	0.2	0.4	0.9	0.7	0.9	0.9	0.8	1.0	1.2	1.0	0.9	0.2	0.0	0.0	0.0	0.0	0.8	2.5																						
16-Oct	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	0.2	0.0	0.2																						
17-Oct	Z	0.9	0.6	0.3	0.0	0.1	0.5	0.3	0.5	0.0	1.0	M	M	0.8	0.9	0.8	0.7	0.5	0.3	1.0	0.7	0.6	0.4	0.4	0.5	1.0																						
18-Oct	0.2	Z	1.5	1.1	0.0	0.6	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5																						
19-Oct	0.0	0.0	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
20-Oct	0.0	0.0	0.0	Z	0.3	0.3	0.2	0.0	0.4	0.2	0.4	0.7	1.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1																						
21-Oct	0.0	0.0	0.0	0.0	Z	0.4	0.0	0.0	0.0	0.4	0.1	0.4	0.2	0.0	0.1	0.4	0.0	0.0	0.5	0.0	0.8	0.4	0.0	0.0	0.2	0.8																						
22-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.5	0.0	0.0	0.0	1.1	1.2	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.7	0.4	0.4	0.2	1.2																						
23-Oct	Z	1.6	0.7	0.0	0.2	0.0	0.0	0.3	0.0	C	C	C	C	C	C	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	1.6																						
24-Oct	0.4	Z	0.9	0.1	0.1	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.5	0.2	1.1	0.7	0.3	0.7	0.0	0.0	0.8	0.4	0.3	1.1																							
25-Oct	0.6	0.0	Z	1.6	0.5	0.3	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.2	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.2	1.6																						
26-Oct	0.0	0.0	0.0	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
27-Oct	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																						
28-Oct	0.0	0.0	0.4	0.8	1.0	Z	2.1	1.6	0.6	1.0	1.0	0.0	0.9	1.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.1																						
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	M	2.3	1.7	1.4	2.2	1.8	2.1	2.3	2.4	1.7	1.5	1.4	1.7	1.1	0.4	0.7	--	2.4																						
30-Oct	0.5	Z	1.8	1.0	0.2	0.0	0.0	0.4	0.0	0.5	0.5	2.1	2.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4																						
31-Oct	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																						
																								0.2	0.4	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	Diurnal Average
																								1.4	1.6	1.8	1.7	1.4	2.5	2.3	1.6	1.2	2.3	1.7	2.1	2.4	1.8	2.1	2.3	2.4	1.7	1.7	1.4	1.7	1.1	1.4	0.7	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																





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

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	687	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: 687

Total Number of Hours: 744



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

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - October 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	4	4	1	12	22	8	1	21	46	39	58	65	86	44	19	20	450
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>	4	4	1	12	22	8	1	21	46	39	58	65	86	44	19	20	450

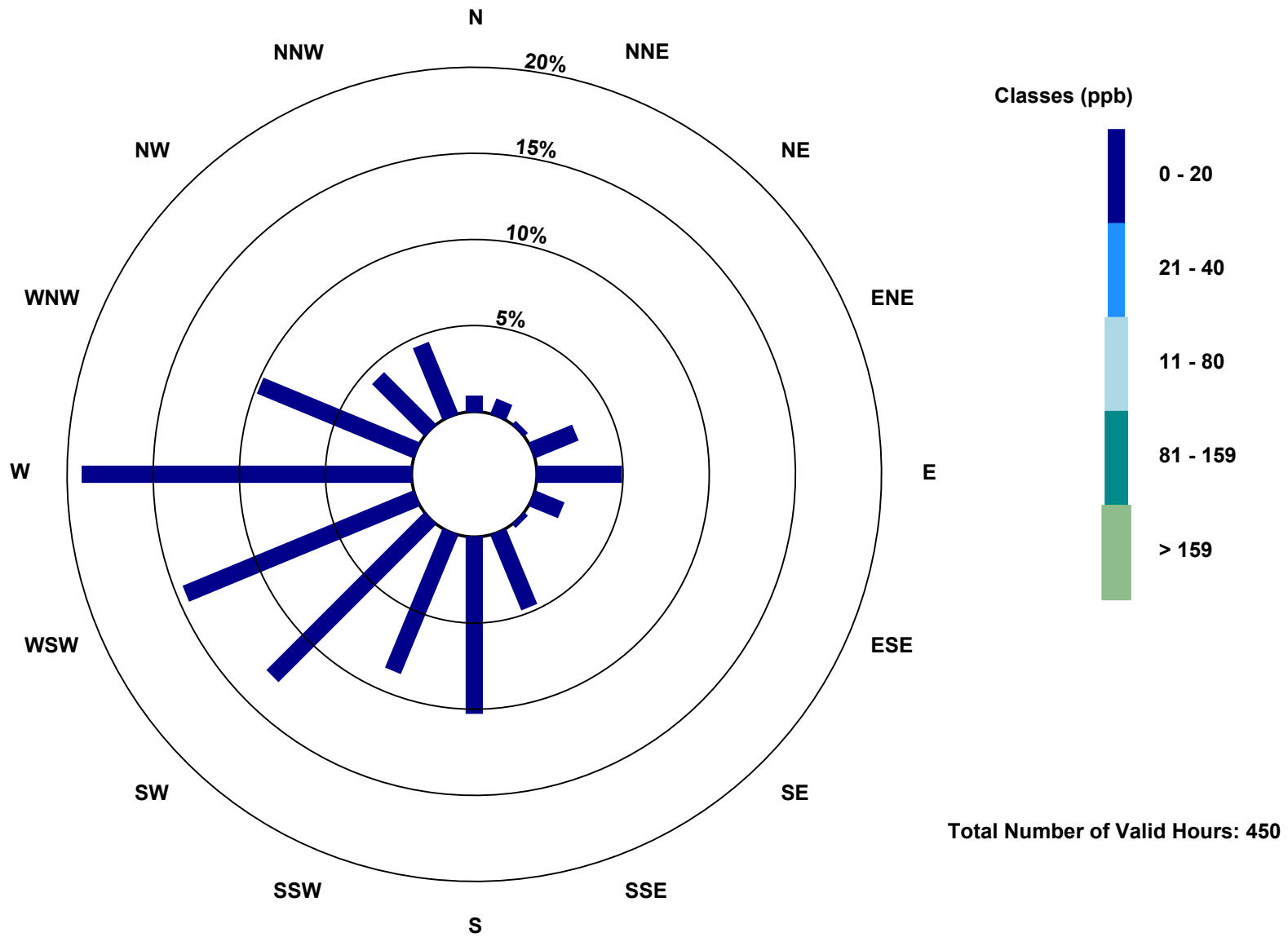
Total Number of Valid Hours: 450

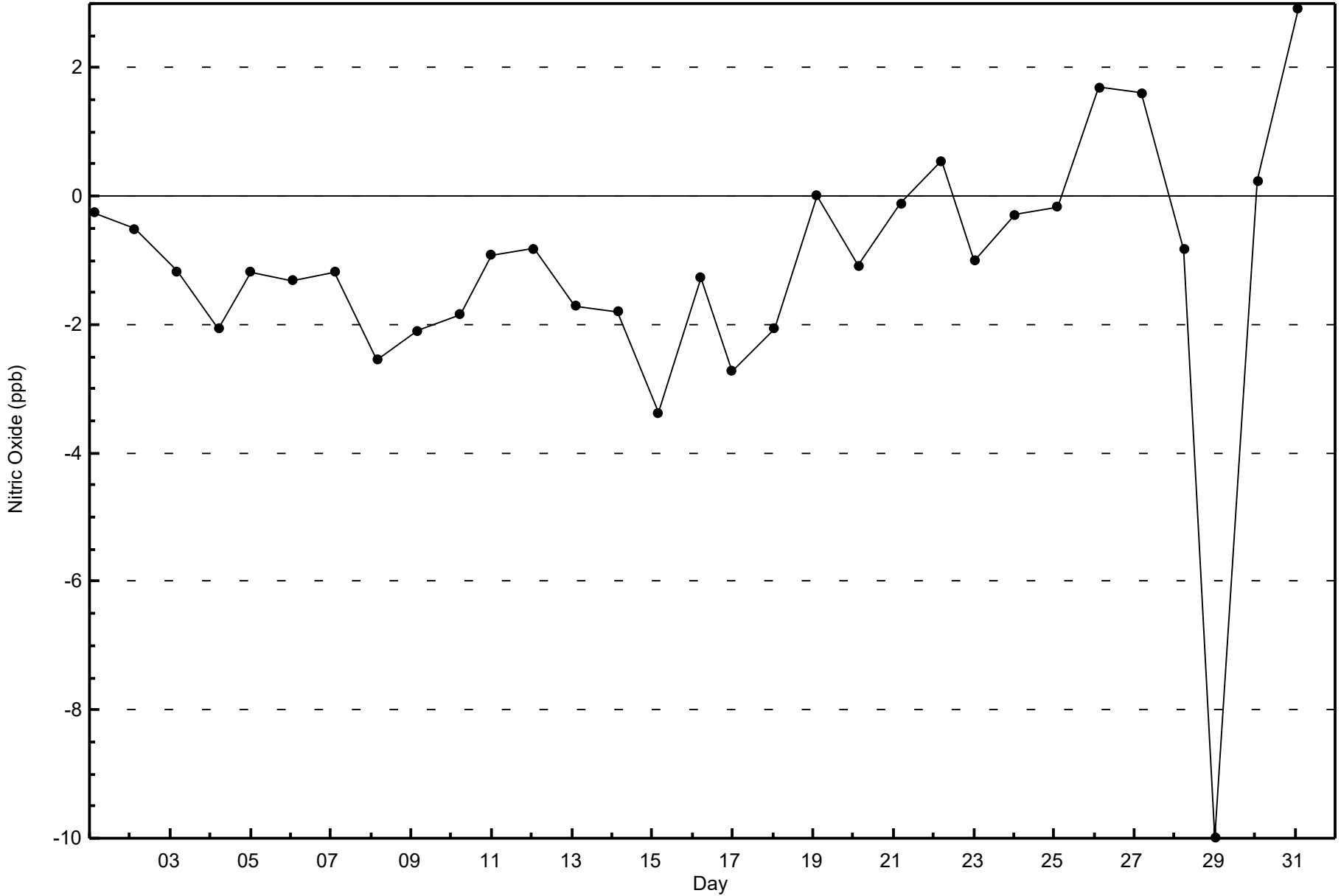
Total Number of Hours: 744

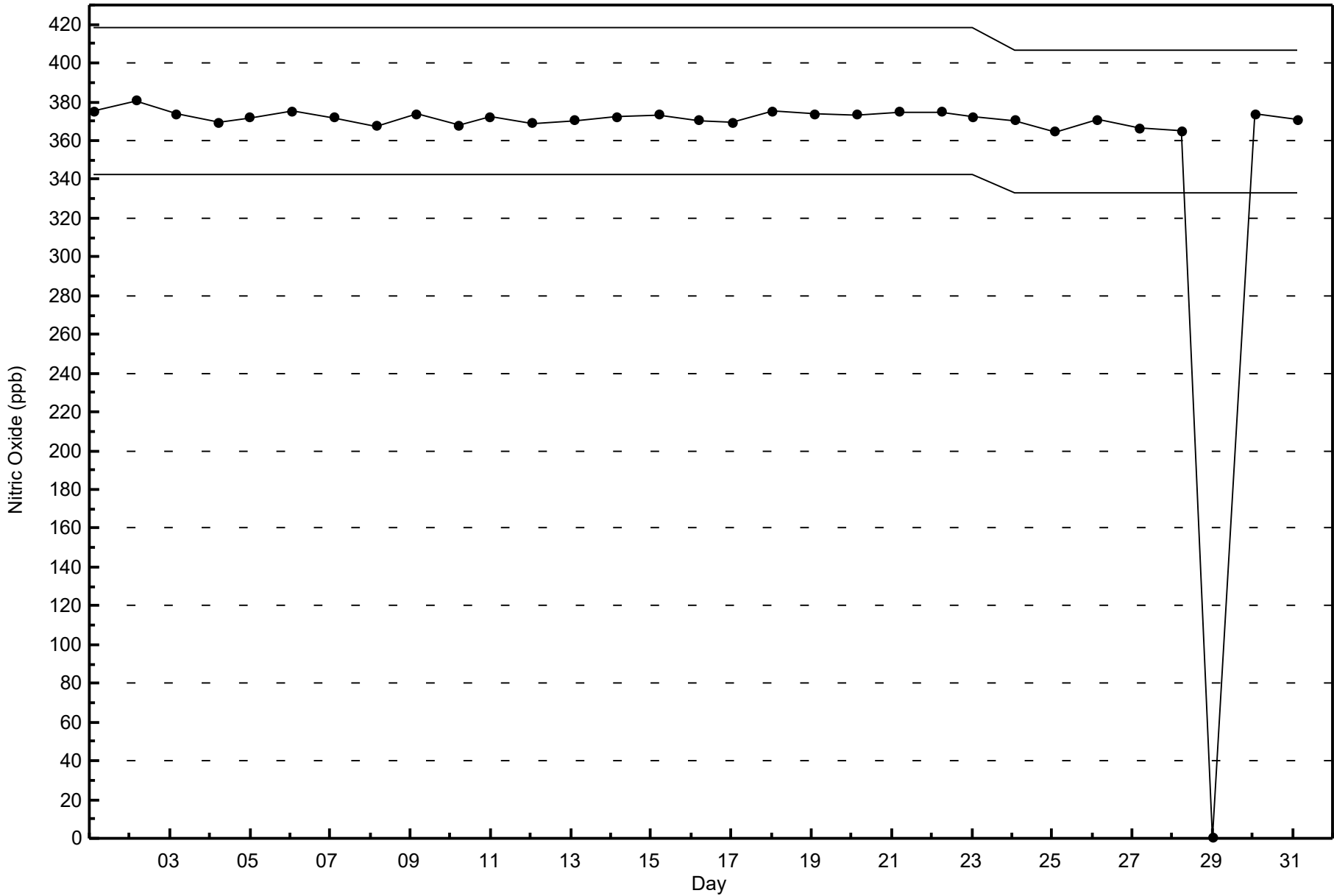


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Stony Mountain









Wood Buffalo Environmental Association

Summary of Hour Averages

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

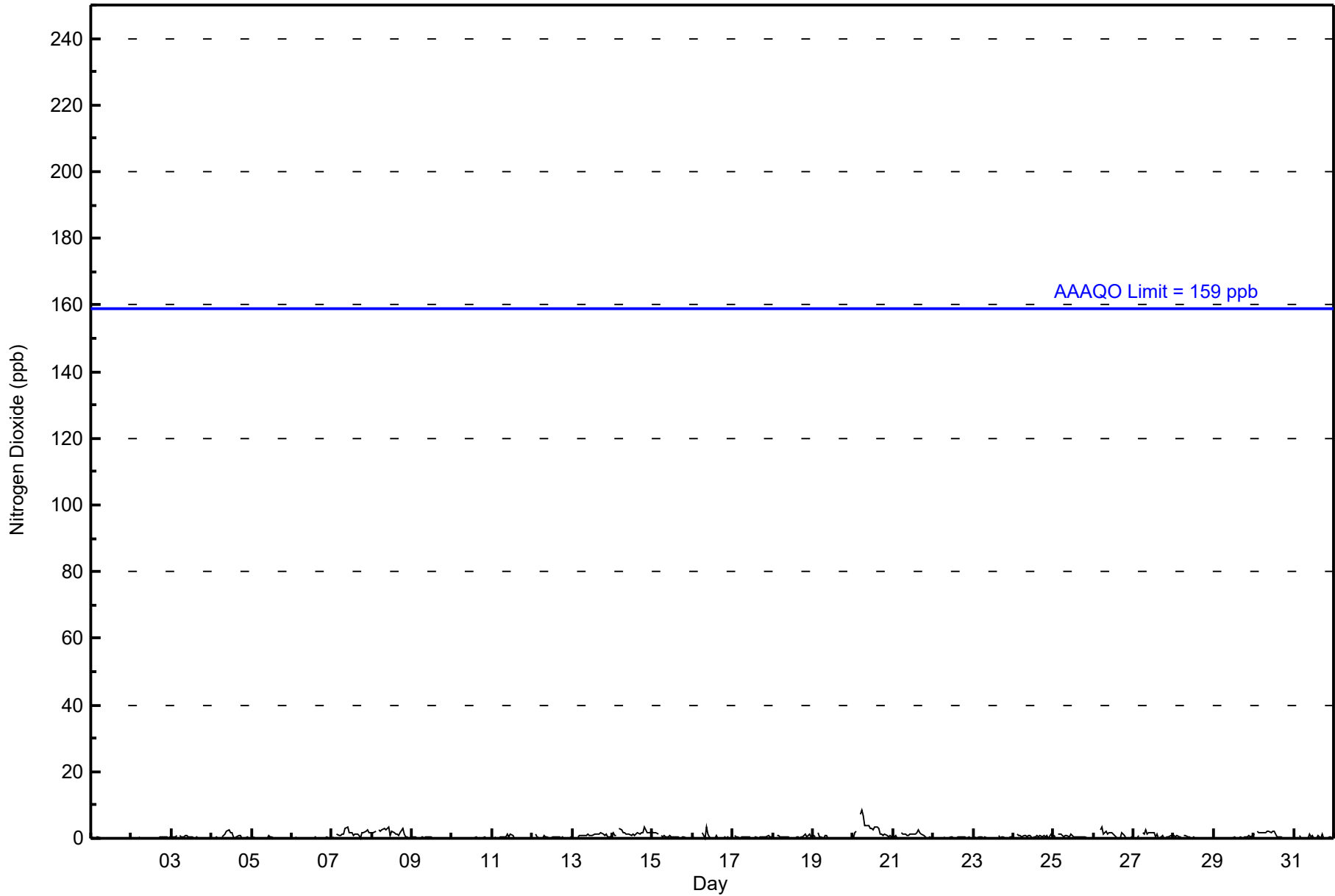
Stony Mountain - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 8.5 ppb on Oct 20 06:00		Maximum Daily Average: 2.8 ppb on Oct 20																	Hours of Data:	687																													
Minimum Value: 0.0 ppb on Oct 1 02:00		Minimum Daily Average: 0.1 ppb on Oct 1																	Hours of Missing Data:	57																													
Maximum Diurnal Average: 1.2 ppb at hour 6		Minimum Diurnal Average: 0.4 ppb at hour 24																	Hours of Calibration:	36																													
Monthly Average: 0.63 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.4 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 1.7 P <sub>99</sub> = 3.5																	Percent Operational Time:	97.2																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	0.3	0.0	Z	0.5	0.4	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	0.1	0.5																								
2-Oct	0.0	0.0	0.2	Z	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.2	0.2	0.6	0.3	0.3	0.4	0.5	0.1	0.3	0.2	0.6																							
3-Oct	0.3	0.3	0.4	0.7	Z	1.0	0.6	0.5	0.7	0.7	0.5	0.3	0.3	0.2	0.1	0.3	0.0	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.3	1.0																							
4-Oct	0.0	0.1	0.2	0.4	0.2	Z	0.3	0.8	1.1	2.2	2.6	1.6	1.6	0.5	0.2	0.3	0.9	0.8	0.0	0.0	0.2	0.4	0.0	0.0	0.6	2.6																							
5-Oct	Z	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.9																							
6-Oct	0.0	Z	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.6																							
7-Oct	0.1	0.4	Z	1.3	0.7	0.8	1.1	1.2	2.8	3.3	1.7	1.5	1.5	0.7	1.2	1.4	0.7	0.2	1.7	1.8	2.0	2.7	1.5	1.7	1.4	3.3																							
8-Oct	1.6	1.7	2.3	Z	2.7	2.3	2.7	3.1	2.4	2.9	3.3	0.9	2.0	1.6	1.1	1.2	0.9	1.5	2.8	1.1	0.3	0.5	0.0	0.5	1.7	3.3																							
9-Oct	0.5	0.5	0.3	0.2	Z	0.5	0.5	0.2	0.3	0.5	0.5	0.6	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.6																							
10-Oct	0.0	0.1	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.3																							
11-Oct	Z	0.6	0.2	0.0	0.0	0.3	0.4	0.4	0.4	1.1	0.5	1.3	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.3	1.3																							
12-Oct	0.2	Z	1.3	0.3	0.0	0.0	0.2	0.7	0.3	0.4	0.0	0.0	0.4	0.6	0.5	0.4	0.4	0.2	0.3	0.1	0.1	0.2	0.1	0.6	0.3	1.3																							
13-Oct	0.5	0.3	Z	0.6	1.0	0.9	1.0	1.0	1.0	1.2	1.0	0.9	1.0	1.1	1.2	1.1	1.1	1.5	1.3	0.8	1.1	0.6	0.6	0.3	0.9	1.5																							
14-Oct	1.5	0.7	0.9	Z	3.0	2.6	1.9	1.7	1.4	1.4	1.2	1.0	1.1	0.9	1.3	1.5	1.3	1.8	1.6	3.2	2.4	1.9	1.8	2.0	1.7	3.2																							
15-Oct	1.5	1.6	1.5	1.2	Z	1.0	0.5	0.7	0.6	0.5	0.7	0.4	0.4	0.4	0.6	0.4	0.2	0.1	0.5	0.4	0.1	0.0	0.0	0.0	0.6	1.6																							
16-Oct	0.3	0.0	0.0	0.0	0.0	Z	1.7	0.1	3.5	1.3	0.4	0.0	0.0	0.0	0.7	0.0	0.0	0.1	0.0	0.5	0.0	0.5	0.0	0.3	0.4	3.5																							
17-Oct	Z	0.8	0.6	0.5	0.2	0.4	0.5	0.4	0.5	0.5	0.5	M	M	0.3	0.4	0.2	0.3	0.3	0.3	0.4	0.4	0.8	0.3	0.6	0.4	0.8																							
18-Oct	0.6	Z	0.9	0.7	0.6	0.6	0.3	0.5	0.3	0.4	0.0	0.0	0.0	0.1	0.3	0.4	0.1	0.4	0.5	1.3	0.5	1.0	1.2	0.4	0.5	1.3																							
19-Oct	0.7	0.6	Z	1.9	0.5	0.3	0.0	0.9	0.7	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	0.2	1.9																							
20-Oct	0.2	1.9	2.2	Z	7.1	8.5	6.6	3.9	3.7	3.9	3.0	3.1	2.6	3.5	3.3	3.0	1.3	1.1	0.9	1.3	1.0	0.6	0.9	0.4	2.8	8.5																							
21-Oct	0.0	0.7	0.0	0.0	Z	1.5	1.1	1.4	1.0	0.9	1.1	1.2	1.1	1.3	1.9	2.5	1.6	1.3	1.0	0.3	0.2	0.2	0.4	0.0	0.9	2.5																							
22-Oct	0.1	0.0	0.0	0.2	0.0	Z	0.6	0.1	0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.4	0.4	0.4	0.3	0.3	0.1	0.3	0.2	0.2	0.2	0.6																							
23-Oct	Z	0.4	0.2	0.4	0.3	0.3	0.0	0.3	0.0	C	C	C	C	C	C	0.9	0.1	0.5	0.5	0.1	0.0	0.0	0.5	0.4	--	0.9																							
24-Oct	0.8	Z	1.1	0.8	1.0	0.5	0.7	1.0	0.5	0.9	0.8	0.0	0.6	0.5	0.7	0.6	0.7	0.5	0.7	0.6	0.8	0.2	1.1	0.8	0.7	1.1																							
25-Oct	0.8	0.5	Z	1.1	1.2	0.9	0.5	1.0	0.7	0.4	1.2	0.9	0.5	0.5	0.5	0.3	0.4	0.3	0.5	0.5	0.2	0.0	0.0	0.0	0.6	1.2																							
26-Oct	0.0	0.0	0.0	Z	2.4	3.4	1.3	2.0	1.1	1.9	1.7	1.6	1.1	0.5	0.0	0.0	0.0	1.5	0.9	0.0	0.0	0.0	0.0	0.4	0.9	3.4																							
27-Oct	0.0	0.0	0.0	0.8	Z	1.8	1.4	2.4	1.2	1.9	1.7	1.8	1.7	0.5	1.1	0.0	0.3	0.7	0.0	0.0	0.3	0.4	1.0	0.5	0.8	2.4																							
28-Oct	0.7	0.6	0.7	0.5	0.6	Z	0.7	0.7	0.6	0.3	0.2	0.0	0.3	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.7																							
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	M	0.1	0.2	0.2	0.4	0.1	0.1	0.1	0.3	0.1	0.3	0.3	0.6	0.9	0.6	0.7	--	0.9																							
30-Oct	1.1	Z	2.0	1.8	1.8	1.7	1.6	1.9	2.1	2.1	1.6	2.2	2.0	1.1	0.4	0.5	0.5	0.0	0.0	0.0	0.0	0.2	0.1	0.2	1.1	2.2																							
31-Oct	0.0	0.4	Z	0.8	0.0	0.0	0.0	0.1	0.0	1.1	0.6	0.7	0.1	0.2	0.7	0.3	0.2	1.1	0.0	0.0	0.0	0.5	0.4	0.0	0.3	1.1																							
																								0.5	0.5	0.6	0.6	1.0	1.2	0.9	0.9	0.9	1.0	0.9	0.7	0.7	0.5	0.6	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	Diurnal Average	
																								1.6	1.9	2.3	1.9	7.1	8.5	6.6	3.9	3.7	3.9	3.3	3.1	2.6	3.5	3.3	3.0	1.6	1.8	2.8	3.2	2.4	2.7	1.8	2.0	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Stony Mountain - October 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	687	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: 687

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - October 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	4	4	1	12	22	8	1	21	46	39	58	65	86	44	19	20	450
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>12</b>	<b>22</b>	<b>8</b>	<b>1</b>	<b>21</b>	<b>46</b>	<b>39</b>	<b>58</b>	<b>65</b>	<b>86</b>	<b>44</b>	<b>19</b>	<b>20</b>	<b>450</b>

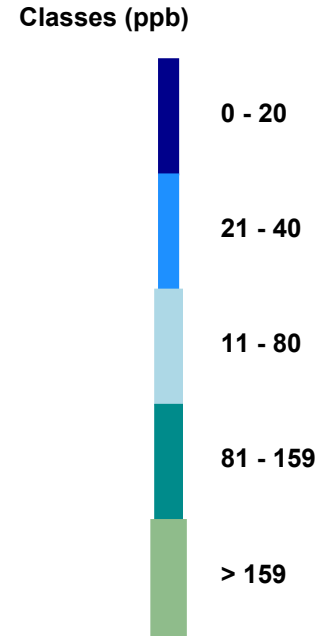
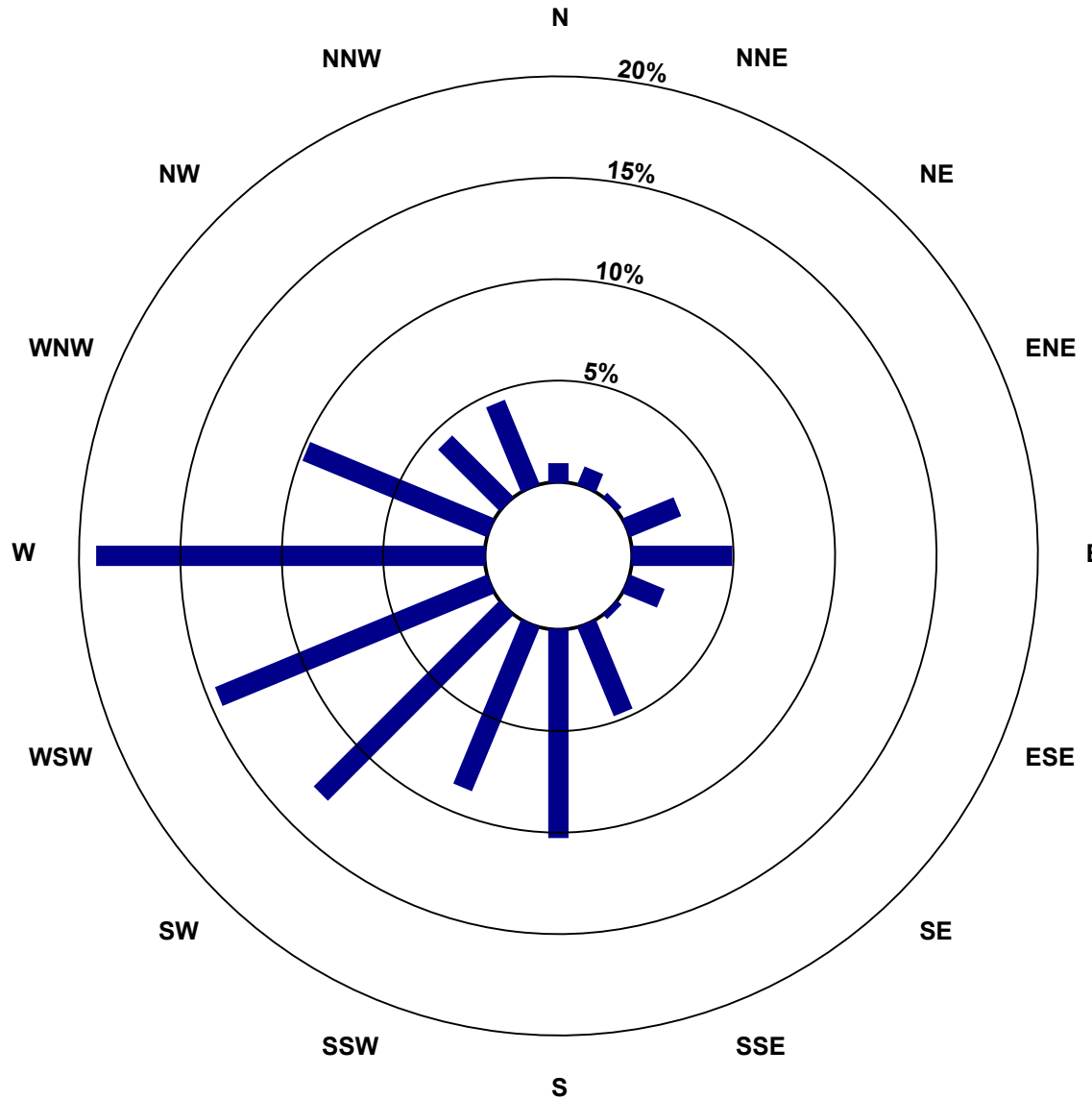
Total Number of Valid Hours: 450

Total Number of Hours: 744

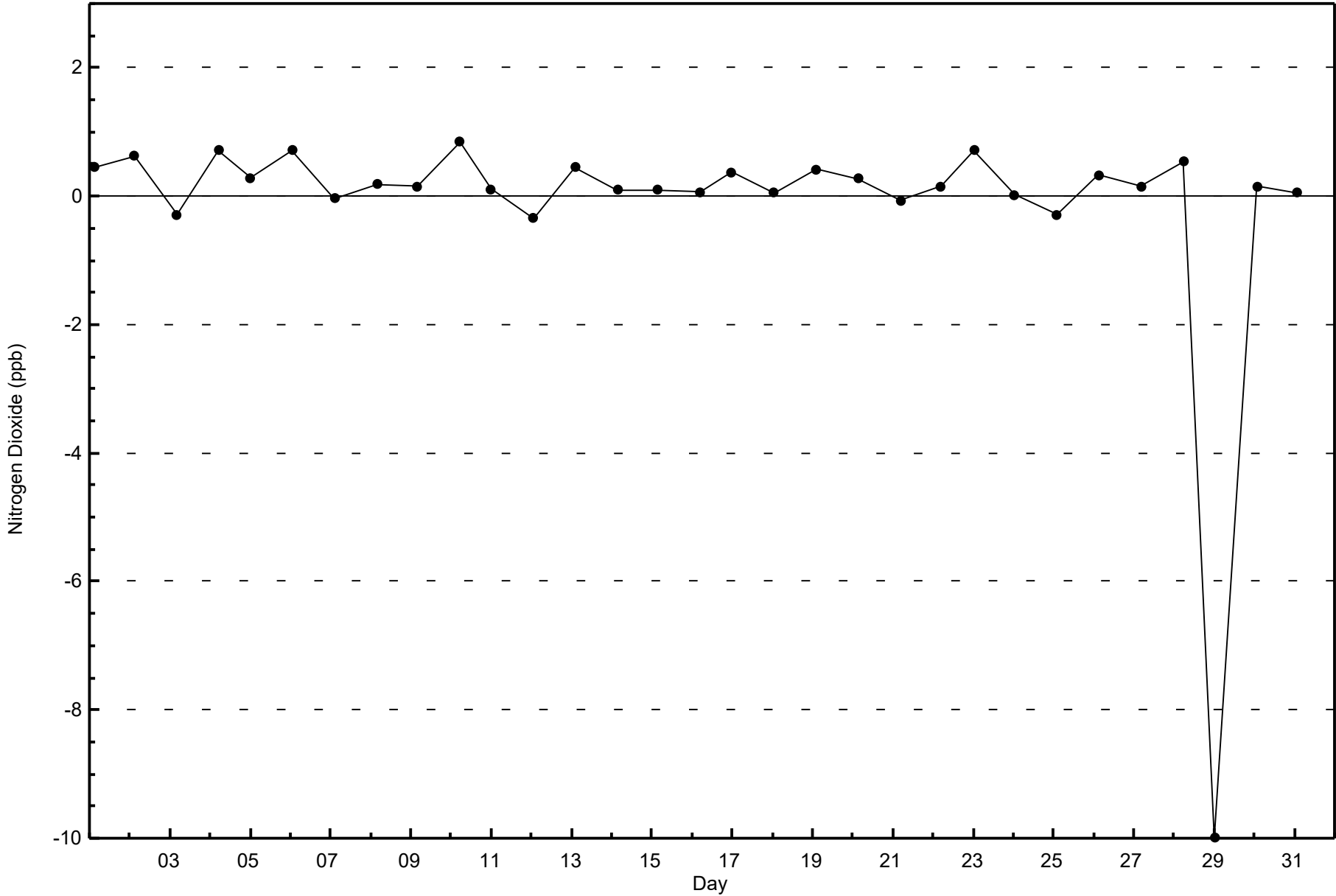


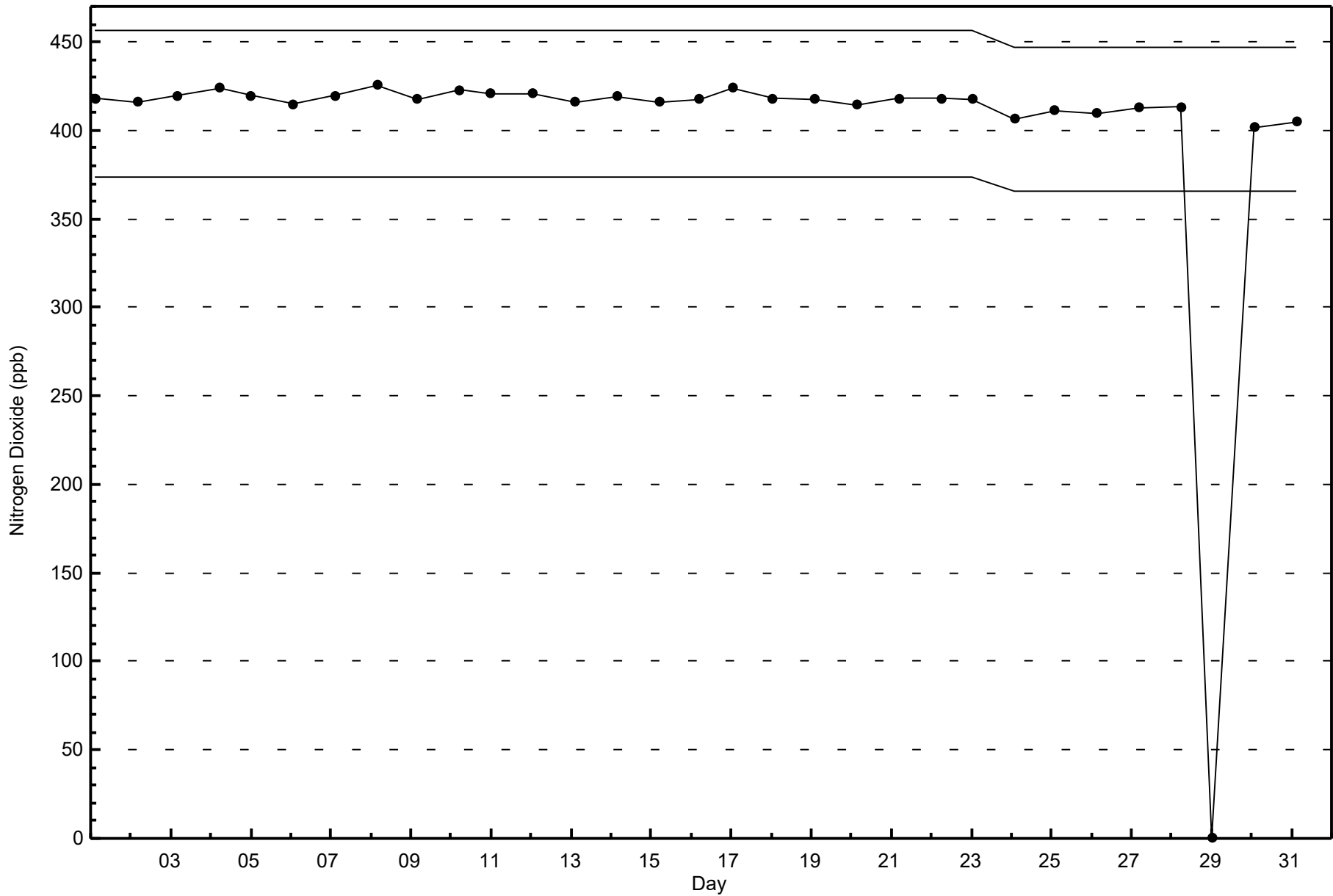
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 450







Wood Buffalo Environmental Association

Summary of Hour Averages

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

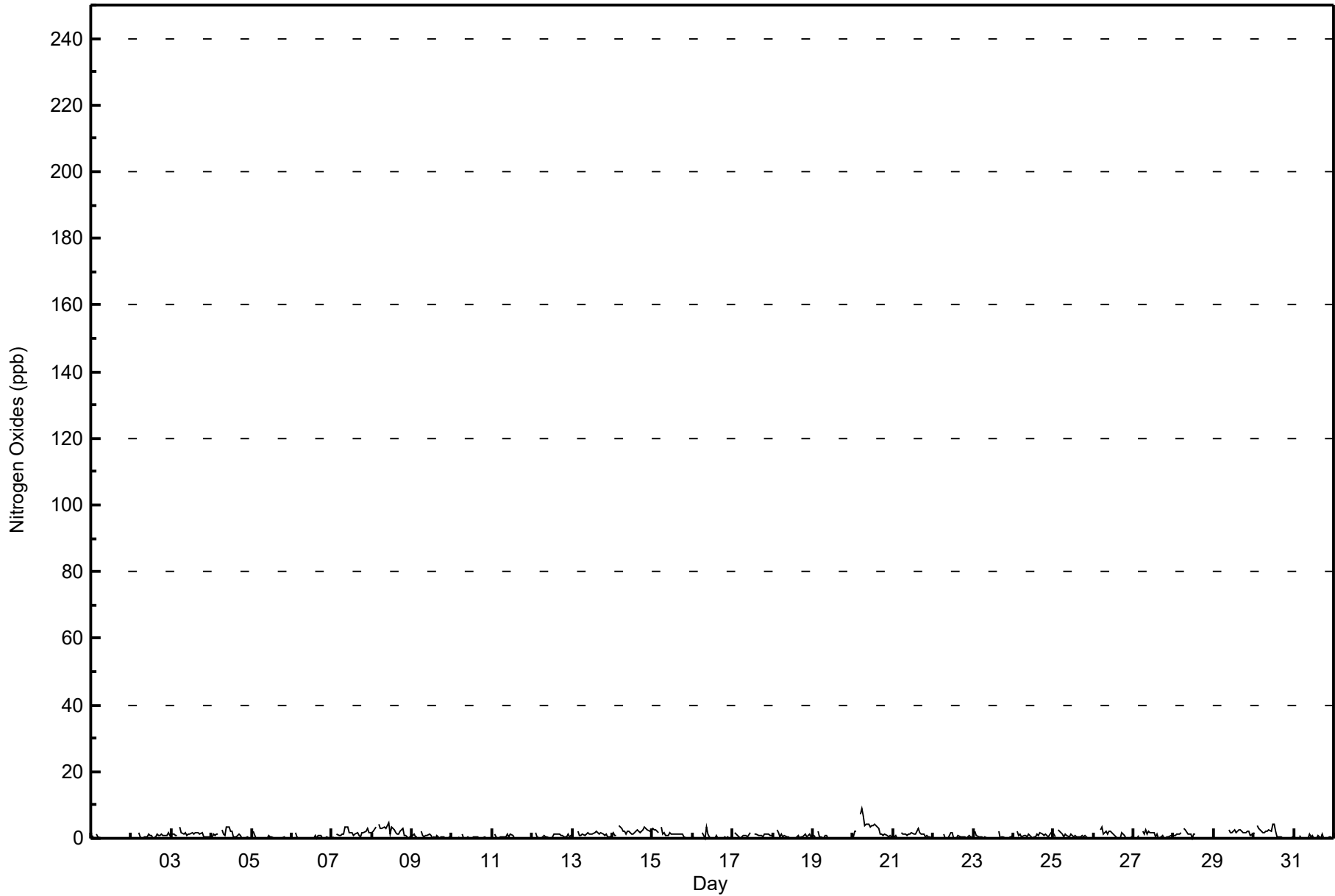
Stony Mountain - October 2024

Maximum Value: 8.8 ppb on Oct 20 06:00																				Maximum Daily Average: 3.0 ppb on Oct 20					Hours in Service: 744				
Minimum Value: 0.0 ppb on Oct 1 02:00																				Minimum Daily Average: 0.1 ppb on Oct 1					Hours of Data: 687				
Maximum Diurnal Average: 1.5 ppb at hour 6																				Minimum Diurnal Average: 0.5 ppb at hour 24					Hours of Missing Data: 57				
Monthly Average: 0.94 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.7 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 2.2 P <sub>99</sub> = 4.1					Hours of Calibration: 36				
																									Percent Operational Time: 97.2				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Oct	0.7	0.0	Z	1.4	0.4	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	0.1	0.1				
2-Oct	0.0	0.0	0.2	Z	1.8	0.4	0.0	0.2	0.2	0.3	1.2	0.8	0.9	0.1	0.3	1.4	0.9	1.1	1.5	1.0	0.9	1.0	1.5	0.9	0.7	1.8			
3-Oct	1.3	1.2	0.8	0.8	Z	3.2	1.7	1.3	1.9	0.9	1.1	1.3	1.5	1.4	1.6	1.7	1.6	1.2	1.9	0.5	0.3	0.3	0.6	0.6	1.3	3.2			
4-Oct	0.6	1.3	0.9	1.4	1.2	Z	2.6	1.4	1.1	3.2	3.5	2.1	2.1	0.5	0.2	0.3	1.1	0.8	0.0	0.0	0.2	0.4	0.0	0.0	1.1	3.5			
5-Oct	Z	2.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.2	2.0			
6-Oct	0.0	Z	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.0	0.0	0.9	0.7	0.0	0.0	0.0	0.3	0.0	0.0	0.2	1.7			
7-Oct	0.1	0.4	Z	1.3	0.7	0.8	1.1	1.2	3.2	3.5	1.9	1.8	1.5	0.7	1.3	1.6	0.7	0.2	1.8	1.8	2.0	2.9	1.5	1.7	1.5	3.5			
8-Oct	1.6	2.0	3.2	Z	4.1	2.8	2.9	3.3	2.8	3.7	4.8	1.4	3.5	2.7	1.5	1.4	1.3	2.3	2.9	1.1	0.8	0.5	0.0	0.7	2.2	4.8			
9-Oct	1.0	1.2	0.6	0.4	Z	2.0	0.9	0.5	0.8	0.7	1.2	0.8	0.0	0.4	0.2	0.8	0.0	0.3	0.4	0.4	0.0	0.0	0.3	0.3	0.6	2.0			
10-Oct	0.0	0.2	0.0	0.0	0.6	Z	1.4	0.0	0.0	0.4	0.0	0.0	0.0	0.6	0.5	0.5	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.2	1.4			
11-Oct	Z	1.1	0.2	0.0	0.0	0.3	0.4	0.4	0.4	1.1	0.5	1.3	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.3	1.3			
12-Oct	0.2	Z	1.6	0.3	0.0	0.0	0.2	0.7	0.3	0.4	0.0	0.0	0.4	1.2	1.3	1.3	1.3	0.8	0.8	0.5	0.3	1.2	0.4	0.9	0.6	1.6			
13-Oct	1.2	1.1	Z	2.3	1.0	0.9	1.4	1.0	1.4	1.6	1.2	1.2	1.3	1.7	2.1	1.5	1.2	1.7	1.5	0.8	1.1	0.6	0.6	0.3	1.2	2.3			
14-Oct	1.5	0.7	0.9	Z	4.0	2.8	1.9	2.2	1.4	2.1	2.0	1.4	1.4	1.5	2.1	2.6	1.7	2.3	2.4	3.4	3.1	2.6	2.3	2.4	2.1	4.0			
15-Oct	2.9	2.7	2.5	1.7	Z	3.5	1.4	1.7	0.8	0.9	1.6	1.1	1.3	1.3	1.4	1.4	1.4	1.1	1.4	0.6	0.1	0.0	0.0	0.0	1.3	3.5			
16-Oct	0.3	0.0	0.0	0.0	0.0	Z	1.7	0.1	3.5	1.3	0.4	0.0	0.0	0.0	0.7	0.0	0.0	0.1	0.0	0.5	0.0	0.5	0.0	0.5	0.4	3.5			
17-Oct	Z	1.7	1.2	0.8	0.2	0.5	1.0	0.7	1.0	0.5	1.5	M	M	1.1	1.3	1.0	1.0	0.8	0.6	1.4	1.1	1.4	0.7	1.0	1.0	1.7			
18-Oct	0.8	Z	2.4	1.8	0.6	1.2	0.3	1.0	0.3	0.4	0.0	0.0	0.0	0.1	0.3	0.8	0.1	0.4	0.5	1.3	0.5	1.0	1.2	0.4	0.7	2.4			
19-Oct	0.7	0.6	Z	2.2	0.5	0.3	0.0	0.9	0.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2			
20-Oct	0.2	1.9	2.2	Z	7.4	8.8	6.8	3.9	4.1	4.1	3.4	3.8	3.7	4.3	3.3	3.0	1.3	1.1	0.9	1.3	1.0	0.6	0.9	0.4	3.0	8.8			
21-Oct	0.0	0.7	0.0	0.0	Z	1.9	1.1	1.4	1.0	1.3	1.2	1.6	1.3	1.3	2.0	2.9	1.6	1.3	1.5	0.3	1.0	0.6	0.4	0.0	1.1	2.9			
22-Oct	0.1	0.0	0.0	0.2	0.0	Z	1.1	0.1	0.0	0.0	1.6	1.6	0.0	0.0	0.0	1.0	0.6	0.4	0.3	0.3	0.1	1.0	0.6	0.6	0.4	1.6			
23-Oct	Z	2.0	0.9	0.4	0.5	0.3	0.0	0.6	0.0	C	C	C	C	C	C	2.2	0.1	0.5	0.5	0.1	0.0	0.0	0.5	0.4	--	2.2			
24-Oct	1.2	Z	2.0	0.9	1.1	0.5	0.7	1.0	0.6	1.4	0.9	0.0	0.6	0.5	1.2	0.8	1.8	1.2	1.0	1.3	0.8	0.2	1.9	1.2	1.0	2.0			
25-Oct	1.4	0.5	Z	2.7	1.7	1.2	0.5	1.2	0.7	0.4	1.2	1.0	0.5	0.7	0.5	0.3	0.6	0.7	0.5	0.6	0.2	0.0	0.0	0.0	0.7	2.7			
26-Oct	0.0	0.0	0.0	Z	2.7	3.4	1.3	2.0	1.1	1.9	2.0	1.6	1.1	0.5	0.0	0.0	0.0	1.5	0.9	0.0	0.0	0.0	0.0	0.4	0.9	3.4			
27-Oct	0.0	0.0	0.0	0.8	Z	1.9	1.4	2.4	1.2	1.9	1.7	1.8	1.7	0.5	1.1	0.0	0.3	0.7	0.0	0.0	0.3	0.4	1.0	0.5	0.9	2.4			
28-Oct	0.7	0.6	1.1	1.3	1.6	Z	2.8	2.3	1.2	1.3	1.2	0.0	1.2	1.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.8			
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	M	2.4	1.9	1.6	2.6	1.9	2.2	2.4	2.7	1.8	1.8	1.7	2.3	2.0	1.0	1.4	--	2.7			
30-Oct	1.6	Z	3.8	2.8	2.0	1.7	1.6	2.3	2.1	2.6	2.1	4.3	4.4	2.0	0.4	0.5	0.5	0.0	0.0	0.0	0.0	0.2	0.1	0.2	1.5	4.4			
31-Oct	0.0	0.4	Z	0.8	0.0	0.0	0.0	0.1	0.0	1.1	0.6	0.7	0.1	0.2	0.7	0.3	0.2	1.1	0.0	0.0	0.0	0.5	0.4	0.0	0.3	1.1			
																								Diurnal Average					
																								Diurnal Maximum					
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan																								C - Calibration		M - Maintenance		UO - Unstable Operation	



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	687	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: 687

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - October 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	4	1	12	22	8	1	21	46	39	58	65	86	44	19	20	450
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>	4	4	1	12	22	8	1	21	46	39	58	65	86	44	19	20	450

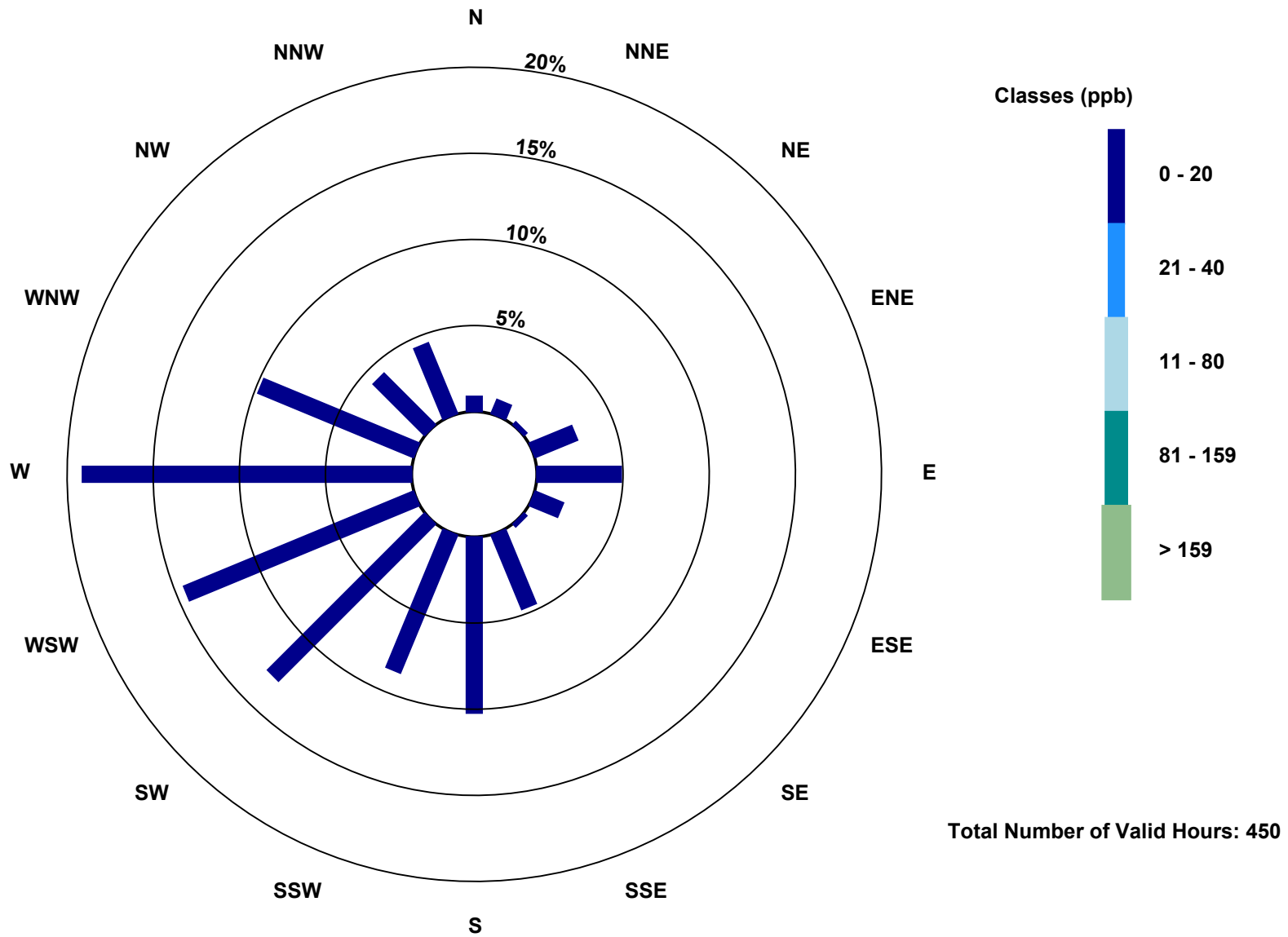
Total Number of Valid Hours: 450

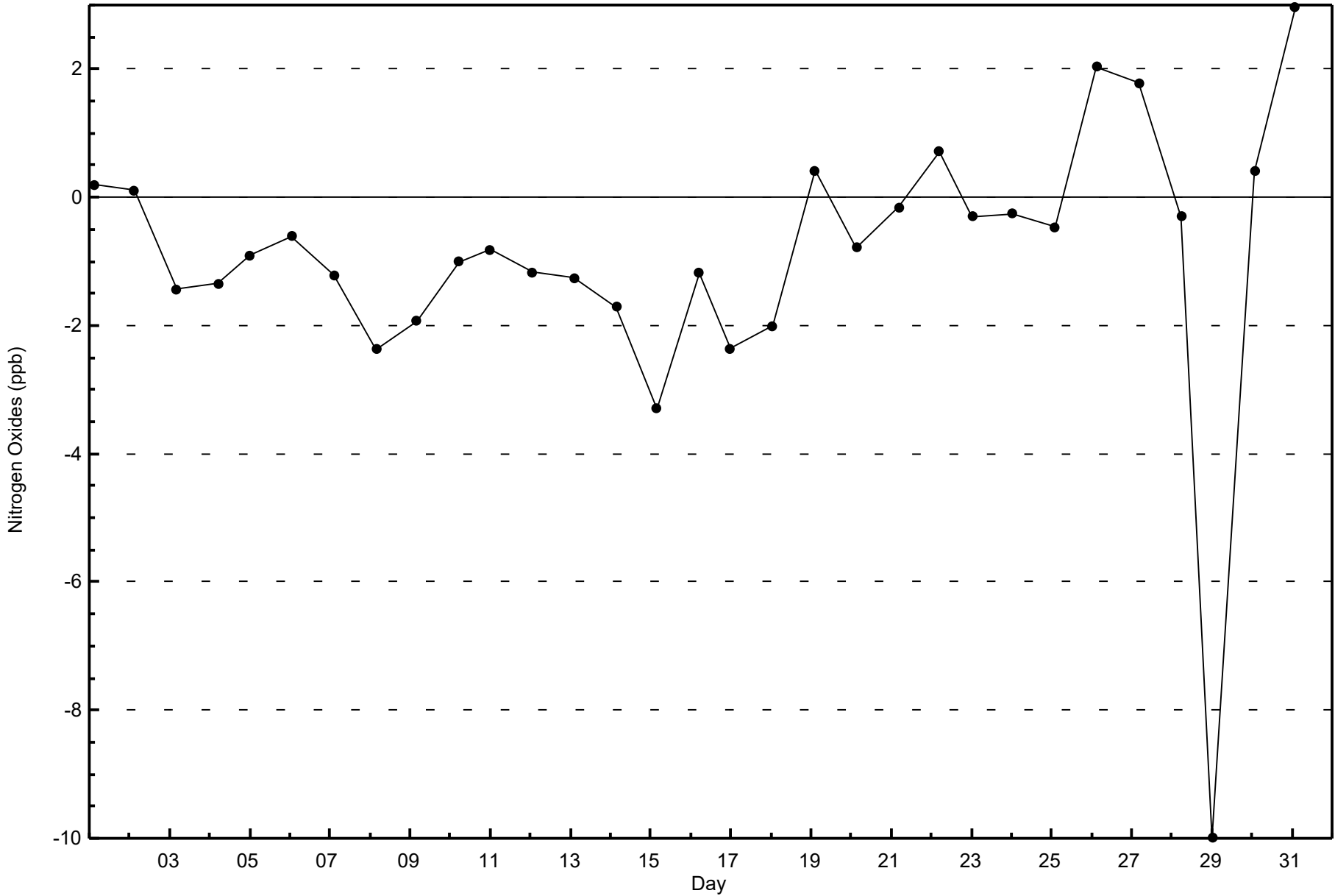
Total Number of Hours: 744

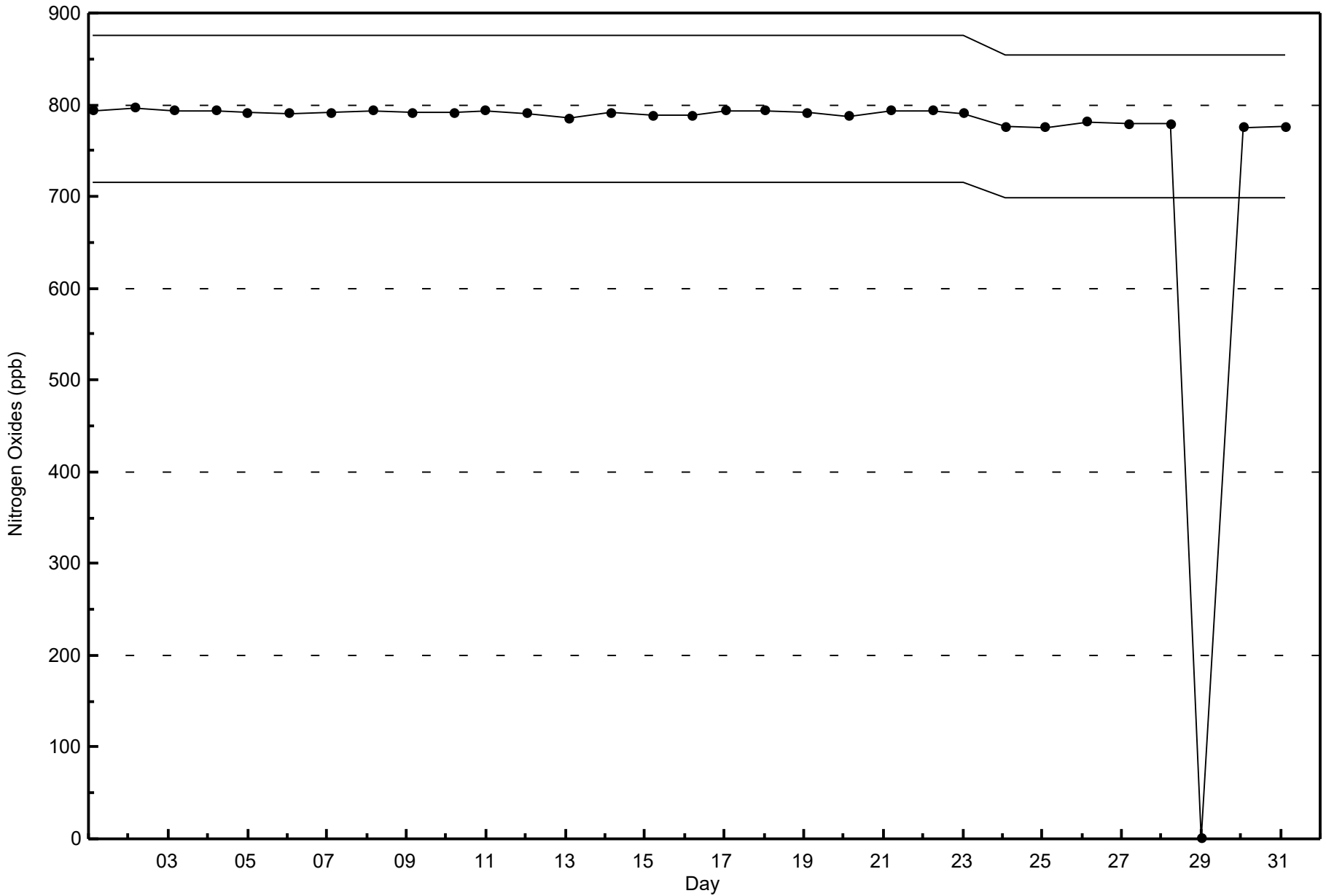


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Stony Mountain - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 41.4 ppb on Oct 8 15:00	Maximum Daily Average: 32.3 ppb on Oct 6		Hours of Data:	707
Minimum Value: 4.6 ppb on Oct 20 06:00	Minimum Daily Average: 11.3 ppb on Oct 20		Hours of Missing Data:	37
Maximum Diurnal Average: 29.3 ppb at hour 15	Minimum Diurnal Average: 23.4 ppb at hour 8		Hours of Calibration:	35
Monthly Average: 25.85 ppb	Percentiles: P <sub>1</sub> = 9.7 P <sub>10</sub> = 17.5 Q <sub>1</sub> = 21.5 Median = 26.2 Q <sub>3</sub> = 30.6 P <sub>90</sub> = 33.8 P <sub>99</sub> = 37.2		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-Oct	25.0	Z	24.0	26.7	26.8	26.2	25.9	26.3	29.1	30.4	28.5	29.3	28.6	27.7	26.9	25.5	26.0	23.2	19.8	19.8	18.8	17.9	15.7	13.8	24.4	30.4
2-Oct	10.7	9.8	Z	10.8	13.8	15.1	15.8	17.8	19.9	20.8	20.8	21.0	21.1	21.0	21.7	23.8	25.4	23.1	20.5	21.4	21.9	21.4	21.1	20.4	19.1	25.4
3-Oct	20.5	20.8	21.1	Z	21.5	22.4	22.2	20.9	21.4	23.9	25.1	25.8	27.1	26.7	27.9	26.8	25.9	26.0	25.8	24.2	22.3	20.4	19.5	23.7	27.9	27.9
4-Oct	18.7	18.1	18.7	19.2	Z	21.6	15.5	16.0	15.8	14.7	14.7	17.9	22.5	25.3	26.1	24.8	22.6	21.7	21.0	20.7	19.8	17.1	16.0	15.4	19.3	26.1
5-Oct	14.7	15.4	15.3	15.4	15.3	Z	16.2	18.7	19.7	21.5	24.0	24.9	22.2	31.7	31.3	29.8	27.5	23.8	21.4	20.3	19.0	18.3	18.8	21.1	21.5	31.7
6-Oct	Z	24.7	25.2	28.7	29.2	29.0	28.4	27.7	27.2	28.1	31.0	32.7	33.4	36.3	38.2	38.7	37.0	36.3	36.3	36.2	35.8	34.9	33.6	34.1	32.3	38.7
7-Oct	31.8	Z	29.9	29.0	28.1	29.1	28.5	27.4	25.3	23.7	27.3	30.0	30.7	34.6	34.9	35.0	31.2	28.7	26.6	24.7	23.9	23.9	24.6	24.1	28.4	35.0
8-Oct	25.1	26.0	Z	25.1	24.2	22.9	24.5	23.4	22.7	21.4	24.4	37.5	37.5	39.1	41.4	38.6	36.6	33.7	30.6	32.7	34.5	35.7	36.1	36.3	30.9	41.4
9-Oct	37.2	35.1	32.2	Z	29.0	29.2	30.4	30.6	29.8	27.9	27.3	27.9	26.8	28.8	30.6	30.8	30.9	30.9	31.0	31.1	30.8	30.3	30.3	30.7	30.4	37.2
10-Oct	31.0	31.3	28.3	30.8	Z	30.6	29.7	25.1	28.4	22.7	30.9	32.4	36.5	35.2	34.0	33.0	32.8	31.1	29.5	28.8	29.3	29.7	29.5	29.8	30.4	36.5
11-Oct	29.7	29.9	26.4	24.6	26.7	Z	24.8	24.7	23.4	23.7	23.5	25.5	26.5	27.7	26.7	29.4	30.6	28.6	27.4	27.5	26.5	24.9	24.5	23.9	26.4	30.6
12-Oct	Z	22.6	20.3	19.8	20.8	22.0	20.8	20.3	20.4	21.3	22.6	25.9	31.2	32.8	33.7	34.7	34.6	34.4	34.8	34.5	34.0	33.9	31.7	29.3	27.7	34.8
13-Oct	28.8	Z	26.4	25.1	25.9	26.7	27.6	28.1	29.6	30.1	31.3	32.1	34.2	34.8	34.6	34.4	33.6	33.1	33.2	32.4	32.0	31.9	31.7	30.6	30.8	34.8
14-Oct	29.5	28.9	Z	25.1	22.4	21.9	21.5	22.8	24.0	25.6	27.8	31.3	33.0	35.6	35.2	32.5	31.2	28.6	27.0	24.2	24.3	24.9	25.9	25.6	27.3	35.6
15-Oct	24.1	23.2	23.7	Z	27.2	28.9	29.6	30.4	30.5	30.8	31.5	33.6	33.1	37.1	37.2	36.7	35.6	36.1	35.0	33.9	32.0	31.9	29.4	30.9	31.6	37.2
16-Oct	34.6	35.0	34.2	34.4	Z	30.6	28.2	25.0	21.1	22.7	25.7	26.6	25.0	24.1	24.5	23.3	22.1	20.5	19.8	19.0	16.8	16.7	17.0	18.1	24.6	35.0
17-Oct	19.4	18.8	19.3	24.4	28.7	Z	27.3	26.1	25.9	25.9	26.8	M	M	29.8	31.4	30.9	31.4	31.3	31.2	29.8	30.0	30.8	30.7	30.2	27.6	31.4
18-Oct	Z	29.0	28.4	27.5	25.6	24.3	22.4	17.2	18.9	20.9	24.9	28.7	32.0	34.4	35.1	35.0	33.8	34.1	33.0	31.3	30.6	29.8	30.2	30.7	28.6	35.1
19-Oct	29.0	Z	28.0	28.4	28.2	27.1	27.5	27.5	29.7	30.0	33.1	32.6	32.3	30.5	30.0	28.4	24.4	22.5	22.7	25.1	24.1	17.8	18.6	17.9	26.8	33.1
20-Oct	19.7	17.1	Z	14.9	8.4	4.6	5.3	9.5	11.6	11.2	10.0	9.1	8.1	8.8	9.7	11.8	12.5	12.4	12.8	12.0	13.1	13.0	13.2	11.9	11.3	19.7
21-Oct	11.3	11.2	11.5	Z	10.6	11.2	17.5	20.3	22.8	24.5	25.7	25.9	26.5	26.2	25.9	26.4	26.6	26.3	26.1	26.8	27.6	28.4	27.6	27.2	22.4	28.4
22-Oct	26.9	25.4	26.1	26.2	Z	26.4	24.4	25.6	24.5	24.9	24.4	C	C	C	C	24.4	25.0	25.5	25.8	25.6	25.7	25.9	29.5	30.9	25.9	30.9
23-Oct	30.8	31.0	31.0	30.5	30.2	Z	29.8	30.2	30.3	30.6	31.7	32.7	34.1	35.2	33.5	33.1	32.2	33.1	32.7	34.3	34.2	33.0	32.1	32.2	32.1	35.2
24-Oct	Z	32.6	31.3	32.8	31.8	30.4	30.0	29.1	28.4	28.2	31.7	32.7	35.5	35.9	36.5	36.2	35.1	34.7	33.2	31.1	30.5	30.0	30.3	31.2	32.1	36.5
25-Oct	31.2	Z	29.9	29.7	29.6	29.1	28.3	27.8	27.7	27.3	27.8	29.7	31.8	33.8	34.4	34.3	34.1	34.2	33.7	32.4	30.5	30.5	31.2	31.3	30.9	34.4
26-Oct	31.7	32.8	Z	29.3	26.9	22.5	23.0	20.9	20.0	20.8	20.0	20.8	20.1	21.2	27.2	31.4	30.3	27.6	29.5	29.3	28.6	28.2	28.5	28.4	26.0	32.8
27-Oct	26.8	25.8	24.5	Z	24.2	23.8	23.4	23.2	23.2	22.5	22.9	23.1	24.3	25.9	25.7	27.0	24.7	19.9	19.7	19.1	19.7	19.9	18.7	17.5	22.8	27.0
28-Oct	16.4	17.0	16.5	17.2	Z	17.3	17.1	16.5	16.7	16.6	17.3	18.0	19.0	19.3	19.5	19.9	20.6	22.0	22.6	22.3	22.7	25.1	24.9	24.9	19.5	25.1
29-Oct	24.5	23.7	24.2	25.2	25.5	Z	25.7	26.5	25.4	25.8	27.8	27.9	27.6	27.6	28.0	28.0	27.9	28.3	27.1	26.2	25.0	24.5	24.2	23.2	26.1	28.3
30-Oct	Z	21.0	19.7	18.6	18.0	18.3	17.5	15.9	17.6	17.0	16.7	16.6	15.9	16.8	18.6	19.9	21.5	22.2	22.8	22.1	21.4	22.2	22.8	22.6	19.4	22.8
31-Oct	23.4	Z	23.1	23.3	23.5	23.1	22.9	22.6	22.1	21.5	21.2	20.9	20.3	20.4	20.1	20.1	20.6	20.2	19.4	19.5	19.3	18.9	19.9	19.2	21.1	23.5

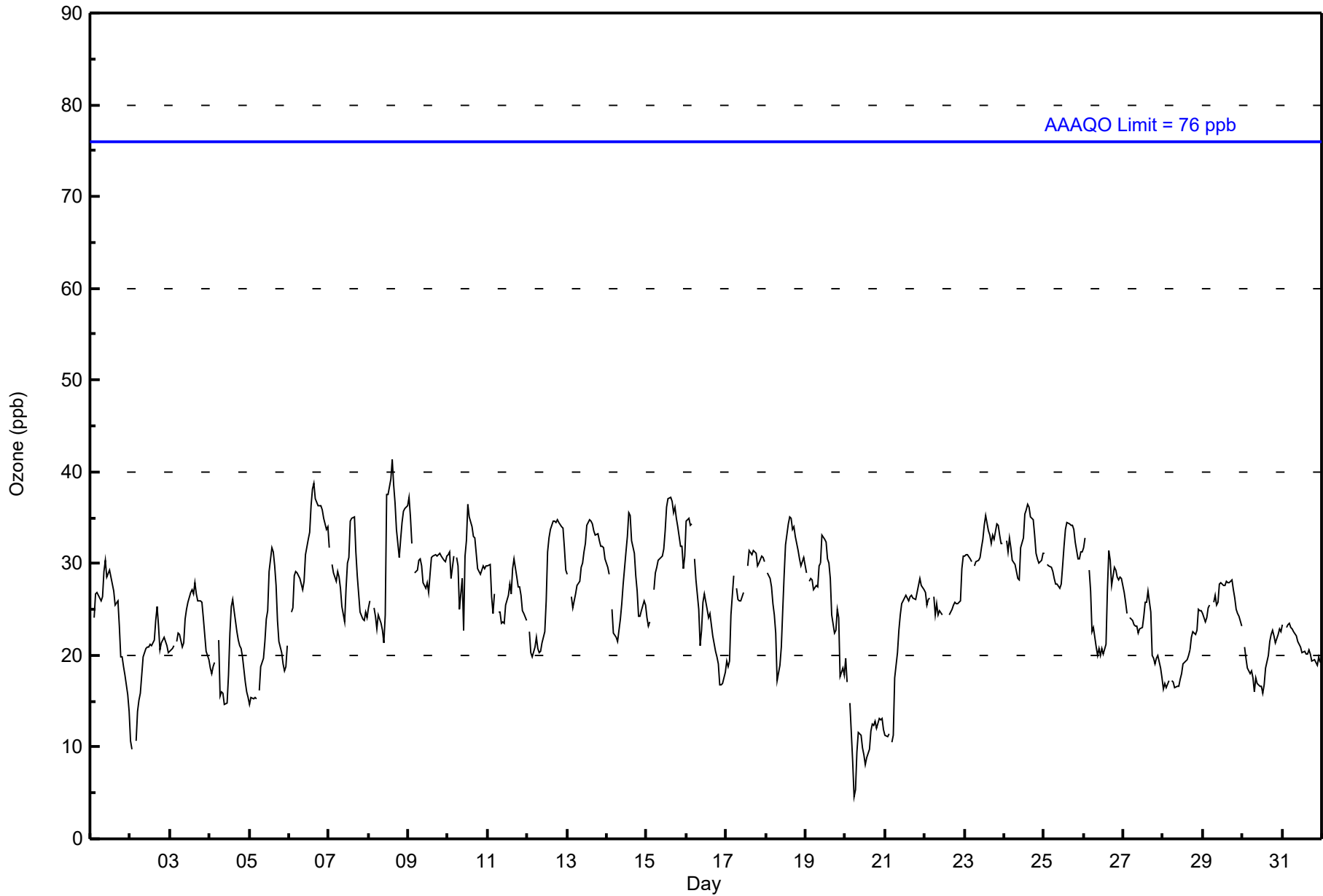
25.1	24.2	24.6	24.7	23.9	23.6	23.6	23.4	23.6	23.8	25.1	26.7	27.8	28.8	29.3	29.2	28.6	27.5	26.8	26.5	26.0	25.6	25.4	25.2	Diurnal Average	
37.2	35.1	34.2	34.4	31.8	30.6	30.4	30.6	30.5	30.8	33.1	37.5	37.5	39.1	41.4	38.7	37.0	36.3	36.3	36.2	35.8	35.7	36.1	36.3	Diurnal Maximum	

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**  
**Stony Mountain - October 2024**





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

**Ozone (O<sub>3</sub>) - ppb**  
**Stony Mountain - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	142	20.08	20.08
21 - 50	565	79.92	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**  
**Stony Mountain - October 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	3	4	0	1	12	7	1	2	1	5	9	2	5	5	7	15	79
21 - 50	1	0	1	10	11	1	0	19	45	35	48	61	83	39	12	5	371
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>	4	4	1	11	23	8	1	21	46	40	57	63	88	44	19	20	450

Total Number of Valid Hours: 450

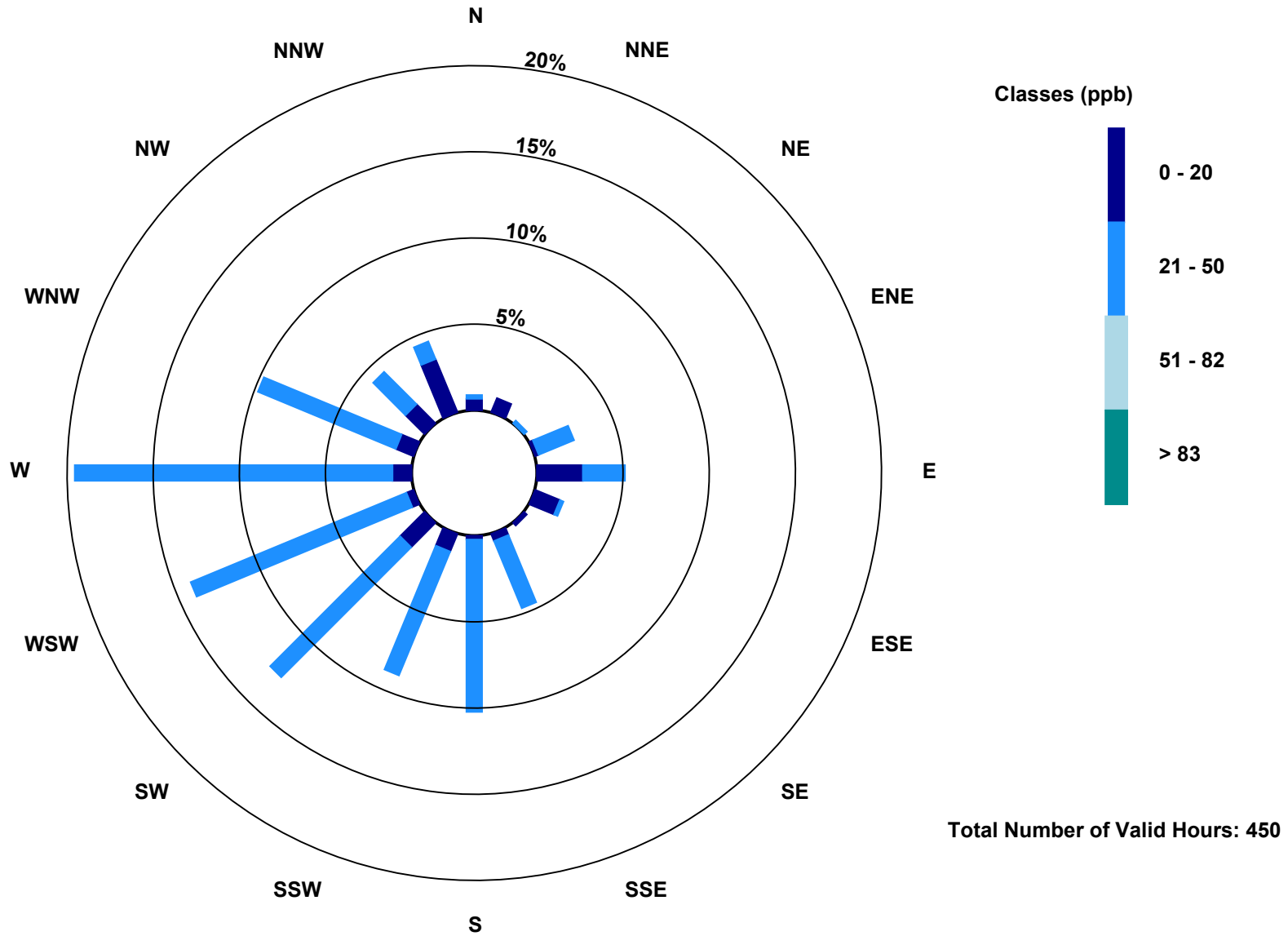
Total Number of Hours: 744

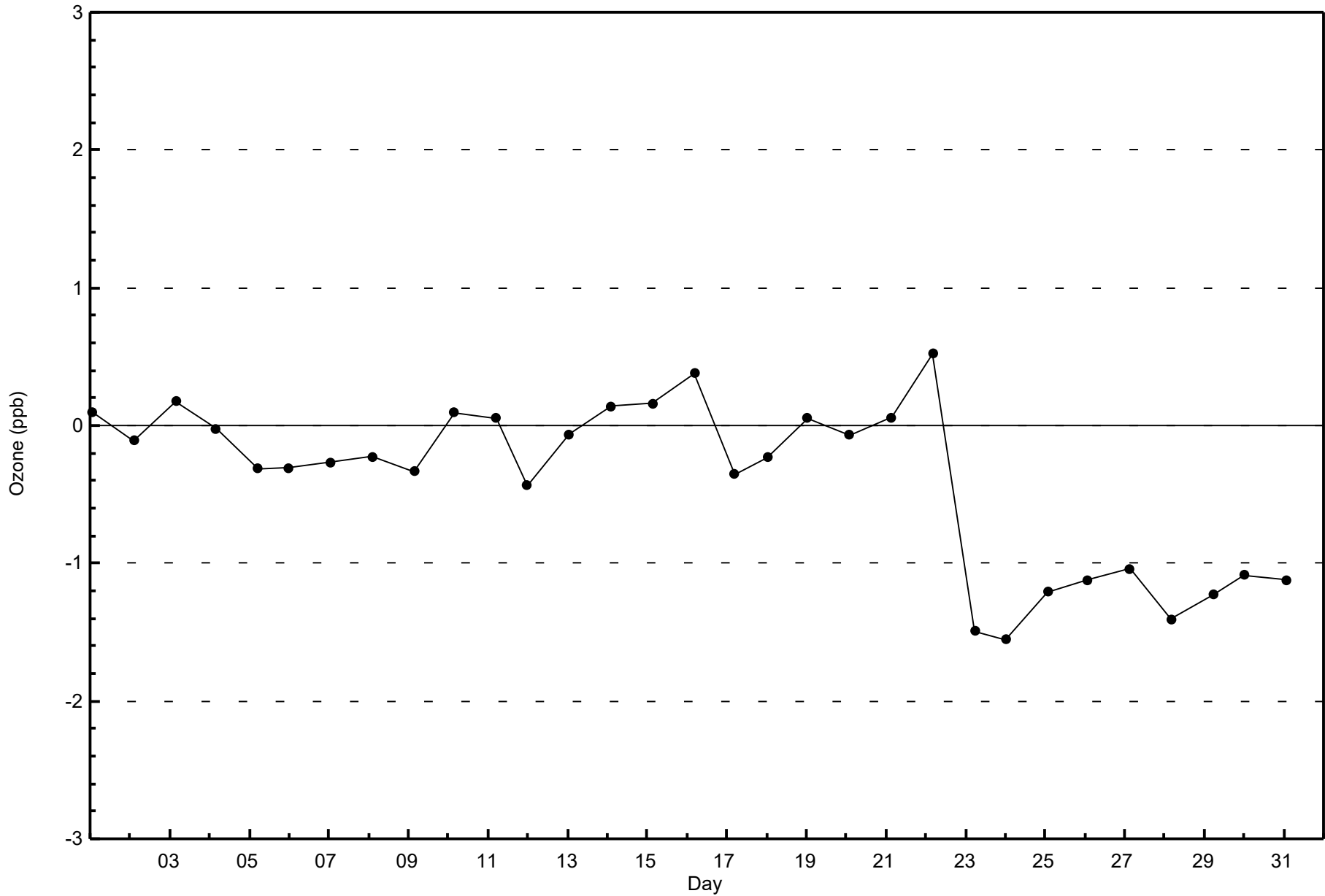


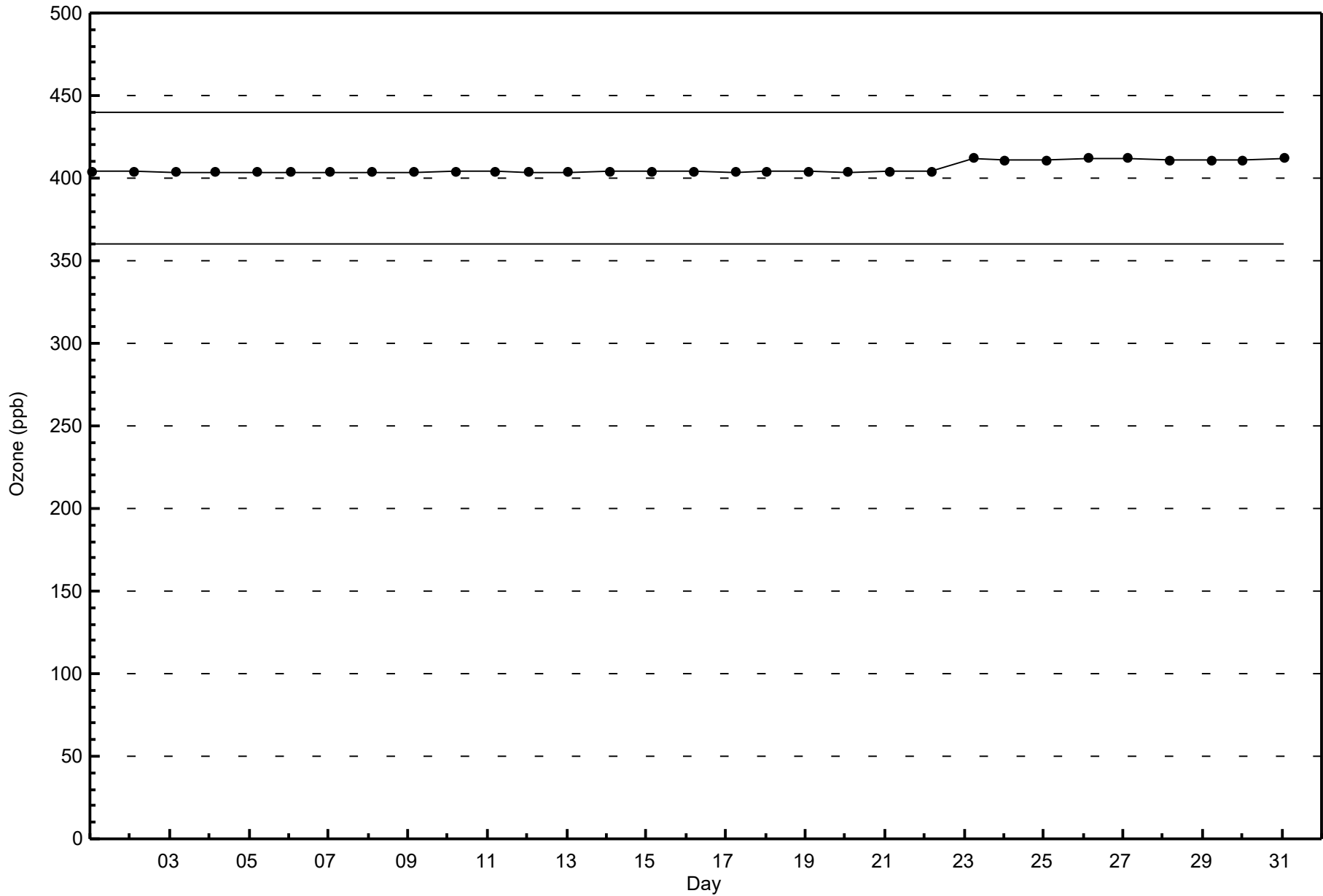


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

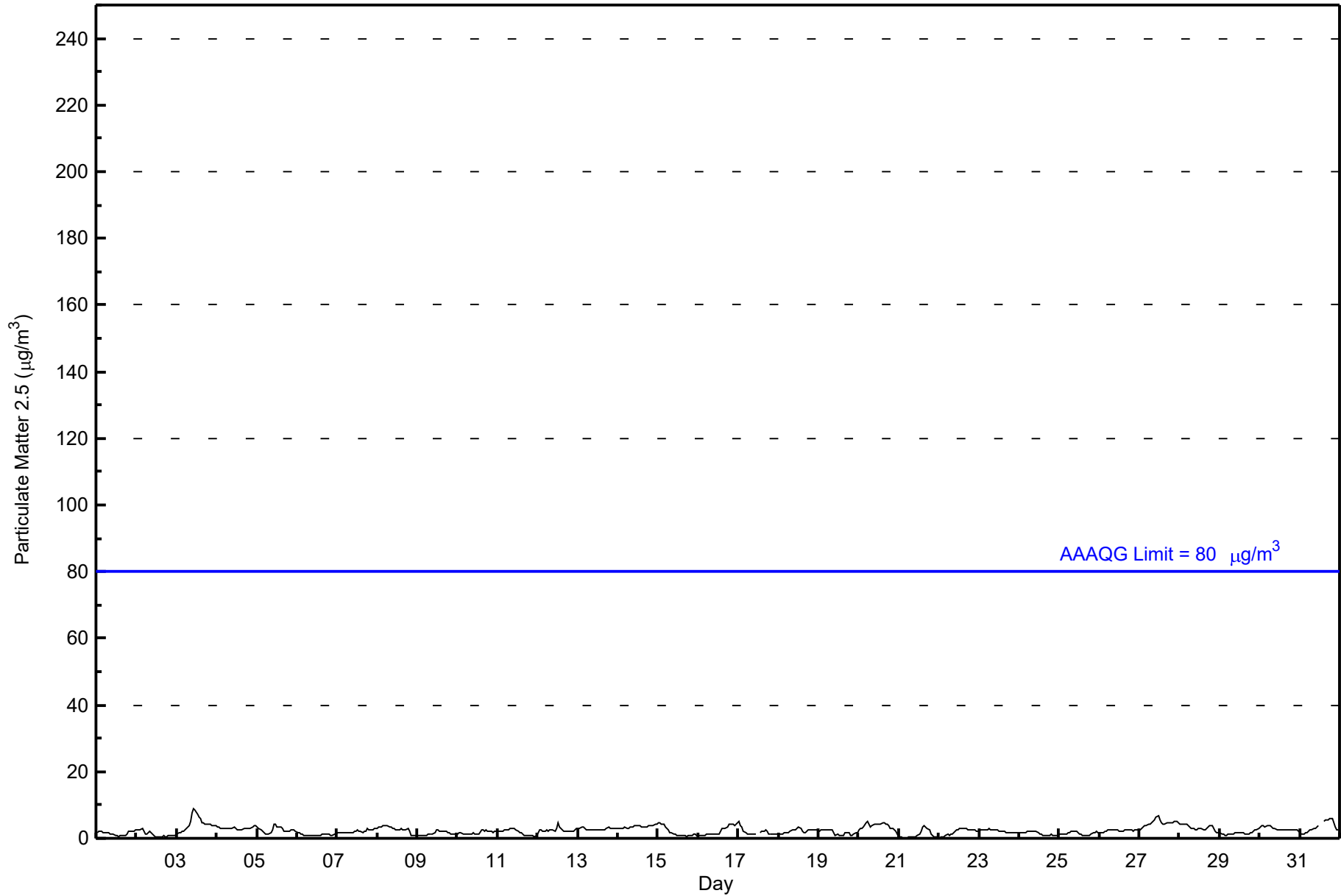
Stony Mountain - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 9.0 µg/m <sup>3</sup> on Oct 3 11:00	Maximum Daily Average: 4.6 µg/m <sup>3</sup> on Oct 27		Hours of Data:	740
Minimum Value: 0.1 µg/m <sup>3</sup> on Oct 21 04:00	Minimum Daily Average: 1.1 µg/m <sup>3</sup> on Oct 6		Hours of Missing Data:	4
Maximum Diurnal Average: 2.6 µg/m <sup>3</sup> at hour 12	Minimum Diurnal Average: 2.2 µg/m <sup>3</sup> at hour 23		Hours of Calibration:	2
Monthly Average: 2.32 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.4 Median = 2.2 Q <sub>3</sub> = 2.9 P <sub>90</sub> = 3.9 P <sub>99</sub> = 6.0		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-Oct	1.9	2.0	2.0	2.0	1.9	1.8	1.7	1.6	1.4	1.2	1.1	0.9	0.7	0.5	0.7	1.0	0.9	1.0	1.3	1.9	2.3	2.0	2.2	2.4	1.5	2.4
2-Oct	2.5	2.7	2.6	2.8	2.1	1.3	1.4	1.8	1.9	1.3	0.7	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.7	0.7	0.7	0.8	1.0	1.2	2.8
3-Oct	1.4	1.7	1.8	2.1	2.3	2.6	2.9	3.7	5.1	7.7	9.0	8.4	7.1	6.5	5.9	4.7	4.5	4.3	4.1	4.1	4.1	4.0	3.8	3.7	4.4	9.0
4-Oct	3.4	3.3	3.2	3.0	3.0	2.9	2.9	2.9	2.9	2.8	3.3	3.0	2.5	2.4	2.5	2.4	2.8	2.9	2.9	2.8	2.9	3.2	3.8	3.7	3.0	3.8
5-Oct	3.3	2.8	2.4	1.9	1.7	1.3	1.2	1.3	1.6	2.5	4.2	4.3	3.4	3.4	3.5	3.0	2.2	1.9	2.1	2.3	2.4	2.4	2.4	2.2	2.5	4.3
6-Oct	1.8	1.7	1.4	1.1	1.0	0.9	0.9	0.8	0.8	0.8	0.9	1.0	0.9	0.8	1.0	1.1	1.2	1.2	1.2	1.2	1.0	1.0	1.1	1.2	1.1	1.8
7-Oct	1.5	1.6	1.5	1.7	1.8	1.7	1.6	1.5	1.6	1.7	2.2	2.3	2.4	2.3	2.1	1.9	1.9	2.2	2.9	2.6	2.6	2.7	2.8	2.9	2.1	2.9
8-Oct	3.0	3.4	3.5	3.6	3.7	3.7	3.7	3.6	3.3	3.1	3.0	2.6	2.5	2.7	2.8	2.7	2.6	2.6	2.9	2.1	0.7	0.7	0.7	0.7	2.7	3.7
9-Oct	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.2	1.3	1.4	1.7	2.5	2.7	2.3	2.0	2.1	2.1	2.0	1.7	1.7	1.4	1.3	1.5	1.4	1.5	2.7
10-Oct	1.4	1.6	1.6	1.5	1.4	1.2	1.3	1.4	1.4	1.5	1.3	1.2	1.1	1.4	2.4	2.7	2.3	2.3	2.1	2.0	1.9	1.8	2.1	2.0	1.7	2.7
11-Oct	2.1	2.2	2.1	2.2	2.4	2.5	2.6	2.8	3.0	3.0	2.8	2.5	2.2	1.6	1.8	1.4	1.0	1.0	0.9	0.9	0.9	0.9	0.6	0.9	1.9	3.0
12-Oct	1.6	2.4	2.5	2.2	2.3	2.4	2.3	2.3	2.3	2.4	2.3	3.1	4.8	3.4	3.2	2.3	2.0	2.0	2.2	2.1	2.2	2.3	2.5	2.8	2.5	4.8
13-Oct	3.0	3.2	3.3	3.3	3.0	2.7	2.5	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.6	2.7	2.7	2.9	3.3	3.2	2.9	3.0	2.9	2.9	2.8	3.3
14-Oct	2.9	2.9	3.1	3.0	3.2	2.9	2.9	3.2	3.2	3.2	3.6	3.7	3.7	3.7	3.6	3.5	3.3	3.3	3.7	3.9	3.7	3.7	4.0	4.4	3.4	4.4
15-Oct	4.6	4.5	4.4	4.1	3.3	2.8	2.4	1.9	1.6	1.4	1.3	1.0	0.8	0.7	0.7	0.6	0.7	0.6	0.7	0.8	1.0	1.1	1.1	1.0	1.8	4.6
16-Oct	0.9	0.8	0.8	0.9	0.9	1.1	1.3	1.2	1.4	1.4	1.4	1.4	1.5	2.1	2.8	2.8	3.1	3.5	4.1	4.3	4.1	4.2	3.9	4.8	2.3	4.8
17-Oct	4.9	4.0	3.2	2.0	1.6	1.4	1.3	1.1	1.1	1.1	1.4	M	M	1.9	1.9	2.2	2.4	1.9	1.4	1.4	1.4	1.2	1.1	1.2	1.9	4.9
18-Oct	1.1	1.3	1.3	1.5	1.5	1.6	1.7	2.0	2.3	2.4	2.7	3.2	3.6	3.0	2.3	1.7	1.9	2.2	2.4	2.5	2.5	2.6	2.5	2.4	2.2	3.6
19-Oct	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4	1.7	1.0	1.1	0.9	1.1	0.6	0.9	1.7	1.8	1.7	1.0	0.8	1.2	1.5	1.8	1.7	2.5
20-Oct	2.4	3.0	3.1	3.5	4.8	5.2	4.1	3.4	3.6	4.0	4.2	4.1	4.2	4.3	4.7	4.5	4.1	4.1	3.7	3.0	3.0	2.7	2.1	1.2	3.6	5.2
21-Oct	0.6	0.3	0.2	0.1	0.1	0.1	0.5	0.5	0.4	0.4	0.6	0.7	1.2	2.1	3.4	3.9	3.5	3.1	2.5	1.2	1.0	0.5	0.2	0.2	1.1	3.9
22-Oct	0.2	0.2	0.3	0.5	0.9	1.3	0.9	1.3	1.3	1.5	2.4	2.7	2.8	2.9	3.1	3.0	2.9	2.7	2.5	2.6	2.5	2.4	2.0	2.0	1.9	3.1
23-Oct	2.2	2.4	2.5	2.6	2.6	2.7	2.8	2.7	2.7	2.6	2.4	2.4	2.2	1.9	2.1	1.9	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.9	2.2	2.8
24-Oct	1.8	1.8	1.7	1.6	1.9	2.0	2.1	2.0	2.1	2.1	2.0	1.7	1.3	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	0.9	1.0	1.5	2.1
25-Oct	1.1	1.2	1.2	1.1	1.3	1.5	1.8	2.0	2.1	2.1	2.2	1.8	1.4	1.1	0.9	0.9	0.9	0.9	1.0	1.1	1.5	1.9	1.9	1.9	1.4	2.2
26-Oct	1.8	1.7	1.7	2.1	2.3	2.4	2.6	2.4	2.5	2.6	2.5	2.6	2.2	2.0	2.3	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.4	2.6	2.3	2.6
27-Oct	2.6	3.0	3.4	3.6	3.8	4.1	4.2	4.8	5.3	5.4	6.2	6.9	5.6	4.7	4.3	4.4	4.6	4.5	4.5	4.5	4.7	5.0	4.9	4.5	4.6	6.9
28-Oct	4.1	4.4	4.1	4.3	4.1	3.6	3.4	3.1	2.8	2.5	2.5	2.9	3.0	2.8	2.7	2.6	2.8	3.2	3.6	3.7	2.8	2.2	1.9	1.8	3.1	4.4
29-Oct	1.7	1.4	1.2	0.9	1.0	1.1	1.1	1.2	1.4	1.8	1.7	1.7	1.7	1.7	1.5	1.4	1.4	1.5	1.7	1.8	2.1	2.4	2.6	2.8	1.6	2.8
30-Oct	3.2	3.7	3.7	3.6	3.6	3.9	3.9	3.3	3.1	2.8	2.6	2.5	2.4	2.5	2.6	2.7	2.7	2.7	2.5	2.6	2.7	2.7	2.4	2.0	2.9	3.9
31-Oct	1.6	1.5	1.3	1.8	1.9	2.1	2.5	2.7	2.8	3.1	3.4	3.6	C	C	5.1	5.6	5.5	5.7	6.0	5.8	4.7	3.6	2.5	2.5	3.4	6.0

2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.6	2.5	2.3	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.2	Diurnal Average
4.9	4.5	4.4	4.3	4.8	5.2	4.2	4.8	5.3	7.7	9.0	8.4	7.1	6.5	5.9	5.6	5.5	5.7	6.0	5.8	4.7	5.0	4.9	4.8		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>) -  $\mu\text{g}/\text{m}^3$**   
**Stony Mountain - October 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	727	98.24	98.24
6 - 15	13	1.76	100.00
16 - 25	0	0.00	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Stony Mountain - October 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	5	4	1	12	23	8	1	22	48	41	62	66	87	44	19	21	464
6 - 15	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	6
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	5	4	1	12	23	8	1	22	48	41	62	66	90	47	19	21	470

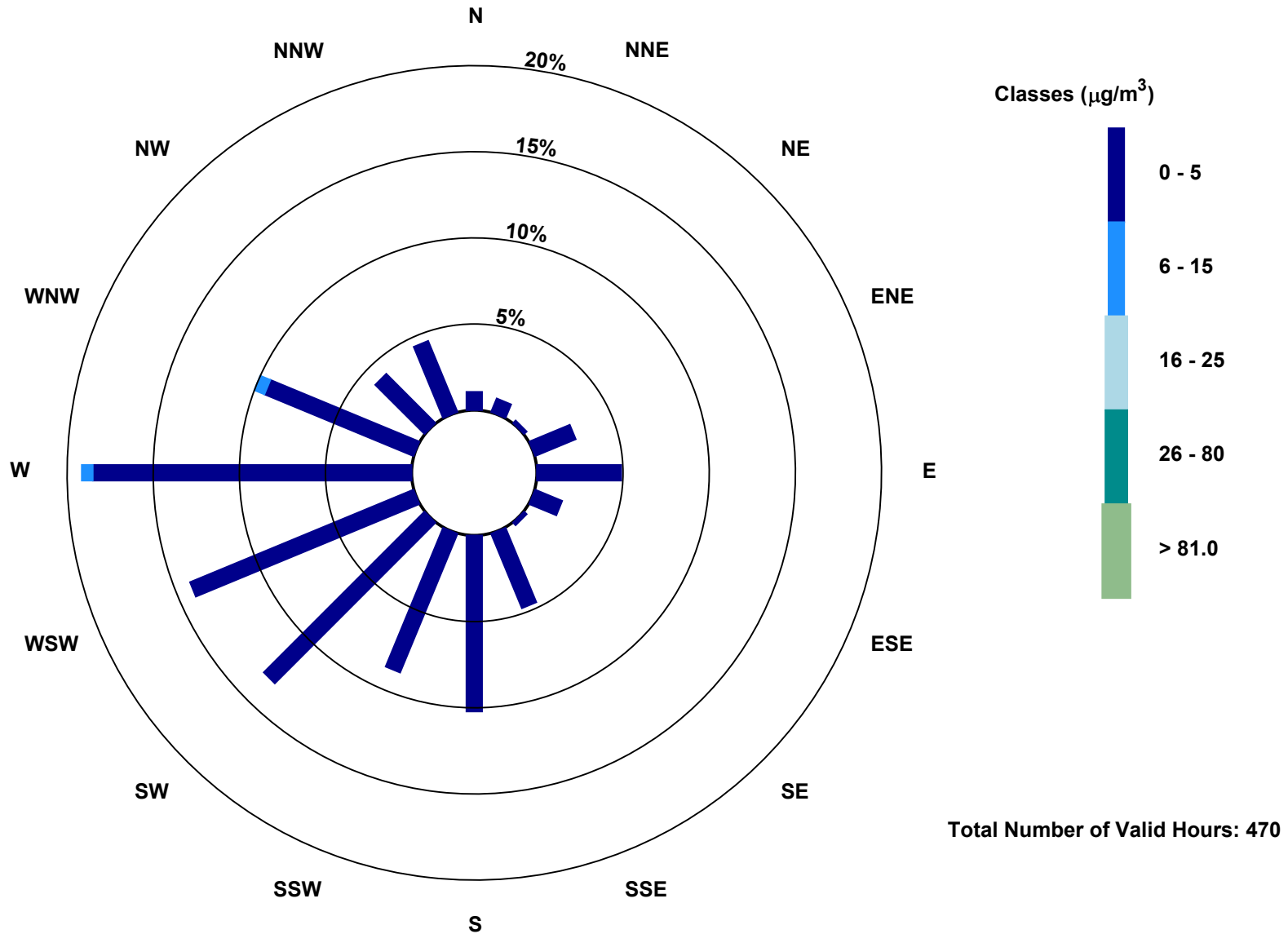
Total Number of Valid Hours: 470

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



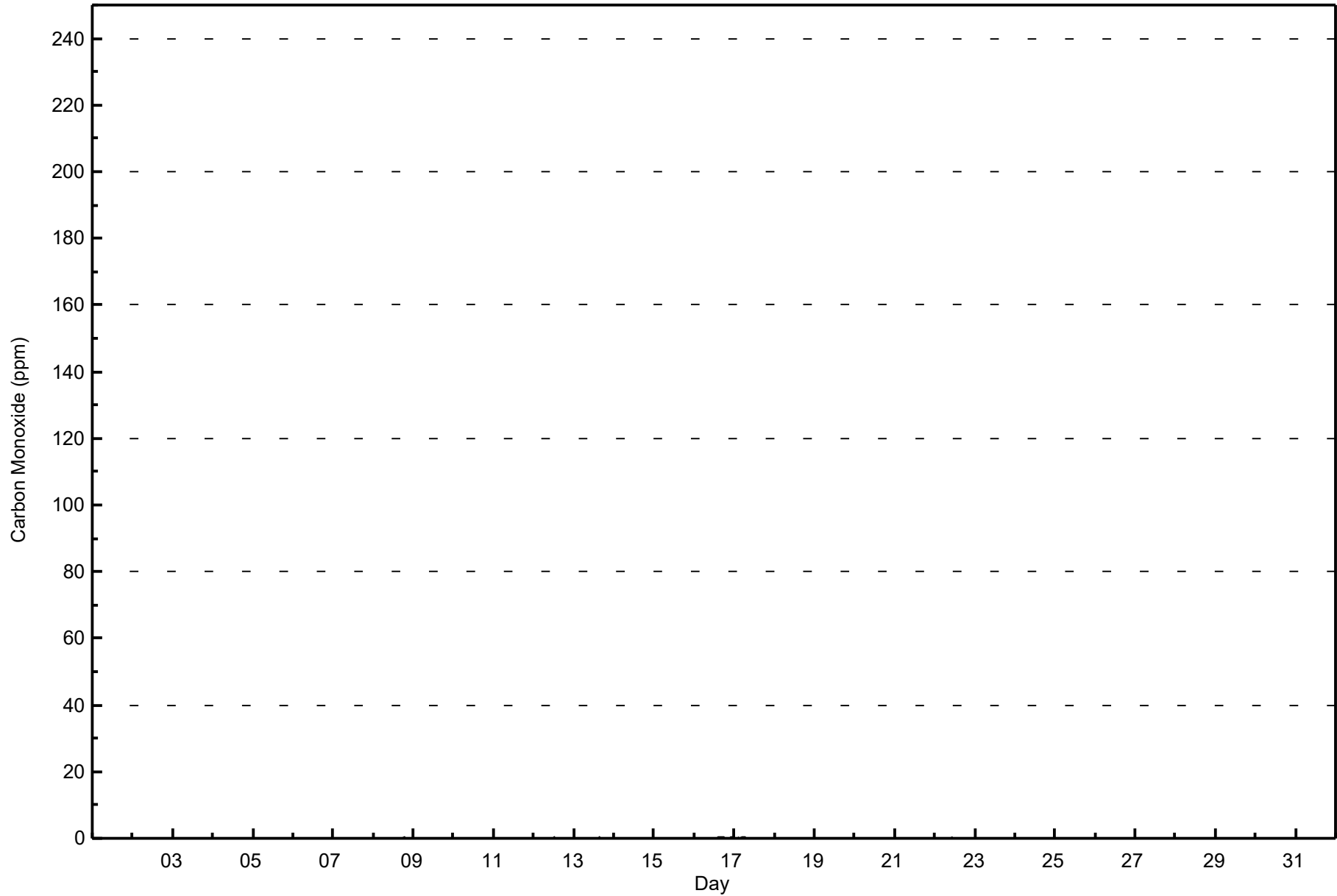






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Stony Mountain - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	707	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Stony Mountain - October 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	5	4	1	12	23	8	1	21	47	39	58	63	85	46	18	20	451
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>	5	4	1	12	23	8	1	21	47	39	58	63	85	46	18	20	451

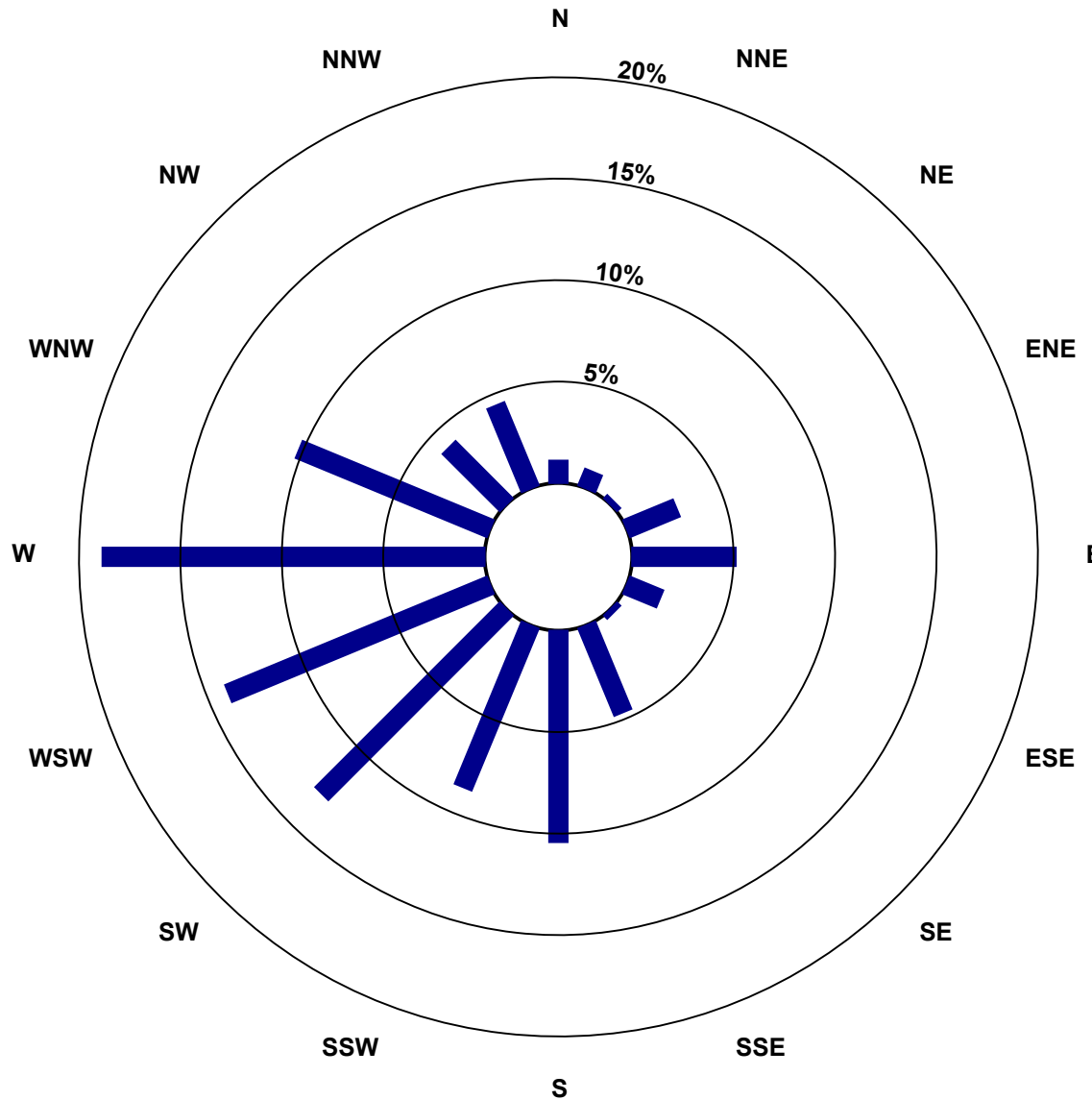
Total Number of Valid Hours: 451

Total Number of Hours: 744

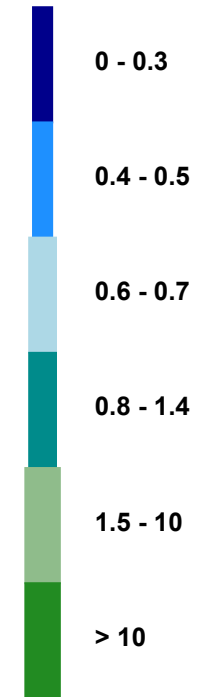


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Carbon Monoxide (CO) - ppm  
Stony Mountain



Classes (ppm)



Total Number of Valid Hours: 451

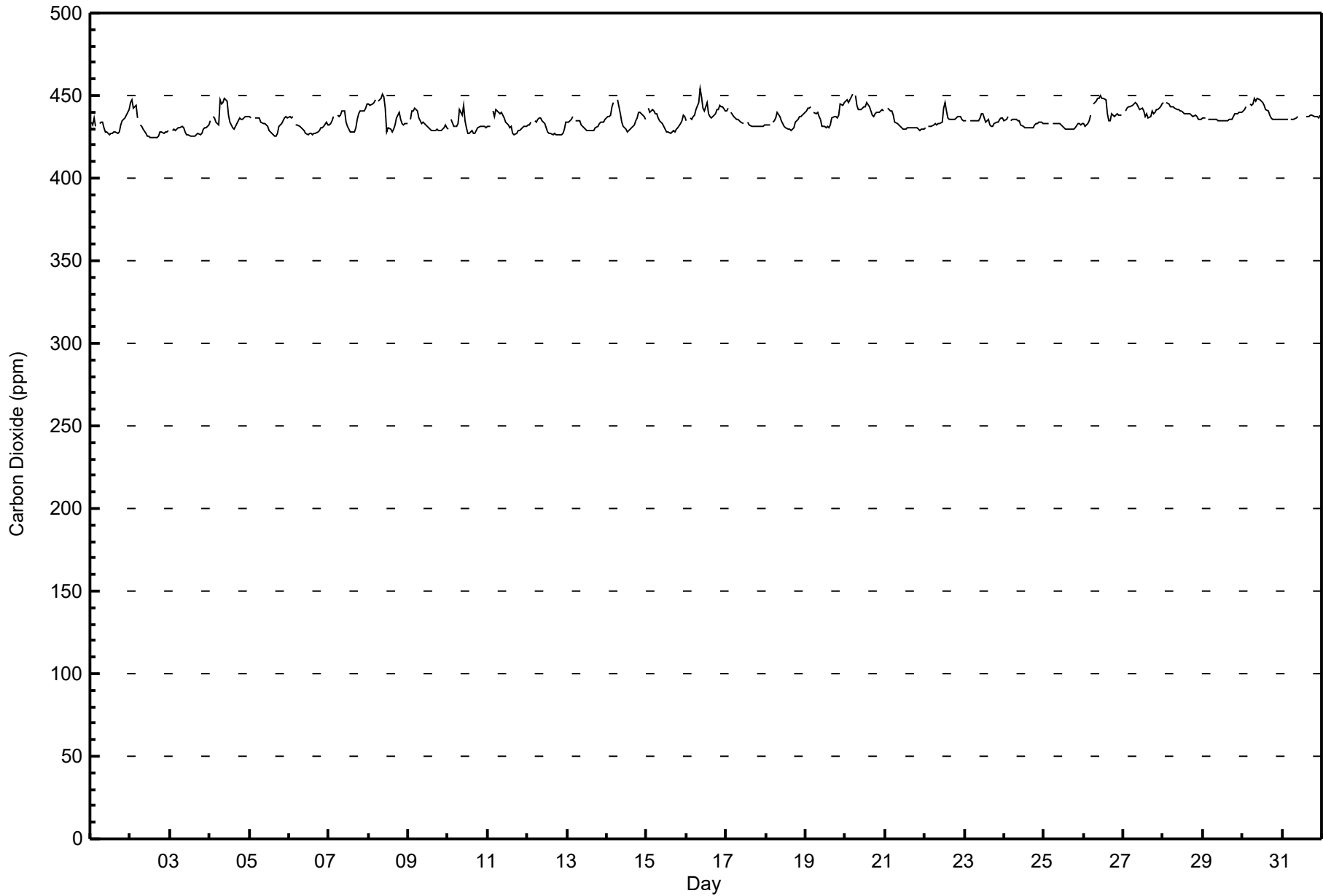


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744						
Maximum Value: 453.8 ppm on Oct 16 09:00		Maximum Daily Average: 443.0 ppm on Oct 20																	Hours of Data:		707						
Minimum Value: 424.3 ppm on Oct 2 16:00		Minimum Daily Average: 428.4 ppm on Oct 3																	Hours of Missing Data:		37						
Maximum Diurnal Average: 438.3 ppm at hour 8		Minimum Diurnal Average: 431.2 ppm at hour 16																	Hours of Calibration:		35						
Monthly Average: 435.23 ppm		Percentiles: P <sub>1</sub> = 425.3 P <sub>10</sub> = 428.3 Q <sub>1</sub> = 430.9 Median = 434.9 Q <sub>3</sub> = 438.7 P <sub>90</sub> = 443.2 P <sub>99</sub> = 448.6																	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-Oct	433.7	432.6	436.5	431.4	Z	432.9	434.3	434.3	430.6	427.5	427.7	426.6	426.7	427.5	427.8	428.0	427.2	428.3	431.8	434.8	435.7	436.9	439.5	441.3	431.9	441.3	
2-Oct	445.5	447.5	442.4	443.9	436.6	Z	432.3	431.3	429.7	427.4	425.7	425.1	424.7	424.6	424.5	424.3	424.5	425.8	428.3	428.3	427.5	427.6	428.1	428.7	430.6	447.5	
3-Oct	Z	429.1	429.4	429.2	429.7	430.3	430.7	431.1	430.4	428.0	426.6	426.0	425.8	425.4	425.3	425.8	426.6	426.8	426.3	426.7	429.9	430.3	430.7	432.3	428.4	432.3	
4-Oct	434.9	Z	437.4	436.4	434.0	432.1	447.6	445.3	446.1	447.9	447.0	438.0	433.9	431.8	430.7	429.6	432.8	435.1	436.1	435.4	435.7	437.3	437.4	437.2	437.4	447.9	
5-Oct	437.3	436.3	Z	436.2	436.1	436.3	436.5	434.2	433.5	433.2	432.2	431.6	428.7	427.1	426.2	425.3	425.2	427.2	431.3	433.2	434.6	436.8	437.4	436.5	432.7	437.4	
6-Oct	437.2	436.7	436.9	Z	432.3	432.0	431.4	430.8	430.0	428.5	427.1	426.4	426.8	426.9	426.6	426.9	427.4	428.0	428.6	430.7	430.3	431.2	433.9	432.1	430.4	437.2	
7-Oct	432.5	433.2	435.1	437.4	Z	437.9	437.6	438.3	440.6	440.6	433.9	431.2	429.9	428.3	427.8	428.2	430.5	435.6	439.1	440.3	440.5	441.0	442.7	445.0	436.0	445.0	
8-Oct	445.1	444.3	444.8	446.0	447.1	Z	446.3	448.2	450.6	449.0	442.3	428.2	430.3	429.6	428.0	429.9	431.9	436.8	439.7	435.5	432.7	432.6	432.8	433.2	438.5	450.6	
9-Oct	Z	435.8	440.3	440.7	442.5	440.7	436.3	434.7	433.1	433.5	432.6	431.6	430.3	429.4	429.0	429.0	429.1	429.5	428.4	428.6	428.7	430.6	432.5	430.9	432.9	442.5	
10-Oct	429.8	Z	435.7	431.3	431.1	431.3	432.9	441.7	438.5	444.4	434.7	430.7	426.9	427.3	428.7	427.3	427.3	428.6	430.9	431.4	431.3	431.0	431.2	430.8	431.9	444.4	
11-Oct	431.0	431.1	Z	440.9	437.4	441.5	439.6	439.2	440.2	438.0	436.6	433.5	431.9	430.4	431.0	426.9	426.1	427.2	428.4	429.2	430.0	430.9	431.0	431.2	433.2	441.5	
12-Oct	431.8	432.5	434.3	Z	434.7	434.1	435.3	436.6	436.5	434.6	433.0	430.9	427.9	427.2	426.7	426.7	426.9	426.4	426.6	426.6	426.4	426.9	430.0	434.3	430.7	436.6	
13-Oct	433.5	434.0	435.6	437.2	Z	434.9	434.6	434.4	431.9	431.2	430.4	429.7	428.7	428.5	428.7	429.2	430.4	431.5	432.9	433.6	433.5	433.6	435.5	432.2	437.2		
14-Oct	436.9	437.3	438.1	443.3	445.9	Z	447.2	443.1	438.8	434.1	431.3	430.0	428.3	428.6	429.8	430.8	432.0	434.7	436.9	439.7	440.2	439.3	437.2	435.9	436.5	447.2	
15-Oct	Z	442.6	440.2	441.2	440.4	439.2	438.6	436.2	435.0	434.4	431.5	429.3	428.3	427.6	427.5	428.2	428.6	428.1	429.3	430.6	433.1	434.9	438.2	437.0	433.9	442.6	
16-Oct	434.5	Z	436.0	435.8	437.4	438.3	441.7	445.6	453.8	448.7	442.8	440.6	446.0	438.8	437.2	436.4	437.2	439.1	441.4	441.9	443.7	443.4	443.4	440.7	441.1	453.8	
17-Oct	440.8	442.3	Z	440.2	436.9	436.5	435.5	435.7	435.0	433.7	433.2	M	M	434.1	431.8	431.3	431.2	431.2	431.2	431.5	431.6	431.4	431.6	431.9	434.2	442.3	
18-Oct	432.1	432.5	432.6	Z	434.3	434.9	436.4	440.1	436.9	435.1	433.1	431.4	430.3	429.3	429.3	429.1	429.5	430.4	434.0	435.5	437.3	437.7	438.3	438.6	433.9	440.1	
19-Oct	440.9	442.5	442.6	443.1	Z	440.2	438.7	440.1	437.4	435.9	431.5	431.1	430.5	431.4	430.9	432.3	436.5	437.5	437.4	436.8	438.0	445.2	444.1	446.0	437.9	446.0	
20-Oct	446.2	447.8	445.9	447.2	450.7	Z	450.4	443.8	441.1	441.4	442.4	443.1	443.2	445.7	443.0	440.6	438.3	437.3	438.6	439.5	439.6	440.7	441.8	440.6	443.0	450.7	
21-Oct	Z	442.0	441.8	440.8	440.7	438.5	433.6	432.9	431.9	431.0	430.3	429.8	429.6	430.1	430.4	430.3	430.3	430.5	430.8	430.3	429.9	429.2	429.6	429.9	432.8	442.0	
22-Oct	430.5	Z	431.2	431.0	431.4	431.9	433.0	432.6	433.1	433.2	434.1	442.0	445.6	440.6	436.6	435.8	435.2	435.4	435.7	436.5	437.1	437.3	435.8	435.0	435.2	445.6	
23-Oct	434.8	434.4	Z	434.5	434.8	435.1	435.0	434.9	434.6	436.7	439.0	439.0	436.5	434.2	435.5	432.3	431.1	431.0	433.4	433.6	434.2	435.4	436.3	436.6	434.9	439.0	
24-Oct	434.4	436.0	437.4	Z	435.1	436.0	435.8	435.8	435.0	434.6	432.4	431.5	430.5	430.3	430.1	430.6	430.5	432.1	433.2	433.4	433.4	434.0	434.1	433.2	433.3	437.4	
25-Oct	432.9	433.0	433.4	433.3	Z	433.0	433.3	433.2	432.9	433.0	432.4	431.5	430.6	429.9	429.7	429.9	429.7	429.2	429.3	430.4	433.0	432.9	432.4	432.8	431.8	433.4	
26-Oct	432.8	431.6	432.9	434.8	437.9	Z	444.6	446.5	448.6	448.0	450.2	448.1	448.5	447.5	439.2	434.6	435.1	438.6	437.7	438.4	438.6	438.1	437.8	437.9	440.4	450.2	
27-Oct	Z	441.1	442.7	443.2	443.2	443.8	445.3	445.4	444.8	443.1	441.5	442.1	440.7	437.7	439.1	436.5	437.1	440.8	438.8	440.2	441.9	441.4	443.4	444.7	441.7	445.4	
28-Oct	445.8	Z	445.8	445.0	443.4	442.8	443.0	442.7	441.9	441.4	440.9	440.3	439.6	439.2	439.1	439.0	438.8	437.9	437.6	437.8	437.1	436.0	435.8	440.3	445.8		
29-Oct	436.1	436.3	Z	435.9	435.7	435.6	435.7	435.7	435.6	435.2	434.7	434.4	434.6	435.0	434.9	435.1	435.5	435.3	437.1	438.9	439.0	439.3	439.6	440.2	436.3	440.2	
30-Oct	441.1	441.9	443.1	Z	445.1	444.4	445.1	448.1	446.5	447.9	447.6	446.4	446.1	444.3	441.3	440.3	437.8	436.4	435.5	435.6	436.0	435.6	435.3	435.3	441.6	448.1	
31-Oct	435.4	435.8	435.7	435.3	Z	435.8	435.5	435.9	436.3	437.4	C	C	C	C	437.5	437.5	437.1	437.9	438.2	437.5	437.6	437.3	436.6	437.9	436.7	438.2	
436.4 437.3 438.0 438.3 438.2 436.5 438.2 438.3 437.8 437.0 435.3 433.8 433.2 432.3 431.7 431.2 431.5 432.5 433.6 434.2 434.8 435.3 435.9 436.1																								Diurnal Average			
446.2 447.8 445.9 447.2 450.7 444.4 450.4 448.2 453.8 449.0 450.2 448.1 448.5 447.5 443.0 440.6 438.8 440.8 441.4 441.9 443.7 445.2 444.1 446.0																								Diurnal Maximum			
Z - zerospan		C - Calibration				M - Maintenance																					



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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - October 2024**





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - October 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	573	81.05	81.05
440 - 460	134	18.95	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: 707

Total Number of Hours: 744





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - October 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
400 - 420	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
420 - 440	3	3	1	10	10	3	0	15	41	34	46	57	81	43	16	12	375
440 - 460	2	1	0	2	13	5	1	6	6	5	12	6	5	2	2	8	76
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>	5	4	1	12	23	8	1	21	47	39	58	63	86	45	18	20	451

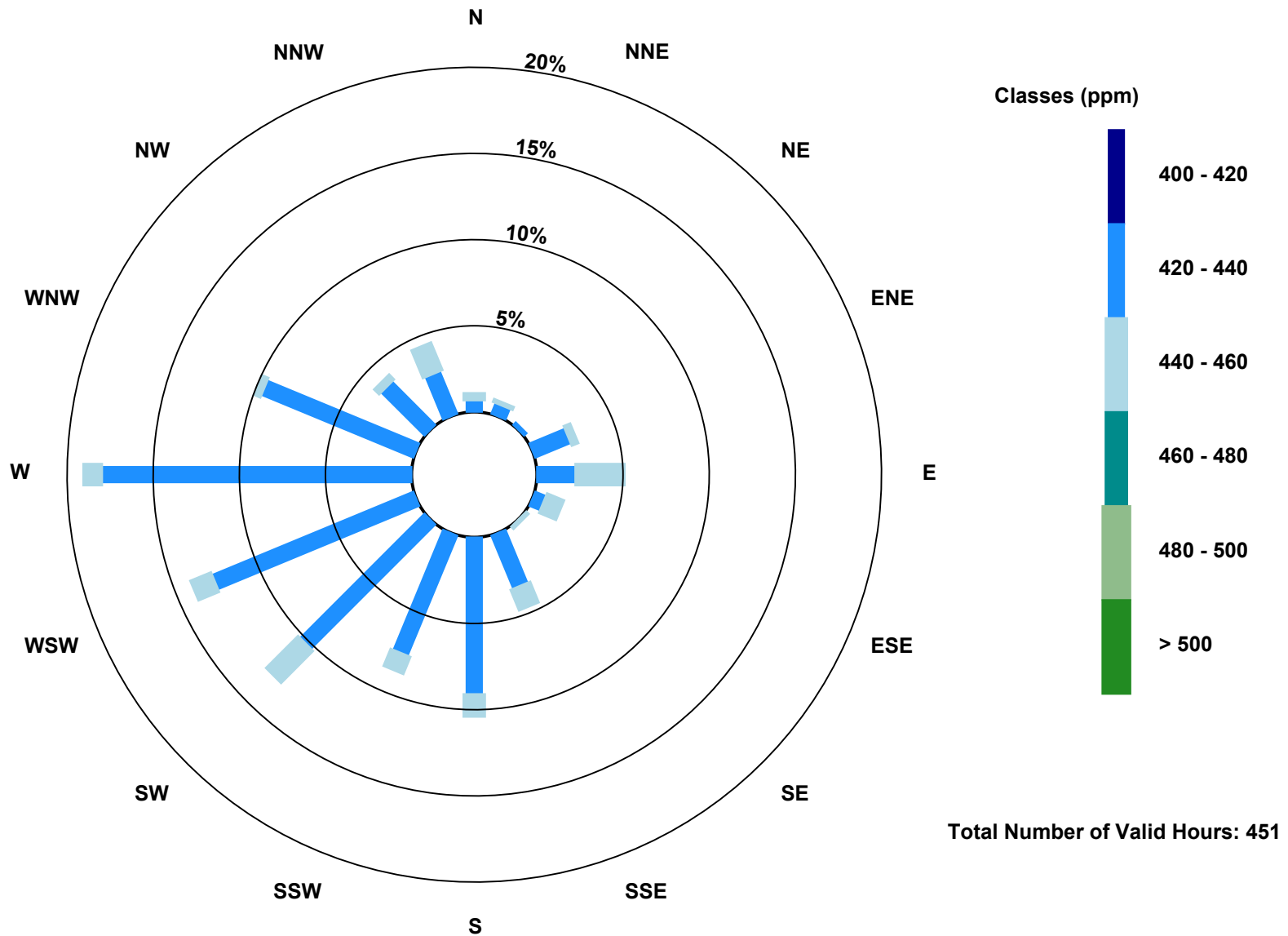
Total Number of Valid Hours: 451

Total Number of Hours: 744



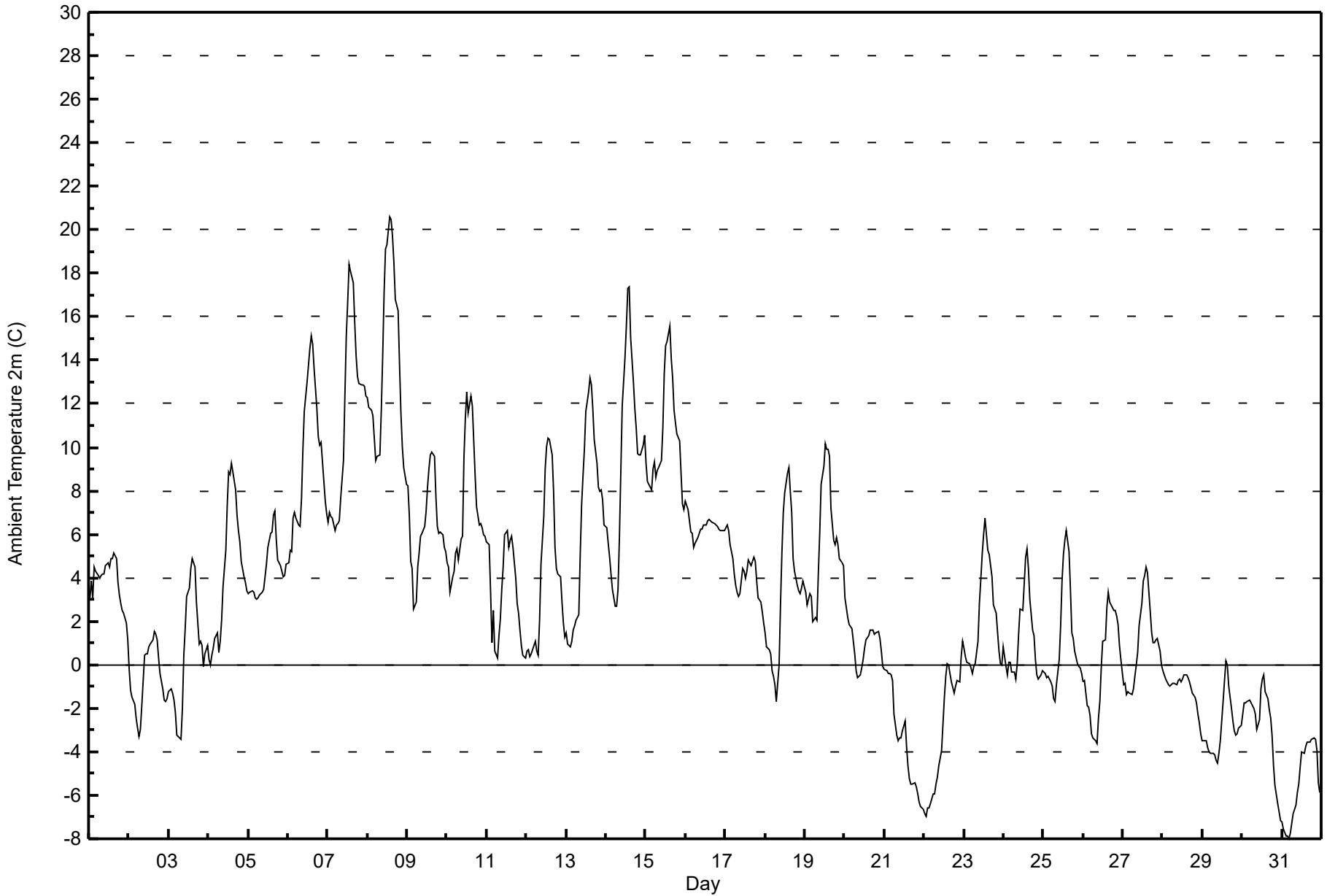
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain





Maximum Value: 20.6 C on Oct 8 14:00      Maximum Daily Average: 13.9 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -8.0 C on Oct 31 05:00      Minimum Daily Average: -5.5 C on Oct 31 Maximum Diurnal Average: 6.8 C at hour 15      Minimum Diurnal Average: 1.0 C at hour 7 Monthly Average: 3.30 C      Percentiles: P <sub>1</sub> = -7.1 P <sub>10</sub> = -3.2 Q <sub>1</sub> = -0.5 Median = 2.9 Q <sub>3</sub> = 6.4 P <sub>90</sub> = 10.3 P <sub>99</sub> = 17.9																				Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	3.1	3.8	3.1	4.5	4.3	4.1	4.0	4.1	4.2	4.2	4.6	4.7	4.5	4.9	4.9	5.1	4.9	3.8	3.2	2.8	2.5	2.4	1.9	1.2	3.8	5.1
2-Oct	-0.2	-1.2	-1.5	-1.8	-2.5	-2.9	-3.3	-3.0	-1.9	0.4	0.5	0.5	0.9	1.0	1.2	1.5	1.4	1.2	0.3	-0.4	-1.1	-1.6	-1.7	-1.6	-0.7	1.5
3-Oct	-1.3	-1.1	-1.3	-1.6	-2.2	-3.2	-3.3	-3.4	-2.0	0.5	1.6	3.1	3.5	4.4	4.9	4.7	4.5	2.9	1.0	1.1	0.9	-0.1	0.5	0.9	0.6	4.9
4-Oct	0.3	0.0	0.4	0.7	1.2	1.5	0.5	1.1	2.1	3.6	5.3	7.3	8.9	8.8	9.2	8.9	8.0	6.9	6.2	5.7	4.7	4.1	3.8	3.4	4.3	9.2
5-Oct	3.2	3.3	3.4	3.3	3.1	3.0	3.1	3.2	3.3	3.5	4.0	4.6	5.4	6.0	6.1	6.9	7.1	5.8	4.8	4.6	4.3	4.0	4.1	4.6	4.4	7.1
6-Oct	4.7	5.3	5.2	6.8	7.0	6.7	6.4	6.4	7.6	9.8	11.7	13.0	13.8	14.6	15.1	14.8	13.6	11.8	10.5	10.1	10.2	9.3	7.5	7.0	9.5	15.1
7-Oct	6.6	7.0	6.8	6.8	6.2	6.4	6.5	6.6	7.7	9.4	12.3	15.1	16.6	18.4	18.1	17.5	15.8	14.2	13.2	12.9	12.9	12.9	12.8	12.4	11.5	18.4
8-Oct	12.3	11.9	11.7	11.4	10.5	9.4	9.6	9.7	11.7	14.2	17.1	19.1	19.3	20.6	20.4	19.7	18.5	16.8	16.3	13.8	11.6	10.1	9.1	8.3	13.9	20.6
9-Oct	8.2	6.9	4.8	4.4	2.6	2.9	4.5	5.1	5.9	6.0	6.4	7.1	8.1	9.0	9.7	9.8	9.6	7.7	6.4	6.0	6.1	6.0	5.4	5.2	6.4	9.8
10-Oct	4.7	4.5	3.3	4.0	4.3	5.1	5.4	4.8	5.8	5.9	9.5	11.3	12.5	11.6	12.3	11.9	10.3	8.7	7.3	6.4	6.5	6.3	6.0	5.9	7.3	12.5
11-Oct	5.6	5.5	3.4	1.0	2.5	0.6	0.3	1.4	2.1	3.5	4.5	6.0	6.2	5.4	5.7	5.9	5.4	4.0	2.8	2.3	1.6	0.9	0.4	0.3	3.2	6.2
12-Oct	0.7	0.7	0.4	0.5	0.9	1.1	0.6	0.4	2.0	4.6	6.8	9.0	10.0	10.4	10.4	9.7	8.0	5.4	4.4	4.2	4.0	2.9	1.9	1.3	4.2	10.4
13-Oct	1.5	0.9	0.9	1.1	1.6	1.8	2.1	2.3	5.0	7.3	8.7	9.9	11.6	12.6	13.2	12.9	11.7	10.4	9.3	8.2	8.0	8.0	7.6	6.5	6.8	13.2
14-Oct	6.3	5.6	4.9	4.2	3.5	2.7	2.7	3.4	5.8	8.9	11.9	14.1	15.6	17.3	17.4	15.1	13.0	11.8	10.8	9.7	9.6	9.6	10.1	10.6	9.4	17.4
15-Oct	9.2	8.5	8.3	8.0	9.0	9.3	8.6	8.9	9.1	9.4	10.9	13.4	14.7	14.9	15.6	14.1	13.2	11.7	11.1	10.6	10.3	8.8	7.4	7.2	10.5	15.6
16-Oct	7.5	7.1	6.7	6.1	6.1	5.4	5.6	5.9	6.0	6.2	6.3	6.4	6.5	6.6	6.7	6.6	6.5	6.5	6.4	6.4	6.3	6.2	6.1	6.1	6.3	7.5
17-Oct	6.3	6.4	6.2	5.5	4.9	4.2	3.7	3.4	3.1	3.3	4.5	4.3	4.0	4.3	4.8	4.6	4.8	4.9	4.7	3.9	3.1	2.9	2.4	1.9	4.3	6.4
18-Oct	1.4	0.9	0.7	0.5	-0.3	-0.5	-0.9	-1.7	0.0	2.7	5.1	7.0	7.9	8.8	9.1	8.0	7.0	4.9	4.3	3.7	3.4	3.2	3.5	3.9	3.4	9.1
19-Oct	3.3	2.8	3.0	3.3	3.1	2.0	2.2	2.0	4.2	6.0	8.3	9.1	10.2	9.9	9.9	9.6	7.2	5.7	5.6	5.8	5.5	4.9	4.7	4.5	5.5	10.2
20-Oct	3.0	2.6	2.1	1.9	1.7	1.1	0.5	-0.3	-0.6	-0.4	-0.2	0.2	0.8	1.1	1.4	1.6	1.6	1.6	1.4	1.5	1.5	1.2	0.6	-0.1	1.1	3.0
21-Oct	-0.2	-0.3	-0.4	-0.4	-0.5	-0.8	-2.3	-3.2	-3.5	-3.4	-3.4	-3.0	-2.6	-3.7	-4.7	-5.2	-5.5	-5.5	-5.4	-5.6	-6.0	-6.3	-6.5	-6.7	-3.5	-0.2
22-Oct	-6.9	-7.0	-6.6	-6.6	-6.4	-6.0	-6.0	-5.5	-5.2	-4.6	-3.9	-2.7	-1.5	-0.5	0.0	0.0	-0.8	-1.1	-1.3	-1.0	-0.7	-0.8	0.4	1.1	-3.1	1.1
23-Oct	0.8	0.4	0.1	0.1	-0.1	-0.4	-0.1	0.1	1.1	2.8	3.9	5.1	6.0	6.8	5.3	5.1	4.6	4.0	2.7	2.4	1.5	0.6	0.0	0.0	2.2	6.8
24-Oct	0.8	-0.1	-0.5	0.1	0.1	-0.3	-0.4	-0.7	0.0	1.4	2.6	2.5	3.7	4.9	5.3	4.4	3.0	1.6	1.4	0.2	-0.4	-0.7	-0.5	-0.3	1.2	5.3
25-Oct	-0.3	-0.4	-0.6	-0.5	-0.8	-1.0	-1.5	-1.7	-0.9	0.2	1.8	3.9	5.1	5.7	6.2	5.2	3.5	1.5	1.2	0.6	0.0	-0.1	-0.1	-0.4	1.1	6.2
26-Oct	-0.8	-0.7	-1.9	-2.0	-2.3	-3.2	-3.3	-3.5	-3.6	-2.5	-1.7	-0.1	1.1	1.1	2.6	3.3	2.9	2.7	2.5	2.5	2.2	1.9	0.9	0.3	-0.1	3.3
27-Oct	-0.9	-0.9	-1.4	-1.3	-1.3	-1.4	-1.1	-0.5	0.0	0.6	1.8	2.8	3.8	4.1	4.5	4.2	2.4	1.5	1.0	1.0	1.1	1.2	0.7	0.0	0.9	4.5
28-Oct	-0.3	-0.5	-0.6	-0.9	-1.0	-0.9	-0.9	-0.9	-0.9	-0.7	-0.7	-0.8	-0.7	-0.5	-0.4	-0.6	-0.8	-1.0	-1.3	-1.5	-1.8	-2.3	-2.7	-3.1	-1.1	-0.3
29-Oct	-3.5	-3.5	-3.5	-3.8	-4.0	-4.1	-4.1	-4.1	-4.4	-4.5	-4.1	-3.5	-1.7	-0.7	0.2	0.0	-1.0	-2.0	-2.6	-3.1	-3.2	-3.2	-2.9	-2.8	-2.9	0.2
30-Oct	-2.3	-1.8	-1.7	-1.7	-1.7	-1.7	-1.9	-2.0	-2.3	-3.0	-2.5	-1.1	-0.6	-0.5	-1.2	-1.6	-2.0	-2.5	-3.3	-4.7	-5.5	-6.4	-6.8	-7.1	-2.7	-0.5
31-Oct	-7.2	-7.6	-7.9	-7.9	-8.0	-7.7	-7.3	-6.8	-6.4	-5.9	-5.5	-4.7	-4.0	-4.1	-3.7	-3.6	-3.6	-3.5	-3.4	-3.3	-3.5	-4.0	-5.4	-5.9	-5.5	-3.3
	2.1	1.9	1.5	1.5	1.3	1.1	1.0	1.0	1.8	2.9	4.1	5.3	6.1	6.6	6.8	6.5	5.6	4.6	3.9	3.4	3.1	2.6	2.3	2.1	Diurnal Average	
	12.3	11.9	11.7	11.4	10.5	9.4	9.6	9.7	11.7	14.2	17.1	19.1	19.3	20.6	20.4	19.7	18.5	16.8	16.3	13.8	12.9	12.9	12.8	12.4	Diurnal Maximum	





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

**Ambient Temperature 2m (AT2) - C**  
**Stony Mountain - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	221	29.70	29.70
0 - 10	441	59.27	88.98
10 - 20	80	10.75	99.73
> 20	2	0.27	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

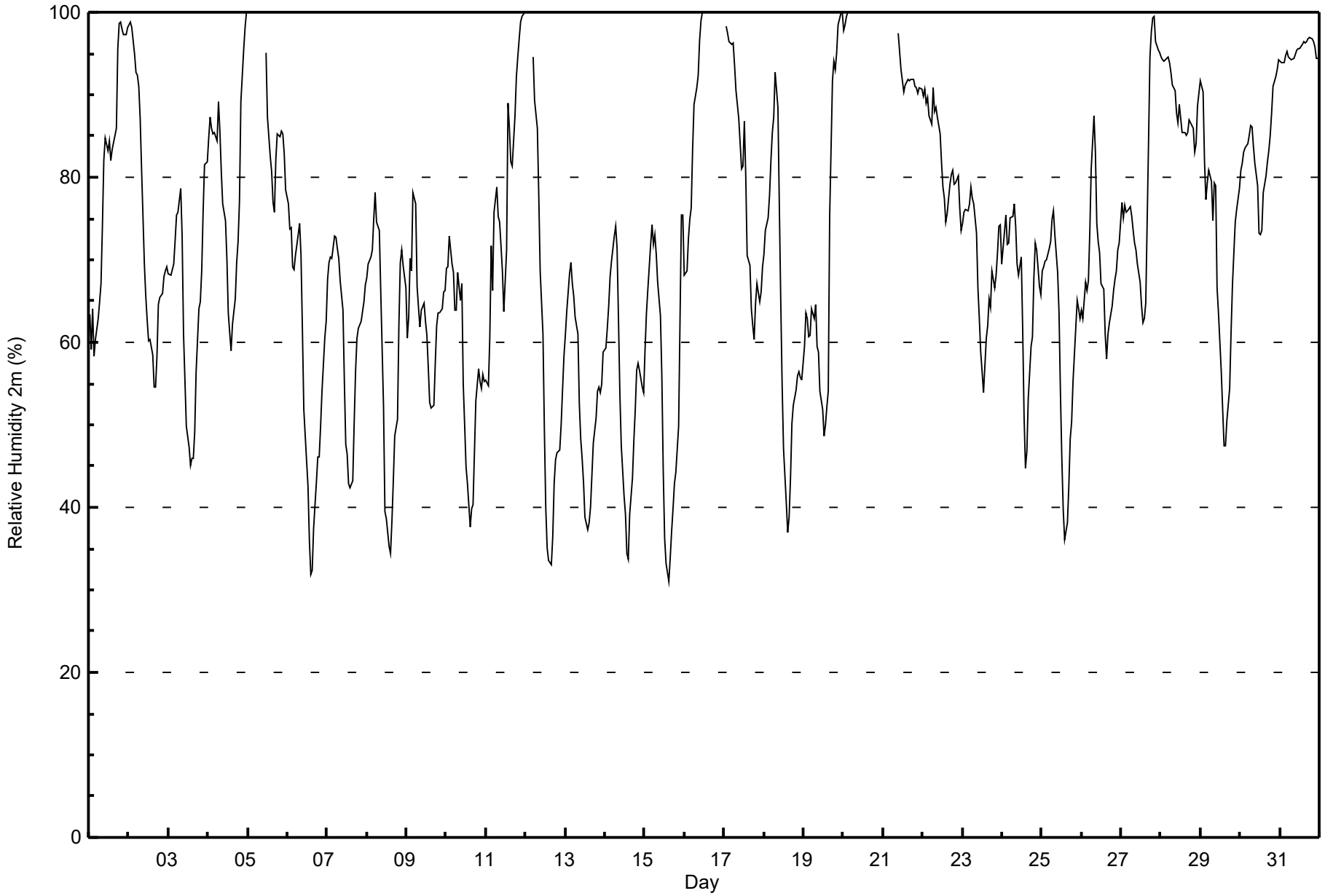
**Relative Humidity 2m (RH2) - %**  
**Stony Mountain - October 2024**

Maximum Value: 100.0 % on Oct 5 00:00      Maximum Daily Average: 95.3 % on Oct 31																						Hours in Service: 744 Hours of Data: 691																											
Minimum Value: 31.0 % on Oct 15 15:00      Minimum Daily Average: 53.4 % on Oct 13																						Hours of Missing Data: 53 Hours of Calibration: 0																											
Maximum Diurnal Average: 79.6 % at hour 7      Minimum Diurnal Average: 56.8 % at hour 15																						Percent Operational Time: 92.9																											
Monthly Average: 70.76 %      Percentiles: P <sub>1</sub> = 33.8 P <sub>10</sub> = 47.0 Q <sub>1</sub> = 60.4 Median = 70.4 Q <sub>3</sub> = 84.6 P <sub>90</sub> = 94.5 P <sub>99</sub> = 100.0																																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	63.4	59.2	64.1	58.3	60.3	62.9	64.9	67.1	74.1	82.0	84.7	83.2	84.4	82.1	83.4	84.2	85.9	95.7	98.7	98.9	98.0	97.3	97.4	98.1	80.3	98.9																							
2-Oct	98.4	98.8	98.2	94.8	92.8	92.3	91.0	87.2	81.0	69.6	65.7	62.8	60.1	60.3	58.5	54.6	54.6	58.3	64.5	65.4	65.9	68.0	68.6	69.1	74.2	98.8																							
3-Oct	68.2	68.1	68.8	69.5	72.3	75.4	75.8	78.7	72.9	61.0	55.5	49.9	47.3	45.1	46.0	46.0	49.2	56.4	64.0	64.9	68.7	75.7	81.5	81.8	64.3	81.8																							
4-Oct	84.8	87.2	85.9	85.3	85.4	84.5	89.2	85.6	80.7	76.8	74.7	70.2	63.5	61.3	59.0	62.2	65.2	69.7	72.2	77.2	89.1	95.4	98.2	100.0	79.3	100.0																							
5-Oct	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	95.1	87.2	82.5	80.6	76.9	75.8	82.2	85.3	84.9	85.5	85.3	83.0	78.4	--	95.1																							
6-Oct	76.8	73.8	73.9	69.1	68.8	70.5	73.1	74.4	70.5	61.4	51.8	45.6	42.5	36.0	31.9	32.4	37.5	43.1	46.2	46.1	49.8	54.1	60.5	62.5	56.3	76.8																							
7-Oct	67.6	69.7	70.3	70.2	72.9	72.7	71.3	70.2	67.5	63.9	55.2	47.7	46.4	42.9	42.4	43.2	50.1	56.5	60.6	61.8	62.5	63.7	64.9	67.0	60.9	72.9																							
8-Oct	67.7	69.5	70.4	71.2	74.9	78.2	74.5	73.6	66.4	59.2	52.1	39.5	38.7	35.3	34.4	38.3	43.1	48.7	50.7	62.1	69.7	71.1	69.3	66.6	59.4	78.2																							
9-Oct	60.6	63.0	70.2	68.6	78.2	76.8	66.7	64.2	61.9	63.9	64.7	62.6	60.9	57.0	52.8	52.1	52.3	57.4	62.1	63.6	63.6	64.0	66.1	66.3	63.3	78.2																							
10-Oct	69.0	69.1	72.9	69.5	68.4	63.9	63.9	68.6	65.0	67.1	54.9	50.0	44.9	42.9	37.7	39.8	40.3	46.7	52.8	56.8	55.3	54.5	56.0	55.2	56.9	72.9																							
11-Oct	55.5	54.7	60.6	71.7	66.2	75.8	78.9	75.3	74.6	71.6	68.6	63.8	71.2	89.0	86.0	81.9	81.4	87.4	92.2	94.5	96.8	98.8	99.4	100.0	79.0	100.0																							
12-Oct	OR	OR	OR	OR	94.6	89.4	87.7	85.9	77.8	68.6	61.1	49.5	40.0	35.0	33.5	33.1	36.4	42.9	45.8	46.7	47.0	50.0	54.2	58.3	56.9	94.6																							
13-Oct	60.9	63.8	68.3	69.7	67.2	65.6	63.0	61.0	52.5	48.3	45.9	43.1	38.8	37.3	38.1	40.1	43.8	47.9	50.8	54.1	54.7	53.9	54.9	58.7	53.4	69.7																							
14-Oct	59.2	61.7	64.5	67.9	69.9	72.9	74.0	71.4	62.6	53.8	47.4	41.3	39.2	34.4	33.8	39.1	43.6	48.2	51.9	56.6	57.5	56.6	54.6	53.8	54.8	74.0																							
15-Oct	59.2	63.6	66.5	71.8	74.3	71.9	73.0	70.6	67.4	63.1	55.9	44.4	39.3	33.2	31.0	33.8	37.1	39.8	42.8	44.3	49.8	62.6	75.4	75.3	56.0	75.4																							
16-Oct	68.2	68.7	72.5	75.0	76.3	83.4	88.9	90.9	92.3	96.6	99.0	100.0	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	100.0																						
17-Oct	OR	98.4	97.4	96.4	96.2	96.2	93.6	90.6	88.7	87.1	81.0	81.3	86.8	80.3	70.5	69.4	64.0	62.0	60.3	64.8	67.2	64.8	66.1	69.1	79.7	98.4																							
18-Oct	70.7	73.6	75.1	77.8	82.0	85.4	87.3	92.7	88.4	76.7	65.2	54.9	47.2	40.4	37.0	38.9	43.5	50.2	52.4	54.3	56.0	56.4	55.8	55.5	63.2	92.7																							
19-Oct	59.5	63.6	62.9	60.7	60.8	64.1	62.9	64.5	59.5	58.8	54.1	51.9	48.6	50.0	52.2	54.0	75.2	91.7	94.1	93.1	95.0	98.5	99.9	100.0	69.8	100.0																							
20-Oct	97.8	98.5	99.6	100.0	100.0	100.0	100.0	100.0	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	100.0																						
21-Oct	OR	OR	OR	OR	OR	OR	OR	OR	OR	97.5	95.3	93.0	90.4	91.2	91.6	91.9	91.7	91.8	91.9	91.1	90.8	90.2	90.9	90.7	--	97.5																							
22-Oct	89.9	90.6	89.0	89.6	87.5	86.4	90.9	87.9	88.4	87.2	85.3	81.6	78.9	77.4	74.6	75.5	79.1	80.3	80.9	79.2	79.3	80.2	76.3	73.6	82.9	90.9																							
23-Oct	74.4	75.7	76.2	76.0	76.7	78.8	77.4	76.8	73.3	66.6	62.9	58.9	56.4	53.9	60.4	62.1	65.3	64.2	68.6	66.6	68.1	70.8	74.0	74.3	69.1	78.8																							
24-Oct	69.5	73.4	75.4	71.9	72.0	75.0	75.2	76.8	74.1	69.5	68.1	70.4	61.8	51.0	44.8	46.9	53.2	59.6	60.6	67.8	72.1	71.2	66.8	65.8	66.4	76.8																							
25-Oct	68.6	69.2	69.7	70.1	71.3	72.3	74.9	76.0	73.1	68.4	63.6	53.8	45.9	39.7	36.1	38.1	42.5	48.3	50.4	55.3	61.9	65.2	64.1	62.9	60.0	76.0																							
26-Oct	63.9	62.8	67.2	66.3	67.5	73.4	81.0	87.5	83.0	74.3	72.3	70.8	67.2	66.4	61.1	58.0	60.9	62.3	64.3	66.2	67.7	68.6	71.2	72.0	69.0	87.5																							
27-Oct	77.0	75.1	76.6	75.7	76.0	76.5	75.2	73.5	72.0	71.1	69.4	67.3	64.4	62.4	62.9	64.8	84.3	94.5	97.7	99.3	99.6	96.5	95.4	95.1	79.3	99.6																							
28-Oct	94.7	94.2	94.0	94.4	94.7	93.9	92.8	91.3	90.6	87.8	86.6	88.7	87.1	85.3	85.3	85.0	85.5	86.9	86.7	86.0	83.1	84.2	88.6	90.2	89.1	94.7																							
29-Oct	91.7	90.4	82.1	77.3	79.2	80.9	79.5	74.7	79.3	79.0	66.7	63.5	56.5	51.9	47.5	47.5	50.4	54.4	61.2	67.0	70.9	74.6	76.1	78.7	70.0	91.7																							
30-Oct	80.9	81.8	83.0	83.5	84.0	85.1	86.2	86.1	83.7	81.7	79.0	73.3	73.0	73.5	78.2	80.2	81.9	83.3	85.0	87.9	91.1	92.3	93.0	94.2	83.4	94.2																							
31-Oct	94.1	94.0	93.9	94.8	95.2	94.7	94.4	94.3	94.5	94.8	95.5	95.7	95.6	96.2	96.4	96.3	96.5	96.8	96.9	96.8	96.4	95.7	94.4	94.5	95.3	96.9																							
																								73.8	75.4	76.7	76.7	78.1	79.3	79.6	79.2	75.6	72.7	68.3	65.1	60.7	58.4	56.8	57.5	61.0	65.8	68.7	70.8	72.9	74.5	75.7	76.1	Diurnal Average	
																								98.4	98.8	99.6	100.0	100.0	100.0	100.0	100.0	94.5	97.5	99.0	100.0	95.6	96.2	96.4	96.3	96.5	96.8	98.7	99.3	99.6	98.8	99.9	100.0	Diurnal Maximum	
OR - Out of Range																																																	



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

**Relative Humidity 2m (RH2) - %**  
**Stony Mountain - October 2024**





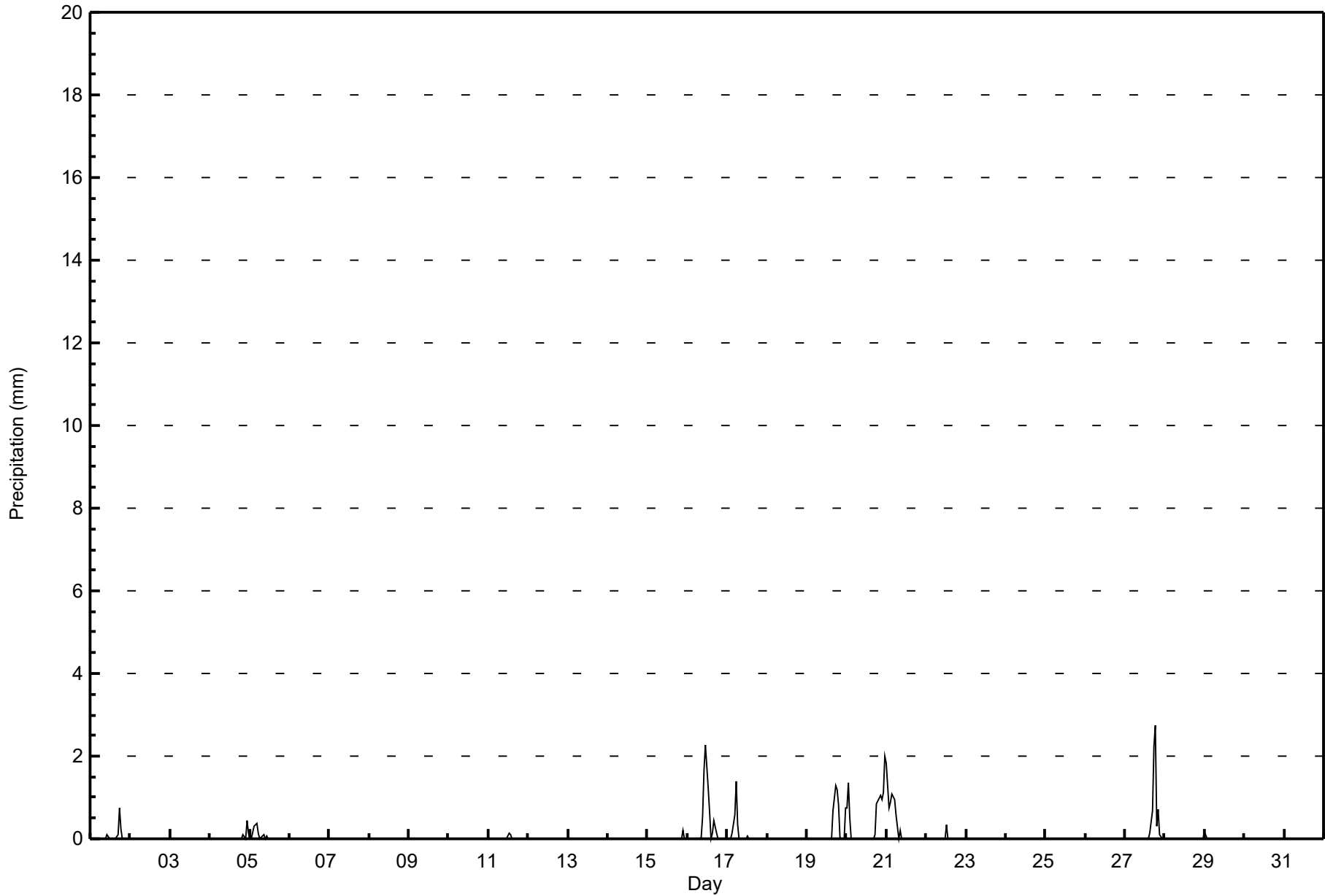
Maximum Value: 2.8 mm on Oct 27 19:00      Maximum Daily Total: 9.6 mm on Oct 20																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Minimum Value: 0.0 mm on Oct 1 01:00      Minimum Daily Total: 0.0 mm on Oct 2 Maximum Diurnal Total: 5.1 mm at hour 19      Minimum Diurnal Total: 0.0 mm at hour 15 Monthly Total: 42.38 mm      Percentiles: $P_1 = 0.0$ $P_{10} = 0.0$ $Q_1 = 0.0$ Median = 0.0 $Q_3 = 0.0$ $P_{90} = 0.0$ $P_{99} = 1.3$																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.3	0.0	0.0	0.0	0.0	0.0	1.2	0.8	
2-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.1	0.7	0.4
5-Oct	0.0	0.0	0.3	0.4	0.4	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	0.0	0.0	0.0	0.0	1.4	0.4	
6-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	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	0.0	0.0	0.2	0.1	
12-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.2	0.2	0.2
16-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.7	2.3	1.2	0.6	0.0	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	7.1	2.3	
17-Oct	0.0	0.0	0.0	0.2	0.6	1.4	0.4	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	2.6	1.4	1.4	
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.3	1.2	0.8	0.0	0.0	0.0	0.7	4.7	1.3	1.3	
20-Oct	0.7	1.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.9	1.1	1.0	1.1	2.0	9.6	2.0	2.0	
21-Oct	1.8	0.8	0.9	1.1	1.0	1.0	0.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	1.8	1.8	
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3
23-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	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	2.2	2.8	0.3	0.7	0.1	0.0	0.0	6.9	2.8	2.8	
28-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2
30-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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			
2.7 2.1 1.7 1.6 2.0 2.5 0.9 0.1 0.4 0.6 1.9 2.3 1.8 0.7 0.0 0.3 1.9 4.5 5.1 2.0 1.9 1.3 1.5 2.9																											
1.8 1.4 0.9 1.1 1.0 1.4 0.6 0.1 0.2 0.6 1.7 2.3 1.2 0.6 0.0 0.1 0.7 2.2 2.8 0.9 1.1 1.0 1.1 2.0																											





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

**Precipitation (PC) - mm**  
**Stony Mountain - October 2024**





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

**Precipitation (PC) - mm**  
**Stony Mountain - October 2024**

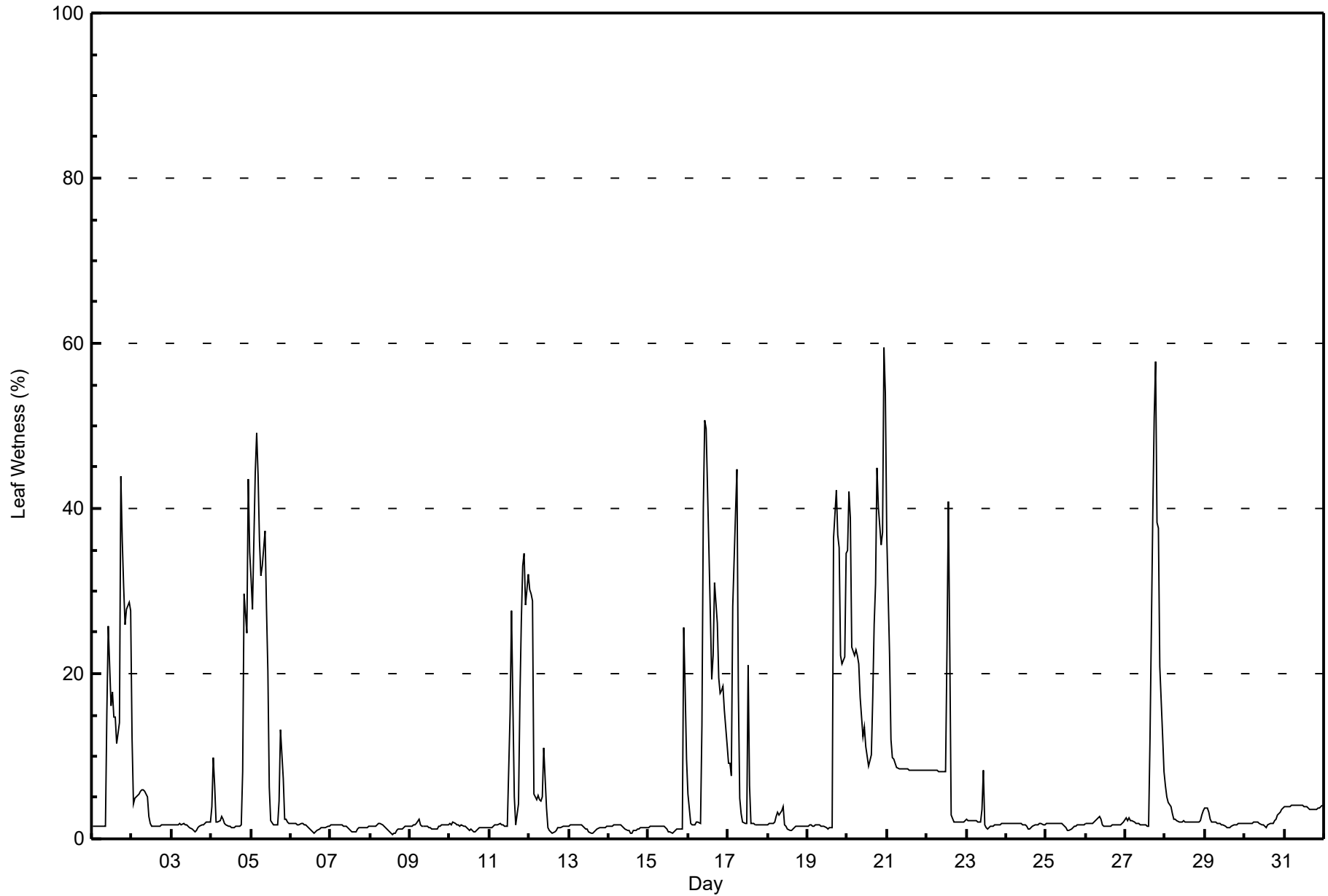
<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	707	95.03	95.03
0.4 - 0.5	5	0.67	95.70
0.6 - 0.7	9	1.21	96.91
0.8 - 1.4	17	2.28	99.19
1.5 - 10	6	0.81	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 59.4 % on Oct 20 23:00		Maximum Daily Average: 27.3 % on Oct 20		Hours in Service: 744																																												
Minimum Value: 0.6 % on Oct 8 14:00		Minimum Daily Average: 1.3 % on Oct 8		Hours of Data: 744																																												
Maximum Diurnal Average: 9.0 % at hour 23		Minimum Diurnal Average: 3.6 % at hour 16		Hours of Missing Data: 0																																												
Monthly Average: 6.25 %		Percentiles: P <sub>1</sub> = 0.7 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 1.5 Median = 1.8 Q <sub>3</sub> = 4.1 P <sub>90</sub> = 21.9 P <sub>99</sub> = 44.8		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-Oct	1.6	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.6	15.2	25.8	16.1	17.8	14.7	14.7	11.5	14.1	43.8	36.2	30.5	26.0	27.8	28.6	27.7	15.2	43.8																						
2-Oct	12.2	4.3	4.8	5.2	5.5	5.7	5.9	5.9	5.8	5.1	2.7	1.8	1.6	1.6	1.5	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	3.5	12.2																						
3-Oct	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.6	1.3	1.2	1.0	0.9	1.1	1.3	1.5	1.7	1.7	1.8	2.0	2.1	2.0	1.6	2.1																						
4-Oct	3.9	9.9	6.4	2.1	2.1	2.1	2.8	2.3	1.8	1.6	1.5	1.4	1.4	1.4	1.5	1.5	1.6	1.7	8.1	29.7	24.8	43.6	34.8	7.9	43.6																							
5-Oct	31.5	27.8	44.4	49.2	44.1	36.1	31.9	33.1	37.3	28.0	20.3	6.2	2.1	1.7	1.7	1.7	4.7	13.2	7.2	2.3	2.3	2.0	1.9	18.0	49.2																							
6-Oct	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.2	1.0	0.8	0.6	0.8	1.0	1.2	1.3	1.3	1.3	1.4	1.5	1.6	1.4	1.9																						
7-Oct	1.6	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.5	1.4	1.2	1.0	0.8	0.8	0.8	1.1	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.8																						
8-Oct	1.5	1.5	1.5	1.6	1.7	1.9	1.8	1.7	1.5	1.4	1.2	0.9	0.8	0.6	0.6	0.8	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.5	1.3	1.9																						
9-Oct	1.5	1.5	1.7	1.7	1.9	2.4	1.6	1.6	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.6	2.4																						
10-Oct	1.8	1.8	2.0	1.8	1.7	1.6	1.6	1.6	1.6	1.5	1.4	1.2	1.0	1.1	0.8	0.9	1.1	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.0																						
11-Oct	1.4	1.4	1.5	1.7	1.6	1.8	1.8	1.7	1.6	1.5	1.5	1.5	15.2	27.7	16.0	5.1	1.8	4.2	17.0	26.4	33.1	34.6	28.3	32.0	10.8	34.6																						
12-Oct	30.2	29.6	28.8	5.4	4.8	5.3	4.7	4.6	5.1	11.0	3.7	1.3	1.0	0.8	0.6	0.8	1.0	1.3	1.4	1.4	1.4	1.5	1.5	1.5	6.2	30.2																						
13-Oct	1.5	1.6	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.4	1.3	1.1	0.9	0.8	0.7	0.8	1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.5	1.3	1.7																						
14-Oct	1.5	1.5	1.5	1.6	1.7	1.7	1.8	1.7	1.5	1.4	1.2	1.0	1.0	0.7	0.6	0.9	1.1	1.2	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.8																						
15-Oct	1.4	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.1	0.9	0.8	0.6	0.9	1.0	1.1	1.2	1.2	1.2	25.6	18.1	9.6	3.3	25.6																						
16-Oct	5.4	1.9	1.7	1.7	1.7	2.0	2.0	1.9	13.7	40.2	50.6	49.7	34.9	27.3	19.4	22.2	31.0	26.1	19.5	17.7	18.0	18.5	15.6	11.4	18.1	50.6																						
17-Oct	9.1	9.2	7.6	28.1	39.5	44.7	18.2	5.0	3.0	2.0	1.8	1.9	21.1	6.5	1.8	1.9	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.7	9.0	44.7																						
18-Oct	1.7	1.8	1.8	1.9	2.0	2.7	3.1	2.9	3.4	4.0	1.7	1.5	1.3	1.1	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.9	4.0																						
19-Oct	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.5	1.3	1.3	1.3	1.4	1.4	36.4	42.1	36.8	35.2	22.3	21.2	22.1	34.6	11.5	42.1																						
20-Oct	34.9	42.1	38.8	23.3	22.3	22.9	22.2	21.2	17.1	12.4	13.6	11.1	10.0	8.8	10.1	17.1	26.0	30.8	44.9	40.2	35.6	37.0	59.4	53.8	27.3	59.4																						
21-Oct	36.8	22.3	12.0	9.8	9.6	9.2	8.6	8.5	8.5	8.5	8.5	8.5	8.5	8.4	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	10.4	36.8																						
22-Oct	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.1	8.1	22.7	40.9	23.1	2.9	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.3	8.5	40.9																						
23-Oct	2.4	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.0	3.5	8.2	1.6	1.4	1.2	1.5	1.5	1.6	1.7	1.8	1.7	1.8	1.8	1.8	1.9	2.2	8.2																						
24-Oct	1.8	1.8	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.7	1.7	1.5	1.3	1.2	1.4	1.5	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.9																						
25-Oct	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.7	1.5	1.3	1.1	1.0	1.1	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.6	1.9																						
26-Oct	1.8	1.8	1.9	1.8	1.9	2.1	2.2	2.6	2.8	2.3	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.9	2.1	1.9	2.8																						
27-Oct	2.5	2.2	2.5	2.2	2.2	2.1	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.6	12.0	39.4	51.1	57.9	38.4	37.6	20.9	12.6	8.1	12.8	57.9																						
28-Oct	6.4	5.1	4.4	3.9	3.1	2.3	2.4	2.1	2.1	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.9	3.4	2.7	6.4																						
29-Oct	3.8	3.7	3.2	2.3	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.7	1.5	1.3	1.3	1.4	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.9	2.0	3.8																						
30-Oct	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.8	1.6	1.5	1.4	1.7	1.8	1.8	1.9	2.1	2.4	2.8	3.3	3.6	3.7	2.1	3.7																						
31-Oct	3.8	3.9	3.9	4.0	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.0	4.0	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.9	4.0	3.9	4.1																						
																								7.1	6.5	6.4	5.7	5.8	5.8	4.8	4.3	4.6	5.6	5.8	4.5	5.3	5.3	4.0	3.6	6.2	8.0	8.8	8.1	8.1	8.4	9.0	8.5	Diurnal Average
																								36.8	42.1	44.4	49.2	44.1	44.7	31.9	33.1	37.3	40.2	50.6	49.7	34.9	40.9	23.1	22.2	39.4	51.1	57.9	40.2	37.6	37.0	59.4	53.8	Diurnal Maximum





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

**Leaf Wetness (LW) - %**  
**Stony Mountain - October 2024**

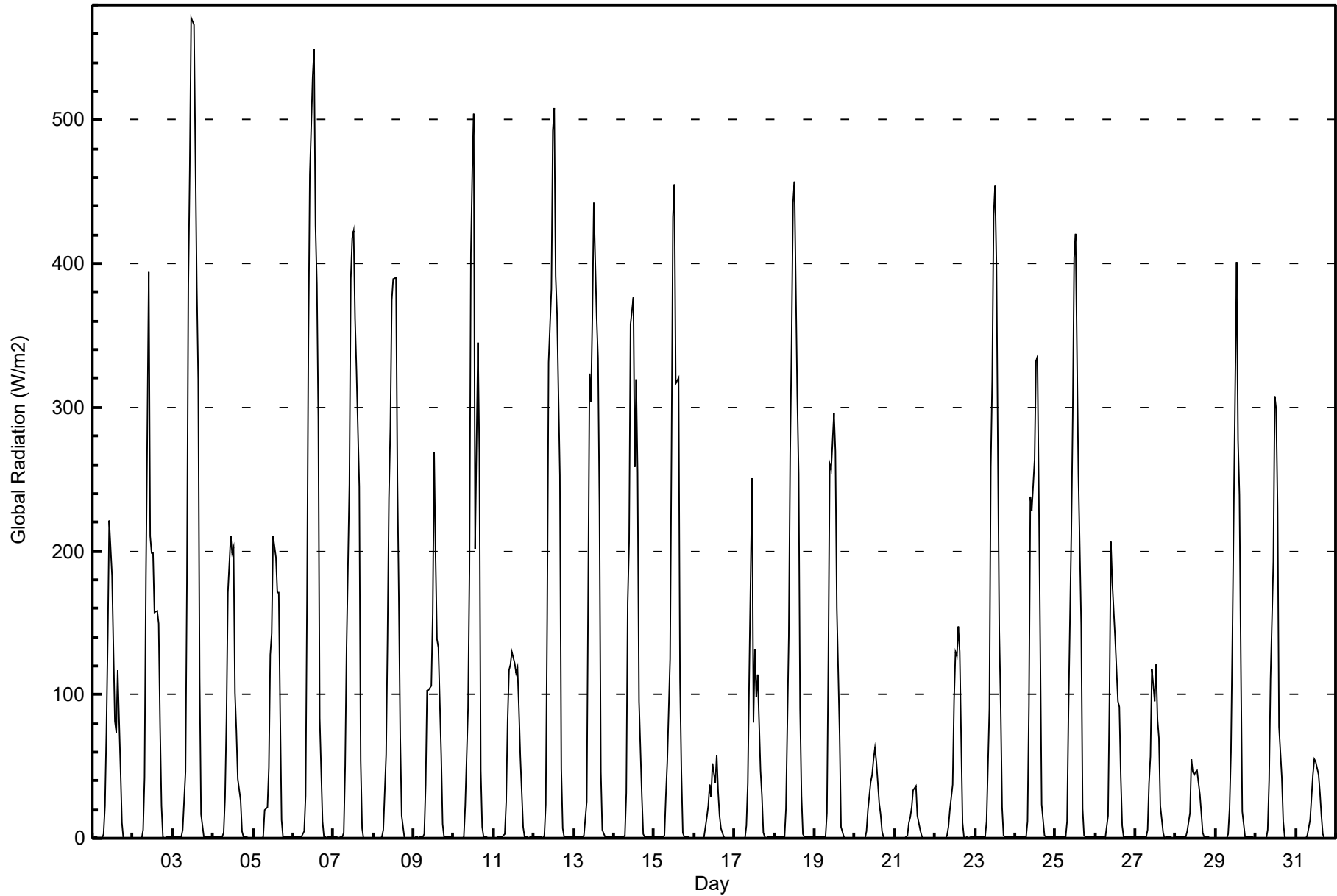
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	8	1.08	1.08
0.8 - 1.4	138	18.55	19.62
1.5 - 10	459	61.69	81.32
> 10	113	15.19	96.51

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 570.8 W/m2 on Oct 3 12:00      Maximum Daily Average: 147.2 W/m2 on Oct 3																						Hours in Service:	744			
Minimum Value: 0.0 W/m2 on Oct 21 07:00      Minimum Daily Average: 6.6 W/m2 on Oct 21																						Hours of Data:	744			
Maximum Diurnal Average: 278.2 W/m2 at hour 13      Minimum Diurnal Average: 0.5 W/m2 at hour 24																						Hours of Missing Data:	0			
Monthly Average: 66.89 W/m2      Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.5 Median = 0.8 Q <sub>3</sub> = 81.2 P <sub>90</sub> = 257.8 P <sub>99</sub> = 470.9																						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-Oct	0.6	0.6	0.6	0.4	0.4	0.4	2.5	23.0	74.1	141.7	221.0	182.7	130.7	81.3	73.7	117.2	48.5	11.0	0.3	0.1	0.1	0.1	0.1	0.1	46.3	221.0
2-Oct	0.5	0.4	0.5	0.4	0.3	0.3	6.0	41.8	183.3	394.1	210.4	198.2	198.8	156.8	158.7	149.1	77.9	22.6	1.1	0.4	0.5	0.5	0.5	0.6	75.2	394.1
3-Oct	0.6	0.6	0.6	0.6	0.6	0.6	5.9	46.7	177.5	385.1	465.4	570.8	566.3	475.1	383.4	319.6	112.5	16.3	1.0	0.7	0.9	0.9	0.9	0.7	147.2	570.8
4-Oct	0.8	0.8	0.8	0.8	0.7	0.8	4.3	28.4	83.7	171.0	210.8	198.4	202.8	101.5	74.8	41.7	26.7	5.1	0.8	0.7	0.6	0.3	0.1	0.1	48.2	210.8
5-Oct	0.1	0.2	0.2	0.2	0.3	0.4	1.0	19.7	21.3	49.0	127.7	142.1	210.7	195.3	170.9	171.5	87.8	13.2	0.9	0.7	0.7	0.8	0.7	0.7	50.7	210.7
6-Oct	0.8	0.8	0.7	0.7	0.8	0.7	4.7	30.0	165.7	347.0	462.2	529.9	549.2	426.3	385.4	293.4	83.6	11.7	0.8	0.5	0.5	0.6	0.6	0.6	137.4	549.2
7-Oct	0.7	0.6	0.5	0.5	0.6	0.6	4.0	50.1	133.1	246.6	389.7	417.8	423.1	361.3	326.1	245.1	54.1	6.9	0.3	0.2	0.2	0.2	0.2	0.1	110.9	423.1
8-Oct	0.3	0.4	0.3	0.3	0.3	0.5	5.5	58.1	137.5	237.4	285.8	374.6	389.2	390.5	249.3	167.6	70.8	15.8	0.4	0.0	0.1	0.2	0.2	0.2	99.4	390.5
9-Oct	0.4	0.5	0.6	0.5	0.6	0.5	2.7	37.1	103.5	103.6	106.3	156.6	268.5	196.5	138.5	132.7	58.5	9.9	0.7	0.7	0.6	0.6	0.7	0.5	55.0	268.5
10-Oct	0.5	0.2	0.5	0.1	0.1	0.2	1.3	23.1	90.6	185.6	406.8	465.3	504.7	202.0	345.5	268.2	47.2	8.3	0.6	0.6	0.4	0.4	0.3	0.3	106.4	504.7
11-Oct	0.3	0.4	0.6	0.6	0.6	0.6	2.8	25.8	81.2	116.6	120.6	130.1	122.3	115.0	119.4	90.6	57.2	7.7	0.6	0.5	0.5	0.5	0.6	0.5	41.5	130.1
12-Oct	0.5	0.5	0.5	0.6	0.6	0.4	2.1	23.9	153.1	330.9	382.4	492.9	508.4	391.0	364.3	252.9	48.2	7.1	0.8	1.0	0.8	0.8	0.7	0.7	123.5	508.4
13-Oct	0.7	0.7	0.8	0.6	0.7	0.8	1.8	25.1	168.4	323.9	304.0	364.1	442.0	362.9	334.4	231.1	46.3	6.0	0.7	0.8	0.7	0.8	0.7	0.7	109.1	442.0
14-Oct	0.8	0.7	0.7	0.7	0.7	0.6	1.6	31.1	164.4	206.2	357.8	376.7	258.7	319.4	254.7	95.7	29.8	3.1	0.7	0.6	0.6	0.6	0.6	0.7	87.8	376.7
15-Oct	0.7	0.7	0.7	0.8	0.7	0.6	2.4	29.0	52.8	125.0	271.3	432.7	455.2	316.5	320.8	110.8	46.3	4.0	0.7	0.7	0.7	0.1	0.3	0.3	90.6	455.2
16-Oct	0.4	0.3	0.1	0.1	0.2	0.3	0.6	15.2	22.3	37.4	28.4	52.0	38.1	58.4	32.6	15.3	7.2	0.9	0.3	0.2	0.2	0.2	0.2	0.1	13.0	58.4
17-Oct	0.1	0.2	0.1	0.1	0.0	0.0	0.2	9.3	38.5	113.1	250.6	81.0	131.8	98.8	113.7	47.3	29.5	4.0	0.5	0.5	0.5	0.5	0.6	0.6	38.4	250.6
18-Oct	0.6	0.6	0.6	0.5	0.7	0.8	1.4	20.3	140.1	267.5	345.7	442.4	456.9	308.4	253.5	90.6	29.3	3.0	0.7	0.6	0.6	0.6	0.7	0.7	98.6	456.9
19-Oct	0.6	0.6	0.6	0.6	0.7	0.7	1.1	17.4	124.2	260.5	257.0	296.1	269.7	160.2	116.5	71.5	8.0	0.7	0.3	0.4	0.3	0.2	0.2	0.2	66.2	296.1
20-Oct	0.2	0.3	0.3	0.3	0.3	0.3	0.4	5.2	19.7	39.3	44.6	55.5	63.2	52.9	24.3	17.2	5.3	0.7	0.3	0.3	0.4	0.4	0.3	0.3	13.8	63.2
21-Oct	0.4	0.4	0.4	0.4	0.4	0.3	0.0	1.8	11.1	14.5	21.8	33.2	36.8	16.1	11.2	6.1	2.2	0.4	0.2	0.1	0.1	0.1	0.1	0.2	6.6	36.8
22-Oct	0.1	0.2	0.2	0.2	0.2	0.2	0.3	2.1	7.8	19.7	37.2	95.9	129.8	126.9	147.3	130.1	11.3	1.0	0.4	0.5	0.4	0.5	0.6	0.7	29.7	147.3
23-Oct	0.6	0.7	0.7	0.7	0.7	0.7	0.6	11.6	90.8	258.2	319.1	433.2	454.6	398.9	144.3	92.5	21.2	1.7	0.8	0.8	0.8	0.9	0.8	0.7	93.1	454.6
24-Oct	0.8	0.8	0.8	0.8	0.7	0.7	0.8	11.6	92.5	238.0	228.0	263.7	332.4	335.4	237.5	134.1	23.3	1.9	0.8	0.7	0.7	0.9	0.8	0.7	79.5	335.4
25-Oct	0.8	0.8	0.8	0.8	0.8	0.8	0.9	12.2	88.6	212.4	294.4	404.1	420.5	335.7	254.1	148.2	20.8	1.7	1.1	1.1	1.0	1.0	1.0	1.1	91.9	420.5
26-Oct	1.1	1.1	0.8	0.8	0.6	0.6	0.4	15.8	96.9	206.9	178.0	158.3	139.1	95.8	91.7	43.0	8.4	1.0	0.8	0.8	0.8	0.8	0.8	0.8	43.5	206.9
27-Oct	0.8	0.9	0.9	0.8	0.8	0.8	0.8	5.5	37.9	57.3	117.9	94.9	121.3	82.7	69.5	22.3	3.8	0.4	0.5	0.6	0.6	0.5	0.4	0.6	25.9	121.3
28-Oct	0.6	0.6	0.7	0.7	0.7	0.7	0.7	5.3	17.4	54.6	46.5	44.1	46.2	47.2	30.3	17.7	4.0	0.7	0.6	0.5	0.5	0.5	0.4	0.4	13.4	54.6
29-Oct	0.3	0.4	0.4	0.2	0.2	0.3	0.2	3.3	20.3	59.8	140.0	231.0	401.6	277.1	239.1	123.8	18.6	1.2	0.8	0.7	0.7	0.7	0.6	0.4	63.4	401.6
30-Oct	0.3	0.3	0.3	0.2	0.2	0.3	0.2	5.6	40.0	111.1	193.0	307.2	299.2	230.4	77.8	42.1	11.8	0.6	0.4	0.4	0.3	0.2	0.1	0.1	55.1	307.2
31-Oct	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.0	13.0	28.8	43.9	55.1	53.4	44.2	31.4	15.4	3.0	0.4	0.4	0.3	0.3	0.3	0.1	0.0	12.2	55.1
																						Diurnal Average				
																						Diurnal Maximum				





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Global Radiation (GR) - W/m2  
Stony Mountain - October 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	476	63.98	63.98
21 - 100	101	13.58	77.55
101 - 300	107	14.38	91.94
301 - 600	60	8.06	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 10m (WS10) - km/h

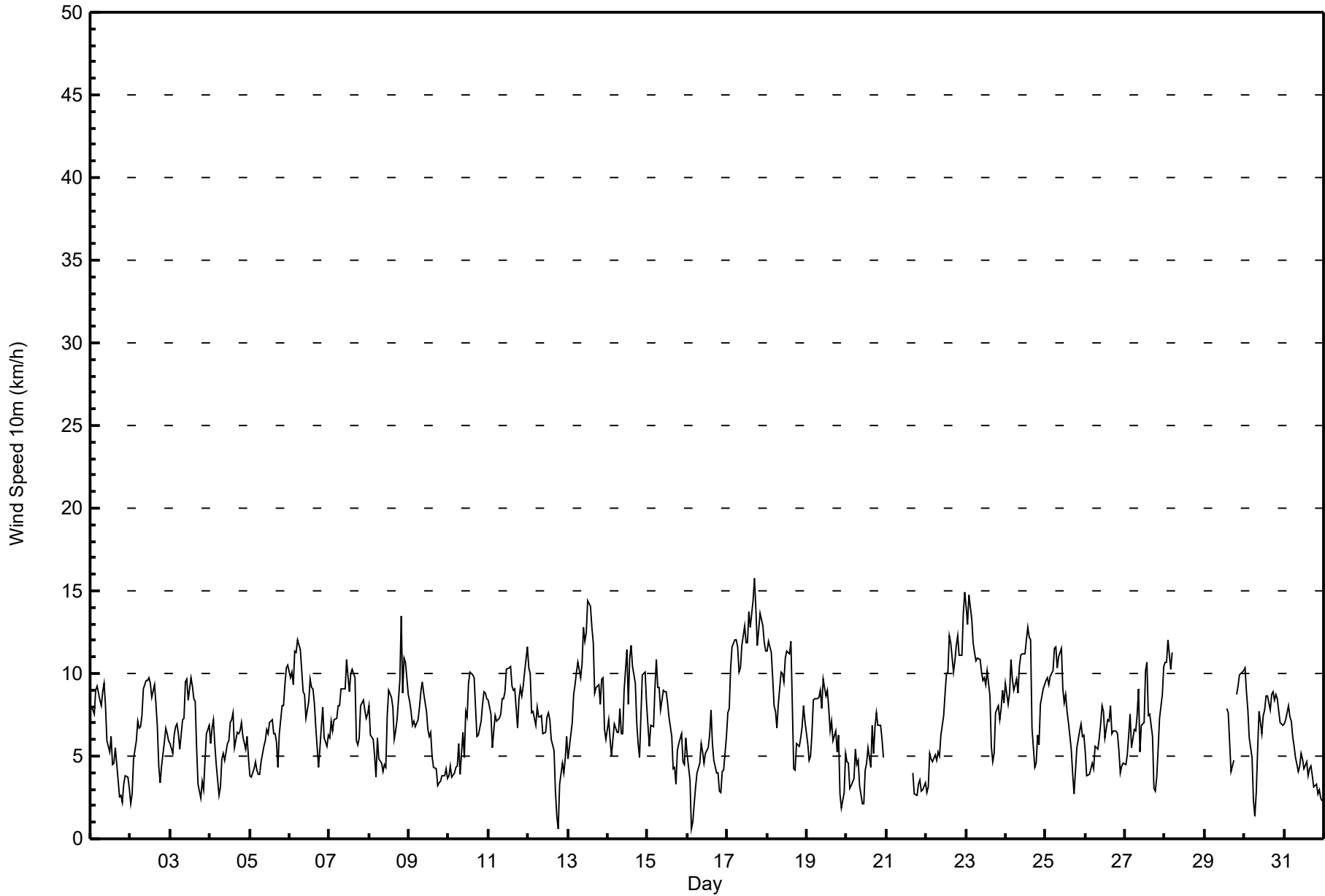
## Stony Mountain - October 2024

Maximum Speed: 16 km/h on Oct 17 17:00	Maximum Daily Speed Average: 11.8 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 16 03:00	Minimum Daily Speed Average: 2.4 km/h on Oct 16	Hours of Data: 694
Maximum Diurnal Speed Average: 5.0 km/h at hour 1	Minimum Diurnal Speed Average: 2.2 km/h at hour 17	Hours of Missing Data: 50
Monthly Average Velocity: 3.8 km/h 232.7 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 4 Q <sub>1</sub> = 5 Median = 7 Q <sub>3</sub> = 9 P <sub>90</sub> = 11 P <sub>99</sub> = 14	Percent Operational Time: 93.3

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-Oct	SW8	SW8	SW8	WSW9	WSW9	WSW8	WSW8	WSW9	WSW9	WSW8	W6	WSW5	SW6	W5	W5	WSW5	W4	N3	N3	NW2	WNW3	WNW4	WNW4	NW3	WSW5.2	WSW9	
2-Oct	WNW2	WSW3	W5	W6	WNW7	WNW7	W7	W7	WNW9	WNW10	WNW10	WNW10	WNW9	WNW9	WNW9	WNW8	WNW7	NW4	NW3	WNW4	WNW6	WNW7	WNW6	WNW6	WNW6.6	WNW10	
3-Oct	WNW6	WNW5	W6	W7	W7	WNW6	W5	W7	W7	W10	WNW10	W8	W10	WSW9	W8	W8	W6	W3	W2	W3	SW3	SSW5	SSW6	SSW7	W6.0	W10	
4-Oct	SSW6	SSW7	SSW7	SSW6	SSW5	SSE3	SSE3	SE5	ESE5	E6	E6	E7	E7	E8	ENE6	ENE6	ENE6	ENE7	ENE7	NNE6	NNE5	NNE6	N5	E3.0	E8		
5-Oct	N4	NNW4	NW4	NNW5	NNW4	NNW4	NW4	NW5	WNW6	WNW7	W6	W7	W7	WSW6	SW6	SSW4	SSW6	SSW8	SSW8	SSW9	SSW10	SSW10	SSW10	WSW3.8	SSW10		
6-Oct	SSW10	SW10	SW9	WSW11	WSW11	WSW12	W11	W10	W9	W9	WSW7	WSW8	WSW10	W9	W9	W8	WSW7	SW4	SW6	SW7	WSW8	SW6	SW6	SSW6	WSW8.0	WSW12	
7-Oct	SSW6	SSW7	SSW7	SSW7	SSW7	SSW8	S8	S9	SSW9	S9	S11	SSW10	SSW9	SSW10	SSW10	SSW10	S6	S6	S6	SSW8	SSW8	SSW8	SSW7	SSW8	SSW8.0	S11	
8-Oct	SSW8	SW6	SSW6	SSW5	SSW4	SSW6	S5	S5	S4	SSE4	SSE4	S7	SSE9	S9	S8	S6	S7	S7	SW10	WNW13	W9	W11	W11	W9	SSW5.0	WNW13	
9-Oct	WSW8	WSW8	SW7	SW7	SW7	WSW7	WSW8	W9	W9	W9	W8	W7	SW6	WSW6	WSW5	WSW4	W4	WSW3	WSW3	WSW3	WSW4	WSW4	WSW4	W4	WSW5.8	W9	
10-Oct	W4	WNW4	W4	WNW4	WNW4	W4	W6	WSW4	WSW6	SW5	WSW8	WSW7	WSW9	W10	W10	W10	W8	WSW6	WSW6	SW7	WSW8	W9	W9	W9	W6.5	W10	
11-Oct	W8	W8	SW6	SW7	SW7	SSW7	SSW7	SSW8	SSW8	SSW8	SSW9	SSW10	SSW10	SSW10	SSW9	S9	SSW9	SSW7	SSW9	SSW9	SSW9	SSW9	SSW10	SSW12	SSW8.2	SSW12	
12-Oct	SSW10	SSW10	SW8	SW8	WSW7	W8	W7	W7	WNW7	WNW6	WNW6	NW7	NNW8	NNW7	N6	NNW5	N3	NNE1	S1	S3	SSW5	S4	S5	S6	W3.4	SSW10	
13-Oct	SSE5	S6	S7	S9	S9	S10	S11	S10	SSE11	SSE13	SSE12	SSE12	SSE14	SSE14	SSE13	SSE12	SSE9	SSE9	SSE9	SSE8	S10	S10	SSE7	S6	SSE9.7	SSE14	
14-Oct	S7	S6	SSE5	SE6	SE7	SE6	SSE6	SSE8	SSE6	SSE9	SSE11	SSE8	SSE11	SSE12	SSE10	SSE9	SSE7	SSE6	S5	S7	SSW10	SW10	SW8	SW8	SSE7.3	SSE12	
15-Oct	SSW7	SSW6	SW7	SW7	W9	W11	WNW9	W9	W8	W9	W9	W9	WNW8	W7	W6	WSW4	WSW4	W3	WSW5	WSW6	SW6	WSW5	SSW5	SSW6	WSW6.1	W11	
16-Oct	SW5	SSW4	WNW1	NNE1	ENE2	E3	E4	E5	E6	E5	ENE5	ENE5	ENE6	ENE6	ENE8	ENE6	ENE5	E4	E4	ESE3	SSE3	SW4	SW4	WSW6	E2.4	ENE8	
17-Oct	WSW8	W8	W10	W12	W12	W12	W12	WSW10	WSW10	WSW12	WSW13	WSW12	W12	W14	W13	W14	W16	W14	WSW12	WSW13	W14	W13	W12	WSW11	W11.8	W16	
18-Oct	WSW11	W12	WSW11	WSW10	SW8	SW8	SW7	SSW8	SSW10	SSW10	SSW9	SW11	SW11	SW11	SW12	SSW8	SSE4	SSE4	SSE6	SE6	SSE6	SSE7	SSE8	SSE7	SW7.0	SW12	
19-Oct	S6	S5	S5	SSW6	SW8	SW8	WSW8	WSW9	WSW9	WSW8	W10	W9	WSW9	WSW8	W7	SSW7	SSW6	SSW7	SW5	SW6	W3	NW2	NW3	NNW5	WSW5.4	W10	
20-Oct	NNW5	NNW5	NNW3	NNW3	WNW4	NW5	NNW4	N5	NNE3	E2	ENE2	ENE4	ENE5	E6	E4	E7	E5	E7	E8	E7	E7	E6	ENE5	UO	ENE2.9	E8	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	N4	NNW3	NW3	NW3	NW4	WNW3	W3	W3	---	N4	
22-Oct	WSW3	SW3	WSW5	W5	WSW5	WSW5	SSW5	WSW5	SW5	SW6	SW7	SW9	SW10	SW10	SW12	SW12	SSW10	SSW11	SSW12	SSW12	SSW11	SSW11	SW14	WSW15	SW8.1	WSW15	
23-Oct	W14	W13	W15	W13	W12	W11	W11	W11	W10	W10	W10	W9	W10	WSW9	WSW6	SW5	SW5	SW8	WSW8	SW7	SW8	SW9	SW8	SW8	WSW9.1	W15	
24-Oct	WSW9	SW8	SW9	WSW11	WSW10	WSW9	WSW10	WSW9	W10	W11	W11	W11	W12	W13	WNW12	W12	W7	W4	WSW5	W6	WSW6	SW8	SW9	WSW9	WSW8.8	W13	
25-Oct	WSW10	WSW10	WSW9	WSW10	WSW10	W12	W12	W10	W11	W12	W9	W8	W9	WNW8	WNW7	W5	WSW4	WSW3	SSW4	SSW6	SSW7	SSW7	SSW6	SSW6	WSW7.2	W12	
26-Oct	SSW5	S4	S4	S4	SE5	E4	E6	ENE5	NE6	NE7	NE8	NE8	NNE6	NNE7	NE7	ENE8	E6	ESE7	E7	ESE6	E5	ESE4	SE4	SE5	E4.1	NE8	
27-Oct	SE5	SE5	SE6	SSE8	SE6	SE7	ESE7	E7	ESE9	E5	E7	E7	ESE10	ESE11	E7	ESE8	ESE6	SSE3	SSE3	S4	SW5	W7	WNW9	WNW10	SE3.8	ESE11	
28-Oct	WNW11	WNW11	WNW12	WNW10	WNW11	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WNW12
29-Oct	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	---	SSW10
30-Oct	SSW10	SSW9	SSW8	SSW6	SSW5	SW2	W1	N3	NNE5	NE8	NE6	NE7	NE8	NE9	NE9	ENE8	ENE9	ENE9	ENE8	ENE9	ENE8	ENE7	ENE7	NE7	ENE3.6	SSW10	
31-Oct	ENE7	ENE7	ENE8	ENE7	ENE7	ENE6	ENE6	ENE5	E4	E4	E5	ESE5	ENE4	ENE5	E4	E4	ESE4	ESE4	ESE3	ESE3	E3	E3	NE2	NNE2	ENE4.5	ENE8	

SW5.0 SW4.8 SW4.8WSW4.9WSW4.8WSW4.5WSW4.1WSW3.9WSW3.8WSW3.8WSW3.6WSW3.7WSW3.4 SW3.2 SW2.2SSW2.2SSW2.8 SW3.3 SW3.8 SW4.1 SW4.3 SW4.8	Diurnal Average
W14 W13 W15 W13 W12 W12 W12 W11 W11 W11 SSE13WSW13 SSE12 SSE14 SSE14 SSE13 W14 W16 W14WSW12WNW13 W14 W13 SW14WSW15	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 10m (WS10) - km/h  
Stony Mountain - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	195	28.10	28.10
6 - 11	449	64.70	92.80
12 - 19	50	7.20	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: 694

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Stony Mountain - October 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	6	1	13	19	8	6	12	13	14	13	25	20	12	12	13	195
6 - 11	1	4	12	25	20	8	7	25	28	86	50	62	83	35	1	2	449
12 - 19	0	0	0	0	0	0	0	8	0	3	4	7	25	3	0	0	50
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>	<b>9</b>	<b>10</b>	<b>13</b>	<b>38</b>	<b>39</b>	<b>16</b>	<b>13</b>	<b>45</b>	<b>41</b>	<b>103</b>	<b>67</b>	<b>94</b>	<b>128</b>	<b>50</b>	<b>13</b>	<b>15</b>	<b>694</b>

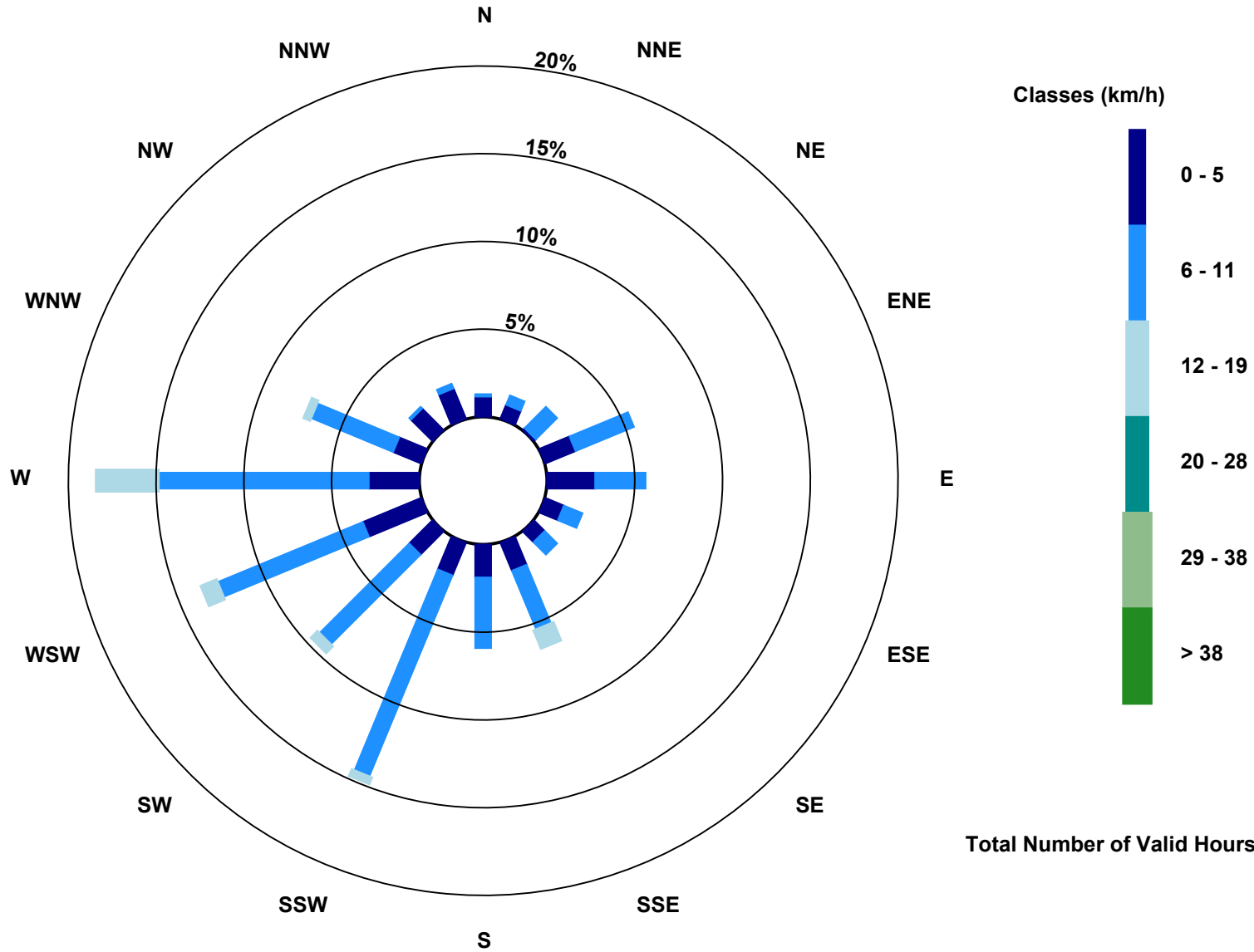
Total Number of Valid Hours: 694

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Stony Mountain



Total Number of Valid Hours: 694



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

**Wind Speed 10m (WS10) - km/h**  
**Stony Mountain - October 2024**

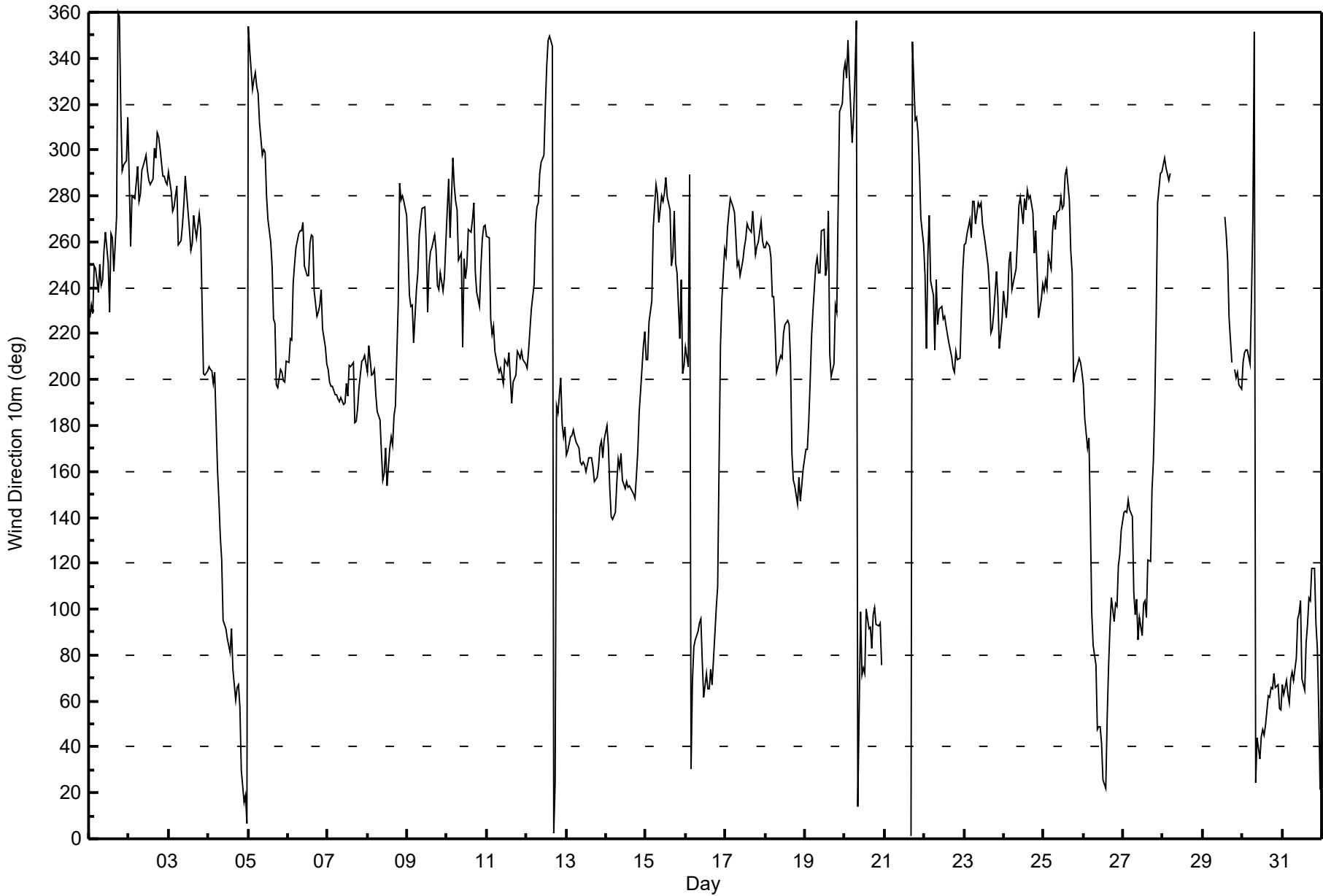
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Oct 17 17:00 Minimum Value: 0 km/h on Oct 19 23:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 4 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 694 Hours of Missing Data: 50 Hours of Calibration: 0 Percent Operational Time: 93.3								
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-Oct	3	3	3	4	4	3	4	4	4	4	3	2	2	2	2	2	3	1	1	1	1	1	1	1	4
2-Oct	1	1	2	2	3	3	3	3	3	5	5	4	4	4	4	4	3	2	1	2	2	3	3	2	5
3-Oct	2	2	2	3	3	3	2	3	3	4	4	4	5	4	4	4	3	2	1	1	1	1	2	5	
4-Oct	2	2	2	2	1	1	1	2	2	2	3	3	3	3	4	3	3	3	3	3	2	2	2	4	
5-Oct	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	1	2	2	3	3	4	4	
6-Oct	3	4	4	5	5	5	5	4	4	4	3	4	4	4	4	4	3	2	2	3	3	2	2	5	
7-Oct	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	3	2	2	3	3	2	2	4	
8-Oct	3	2	2	2	1	2	1	2	2	2	2	3	4	4	4	2	2	2	4	6	4	5	4	6	
9-Oct	3	3	3	3	2	3	3	4	4	4	3	3	3	3	2	2	2	1	1	1	1	1	1	4	
10-Oct	1	1	1	1	1	2	2	2	3	2	3	3	4	4	5	4	4	2	2	3	3	4	4	5	
11-Oct	3	3	2	2	2	2	2	2	3	3	3	4	4	4	3	3	3	2	3	3	3	3	3	4	
12-Oct	3	3	2	3	3	3	3	3	3	2	2	3	3	3	3	2	2	1	1	1	1	1	2	3	
13-Oct	2	2	2	3	3	4	4	4	4	5	5	5	6	6	5	5	4	4	3	3	3	4	3	6	
14-Oct	2	2	2	2	2	3	2	3	4	3	4	3	4	4	5	4	4	3	2	2	2	3	3	5	
15-Oct	2	2	2	2	3	4	3	3	3	3	3	3	3	3	2	2	2	1	2	2	2	2	2	4	
16-Oct	1	1	1	1	1	1	1	2	2	2	2	1	2	2	3	2	2	2	1	1	1	1	2	3	
17-Oct	3	3	4	5	5	5	5	5	4	4	5	5	5	6	6	6	6	6	5	5	5	5	5	6	
18-Oct	5	5	4	4	3	3	2	3	3	4	3	4	4	4	5	4	2	2	2	2	3	3	3	5	
19-Oct	2	2	2	2	3	3	3	4	3	4	4	4	3	3	3	3	2	2	2	2	1	1	0	4	
20-Oct	2	2	1	1	1	2	2	2	2	1	1	1	2	2	2	3	2	3	3	2	3	2	2	3	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	1	2	1	2	2	2	2	
22-Oct	2	1	2	2	2	2	2	2	2	3	3	3	4	4	5	4	3	3	4	4	4	4	5	6	
23-Oct	5	6	6	5	5	5	4	4	4	4	4	4	4	4	3	2	1	1	3	3	2	2	3	6	
24-Oct	3	3	3	4	4	3	4	4	4	4	5	5	5	6	5	5	3	2	2	3	2	2	3	6	
25-Oct	4	3	3	4	4	5	4	4	4	5	4	4	3	4	3	2	2	1	1	1	2	2	2	5	
26-Oct	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	1	3	
27-Oct	2	2	2	3	2	2	2	2	3	3	3	3	4	4	3	3	2	1	1	1	2	3	3	4	
28-Oct	4	4	4	4	4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	1	1	UO	3	3	3	3	
30-Oct	3	3	2	2	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	2	3	
31-Oct	2	2	3	3	2	2	2	2	1	2	2	2	2	2	1	2	2	2	1	1	1	1	1	3	
Diurnal Maximum																									
UO - Unstable Operation																									



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

**Wind Direction 10m (WD10) - deg**  
**Stony Mountain - October 2024**

Direction of Maximum Speed: 273 deg on Oct 17 17:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 262.6 deg on Oct 17																						Hours of Data: 694			
Direction of Minimum Speed: 289 deg on Oct 16 03:00											Direction of Minimum Daily Speed Average: 2.4 deg on Oct 16											Hours of Missing Data: 50			
Monthly Average Direction: 232.7 deg																						Percent Operational Time: 93.3			
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-Oct	227	232	229	250	248	238	250	241	243	256	264	251	230	263	262	247	271	360	358	317	291	294	295	314	253.5
2-Oct	287	258	280	279	286	293	277	280	291	295	297	291	287	285	288	301	297	307	306	301	289	289	286	285	289.5
3-Oct	291	282	274	275	280	285	259	261	267	277	289	281	266	256	259	272	266	262	272	265	233	203	202	204	264.5
4-Oct	205	205	204	199	203	161	148	132	121	95	92	87	84	81	91	74	61	66	67	57	30	16	19	6	91.9
5-Oct	354	344	326	331	334	328	325	312	298	300	299	280	270	260	249	226	224	198	197	204	203	199	199	208	253.0
6-Oct	207	218	217	242	250	257	263	265	265	269	249	245	245	259	263	263	239	228	229	233	239	222	214	207	243.5
7-Oct	204	199	197	197	193	193	191	191	192	189	190	198	193	206	206	207	181	182	187	197	208	209	211	207	197.4
8-Oct	203	215	202	203	204	193	186	183	169	156	159	170	154	170	175	172	184	189	233	286	278	280	278	271	211.7
9-Oct	255	237	232	232	216	239	247	263	269	275	275	260	229	249	256	258	263	256	241	239	246	239	245	260	250.2
10-Oct	274	287	262	296	284	278	274	252	255	214	253	244	250	266	264	270	277	247	238	232	249	261	267	267	260.0
11-Oct	262	262	226	219	223	212	206	203	205	202	199	209	206	212	201	190	199	202	212	211	209	212	208	207	211.2
12-Oct	205	212	221	231	241	267	275	277	290	295	298	319	337	348	349	345	3	25	189	186	201	181	175	179	262.5
13-Oct	167	169	175	176	178	175	173	170	164	163	164	163	160	166	166	166	162	156	158	162	171	173	166	174	166.9
14-Oct	180	171	153	140	139	142	155	166	162	168	156	153	155	153	152	150	148	158	169	186	195	215	221	164.3	
15-Oct	209	209	225	234	266	276	285	281	269	280	278	281	288	279	274	250	254	273	251	246	218	243	203	206	258.2
16-Oct	214	206	289	31	69	84	87	91	94	96	78	61	72	65	65	74	67	89	101	110	163	215	235	257	93.1
17-Oct	254	266	273	279	275	273	262	249	251	245	252	258	261	268	266	264	273	264	255	258	260	269	261	258	262.6
18-Oct	257	260	258	253	236	236	222	203	208	211	210	220	224	226	224	208	168	156	154	146	158	147	154	161	213.8
19-Oct	170	170	182	199	219	230	249	253	246	247	265	266	245	249	274	211	201	207	233	229	276	317	320	335	237.6
20-Oct	338	331	348	332	303	315	333	357	14	99	71	74	72	100	92	92	83	97	101	94	93	94	76	UO	61.6
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	347	313	314	307	292	270	259	--
22-Oct	245	214	254	272	243	237	213	243	224	231	232	226	228	223	219	216	210	205	203	212	209	209	230	249	223.8
23-Oct	259	259	264	270	262	277	278	268	277	275	277	268	264	259	250	240	221	222	229	247	236	214	220	226	256.7
24-Oct	239	227	235	251	256	239	246	248	261	276	279	268	279	274	283	279	280	273	255	265	247	227	235	242	258.3
25-Oct	239	244	240	254	248	264	272	265	272	274	280	275	276	289	292	278	257	246	199	202	207	209	207	203	254.6
26-Oct	197	183	170	174	139	98	84	76	47	49	49	42	26	22	52	75	92	105	94	102	101	119	124	134	86.0
27-Oct	142	143	142	148	144	140	108	98	105	87	96	88	102	103	97	121	121	152	165	189	228	277	290	290	124.9
28-Oct	293	296	292	287	290	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
29-Oct	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-Oct	207	212	213	213	207	236	270	351	25	44	35	45	47	45	50	62	62	66	65	72	66	67	57	56	63.6
31-Oct	67	63	69	63	59	70	73	69	79	96	98	104	70	65	85	93	105	103	118	118	94	83	56	21	78.1
231.5	232.7	234.4	241.0	242.1	243.3	243.6	241.0	243.7	245.7	248.5	241.4	236.4	242.3	238.2	223.4	214.0	193.8	200.0	215.3	218.4	221.4	225.6	231.7		
Diurnal Average																									
UO - Unstable Operation																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									







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

**Wind Direction 10m (WD10) - deg**  
**Stony Mountain - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 88 deg on Oct 16 03:00 Minimum Value: 8 deg on Oct 28 04:00 Percentiles: P <sub>1</sub> = 16 P <sub>10</sub> = 20 Q <sub>1</sub> = 23 Median = 29 Q <sub>3</sub> = 34 P <sub>90</sub> = 39 P <sub>99</sub> = 53																			Hours in Service: 744 Hours of Data: 694 Hours of Missing Data: 50 Hours of Calibration: 0 Percent Operational Time: 93.3							
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-Oct	35	37	33	40	38	36	42	39	38	44	46	45	37	46	40	39	67	50	42	44	28	33	38	37	67	
2-Oct	29	23	29	36	33	33	39	36	33	39	36	35	39	37	35	39	37	39	40	34	32	29	37	34	40	
3-Oct	29	34	38	36	38	35	40	39	40	36	37	41	44	42	47	44	40	29	24	27	37	16	19	20	47	
4-Oct	18	18	21	18	16	36	34	30	30	34	32	30	32	31	35	33	25	28	29	24	27	30	26	32	36	
5-Oct	42	51	40	51	49	46	43	37	30	33	32	38	39	40	41	37	36	22	22	23	23	25	24	25	51	
6-Oct	22	28	31	37	38	40	38	37	38	34	45	45	45	45	41	43	37	28	29	30	34	30	23	18	45	
7-Oct	19	22	22	22	22	22	24	24	26	26	30	32	35	33	34	31	35	28	25	23	24	25	24	23	35	
8-Oct	23	30	20	21	24	22	21	24	31	34	39	39	36	46	39	38	32	24	40	30	34	32	29	32	46	
9-Oct	36	38	34	34	26	31	35	36	33	33	34	39	39	45	47	46	33	24	20	20	23	25	28	25	47	
10-Oct	25	18	29	21	23	25	32	37	33	40	42	47	43	37	41	34	33	31	30	29	36	33	34	32	47	
11-Oct	32	31	33	26	24	23	18	19	22	22	25	29	29	27	25	27	28	23	22	21	22	22	22	20	33	
12-Oct	21	23	26	28	31	36	27	24	23	28	31	40	44	43	45	43	50	59	65	20	16	24	24	22	65	
13-Oct	26	26	24	23	25	27	28	29	32	32	34	33	34	35	35	34	35	28	27	27	28	27	30	27	35	
14-Oct	24	25	20	18	20	23	23	27	48	38	29	30	31	33	34	31	31	28	31	31	25	22	25	31	48	
15-Oct	24	24	21	30	29	28	25	24	26	25	28	32	40	39	35	39	31	15	27	32	25	31	28	19	40	
16-Oct	21	44	88	58	32	14	18	19	18	23	25	21	21	22	23	23	20	25	22	31	40	27	35	37	88	
17-Oct	33	30	29	23	26	28	31	32	33	30	32	30	32	30	33	31	29	30	33	31	31	30	31	30	33	
18-Oct	29	29	29	28	26	25	24	20	21	25	30	31	32	34	32	29	30	30	35	28	31	30	30	29	35	
19-Oct	22	23	22	23	23	26	28	31	32	41	31	35	34	34	33	30	23	21	26	26	55	29	14	21	55	
20-Oct	24	24	39	27	28	20	29	35	36	44	53	23	23	26	23	20	20	25	20	19	20	21	22	UO	53	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	45	47	39	34	38	39	40	33	47	
22-Oct	33	26	35	35	35	34	29	37	32	36	36	34	33	31	29	26	22	23	22	23	23	24	27	30	37	
23-Oct	28	31	27	27	29	30	29	25	25	26	29	30	34	33	31	30	21	22	25	29	25	20	23	27	34	
24-Oct	28	25	28	28	28	26	28	30	31	28	28	29	30	30	31	29	26	27	38	31	25	21	26	28	38	
25-Oct	28	29	27	29	29	29	25	29	28	25	32	32	32	31	30	31	23	19	13	16	17	17	18	17	32	
26-Oct	17	21	22	19	20	24	16	21	18	18	18	19	23	19	27	19	21	20	17	18	19	27	20	21	27	
27-Oct	23	23	19	21	21	21	18	18	19	34	28	19	21	20	21	28	23	28	22	20	30	31	24	21	34	
28-Oct	22	24	24	8	15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	24	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	34	36	35	23	19	UO	22	21	21	20	20	36
30-Oct	21	20	20	20	18	46	56	21	24	19	23	21	24	23	19	19	20	20	21	20	19	18	18	19	56	
31-Oct	21	18	19	19	19	20	20	20	21	30	24	26	25	23	28	27	27	27	26	25	27	22	20	26	30	
Diurnal Maximum																										
UO - Unstable Operation																										



Maximum Speed: 23 km/h on Oct 17 17:00	Maximum Daily Speed Average: 17.4 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 16 03:00	Minimum Daily Speed Average: 3.9 km/h on Oct 16	Hours of Data: 472
Maximum Diurnal Speed Average: 8.6 km/h at hour 2	Minimum Diurnal Speed Average: 4.3 km/h at hour 18	Hours of Missing Data: 272
Monthly Average Velocity: 6.9 km/h 239.3 deg	Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 7 Q <sub>1</sub> = 9 Median = 12 Q <sub>3</sub> = 14 P <sub>90</sub> = 16 P <sub>99</sub> = 21	Percent Operational Time: 63.7

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-Oct	WSW13	WSW13	WSW13	WSW14	W14	WSW13	W13	WSW14	WSW15	W12	W9	W8	WSW9	W6	W7	WSW8	WNW6	NNW4	NNW5	NNW5	WNW6	NW8	NW8	NW7	W8.6	WSW15	
2-Oct	NW5	W7	WNW9	WNW10	UO	UO	UO	UO	UO	NW15	NW16	NNW16	NNW15	NNW14	NNW15	NW14	NW12	NW9	NW8	NW9	NW10	WNW11	WNW10	WNW10	WNW11.1	NW16	
3-Oct	WNW9	WNW9	WNW10	WNW11	WNW11	WNW10	W8	W11	W10	WNW14	WNW15	WNW12	W14	W13	W12	W13	W8	W6	WNW7	WNW8	W7	SW8	SW11	SW11	W9.6	WNW15	
4-Oct	SW10	SW11	SW12	SW10	SW8	S6	SSE8	SSE10	SE9	E9	E11	E11	E13	E14	E14	E10	ENE12	ENE12	ENE12	ENE12	ENE12	NNE9	NNE8	NNE9	N8	E5.1	E14
5-Oct	N7	NNW8	NNW9	NNW10	NNW9	NNW8	NNW8	NW10	NW10	NW10	NW11	WNW10	W11	W11	WSW9	WSW9	SW9	SSW8	SSW11	SW13	SSW13	SSW15	SSW16	SW16	W6.5	SSW16	
6-Oct	SW15	SW16	WSW15	WSW18	W18	W19	W18	W16	W13	W12	WSW11	WSW12	WSW14	W14	W13	W12	WSW10	WSW8	WSW10	WSW12	WSW13	WSW11	SW10	SW11	WSW12.9	W19	
7-Oct	SW11	SSW12	SSW11	SSW12	SSW13	SSW14	SSW14	SSW15	SSW14	SSW13	SSW16	SSW13	SSW13	SSW14	SW15	SSW14	S10	S10	SSW10	SSW12	SW13	SW13	SW11	SW12	SSW12.5	SSW16	
8-Oct	SW13	SW10	SW10	SW8	SW7	SSW11	SSW9	S8	S7	SSE7	C	C	SSE15	S14	S13	S10	S10	SSW12	WSW15	WNW21	WNW14	WNW18	WNW17	W14	SW8.6	WNW21	
9-Oct	W14	WSW13	WSW12	WSW12	SW11	WSW13	WSW13	W15	W15	W13	W11	W9	WSW8	WSW9	W7	W6	W7	W6	WSW7	WSW7	WSW7	WSW8	WSW8	W7	W9.8	W15	
10-Oct	W8	WNW9	W8	WNW8	WNW8	WNW8	WNW10	W7	W10	WSW7	W11	WSW11	W14	W15	W15	W14	WNW12	WSW11	WSW11	WSW12	W13	W14	W14	W14	W10.8	W15	
11-Oct	W14	W12	WSW10	WSW12	WSW13	SW12	SW12	SW12	SW13	SSW12	SSW13	SW14	SW14	SW15	SSW13	SSW13	SSW13	SSW10	SW13	SW14	SW13	SW14	SW15	SW16	SW12.4	SW16	
12-Oct	SW15	SW15	SW13	WSW13	WSW12	W13	WNW12	WNW12	WNW12	WNW9	NW10	NW13	NNW13	NNW12	NNW10	NNW9	N6	NE4	ENE4	S6	SSW8	S8	S10	S12	W5.7	SW15	
13-Oct	S10	S12	S13	S16	S16	S17	S18	S16	S17	S20	S19	S19	S23	S22	S20	S19	S14	SSE17	S17	S16	S17	S17	S14	S12	S16.7	S23	
14-Oct	SSW13	S12	SSE10	SSE12	SSE13	SSE13	SSE13	S15	S11	S10	S13	SSE17	SSE12	SSE11	SSE18	SSE16	SSE16	SSE13	S11	S10	SSW12	SSW15	SW15	SW12	S12.6	SSE18	
15-Oct	SW10	SW9	WSW11	WSW12	W14	W17	WNW15	WNW14	W11	WNW12	WNW12	WNW12	WNW11	WNW9	W6	W7	W6	WSW9	WSW9	SW10	WSW8	SW7	SW9	SW9	W9.6	W17	
16-Oct	SW9	SW6	W1	ENE3	ENE4	E6	E7	E8	E9	ESE9	E7	ENE8	E9	ENE10	ENE12	E10	ENE8	E7	ESE6	ESE4	S5	SW6	WSW6	W10	E3.9	ENE12	
17-Oct	W11	W12	W16	WNW17	W18	W18	W17	WSW15	WSW15	WSW17	WSW19	W17	W17	W20	W18	W21	W23	W20	W17	W18	W20	W20	W18	W17	W17.4	W23	
18-Oct	W17	W18	W17	W15	WSW13	WSW12	WSW11	SW12	SW14	SW13	SW13	SW15	SW16	SW15	SW16	SW11	S8	S10	SSE12	SSE11	SSE12	SSE13	SSE14	S13	SW11.0	W18	
19-Oct	S11	S10	SSW10	SSW10	SW12	WSW13	WSW14	W14	WSW13	WSW12	W13	W12	WSW13	WSW11	W9	SW10	SSW10	SW10	WSW9	WSW10	WNW5	NNW4	NNW6	NNW11	WSW8.3	W14	
20-Oct	NNW9	NNW9	N6	NNW6	NW6	NW9	NNW9	N8	NNE4	ESE3	E2	E6	ENE7	ESE8	E7	E10	E8	ESE11	ESE12	ESE11	E11	E10	E8	AF	ENE4.2	ESE12	
21-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
22-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
23-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
24-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
25-Oct	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-Oct	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-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
28-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
29-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
30-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	
31-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---	

WSW8.4	WSW8.6	WSW8.3	WSW8.4	WSW8.5	WSW8.4	WSW7.9	WSW7.6	WSW7.4	WSW6.6	WSW6.6	WSW6.7	WSW6.6	WSW6.6	WSW6.5	WSW6.1	SW5.7	SW4.5	SSW4.3	SW5.2	SW5.9	SW6.9	WSW7.1	WSW7.3	WSW8.2	Diurnal Average
W17	W18	W17	WSW18	W18	W19	S18	S16	S17	S20	S19	S19	S23	S22	S20	W21	W23	W20	S17	WNW21	W20	W20	W18	W17	Diurnal Maximum	

C - Calibration      AF - Analyzer 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**

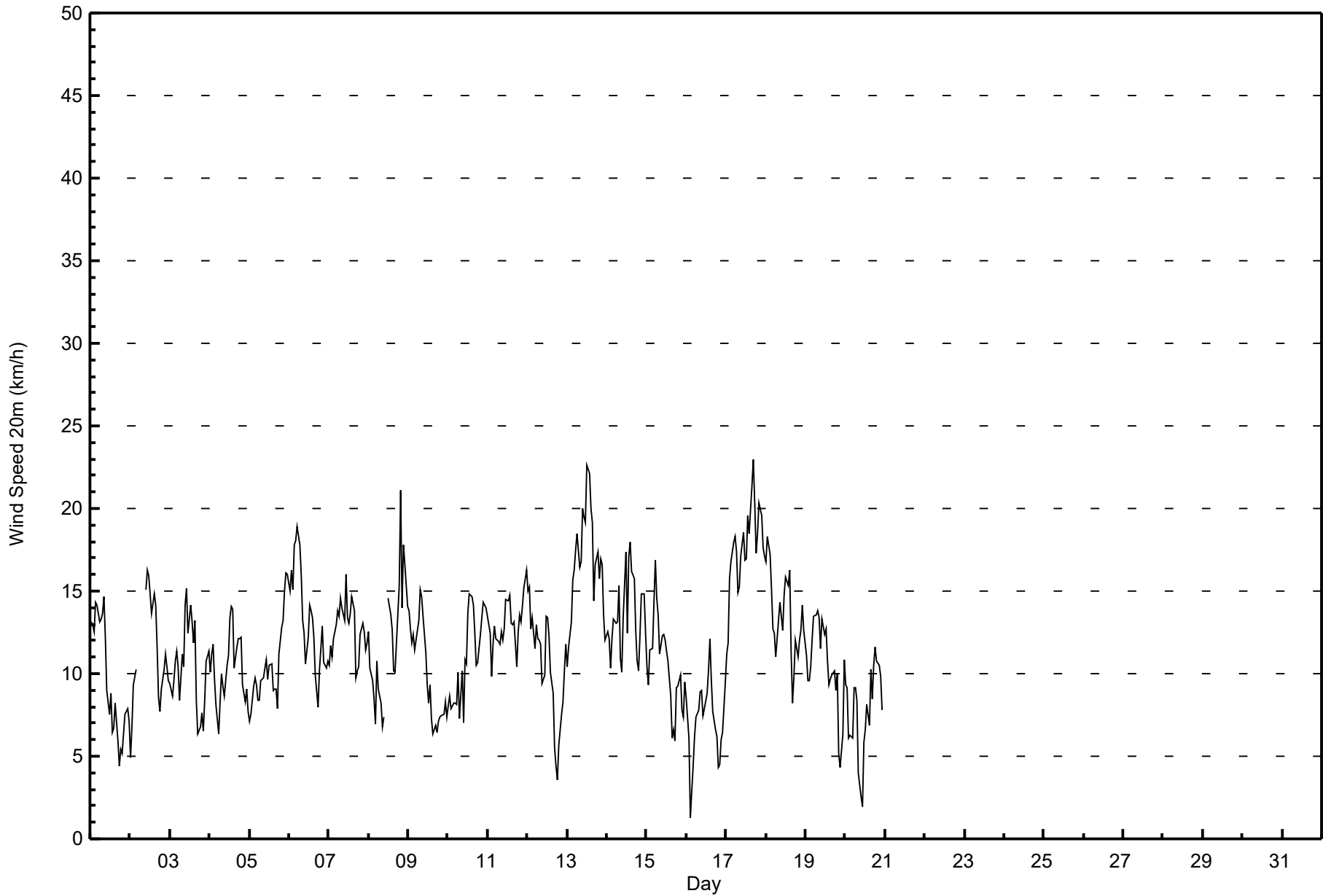
**Wind Speed 20m (WS20) - km/h**  
**Stony Mountain - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Oct 8 11:00 Minimum Value: 1 km/h on Oct 12 20:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7													Hours in Service: 744 Hours of Data: 474 Hours of Missing Data: 270 Hours of Calibration: 0 Percent Operational Time: 63.7												
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-Oct	4	4	4	5	5	4	4	5	5	5	3	3	3	3	2	3	3	2	2	2	2	2	2	2	5
2-Oct	1	1	3	4	UO	UO	UO	UO	UO	7	6	6	6	5	6	6	5	3	3	3	3	3	4	3	7
3-Oct	3	3	3	4	4	4	3	4	4	5	5	5	6	5	5	5	4	2	1	1	1	2	2	6	
4-Oct	2	2	2	2	1	1	2	2	3	3	4	3	4	4	5	4	3	4	4	4	3	3	3	5	
5-Oct	3	3	3	4	3	3	3	3	3	3	4	3	4	4	3	4	3	2	2	3	3	4	4	4	
6-Oct	4	5	5	7	7	6	6	5	5	4	4	5	5	5	5	5	4	2	3	3	4	3	2	7	
7-Oct	2	3	2	3	3	3	3	4	4	4	5	5	5	5	5	5	3	2	2	3	3	3	3	5	
8-Oct	3	3	2	2	1	2	1	3	2	2	8	4	4	4	4	3	3	3	5	7	5	6	5	8	
9-Oct	4	4	4	4	3	4	4	5	5	4	4	3	3	3	3	2	2	1	1	1	1	2	2	5	
10-Oct	1	2	2	2	2	2	3	2	3	3	4	4	5	5	6	5	4	3	3	3	4	5	4	6	
11-Oct	4	4	3	3	3	3	2	2	3	3	3	4	4	5	4	4	4	2	3	3	3	3	3	5	
12-Oct	4	3	3	3	3	4	3	3	3	3	3	4	5	5	4	3	3	1	1	1	1	1	2	5	
13-Oct	2	2	3	3	3	4	4	4	5	6	6	6	7	7	6	6	4	4	4	3	4	4	3	7	
14-Oct	3	2	2	2	2	4	3	3	6	4	5	5	4	5	6	5	5	3	3	2	3	4	4	6	
15-Oct	2	2	3	3	4	5	4	4	3	3	4	4	4	4	3	2	2	1	2	2	3	2	2	5	
16-Oct	1	2	1	1	1	1	1	2	2	2	2	2	2	3	3	2	2	2	2	1	1	2	2	3	
17-Oct	4	3	5	5	5	5	5	5	5	5	6	6	6	7	7	7	7	7	6	6	7	6	6	7	
18-Oct	5	5	5	4	3	3	3	3	3	4	4	4	5	5	5	4	2	2	3	2	3	3	4	5	
19-Oct	2	1	2	2	3	3	4	4	4	5	5	5	4	4	3	3	3	2	2	3	2	1	1	5	
20-Oct	3	3	2	2	2	2	3	3	2	1	2	1	2	2	2	3	2	3	3	2	2	3	2	UO	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
23-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
24-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
25-Oct	UO	UO	UO	UO	UO	UO	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
26-Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
27-Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
28-Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
29-Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
30-Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
31-Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	
Diurnal Maximum																									
5 5 5 7 7 6 6 5 6 7 8 6 7 7 7 7 7 7 6 7 7 6 6 6																									
UO - Unstable Operation    NF - Not Flagged																									



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

**Wind Speed 20m (WS20) - km/h**  
**Stony Mountain - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 20m (WS20) - km/h  
Stony Mountain - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	16	3.39	3.39
6 - 11	215	45.55	48.94
12 - 19	230	48.73	97.67
20 - 28	11	2.33	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 472

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 20m (WS20) - km/h  
Stony Mountain - October 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	1	1	3	1	2	0	0	1	0	0	0	1	1	1	4	16
6 - 11	5	3	0	4	19	5	1	5	19	12	27	30	32	25	13	15	215
12 - 19	0	0	0	5	3	1	0	17	24	29	35	36	53	20	5	2	230
20 - 28	0	0	0	0	0	0	0	0	4	0	0	0	6	1	0	0	11
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>	5	4	1	12	23	8	1	22	48	41	62	66	92	47	19	21	472

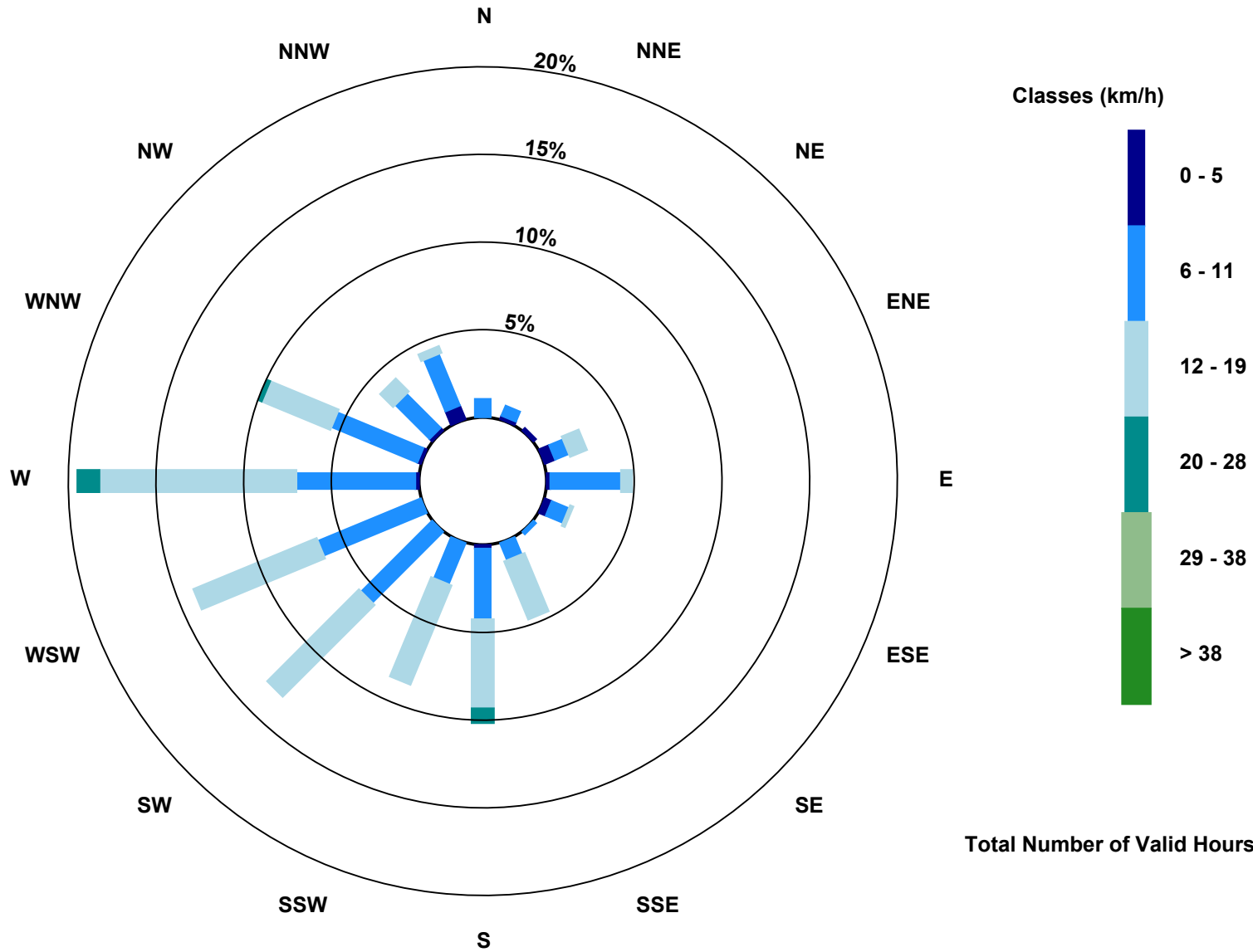
Total Number of Valid Hours: 472

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 20m (WS20) - km/h  
Stony Mountain



Total Number of Valid Hours: 472



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Direction 20m (WD20) - deg

## Stony Mountain - October 2024

Direction of Maximum Speed: 276 deg on Oct 17 17:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 267.6 deg on Oct 17																						Hours of Data: 472			
Direction of Minimum Speed: 277 deg on Oct 16 03:00											Direction of Minimum Daily Speed Average: 3.9 deg on Oct 16											Hours of Missing Data: 272			
Monthly Average Direction: 239.3 deg																						Percent Operational Time: 63.7			
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-Oct	246	248	244	258	259	248	259	254	256	266	271	261	246	269	272	253	283	346	345	328	303	307	306	326	267.3
2-Oct	317	276	289	290	UO	UO	UO	UO	UO	305	309	302	295	294	295	313	309	319	321	316	304	298	295	293	301.8
3-Oct	299	294	283	285	287	295	270	267	272	284	297	289	273	264	268	278	278	274	296	282	262	220	214	217	274.2
4-Oct	221	219	217	215	214	171	159	148	134	99	97	92	88	87	95	79	66	71	74	62	32	12	16	3	99.5
5-Oct	349	343	334	334	336	333	330	323	310	310	308	286	275	269	253	239	234	209	205	214	212	208	209	219	267.7
6-Oct	222	233	237	254	260	266	268	272	271	275	258	255	253	266	272	268	248	243	244	246	250	241	233	223	253.5
7-Oct	218	206	207	207	201	201	198	197	198	194	195	205	197	210	214	212	186	189	195	204	217	218	223	219	204.7
8-Oct	217	227	217	224	226	203	194	189	179	166	C	C	166	177	180	180	187	198	239	292	283	288	283	276	224.5
9-Oct	263	249	254	254	235	251	258	271	276	280	280	262	242	256	267	266	273	275	252	254	256	254	257	268	260.9
10-Oct	279	286	275	289	284	283	282	279	266	237	260	251	259	270	269	275	283	257	250	246	262	267	272	273	268.5
11-Oct	267	267	249	237	240	230	223	218	216	210	208	218	218	218	210	195	202	209	220	221	221	223	221	218	222.6
12-Oct	217	224	231	243	255	271	282	283	295	297	304	326	341	344	346	346	353	37	72	173	201	183	182	191	270.7
13-Oct	181	183	188	185	187	186	183	180	176	172	172	173	170	174	175	173	173	168	171	176	183	186	180	186	177.8
14-Oct	192	186	166	155	151	155	168	178	173	178	170	165	166	163	165	164	161	163	173	180	198	204	223	230	175.1
15-Oct	223	226	238	249	272	279	290	287	274	284	284	286	291	291	283	260	260	273	257	253	229	252	218	218	264.7
16-Oct	226	222	277	58	77	85	93	97	100	102	83	67	80	71	72	82	76	96	111	122	172	227	245	262	98.7
17-Oct	259	270	277	285	280	280	269	256	256	252	257	265	266	273	271	267	276	269	260	262	263	273	265	263	267.6
18-Oct	262	263	262	260	246	245	238	216	218	218	215	228	227	234	229	217	178	171	166	163	166	160	164	172	218.2
19-Oct	179	180	193	205	225	240	257	262	254	258	269	268	254	253	279	216	208	215	241	242	285	338	329	341	245.0
20-Oct	347	336	350	337	313	321	335	355	14	108	88	80	78	106	99	100	89	106	109	102	101	101	84	AF	61.8
21-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
22-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
23-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
24-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
25-Oct	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-Oct	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-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
28-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
29-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
30-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
31-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
240.2 241.7 243.4 248.5 246.5 247.5 246.6 242.1 239.8 244.0 250.0 248.1 235.8 238.6 237.5 230.3 227.8 210.6 216.3 231.0 233.4 236.8 236.3 240.8																									
Diurnal Average																									
C - Calibration AF - Analyzer 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 20m (WD20) - deg**  
**Stony Mountain - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 81 deg on Oct 16 03:00	Hours of Data: 472
Minimum Value: 10 deg on Oct 4 05:00	Hours of Missing Data: 272
Percentiles: P <sub>1</sub> = 12 P <sub>10</sub> = 15 Q <sub>1</sub> = 17 Median = 21 Q <sub>3</sub> = 25 P <sub>90</sub> = 29 P <sub>99</sub> = 38	Hours of Calibration: 2
	Percent Operational Time: 63.7

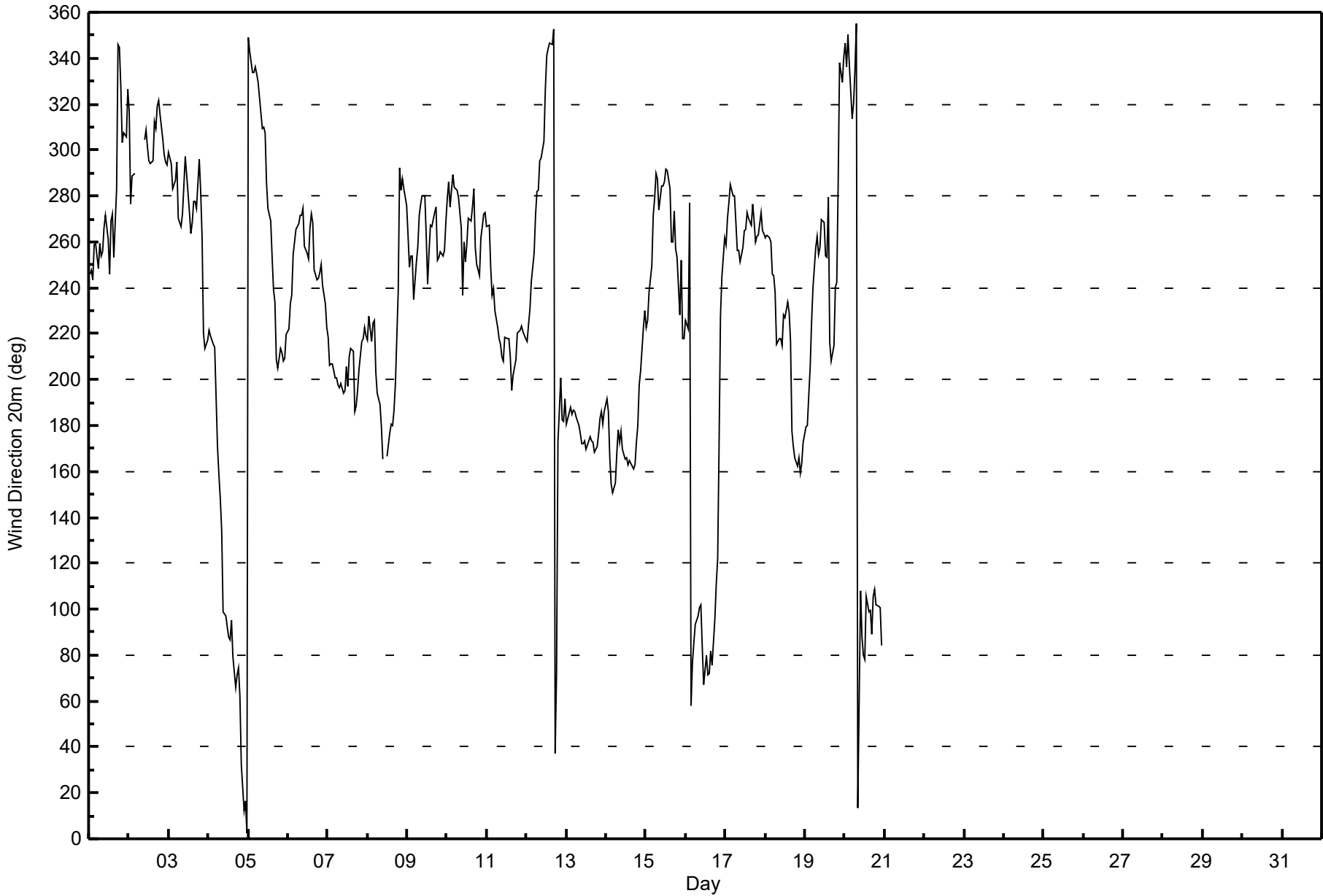
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	23	24	23	27	26	25	26	25	26	29	30	33	28	34	29	25	49	29	26	23	18	20	20	23	49
2-Oct	22	12	15	22	UO	UO	UO	UO	UO	25	24	25	27	27	25	26	23	25	22	21	22	21	25	23	27
3-Oct	22	23	25	24	25	24	26	26	29	25	26	32	31	34	31	27	17	13	13	24	12	13	14	34	
4-Oct	13	13	14	12	10	27	16	17	24	19	20	19	21	21	21	24	18	19	20	17	25	24	21	25	27
5-Oct	26	26	23	25	25	25	22	21	20	20	24	26	27	29	32	29	25	18	16	17	18	18	19	32	
6-Oct	17	20	20	26	26	26	27	24	24	25	31	31	32	32	32	30	28	17	17	19	22	22	16	12	32
7-Oct	14	17	15	16	16	16	17	17	19	19	23	26	26	28	26	26	24	17	17	18	18	18	16	16	28
8-Oct	16	18	15	17	20	14	17	15	20	22	C	C	24	29	27	24	23	19	30	23	23	23	22	23	30
9-Oct	24	26	22	24	18	23	24	23	23	22	24	30	31	33	34	30	25	19	13	13	14	16	18	16	34
10-Oct	13	13	15	16	16	17	21	21	25	31	31	34	32	27	30	26	24	19	21	19	23	23	22	23	34
11-Oct	21	22	24	17	16	16	13	13	17	18	21	22	22	21	22	21	21	17	18	16	17	16	16	16	24
12-Oct	17	16	17	18	20	25	20	19	17	22	24	26	31	32	32	31	29	14	23	22	13	16	12	14	32
13-Oct	15	13	15	15	17	17	18	19	22	22	24	24	23	24	24	22	22	17	16	15	17	18	16	15	24
14-Oct	16	14	13	10	11	12	16	15	41	29	21	22	24	22	22	22	20	17	16	15	17	17	20	21	41
15-Oct	17	16	14	22	21	22	19	19	21	21	21	28	32	32	30	29	22	12	18	22	19	25	25	14	32
16-Oct	13	37	81	38	20	11	15	15	16	18	20	17	18	18	18	20	19	22	16	26	37	21	23	27	81
17-Oct	23	22	21	19	20	21	22	24	24	23	24	23	23	23	25	22	20	22	24	23	23	22	22	22	25
18-Oct	21	21	21	20	19	18	18	15	17	19	23	25	25	28	24	24	18	15	17	15	17	16	17	18	28
19-Oct	13	14	14	15	17	21	21	21	23	31	25	27	25	27	23	25	17	16	19	19	52	18	14	23	52
20-Oct	24	22	30	22	20	17	22	28	31	32	42	20	20	20	22	16	18	21	16	16	17	18	19	AF	42
21-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
22-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
23-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
24-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
25-Oct	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-Oct	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-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
28-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
29-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
30-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
31-Oct	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
Diurnal Maximum																									
26 37 81 38 26 27 27 28 41 32 42 34 32 34 34 31 49 29 30 26 52 25 25 27																									

C - Calibration      AF - Analyzer Failure      UO - Unstable Operation



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

**Wind Direction 20m (WD20) - deg**  
**Stony Mountain - October 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS19 FIREBAG OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
OCTOBER 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	18.5	0	4.6	0
H2S (ppb) Average	707	37	37	100	4	0	0.6	0
THC (ppm) Average	709	35	35	100	2.8	-	2.4	-
NO2 (ppb) Average	707	37	37	100	16.7	0	6.1	-
NO (ppb) Average	707	37	37	100	9.2	-	1.9	-
NOX (ppb) Average	707	37	37	100	23.4	-	6.8	-
Temperature 2 m (C) Average	744	0	0	100	18.1	-	12.9	-
Relative Humidity (%) Average	744	0	0	100	98	-	95.7	-
Wind Speed 10 m (km/h) Average	694	4	50	93.82	36	-	24	-
Wind Direction 10 m (deg) Average	694	4	50	93.82	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
OCTOBER 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	0.94	2	-	0	0	0	0.2	0.8	2.7	18.5
H2S (ppb) Average	707	0.14	0.3	-	0	0	0	0.1	0.1	0.3	4
THC (ppm) Average	709	2.26	0.1	-	2.1	2.2	2.2	2.2	2.3	2.4	2.8
NO2 (ppb) Average	707	2.87	2.8	-	0	0.4	1	1.9	3.8	6.5	16.7
NO (ppb) Average	707	0.42	0.8	-	0	0	0	0.1	0.4	1.1	9.2
NOX (ppb) Average	707	3.29	3.2	-	0.1	0.4	1.1	2.3	4.5	7.3	23.4
Temperature 2 m (C) Average	744	2.02	5.8	-	-11.3	-5.8	-1.8	1.5	6	10	18.1
Relative Humidity (%) Average	744	74.26	16.2	-	31.4	50.6	61.5	76.7	88.2	94.2	98
Wind Speed 10 m (km/h) Average	694	13.7	6	-	1	7	9	13	17	22	36
Wind Direction 10 m (deg) Average	694	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	09 Oct 2024 11:00	09 Oct 2024 14:00	4	Maintenance - sensor replaced
Wind Speed, Wind Direction	20 Oct 2024 01:00	21 Oct 2024 11:00	35	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 01:00	28 Oct 2024 05:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Oct 2024 23:00	30 Oct 2024 00:00	2	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Firebag - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 18.5 ppb on Oct 10 10:00	Maximum Daily Average: 4.6 ppb on Oct 10		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 1 04:00	Minimum Daily Average: 0.0 ppb on Oct 21		Hours of Missing Data:	35
Maximum Diurnal Average: 1.4 ppb at hour 9	Minimum Diurnal Average: 0.3 ppb at hour 21		Hours of Calibration:	35
Monthly Average: 0.94 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> = 0.8 P <sub>90</sub> = 2.7 P <sub>99</sub> = 10.0		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-Oct	0.1	0.2	0.2	0.0	0.0	Z	0.0	0.0	0.0	0.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
2-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
3-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.3	1.9	1.9	0.2	0.1	0.1	0.1	0.2	1.1	1.0	0.5	0.7	1.0	0.4	1.9	
4-Oct	3.0	1.3	Z	1.5	5.2	1.3	0.7	0.3	0.2	0.1	0.1	0.1	0.9	0.1	3.9	0.9	0.5	1.4	0.3	0.1	0.1	0.1	0.0	0.0	1.0	5.2	
5-Oct	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.9	2.7	10.0	10.3	6.7	2.9	0.4	0.2	0.1	0.1	0.2	0.3	0.2	10.3	
6-Oct	1.1	4.1	1.9	0.4	Z	0.5	0.2	0.2	0.2	1.2	2.5	2.3	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.2	1.5	1.5	0.8	4.1	
7-Oct	0.3	0.1	0.1	0.1	0.3	Z	0.5	0.2	0.7	0.9	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.4	0.5	0.7	0.4	0.9	
8-Oct	Z	0.5	0.8	1.6	2.0	2.3	2.0	1.8	3.6	0.3	0.5	0.7	0.3	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.6	0.1	0.6	2.9	1.0	3.6	
9-Oct	3.1	Z	6.9	7.0	6.8	4.7	2.6	2.1	4.8	2.3	C	C	C	C	0.9	0.7	0.0	0.4	1.7	1.8	0.9	0.8	1.2	1.0	2.6	7.0	
10-Oct	0.8	1.1	Z	1.1	1.1	1.6	3.0	4.3	15.8	18.5	8.1	6.2	4.4	12.5	9.4	3.2	6.0	4.1	1.9	0.7	0.5	0.5	0.3	0.1	4.6	18.5	
11-Oct	0.2	0.2	1.0	Z	2.7	1.4	12.2	7.3	4.0	0.3	0.2	0.2	0.2	0.9	0.5	0.3	1.5	0.3	0.1	0.2	0.2	0.2	0.6	0.9	1.6	12.2	
12-Oct	3.8	4.1	2.6	2.2	Z	0.8	0.5	0.4	0.6	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	0.0	0.1	0.7	4.1	
13-Oct	0.1	0.0	0.1	0.4	0.4	Z	0.5	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.5	
14-Oct	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.5	
15-Oct	0.4	Z	4.2	4.3	3.4	3.3	2.2	2.1	1.1	0.7	0.5	0.7	1.1	1.1	0.6	1.1	0.9	3.6	5.8	2.4	0.5	1.6	2.6	3.0	2.1	5.8	
16-Oct	4.7	3.7	Z	10.8	9.5	1.8	1.3	0.9	1.5	1.6	0.7	1.8	2.2	1.8	0.5	0.2	0.2	3.0	1.5	3.1	1.8	0.3	0.3	0.2	2.3	10.8	
17-Oct	0.0	0.0	0.0	Z	0.5	0.3	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	0.2	0.0	0.0	0.0	0.0	0.1	0.5	
18-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	1.4	2.2	2.5	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5	
19-Oct	0.1	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	1.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	
20-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
21-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Oct	0.1	0.4	Z	1.4	1.5	1.9	1.8	0.8	1.1	1.6	2.5	4.1	0.8	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	2.1	3.3	4.8	1.3	4.8
23-Oct	2.9	1.8	0.7	Z	0.3	0.1	0.1	0.1	0.1	0.4	0.3	0.5	0.3	4.0	3.3	0.6	1.5	3.5	1.9	1.8	2.1	2.0	1.4	2.2	1.4	4.0	
24-Oct	2.7	4.2	3.3	2.2	Z	1.8	1.0	0.9	0.5	0.5	1.5	0.9	0.3	0.3	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.9	4.2	
25-Oct	0.0	0.0	0.0	0.0	0.2	Z	3.5	6.4	5.7	3.1	3.1	1.0	0.5	0.4	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	6.4	
26-Oct	Z	0.0	0.0	0.1	0.1	0.8	7.7	9.3	1.4	2.4	8.3	5.1	2.3	0.6	0.7	1.4	1.4	5.1	0.8	0.2	0.2	0.2	0.1	0.1	2.1	9.3	
27-Oct	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.6	
28-Oct	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	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.2	
29-Oct	0.0	0.1	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.1	0.4	5.8	4.2	0.8	0.2	0.1	0.0	0.1	0.2	0.4	0.6	0.6	5.8	
30-Oct	2.1	1.7	1.3	0.5	Z	0.2	0.3	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	16.4	1.3	16.4	
31-Oct	4.6	1.1	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.3	4.6	

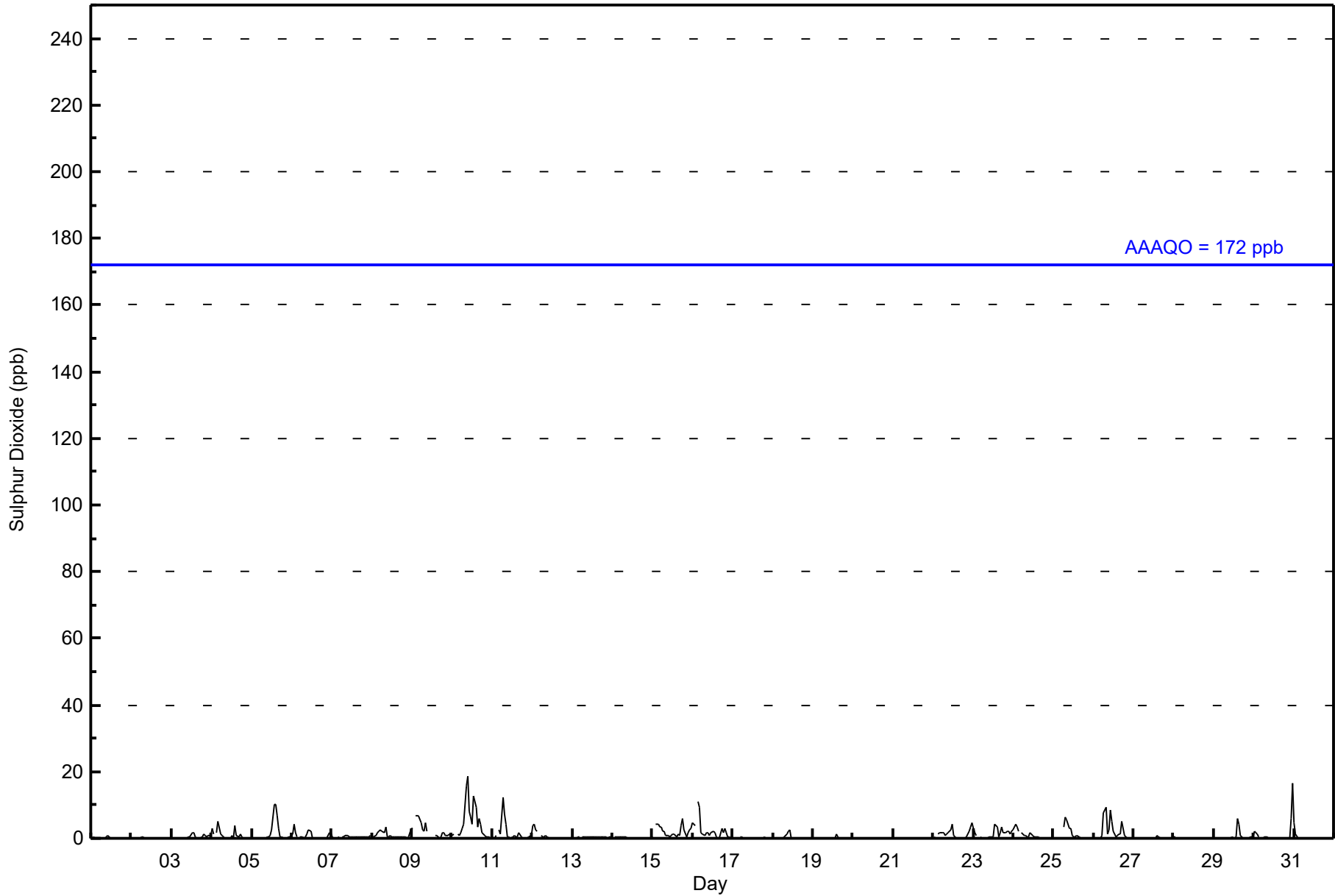
1.2	1.0	0.9	1.3	1.3	0.9	1.3	1.3	1.4	1.2	1.1	0.9	0.7	1.2	1.3	0.7	0.6	0.8	0.5	0.4	0.3	0.3	0.7	1.2	Diurnal Average	
4.7	4.2	6.9	10.8	9.5	4.7	12.2	9.3	15.8	18.5	8.3	6.2	4.4	12.5	10.3	6.7	6.0	5.1	5.8	3.1	2.1	2.1	6.0	16.4	Diurnal Maximum	

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  
Firebag - October 2024







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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Firebag - October 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	6	0.85	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**  
**Firebag - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	11	11	7	13	17	32	29	66	68	71	88	70	46	39	50	42	660
11 - 20	0	0	0	0	0	1	0	0	0	2	2	1	0	0	0	0	6
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	11	11	7	13	17	33	29	66	68	73	90	71	46	39	50	42	666

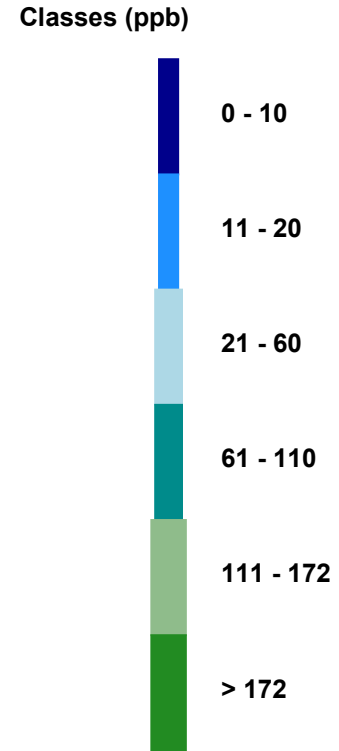
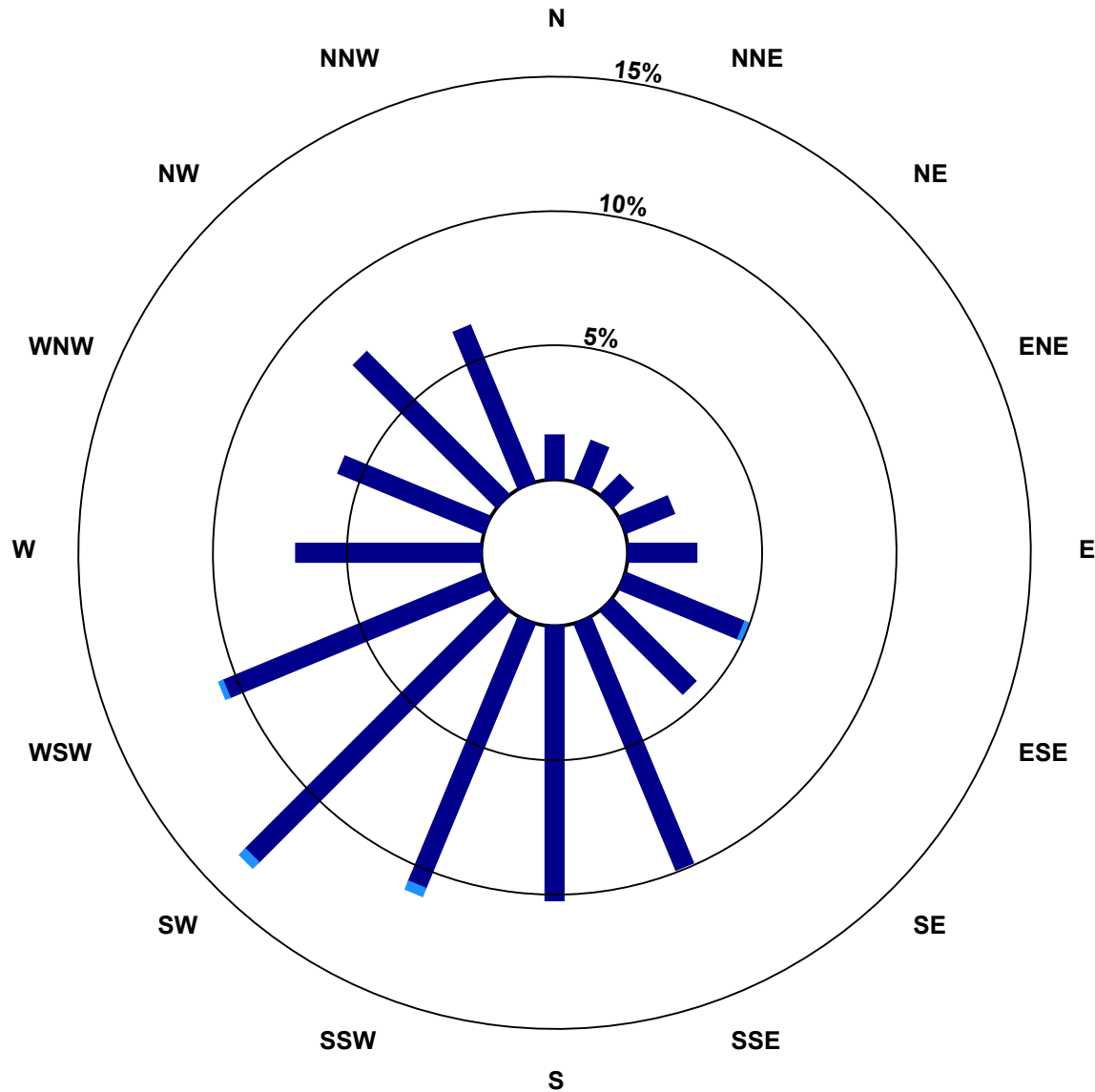
Total Number of Valid Hours: 666

Total Number of Hours: 744

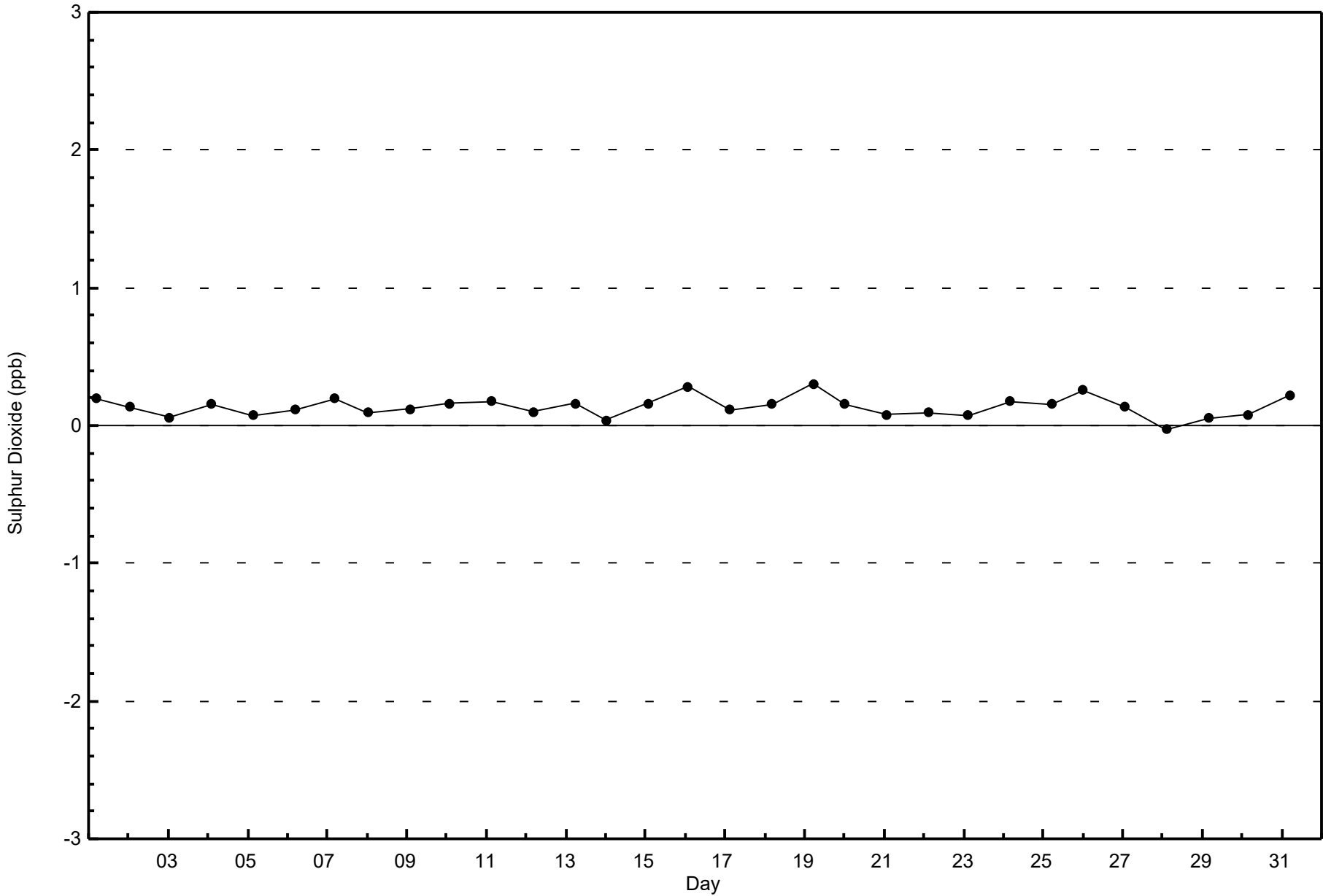


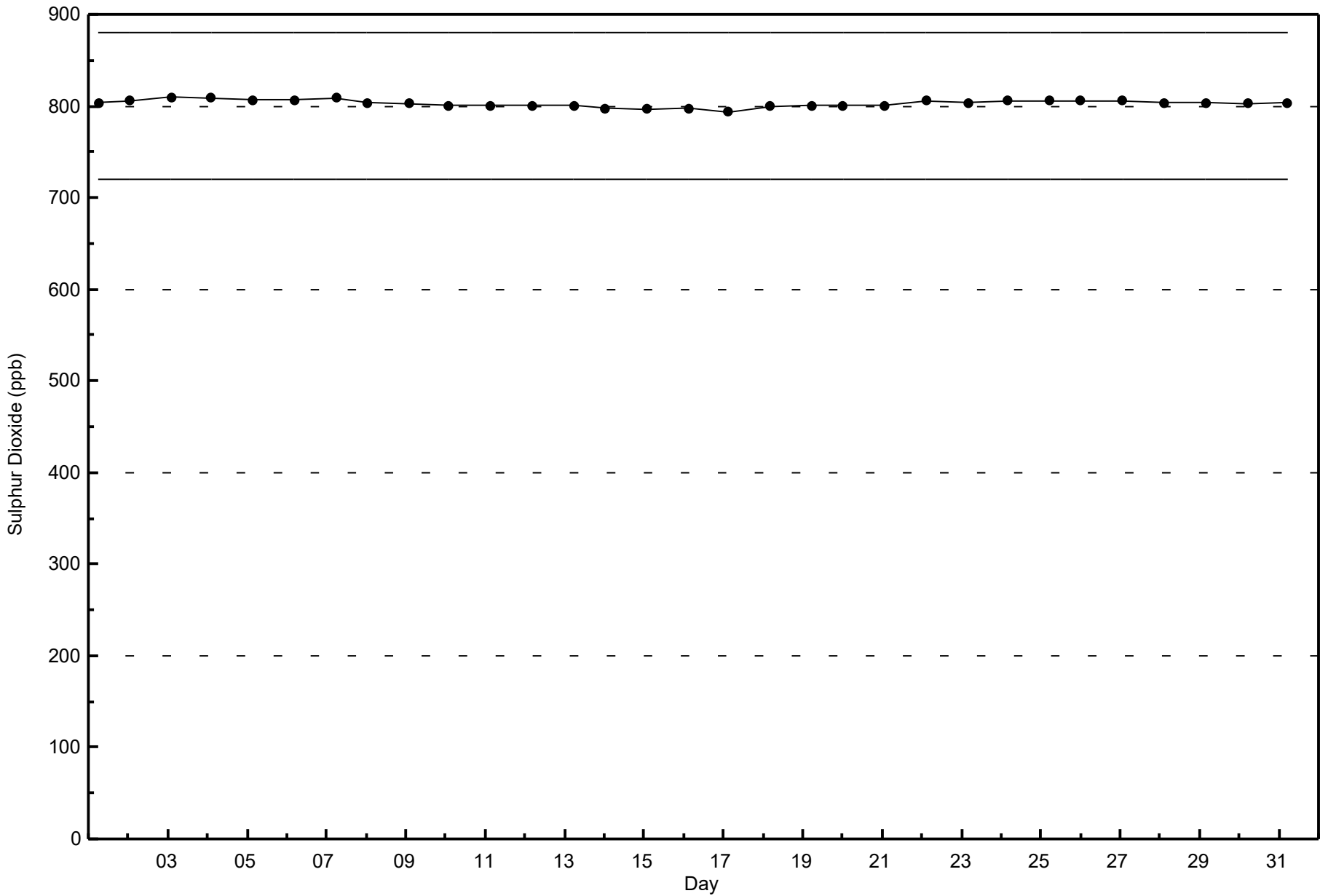
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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

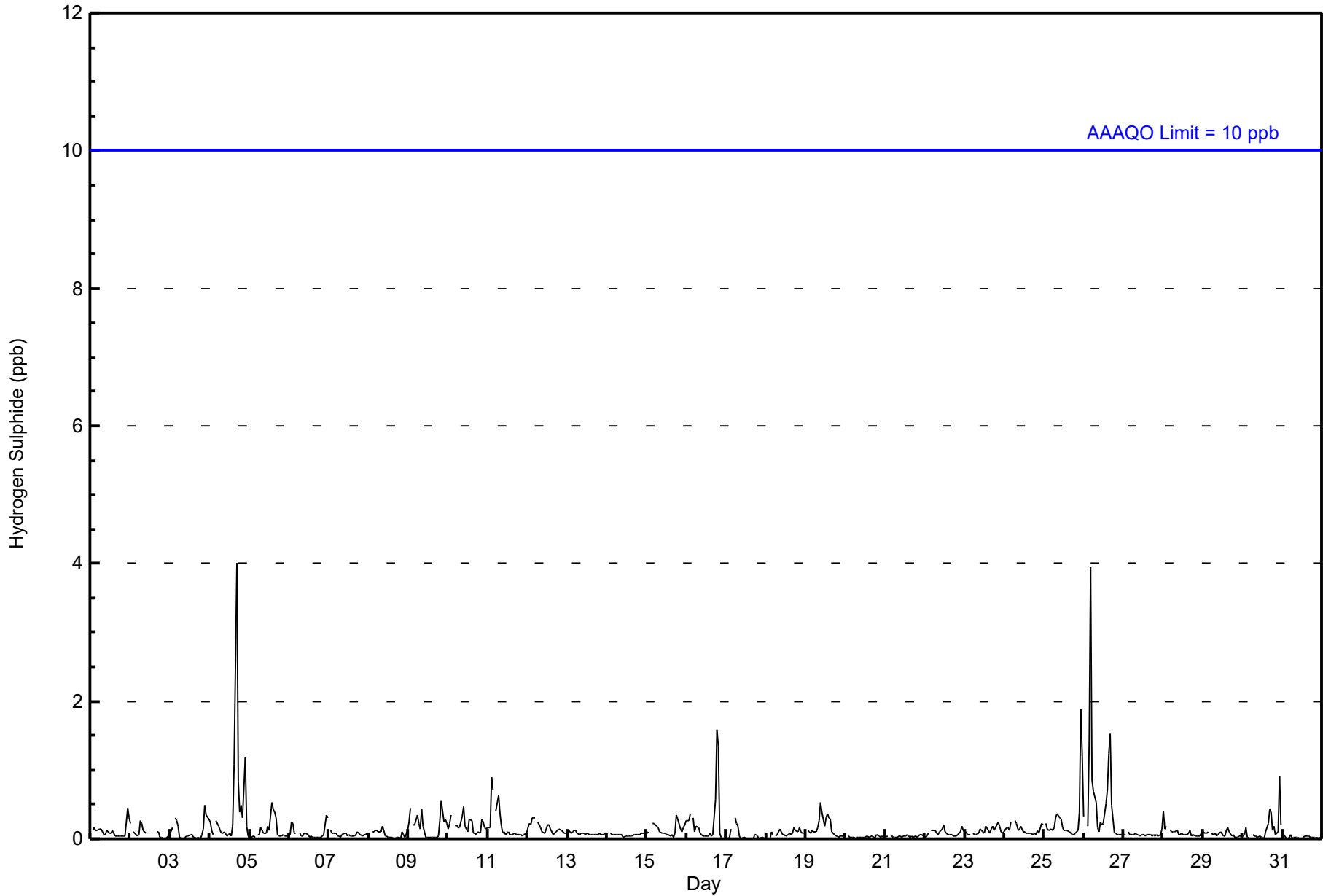


Total Number of Valid Hours: 666











**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Firebag - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	705	99.72	99.72
3 - 4	2	0.28	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**

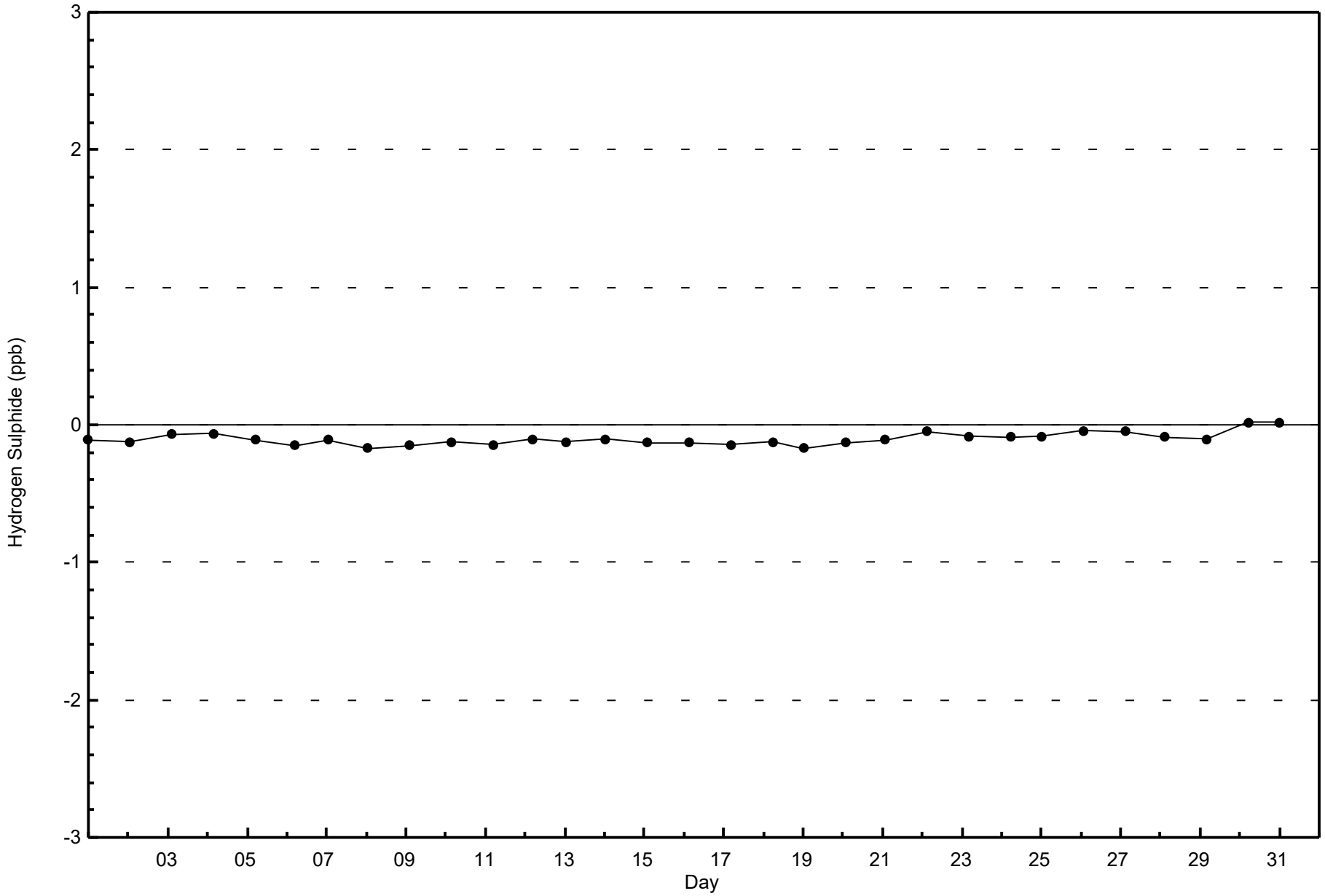
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Firebag - October 2024**

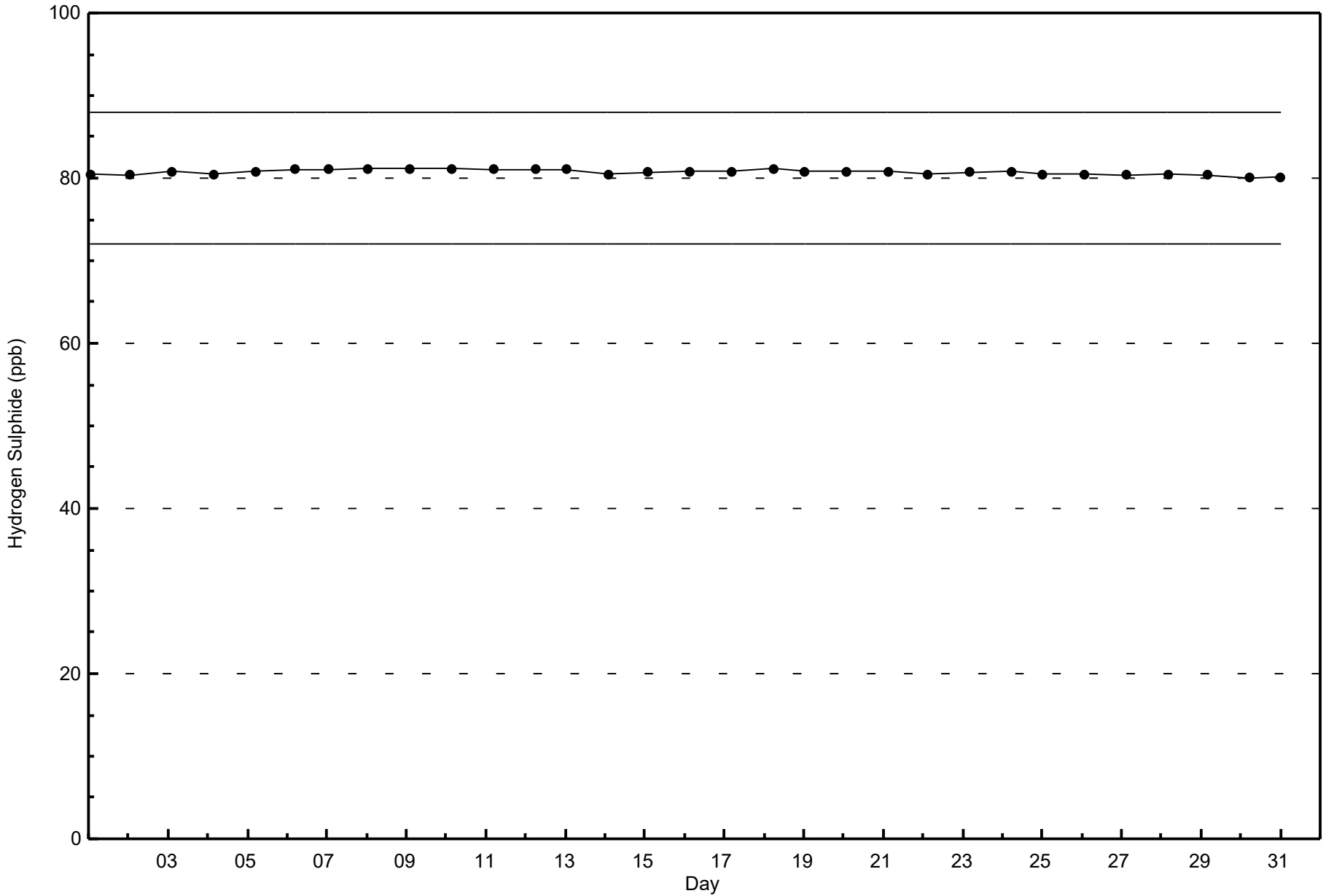
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	12	11	6	14	16	31	29	64	69	73	92	73	44	38	44	42	658
3 - 4	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	12	11	6	14	17	32	29	64	69	73	92	73	44	38	44	42	660

Total Number of Valid Hours: 660

Total Number of Hours: 744

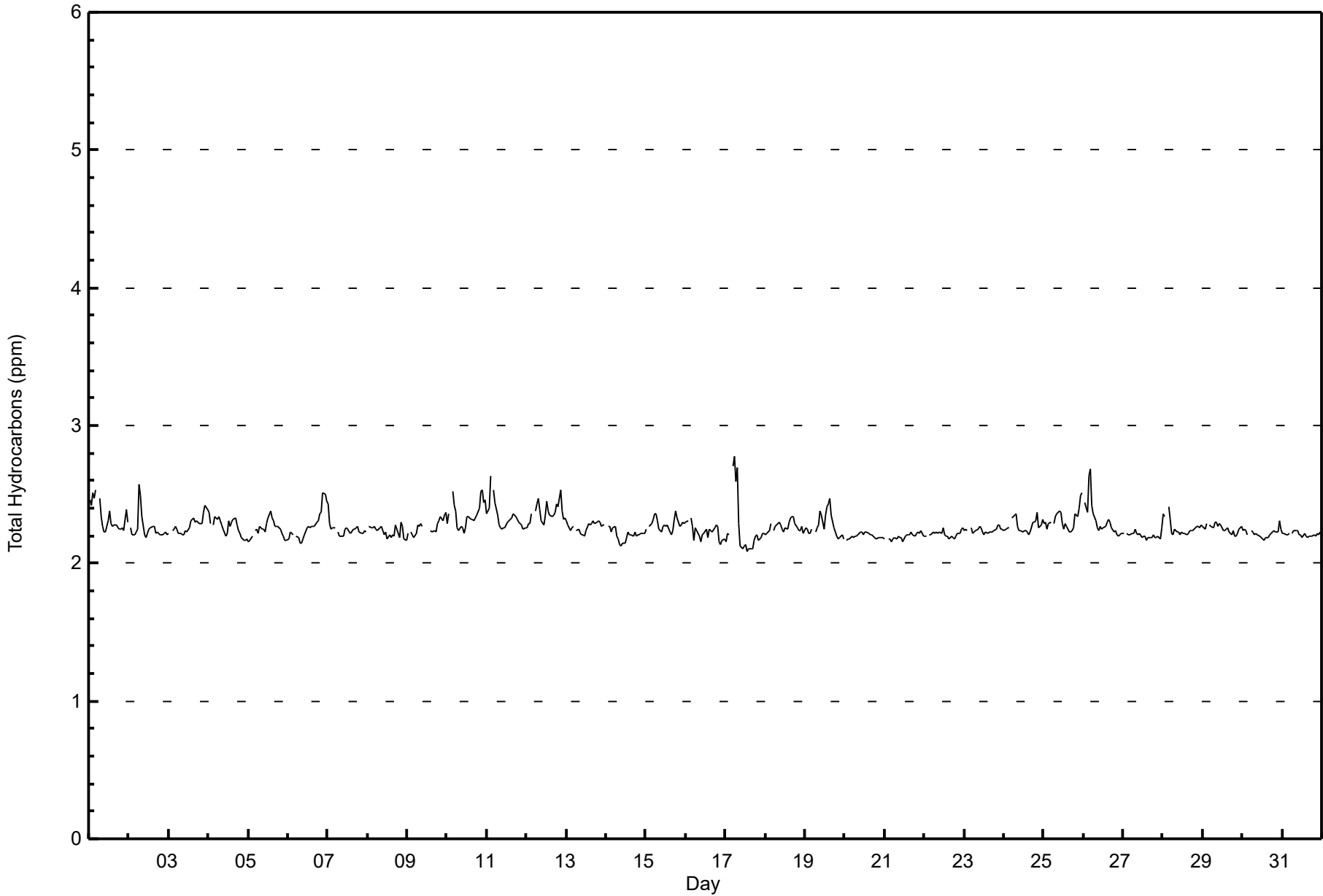








Maximum Value: 2.8 ppm on Oct 17 06:00		Maximum Daily Average: 2.4 ppm on Oct 12		Hours in Service: 744																						
Minimum Value: 2.1 ppm on Oct 17 14:00		Minimum Daily Average: 2.2 ppm on Oct 21		Hours of Data: 709																						
Maximum Diurnal Average: 2.3 ppm at hour 5		Minimum Diurnal Average: 2.2 ppm at hour 11		Hours of Missing Data: 35																						
Monthly Average: 2.26 ppm		Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.2 Median = 2.2 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.6		Hours of Calibration: 35																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	2.5	2.4	2.5	2.5	2.5	Z	2.5	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.4	2.3	2.3	2.5
2-Oct	Z	2.3	2.2	2.2	2.2	2.2	2.6	2.5	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	2.6
3-Oct	2.2	Z	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4
4-Oct	2.4	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4
5-Oct	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
6-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.3	2.5	
7-Oct	2.4	2.3	2.2	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	
8-Oct	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.3	
9-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	C	C	C	C	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	
10-Oct	2.3	2.4	Z	2.5	2.4	2.4	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.5	2.5	
11-Oct	2.4	2.4	2.6	Z	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.6	
12-Oct	2.3	2.3	2.3	2.4	Z	2.4	2.4	2.5	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.5	2.4	2.3	2.3	2.5	
13-Oct	2.3	2.3	2.2	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
14-Oct	Z	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
15-Oct	2.2	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	
16-Oct	2.3	2.3	Z	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.3	
17-Oct	2.2	2.2	2.2	Z	2.7	2.8	2.6	2.7	2.3	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	2.8	
18-Oct	2.2	2.2	2.2	2.3	Z	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.3	
19-Oct	2.3	2.2	2.2	2.2	2.3	Z	2.2	2.3	2.3	2.4	2.3	2.2	2.3	2.4	2.4	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.5	
20-Oct	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
21-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
22-Oct	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	
23-Oct	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	
24-Oct	2.2	2.2	2.3	2.3	Z	2.3	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	
25-Oct	2.3	2.3	2.2	2.3	2.3	Z	2.3	2.3	2.4	2.4	2.4	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.3	2.4	2.5	2.5	2.5	
26-Oct	Z	2.4	2.4	2.6	2.7	2.4	2.4	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.7	
27-Oct	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	
28-Oct	2.4	2.3	Z	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	
29-Oct	2.3	2.2	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	
30-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	
31-Oct	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
																								Diurnal Average		
																								Diurnal Maximum		
																								2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3		
																								2.5 2.4 2.6 2.6 2.7 2.8 2.6 2.7 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.5 2.4 2.4 2.4 2.4 2.5 2.5 2.5 2.5		
Z - zerospan C - Calibration																										





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

**Total Hydrocarbons (THC) - ppm**  
**Firebag - October 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	709	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: 709

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Firebag - October 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	11	11	7	13	17	33	29	66	68	73	90	71	46	39	50	42	666
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>	11	11	7	13	17	33	29	66	68	73	90	71	46	39	50	42	666

Total Number of Valid Hours: 666

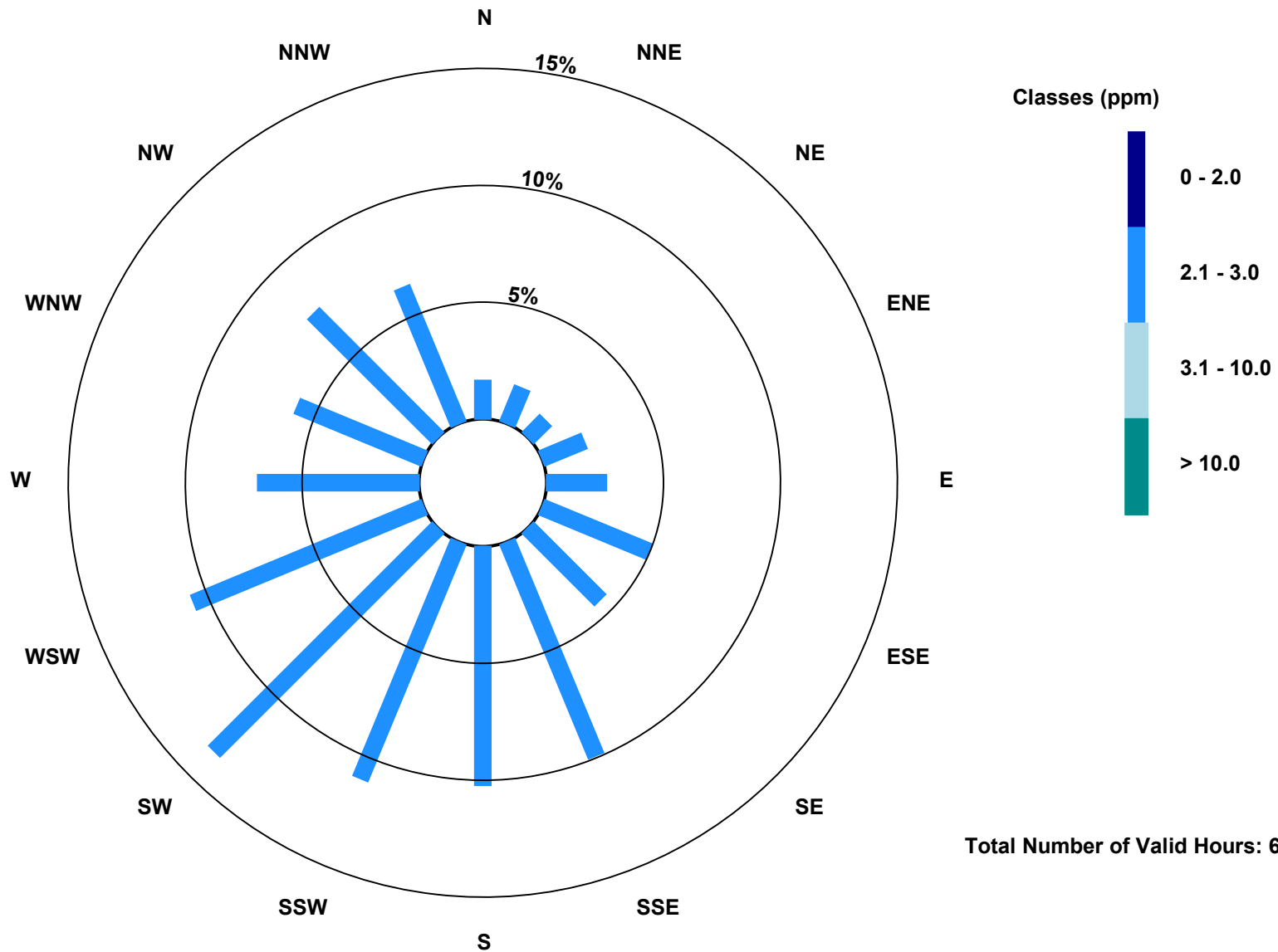
Total Number of Hours: 744

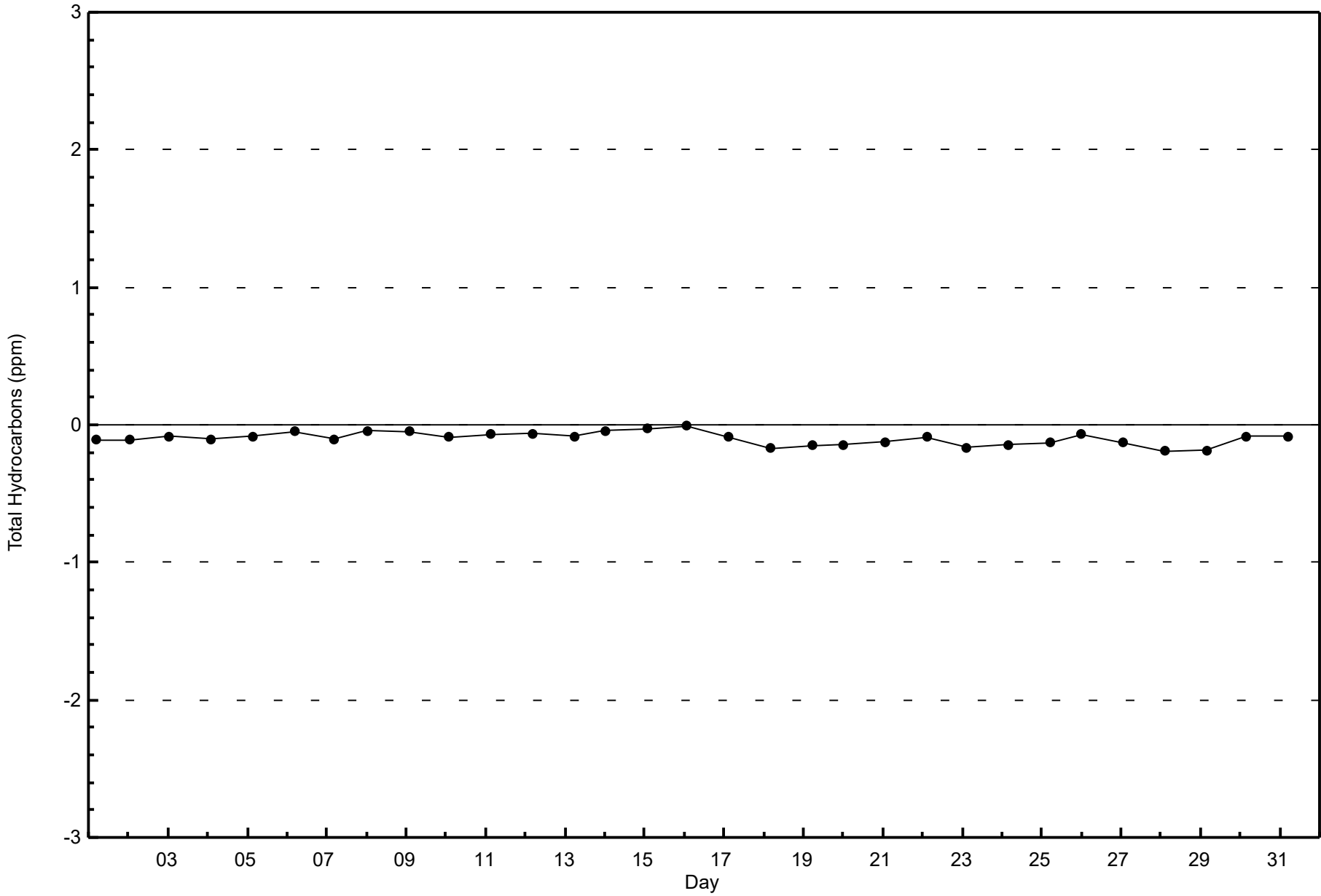


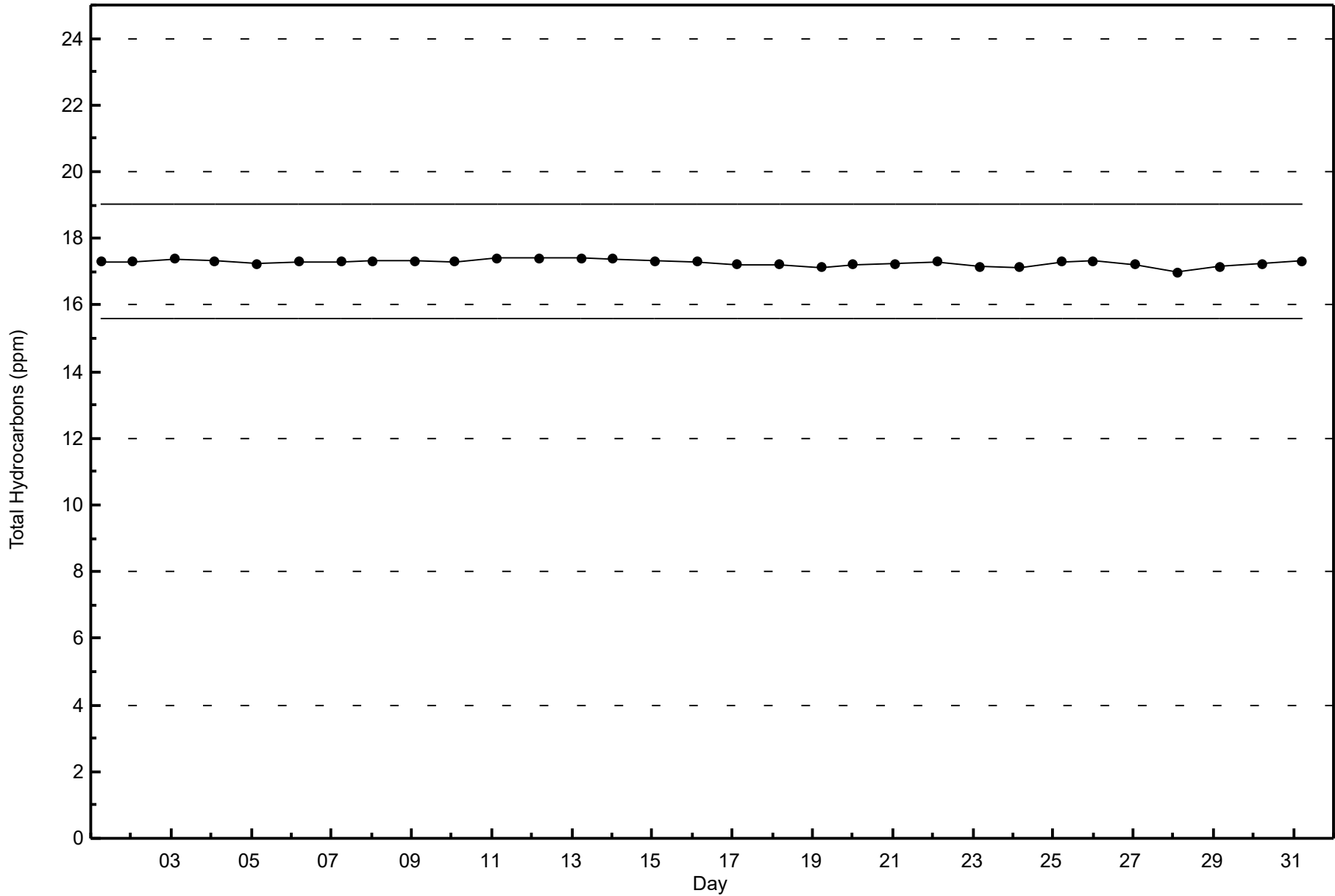


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Firebag









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

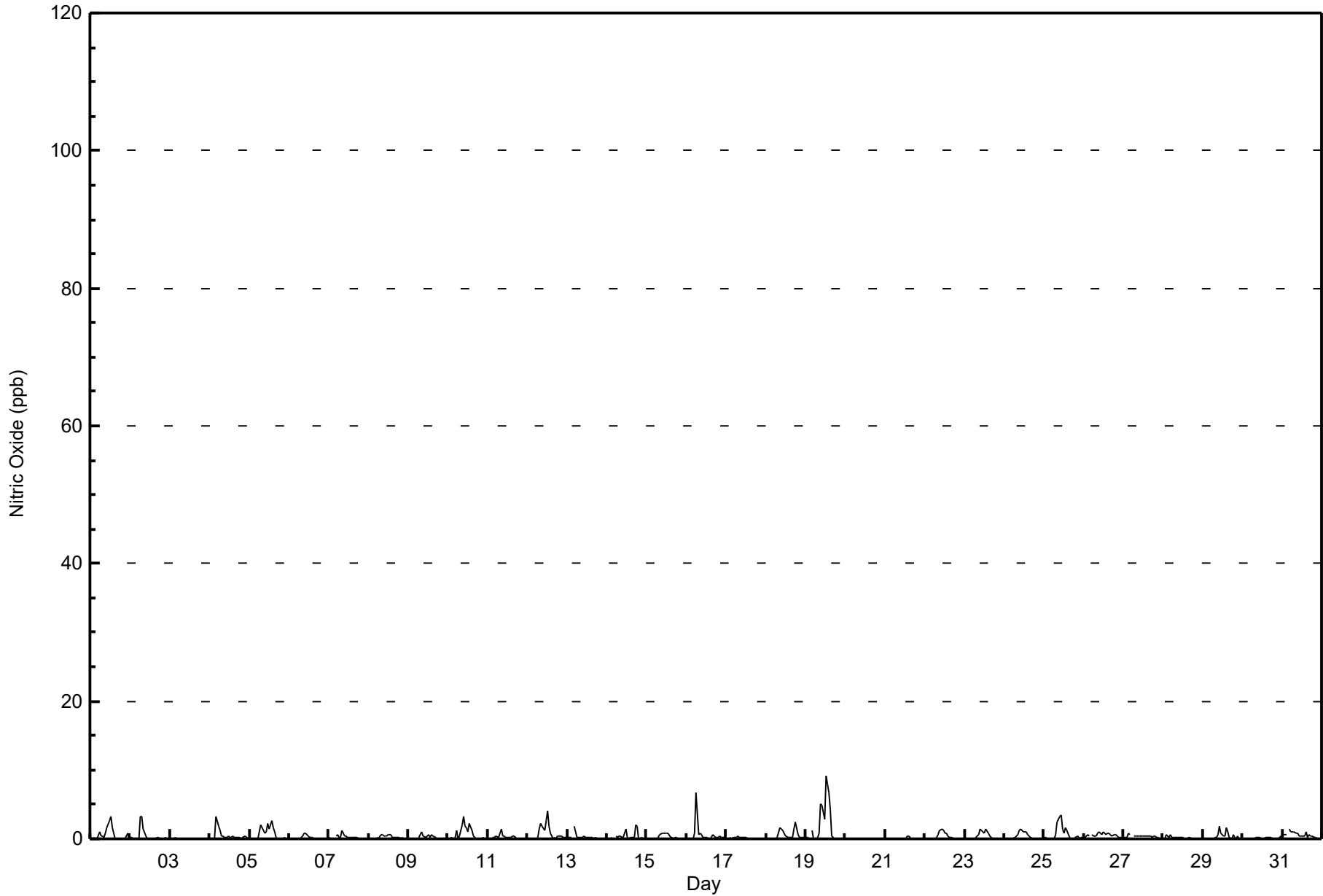
**Nitric Oxide (NO) - ppb**  
**Firebag - October 2024**

Maximum Value: 9.2 ppb on Oct 19 13:00		Maximum Daily Average: 1.9 ppb on Oct 19		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Oct 3 18:00		Minimum Daily Average: 0.0 ppb on Oct 20		Hours of Data: 707																						
Maximum Diurnal Average: 1.0 ppb at hour 13		Minimum Diurnal Average: 0.1 ppb at hour 2		Hours of Missing Data: 37																						
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 = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 1.1 P <sub>99</sub> = 4.0		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-Oct	0.0	0.0	0.2	Z	0.1	1.1	0.4	0.5	0.1	0.8	1.6	2.6	3.3	1.6	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.6	3.3
2-Oct	0.2	0.1	0.0	0.0	Z	0.0	3.3	3.2	1.5	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.2	0.1	0.1	0.4	3.3
3-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.1	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.1
4-Oct	Z	0.0	0.0	0.0	3.2	1.8	1.1	0.5	0.4	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.1	0.1	0.5	3.2
5-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.9	2.1	1.3	0.8	1.0	2.2	1.4	2.7	1.6	1.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.7	2.7
6-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.4	0.8	0.7	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.8
7-Oct	0.2	0.1	0.1	Z	0.4	0.6	0.1	0.2	1.1	0.5	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	1.1
8-Oct	0.0	0.1	0.1	0.1	Z	0.2	0.1	0.6	0.6	0.5	0.3	0.4	0.6	0.6	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.6
9-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.7	1.0	0.5	0.3	0.5	0.6	0.3	0.6	0.4	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	1.0
10-Oct	Z	0.1	0.3	0.1	0.3	1.1	0.1	0.3	2.1	3.3	1.8	1.6	1.1	2.2	1.2	0.4	0.3	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.7	3.3
11-Oct	0.0	Z	0.1	0.1	0.1	0.3	0.3	0.9	1.4	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4
12-Oct	0.1	0.0	Z	0.1	0.0	0.1	0.1	1.3	2.2	1.8	1.2	2.7	4.0	1.9	0.7	0.1	0.1	0.1	0.4	0.3	0.3	0.2	0.3	0.2	0.8	4.0
13-Oct	0.2	0.2	0.2	Z	1.7	1.1	0.1	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	1.7
14-Oct	0.0	0.1	0.1	0.2	Z	0.4	0.2	0.3	0.3	0.2	0.2	1.3	0.1	0.1	0.1	0.1	0.1	2.0	1.8	0.1	0.0	0.2	0.0	0.0	0.4	2.0
15-Oct	0.0	0.0	0.0	0.1	0.1	Z	0.1	0.3	0.6	0.8	0.8	0.7	0.8	0.8	0.3	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.8
16-Oct	Z	0.0	0.0	0.0	0.0	0.8	6.7	0.6	0.8	0.5	0.3	0.3	0.2	0.1	0.1	0.2	0.5	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.6	6.7
17-Oct	0.2	Z	0.1	0.0	0.1	0.2	0.1	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
18-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	1.7	1.4	1.2	0.9	0.4	0.1	0.2	0.2	0.2	1.5	2.5	0.6	0.2	0.1	0.2	0.2	0.5	2.5
19-Oct	0.2	0.1	0.1	Z	1.2	0.0	0.0	0.2	0.8	5.1	4.8	2.9	9.2	7.9	6.6	4.3	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	1.9	9.2
20-Oct	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	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21-Oct	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	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4
22-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.3	1.5	1.2	0.8	0.8	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.5
23-Oct	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.2	0.5	1.4	1.2	0.9	0.9	1.4	0.8	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.4	1.4
24-Oct	0.1	0.0	Z	0.0	0.1	0.1	0.3	0.4	0.5	1.2	1.5	0.9	1.1	1.0	0.6	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	1.5
25-Oct	0.2	0.2	0.0	Z	0.0	0.0	0.1	0.7	2.5	3.3	3.4	1.4	0.9	1.6	1.3	0.3	0.1	0.0	0.0	0.2	0.4	0.1	0.3	0.2	0.7	3.4
26-Oct	0.2	0.1	0.5	0.3	Z	0.7	0.4	0.4	0.8	1.1	0.9	0.7	1.0	0.6	0.8	0.8	0.7	0.4	0.5	0.6	0.3	0.3	0.2	0.2	0.5	1.1
27-Oct	0.2	0.2	0.2	0.9	0.7	Z	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.2	0.1	0.0	0.2	0.3	0.9
28-Oct	Z	0.1	0.7	0.2	0.6	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.7
29-Oct	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	1.9	0.8	0.4	0.5	1.6	1.1	0.1	0.1	0.6	0.3	0.1	0.5	0.0	0.1	0.4	1.9
30-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.5
31-Oct	0.5	0.5	0.6	Z	1.4	0.9	1.1	1.0	0.7	0.8	0.4	0.5	0.4	0.4	1.1	0.3	0.6	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.6	1.4
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration																										



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

**Nitric Oxide (NO) - ppb**  
**Firebag - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Firebag - October 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**  
**Firebag - October 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	12	10	7	13	17	33	29	66	66	72	91	75	46	36	49	42	664
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	12	10	7	13	17	33	29	66	66	72	91	75	46	36	49	42	664

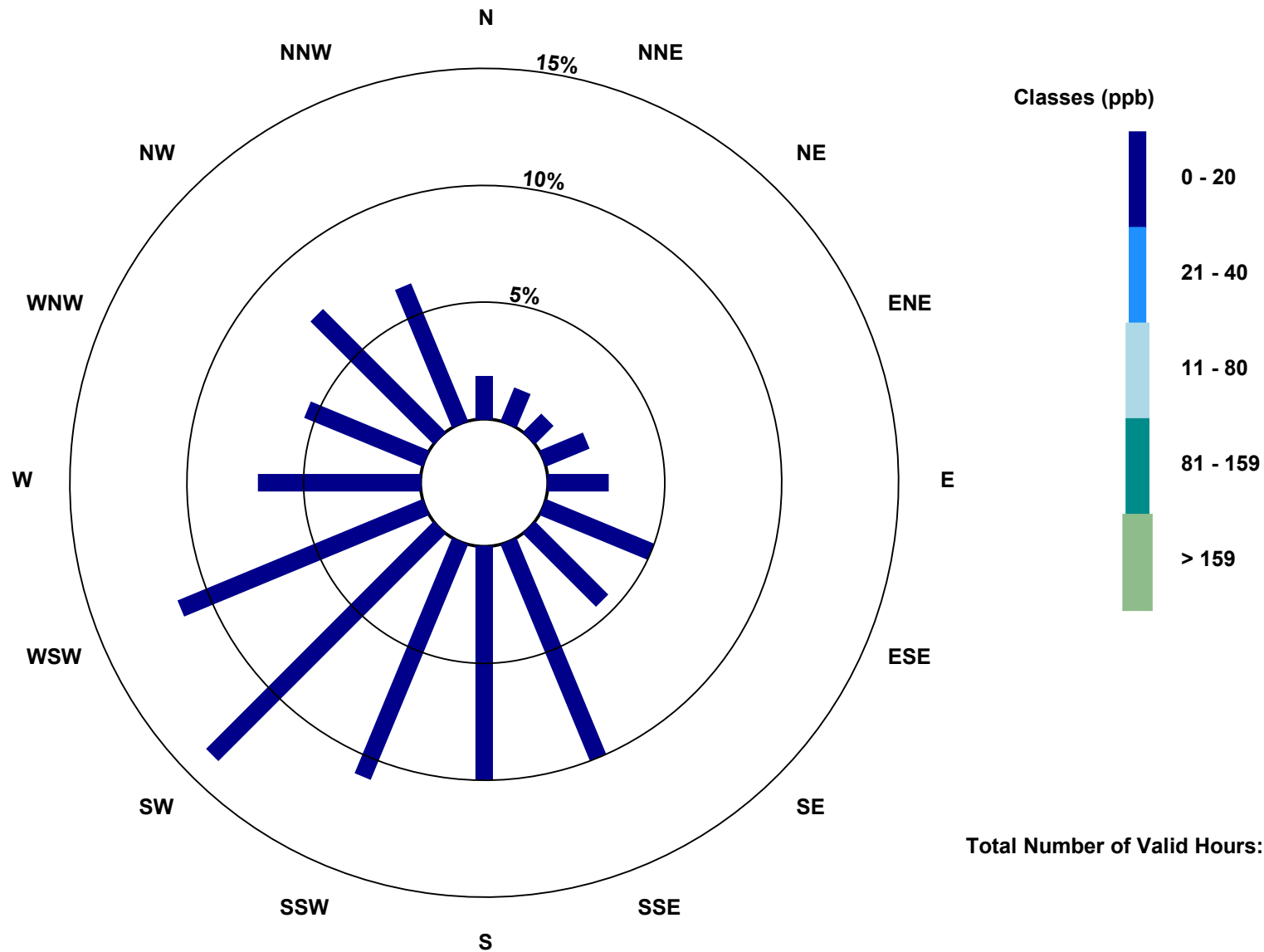
Total Number of Valid Hours: 664

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Firebag



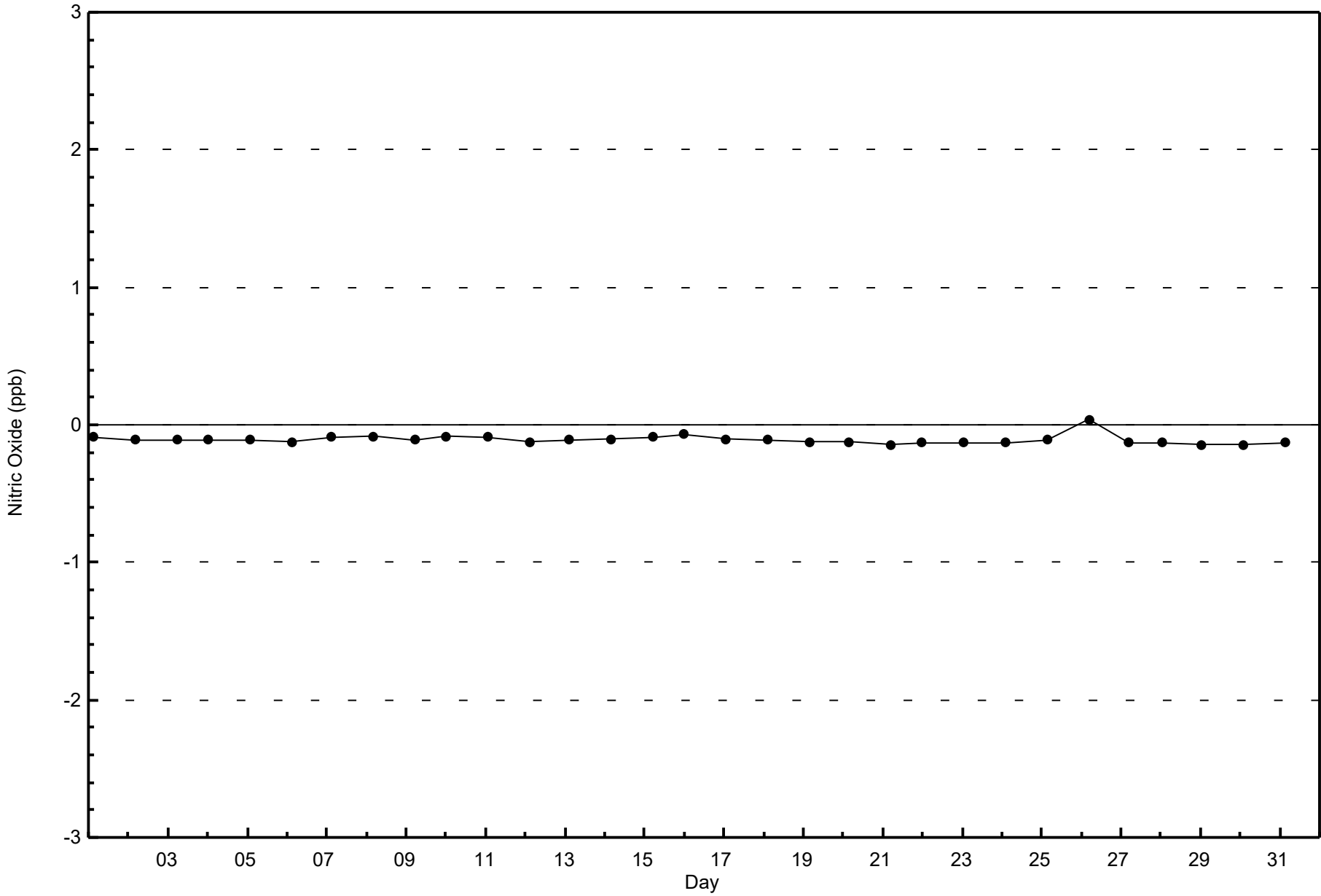
Total Number of Valid Hours: 664





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

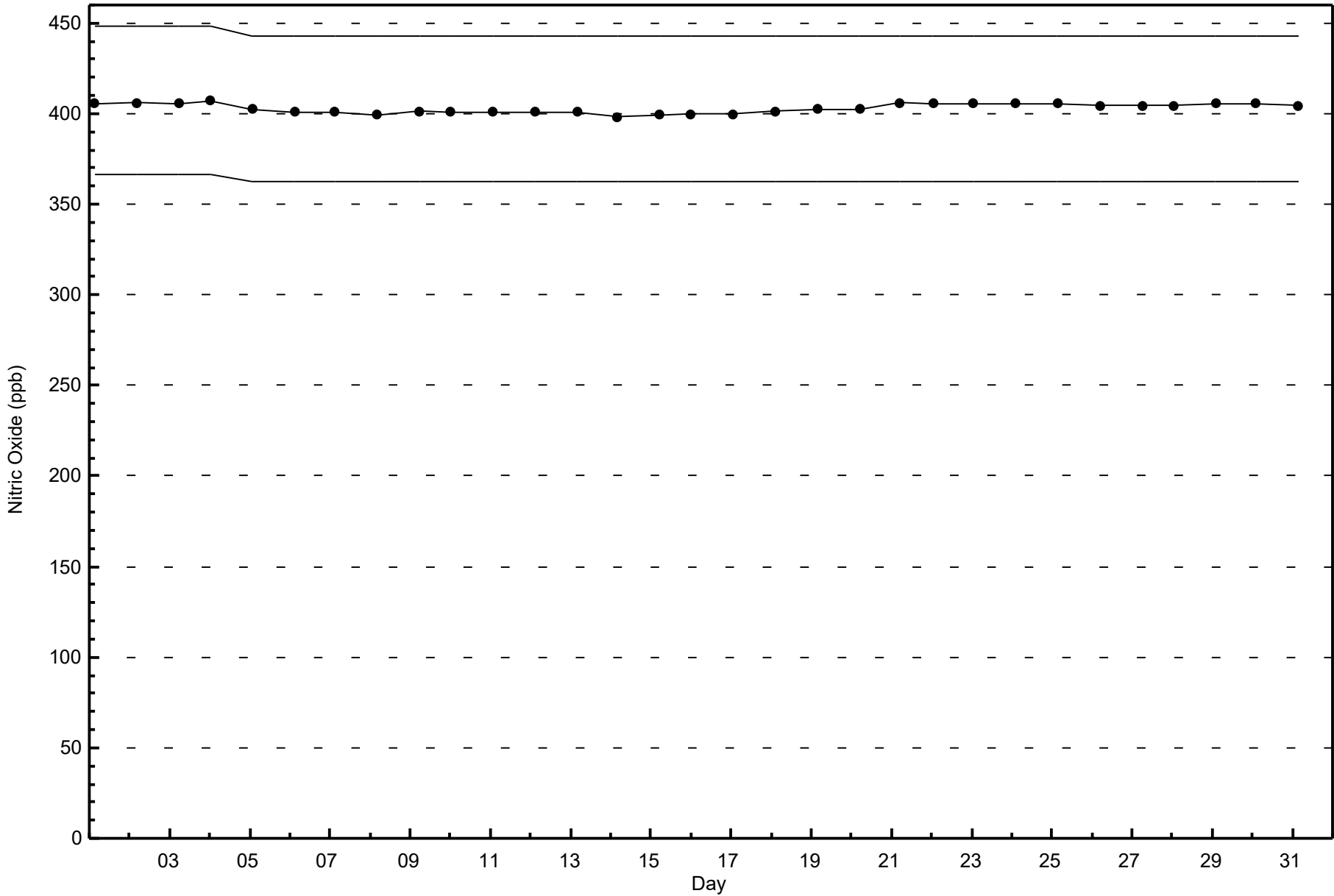
**Nitric Oxide (NO) - ppb**  
**Firebag - October 2024**





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Firebag - October 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

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

Firebag - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 16.7 ppb on Oct 16 07:00	Maximum Daily Average: 6.1 ppb on Oct 10		Hours of Data:	707
Minimum Value: 0.0 ppb on Oct 20 19:00	Minimum Daily Average: 0.1 ppb on Oct 20		Hours of Missing Data:	37
Maximum Diurnal Average: 5.2 ppb at hour 5	Minimum Diurnal Average: 1.7 ppb at hour 16		Hours of Calibration:	37
Monthly Average: 2.87 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.0 Median = 1.9 Q <sub>3</sub> = 3.8 P <sub>90</sub> = 6.5 P <sub>99</sub> = 12.8		Percent Operational Time:	100.0

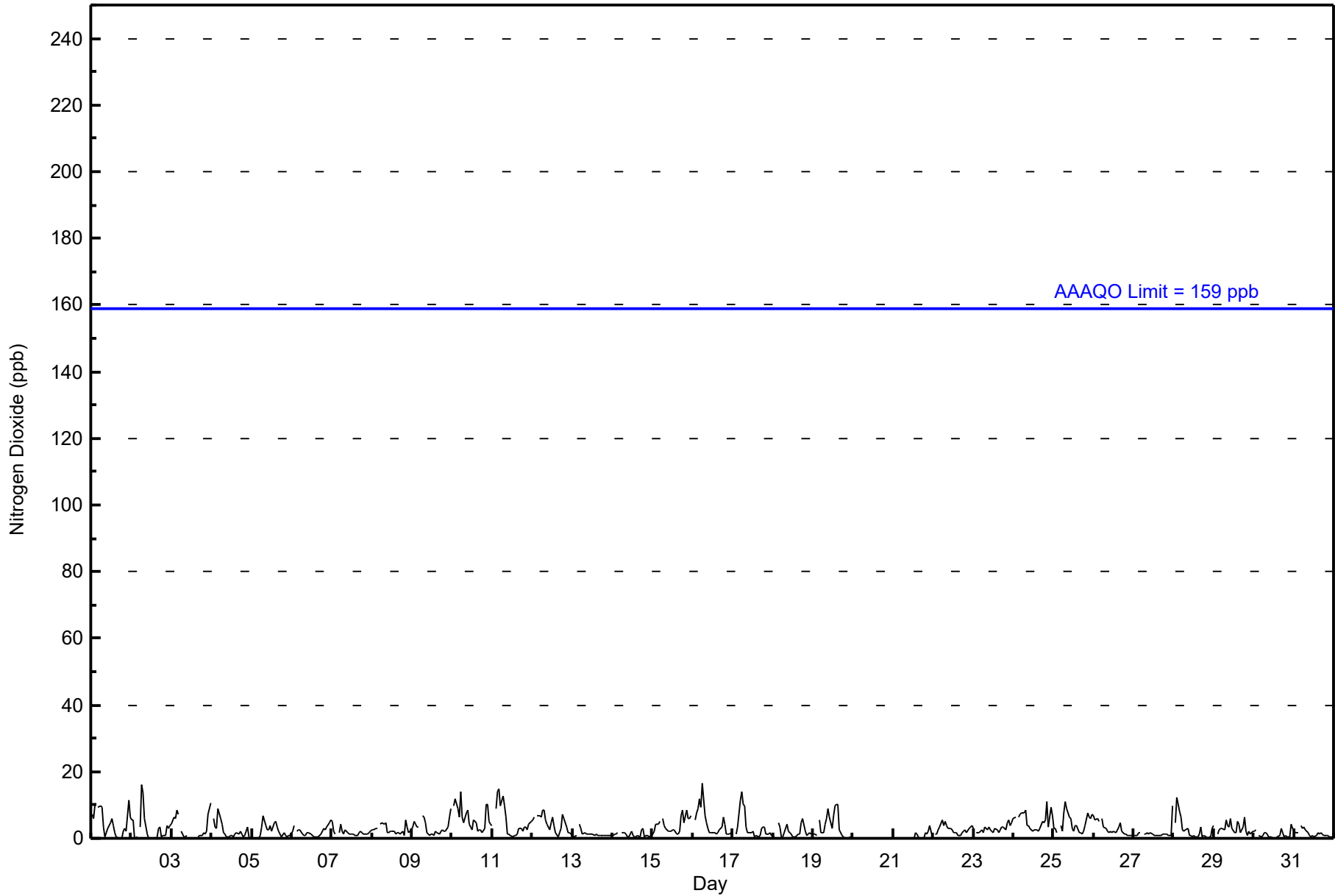
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	7.2	5.9	10.2	Z	9.2	9.7	9.3	3.3	0.5	1.9	2.9	4.6	6.1	4.0	1.9	0.3	0.1	0.2	0.2	2.1	2.9	2.0	11.6	6.5	4.5	11.6
2-Oct	5.3	5.6	0.2	0.4	Z	3.3	16.3	13.4	6.1	1.2	0.2	0.2	0.1	0.1	0.2	0.6	2.9	3.2	0.3	1.0	0.9	3.7	3.0	3.9	3.1	16.3
3-Oct	4.1	6.2	6.1	8.3	7.3	Z	2.1	0.5	0.3	0.9	C	C	C	C	C	C	0.6	0.7	0.9	1.6	1.3	2.3	7.1	10.4	--	10.4
4-Oct	Z	5.9	3.3	3.1	8.8	5.9	4.4	1.8	1.2	0.5	0.6	1.0	0.8	0.6	1.2	1.6	1.3	2.2	1.2	0.4	0.9	3.3	0.5	0.1	2.2	8.8
5-Oct	0.1	Z	0.2	0.2	0.2	0.7	3.6	6.7	3.7	2.6	2.4	3.7	2.3	4.6	5.1	3.5	2.0	1.3	0.6	1.6	0.8	0.6	0.9	0.9	2.1	6.7
6-Oct	2.2	3.8	Z	2.0	2.7	2.4	1.4	0.7	1.0	1.8	1.6	1.2	0.8	0.6	0.4	0.4	0.3	1.2	2.2	2.8	2.5	3.6	4.7	5.7	2.0	5.7
7-Oct	5.1	2.3	1.1	Z	1.6	4.4	2.0	1.1	2.4	1.8	1.3	1.2	1.1	1.1	0.8	1.0	1.5	2.0	1.7	1.1	1.1	1.4	1.6	2.1	1.8	5.1
8-Oct	2.4	2.5	3.0	3.0	Z	4.2	4.6	4.3	4.5	1.9	1.7	2.0	2.1	2.1	1.4	1.6	1.7	1.4	2.0	0.8	5.3	3.6	1.5	2.6	2.6	5.3
9-Oct	3.4	5.0	4.3	3.6	3.6	Z	6.6	6.4	4.5	1.7	1.0	1.3	1.4	0.9	2.1	1.8	1.3	2.1	2.5	2.2	2.2	3.4	6.4	8.9	3.3	8.9
10-Oct	Z	9.7	11.7	8.8	6.4	14.0	6.5	4.8	7.6	8.5	4.2	3.3	2.6	5.6	4.5	2.0	2.6	2.4	1.8	3.0	10.0	10.3	5.1	4.3	6.1	14.0
11-Oct	3.8	Z	9.1	13.8	15.0	9.7	12.8	9.7	6.4	1.2	1.2	1.0	0.6	0.7	0.7	1.4	3.0	3.0	2.3	3.4	3.2	2.6	4.4	5.1	5.0	15.0
12-Oct	5.5	6.4	Z	6.6	6.6	6.2	8.3	8.4	5.6	4.1	2.5	4.6	6.3	3.8	1.9	0.4	1.5	2.8	7.1	6.1	3.6	1.6	1.7	1.2	4.5	8.4
13-Oct	0.8	0.6	0.9	Z	4.2	3.0	1.4	1.7	1.4	1.4	1.2	1.1	1.1	1.0	1.1	1.0	1.0	1.0	0.9	1.0	0.8	0.8	0.9	0.9	1.3	4.2
14-Oct	1.0	1.1	1.2	1.7	Z	1.9	1.6	1.5	1.1	0.6	0.6	2.1	0.7	0.6	0.6	0.7	0.6	2.7	3.1	0.5	0.7	0.8	0.6	0.9	1.2	3.1
15-Oct	1.2	2.3	4.1	4.4	4.9	Z	5.8	3.8	3.0	2.2	2.0	2.1	2.4	2.5	1.3	1.2	2.0	6.7	8.3	4.7	8.3	5.9	6.1	6.6	4.0	8.3
16-Oct	Z	5.3	7.8	8.8	12.0	9.3	16.7	6.7	4.7	2.8	1.6	1.8	1.8	1.5	1.2	1.9	2.7	3.4	6.2	4.2	1.4	1.1	1.4	1.6	4.6	16.7
17-Oct	1.5	Z	1.1	3.2	11.3	14.0	10.3	9.9	3.3	1.9	1.8	1.9	2.2	0.6	0.7	0.4	0.9	2.8	3.4	3.5	1.2	1.4	1.6	1.0	3.5	14.0
18-Oct	1.0	0.5	Z	4.6	3.2	0.5	0.6	1.9	4.1	2.2	1.6	1.2	0.6	0.4	0.8	1.1	1.4	4.6	5.9	2.0	1.0	1.1	1.6	1.4	1.9	5.9
19-Oct	1.3	1.3	0.7	Z	5.5	1.5	1.9	4.4	5.9	8.9	6.2	3.1	6.9	9.7	10.3	10.0	2.6	0.7	0.3	0.2	0.2	0.2	0.5	0.3	3.6	10.3
20-Oct	0.2	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.2
21-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	1.5	1.1	0.5	0.1	0.1	0.1	1.6	1.2	2.1	3.8	0.4	0.6	3.8
22-Oct	Z	1.2	1.3	2.7	3.6	5.4	3.9	5.2	3.9	2.9	2.9	2.7	1.5	1.6	1.6	1.0	1.0	1.5	2.2	2.4	1.6	3.1	3.6	3.8	2.6	5.4
23-Oct	2.9	Z	1.5	1.6	2.3	2.5	1.9	3.2	2.7	3.4	2.6	2.0	1.8	3.0	2.5	1.9	2.4	3.2	3.2	2.4	4.5	5.7	3.9	4.8	2.9	5.7
24-Oct	5.9	6.3	Z	6.5	7.0	7.5	7.6	8.3	3.9	3.8	3.1	2.1	2.7	2.7	2.5	2.1	2.9	5.2	4.6	5.3	11.2	3.6	9.4	6.8	5.3	11.2
25-Oct	2.9	3.0	1.5	Z	4.0	2.3	7.5	10.9	9.1	6.5	5.9	3.0	2.1	3.8	3.9	1.6	1.9	1.4	2.0	3.8	7.7	6.4	5.8	7.0	4.5	10.9
26-Oct	6.6	5.3	5.8	5.0	Z	6.0	3.4	2.8	2.0	1.7	2.0	1.5	2.1	1.5	2.4	3.6	4.6	2.1	1.1	1.1	1.0	0.7	0.8	0.8	2.8	6.6
27-Oct	0.8	0.8	0.9	1.9	1.8	Z	1.2	1.3	1.8	1.2	1.5	1.2	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	0.8	0.8	9.6	1.5	9.6
28-Oct	Z	4.6	12.4	8.1	6.2	2.6	2.1	2.4	2.8	0.9	0.9	0.6	0.7	0.6	0.4	1.3	3.2	0.5	1.0	0.4	0.2	0.3	0.6	2.9	2.4	12.4
29-Oct	4.0	Z	1.1	2.4	2.9	3.1	2.6	5.5	3.7	3.4	6.1	2.9	1.5	1.5	4.9	4.3	1.8	3.6	6.5	2.2	1.0	2.0	1.4	2.1	3.1	6.5
30-Oct	2.1	2.6	Z	0.8	0.5	0.9	1.5	1.6	1.2	0.5	0.4	0.2	0.2	0.2	0.6	1.0	2.9	1.7	0.4	0.7	0.4	0.3	4.1	2.8	1.2	4.1
31-Oct	2.0	1.6	1.8	Z	3.8	2.9	3.5	2.4	1.6	1.0	0.6	0.7	0.6	0.9	1.8	1.1	1.6	1.1	0.7	0.7	0.7	0.3	0.3	0.4	1.4	3.8
2.8 3.5 3.5 4.1 5.2 4.8 4.9 4.4 3.2 2.4 2.0 1.8 1.8 2.0 2.0 1.7 1.7 2.1 2.4 2.1 2.5 2.4 3.1 3.4																								Diurnal Average		
7.2 9.7 12.4 13.8 15.0 14.0 16.7 13.4 9.1 8.9 6.2 4.6 6.9 9.7 10.3 10.0 4.6 6.7 8.3 6.1 11.2 10.3 11.6 10.4																								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**  
**Firebag - October 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Firebag - October 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  
Firebag - October 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	12	10	7	13	17	33	29	66	66	72	91	75	46	36	49	42	664
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	12	10	7	13	17	33	29	66	66	72	91	75	46	36	49	42	664

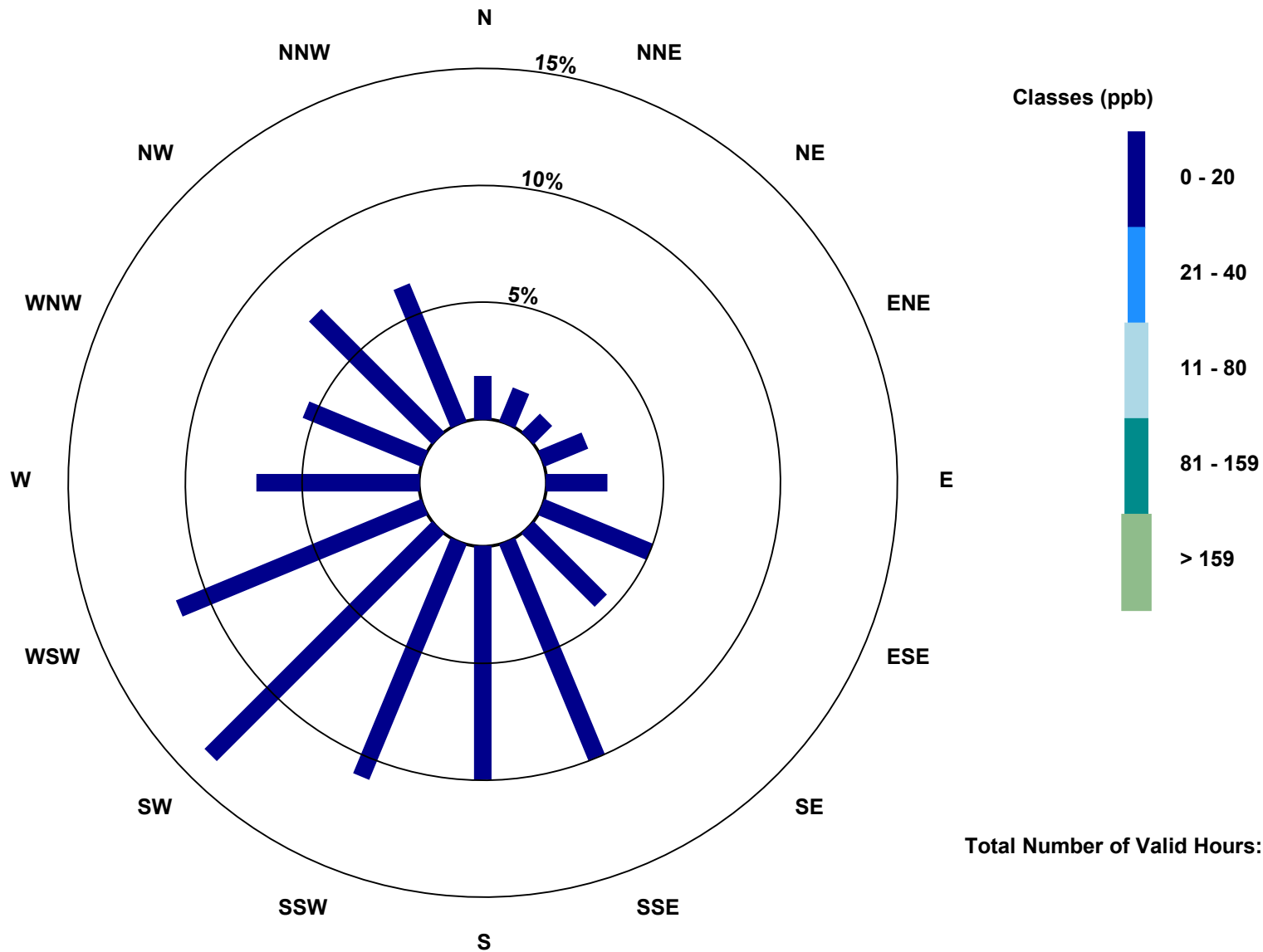
Total Number of Valid Hours: 664

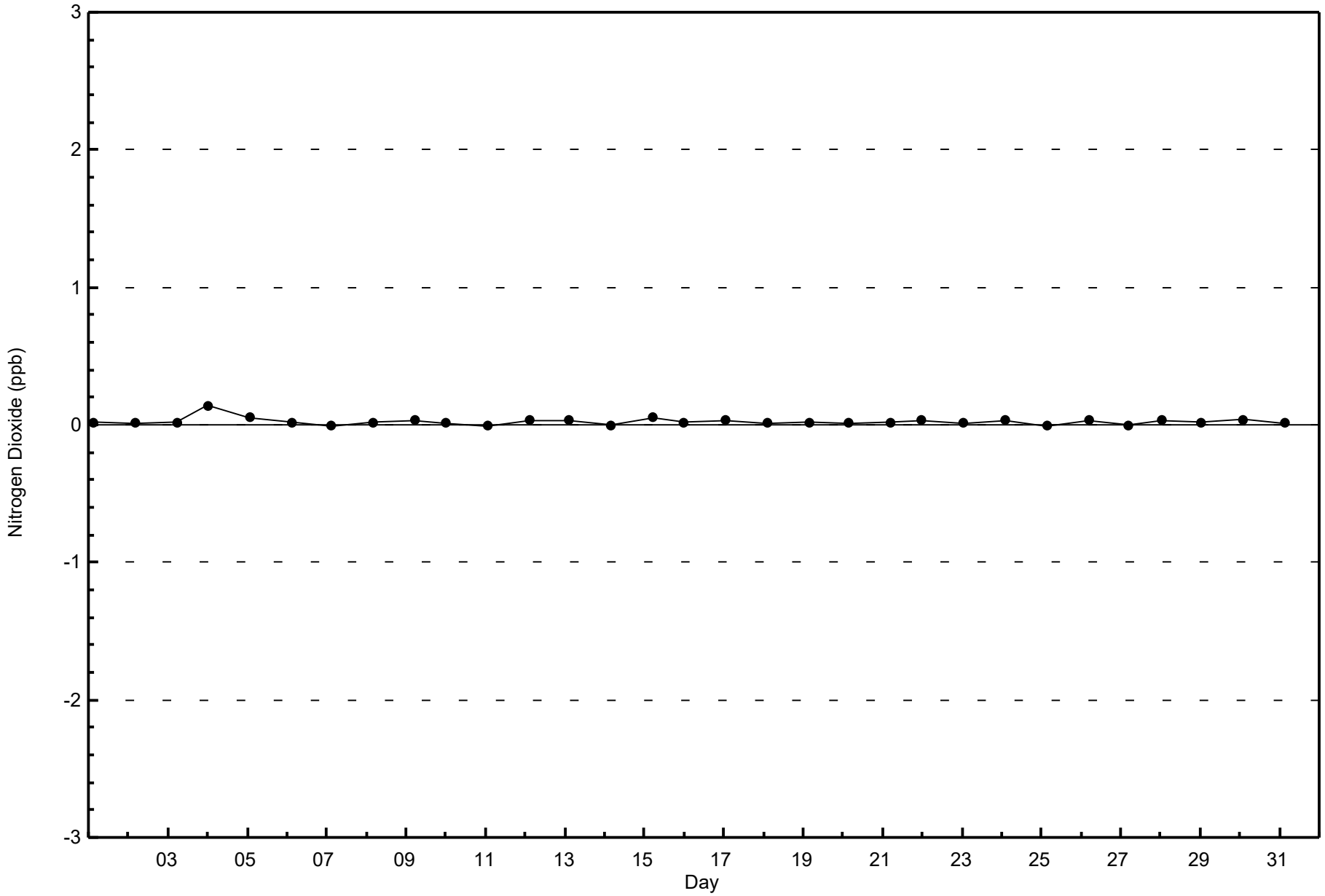
Total Number of Hours: 744



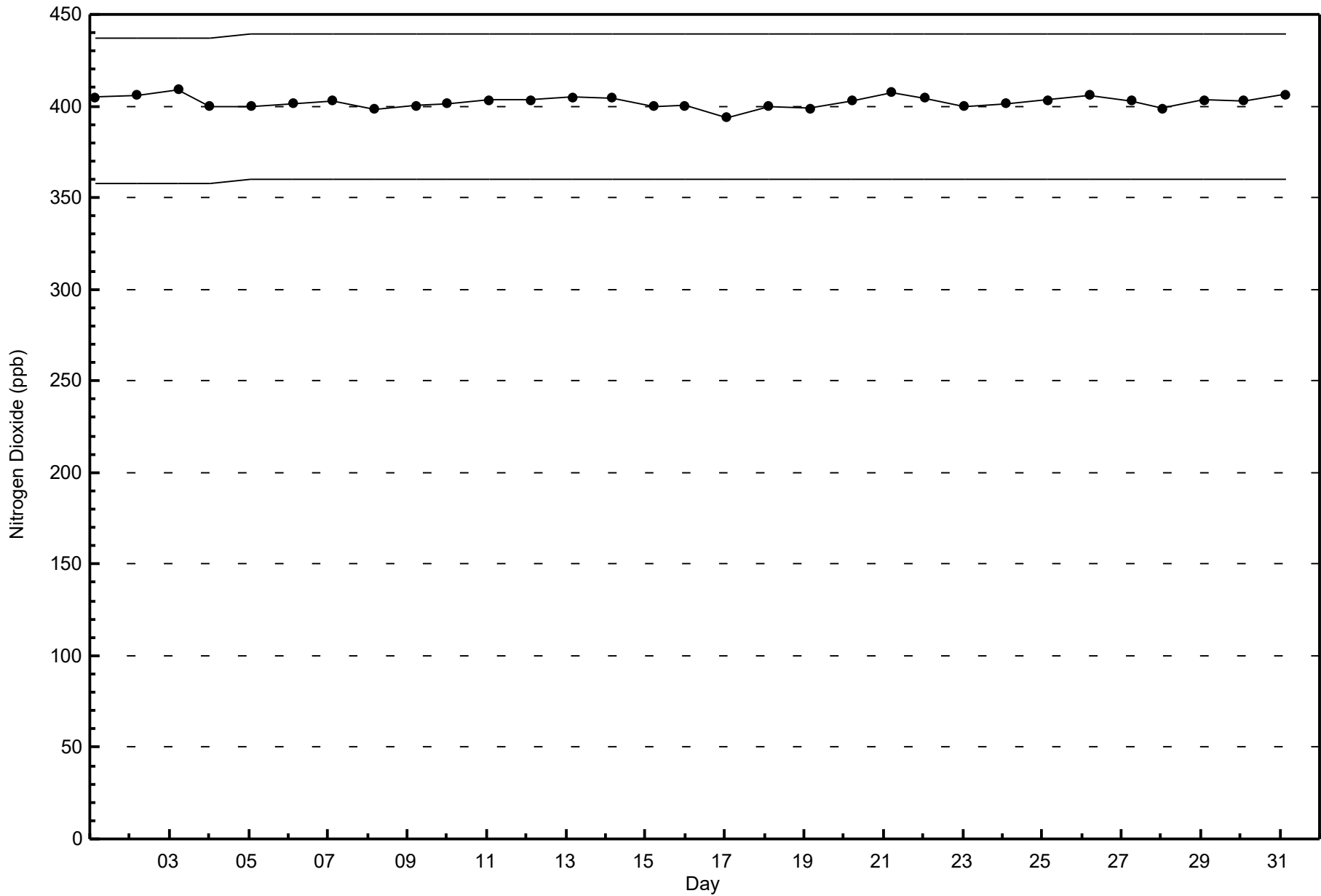
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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







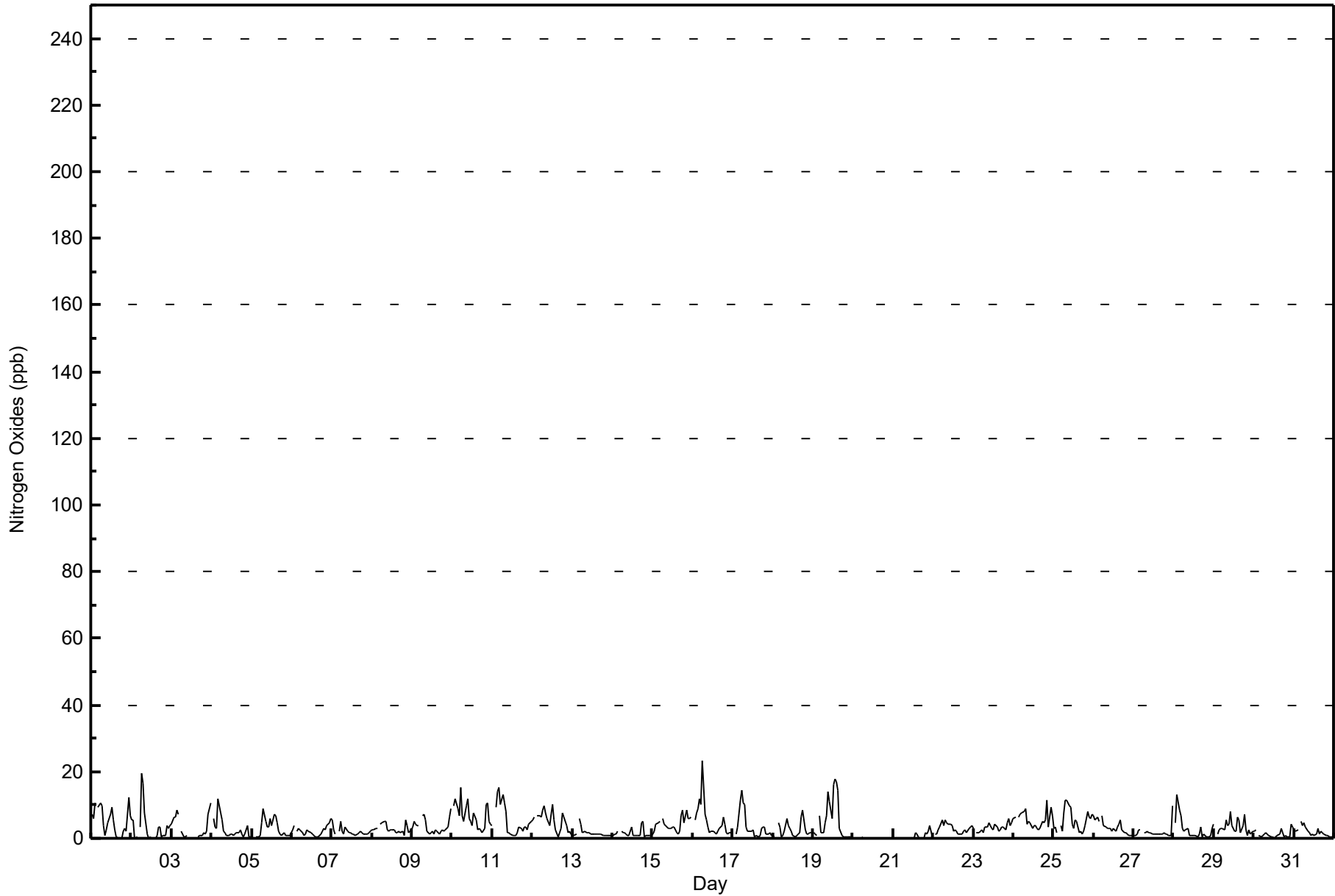




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - October 2024**

Maximum Value: 23.4 ppb on Oct 16 07:00		Maximum Daily Average: 6.8 ppb on Oct 10		Hours in Service: 744																																													
Minimum Value: 0.1 ppb on Oct 21 05:00		Minimum Daily Average: 0.2 ppb on Oct 20		Hours of Data: 707																																													
Maximum Diurnal Average: 5.6 ppb at hour 5		Minimum Diurnal Average: 1.9 ppb at hour 17		Hours of Missing Data: 37																																													
Monthly Average: 3.29 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.1 Median = 2.3 Q <sub>3</sub> = 4.5 P <sub>90</sub> = 7.3 P <sub>99</sub> = 15.1		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-Oct	7.2	5.9	10.4	Z	9.3	10.8	9.7	3.8	0.6	2.7	4.5	7.2	9.4	5.6	2.6	0.4	0.1	0.2	0.2	2.1	2.9	2.0	12.4	6.7	5.1	12.4																							
2-Oct	5.5	5.7	0.2	0.4	Z	3.3	19.6	16.6	7.6	1.5	0.2	0.3	0.1	0.1	0.2	0.7	3.2	3.4	0.3	1.0	0.9	3.9	3.1	4.0	3.5	19.6																							
3-Oct	4.2	6.3	6.2	8.4	7.4	Z	2.2	0.5	0.3	1.0	C	C	C	C	C	C	0.6	0.7	0.9	1.6	1.3	2.3	7.1	10.4	--	10.4																							
4-Oct	Z	5.9	3.3	3.1	12.0	7.7	5.5	2.3	1.6	0.7	0.8	1.3	1.1	0.8	1.5	1.8	1.5	2.5	1.4	0.5	1.1	3.6	0.6	0.2	2.6	12.0																							
5-Oct	0.2	Z	0.3	0.3	0.3	0.8	4.5	8.8	5.0	3.4	3.4	5.9	3.7	7.3	6.7	4.5	2.2	1.4	0.7	1.7	0.9	0.7	0.9	1.0	2.8	8.8																							
6-Oct	2.3	3.9	Z	2.1	2.8	2.5	1.5	0.8	1.4	2.6	2.3	1.7	1.1	0.8	0.5	0.5	0.4	1.3	2.2	2.8	2.5	3.7	4.8	5.8	2.2	5.8																							
7-Oct	5.3	2.4	1.2	Z	2.0	5.0	2.1	1.3	3.5	2.3	1.6	1.5	1.3	1.3	0.9	1.1	1.6	2.1	1.8	1.2	1.2	1.4	1.6	2.2	2.0	5.3																							
8-Oct	2.4	2.6	3.1	3.1	Z	4.4	4.7	4.9	5.1	2.4	2.0	2.4	2.7	2.7	1.6	1.8	1.9	1.6	2.3	0.9	5.4	3.7	1.6	2.7	2.9	5.4																							
9-Oct	3.5	5.1	4.4	3.7	3.7	Z	6.7	7.1	5.5	2.2	1.3	1.8	2.0	1.2	2.7	2.2	1.4	2.2	2.5	2.2	2.3	3.4	6.4	8.9	3.6	8.9																							
10-Oct	Z	9.8	12.0	8.9	6.7	15.1	6.6	5.1	9.7	11.8	6.0	4.9	3.7	7.8	5.7	2.4	2.9	2.5	1.8	3.0	10.1	10.4	5.1	4.4	6.8	15.1																							
11-Oct	3.8	Z	9.2	13.9	15.1	10.0	13.1	10.6	7.8	1.5	1.6	1.3	0.8	0.9	0.9	1.8	3.4	3.1	2.3	3.4	3.2	2.6	4.4	5.1	5.2	15.1																							
12-Oct	5.6	6.4	Z	6.7	6.6	6.3	8.4	9.7	7.8	5.9	3.7	7.3	10.3	5.7	2.6	0.5	1.6	2.9	7.5	6.4	3.9	1.8	2.0	1.4	5.3	10.3																							
13-Oct	1.0	0.8	1.1	Z	5.9	4.1	1.5	2.0	1.6	1.6	1.5	1.4	1.4	1.2	1.3	1.1	1.1	1.1	1.0	1.1	0.8	0.8	0.9	0.9	1.5	5.9																							
14-Oct	1.0	1.2	1.3	1.9	Z	2.3	1.8	1.8	1.4	0.8	0.8	3.4	0.8	0.7	0.7	0.8	0.7	4.7	4.9	0.6	0.7	1.0	0.6	0.9	1.5	4.9																							
15-Oct	1.2	2.3	4.1	4.5	5.0	Z	5.9	4.1	3.6	3.0	2.8	2.8	3.2	3.3	1.6	1.4	2.1	6.9	8.5	4.7	8.3	5.9	6.1	6.6	4.3	8.5																							
16-Oct	Z	5.3	7.8	8.8	12.0	10.1	23.4	7.3	5.5	3.3	1.9	2.1	2.0	1.6	1.3	2.1	3.2	3.7	6.5	4.4	1.7	1.3	1.6	1.9	5.2	23.4																							
17-Oct	1.7	Z	1.2	3.2	11.4	14.2	10.4	10.3	3.5	2.1	2.0	2.1	2.4	0.6	0.7	0.4	0.9	2.8	3.4	3.5	1.2	1.4	1.6	1.0	3.6	14.2																							
18-Oct	1.0	0.5	Z	4.6	3.2	0.5	0.6	2.2	5.8	3.6	2.8	2.1	1.0	0.5	1.0	1.3	1.6	6.1	8.4	2.6	1.2	1.2	1.8	1.6	2.4	8.4																							
19-Oct	1.5	1.4	0.8	Z	6.7	1.5	1.9	4.6	6.7	14.0	11.0	6.0	16.1	17.6	16.9	14.3	3.0	0.8	0.3	0.2	0.2	0.2	0.6	0.3	5.5	17.6																							
20-Oct	0.2	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2																							
21-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	1.9	1.4	0.6	0.1	0.1	0.1	1.7	1.2	2.1	3.8	0.4	0.6	3.8																							
22-Oct	Z	1.2	1.3	2.7	3.6	5.4	3.9	5.4	4.5	4.2	4.4	3.9	2.3	2.4	2.1	1.3	1.2	1.5	2.2	2.4	1.6	3.1	3.6	3.9	3.0	5.4																							
23-Oct	2.9	Z	1.5	1.6	2.3	2.6	1.9	3.4	3.2	4.8	3.8	2.9	2.7	4.4	3.3	2.3	2.6	3.3	3.3	2.5	4.6	5.8	4.0	4.8	3.3	5.8																							
24-Oct	6.0	6.3	Z	6.5	7.1	7.6	7.9	8.7	4.4	5.0	4.6	3.0	3.8	3.7	3.1	2.5	3.0	5.2	4.6	5.3	11.3	3.6	9.4	6.8	5.6	11.3																							
25-Oct	3.1	3.2	1.5	Z	4.0	2.3	7.6	11.6	11.6	9.8	9.3	4.4	3.0	5.4	5.2	1.9	2.0	1.4	2.0	4.0	8.1	6.5	6.1	7.2	5.3	11.6																							
26-Oct	6.8	5.4	6.3	5.3	Z	6.7	3.8	3.2	2.8	2.8	2.9	2.2	3.1	2.1	3.2	4.4	5.3	2.5	1.6	1.7	1.3	1.0	1.0	1.0	3.3	6.8																							
27-Oct	1.0	1.0	1.1	2.8	2.5	Z	1.6	1.6	2.2	1.5	1.8	1.5	1.3	1.3	1.3	1.4	1.3	1.5	1.6	1.4	1.3	0.9	0.8	9.8	1.8	9.8																							
28-Oct	Z	4.7	13.1	8.3	6.8	2.8	2.2	2.6	3.0	1.0	1.0	0.7	0.8	0.7	0.5	1.4	3.4	0.5	1.1	0.4	0.2	0.3	0.7	3.0	2.6	13.1																							
29-Oct	4.1	Z	1.1	2.4	2.9	3.1	2.6	5.6	4.0	4.1	8.0	3.7	1.9	2.0	6.5	5.4	1.9	3.7	7.1	2.5	1.1	2.5	1.4	2.2	3.5	8.0																							
30-Oct	2.1	2.6	Z	0.8	0.5	0.9	1.5	1.7	1.4	0.7	0.6	0.3	0.2	0.3	0.8	1.2	3.1	1.8	0.5	0.8	0.5	0.4	4.4	3.3	1.3	4.4																							
31-Oct	2.5	2.1	2.4	Z	5.2	3.8	4.6	3.4	2.3	1.8	1.0	1.2	1.0	1.3	2.9	1.4	2.2	1.5	1.1	1.0	0.9	0.4	0.3	0.4	1.9	5.2																							
																								2.9	3.5	3.7	4.2	5.6	5.2	5.4	4.9	4.0	3.3	2.9	2.6	2.8	2.7	2.1	1.9	2.4	2.7	2.2	2.6	2.5	3.2	3.5	Diurnal Average		
																								7.2	9.8	13.1	13.9	15.1	15.1	23.4	16.6	11.6	14.0	11.0	7.3	16.1	17.6	16.9	14.3	5.3	6.9	8.5	6.4	11.3	10.4	12.4	10.4	Diurnal Maximum	
Z - zerospan																								C - Calibration																									





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - October 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
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  
Firebag - October 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	12	10	7	13	17	33	29	65	66	72	91	75	46	36	49	42	663
21 - 40	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	12	10	7	13	17	33	29	66	66	72	91	75	46	36	49	42	664

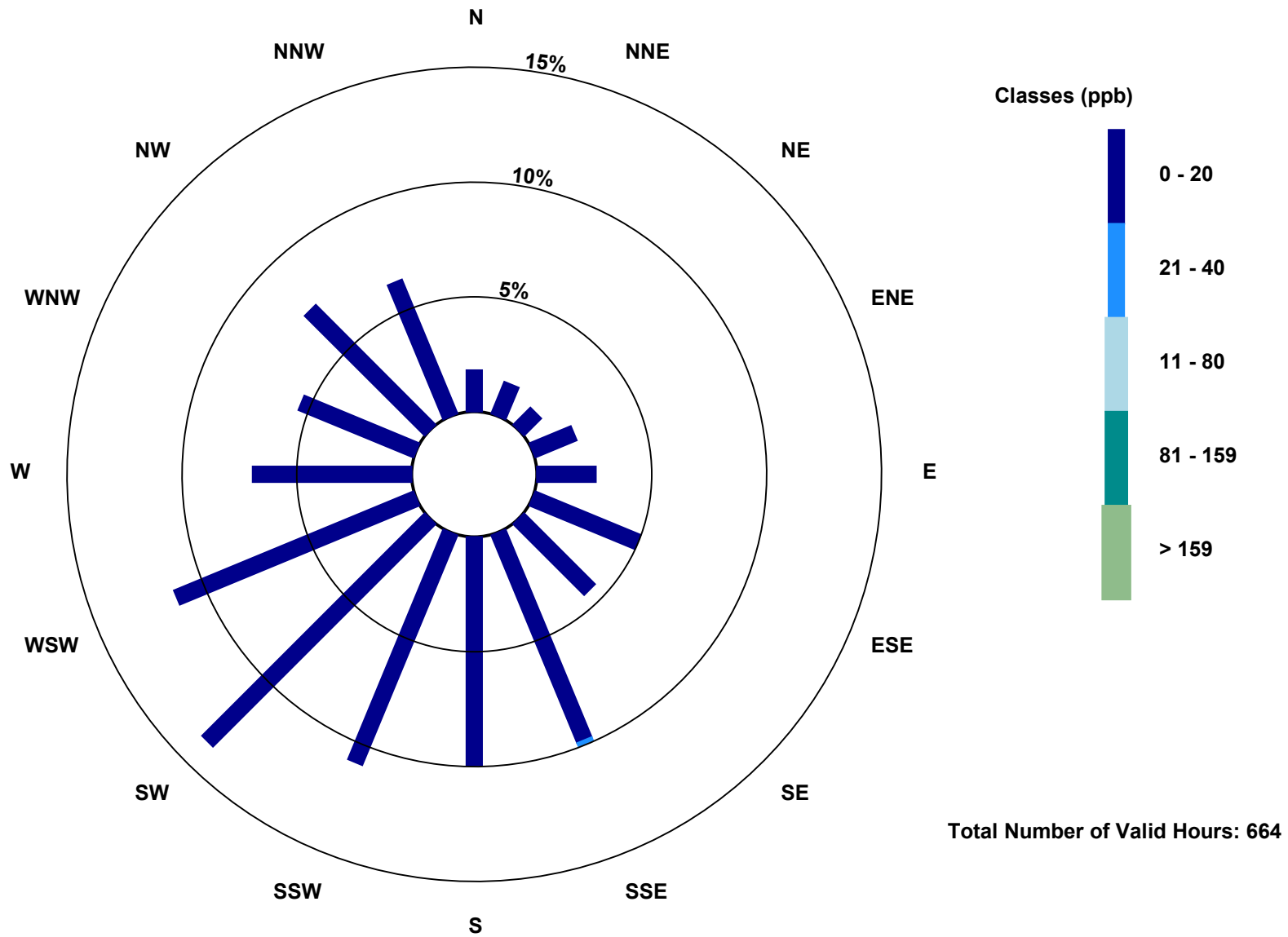
Total Number of Valid Hours: 664

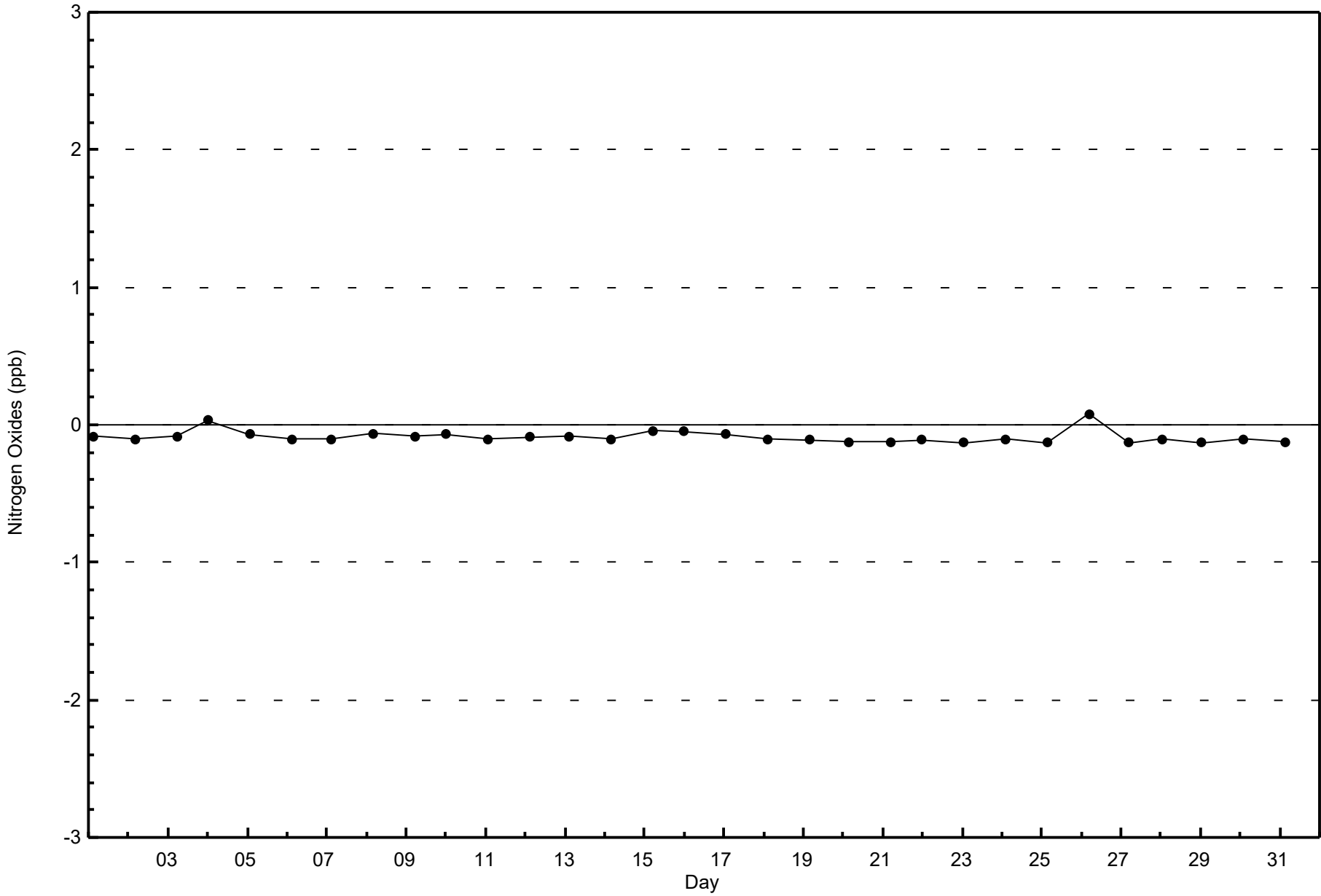
Total Number of Hours: 744

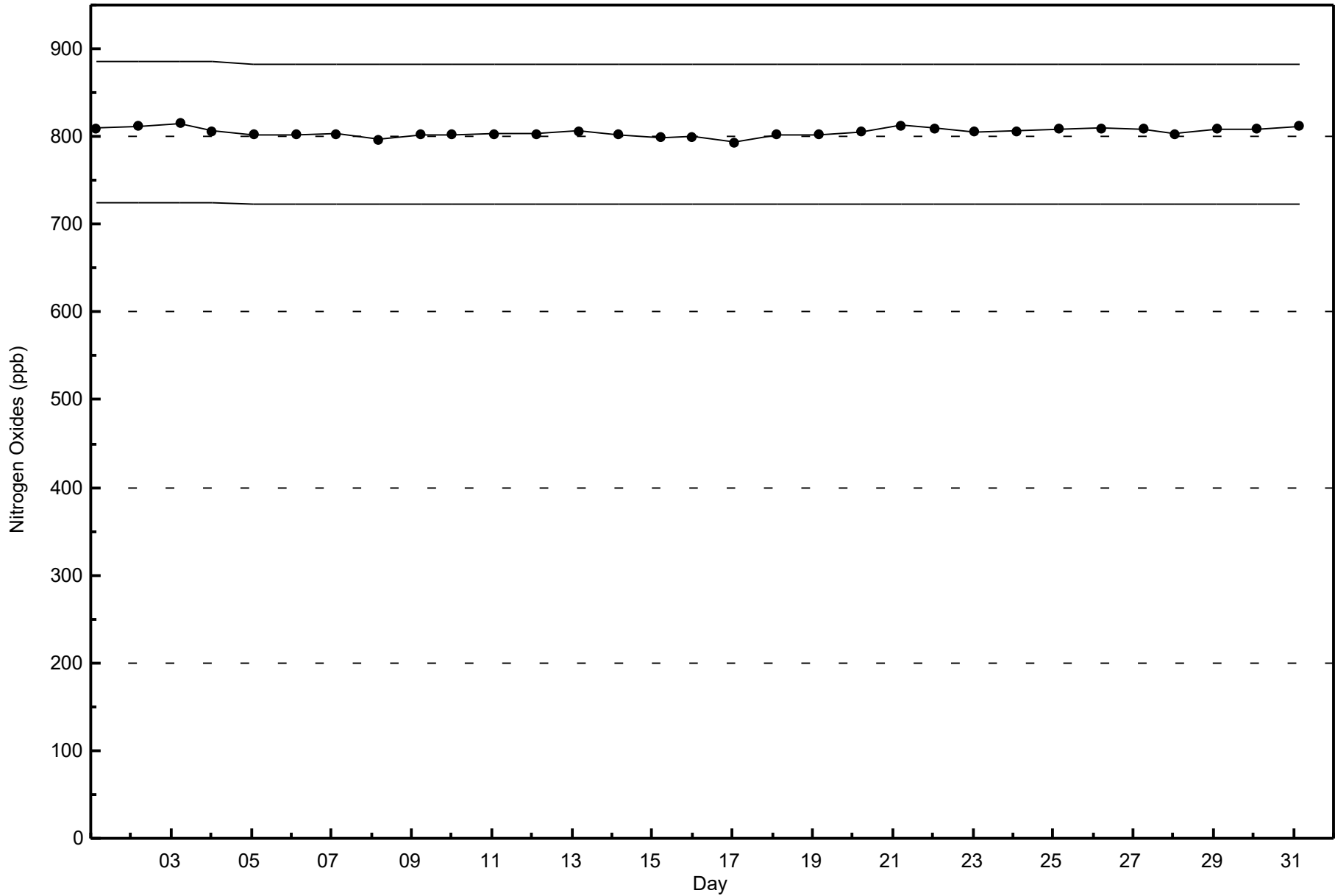


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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







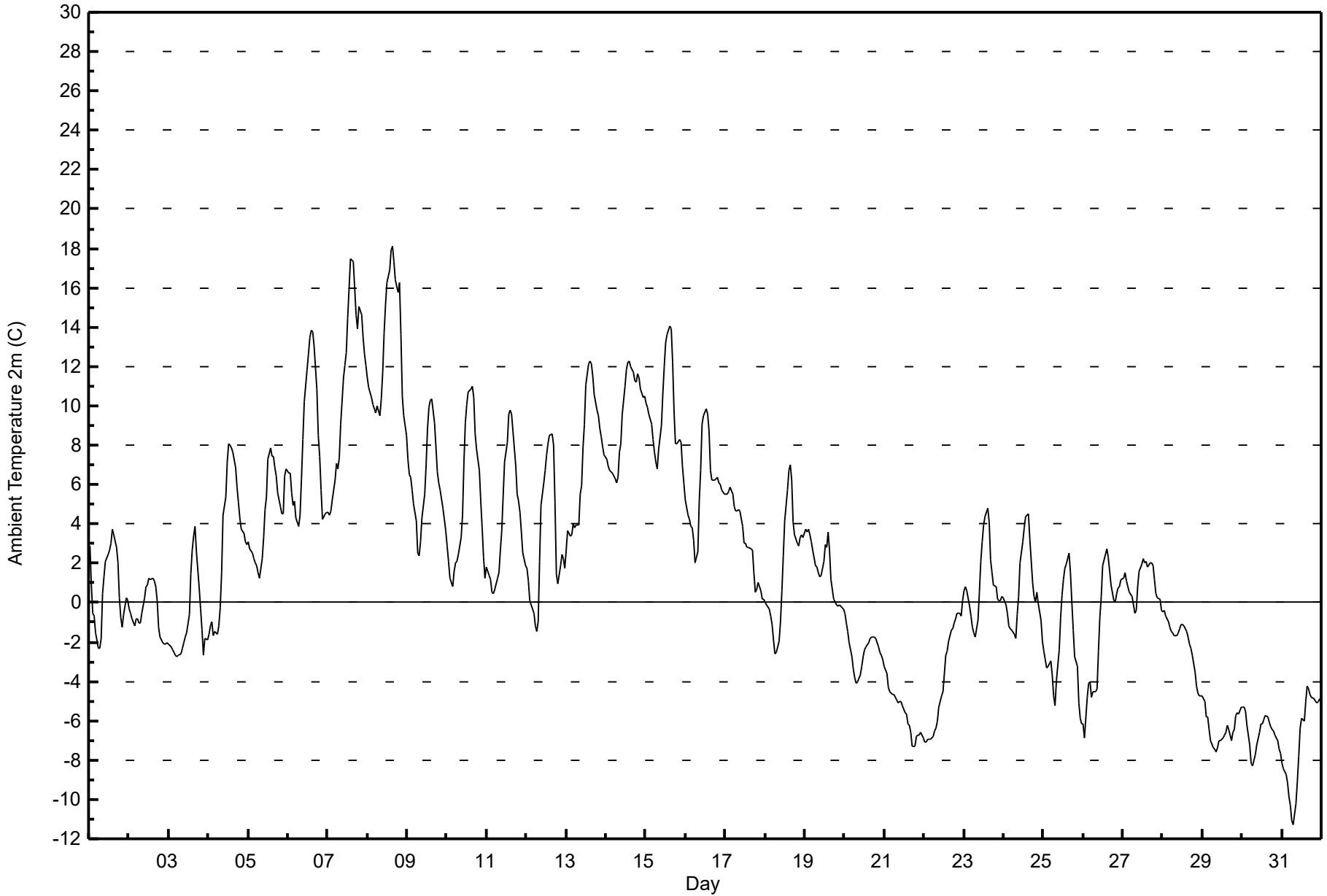




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Firebag - October 2024**

Maximum Value: 18.1 C on Oct 8 16:00		Maximum Daily Average: 12.9 C on Oct 8		Hours in Service: 744																							
Minimum Value: -11.3 C on Oct 31 08:00		Minimum Daily Average: -7.1 C on Oct 31		Hours of Data: 744																							
Maximum Diurnal Average: 5.1 C at hour 15		Minimum Diurnal Average: -0.4 C at hour 7		Hours of Missing Data: 0																							
Monthly Average: 2.02 C		Percentiles: P <sub>1</sub> = -8.6 P <sub>10</sub> = -5.8 Q <sub>1</sub> = -1.8 Median = 1.5 Q <sub>3</sub> = 6.0 P <sub>90</sub> = 10.0 P <sub>99</sub> = 16.2		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-Oct	2.9	0.9	-0.5	-0.7	-1.5	-2.3	-2.3	-1.8	0.4	1.3	2.1	2.5	2.7	3.0	3.8	3.4	2.8	2.1	0.3	-0.7	-1.2	-0.6	0.2	0.1	0.7	3.8	
2-Oct	-0.3	-0.6	-0.8	-1.2	-0.8	-0.8	-1.1	-1.1	-0.5	0.2	0.8	0.9	1.3	1.2	1.2	1.1	0.8	0.1	-1.3	-1.8	-2.0	-2.1	-2.1	-2.1	-0.5	1.3	
3-Oct	-2.1	-2.2	-2.4	-2.5	-2.7	-2.7	-2.6	-2.6	-2.3	-2.0	-1.8	-1.5	-0.6	1.5	2.6	3.3	3.9	2.6	0.7	-0.3	-1.4	-2.7	-1.8	-1.9	-0.9	3.9	
4-Oct	-1.6	-1.1	-1.0	-1.7	-1.4	-1.6	-1.2	-0.3	1.5	4.4	5.3	7.2	8.1	8.0	7.8	7.7	6.9	5.9	5.1	4.3	3.7	3.5	3.1	3.0	3.1	8.1	
5-Oct	3.1	2.7	2.5	2.2	2.1	1.9	1.5	1.3	2.3	3.3	4.8	5.4	7.3	7.9	7.4	7.4	6.8	6.5	5.6	4.9	4.5	4.5	6.4	6.8	4.5	7.9	
6-Oct	6.6	6.6	5.6	4.9	5.1	4.3	3.9	4.4	6.3	8.3	10.2	11.8	12.7	13.5	13.8	13.7	13.0	10.8	8.5	7.4	5.8	4.2	4.5	4.6	7.9	13.8	
7-Oct	4.6	4.5	4.7	5.2	6.2	7.1	6.8	7.4	9.1	11.4	12.1	12.7	14.4	15.9	17.5	17.3	16.0	14.6	13.9	15.0	14.6	13.5	12.7	12.0	11.2	17.5	
8-Oct	11.4	10.9	10.4	10.1	9.8	9.6	10.0	9.5	10.4	11.7	13.7	15.1	16.3	16.9	17.9	18.1	17.3	16.4	15.7	16.2	13.6	10.5	9.5	8.5	12.9	18.1	
9-Oct	7.3	6.5	6.3	5.7	5.0	4.2	2.5	2.4	3.1	4.3	5.5	7.0	8.8	9.9	10.3	10.4	9.2	7.9	6.6	6.1	5.7	4.8	4.2	3.7	6.1	10.4	
10-Oct	2.9	2.1	1.3	0.8	1.6	2.0	2.1	2.4	3.3	4.5	7.1	9.2	10.1	10.7	10.9	11.0	10.5	8.6	7.8	6.8	5.2	3.8	2.3	1.3	5.3	11.0	
11-Oct	1.8	1.4	1.2	0.6	0.4	0.7	1.2	1.5	2.7	3.6	5.5	7.2	8.2	9.6	9.8	9.5	8.7	7.0	5.5	5.2	4.6	3.6	2.5	1.9	4.3	9.8	
12-Oct	1.7	1.1	0.1	-0.1	-0.6	-1.2	-1.4	-1.0	2.1	5.0	6.1	6.7	7.5	8.1	8.5	8.6	8.0	5.1	1.4	1.0	1.8	2.4	2.2	1.7	3.1	8.6	
13-Oct	2.7	3.7	3.4	3.4	4.0	3.8	4.0	4.0	5.5	6.0	7.8	9.1	11.0	12.1	12.3	12.1	11.5	10.6	9.8	9.5	8.8	8.4	7.9	7.5	7.4	12.3	
14-Oct	7.3	7.0	6.7	6.6	6.6	6.3	6.1	6.4	7.7	8.1	9.6	11.0	11.8	12.2	12.3	12.0	11.7	11.3	11.2	11.6	11.4	10.8	10.4	10.5	9.4	12.3	
15-Oct	10.1	9.9	9.6	9.1	8.3	7.7	7.1	6.8	7.8	9.0	10.6	12.0	13.2	13.7	14.0	13.9	12.2	9.7	8.1	8.0	8.3	8.2	7.0	6.1	9.6	14.0	
16-Oct	5.3	4.4	4.2	3.9	3.8	3.1	2.0	2.6	5.2	6.7	9.1	9.5	9.9	9.5	8.7	6.7	6.2	6.2	6.3	6.3	6.1	6.0	5.7	5.5	6.0	9.9	
17-Oct	5.5	5.5	5.7	5.9	5.5	4.8	4.6	4.6	4.7	4.6	3.8	3.0	3.0	2.8	2.8	2.7	2.6	1.5	0.5	0.6	1.0	0.6	0.2	0.2	3.2	5.9	
18-Oct	0.1	-0.1	-0.3	-0.7	-1.1	-1.9	-2.6	-2.6	-2.0	-1.0	0.6	2.4	4.2	5.7	6.7	7.0	6.3	4.1	3.5	3.0	2.9	3.3	3.5	3.3	1.8	7.0	
19-Oct	3.7	3.6	3.7	3.4	3.1	2.7	1.9	1.8	1.5	1.3	1.4	2.1	2.9	2.8	3.6	2.6	1.2	0.2	0.0	-0.1	-0.2	-0.1	-0.3	-0.3	1.8	3.7	
20-Oct	-0.5	-1.0	-1.5	-2.1	-2.8	-3.4	-3.8	-4.1	-4.0	-3.7	-3.3	-2.8	-2.4	-2.2	-2.0	-1.8	-1.7	-1.7	-1.8	-1.9	-2.2	-2.6	-2.7	-2.9	-2.4	-0.5	
21-Oct	-3.2	-3.6	-4.3	-4.5	-4.6	-4.6	-4.7	-4.9	-5.1	-5.0	-5.0	-5.2	-5.6	-5.7	-6.1	-6.2	-6.6	-7.3	-7.3	-6.8	-6.8	-6.7	-6.6	-6.9	-5.6	-3.2	
22-Oct	-7.1	-7.1	-6.9	-7.0	-6.9	-6.8	-6.5	-6.4	-6.0	-5.3	-4.7	-4.6	-3.6	-2.7	-2.5	-2.0	-1.4	-1.3	-1.0	-0.8	-0.5	-0.5	-0.6	0.1	-3.8	0.1	
23-Oct	0.6	0.8	0.6	-0.2	-0.7	-1.2	-1.5	-1.8	-0.9	0.5	2.1	3.1	3.9	4.4	4.8	4.1	2.2	1.6	0.9	0.8	0.2	0.1	0.1	0.3	1.0	4.8	
24-Oct	0.2	-0.1	-0.6	-1.2	-1.3	-1.4	-1.6	-1.8	-0.6	0.3	2.0	3.1	3.8	4.4	4.4	4.5	3.2	1.0	0.3	0.1	0.5	0.0	-0.9	-1.9	0.7	4.5	
25-Oct	-2.5	-2.9	-3.3	-3.2	-3.0	-3.7	-4.7	-5.2	-3.9	-2.4	-0.8	0.4	1.2	1.7	2.0	2.5	1.5	0.0	-1.4	-2.7	-3.2	-5.1	-5.9	-6.2	-2.1	2.5	
26-Oct	-6.1	-6.8	-4.8	-4.1	-4.0	-4.8	-4.5	-4.5	-4.4	-2.5	-0.7	0.3	1.9	2.5	2.7	2.3	1.6	0.9	0.1	0.0	0.5	0.7	0.8	1.1	-1.3	2.7	
27-Oct	1.2	1.5	1.1	0.8	0.5	0.3	-0.1	-0.5	-0.4	0.8	1.6	1.9	2.3	2.0	2.1	1.8	2.0	2.0	1.9	1.2	0.4	0.2	0.2	-0.4	1.0	2.3	
28-Oct	-0.4	-0.4	-0.7	-0.9	-1.2	-1.5	-1.5	-1.7	-1.7	-1.5	-1.3	-1.1	-1.1	-1.2	-1.5	-1.7	-2.1	-2.3	-2.7	-3.5	-4.2	-4.6	-4.8	-4.8	-2.0	-0.4	
29-Oct	-4.7	-5.0	-5.8	-5.8	-6.4	-7.0	-7.4	-7.4	-7.6	-7.3	-7.0	-7.0	-6.9	-6.7	-6.6	-6.2	-6.4	-7.0	-6.6	-6.5	-5.7	-5.6	-5.7	-5.3	-6.4	-4.7	
30-Oct	-5.3	-5.3	-5.5	-6.3	-7.2	-8.2	-8.3	-8.0	-7.7	-7.2	-6.6	-6.1	-6.1	-6.0	-5.7	-5.8	-6.1	-6.3	-6.4	-6.5	-6.7	-7.0	-7.4	-7.7	-6.7	-5.3	
31-Oct	-8.1	-8.5	-8.7	-9.1	-9.9	-10.3	-11.1	-11.3	-10.2	-9.1	-7.8	-6.4	-5.9	-6.0	-5.0	-4.3	-4.4	-4.7	-4.8	-4.9	-5.0	-5.1	-5.0	-4.9	-7.1	-4.3	
		1.2	0.9	0.6	0.4	0.2	-0.2	-0.4	-0.4	0.5	1.6	2.7	3.5	4.3	4.8	5.1	5.0	4.4	3.4	2.6	2.3	1.9	1.5	1.3	1.1	Diurnal Average	
		11.4	10.9	10.4	10.1	9.8	9.6	10.0	9.5	10.4	11.7	13.7	15.1	16.3	16.9	17.9	18.1	17.3	16.4	15.7	16.2	14.6	13.5	12.7	12.0	Diurnal Maximum	





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

**Ambient Temperature 2m (AT2) - C**  
**Firebag - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	285	38.31	38.31
0 - 10	384	51.61	89.92
10 - 20	75	10.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

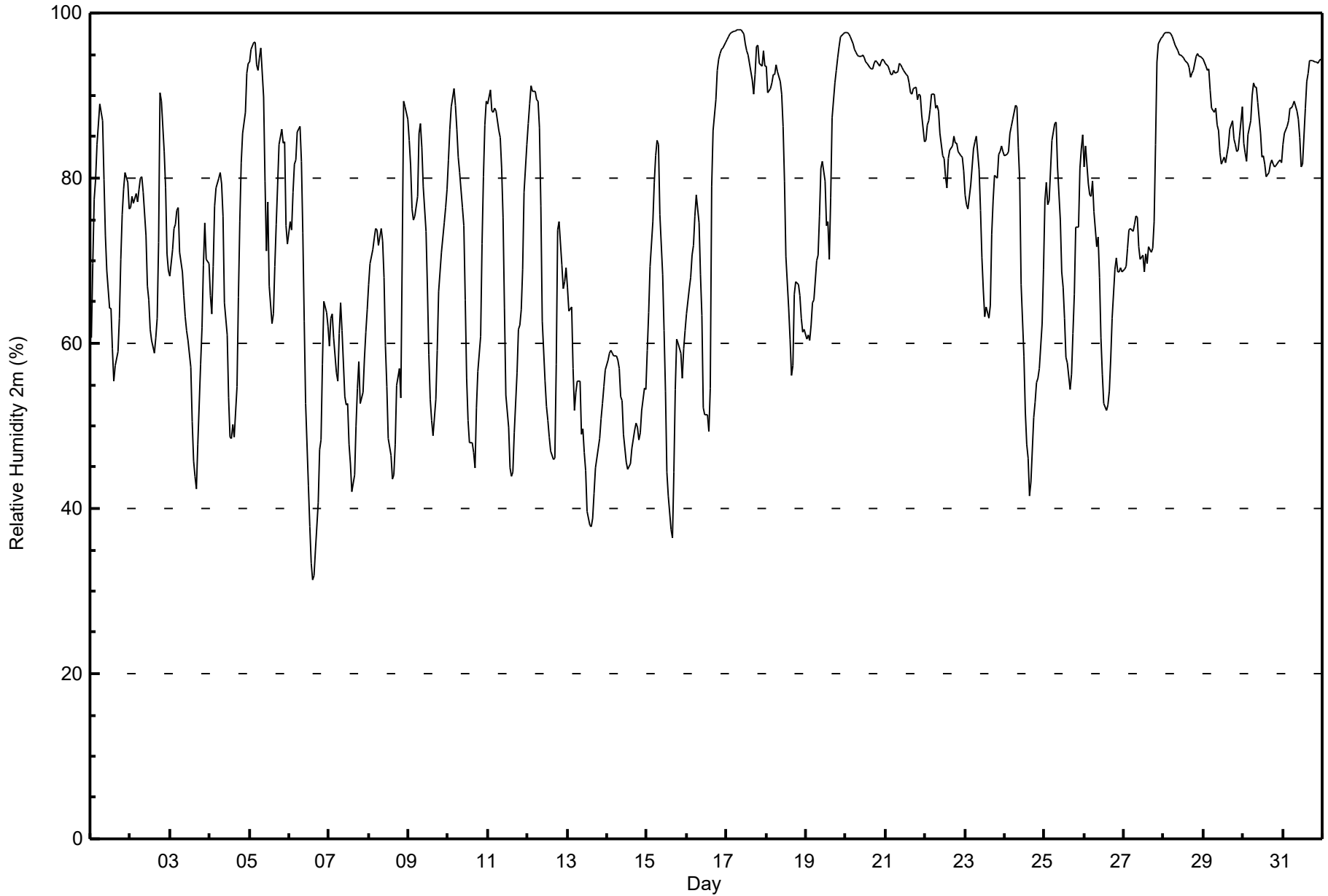
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Firebag - October 2024**

Maximum Value: 98.0 % on Oct 17 08:00		Maximum Daily Average: 95.7 % on Oct 17																				Hours in Service: 744					
Minimum Value: 31.4 % on Oct 6 15:00		Minimum Daily Average: 50.5 % on Oct 13																				Hours of Data: 744					
Maximum Diurnal Average: 82.8 % at hour 7		Minimum Diurnal Average: 60.8 % at hour 15																				Hours of Missing Data: 0					
Monthly Average: 74.26 %		Percentiles: P <sub>1</sub> = 37.9 P <sub>10</sub> = 50.6 Q <sub>1</sub> = 61.5 Median = 76.7 Q <sub>3</sub> = 88.2 P <sub>90</sub> = 94.2 P <sub>99</sub> = 97.7																				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-Oct	60.6	69.7	77.4	79.8	84.1	88.9	88.0	87.0	79.9	73.0	68.8	64.3	64.2	59.3	55.5	57.3	58.9	63.1	70.1	75.6	78.6	80.7	79.4	76.3	72.5	88.9	
2-Oct	76.5	77.7	76.9	78.1	77.1	78.6	80.1	80.2	78.3	73.1	67.0	65.3	61.7	60.4	58.8	60.6	63.0	72.2	90.3	89.3	83.2	78.8	70.9	68.8	73.6	90.3	
3-Oct	68.1	71.4	74.0	74.4	76.1	76.5	71.1	68.7	65.8	63.2	61.6	60.4	57.1	50.5	45.8	43.8	42.4	47.7	57.5	61.8	69.5	74.5	70.2	69.6	63.4	76.5	
4-Oct	65.8	63.6	69.3	76.6	78.9	80.0	80.7	79.3	75.5	64.9	61.0	53.4	48.6	48.6	50.2	48.7	54.8	65.6	74.7	81.9	85.5	87.9	92.7	93.9	70.1	93.9	
5-Oct	94.1	95.7	96.4	96.4	93.8	93.1	94.6	95.8	89.8	79.6	71.2	77.1	67.0	62.4	63.6	69.3	74.4	79.1	84.1	86.0	84.2	84.5	74.3	72.0	82.4	96.4	
6-Oct	74.8	73.7	78.3	81.8	82.2	85.6	86.3	82.1	73.4	62.7	52.8	42.7	37.9	33.4	31.4	31.9	35.0	40.6	47.2	48.4	57.5	65.1	63.7	62.0	59.6	86.3	
7-Oct	59.6	63.0	63.6	60.7	56.5	55.5	61.2	65.0	61.5	53.5	52.6	52.7	47.9	45.5	42.0	44.1	50.0	54.5	57.8	52.7	54.1	58.1	61.3	64.1	55.7	65.0	
8-Oct	67.0	69.7	71.3	72.7	73.8	73.7	71.8	74.0	72.3	68.0	59.7	54.7	48.4	46.5	43.6	44.1	47.8	55.0	56.9	53.3	70.8	89.4	88.7	87.1	65.0	89.4	
9-Oct	84.6	81.5	76.3	75.0	75.4	77.7	85.5	86.6	83.7	79.0	73.6	66.6	58.6	53.1	50.7	48.7	53.3	59.1	66.2	68.7	71.0	74.6	76.5	78.7	71.0	86.6	
10-Oct	82.2	85.9	88.6	90.9	88.7	85.9	82.6	80.6	76.4	74.3	65.2	55.8	50.7	47.9	48.0	46.8	44.9	52.2	56.6	60.8	72.0	80.2	86.4	89.3	70.5	90.9	
11-Oct	89.0	90.6	88.1	88.0	88.5	88.2	85.7	85.0	81.2	75.2	64.2	53.7	49.8	45.0	43.9	44.3	49.1	56.4	61.6	62.1	64.1	68.9	78.3	84.1	70.2	90.6	
12-Oct	86.5	88.9	91.2	90.6	90.5	89.5	89.4	86.1	76.6	62.8	55.4	52.4	50.6	48.6	47.0	45.9	46.2	57.4	73.8	74.7	69.5	66.7	67.5	69.2	69.9	91.2	
13-Oct	66.9	63.9	64.4	57.0	51.9	54.1	55.5	55.5	49.0	49.7	46.8	44.6	39.6	38.0	37.7	38.8	41.9	45.0	47.3	48.4	50.9	52.7	54.7	56.7	50.5	66.9	
14-Oct	58.0	58.8	59.1	58.7	58.4	58.5	57.9	57.0	53.5	53.1	49.0	45.6	44.7	45.1	45.4	47.3	49.5	50.3	49.9	48.3	49.1	51.9	54.5	54.4	52.4	59.1	
15-Oct	59.2	63.8	69.3	74.8	79.6	82.8	84.5	84.1	75.5	68.3	61.5	54.2	44.3	41.5	37.4	36.4	44.4	54.4	60.5	59.9	58.7	55.8	59.4	61.5	61.3	84.5	
16-Oct	63.5	66.6	68.0	70.6	71.8	75.5	78.0	74.6	68.4	63.5	52.2	51.3	51.4	49.4	54.7	79.0	85.8	89.4	93.1	94.3	95.2	95.6	95.8	96.4	74.3	96.4	
17-Oct	96.9	97.1	97.4	97.7	97.8	97.9	97.9	98.0	98.0	98.0	97.5	96.3	95.3	95.0	93.8	91.8	90.3	92.5	95.9	96.0	94.0	93.6	95.4	93.6	95.7	98.0	
18-Oct	93.5	90.3	90.8	91.5	92.5	92.6	93.7	92.8	91.7	90.1	86.3	79.7	70.4	64.2	60.5	56.2	57.4	66.0	67.4	67.1	65.7	63.1	61.3	61.7	76.9	93.7	
19-Oct	60.6	61.0	60.4	62.2	64.9	65.2	70.0	70.8	75.5	81.3	82.0	79.6	74.3	74.7	70.1	77.6	87.3	91.6	93.1	94.5	96.0	97.1	97.4	97.6	78.5	97.6	
20-Oct	97.7	97.7	97.5	97.1	96.4	95.5	95.2	94.9	94.7	94.8	94.9	94.6	94.1	94.0	93.5	93.2	93.3	93.8	94.2	94.0	93.5	94.1	94.4	94.3	94.9	97.7	
21-Oct	94.0	93.6	93.0	92.5	92.6	93.0	92.8	92.9	93.9	93.7	93.4	93.1	92.5	92.4	91.5	90.3	90.1	90.9	91.0	89.4	90.1	90.0	87.6	84.4	91.6	94.0	
22-Oct	84.5	86.4	86.9	88.3	90.1	90.3	88.5	88.8	88.2	85.5	82.8	82.4	80.2	78.8	82.3	83.4	83.9	85.1	84.3	84.2	83.2	82.8	82.5	80.8	84.8	90.3	
23-Oct	77.9	76.8	76.3	79.1	81.3	83.6	84.4	85.0	81.1	76.1	70.4	66.5	63.3	64.5	63.0	64.6	73.2	77.2	80.4	80.0	82.9	83.2	84.0	83.2	76.6	85.0	
24-Oct	82.8	82.9	83.2	85.5	86.3	87.2	88.8	88.6	83.7	79.6	67.2	58.5	51.6	47.7	46.2	41.6	43.3	51.1	52.9	55.2	55.8	57.0	62.3	68.9	67.0	88.8	
25-Oct	77.3	79.4	76.7	77.3	84.5	85.5	86.6	86.7	81.4	74.9	68.6	66.8	63.0	58.3	57.7	54.4	56.3	61.2	66.0	74.0	74.1	81.2	83.6	85.2	73.4	86.7	
26-Oct	81.3	83.9	79.3	78.0	77.8	79.7	75.9	71.8	73.0	68.0	60.7	56.2	52.7	51.9	52.5	54.3	58.1	63.1	69.0	70.3	68.7	68.7	69.2	68.6	68.0	83.9	
27-Oct	69.0	69.3	71.4	73.7	73.9	73.5	74.4	75.5	75.3	71.7	70.2	70.7	68.7	70.9	69.6	71.8	71.0	71.6	74.7	84.1	94.0	96.4	96.9	97.2	76.5	97.2	
28-Oct	97.4	97.6	97.6	97.6	97.4	97.0	96.7	96.1	95.4	94.8	94.9	94.7	94.6	94.2	93.9	93.3	92.3	92.7	93.0	94.7	95.0	94.7	94.7	94.5	95.2	97.6	
29-Oct	94.4	93.5	93.1	93.2	90.7	88.4	88.0	88.5	86.5	85.7	83.0	81.6	82.5	81.9	82.8	83.9	86.0	87.0	84.7	84.1	83.2	83.4	85.1	88.6	86.7	94.4	
30-Oct	84.2	83.0	82.0	85.3	86.9	90.1	91.5	91.0	91.1	89.2	85.4	82.6	82.7	81.7	80.1	80.6	81.8	82.3	81.7	81.4	81.5	82.1	82.2	81.8	84.2	91.5	
31-Oct	84.1	85.4	86.2	87.0	88.5	88.4	88.8	89.3	88.1	87.0	85.0	81.4	81.7	88.4	91.7	92.7	94.2	94.3	94.3	94.1	94.1	93.8	94.3	94.5	89.5	94.5	
		78.4	79.4	80.1	81.0	81.6	82.3	82.8	82.3	79.3	75.3	70.5	67.1	63.6	61.7	60.8	61.8	64.5	69.1	73.2	74.5	76.3	78.3	78.9	79.3	Diurnal Average	
		97.7	97.7	97.6	97.7	97.8	97.9	97.9	98.0	98.0	98.0	97.5	96.3	95.3	95.0	93.9	93.3	94.2	94.3	95.9	96.0	96.0	97.1	97.4	97.6	Diurnal Maximum	





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

**Relative Humidity 2m (RH2) - %**  
**Firebag - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	11	1.48	1.48
40 - 60	158	21.24	22.72
60 - 80	245	32.93	55.65
80 - 100	330	44.35	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

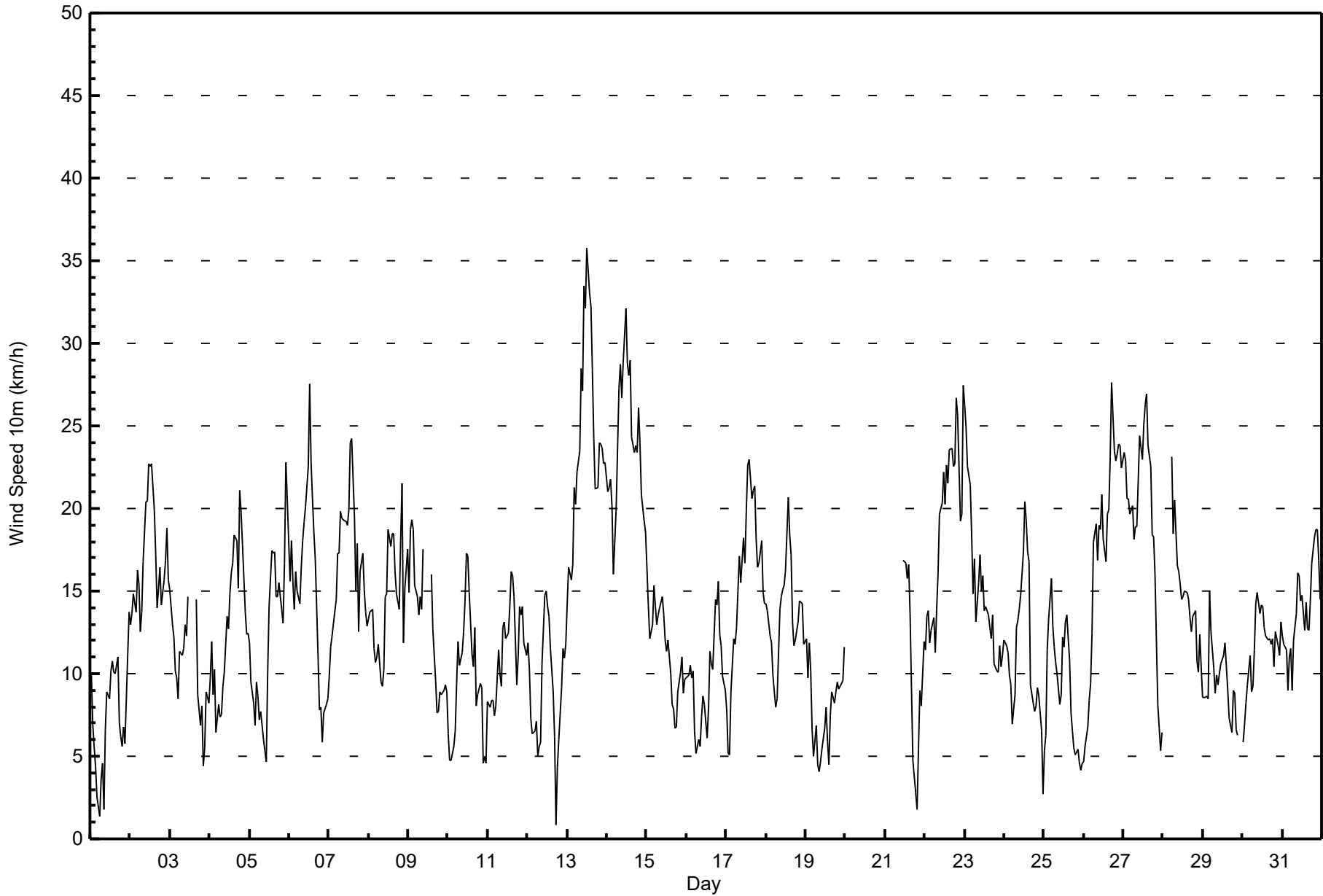


Maximum Speed: 36 km/h on Oct 13 13:00	Maximum Daily Speed Average: 24.2 km/h on Oct 13	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 12 18:00	Minimum Daily Speed Average: 2.7 km/h on Oct 19	Hours of Data: 694
Maximum Diurnal Speed Average: 7.3 km/h at hour 15	Minimum Diurnal Speed Average: 5.2 km/h at hour 18	Hours of Missing Data: 50
Monthly Average Velocity: 6.0 km/h 212.8 deg	Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 7 Q <sub>1</sub> = 9 Median = 13 Q <sub>3</sub> = 17 P <sub>90</sub> = 22 P <sub>99</sub> = 29	Percent Operational Time: 93.8

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-Oct	W10	W7	NW6	NW4	WSW3	SW1	N4	NNE5	WNW2	WNW7	WNW9	NW8	NW10	NNW11	NNW10	N10	NNW11	NNW7	NNW6	NW6	NNW7	NW6	NW11	NNW14	NW6.3	NNW14	
2-Oct	NNW13	NW14	NW15	NW14	NW16	WNW15	WNW13	WNW14	NW17	NW20	NW20	NW23	NW23	NW23	NW20	NW17	NW14	NNW15	NNW16	NNW14	NNW16	NNW17	NNW19	NNW16	NW16.3	NW23	
3-Oct	NW15	NW13	NW12	NW10	NW10	NW8	NW11	NW11	NW12	NW13	WNW12	WNW15	C	C	C	C	WSW14	WSW9	SW7	SW8	SSW4	SW5	SSW9	SSW8	WNW7.9	NW15	
4-Oct	SSW10	SSW12	SSW9	SSW10	S6	SSE8	SSE7	SE8	SSE9	S10	SSE13	SE13	ESE15	ESE16	ESE17	E18	E18	E15	E21	E20	E18	ENE14	ENE12	NE12	ESE9.2	E21	
5-Oct	NE12	NNE10	NNE8	N7	NNW10	N9	NNW7	NE8	NNW6	NNW5	WNW5	WSW10	WSW14	WSW17	WSW17	SW17	SW15	SW15	SW16	SSW14	S13	S17	SSW23	SSW21	WSW6.3	SSW23	
6-Oct	SW16	WSW18	WSW16	WSW14	WSW16	WSW15	WSW14	WSW16	WSW18	W19	W20	W23	W28	W23	W21	W19	WSW17	WSW11	WSW8	W8	SW6	SSW8	S8	S9	WSW14.3	W28	
7-Oct	SSE10	S12	S12	S13	S14	SSE17	SSE17	SSE20	SSE19	S19	S19	S19	S20	SSW24	SSW24	SSW20	S15	S18	S13	SSW16	SSW17	SSW15	SSW14	SSW13	S16.1	SSW24	
8-Oct	SSW13	SSW14	SW14	SSW12	SSW11	SSW11	SSW12	S10	S9	S10	SSE15	SE15	S19	S18	SSE19	SSE19	SSE16	SE15	SSE14	SSW18	WNW22	W12	WSW15	WSW18	S11.3	WNW22	
9-Oct	WSW15	WSW19	WSW19	WSW19	WSW15	SW15	SW14	SW15	WSW14	WSW18	M	M	M	M	WSW16	WSW13	WSW10	SW8	SW8	SSW9	SSW9	SSW9	SSW9	SW9	SW12.6	WSW19	
10-Oct	SSW6	SSW5	SSW5	SW6	SSW7	SSW9	SW12	SSW10	SW11	SW13	WSW14	WSW17	WSW17	WSW15	W11	W10	WSW13	SW8	SW9	W9	NW9	WNW5	WSW5	SW5	SW8.7	WSW17	
11-Oct	SW8	SW8	SW8	SW8	SW7	SSW8	SSW11	SSW10	SSW9	SSW13	SSW13	SSW12	SSW12	SW14	SW16	SW16	SW15	SSW9	SSW11	SW14	SSW14	SW14	SW12	SW11	SW11.4	SW16	
12-Oct	SW12	SW10	WSW7	WSW6	WSW7	WSW7	SW5	SW6	WNW6	NNW11	NNW15	NNW15	NNW14	NNW13	NNW12	NNW9	NNW6	NNE1	ESE4	SE6	SE9	SE12	SSE11	SSE12	WNW2.7	NNW15	
13-Oct	SSE14	SSE16	SSE16	S17	S21	S20	S22	SSE24	SSE27	SSE28	S27	S33	S32	S36	S33	S32	S28	SSE24	SSE21	SSE21	S24	S24	S24	S23	S23	S24.2	S36
14-Oct	S21	S21	S22	SSE20	SSE16	SSE20	SSE24	SSE27	SSE29	S27	S29	SSE32	S29	SSE28	SSE29	SSE24	SSE23	SSE24	SSE23	S26	S24	S21	SSW19	SSW19	S23.7	SSE32	
15-Oct	SSW16	SSW14	SSW12	SW13	SW15	SW14	WSW13	WSW14	WSW14	WSW15	WSW14	WSW12	W11	W12	W10	W8	SW8	S7	S7	S9	SSW10	SW11	SW9	SW10	SW10.6	SSW16	
16-Oct	SW10	SW10	SW11	SSW10	SSW10	S7	SSE5	SSE6	SSE6	SSE7	SE9	SSE8	SSE6	S8	S11	SSE11	ESE10	ESE15	E14	ESE16	ESE12	ESE12	ESE10	SE9	SSE7.4	ESE16	
17-Oct	SE8	S5	SW5	WSW9	W12	W12	WSW13	WSW15	W17	WNW16	WNW18	WNW17	W20	WSW23	WSW23	W21	W21	W21	W18	W16	W17	WNW18	WNW15	WNW14	W14.3	WSW23	
18-Oct	WNW14	WNW14	WNW12	W12	W10	WSW9	SW8	SW8	SW14	SSW15	SSW15	SSW15	SSW16	SSW21	SW18	SSW17	SSW13	S12	S12	S13	S14	S14	SSE14	SSE12	SSW10.4	SSW21	
19-Oct	SSE12	SSE10	S12	S10	S7	SW5	N7	N4	N4	NW5	NNW5	WNW7	NNW8	NW6	NNW4	N7	NE9	NNE8	NNE9	NE9	NNE9	NNE9	NNW10	N12	N2.7	SSE12	
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	N17	NNW17	NNW16	NNW17	NNW14	N9	NNE5	ENE3	SSW2	SW5	WSW9	W8	WSW12	---	N17
22-Oct	WSW11	WSW13	WSW14	SW12	SW13	SW13	SW11	SW14	SW16	SW20	SW20	SW22	SW20	SW23	SSW22	SSW24	SSW24	SW23	SW23	SW27	SW26	SW19	WSW20	WSW27	SW18.5	WSW27	
23-Oct	W26	W25	W23	WSW21	W18	W15	W17	W13	WSW16	WSW17	W15	WSW16	WSW14	SW14	SW14	WSW13	SW12	WSW14	WSW11	SW10	SW10	SW12	SW10	SW11	WSW14.7	W26	
24-Oct	SW12	SW12	SW11	SW10	WSW9	WSW7	WSW9	WSW13	WSW13	WSW14	WSW15	W17	W20	WNW19	WNW17	WNW17	WNW9	WNW8	WNW8	WNW8	WNW9	NNW9	NW7	NNE3	W9.8	W20	
25-Oct	ESE5	SSE6	SSW11	SSW13	SW16	SW12	SW11	WSW10	W8	W9	WNW12	WNW12	WNW13	W14	W11	WSW8	SW7	SW6	SSW5	SSW5	S5	SSE4	SE5	WSW6.6	SW16		
26-Oct	SE5	SE6	ESE7	ESE8	ESE9	ESE12	ESE18	ESE19	ESE19	ESE19	ESE21	ESE18	E17	ESE20	E20	E23	ESE28	ESE23	SE23	SE23	SE23	SE24	SE24	SE22	ESE17.3	ESE28	
27-Oct	SE23	SSE23	SSE21	SSE21	SSE20	SSE18	SSE19	SE19	SE22	SE24	SE23	SE25	SE26	ESE27	SE24	SSE23	SE18	SSE18	SSE16	SSE12	SSE8	WNW5	NW6	SE18.0	ESE27		
28-Oct	UO	UO	UO	UO	UO	NW23	NW18	NW20	NW17	NW16	NW15	NW14	NW15	NW15	NW15	NW15	NW13	NW13	NW13	NNW14	N11	NNW10	NNW12	NNW10	NW14.5	NNW23	
29-Oct	NW9	NNW9	NNW9	NW8	WNW15	WNW13	WNW10	WNW9	WNW10	WNW9	W10	WSW11	W11	WSW12	WSW10	SW9	SW7	SSW6	SSW9	SSW9	SSW7	S6	UO	UO	W6.8	WNW15	
30-Oct	ENE6	ENE7	ENE8	NE9	ENE11	NE9	NE9	NE11	ENE14	ENE15	ENE14	ENE14	ENE14	ENE13	ENE12	E12	E12	E12	E12	E10	E13	E12	ESE11	ESE13	ENE10.8	ENE15	
31-Oct	ESE12	ESE12	ESE11	SE9	ESE11	ESE12	ESE9	SE12	SE14	SE16	SSE16	SSE14	SSE15	SE13	S14	S13	SSE13	SSE14	S17	S18	S19	SSW19	SSW17	SSW15	SSE12.2	SSW19	

SSW6.0	SW6.4	SW6.1	SW6.4	SW6.5	SW6.0	SW5.7	SSW5.7	SW6.3	SW6.6	SW6.8	SW6.1	SW6.8	SW7.0	SW7.3	SW5.9	SSW5.3	S5.2	S5.5	S6.8	SSW5.9	SSW5.8	SSW6.0	SW5.8	Diurnal Average
W26	W25	W23	WSW21	S21	NNW23	SSE24	SSE27	SSE29	S27	S33	SSE32	S36	S33	S32	S28	SSE24	ESE28	ESE23	SW27	SW26	SE24	SE24	WSW27	Diurnal Maximum

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







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

**Wind Speed 10m (WS10) - km/h**  
**Firebag - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	40	5.76	5.76
6 - 11	227	32.71	38.47
12 - 19	312	44.96	83.43
20 - 28	105	15.13	98.56
29 - 38	10	1.44	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 694  
Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Firebag - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	4	0	1	0	2	2	2	2	6	7	2	0	4	2	3	40
6 - 11	7	7	5	4	1	9	7	15	16	30	40	20	16	12	19	19	227
12 - 19	2	0	2	9	12	18	9	28	26	31	40	51	18	22	24	20	312
20 - 28	0	0	0	0	4	5	12	20	19	9	9	5	13	1	7	1	105
29 - 38	0	0	0	0	0	0	0	3	7	0	0	0	0	0	0	0	10
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	12	11	7	14	17	34	30	68	70	76	96	78	47	39	52	43	694

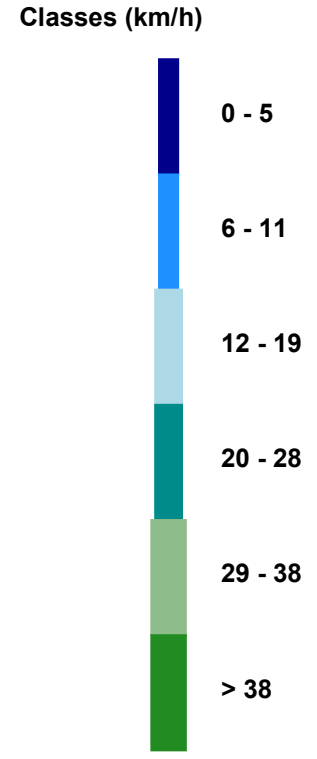
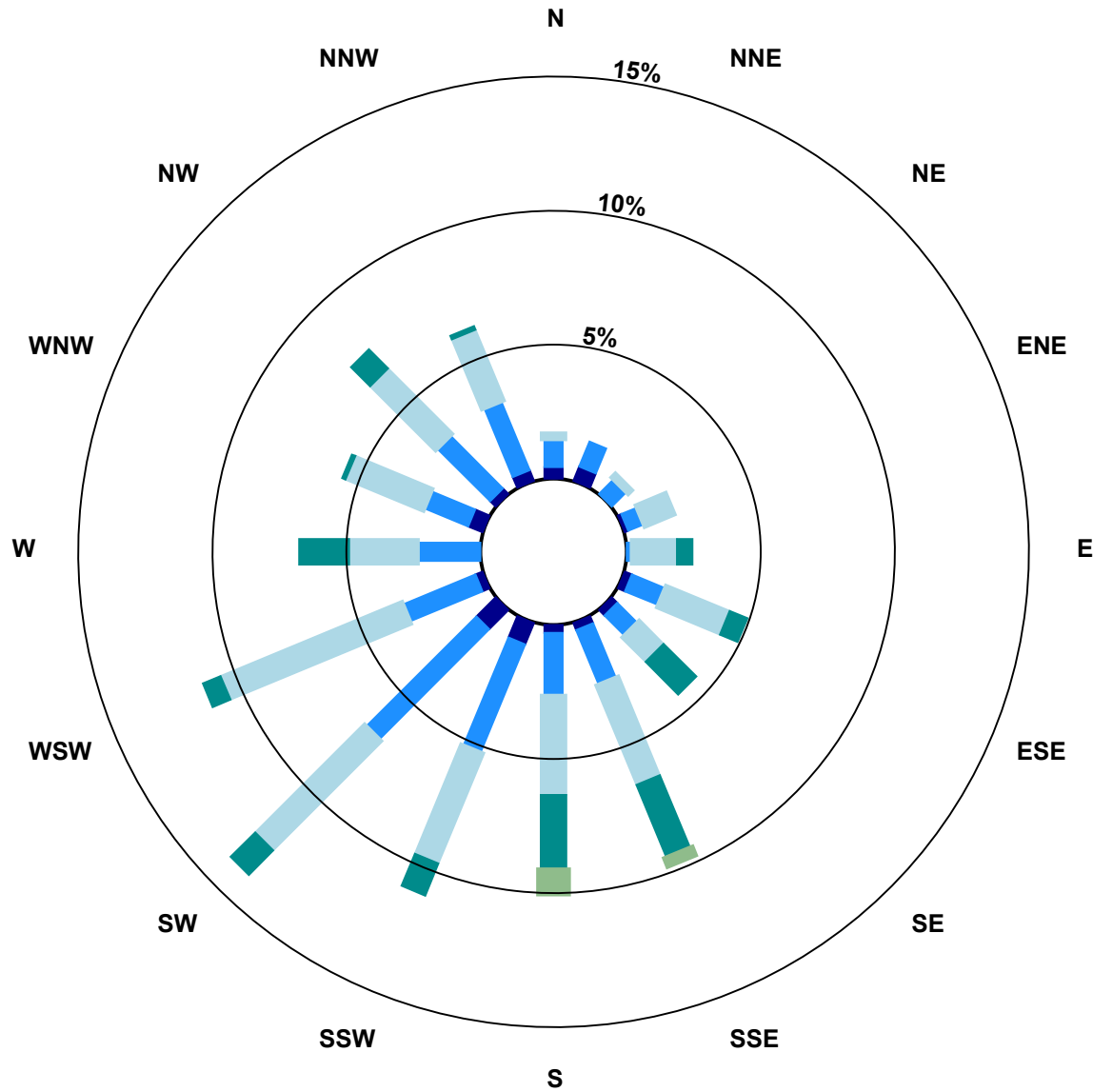
Total Number of Valid Hours: 694

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Firebag



Total Number of Valid Hours: 694



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

**Wind Speed 10m (WS10) - km/h**  
**Firebag - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Oct 8 21:00 Minimum Value: 0 km/h on Oct 6 23:00 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> = 5 P <sub>99</sub> = 6																	Hours in Service: 744 Hours of Data: 694 Hours of Missing Data: 50 Hours of Calibration: 4 Percent Operational Time: 93.8								
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-Oct	2	1	2	2	2	1	1	1	1	2	2	2	3	3	3	3	3	1	1	1	1	1	3	3	3
2-Oct	3	3	4	3	4	4	3	4	5	6	5	6	6	6	5	5	4	3	4	3	4	4	5	4	6
3-Oct	4	3	2	2	2	2	3	3	3	3	4	4	C	C	C	C	3	3	1	2	1	1	2	3	4
4-Oct	1	1	2	1	2	1	1	3	2	2	2	2	3	3	3	3	3	4	4	4	3	3	3	2	4
5-Oct	2	2	2	2	2	2	1	1	2	2	3	3	3	4	4	4	4	3	2	2	2	4	4	4	4
6-Oct	3	3	3	3	3	3	2	3	4	4	6	7	7	6	6	5	4	2	2	2	1	1	0	1	7
7-Oct	1	1	2	1	2	3	3	3	3	3	3	3	3	5	4	4	2	2	1	2	2	2	2	2	5
8-Oct	2	2	2	2	1	1	1	2	2	2	3	3	4	3	4	3	3	3	2	5	9	5	3	3	9
9-Oct	2	3	4	3	3	2	2	2	3	4	M	M	M	M	4	3	2	1	1	1	1	1	1	2	4
10-Oct	2	1	1	1	2	3	1	1	2	2	3	3	4	4	3	3	3	1	1	2	1	1	1	1	4
11-Oct	1	1	2	1	1	1	1	1	2	2	2	2	2	3	3	3	3	1	1	2	2	2	2	1	3
12-Oct	2	2	1	1	1	1	2	1	2	3	4	3	3	4	3	3	2	1	1	1	2	1	1	1	4
13-Oct	3	3	3	2	3	3	3	4	4	4	5	5	6	5	6	6	4	3	4	3	3	3	3	3	6
14-Oct	3	3	3	3	3	5	4	4	5	5	6	5	5	5	5	4	4	4	4	4	4	3	3	3	6
15-Oct	2	3	2	2	2	2	2	2	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	3
16-Oct	1	1	1	2	1	1	1	1	2	2	2	2	2	3	3	3	2	4	3	4	3	2	2	2	4
17-Oct	1	2	1	2	3	3	3	4	4	4	5	5	6	5	5	5	6	5	4	4	4	4	5	5	6
18-Oct	4	4	3	3	2	2	1	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	4
19-Oct	2	2	2	2	1	2	1	1	2	2	2	3	2	2	1	2	2	2	3	2	2	3	2	4	4
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	4	3	4	3	3	1	1	2	1	2	2	3	5
22-Oct	3	3	3	2	2	2	2	2	3	4	4	4	4	4	4	3	4	4	4	4	5	4	4	6	6
23-Oct	6	5	6	5	4	3	3	3	3	4	3	3	3	3	3	3	3	3	2	1	2	2	1	2	6
24-Oct	1	2	2	2	2	2	3	2	2	3	3	4	5	5	5	3	1	1	1	1	2	2	2	2	5
25-Oct	1	3	1	2	2	2	2	1	2	2	2	4	3	3	4	3	1	1	1	1	2	1	2	1	4
26-Oct	1	1	1	1	3	2	3	3	3	4	3	4	3	3	4	4	4	5	5	5	5	5	5	5	5
27-Oct	5	4	4	4	3	3	3	3	4	5	4	5	5	6	5	6	5	4	4	3	2	2	1	2	6
28-Oct	UO	UO	UO	UO	UO	5	4	5	4	4	4	3	4	4	4	4	3	3	3	3	2	2	3	2	5
29-Oct	2	2	2	3	4	3	2	2	3	3	2	3	2	3	2	1	1	1	2	1	1	2	UO	UO	4
30-Oct	1	1	1	1	2	1	1	2	3	3	3	3	2	2	2	3	3	3	3	3	2	2	2	2	3
31-Oct	2	2	2	2	2	3	2	3	3	3	3	2	3	3	3	2	2	3	3	3	4	4	3	3	4
Diurnal Maximum																									
C - Calibration      M - Maintenance      UO - Unstable Operation																									



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

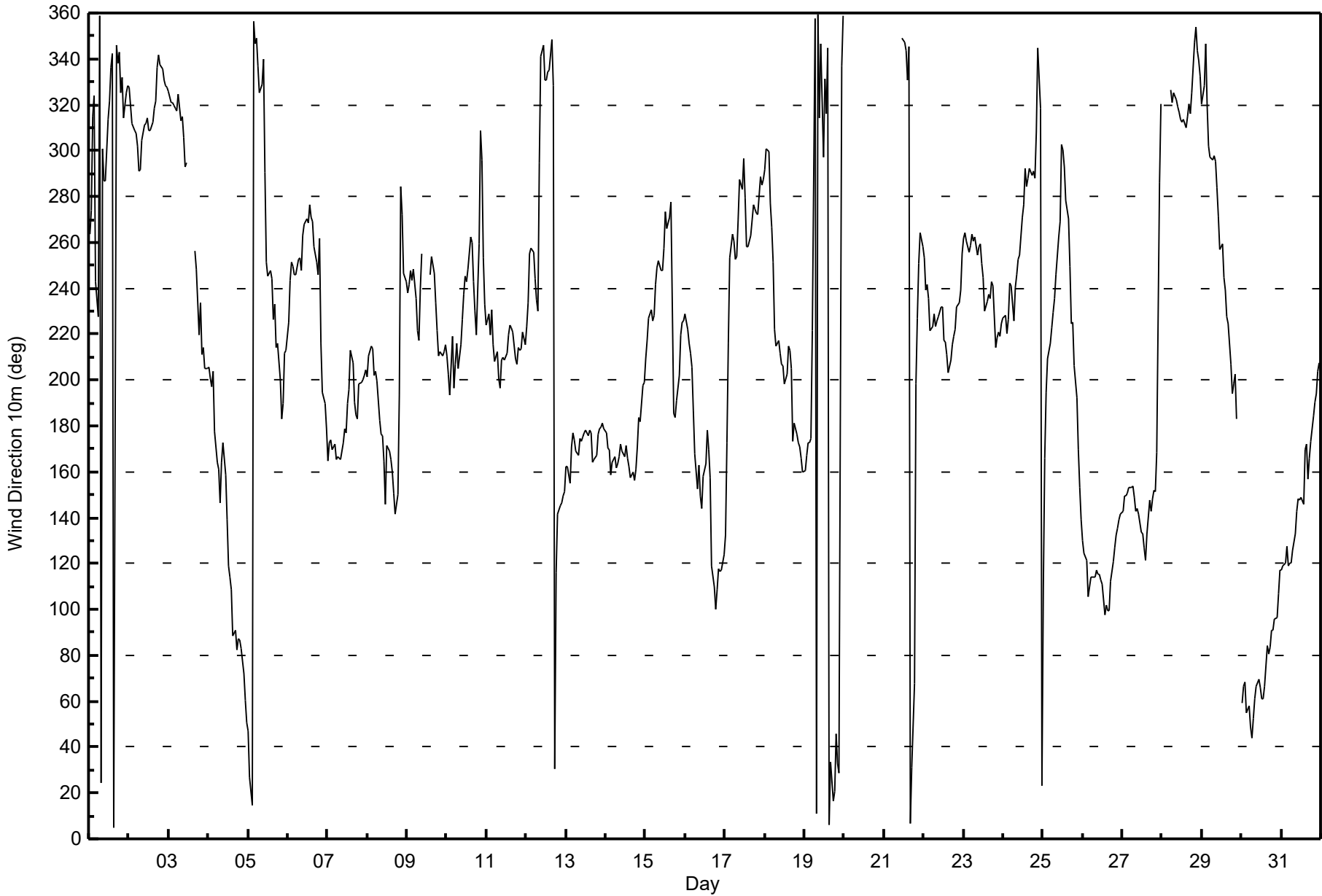
**Wind Direction 10m (WD10) - deg**  
**Firebag - October 2024**

Direction of Maximum Speed: 178 deg on Oct 13 13:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 173.4 deg on Oct 13		Hours of Data:	694
Direction of Minimum Speed: 31 deg on Oct 12 18:00		Hours of Missing Data:	50
Direction of Minimum Daily Speed Average: 2.7 deg on Oct 19		Percent Operational Time:	93.8
Monthly Average Direction: 212.8 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-Oct	264	274	315	324	243	228	359	25	301	287	287	313	321	336	342	5	346	338	343	325	332	314	325	328	322.6
2-Oct	328	320	312	309	307	302	291	292	304	311	312	314	308	309	312	319	322	336	342	337	336	331	328	328	316.9
3-Oct	326	321	321	320	318	317	324	313	315	306	293	294	C	C	C	C	257	249	219	234	211	214	205	205	290.9
4-Oct	206	201	197	204	177	164	161	146	164	173	159	139	119	114	109	89	91	83	87	87	83	72	60	51	116.9
5-Oct	47	27	15	356	347	349	337	325	329	340	291	252	245	247	244	227	233	214	216	200	183	190	212	213	240.9
6-Oct	225	244	251	250	246	246	253	253	248	263	268	270	269	276	271	269	258	251	246	262	216	195	190	179	253.4
7-Oct	165	173	174	169	172	165	167	166	165	173	179	177	190	196	213	207	191	185	183	198	199	200	202	204	184.7
8-Oct	202	210	215	213	202	204	200	183	176	176	165	146	171	169	165	160	151	142	150	193	284	272	247	243	190.8
9-Oct	238	242	248	244	248	235	222	217	240	255	M	M	M	M	246	254	246	234	222	210	212	210	212	215	235.7
10-Oct	211	202	194	219	197	207	216	205	215	226	237	245	243	248	262	260	243	230	220	259	309	296	253	233	235.7
11-Oct	224	229	219	231	215	208	212	201	196	209	210	209	212	219	224	223	221	209	207	214	213	214	221	215	214.9
12-Oct	223	234	255	258	256	244	235	230	295	341	346	331	331	334	335	348	328	31	116	142	145	146	150	151	284.9
13-Oct	162	162	155	171	177	174	169	167	174	173	175	177	178	176	178	177	164	165	167	176	179	180	181	179	173.4
14-Oct	177	170	170	159	164	167	162	163	167	172	169	166	171	166	163	158	160	156	161	171	184	182	198	199	169.0
15-Oct	209	217	227	231	226	228	241	249	252	247	248	257	273	266	271	278	232	186	184	191	202	219	225	226	234.4
16-Oct	229	222	216	212	205	187	168	153	163	150	144	158	164	178	170	158	119	110	100	108	118	117	117	124	151.6
17-Oct	132	173	216	253	263	261	253	254	270	287	283	297	280	258	258	263	270	276	275	273	272	289	285	287	269.7
18-Oct	291	301	299	277	267	252	222	214	217	212	207	206	198	203	215	213	205	174	181	177	173	171	166	160	211.6
19-Oct	161	167	173	173	174	222	358	11	360	314	347	297	331	316	345	6	34	16	21	46	33	29	337	359	9.4
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	349	347	344	331	345	7	31	68	198	227	251	264	258	--
22-Oct	253	239	242	235	221	223	229	223	226	227	232	232	217	217	211	203	209	216	219	222	232	234	239	255	226.4
23-Oct	262	264	260	255	259	263	260	262	255	258	259	251	245	230	234	237	236	243	241	214	218	221	219	224	248.3
24-Oct	227	228	220	226	242	241	226	240	246	253	254	271	277	292	284	288	292	289	291	288	308	345	319	23	266.9
25-Oct	110	166	195	209	216	223	229	235	246	262	269	302	300	293	278	270	249	225	225	206	192	170	153	139	237.6
26-Oct	130	124	121	106	110	114	114	114	117	116	115	113	111	97	102	100	100	113	121	127	132	135	139	142	117.6
27-Oct	143	150	150	151	153	153	154	149	143	144	141	134	133	127	122	133	148	143	148	152	151	168	286	321	143.7
28-Oct	UO	UO	UO	UO	UO	326	321	325	322	319	316	313	313	314	310	315	320	316	325	347	354	344	340	333	323.8
29-Oct	320	328	347	320	302	297	296	298	295	283	272	257	259	245	239	228	225	207	194	198	203	183	UO	UO	268.7
30-Oct	59	66	68	55	58	49	44	52	61	67	70	66	61	61	67	84	81	84	91	91	96	97	107	117	73.7
31-Oct	117	119	120	128	119	120	120	126	133	143	149	148	149	146	170	172	157	166	173	184	190	194	204	207	156.3

212.6 217.5 218.2 220.2 220.4 220.5 216.6 209.9 216.0 223.6 218.1 229.1 227.0 225.6 223.8 215.7 204.7 185.0 179.8 188.5 197.4 197.6 213.6 215.3  
 Diurnal Average

C - Calibration                      M - Maintenance                      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 10m (WD10) - deg**  
**Firebag - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 83 deg on Oct 12 18:00	Hours of Data: 694
Minimum Value: 4 deg on Oct 4 02:00	Hours of Missing Data: 50
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 8 Q <sub>1</sub> = 10 Median = 12 Q <sub>3</sub> = 15 P <sub>90</sub> = 19 P <sub>99</sub> = 42	Hours of Calibration: 4
	Percent Operational Time: 93.8

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-Oct	15	19	21	34	45	38	20	5	49	21	23	25	24	20	21	23	16	12	11	12	8	7	15	12	49
2-Oct	11	13	14	15	15	18	19	20	17	15	15	14	16	15	16	14	14	14	14	14	14	13	13	12	20
3-Oct	13	12	12	13	14	14	12	14	16	17	23	23	C	C	C	C	16	13	10	9	9	13	8	10	23
4-Oct	8	4	9	7	16	12	15	15	15	9	14	16	19	16	13	11	19	10	10	11	12	11	9	19	
5-Oct	11	11	11	13	14	13	15	10	17	20	69	19	20	15	14	14	13	10	9	9	10	16	10	12	69
6-Oct	13	12	12	11	12	12	11	12	11	17	19	19	17	20	20	17	14	11	19	15	14	4	5	10	20
7-Oct	6	7	8	8	8	8	8	9	10	9	9	10	11	12	12	15	8	7	10	8	8	7	8	8	15
8-Oct	7	9	8	9	7	11	7	11	8	7	12	12	12	11	10	11	11	11	15	20	22	21	13	11	22
9-Oct	10	12	11	11	11	15	9	10	15	14	M	M	M	M	16	18	12	11	7	7	7	6	7	8	18
10-Oct	10	10	15	12	12	16	9	8	10	10	13	15	14	19	19	20	11	8	10	23	14	29	17	14	29
11-Oct	7	9	9	7	9	7	8	5	9	8	10	12	12	15	14	14	11	9	8	8	8	9	9	9	15
12-Oct	8	17	12	15	9	10	21	13	36	19	18	17	18	19	22	27	20	83	22	8	7	7	7	10	83
13-Oct	9	9	9	9	8	8	8	9	8	8	9	9	10	10	11	11	9	9	9	8	8	9	8	8	11
14-Oct	8	8	8	9	10	9	10	9	9	9	10	9	10	10	10	10	10	10	10	9	9	9	8	9	11
15-Oct	9	12	10	9	9	10	10	11	12	13	16	17	21	20	25	23	14	12	5	6	11	8	7	9	25
16-Oct	6	7	8	8	7	10	12	10	15	8	11	18	19	15	14	16	13	12	11	12	11	10	11	12	19
17-Oct	15	22	27	14	14	13	12	13	17	17	17	17	19	13	13	13	15	15	16	14	15	16	16	16	27
18-Oct	16	16	18	16	14	12	9	10	10	10	9	10	10	10	12	10	12	7	7	7	7	8	8	9	18
19-Oct	9	12	9	8	16	44	19	30	40	19	19	23	25	31	30	17	13	15	18	14	14	21	14	15	44
20-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
21-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	17	16	20	14	16	16	18	35	76	10	14	16	17	76
22-Oct	15	11	12	11	10	10	11	11	10	11	12	12	12	10	10	8	9	10	9	10	11	11	11	12	15
23-Oct	13	13	13	11	12	13	11	12	11	13	14	14	16	15	15	14	11	10	11	9	9	8	9	8	16
24-Oct	8	10	11	13	11	19	20	11	10	12	15	17	18	19	19	17	14	9	8	13	12	13	17	67	67
25-Oct	35	16	6	9	8	10	9	8	12	19	23	22	25	20	17	16	11	9	20	20	14	8	25	9	35
26-Oct	22	10	9	11	14	10	9	9	10	10	10	10	11	13	11	10	9	10	11	12	12	12	11	11	22
27-Oct	11	11	11	10	10	10	9	10	11	11	12	13	14	12	12	14	13	12	11	10	10	13	42	14	42
28-Oct	UO	UO	UO	UO	UO	12	13	13	13	14	14	13	14	14	14	15	13	13	16	14	16	14	13	13	16
29-Oct	13	20	14	25	17	17	16	18	18	18	18	15	15	14	12	10	10	14	6	6	7	10	UO	UO	25
30-Oct	7	9	10	8	9	8	9	9	10	10	12	11	11	13	16	15	12	13	14	13	10	9	11	11	16
31-Oct	11	11	11	13	11	12	13	13	13	11	11	12	15	15	12	11	13	9	8	10	11	10	13	12	15
Diurnal Maximum																									
35 22 27 34 45 44 21 30 49 21 69 25 25 31 30 27 20 83 35 76 22 29 42 67																									

C - Calibration      M - Maintenance      UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS20 MACKAY RIVER OCTOBER 2024**

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

November 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)  
OCTOBER 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	11.6	0	2.8	0
H2S (ppb) Average	708	36	36	100	1.1	0	0.2	0
THC (ppm) Average	710	34	34	100	3.7	-	2.5	-
NO2 (ppb) Average	708	36	36	100	21.5	0	6.9	-
NO (ppb) Average	708	36	36	100	23.6	-	2.3	-
NOX (ppb) Average	708	36	36	100	43.5	-	9.2	-
Temperature 2 m (C) Average	744	0	0	100	19.9	-	12.6	-
Relative Humidity (%) Average	744	0	0	100	99.5	-	93.3	-
Wind Speed 10 m (km/h) Average	733	1	11	98.66	16	-	10	-
Wind Direction 10 m (deg) Average	733	1	11	98.66	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.9	-	6.4	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)  
OCTOBER 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	0.41	1.2	-	0	0	0	0.1	0.2	0.8	11.6
H2S (ppb) Average	708	0.09	0.1	-	0	0	0	0.1	0.1	0.2	1.1
THC (ppm) Average	710	2.35	0.1	-	2	2.3	2.3	2.3	2.4	2.4	3.7
NO2 (ppb) Average	708	1.38	2.9	-	0	0.1	0.2	0.4	0.8	3.2	21.5
NO (ppb) Average	708	0.3	1.6	-	0	0	0	0	0	0.2	23.6
NOX (ppb) Average	708	1.67	4.2	-	0	0.1	0.2	0.5	0.9	3.5	43.5
Temperature 2 m (C) Average	744	2.13	5.9	-	-10.6	-5	-2.2	1.3	5.8	10.4	19.9
Relative Humidity (%) Average	744	74.62	16.6	-	25.3	49.6	63.7	78.1	87.7	93.8	99.5
Wind Speed 10 m (km/h) Average	733	6.7	3	-	0	3	4	7	9	10	16
Wind Direction 10 m (deg) Average	733	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	27.81	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION -MACKAY RIVER (AMS20)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	01 Oct 2024 20:00	01 Oct 2024 20:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	06 Oct 2024 19:00	06 Oct 2024 19:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	07 Oct 2024 09:00	07 Oct 2024 09:00	1	Maintenance - station operator activities
Wind Speed, Wind Direction	09 Oct 2024 18:00	09 Oct 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	10 Oct 2024 00:00	10 Oct 2024 00:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	11 Oct 2024 19:00	11 Oct 2024 19:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	17 Oct 2024 01:00	17 Oct 2024 01:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	19 Oct 2024 05:00	19 Oct 2024 05:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	19 Oct 2024 07:00	19 Oct 2024 08:00	2	Flat line in sensor output signal - Sensor frozen



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

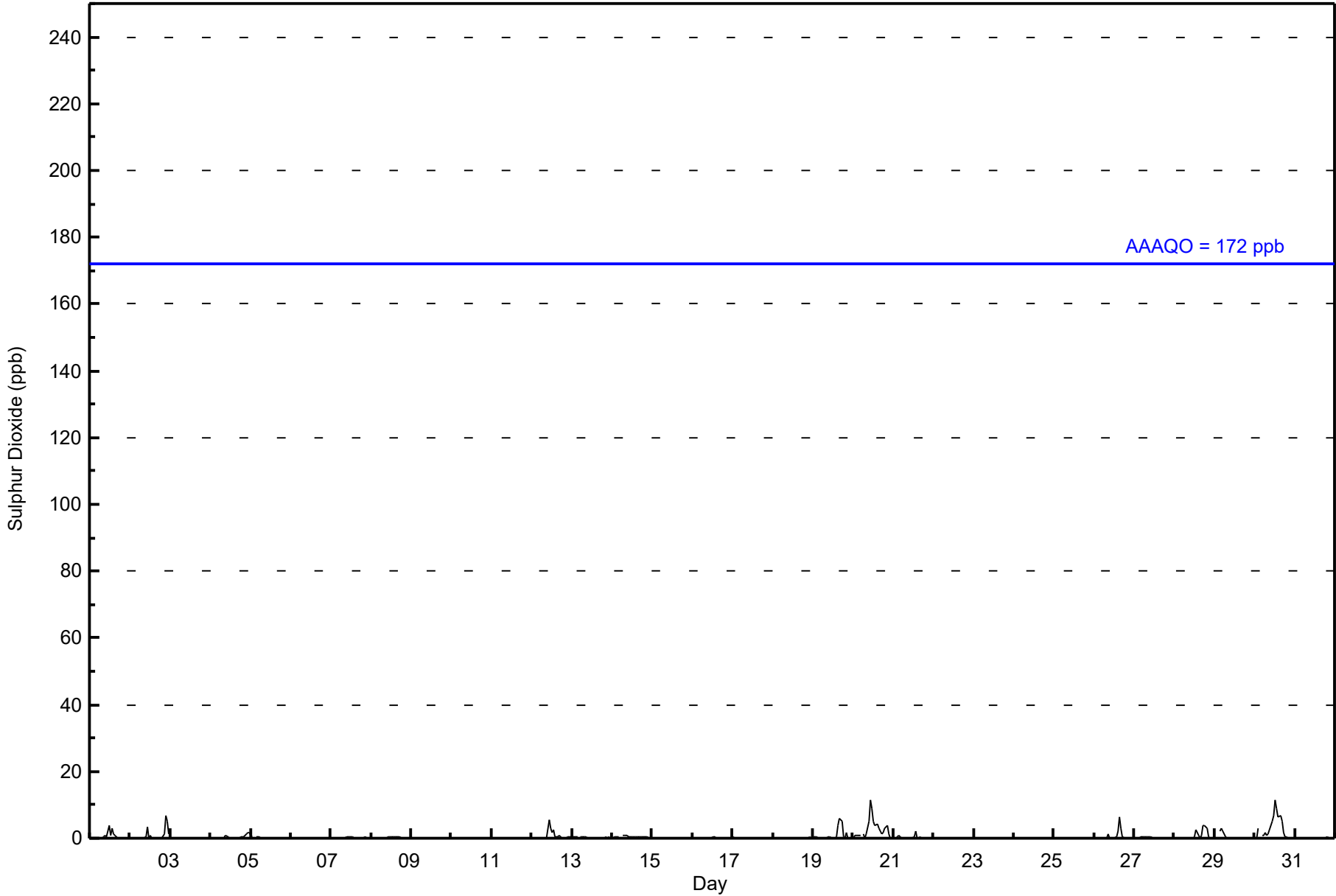
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - October 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 11.6 ppb on Oct 20 11:00		Maximum Daily Average: 2.8 ppb on Oct 30				Hours of Data:		709																																								
Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.0 ppb on Oct 6				Hours of Missing Data:		35																																								
Maximum Diurnal Average: 1.0 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 1				Hours of Calibration:		35																																								
Monthly Average: 0.41 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.8 P <sub>99</sub> = 6.3				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-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.8	0.3	3.8	0.9	2.8	1.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.8																						
2-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.5	3.5	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	6.9	5.2	1.3	0.9	6.9																						
3-Oct	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
4-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.4	0.4	1.2	1.6	1.7	0.3																						
5-Oct	0.7	0.2	Z	0.5	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7																						
6-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
7-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.4																					
8-Oct	0.2	0.1	0.1	0.2	0.1	Z	0.1	0.1	0.2	0.2	0.3	0.6	0.5	0.3	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.6																						
9-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
10-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1																						
11-Oct	0.0	0.1	Z	0.1	0.1	0.1	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2																					
12-Oct	0.0	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.1	0.1	5.7	3.0	1.5	2.3	0.5	0.4	0.9	0.3	0.1	0.0	0.1	0.5	0.4	0.2	0.7	5.7																						
13-Oct	0.3	0.3	0.3	0.5	Z	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.5																						
14-Oct	0.2	0.4	0.5	0.5	0.6	Z	0.7	0.9	0.6	0.7	0.6	0.6	0.6	0.4	0.3	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.4	0.9																						
15-Oct	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
16-Oct	0.2	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.4	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.5																						
17-Oct	0.3	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
18-Oct	0.0	0.0	0.0	Z	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	0.2	0.1	0.3	0.2	0.1	0.3																						
19-Oct	0.3	0.2	0.2	0.1	Z	0.0	0.1	0.0	0.0	0.3	0.3	0.1	0.0	0.1	0.3	3.8	6.0	5.0	0.4	0.1	1.9	0.1	0.2	0.1	0.9	6.0																						
20-Oct	0.1	0.7	0.8	0.9	0.8	Z	1.3	0.2	1.4	5.3	11.6	8.7	5.2	4.0	4.3	2.9	2.0	1.3	1.7	2.9	3.8	1.3	0.1	0.1	2.7	11.6																						
21-Oct	Z	0.0	0.4	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.6	1.9	0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9																						
22-Oct	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	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1																						
23-Oct	0.1	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1																						
24-Oct	0.0	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1																						
25-Oct	0.0	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
26-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.2	0.1	0.1	0.2	0.1	0.3	2.3	6.2	2.8	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.2	6.2																						
27-Oct	Z	0.2	0.2	0.1	0.3	0.2	0.3	0.5	0.2	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.5																						
28-Oct	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.6	2.7	1.0	0.0	0.9	3.8	3.8	3.1	0.5	0.0	0.1	0.0	0.0	0.7	3.8																						
29-Oct	0.1	0.0	Z	2.1	3.1	2.0	0.6	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.4	3.1																						
30-Oct	0.1	0.2	3.1	Z	0.8	0.7	1.8	0.9	1.5	2.6	5.2	6.8	11.4	8.9	6.3	6.8	5.1	1.8	0.5	0.2	0.1	0.0	0.1	0.1	2.8	11.4																						
31-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.1	0.5																						
																								0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.4	1.0	0.9	0.8	0.8	0.6	0.7	0.6	0.5	0.3	0.3	0.3	0.4	0.3	0.2	Diurnal Average
																								0.7	0.7	3.1	2.1	3.1	2.0	1.8	0.9	1.5	5.3	11.6	8.7	11.4	8.9	6.3	6.8	6.0	5.0	3.8	3.1	3.8	6.9	5.2	1.7	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 - October 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - October 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  
Mackay River - October 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	18	32	30	11	26	38	82	41	44	68	60	103	60	52	21	11	697
11 - 20	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	18	32	31	12	26	38	82	41	44	68	60	103	60	52	21	11	699

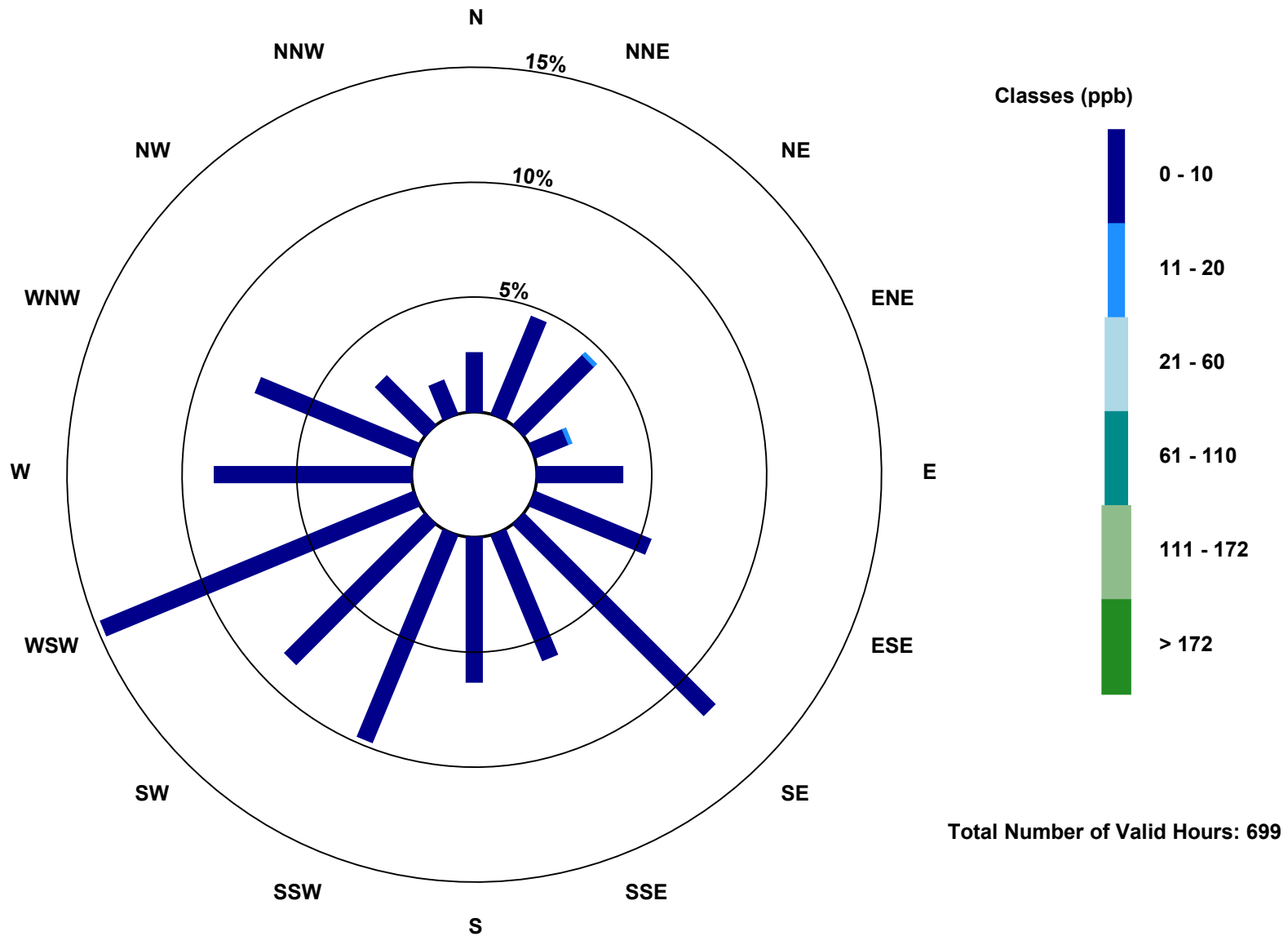
Total Number of Valid Hours: 699

Total Number of Hours: 744

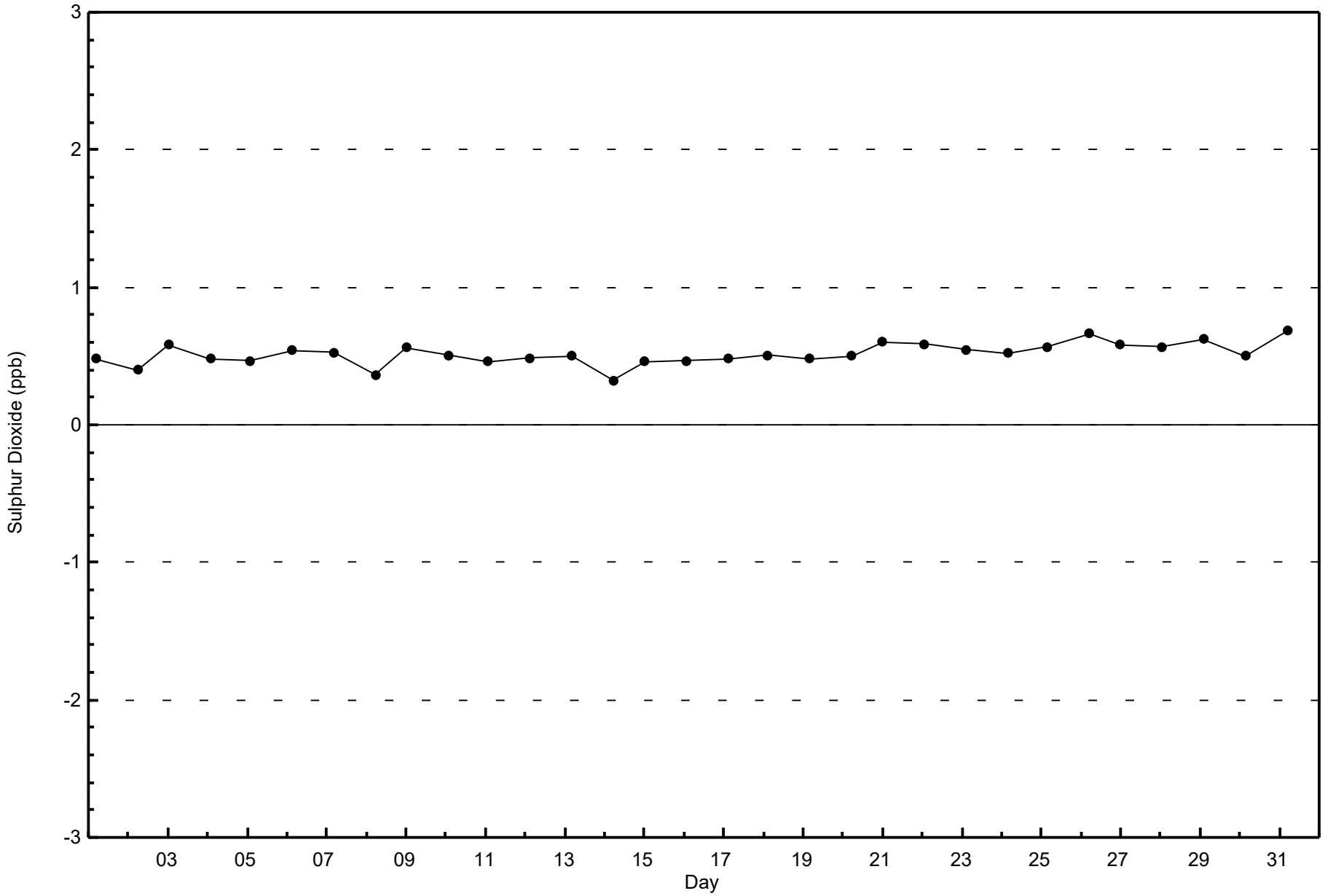


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



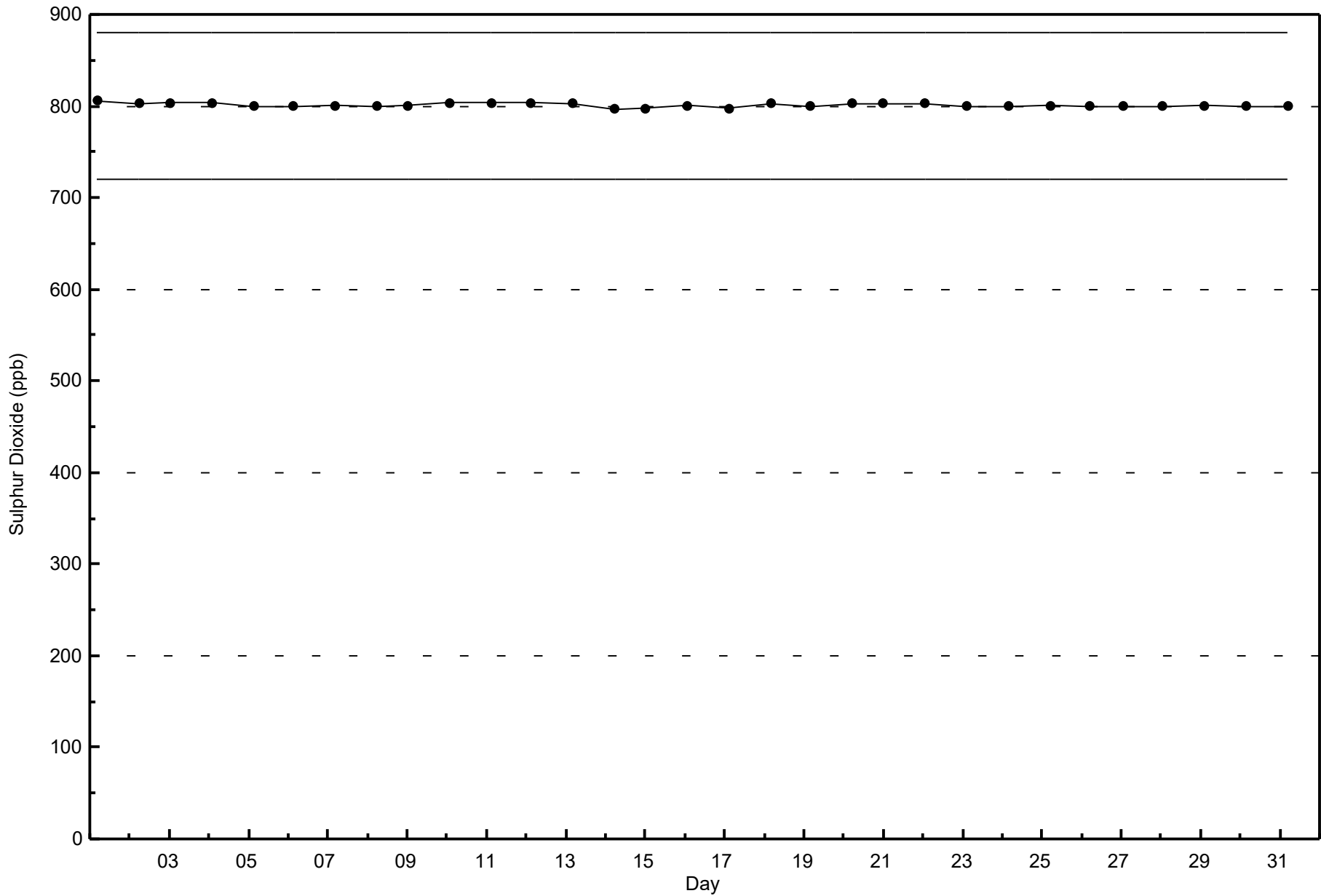




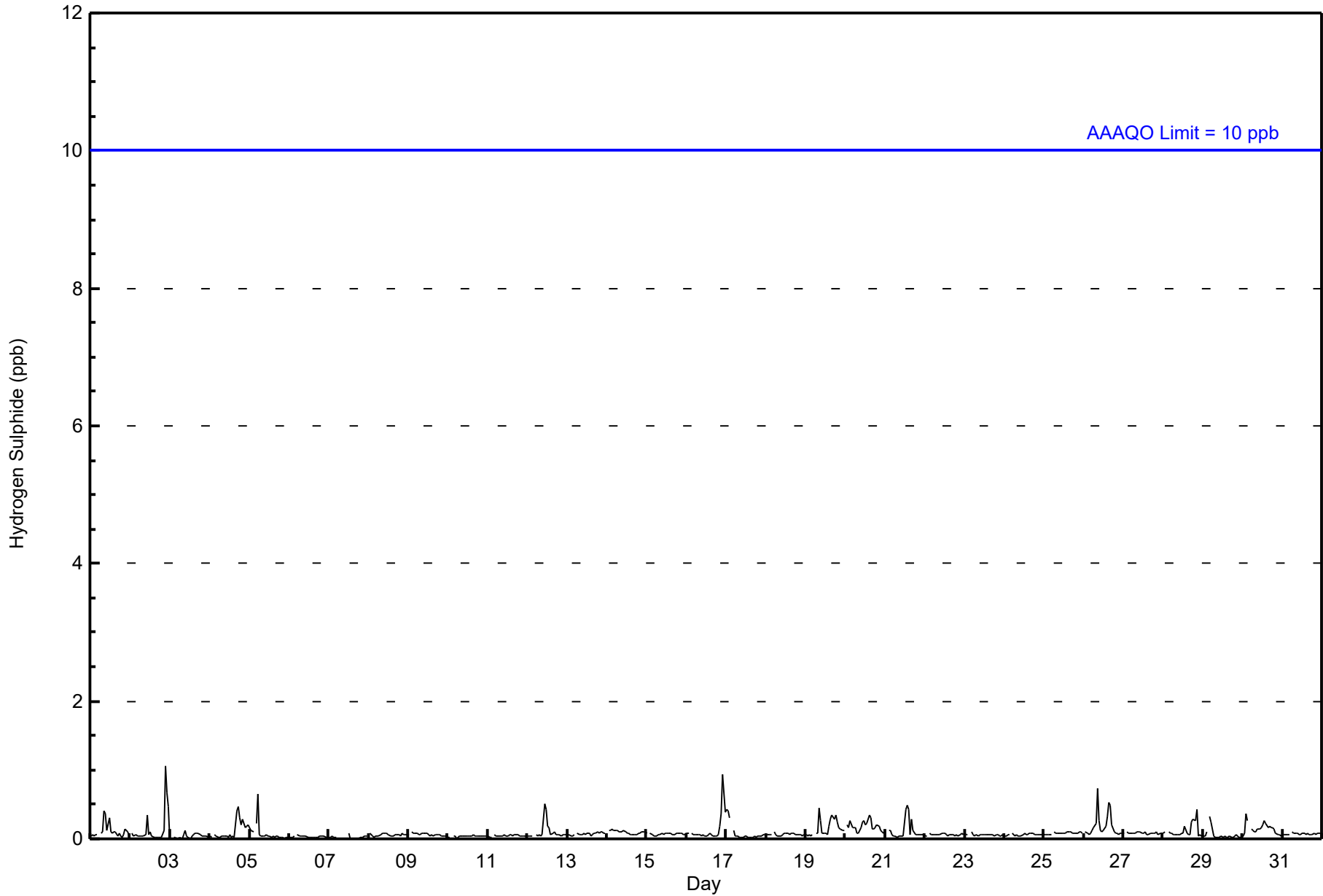


Wood Buffalo Environmental Association  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Mackay River - October 2024









**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River - October 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 - October 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	17	34	32	12	26	39	80	38	41	68	62	102	61	56	20	10	698
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>	17	34	32	12	26	39	80	38	41	68	62	102	61	56	20	10	698

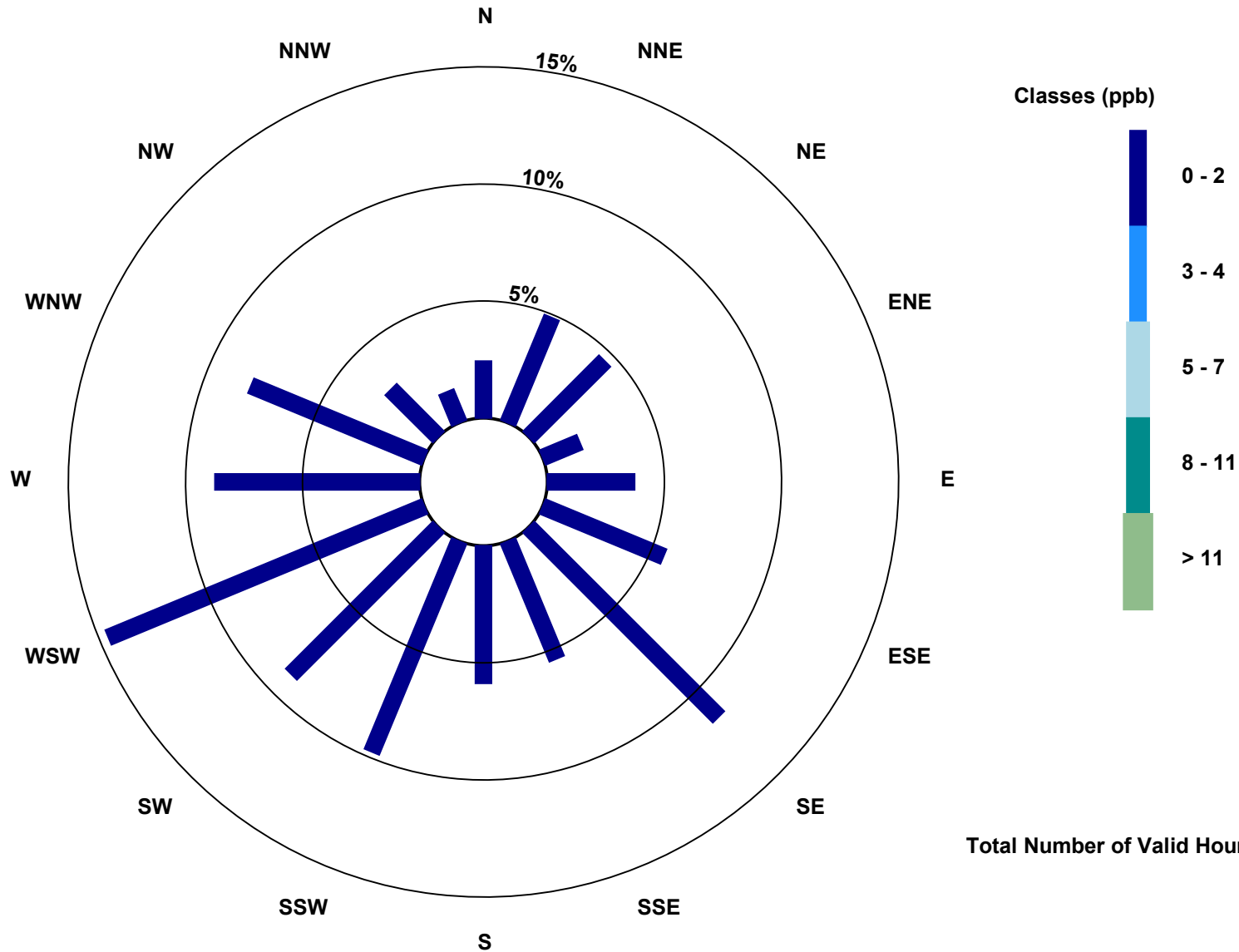
Total Number of Valid Hours: 698

Total Number of Hours: 744

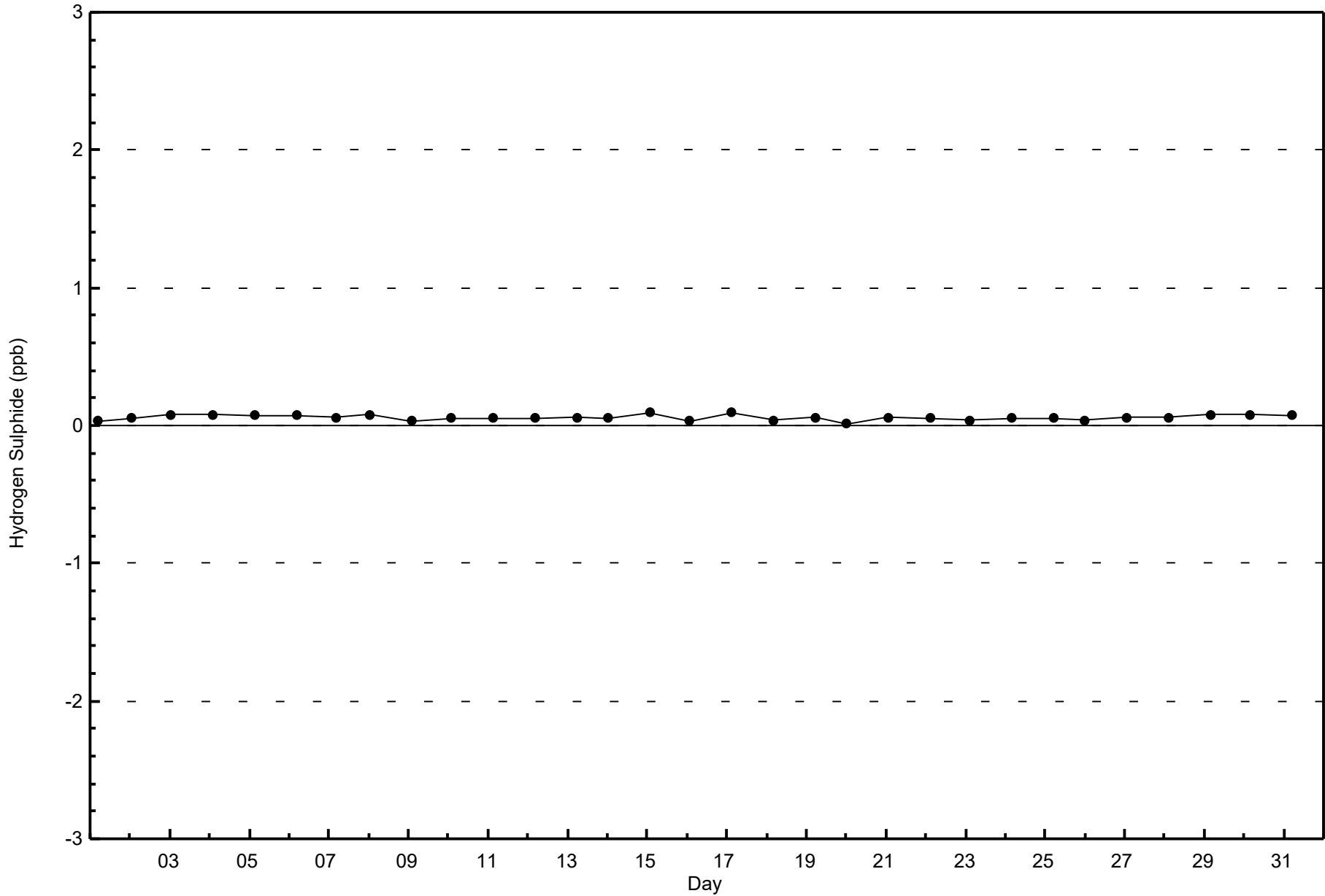


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

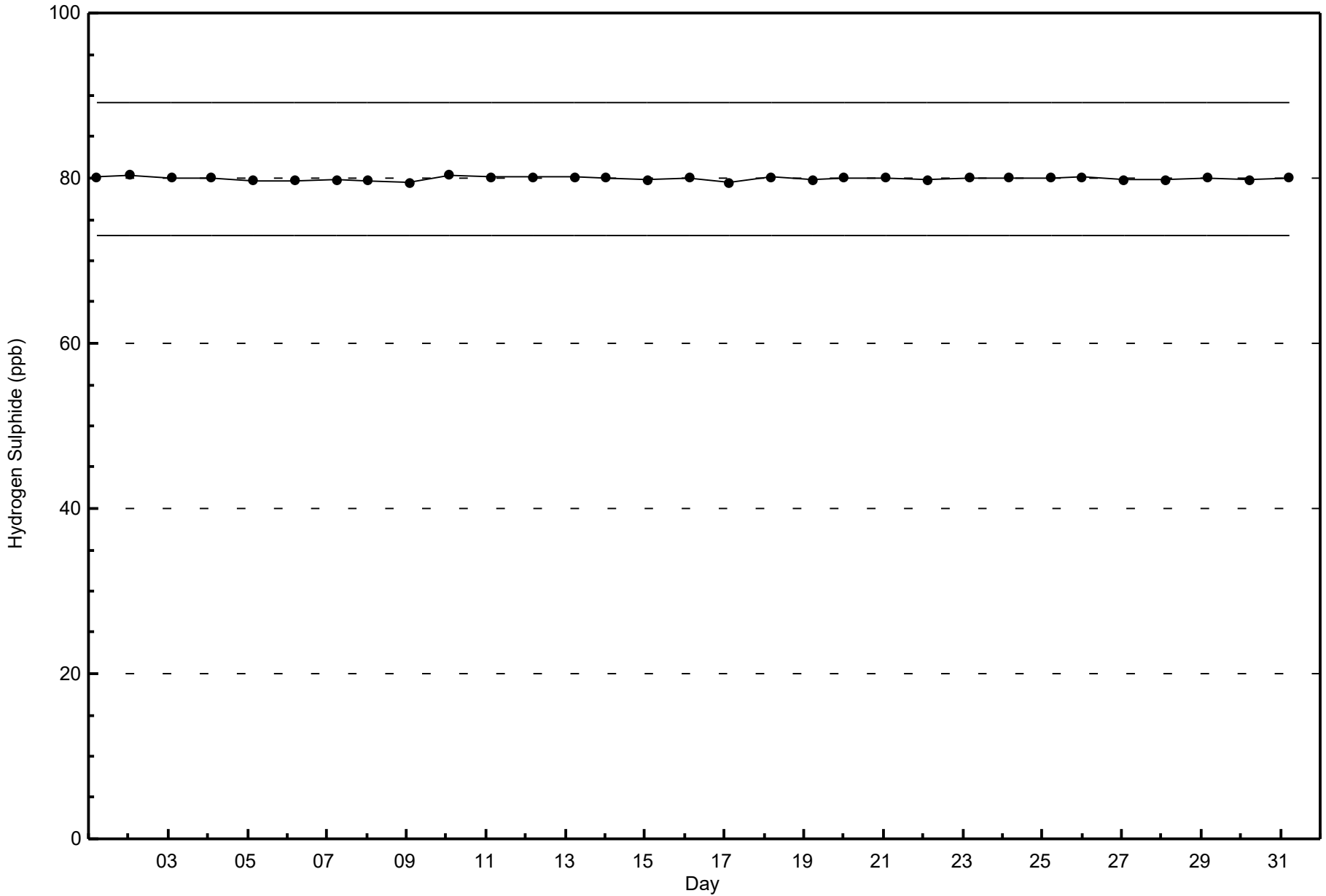
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River



Total Number of Valid Hours: 698





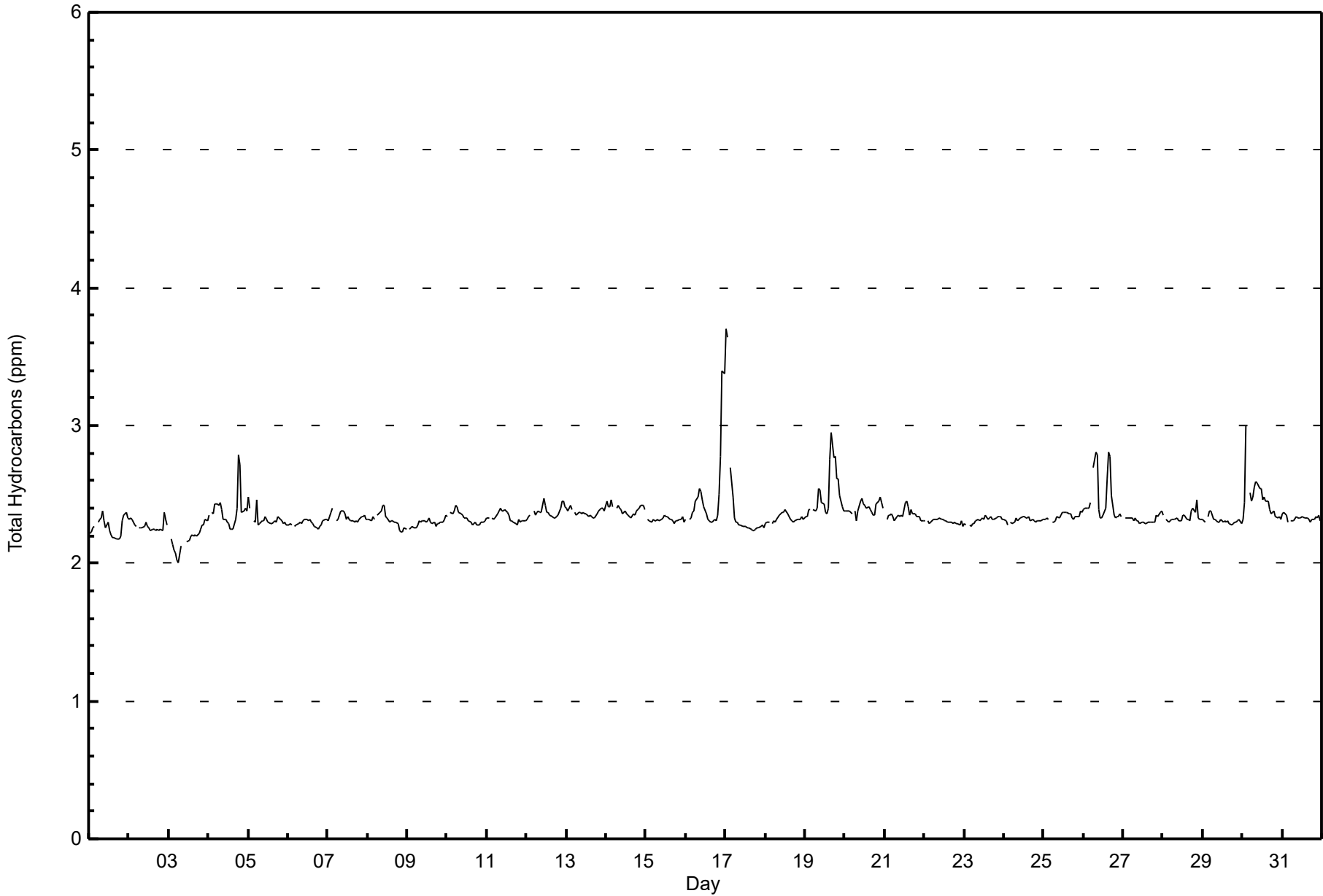




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - October 2024**

Maximum Value: 3.7 ppm on Oct 17 01:00		Maximum Daily Average: 2.5 ppm on Oct 19		Hours in Service: 744																																													
Minimum Value: 2.0 ppm on Oct 3 07:00		Minimum Daily Average: 2.2 ppm on Oct 3		Hours of Data: 710																																													
Maximum Diurnal Average: 2.4 ppm at hour 1		Minimum Diurnal Average: 2.3 ppm at hour 18		Hours of Missing Data: 34																																													
Monthly Average: 2.35 ppm		Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 2.3 Median = 2.3 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.8		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-Oct	2.2	2.2	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.4																							
2-Oct	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.3	2.3	2.4																							
3-Oct	Z	2.2	2.1	2.1	2.1	2.0	2.0	2.1	C	C	C	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																							
4-Oct	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.8	2.7	2.4	2.4	2.4	2.4	2.4	2.8																							
5-Oct	2.5	2.4	Z	2.3	2.3	2.5	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	2.5																							
6-Oct	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	2.3																							
7-Oct	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																							
8-Oct	2.3	2.3	2.3	2.3	2.3	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	2.2	2.2	2.2	2.3	2.2	2.3	2.4																							
9-Oct	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																							
10-Oct	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																							
11-Oct	2.3	2.3	Z	2.3	2.3	2.3	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	2.3	2.3	2.4																							
12-Oct	2.3	2.3	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.4	2.5																							
13-Oct	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4																							
14-Oct	2.5	2.4	2.4	2.5	2.4	Z	2.4	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	2.5																							
15-Oct	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	2.3																							
16-Oct	2.3	Z	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.8	3.4	3.4	2.5	3.4																							
17-Oct	3.7	3.6	Z	2.7	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	3.7																							
18-Oct	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																							
19-Oct	2.3	2.3	2.4	2.4	Z	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.8	2.9	2.8	2.8	2.6	2.6	2.5	2.4	2.4	2.5	2.9																							
20-Oct	2.4	2.4	2.4	2.4	2.4	Z	2.4	2.3	2.4	2.5	2.5	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	2.4	2.5																							
21-Oct	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.5																							
22-Oct	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																							
23-Oct	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																							
24-Oct	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	2.3																							
25-Oct	2.3	2.3	2.3	2.3	Z	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	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4																							
26-Oct	2.4	2.4	2.4	2.4	2.4	Z	2.7	2.8	2.8	2.4	2.3	2.3	2.4	2.4	2.6	2.8	2.8	2.5	2.3	2.3	2.3	2.3	2.4	2.3	2.5	2.8																							
27-Oct	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	2.4	2.3	2.4	2.4	2.4	2.3	2.4																							
28-Oct	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	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.3	2.3	2.3	2.5																							
29-Oct	2.3	2.3	Z	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																							
30-Oct	2.3	2.4	3.0	Z	2.5	2.4	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.5	3.0																							
31-Oct	2.4	2.4	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	2.4																							
																								2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	Diurnal Average		
																								3.7	3.6	3.0	2.7	2.5	2.5	2.7	2.8	2.8	2.6	2.5	2.5	2.5	2.5	2.6	2.8	2.9	2.8	2.8	2.7	2.6	2.8	3.4	3.4	Diurnal Maximum	
Z - zerospan      C - Calibration																																																	





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

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	2	0.28	0.28
2.1 - 3.0	704	99.15	99.44
3.1 - 10.0	4	0.56	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**  
**Mackay River - October 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	1	1	0	0	0	2
2.1 - 3.0	18	32	31	12	26	38	82	41	44	67	60	102	60	52	21	9	695
3.1 - 10.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	18	32	31	12	26	38	82	41	44	68	60	103	61	52	21	11	700

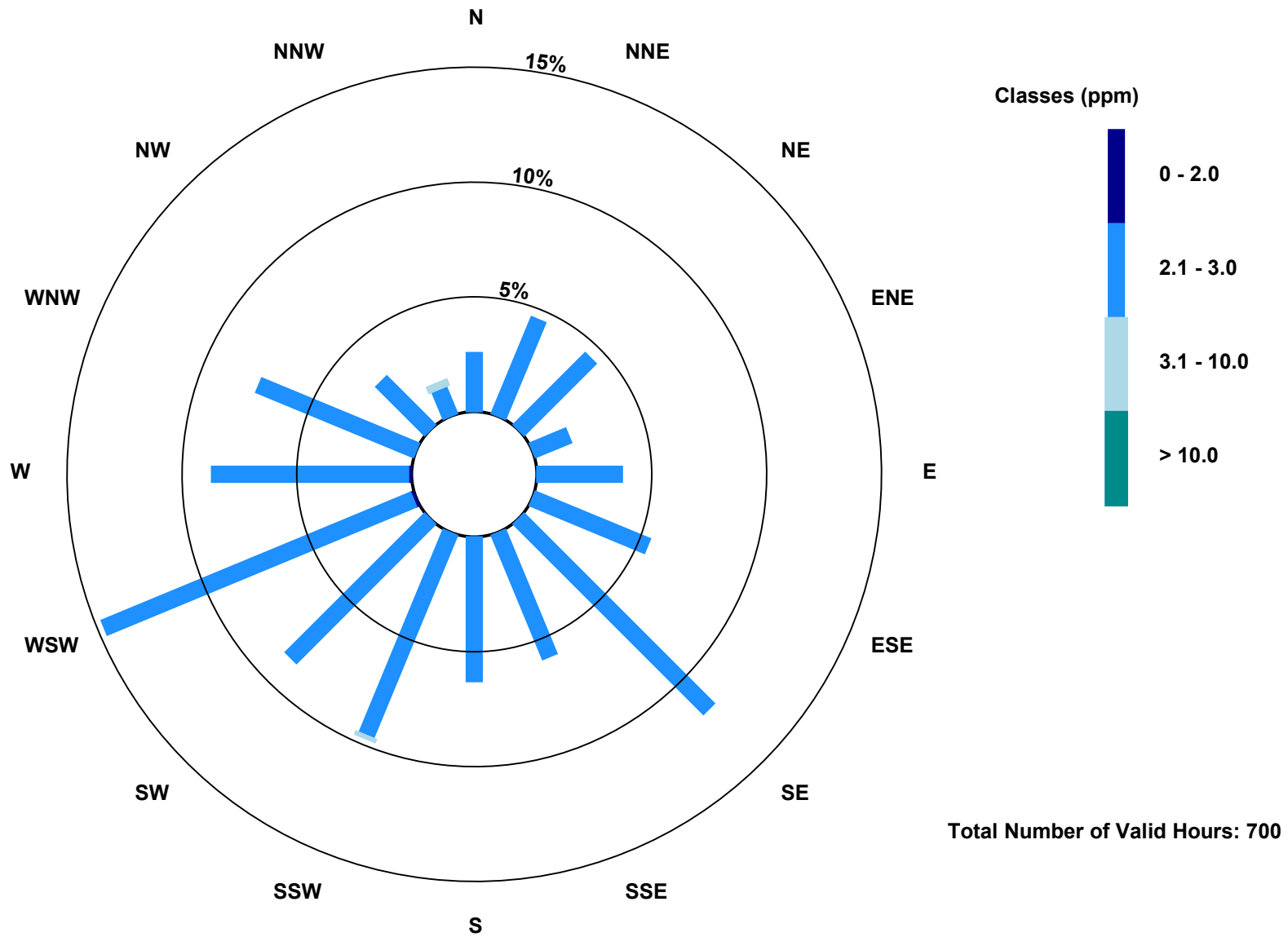
Total Number of Valid Hours: 700

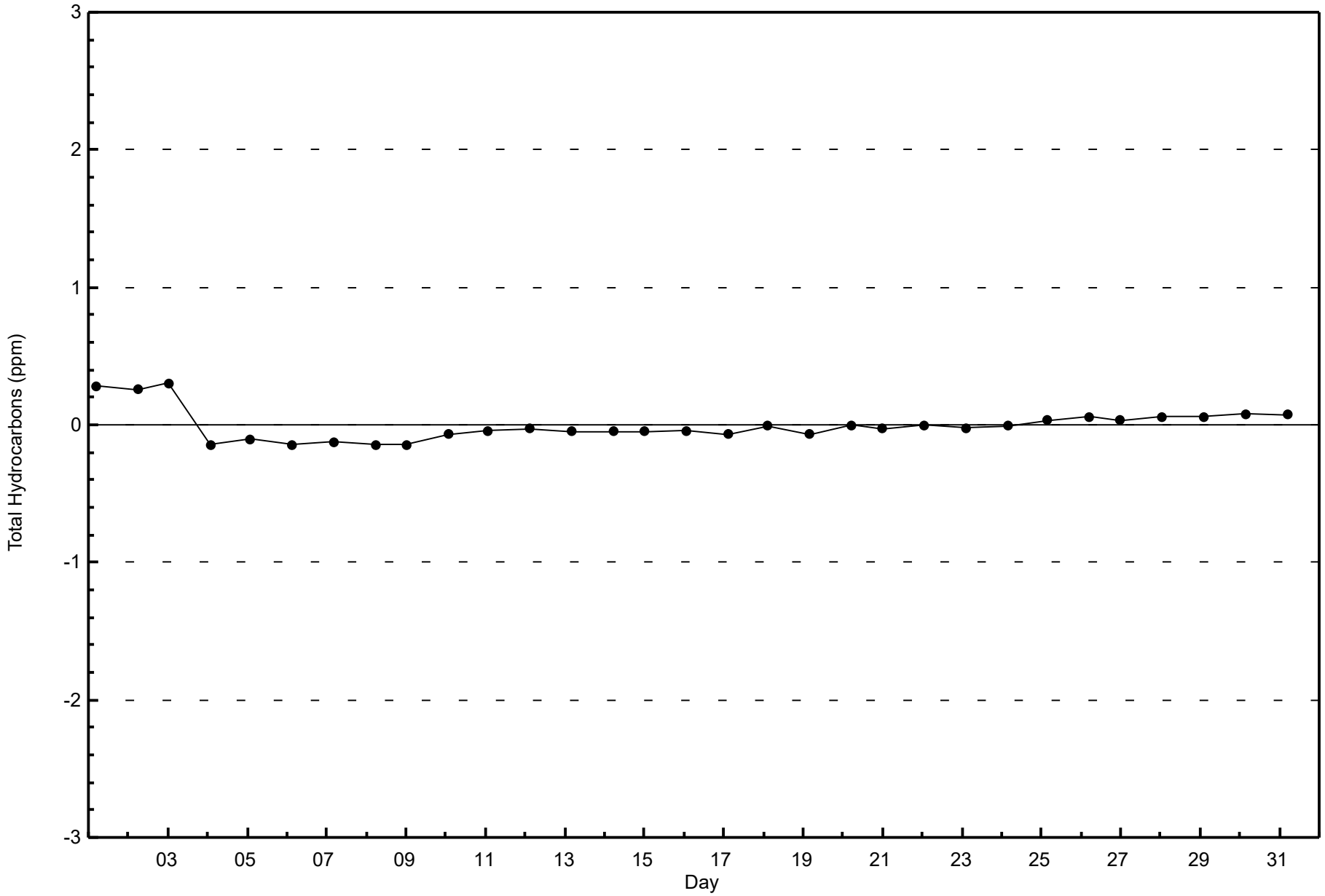
Total Number of Hours: 744

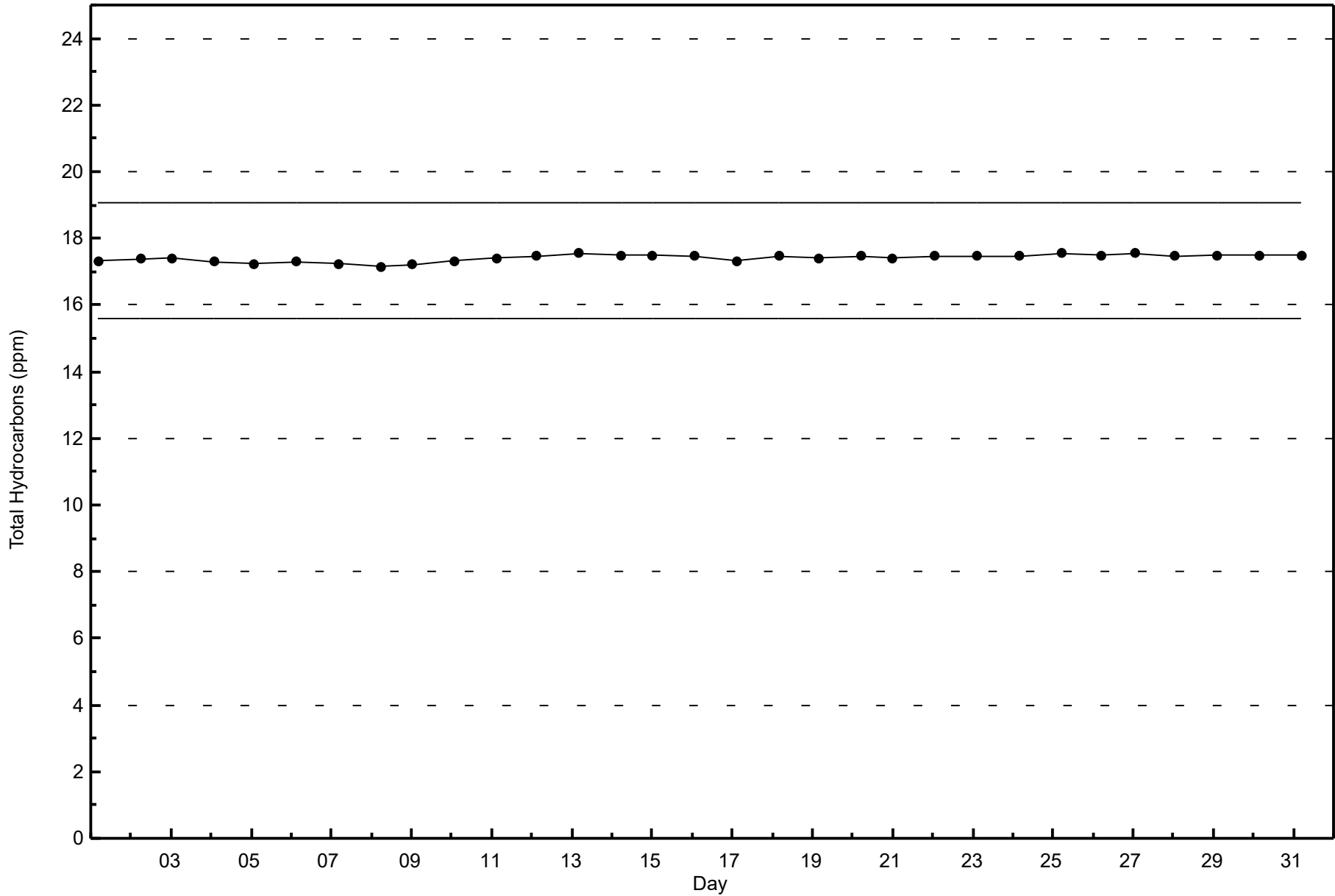


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Mackay River









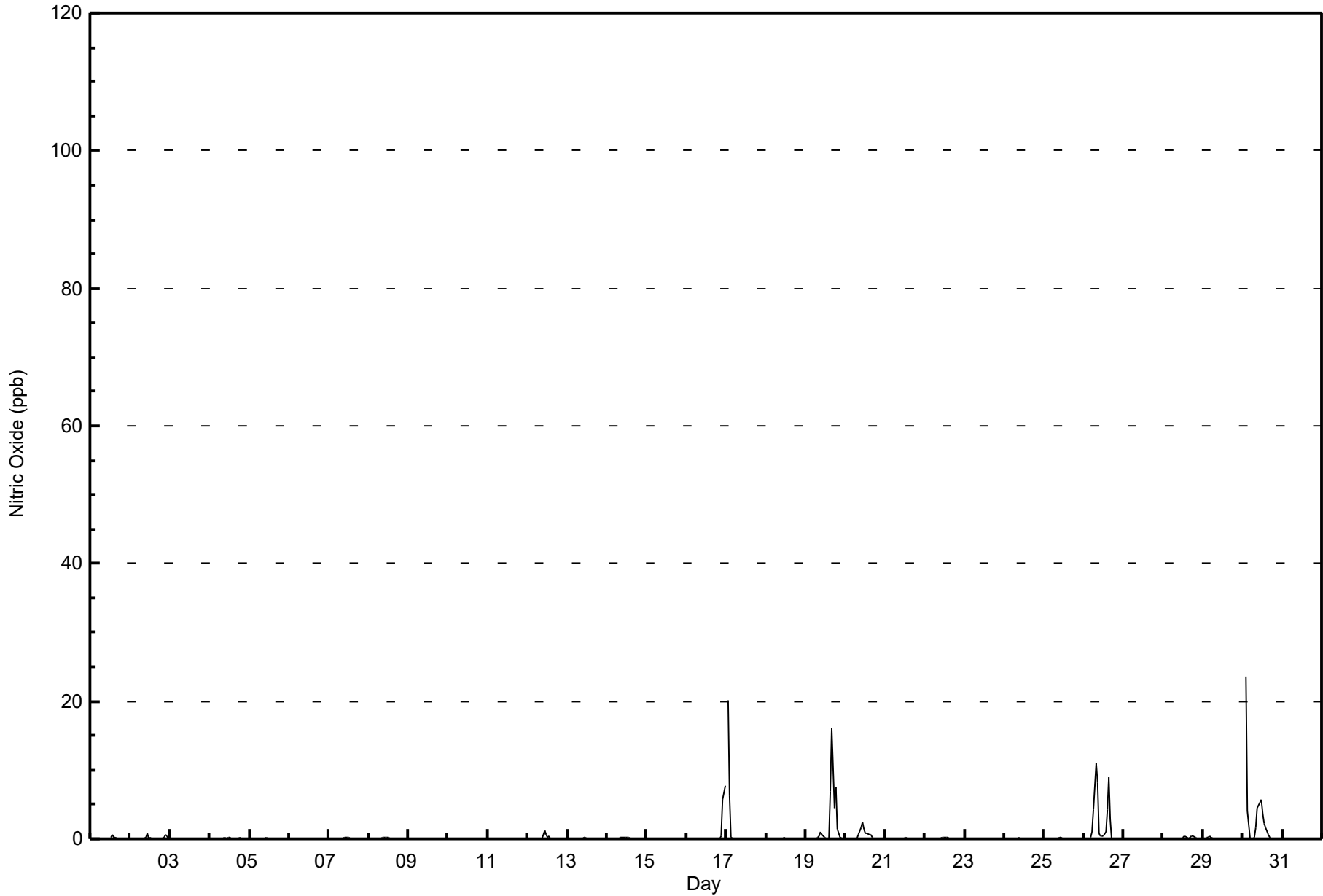


Maximum Value: 23.6 ppb on Oct 30 03:00																				Maximum Daily Average: 2.3 ppb on Oct 30					Hours in Service: 744		
Minimum Value: 0.0 ppb on Oct 1 01:00																				Minimum Daily Average: 0.0 ppb on Oct 6					Hours of Data: 708		
Maximum Diurnal Average: 1.2 ppb at hour 3																				Minimum Diurnal Average: 0.0 ppb at hour 1					Hours of Missing Data: 36		
Monthly Average: 0.30 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> = 0.2 P <sub>99</sub> = 7.5					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-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	C	C	C	C	C	0.3	0.5	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
2-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.4	0.0	0.1	0.9	
3-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	
5-Oct	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	
6-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.3	
8-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
9-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	
10-Oct	0.1	0.0	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
11-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
12-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.5	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	
13-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
14-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	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	0.0	0.0	0.2	
15-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
16-Oct	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	0.5	5.7	7.7	0.6	7.7	
17-Oct	Z	20.2	6.3	0.2	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	1.2	20.2
18-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
19-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.5	1.1	0.6	0.3	0.1	0.1	0.1	6.9	16.1	4.5	7.6	1.5	0.8	0.1	0.1	0.1	0.1	1.8	16.1
20-Oct	0.0	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.6	1.7	2.5	1.4	0.8	0.8	0.7	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.5
21-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
22-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	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
23-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
24-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
25-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
26-Oct	0.0	0.0	0.0	Z	0.3	1.0	4.4	11.0	8.2	0.8	0.3	0.3	0.3	1.0	4.3	8.9	2.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	11.0
27-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
28-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.0	0.1	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
29-Oct	Z	0.0	0.2	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	0.1	0.3	
30-Oct	0.0	Z	23.6	4.1	0.1	0.1	0.1	0.1	0.2	1.7	4.5	5.3	5.7	3.6	2.1	1.6	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	23.6
31-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
																								Diurnal Average			
																								Diurnal Maximum			
0.0 0.8 1.2 0.2 0.0 0.1 0.2 0.4 0.4 0.3 0.4 0.3 0.2 0.2 0.2 0.6 0.6 0.2 0.3 0.1 0.0 0.1 0.2 0.3																											
0.1 20.2 23.6 4.1 0.3 1.0 4.4 11.0 8.2 4.5 5.3 5.7 3.6 2.1 4.3 8.9 16.1 4.5 7.6 1.5 0.8 0.7 5.7 7.7																											
Z - zerospan C - Calibration																											



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

**Nitric Oxide (NO) - ppb**  
**Mackay River - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Mackay River - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	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: 708  
Total Number of Hours: 744



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

**Nitric Oxide (NO) - ppb**  
**Mackay River - October 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	17	32	32	11	27	38	78	43	43	68	61	102	59	56	20	10	697
21 - 40	0	1	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>	17	33	32	11	27	38	78	43	43	68	61	102	59	56	20	10	698

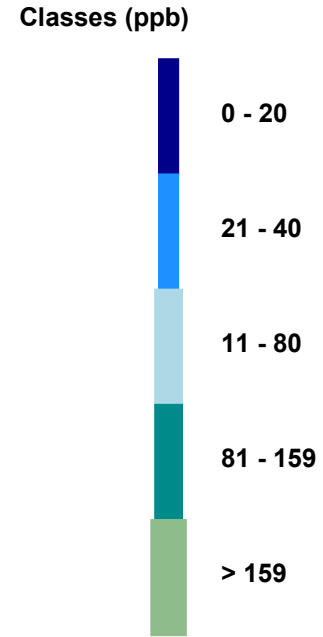
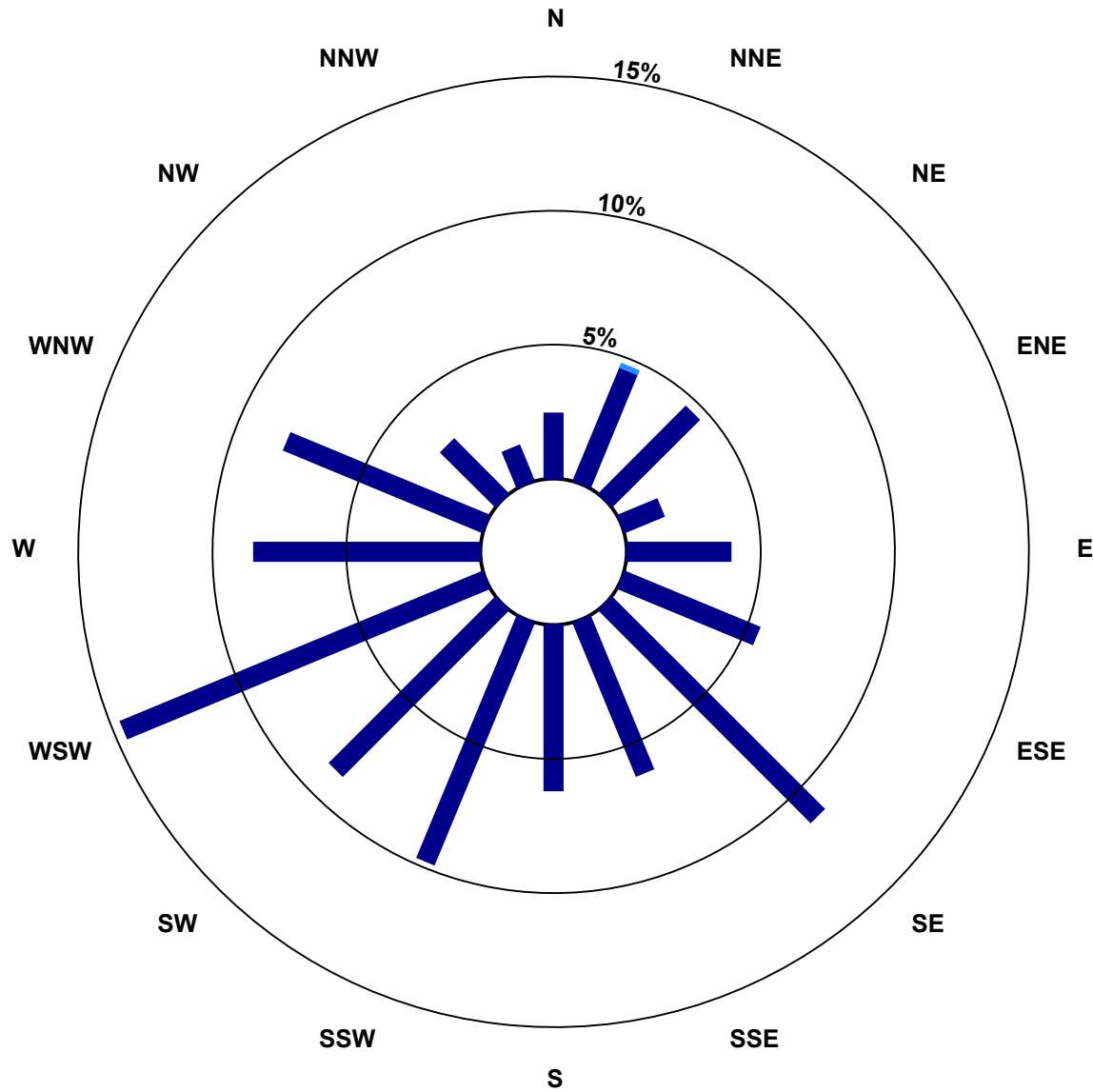
Total Number of Valid Hours: 698

Total Number of Hours: 744

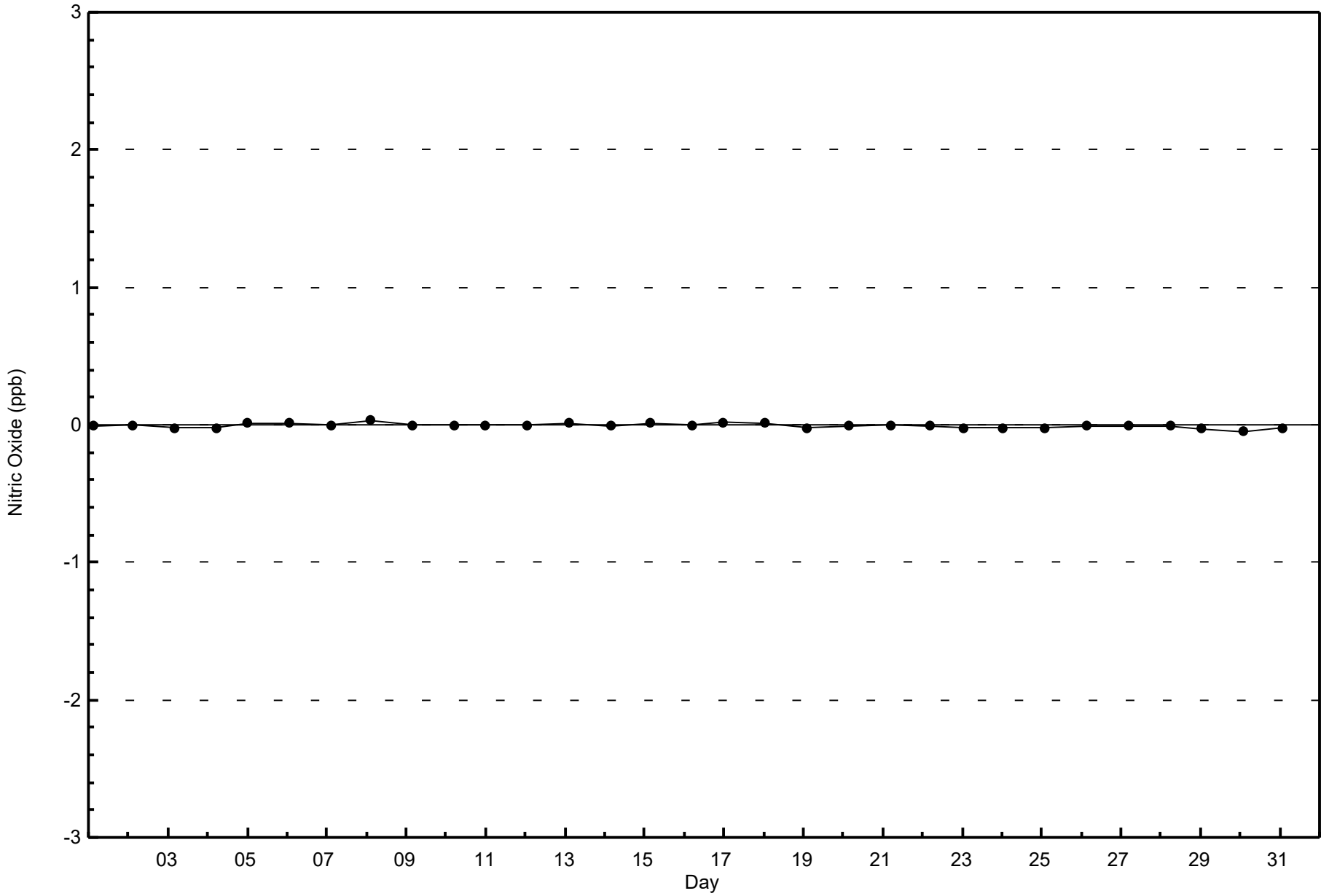


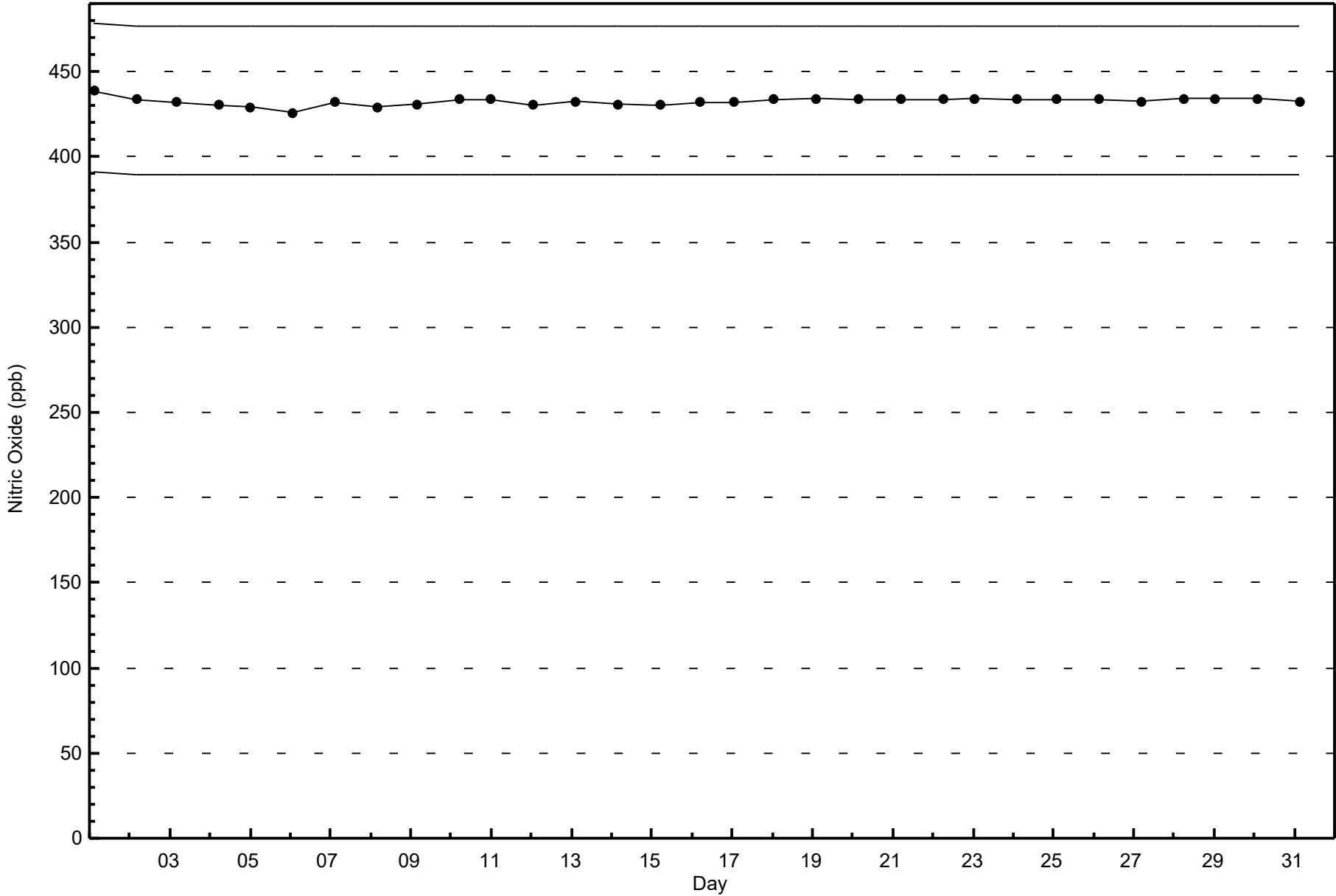
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Mackay River



Total Number of Valid Hours: 698







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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Mackay River - October 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.5 ppb on Oct 26 16:00	Maximum Daily Average: 6.9 ppb on Oct 30		Hours of Data:	708
Minimum Value: 0.0 ppb on Oct 1 18:00	Minimum Daily Average: 0.2 ppb on Oct 6		Hours of Missing Data:	36
Maximum Diurnal Average: 2.1 ppb at hour 3	Minimum Diurnal Average: 0.9 ppb at hour 1		Hours of Calibration:	36
Monthly Average: 1.38 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> = 3.2 P <sub>99</sub> = 15.2		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-Oct	0.3	0.3	Z	0.4	0.3	0.3	0.2	C	C	C	C	C	0.3	0.9	0.4	0.5	0.1	0.0	0.0	0.8	2.8	2.7	1.5	0.3	0.7	2.8																							
2-Oct	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.2	0.9	0.1	0.4	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.9	3.0	2.4	0.7	0.4	3.0																							
3-Oct	0.1	0.2	0.1	0.2	Z	0.3	0.1	0.1	0.5	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5																							
4-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.4	0.5	0.3	0.7	1.2	0.7	0.6	1.3	2.8	5.0	15.2	11.3	2.7	4.6	5.4	6.0	2.6	15.2																							
5-Oct	Z	5.8	5.0	3.1	1.3	1.1	0.6	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.9	5.8																							
6-Oct	0.3	Z	0.3	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	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3																							
7-Oct	0.1	0.1	Z	0.2	0.3	0.4	0.8	0.8	0.6	0.8	1.0	1.1	1.0	0.8	0.6	0.6	0.5	0.5	0.6	0.9	1.1	1.4	1.2	1.0	0.7	1.4																							
8-Oct	0.8	0.7	0.6	Z	0.6	0.5	0.6	1.3	1.4	1.7	1.4	1.2	1.2	0.9	0.8	0.8	0.8	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.8	1.7																							
9-Oct	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.4																							
10-Oct	0.1	0.2	0.1	0.1	0.1	Z	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.4																							
11-Oct	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.7	0.7	0.7	0.3	0.7																							
12-Oct	0.6	Z	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	2.0	1.2	0.8	1.1	0.4	0.4	0.7	0.5	0.2	0.2	0.2	0.6	0.6	0.4	0.6	2.0																							
13-Oct	0.5	0.5	Z	0.6	0.6	0.5	0.6	0.7	0.7	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8																							
14-Oct	0.6	0.9	1.1	Z	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.3	1.2	1.1	0.9	1.0	1.6	0.9	0.8	1.2	1.4	1.4	1.3	1.1	1.2	1.6																							
15-Oct	0.9	0.6	0.5	0.4	Z	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.9																							
16-Oct	0.4	0.4	0.3	0.3	0.2	Z	0.2	0.2	0.2	0.3	0.4	0.4	0.8	0.7	1.0	1.2	0.4	0.4	0.5	2.0	5.9	7.8	13.3	13.3	2.2	13.3																							
17-Oct	Z	10.0	10.9	5.5	2.2	0.7	0.8	0.7	0.7	0.5	0.4	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	1.5	10.9																							
18-Oct	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.6	0.7	0.6	0.3	0.7																							
19-Oct	0.6	0.7	Z	0.6	0.5	0.5	0.3	0.4	1.1	3.6	2.4	1.3	0.4	0.5	0.8	10.7	14.6	17.1	17.5	13.3	13.6	9.5	6.1	3.7	5.2	17.5																							
20-Oct	2.6	4.0	4.6	Z	2.2	3.8	3.6	1.7	7.4	9.8	9.3	6.8	4.2	4.3	5.0	5.9	3.9	2.2	2.5	4.7	6.6	9.3	4.8	4.1	4.9	9.8																							
21-Oct	3.4	1.8	2.8	3.0	Z	1.3	0.3	0.2	0.2	0.1	0.3	0.2	0.7	0.4	0.5	0.2	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.7	3.4																							
22-Oct	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.4	0.7																						
23-Oct	Z	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5																							
24-Oct	0.4	Z	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.6																						
25-Oct	0.3	0.3	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.5																							
26-Oct	0.1	0.1	0.1	Z	4.4	11.4	15.0	17.7	13.5	2.6	1.1	1.1	1.1	3.3	11.5	21.5	19.8	5.6	0.8	0.6	0.5	0.6	0.6	0.6	5.8	21.5																							
27-Oct	0.6	0.6	0.7	0.8	Z	0.9	0.9	1.2	1.2	1.6	1.5	1.2	1.0	0.8	0.7	0.6	0.6	0.5	0.6	0.5	0.5	0.6	2.7	3.2	1.0	3.2																							
28-Oct	1.6	1.2	1.1	1.0	1.1	Z	0.7	0.6	0.7	0.5	0.5	0.4	0.7	1.6	0.8	0.3	0.8	2.4	2.3	1.8	0.6	0.2	0.3	0.5	0.9	2.4																							
29-Oct	Z	0.5	1.0	1.5	2.2	1.3	0.5	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.4	2.2																							
30-Oct	0.7	Z	19.9	18.1	10.5	9.1	9.6	10.3	11.3	11.1	9.9	9.7	7.6	6.9	5.9	5.0	4.0	2.4	2.1	2.0	0.5	0.2	0.3	2.0	6.9	19.9																							
31-Oct	6.4	5.8	Z	0.6	0.9	0.7	0.7	0.7	0.9	0.9	0.8	0.7	0.8	0.9	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.6	0.7	0.7	1.2	6.4																							
																								0.9	1.4	2.1	1.5	1.2	1.4	1.3	1.4	1.6	1.4	1.3	1.1	0.9	0.9	1.1	1.8	1.8	1.4	1.6	1.4	1.4	1.5	1.5	1.4	Diurnal Average	
																								6.4	10.0	19.9	18.1	10.5	11.4	15.0	17.7	13.5	11.1	9.9	9.7	7.6	6.9	11.5	21.5	19.8	17.1	17.5	13.3	13.6	9.5	13.3	13.3	Diurnal Maximum	

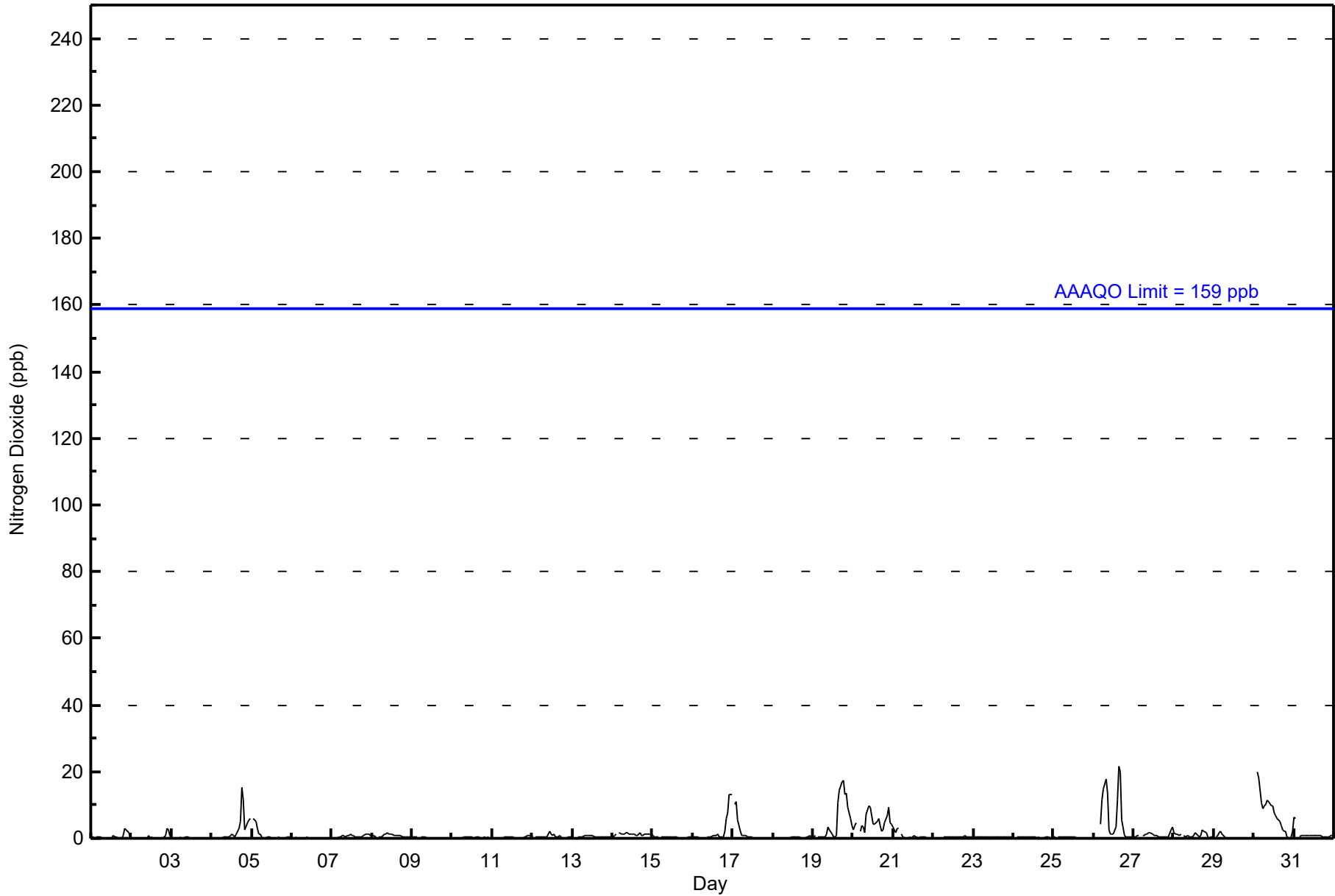
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - October 2024





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Mackay River - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Mackay River - October 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	17	33	31	11	27	38	78	43	43	68	61	102	59	56	20	10	697
21 - 40	0	0	1	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>	17	33	32	11	27	38	78	43	43	68	61	102	59	56	20	10	698

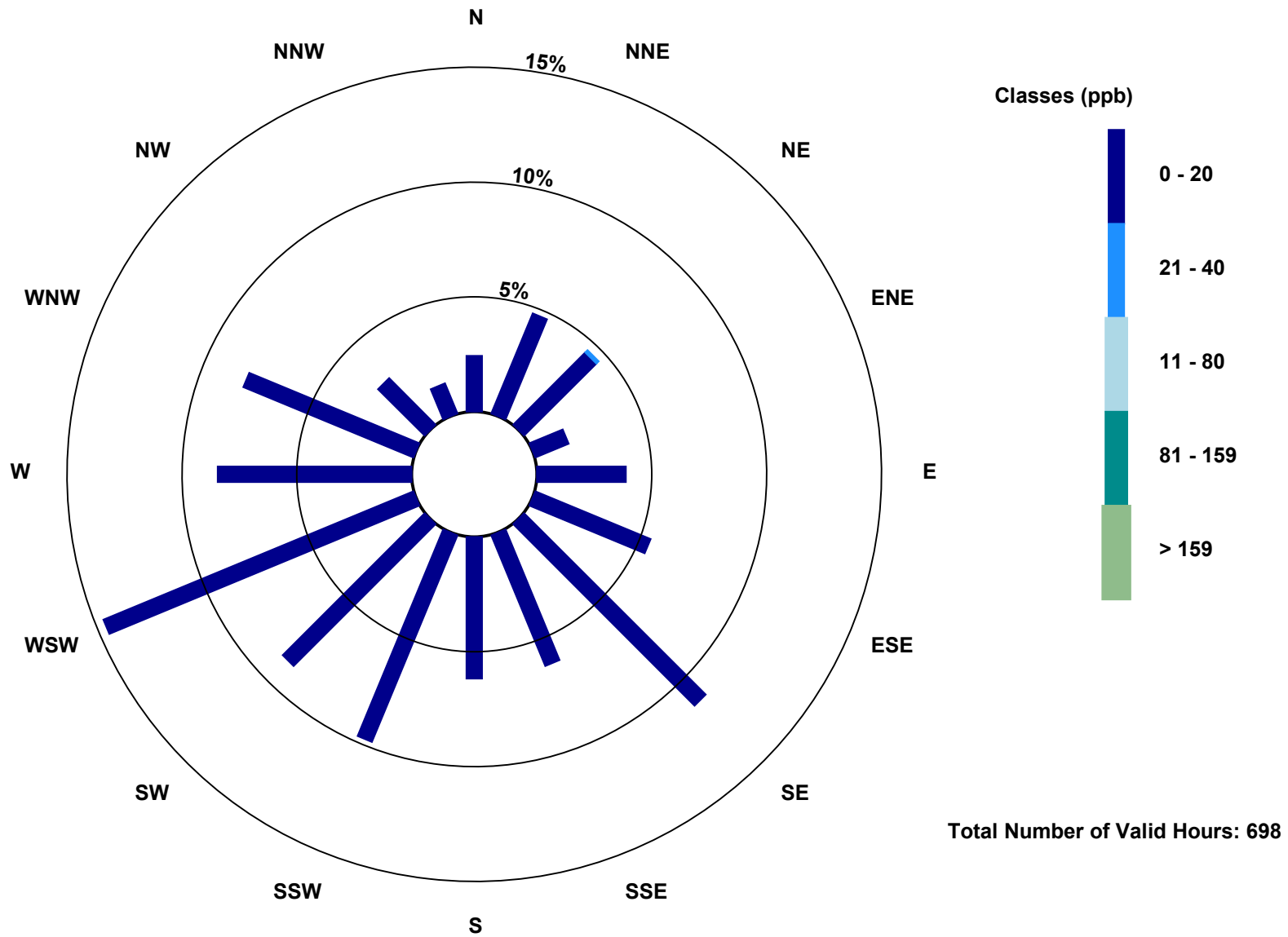
Total Number of Valid Hours: 698

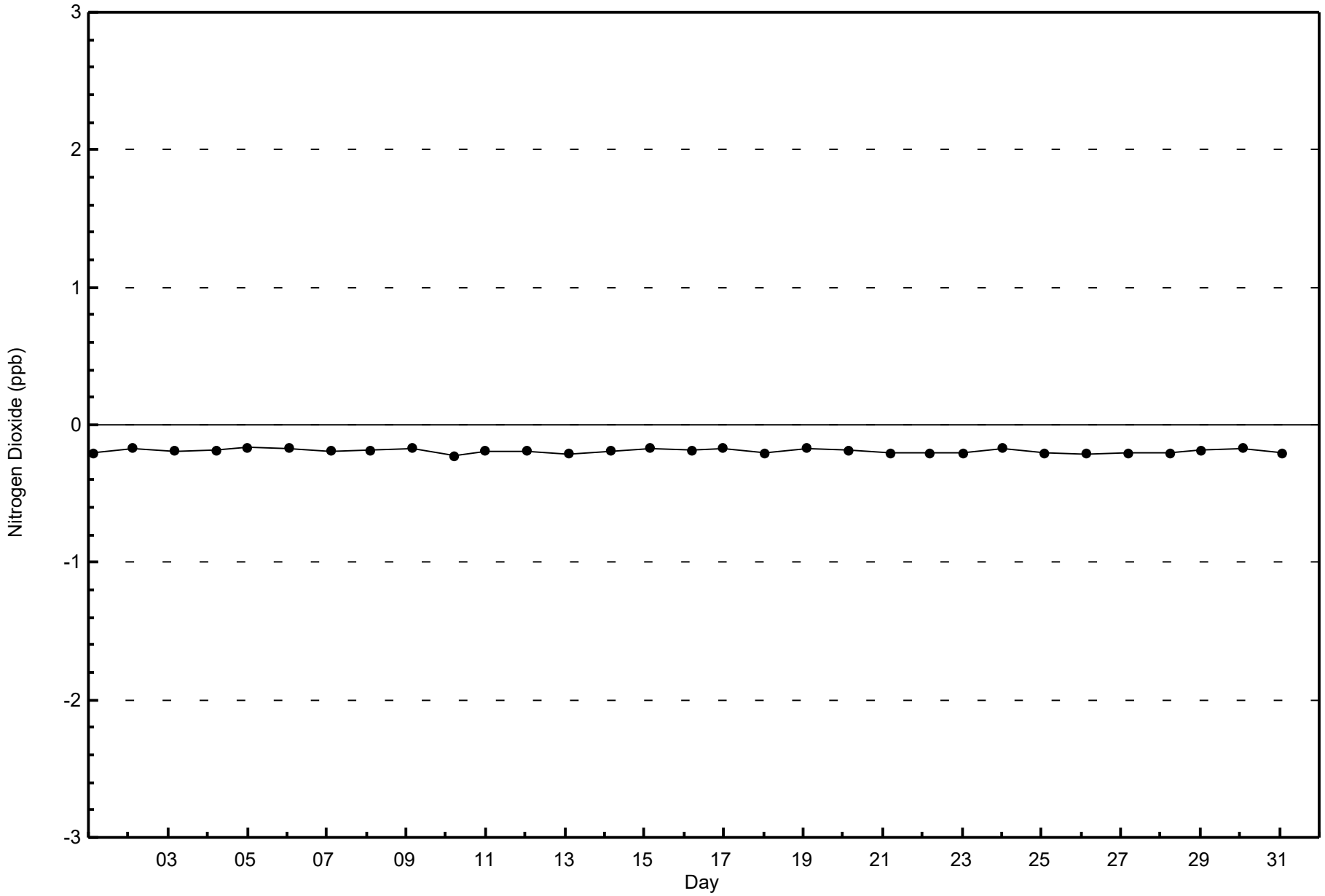
Total Number of Hours: 744

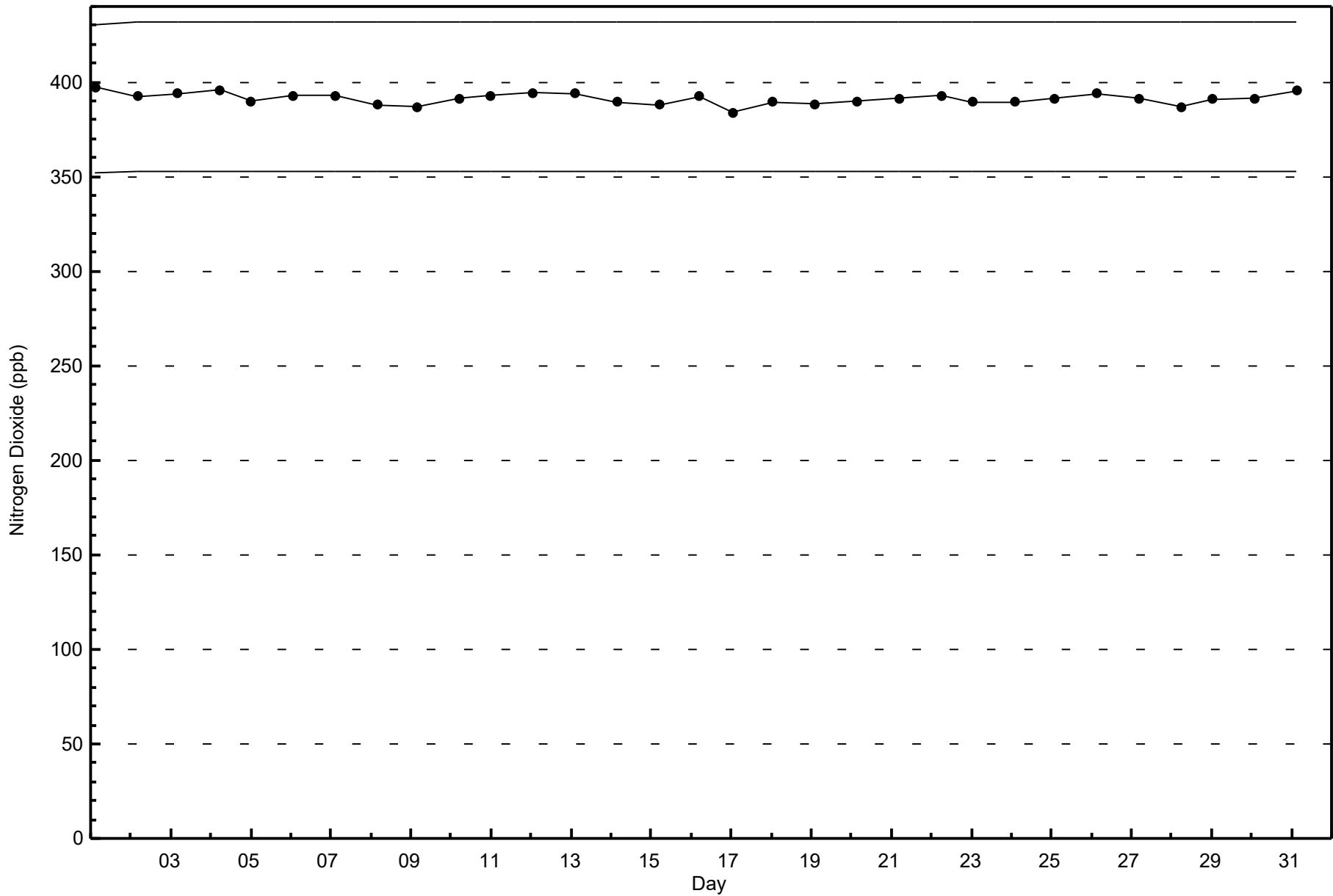


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









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

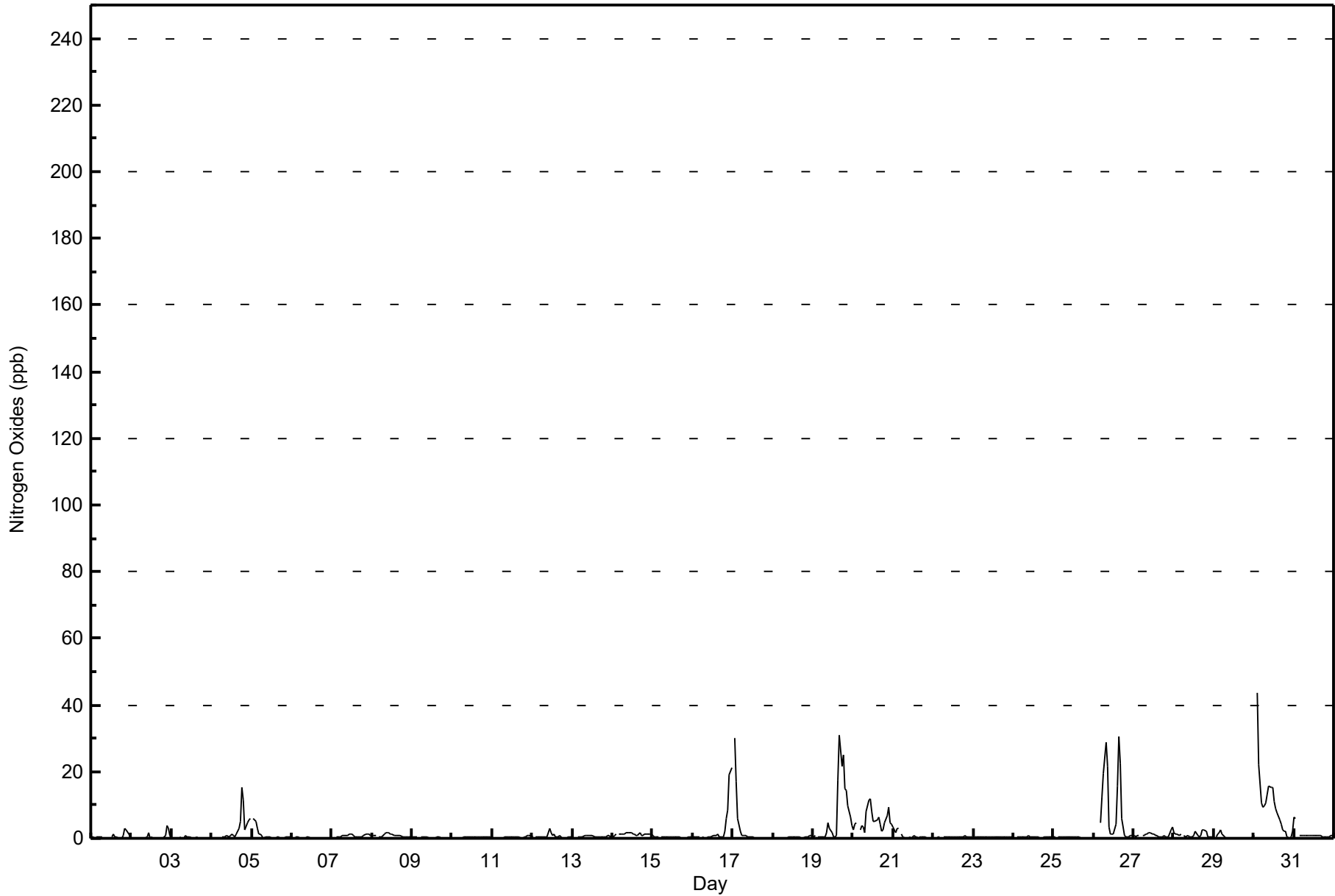
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - October 2024**

Maximum Value: 43.5 ppb on Oct 30 03:00																				Maximum Daily Average: 9.2 ppb on Oct 30					Hours in Service: 744				
Minimum Value: 0.0 ppb on Oct 2 02:00																				Minimum Daily Average: 0.2 ppb on Oct 6					Hours of Data: 708				
Maximum Diurnal Average: 3.3 ppb at hour 3																				Minimum Diurnal Average: 0.9 ppb at hour 1					Hours of Missing Data: 36				
Monthly Average: 1.67 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> = 0.9 P <sub>90</sub> = 3.5 P <sub>99</sub> = 22.2					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-Oct	0.3	0.3	Z	0.4	0.3	0.3	0.2	C	C	C	C	C	0.6	1.4	0.6	0.6	0.2	0.1	0.0	0.8	2.8	2.7	1.5	0.3	0.7	2.8			
2-Oct	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.3	1.8	0.1	0.6	0.0	0.0	0.0	0.1	0.1	0.1	0.1	1.0	3.7	2.8	0.7	0.5	3.7			
3-Oct	0.1	0.2	0.1	0.2	Z	0.3	0.1	0.1	0.6	0.5	0.4	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	0.2	0.6			
4-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.5	0.6	0.4	0.8	1.4	0.8	0.6	1.3	2.9	5.0	15.3	11.4	2.7	4.6	5.4	6.0	2.6	15.3			
5-Oct	Z	5.8	5.0	3.1	1.3	1.1	0.6	0.2	0.2	0.4	0.6	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.9	5.8			
6-Oct	0.3	Z	0.3	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	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3			
7-Oct	0.1	0.1	Z	0.2	0.3	0.4	0.8	0.8	0.7	1.0	1.3	1.3	1.2	0.9	0.6	0.6	0.5	0.5	0.6	0.9	1.1	1.4	1.2	1.0	0.8	1.4			
8-Oct	0.8	0.7	0.6	Z	0.6	0.5	0.6	1.3	1.5	1.9	1.6	1.4	1.4	1.0	0.9	0.8	0.8	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.8	1.9			
9-Oct	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4			
10-Oct	0.2	0.2	0.2	0.2	0.1	Z	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.4			
11-Oct	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.7	0.7	0.7	0.3	0.7			
12-Oct	0.6	Z	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.4	3.1	1.7	1.0	1.4	0.4	0.4	0.7	0.5	0.2	0.2	0.2	0.6	0.6	0.4	0.7	3.1			
13-Oct	0.5	0.5	Z	0.6	0.6	0.5	0.6	0.7	0.7	0.8	0.9	0.9	0.8	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.9			
14-Oct	0.6	0.9	1.1	Z	1.5	1.4	1.4	1.5	1.6	1.7	1.6	1.5	1.4	1.2	0.9	1.0	1.6	0.9	0.8	1.2	1.4	1.4	1.3	1.1	1.3	1.7			
15-Oct	0.9	0.6	0.5	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.9			
16-Oct	0.4	0.4	0.3	0.3	0.2	Z	0.2	0.2	0.2	0.3	0.4	0.4	0.8	0.8	1.0	1.2	0.4	0.4	0.5	2.0	5.9	8.3	19.0	21.0	2.8	21.0			
17-Oct	Z	30.2	17.2	5.7	2.3	0.7	0.8	0.7	0.7	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	2.7	30.2			
18-Oct	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.6	0.5	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.6	0.7	0.6	0.3	0.7			
19-Oct	0.6	0.7	Z	0.6	0.5	0.5	0.4	0.5	1.6	4.7	3.0	1.6	0.5	0.6	0.9	17.6	30.7	21.6	25.1	14.8	14.4	9.6	6.2	3.8	7.0	30.7			
20-Oct	2.6	4.1	4.7	Z	2.3	3.8	3.6	1.7	8.0	11.5	11.8	8.2	5.0	5.1	5.7	6.6	4.1	2.2	2.5	4.7	6.6	9.3	4.8	4.1	5.3	11.8			
21-Oct	3.4	1.8	2.8	3.0	Z	1.3	0.3	0.2	0.2	0.1	0.3	0.2	0.9	0.4	0.6	0.2	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.8	3.4			
22-Oct	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.5	0.7			
23-Oct	Z	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5			
24-Oct	0.4	Z	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.7			
25-Oct	0.3	0.3	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.6			
26-Oct	0.1	0.1	0.1	Z	4.7	12.4	19.4	28.7	21.7	3.4	1.4	1.4	1.4	4.3	15.8	30.4	22.6	5.7	0.8	0.6	0.5	0.6	0.6	0.6	7.7	30.4			
27-Oct	0.6	0.6	0.7	0.8	Z	0.9	0.9	1.2	1.2	1.7	1.6	1.3	1.1	0.8	0.7	0.6	0.6	0.5	0.6	0.5	0.5	0.6	2.7	3.2	1.0	3.2			
28-Oct	1.6	1.2	1.1	1.0	1.1	Z	0.7	0.6	0.7	0.5	0.5	0.4	0.8	2.0	1.0	0.3	0.9	2.7	2.6	2.0	0.6	0.2	0.3	0.5	1.0	2.7			
29-Oct	Z	0.5	1.2	1.7	2.5	1.4	0.5	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.5	2.5			
30-Oct	0.7	Z	43.5	22.2	10.6	9.2	9.7	10.5	13.0	15.6	15.2	15.4	11.2	9.0	7.5	5.7	4.2	2.4	2.1	2.0	0.5	0.2	0.3	2.0	9.2	43.5			
31-Oct	6.4	5.8	Z	0.6	0.9	0.7	0.7	0.7	0.9	1.0	0.9	0.8	0.9	1.0	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.6	0.7	0.7	1.2	6.4			
0.9 2.2 3.3 1.7 1.2 1.5 1.5 1.8 1.9 1.7 1.7 1.4 1.1 1.1 1.4 2.3 2.4 1.5 1.8 1.5 1.4 1.6 1.7 1.6																								Diurnal Average					
6.4 30.2 43.5 22.2 10.6 12.4 19.4 28.7 21.7 15.6 15.2 15.4 11.2 9.0 15.8 30.4 30.7 21.6 25.1 14.8 14.4 9.6 19.0 21.0																								Diurnal Maximum					
Z - zerospan C - Calibration																													



Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Mackay River - October 2024







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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	697	98.45	98.45
21 - 40	10	1.41	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Mackay River - October 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	17	28	28	11	27	38	78	43	43	67	61	102	59	56	20	9	687
21 - 40	0	4	4	0	0	0	0	0	0	1	0	0	0	0	0	1	10
11 - 80	0	1	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>	17	33	32	11	27	38	78	43	43	68	61	102	59	56	20	10	698

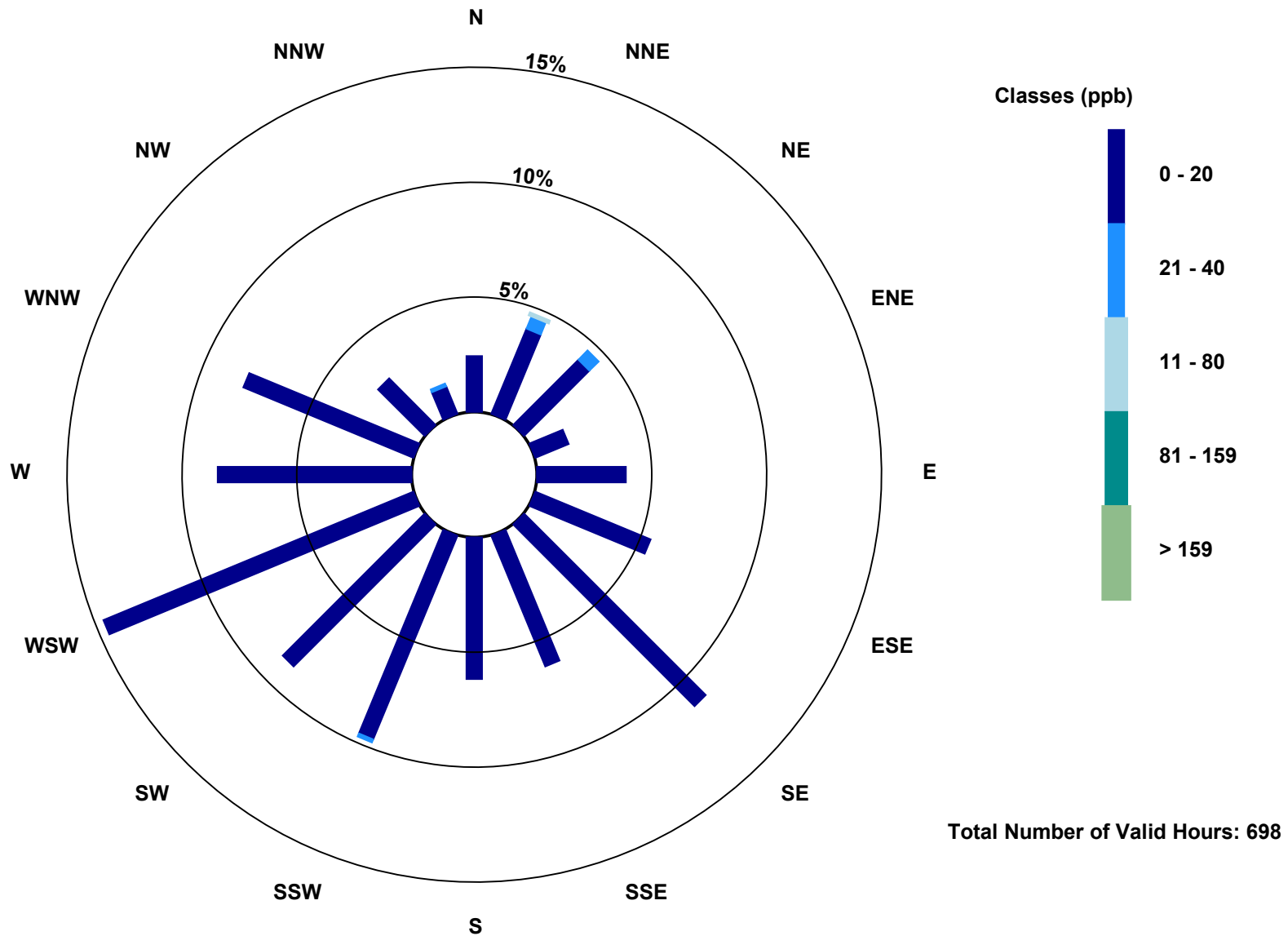
Total Number of Valid Hours: 698

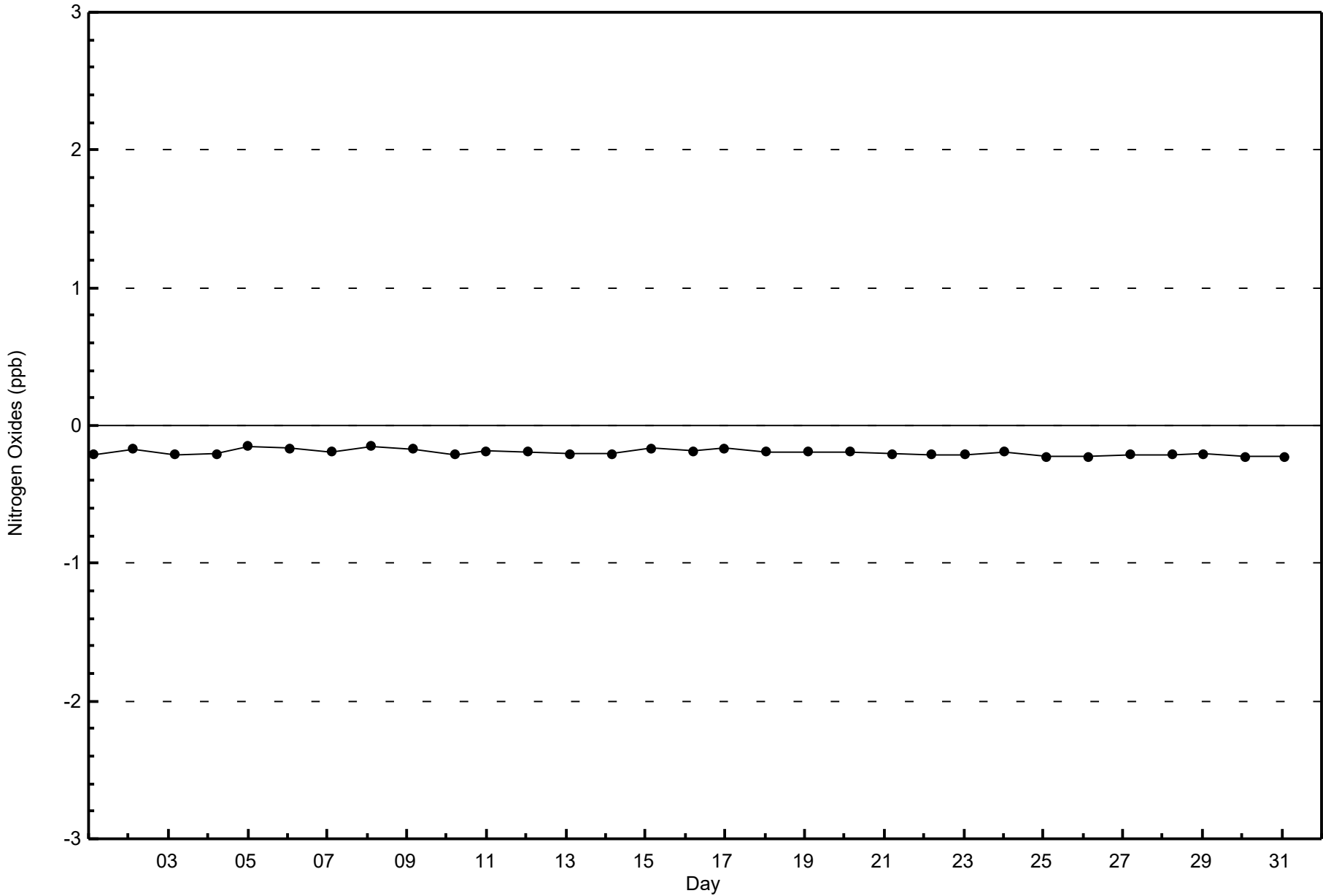
Total Number of Hours: 744

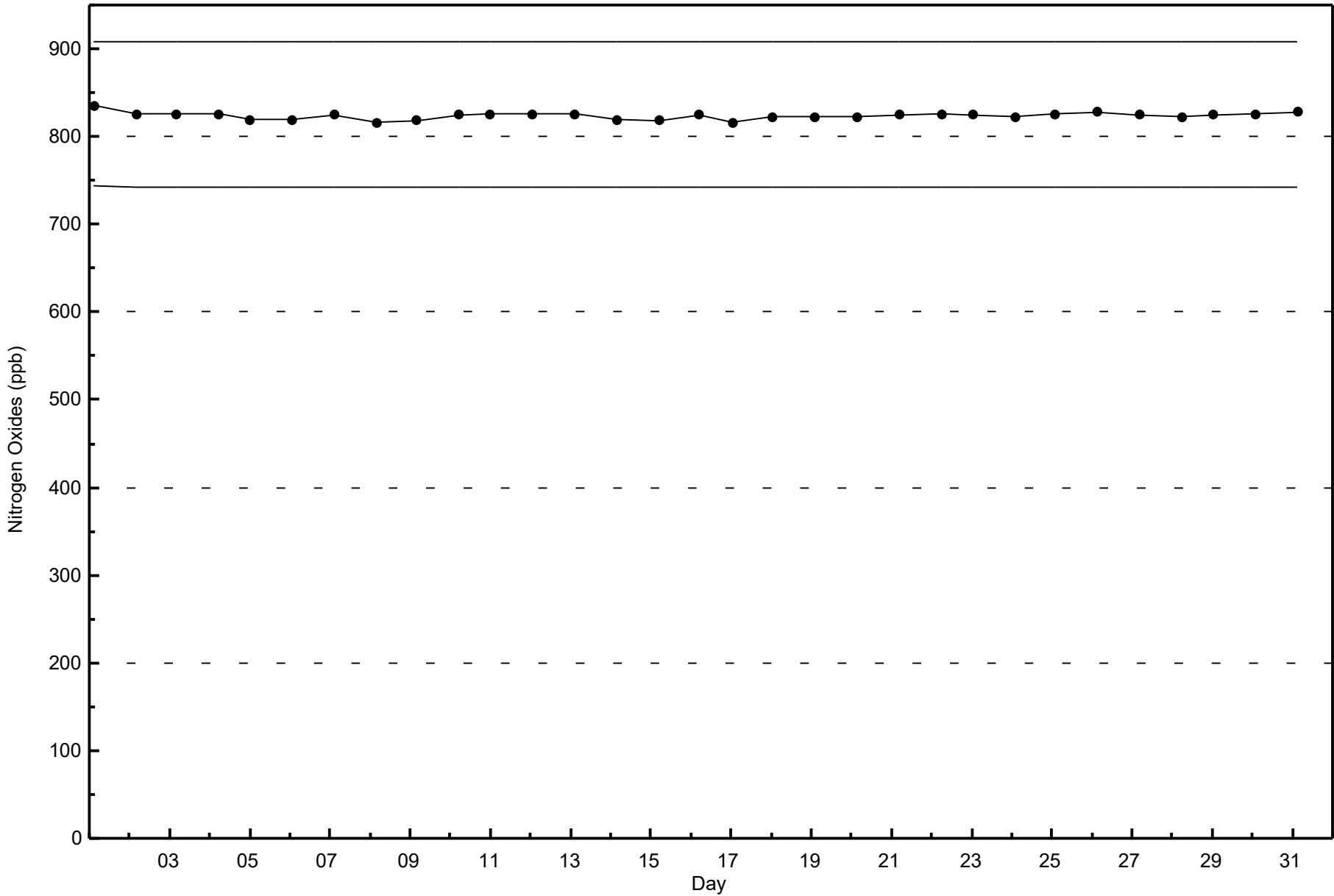


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





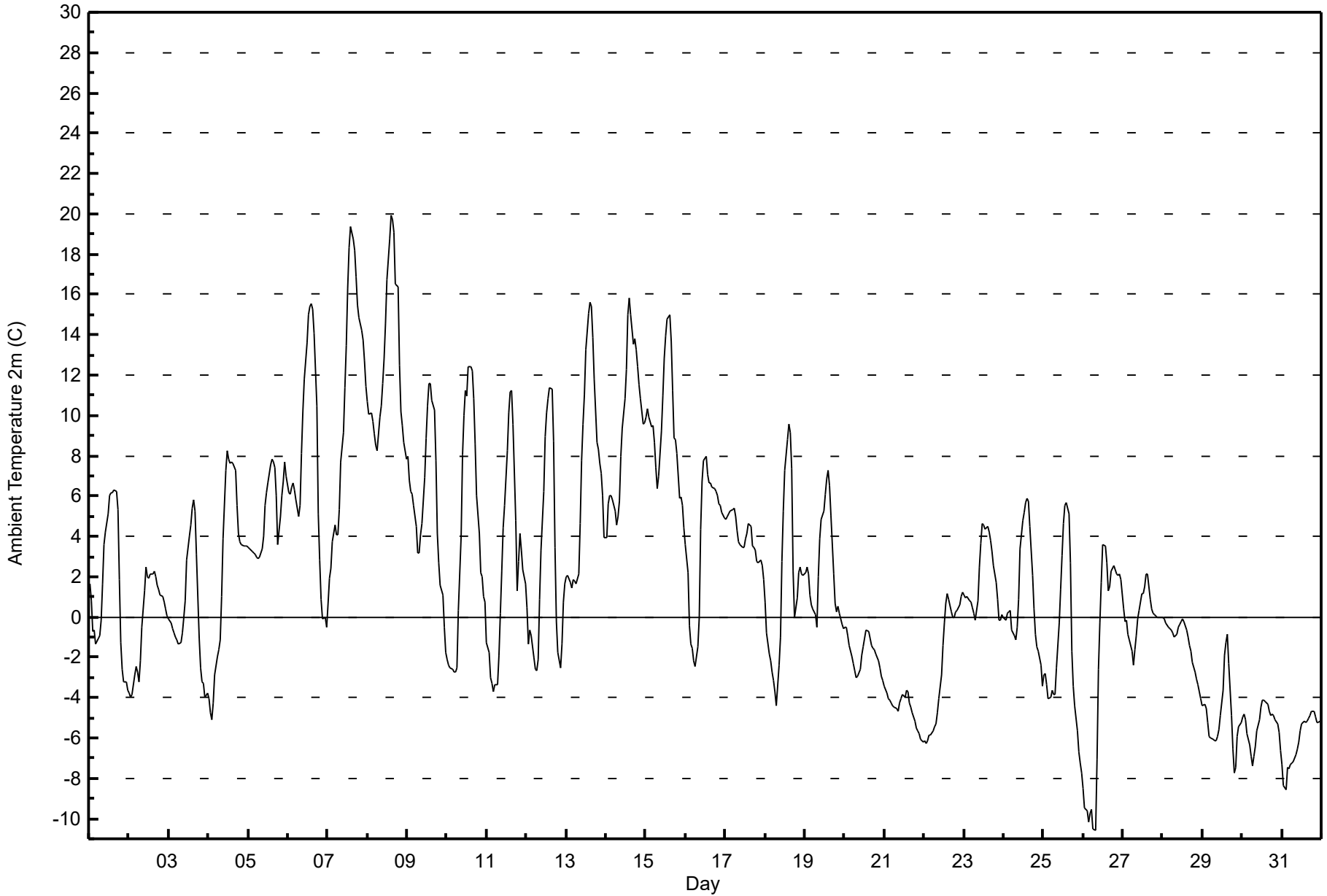




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Mackay River - October 2024**

Maximum Value: 19.9 C on Oct 8 15:00																				Maximum Daily Average: 12.6 C on Oct 8					Hours in Service: 744				
Minimum Value: -10.6 C on Oct 26 08:00																				Minimum Daily Average: -6.1 C on Oct 31					Hours of Data: 744				
Maximum Diurnal Average: 6.8 C at hour 15																				Minimum Diurnal Average: -1.0 C at hour 7					Hours of Missing Data: 0				
Monthly Average: 2.13 C																				Percentiles: P <sub>1</sub> = -8.5 P <sub>10</sub> = -5.0 Q <sub>1</sub> = -2.2 Median = 1.3 Q <sub>3</sub> = 5.8 P <sub>90</sub> = 10.4 P <sub>99</sub> = 17.6					Hours of Calibration: 0				
																				Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Oct	1.6	0.8	-0.7	-0.7	-1.3	-1.1	-0.9	-0.2	1.6	3.6	4.2	5.1	6.0	6.1	6.3	6.2	5.3	1.9	-1.3	-2.6	-3.2	-3.2	-3.6	1.5	6.3				
2-Oct	-3.8	-4.0	-3.8	-2.9	-2.5	-2.7	-3.2	-2.2	-0.5	1.3	2.5	2.0	2.0	2.1	2.1	2.3	2.0	1.6	1.3	1.1	1.0	0.7	0.4	0.0	-0.1	2.5			
3-Oct	-0.1	-0.3	-0.6	-0.8	-1.0	-1.1	-1.3	-1.3	-0.8	-0.1	0.8	2.8	4.0	4.6	5.4	5.8	5.3	3.1	-1.1	-2.5	-3.2	-3.3	-4.0	-3.8	0.3	5.8			
4-Oct	-4.1	-4.7	-5.1	-4.2	-2.8	-1.9	-1.6	-1.1	1.0	3.9	7.3	8.3	7.9	7.6	7.7	7.6	7.3	5.6	4.1	3.7	3.6	3.5	3.5	3.5	2.5	8.3			
5-Oct	3.4	3.4	3.3	3.2	3.1	3.0	2.9	3.0	3.4	4.0	5.6	6.1	6.6	7.5	7.8	7.7	7.4	6.0	3.6	5.0	6.0	6.7	7.7	7.0	5.1	7.8			
6-Oct	6.2	6.1	6.4	6.6	6.3	5.8	5.0	5.6	8.1	10.2	11.8	13.6	15.0	15.4	15.5	15.2	14.1	10.5	5.2	2.8	0.9	-0.1	0.0	-0.5	7.7	15.5			
7-Oct	0.7	1.9	2.4	3.7	4.6	4.1	4.1	5.3	7.7	9.2	11.4	13.4	16.3	18.3	19.4	18.7	18.2	16.9	15.5	14.9	14.2	13.7	12.7	11.4	10.8	19.4			
8-Oct	10.7	10.0	10.1	9.7	9.1	8.5	8.3	10.0	10.5	11.6	12.8	14.6	16.7	18.8	19.9	19.7	19.1	16.5	16.4	12.5	10.2	9.5	8.7	7.8	12.6	19.9			
9-Oct	8.0	6.8	6.2	6.1	5.6	4.5	3.2	3.2	4.1	4.7	6.9	8.9	10.5	11.6	11.6	10.7	10.3	7.8	4.2	2.7	1.6	1.1	-0.5	-1.8	5.7	11.6			
10-Oct	-2.1	-2.4	-2.6	-2.6	-2.7	-2.7	-2.5	0.4	4.0	8.0	10.0	11.2	11.0	12.4	12.4	12.2	10.8	8.6	6.1	4.2	2.2	2.0	1.0	0.8	4.2	12.4			
11-Oct	-1.3	-1.8	-3.0	-3.3	-3.7	-3.3	-3.3	-1.9	0.2	2.2	4.4	5.5	8.2	10.1	11.2	11.2	9.5	4.8	1.3	2.8	4.1	3.3	2.4	1.7	2.6	11.2			
12-Oct	0.5	-1.3	-0.6	-0.9	-2.1	-2.6	-2.7	-2.1	0.9	3.3	6.3	9.0	10.1	10.8	11.3	11.3	8.7	3.4	-0.2	-1.8	-2.5	-1.3	0.8	1.6	2.5	11.3			
13-Oct	2.0	2.1	1.7	1.5	1.9	1.8	1.6	2.1	4.6	7.8	9.5	11.1	13.3	15.1	15.6	15.4	13.9	11.8	8.7	8.3	7.6	7.1	6.0	3.9	7.3	15.6			
14-Oct	3.9	5.6	6.0	6.0	5.8	5.3	4.6	5.0	5.8	8.0	9.4	10.8	12.3	15.0	15.8	15.0	13.5	13.8	13.3	12.4	11.5	10.8	9.5	9.6	9.5	15.8			
15-Oct	9.9	10.3	9.9	9.4	9.5	8.6	7.4	6.3	7.0	9.2	11.0	12.8	14.0	14.8	15.0	13.6	11.2	8.9	8.8	8.1	5.9	6.0	5.6	4.4	9.5	15.0			
16-Oct	3.6	2.2	-0.5	-1.3	-1.6	-2.2	-2.4	-1.5	0.0	4.3	6.7	7.7	8.0	7.0	6.7	6.6	6.4	6.4	6.3	6.0	5.6	5.6	5.2	4.9	3.7	8.0			
17-Oct	4.8	5.0	5.1	5.3	5.3	5.4	5.0	4.3	3.7	3.6	3.5	3.5	3.9	4.1	4.6	4.5	3.5	3.4	3.3	2.8	2.7	2.8	2.5	1.8	3.9	5.4			
18-Oct	0.7	-0.8	-1.8	-2.2	-2.7	-3.1	-3.7	-4.4	-2.4	-1.0	2.7	5.3	7.3	8.8	9.6	9.2	7.3	2.3	0.0	0.9	2.2	2.5	2.1	2.0	1.7	9.6			
19-Oct	2.2	2.5	2.1	1.1	0.6	0.4	0.1	-0.5	2.0	3.9	4.8	5.2	6.1	6.9	7.3	6.5	5.0	2.1	0.7	0.3	0.5	0.2	-0.4	-0.6	2.5	7.3			
20-Oct	-0.5	-0.5	-0.9	-1.4	-2.0	-2.3	-2.6	-3.0	-2.9	-2.6	-1.9	-1.5	-1.1	-0.7	-0.7	-1.1	-1.4	-1.6	-1.6	-1.8	-2.2	-2.5	-2.9	-3.2	-1.8	-0.5			
21-Oct	-3.5	-3.8	-4.1	-4.1	-4.3	-4.4	-4.5	-4.6	-4.7	-4.3	-4.0	-3.9	-4.0	-3.7	-3.7	-4.2	-4.4	-4.8	-5.1	-5.5	-5.6	-5.8	-6.1	-6.2	-4.5	-3.5			
22-Oct	-6.1	-6.3	-6.1	-5.9	-5.9	-5.7	-5.5	-5.3	-4.8	-4.1	-2.9	-1.4	-0.3	0.7	1.2	0.9	0.3	0.0	0.0	0.3	0.3	0.6	1.0	1.2	-2.2	1.2			
23-Oct	1.1	1.0	1.0	0.8	0.8	0.5	0.2	-0.1	0.8	2.5	3.7	4.6	4.5	4.4	4.5	4.2	3.8	3.3	2.5	1.7	0.9	-0.1	-0.1	0.1	1.9	4.6			
24-Oct	0.0	-0.1	0.2	0.2	0.3	-0.7	-0.9	-1.1	-0.5	0.9	3.4	4.8	5.2	5.7	5.9	5.8	4.5	2.1	0.4	-0.9	-1.5	-1.7	-2.4	-3.4	1.1	5.9			
25-Oct	-2.9	-2.8	-3.4	-4.1	-4.0	-3.6	-3.8	-3.9	-2.5	-0.3	1.3	3.0	4.6	5.5	5.7	5.1	2.7	-1.7	-3.4	-4.4	-5.7	-6.7	-7.3	-7.8	-1.7	5.7			
26-Oct	-8.5	-9.5	-9.6	-10.2	-9.7	-9.5	-10.5	-10.6	-7.0	-2.6	-0.3	1.7	3.6	3.5	2.7	1.3	1.5	2.2	2.6	2.3	2.2	2.1	2.1	1.9	-2.4	3.6			
27-Oct	0.4	-0.2	-0.2	-0.8	-1.1	-1.7	-2.4	-1.6	-0.9	-0.1	0.4	1.1	1.2	1.5	2.2	2.1	0.9	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.1	2.2			
28-Oct	0.0	-0.1	-0.3	-0.5	-0.6	-0.7	-0.8	-1.0	-0.9	-0.5	-0.3	-0.2	-0.1	-0.2	-0.7	-1.0	-1.4	-1.7	-2.2	-2.7	-3.1	-3.3	-3.7	-4.1	-1.3	0.0			
29-Oct	-4.4	-4.3	-4.6	-5.3	-5.9	-6.0	-6.1	-6.1	-6.2	-5.9	-5.6	-4.9	-3.6	-1.9	-1.3	-0.8	-2.3	-4.9	-6.6	-7.7	-7.5	-5.9	-5.4	-5.3	-4.9	-0.8			
30-Oct	-4.9	-4.8	-5.1	-5.8	-6.3	-6.9	-7.4	-6.9	-6.4	-5.6	-5.1	-4.5	-4.1	-4.1	-4.2	-4.3	-4.7	-4.9	-4.8	-4.9	-5.1	-5.3	-5.7	-6.6	-5.4	-4.1			
31-Oct	-7.3	-8.3	-8.5	-7.4	-7.6	-7.3	-7.3	-7.2	-6.8	-6.5	-6.2	-5.7	-5.3	-5.2	-5.2	-5.2	-5.0	-4.9	-4.7	-4.7	-4.9	-5.2	-5.2	-5.2	-6.1	-4.7			
																								Diurnal Average					
																								Diurnal Maximum					





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

**Ambient Temperature 2m (AT2) - C**  
**Mackay River - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	304	40.86	40.86
0 - 10	357	47.98	88.84
10 - 20	83	11.16	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





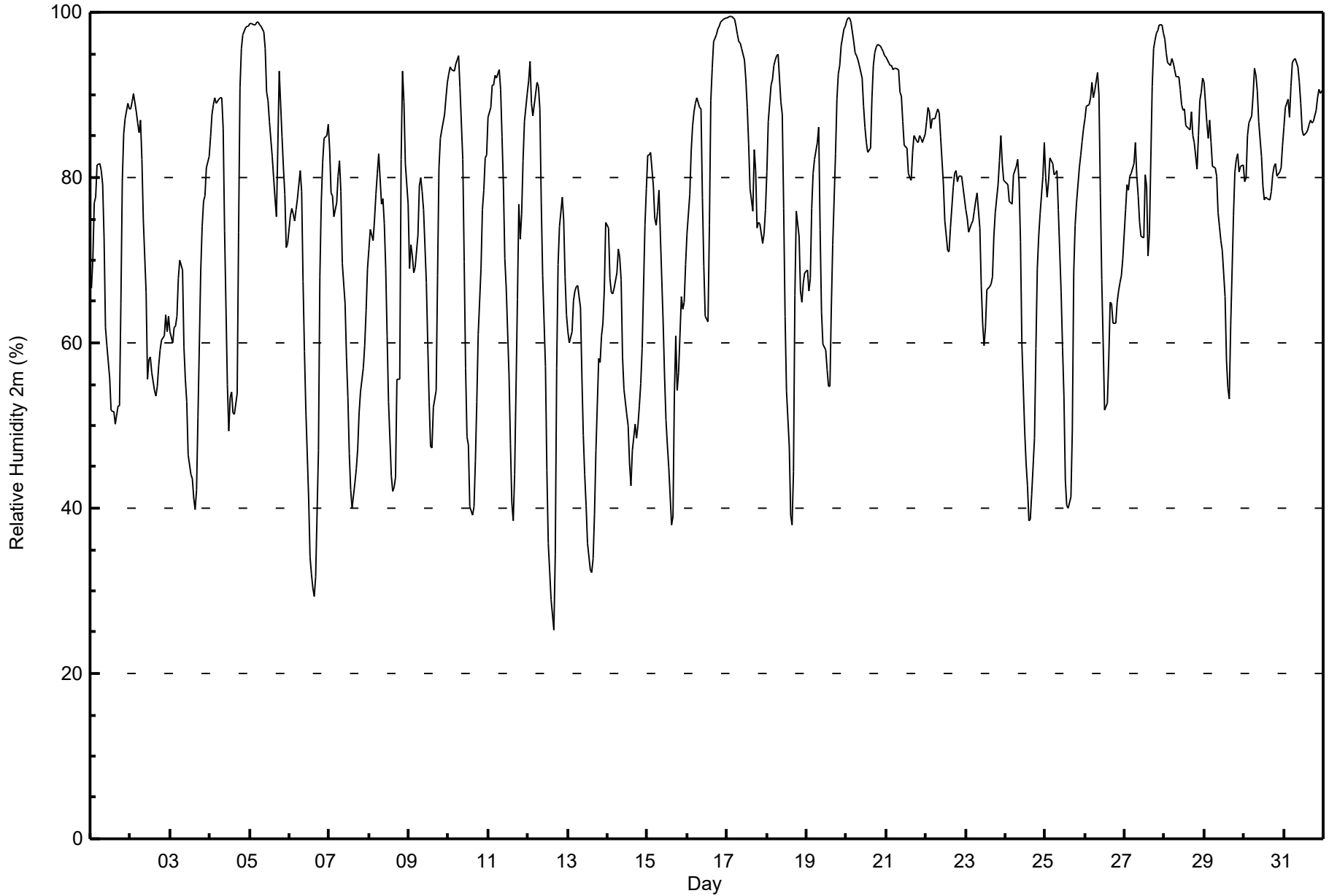
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**

**Mackay River - October 2024**

Maximum Value: 99.5 % on Oct 17 03:00      Maximum Daily Average: 93.3 % on Oct 20																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 25.3 % on Oct 12 16:00      Minimum Daily Average: 54.3 % on Oct 13 Maximum Diurnal Average: 85.8 % at hour 7      Minimum Diurnal Average: 55.9 % at hour 15 Monthly Average: 74.62 %      Percentiles: P <sub>1</sub> = 32.5 P <sub>10</sub> = 49.6 Q <sub>1</sub> = 63.7 Median = 78.1 Q <sub>3</sub> = 87.7 P <sub>90</sub> = 93.8 P <sub>99</sub> = 99.1																						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-Oct	66.7	70.2	77.0	77.6	81.6	81.8	80.9	79.2	72.7	61.9	59.6	55.8	51.9	51.7	51.8	50.1	52.4	52.4	64.8	79.5	85.3	87.2	88.9	88.2	69.5	88.9
2-Oct	88.3	89.2	90.1	87.9	86.6	85.4	87.0	82.2	74.9	66.1	55.6	58.0	58.4	56.5	54.2	53.5	54.8	57.3	59.2	60.4	60.8	63.3	61.3	63.3	68.9	90.1
3-Oct	61.3	60.0	61.8	62.0	63.2	67.8	70.1	68.9	59.5	55.6	52.9	46.4	44.1	43.6	41.2	39.8	42.2	51.0	68.8	74.0	77.2	77.8	81.2	82.6	60.5	82.6
4-Oct	84.9	87.7	88.8	89.6	89.0	89.5	89.7	89.7	85.9	73.5	54.8	49.3	53.3	54.0	51.5	51.4	53.8	73.4	90.9	95.6	97.3	98.1	98.2	98.4	78.7	98.4
5-Oct	98.6	98.7	98.5	98.5	98.8	98.9	98.5	98.4	97.6	95.6	90.3	89.3	86.8	82.6	80.1	77.5	75.2	83.7	92.9	84.9	81.2	78.0	71.5	72.1	88.7	98.9
6-Oct	75.4	76.3	75.6	74.8	76.0	77.4	80.8	78.3	67.5	59.0	51.9	41.2	34.0	32.1	30.3	29.4	31.7	47.0	68.0	76.9	81.9	84.8	85.2	86.5	63.4	86.5
7-Oct	83.4	78.1	77.7	75.3	77.0	80.2	82.1	78.3	69.6	64.8	58.3	53.4	46.7	42.2	40.0	43.1	44.8	47.2	51.5	54.1	57.0	59.7	64.0	69.0	62.4	83.4
8-Oct	71.4	73.7	72.3	74.9	78.0	80.5	82.9	76.7	77.5	74.4	69.1	60.9	52.8	43.9	42.1	42.5	43.8	55.6	55.5	82.2	92.9	89.2	81.7	76.7	68.8	92.9
9-Oct	68.9	71.8	70.5	68.5	69.1	73.0	79.0	80.0	78.4	76.2	67.3	59.8	52.9	47.4	47.2	52.2	54.3	68.1	81.1	84.7	85.7	87.6	89.7	91.5	71.0	91.5
10-Oct	92.5	93.3	93.1	93.0	93.7	94.2	94.7	90.9	82.2	69.9	56.9	48.7	47.7	40.1	39.2	40.2	45.7	52.9	61.1	69.0	76.1	78.4	82.4	82.6	71.6	94.7
11-Oct	87.2	88.4	91.1	91.2	92.4	92.0	93.1	90.6	84.8	79.0	70.1	66.7	56.1	47.8	40.7	38.4	44.2	65.3	76.9	72.6	75.6	82.1	86.9	90.2	75.1	93.1
12-Oct	91.7	94.1	88.9	87.5	90.2	91.6	91.1	88.4	77.0	68.1	57.0	44.6	35.8	32.4	29.1	25.3	34.4	57.0	69.5	74.1	77.7	74.9	68.0	63.3	67.2	94.1
13-Oct	61.4	59.9	61.4	65.1	66.2	66.8	66.9	64.3	56.0	48.9	44.1	40.3	35.8	32.6	32.2	33.9	39.3	47.0	58.2	57.7	60.9	62.5	66.5	74.6	54.3	74.6
14-Oct	73.9	67.8	66.0	66.0	66.7	68.4	71.4	70.4	67.6	58.4	54.4	51.3	50.0	45.5	42.8	46.9	50.1	48.5	50.0	52.4	55.1	59.3	74.3	78.7	59.8	78.7
15-Oct	82.7	82.8	83.0	79.0	75.0	74.3	75.9	78.4	73.1	62.4	56.0	50.7	47.7	45.0	38.0	39.0	53.8	60.8	54.2	56.5	65.6	64.1	64.9	69.4	63.8	83.0
16-Oct	73.2	77.9	83.3	86.2	88.0	89.0	89.6	88.4	88.4	77.6	69.3	63.2	62.6	74.3	89.3	93.3	96.5	97.4	98.0	98.3	98.8	99.0	99.2	99.3	86.7	99.3
17-Oct	99.4	99.5	99.5	99.4	99.1	98.3	97.3	96.5	96.3	95.6	94.2	91.9	88.5	84.2	78.6	76.0	83.3	80.9	73.9	74.6	74.5	72.0	73.3	76.1	87.6	99.5
18-Oct	80.7	86.7	91.1	91.9	93.6	94.3	94.8	94.9	89.1	87.6	76.2	63.3	54.2	47.5	39.2	38.0	44.4	65.7	75.9	72.9	66.3	64.9	67.3	68.5	72.9	94.9
19-Oct	68.8	66.3	67.9	76.2	80.5	82.3	84.2	86.1	73.8	63.8	59.8	59.2	56.8	54.7	54.8	64.2	71.9	82.9	89.5	92.6	93.5	95.9	98.0	98.3	75.9	98.3
20-Oct	99.0	99.3	99.3	98.9	96.5	95.0	94.8	94.2	93.5	92.0	88.6	86.2	84.3	83.0	83.5	89.7	93.6	95.0	95.8	96.1	95.9	95.7	95.2	94.8	93.3	99.3
21-Oct	94.5	93.9	93.6	93.5	93.1	93.3	93.2	93.0	90.4	89.8	86.8	83.9	83.5	80.5	80.1	79.7	83.1	85.1	84.5	84.2	85.1	84.8	84.2	85.3	87.5	94.5
22-Oct	86.9	88.5	87.9	85.9	87.1	87.2	87.7	88.4	87.8	85.0	79.2	74.7	73.0	71.2	71.0	73.9	78.8	80.5	80.8	79.5	80.1	80.1	78.8	77.5	81.3	88.5
23-Oct	76.1	75.0	73.4	74.4	74.7	76.0	77.2	78.2	73.8	67.0	62.4	59.7	61.9	66.4	66.7	67.1	67.9	72.9	75.8	79.1	82.0	85.1	81.7	79.7	73.1	85.1
24-Oct	79.4	79.2	77.2	77.0	76.8	80.4	81.4	82.2	79.3	72.2	59.8	49.3	45.4	42.7	38.5	38.6	41.7	48.5	59.3	69.0	72.9	75.6	80.1	84.2	66.3	84.2
25-Oct	80.1	77.6	79.5	82.3	81.7	80.4	80.6	80.8	76.1	66.2	59.5	53.5	43.5	40.4	40.0	41.4	49.5	68.5	74.2	77.0	81.2	82.7	84.5	86.0	69.5	86.0
26-Oct	87.1	88.6	88.8	89.6	91.5	89.7	90.4	92.6	90.0	78.1	67.7	59.9	51.9	52.7	58.1	64.8	64.7	62.3	62.4	65.0	66.3	67.3	68.2	70.2	73.7	92.6
27-Oct	76.1	79.2	78.5	80.2	80.4	81.7	84.2	80.2	77.8	74.5	72.9	72.7	80.4	78.9	70.4	73.2	91.0	95.6	96.6	97.5	97.9	98.5	98.4	97.5	83.9	98.5
28-Oct	96.8	95.0	93.8	93.5	94.4	93.9	93.0	92.1	92.2	90.6	88.8	88.1	88.3	86.3	85.9	85.8	88.0	85.0	84.2	81.1	85.2	89.3	90.4	92.1	89.7	96.8
29-Oct	91.5	86.6	84.7	87.0	84.3	81.3	81.2	80.2	75.7	74.1	72.4	71.2	65.6	57.9	54.6	53.2	62.0	75.4	80.6	82.2	82.9	80.8	81.4	81.6	76.2	91.5
30-Oct	79.4	80.1	85.1	86.6	87.5	89.9	93.1	92.3	90.5	86.8	82.5	78.9	77.3	77.7	77.4	77.2	78.2	80.3	81.3	81.7	80.1	80.8	81.2	83.8	82.9	93.1
31-Oct	86.2	88.5	89.5	87.3	91.0	93.8	94.2	94.4	93.4	91.6	89.0	85.8	85.1	85.4	85.8	86.5	86.9	86.6	86.8	88.1	89.7	90.7	90.2	90.6	89.0	94.4
	82.0	82.4	82.9	83.2	84.0	84.8	85.8	84.8	80.4	74.4	68.0	63.2	59.9	57.5	55.9	57.0	61.4	68.7	74.3	77.2	79.4	80.3	81.2	82.3	Diurnal Average	
	99.4	99.5	99.5	99.4	99.1	98.9	98.5	98.4	97.6	95.6	94.2	91.9	88.5	86.3	89.3	93.3	96.5	97.4	98.0	98.3	98.8	99.0	99.2	99.3	Diurnal Maximum	





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

**Relative Humidity 2m (RH2) - %**  
**Mackay River - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	25	3.36	3.36
40 - 60	133	17.88	21.24
60 - 80	246	33.06	54.30
80 - 100	340	45.70	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

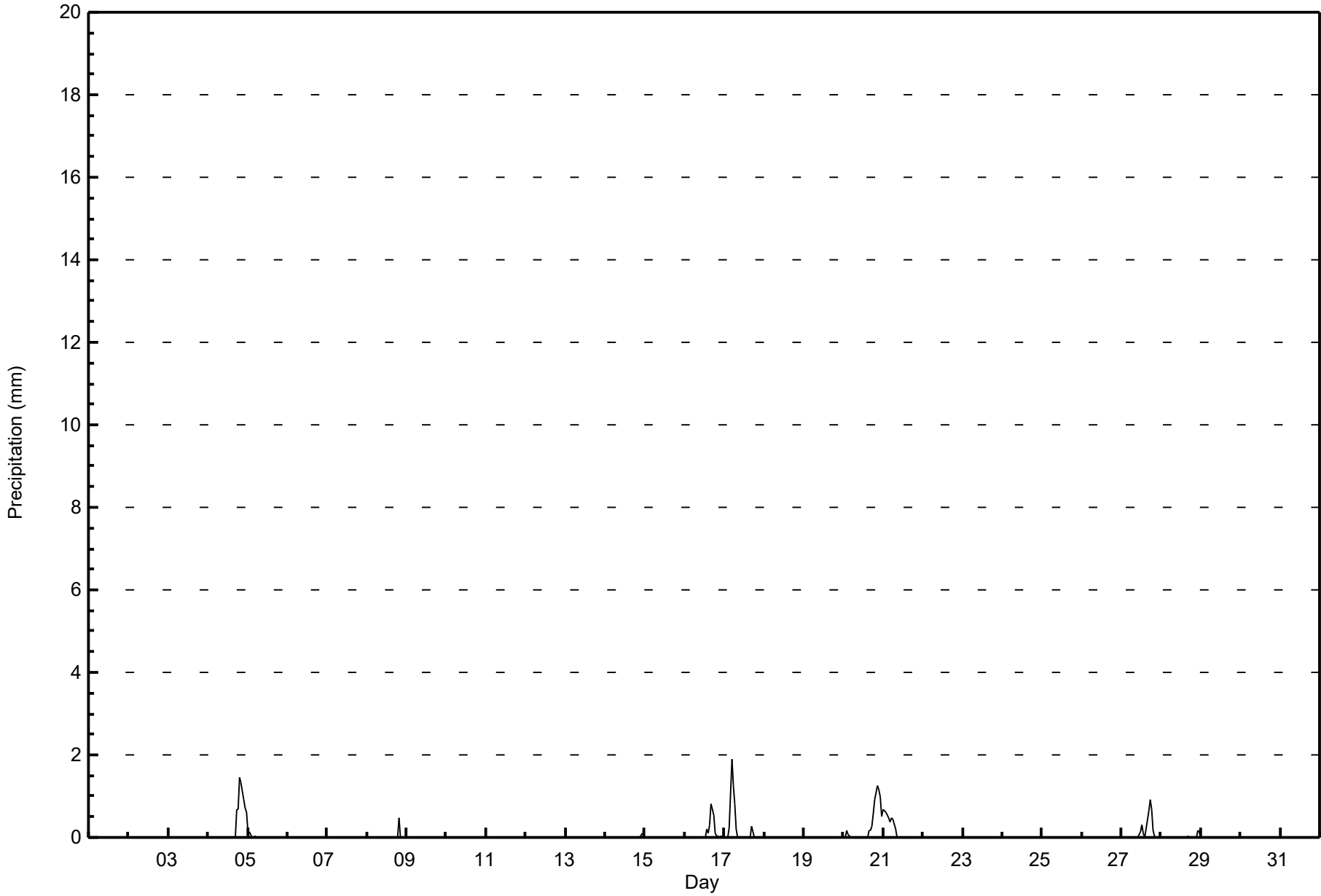


Maximum Value: 1.9 mm on Oct 17 05:00																				Maximum Daily Total: 6.4 mm on Oct 4					Hours in Service: 744																								
Minimum Value: 0.0 mm on Oct 1 01:00																				Minimum Daily Total: 0.0 mm on Oct 1					Hours of Data: 744																								
Maximum Diurnal Total: 3.1 mm at hour 20																				Minimum Diurnal Total: 0.0 mm at hour 9					Hours of Missing Data: 0																								
Monthly Total: 27.81 mm																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.9					Hours of Calibration: 0																								
																									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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	1.5	1.3	0.9	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	1.5														
5-Oct	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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															
6-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5															
9-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1														
15-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	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	0.3	0.8	0.5	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	2.2	0.8															
17-Oct	0.0	0.0	0.0	0.2	1.9	1.3	0.8	0.2	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	0.0	0.0	0.0	0.0	4.8	1.9															
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	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	0.2	0.2	0.3	0.6	0.9	1.2	1.1	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	1.2															
21-Oct	0.7	0.6	0.5	0.5	0.4	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.7															
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	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	0.0	0.2	0.6	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	0.0	0.0	3.2	0.9															
28-Oct	0.0	0.0	0.0	0.0	0.0	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	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0															
29-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
																								0.8	0.7	0.7	0.8	2.3	1.7	1.3	0.4	0.0	0.0	0.0	0.1	0.3	0.3	0.1	0.7	1.9	2.5	2.1	3.1	2.7	2.0	2.0	1.2	Diurnal Average	
																								0.7	0.6	0.5	0.5	1.9	1.3	0.8	0.2	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.3	0.8	0.9	0.7	1.5	1.3	1.1	1.0	0.6	Diurnal Maximum	



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

**Precipitation (PC) - mm**  
**Mackay River - October 2024**





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

**Precipitation (PC) - mm**  
**Mackay River - October 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	715	96.10	96.10
0.4 - 0.5	8	1.08	97.18
0.6 - 0.7	9	1.21	98.39
0.8 - 1.4	10	1.34	99.73
1.5 - 10	1	0.13	99.87
> 10	0	0.00	99.87

Total Number of Valid Hours: 744

Total Number of Hours: 744

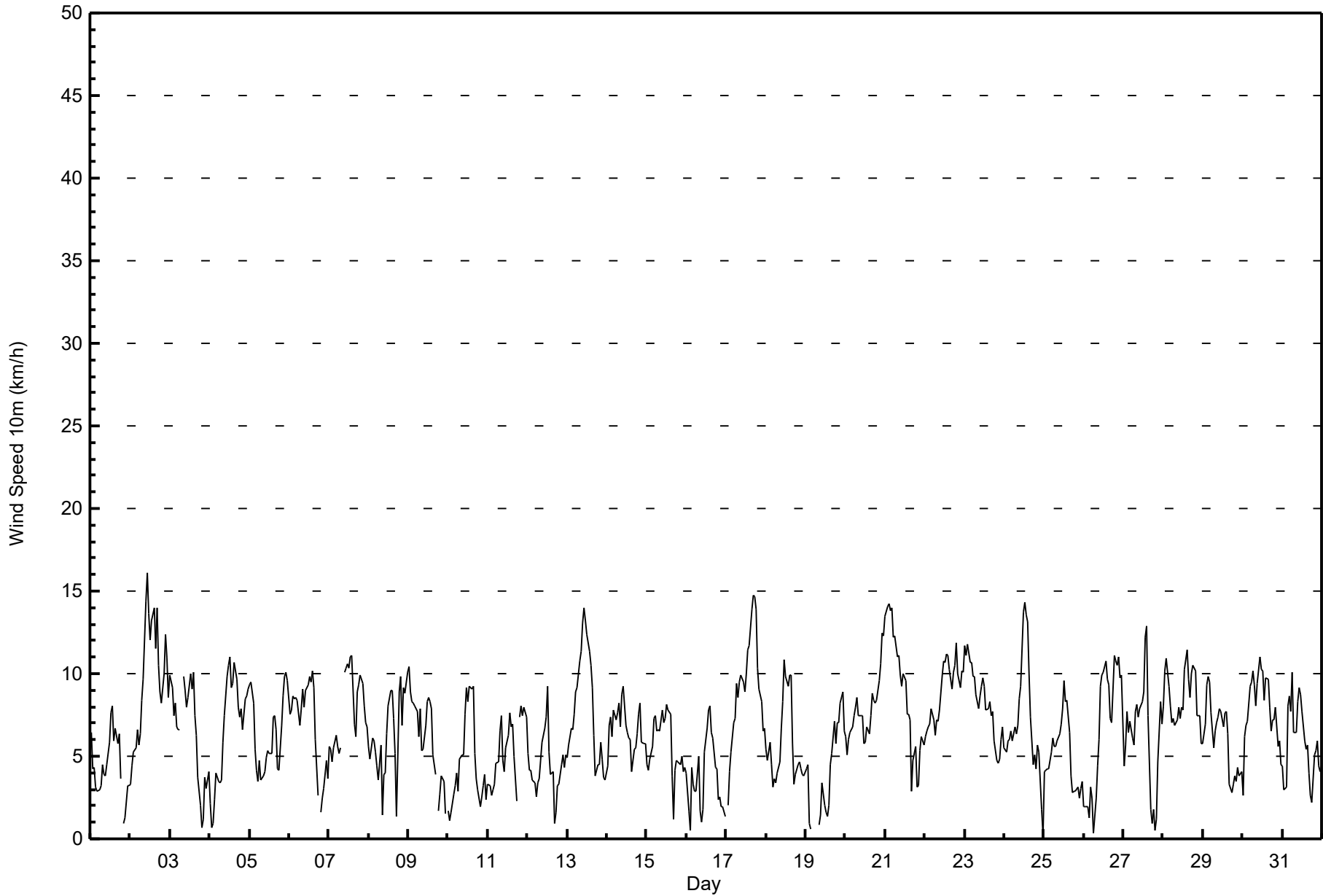


Maximum Speed: 16 km/h on Oct 2 11:00		Maximum Daily Speed Average: 9.4 km/h on Oct 2		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on Oct 25 00:00		Minimum Daily Speed Average: 1.5 km/h on Oct 12		Hours of Data: 733																						
Maximum Diurnal Speed Average: 3.0 km/h at hour 13		Minimum Diurnal Speed Average: 1.1 km/h at hour 18		Hours of Missing Data: 11																						
Monthly Average Velocity: 2.0 km/h 230.2 deg		Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 9 P <sub>90</sub> = 10 P <sub>99</sub> = 14		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-Oct	SW6	WSW4	WSW4	WSW3	WSW3	WSW3	SW3	WSW5	WNW4	WNW4	NW5	NNW6	NW8	NW8	NW6	NW7	W6	NW6	N4	UO	SSW1	S1	W3	WSW3	WNW3.5	NW8
2-Oct	W3	WSW4	W5	W5	WSW7	W6	W6	W8	W10	WNW14	WNW16	WNW14	WNW12	WNW13	WNW14	W12	WNW14	WNW11	WNW9	WNW8	WNW10	NW12	WNW11	WNW9	WNW9.4	WNW16
3-Oct	WNW10	WNW9	WNW7	WNW8	W7	W7	WSW7	CWNW10	WNW9	WNW8	W9	W10	W9	W10	WSW7	WSW6	SW4	SSW2	SSW1	SSE1	S4	SSE3	SSE4	W5.6	W10	
4-Oct	SSE2	SE1	SE1	SE2	SE4	SE3	ESE3	SE4	ESE6	ESE7	ESE10	E11	E11	ENE9	NE9	NE11	NE10	NE8	NE7	NE8	NNE7	NNE8	NNE9	NNE9	ENE5.1	E11
5-Oct	N9	N9	N8	N5	NNW4	WNW3	WNW5	W4	W4	WSW4	WSW5	SW5	SW5	WSW5	SSW7	SW7	SSW7	S4	SSE4	S7	S9	S10	SSW10	SSW10	SW2.7	SSW10
6-Oct	SW8	SW8	SW9	WSW8	WSW9	WSW8	WSW7	WSW8	WSW9	WSW8	SW9	WSW9	WSW10	WSW10	W10	W9	WSW6	SSW3	UO	SSE2	SE2	SSE3	S5	SSE4	WSW6.3	W10
7-Oct	SSE6	SSE5	SE5	SE6	SSE6	SE6	SSE5	SSE6	M	S10	S10	S11	SSW10	SSW11	SSW11	S7	S6	S9	S9	S10	S9	SSW8	SSW7	SSW7	S7.5	SSW11
8-Oct	SSW6	SSW5	S6	S6	S5	SSE4	SSE4	S6	ESE1	ESE4	SE4	SE6	SSE8	SSE9	SE9	SE7	SE5	SSE1	WSW9	W10	WSW7	SW9	SW9	WSW10	S4.5	WSW10
9-Oct	SW10	SW9	SW8	SW8	SW8	SSW8	SSW6	SW8	WSW5	WSW5	WSW7	WSW8	WSW9	SW8	WSW8	W5	WSW4	UO	SE2	SSW3	SSW4	SW3	SW2	UO	SW6.0	SW10
10-Oct	SSE2	SW1	SSE2	SE3	SE3	SE4	S3	SW5	SW5	SW5	WSW8	SW9	WSW8	WSW9	WSW9	WSW9	W5	W4	WSW3	WSW2	WSW3	WSW3	SW4	WSW2	SW3.9	WSW9
11-Oct	SSW3	SSW3	SE3	SE3	SSE3	SSE5	SSE5	S7	S7	S5	S4	S6	SSW6	SW8	WSW7	WSW7	SSW5	SSE2	UO	S7	SSW8	SSW7	S8	SSW7	SSW5.0	SSW8
12-Oct	SSW5	SW4	WSW4	W4	WSW3	WSW3	WSW3	WSW4	W5	W6	NW7	NW7	NW9	NW5	N4	NNW4	NNE1	SE2	SSE3	SE3	SE4	SE5	SE4	SE5	W1.5	NW9
13-Oct	SE5	SE6	SE7	SE7	SE8	SE9	SE9	SE11	SE11	SE13	SSE14	SSE13	SSE12	SSE11	S10	S9	S6	SSE4	SE4	ESE5	SE6	SE5	SE4	SE4	SSE7.7	SSE14
14-Oct	SE4	SE7	SE7	SE6	ESE8	ESE7	SE8	SE8	SE7	SE9	SSE9	SSE7	ESE6	SE6	ESE4	SE5	SSE6	SSW6	SSW8	S8	SSW6	SSW6	SSW6	SSW6	SSE5.9	SSE9
15-Oct	SSW5	SW4	SW5	WSW6	WSW7	SW7	SW7	WSW7	WSW7	W8	WSW7	WSW7	W8	W8	WSW8	W4	SE1	S4	SSW5	SSW5	S5	SW5	SW4	SW4	SW5.2	WSW8
16-Oct	WSW4	WSW2	SSE1	SE4	SE3	SE3	SE3	SE5	SE2	SE1	SE2	SE5	ESE7	ESE8	ESE8	E6	E6	E4	E4	NNE2	N3	NW2	NNW2	NNW1	ESE2.4	ESE8
17-Oct	UO	SSW2	SW4	WSW5	WSW7	WSW7	SW9	WSW9	WSW9	WSW10	W9	WSW9	WSW10	WSW11	WSW12	W14	W15	W15	W14	W10	W9	W8	W7	W7	W9.0	W15
18-Oct	W5	W5	WSW6	W4	W3	SW4	S3	SSE4	SSE5	SSE7	S8	S11	SSW10	SSW9	SW10	SW10	SSW6	SE3	SE4	SE5	SE5	SE4	SE4	SE4	SSW4.3	S11
19-Oct	SE4	SE5	SE1	WNW1	UO	SSE1	UO	UO	NNW1	SW1	WSW3	SSW2	W2	NE1	NW2	N4	NNE5	NNE7	NE6	NNE7	NNE7	NNE8	NNE9	N7	NNE2.4	NNE9
20-Oct	NNW6	N5	N6	NNE6	NE7	NNE7	NNE8	NNE9	NE8	NE7	ENE7	ENE6	ENE6	NE7	ENE6	NE7	NE9	NE8	NE8	NE8	NNE10	NNE11	NNE12	NNE12	NE7.4	NNE12
21-Oct	NNE13	N14	N14	N14	N14	N12	N12	N11	N11	NNW10	NNW9	NNW10	NW10	NW8	NW8	NNW7	NW3	WNW5	WNW6	WSW3	WSW3	WSW5	WSW6	SW6	NNW7.2	N14
22-Oct	SSW6	SSW7	SSW7	SSW7	SSW8	SSW7	SSW6	SSW7	SSW7	SW8	SW10	SW11	SW11	SSW11	SSW11	SSW10	SSW9	SSW10	SSW11	SSW12	SSW10	SW9	SW10	SW10	SSW8.8	SSW12
23-Oct	WSW12	SW11	SW12	SW11	WSW11	WSW10	WSW10	WSW9	WSW8	WSW9	WSW9	WSW10	WSW9	SW8	SW8	SW8	SW7	SSW8	SSW6	SSW5	SSW5	S5	SSW6	SSW7	SW8.0	SW12
24-Oct	SSW6	SW5	WSW6	WSW6	WSW7	WSW6	WSW7	WSW6	WSW7	W8	W9	W14	WNW14	WNW14	WNW13	WNW10	W7	WSW5	SW5	SW4	SSW6	SSW5	S2	SSE0	W6.5	WNW14
25-Oct	WSW4	SW4	WSW4	WSW4	SW5	WSW6	SW6	WSW6	W6	W6	W7	W8	WNW10	W8	WNW8	WSW6	SW4	SSE3	SE3	SE3	SE3	ESE2	SE3	SE4	WSW3.7	WNW10
26-Oct	SE2	ESE2	SE2	ESE1	NE3	NE2	NE0	NNE2	NE4	E6	E9	E10	E10	ENE11	NE10	NE9	NE7	E7	E11	ESE11	ESE10	ESE11	ESE10	ESE10	E6.1	E11
27-Oct	ESE4	ESE6	ESE8	SE6	ESE7	SE6	ESE6	ESE8	ESE8	E7	E8	E8	ESE9	E12	ESE13	ESE7	E2	E1	E2	E1	WNW1	WNW5	WNW8	W7	ESE4.4	ESE13
28-Oct	W8	WNW10	WNW11	W9	W8	W7	W7	W7	W7	WNW8	WNW7	WNW8	WNW8	WNW10	WNW11	WNW10	WNW9	WNW10	WNW10	NW10	NW7	WNW7	WNW7	W6	WNW8.4	WNW11
29-Oct	W6	WNW7	WNW9	NW10	NW9	WNW8	WNW6	WNW6	WNW7	WNW7	W8	W8	SW7	SW8	SW8	SW6	SSW3	SE3	SE3	SE4	SE3	ESE4	ESE4	ESE4	W3.5	NW10
30-Oct	NE3	NNE6	NNE7	NNE7	NNE9	NNE9	NNE10	NNE9	NNE8	NNE9	NNE11	NNE10	NE10	NNE8	NE10	NE10	NE8	NE7	NE7	ENE7	ENE8	ENE6	ENE6	NE4	NE7.6	NNE11
31-Oct	NE4	ENE3	ENE3	E8	E9	E8	E10	E6	E6	E8	ESE9	ESE9	ESE8	ESE6	ESE5	SSE6	SSE4	S3	S2	S5	S5	SSW6	SSW4	S4	ESE4.6	E10
SW2.2WSW1.9WSW1.9WSW1.7 SW1.7 SW1.7 SW1.8 SW2.2WSW2.0WSW2.3WSW2.6 SW2.8WSW3.0WSW2.9WSW2.9WSW2.5WSW1.7 SW1.1SSW1.2SSW1.6 S1.9SSW1.8 SW1.8 SW1.9																								Diurnal Average		
NNE13 N14 N14 N14 N14 N12 N12 N11 SE11WNW14WNW16 W14WNW14WNW14WNW14 W14 W15 W15 W14 SSW12 ESE10 NW12 NNE12 NNE12																								Diurnal Maximum		
C - Calibration 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 10m (WS10) - km/h**  
**Mackay River - October 2024**







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

**Wind Speed 10m (WS10) - km/h**  
**Mackay River - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	262	35.74	35.74
6 - 11	435	59.35	95.09
12 - 19	36	4.91	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: 733

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Mackay River - October 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	6	4	8	2	6	13	60	28	18	21	24	38	16	8	5	5	262
6 - 11	7	28	24	10	20	26	24	12	26	48	40	68	41	40	15	6	435
12 - 19	6	3	0	0	1	1	1	3	0	1	1	2	6	10	1	0	36
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>	19	35	32	12	27	40	85	43	44	70	65	108	63	58	21	11	733

Total Number of Valid Hours: 733

Total Number of Hours: 744





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

**Wind Speed 10m (WS10) - km/h**  
**Mackay River - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Oct 8 19:00 Minimum Value: 0 km/h on Oct 16 05:00 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: 733 Hours of Missing Data: 11 Hours of Calibration: 1 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-Oct	2	1	1	1	1	1	1	2	1	2	2	3	3	3	2	2	2	2	1	UO	1	1	1	1	3
2-Oct	1	2	2	2	2	2	3	3	4	6	5	5	5	5	5	4	5	4	3	3	3	5	4	3	6
3-Oct	3	3	3	3	3	3	3	C	4	4	3	4	4	4	4	3	3	2	2	1	2	1	2	1	4
4-Oct	2	1	1	1	1	1	1	2	2	2	3	4	4	4	4	4	4	3	2	3	3	3	3	3	4
5-Oct	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	2	1	1	2	2	3	3	3	3
6-Oct	3	3	3	3	4	4	3	4	4	4	4	4	5	5	5	4	3	2	UO	1	1	1	2	2	5
7-Oct	1	2	1	2	2	2	2	2	M	3	4	4	4	4	4	3	2	3	3	3	3	2	2	2	4
8-Oct	2	2	2	2	1	2	1	2	2	1	2	2	3	3	3	2	2	1	8	7	4	4	4	4	8
9-Oct	4	3	3	3	3	3	2	3	2	2	3	4	4	4	3	3	3	UO	1	1	1	1	1	UO	4
10-Oct	1	1	1	1	1	1	1	1	2	3	3	4	4	4	4	4	2	2	2	1	1	1	1	2	4
11-Oct	1	1	1	1	2	2	1	2	2	1	1	2	2	3	3	3	2	1	UO	2	2	2	2	2	3
12-Oct	1	1	2	1	1	1	2	1	2	2	2	3	3	3	2	2	2	1	1	1	1	1	1	1	3
13-Oct	1	1	2	2	2	2	2	3	3	4	4	4	4	4	4	3	2	1	1	1	2	1	1	1	4
14-Oct	1	2	2	2	2	2	2	3	2	3	3	2	2	2	2	2	2	2	2	3	3	2	2	2	3
15-Oct	2	2	2	2	3	3	2	3	3	3	3	3	3	3	3	3	1	1	1	1	1	2	1	1	3
16-Oct	1	1	1	1	0	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1	2	1	1	1	2
17-Oct	UO	1	1	2	3	3	4	3	4	4	5	4	4	5	5	6	6	6	6	4	4	3	3	3	6
18-Oct	2	2	2	2	1	1	1	1	1	2	3	4	3	3	4	4	3	1	1	1	1	1	1	1	4
19-Oct	1	1	2	1	UO	1	UO	UO	1	1	2	1	1	2	1	2	2	2	2	2	2	3	3	2	3
20-Oct	2	2	2	2	2	2	3	3	3	2	3	2	2	2	2	2	3	3	3	3	3	4	4	4	4
21-Oct	4	4	4	5	4	4	4	4	4	3	3	3	3	3	3	3	2	2	2	2	1	3	3	2	5
22-Oct	2	2	2	2	2	2	2	2	2	3	4	4	4	4	4	4	3	3	3	4	3	3	4	4	4
23-Oct	4	4	5	4	5	4	4	4	3	4	4	4	4	3	3	3	2	2	2	1	1	1	2	2	5
24-Oct	2	2	2	2	3	2	3	3	3	4	4	6	6	5	5	4	3	2	2	1	2	1	2	1	6
25-Oct	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	3	2	1	1	1	1	1	1	1	4
26-Oct	1	1	1	1	1	2	1	2	2	3	3	4	4	4	4	3	2	3	4	3	3	3	3	3	4
27-Oct	1	1	2	2	2	2	1	2	2	2	3	3	4	4	4	4	2	1	1	1	1	2	3	3	4
28-Oct	3	4	4	3	3	3	3	3	2	3	3	3	3	4	4	3	3	3	4	4	3	2	3	2	4
29-Oct	3	2	4	3	3	3	2	3	2	3	3	3	2	3	3	2	1	1	1	1	1	1	1	1	4
30-Oct	1	2	2	2	3	3	4	3	2	4	3	3	3	3	3	3	3	2	3	3	3	2	2	1	4
31-Oct	2	2	2	4	3	3	3	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	2	4
Diurnal Maximum																									
C - Calibration      M - Maintenance      UO - Unstable Operation																									



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

**Wind Direction 10m (WD10) - deg**  
**Mackay River - October 2024**

Direction of Maximum Speed: 300 deg on Oct 2 11:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 282.7 deg on Oct 2	Hours of Data: 733
Direction of Minimum Speed: 154 deg on Oct 25 00:00	Hours of Missing Data: 11
Direction of Minimum Daily Speed Average: 1.5 deg on Oct 12	Percent Operational Time: 98.7
Monthly Average Direction: 230.2 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-Oct	223	239	247	251	246	256	229	240	293	285	305	332	306	313	317	314	278	325	356	UO	192	187	259	255	284.1
2-Oct	261	255	269	263	252	259	262	263	264	285	300	291	290	287	286	278	282	284	282	282	290	305	299	291	282.7
3-Oct	287	287	283	284	270	268	257	C	292	287	282	272	273	268	266	246	250	222	194	201	166	169	162	163	266.9
4-Oct	156	146	141	130	143	143	119	140	122	115	109	98	93	78	55	44	46	45	35	35	28	25	20	15	68.9
5-Oct	4	3	5	357	346	302	283	276	272	256	256	234	236	237	207	221	204	178	167	170	176	184	197	203	231.0
6-Oct	215	228	235	246	248	255	249	244	244	247	236	246	247	258	268	276	237	202	UO	152	141	150	181	166	239.9
7-Oct	161	159	144	144	160	146	151	156	M	180	188	181	194	193	197	186	185	186	184	187	191	196	198	192	180.6
8-Oct	194	200	189	179	174	165	165	183	111	122	126	139	149	163	136	140	139	152	242	276	248	230	222	237	187.0
9-Oct	223	221	227	233	236	208	207	216	242	243	245	256	241	236	247	260	244	UO	128	198	212	225	222	UO	231.0
10-Oct	162	232	160	139	134	145	170	219	223	233	249	236	243	240	250	250	275	262	255	242	238	242	223	240	232.9
11-Oct	212	210	143	144	152	163	166	176	186	177	182	172	209	217	251	237	213	163	UO	187	194	192	190	198	192.8
12-Oct	201	219	249	264	251	246	251	247	265	281	318	312	317	314	349	330	16	142	152	140	124	125	126	131	265.2
13-Oct	137	128	130	130	131	128	131	132	137	146	159	167	166	168	174	170	170	154	137	123	130	135	138	137	147.4
14-Oct	134	133	129	132	123	123	126	134	141	146	150	157	123	142	139	118	127	167	196	197	185	203	194	197	149.8
15-Oct	201	215	231	239	244	233	228	240	244	262	247	239	259	267	248	262	142	187	207	193	189	223	234	233	235.1
16-Oct	247	251	161	140	139	138	142	143	129	145	142	130	116	111	103	92	94	85	86	16	4	322	347	332	111.7
17-Oct	UO	213	225	257	257	246	235	241	250	249	263	258	252	251	258	266	269	277	275	266	268	275	269	269	259.5
18-Oct	263	259	256	263	259	222	188	148	154	162	180	191	200	200	218	218	199	142	129	126	140	133	133	129	192.1
19-Oct	133	140	137	293	UO	155	UO	UO	342	229	242	212	277	45	310	11	17	25	36	31	29	12	15	3	22.4
20-Oct	348	3	358	14	34	33	22	32	35	42	60	67	73	56	62	45	46	41	39	38	31	25	22	21	33.9
21-Oct	17	11	6	2	0	354	354	353	351	333	330	327	319	322	317	335	322	284	288	258	254	243	250	223	338.5
22-Oct	208	208	210	208	192	203	211	200	207	218	218	217	220	210	210	208	205	203	207	210	211	225	227	234	211.8
23-Oct	237	233	235	232	241	247	250	246	246	249	248	243	238	228	227	233	220	211	199	197	197	188	200	206	231.4
24-Oct	212	233	245	239	249	251	253	256	257	271	267	277	282	283	285	284	277	249	227	230	213	199	169	154	259.5
25-Oct	240	236	240	240	236	238	236	239	259	261	264	279	292	279	282	251	225	166	138	143	139	123	139	143	246.0
26-Oct	137	105	133	102	37	51	43	21	50	83	89	86	83	65	48	42	50	84	99	102	105	108	116	108	84.3
27-Oct	111	119	121	127	123	126	114	115	112	94	95	92	105	96	108	114	89	96	80	91	282	293	293	276	109.0
28-Oct	273	288	285	280	277	275	278	280	281	289	284	286	293	303	299	295	296	301	303	308	306	288	286	278	289.9
29-Oct	274	285	302	305	307	301	289	291	294	287	265	277	232	231	226	224	196	140	135	138	129	111	109	108	267.4
30-Oct	40	32	29	15	17	23	29	29	28	22	21	33	41	33	35	42	47	49	56	61	74	70	63	54	37.1
31-Oct	55	68	71	97	98	98	99	99	96	97	109	107	118	112	114	149	165	181	182	188	187	211	207	190	119.1

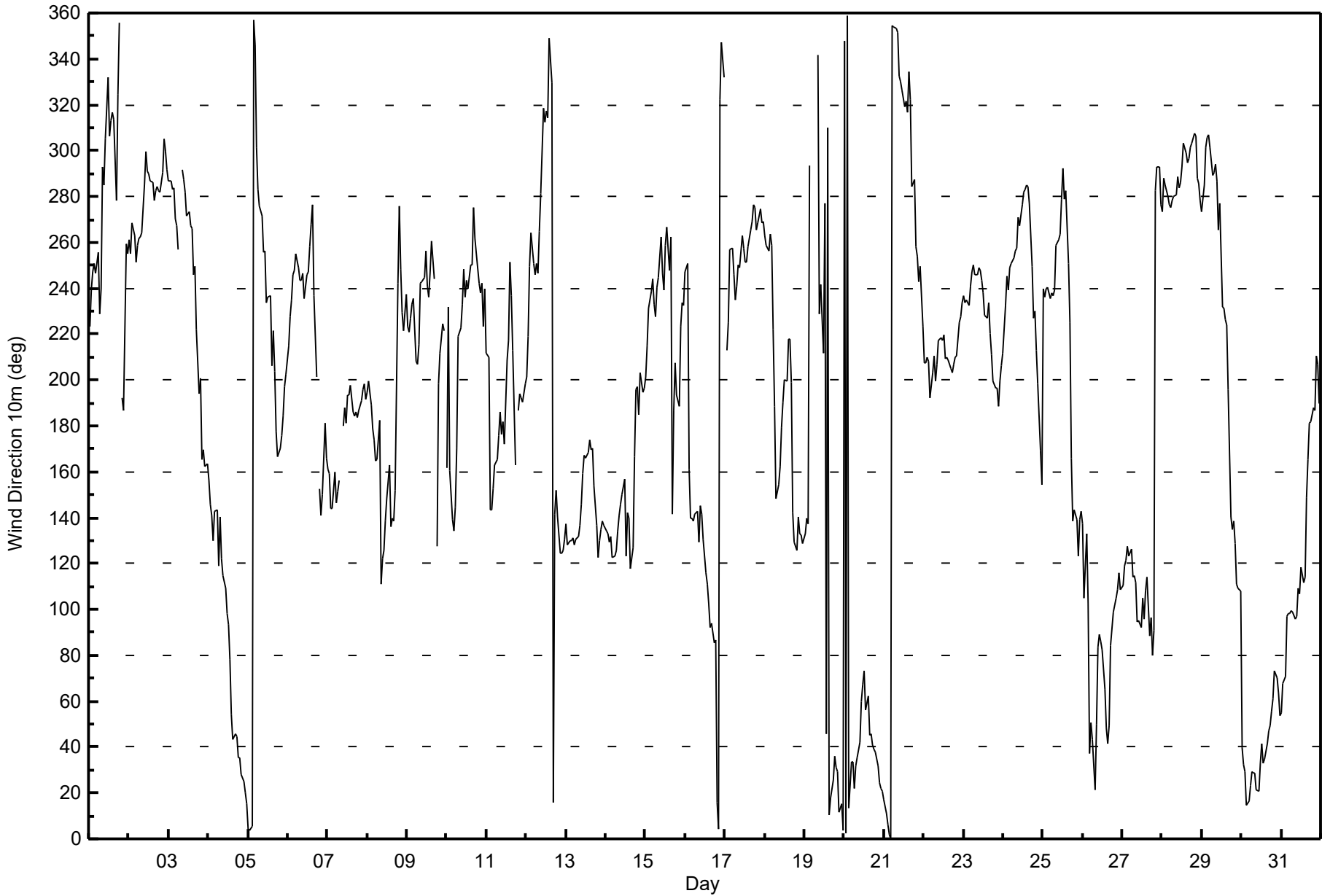
230.2 239.5 246.6 243.1 233.9 222.7 221.2 214.0 244.2 240.4 236.7 233.9 237.9 238.4 246.3 253.0 239.1 221.0 202.9 193.9 186.8 207.6 217.0 215.0  
 Diurnal Average

C - Calibration                      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 10m (WD10) - deg**  
**Mackay River - October 2024**





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

**Wind Direction 10m (WD10) - deg**  
**Mackay River - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 91 deg on Oct 19 03:00																	Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 1 Percent Operational Time: 98.7								
Minimum Value: 8 deg on Oct 16 08:00																									
Percentiles: P <sub>1</sub> = 12 P <sub>10</sub> = 18 Q <sub>1</sub> = 23 Median = 28 Q <sub>3</sub> = 39 P <sub>90</sub> = 48 P <sub>99</sub> = 78																									
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-Oct	23	35	39	66	37	42	38	37	36	45	50	51	36	31	34	25	31	36	38	UO	57	59	20	29	66
2-Oct	32	45	38	37	40	42	36	35	39	28	27	25	28	26	27	31	30	25	26	24	23	21	23	26	45
3-Oct	24	25	23	29	33	40	40	C	36	37	38	48	41	43	44	47	53	36	14	15	15	18	16	13	53
4-Oct	22	63	44	16	12	18	22	21	20	19	20	26	29	37	29	25	31	30	24	23	25	23	25	23	63
5-Oct	25	25	25	26	24	24	24	39	41	45	49	48	42	50	29	33	26	18	19	22	20	22	24	23	50
6-Oct	27	37	40	49	51	46	50	45	48	50	38	46	49	49	46	41	47	28	UO	57	11	13	17	21	57
7-Oct	13	14	17	19	23	22	23	25	M	23	26	25	30	28	28	25	24	19	22	20	21	19	20	16	30
8-Oct	21	21	15	13	17	23	18	21	73	19	24	25	26	27	26	23	24	20	58	49	47	35	31	36	73
9-Oct	34	29	39	38	39	29	23	29	46	44	43	43	47	50	46	44	40	UO	14	35	19	24	27	UO	50
10-Oct	23	62	47	24	28	21	31	21	35	45	46	43	45	49	51	48	40	32	36	21	24	28	26	55	62
11-Oct	20	29	19	21	25	23	16	19	18	24	27	25	38	35	50	42	28	48	UO	15	19	17	16	21	50
12-Oct	21	25	46	40	27	42	62	50	47	32	29	31	31	55	68	44	70	42	12	14	11	15	17	19	70
13-Oct	21	20	19	19	20	18	19	18	22	24	26	27	28	29	29	28	25	29	20	22	22	22	22	23	29
14-Oct	20	19	16	22	19	17	19	23	25	25	27	30	24	30	29	23	24	26	24	25	24	27	21	24	30
15-Oct	24	34	41	41	45	40	33	48	49	47	48	45	45	46	49	57	69	15	19	22	15	27	31	29	69
16-Oct	31	36	68	9	11	14	13	8	40	87	85	23	21	19	21	30	32	35	33	50	43	58	33	33	87
17-Oct	UO	24	34	50	46	46	36	43	48	46	48	44	50	46	41	41	41	36	35	42	43	38	40	49	50
18-Oct	44	41	45	44	45	28	28	22	18	21	25	26	29	35	38	33	26	14	15	16	19	18	17	16	45
19-Oct	17	20	91	42	UO	78	UO	UO	57	80	45	79	62	81	60	32	23	26	25	24	24	27	25	27	91
20-Oct	25	26	26	28	23	25	26	25	26	26	33	32	33	34	31	25	23	23	23	24	26	25	25	26	34
21-Oct	24	24	25	25	24	26	25	24	25	23	23	22	24	31	23	24	29	26	26	41	43	45	52	36	52
22-Oct	25	23	26	25	18	23	27	21	28	33	32	32	33	30	29	27	24	23	25	27	28	32	34	39	39
23-Oct	38	36	36	40	48	49	45	46	55	48	47	44	40	35	32	36	27	23	19	16	16	20	19	22	55
24-Oct	22	37	49	43	48	51	47	45	47	45	44	36	34	35	32	35	32	47	31	27	20	20	74	82	82
25-Oct	35	43	40	42	36	37	36	41	57	50	49	41	36	38	43	48	37	22	10	13	11	10	13	13	57
26-Oct	13	37	39	43	25	24	54	13	31	36	33	33	34	32	27	23	25	35	25	22	21	19	20	21	54
27-Oct	18	16	17	17	15	14	17	17	20	27	30	33	28	27	21	24	29	20	31	78	39	23	24	36	78
28-Oct	35	27	28	31	36	37	35	32	29	27	31	30	28	24	24	25	23	22	23	22	23	27	31	40	40
29-Oct	36	28	25	24	22	25	26	24	27	35	42	44	45	41	36	38	34	19	13	13	14	14	19	13	45
30-Oct	55	22	25	24	23	23	26	24	24	25	24	29	24	28	25	25	22	27	26	26	31	28	31	25	55
31-Oct	30	26	26	30	27	31	23	29	31	27	23	26	27	32	37	29	36	25	58	24	26	29	35	27	58
Diurnal Maximum																									
C - Calibration                      M - Maintenance                      UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS21  
CONKLIN  
OCTOBER 2024**

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

November 29, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
OCTOBER 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	0.6	0
TRS(ppb) Average	708	36	36	100	0.4	0	0.2	0
THC(ppm) Average	709	35	35	100	2.3	-	2	-
NMHC(ppm) Average	709	35	35	100	0.165	-	0.007	-
CH4(ppm) Average	709	35	35	100	2.3	-	2	-
O3 (ppb) Average	694	36	50	98.12	45.1	0	30.7	-
NO2 (ppb) Average	708	36	36	100	11.4	0	3	-
NO (ppb) Average	708	36	36	100	18.5	-	2.3	-
NOX (ppb) Average	708	36	36	100	27.3	-	4.8	-
PM2.5 (ug/m3) Average	743	1	1	100	41.4	0	7.6	0
Temperature 2 m (C) Average	744	0	0	100	21.2	-	12.7	-
Relative Humidity (%) Average	744	0	0	100	99.5	-	98.1	-
Wind Speed 10 m (km/h) Average	668	0	76	89.78	20	-	11	-
Wind Direction 10 m (deg) Average	668	0	76	89.78	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
OCTOBER 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	0.16	0.3	-	0	0	0	0.1	0.2	0.3	5.9
TRS (ppb) Average	708	0.1	0	-	0	0.1	0.1	0.1	0.1	0.1	0.4
THC (ppm) Average	709	1.98	0.1	-	1.9	1.9	1.9	2	2	2	2.3
NMHC(ppm) Average	709	0.001	0.009	-	0	0	0	0	0	0	0.165
CH4(ppm) Average	709	1.98	0.1	-	1.9	1.9	1.9	2	2	2	2.3
O3 (ppb) Average	694	23.44	9.2	-	3	10	16.1	24.4	30.3	34.9	45.1
NO2 (ppb) Average	708	1.68	1.5	-	0	0.5	0.7	1.2	2.1	3.7	11.4
NO (ppb) Average	708	0.69	1.7	-	0	0	0	0.1	0.5	1.8	18.5
NOX (ppb) Average	708	2.36	2.8	-	0.2	0.5	0.7	1.4	2.7	5.6	27.3
PM2.5 (ug/m3) Average	743	4.31	4.3	-	0.1	1.3	2.1	3.1	4.8	8.3	41.4
Temperature 2 m (C) Average	744	2.72	5.6	-	-10	-3.7	-1.3	2	6	10.3	21.2
Relative Humidity (%) Average	744	77	17.7	-	30.4	48.8	66.1	80.2	91.8	98.1	99.5
Wind Speed 10 m (km/h) Average	668	6.4	3	-	0	2	4	6	9	11	20
Wind Direction 10 m (deg) Average	668	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS 21)  
OCTOBER 2024

OPERATIONAL NOTES

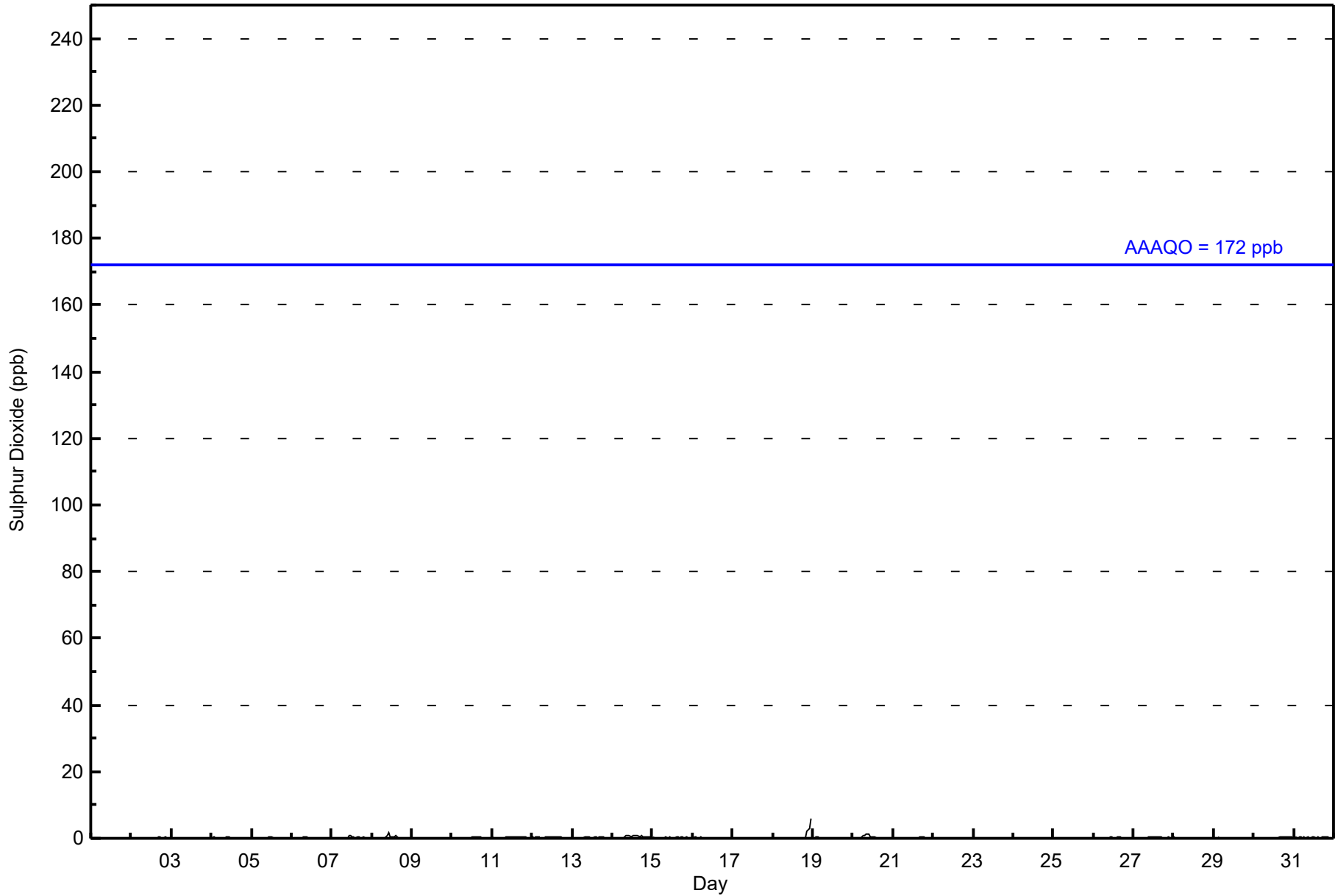
Parameter	Period Start	Period End	Duration (Hours)	Notes
O3	18 Oct 2024 06:00	18 Oct 2024 08:00	3	Unstable Operation - flatline in analyzer output signal
O3	18 Oct 2024 09:00	18 Oct 2024 09:00	1	Maintenance - analyzer rebooted
O3	31 Oct 2024 04:00	31 Oct 2024 12:00	9	Unstable Operation - flatline in analyzer output signal
O3	31 Oct 2024 13:00	31 Oct 2024 13:00	1	Maintenance - analyzer rebooted
Wind Speed, Wind Direction	02 Oct 2024 02:00	02 Oct 2024 08:00	7	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Oct 2024 07:00	12 Oct 2024 07:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Oct 2024 18:00	12 Oct 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	16 Oct 2024 06:00	16 Oct 2024 07:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	21 Oct 2024 07:00	22 Oct 2024 03:00	21	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Oct 2024 07:00	26 Oct 2024 07:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 06:00	28 Oct 2024 09:00	4	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 18:00	29 Oct 2024 13:00	20	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Oct 2024 18:00	30 Oct 2024 12:00	19	Flat line in sensor output signal - Sensor frozen





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Conklin - October 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 - October 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	10	8	26	25	13	14	37	73	50	49	80	45	71	56	41	38	636
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>	10	8	26	25	13	14	37	73	50	49	80	45	71	56	41	38	636

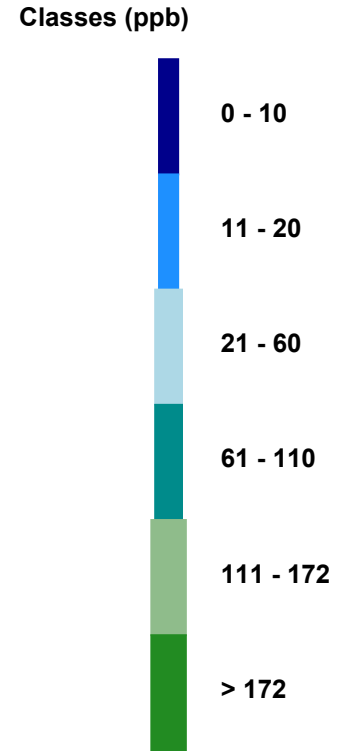
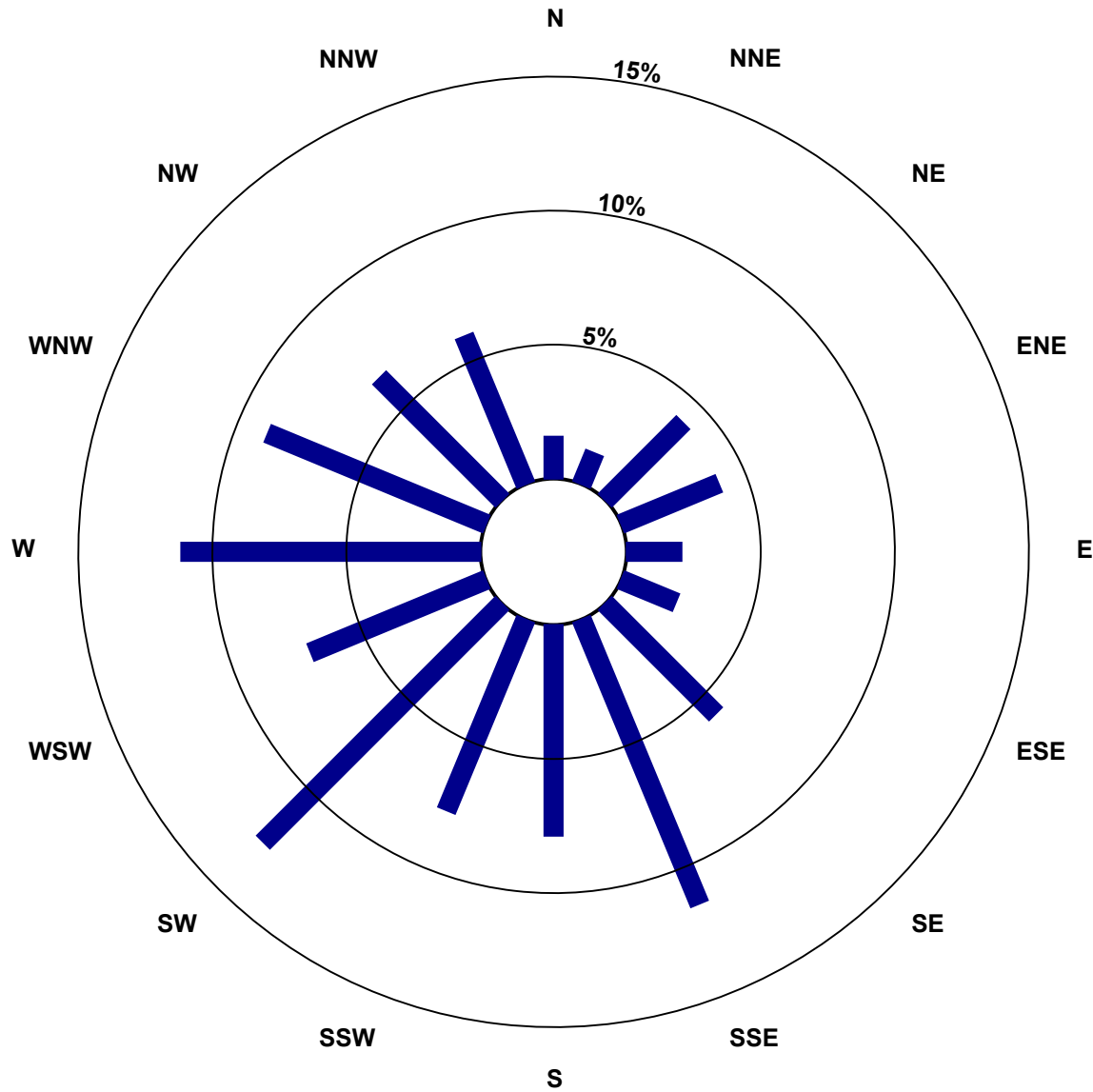
Total Number of Valid Hours: 636

Total Number of Hours: 744



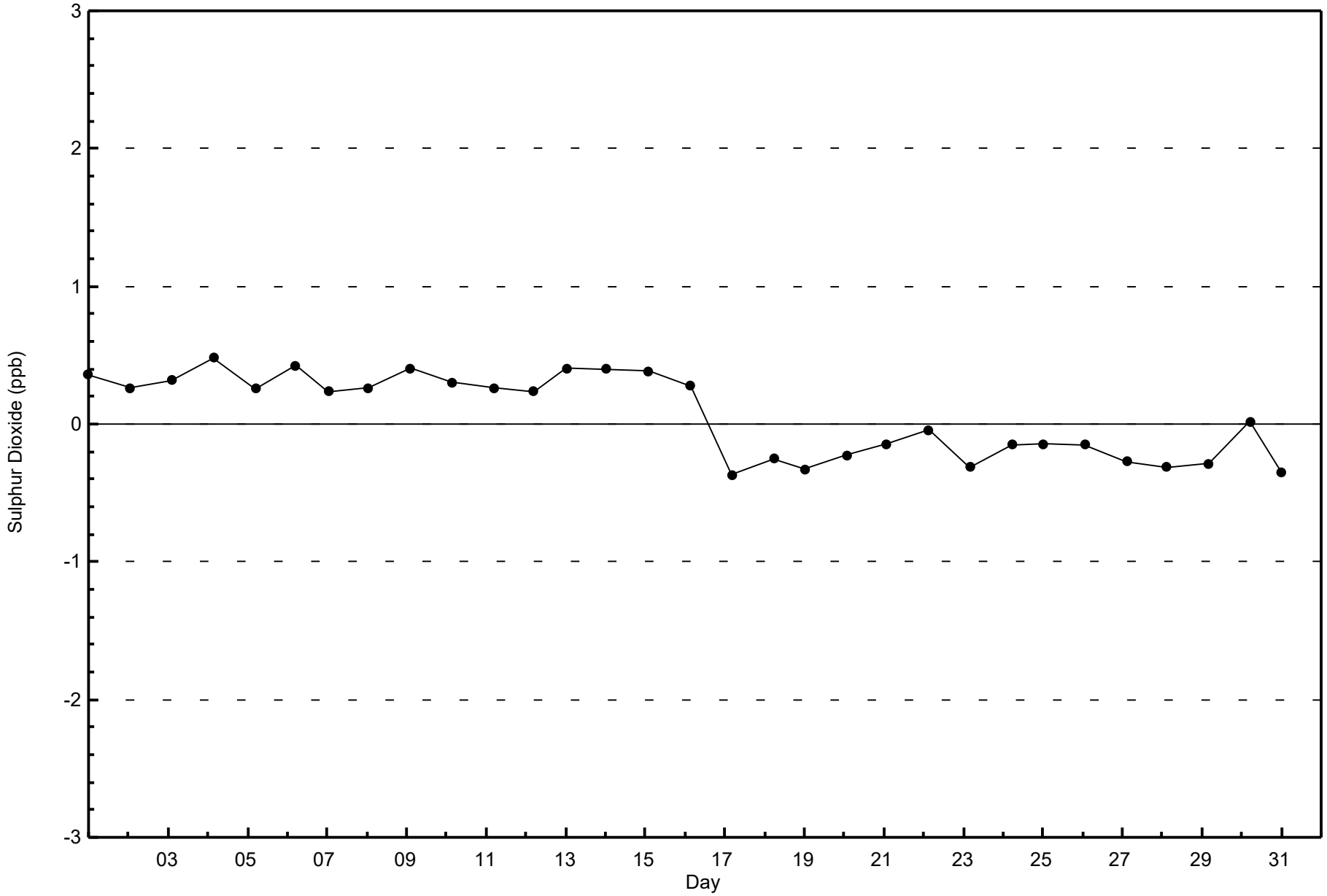
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

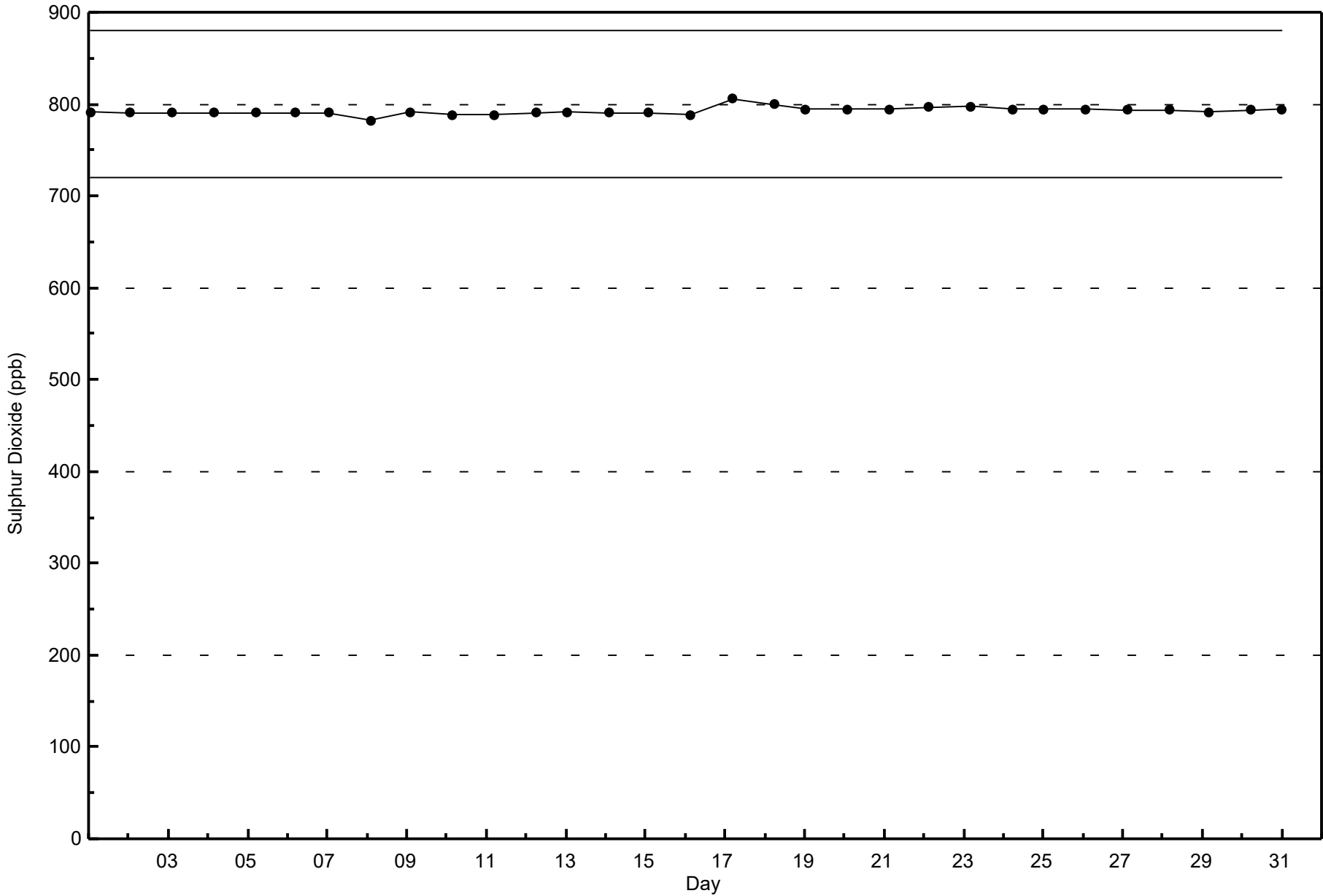
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin



Total Number of Valid Hours: 636





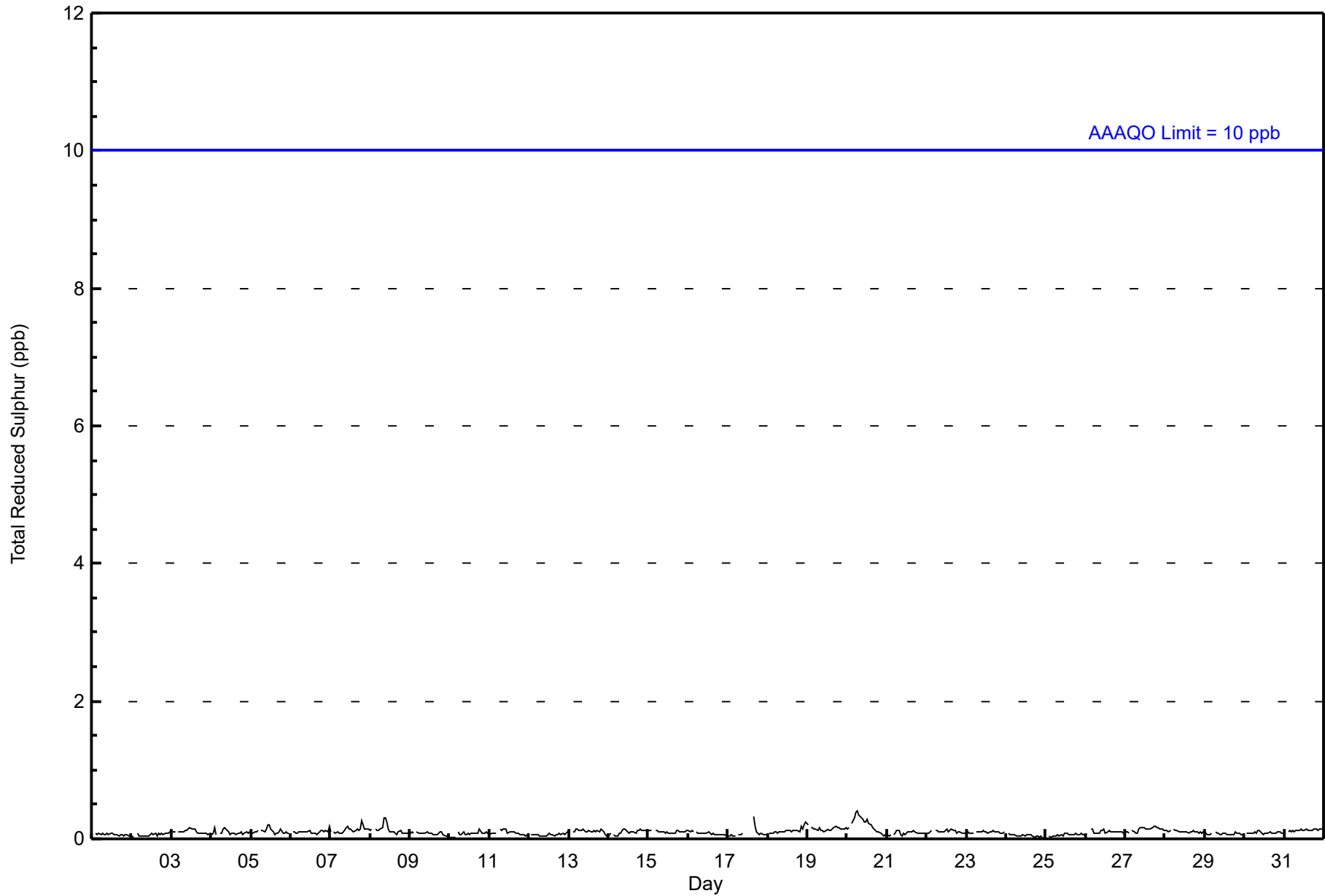




Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 0.4 ppb on Oct 20 07:00	Maximum Daily Average: 0.2 ppb on Oct 20		Hours of Data:	708
Minimum Value: 0.0 ppb on Oct 25 01:00	Minimum Daily Average: 0.0 ppb on Oct 24		Hours of Missing Data:	36
Maximum Diurnal Average: 0.1 ppb at hour 10	Minimum Diurnal Average: 0.1 ppb at hour 2		Hours of Calibration:	36
Monthly Average: 0.10 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.3		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-Oct	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	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1																									
2-Oct	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																								
3-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																								
4-Oct	0.1	0.1	0.2	0.1	Z	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																								
5-Oct	0.1	0.1	0.1	0.1	0.1	Z	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																								
6-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2																							
7-Oct	0.1	Z	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	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3																							
8-Oct	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
9-Oct	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	0.0	0.0	0.0	0.1	0.1	0.1	0.1																							
10-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
11-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1																							
12-Oct	Z	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
13-Oct	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	0.0	0.1																							
14-Oct	0.1	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
15-Oct	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																							
16-Oct	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	0.0	0.1	0.1																						
17-Oct	0.0	0.0	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	C	C	C	C	C	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																							
18-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.3																							
19-Oct	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2																							
20-Oct	0.1	0.2	Z	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.4																							
21-Oct	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																							
22-Oct	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																							
23-Oct	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																							
24-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
25-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	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-Oct	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																							
27-Oct	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2																							
28-Oct	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																							
29-Oct	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																							
30-Oct	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																							
31-Oct	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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
																								0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	Diurnal Maximum

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Conklin - October 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**  
**Conklin - October 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	10	9	29	26	13	14	36	71	52	49	80	46	67	56	40	37	635
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	10	9	29	26	13	14	36	71	52	49	80	46	67	56	40	37	635

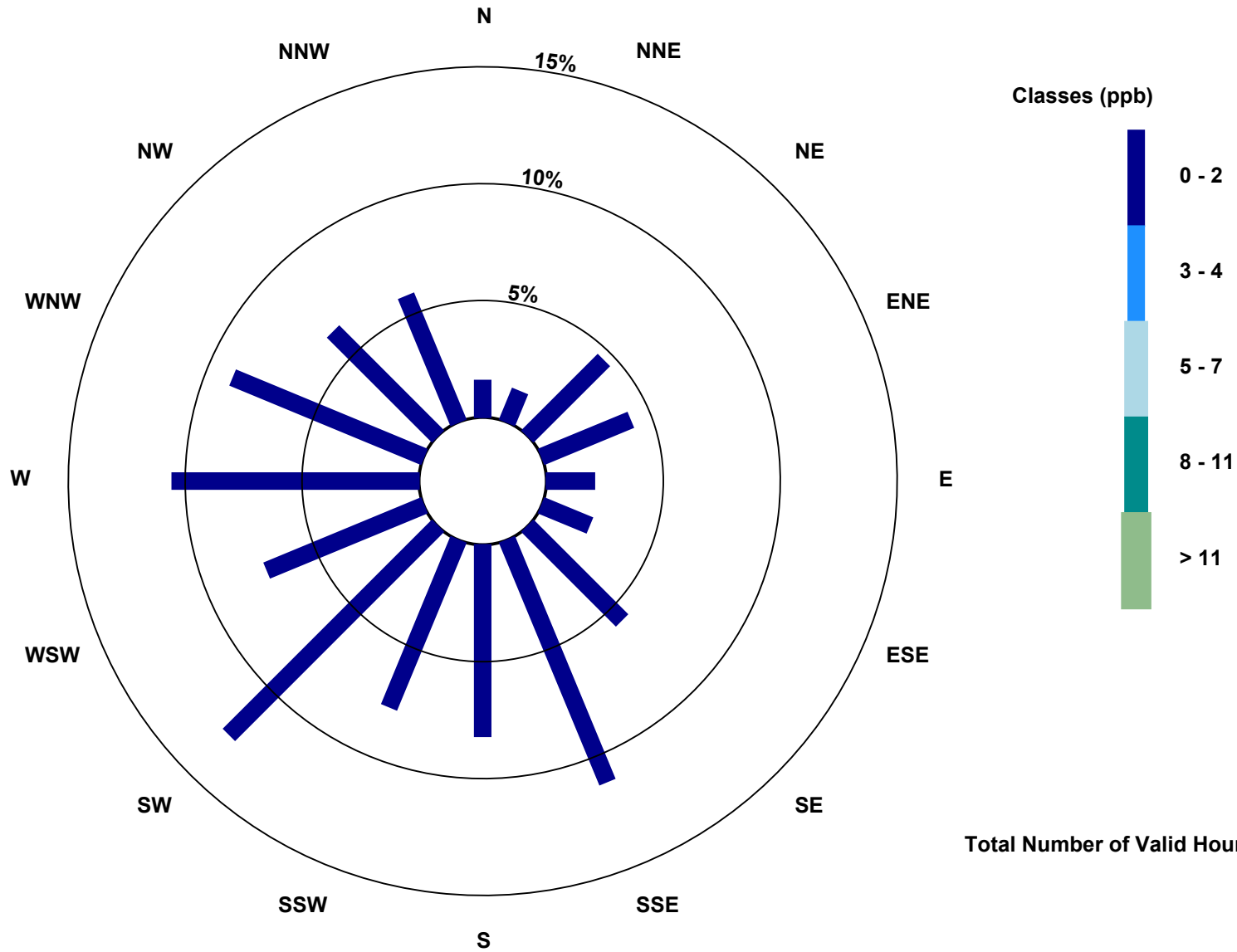
Total Number of Valid Hours: 635

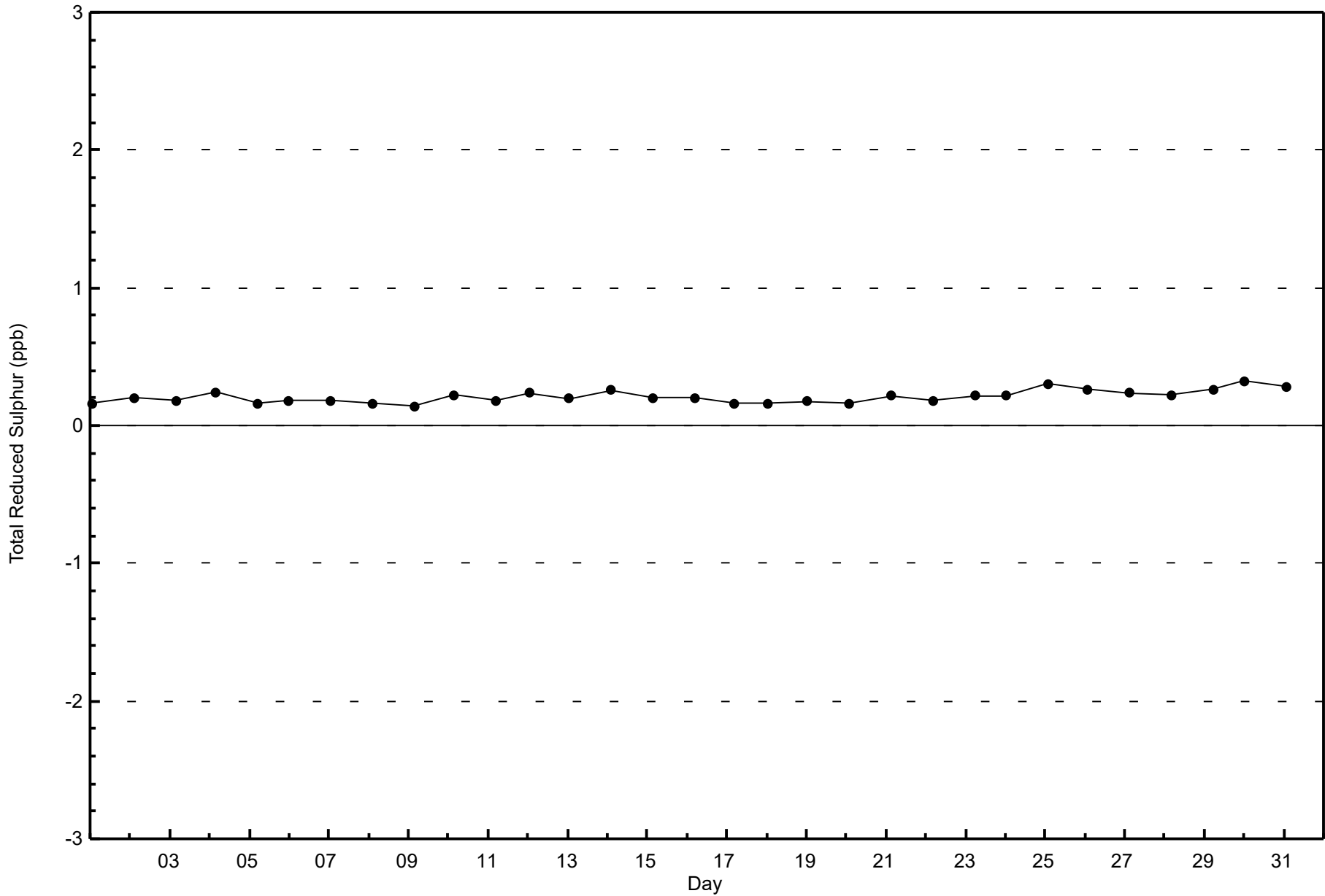
Total Number of Hours: 744



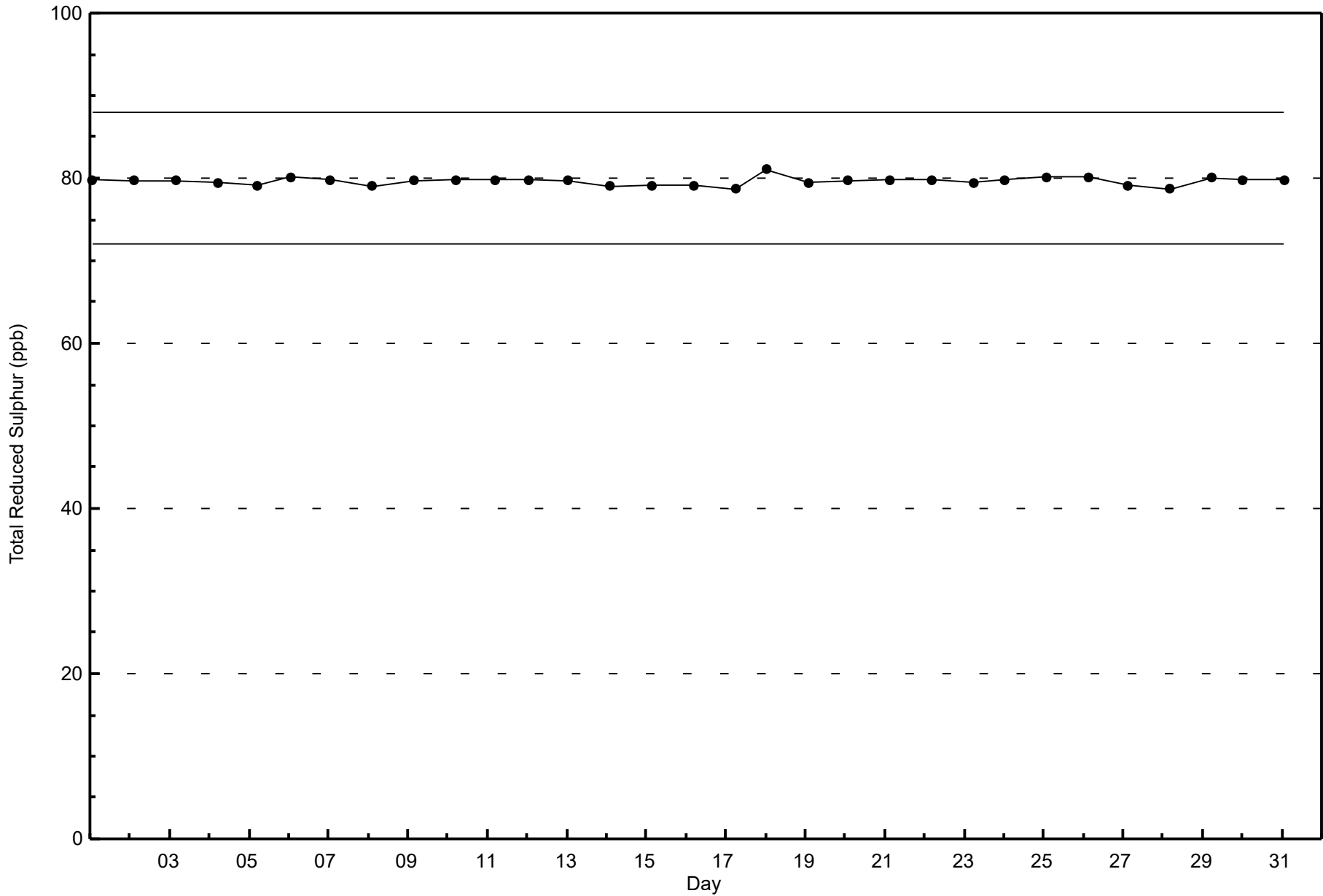
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Conklin







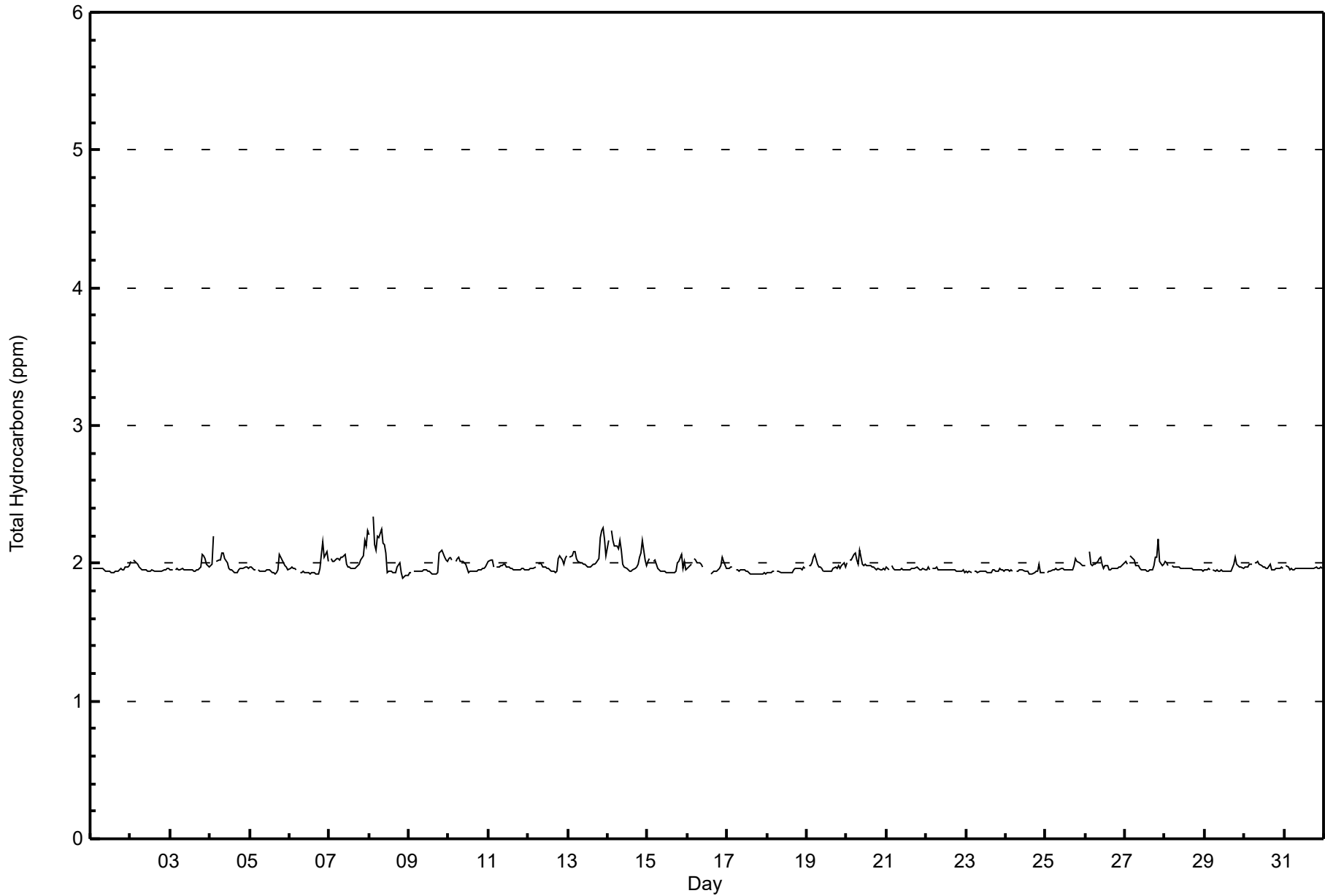






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Conklin - October 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Conklin - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	655	92.38	92.38
2.1 - 3.0	54	7.62	100.00
3.1 - 10.0	0	0.00	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**  
**Conklin - October 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	8	26	25	12	13	24	51	41	47	80	45	71	56	40	35	582
2.1 - 3.0	2	0	0	0	1	1	13	22	9	2	0	0	0	0	1	3	54
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>	10	8	26	25	13	14	37	73	50	49	80	45	71	56	41	38	636

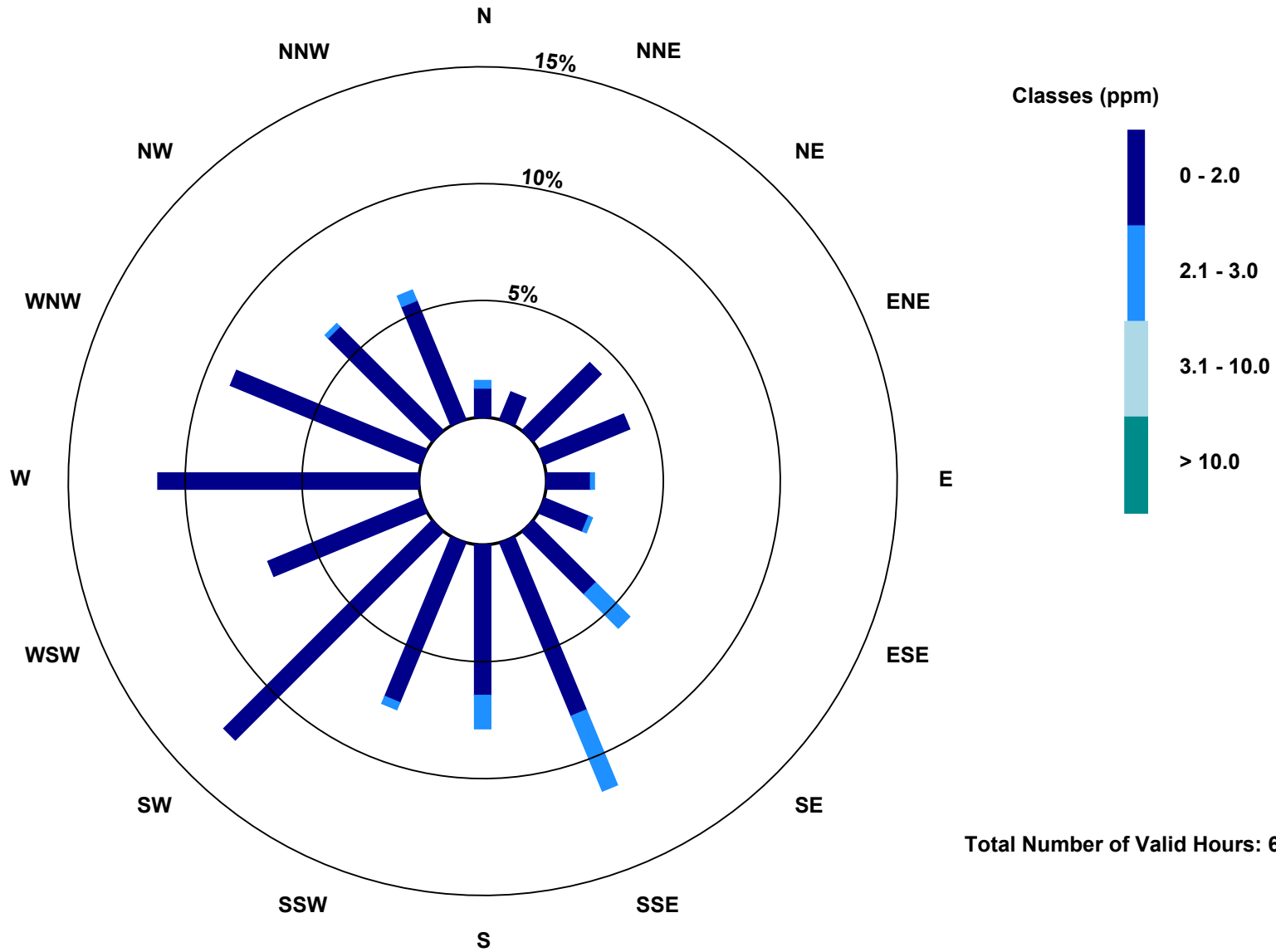
Total Number of Valid Hours: 636

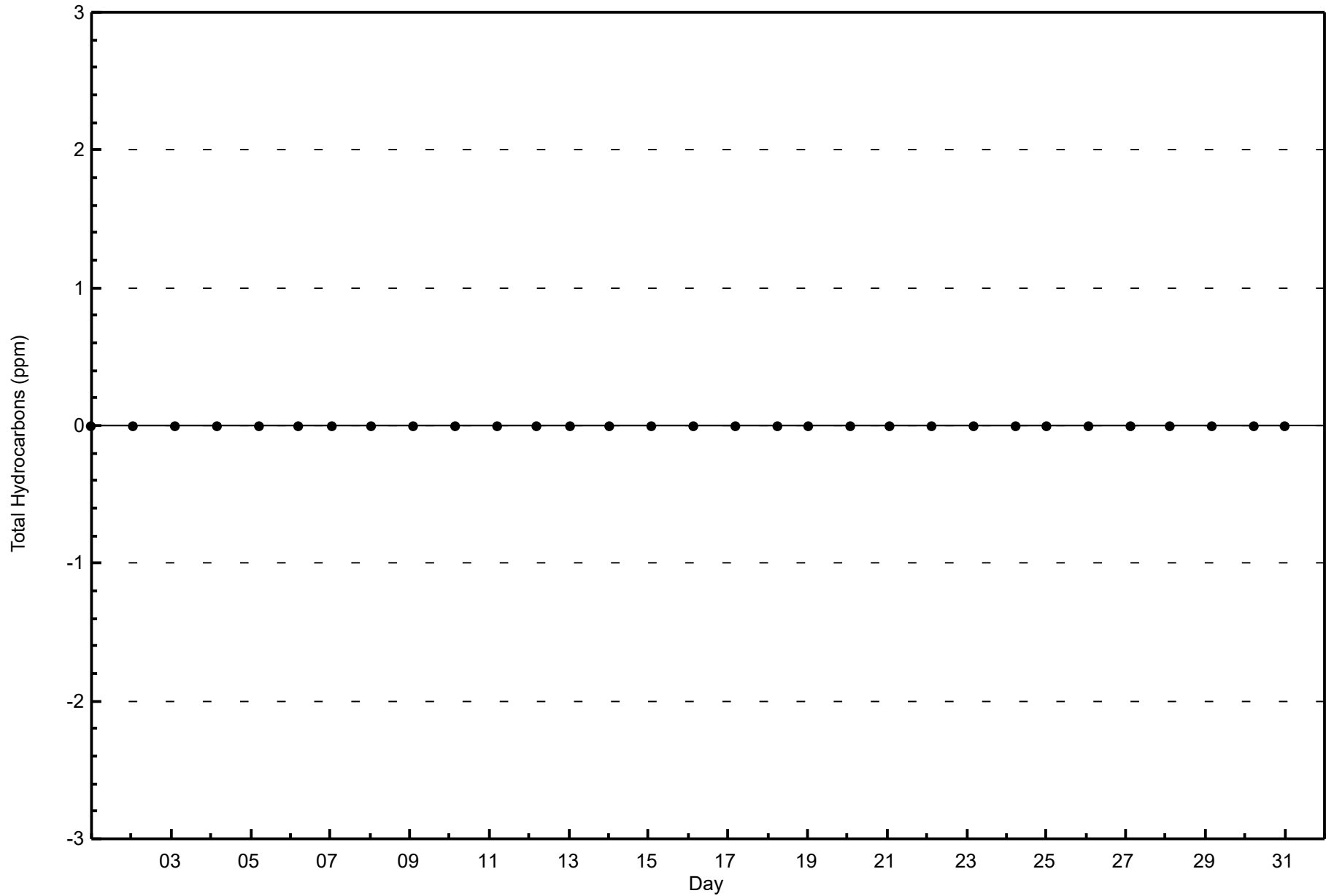
Total Number of Hours: 744

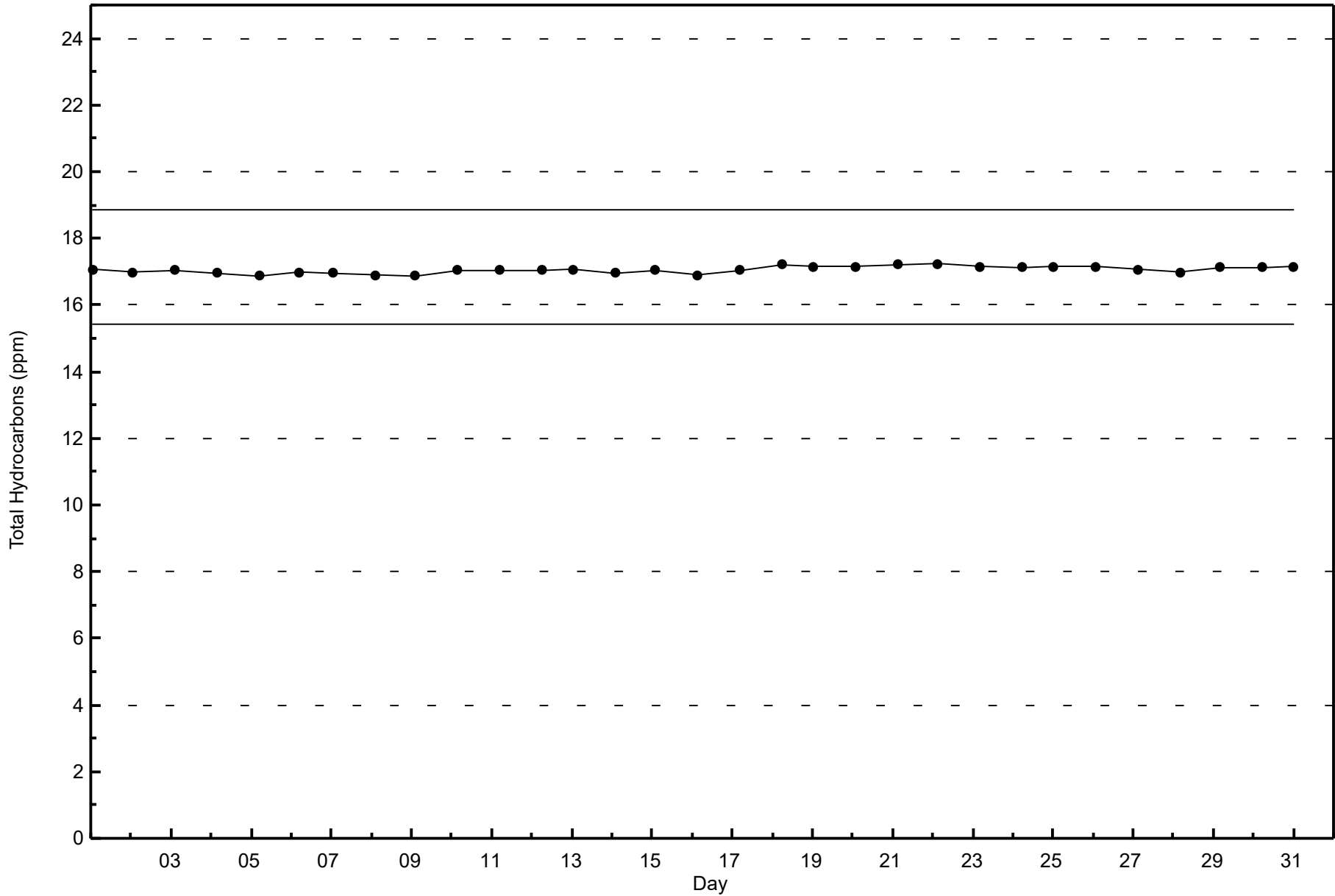


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Conklin

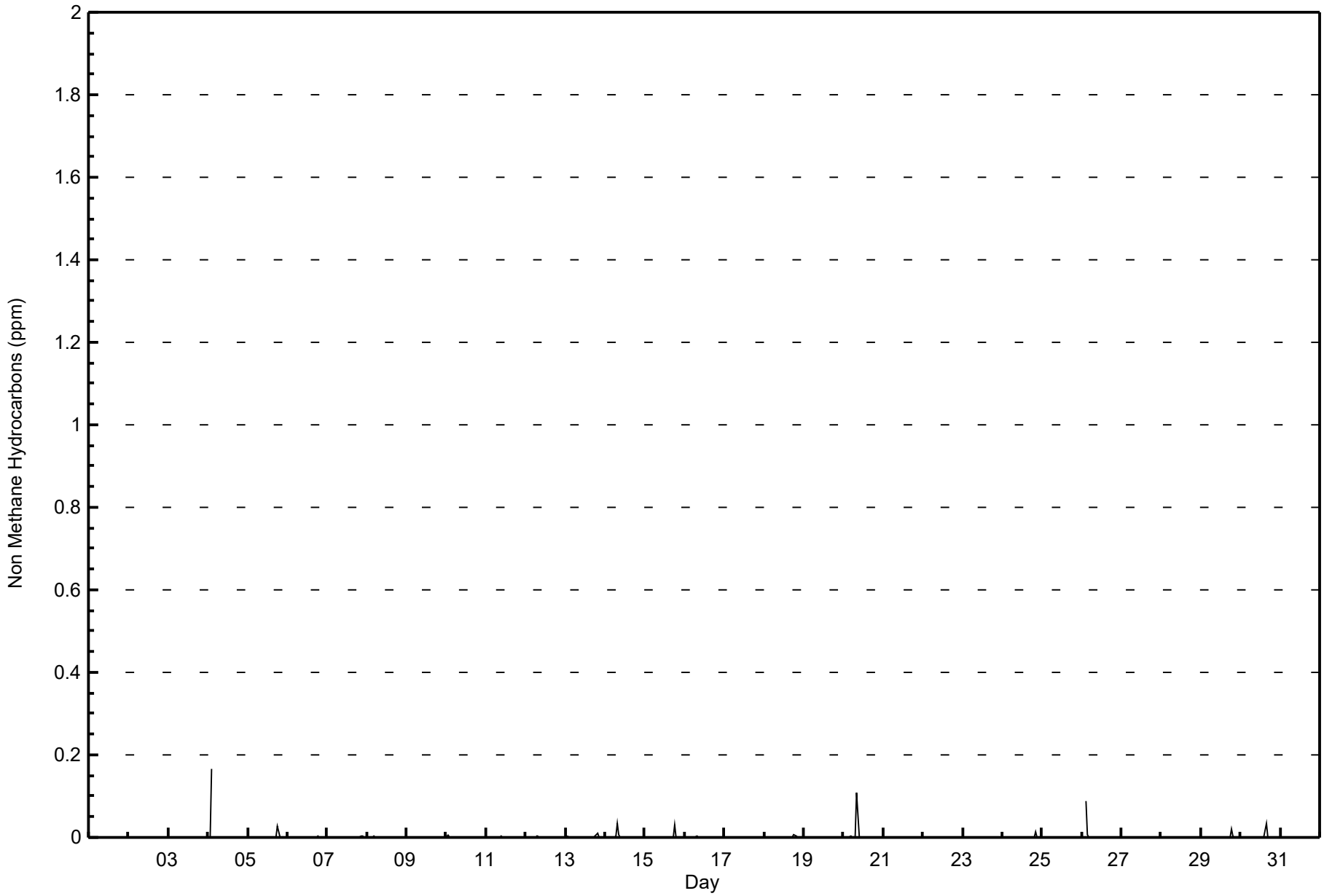














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Conklin - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	695	98.03	98.03
0.006 - 0.05	11	1.55	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**

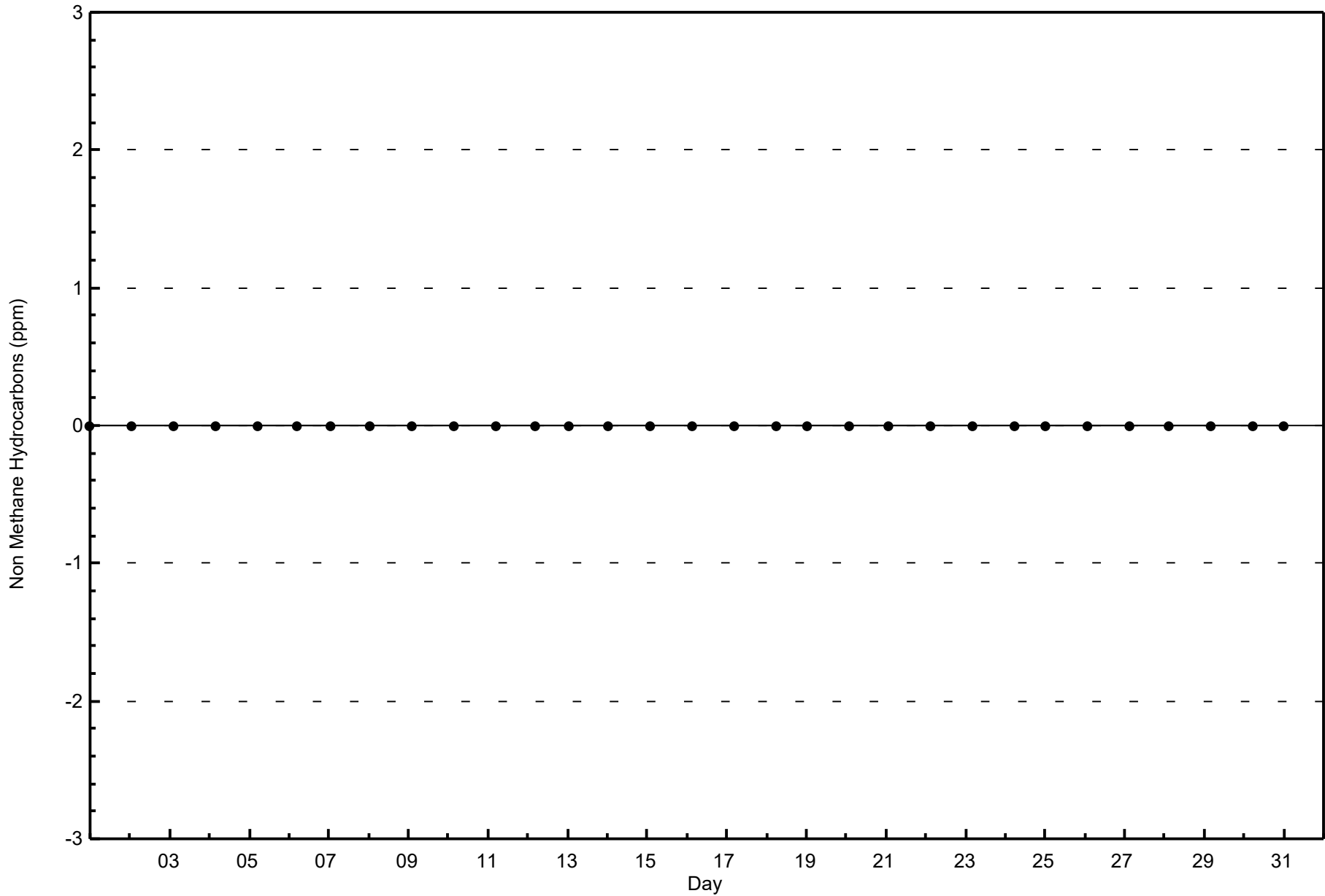
**Non Methane Hydrocarbons (NMHC) - ppm  
Conklin - October 2024**

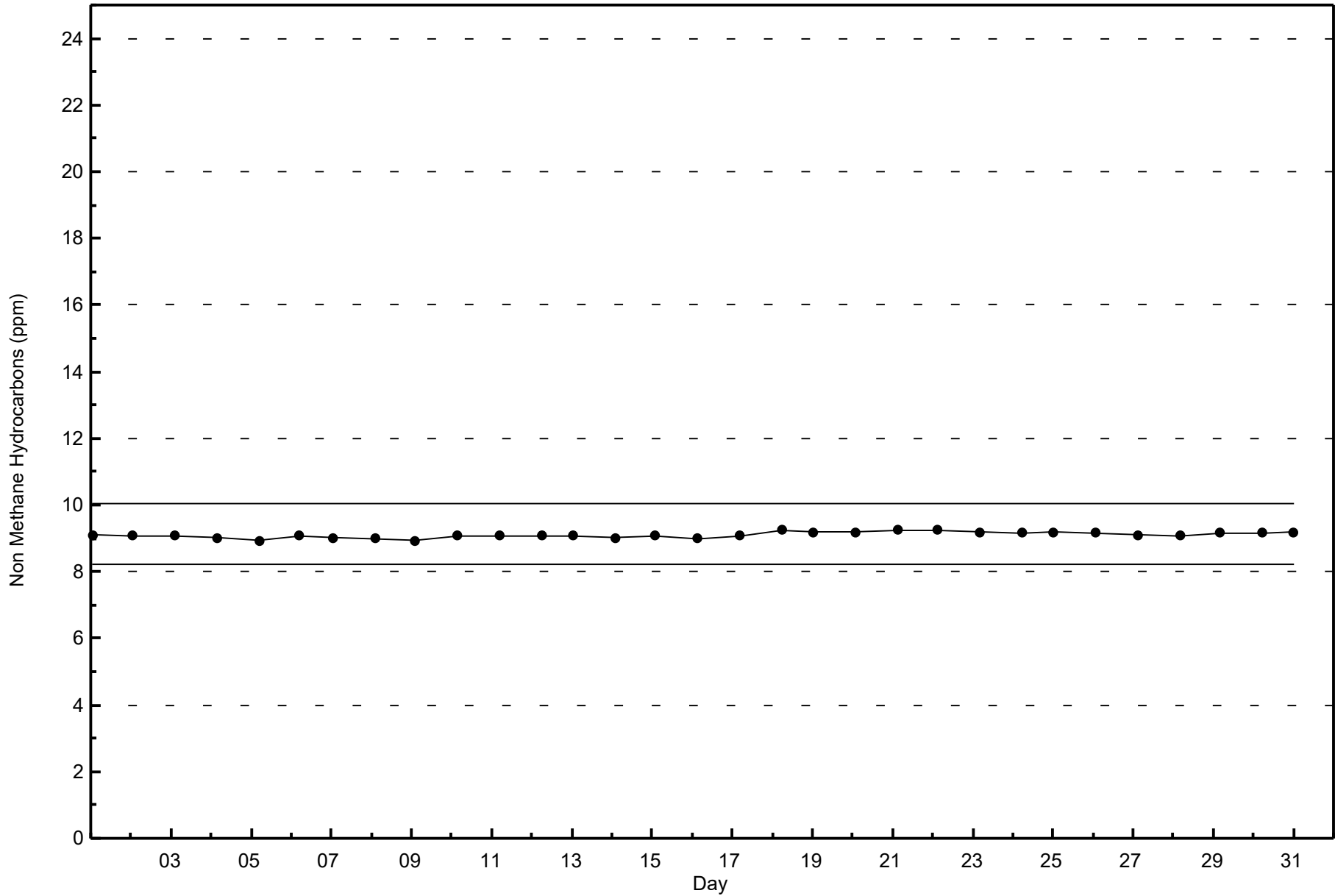
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	9	8	25	25	13	14	35	70	45	48	80	45	71	56	41	38	623
0.006 - 0.05	0	0	1	0	0	0	2	3	3	1	0	0	0	0	0	0	10
0.06 - 0.1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
> 0.1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
<b>Totals</b>	10	8	26	25	13	14	37	73	50	49	80	45	71	56	41	38	636

Total Number of Valid Hours: 636

Total Number of Hours: 744

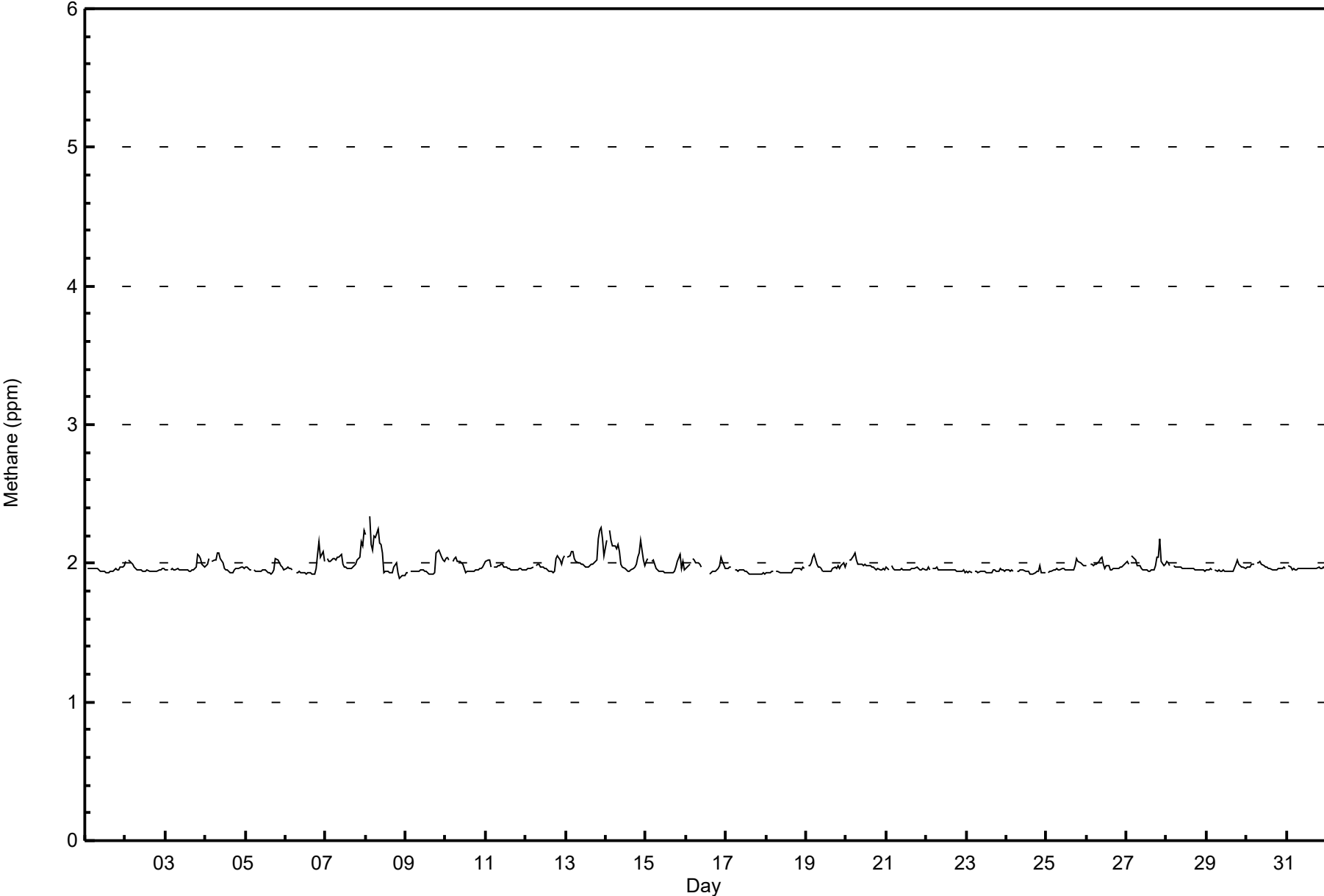














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Conklin - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	660	93.09	93.09
2.1 - 3.0	49	6.91	100.00
3.1 - 10.0	0	0.00	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  
Conklin - October 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	9	8	26	25	12	13	24	52	44	47	80	45	71	56	40	35	587
2.1 - 3.0	1	0	0	0	1	1	13	21	6	2	0	0	0	0	1	3	49
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>	10	8	26	25	13	14	37	73	50	49	80	45	71	56	41	38	636

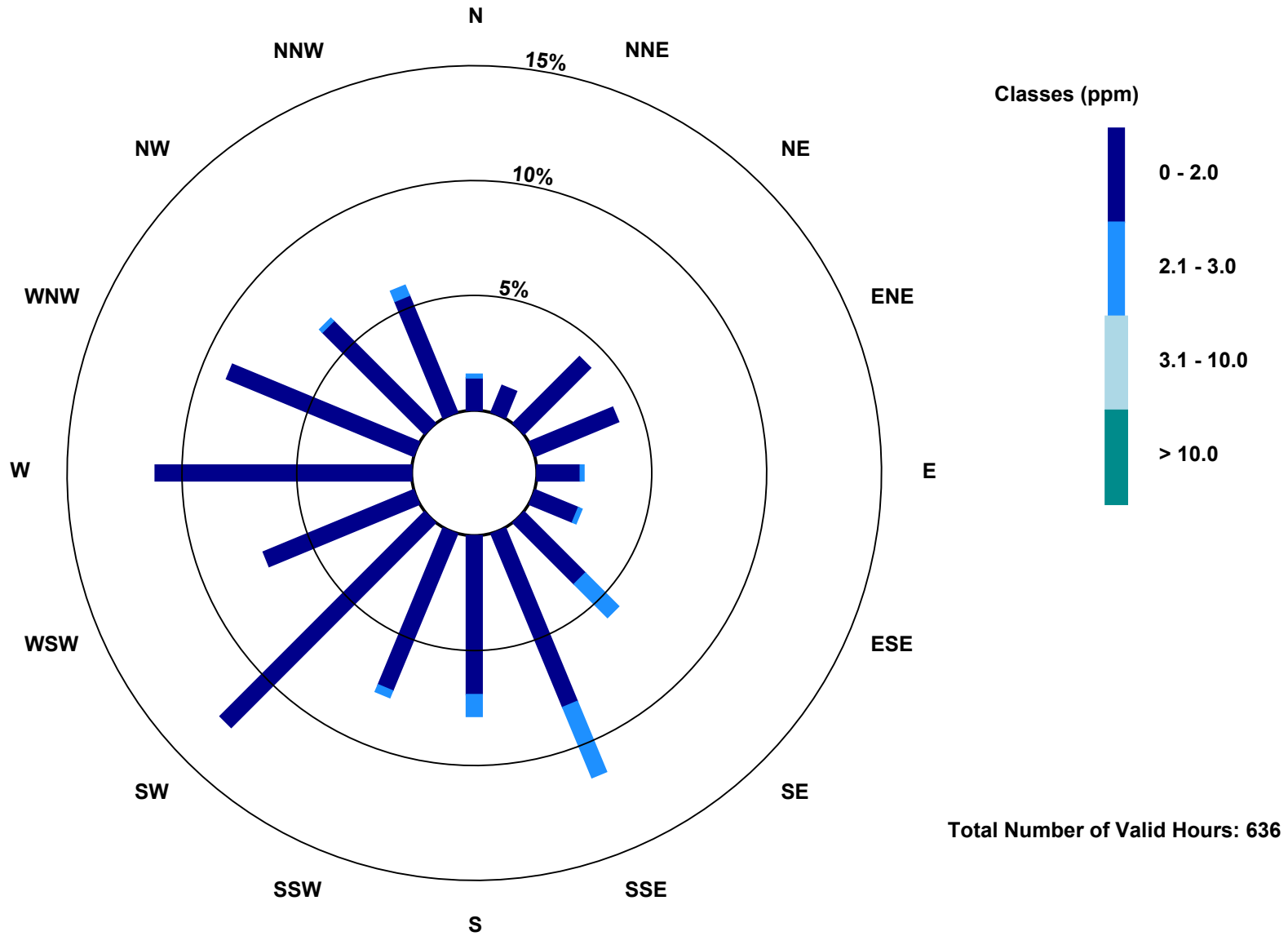
Total Number of Valid Hours: 636

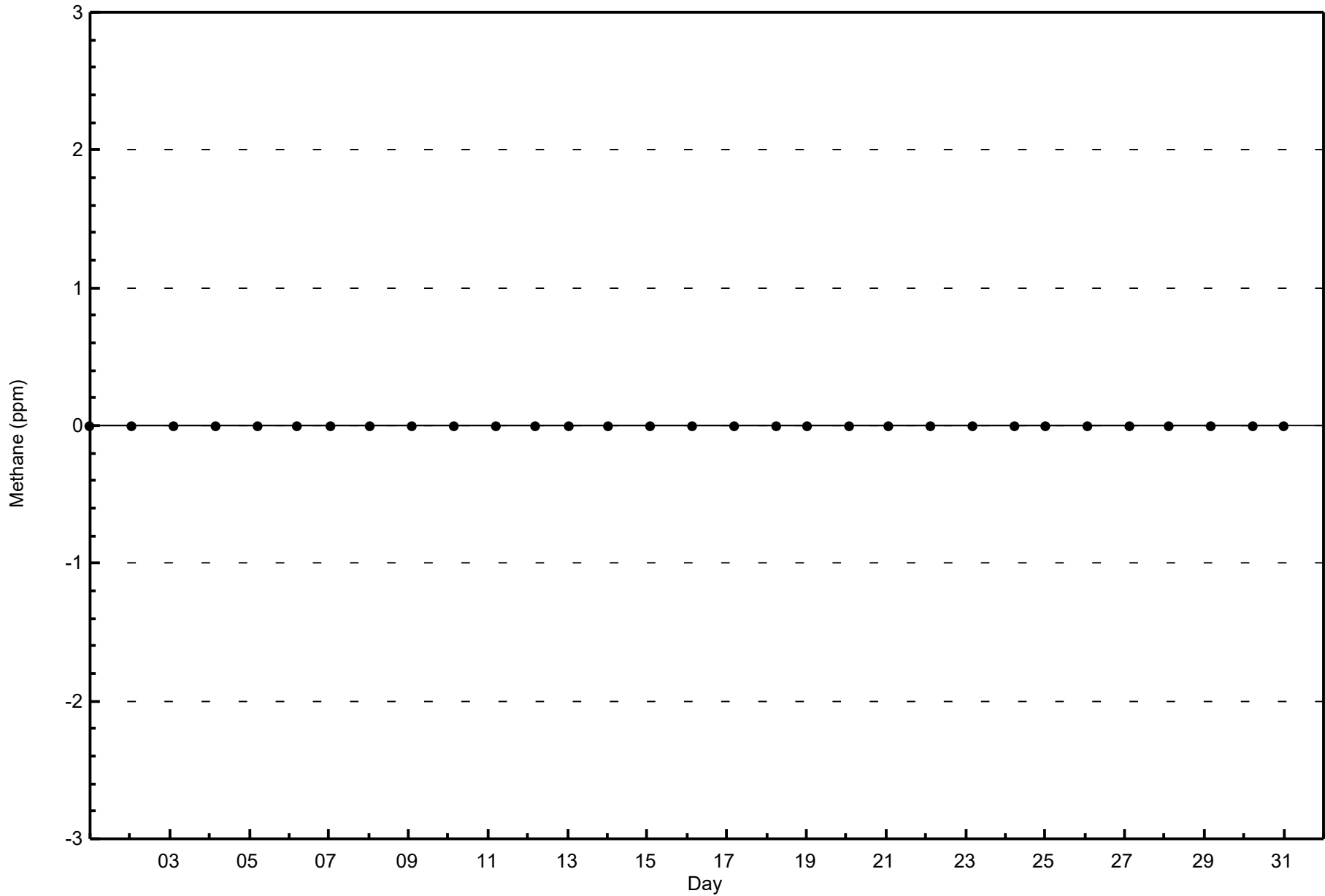
Total Number of Hours: 744

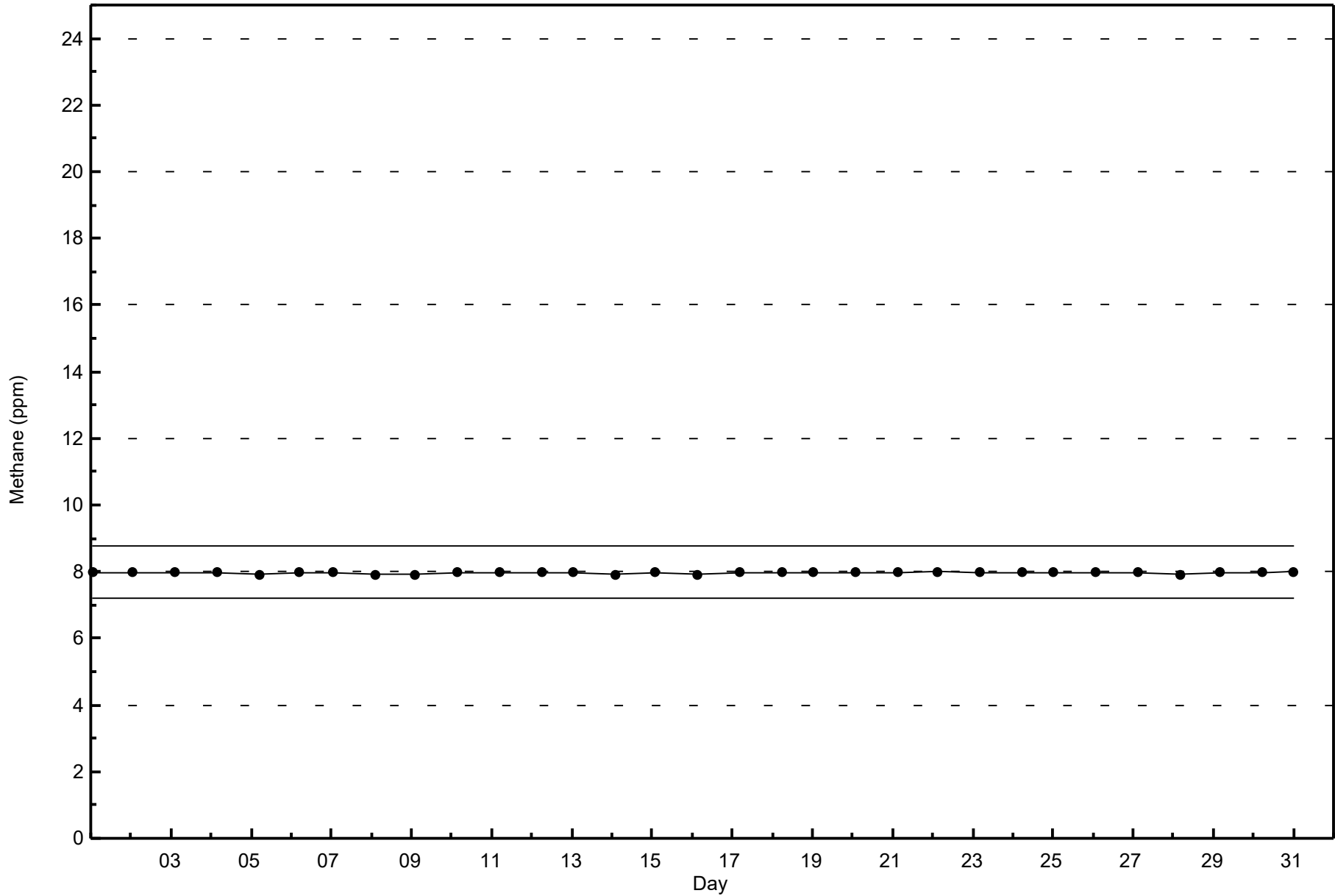


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









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

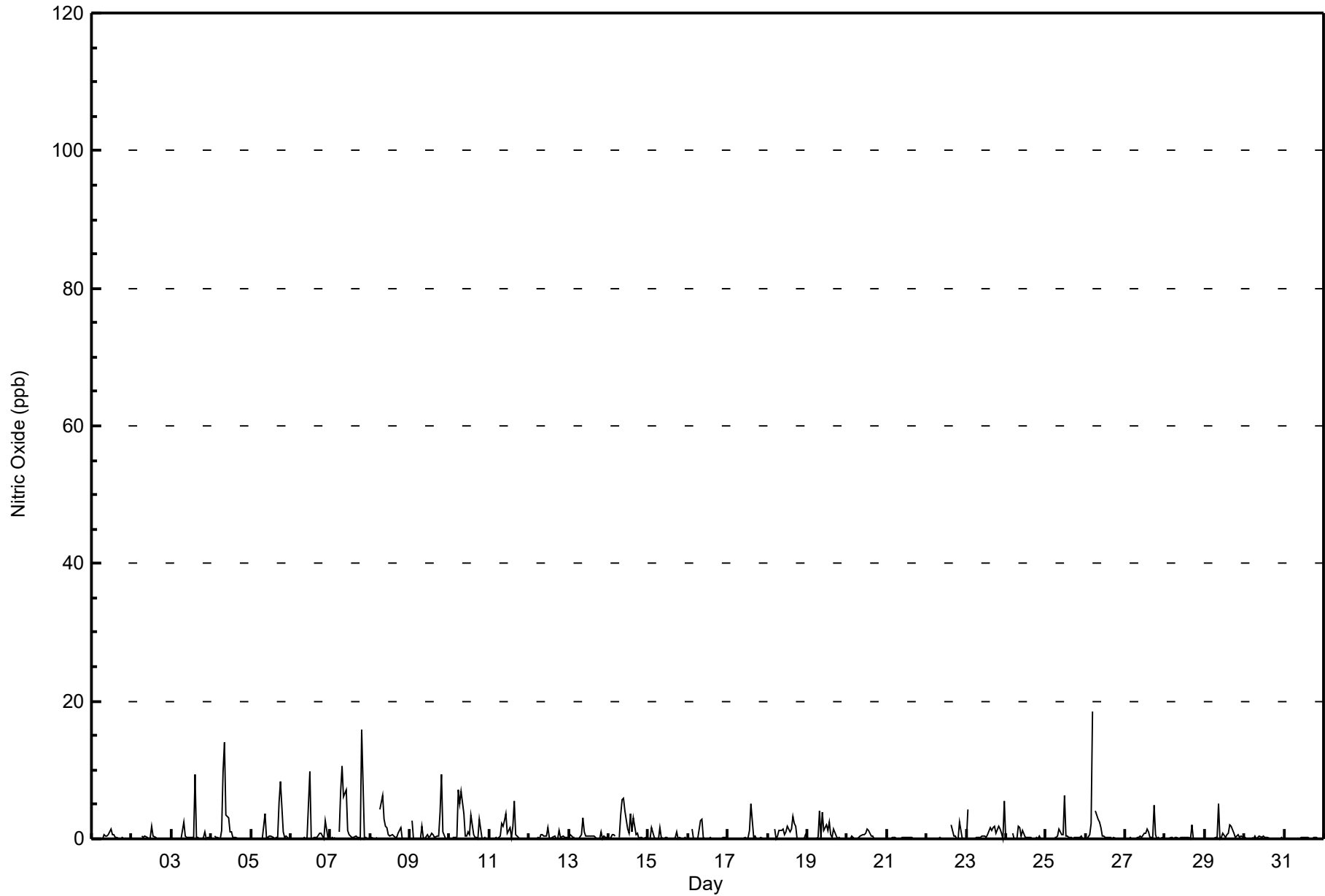
**Nitric Oxide (NO) - ppb**  
**Conklin - October 2024**

Maximum Value: 18.5 ppb on Oct 26 05:00		Maximum Daily Average: 2.3 ppb on Oct 7		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.1 ppb on Oct 31		Hours of Data: 708																							
Maximum Diurnal Average: 2.0 ppb at hour 8		Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 36																							
Monthly Average: 0.69 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 1.8 P <sub>99</sub> = 9.2		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-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.6	0.5	0.4	0.7	1.4	0.6	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.4		
2-Oct	0.0	0.0	0.0	0.1	0.1	Z	0.3	0.3	0.5	0.3	0.1	0.1	1.9	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.9	
3-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.1	2.4	0.4	0.2	0.2	0.1	0.1	9.4	0.1	0.1	0.1	0.1	0.3	1.0	0.0	0.2	0.2	0.7	9.4		
4-Oct	0.2	Z	0.3	0.1	0.1	0.0	1.2	9.7	14.1	3.5	3.0	0.9	1.0	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.5	14.1		
5-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	3.6	0.1	0.2	0.4	0.3	0.1	0.1	0.1	5.2	8.2	1.1	0.2	0.5	0.1	0.1	0.9	8.2		
6-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	9.8	0.1	0.1	0.2	0.3	0.2	0.8	0.8	0.4	0.0	2.6	0.1	0.0	0.7	9.8	
7-Oct	0.0	0.2	0.0	0.3	Z	1.0	7.0	10.5	6.1	7.2	1.1	0.7	0.4	0.3	0.2	0.4	0.2	0.2	0.0	15.9	0.0	0.2	0.0	0.1	2.3	15.9	
8-Oct	0.2	0.2	0.1	0.0	0.2	Z	4.3	6.3	2.9	1.9	1.6	0.5	0.4	0.6	0.4	0.2	0.2	0.8	1.6	0.0	0.0	0.0	0.0	0.0	1.0	6.3	
9-Oct	Z	2.7	0.0	0.0	0.0	0.0	0.0	1.8	0.1	0.1	0.6	0.2	0.4	0.8	0.7	0.2	0.3	0.3	3.9	9.3	1.0	0.0	0.1	0.1	1.0	9.3	
10-Oct	0.1	Z	0.1	0.1	0.3	7.2	5.1	6.9	3.6	0.3	0.3	1.1	0.5	3.5	0.6	0.3	0.1	0.0	2.8	0.1	0.0	0.1	0.0	0.1	1.4	7.2	
11-Oct	0.0	0.1	Z	0.0	0.1	0.0	0.3	2.1	1.9	2.7	3.6	0.9	1.7	0.3	1.8	5.4	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.4	
12-Oct	0.0	0.0	0.0	Z	0.1	0.3	0.0	0.6	0.5	0.5	0.3	1.6	0.2	0.1	0.3	0.5	0.1	0.1	1.3	0.3	0.4	0.2	0.1	0.2	0.3	1.6	
13-Oct	0.2	0.6	0.3	0.2	Z	0.0	0.1	0.6	3.1	1.0	0.5	0.5	0.4	0.4	0.3	0.4	0.1	0.1	0.1	1.0	0.1	0.4	0.1	0.1	0.5	3.1	
14-Oct	0.1	0.2	0.6	0.6	0.4	Z	0.2	3.5	5.8	5.9	4.1	1.4	0.9	3.7	1.1	3.0	0.7	0.7	0.1	0.2	0.1	0.1	0.1	0.1	1.5	5.9	
15-Oct	Z	0.0	1.5	0.2	0.0	0.0	0.1	1.7	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.3	1.7	
16-Oct	0.0	Z	1.5	0.0	0.0	0.0	0.0	2.7	2.9	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.4	2.9	
17-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	1.2	5.0	0.3	0.5	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.3	5.0	
18-Oct	0.0	0.0	0.0	Z	1.3	0.0	0.4	1.3	1.3	1.4	0.6	1.1	1.7	1.0	1.4	3.2	2.2	1.8	0.0	0.0	0.0	0.0	0.0	0.7	0.9	3.2	
19-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.2	4.1	0.3	3.9	1.3	2.1	1.2	2.4	0.6	0.2	1.4	0.4	0.1	0.2	0.0	0.1	0.0	0.1	0.8	4.1	
20-Oct	0.0	0.0	0.0	0.4	0.0	Z	0.0	0.2	0.4	0.6	0.6	0.8	1.5	1.2	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	
21-Oct	Z	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.2	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	0.1	0.3	
22-Oct	0.0	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	C	C	C	C	C	2.0	0.4	0.3	0.0	0.0	2.4	0.0	0.0	0.1	0.3	2.4	
23-Oct	0.0	4.3	Z	0.1	0.0	0.1	0.2	0.1	0.2	0.3	0.4	0.4	0.2	0.7	1.6	1.1	1.7	1.9	0.9	1.9	1.5	0.8	0.0	5.5	1.0	5.5	
24-Oct	0.0	0.1	0.0	Z	0.7	0.1	0.1	1.9	1.7	0.5	1.3	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.0	0.4	0.0	0.0	0.0	0.4	1.9	
25-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.5	1.5	0.6	0.5	6.3	0.3	0.3	0.2	0.2	0.1	0.3	0.2	0.2	0.1	0.4	0.0	0.0	0.5	6.3	
26-Oct	0.0	0.1	0.6	2.2	18.5	Z	4.1	2.9	2.5	1.6	0.5	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	1.5	18.5		
27-Oct	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.4	0.2	0.7	0.9	1.4	1.0	0.3	0.1	4.9	0.6	0.0	0.2	0.1	0.1	0.1	0.5	4.9	
28-Oct	0.1	Z	0.1	0.2	0.1	0.1	0.3	0.2	0.1	0.2	0.3	0.1	0.3	0.3	0.1	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0	2.0	
29-Oct	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	5.1	0.0	0.2	0.7	0.3	0.7	0.7	2.1	1.8	0.8	0.2	0.3	0.6	0.1	0.4	0.2	0.6	5.1	
30-Oct	0.2	0.0	0.0	Z	0.1	0.0	0.5	0.1	0.3	0.4	0.3	0.4	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.5	
31-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	
		0.0	0.3	0.2	0.2	0.9	0.4	0.8	2.0	1.9	1.1	0.8	1.1	0.6	0.7	0.9	0.7	0.4	0.7	0.7	1.0	0.3	0.2	0.1	0.3	Diurnal Average	
		0.2	4.3	1.5	2.2	18.5	7.2	7.0	10.5	14.1	7.2	4.1	9.8	1.9	3.7	9.4	5.4	2.2	5.2	8.2	15.9	2.4	2.6	0.4	5.5	Diurnal Maximum	
Z - zerospan		C - Calibration																									



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

**Nitric Oxide (NO) - ppb**  
**Conklin - October 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Conklin - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Conklin - October 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	9	9	28	26	13	13	37	71	51	51	78	41	73	57	40	39	636
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>	9	9	28	26	13	13	37	71	51	51	78	41	73	57	40	39	636

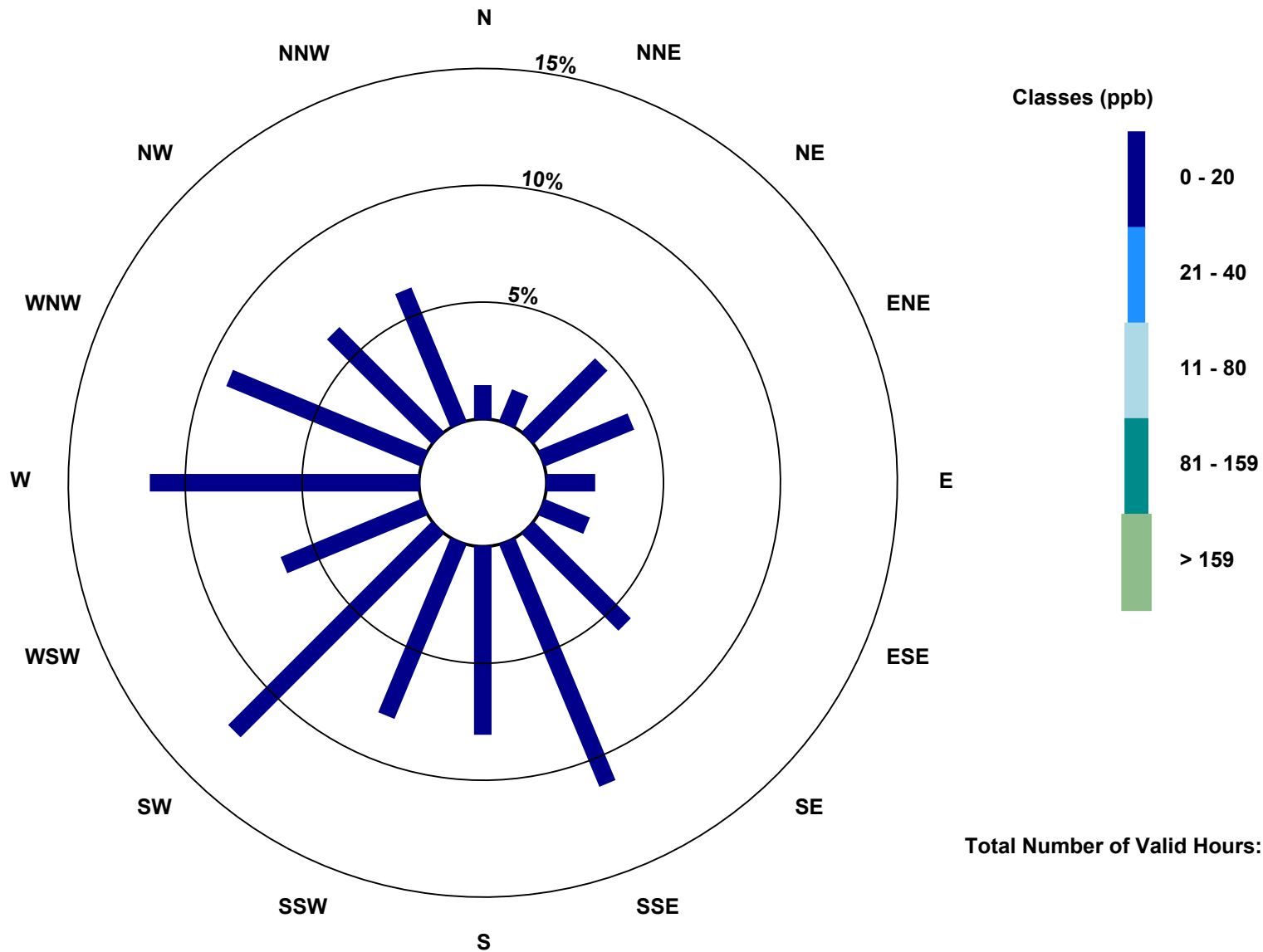
Total Number of Valid Hours: 636

Total Number of Hours: 744

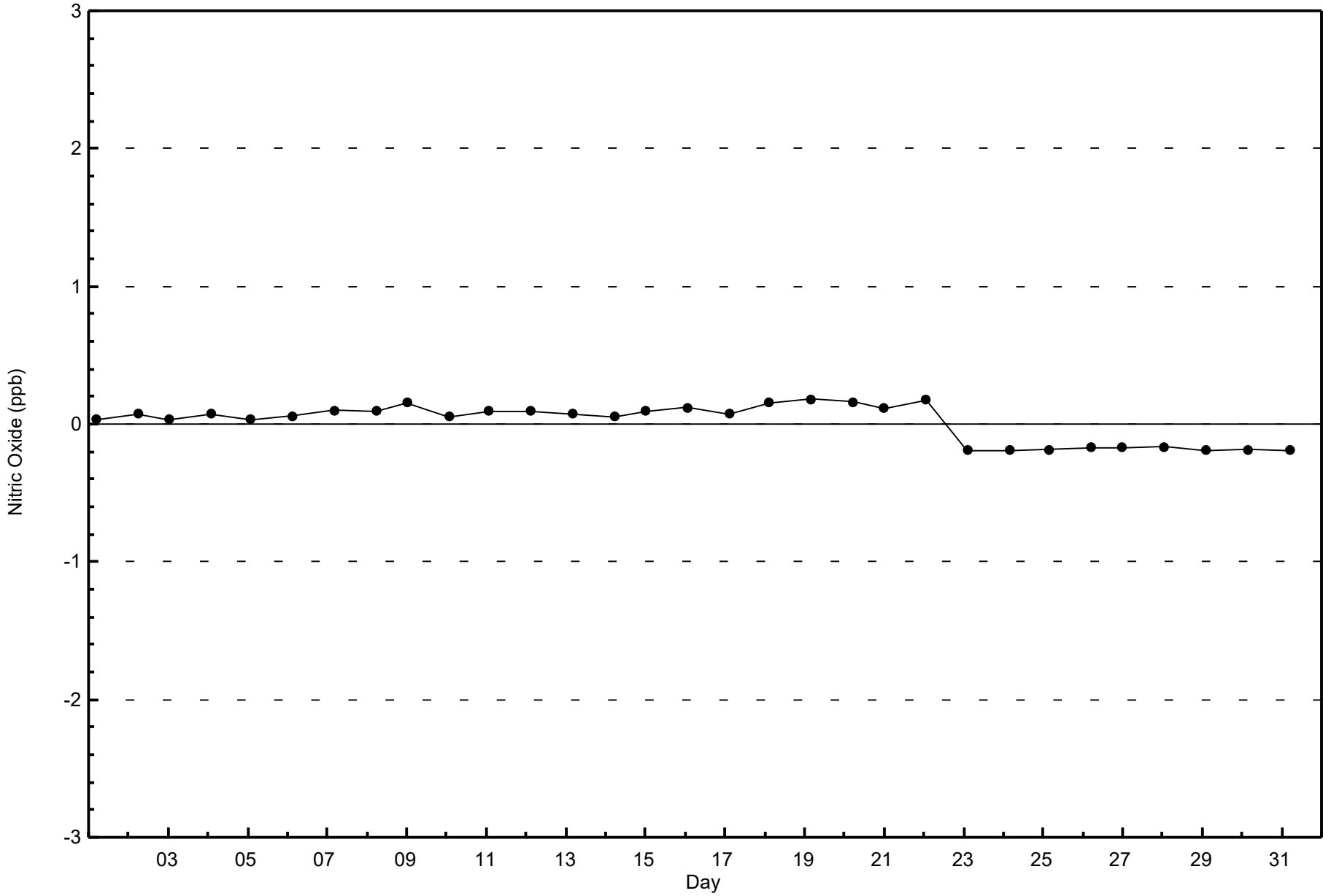


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Conklin



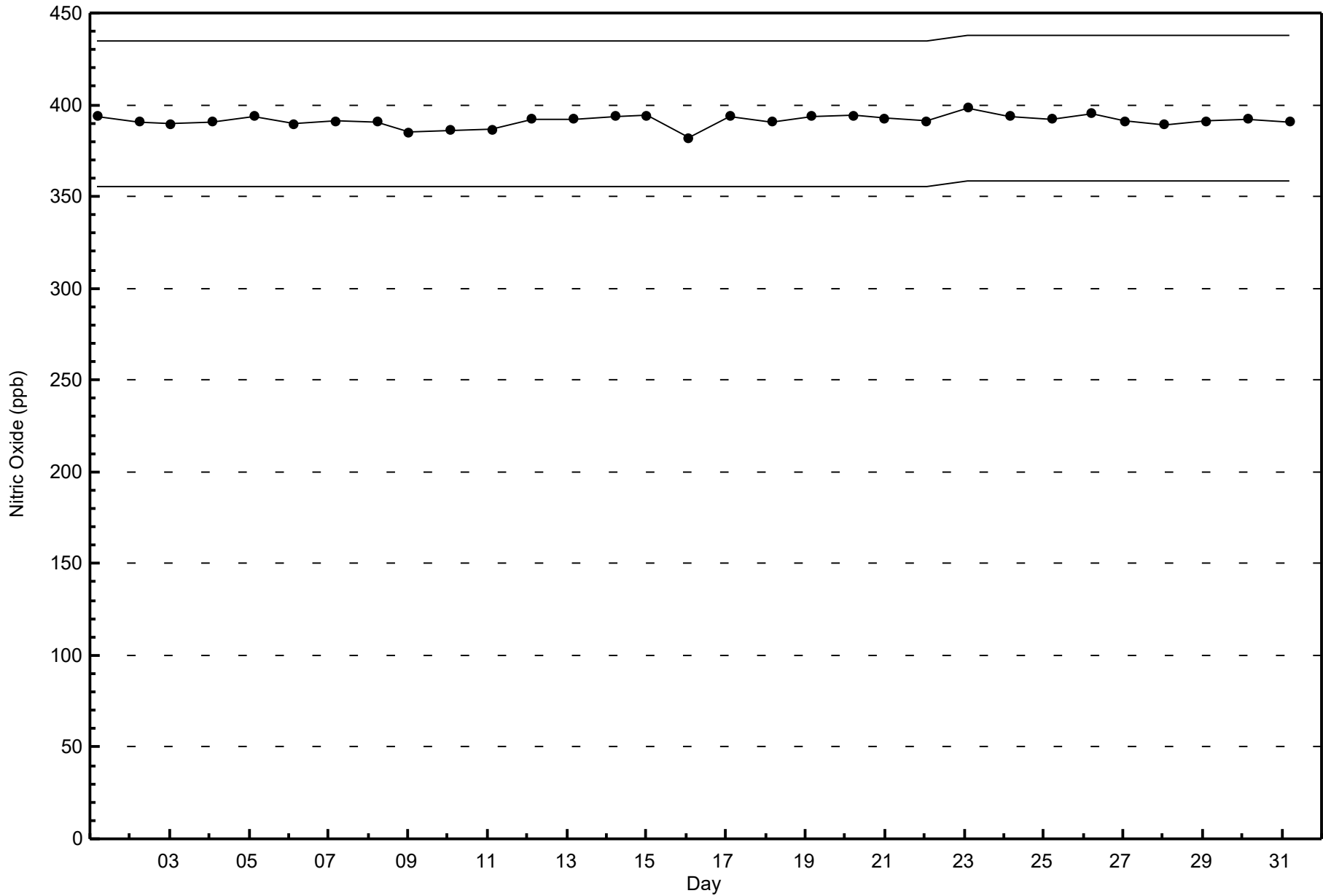
Total Number of Valid Hours: 636





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Conklin - October 2024





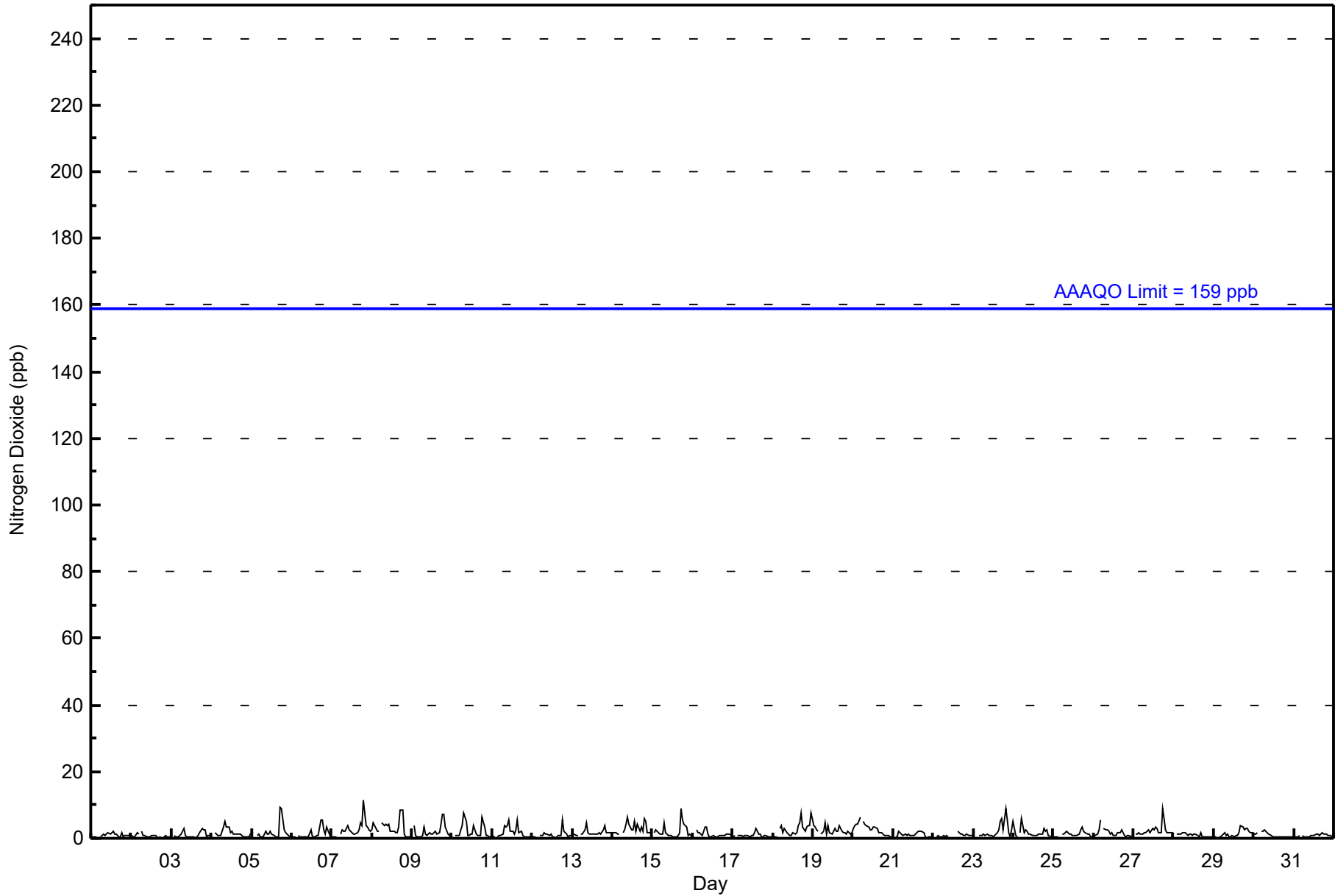
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Conklin - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 11.4 ppb on Oct 7 20:00		Maximum Daily Average: 3.0 ppb on Oct 8																	Hours of Data: 708							
Minimum Value: 0.0 ppb on Oct 3 15:00		Minimum Daily Average: 0.7 ppb on Oct 2																	Hours of Missing Data: 36							
Maximum Diurnal Average: 3.1 ppb at hour 18		Minimum Diurnal Average: 1.0 ppb at hour 23																	Hours of Calibration: 36							
Monthly Average: 1.68 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.2 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 3.7 P <sub>99</sub> = 8.4																	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-Oct	0.3	0.4	0.3	0.5	Z	0.6	0.8	1.3	1.0	1.2	1.5	1.4	1.5	2.0	1.2	1.1	0.5	0.5	1.7	0.4	0.7	0.8	0.8	0.8	0.9	2.0
2-Oct	0.8	0.5	0.6	1.6	1.3	Z	2.2	0.9	1.0	0.5	0.3	0.4	0.7	0.7	0.9	0.3	0.2	0.4	0.2	0.2	0.9	0.6	0.5	0.5	0.7	2.2
3-Oct	Z	0.7	0.4	0.4	0.4	1.0	1.1	3.1	0.8	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.7	1.8	3.1	2.6	2.6	0.6	0.9	1.0	1.1	3.1
4-Oct	1.0	Z	1.8	1.1	0.9	0.8	2.1	3.6	5.1	3.5	3.5	1.9	2.3	1.4	1.3	1.1	1.1	1.1	1.0	0.6	0.5	0.5	0.4	1.1	1.6	5.1
5-Oct	1.6	1.5	Z	0.9	1.4	0.6	0.6	0.6	2.2	1.1	1.4	2.1	1.1	0.7	0.4	0.5	0.6	9.3	9.0	2.7	1.6	1.3	0.9	0.4	1.8	9.3
6-Oct	0.5	0.6	0.6	Z	0.7	0.5	0.5	0.5	0.6	0.4	0.4	2.4	0.4	0.4	0.6	0.8	0.9	5.6	5.6	2.6	1.3	3.2	1.3	0.6	1.3	5.6
7-Oct	0.5	0.6	0.5	0.5	Z	1.1	2.4	2.3	2.1	3.7	2.7	2.2	1.8	1.4	1.2	1.7	2.6	4.7	3.8	11.4	3.7	3.3	2.6	2.3	2.6	11.4
8-Oct	2.7	4.6	2.8	2.3	2.3	Z	4.7	3.7	4.3	3.7	4.2	2.1	2.0	2.0	1.7	1.6	3.4	8.6	8.5	1.4	0.5	0.5	0.5	0.5	3.0	8.6
9-Oct	Z	3.8	0.7	0.5	0.4	0.5	0.9	3.5	1.1	1.0	1.7	1.4	1.2	1.5	2.1	1.3	1.9	4.1	7.3	7.0	3.3	1.4	0.8	0.9	2.1	7.3
10-Oct	0.6	Z	0.7	0.7	1.0	2.5	4.0	7.5	5.1	1.0	0.8	1.3	1.1	3.7	1.3	1.0	0.9	0.9	6.5	3.6	0.7	0.7	0.6	0.6	2.0	7.5
11-Oct	0.7	0.6	Z	0.5	0.7	0.7	1.3	3.7	3.4	3.8	5.5	2.1	2.3	1.2	2.7	5.5	1.5	2.0	0.9	0.5	0.5	0.6	0.5	0.5	1.8	5.5
12-Oct	0.5	0.5	0.5	Z	0.8	0.9	0.7	1.9	1.2	1.2	0.7	1.2	0.6	0.3	0.2	0.7	0.7	1.0	5.4	2.1	1.2	0.6	0.7	0.8	1.1	5.4
13-Oct	0.5	1.1	0.8	1.0	Z	1.2	1.1	2.6	4.6	1.8	1.3	1.3	1.1	1.2	1.2	1.4	1.5	1.4	2.5	4.0	1.5	1.5	1.6	1.5	1.6	4.6
14-Oct	1.5	1.5	1.6	1.4	1.4	Z	1.8	2.4	4.1	6.2	4.4	2.6	2.4	5.1	2.2	4.4	2.1	3.2	2.2	5.9	4.9	1.6	1.7	1.5	2.9	6.2
15-Oct	Z	1.6	2.7	1.8	1.3	1.3	1.1	4.8	1.5	0.7	0.8	0.7	0.5	0.5	0.4	0.9	1.9	9.1	5.5	4.3	3.3	0.9	1.1	0.7	2.1	9.1
16-Oct	0.5	Z	2.7	1.6	1.7	1.1	1.0	3.5	3.2	1.3	0.6	0.6	1.0	0.4	0.3	0.5	0.7	0.7	0.8	0.7	1.3	1.3	1.3	0.8	1.2	3.5
17-Oct	0.6	0.7	Z	1.0	0.7	0.8	0.6	0.9	0.8	0.7	0.6	0.8	0.7	1.9	2.8	1.1	1.3	0.6	0.5	0.7	0.7	0.5	0.5	0.5	0.9	2.8
18-Oct	0.5	0.6	0.6	Z	3.1	4.0	1.6	3.0	1.6	1.4	0.9	1.0	1.7	1.2	1.8	3.7	4.7	7.6	3.6	2.3	3.5	3.7	3.8	7.5	2.8	7.6
19-Oct	3.9	3.5	2.7	2.3	Z	1.4	2.2	4.8	1.3	3.7	1.7	1.3	2.1	3.0	2.0	2.2	3.8	2.3	1.5	1.7	1.2	2.0	1.4	1.5	2.3	4.8
20-Oct	2.8	3.9	4.2	4.4	6.3	Z	5.0	4.3	3.8	3.4	2.7	2.6	3.4	3.5	2.8	1.8	1.7	1.6	1.1	1.0	0.8	0.8	0.6	0.6	2.7	6.3
21-Oct	Z	0.6	0.5	2.2	1.6	1.2	1.0	1.1	0.8	1.4	1.0	0.7	0.8	1.2	1.5	2.1	2.1	2.2	1.8	0.6	0.2	0.4	0.5	0.5	1.1	2.2
22-Oct	0.3	Z	0.5	0.7	0.5	0.5	0.7	0.6	0.9	0.5	C	C	C	C	C	2.2	1.3	1.4	0.9	0.8	1.2	0.9	0.9	0.9	0.9	2.2
23-Oct	0.8	0.0	Z	0.8	0.8	0.8	1.1	1.0	1.1	0.9	1.0	0.7	0.6	1.0	1.7	2.4	4.9	5.8	2.5	8.7	5.6	1.8	0.4	2.5	2.0	8.7
24-Oct	4.9	1.0	0.6	Z	1.6	5.8	1.6	2.6	2.1	1.3	1.3	0.7	0.8	0.8	0.7	1.2	1.1	1.2	2.9	2.1	2.4	0.7	0.4	0.5	1.7	5.8
25-Oct	0.5	0.5	0.5	0.6	Z	1.2	1.1	1.7	2.3	1.3	1.3	0.9	0.9	1.0	0.8	1.2	2.4	3.4	2.2	1.7	1.3	1.2	0.5	0.4	1.3	3.4
26-Oct	0.3	0.8	1.3	2.4	5.7	Z	3.1	2.4	2.4	2.2	1.3	1.7	0.8	0.8	1.7	1.6	1.7	2.5	0.8	0.5	0.7	0.7	0.6	0.8	1.6	5.7
27-Oct	Z	1.4	1.4	1.7	1.2	1.4	1.6	1.6	2.0	2.7	1.6	2.8	2.5	3.3	2.9	1.7	1.6	8.9	5.9	2.7	1.9	1.6	1.9	1.5	2.4	8.9
28-Oct	1.3	Z	1.3	1.4	1.1	1.6	1.9	1.6	0.9	1.2	1.2	0.9	1.2	1.4	1.0	0.5	1.6	0.4	0.4	0.3	0.3	0.3	0.3	0.4	1.0	1.9
29-Oct	0.4	0.5	Z	0.5	0.3	0.8	1.6	0.8	1.1	0.3	0.6	0.8	0.5	0.8	0.9	1.8	3.8	3.2	2.6	2.9	2.8	2.0	1.9	1.5	1.4	3.8
30-Oct	1.4	1.3	1.6	Z	2.0	2.1	2.7	2.0	1.9	1.3	0.7	0.6	0.5	0.3	0.5	0.5	0.4	0.3	0.4	0.6	0.6	0.5	0.5	0.4	1.0	2.7
31-Oct	0.3	0.5	0.5	0.8	Z	0.9	0.5	0.6	0.6	0.5	1.0	0.9	1.0	1.1	1.2	1.0	1.1	1.6	1.1	1.4	0.8	0.8	0.9	0.6	0.9	1.6
1.1 1.3 1.2 1.3 1.6 1.4 1.7 2.4 2.1 1.8 1.6 1.4 1.3 1.5 1.3 1.6 1.8 3.1 3.0 2.5 1.7 1.2 1.0 1.1																								Diurnal Average		
4.9 4.6 4.2 4.4 6.3 5.8 5.0 7.5 5.1 6.2 5.5 2.8 3.4 5.1 2.9 5.5 4.9 9.3 9.0 11.4 5.6 3.7 3.8 7.5																								Diurnal Maximum		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Conklin - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Conklin - October 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	9	9	28	26	13	13	37	71	51	51	78	41	73	57	40	39	636
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>	9	9	28	26	13	13	37	71	51	51	78	41	73	57	40	39	636

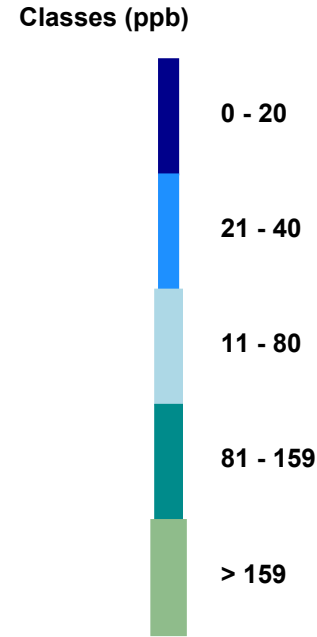
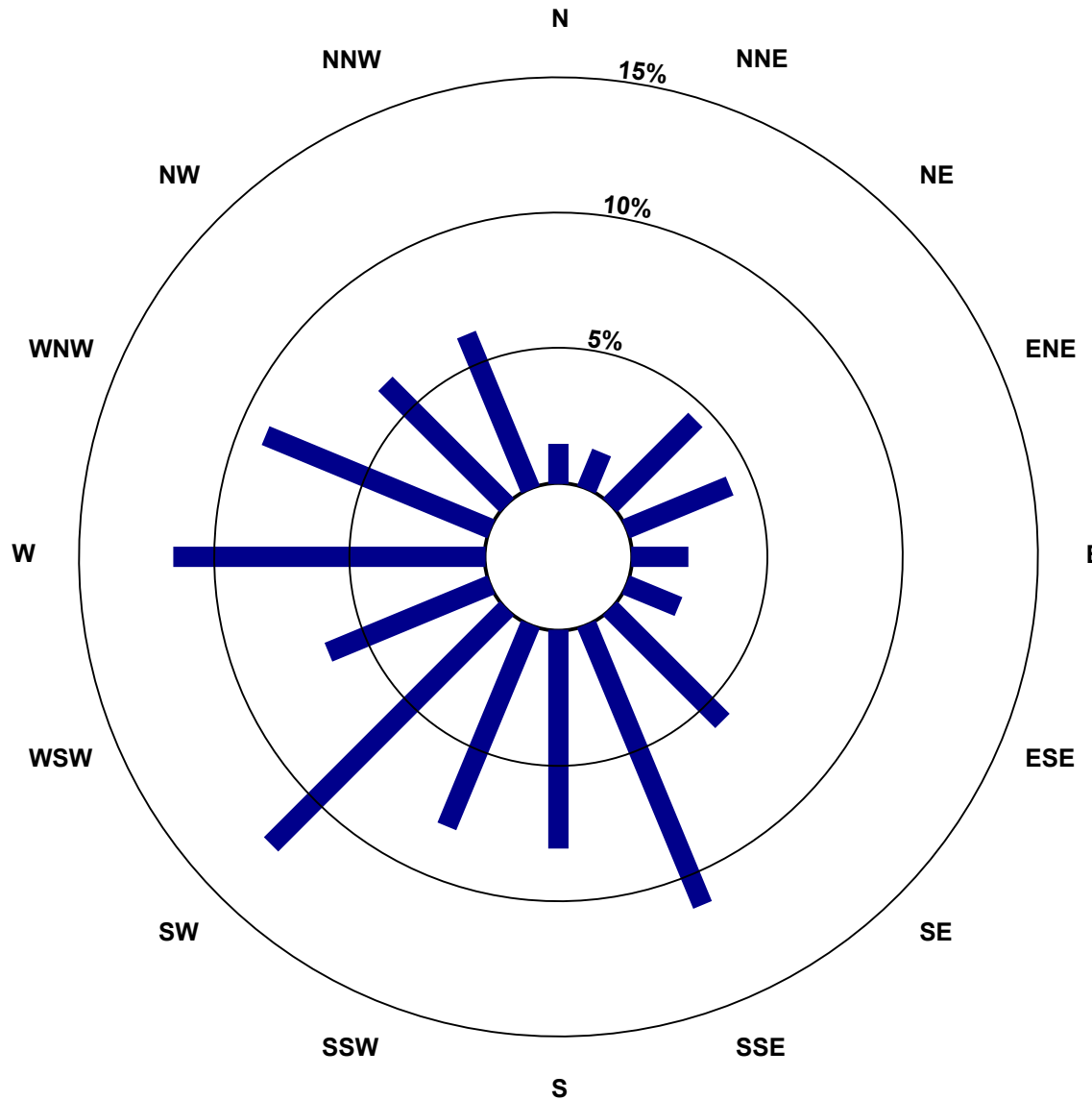
Total Number of Valid Hours: 636

Total Number of Hours: 744

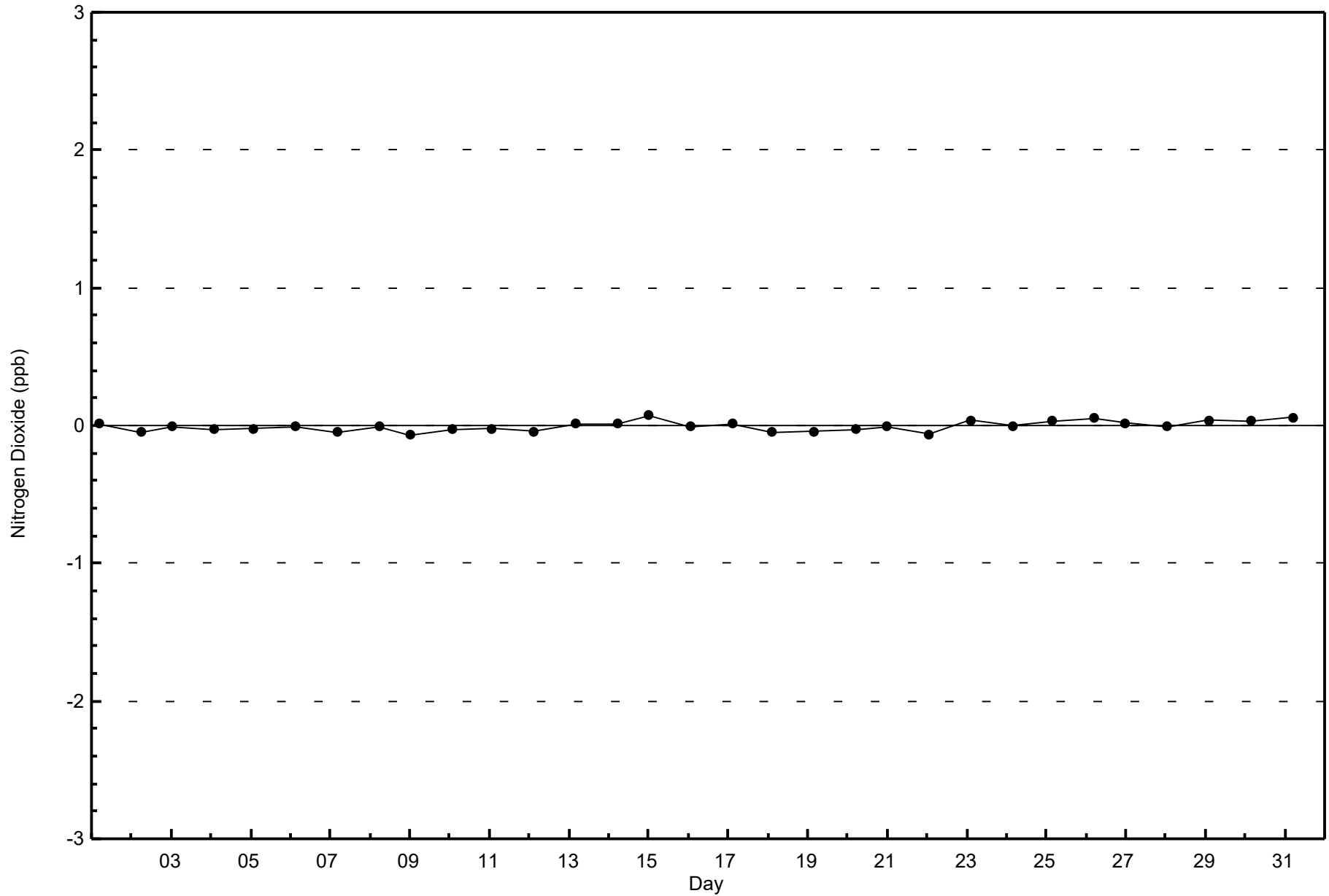


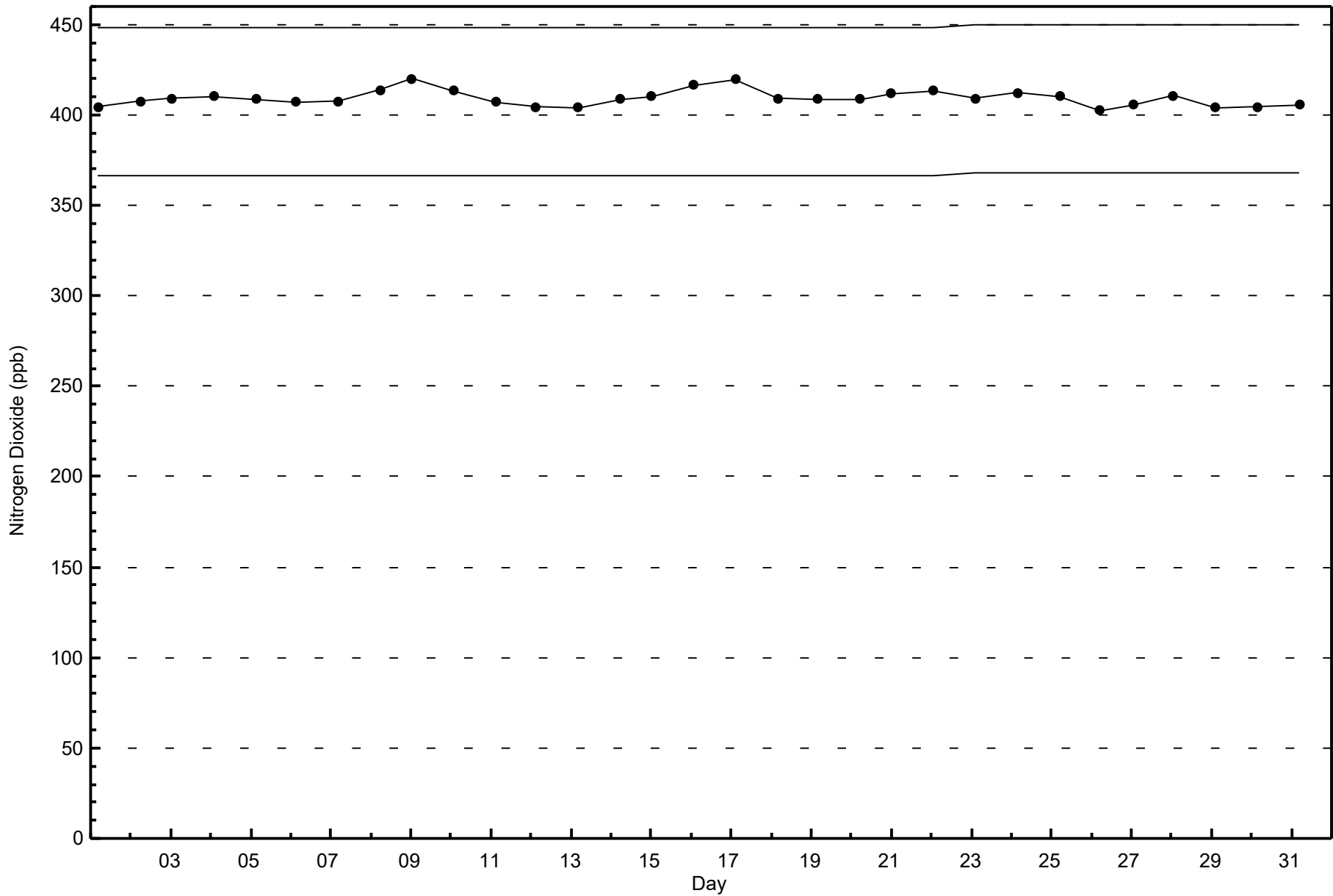
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 636







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

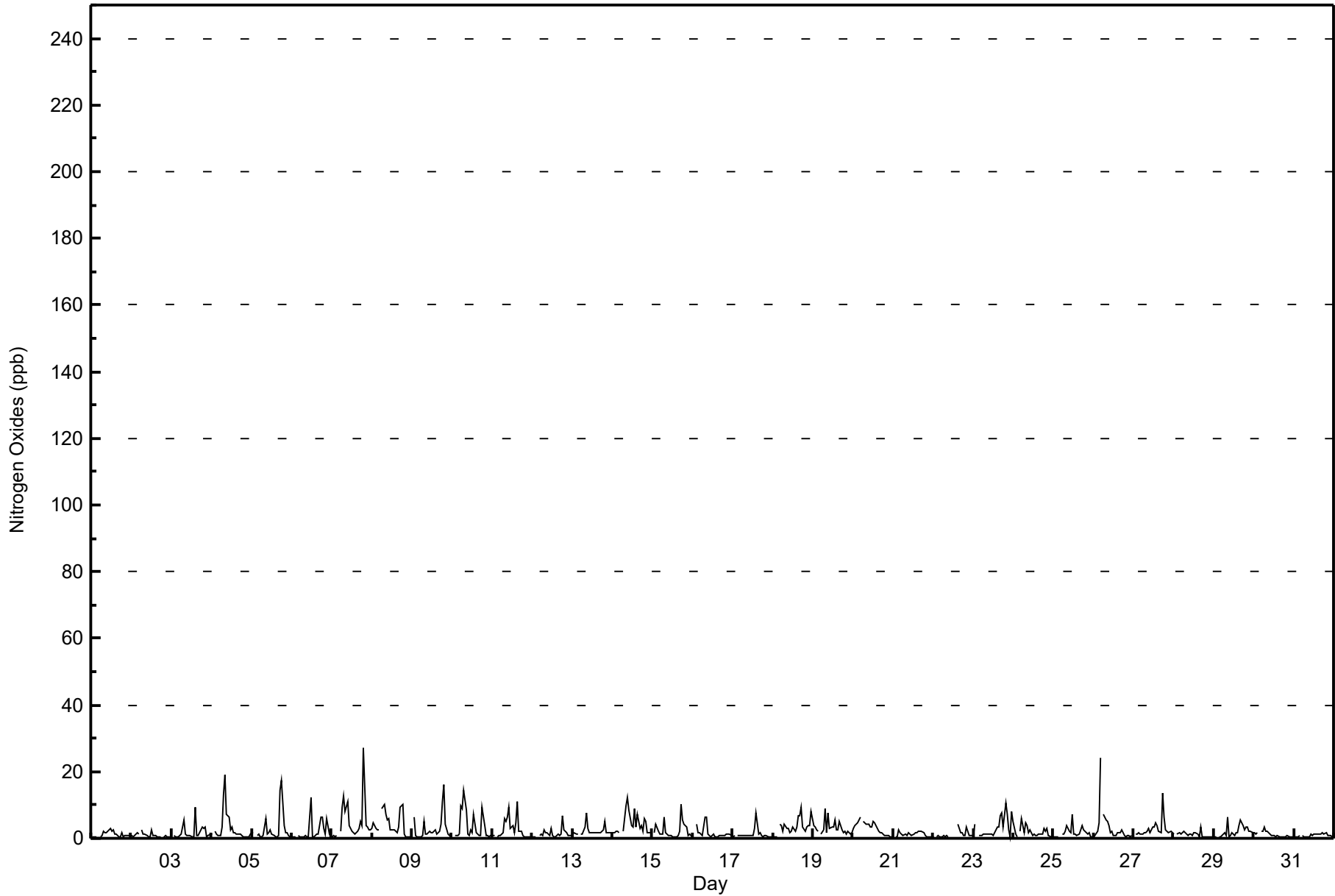
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - October 2024**

Maximum Value: 27.3 ppb on Oct 7 20:00		Maximum Daily Average: 4.8 ppb on Oct 7		Hours in Service: 744																							
Minimum Value: 0.2 ppb on Oct 2 20:00		Minimum Daily Average: 0.9 ppb on Oct 31		Hours of Data: 708																							
Maximum Diurnal Average: 4.4 ppb at hour 8		Minimum Diurnal Average: 1.1 ppb at hour 23		Hours of Missing Data: 36																							
Monthly Average: 2.36 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.4 Q <sub>3</sub> = 2.7 P <sub>90</sub> = 5.6 P <sub>99</sub> = 13.7		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-Oct	0.3	0.4	0.3	0.5	Z	0.6	0.8	1.9	1.5	1.6	2.2	2.8	2.1	2.6	1.4	1.3	0.5	0.5	1.8	0.4	0.7	0.8	0.8	0.8	1.1	2.8	
2-Oct	0.8	0.5	0.6	1.7	1.4	Z	2.5	1.2	1.5	0.8	0.4	0.5	2.6	1.0	1.1	0.4	0.2	0.4	0.2	0.2	0.9	0.6	0.6	0.5	0.9	2.6	
3-Oct	Z	0.7	0.4	0.4	0.4	1.0	1.2	5.5	1.2	0.7	0.7	0.7	0.6	0.6	9.4	0.6	0.8	1.9	3.2	2.9	3.6	0.6	1.1	1.2	1.7	9.4	
4-Oct	1.2	Z	2.1	1.2	1.0	0.8	3.3	13.3	19.2	7.0	6.5	2.8	3.3	1.7	1.5	1.2	1.2	1.1	1.0	0.6	0.5	0.5	0.4	1.1	3.2	19.2	
5-Oct	1.6	1.5	Z	0.9	1.4	0.6	0.6	0.6	5.8	1.2	1.6	2.5	1.4	0.8	0.5	0.6	0.7	14.5	17.2	3.8	1.8	1.8	1.0	0.5	2.7	17.2	
6-Oct	0.5	0.6	0.6	Z	0.7	0.5	0.5	0.6	0.7	0.5	0.5	12.2	0.5	0.5	0.8	1.1	1.1	6.4	6.4	3.0	1.3	5.8	1.4	0.6	2.0	12.2	
7-Oct	0.5	0.8	0.5	0.8	Z	2.1	9.4	12.8	8.2	10.9	3.8	2.9	2.2	1.7	1.4	2.1	2.8	4.9	3.8	27.3	3.7	3.5	2.6	2.4	4.8	27.3	
8-Oct	2.9	4.8	2.9	2.3	2.5	Z	9.0	10.0	7.2	5.6	5.8	2.6	2.4	2.6	2.1	1.8	3.6	9.4	10.1	1.4	0.5	0.5	0.5	0.5	4.0	10.1	
9-Oct	Z	6.5	0.7	0.5	0.4	0.5	0.9	5.3	1.2	1.1	2.3	1.6	1.6	2.3	2.8	1.5	2.2	4.4	11.2	16.3	4.3	1.4	0.9	1.0	3.1	16.3	
10-Oct	0.7	Z	0.8	0.8	1.3	9.7	9.1	14.4	8.7	1.3	1.1	2.4	1.6	7.2	1.9	1.3	1.0	0.9	9.3	3.7	0.7	0.8	0.6	0.7	3.5	14.4	
11-Oct	0.7	0.7	Z	0.5	0.8	0.7	1.6	5.8	5.3	6.5	9.1	3.0	4.0	1.5	4.5	10.9	2.1	2.2	0.9	0.5	0.5	0.6	0.5	0.5	2.8	10.9	
12-Oct	0.5	0.5	0.5	Z	0.9	1.2	0.7	2.5	1.7	1.7	1.0	2.8	0.8	0.4	0.5	1.2	0.8	1.1	6.7	2.4	1.6	0.8	0.8	1.0	1.4	6.7	
13-Oct	0.7	1.7	1.1	1.2	Z	1.2	1.2	3.2	7.7	2.8	1.8	1.8	1.5	1.6	1.5	1.8	1.6	1.5	2.6	5.0	1.6	1.9	1.7	1.6	2.1	7.7	
14-Oct	1.6	1.7	2.2	2.0	1.8	Z	2.0	5.9	9.9	12.1	8.5	4.0	3.3	8.8	3.3	7.4	2.8	3.9	2.3	6.1	5.0	1.7	1.8	1.6	4.3	12.1	
15-Oct	Z	1.6	4.2	2.0	1.3	1.3	1.2	6.5	1.7	0.8	1.0	0.8	0.6	0.6	0.5	1.0	2.0	10.1	5.6	4.4	3.4	0.9	1.2	0.7	2.3	10.1	
16-Oct	0.5	Z	4.2	1.6	1.7	1.1	1.0	6.2	6.1	1.5	0.7	0.6	1.1	0.5	0.3	0.5	0.7	0.7	0.8	0.7	1.4	1.4	1.4	0.9	1.5	6.2	
17-Oct	0.6	0.7	Z	1.0	0.7	0.8	0.6	0.9	0.9	0.7	0.7	0.9	0.8	3.1	7.8	1.4	1.8	0.6	0.5	0.8	0.8	0.6	0.5	0.5	1.2	7.8	
18-Oct	0.5	0.6	0.6	Z	4.4	4.0	2.0	4.3	2.9	2.8	1.5	2.1	3.4	2.2	3.2	6.9	6.9	9.4	3.6	2.3	3.5	3.7	3.8	8.2	3.6	9.4	
19-Oct	3.9	3.5	2.7	2.3	Z	1.4	2.4	8.9	1.6	7.6	3.0	3.4	3.3	5.4	2.6	2.4	5.2	2.7	1.6	1.9	1.2	2.1	1.4	1.6	3.1	8.9	
20-Oct	2.8	3.9	4.2	4.8	6.3	Z	5.0	4.5	4.2	4.0	3.3	3.4	4.9	4.7	3.1	2.1	1.7	1.7	1.1	1.0	0.8	0.8	0.6	0.6	3.0	6.3	
21-Oct	Z	0.6	0.5	2.4	1.8	1.3	1.0	1.1	0.9	1.6	1.2	0.9	1.1	1.5	1.7	2.2	2.2	2.2	1.8	0.6	0.2	0.4	0.5	0.5	1.2	2.4	
22-Oct	0.3	Z	0.5	0.8	0.5	0.5	0.7	0.6	1.0	0.6	C	C	C	C	C	4.2	1.7	1.7	0.9	0.8	3.6	0.9	0.9	1.0	1.2	4.2	
23-Oct	0.8	4.3	Z	0.9	0.8	0.9	1.3	1.1	1.3	1.2	1.4	1.1	0.8	1.7	3.3	3.5	6.6	7.7	3.4	10.6	7.1	2.6	0.4	8.0	3.1	10.6	
24-Oct	4.9	1.1	0.6	Z	2.3	5.9	1.7	4.5	3.8	1.8	2.6	0.9	1.1	1.0	0.9	1.4	1.2	1.3	3.1	2.1	2.8	0.7	0.4	0.5	2.0	5.9	
25-Oct	0.5	0.5	0.5	0.6	Z	1.3	1.3	2.2	3.8	1.9	1.8	7.2	1.2	1.3	1.0	1.4	2.5	3.7	2.4	1.9	1.4	1.6	0.5	0.4	1.8	7.2	
26-Oct	0.3	0.9	1.9	4.6	24.2	Z	7.2	5.3	4.9	3.8	1.8	2.1	1.0	0.9	1.9	1.7	1.8	2.7	0.8	0.5	0.7	0.7	0.6	0.8	3.1	24.2	
27-Oct	Z	1.4	1.4	1.8	1.3	1.5	1.6	1.7	2.2	3.1	1.8	3.5	3.4	4.7	3.9	2.0	1.7	13.8	6.5	2.7	2.1	1.7	2.0	1.6	2.9	13.8	
28-Oct	1.4	Z	1.4	1.6	1.2	1.7	2.2	1.8	1.0	1.4	1.5	1.0	1.5	1.7	1.1	0.5	3.6	0.4	0.4	0.3	0.3	0.3	0.3	0.4	1.2	3.6	
29-Oct	0.4	0.5	Z	0.5	0.3	0.9	1.7	0.9	6.2	0.3	0.8	1.5	0.8	1.5	1.6	3.9	5.6	4.0	2.8	3.2	3.4	2.1	2.3	1.7	2.0	6.2	
30-Oct	1.6	1.3	1.6	Z	2.1	2.1	3.2	2.1	2.2	1.7	1.0	1.0	0.7	0.4	0.8	0.5	0.4	0.3	0.4	0.6	0.6	0.5	0.6	0.4	1.1	3.2	
31-Oct	0.3	0.5	0.5	0.8	Z	0.9	0.5	0.6	0.6	0.6	1.3	1.0	1.1	1.2	1.3	1.1	1.1	1.6	1.2	1.5	0.8	0.8	0.9	0.6	0.9	1.6	
		1.2	1.6	1.4	1.5	2.5	1.7	2.5	4.4	4.0	2.9	2.4	2.5	1.8	2.2	2.3	2.2	2.2	3.8	3.7	3.5	2.0	1.4	1.1	1.4	Diurnal Average	
		4.9	6.5	4.2	4.8	24.2	9.7	9.4	14.4	19.2	12.1	9.1	12.2	4.9	8.8	9.4	10.9	6.9	14.5	17.2	27.3	7.1	5.8	3.8	8.2	Diurnal Maximum	
Z - zerospan		C - Calibration																									



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - October 2024**





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

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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Conklin - October 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	9	9	28	26	13	13	37	71	50	51	77	41	73	57	40	39	634
21 - 40	0	0	0	0	0	0	0	0	1	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>	9	9	28	26	13	13	37	71	51	51	78	41	73	57	40	39	636

Total Number of Valid Hours: 636

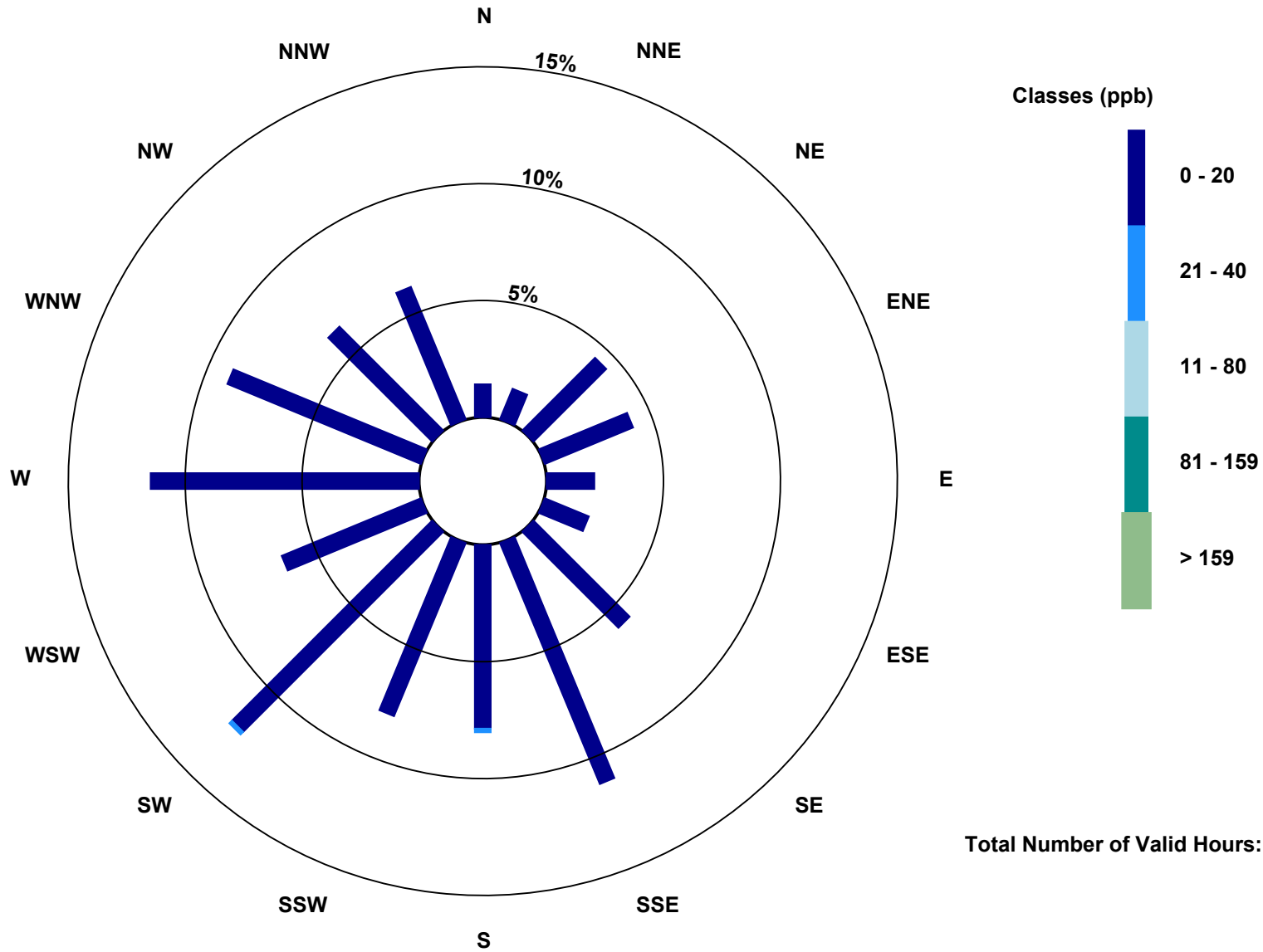
Total Number of Hours: 744

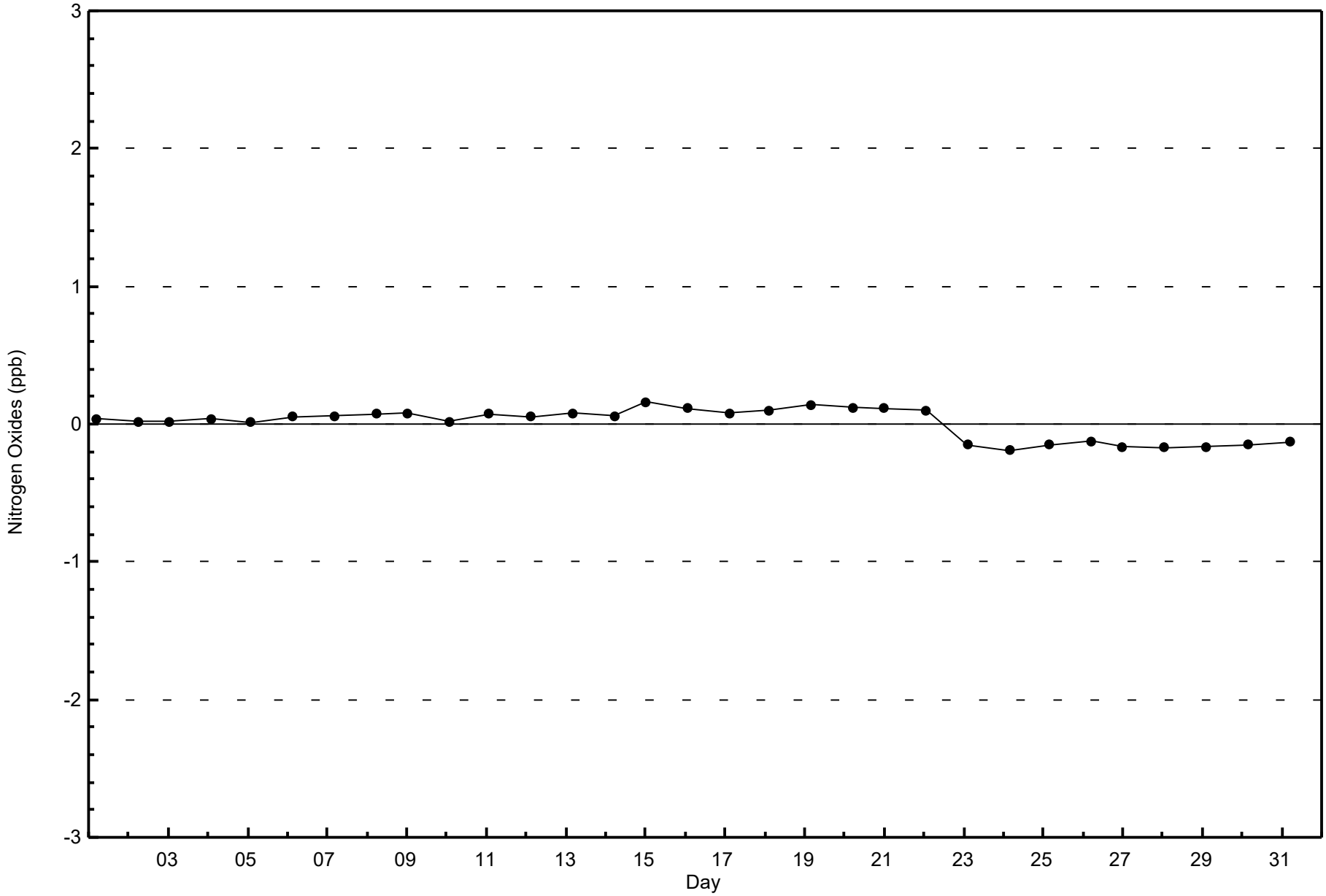


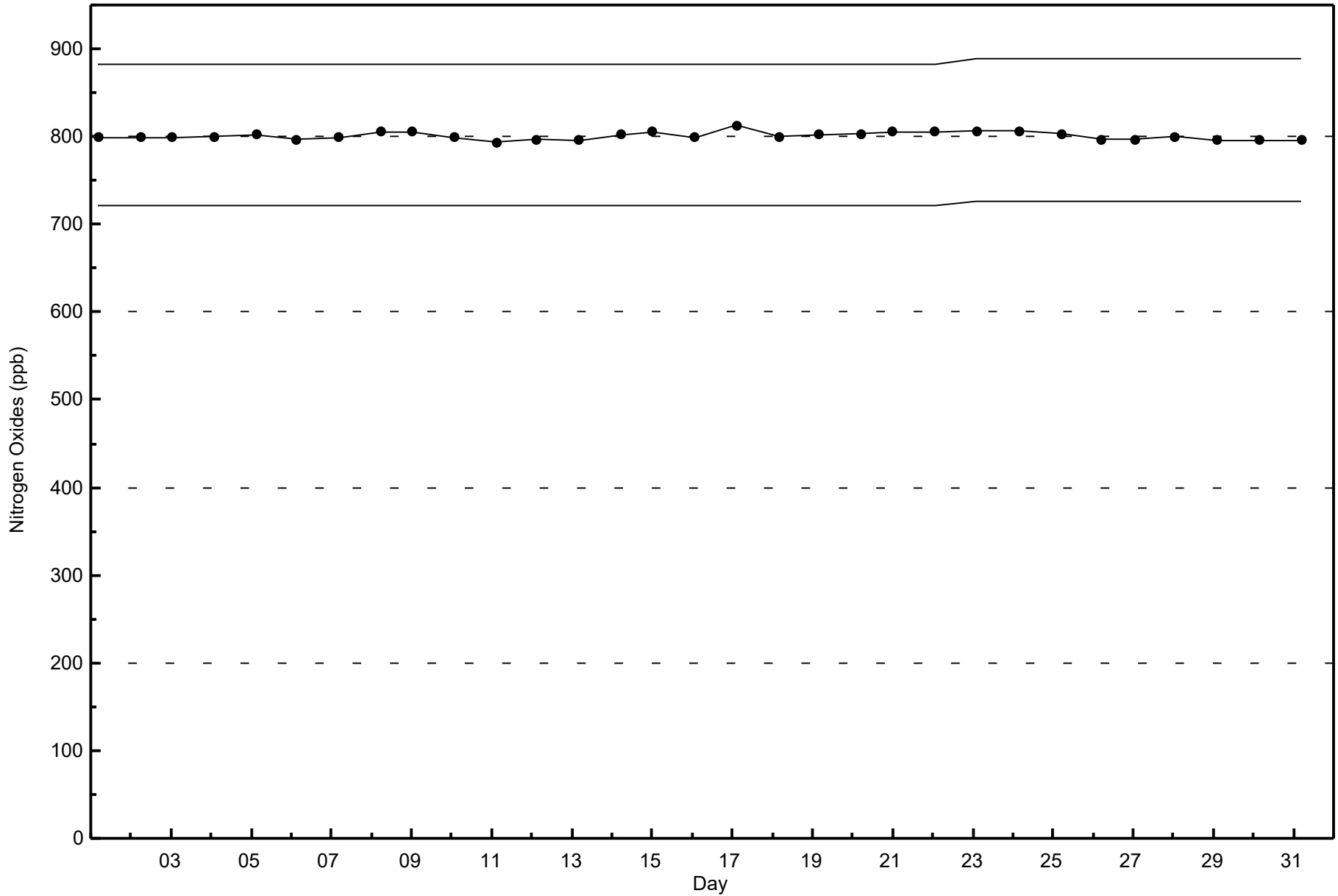


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

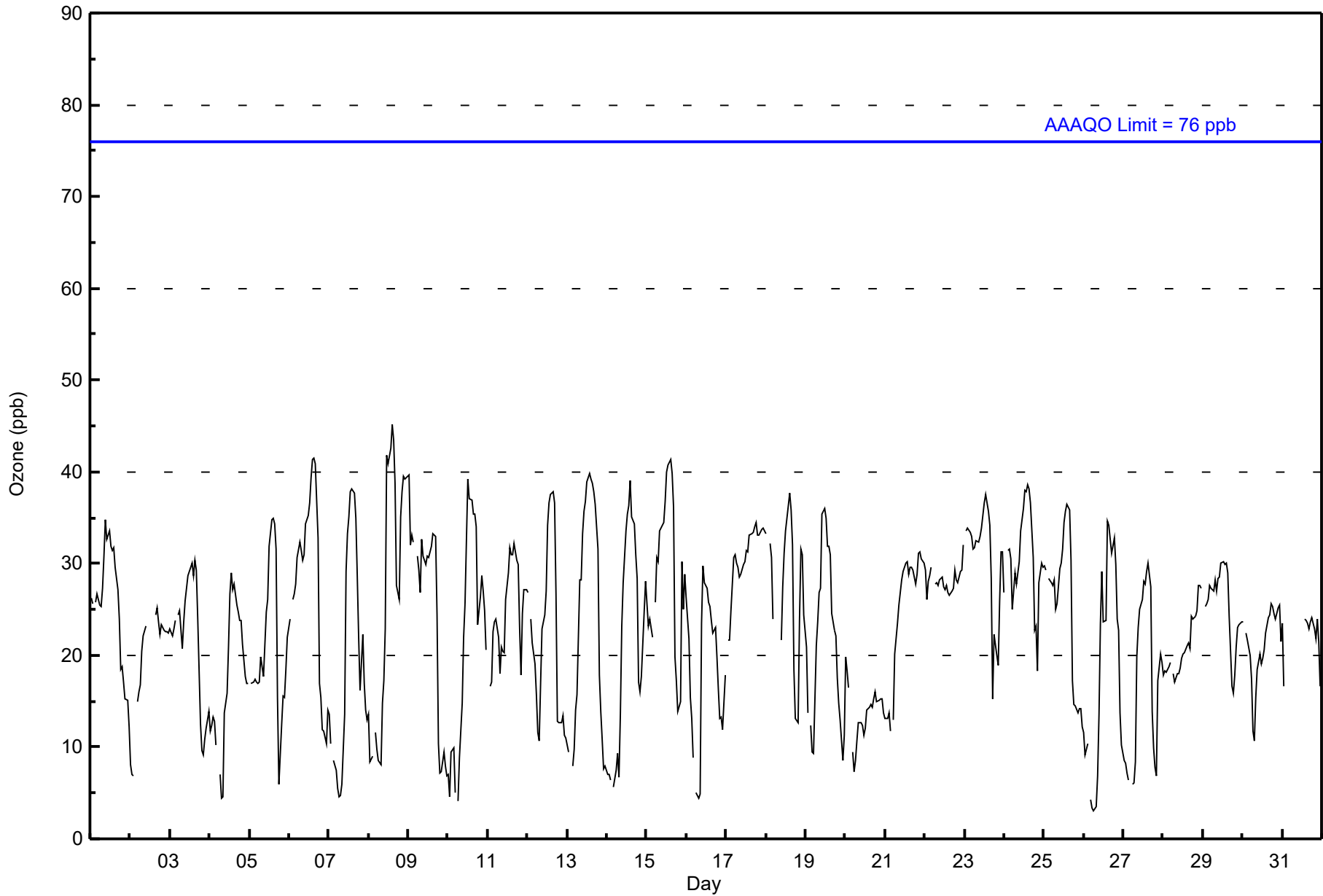
Conklin - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744							
Maximum Value: 45.1 ppb on Oct 8 15:00		Maximum Daily Average: 30.7 ppb on Oct 17																			Hours of Data:	694							
Minimum Value: 3.0 ppb on Oct 26 07:00		Minimum Daily Average: 13.7 ppb on Oct 20																			Hours of Missing Data:	50							
Maximum Diurnal Average: 32.5 ppb at hour 15		Minimum Diurnal Average: 17.4 ppb at hour 2																			Hours of Calibration:	36							
Monthly Average: 23.44 ppb		Percentiles: P <sub>1</sub> = 4.6 P <sub>10</sub> = 10.0 Q <sub>1</sub> = 16.1 Median = 24.4 Q <sub>3</sub> = 30.3 P <sub>90</sub> = 34.9 P <sub>99</sub> = 40.9																			Percent Operational Time:	98.1							
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-Oct	26.2	25.6	Z	25.9	26.6	25.4	25.3	27.3	30.8	34.8	32.6	33.5	31.8	31.4	31.8	29.6	27.2	23.9	18.5	18.7	17.1	15.3	15.1	12.2	25.5	34.8			
2-Oct	8.1	7.1	6.8	Z	15.0	16.0	16.8	20.5	22.1	23.2	C	C	C	C	C	24.5	25.2	23.6	22.3	23.3	22.7	22.5	22.6	22.5	19.1	25.2			
3-Oct	22.9	22.1	22.9	23.8	Z	24.4	24.8	20.8	23.6	26.0	27.3	28.6	29.5	30.0	28.7	30.4	29.3	24.0	12.5	9.5	9.1	10.8	12.1	13.8	22.0	30.4			
4-Oct	11.8	12.3	13.3	12.9	10.1	Z	7.1	4.4	4.6	13.7	15.8	20.9	26.6	29.1	27.2	27.7	25.5	24.7	23.8	23.7	21.2	17.7	16.9	17.0	17.7	29.1			
5-Oct	Z	17.0	17.1	17.4	17.1	16.9	17.1	19.8	17.7	21.2	24.6	26.1	31.8	34.8	34.9	34.3	31.6	15.4	5.9	12.4	15.5	15.3	18.4	22.0	21.1	34.9			
6-Oct	23.9	Z	26.0	26.7	27.7	30.7	32.3	31.4	30.3	31.0	34.4	35.3	36.6	39.3	41.4	41.5	40.8	32.8	16.9	15.4	11.9	11.8	10.4	14.1	27.9	41.5			
7-Oct	13.6	10.4	Z	8.6	7.5	5.5	4.6	4.7	6.0	13.7	29.1	33.3	35.1	37.8	38.1	37.7	34.9	28.7	22.0	16.2	22.2	16.9	14.1	13.0	19.7	38.1			
8-Oct	13.6	8.5	9.0	Z	11.6	9.7	8.6	8.1	14.8	17.3	22.9	41.8	40.9	42.6	45.1	43.5	38.7	27.6	26.1	35.1	37.8	39.5	39.2	39.6	27.0	45.1			
9-Oct	39.6	32.1	33.0	32.3	Z	30.8	29.3	26.8	32.7	30.8	30.0	30.8	30.7	31.3	32.0	33.3	32.9	24.4	10.4	7.1	7.3	9.5	8.0	6.9	25.3	39.6			
10-Oct	7.0	4.6	9.5	10.0	5.0	Z	4.1	8.8	14.7	22.0	25.6	32.5	39.2	37.1	36.9	35.3	35.4	34.1	23.4	26.4	28.6	26.9	24.9	20.6	22.3	39.2			
11-Oct	Z	16.7	17.1	22.6	23.6	23.9	22.0	18.0	21.0	20.5	20.3	26.1	29.0	31.7	31.0	30.9	32.2	30.3	29.9	23.1	17.9	24.6	27.1	27.2	24.6	32.2			
12-Oct	26.8	Z	23.9	21.4	19.1	15.8	11.6	10.7	16.9	23.0	24.4	27.1	34.2	36.6	37.6	37.8	36.6	26.8	12.7	12.6	12.6	13.5	11.2	11.1	21.9	37.8			
13-Oct	10.2	9.5	Z	7.9	9.7	14.1	15.8	28.3	28.1	33.2	35.6	36.8	38.9	39.8	39.2	38.7	37.9	36.5	31.5	17.8	13.8	10.8	7.6	8.0	23.9	39.8			
14-Oct	7.0	7.0	6.5	Z	5.6	7.4	9.3	6.7	13.5	23.2	28.0	33.6	35.4	36.3	39.0	35.0	34.3	31.0	28.4	17.1	16.0	17.6	24.8	28.1	21.3	39.0			
15-Oct	25.7	23.2	24.0	22.0	Z	25.8	30.6	30.2	33.6	34.2	34.5	36.7	39.9	40.7	41.3	39.8	36.2	19.8	17.2	13.9	15.0	30.3	25.0	28.9	29.1	41.3			
16-Oct	26.3	21.8	15.4	13.2	8.9	Z	5.1	4.4	4.8	23.5	29.7	27.9	27.2	25.8	25.3	23.9	22.4	23.0	19.9	16.3	13.1	13.3	11.8	17.9	18.3	29.7			
17-Oct	Z	21.7	21.6	24.9	30.6	30.9	30.0	29.6	28.6	28.8	30.0	30.2	31.4	31.3	33.1	33.3	33.5	34.1	34.5	33.1	33.1	33.7	33.9	33.6	30.7	34.5			
18-Oct	33.2	Z	32.2	30.7	24.0	UO	UO	UO	M	21.7	27.4	31.1	33.6	36.2	37.6	35.8	32.1	18.5	13.2	12.6	23.9	31.6	31.0	24.4	27.9	37.6			
19-Oct	20.8	13.7	Z	12.3	9.5	9.4	21.0	23.6	26.9	27.3	35.3	36.0	34.9	31.9	31.8	30.9	24.6	22.7	22.1	17.5	14.8	13.0	8.5	11.3	21.7	36.0			
20-Oct	19.8	18.3	16.4	Z	9.4	7.4	8.6	10.7	12.7	12.6	12.4	11.2	12.0	14.1	14.4	14.7	14.3	15.3	16.0	14.9	15.1	15.3	15.2	13.8	13.7	19.8			
21-Oct	13.1	13.1	13.8	11.7	Z	13.0	20.2	23.5	25.5	26.8	28.2	29.2	30.0	30.2	28.9	29.5	29.6	29.2	27.8	28.8	31.1	31.3	30.5	30.1	25.0	31.3			
22-Oct	29.3	26.1	28.1	28.7	29.6	Z	27.7	27.8	27.6	28.2	28.6	27.4	27.2	27.6	26.8	26.5	27.0	27.3	29.2	28.3	27.9	29.1	29.3	32.1	28.2	32.1			
23-Oct	Z	33.6	33.9	33.4	33.0	31.6	31.7	32.4	32.3	32.9	33.9	35.2	36.6	37.6	35.6	34.2	28.3	15.2	22.3	19.9	18.9	26.0	31.2	31.3	30.5	37.6			
24-Oct	26.8	Z	31.4	31.6	30.6	25.1	29.0	27.7	29.1	30.2	33.6	36.0	38.0	37.9	38.6	38.1	36.6	30.6	22.7	23.2	18.3	27.9	30.1	29.6	30.6	38.6			
25-Oct	29.7	29.2	Z	28.4	27.9	27.6	28.3	25.0	25.7	29.5	30.0	31.5	34.5	35.7	36.4	35.9	30.3	17.3	14.6	14.5	13.7	14.1	14.2	12.2	25.5	36.4			
26-Oct	11.6	9.1	10.3	Z	4.2	3.3	3.0	3.5	6.8	13.6	23.4	29.2	23.6	23.8	34.7	34.2	32.7	31.2	32.8	30.0	23.9	22.7	13.7	10.2	18.8	34.7			
27-Oct	8.6	8.3	7.2	6.5	Z	6.0	6.1	8.3	19.8	23.1	25.0	26.1	28.1	27.8	29.1	30.0	27.4	13.9	9.9	7.8	6.9	17.2	20.2	19.2	16.6	30.0			
28-Oct	17.9	18.3	18.1	18.7	19.2	Z	17.9	17.1	18.0	18.1	18.7	19.8	20.1	20.3	21.0	21.4	20.7	24.2	24.0	24.2	24.8	27.6	27.6	27.2	21.1	27.6			
29-Oct	Z	25.2	25.6	26.1	27.6	27.3	26.9	28.3	27.0	28.3	28.6	30.1	30.2	29.9	30.1	29.0	24.3	16.7	15.9	17.8	21.0	23.0	23.4	23.6	25.5	30.2			
30-Oct	23.6	Z	22.4	21.7	20.0	17.4	11.7	10.7	15.4	18.5	20.1	19.1	19.7	20.6	22.4	24.1	24.4	25.6	25.3	24.6	24.0	25.2	25.4	21.5	21.0	25.6			
31-Oct	23.5	16.6	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	24.0	23.8	23.5	22.9	23.6	24.2	22.9	21.8	23.9	21.4	16.6	--	24.2			
		20.0	17.4	19.4	20.8	18.1	18.6	18.2	18.6	21.0	24.4	27.3	29.8	31.3	31.8	32.5	31.8	30.0	24.9	21.2	19.6	19.4	21.2	20.8	20.6	Diurnal Average			
		39.6	33.6	33.9	33.4	33.0	31.6	32.3	32.4	33.6	34.8	35.6	41.8	40.9	42.6	45.1	43.5	40.8	36.5	34.5	35.1	37.8	39.5	39.2	39.6	Diurnal Maximum			
Z - zerospan		C - Calibration				M - Maintenance				UO - Unstable Operation																			
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr		76 ppb																									



Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Conklin - October 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	248	35.73	35.73
21 - 50	446	64.27	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 694

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - October 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	7	2	5	6	7	5	24	46	35	16	8	3	1	9	18	32	224
21 - 50	3	6	19	16	6	8	12	24	17	34	68	43	72	45	20	6	399
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>	10	8	24	22	13	13	36	70	52	50	76	46	73	54	38	38	623

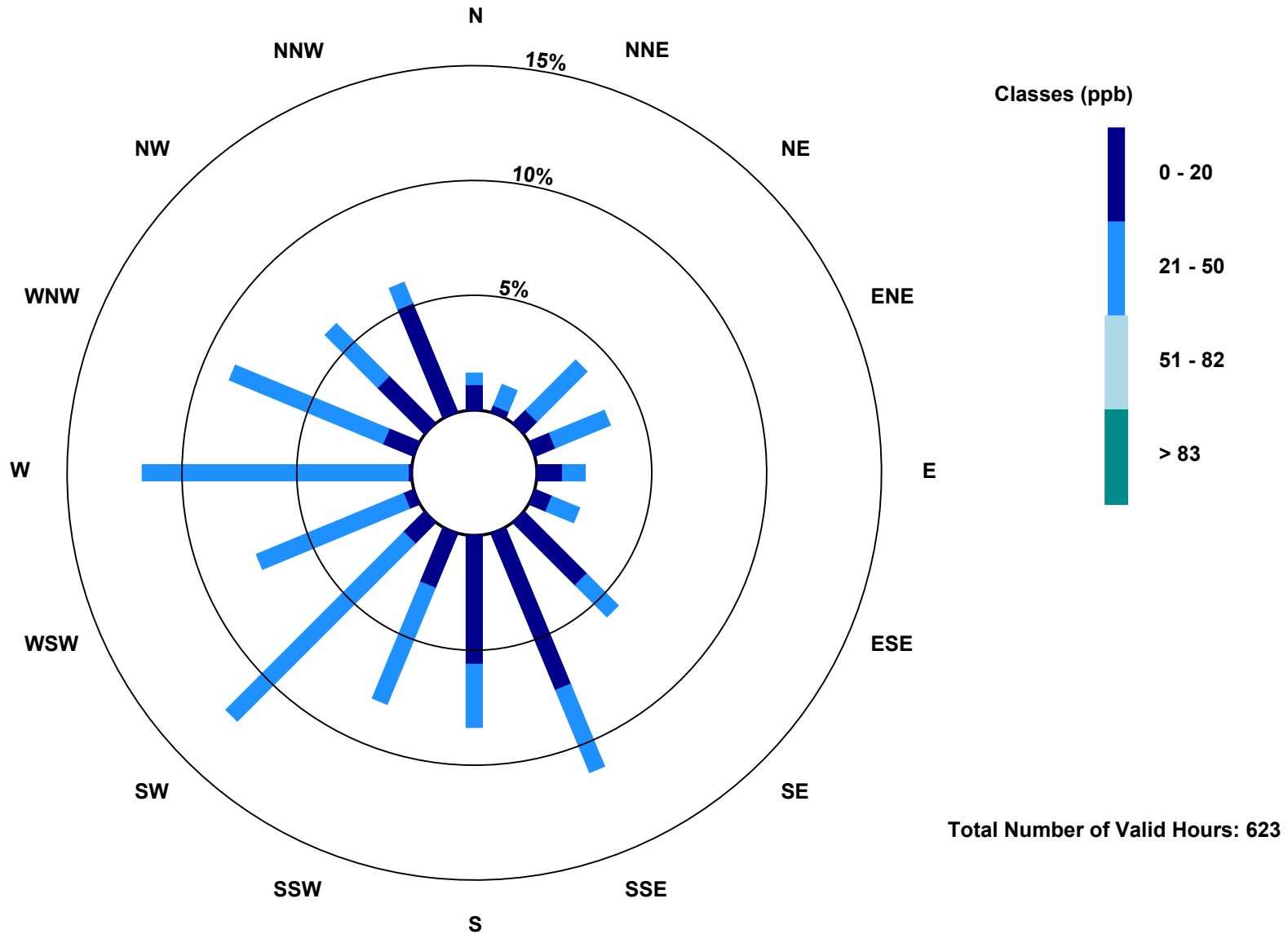
Total Number of Valid Hours: 623

Total Number of Hours: 744

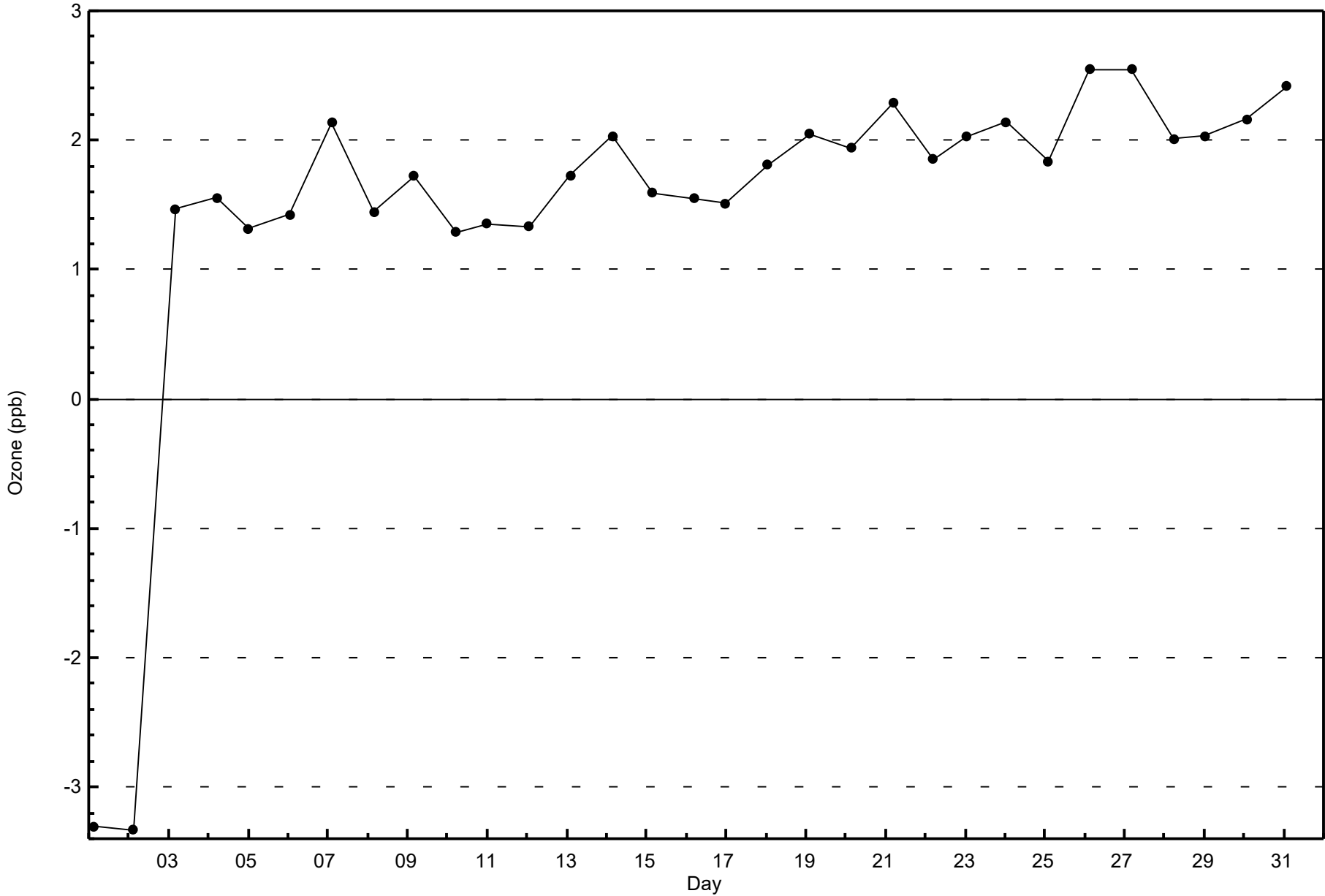


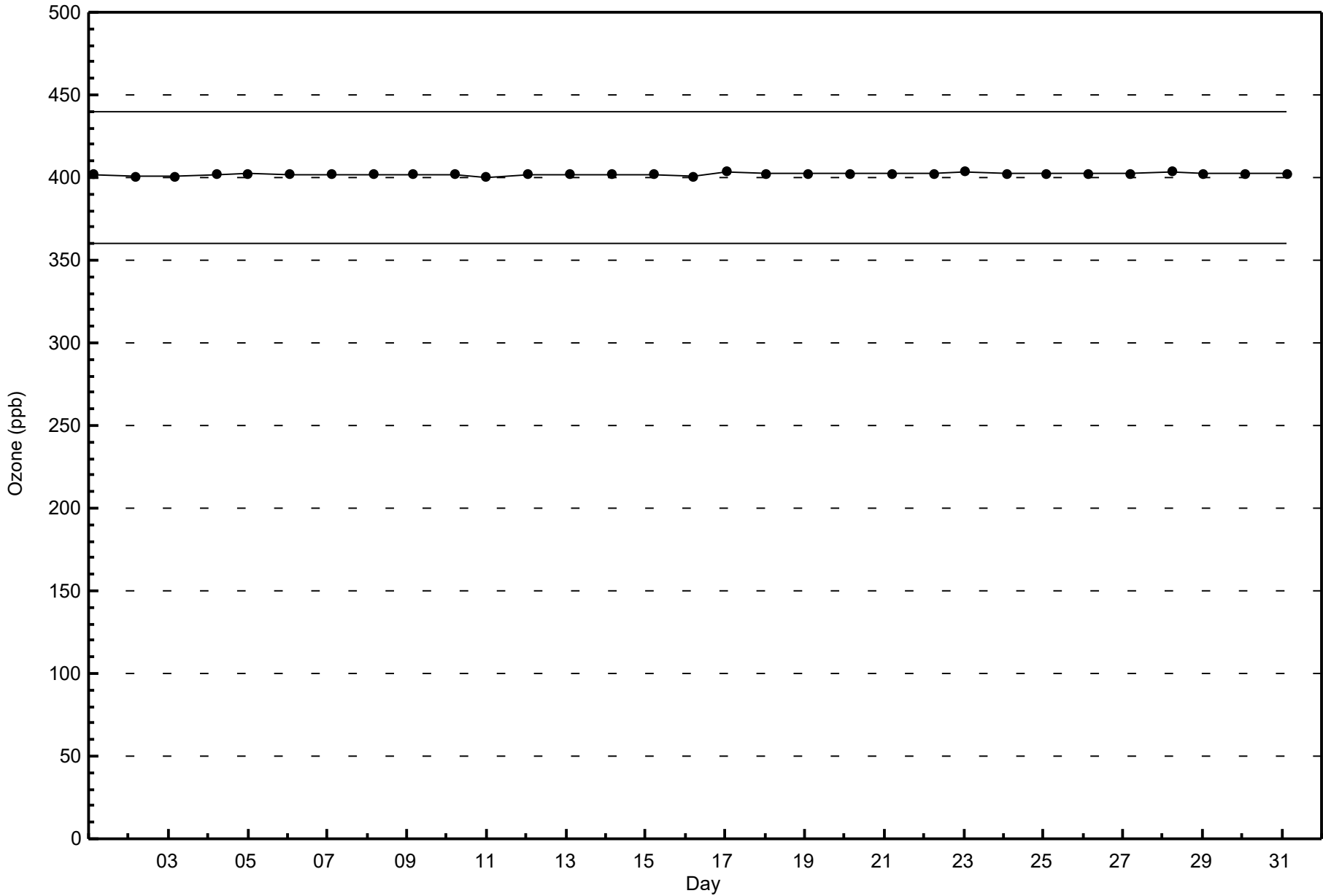
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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







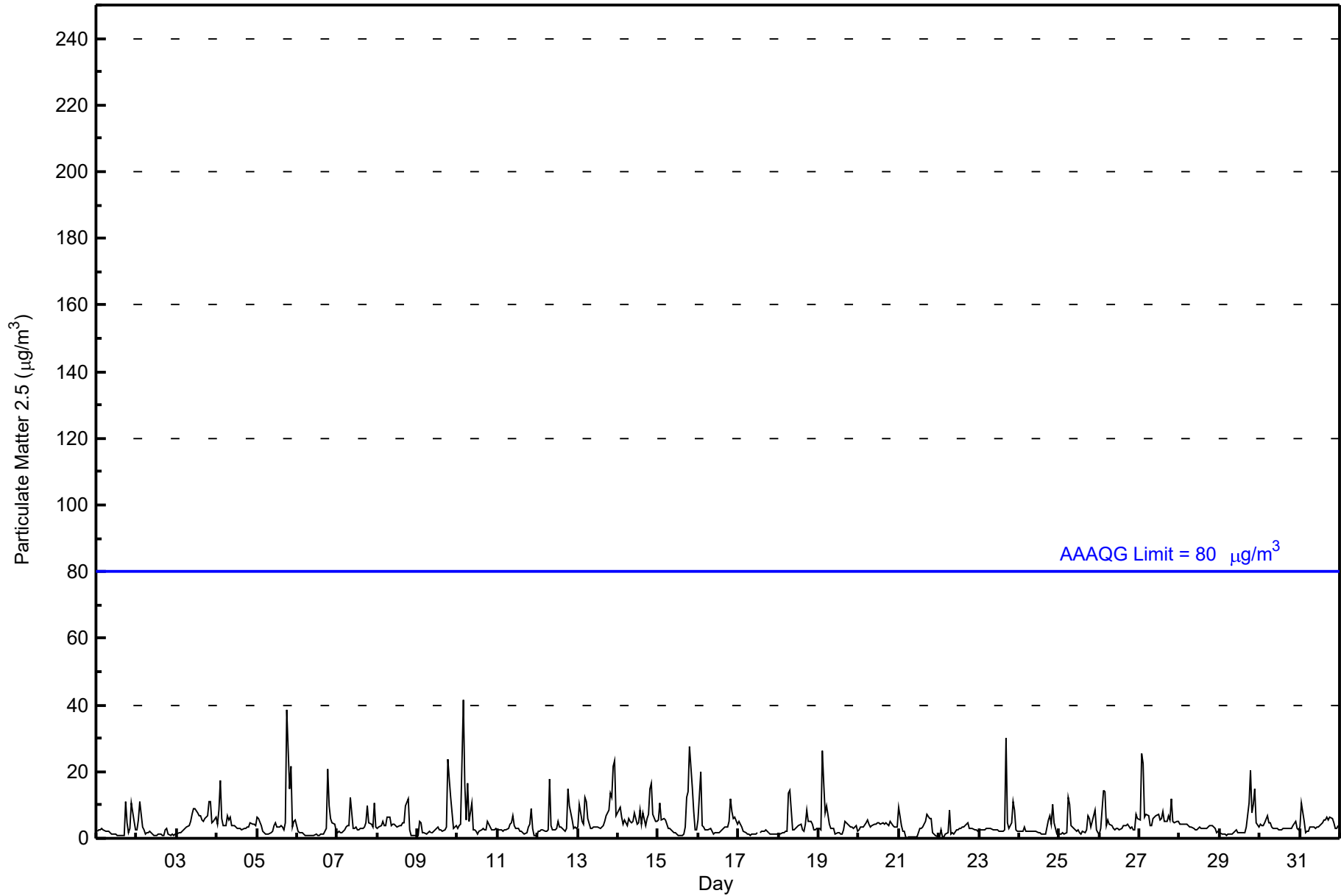




Summary of Hour Averages

Conklin - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 41.4 µg/m <sup>3</sup> on Oct 10 04:00 Minimum Value: 0.1 µg/m <sup>3</sup> on Oct 21 06:00 Maximum Diurnal Average: 8.4 µg/m <sup>3</sup> at hour 19 Monthly Average: 4.31 µg/m <sup>3</sup>		Maximum Daily Average: 7.6 µg/m <sup>3</sup> on Oct 27 Minimum Daily Average: 1.9 µg/m <sup>3</sup> on Oct 17 Minimum Diurnal Average: 2.9 µg/m <sup>3</sup> at hour 10 Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 2.1 Median = 3.1 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 8.3 P <sub>99</sub> = 23.1		Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 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-Oct	2.2	2.5	2.4	2.9	2.6	2.2	2.3	2.1	1.7	1.3	1.2	1.2	1.0	0.8	0.7	1.0	1.0	11.0	4.7	1.9	3.0	10.4	5.0	2.4	2.8	11.0
2-Oct	2.7	5.5	11.1	3.4	2.4	1.4	1.5	1.9	2.0	1.4	0.8	0.6	0.9	1.4	1.2	0.8	0.6	2.5	3.1	1.1	1.0	1.1	0.9	1.1	2.1	11.1
3-Oct	1.5	1.7	1.9	2.1	2.5	2.8	3.2	3.7	4.9	7.2	9.1	8.9	7.7	6.9	6.6	5.3	4.9	5.8	6.9	11.1	10.8	4.6	5.1	6.3	5.5	11.1
4-Oct	4.2	8.4	17.2	5.8	3.7	3.8	6.8	5.6	6.4	3.7	3.8	3.3	2.9	2.8	2.7	3.1	3.1	3.3	3.2	4.6	4.0	4.2	3.6	4.7	17.2	3.6
5-Oct	6.5	5.8	3.7	2.1	1.7	1.3	1.3	1.3	1.5	2.2	3.8	4.8	3.5	3.5	2.8	3.3	2.6	4.9	38.4	15.0	21.6	3.3	5.2	5.3	6.1	38.4
6-Oct	2.1	1.9	1.7	1.5	1.2	1.0	0.8	0.9	1.0	0.9	1.0	1.2	0.9	0.9	1.1	1.2	1.4	2.8	20.7	9.7	5.8	4.7	4.3	2.3	3.0	20.7
7-Oct	1.8	2.1	1.8	1.9	2.6	3.2	3.8	4.0	12.5	2.9	3.1	3.4	2.6	2.6	2.8	3.0	3.4	4.8	9.8	4.8	4.3	3.4	10.6	3.3	4.1	12.5
8-Oct	3.1	3.5	3.7	5.1	3.6	3.9	6.2	6.5	4.0	4.3	4.2	3.8	3.5	3.6	3.9	4.5	4.8	9.9	12.0	2.7	0.9	0.7	0.8	0.8	4.2	12.0
9-Oct	0.8	5.2	4.8	1.7	1.6	1.4	1.8	2.2	1.7	1.7	2.4	2.9	3.3	2.7	2.5	2.2	2.5	3.6	23.7	17.8	12.3	3.1	3.5	3.7	4.5	23.7
10-Oct	2.9	3.8	4.1	41.4	16.1	5.3	16.6	5.0	10.5	2.6	2.3	1.9	1.4	1.9	2.4	2.9	2.7	2.7	5.2	3.5	2.3	2.4	2.7	2.8	6.1	41.4
11-Oct	2.7	2.7	2.4	2.3	2.5	2.5	3.0	4.1	4.7	6.7	3.9	3.1	2.9	2.0	1.9	1.7	1.4	1.5	3.2	4.1	9.1	3.0	0.9	1.0	3.0	9.1
12-Oct	2.0	2.2	2.5	2.6	2.3	2.1	2.7	17.9	4.0	2.5	2.6	2.8	5.1	3.4	3.5	2.4	2.1	3.0	14.7	9.8	5.7	3.1	3.3	3.1	4.4	17.9
13-Oct	3.2	10.3	5.0	4.1	12.4	11.1	5.7	2.8	2.9	3.2	3.5	3.3	3.5	3.1	3.6	3.7	4.9	6.9	8.5	13.6	12.4	21.4	23.5	6.6	7.5	23.5
14-Oct	8.3	9.3	6.2	4.3	5.6	4.0	6.0	5.2	4.5	5.2	7.6	4.4	4.6	8.4	4.1	7.7	4.0	5.8	7.2	14.8	16.6	7.2	5.1	4.9	6.7	16.6
15-Oct	5.7	10.7	5.3	5.8	5.4	4.1	3.1	3.1	2.4	1.7	1.5	1.2	1.0	1.0	0.9	1.4	3.5	12.5	13.8	27.7	15.5	7.9	2.6	2.4	5.8	27.7
16-Oct	5.3	19.9	3.9	3.4	2.7	2.6	2.6	3.1	2.2	1.5	1.6	1.5	1.9	2.1	2.5	2.9	3.4	3.5	5.0	11.7	8.2	6.0	6.4	4.3	4.5	19.9
17-Oct	5.1	4.1	3.3	2.1	1.5	1.3	1.3	1.0	1.1	1.1	1.4	1.7	C	1.9	2.2	2.3	2.6	2.1	1.5	1.5	1.4	1.2	1.2	1.3	1.9	5.1
18-Oct	1.3	1.3	1.5	1.6	2.0	2.1	13.7	14.4	2.7	2.6	3.0	3.3	3.8	4.3	2.5	2.1	4.4	8.6	4.9	5.3	4.4	2.6	2.7	3.0	4.1	14.4
19-Oct	2.8	2.6	26.3	16.5	7.5	9.7	4.0	3.0	3.0	2.9	1.5	1.5	1.6	1.3	1.1	2.5	5.3	4.3	3.8	3.4	3.3	3.0	3.7	2.1	4.9	26.3
20-Oct	2.5	3.2	3.4	3.6	4.6	5.5	4.2	3.4	3.8	4.1	4.1	4.5	4.5	4.2	4.5	4.4	4.6	4.1	3.7	5.0	4.0	3.5	3.2	3.3	4.0	5.5
21-Oct	9.3	3.6	2.1	2.1	0.2	0.1	0.3	0.4	0.4	0.4	0.5	0.6	3.1	2.9	3.6	4.4	5.1	7.3	5.9	5.8	1.6	1.4	0.8	0.4	2.6	9.3
22-Oct	0.6	2.6	0.4	0.4	1.3	1.5	8.7	1.2	1.9	1.5	2.5	2.7	3.0	3.1	3.5	3.3	4.1	4.5	3.0	2.8	2.8	2.5	2.4	2.3	2.6	8.7
23-Oct	2.4	2.6	2.7	2.8	2.8	2.8	2.8	2.9	2.7	2.7	2.6	2.5	2.3	2.0	2.3	2.6	29.9	4.5	2.8	4.5	11.0	8.4	2.7	2.1	4.5	29.9
24-Oct	2.2	2.1	2.0	3.4	2.2	2.3	2.1	2.0	2.2	2.3	2.3	1.8	1.6	1.4	1.4	1.3	1.3	5.7	6.6	4.2	10.0	4.7	1.3	1.1	2.8	10.0
25-Oct	1.5	1.4	1.6	1.3	1.6	12.1	10.0	3.9	3.5	2.5	2.3	2.4	1.7	1.3	2.0	1.9	2.5	6.6	5.8	3.5	6.6	8.3	2.5	1.5	3.7	12.1
26-Oct	1.3	3.2	14.3	14.0	3.9	5.5	4.3	4.0	3.1	2.4	2.9	2.9	2.5	3.0	3.9	4.0	4.0	4.1	3.2	3.4	2.7	2.7	7.1	6.0	4.5	14.3
27-Oct	5.7	25.3	22.7	6.4	7.3	6.6	4.0	3.6	5.8	6.3	6.7	7.1	5.7	5.9	8.0	4.9	5.0	6.7	5.6	12.0	5.2	4.8	5.2	5.0	7.6	25.3
28-Oct	4.3	4.4	4.2	4.2	4.4	3.7	3.5	3.2	2.9	2.7	2.7	3.2	3.2	3.1	2.9	2.8	3.0	3.5	3.7	3.7	3.3	2.8	1.9	2.3	3.3	4.4
29-Oct	1.8	1.4	1.3	1.2	1.0	1.2	1.2	1.3	1.8	2.3	2.7	1.8	1.8	1.7	1.5	1.6	3.4	10.8	20.2	7.8	10.1	15.0	4.8	3.3	4.2	20.2
30-Oct	4.2	3.7	3.9	4.6	6.6	4.7	4.8	3.2	3.1	2.8	2.8	2.6	2.6	2.6	2.9	2.8	3.0	3.0	2.8	2.8	3.9	5.2	3.0	2.7	3.5	6.6
31-Oct	3.4	10.7	5.2	1.9	2.0	2.3	3.2	3.3	3.6	3.1	3.3	3.5	3.8	4.7	5.5	5.7	6.3	5.7	6.2	5.7	4.8	2.8	3.1	3.7	4.3	10.7
																								Diurnal Average		
																								Diurnal Maximum		
3.3 5.4 5.6 5.0 3.8 3.7 4.4 3.9 3.5 2.9 3.0 2.9 2.9 2.9 3.0 3.0 4.2 5.3 8.4 7.2 6.8 5.0 4.2 3.0 9.3 25.3 26.3 41.4 16.1 12.1 16.6 17.9 12.5 7.2 9.1 8.9 7.7 8.4 8.0 7.7 29.9 12.5 38.4 27.7 21.6 21.4 23.5 6.6																										
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 - October 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	598	80.48	80.48
6 - 15	124	16.69	97.17
16 - 25	16	2.15	99.33
26 - 80	5	0.67	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>**  
**Conklin - October 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	8	26	21	11	9	28	48	26	34	78	44	70	55	34	33	533
6 - 15	2	1	3	5	2	4	10	24	20	14	6	3	3	3	6	8	114
16 - 25	0	0	0	0	0	1	0	3	6	3	1	0	0	0	1	0	15
26 - 80	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	1	5
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	10	9	29	26	13	14	38	75	54	52	85	47	74	58	41	42	667

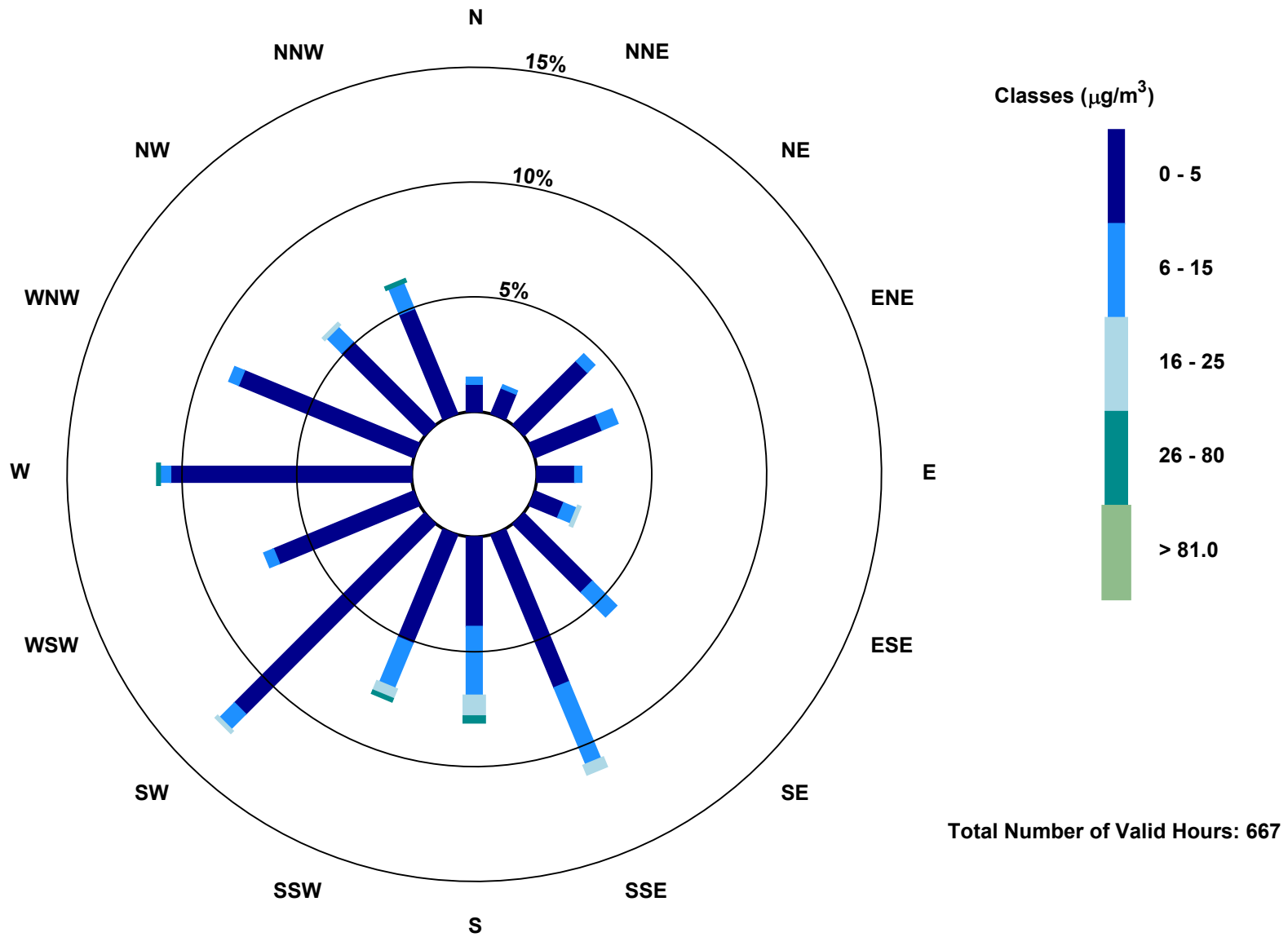
Total Number of Valid Hours: 667

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





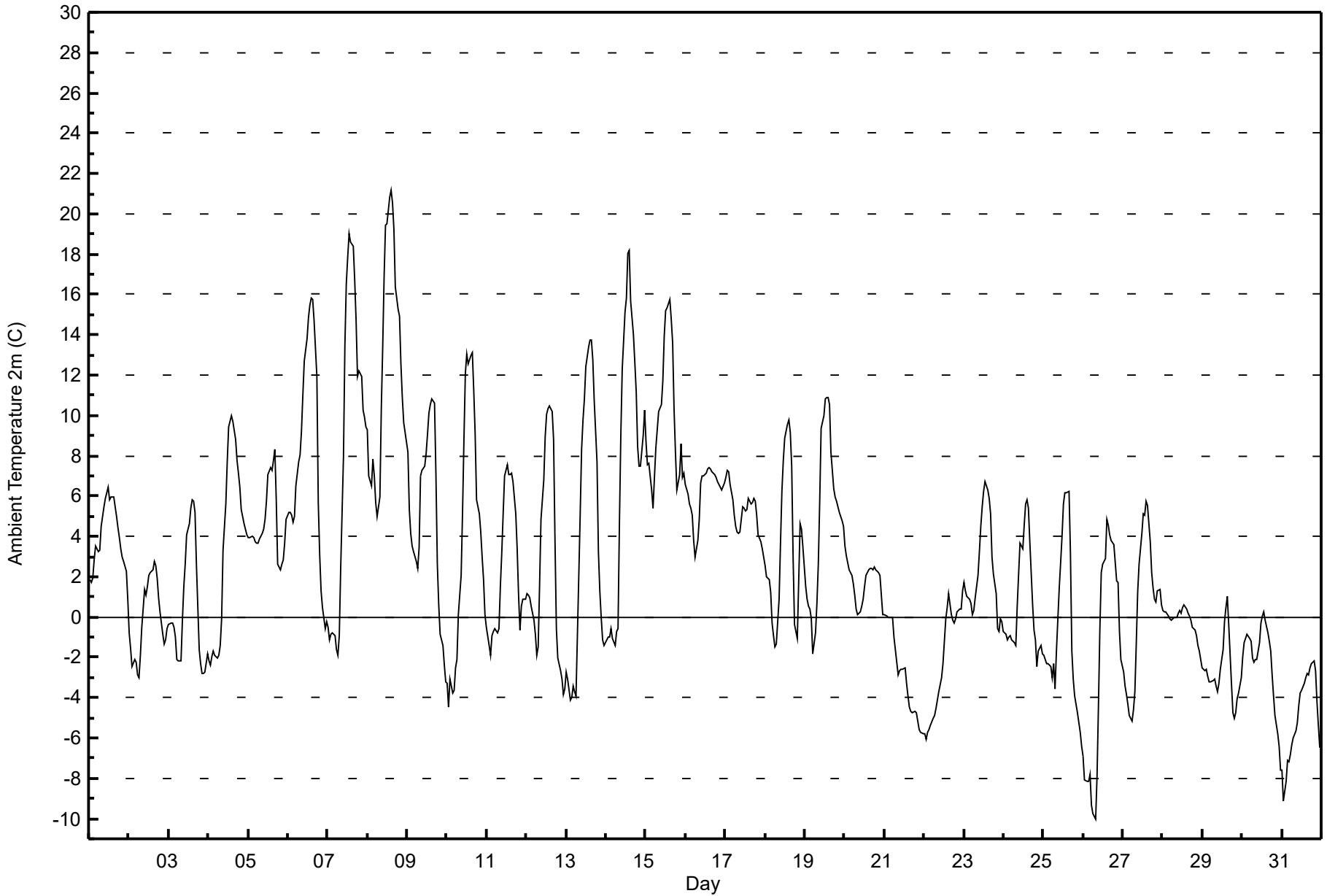
Maximum Value: 21.2 C on Oct 8 15:00      Maximum Daily Average: 12.7 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -10.0 C on Oct 26 08:00      Minimum Daily Average: -5.0 C on Oct 31 Maximum Diurnal Average: 7.6 C at hour 15      Minimum Diurnal Average: -0.5 C at hour 7 Monthly Average: 2.72 C      Percentiles: P <sub>1</sub> = -8.0 P <sub>10</sub> = -3.7 Q <sub>1</sub> = -1.3 Median = 2.0 Q <sub>3</sub> = 6.0 P <sub>90</sub> = 10.3 P <sub>99</sub> = 18.5																				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-Oct	1.9	1.7	1.9	2.8	3.5	3.3	3.3	4.5	5.0	5.5	5.9	6.4	5.8	6.0	6.0	5.9	5.0	4.4	3.9	3.4	2.9	2.8	2.2	0.9	4.0	6.4
2-Oct	-0.8	-1.6	-2.5	-2.1	-2.2	-2.9	-3.0	-1.9	-0.5	1.4	1.1	1.5	2.1	2.2	2.4	2.8	2.6	1.9	0.9	0.2	-0.8	-1.3	-1.1	-0.6	-0.1	2.8
3-Oct	-0.4	-0.3	-0.3	-0.5	-1.0	-2.1	-2.2	-2.2	-0.2	1.5	2.7	4.1	4.6	5.4	5.8	5.8	5.2	2.6	-1.6	-2.3	-2.8	-2.8	-2.7	-1.9	0.6	5.8
4-Oct	-2.2	-2.4	-2.0	-1.7	-1.9	-2.0	-1.9	-1.4	-0.1	3.3	5.6	7.7	9.5	9.7	10.0	9.7	8.8	7.8	7.1	6.5	5.3	4.7	4.4	4.0	3.7	10.0
5-Oct	3.9	4.0	4.0	4.0	3.7	3.7	3.7	3.9	4.2	4.3	4.9	5.7	7.0	7.4	7.3	7.7	8.3	5.8	2.6	2.3	2.6	2.8	3.7	4.9	4.7	8.3
6-Oct	5.2	5.2	5.1	4.7	5.0	6.5	7.7	8.0	9.2	11.0	12.7	13.8	14.8	15.5	15.8	15.8	14.7	11.9	5.7	3.1	1.3	0.4	-0.6	-0.2	8.0	15.8
7-Oct	-0.5	-1.1	-0.8	-0.8	-0.9	-1.6	-1.9	-0.9	2.4	8.0	13.5	16.6	17.9	19.0	18.6	18.4	16.7	14.7	12.0	12.2	11.9	10.3	9.9	9.4	8.5	19.0
8-Oct	9.3	7.0	6.5	7.9	7.0	5.6	5.0	6.0	10.3	13.4	16.8	19.4	19.5	20.8	21.2	20.6	19.2	16.4	15.3	14.9	12.5	10.9	9.6	8.7	12.7	21.2
9-Oct	8.2	5.4	4.1	3.5	3.2	2.8	2.4	3.5	7.0	7.3	7.5	8.1	9.1	10.1	10.6	10.8	10.6	7.1	2.6	0.6	-0.9	-1.4	-2.4	-3.2	4.9	10.8
10-Oct	-3.3	-4.4	-3.1	-3.7	-3.7	-2.5	-2.1	0.1	2.1	5.2	8.8	12.0	13.1	12.5	13.0	13.1	11.2	9.1	5.8	5.1	4.2	3.0	1.8	0.1	4.1	13.1
11-Oct	-0.5	-1.4	-1.9	-1.0	-0.7	-0.6	-0.8	-0.6	1.5	3.2	5.1	7.0	7.5	7.1	7.0	7.1	6.7	5.1	3.4	1.1	-0.7	0.5	0.9	0.9	2.3	7.5
12-Oct	1.2	1.1	1.0	0.5	-0.1	-0.9	-1.9	-1.5	1.6	4.8	6.8	8.9	10.1	10.3	10.5	10.2	8.8	3.8	-0.6	-2.0	-2.6	-3.1	-3.8	-3.6	2.5	10.5
13-Oct	-2.7	-3.0	-4.1	-4.0	-3.4	-3.7	-3.9	2.1	5.1	8.3	9.8	10.8	12.5	13.4	13.7	13.7	12.8	10.7	7.7	3.2	1.3	0.0	-1.2	-1.4	4.1	13.7
14-Oct	-1.1	-1.0	-1.0	-0.6	-1.0	-1.4	-0.7	-0.6	4.6	9.0	12.3	15.2	15.8	18.1	18.2	15.7	14.0	12.6	11.1	8.4	7.5	7.5	9.0	10.3	7.6	18.2
15-Oct	8.7	7.6	7.6	6.3	5.4	6.9	8.4	9.3	10.2	10.5	11.7	13.9	15.2	15.4	15.8	14.8	13.6	10.4	8.2	6.3	7.1	8.6	6.9	7.1	9.8	15.8
16-Oct	6.6	6.1	5.6	5.4	5.0	3.8	3.0	3.8	4.8	6.7	7.0	7.0	7.1	7.3	7.4	7.3	7.2	7.1	6.9	6.7	6.6	6.4	6.3	6.6	6.2	7.4
17-Oct	6.9	7.3	7.2	6.6	5.8	5.1	4.5	4.2	4.2	4.2	5.5	5.4	5.3	5.3	5.9	5.6	5.7	5.9	5.8	5.1	4.1	3.7	3.4	3.0	5.2	7.3
18-Oct	2.6	2.0	1.9	1.3	-0.3	-0.9	-1.5	-1.3	0.9	3.6	6.2	7.7	8.9	9.6	9.8	9.1	7.5	3.0	-0.4	-1.0	1.8	4.6	4.4	3.4	3.5	9.8
19-Oct	1.5	0.9	0.5	0.4	-0.1	-1.8	-0.8	0.7	2.6	5.8	9.3	10.0	10.9	10.9	10.9	10.6	8.2	6.4	6.0	5.8	5.5	5.2	4.8	4.5	4.9	10.9
20-Oct	3.5	3.1	2.7	2.3	2.1	1.6	1.1	0.4	0.1	0.3	0.5	0.9	1.5	2.1	2.3	2.4	2.4	2.4	2.5	2.3	2.2	2.0	1.1	0.1	1.7	3.5
21-Oct	0.1	0.1	0.0	0.0	0.0	0.0	-1.0	-2.3	-2.9	-2.7	-2.6	-2.6	-2.5	-3.3	-3.9	-4.5	-4.7	-4.8	-4.7	-4.8	-5.1	-5.6	-5.7	-5.8	-2.9	0.1
22-Oct	-5.8	-6.0	-5.7	-5.6	-5.4	-5.0	-4.9	-4.6	-4.1	-3.7	-3.0	-2.3	-1.2	-0.1	0.5	1.2	0.1	-0.2	-0.3	-0.1	0.3	0.4	0.4	1.3	-2.2	1.3
23-Oct	1.7	1.3	1.0	0.9	0.7	0.1	0.3	0.9	2.1	3.2	4.5	5.5	6.3	6.7	6.3	5.9	5.1	3.0	2.2	1.2	-0.6	-0.7	-0.1	-0.2	2.4	6.7
24-Oct	-0.7	-0.9	-1.1	-1.0	-0.9	-1.1	-1.2	-1.4	0.5	2.2	3.7	3.4	4.5	5.6	5.8	5.4	3.7	0.6	-0.6	-1.1	-2.5	-1.7	-1.4	-1.8	0.8	5.8
25-Oct	-1.9	-2.1	-2.3	-2.3	-2.4	-3.0	-2.3	-3.6	-1.7	1.4	2.7	4.0	5.6	6.2	6.1	6.2	3.2	-1.7	-3.1	-3.9	-4.7	-5.2	-5.7	-6.4	-0.7	6.2
26-Oct	-6.9	-8.1	-8.1	-8.2	-7.8	-9.3	-9.8	-10.0	-7.8	-4.4	-0.6	2.2	2.6	2.9	4.8	4.6	4.1	3.8	3.6	2.7	1.8	1.7	-0.7	-2.1	-2.0	4.8
27-Oct	-2.8	-3.4	-3.9	-4.3	-4.9	-5.1	-4.6	-3.7	-1.4	1.2	2.6	4.2	5.1	5.1	5.8	5.5	3.8	2.2	1.5	0.9	0.7	1.3	1.4	0.6	0.3	5.8
28-Oct	0.3	0.3	0.2	0.0	-0.1	-0.1	-0.1	0.0	0.0	0.2	0.4	0.2	0.4	0.6	0.4	0.2	0.1	-0.2	-0.5	-0.6	-0.9	-1.4	-1.7	-2.1	-0.2	0.6
29-Oct	-2.5	-2.7	-2.6	-2.9	-3.2	-3.2	-3.1	-3.1	-3.4	-3.7	-3.3	-2.6	-1.6	-0.2	0.5	1.0	-0.4	-3.4	-4.7	-5.1	-4.8	-4.1	-3.8	-3.0	-2.7	1.0
30-Oct	-2.0	-1.3	-1.0	-0.9	-1.1	-1.2	-2.0	-2.2	-2.1	-2.1	-1.3	-0.3	0.1	0.3	-0.1	-0.8	-1.2	-1.7	-2.9	-3.9	-4.9	-5.8	-6.4	-7.6	-2.2	0.3
31-Oct	-7.6	-9.2	-8.1	-7.1	-7.2	-6.8	-6.4	-6.0	-5.7	-5.2	-4.4	-3.8	-3.7	-3.3	-3.0	-2.8	-2.8	-2.5	-2.3	-2.1	-2.7	-4.2	-5.4	-6.5	-5.0	-2.1
																								Diurnal Average		
																								Diurnal Maximum		
0.6 0.1 0.0 0.0 -0.2 -0.5 -0.5 0.0 1.6 3.3 4.9 6.1 6.9 7.4 7.6 7.4 6.5 4.7 3.0 2.1 1.5 1.3 0.9 0.6																										
9.3 7.6 7.6 7.9 7.0 6.9 8.4 9.3 10.3 13.4 16.8 19.4 19.5 20.8 21.2 20.6 19.2 16.4 15.3 14.9 12.5 10.9 9.9 10.3																										





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

**Ambient Temperature 2m (AT2) - C**  
**Conklin - October 2024**





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

**Ambient Temperature 2m (AT2) - C**  
**Conklin - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	276	37.10	37.10
0 - 10	388	52.15	89.25
10 - 20	77	10.35	99.60
> 20	3	0.40	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



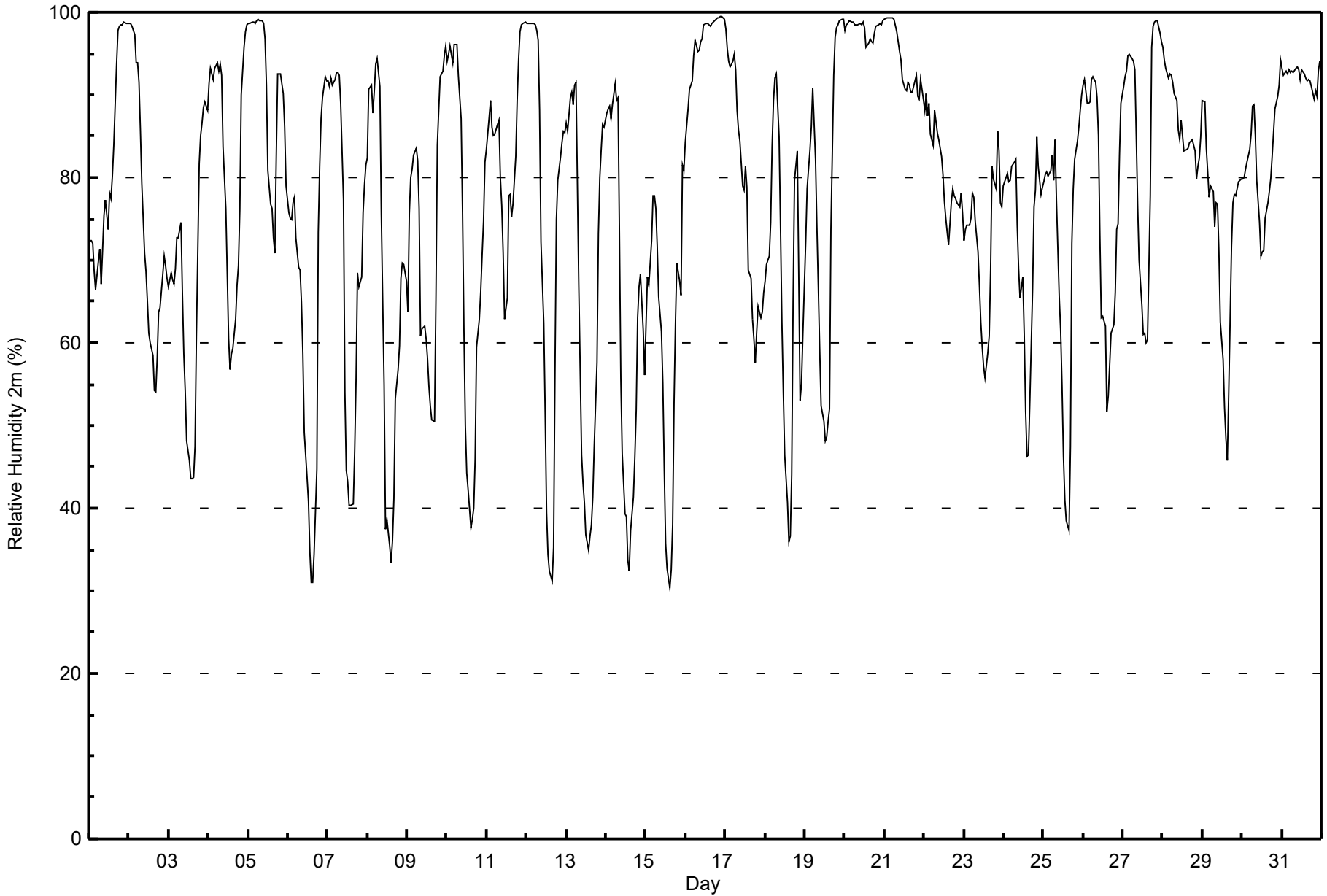
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**

**Conklin - October 2024**

<b>Maximum Value: 99.5 % on Oct 16 23:00</b>																						<b>Maximum Daily Average: 98.1 % on Oct 20</b>																						<b>Hours in Service: 744</b>		
<b>Minimum Value: 30.4 % on Oct 15 15:00</b>																						<b>Minimum Daily Average: 60.4 % on Oct 15</b>																						<b>Hours of Data: 744</b>		
<b>Maximum Diurnal Average: 88.4 % at hour 6</b>																						<b>Minimum Diurnal Average: 57.8 % at hour 15</b>																						<b>Hours of Missing Data: 0</b>		
<b>Monthly Average: 77.00 %</b>																						<b>Percentiles: P<sub>1</sub> = 33.0 P<sub>10</sub> = 48.8 Q<sub>1</sub> = 66.1 Median = 80.2 Q<sub>3</sub> = 91.8 P<sub>90</sub> = 98.1 P<sub>99</sub> = 99.3</b>																						<b>Hours of Calibration: 0</b>		
																																												<b>Percent Operational Time: 100.0</b>		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-Oct	72.4	72.4	72.0	68.6	66.5	69.8	71.4	67.1	71.3	75.5	77.3	73.8	78.1	77.4	80.2	83.8	93.8	97.8	98.4	98.4	98.5	98.8	98.6	98.7	81.7	98.8																				
2-Oct	98.7	98.7	98.4	97.3	93.9	93.9	91.5	85.7	79.3	70.9	68.7	65.0	61.2	60.0	58.5	54.2	54.0	58.2	63.7	64.2	68.3	70.6	69.3	67.8	74.7	98.7																				
3-Oct	66.8	68.4	67.6	67.2	69.1	72.7	72.7	74.6	65.9	58.6	54.2	48.2	45.7	43.5	43.6	43.6	47.4	60.9	81.6	85.0	86.6	88.5	89.1	88.2	66.2	89.1																				
4-Oct	91.4	93.2	92.5	91.8	93.1	93.9	92.9	93.7	92.4	83.7	76.3	68.4	60.6	56.7	58.6	59.3	62.9	66.9	69.3	76.1	90.0	95.7	97.6	98.5	81.5	98.5																				
5-Oct	98.7	98.7	98.8	98.8	98.7	99.0	99.1	99.0	99.0	98.6	96.7	91.1	80.9	76.8	76.3	72.8	70.9	82.5	92.5	92.5	91.3	90.2	86.1	79.0	90.3	99.1																				
6-Oct	75.7	75.1	74.9	77.0	77.6	72.7	69.2	68.8	64.9	58.6	49.2	43.7	40.9	34.8	31.0	30.9	34.4	44.7	73.4	81.4	87.1	89.7	92.2	91.7	64.2	92.2																				
7-Oct	91.6	90.9	92.0	91.1	91.9	92.7	92.7	92.4	89.0	77.4	54.1	44.7	43.3	40.3	40.4	40.6	47.0	55.8	68.5	66.8	67.9	75.8	79.1	81.5	71.1	92.7																				
8-Oct	82.3	90.7	91.2	87.9	90.5	93.7	94.4	91.1	75.6	65.2	55.0	37.5	38.6	35.5	33.5	36.1	41.2	53.1	56.7	59.7	67.8	69.6	69.4	67.4	66.0	94.4																				
9-Oct	63.8	75.6	80.1	80.9	82.7	83.6	82.0	76.3	60.9	61.7	62.1	60.5	58.1	54.8	52.4	50.7	50.5	65.3	83.9	88.2	92.2	92.9	94.8	95.9	72.9	95.9																				
10-Oct	94.2	95.0	95.9	93.9	96.1	96.1	96.1	92.4	87.1	75.8	61.6	49.9	44.2	42.3	37.7	38.6	40.1	46.0	59.5	62.9	66.3	70.7	74.8	81.8	70.8	96.1																				
11-Oct	83.4	87.2	89.4	86.1	85.1	85.2	86.4	86.9	79.9	76.5	70.9	62.9	65.5	77.9	77.9	75.2	76.9	82.6	89.3	94.2	97.7	98.5	98.7	98.7	83.9	98.7																				
12-Oct	98.7	98.7	98.7	98.7	98.7	98.5	97.8	96.7	88.2	72.2	62.4	51.6	39.4	34.4	32.4	31.2	35.2	56.4	74.9	79.6	82.5	84.3	85.5	85.5	74.3	98.7																				
13-Oct	86.6	85.5	89.7	90.4	88.9	91.2	91.5	67.0	56.8	46.5	43.1	40.7	36.7	34.9	36.5	37.9	41.3	47.4	57.6	73.2	79.9	83.4	86.4	86.1	65.8	91.5																				
14-Oct	87.9	88.3	88.7	87.1	88.9	91.4	89.3	89.7	73.5	55.7	46.6	39.3	39.0	33.7	32.4	37.2	41.3	46.0	51.8	63.0	66.8	68.3	61.5	56.1	63.5	91.4																				
15-Oct	62.3	68.0	66.9	72.4	77.9	77.8	76.2	71.6	65.6	61.4	55.0	44.8	35.7	32.7	30.4	32.6	38.0	52.8	62.3	69.7	67.4	65.7	81.5	80.9	60.4	81.5																				
16-Oct	84.3	88.3	90.7	91.3	91.7	94.7	96.5	95.2	95.4	96.4	96.8	98.5	98.6	98.7	98.5	98.4	98.7	98.9	99.1	99.3	99.4	99.4	99.5	99.2	96.1	99.5																				
17-Oct	97.9	95.5	94.0	93.4	94.1	94.8	93.0	88.1	85.8	84.4	79.0	78.5	81.4	78.8	68.8	67.8	62.8	60.4	57.6	61.4	64.5	63.0	63.6	66.0	78.1	97.9																				
18-Oct	67.4	69.5	70.6	74.7	83.8	89.3	92.0	92.5	85.0	74.1	62.5	54.1	46.5	40.7	36.0	36.7	44.1	64.9	79.7	83.2	68.7	53.1	55.1	61.1	66.0	92.5																				
19-Oct	72.3	78.6	81.0	83.2	86.1	90.8	82.2	74.0	66.8	59.1	52.3	50.6	48.1	48.6	50.5	52.1	73.7	92.3	96.9	98.1	98.5	99.0	99.2	99.2	76.4	99.2																				
20-Oct	97.9	98.5	98.7	98.9	98.9	98.8	98.4	98.5	98.6	98.6	98.5	98.9	98.2	95.7	96.2	96.8	96.5	96.3	97.4	98.4	98.5	98.7	98.6	98.9	98.1	98.9																				
21-Oct	99.2	99.3	99.3	99.4	99.4	99.4	99.1	97.6	96.5	95.2	94.2	91.9	90.7	90.4	91.6	91.1	90.4	90.4	91.7	92.3	89.9	89.5	91.8	89.5	94.2	99.4																				
22-Oct	88.2	90.2	87.5	89.1	85.2	83.8	88.1	86.8	85.4	84.6	82.6	80.4	77.2	75.1	73.4	71.9	77.2	78.7	77.7	77.5	76.9	76.4	78.1	75.5	81.2	90.2																				
23-Oct	72.3	73.8	74.3	74.3	75.0	78.1	77.6	74.7	71.0	67.0	62.5	59.5	57.0	55.7	58.8	60.9	68.8	81.4	79.8	78.7	85.6	83.2	77.0	76.5	71.8	85.6																				
24-Oct	79.1	80.0	80.6	79.5	79.7	81.3	81.9	82.1	74.2	68.9	65.4	68.0	61.0	51.6	46.2	46.5	52.8	66.6	76.5	78.5	85.0	81.4	77.9	78.8	71.8	85.0																				
25-Oct	79.6	80.3	80.6	80.1	80.8	82.7	79.7	84.6	77.2	65.6	61.6	54.8	46.3	41.0	38.5	37.4	47.5	72.1	78.6	82.3	84.4	86.1	88.2	90.0	70.8	90.0																				
26-Oct	91.2	91.9	89.0	88.9	89.2	91.9	92.2	91.5	89.7	85.2	73.2	63.0	62.1	51.6	53.6	57.2	61.2	62.2	66.1	73.7	74.3	82.7	88.9	76.4	92.2																					
27-Oct	91.0	92.2	93.0	94.8	95.0	94.4	94.1	93.1	84.9	76.5	70.0	64.6	61.0	61.2	60.0	60.3	77.9	95.8	98.3	98.8	99.1	99.0	97.4	96.5	85.4	99.1																				
28-Oct	95.7	94.2	93.3	92.0	92.5	92.4	91.6	90.2	89.3	85.8	84.6	87.0	85.0	83.3	83.4	83.5	84.3	84.5	84.6	83.3	79.8	81.4	82.4	84.9	87.0	95.7																				
29-Oct	89.3	89.2	83.6	80.7	77.6	79.0	78.3	74.0	77.0	76.7	70.9	62.6	57.9	52.2	48.6	45.8	54.0	71.6	76.9	77.9	77.7	78.6	79.5	79.8	72.5	89.3																				
30-Oct	79.9	80.0	81.0	81.8	83.5	85.3	88.6	88.8	85.0	79.7	74.6	70.6	71.0	71.2	75.1	76.9	78.3	79.9	82.6	85.4	88.4	89.8	91.2	94.2	81.8	94.2																				
31-Oct	93.1	92.4	92.9	92.6	93.0	92.7	92.9	92.8	93.2	93.4	93.0	91.9	93.0	92.6	92.0	91.7	91.8	91.8	91.1	89.5	90.4	89.8	92.9	94.1	92.3	94.1																				
																						84.9	86.5	86.7	86.6	87.3	88.4	88.0	85.7	80.8	75.1	69.5	64.4	61.4	59.2	57.8	57.9	62.3	71.1	77.9	80.8	82.9	83.4	84.5	84.9	Diurnal Average
																						99.2	99.3	99.3	99.4	99.4	99.4	99.1	99.0	99.0	98.6	98.5	98.9	98.6	98.7	98.5	98.4	98.7	98.9	99.1	99.3	99.4	99.4	99.5	99.2	Diurnal Maximum





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

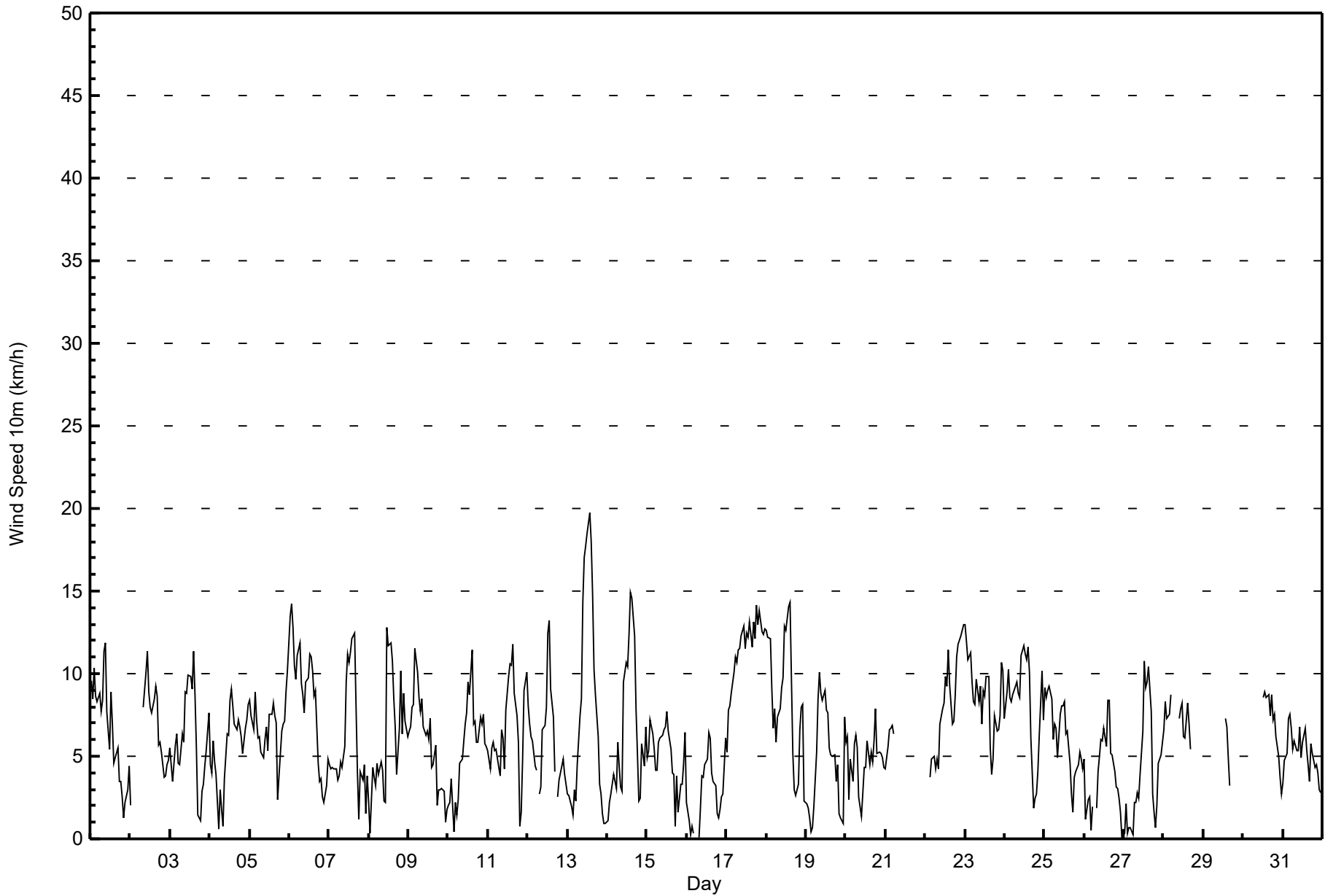
## Conklin - October 2024

Maximum Speed: 20 km/h on Oct 13 14:00	Maximum Daily Speed Average: 11.4 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 27 00:00	Minimum Daily Speed Average: 1.3 km/h on Oct 16	Hours of Data: 668
Maximum Diurnal Speed Average: 4.1 km/h at hour 12	Minimum Diurnal Speed Average: 1.6 km/h at hour 18	Hours of Missing Data: 76
Monthly Average Velocity: 2.7 km/h 238.4 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 11 P <sub>99</sub> = 15	Percent Operational Time: 89.8

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-Oct	SW10	SW8	SW10	SW9	SW8	SW9	SW8	SW8	WSW11	WSW12	W8	W5	SW9	WSW7	W5	WSW5	NNW5	NNW3	NNW3	NW3	NW1	NW2	NW3	NNW4	WSW5.4	WSW12	
2-Oct	NW2	UO	UO	UO	UO	UO	UO	UO	NW8	NW10	NW11	NW9	WNW8	WNW8	WNW8	NW9	NW9	NW6	NW6	NW5	WNW4	WNW4	WNW4	WNW5	---	NW11	
3-Oct	WNW6	WNW3	W5	WNW6	WNW6	WNW5	WSW4	WSW6	W6	WNW9	WNW9	W10	W10	WNW9	W11	W9	WNW6	NW1	S1	SSE3	SSE3	SSE4	S5	S8	W4.6	W11	
4-Oct	SSE4	S4	S6	S5	SE4	SSE1	S3	SSE2	NNW1	NE4	E6	ENE6	E8	E9	E8	ENE7	NE7	NE7	ENE7	NNE6	N5	NNW7	N7	NNW8	ENE2.9	E9	
5-Oct	NNW8	NNW7	NNW7	NNW9	NNW7	NNW6	NW6	NW5	NW5	NW6	NW7	WNW5	W8	W8	WSW8	SW7	WSW7	SSE2	S4	S7	S7	S7	SSW9	WSW10	W3.7	SSW10	
6-Oct	SW13	SW14	SW13	SW11	SW10	WSW11	W12	W9	WNW9	WNW8	W10	WSW10	WSW11	W11	W10	W9	WSW9	WSW5	SSW3	S4	SSE3	SSE2	SE3	SE5	WSW7.1	SW14	
7-Oct	SE4	SE4	SE4	SSE4	SSE4	SE4	SSE4	SE5	SSE4	SSE6	S9	SSW11	SSW11	SSW11	S12	SSW12	SSW8	SSE4	SW1	S4	SSE4	SE5	E1	SE4	S5.2	SSW12	
8-Oct	SE2	WSW0	SSE4	SSE4	SE3	SE5	SSE4	SSE5	SE4	ESE2	SE2	S13	SSE12	SSE12	SSE11	S8	S7	SSE4	WSW7	WNW10	W6	WNW9	WNW7	WNW6	S3.5	S13	
9-Oct	WSW7	SSW7	SSW8	SW8	SW11	SW10	SW9	SW8	WNW9	WNW7	W6	W7	WSW6	WSW7	WSW4	W4	WSW6	WSW2	S3	S3	SE3	SSE3	SE1	SSE2	WSW4.9	SW11	
10-Oct	SSE2	SSE2	S4	W0	SSE2	SSE1	S2	S5	S5	SSW6	SW7	SW8	W10	W9	W11	WNW7	WNW7	W6	SW6	SW7	SW7	SSW8	SSW6	SSE6	SW4.2	W11	
11-Oct	SSE5	SE4	SSE5	S6	S5	S5	SSE4	SSE4	SSW7	S6	SSW4	SW8	SW10	SW11	SSW10	SSW12	SSW9	SSW7	SSW6	ESE1	SSE2	S5	SSW9	SW10	SSW5.9	SSW12	
12-Oct	SSW8	SW7	SW6	SW6	SSW4	S4	UO	S3	NW3	NW7	NW7	NW8	NNW12	NNW13	NNW9	NW7	NW4	UO	S3	SSE4	SE4	SE5	SSE4	S3	W2.3	NNW13	
13-Oct	SSE3	SSE3	SE2	SSE1	S3	ENE2	ESE4	SSE7	SE8	SSE14	S17	S18	SSE18	S20	S18	S15	S10	SSE9	SE6	SSE3	SSE3	SSE2	SSW1	N1	SSE7.4	S20	
14-Oct	NW1	SSE2	SSW3	SSE3	SSE4	SSE3	SSE6	SSE4	SE3	ESE3	SE10	SSE11	SE10	SSE12	SSE15	SSE15	SSE12	SSE8	SE5	SSE2	SSE6	SW4	SW7	SSE5.9	SSE15		
15-Oct	S5	SSW5	SSW7	SSW6	S5	WSW4	WSW4	W6	W6	W6	WNW7	WNW7	NW8	WNW7	WNW5	W4	SW4	SW1	SSW4	S2	S3	SW3	SSE5	SSW6	WSW3.6	NW8	
16-Oct	SW2	E1	ESE0	S1	NNW0	UO	UO	SW0	NNW2	E4	NE4	NNE4	ENE5	NE6	NE6	ENE4	NNE3	ENE3	NE2	NNE1	SW2	S3	SSW3	WSW6	ENE1.3	NE6	
17-Oct	WSW5	W8	W8	W9	W10	W11	W11	W11	WSW12	WSW12	W13	W12	W12	W12	W13	W12	W13	W12	W14	W13	W14	W13	W12	W13	W11.4	W14	
18-Oct	W13	W12	W12	WSW9	SW7	SW8	SSW6	SSW7	SW8	SW9	WSW10	SW13	SW13	SW14	SW14	SW10	SSE5	SE3	SSE3	SSE3	SSE7	SSE8	SSE8	SE2	SW6.9	SW14	
19-Oct	NNW2	NW2	NNW1	SW0	SW1	SE2	S5	SW8	SW10	WSW9	W8	W9	WSW8	WSW8	W6	SW5	SSW5	SSW5	SW3	S4	NNW2	SW1	NW1	NNW7	WSW3.4	SW10	
20-Oct	NNW6	NNW6	NNW2	NNW5	NNW3	NNW6	NNW6	N5	N3	N1	NNE3	NE4	ENE4	ESE6	E5	E5	ENE5	E6	ESE8	ENE5	E5	E5	NE5	N4	NE3.0	ESE8	
21-Oct	N4	NNW6	NNW7	NNW7	NNW7	NNW6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNW7	
22-Oct	UO	UO	UO	WNW4	WSW5	SW5	SSW4	WSW5	SW4	WSW7	WSW8	WSW8	WSW10	WSW9	SW11	SW9	SW7	SSW7	SSW9	SW11	SW12	SW12	SW13	SW13	SW8.0	SW13	
23-Oct	W13	W12	W11	W11	W10	W8	W8	W10	WNW8	WNW9	WNW7	W9	W9	W10	WSW10	WSW5	SSW4	SSW5	SSW7	SSW7	SSW7	SSW7	SSW7	SSW11	WSW10	WSW7.8	W13
24-Oct	SW7	SW9	SW10	SW9	SW8	SW9	SW9	SW9	W9	WNW9	WNW11	W12	WNW11	WNW11	WNW12	WNW10	WNW6	NW2	WSW2	WNW3	S4	SSW6	SW10	SW7	WSW7.0	W12	
25-Oct	SW9	SW9	SW9	SW9	SW9	SSW6	WSW7	SSW7	WSW5	W8	WNW8	WNW8	WNW6	WNW6	WNW5	W3	S2	SSE4	SSE4	S5	S5	SSE5	SE4	---	WSW4.4	SW9	
26-Oct	SE5	SW1	S2	S3	SW1	NNW2	UO	NNW2	NNW4	NNW5	NNE6	NE6	N7	N6	ENE8	E8	ENE5	ESE5	ENE4	NE3	ESE3	SSE2	NNW2	NW0	NE2.0	ENE8	
27-Oct	SSW0	NW2	SSW0	SSW1	NW1	SW0	NW2	NNW2	ENE3	ENE2	ENE4	E7	ESE11	ESE9	ESE9	SE10	SE8	SSW3	S2	ENE1	SE2	WSW5	WNW5	WNW6	ESE1.7	ESE11	
28-Oct	NW7	NW8	WNW7	WNW8	WNW9	UO	UO	UO	UO	WNW7	WNW8	NW8	WNW6	WNW6	NW8	NW7	NW5	UO	UO	UO	UO	UO	UO	UO	---	WNW9	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	W7	W7	W5	SW3	UO	UO	UO	UO	UO	UO	---	W7	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NE9	NE9	ENE9	NE9	NE7	NE9	ENE7	ENE8	NE6	NE5	NE4	NNE3	---	NE9
31-Oct	NE3	NNW5	NNE5	NE7	NE8	NE7	ENE5	NE6	NE5	ENE5	ESE7	NE5	NE6	ENE7	NE5	NE4	NE3	SE6	SE5	SE4	NE5	ENE4	NNE3	NW3	ENE4.1	NE8	

WSW3.0	WSW3.2	WSW3.5	WSW3.2	WSW3.0	WSW2.8	SW3.2	SW3.1	WSW3.2	W3.5	W3.5	WSW4.1	WSW3.7	WSW3.5	WSW3.5	SW2.9	SW2.0	S1.6	SSW1.9	SSW1.7	SSW2.1	SSW2.5	SW2.6	WSW2.9	Diurnal Average
SW13	SW14	SW13	W11	SW11	WSW11	W12	W11	WSW12	SSE14	S17	S18	SSE18	S20	S18	S15	W13	W12	W14	W13	W14	W13	SW13	SW13	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 10m (WS10) - km/h**  
**Conklin - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	293	43.86	43.86
6 - 11	320	47.90	91.77
12 - 19	54	8.08	99.85
20 - 28	1	0.15	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 668

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Conklin - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	7	7	14	17	6	8	31	55	36	19	17	15	8	12	20	21	293
6 - 11	3	2	15	9	7	6	7	12	11	31	57	29	46	45	21	19	320
12 - 19	0	0	0	0	0	0	0	8	6	2	11	3	21	1	0	2	54
20 - 28	0	0	0	0	0	0	0	0	1	0	0	0	0	0	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>	<b>10</b>	<b>9</b>	<b>29</b>	<b>26</b>	<b>13</b>	<b>14</b>	<b>38</b>	<b>75</b>	<b>54</b>	<b>52</b>	<b>85</b>	<b>47</b>	<b>75</b>	<b>58</b>	<b>41</b>	<b>42</b>	<b>668</b>

Total Number of Valid Hours: 668

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h

Conklin - October 2024

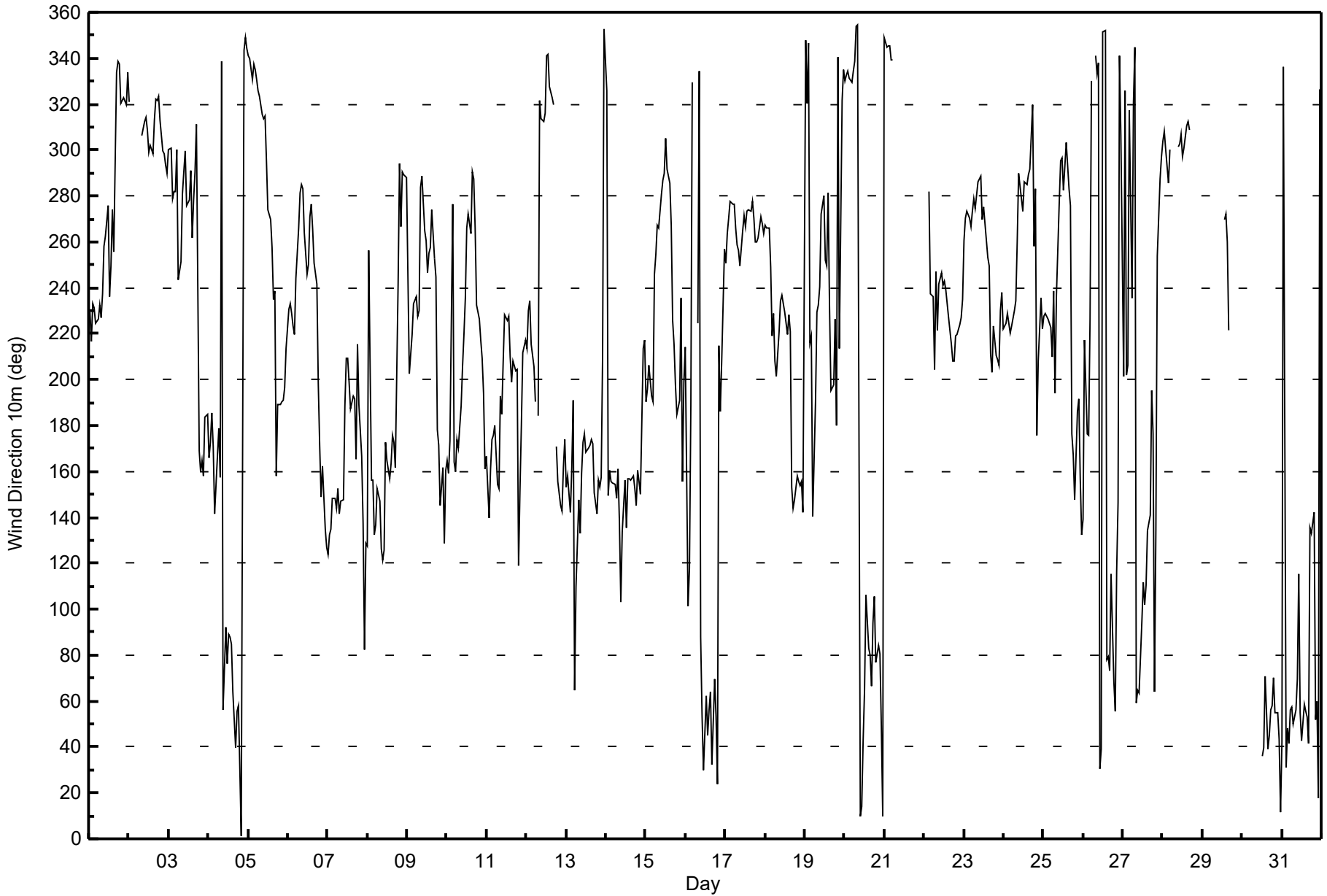
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Oct 17 17:00 Minimum Value: 0 km/h on Oct 14 04:00														Hours in Service: 744 Hours of Data: 668 Hours of Missing Data: 76 Hours of Calibration: 0 Percent Operational Time: 89.8											
Percentiles: P <sub>1</sub> = 1 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-Oct	3	2	3	3	2	2	2	3	3	5	3	2	3	3	2	2	2	1	1	1	1	1	1	1	5
2-Oct	1	UO	UO	UO	UO	UO	UO	UO	3	4	5	4	4	4	4	4	3	2	2	2	2	2	2	2	5
3-Oct	2	2	3	3	3	2	2	2	3	4	4	5	4	4	5	4	3	1	1	1	1	0	1	1	5
4-Oct	1	1	1	1	1	1	2	1	1	2	2	2	3	3	3	3	3	3	3	2	1	2	2	2	3
5-Oct	2	2	2	3	2	2	2	2	2	2	3	2	3	3	4	3	3	1	1	1	1	1	2	3	4
6-Oct	4	4	3	3	3	5	5	4	4	4	3	4	5	5	5	4	4	2	2	1	1	2	1	1	5
7-Oct	1	0	1	1	1	1	1	1	1	1	3	4	3	4	3	3	3	1	1	1	1	1	1	1	4
8-Oct	1	2	1	1	2	2	2	1	2	1	3	3	3	3	3	2	2	1	5	5	3	4	3	3	5
9-Oct	2	2	2	3	3	3	2	2	4	3	2	2	2	3	2	2	2	2	1	1	1	1	2	1	4
10-Oct	1	1	1	1	1	1	1	1	1	2	2	3	4	4	5	3	3	2	1	2	1	2	2	1	5
11-Oct	1	1	1	1	2	1	1	1	2	1	2	3	3	3	3	4	3	2	2	2	2	2	3	3	4
12-Oct	3	3	2	2	2	2	UO	2	2	3	3	3	4	4	4	3	3	UO	1	1	1	1	1	1	4
13-Oct	1	1	1	1	2	1	2	2	2	4	5	5	6	5	5	4	4	2	2	1	1	2	1	1	6
14-Oct	1	1	1	0	1	2	1	1	2	2	3	3	3	4	4	4	4	2	1	1	2	1	3	3	4
15-Oct	1	1	2	1	1	2	2	3	3	3	3	2	3	3	2	2	1	1	2	1	2	2	1	1	3
16-Oct	2	1	2	1	1	UO	UO	1	1	2	2	1	2	2	2	2	1	1	1	1	1	1	1	2	2
17-Oct	2	2	3	4	4	5	4	4	4	4	5	5	5	5	6	6	6	5	5	5	5	5	4	4	6
18-Oct	5	5	4	4	2	3	2	2	2	3	3	4	4	4	5	4	1	2	1	2	2	2	2	2	5
19-Oct	1	1	1	1	1	1	2	3	3	3	4	3	3	3	2	3	3	1	1	1	1	1	1	3	4
20-Oct	2	2	2	1	1	1	2	1	2	1	1	2	2	2	2	2	2	2	3	2	2	2	1	1	3
21-Oct	1	1	2	1	2	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3
22-Oct	UO	UO	UO	2	1	1	1	2	2	2	3	3	3	3	4	3	3	2	2	4	3	4	4	4	4
23-Oct	5	4	4	4	3	3	3	4	4	4	3	3	4	4	4	2	1	1	2	2	1	2	3	3	5
24-Oct	2	2	3	2	2	2	2	3	4	4	5	5	5	5	4	3	3	2	2	1	2	3	2	2	5
25-Oct	3	3	3	2	2	2	3	1	2	3	3	3	4	3	3	2	1	1	1	1	1	1	1	1	4
26-Oct	1	2	1	1	1	1	UO	1	1	1	2	2	2	1	3	3	2	1	1	1	2	1	1	1	3
27-Oct	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	4	3	1	1	1	1	2	3	2	4
28-Oct	3	3	3	3	4	UO	UO	UO	UO	3	4	3	2	2	3	3	2	UO	UO	UO	UO	UO	UO	UO	4
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	2	UO	UO	UO	UO	UO	UO	UO	3
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	3	3	3	3	2	2	1	1	3
31-Oct	1	1	2	2	3	2	2	2	2	2	2	2	2	2	2	1	2	3	1	1	2	2	1	1	3
Diurnal Maximum																									
5 5 4 4 4 5 5 4 4 5 5 5 6 5 6 6 6 6 5 5 5 5 5 5 4 4																									
UO - Unstable Operation																									



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

**Wind Direction 10m (WD10) - deg**  
**Conklin - October 2024**

Direction of Maximum Speed: 170 deg on Oct 13 14:00 Direction of Maximum Daily Speed Average: 266.9 deg on Oct 17																							Hours in Service: 744 Hours of Data: 668 Hours of Missing Data: 76 Percent Operational Time: 89.8			
Direction of Minimum Speed: 307 deg on Oct 27 00:00											Direction of Minimum Daily Speed Average: 1.3 deg on Oct 16															
Monthly Average Direction: 238.4 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-Oct	229	216	233	231	225	226	233	227	238	258	262	276	236	250	274	256	334	338	338	321	322	323	320	334	250.9	
2-Oct	321	UO	UO	UO	UO	UO	UO	UO	307	312	314	309	299	302	298	313	322	321	323	313	300	299	294	290	--	
3-Oct	300	301	279	282	282	300	243	252	280	291	300	276	278	291	261	278	291	311	169	160	165	158	184	185	269.4	
4-Oct	166	172	185	171	141	167	179	158	339	56	92	76	89	88	85	64	40	56	58	30	1	343	349	344	68.5	
5-Oct	341	340	331	338	335	331	326	324	315	314	315	295	274	270	257	235	239	158	189	189	190	191	196	214	278.0	
6-Oct	231	233	229	223	220	244	266	281	285	283	264	246	250	271	276	265	251	242	199	172	149	162	135	127	245.7	
7-Oct	124	132	135	149	148	144	153	142	147	148	189	209	209	199	187	193	192	166	216	189	166	137	83	129	174.2	
8-Oct	128	257	156	156	132	137	153	147	126	122	126	173	165	157	164	176	172	162	241	294	267	291	289	288	183.8	
9-Oct	246	203	211	220	233	236	228	230	284	288	265	261	247	255	258	274	253	245	178	172	145	161	129	161	237.3	
10-Oct	165	159	174	277	164	160	174	170	188	205	219	235	266	272	264	290	288	266	232	227	217	209	194	161	228.9	
11-Oct	167	140	161	174	176	180	154	153	193	185	207	228	226	228	210	199	208	204	205	119	152	180	212	217	197.4	
12-Oct	213	230	234	215	206	190	UO	184	322	314	312	316	341	342	328	323	320	UO	171	156	145	143	162	174	278.8	
13-Oct	153	158	142	161	191	65	110	147	133	159	173	176	168	170	171	174	172	151	141	156	153	157	211	352	163.2	
14-Oct	326	150	160	156	155	154	148	161	138	103	134	156	135	157	157	156	158	153	145	160	156	150	214	217	155.1	
15-Oct	190	196	206	193	190	246	254	267	266	281	286	290	305	292	286	267	226	216	198	185	191	236	156	199	241.1	
16-Oct	214	101	118	189	329	UO	UO	225	334	88	54	30	62	45	56	64	33	70	53	24	215	186	207	257	56.6	
17-Oct	251	264	270	278	276	277	266	259	257	250	265	271	267	273	274	273	277	270	260	260	262	271	268	264	266.9	
18-Oct	267	266	266	249	219	229	208	201	221	234	237	233	230	220	228	221	153	144	148	158	156	154	156	142	221.8	
19-Oct	348	320	346	216	219	140	190	230	233	240	272	280	252	250	281	232	195	198	226	180	340	214	321	335	246.6	
20-Oct	330	333	334	331	330	334	339	354	355	10	14	43	64	106	83	80	66	94	105	77	84	80	49	10	37.6	
21-Oct	349	345	345	345	339	339	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
22-Oct	UO	UO	UO	282	237	236	204	247	221	241	246	241	243	239	233	227	215	208	208	219	220	224	227	235	229.7	
23-Oct	260	271	273	271	266	274	279	275	286	287	288	269	275	268	253	250	211	203	223	210	208	206	230	238	257.6	
24-Oct	222	225	229	225	220	223	230	234	260	290	284	274	286	285	285	289	292	320	258	283	176	208	235	222	253.1	
25-Oct	228	229	227	226	223	210	239	194	237	277	295	297	283	293	303	283	276	176	167	147	186	191	157	132	237.2	
26-Oct	139	217	177	175	226	330	UO	341	333	338	30	39	351	352	78	79	73	115	68	56	116	147	341	307	53.8	
27-Oct	201	326	202	206	317	235	321	345	59	64	63	95	112	102	110	134	141	195	176	64	135	254	287	297	113.7	
28-Oct	304	308	300	286	300	UO	UO	UO	UO	301	303	307	297	301	311	312	309	UO	UO	UO	UO	UO	UO	UO	--	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	270	272	260	222	UO	UO	UO	UO	UO	UO	UO	--	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	36	40	71	39	45	56	58	70	55	55	43	12	--
31-Oct	42	336	31	48	42	56	57	50	56	70	115	55	43	59	55	53	42	136	133	142	52	59	17	326	58.3	
243.4 249.8 239.1 240.9 237.8 242.9 232.8 230.9 254.6 266.4 264.0 253.8 252.7 251.6 241.5 234.6 233.7 177.8 192.2 200.7 191.3 202.4 224.6 239.3																								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 10m (WD10) - deg**  
**Conklin - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 96 deg on Oct 27 03:00	Hours of Data: 668
Minimum Value: 7 deg on Oct 23 18:00	Hours of Missing Data: 76
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 17 Q <sub>1</sub> = 21 Median = 29 Q <sub>3</sub> = 38 P <sub>90</sub> = 53 P <sub>99</sub> = 89	Hours of Calibration: 0
	Percent Operational Time: 89.8

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-Oct	19	19	19	22	21	21	24	26	22	30	39	54	26	33	41	43	20	25	25	23	30	51	29	14	54	
2-Oct	21	UO	UO	UO	UO	UO	UO	UO	39	33	30	38	44	41	42	34	27	23	21	30	44	46	49	47	49	
3-Oct	38	48	41	45	40	46	28	30	49	39	41	45	41	42	38	41	42	57	58	20	22	13	15	12	58	
4-Oct	19	21	16	21	19	89	33	47	96	44	36	38	37	32	36	42	31	34	37	29	31	14	18	17	96	
5-Oct	17	18	19	18	19	19	19	23	32	28	31	45	42	36	41	29	26	23	12	13	12	14	16	21	45	
6-Oct	19	18	20	20	20	31	35	43	41	46	33	39	39	42	41	42	29	34	16	41	42	53	37	12	53	
7-Oct	13	9	14	8	12	14	8	8	15	16	22	23	24	25	22	21	17	36	82	31	29	29	56	23	82	
8-Oct	70	83	21	35	18	32	34	27	21	47	72	20	24	21	23	18	17	26	46	41	34	44	41	45	83	
9-Oct	38	17	21	21	19	19	19	25	43	41	38	34	37	38	49	42	28	60	19	17	21	30	90	54	90	
10-Oct	36	26	19	78	29	30	32	18	25	23	25	43	42	43	34	40	38	27	24	15	16	17	24	21	78	
11-Oct	17	21	17	20	25	24	20	29	19	19	38	24	25	23	21	21	19	17	23	85	60	33	25	25	85	
12-Oct	32	35	31	21	22	23	UO	41	67	33	35	31	25	24	34	33	32	UO	48	22	19	18	20	20	67	
13-Oct	25	18	34	58	52	44	29	19	20	20	21	20	20	18	20	19	11	9	22	22	64	70	77	77		
14-Oct	85	21	23	11	13	74	16	18	76	74	22	24	17	26	25	18	17	16	16	42	46	12	66	30	85	
15-Oct	24	20	21	15	22	69	51	38	32	36	34	36	35	36	41	35	21	65	22	90	54	53	25	14	90	
16-Oct	65	82	92	82	89	UO	UO	85	24	45	44	24	34	29	33	40	33	31	37	54	53	36	33	28	92	
17-Oct	25	26	30	34	34	30	31	22	23	22	28	29	28	32	30	35	33	28	25	25	27	29	25	26	35	
18-Oct	24	27	26	26	20	21	23	18	22	22	26	24	24	26	24	27	23	24	29	18	12	14	14	66	66	
19-Oct	61	33	63	82	54	51	30	20	18	18	33	34	37	29	38	47	19	19	33	19	80	76	62	15	82	
20-Oct	20	18	49	16	33	15	19	19	50	61	38	35	38	26	34	29	33	31	24	31	32	32	31	22	61	
21-Oct	18	16	17	15	18	16	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	18	
22-Oct	UO	UO	UO	40	25	23	20	31	31	24	25	26	23	24	23	24	22	21	20	21	19	20	20	20	40	
23-Oct	26	25	27	27	26	31	30	28	33	31	37	33	35	32	26	32	20	7	20	17	17	16	20	18	37	
24-Oct	22	23	20	20	19	20	18	18	36	34	31	30	32	32	32	32	40	53	55	61	26	29	16	19	61	
25-Oct	19	21	21	19	19	22	35	17	53	41	36	34	35	36	35	36	31	56	20	14	15	14	25	12	56	
26-Oct	14	76	16	14	69	27	UO	61	14	18	27	32	16	19	33	31	32	20	33	33	33	58	62	83	83	
27-Oct	87	56	96	45	77	95	37	55	55	68	50	28	22	26	24	18	14	30	51	48	12	39	31	33	96	
28-Oct	31	29	34	33	30	UO	UO	UO	UO	30	29	26	30	29	26	22	27	UO	UO	UO	UO	UO	UO	UO	34	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	37	39	42	26	UO	UO	UO	UO	UO	UO	42	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	29	27	34	25	31	30	32	36	31	31	44	47	47
31-Oct	38	10	40	28	30	32	33	27	30	37	30	39	30	32	32	35	67	23	16	42	31	31	27	13	67	
87 83 96 82 89 95 51 85 96 74 72 54 44 43 49 47 67 65 82 90 80 76 90 83																										
Diurnal Maximum																										

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS22  
JANVIER  
OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
OCTOBER 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	707	36	37	99.87	3	0	0.4	0
TRS(ppb) Average	706	37	38	99.87	0.5	0	0.3	0
THC(ppm) Average	707	36	37	99.87	2.3	-	2.1	-
NMHC(ppm) Average	707	36	37	99.87	0.007	-	0	-
CH4(ppm) Average	707	36	37	99.87	2.3	-	2.1	-
O3 (ppb) Average	709	34	35	99.87	43.4	0	32.8	-
NO2 (ppb) Average	707	36	37	99.87	14.1	0	3	-
NO (ppb) Average	707	36	37	99.87	6.3	-	0.8	-
NOX (ppb) Average	707	36	37	99.87	14.6	-	3.4	-
PM2.5 (ug/m3) Average	740	3	4	99.87	9.4	0	4.3	0
Temperature 2 m (C) Average	744	0	0	100	21.6	-	14.3	-
Relative Humidity (%) Average	744	0	0	100	100	-	95.6	-
Wind Speed 10 m (km/h) Average	715	2	29	96.37	18	-	11	-
Wind Speed 20 m (km/h) Average	696	1	48	93.68	22	-	14	-
Wind Direction 10 m (deg) Average	715	2	29	96.37	-	-	-	-
Wind Direction 20 m (deg) Average	696	1	48	93.68	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
OCTOBER 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	707	0.12	0.2	-	0	0	0	0.1	0.1	0.3	3
TRS (ppb) Average	706	0.16	0	-	0	0.1	0.1	0.1	0.2	0.2	0.5
THC (ppm) Average	707	2.03	0	-	2	2	2	2	2	2.1	2.3
NMHC(ppm) Average	707	0	0	-	0	0	0	0	0	0	0.007
CH4(ppm) Average	707	2.03	0	-	2	2	2	2	2	2.1	2.3
O3 (ppb) Average	709	24.86	8	-	3.4	14	19.2	25.5	30.3	35.6	43.4
NO2 (ppb) Average	707	0.8	1.2	-	0	0	0.2	0.5	1	1.7	14.1
NO (ppb) Average	707	0.33	0.6	-	0	0	0	0.2	0.4	0.7	6.3
NOX (ppb) Average	707	1.13	1.5	-	0	0.1	0.4	0.7	1.4	2.4	14.6
PM2.5 (ug/m3) Average	740	2.53	1.2	-	0	1.1	1.7	2.5	3.1	4	9.4
Temperature 2 m (C) Average	744	3.39	5.6	-	-8.6	-3	-0.4	2.5	6.7	11	21.6
Relative Humidity (%) Average	744	75.24	17.4	-	26.9	49	63.2	78.4	89.2	96.6	100
Wind Speed 10 m (km/h) Average	715	6.3	3	-	0	2	4	6	8	10	18
Wind Speed 20 m (km/h) Average	696	8.9	4	-	1	4	6	9	12	14	22
Wind Direction 10 m (deg) Average	715	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	696	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
OCTOBER 2024

OPERATIONAL NOTES

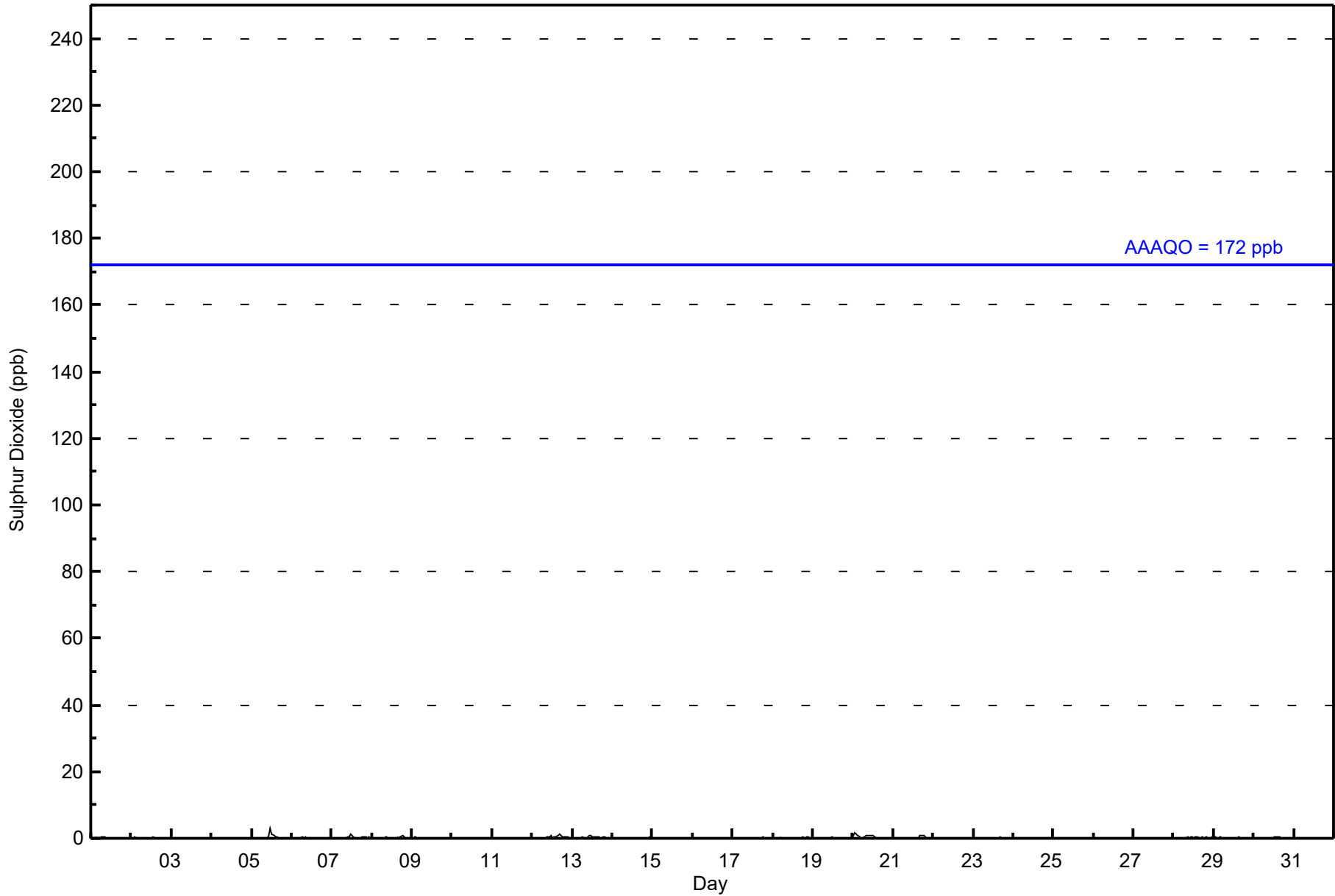
Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	31 Oct 2024 11:00	31 Oct 2024 11:00	1	Maintenance - station router replaced
Wind Speed, Wind Direction 10m	21 Oct 2024 06:00	21 Oct 2024 12:00	7	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	28 Oct 2024 19:00	29 Oct 2024 14:00	20	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	21 Oct 2024 02:00	22 Oct 2024 13:00	36	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	28 Oct 2024 19:00	29 Oct 2024 05:00	11	Flat line in sensor output signal - Sensor frozen





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - October 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	707	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: 707

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - October 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	44	31	25	9	13	24	20	41	109	112	56	71	58	18	2	662
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>	29	44	31	25	9	13	24	20	41	109	112	56	71	58	18	2	662

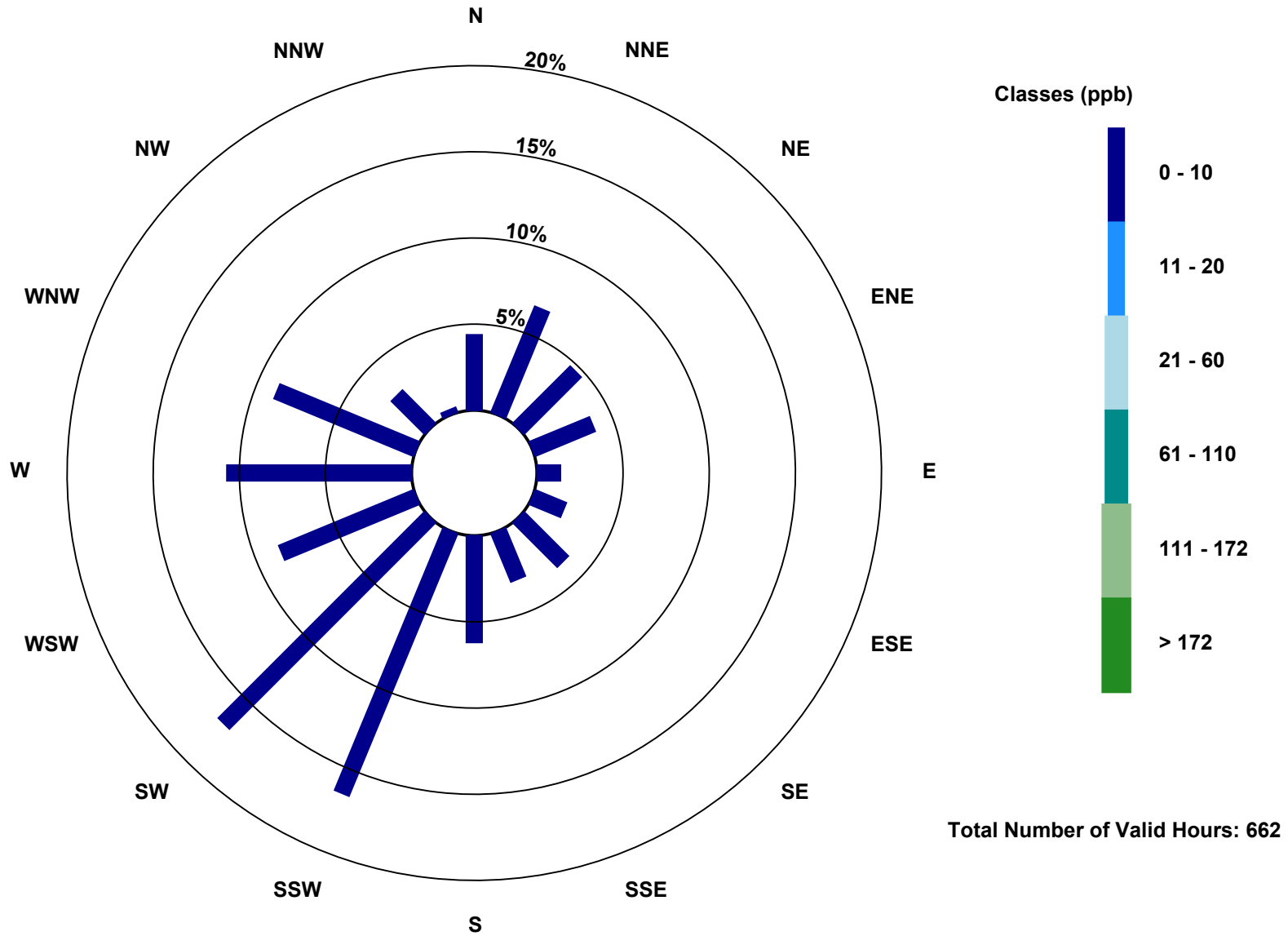
Total Number of Valid Hours: 662

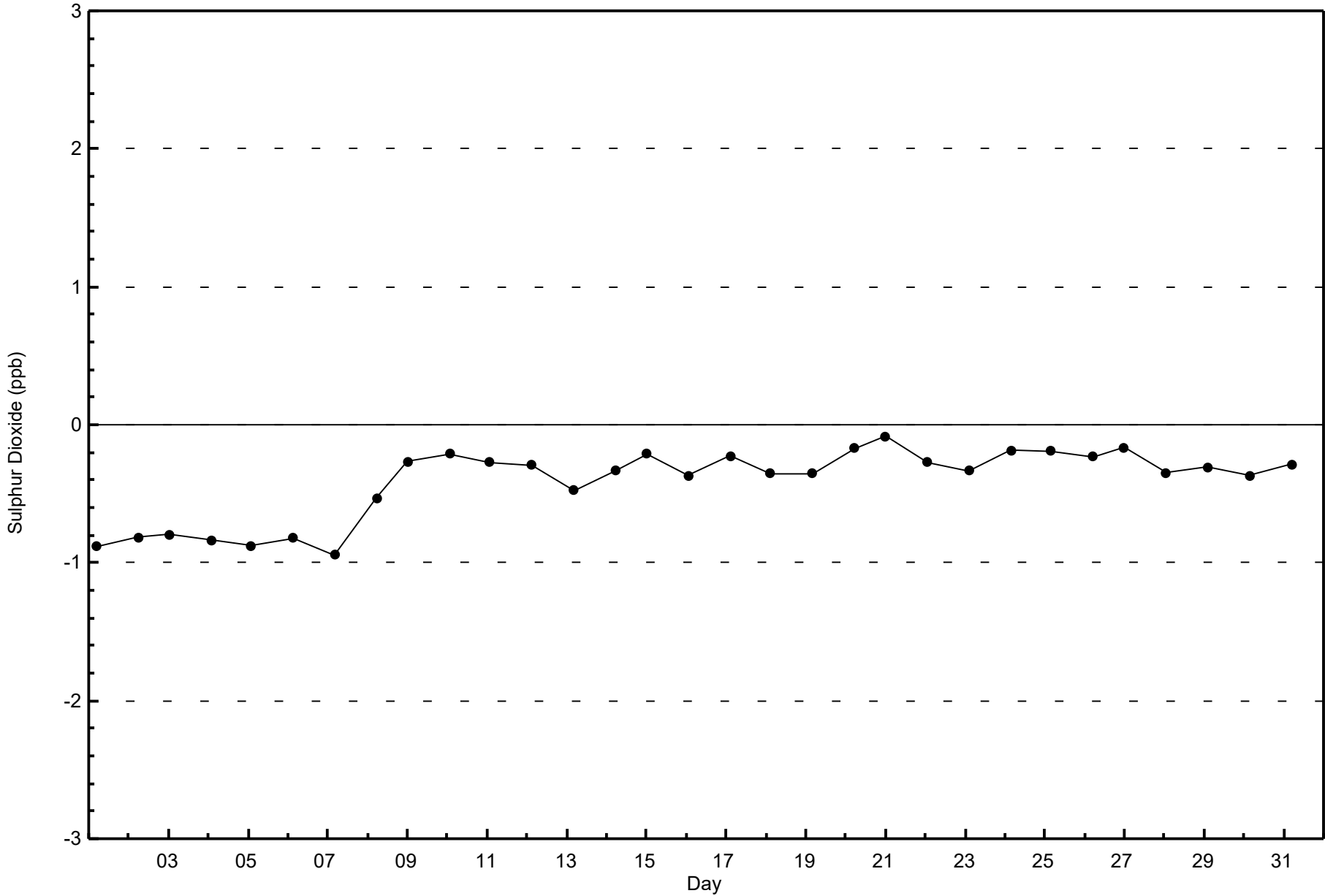
Total Number of Hours: 744

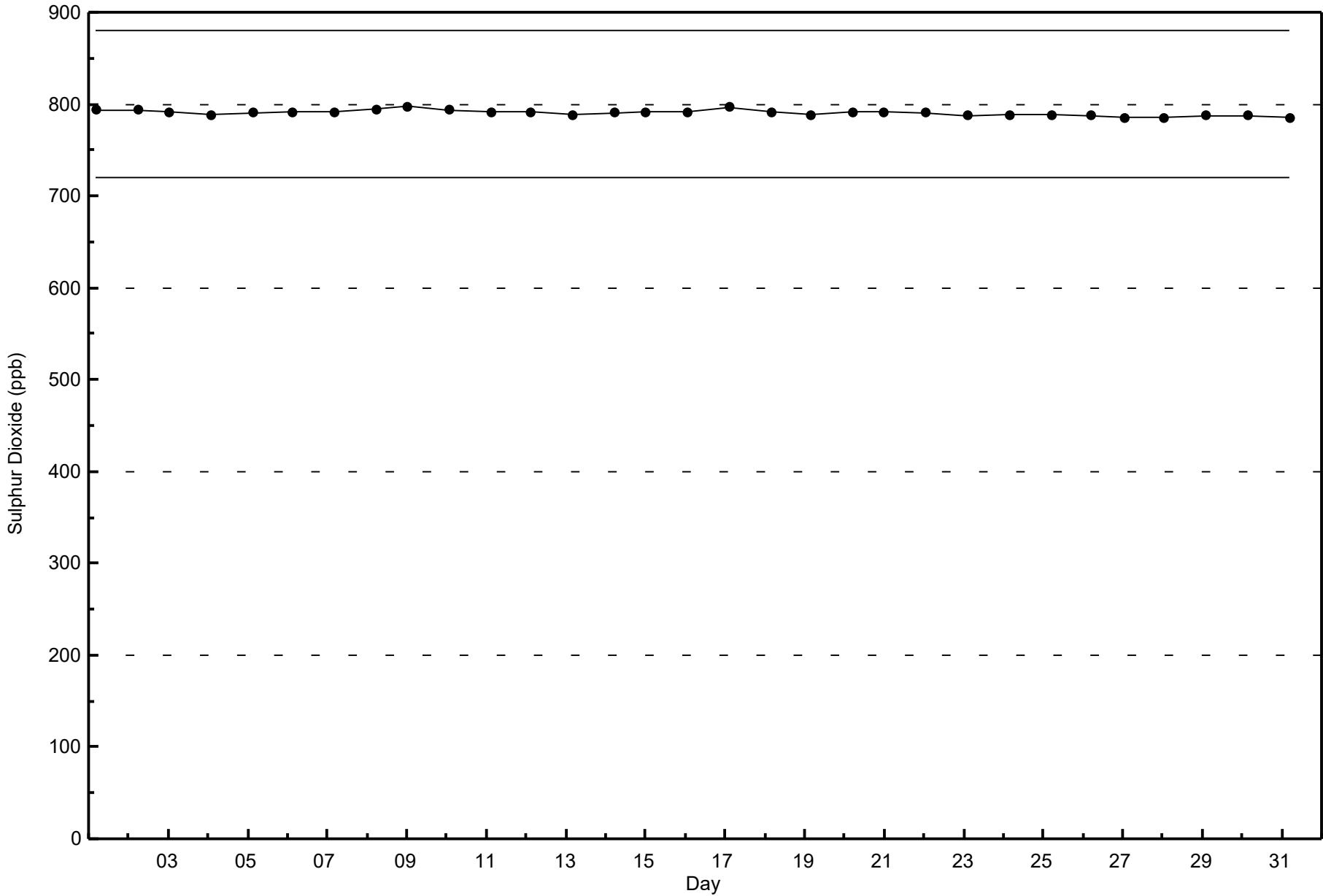


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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







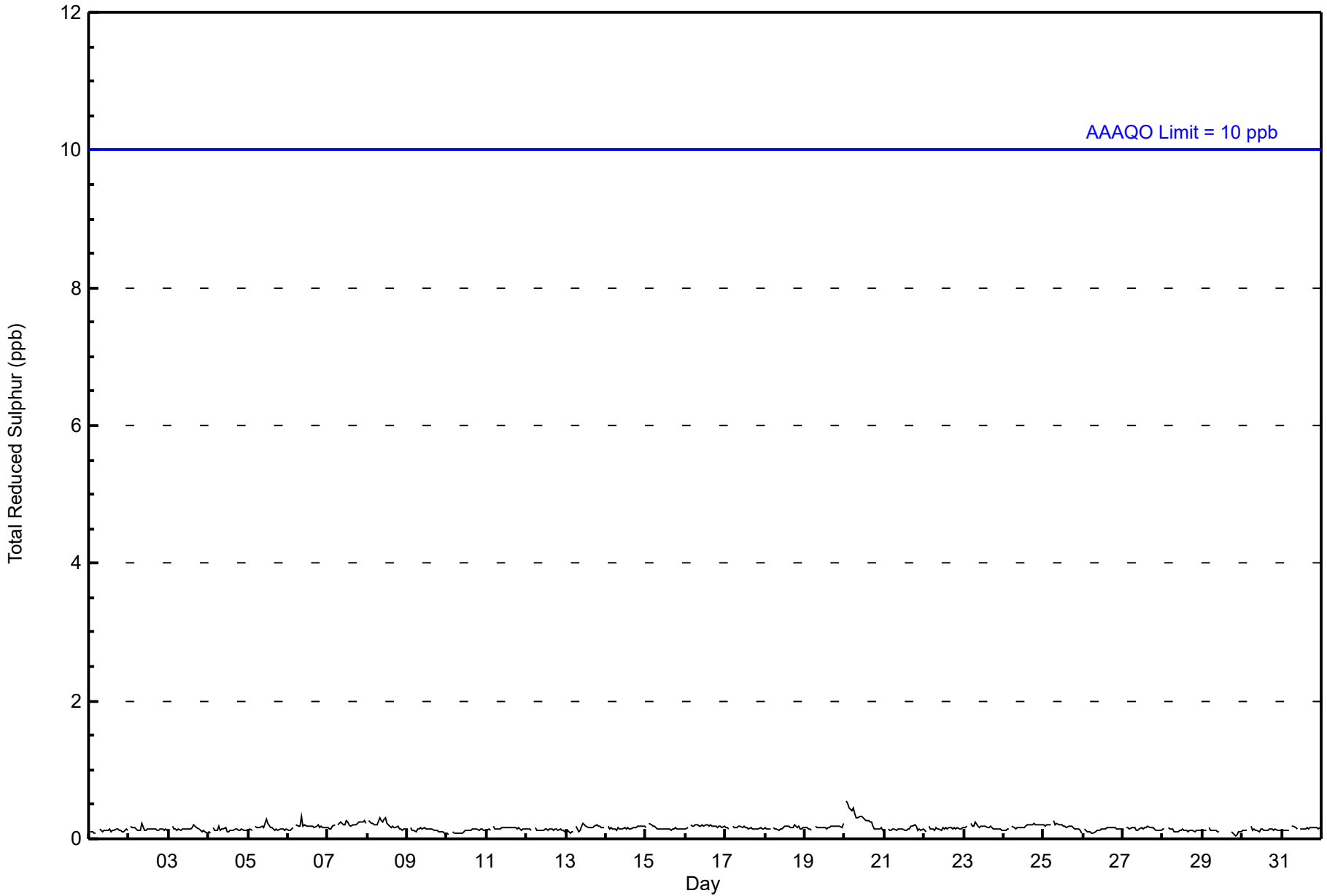






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Janvier - October 2024**





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

**Total Reduced Sulphur (TRS) - ppb**  
**Janvier - October 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  
Janvier - October 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	28	48	30	25	9	13	22	21	45	106	112	52	70	58	18	4	661
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	28	48	30	25	9	13	22	21	45	106	112	52	70	58	18	4	661

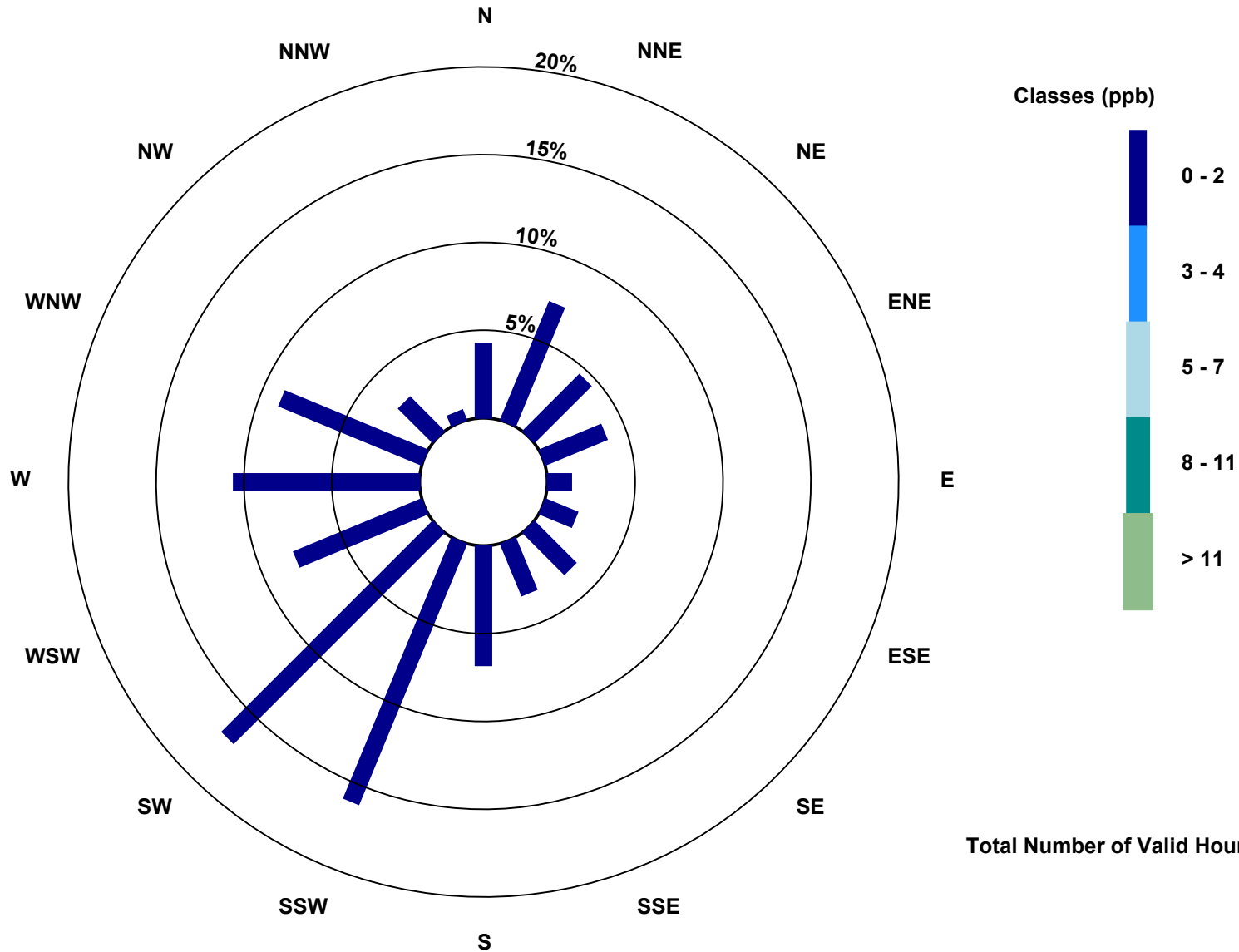
Total Number of Valid Hours: 661

Total Number of Hours: 744

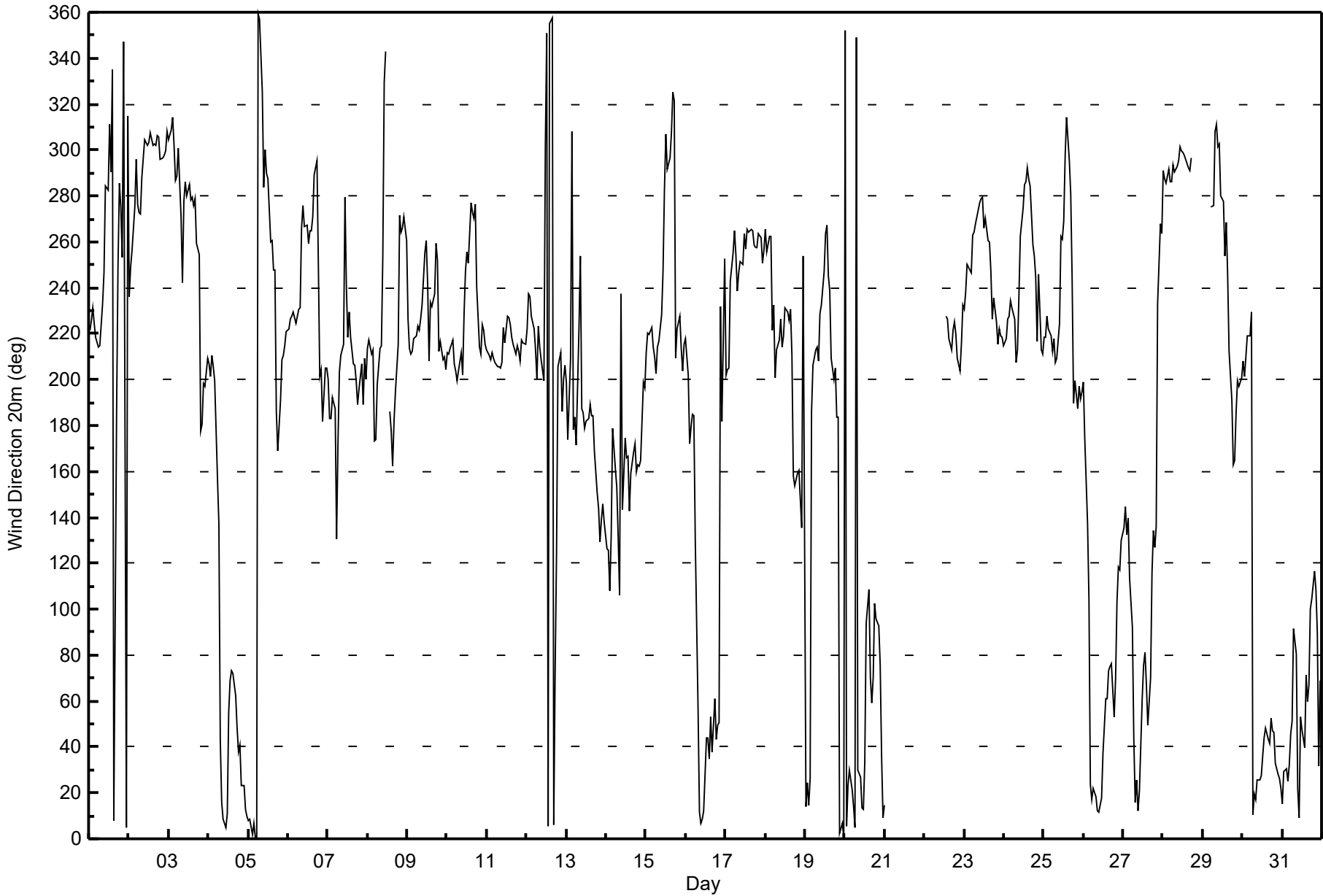


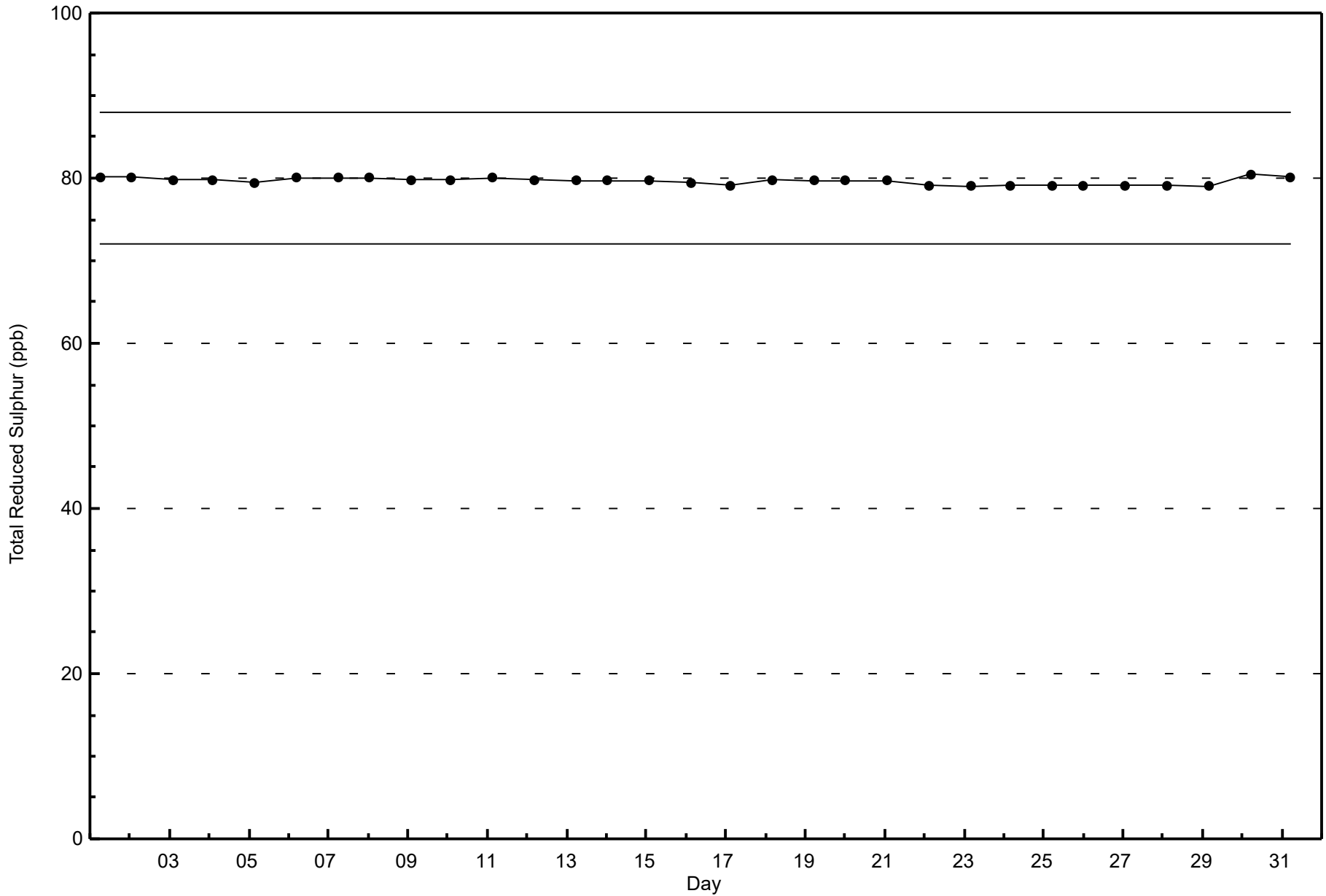
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Janvier



Total Number of Valid Hours: 661







Wood Buffalo Environmental Association

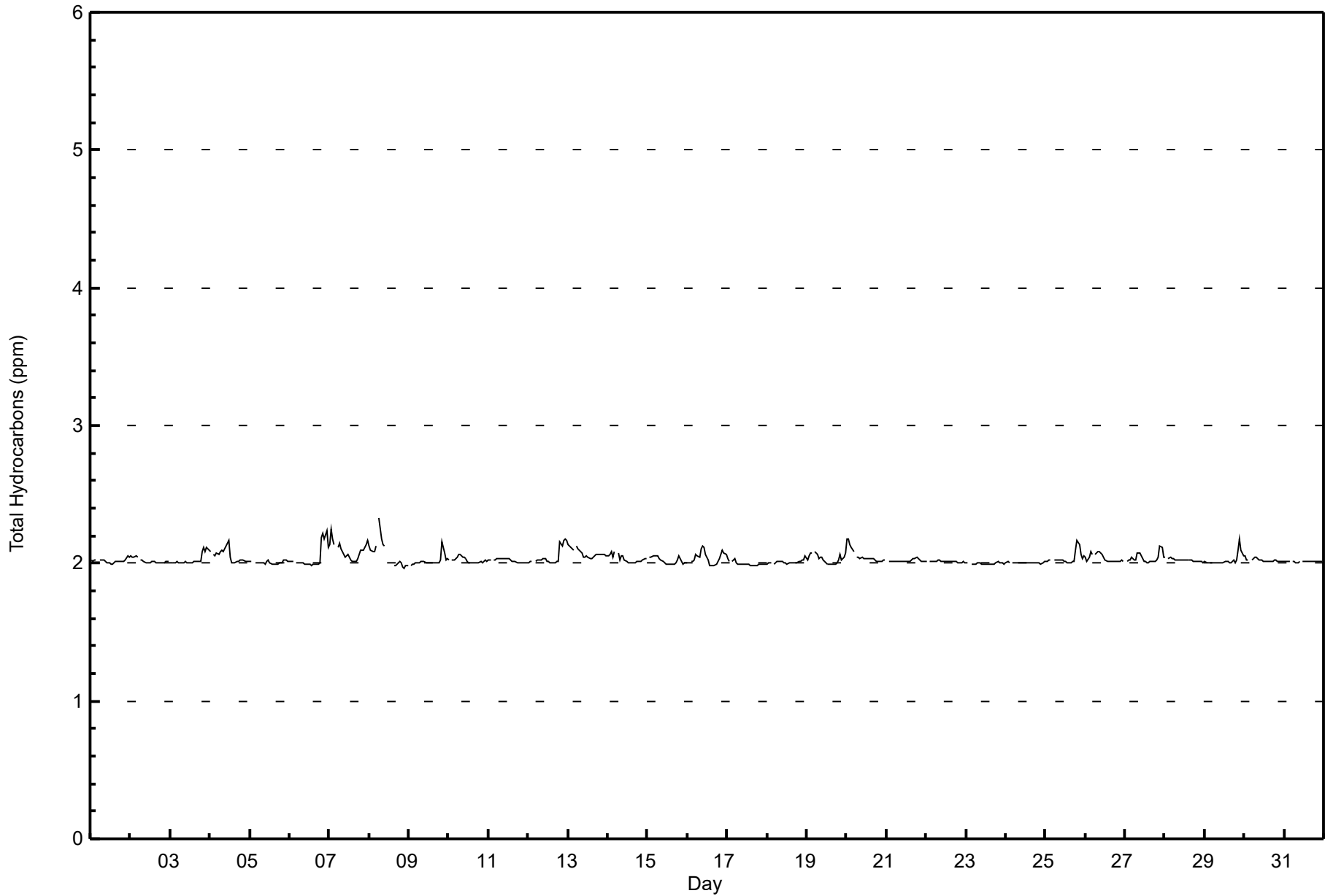
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Janvier - October 2024

Maximum Value: 2.3 ppm on Oct 8 07:00		Maximum Daily Average: 2.1 ppm on Oct 7		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Oct 8 22:00		Minimum Daily Average: 2.0 ppm on Oct 17		Hours of Data: 707																						
Maximum Diurnal Average: 2.0 ppm at hour 23		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 37																						
Monthly Average: 2.03 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2		Hours of Calibration: 36																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	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	2.1	2.0	2.0	2.1	
2-Oct	2.1	2.0	2.0	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	2.1	
3-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	
4-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	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	2.2	
5-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
6-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.1	2.0	2.2	
7-Oct	2.1	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	
8-Oct	2.1	2.1	2.1	2.1	2.1	Z	2.3	2.2	2.1	2.1	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
9-Oct	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	2.2	2.1	2.0	2.0	2.0	2.2	
10-Oct	2.0	Z	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	2.0	2.0	2.0	2.0	2.1	
11-Oct	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	
12-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.2	2.2	2.2	2.0	2.2	
13-Oct	2.1	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
14-Oct	2.1	2.1	2.1	2.0	2.1	Z	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
15-Oct	Z	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	2.1	2.0	2.0	2.0	2.0	2.1	
16-Oct	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	
17-Oct	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	
18-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
19-Oct	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	2.0	2.1	2.0	2.0	2.1	2.0	2.1	
20-Oct	2.2	2.2	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	
21-Oct	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	
22-Oct	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	
23-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
24-Oct	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	
25-Oct	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	2.2	2.1	2.1	2.0	2.1	2.0	2.2	
26-Oct	2.0	2.0	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
27-Oct	Z	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	2.1	2.1	2.0	2.0	2.1	
28-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
29-Oct	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	2.2	2.1	2.1	2.0	2.2	
30-Oct	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	
31-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										







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

**Total Hydrocarbons (THC) - ppm**  
**Janvier - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	579	81.90	81.90
2.1 - 3.0	128	18.10	100.00
3.1 - 10.0	0	0.00	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**  
**Janvier - October 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	20	26	29	25	9	10	14	16	20	66	104	49	69	58	17	2	534
2.1 - 3.0	9	18	2	0	0	3	10	4	21	43	8	7	2	0	1	0	128
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	44	31	25	9	13	24	20	41	109	112	56	71	58	18	2	662

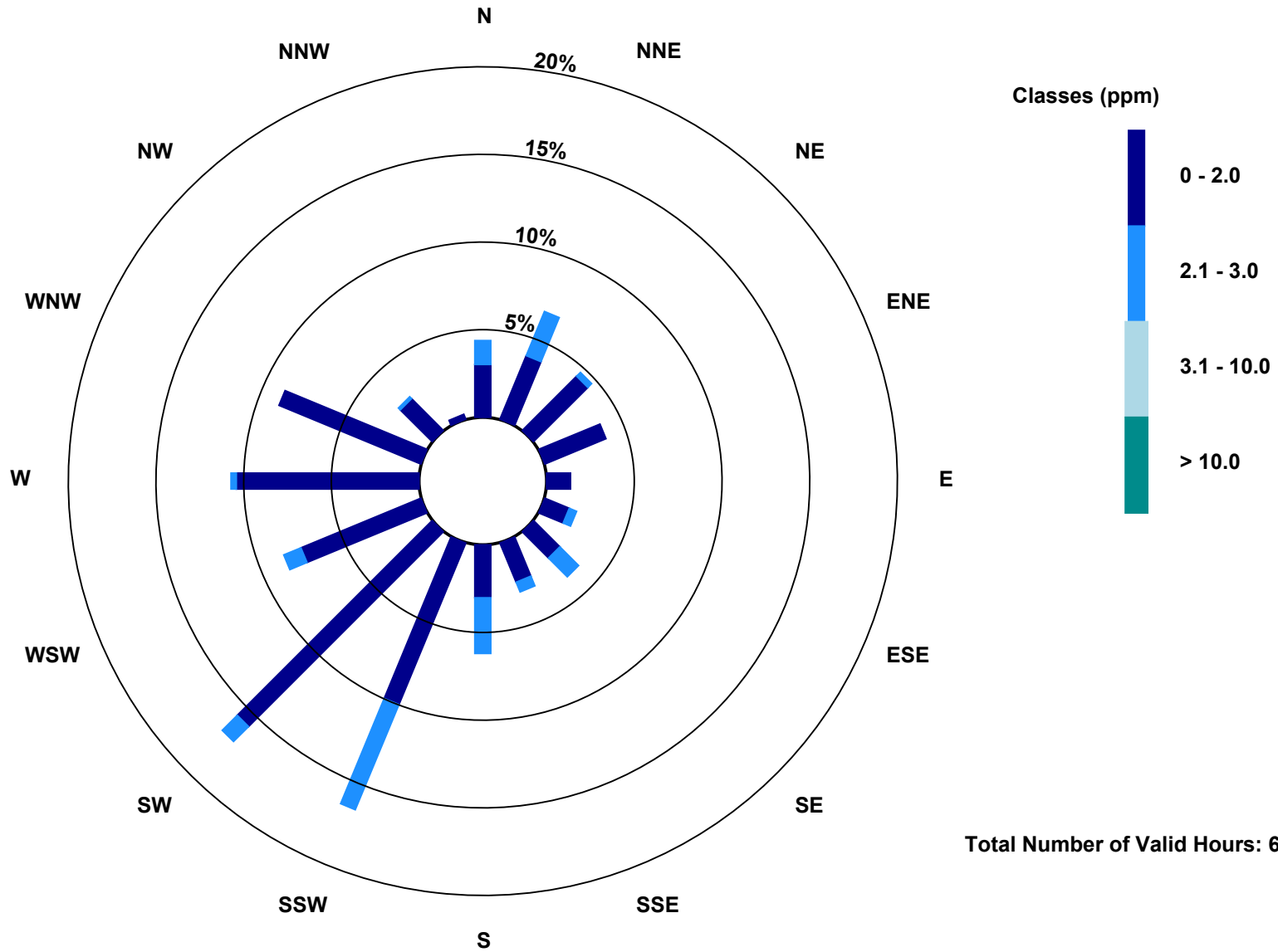
Total Number of Valid Hours: 662

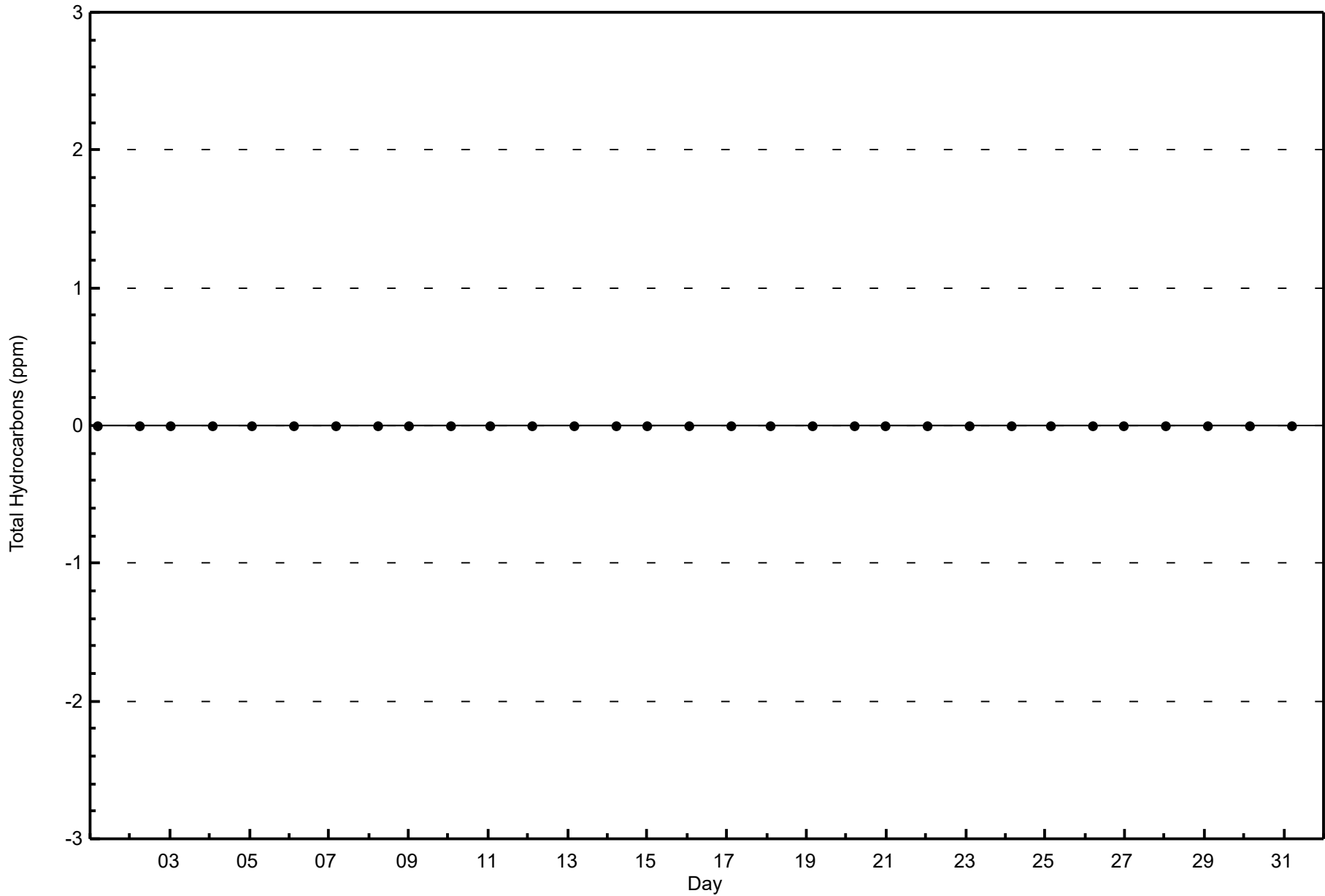
Total Number of Hours: 744

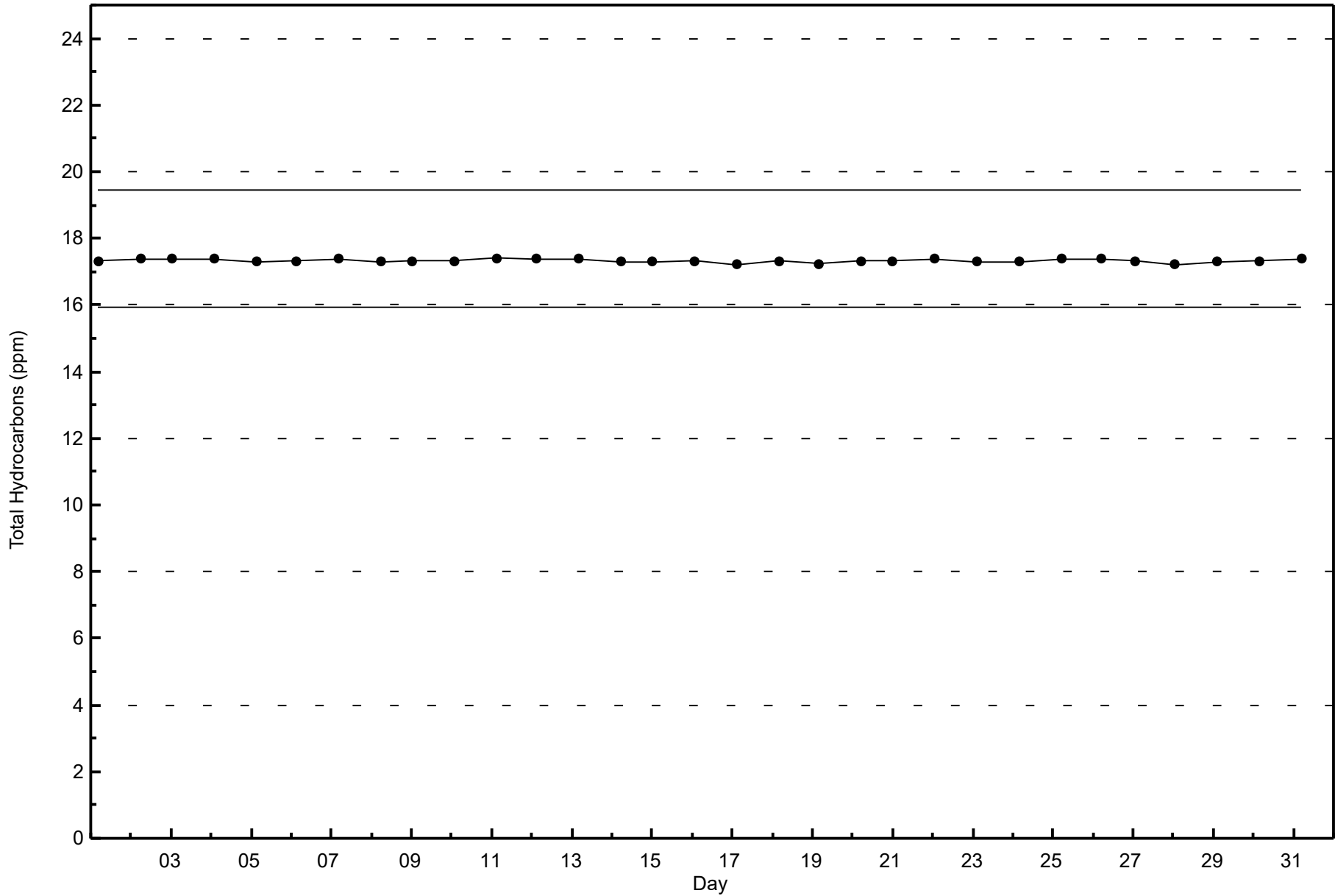


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

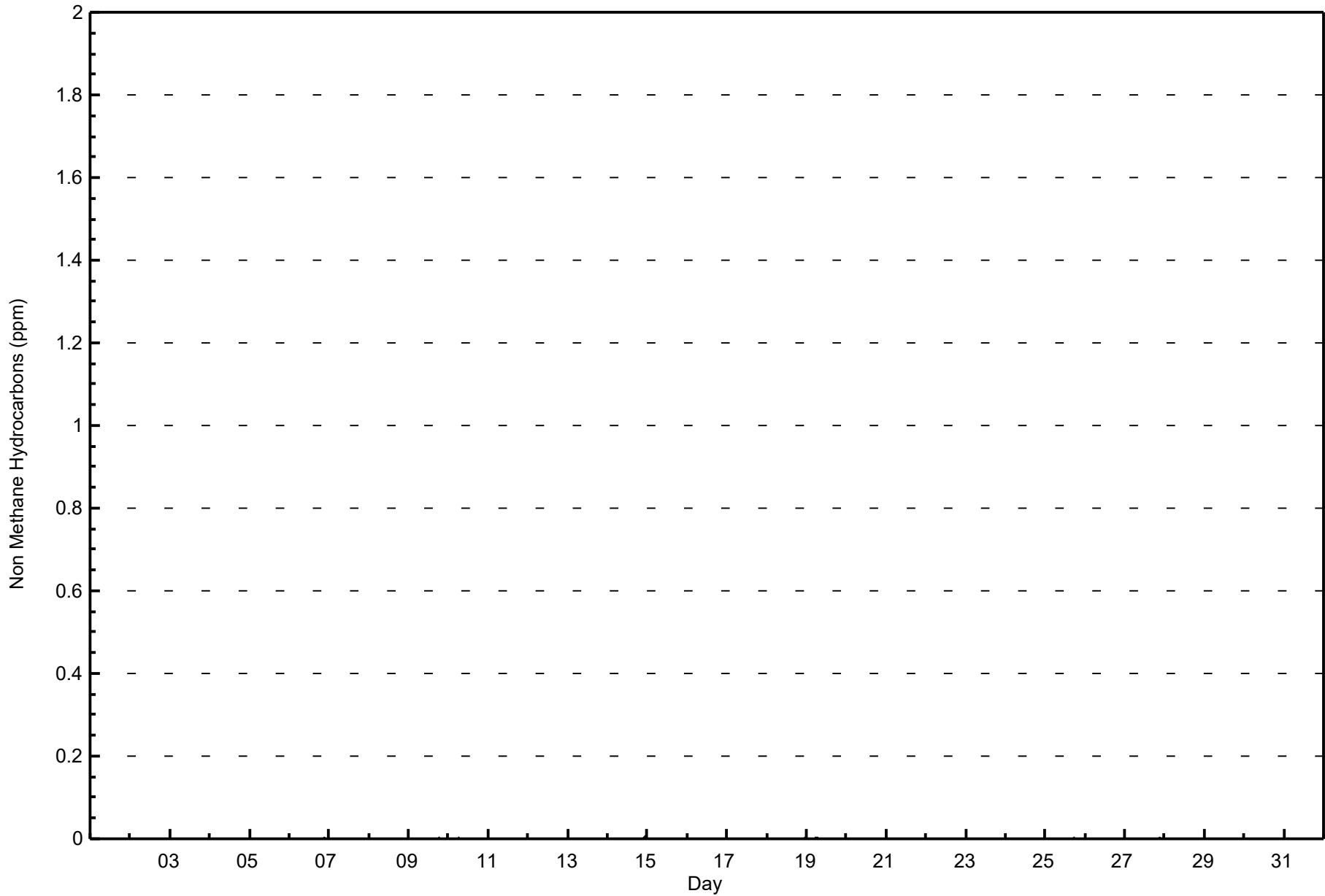
Total Hydrocarbons (THC) - ppm  
Janvier















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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	706	99.86	99.86
0.006 - 0.05	1	0.14	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - October 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	29	44	31	25	9	13	24	20	41	108	112	56	71	58	18	2	661
0.006 - 0.05	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	29	44	31	25	9	13	24	20	41	109	112	56	71	58	18	2	662

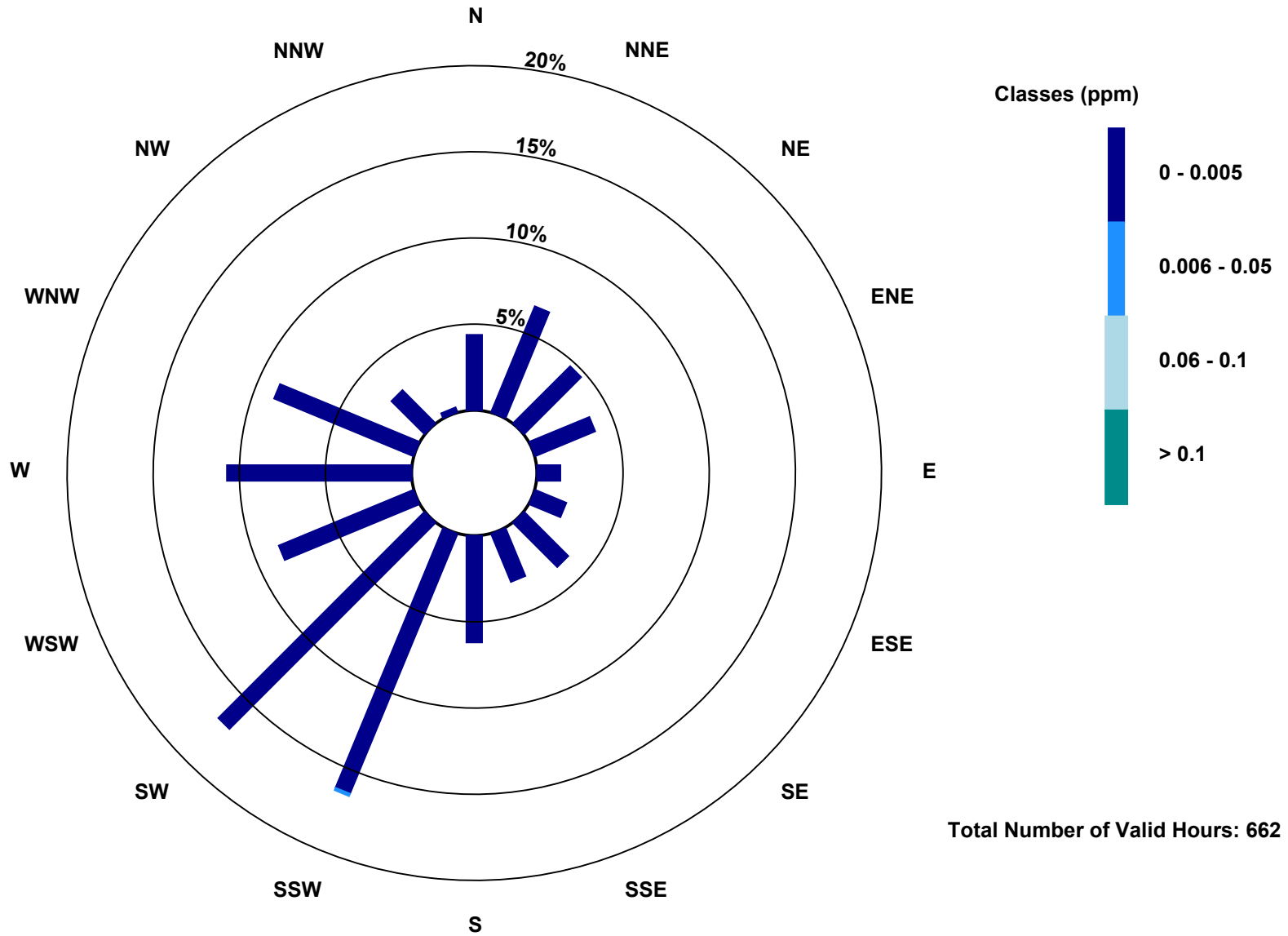
Total Number of Valid Hours: 662

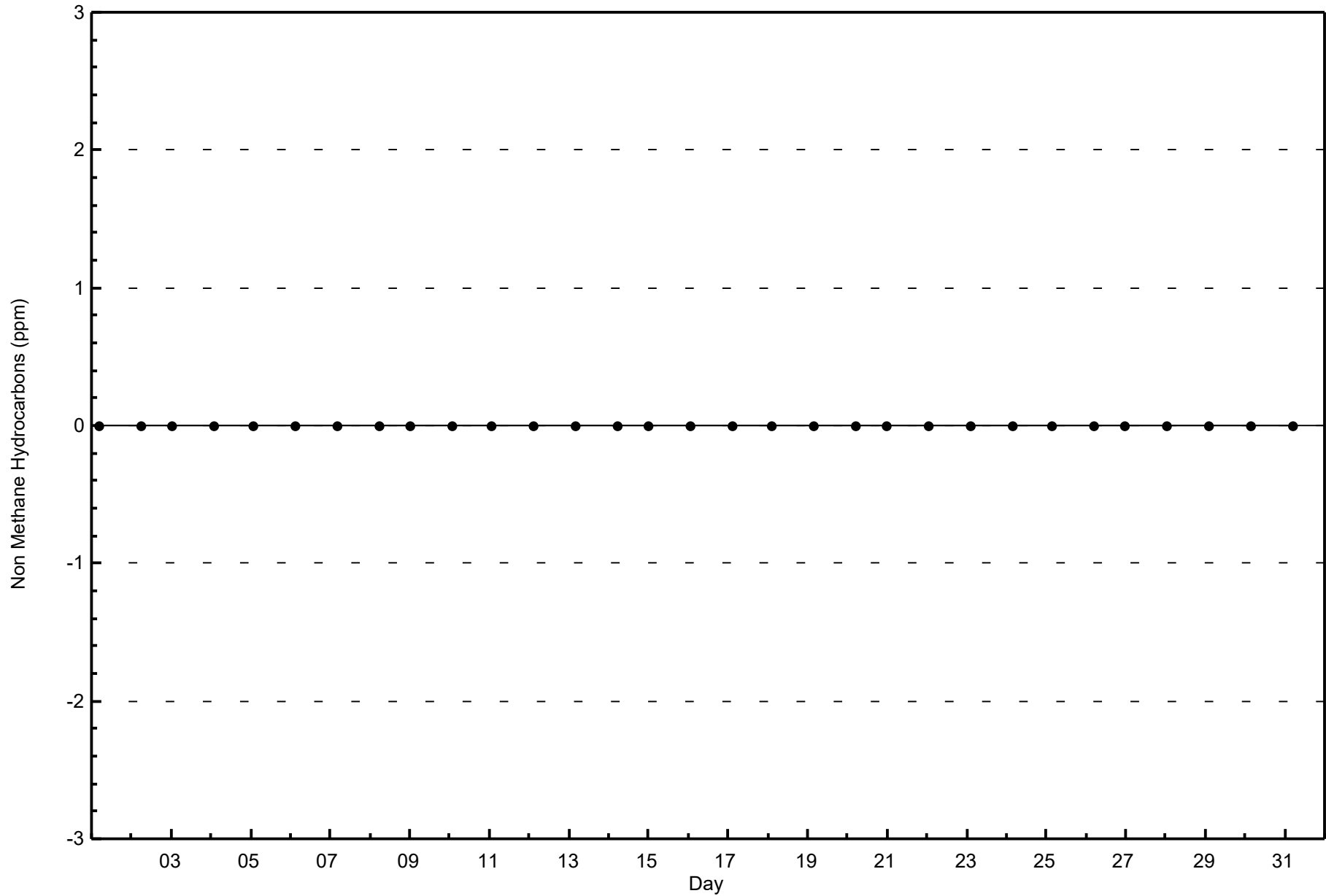
Total Number of Hours: 744

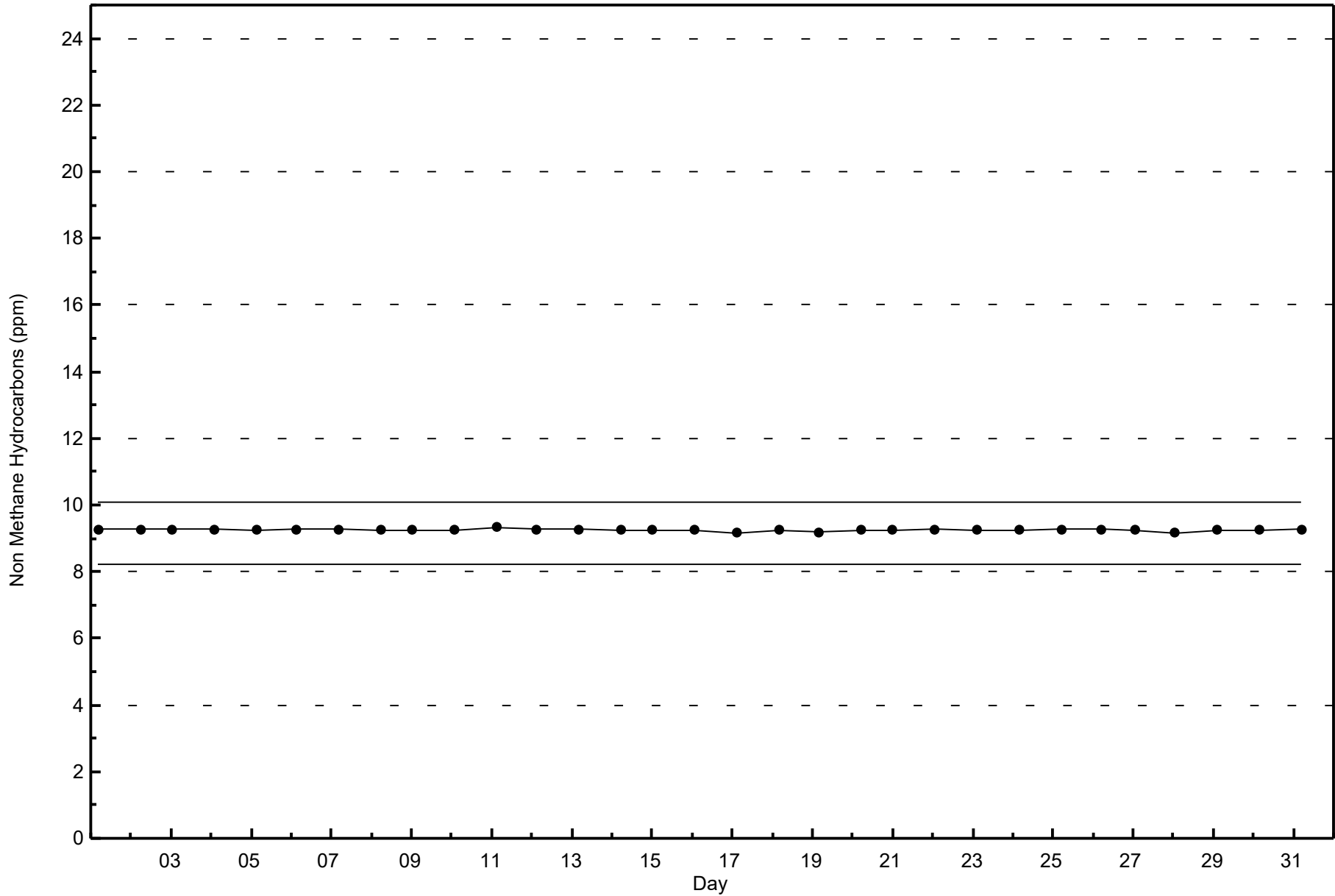


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Janvier









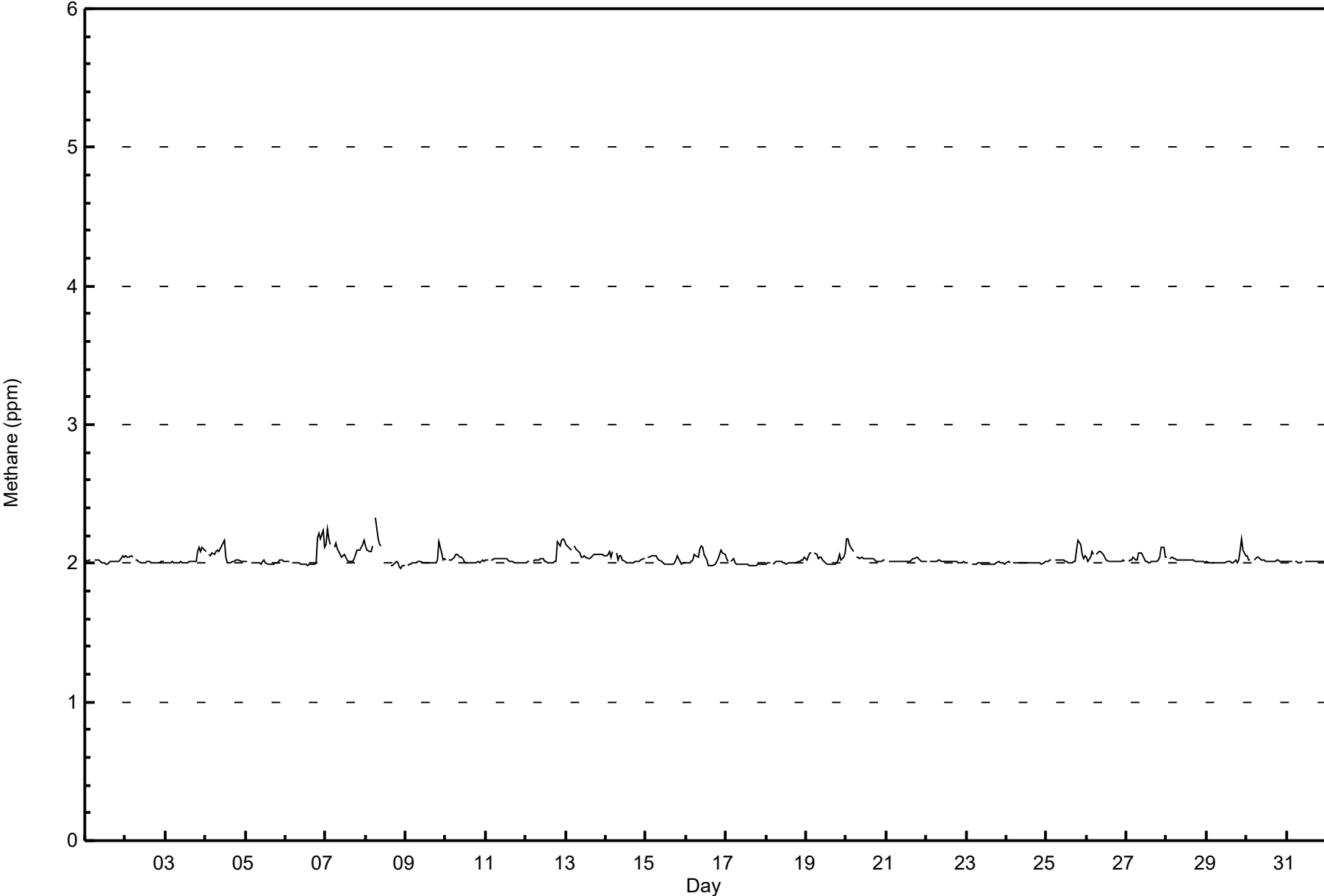
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Janvier - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 2.3 ppm on Oct 8 07:00		Maximum Daily Average: 2.1 ppm on Oct 7		Hours of Data: 707														707								
Minimum Value: 2.0 ppm on Oct 8 22:00		Minimum Daily Average: 2.0 ppm on Oct 17		Hours of Missing Data: 37														37								
Maximum Diurnal Average: 2.0 ppm at hour 23		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Calibration: 36														36								
Monthly Average: 2.03 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2		Percent Operational Time: 99.9														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-Oct	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	2.1	2.0	2.0	2.1	
2-Oct	2.1	2.0	2.0	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	
3-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	
4-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	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	
5-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
6-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.1	2.0	2.2	
7-Oct	2.1	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	
8-Oct	2.1	2.1	2.1	2.1	2.1	Z	2.3	2.2	2.1	2.1	C	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
9-Oct	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	2.2	2.1	2.0	2.0	2.0	2.0	
10-Oct	2.0	Z	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	2.0	2.0	2.0	2.0	2.0	
11-Oct	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	
12-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.2	2.2	2.2	2.0	2.2	
13-Oct	2.1	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
14-Oct	2.1	2.1	2.1	2.0	2.1	Z	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
15-Oct	Z	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	2.1	2.0	2.0	2.0	2.0	2.0	
16-Oct	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	
17-Oct	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	
18-Oct	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	
19-Oct	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	2.0	2.1	2.0	2.0	2.1	2.0	2.1	
20-Oct	2.2	2.2	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	
21-Oct	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	
22-Oct	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	
23-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
24-Oct	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	
25-Oct	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	2.2	2.1	2.1	2.0	2.1	2.0	2.2	
26-Oct	2.0	2.0	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
27-Oct	Z	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	2.1	2.1	2.0	2.0	2.1	
28-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
29-Oct	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	2.2	2.1	2.1	2.0	2.2	
30-Oct	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	
31-Oct	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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**  
**Janvier - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	580	82.04	82.04
2.1 - 3.0	127	17.96	100.00
3.1 - 10.0	0	0.00	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  
Janvier - October 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	20	26	29	25	9	10	14	16	20	66	104	50	69	58	17	2	535
2.1 - 3.0	9	18	2	0	0	3	10	4	21	43	8	6	2	0	1	0	127
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	44	31	25	9	13	24	20	41	109	112	56	71	58	18	2	662

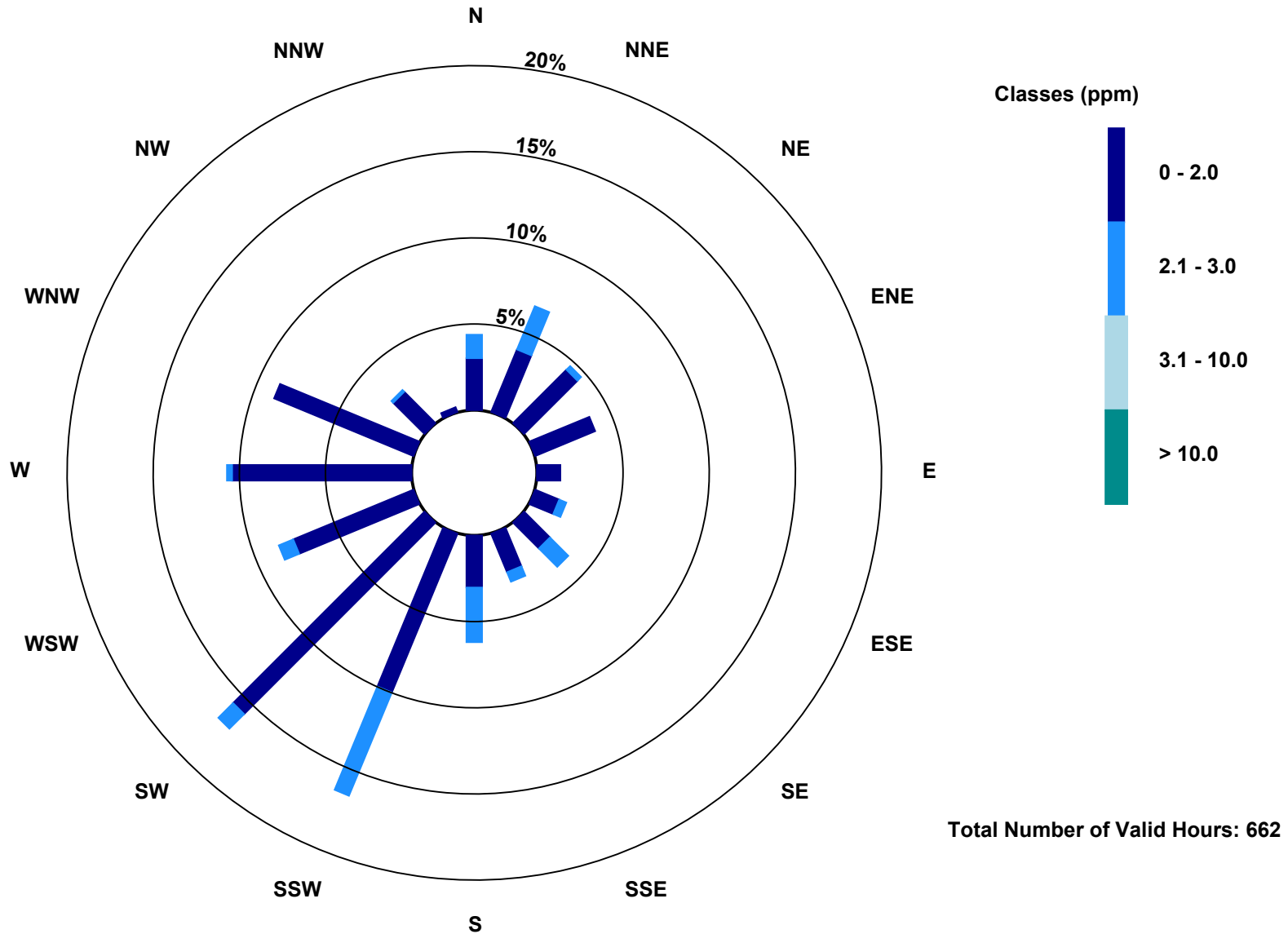
Total Number of Valid Hours: 662

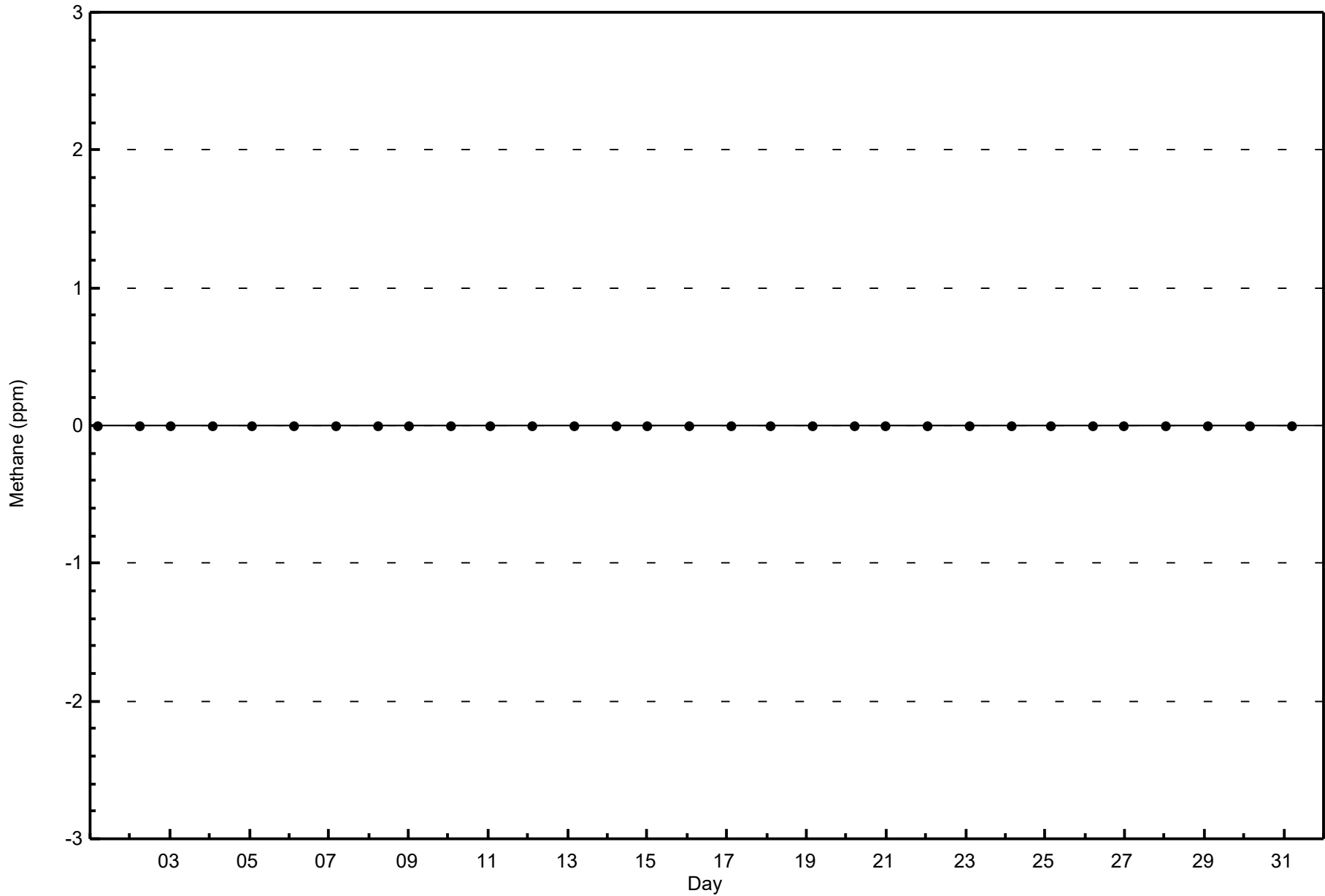
Total Number of Hours: 744

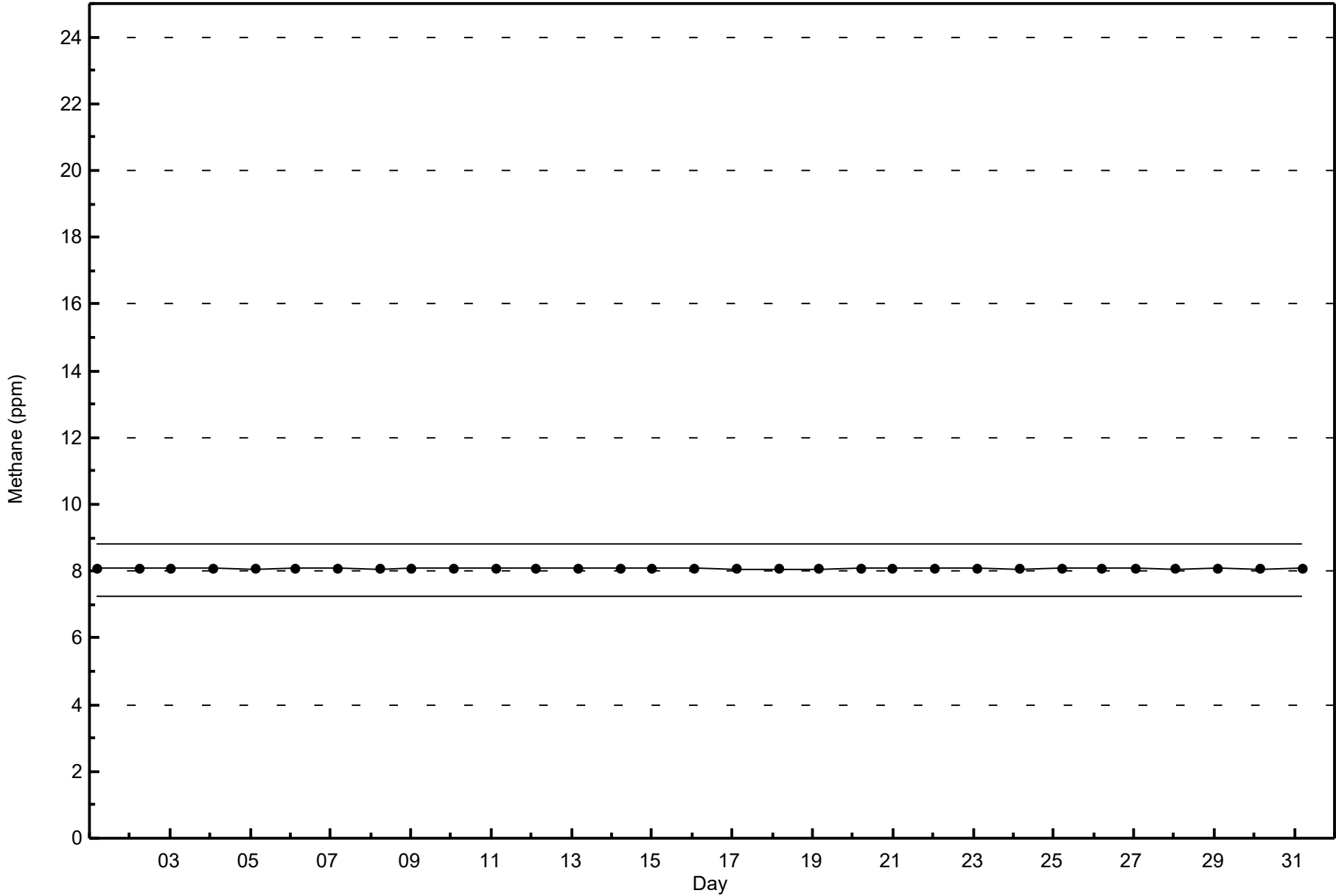


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









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

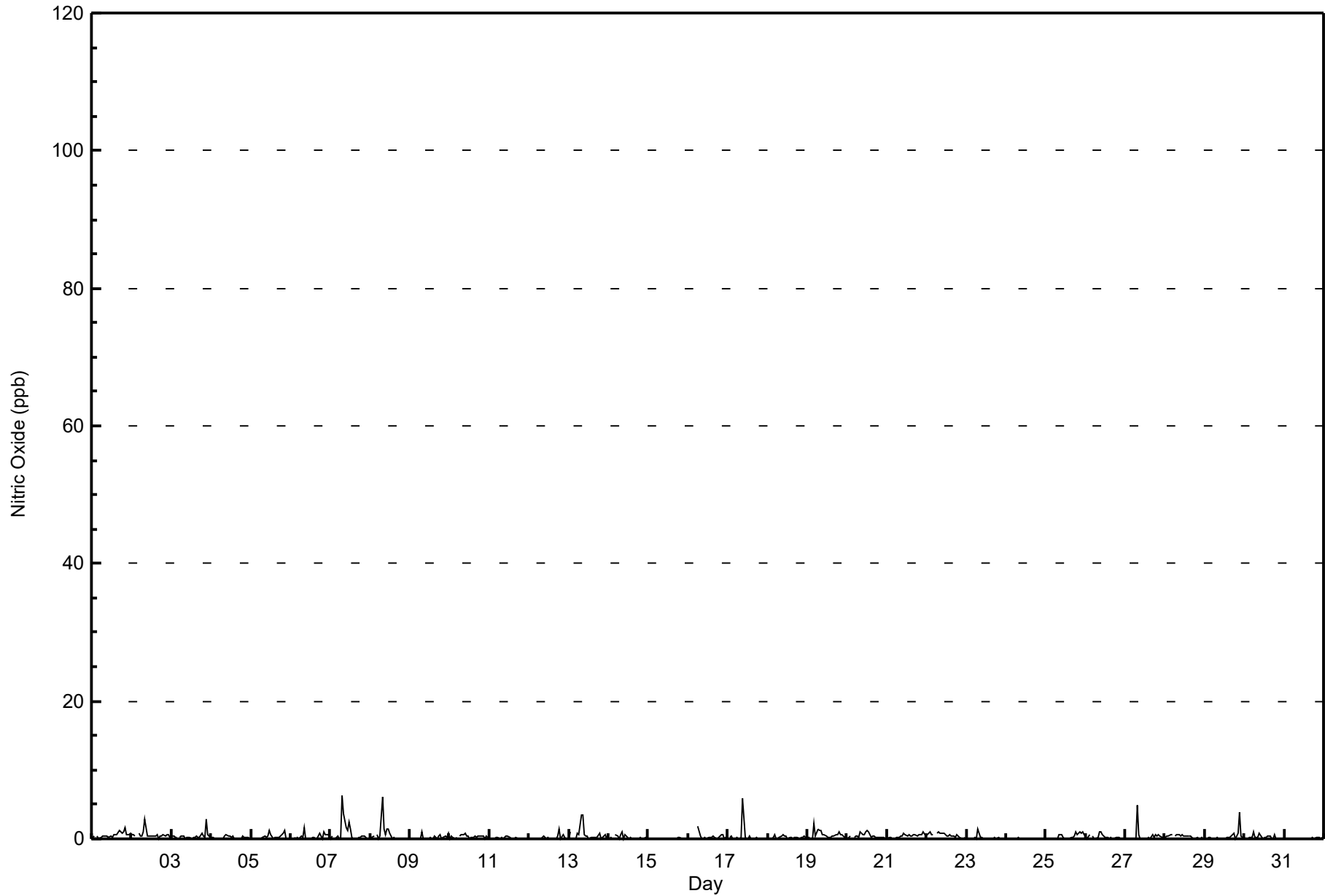
**Nitric Oxide (NO) - ppb**  
**Janvier - October 2024**

Maximum Value: 6.3 ppb on Oct 7 08:00		Maximum Daily Average: 0.8 ppb on Oct 7		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Oct 1 05:00		Minimum Daily Average: 0.0 ppb on Oct 24		Hours of Data: 707																						
Maximum Diurnal Average: 1.0 ppb at hour 8		Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Missing Data: 37																						
Monthly Average: 0.33 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.7 P <sub>99</sub> = 3.4		Hours of Calibration: 36																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.1	0.3	Z	0.4	0.0	0.1	0.5	0.4	0.3	0.3	0.1	0.5	0.3	0.6	0.5	0.5	1.2	0.9	0.7	1.0	1.7	0.7	0.6	0.7	0.5	1.7
2-Oct	0.7	0.5	0.3	Z	0.7	0.3	0.5	1.0	2.7	0.5	0.5	0.4	0.5	0.4	0.5	0.6	0.0	0.4	0.4	0.6	0.5	0.5	0.5	0.2	0.6	2.7
3-Oct	0.4	0.5	0.2	0.3	Z	0.3	0.3	0.4	0.0	0.2	0.2	0.2	0.0	0.2	0.2	0.3	0.1	0.2	0.8	0.3	0.3	2.9	0.6	0.2	0.4	2.9
4-Oct	0.2	0.2	0.0	0.1	0.1	Z	0.0	0.0	0.4	0.5	0.5	0.4	0.3	0.3	0.0	0.1	0.1	0.0	0.1	0.3	0.1	0.2	0.2	0.0	0.2	0.5
5-Oct	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.5	1.3	0.6	0.0	0.2	0.2	0.3	0.2	0.3	0.8	1.2	0.0	0.1	0.0	0.3	1.3
6-Oct	0.0	Z	0.3	0.0	0.2	0.0	0.3	0.2	1.7	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.8	0.4	0.0	1.1	0.6	0.6	0.3	0.3	1.7
7-Oct	0.0	0.4	Z	0.1	0.5	0.0	0.1	6.3	3.7	1.7	1.2	2.5	1.4	0.2	0.0	0.0	0.0	0.2	0.1	0.3	0.3	0.1	0.1	0.0	0.8	6.3
8-Oct	0.1	0.3	0.3	Z	0.6	0.1	0.3	6.1	1.4	0.7	1.4	1.5	0.8	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.1
9-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.0	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.4	0.0	0.3	0.7	0.1	0.1	0.3	0.1	0.8	0.2	1.0
10-Oct	0.0	0.5	0.2	0.0	0.3	Z	0.3	0.5	0.7	0.9	0.4	0.5	0.0	0.1	0.1	0.4	0.2	0.4	0.5	0.4	0.5	0.1	0.4	0.3	0.3	0.9
11-Oct	Z	0.0	0.1	0.1	0.2	0.3	0.0	0.2	0.1	0.1	0.5	0.5	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
12-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	1.5	0.0	0.6	0.2	0.0	0.1	0.2	1.5
13-Oct	0.0	1.0	Z	0.0	0.0	0.8	0.6	3.5	3.5	0.7	0.4	0.3	0.1	0.2	0.2	0.2	0.3	0.3	0.7	0.1	0.2	0.4	0.7	0.1	0.6	3.5
14-Oct	0.0	0.3	0.0	Z	0.7	0.5	0.1	0.5	0.9	0.0	0.6	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.2	0.9
15-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.3
16-Oct	0.0	0.0	0.0	0.0	0.0	Z	1.8	0.4	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.5	0.2	0.0	0.2	0.5	0.6	0.6	0.1	0.4	0.3	1.8
17-Oct	Z	0.2	0.3	0.1	0.1	0.2	0.0	0.0	0.2	6.0	0.3	0.0	0.1	0.3	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	6.0
18-Oct	0.0	Z	0.0	0.1	0.6	0.0	0.0	0.2	0.4	0.5	0.3	0.3	0.0	0.2	0.2	0.0	0.2	0.2	0.2	0.1	0.3	0.3	0.4	0.3	0.2	0.6
19-Oct	0.3	0.3	Z	0.0	2.3	0.4	1.3	1.2	1.2	0.6	0.6	0.5	0.3	0.2	0.3	0.4	0.4	0.5	0.5	1.1	0.6	0.6	0.2	0.4	0.6	2.3
20-Oct	0.0	0.2	0.4	Z	0.3	0.4	0.5	0.2	0.9	0.6	0.7	0.9	1.2	1.0	0.2	0.4	0.4	0.3	0.3	0.2	0.3	0.2	0.1	0.0	0.4	1.2
21-Oct	0.0	0.1	0.2	0.1	Z	0.0	0.2	0.2	0.5	0.5	0.7	0.6	0.4	0.6	0.5	0.5	0.6	0.6	0.5	0.6	0.7	0.7	1.0	0.4	0.4	1.0
22-Oct	0.6	0.8	1.0	0.5	0.7	Z	0.7	0.9	0.7	0.8	0.9	0.6	0.4	0.4	0.5	0.4	0.4	0.3	0.7	0.4	0.3	0.1	0.1	0.2	0.5	1.0
23-Oct	Z	0.0	0.0	0.1	0.0	0.1	0.0	1.5	0.1	0.2	0.0	C	C	C	C	C	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1	1.5
24-Oct	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	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
25-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.4	1.1	0.7	1.0	0.7	1.0	0.6	0.3	1.1
26-Oct	0.4	0.0	0.6	Z	0.5	0.0	0.0	0.2	1.0	1.0	0.5	0.5	0.2	0.1	0.0	0.2	0.0	0.0	0.3	0.3	0.2	0.1	0.0	0.0	0.3	1.0
27-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	5.0	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	0.3	0.6	0.4	0.6	0.4	0.2	0.2	0.4	5.0
28-Oct	0.3	0.4	0.3	0.6	0.5	Z	0.4	0.6	0.5	0.4	0.6	0.4	0.4	0.3	0.4	0.5	0.3	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.3	0.6
29-Oct	Z	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.2	0.2	0.3	0.7	0.1	0.5	0.8	3.9	0.5	0.0	0.4	3.9
30-Oct	0.2	Z	0.0	0.2	0.2	0.9	0.1	0.1	0.3	0.8	0.3	0.0	0.1	0.1	0.4	0.4	0.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.9
31-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	M	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.2	0.0	0.2
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Nitric Oxide (NO) - ppb**  
**Janvier - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Janvier - October 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  
Janvier - October 2024**

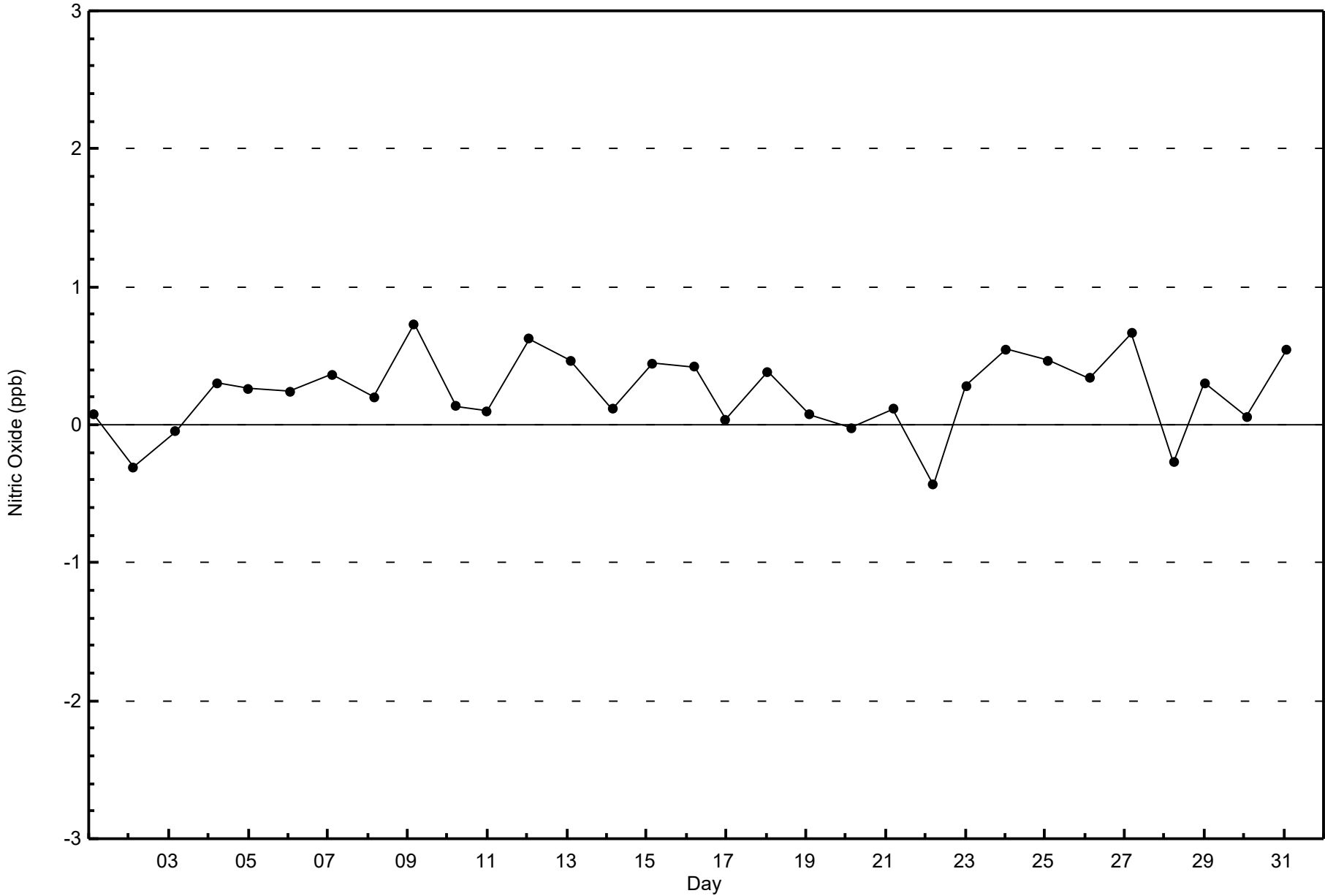
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	29	45	31	25	9	11	24	20	45	109	112	55	67	57	19	4	662
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	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>	29	45	31	25	9	11	24	20	45	109	112	55	67	57	19	4	662

Total Number of Valid Hours: 662

Total Number of Hours: 744



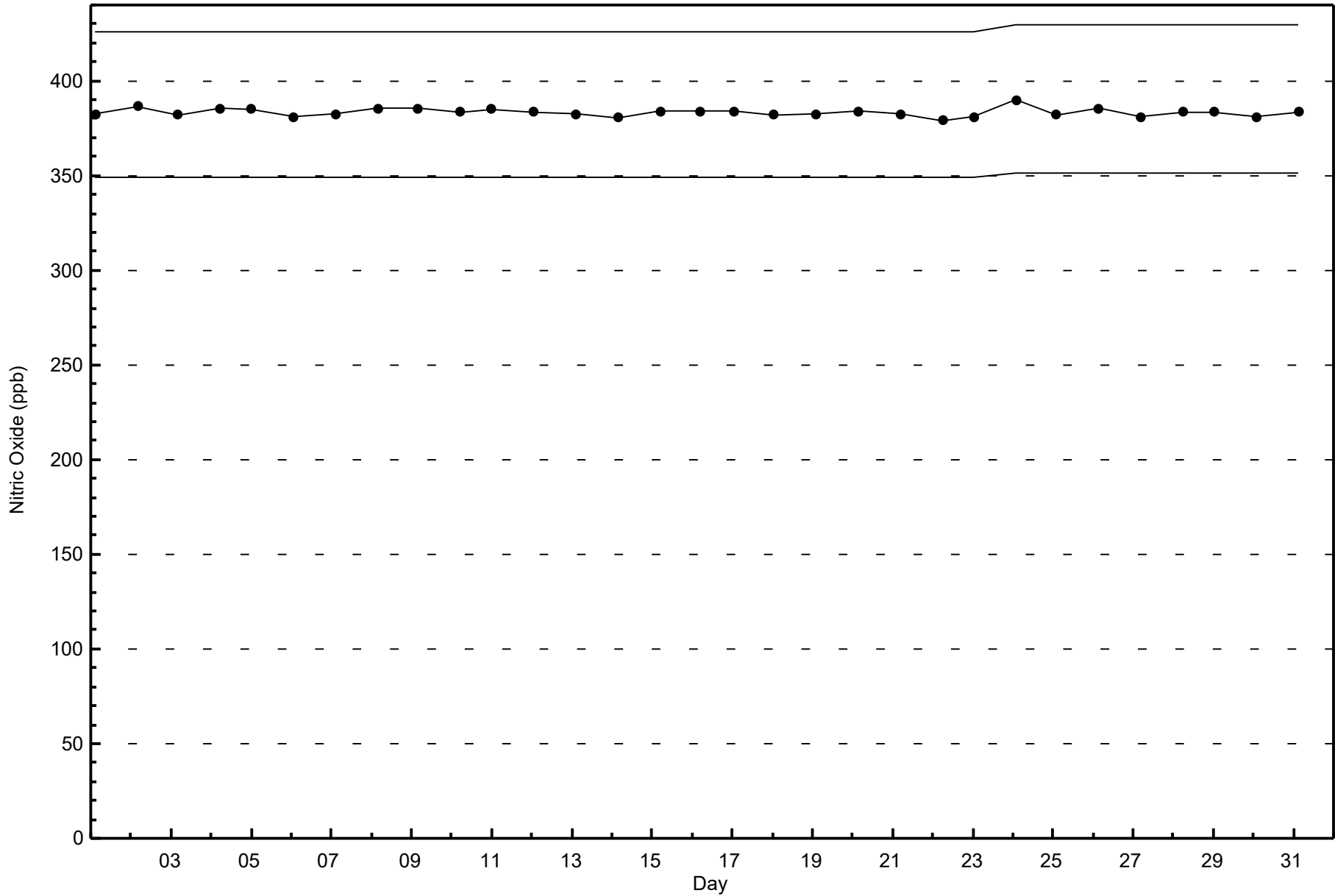






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Janvier - October 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

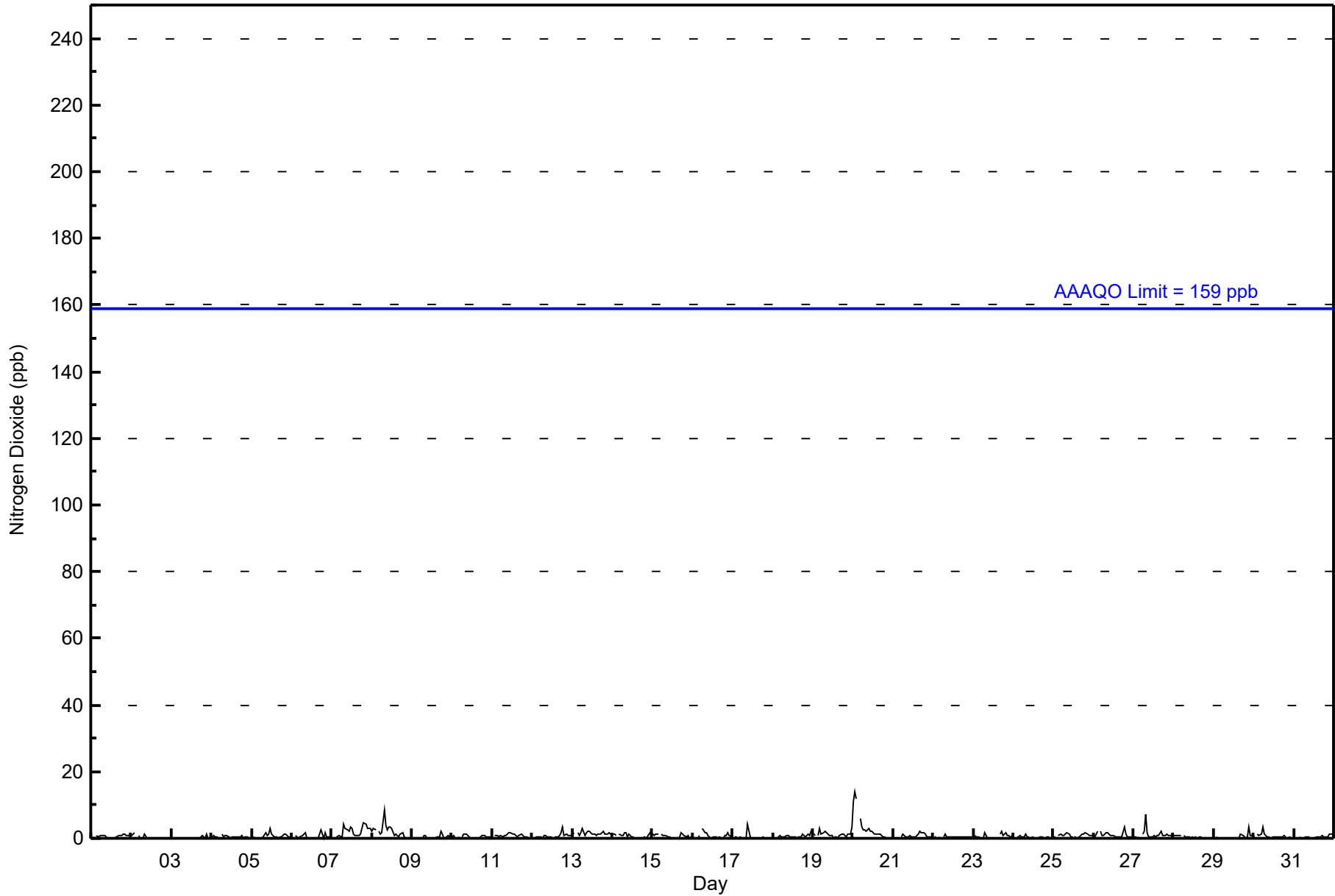
Janvier - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum			
Maximum Value: 14.1 ppb on Oct 20 02:00		Maximum Daily Average: 3.0 ppb on Oct 20		Hours of Data: 707																	Hours of Missing Data: 37		Hours of Calibration: 36			
Minimum Value: 0.0 ppb on Oct 1 11:00		Minimum Daily Average: 0.2 ppb on Oct 3		Hours of Calibration: 36																	Percent Operational Time: 99.9					
Maximum Diurnal Average: 1.5 ppb at hour 8		Minimum Diurnal Average: 0.4 ppb at hour 14		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 0.5 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.7 P <sub>99</sub> = 4.3																						
Monthly Average: 0.80 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-Oct	0.2	0.2	Z	1.0	0.6	0.8	0.7	0.8	1.0	0.6	0.0	0.0	0.1	0.0	0.1	0.4	0.8	0.7	0.8	1.2	1.2	0.7	0.7	1.0	0.6	1.2
2-Oct	0.8	1.2	1.5	Z	0.7	0.1	0.0	0.1	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	0.1	0.0	0.1	0.3	1.5
3-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.4	0.2	1.3	0.0	0.1	0.2	1.3
4-Oct	0.4	0.8	0.5	0.4	0.4	Z	1.2	0.4	0.7	0.8	0.5	0.2	0.3	0.4	0.3	0.4	0.6	0.7	0.2	0.3	0.3	0.3	0.0	0.1	0.4	1.2
5-Oct	Z	0.4	0.0	0.2	0.2	0.2	0.1	0.5	1.6	0.9	1.2	2.8	1.1	0.5	0.3	0.5	0.2	0.3	0.5	1.1	1.3	0.8	0.6	0.4	0.7	2.8
6-Oct	0.4	Z	0.9	0.4	0.1	0.4	0.7	1.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	1.2	0.1	1.5	0.5	0.6	0.0	0.5	2.6	
7-Oct	0.2	0.1	Z	0.6	0.8	0.6	0.5	4.3	3.1	2.4	2.2	3.6	2.8	1.1	0.9	0.7	0.9	1.3	2.8	4.6	4.2	2.8	2.8	2.9	2.0	4.6
8-Oct	2.3	3.1	2.4	Z	2.3	1.4	1.9	8.5	3.8	2.5	3.2	3.5	3.0	0.8	1.3	0.9	0.5	1.3	1.7	0.6	0.1	0.0	0.0	0.0	2.0	8.5
9-Oct	0.0	0.1	0.0	0.0	Z	0.2	0.0	0.8	0.9	0.1	0.0	0.0	0.0	0.2	0.0	0.3	0.4	2.0	1.3	0.2	0.0	0.7	0.6	1.2	0.4	2.0
10-Oct	0.4	0.7	0.2	0.2	0.5	Z	0.6	1.2	1.2	1.0	0.6	0.2	0.1	0.0	0.1	0.1	0.0	0.6	1.0	0.9	0.6	0.3	0.3	0.4	0.5	1.2
11-Oct	Z	0.9	0.7	0.8	0.5	0.9	0.4	0.8	0.7	1.1	1.7	1.9	1.3	1.1	0.7	0.6	0.7	1.2	0.8	0.4	0.4	0.3	0.0	0.0	0.8	1.9
12-Oct	0.2	Z	0.5	0.6	0.5	0.4	0.2	0.9	0.9	0.5	0.5	0.4	0.1	0.1	0.4	0.4	0.9	1.7	3.4	0.7	1.2	0.8	0.8	0.7	0.7	3.4
13-Oct	0.6	1.6	Z	1.5	0.7	1.8	3.0	1.0	1.6	2.3	2.2	1.9	1.1	1.0	1.2	1.1	1.1	2.2	1.1	1.2	1.2	1.6	1.3	1.5	3.0	
14-Oct	1.2	1.3	0.8	Z	1.4	0.8	0.7	1.6	1.6	0.3	1.3	0.4	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.1	0.4	1.7	1.0	0.7	1.7
15-Oct	1.2	0.9	1.3	1.1	Z	1.2	0.8	0.7	0.8	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.4	1.6	1.2	0.8	0.6	0.7	0.2	0.5	0.7	1.6
16-Oct	0.6	0.1	0.1	0.0	0.8	Z	2.9	1.7	1.5	0.8	0.6	0.2	0.6	0.3	0.5	0.2	0.3	0.1	0.2	0.8	0.8	1.7	0.7	0.3	0.7	2.9
17-Oct	Z	0.6	0.4	0.2	0.3	0.1	0.0	0.0	0.2	4.2	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.3	4.2
18-Oct	0.1	Z	0.1	0.3	0.8	0.4	0.4	0.6	0.7	0.9	0.6	0.6	0.4	0.3	0.1	0.3	0.4	0.6	1.4	0.5	0.7	1.2	0.7	2.0	0.6	2.0
19-Oct	1.4	0.8	Z	1.0	2.8	1.3	1.9	2.0	1.9	1.1	0.8	0.7	0.1	0.3	0.4	0.2	1.0	1.1	1.2	0.7	0.5	1.1	1.1	3.3	1.2	3.3
20-Oct	11.2	14.1	11.8	Z	6.0	3.5	2.7	2.4	2.2	2.8	2.0	2.0	1.8	1.3	1.1	1.3	1.4	0.9	0.4	0.3	0.2	0.1	0.0	0.1	3.0	14.1
21-Oct	0.0	0.0	0.0	0.0	Z	0.5	1.1	0.6	0.5	0.4	0.7	0.5	0.5	0.6	0.8	1.1	2.0	1.7	1.9	1.4	0.5	0.4	0.6	0.4	0.7	2.0
22-Oct	0.2	0.4	0.1	0.2	0.4	Z	0.6	1.1	0.6	0.4	0.3	0.3	0.4	0.3	0.4	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.4	1.1
23-Oct	Z	0.9	0.5	0.3	0.2	0.2	0.2	1.7	0.1	0.0	0.2	C	C	C	C	C	1.4	2.0	0.9	1.6	0.9	0.7	0.6	0.5	0.7	2.0
24-Oct	1.2	Z	0.4	0.5	0.7	0.4	0.6	1.3	0.5	0.5	0.1	0.3	0.2	0.0	0.1	0.0	0.3	0.3	0.0	0.2	0.4	0.6	0.1	0.2	0.4	1.3
25-Oct	0.5	0.6	Z	0.7	1.3	0.7	0.8	1.4	1.7	1.3	0.6	0.5	0.1	0.4	0.1	0.4	0.7	1.1	1.4	1.5	1.2	0.9	1.0	0.7	0.9	1.7
26-Oct	0.7	0.3	2.0	Z	2.1	0.7	0.7	1.7	1.6	1.1	0.8	0.9	0.9	0.4	0.5	0.5	0.4	0.5	3.4	1.4	0.6	0.3	0.4	0.3	1.0	3.4
27-Oct	0.3	0.3	0.1	0.3	Z	1.1	2.0	7.4	1.7	0.3	0.4	0.5	0.7	0.6	0.8	0.8	2.0	0.9	0.8	0.8	1.2	1.0	0.8	0.5	1.1	7.4
28-Oct	0.7	0.7	0.9	0.7	0.8	Z	0.9	0.5	0.5	0.6	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.4	0.9
29-Oct	Z	0.4	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.2	1.0	0.3	0.2	0.5	3.2	0.9	0.7	0.4	3.2
30-Oct	0.6	Z	1.1	1.0	1.1	3.2	1.2	0.7	0.3	0.6	0.0	0.5	0.5	0.5	0.6	0.4	0.3	0.6	1.0	0.4	0.1	0.3	0.1	0.2	0.7	3.2
31-Oct	0.1	0.1	Z	0.5	0.1	0.0	0.1	0.3	0.4	0.3	M	0.2	0.2	0.3	0.3	0.5	0.5	0.7	0.5	0.4	0.5	1.3	1.4	1.3	0.5	1.4
1.0 1.2 1.1 0.5 1.0 0.8 0.9 1.5 1.1 0.9 0.7 0.7 0.6 0.4 0.4 0.4 0.6 0.9 1.1 0.8 0.7 0.8 0.6 0.7																								Diurnal Average		
11.2 14.1 11.8 1.5 6.0 3.5 3.0 8.5 3.8 4.2 3.2 3.6 3.0 1.3 1.3 1.3 2.0 2.6 3.4 4.6 4.2 3.2 2.8 3.3																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Janvier - October 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Janvier - October 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  
Janvier - October 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	29	45	31	25	9	11	24	20	45	109	112	55	67	57	19	4	662
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>	29	45	31	25	9	11	24	20	45	109	112	55	67	57	19	4	662

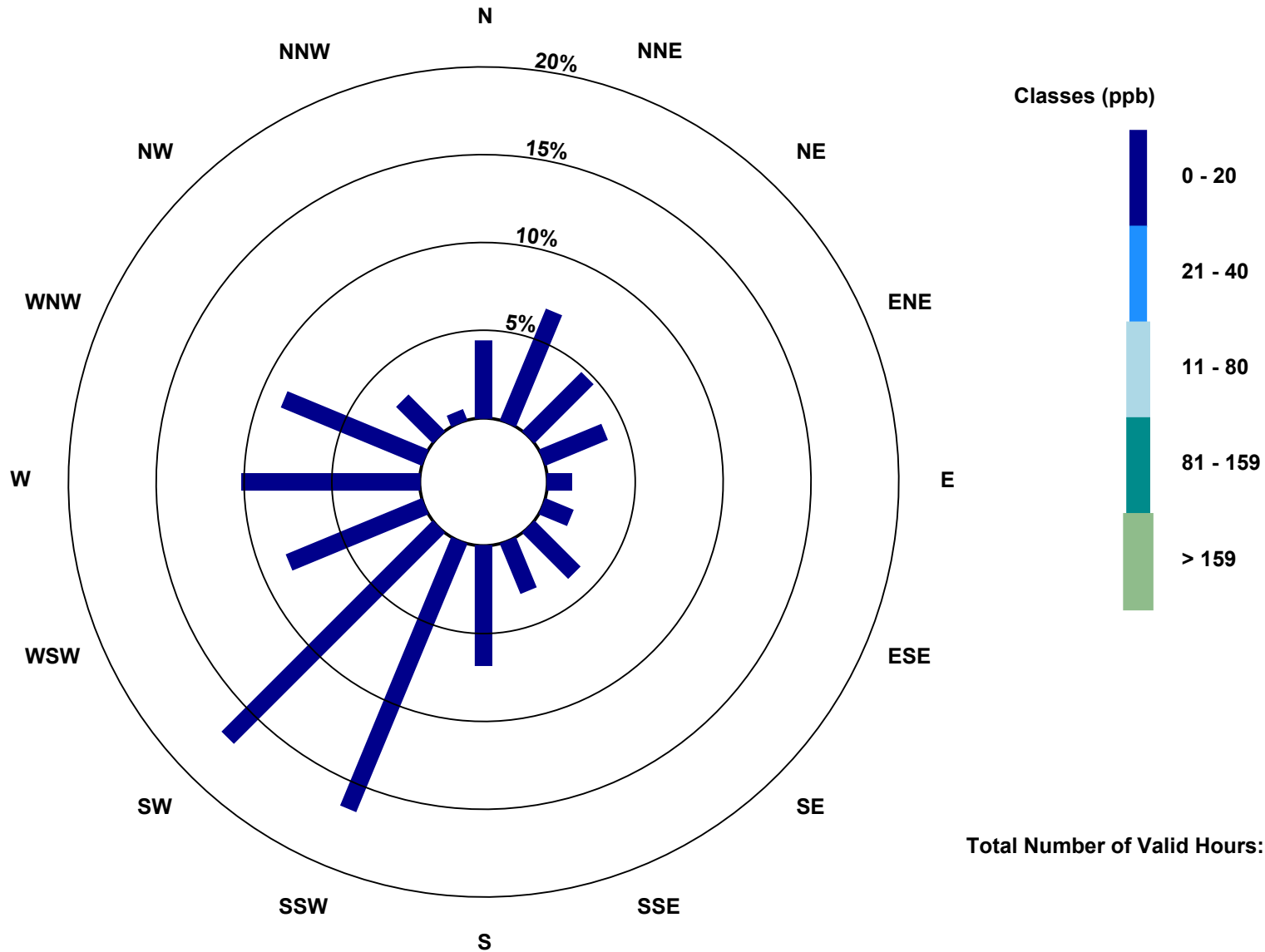
Total Number of Valid Hours: 662

Total Number of Hours: 744



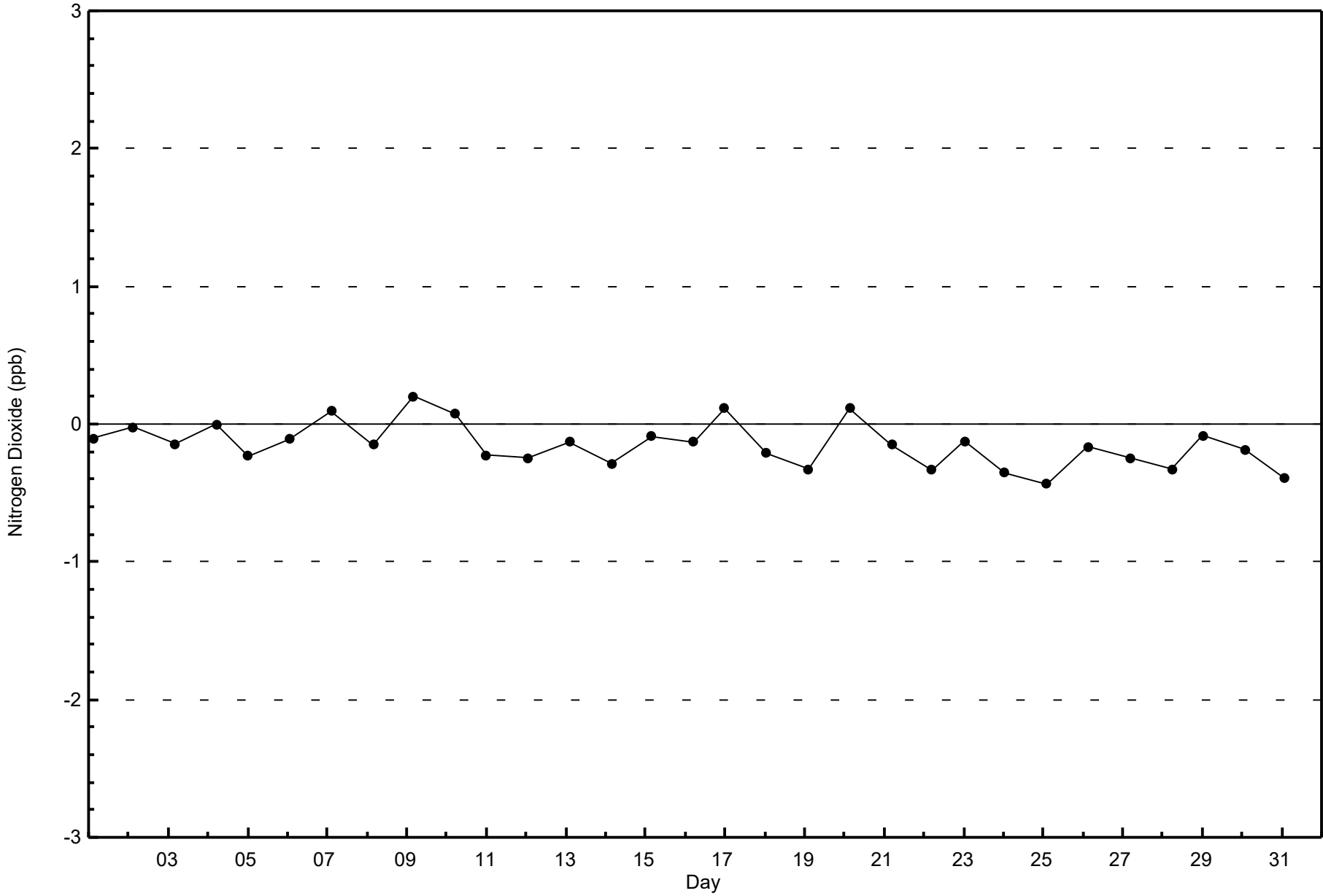
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

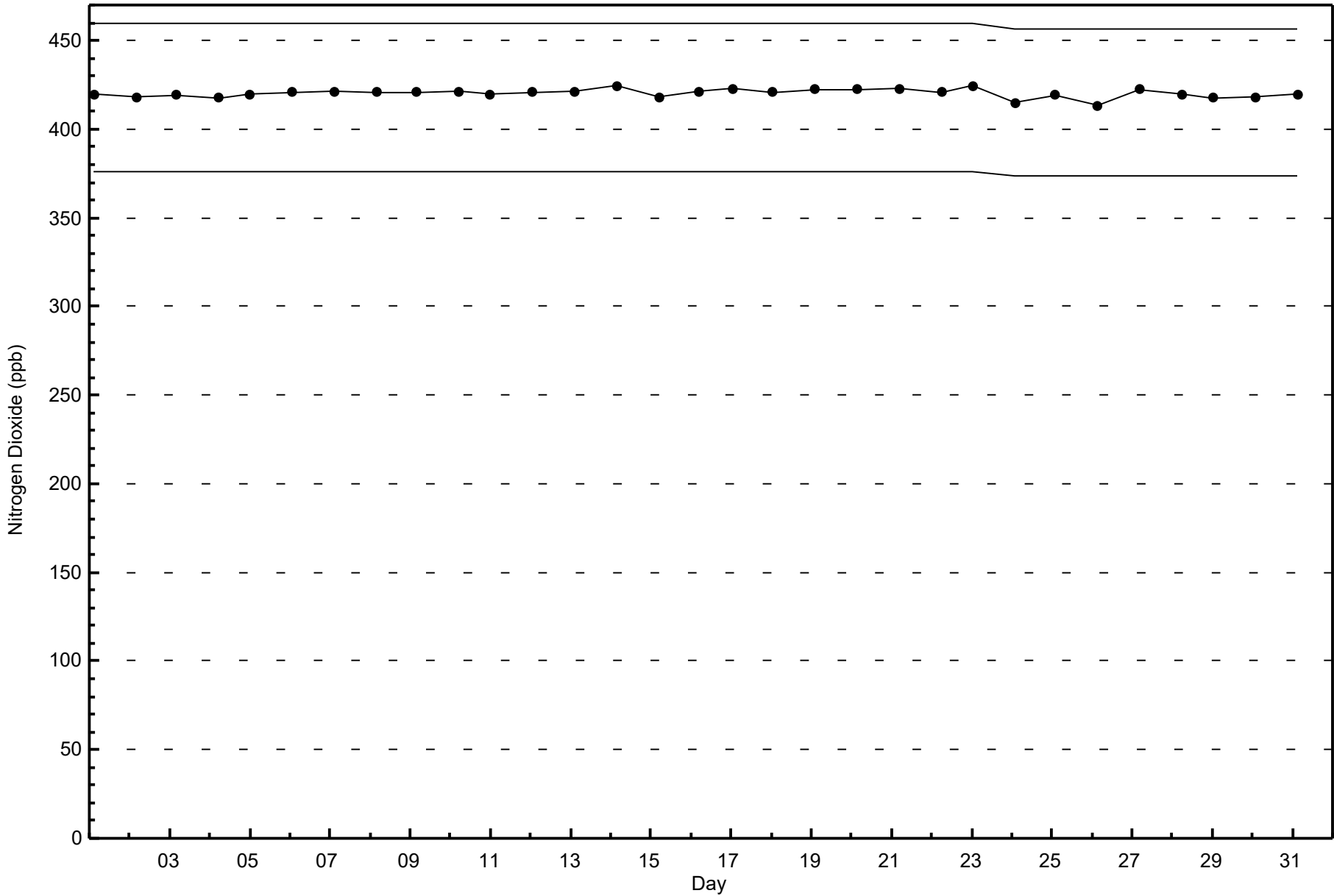
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Janvier



Total Number of Valid Hours: 662









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

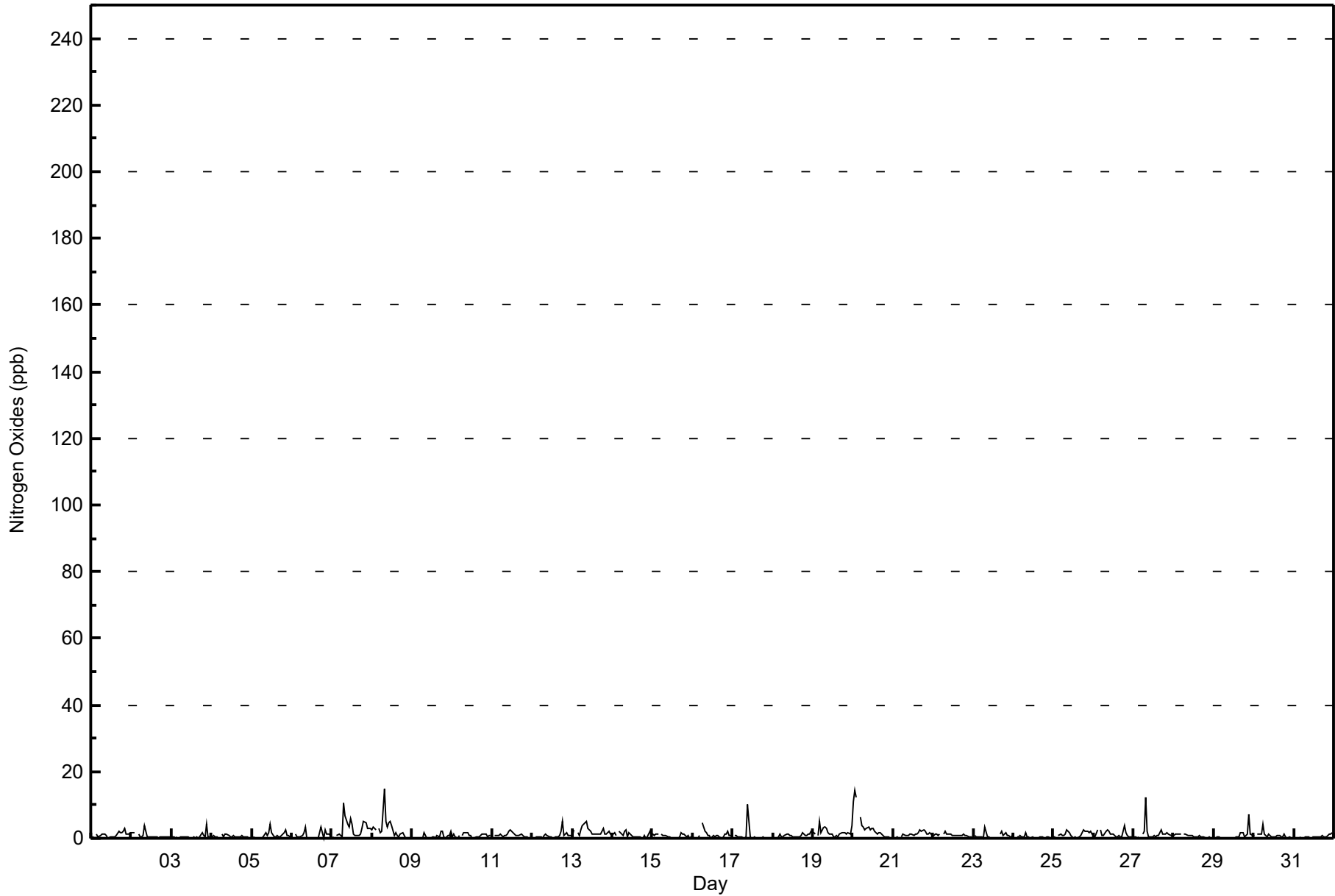
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - October 2024**

Maximum Value: 14.6 ppb on Oct 8 08:00      Maximum Daily Average: 3.4 ppb on Oct 20 Minimum Value: 0.0 ppb on Oct 3 13:00      Minimum Daily Average: 0.4 ppb on Oct 24 Maximum Diurnal Average: 2.5 ppb at hour 8      Minimum Diurnal Average: 0.6 ppb at hour 15 Monthly Average: 1.13 ppb      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.4 Median = 0.7 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 2.4 P <sub>99</sub> = 7.1																				Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 36 Percent Operational Time: 99.9						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.3	0.5	Z	1.4	0.6	0.9	1.2	1.2	1.3	0.9	0.1	0.5	0.4	0.6	0.6	0.9	2.0	1.6	1.5	2.2	2.9	1.4	1.3	1.7	1.1	2.9
2-Oct	1.5	1.7	1.8	Z	1.4	0.4	0.5	1.1	3.9	0.5	0.5	0.4	0.5	0.4	0.5	0.6	0.0	0.4	0.4	0.6	0.5	0.6	0.5	0.3	0.8	3.9
3-Oct	0.4	0.5	0.2	0.3	Z	0.4	0.3	0.4	0.2	0.3	0.4	0.2	0.0	0.2	0.2	0.3	0.1	0.2	1.7	0.7	0.5	4.2	0.6	0.3	0.5	4.2
4-Oct	0.6	1.0	0.5	0.5	0.5	Z	1.2	0.4	1.1	1.3	1.0	0.6	0.6	0.7	0.4	0.4	0.5	0.6	0.8	0.5	0.4	0.5	0.2	0.1	0.6	1.3
5-Oct	Z	0.5	0.0	0.2	0.2	0.2	0.1	0.6	1.9	1.0	1.7	4.1	1.7	0.5	0.5	0.7	0.5	0.5	0.8	1.9	2.5	0.8	0.7	0.4	1.0	4.1
6-Oct	0.4	Z	1.2	0.4	0.3	0.4	1.0	1.6	3.4	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	3.4	1.6	0.1	2.6	1.1	1.2	0.3	0.8	3.4
7-Oct	0.2	0.5	Z	0.7	1.3	0.6	0.6	10.6	6.8	4.1	3.4	6.1	4.2	1.3	0.9	0.7	0.9	1.5	2.9	4.9	4.5	2.9	2.9	2.9	2.8	10.6
8-Oct	2.4	3.4	2.7	Z	2.9	1.5	2.2	14.6	5.2	3.2	4.6	5.0	3.8	0.8	1.5	0.9	0.5	1.4	1.7	0.6	0.1	0.0	0.0	0.0	2.6	14.6
9-Oct	0.0	0.1	0.0	0.0	Z	0.2	0.0	1.8	1.0	0.1	0.0	0.0	0.2	0.3	0.0	0.7	0.4	2.3	2.0	0.3	0.1	1.0	0.7	2.0	0.6	2.3
10-Oct	0.4	1.2	0.4	0.2	0.8	Z	0.9	1.7	1.9	1.9	1.0	0.7	0.1	0.1	0.2	0.5	0.2	1.0	1.5	1.3	1.1	0.4	0.7	0.7	0.8	1.9
11-Oct	Z	0.9	0.8	0.9	0.7	1.2	0.4	1.0	0.8	1.2	2.2	2.4	1.5	1.1	0.7	0.6	0.9	1.2	0.8	0.4	0.4	0.3	0.0	0.0	0.9	2.4
12-Oct	0.2	Z	0.5	0.6	0.5	0.4	0.2	1.0	1.1	1.0	0.6	0.5	0.1	0.1	0.4	0.4	0.9	2.1	4.9	0.7	1.8	1.0	0.8	0.8	0.9	4.9
13-Oct	0.6	2.6	Z	1.5	0.7	2.6	3.6	4.5	5.1	3.0	2.6	2.2	1.2	1.3	1.2	1.4	1.4	1.4	2.9	1.2	1.4	1.6	2.3	1.4	2.1	5.1
14-Oct	1.2	1.6	0.8	Z	2.1	1.3	0.8	2.1	2.5	0.3	1.9	0.7	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.8	0.1	0.4	1.9	1.0	0.9	2.5
15-Oct	1.2	0.9	1.3	1.1	Z	1.2	0.8	0.7	0.8	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.4	1.6	1.3	1.1	0.6	0.7	0.2	0.5	0.7	1.6
16-Oct	0.6	0.1	0.1	0.0	0.8	Z	4.7	2.1	1.6	0.9	0.7	0.2	0.8	0.4	0.7	0.7	0.5	0.1	0.4	1.3	1.4	2.3	0.8	0.7	1.0	4.7
17-Oct	Z	0.8	0.7	0.3	0.4	0.3	0.0	0.0	0.4	10.2	0.6	0.0	0.1	0.4	0.1	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.1	0.0	0.6	10.2
18-Oct	0.1	Z	0.1	0.4	1.4	0.4	0.4	0.8	1.1	1.4	0.9	0.9	0.4	0.5	0.3	0.3	0.6	0.8	1.6	0.6	1.0	1.5	1.1	2.3	0.8	2.3
19-Oct	1.7	1.1	Z	1.0	5.1	1.7	3.2	3.2	3.1	1.7	1.4	1.2	0.4	0.5	0.7	0.6	1.4	1.6	1.7	1.8	1.1	1.7	1.3	3.7	1.8	5.1
20-Oct	11.2	14.3	12.2	Z	6.3	3.9	3.2	2.6	3.1	3.4	2.7	2.9	3.0	2.3	1.3	1.7	1.8	1.2	0.7	0.5	0.5	0.3	0.1	0.1	3.4	14.3
21-Oct	0.0	0.1	0.2	0.1	Z	0.5	1.3	0.8	1.0	0.9	1.4	1.1	0.9	1.2	1.3	1.6	2.6	2.3	2.4	2.0	1.2	1.1	1.6	0.8	1.1	2.6
22-Oct	0.8	1.2	1.1	0.7	1.1	Z	1.3	2.0	1.3	1.2	1.2	0.9	0.8	0.7	0.9	0.9	1.0	0.9	1.2	0.8	0.7	0.5	0.5	0.5	1.0	2.0
23-Oct	Z	0.9	0.5	0.4	0.2	0.3	0.2	3.2	0.2	0.2	0.2	C	C	C	C	C	1.4	2.2	1.0	1.8	0.9	0.7	0.6	0.5	0.9	3.2
24-Oct	1.2	Z	0.4	0.5	0.7	0.4	0.6	1.5	0.5	0.5	0.1	0.3	0.2	0.0	0.2	0.0	0.3	0.3	0.0	0.2	0.5	0.6	0.1	0.2	0.4	1.5
25-Oct	0.5	0.6	Z	0.7	1.3	0.7	0.8	1.4	2.3	1.9	0.8	0.5	0.1	0.4	0.1	0.6	0.9	1.5	2.5	2.2	2.2	1.6	2.0	1.3	1.2	2.5
26-Oct	1.1	0.3	2.6	Z	2.6	0.7	0.7	1.9	2.6	2.1	1.3	1.4	1.1	0.5	0.5	0.7	0.4	0.5	3.7	1.7	0.8	0.4	0.4	0.3	1.2	3.7
27-Oct	0.3	0.3	0.1	0.3	Z	1.1	2.0	12.4	2.3	0.3	0.4	0.5	0.7	0.6	1.0	0.8	2.6	1.2	1.4	1.2	1.8	1.4	1.0	0.7	1.5	12.4
28-Oct	1.0	1.1	1.2	1.3	1.3	Z	1.3	1.1	1.0	1.0	0.8	0.7	0.6	0.6	0.6	0.8	0.6	0.3	0.2	0.2	0.1	0.3	0.2	0.0	0.7	1.3
29-Oct	Z	0.4	0.3	0.4	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.3	0.3	1.5	1.7	0.4	0.7	1.3	7.1	1.4	0.7	0.8	7.1
30-Oct	0.8	Z	1.1	1.2	1.3	4.1	1.3	0.8	0.6	1.4	0.3	0.5	0.6	0.6	1.0	0.8	0.4	0.6	1.5	0.4	0.1	0.3	0.1	0.2	0.9	4.1
31-Oct	0.1	0.1	Z	0.5	0.1	0.0	0.1	0.3	0.4	0.3	M	0.2	0.2	0.3	0.3	0.5	0.6	0.9	0.6	0.6	0.7	1.4	1.4	1.5	0.5	1.5
1.1 1.4 1.2 0.6 1.3 1.0 1.1 2.5 1.9 1.5 1.1 1.2 0.8 0.6 0.6 0.6 0.8 1.1 1.4 1.1 1.1 1.2 0.9 0.8 11.2 14.3 12.2 1.5 6.3 4.1 4.7 14.6 6.8 10.2 4.6 6.1 4.2 2.3 1.5 1.7 2.6 3.4 4.9 4.9 4.5 7.1 2.9 3.7																								Diurnal Average Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - October 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - October 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  
Janvier - October 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	29	45	31	25	9	11	24	20	45	109	112	55	67	57	19	4	662
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>	29	45	31	25	9	11	24	20	45	109	112	55	67	57	19	4	662

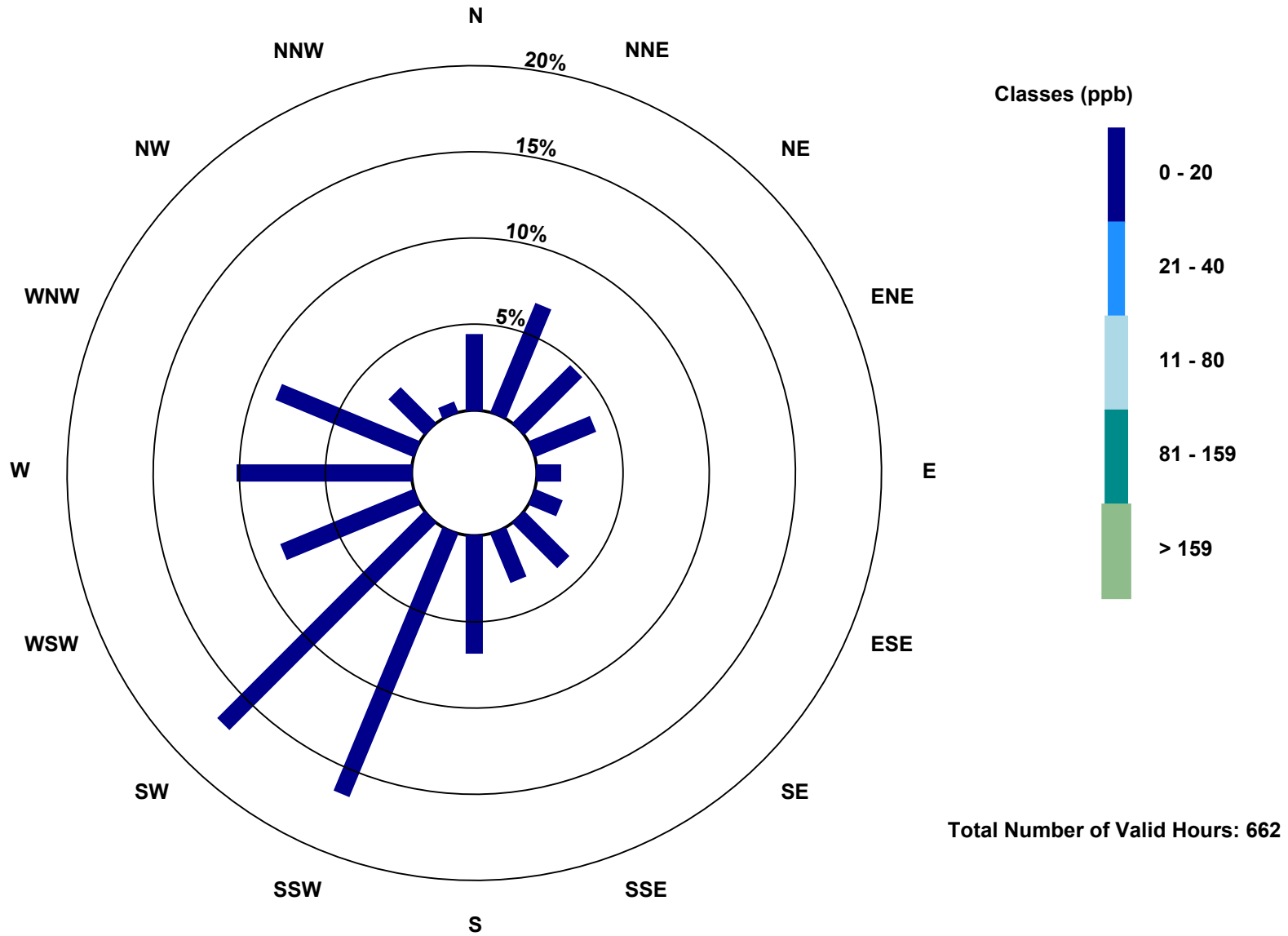
Total Number of Valid Hours: 662

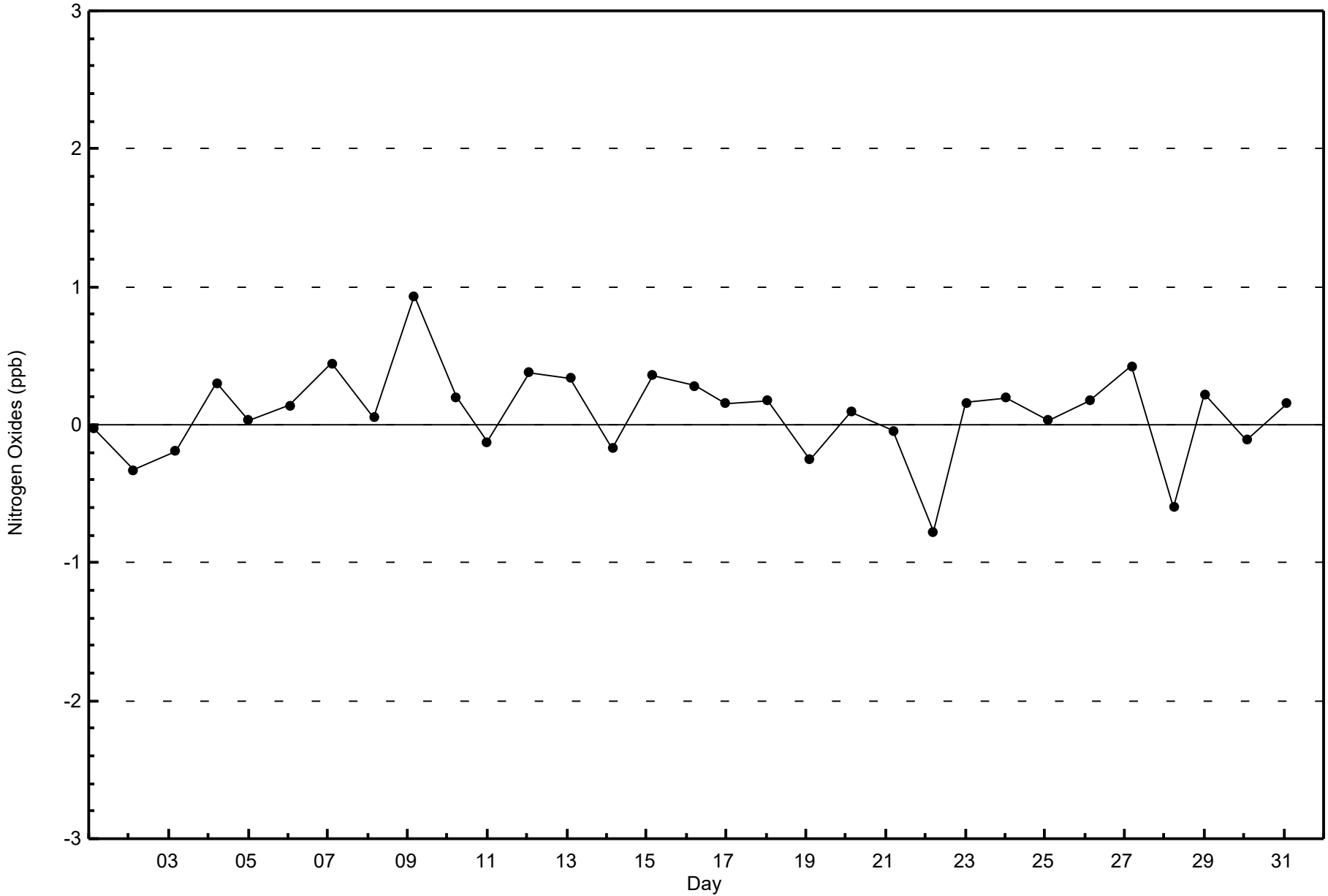
Total Number of Hours: 744



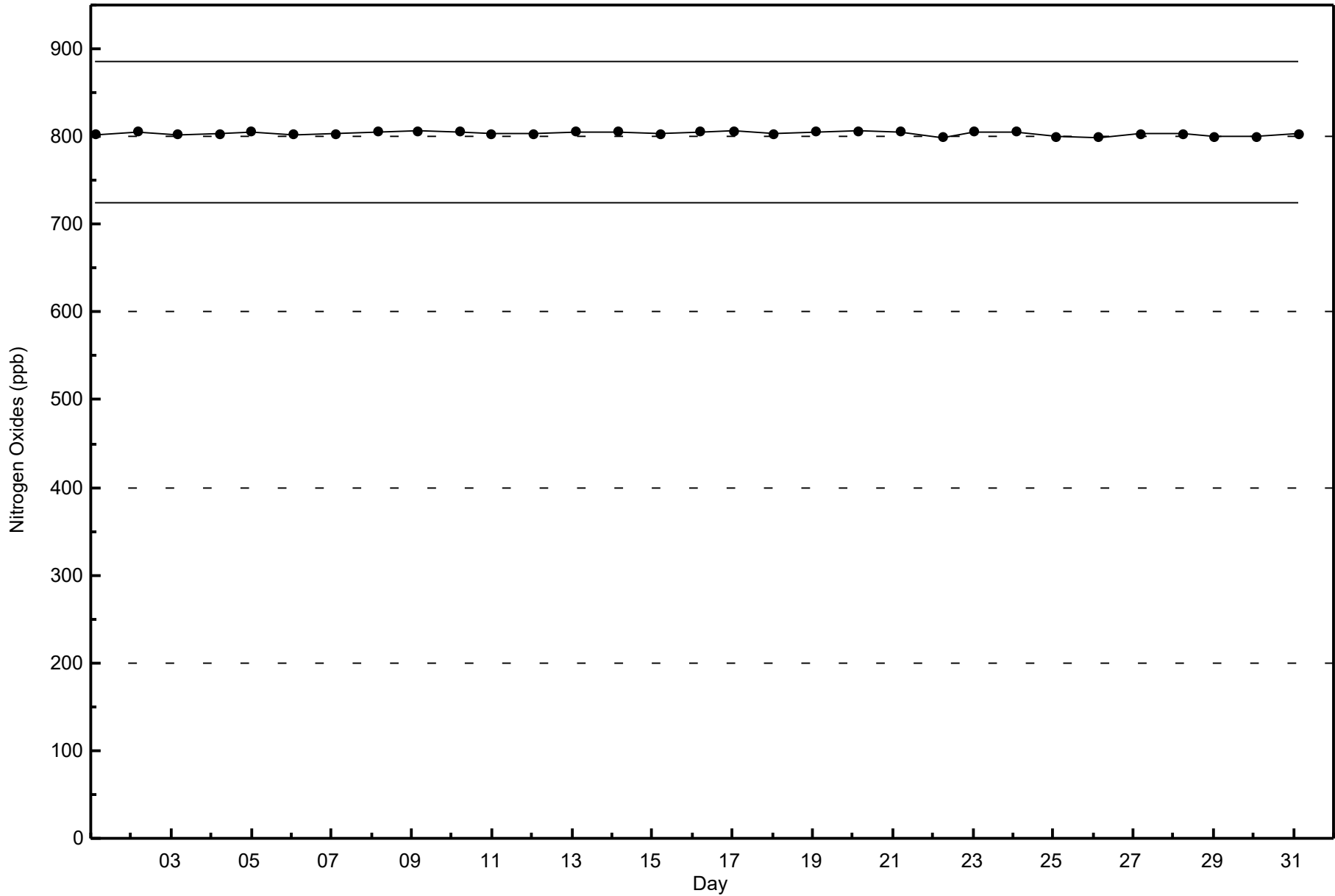
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

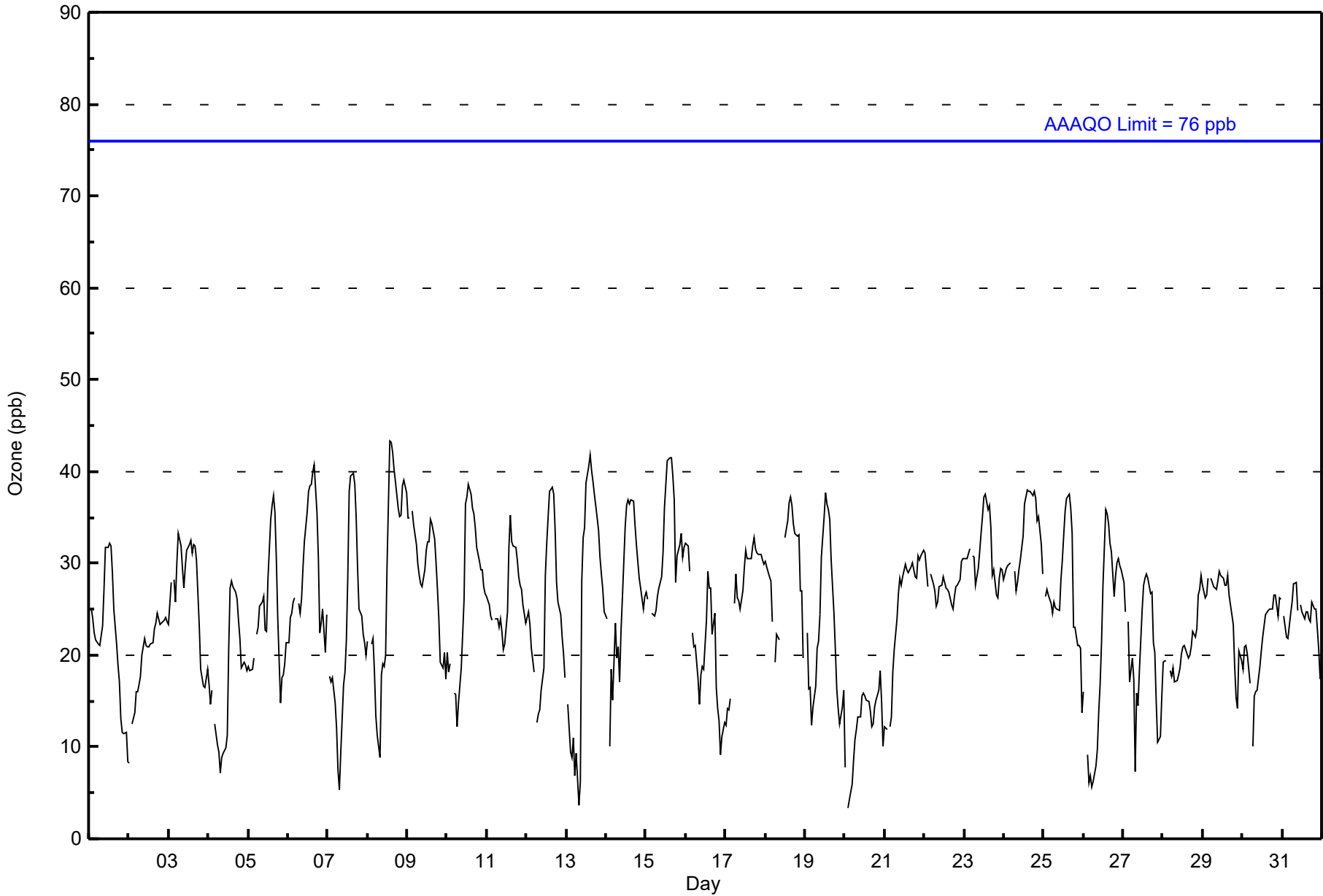
Janvier - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744									
Maximum Value: 43.4 ppb on Oct 8 14:00				Maximum Daily Average: 32.8 ppb on Oct 24		Hours of Data:																709									
Minimum Value: 3.4 ppb on Oct 20 03:00				Minimum Daily Average: 12.3 ppb on Oct 20		Hours of Missing Data:																35									
Maximum Diurnal Average: 32.4 ppb at hour 15				Minimum Diurnal Average: 19.2 ppb at hour 5		Hours of Calibration:																34									
Monthly Average: 24.86 ppb				Percentiles: P <sub>1</sub> = 6.3 P <sub>10</sub> = 14.0 Q <sub>1</sub> = 19.2 Median = 25.5 Q <sub>3</sub> = 30.3 P <sub>90</sub> = 35.6 P <sub>99</sub> = 40.8		Percent Operational Time:																99.9									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
1-Oct	Z	25.0	23.9	22.4	21.7	21.2	21.1	22.1	23.2	27.2	31.7	31.7	32.1	31.9	29.0	25.0	21.2	18.9	17.1	13.1	11.6	11.5	11.7	8.4	21.9	32.1					
2-Oct	8.2	Z	12.5	13.8	16.0	16.0	16.8	17.7	19.9	21.8	21.1	20.8	20.9	21.1	21.4	23.0	23.5	24.6	23.9	23.3	23.6	23.8	24.2	23.6	20.1	24.6					
3-Oct	23.4	27.9	Z	28.3	25.8	30.0	33.3	31.9	29.4	27.3	29.6	31.4	32.0	32.5	31.2	32.0	31.9	30.3	23.1	18.4	17.5	16.6	16.5	18.4	26.9	33.3					
4-Oct	16.8	14.7	16.1	Z	12.5	10.3	9.5	7.1	8.8	9.4	9.9	11.3	20.7	27.4	28.1	27.5	26.8	26.1	23.9	21.9	18.6	19.2	18.9	18.3	17.5	28.1					
5-Oct	18.8	18.3	18.5	19.6	Z	22.3	23.1	25.3	25.7	26.4	22.8	26.2	34.7	36.3	37.3	35.5	30.5	24.1	14.8	17.5	17.9	19.1	21.3	24.4	37.3						
6-Oct	21.3	24.1	24.6	25.8	26.3	Z	25.7	24.6	26.0	29.4	32.3	35.6	37.8	38.5	38.7	40.0	40.8	35.5	30.7	22.5	23.5	25.0	20.2	24.4	29.3	40.8					
7-Oct	Z	17.7	17.1	17.5	14.7	12.0	7.5	5.4	9.5	16.8	18.1	21.6	28.5	37.9	39.5	39.9	38.5	34.9	29.4	25.1	24.3	22.2	21.4	20.1	22.6	39.9					
8-Oct	21.6	Z	21.2	21.8	18.4	13.4	11.3	8.8	17.9	19.1	18.8	19.9	29.7	43.4	43.2	42.2	40.3	38.9	35.9	35.1	35.3	38.5	39.0	37.7	28.3	43.4					
9-Oct	35.0	35.0	Z	35.7	34.1	32.0	29.9	28.7	27.8	27.5	29.3	31.4	32.3	32.4	34.9	34.4	32.7	30.0	27.2	23.9	19.2	18.7	20.3	17.4	29.1	35.7					
10-Oct	20.2	18.1	19.1	Z	15.8	15.7	12.2	14.8	18.6	22.3	26.1	36.4	37.2	38.7	37.5	36.0	35.4	33.9	31.8	30.2	29.2	29.3	27.5	26.7	26.7	38.7					
11-Oct	26.5	25.5	24.2	23.8	Z	23.9	24.0	23.0	23.9	22.5	20.6	21.1	24.7	31.8	35.2	32.3	31.9	31.7	30.3	28.6	27.6	27.1	25.4	23.4	26.5	35.2					
12-Oct	24.1	24.7	23.4	20.7	18.1	Z	12.7	13.5	14.1	16.1	18.7	28.6	32.1	35.0	37.8	38.3	37.5	33.6	27.9	25.8	24.4	22.0	20.1	17.5	24.6	38.3					
13-Oct	Z	14.6	9.5	8.8	11.0	6.8	9.3	3.7	6.3	28.0	32.7	33.8	38.7	40.6	41.8	40.0	39.0	37.5	34.9	33.6	30.7	28.9	27.1	24.7	25.3	41.8					
14-Oct	23.9	Z	10.1	18.5	15.0	23.4	19.7	20.9	17.1	22.5	26.3	34.1	36.4	36.9	36.5	36.9	36.8	34.2	32.1	30.2	28.4	27.2	25.0	26.4	26.9	36.9					
15-Oct	26.8	26.1	Z	24.6	24.5	24.3	24.9	26.4	27.3	28.5	31.1	35.9	38.6	41.3	41.5	41.5	39.6	36.9	28.0	30.9	32.0	33.2	30.6	31.8	31.6	41.5					
16-Oct	32.2	31.9	29.2	Z	22.4	20.9	21.1	17.3	14.6	17.9	18.8	18.4	23.8	29.1	27.3	27.3	22.3	24.5	16.5	14.2	12.7	9.1	11.1	12.6	20.7	32.2					
17-Oct	12.3	14.3	14.0	15.2	Z	25.6	28.9	26.2	25.9	25.1	27.0	29.5	31.4	30.4	30.5	30.5	31.9	32.8	31.5	31.2	31.0	30.9	30.4	29.9	26.8	32.8					
18-Oct	30.2	29.6	28.5	28.1	23.7	Z	19.3	22.3	21.7	C	C	C	32.8	34.6	36.6	37.3	36.2	34.4	33.2	33.0	33.1	27.0	26.9	19.7	29.4	37.3					
19-Oct	Z	22.5	16.3	16.5	12.3	14.3	16.6	20.8	21.6	24.4	30.7	35.1	37.7	36.4	35.8	34.8	30.4	24.6	20.5	16.4	14.2	12.4	14.3	16.1	22.8	37.7					
20-Oct	7.8	Z	3.4	4.3	6.0	8.5	10.8	12.0	13.2	13.3	15.5	15.8	15.6	15.0	15.0	13.8	12.2	12.5	14.4	15.1	16.1	18.2	14.9	10.0	12.3	18.2					
21-Oct	12.2	11.9	Z	12.2	13.2	18.1	20.6	23.9	26.7	28.4	27.6	28.5	29.8	29.3	28.9	29.3	29.7	30.0	28.5	28.3	30.7	30.4	30.8	31.4	25.2	31.4					
22-Oct	31.1	29.3	27.4	Z	28.9	27.8	27.0	25.4	25.8	27.5	27.6	28.6	27.9	27.4	27.2	26.9	25.5	25.0	26.5	27.5	27.6	28.2	30.2	30.4	27.7	31.1					
23-Oct	30.6	30.4	30.5	31.5	Z	30.9	30.6	27.6	29.5	31.3	33.2	35.0	37.2	37.6	35.8	36.2	33.9	28.6	29.3	26.6	26.2	28.4	29.4	29.3	31.3	37.6					
24-Oct	28.2	29.4	29.7	29.9	30.0	Z	29.2	27.1	27.9	29.2	30.3	33.0	36.4	37.2	37.9	37.8	37.9	37.4	37.9	37.0	34.7	35.0	32.1	28.8	32.8	37.9					
25-Oct	Z	26.3	27.1	26.5	25.6	24.5	25.8	25.1	25.0	24.9	28.3	30.3	33.0	35.6	37.1	37.6	36.0	33.2	23.0	23.0	21.1	21.1	20.8	13.7	27.2	37.6					
26-Oct	16.0	Z	9.2	6.1	6.9	5.6	6.3	8.0	9.8	13.9	17.0	21.4	27.6	35.8	35.4	34.4	32.2	31.2	26.3	28.7	30.0	30.5	29.8	29.3	21.4	35.8					
27-Oct	27.9	24.7	Z	23.7	17.1	19.7	17.5	7.3	15.8	14.6	18.3	25.0	27.5	28.4	28.9	28.4	26.6	26.8	21.4	20.3	15.0	10.5	11.2	15.6	20.5	28.9					
28-Oct	19.2	19.4	19.3	Z	18.3	17.8	18.7	17.2	17.3	17.8	18.6	20.1	20.8	21.1	20.2	19.7	19.9	20.9	22.5	22.0	23.0	26.5	27.2	28.7	20.7	28.7					
29-Oct	27.6	26.3	26.5	28.4	Z	28.4	27.5	27.3	27.2	28.1	29.2	28.6	28.3	27.7	27.7	28.7	26.5	24.4	23.4	18.8	15.4	14.1	20.5	19.4	25.2	29.2					
30-Oct	18.5	20.8	21.0	20.2	16.9	Z	10.1	15.6	16.0	16.2	18.8	20.4	21.9	23.2	24.4	24.8	25.0	25.0	25.0	26.6	26.5	24.2	26.3	26.1	21.5	26.6					
31-Oct	Z	24.2	21.9	21.7	23.2	24.5	25.8	27.7	27.9	24.9	M	25.5	24.6	23.9	24.8	24.7	23.9	23.7	25.8	25.0	25.0	22.8	20.5	17.3	24.1	27.9					
		22.4	23.6	20.2	21.0	19.2	19.9	19.9	19.5	20.7	22.7	24.5	27.1	29.9	32.2	32.4	32.2	31.0	29.4	26.6	24.9	24.1	23.6	23.3	22.5	Diurnal Average					
		35.0	35.0	30.5	35.7	34.1	32.0	33.3	31.9	29.5	31.3	33.2	36.4	38.7	43.4	43.2	42.2	40.8	38.9	37.9	37.0	35.3	38.5	39.0	37.7	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 - October 2024**





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

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	203	28.63	28.63
21 - 50	506	71.37	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**  
**Janvier - October 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	19	34	6	6	4	6	6	3	19	45	12	9	8	17	2	3	199
21 - 50	9	12	25	19	5	7	17	18	26	64	95	45	65	41	16	1	465
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>	28	46	31	25	9	13	23	21	45	109	107	54	73	58	18	4	664

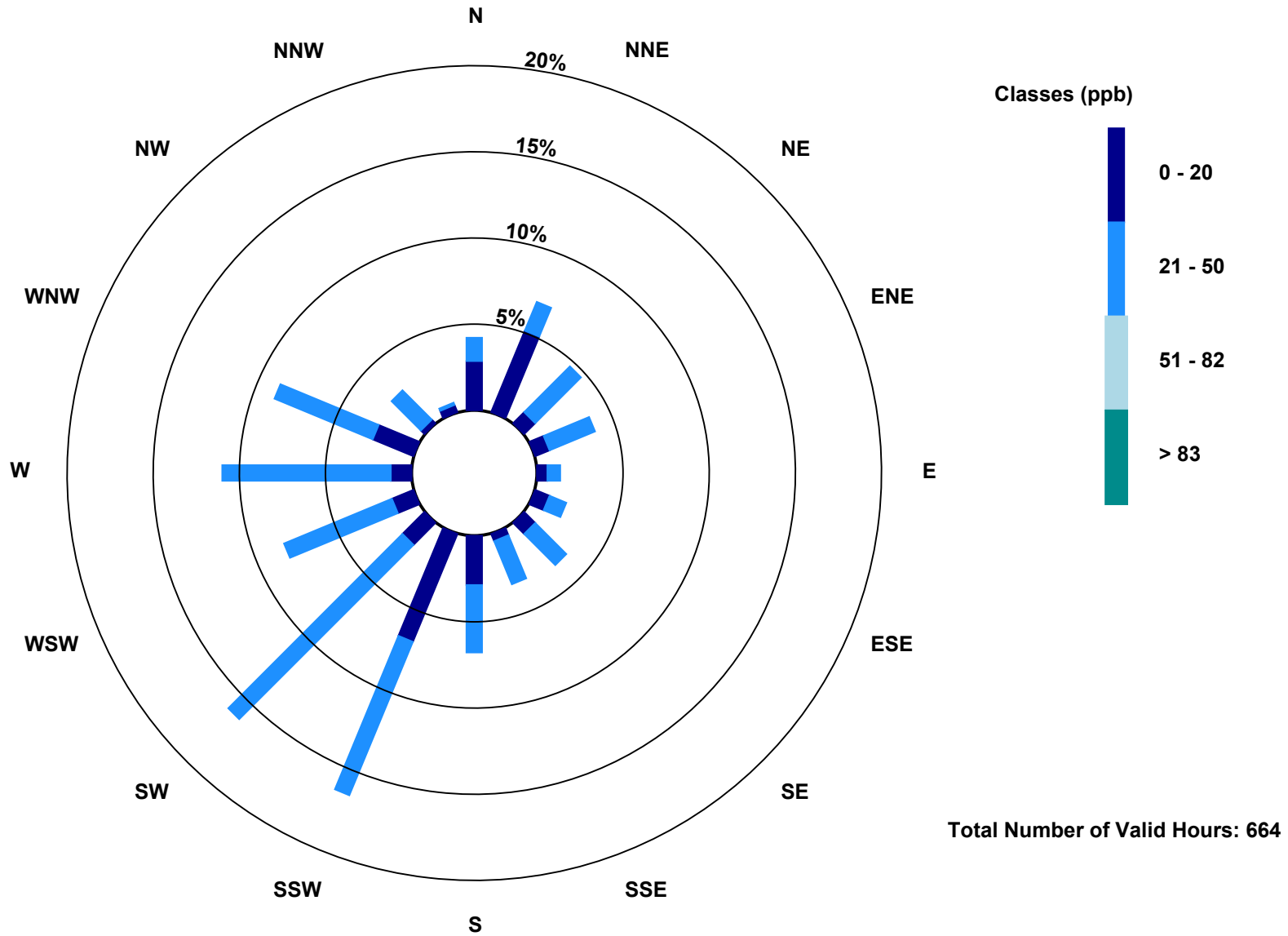
Total Number of Valid Hours: 664

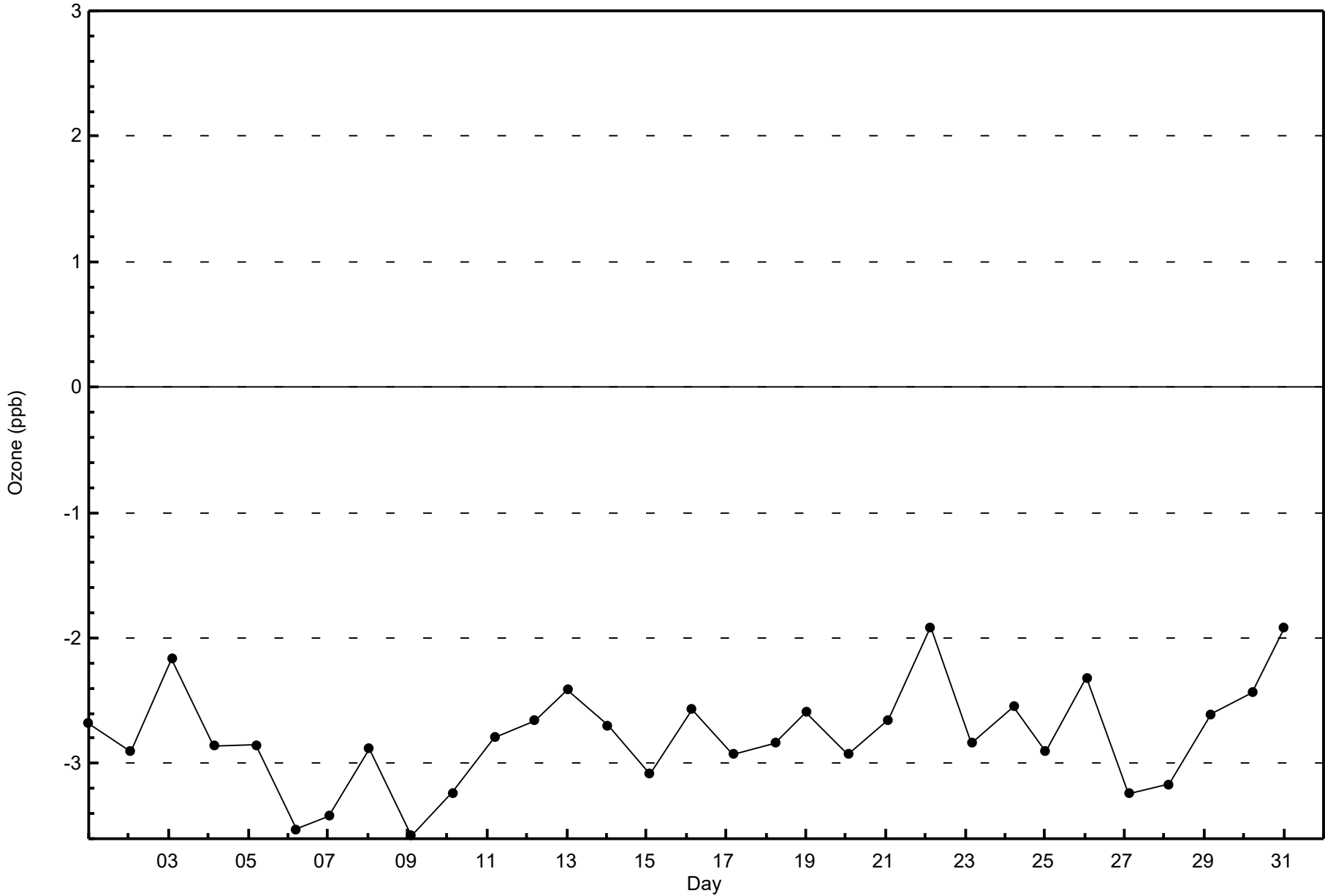
Total Number of Hours: 744

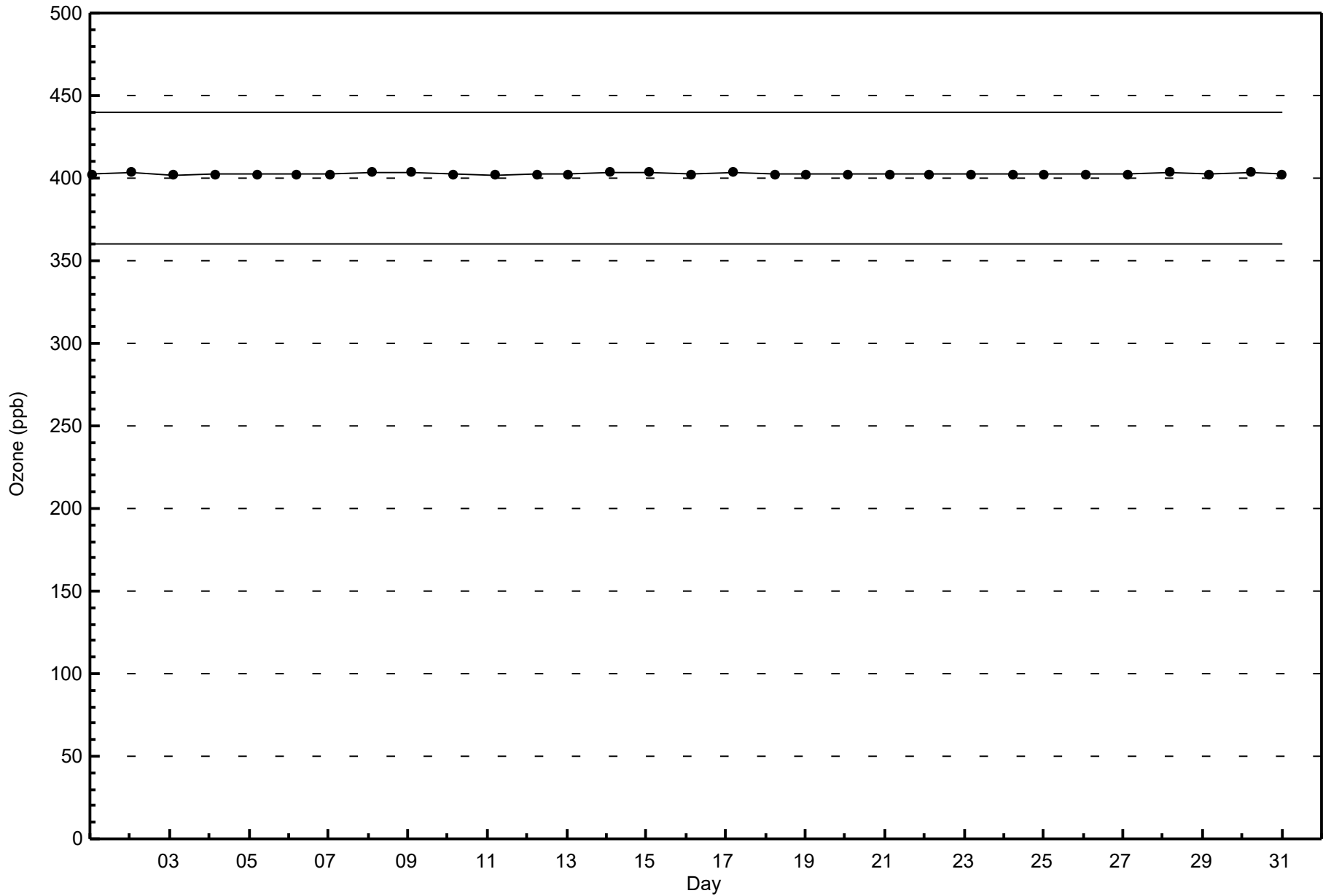


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











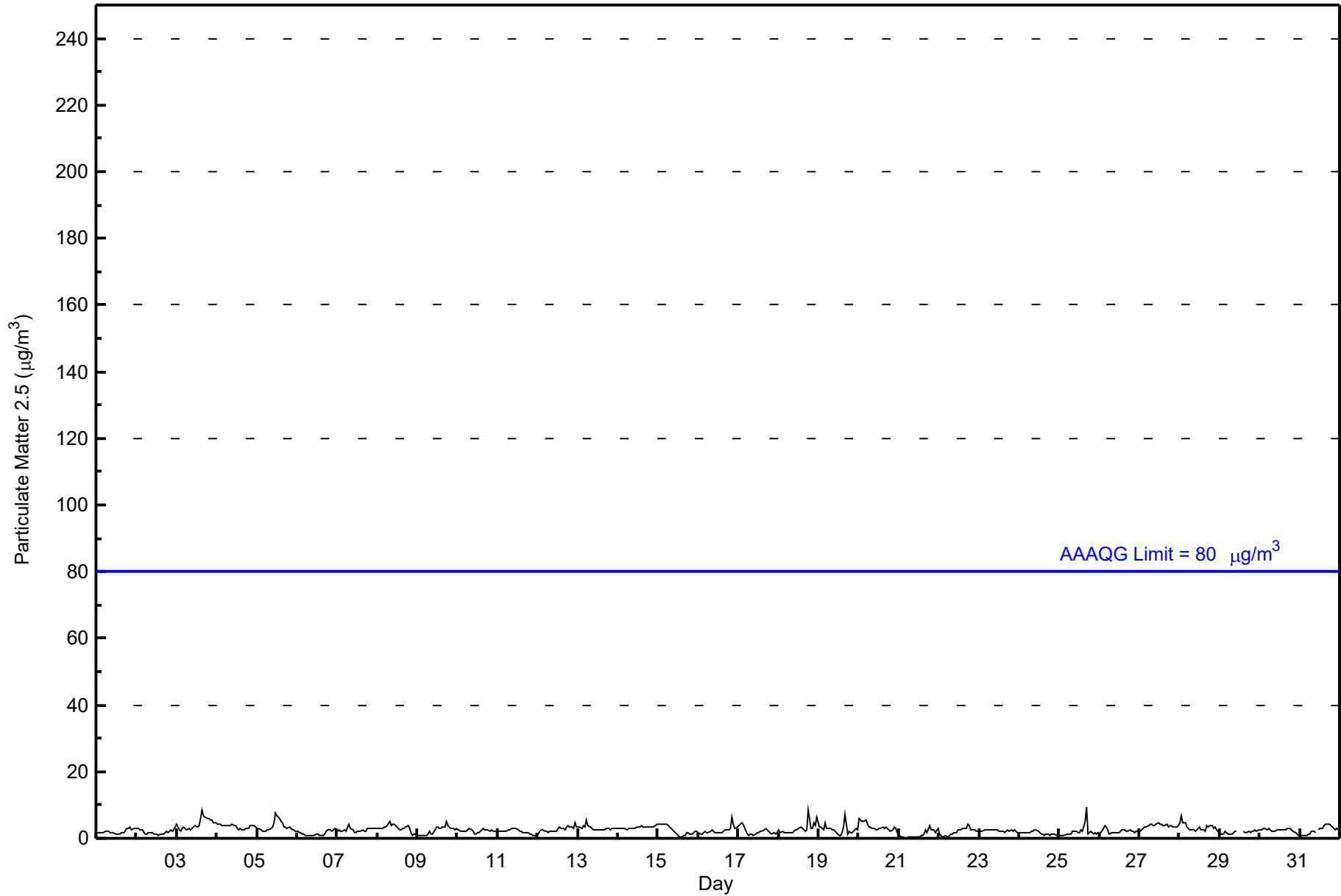
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Janvier - October 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9.4 µg/m <sup>3</sup> on Oct 25 17:00 Minimum Value: 0.0 µg/m <sup>3</sup> on Oct 21 05:00 Maximum Diurnal Average: 3.1 µg/m <sup>3</sup> at hour 17 Monthly Average: 2.53 µg/m <sup>3</sup>		Maximum Daily Average: 4.3 µg/m <sup>3</sup> on Oct 3 Minimum Daily Average: 1.2 µg/m <sup>3</sup> on Oct 21 Minimum Diurnal Average: 2.2 µg/m <sup>3</sup> at hour 7 Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.7 Median = 2.5 Q <sub>3</sub> = 3.1 P <sub>90</sub> = 4.0 P <sub>99</sub> = 6.6		Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 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-Oct	1.5	1.7	1.7	1.8	1.8	1.9	1.9	2.0	1.7	1.5	1.5	1.2	1.3	1.2	1.4	1.9	1.9	2.4	2.8	3.1	3.2	2.6	2.8	3.2	2.0	3.2	
2-Oct	3.2	2.9	2.6	2.5	1.8	1.3	1.2	1.5	1.8	1.6	1.1	1.4	1.1	1.0	1.2	1.2	1.4	1.6	2.2	1.5	2.6	2.1	2.6	3.2	1.8	3.2	
3-Oct	4.2	2.4	2.1	3.1	3.6	3.0	2.5	2.8	2.4	3.0	3.4	3.6	3.5	3.7	6.1	8.4	6.7	6.1	5.9	5.7	5.6	5.3	4.6	4.5	4.3	8.4	
4-Oct	4.4	4.3	4.2	3.9	3.9	3.8	3.9	4.0	3.9	4.0	4.0	3.7	3.2	2.5	2.8	2.6	2.6	2.8	3.2	3.1	3.7	3.8	3.7	3.3	3.5	4.4	
5-Oct	3.0	2.9	2.4	2.1	2.2	2.2	2.4	2.5	2.9	3.3	4.7	7.6	6.8	6.0	5.0	4.7	3.5	3.3	3.1	3.4	2.8	2.5	2.4	2.2	3.5	7.6	
6-Oct	2.0	1.8	1.6	1.4	1.2	1.0	0.9	0.9	0.7	0.8	1.0	1.3	1.4	1.0	1.1	0.9	1.0	2.2	2.3	2.5	2.6	2.2	2.8	2.3	1.5	2.8	
7-Oct	2.1	2.6	2.2	2.2	2.4	2.3	3.3	4.3	2.9	2.4	1.9	1.9	2.1	2.2	2.2	2.4	2.2	2.3	2.8	2.8	3.1	2.8	2.8	3.0	2.5	4.3	
8-Oct	2.9	3.0	3.0	3.1	3.2	3.5	3.9	5.0	3.9	4.2	4.0	3.9	3.3	2.3	2.6	3.0	2.9	3.4	3.6	3.1	1.8	0.9	1.1	1.3	3.0	5.0	
9-Oct	1.0	1.0	0.9	0.9	1.0	1.0	1.3	2.0	1.3	1.4	2.8	3.3	3.2	3.1	2.9	3.4	3.3	4.9	3.8	3.3	3.1	3.1	2.7	3.0	2.4	4.9	
10-Oct	2.6	2.4	2.3	2.2	2.3	2.1	2.6	2.8	2.7	1.9	1.4	1.2	1.7	1.7	2.7	2.8	2.7	2.6	2.4	2.2	2.5	2.1	2.2	2.0	2.2	2.8	
11-Oct	2.1	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.8	2.8	3.0	3.0	2.7	2.0	2.1	1.6	1.7	1.6	1.5	1.2	1.2	0.9	0.9	0.9	2.0	3.0	
12-Oct	1.2	1.9	2.4	2.5	2.3	2.0	1.9	1.9	1.9	1.9	2.1	1.9	3.1	3.3	2.9	2.8	2.7	3.2	3.6	3.3	3.2	3.0	4.5	3.5	2.6	4.5	
13-Oct	3.3	3.3	3.1	3.9	3.6	5.5	3.8	3.3	3.0	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.9	2.8	2.8	2.9	2.9	2.9	2.9	3.0	5.5	
14-Oct	3.0	3.1	3.1	2.9	2.9	2.7	2.8	2.8	3.2	2.8	3.0	3.2	3.5	3.4	3.8	3.4	3.3	3.3	3.4	3.3	3.4	3.3	3.4	3.9	4.3	3.2	4.3
15-Oct	4.2	4.3	4.3	4.3	4.3	4.1	3.6	3.3	2.9	2.2	1.6	1.1	0.8	0.6	0.5	0.7	1.0	1.5	1.9	1.4	1.3	1.6	2.0	2.2	2.3	4.3	
16-Oct	1.6	1.3	1.4	1.5	1.9	1.7	1.7	2.3	2.7	2.2	1.9	1.7	1.8	1.6	1.6	2.2	2.5	2.5	2.7	3.0	6.3	4.2	2.8	3.2	2.4	6.3	
17-Oct	3.6	4.3	4.8	4.2	2.3	1.2	1.0	1.2	1.1	1.0	1.2	1.8	1.7	2.1	2.1	2.5	2.9	2.6	2.1	1.6	1.4	1.6	1.2	1.7	2.1	4.8	
18-Oct	2.4	1.6	2.2	1.6	1.6	1.5	1.6	1.7	1.6	2.0	2.4	2.6	3.1	3.5	3.1	2.6	2.2	2.7	8.6	2.8	2.8	4.5	3.6	6.4	2.9	8.6	
19-Oct	3.5	3.4	2.8	2.7	4.7	2.9	2.9	2.8	2.6	2.4	2.0	1.3	0.8	0.8	1.6	3.5	7.2	1.5	1.9	1.6	1.7	2.0	2.8	2.7	2.6	7.2	
20-Oct	6.0	5.4	5.2	5.3	5.5	4.2	3.3	3.4	2.8	2.8	2.6	2.6	3.1	2.9	3.2	3.1	3.3	3.0	2.4	2.3	2.5	3.4	3.2	1.6	3.5	6.0	
21-Oct	0.7	0.6	0.3	0.1	0.0	0.1	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.9	0.9	1.4	2.6	1.6	3.8	2.5	2.5	2.5	1.7	3.0	1.2	3.8	
22-Oct	1.3	0.7	0.4	0.4	0.8	0.5	0.7	1.4	1.3	1.6	1.7	2.6	2.7	2.7	2.8	3.0	3.1	4.3	3.9	2.7	2.6	2.4	2.2	2.0	2.0	4.3	
23-Oct	2.0	2.3	2.2	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.1	2.0	1.9	1.7	2.2	2.6	2.1	2.5	2.3	2.4	2.0	1.8	2.3	2.6	
24-Oct	1.7	1.8	1.7	1.6	1.7	1.7	1.8	2.1	2.1	2.3	2.5	2.2	1.6	1.3	1.1	1.0	1.1	1.2	1.0	1.1	1.4	1.1	1.0	1.1	1.5	2.5	
25-Oct	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.4	2.0	2.0	2.0	1.8	1.7	2.4	2.0	5.0	9.4	1.4	1.6	2.0	1.3	1.6	1.4	1.8	2.0	9.4	
26-Oct	1.5	1.5	3.1	3.9	3.5	2.4	1.4	1.8	1.7	1.6	1.6	1.7	1.9	2.5	2.5	2.4	2.2	2.1	2.5	1.9	1.9	1.9	2.1	2.2	2.2	3.9	
27-Oct	2.2	2.4	2.8	3.6	3.5	4.0	4.2	4.4	4.0	3.9	4.2	4.5	4.4	4.2	4.0	4.0	4.1	3.6	3.7	3.6	3.5	3.2	3.4	3.7	3.7	4.5	
28-Oct	4.9	6.6	4.7	4.5	3.6	2.8	2.5	2.5	2.5	2.2	2.5	2.8	3.2	2.7	2.5	2.3	3.7	3.5	4.0	3.8	2.9	3.2	2.5	2.1	3.3	6.6	
29-Oct	1.5	1.2	1.3	2.3	1.8	1.2	1.2	1.2	1.5	1.9	2.2	C	C	C	2.2	1.8	1.9	1.9	1.6	2.0	2.1	2.4	2.0	2.4	1.8	2.4	
30-Oct	2.3	2.6	2.8	2.9	2.8	2.8	2.6	2.3	2.2	2.3	2.5	2.5	2.4	2.5	2.6	2.6	2.8	2.9	3.1	2.6	1.9	1.7	1.2	0.9	2.4	3.1	
31-Oct	0.8	0.8	0.8	0.8	0.8	1.2	1.2	2.1	2.2	1.7	M	2.5	2.8	3.0	3.7	4.1	4.2	4.3	4.2	3.5	2.9	2.6	2.8	2.6	2.4	4.3	
																								Diurnal Average			
																								Diurnal Maximum			
																								2.5 6.0			
																								2.5 6.6			
																								2.4 5.2			
																								2.5 5.3			
																								2.5 5.5			
																								2.3 5.5			
																								2.2 4.2			
																								2.4 5.0			
																								2.3 4.0			
																								2.2 4.2			
																								2.2 4.7			
																								2.3 7.6			
																								2.5 6.8			
																								2.4 6.0			
																								2.5 6.1			
																								2.8 8.4			
																								3.1 9.4			
																								2.8 6.1			
																								3.0 8.6			
																								2.7 5.7			
																								2.7 6.3			
																								2.6 5.3			
																								2.5 4.6			
																								2.6 6.4			
																								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 - October 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	722	97.57	97.57
6 - 15	18	2.43	100.00
16 - 25	0	0.00	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 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>**  
**Janvier - October 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	29	47	30	25	9	13	25	20	45	114	119	54	65	56	19	4	674
6 - 15	1	1	1	0	0	0	0	1	2	1	0	2	6	3	0	0	18
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	30	48	31	25	9	13	25	21	47	115	119	56	71	59	19	4	692

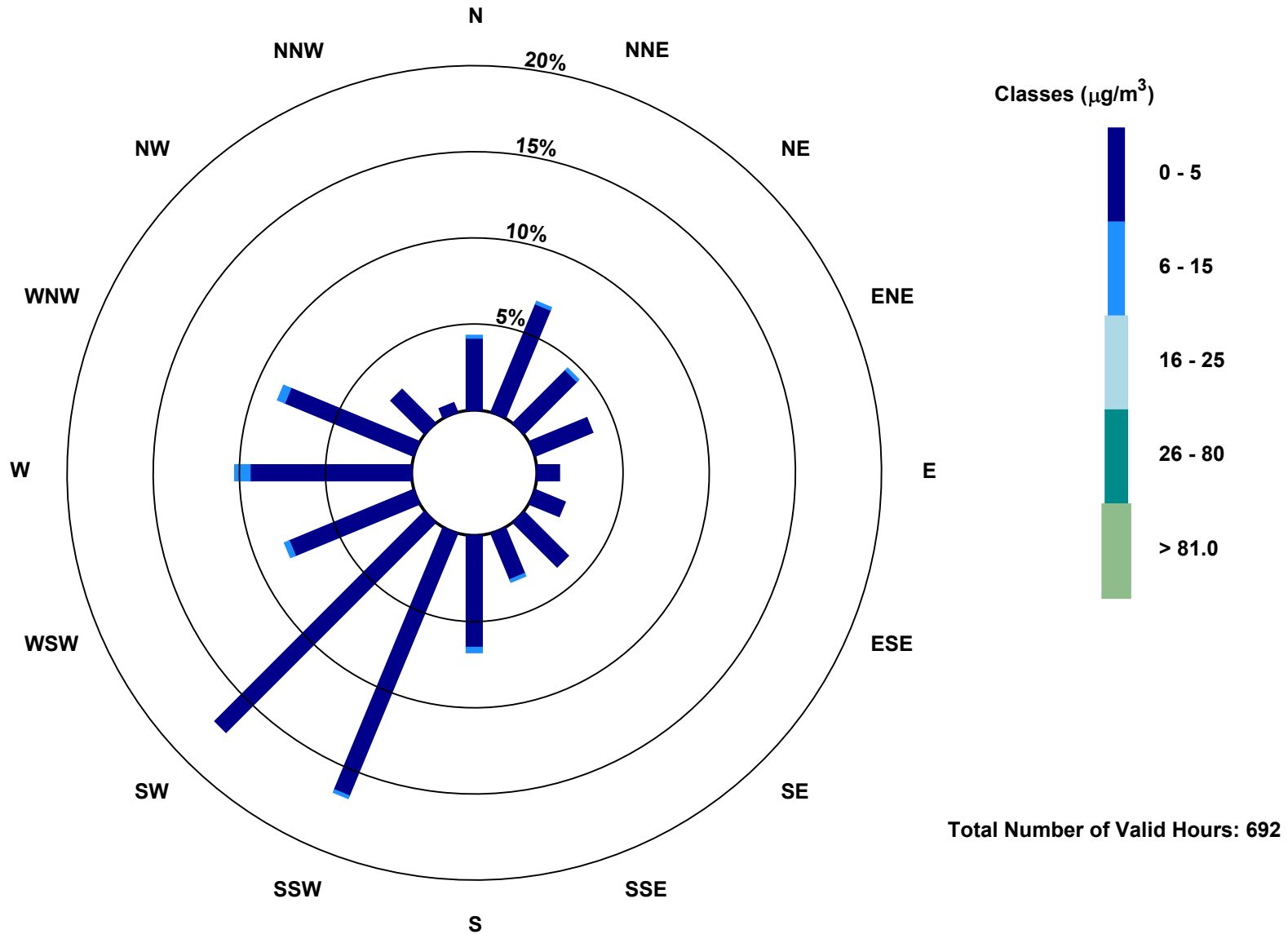
Total Number of Valid Hours: 692

Total Number of Hours: 744



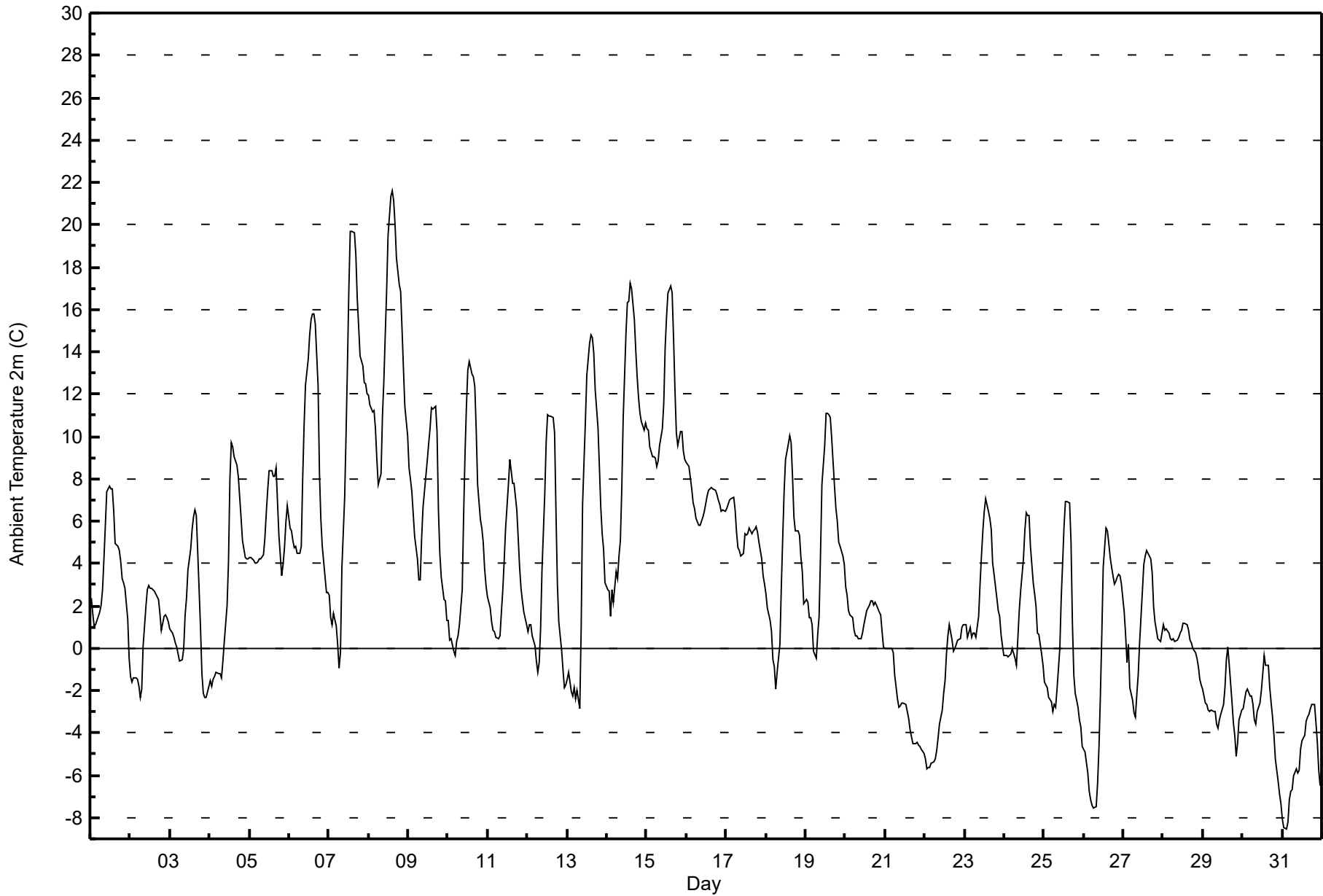
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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





Maximum Value: 21.6 C on Oct 8 15:00																				Maximum Daily Average: 14.3 C on Oct 8					Hours in Service: 744																								
Minimum Value: -8.6 C on Oct 31 03:00																				Minimum Daily Average: -5.4 C on Oct 31					Hours of Data: 744																								
Maximum Diurnal Average: 7.8 C at hour 15																				Minimum Diurnal Average: 0.2 C at hour 7					Hours of Missing Data: 0																								
Monthly Average: 3.39 C																				Percentiles: P <sub>1</sub> = -7.3 P <sub>10</sub> = -3.0 Q <sub>1</sub> = -0.4 Median = 2.5 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 11.0 P <sub>99</sub> = 19.1					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-Oct	2.4	1.6	1.0	1.1	1.3	1.7	2.0	2.8	4.2	5.8	7.4	7.6	7.5	7.5	6.5	5.0	4.8	4.6	4.1	3.3	3.1	2.9	1.4	-0.5	3.7	7.6																							
2-Oct	-1.3	-1.6	-1.4	-1.4	-1.5	-1.8	-2.3	-1.9	0.1	2.0	2.8	3.0	2.8	2.9	2.7	2.5	2.4	2.3	1.6	0.9	1.5	1.6	1.4	1.2	0.8	3.0																							
3-Oct	0.9	0.7	0.5	0.3	0.1	-0.2	-0.6	-0.5	0.0	1.6	2.3	3.7	4.7	5.6	6.2	6.6	6.2	4.6	1.0	-1.2	-2.1	-2.3	-2.3	-1.8	1.4	6.6																							
4-Oct	-1.5	-1.8	-1.5	-1.3	-1.2	-1.2	-1.2	-1.4	-0.6	0.3	2.0	4.1	8.0	9.7	9.5	9.0	8.6	8.1	7.1	6.1	5.1	4.3	4.2	4.2	3.3	9.7																							
5-Oct	4.3	4.3	4.1	4.0	4.0	4.1	4.2	4.2	4.4	5.2	6.4	7.5	8.4	8.4	8.1	8.1	8.5	6.9	5.4	3.4	4.0	4.8	5.9	6.7	5.6	8.5																							
6-Oct	5.7	5.6	5.1	4.8	4.8	4.5	4.5	4.8	8.0	10.5	12.4	13.7	14.8	15.5	15.8	15.8	15.3	12.4	8.2	6.1	4.8	4.1	2.6	2.7	8.4	15.8																							
7-Oct	2.5	1.4	1.1	1.6	1.0	0.2	-0.9	-0.2	3.8	7.1	10.1	13.4	17.0	19.7	19.7	19.7	18.5	16.5	15.2	13.8	13.3	12.5	12.5	12.0	9.7	19.7																							
8-Oct	11.9	11.5	11.2	11.2	10.4	8.9	7.7	8.3	11.0	12.6	14.8	16.9	19.5	21.4	21.6	21.1	20.0	18.5	17.2	16.8	15.0	13.2	11.4	10.1	14.3	21.6																							
9-Oct	8.5	8.0	7.4	6.3	5.3	4.2	3.2	3.2	5.2	6.7	8.1	8.8	9.6	10.4	11.4	11.3	11.4	10.2	6.5	4.5	3.4	2.3	2.2	1.3	6.6	11.4																							
10-Oct	1.3	0.4	0.4	-0.1	-0.4	0.3	0.6	1.1	2.8	6.3	9.2	11.4	13.1	13.6	12.9	12.8	12.4	10.3	7.7	6.0	5.7	5.0	3.8	3.0	5.8	13.6																							
11-Oct	2.4	1.9	1.2	0.8	0.8	0.5	0.4	0.6	1.7	2.7	4.2	5.7	7.7	8.9	8.4	7.8	7.8	6.5	5.2	3.8	2.8	2.2	1.7	1.1	3.6	8.9																							
12-Oct	0.8	1.1	1.1	0.6	0.1	-0.6	-1.1	-0.7	0.9	3.7	7.3	9.8	11.0	11.0	11.0	10.9	10.2	6.4	3.0	1.3	-0.1	-1.0	-1.9	-1.7	3.5	11.0																							
13-Oct	-1.5	-1.1	-2.1	-2.3	-1.9	-2.4	-2.0	-2.9	1.0	6.8	8.8	10.7	12.9	14.4	14.8	14.6	13.9	12.2	10.4	8.6	6.6	5.4	4.7	3.1	5.5	14.8																							
14-Oct	2.7	2.7	1.5	2.8	2.1	3.6	3.3	4.3	5.1	7.5	10.8	14.8	16.3	16.4	17.2	17.0	15.5	14.1	12.8	11.8	11.1	10.7	10.3	10.6	9.4	17.2																							
15-Oct	10.4	10.3	9.5	9.0	9.0	9.0	8.6	8.9	9.6	10.3	11.6	14.2	15.7	16.8	17.1	16.8	14.7	12.2	10.1	9.6	10.2	10.2	9.3	8.9	11.3	17.1																							
16-Oct	8.8	8.6	8.0	7.5	6.9	6.6	6.1	5.8	5.8	6.0	6.2	6.4	7.2	7.5	7.5	7.6	7.5	7.5	7.2	7.0	6.8	6.5	6.5	6.5	7.0	8.8																							
17-Oct	6.6	6.8	7.0	7.1	7.1	6.5	5.5	4.8	4.6	4.3	4.5	5.4	5.3	5.4	5.7	5.4	5.5	5.6	5.7	5.5	5.0	4.2	3.4	3.0	5.4	7.1																							
18-Oct	2.6	1.9	1.3	0.8	-0.5	-0.8	-1.9	-1.2	0.2	2.9	5.2	7.4	8.9	9.6	10.0	9.7	8.1	6.2	5.5	5.5	5.3	4.3	3.6	2.1	4.0	10.0																							
19-Oct	2.3	2.2	1.4	1.4	1.1	-0.1	-0.5	0.6	1.5	4.4	7.7	9.6	11.1	11.1	11.0	10.9	9.9	7.7	6.6	6.0	5.0	4.8	4.4	3.9	5.2	11.1																							
20-Oct	2.9	2.5	1.8	1.5	1.4	0.8	0.6	0.6	0.5	0.4	0.7	1.1	1.5	1.8	2.0	2.2	2.2	2.0	2.2	2.1	1.7	1.5	0.8	0.0	1.5	2.9																							
21-Oct	0.0	0.0	0.0	0.0	0.0	-0.2	-1.3	-2.4	-2.8	-2.7	-2.6	-2.6	-2.7	-3.0	-3.3	-3.8	-4.2	-4.5	-4.5	-4.4	-4.6	-4.7	-4.8	-5.0	-2.7	0.0																							
22-Oct	-5.3	-5.7	-5.7	-5.6	-5.5	-5.3	-5.2	-4.8	-4.2	-3.6	-2.9	-2.1	-1.5	-0.3	0.6	1.1	0.4	-0.2	0.0	0.2	0.4	0.4	1.0	1.1	-2.2	1.1																							
23-Oct	1.1	1.1	0.5	1.0	0.5	0.7	0.7	0.5	1.5	3.0	4.3	5.6	6.5	7.0	6.5	6.1	5.6	4.0	3.5	2.4	1.8	1.5	0.6	0.1	2.8	7.0																							
24-Oct	-0.3	-0.3	-0.4	-0.4	-0.3	0.0	-0.4	-0.8	0.5	1.7	2.7	4.2	5.6	6.4	6.3	6.3	4.8	3.1	2.6	1.9	0.7	0.7	-0.3	-0.8	1.8	6.4																							
25-Oct	-1.6	-1.7	-1.8	-2.3	-2.5	-3.0	-2.6	-2.8	-1.9	0.0	2.4	4.1	5.8	6.9	6.9	6.9	5.0	1.2	-1.3	-2.1	-2.8	-3.4	-3.7	-4.6	0.0	6.9																							
26-Oct	-4.7	-4.9	-5.9	-6.8	-7.1	-7.4	-7.5	-7.5	-6.4	-4.6	-2.2	0.7	3.9	5.6	5.5	4.9	4.3	3.8	3.0	3.2	3.4	3.5	3.4	3.0	-0.7	5.6																							
27-Oct	1.7	0.7	-0.6	0.2	-1.8	-2.4	-3.0	-3.2	-2.2	-1.3	0.2	2.7	4.0	4.3	4.6	4.5	4.2	3.6	2.0	1.3	0.9	0.4	0.3	0.7	0.9	4.6																							
28-Oct	1.1	0.9	0.9	0.7	0.4	0.4	0.4	0.3	0.4	0.5	0.7	0.9	1.2	1.2	1.1	0.8	0.4	0.2	0.0	-0.2	-0.4	-0.9	-1.4	-1.7	0.3	1.2																							
29-Oct	-1.9	-2.6	-2.7	-2.9	-3.0	-2.9	-3.0	-3.0	-3.6	-3.8	-3.4	-3.1	-2.7	-1.9	-0.5	0.0	-0.8	-2.6	-3.5	-4.1	-5.1	-4.5	-3.3	-2.9	-2.8	0.0																							
30-Oct	-2.9	-2.5	-2.1	-1.9	-2.3	-2.3	-2.6	-3.4	-3.6	-3.0	-2.6	-2.0	-1.2	-0.4	-0.8	-0.8	-1.9	-2.6	-3.3	-4.1	-5.2	-6.3	-6.9	-7.4	-3.0	-0.4																							
31-Oct	-8.1	-8.5	-8.6	-8.2	-7.2	-6.8	-6.7	-6.1	-5.7	-5.9	-5.7	-4.7	-4.4	-4.1	-3.5	-3.2	-3.1	-2.9	-2.7	-2.6	-3.5	-4.5	-5.7	-6.5	-5.4	-2.6																							
																								1.7	1.4	1.1	1.0	0.7	0.5	0.2	0.3	1.3	2.8	4.3	5.8	7.0	7.7	7.8	7.7	7.0	5.7	4.5	3.6	3.0	2.6	2.1	1.7	Diurnal Average	
																								11.9	11.5	11.2	11.2	10.4	9.0	8.6	8.9	11.0	12.6	14.8	16.9	19.5	21.4	21.6	21.1	20.0	18.5	17.2	16.8	15.0	13.2	12.5	12.0	Diurnal Maximum	





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

**Ambient Temperature 2m (AT2) - C**  
**Janvier - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	207	27.82	27.82
0 - 10	435	58.47	86.29
10 - 20	99	13.31	99.60
> 20	3	0.40	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





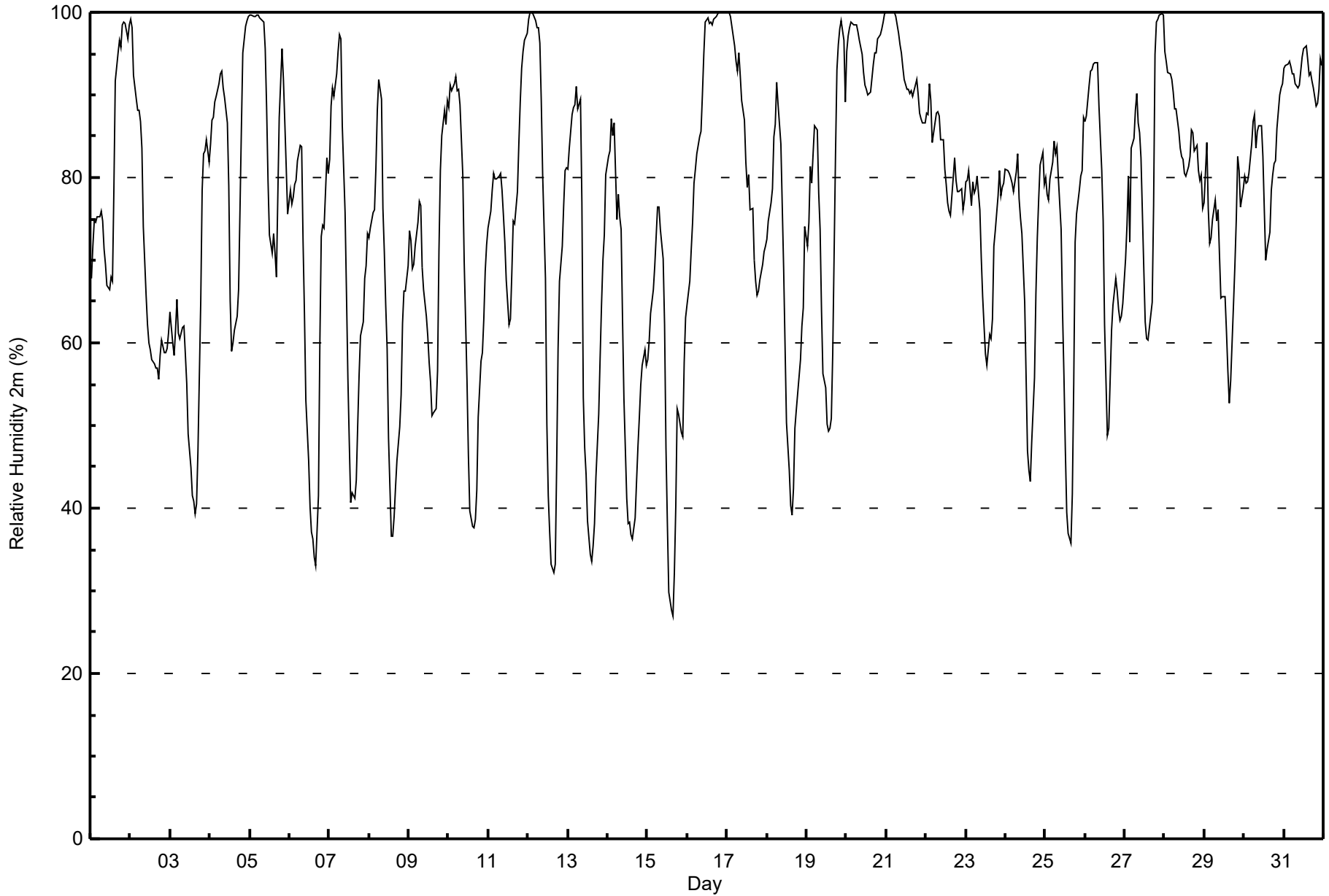
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**

**Janvier - October 2024**

<b>Maximum Value: 100.0 % on Oct 12 03:00</b> <b>Maximum Daily Average: 95.6 % on Oct 20</b>																						Hours in Service: 744 Hours of Data: 744				
<b>Minimum Value: 26.9 % on Oct 15 16:00</b> <b>Minimum Daily Average: 54.7 % on Oct 15</b> <b>Maximum Diurnal Average: 86.6 % at hour 7</b> <b>Minimum Diurnal Average: 57.8 % at hour 15</b> <b>Monthly Average: 75.24 %</b> <b>Percentiles: P<sub>1</sub> = 33.3 P<sub>10</sub> = 49.0 Q<sub>1</sub> = 63.2 Median = 78.4 Q<sub>3</sub> = 89.2 P<sub>90</sub> = 96.6 P<sub>99</sub> = 100.0</b>																						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-Oct	67.8	71.7	74.8	74.6	75.3	75.3	75.9	74.8	71.4	69.4	66.9	66.5	67.9	67.5	78.5	91.7	95.1	96.5	95.8	98.4	98.8	98.7	96.7	98.4	81.2	98.8
2-Oct	99.1	98.1	92.3	89.5	88.2	88.2	86.7	83.6	74.0	65.7	62.1	60.0	59.2	58.0	57.5	57.0	56.9	55.5	58.4	60.4	58.8	58.9	59.3	61.2	70.4	99.1
3-Oct	63.8	60.0	58.5	61.5	65.2	61.1	60.5	61.9	62.1	58.6	55.0	48.9	44.9	41.5	40.8	39.4	40.5	46.9	65.2	78.4	82.9	83.3	84.6	81.8	60.3	84.6
4-Oct	84.1	86.9	87.3	89.2	89.8	91.3	92.5	92.9	90.8	89.6	86.6	79.0	65.1	59.0	60.1	61.5	63.2	66.5	76.1	85.9	95.1	98.2	99.0	99.6	82.9	99.6
5-Oct	99.7	99.6	99.6	99.5	99.7	99.6	99.3	99.2	98.8	95.6	88.4	79.7	73.0	70.9	73.3	70.9	68.1	77.8	87.2	95.6	91.9	86.6	81.2	75.5	87.9	99.7
6-Oct	78.5	76.8	77.6	79.2	79.7	82.1	83.8	83.7	72.4	63.6	53.0	45.7	40.1	37.1	36.2	34.1	33.0	41.5	60.0	73.0	74.2	73.9	82.3	80.5	64.2	83.8
7-Oct	82.1	88.7	90.8	89.9	92.5	95.2	97.3	96.8	86.3	75.8	65.9	55.8	48.0	40.6	41.9	41.1	43.3	50.0	56.1	60.8	62.6	67.9	69.3	73.2	69.7	97.3
8-Oct	72.7	74.0	75.8	76.0	81.2	88.1	91.9	89.5	76.3	71.1	64.6	59.3	48.4	36.6	36.6	39.0	42.5	45.8	49.9	53.8	62.4	66.3	66.2	69.2	64.0	91.9
9-Oct	73.5	72.4	69.1	69.6	71.7	74.6	77.2	76.6	69.1	66.5	63.3	60.8	57.6	55.3	51.1	51.5	52.0	56.5	71.2	80.8	85.1	88.2	86.5	89.3	69.5	89.3
10-Oct	88.4	91.2	90.5	91.3	92.2	90.4	90.8	88.8	80.3	69.8	62.7	55.5	46.4	39.6	37.8	37.7	38.6	42.3	51.1	57.7	58.8	62.8	68.7	71.9	66.9	92.2
11-Oct	74.0	75.8	78.5	80.5	79.9	79.8	80.1	80.5	78.4	75.4	72.3	67.6	62.3	62.9	68.5	74.7	74.4	78.3	84.1	89.2	93.1	95.3	96.6	97.5	79.1	97.5
12-Oct	99.2	100.0	100.0	99.8	99.1	98.1	98.2	96.2	89.4	80.4	67.9	50.2	41.6	37.2	33.2	32.3	33.2	45.2	59.3	67.5	71.8	76.6	80.8	81.2	72.4	100.0
13-Oct	81.0	83.6	87.6	88.6	88.8	91.0	88.3	89.5	77.0	53.5	47.3	44.1	38.4	34.4	33.5	35.4	38.1	43.7	51.4	58.1	64.5	70.0	73.1	80.3	64.2	91.0
14-Oct	82.6	83.3	87.2	85.2	86.6	75.0	77.9	75.2	73.8	62.8	53.2	41.1	38.2	38.3	36.7	36.3	38.7	43.3	47.5	51.0	54.9	57.3	59.2	57.3	60.1	87.2
15-Oct	58.0	60.3	63.6	66.5	69.2	72.9	76.5	76.5	73.8	70.2	62.3	47.2	38.1	29.8	27.5	26.9	32.2	40.1	52.0	51.3	49.2	48.6	57.6	63.0	54.7	76.5
16-Oct	64.5	67.4	71.2	74.6	79.3	81.1	82.9	85.0	85.6	90.1	95.0	98.8	99.4	98.6	98.8	98.6	99.2	99.5	99.9	100.0	100.0	100.0	100.0	100.0	90.4	100.0
17-Oct	100.0	100.0	99.5	98.3	96.0	94.1	92.9	95.2	92.3	89.3	86.9	81.9	78.9	80.4	76.1	76.3	70.0	67.4	65.8	66.3	67.6	69.5	71.0	71.7	82.8	100.0
18-Oct	72.6	74.7	76.9	78.6	84.9	86.5	91.6	88.9	84.1	76.4	68.8	59.5	50.4	44.6	40.4	39.1	42.4	49.7	51.9	55.9	58.0	62.1	64.2	74.0	65.7	91.6
19-Oct	71.8	74.6	81.4	79.4	82.8	86.2	85.8	78.1	73.7	63.8	56.2	54.7	50.2	49.3	49.7	50.9	58.6	82.8	93.1	96.1	97.9	98.9	96.6	89.2	75.1	98.9
20-Oct	95.2	97.2	98.1	98.7	98.5	98.5	98.4	97.6	96.7	95.0	92.7	91.2	90.6	90.0	90.3	92.0	93.7	95.0	95.1	96.8	97.3	98.0	98.8	99.9	95.6	99.9
21-Oct	100.0	100.0	100.0	100.0	100.0	100.0	99.5	97.5	96.1	95.1	93.3	91.9	90.6	90.8	90.3	90.5	89.9	90.4	91.8	90.0	87.7	87.1	86.7	86.6	93.6	100.0
22-Oct	87.7	87.7	91.4	89.4	84.3	86.6	87.8	88.0	87.5	84.5	84.6	80.9	79.1	76.9	75.9	75.5	80.1	82.3	79.6	78.3	78.4	78.6	76.1	77.4	82.4	91.4
23-Oct	79.6	79.6	80.9	76.6	79.5	78.1	78.7	80.1	76.1	70.4	65.6	62.0	58.7	57.3	61.0	60.4	62.9	71.8	73.6	77.9	80.8	77.8	78.8	79.3	72.8	80.9
24-Oct	81.1	80.8	80.5	80.0	79.3	78.3	80.7	82.9	77.4	75.0	73.2	64.9	55.9	47.0	44.5	43.3	48.0	55.8	65.9	72.8	77.5	81.4	83.0	79.1	70.3	83.0
25-Oct	80.0	78.0	77.2	79.8	81.8	84.4	82.9	83.8	80.0	73.8	64.0	56.1	47.2	39.5	36.9	35.8	41.6	55.1	72.1	75.6	78.5	80.2	80.9	87.3	68.8	87.3
26-Oct	86.9	87.4	91.1	92.9	93.0	93.7	93.9	93.9	88.6	84.8	80.9	74.8	62.1	48.9	49.6	55.6	61.6	64.5	67.7	66.2	64.1	62.7	63.2	64.8	74.7	93.9
27-Oct	70.2	74.2	80.2	72.2	83.5	84.7	88.2	90.2	86.7	85.4	82.4	69.0	62.5	60.6	60.3	61.9	64.9	76.6	94.9	98.9	99.2	99.6	99.9	99.6	81.1	99.9
28-Oct	95.2	94.0	92.7	92.5	91.9	90.3	88.3	88.3	85.6	83.5	82.5	82.2	80.5	80.2	81.4	82.6	85.7	85.5	83.3	83.9	80.8	79.7	80.4	76.3	85.3	95.2
29-Oct	77.0	84.3	76.2	72.0	72.7	74.9	77.3	74.7	76.0	70.6	65.5	65.5	65.6	61.4	56.6	52.7	55.4	64.6	69.4	74.9	82.6	80.9	76.4	78.7	71.1	84.3
30-Oct	80.2	79.3	79.5	80.6	84.0	86.8	87.7	83.6	85.6	86.4	86.2	82.6	76.2	70.0	71.3	73.4	78.4	80.4	81.8	82.0	86.0	90.1	90.9	91.3	82.3	91.3
31-Oct	93.2	93.5	93.7	94.1	93.4	92.6	92.6	91.4	90.8	91.2	92.9	94.6	95.7	95.9	94.2	92.3	92.8	91.8	90.9	88.7	88.9	90.7	94.4	93.6	92.7	95.9
81.9 83.1 84.0 83.9 85.3 85.8 86.6 86.0 81.8 76.9 72.3 66.8 61.7 58.1 57.8 58.4 60.5 65.9 72.3 76.3 78.4 79.7 80.7 81.6																						Diurnal Average				
100.0 100.0 100.0 100.0 100.0 100.0 99.5 99.2 98.8 95.6 95.0 98.8 99.4 98.6 98.8 98.6 99.2 99.5 99.9 100.0 100.0 100.0 100.0																						Diurnal Maximum				



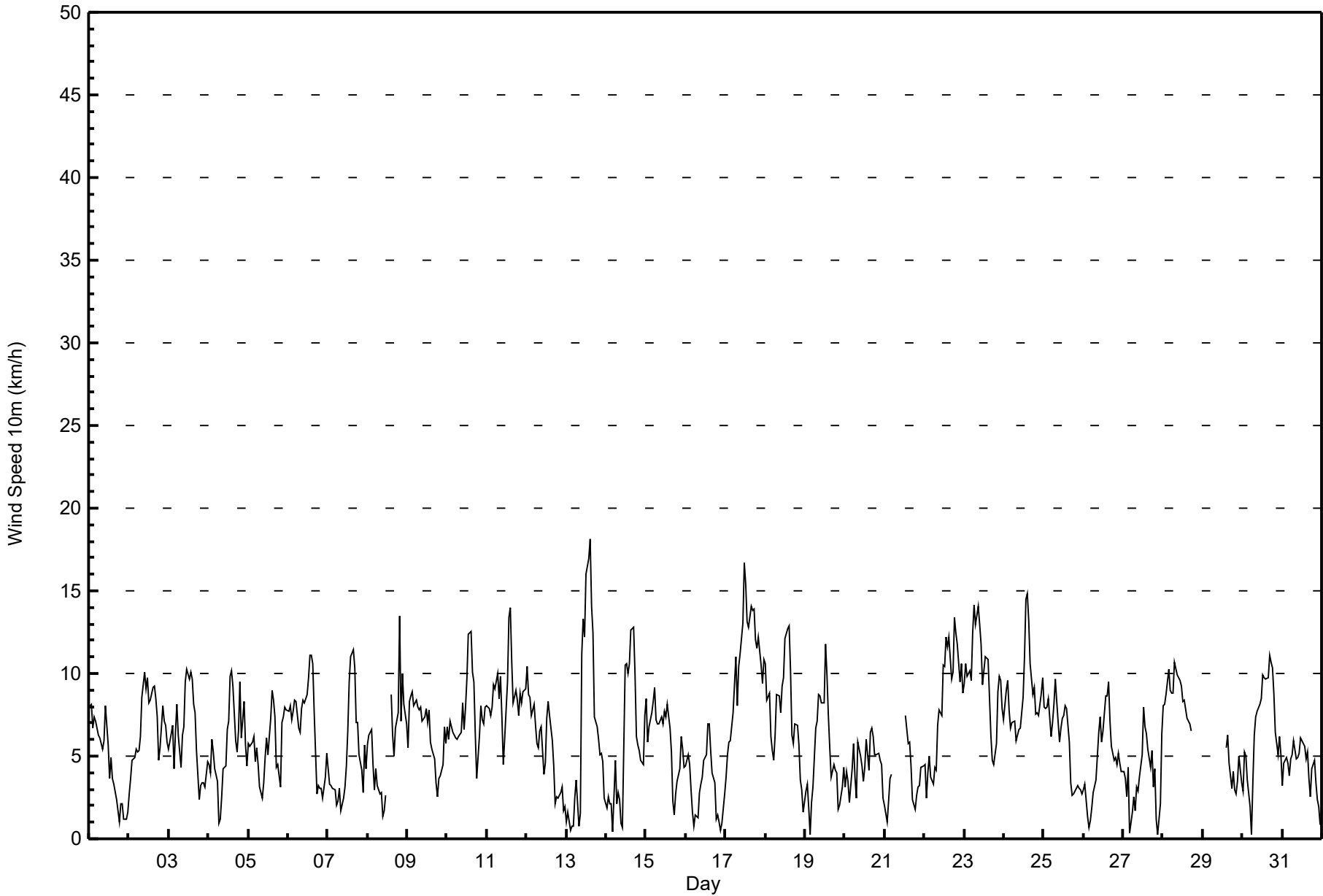


Maximum Speed: 18 km/h on Oct 13 15:00	Maximum Daily Speed Average: 10.4 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 30 06:00	Minimum Daily Speed Average: 1.2 km/h on Oct 16	Hours of Data: 715
Maximum Diurnal Speed Average: 4.3 km/h at hour 12	Minimum Diurnal Speed Average: 1.9 km/h at hour 18	Hours of Missing Data: 29
Monthly Average Velocity: 3.0 km/h 230.1 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> = 10 P <sub>99</sub> = 14	Percent Operational Time: 96.4

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-Oct	SW8	SW8	SW7	SW7	SSW7	SSW6	SSW6	SW6	SW5	WSW6	W8	W6	NW4	WNW5	NNW4	NNE3	S2	WSW2	SW1	SW2	SSW2	NNE1	NNE1	SSE2	SW3.3	SW8			
2-Oct	S3	SW4	WSW5	W5	WNW5	W5	W5	W6	WNW9	WNW10	WNW9	WNW10	WNW8	WNW8	WNW9	WNW9	WNW8	NW7	WNW5	WNW5	WNW8	WNW7	WNW7	WNW6	WNW6.4	WNW10			
3-Oct	WNW5	WNW6	NW7	WNW4	W6	W8	WNW6	W4	WSW6	W7	W10	W10	W10	W10	W10	W8	W8	WSW5	S2	SSE3	S3	SSE3	SSE3	SSW5	W5.1	W10			
4-Oct	S4	S4	SSW6	SSW5	S4	SE3	SE1	N1	N3	N4	N4	NNE7	NE7	ENE10	ENE10	ENE9	ENE6	NE5	NE7	NE9	NNE6	NNE8	N6	N4	NE3.2	ENE10			
5-Oct	NNE6	NNE6	N6	N6	N5	N6	NNE4	NNE3	NW2	W3	WNW5	WNW6	WNW5	WSW7	WSW9	WSW8	WSW7	S4	SSE4	S3	SSW7	SSW7	SSW8	SW8	W2.3	WSW9			
6-Oct	SSW8	SW8	SW7	SW8	SW8	SW8	SW7	SW6	W8	W8	W8	W9	WSW10	W11	W11	W11	WNW8	W3	S3	S3	S3	SSE2	S4	SSW5	WSW6.1	W11			
7-Oct	S4	SSE3	SSE3	SSE3	SE3	SE2	SSW2	SSW3	SSW2	SSW2	WNW3	WSW4	SW7	SW9	SW11	SSW11	SSW10	SSW7	S7	S5	SSW4	SSE3	SSW6	SSW4	SSW4.5	SSW11			
8-Oct	SSW6	SSW6	SSW7	SSW5	SSE3	S4	SSW3	SSW3	SSW3	W1	NNW2	NNW3	C	C	S9	SSE6	S5	S7	SSW8	W14	WSW7	W10	W8	WSW7	SW4.3	W14			
9-Oct	SSW5	SSW8	SSW9	SSW9	SSW8	SSW8	SSW8	SSW8	SW8	SW7	WSW7	WSW8	SW7	SSW8	SW6	SW5	SW5	WSW3	S3	S4	SSW4	S4	SSW7	S6	SSW6.1	SSW9			
10-Oct	SSW7	SSW6	SSW7	SSW6	SSW6	SSW6	SSW6	SSW6	SSW6	SSW8	SW7	SW8	WSW10	WSW12	W13	W10	W10	W6	SW4	SSW6	SSW8	SSW7	SSW7	SSW8	SW6.6	W13			
11-Oct	SSW8	SSW8	SSW7	SSW8	SSW9	SSW9	SSW10	SSW8	SSW10	SSW7	SSW5	SSW6	SW9	SW13	SW14	SSW11	SSW8	SSW9	SSW8	SSW7	SSW9	SSW8	SSW9	SSW9	SSW8.7	SW14			
12-Oct	SW10	SW9	SW9	SW7	SSW8	SSW7	S6	SSW6	SSW7	SSW7	S4	WNW5	N7	N8	N7	N6	N4	ESE2	SSE3	S2	S3	SSE3	SSE2	SSE2	SW2.4	SW10			
13-Oct	SSE1	SE2	WSW0	NE1	E1	S2	S4	NNW1	NW2	S11	S13	S12	S16	S17	S18	S14	S12	SSE7	SE7	SE6	ESE5	SE5	SE5	ESE2	S6.2	S18			
14-Oct	ESE2	ESE3	ESE2	SE2	SSW0	SSE5	SSE2	SE3	E2	WSW1	SE1	S11	SSE11	SSE10	SE11	SSE13	S13	S10	SSE6	SSE6	SSE5	SSE5	S5	S7	SSE5.2	SSE13			
15-Oct	SSW8	SSW6	SSW7	SSW8	SSW8	SSW9	SSW7	SSW7	SSW7	SSW7	SW7	WSW7	W8	WNW7	W8	WNW7	WNW5	NW2	SSE1	S3	SSW3	SSW4	SSW6	S5	SSW4	SW4.9	SSW9		
16-Oct	SSW4	SSW5	SSE5	S3	S2	SSE1	E1	NE1	N3	N3	N4	N5	NNE5	NE7	NNE7	NE5	NNE4	NE3	N1	NNE1	NNE1	S1	SSE1	WSW3	NNE1.2	NE7			
17-Oct	S4	SSW5	SSW6	SW6	WSW8	WSW9	WSW11	SW8	WSW10	WSW11	WSW13	WSW17	WSW15	W13	WSW13	WSW14	W14	WSW14	WSW12	WSW12	WSW12	WSW11	WSW9	WSW11	WSW10.4	WSW17			
18-Oct	WSW11	WSW8	WSW9	WSW6	SSW5	SW5	S6	SSW9	SSW9	SW8	SSW9	SW10	SW12	SW13	SW13	SW10	SSW6	SE6	SE7	SSE7	SSE6	SE4	SE3	WNW2	SSW6.3	SW13			
19-Oct	NE3	NNE3	N2	E0	S2	S3	SSW7	SSW7	SSW9	SW9	SW8	SW8	WSW12	W10	WSW7	SW6	SSW4	S5	S4	S4	SSE2	NNE2	N3	N4	SW3.3	WSW12			
20-Oct	NNW3	N4	NNE3	NNE2	NNE4	NNE6	N4	NNW2	NNE6	NNE5	N4	N3	NNE4	E6	ESE4	ENE6	NE7	ENE6	E5	E5	E5	ENE5	NNE4	N2	NE3.7	NE7			
21-Oct	NNE2	N1	N2	N4	N4	UO	UO	UO	UO	UO	UO	UO	N7	N7	N6	N6	N4	N2	WNW2	WNW3	W3	W3	W4	W4	---	N7			
22-Oct	WSW5	SW2	SSW4	WSW5	WSW4	S3	S4	SSW4	S7	SSW8	SSW7	SW10	SW10	SW12	SW12	SSW12	SSW10	SSW10	SW13	SSW12	SSW12	SSW9	SSW11	SW9	SSW7.9	SW13			
23-Oct	SW9	SW11	WSW10	WSW10	WSW10	WSW12	WSW14	W13	W14	W13	W12	W9	W10	W11	WSW11	WSW9	SW6	SSW5	SW4	SSW6	SSW9	SSW10	SSW10	SSW8	WSW9.1	WSW14			
24-Oct	SSW7	SSW9	SW10	SW8	SW7	SW7	SSW7	SSW6	SSW6	SW7	WSW7	W9	W11	W15	W13	W11	WSW9	WSW9	SW8	SSW8	SW7	SSW9	SSW10	SSW10	WSW7.6	WNW15			
25-Oct	SSW8	SSW8	SW8	SSW8	SSW6	SSW7	SSW8	SSW10	SSW8	SSW6	WSW7	WSW7	W7	WNW8	NW8	W6	W3	SE3	SSE3	S3	SSE3	SSE3	SE3	SE3	SSW3	SW4.5	SSW10		
26-Oct	S3	SE3	S1	SW1	N1	N2	N3	NNE4	NNE5	NNE6	NNE7	NNE6	NNE7	NE9	NE9	ENE10	ENE7	ENE6	NNE5	NE5	E5	ESE5	ESE5	SE4	NE3.6	ENE10			
27-Oct	SE4	SSE4	SE3	SE4	SSW0	NE2	NNE3	N2	NNE3	NNW3	NNE4	NE5	ENE8	ENE7	NE6	NE5	NE4	ESE5	SE3	ESE4	SE1	W0	WSW2	WSW6	ENE2.0	ENE8			
28-Oct	W8	W8	W9	W10	W9	W9	W9	W11	W10	WNW10	WNW10	WNW9	WNW8	WNW8	W7	W7	W7	WNW7	UO	UO	UO	UO	UO	UO	UO	W8.6	W11		
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	WSW5	SW6	SSW5	SSE3	SE4	SSE3	SSE3	S3	S5	S3	---	SW6
30-Oct	S3	S5	SSW5	SSW4	SSW2	S0	N3	NNE6	NNE7	NNE8	NNE8	NNE8	NNE10	NE10	NE10	NE10	NE10	NNE11	NE11	NE10	NE9	NNE6	NNE5	NNE5	NNE5.2	NNE11			
31-Oct	N3	NNE5	NNE5	N5	N4	NNE5	NE5	E6	ENE5	NNE5	N5	NE6	NE6	NNE6	NE5	NE5	NE4	E3	E4	ESE5	E3	ENE2	NNE2	ENE1	NE3.7	NE6			

SW3.6 SW3.5 SW3.6 SW3.5 SW3.2 SW3.3 SW3.3 SW3.2 SW3.3	WSW3.7 W3.9 W4.3 W3.9	WSW4.0 WSW3.7 WSW3.0 WSW2.5	SSW1.9 S2.4 SSW2.3 SSW2.8 SSW2.4 SSW2.8	SW3.3	Diurnal Average
WSW11 SW11 WSW10 W10 WSW10 WSW12 WSW14 W13 W14 W13	S13 WSW17 S16 S17 S18 S14	WSW14 WSW14 SW13 W14 WSW12 WSW11 SSW11 WSW11			Diurnal Maximum

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





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

**Wind Speed 10m (WS10) - km/h**  
**Janvier - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	307	42.94	42.94
6 - 11	364	50.91	93.85
12 - 19	44	6.15	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: 715

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Janvier - October 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	31	14	5	11	12	22	34	47	34	11	13	13	14	4	7	307
6 - 11	11	23	17	10	2	0	5	8	10	112	51	38	48	26	3	0	364
12 - 19	0	0	0	0	0	0	0	2	7	3	8	15	8	1	0	0	44
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>	46	54	31	15	13	12	27	44	64	149	70	66	69	41	7	7	715

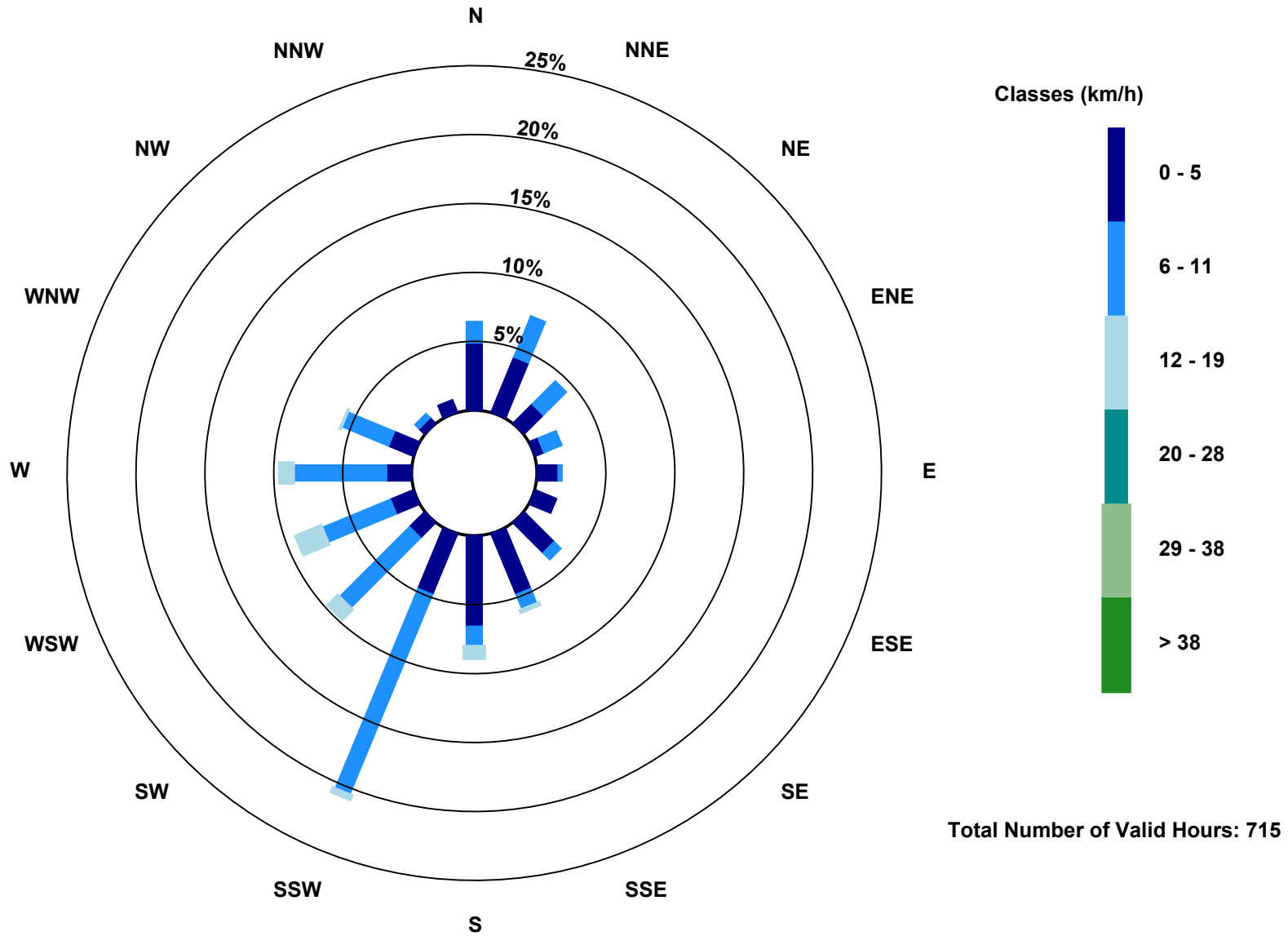
Total Number of Valid Hours: 715

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Janvier





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

**Wind Speed 10m (WS10) - km/h**  
**Janvier - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Oct 17 12:00 Minimum Value: 1 km/h on Oct 1 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> = 4 P <sub>99</sub> = 5																	Hours in Service: 744 Hours of Data: 715 Hours of Missing Data: 29 Hours of Calibration: 2 Percent Operational Time: 96.4								
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-Oct	2	2	2	2	2	2	1	2	2	3	4	3	2	3	2	2	1	1	1	1	1	1	1	1	4
2-Oct	1	1	1	2	2	2	2	3	4	5	4	4	4	4	4	4	4	3	2	2	4	3	3	3	5
3-Oct	3	3	4	2	4	3	4	2	2	3	4	5	4	4	4	3	3	3	1	1	1	1	1	5	
4-Oct	1	1	1	2	1	1	2	1	1	1	1	2	4	4	4	3	2	2	2	3	2	3	2	4	
5-Oct	2	2	2	2	2	2	2	1	1	2	2	3	2	3	4	3	3	1	2	1	2	2	3	4	
6-Oct	2	2	2	3	2	2	2	2	3	3	3	4	4	5	5	4	4	2	1	1	1	1	1	5	
7-Oct	2	1	1	1	1	1	1	1	1	1	1	2	3	3	4	4	4	3	2	2	1	1	2	4	
8-Oct	2	1	2	1	1	1	1	1	1	1	1	1	C	C	3	2	2	2	2	6	3	4	3	6	
9-Oct	2	2	2	2	2	2	2	2	3	2	3	4	3	2	2	2	2	1	1	1	1	1	1	4	
10-Oct	1	1	1	1	1	2	2	2	2	2	2	3	4	5	5	4	4	3	1	1	1	2	1	5	
11-Oct	1	1	1	2	2	2	2	2	2	2	1	2	3	5	5	4	3	2	2	2	2	2	2	5	
12-Oct	3	3	3	2	2	2	2	1	2	2	1	3	3	4	3	3	2	1	1	1	1	1	1	4	
13-Oct	1	1	1	1	1	1	2	1	1	5	4	5	5	5	5	5	4	2	2	1	1	1	1	5	
14-Oct	1	1	1	1	1	2	1	2	1	1	3	4	4	4	4	5	4	4	2	2	1	1	1	5	
15-Oct	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	1	1	1	1	1	1	1	3	
16-Oct	1	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	2	1	1	2	
17-Oct	1	1	1	2	3	3	4	3	3	4	5	7	5	5	5	5	5	6	4	4	4	4	3	7	
18-Oct	4	3	3	2	1	2	2	2	2	2	3	3	4	4	5	5	3	1	2	2	2	2	1	5	
19-Oct	1	1	1	1	1	1	2	2	2	3	3	3	4	4	3	2	2	2	1	1	1	2	1	4	
20-Oct	2	1	1	1	2	2	2	1	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	2	
21-Oct	2	2	2	2	3	UO	UO	UO	UO	UO	UO	UO	3	3	3	3	2	1	1	1	2	1	2	3	
22-Oct	1	1	1	2	2	1	1	1	2	2	2	4	4	4	4	4	3	3	4	4	3	3	3	4	
23-Oct	3	4	3	3	3	4	4	5	5	5	4	3	4	5	4	3	3	1	1	1	2	3	3	5	
24-Oct	2	3	3	3	2	2	2	2	2	2	2	4	4	6	6	5	4	3	4	2	2	4	2	6	
25-Oct	2	2	2	2	3	2	2	2	2	2	3	3	3	3	3	2	1	1	1	1	1	1	1	3	
26-Oct	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	2	1	2	2	2	2	3	
27-Oct	1	1	2	2	1	1	1	1	1	1	2	2	3	2	2	2	1	2	1	1	2	1	1	3	
28-Oct	3	3	3	4	3	3	3	3	3	3	4	3	3	3	3	2	2	3	UO	UO	UO	UO	UO	4	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	1	1	1	1	1	2	2	2	
30-Oct	1	2	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	1	1	1	3	
31-Oct	1	1	1	1	1	2	2	2	2	1	2	2	2	2	1	1	1	1	2	2	1	1	1	2	
																	Diurnal Maximum								
C - Calibration UO - Unstable Operation																									





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

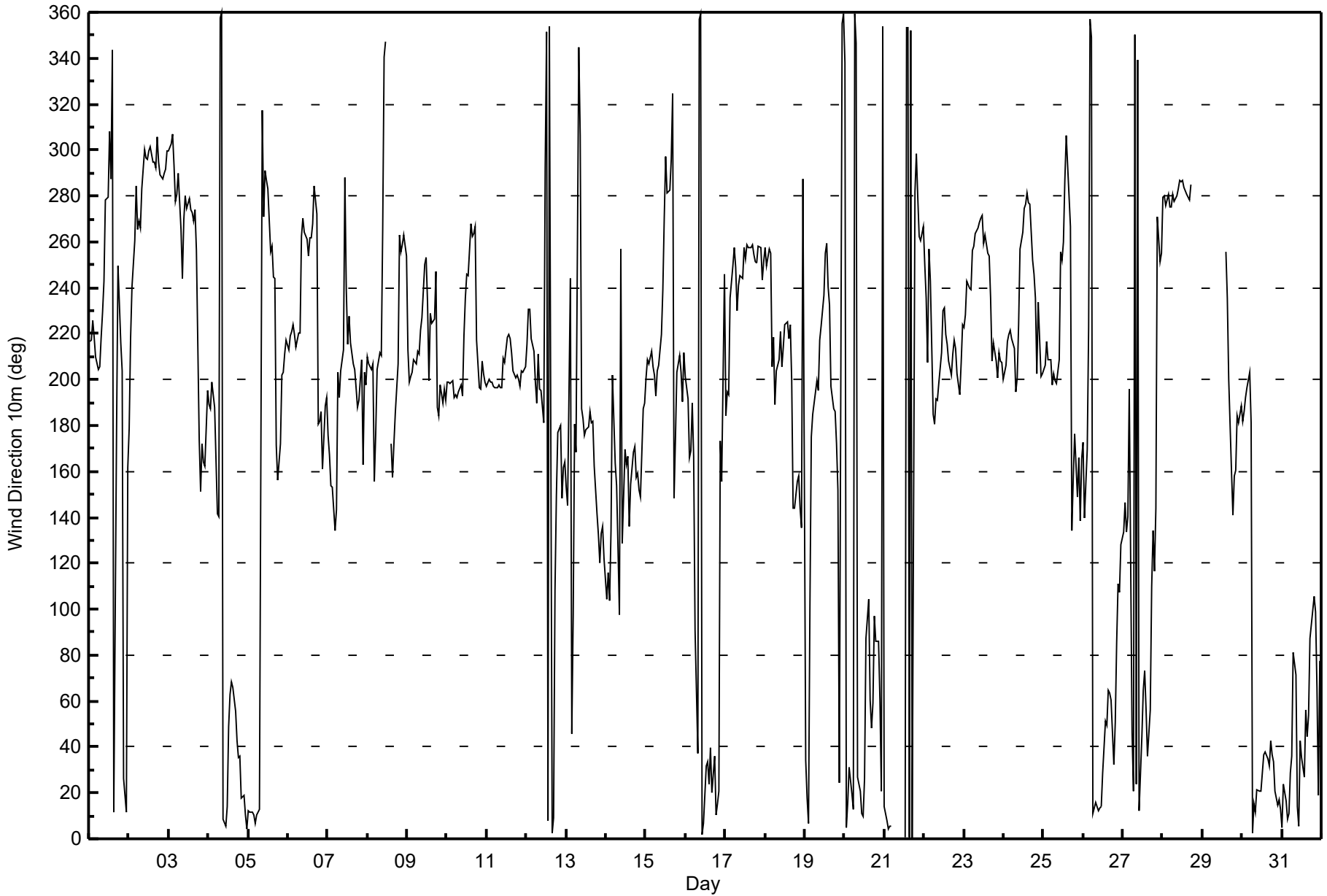
**Wind Direction 10m (WD10) - deg**  
**Janvier - October 2024**

Direction of Maximum Speed: 186 deg on Oct 13 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 248.8 deg on Oct 17	Hours of Data: 715
Direction of Minimum Speed: 181 deg on Oct 30 06:00	Hours of Missing Data: 29
Direction of Minimum Daily Speed Average: 1.2 deg on Oct 16	Percent Operational Time: 96.4
Monthly Average Direction: 230.1 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-Oct	217	217	225	219	210	204	206	218	229	243	278	279	308	287	344	12	179	249	233	216	204	26	12	162	235.3
2-Oct	179	218	241	260	284	265	269	266	283	300	297	296	300	302	295	295	293	306	295	289	288	290	292	300	286.9
3-Oct	300	303	307	293	278	281	290	266	244	270	280	274	279	274	273	269	274	257	174	151	172	164	162	195	269.2
4-Oct	189	187	199	194	188	141	140	357	360	9	6	14	49	63	68	66	55	43	36	36	18	19	10	5	47.0
5-Oct	12	12	11	10	7	11	12	13	317	271	291	287	283	256	258	245	244	171	157	172	202	203	211	217	268.4
6-Oct	213	219	221	224	220	214	220	220	263	270	264	261	254	262	262	268	284	272	181	182	186	161	189	192	239.0
7-Oct	176	167	153	153	134	143	203	192	204	213	288	239	216	228	216	207	205	197	188	191	209	163	203	198	200.8
8-Oct	210	207	204	207	155	176	204	212	210	265	340	347	C	C	172	158	172	185	207	263	256	259	263	254	219.9
9-Oct	213	199	201	203	209	207	212	211	221	227	250	253	234	199	229	224	226	247	188	184	198	190	196	191	213.7
10-Oct	199	199	198	200	192	193	192	195	198	193	219	236	246	245	268	262	264	266	217	197	196	208	203	199	219.8
11-Oct	197	200	199	199	197	196	197	198	196	197	209	207	218	220	218	212	204	201	202	200	197	204	203	205	203.9
12-Oct	215	231	230	218	213	199	189	211	196	196	181	292	351	8	354	3	9	108	149	177	180	148	162	164	218.4
13-Oct	153	145	244	46	98	180	169	345	307	187	183	176	178	179	186	181	182	162	142	133	120	133	136	122	171.2
14-Oct	105	116	104	134	202	164	154	126	97	257	129	169	163	167	136	155	169	171	157	159	152	149	187	189	158.5
15-Oct	201	208	207	212	206	202	193	204	206	220	239	270	297	281	282	296	324	148	175	203	211	203	190	211	223.6
16-Oct	201	192	166	169	190	166	91	37	357	360	2	7	32	34	24	39	20	36	10	15	21	173	156	246	33.7
17-Oct	184	195	193	235	250	257	249	230	241	245	244	258	252	259	257	258	259	254	252	251	258	258	243	252	248.8
18-Oct	257	250	257	255	206	219	189	204	208	221	206	214	224	225	218	224	200	144	144	156	158	144	136	287	212.1
19-Oct	34	18	7	101	175	185	195	200	195	217	223	236	255	259	240	233	197	187	186	172	152	25	355	360	222.9
20-Oct	338	5	16	31	19	13	359	347	27	21	11	10	26	87	104	60	48	59	97	86	86	60	21	354	40.1
21-Oct	14	8	4	6	6	UO	UO	UO	UO	UO	UO	UO	1	353	353	1	352	0	282	298	279	263	260	267	--
22-Oct	250	235	208	257	243	185	181	192	191	198	212	230	231	220	216	208	202	211	217	213	202	193	207	224	213.0
23-Oct	223	228	243	240	239	256	258	263	266	269	271	271	259	263	255	254	235	208	216	208	201	212	208	207	244.4
24-Oct	200	206	217	220	221	218	214	195	201	224	257	264	275	277	281	277	276	252	246	235	202	234	201	203	238.6
25-Oct	204	206	216	209	209	198	203	200	198	208	256	252	260	287	306	280	267	134	157	177	149	166	138	165	218.8
26-Oct	173	140	169	223	357	349	11	16	14	12	13	14	29	52	50	65	64	61	32	50	85	111	108	128	51.7
27-Oct	134	147	134	141	196	46	21	350	24	339	12	44	65	73	56	36	56	110	134	117	144	271	251	255	73.3
28-Oct	279	280	276	281	275	275	281	277	280	283	287	286	287	284	280	279	279	285	UO	UO	UO	UO	UO	UO	280.8
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	256	236	200	160	141	158	160	184	181	189	--
30-Oct	182	186	192	196	203	181	3	15	12	21	21	21	28	37	38	35	32	43	37	34	21	15	17	13	29.6
31-Oct	5	24	16	8	11	29	36	81	72	14	6	43	35	27	56	44	54	87	93	106	99	66	19	77	43.3

215.7 215.3 221.8 224.8 225.0 220.7 223.0 223.6 234.9 246.6 263.4 264.1 264.8 258.3 253.7 248.7 239.6 202.6 184.6 192.0 195.9 202.0 208.1 218.6  
 Diurnal Average

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





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

**Wind Direction 10m (WD10) - deg**  
**Janvier - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Oct 14 11:00 Minimum Value: 7 deg on Oct 9 23:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 15 Q <sub>1</sub> = 19 Median = 24 Q <sub>3</sub> = 32 P <sub>90</sub> = 47 P <sub>99</sub> = 87																			Hours in Service: 744 Hours of Data: 715 Hours of Missing Data: 29 Hours of Calibration: 2 Percent Operational Time: 96.4									
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-Oct	19	19	34	24	22	18	17	23	27	40	37	50	56	45	56	58	30	57	63	28	35	80	81	56	81			
2-Oct	16	19	19	32	33	23	26	31	32	45	43	43	42	49	43	45	43	49	43	34	37	38	36	42	49			
3-Oct	46	50	52	36	25	31	48	26	26	40	34	31	40	33	35	33	31	25	37	28	34	21	20	13	52			
4-Oct	17	16	13	20	21	22	92	82	37	29	30	22	32	29	29	27	25	25	16	15	25	23	31	29	92			
5-Oct	23	29	32	26	35	32	35	44	64	36	41	33	46	31	28	30	30	32	22	26	16	15	19	20	64			
6-Oct	18	21	20	22	21	18	22	20	27	28	33	37	32	33	32	28	33	41	24	20	25	44	17	15	44			
7-Oct	25	17	23	23	19	37	30	25	41	53	34	39	35	33	25	22	22	21	19	26	26	26	11	21	53			
8-Oct	13	14	13	17	22	23	22	21	40	86	71	44	C	C	31	29	23	15	24	28	31	24	25	21	86			
9-Oct	28	15	15	16	16	15	17	20	23	22	26	31	31	27	42	27	27	18	28	10	13	11	7	12	42			
10-Oct	10	12	13	13	10	11	11	18	18	17	27	36	41	28	26	28	24	20	29	12	11	16	12	10	41			
11-Oct	9	10	11	11	12	14	14	14	14	16	29	26	23	26	23	25	20	15	15	13	12	16	14	15	29			
12-Oct	20	25	24	20	18	18	18	15	12	19	39	78	50	44	44	45	36	49	32	34	29	22	51	46	78			
13-Oct	56	49	78	90	69	26	51	86	67	32	20	25	24	23	19	20	20	23	20	16	12	13	14	37	90			
14-Oct	29	42	61	46	99	28	47	49	72	86	99	30	32	27	30	30	24	25	27	21	22	19	28	14	99			
15-Oct	15	23	22	18	18	16	16	19	18	20	27	35	39	31	40	42	61	54	23	16	24	21	22	25	61			
16-Oct	22	15	18	28	41	79	43	57	33	23	20	23	22	17	18	25	28	26	63	53	94	65	87	24	94			
17-Oct	18	18	16	28	22	21	23	23	23	23	24	25	26	24	26	24	22	24	23	25	21	21	24	22	28			
18-Oct	21	22	22	24	15	25	13	16	16	23	26	29	25	27	27	27	26	15	17	22	24	33	73	66	73			
19-Oct	22	32	48	92	29	15	9	13	12	23	25	31	27	26	28	30	32	21	16	19	75	48	36	31	92			
20-Oct	41	28	29	39	33	26	36	47	18	22	29	49	38	28	28	25	23	30	24	25	33	27	26	21	49			
21-Oct	18	14	19	22	22	UO	UO	UO	UO	UO	UO	UO	UO	37	41	47	36	47	47	35	42	35	29	24	29	47		
22-Oct	25	29	25	31	38	23	15	18	16	20	23	25	26	25	24	21	18	18	20	19	17	16	21	23	38			
23-Oct	22	20	21	23	22	20	20	22	20	23	21	23	25	26	23	22	24	23	21	14	13	18	17	19	26			
24-Oct	18	17	19	20	19	20	21	21	19	33	25	32	23	25	24	22	19	20	23	24	16	58	16	15	58			
25-Oct	15	17	19	17	47	16	15	13	16	24	36	29	32	38	41	24	22	32	19	27	25	18	21	15	47			
26-Oct	24	22	29	61	71	34	15	10	21	23	22	18	25	19	21	23	24	25	15	23	27	28	28	32	71			
27-Oct	25	36	58	37	92	60	25	53	57	35	43	33	28	28	26	18	32	26	17	10	82	66	51	22	92			
28-Oct	19	17	20	19	22	20	20	18	19	21	25	26	26	24	22	20	20	23	UO	UO	UO	UO	UO	UO	26			
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	36	32	20	26	15	24	16	24	18	32	36
30-Oct	23	19	11	13	35	81	26	22	22	20	19	19	17	22	17	19	15	17	16	16	13	14	13	16	81			
31-Oct	23	12	13	20	26	37	31	32	37	25	25	25	21	19	30	19	26	43	27	24	28	36	22	54	54			
Diurnal Maximum																												
C - Calibration      UO - Unstable Operation																												



Maximum Speed: 22 km/h on Oct 13 15:00	Maximum Daily Speed Average: 13.8 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 16 07:00	Minimum Daily Speed Average: 1.4 km/h on Oct 16	Hours of Data: 696
Maximum Diurnal Speed Average: 6.0 km/h at hour 12	Minimum Diurnal Speed Average: 3.0 km/h at hour 18	Hours of Missing Data: 48
Monthly Average Velocity: 4.4 km/h 240.8 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> = 14 P <sub>99</sub> = 19	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-Oct	SW12	SW11	SW10	SW10	SW10	SW8	SW8	SW8	SW8	WSW8WNW12	WNW8	NW6	WNW8	NNW5	N5	S3	WSW3	WNW2	W4	WSW3	NNW3	N3	NW2	WSW5.0	WNW12		
2-Oct	SW5	WSW6	WSW7	W8	WNW9	W8	W8	W9WNW14	NW17WNW15WNW16WNW13	NW14WNW16WNW16WNW14	NW13	NW9WNW10WNW14WNW12WNW12	NW11	WSW11.1	NW17												
3-Oct	NW10	NW11	NW12	WNW8WNW10WNW13WNW11	W6	WSW8	W9WNW14	W15WNW14	W15	W14	W12	W12	W7	WSW4	S5	S6	SSW6	SSW6	SSW8	WSW8	W15						
4-Oct	SSW7	SSW7	SSW8	SSW8	SSW7	SSE5	SE2	NE1	NNE3	N5	N5	N8	NE9	ENE13	ENE13	ENE12	ENE8	NE7	NE9	NE12	NNE9	NNE11	NNE8	N6	NE3.8	ENE13	
5-Oct	N8	N8	N8	N9	N7	N8	N6	N5	NW5	WNW5	WNW8	WNW9	WNW8	W10	W12WSW11WSW10	S7	S7	S6	SSW10	SSW10	SSW11	SSW11	W3.8	W12			
6-Oct	SW11	SW12	SW11	SW12	SW13	SW12	SW10	SW10	W11	W12	W12	W12	W13	W15	W15	W15WNW13	WNW7	WSW5	SSW5	SSW7	S4	SSW7	SSW9	WSW9.3	W15		
7-Oct	SSW7	S6	S5	SSW5	S4	SE3	S3	SSW5	SSW4	SW4	W4	WSW5	SW8	SW12	SW14	SSW15	SSW13	SSW10	S10	SSW8	SSW7	S5	SSW8	SSW7	SSW6.7	SSW15	
8-Oct	SSW8	SW9	SSW9	SSW7	S5	S7	SSW6	SW4	SW3	WSW1	NNW2	NNW3	C	S12	S11	SSE8	S7	SSW10	SW11	W18	W10	W13	W11	W10	SSW6.2	W18	
9-Oct	SW8	SSW11	SSW12	SSW12	SW11	SW11	SW11	SW11	SW11	SW9	WSW9	W10	WSW9	SSW9	SW7	SW6	WSW6	W5	WSW5	SSW6	SW6	SSW7	SSW9	SSW9	SSW8.5	SSW12	
10-Oct	SSW9	SSW9	SW10	SW9	SSW9	SSW9	SSW9	SSW9	SSW8	SSW9	SW8	WSW10	WSW13	WSW16	W17	W13	W13	W9	WSW6	SW9	SSW11	SW10	SW9	SW10	SSW9.1	W17	
11-Oct	SSW10	SSW10	SSW10	SSW10	SSW12	SSW12	SSW13	SSW11	SSW12	SSW9	SW5	SW7	SW12	SW17	SW18	SW14	SW10	SSW12	SW11	SSW10	SSW12	SW11	SW12	SW12	SSW11.2	SW18	
12-Oct	SW14	WSW12	SW12	SW11	SW12	SSW10	SSW9	SW8	SW8	SSW8	SSW4	WNW7	N10	N11	N10	N7	N6	ENE3	SE3	SSW4	SSW5	S5	SSW3	SSW3	WSW3.8	SW14	
13-Oct	SSW4	S3	SSW1	NW1	S4	S7	S7	SW3	WSW4	S15	S16	S15	S20	S21	S22	S17	S15	S10	SSE9	SE8	SE7	SE8	SE7	SE5	S8.8	S22	
14-Oct	SE4	SE6	ESE5	SE4	S3	SSE7	SSE4	SE5	ESE4	WSW1	SE1	S12	SSE13	SSE12	SE13	SSE15	SSE16	S13	SSE8	SSE8	SSE8	SSE7	SSW7	SSW10	SSE7.2	SSE16	
15-Oct	SSW11	SW9	SW10	SW11	SW11	SSW12	SSW9	SW9	SW9	SW10	WSW9WNW11	NW10WNW11	WNW9	WNW8	NW5	NW1	SSW4	SW6	SW6	SW9	SSW8	SW7	SSW8	SW7	SSW6.8	SSW12	
16-Oct	SW6	SSW7	S6	S5	S3	S2	SE1	NE3	N4	N4	N5	NNE6	NE6	NE9	NE9	NE7	NE6	ENE5	NE2	NE2	NE1	SW1	S2	WSW4	NE1.4	NE9	
17-Oct	SSW5	SSW7	SSW8	WSW8WSW10	W13WSW15WSW11	WSW14WSW15WSW16	W22WSW20	W17	W16	W18	W18	W18	W19WSW16WSW15	W16	W14WSW13WSW15	WSW13.8	W22										
18-Oct	W14WSW12	W12	W8	SW8	SW7	SSW10	SSW12	SW11	SW10	SW11	SW12	SW15	SW16	SW16	SW13	SSW9	SSE8	SSE10	SSE10	SSE8	SSE6	SE6	WSW2	SW8.4	SW16		
19-Oct	NNE4	NNE5	NNE4	NNE2	S2	SSW6	SSW9	SW9	SSW10	SW11	SW10WSW10	W15	W13WSW10	WSW7	SSW6	SSW7	SSW7	S7	S3	N2	N6	N7	WSW4.4	W15			
20-Oct	N5	N6	NNE6	NNE4	NNE6	NNE8	N5	N4	NNE7	NNE6	NNE5	NNE4	NNE5	E7	ESE5	ENE8	ENE8	ENE8	ESE7	E7	E7	ENE6	NE6	N5	NE4.8	ENE8	
21-Oct	NNE5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNE5	
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SW18	
23-Oct	SW13	WSW15	WSW14	WSW15	WSW14	W17	W19	W17	W18	W17	W16	W12	W13	W14	W14	W12	WSW9	SW7	SW7	SW9	SW11	SW13	SW13	SW11	WSW12.5	W19	
24-Oct	SW10	SW12	SW13	SW11	SW10	SW10	SW10	SSW8	SSW8	SW8	W8	W11WNW15WNW20WNW21WNW18WNW15	W12WSW12WSW11	SW10WSW10	SSW12	SSW13	WSW10.5	WNW21									
25-Oct	SW11	SW11	SW11	SW11	SW8	SSW10	SSW13	SSW10	SSW7	W9	W9	W10WNW11	NW12	WNW8	W5	WSW2	S4	SSW4	S5	SSW6	SSW4	SSW5	SSW5	SSW5	SSW6.6	SSW13	
26-Oct	SSW5	S5	SE3	ESE1	NNE2	NNE4	NNE5	NNE5	NNE6	N8	NNE9	NNE8	NE8	ENE11	ENE11	ENE12	ENE10	ENE8	NE6	ENE7	ESE7	ESE7	ESE6	SE6	ENE4.8	ENE12	
27-Oct	SE7	SE6	SE5	SE7	ESE3	E3	NE4	NNE4	NNE5	NNE4	NNE6	ENE6	ENE10	E9	ENE8	NE7	ENE6	ESE8	SE5	SE6	SE3	SW1	W3	W9	E3.3	ENE10	
28-Oct	WNW12	WNW12	WNW12	WNW15	WNW12	WNW12	WNW13	WNW15	WNW14	WNW14	WNW14	WNW14	WNW14	WNW12	WNW12	WNW10	WNW10	WNW10	WNW10	UO	UO	UO	UO	UO	UO	WNW12.3	WNW15
29-Oct	UO	UO	UO	UO	UO	W7	W7	NW10	NW11	WNW11	WNW13	W11	W11	WSW10	W7	WSW8	SSW6	S5	SSE6	SSE5	S6	SSW6	SSW8	SSW5	W5.6	WNW13	
30-Oct	SSW5	SSW7	SSW7	SW5	SW4	SW2	N5	NNE8	NNE9	NNE9	NNE9	NNE10	NE12	NE11	NE11	NE12	NE13	NE13	NE12	NE11	NNE8	NNE7	NNE8	NNE7	NE6.0	NE13	
31-Oct	NNE6	NNE7	NNE7	NNE7	NNE5	NE6	NE6	E7	E6	NNE5	N6	NE7	NE7	NE6	ENE6	ENE6	ENE4	E4	ESE6	ESE6	ESE5	E4	NNE4	ENE2	NE4.9	NNE7	

SW5.2	SW5.5	SW5.3	SW5.3	SW5.2	SW4.9	SW4.7	SW4.5	SW4.6	W5.1	W5.7	W6.0	W5.5	W5.8	W5.3	SW4.3	SW3.7	SW3.0	SSW3.5	SSW3.8	SSW4.3	SW3.8	SW4.1	SW4.8	Diurnal Average
SW14	WSW15	WSW14	WNW15	WSW14	W17	W19	W17	W18	W17	WSW16	W22	WSW20	S21	S22	WNW18	W18	WSW19	SW18	W18	W16	W14	SW14	WSW15	Diurnal Maximum

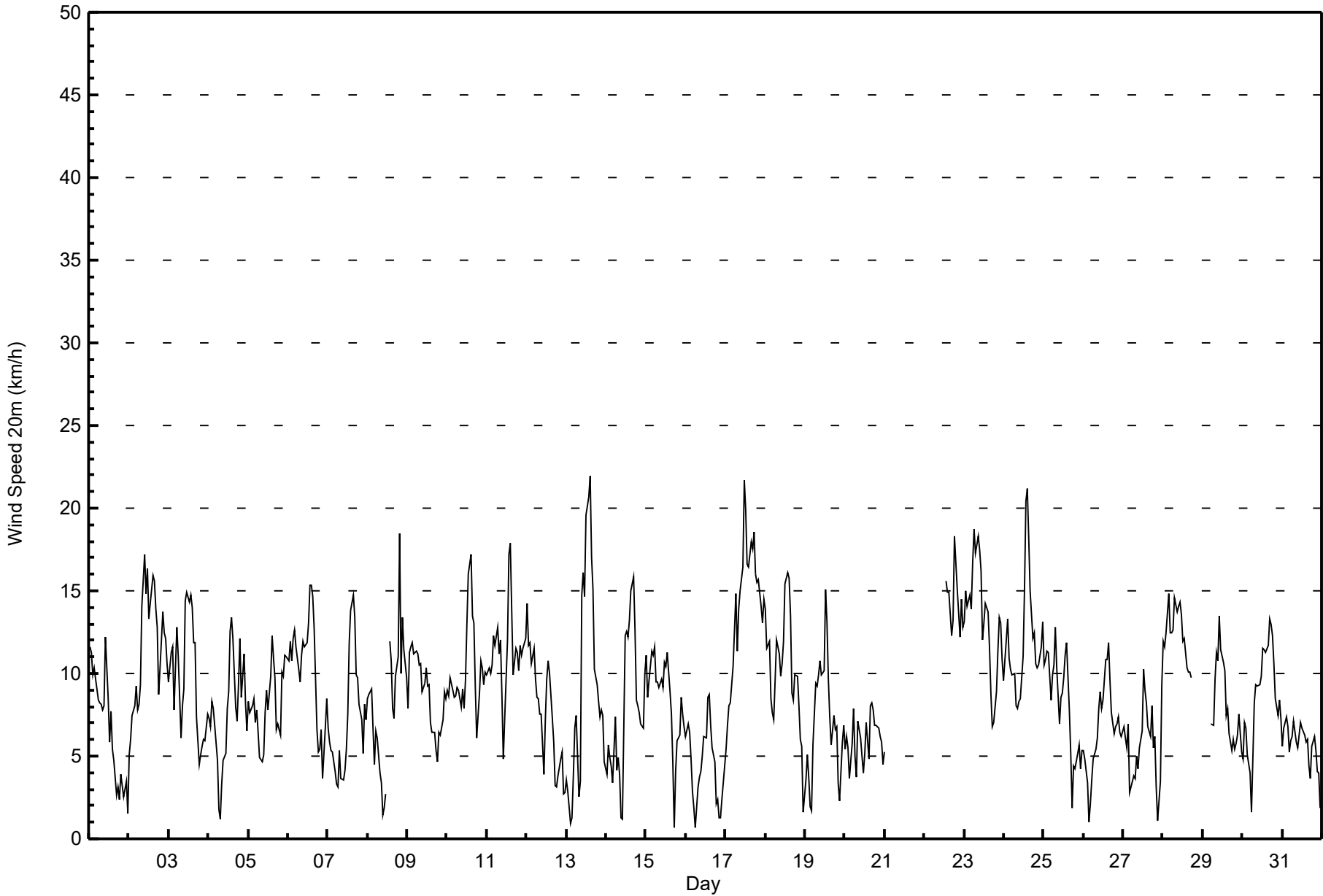
C - Calibration      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 7 km/h on Oct 17 12:00			Hours of Data:	696
Minimum Value: 1 km/h on Oct 7 06:00			Hours of Missing Data:	48
			Hours of Calibration:	1
			Percent Operational Time:	93.7
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				

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

C - Calibration UO - Unstable Operation





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

**Wind Speed 20m (WS20) - km/h**  
**Janvier - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	149	21.41	21.41
6 - 11	368	52.87	74.28
12 - 19	172	24.71	98.99
20 - 28	7	1.01	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 696

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 20m (WS20) - km/h  
Janvier - October 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	21	5	5	3	6	13	3	22	20	9	13	5	2	5	4	149
6 - 11	18	27	20	16	6	7	11	14	14	77	77	24	26	22	9	0	368
12 - 19	0	0	6	4	0	0	1	4	8	18	33	19	41	33	5	0	172
20 - 28	0	0	0	0	0	0	0	0	3	0	0	1	1	2	0	0	7
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	48	31	25	9	13	25	21	47	115	119	57	73	59	19	4	696

Total Number of Valid Hours: 696

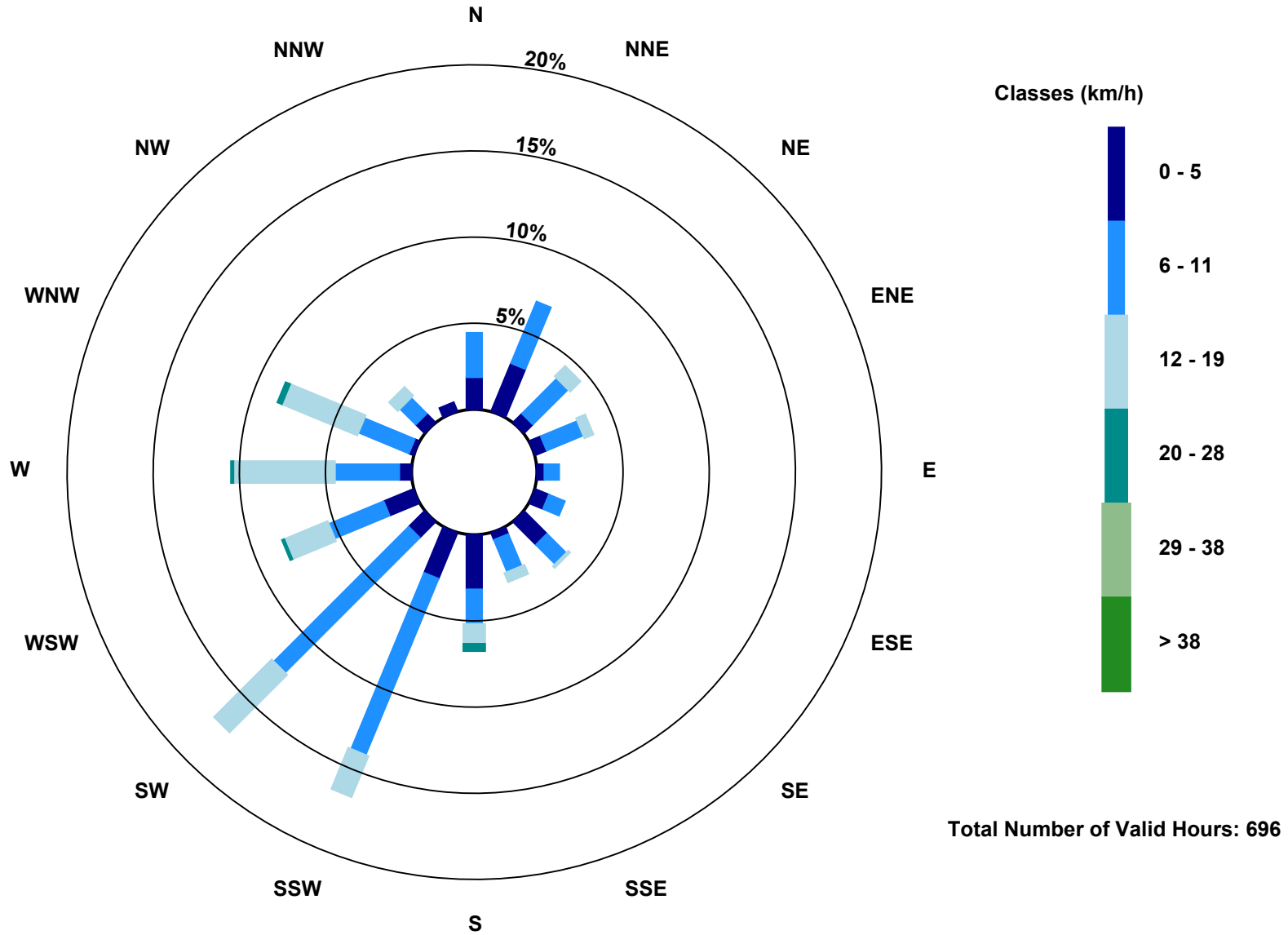
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 20m (WS20) - km/h  
Janvier





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

**Wind Direction 20m (WD20) - deg**  
**Janvier - October 2024**

Direction of Maximum Speed: 189 deg on Oct 13 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 254.8 deg on Oct 17	Hours of Data: 696
Direction of Minimum Speed: 131 deg on Oct 16 07:00	Hours of Missing Data: 48
Direction of Minimum Daily Speed Average: 1.4 deg on Oct 16	Percent Operational Time: 93.7
Monthly Average Direction: 240.8 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-Oct	222	226	232	224	218	214	215	224	233	247	284	282	311	291	335	8	187	250	285	275	253	347	5	315	250.1	
2-Oct	236	249	256	275	296	276	273	272	288	304	303	302	303	307	302	303	302	306	306	296	296	298	300	308	294.9	
3-Oct	305	309	314	302	287	288	301	271	242	278	286	280	285	278	280	276	279	260	255	177	181	198	197	209	276.2	
4-Oct	207	201	211	206	200	157	137	43	16	8	5	11	55	69	73	72	62	48	38	41	23	23	13	10	51.5	
5-Oct	8	8	2	7	0	1	359	357	325	284	300	290	288	260	261	248	248	186	169	191	208	210	215	221	274.3	
6-Oct	222	226	227	229	227	224	231	231	266	276	267	267	259	265	265	271	289	295	250	201	204	182	205	205	246.3	
7-Oct	200	183	183	192	187	131	172	203	211	215	279	240	219	229	218	207	206	200	189	196	207	189	209	200	205.2	
8-Oct	213	217	211	213	173	174	198	214	215	254	330	343	C	186	177	162	182	194	215	272	264	266	271	261	222.5	
9-Oct	227	213	211	212	218	219	223	221	226	232	255	260	242	208	234	232	238	259	252	212	217	209	210	204	224.9	
10-Oct	212	211	214	217	207	204	199	204	212	202	229	247	256	251	277	273	270	276	240	214	211	224	221	215	232.1	
11-Oct	213	211	209	212	209	208	206	206	205	207	223	216	228	227	224	219	215	211	215	212	208	217	216	215	214.2	
12-Oct	222	237	236	227	222	213	200	223	214	208	199	301	351	5	355	358	6	73	125	206	212	186	200	206	237.0	
13-Oct	199	174	209	308	178	184	172	222	254	188	186	179	182	183	189	184	184	169	151	144	129	139	146	138	176.8	
14-Oct	126	126	108	132	179	161	153	131	106	238	143	174	166	167	143	159	168	172	160	163	162	165	199	197	160.9	
15-Oct	212	221	219	222	214	210	203	214	217	228	247	283	307	292	297	308	326	321	209	222	228	214	204	216	236.3	
16-Oct	218	202	172	179	185	184	131	56	11	6	9	12	44	44	35	53	38	61	43	49	51	232	182	253	53.4	
17-Oct	202	204	205	243	255	265	255	238	246	251	250	264	257	265	264	265	265	259	258	258	264	262	251	256	254.8	
18-Oct	265	256	262	262	222	233	201	213	217	227	214	219	231	229	226	230	211	158	154	159	160	148	136	254	218.0	
19-Oct	14	24	15	26	186	206	213	214	208	229	232	247	263	267	245	238	209	200	205	184	184	2	6	1	236.9	
20-Oct	352	5	23	30	21	14	5	349	30	27	14	13	33	94	109	70	59	70	102	96	93	76	36	9	45.3	
21-Oct	15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	228	226	218	213	222	225	220	209	204	216	232	--
23-Oct	231	238	250	248	246	263	264	268	274	277	279	279	266	270	261	260	247	226	236	225	215	222	219	219	252.5	
24-Oct	215	218	226	227	234	231	226	208	213	236	262	275	285	286	292	288	284	259	254	245	217	246	213	211	249.4	
25-Oct	218	219	228	222	219	212	218	208	209	224	263	261	269	297	314	295	281	244	190	199	187	197	192	195	233.3	
26-Oct	199	175	137	104	24	17	22	18	12	11	15	17	37	61	61	73	75	76	53	70	103	118	117	130	63.3	
27-Oct	135	145	132	139	113	92	44	16	26	12	21	61	76	81	67	49	70	116	134	127	136	233	268	263	88.8	
28-Oct	291	288	286	291	286	286	293	290	293	295	302	300	299	298	294	292	291	297	UO	UO	UO	UO	UO	UO	293.0	
29-Oct	UO	UO	UO	UO	UO	275	276	308	311	302	303	280	277	254	268	245	212	191	163	165	185	199	197	201	258.8	
30-Oct	208	201	210	219	219	229	11	19	17	26	26	28	36	44	48	43	42	53	47	46	33	28	26	22	36.0	
31-Oct	15	29	30	25	32	46	51	92	80	22	9	53	47	39	71	60	67	100	105	117	109	90	32	69	55.5	

229.2 226.7 231.3 233.8 232.1 232.9 235.1 238.3 252.9 263.0 278.1 276.3 273.0 259.6 261.2 255.7 247.9 218.8 203.4 204.7 206.2 214.9 220.0 227.6  
 Diurnal Average

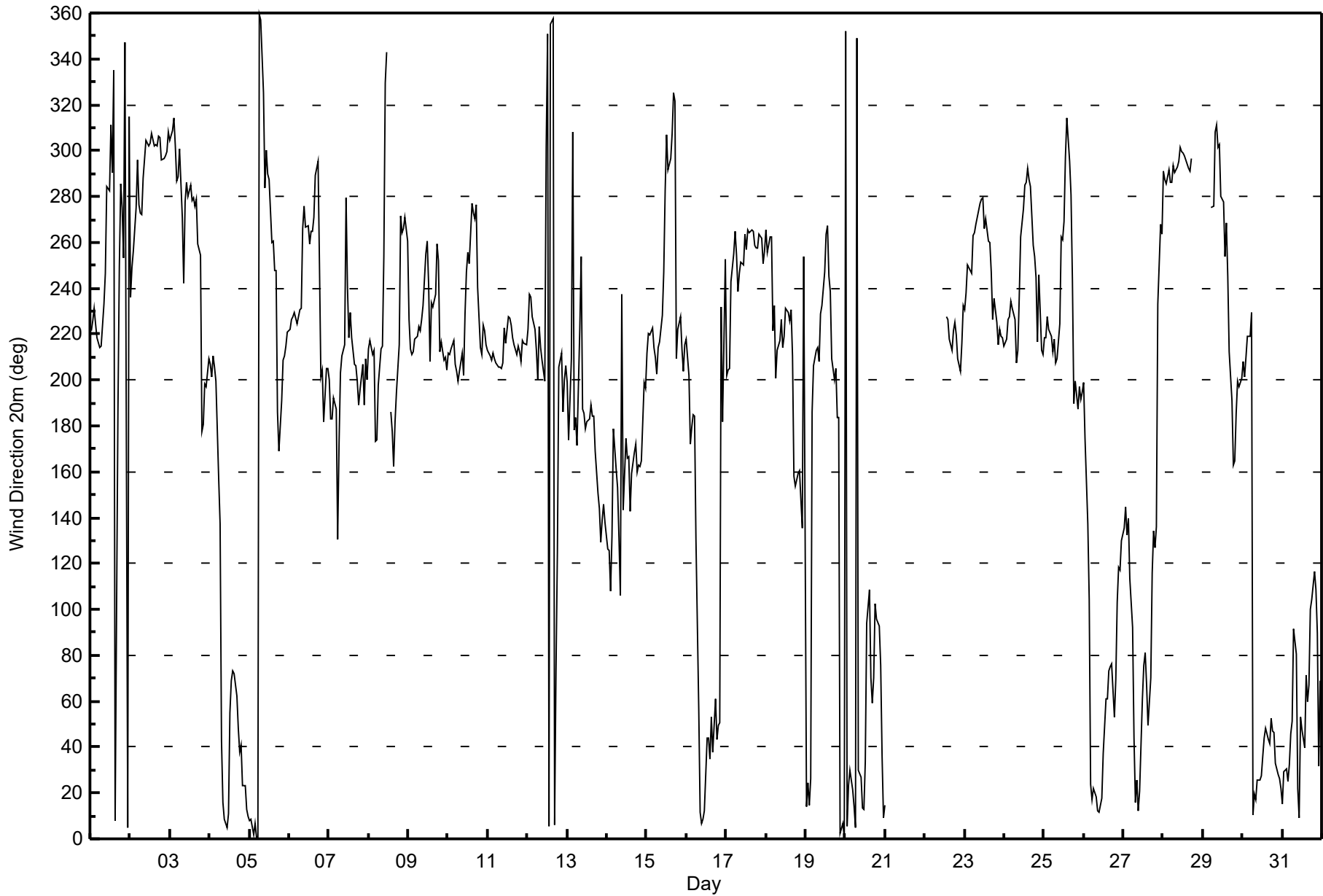
C - Calibration UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 20m (WD20) - deg**  
**Janvier - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on Oct 14 11:00 Minimum Value: 7 deg on Oct 26 07:00 Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 13 Q <sub>1</sub> = 15 Median = 19 Q <sub>3</sub> = 25 P <sub>90</sub> = 33 P <sub>99</sub> = 72											Hours in Service: 744 Hours of Data: 696 Hours of Missing Data: 48 Hours of Calibration: 1 Percent Operational Time: 93.7														
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-Oct	15	17	26	19	19	16	15	19	21	35	25	39	40	30	49	50	33	43	50	16	33	65	40	65	65
2-Oct	15	16	16	24	21	18	22	23	18	26	28	24	27	27	25	26	26	25	23	17	22	22	22	24	28
3-Oct	26	28	33	20	18	19	27	25	21	33	23	24	30	26	27	27	26	22	22	15	24	14	9	9	33
4-Oct	13	10	13	16	11	21	81	66	27	24	28	20	31	22	24	22	21	18	12	12	20	18	24	22	81
5-Oct	20	24	24	22	24	27	28	33	36	25	25	22	31	26	24	25	25	27	19	15	14	15	17	17	36
6-Oct	16	17	16	16	16	16	17	16	23	21	26	31	27	28	28	24	20	14	18	22	13	31	8	10	31
7-Oct	15	12	14	13	16	14	29	17	26	44	24	36	31	28	22	19	18	17	14	17	15	16	10	13	44
8-Oct	13	13	13	14	20	16	13	18	40	86	69	47	C	26	26	26	19	11	20	24	25	20	22	19	86
9-Oct	25	14	14	15	14	14	14	16	19	19	25	26	25	24	40	24	22	15	17	12	12	12	8	11	40
10-Oct	10	12	12	12	10	9	9	14	18	18	24	32	35	22	24	23	22	16	23	12	11	14	12	10	35
11-Oct	9	10	9	11	11	13	12	13	13	16	27	26	20	21	20	20	19	14	14	14	11	14	14	13	27
12-Oct	17	19	20	16	14	16	13	12	14	21	55	57	39	37	35	36	29	36	42	26	14	11	28	58	58
13-Oct	30	32	66	74	34	14	17	54	41	22	18	24	21	21	18	19	18	20	18	14	10	11	13	16	74
14-Oct	12	13	22	26	36	21	27	32	53	83	96	28	29	25	27	29	21	21	22	18	20	16	25	12	96
15-Oct	14	15	17	14	15	14	15	18	15	17	22	30	26	24	31	32	32	38	18	13	19	15	23	19	38
16-Oct	16	13	17	18	25	40	80	31	19	20	20	20	21	14	15	19	20	20	36	49	68	53	24	20	80
17-Oct	17	18	14	23	19	18	21	19	19	19	20	21	21	21	23	21	18	20	19	20	19	19	19	19	23
18-Oct	19	18	20	20	12	18	9	13	15	19	23	25	21	23	24	23	24	13	16	19	22	23	27	66	66
19-Oct	23	11	15	34	72	11	9	12	13	20	22	28	23	22	23	26	20	14	14	12	55	61	21	22	72
20-Oct	28	22	20	22	25	20	34	40	16	18	26	38	30	25	26	20	20	24	21	22	28	23	23	17	40
21-Oct	19	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	19
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	20	20	19	16	16	16	17	14	14	17	17	20
23-Oct	17	16	16	18	16	17	18	18	18	20	19	19	21	23	20	19	19	17	15	13	13	15	15	16	23
24-Oct	16	15	16	17	14	17	17	18	17	31	23	31	21	21	19	19	17	17	19	17	16	46	13	12	46
25-Oct	13	15	15	15	35	13	14	10	14	22	27	28	28	31	27	20	18	28	8	9	14	10	12	10	35
26-Oct	13	22	10	50	86	12	7	9	18	24	18	16	23	17	18	19	20	20	13	20	20	20	21	21	86
27-Oct	16	25	20	22	47	28	28	29	24	36	22	23	24	23	21	15	27	19	12	10	42	65	45	20	65
28-Oct	14	13	16	15	18	15	16	15	15	16	18	19	18	18	17	16	17	18	UO	UO	UO	UO	UO	UO	19
29-Oct	UO	UO	UO	UO	UO	19	20	31	28	24	22	27	23	27	31	25	20	15	14	15	13	16	13	20	31
30-Oct	17	13	12	12	18	51	19	19	19	18	18	17	14	19	16	17	13	15	14	14	10	11	11	12	51
31-Oct	16	11	10	15	19	34	29	30	30	32	24	21	20	17	28	16	19	33	22	21	20	23	12	40	40
Diurnal Maximum																									
C - Calibration      UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS23 FORT HILLS OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
OCTOBER 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	708	34	36	99.73	20.4	0	4.5	0
TRS(ppb) Average	707	36	37	99.87	2.9	0	1	0
THC(ppm) Average	708	34	36	99.73	4.7	-	2.7	-
NMHC(ppm) Average	708	34	36	99.73	0.643	-	0.185	-
CH4(ppm) Average	708	34	36	99.73	4.5	-	2.6	-
NO2 (ppb) Average	707	35	37	99.73	35.8	0	21.6	-
NO (ppb) Average	707	35	37	99.73	167.5	-	42.9	-
NOX (ppb) Average	707	35	37	99.73	203.3	-	64.5	-
PM2.5 (ug/m3) Average	742	1	2	99.87	95.2	1	16.3	0
Temperature 2 m (C) Average	743	0	1	99.87	18.5	-	12.5	-
Relative Humidity (%) Average	743	0	1	99.87	99.3	-	87.5	-
Wind Speed 10 m (km/h) Average	742	1	2	99.87	32	-	19	-
Wind Direction 10 m (deg) Average	742	1	2	99.87	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
OCTOBER 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	0.7	1.8	-	0	0	0	0.1	0.4	1.8	20.4
TRS (ppb) Average	707	0.45	0.4	-	0.2	0.2	0.3	0.3	0.5	0.9	2.9
THC (ppm) Average	708	2.26	0.4	-	2	2	2	2.1	2.4	2.7	4.7
NMHC(ppm) Average	708	0.038	0.087	-	0	0	0	0	0	0.2	0.643
CH4(ppm) Average	708	2.22	0.3	-	2	2	2	2.1	2.3	2.6	4.5
NO2 (ppb) Average	707	9.72	8.4	-	0	0.5	1.9	7.4	16.4	22.6	35.8
NO (ppb) Average	707	9.55	19.2	-	0	0	0	1.3	9	29.7	167.5
NOX (ppb) Average	707	19.26	25.7	-	0	0.5	2	9.2	25	51.7	203.3
PM2.5 (ug/m3) Average	742	5.69	6.8	-	0.3	1.1	2.5	3.9	6.7	10.8	95.2
Temperature 2 m (C) Average	743	3.49	5.4	-	-7.8	-3.5	-0.1	2.6	6.8	11.6	18.5
Relative Humidity (%) Average	743	70.91	15.3	-	22.9	49.8	61.8	72.6	83	89.4	99.3
Wind Speed 10 m (km/h) Average	742	11	6	-	1	4	7	10	15	18	32
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	17 Oct 2024 06:00	17 Oct 2024 06:00	1	DAS Failure - data not recorded
ALL GASEOUS ANALYZERS	11 Oct 2024 08:00	11 Oct 2024 08:00	1	Maintenance - sample manifold cleaned





Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort Hills - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 20.4 ppb on Oct 14 12:00	Maximum Daily Average: 4.5 ppb on Oct 14		Hours of Data:	708
Minimum Value: 0.0 ppb on Oct 1 18:00	Minimum Daily Average: 0.0 ppb on Oct 28		Hours of Missing Data:	36
Maximum Diurnal Average: 2.2 ppb at hour 12	Minimum Diurnal Average: 0.2 ppb at hour 1		Hours of Calibration:	34
Monthly Average: 0.70 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 1.8 P <sub>99</sub> = 9.8		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-Oct	0.2	0.2	0.3	0.2	Z	0.2	0.2	0.2	0.5	0.4	0.3	0.1	0.1	0.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2		
2-Oct	0.0	0.0	0.1	0.2	0.0	Z	0.2	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	0.1	0.1	0.0	0.2		
3-Oct	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	2.0	1.8	1.4	0.3	0.6	0.3	0.3	0.0	0.1	0.2	0.1	0.1	0.3	2.0		
4-Oct	0.1	Z	0.2	0.3	0.4	0.5	1.2	2.8	2.7	5.4	9.9	10.8	6.2	6.5	6.1	5.8	3.2	1.6	1.3	1.0	0.6	0.4	0.4	0.3	2.9	10.8		
5-Oct	0.2	0.3	Z	0.5	0.5	0.4	0.3	0.3	0.3	0.1	0.3	1.8	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	1.0	1.3	0.7	0.3	0.4	1.8		
6-Oct	0.2	0.1	0.1	Z	0.0	0.2	2.2	0.9	0.3	0.2	0.1	0.1	6.4	1.3	0.5	0.5	0.5	0.0	0.4	0.3	0.2	0.3	0.0	0.6	0.7	6.4		
7-Oct	1.2	1.3	1.9	2.4	Z	2.4	3.6	1.1	0.6	3.0	9.0	10.8	11.5	9.9	3.2	1.1	3.2	4.1	1.4	0.6	0.5	0.5	0.5	0.4	3.2	11.5		
8-Oct	0.3	0.2	0.3	0.2	0.2	Z	0.3	0.5	1.2	2.0	1.4	2.5	3.3	4.3	3.2	3.0	2.7	4.1	5.0	4.6	0.9	0.4	0.2	0.1	1.8	5.0		
9-Oct	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.7	0.5	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.3	0.3	0.1	0.0	0.2	0.7		
10-Oct	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	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2		
11-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	M	0.2	0.1	0.1	0.1	0.3	0.5	1.6	0.3	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.2	1.6		
12-Oct	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.3	
13-Oct	0.1	0.1	0.4	0.5	Z	0.9	0.7	0.9	1.5	2.9	7.7	8.6	8.1	6.8	4.9	4.8	0.7	0.3	0.3	1.6	3.6	3.2	0.6	0.2	2.6	8.6		
14-Oct	0.5	2.1	1.2	3.6	3.3	Z	0.3	0.1	0.1	1.9	5.8	20.4	14.1	11.7	5.7	9.0	8.3	6.6	3.7	1.6	2.6	1.0	0.3	0.3	4.5	20.4		
15-Oct	Z	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	1.7	2.8	2.0	1.5	0.6	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.5	2.8		
16-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.8	0.6	0.6	0.5	0.5	0.8	0.6	1.3	1.2	1.5	1.6	1.5	0.9	0.5	0.2	0.6	1.6		
17-Oct	0.2	0.1	Z	0.1	0.2	DF	0.2	0.2	0.3	0.6	0.2	3.9	2.9	2.0	0.3	0.4	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.6	3.9		
18-Oct	0.1	0.1	0.0	Z	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	2.1	0.6	0.2	0.1	0.1	0.0	0.0	0.1	0.7	0.4	0.5	0.8	0.3	2.1		
19-Oct	0.9	0.6	0.4	0.5	Z	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	0.9		
20-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
21-Oct	Z	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
22-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	
23-Oct	0.1	0.1	Z	0.1	0.3	0.2	0.7	0.1	0.1	0.3	0.7	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.7	0.7	
24-Oct	0.0	0.0	0.0	Z	0.2	0.1	0.0	0.0	0.1	0.8	0.7	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	0.8	
25-Oct	0.1	0.2	0.2	0.3	Z	0.2	0.1	0.2	0.1	0.1	0.2	0.3	1.5	1.4	0.7	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.3	1.5	1.5	
26-Oct	0.3	0.2	0.3	0.4	0.2	Z	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.4	0.2	0.4	0.4	
27-Oct	Z	0.2	0.1	0.2	0.3	0.3	0.6	0.7	0.4	0.2	0.1	0.6	0.8	0.2	0.5	0.5	0.1	0.2	0.4	0.1	0.4	0.0	0.2	0.2	0.3	0.8	0.8	
28-Oct	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	
29-Oct	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	0.0	0.0	0.0	0.1	0.6	0.2	0.7	0.1	0.0	0.1	0.7	0.7	
30-Oct	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
31-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.2	0.0	0.0	0.8	2.3	0.4	0.0	0.0	1.0	2.2	2.1	3.5	5.7	3.4	1.1	0.6	0.4	1.0	5.7	5.7	

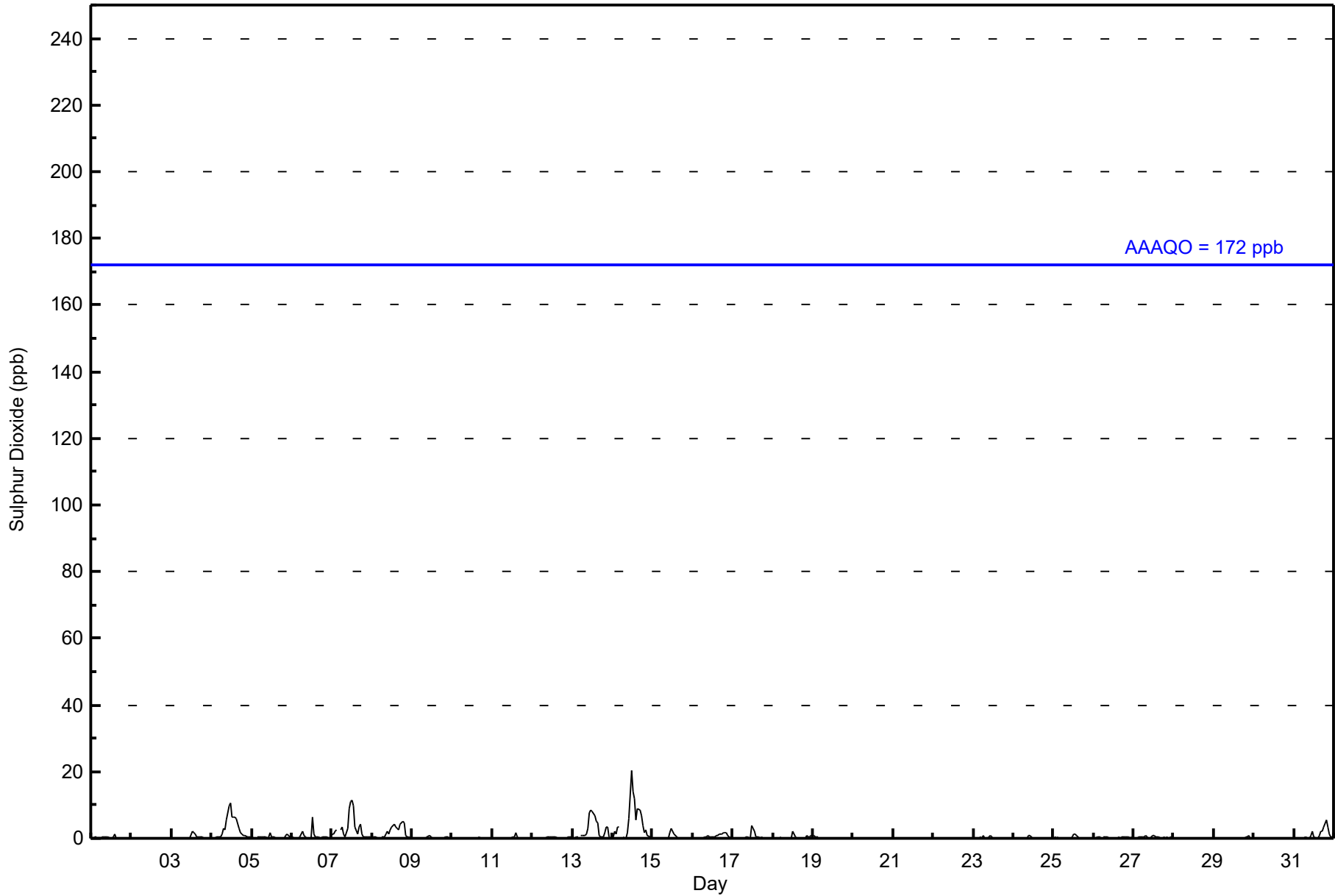
0.2	0.3	0.2	0.4	0.3	0.2	0.4	0.3	0.3	0.7	1.3	2.2	2.0	1.6	1.0	0.9	0.8	0.7	0.6	0.6	0.6	0.4	0.2	0.2	Diurnal Average	
1.2	2.1	1.9	3.6	3.3	2.4	3.6	2.8	2.7	5.4	9.9	20.4	14.1	11.7	6.1	9.0	8.3	6.6	5.0	5.7	3.6	3.2	0.7	0.8	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb      24-hr 48 ppb



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Hills - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Hills - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	702	99.15	99.15
11 - 20	6	0.85	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**  
**Fort Hills - October 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	26	15	9	5	10	43	92	81	90	45	21	40	46	36	37	701
11 - 20	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	6
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	106	26	15	9	5	10	43	92	86	90	45	21	40	46	36	37	707

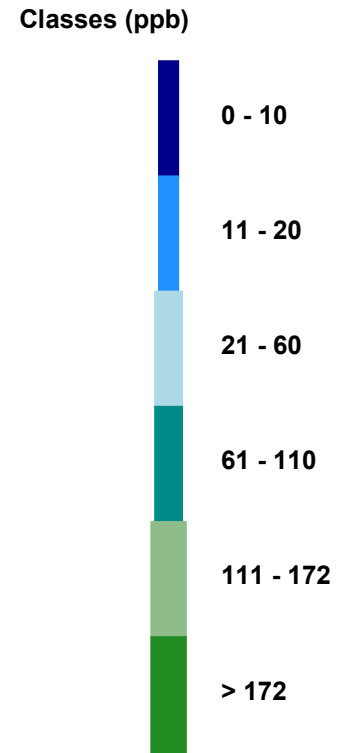
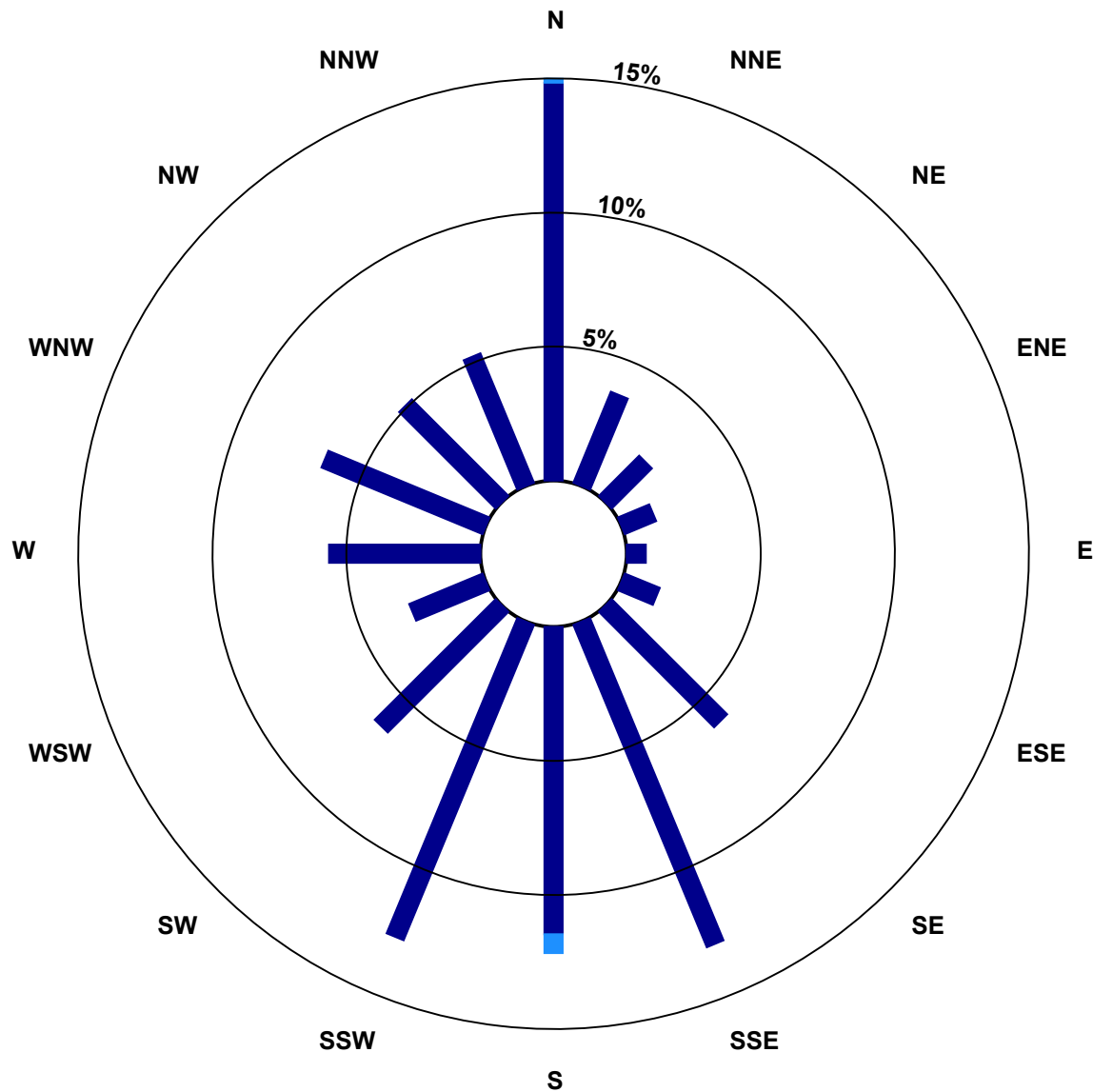
Total Number of Valid Hours: 707

Total Number of Hours: 744

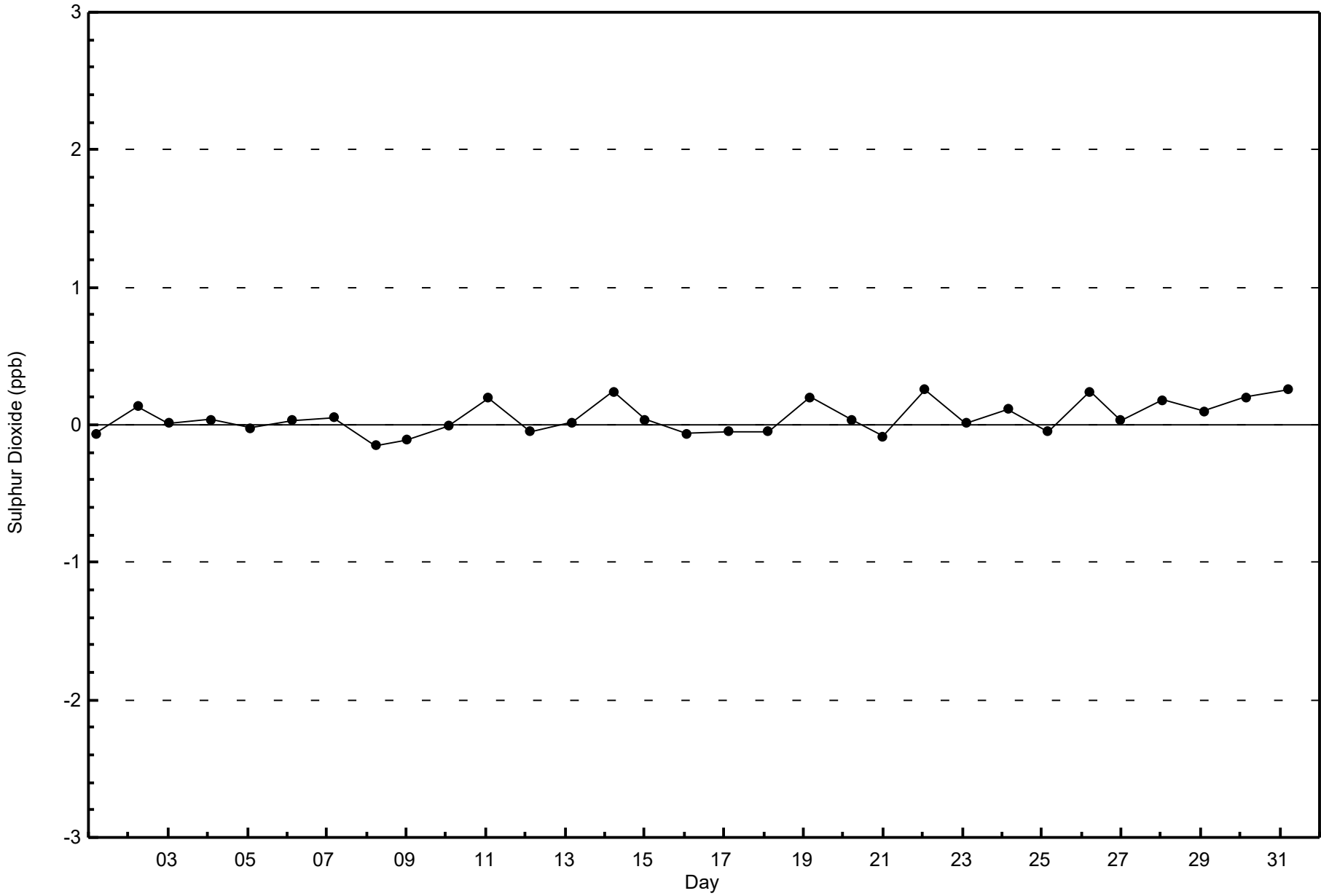


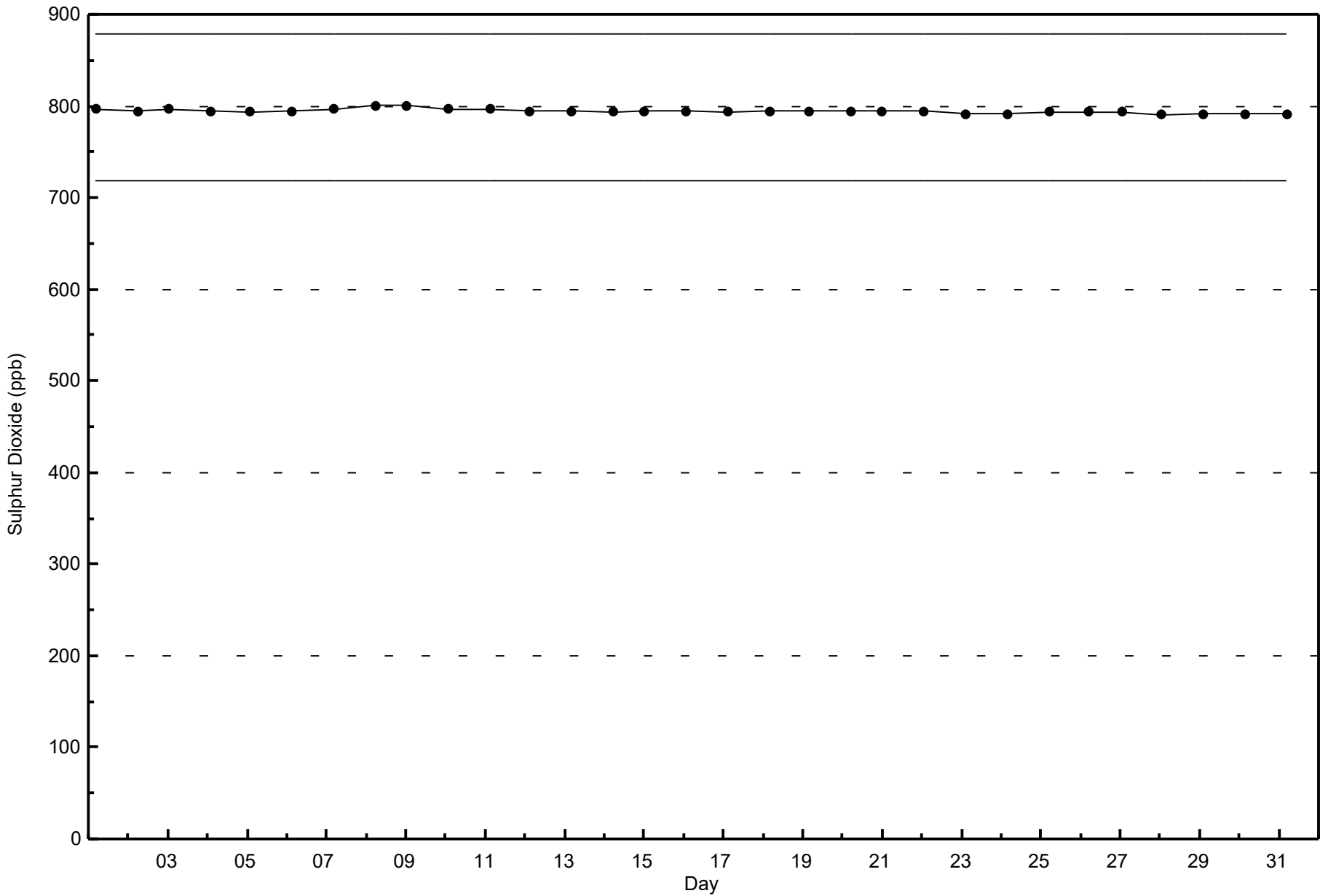
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



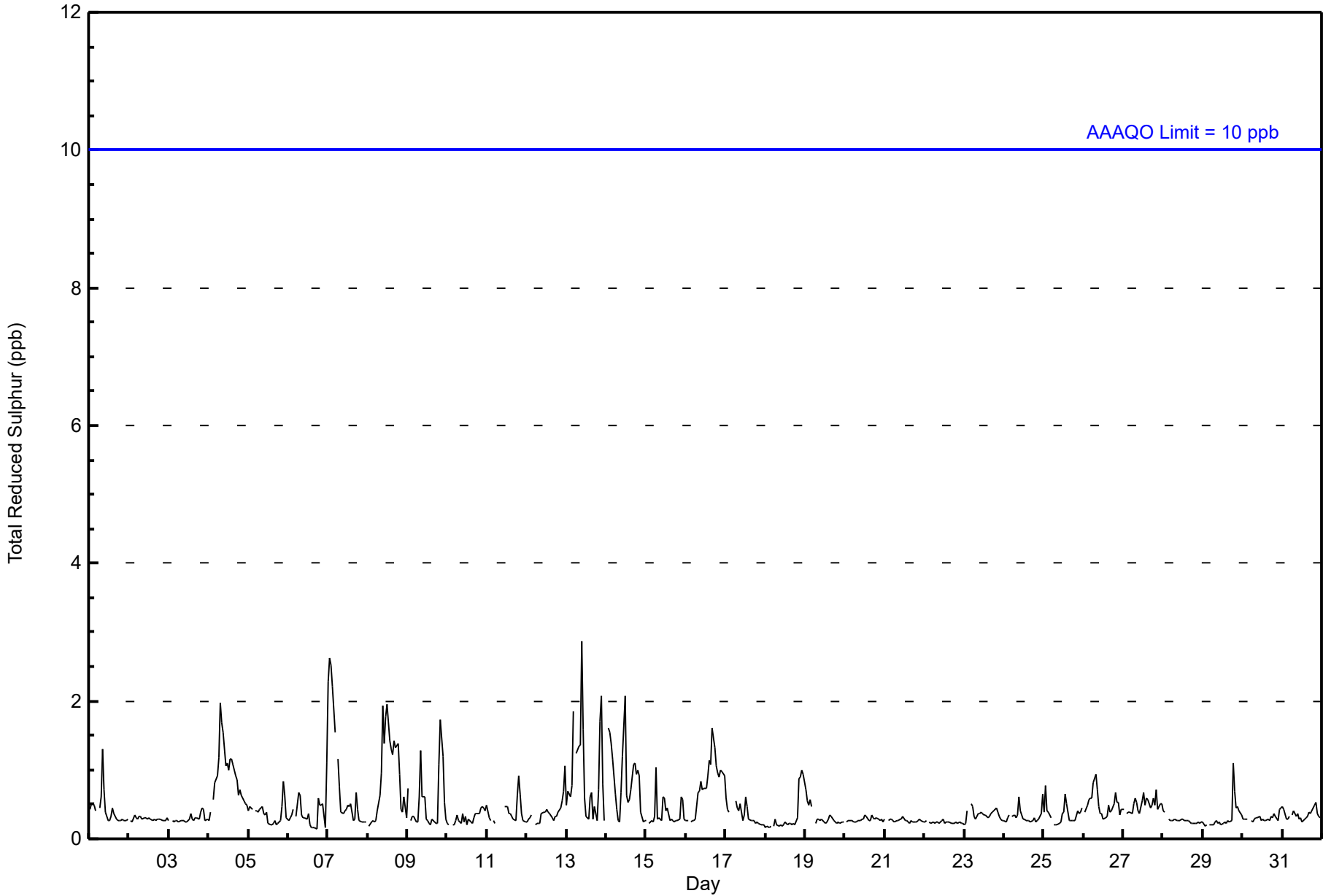
Total Number of Valid Hours: 707













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

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Hills - October 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	3	0.42	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**  
**Fort Hills - October 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	107	27	15	9	5	10	39	87	90	86	44	22	42	49	37	34	703
3 - 4	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	3
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	107	27	15	9	5	10	41	87	90	87	44	22	42	49	37	34	706

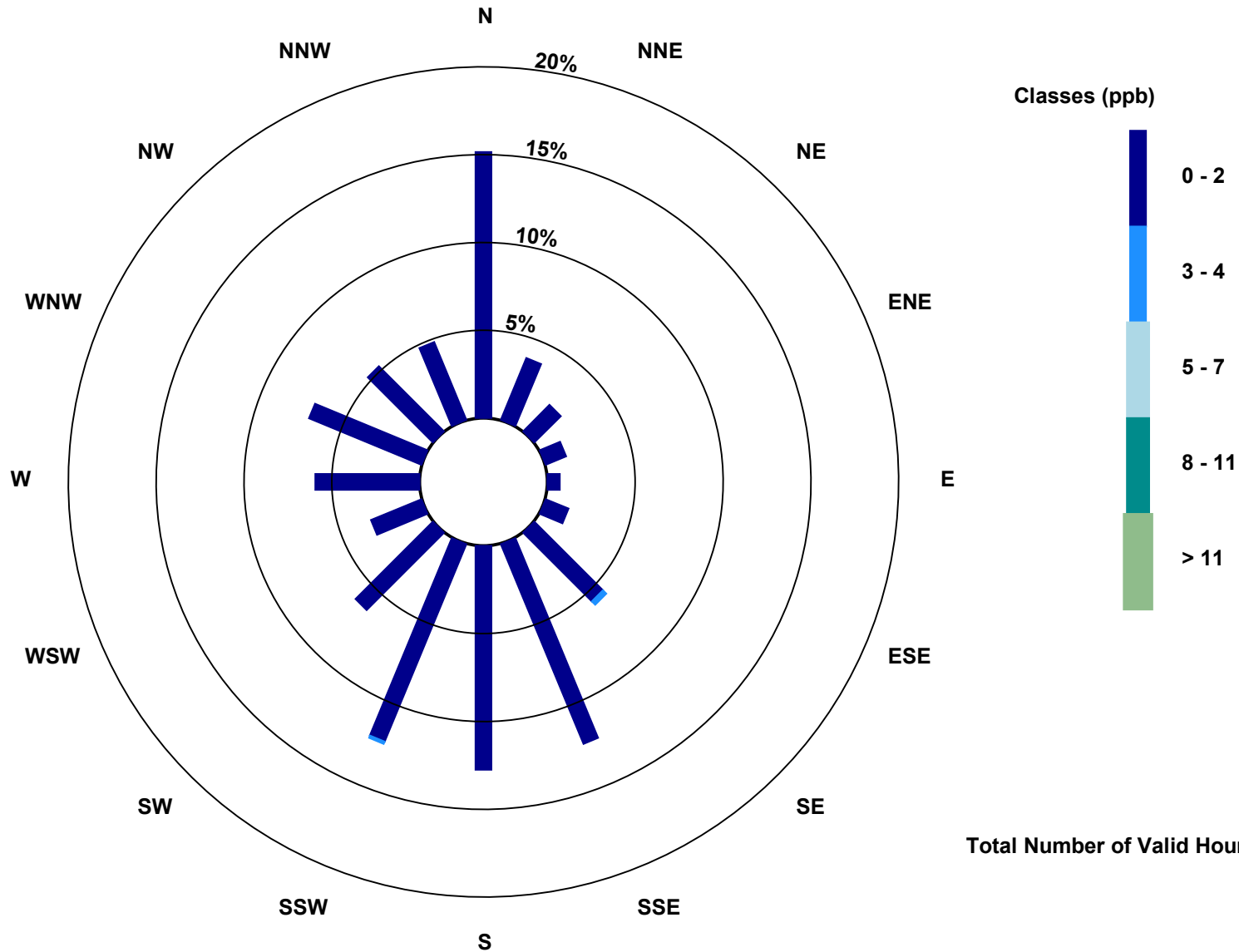
Total Number of Valid Hours: 706

Total Number of Hours: 744

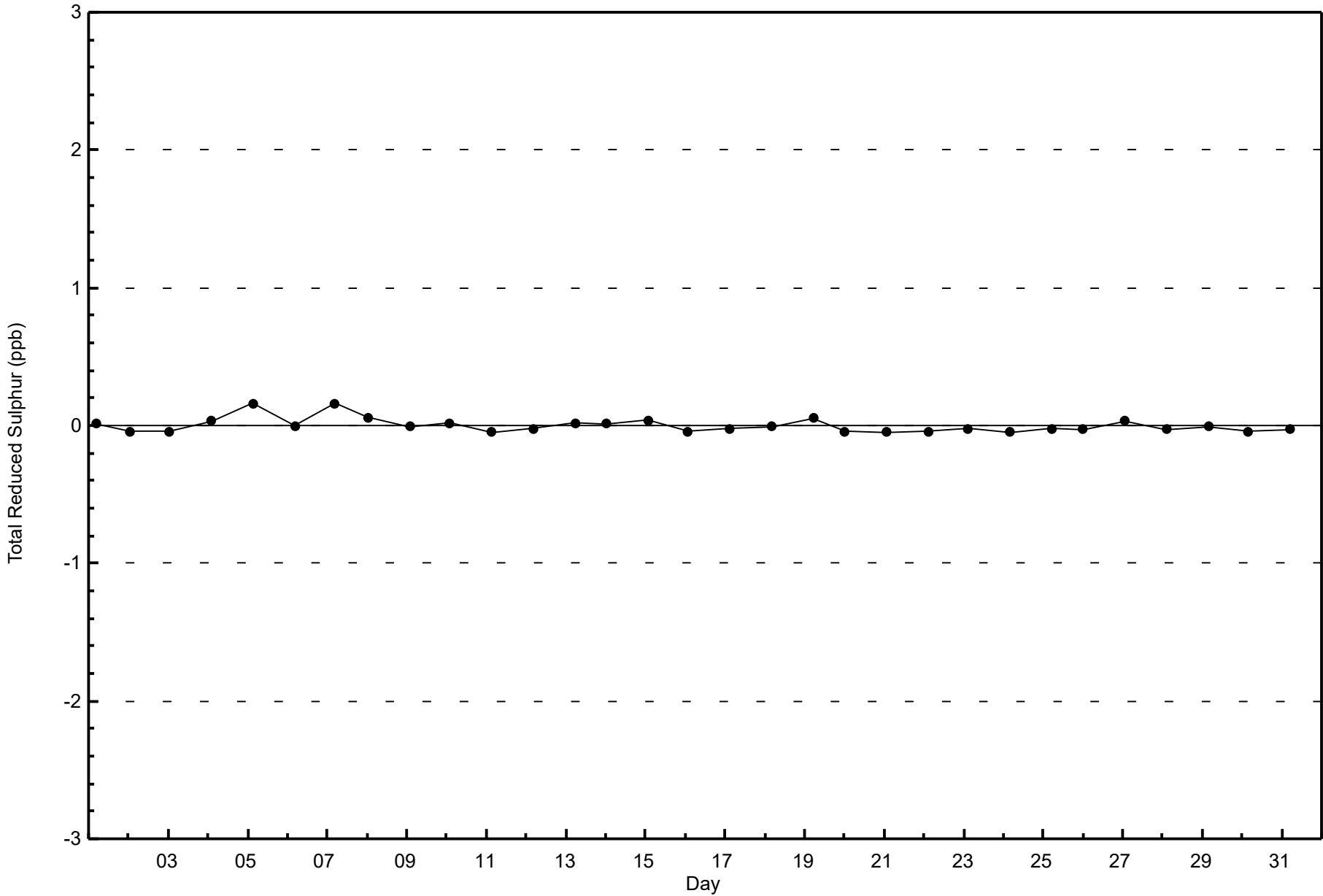


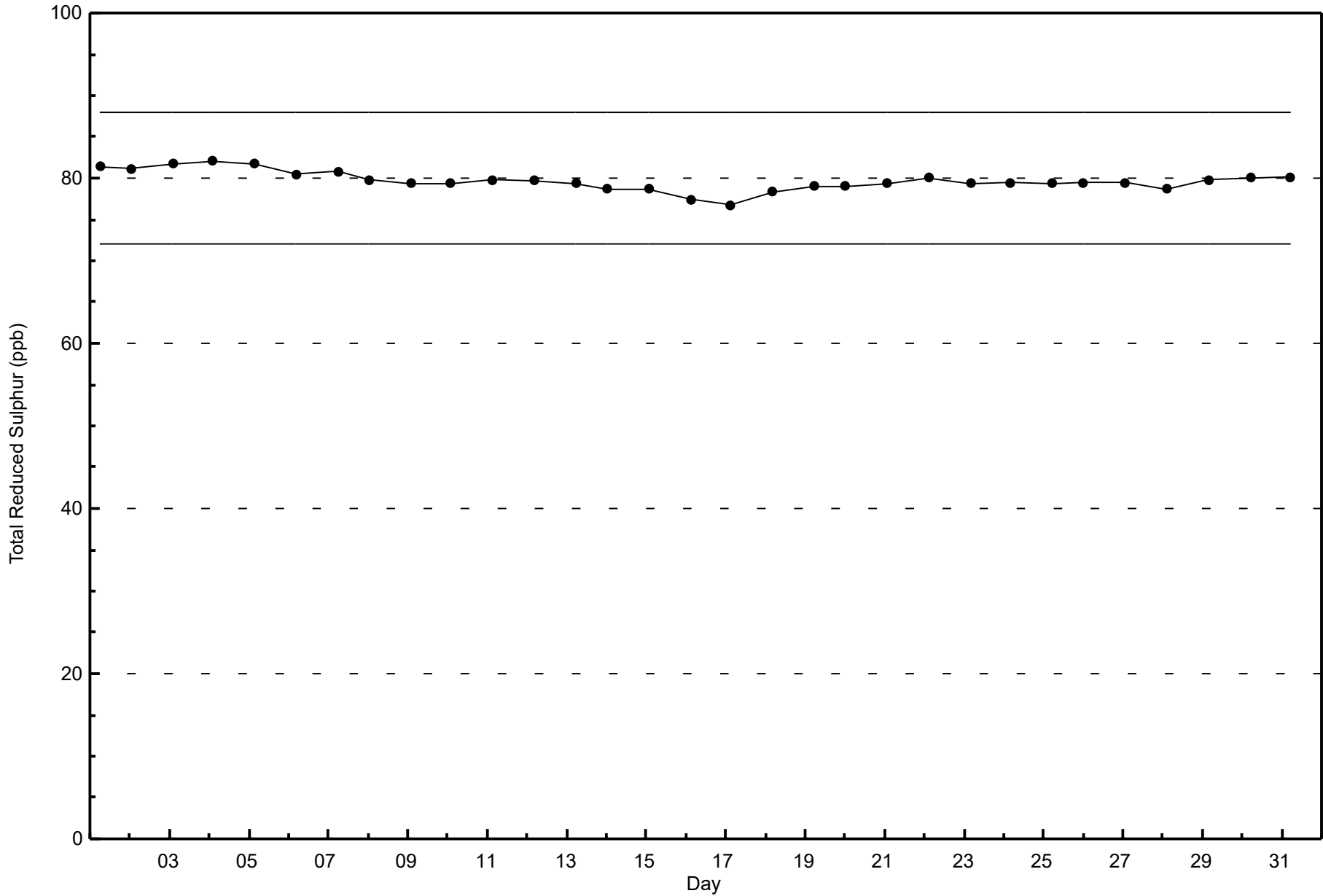
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Fort Hills



Total Number of Valid Hours: 706







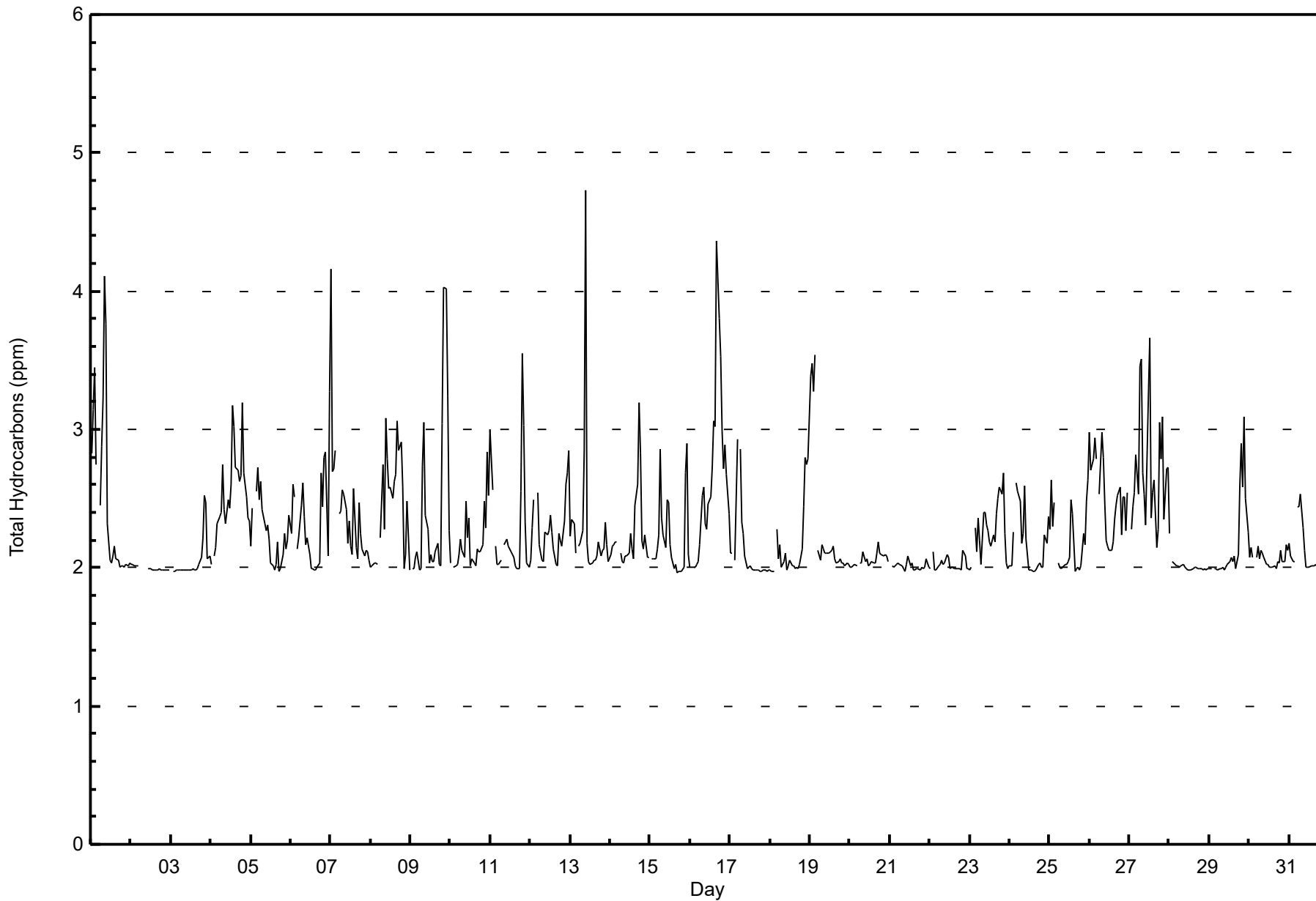
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Fort Hills - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744																													
Maximum Value: 4.7 ppm on Oct 13 10:00		Maximum Daily Average: 2.7 ppm on Oct 27		Hours of Data: 708														708																															
Minimum Value: 2.0 ppm on Oct 15 17:00		Minimum Daily Average: 2.0 ppm on Oct 2		Hours of Missing Data: 36														36																															
Maximum Diurnal Average: 2.4 ppm at hour 21		Minimum Diurnal Average: 2.1 ppm at hour 16		Hours of Calibration: 34														34																															
Monthly Average: 2.26 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> = 2.7 P <sub>99</sub> = 3.8		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-Oct	2.8	3.1	3.4	2.7	Z	2.5	2.9	3.2	4.1	3.8	2.3	2.1	2.0	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	4.1																							
2-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	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																							
3-Oct	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	2.2	2.5	2.5	2.1	2.1	2.1	2.5																							
4-Oct	2.0	Z	2.1	2.1	2.3	2.4	2.4	2.7	2.4	2.3	2.5	2.4	2.6	3.2	3.0	2.7	2.7	2.6	2.7	3.2	2.7	2.5	2.4	2.3	2.5	3.2																							
5-Oct	2.2	2.4	Z	2.6	2.7	2.5	2.6	2.4	2.3	2.3	2.3	2.2	2.0	2.0	2.0	2.2	2.0	2.0	2.1	2.3	2.1	2.2	2.4	2.3	2.7	2.7																							
6-Oct	2.2	2.6	2.5	Z	2.1	2.2	2.5	2.6	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.7	2.4	2.8	2.8	2.1	3.3	2.3	3.3																								
7-Oct	4.2	2.7	2.7	2.8	Z	2.4	2.4	2.6	2.5	2.4	2.2	2.3	2.2	2.1	2.6	2.2	2.1	2.5	2.2	2.1	2.1	2.1	2.1	2.4	4.2	4.2																							
8-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.2	2.7	2.3	3.1	2.8	2.6	2.6	2.5	2.6	2.7	3.1	2.8	2.9	2.6	2.0	2.1	2.5	2.0	2.4	3.1																							
9-Oct	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.7	3.0	2.4	2.3	2.0	2.1	2.0	2.0	2.1	2.2	2.0	2.0	3.0	4.0	4.0	3.2	2.3	2.4	4.0																							
10-Oct	2.0	Z	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.5	2.2	2.4	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.5	2.3	2.8	2.5	2.2	2.8																							
11-Oct	3.0	2.6	Z	2.2	2.0	2.0	2.1	M	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.6	3.6	3.0	2.3	2.0	2.0	2.3	3.6																							
12-Oct	2.1	2.3	2.5	Z	2.5	2.2	2.1	2.1	2.0	2.3	2.2	2.3	2.4	2.3	2.1	2.0	2.0	2.2	2.2	2.2	2.3	2.6	2.7	2.9	2.3	2.9																							
13-Oct	2.2	2.4	2.3	2.1	Z	2.2	2.2	2.3	2.9	4.7	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.3	2.2	2.0	2.3	4.7	4.7																							
14-Oct	2.1	2.2	2.2	2.2	2.2	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.5	2.6	3.2	2.8	2.2	2.1	2.2	2.1	2.1	2.2	3.2																							
15-Oct	Z	2.1	2.1	2.1	2.1	2.2	2.9	2.4	2.2	2.1	2.5	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.9	2.1	2.2	2.9																							
16-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.2	2.5	2.6	2.3	2.3	2.5	2.5	2.7	3.1	3.0	4.4	3.8	3.5	3.0	2.7	2.9	2.7	2.4	2.7	4.4																							
17-Oct	2.1	2.1	Z	2.1	2.9	DF	2.9	2.3	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.9																							
18-Oct	2.0	2.0	2.0	Z	2.3	2.1	2.2	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.8	2.7	2.8	2.2	2.8																							
19-Oct	3.4	3.5	3.3	3.5	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.3	3.5																							
20-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2																							
21-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1																							
22-Oct	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1																							
23-Oct	2.0	2.0	Z	2.3	2.1	2.4	2.2	2.0	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.4	2.5	2.6	2.5	2.7	2.2	2.0	2.0	2.3	2.7	2.7																							
24-Oct	2.0	2.0	2.3	Z	2.6	2.5	2.5	2.2	2.2	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.4	2.2	2.6																							
25-Oct	2.3	2.6	2.3	2.5	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.4	2.0	2.0	2.0	2.0	2.0	2.3	2.2	2.5	2.6	2.2	2.6																							
26-Oct	3.0	2.7	2.8	2.9	2.8	Z	2.5	3.0	2.8	2.5	2.2	2.2	2.1	2.1	2.2	2.3	2.5	2.5	2.6	2.2	2.5	2.5	2.3	2.5	2.5	3.0																							
27-Oct	Z	2.3	2.4	2.5	2.8	2.5	3.5	3.5	2.7	2.5	2.3	3.2	3.7	2.4	2.5	2.6	2.2	2.3	3.1	2.8	3.1	2.3	2.7	2.7	2.7	3.7																							
28-Oct	2.3	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	2.3																							
29-Oct	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	2.0	2.1	2.0	2.1	2.6	2.9	2.6	3.1	2.5	2.3	2.2	3.1																							
30-Oct	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.1	2.1	2.2																							
31-Oct	2.2	2.1	2.0	2.0	Z	2.4	2.4	2.5	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.7	2.1	2.0	2.0	2.2	2.7																							
																								2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.4	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.3	2.3	Diurnal Average	
																								4.2	3.5	3.4	3.5	2.9	2.5	3.5	3.5	4.1	4.7	2.8	3.2	3.7	3.2	3.1	3.0	4.4	3.8	3.5	3.6	4.0	4.0	3.2	3.3	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				DF - DAS Failure																																							







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

**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	283	39.97	39.97
2.1 - 3.0	393	55.51	95.48
3.1 - 10.0	32	4.52	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

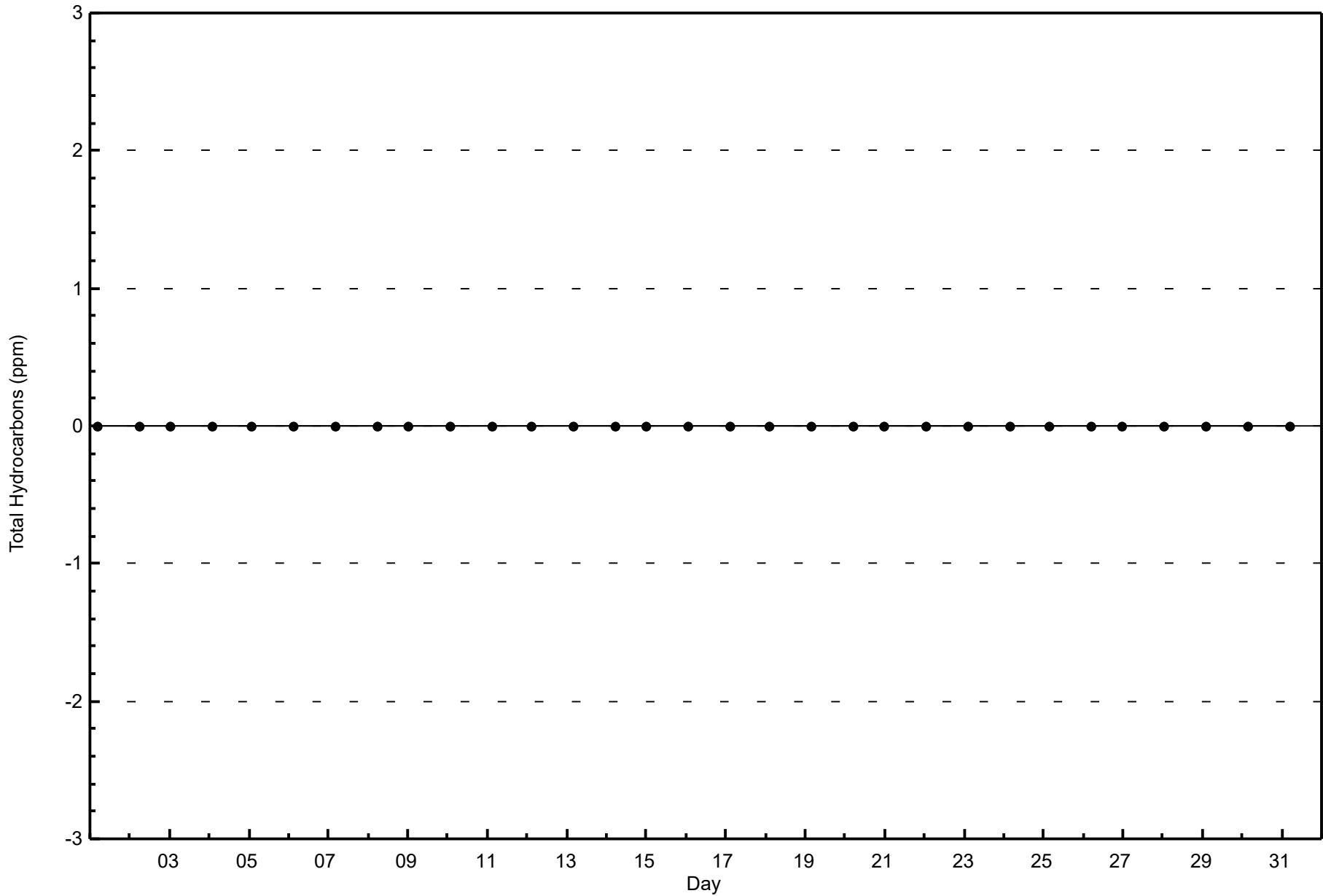
**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - October 2024**

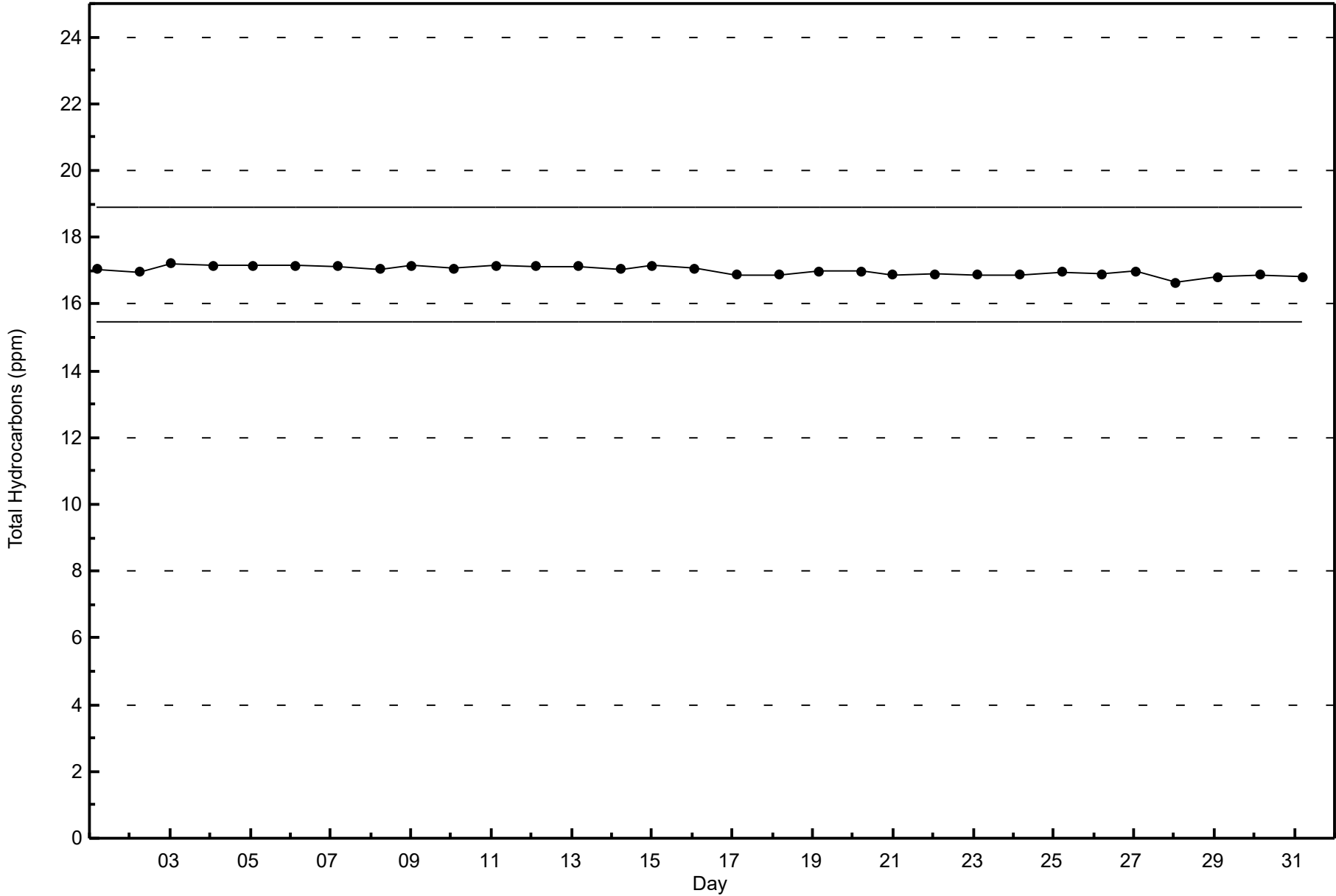
<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	29	8	8	4	1	2	7	29	40	28	6	12	32	44	27	5	282
2.1 - 3.0	68	17	7	5	4	6	34	62	45	60	38	7	5	2	8	25	393
3.1 - 10.0	9	1	0	0	0	2	2	1	1	2	1	2	3	0	1	7	32
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	106	26	15	9	5	10	43	92	86	90	45	21	40	46	36	37	707

Total Number of Valid Hours: 707

Total Number of Hours: 744





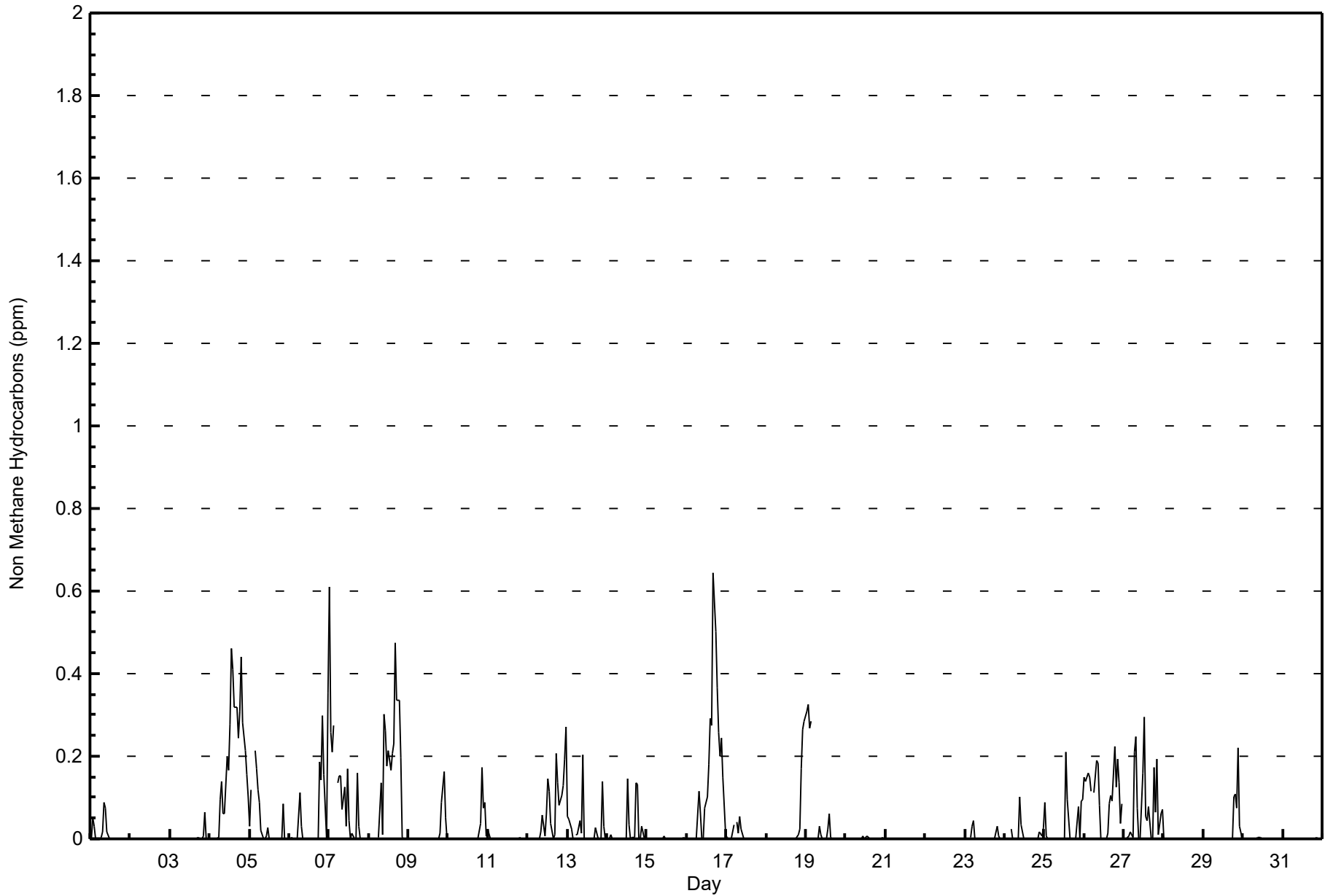




Summary of Hour Averages

Fort Hills - October 2024

Maximum Value: 0.643 ppm on Oct 16 17:00		Maximum Daily Average: 0.185 ppm on Oct 4		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Oct 1 01:00		Minimum Daily Average: 0.000 ppm on Oct 2		Hours of Data: 708																							
Maximum Diurnal Average: 0.064 ppm at hour 19		Minimum Diurnal Average: 0.013 ppm at hour 6		Hours of Missing Data: 36																							
Monthly Average: 0.038 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.4		Hours of Calibration: 34																							
				Percent Operational Time: 99.7																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	0.000	0.051	0.030	0.000	Z	0.000	0.004	0.017	0.089	0.073	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.089	
2-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3-Oct	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	0.004	0.000	0.000	0.008	0.065	0.000	0.000	0.003	0.065	
4-Oct	0.000	Z	0.000	0.000	0.000	0.005	0.096	0.138	0.060	0.061	0.201	0.165	0.278	0.461	0.409	0.317	0.317	0.244	0.308	0.440	0.282	0.212	0.156	0.100	0.185	0.461	
5-Oct	0.030	0.118	Z	0.214	0.169	0.119	0.089	0.021	0.000	0.000	0.005	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.085	0.000	0.000	0.000	0.038	0.214	
6-Oct	0.000	0.003	0.000	Z	0.000	0.000	0.112	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.185	0.142	0.299	0.156	0.000	0.353	0.056	0.353	
7-Oct	0.612	0.258	0.210	0.274	Z	0.136	0.152	0.152	0.070	0.126	0.032	0.169	0.044	0.000	0.013	0.000	0.000	0.159	0.031	0.000	0.000	0.000	0.000	0.000	0.106	0.612	
8-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.004	0.135	0.011	0.301	0.260	0.175	0.215	0.167	0.206	0.230	0.474	0.334	0.337	0.197	0.002	0.000	0.000	0.000	0.133	0.474	
9-Oct	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	0.012	0.088	0.161	0.052	0.000	0.014	0.161	
10-Oct	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	0.036	0.174	0.076	0.088	0.008	0.017	0.174	
11-Oct	0.024	0.000	Z	0.000	0.000	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.000	0.000	0.000	0.001	0.024	
12-Oct	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.016	0.059	0.006	0.061	0.146	0.117	0.037	0.000	0.011	0.206	0.136	0.080	0.105	0.128	0.195	0.271	0.068	0.271	
13-Oct	0.055	0.047	0.025	0.000	Z	0.011	0.010	0.045	0.013	0.205	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.000	0.000	0.000	0.140	0.029	0.000	0.026	0.205		
14-Oct	0.000	0.000	0.011	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.146	0.035	0.000	0.005	0.005	0.137	0.133	0.000	0.000	0.029	0.000	0.000	0.022	0.146		
15-Oct	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.007	
16-Oct	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.115	0.060	0.000	0.000	0.076	0.100	0.181	0.293	0.275	0.643	0.503	0.366	0.257	0.199	0.245	0.150	0.011	0.151	0.643	
17-Oct	0.003	0.000	Z	0.000	0.035	DF	0.040	0.013	0.053	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.053	
18-Oct	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	0.012	0.023	0.170	0.266	0.284	0.033	0.284	
19-Oct	0.307	0.324	0.267	0.284	Z	0.000	0.000	0.000	0.031	0.010	0.000	0.000	0.000	0.024	0.059	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.057	0.324	
20-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.007	0.000	0.002	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.008	
21-Oct	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	
22-Oct	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	
23-Oct	0.000	0.000	Z	0.003	0.030	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.007	0.000	0.000	0.000	0.005	0.043	
24-Oct	0.000	0.000	0.000	Z	0.023	0.000	0.000	0.000	0.000	0.100	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.008	0.028	0.009	0.100	
25-Oct	0.090	0.007	0.000	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.210	0.095	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.000	0.090	0.096	0.029	0.210	
26-Oct	0.150	0.140	0.158	0.149	0.117	Z	0.110	0.190	0.183	0.082	0.000	0.000	0.000	0.013	0.084	0.105	0.092	0.223	0.126	0.194	0.137	0.038	0.085	0.103	0.223		
27-Oct	Z	0.000	0.005	0.007	0.016	0.005	0.209	0.246	0.074	0.000	0.000	0.160	0.296	0.055	0.042	0.079	0.000	0.000	0.173	0.064	0.192	0.010	0.061	0.070	0.077	0.296	
28-Oct	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	
29-Oct	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	0.102	0.108	0.073	0.219	0.031	0.000	0.023	0.219	
30-Oct	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.005	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	
31-Oct	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	0.004	0.000	0.000	0.000	0.000	0.004	
		0.049	0.036	0.027	0.036	0.016	0.013	0.027	0.038	0.022	0.035	0.018	0.027	0.040	0.041	0.038	0.032	0.050	0.055	0.064	0.049	0.059	0.057	0.038	0.042	Diurnal Average	
		0.612	0.324	0.267	0.284	0.169	0.136	0.209	0.246	0.183	0.301	0.260	0.175	0.296	0.461	0.409	0.317	0.643	0.503	0.366	0.440	0.299	0.245	0.266	0.353	Diurnal Maximum	
Z - zerospan		C - Calibration			M - Maintenance			DF - DAS Failure																			





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort Hills - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	503	71.05	71.05
0.006 - 0.05	67	9.46	80.51
0.06 - 0.1	64	9.04	89.55
> 0.1	74	10.45	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744





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

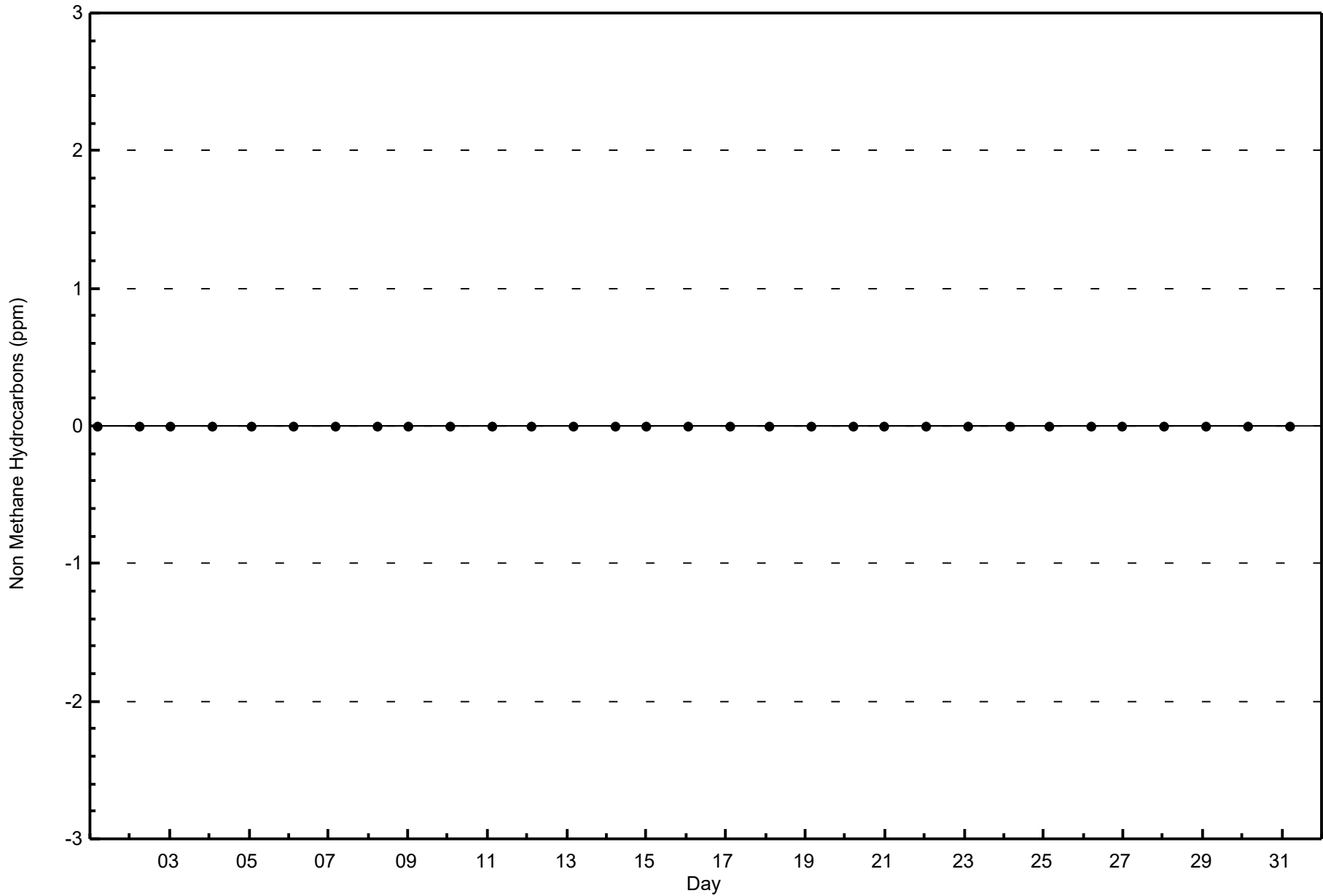
**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort Hills - October 2024**

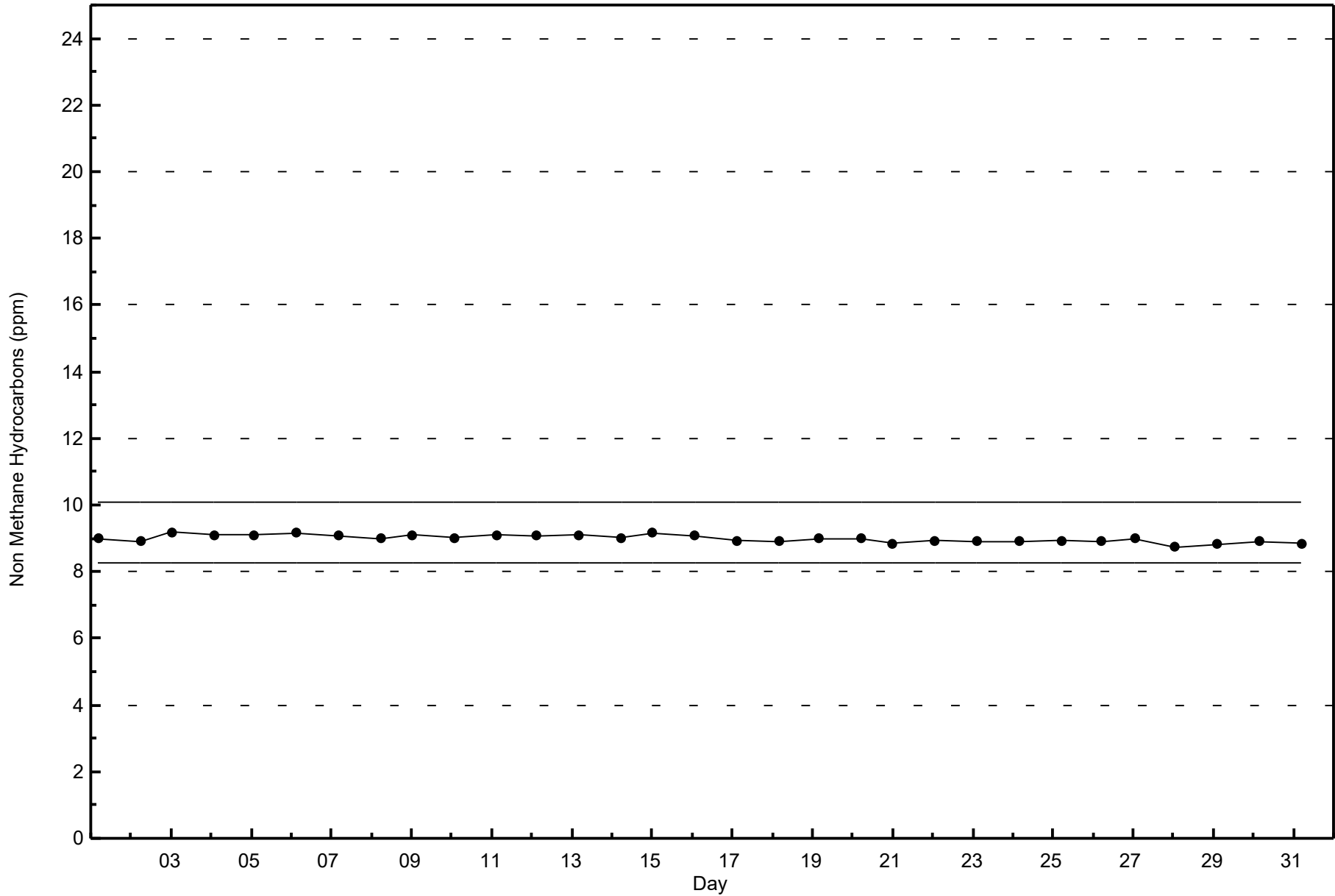
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	53	17	13	5	1	2	23	69	71	79	30	14	33	44	31	17	502
0.006 - 0.05	8	4	2	2	0	3	2	12	7	7	8	4	1	0	1	6	67
0.06 - 0.1	15	3	0	0	2	2	9	8	4	2	5	2	3	2	2	5	64
> 0.1	30	2	0	2	2	3	9	3	4	2	2	1	3	0	2	9	74
<b>Totals</b>	106	26	15	9	5	10	43	92	86	90	45	21	40	46	36	37	707

Total Number of Valid Hours: 707

Total Number of Hours: 744









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

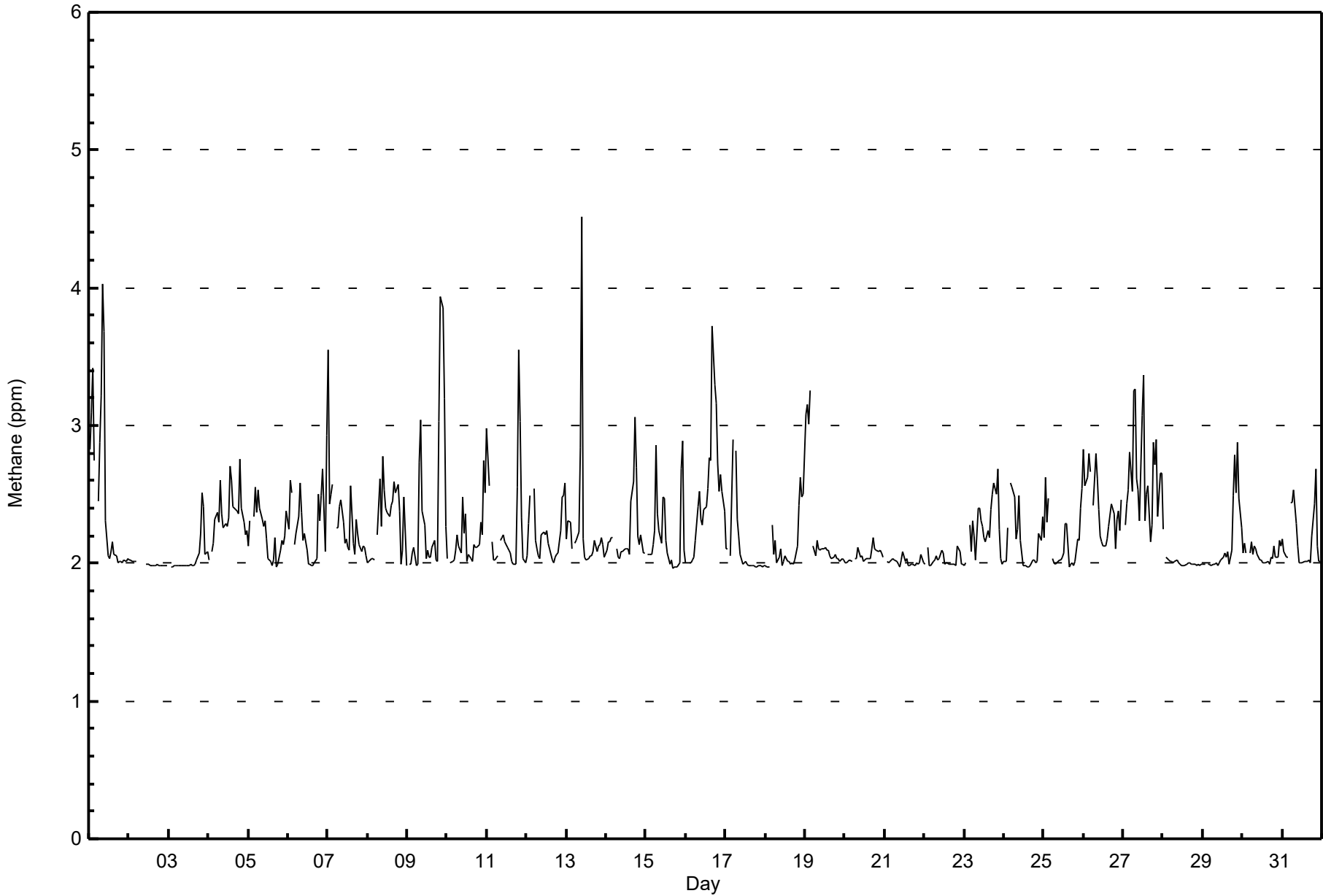
## Fort Hills - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 4.5 ppm on Oct 13 10:00		Maximum Daily Average: 2.6 ppm on Oct 27																	Hours of Data: 708																														
Minimum Value: 2.0 ppm on Oct 15 17:00		Minimum Daily Average: 2.0 ppm on Oct 2																	Hours of Missing Data: 36																														
Maximum Diurnal Average: 2.3 ppm at hour 10		Minimum Diurnal Average: 2.1 ppm at hour 14																	Hours of Calibration: 34																														
Monthly Average: 2.22 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> = 2.6 P <sub>99</sub> = 3.5																	Percent Operational Time: 99.7																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	2.8	3.1	3.4	2.7	Z	2.5	2.9	3.2	4.0	3.7	2.3	2.1	2.0	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	4.0																							
2-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	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																							
3-Oct	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	2.2	2.5	2.4	2.1	2.1	2.0	2.5																							
4-Oct	2.0	Z	2.1	2.1	2.3	2.4	2.3	2.6	2.4	2.3	2.3	2.3	2.3	2.7	2.6	2.4	2.4	2.4	2.4	2.8	2.4	2.3	2.2	2.2	2.4	2.8																							
5-Oct	2.1	2.3	Z	2.3	2.6	2.4	2.5	2.4	2.3	2.3	2.3	2.2	2.0	2.0	2.0	2.2	2.0	2.0	2.1	2.2	2.1	2.2	2.4	2.2	2.6	2.6																							
6-Oct	2.2	2.6	2.5	Z	2.1	2.2	2.3	2.6	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.3	2.5	2.7	2.1	2.9	2.3	2.9																							
7-Oct	3.5	2.4	2.5	2.6	Z	2.3	2.3	2.4	2.5	2.3	2.1	2.2	2.1	2.1	2.6	2.2	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.3	3.5																							
8-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.2	2.6	2.3	2.8	2.5	2.4	2.4	2.3	2.4	2.4	2.6	2.5	2.6	2.4	2.0	2.1	2.5	2.0	2.3	2.8																							
9-Oct	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.7	3.0	2.4	2.3	2.0	2.1	2.0	2.0	2.1	2.2	2.0	2.0	3.0	3.9	3.9	3.2	2.3	2.4	3.9																							
10-Oct	2.0	Z	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.5	2.2	2.4	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.2	2.7	2.5	2.2	2.7																							
11-Oct	3.0	2.6	Z	2.2	2.0	2.0	2.1	M	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.6	3.5	3.0	2.3	2.0	2.0	2.3	3.5																							
12-Oct	2.1	2.3	2.5	Z	2.5	2.2	2.1	2.1	2.0	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.5	2.5	2.6	2.2	2.6																							
13-Oct	2.2	2.3	2.3	2.1	Z	2.1	2.2	2.2	2.8	4.5	2.2	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.0	2.3	4.5																							
14-Oct	2.1	2.2	2.2	2.2	2.2	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.5	2.6	3.1	2.7	2.2	2.1	2.2	2.1	2.1	2.1	2.2	3.1																							
15-Oct	Z	2.1	2.1	2.1	2.1	2.2	2.9	2.4	2.2	2.1	2.5	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.9	2.1	2.2	2.9																							
16-Oct	2.0	Z	2.0	2.0	2.0	2.0	2.2	2.4	2.5	2.3	2.3	2.4	2.4	2.5	2.8	2.7	3.7	3.3	3.2	2.7	2.5	2.6	2.5	2.4	2.5	3.7																							
17-Oct	2.1	2.1	Z	2.1	2.9	DF	2.8	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	2.0	2.0	2.1	2.9																							
18-Oct	2.0	2.0	2.0	Z	2.3	2.1	2.2	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.6	2.5	2.5	2.1	2.6																							
19-Oct	3.1	3.2	3.0	3.3	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.3	3.3																							
20-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2																							
21-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1																							
22-Oct	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1																							
23-Oct	2.0	2.0	Z	2.3	2.1	2.3	2.2	2.0	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.4	2.5	2.6	2.5	2.7	2.2	2.0	2.0	2.3	2.7	2.7																							
24-Oct	2.0	2.0	2.3	Z	2.6	2.5	2.5	2.2	2.2	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.3	2.2	2.6																							
25-Oct	2.2	2.6	2.3	2.5	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.3	2.0	2.0	2.0	2.0	2.2	2.2	2.4	2.5	2.2	2.6	2.6																							
26-Oct	2.8	2.6	2.6	2.8	2.7	Z	2.4	2.8	2.6	2.4	2.2	2.2	2.1	2.1	2.2	2.3	2.3	2.4	2.4	2.1	2.3	2.4	2.2	2.5	2.4	2.8																							
27-Oct	Z	2.3	2.4	2.5	2.8	2.5	3.3	3.3	2.6	2.5	2.3	3.1	3.4	2.3	2.5	2.6	2.2	2.3	2.9	2.7	2.9	2.3	2.7	2.7	2.6	3.4																							
28-Oct	2.3	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	2.3																							
29-Oct	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	2.0	2.1	2.0	2.1	2.5	2.8	2.5	2.9	2.5	2.3	2.2	2.9																							
30-Oct	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.1	2.1	2.2																							
31-Oct	2.2	2.1	2.0	2.0	Z	2.4	2.4	2.5	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.7	2.1	2.0	2.0	2.2	2.7																							
																								2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	Diurnal Average	
																								3.5	3.2	3.4	3.3	2.9	2.5	3.3	3.3	4.0	4.5	2.5	3.1	3.4	2.7	2.8	2.7	3.7	3.3	3.2	3.5	3.9	3.9	3.2	2.9	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				DF - DAS Failure																																							



Wood Buffalo Environmental Association  
Hourly Averages

Methane (CH<sub>4</sub>) - ppm  
Fort Hills - October 2024





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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	284	40.11	40.11
2.1 - 3.0	402	56.78	96.89
3.1 - 10.0	22	3.11	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - October 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	29	8	8	4	2	2	7	29	40	28	6	12	32	44	27	5	283
2.1 - 3.0	73	17	7	5	3	6	35	63	45	60	38	7	6	2	8	27	402
3.1 - 10.0	4	1	0	0	0	2	1	0	1	2	1	2	2	0	1	5	22
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	106	26	15	9	5	10	43	92	86	90	45	21	40	46	36	37	707

Total Number of Valid Hours: 707

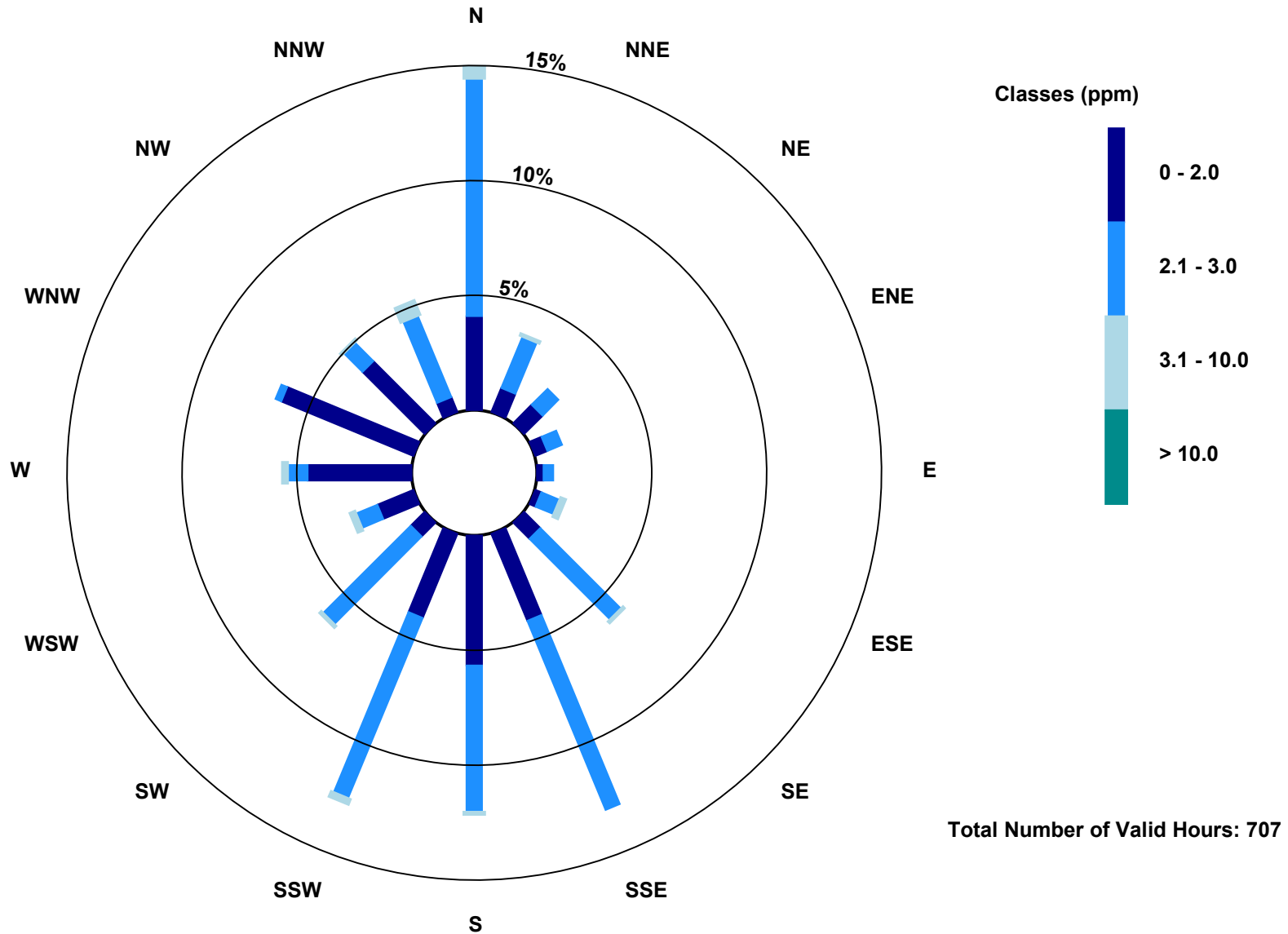
Total Number of Hours: 744

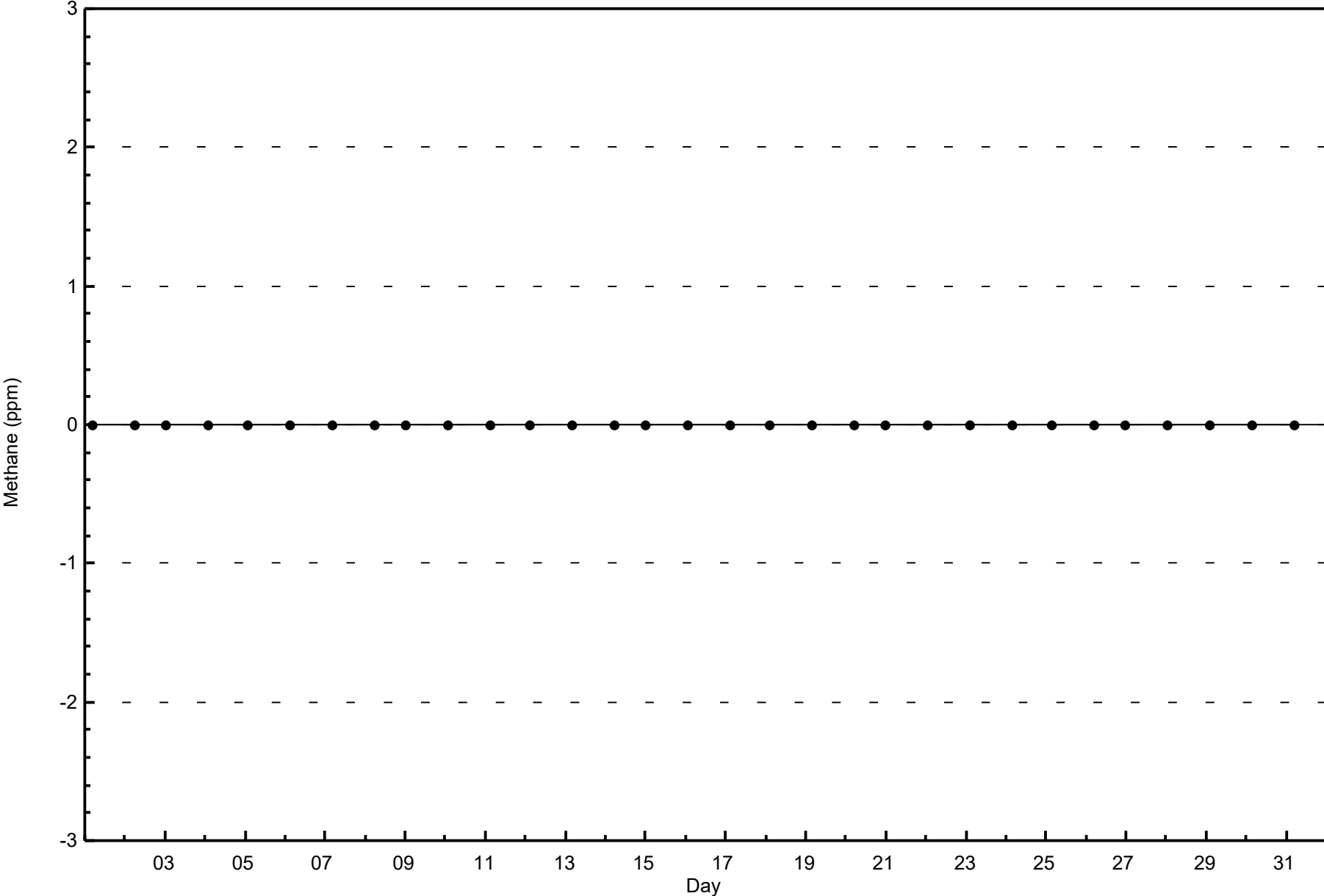


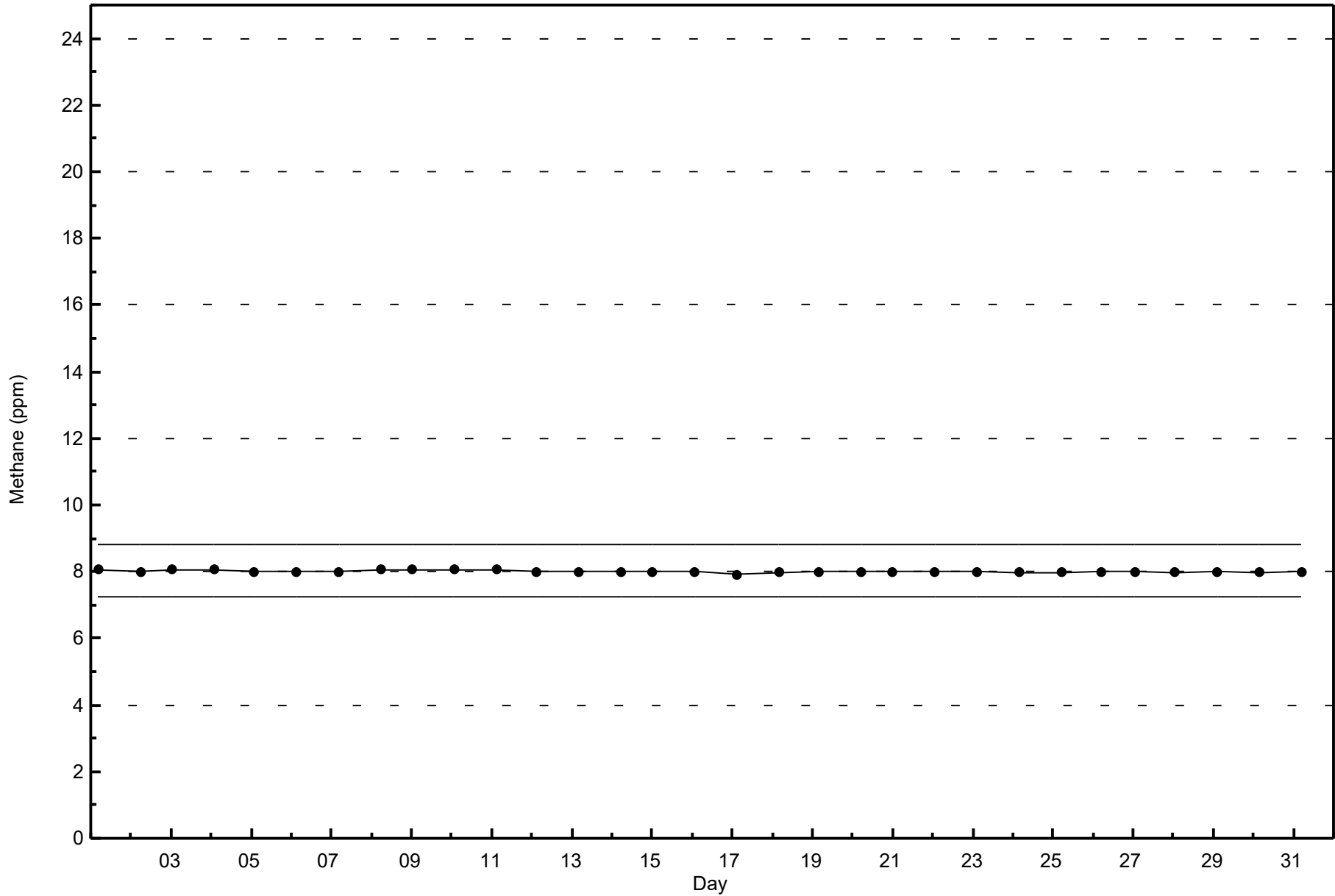


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

Fort Hills - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 167.5 ppb on Oct 16 17:00	Maximum Daily Average: 42.9 ppb on Oct 27		Hours of Data:	707
Minimum Value: 0.0 ppb on Oct 1 21:00	Minimum Daily Average: 0.0 ppb on Oct 2		Hours of Missing Data:	37
Maximum Diurnal Average: 15.1 ppb at hour 8	Minimum Diurnal Average: 4.1 ppb at hour 3		Hours of Calibration:	35
Monthly Average: 9.55 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 1.3 Q <sub>3</sub> = 9.0 P <sub>90</sub> = 29.7 P <sub>99</sub> = 97.5		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-Oct	8.5	19.4	Z	11.4	6.4	6.8	25.3	35.4	61.9	40.4	9.4	0.7	0.5	2.2	4.0	1.7	1.3	0.3	0.2	0.1	0.0	0.0	0.5	0.4	10.3	61.9	
2-Oct	0.0	0.0	0.0	Z	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	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	
3-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.6	0.3	0.0	0.0	0.0	0.0	2.4	5.2	10.2	0.0	0.0	0.8	10.2	
4-Oct	0.0	0.0	0.0	0.3	8.2	Z	0.5	23.8	14.2	9.1	9.3	12.4	29.7	70.4	60.4	38.9	35.4	47.2	34.5	68.8	53.4	26.6	29.5	25.4	26.0	70.4	
5-Oct	Z	32.7	29.6	45.3	66.6	Z	40.5	26.9	28.2	28.5	6.7	6.5	6.7	0.6	0.2	0.0	0.1	0.6	0.0	0.0	0.0	0.0	1.7	6.8	14.3	66.6	
6-Oct	3.6	Z	5.3	7.2	2.4	1.3	3.2	10.6	7.5	4.9	3.6	1.8	0.6	0.0	0.0	0.0	0.0	0.0	27.5	53.3	29.7	40.1	0.3	97.5	13.1	97.5	
7-Oct	133.6	17.4	Z	30.7	11.4	5.5	3.9	21.6	26.5	12.9	6.7	5.3	3.9	2.7	12.5	2.2	0.4	18.1	0.2	0.0	0.0	0.0	0.0	0.0	13.7	133.6	
8-Oct	0.0	0.0	0.0	Z	0.0	0.0	11.9	41.1	4.0	4.2	3.5	6.1	10.3	9.4	14.8	31.1	58.5	25.0	27.8	6.1	0.0	0.3	0.5	0.0	11.1	58.5	
9-Oct	0.9	0.0	0.0	0.0	Z	0.0	0.0	C	C	C	C	1.8	1.0	0.4	0.3	0.5	0.5	0.0	0.0	13.5	51.8	55.4	20.9	1.1	7.8	55.4	
10-Oct	0.0	0.0	0.0	0.0	0.0	Z	2.9	1.1	1.2	7.6	4.0	5.2	0.3	1.6	0.2	0.1	0.8	0.5	0.5	1.9	24.4	15.6	10.3	5.9	3.7	24.4	
11-Oct	Z	2.0	0.1	0.0	0.0	0.0	0.0	M	4.0	6.7	8.9	5.5	3.9	2.4	1.3	0.4	0.0	0.0	4.7	29.0	29.6	1.5	0.0	0.0	4.5	29.6	
12-Oct	0.0	Z	1.9	4.3	5.4	0.1	0.1	0.0	2.5	10.4	18.8	20.2	25.9	10.8	7.3	2.8	0.5	1.6	2.7	6.1	16.1	28.1	32.0	38.5	10.3	38.5	
13-Oct	3.4	8.9	Z	0.2	0.0	0.8	3.0	17.1	19.1	62.4	6.5	2.3	1.4	0.9	1.1	0.8	0.3	11.4	0.3	0.0	0.0	0.0	0.0	0.0	6.1	62.4	
14-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	1.9	3.3	7.4	3.1	1.9	0.9	2.7	3.8	19.7	16.6	0.0	0.0	0.5	0.1	0.0	2.7	19.7	
15-Oct	0.0	0.0	0.0	0.0	Z	1.0	7.8	3.0	2.4	3.5	8.9	8.0	4.0	2.1	0.4	0.3	0.0	0.0	0.0	0.0	0.1	6.0	9.2	0.1	2.5	9.2	
16-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.4	11.4	17.6	8.4	7.0	10.7	15.4	31.0	59.6	50.6	167.5	98.2	55.4	23.3	16.2	26.3	15.7	6.1	27.0	167.5	
17-Oct	Z	1.0	0.0	0.0	9.5	DF	12.7	13.6	12.2	2.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	2.4	13.6	
18-Oct	0.0	Z	0.0	0.3	3.5	0.3	5.3	0.3	2.7	4.9	0.2	1.8	3.6	1.0	0.6	0.0	0.0	0.0	0.0	0.0	8.6	22.7	29.3	53.9	6.0	53.9	
19-Oct	136.5	99.5	Z	101.1	57.0	21.4	14.2	14.2	6.9	4.3	6.0	12.5	9.0	8.0	3.6	2.0	1.6	1.4	2.5	1.1	1.7	0.1	1.6	1.4	22.1	136.5	
20-Oct	0.4	0.3	0.4	Z	0.2	0.1	0.2	0.7	3.4	2.5	3.2	2.8	2.1	2.0	2.4	2.8	3.4	4.5	3.6	3.2	2.3	0.7	1.5	0.6	1.9	4.5	
21-Oct	0.3	0.1	0.6	0.9	Z	0.5	0.4	0.3	0.5	0.3	3.2	7.5	2.2	2.8	0.4	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.9	7.5	
22-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.7	1.7	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.8	
23-Oct	Z	0.0	0.2	1.0	2.9	4.1	0.3	0.6	7.1	11.3	8.2	6.8	5.1	2.6	3.1	1.7	1.8	3.3	7.3	11.8	11.4	0.5	0.0	0.0	4.0	11.8	
24-Oct	0.0	Z	1.8	13.6	17.0	7.2	4.4	1.3	6.3	16.5	6.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	2.3	12.0	19.4	4.7	19.4	
25-Oct	3.9	7.9	Z	12.6	1.9	0.0	0.0	0.0	0.0	0.8	0.9	1.9	2.6	26.0	16.2	0.0	0.0	0.0	0.0	0.0	0.0	5.3	1.9	4.6	30.0	5.1	30.0
26-Oct	49.9	34.7	56.1	Z	48.7	24.7	41.6	65.7	53.2	33.0	17.1	12.1	7.7	6.3	12.0	31.3	23.4	35.1	52.8	56.4	47.9	31.4	16.6	45.3	34.9	65.7	
27-Oct	39.8	15.7	3.2	27.3	Z	24.2	72.2	96.4	56.2	38.0	16.0	85.7	108.1	26.1	51.1	50.2	1.2	17.6	64.3	20.6	81.3	8.6	46.3	35.7	42.9	108.1	
28-Oct	0.5	0.0	0.0	0.0	0.0	Z	0.1	0.3	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
29-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.2	2.0	0.4	0.6	0.0	0.0	12.7	22.7	27.9	70.2	20.9	9.7	7.4	70.2	
30-Oct	1.8	Z	2.6	1.6	1.8	2.8	2.1	3.5	3.7	3.3	2.9	2.4	0.7	0.6	0.8	0.4	0.0	0.4	0.0	0.1	0.0	0.0	0.7	0.6	1.4	3.7	
31-Oct	3.2	7.2	Z	0.0	5.9	25.3	27.1	46.7	9.8	5.4	1.0	0.9	0.7	0.9	0.7	0.2	0.0	0.0	1.4	14.9	20.7	0.0	0.0	0.0	7.5	46.7	

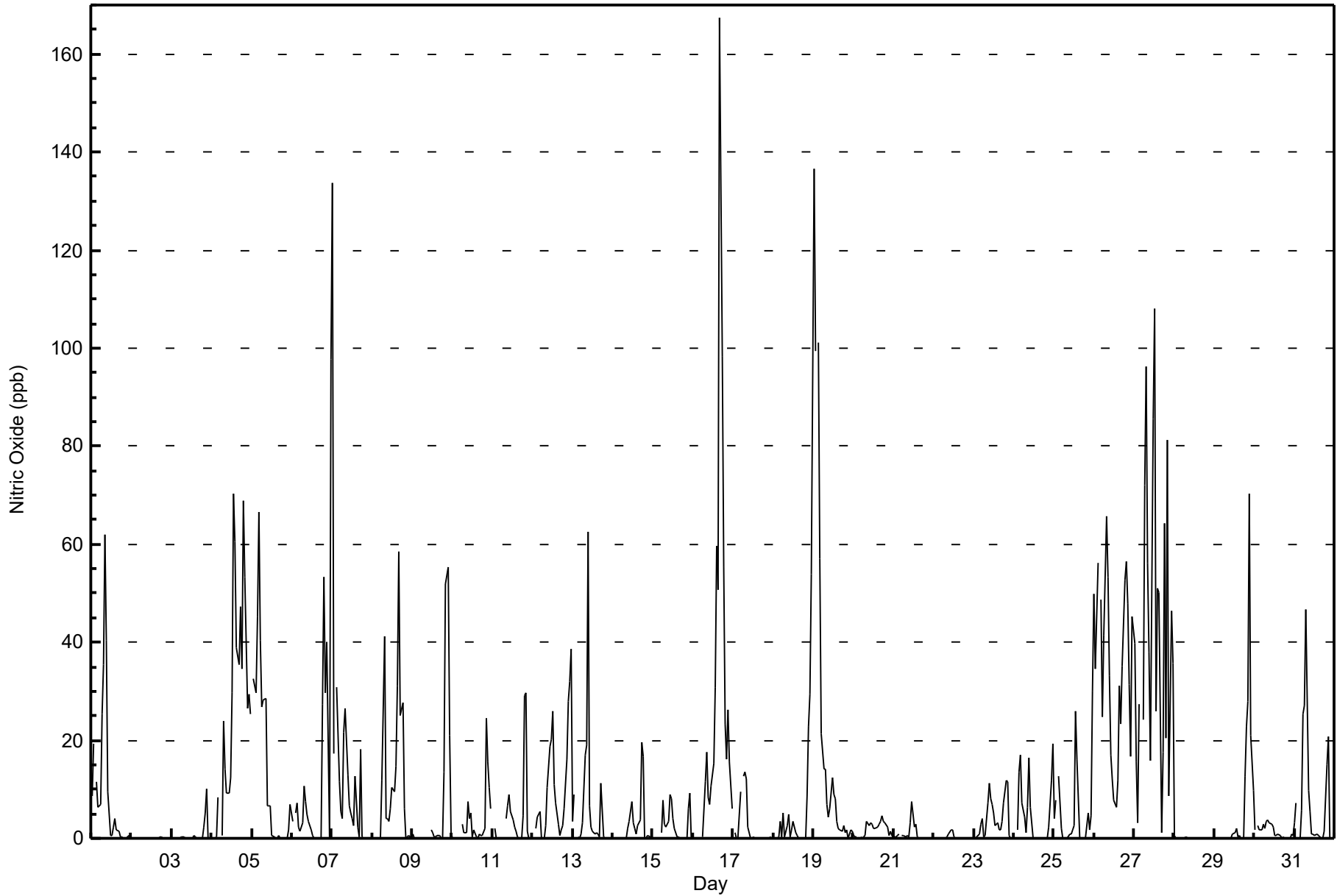
14.9	9.5	4.1	9.9	9.6	6.7	8.6	15.1	11.7	10.1	5.4	7.5	7.9	6.9	8.2	7.1	9.7	9.2	10.2	10.8	14.0	11.3	8.2	12.2	Diurnal Average	
136.5	99.5	56.1	101.1	66.6	40.5	72.2	96.4	61.9	62.4	18.8	85.7	108.1	70.4	60.4	50.6	167.5	98.2	64.3	68.8	81.3	70.2	46.3	97.5	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure



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

**Nitric Oxide (NO) - ppb**  
**Fort Hills - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Fort Hills - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	597	84.44	84.44
21 - 40	62	8.77	93.21
41 - 80	37	5.23	98.44
81 - 159	9	1.27	99.72
> 159	1	0.14	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Hills - October 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	58	23	15	6	4	5	31	92	85	82	41	20	36	47	33	18	596
21 - 40	25	0	0	1	1	3	5	1	4	3	2	1	3	1	2	10	62
11 - 80	21	3	0	1	0	1	1	1	0	1	1	2	1	0	1	3	37
81 - 159	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	9
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<b>Totals</b>	107	26	15	8	5	10	39	94	89	86	44	23	40	48	36	35	705

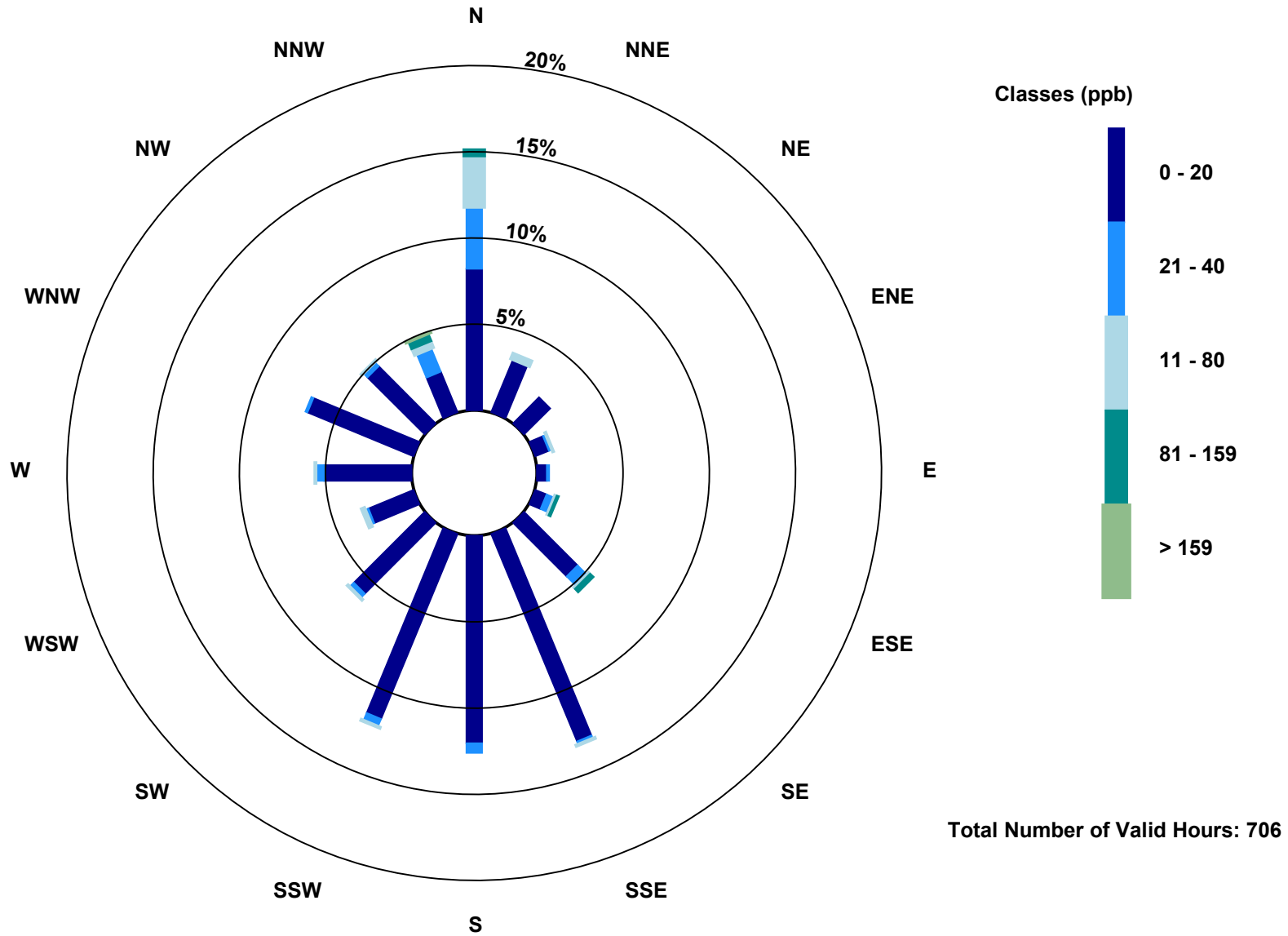
Total Number of Valid Hours: 706

Total Number of Hours: 744

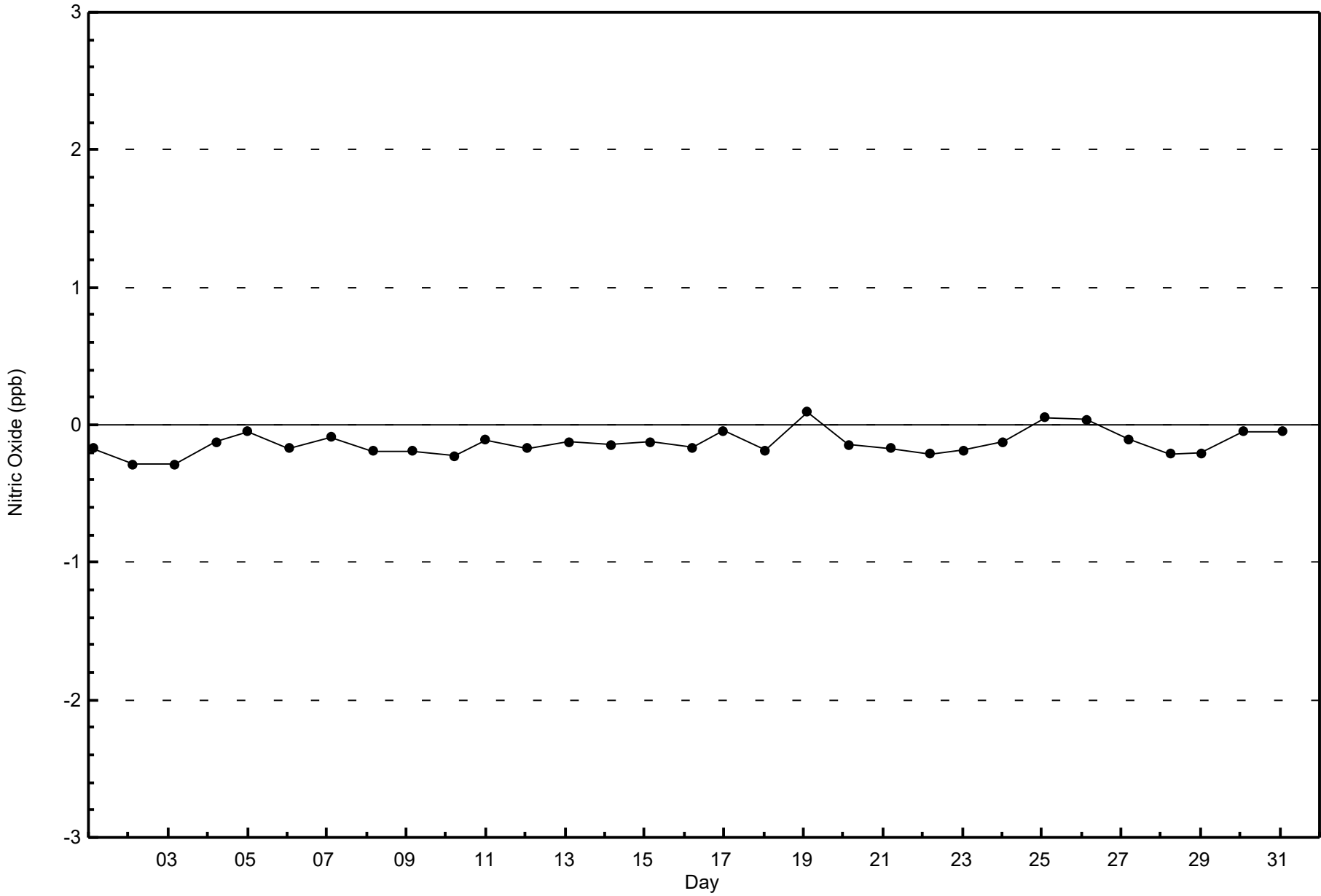


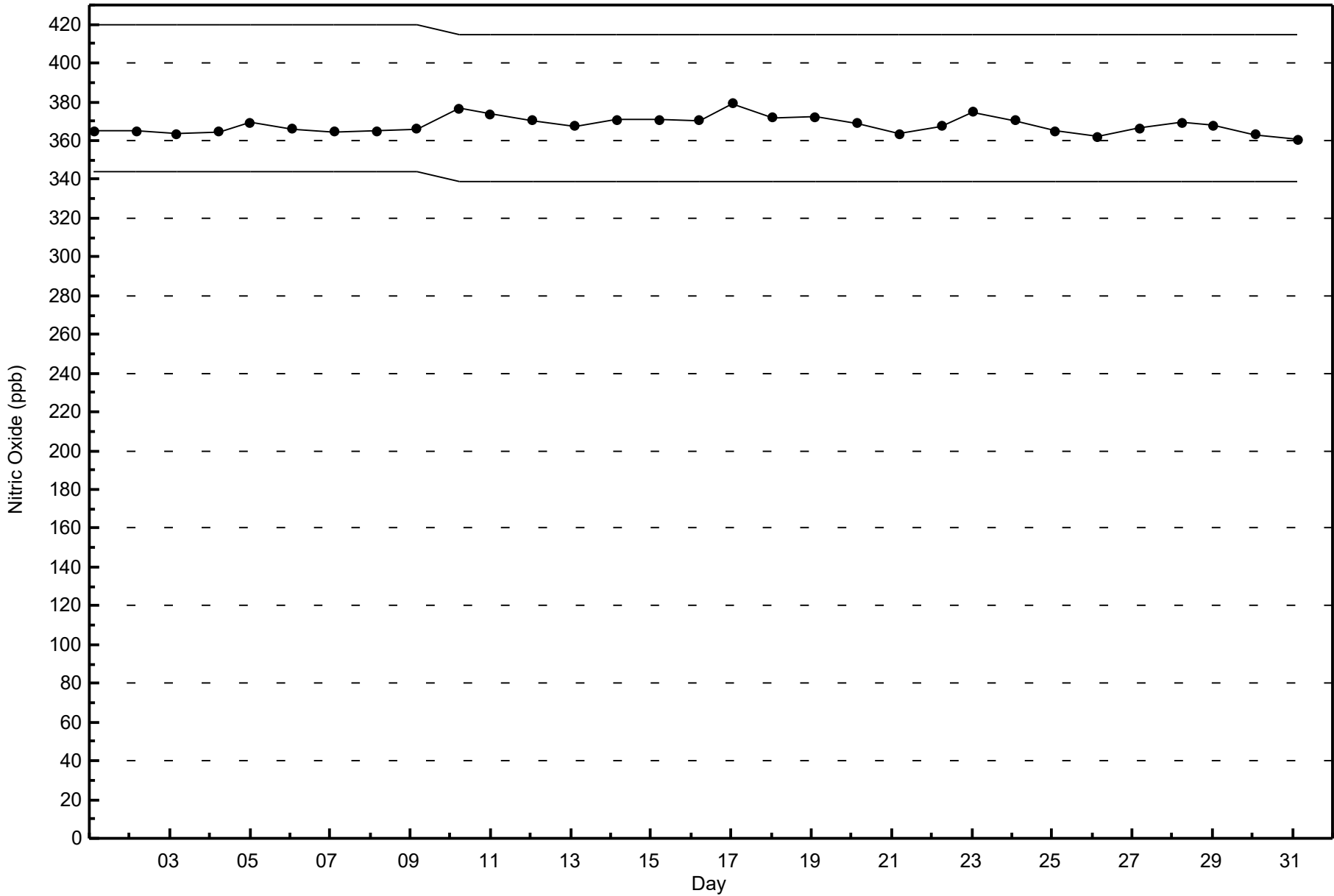
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Fort Hills











Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort Hills - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 35.8 ppb on Oct 16 17:00	Maximum Daily Average: 21.6 ppb on Oct 27		Hours of Data:	707
Minimum Value: 0.0 ppb on Oct 2 12:00	Minimum Daily Average: 0.4 ppb on Oct 2		Hours of Missing Data:	37
Maximum Diurnal Average: 14.1 ppb at hour 21	Minimum Diurnal Average: 6.6 ppb at hour 13		Hours of Calibration:	35
Monthly Average: 9.72 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 1.9 Median = 7.4 Q <sub>3</sub> = 16.4 P <sub>90</sub> = 22.6 P <sub>99</sub> = 28.6		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-Oct	18.3	18.7	Z	16.2	15.6	15.3	16.3	15.6	17.0	16.6	8.3	1.7	1.5	4.3	6.8	4.0	5.6	1.6	5.1	3.0	3.3	0.1	2.3	0.9	8.6	18.7	
2-Oct	0.1	0.1	0.3	Z	1.7	1.9	0.9	0.5	0.3	0.2	0.2	0.0	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.5	1.2	0.1	0.1	0.0	0.4	1.9	
3-Oct	0.1	0.1	0.3	0.4	Z	0.2	0.8	0.7	0.6	0.1	0.1	0.1	0.5	1.4	0.9	0.3	0.5	2.2	3.9	9.5	16.6	17.5	2.6	3.5	2.7	17.5	
4-Oct	2.5	8.7	5.0	8.6	15.3	Z	11.7	14.0	11.2	9.5	9.3	11.5	15.8	22.9	22.0	20.7	19.8	19.7	19.3	20.9	19.6	17.9	19.4	18.9	15.0	22.9	
5-Oct	Z	20.1	18.6	18.4	18.7	17.9	14.5	13.1	12.9	8.0	6.0	4.8	1.3	0.9	1.0	2.2	7.8	0.1	2.1	8.9	3.1	3.0	5.2	13.9	8.8	20.1	
6-Oct	9.4	Z	15.2	17.3	17.2	14.7	18.5	18.9	9.9	6.8	5.6	4.0	1.9	0.5	0.4	0.6	0.5	0.9	24.6	30.8	24.2	21.0	4.5	29.1	12.0	30.8	
7-Oct	28.6	23.8	Z	22.3	20.7	19.0	18.7	18.7	16.8	12.9	10.2	9.3	8.5	6.4	14.7	6.3	4.9	19.6	9.3	7.5	6.0	11.6	11.2	4.3	13.5	28.6	
8-Oct	0.9	1.5	2.1	Z	1.8	1.6	12.1	18.1	11.0	12.1	10.2	11.5	12.7	13.0	17.6	23.0	28.0	24.2	24.2	14.4	5.0	16.5	15.9	2.3	12.2	28.0	
9-Oct	17.0	1.3	1.5	4.4	Z	2.8	1.0	C	C	C	C	4.1	2.7	1.5	1.5	4.1	5.5	2.2	2.7	18.7	27.9	27.9	20.7	6.6	8.1	27.9	
10-Oct	1.5	1.2	1.6	1.4	1.8	Z	12.2	6.6	2.6	9.8	4.9	6.7	0.9	2.9	1.2	1.2	8.6	12.5	10.9	9.5	24.6	20.8	19.0	14.8	7.7	24.6	
11-Oct	Z	13.4	5.1	3.0	0.5	1.1	4.2	M	7.2	7.3	7.5	5.3	4.4	3.5	2.9	1.4	1.3	2.6	15.1	26.6	26.1	11.5	1.7	0.8	6.9	26.6	
12-Oct	1.9	Z	15.6	16.8	16.9	6.2	4.0	1.7	3.2	7.6	13.9	16.5	19.7	14.5	12.7	7.8	5.3	14.9	17.5	17.5	19.3	21.0	19.4	19.6	12.8	21.0	
13-Oct	12.7	18.1	Z	11.1	15.5	18.6	20.2	20.0	20.0	24.0	10.5	5.0	3.8	3.3	4.6	5.8	6.2	22.7	8.3	9.7	14.6	11.1	9.1	2.6	12.1	24.0	
14-Oct	7.1	14.4	14.7	Z	13.6	9.2	7.2	2.9	2.1	4.7	7.1	14.2	9.2	7.5	7.2	17.1	21.4	25.4	23.8	9.3	9.9	11.0	5.4	1.8	10.7	25.4	
15-Oct	1.5	1.0	0.9	1.3	Z	10.8	23.5	16.1	8.6	7.3	11.8	12.4	8.8	6.0	2.0	2.6	1.7	0.6	1.4	0.9	7.1	25.7	26.8	6.8	8.1	26.8	
16-Oct	0.6	0.4	0.5	0.5	0.9	Z	11.7	17.4	16.7	11.8	11.5	14.4	17.8	20.0	24.5	23.1	35.8	30.8	28.6	24.4	22.8	22.1	19.7	16.3	16.2	35.8	
17-Oct	Z	6.1	4.2	1.4	13.1	DF	11.3	13.1	13.1	4.6	1.2	2.3	5.8	1.7	0.2	0.4	0.2	0.3	0.4	0.4	0.3	0.5	0.4	0.4	3.7	13.1	
18-Oct	0.7	Z	0.4	5.4	16.3	5.4	13.7	3.6	4.5	5.1	0.6	2.4	4.8	2.2	1.9	0.7	2.7	1.0	6.3	12.7	19.9	22.9	24.2	24.2	7.9	24.2	
19-Oct	22.8	21.8	Z	18.6	15.9	13.0	12.4	12.1	11.0	9.6	9.8	12.3	9.8	9.4	6.9	5.7	6.7	6.4	10.0	7.6	9.7	4.6	6.9	8.7	10.9	22.8	
20-Oct	5.6	5.4	6.7	Z	3.8	7.3	7.4	7.8	16.2	10.8	8.5	7.2	6.1	6.2	6.7	10.7	14.4	17.0	16.1	18.6	16.0	12.3	13.2	9.5	10.2	18.6	
21-Oct	7.7	4.6	6.0	8.1	Z	5.9	5.3	4.4	2.7	1.2	4.8	8.5	4.0	7.5	1.2	0.8	0.2	1.5	0.4	0.6	0.4	4.4	5.3	1.4	3.8	8.5	
22-Oct	1.3	3.3	9.2	0.1	0.2	Z	2.7	3.2	2.1	2.0	3.4	2.9	0.8	0.5	0.4	0.7	0.7	0.8	0.6	0.5	7.1	5.5	0.6	0.7	2.1	9.2	
23-Oct	Z	4.2	13.4	21.2	24.9	16.0	13.3	7.9	16.7	17.8	13.1	11.2	9.5	6.2	9.0	8.2	17.1	27.5	29.6	30.0	27.6	15.0	3.5	0.7	14.9	30.0	
24-Oct	1.6	Z	13.6	22.8	22.2	21.2	21.9	13.3	14.9	20.5	8.2	0.2	0.1	0.1	0.4	0.5	1.5	3.6	1.4	1.4	2.1	14.3	28.2	29.6	10.6	29.6	
25-Oct	17.6	21.7	Z	20.9	10.8	3.4	1.8	1.0	1.0	2.3	2.2	3.6	5.0	20.7	16.0	0.5	1.1	2.5	4.0	1.4	1.4	17.4	16.4	17.1	17.9	9.0	21.7
26-Oct	25.3	25.6	25.9	Z	24.8	24.0	22.1	21.5	20.5	14.8	12.9	11.1	10.2	9.9	15.4	24.0	18.4	22.5	27.1	27.9	25.6	24.4	23.3	24.4	20.9	27.9	
27-Oct	23.9	21.4	15.7	21.8	Z	22.6	24.8	21.1	19.0	17.2	18.2	25.0	27.7	22.1	23.5	24.9	13.8	19.6	24.1	22.7	28.4	16.1	23.8	19.5	21.6	28.4	
28-Oct	13.1	4.7	2.9	1.2	1.1	Z	1.9	2.0	1.1	0.9	0.6	0.6	0.5	0.5	0.5	0.5	0.2	0.4	0.5	0.6	0.4	0.4	0.2	0.3	1.5	13.1	
29-Oct	Z	0.3	0.2	0.2	0.2	0.3	0.6	1.0	1.0	0.7	1.5	3.5	3.4	4.1	2.2	4.7	0.6	4.8	19.6	22.0	22.3	24.7	21.0	18.5	6.8	24.7	
30-Oct	11.0	Z	14.1	11.6	13.0	15.7	12.3	16.1	13.2	9.5	7.5	6.8	2.6	2.8	3.6	3.5	1.8	3.6	4.0	6.0	6.8	6.9	13.4	13.0	8.6	16.1	
31-Oct	23.0	21.8	Z	11.0	15.1	23.5	22.7	24.7	14.9	10.9	5.6	4.3	3.5	5.4	5.8	6.0	7.0	4.7	10.9	23.5	23.0	7.9	2.0	1.3	12.1	24.7	

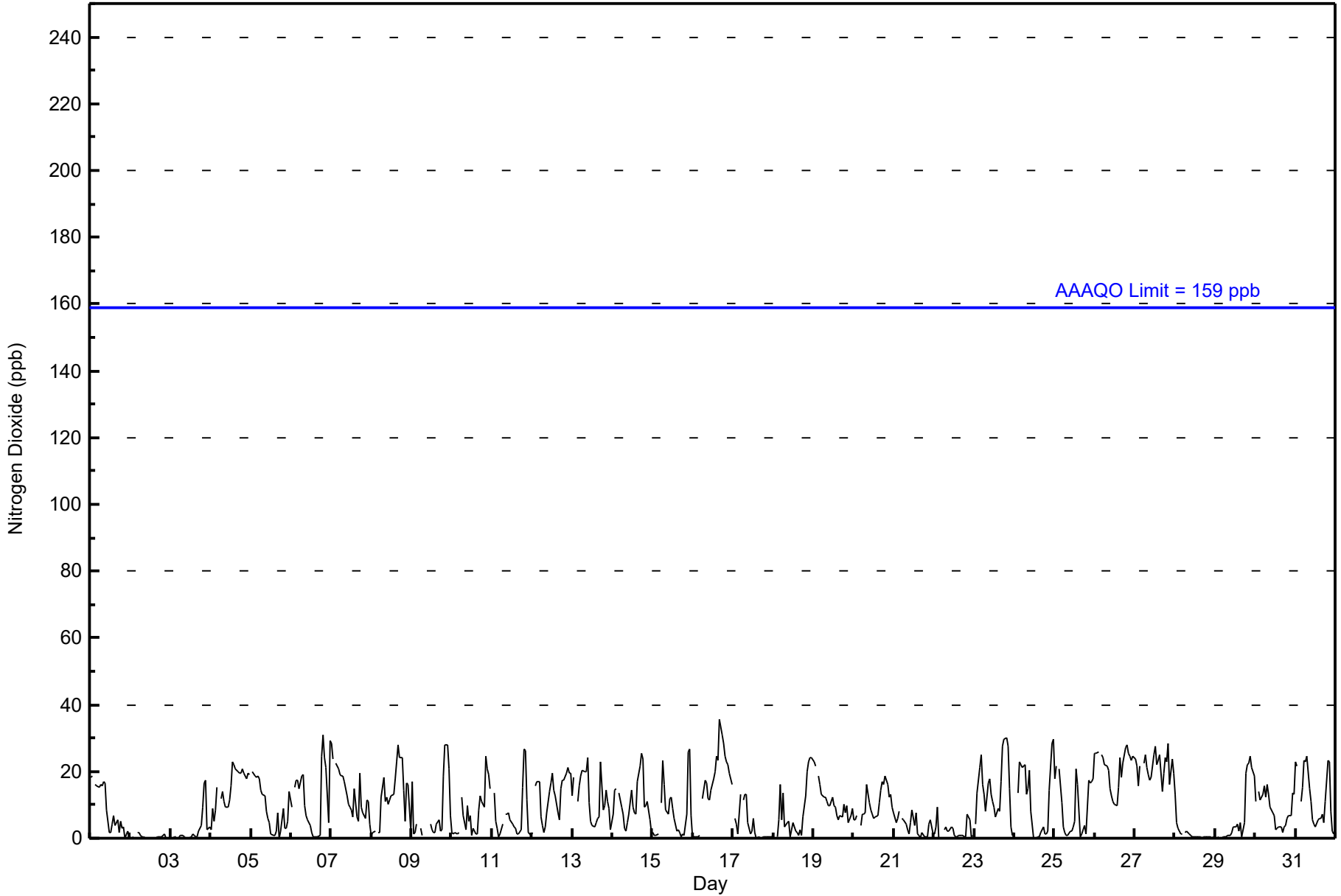
9.8	10.1	7.7	10.2	11.6	11.1	11.3	10.9	9.7	8.9	7.2	7.2	6.6	6.7	6.9	6.8	7.7	9.6	11.4	12.5	14.1	13.4	11.8	10.1	Diurnal Average	
28.6	25.6	25.9	22.8	24.9	24.0	24.8	24.7	20.5	24.0	18.2	25.0	27.7	22.9	24.5	24.9	35.8	30.8	29.6	30.8	28.4	27.9	28.2	29.6	Diurnal Maximum	

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**  
**Fort Hills - October 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Hills - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	603	85.29	85.29
21 - 40	104	14.71	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Hills - October 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	72	23	13	4	4	6	33	91	85	74	36	20	39	48	34	20	602
21 - 40	36	3	2	4	1	4	6	3	4	12	8	3	1	0	2	15	104
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>	108	26	15	8	5	10	39	94	89	86	44	23	40	48	36	35	706

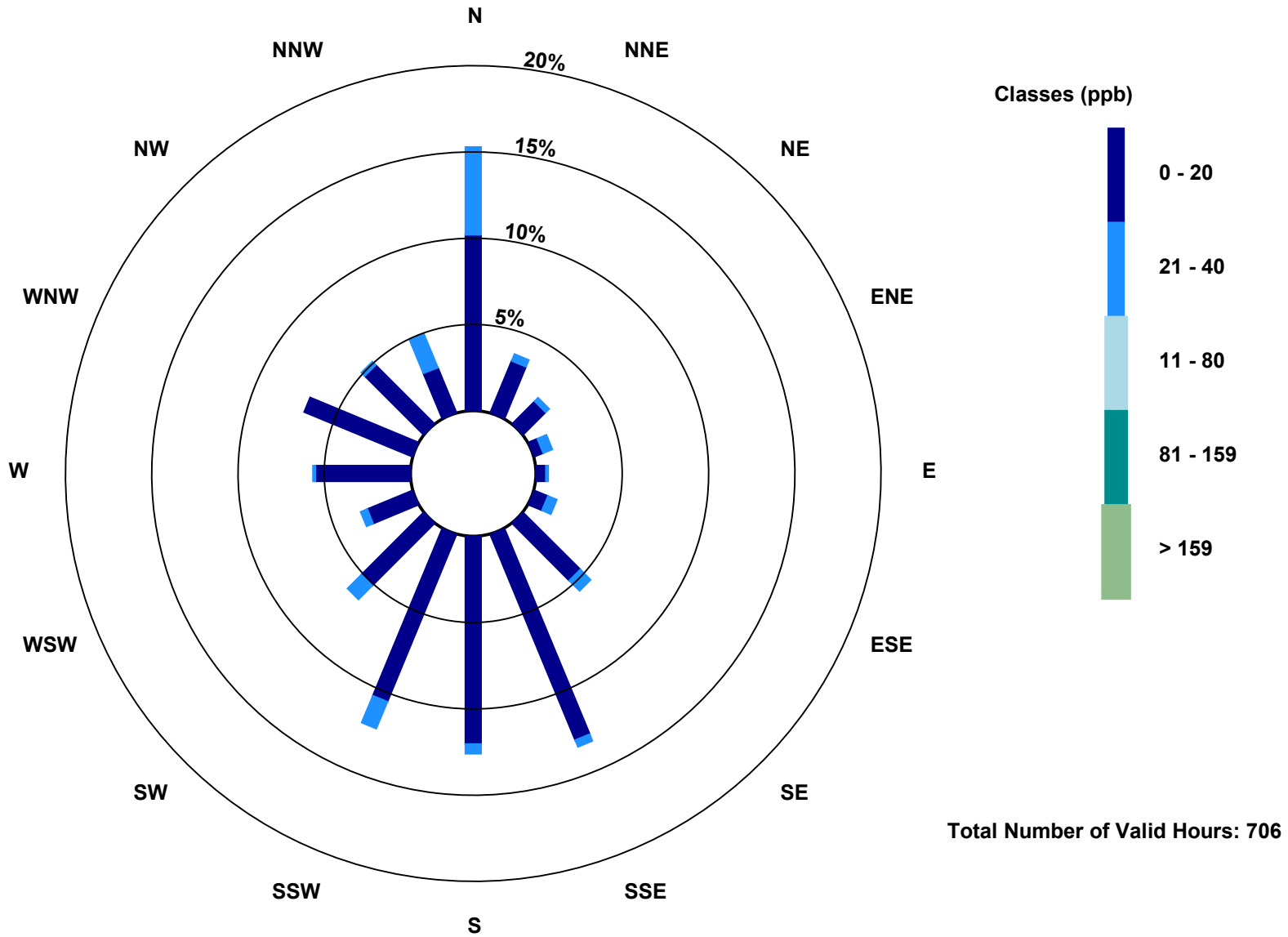
Total Number of Valid Hours: 706

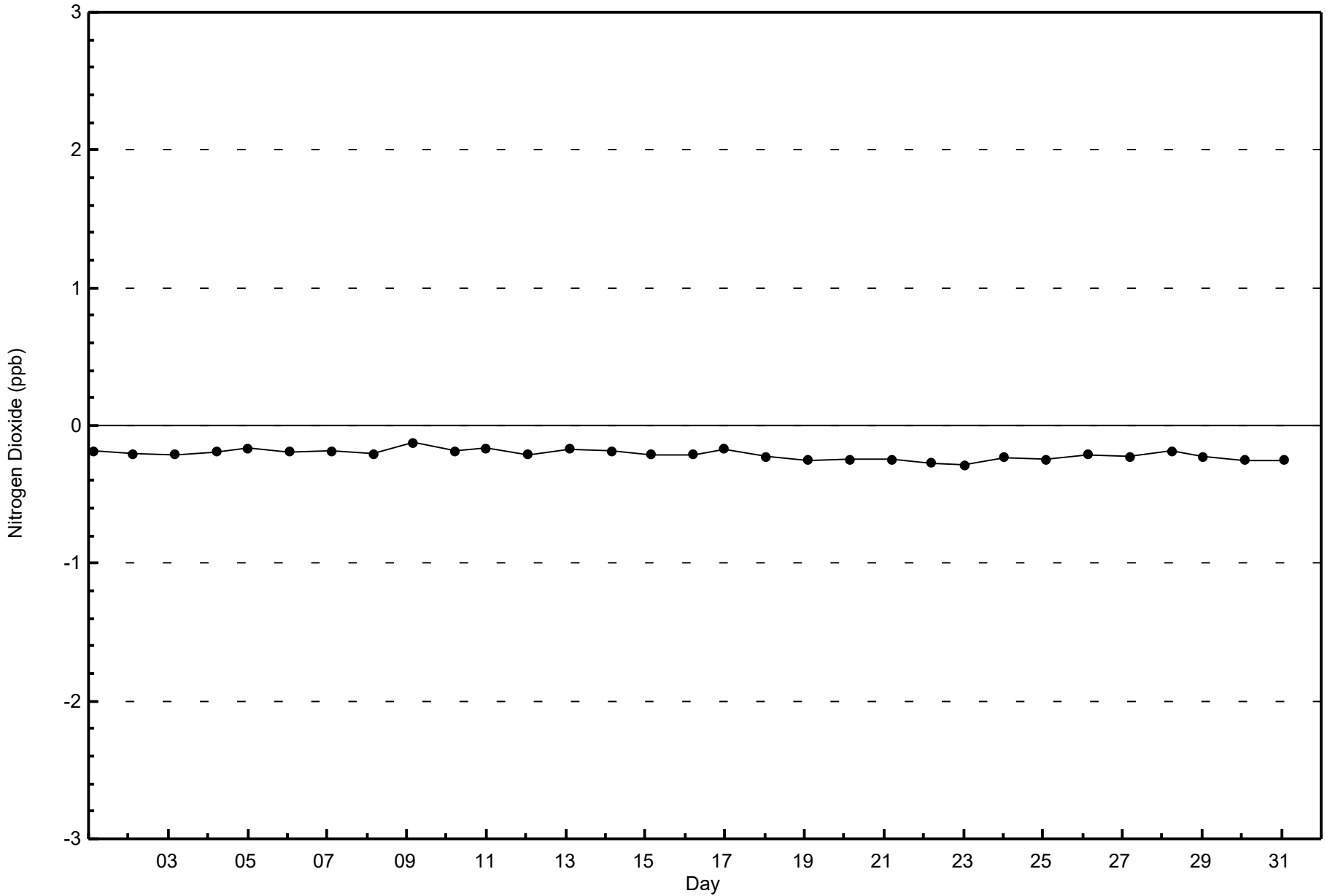
Total Number of Hours: 744



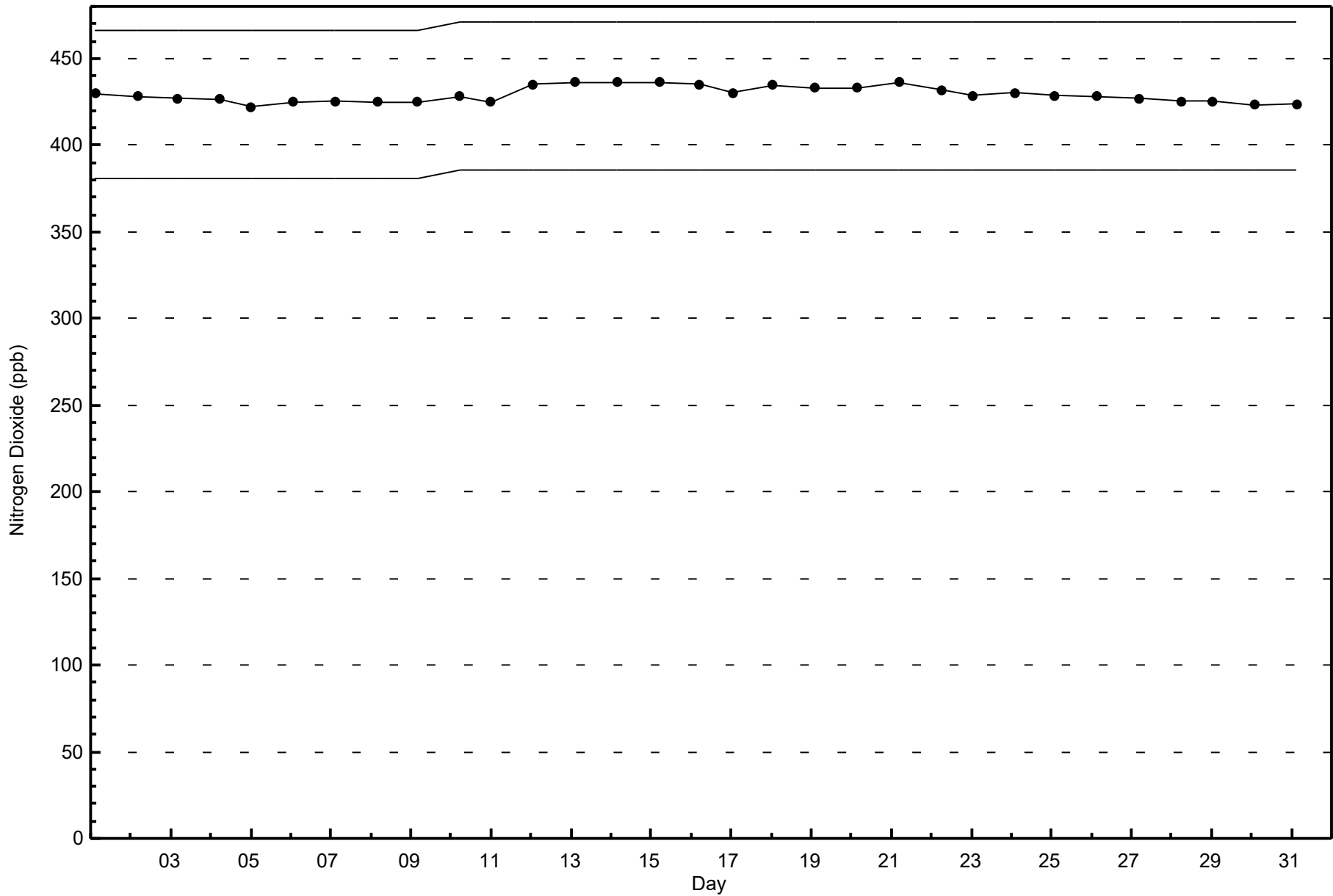
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

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

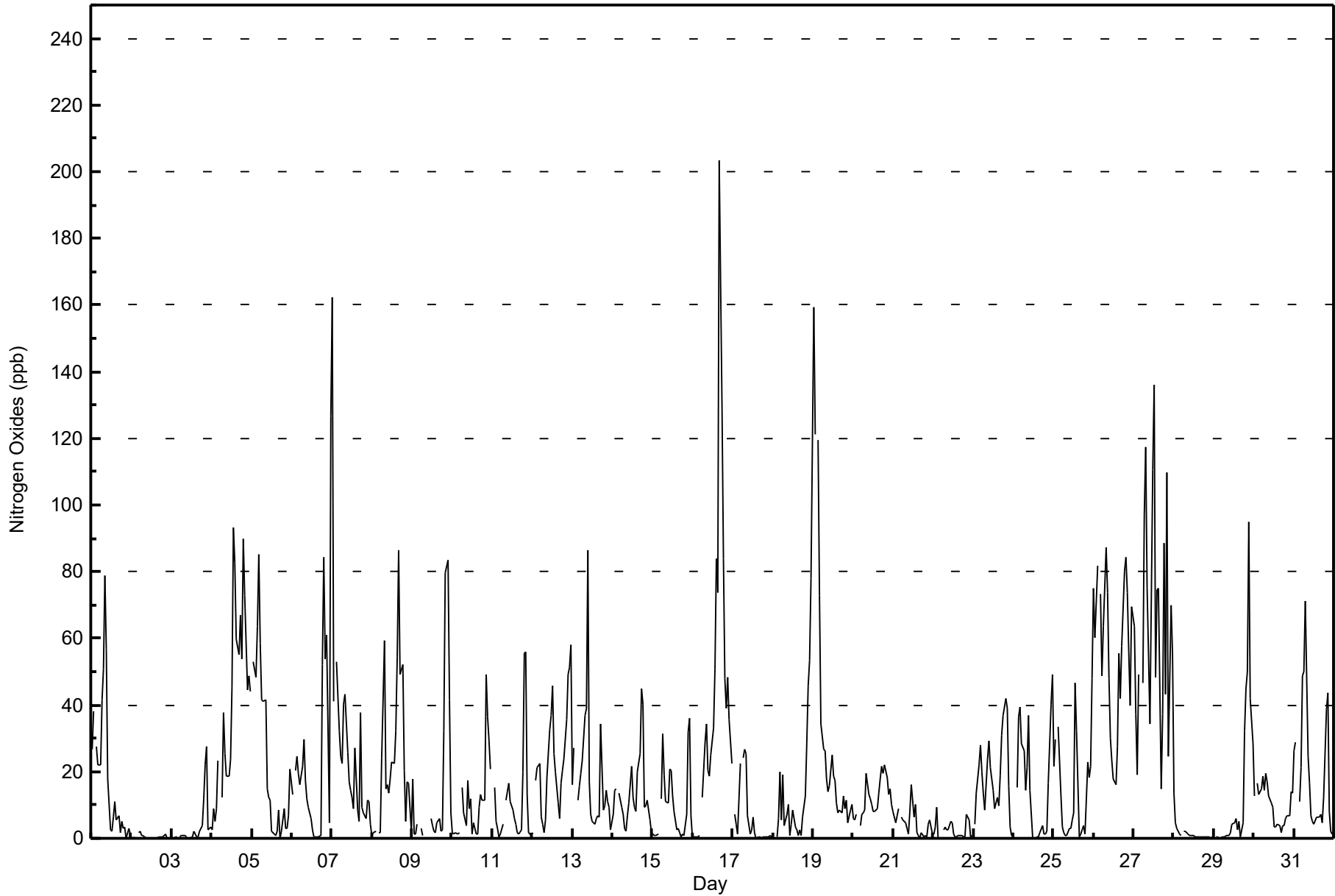
Fort Hills - October 2024

Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 203.3 ppb on Oct 16 17:00	Maximum Daily Average: 64.5 ppb on Oct 27		Hours of Data:	707
Minimum Value: 0.0 ppb on Oct 2 13:00	Minimum Daily Average: 0.4 ppb on Oct 2		Hours of Missing Data:	37
Maximum Diurnal Average: 28.1 ppb at hour 21	Minimum Diurnal Average: 11.8 ppb at hour 3		Hours of Calibration:	35
Monthly Average: 19.26 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 2.0 Median = 9.2 Q <sub>3</sub> = 25.0 P <sub>90</sub> = 51.7 P <sub>99</sub> = 119.6		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-Oct	26.8	38.1	Z	27.6	22.0	22.1	41.6	51.0	78.9	57.0	17.7	2.4	2.0	6.5	10.8	5.7	6.9	1.9	5.3	3.1	3.3	0.1	2.8	1.3	18.9	78.9
2-Oct	0.1	0.1	0.3	Z	1.7	2.0	0.9	0.6	0.4	0.2	0.2	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.6	1.3	0.1	0.1	0.0	0.4	2.0
3-Oct	0.1	0.1	0.3	0.4	Z	0.2	1.0	0.9	0.7	0.1	0.1	0.1	0.6	2.0	1.2	0.3	0.5	2.2	3.9	11.9	21.8	27.7	2.6	3.5	3.6	27.7
4-Oct	2.5	8.7	5.0	8.9	23.5	Z	12.2	37.8	25.4	18.6	23.9	45.5	93.3	82.4	59.6	55.2	66.9	53.8	89.7	73.0	44.5	48.9	44.3	41.0	93.3	
5-Oct	Z	52.8	48.2	63.7	85.3	58.4	41.4	41.3	41.4	14.7	12.5	11.9	1.9	1.1	1.0	2.3	8.4	0.1	2.1	8.9	3.1	3.0	6.9	20.7	23.1	85.3
6-Oct	13.0	Z	20.5	24.5	19.6	16.0	21.7	29.5	17.4	11.7	9.2	5.8	2.5	0.5	0.4	0.6	0.5	0.9	52.1	84.1	53.9	61.1	4.8	126.6	25.1	126.6
7-Oct	162.2	41.2	Z	53.0	32.1	24.5	22.6	40.3	43.3	25.8	16.9	14.6	12.4	9.1	27.2	8.5	5.3	37.7	9.5	7.5	6.0	11.6	11.2	4.3	27.2	162.2
8-Oct	0.9	1.5	2.1	Z	1.8	1.6	24.0	59.2	15.0	16.3	13.7	17.6	23.0	22.4	32.4	54.1	86.5	49.2	52.0	20.5	5.0	16.8	16.4	2.3	23.2	86.5
9-Oct	17.9	1.3	1.5	4.4	Z	2.8	1.0	C	C	C	C	5.9	3.7	1.9	1.8	4.6	6.0	2.2	2.7	32.2	79.7	83.3	41.6	7.7	15.9	83.3
10-Oct	1.5	1.2	1.6	1.4	1.8	Z	15.1	7.7	3.8	17.4	8.9	11.9	1.2	4.5	1.4	1.3	9.4	13.0	11.4	11.4	49.0	36.4	29.3	20.7	11.4	49.0
11-Oct	Z	15.4	5.2	3.0	0.5	1.1	4.2	M	11.2	14.0	16.4	10.8	8.3	5.9	4.2	1.8	1.3	2.6	19.8	55.6	55.7	13.0	1.7	0.8	11.5	55.7
12-Oct	1.9	Z	17.5	21.1	22.3	6.3	4.1	1.7	5.7	18.0	32.7	36.7	45.6	25.3	20.0	10.6	5.8	16.5	20.2	23.6	35.4	49.1	51.4	58.1	23.0	58.1
13-Oct	16.1	27.0	Z	11.3	15.5	19.4	23.2	37.1	39.1	86.4	17.0	7.3	5.2	4.2	5.7	6.6	6.5	34.1	8.6	9.7	14.6	11.1	9.1	2.6	18.2	86.4
14-Oct	7.1	14.4	14.7	Z	13.6	9.2	7.2	2.9	2.2	6.6	10.4	21.6	12.3	9.4	8.1	19.8	25.2	45.1	40.4	9.3	9.9	11.5	5.5	1.8	13.4	45.1
15-Oct	1.5	1.0	0.9	1.3	Z	11.8	31.3	19.1	11.0	10.8	20.7	20.4	12.8	8.1	2.4	2.9	1.7	0.6	1.4	0.9	7.2	31.7	36.0	6.9	10.5	36.0
16-Oct	0.6	0.4	0.5	0.5	0.9	Z	12.1	28.8	34.3	20.2	18.5	25.1	33.2	51.0	84.1	73.7	203.3	129.0	84.0	47.7	39.0	48.4	35.4	22.4	43.2	203.3
17-Oct	Z	7.1	4.2	1.4	22.6	DF	24.0	26.7	25.3	6.8	1.2	2.3	6.2	1.7	0.2	0.4	0.2	0.2	0.3	0.4	0.4	0.3	0.9	0.4	6.0	26.7
18-Oct	0.7	Z	0.4	5.7	19.8	5.7	19.0	3.9	7.2	10.0	0.8	4.2	8.4	3.2	2.5	0.7	2.7	1.0	6.3	12.7	28.5	45.6	53.5	78.1	13.9	78.1
19-Oct	159.3	121.3	Z	119.7	72.9	34.4	26.6	26.3	17.9	13.9	15.8	24.8	18.8	17.4	10.5	7.7	8.3	7.8	12.5	8.7	11.4	4.7	8.5	10.1	33.0	159.3
20-Oct	6.0	5.7	7.1	Z	4.0	7.4	7.6	8.5	19.6	13.3	11.7	10.0	8.2	8.2	9.1	13.5	17.8	21.5	19.7	21.8	18.3	13.0	14.7	10.1	12.0	21.8
21-Oct	8.0	4.7	6.6	9.0	Z	6.4	5.7	4.7	3.2	1.5	8.0	16.0	6.2	10.3	1.6	0.9	0.2	1.6	0.4	0.7	0.4	4.4	5.3	1.4	4.7	16.0
22-Oct	1.3	3.3	9.2	0.1	0.2	Z	2.7	3.2	2.3	2.7	5.1	4.7	1.1	0.5	0.4	0.7	0.7	0.8	0.6	0.5	7.1	5.5	0.6	0.7	2.3	9.2
23-Oct	Z	4.2	13.6	22.2	27.8	20.1	13.6	8.5	23.8	29.1	21.3	18.0	14.6	8.8	12.1	9.9	18.9	30.8	36.9	41.8	39.0	15.5	3.5	0.7	18.9	41.8
24-Oct	1.6	Z	15.4	36.4	39.2	28.4	26.3	14.6	21.2	37.0	14.6	0.2	0.1	0.1	0.4	0.5	1.5	3.7	1.4	1.4	2.1	16.6	40.2	49.0	15.3	49.0
25-Oct	21.5	29.6	Z	33.5	12.7	3.4	1.8	1.0	1.0	3.1	3.1	5.5	7.6	46.7	32.2	0.5	1.1	2.5	4.0	1.4	22.7	18.3	21.7	47.9	14.0	47.9
26-Oct	75.2	60.3	82.0	Z	73.5	48.7	63.7	87.2	73.7	47.8	30.0	23.2	17.9	16.2	27.4	55.3	41.8	57.6	79.9	84.3	73.5	55.8	39.9	69.7	55.8	87.2
27-Oct	63.7	37.1	18.9	49.1	Z	46.8	97.0	117.5	75.2	55.2	34.2	110.7	135.8	48.2	74.6	75.1	15.0	37.2	88.4	43.3	109.7	24.7	70.1	55.2	64.5	135.8
28-Oct	13.6	4.7	2.9	1.2	1.1	Z	2.0	2.3	1.1	1.0	0.7	0.7	0.6	0.5	0.6	0.6	0.2	0.4	0.5	0.6	0.4	0.4	0.2	0.3	1.6	13.6
29-Oct	Z	0.3	0.2	0.2	0.2	0.3	0.6	1.0	1.0	0.7	1.6	4.3	4.6	6.1	2.6	5.3	0.6	4.8	32.3	44.7	50.2	94.9	41.9	28.2	14.2	94.9
30-Oct	12.8	Z	16.7	13.2	14.8	18.5	14.4	19.6	16.9	12.8	10.4	9.2	3.3	3.4	4.4	3.9	1.8	4.0	4.0	6.1	6.8	6.9	14.1	13.6	10.1	19.6
31-Oct	26.2	29.0	Z	11.0	21.0	48.8	49.8	71.4	24.7	16.3	6.6	5.2	4.2	6.3	6.5	6.2	7.0	4.7	12.3	38.4	43.7	7.9	2.0	1.3	19.6	71.4

24.7	19.6	11.8	20.1	21.2	17.8	19.9	26.0	21.5	19.0	12.6	14.7	14.4	13.6	15.1	14.0	17.4	18.7	21.5	23.3	28.1	24.6	20.0	22.3	Diurnal Average	
162.2	121.3	82.0	119.7	85.3	58.4	97.0	117.5	78.9	86.4	34.2	110.7	135.8	93.3	84.1	75.1	203.3	129.0	88.4	89.7	109.7	94.9	70.1	126.6	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	491	69.45	69.45
21 - 40	105	14.85	84.30
41 - 80	84	11.88	96.18
81 - 159	25	3.54	99.72
> 159	2	0.28	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**  
**Fort Hills - October 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	46	20	13	4	3	4	19	83	72	65	23	18	33	46	30	11	490
21 - 40	13	3	2	1	1	1	11	10	14	17	17	2	3	1	3	6	105
11 - 80	36	2	0	3	1	3	7	1	3	3	4	2	3	1	3	12	84
81 - 159	13	1	0	0	0	2	1	0	0	1	0	1	1	0	0	5	25
> 159	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2
<b>Totals</b>	108	26	15	8	5	10	39	94	89	86	44	23	40	48	36	35	706

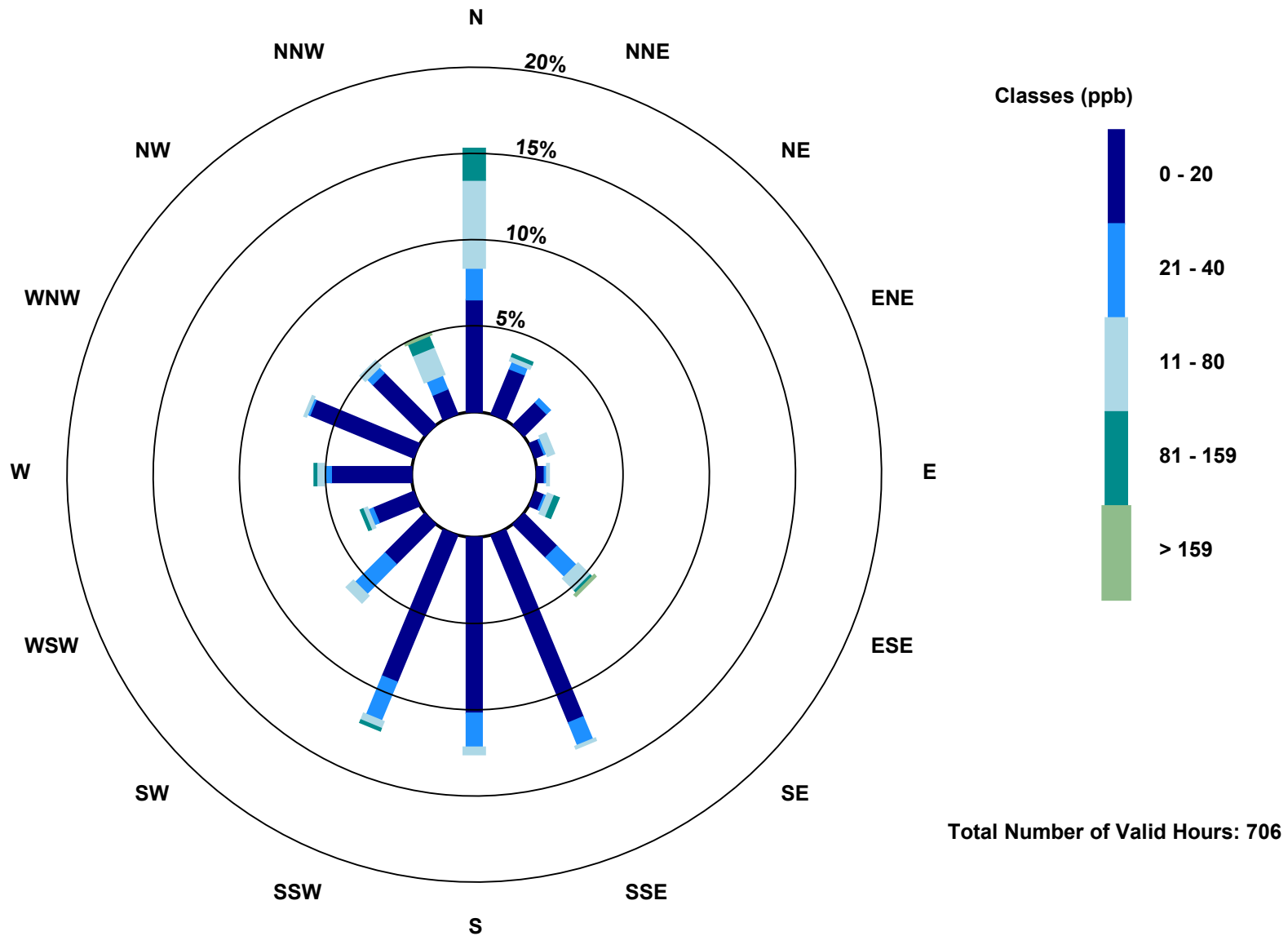
Total Number of Valid Hours: 706

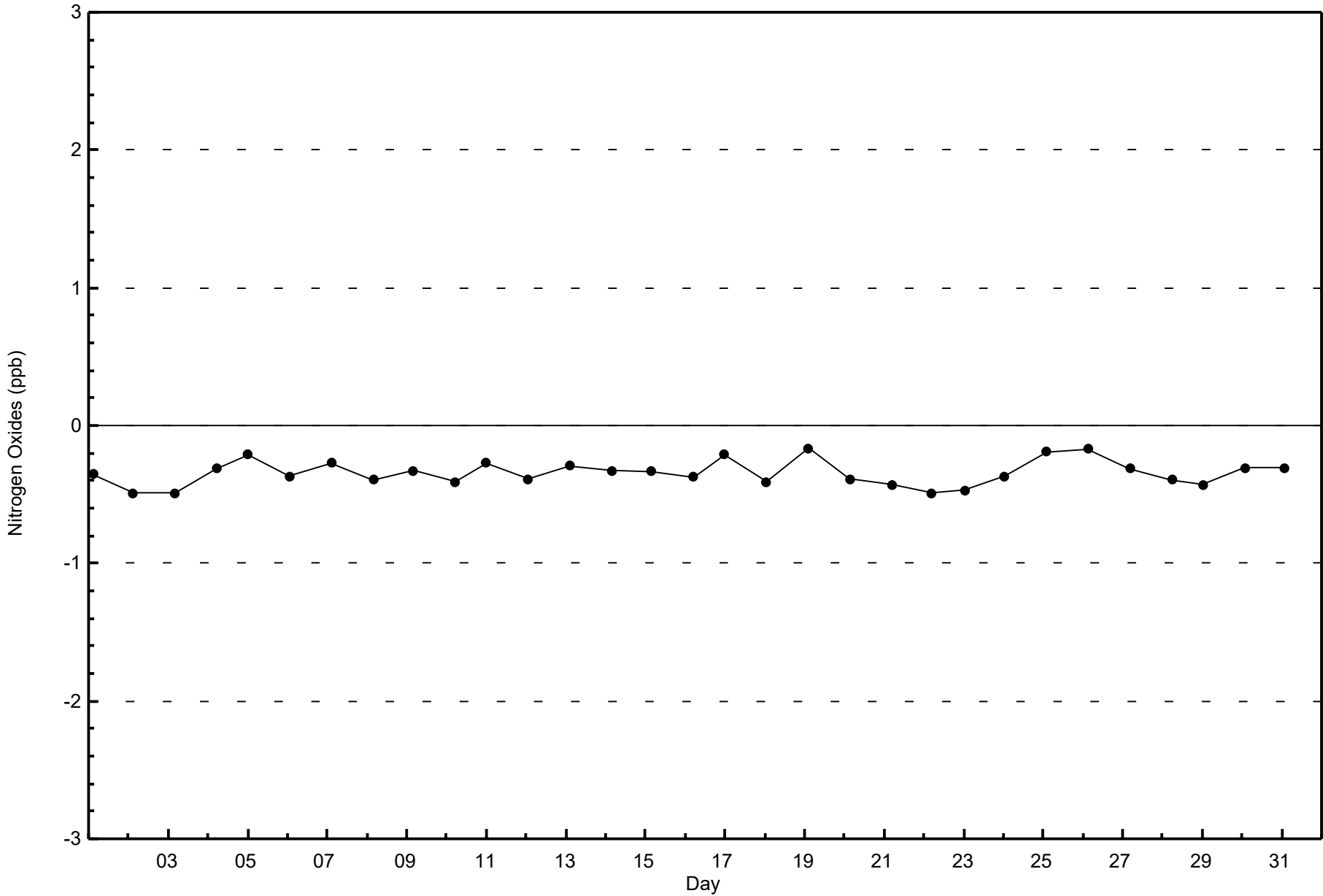
Total Number of Hours: 744

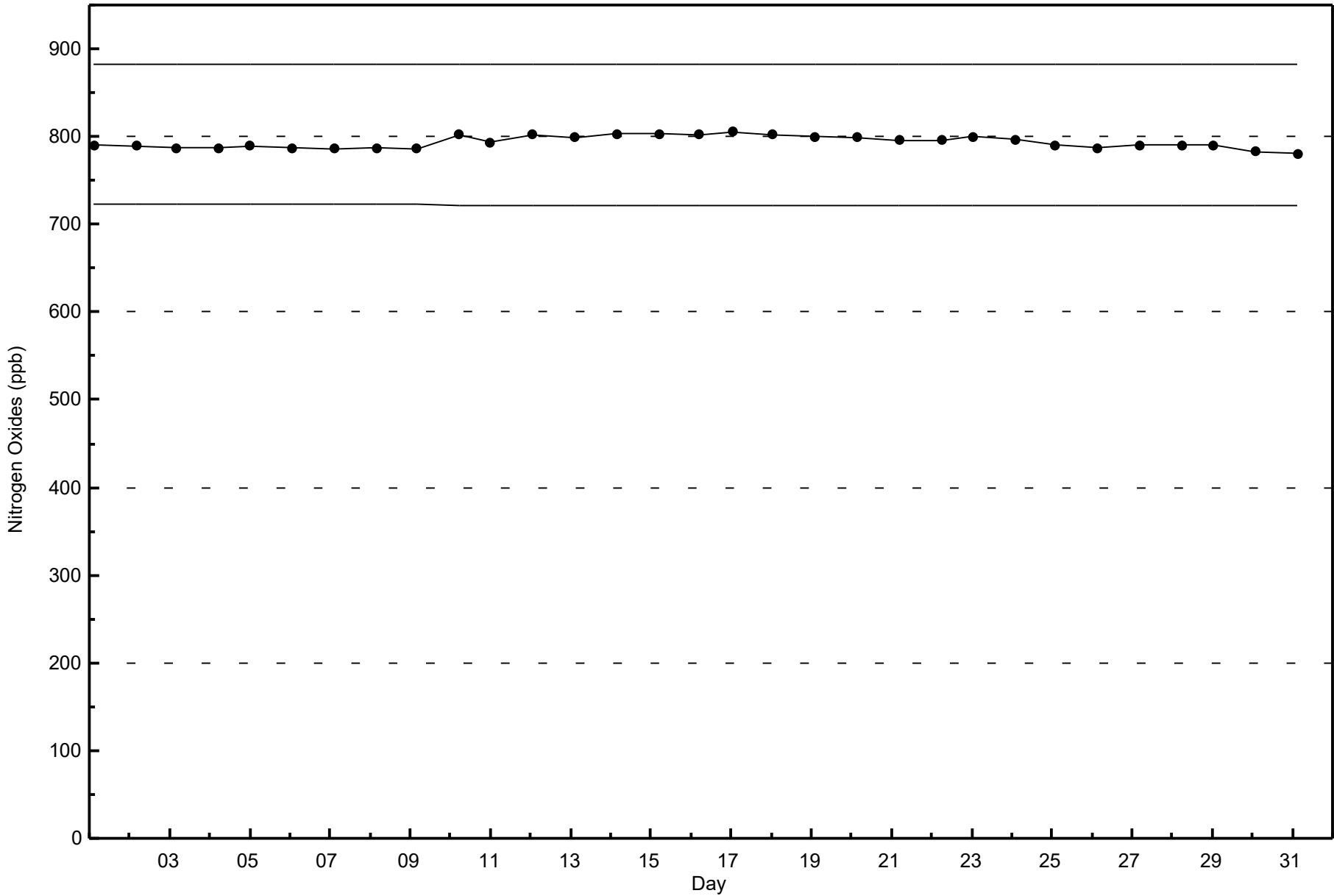


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



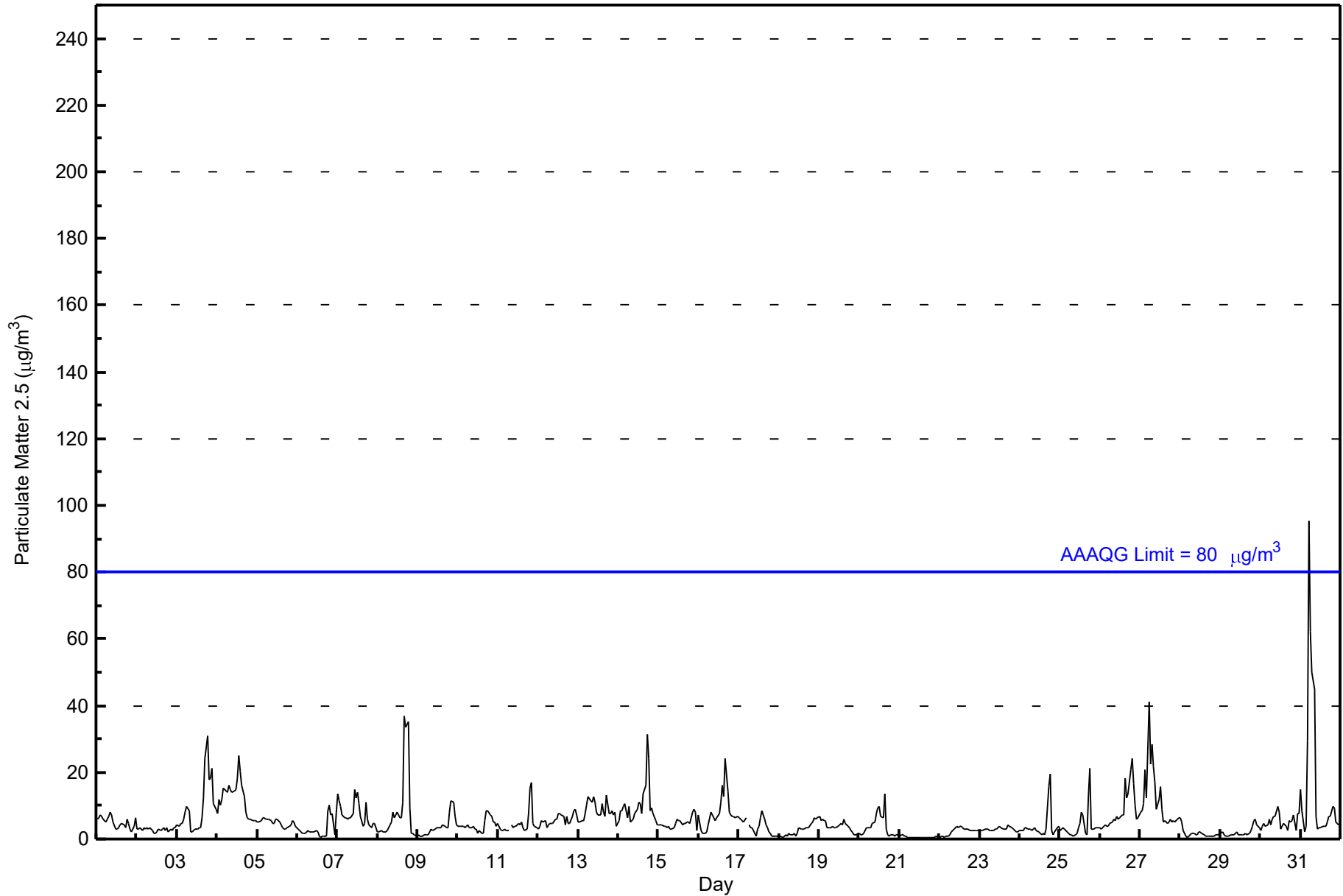








Number of Exceedences (AAAQO):		1-hr: 1	24-hr: 0	Hours in Service: 744																	742																												
Maximum Value: 95.2 µg/m <sup>3</sup> on Oct 31 06:00		Maximum Daily Average: 16.3 µg/m <sup>3</sup> on Oct 31																	Hours of Data: 742																														
Minimum Value: 0.3 µg/m <sup>3</sup> on Oct 21 16:00		Minimum Daily Average: 0.6 µg/m <sup>3</sup> on Oct 21																	Hours of Missing Data: 2																														
Maximum Diurnal Average: 8.7 µg/m <sup>3</sup> at hour 19		Minimum Diurnal Average: 4.0 µg/m <sup>3</sup> at hour 3																	Hours of Calibration: 1																														
Monthly Average: 5.69 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 2.5 Median = 3.9 Q <sub>3</sub> = 6.7 P <sub>90</sub> = 10.8 P <sub>99</sub> = 32.6																	Percent Operational Time: 99.9																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	5.8	6.3	7.1	6.9	5.8	5.1	5.8	6.8	7.9	7.1	4.9	3.1	2.9	3.5	4.3	4.8	4.2	3.2	6.0	4.5	2.8	2.0	3.9	6.2	5.0	7.9																							
2-Oct	3.0	3.2	3.3	2.7	3.2	3.1	3.5	2.9	3.3	2.4	1.7	1.5	2.0	2.8	2.7	2.9	3.2	2.7	3.5	2.0	2.9	2.5	3.3	3.5	2.8	3.5																							
3-Oct	4.3	4.0	4.8	4.6	5.9	8.3	9.6	8.3	2.2	2.2	2.7	2.9	2.8	3.5	3.2	6.4	12.2	24.3	30.8	17.9	18.2	21.1	10.7	8.7	9.1	30.8																							
4-Oct	7.8	12.1	10.0	12.0	15.1	14.6	14.2	15.9	14.9	13.9	14.4	15.0	18.0	24.9	20.2	16.1	12.6	8.1	6.3	6.1	5.9	5.6	5.6	5.5	12.3	24.9																							
5-Oct	5.2	5.1	5.5	6.2	6.4	6.0	5.9	6.1	5.7	4.8	4.6	5.8	5.8	4.9	4.3	3.5	2.8	3.0	3.3	3.7	4.2	5.6	5.2	3.6	4.9	6.4																							
6-Oct	3.1	2.6	2.0	1.8	1.7	1.6	2.4	2.2	2.0	2.1	2.1	2.5	1.9	0.8	0.6	0.7	0.9	1.0	8.4	10.1	7.1	7.6	1.2	8.2	3.1	10.1																							
7-Oct	13.4	11.6	9.7	7.1	6.3	6.2	5.8	6.2	6.3	7.6	14.8	12.5	14.1	10.8	6.9	3.9	4.6	11.1	5.9	4.1	3.2	4.5	4.7	3.2	7.7	14.8																							
8-Oct	2.0	2.3	2.6	2.3	2.1	2.0	2.6	4.4	5.0	7.9	6.5	7.2	8.1	6.5	6.3	11.2	36.7	33.5	35.1	9.4	1.7	1.6	1.4	1.0	8.3	36.7																							
9-Oct	1.3	0.8	0.9	1.0	1.1	1.2	1.3	2.3	2.8	2.4	3.1	3.5	3.4	3.3	3.4	4.1	4.0	3.4	3.6	7.9	11.5	10.8	6.7	4.2	3.7	11.5																							
10-Oct	4.0	3.8	3.6	3.6	3.5	3.9	4.2	3.6	3.2	3.7	3.0	2.9	1.9	2.6	1.7	1.5	5.5	8.3	8.6	7.2	6.7	5.1	5.1	3.7	4.2	8.6																							
11-Oct	4.7	3.1	2.4	2.6	2.9	2.7	2.6	C	4.4	3.3	3.8	4.0	4.7	4.2	4.9	3.3	2.7	2.9	7.5	15.1	16.9	4.8	3.9	3.2	4.8	16.9																							
12-Oct	2.9	3.7	5.3	4.9	5.6	3.4	4.3	4.9	4.8	4.5	5.7	5.9	7.8	7.6	7.3	6.7	4.4	6.7	4.7	4.8	6.7	8.3	8.8	7.2	5.7	8.8																							
13-Oct	5.0	5.2	5.4	5.4	7.5	10.2	12.7	11.6	10.8	12.7	10.9	7.9	7.0	7.1	10.4	8.1	6.9	13.0	7.5	7.5	8.6	7.3	8.1	3.9	8.4	13.0																							
14-Oct	5.7	8.4	8.3	9.6	10.5	6.3	9.6	4.9	5.6	5.8	7.7	9.0	11.0	10.7	7.6	13.4	16.1	31.4	24.2	8.4	9.1	7.6	5.4	4.3	10.0	31.4																							
15-Oct	4.2	4.1	4.3	4.0	3.8	3.5	3.7	3.0	2.8	3.3	4.7	5.8	5.3	5.5	4.0	4.9	4.6	5.1	5.3	4.7	8.2	9.0	7.9	2.6	4.8	9.0																							
16-Oct	7.2	2.4	1.6	1.6	1.8	2.2	4.1	7.9	7.3	6.3	5.6	6.5	7.4	10.8	16.2	12.9	24.1	14.2	8.2	7.2	6.8	6.9	6.5	6.8	7.6	24.1																							
17-Oct	6.4	5.8	5.5	5.2	6.3	DF	4.2	3.6	3.6	2.4	0.9	3.1	3.9	6.5	8.3	5.8	4.3	3.5	2.2	1.8	0.9	0.9	0.7	0.7	3.8	8.3																							
18-Oct	0.8	0.7	0.6	0.8	1.1	0.7	1.6	1.2	1.1	1.5	1.0	1.8	3.4	2.9	2.8	3.0	3.5	3.3	3.5	4.5	5.0	6.4	5.8	6.3	2.6	6.4																							
19-Oct	6.9	5.6	5.7	5.6	5.3	3.2	3.2	3.4	4.0	3.5	3.4	3.8	4.2	4.5	4.3	5.7	4.5	3.8	3.4	2.7	2.2	1.3	1.5	1.7	3.9	6.9																							
20-Oct	1.6	1.3	1.4	1.8	3.3	3.4	3.5	3.4	4.6	5.1	7.8	9.5	9.6	7.0	6.4	13.5	3.1	1.1	1.0	1.2	1.2	1.0	1.3	1.1	3.9	13.5																							
21-Oct	1.0	1.2	1.1	0.8	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.6	0.4	0.5	0.6	0.3	0.4	0.5	0.4	0.4	0.4	0.5	0.7	0.5	0.6	1.2																							
22-Oct	0.5	0.8	1.0	0.6	0.7	1.0	1.4	2.0	2.7	3.0	3.7	3.5	3.8	3.8	3.4	3.1	3.0	2.8	2.7	2.6	2.7	2.6	2.6	2.7	2.4	3.8																							
23-Oct	2.6	2.6	2.7	2.9	2.9	2.8	2.4	2.3	2.5	3.1	3.0	3.2	3.7	3.2	3.0	2.9	2.9	4.4	3.6	3.4	3.1	2.4	2.0	2.1	2.9	4.4																							
24-Oct	2.4	2.5	2.7	3.2	3.3	3.0	2.9	2.7	2.8	3.3	2.7	2.3	1.6	1.4	1.8	1.4	2.8	15.7	19.3	2.5	1.4	2.2	3.5	3.7	3.8	19.3																							
25-Oct	2.4	2.9	3.6	3.0	2.3	1.7	1.3	1.1	1.0	1.2	1.5	3.3	4.5	8.3	7.4	1.5	1.3	12.7	21.3	2.9	2.9	3.4	3.3	3.5	4.1	21.3																							
26-Oct	3.5	3.0	3.6	4.2	3.9	3.9	4.7	5.2	6.1	5.6	6.9	6.0	6.2	7.2	7.4	18.1	12.2	13.7	20.7	24.0	16.7	10.0	6.0	6.2	8.5	24.0																							
27-Oct	8.0	8.6	10.5	20.7	12.5	41.3	22.6	28.4	21.7	17.0	9.0	11.9	15.8	9.0	5.0	5.3	4.7	4.9	6.0	5.3	5.6	5.0	6.1	6.2	12.1	41.3																							
28-Oct	6.3	5.0	2.7	0.7	0.4	0.9	1.3	1.6	1.7	1.2	1.3	2.1	2.2	1.6	1.1	0.8	0.9	0.9	1.0	0.9	1.0	1.1	1.2	1.3	1.6	6.3																							
29-Oct	1.6	1.9	1.1	0.9	1.0	1.0	1.1	1.4	1.2	1.7	2.2	1.5	1.2	1.4	1.1	1.6	1.4	1.5	2.7	3.8	5.6	6.1	4.2	3.4	2.1	6.1																							
30-Oct	2.6	3.9	4.5	3.6	4.0	5.9	4.3	5.9	6.7	6.9	9.7	7.9	3.1	3.8	4.6	3.9	2.7	5.4	5.2	5.7	7.2	2.5	7.8	7.8	5.2	9.7																							
31-Oct	14.7	8.7	2.3	3.9	29.9	95.2	62.2	50.1	44.7	6.7	3.1	3.5	3.3	3.7	3.8	3.9	5.2	6.9	6.7	9.9	9.3	5.1	4.6	4.4	16.3	95.2																							
																								4.5	4.3	4.0	4.3	5.2	8.2	6.8	6.8	6.2	4.9	4.9	5.2	5.5	5.6	5.3	5.7	6.4	8.2	8.7	6.2	6.0	5.2	4.5	4.1	Diurnal Average	
																								14.7	12.1	10.5	20.7	29.9	95.2	62.2	50.1	44.7	17.0	14.8	15.0	18.0	24.9	20.2	18.1	36.7	33.5	35.1	24.0	18.2	21.1	10.7	8.7	Diurnal Maximum	
C - Calibration      DF - DAS 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 Hills - October 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	480	64.69	64.69
6 - 15	224	30.19	94.88
16 - 25	26	3.50	98.38
26 - 80	11	1.48	99.87
> 81.0	1	0.13	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 Hills - October 2024**

Concentration Ranges (μg/m <sup>3</sup> )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	65	12	11	5	3	4	26	56	65	72	35	16	28	43	29	9	479
6 - 15	39	12	4	4	2	5	18	37	26	17	11	7	11	6	7	18	224
16 - 25	7	2	0	0	0	0	1	3	1	2	1	0	3	1	1	4	26
26 - 80	2	1	0	0	0	1	0	1	0	0	0	0	0	0	1	5	11
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<b>Totals</b>	113	27	15	9	5	10	45	97	92	91	47	23	42	50	38	37	741

Total Number of Valid Hours: 741

Total Number of Hours: 744

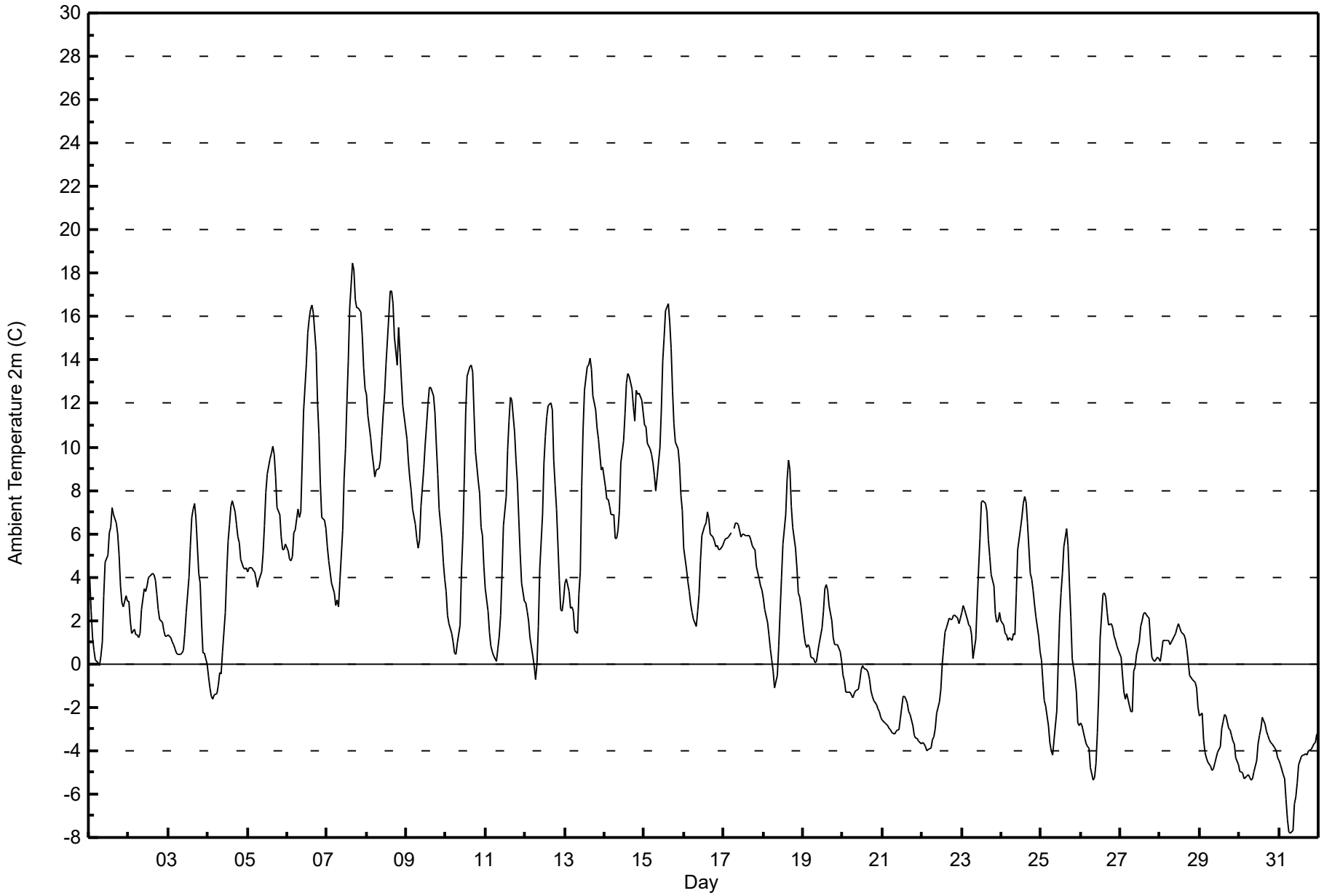




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Fort Hills - October 2024**

Maximum Value: 18.5 C on Oct 7 16:00		Maximum Daily Average: 12.5 C on Oct 8		Hours in Service: 744																																												
Minimum Value: -7.8 C on Oct 31 08:00		Minimum Daily Average: -5.1 C on Oct 31		Hours of Data: 743																																												
Maximum Diurnal Average: 7.2 C at hour 16		Minimum Diurnal Average: 0.6 C at hour 8		Hours of Missing Data: 1																																												
Monthly Average: 3.49 C		Percentiles: P <sub>1</sub> = -5.5 P <sub>10</sub> = -3.5 Q <sub>1</sub> = -0.1 Median = 2.6 Q <sub>3</sub> = 6.8 P <sub>90</sub> = 11.6 P <sub>99</sub> = 16.5		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-Oct	3.9	2.4	1.2	0.6	0.2	0.0	-0.1	0.3	1.0	3.2	4.7	5.0	6.0	6.3	7.2	6.9	6.5	6.0	5.0	3.6	2.8	2.6	3.2	2.9	3.4	7.2																						
2-Oct	2.9	2.0	1.4	1.6	1.3	1.3	1.2	1.4	2.5	3.4	3.3	3.6	4.0	4.0	4.2	4.1	3.9	3.2	2.5	2.1	1.9	1.5	1.3	1.3	2.5	4.2																						
3-Oct	1.3	1.2	1.0	0.9	0.7	0.5	0.5	0.4	0.5	0.6	1.4	2.4	4.0	5.5	6.8	7.1	7.4	6.7	4.2	3.7	1.9	0.5	0.5	0.0	2.5	7.4																						
4-Oct	-0.6	-1.1	-1.5	-1.7	-1.4	-1.4	-1.0	-0.4	-0.5	0.6	2.4	4.2	5.6	6.5	7.3	7.5	7.0	6.4	5.9	5.6	4.8	4.4	4.4	4.4	2.8	7.5																						
5-Oct	4.3	4.4	4.4	4.3	4.2	3.9	3.5	3.8	4.2	5.1	6.4	7.9	8.7	9.5	9.7	10.0	9.6	8.6	7.2	6.9	5.8	5.2	5.2	5.5	6.2	10.0																						
6-Oct	5.2	4.8	4.7	5.0	6.0	6.2	7.1	6.7	7.0	9.3	11.6	13.9	15.2	15.9	16.3	16.6	16.1	14.4	12.0	10.6	8.3	6.7	6.6	6.2	9.7	16.6																						
7-Oct	5.4	4.7	4.3	3.7	3.2	2.7	2.9	2.6	3.8	6.2	8.6	9.9	12.0	14.0	16.4	18.5	18.2	16.8	16.4	16.4	16.2	15.1	13.7	12.7	10.2	18.5																						
8-Oct	12.4	11.5	10.4	9.7	9.2	8.6	8.9	9.0	9.4	10.5	11.6	12.5	13.8	16.0	17.2	17.2	16.6	15.1	13.8	15.5	14.3	13.0	11.9	10.8	12.5	17.2																						
9-Oct	10.3	9.3	8.5	8.0	7.2	6.4	5.8	5.3	5.7	7.2	9.0	10.1	11.0	12.0	12.7	12.7	12.3	11.6	10.1	8.8	7.1	5.8	4.7	3.9	8.6	12.7																						
10-Oct	3.3	2.3	1.9	1.4	1.0	0.5	0.5	0.9	1.8	4.3	5.9	8.6	11.6	13.2	13.7	13.8	13.4	11.5	9.8	8.4	7.8	6.3	5.9	4.5	6.3	13.8																						
11-Oct	3.4	2.5	1.5	0.8	0.6	0.4	0.1	0.7	1.3	2.3	4.1	6.3	7.7	9.8	11.2	12.3	12.1	10.7	9.4	8.4	6.7	5.1	3.7	2.9	5.2	12.3																						
12-Oct	2.8	2.4	2.0	1.2	0.4	-0.1	-0.7	0.0	1.7	4.4	6.9	9.3	10.5	11.4	11.9	12.0	11.7	9.4	8.2	7.1	3.8	2.5	2.4	2.9	5.2	12.0																						
13-Oct	3.7	3.9	3.3	2.6	2.6	2.4	1.6	1.4	3.2	4.2	8.2	10.8	12.6	13.7	13.7	14.1	13.6	12.3	11.7	10.9	10.3	9.7	8.9	9.0	7.9	14.1																						
14-Oct	8.2	7.6	7.6	7.3	6.9	6.9	5.8	5.8	6.2	7.1	9.3	10.3	11.5	12.9	13.4	13.3	12.7	11.8	11.2	12.6	12.4	12.5	12.2	11.6	9.9	13.4																						
15-Oct	11.0	11.0	10.1	9.9	9.6	9.3	8.7	8.0	8.6	10.0	11.7	14.0	15.0	16.3	16.6	15.7	14.6	12.6	11.1	10.2	9.9	9.2	7.8	7.0	11.2	16.6																						
16-Oct	5.3	4.4	3.8	3.3	2.8	2.4	2.1	1.8	2.4	3.2	4.7	5.9	6.3	6.5	7.0	6.7	6.0	5.9	5.6	5.4	5.5	5.3	5.3	5.4	4.7	7.0																						
17-Oct	5.7	5.8	5.8	5.9	6.1	DF	6.2	6.5	6.5	6.4	5.8	6.0	6.0	5.9	5.9	5.9	5.7	5.4	5.3	5.3	4.5	3.9	3.6	3.4	5.5	6.5																						
18-Oct	3.0	2.5	1.9	1.3	0.7	0.2	-0.4	-1.1	-0.5	0.8	2.4	4.0	5.5	6.9	8.5	9.4	9.0	7.2	6.3	5.3	4.4	3.3	3.1	2.6	3.6	9.4																						
19-Oct	1.4	1.0	0.8	0.9	0.7	0.3	0.3	0.0	0.1	0.5	0.9	1.7	2.4	3.4	3.6	3.4	2.7	2.0	1.2	0.9	0.9	0.9	0.6	0.1	1.3	3.6																						
20-Oct	-0.5	-0.8	-1.3	-1.3	-1.3	-1.4	-1.6	-1.4	-1.2	-1.2	-0.8	-0.3	-0.1	-0.2	-0.3	-0.4	-0.7	-1.2	-1.5	-1.7	-1.9	-2.1	-2.2	-2.4	-1.2	-0.1																						
21-Oct	-2.6	-2.7	-2.8	-2.8	-3.0	-3.1	-3.1	-3.2	-3.1	-3.1	-3.0	-2.5	-1.5	-1.5	-1.6	-1.8	-2.2	-2.3	-2.8	-3.3	-3.4	-3.4	-3.5	-3.7	-2.8	-1.5																						
22-Oct	-3.6	-3.7	-3.8	-4.0	-3.9	-3.9	-3.5	-3.4	-3.0	-2.3	-1.8	-1.1	0.0	0.7	1.5	1.7	2.1	2.0	2.1	2.3	2.2	2.1	1.8	2.1	-0.7	2.3																						
23-Oct	2.4	2.7	2.5	2.1	1.8	1.7	1.3	0.3	1.1	2.8	4.4	5.8	7.4	7.5	7.4	7.0	5.7	4.9	4.1	3.6	2.3	1.9	2.0	2.4	3.5	7.5																						
24-Oct	2.0	1.8	1.4	1.3	1.1	1.2	1.1	1.4	1.4	3.3	5.2	6.2	6.8	7.4	7.7	7.5	6.5	4.2	3.9	3.4	2.8	2.2	1.3	0.5	3.4	7.7																						
25-Oct	0.2	-0.8	-1.7	-2.0	-2.8	-3.6	-4.0	-4.2	-3.5	-2.2	0.1	2.1	3.3	4.2	5.4	6.3	5.4	3.7	2.2	0.2	-0.7	-1.3	-2.7	-2.8	0.0	6.3																						
26-Oct	-2.7	-2.8	-3.4	-3.7	-3.8	-3.9	-4.8	-5.4	-5.2	-4.6	-3.2	-1.3	1.2	3.2	3.2	3.1	2.4	1.8	1.8	1.7	1.3	1.1	0.8	0.6	-0.9	3.2																						
27-Oct	0.3	-0.6	-1.3	-1.6	-1.4	-2.0	-2.2	-2.2	-0.3	-0.1	0.5	1.0	1.7	2.0	2.3	2.4	2.2	2.1	1.1	0.3	0.2	0.1	0.3	0.2	0.2	2.4																						
28-Oct	0.1	0.6	1.1	1.1	1.1	1.1	0.9	1.0	1.3	1.4	1.6	1.8	1.7	1.5	1.4	1.1	0.7	0.1	-0.5	-0.7	-0.8	-0.9	-1.1	-2.0	0.6	1.8																						
29-Oct	-2.4	-2.3	-3.5	-4.1	-4.3	-4.5	-4.7	-4.9	-4.9	-4.6	-4.3	-4.1	-3.8	-3.0	-2.7	-2.3	-2.4	-2.9	-3.0	-3.3	-3.5	-3.7	-4.3	-4.6	-3.7	-2.3																						
30-Oct	-5.0	-4.9	-5.1	-5.3	-5.2	-5.1	-5.2	-5.3	-5.3	-5.0	-4.4	-3.7	-3.3	-3.0	-2.5	-2.8	-3.1	-3.3	-3.5	-3.6	-3.7	-3.9	-4.0	-4.3	-4.2	-2.5																						
31-Oct	-4.5	-4.7	-5.1	-5.3	-6.3	-7.1	-7.8	-7.8	-7.7	-6.4	-6.1	-5.5	-4.6	-4.3	-4.2	-4.2	-4.1	-4.2	-4.0	-4.0	-3.8	-3.7	-3.6	-3.2	-5.1	-3.2																						
																								2.5	2.1	1.6	1.3	1.1	0.7	0.6	0.6	1.1	2.2	3.5	4.7	5.8	6.6	7.1	7.2	6.8	5.9	5.1	4.6	3.9	3.3	2.9	2.6	Diurnal Average
																								12.4	11.5	10.4	9.9	9.6	9.3	8.9	9.0	9.4	10.5	11.7	14.0	15.2	16.3	17.2	18.5	18.2	16.8	16.4	16.4	16.2	15.1	13.7	12.7	Diurnal Maximum
DF - DAS Failure																																																





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

**Ambient Temperature 2m (AT2) - C**  
**Fort Hills - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	190	25.57	25.57
0 - 10	452	60.83	86.41
10 - 20	101	13.59	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744

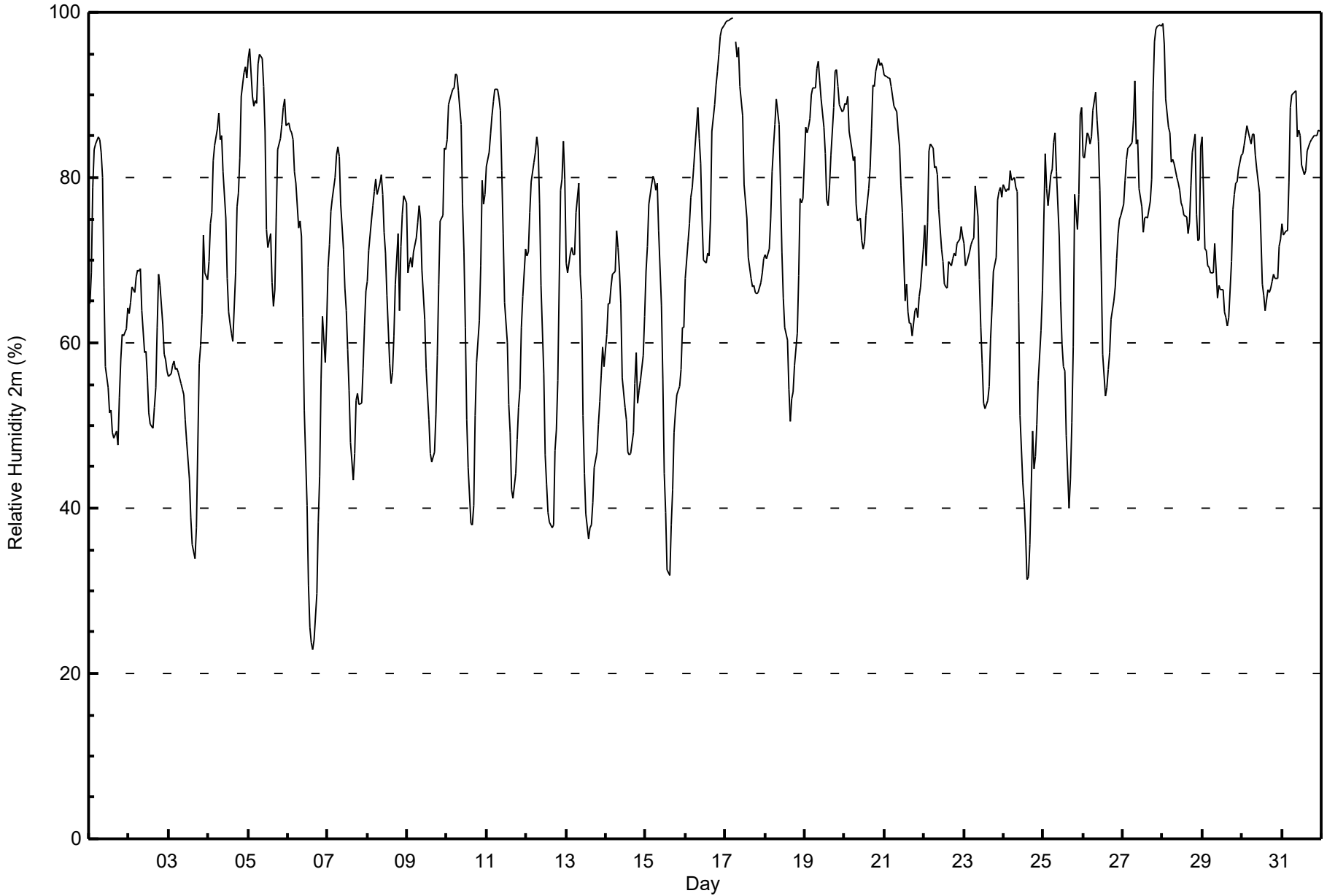




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**  
**Fort Hills - October 2024**

Maximum Value: 99.3 % on Oct 17 05:00		Maximum Daily Average: 87.5 % on Oct 19		Hours in Service: 744																							
Minimum Value: 22.9 % on Oct 6 16:00		Minimum Daily Average: 53.1 % on Oct 3		Hours of Data: 743																							
Maximum Diurnal Average: 82.6 % at hour 8		Minimum Diurnal Average: 54.8 % at hour 16		Hours of Missing Data: 1																							
Monthly Average: 70.91 %		Percentiles: P <sub>1</sub> = 31.8 P <sub>10</sub> = 49.8 Q <sub>1</sub> = 61.8 Median = 72.6 Q <sub>3</sub> = 83.0 P <sub>90</sub> = 89.4 P <sub>99</sub> = 98.4		Hours of Calibration: 0																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	64.8	68.5	78.8	83.3	84.0	84.9	84.6	83.0	80.1	66.9	57.1	54.6	51.5	51.9	49.1	48.5	49.3	47.7	53.4	58.0	61.0	60.9	61.7	64.3	64.5	84.9	
2-Oct	63.5	64.9	66.8	66.0	67.9	68.8	68.7	68.9	64.0	58.8	58.9	55.7	51.6	50.2	49.7	52.3	54.6	61.8	68.4	67.0	62.1	58.7	58.0	56.7	61.0	68.9	
3-Oct	55.9	56.3	57.3	57.8	56.7	56.9	56.5	55.2	54.4	53.7	50.7	48.1	43.6	38.8	35.7	34.8	33.9	37.6	57.5	59.6	63.4	73.1	68.6	67.6	53.1	73.1	
4-Oct	69.8	74.4	75.8	82.0	83.9	85.9	87.8	84.5	85.0	80.7	75.1	67.7	63.7	62.4	61.2	60.1	68.6	76.4	78.2	82.4	89.8	92.6	93.4	92.1	78.1	93.4	
5-Oct	94.3	95.5	89.8	88.6	89.3	88.9	93.8	94.9	94.4	91.0	85.6	73.7	71.6	73.3	67.3	64.5	66.4	75.3	83.3	84.8	86.5	88.4	89.5	86.3	84.0	95.5	
6-Oct	86.6	85.8	85.5	84.5	80.6	79.4	73.9	74.7	72.9	63.1	51.9	40.3	30.6	25.5	23.7	22.9	24.1	29.7	38.3	44.0	55.6	63.2	57.7	62.3	56.5	86.6	
7-Oct	69.1	71.8	76.0	77.5	80.0	82.7	83.8	82.5	76.8	71.4	66.5	63.9	59.2	54.3	47.9	43.4	46.6	53.0	54.0	52.5	52.7	57.0	62.1	66.2	64.6	83.8	
8-Oct	67.5	71.2	74.9	76.6	78.2	79.8	78.0	79.4	80.4	78.0	73.3	70.8	65.8	57.4	55.1	56.4	60.8	67.2	73.2	63.9	71.7	75.6	77.8	77.0	71.3	80.4	
9-Oct	68.5	69.4	70.3	69.1	71.1	72.7	74.6	76.7	75.0	68.9	62.9	56.9	53.7	50.6	46.7	45.5	46.8	51.3	58.4	67.2	74.7	75.3	83.5	83.5	65.6	83.5	
10-Oct	84.6	88.9	89.5	90.6	90.8	92.5	92.3	90.6	86.5	76.9	71.0	61.8	50.6	44.8	38.1	38.0	40.4	51.3	57.6	62.8	69.3	79.7	76.9	78.0	71.0	92.5	
11-Oct	81.4	83.1	85.3	87.5	89.2	90.7	90.7	89.7	88.1	80.8	73.2	64.8	60.1	52.6	49.1	42.1	41.1	44.3	48.3	52.2	54.4	61.9	65.6	71.3	68.6	90.7	
12-Oct	70.6	71.0	75.7	79.5	81.9	83.0	85.0	83.5	76.7	66.9	56.3	46.4	42.8	39.6	38.4	37.7	38.0	46.9	49.4	55.4	78.4	79.9	84.5	79.8	64.5	85.0	
13-Oct	69.6	68.4	70.9	71.5	70.6	70.7	75.8	79.3	68.4	65.2	51.1	44.2	39.3	36.3	37.6	37.9	40.7	44.8	46.8	50.2	52.9	56.0	59.5	57.1	56.9	79.3	
14-Oct	61.0	64.7	64.7	66.7	68.3	68.6	73.6	71.6	68.8	64.7	55.7	52.3	50.6	46.8	46.5	46.6	49.2	55.0	58.9	52.8	54.2	55.4	58.4	63.1	59.1	73.6	
15-Oct	68.6	71.7	76.8	79.2	80.1	79.6	78.5	79.3	73.6	64.6	55.6	44.2	39.4	32.5	31.8	38.0	42.1	49.1	51.7	53.8	54.8	56.7	61.9	61.9	59.4	80.1	
16-Oct	67.8	72.2	74.4	77.6	78.8	81.3	83.8	88.4	84.8	81.7	74.9	70.1	69.6	70.9	70.6	75.0	85.6	88.8	91.2	92.8	94.9	97.1	98.0	98.5	82.0	98.5	
17-Oct	98.8	99.0	99.1	99.1	99.3	DF	96.4	94.6	95.7	91.1	87.5	79.2	77.2	75.2	70.4	67.8	66.8	67.0	66.1	65.9	66.1	67.2	68.5	70.1	81.2	99.3	
18-Oct	70.7	70.1	71.3	75.1	80.6	83.7	86.5	89.6	86.5	78.9	71.0	65.3	61.8	60.3	54.4	50.6	53.2	54.0	57.2	61.2	68.1	77.4	76.9	77.5	70.1	89.6	
19-Oct	86.1	85.4	86.1	87.1	90.0	90.9	90.9	93.2	94.2	91.7	89.4	86.2	82.8	77.3	76.6	79.0	82.8	88.5	92.9	93.1	91.1	88.9	87.9	88.2	87.5	94.2	
20-Oct	89.0	88.8	89.8	85.7	83.4	82.1	82.5	76.8	74.7	75.1	72.4	71.4	72.2	75.4	78.6	81.3	86.0	91.2	91.1	92.9	94.4	93.6	93.8	93.4	84.0	94.4	
21-Oct	92.4	92.2	92.0	92.1	91.0	89.9	88.6	88.0	85.6	83.8	79.0	75.8	65.0	67.1	63.7	62.5	62.3	60.8	63.9	64.3	63.0	65.6	66.8	71.3	76.1	92.4	
22-Oct	74.2	69.3	74.6	83.1	84.1	83.6	81.2	81.3	80.4	76.1	71.4	69.9	67.2	66.7	66.7	69.8	69.3	70.2	70.8	70.5	72.1	72.5	74.1	72.9	73.8	84.1	
23-Oct	72.1	69.4	69.6	71.0	71.8	72.4	72.7	79.0	75.2	67.7	61.8	57.4	52.7	52.1	53.0	54.7	60.5	64.2	68.6	70.3	77.3	78.3	78.8	77.6	67.8	79.0	
24-Oct	79.1	78.2	78.6	78.4	80.8	79.6	80.0	78.8	78.4	64.9	51.1	43.1	40.6	36.8	31.4	31.7	35.6	49.2	44.8	46.3	50.2	55.4	61.6	66.2	59.2	80.8	
25-Oct	75.0	82.9	78.7	76.6	80.3	81.1	84.2	85.5	80.7	72.9	65.1	59.8	57.1	56.7	48.8	40.1	43.5	50.3	59.5	78.0	73.7	78.0	87.6	88.5	70.2	88.5	
26-Oct	82.6	82.3	85.4	85.1	84.1	84.9	88.1	90.4	87.0	84.4	78.5	68.8	58.6	53.6	54.5	56.7	58.8	62.9	65.0	66.7	70.2	73.2	75.0	75.4	73.8	90.4	
27-Oct	76.8	79.7	82.2	83.6	83.8	84.3	86.9	91.6	84.1	84.6	78.7	76.4	73.3	75.1	75.2	75.0	77.1	79.8	90.5	96.5	98.0	98.4	98.5	98.2	84.5	98.5	
28-Oct	98.7	96.1	89.5	86.0	85.4	81.9	82.3	81.7	79.9	79.4	78.5	77.0	76.4	75.4	75.3	73.2	74.5	78.9	83.1	85.2	75.7	72.4	72.6	83.8	81.0	98.7	
29-Oct	84.9	71.4	71.3	69.3	69.2	68.4	68.5	72.0	68.7	65.4	66.9	66.4	66.5	63.7	63.1	62.0	63.1	69.8	76.1	77.9	79.3	79.5	81.1	82.7	71.1	84.9	
30-Oct	82.9	83.9	85.1	86.3	84.7	84.0	85.2	85.3	82.8	81.0	78.1	72.8	67.2	65.7	63.9	66.4	66.1	66.6	67.4	68.4	67.8	67.8	71.7	72.6	75.1	86.3	
31-Oct	74.4	73.0	73.5	73.5	79.5	88.5	90.0	90.1	90.5	85.0	85.7	85.1	81.6	80.4	80.9	83.3	83.8	84.2	84.6	85.0	85.1	85.2	85.7	85.6	83.1	90.5	
		76.8	77.4	78.7	79.7	80.6	80.7	82.1	82.6	79.8	74.7	68.9	63.6	59.5	57.1	55.0	54.8	57.1	61.9	66.1	68.4	71.2	73.7	75.4	76.4	Diurnal Average	
		98.8	99.0	99.1	99.1	99.3	92.5	96.4	94.9	95.7	91.7	89.4	86.2	82.8	80.4	80.9	83.3	86.0	91.2	92.9	96.5	98.0	98.4	98.5	98.5	Diurnal Maximum	
DF - DAS Failure																											





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

**Relative Humidity 2m (RH2) - %**  
**Fort Hills - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	30	4.04	4.04
40 - 60	143	19.25	23.28
60 - 80	341	45.90	69.18
80 - 100	229	30.82	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744

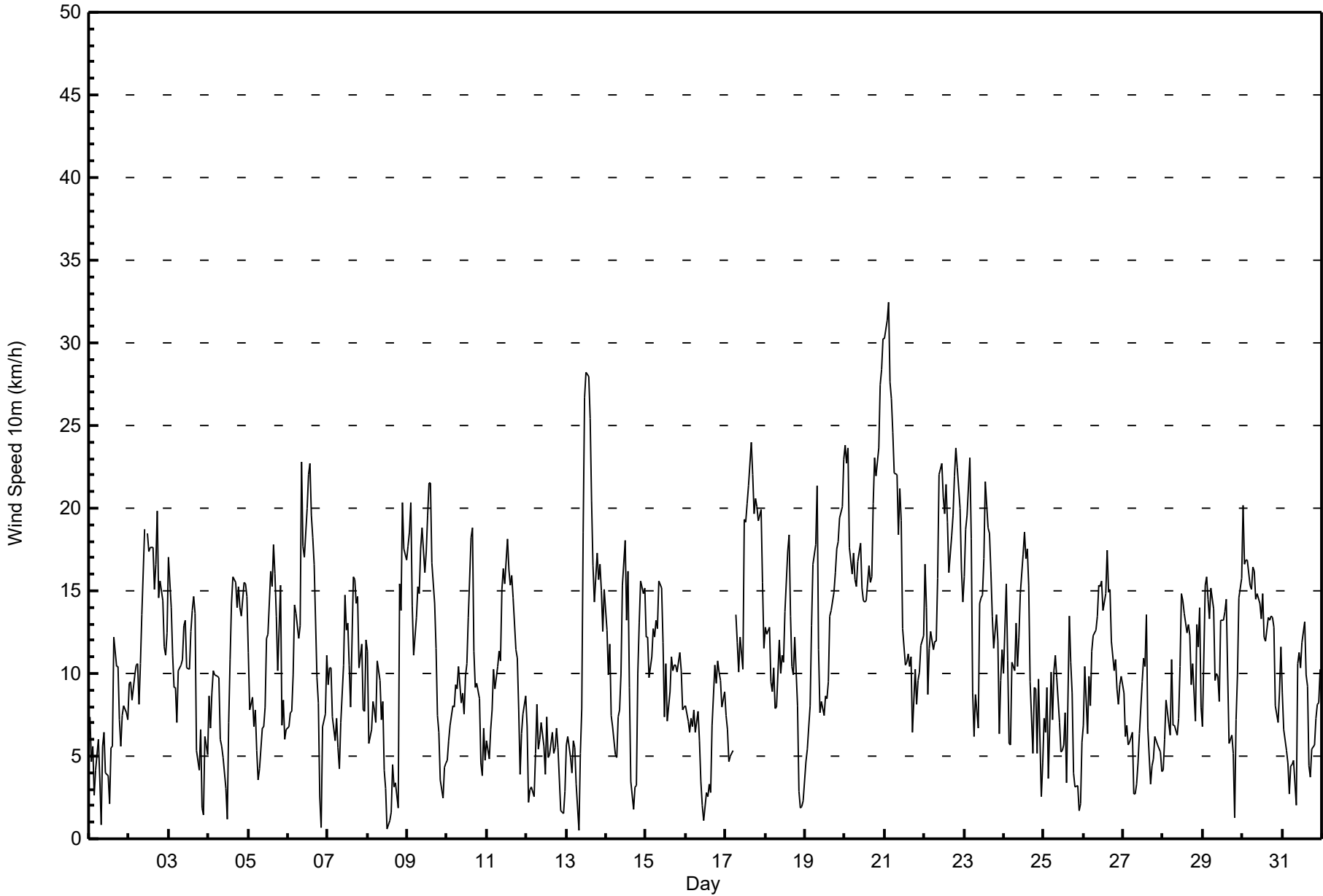


Maximum Speed: 32 km/h on Oct 21 03:00	Maximum Daily Speed Average: 19.4 km/h on Oct 20	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 13 08:00	Minimum Daily Speed Average: 0.8 km/h on Oct 16	Hours of Data: 742
Maximum Diurnal Speed Average: 5.3 km/h at hour 14	Minimum Diurnal Speed Average: 0.7 km/h at hour 24	Hours of Missing Data: 2
Monthly Average Velocity: 2.5 km/h 239.1 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 15 P <sub>90</sub> = 18 P <sub>99</sub> = 28	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-Oct	SSW7	WSW5	NW6	NW3	S4	SW6	SW4	W1	WSW6	W6	N4	NNE4	NE2	SSE5	ENE6	NE12	NNE10	N10	N7	NNW6	NW7	NW8	NNW8	NW7	NNW2.7	NE12
2-Oct	NNW9	NW9	NW8	WNW10	WNW10	W11	W8	WNW11	WNW14	WNW19	C	WNW18	NW17	WNW18	WNW18	WNW15	WNW17	NW20	NW15	NW16	NNW14	NW12	NW11	NW12	WNW13.1	NW20
3-Oct	NW17	NW14	NW11	NW9	WNW9	WNW7	WNW10	WNW11	WNW11	WNW13	WNW13	NW10	W10	WSW13	WSW14	WSW15	WSW14	W5	SSE4	SSW7	SW2	SE1	SSE6	S5	WNW7.5	NW17
4-Oct	SSE9	SSE7	SSE9	SE10	SE10	SE10	SE10	SSE6	SW6	SSE5	S3	N1	NNW7	N11	N14	N16	N16	N14	N15	N14	N13	N16	N15	N15	NNE4.4	N16
5-Oct	N11	N8	N9	N7	N8	NNW5	WNW4	S4	SE7	SSE7	S8	SSW12	S12	S16	S15	SSW18	SSW16	S13	SSE10	SSE15	SSE7	SSE8	S6	SSE7	S5.1	SSW18
6-Oct	SSE7	SE8	S8	S10	SSW14	SSW14	SW12	SSW13	SW23	SSW18	S17	SW20	WSW22	W23	W20	W18	W17	WSW10	SW8	WSW3	WSW1	SE7	SE8	SE11	SW10.1	SW23
7-Oct	SE9	SE10	SE10	SE7	SSE6	SE7	SSE5	S4	S7	S11	S15	S13	S13	S10	SW8	S16	SSE16	SE14	SSE15	SSE10	S12	S8	SSE8	S12	SSE9.6	S16
8-Oct	S11	S6	SSE7	SE8	SSE8	SE7	SE11	SE10	SSE7	SSE8	SSE4	SSW3	W1	S1	SW2	N5	N3	NNW3	N2	W15	WSW14	SW20	SSW18	SSW17	S5.0	SW20
9-Oct	SW18	SSW19	SSW20	SSW14	SSW11	SSW13	SSW15	SSW15	SW18	SW19	SW16	SW17	SSW20	SSW22	SSW22	SSW17	SSW14	SSW12	SSW7	SW6	SW4	ESE2	S4	S5	SSW13.4	SSW22
10-Oct	SSE5	SSE6	SSE7	SSE8	SSE8	SE9	SE9	SE10	SSE8	S9	SSW8	SSW10	SSW11	S13	SSW18	SSW19	WSW11	NNW9	NNW9	NNW9	N5	SW4	SSW7	S5	S5.6	SSW19
11-Oct	SSE6	SSE5	SE7	SE8	SSE10	SE9	SE10	SSE11	SSE11	SSE15	SSE16	SSE15	SE18	SSE16	S15	S16	S15	S11	SSW11	SSW8	SSW4	S6	SE8	SSE9	SSE10.2	SE18
12-Oct	SSE7	SSE2	SE3	S3	SSE3	SSE5	SE8	SSE5	ESE6	SE7	SSE6	SSE4	ESE7	SE5	ESE5	ESE6	ENE5	E5	E7	E5	S2	NW2	SE1	SE3	SE4.1	SE8
13-Oct	SSE6	SE6	SSE5	S4	S6	SSE6	SSW3	N1	SSW5	SSW8	S19	SSE27	SSE28	SSE28	SSE25	SSE20	SSE17	SE14	SSE17	SSE16	SSE17	SSE15	SSE13	SSE15	SSE12.9	SSE28
14-Oct	SSE13	S10	SSE12	S7	SSE7	S5	SSE5	S7	SSE8	S10	S15	S18	S13	S16	SSW9	SW4	S2	NNW3	SSE3	S10	SSE13	SSW16	SSW15	S15	S9.3	S18
15-Oct	S12	S12	SSE10	S11	SSW13	SSW12	SSW13	SSW13	SSW16	SW15	SW12	SSW7	SSW11	SW7	SW9	SSW11	S10	S11	S11	S10	SSW11	SSW10	S8	S8	SSW10.5	SSW16
16-Oct	SSE8	SSE7	SSE6	S7	SSE7	SE8	SSE6	SE8	SSE6	SSW3	SSE2	W1	WNW3	NW3	W3	NW3	NNW7	N10	N9	N11	N10	N10	NNW8	NNW9	NNE0.8	N11
17-Oct	NNW7	NNW7	NW5	SW5	SSW5	DF	SW14	SW12	SW10	WSW12	W10	WSW19	WSW19	W20	W21	W24	W22	W20	W21	W20	WNW19	W20	WNW15	W12	W13.5	W24
18-Oct	W13	W12	W13	WSW9	SSW9	SSW10	SSW8	S8	SSW12	SSW10	S11	S11	S14	S17	S18	S14	SSE10	SSE10	SSE12	SSE8	ESE3	E2	ENE2	ENE2	S7.6	S18
19-Oct	NNW5	NNW5	NNW7	NNW8	N13	N17	N18	N21	NNE11	NE8	NNE8	N7	N9	NE8	NNE9	NNE13	NNE14	N15	N16	N18	N18	N19	N20	N23	N12.7	N23
20-Oct	N24	N23	N24	N18	N16	N17	N16	N15	N17	N18	NNE15	NNE14	NNE14	NNE14	NNE17	NNE16	NNE16	N20	N23	N22	N24	N27	N28	N30	N19.4	N30
21-Oct	N30	N31	N32	N28	N27	N25	N22	N22	N18	N21	N19	NNE13	N11	N11	NNW11	NW10	NW11	WNW6	WNW10	WNW8	W10	WSW10	SW12	SSW12	NNW13.8	N32
22-Oct	SSW17	WSW14	SSW9	S12	S13	S11	S12	S12	SSW16	SSW22	SW23	SSW21	SSW20	SSW21	SSW19	S16	S18	S20	S22	SSW24	SSW22	SSW20	S16	S14	SSW16.5	SSW24
23-Oct	S16	SSW19	SW20	SW23	WSW18	S9	WSW6	SSE9	S7	SW14	SSW15	SSW15	SW17	SW22	SW19	SSW18	SW16	SW13	SSW11	SW14	SSW12	S6	SSE10	SSE11	SSW13.3	SW23
24-Oct	S10	SSW15	SSW11	SSW6	SSE6	SSW11	SSW10	SSW13	SSW10	SW12	WSW15	WNW17	W19	WNW17	W18	W15	WNW9	W5	WNW9	WNW9	NW5	N10	NE3	ENE5	WSW7.3	W19
25-Oct	SE7	S6	SSW9	SSW4	SSE10	SE7	S10	S11	S10	SSE7	SE5	SE5	ESE6	ESE8	SSW3	W13	W11	NNW9	NW4	SW3	NNE3	NW2	NW2	NNW6	S3.0	W13
26-Oct	N7	N10	NNW6	N10	N8	N11	N12	N13	N13	N15	N15	N16	N14	N15	N17	N15	N15	N12	NNE10	N11	N9	N8	NNW9	N10	N11.7	N17
27-Oct	N9	NNW6	NNW7	NNW6	N6	NNW6	NNE3	ESE3	SSE3	NNW5	NNW6	N9	N11	N10	N14	N7	NW3	NNE4	NNW5	N6	N6	NNW6	NNE5	W4	N5.5	N14
28-Oct	W4	W6	WSW8	WNW7	W6	NW11	WNW7	NW7	WNW6	WNW7	WNW10	WNW15	WNW14	WNW14	WNW12	NW13	NW12	NW9	NW11	WNW7	WNW13	W12	WNW14	WNW8	WNW9.4	WNW15
29-Oct	W7	WNW15	WNW16	WNW14	W13	WNW15	WNW14	WNW10	W10	WNW10	WSW8	SW13	SW13	SW14	SSW15	SSW10	SSE6	SE6	SE5	ESE1	NNW7	N10	N15	N16	W6.6	WNW16
30-Oct	N20	NNE17	N17	N17	N15	NNE15	N16	N16	N14	NNE15	NNE14	NNE13	NE15	NE12	NE12	NE13	NE13	NE13	NE13	NE13	ENE8	ENE7	NE9	NE12	NNE13.0	N20
31-Oct	NE9	ENE7	ENE5	E5	NNE3	NNW4	NNW5	NNW5	NW2	SSE11	SSE11	S10	SSE12	S13	SSE10	S9	SW4	W4	SW5	SW6	SSW7	SSW8	S8	SSW10	S3.8	S13

WSW1.2	W1.6	W1.9	WSW2.1	SW1.7	SW1.1	SW1.9	SW2.0	SW3.4	SW4.3	SW4.1	SW4.6	SW4.6	SW5.3	SW5.0	SW4.4	WSW3.5	WNW1.9	WNW1.3	W2.2	WNW2.2	W2.2	W0.8	SW0.7	Diurnal Average
N30	N31	N32	N28	N27	N25	N22	N22	SW23	SSW22	SW23	SSE27	SSE28	SSE28	SSE25	W24	W22	N20	N23	SSW24	N24	N27	N28	N30	Diurnal Maximum

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





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

**Wind Speed 10m (WS10) - km/h**  
**Fort Hills - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	121	16.31	16.31
6 - 11	311	41.91	58.22
12 - 19	250	33.69	91.91
20 - 28	56	7.55	99.46
29 - 38	4	0.54	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 10m (WS10) - km/h**  
**Fort Hills - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	7	6	2	5	4	5	8	18	13	8	10	3	9	2	11	10	121
6 - 11	35	6	3	4	1	5	34	56	40	33	9	8	11	23	17	26	311
12 - 19	48	15	10	0	0	0	3	19	37	39	21	11	12	25	9	1	250
20 - 28	19	0	0	0	0	0	0	5	2	11	7	1	10	0	1	0	56
29 - 38	4	0	0	0	0	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>	113	27	15	9	5	10	45	98	92	91	47	23	42	50	38	37	742

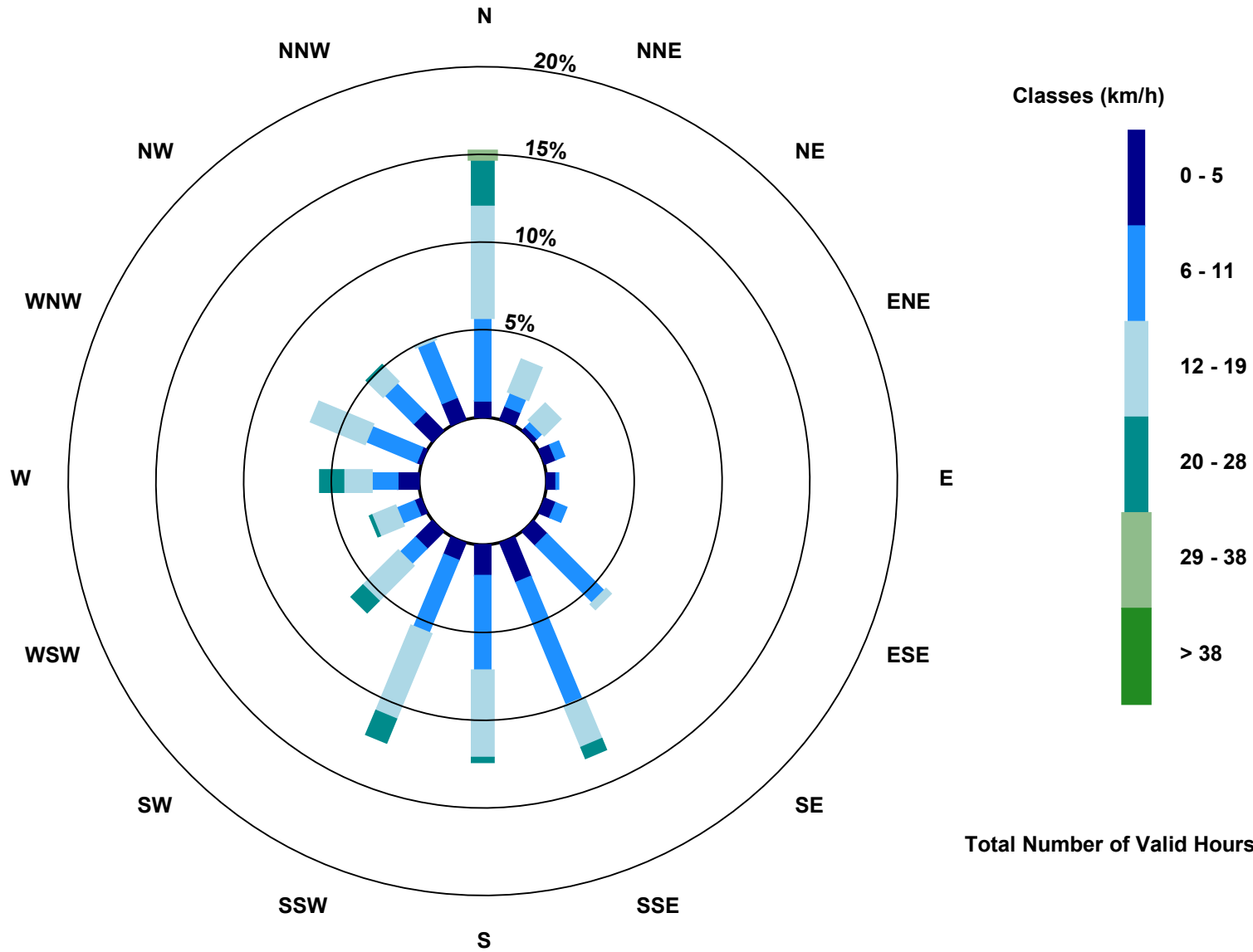
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Fort Hills



Total Number of Valid Hours: 742





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

**Wind Speed 10m (WS10) - km/h**  
**Fort Hills - October 2024**

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



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

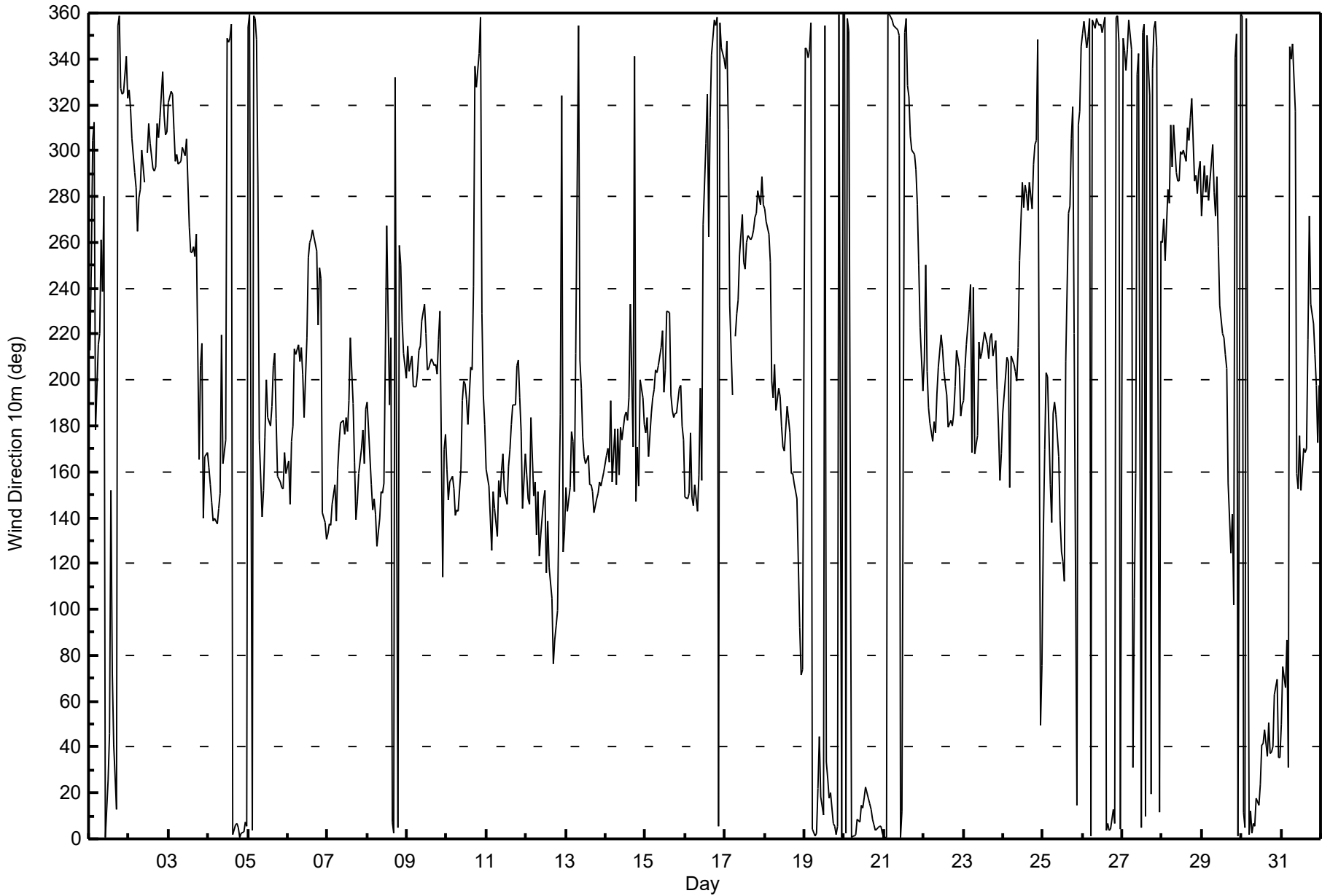
**Wind Direction 10m (WD10) - deg**  
**Fort Hills - October 2024**

Direction of Maximum Speed: 360 deg on Oct 21 03:00		Hours in Service: 744
Direction of Maximum Daily Speed Average: 6.0 deg on Oct 20		Hours of Data: 742
Direction of Minimum Speed: 355 deg on Oct 13 08:00	Direction of Minimum Daily Speed Average: 0.8 deg on Oct 16	Hours of Missing Data: 2
Monthly Average Direction: 239.1 deg		Percent Operational Time: 99.9

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-Oct	213	250	304	312	178	215	220	261	239	280	1	26	46	152	72	41	13	355	359	327	325	325	341	323	331.1
2-Oct	327	319	305	291	284	265	279	283	300	286	C	299	312	303	293	291	293	312	306	314	334	315	307	308	301.5
3-Oct	321	326	325	310	296	298	294	296	301	300	298	305	267	256	256	258	254	264	165	206	216	140	166	169	283.5
4-Oct	162	154	147	138	140	137	144	151	220	163	174	349	347	349	355	2	6	7	5	0	2	3	7	5	23.4
5-Oct	354	359	3	359	357	348	285	174	141	152	175	200	183	180	189	206	212	183	158	156	153	152	169	159	180.4
6-Oct	165	146	173	180	213	211	216	208	214	203	184	218	253	260	262	265	262	256	224	249	244	142	138	131	219.0
7-Oct	133	137	137	146	154	139	161	173	181	182	177	183	178	191	219	190	164	139	147	159	170	178	164	188	166.6
8-Oct	190	179	155	143	148	142	127	140	152	150	155	209	267	189	218	7	3	332	5	259	250	226	212	201	191.2
9-Oct	214	204	207	210	197	197	203	213	215	226	233	220	204	205	207	209	207	207	202	218	230	114	169	176	209.1
10-Oct	161	148	156	158	152	141	144	143	161	191	200	198	192	180	206	204	241	337	327	342	358	229	193	181	187.1
11-Oct	161	153	140	126	151	144	132	156	149	160	168	152	146	162	170	181	189	189	206	209	192	177	144	168	163.5
12-Oct	159	148	146	184	149	156	133	151	123	132	148	152	116	138	118	105	77	87	93	100	185	324	125	134	128.3
13-Oct	153	143	153	178	173	151	212	355	209	196	175	166	164	167	154	154	151	142	148	151	156	154	157	160	160.4
14-Oct	167	170	164	191	155	179	155	179	159	179	174	184	186	183	192	233	171	341	147	171	154	200	192	181	178.0
15-Oct	177	184	167	186	192	196	205	203	206	214	222	195	204	230	229	194	186	184	186	186	196	198	180	174	195.9
16-Oct	149	148	151	177	149	145	154	143	159	196	157	268	303	325	262	314	341	357	354	358	5	356	345	340	29.8
17-Oct	335	348	309	233	194	DF	219	229	235	254	272	251	249	260	263	261	263	265	271	273	283	277	288	277	264.0
18-Oct	275	269	264	252	200	192	207	187	196	193	180	171	169	189	183	177	159	159	155	149	120	92	71	74	191.2
19-Oct	345	344	341	344	356	4	2	3	22	44	18	11	355	34	26	18	20	7	5	2	5	359	1	360	5.8
20-Oct	360	2	358	352	0	1	1	2	8	8	14	13	17	23	18	15	13	9	6	4	5	5	6	2	6.0
21-Oct	1	1	360	359	358	357	355	353	353	351	1	12	351	357	328	323	306	300	299	291	276	250	223	195	345.3
22-Oct	209	250	204	188	181	173	182	177	194	206	220	213	204	199	194	180	182	180	186	197	213	206	184	189	197.2
23-Oct	191	205	215	231	242	169	240	168	176	216	209	212	216	221	215	210	219	221	211	217	196	179	156	168	209.0
24-Oct	185	201	210	208	153	211	207	204	200	214	252	286	275	285	281	274	286	275	294	303	305	349	49	76	251.3
25-Oct	133	170	203	202	154	138	185	190	185	166	138	125	121	112	208	273	276	305	319	220	15	311	318	345	189.8
26-Oct	351	357	345	350	358	1	357	353	357	356	354	355	351	358	4	7	4	4	13	7	358	359	347	5	358.4
27-Oct	349	343	335	344	357	344	31	105	159	333	342	5	352	355	10	350	324	20	336	353	356	345	12	260	352.4
28-Oct	260	270	252	283	277	311	293	311	291	287	287	300	298	300	295	310	305	315	323	287	289	281	291	296	294.7
29-Oct	272	293	282	289	278	287	303	282	272	289	258	233	220	218	211	205	155	125	142	102	340	351	1	360	275.5
30-Oct	359	12	5	358	2	12	2	7	5	17	15	24	41	41	48	36	51	37	38	40	63	70	36	35	22.5
31-Oct	50	75	66	86	31	345	340	347	317	160	152	176	152	170	168	170	218	272	233	224	211	198	172	198	169.1

252.0 271.8 258.8 253.7 221.9 219.2 232.4 219.9 218.7 225.1 215.3 226.5 221.3 220.8 232.0 240.1 253.2 295.1 281.4 268.8 288.0 278.2 274.5 230.6  
 Diurnal Average

C - Calibration      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 10m (WD10) - deg**  
**Fort Hills - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Oct 1 13:00																	Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 1 Percent Operational Time: 99.9								
Minimum Value: 5 deg on Oct 15 19:00																									
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 9 Q <sub>1</sub> = 11 Median = 14 Q <sub>3</sub> = 19 P <sub>90</sub> = 32 P <sub>99</sub> = 82																									
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-Oct	15	33	25	42	42	14	20	82	21	24	48	64	94	40	58	19	23	15	11	18	12	12	14	14	94
2-Oct	13	13	14	13	13	12	18	12	18	14	C	16	16	16	18	14	13	13	18	16	15	15	14	15	18
3-Oct	14	12	12	17	16	15	17	20	18	16	18	28	42	28	23	16	14	31	23	11	71	76	17	21	76
4-Oct	17	15	12	13	8	8	8	21	22	20	65	72	16	14	14	13	11	10	12	14	12	12	12	12	72
5-Oct	14	11	12	11	11	22	18	70	12	11	13	14	16	13	17	24	12	10	11	6	14	11	18	9	70
6-Oct	21	12	16	24	11	11	13	12	10	15	10	18	16	15	15	14	13	17	11	82	88	21	13	11	88
7-Oct	11	17	12	15	24	9	14	27	14	17	12	13	10	16	20	11	13	10	6	13	10	15	11	10	27
8-Oct	8	28	12	15	21	21	9	10	15	8	40	51	92	92	75	14	38	34	53	21	21	9	12	10	92
9-Oct	10	8	7	9	10	9	7	7	9	10	12	14	14	12	11	11	9	6	8	9	20	45	20	23	45
10-Oct	17	11	16	13	10	15	12	9	18	15	16	15	16	35	12	12	39	11	10	20	29	43	18	37	43
11-Oct	20	23	16	13	12	10	7	14	13	8	10	14	11	16	14	11	8	8	10	9	31	21	11	10	31
12-Oct	16	68	40	33	77	20	11	24	19	10	27	32	24	45	48	32	18	18	15	36	60	59	57	31	77
13-Oct	23	18	27	33	16	12	46	81	24	14	11	11	9	10	9	6	6	5	6	6	5	6	7	7	81
14-Oct	11	11	10	16	22	27	32	15	9	9	13	9	14	12	22	14	23	27	62	11	12	10	10	9	62
15-Oct	11	9	20	10	6	8	8	7	6	11	12	26	21	41	28	11	10	7	5	6	6	10	15	15	41
16-Oct	10	16	16	19	14	12	14	9	12	30	69	82	43	18	42	52	9	11	23	29	14	12	13	11	82
17-Oct	11	16	26	20	18	DF	9	9	10	19	15	12	14	12	14	14	13	13	13	15	15	16	14	12	26
18-Oct	13	13	12	25	30	22	16	15	9	11	17	18	15	13	12	14	12	10	6	21	42	43	27	31	43
19-Oct	11	9	9	11	14	12	13	13	16	17	19	18	22	22	17	12	11	15	13	15	14	15	14	15	22
20-Oct	17	14	14	16	14	14	13	14	14	13	11	11	13	11	11	11	11	12	13	13	14	15	14	15	17
21-Oct	15	17	17	18	15	16	16	15	15	16	15	12	20	21	21	13	13	13	13	22	17	23	20	9	23
22-Oct	17	18	26	10	9	9	9	11	8	10	10	11	13	11	9	8	8	9	9	10	11	12	10	9	26
23-Oct	10	8	10	8	11	52	59	40	35	10	9	12	13	10	11	9	9	10	9	9	7	44	16	6	59
24-Oct	9	10	16	58	48	16	11	7	8	9	30	18	15	16	15	14	12	21	15	18	26	14	56	28	58
25-Oct	18	29	11	58	12	16	10	9	11	20	25	20	27	22	81	15	11	18	72	27	64	70	52	12	81
26-Oct	17	10	46	12	13	12	13	12	14	14	14	13	14	14	13	10	11	11	9	8	14	13	16	12	46
27-Oct	13	16	17	14	11	13	24	32	55	11	9	14	15	14	11	28	49	24	16	11	16	13	23	64	64
28-Oct	18	17	8	12	19	14	17	25	20	19	15	12	12	13	15	14	15	18	13	18	13	12	13	16	25
29-Oct	19	15	13	17	17	15	13	18	12	15	23	22	21	18	13	10	23	8	12	82	8	13	14	13	82
30-Oct	14	12	14	14	13	12	13	12	15	16	11	14	11	16	14	11	16	10	9	9	22	22	10	7	22
31-Oct	18	21	19	23	35	12	9	10	37	30	11	21	17	12	16	16	40	26	10	13	12	16	10	11	40
	23	68	46	58	77	52	59	82	55	30	69	82	94	92	81	52	49	34	72	82	88	76	57	64	
	Diurnal Maximum																								
C - Calibration      DF - DAS Failure																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS25 WASKŌW OHCI PIMÂTISIWIN OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)  
OCTOBER 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	34	35	99.87	21.2	0	4.3	0
H2S(ppb) Average	706	37	38	99.87	2.5	0	0.8	0
Temperature 2 m (C) Average	744	0	0	100	18.7	0	11.5	0
Relative Humidity (%) Average	744	0	0	100	100	-	89.4	-
Wind Speed 10 m (km/h) Average	728	1	16	97.98	16	0	9	0
Wind Direction 10 m (deg) Average	728	1	16	97.98	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKÖW OHCI PIMĀTISIWIN (AMS25)  
OCTOBER 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	0.6	1.7	-	0	0	0	0.1	0.3	1.2	21.2
H2S (ppb) Average	706	0.22	0.3	-	0	0	0.1	0.1	0.2	0.5	2.5
Temperature 2 m (C) Average	744	3	5.7	-	-9.8	-3.8	-1.1	1.9	6.5	11.6	18.7
Relative Humidity (%) Average	744	73.71	16.5	-	29.5	49.9	63.4	75.7	85.4	95.3	100
Wind Speed 10 m (km/h) Average	728	5.1	3	-	0	1	3	4	7	9	16
Wind Direction 10 m (deg) Average	728	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)

OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	24 Oct 2024 08:00	24 Oct 2024 08:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	12 Oct 2024 18:00	12 Oct 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Oct 2024 21:00	12 Oct 2024 21:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Oct 2024 00:00	29 Oct 2024 02:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Oct 2024 18:00	29 Oct 2024 22:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	31 Oct 2024 04:00	31 Oct 2024 06:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	31 Oct 2024 21:00	31 Oct 2024 21:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	31 Oct 2024 23:00	31 Oct 2024 23:00	1	Flat line in sensor output signal - Sensor frozen



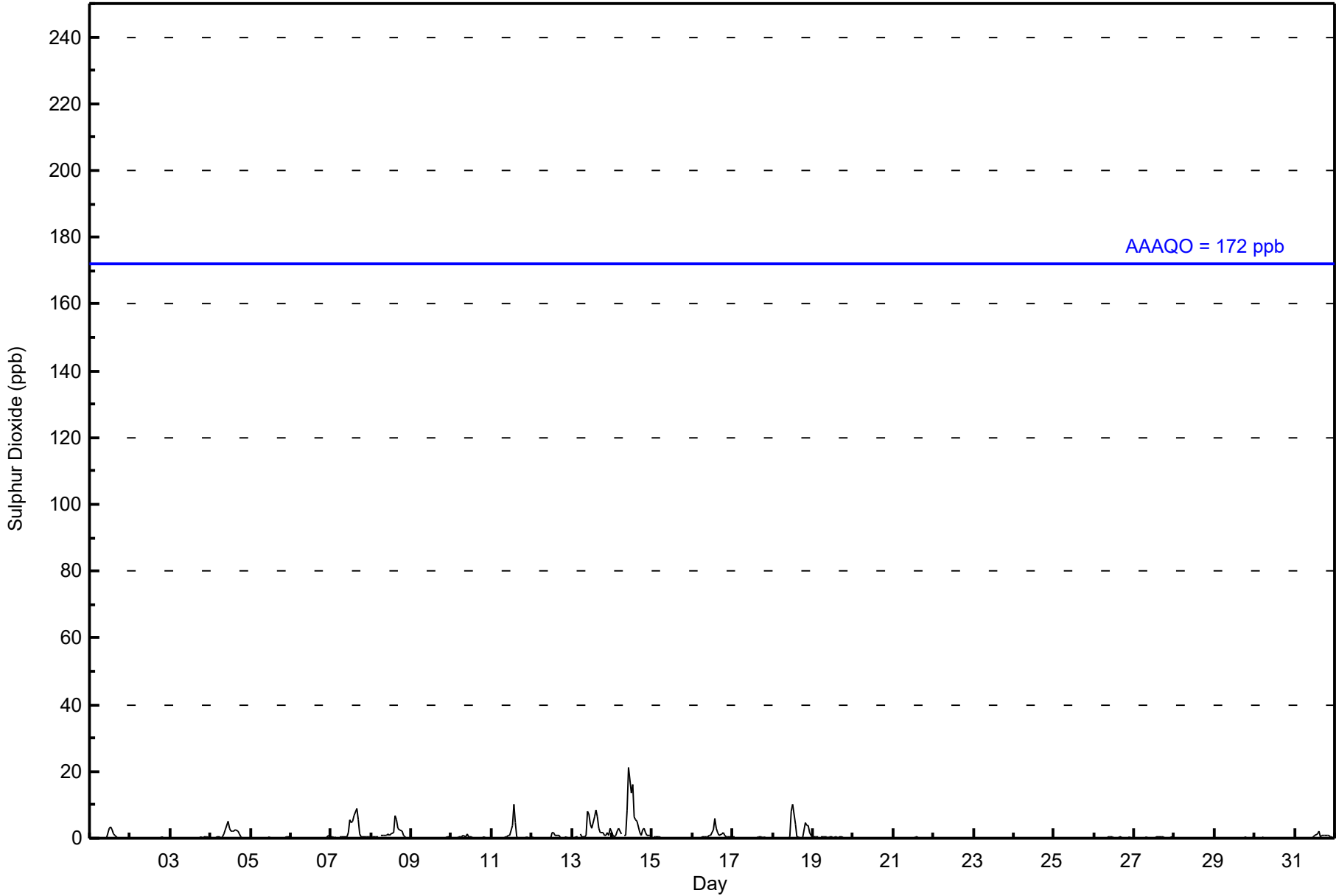


Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.2 ppb on Oct 14 11:00	Maximum Daily Average: 4.3 ppb on Oct 14		Hours of Data:	709
Minimum Value: 0.0 ppb on Oct 1 01:00	Minimum Daily Average: 0.0 ppb on Oct 28		Hours of Missing Data:	35
Maximum Diurnal Average: 1.6 ppb at hour 13	Minimum Diurnal Average: 0.1 ppb at hour 3		Hours of Calibration:	34
Monthly Average: 0.60 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 1.2 P <sub>99</sub> = 8.6		Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.1	2.8	3.3	2.5	1.2	0.7	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.5	3.3
2-Oct	0.1	0.1	0.2	0.1	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.4	0.2	0.2	0.1	0.1	0.1	0.4
3-Oct	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	0.1	0.2	0.4	0.2	0.5	0.2	0.2	0.2	0.1	0.5	
4-Oct	0.3	Z	0.2	0.1	0.3	0.4	0.2	0.4	1.1	2.3	5.2	2.9	2.2	2.2	2.2	2.7	2.2	1.2	0.4	0.2	0.1	0.1	0.2	0.1	1.2	5.2
5-Oct	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.1	0.4
6-Oct	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.4	0.1	0.7
7-Oct	0.3	0.2	0.2	0.3	Z	0.2	0.4	0.4	0.5	0.6	1.8	5.7	4.5	5.1	6.9	8.9	5.6	1.4	0.5	0.4	0.3	0.3	0.4	0.6	2.0	8.9
8-Oct	0.5	0.3	0.3	0.4	0.4	Z	0.8	0.8	0.8	1.0	1.1	0.8	1.2	1.9	6.9	5.5	3.0	2.6	2.3	1.0	0.2	0.1	0.0	0.0	1.4	6.9
9-Oct	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.4	0.1	0.4
10-Oct	0.1	Z	0.1	0.1	0.4	0.5	0.3	0.7	0.4	1.2	0.5	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.3	1.2
11-Oct	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.4	0.3	1.0	0.7	3.7	10.1	4.7	0.5	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.2	1.0	10.1
12-Oct	0.3	0.2	0.0	Z	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.1	1.9	1.9	0.7	0.9	0.6	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	1.9
13-Oct	0.1	0.2	0.2	0.3	Z	1.2	0.6	0.4	0.8	8.2	7.1	4.1	3.0	6.2	8.7	6.4	3.0	1.8	1.9	0.8	0.8	1.6	1.0	2.9	2.7	8.7
14-Oct	0.9	0.5	0.6	2.2	2.9	1.3	Z	0.7	0.8	8.7	21.2	13.5	16.0	6.3	5.7	5.3	1.9	0.9	2.7	3.0	1.7	1.0	1.0	0.6	4.3	21.2
15-Oct	Z	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.5
16-Oct	0.0	Z	0.1	0.0	0.1	0.1	0.2	0.4	0.5	0.4	0.7	0.9	2.4	5.8	3.1	1.8	0.7	1.3	1.6	0.9	0.4	0.3	0.5	0.2	1.0	5.8
17-Oct	0.3	0.5	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.1	0.1	0.2	0.0	0.1	0.5
18-Oct	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.2	8.2	10.0	4.4	0.4	0.3	0.1	0.2	0.2	4.7	3.9	3.7	1.6	0.8	1.7	10.0
19-Oct	0.6	0.6	0.4	0.5	Z	0.5	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.6
20-Oct	0.1	0.1	0.1	0.2	0.2	Z	0.2	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	0.0	0.0	0.1	0.2
21-Oct	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	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
22-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.2
23-Oct	0.1	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
24-Oct	0.1	0.0	0.0	Z	0.0	0.0	0.0	M	C	C	C	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1
25-Oct	0.0	0.0	0.0	0.2	Z	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	0.1	0.0	0.2
26-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.3	0.3	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.3
27-Oct	Z	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.4
28-Oct	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
29-Oct	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	0.2	0.0	0.0	0.0	0.2	0.3	0.0	0.3
30-Oct	0.2	0.1	0.2	Z	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
31-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.0	1.2	2.3	0.6	1.0	0.8	0.9	0.9	0.7	0.4	0.4	0.2	0.5	2.3

0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.8	1.3	1.4	1.6	1.6	1.4	1.1	0.6	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Diurnal Average
0.9	0.6	0.6	2.2	2.9	1.3	0.8	0.8	1.1	8.7	21.2	13.5	16.0	10.1	8.7	8.9	5.6	2.6	2.7	4.7	3.9	3.7	1.6	2.9	2.9	2.9	Diurnal Maximum	

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





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	706	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: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - October 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	50	25	9	15	12	14	68	72	60	46	49	54	61	73	33	51	692
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	1	0	0	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	50	25	9	15	12	14	69	74	60	46	49	54	61	73	33	51	695

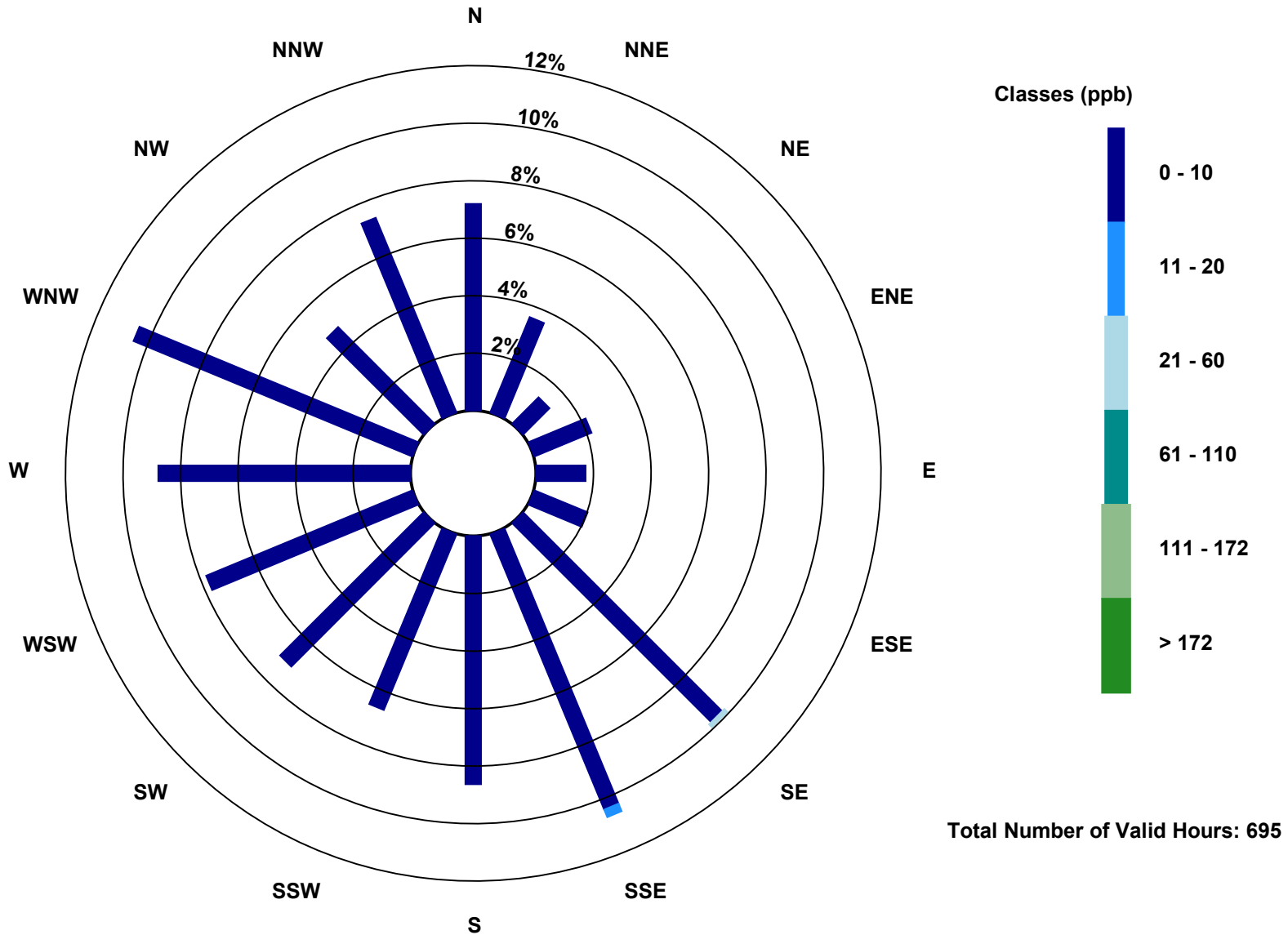
Total Number of Valid Hours: 695

Total Number of Hours: 744

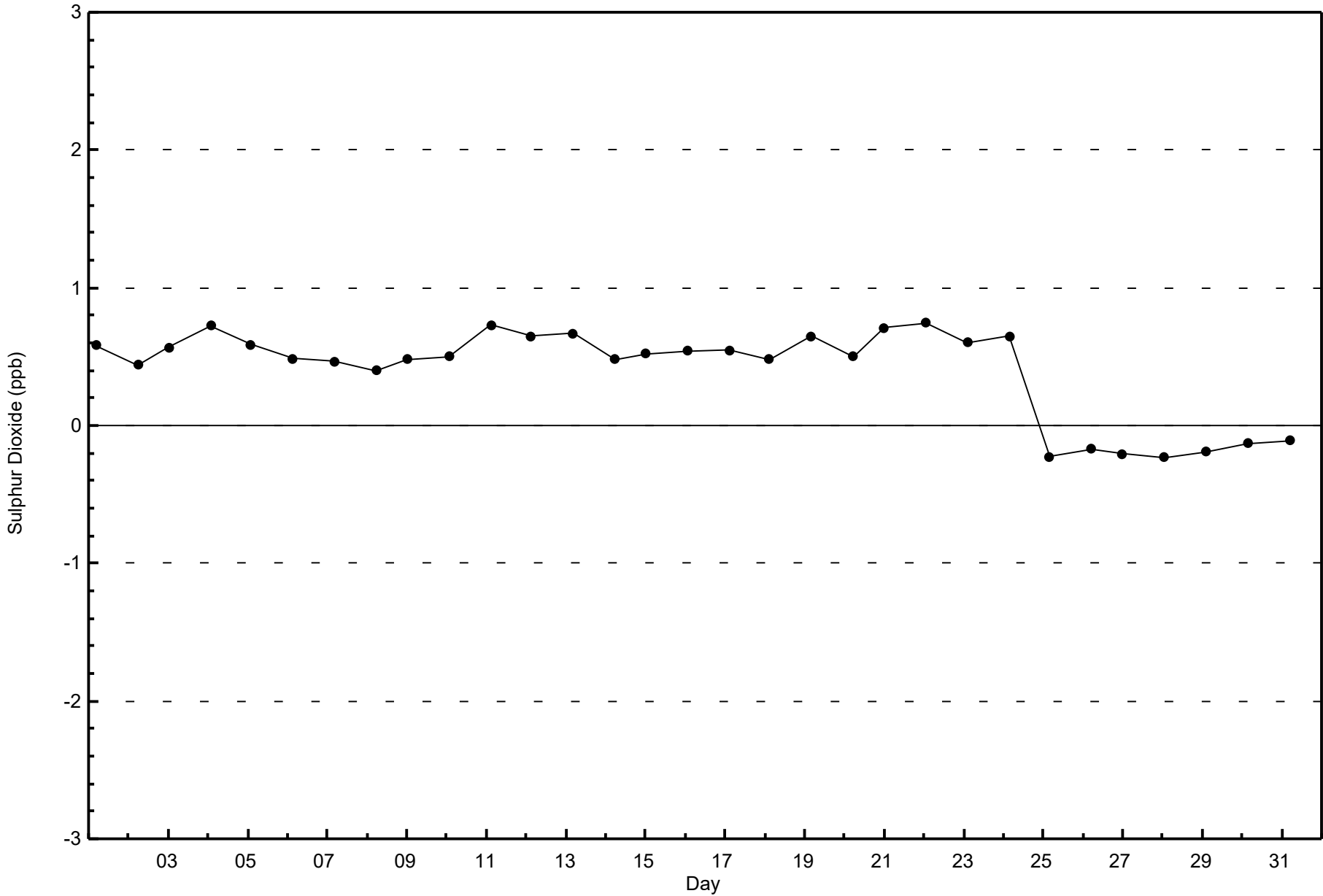


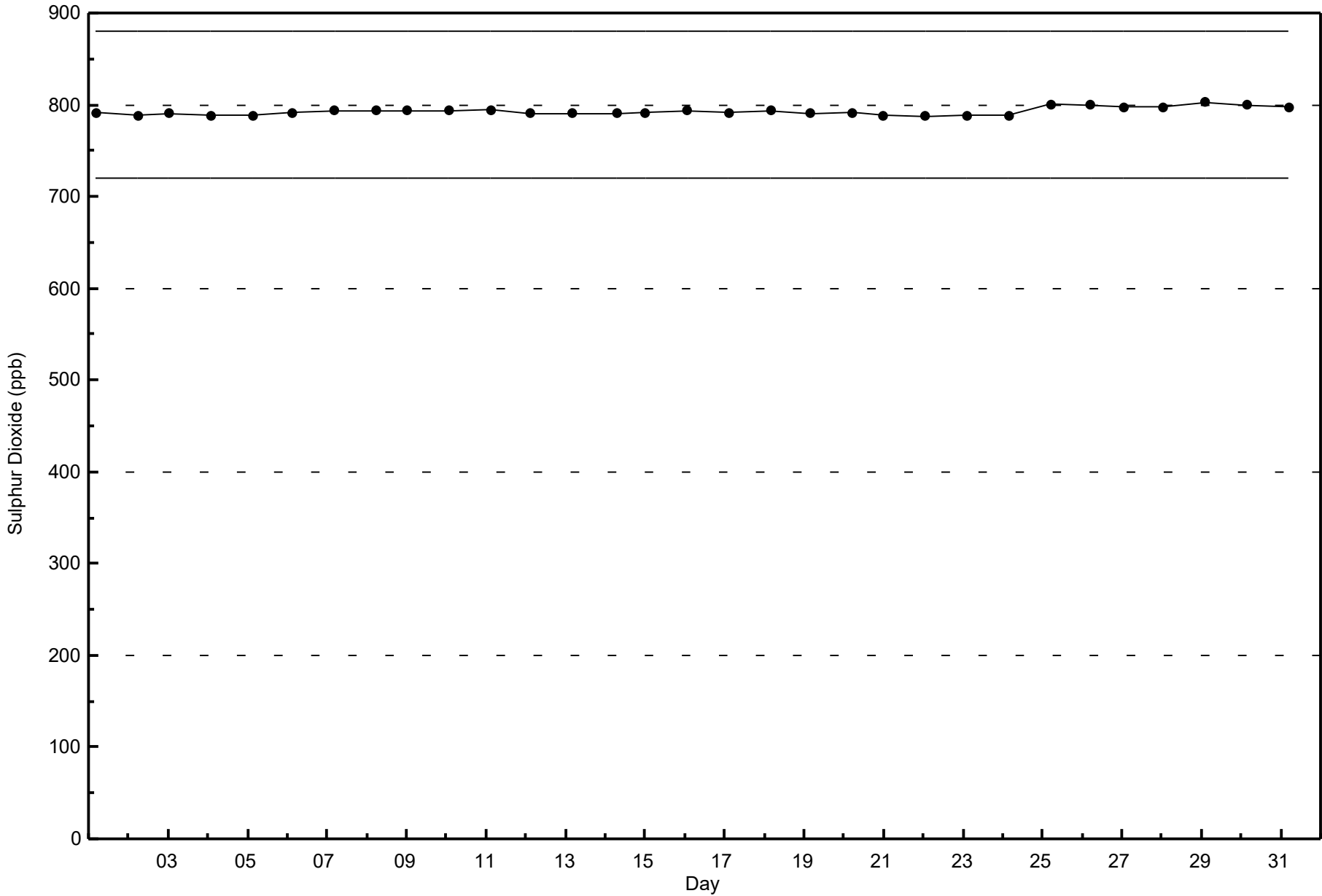
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 695





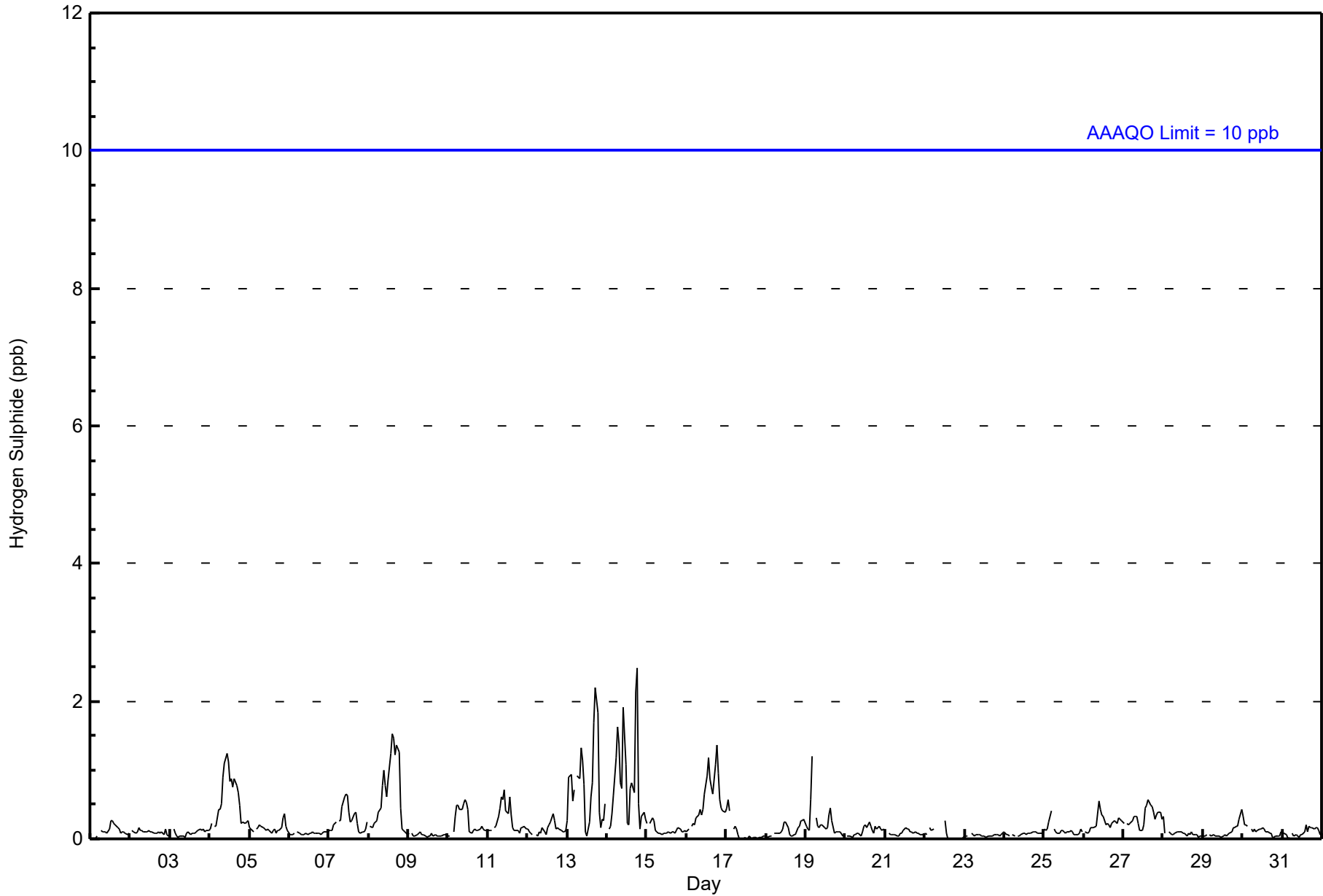






Wood Buffalo Environmental Association  
Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin - October 2024





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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Waskow ohci Pimatisiwin - October 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**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Waskow ohci Pimatisiwin - October 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	51	25	9	14	12	15	69	76	56	43	52	52	62	73	33	50	692
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>	51	25	9	14	12	15	69	76	56	43	52	52	62	73	33	50	692

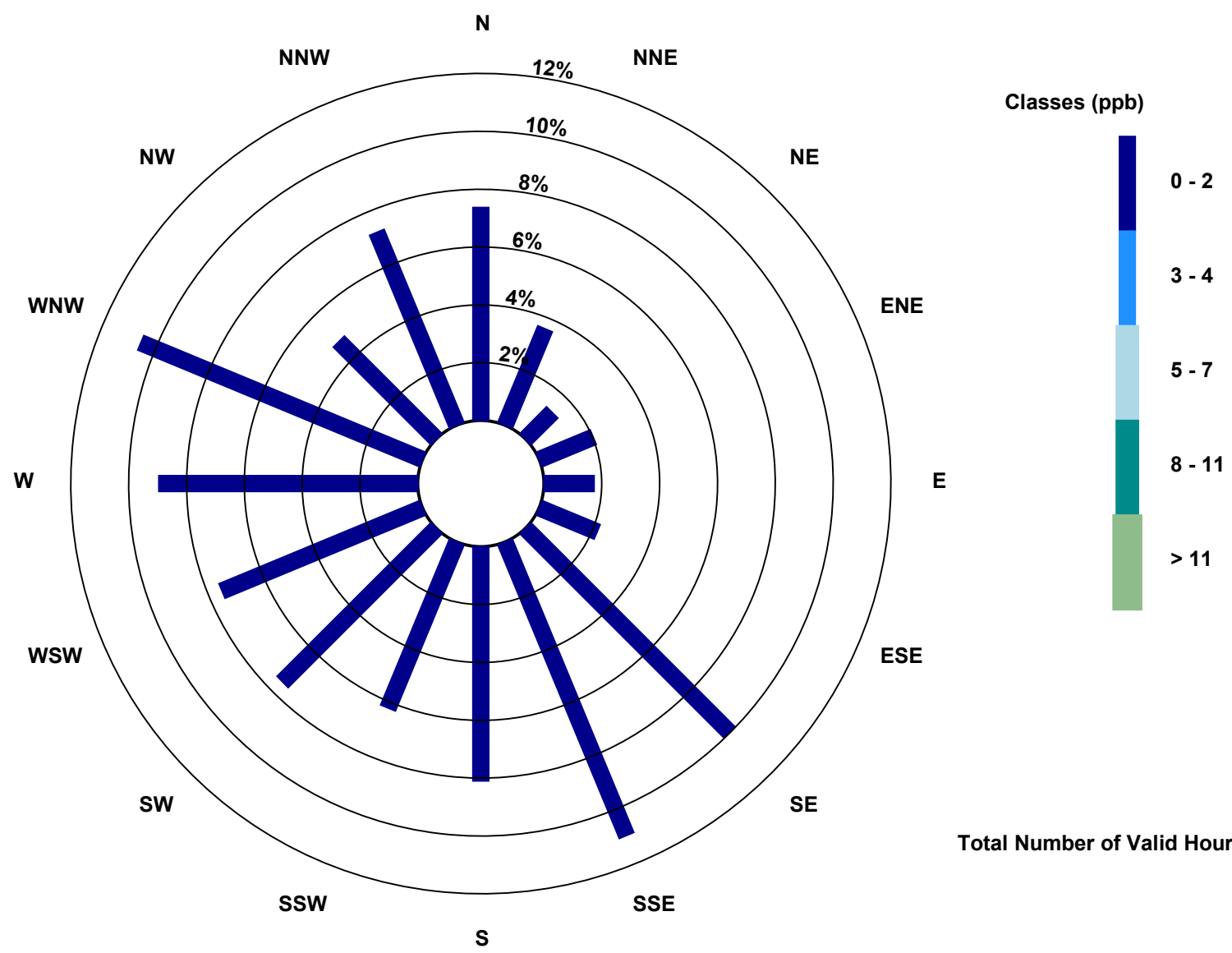
Total Number of Valid Hours: 692

Total Number of Hours: 744

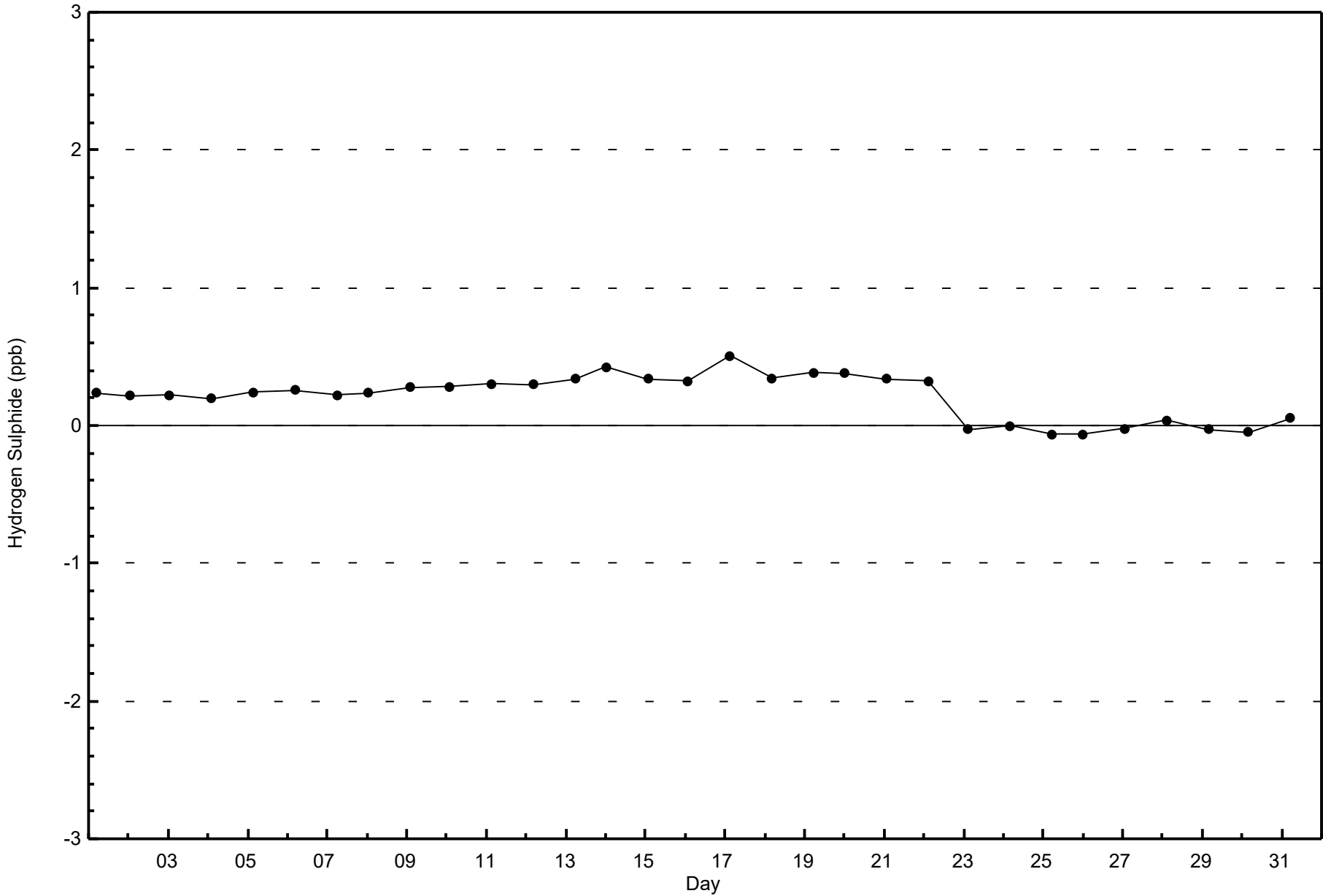


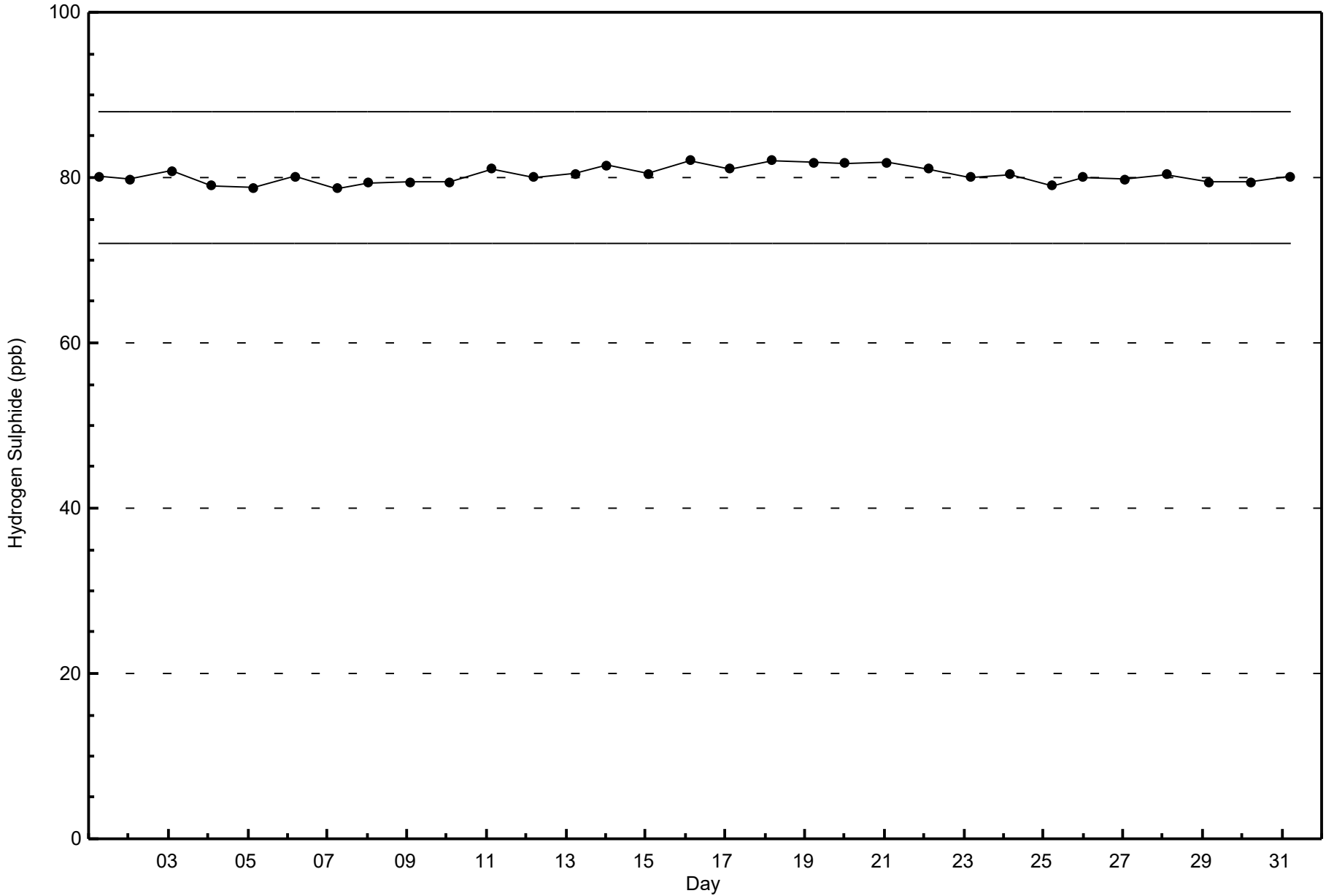
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 692





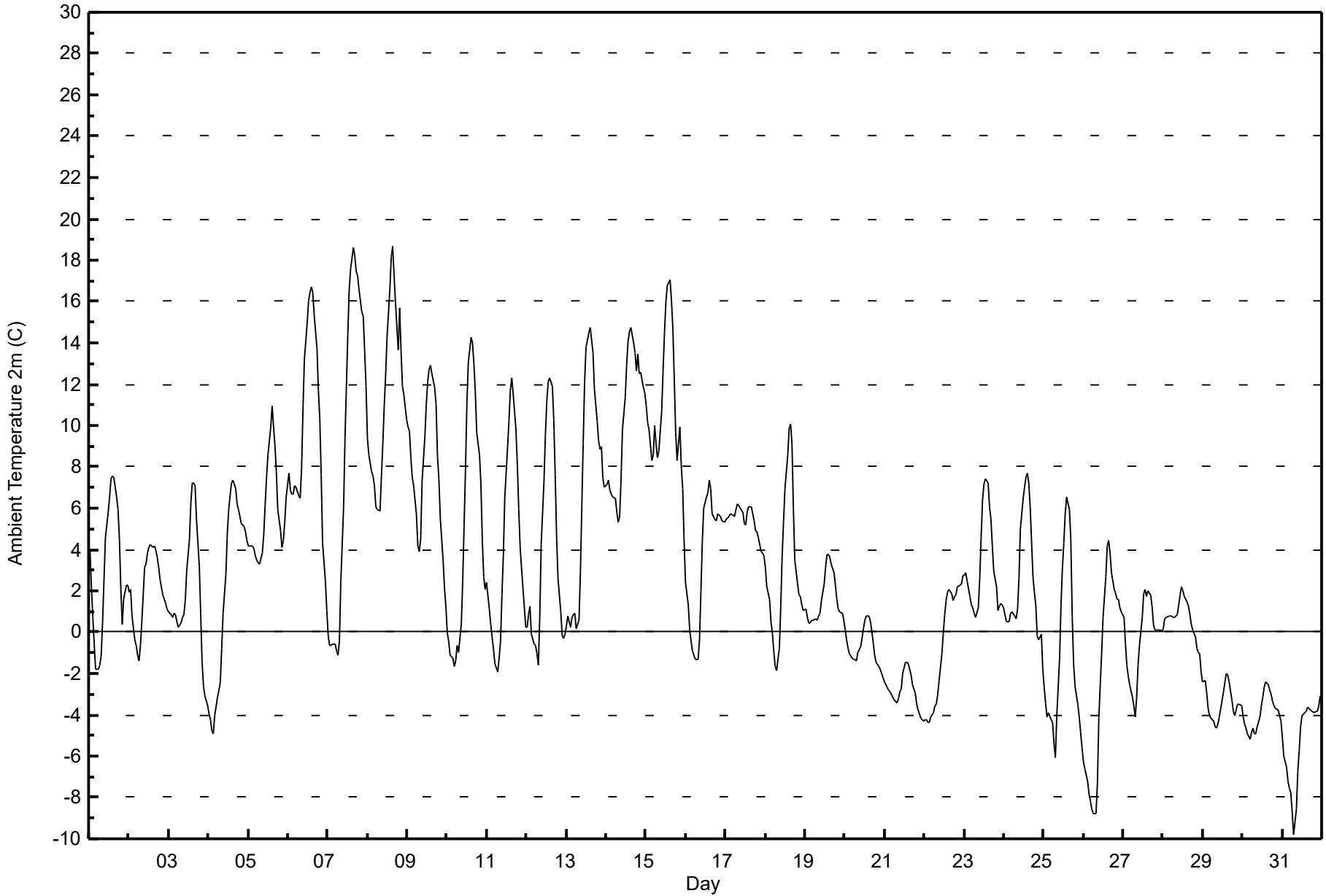


**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Waskow ohci Pimatisiwin - October 2024**

Maximum Value: 18.7 C on Oct 8 16:00      Maximum Daily Average: 11.5 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -9.8 C on Oct 31 08:00      Minimum Daily Average: -5.4 C on Oct 31 Maximum Diurnal Average: 7.6 C at hour 15      Minimum Diurnal Average: -0.5 C at hour 8 Monthly Average: 3.00 C      Percentiles: P <sub>1</sub> = -7.8 P <sub>10</sub> = -3.8 Q <sub>1</sub> = -1.1 Median = 1.9 Q <sub>3</sub> = 6.5 P <sub>90</sub> = 11.6 P <sub>99</sub> = 17.2																				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-Oct	4.0	2.2	0.8	-0.6	-1.8	-1.8	-1.6	-1.1	0.5	2.6	4.6	5.8	6.5	7.4	7.5	7.5	6.5	5.9	4.5	2.1	0.4	1.6	2.3	2.3	2.8	7.5
2-Oct	2.0	2.0	0.8	-0.3	-0.6	-1.1	-1.4	-0.7	0.5	3.2	3.3	3.8	4.1	4.2	4.1	4.2	4.0	3.7	3.1	2.5	1.8	1.6	1.4	1.1	2.0	4.2
3-Oct	1.0	0.9	0.7	0.9	0.8	0.5	0.3	0.4	0.7	0.9	1.6	3.0	4.5	6.3	7.2	7.2	7.1	5.5	3.2	0.9	-1.5	-2.6	-3.1	-3.6	1.8	7.2
4-Oct	-4.0	-4.3	-4.8	-4.9	-4.0	-3.2	-2.8	-2.4	-0.8	0.9	2.8	4.8	5.9	6.6	7.2	7.4	6.9	6.2	6.0	5.6	5.2	5.1	4.9	4.5	2.0	7.4
5-Oct	4.2	4.1	4.2	4.0	3.7	3.5	3.4	3.3	3.8	4.7	6.2	7.5	8.6	9.9	11.0	10.0	9.1	7.8	6.0	4.9	4.1	4.5	5.4	6.5	5.8	11.0
6-Oct	7.7	6.9	6.7	6.7	7.1	7.0	6.6	6.5	7.9	10.7	13.2	14.9	16.0	16.4	16.7	16.4	15.4	13.7	11.7	10.4	7.7	4.3	2.5	1.0	9.8	16.7
7-Oct	-0.2	-0.6	-0.7	-0.6	-0.6	-0.9	-1.1	-0.4	2.4	6.1	9.4	11.9	14.4	16.6	17.6	18.6	18.2	17.5	17.3	16.5	15.5	15.3	13.7	11.9	9.1	18.6
8-Oct	9.4	8.6	7.8	7.6	7.1	6.1	5.9	5.9	7.5	9.1	10.9	12.5	14.3	16.6	18.1	18.7	17.3	16.0	13.7	15.7	13.6	11.9	11.5	10.3	11.5	18.7
9-Oct	10.0	9.7	8.4	7.5	7.1	5.7	4.2	3.9	4.5	7.3	9.5	11.0	12.1	12.7	12.9	12.5	11.8	11.0	8.5	7.4	5.5	3.5	2.1	1.2	7.9	12.9
10-Oct	0.0	-0.4	-1.1	-1.3	-1.7	-1.4	-0.7	-1.0	0.3	2.5	5.2	7.9	11.1	13.1	14.3	14.0	13.0	11.6	9.7	8.6	7.2	4.4	2.6	2.0	5.0	14.3
11-Oct	2.4	1.1	0.4	-0.2	-0.9	-1.5	-2.0	-1.3	-0.5	1.8	3.7	6.5	8.9	10.2	11.7	12.3	11.6	9.8	8.1	5.9	4.1	3.1	2.1	0.2	4.1	12.3
12-Oct	0.2	0.8	1.2	-0.1	-0.6	-0.6	-1.1	-1.6	0.7	4.3	7.3	9.5	11.1	12.1	12.3	11.9	10.2	7.6	4.7	2.6	1.0	-0.2	-0.3	-0.1	3.9	12.3
13-Oct	0.3	0.8	0.2	0.7	0.8	0.9	0.2	0.5	2.9	6.1	9.2	12.1	13.8	14.5	14.8	14.2	13.5	11.8	10.2	9.2	8.8	9.0	7.5	7.0	7.0	14.8
14-Oct	7.2	7.4	6.9	6.7	6.5	6.5	5.8	5.3	5.6	7.4	9.8	11.3	12.9	14.1	14.6	14.7	14.0	13.5	12.6	13.5	12.5	12.6	11.9	11.6	10.2	14.7
15-Oct	10.9	10.1	9.8	8.3	8.6	10.0	9.1	8.5	8.8	10.7	12.6	14.5	15.9	16.8	17.1	16.0	14.7	12.2	9.6	8.3	9.9	8.0	7.0	4.4	10.9	17.1
16-Oct	2.4	1.3	0.1	-0.4	-0.9	-1.1	-1.3	-1.3	-0.4	1.9	4.4	6.0	6.5	6.8	7.3	6.9	5.7	5.4	5.4	5.7	5.6	5.6	5.4	5.3	3.4	7.3
17-Oct	5.4	5.5	5.6	5.7	5.7	5.6	6.0	6.2	6.2	6.0	5.8	5.2	5.2	5.8	6.1	6.0	5.8	5.4	4.9	4.8	4.6	3.9	3.9	3.7	5.4	6.2
18-Oct	3.2	2.2	1.6	0.5	-0.1	-0.9	-1.6	-1.9	-0.8	1.2	3.7	5.4	6.9	8.6	9.9	10.1	9.1	6.0	3.5	2.3	1.8	1.7	1.3	1.1	3.1	10.1
19-Oct	1.1	0.7	0.4	0.5	0.6	0.6	0.6	0.6	0.8	0.9	1.6	2.3	3.1	3.7	3.7	3.6	3.3	2.9	2.3	1.6	1.1	1.0	0.9	0.6	1.6	3.7
20-Oct	0.1	-0.4	-0.8	-1.0	-1.2	-1.3	-1.3	-1.4	-1.0	-0.7	-0.3	0.1	0.6	0.8	0.8	0.5	0.0	-0.5	-1.1	-1.5	-1.7	-1.8	-2.0	-2.2	-0.7	0.8
21-Oct	-2.4	-2.7	-2.8	-2.9	-3.0	-3.2	-3.3	-3.4	-3.2	-2.9	-2.7	-2.0	-1.5	-1.5	-1.5	-1.8	-2.1	-2.5	-2.9	-3.5	-3.7	-3.9	-4.1	-4.3	-2.8	-1.5
22-Oct	-4.2	-4.2	-4.4	-4.4	-4.1	-3.9	-3.5	-3.5	-3.0	-2.3	-1.1	-0.1	0.8	1.5	1.9	2.0	1.9	1.6	1.7	1.8	2.2	2.2	2.3	2.7	-0.7	2.7
23-Oct	2.8	2.9	2.5	1.7	1.4	1.2	0.9	0.7	1.2	2.6	4.6	6.4	7.2	7.4	7.2	6.1	5.5	4.2	3.0	2.2	1.1	1.2	1.4	1.3	3.2	7.4
24-Oct	1.2	0.5	0.5	0.5	0.9	1.0	0.8	0.7	1.1	2.6	5.0	6.5	7.0	7.5	7.7	7.2	6.1	2.7	1.9	1.3	-0.1	-0.4	-0.1	-1.8	2.5	7.7
25-Oct	-2.7	-3.4	-4.1	-3.9	-4.3	-4.4	-5.4	-6.1	-4.0	-1.3	1.3	3.1	4.3	5.8	6.5	5.9	4.5	0.8	-1.5	-2.6	-3.5	-4.1	-4.9	-5.6	-1.2	6.5
26-Oct	-6.2	-6.6	-7.2	-7.8	-8.2	-8.6	-8.8	-8.8	-7.3	-4.2	-2.6	-1.0	0.7	2.7	4.2	4.4	3.9	2.9	2.1	1.9	1.6	1.6	1.2	1.0	-2.1	4.4
27-Oct	0.7	-0.5	-1.6	-2.1	-2.6	-3.1	-3.6	-4.1	-3.2	-1.6	-0.6	0.7	1.8	2.0	1.8	2.0	1.8	1.3	0.4	0.1	0.1	0.1	0.0	-0.4	2.0	
28-Oct	0.2	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.9	1.3	1.8	2.2	2.0	1.7	1.4	1.3	0.9	0.4	0.1	-0.3	-0.8	-1.0	-1.1	-1.9	0.6	2.2
29-Oct	-2.4	-2.4	-2.9	-3.7	-4.1	-4.2	-4.3	-4.6	-4.7	-4.4	-4.1	-3.7	-2.9	-2.4	-2.0	-2.0	-2.4	-3.3	-3.8	-4.0	-3.8	-3.5	-3.5	-3.5	-3.4	-2.0
30-Oct	-4.1	-4.4	-4.7	-4.9	-5.2	-4.8	-4.7	-4.9	-4.9	-4.6	-4.1	-3.5	-3.1	-2.7	-2.4	-2.6	-2.8	-3.0	-3.3	-3.6	-3.7	-3.8	-4.0	-4.3	-3.9	-2.4
31-Oct	-5.1	-6.0	-6.6	-7.2	-7.6	-7.8	-8.7	-9.8	-8.6	-6.7	-5.7	-4.6	-4.0	-3.9	-3.8	-3.6	-3.7	-3.7	-3.8	-3.9	-3.9	-3.8	-3.6	-3.1	-5.4	-3.1
1.4   1.0   0.6   0.2   0.0   -0.1   -0.4   -0.5   0.5   2.1   3.7   5.2   6.3   7.1   7.6   7.5   6.8   5.6   4.4   3.8   3.0   2.5   2.1   1.6																								Diurnal Average		
10.9   10.1   9.8   8.3   8.6   10.0   9.1   8.5   8.8   10.7   13.2   14.9   16.0   16.8   18.1   18.7   18.2   17.5   17.3   16.5   15.5   15.3   13.7   11.9																								Diurnal Maximum		







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

**Ambient Temperature 2m (AT2) - C**  
**Waskow ohci Pimatisiwin - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	236	31.72	31.72
0 - 10	414	55.65	87.37
10 - 20	94	12.63	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 2m (RH2) - %**

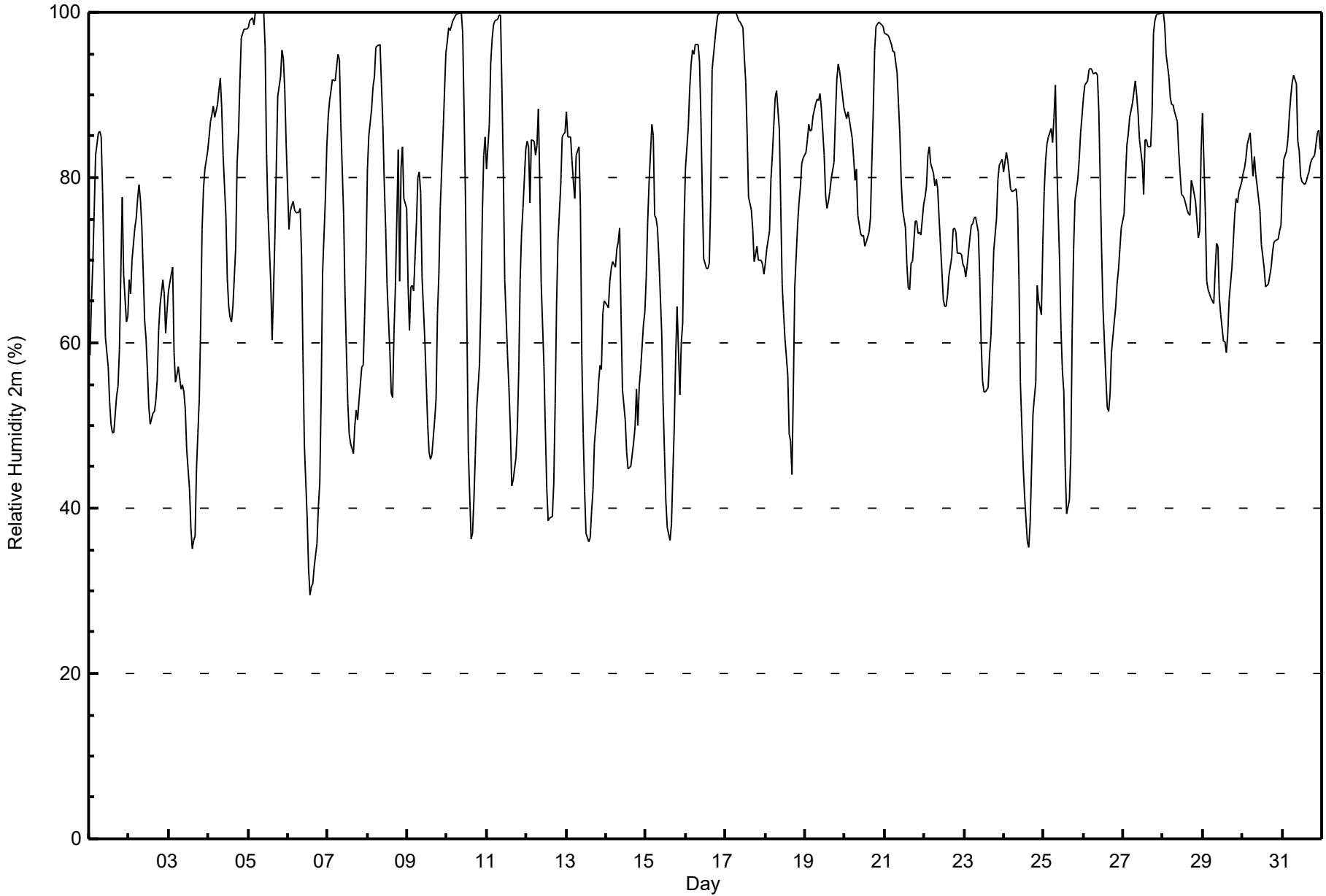
**Waskow ohci Pimatisiwin - October 2024**

Maximum Value: 100.0 % on Oct 5 06:00      Maximum Daily Average: 89.4 % on Oct 5 Minimum Value: 29.5 % on Oct 6 14:00      Minimum Daily Average: 56.6 % on Oct 3 Maximum Diurnal Average: 85.9 % at hour 8      Minimum Diurnal Average: 55.0 % at hour 15 Monthly Average: 73.71 %      Percentiles: P <sub>1</sub> = 35.8 P <sub>10</sub> = 49.9 Q <sub>1</sub> = 63.4 Median = 75.7 Q <sub>3</sub> = 85.4 P <sub>90</sub> = 95.3 P <sub>99</sub> = 100.0																								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-Oct	58.4	64.7	69.4	75.9	82.6	85.4	85.7	84.9	78.3	69.2	60.7	57.2	52.8	50.2	49.1	49.2	53.5	54.7	59.1	68.5	77.6	68.3	62.5	63.2	65.9	85.7																						
2-Oct	67.6	66.0	70.0	74.0	75.0	77.4	79.1	77.3	74.0	62.8	60.6	56.7	52.2	50.2	51.5	51.7	53.1	55.6	61.5	64.6	67.6	66.0	61.2	63.8	64.1	79.1																						
3-Oct	66.3	68.3	69.2	58.8	55.3	56.0	57.1	54.4	54.9	54.1	52.0	47.2	42.4	37.7	35.1	36.1	36.6	44.7	53.2	62.2	73.7	78.6	80.9	83.2	56.6	83.2																						
4-Oct	84.9	86.9	87.7	88.6	87.3	88.8	90.6	92.0	88.4	82.7	75.3	67.8	64.5	63.0	62.5	64.5	71.6	81.7	85.5	91.6	96.9	98.0	98.0	97.9	83.2	98.0																						
5-Oct	98.2	98.9	99.4	98.5	100.0	100.0	100.0	100.0	100.0	100.0	95.8	82.8	75.8	67.3	60.3	66.5	73.0	81.6	89.8	92.2	95.4	94.4	90.7	84.1	89.4	100.0																						
6-Oct	73.8	75.9	76.6	77.1	76.0	75.7	75.8	76.3	70.5	58.5	47.6	38.8	32.7	29.5	30.5	30.9	32.9	35.7	40.1	43.1	53.7	68.5	77.4	83.7	57.6	83.7																						
7-Oct	87.2	89.4	90.4	91.8	91.7	93.4	94.8	94.2	86.6	75.5	65.9	58.9	52.7	49.0	47.8	46.6	50.0	51.8	50.6	53.1	57.1	57.4	63.3	70.2	69.6	94.8																						
8-Oct	81.1	85.1	88.3	91.0	92.1	95.7	95.9	96.2	91.4	86.4	79.5	73.9	67.2	59.0	54.0	53.4	61.5	66.9	83.4	67.5	81.1	83.7	77.5	76.2	78.7	96.2																						
9-Oct	67.2	61.4	66.8	66.9	66.3	74.5	80.0	80.6	78.2	68.0	60.2	55.1	50.1	46.7	45.9	46.5	50.7	53.2	63.6	68.3	76.4	85.4	90.4	95.0	66.6	95.0																						
10-Oct	96.5	98.2	97.8	99.0	99.3	99.6	99.9	99.9	100.0	97.4	88.0	77.3	62.2	47.0	36.3	36.9	41.0	46.5	52.0	57.4	65.2	75.5	82.8	84.9	76.7	100.0																						
11-Oct	81.1	86.5	93.8	96.8	98.5	99.0	99.1	99.6	99.7	90.7	80.7	67.6	58.5	54.6	49.6	42.8	43.4	46.2	49.6	56.6	67.7	73.2	76.4	83.4	74.8	99.7																						
12-Oct	84.3	83.7	77.0	84.6	84.4	82.8	83.9	88.4	79.5	67.2	57.1	49.3	42.4	38.6	38.8	39.0	43.1	52.7	64.7	72.3	79.1	84.9	85.3	85.4	68.7	88.4																						
13-Oct	88.0	84.9	85.0	82.0	79.6	77.5	82.8	83.8	76.5	58.5	49.0	42.1	36.9	36.0	36.5	39.7	42.2	47.8	52.0	55.3	57.2	56.7	63.6	65.1	61.6	88.0																						
14-Oct	64.5	64.3	67.4	69.1	69.8	69.1	71.3	72.2	73.8	63.4	54.5	50.6	46.8	44.8	44.9	45.0	48.0	49.8	54.4	50.1	54.7	56.7	62.2	63.7	58.8	73.8																						
15-Oct	67.9	74.6	79.3	86.4	85.1	75.4	75.1	73.8	70.3	61.4	52.9	46.9	40.9	37.6	36.0	38.1	44.3	49.8	58.4	64.4	53.6	59.9	62.3	74.6	61.2	86.4																						
16-Oct	81.2	86.0	90.7	93.8	95.4	95.0	96.1	96.0	94.1	87.2	77.9	70.1	68.9	69.0	69.6	77.5	93.1	96.6	98.3	99.6	99.9	100.0	100.0	100.0	89.0	100.0																						
17-Oct	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.5	99.0	98.9	98.1	94.6	91.5	85.3	77.7	76.2	73.7	69.8	70.7	71.7	70.0	69.9	69.6	68.3	86.8	100.0																						
18-Oct	69.6	71.3	73.6	79.9	82.8	86.2	89.7	90.5	85.7	76.4	67.1	63.6	60.5	56.1	48.9	48.2	44.1	54.7	66.8	74.2	76.9	78.9	81.7	82.4	71.2	90.5																						
19-Oct	83.1	84.5	86.4	85.6	85.8	87.5	89.1	89.4	89.3	90.1	88.4	82.7	77.7	76.3	77.1	78.3	79.8	81.9	87.3	91.8	93.7	93.0	90.1	88.5	85.7	93.7																						
20-Oct	87.8	87.1	88.0	86.9	84.8	82.3	79.7	81.1	75.4	73.3	72.8	73.0	71.7	72.2	73.4	75.1	81.8	87.9	95.4	98.3	98.7	98.7	98.6	98.3	84.3	98.7																						
21-Oct	97.5	97.3	97.0	96.6	96.2	95.3	95.3	92.7	89.0	85.3	79.4	76.2	73.9	69.5	66.6	66.5	69.6	69.8	74.8	74.7	73.1	73.4	73.0	76.7	81.6	97.5																						
22-Oct	77.6	79.1	82.8	83.8	81.6	80.4	78.9	79.9	78.6	75.0	68.7	65.3	64.4	64.4	65.8	68.1	70.3	73.8	73.9	73.4	70.8	70.9	70.7	69.5	73.7	83.8																						
23-Oct	69.2	68.0	69.3	72.8	74.2	74.4	75.0	75.3	73.5	68.0	60.2	55.4	54.1	54.1	54.7	58.5	60.8	65.8	71.2	75.0	79.8	81.6	81.9	82.2	69.0	82.2																						
24-Oct	80.7	83.1	82.1	80.6	78.7	78.3	78.5	78.7	76.4	67.6	55.3	45.1	41.5	38.6	35.9	35.3	38.3	51.3	53.4	55.3	67.0	65.1	63.3	71.8	62.6	83.1																						
25-Oct	78.3	82.0	84.1	84.9	86.0	84.2	87.2	91.1	81.6	69.8	61.5	56.7	54.1	44.9	39.4	41.0	46.4	61.7	71.3	77.3	79.8	82.3	85.4	87.4	71.6	91.1																						
26-Oct	89.7	91.2	91.8	93.1	93.3	93.1	92.6	92.7	92.3	88.0	79.4	71.0	64.1	56.0	52.1	51.8	53.7	58.9	62.6	64.2	67.1	68.7	71.3	74.0	75.5	93.3																						
27-Oct	75.5	79.8	83.9	85.3	87.3	89.0	90.3	91.7	90.0	87.9	84.6	81.7	77.9	84.5	84.6	83.8	83.7	87.8	97.4	99.1	99.6	99.8	99.8	99.9	88.5	99.9																						
28-Oct	100.0	98.4	95.0	92.2	89.7	88.7	88.8	87.9	86.8	83.3	80.5	78.0	77.7	77.4	76.2	75.5	75.5	79.7	78.9	77.1	74.9	72.7	73.5	83.3	83.0	100.0																						
29-Oct	87.8	75.8	67.5	66.4	66.0	65.3	64.8	68.6	72.0	71.7	65.5	63.4	60.2	60.3	58.8	61.0	65.2	69.1	72.3	75.5	77.5	76.9	78.2	79.5	69.6	87.8																						
30-Oct	80.5	81.3	82.3	84.0	85.5	82.8	80.2	82.6	80.4	79.1	75.9	71.9	70.4	68.9	66.7	67.2	68.2	69.2	71.1	72.1	72.3	72.5	73.6	74.2	75.5	85.5																						
31-Oct	79.1	82.1	83.2	84.8	87.7	89.9	91.5	92.3	91.4	84.5	83.2	80.2	79.4	79.1	79.5	80.1	80.6	81.7	82.2	82.8	84.1	85.4	85.7	83.4	83.9	92.3																						
																								80.8	81.8	83.1	84.2	84.4	84.6	85.4	85.9	83.1	76.8	70.3	64.6	60.2	57.0	55.0	55.8	59.0	63.8	69.2	71.9	75.6	77.3	78.4	80.4	Diurnal Average
																								100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.1	94.6	91.5	85.3	84.6	83.8	93.1	96.6	98.3	99.6	99.9	100.0	100.0	100.0	Diurnal Maximum



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

**Relative Humidity 2m (RH2) - %**  
**Waskow ohci Pimatisiwin - October 2024**





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

**Relative Humidity 2m (RH2) - %**  
**Waskow ohci Pimatisiwin - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	28	3.76	3.76
40 - 60	128	17.20	20.97
60 - 80	298	40.05	61.02
80 - 100	274	36.83	97.85

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 16 km/h on Oct 21 05:00	Maximum Daily Speed Average: 8.5 km/h on Oct 20	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 12 20:00	Minimum Daily Speed Average: 0.8 km/h on Oct 31	Hours of Data: 728
Maximum Diurnal Speed Average: 2.2 km/h at hour 6	Minimum Diurnal Speed Average: 0.9 km/h at hour 13	Hours of Missing Data: 16
Monthly Average Velocity: 1.5 km/h 270.1 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 7 P <sub>90</sub> = 9 P <sub>99</sub> = 14	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-Oct	W6	W4	NW4	N1	SSE0	ENE1	NNW1	NNW2	SSW1	NW3	N2	NE4	NNE3	NE3	NNE4	NNE4	NNE6	N4	NW4	WNW3	W2	WNW4	WNW5	W5	NNW2.0	NNE6	
2-Oct	W4	NW6	WNW5	W5	W5	W5	W4	W4	WSW3	WNW11	WNW9	WNW11	WNW12	WNW12	WNW10	WNW10	WNW12	WNW9	NW12	NW11	NW11	NW10	NW8	WNW5	WNW7.7	WNW12	
3-Oct	WNW6	WNW4	WNW3	NW7	WNW5	W6	W5	NW7	WNW6	WNW9	WNW7	WNW7	W4	W7	WSW6	WSW6	SW5	SSW4	SSW3	S3	W1	S2	SW1	S1	W4.0	WNW9	
4-Oct	SSE2	SSW1	SW2	WSW1	WSW2	SSE1	SE1	S1	S1	E1	ENE1	N3	NNW7	NNW8	NNW8	NNW8	N8	N8	N6	N3	NNW6	NNW6	NNW9	NNW3.3	NNW9		
5-Oct	NNW9	NNW8	NNW6	WNW3	W2	WSW1	WSW2	SSE2	SE2	SE2	S2	SW7	S6	SSW5	SSW8	SSW6	S4	SSE3	SSE4	SSE4	SE4	SE3	SSE3	SSE5	SSW1.8	NNW9	
6-Oct	S5	SW5	WSW9	WSW10	WSW10	WSW11	WSW9	WSW7	SW7	SSW7	SSW9	SW9	SW10	SW10	SW9	SW7	SW7	SW5	WSW5	WSW4	SE1	SSW1	WSW2	WSW1	SW6.4	WSW11	
7-Oct	SW1	W1	S1	WNW1	W3	WSW2	W1	W1	S1	ESE2	SSE6	SE6	SE7	SE7	SE5	E1	SSE3	SSE5	SSE5	SSE6	SE4	SSE4	SSE3	S4	SSE2.7	SE7	
8-Oct	SSW2	SSW3	SSE1	S1	SW0	SSE2	SSE3	SSE3	SSE3	SE3	SSE3	E2	ESE2	SE3	SE3	NNE1	NNW3	NW3	SSW1	W10	W5	SW7	SSW6	S6	SSW1.7	W10	
9-Oct	SW8	SSW7	S6	S4	S4	SSE4	S3	S4	SSW5	SW7	SW7	WSW7	SW8	SW9	SSW7	SSW4	S3	SSW3	S2	WSW2	SSE1	SSW2	E1	SSE1	SSW4.1	SW9	
10-Oct	S1	SSE2	SSW1	SSE2	S1	SSE3	SSE3	S3	SSE4	SSE3	SE4	SE5	SE5	SSW6	SW8	SW7	SW7	SW4	W4	WNW5	WSW2	S1	E0	S2	SSW2.3	SW8	
11-Oct	SSW2	SE1	SE3	SE2	SSE2	SSE1	S1	S3	SE3	SSE5	SSE6	SE6	SE7	SE8	SE9	SSE8	S6	S4	SW4	S3	SE2	S2	SE1	W1	SSE3.5	SE9	
12-Oct	S1	W1	WSW2	SSW1	W1	WSW3	SSE2	SSE3	S2	SE3	ESE3	E3	ENE3	ENE4	ENE4	ENE3	E1	UO	S1	SSE0	UO	ESE0	SSW0	ESE1	ESE1.1	ENE4	
13-Oct	SE2	SE2	SE2	SE3	SSE3	SE2	SSE2	ESE1	SSE5	SSE8	SE9	SE11	SE13	SE11	SE11	SE8	SE5	SE4	SE3	SE4	SE4	SE3	SE4	SE4	SE5.2	SE13	
14-Oct	SSE6	SE6	SE3	SE2	SE3	SE3	ESE2	N0	ESE2	SSE7	SE8	SE7	SSE8	SE4	SE6	SE5	SE3	SE3	SSE4	SSE6	SSE4	SSW4	SSE5	SSE5	SSE4.3	SSE8	
15-Oct	SSE5	SSE4	SSE3	SE2	SSE4	SE5	SW6	WSW5	SW5	WSW6	WSW6	SW6	SSW5	SSW5	SSW6	SSW5	SSW3	SW3	SE2	SE2	SW5	WSW1	SSE2	SE2	SSW3.5	WSW6	
16-Oct	SSE2	SE2	S2	SSW0	S1	W1	NNE1	W1	NW1	SE1	E2	SSE2	NE1	NNE2	ENE1	N2	NNW4	NNW6	NNW5	NNW5	NW4	NW3	WNW4	NW3	NNW1.1	NNW6	
17-Oct	WNW2	W1	SW3	SSW3	S3	SW6	SW7	SW8	WSW7	WSW7	WSW7	WSW7	SW6	WSW8	W9	WSW8	W11	W15	W11	W9	W13	WNW10	WNW11	WNW13	W6.9	W15	
18-Oct	WNW9	WNW10	WNW5	SSE2	S3	SW4	S3	SSW3	SSW4	S5	SE5	SE7	SE6	SSE8	S8	SSE6	S5	SE2	SSE1	S1	ESE1	ESE0	NW3	NW4	S2.1	WNW10	
19-Oct	WNW2	WNW2	W2	WNW3	NW2	NNW6	NNW7	NW4	NNW5	NNW5	NNW5	NNW8	N9	NNE6	NE5	NNE5	NNE6	N7	N8	N8	NNW9	NNW10	N10	NNW11	NNW5.6	NNW11	
20-Oct	NNW13	NNW12	NNW11	NNW10	NNW10	N9	N7	N5	N6	N8	NNE7	NNE6	NE6	NE6	NNE7	NNE8	NNE8	NNE9	N9	N9	N10	N11	N13	N13	N8.5	NNW13	
21-Oct	N13	N14	N15	NNW16	NNW16	NNW16	NNW15	NNW16	NNW14	NNW14	N11	NNE7	NNE5	N5	NW8	WNW6	WNW5	W3	W5	W5	WSW4	WSW4	WSW4	S4	NNW7.9	NNW16	
22-Oct	S5	S4	SSE3	SSE4	SSE5	SSE5	SSE6	SSE5	S6	S7	SSW9	SSW8	S9	S9	S8	S7	S7	SSE7	SSE8	SSE7	S7	S6	SSW7	SSW8	S6.4	S9	
23-Oct	SSW7	SSW9	SW9	WSW10	WSW9	WSW8	WSW8	SSW4	WSW8	WSW8	WSW7	SW5	SW9	SW9	SW9	SW7	SW6	WSW4	S1	E2	SSW2	S4	SSE4	SSE4	SW5.7	WSW10	
24-Oct	SSE3	SSE2	S2	SSW3	WSW6	WSW7	WSW5	C	SW3	WSW5	W7	WNW13	W12	WNW13	W11	WNW9	WNW5	WSW2	W5	W2	WSW2	WSW2	N2	W2	W4.6	WNW13	
25-Oct	W1	SW3	S2	SSE2	SSE2	S3	ESE1	S2	SSE4	SSW3	S1	ESE3	ENE4	NW7	WNW6	WNW7	W3	SW2	SW1	WNW2	WSW1	W2	WSW2	W3	WSW1.2	NW7	
26-Oct	W3	W2	W3	WSW3	W2	W2	W2	WNW3	NW3	N6	N9	NNW9	NNW9	NNW9	N7	NE6	NE5	N5	N4	N4	N4	N4	N4	NNW4	N3	NNW3.6	NNW9
27-Oct	WNW4	NW3	NW4	NW3	NW4	WNW4	WNW3	WNW3	W2	NW3	NNW3	N2	N4	NNW5	N6	WNW3	NNW3	NW4	WNW3	N3	NW3	NW4	WNW1	WSW2	NNW2.9	N6	
28-Oct	WSW3	W7	W6	W6	WNW6	W6	W6	W5	W7	WNW8	WNW9	WNW9	WNW11	WNW10	WNW10	WNW8	WNW8	WNW8	WNW6	WNW9	W10	W9	W7	UO	WNW7.5	WNW11	
29-Oct	UO	UO	WNW9	WNW11	WNW11	WNW10	WNW9	WNW7	WNW5	W4	W6	SW6	SSW6	SW5	SW6	SSE3	E1	UO	UO	UO	UO	UO	UO	N5	NNW7	---	WNW11
30-Oct	NNW10	NNW9	NNW10	NNW11	N9	N9	N9	N10	N9	NNE8	NNE8	NNE8	NNE7	NNE8	NE7	NE6	NE5	ENE5	ENE4	E4	E3	ENE4	ENE4	ENE4	NNE6.1	NNW11	
31-Oct	ENE3	W0	N1	UO	UO	UO	NW1	W2	NNE1	ESE3	SE4	SE4	SE5	SE5	ESE3	ESE2	WSW1	NW2	NW3	NW3	UO	N1	UO	SW6	SE0.8	SW6	

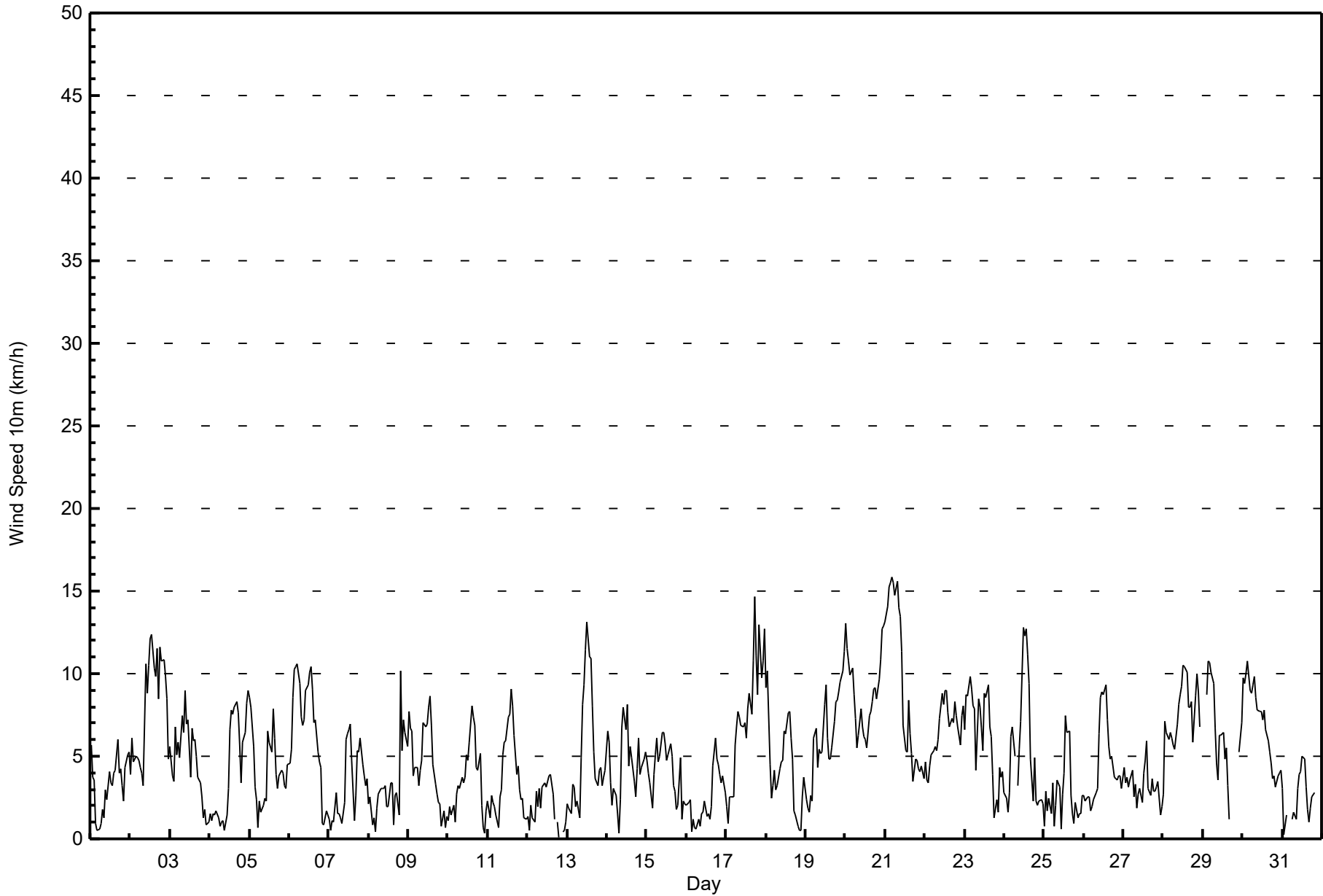
W1.5	WNW1.8	WNW1.9	W1.9	W2.1	W2.2	W2.0	W1.7	WSW1.4	WSW1.5	WSW1.1	WSW1.1	SW0.9	WSW1.5	WSW1.7	WSW1.4	W1.3	WNW1.5	WNW1.5	WNW1.5	WNW1.8	WNW1.5	WNW1.5	WNW1.2	Diurnal Average
N13	N14	N15	NNW16	NNW16	NNW16	NNW15	NNW16	NNW14	NNW14	N11	WNW13	SE13	WNW13	W11	WNW10	WNW12	W15	NW12	NW11	WNW13	N11	N13	N13	Diurnal Maximum

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



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

**Wind Speed 10m (WS10) - km/h**  
**Waskow ohci Pimatisiwin - October 2024**





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

**Wind Speed 10m (WS10) - km/h**  
**Waskow ohci Pimatisiwin - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	441	60.58	60.58
6 - 11	262	35.99	96.57
12 - 19	25	3.43	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: 728

Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Waskow ohci Pimatisiwin - October 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	22	9	5	15	12	15	53	65	48	31	22	30	45	31	24	14	441
6 - 11	25	16	4	0	0	0	17	16	13	18	31	26	19	38	9	30	262
12 - 19	5	0	0	0	0	0	1	0	0	0	0	0	2	7	1	9	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>	52	25	9	15	12	15	71	81	61	49	53	56	66	76	34	53	728

Total Number of Valid Hours: 728

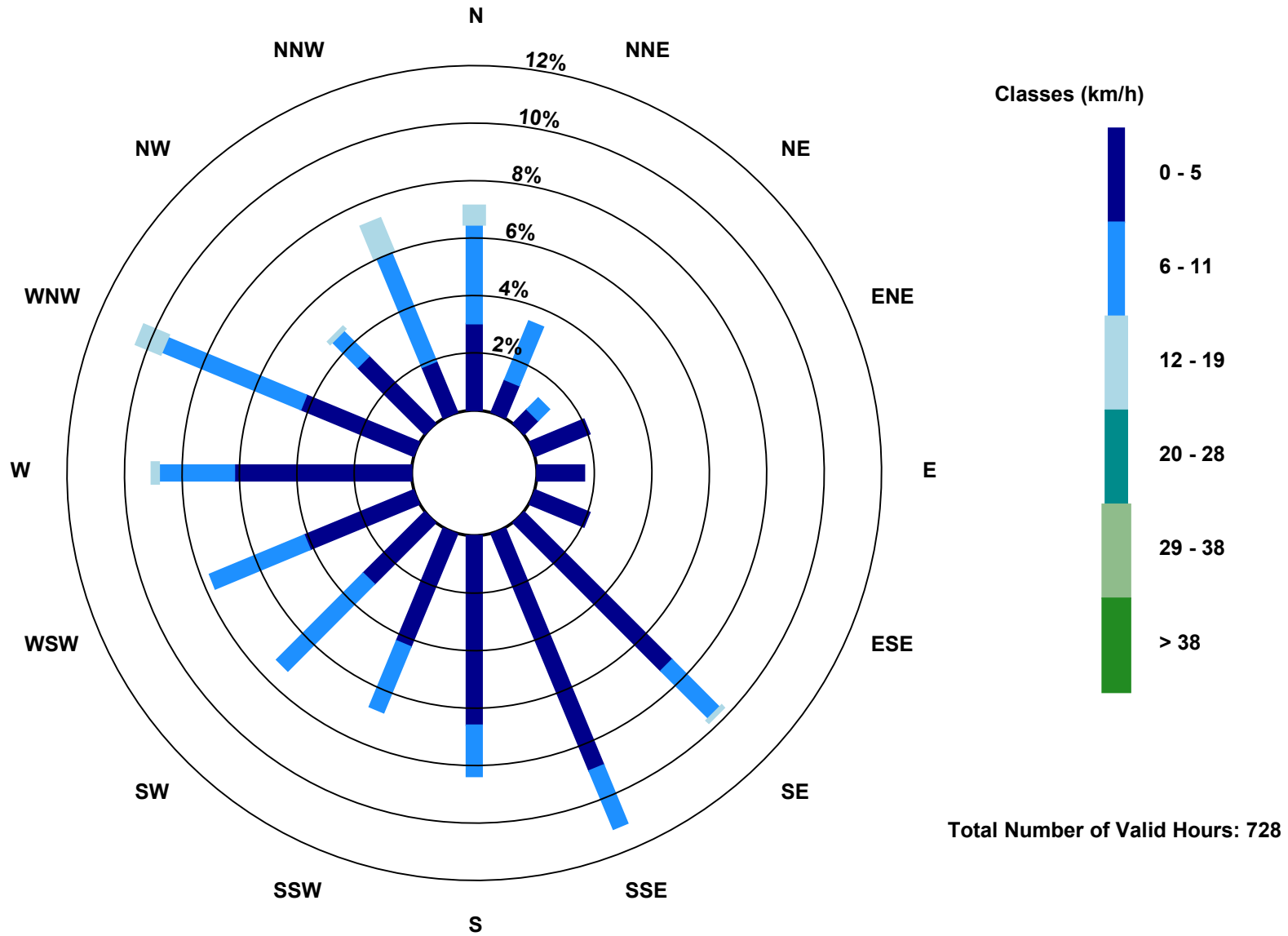
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Waskow ohci Pimatisiwin





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

**Wind Speed 10m (WS10) - km/h**  
**Waskow ohci Pimatisiwin - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Oct 17 18:00 Minimum Value: 0 km/h on Oct 4 01:00 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																	Hours in Service: 744 Hours of Data: 728 Hours of Missing Data: 16 Hours of Calibration: 1 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-Oct	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	1	1	1	1	1	2	2	3
2-Oct	1	3	2	2	2	2	1	1	2	5	4	4	4	4	4	4	5	3	4	4	3	3	3	2	5
3-Oct	3	1	1	2	2	2	2	3	2	3	2	3	3	3	3	3	2	1	1	1	1	1	1	3	
4-Oct	0	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	2	1	2	2	3	
5-Oct	2	2	1	1	1	1	0	1	0	1	1	3	2	2	3	3	2	1	1	1	1	1	1	3	
6-Oct	2	3	4	4	5	5	4	3	3	3	4	4	4	5	4	3	3	2	1	1	1	1	1	5	
7-Oct	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	1	2	1	2	
8-Oct	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	2	1	5	3	3	3	2	5	
9-Oct	3	3	3	1	2	1	1	2	2	3	3	3	4	4	2	2	1	1	1	1	1	1	1	4	
10-Oct	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	3	3	2	1	2	1	1	1	4	
11-Oct	2	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	2	1	1	1	1	1	1	3	
12-Oct	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	UO	1	1	2	
13-Oct	1	1	1	1	1	1	1	1	3	3	3	4	5	5	4	3	2	1	1	1	1	1	1	5	
14-Oct	2	2	1	1	1	1	1	1	1	3	2	2	3	2	3	2	1	1	2	2	1	2	1	3	
15-Oct	1	1	1	1	1	2	3	2	2	3	3	2	2	2	2	2	1	1	1	1	2	1	2	3	
16-Oct	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2	
17-Oct	1	1	1	1	1	2	3	4	3	3	3	3	3	4	4	3	5	6	5	4	6	4	4	6	
18-Oct	4	3	4	1	1	1	1	1	2	2	2	2	2	3	3	2	2	1	1	1	1	1	1	4	
19-Oct	1	1	1	2	1	3	2	1	2	2	2	2	3	2	2	2	2	2	2	3	3	3	3	4	
20-Oct	4	3	3	3	3	3	3	2	2	3	3	2	2	2	3	2	3	3	3	3	3	3	4	4	
21-Oct	4	4	5	5	5	5	4	4	4	4	4	3	2	2	2	2	2	2	2	2	2	2	1	5	
22-Oct	2	2	1	1	2	2	2	2	2	3	4	4	3	3	3	2	3	2	3	3	3	2	3	4	
23-Oct	3	4	4	4	4	3	3	2	4	3	4	3	4	4	4	3	3	1	1	1	1	1	1	4	
24-Oct	1	1	1	1	2	3	2	2	2	3	5	5	5	5	3	2	1	1	1	1	1	1	1	5	
25-Oct	1	1	1	1	1	1	1	1	1	2	1	1	2	4	2	2	2	1	1	1	1	1	1	4	
26-Oct	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	2	2	
27-Oct	1	1	1	1	1	1	1	1	1	2	1	1	2	2	3	1	1	1	1	1	1	1	1	3	
28-Oct	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	4	3	3	3	4	
29-Oct	UO	UO	5	5	4	4	3	2	2	2	2	3	3	2	3	2	1	UO	UO	UO	UO	UO	2	5	
30-Oct	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	1	1	1	1	1	3	
31-Oct	1	1	1	UO	UO	UO	1	1	1	1	2	2	2	2	1	1	1	2	1	1	UO	1	UO	3	
Diurnal Maximum																									
C - Calibration                      UO - Unstable Operation																									



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

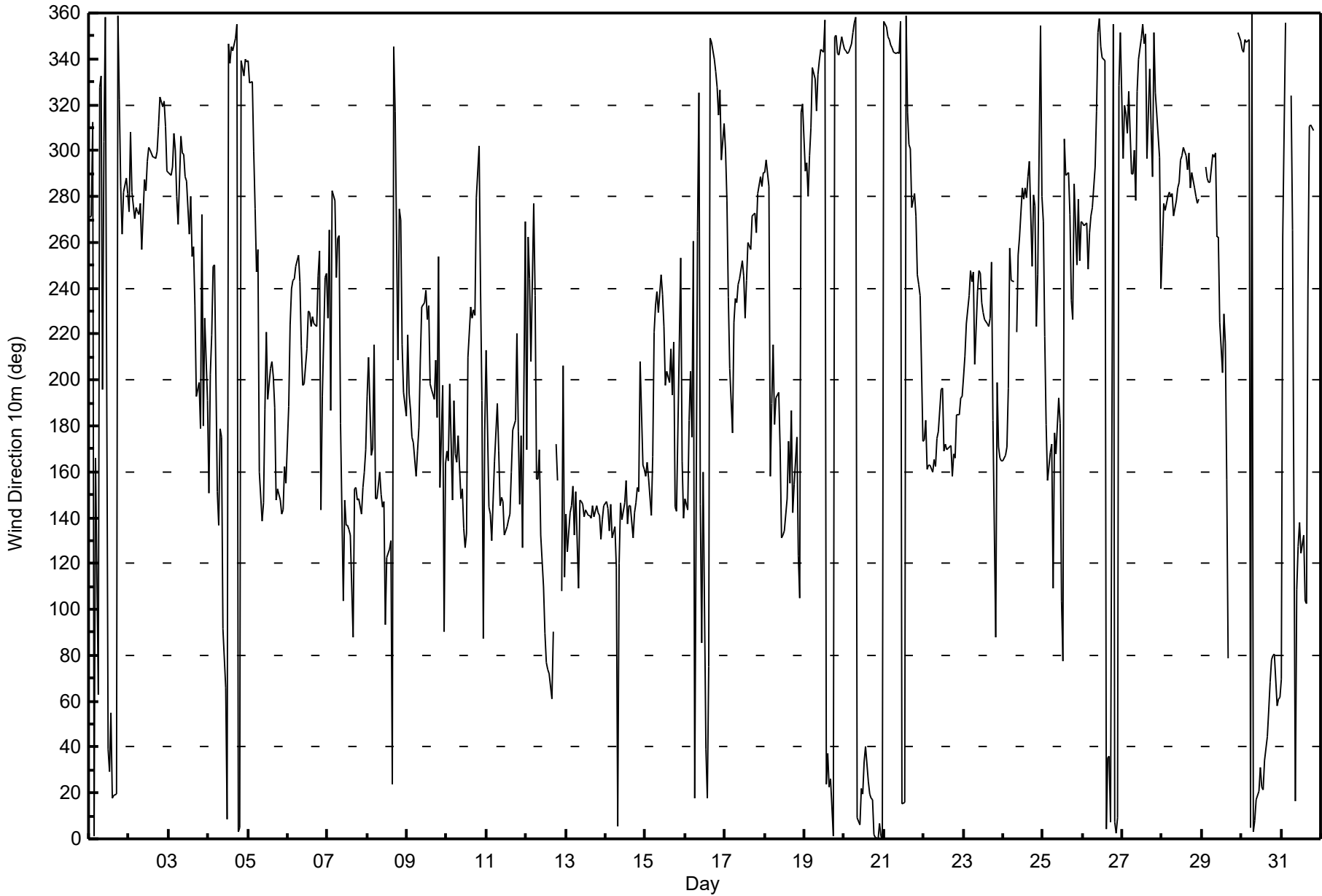
**Wind Direction 10m (WD10) - deg**  
**Waskow ohci Pimatisiwin - October 2024**

Direction of Maximum Speed: 346 deg on Oct 21 05:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 2.4 deg on Oct 20																						Hours of Data: 728			
Direction of Minimum Speed: 156 deg on Oct 12 20:00											Direction of Minimum Daily Speed Average: 0.8 deg on Oct 31											Hours of Missing Data: 16			
Monthly Average Direction: 270.1 deg																						Percent Operational Time: 98.0			
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-Oct	271	271	313	1	166	63	328	333	196	304	358	39	29	55	17	19	20	359	322	284	263	282	288	281	327.3
2-Oct	274	308	282	270	275	273	272	277	257	287	282	295	302	300	297	297	296	300	310	323	319	321	311	291	297.6
3-Oct	290	289	293	307	300	280	268	306	299	298	289	287	264	280	254	258	233	193	199	178	272	180	227	191	276.2
4-Oct	150	202	220	250	250	152	136	179	175	91	66	9	347	338	345	343	349	355	3	5	339	333	340	338	344.3
5-Oct	339	329	330	300	274	247	257	160	139	146	187	221	191	205	208	201	188	148	152	148	141	143	162	155	201.6
6-Oct	189	224	240	243	244	250	255	243	215	198	199	214	230	229	224	228	225	224	246	256	143	193	245	247	229.6
7-Oct	227	265	187	282	278	245	262	263	181	103	148	136	137	135	132	88	153	153	148	148	142	153	160	170	151.9
8-Oct	193	210	167	171	215	148	148	160	150	145	147	93	123	126	130	24	345	318	209	275	270	215	195	184	192.6
9-Oct	220	194	187	175	173	158	169	180	209	232	234	239	227	233	198	196	191	209	184	254	153	198	90	164	206.0
10-Oct	169	164	198	147	191	168	164	176	148	153	135	127	133	210	232	227	230	228	280	302	240	191	87	178	197.4
11-Oct	213	145	141	130	148	165	190	169	145	149	147	132	136	139	141	160	178	182	220	177	146	176	127	269	156.0
12-Oct	169	263	244	208	277	237	157	157	170	133	110	90	77	74	72	61	90	UO	172	156	UO	108	206	114	121.2
13-Oct	141	125	142	145	153	132	151	109	148	147	146	140	144	141	141	140	145	141	146	142	141	131	139	145	142.2
14-Oct	147	144	134	146	131	136	119	5	120	147	139	146	156	137	145	145	131	142	147	153	151	208	163	161	147.4
15-Oct	158	164	157	141	167	221	233	239	229	246	237	224	197	204	199	213	194	217	145	143	216	253	165	140	205.1
16-Oct	148	143	183	204	175	260	18	265	325	146	85	160	39	18	75	349	347	340	334	328	316	326	296	312	331.1
17-Oct	300	278	236	205	177	225	236	234	242	244	252	245	227	244	260	257	272	272	273	264	281	289	284	290	260.7
18-Oct	290	296	285	158	190	215	181	192	195	170	131	132	134	148	173	155	186	142	155	175	123	105	316	320	187.6
19-Oct	291	295	280	298	310	336	331	317	333	339	344	343	357	24	37	23	27	1	350	350	342	342	350	346	347.2
20-Oct	344	343	342	343	347	351	356	358	9	6	22	19	34	40	25	19	17	17	2	1	0	6	1	0	2.4
21-Oct	356	354	350	348	346	345	343	342	343	342	357	15	16	359	317	303	301	275	281	271	246	242	237	173	338.1
22-Oct	174	182	161	163	163	160	165	162	174	177	196	196	169	172	170	170	171	158	168	166	185	185	192	193	174.9
23-Oct	201	211	225	237	248	243	247	207	239	248	246	234	230	226	225	223	227	251	182	88	199	171	166	164	225.9
24-Oct	165	167	171	197	257	243	243	C	221	254	262	284	279	284	280	289	296	250	281	276	223	246	355	280	267.1
25-Oct	269	219	181	156	168	172	110	177	168	193	181	104	78	305	289	290	272	235	226	285	250	279	252	269	242.5
26-Oct	269	267	268	248	264	271	275	293	318	352	358	345	341	339	4	35	36	7	355	8	2	9	328	351	343.7
27-Oct	296	320	316	308	326	290	290	300	278	326	340	349	355	347	351	297	335	310	289	351	325	316	297	240	318.5
28-Oct	258	277	274	280	282	280	281	271	278	284	286	296	298	301	298	292	299	283	290	284	280	277	279	UO	285.7
29-Oct	UO	UO	293	288	286	286	298	297	299	262	263	225	203	229	216	157	79	UO	UO	UO	UO	UO	351	348	--
30-Oct	344	343	348	347	349	5	360	3	8	17	20	31	23	21	34	45	56	68	78	80	80	58	61	62	16.9
31-Oct	70	262	356	UO	UO	UO	324	266	17	109	128	138	125	132	103	102	240	310	311	309	UO	351	UO	215	125.5
278.7 281.6 282.0 278.6 276.2 268.5 275.7 273.3 251.2 253.5 238.0 237.9 215.9 251.6 240.9 254.6 273.4 284.2 283.8 288.1 284.2 287.0 296.4 281.6																									
Diurnal Average																									
C - Calibration UO - Unstable Operation																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



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

**Wind Direction 10m (WD10) - deg**  
**Waskow ohci Pimatisiwin - October 2024**





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

**Wind Direction 10m (WD10) - deg**  
**Waskow ohci Pimatisiwin - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744						
Maximum Value: 108 deg on Oct 31 02:00																			Hours of Data: 728						
Minimum Value: 12 deg on Oct 5 07:00																			Hours of Missing Data: 16						
Percentiles: P <sub>1</sub> = 16 P <sub>10</sub> = 21 Q <sub>1</sub> = 26 Median = 34 Q <sub>3</sub> = 48 P <sub>90</sub> = 68 P <sub>99</sub> = 95																			Hours of Calibration: 1						
																			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-Oct	37	76	63	95	82	80	78	68	91	61	76	48	63	65	59	43	33	29	20	25	25	22	25	25	95
2-Oct	26	23	24	29	32	37	37	44	49	36	39	30	28	28	32	29	29	28	21	23	21	19	19	28	49
3-Oct	38	25	25	22	28	36	45	31	35	30	40	50	81	62	61	57	51	27	26	30	56	63	87	70	87
4-Oct	43	71	66	59	44	58	58	73	72	104	74	58	24	19	19	19	20	23	55	42	18	18	18	19	104
5-Oct	20	19	18	32	26	92	12	44	24	33	80	44	39	50	48	41	36	28	18	22	24	26	32	29	92
6-Oct	42	48	42	43	45	43	49	55	66	55	46	49	50	48	49	48	43	39	30	29	70	86	51	77	86
7-Oct	59	95	55	71	36	55	45	65	68	42	24	24	28	30	30	76	80	33	34	27	26	39	15	16	95
8-Oct	33	25	91	50	94	79	29	32	29	25	31	33	50	43	37	49	32	49	70	37	48	41	39	41	94
9-Oct	41	44	35	44	46	32	33	31	42	48	55	53	53	49	45	43	42	36	27	41	67	41	67	80	80
10-Oct	71	52	63	25	72	31	31	24	26	24	28	28	41	47	45	49	45	37	36	25	46	87	93	73	93
11-Oct	69	57	43	47	43	76	77	26	33	26	26	32	29	31	25	29	31	31	30	36	26	45	52	81	81
12-Oct	60	92	74	80	101	75	48	52	54	43	40	48	42	31	26	37	46	UO	76	101	UO	73	98	51	101
13-Oct	27	39	44	30	33	38	32	68	29	26	27	29	26	28	26	25	26	28	26	30	27	41	30	27	68
14-Oct	24	31	45	59	29	47	73	85	55	25	22	32	27	42	25	34	31	46	33	28	27	31	27	20	85
15-Oct	23	28	23	65	32	48	52	62	51	46	48	51	65	57	48	38	33	24	35	29	27	92	53	27	92
16-Oct	23	37	38	93	81	81	67	63	75	67	65	52	50	58	71	26	16	17	17	21	42	21	32	24	93
17-Oct	58	67	38	46	40	39	37	40	39	44	46	46	40	45	46	46	34	33	39	39	32	27	30	25	67
18-Oct	28	23	72	49	31	39	47	38	41	37	35	31	31	33	34	30	28	34	43	45	59	81	30	17	81
19-Oct	41	55	51	63	58	17	19	32	17	24	33	26	25	33	31	25	27	23	21	23	22	20	22	22	63
20-Oct	19	20	21	21	20	22	25	30	25	26	27	28	30	26	25	22	22	25	21	23	23	24	23	22	30
21-Oct	21	22	20	20	20	20	19	19	19	21	25	31	35	33	20	19	20	31	30	27	31	50	53	38	53
22-Oct	33	42	35	24	32	26	30	28	33	35	43	41	31	33	31	31	31	27	30	29	37	38	37	42	43
23-Oct	43	40	47	43	43	42	51	79	52	46	65	65	41	42	41	42	40	38	85	33	87	24	16	17	87
24-Oct	23	48	80	51	37	31	45	C	58	43	43	34	32	34	29	23	37	16	32	52	52	51	42	80	
25-Oct	95	29	49	25	77	31	66	49	33	61	106	60	39	44	40	28	31	50	75	39	65	78	77	32	106
26-Oct	46	63	30	41	70	57	37	36	18	20	20	20	21	20	23	19	21	15	22	23	27	28	62	46	70
27-Oct	18	37	23	39	19	17	30	27	72	44	28	56	55	29	35	56	48	19	15	20	43	15	75	46	75
28-Oct	42	21	25	26	27	25	15	26	24	26	24	25	22	22	24	25	22	24	24	27	27	28	27	UO	42
29-Oct	UO	UO	23	27	27	25	22	23	25	35	35	40	48	58	48	36	35	UO	UO	UO	UO	UO	UO	19	58
30-Oct	19	18	19	18	21	23	23	23	24	26	26	26	28	29	29	23	22	23	15	16	18	17	19	20	29
31-Oct	20	108	41	UO	UO	UO	51	30	53	41	33	40	33	32	32	45	53	67	26	30	UO	35	UO	38	108
95 108 91 95 101 92 78 85 91 104 106 65 81 65 71 76 80 67 85 101 87 92 98 81																								Diurnal Maximum	
C - Calibration UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS26 CHRISTINA LAKE OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
OCTOBER 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	710	34	34	100	17.4	0	4.2	0
H2S (ppb) Average	709	35	35	100	1	0	0.3	0
NO2 (ppb) Average	708	36	36	100	21.9	0	4.2	-
NO (ppb) Average	708	36	36	100	114.5	-	9.4	-
NOX (ppb) Average	708	36	36	100	136	-	13.1	-
Temperature 2 m (C) Average	744	0	0	100	21.2	-	13.5	-
Relative Humidity (%) Average	744	0	0	100	100	-	97	-
Wind Speed 10 m (km/h) Average	744	0	0	100	23	-	17	-
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 - CHRISTINA LAKE (AMS26)  
OCTOBER 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	0.59	1.3	-	0	0	0.1	0.3	0.6	1.1	17.4
H2S (ppb) Average	709	0.17	0.2	-	0	0	0.1	0.1	0.2	0.4	1
NO2 (ppb) Average	708	2.49	2	-	0.2	0.8	1.2	2.1	3.2	4.7	21.9
NO (ppb) Average	708	1.58	5.6	-	0	0	0.1	0.4	1.3	3.2	114.5
NOX (ppb) Average	708	4.07	7.1	-	0.3	0.9	1.5	2.6	4.5	7.7	136
Temperature 2 m (C) Average	744	3.72	5.3	-	-7.3	-2.3	0.1	3.5	6.9	10.7	21.2
Relative Humidity (%) Average	744	72.91	17.8	-	28.8	47.5	60.5	74.1	88.8	95.6	100
Wind Speed 10 m (km/h) Average	744	11	4	-	1	5	8	11	14	17	23
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
-----------	-----------------	---------------	---------------------	-------

---

No operational issues to report



Wood Buffalo Environmental Association

Summary of Hour Averages

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

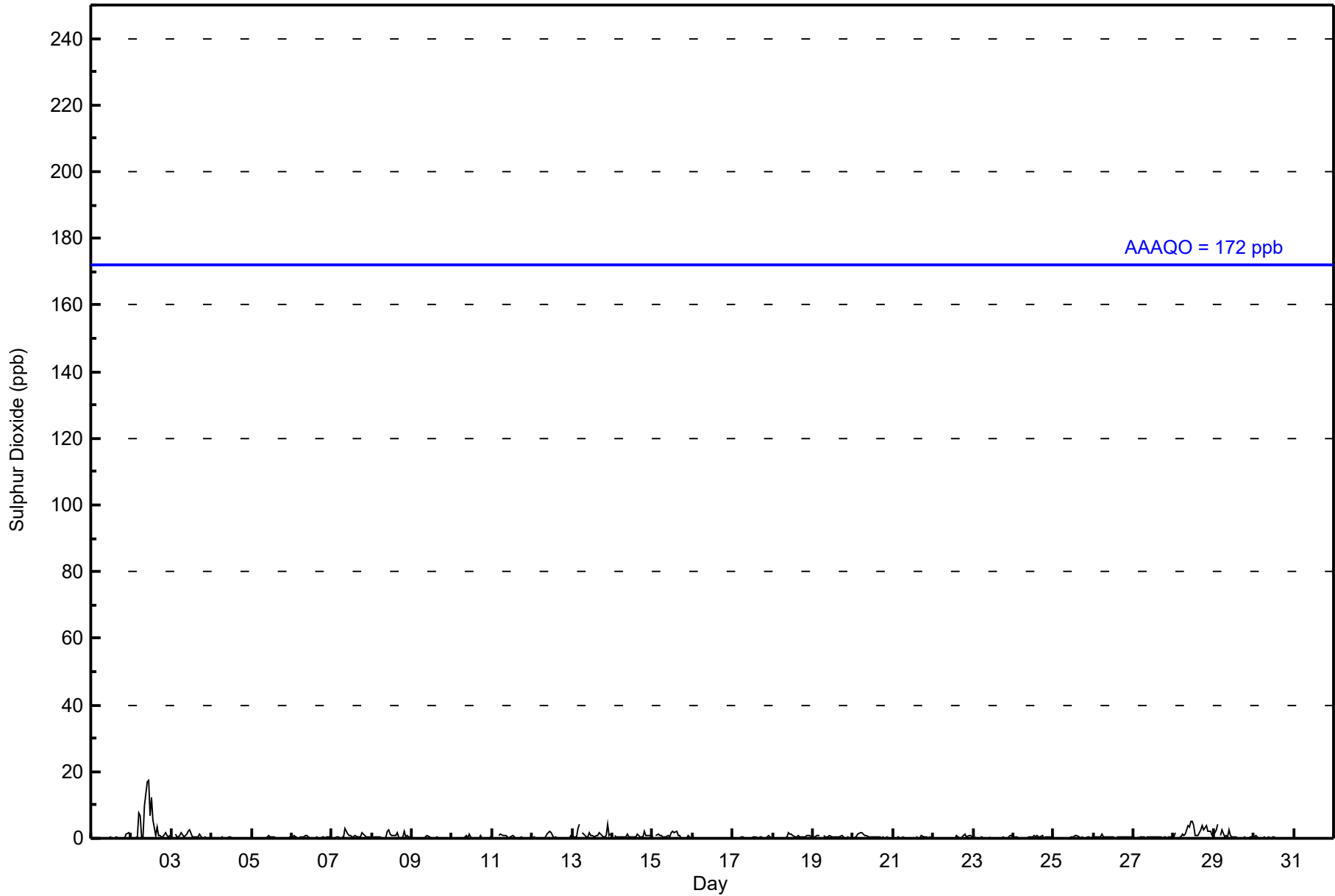
Christina Lake - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 17.4 ppb on Oct 2 11:00		Maximum Daily Average: 4.2 ppb on Oct 2																	Hours of Data:	710																												
Minimum Value: 0.0 ppb on Oct 1 20:00		Minimum Daily Average: 0.0 ppb on Oct 16																	Hours of Missing Data:	34																												
Maximum Diurnal Average: 1.3 ppb at hour 11		Minimum Diurnal Average: 0.3 ppb at hour 8																	Hours of Calibration:	34																												
Monthly Average: 0.59 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> = 0.6 P <sub>90</sub> = 1.1 P <sub>99</sub> = 5.5																	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-Oct	0.2	0.2	0.1	0.2	0.2	Z	0.2	0.1	0.2	0.1	0.2	0.4	0.2	0.2	0.1	0.3	0.1	0.0	0.1	0.0	0.2	1.4	1.5	0.4	0.3	1.5																						
2-Oct	Z	0.2	0.2	0.6	7.8	6.9	0.6	0.5	9.6	17.0	17.4	6.8	12.3	5.5	1.0	3.5	0.7	0.9	0.4	0.5	1.7	0.8	0.5	1.0	4.2	17.4																						
3-Oct	1.3	Z	1.5	0.4	0.5	1.0	1.6	0.3	0.7	1.4	1.9	2.7	0.6	0.4	0.2	0.6	0.5	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.8	2.7																						
4-Oct	0.1	0.1	Z	0.0	0.2	0.0	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.3																					
5-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.6	0.5	0.5	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.3	0.2	0.7																						
6-Oct	0.6	0.8	0.3	0.2	Z	0.2	0.2	0.4	0.8	1.0	0.5	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.3	1.0																						
7-Oct	0.2	0.2	0.1	0.2	0.3	Z	0.3	0.4	3.1	1.2	0.9	1.1	0.5	0.5	0.7	0.6	0.5	0.5	1.8	1.1	0.4	0.5	0.4	0.4	0.7	3.1																						
8-Oct	Z	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.4	2.2	2.7	1.1	0.9	0.9	0.7	1.5	0.3	0.1	0.5	2.0	0.5	0.8	0.5	0.5	0.8	2.7																						
9-Oct	0.3	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.5	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0																						
10-Oct	0.2	0.0	Z	0.1	0.0	0.0	0.2	0.1	0.7	0.2	1.1	0.4	0.2	0.1	0.2	0.1	0.1	0.7	0.0	0.1	0.1	0.0	0.1	0.2	0.2	1.1																						
11-Oct	0.1	0.1	0.2	Z	1.1	1.2	1.0	0.7	1.0	0.4	0.2	0.4	0.6	0.4	0.2	0.1	0.2	0.2	0.0	0.1	0.0	0.2	0.1	0.6	0.4	1.2																						
12-Oct	0.1	0.3	0.1	0.0	Z	0.0	0.1	0.2	0.5	1.2	1.9	1.8	0.7	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.8	0.4	1.9																						
13-Oct	0.5	0.2	0.3	3.0	4.4	Z	1.6	0.7	0.6	0.4	1.7	0.8	0.8	0.4	0.7	0.6	1.8	1.1	0.2	0.3	0.9	4.2	0.9	1.3	1.2	4.4																						
14-Oct	Z	1.0	0.4	0.4	0.5	0.3	0.3	0.3	0.6	1.3	0.3	0.4	0.5	0.6	0.5	1.2	0.4	0.5	0.5	2.0	0.9	0.7	0.9	0.6	0.7	2.0																						
15-Oct	0.7	Z	0.9	1.3	1.0	0.8	0.6	0.3	0.3	1.0	0.6	1.6	2.0	1.5	1.9	0.8	0.7	0.1	0.1	0.0	0.0	0.8	0.3	0.1	0.8	2.0																						
16-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1																						
17-Oct	0.0	0.1	0.1	Z	0.4	0.2	0.3	0.1	0.1	0.0	0.1	0.2	0.3	0.4	0.4	0.2	0.6	0.5	0.1	0.0	0.0	0.7	0.3	0.0	0.2	0.7																						
18-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.6	1.6	1.5	1.2	0.7	0.4	0.4	0.7	0.5	0.3	0.4	0.5	0.8	1.0	0.7	0.6	0.5	1.6																						
19-Oct	0.5	0.5	0.7	0.7	0.7	Z	0.7	0.6	0.4	0.4	0.8	0.5	0.3	0.3	0.4	0.5	0.5	0.7	0.3	0.1	0.2	0.3	0.1	0.3	0.5	0.8																						
20-Oct	Z	0.2	0.5	1.2	1.8	1.6	1.2	0.8	0.7	0.5	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.6	1.8																						
21-Oct	0.3	Z	0.3	0.3	0.2	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.7	0.6	0.6	0.4	0.2	0.3	0.0	0.2	0.7																						
22-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8	0.6	0.2	0.5	1.0	1.2	0.4	0.7	0.8	0.3	1.2																						
23-Oct	0.3	0.2	0.6	Z	0.3	0.3	0.2	0.2	0.1	0.2	0.2	C	C	C	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.5	0.9	0.8	0.3	0.9																						
24-Oct	0.3	0.3	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.8	0.5	0.8	0.6	0.3	0.7	0.2	0.5	0.3	0.4	0.6	0.0	0.4	0.8																						
25-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.5	0.4	0.3	1.0	1.0	0.4	0.1	0.2	0.1	0.1	0.3	0.3	0.2	0.5	0.3	1.0																						
26-Oct	Z	0.2	0.2	0.2	0.3	1.1	0.6	0.4	0.3	0.2	0.3	0.3	0.3	0.1	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	1.1																						
27-Oct	0.3	Z	0.3	0.2	0.2	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	0.2	0.3	0.2	0.3	0.3	0.4	0.4																						
28-Oct	0.5	1.7	Z	0.5	0.6	1.4	0.7	1.1	3.9	3.2	4.9	5.2	3.9	1.0	0.9	1.8	2.4	3.9	2.4	4.0	2.0	1.9	1.9	0.6	2.2	5.2																						
29-Oct	1.0	2.6	4.1	Z	0.8	2.5	0.5	0.7	0.5	2.6	1.0	0.5	0.3	0.4	0.2	0.1	0.1	0.0	0.3	0.1	0.1	0.0	0.2	0.4	0.8	4.1																						
30-Oct	0.6	0.8	0.4	0.1	Z	0.1	0.2	0.1	0.2	0.3	0.2	0.4	0.4	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.8																						
31-Oct	0.1	0.0	0.0	0.0	0.0	Z	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	0.0	0.1	0.1	0.1	0.0	0.0	0.1																						
																								0.3	0.4	0.5	0.4	0.8	0.7	0.4	0.3	0.9	1.3	1.3	1.0	1.0	0.6	0.4	0.5	0.4	0.5	0.3	0.5	0.3	0.5	0.4	0.4	Diurnal Average
																								1.3	2.6	4.1	3.0	7.8	6.9	1.6	1.1	9.6	17.0	17.4	6.8	12.3	5.5	1.9	3.5	2.4	3.9	2.4	4.0	2.0	4.2	1.9	1.3	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**  
**Christina Lake - October 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - October 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	3	0.42	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: 710

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - October 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	23	10	19	33	44	27	16	44	59	81	66	127	88	32	24	14	707
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
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>	23	10	19	33	44	27	16	44	59	81	66	127	88	34	25	14	710

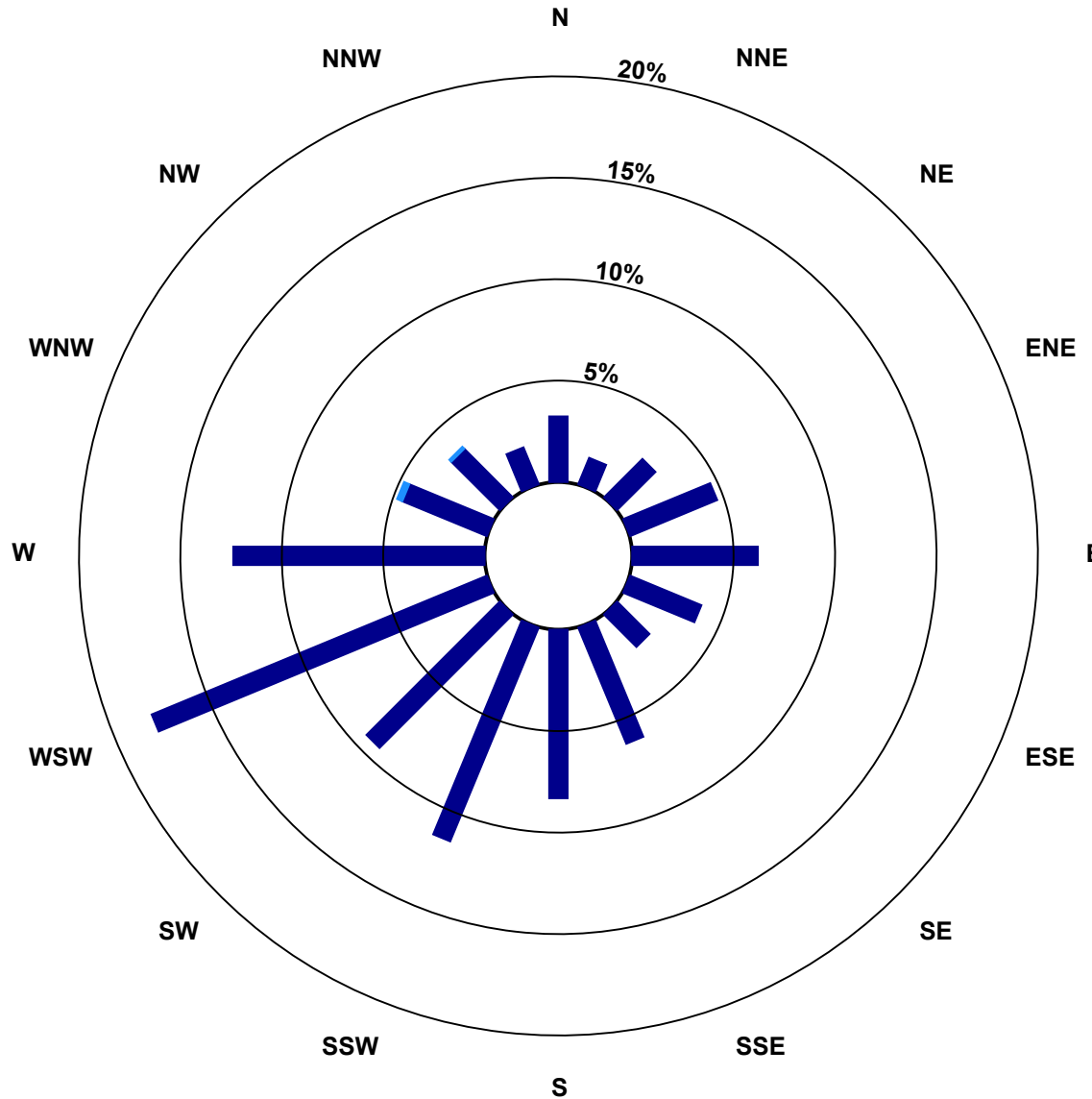
Total Number of Valid Hours: 710

Total Number of Hours: 744

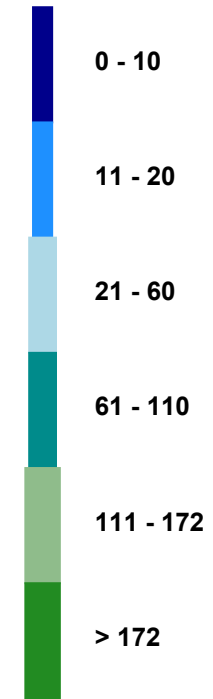


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

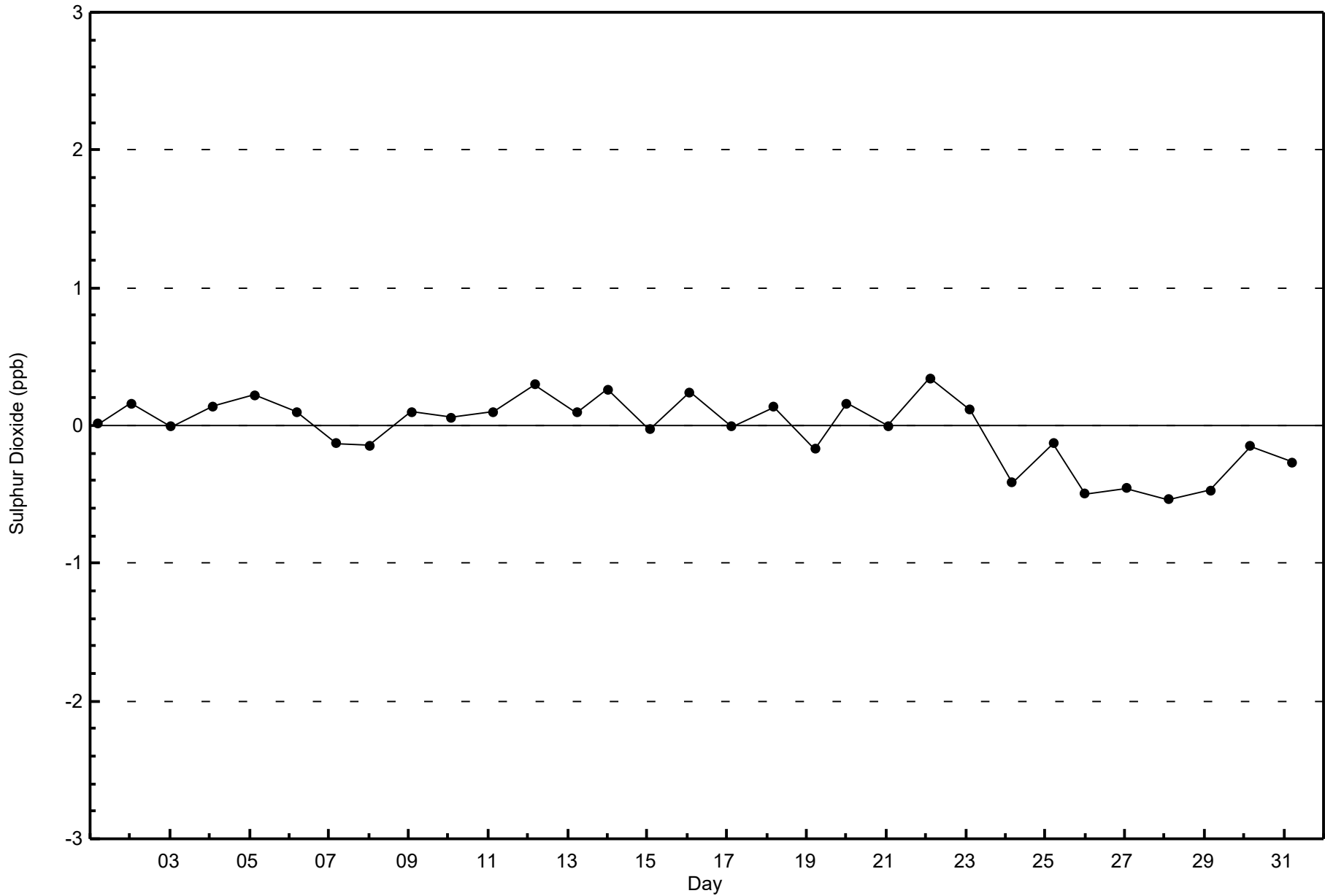
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Christina Lake

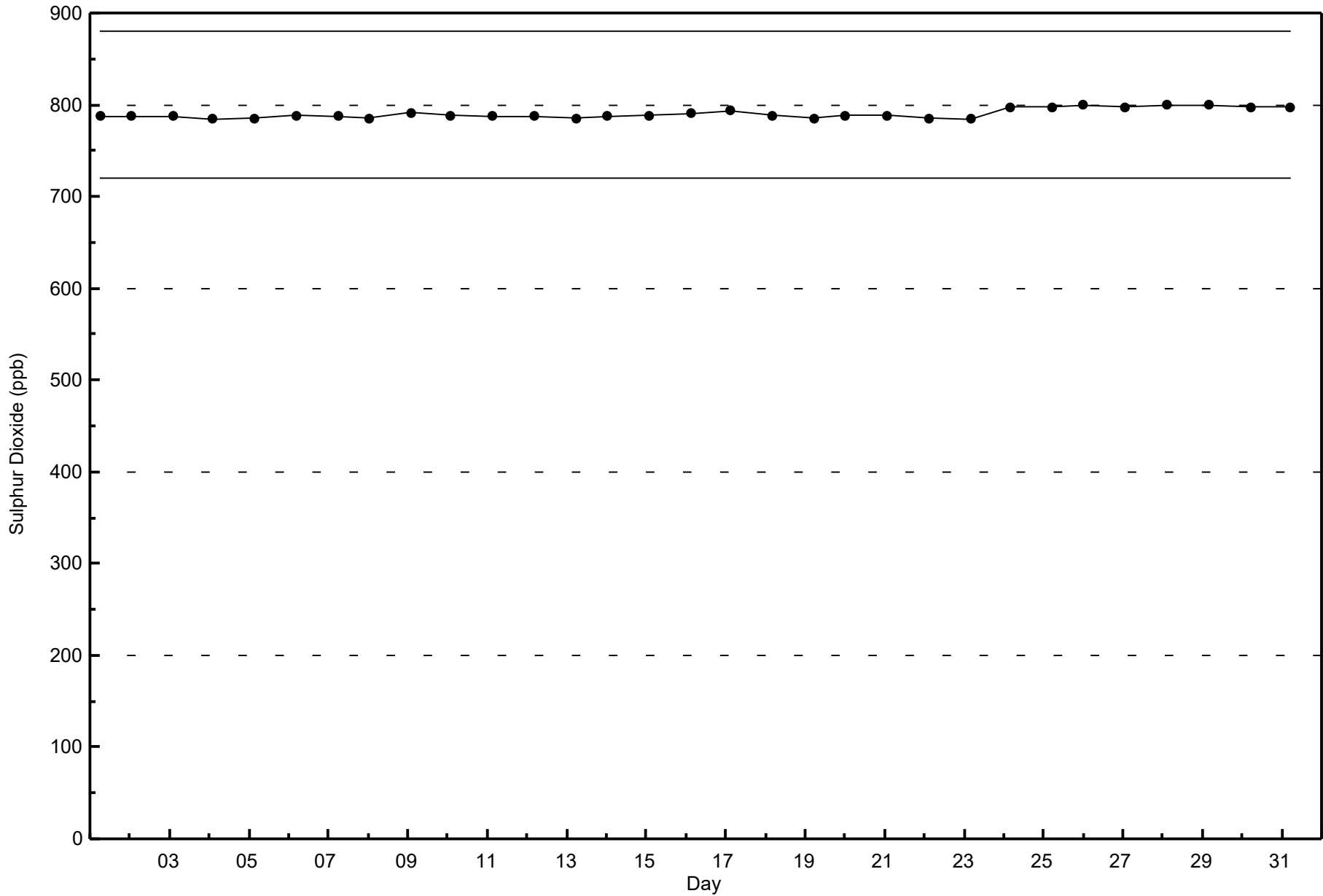


Classes (ppb)



Total Number of Valid Hours: 710









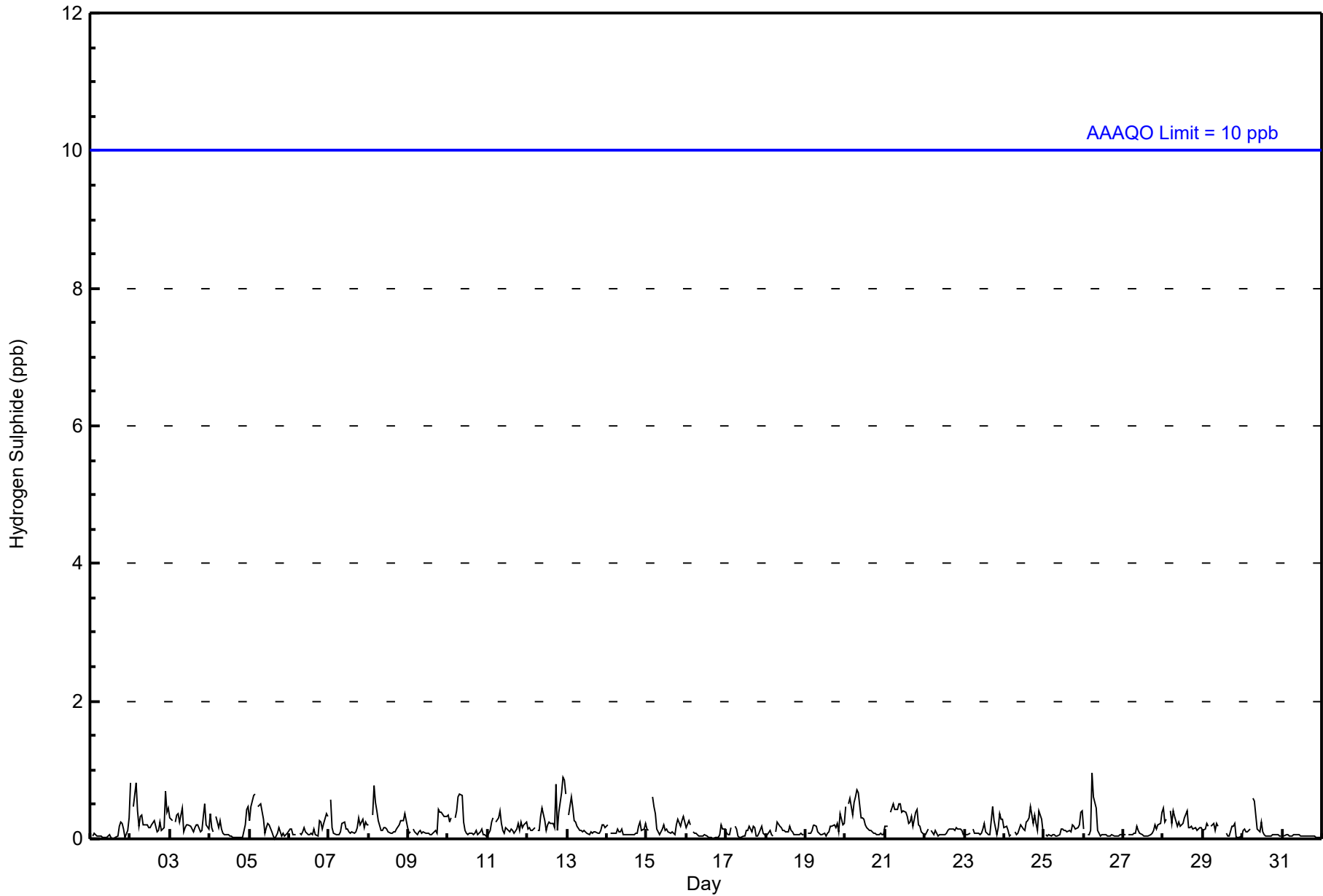
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Christina Lake - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 1.0 ppb on Oct 26 06:00		Maximum Daily Average: 0.3 ppb on Oct 12																	Hours of Data: 709							
Minimum Value: 0.0 ppb on Oct 1 14:00		Minimum Daily Average: 0.0 ppb on Oct 31																	Hours of Missing Data: 35							
Maximum Diurnal Average: 0.2 ppb at hour 4		Minimum Diurnal Average: 0.1 ppb at hour 16																	Hours of Calibration: 35							
Monthly Average: 0.17 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> = 0.4 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-Oct	Z	0.0	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	0.0	0.2	0.2	0.2	0.1	0.0	0.1	0.3	0.1	0.3
2-Oct	0.8	Z	0.5	0.8	0.4	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.7	0.4	0.4	0.3	0.3	0.8
3-Oct	0.3	0.3	Z	0.2	0.3	0.4	0.2	0.4	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.5	0.2	0.1	0.2	0.2	0.5
4-Oct	0.4	0.2	0.1	Z	0.3	0.2	0.3	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	0.2	0.4	0.5	0.1	0.1	0.5
5-Oct	0.3	0.5	0.6	0.6	Z	0.5	0.5	0.5	0.3	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.1	0.1	0.2	0.6
6-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.2	0.1	0.2	0.4	0.3	0.1	0.4
7-Oct	Z	0.6	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	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.6
8-Oct	0.2	Z	0.3	0.8	0.5	0.4	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.2	0.2	0.8
9-Oct	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	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.4
10-Oct	0.3	0.2	0.3	Z	0.3	0.4	0.6	0.6	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.6
11-Oct	0.0	0.1	0.2	0.3	Z	0.3	0.3	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.4
12-Oct	0.1	0.2	0.1	0.1	0.2	Z	0.1	0.1	0.3	0.4	0.3	0.1	0.2	0.3	0.2	0.2	0.2	0.8	0.1	0.4	0.7	0.9	0.9	0.7	0.3	0.9
13-Oct	Z	0.3	0.6	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	0.1	0.2	0.2	0.2	0.2	0.2	0.6
14-Oct	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	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2
15-Oct	0.1	0.1	Z	0.6	0.5	0.4	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	0.3	0.2	0.3	0.3	0.2	0.2	0.6
16-Oct	0.2	0.3	0.2	Z	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	0.1	0.2	0.1	0.1	0.1	0.3
17-Oct	0.1	0.1	0.1	0.2	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2
18-Oct	0.0	0.1	0.1	0.1	0.0	Z	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
19-Oct	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.4	0.2	0.2	0.1	0.4
20-Oct	0.5	Z	0.5	0.6	0.3	0.5	0.6	0.7	0.7	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	0.7
21-Oct	0.2	0.2	Z	0.4	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.4	0.4	0.2	0.2	0.1	0.1	0.3	0.5
22-Oct	0.1	0.1	0.1	Z	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	0.2	0.1	0.1	0.1	0.1	0.1	0.2
23-Oct	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.5	0.3	0.1	0.2	0.4	0.3	0.3	0.2	0.5
24-Oct	0.2	0.2	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.5	0.2	0.4	0.2	0.1	0.4	0.3	0.1	0.2	0.5
25-Oct	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.4	0.4	0.4
26-Oct	0.2	Z	0.1	0.1	0.1	1.0	0.6	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.0
27-Oct	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.4	0.1	0.4
28-Oct	0.5	0.2	0.3	Z	0.4	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.5
29-Oct	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.2	C	C	C	C	0.1	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.2
30-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.6	0.6	0.3	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.6
31-Oct	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
																								Diurnal Average		
																								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**  
**Christina Lake - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	709	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: 709

Total Number of Hours: 744



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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Christina Lake - October 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	10	19	32	45	25	17	45	58	83	66	127	84	35	25	14	709
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	10	19	32	45	25	17	45	58	83	66	127	84	35	25	14	709

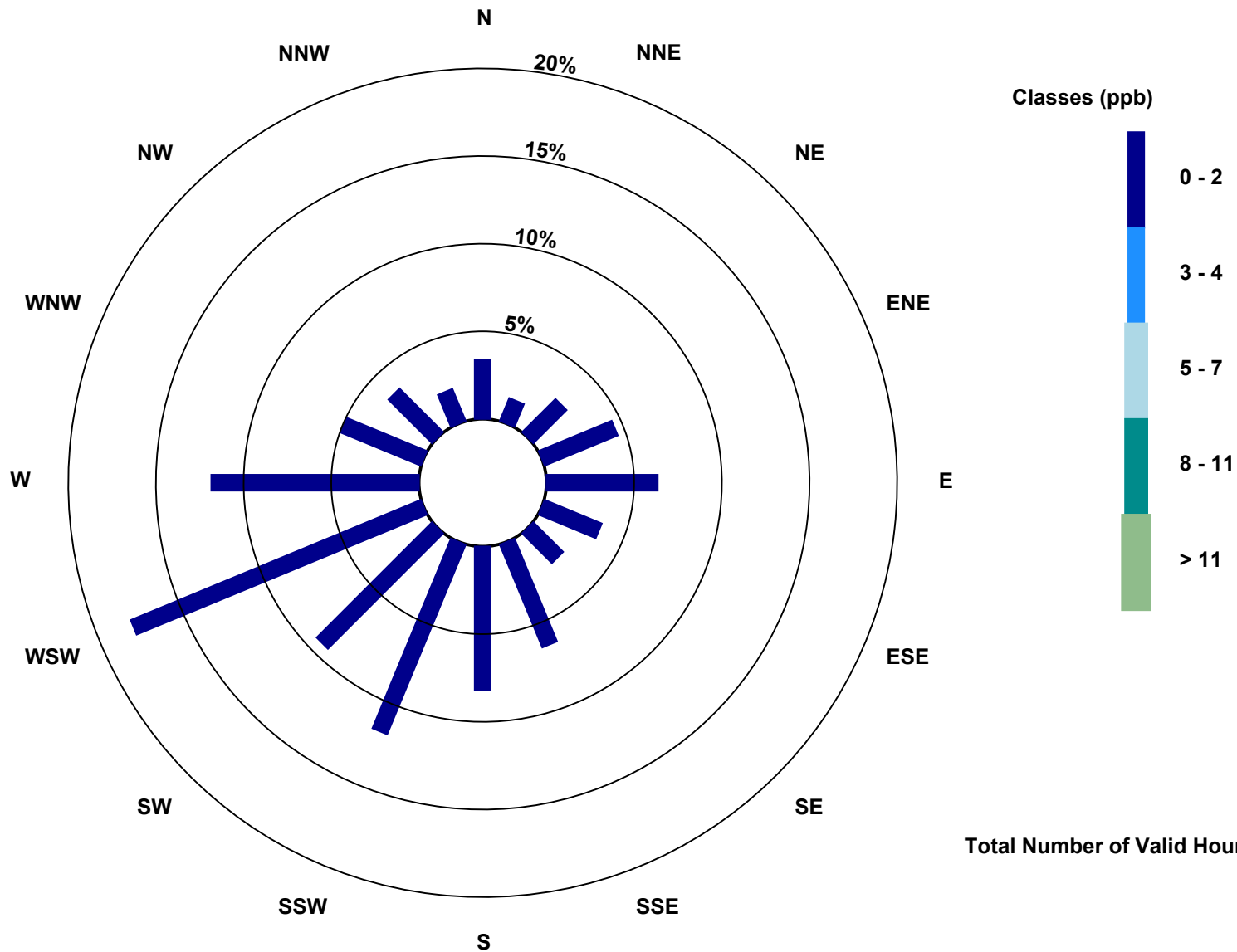
Total Number of Valid Hours: 709

Total Number of Hours: 744

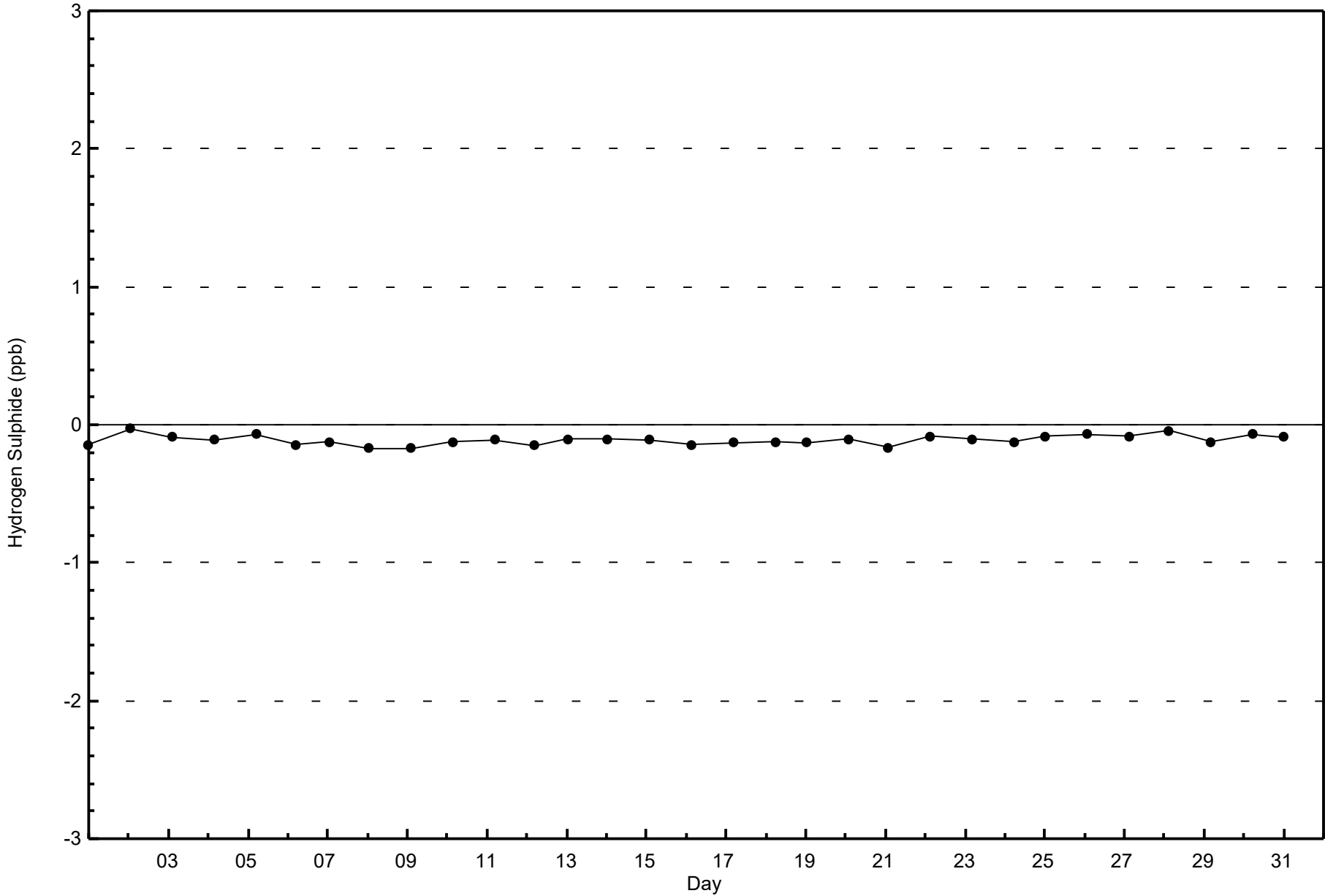


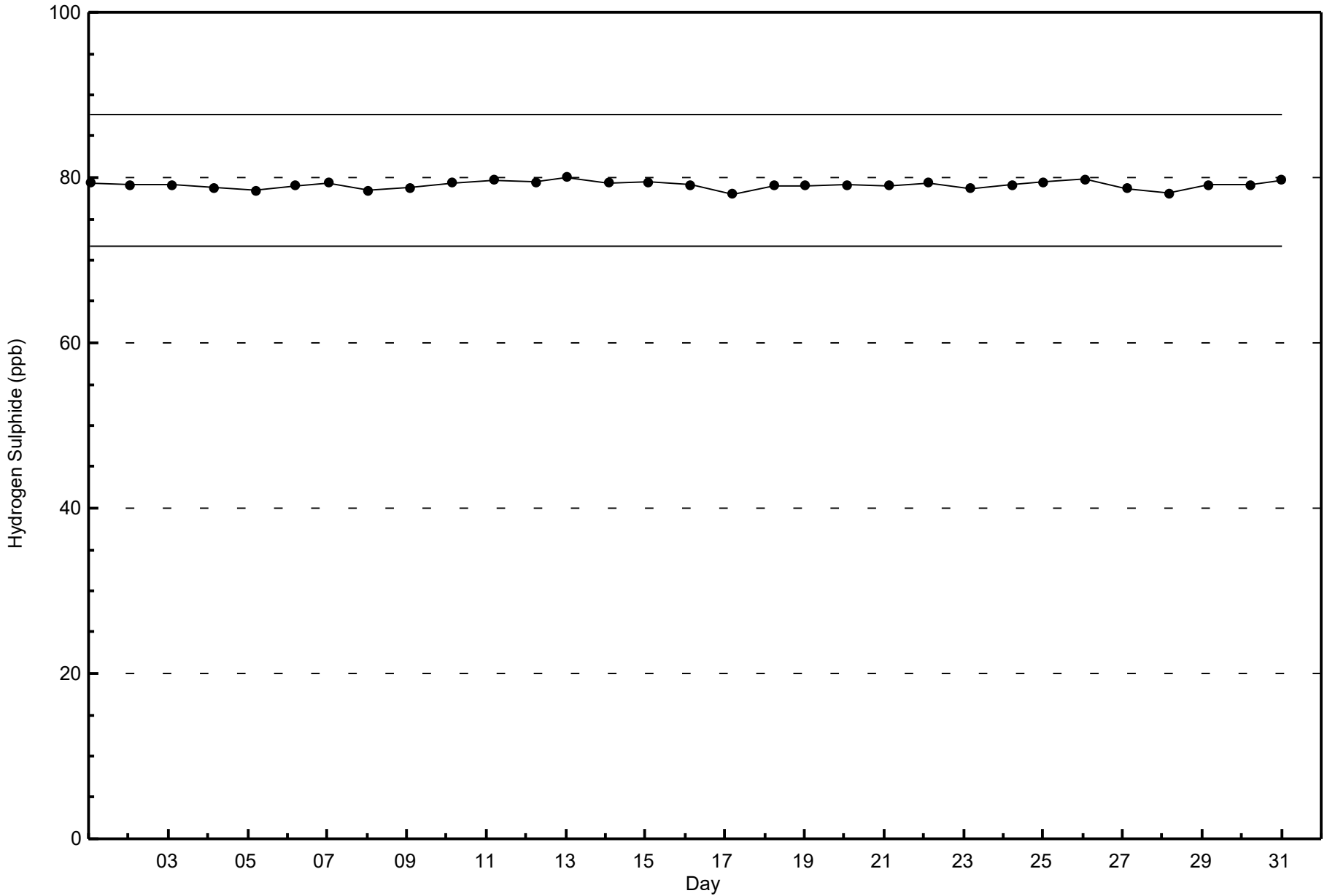
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 709







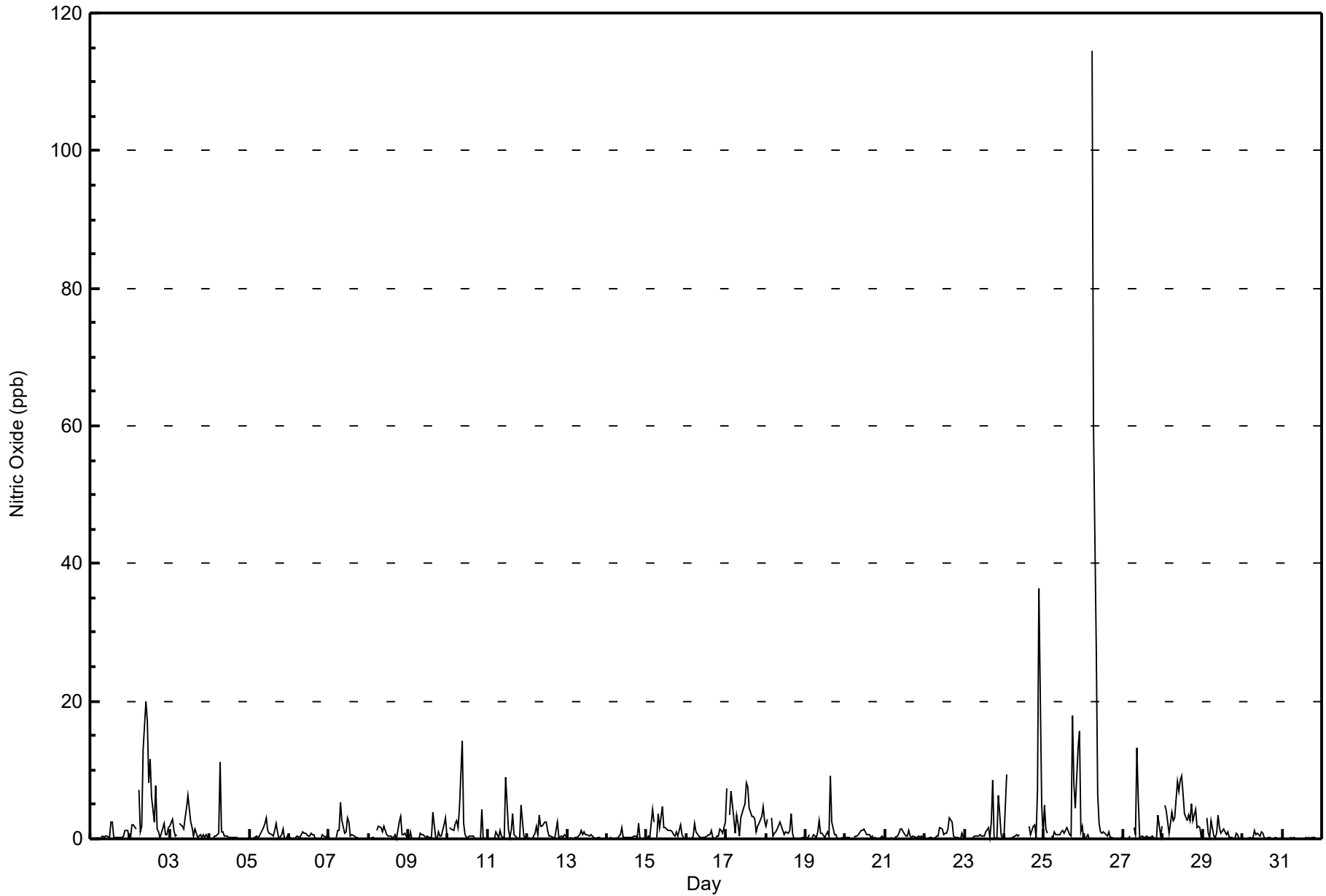
Maximum Value: 114.5 ppb on Oct 26 06:00																								Maximum Daily Average: 9.4 ppb on Oct 26																								Hours in Service: 744	
Minimum Value: 0.0 ppb on Oct 9 01:00																								Minimum Daily Average: 0.1 ppb on Oct 31																								Hours of Data: 708	
Maximum Diurnal Average: 5.5 ppb at hour 6																								Minimum Diurnal Average: 0.5 ppb at hour 24																								Hours of Missing Data: 36	
Monthly Average: 1.58 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> = 1.3 P <sub>90</sub> = 3.2 P <sub>99</sub> = 15.6																								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-Oct	0.0	0.0	0.0	Z	0.3	0.1	0.2	0.3	0.2	0.4	0.4	0.3	2.5	2.5	0.2	0.2	0.1	0.1	0.1	0.2	0.3	1.2	1.2	0.1	0.5	2.5																							
2-Oct	0.2	2.1	1.9	1.4	Z	7.1	1.0	1.9	13.0	19.8	17.1	8.0	11.6	6.1	2.5	7.7	1.3	1.0	0.2	0.9	2.2	0.6	0.6	1.7	4.8	19.8																							
3-Oct	1.9	2.8	1.1	0.4	0.7	Z	2.1	1.7	1.3	3.1	4.4	6.3	2.5	1.7	0.4	1.4	0.8	0.2	0.6	0.1	0.5	0.1	0.7	0.1	1.5	6.3																							
4-Oct	Z	0.1	0.0	0.3	0.4	0.9	11.1	1.1	1.0	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.7	11.1																							
5-Oct	0.1	Z	0.1	0.2	0.3	0.2	0.4	0.8	1.7	2.3	3.0	1.2	0.7	0.7	0.3	1.2	2.2	1.0	0.1	0.5	1.4	0.1	0.1	0.4	0.8	3.0																							
6-Oct	0.1	0.1	Z	0.1	0.2	0.4	0.3	0.6	1.1	0.9	0.7	0.3	0.3	0.7	0.7	0.6	0.1	0.0	0.1	0.0	0.6	0.4	0.2	0.9	0.4	1.1																							
7-Oct	0.0	0.1	0.0	Z	0.1	1.1	1.3	5.2	2.6	0.9	1.0	3.0	2.5	0.3	0.7	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.2																							
8-Oct	0.0	0.0	0.2	0.1	Z	1.3	1.9	1.5	1.1	1.8	1.2	0.6	0.5	0.3	0.2	0.3	0.6	0.1	2.5	3.2	0.6	0.5	0.7	0.0	0.8	3.2																							
9-Oct	0.0	1.0	0.0	0.0	0.0	Z	0.1	0.8	0.5	0.5	0.3	0.3	0.3	0.2	0.3	3.8	0.1	0.1	0.9	0.3	0.4	2.1	3.1	0.5	0.7	3.8																							
10-Oct	Z	1.7	1.3	1.3	2.2	2.6	1.6	4.5	14.3	2.2	0.7	0.2	0.2	0.5	0.4	0.4	0.1	0.0	0.1	0.0	4.2	0.0	0.0	0.0	1.7	14.3																							
11-Oct	0.1	Z	0.0	0.0	0.1	1.1	0.3	1.2	0.5	0.2	0.1	9.0	1.3	0.2	1.3	3.6	0.7	0.2	0.1	0.1	4.9	2.6	0.4	0.0	1.2	9.0																							
12-Oct	0.0	0.3	Z	0.0	0.8	1.8	0.6	3.4	1.7	1.8	2.4	2.5	1.2	0.4	0.5	0.3	0.0	1.3	2.5	0.2	0.4	0.3	0.5	0.4	1.0	3.4																							
13-Oct	0.0	0.0	0.1	Z	0.2	0.2	0.1	0.5	1.2	0.7	0.9	0.7	0.6	0.4	0.7	0.3	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.3	1.2																							
14-Oct	0.1	0.0	0.2	0.1	Z	0.2	0.0	0.3	0.5	1.6	0.3	0.1	0.1	0.2	0.2	0.2	0.5	0.4	0.3	2.1	0.1	0.0	0.1	0.2	0.3	2.1																							
15-Oct	0.0	0.4	0.1	4.3	2.4	Z	0.1	3.6	1.5	4.7	1.5	1.6	1.4	1.3	1.2	1.0	0.6	0.3	1.1	0.5	2.0	0.5	0.2	0.0	1.3	4.7																							
16-Oct	Z	0.1	0.1	0.1	0.4	2.3	1.1	0.5	0.2	0.2	0.1	0.2	0.4	0.5	0.5	1.1	0.2	0.1	0.4	0.4	1.4	1.3	0.9	2.4	0.6	2.4																							
17-Oct	7.3	Z	3.4	6.9	3.1	0.8	3.5	2.3	0.5	3.0	4.5	5.1	8.2	7.6	4.5	3.2	3.4	2.9	1.0	1.9	2.2	3.2	4.6	2.6	3.7	8.2																							
18-Oct	1.7	2.9	Z	3.1	0.3	0.8	1.0	1.5	2.5	1.9	1.2	0.7	1.0	0.9	1.2	3.6	0.9	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.1	3.6																							
19-Oct	0.0	0.2	0.6	Z	0.3	0.6	0.2	1.0	2.7	0.8	0.8	0.3	0.5	1.0	0.3	9.1	2.5	0.6	0.5	0.0	0.0	0.1	0.2	0.2	1.0	9.1																							
20-Oct	0.3	0.3	0.1	0.1	Z	0.3	0.5	0.4	0.6	1.2	1.1	1.4	0.9	0.6	0.7	0.3	0.3	0.0	0.1	0.1	0.0	0.1	0.4	0.1	0.4	1.4																							
21-Oct	0.0	0.0	0.1	0.1	0.1	Z	0.2	0.3	0.8	1.4	1.4	1.0	0.5	0.4	1.1	0.5	0.2	0.5	0.1	0.2	0.5	0.2	0.4	0.0	0.4	1.4																							
22-Oct	Z	0.1	0.1	0.1	0.1	0.0	0.3	0.5	0.4	1.6	1.4	0.6	0.8	0.9	1.4	3.1	2.4	0.4	0.3	0.1	0.1	0.0	0.9	0.3	0.7	3.1																							
23-Oct	0.0	Z	0.0	0.0	0.1	0.1	0.4	0.4	0.4	0.7	0.5	0.4	0.5	1.1	1.6	0.2	2.4	8.5	0.3	0.0	6.3	3.6	0.6	0.1	1.2	8.5																							
24-Oct	0.0	9.4	Z	0.0	0.1	0.2	0.4	0.7	0.4	0.6	C	C	C	C	C	1.8	0.7	1.8	2.0	0.3	7.0	36.4	4.8	0.6	3.7	36.4																							
25-Oct	4.9	1.4	0.8	Z	0.4	0.2	0.9	0.6	0.7	0.7	1.1	1.3	0.9	1.3	1.7	0.6	0.3	18.0	7.8	4.6	13.3	15.7	1.0	1.8	3.5	18.0																							
26-Oct	0.0	0.0	0.5	0.0	Z	114.5	60.1	27.5	6.6	2.3	1.0	0.8	1.0	0.6	0.5	1.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	9.4	114.5																							
27-Oct	0.1	0.0	0.0	0.0	0.4	Z	1.7	0.5	13.3	5.6	0.2	0.4	0.2	0.2	0.3	0.1	0.2	0.4	0.3	0.0	0.1	3.5	0.3	1.8	1.3	13.3																							
28-Oct	Z	4.9	4.1	0.7	2.2	4.0	2.6	3.0	8.3	6.8	8.6	9.1	6.4	3.6	2.6	3.4	2.7	5.1	2.6	4.3	1.6	1.8	1.6	0.3	3.9	9.1																							
29-Oct	0.7	Z	3.0	0.8	0.3	2.7	0.5	0.2	0.9	3.5	1.7	0.9	1.4	1.0	0.5	1.0	0.2	0.2	0.0	0.1	0.9	0.5	0.0	0.1	0.9	3.5																							
30-Oct	0.0	0.1	Z	0.0	0.2	0.1	0.3	1.1	0.6	0.9	0.5	1.0	0.8	0.3	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.3	1.1																							
31-Oct	0.3	0.0	0.0	Z	0.0	0.2	0.0	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.3																							
																								0.7	1.1	0.7	0.8	0.6	5.5	3.1	2.2	2.6	2.3	2.0	1.9	1.6	1.2	0.9	1.6	0.8	1.4	0.8	0.7	1.7	2.4	0.8	0.5	Diurnal Average	
																								7.3	9.4	4.1	6.9	3.1	114.5	60.1	27.5	14.3	19.8	17.1	9.1	11.6	7.6	4.5	9.1	3.4	18.0	7.8	4.6	13.3	36.4	4.8	2.6	Diurnal Maximum	
Z - zerospan																								C - Calibration																									





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

**Nitric Oxide (NO) - ppb**  
**Christina Lake - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Christina Lake - October 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	2	0.28	99.72
11 - 80	1	0.14	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  
Christina Lake - October 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	11	18	33	43	25	18	45	58	82	63	128	84	33	25	14	704
21 - 40	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11 - 80	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	11	19	33	44	26	18	45	58	83	63	128	84	33	25	14	708

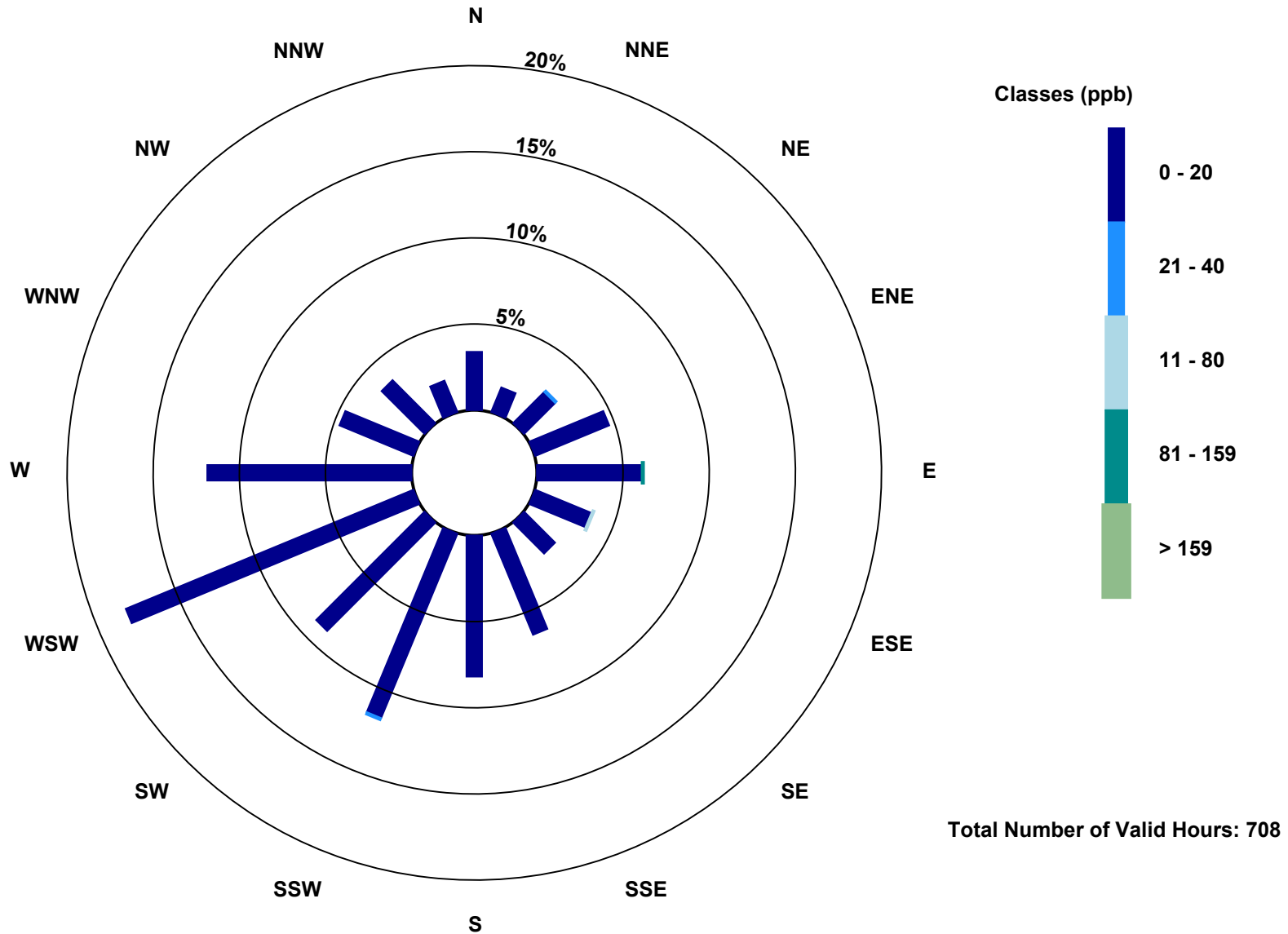
Total Number of Valid Hours: 708

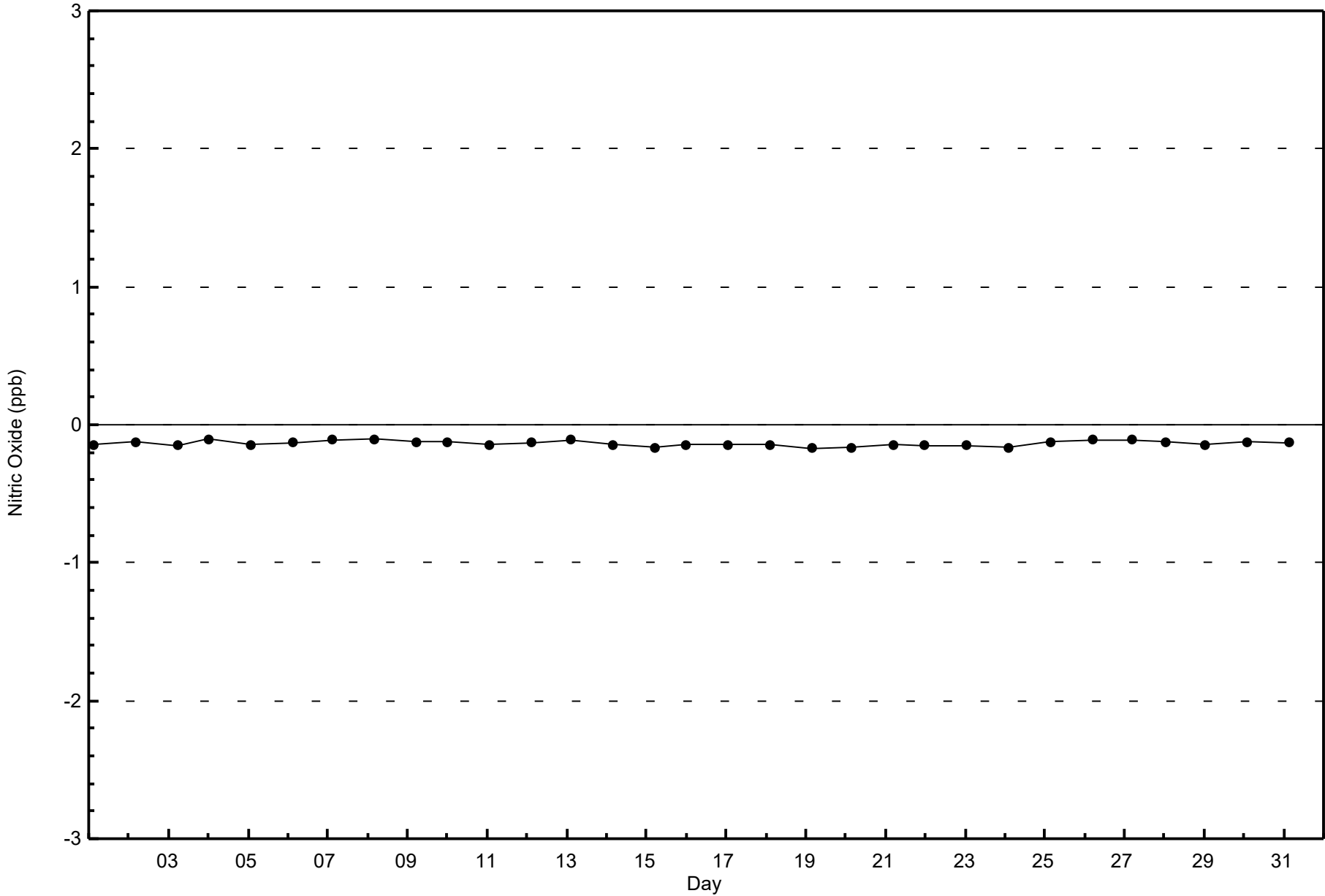
Total Number of Hours: 744

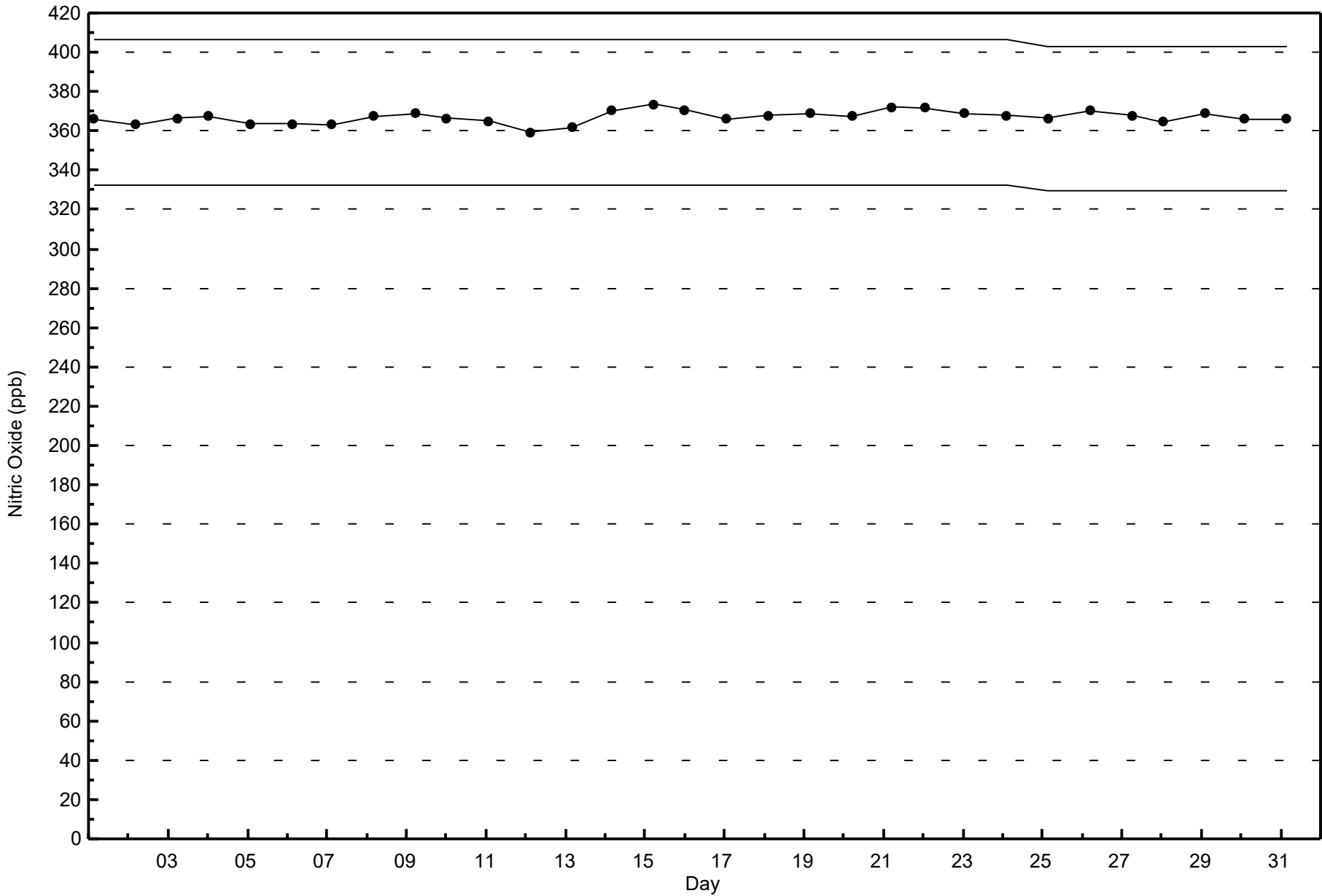


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Christina Lake









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

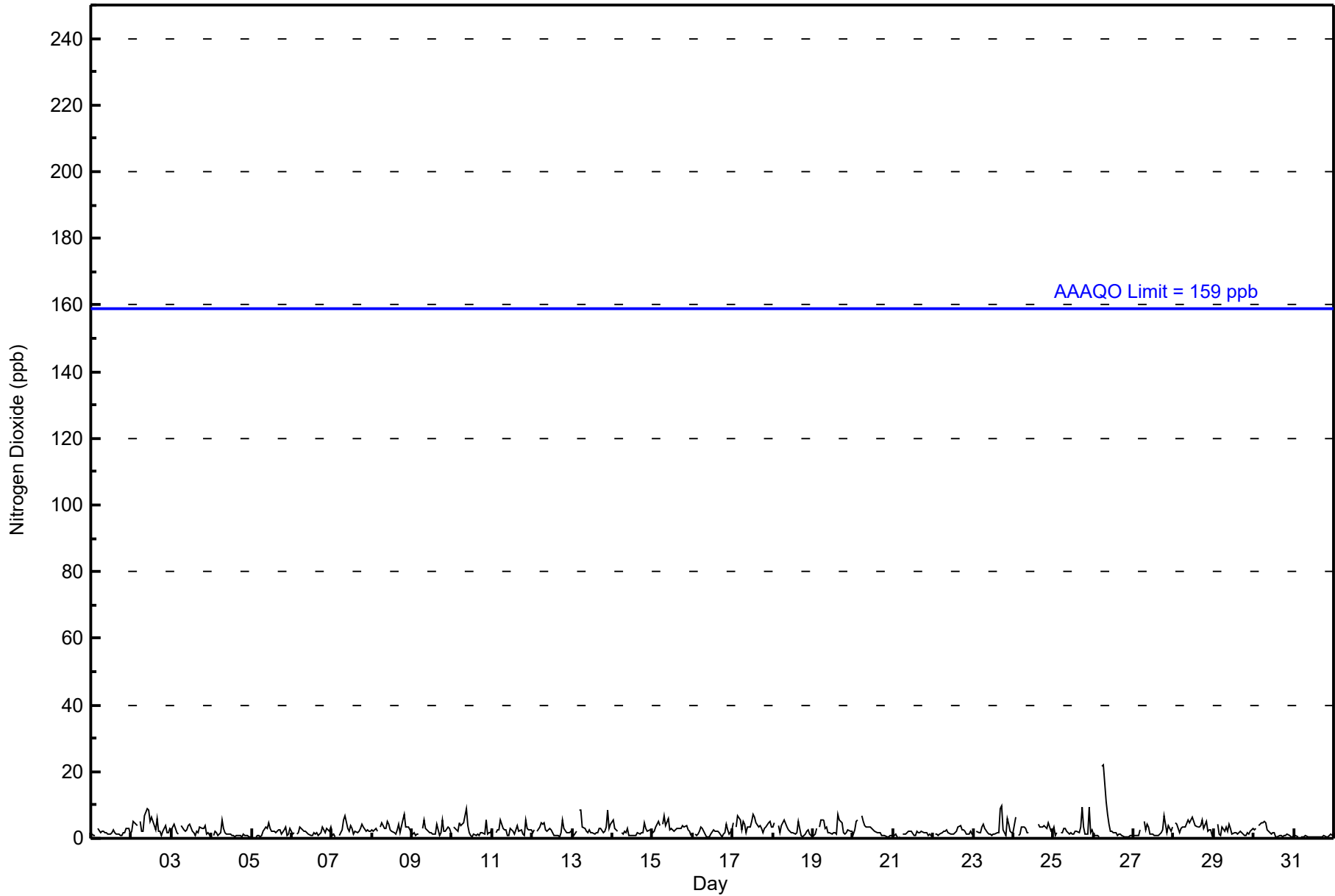
**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - October 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 21.9 ppb on Oct 26 07:00		Maximum Daily Average: 4.2 ppb on Oct 17		Hours of Data: 708														Hours of Missing Data: 36		Hours of Calibration: 36							
Minimum Value: 0.2 ppb on Oct 21 04:00		Minimum Daily Average: 0.6 ppb on Oct 31		Hours of Calibration: 36														Percent Operational Time: 100.0									
Maximum Diurnal Average: 4.1 ppb at hour 6		Minimum Diurnal Average: 1.7 ppb at hour 15		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.2 Median = 2.1 Q <sub>3</sub> = 3.2 P <sub>90</sub> = 4.7 P <sub>99</sub> = 9.0																							
Monthly Average: 2.49 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-Oct	1.1	0.9	1.0	Z	2.8	1.7	2.0	2.3	1.5	1.6	1.3	1.2	1.9	2.6	1.6	1.1	1.1	0.9	1.0	1.9	1.9	2.8	3.1	1.2	1.7	3.1	
2-Oct	2.2	5.0	4.7	3.9	Z	5.2	2.2	2.2	6.8	9.0	8.5	5.1	6.5	4.9	2.5	5.8	2.3	2.3	0.8	2.3	3.7	1.9	1.7	2.8	4.0	9.0	
3-Oct	2.7	4.3	2.8	1.5	1.2	Z	4.0	2.7	2.2	2.4	3.9	4.4	2.3	1.6	0.7	2.3	1.8	3.4	2.8	2.9	3.7	1.3	1.7	0.5	2.5	4.4	
4-Oct	Z	0.9	2.0	1.6	1.0	1.5	5.6	3.0	1.9	1.1	1.1	1.1	0.7	0.7	0.6	0.7	0.9	0.8	0.5	1.2	0.9	0.8	0.6	0.5	1.3	5.6	
5-Oct	0.5	Z	0.5	0.8	0.8	0.6	1.0	2.3	3.3	3.0	4.6	2.9	2.3	2.1	1.6	2.0	2.6	2.7	1.1	2.7	3.5	0.8	1.4	2.9	2.0	4.6	
6-Oct	1.3	1.5	Z	1.3	1.5	3.2	2.4	2.0	2.1	1.8	1.3	0.7	0.7	1.5	1.4	1.7	0.7	1.9	3.4	2.4	1.5	3.1	2.2	3.5	1.9	3.5	
7-Oct	0.7	1.2	0.6	Z	1.0	1.5	2.7	5.7	6.7	2.8	2.3	3.7	2.8	1.2	2.0	1.8	2.3	2.9	4.3	3.2	2.2	2.7	2.1	2.3	2.6	6.7	
8-Oct	2.6	2.3	2.8	2.0	Z	3.4	4.5	3.0	3.0	4.9	4.1	2.5	2.1	1.6	1.2	2.5	4.2	1.5	5.3	7.0	3.2	3.2	3.3	1.5	3.1	7.0	
9-Oct	1.2	1.7	0.8	1.1	1.3	Z	2.9	5.6	3.1	2.4	1.8	1.7	1.1	1.1	1.2	4.4	1.0	1.5	5.6	2.2	2.3	3.6	3.1	1.7	2.3	5.6	
10-Oct	Z	3.3	2.9	2.2	4.5	3.9	4.1	4.8	9.1	4.0	1.7	0.7	0.6	1.3	1.0	1.1	0.8	1.6	1.9	1.2	5.4	1.3	1.7	1.5	2.6	9.1	
11-Oct	3.0	Z	1.6	2.4	2.7	5.5	2.9	2.7	2.5	1.0	0.8	2.8	2.1	1.3	2.5	3.7	2.3	2.6	1.2	1.0	5.4	3.0	2.6	2.5	2.5	5.5	
12-Oct	1.7	2.7	Z	2.2	3.6	4.8	4.4	4.6	2.6	2.2	2.8	2.7	1.6	0.9	1.0	0.9	0.4	1.9	5.5	2.8	1.8	1.7	1.5	2.3	2.5	5.5	
13-Oct	1.7	0.8	2.2	Z	8.5	8.3	3.6	2.8	2.1	1.9	2.7	1.7	1.6	1.2	1.6	1.7	3.1	2.8	1.6	2.1	3.4	8.3	3.1	4.1	3.1	8.5	
14-Oct	5.4	3.1	2.5	2.1	Z	1.7	1.3	2.1	1.8	2.9	0.8	0.8	0.8	0.9	0.9	1.8	1.1	1.9	1.5	4.8	2.8	2.2	2.4	2.4	2.1	5.4	
15-Oct	1.8	2.0	3.2	5.0	3.7	Z	4.3	6.7	3.7	6.1	2.7	2.8	2.6	2.3	2.9	2.9	3.0	2.9	3.8	3.3	3.7	2.6	2.2	0.9	3.3	6.7	
16-Oct	Z	1.2	0.8	1.1	2.0	3.3	2.9	1.4	0.5	0.4	0.6	1.3	2.6	2.0	2.0	2.3	1.7	0.5	1.1	1.7	4.4	2.5	1.3	2.5	1.7	4.4	
17-Oct	4.6	Z	3.5	6.9	5.4	2.5	5.1	4.3	1.8	3.4	3.4	5.0	7.2	6.4	4.6	3.3	4.0	3.1	1.7	3.0	3.4	4.8	5.1	3.2	4.2	7.2	
18-Oct	3.3	4.7	Z	3.7	1.6	3.8	4.8	5.4	3.6	2.6	2.0	1.6	1.7	1.4	1.9	5.0	2.9	0.9	0.5	1.2	2.1	2.5	1.4	0.9	2.6	5.4	
19-Oct	0.8	1.2	2.9	Z	3.5	5.3	5.4	3.1	3.5	1.8	1.7	1.1	1.5	1.5	1.2	7.4	5.5	4.6	1.8	1.4	1.6	2.4	2.3	2.0	2.8	7.4	
20-Oct	1.2	2.6	5.1	5.7	Z	6.6	5.0	3.8	3.6	3.6	3.4	3.0	2.4	2.2	1.9	1.5	1.7	1.0	1.0	0.9	0.6	0.6	0.7	0.8	2.6	6.6	
21-Oct	0.6	1.4	0.4	0.2	0.3	Z	1.1	1.2	1.6	2.1	2.3	2.0	1.0	0.9	2.2	1.6	1.7	2.3	1.8	1.9	1.6	0.9	1.3	0.6	1.3	2.3	
22-Oct	Z	1.1	1.1	1.0	1.4	1.7	2.2	2.1	2.6	1.9	1.2	1.3	1.3	1.5	2.2	3.3	3.9	2.7	2.5	2.3	1.4	1.4	2.1	1.2	1.9	3.9	
23-Oct	1.2	Z	2.0	1.5	1.6	3.2	4.4	3.1	1.6	1.4	1.1	0.8	1.1	1.3	1.7	1.9	8.9	9.8	2.7	1.0	6.0	4.4	2.1	1.6	2.8	9.8	
24-Oct	1.7	6.2	Z	1.0	1.4	3.4	3.4	2.8	1.5	1.5	C	C	C	C	C	4.1	3.2	3.5	3.7	3.6	3.0	4.7	2.2	2.2	3.0	6.2	
25-Oct	3.6	1.0	1.7	Z	1.6	1.9	3.0	3.1	2.3	1.4	1.9	1.4	1.4	2.2	2.3	1.8	3.5	9.4	3.5	1.2	1.3	9.2	1.5	2.5	2.7	9.4	
26-Oct	1.1	0.8	1.0	0.6	Z	21.5	21.9	10.9	7.1	4.3	2.1	2.2	1.8	1.5	0.9	1.2	1.1	0.8	0.4	0.4	0.5	0.5	0.7	1.0	3.7	21.9	
27-Oct	0.9	0.7	0.8	0.9	2.5	Z	4.9	2.7	4.1	3.5	1.1	1.1	0.8	0.9	0.9	0.9	1.9	2.6	6.6	4.2	1.5	4.0	2.3	3.3	2.3	6.6	
28-Oct	Z	4.7	4.1	1.6	3.0	3.6	3.4	3.5	5.4	4.6	5.5	6.3	5.0	4.0	3.3	3.5	4.0	5.6	3.1	4.9	2.1	2.5	2.4	0.8	3.8	6.3	
29-Oct	1.4	Z	4.2	1.2	0.9	3.6	2.3	3.2	2.0	4.3	2.8	1.4	1.9	1.5	1.1	1.6	2.1	1.4	0.9	0.7	1.7	1.2	2.3	2.8	2.0	4.3	
30-Oct	2.5	2.8	Z	4.0	4.5	4.5	4.9	4.8	2.5	2.3	1.3	1.6	1.6	0.6	0.6	0.8	0.8	0.5	0.7	0.9	1.2	0.9	0.5	0.4	2.0	4.9	
31-Oct	1.0	1.0	0.5	Z	0.3	0.6	0.3	0.7	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.7	0.6	0.4	1.0	1.2	1.0	0.6	1.2	
																								Diurnal Average		Diurnal Maximum	
																								1.9 2.3 2.1 2.2 2.4 4.1 4.0 3.5 3.1 2.8 2.4 2.2 2.0 1.8 1.7 2.4 2.4 2.6 2.4 2.3 2.5 2.7 2.0 1.9		5.4 6.2 5.1 6.9 8.5 21.5 21.9 10.9 9.1 9.0 8.5 6.3 7.2 6.4 4.6 7.4 8.9 9.8 6.6 7.0 6.0 9.2 5.1 4.1	
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 - October 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Christina Lake - October 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**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Christina Lake - October 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	11	19	33	43	25	18	45	58	83	63	128	84	33	25	14	706
21 - 40	0	0	0	0	1	1	0	0	0	0	0	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>	24	11	19	33	44	26	18	45	58	83	63	128	84	33	25	14	708

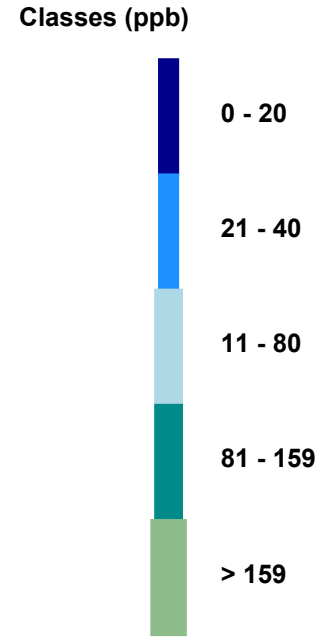
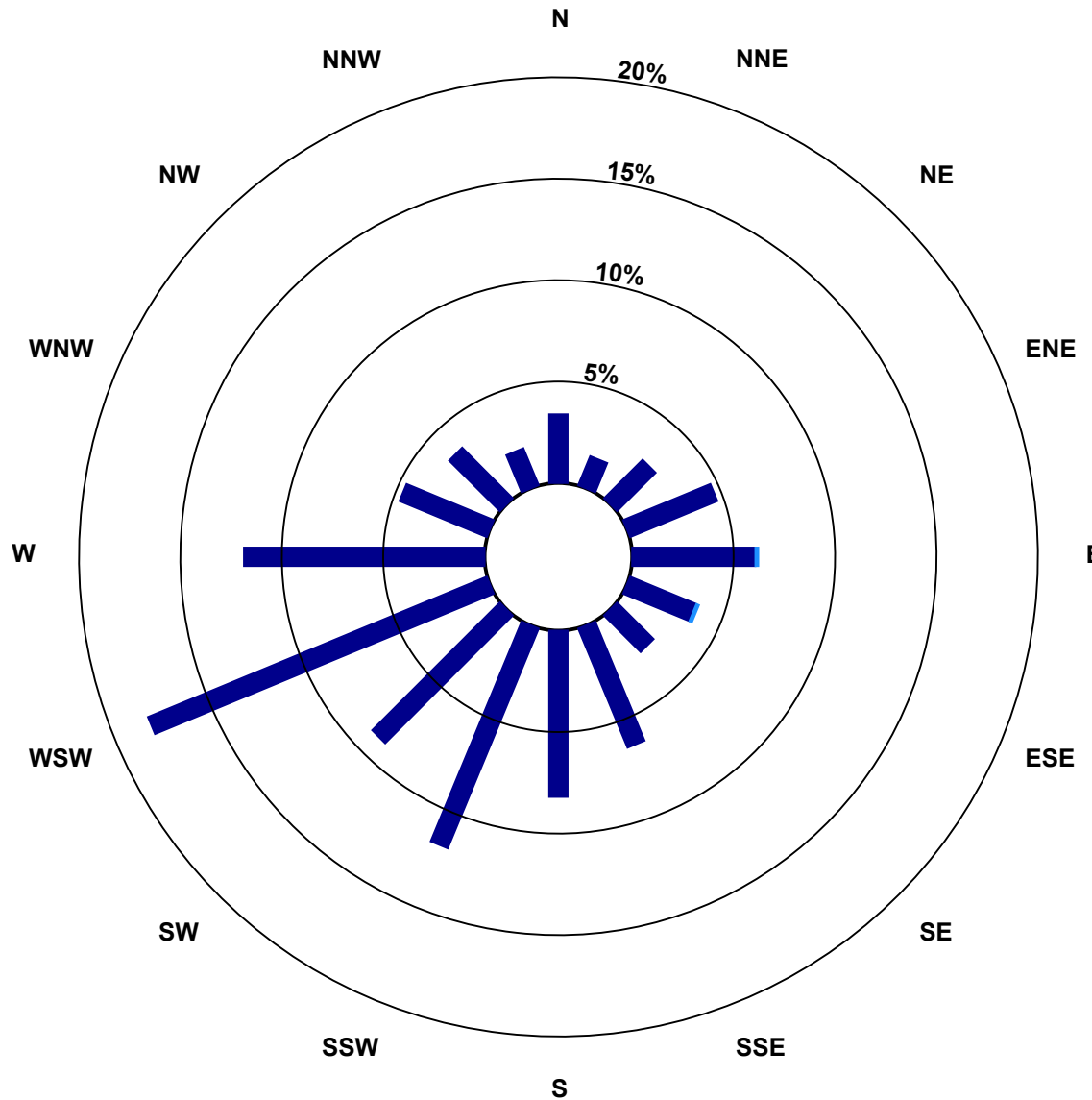
Total Number of Valid Hours: 708

Total Number of Hours: 744

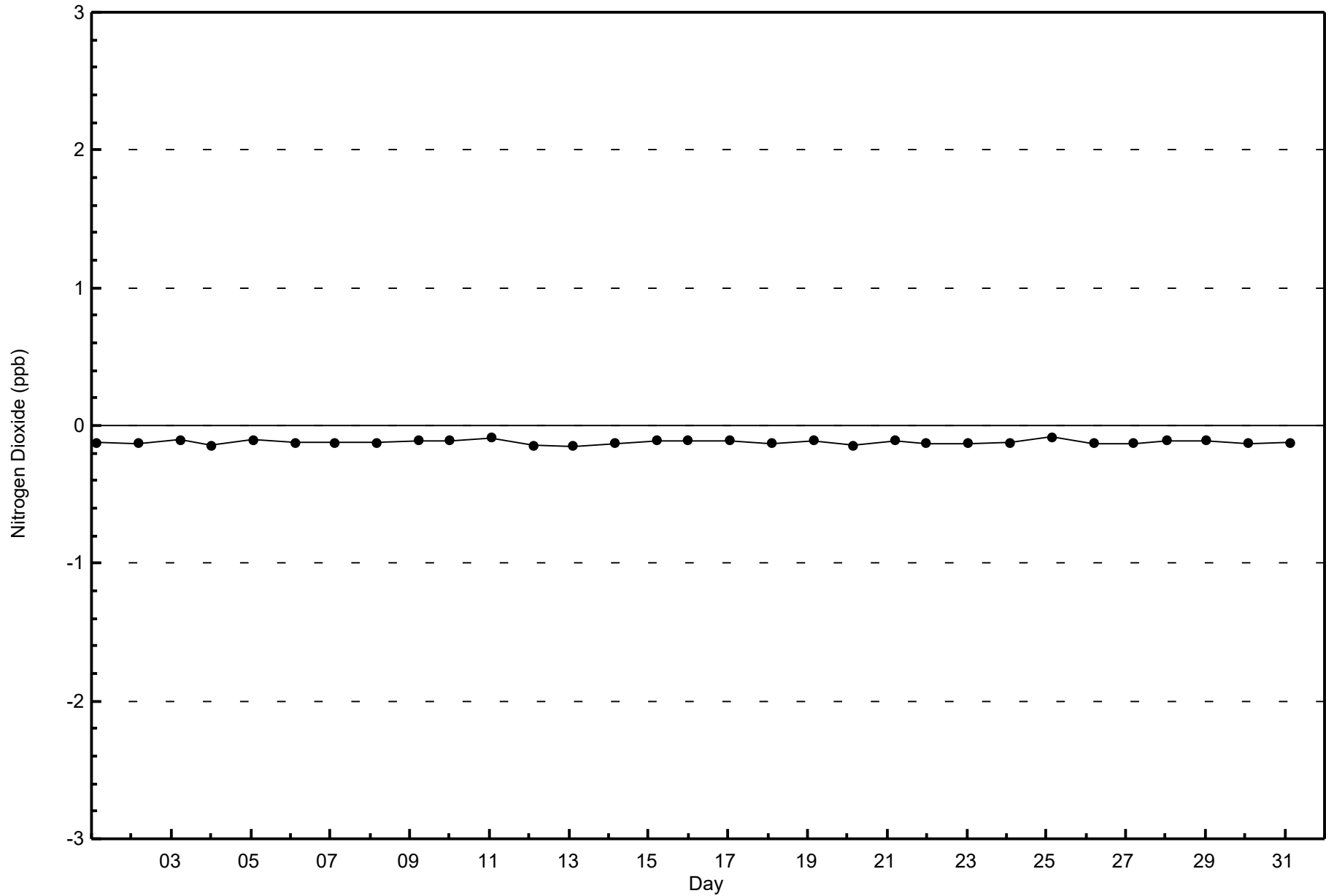


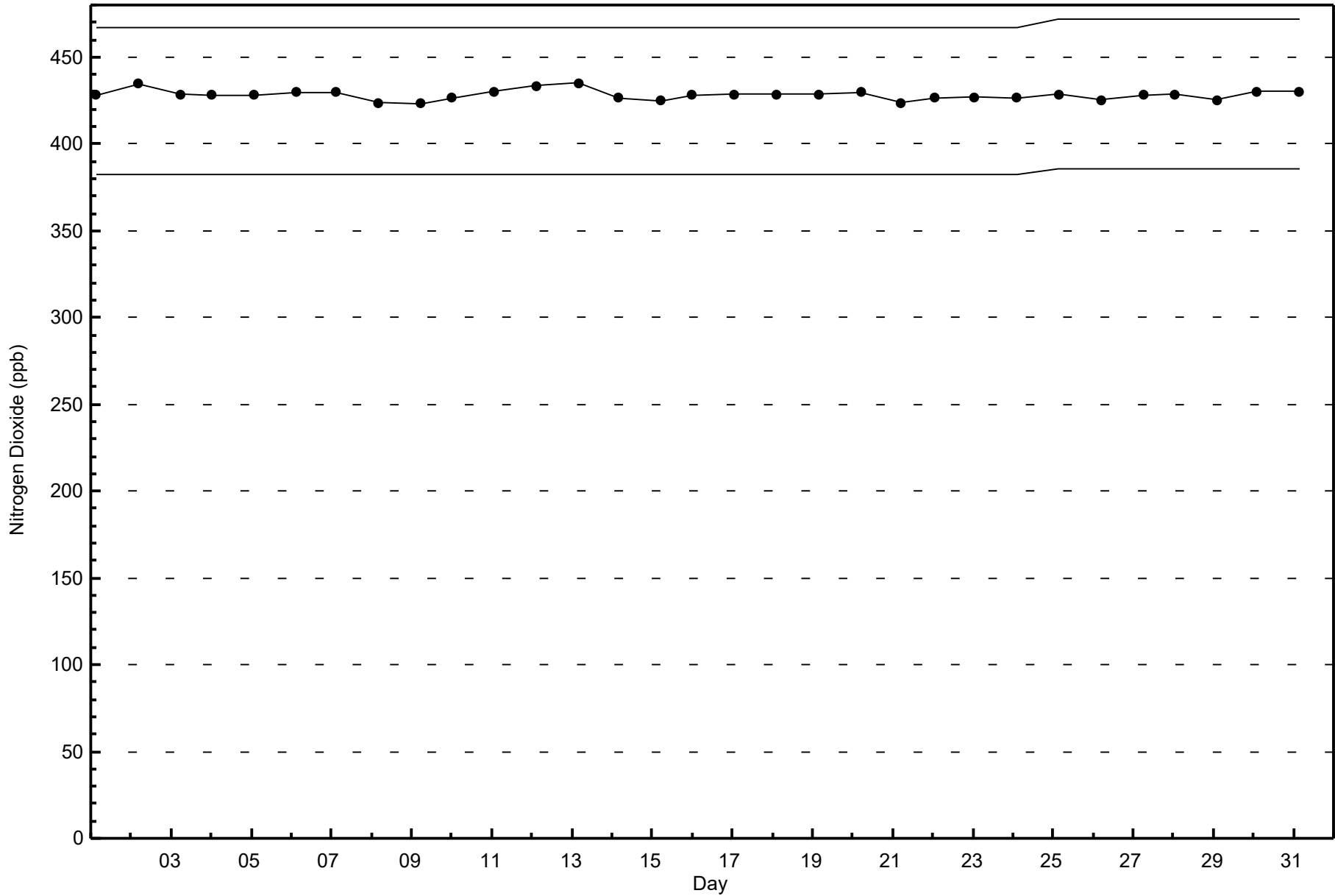
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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



Total Number of Valid Hours: 708



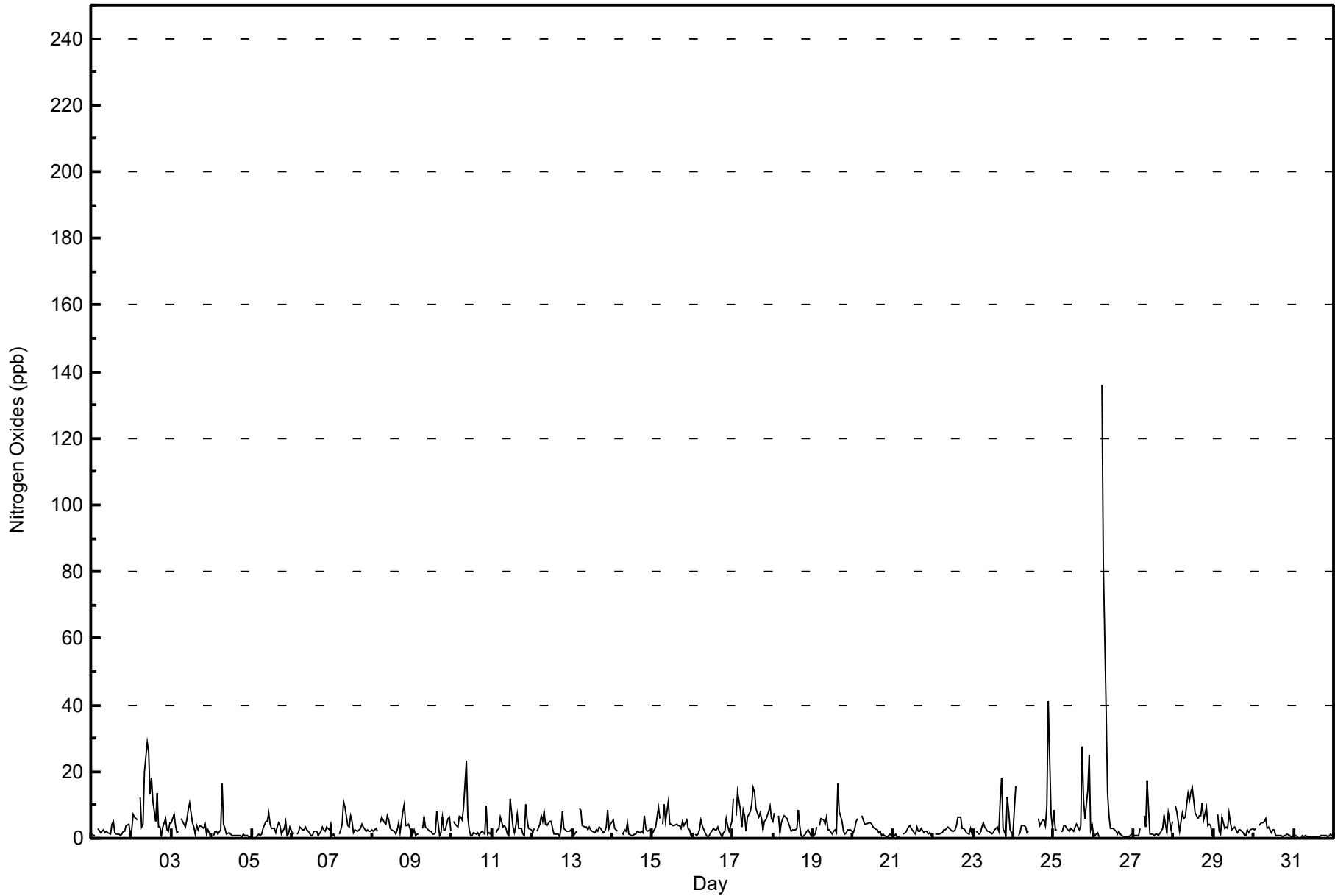




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - October 2024**

Maximum Value: 136.0 ppb on Oct 26 06:00																						Maximum Daily Average: 13.1 ppb on Oct 26				Hours in Service: 744																							
Minimum Value: 0.3 ppb on Oct 31 07:00																						Minimum Daily Average: 0.7 ppb on Oct 31				Hours of Data: 708																							
Maximum Diurnal Average: 9.6 ppb at hour 6																						Minimum Diurnal Average: 2.3 ppb at hour 24				Hours of Missing Data: 36																							
Monthly Average: 4.07 ppb																						Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.5 Median = 2.6 Q <sub>3</sub> = 4.5 P <sub>90</sub> = 7.7 P <sub>99</sub> = 24.8				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-Oct	1.1	0.9	1.0	Z	3.1	1.8	2.2	2.6	1.7	2.0	1.7	1.5	4.4	5.1	1.8	1.3	1.2	1.0	1.1	2.1	2.2	4.0	4.3	1.3	2.2	5.1																							
2-Oct	2.4	7.1	6.6	5.3	Z	12.3	3.2	4.1	19.8	28.8	25.6	13.1	18.1	11.0	5.0	13.5	3.6	3.3	1.0	3.2	5.9	2.5	2.3	4.5	8.8	28.8																							
3-Oct	4.6	7.1	3.9	1.9	1.9	Z	6.1	4.4	3.5	5.5	8.3	10.7	4.8	3.3	1.1	3.7	2.6	3.6	3.4	3.0	4.2	1.4	2.4	0.6	4.0	10.7																							
4-Oct	Z	1.0	2.0	1.9	1.4	2.4	16.7	4.1	2.9	1.5	1.5	1.4	0.9	0.9	0.9	1.1	0.9	0.5	1.2	1.0	0.9	0.6	0.5	2.0	16.7																								
5-Oct	0.6	Z	0.6	1.0	1.1	0.8	1.4	3.1	5.0	5.3	7.6	4.1	3.0	2.8	1.9	3.2	4.8	3.7	1.2	3.2	4.9	0.9	1.5	3.3	2.8	7.6																							
6-Oct	1.4	1.6	Z	1.4	1.7	3.6	2.7	2.6	3.2	2.7	2.0	1.0	1.0	2.2	2.1	2.3	0.8	1.9	3.5	2.4	2.1	3.5	2.4	4.4	2.3	4.4																							
7-Oct	0.7	1.3	0.6	Z	1.1	2.6	4.0	10.9	9.3	3.7	3.3	6.7	5.3	1.5	2.7	2.2	2.6	3.1	4.3	3.2	2.2	2.7	2.1	2.3	3.4	10.9																							
8-Oct	2.6	2.3	3.0	2.1	Z	4.7	6.4	4.5	4.1	6.7	5.3	3.1	2.6	1.9	1.4	2.8	4.8	1.6	7.8	10.2	3.8	3.7	4.0	1.5	4.0	10.2																							
9-Oct	1.2	2.7	0.8	1.1	1.3	Z	3.0	6.4	3.6	2.9	2.1	2.0	1.4	1.3	1.5	8.2	1.1	1.6	6.5	2.5	2.7	5.7	6.2	2.2	3.0	8.2																							
10-Oct	Z	5.0	4.2	3.5	6.7	6.5	5.7	9.3	23.4	6.2	2.4	0.9	0.8	1.8	1.4	1.5	0.9	1.6	2.0	1.2	9.6	1.3	1.7	1.5	4.3	23.4																							
11-Oct	3.1	Z	1.6	2.4	2.8	6.6	3.2	3.9	3.0	1.2	0.9	11.8	3.4	1.5	3.8	7.3	3.0	2.8	1.3	1.1	10.3	5.6	3.0	2.5	3.7	11.8																							
12-Oct	1.7	3.0	Z	2.2	4.4	6.6	5.0	8.0	4.3	4.0	5.2	5.2	2.8	1.3	1.5	1.2	0.4	3.2	8.0	3.0	2.2	2.0	2.0	2.7	3.5	8.0																							
13-Oct	1.7	0.8	2.3	Z	8.7	8.5	3.7	3.3	3.3	2.6	3.6	2.4	2.2	1.6	2.3	2.0	3.3	2.9	1.8	2.3	3.4	8.3	3.1	4.2	3.4	8.7																							
14-Oct	5.5	3.1	2.7	2.2	Z	1.9	1.3	2.4	2.3	4.5	1.1	0.9	0.9	1.1	1.1	2.0	1.6	2.3	1.8	6.9	2.9	2.2	2.5	2.6	2.4	6.9																							
15-Oct	1.8	2.4	3.3	9.3	6.1	Z	4.4	10.3	5.2	10.8	4.2	4.4	4.0	3.6	4.1	3.9	3.6	3.2	4.9	3.8	5.7	3.1	2.4	0.9	4.6	10.8																							
16-Oct	Z	1.3	0.9	1.2	2.4	5.6	4.0	1.9	0.7	0.6	0.7	1.5	3.0	2.5	2.5	3.4	1.9	0.6	1.5	2.1	5.8	3.8	2.2	4.9	2.4	5.8																							
17-Oct	11.9	Z	6.9	13.8	8.5	3.3	8.6	6.6	2.3	6.4	7.9	10.1	15.4	14.0	9.1	6.5	7.4	6.0	2.7	4.9	5.6	8.0	9.7	5.8	7.9	15.4																							
18-Oct	5.0	7.6	Z	6.8	1.9	4.6	5.8	6.9	6.1	4.5	3.2	2.3	2.7	2.3	3.1	8.6	3.8	0.9	0.5	1.2	2.1	2.5	1.6	1.0	3.7	8.6																							
19-Oct	0.8	1.4	3.5	Z	3.8	5.9	5.6	4.1	6.2	2.6	2.5	1.4	2.0	2.5	1.5	16.5	8.0	5.2	2.3	1.4	1.6	2.5	2.5	2.2	3.7	16.5																							
20-Oct	1.5	2.9	5.2	5.8	Z	6.9	5.5	4.2	4.2	4.8	4.5	4.4	3.3	2.8	2.6	1.8	2.0	1.0	1.1	1.0	0.6	0.7	1.1	0.9	3.0	6.9																							
21-Oct	0.6	1.4	0.5	0.3	0.4	Z	1.3	1.5	2.4	3.5	3.7	3.0	1.5	1.3	3.3	2.1	1.9	2.8	1.9	2.1	2.1	1.1	1.7	0.6	1.8	3.7																							
22-Oct	Z	1.2	1.2	1.1	1.5	1.7	2.5	2.6	3.0	3.5	2.6	1.9	2.1	2.4	3.6	6.4	6.3	3.1	2.8	2.4	1.5	1.4	3.0	1.5	2.6	6.4																							
23-Oct	1.2	Z	2.0	1.5	1.7	3.3	4.8	3.5	2.0	2.1	1.6	1.2	1.6	2.4	3.3	2.1	11.3	18.3	3.0	1.0	12.3	8.0	2.7	1.7	4.0	18.3																							
24-Oct	1.7	15.6	Z	1.0	1.5	3.6	3.8	3.5	1.9	2.1	C	C	C	C	C	5.9	3.9	5.3	5.7	3.9	10.0	41.1	7.0	2.8	6.7	41.1																							
25-Oct	8.5	2.4	2.5	Z	2.0	2.1	3.9	3.7	3.0	2.1	3.0	2.7	2.3	3.5	4.0	2.4	3.8	27.4	11.3	5.8	14.6	24.9	2.5	4.3	6.2	27.4																							
26-Oct	1.1	0.8	1.5	0.6	Z	136.0	82.0	38.4	13.7	6.6	3.1	3.0	2.8	2.1	1.4	2.2	1.3	1.0	0.4	0.4	0.5	0.5	0.7	1.1	13.1	136.0																							
27-Oct	1.0	0.7	0.8	0.9	2.9	Z	6.6	3.2	17.4	9.1	1.3	1.5	1.0	1.1	1.2	1.0	2.1	3.0	6.9	4.2	1.6	7.5	2.6	5.1	3.6	17.4																							
28-Oct	Z	9.6	8.2	2.3	5.2	7.6	6.0	6.5	13.7	11.4	14.1	15.4	11.4	7.6	5.9	6.9	6.7	10.7	5.7	9.2	3.7	4.3	4.0	1.1	7.7	15.4																							
29-Oct	2.1	Z	7.2	2.0	1.2	6.3	2.8	3.4	2.9	7.8	4.5	2.3	3.3	2.5	1.6	2.6	2.3	1.6	0.9	0.8	2.6	1.7	2.3	2.9	2.9	7.8																							
30-Oct	2.5	2.9	Z	4.0	4.7	4.6	5.2	5.9	3.1	3.2	1.8	2.6	2.4	0.9	0.7	1.0	0.9	0.5	0.8	1.0	1.4	0.9	0.5	0.4	2.3	5.9																							
31-Oct	1.3	1.0	0.5	Z	0.3	0.8	0.3	0.9	0.4	0.5	0.5	0.4	0.4	0.4	0.6	0.5	0.8	0.6	0.9	0.7	0.4	1.0	1.2	1.0	0.7	1.3																							
																								2.6	3.3	2.8	3.0	3.0	9.6	7.0	5.7	5.7	5.1	4.3	4.1	3.7	3.0	2.6	4.1	3.2	4.0	3.1	3.0	4.2	5.1	2.8	2.3	Diurnal Average	
																								11.9	15.6	8.2	13.8	8.7	136.0	82.0	38.4	23.4	28.8	25.6	15.4	18.1	14.0	9.1	16.5	11.3	27.4	11.3	10.2	14.6	41.1	9.7	5.8	Diurnal Maximum	
Z - zerospan      C - Calibration																																																	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Christina Lake - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	699	98.73	98.73
21 - 40	6	0.85	99.58
41 - 80	1	0.14	99.72
81 - 159	2	0.28	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  
Christina Lake - October 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	11	18	33	43	25	18	45	58	79	63	128	84	32	24	14	699
21 - 40	0	0	1	0	0	0	0	0	0	3	0	0	0	1	1	0	6
11 - 80	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
81 - 159	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	11	19	33	44	26	18	45	58	83	63	128	84	33	25	14	708

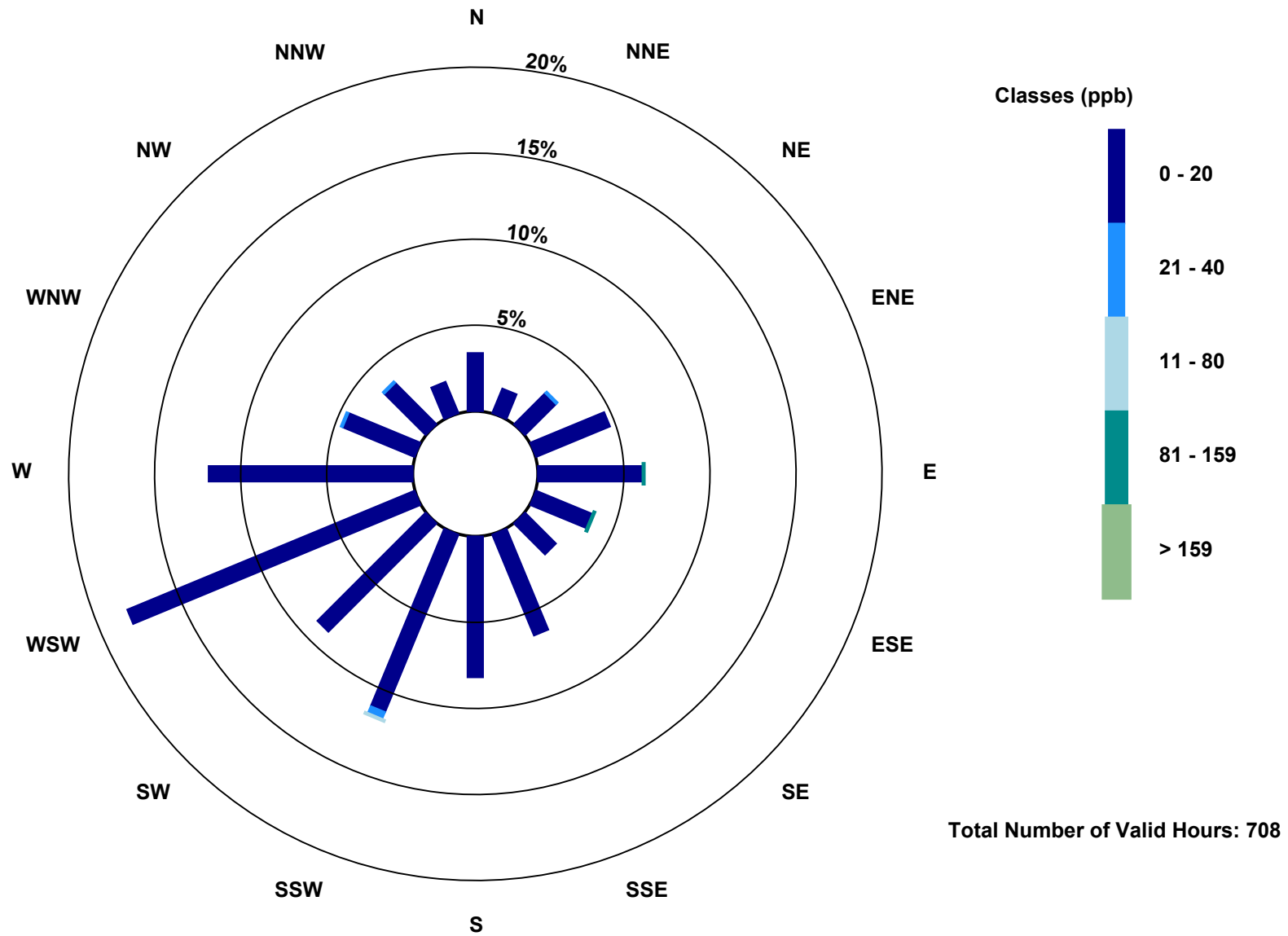
Total Number of Valid Hours: 708

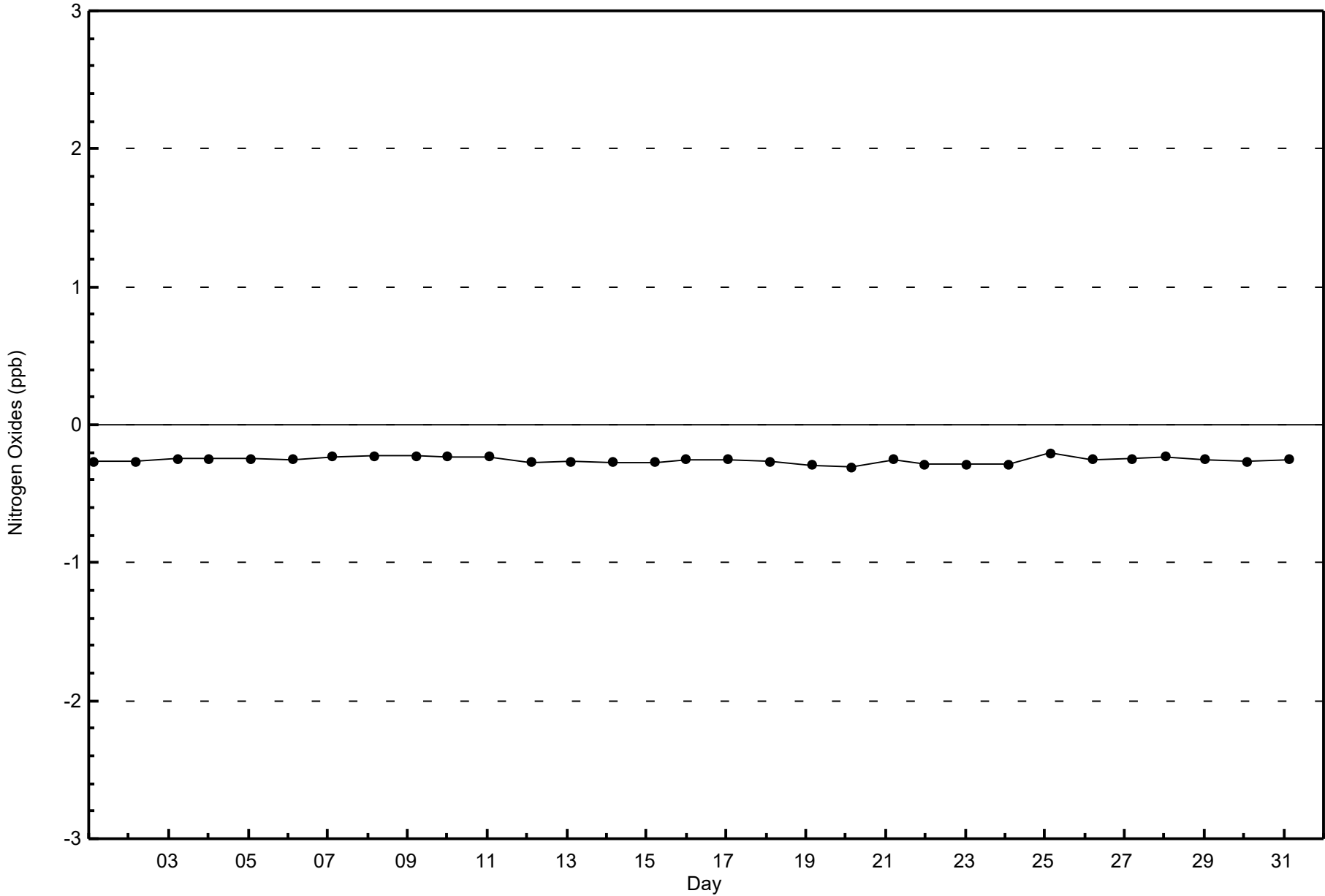
Total Number of Hours: 744

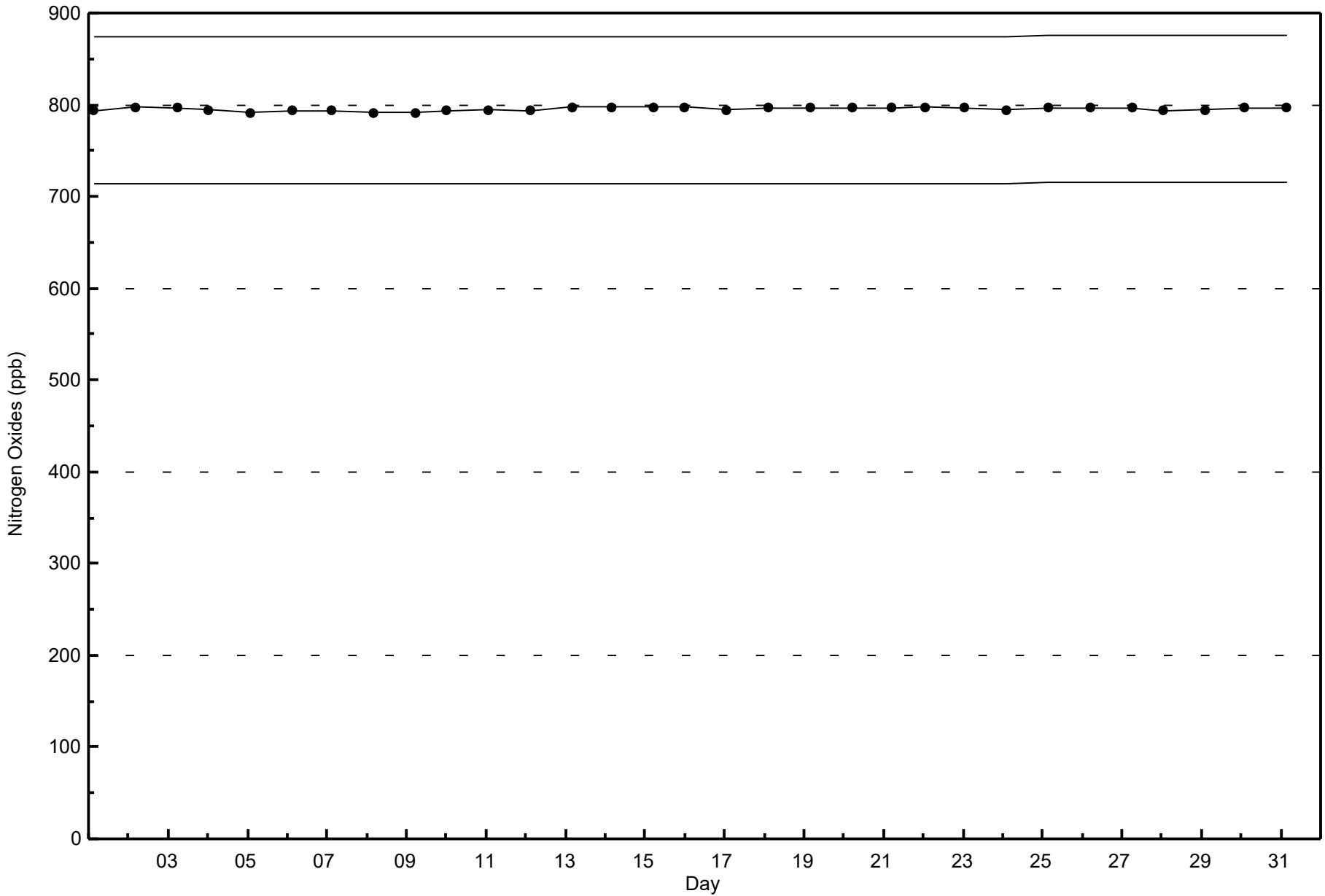


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

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









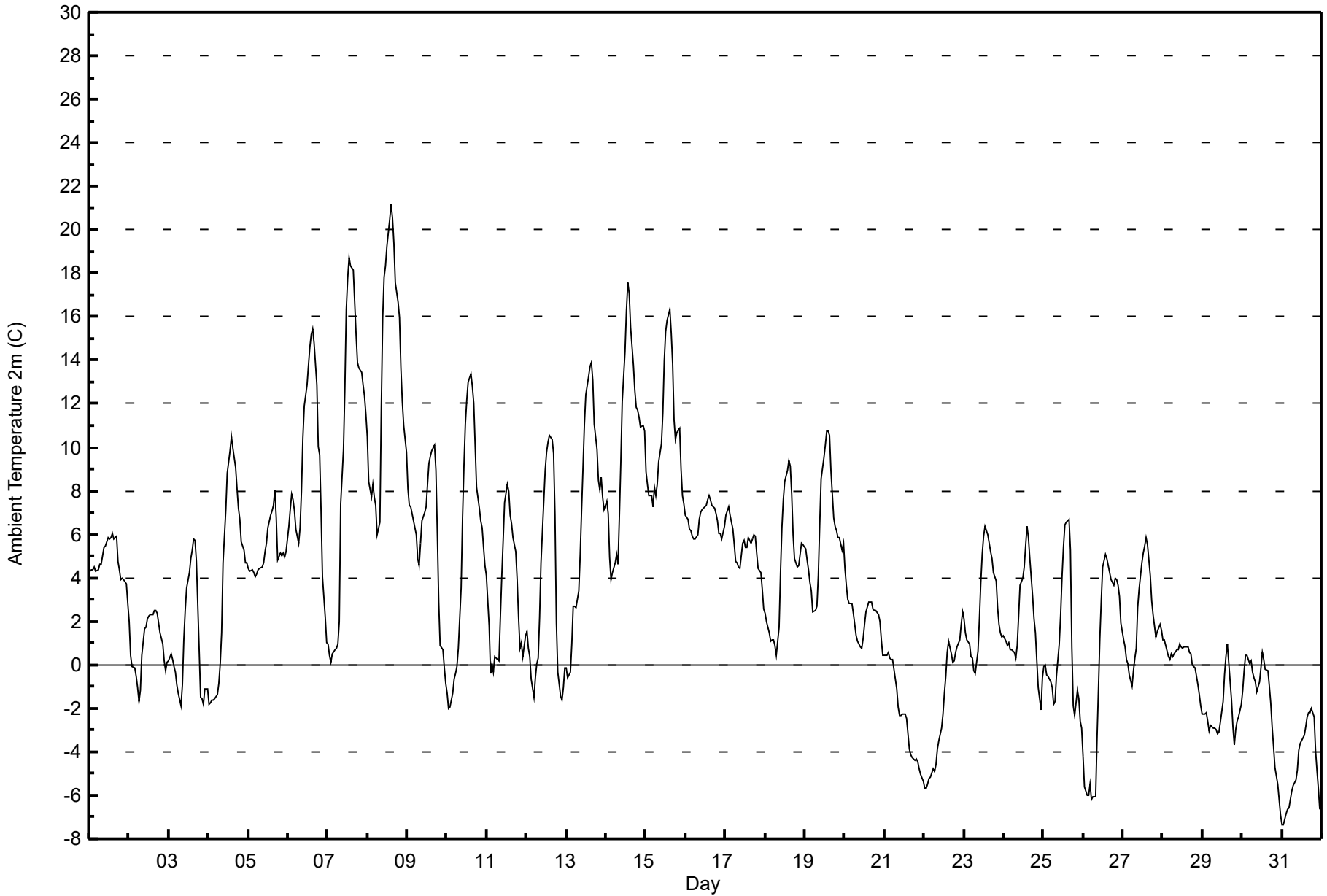
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**

**Christina Lake - October 2024**

<b>Maximum Value: 21.2 C on Oct 8 15:00</b> <b>Maximum Daily Average: 13.5 C on Oct 8</b>																				<b>Hours in Service: 744</b>						
<b>Minimum Value: -7.3 C on Oct 31 01:00</b> <b>Minimum Daily Average: -4.7 C on Oct 31</b>																				<b>Hours of Data: 744</b>						
<b>Maximum Diurnal Average: 7.6 C at hour 15</b> <b>Minimum Diurnal Average: 1.0 C at hour 7</b>																				<b>Hours of Missing Data: 0</b>						
<b>Monthly Average: 3.72 C</b> <b>Percentiles: P<sub>1</sub> = -6.2 P<sub>10</sub> = -2.3 Q<sub>1</sub> = 0.1 Median = 3.5 Q<sub>3</sub> = 6.9 P<sub>90</sub> = 10.7 P<sub>99</sub> = 18.2</b>																				<b>Hours of Calibration: 0</b>						
																				<b>Percent Operational Time: 100.0</b>						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	4.3	4.4	4.3	4.5	4.3	4.4	4.6	4.6	5.0	5.4	5.5	5.8	5.8	5.9	6.1	5.8	5.9	4.8	4.4	3.9	4.0	3.9	3.7	2.8	4.7	6.1
2-Oct	2.0	0.5	-0.1	-0.1	-0.6	-1.1	-1.7	-1.1	0.4	1.6	1.8	2.1	2.2	2.3	2.3	2.5	2.5	2.3	1.9	1.5	0.9	0.2	-0.3	0.1	0.9	2.5
3-Oct	0.2	0.5	0.3	-0.1	-0.4	-0.9	-1.3	-1.9	-0.9	1.1	2.5	3.5	4.3	4.9	5.3	5.8	5.7	4.7	0.6	-1.5	-1.5	-1.8	-1.1	-1.1	1.1	5.8
4-Oct	-1.8	-1.8	-1.6	-1.6	-1.6	-1.4	-0.8	0.1	1.4	4.7	7.1	8.8	9.3	9.9	10.5	10.0	9.1	8.1	7.2	6.7	5.7	5.3	4.7	4.7	4.3	10.5
5-Oct	4.4	4.3	4.3	4.3	4.1	4.2	4.3	4.4	4.5	4.7	5.2	5.6	6.3	6.9	7.1	7.4	8.0	6.7	4.8	5.1	5.0	5.2	5.0	5.2	5.3	8.0
6-Oct	6.4	7.1	7.8	7.6	7.0	6.2	5.6	6.3	8.0	10.4	11.9	12.9	13.8	14.6	15.2	15.5	14.8	12.9	10.1	9.6	7.1	4.1	2.2	1.0	9.1	15.5
7-Oct	1.0	0.5	0.1	0.5	0.7	0.8	0.9	2.0	7.4	9.9	12.7	16.4	17.8	18.8	18.4	18.1	16.7	15.2	13.9	13.6	13.5	12.9	12.4	11.5	9.8	18.8
8-Oct	10.5	8.4	7.7	8.3	7.7	7.3	6.0	6.6	11.9	15.9	17.8	18.3	19.2	20.5	21.2	20.5	19.4	17.6	16.6	16.0	13.7	12.1	11.0	9.8	13.5	21.2
9-Oct	8.1	7.4	7.3	6.9	6.6	6.0	4.9	4.6	5.6	6.6	7.0	7.3	8.3	9.3	9.6	9.8	10.1	8.9	6.1	2.9	0.9	0.7	-0.2	-0.9	6.0	10.1
10-Oct	-1.3	-2.0	-2.0	-1.3	-0.7	-0.4	0.0	0.7	3.5	6.7	9.1	11.0	12.1	13.0	13.4	12.8	12.1	10.1	8.2	7.2	6.6	6.3	5.4	4.6	5.6	13.4
11-Oct	4.1	1.8	-0.4	0.0	-0.3	0.4	0.2	0.2	2.2	4.0	5.7	7.5	8.3	8.0	6.9	6.5	5.8	5.2	3.9	2.2	0.8	1.0	0.3	1.4	3.2	8.3
12-Oct	1.5	0.8	0.4	-0.7	-1.5	-0.6	0.0	0.3	2.2	4.7	7.5	8.9	9.8	10.2	10.6	10.4	9.7	6.9	1.9	-0.3	-1.4	-1.7	-1.0	-0.1	3.3	10.6
13-Oct	-0.2	-0.6	-0.3	1.0	2.7	2.7	2.6	3.4	5.1	7.2	9.1	11.1	12.4	13.3	13.7	13.9	13.0	11.1	9.9	8.5	8.0	8.6	7.7	7.1	7.1	13.9
14-Oct	7.5	7.0	5.0	3.9	4.2	4.7	5.1	4.6	6.9	9.4	12.1	14.4	16.3	17.6	17.1	15.5	13.8	12.6	11.8	11.7	11.4	10.9	11.0	10.7	10.2	17.6
15-Oct	8.9	8.3	7.8	7.8	7.3	8.2	7.8	8.3	9.3	10.2	11.6	13.9	15.3	15.8	16.3	15.3	13.8	11.3	10.4	10.7	10.9	9.0	7.8	7.4	10.6	16.3
16-Oct	6.9	6.7	6.2	6.1	5.9	5.8	5.8	6.0	6.7	7.0	7.1	7.2	7.3	7.6	7.8	7.6	7.3	7.2	6.9	6.6	6.0	6.0	5.8	6.4	6.7	7.8
17-Oct	6.9	7.1	7.3	6.9	6.3	5.5	4.7	4.7	4.5	4.4	5.6	5.7	5.4	5.4	5.9	5.6	5.8	6.0	5.9	5.2	4.4	4.2	3.5	2.6	5.4	7.3
18-Oct	2.4	2.0	1.5	1.1	1.2	1.1	0.9	0.5	1.7	4.3	6.3	7.6	8.4	9.0	9.4	9.1	7.8	6.0	4.9	4.5	4.5	5.1	5.6	5.5	4.6	9.4
19-Oct	5.3	4.8	4.4	3.8	3.4	2.5	2.5	2.7	4.1	6.4	8.6	9.5	10.1	10.7	10.8	10.5	8.9	6.7	6.4	6.1	5.9	5.8	5.3	5.6	6.3	10.8
20-Oct	4.5	3.6	3.0	2.8	2.8	2.3	1.8	1.3	1.1	0.8	0.8	1.2	1.8	2.4	2.9	2.9	2.9	2.5	2.5	2.5	2.3	2.0	1.2	0.5	2.2	4.5
21-Oct	0.5	0.4	0.5	0.3	0.3	0.2	-0.2	-1.1	-2.0	-2.3	-2.3	-2.3	-2.2	-2.4	-3.1	-3.9	-4.1	-4.3	-4.4	-4.3	-4.4	-4.8	-5.0	-5.4	-2.3	0.5
22-Oct	-5.7	-5.7	-5.5	-5.3	-5.2	-4.8	-4.9	-4.6	-3.9	-3.5	-2.9	-2.3	-1.3	-0.5	0.6	1.1	0.5	0.1	0.2	0.6	0.8	1.1	1.9	2.4	-1.9	2.4
23-Oct	2.1	1.5	1.2	0.9	0.4	0.3	-0.3	-0.4	0.6	2.1	3.8	5.1	5.9	6.4	6.0	5.6	5.2	4.9	4.3	3.8	2.6	1.8	1.5	1.3	2.8	6.4
24-Oct	1.3	1.1	0.9	1.0	0.7	0.7	0.6	0.3	0.9	2.3	3.7	4.0	4.5	5.5	6.3	5.8	4.9	3.1	2.1	1.4	0.2	-1.0	-2.1	-0.6	2.0	6.3
25-Oct	-0.1	0.0	-0.5	-0.5	-0.8	-1.1	-1.8	-1.7	-0.5	0.9	2.3	4.0	5.4	6.4	6.6	6.7	5.3	0.8	-1.9	-2.3	-1.2	-1.6	-2.6	-2.9	0.8	6.7
26-Oct	-4.2	-5.6	-6.0	-6.0	-5.5	-6.2	-6.1	-6.1	-3.4	-1.1	1.2	3.0	4.5	5.1	4.9	4.6	4.2	3.9	3.6	4.0	3.9	3.7	3.2	1.9	0.1	5.1
27-Oct	1.1	0.8	0.3	0.1	-0.4	-1.0	-0.3	0.3	0.8	2.6	3.4	4.7	5.2	5.4	5.9	5.5	4.1	2.9	2.3	1.8	1.3	1.5	1.9	1.6	2.2	5.9
28-Oct	1.1	1.1	0.9	0.4	0.3	0.5	0.4	0.5	0.7	0.7	1.0	0.8	0.8	0.8	0.8	0.8	0.5	0.5	0.0	-0.2	-0.5	-0.9	-1.4	-1.9	0.3	1.1
29-Oct	-2.3	-2.3	-2.2	-2.6	-3.0	-2.8	-2.9	-2.9	-3.0	-3.2	-3.1	-2.6	-1.7	-0.5	0.4	0.9	0.1	-1.7	-2.8	-3.7	-3.0	-2.6	-2.4	-1.8	-2.2	0.9
30-Oct	-1.2	-0.3	0.4	0.4	0.1	0.2	-0.3	-0.6	-0.8	-1.2	-0.8	-0.1	0.5	0.3	-0.2	-0.3	-1.0	-1.7	-2.9	-3.7	-4.7	-5.5	-6.2	-6.9	-1.5	0.5
31-Oct	-7.3	-7.3	-6.9	-6.7	-6.6	-6.2	-5.8	-5.5	-5.3	-4.8	-4.0	-3.6	-3.5	-3.2	-2.9	-2.4	-2.2	-2.2	-2.0	-2.4	-3.9	-4.8	-5.7	-6.6	-4.7	-2.0
																								Diurnal Average		
																								Diurnal Maximum		





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

**Ambient Temperature 2m (AT2) - C**  
**Christina Lake - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	181	24.33	24.33
0 - 10	474	63.71	88.04
10 - 20	86	11.56	99.60
> 20	3	0.40	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Christina Lake - October 2024**

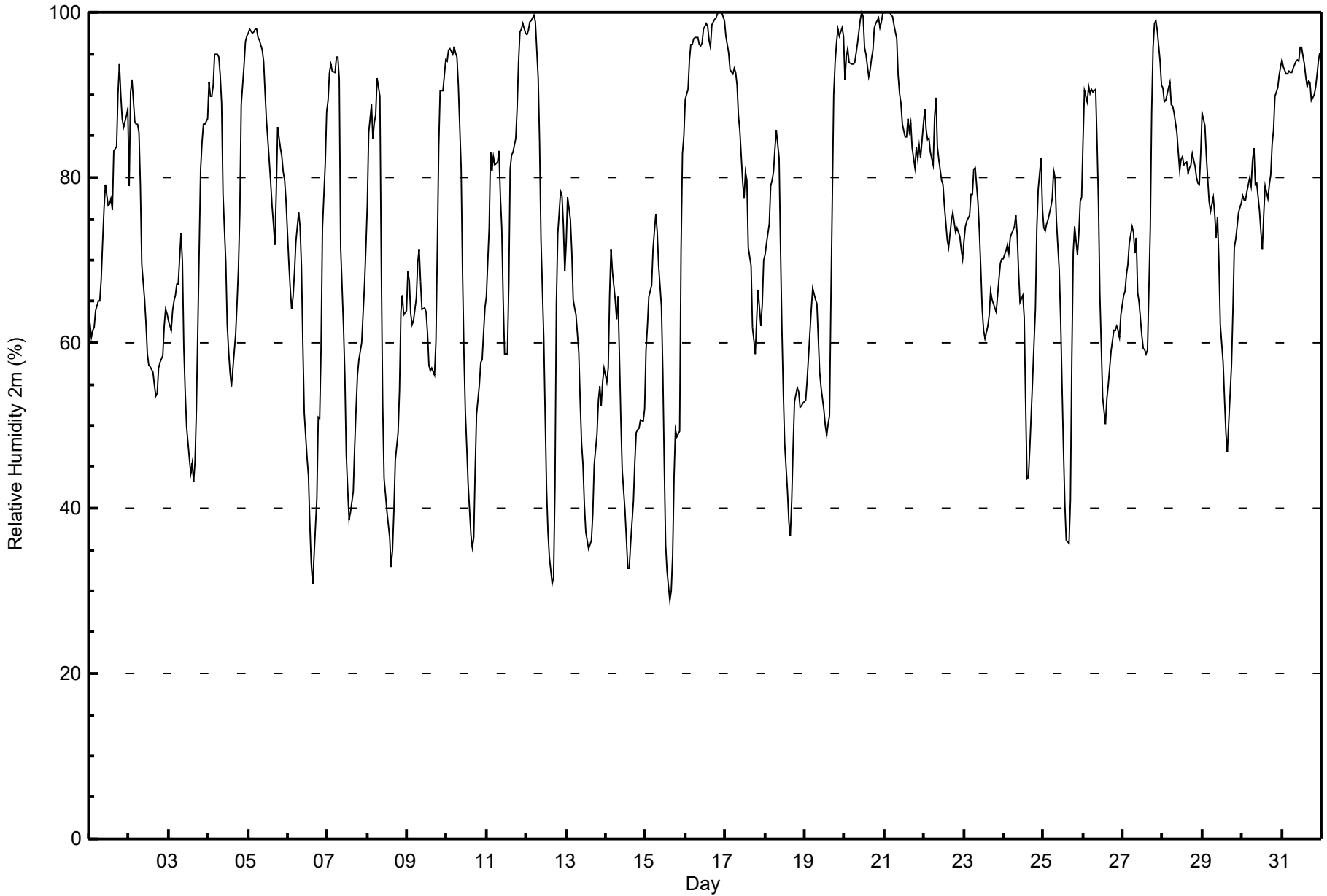
Maximum Value: 100.0 % on Oct 16 21:00      Maximum Daily Average: 97.0 % on Oct 16																						Hours in Service:	744			
Minimum Value: 28.8 % on Oct 15 15:00      Minimum Daily Average: 51.3 % on Oct 14																						Hours of Data:	744			
Maximum Diurnal Average: 83.0 % at hour 7      Minimum Diurnal Average: 57.5 % at hour 16																						Hours of Missing Data:	0			
Monthly Average: 72.91 %      Percentiles: P <sub>1</sub> = 32.8 P <sub>10</sub> = 47.5 Q <sub>1</sub> = 60.5 Median = 74.1 Q <sub>3</sub> = 88.8 P <sub>90</sub> = 95.6 P <sub>99</sub> = 99.9																						Hours of Calibration:	0			
																						Percent Operational Time:	100.0			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	62.3	60.7	61.5	61.9	63.9	65.0	65.1	67.6	72.0	76.1	79.1	76.6	76.7	77.4	76.2	83.3	83.7	90.2	93.7	90.0	87.1	86.1	87.4	88.3	76.3	93.7
2-Oct	79.0	90.3	91.9	86.8	86.4	86.5	85.4	78.9	69.5	65.2	62.4	58.7	57.3	57.1	56.4	54.9	53.5	53.9	57.0	57.6	58.5	62.0	64.0	63.6	68.2	91.9
3-Oct	62.8	61.6	63.8	65.0	65.8	67.1	67.1	73.2	69.8	59.6	54.0	49.8	45.9	44.3	45.4	43.1	45.6	52.1	71.3	81.0	84.2	86.5	86.5	87.1	63.9	87.1
4-Oct	91.5	89.8	89.8	91.3	95.0	94.9	94.5	92.3	89.0	78.0	69.6	62.1	58.9	56.4	54.7	56.8	61.0	64.7	69.0	75.7	88.8	93.5	96.5	97.1	79.6	97.1
5-Oct	97.4	97.9	97.5	97.6	97.9	97.9	97.0	96.6	95.5	94.0	90.3	87.0	84.5	79.6	76.6	74.4	71.8	78.1	86.0	83.6	82.6	80.7	79.7	77.2	87.6	97.9
6-Oct	69.7	66.6	64.1	65.6	68.5	72.2	75.7	74.1	69.3	59.9	51.5	46.1	43.9	38.0	33.2	30.9	34.2	41.3	51.0	50.8	59.3	73.9	81.7	88.0	58.7	88.0
7-Oct	89.4	92.8	93.7	92.9	92.8	94.6	94.7	91.9	71.6	62.1	55.9	46.5	42.4	38.6	39.6	42.0	47.4	52.0	56.1	58.0	60.0	63.6	66.9	71.4	67.4	94.7
8-Oct	76.6	85.5	88.8	84.8	86.7	87.7	92.1	89.9	69.3	52.6	43.6	41.7	39.6	36.5	33.0	34.9	39.6	45.8	49.2	54.3	63.8	65.7	63.4	63.9	62.0	92.1
9-Oct	68.6	67.5	63.6	62.3	62.7	65.5	69.7	71.4	67.5	64.1	64.2	63.8	61.3	57.4	56.6	57.0	56.1	60.1	71.3	83.7	90.5	90.6	92.4	94.3	69.3	94.3
10-Oct	94.0	95.4	95.6	95.0	95.7	95.1	94.6	91.2	81.2	68.4	58.8	51.7	47.4	42.9	36.7	35.3	36.4	44.6	51.4	54.9	57.7	57.9	61.2	64.3	67.0	95.7
11-Oct	65.6	73.9	83.0	80.8	82.6	81.6	81.8	83.2	77.8	74.0	65.3	58.7	58.7	66.9	80.9	82.8	83.0	84.7	88.5	94.1	97.6	97.9	98.6	97.5	80.8	98.6
12-Oct	97.2	97.9	98.7	99.1	99.7	98.9	95.4	92.0	84.3	72.6	60.5	51.3	42.2	37.1	34.0	30.9	31.7	42.7	64.8	73.2	78.4	77.8	74.2	68.7	71.0	99.7
13-Oct	72.0	77.7	74.9	71.1	65.3	64.2	63.4	58.7	52.8	47.8	45.2	40.3	37.2	35.1	35.6	36.0	39.3	45.3	49.0	53.1	54.8	52.4	55.2	57.0	53.5	77.7
14-Oct	55.3	57.0	65.7	71.3	68.7	65.2	62.9	65.6	58.5	50.9	44.6	39.6	36.3	32.7	32.7	35.8	40.9	45.6	49.2	49.6	49.7	50.7	50.6	52.1	51.3	71.3
15-Oct	59.1	62.1	65.5	66.9	71.4	73.5	75.5	73.4	69.4	64.4	56.4	45.4	35.5	32.4	28.8	30.0	34.2	43.7	49.5	48.6	49.3	71.2	82.8	85.0	57.3	85.0
16-Oct	89.4	90.6	94.2	96.1	96.1	96.8	97.0	96.9	96.1	95.9	96.4	97.9	98.6	98.2	96.6	95.8	98.5	99.1	99.4	99.9	100.0	100.0	100.0	99.1	97.0	100.0
17-Oct	97.1	96.1	95.1	93.1	92.6	93.2	92.8	91.2	87.5	85.7	79.4	77.5	80.7	79.6	71.6	69.3	61.9	60.3	58.7	62.8	66.4	62.1	64.8	70.0	78.7	97.1
18-Oct	70.7	72.0	74.5	79.0	79.6	80.7	83.5	85.8	82.3	71.7	61.8	54.0	47.9	42.1	38.4	36.7	40.9	47.3	52.8	54.5	54.1	52.3	52.3	52.7	61.1	85.8
19-Oct	53.0	55.5	58.3	61.2	64.1	66.7	65.3	64.8	60.5	56.4	54.6	51.9	50.1	48.8	50.1	51.2	65.1	90.1	93.8	96.3	98.1	97.2	98.2	97.1	68.7	98.2
20-Oct	91.9	94.6	95.6	93.8	93.7	93.7	93.8	95.0	96.3	99.1	100.0	99.6	95.8	95.0	92.3	93.1	94.5	95.5	98.1	98.6	99.3	98.2	98.9	99.8	96.1	100.0
21-Oct	100.0	100.0	100.0	100.0	99.7	99.4	98.4	96.7	92.4	90.2	89.0	86.5	84.9	84.9	87.1	85.7	86.6	83.6	81.2	83.7	82.3	83.9	82.3	86.5	90.2	100.0
22-Oct	88.4	85.7	84.6	84.8	83.1	81.5	87.3	89.7	83.7	82.2	79.7	79.1	76.6	74.5	72.6	71.5	74.7	75.8	74.6	73.5	73.8	72.9	71.4	70.1	78.8	89.7
23-Oct	72.3	74.0	74.8	75.4	77.9	78.0	81.1	81.2	77.0	73.4	68.9	64.0	61.4	60.6	62.0	63.5	66.2	65.3	64.8	63.7	65.7	67.9	69.7	70.2	70.0	81.2
24-Oct	70.1	71.2	71.9	70.9	72.7	73.3	74.0	75.4	73.1	68.6	64.9	65.8	63.0	52.7	43.6	43.8	47.3	55.6	60.1	64.1	73.9	78.7	82.4	76.3	66.4	82.4
25-Oct	73.8	73.5	74.5	74.9	76.5	77.5	80.9	80.0	74.8	68.8	62.9	54.9	47.2	40.5	36.1	35.7	41.1	58.2	71.0	74.1	70.7	73.2	77.1	77.7	65.7	80.9
26-Oct	84.6	90.5	89.2	91.1	90.1	90.7	90.4	90.7	84.3	77.0	65.9	59.7	53.3	50.2	53.2	54.9	57.0	58.9	61.6	61.5	62.0	61.6	60.7	63.5	70.9	91.1
27-Oct	65.8	66.2	68.3	69.5	72.1	74.1	73.4	70.8	72.7	66.1	64.8	60.9	59.3	59.1	58.6	59.2	73.8	88.0	95.8	98.6	99.1	97.8	94.1	91.2	75.0	99.1
28-Oct	90.8	89.1	89.3	90.9	91.5	88.8	88.6	87.8	85.4	83.1	80.8	82.2	82.6	81.5	81.8	80.5	81.3	81.5	83.0	81.3	79.9	79.3	79.2	82.9	84.3	91.5
29-Oct	87.8	86.3	82.8	79.8	77.2	76.0	77.6	75.6	72.7	75.2	69.9	62.1	57.6	53.2	49.2	46.8	50.3	57.2	64.0	71.4	72.6	74.1	75.8	76.9	69.7	87.8
30-Oct	77.8	77.3	77.4	78.2	80.0	79.1	82.0	83.6	79.2	79.3	75.9	73.4	71.4	75.6	79.0	77.5	79.1	80.4	84.1	85.8	89.8	90.9	92.4	93.4	80.9	93.4
31-Oct	94.2	93.3	92.5	92.6	92.9	92.7	92.7	93.3	94.1	94.2	94.0	95.8	95.7	93.7	92.2	91.0	91.7	91.4	89.3	89.9	90.8	92.4	94.0	95.1	92.9	95.8
																						Diurnal Average				
																						Diurnal Maximum				





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

**Relative Humidity 2m (RH2) - %**  
**Christina Lake - October 2024**





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

**Relative Humidity 2m (RH2) - %**  
**Christina Lake - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	37	4.97	4.97
40 - 60	144	19.35	24.33
60 - 80	273	36.69	61.02
80 - 100	283	38.04	99.06

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 10m (WS10) - km/h

Christina Lake - October 2024

Maximum Speed: 23 km/h on Oct 2 11:00	Maximum Daily Speed Average: 16.0 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 4 05:00	Minimum Daily Speed Average: 3.8 km/h on Oct 16	Hours of Data: 744
Maximum Diurnal Speed Average: 6.4 km/h at hour 12	Minimum Diurnal Speed Average: 2.7 km/h at hour 18	Hours of Missing Data: 0
Monthly Average Velocity: 4.8 km/h 245.3 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 11 Q <sub>3</sub> = 14 P <sub>90</sub> = 17 P <sub>99</sub> = 21	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-Oct	WSW14	WSW12	SW14	WSW12	WSW12	WSW14	WSW14	WSW18	WSW20	WSW16	W13	WSW11	WSW13	WSW12	W11	W10	W9	NNW12	N8	NW10	NW12	NW14	NW15	N13	W10.0	WSW20
2-Oct	N10	SW7	W5	W11	WNW14	WNW15	W12	W16	WNW19	WNW23	NW23	WNW22	WNW21	WNW19	W19	WNW20	NW17	NW15	NW14	NW18	WNW16	W12	W11	W13	WNW14.5	NW23
3-Oct	WNW14	WNW15	W11	W12	W14	W15	W11	WSW11	W11	WNW17	WNW17	W16	W18	W16	WSW16	W16	W14	WSW9	SSW5	SSW4	SSW7	SSW5	SSW9	SSW5	W10.8	W18
4-Oct	S4	SSW6	SSW7	S4	SE1	E5	S4	ESE5	ESE5	E7	E12	ESE15	ESE17	E15	E17	E15	ENE11	ENE13	ENE13	ENE11	NE10	NNE9	N11	NNE11	E7.0	ESE17
5-Oct	N12	N11	N12	N15	N14	N13	N13	N14	NW16	NW17	WNW14	W14	W11	W12	W14	WSW10	SW10	S6	S6	SSW10	SSW11	SSW13	SSW12	SSW11	WNW6.2	NW17
6-Oct	SW15	SW17	SW17	WSW18	WSW17	WSW15	WSW13	WSW11	W12	W13	WSW13	WSW12	WSW16	WSW17	W17	W17	WSW14	WSW9	SW9	SW10	SSW4	SSW6	ESE6	S4	WSW11.7	WSW18
7-Oct	S4	SSE3	E6	ESE6	E7	E7	E6	E5	S9	S11	SSW12	SSW13	SSW14	SSW16	SSW15	S14	S11	S10	S9	S10	S9	S5	SSE3	SSE4	S7.0	SSW16
8-Oct	SE4	ESE3	S5	S8	S6	SSE6	SE4	ESE7	SSE5	S9	S12	SSE13	SSE16	SSE15	S15	S12	SSW8	S9	SW10	W19	W13	W15	W16	W12	SSW6.6	WNW19
9-Oct	WSW8	WSW9	WSW10	WSW11	WSW12	WSW10	WSW10	SW7	WSW11	WSW11	WSW11	WSW11	WSW10	WSW11	WSW9	SW9	SW9	SW8	SSW10	SSW6	SSW7	SSW5	SSW2	SSE3	SW8.4	WSW12
10-Oct	SSW5	SSW5	SSW4	SSW3	SW6	SSW4	SSW5	SSW8	SSW8	WSW8	WSW10	WSW13	WSW16	WSW16	WSW20	WSW18	WSW14	WSW9	WSW10	SW12	SW11	WSW11	WSW10	WSW10	WSW9.2	WSW20
11-Oct	WSW9	SW5	SSW5	SSW8	SSW7	SSW7	S7	SSW5	S5	S5	SSW9	SW12	SW16	SW19	SW12	SSW12	SSW14	SW9	SW7	SSW6	SSW5	SSW6	SSW6	SW9	SSW8.3	SW19
12-Oct	SW8	SSW6	SW5	S4	SSW4	WSW8	WSW9	SW9	WSW8	W8	WNW9	NW15	NNW16	NNW17	NNW13	NNW13	NNW12	NNE5	SSW5	S6	SSW7	S6	S8	S9	W4.2	NNW17
13-Oct	S6	S4	S5	S8	S11	S12	S13	S14	SSE15	S20	S19	S21	S22	SSE23	S20	S18	S14	SSE9	SSE9	SE7	SSE8	SSE8	SE7	SSE7	S12.4	SSE23
14-Oct	SSE9	SE8	ESE8	ESE9	SE7	SSE8	SSE9	SSE7	SSE13	S8	SSE14	SSE15	SSE18	SSE20	SSE18	S21	SSE15	SE9	SSE8	S8	SSW9	SSW8	SSW8	SSW6	SSE10.2	S21
15-Oct	S5	S7	SW9	SSW10	SSW10	WSW9	SW9	WSW10	WSW11	W10	W10	W8	WNW14	WNW12	WNW10	WSW9	WSW8	SSW6	SW8	SSW7	SSW8	SSW6	SSW6	SSW9	WSW7.7	WNW14
16-Oct	SSW5	SSW3	SE3	ENE4	E3	ENE3	E5	E6	E7	E10	E8	NE7	NE9	NE12	ENE12	ENE9	ENE7	ENE6	E5	ESE3	SSE3	SW6	SSW5	WSW9	E3.8	NE12
17-Oct	WSW9	WSW10	WSW11	W14	W16	W17	W14	WSW12	WSW14	WSW16	WSW19	W19	W19	W18	W19	W20	W23	W19	W17	W18	W17	W18	WSW14	WSW15	W16.0	W23
18-Oct	WSW14	WSW13	WSW13	W11	WSW14	WSW13	WSW11	SSW9	SSW9	SW9	SW11	SW17	WSW18	SW19	SW19	SW16	S9	SSE9	SSE10	SSE9	SSE10	SSE9	SSE12	SSE12	SW10.1	SW19
19-Oct	SSE10	SSE8	SSE4	S5	SSW6	SW8	WSW9	WSW11	WSW12	W11	WSW13	W13	WSW12	WSW13	W10	SW11	SW11	SSW7	SSW5	SSE3	SE4	ENE1	SSW4	NW5	SW6.5	W13
20-Oct	N12	N11	NNE10	NNW10	NW13	NNW16	NNW14	NNE10	NNE6	E7	E7	ESE7	E8	E9	E9	E11	ENE11	E12	E9	E8	E8	ESE9	NE9	NE9	NE6.3	NNW16
21-Oct	NNE9	NNE10	NNE11	N12	N12	N12	NNW17	N17	N19	N17	N18	N18	N18	NNW18	NNW18	NNW19	N14	NNW18	N11	N11	NW11	WNW9	W11	WSW11	NNW12.5	NNW19
22-Oct	SW9	SW9	SW8	W11	WSW10	WSW9	SSW8	SW7	WSW11	WSW14	WSW15	WSW16	WSW17	WSW17	SW17	SW15	SW14	SW14	SSW14	SW16	SW16	SW18	WSW18	WSW20	SW13.2	WSW20
23-Oct	W16	W14	W13	WSW12	WSW11	WSW10	WSW11	WSW12	WSW12	WSW14	WSW12	W14	W15	WSW13	WSW13	WSW8	SW7	SW8	SW11	WSW11	SW12	SW12	SW13	SW14	WSW11.7	WSW16
24-Oct	SW15	SW14	WSW14	WSW14	WSW13	WSW15	WSW14	WSW13	WSW13	W16	W18	W17	W16	W20	W20	W21	W15	W9	WSW8	W9	SW10	SSW8	S5	WSW10	WSW12.8	W21
25-Oct	WSW14	WSW15	WSW14	WSW13	WSW12	WSW10	WSW11	WSW9	WSW11	W12	W14	W14	W14	WNW13	W12	WNW9	WSW8	SSW7	SSW6	SSW7	SSW6	S5	SSW3	WSW9.2	WSW15	
26-Oct	SSE3	ESE4	E5	ESE3	SSE2	E2	ESE1	NE1	NE5	NE6	NE11	NE11	ENE13	E14	E15	E14	E10	ESE8	E9	ESE11	ESE10	SE8	SE6	SE7	E6.6	E15
27-Oct	SE8	SE8	SE8	SE7	ESE4	E7	E9	E6	ESE8	ESE10	E10	ESE12	ESE16	ESE14	ESE15	SSE11	SSE6	SSE3	SW3	S5	SSW6	SW9	W12	W16	SE5.5	ESE16
28-Oct	W15	WNW18	W16	W17	W18	WNW20	W15	W14	WNW19	WNW17	WNW18	WNW17	WNW16	W15	W13	WNW16	NW13	WNW15	NW17	NW16	NW18	NW19	NW17	NW18	WNW15.9	WNW20
29-Oct	NW15	WNW13	NW14	NW20	NW16	WNW15	W11	WSW11	W14	NW15	W14	W14	W14	W13	W12	WSW9	SW7	SSW7	S7	S7	SSW8	SSW10	SSW11	SSW12	W9.0	NW20
30-Oct	SSW10	SW12	SW12	SW8	S7	S2	S1	NE4	NNE10	NE10	NE10	NNE11	NE13	ENE15	ENE14	ENE14	NE15	ENE15	ENE14	ENE12	NE13	NE11	ENE10	ENE8	ENE6.3	NE15
31-Oct	ENE8	NE9	ENE12	ENE8	ENE11	ENE11	ENE13	ENE11	E10	E7	ESE6	ENE11	ENE11	ENE12	ENE9	E7	SE9	SE7	SE6	E8	ENE8	ENE7	E6	E4	ENE8.2	ENE13

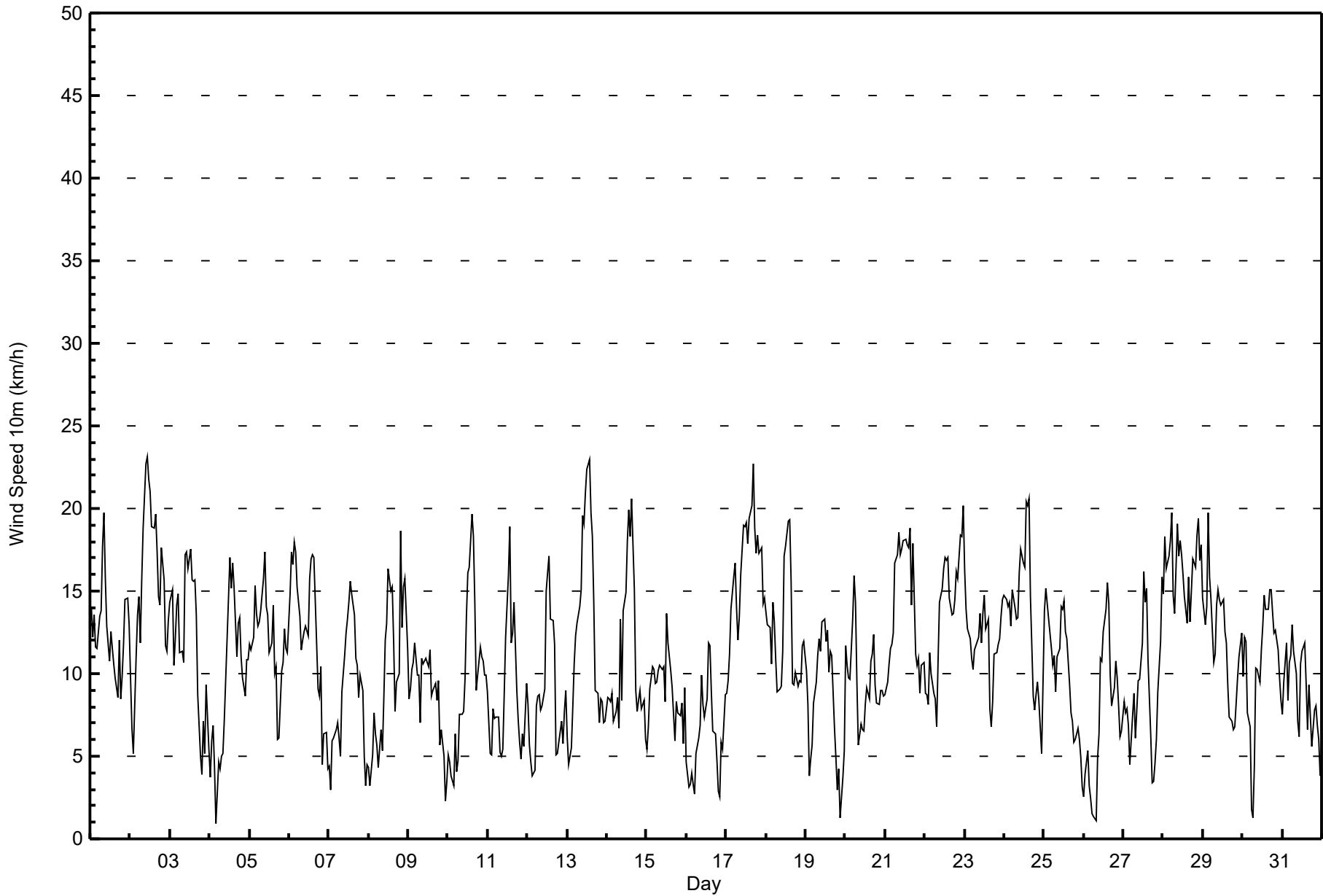
WSW4.8	WSW4.7	WSW4.3	WSW5.0	WSW5.4	W5.3	WSW4.9	WSW4.1	WSW5.1	W5.6	WSW6.0	WSW6.4	WSW6.1	WSW5.9	WSW6.1	WSW5.7	WSW4.5	SW2.7	SSW3.0	SW3.3	SW4.2	SW4.7	SW4.3	WSW4.9	Diurnal Average
WSW16	WNW18	SW17	NW20	W18	WNW20	NNW17	WSW18	WSW20	WNW23	NW23	WNW22	S22	SSE23	W20	S21	W23	W19	W17	WNW19	NW18	NW19	WSW18	WSW20	Diurnal Maximum

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



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

**Wind Speed 10m (WS10) - km/h**  
**Christina Lake - October 2024**





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

**Wind Speed 10m (WS10) - km/h**  
**Christina Lake - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	87	11.69	11.69
6 - 11	328	44.09	55.78
12 - 19	307	41.26	97.04
20 - 28	22	2.96	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 10m (WS10) - km/h  
Christina Lake - October 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	1	3	3	8	8	5	11	19	24	3	0	1	0	1	0	87
6 - 11	7	10	12	18	29	13	14	21	28	50	37	64	18	4	2	1	328
12 - 19	19	0	4	13	8	6	0	12	10	11	28	68	68	26	21	13	307
20 - 28	0	0	0	0	0	0	0	2	5	0	0	3	5	5	2	0	22
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	11	19	34	45	27	19	46	62	85	68	135	92	35	26	14	744

Total Number of Valid Hours: 744

Total Number of Hours: 744





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

**Wind Speed 10m (WS10) - km/h**  
**Christina Lake - October 2024**

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





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Wind Direction 10m (WD10) - deg**

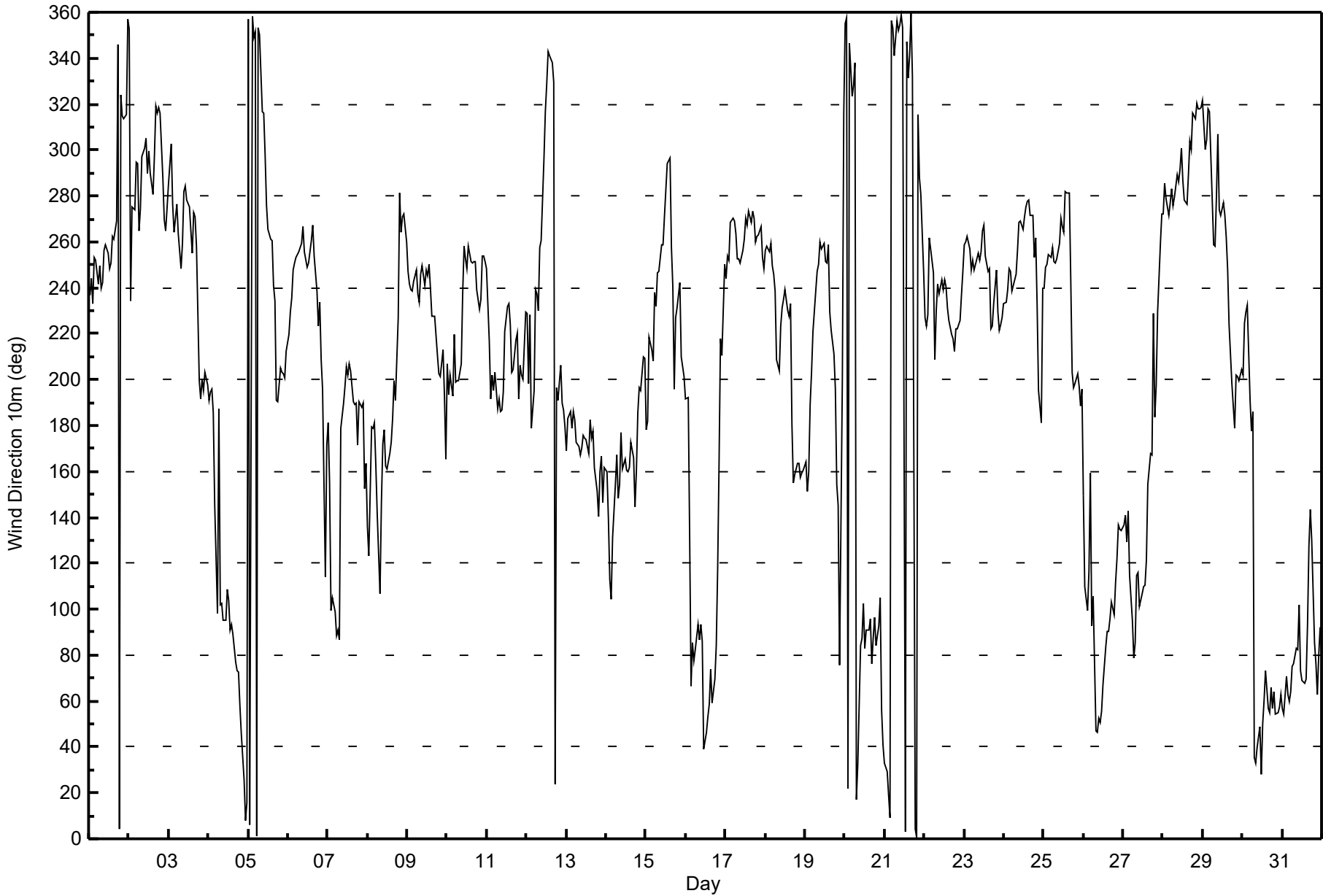
**Christina Lake - October 2024**

Direction of Maximum Speed: 305 deg on Oct 2 11:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 262.6 deg on Oct 17		Hours of Data:	744
Direction of Minimum Speed: 146 deg on Oct 4 05:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 3.8 deg on Oct 16		Percent Operational Time:	100.0
Monthly Average Direction: 245.3 deg			

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	237	244	233	253	252	242	250	240	242	256	259	255	248	251	262	261	269	346	5	324	315	313	315	357	268.1
2-Oct	353	234	275	274	295	294	265	274	297	301	305	290	299	290	281	298	319	316	319	316	288	270	265	275	293.9
3-Oct	285	303	276	265	271	276	263	249	259	282	284	278	275	265	255	272	271	258	199	192	200	195	203	197	265.1
4-Oct	191	195	196	186	146	98	187	102	103	95	95	109	104	91	93	89	77	73	73	58	46	25	8	16	85.8
5-Oct	357	6	358	349	352	1	353	350	317	316	297	276	265	261	261	241	234	191	190	205	203	203	201	213	292.3
6-Oct	220	229	236	248	251	253	256	257	260	266	256	249	251	256	261	267	254	239	224	234	209	196	114	172	245.4
7-Oct	181	155	99	105	99	88	91	87	179	190	197	206	202	207	204	190	189	190	171	190	188	190	152	164	179.2
8-Oct	136	123	179	179	181	163	142	107	147	172	178	163	161	168	173	183	199	191	227	281	264	271	272	260	198.4
9-Oct	247	242	239	238	243	248	238	234	246	250	241	248	245	250	240	228	228	219	211	203	201	213	193	165	235.1
10-Oct	207	194	202	193	220	199	199	200	207	238	258	253	248	258	252	251	251	251	239	230	235	254	254	252	240.2
11-Oct	249	216	192	202	195	203	187	192	186	187	194	221	232	233	224	203	204	217	221	192	206	202	200	229	212.0
12-Oct	229	198	228	179	196	239	237	230	257	261	296	316	329	343	341	338	330	24	196	191	206	190	187	179	273.6
13-Oct	169	183	186	179	186	183	172	171	167	170	176	174	174	168	182	174	178	162	151	140	160	166	146	162	171.5
14-Oct	160	139	113	104	131	154	167	148	154	177	161	165	160	160	162	172	166	145	160	186	196	195	210	210	162.5
15-Oct	178	182	219	213	208	238	232	247	247	259	259	271	282	294	296	258	241	196	227	231	242	210	206	201	239.3
16-Oct	192	192	132	67	85	77	83	94	86	94	86	39	47	53	59	74	59	70	84	118	164	218	210	250	83.4
17-Oct	244	254	252	268	271	269	264	252	252	251	256	261	270	267	274	268	273	271	260	262	263	267	253	248	262.6
18-Oct	256	258	256	259	250	246	239	209	204	223	231	235	239	230	228	233	181	155	158	163	164	157	159	161	219.2
19-Oct	164	151	160	189	203	221	238	247	250	260	257	259	252	251	259	229	221	211	196	154	145	76	201	316	230.6
20-Oct	355	357	22	347	323	328	338	17	32	84	87	102	83	91	91	96	76	87	97	84	93	105	56	41	47.1
21-Oct	33	29	19	9	356	353	341	357	352	354	359	353	3	347	332	341	360	332	4	0	316	288	281	247	348.1
22-Oct	227	223	228	262	257	247	209	230	242	237	243	239	243	240	231	226	220	218	213	222	222	226	237	247	233.1
23-Oct	259	260	262	257	248	252	248	250	255	252	256	265	267	254	247	248	222	223	233	248	229	221	224	227	247.3
24-Oct	233	234	239	248	247	239	243	246	256	269	269	265	271	275	277	278	272	272	253	262	232	195	181	240	255.1
25-Oct	240	249	250	255	253	257	251	251	253	260	270	267	264	282	281	282	244	203	196	198	203	197	189	196	250.3
26-Oct	150	110	99	116	159	93	106	47	46	53	50	55	67	84	90	90	96	103	98	112	122	137	135	134	93.3
27-Oct	136	141	130	143	115	95	79	85	115	116	101	107	110	111	121	155	168	167	229	183	198	230	259	272	135.1
28-Oct	272	285	279	272	277	283	276	279	289	286	292	301	287	278	276	289	304	300	316	314	320	318	318	319	293.4
29-Oct	322	300	305	318	317	297	259	258	280	307	274	272	277	272	261	248	224	198	189	179	202	202	199	204	270.1
30-Oct	202	224	229	233	191	177	186	35	33	40	49	28	50	61	73	57	55	66	57	64	54	55	57	63	60.3
31-Oct	57	55	70	63	60	64	75	76	83	83	102	73	69	67	70	93	128	143	130	85	76	63	80	92	78.1

242.0 242.8 243.3 255.7 256.9 260.2 248.7 247.8 253.4 260.1 257.3 256.4 253.5 250.2 244.8 242.5 237.3 221.3 209.4 228.9 225.8 227.7 230.4 238.2  
Diurnal Average

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





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

**Wind Direction 10m (WD10) - deg**  
**Christina Lake - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 81 deg on Oct 26 08:00											Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0														
Minimum Value: 5 deg on Oct 9 19:00																									
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 19 P <sub>90</sub> = 25 P <sub>99</sub> = 59																									
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-Oct	13	14	11	17	17	12	14	11	13	19	19	22	20	18	18	19	35	29	32	20	10	12	16	18	35
2-Oct	27	35	35	21	25	20	17	16	18	16	17	17	18	17	16	20	14	13	14	11	18	17	17	16	35
3-Oct	25	19	29	17	16	17	22	15	18	19	19	23	21	22	20	21	19	17	34	27	20	16	6	11	34
4-Oct	16	8	8	26	32	27	34	26	18	21	15	15	13	12	13	13	14	13	12	15	12	17	14	13	34
5-Oct	21	18	19	20	20	19	21	22	14	15	19	19	19	19	20	20	13	18	16	11	11	12	12	13	22
6-Oct	10	13	13	15	15	17	17	17	18	19	20	22	19	22	20	20	17	14	7	10	27	35	24	35	35
7-Oct	13	16	14	6	8	6	16	24	36	15	15	16	17	17	16	14	11	13	8	13	12	10	26	19	36
8-Oct	16	38	21	12	18	29	22	9	24	23	21	17	13	18	15	16	12	10	23	19	23	20	18	18	38
9-Oct	13	15	14	13	13	15	13	19	14	16	14	17	20	18	17	13	13	14	5	21	9	13	38	29	38
10-Oct	11	20	42	33	12	20	14	10	13	22	19	20	19	21	19	18	17	15	10	10	12	17	16	13	42
11-Oct	12	20	13	6	7	10	11	7	15	23	13	18	14	14	12	14	14	13	12	16	34	17	18	12	34
12-Oct	16	14	40	30	22	15	16	13	29	22	25	21	23	22	27	21	16	58	18	15	6	14	8	12	58
13-Oct	8	12	14	13	12	13	12	14	14	14	15	16	16	15	16	15	13	15	13	20	19	19	19	16	20
14-Oct	13	13	15	5	13	22	17	12	15	43	17	18	14	16	19	15	13	15	15	17	16	15	19	25	43
15-Oct	16	15	13	9	9	16	9	12	12	18	20	31	23	29	26	23	12	16	14	10	16	20	27	7	31
16-Oct	40	72	15	22	21	28	8	11	11	13	14	18	13	10	12	14	17	11	12	53	53	14	24	16	72
17-Oct	14	18	17	18	17	17	18	16	16	16	16	18	18	17	18	18	16	18	19	18	19	18	16	14	19
18-Oct	17	18	17	18	14	13	15	17	13	17	19	16	18	18	14	13	17	7	8	7	10	12	12	11	19
19-Oct	12	12	33	16	13	13	17	14	15	19	19	20	20	19	18	16	12	14	24	60	50	59	49	77	77
20-Oct	20	20	25	26	14	12	19	16	19	16	18	17	21	14	12	11	11	11	12	11	12	15	12	11	26
21-Oct	11	9	13	13	20	20	19	19	21	19	19	21	18	22	17	19	25	12	28	30	30	42	28	14	42
22-Oct	14	11	13	18	17	19	16	32	17	13	16	15	15	13	13	13	12	12	14	12	11	10	12	14	32
23-Oct	18	19	19	17	16	15	12	15	16	15	16	17	18	20	15	17	10	10	15	13	9	10	10	9	20
24-Oct	10	11	15	14	14	12	12	14	18	18	17	18	22	17	18	16	17	36	29	27	17	14	27	12	36
25-Oct	11	14	15	17	17	17	14	14	15	18	18	19	18	26	24	30	11	8	10	9	9	9	11	18	30
26-Oct	20	23	15	12	38	44	30	81	14	9	8	10	12	12	12	12	13	12	10	13	13	12	13	11	81
27-Oct	11	18	9	12	20	11	8	13	15	24	15	14	13	13	16	22	26	42	12	12	8	22	17	17	42
28-Oct	17	16	18	16	16	16	18	18	15	17	17	17	21	17	17	16	18	18	15	15	11	14	13	10	21
29-Oct	13	21	24	12	11	24	18	17	23	19	20	22	18	21	21	19	13	6	11	17	11	11	12	12	24
30-Oct	11	18	11	11	19	65	68	71	10	16	14	15	17	14	14	13	10	11	9	13	9	9	11	13	71
31-Oct	13	9	10	14	17	11	12	11	12	15	32	13	12	11	11	28	19	14	28	14	9	13	7	18	32
	40	72	42	33	38	65	68	81	36	43	32	31	23	29	27	30	35	58	34	60	53	59	49	77	
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS27**  
**JACKFISH 2/3**  
**OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
OCTOBER 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	8	0	3.2	0
H2S (ppb) Average	706	37	38	99.87	1.6	0	0.3	0
NO2 (ppb) Average	685	39	59	97.31	5.9	0	2.2	-
NO (ppb) Average	685	39	59	97.31	6.5	-	0.8	-
NOX (ppb) Average	685	39	59	97.31	11.6	-	2.8	-
Temperature 2 m (C) Average	743	0	1	99.87	20.3	-	13.2	-
Relative Humidity (%) Average	743	0	1	99.87	98.7	-	98.1	-
Wind Speed 10 m (km/h) Average	680	3	64	91.8	17	-	12	-
Wind Direction 10 m (deg) Average	680	3	64	91.8	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
 OCTOBER 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	35	36	-	8	0	3.2	0	0.4	1.1	8.6
H2S (ppb) Average	706	37	38	-	1.6	0	0.3	0	0.3	0.4	1.8
NO2 (ppb) Average	685	39	59	-	5.9	0	2.2	0	0.6	1.3	5.4
NO (ppb) Average	685	39	59	-	6.5	0	0.8	0	0	0.1	4.4
NOX (ppb) Average	685	39	59	-	11.6	0	2.8	0	0.6	1.3	6.7
Temperature 2 m (C) Average	743	0	1	-	20.3	0	13.2	0	15.8	20	30.2
Relative Humidity (%) Average	743	0	1	-	98.7	0	98.1	29	88.4	96.9	99.3
Wind Speed 10 m (km/h) Average	680	3	64	-	17	0	12	0	8	10	17
Wind Direction 10 m (deg) Average	680	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	24 Oct 2024 08:00	24 Oct 2024 08:00	1	Maintenance - station logger/modem reset
NO2	23 Oct 2024 16:00	24 Oct 2024 11:00	19	Maintenance - stabilization post maintenance
Wind Speed, Wind Direction	12 Oct 2024 06:00	12 Oct 2024 08:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	15 Oct 2024 18:00	15 Oct 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	21 Oct 2024 01:00	22 Oct 2024 14:00	38	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	22 Oct 2024 18:00	22 Oct 2024 21:00	4	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Oct 2024 21:00	30 Oct 2024 09:00	13	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	01 Nov 2024 00:00	01 Nov 2024 00:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

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

Jackfish 2/3 - October 2024

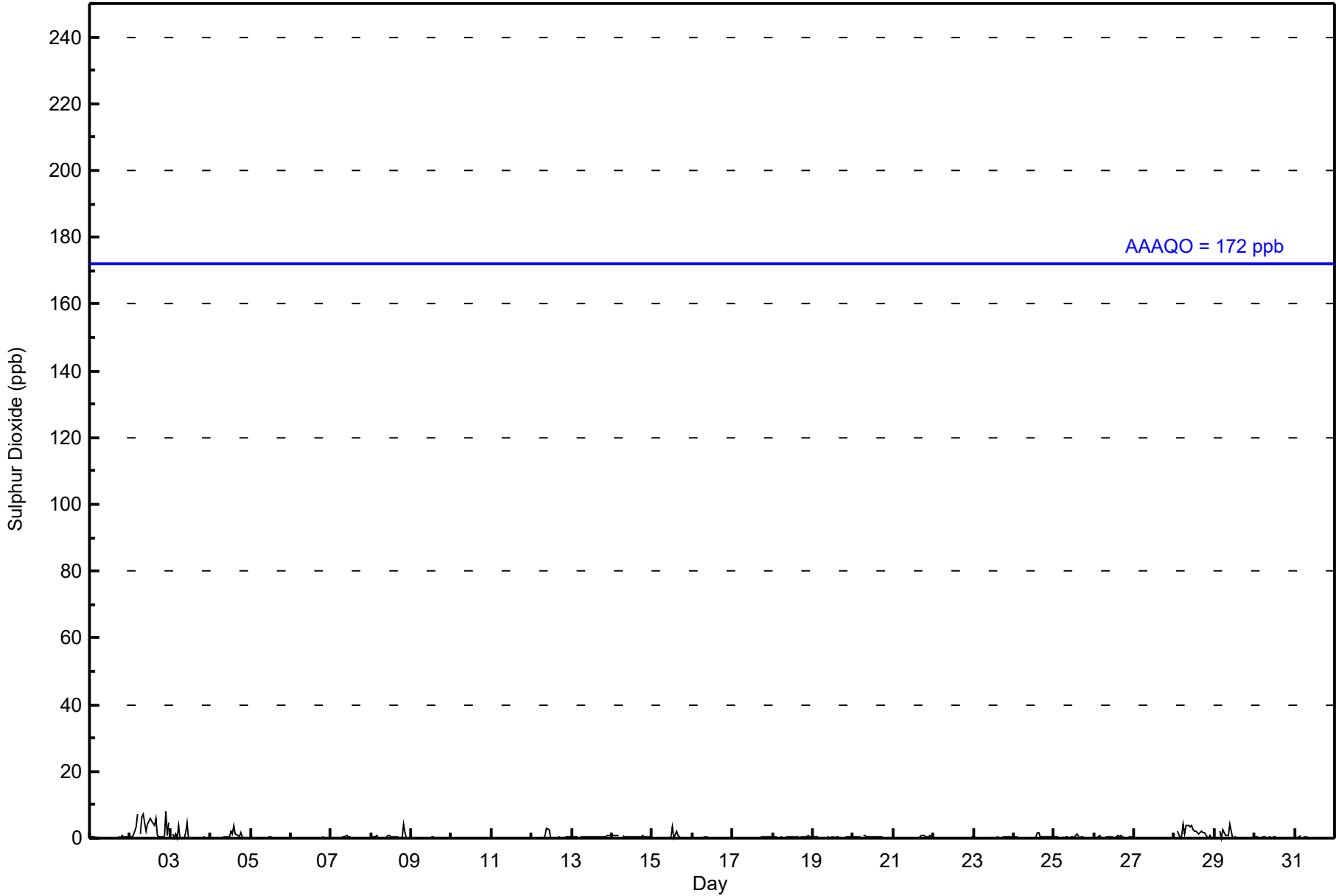
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 8.0 ppb on Oct 2 22:00		Maximum Daily Average: 3.2 ppb on Oct 2				Hours of Data:		708																		
Minimum Value: 0.0 ppb on Oct 1 10:00		Minimum Daily Average: 0.0 ppb on Oct 11				Hours of Missing Data:		36																		
Maximum Diurnal Average: 0.8 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 18				Hours of Calibration:		35																		
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 = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.8 P <sub>99</sub> = 5.1				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-Oct	0.3	0.3	0.2	0.3	Z	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.7	0.4	0.4	0.5	0.4	0.2	0.7
2-Oct	0.4	0.4	1.1	3.2	7.2	Z	1.3	6.1	7.1	2.2	4.3	5.2	5.9	5.1	3.7	6.1	0.9	0.3	0.3	0.3	0.3	8.0	0.9	4.5	3.2	8.0
3-Oct	Z	1.4	0.2	1.1	0.0	3.7	0.1	0.0	0.0	1.6	4.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.6	4.6
4-Oct	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.6	0.3	2.0	1.2	3.9	1.1	0.7	0.2	1.8	0.6	0.2	0.2	0.2	0.1	0.6	3.9
5-Oct	0.3	0.3	Z	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.3
6-Oct	0.1	0.1	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.2
7-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.4	0.7	0.5	0.3	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7
8-Oct	0.1	0.3	0.6	0.9	0.5	Z	0.1	0.0	0.1	0.3	0.8	0.8	0.5	0.3	0.3	0.4	0.4	0.1	0.0	4.1	1.6	0.0	0.0	0.1	0.5	4.1
9-Oct	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.4
10-Oct	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
11-Oct	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	0.0	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-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.8	3.0	2.4	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	3.0
13-Oct	0.2	0.3	0.6	0.5	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.7	0.6	0.8	0.8
14-Oct	0.7	0.8	0.7	0.8	0.9	Z	0.7	0.4	0.3	0.4	0.4	0.6	0.5	0.5	0.4	0.4	0.4	0.5	0.7	0.6	0.6	0.6	0.3	0.3	0.5	0.9
15-Oct	Z	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.4	0.2	2.2	0.8	0.3	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.3	3.4
16-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.4	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.6	
17-Oct	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3
18-Oct	0.3	0.3	0.4	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.8	0.6	0.4	0.3	0.8
19-Oct	0.4	0.4	0.4	0.6	Z	0.1	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	0.2	0.2	0.2	0.2	0.2	0.2	0.6
20-Oct	0.3	0.3	0.4	0.4	0.5	Z	0.8	0.9	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.9
21-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.1	0.3	0.7	0.9	0.5	0.2	0.4	1.0	0.1	0.2	1.0
22-Oct	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	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.1	0.3
23-Oct	0.2	0.2	Z	0.0	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	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3
24-Oct	0.3	0.3	0.3	Z	0.2	0.2	0.2	M	0.2	0.1	0.1	0.2	0.2	0.3	1.8	1.6	0.3	0.6	0.4	0.3	0.3	0.3	0.4	0.5	0.4	1.8
25-Oct	0.5	0.4	0.5	0.4	Z	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.8	1.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	1.2
26-Oct	0.1	0.2	0.2	0.9	0.5	Z	0.1	0.3	0.6	0.3	0.5	0.3	0.1	0.2	1.0	0.5	0.9	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.4	1.0
27-Oct	Z	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2
28-Oct	1.3	Z	1.9	0.0	1.0	4.1	1.3	3.8	3.8	3.6	3.9	2.6	2.0	1.9	1.1	1.7	1.9	1.5	1.8	0.4	0.1	1.0	0.2	0.1	1.8	4.1
29-Oct	0.0	0.0	Z	2.1	0.1	2.3	0.7	0.9	0.9	4.2	2.1	0.1	0.4	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.6	4.2
30-Oct	0.3	0.3	0.4	Z	0.3	0.3	0.2	0.2	0.1	0.3	0.1	0.2	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.5
31-Oct	0.0	0.0	0.2	0.7	Z	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.7
																								Diurnal Average		
																								Diurnal Maximum		
0.2 0.3 0.3 0.5 0.5 0.5 0.2 0.5 0.6 0.6 0.8 0.5 0.6 0.4 0.6 0.5 0.3 0.2 0.3 0.3 0.2 0.5 0.2 0.3																										
1.3 1.4 1.9 3.2 7.2 4.1 1.3 6.1 7.1 4.2 4.6 5.2 5.9 5.1 3.9 6.1 1.9 1.5 1.8 4.1 1.6 8.0 1.0 4.5																										
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  
Jackfish 2/3 - October 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - October 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**  
**Jackfish 2/3 - October 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	3	0	0	0	1	0	1	0	2	7	2	14	23	11	9	1	74
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>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>7</b>	<b>2</b>	<b>14</b>	<b>23</b>	<b>11</b>	<b>9</b>	<b>1</b>	<b>74</b>

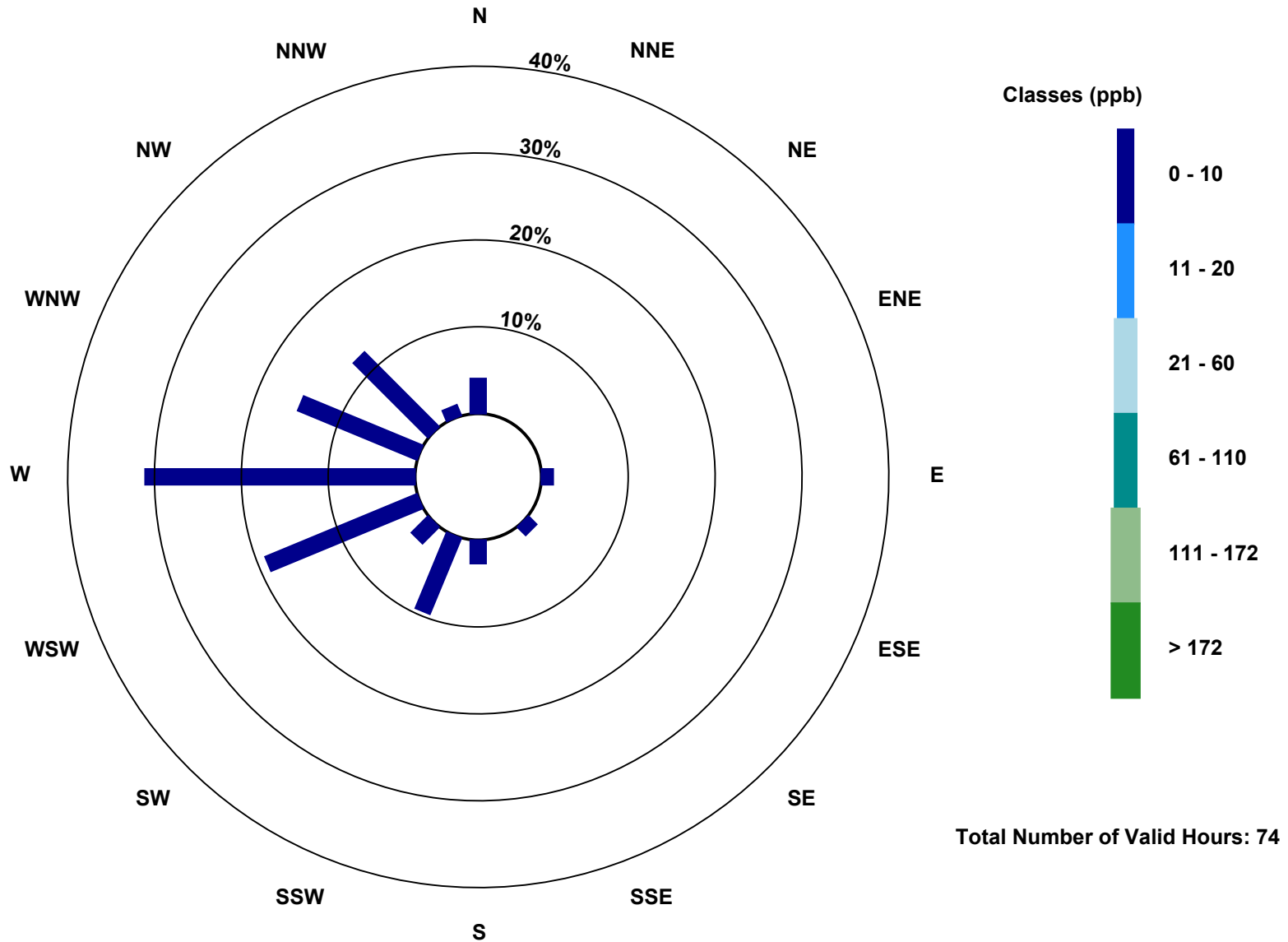
Total Number of Valid Hours: 74

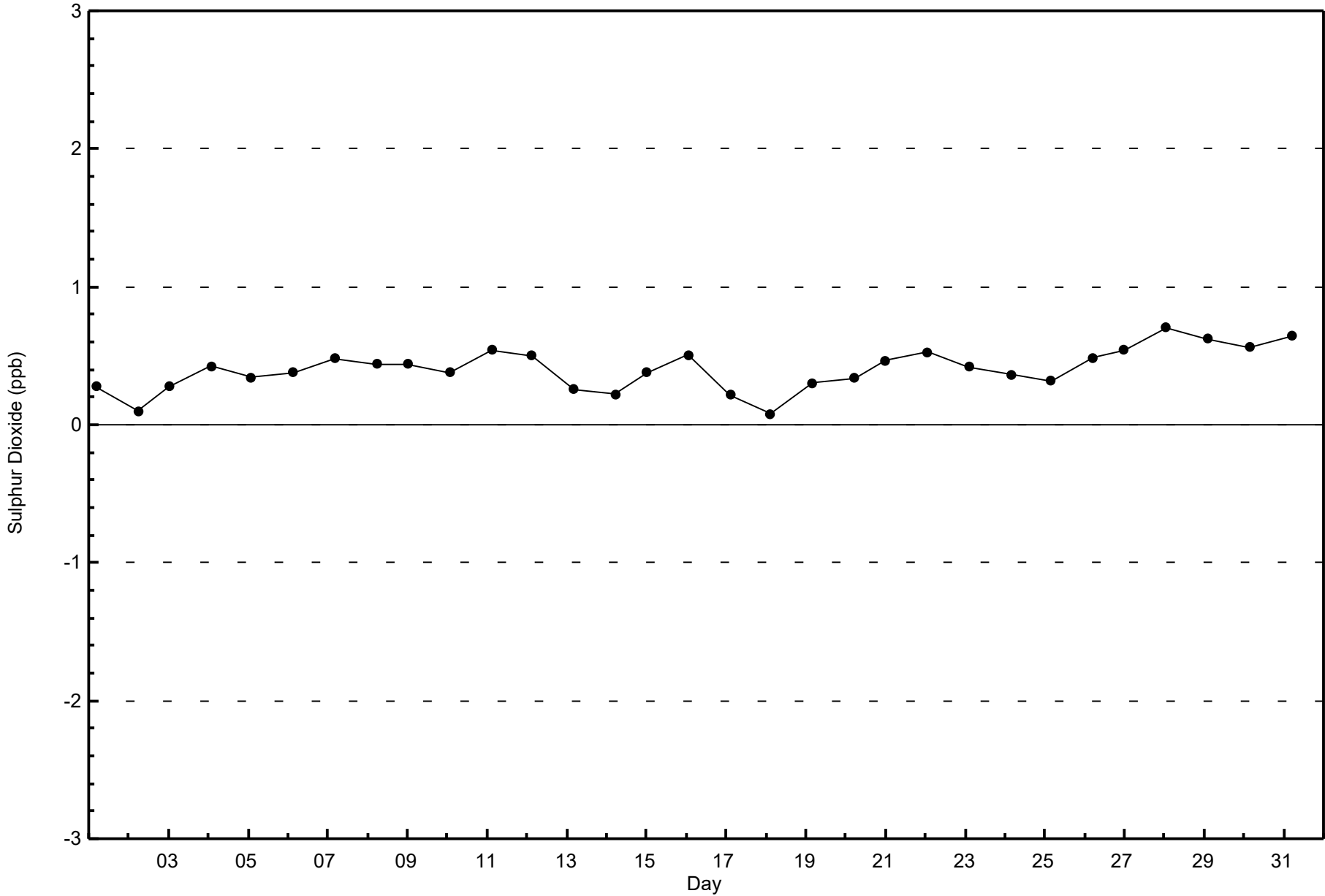
Total Number of Hours: 744

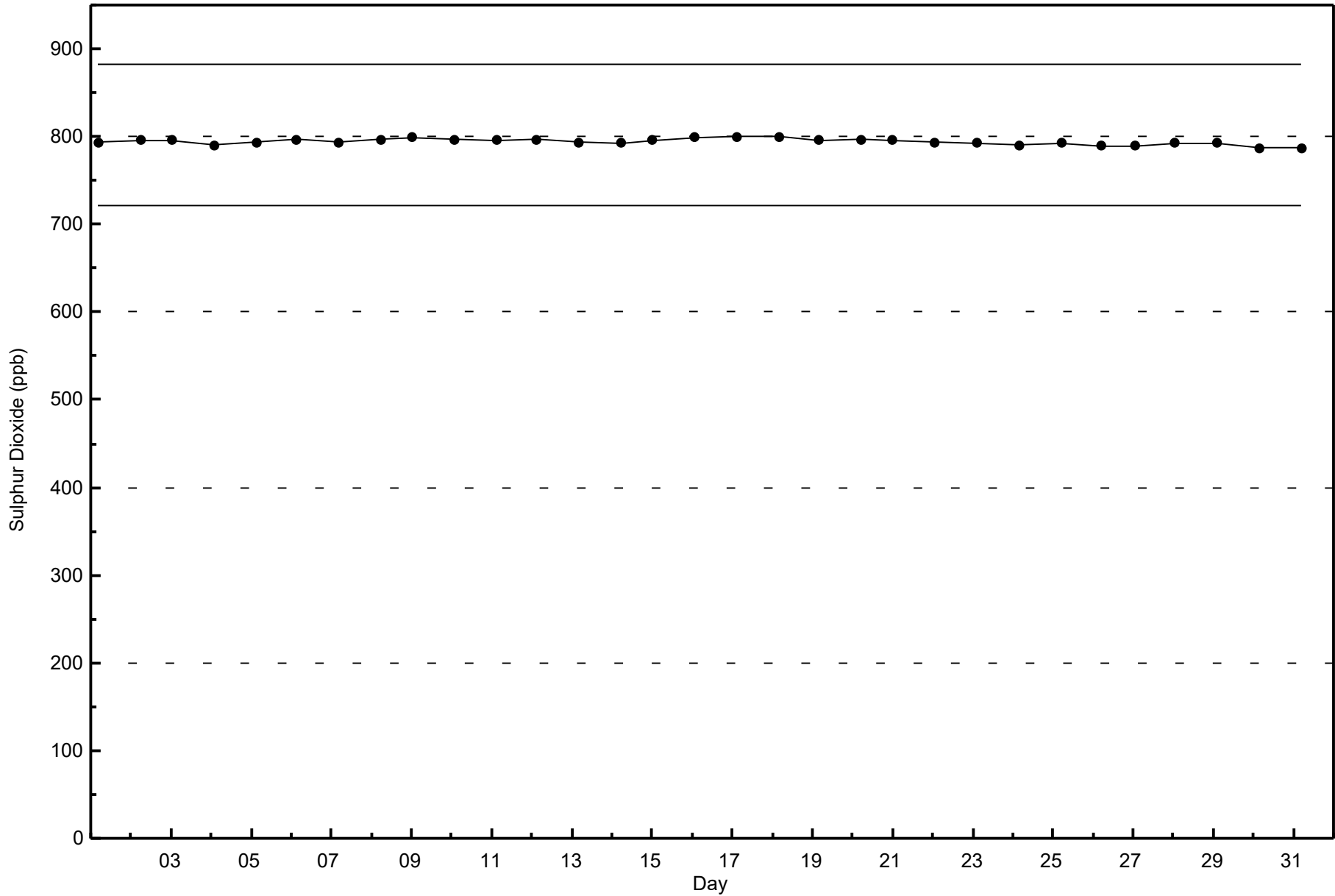


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3









Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H2S) - ppb

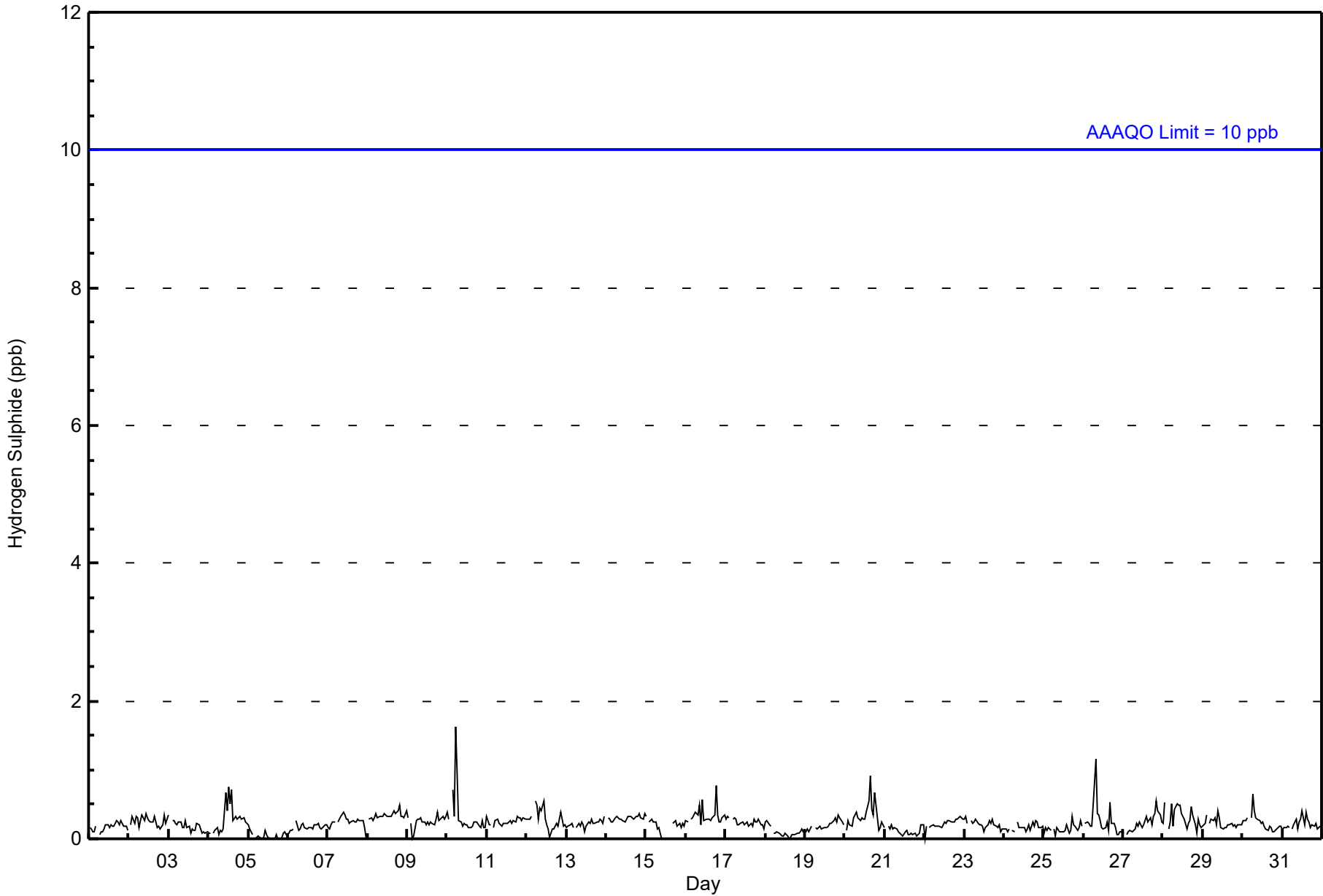
Jackfish 2/3 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744							
Maximum Value: 1.6 ppb on Oct 10 06:00		Maximum Daily Average: 0.3 ppb on Oct 8																	Hours of Data: 706									
Minimum Value: 0.0 ppb on Oct 5 05:00		Minimum Daily Average: 0.0 ppb on Oct 5																	Hours of Missing Data: 38									
Maximum Diurnal Average: 0.3 ppb at hour 6		Minimum Diurnal Average: 0.2 ppb at hour 5																	Hours of Calibration: 37									
Monthly Average: 0.23 ppb		Percentiles: P <sub>1</sub> = 0.0 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> = 0.3 P <sub>99</sub> = 0.7																	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-Oct	0.2	0.1	0.1	0.1	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.4
2-Oct	Z	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.2	0.3	0.2	0.3	0.3	0.4
3-Oct	0.4	Z	0.3	0.3	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	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4
4-Oct	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.7	0.4	0.7	0.5	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.7
5-Oct	0.2	0.1	0.1	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	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
6-Oct	0.1	0.1	0.1	0.1	Z	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3
7-Oct	0.2	0.1	0.2	0.2	0.2	Z	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.0	0.2	0.2	0.4	0.4
8-Oct	Z	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.4	0.3	0.5	0.5
9-Oct	0.3	Z	0.2	0.0	0.0	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	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
10-Oct	0.4	0.3	Z	0.7	0.3	1.6	1.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	1.6	1.6
11-Oct	0.3	0.2	0.2	Z	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	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
12-Oct	0.3	0.3	0.3	0.3	Z	0.5	0.5	0.3	0.5	0.4	0.5	0.3	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.3	0.3	0.5	0.5
13-Oct	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3
14-Oct	Z	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.4
15-Oct	0.3	Z	0.2	0.3	0.2	0.2	0.3	0.1	0.2	0.0	C	C	C	C	C	C	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
16-Oct	0.3	0.2	Z	0.3	0.3	0.3	0.4	0.4	0.5	0.2	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.8	0.8
17-Oct	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.3
18-Oct	0.3	0.3	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3
19-Oct	0.1	0.1	0.1	0.1	0.2	Z	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3
20-Oct	Z	0.1	0.3	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.9	0.4	0.3	0.7	0.5	0.1	0.2	0.2	0.2	0.2	0.3	0.9	0.9
21-Oct	0.2	Z	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
22-Oct	0.0	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23-Oct	0.3	0.3	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3
24-Oct	0.1	0.1	0.1	0.1	Z	0.1	0.1	M	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
25-Oct	0.1	0.2	0.1	0.2	0.1	Z	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	0.3	0.3
26-Oct	Z	0.2	0.2	0.2	0.2	0.2	0.5	1.2	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.2	1.2
27-Oct	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	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.6	0.4	0.3	0.3	0.2	0.2	0.6	0.6
28-Oct	0.2	0.5	Z	0.1	0.2	0.5	0.2	0.4	0.5	0.5	0.5	0.4	0.3	0.3	0.1	0.2	0.3	0.5	0.3	0.2	0.1	0.3	0.2	0.2	0.2	0.3	0.5	0.5
29-Oct	0.2	0.2	0.3	Z	0.2	0.3	0.3	0.3	0.2	0.4	0.3	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	0.4	0.4
30-Oct	0.3	0.3	0.3	0.3	Z	0.3	0.7	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.7	0.7
31-Oct	0.1	0.2	0.2	0.2	0.2	Z	0.1	0.2	0.3	0.2	0.2	0.3	0.4	0.2	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.4	0.4
																								Diurnal Average				
																								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**  
**Jackfish 2/3 - October 2024**







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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - October 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**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - October 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	11	6	24	28	20	31	10	14	43	81	70	121	99	51	28	12	649
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>	11	6	24	28	20	31	10	14	43	81	70	121	99	51	28	12	649

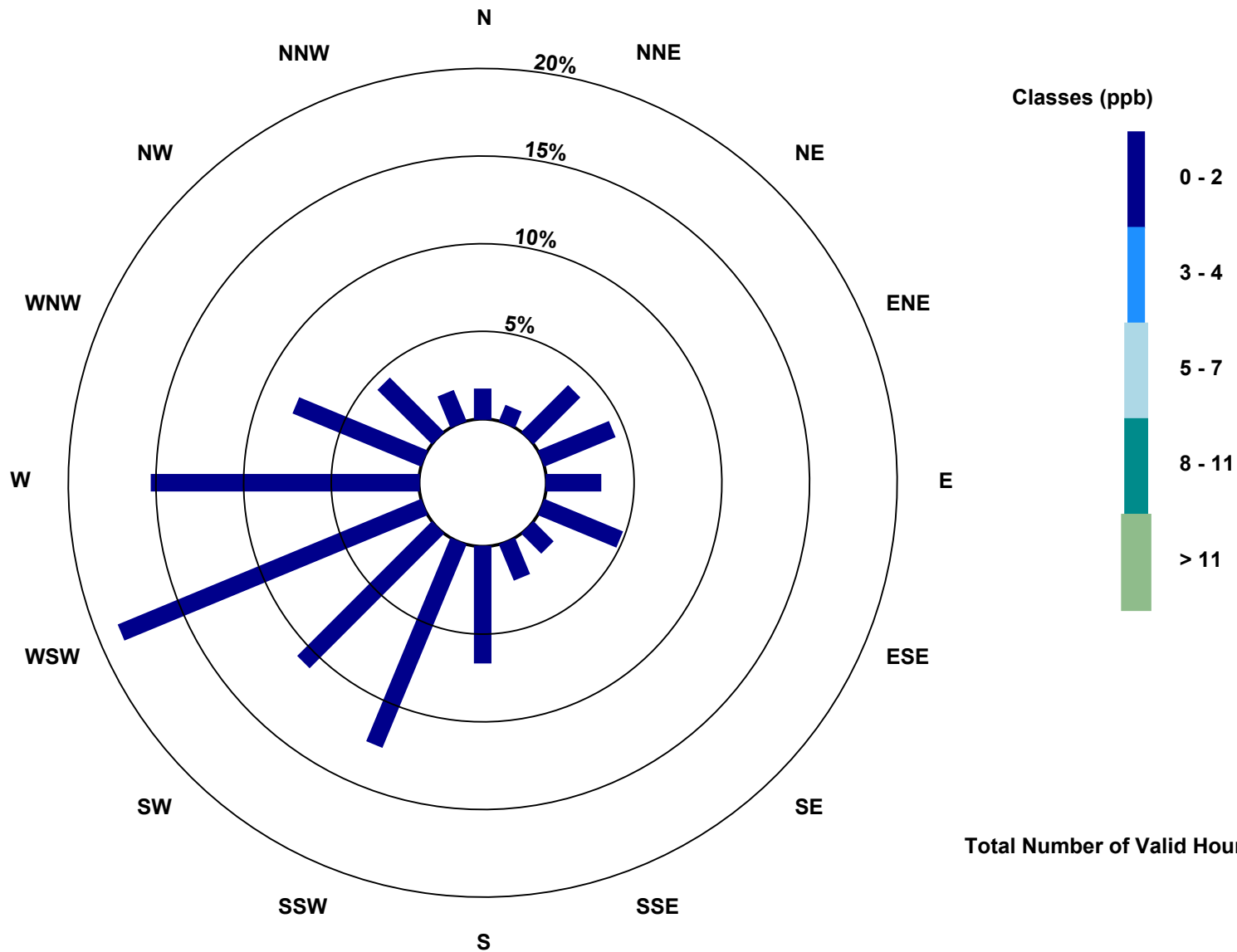
Total Number of Valid Hours: 649

Total Number of Hours: 744

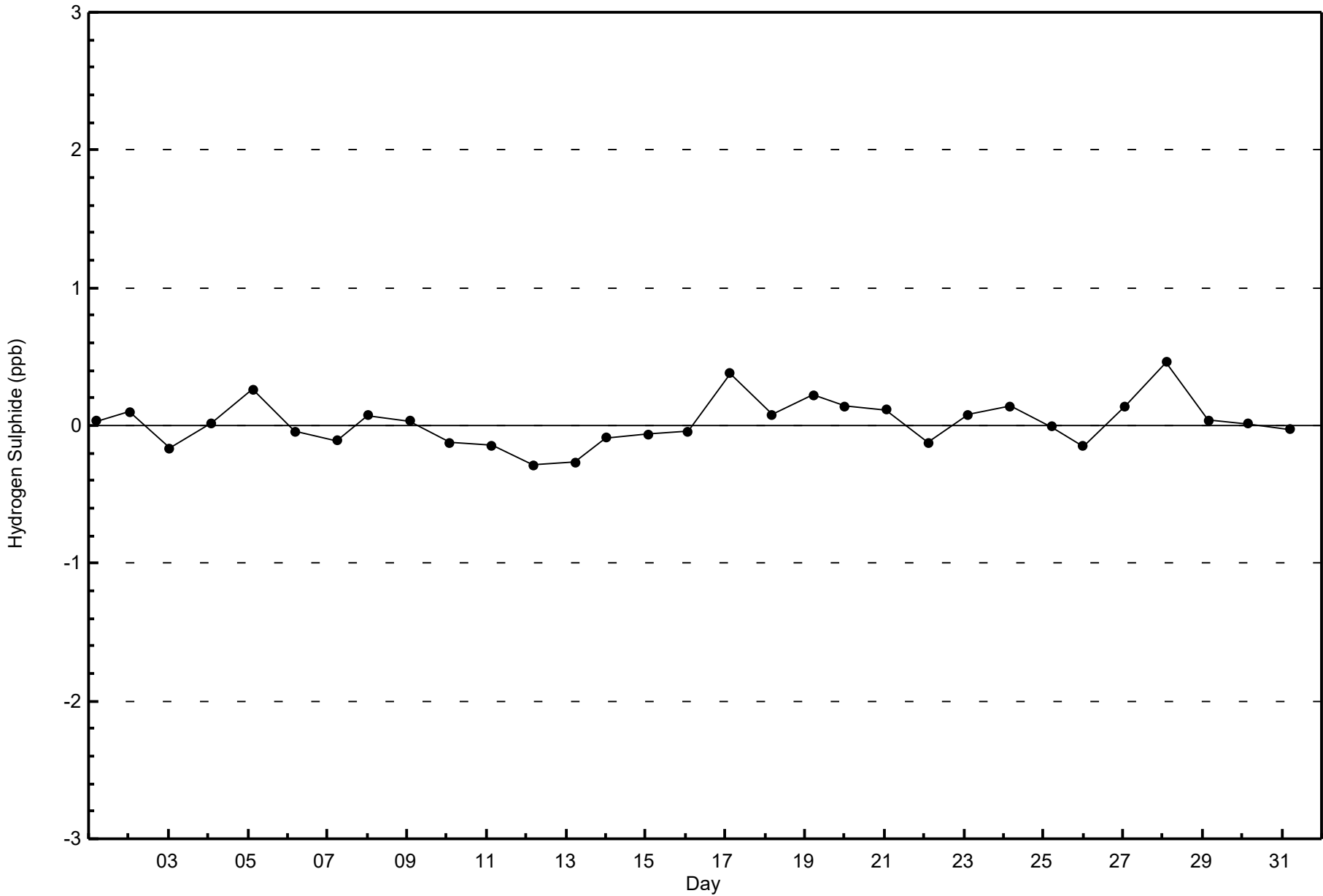


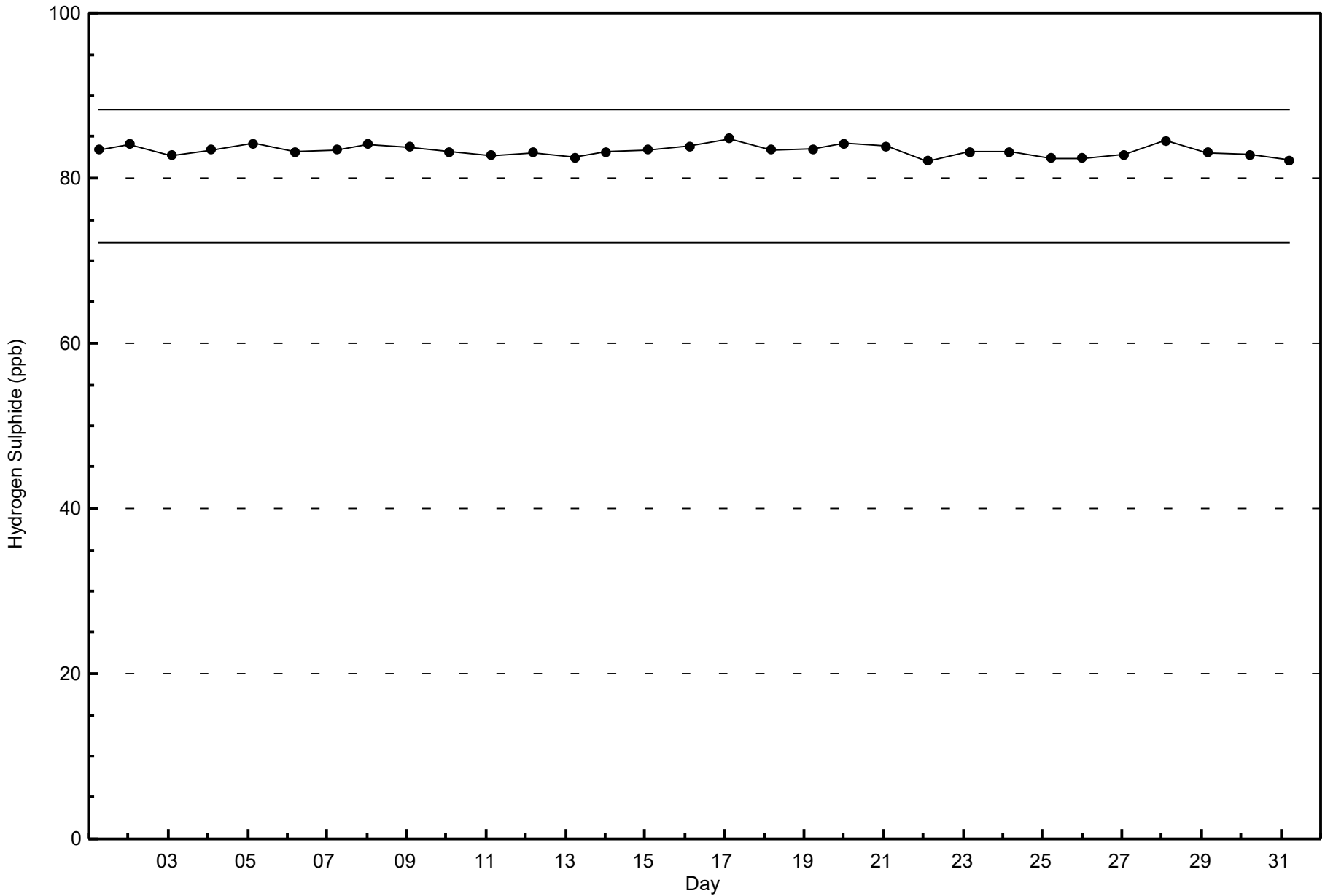
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 649





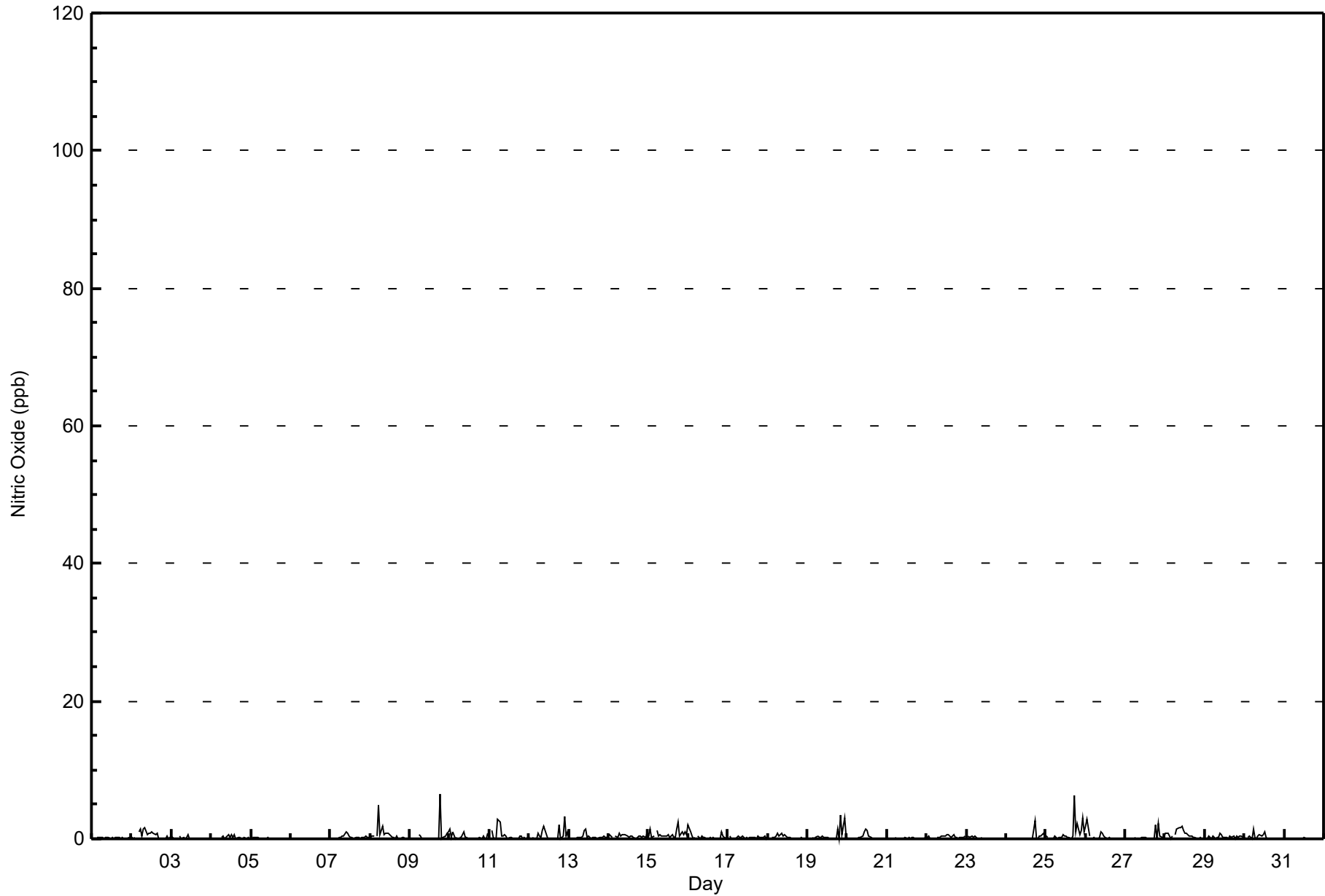


Maximum Value: 6.5 ppb on Oct 9 19:00																				Maximum Daily Average: 0.8 ppb on Oct 25					Hours in Service: 744		
Minimum Value: 0.0 ppb on Oct 1 02:00																				Minimum Daily Average: 0.0 ppb on Oct 6					Hours of Data: 685		
Maximum Diurnal Average: 0.7 ppb at hour 6																				Minimum Diurnal Average: 0.1 ppb at hour 4					Hours of Missing Data: 59		
Monthly Average: 0.32 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.9					Hours of Calibration: 39		
																									Percent Operational Time: 97.3		
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-Oct	0.1	0.0	Z	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.1	0.3		
2-Oct	0.2	0.0	0.1	Z	1.1	1.5	0.3	1.4	1.6	0.6	0.7	0.8	1.1	0.9	0.5	0.8	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.5	1.6	
3-Oct	0.5	0.0	0.0	0.0	Z	0.5	0.0	0.3	0.0	0.2	0.6	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	0.6	
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.3	0.0	0.1	0.5	0.2	0.6	0.3	0.6	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.3	0.1	0.2	0.6	
5-Oct	Z	0.3	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
6-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
7-Oct	0.0	0.0	Z	0.0	0.0	0.2	0.2	0.4	0.3	1.0	0.9	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.2	0.2	0.3	0.3	0.2	0.2	1.0	
8-Oct	0.1	0.4	0.3	Z	0.4	4.9	0.5	1.9	0.6	0.9	0.8	0.8	0.5	0.2	0.1	0.1	0.4	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.6	4.9	
9-Oct	0.0	0.0	0.0	0.0	Z	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	6.5	0.0	0.2	0.4	0.9	0.9	0.4	6.5	
10-Oct	1.5	0.2	1.1	0.0	0.2	Z	0.1	0.2	1.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.1	0.7	0.3	1.5	
11-Oct	Z	1.2	0.2	0.0	0.0	2.8	2.5	0.3	0.4	0.6	0.3	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.4	0.5	0.0	0.3	0.0	0.1	0.4	2.8	
12-Oct	0.2	Z	0.3	0.0	0.0	0.8	0.3	0.2	1.1	1.8	0.7	0.1	0.0	0.1	0.0	0.0	0.0	0.0	1.9	0.1	0.4	3.2	0.4	1.1	0.5	3.2	
13-Oct	0.2	0.2	Z	0.0	0.0	0.3	0.1	0.2	0.4	1.2	1.4	0.2	0.3	0.1	0.2	0.1	0.1	0.0	0.2	0.3	0.2	0.4	0.3	0.1	0.3	1.4	
14-Oct	0.5	0.4	0.2	Z	0.3	0.2	0.8	0.4	0.5	0.6	0.6	0.3	0.2	0.4	0.3	0.2	0.0	0.3	0.3	0.4	0.3	0.4	0.2	1.0	0.4	1.0	
15-Oct	0.5	1.3	0.2	0.3	Z	1.3	0.4	0.6	0.4	0.4	0.5	0.5	0.6	0.2	0.7	0.3	0.3	1.5	2.3	0.3	1.0	0.7	1.0	0.5	0.7	2.3	
16-Oct	2.0	1.1	0.4	0.1	0.1	Z	0.4	0.1	0.3	0.2	0.1	0.0	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.0	1.0	0.4	0.3	0.1	0.3	2.0	
17-Oct	Z	0.3	0.0	0.1	0.0	0.2	0.3	0.2	0.1	0.3	0.0	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.4	0.0	0.2	0.4	
18-Oct	0.3	Z	0.3	0.2	0.2	0.5	0.8	0.4	0.8	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.8	
19-Oct	0.0	0.0	Z	0.2	0.0	0.3	0.4	0.3	0.2	0.3	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	1.4	0.0	3.4	0.6	3.0	0.4	0.5	3.4	
20-Oct	0.0	0.0	0.1	Z	0.0	0.0	0.1	0.3	0.2	0.4	1.0	1.3	1.2	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	
21-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	
22-Oct	0.2	0.3	0.0	0.1	0.1	Z	0.2	0.1	0.2	0.4	0.5	0.3	0.7	0.6	0.4	0.3	0.6	0.2	0.3	0.0	0.3	0.1	0.1	0.3	0.3	0.7	
23-Oct	Z	0.4	0.3	0.4	0.3	0.4	0.2	0.1	0.1	0.2	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	0.4	
24-Oct	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.1	0.0	2.6	0.0	0.0	0.4	0.4	0.9	0.2	2.6	
25-Oct	0.3	0.2	Z	0.1	0.0	0.5	0.1	0.1	0.2	0.3	0.6	0.3	0.4	0.2	0.2	0.0	0.3	6.2	1.1	2.2	0.7	1.1	3.1	1.0	0.8	6.2	
26-Oct	1.8	2.9	0.5	Z	0.0	0.2	0.0	0.1	0.2	1.0	0.8	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.9
27-Oct	0.0	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	2.1	0.1	2.3	0.5	0.2	0.2	0.3	2.3	
28-Oct	0.9	0.9	0.9	0.0	0.5	Z	0.6	1.5	1.6	1.7	1.8	1.2	0.9	0.8	0.4	0.4	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.6	1.8	
29-Oct	Z	0.0	0.4	0.3	0.0	0.4	0.1	0.2	0.3	0.9	0.5	0.1	0.3	0.1	0.0	0.4	0.2	0.3	0.0	0.4	0.2	0.4	0.4	0.2	0.3	0.9	
30-Oct	0.2	Z	0.2	0.4	0.0	1.5	0.2	0.0	0.5	0.6	0.3	0.7	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	
31-Oct	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
0.4 0.4 0.2 0.1 0.1 0.7 0.3 0.3 0.4 0.5 0.5 0.3 0.3 0.2 0.2 0.1 0.1 0.4 0.6 0.2 0.4 0.3 0.4 0.3																								Diurnal Average			
2.0 2.9 1.1 0.4 1.1 4.9 2.5 1.9 1.6 1.8 1.8 1.3 1.2 0.9 0.7 0.8 0.6 6.2 6.5 2.2 3.4 3.2 3.1 1.1																								Diurnal Maximum			
Z - zerospan			C - Calibration			M - Maintenance																					



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

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - October 2024**





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

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744





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

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - October 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	13	5	23	28	20	31	11	14	39	82	64	110	96	51	27	11	625
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>	13	5	23	28	20	31	11	14	39	82	64	110	96	51	27	11	625

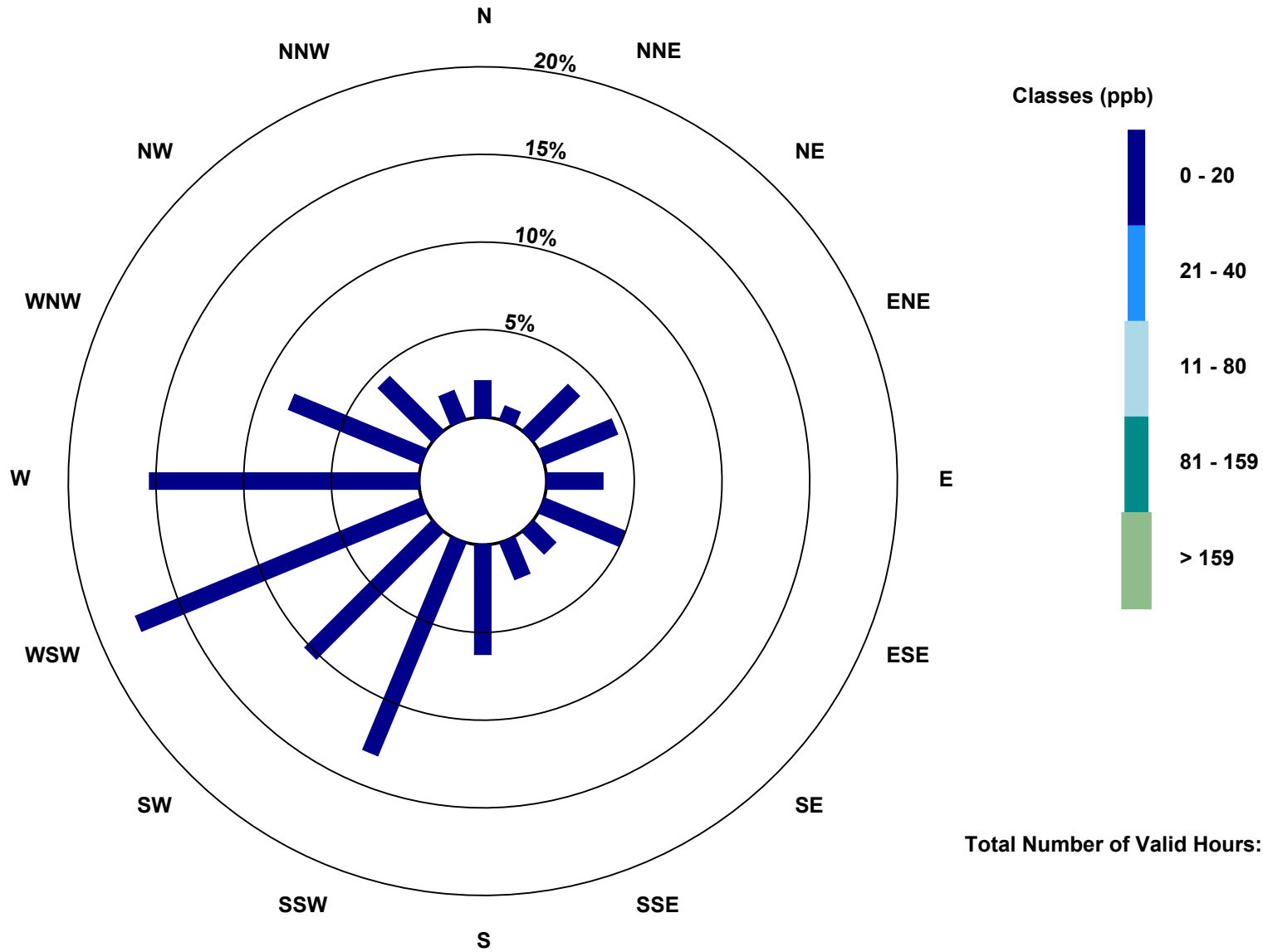
Total Number of Valid Hours: 625

Total Number of Hours: 744

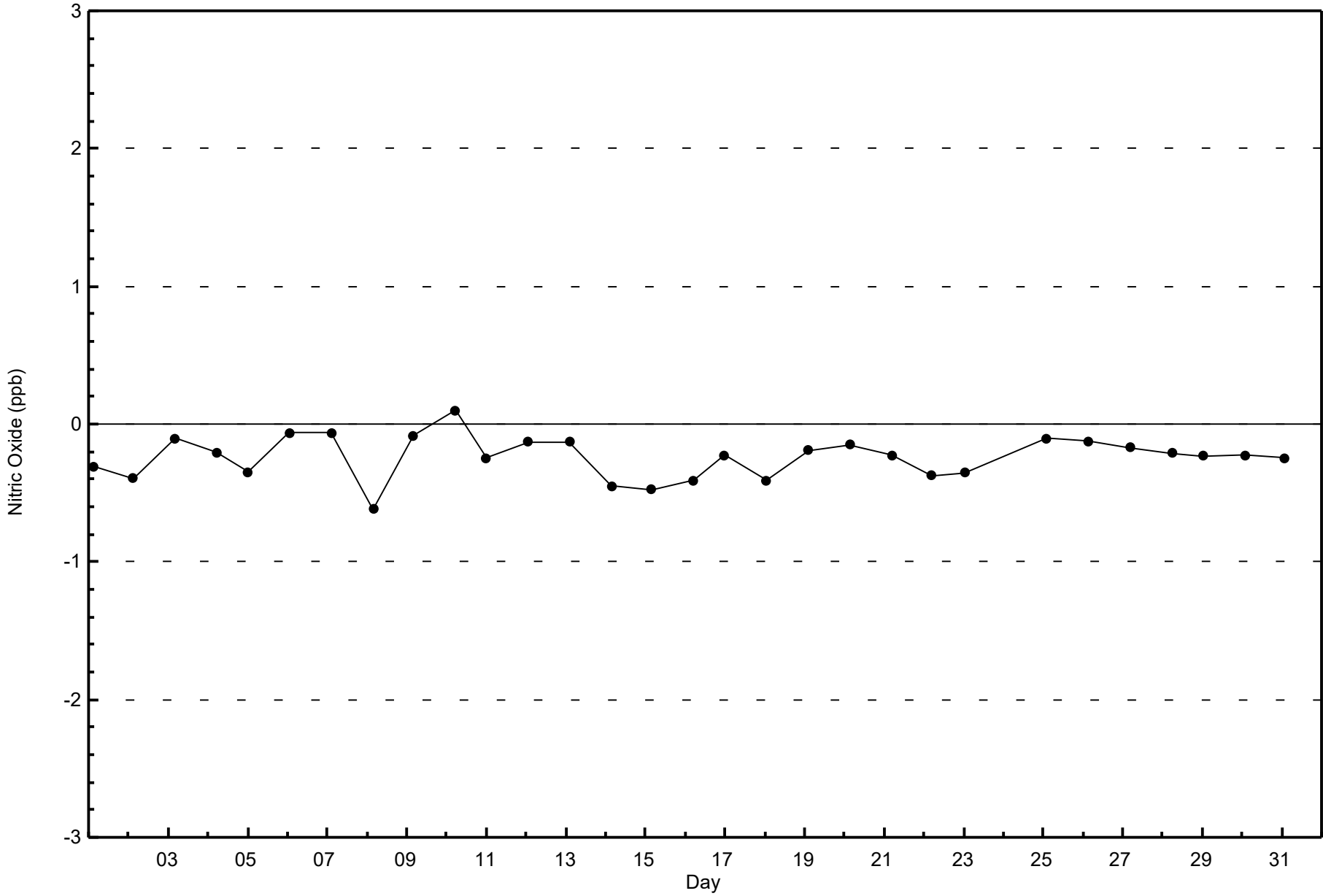


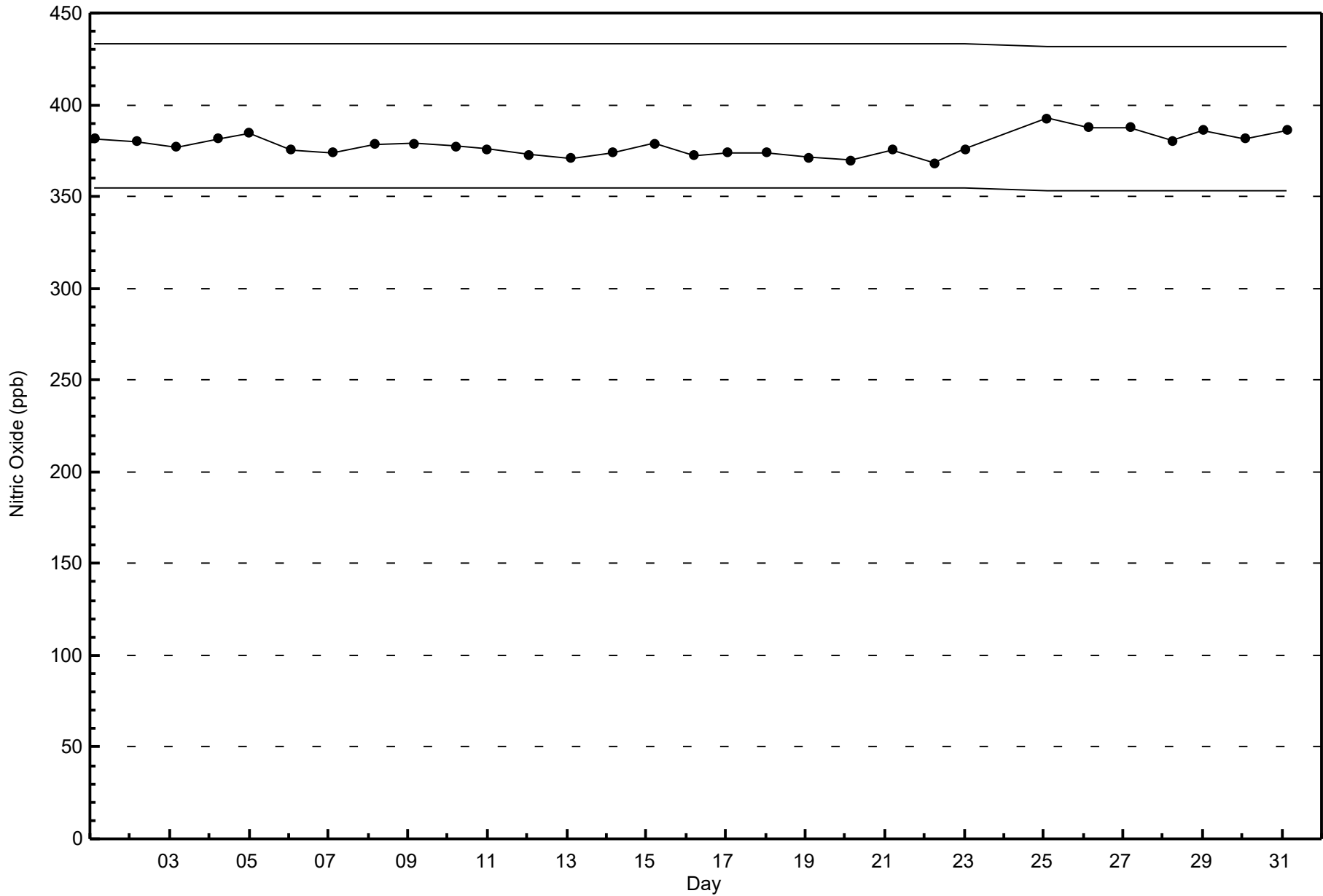
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 625







# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Jackfish 2/3 - October 2024

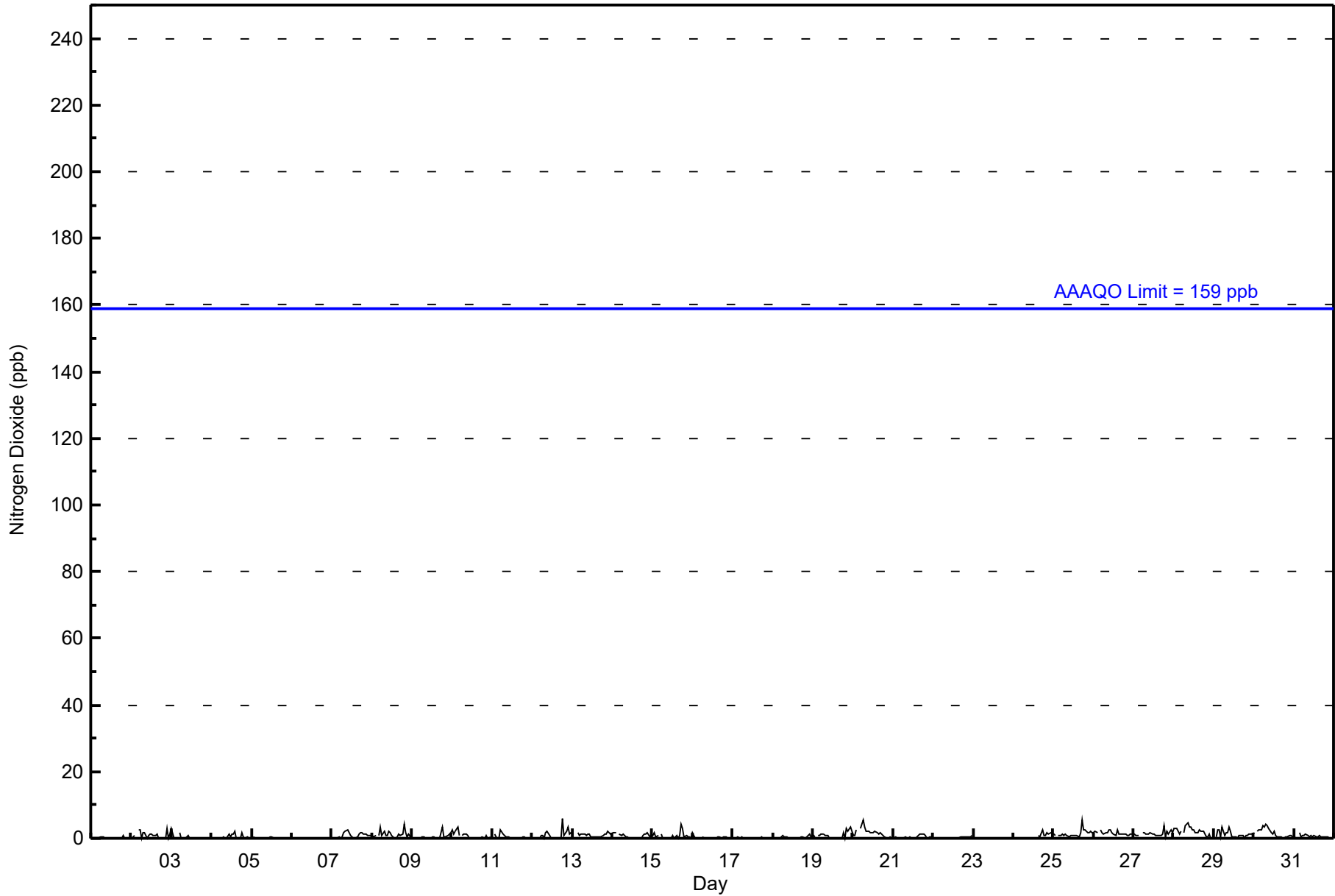
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 5.9 ppb on Oct 12 19:00		Maximum Daily Average: 2.2 ppb on Oct 28		Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.0 ppb on Oct 6		Hours of Data: 685																																								
Maximum Diurnal Average: 1.4 ppb at hour 6		Minimum Diurnal Average: 0.4 ppb at hour 14		Hours of Missing Data: 59		Hours of Calibration: 39		Percent Operational Time: 97.3																																								
Monthly Average: 0.78 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.5 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 2.0 P <sub>99</sub> = 4.1																																														
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-Oct	0.0	0.0	Z	0.1	0.0	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.1	0.7																						
2-Oct	0.0	0.4	0.8	Z	2.4	2.5	0.2	1.7	1.8	0.2	0.7	1.2	1.1	0.9	0.8	1.2	0.1	0.0	0.0	0.0	0.0	2.8	0.0	1.1	0.9	2.8																						
3-Oct	2.9	0.2	0.0	0.2	Z	1.8	0.1	0.0	0.0	0.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.9																						
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.5	0.2	0.2	1.2	0.5	1.2	1.1	2.1	0.0	0.1	0.0	1.6	0.6	0.1	0.4	0.0	0.0	0.4	2.1																						
5-Oct	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	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	0.1	0.5																						
6-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1																						
7-Oct	0.0	0.0	Z	0.0	0.4	0.1	0.6	1.7	2.0	2.4	1.9	0.9	0.4	0.0	0.0	0.3	1.2	1.7	1.7	1.4	1.4	0.9	0.8	0.8	0.9	2.4																						
8-Oct	0.7	0.6	0.9	Z	0.8	3.2	0.8	2.0	1.0	0.8	2.1	1.8	0.7	0.1	0.0	0.4	1.3	0.8	1.2	4.1	1.5	0.5	1.2	0.0	1.2	4.1																						
9-Oct	0.0	0.0	0.1	0.1	Z	0.6	0.5	0.5	0.0	0.1	0.0	0.0	0.4	0.3	0.2	0.0	0.0	1.9	3.6	0.3	0.5	0.8	1.1	1.6	0.5	3.6																						
10-Oct	2.7	1.3	2.2	3.2	0.7	Z	0.9	1.3	1.3	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	0.0	0.7	0.0	0.0	0.5	0.7	3.2																							
11-Oct	Z	1.3	0.5	0.2	0.0	2.5	1.4	0.7	0.6	0.6	0.4	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.5	0.3	0.0	0.2	0.0	0.1	0.4	2.5																						
12-Oct	0.0	Z	0.1	0.1	0.2	0.7	0.8	0.0	1.8	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.8	2.2	3.4	1.1	1.9	1.0	5.9																						
13-Oct	1.4	1.3	Z	1.5	1.0	1.4	1.4	1.3	1.0	1.1	1.3	0.5	0.4	0.4	0.5	0.4	0.4	0.3	0.8	1.1	1.1	2.0	1.6	1.3	1.0	2.0																						
14-Oct	1.8	1.8	1.8	Z	1.1	1.0	1.3	0.8	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7	1.2	1.4	1.6	0.6	1.1	0.8	1.8																						
15-Oct	0.8	1.8	0.6	0.9	Z	1.1	0.2	0.1	0.0	0.0	0.1	0.0	0.8	0.0	1.0	0.0	1.0	4.2	3.0	0.5	0.8	0.5	0.3	0.0	0.8	4.2																						
16-Oct	1.9	0.2	0.0	0.0	0.0	Z	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.0	0.3	0.3	0.6	0.0	0.0	0.0	0.2	1.9																							
17-Oct	Z	0.0	0.0	0.6	0.0	0.3	0.2	0.0	0.1	0.2	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	0.1	0.6																						
18-Oct	0.1	Z	0.0	0.0	0.0	0.6	0.8	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.1	0.6	1.0	1.2	0.3	0.3	1.2																						
19-Oct	0.7	0.1	Z	0.7	0.7	1.1	1.3	1.0	0.7	1.0	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.0	1.6	0.0	3.0	2.3	3.2	2.3	0.9	3.2																						
20-Oct	0.8	0.9	2.5	Z	2.8	4.4	5.3	3.3	2.3	2.2	1.8	1.6	1.8	2.0	1.5	1.4	1.7	1.4	0.7	0.5	0.1	0.2	0.5	0.0	1.7	5.3																						
21-Oct	0.0	0.4	0.2	0.0	Z	0.0	0.2	0.4	0.1	0.1	0.5	0.1	0.0	0.0	0.3	0.8	1.2	1.4	1.3	0.7	0.0	0.0	0.5	0.5	0.4	1.4																						
22-Oct	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	0.2	0.3	0.5	0.3	0.3	0.3	0.4	0.3	0.7	0.1	0.7																						
23-Oct	Z	0.2	0.0	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	--	0.2																					
24-Oct	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.8	0.4	2.5	0.8	0.9	1.6	1.2	1.9	1.4	--	2.5																					
25-Oct	1.2	1.0	Z	0.9	0.9	1.4	0.8	1.1	0.8	0.6	0.7	0.7	0.8	0.7	0.9	0.4	1.5	5.4	2.7	2.6	1.5	1.6	2.3	1.6	1.4	5.4																						
26-Oct	1.5	2.2	1.8	Z	2.4	1.8	1.3	1.6	1.6	2.7	2.5	1.9	1.2	0.8	2.4	1.1	1.3	1.1	1.2	1.2	0.9	0.9	1.1	1.3	1.6	2.7																						
27-Oct	1.1	1.0	1.0	0.9	Z	1.5	1.6	1.1	1.3	1.2	1.8	1.1	1.1	1.0	0.9	0.9	0.8	1.3	4.0	0.6	2.3	1.4	2.4	1.7	1.4	4.0																						
28-Oct	2.9	3.0	3.1	1.1	2.0	Z	1.9	3.9	4.5	3.5	3.5	2.6	2.6	1.8	1.6	2.4	2.3	2.3	2.3	0.6	0.6	1.4	0.2	0.2	2.2	4.5																						
29-Oct	Z	0.5	2.5	2.5	0.4	3.2	1.0	1.6	1.5	3.5	2.0	0.4	0.5	0.3	0.2	0.7	0.8	0.8	0.1	1.0	0.8	1.1	1.4	1.3	1.2	3.5																						
30-Oct	1.5	Z	2.3	2.7	2.5	3.7	3.4	4.1	4.0	2.8	1.5	1.4	2.0	0.7	0.5	0.5	0.5	0.2	0.2	0.5	0.6	0.9	0.8	0.5	1.6	4.1																						
31-Oct	0.5	0.6	Z	1.5	0.3	0.7	0.8	1.2	0.7	0.5	0.8	0.6	0.9	0.4	0.6	0.7	0.6	0.6	0.4	0.3	0.3	0.2	0.1	0.1	0.6	1.5																						
																								0.9	0.7	0.9	0.7	0.7	1.4	0.9	1.0	1.0	0.9	0.9	0.5	0.6	0.4	0.5	0.4	0.5	0.9	1.2	0.7	0.8	0.9	0.8	0.7	Diurnal Average
																								2.9	3.0	3.1	3.2	2.8	4.4	5.3	4.1	4.5	3.5	3.5	2.6	2.6	2.0	2.4	2.4	2.3	5.4	5.9	4.1	3.0	3.4	3.2	2.3	Diurnal Maximum

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



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - October 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3 - October 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	13	5	23	28	20	31	11	14	39	82	64	110	96	51	27	11	625
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>	13	5	23	28	20	31	11	14	39	82	64	110	96	51	27	11	625

Total Number of Valid Hours: 625

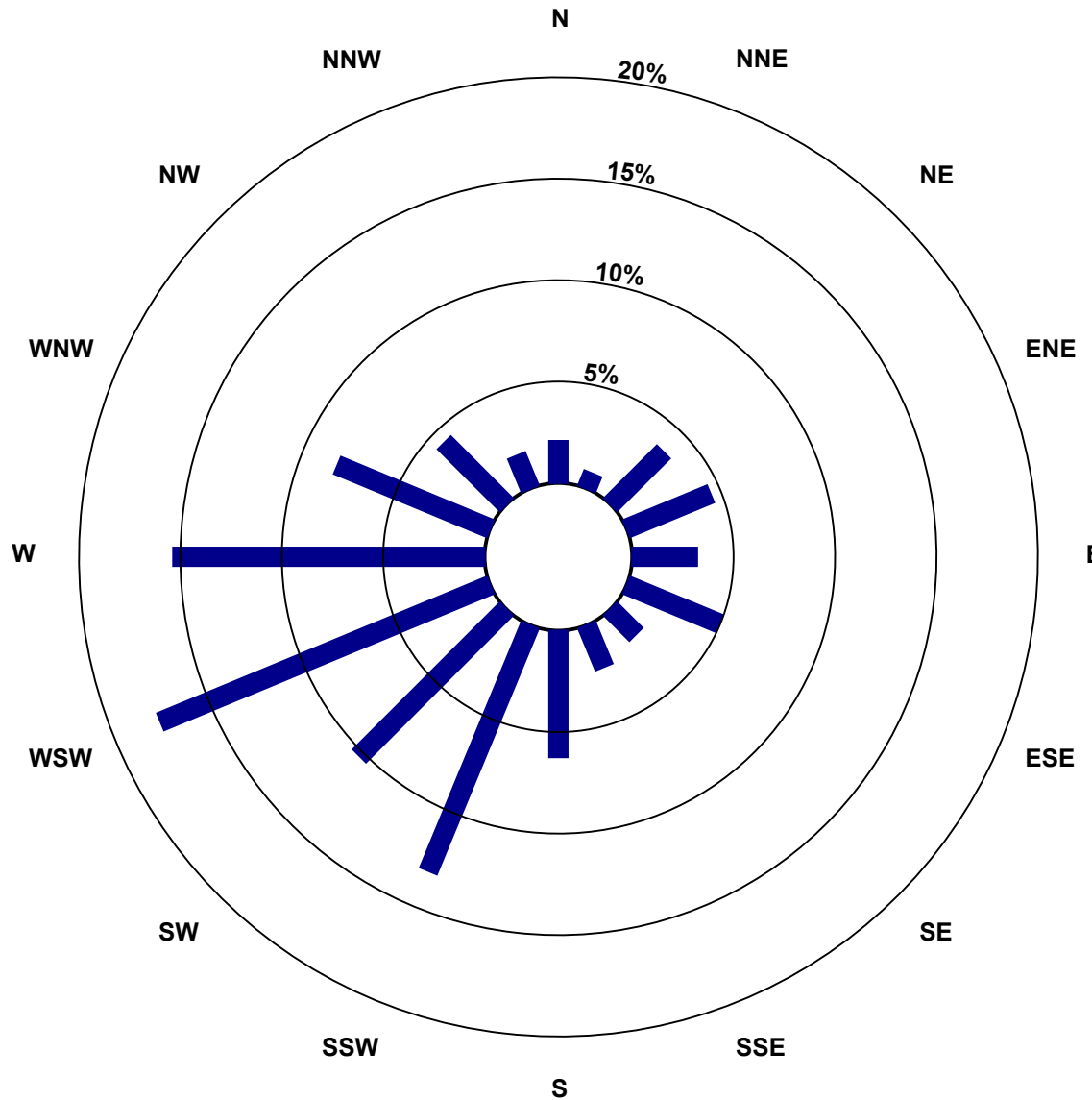
Total Number of Hours: 744



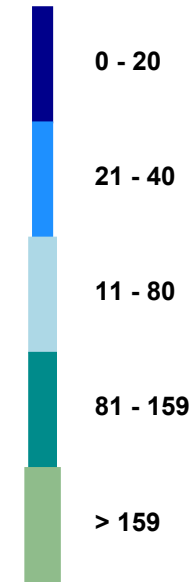


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

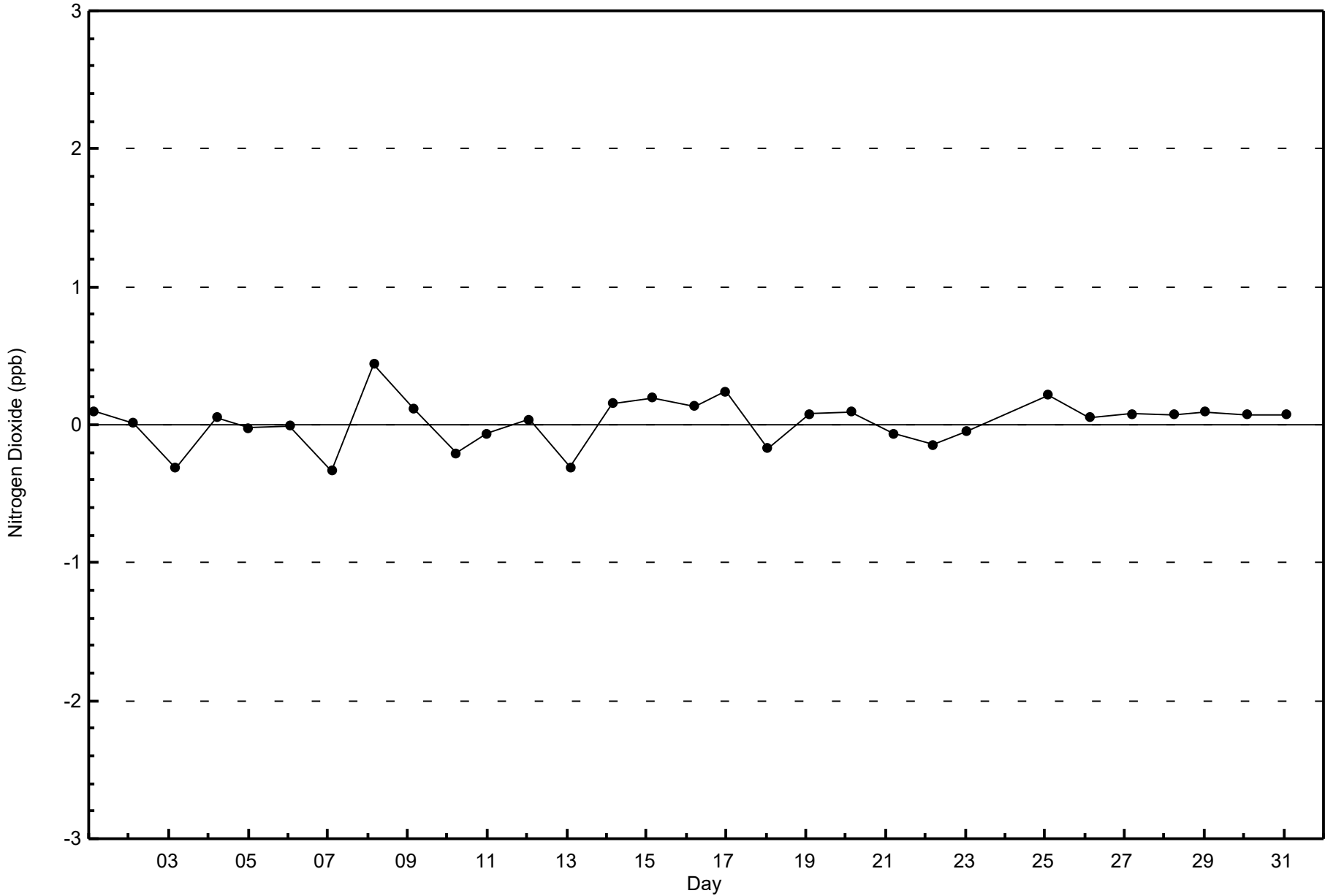
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3

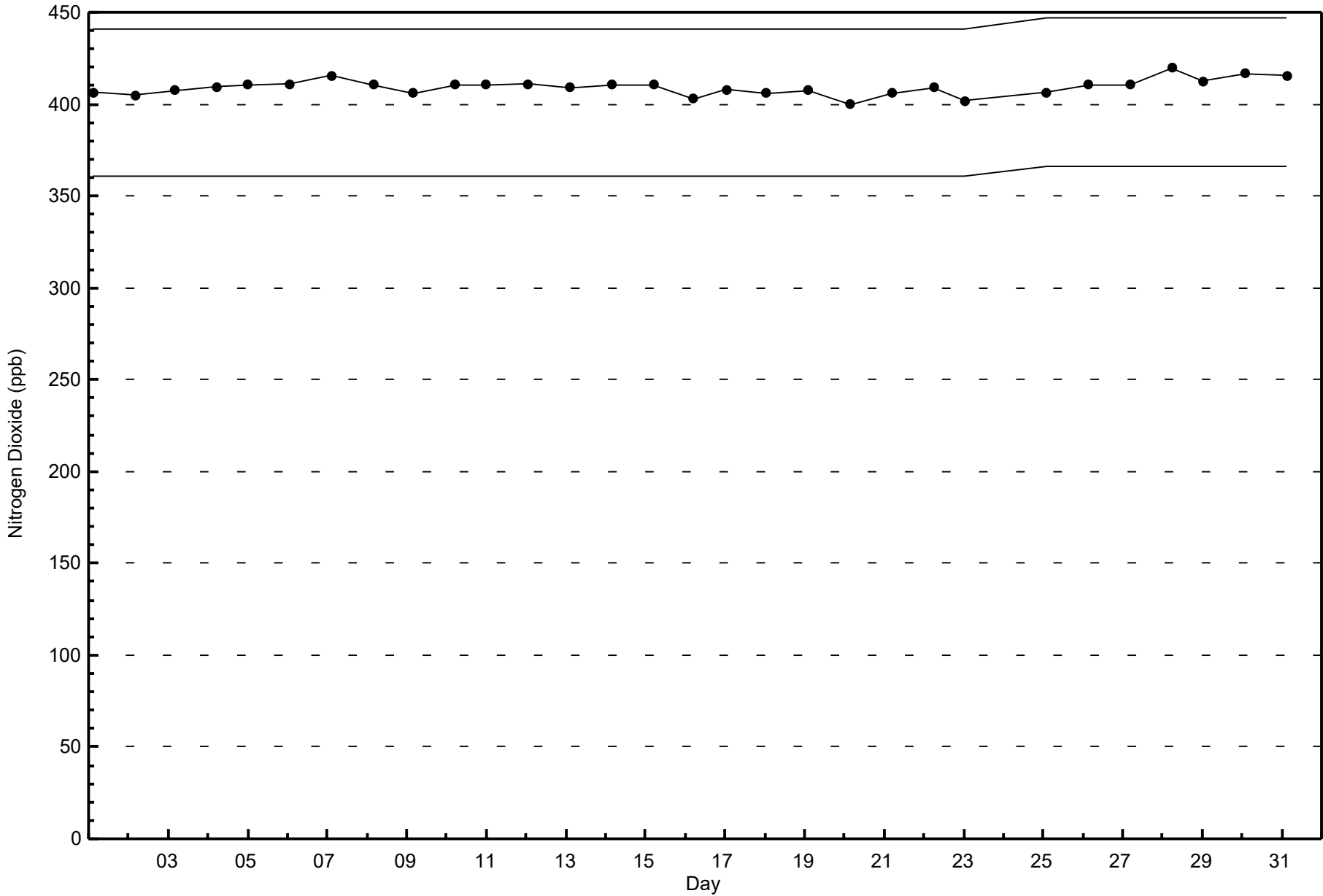


Classes (ppb)



Total Number of Valid Hours: 625







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

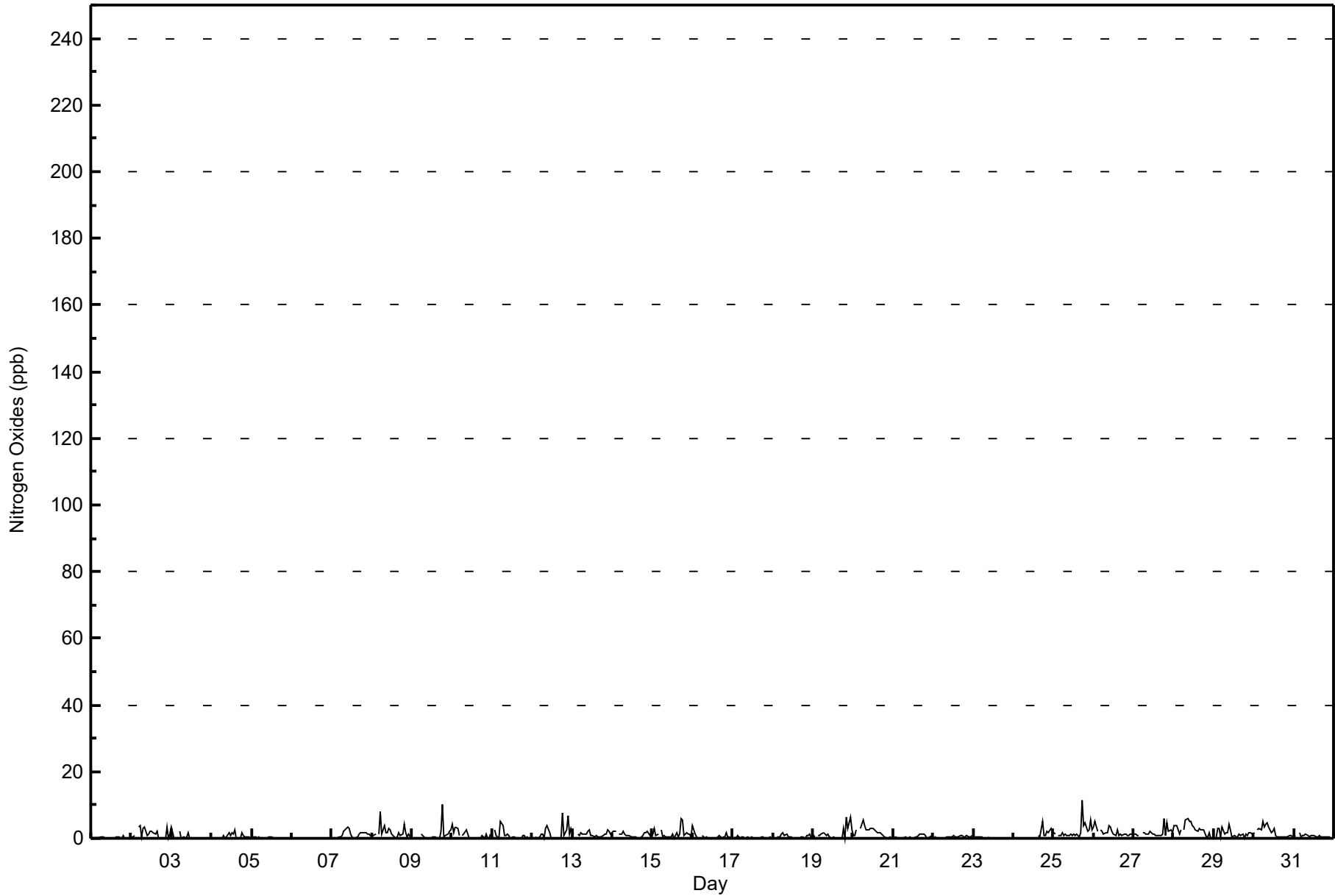
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - October 2024**

Maximum Value: 11.6 ppb on Oct 25 18:00		Maximum Daily Average: 2.8 ppb on Oct 28		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Oct 1 21:00		Minimum Daily Average: 0.0 ppb on Oct 6		Hours of Data: 685																																													
Maximum Diurnal Average: 2.1 ppb at hour 6		Minimum Diurnal Average: 0.6 ppb at hour 16		Hours of Missing Data: 59																																													
Monthly Average: 1.10 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> = 1.5 P <sub>90</sub> = 2.8 P <sub>99</sub> = 6.1		Hours of Calibration: 39																																													
				Percent Operational Time: 97.3																																													
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-Oct	0.1	0.0	Z	0.2	0.2	0.4	0.5	0.5	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.0	0.1	0.7	0.0	0.0	0.2	0.3	0.2	0.7																							
2-Oct	0.2	0.4	0.9	Z	3.5	4.0	0.5	3.1	3.4	0.8	1.4	2.0	2.2	1.8	1.3	2.0	0.2	0.0	0.0	0.0	0.0	3.2	0.0	1.3	1.4	4.0																							
3-Oct	3.4	0.2	0.0	0.2	Z	2.3	0.1	0.3	0.0	0.5	1.5	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	0.4	3.4																							
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.8	0.2	0.3	1.7	0.7	1.8	1.4	2.7	0.1	0.2	0.2	1.6	0.7	0.2	0.4	0.3	0.1	0.6	2.7																							
5-Oct	Z	0.6	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																							
6-Oct	0.0	Z	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	0.1	0.0	0.0	0.0	0.0	0.0	0.1																							
7-Oct	0.0	0.0	Z	0.0	0.4	0.3	0.8	2.1	2.3	3.4	2.8	1.3	0.6	0.2	0.1	0.4	1.4	1.8	1.7	1.6	1.6	1.2	1.1	1.0	1.1	3.4																							
8-Oct	0.8	1.0	1.2	Z	1.2	8.1	1.3	3.9	1.6	1.7	2.9	2.6	1.2	0.3	0.1	0.5	1.7	0.8	1.2	4.4	1.6	0.5	1.2	0.0	1.7	8.1																							
9-Oct	0.0	0.0	0.1	0.1	Z	1.2	1.0	0.5	0.0	0.1	0.0	0.0	0.4	0.3	0.3	0.0	0.0	1.9	10.1	0.3	0.7	1.2	2.0	2.5	1.0	10.1																							
10-Oct	4.2	1.5	3.3	3.2	0.9	Z	1.0	1.5	2.4	1.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.0	1.2	0.0	0.1	1.2	1.0	4.2																							
11-Oct	Z	2.5	0.7	0.2	0.0	5.3	3.9	1.0	1.0	1.2	0.7	0.0	0.3	0.3	0.1	0.0	0.0	0.0	0.9	0.8	0.0	0.5	0.0	0.2	0.9	5.3																							
12-Oct	0.2	Z	0.4	0.1	0.2	1.5	1.1	0.2	2.9	3.8	1.7	0.1	0.0	0.1	0.0	0.0	0.0	0.0	7.8	0.9	2.6	6.6	1.5	3.0	1.5	7.8																							
13-Oct	1.6	1.5	Z	1.5	1.0	1.7	1.5	1.5	1.4	2.3	2.7	0.7	0.7	0.5	0.7	0.5	0.5	0.3	1.0	1.4	1.3	2.4	1.9	1.4	1.3	2.7																							
14-Oct	2.3	2.2	2.0	Z	1.4	1.2	2.1	1.2	1.0	0.9	0.7	0.4	0.2	0.4	0.3	0.2	0.0	0.4	1.0	1.6	1.7	2.0	0.8	2.1	1.1	2.3																							
15-Oct	1.3	3.1	0.8	1.2	Z	2.4	0.6	0.7	0.4	0.4	0.6	0.5	1.4	0.2	1.7	0.3	1.3	5.7	5.3	0.8	1.8	1.2	1.3	0.5	1.5	5.7																							
16-Oct	3.9	1.3	0.4	0.1	0.1	Z	0.7	0.1	0.5	0.2	0.1	0.0	0.1	0.2	0.0	0.6	0.6	0.1	0.3	0.3	1.6	0.4	0.3	0.1	0.5	3.9																							
17-Oct	Z	0.3	0.0	0.7	0.0	0.5	0.5	0.2	0.2	0.5	0.0	0.3	0.1	0.1	0.2	0.1	0.1	0.4	0.4	0.2	0.1	0.1	0.4	0.0	0.2	0.7																							
18-Oct	0.4	Z	0.3	0.2	0.2	1.1	1.6	0.7	1.2	0.6	0.6	0.3	0.2	0.1	0.1	0.1	0.0	0.5	0.5	0.1	0.8	1.0	1.2	0.3	0.5	1.6																							
19-Oct	0.7	0.1	Z	0.9	0.7	1.4	1.7	1.3	0.9	1.3	0.3	0.1	0.4	0.1	0.2	0.0	0.0	0.0	3.0	0.0	6.4	2.9	6.2	2.7	1.4	6.4																							
20-Oct	0.8	0.9	2.6	Z	2.8	4.4	5.4	3.6	2.5	2.6	2.8	2.9	3.0	2.5	1.8	1.5	1.8	1.4	0.7	0.5	0.1	0.2	0.5	0.0	2.0	5.4																							
21-Oct	0.0	0.4	0.2	0.0	Z	0.1	0.2	0.4	0.1	0.1	0.6	0.2	0.0	0.2	0.3	1.0	1.3	1.4	1.4	0.8	0.1	0.1	0.5	0.7	0.4	1.4																							
22-Oct	0.2	0.3	0.0	0.1	0.1	Z	0.2	0.1	0.2	0.4	0.5	0.3	0.7	0.6	0.5	0.5	0.9	0.7	0.6	0.3	0.6	0.5	0.4	1.0	0.4	1.0																							
23-Oct	Z	0.6	0.3	0.4	0.3	0.4	0.2	0.1	0.1	0.2	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	--	0.6																						
24-Oct	M	M	M	M	M	M	M	M	M	M	M	M	C	C	C	0.9	0.4	5.1	0.8	0.9	2.0	1.6	2.8	1.6	--	5.1																							
25-Oct	1.5	1.2	Z	1.0	0.9	1.9	0.9	1.2	1.0	0.9	1.3	1.0	1.2	0.9	1.1	0.4	1.8	11.6	3.8	4.8	2.2	2.7	5.4	2.6	2.2	11.6																							
26-Oct	3.3	5.1	2.3	Z	2.4	2.0	1.3	1.7	1.8	3.7	3.3	2.2	1.3	0.8	2.6	1.1	1.3	1.1	1.2	1.2	0.9	0.9	1.1	1.3	1.9	5.1																							
27-Oct	1.1	1.1	1.0	0.9	Z	1.6	1.6	1.1	1.4	1.3	2.1	1.2	1.3	1.1	0.9	0.9	0.8	1.3	6.1	0.7	4.6	1.9	2.6	1.9	1.7	6.1																							
28-Oct	3.8	3.9	4.0	1.1	2.5	Z	2.5	5.4	6.1	5.2	5.3	3.8	3.5	2.6	2.0	2.8	2.6	2.6	2.5	0.6	0.6	1.5	0.2	0.2	2.8	6.1																							
29-Oct	Z	0.5	2.9	2.8	0.4	3.6	1.1	1.8	1.8	4.4	2.5	0.5	0.8	0.4	0.2	1.1	1.0	1.1	0.1	1.4	1.0	1.5	1.8	1.5	1.5	4.4																							
30-Oct	1.7	Z	2.5	3.1	2.5	5.2	3.6	4.1	4.5	3.4	1.8	2.1	3.0	1.0	0.5	0.5	0.5	0.2	0.2	0.5	0.6	0.9	0.8	0.5	1.9	5.2																							
31-Oct	0.5	0.6	Z	1.5	0.3	0.7	0.8	1.2	0.7	0.6	0.9	0.7	1.0	0.4	0.6	0.7	0.6	0.6	0.4	0.3	0.3	0.2	0.1	0.1	0.6	1.5																							
																								1.3	1.1	1.1	0.8	0.9	2.1	1.2	1.3	1.3	1.4	1.4	0.8	0.9	0.6	0.6	0.6	0.6	1.3	1.8	0.9	1.2	1.2	1.2	0.9	Diurnal Average	
																								4.2	5.1	4.0	3.2	3.5	8.1	5.4	5.4	6.1	5.2	5.3	3.8	3.5	2.6	2.7	2.8	2.6	11.6	10.1	4.8	6.4	6.6	6.2	3.0	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - October 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	685	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - October 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	13	5	23	28	20	31	11	14	39	82	64	110	96	51	27	11	625
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>	13	5	23	28	20	31	11	14	39	82	64	110	96	51	27	11	625

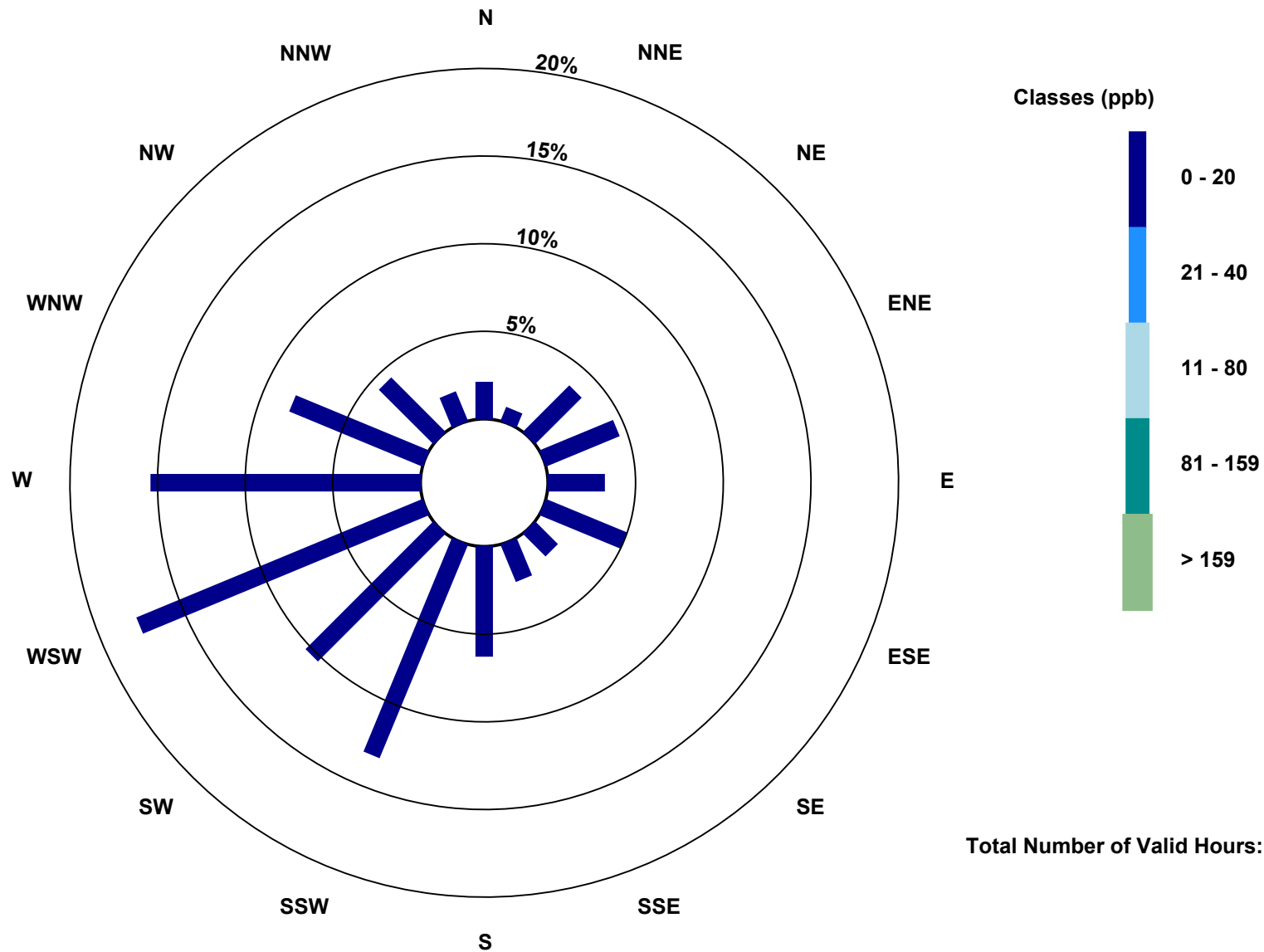
Total Number of Valid Hours: 625

Total Number of Hours: 744



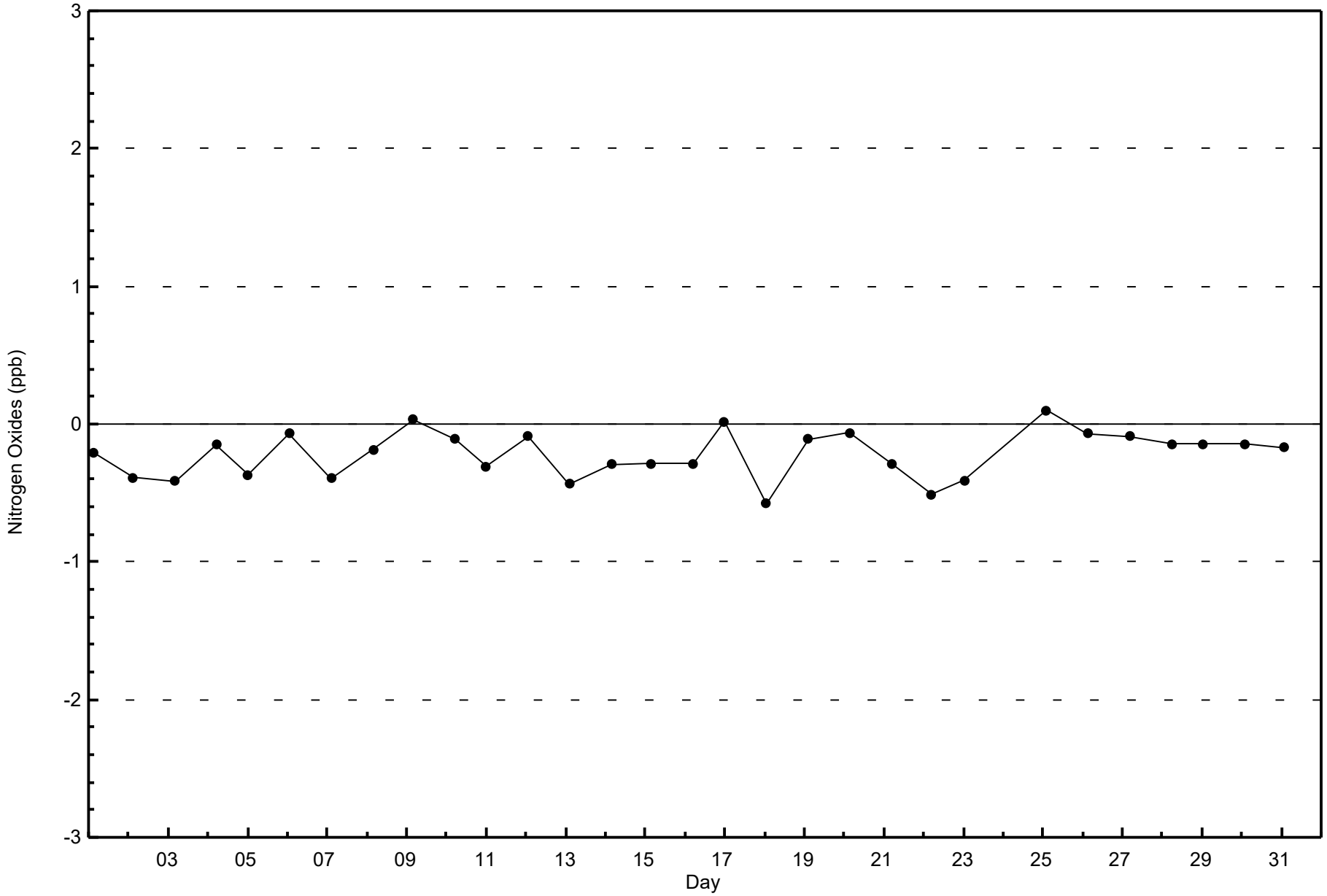
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

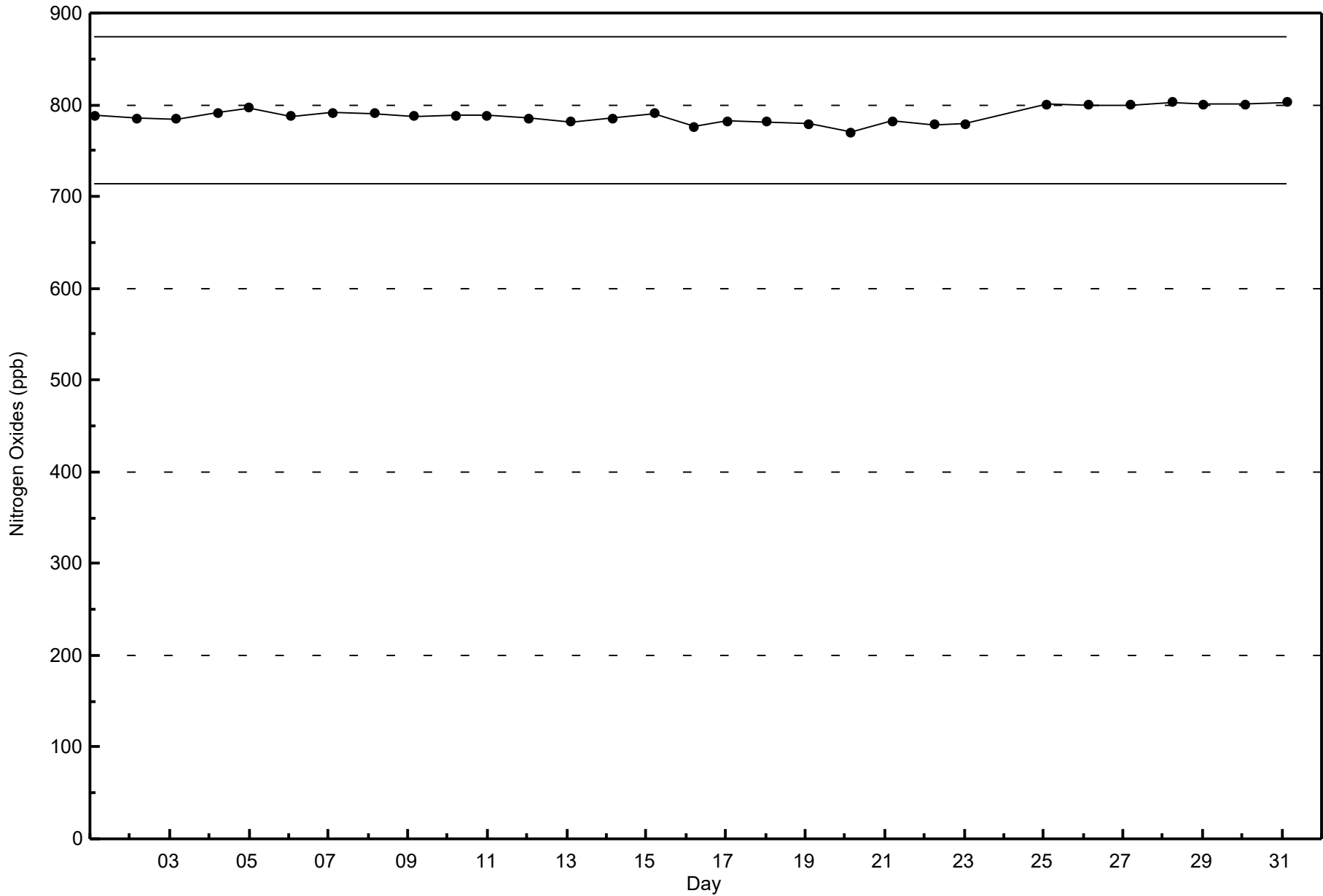
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 625

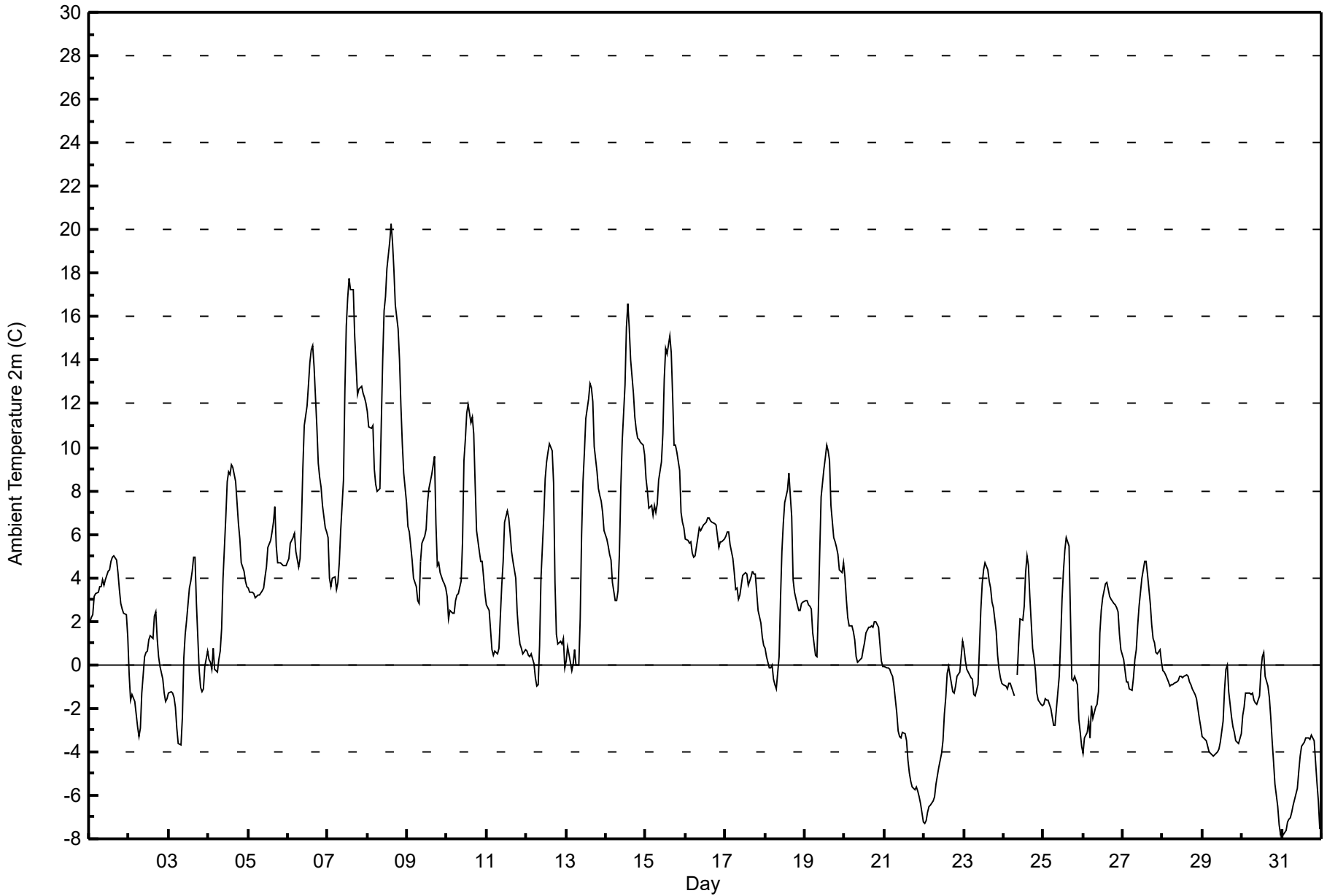








Maximum Value: 20.3 C on Oct 8 15:00		Maximum Daily Average: 13.2 C on Oct 8		Hours in Service: 744																							
Minimum Value: -7.8 C on Oct 31 00:00		Minimum Daily Average: -5.4 C on Oct 31		Hours of Data: 743																							
Maximum Diurnal Average: 6.5 C at hour 15		Minimum Diurnal Average: 0.4 C at hour 7		Hours of Missing Data: 1																							
Monthly Average: 2.92 C		Percentiles: P <sub>1</sub> = -7.2 P <sub>10</sub> = -3.3 Q <sub>1</sub> = -0.7 Median = 2.6 Q <sub>3</sub> = 5.8 P <sub>90</sub> = 10.1 P <sub>99</sub> = 17.1		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-Oct	2.0	2.2	2.3	3.1	3.3	3.4	3.6	3.6	3.9	3.7	3.9	4.3	4.4	4.7	4.9	5.0	4.8	4.2	3.5	2.8	2.6	2.4	2.3	1.3	3.4	5.0	
2-Oct	-0.4	-1.7	-1.3	-1.7	-2.2	-2.8	-3.3	-2.9	-1.3	0.3	0.6	0.7	1.2	1.3	1.2	2.3	2.4	1.2	0.4	-0.1	-0.6	-1.3	-1.7	-1.6	-0.5	2.4	
3-Oct	-1.3	-1.3	-1.3	-1.5	-1.9	-2.9	-3.6	-3.7	-2.4	0.3	1.4	2.0	3.5	3.8	4.3	4.9	5.0	2.8	-0.2	-1.0	-1.3	-1.1	-0.1	0.6	0.2	5.0	
4-Oct	0.2	0.1	-0.2	0.8	-0.2	-0.4	0.3	0.6	1.7	4.0	6.8	8.4	8.9	8.8	9.2	9.0	8.4	7.5	6.5	5.8	4.7	4.3	3.9	3.6	4.3	9.2	
5-Oct	3.5	3.3	3.3	3.3	3.1	3.1	3.2	3.2	3.4	3.5	4.1	4.5	5.4	5.7	6.1	6.5	7.3	5.4	4.7	4.7	4.6	4.6	4.5	4.6	4.4	7.3	
6-Oct	4.9	5.6	5.7	5.8	6.1	5.2	4.5	4.9	6.6	9.1	11.0	11.9	12.9	13.9	14.5	14.7	13.7	11.0	9.3	8.6	8.2	7.4	6.3	6.1	8.7	14.7	
7-Oct	5.9	4.0	3.6	4.0	4.0	3.5	3.8	4.7	6.2	8.5	12.6	15.6	16.8	17.8	17.3	17.2	15.1	13.8	12.4	12.7	12.8	12.5	12.3	12.0	10.4	17.8	
8-Oct	11.6	10.9	10.9	11.0	9.0	8.3	8.0	8.1	11.1	14.0	16.3	16.9	18.2	19.4	20.3	19.4	18.2	16.5	15.5	14.0	11.9	10.2	8.8	7.5	13.2	20.3	
9-Oct	6.3	6.1	5.5	4.8	4.0	3.6	2.9	2.8	4.8	5.6	5.9	6.2	7.4	8.1	8.4	8.8	9.6	6.5	4.6	4.7	4.3	3.9	3.7	3.5	5.5	9.6	
10-Oct	3.2	2.1	2.5	2.4	2.4	2.9	3.2	3.3	3.9	5.7	9.4	10.4	11.6	12.0	11.1	11.4	10.6	8.3	6.2	5.2	4.8	4.8	4.0	3.3	6.0	12.0	
11-Oct	2.8	2.5	1.6	0.7	0.5	0.6	0.5	0.8	2.2	3.7	4.7	6.5	7.1	6.7	6.0	5.2	4.8	4.0	2.4	1.5	1.0	0.8	0.5	0.7	2.8	7.1	
12-Oct	0.6	0.4	0.4	0.5	0.0	-0.6	-1.0	-0.9	0.9	4.0	6.8	8.6	9.3	9.8	10.1	9.8	8.4	3.8	1.4	0.9	1.1	1.0	1.2	-0.2	3.2	10.1	
13-Oct	0.2	0.8	0.1	-0.3	0.1	0.7	0.0	0.0	2.1	5.9	8.4	9.8	11.3	12.2	13.0	12.7	12.1	10.1	8.9	8.1	7.8	7.5	7.0	6.2	6.0	13.0	
14-Oct	5.8	5.5	5.0	4.8	3.8	2.9	2.9	3.4	5.2	8.2	10.3	12.9	15.5	16.6	15.5	14.0	12.5	11.4	10.8	10.4	10.4	10.2	10.1	9.6	9.1	16.6	
15-Oct	8.6	8.0	7.2	7.4	6.9	7.4	7.0	7.4	8.5	9.3	10.6	13.1	14.6	14.3	15.1	14.3	12.4	10.1	10.1	9.8	8.9	7.0	6.5	6.3	9.6	15.1	
16-Oct	5.8	5.7	5.6	5.6	5.1	5.0	5.0	5.8	6.3	6.2	6.3	6.4	6.5	6.7	6.6	6.5	6.5	6.4	5.9	5.4	5.6	5.7	5.8	6.0	6.7	6.7	
17-Oct	5.9	6.1	6.1	5.5	4.9	4.2	3.5	3.5	3.0	3.2	4.1	4.2	4.2	4.2	3.6	4.1	4.3	4.2	4.2	3.3	2.5	1.9	1.3	0.9	3.9	6.1	
18-Oct	0.8	0.4	-0.1	-0.2	0.0	-0.6	-0.9	-1.1	0.4	3.0	5.2	6.5	7.4	8.0	8.8	7.8	6.8	3.9	3.4	2.7	2.5	2.5	2.8	2.9	3.0	8.8	
19-Oct	2.9	2.9	2.8	2.7	2.5	1.5	0.4	0.4	2.4	5.1	7.7	9.0	9.5	10.1	9.8	9.4	7.3	5.8	5.7	5.4	5.1	4.4	4.2	4.7	5.1	10.1	
20-Oct	4.0	3.0	2.2	1.8	1.8	1.5	1.2	0.4	0.1	0.2	0.3	0.7	1.0	1.5	1.7	1.7	1.8	1.7	2.0	2.0	1.8	1.0	0.2	-0.1	1.4	4.0	
21-Oct	-0.1	-0.1	-0.1	-0.2	-0.4	-0.5	-1.0	-2.2	-3.0	-3.3	-3.4	-3.1	-3.2	-3.5	-4.4	-5.0	-5.4	-5.6	-5.8	-5.6	-5.8	-6.1	-6.4	-7.2	-3.4	-0.1	
22-Oct	-7.3	-7.2	-6.8	-6.5	-6.4	-6.3	-6.1	-5.5	-5.1	-4.7	-4.1	-3.5	-2.3	-1.5	-0.4	-0.1	-0.9	-1.2	-1.3	-1.0	-0.5	-0.3	0.4	1.1	-3.2	1.1	
23-Oct	0.8	0.2	-0.2	-0.5	-0.6	-0.7	-1.4	-1.4	-0.9	0.7	2.5	3.7	4.4	4.7	4.4	3.9	3.5	2.9	2.6	1.5	0.5	-0.2	-0.6	-0.8	1.2	4.7	
24-Oct	-0.9	-1.0	-1.1	-0.8	-0.9	-1.1	-1.5	M	-0.5	0.9	2.1	2.0	2.7	4.2	5.0	4.5	3.1	0.7	0.3	-0.2	-1.3	-1.6	-1.8	-1.9	0.5	5.0	
25-Oct	-1.8	-1.5	-1.6	-1.7	-2.0	-2.4	-2.8	-2.8	-2.0	-0.5	1.1	3.0	4.3	5.3	5.8	5.5	2.3	-0.7	-0.7	-0.5	-0.9	-2.5	-3.1	-3.7	-0.2	5.8	
26-Oct	-4.1	-3.4	-3.1	-2.6	-3.4	-1.9	-2.4	-1.9	-1.8	-1.2	1.5	2.5	3.1	3.7	3.8	3.4	3.2	3.0	2.8	2.7	2.6	2.5	1.4	0.7	0.5	3.8	
27-Oct	0.3	-0.3	-0.8	-0.8	-1.1	-1.2	-0.6	0.3	0.7	1.8	2.7	4.0	4.4	4.7	4.8	4.2	2.8	1.9	1.2	1.0	0.6	0.5	0.7	0.1	1.3	4.8	
28-Oct	-0.3	-0.3	-0.4	-0.8	-1.0	-0.9	-0.9	-0.8	-0.8	-0.7	-0.5	-0.5	-0.6	-0.5	-0.5	-0.5	-0.8	-0.9	-1.1	-1.4	-1.6	-2.0	-2.5	-2.8	-1.0	-0.3	
29-Oct	-3.3	-3.4	-3.5	-3.7	-4.0	-4.1	-4.2	-4.2	-4.1	-4.0	-3.9	-3.5	-2.6	-1.2	-0.2	0.0	-1.2	-2.4	-2.9	-3.1	-3.5	-3.6	-3.6	-3.2	-3.1	0.0	
30-Oct	-2.4	-2.0	-1.3	-1.3	-1.3	-1.3	-1.3	-1.6	-1.7	-1.8	-1.4	-0.3	0.4	0.6	-0.6	-1.0	-1.5	-2.4	-3.5	-4.4	-5.5	-6.5	-7.4	-7.8	-2.4	0.6	
31-Oct	-7.7	-7.8	-7.6	-7.2	-7.1	-7.0	-6.8	-6.4	-5.9	-5.6	-4.9	-4.2	-3.7	-3.5	-3.4	-3.3	-3.4	-3.4	-3.2	-3.5	-4.5	-5.4	-6.3	-7.6	-5.4	-3.2	
		1.5	1.3	1.1	1.1	0.8	0.6	0.4	0.6	1.4	2.7	4.1	5.1	5.9	6.4	6.5	6.3	5.6	4.2	3.4	3.0	2.5	2.1	1.8	1.4	Diurnal Average	
		11.6	10.9	10.9	11.0	9.0	8.3	8.0	8.1	11.1	14.0	16.3	16.9	18.2	19.4	20.3	19.4	18.2	16.5	15.5	14.0	12.8	12.5	12.3	12.0	Diurnal Maximum	
M - Maintenance																											





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

**Ambient Temperature 2m (AT2) - C**  
**Jackfish 2/3 - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	240	32.30	32.30
0 - 10	427	57.47	89.77
10 - 20	75	10.09	99.87
> 20	1	0.13	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 2m (RH2) - %

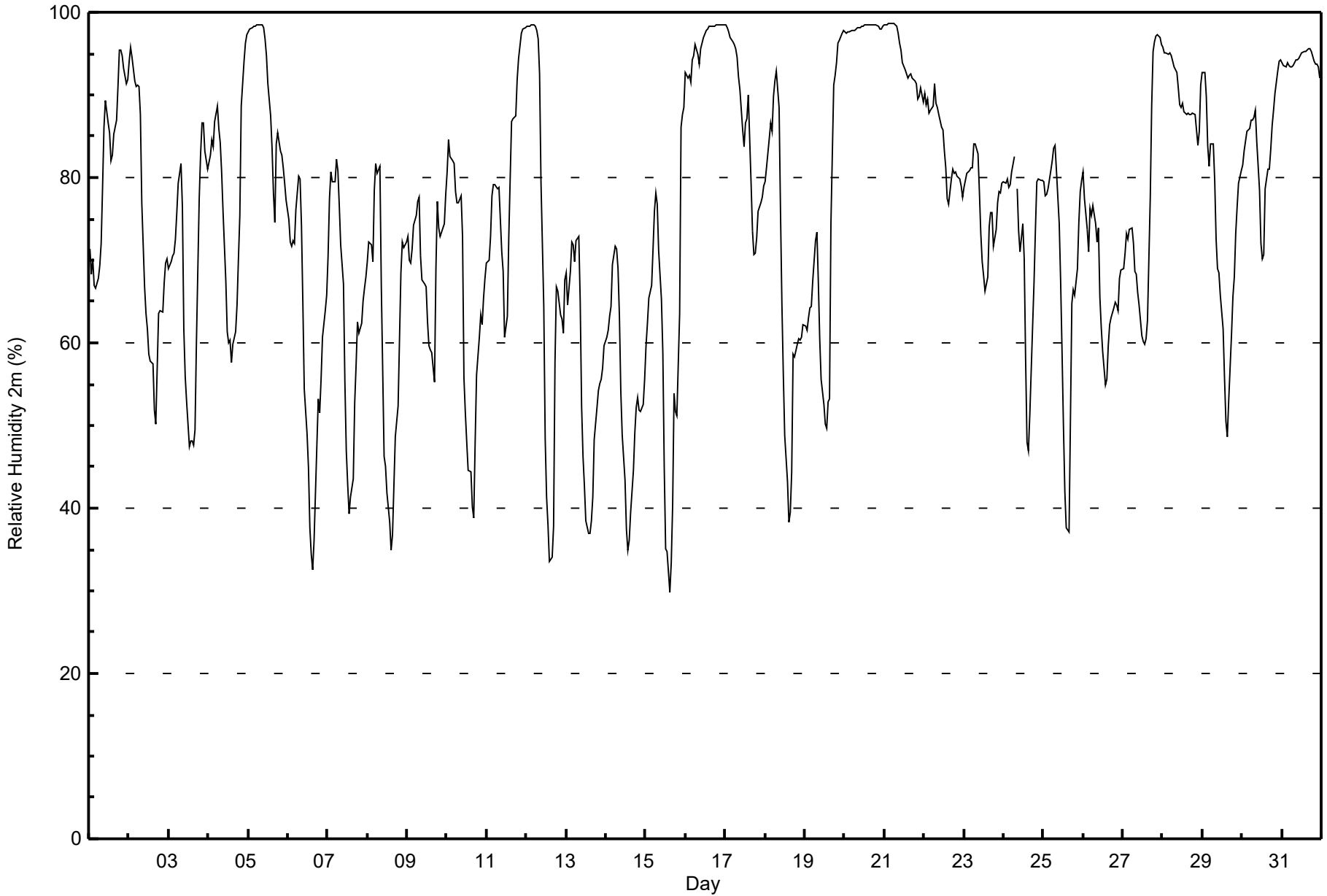
Jackfish 2/3 - October 2024

Maximum Value: 98.7 % on Oct 21 06:00      Maximum Daily Average: 98.1 % on Oct 20																						Hours in Service: 744 Hours of Data: 743																									
Minimum Value: 29.9 % on Oct 15 15:00      Minimum Daily Average: 54.1 % on Oct 14																						Hours of Missing Data: 1 Hours of Calibration: 0																									
Maximum Diurnal Average: 84.5 % at hour 7      Minimum Diurnal Average: 60.9 % at hour 15																						Percent Operational Time: 99.9																									
Monthly Average: 75.14 %      Percentiles: P <sub>1</sub> = 34.9 P <sub>10</sub> = 50.5 Q <sub>1</sub> = 63.7 Median = 77.2 Q <sub>3</sub> = 89.7 P <sub>90</sub> = 97.0 P <sub>99</sub> = 98.5																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Oct	71.3	68.3	70.1	66.9	66.6	67.9	69.3	72.0	78.8	86.1	89.4	86.7	85.4	82.1	82.7	85.3	86.9	91.0	95.4	95.4	94.8	93.3	91.4	91.9	82.0	95.4																					
2-Oct	94.1	95.8	94.6	91.8	91.1	91.2	91.0	87.6	77.0	66.7	63.6	61.7	58.6	57.8	57.5	51.9	50.2	57.0	63.5	63.9	63.7	67.4	69.7	70.2	72.4	95.8																					
3-Oct	69.1	69.8	70.5	70.8	72.5	75.7	79.4	81.7	76.4	61.6	55.9	52.8	47.5	48.2	48.1	47.7	49.6	60.1	77.5	83.0	86.6	86.5	83.2	81.0	68.1	86.6																					
4-Oct	81.9	82.8	84.6	83.7	86.8	88.7	85.9	84.2	80.7	75.9	67.4	61.4	60.0	60.4	57.6	59.9	61.4	64.7	70.2	75.5	88.7	94.1	96.3	97.3	77.1	97.3																					
5-Oct	97.7	98.0	98.1	98.3	98.3	98.4	98.5	98.5	98.4	98.2	96.8	94.8	91.3	87.5	83.5	78.1	74.7	84.0	85.5	83.2	82.7	81.3	79.3	77.2	90.1	98.5																					
6-Oct	74.9	72.2	71.7	72.4	72.1	76.0	80.1	79.9	74.3	64.7	54.4	49.0	44.8	37.6	34.5	32.5	36.0	47.6	53.2	51.5	55.6	60.7	63.8	65.7	59.4	80.1																					
7-Oct	70.5	77.4	80.7	79.5	79.5	82.2	80.8	76.6	71.9	67.1	55.2	47.0	42.9	39.3	41.4	43.5	52.8	57.4	62.5	61.1	62.3	65.1	66.6	68.0	63.8	82.2																					
8-Oct	69.9	72.3	71.8	69.9	78.5	81.8	80.4	81.3	67.0	56.6	46.2	45.0	41.9	38.3	35.0	36.8	42.7	48.6	52.4	60.5	68.6	72.2	71.4	72.3	60.9	81.8																					
9-Oct	72.9	69.9	69.6	71.3	74.3	75.3	77.1	77.6	70.4	67.6	67.2	66.7	62.6	59.6	59.2	58.9	55.3	68.9	77.0	73.8	72.9	73.9	74.4	78.0	69.8	78.0																					
10-Oct	80.7	84.6	82.5	82.1	81.8	78.3	76.9	76.9	77.8	72.8	55.8	51.5	48.0	44.6	44.3	40.2	38.9	48.0	56.0	60.6	63.4	62.2	65.4	67.9	64.2	84.6																					
11-Oct	69.6	70.0	72.9	77.8	79.1	79.2	78.6	78.8	74.9	71.1	68.6	60.6	63.2	72.7	79.8	86.8	87.1	87.4	91.8	94.5	95.9	97.4	97.9	98.1	80.6	98.1																					
12-Oct	98.2	98.3	98.4	98.4	98.5	98.3	97.8	96.8	92.6	79.5	64.3	48.5	41.4	38.0	33.5	34.0	37.8	57.7	66.8	66.2	63.5	62.9	61.2	67.7	70.8	98.5																					
13-Oct	68.4	64.6	68.6	72.3	71.9	69.8	72.4	72.9	65.1	52.4	46.2	42.6	38.4	37.0	36.9	38.5	41.3	48.2	52.2	54.3	55.1	55.6	57.0	59.7	55.9	72.9																					
14-Oct	60.6	61.4	63.2	64.3	69.5	71.7	71.3	68.9	63.3	54.1	48.8	43.3	37.5	34.9	36.1	39.4	44.6	49.1	52.2	53.4	51.9	51.7	52.5	55.5	54.1	71.7																					
15-Oct	59.6	62.4	65.4	66.9	71.4	75.9	78.1	76.7	71.2	65.3	58.9	44.9	35.2	34.7	29.9	33.5	40.4	54.0	51.7	51.2	63.6	86.1	87.6	88.5	60.5	88.5																					
16-Oct	92.7	92.1	92.4	91.5	94.2	94.8	96.1	95.0	93.8	95.6	96.3	97.0	97.7	98.1	98.2	98.3	98.3	98.4	98.5	98.4	98.5	98.5	98.5	98.4	96.3	98.5																					
17-Oct	98.4	98.1	97.7	96.9	96.4	96.1	95.6	94.7	92.2	90.7	85.7	83.8	86.7	87.2	90.0	79.3	73.6	70.6	70.8	72.7	75.9	76.9	77.6	79.0	86.1	98.4																					
18-Oct	79.5	81.2	84.7	86.7	85.6	89.8	91.6	92.9	88.5	75.9	64.7	56.3	48.8	43.2	38.3	39.5	44.4	58.6	58.3	59.8	60.5	60.4	60.7	62.1	67.2	92.9																					
19-Oct	62.0	61.5	63.0	64.3	64.3	67.4	72.4	73.5	67.4	60.6	55.7	52.5	50.1	49.7	52.9	53.2	74.5	91.2	92.3	93.9	96.3	96.7	97.4	97.8	71.3	97.8																					
20-Oct	97.6	97.5	97.6	97.6	97.8	97.8	97.8	97.9	98.1	98.1	98.2	98.3	98.4	98.5	98.5	98.6	98.5	98.5	98.5	98.4	98.3	98.0	98.0	98.3	98.1	98.6																					
21-Oct	98.4	98.5	98.6	98.6	98.7	98.7	98.6	98.4	97.5	96.3	95.4	93.9	93.1	92.5	92.0	92.4	92.6	92.1	91.7	91.4	89.6	89.8	90.8	89.1	94.5	98.7																					
22-Oct	90.2	88.8	89.5	87.7	88.1	88.7	91.4	89.1	88.4	87.7	86.1	85.7	83.2	81.3	77.5	76.8	79.9	81.0	80.5	80.7	80.1	79.8	79.0	77.6	84.1	91.4																					
23-Oct	78.7	79.6	80.6	80.9	81.2	81.2	84.1	84.1	82.9	78.3	73.3	69.8	68.2	66.3	68.0	74.1	75.7	75.8	71.6	73.8	76.9	78.3	78.1	79.3	76.7	84.1																					
24-Oct	79.5	79.3	79.8	78.9	79.2	80.7	82.6	M	78.6	73.6	71.0	74.4	70.1	57.9	47.9	47.0	51.4	62.0	67.3	73.7	79.5	79.9	79.7	79.7	71.9	82.6																					
25-Oct	79.5	77.7	78.0	78.7	80.8	82.1	83.6	83.9	80.8	74.4	67.5	59.0	50.0	42.1	37.7	37.1	50.6	64.8	66.4	65.7	69.0	74.7	78.3	79.7	68.4	83.9																					
26-Oct	80.7	77.4	73.8	71.0	76.3	75.4	76.6	74.4	72.2	74.0	65.6	61.8	59.0	54.9	55.7	59.7	62.2	63.0	64.2	64.9	64.6	63.9	67.7	68.8	67.8	80.7																					
27-Oct	69.1	70.9	73.3	72.5	73.8	74.0	72.0	68.6	68.3	66.2	64.5	60.9	60.1	59.8	60.5	62.8	77.7	88.6	95.2	96.5	97.1	97.3	97.0	96.1	75.9	97.3																					
28-Oct	95.8	95.2	95.1	95.0	95.1	94.8	94.0	93.4	92.6	90.9	88.8	88.6	89.0	88.0	87.6	87.9	87.7	87.6	87.9	87.7	85.8	84.0	85.7	91.2	90.4	95.8																					
29-Oct	92.7	92.7	89.8	83.9	81.4	84.0	84.1	79.6	72.5	68.9	68.5	65.8	61.7	55.7	50.5	48.6	53.0	61.1	65.6	68.0	73.3	76.4	79.4	80.9	72.4	92.7																					
30-Oct	81.5	83.3	84.3	85.6	86.0	86.9	86.9	87.3	88.1	84.4	78.5	72.1	70.2	70.7	78.6	81.0	81.1	83.4	86.2	88.1	90.2	92.8	94.1	94.3	84.0	94.3																					
31-Oct	93.9	93.5	93.5	93.9	93.6	93.4	93.4	93.6	94.3	94.3	94.5	94.8	95.1	95.2	95.2	95.4	95.6	95.6	95.2	94.2	93.7	93.7	93.5	92.0	94.2	95.6																					
																						81.0	81.1	81.7	81.6	82.7	83.7	84.5	83.9	80.5	75.8	70.7	66.8	63.9	61.7	60.9	61.2	64.4	70.8	74.1	75.4	77.4	79.1	79.8	80.7	Diurnal Average	
																						98.4	98.5	98.6	98.6	98.7	98.7	98.6	98.5	98.4	98.2	98.2	98.3	98.4	98.5	98.5	98.6	98.5	98.5	98.5	98.4	98.5	98.5	98.5	98.4	98.4	Diurnal Maximum
M - Maintenance																																															



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

**Relative Humidity 2m (RH2) - %**  
**Jackfish 2/3 - October 2024**





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

**Relative Humidity 2m (RH2) - %**  
**Jackfish 2/3 - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	29	3.90	3.90
40 - 60	111	14.94	18.84
60 - 80	291	39.17	58.01
80 - 100	312	41.99	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

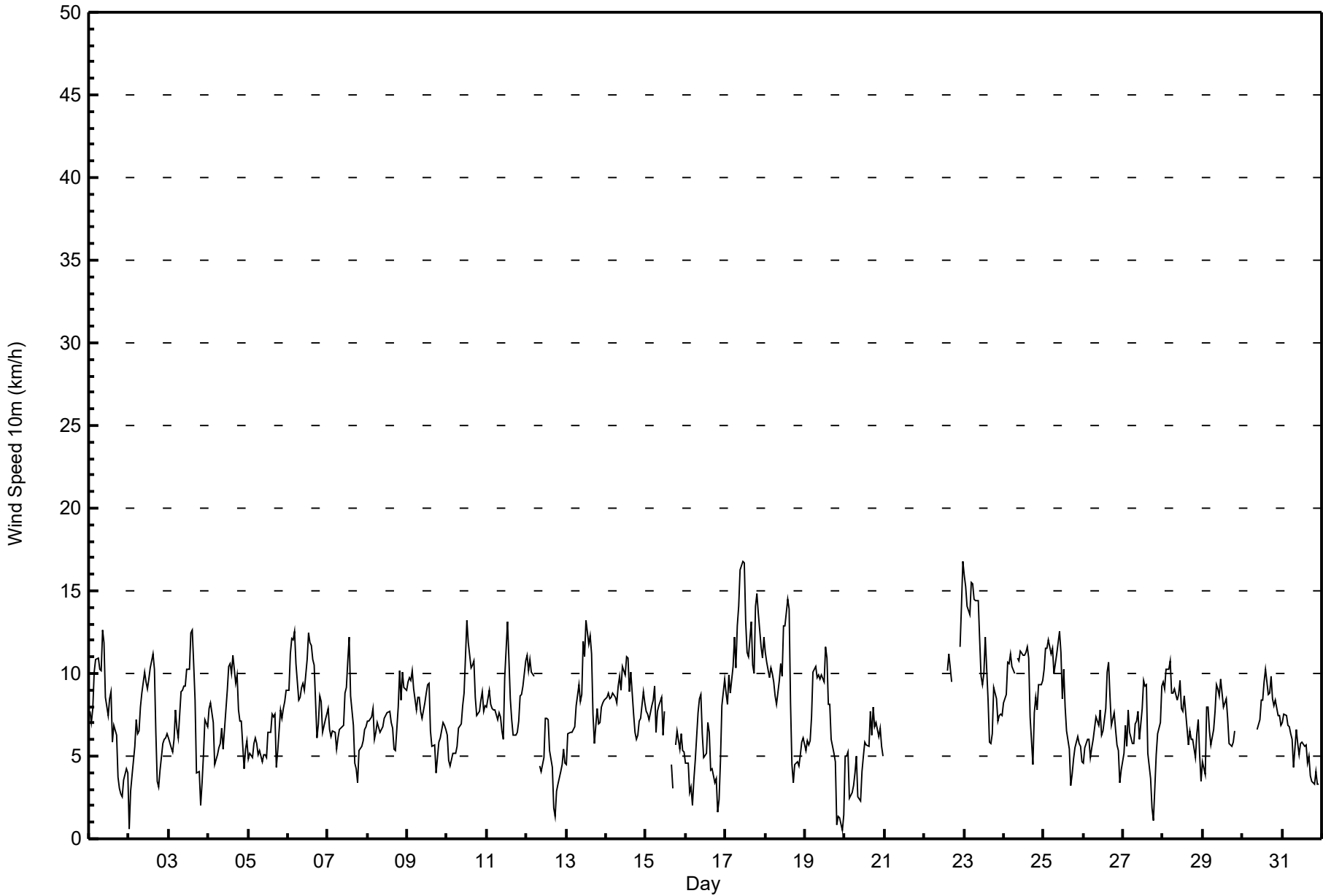
## Jackfish 2/3 - October 2024

Maximum Speed: 17 km/h on Oct 17 11:00	Maximum Daily Speed Average: 12.0 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 19 23:00	Minimum Daily Speed Average: 2.5 km/h on Oct 16	Hours of Data: 680
Maximum Diurnal Speed Average: 5.7 km/h at hour 4	Minimum Diurnal Speed Average: 2.1 km/h at hour 18	Hours of Missing Data: 64
Monthly Average Velocity: 4.2 km/h 243.7 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 8 Q <sub>3</sub> = 9 P <sub>90</sub> = 11 P <sub>99</sub> = 15	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-Oct	WSW8	WSW7	WSW8	WSW10	W11	WSW11	W10	WSW10	W13	W12	W9	W7	W8	W9	W6	W7	W6	NW4	N3	N3	NW3	NW4	NW4	NW4	W6.6	W13	
2-Oct	WSW1	WSW3	W4	WNW6	WNW7	WNW6	WNW7	WNW8	NW9	NW10	NW9	NW9	WNW10	NW10	WNW11	NW10	NNW6	NNW3	NW3	NNW4	NW6	WNW6	WNW6	WNW6	NW6.4	WNW11	
3-Oct	NW6	WNW6	WNW5	WNW6	WNW8	WNW7	W6	W9	W9	WNW9	NW9	WNW10	WNW10	W12	W13	W11	W8	W4	SW4	SW2	SSW3	SSW5	SSW7	SSW7	W6.5	W13	
4-Oct	SSW8	SSW8	SSW8	SSW7	SSW5	S5	S6	SSE7	SE5	ESE8	ESE9	ESE10	E11	ESE10	E11	E9	E10	E8	ENE7	ENE7	NE4	NE5	NE6	ESE4.6	E11		
5-Oct	NNE5	N5	NNW5	N6	N6	N6	NNW5	N5	NNW5	NNW5	NW5	WNW5	WNW6	WNW6	W8	W7	WSW8	SW4	SSW5	SSW8	SW7	SW8	SW8	SW9	WNW3.5	SW9	
6-Oct	SW9	WSW11	WSW12	W12	W13	W11	W8	W9	W9	W9	W9	W11	W12	W12	W12	W11	W11	WSW6	SW7	WSW9	WSW8	SW6	SSW7	SSW8	WSW9.1	W13	
7-Oct	SSW8	SSW7	SSW6	SSW6	SSW6	SSW5	SSW6	SSW7	SSW7	SSW7	SW9	SW9	SW11	WSW12	SW9	SW7	SSW5	SSW4	S3	SSW5	SSW6	SSW6	SSW7	SSW7	SSW6.7	WSW12	
8-Oct	SW7	SW7	SW7	SW8	SSW6	SSW6	SSW7	S6	SSW7	SSW7	SSW7	SSW7	S8	SSW8	SSW7	SW7	SW5	SSW5	WSW8	WNW10	WNW8	WNW10	WNW9	W9	SW6.0	WNW10	
9-Oct	W9	W10	WSW10	WSW10	WSW9	WSW8	WSW9	WSW9	W8	WNW7	W8	WSW9	WSW9	W9	WSW6	W6	W6	SW4	SW5	WSW6	WSW6	SW7	WSW7	WSW7	WSW7.4	WSW10	
10-Oct	WSW6	WSW5	W4	W5	WSW5	WSW5	WSW6	WSW7	WSW7	WSW8	W9	W11	W13	W12	W10	W11	W11	W9	W7	WSW8	W8	W9	W8	W8	W7.8	W13	
11-Oct	W8	WSW9	WSW8	WSW8	WSW8	WSW8	SW7	SSW8	SW7	SSW7	SW6	WSW10	WSW13	WSW11	WSW8	SSW7	SW6	SW6	WSW6	SW7	WSW9	SW9	WSW9	WSW11	WSW7.9	WSW13	
12-Oct	WSW11	WSW10	WSW11	WSW10	WSW10	UO	UO	UO	WNW4	WNW4	NW5	NNW7	N7	N7	N5	N4	NNW2	S1	SSW3	SSW3	SSW4	S4	S5	SSW5	W3.1	WSW11	
13-Oct	S4	S6	S6	S6	SSW7	SSW7	S8	S9	S8	S9	SSW12	SSW11	SSW13	SSW12	SSW12	SSW11	SSW8	SSW6	SSW8	SSW7	SSW7	SSW8	SSW8	SSW8	SSW8.4	SSW13	
14-Oct	SSW9	SSW9	S9	S9	S9	S9	SSW8	S9	S10	SSW9	SSW10	S10	S11	S11	S9	SSW10	S8	SSW6	SSW6	SSW6	SSW7	SW7	SW9	SW8	SSW8.4	S11	
15-Oct	SW8	SW8	SW7	SW8	SW8	WSW9	W6	W8	W8	W9	WNW6	W8	C	C	C	C	W4	WSW3	UO	WSW6	WSW7	WSW5	SW6	SW5	SSW5	WSW6.1	WSW9
16-Oct	S5	S5	SE3	ESE3	NE2	NE4	ENE5	E8	E9	E9	E6	NE5	ENE5	ENE7	ENE6	ENE4	ENE4	ENE3	E4	SE2	SSW2	SSW5	WSW8	WSW10	E2.5	WSW10	
17-Oct	WSW9	WSW8	WSW10	W9	W10	W12	W10	WSW13	WSW14	WSW16	WSW17	WSW17	W13	W11	W11	W13	W10	W10	WSW14	W15	WSW14	WSW12	WSW11	WSW12	W12.0	WSW17	
18-Oct	W11	W11	W10	WSW10	WSW10	WSW9	WSW9	SW8	SW10	SW11	SW10	SW13	SW13	WSW15	WSW14	SW8	S4	SSE3	SSE4	SSE5	SSE4	SSE5	SSE6	SSE6	SW7.4	WSW15	
19-Oct	S5	S6	S6	SSW6	SW7	SW10	SW10	SW10	SW10	WSW10	W10	W9	WSW12	WSW11	WSW8	SW8	SW6	SW5	SSW5	SSW1	S1	NNE1	SW0	NW1	SW5.9	WSW12	
20-Oct	N5	N5	NNE5	NNW2	NW3	NW3	NNW4	NNE5	NNE3	NNE2	NE4	ENE5	ENE6	E6	E6	E8	ENE6	E8	E7	ESE7	ESE6	ESE7	NE6	NE5	ENE3.7	E8	
21-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	WSW10	SW11	SW9	UO	UO	UO	UO	SW12	WSW14	WSW17	---	WSW17
23-Oct	WSW16	WSW15	W14	W14	WSW16	WSW15	WSW14	WSW14	WSW14	W12	W10	W9	WSW10	WSW12	WSW8	WSW6	SW6	SW6	WSW9	WSW8	SW7	SSW7	SSW8	SW7	WSW10.5	WSW16	
24-Oct	SW8	SW9	WSW11	WSW11	WSW11	SW10	WSW10	M	WSW11	W11	W11	W11	W11	W11	WNW12	WNW11	W7	WSW5	WSW8	WSW9	WSW8	WSW9	WSW9	WSW10	WSW9.1	WNW12	
25-Oct	WSW10	WSW12	WSW12	WSW12	WSW11	WSW10	WSW11	WSW11	WSW11	WSW13	W11	W8	W10	W8	WNW7	W5	SW3	S4	SSW5	SSW6	SSW6	S6	S6	S5	WSW7.4	WSW13	
26-Oct	S5	S5	S6	S6	S5	SE6	ESE6	ESE7	ESE7	ESE7	NE8	NE6	NE7	ENE8	E10	E11	E9	ESE7	ESE8	ESE7	ESE6	SE5	SE3	SE4	ESE5.1	E11	
27-Oct	SE5	SSE7	SSE6	SSE8	SSE6	SSE6	ESE6	ESE7	SE7	ESE8	ESE6	ESE8	ESE10	ESE9	ESE9	SSE5	SE4	SSE2	SSW1	SW3	SW5	WSW6	W7	W9	SSE4.0	ESE10	
28-Oct	WNW9	WNW9	WNW10	W10	WNW11	WNW9	WNW9	WNW9	WNW9	WNW8	WNW9	WNW10	NW8	WNW8	WNW9	WNW7	WNW6	WNW7	WNW6	WNW6	NW5	NW6	NW7	NW5	NNW3	WNW7.6	WNW11
29-Oct	NW5	NW4	WNW8	WNW8	NW7	WNW6	W7	W8	W9	WNW9	WNW9	W10	W8	W8	W8	WSW7	SW6	SW6	SSW6	SSW6	UO	UO	UO	UO	W6.2	W10	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	NE7	NE7	NE8	NE8	ENE10	NE10	ENE9	ENE9	ENE10	ENE8	ENE8	ENE8	NE7	NE7	NE7	---	NE10	
31-Oct	NE7	NE8	ENE7	ENE7	ENE7	ENE6	ENE6	ENE4	ESE7	ESE6	ESE5	E6	ESE6	E6	E6	ESE5	ESE5	SE4	ESE4	ESE3	E4	NE3	NE3	UO	E4.9	NE8	

WSW5.1	WSW5.3	WSW5.5	WSW5.7	WSW5.7	WSW5.3	WSW4.8	WSW4.7	WSW5.0	WSW4.5	W4.2	W4.7	WSW4.8	WSW4.5	WSW4.0	WSW3.8	WSW2.8	SSW2.1	SW2.8	SW2.9	SW3.2	SW3.9	WSW4.1	WSW4.7	Diurnal Average	
WSW16	WSW15	W14	W14	WSW16	WSW15	WSW14	WSW14	WSW14	WSW14	WSW16	WSW17	WSW17	W13	WSW15	WSW14	W13	W11	W10	WSW14	W15	WSW14	SW12	WSW14	WSW17	Diurnal Maximum

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





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

**Wind Speed 10m (WS10) - km/h**  
**Jackfish 2/3 - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	146	21.47	21.47
6 - 11	479	70.44	91.91
12 - 19	55	8.09	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: 680

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Jackfish 2/3 - October 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	6	9	8	1	6	9	7	17	20	12	8	6	4	15	10	146
6 - 11	5	0	15	21	19	25	2	8	27	61	59	91	81	50	13	2	479
12 - 19	0	0	0	0	0	0	0	0	0	4	2	30	18	1	0	0	55
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>	13	6	24	29	20	31	11	15	44	85	73	129	105	55	28	12	680

Total Number of Valid Hours: 680

Total Number of Hours: 744





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

**Wind Speed 10m (WS10) - km/h**  
**Jackfish 2/3 - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Oct 17 12:00 Minimum Value: 0 km/h on Oct 12 19:00 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> = 5																		Hours in Service: 744 Hours of Data: 680 Hours of Missing Data: 64 Hours of Calibration: 3 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-Oct	2	2	2	2	3	3	3	3	4	4	3	2	3	3	2	3	2	2	2	2	1	2	2	2	4
2-Oct	1	1	1	2	3	3	2	3	4	5	5	4	5	4	4	5	3	2	1	2	2	3	2	2	5
3-Oct	2	2	2	2	3	3	2	2	3	4	4	4	4	5	5	4	4	2	1	1	1	1	1	1	5
4-Oct	1	2	1	2	1	1	1	2	3	2	2	3	2	3	4	4	3	3	2	2	2	2	2	2	4
5-Oct	2	2	2	2	3	2	2	2	2	2	2	2	3	3	3	3	3	1	1	2	2	2	3	3	3
6-Oct	2	3	3	4	3	3	3	3	3	3	3	4	4	5	4	4	4	2	2	3	2	2	1	1	5
7-Oct	2	1	1	1	1	2	2	2	2	2	3	4	4	4	3	3	2	1	1	2	2	2	2	1	4
8-Oct	1	1	2	2	2	1	1	1	2	2	3	3	3	3	3	2	2	2	3	4	4	4	3	2	4
9-Oct	2	2	2	2	2	2	2	2	3	3	2	3	3	3	2	2	2	1	1	1	1	2	1	1	3
10-Oct	2	1	2	1	1	1	1	1	2	2	3	4	5	4	4	4	4	2	2	2	2	2	2	2	5
11-Oct	1	2	2	2	2	2	1	1	2	2	2	4	4	3	3	2	2	2	1	2	2	2	2	2	4
12-Oct	2	2	2	2	2	UO	UO	UO	2	1	2	3	3	3	3	2	2	1	0	0	1	1	2	1	3
13-Oct	2	2	2	2	2	2	3	3	3	4	4	5	5	5	5	4	3	3	3	2	2	3	3	3	5
14-Oct	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3	2	2	2	2	2	2	4
15-Oct	2	2	2	2	2	2	2	2	2	3	3	3	C	C	C	2	1	UO	2	2	2	1	1	1	3
16-Oct	2	1	1	1	1	1	1	2	3	3	2	2	2	2	2	2	1	1	1	1	1	1	3	3	3
17-Oct	2	3	3	4	4	5	4	4	4	4	5	6	5	4	5	5	4	4	5	5	4	3	3	3	6
18-Oct	3	3	3	3	3	2	2	2	2	3	3	4	4	5	4	3	2	2	2	2	2	2	2	3	5
19-Oct	2	2	2	2	2	2	2	2	2	3	4	3	4	4	3	2	2	1	1	1	1	1	1	2	4
20-Oct	2	2	2	1	1	1	2	2	1	1	1	1	2	2	2	2	2	3	3	2	2	2	2	1	3
21-Oct	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-Oct	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
23-Oct	4	4	4	4	4	4	3	3	4	4	4	3	3	4	3	1	1	2	2	2	2	2	2	2	4
24-Oct	2	2	3	3	3	3	2	M	3	4	4	4	4	5	5	4	3	2	2	2	2	2	2	2	5
25-Oct	3	3	3	3	3	2	2	2	3	4	4	3	4	3	2	2	1	1	1	1	1	1	1	1	4
26-Oct	1	2	2	2	1	2	2	2	2	2	3	2	2	3	4	4	3	2	2	2	2	2	1	2	4
27-Oct	2	3	2	3	3	2	2	3	3	3	2	3	4	3	4	3	1	1	1	1	2	2	3	4	4
28-Oct	4	4	4	4	4	4	3	4	3	4	3	3	3	3	3	2	3	3	2	2	3	3	2	2	4
29-Oct	2	2	3	3	3	2	3	3	4	4	3	3	3	3	4	3	2	2	1	2	UO	UO	UO	UO	4
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2	3
31-Oct	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	UO	2
Diurnal Maximum																									
C - Calibration						M - Maintenance						UO - Unstable Operation													



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

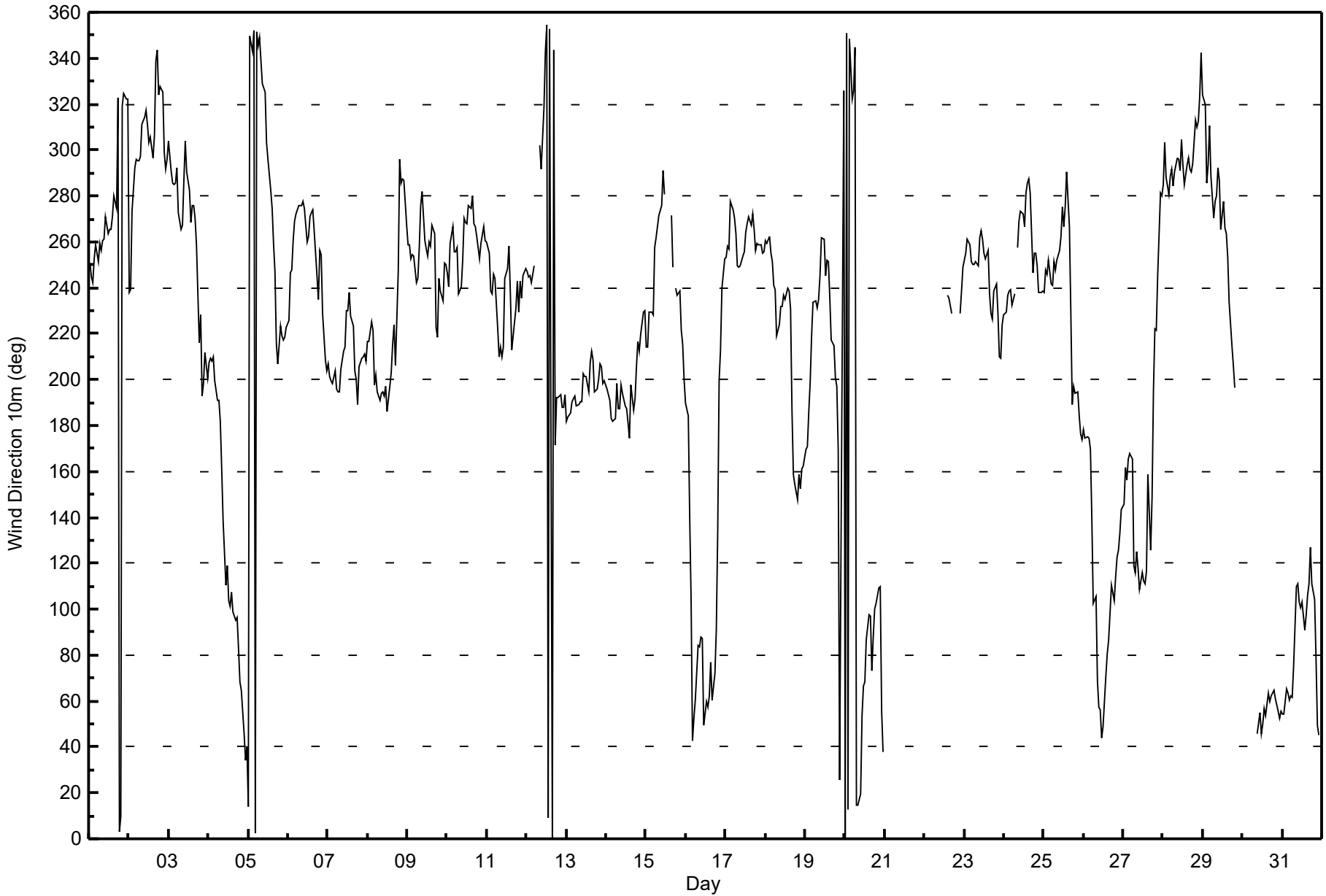
**Wind Direction 10m (WD10) - deg**  
**Jackfish 2/3 - October 2024**

Direction of Maximum Speed: 254 deg on Oct 17 11:00																						Hours in Service: 744				
Direction of Maximum Daily Speed Average: 260.1 deg on Oct 17																						Hours of Data: 680				
Direction of Minimum Speed: 227 deg on Oct 19 23:00											Direction of Minimum Daily Speed Average: 2.5 deg on Oct 16											Hours of Missing Data: 64				
Monthly Average Direction: 243.7 deg																						Percent Operational Time: 91.8				
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-Oct	251	245	242	252	259	251	259	256	261	261	271	263	266	266	271	280	275	323	3	10	319	324	322	322	267.7	
2-Oct	238	239	273	292	296	295	295	297	311	314	317	311	303	306	297	306	338	343	324	328	326	299	292	296	305.2	
3-Oct	304	290	286	285	286	292	273	265	268	287	304	290	282	269	276	276	271	259	216	228	193	198	211	201	270.6	
4-Oct	207	209	208	210	200	191	191	182	161	139	111	119	104	101	107	99	95	97	83	68	64	45	34	41	121.7	
5-Oct	14	350	343	352	2	352	345	349	329	327	325	303	296	283	275	259	247	216	207	223	219	217	219	223	283.0	
6-Oct	226	246	248	261	269	272	276	276	276	278	275	260	263	271	273	274	265	245	235	256	255	229	209	204	258.4	
7-Oct	207	202	199	198	204	196	195	195	205	212	214	230	230	238	227	223	204	200	189	205	209	210	211	208	211.7	
8-Oct	217	217	225	222	198	202	195	191	194	195	193	197	186	197	203	215	224	207	247	296	285	287	287	267	225.0	
9-Oct	259	259	253	254	254	242	244	257	276	282	261	257	254	260	258	267	263	223	218	244	239	234	251	250	253.8	
10-Oct	246	241	259	267	256	255	258	237	241	252	270	268	268	276	274	280	268	267	262	253	259	263	267	261	262.5	
11-Oct	260	255	239	237	246	244	222	210	214	210	214	244	248	258	238	213	219	231	243	230	243	235	245	249	237.3	
12-Oct	247	245	246	242	250	UO	UO	UO	302	291	319	343	354	9	352	0	343	171	192	192	193	188	188	193	264.2	
13-Oct	182	184	185	191	192	193	189	189	191	190	203	201	202	194	207	212	209	195	196	200	207	206	198	199	197.6	
14-Oct	196	193	191	183	182	183	198	187	188	198	194	189	187	181	175	198	187	192	206	216	212	219	229	230	195.3	
15-Oct	214	214	230	229	228	258	261	267	272	276	291	281	C	C	C	272	249	UO	240	237	239	221	216	200	245.3	
16-Oct	190	184	141	104	43	52	60	84	83	88	87	50	60	57	62	77	60	72	91	134	200	213	240	253	91.3	
17-Oct	253	258	257	278	274	270	263	249	249	250	254	256	264	268	271	267	272	265	256	259	258	258	255	256	260.1	
18-Oct	260	260	262	255	251	241	239	219	224	232	232	236	235	240	239	231	187	159	155	148	158	152	161	163	229.2	
19-Oct	170	171	186	199	219	234	234	231	235	245	262	261	245	252	251	235	217	215	201	197	169	26	227	326	231.4	
20-Oct	1	351	13	348	322	326	345	15	14	19	54	66	69	87	97	97	73	88	100	103	110	110	56	38	61.0	
21-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	237	235	229	UO	UO	UO	UO	229	239	249	--
23-Oct	252	255	261	259	252	250	250	252	249	262	265	261	255	253	256	237	229	226	238	242	229	210	209	224	248.2	
24-Oct	228	229	237	238	239	232	238	M	258	269	274	272	267	281	286	287	281	246	255	249	238	238	239	239	254.6	
25-Oct	238	247	246	252	242	241	251	248	252	256	262	275	267	275	291	267	230	189	197	194	195	184	176	174	243.6	
26-Oct	178	174	175	175	170	140	102	106	69	57	56	44	49	71	80	87	98	110	104	114	123	126	133	143	104.2	
27-Oct	146	162	156	165	168	165	119	116	125	117	109	116	113	111	116	159	126	149	196	222	221	245	281	280	146.7	
28-Oct	285	303	288	281	288	292	284	291	297	296	291	304	294	285	293	296	292	290	294	313	310	312	323	343	295.1	
29-Oct	324	320	286	293	311	289	271	278	280	292	287	265	278	266	264	253	234	215	206	196	UO	UO	UO	UO	271.9	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	46	55	46	50	57	54	63	60	62	64	64	61	56	53	56	--	
31-Oct	54	54	66	64	60	62	62	75	110	111	103	101	103	91	98	106	111	127	111	104	79	50	45	UO	82.9	
238.9 238.9 241.6 244.4 248.2 246.1 244.5 239.1 245.2 255.5 260.2 259.6 254.2 256.9 254.0 248.5 239.2 207.7 216.3 229.3 231.3 230.1 236.5 238.7																										
Diurnal Average																										
C - Calibration 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 10m (WD10) - deg**  
**Jackfish 2/3 - October 2024**







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

**Wind Direction 10m (WD10) - deg**  
**Jackfish 2/3 - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Oct 2 01:00 Minimum Value: 8 deg on Oct 10 06:00 Percentiles: P <sub>1</sub> = 12 P <sub>10</sub> = 16 Q <sub>1</sub> = 20 Median = 28 Q <sub>3</sub> = 37 P <sub>90</sub> = 46 P <sub>99</sub> = 64																			Hours in Service: 744 Hours of Data: 680 Hours of Missing Data: 64 Hours of Calibration: 3 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-Oct	20	24	19	17	18	20	22	20	22	23	31	29	28	29	38	43	39	58	55	63	51	50	46	60	63																						
2-Oct	103	18	20	34	39	38	38	38	47	50	51	48	46	45	38	45	62	60	63	62	48	40	39	40	103																						
3-Oct	39	41	40	36	36	43	34	23	26	42	47	43	42	33	34	37	37	25	15	43	14	13	15	14	47																						
4-Oct	14	14	15	17	14	24	20	37	53	54	30	34	29	29	30	30	23	26	25	24	28	43	46	43	54																						
5-Oct	53	46	54	55	54	49	57	52	58	56	47	54	44	41	40	25	23	22	22	23	24	27	26	24	58																						
6-Oct	21	21	20	23	22	25	31	29	32	36	37	28	27	38	33	32	23	26	20	19	17	21	18	14	38																						
7-Oct	16	12	11	16	17	23	22	26	25	25	27	30	31	30	35	31	29	31	60	27	21	22	17	16	60																						
8-Oct	18	18	17	17	24	12	14	15	28	32	40	47	47	44	46	33	28	30	29	38	37	35	33	16	47																						
9-Oct	15	16	15	17	17	18	15	18	31	41	26	22	26	27	27	32	36	21	20	19	17	17	14	15	41																						
10-Oct	19	20	20	15	10	8	12	19	20	19	32	32	29	34	31	37	24	17	16	16	15	15	16	15	37																						
11-Oct	13	14	17	15	14	15	21	16	18	20	26	29	23	23	25	28	28	23	17	16	18	17	17	17	29																						
12-Oct	16	16	17	18	17	UO	UO	UO	41	43	52	57	52	51	59	63	87	61	15	15	10	22	25	23	87																						
13-Oct	38	33	31	31	32	34	30	34	39	40	35	39	36	41	35	33	35	45	35	30	32	29	29	27	45																						
14-Oct	28	26	28	31	31	32	27	27	35	37	39	41	40	40	46	40	47	45	39	36	29	23	23	21	47																						
15-Oct	18	17	20	17	20	19	21	18	25	34	45	37	C	C	C	36	26	UO	17	20	25	21	21	13	45																						
16-Oct	16	14	34	30	36	18	14	24	27	28	32	29	26	28	25	37	29	28	31	62	50	21	19	20	62																						
17-Oct	19	26	23	36	34	33	29	18	18	19	22	24	31	33	37	34	37	31	21	22	21	21	17	18	37																						
18-Oct	23	20	22	20	20	15	16	19	20	21	24	25	26	26	24	27	36	52	48	45	58	45	43	41	58																						
19-Oct	36	28	25	20	19	16	15	15	15	23	32	32	24	28	26	23	26	21	22	90	75	50	78	50	90																						
20-Oct	47	35	43	42	36	43	42	45	55	50	32	30	29	31	29	24	30	28	27	29	35	28	21	23	55																						
21-Oct	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-Oct	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																						
23-Oct	17	18	24	22	17	17	15	14	15	27	30	31	26	21	24	17	17	18	18	16	18	19	19	19	31																						
24-Oct	19	20	17	18	16	18	19	M	23	32	32	33	32	38	38	37	32	26	23	15	21	15	15	14	38																						
25-Oct	17	15	15	16	17	16	16	15	17	23	28	34	34	40	44	34	33	11	16	19	15	12	13	9	44																						
26-Oct	11	17	17	18	26	39	23	26	33	26	21	25	22	27	28	28	29	32	29	35	36	43	51	50	51																						
27-Oct	49	41	40	35	45	46	41	34	39	38	39	42	39	37	39	51	45	65	30	15	23	27	32	36	65																						
28-Oct	34	38	37	34	40	33	30	32	32	34	32	34	36	32	38	24	29	34	32	28	37	36	47	65	65																						
29-Oct	53	48	34	40	39	36	34	33	36	38	36	30	36	36	37	26	17	20	19	21	UO	UO	UO	UO	53																						
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	24	27	30	32	34	28	28	27	30	26	24	23	20	18	20	34																						
31-Oct	21	21	26	25	25	26	25	35	34	35	34	37	34	36	36	47	40	41	45	35	27	21	16	UO	47																						
Diurnal Maximum																								103	48	54	55	54	49	57	52	58	56	52	57	52	51	59	63	87	65	63	90	75	50	78	65
C - Calibration      M - Maintenance      UO - Unstable Operation																																															



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS29  
SURMONT 2  
OCTOBER 2024**

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

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT2 (AMS29)  
OCTOBER 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	34	39	99.33	4.5	0	0.7	0
H2S (ppb) Average	707	37	37	100	0.6	0	0.1	0
THC(ppm) Average	710	34	34	100	2.7	-	2.3	-
NO2 (ppb) Average	707	37	37	100	18.3	0	2.9	-
NO (ppb) Average	707	37	37	100	8.6	-	1	-
NOX (ppb) Average	707	37	37	100	26.9	-	3.9	-
PM2.5 (ug/m3) Average	737	4	7	99.6	29.8	0	3.8	0
Temperature 2 m (C) Average	744	0	0	100	19.9	-	13.8	-
Relative Humidity (%) Average	744	0	0	100	99.6	-	94.5	-
Wind Speed 10 m (km/h) Average	652	3	92	88.04	17	-	10	-
Wind Direction 10 m (deg) Average	652	3	92	88.04	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
OCTOBER 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	0.26	0.5	-	0	0	0	0.1	0.3	0.6	4.5
H2S (ppb) Average	707	0.07	0	-	0	0	0	0.1	0.1	0.1	0.6
THC (ppm) Average	710	2.3	0	-	2.2	2.3	2.3	2.3	2.3	2.3	2.7
NO2 (ppb) Average	707	1.03	1.4	-	0.1	0.3	0.4	0.7	1.2	2	18.3
NO (ppb) Average	707	0.15	0.5	-	0	0	0	0.1	0.1	0.3	8.6
NOX (ppb) Average	707	1.17	1.8	-	0.1	0.3	0.5	0.7	1.3	2.3	26.9
PM2.5 (ug/m3) Average	737	1.96	1.8	-	0	0.6	1.1	1.6	2.4	3.2	29.8
Temperature 2 m (C) Average	744	2.91	5.6	-	-8.9	-4.2	-0.8	2.1	6.5	10.5	19.9
Relative Humidity (%) Average	744	74.29	16.4	-	33.1	51	62.8	74.8	87.6	95.2	99.6
Wind Speed 10 m (km/h) Average	652	6.1	3	-	0	1	3	6	9	11	17
Wind Direction 10 m (deg) Average	652	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	22 Oct 2024 11:00	22 Oct 2024 15:00	5	Maintenance - station operator activities
PM2.5	30 Oct 2024 11:00	30 Oct 2024 13:00	3	Maintenance - field testing
Wind Speed, Wind Direction	20 Oct 2024 23:00	22 Oct 2024 10:00	36	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Oct 2024 01:00	26 Oct 2024 01:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 04:00	28 Oct 2024 11:00	8	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 16:00	30 Oct 2024 11:00	44	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

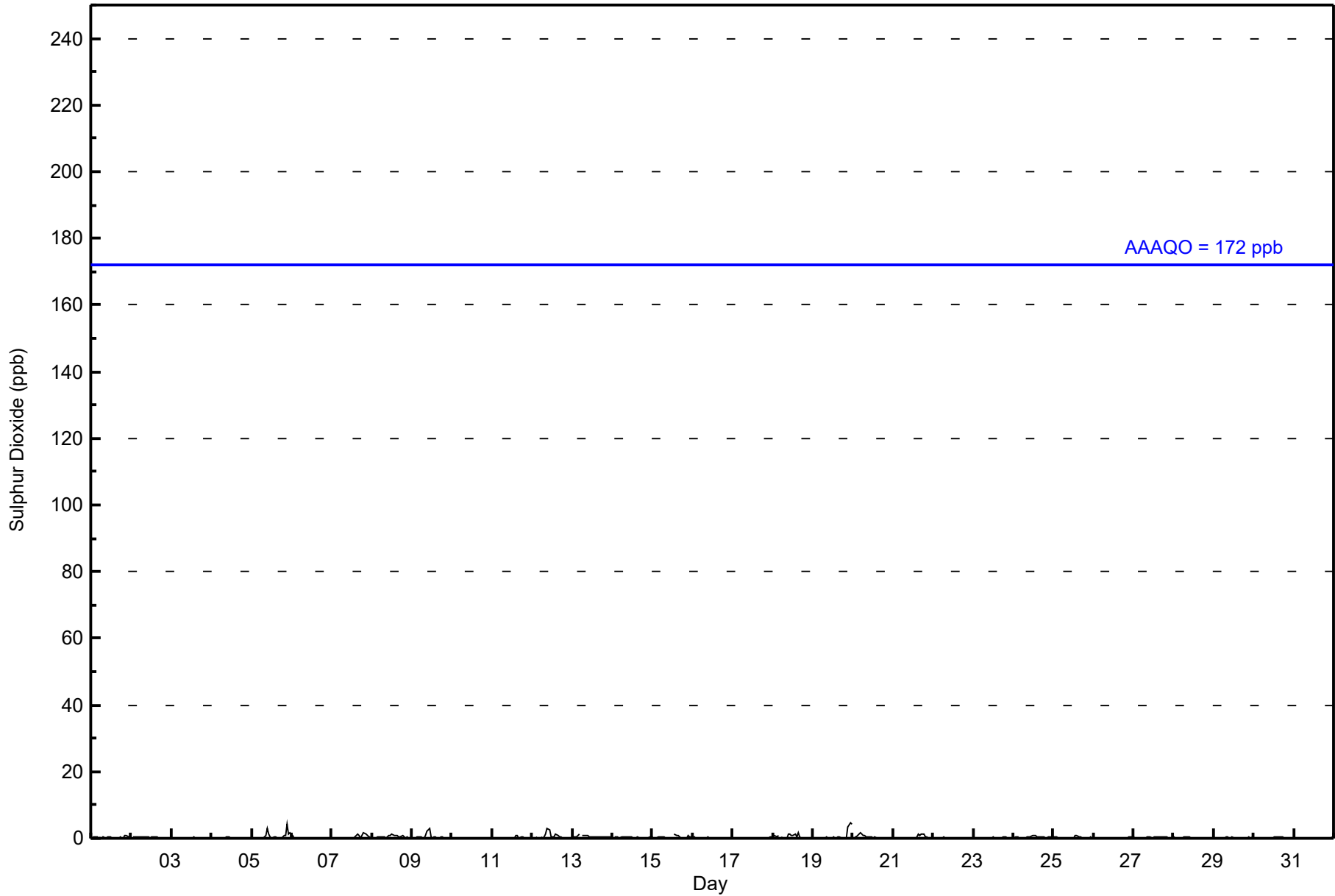
Surmont 2 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 4.5 ppb on Oct 19 23:00		Maximum Daily Average: 0.7 ppb on Oct 5																	Hours of Data: 705		Hours of Missing Data: 39																												
Minimum Value: 0.0 ppb on Oct 1 10:00		Minimum Daily Average: 0.0 ppb on Oct 10																	Hours of Calibration: 34		Percent Operational Time: 99.3																												
Maximum Diurnal Average: 0.5 ppb at hour 10		Minimum Diurnal Average: 0.2 ppb at hour 1																																															
Monthly Average: 0.26 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.6 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-Oct	0.1	0.3	0.3	0.3	0.2	Z	0.4	0.3	0.2	0.0	0.6	0.4	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.8	1.0	0.4	0.2	0.3	1.0																							
2-Oct	Z	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.1	0.3	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.4																						
3-Oct	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.2	0.0	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.4	0.4																						
4-Oct	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																						
5-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.7	3.1	1.4	0.2	0.1	0.6	0.2	0.2	0.0	0.2	0.1	0.8	1.0	4.4	1.2	1.9	0.7	4.4																						
6-Oct	0.7	0.0	0.0	0.0	Z	0.1	0.1	0.2	0.2	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	0.1	0.7																						
7-Oct	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	0.1	0.4	1.2	0.7	0.2	0.9	1.6	1.4	0.7	0.3	0.3	0.3	0.3	1.6																						
8-Oct	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.5	0.2	0.4	0.8	0.8	1.3	0.9	0.7	0.7	0.4	0.3	0.9	0.3	0.1	0.3	0.0	0.0	0.4	1.3	0.4																						
9-Oct	0.2	Z	0.2	0.2	0.2	0.4	0.2	0.1	0.6	2.3	3.0	0.6	0.1	0.4	0.3	0.1	0.1	0.6	0.3	0.0	0.0	0.0	0.1	0.0	0.4	3.0	0.4																						
10-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.2																						
11-Oct	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	0.2	0.7	1.0	0.1	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.1																						
12-Oct	0.0	0.1	0.2	0.2	Z	0.4	0.1	0.4	1.3	2.9	2.4	0.2	0.5	0.6	1.3	0.7	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.6	2.9	0.6																						
13-Oct	0.1	0.2	0.3	0.6	1.1	Z	0.9	0.9	0.9	0.7	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	1.1	0.5																						
14-Oct	Z	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.3	0.2	0.4	0.2																						
15-Oct	0.3	Z	0.2	0.4	0.3	0.4	0.4	0.3	0.1	0.1	C	C	C	1.3	1.0	1.0	0.5	0.1	0.1	0.2	0.0	0.9	0.4	0.5	0.4	1.3	0.4																						
16-Oct	0.3	0.3	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1																						
17-Oct	0.0	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.3	0.0																						
18-Oct	0.6	0.7	0.6	0.7	Z	0.2	0.0	0.0	0.0	1.3	1.1	0.8	1.0	1.2	0.6	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.6	0.5																						
19-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.2	0.3	0.2	0.2	0.0	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	3.4	4.5	4.0	0.6	4.5	0.6																						
20-Oct	Z	0.5	0.4	0.8	1.6	1.2	0.9	1.0	0.5	0.4	0.5	0.2	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.4	1.6	0.4																						
21-Oct	0.0	Z	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.3	1.1	1.1	1.4	1.1	0.4	0.4	0.2	0.0	0.2	0.3	1.4	0.3																						
22-Oct	0.0	0.0	Z	0.0	0.2	0.0	0.3	0.2	0.1	0.1	M	M	M	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0																						
23-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.1	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.1	0.6	0.1																						
24-Oct	0.0	0.2	0.3	0.4	Z	0.2	0.1	0.1	0.4	0.3	0.5	0.9	0.8	0.7	0.5	0.2	0.4	0.5	0.2	0.1	0.1	0.4	0.2	0.2	0.3	0.9	0.3																						
25-Oct	0.4	0.4	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.7	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.8	0.2																						
26-Oct	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.3	0.5	0.2	0.5																						
27-Oct	0.3	Z	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.5	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	0.4	0.2	0.5																						
28-Oct	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1																						
29-Oct	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.5	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.5	0.1																					
30-Oct	0.2	0.1	0.1	0.2	Z	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2																						
31-Oct	0.1	0.0	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.6	0.1	0.6	0.1																						
																								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	Diurnal Average		
																								0.7	0.7	0.6	0.8	1.6	1.2	0.9	1.0	1.3	3.1	3.0	0.9	1.3	1.3	1.3	1.6	1.1	1.4	1.1	1.6	1.4	4.4	4.5	4.0	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**  
**Surmont 2 - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - October 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**  
**Surmont 2 - October 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	3	2	6	12	32	79	44	14	19	27	48	94	144	67	15	15	621
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>3</b>	<b>2</b>	<b>6</b>	<b>12</b>	<b>32</b>	<b>79</b>	<b>44</b>	<b>14</b>	<b>19</b>	<b>27</b>	<b>48</b>	<b>94</b>	<b>144</b>	<b>67</b>	<b>15</b>	<b>15</b>	<b>621</b>

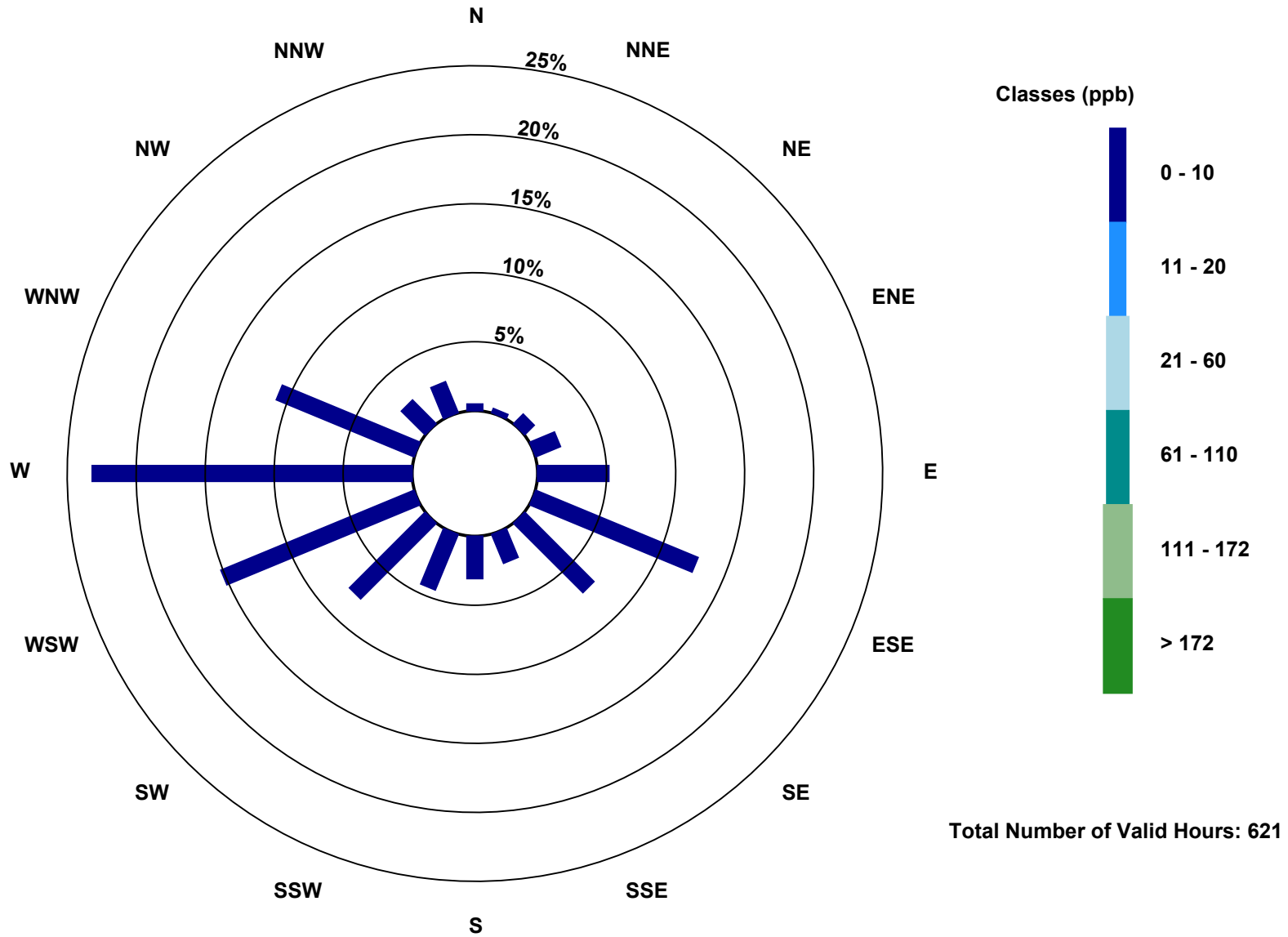
Total Number of Valid Hours: 621

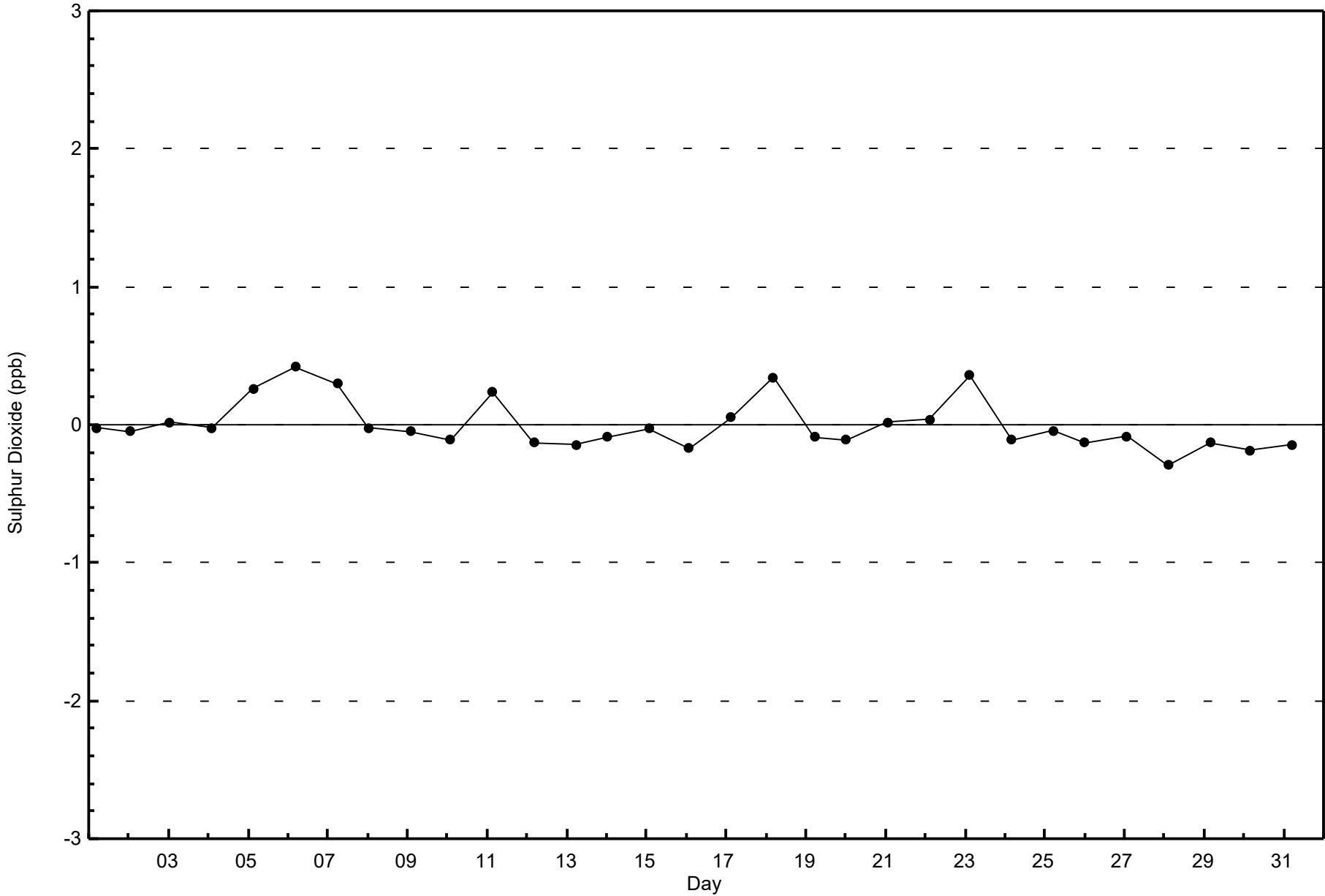
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Surmont 2

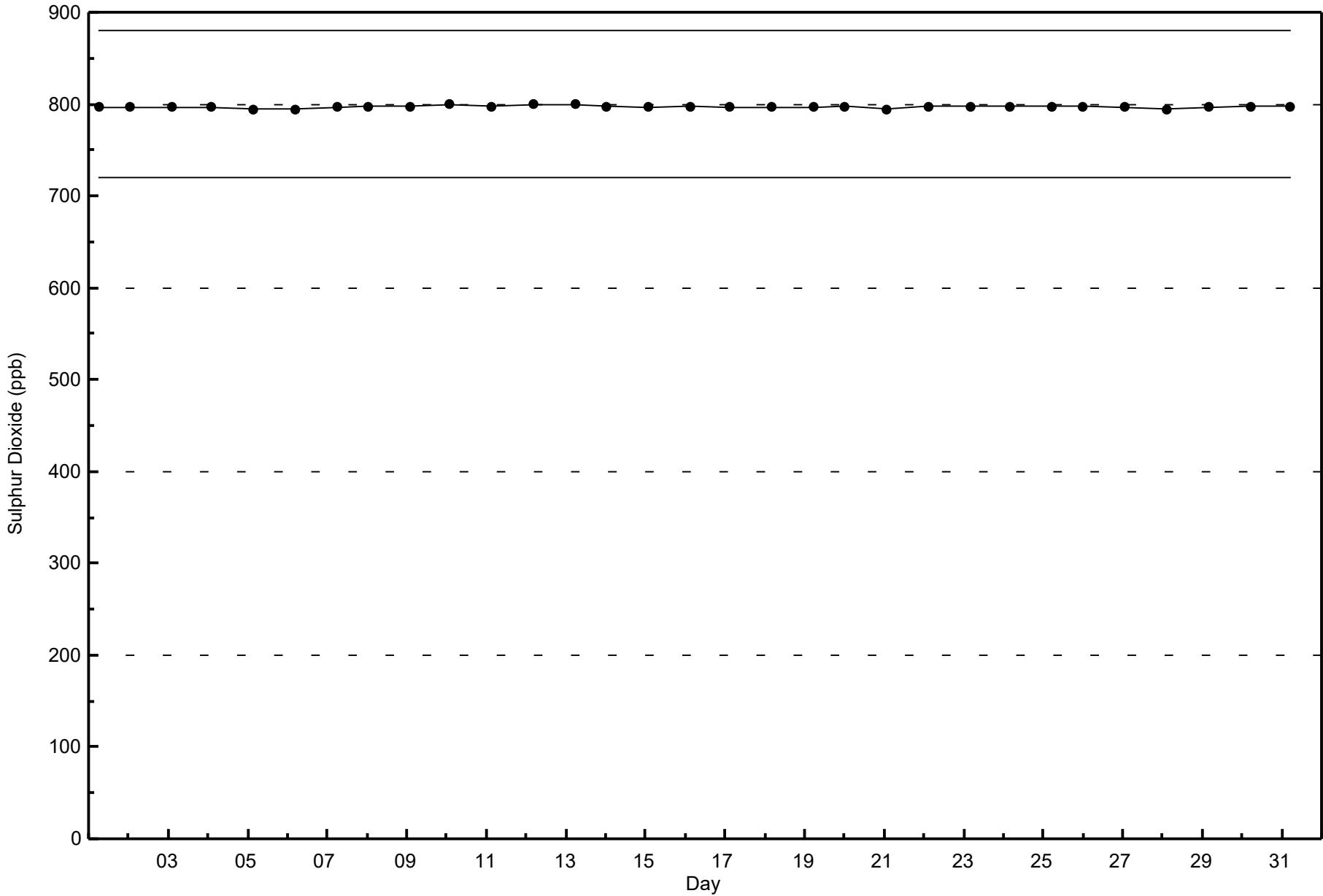




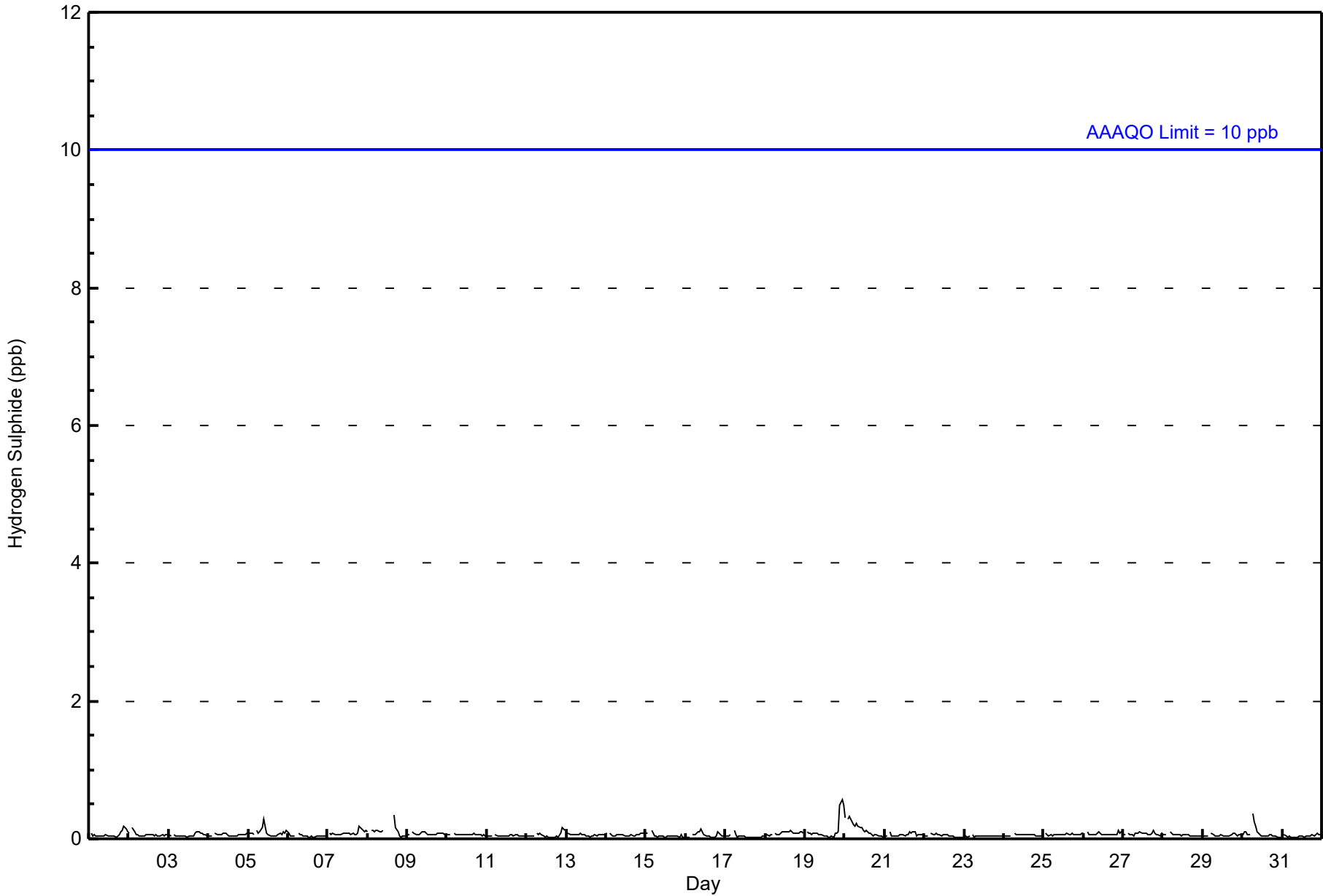


Wood Buffalo Environmental Association  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Surmont 2 - October 2024









**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Surmont 2 - October 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  
Surmont 2 - October 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	3	2	6	13	30	77	42	13	19	29	44	97	149	67	14	15	620
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>	3	2	6	13	30	77	42	13	19	29	44	97	149	67	14	15	620

Total Number of Valid Hours: 620

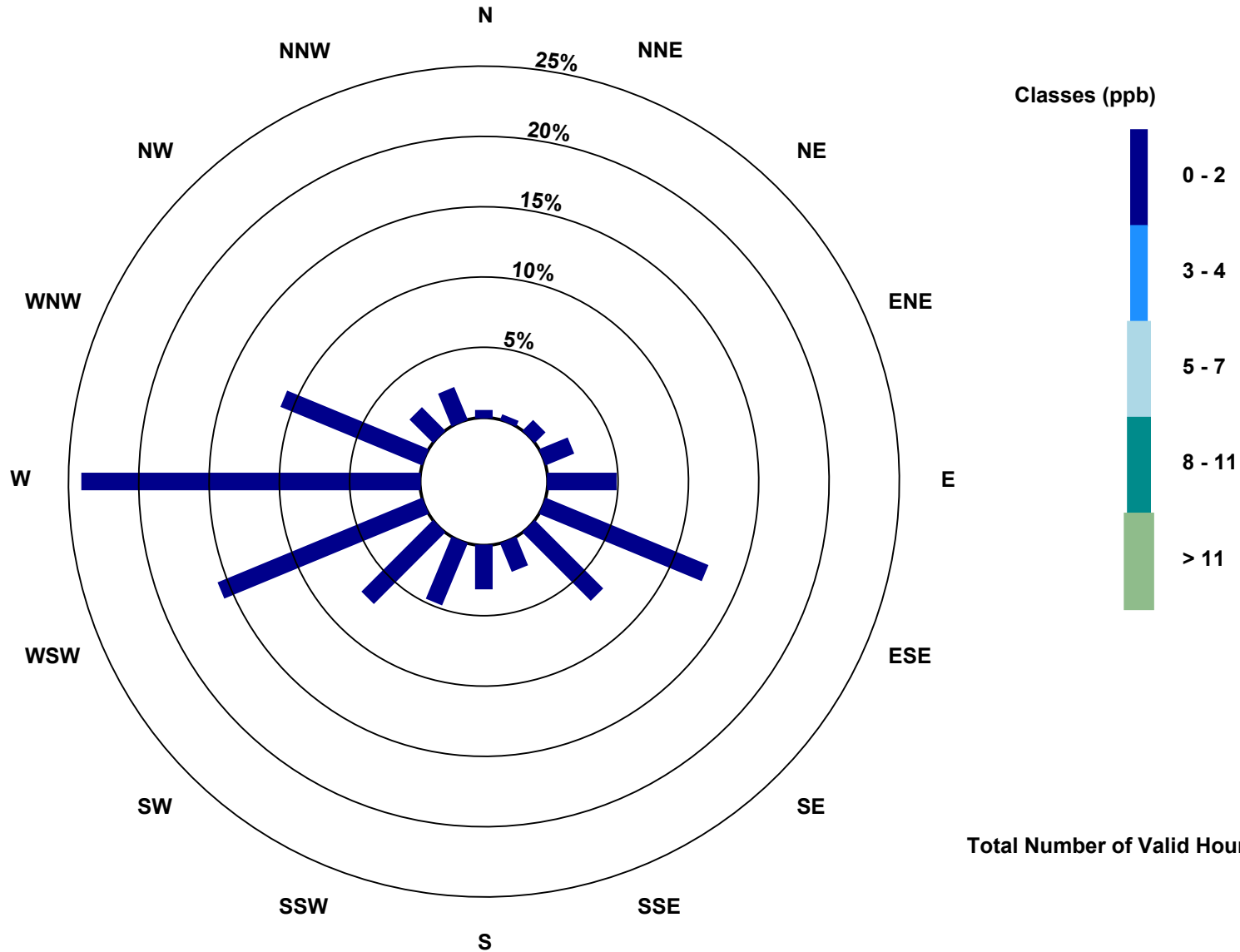
Total Number of Hours: 744



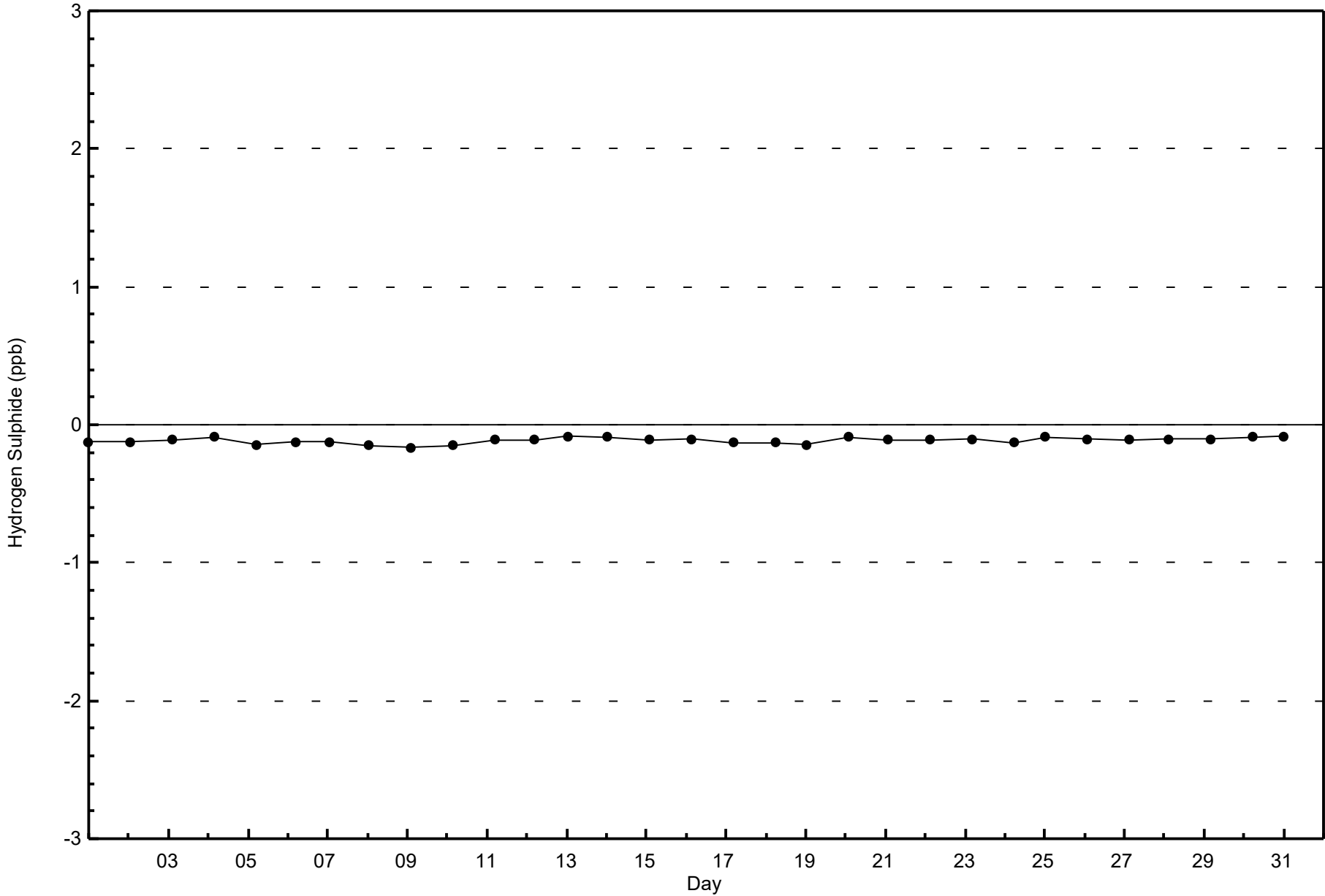


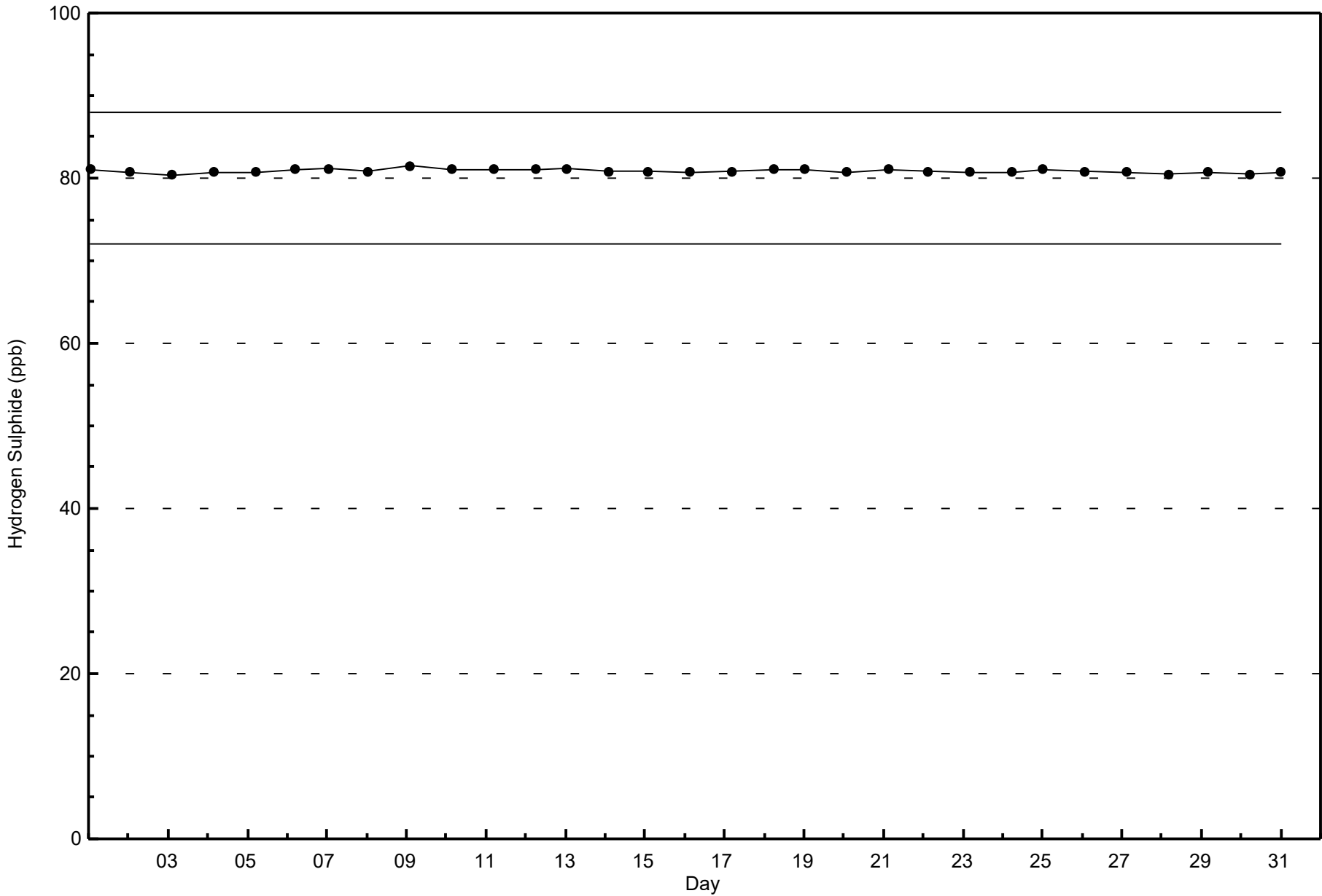
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Surmont 2



Total Number of Valid Hours: 620



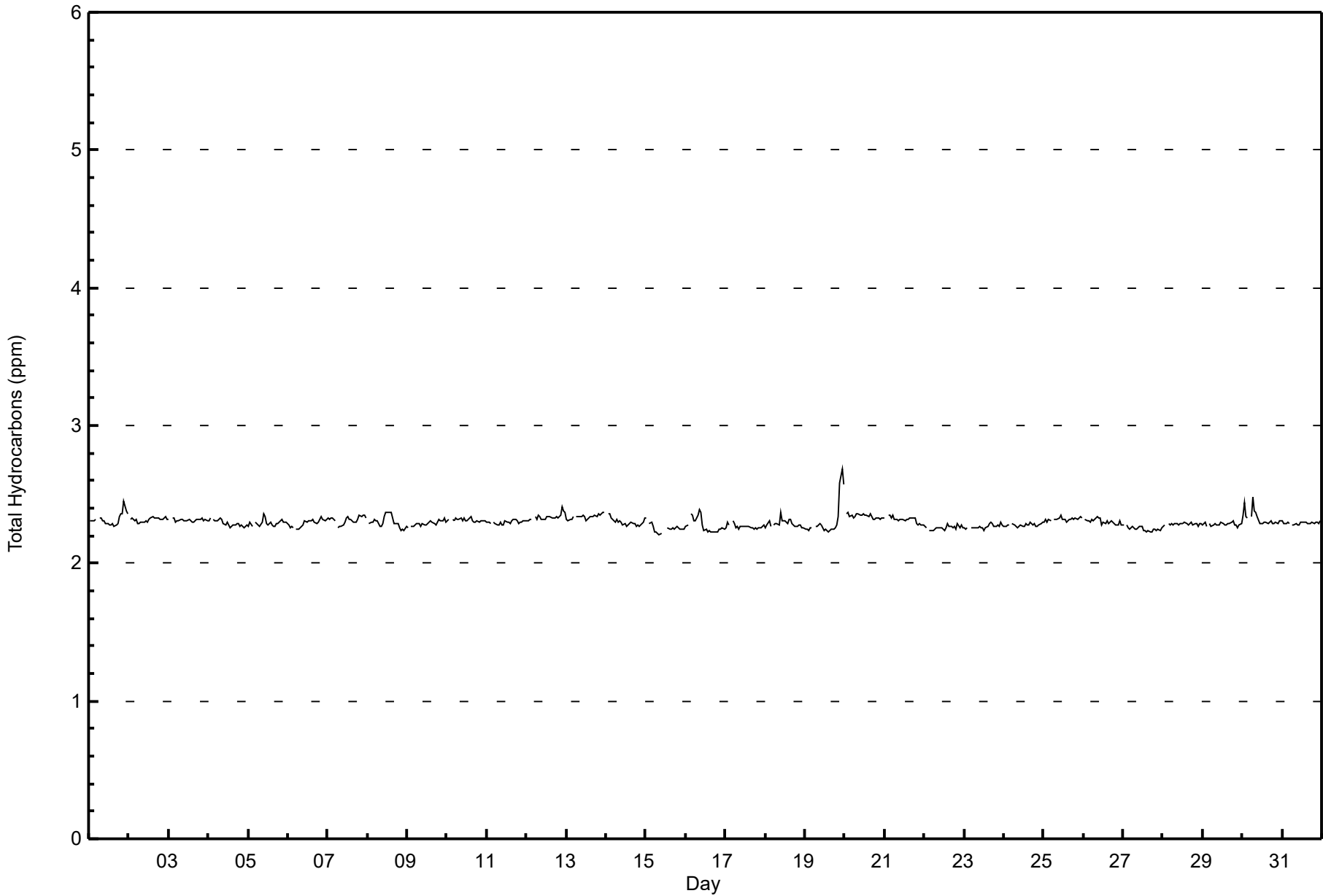






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - October 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	710	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: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - October 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	3	2	6	12	32	79	44	14	19	27	49	95	144	67	15	15	623
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>	3	2	6	12	32	79	44	14	19	27	49	95	144	67	15	15	623

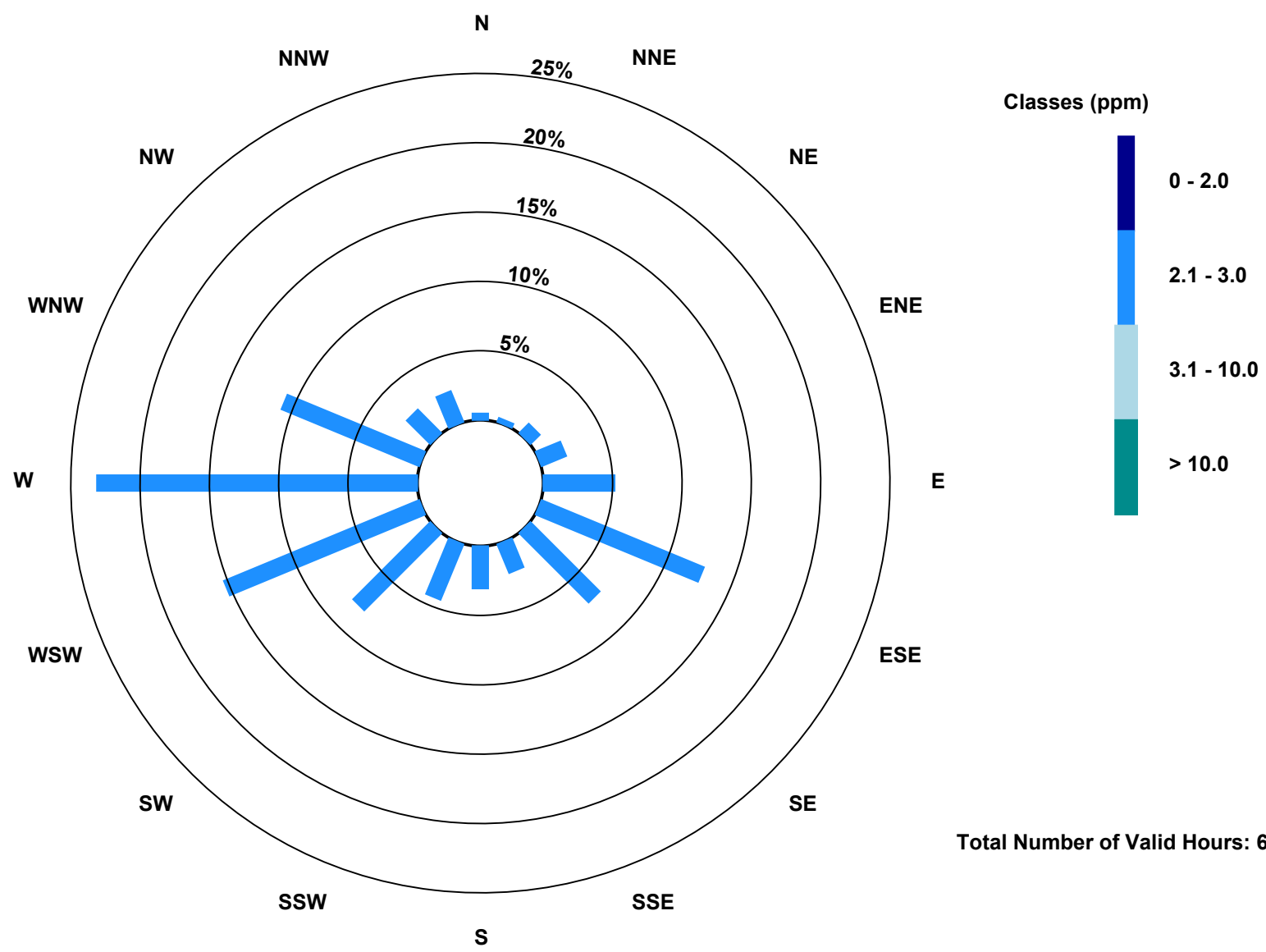
Total Number of Valid Hours: 623

Total Number of Hours: 744

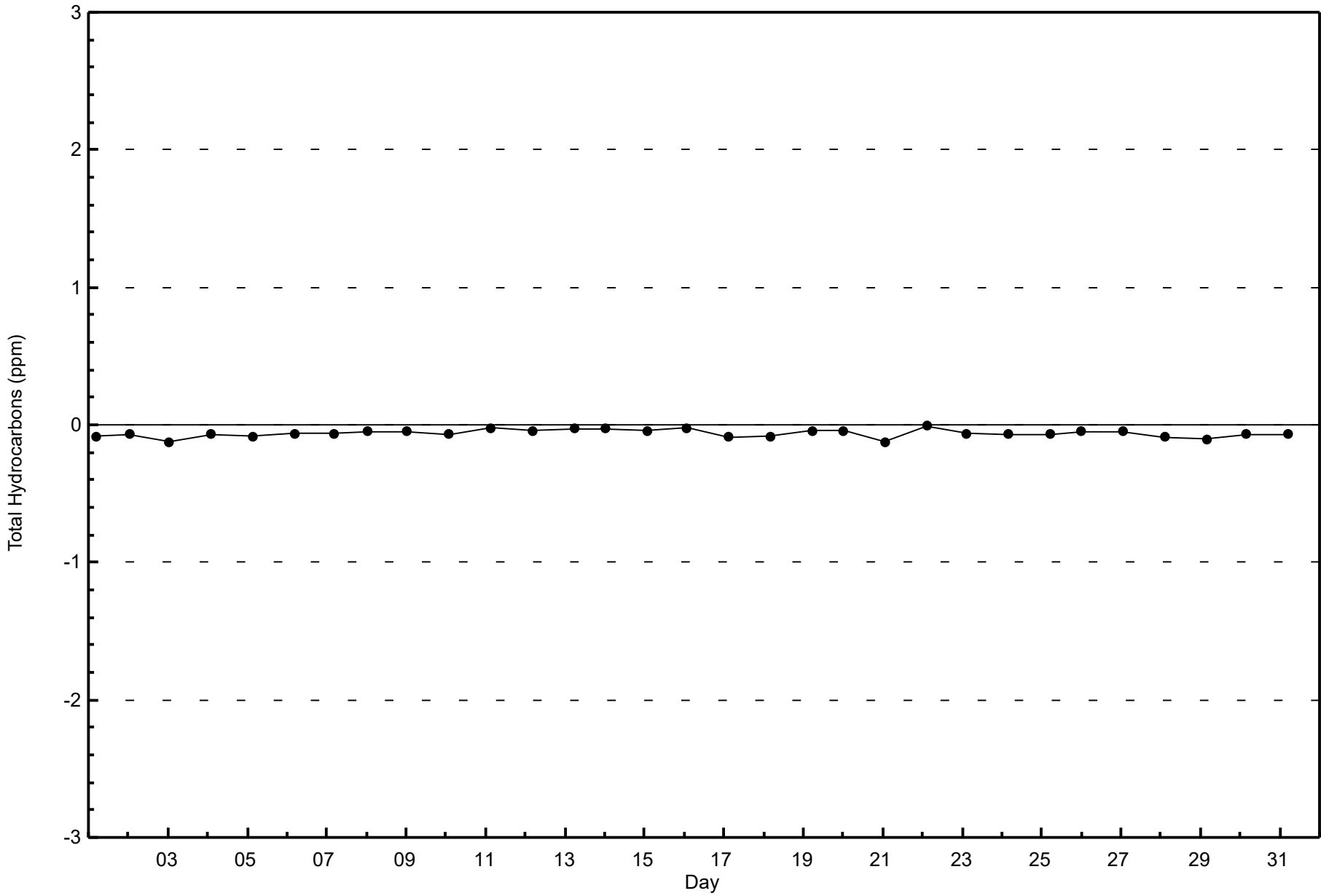


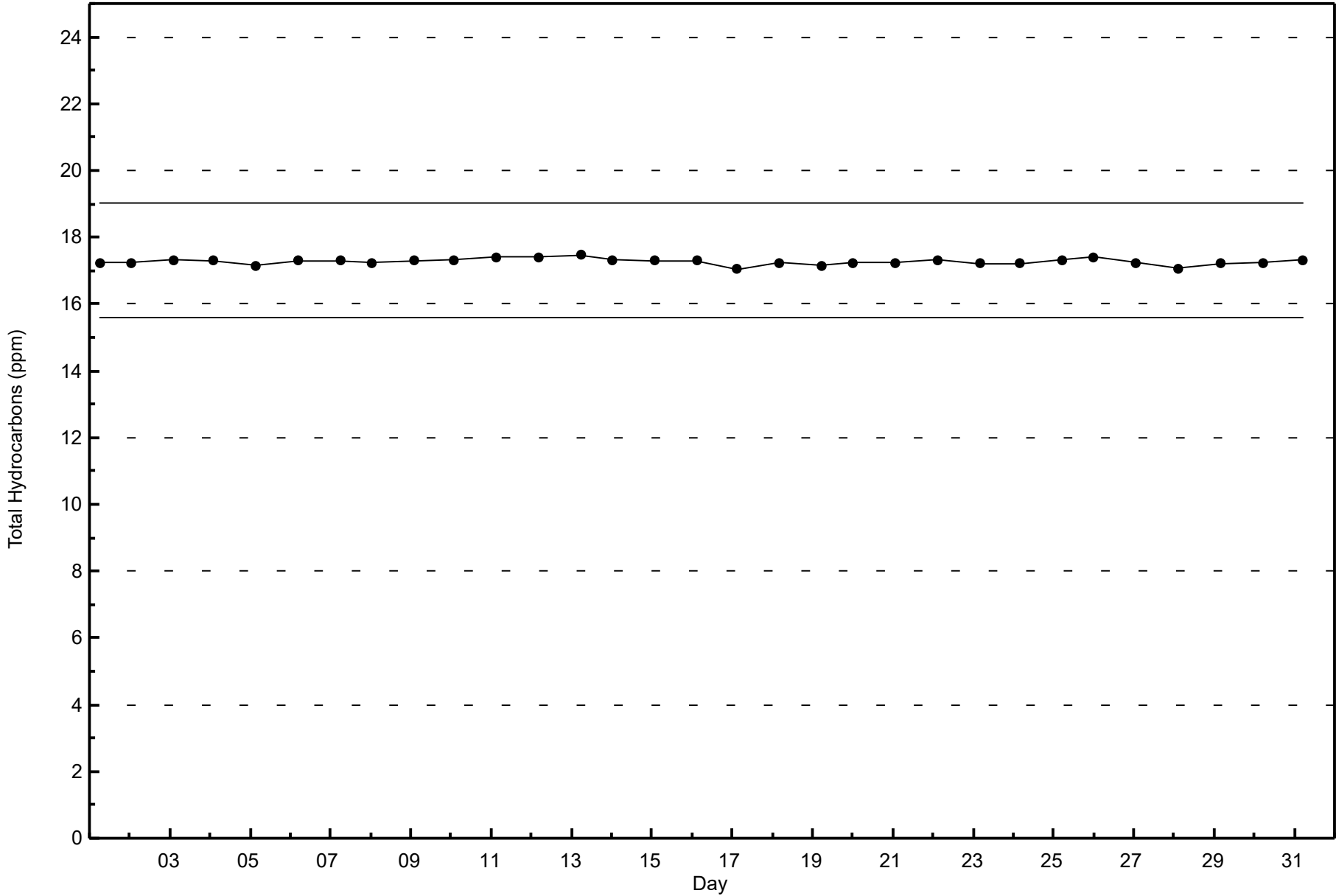
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Surmont 2







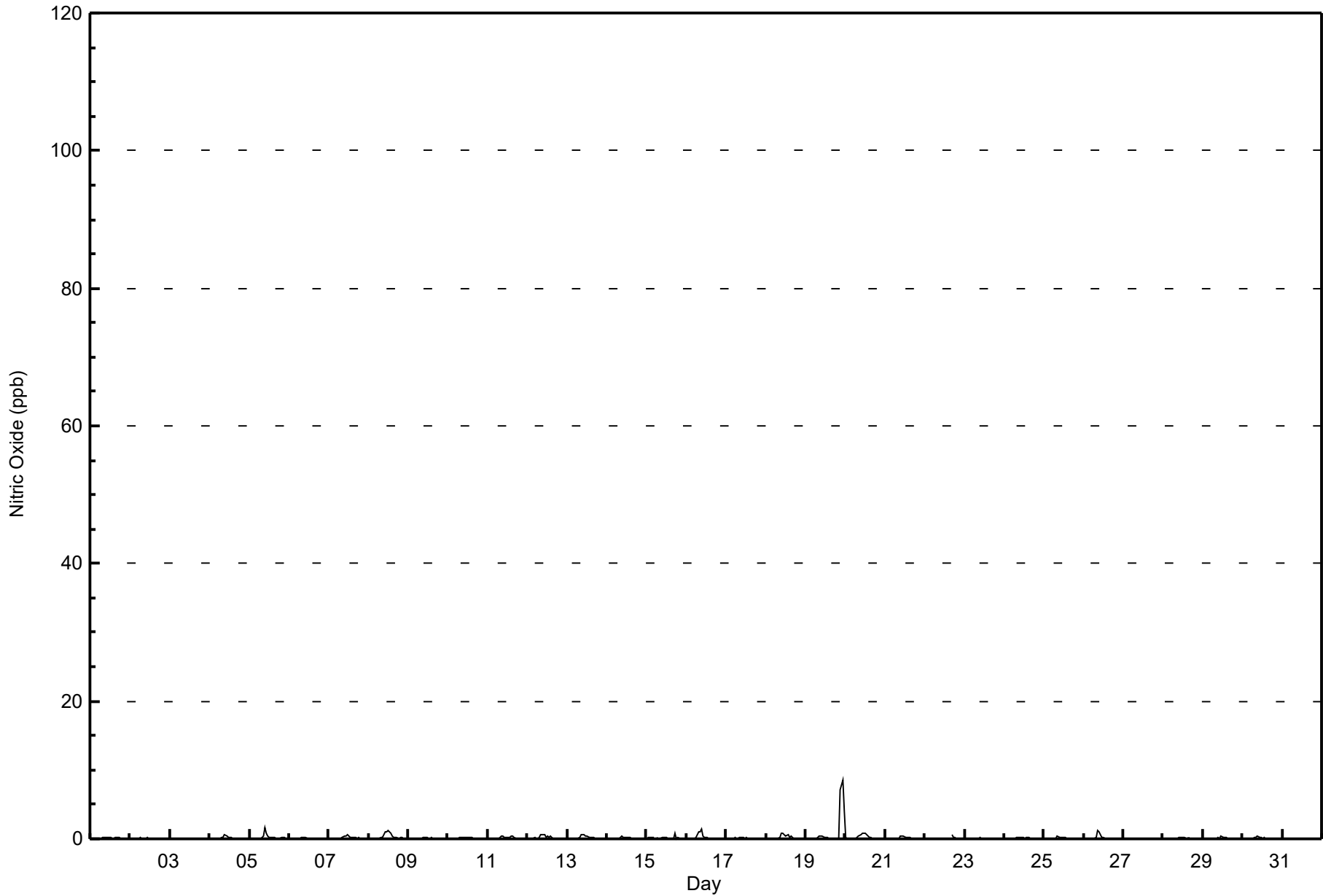






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - October 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  
Surmont 2 - October 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	3	2	6	13	31	82	42	14	20	29	46	94	146	64	15	15	622
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>3</b>	<b>2</b>	<b>6</b>	<b>13</b>	<b>31</b>	<b>82</b>	<b>42</b>	<b>14</b>	<b>20</b>	<b>29</b>	<b>46</b>	<b>94</b>	<b>146</b>	<b>64</b>	<b>15</b>	<b>15</b>	<b>622</b>

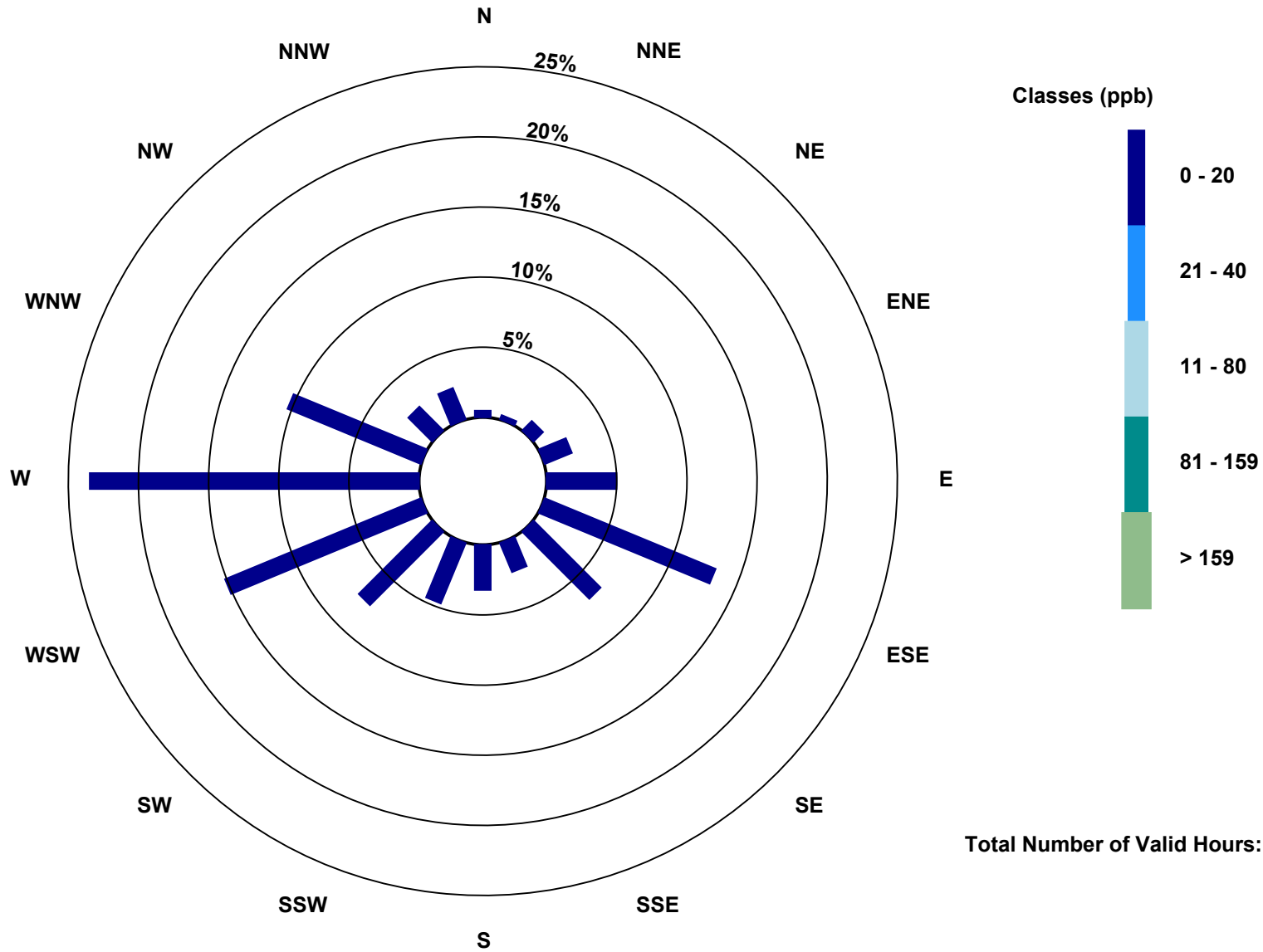
Total Number of Valid Hours: 622

Total Number of Hours: 744

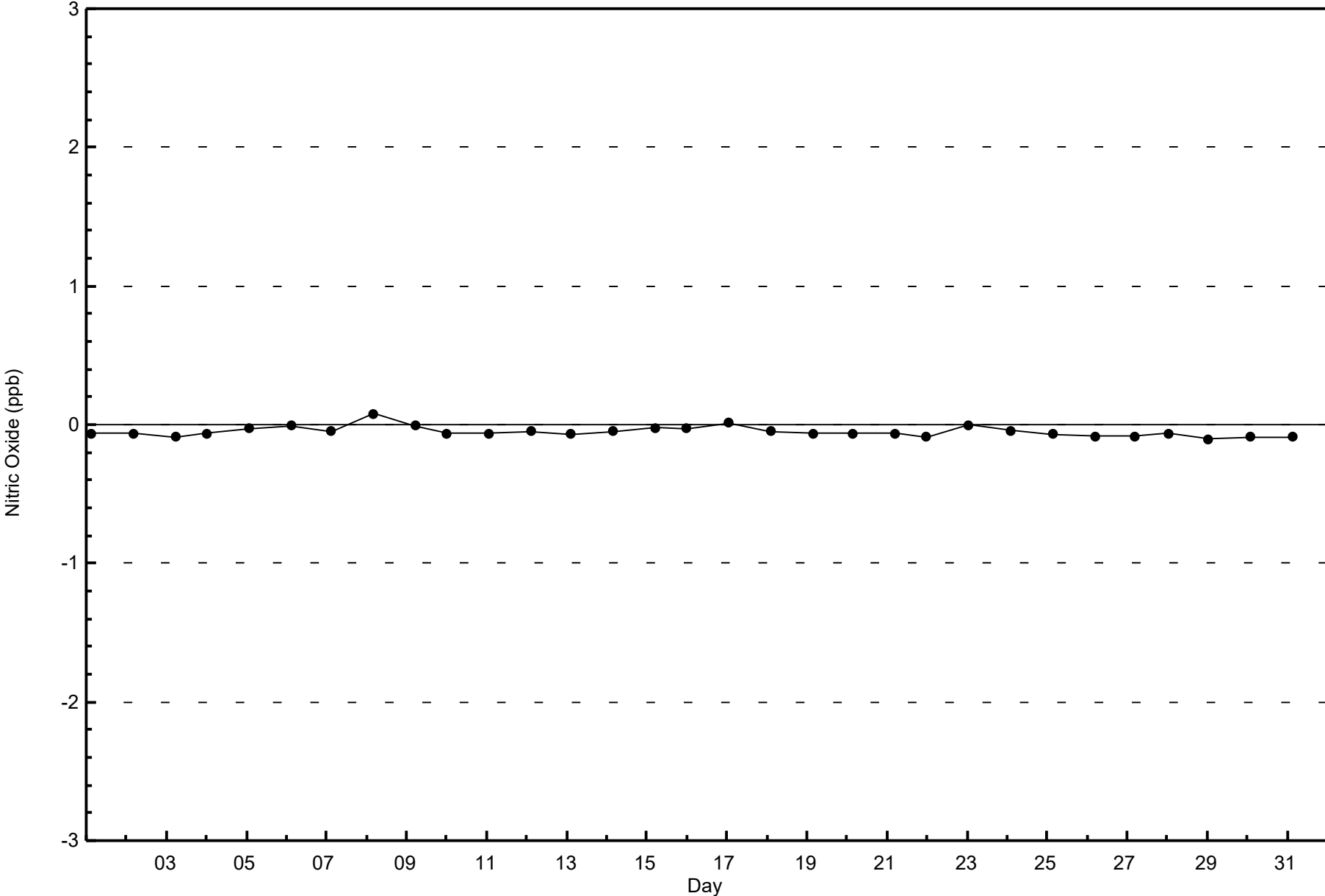


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Surmont 2



Total Number of Valid Hours: 622

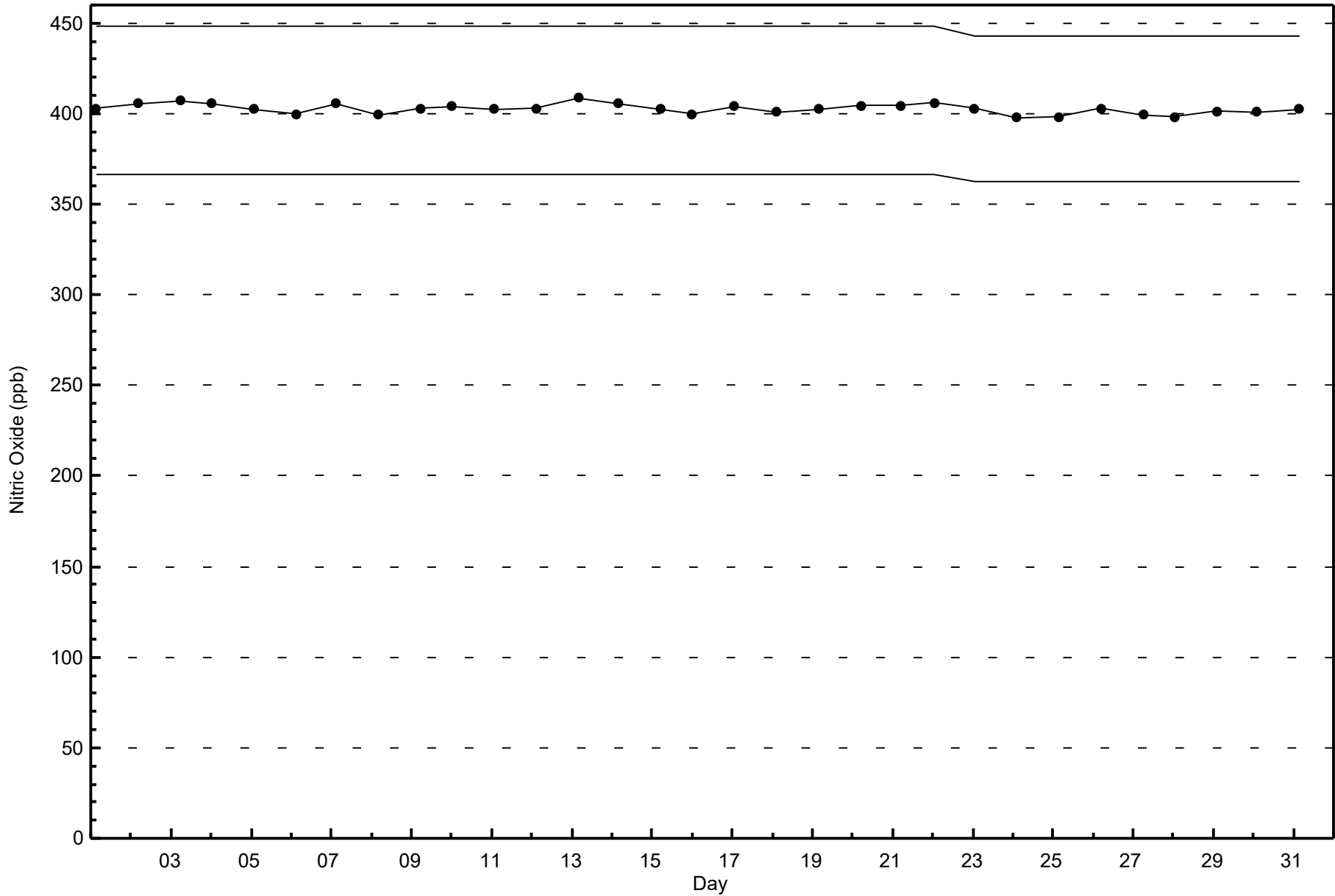






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Surmont 2 - October 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

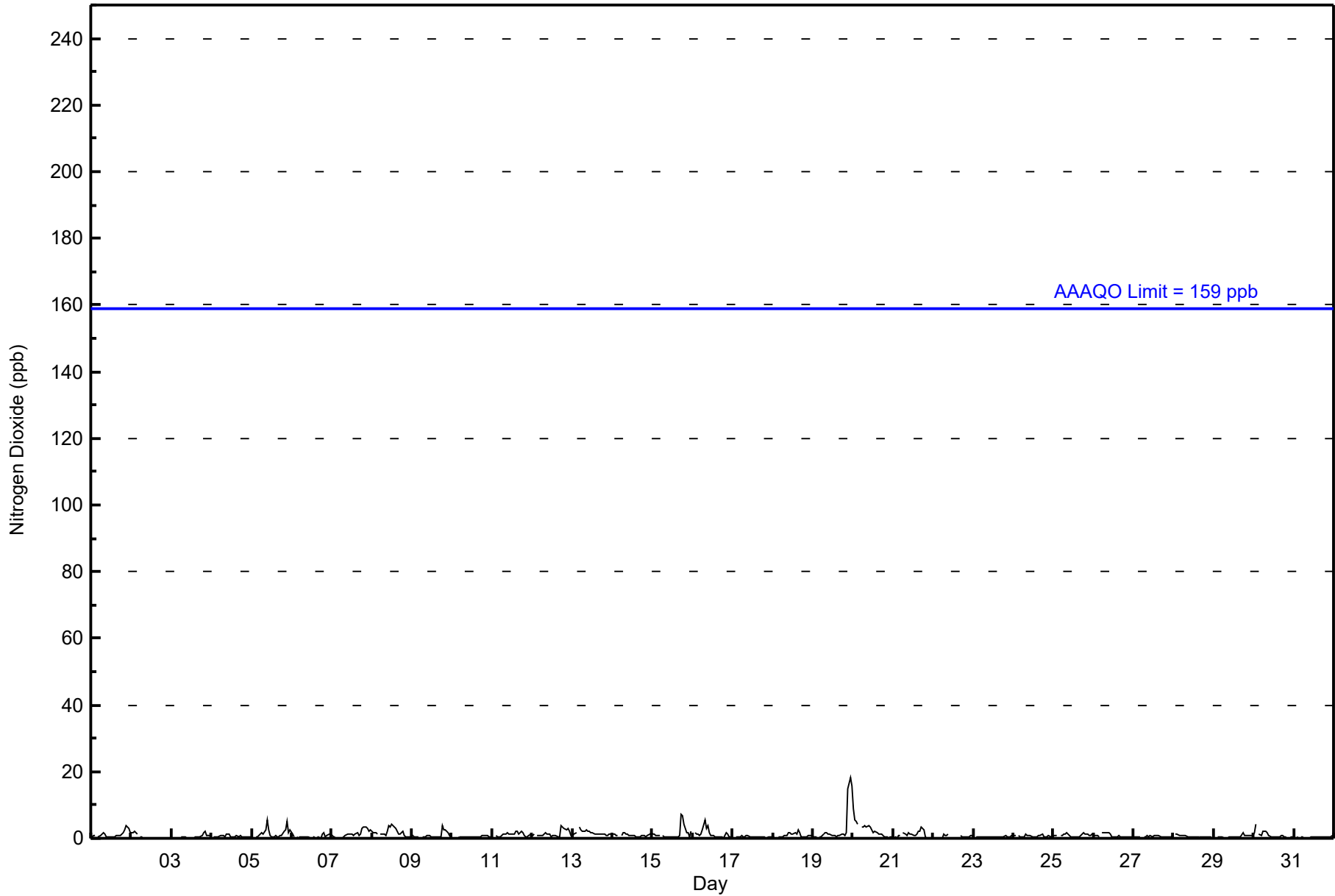
## Surmont 2 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 18.3 ppb on Oct 19 23:00		Maximum Daily Average: 2.9 ppb on Oct 19		Hours of Data: 707																	Hours of Missing Data: 37		Hours of Calibration: 37																										
Minimum Value: 0.1 ppb on Oct 2 10:00		Minimum Daily Average: 0.3 ppb on Oct 31		Hours of Calibration: 37																	Percent Operational Time: 100.0																												
Maximum Diurnal Average: 1.5 ppb at hour 22		Minimum Diurnal Average: 0.6 ppb at hour 5		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.7 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 2.0 P <sub>99</sub> = 5.6																																													
Monthly Average: 1.03 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-Oct	0.4	0.8	0.7	Z	0.6	0.9	1.4	1.5	1.1	0.6	0.4	0.6	0.5	0.4	0.4	0.7	0.7	1.0	1.4	1.8	2.5	3.9	2.8	1.9	1.2	3.9																							
2-Oct	1.5	1.9	2.1	1.3	Z	0.3	0.4	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.5	2.1																							
3-Oct	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.4	0.3	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.9	1.8	2.0	1.0	0.8	0.9	0.5	2.0																							
4-Oct	Z	0.6	0.5	0.4	0.5	0.7	0.9	0.9	0.6	1.4	1.2	0.6	0.6	0.4	0.5	0.7	0.5	0.8	0.5	0.4	0.3	0.5	0.3	0.3	0.6	1.4																							
5-Oct	0.3	Z	0.4	0.3	0.8	1.1	1.7	1.1	2.4	5.6	2.7	0.9	0.5	0.6	0.7	0.6	0.4	0.7	0.7	2.3	2.4	5.1	1.6	2.6	1.5	5.6																							
6-Oct	1.3	0.5	Z	0.4	0.2	0.4	0.4	0.5	0.4	0.4	0.5	0.2	0.2	0.3	0.2	0.2	0.5	0.2	1.2	1.5	0.6	0.8	1.3	1.4	0.6	1.5																							
7-Oct	0.7	0.3	0.3	Z	0.2	0.1	0.2	0.5	0.7	1.3	1.1	1.2	1.1	0.9	1.1	1.6	1.0	1.1	3.0	3.6	3.4	3.0	2.3	2.6	1.4	3.6																							
8-Oct	2.2	1.8	1.7	1.2	Z	1.4	1.3	1.2	0.9	2.0	3.7	3.4	4.4	3.2	3.1	2.1	1.4	1.1	2.0	0.9	0.5	0.4	0.4	0.4	1.8	4.4																							
9-Oct	0.7	0.6	0.4	0.4	0.5	Z	0.5	0.5	0.6	0.7	0.8	0.4	0.3	0.5	0.5	0.5	0.5	0.6	4.0	2.4	2.5	1.5	0.8	0.4	0.9	4.0																							
10-Oct	Z	0.2	0.1	0.1	0.3	0.3	0.3	0.5	0.6	0.4	0.6	0.6	0.4	0.4	0.5	0.4	0.5	0.5	0.9	0.8	0.9	0.7	0.5	0.6	0.5	0.9																							
11-Oct	0.6	Z	0.7	0.5	0.4	0.4	1.2	1.1	1.2	1.6	1.1	1.2	1.1	1.4	2.1	2.3	1.3	2.2	1.7	0.8	0.6	0.6	0.9	1.1	1.1	2.3																							
12-Oct	0.8	1.1	Z	0.9	1.0	0.9	0.9	1.2	1.7	1.2	1.1	0.4	0.8	0.7	1.0	0.5	0.6	3.7	3.4	2.9	2.7	2.9	2.3	0.9	1.5	3.7																							
13-Oct	0.4	1.3	1.9	Z	3.2	2.5	2.2	2.3	2.5	2.1	2.0	1.8	1.5	1.2	1.1	1.2	1.1	1.2	1.1	1.0	0.9	1.1	1.1	1.1	1.6	3.2																							
14-Oct	1.4	1.1	0.9	0.7	Z	0.9	1.5	1.5	1.3	1.2	1.0	0.8	0.7	0.8	0.5	0.4	0.5	0.7	0.9	0.7	0.6	0.7	1.2	1.5	0.9	1.5																							
15-Oct	1.4	1.2	1.0	0.9	0.7	Z	0.7	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.6	1.0	7.2	6.7	4.4	1.6	1.7	0.6	2.3	1.6	7.2																							
16-Oct	Z	1.7	1.3	1.1	0.9	1.1	2.7	5.6	2.8	3.9	1.9	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.2	0.9	1.5	1.3	0.4	0.4	1.4	5.6																							
17-Oct	0.3	Z	0.5	0.5	0.5	0.7	0.6	0.6	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.8																							
18-Oct	0.4	0.4	Z	0.4	0.4	0.6	0.3	0.7	0.7	1.9	1.8	1.3	1.4	1.7	1.1	2.4	1.9	0.4	0.3	0.4	0.6	0.9	1.0	0.7	0.9	2.4																							
19-Oct	0.6	0.5	0.5	Z	0.4	0.6	1.3	1.8	1.5	1.4	1.4	0.7	0.8	0.7	0.5	0.7	0.8	1.1	1.2	0.9	1.5	14.8	18.3	15.6	2.9	18.3																							
20-Oct	9.0	5.7	5.1	4.1	Z	3.4	3.4	3.8	3.6	3.7	3.6	2.6	1.8	2.1	1.6	1.4	1.2	1.2	0.9	0.6	0.3	0.2	0.3	0.4	2.6	9.0																							
21-Oct	0.2	0.4	0.2	0.7	1.0	Z	1.5	1.1	0.9	1.5	1.1	1.1	0.9	0.8	1.2	2.1	2.0	3.6	2.7	0.6	0.1	0.1	0.2	0.2	1.1	3.6																							
22-Oct	Z	0.1	0.1	0.1	0.1	0.2	1.4	0.7	0.7	1.1	C	C	C	C	C	C	0.7	0.6	0.5	0.4	0.5	0.5	0.7	0.7	--	1.4																							
23-Oct	0.6	Z	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.7	0.5	0.5	0.4	0.8	0.5	0.8																							
24-Oct	0.7	0.7	Z	0.7	0.6	0.6	0.6	1.1	1.0	0.7	0.7	0.6	0.4	0.5	0.5	0.7	1.0	1.3	0.4	0.6	0.6	1.0	0.6	0.5	0.7	1.3																							
25-Oct	0.8	0.9	1.0	Z	0.9	0.9	1.2	1.3	1.6	0.8	0.6	0.6	0.5	0.5	0.4	0.4	1.0	1.3	1.6	1.3	1.1	1.0	0.9	1.3	1.0	1.6																							
26-Oct	1.0	0.8	0.7	0.6	Z	1.8	1.7	1.7	1.5	1.7	1.1	0.5	0.6	0.6	0.6	0.7	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.8	1.8																							
27-Oct	0.4	0.3	0.4	0.4	0.3	Z	0.4	0.6	0.7	0.6	0.9	0.5	0.7	1.0	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.8	0.5	1.0																							
28-Oct	Z	1.1	1.1	1.0	0.8	0.7	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.3	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.5	1.1																							
29-Oct	0.2	Z	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.4	0.3	0.6	0.4	0.3	0.4	0.4	0.3	1.7	0.9	0.7	0.7	0.8	0.9	0.9	0.5	1.7																							
30-Oct	1.6	4.1	Z	1.1	0.8	2.0	2.3	2.0	1.6	1.0	0.5	0.4	0.4	0.5	0.4	0.5	0.9	0.7	0.3	0.3	0.2	0.2	0.3	0.5	1.0	4.1																							
31-Oct	0.5	0.2	0.4	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.7	0.3	0.7																							
																								1.1	1.1	0.9	0.8	0.6	0.9	1.1	1.2	1.1	1.3	1.1	0.8	0.8	0.7	0.8	0.8	1.2	1.3	1.1	1.0	1.5	1.4	1.4	Diurnal Average		
																								9.0	5.7	5.1	4.1	3.2	3.4	3.4	5.6	3.6	5.6	3.7	3.4	4.4	3.2	3.1	2.4	2.0	7.2	6.7	4.4	3.4	14.8	18.3	15.6	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  
Surmont 2 - October 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Surmont 2 - October 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  
Surmont 2 - October 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	3	2	6	13	31	82	42	14	20	29	46	94	146	64	15	15	622
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>3</b>	<b>2</b>	<b>6</b>	<b>13</b>	<b>31</b>	<b>82</b>	<b>42</b>	<b>14</b>	<b>20</b>	<b>29</b>	<b>46</b>	<b>94</b>	<b>146</b>	<b>64</b>	<b>15</b>	<b>15</b>	<b>622</b>

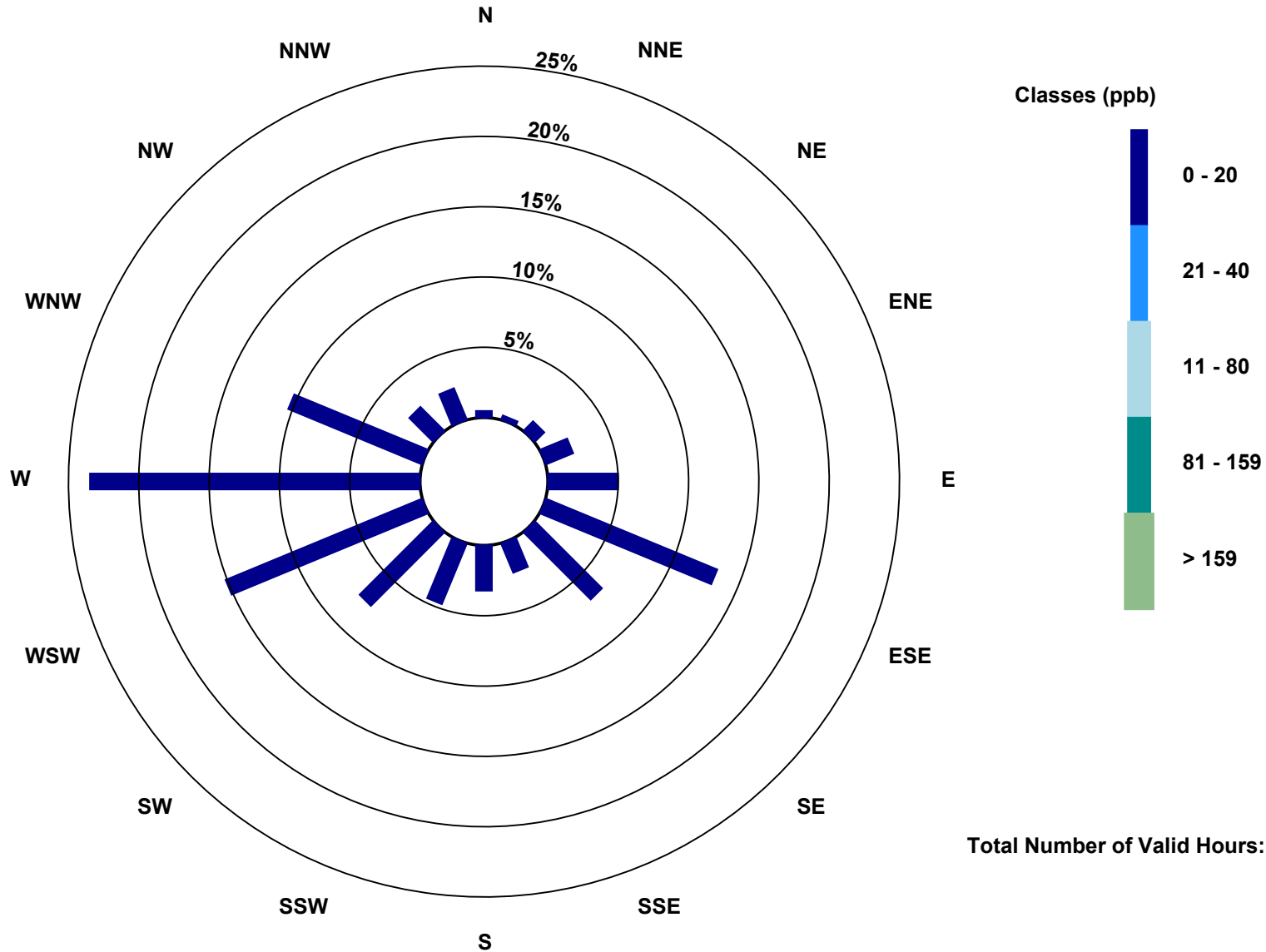
Total Number of Valid Hours: 622

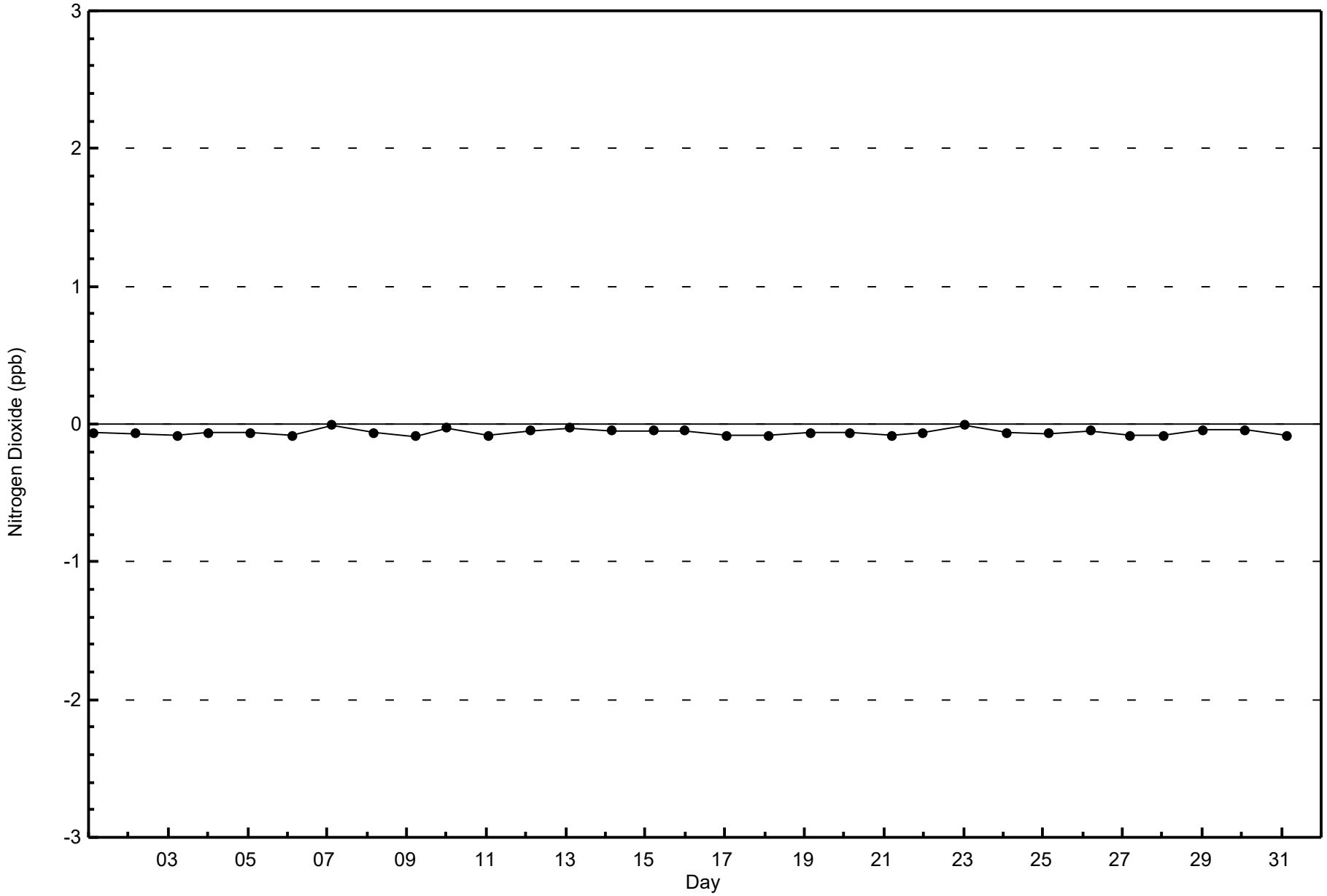
Total Number of Hours: 744

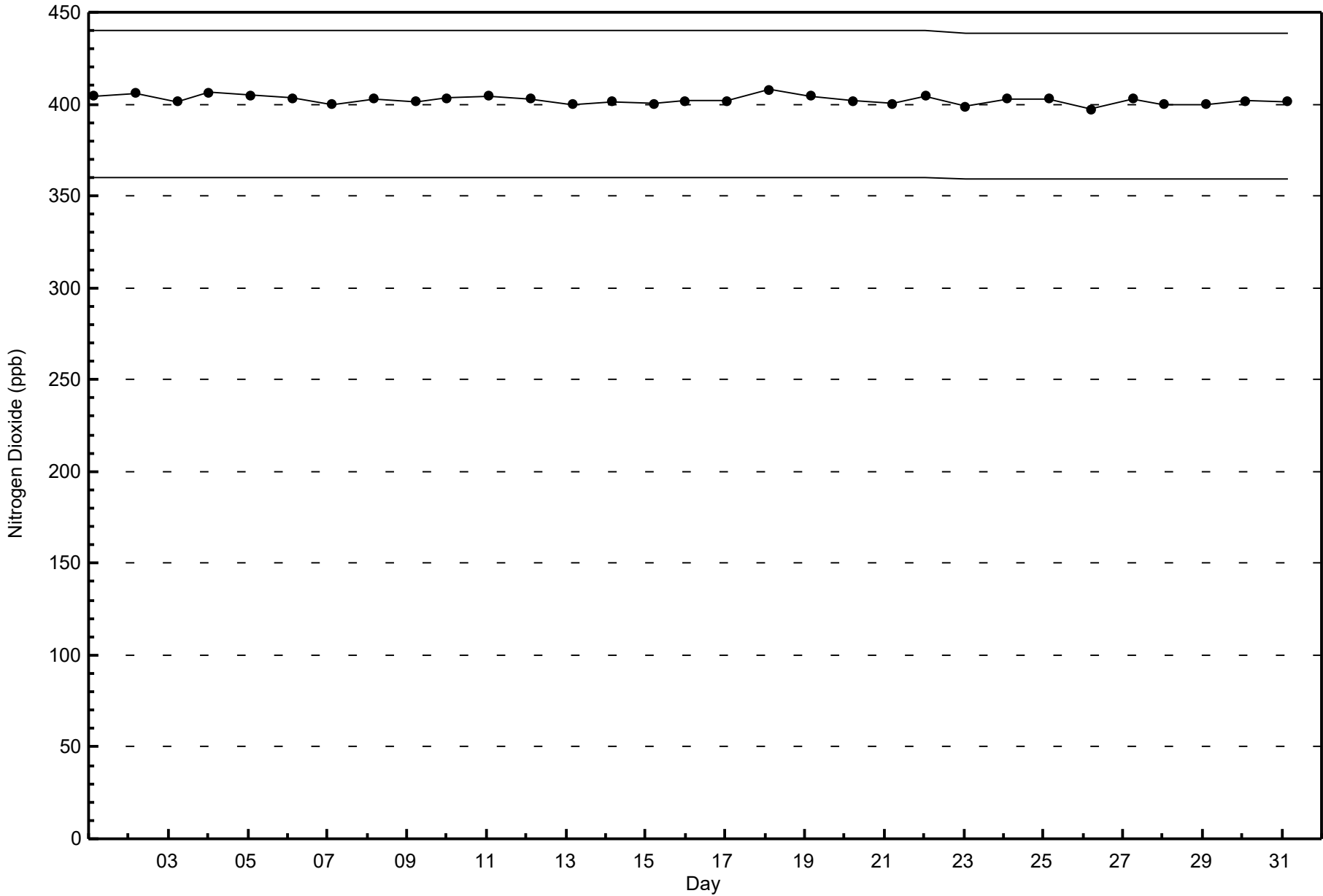


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Surmont 2











Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO<sub>x</sub>) - ppb

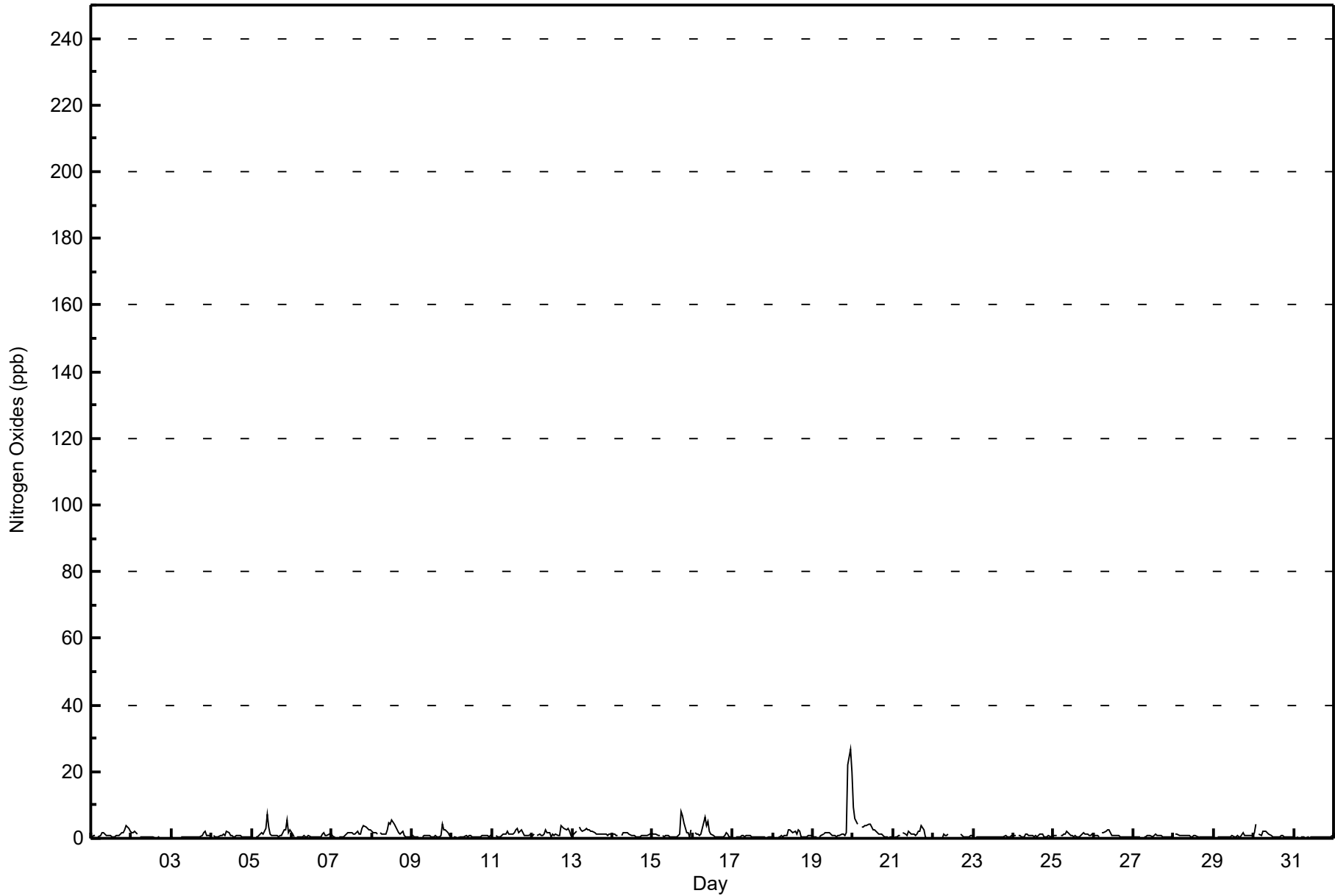
Surmont 2 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 26.9 ppb on Oct 19 23:00		Maximum Daily Average: 3.9 ppb on Oct 19		Hours of Data: 707														0.5		2.1							
Minimum Value: 0.1 ppb on Oct 22 04:00		Minimum Daily Average: 0.3 ppb on Oct 31		Hours of Missing Data: 37														0.5		2.1							
Maximum Diurnal Average: 1.8 ppb at hour 22		Minimum Diurnal Average: 0.7 ppb at hour 5		Hours of Calibration: 37														0.5		2.0							
Monthly Average: 1.17 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.5 Median = 0.7 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 2.3 P <sub>99</sub> = 6.5		Percent Operational Time: 100.0														0.5		2.0							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	0.4	0.8	0.7	Z	0.6	1.0	1.5	1.8	1.4	0.8	0.6	0.8	0.6	0.5	0.5	0.9	0.8	1.1	1.5	1.9	2.6	4.0	2.8	2.0	1.3	4.0	
2-Oct	1.6	1.9	2.1	1.3	Z	0.4	0.6	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.5	2.1	
3-Oct	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.5	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.9	1.8	2.0	1.0	0.8	0.9	0.5	2.0	
4-Oct	Z	0.6	0.5	0.4	0.5	0.8	1.0	1.1	0.8	2.0	1.6	0.8	0.7	0.5	0.6	0.8	0.6	0.9	0.6	0.5	0.4	0.6	0.4	0.4	0.7	2.0	
5-Oct	0.4	Z	0.5	0.4	0.9	1.2	1.8	1.2	2.9	7.3	3.6	1.2	0.7	0.8	0.8	0.7	0.5	0.8	0.8	2.4	2.5	5.4	1.7	2.7	1.8	7.3	
6-Oct	1.4	0.5	Z	0.5	0.3	0.4	0.5	0.7	0.6	0.5	0.7	0.3	0.2	0.4	0.3	0.3	0.6	0.3	1.3	1.6	0.7	0.9	1.4	1.5	0.7	1.6	
7-Oct	0.8	0.4	0.4	Z	0.3	0.2	0.3	0.6	0.9	1.7	1.6	1.7	1.5	1.1	1.3	1.9	1.1	1.2	3.1	3.7	3.5	3.1	2.4	2.7	1.5	3.7	
8-Oct	2.3	1.8	1.8	1.3	Z	1.5	1.4	1.3	1.1	2.5	4.7	4.3	5.6	4.1	3.5	2.4	1.6	1.2	2.1	1.0	0.6	0.5	0.5	0.5	2.1	5.6	
9-Oct	0.7	0.6	0.4	0.4	0.5	Z	0.5	0.6	0.7	0.8	1.0	0.5	0.4	0.6	0.7	0.6	0.6	0.7	4.1	2.5	2.6	1.6	0.9	0.5	1.0	4.1	
10-Oct	Z	0.3	0.2	0.2	0.4	0.4	0.4	0.6	0.8	0.5	0.7	0.7	0.6	0.5	0.6	0.5	0.6	0.6	1.0	0.8	1.0	0.8	0.6	0.6	0.6	1.0	1.0
11-Oct	0.6	Z	0.7	0.5	0.4	0.4	1.3	1.2	1.5	2.0	1.3	1.4	1.3	1.6	2.5	2.8	1.5	2.3	1.8	0.9	0.7	0.7	1.0	1.2	1.3	2.8	
12-Oct	0.9	1.1	Z	1.0	1.1	0.9	0.9	1.4	2.3	1.7	1.7	0.5	1.1	0.9	1.3	0.6	0.7	3.8	3.4	2.9	2.7	2.9	2.3	0.9	1.6	3.8	
13-Oct	0.5	1.4	2.0	Z	3.2	2.6	2.3	2.5	3.1	2.7	2.6	2.2	1.9	1.5	1.3	1.3	1.3	1.2	1.3	1.2	1.1	1.0	1.2	1.2	1.8	3.2	
14-Oct	1.5	1.2	1.0	0.8	Z	1.0	1.6	1.6	1.5	1.5	1.2	1.0	0.8	1.0	0.6	0.5	0.6	0.8	0.9	0.7	0.7	0.8	1.3	1.6	1.1	1.6	
15-Oct	1.5	1.3	1.1	1.0	0.8	Z	0.8	0.6	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.7	1.1	8.0	6.8	4.6	1.6	1.7	0.6	2.3	1.7	8.0	
16-Oct	Z	1.8	1.3	1.1	0.9	1.1	2.9	6.6	3.8	5.3	2.2	1.1	0.8	0.6	0.5	0.5	0.4	0.4	0.3	1.0	1.6	1.4	0.5	0.5	1.6	6.6	
17-Oct	0.4	Z	0.6	0.6	0.6	0.8	0.7	0.6	0.9	0.8	0.7	0.6	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.5	0.9	
18-Oct	0.4	0.4	Z	0.4	0.4	0.7	0.3	0.7	0.8	2.6	2.6	1.9	1.9	2.2	1.4	2.7	2.0	0.4	0.3	0.4	0.6	0.9	1.0	0.7	1.1	2.7	
19-Oct	0.6	0.5	0.5	Z	0.4	0.7	1.4	1.9	1.8	1.8	1.7	0.9	1.0	0.8	0.6	0.8	0.9	1.2	1.3	1.0	1.6	22.0	26.9	19.7	3.9	26.9	
20-Oct	9.2	5.8	5.2	4.2	Z	3.5	3.4	3.9	3.9	4.4	4.4	3.5	2.6	2.7	1.9	1.5	1.3	1.2	0.9	0.6	0.3	0.2	0.3	0.4	2.8	9.2	
21-Oct	0.2	0.4	0.2	0.7	1.0	Z	1.5	1.1	1.0	1.9	1.5	1.4	1.2	1.0	1.3	2.3	2.1	3.6	2.7	0.6	0.1	0.1	0.2	0.2	1.1	3.6	
22-Oct	Z	0.1	0.1	0.1	0.1	0.2	1.4	0.7	0.7	1.1	C	C	C	C	C	C	1.4	0.8	0.6	0.5	0.6	0.5	0.7	0.7	--	1.4	
23-Oct	0.6	Z	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.4	0.4	0.4	0.3	0.5	0.5	0.5	0.5	0.5	0.7	0.5	0.5	0.4	0.8	0.5	0.8	
24-Oct	0.7	0.7	Z	0.7	0.6	0.6	1.3	1.2	0.9	1.0	0.8	0.5	0.7	0.6	0.9	1.1	1.4	0.4	0.6	0.6	1.0	0.6	0.5	0.5	0.8	1.4	
25-Oct	0.8	0.9	1.0	Z	0.9	0.9	1.2	1.4	2.0	1.1	0.9	0.9	0.6	0.7	0.5	0.4	1.1	1.3	1.6	1.3	1.1	1.0	0.9	1.3	1.0	2.0	
26-Oct	1.0	0.8	0.7	0.6	Z	1.8	1.7	2.0	2.6	2.6	1.6	0.7	0.7	0.7	0.7	0.8	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	1.0	2.6	
27-Oct	0.4	0.3	0.4	0.4	0.3	Z	0.4	0.6	0.7	0.7	1.0	0.6	0.8	1.1	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.3	0.8	0.6	1.1	
28-Oct	Z	1.1	1.1	1.0	0.8	0.8	0.9	0.7	0.7	0.8	0.6	0.6	0.7	0.7	0.4	0.6	0.6	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.6	1.1	
29-Oct	0.2	Z	0.4	0.4	0.3	0.3	0.2	0.3	0.2	0.5	0.3	0.9	0.5	0.4	0.6	0.5	0.3	1.7	0.9	0.7	0.7	0.8	0.9	0.9	0.6	1.7	
30-Oct	1.6	4.1	Z	1.1	0.8	2.1	2.3	2.2	1.9	1.4	0.7	0.5	0.5	0.6	0.5	0.6	0.9	0.7	0.3	0.3	0.2	0.2	0.3	0.5	1.1	4.1	
31-Oct	0.5	0.2	0.4	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.7	0.3	0.7	
1.1 1.1 0.9 0.8 0.7 1.0 1.1 1.3 1.4 1.7 1.4 1.0 1.0 0.9 0.9 0.9 0.9 0.9 1.3 1.3 1.2 1.0 1.8 1.7 1.5																								Diurnal Average			
9.2 5.8 5.2 4.2 3.2 3.5 3.4 6.6 3.9 7.3 4.7 4.3 5.6 4.1 3.5 2.8 2.1 8.0 6.8 4.6 3.5 22.0 26.9 19.7																								Diurnal Maximum			
Z - zerospan C - Calibration																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Surmont 2 - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Surmont 2 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2 - October 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	3	2	6	13	31	82	42	14	20	29	46	94	146	62	15	15	620
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	2	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>	<b>3</b>	<b>2</b>	<b>6</b>	<b>13</b>	<b>31</b>	<b>82</b>	<b>42</b>	<b>14</b>	<b>20</b>	<b>29</b>	<b>46</b>	<b>94</b>	<b>146</b>	<b>64</b>	<b>15</b>	<b>15</b>	<b>622</b>

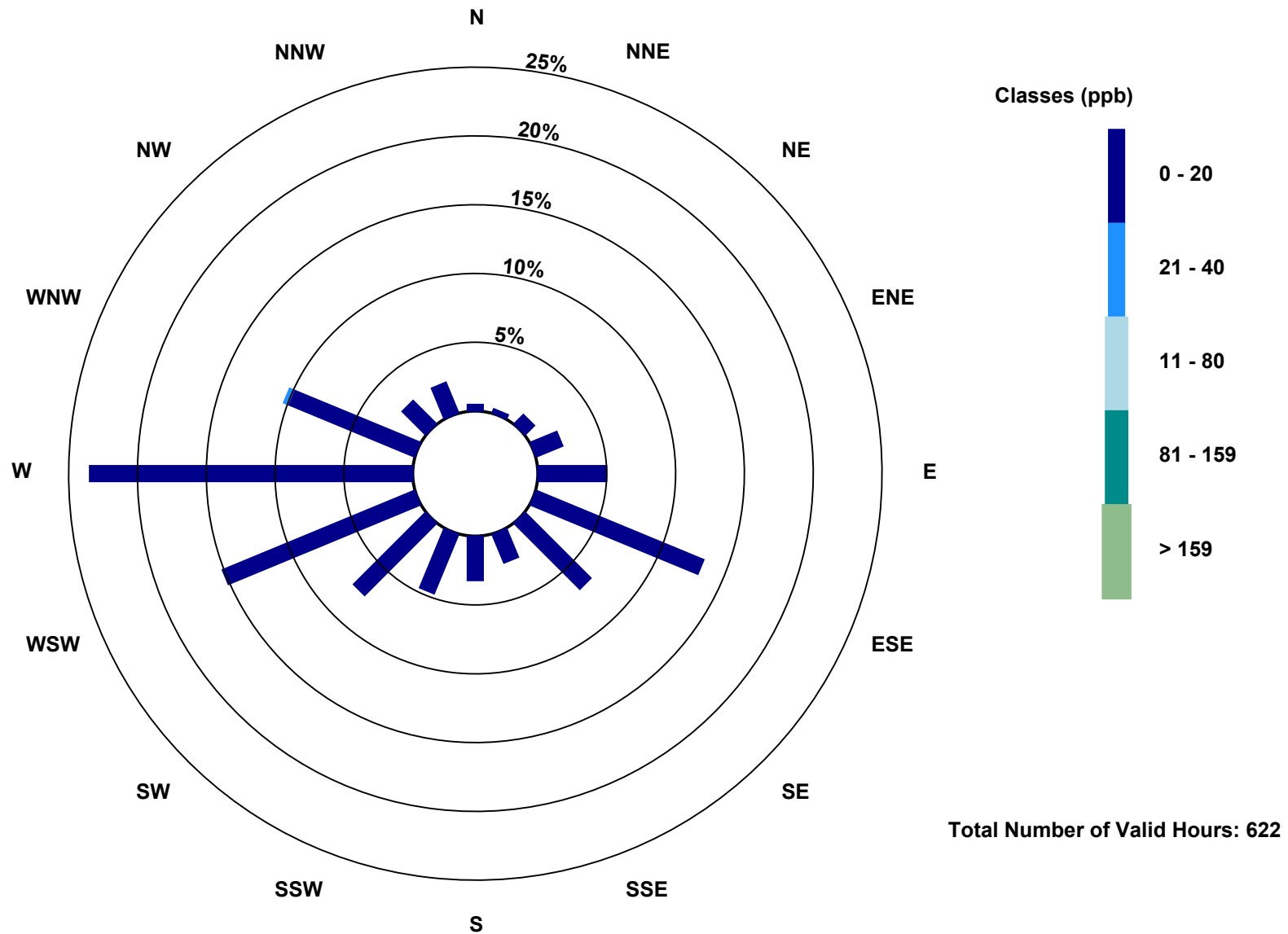
Total Number of Valid Hours: 622

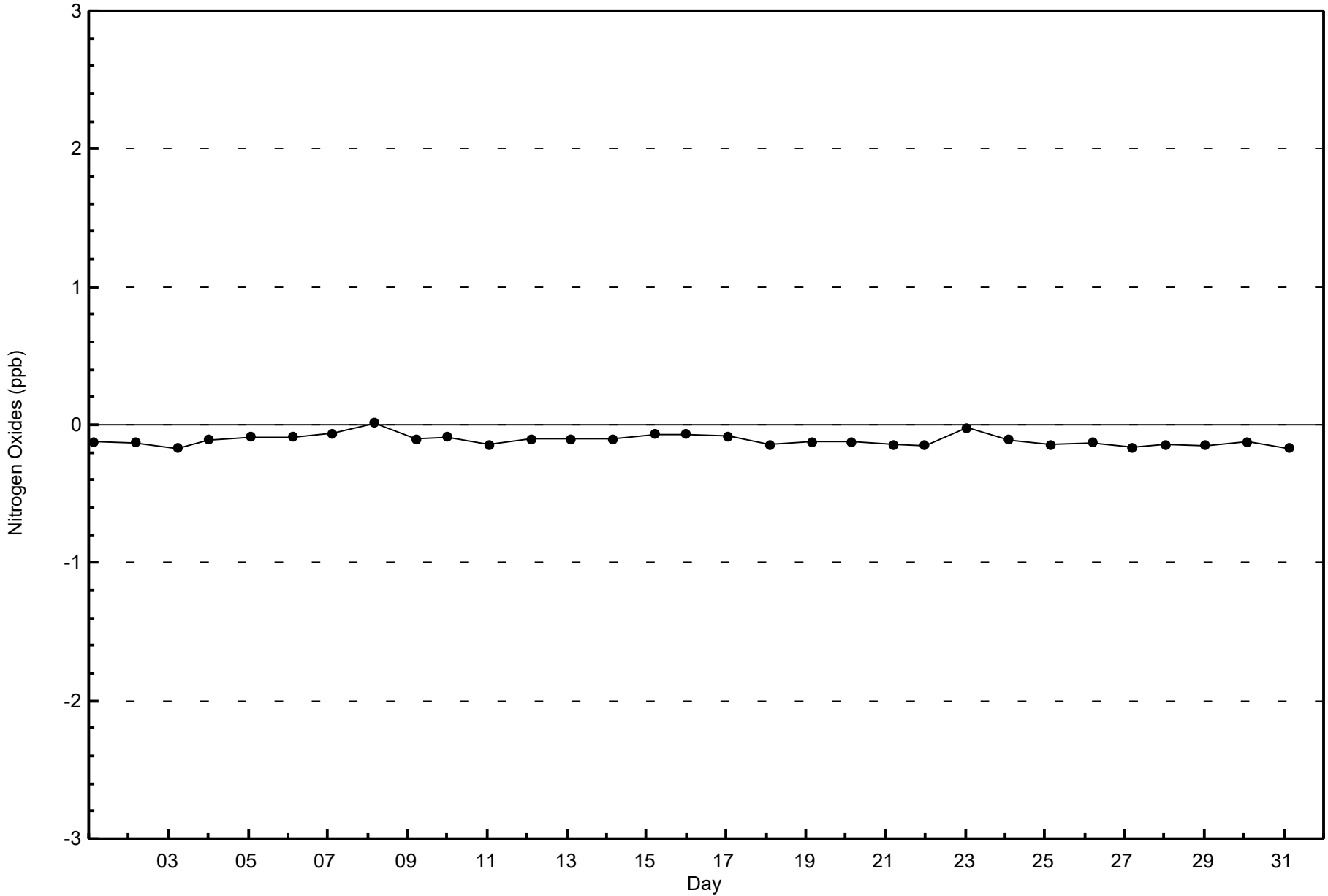
Total Number of Hours: 744

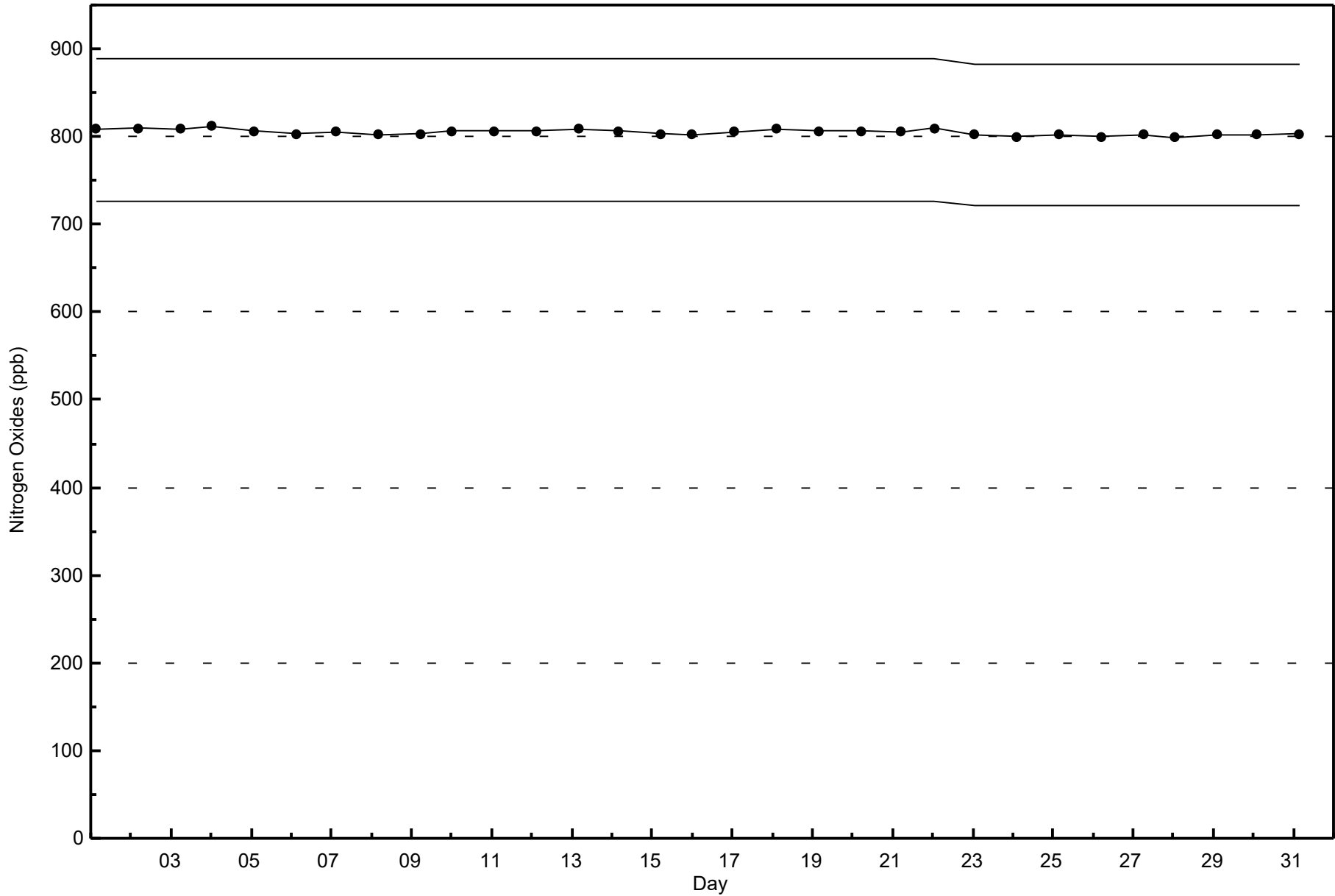


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2









# Wood Buffalo Environmental Association

## Summary of Hour Averages

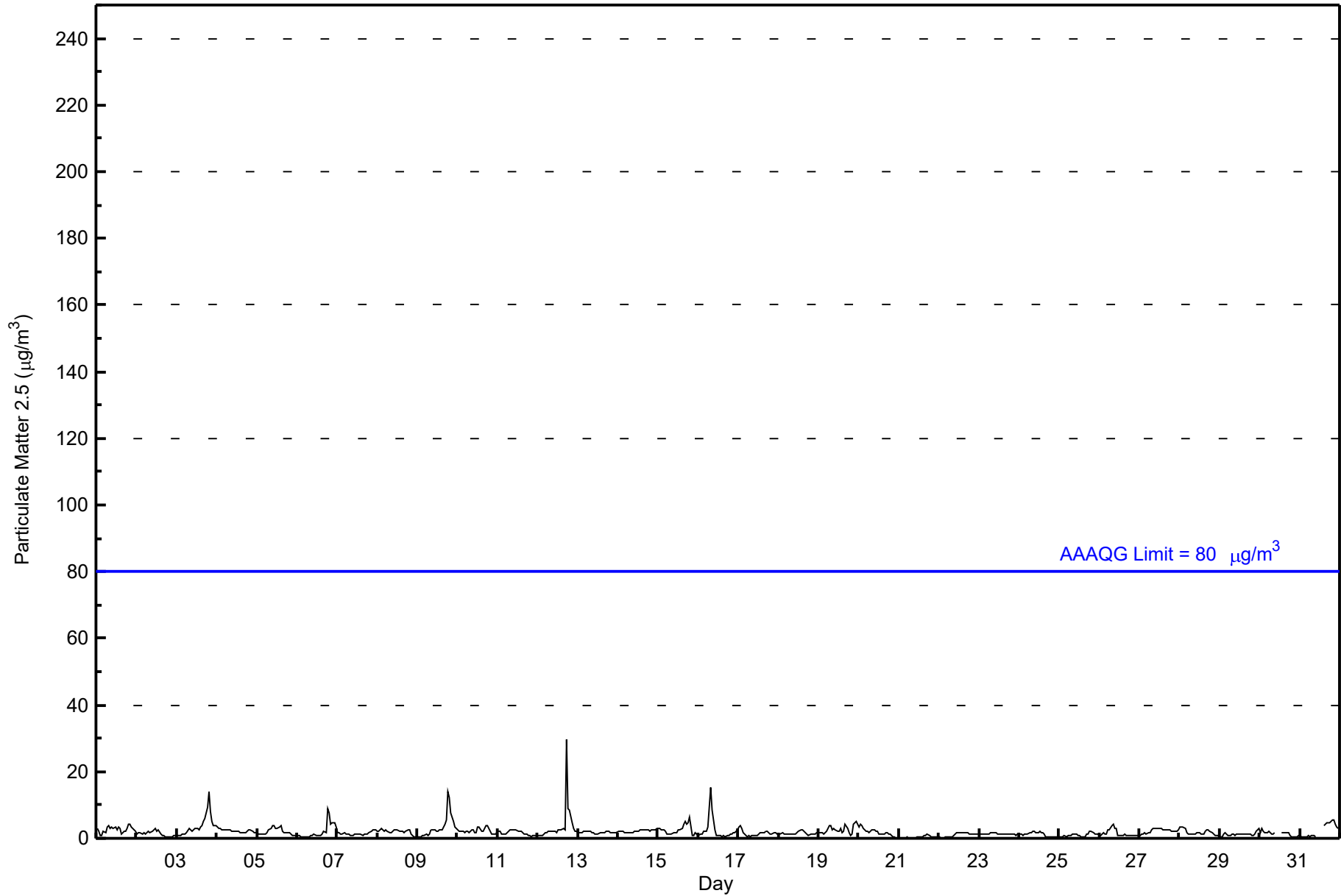
# Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

## Surmont 2 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 29.8 µg/m <sup>3</sup> on Oct 12 18:00		Maximum Daily Average: 3.8 µg/m <sup>3</sup> on Oct 12																	Hours of Data: 737		Hours of Missing Data: 7						
Minimum Value: 0.0 µg/m <sup>3</sup> on Oct 21 03:00		Minimum Daily Average: 0.4 µg/m <sup>3</sup> on Oct 21																	Hours of Calibration: 4		Percent Operational Time: 99.6						
Maximum Diurnal Average: 3.0 µg/m <sup>3</sup> at hour 18		Minimum Diurnal Average: 1.4 µg/m <sup>3</sup> at hour 5																									
Monthly Average: 1.96 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.1 Median = 1.6 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 3.2 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-Oct	3.0	2.3	0.9	1.0	2.0	1.9	3.4	3.8	3.2	3.2	2.8	3.5	2.7	3.2	2.9	1.4	2.3	2.2	2.9	4.4	4.0	3.4	2.6	2.3	2.7	4.4	
2-Oct	1.4	1.5	1.7	1.3	1.6	1.4	1.6	2.1	1.8	2.1	2.3	3.1	2.0	2.4	1.1	0.7	0.9	0.3	0.3	0.5	0.5	0.5	0.8	0.9	1.4	3.1	
3-Oct	0.8	0.8	0.9	1.2	1.2	1.3	1.6	2.8	2.4	2.3	2.6	3.1	2.8	2.8	3.2	3.6	5.2	6.0	9.4	14.0	8.2	5.3	3.9	3.7	3.7	14.0	
4-Oct	3.2	2.9	2.8	2.7	2.6	2.5	2.4	2.5	2.5	2.3	2.1	2.2	2.1	2.0	1.7	1.9	1.8	1.8	2.0	2.5	2.5	2.1	1.9	1.9	2.3	3.2	
5-Oct	1.5	1.3	1.1	1.5	1.5	1.4	1.8	2.6	2.9	4.0	3.9	2.9	2.9	3.3	3.7	2.0	1.8	1.5	1.7	1.5	1.3	1.1	0.8	0.8	2.0	4.0	
6-Oct	0.9	0.8	0.6	0.4	0.5	0.5	0.5	0.5	0.7	0.9	1.1	1.0	0.7	0.8	1.0	1.3	1.9	1.5	8.9	7.7	4.3	4.6	4.7	3.3	2.1	8.9	
7-Oct	1.9	1.5	1.4	1.3	1.5	1.4	1.2	1.1	1.1	1.0	1.2	1.2	1.3	1.3	1.2	1.0	1.1	1.1	1.4	1.7	2.0	2.4	2.3	2.6	1.5	2.6	
8-Oct	2.3	2.3	2.8	2.7	2.3	2.6	2.2	1.8	1.9	2.2	2.5	2.5	2.5	2.3	2.3	2.0	1.9	2.1	2.4	2.6	1.3	0.8	0.5	0.5	2.0	2.8	
9-Oct	0.6	0.6	0.5	0.6	0.8	1.2	0.9	1.3	2.5	2.7	2.6	2.0	1.9	2.7	2.7	2.7	4.3	5.5	13.9	12.4	7.5	4.9	3.4	2.9	3.4	13.9	
10-Oct	2.6	2.3	2.3	2.2	1.9	1.9	1.9	1.7	2.4	2.4	1.8	1.7	3.4	3.4	1.9	2.0	2.9	3.7	3.7	2.1	1.5	1.3	1.2	1.4	2.2	3.7	
11-Oct	1.9	2.2	1.4	1.5	1.3	1.4	2.0	2.5	2.3	2.7	2.3	2.4	2.3	2.0	2.1	1.7	1.2	1.2	1.0	0.7	0.6	0.8	0.8	0.9	1.6	2.7	
12-Oct	0.8	0.8	0.9	1.0	1.6	1.5	2.2	2.3	2.3	2.0	2.1	1.9	2.4	2.6	2.5	2.8	2.4	29.8	8.9	8.3	4.6	3.1	2.3	2.1	3.8	29.8	
13-Oct	1.7	1.9	1.9	1.9	2.1	2.1	2.1	2.1	1.7	1.5	1.4	1.4	1.4	1.5	1.5	1.6	1.7	2.0	2.0	1.8	1.7	1.7	1.8	1.8	1.8	2.1	
14-Oct	1.9	2.0	2.1	2.0	1.9	1.8	1.8	1.9	1.8	1.9	2.0	2.1	2.3	2.5	2.5	2.5	2.4	2.5	2.5	2.3	2.5	2.4	2.6	2.9	2.2	2.9	
15-Oct	2.9	2.8	2.7	2.4	2.1	1.3	1.3	1.4	1.2	1.6	1.7	1.7	2.7	2.4	3.1	4.3	5.2	4.3	4.8	6.2	0.9	0.7	1.6	1.4	2.5	6.2	
16-Oct	0.9	1.1	1.3	2.0	2.1	2.0	3.6	15.3	8.5	5.5	2.4	0.8	0.8	0.8	0.5	0.7	0.6	0.7	0.8	1.2	1.4	1.5	1.8	2.4	2.4	15.3	
17-Oct	3.2	3.7	2.9	1.6	1.0	0.4	0.7	0.6	0.7	0.8	0.9	1.0	1.2	1.6	1.8	1.8	2.1	1.9	1.5	1.3	1.4	1.5	1.5	1.4	1.5	3.7	
18-Oct	1.2	1.4	1.5	1.4	1.5	1.4	1.3	1.3	1.3	1.1	1.3	1.6	2.3	2.7	2.6	2.2	1.6	1.1	1.0	1.1	1.1	1.2	1.4	1.5	1.5	2.7	
19-Oct	1.6	1.6	1.5	1.4	1.7	1.9	3.8	3.6	2.7	3.0	2.6	2.3	2.2	3.1	1.8	2.3	4.4	2.8	1.7	0.7	1.1	4.0	5.0	4.3	2.6	5.0	
20-Oct	3.6	4.3	3.9	2.9	2.1	2.0	1.8	2.3	2.4	2.3	2.0	2.0	1.4	1.2	1.2	1.3	1.5	1.7	1.4	1.1	0.6	0.3	0.1	0.1	1.8	4.3	
21-Oct	0.0	0.0	0.0	0.0	0.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.9	0.9	1.1	1.0	0.5	0.2	0.2	0.3	0.6	0.4	1.1	
22-Oct	0.2	0.1	0.2	0.2	0.3	0.4	0.6	0.6	0.5	1.0	1.5	1.9	1.8	1.8	1.7	1.7	1.8	1.6	1.5	1.3	1.2	1.2	1.3	1.4	1.1	1.9	
23-Oct	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.6	1.7	1.5	1.2	1.2	1.1	1.2	1.2	1.2	1.3	1.1	1.2	1.2	1.1	1.0	1.1	1.3	1.7	
24-Oct	1.1	1.1	1.0	1.1	1.1	1.3	1.5	1.8	2.1	2.2	1.9	1.6	1.9	1.6	1.6	1.2	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	1.2	2.2	
25-Oct	0.5	0.5	0.6	0.9	0.6	0.9	0.9	1.0	1.2	1.4	1.1	0.8	0.7	0.6	0.5	0.5	1.2	1.3	2.2	2.0	1.6	1.2	1.2	1.2	1.0	2.2	
26-Oct	0.9	0.8	1.5	1.3	1.4	2.4	2.7	4.0	4.4	3.0	2.8	1.0	0.8	0.9	1.0	1.1	0.9	0.9	0.9	0.9	0.8	1.0	1.0	1.0	1.6	4.4	
27-Oct	1.0	1.1	1.3	1.5	1.5	1.7	1.8	2.6	3.0	3.1	3.0	3.0	2.9	2.9	2.7	2.5	2.5	2.5	2.5	2.3	2.3	2.1	2.1	2.7	2.3	3.1	
28-Oct	3.2	3.3	3.4	2.8	1.6	1.2	1.4	1.4	1.3	1.4	1.5	1.5	1.6	1.2	1.1	1.9	2.5	2.6	2.3	1.6	1.4	0.9	0.8	0.7	1.8	3.4	
29-Oct	0.6	0.5	1.2	1.6	1.2	1.0	0.8	1.1	1.1	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.1	1.0	0.9	1.1	2.1	1.2	2.9	
30-Oct	1.9	2.8	2.3	1.7	1.9	2.1	1.6	1.4	1.3	1.5	M	M	M	1.5	1.5	1.5	1.6	1.5	0.8	0.6	0.6	0.5	0.6	1.0	1.4	2.8	
31-Oct	0.7	0.4	0.5	0.5	0.6	0.6	0.5	0.9	0.8	0.6	C	C	C	C	3.6	4.3	4.7	4.6	4.7	5.4	5.5	4.1	3.2	2.9	2.5	5.5	
																								Diurnal Average		Diurnal Maximum	
																								1.6		3.6	
																								1.6		4.3	
																								1.6		3.9	
																								1.5		2.9	
																								1.4		2.6	
																								1.5		2.6	
																								1.7		3.8	
																								2.3		15.3	
																								2.1		8.5	
																								2.0		5.5	
																								1.9		3.9	
																								1.8		3.5	
																								1.8		3.4	
																								1.9		3.4	
																								1.9		3.7	
																								1.9		4.3	
																								2.2		5.2	
																								3.0		29.8	
																								2.9		13.9	
																								2.9		14.0	
																								2.1		8.2	
																								1.9		5.3	
																								1.8		5.0	
																								1.8		4.3	

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>) -  $\mu\text{g}/\text{m}^3$**   
**Surmont 2 - October 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	720	97.69	97.69
6 - 15	16	2.17	99.86
16 - 25	0	0.00	99.86
26 - 80	1	0.14	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 737

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 - October 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	3	2	6	10	31	78	45	14	19	29	42	94	155	69	16	16	629
6 - 15	0	0	0	1	1	0	0	0	1	1	6	6	0	0	0	0	16
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>11</b>	<b>32</b>	<b>78</b>	<b>45</b>	<b>14</b>	<b>20</b>	<b>30</b>	<b>49</b>	<b>100</b>	<b>155</b>	<b>69</b>	<b>16</b>	<b>16</b>	<b>646</b>

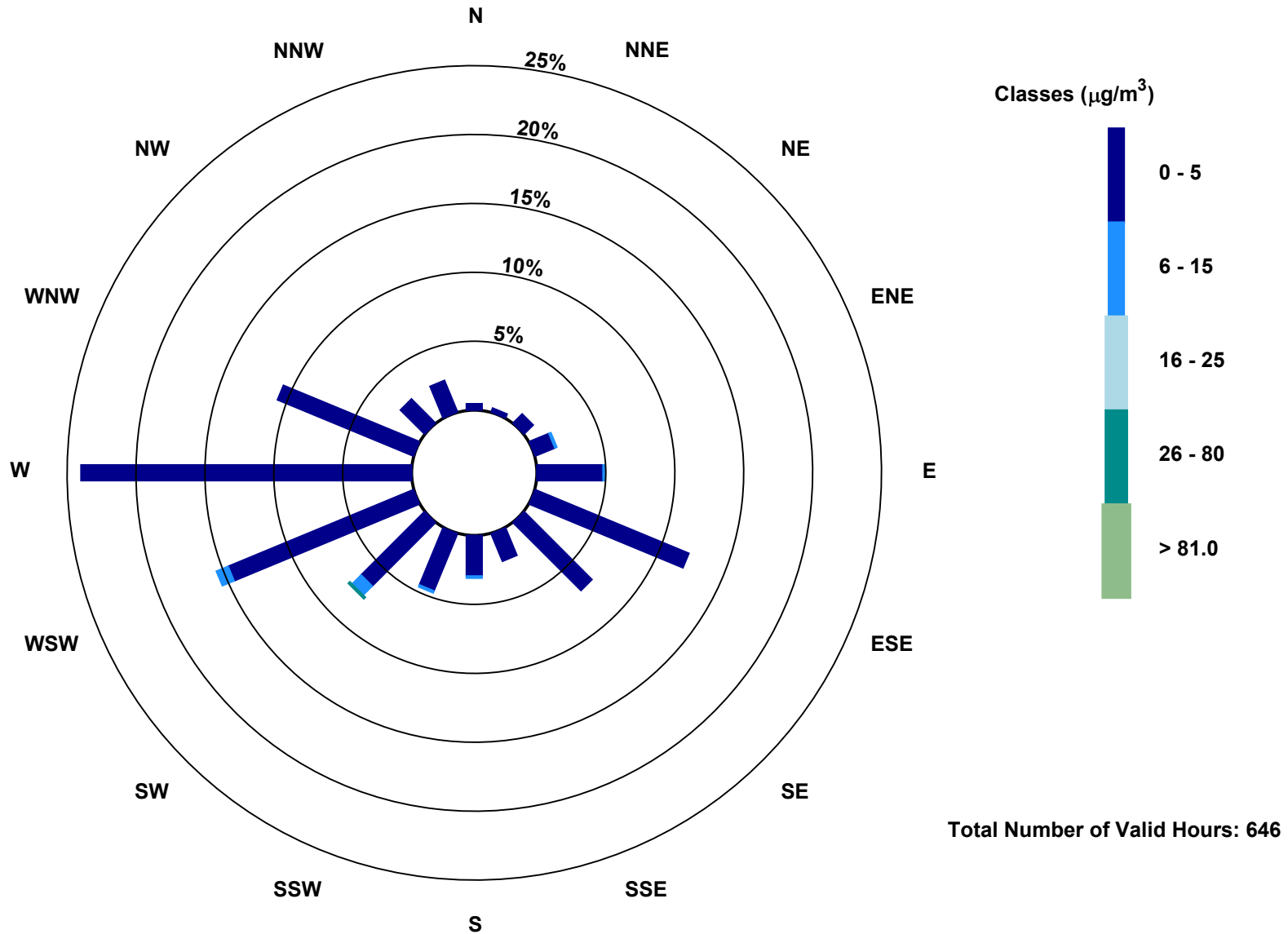
Total Number of Valid Hours: 646

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Surmont 2



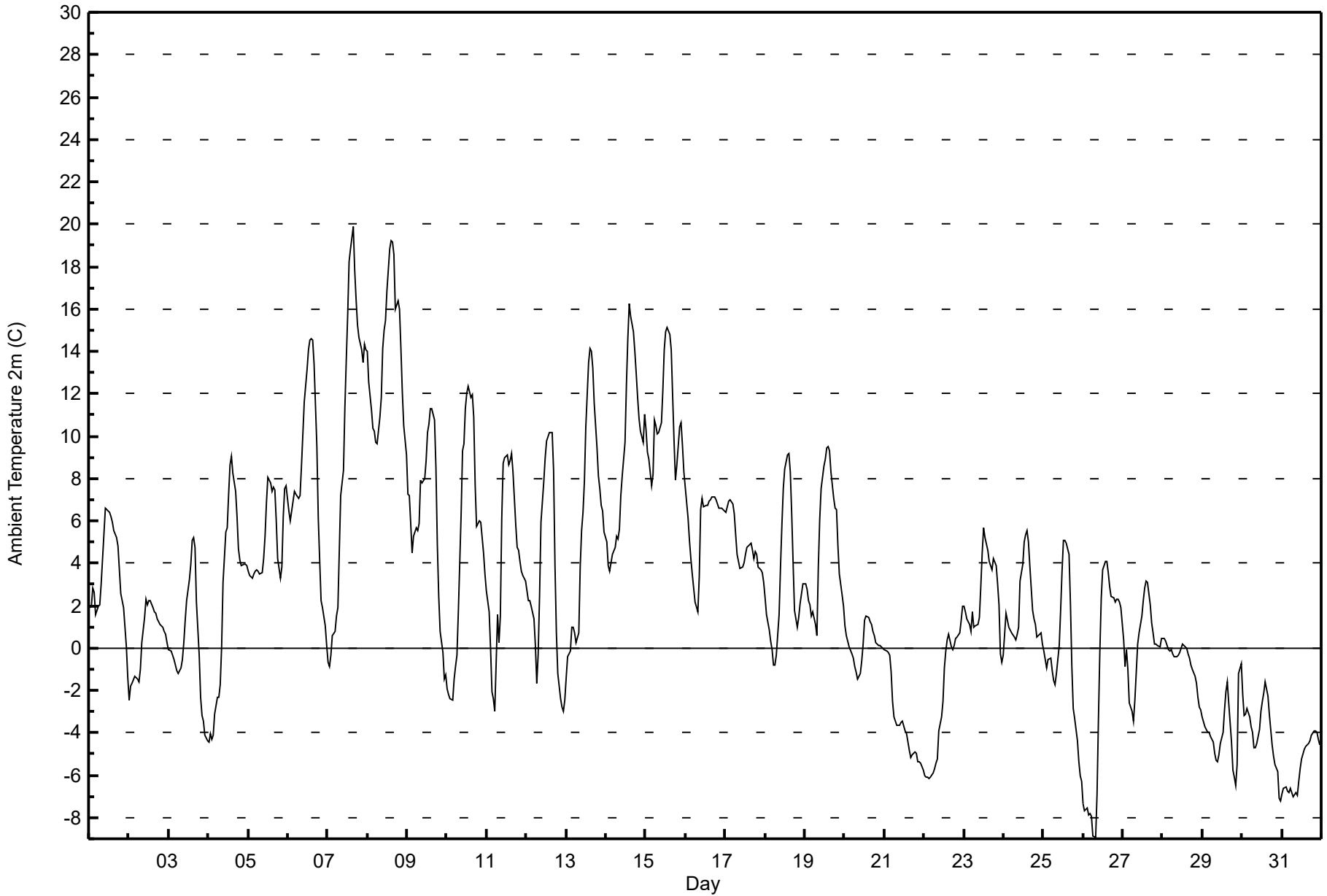


Maximum Value: 19.9 C on Oct 7 16:00		Maximum Daily Average: 13.8 C on Oct 8		Hours in Service: 744																						
Minimum Value: -8.9 C on Oct 26 08:00		Minimum Daily Average: -5.5 C on Oct 31		Hours of Data: 744																						
Maximum Diurnal Average: 6.8 C at hour 15		Minimum Diurnal Average: 0.3 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: 2.91 C		Percentiles: P <sub>1</sub> = -7.3 P <sub>10</sub> = -4.2 Q <sub>1</sub> = -0.8 Median = 2.1 Q <sub>3</sub> = 6.5 P <sub>90</sub> = 10.5 P <sub>99</sub> = 17.4		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-Oct	1.9	2.0	2.8	2.7	1.6	2.0	2.0	3.0	4.2	5.4	6.6	6.5	6.4	6.2	6.0	5.6	5.2	4.8	3.7	2.6	2.2	1.9	0.1	-1.4	3.5	6.6
2-Oct	-2.4	-1.8	-1.6	-1.3	-1.4	-1.4	-1.6	-1.0	0.2	1.4	2.3	2.0	2.3	2.2	1.9	1.7	1.6	1.4	1.3	1.1	1.0	0.8	0.6	0.3	0.4	2.3
3-Oct	-0.1	-0.2	-0.4	-0.5	-0.8	-1.1	-1.2	-1.0	-0.6	0.3	1.3	2.2	3.3	4.0	5.0	5.2	4.8	2.2	-0.4	-2.3	-3.2	-3.5	-4.1	-4.4	0.2	5.2
4-Oct	-4.4	-4.0	-4.3	-4.1	-3.1	-2.3	-2.3	-1.7	0.0	3.1	5.5	5.6	7.3	8.6	9.1	8.2	7.4	6.2	4.7	4.1	3.9	4.0	4.0	3.9	2.5	9.1
5-Oct	3.6	3.4	3.3	3.5	3.6	3.7	3.6	3.5	3.6	4.2	5.3	6.9	8.1	7.8	7.4	7.6	7.5	6.0	4.2	3.3	3.8	6.2	7.5	7.7	5.2	8.1
6-Oct	6.5	6.0	6.5	6.9	7.4	7.2	7.0	7.2	8.6	10.1	11.6	13.1	14.1	14.5	14.6	14.5	13.4	9.5	6.1	4.1	2.2	1.9	1.0	0.1	8.1	14.6
7-Oct	-0.7	-0.9	-0.3	0.6	0.8	1.5	1.9	4.5	7.2	8.4	11.4	13.6	15.8	18.2	18.8	19.9	17.9	16.5	15.2	14.7	14.1	13.5	14.3	14.1	10.0	19.9
8-Oct	14.0	12.5	11.2	10.4	10.2	9.7	9.6	10.9	11.8	14.1	15.0	15.5	16.8	18.9	19.2	19.2	18.5	16.0	16.4	16.0	14.1	12.1	10.5	9.1	13.8	19.2
9-Oct	7.3	7.2	5.9	4.5	5.3	5.7	5.5	5.9	7.9	7.8	8.0	8.9	10.2	10.6	11.3	11.3	10.7	8.5	4.9	2.5	0.8	-0.2	-1.5	-1.3	6.1	11.3
10-Oct	-1.9	-2.2	-2.4	-2.4	-1.5	-0.9	-0.3	1.7	6.3	9.3	9.7	11.3	12.0	12.3	11.8	12.0	10.9	7.7	5.7	6.0	5.9	5.2	4.5	3.5	5.2	12.3
11-Oct	2.7	1.7	0.0	-2.1	-2.4	-3.0	1.5	0.3	1.5	6.1	8.7	9.0	9.1	8.6	8.8	9.2	8.3	5.8	4.8	4.6	4.1	3.6	3.4	3.2	4.1	9.2
12-Oct	2.7	2.2	2.3	2.0	1.4	0.1	-1.6	-0.3	2.5	6.0	7.8	9.0	9.7	10.0	10.2	10.2	8.4	3.9	0.7	-1.2	-2.4	-2.8	-3.0	-2.5	3.1	10.2
13-Oct	-1.4	-0.4	-0.2	1.0	1.0	0.7	0.3	0.7	3.8	5.5	6.4	7.9	10.4	13.5	14.1	14.0	13.2	11.6	9.4	8.1	7.5	6.7	6.5	5.5	6.1	14.1
14-Oct	5.0	3.9	3.6	4.0	4.4	4.7	5.3	5.1	5.6	7.2	8.2	9.7	12.4	14.6	16.2	15.6	14.9	14.0	13.0	11.8	10.8	10.2	9.7	11.0	9.2	16.2
15-Oct	10.3	9.3	8.9	7.6	8.2	10.8	10.5	10.1	10.2	10.6	12.2	14.0	14.9	15.2	14.8	14.1	11.9	9.8	7.9	8.6	10.4	10.6	9.6	8.3	10.8	15.2
16-Oct	7.6	6.1	5.1	4.2	3.5	2.8	2.2	1.7	3.3	6.5	7.1	6.7	6.7	6.8	7.0	7.0	7.1	7.1	7.0	6.8	6.6	6.6	6.6	6.5	5.8	7.6
17-Oct	6.4	6.7	7.0	7.0	6.8	6.4	5.4	4.4	4.1	3.8	3.8	4.0	4.4	4.7	4.8	4.9	4.6	4.3	4.5	4.4	3.8	3.7	3.6	3.1	4.9	7.0
18-Oct	2.4	1.6	0.9	0.3	-0.1	-0.8	-0.8	-0.3	1.6	3.9	5.8	7.5	8.5	9.1	9.2	8.3	6.3	4.0	1.8	1.0	1.5	2.1	2.6	3.0	3.3	9.2
19-Oct	3.0	2.8	2.3	2.1	1.5	1.7	1.1	0.6	3.8	6.1	7.5	8.6	8.9	9.4	9.5	9.3	8.3	7.1	6.6	6.5	4.8	3.5	2.5	1.9	5.0	9.5
20-Oct	1.0	0.6	0.3	0.1	-0.3	-0.5	-0.9	-1.2	-1.4	-1.2	-0.6	0.2	1.3	1.5	1.5	1.2	1.1	0.8	0.6	0.2	0.1	0.1	0.1	0.0	0.2	1.5
21-Oct	-0.1	-0.1	-0.2	-0.4	-1.1	-2.5	-3.2	-3.6	-3.7	-3.6	-3.5	-3.4	-3.9	-4.0	-4.5	-4.8	-5.2	-5.0	-4.9	-5.0	-5.3	-5.4	-5.4	-5.8	-3.5	-0.1
22-Oct	-6.0	-6.1	-6.1	-6.2	-6.1	-5.9	-5.7	-5.5	-5.2	-3.9	-3.2	-2.5	-0.9	-0.1	0.4	0.7	0.0	-0.1	0.1	0.4	0.5	0.7	1.3	2.0	-2.4	2.0
23-Oct	2.0	1.7	1.4	1.1	0.8	1.7	1.0	1.0	1.1	1.5	2.9	4.5	5.7	5.2	4.6	4.1	3.9	3.7	4.2	3.9	3.1	2.1	-0.3	-0.7	2.5	5.7
24-Oct	-0.4	1.7	1.3	1.0	0.9	0.7	0.5	0.4	0.7	1.0	3.2	4.0	5.0	5.4	5.5	5.0	3.9	1.7	1.4	1.1	0.5	0.6	0.7	0.2	1.9	5.5
25-Oct	-0.2	-0.5	-0.9	-0.5	-0.5	-1.0	-1.5	-1.8	-1.2	0.1	1.8	3.6	5.1	5.1	5.0	4.4	2.1	-0.8	-2.8	-3.3	-4.4	-5.4	-6.1	-6.3	-0.4	5.1
26-Oct	-7.3	-7.7	-7.6	-7.9	-7.8	-7.9	-8.9	-8.9	-6.9	-3.3	-0.2	2.4	3.7	4.1	4.1	3.6	2.9	2.5	2.4	2.2	2.3	2.3	2.2	1.9	-1.6	4.1
27-Oct	0.4	-0.8	-0.1	-1.0	-2.6	-3.0	-3.4	-2.4	-1.1	0.2	0.7	1.5	2.2	2.8	3.1	3.1	2.0	1.2	0.7	0.2	0.2	0.1	0.1	0.4	0.2	3.1
28-Oct	0.5	0.5	0.3	0.0	-0.1	-0.1	-0.3	-0.4	-0.4	-0.3	-0.2	0.0	0.2	0.1	0.0	-0.3	-0.5	-0.8	-1.0	-1.3	-1.7	-2.3	-2.8	-2.9	-0.6	0.5
29-Oct	-3.3	-3.7	-3.9	-4.0	-4.0	-4.1	-4.4	-5.0	-5.3	-5.4	-5.0	-4.5	-4.0	-2.9	-2.1	-1.6	-2.6	-4.5	-5.8	-6.1	-6.5	-5.5	-1.2	-0.7	-4.0	-0.7
30-Oct	-2.2	-3.2	-3.1	-2.9	-3.3	-3.7	-4.0	-4.7	-4.7	-4.5	-3.8	-3.0	-2.5	-2.1	-1.6	-2.3	-3.1	-3.9	-4.6	-5.1	-5.5	-5.8	-7.1	-7.2	-3.9	-1.6
31-Oct	-6.9	-6.6	-6.5	-6.7	-6.8	-6.6	-6.8	-7.0	-6.8	-6.9	-6.3	-5.7	-5.3	-4.8	-4.6	-4.6	-4.5	-4.4	-4.1	-3.9	-3.9	-4.0	-4.3	-4.6	-5.5	-3.9
	1.3	1.0	0.8	0.6	0.5	0.5	0.3	0.5	1.6	3.0	4.2	5.1	6.1	6.6	6.8	6.7	5.8	4.4	3.3	2.8	2.3	2.1	1.8	1.5	Diurnal Average	
	14.0	12.5	11.2	10.4	10.2	10.8	10.5	10.9	11.8	14.1	15.0	15.5	16.8	18.9	19.2	19.9	18.5	16.5	16.4	16.0	14.1	13.5	14.3	14.1	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature 2m (AT2) - C**  
**Surmont 2 - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C**  
**Surmont 2 - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	236	31.72	31.72
0 - 10	419	56.32	88.04
10 - 20	89	11.96	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

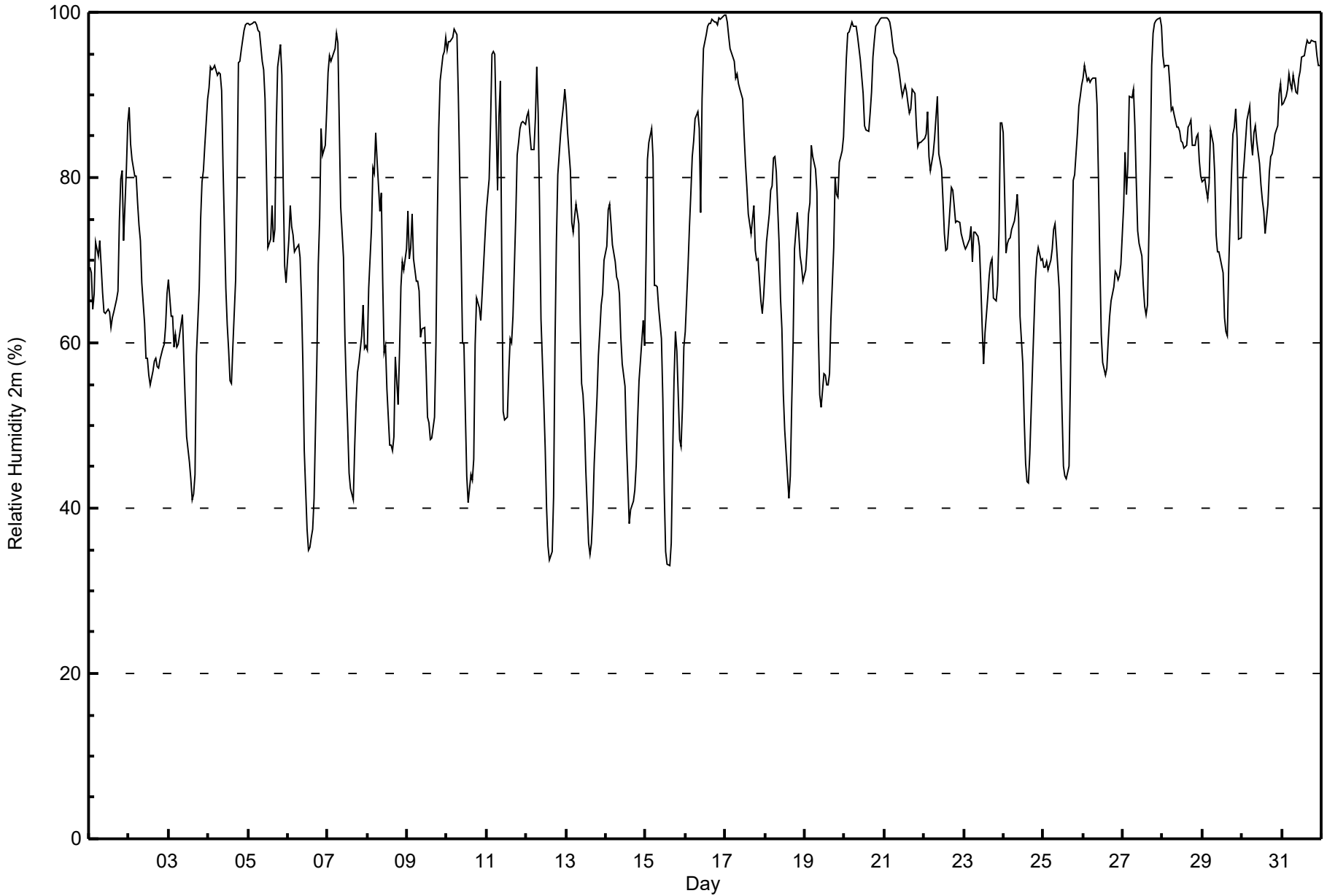


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**  
**Surmont 2 - October 2024**

Maximum Value: 99.6 % on Oct 17 00:00      Maximum Daily Average: 94.5 % on Oct 20 Minimum Value: 33.1 % on Oct 15 15:00      Minimum Daily Average: 58.0 % on Oct 15 Maximum Diurnal Average: 83.7 % at hour 5      Minimum Diurnal Average: 58.5 % at hour 15 Monthly Average: 74.29 %      Percentiles: P <sub>1</sub> = 35.4 P <sub>10</sub> = 51.0 Q <sub>1</sub> = 62.8 Median = 74.8 Q <sub>3</sub> = 87.6 P <sub>90</sub> = 95.2 P <sub>99</sub> = 99.3																						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-Oct	69.2	68.6	64.1	66.0	72.2	70.5	72.4	69.4	66.1	63.8	63.5	64.1	63.7	61.8	63.0	63.7	65.3	66.3	74.8	79.8	80.8	72.3	81.0	86.6	69.5	86.6
2-Oct	88.5	84.0	82.1	80.2	80.1	77.0	74.3	72.3	67.3	62.3	58.1	58.2	56.0	54.9	56.6	57.9	58.2	57.2	57.0	58.0	59.3	59.9	62.0	65.9	66.1	88.5
3-Oct	67.6	63.3	63.3	59.5	61.0	59.6	59.9	62.2	63.3	58.2	53.1	48.6	45.6	43.5	41.0	41.7	44.0	58.5	66.5	74.9	79.5	80.9	83.9	89.4	61.2	89.4
4-Oct	90.8	93.3	93.1	93.3	93.6	92.4	92.8	92.6	90.5	81.3	66.7	62.2	59.1	55.5	55.2	59.6	67.6	78.5	93.9	94.1	95.4	97.8	98.5	98.7	83.2	98.7
5-Oct	98.7	98.5	98.6	98.9	98.7	98.4	97.8	97.7	94.0	93.0	89.5	80.9	71.6	72.5	76.6	72.2	73.7	86.2	93.4	96.1	92.4	78.8	69.3	67.3	87.3	98.9
6-Oct	72.5	76.5	74.1	73.1	71.0	71.4	71.8	70.4	65.2	57.6	46.9	37.4	35.0	35.3	36.5	37.5	41.1	58.0	69.5	75.0	85.9	82.7	83.9	88.0	63.2	88.0
7-Oct	92.7	94.7	94.1	94.6	95.6	97.4	96.4	86.2	76.4	70.3	60.8	54.7	49.9	44.2	42.4	40.9	47.5	52.7	56.4	57.7	60.9	64.5	59.3	59.6	68.7	97.4
8-Oct	59.1	66.6	73.9	81.1	80.6	85.4	82.0	75.9	78.2	67.5	58.8	59.6	54.4	47.6	47.6	47.0	48.7	58.2	52.6	58.7	66.7	69.8	68.8	71.4	65.0	85.4
9-Oct	76.0	70.1	71.6	75.6	70.2	67.4	67.5	66.3	60.6	61.7	61.9	56.9	50.9	50.3	48.4	48.4	51.0	59.7	75.0	86.0	91.7	94.7	95.3	96.9	68.9	96.9
10-Oct	95.5	96.5	96.5	97.0	97.9	97.7	97.2	89.9	70.8	60.0	59.9	51.5	43.9	40.7	44.1	43.3	46.0	59.8	65.5	64.2	62.7	66.0	69.3	72.8	70.4	97.9
11-Oct	75.9	79.9	86.6	95.0	95.3	95.0	78.5	87.4	91.7	69.6	51.7	50.7	51.1	56.5	60.5	59.9	63.2	75.2	82.7	84.2	86.0	86.7	86.8	86.4	76.5	95.3
12-Oct	87.4	87.9	85.4	83.4	83.4	87.2	93.5	87.7	76.2	62.9	53.0	47.2	40.0	35.5	33.6	34.8	41.4	59.7	72.1	80.3	85.3	87.1	88.7	90.7	70.2	93.5
13-Oct	88.7	85.4	80.9	74.5	73.3	75.3	76.7	74.4	62.3	55.2	53.7	50.6	44.6	35.7	34.3	35.8	39.5	45.4	53.4	58.4	61.4	64.5	66.0	69.9	60.8	88.7
14-Oct	71.6	76.1	76.8	74.4	71.9	69.8	67.9	67.4	66.0	60.7	57.4	54.7	48.1	43.4	38.2	39.9	40.9	42.3	45.3	50.7	55.3	57.8	62.7	59.6	58.3	76.8
15-Oct	70.0	82.2	84.2	86.0	82.3	67.0	66.9	66.8	64.3	60.4	53.2	41.9	34.8	33.2	33.1	35.7	46.3	55.6	61.4	58.9	48.3	47.4	52.1	59.4	58.0	86.0
16-Oct	61.4	69.3	74.0	78.1	82.6	84.4	87.1	88.0	86.0	75.8	89.5	95.6	97.2	98.3	98.6	98.7	99.1	98.8	98.8	98.5	99.3	99.2	99.3	99.6	89.9	99.6
17-Oct	99.6	98.8	97.2	95.6	94.5	94.0	92.0	92.6	91.4	90.7	89.5	85.2	81.7	78.9	75.6	73.3	74.9	76.6	71.3	70.0	70.2	65.1	63.5	65.7	82.8	99.6
18-Oct	69.0	72.2	75.6	78.4	79.0	82.4	82.5	80.6	72.0	65.4	61.6	53.9	49.4	44.0	41.2	44.0	52.6	60.0	71.4	75.7	73.3	70.5	69.3	67.5	66.3	82.5
19-Oct	68.8	71.5	75.6	76.9	83.9	82.6	81.1	78.3	61.3	53.7	52.3	56.3	56.1	54.9	55.0	56.3	62.9	71.5	80.1	78.0	77.7	81.9	83.2	84.9	70.2	84.9
20-Oct	89.9	94.5	97.5	97.7	98.8	98.3	98.2	98.4	97.1	94.2	92.2	90.1	86.3	85.7	85.6	87.8	90.4	94.6	96.6	98.2	98.9	99.1	99.3	99.4	94.5	99.4
21-Oct	99.4	99.3	99.1	98.8	97.7	96.3	95.1	94.3	93.5	92.3	91.0	89.8	91.2	90.3	88.9	87.7	88.2	90.7	90.1	86.2	83.8	84.3	84.2	84.6	91.5	99.4
22-Oct	84.7	85.2	88.0	82.5	80.8	82.9	84.7	87.3	89.8	82.9	81.1	77.2	73.3	71.2	71.4	73.7	78.9	78.5	76.6	74.6	74.8	74.5	73.3	72.5	79.2	89.8
23-Oct	71.8	71.3	71.7	72.6	74.1	69.8	73.5	73.4	72.9	71.6	67.2	61.9	57.5	61.1	65.6	68.1	69.6	70.2	65.4	65.1	66.9	73.5	86.6	86.7	70.3	86.7
24-Oct	85.5	70.9	72.0	72.6	72.8	73.8	74.8	76.0	78.0	75.1	63.2	57.5	50.6	45.4	43.2	43.1	46.6	57.5	62.6	67.6	70.3	71.5	70.1	70.1	65.4	85.5
25-Oct	69.1	69.1	69.8	68.9	70.1	71.3	73.8	74.4	71.9	66.5	59.2	51.6	45.1	43.9	43.5	45.1	55.9	70.1	79.7	80.4	85.4	88.6	89.8	91.1	68.1	91.1
26-Oct	92.0	93.6	91.6	92.0	91.5	91.9	92.1	92.0	88.9	79.9	69.8	61.0	57.6	56.0	57.0	60.3	63.3	65.1	66.8	68.6	68.3	67.7	68.2	69.5	75.2	93.6
27-Oct	76.5	83.0	77.9	81.5	89.8	89.7	90.7	86.3	79.5	73.6	72.0	70.6	67.0	64.4	63.3	64.6	81.7	93.6	97.5	98.7	99.0	99.2	99.4	98.4	83.2	99.4
28-Oct	94.8	93.3	93.5	93.5	91.2	88.1	88.4	87.6	86.1	86.1	85.7	84.5	84.3	83.6	83.9	86.1	86.4	86.9	83.8	83.9	84.9	85.3	82.0	80.2	86.8	94.8
29-Oct	79.4	79.8	78.4	77.5	79.3	85.8	84.1	80.6	73.1	71.1	71.0	70.2	68.4	63.1	61.4	60.9	69.2	80.4	85.3	86.1	88.3	84.8	72.6	72.7	76.0	88.3
30-Oct	79.7	81.9	84.4	87.0	88.6	84.6	82.8	85.5	86.2	84.5	81.6	79.1	77.3	75.9	73.2	76.7	80.7	82.6	82.8	83.8	85.3	86.3	90.1	91.4	83.0	91.4
31-Oct	88.8	88.9	89.8	90.6	92.5	91.4	90.7	92.3	90.3	90.2	92.0	92.9	94.5	94.7	95.8	96.6	96.3	96.2	96.6	96.4	96.5	94.7	93.6	93.6	93.2	96.6
81.1 82.1 82.6 83.1 83.7 83.2 82.8 81.7 77.8 72.2 68.0 64.4 60.8 58.8 58.5 59.4 63.6 70.5 75.0 77.1 78.5 78.6 79.1 80.3																								Diurnal Average		
99.6 99.3 99.1 98.9 98.8 98.4 98.2 98.4 97.1 94.2 92.2 95.6 97.2 98.3 98.6 98.7 99.1 98.8 98.8 98.7 99.3 99.2 99.4 99.6																								Diurnal Maximum		







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %**  
**Surmont 2 - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	18	2.42	2.42
40 - 60	138	18.55	20.97
60 - 80	278	37.37	58.33
80 - 100	310	41.67	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

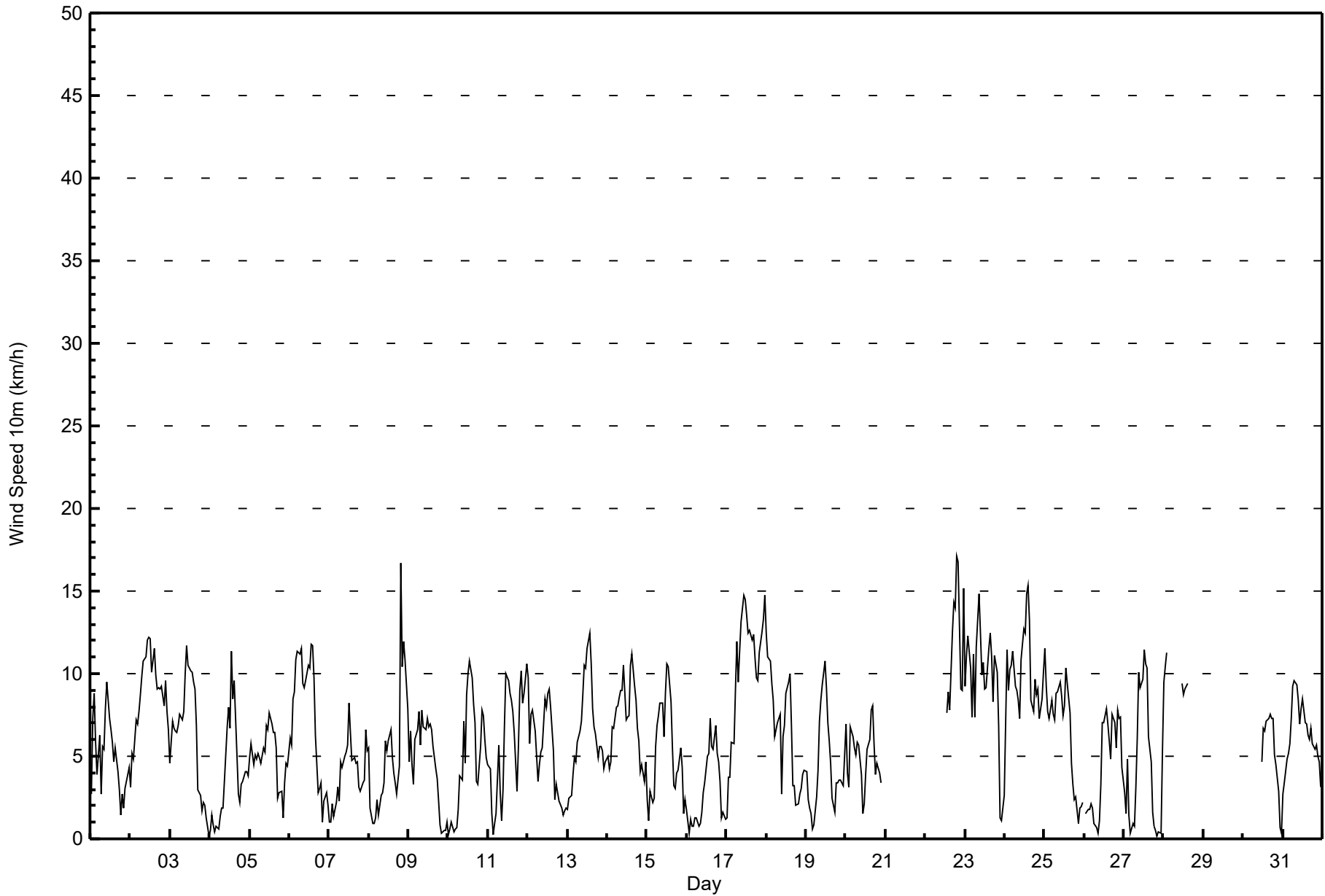


Maximum Speed: 17 km/h on Oct 22 20:00	Maximum Daily Speed Average: 10.3 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 27 21:00	Minimum Daily Speed Average: 2.0 km/h on Oct 8	Hours of Data: 652
Maximum Diurnal Speed Average: 3.7 km/h at hour 2	Minimum Diurnal Speed Average: 2.1 km/h at hour 18	Hours of Missing Data: 92
Monthly Average Velocity: 2.8 km/h 252.4 deg	Percentiles: P <sub>1</sub> = 0 P <sub>10</sub> = 1 Q <sub>1</sub> = 3 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 11 P <sub>99</sub> = 15	Percent Operational Time: 88.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	WNW3	WSW7	WSW9	W6	W4	WSW6	WNW3	WNW6	WNW5	WNW8	WNW9	WNW7	NW7	WNW6	W5	W6	W4	WNW3	W1	W3	WNW2	WNW3	WSW4	WSW4	W4.6	WNW9	
2-Oct	WSW3	WSW5	W5	W7	W7	W8	W9WNW10	W11WNW11	WNW12	WNW12	WNW12	WNW10	WNW12	WNW10	WNW12	WNW10	W9	WNW9	W9	W9	WNW8	WNW10	WNW8	NW7	WNW8.7	WNW12	
3-Oct	NW5	WNW7	WNW7	WNW7	WNW6	WNW7	WNW8	WNW7	WNW8	W10	W12	W11	W10	W10	W10	W9	W7	WSW3	SW3	SW2	WSW2	WSW2	SW1	SSW0	W6.0	W12	
4-Oct	W1	WSW1	WSW1	SW0	SW1	SW1	SW1	SE2	ENE2	ESE3	ESE7	ESE8	E7	E11	E8	E10	ENE5	NE3	ENE2	NE3	NE3	NE4	NNE4	N4	E2.9	E11	
5-Oct	N5	NNW6	NW5	NNW5	NNW5	NNW5	NNW5	NNW5	NNW5	NNW5	NNW7	NNW7	W8	WSW7	WSW6	WSW6	SW5	S2	SE3	SE3	SE1	SSW3	SSE5	SSW4	W3.0	W8	
6-Oct	SW6	WSW6	WSW9	WSW9	W11	W11	W11	W12	W9	WSW9	WSW10	W10	W10	WSW12	W12	W10	W6	SW3	SW3	WSW3	SSW1	WSW2	SW3	SW2	WSW7.3	WSW12	
7-Oct	SW1	WSW1	SW2	SW1	S2	SE3	SE2	ESE5	ESE4	ESE5	ESE5	SE6	ESE8	ESE6	SE5	S5	S5	SSE5	SSE3	SSE3	S3	SSW4	WSW7	WSW5	SSE2.8	ESE8	
8-Oct	W5	W2	SSW1	S1	SSW1	S2	WSW1	SSW3	E3	ESE3	ESE6	ESE5	ESE6	SE7	ESE5	SE4	SE3	SE3	SW4	W17	W10	W12	W11	W8	SW2.0	W17	
9-Oct	W5	W7	NW5	NW3	WNW6	WNW7	W8	W6	W8	WNW7	W7	W7	W7	W7	W7	W6	W4	WSW4	SW2	SSW1	S0	WSW1	SSE1	SW1	W4.5	W8	
10-Oct	SE0	SSW1	S1	S0	SSW1	SSE1	SW2	WSW4	W4	W7	WSW5	W9WNW10	W11	WSW10	WSW8	W7	WSW3	W3	WSW6	WSW8	WSW7	WSW6	WSW5	WSW4.7	W11		
11-Oct	W5	W4	SW2	ENE0	SW1	SSW2	WSW6	SW3	SE1	W3	SW7	WSW10	WSW10	WSW9	SW8	SW8	SW6	SSW3	SW6	WSW9	WSW10	WSW8	WSW9	WSW11	WSW5.5	WSW11	
12-Oct	WSW10	WSW6	W8	W8	W7	WSW5	WSW3	WSW4	WSW5	WNW6	WNW9	NW8	NNW9	NNW9	NNW8	NW5	NW2	SW3	SW3	SW2	SW2	SSW1	SSW2	SSW2	W4.1	WSW10	
13-Oct	SSW2	S2	SSE3	SE4	SE5	ESE5	ESE6	ESE6	ESE7	ESE9	ESE11	ESE10	SE11	SE12	SE11	SE8	SE7	SE6	ESE5	SE6	ESE6	ESE5	ESE4	ESE5	SE6.3	SE12	
14-Oct	ESE5	E4	ESE5	ESE7	SE7	SE8	SE8	SE9	SE9	ESE9	ESE11	SE7	SE7	SE7	ESE11	ESE11	ESE9	SE8	SE7	ESE6	ESE4	ESE4	ESE4	WNW5	ESE6.7	ESE11	
15-Oct	W2	SSW1	S3	SSW2	N2	WNW6	WNW7	W7	W8	W8	W6	W9	W11	W10	WNW8	W6	WSW3	WSW3	SW4	WSW4	WSW5	WSW4	W2	SW2	W4.7	W11	
16-Oct	WSW2	W0	WSW1	SW1	S1	SW1	SW1	WSW1	E1	ENE2	ESE3	E3	E5	E5	E7	E6	E5	ESE7	ESE5	ESE5	ESE3	SSE1	ESE2	SW1	ESE2.2	E7	
17-Oct	S1	W4	W4	W6	W6	W9	W12	W10	WSW11	WSW13	WSW15	W14	W14	W12	W13	W12	W12	W11	W10	WNW10	W11	W13	W13	W15	W10.3	WSW15	
18-Oct	W12	W11	W11	W9	W8	W6	W7	W7	WSW8	S3	SSW6	SSW7	SW9	WSW9	SW10	SW7	SSW3	SSW3	S2	S2	SSE3	SSE3	SSE4	SSE4	WSW5.2	W12	
19-Oct	ESE4	S2	S2	WSW2	SE1	SSW1	W3	W4	W7	W8	W9	W11	W9	W7	W6	W5	W2	SSW2	SSW3	NW3	NNW4	NW4	WNW3	NW5	W3.5	W11	
20-Oct	NW7	NW4	NNW3	NNW7	NW6	NNW5	NNW5	NNW6	NNW6	NNW4	NNW2	S2	ESE4	E5	ESE6	E8	ESE8	E6	ESE4	ESE5	ESE4	E3	UO	UO	NE2.0	ESE8	
21-Oct	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	---	---
22-Oct	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-Oct	W9	W11	W12	W10	W7	W11	W7	W12	W15	W12	W10	W11	W9	W9	WSW11	WSW12	WSW11	WSW8	WSW11	W10	WNW7	NNE1	SSW1	WSW2	W9.0	W15	
24-Oct	WNW3	WSW11	W9	W10	W11	W11	W9	W9	W8	W7	WNW11	WNW13	W12	W15	W15	W13	W8	WSW8	W10	WSW9	WSW9	W7	W8	WSW10	W9.7	W15	
25-Oct	WSW12	W9	W8	WNW7	W8	W8	W7	W9	W9	W9	W9	WNW7	WNW8	W10	WNW9	WNW8	WSW5	WSW3	SW3	WSW3	SW1	SW2	SW2	SW2	W6.3	WSW12	
26-Oct	UO	SW2	WSW2	SW2	SW2	WSW2	WSW1	WSW1	E0	NNW1	NE3	E7	E7	E8	E7	E6	E5	ESE8	ESE7	SE6	ESE8	ESE7	ESE7	SE4	ESE3.4	E8	
27-Oct	SE3	SSW2	SE5	SE1	S0	WSW1	SE1	ESE3	ESE6	SE10	ESE9	ESE10	ESE11	ESE11	ESE10	ESE6	ESE5	SSW2	SSW1	ENE1	ESE0	SE0	WSW0	WNW5	ESE3.6	ESE11	
28-Oct	WNW10	WNW10	WNW11	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WNW11
29-Oct	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-Oct	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-Oct	E3	E3	E5	E5	ESE6	ESE7	ESE9	ESE10	ESE9	ESE8	ESE7	ESE8	ESE8	ESE7	ESE7	SE6	SE6	ESE7	ESE6	SE5	ESE6	ESE5	ESE5	SE3	ESE6.2	ESE10	

W3.0	W3.7	W3.3	W2.9	W2.9	W3.2	W3.3	W3.3	W3.3	W3.3	W3.1	WSW3.3	WSW3.2	W2.7	WSW2.9	WSW3.0	WSW2.6	SW2.4	SSW2.1	SW2.3	WSW2.6	WSW2.2	WSW2.2	WSW2.4	WSW3.3	Diurnal Average
W12	WSW11	W12	W10	WSW11	W11	W12	W12	W15	WSW13	WSW15	W14	W14	WNW15	W15	WNW13	WSW13	WSW14	WSW14	WSW17	WSW17	W13	W13	W15	Diurnal Maximum	

C - Calibration      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Surmont 2 - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	296	45.40	45.40
6 - 11	315	48.31	93.71
12 - 19	41	6.29	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: 652

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Surmont 2 - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	2	6	9	16	33	22	14	20	28	39	44	25	15	11	9	296
6 - 11	0	0	0	4	16	49	22	0	0	2	10	45	108	47	5	7	315
12 - 19	0	0	0	0	0	0	1	0	0	0	0	11	22	7	0	0	41
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>	3	2	6	13	32	82	45	14	20	30	49	100	155	69	16	16	652

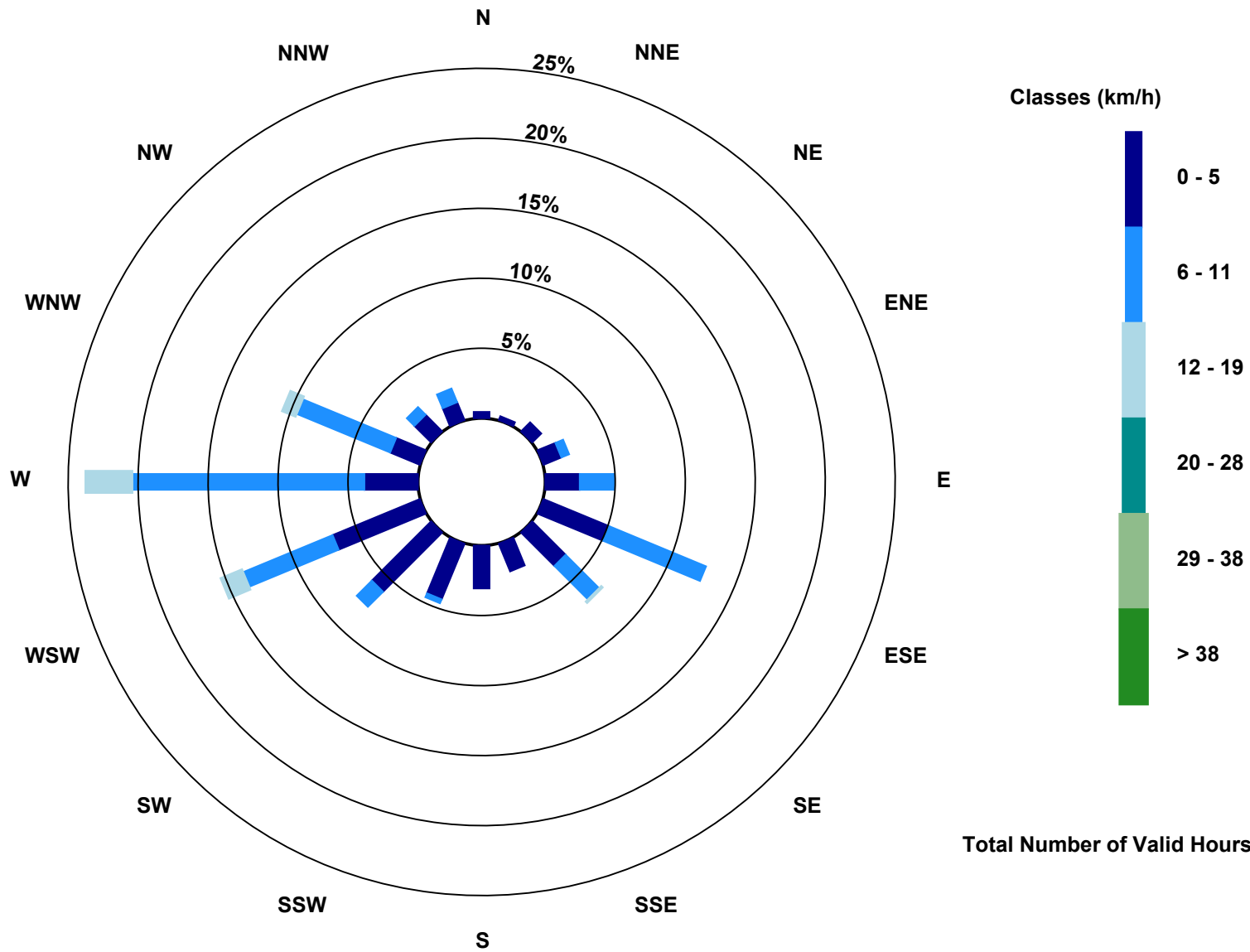
Total Number of Valid Hours: 652

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Surmont 2



Total Number of Valid Hours: 652



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Surmont 2 - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Oct 8 20:00 Minimum Value: 0 km/h on Oct 4 00:00 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																	Hours in Service: 744 Hours of Data: 652 Hours of Missing Data: 92 Hours of Calibration: 3 Percent Operational Time: 88.0								
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-Oct	2	4	3	2	2	2	2	2	3	3	4	3	3	3	2	2	1	2	1	1	1	1	1	1	4
2-Oct	1	2	1	2	2	2	3	4	4	4	5	5	5	4	5	4	4	4	3	3	3	4	3	3	5
3-Oct	2	3	2	3	3	3	3	3	4	4	4	4	4	3	3	2	1	1	1	1	1	2	0	4	
4-Oct	1	1	1	1	1	1	1	1	1	1	3	3	3	4	3	4	2	1	1	1	2	1	2	2	4
5-Oct	2	2	2	2	2	2	2	2	3	2	2	3	3	3	3	3	3	1	1	1	1	2	3	3	3
6-Oct	3	2	3	3	4	4	4	4	3	3	3	4	4	4	4	4	3	1	1	1	1	1	1	2	4
7-Oct	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	2	3	2	2	2	2	2	3	2	3
8-Oct	2	2	1	1	1	1	1	2	1	1	2	2	2	3	2	2	1	1	5	6	4	5	4	3	6
9-Oct	2	3	2	2	2	2	2	3	4	3	3	3	3	2	3	2	2	2	1	1	1	1	1	1	4
10-Oct	1	1	1	1	1	1	1	2	2	2	2	4	4	4	4	3	3	1	1	2	2	2	2	1	4
11-Oct	2	1	2	1	1	2	2	1	1	2	3	4	4	4	4	4	3	2	3	3	3	3	3	3	4
12-Oct	3	2	3	3	2	2	1	1	2	2	3	3	4	4	3	2	2	1	2	1	2	1	1	1	4
13-Oct	1	1	1	2	2	2	2	2	3	3	4	3	4	5	4	3	3	3	2	2	2	2	2	2	5
14-Oct	2	2	2	2	3	3	4	3	3	3	4	3	3	3	4	4	3	4	3	2	2	2	1	2	4
15-Oct	1	1	2	2	2	3	3	3	3	3	2	3	4	3	3	2	1	1	1	2	2	3	1	1	4
16-Oct	1	1	1	1	1	1	1	1	1	1	1	2	2	3	2	2	3	2	2	1	1	1	1	1	3
17-Oct	1	1	1	2	2	3	4	3	4	4	5	5	5	5	5	5	4	4	4	4	5	5	5	5	5
18-Oct	4	5	4	4	3	2	2	2	3	2	3	3	4	4	4	3	2	1	1	1	1	1	1	2	5
19-Oct	1	1	1	1	1	1	2	2	2	3	3	4	3	3	2	2	1	1	2	1	1	1	1	2	4
20-Oct	3	2	1	3	3	2	2	2	2	1	1	1	2	2	2	2	2	3	1	1	1	1	UO	UO	3
21-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	3	4	5	5	5	5	6	6	4	4	5	6
23-Oct	3	4	4	4	3	4	3	5	5	5	4	3	3	4	4	4	3	4	4	3	2	1	1	5	
24-Oct	3	3	3	3	3	4	3	3	3	3	3	5	5	5	6	5	3	2	3	3	2	2	3	3	6
25-Oct	3	3	3	3	3	3	2	3	3	3	3	3	4	3	3	2	1	1	2	2	1	1	1	1	4
26-Oct	UO	1	1	1	2	1	1	1	1	1	2	3	2	3	3	2	2	3	2	2	2	2	2	2	3
27-Oct	1	2	2	1	1	1	1	1	2	3	3	3	3	3	3	2	3	1	1	1	1	1	1	3	3
28-Oct	3	4	4	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	4	UO	UO	UO	UO	UO	UO	UO	UO	4
29-Oct	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-Oct	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
31-Oct	2	2	2	2	2	2	3	3	3	3	2	2	2	2	2	3	2	2	2	2	1	2	1	1	3
																	Diurnal Maximum								
																	4 5 4 4 4 4 4 5 5 5 5 5 5 5 6 5 5 5 5 6 6 5 5 5								
C - Calibration UO - Unstable Operation																									

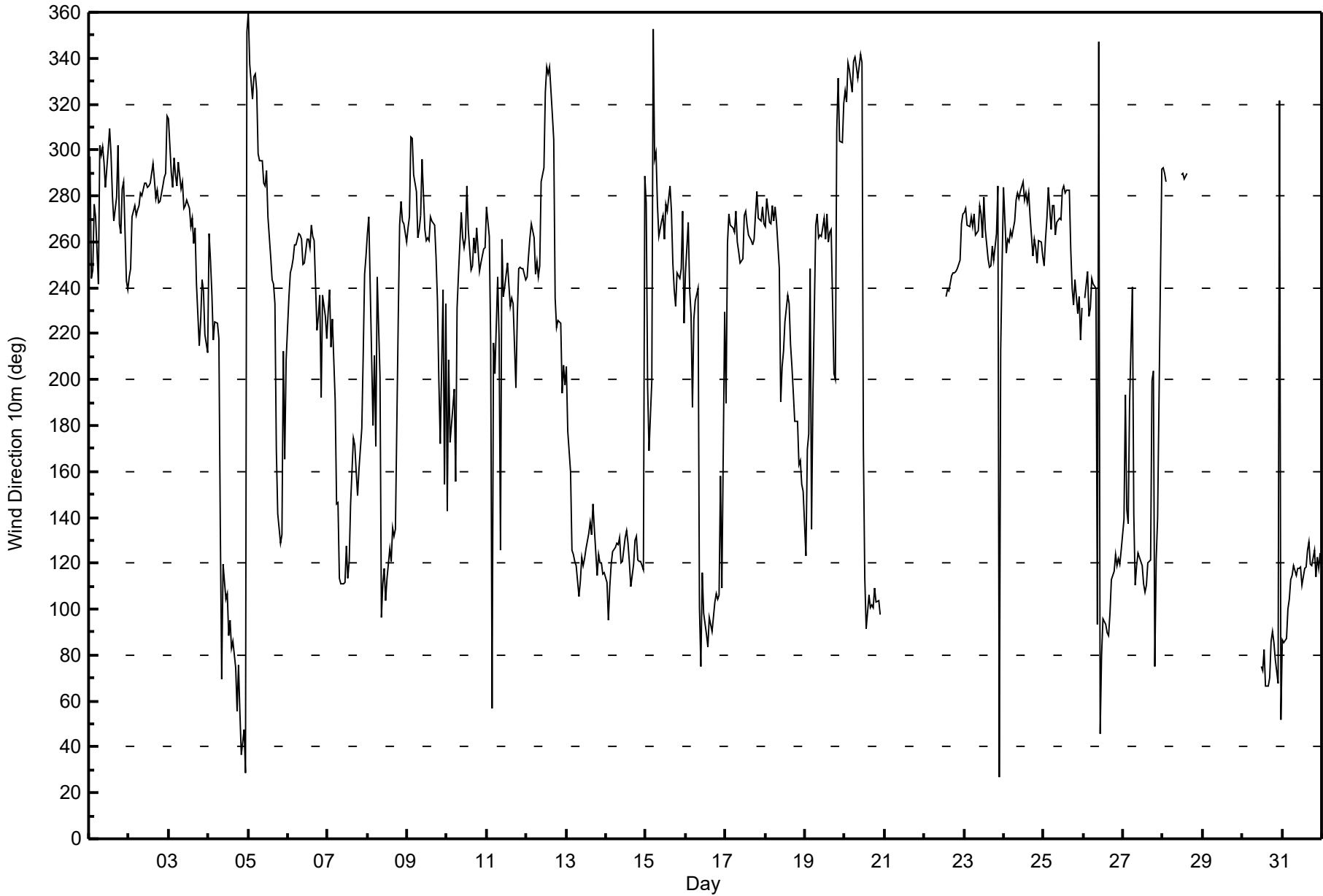




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction 10m (WD10) - deg**  
**Surmont 2 - October 2024**

Direction of Maximum Speed: 247 deg on Oct 22 20:00																						Hours in Service: 744				
Direction of Maximum Daily Speed Average: 265.3 deg on Oct 17																						Hours of Data: 652				
Direction of Minimum Speed: 122 deg on Oct 27 21:00											Direction of Minimum Daily Speed Average: 2.0 deg on Oct 8											Hours of Missing Data: 92				
Monthly Average Direction: 252.4 deg																						Percent Operational Time: 88.0				
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-Oct	297	244	248	276	271	241	302	298	301	295	284	300	309	299	280	269	280	302	268	264	283	286	243	239	278.0	
2-Oct	244	249	271	276	272	274	276	282	280	285	286	284	284	286	294	287	279	283	277	278	284	288	290	315	282.0	
3-Oct	314	290	283	297	290	285	295	283	286	275	276	278	275	266	270	259	266	241	215	226	243	238	220	212	275.8	
4-Oct	264	252	237	218	225	224	218	137	69	119	105	107	88	95	83	86	75	55	76	55	37	48	29	352	82.5	
5-Oct	360	338	322	332	333	326	299	295	295	286	284	291	271	253	244	242	233	170	142	129	133	212	165	208	277.6	
6-Oct	236	246	249	252	259	259	264	263	261	250	251	261	261	257	267	263	261	222	228	237	192	237	227	218	254.7	
7-Oct	230	239	214	227	191	146	146	113	111	111	112	128	113	121	146	175	171	160	150	161	179	211	246	254	154.6	
8-Oct	263	271	211	180	211	171	245	201	97	111	118	104	114	126	121	136	132	135	226	268	278	269	268	260	223.2	
9-Oct	266	271	305	305	289	282	262	266	272	296	266	261	262	260	271	269	267	253	234	200	172	239	154	233	270.3	
10-Oct	143	209	173	188	196	155	231	246	273	262	257	262	284	265	248	250	262	255	266	247	251	254	257	257	257.0	
11-Oct	275	262	216	57	216	202	245	218	126	261	236	241	251	241	232	235	233	197	228	248	249	248	248	243	241.6	
12-Oct	245	254	262	268	262	246	251	245	250	286	293	325	336	333	336	315	305	236	223	226	225	194	206	198	278.0	
13-Oct	206	177	160	126	124	121	119	105	112	122	119	122	126	133	138	132	146	135	115	124	120	120	115	116	126.6	
14-Oct	111	95	110	119	125	127	129	128	131	120	121	131	134	129	120	110	120	130	132	121	121	121	117	289	123.1	
15-Oct	277	197	169	200	352	296	299	276	262	269	271	261	276	274	284	273	251	239	232	247	244	248	273	224	266.3	
16-Oct	247	269	239	228	188	226	234	240	101	75	116	98	89	84	96	93	90	103	107	104	106	158	109	229	105.6	
17-Oct	190	259	272	267	266	264	273	260	256	251	252	271	273	267	263	260	259	261	272	282	271	269	275	268	265.3	
18-Oct	267	279	268	268	276	269	275	268	248	190	206	212	225	237	233	215	206	194	182	182	163	165	155	151	240.6	
19-Oct	123	170	176	249	135	194	267	272	262	263	262	270	261	272	260	264	265	203	200	309	331	304	303	321	265.9	
20-Oct	326	321	338	335	325	339	341	336	331	342	338	170	113	91	106	101	102	100	110	103	104	98	UO	UO	37.7	
21-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	236	239	238	246	246	246	247	248	252	268	272	--
23-Oct	273	274	267	267	271	267	272	263	265	276	272	262	279	265	253	249	250	258	252	264	284	27	213	250	265.1	
24-Oct	283	255	261	260	265	262	269	278	281	279	282	286	278	281	277	281	271	254	261	258	251	260	260	254	269.3	
25-Oct	249	261	270	284	266	276	276	263	268	270	269	282	284	281	283	282	257	240	233	243	229	236	217	231	268.1	
26-Oct	UO	235	247	228	231	244	242	240	93	347	46	80	96	93	90	89	98	113	117	124	119	122	120	126	109.3	
27-Oct	139	194	144	137	190	240	142	110	119	124	123	119	111	108	110	120	122	199	204	75	122	140	243	291	122.8	
28-Oct	292	290	286	UO	UO	UO	UO	UO	UO	UO	UO	UO	289	290	288	290	UO	UO	UO	UO	UO	UO	UO	UO	--	
29-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	75	73	82	67	67	70	86	90	85	78	67	322	52	--
31-Oct	86	85	88	100	104	113	114	119	115	118	117	118	111	118	118	126	129	120	119	126	114	123	118	125	114.9	
266.6 265.7 260.6 268.7 267.1 259.9 266.0 259.7 260.5 258.9 250.9 258.6 263.1 251.3 248.3 236.7 227.5 204.4 214.0 238.4 241.2 242.6 245.3 256.9																										
Diurnal Average																										
C - Calibration UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 10m (WD10) - deg**  
**Surmont 2 - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 108 deg on Oct 5 21:00 Minimum Value: 13 deg on Oct 25 21:00 Percentiles: P <sub>1</sub> = 15 P <sub>10</sub> = 24 Q <sub>1</sub> = 29 Median = 37 Q <sub>3</sub> = 48 P <sub>90</sub> = 65 P <sub>99</sub> = 91																			Hours in Service: 744 Hours of Data: 652 Hours of Missing Data: 92 Hours of Calibration: 3 Percent Operational Time: 88.0							
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-Oct	52	33	27	36	52	29	77	40	49	42	44	49	51	53	32	30	33	43	33	15	61	43	14	15	77	
2-Oct	19	23	32	32	31	32	31	32	36	41	42	37	38	44	45	42	38	38	38	35	38	37	46	49	49	
3-Oct	61	44	40	43	45	45	41	38	42	37	37	45	45	42	40	37	35	29	23	59	44	28	54	84	84	
4-Oct	51	15	35	26	38	82	48	61	31	47	29	23	33	27	32	28	43	57	72	48	62	41	33	50	82	
5-Oct	49	48	53	51	54	52	52	46	51	47	35	43	43	41	50	51	54	52	51	64	108	90	84	89	108	
6-Oct	54	43	31	28	29	29	31	32	33	35	34	34	39	36	35	37	36	33	27	24	62	41	29	52	62	
7-Oct	23	40	49	52	35	29	46	34	33	35	33	43	32	47	59	73	69	53	82	91	86	71	36	36	91	
8-Oct	26	61	68	46	46	30	56	60	40	42	37	37	41	50	48	49	48	74	81	33	31	30	27	25	81	
9-Oct	34	32	42	48	31	33	27	42	49	47	38	45	46	40	42	38	34	28	24	44	80	91	70	56	91	
10-Oct	89	67	70	43	45	67	61	54	66	39	64	46	39	38	38	42	32	30	24	21	21	22	24	24	89	
11-Oct	27	21	73	19	94	59	23	47	57	74	43	35	38	44	47	51	49	73	66	30	26	28	24	20	94	
12-Oct	24	47	35	26	26	30	32	21	25	47	36	50	46	47	48	50	67	27	38	28	13	39	48	30	67	
13-Oct	49	40	46	36	38	33	41	31	32	44	33	39	38	45	49	48	52	52	39	44	47	48	56	43	56	
14-Oct	41	35	36	40	47	47	50	42	43	40	36	45	48	38	33	27	41	48	48	40	46	48	42	60	60	
15-Oct	79	82	48	67	73	45	41	38	32	33	41	40	34	34	33	29	20	17	21	27	42	72	60	31	82	
16-Oct	48	95	84	61	54	65	21	75	41	37	31	24	24	24	21	28	24	18	23	23	30	75	52	70	95	
17-Oct	40	29	36	31	31	28	27	30	30	29	30	34	33	37	37	34	33	31	34	32	31	32	33	28	40	
18-Oct	29	38	30	34	31	29	25	26	24	64	55	60	51	46	39	62	65	54	49	49	52	60	47	59	65	
19-Oct	38	61	50	57	75	91	65	42	28	31	30	33	33	39	38	41	41	65	57	43	39	36	41	36	91	
20-Oct	37	45	42	36	41	44	37	40	46	39	74	65	40	28	19	16	16	20	22	21	22	18	UO	UO	74	
21-Oct	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	--
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	43	47	73	35	28	30	27	24	39	41	27	73
23-Oct	30	31	28	28	34	28	37	29	28	33	31	24	33	29	29	22	23	29	27	29	43	93	96	76	96	
24-Oct	91	23	27	28	29	25	26	25	29	32	31	32	32	32	30	30	27	19	24	25	18	23	25	21	91	
25-Oct	19	34	30	38	38	28	29	27	25	24	25	34	45	29	29	29	20	13	44	38	13	34	41	43	45	
26-Oct	UO	36	41	45	42	21	63	54	70	74	48	35	30	26	31	29	28	18	19	34	23	24	24	44	74	
27-Oct	55	71	46	77	93	50	86	44	30	25	23	22	19	20	17	27	28	74	65	74	90	88	76	28	93	
28-Oct	31	29	32	UO	UO	UO	UO	UO	UO	UO	UO	UO	30	34	31	30	UO	UO	UO	UO	UO	UO	UO	UO	UO	34
29-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	65	34	39	36	31	29	26	29	26	26	30	62	82	82
31-Oct	31	30	26	27	24	17	21	21	19	20	24	23	20	24	24	30	33	24	23	29	15	24	22	29	33	
Diurnal Maximum																										
C - Calibration      UO - Unstable Operation																										



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS30 ELLS RIVER OCTOBER 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
OCTOBER 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	23.4	0	7.3	0
TRS (ppb) Average	708	36	36	100	2	0	0.7	0
THC (ppm) Average	707	35	37	99.73	4.8	-	3.4	-
NMHC (ppm) Average	707	35	37	99.73	1.638	-	0.387	-
CH4 (ppm) Average	707	35	37	99.73	4.2	-	3	-
NO2 (ppb) Average	707	37	37	100	29.4	0	20.2	-
NO (ppb) Average	707	37	37	100	105.4	-	39	-
NOX (ppb) Average	707	37	37	100	123.6	-	59.2	-
PM2.5 (ug/m3) Average	742	2	2	100	19.6	0	8.9	0
Temperature 2 m (C) Average	744	0	0	100	18.6	-	12.1	-
Relative Humidity (%) Average	744	0	0	100	97	-	86	-
Wind Speed 10 m (km/h) Average	735	0	9	98.79	31	-	19	-
Wind Direction 10 m (deg) Average	735	0	9	98.79	-	-	-	-
Global Solar Radiation (W/m2) Average	744	0	0	100	473.5	-	116.6	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
OCTOBER 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	0.61	2.2	-	0	0	0	0.1	0.2	0.9	23.4
TRS (ppb) Average	708	0.42	0.2	-	0.2	0.3	0.3	0.3	0.4	0.6	2
THC (ppm) Average	707	2.22	0.4	-	2	2	2	2.1	2.2	2.5	4.8
NMHC(ppm) Average	707	0.056	0.149	-	0	0	0	0	0	0.2	1.638
CH4(ppm) Average	707	2.16	0.3	-	2	2	2	2.1	2.2	2.3	4.2
NO2 (ppb) Average	707	4.87	6.6	-	0.1	0.2	0.3	1.2	7.2	15.6	29.4
NO (ppb) Average	707	3.67	12.1	-	0	0	0	0.1	1.2	9	105.4
NOX (ppb) Average	707	8.54	16.7	-	0.1	0.2	0.3	1.3	8.7	24.1	123.6
PM2.5 (ug/m3) Average	742	3.36	2.7	-	0.3	0.8	1.5	2.7	4.2	6.8	19.6
Temperature 2 m (C) Average	744	3.09	5.7	-	-9.8	-4.1	-0.8	1.9	6.5	11.6	18.6
Relative Humidity (%) Average	744	69.51	15.5	-	27.7	46.2	60	71.6	81.2	88	97
Wind Speed 10 m (km/h) Average	735	9.7	5	-	0	3	6	9	13	16	31
Wind Direction 10 m (deg) Average	735	253.2	-	-	-	-	-	-	-	-	-
Global Solar Radiation (W/m2) Average	744	62.73	107.2	-	0	0	0	0.1	79.7	253.3	473.5

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	25 Oct 2024 11:00	25 Oct 2024 12:00	2	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction	12 Oct 2024 22:00	12 Oct 2024 22:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	13 Oct 2024 00:00	13 Oct 2024 01:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	19 Oct 2024 02:00	19 Oct 2024 03:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	27 Oct 2024 07:00	27 Oct 2024 08:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	27 Oct 2024 18:00	27 Oct 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	31 Oct 2024 09:00	31 Oct 2024 09:00	1	Flat line in sensor output signal - Sensor frozen

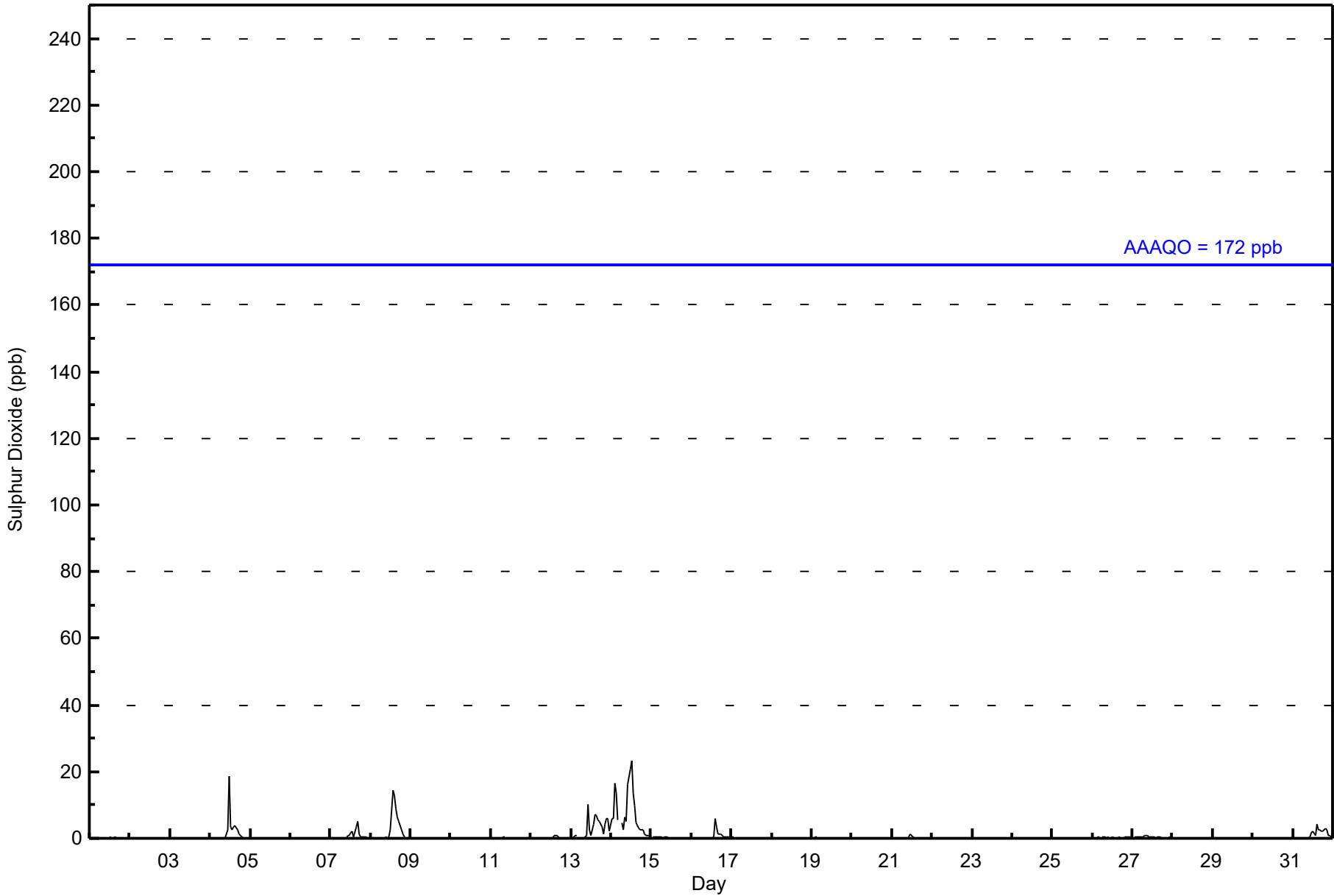






Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Ells River - October 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Ells River - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	700	98.73	98.73
11 - 20	7	0.99	99.72
21 - 60	2	0.28	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 - October 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	78	45	14	6	8	10	18	52	70	101	95	39	43	74	18	20	691
11 - 20	0	0	0	0	0	0	1	3	2	0	0	0	0	0	0	1	7
21 - 60	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
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>	78	45	14	6	8	10	19	55	73	102	95	39	43	74	18	21	700

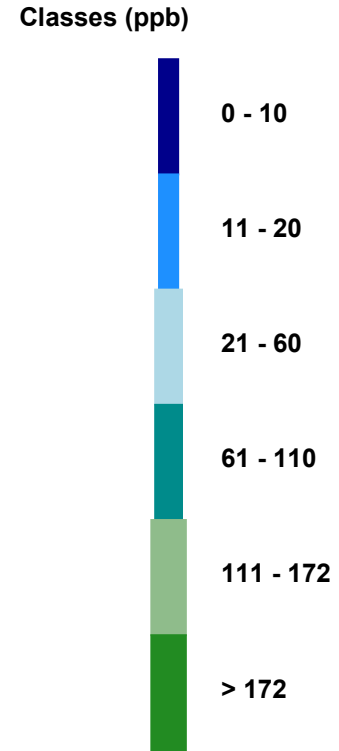
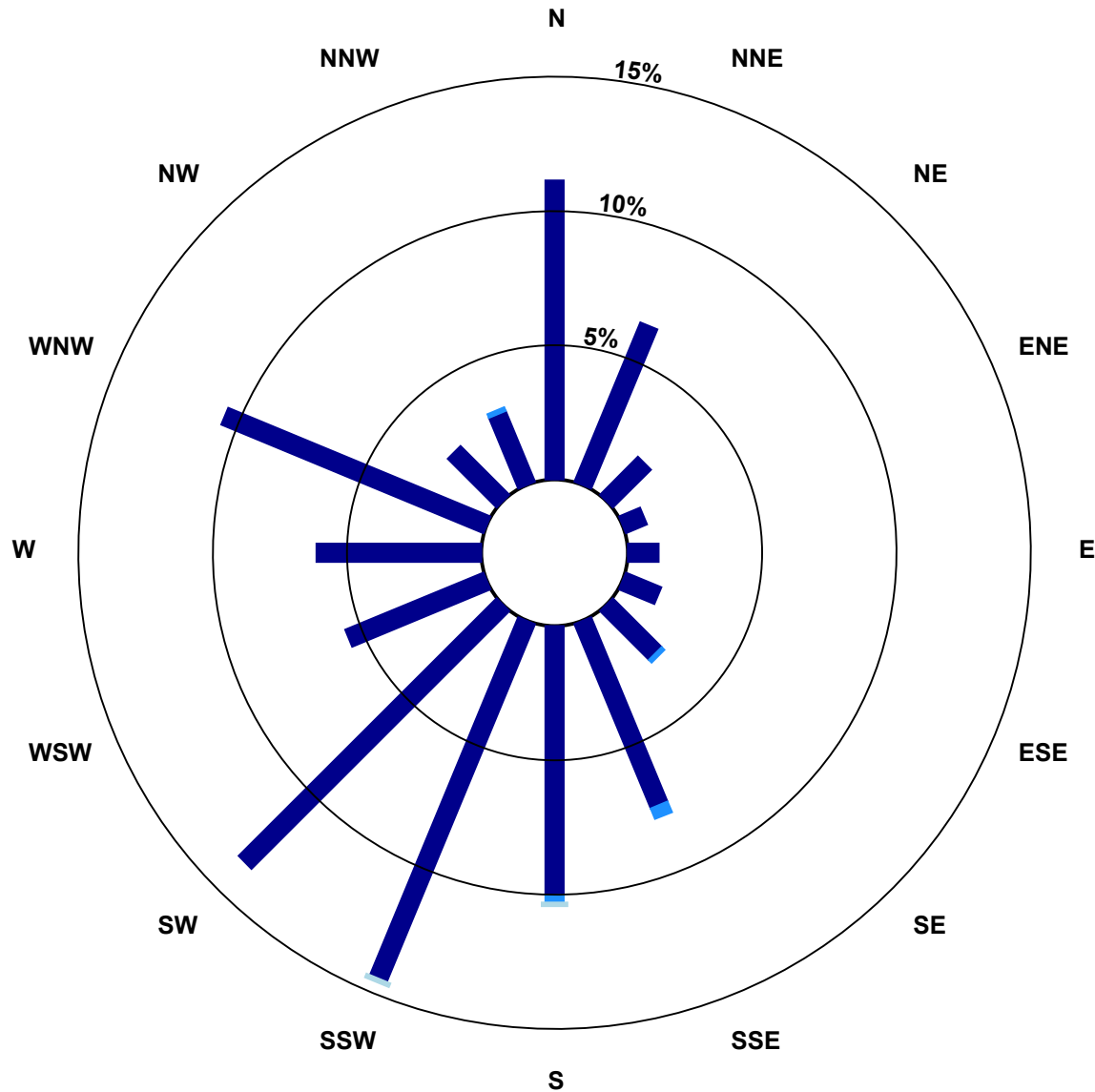
Total Number of Valid Hours: 700

Total Number of Hours: 744

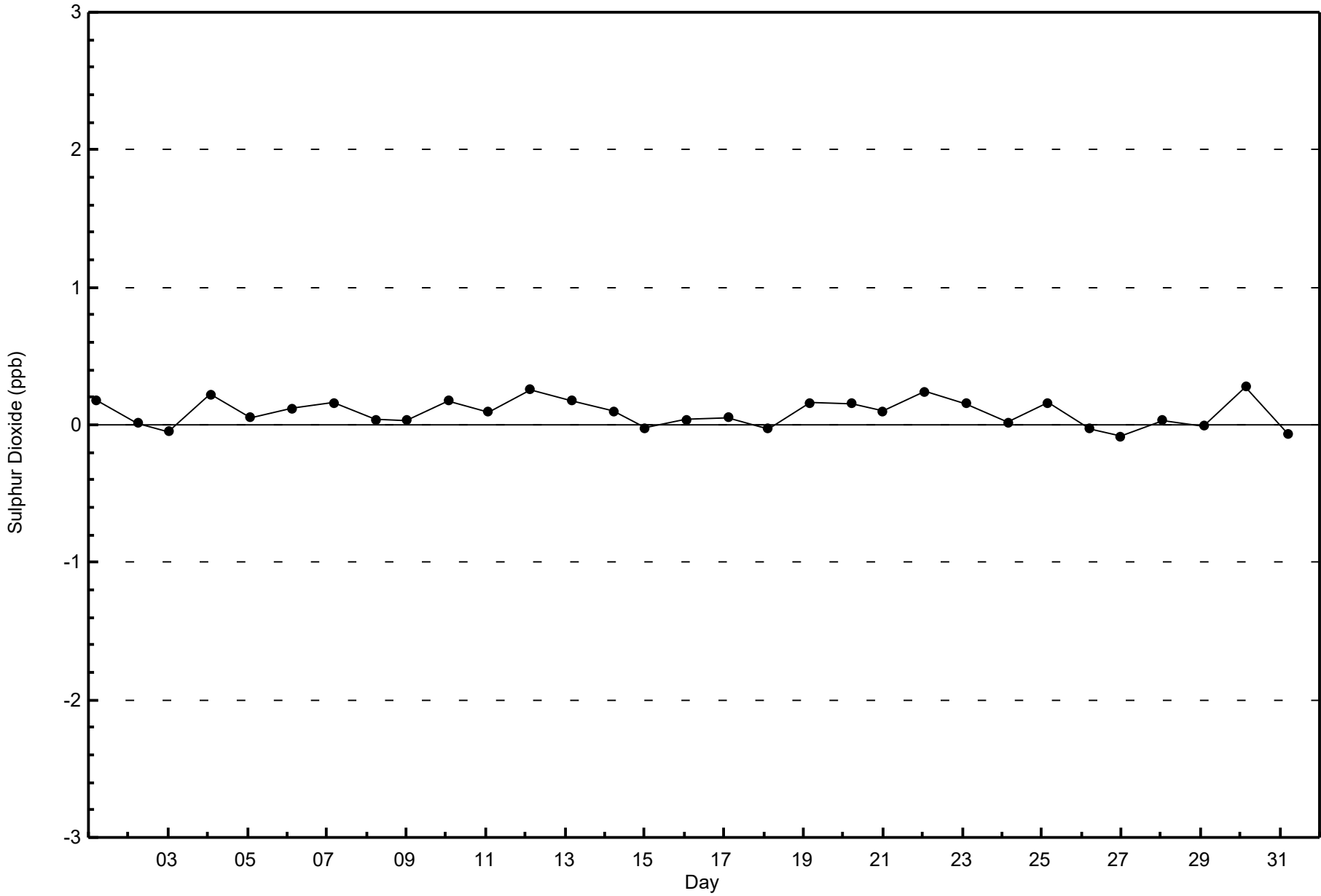


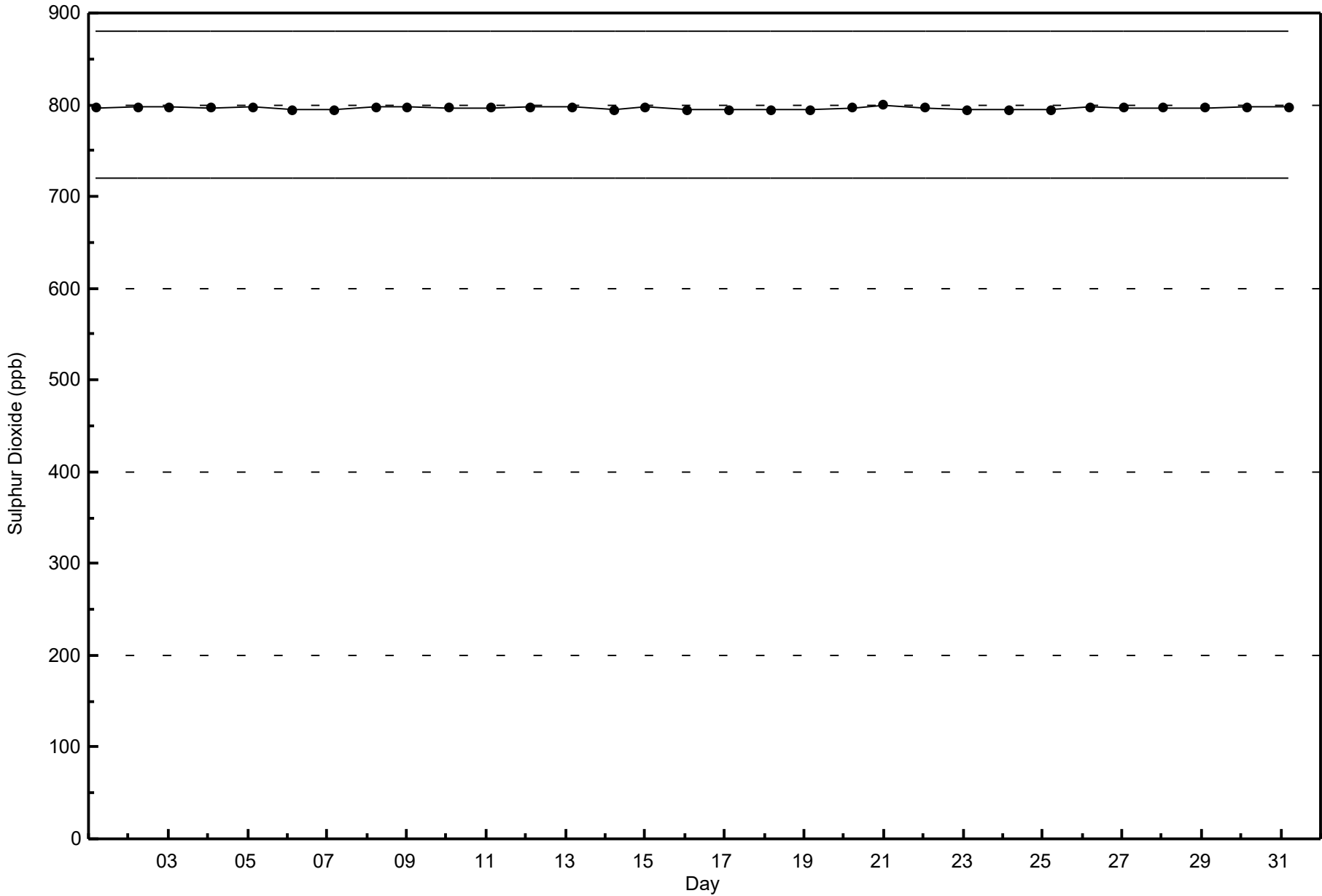
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Ells River

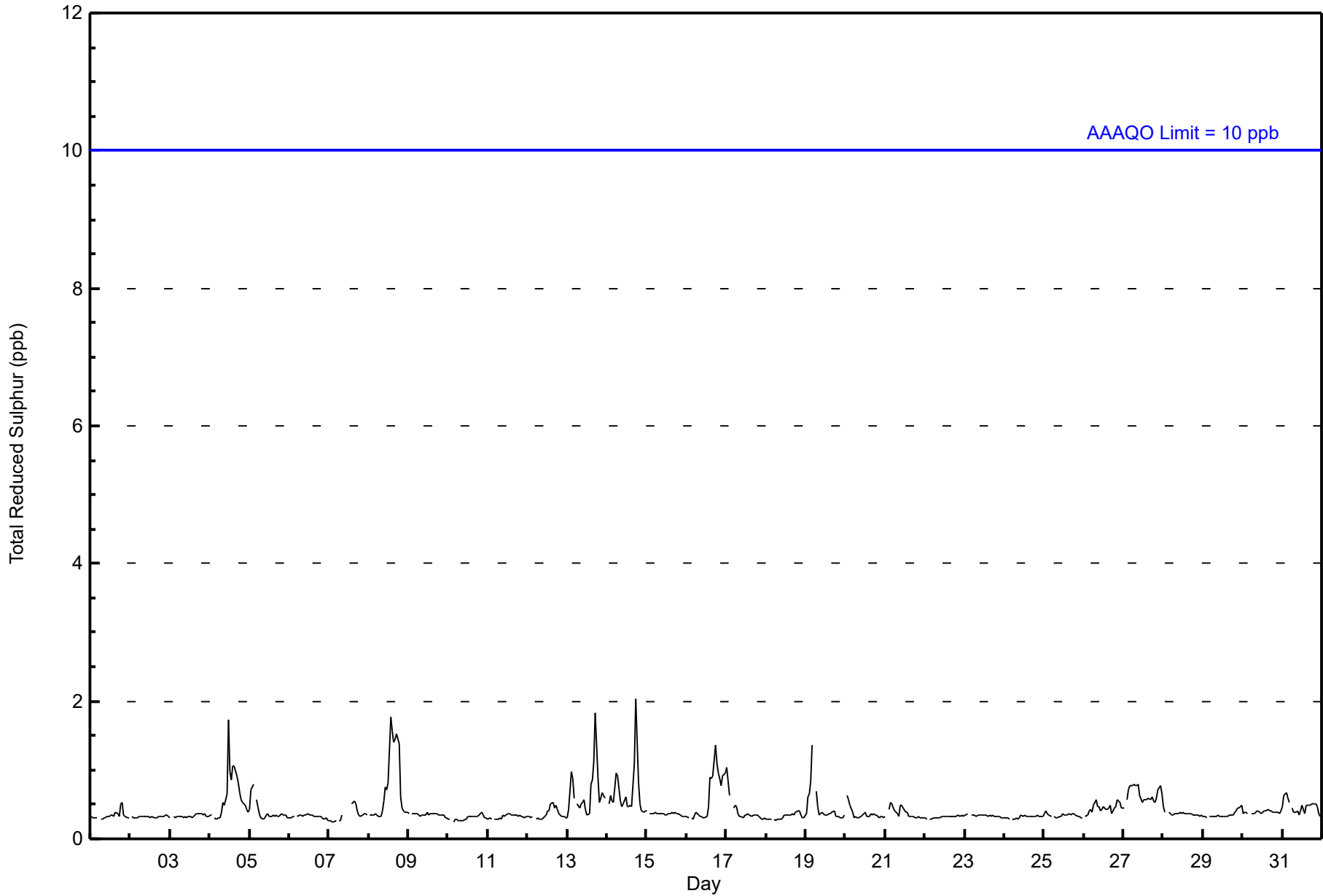


Total Number of Valid Hours: 700













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - October 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**  
**Ells River - October 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	79	45	14	6	8	10	19	55	66	107	93	42	44	71	21	19	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>	79	45	14	6	8	10	19	55	66	107	93	42	44	71	21	19	699

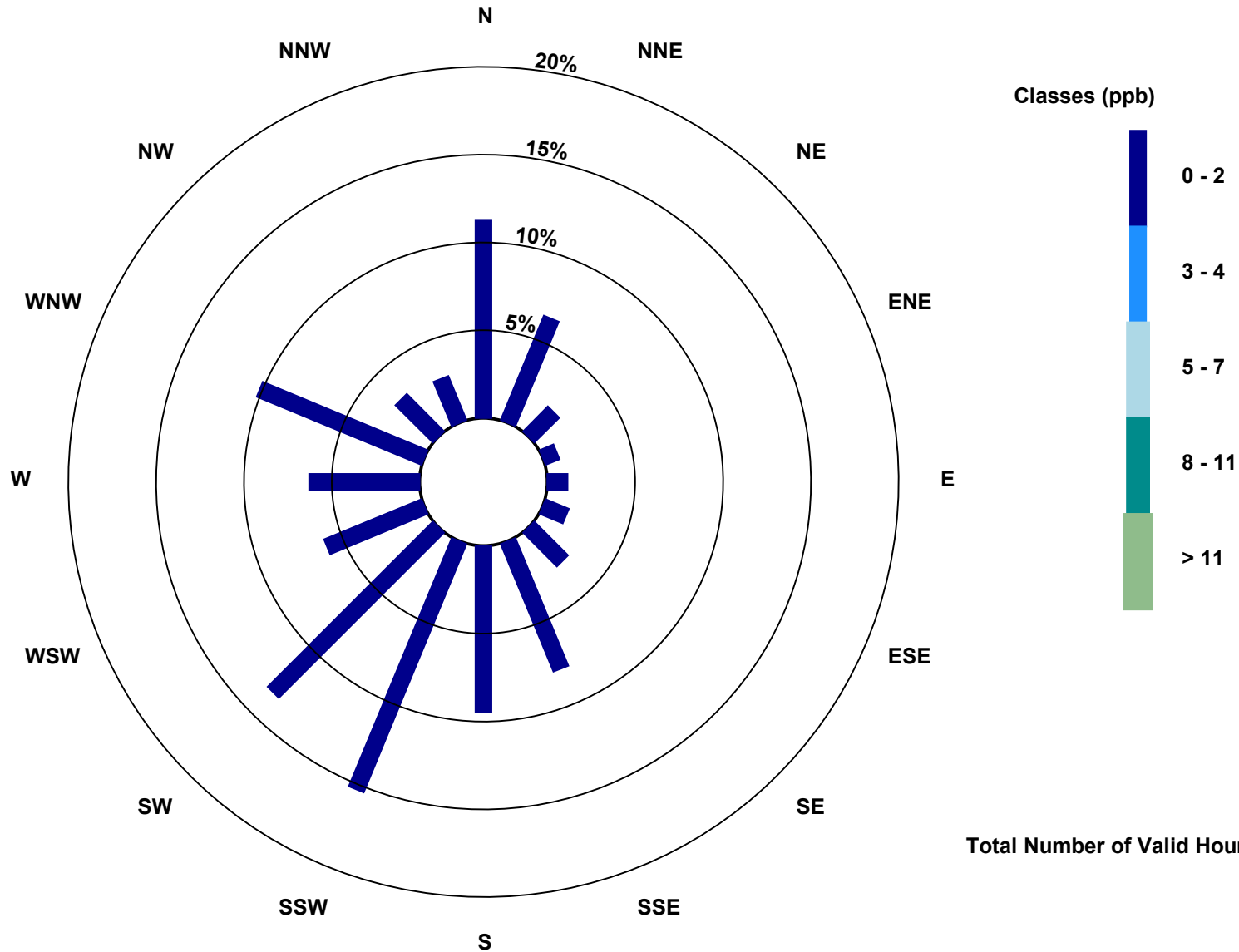
Total Number of Valid Hours: 699

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Reduced Sulphur (TRS) - ppb  
Ells River

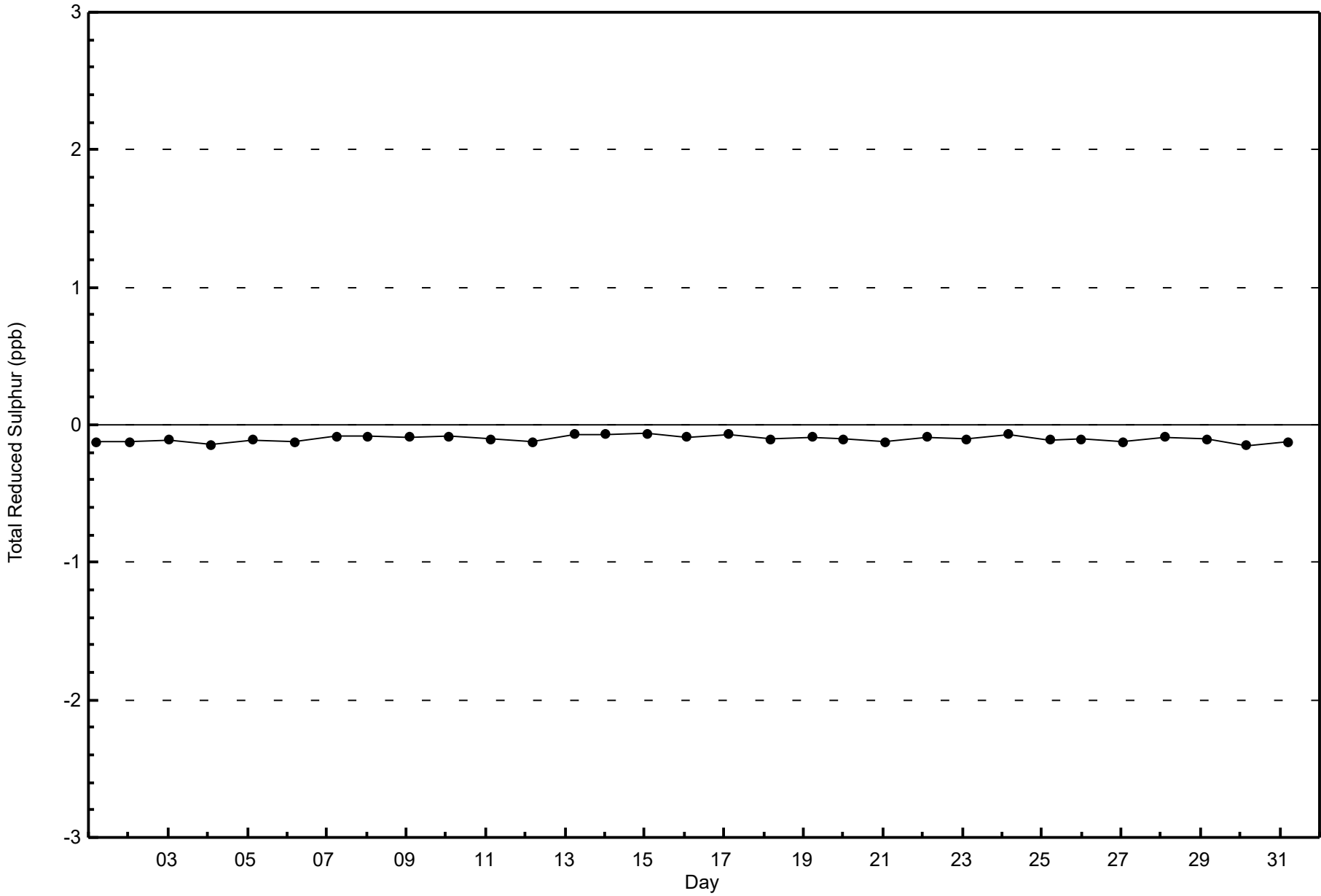


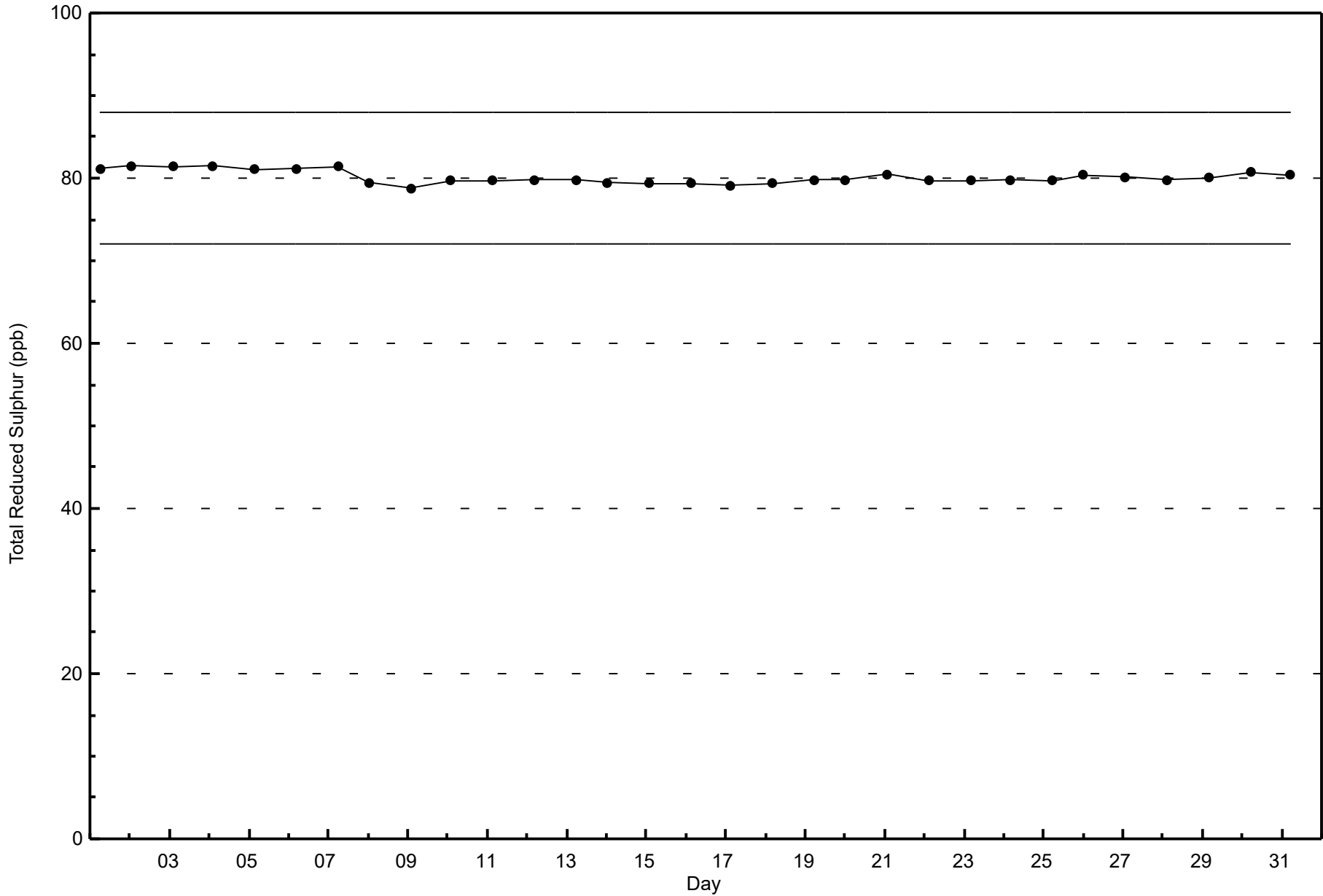
Total Number of Valid Hours: 699



**Wood Buffalo Environmental Association**  
**Zero Responses**

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - October 2024**







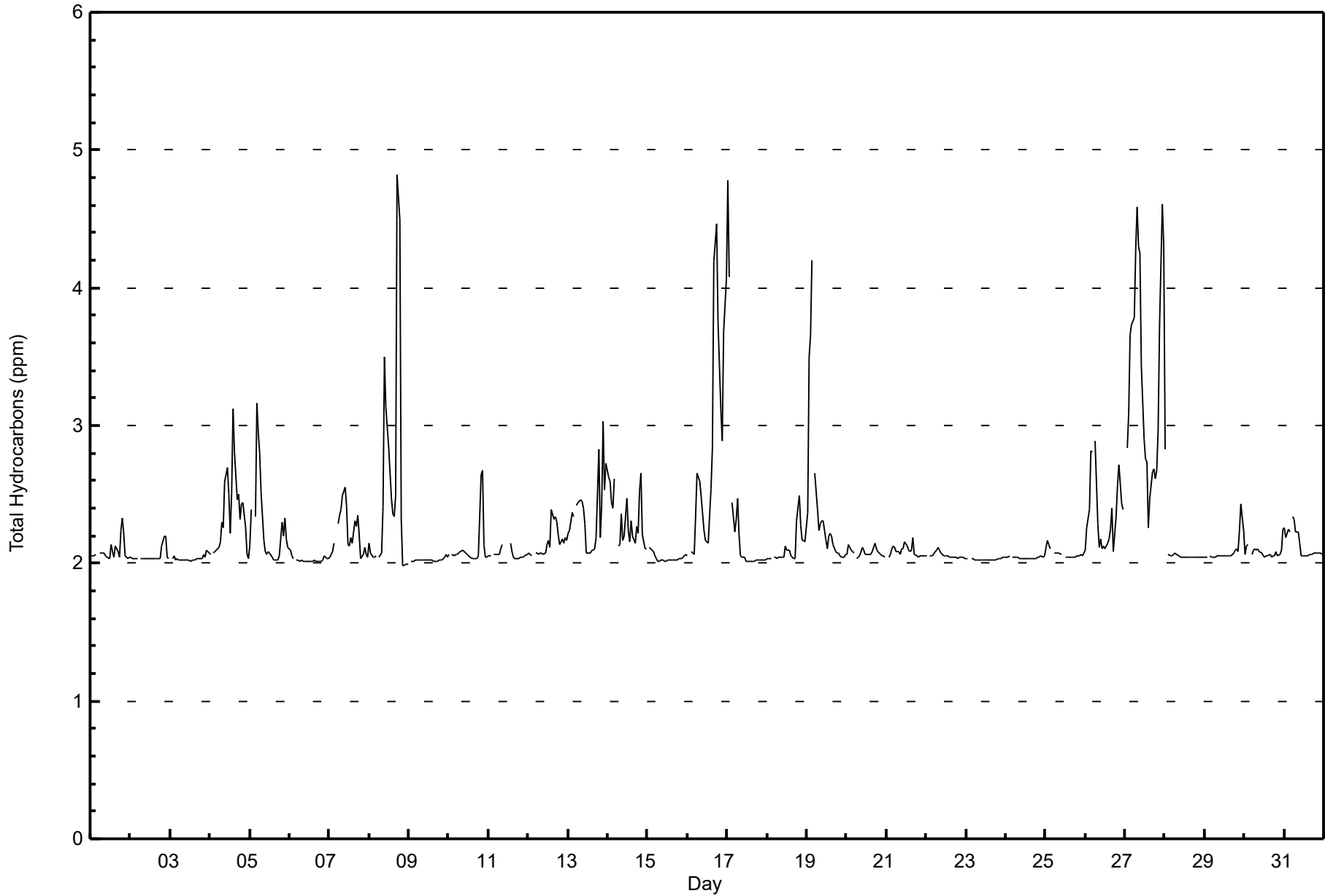
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Ells River - October 2024

Maximum Value: 4.8 ppm on Oct 8 18:00																				Maximum Daily Average: 3.4 ppm on Oct 27					Hours in Service: 744				
Minimum Value: 2.0 ppm on Oct 8 21:00																				Minimum Daily Average: 2.0 ppm on Oct 9					Hours of Data: 707				
Maximum Diurnal Average: 2.3 ppm at hour 4																				Minimum Diurnal Average: 2.1 ppm at hour 13					Hours of Missing Data: 37				
Monthly Average: 2.22 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> = 2.5 P <sub>99</sub> = 4.3					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-Oct	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.2	2.3	2.2	2.1	2.0	2.0	2.1	2.3			
2-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.0	2.0	2.1	2.2			
3-Oct	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.1			
4-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.6	2.7	2.5	2.2	2.5	3.1	2.8	2.5	2.5	2.3	2.4	2.4	2.3	2.1	2.0	2.4	3.1			
5-Oct	2.1	2.4	Z	2.3	3.2	3.0	2.8	2.5	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.2	2.3	2.2	2.1	2.3	3.2			
6-Oct	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1			
7-Oct	2.0	2.1	2.1	2.1	Z	2.3	2.4	2.4	2.5	2.6	2.4	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.0	2.1	2.1	2.1	2.0	2.2	2.6			
8-Oct	2.2	2.1	2.0	2.0	2.1	Z	2.0	2.1	2.4	3.5	3.1	3.0	2.8	2.5	2.4	2.3	2.5	4.8	4.5	2.3	2.0	2.0	2.0	2.0	2.5	4.8			
9-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1			
10-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.6	2.7	2.1	2.0	2.0	2.1	2.7			
11-Oct	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	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			
12-Oct	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.4	2.3	2.3	2.3	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.4			
13-Oct	2.2	2.2	2.4	2.3	Z	2.4	2.4	2.5	2.4	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.8	2.2	2.4	3.0	2.5	2.7	2.3	3.0			
14-Oct	2.6	2.6	2.4	2.4	2.6	Z	2.1	2.1	2.4	2.2	2.2	2.5	2.2	2.2	2.3	2.2	2.1	2.3	2.2	2.5	2.7	2.2	2.1	2.1	2.3	2.7			
15-Oct	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	2.1	2.1	2.1	2.1	2.1			
16-Oct	2.1	Z	2.1	2.1	2.1	2.3	2.7	2.6	2.5	2.4	2.2	2.2	2.1	2.4	2.5	2.8	4.2	4.5	3.8	3.4	3.1	2.9	3.7	4.1	2.8	4.5			
17-Oct	4.8	4.1	Z	2.4	2.2	2.3	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	4.8		
18-Oct	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	2.1	2.0	2.0	2.0	2.3	2.5	2.3	2.2	2.2	2.2	2.1	2.5			
19-Oct	2.4	3.5	3.6	4.2	Z	2.7	2.4	2.2	2.3	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.4	4.2			
20-Oct	2.1	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1			
21-Oct	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2			
22-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1			
23-Oct	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			
24-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1			
25-Oct	2.1	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2			
26-Oct	2.1	2.3	2.4	2.8	2.8	Z	2.9	2.3	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.1	2.3	2.6	2.7	2.6	2.4	2.4	2.4	2.9			
27-Oct	Z	2.8	3.1	3.7	3.7	3.8	4.3	4.6	4.3	4.2	3.4	2.9	2.8	2.7	2.3	2.5	2.7	2.7	2.6	2.7	3.0	3.7	4.6	4.3	3.4	4.6			
28-Oct	2.8	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.8			
29-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	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	2.4	2.2	2.1	2.4			
30-Oct	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	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2			
31-Oct	2.3	2.2	2.2	2.2	Z	2.3	2.3	2.2	2.2	2.2	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	2.3			
2.2 2.3 2.2 2.3 2.2 2.2 2.3 2.2 2.2 2.3 2.2 2.2 2.1 2.1 2.1 2.2 2.2 2.3 2.3 2.2 2.2 2.2 2.2 2.2 2.2 2.2																								Diurnal Average					
4.8 4.1 3.6 4.2 3.7 3.8 4.3 4.6 4.3 4.2 3.4 3.0 2.8 2.7 3.1 2.8 4.2 4.8 4.5 3.4 3.1 3.7 4.6 4.3																								Diurnal Maximum					
Z - zerospan C - Calibration M - Maintenance																													





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Ells River - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	261	36.92	36.92
2.1 - 3.0	416	58.84	95.76
3.1 - 10.0	30	4.24	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**

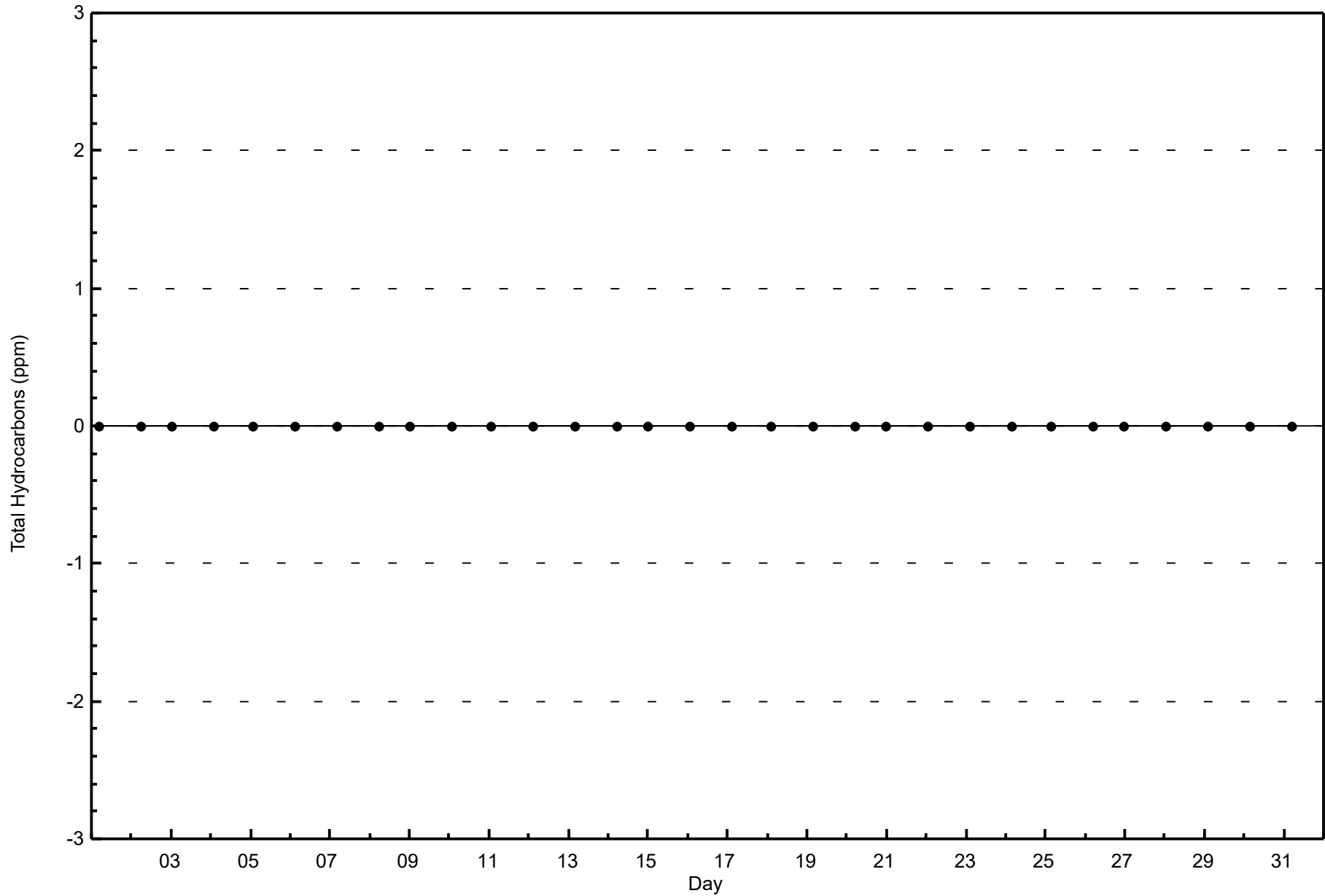
**Total Hydrocarbons (THC) - ppm**  
**Ells River - October 2024**

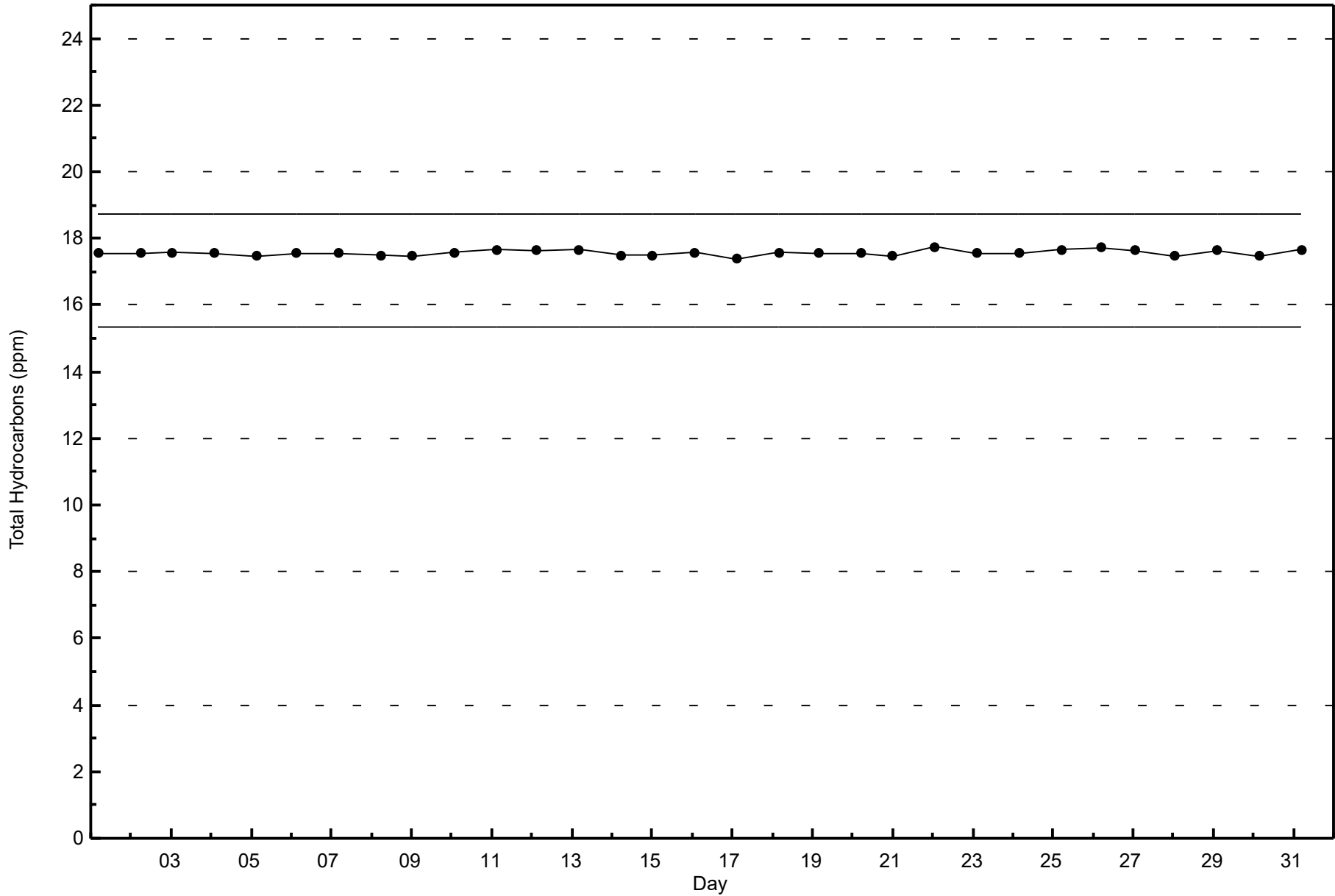
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	8	5	1	0	0	0	1	3	15	58	62	25	28	48	6	1	261
2.1 - 3.0	66	40	13	6	7	10	17	51	58	41	32	14	15	20	7	14	411
3.1 - 10.0	4	0	0	0	0	0	1	1	0	2	1	0	0	6	5	6	26
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	78	45	14	6	7	10	19	55	73	101	95	39	43	74	18	21	698

Total Number of Valid Hours: 698

Total Number of Hours: 744





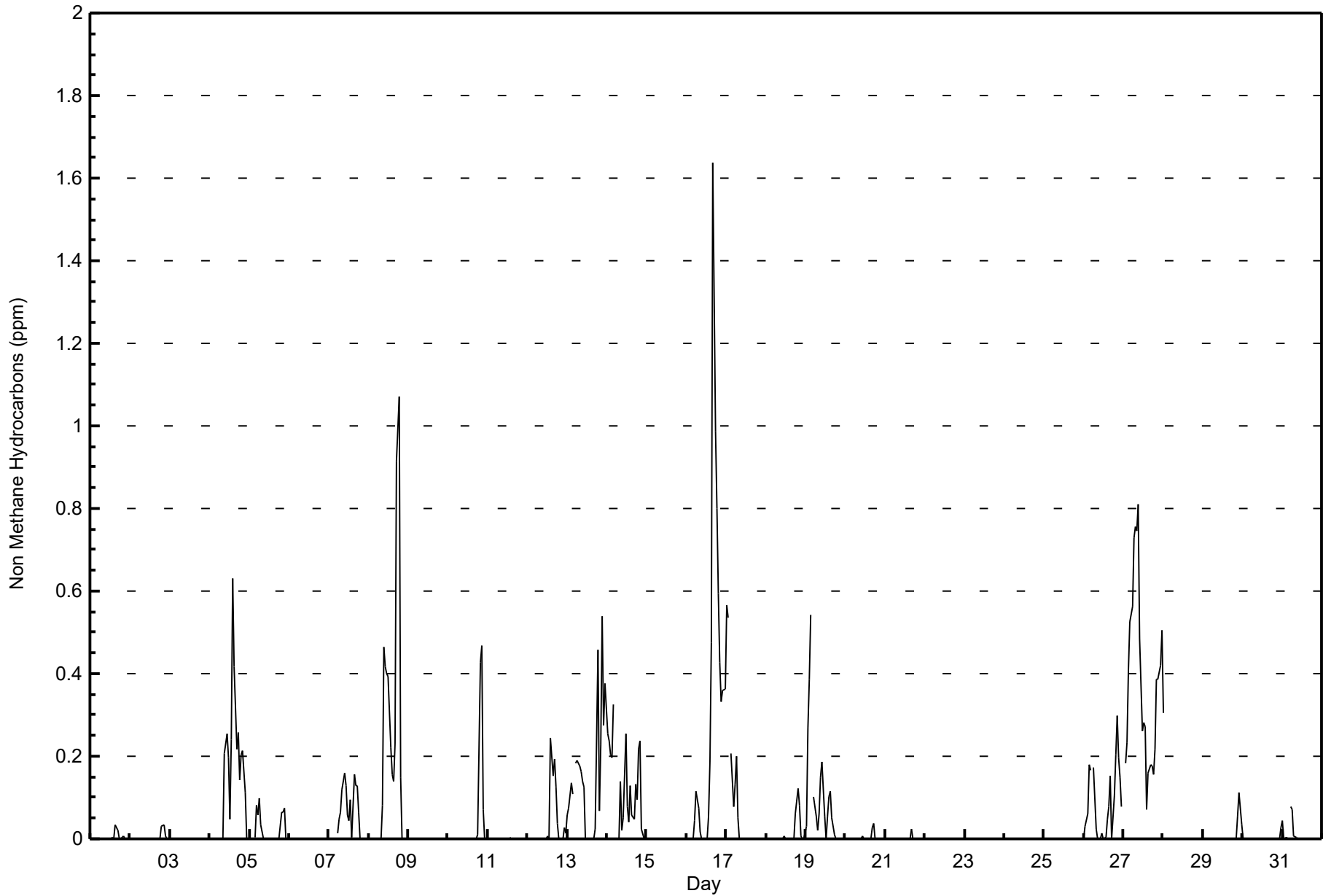




Summary of Hour Averages

Ells River - October 2024

Maximum Value: 1.638 ppm on Oct 16 17:00		Maximum Daily Average: 0.387 ppm on Oct 27		Hours in Service: 744																											
Minimum Value: 0.000 ppm on Oct 1 01:00		Minimum Daily Average: 0.000 ppm on Oct 6		Hours of Data: 707																											
Maximum Diurnal Average: 0.097 ppm at hour 19		Minimum Diurnal Average: 0.028 ppm at hour 13		Hours of Missing Data: 37																											
Monthly Average: 0.056 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.7		Hours of Calibration: 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-Oct	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	0.003	0.000	0.033	0.020	0.000	0.000	0.003	0.008	0.000	0.000	0.000	0.003	0.003	0.033				
2-Oct	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	0.032	0.034	0.008	0.000	0.000	0.003	0.034	0.034				
3-Oct	Z	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001				
4-Oct	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.207	0.253	0.195	0.049	0.242	0.630	0.418	0.218	0.259	0.141	0.205	0.212	0.111	0.000	0.000	0.137	0.630					
5-Oct	0.000	0.000	Z	0.003	0.082	0.057	0.097	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.066	0.074	0.001	0.000	0.021	0.097	0.097					
6-Oct	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					
7-Oct	0.000	0.000	0.000	0.000	Z	0.015	0.047	0.064	0.119	0.159	0.129	0.058	0.046	0.094	0.002	0.157	0.129	0.129	0.064	0.000	0.000	0.000	0.000	0.000	0.053	0.159					
8-Oct	0.001	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.080	0.465	0.417	0.401	0.392	0.221	0.157	0.137	0.230	0.916	1.072	0.149	0.000	0.000	0.000	0.000	0.202	1.072					
9-Oct	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000					
10-Oct	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	0.012	0.426	0.469	0.070	0.000	0.042	0.469						
11-Oct	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	C	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					
12-Oct	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.008	0.000	0.243	0.154	0.193	0.126	0.039	0.001	0.000	0.001	0.028	0.012	0.035	0.243						
13-Oct	0.058	0.074	0.137	0.110	Z	0.184	0.188	0.177	0.163	0.139	0.125	0.000	0.000	0.000	0.000	0.000	0.023	0.457	0.067	0.226	0.540	0.275	0.378	0.144	0.540						
14-Oct	0.253	0.236	0.203	0.196	0.324	Z	0.000	0.000	0.141	0.021	0.051	0.253	0.079	0.039	0.127	0.059	0.048	0.131	0.093	0.217	0.239	0.024	0.000	0.119	0.324						
15-Oct	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000					
16-Oct	0.000	Z	0.000	0.000	0.000	0.044	0.116	0.074	0.018	0.000	0.000	0.000	0.000	0.054	0.185	0.475	1.638	0.986	0.799	0.594	0.427	0.331	0.359	0.281	1.638						
17-Oct	0.565	0.534	Z	0.208	0.079	0.133	0.198	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.565						
18-Oct	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.123	0.082	0.005	0.000	0.012	0.123						
19-Oct	0.030	0.267	0.385	0.544	Z	0.103	0.054	0.019	0.061	0.150	0.185	0.055	0.000	0.055	0.100	0.117	0.051	0.012	0.000	0.000	0.000	0.000	0.000	0.095	0.544						
20-Oct	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.027	0.037	0.000	0.000	0.000	0.000	0.000	0.003	0.037						
21-Oct	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	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.024						
22-Oct	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					
23-Oct	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					
24-Oct	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					
25-Oct	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000					
26-Oct	0.000	0.030	0.061	0.180	0.166	Z	0.174	0.025	0.000	0.000	0.014	0.000	0.002	0.048	0.078	0.154	0.000	0.105	0.204	0.298	0.197	0.149	0.078	0.085	0.298						
27-Oct	Z	0.184	0.234	0.405	0.526	0.564	0.729	0.757	0.745	0.810	0.485	0.261	0.281	0.271	0.072	0.159	0.178	0.177	0.156	0.218	0.386	0.387	0.422	0.387	0.810						
28-Oct	0.306	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	0.013	0.306						
29-Oct	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	0.056	0.111	0.009	0.111						
30-Oct	0.000	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.027						
31-Oct	0.044	0.000	0.005	0.000	Z	0.078	0.072	0.008	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.078						
		0.048	0.051	0.039	0.063	0.047	0.045	0.054	0.039	0.043	0.065	0.057	0.043	0.028	0.032	0.050	0.058	0.094	0.090	0.097	0.074	0.079	0.058	0.043	0.045	Diurnal Average					
		0.565	0.534	0.385	0.544	0.526	0.564	0.729	0.757	0.745	0.810	0.485	0.401	0.392	0.271	0.630	0.475	1.638	0.986	1.072	0.594	0.469	0.540	0.422	0.506	Diurnal Maximum					
Z - zerospan		C - Calibration			M - Maintenance																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Ells River - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	514	72.70	72.70
0.006 - 0.05	44	6.22	78.93
0.06 - 0.1	57	8.06	86.99
> 0.1	92	13.01	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Ells River - October 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	49	24	8	3	3	8	12	22	53	94	87	35	38	65	8	3	512
0.006 - 0.05	7	8	2	0	1	1	1	5	5	1	2	1	2	2	1	4	43
0.06 - 0.1	7	5	3	1	1	0	3	15	9	4	2	2	2	0	1	1	56
> 0.1	15	8	1	2	2	1	3	13	6	2	4	1	1	7	8	13	87
<b>Totals</b>	78	45	14	6	7	10	19	55	73	101	95	39	43	74	18	21	698

Total Number of Valid Hours: 698

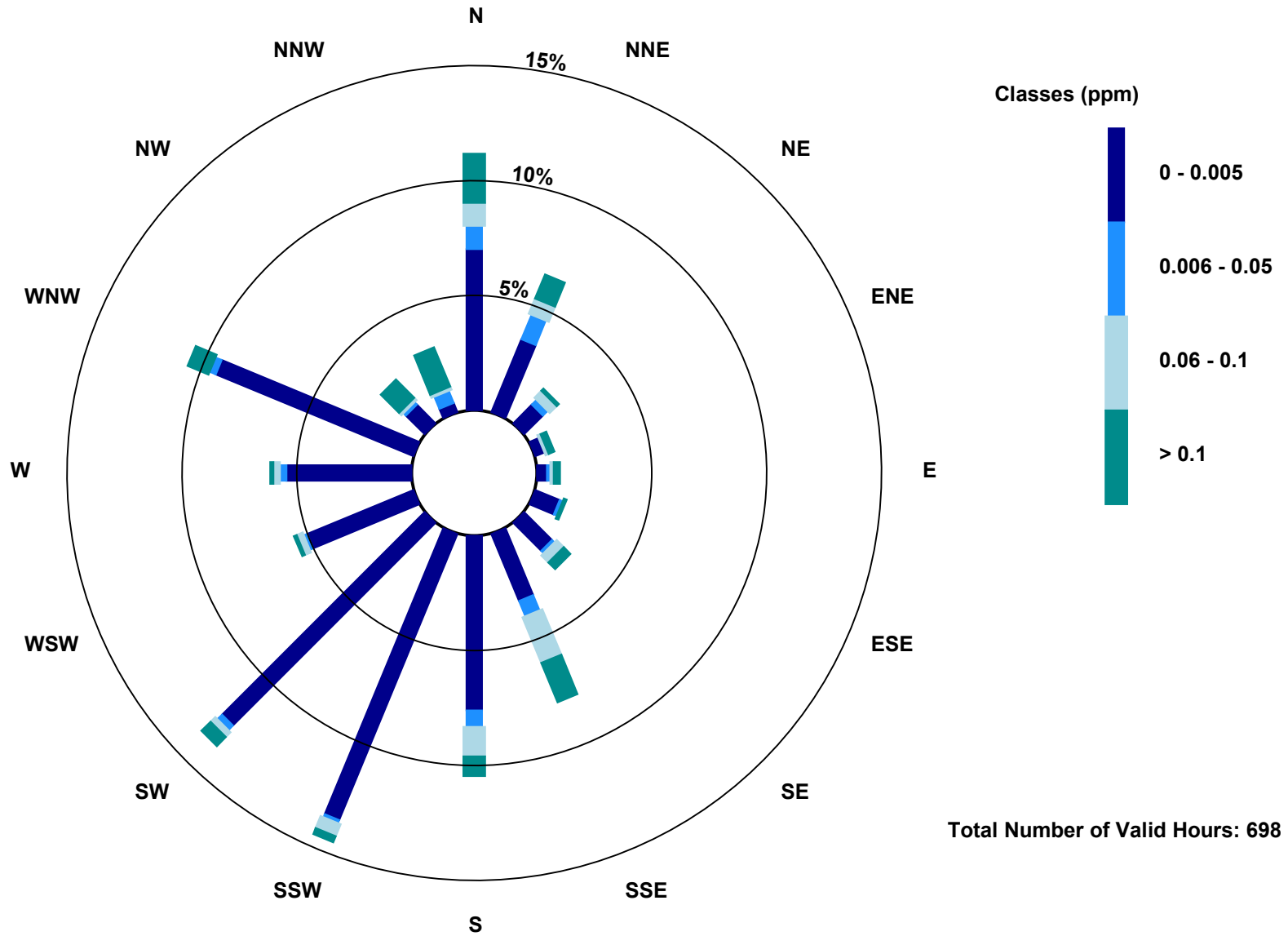
Total Number of Hours: 744

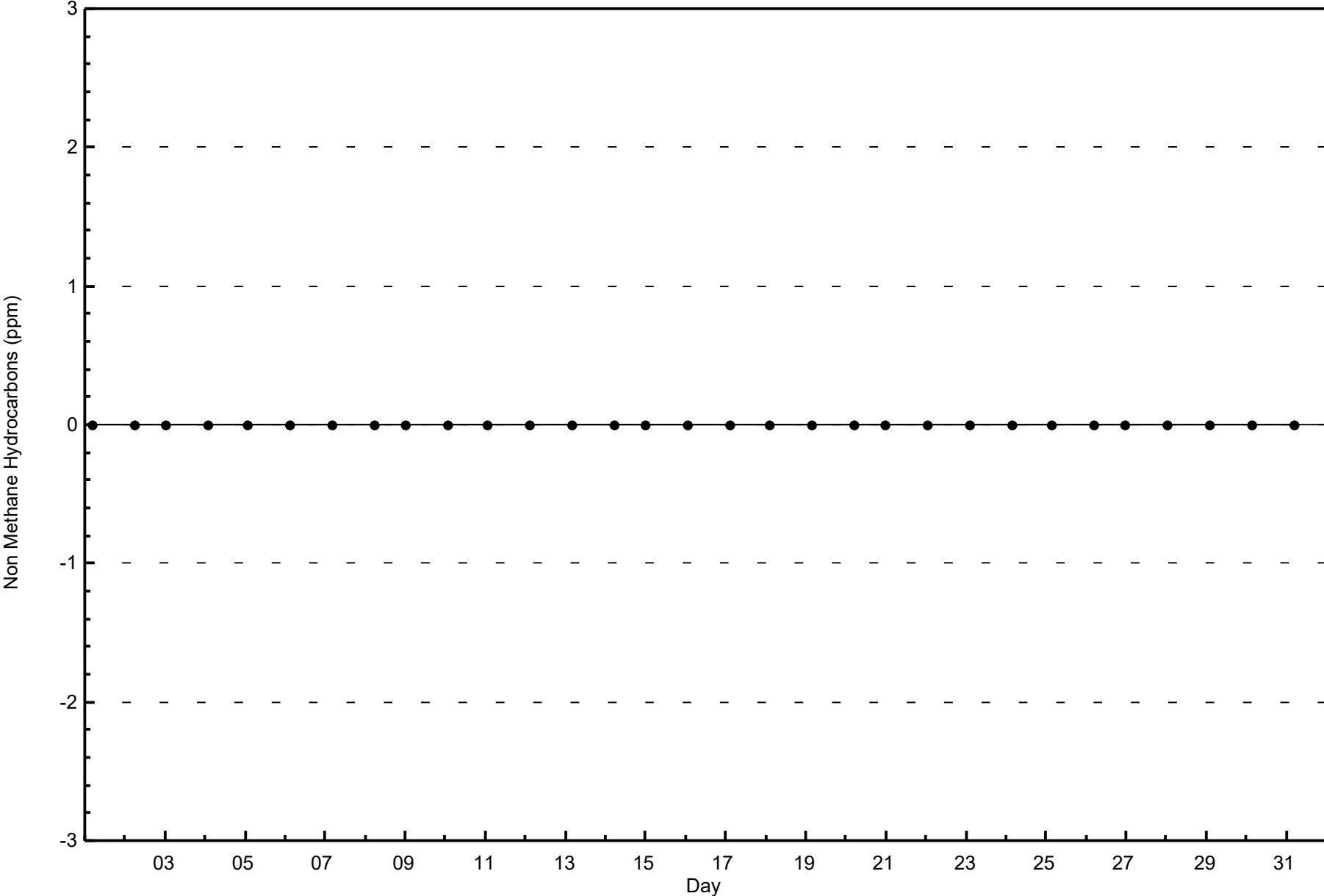


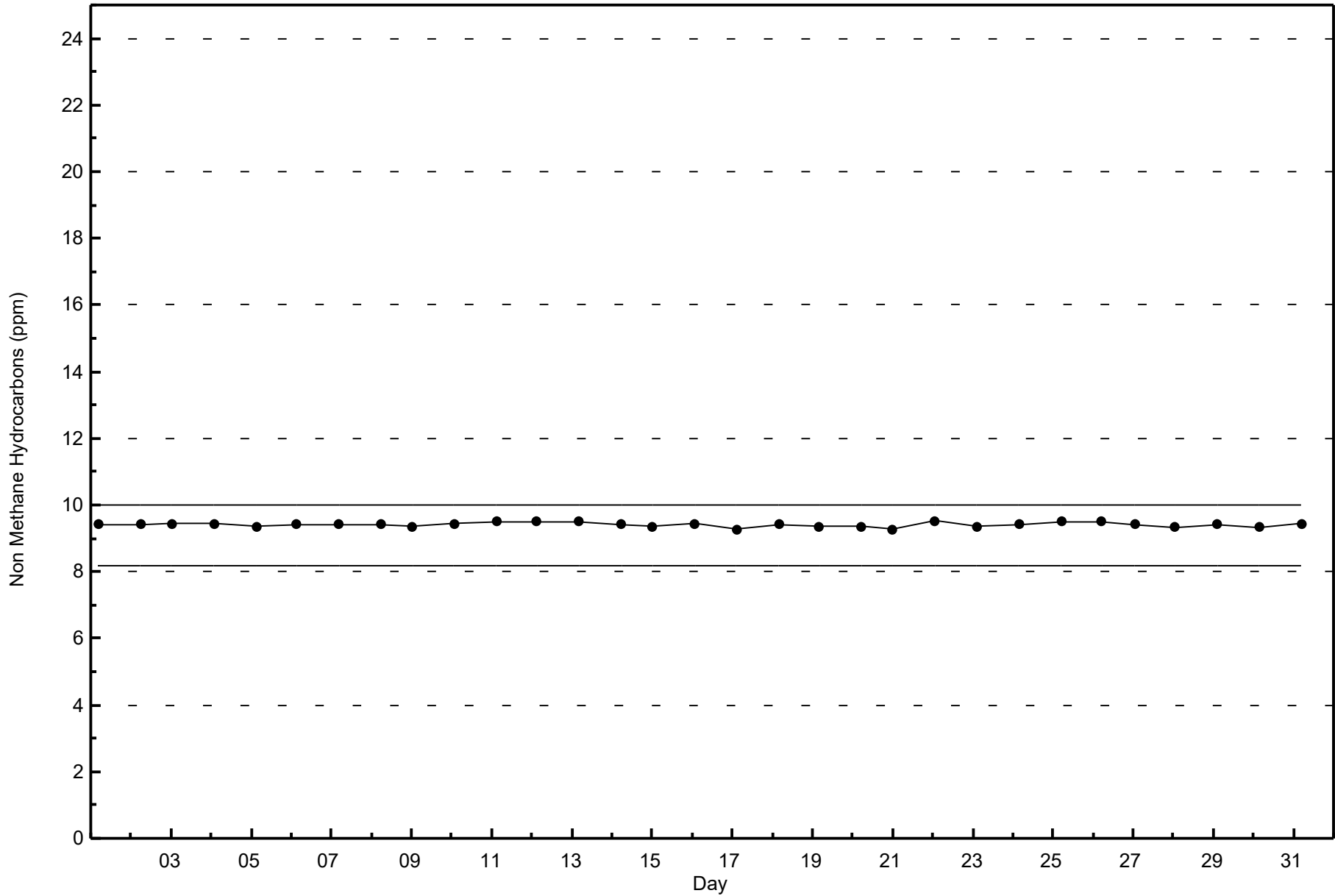


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Ells River









# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Methane (CH<sub>4</sub>) - ppm

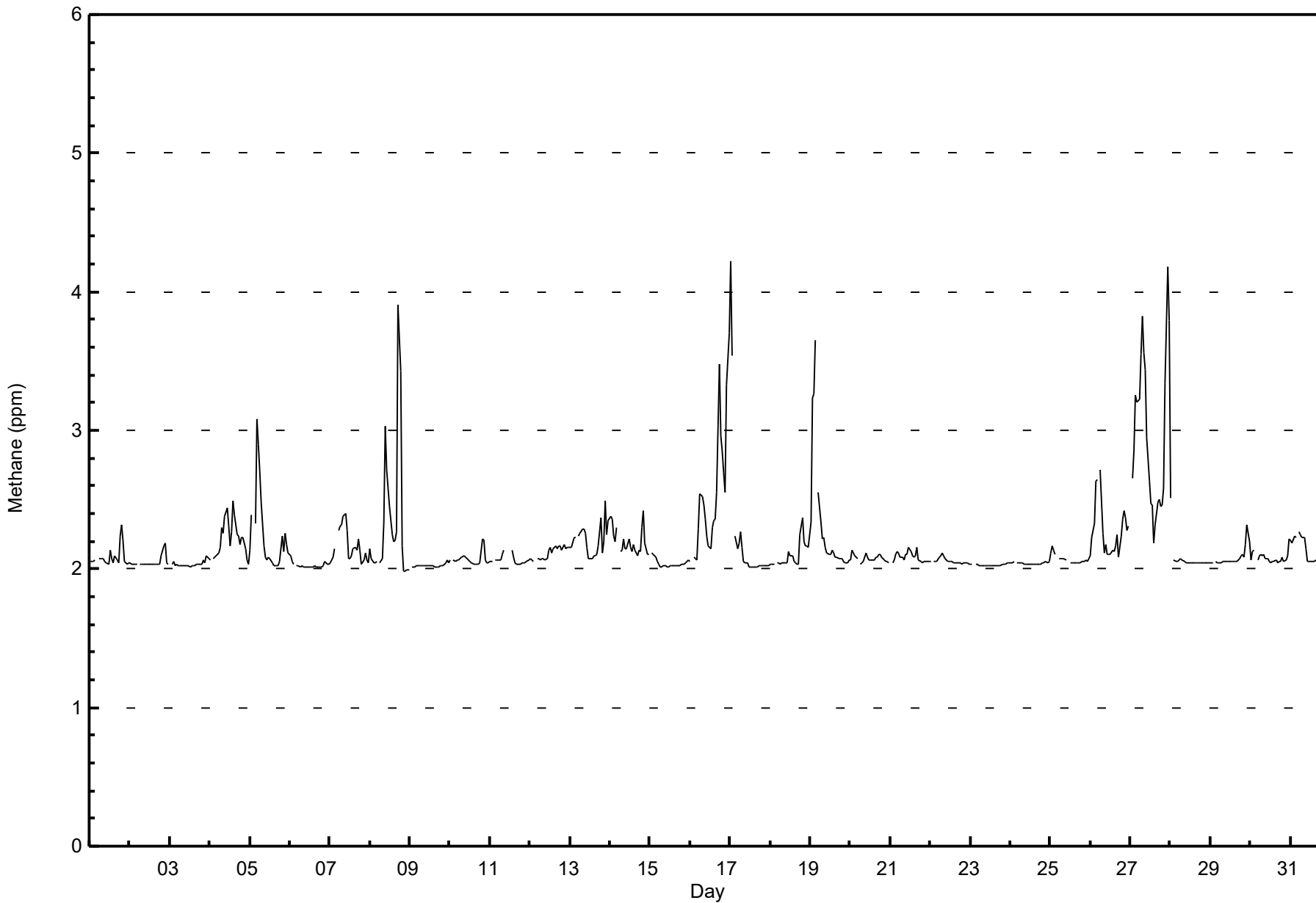
## Ells River - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																																										
Maximum Value: 4.2 ppm on Oct 17 01:00		Maximum Daily Average: 3.0 ppm on Oct 27		Hours of Data: 707																																												
Minimum Value: 2.0 ppm on Oct 8 21:00		Minimum Daily Average: 2.0 ppm on Oct 9		Hours of Missing Data: 37																																												
Maximum Diurnal Average: 2.2 ppm at hour 2		Minimum Diurnal Average: 2.1 ppm at hour 15		Hours of Calibration: 35																																												
Monthly Average: 2.16 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> = 3.6		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-Oct	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.2	2.3	2.2	2.1	2.0	2.0	2.1	2.3																						
2-Oct	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.0	2.0	2.0	2.2																						
3-Oct	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.1	2.1																						
4-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.4	2.3	2.2	2.3	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.2																						
5-Oct	2.1	2.4	Z	2.3	3.1	2.9	2.7	2.5	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.3	2.2	2.1	2.1	3.1																						
6-Oct	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1																						
7-Oct	2.0	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.4																						
8-Oct	2.1	2.1	2.0	2.0	2.1	Z	2.0	2.1	2.3	3.0	2.7	2.6	2.5	2.2	2.2	2.2	2.3	3.9	3.4	2.2	2.0	2.0	2.0	2.0	2.0	3.9																						
9-Oct	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1																						
10-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.0	2.0	2.1	2.2																						
11-Oct	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1																						
12-Oct	2.1	2.1	2.1	Z	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	2.2	2.1	2.2	2.1	2.2	2.2	2.1	2.2																						
13-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.1	2.2	2.5	2.3	2.3	2.2	2.5																						
14-Oct	2.4	2.4	2.2	2.2	2.3	Z	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.3	2.4	2.2	2.1	2.1	2.1	2.4																						
15-Oct	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	2.1	2.1	2.1	2.1	2.1																						
16-Oct	2.1	Z	2.1	2.1	2.1	2.3	2.5	2.5	2.5	2.4	2.2	2.2	2.1	2.3	2.4	2.4	2.6	3.5	3.0	2.8	2.7	2.6	3.3	3.7	2.5	3.7																						
17-Oct	4.2	3.5	Z	2.2	2.1	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	2.0	2.0	2.0	2.0	4.2																						
18-Oct	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	2.1	2.0	2.0	2.0	2.2	2.4	2.2	2.2	2.2	2.2	2.1	2.4																						
19-Oct	2.3	3.2	3.3	3.7	Z	2.5	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	2.0	2.0	2.1	2.3	3.7																						
20-Oct	2.1	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1																						
21-Oct	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2																						
22-Oct	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
23-Oct	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																						
24-Oct	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1																						
25-Oct	2.1	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
26-Oct	2.1	2.2	2.3	2.6	2.6	Z	2.7	2.3	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.4	2.4	2.4	2.3	2.3	2.3	2.7																						
27-Oct	Z	2.7	2.9	3.3	3.2	3.2	3.5	3.8	3.6	3.4	3.0	2.6	2.5	2.5	2.2	2.3	2.5	2.5	2.5	2.5	2.6	3.3	4.2	3.8	3.0	4.2																						
28-Oct	2.5	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5																						
29-Oct	2.0	2.0	Z	2.0	2.0	2.0	2.0	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	2.3	2.2	2.1	2.3																						
30-Oct	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	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
31-Oct	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.2	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	2.3																						
																								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	2.2	2.2	2.2	2.1	2.2	2.2	2.2	Diurnal Average
																								4.2	3.5	3.3	3.7	3.2	3.2	3.5	3.8	3.6	3.4	3.0	2.6	2.5	2.5	2.4	2.6	3.9	3.4	2.8	2.7	3.3	4.2	3.8	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - October 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	262	37.06	37.06
2.1 - 3.0	424	59.97	97.03
3.1 - 10.0	21	2.97	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**  
**Ells River - October 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	5	1	0	0	0	1	3	15	58	62	25	28	49	6	1	262
2.1 - 3.0	69	40	13	6	7	10	18	52	58	41	32	14	15	20	7	17	419
3.1 - 10.0	1	0	0	0	0	0	0	0	0	2	1	0	0	5	5	3	17
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	78	45	14	6	7	10	19	55	73	101	95	39	43	74	18	21	698

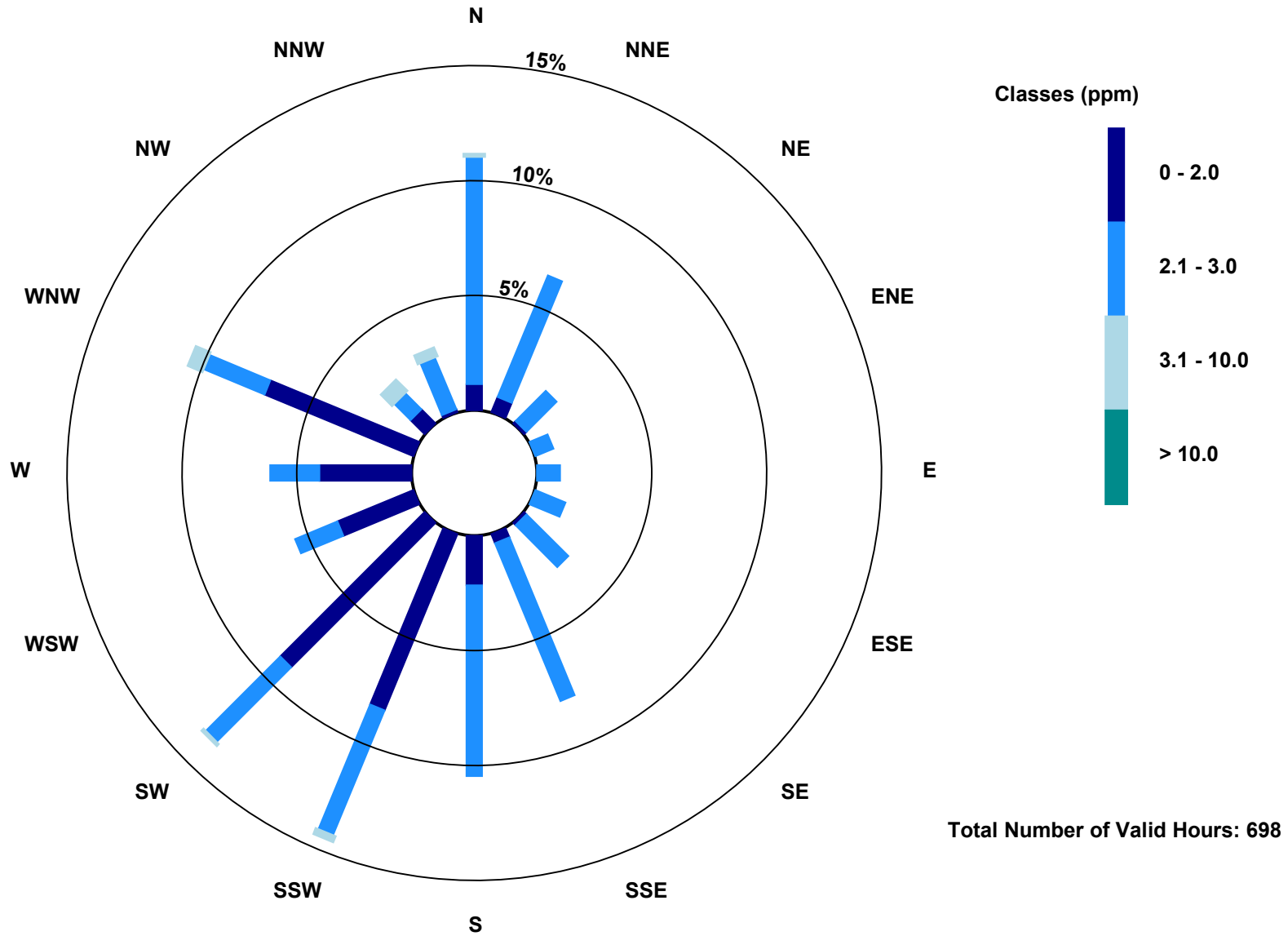
Total Number of Valid Hours: 698

Total Number of Hours: 744

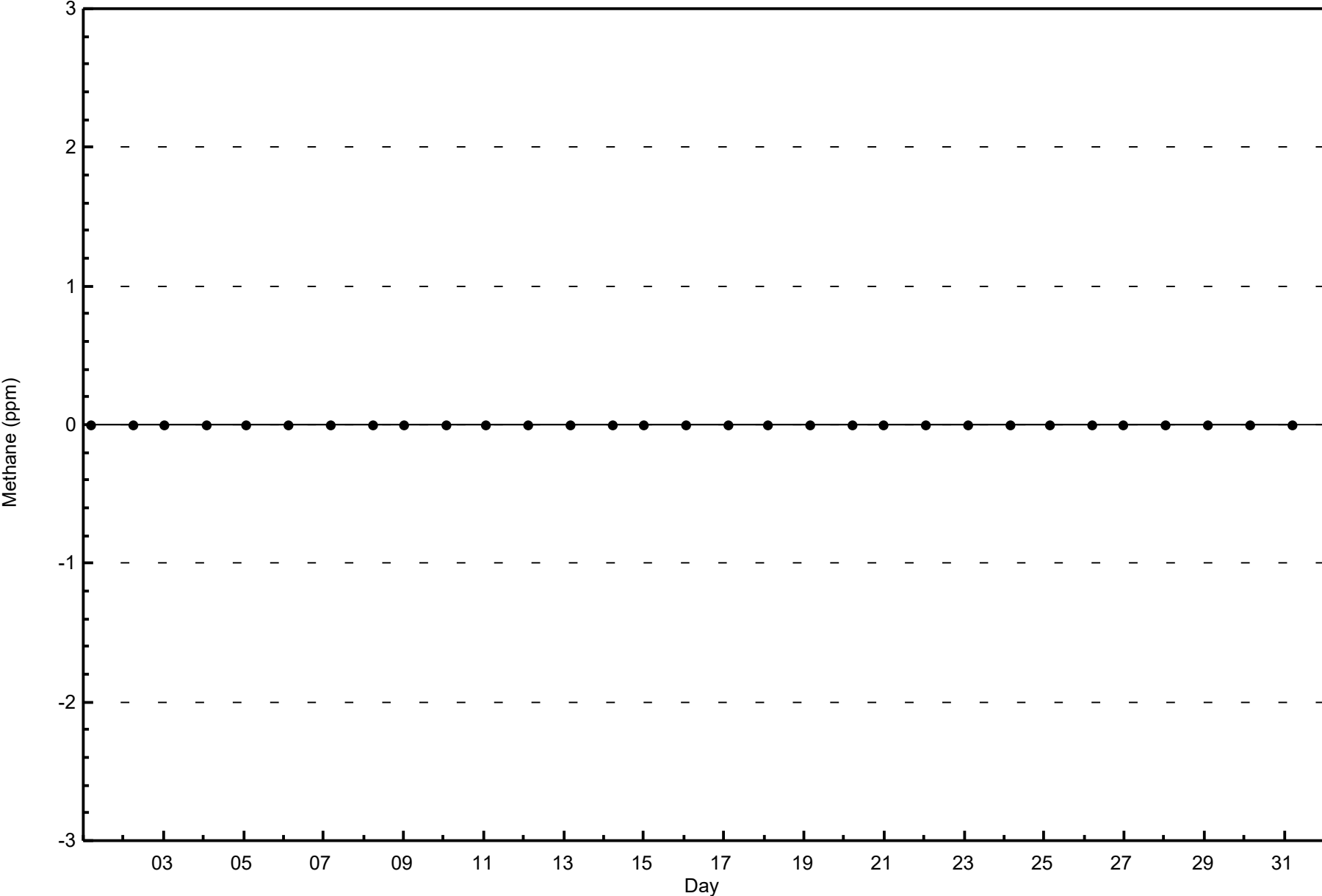


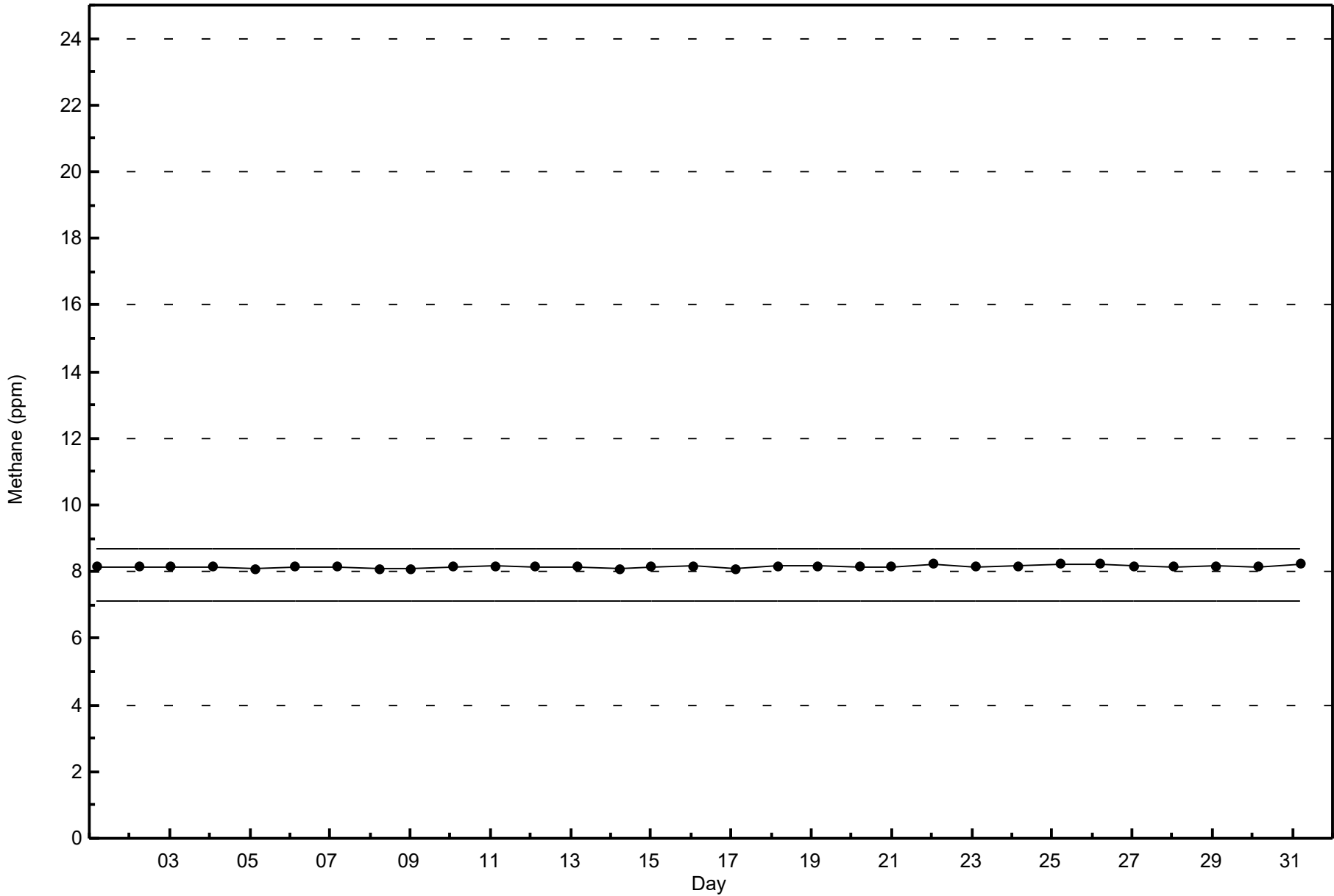
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Methane (CH<sub>4</sub>) - ppm  
Ells River











**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

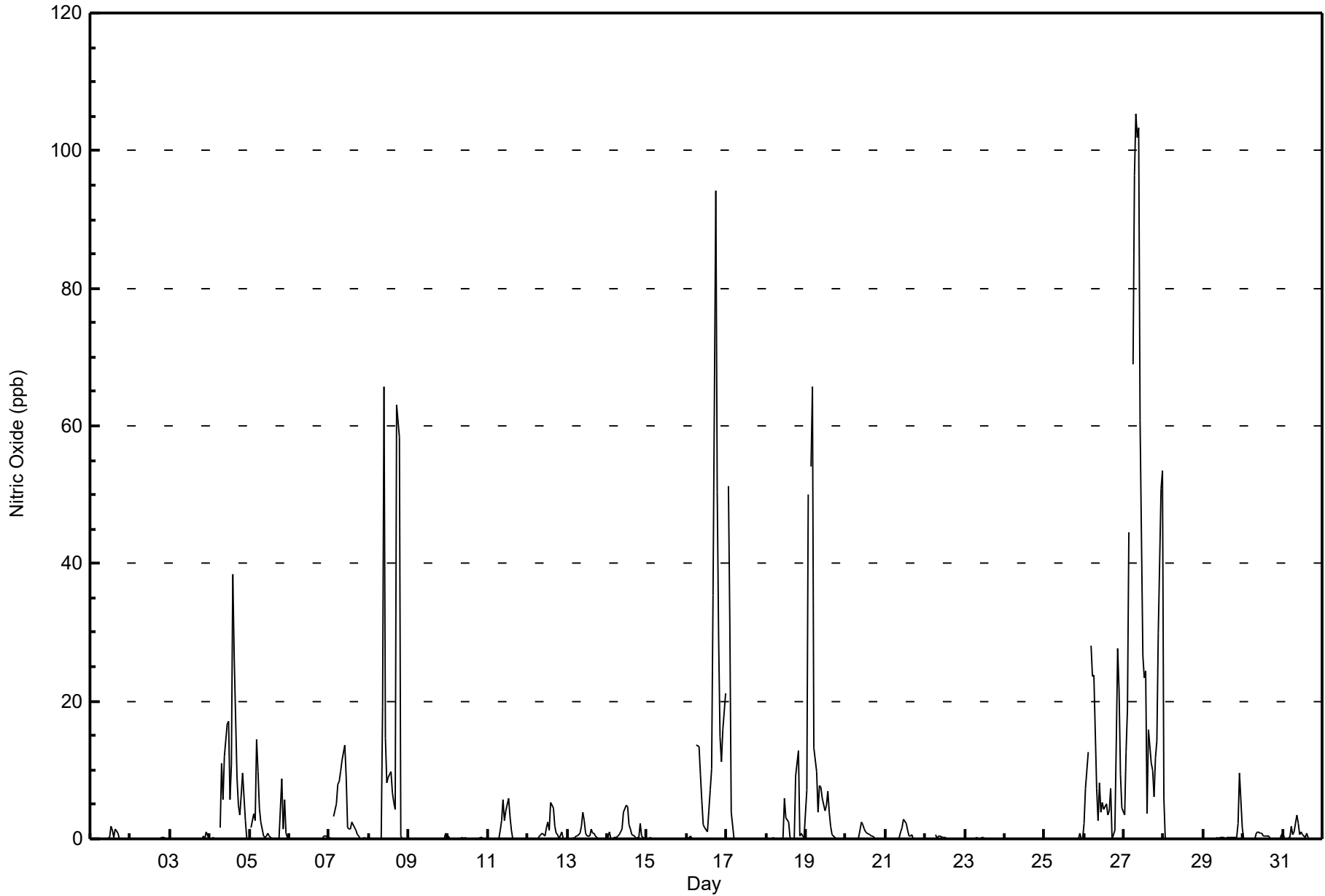
**Nitric Oxide (NO) - ppb**  
**Ells River - October 2024**

Maximum Value: 105.4 ppb on Oct 27 08:00		Maximum Daily Average: 39.0 ppb on Oct 27		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.0 ppb on Oct 24		Hours of Data: 707																						
Maximum Diurnal Average: 7.8 ppb at hour 10		Minimum Diurnal Average: 0.8 ppb at hour 1		Hours of Missing Data: 37																						
Monthly Average: 3.67 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 9.0 P <sub>99</sub> = 65.5		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-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.8	1.3	0.3	1.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.8
2-Oct	0.0	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	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.2
3-Oct	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	0.3	0.0	1.0	0.1	0.1	1.0
4-Oct	0.0	0.0	0.2	0.0	0.0	Z	1.7	11.0	5.8	12.0	16.7	17.1	5.7	10.9	38.4	26.5	9.0	4.9	3.4	6.3	9.6	2.6	0.1	0.0	7.9	38.4
5-Oct	Z	1.7	3.7	2.6	14.5	9.8	4.5	2.4	0.3	0.2	0.4	0.9	0.4	0.1	0.1	0.0	0.0	0.0	0.0	8.7	1.3	5.6	0.8	0.2	2.5	14.5
6-Oct	0.1	Z	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	0.0	0.0	0.0	0.5	0.3	0.0	0.1	0.5
7-Oct	0.0	0.2	Z	3.2	5.1	7.9	8.4	9.8	11.4	13.5	8.9	1.7	1.4	1.3	2.4	1.7	1.2	0.6	0.4	0.0	0.0	0.1	0.0	0.0	3.4	13.5
8-Oct	0.4	0.0	0.0	Z	0.0	0.0	0.0	0.1	19.2	65.8	14.7	8.2	9.0	9.8	6.7	5.3	4.2	63.0	58.5	0.5	0.0	0.0	0.0	0.0	11.5	65.8
9-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.0	0.1	0.7
10-Oct	0.4	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.4
11-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.6	5.7	2.7	4.2	5.8	3.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.8
12-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.7	0.4	1.5	2.5	1.3	5.3	4.4	1.9	0.8	0.7	0.1	1.0	0.1	0.1	0.0	0.9	5.3
13-Oct	0.1	0.1	Z	0.2	0.1	0.4	0.4	0.8	1.9	3.9	2.6	0.7	0.4	0.4	1.4	0.9	0.8	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.7	3.9
14-Oct	0.2	1.0	0.1	Z	0.1	0.2	0.5	0.6	1.1	1.3	3.9	4.9	4.6	2.1	1.5	0.5	0.4	0.0	0.1	0.2	2.3	0.3	0.0	0.0	1.1	4.9
15-Oct	0.0	0.0	0.2	0.0	Z	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.2
16-Oct	0.0	0.1	0.4	0.1	0.0	Z	13.7	13.3	9.3	5.4	2.1	1.6	0.9	4.1	7.0	10.3	35.5	94.2	50.5	29.1	14.8	11.2	15.9	21.2	14.8	94.2
17-Oct	Z	51.3	31.4	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	0.0	0.0	0.0	0.0	3.8	51.3
18-Oct	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	5.9	3.1	2.3	0.1	0.1	0.0	0.0	9.1	12.8	0.4	0.8	0.3	0.1	1.5	12.8
19-Oct	7.0	50.0	Z	54.1	65.7	13.2	9.8	3.9	7.7	7.6	6.0	4.2	5.0	6.9	3.8	1.8	0.7	0.2	0.1	0.1	0.0	0.0	0.1	0.0	10.8	65.7
20-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	2.5	2.1	1.5	1.0	0.8	0.6	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.5
21-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	1.0	1.6	2.8	2.2	1.3	0.5	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.8
22-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.7	0.0	0.4	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.7
23-Oct	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	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
24-Oct	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	0.2	0.2	0.0	0.2
25-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.1	0.7
26-Oct	2.1	7.3	12.7	Z	28.2	23.7	23.7	7.4	2.6	8.1	3.9	5.4	4.2	5.1	3.4	4.1	7.4	0.0	1.2	13.8	27.7	21.5	9.4	4.5	9.9	28.2
27-Oct	3.4	12.5	19.0	44.6	Z	68.9	96.4	105.4	101.8	103.4	60.9	26.6	23.4	24.4	3.6	16.0	10.9	9.9	6.2	11.8	14.2	29.9	50.8	53.5	39.0	105.4
28-Oct	5.9	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	0.3	5.9
29-Oct	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	0.2	0.2	0.2	2.3	9.5	1.7	0.7	9.5
30-Oct	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.0	0.9	0.8	0.4	0.5	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	1.0
31-Oct	0.7	0.1	Z	0.1	0.3	1.8	0.7	1.1	3.5	2.2	0.5	1.0	0.6	0.1	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.5
0.8 4.8 2.7 4.2 4.4 4.9 5.2 5.1 5.5 7.8 4.3 3.0 2.4 2.5 2.6 2.4 2.4 2.4 5.6 4.2 2.7 2.3 2.5 2.9 2.7																								Diurnal Average		
7.0 51.3 31.4 54.1 65.7 68.9 96.4 105.4 101.8 103.4 60.9 26.6 23.4 24.4 38.4 26.5 35.5 94.2 58.5 29.1 27.7 29.9 50.8 53.5																								Diurnal Maximum		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Ells River - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Ells River - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	674	95.33	95.33
21 - 40	15	2.12	97.45
41 - 80	13	1.84	99.29
81 - 159	5	0.71	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**

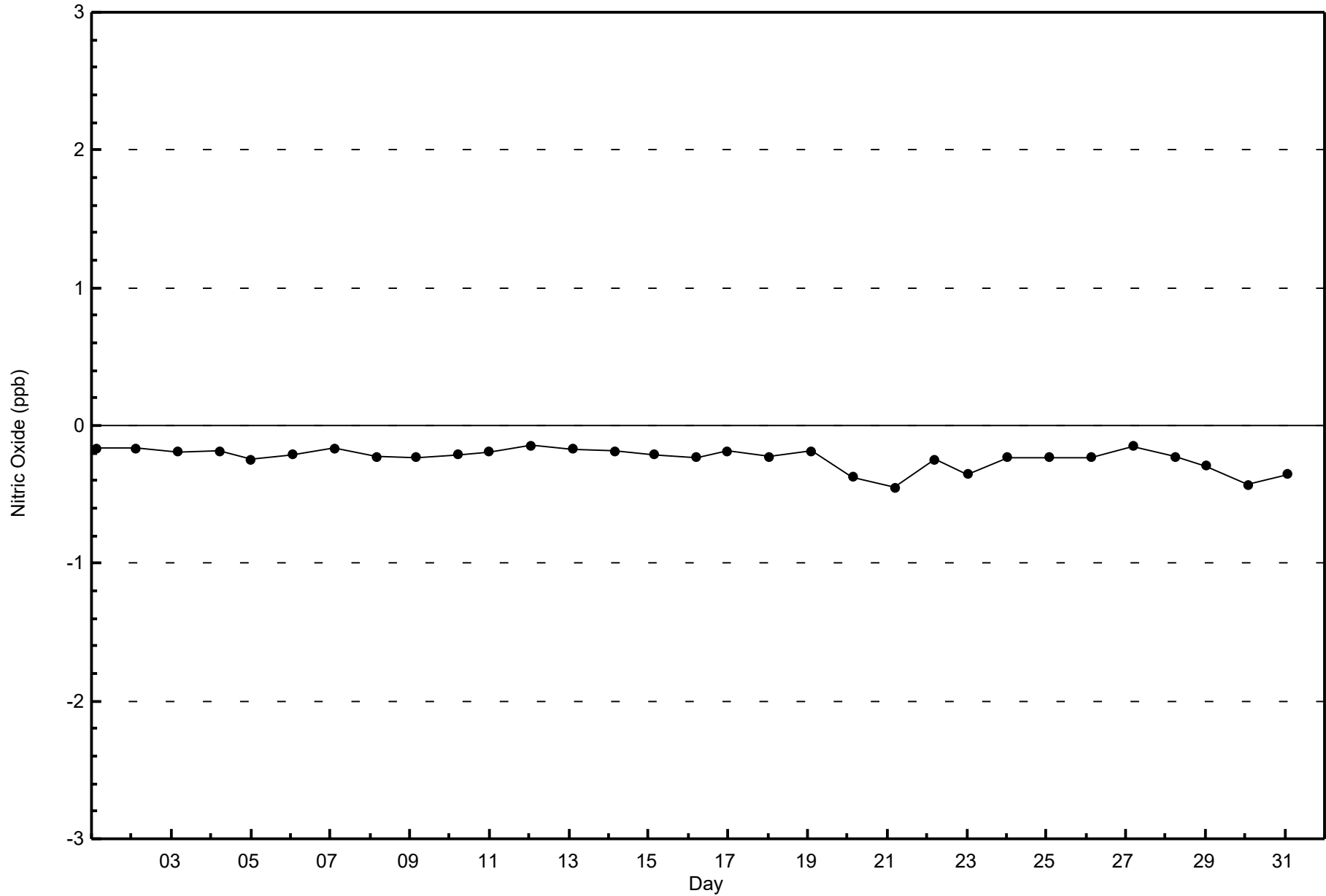
**Nitric Oxide (NO) - ppb**  
**Ells River - October 2024**

<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	71	43	13	6	8	10	19	52	73	102	93	38	44	69	13	15	669
21 - 40	6	2	0	0	0	0	0	1	0	0	1	0	0	0	3	2	15
11 - 80	1	0	0	0	0	0	0	1	0	1	1	0	0	4	2	2	12
81 - 159	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	79	45	13	6	8	10	19	54	73	103	95	38	44	74	18	20	699

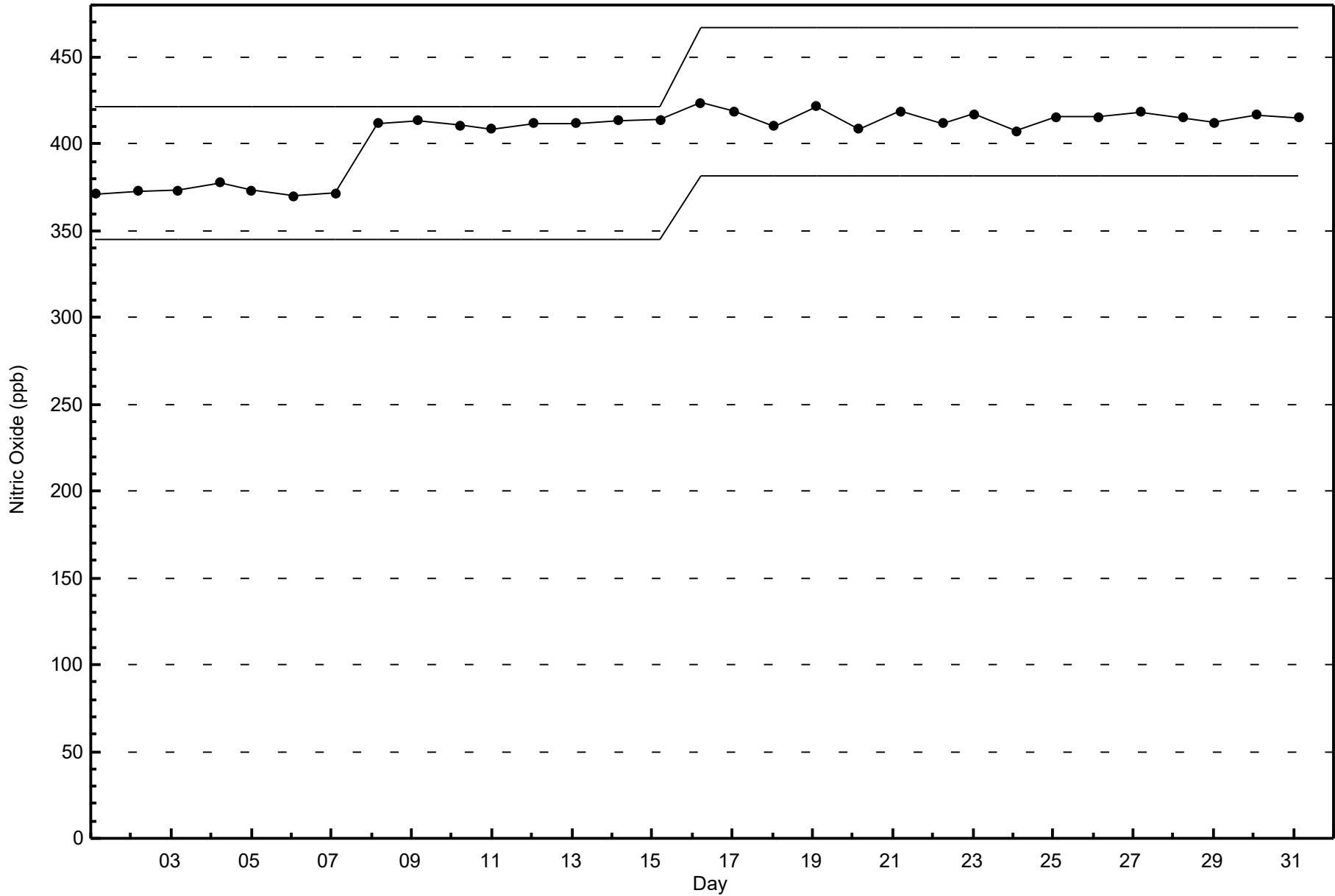
Total Number of Valid Hours: 699

Total Number of Hours: 744











Wood Buffalo Environmental Association

Summary of Hour Averages

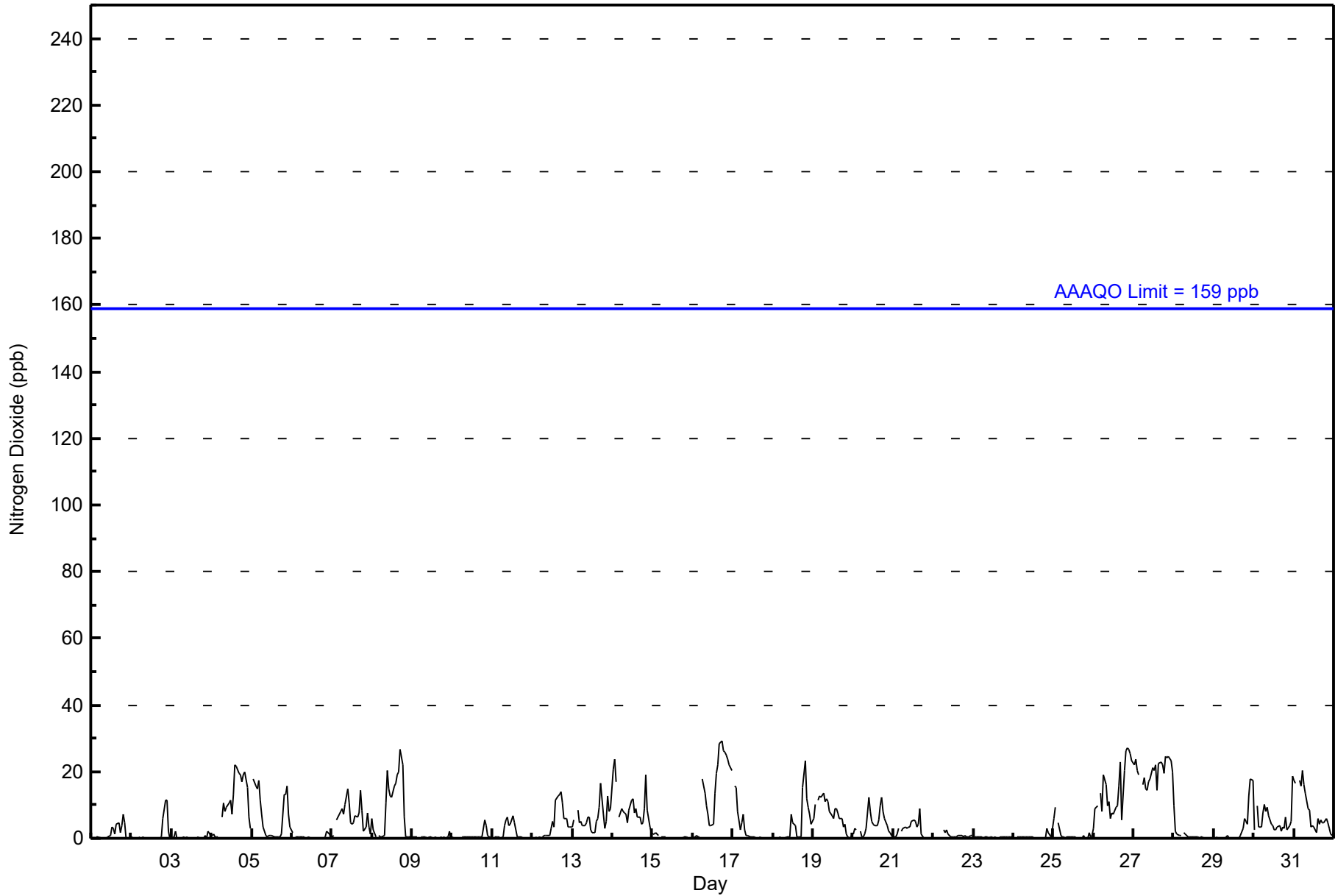
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Ells River - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 29.4 ppb on Oct 16 18:00	Maximum Daily Average: 20.2 ppb on Oct 27		Hours of Data:	707
Minimum Value: 0.1 ppb on Oct 1 23:00	Minimum Daily Average: 0.3 ppb on Oct 23		Hours of Missing Data:	37
Maximum Diurnal Average: 6.7 ppb at hour 20	Minimum Diurnal Average: 3.6 ppb at hour 5		Hours of Calibration:	37
Monthly Average: 4.87 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 1.2 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 15.6 P <sub>99</sub> = 25.8		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-Oct	0.2	0.2	Z	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.5	0.8	3.6	2.9	1.2	4.3	4.5	1.7	4.0	7.4	4.7	0.2	0.1	0.2	1.7	7.4	
2-Oct	0.5	0.2	0.1	Z	0.3	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.4	5.9	11.3	11.3	2.3	0.2	1.5	11.3	
3-Oct	0.2	0.6	2.2	0.1	Z	0.2	0.2	0.6	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.2	0.2	0.2	1.0	0.2	2.1	0.7	0.5	2.2	
4-Oct	1.0	1.3	0.6	0.3	0.6	Z	6.3	10.6	7.9	9.3	10.7	11.4	7.4	13.3	22.1	21.6	19.5	19.2	17.1	19.1	19.8	15.3	6.5	3.0	10.6	22.1	
5-Oct	Z	17.6	15.8	14.9	17.4	11.3	7.4	3.6	0.9	0.5	0.8	0.9	0.8	0.4	0.3	0.3	0.3	1.3	13.3	13.2	15.5	7.2	3.2	6.4	17.6		
6-Oct	1.6	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	2.1	1.1	0.4	0.4	2.1	
7-Oct	0.3	1.0	Z	5.5	7.4	8.1	8.9	7.2	10.0	14.8	10.7	4.6	4.2	4.6	6.7	6.4	7.6	14.3	8.5	2.0	3.6	7.7	3.4	1.4	6.5	14.8	
8-Oct	5.9	2.5	0.5	Z	0.8	0.5	0.5	0.7	10.7	20.2	14.8	12.7	12.1	15.5	16.6	19.0	19.9	26.5	21.9	6.5	0.5	0.4	0.4	0.4	9.1	26.5	
9-Oct	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.3	2.0	0.2	0.3	2.0	
10-Oct	0.6	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.6	5.7	3.9	0.8	0.3	0.3	0.7	5.7	
11-Oct	Z	0.4	0.4	0.6	0.3	0.2	0.4	3.8	5.4	6.5	3.7	4.4	6.6	4.7	2.6	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	1.8	6.6	
12-Oct	0.2	Z	0.3	0.2	0.3	0.2	0.4	0.8	0.7	1.0	0.9	2.8	4.9	3.5	11.6	12.8	13.2	13.8	10.6	6.0	6.0	3.3	3.3	3.2	4.3	13.8	
13-Oct	3.3	5.7	Z	8.5	4.6	5.0	3.9	3.7	4.6	6.3	6.3	2.4	1.5	1.6	5.1	6.0	9.4	16.7	7.0	2.8	5.0	12.5	8.0	8.8	6.0	16.7	
14-Oct	20.8	23.9	16.9	Z	6.2	9.1	8.2	7.7	7.3	4.6	8.5	11.6	11.7	7.5	8.9	6.5	6.2	4.3	4.8	9.1	19.1	8.4	3.3	1.6	9.4	23.9	
15-Oct	1.2	1.2	1.6	0.9	Z	0.6	0.5	0.5	0.5	C	C	C	C	C	C	0.2	0.2	0.1	0.2	0.4	0.4	0.2	0.2	0.2	--	1.6	
16-Oct	0.1	0.5	0.9	0.3	0.3	Z	18.0	13.6	9.9	7.2	3.9	3.9	4.2	13.6	19.6	22.0	28.3	29.4	26.4	25.8	24.8	23.7	22.2	20.5	13.9	29.4	
17-Oct	Z	15.7	15.4	8.1	2.6	4.8	7.0	2.7	0.8	0.7	0.6	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	2.7	15.7	
18-Oct	0.1	Z	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.4	0.5	7.0	4.5	4.0	0.6	0.6	0.3	0.5	15.3	23.5	12.0	9.2	7.4	4.3	4.0	23.5	
19-Oct	6.0	10.2	Z	11.3	12.9	12.3	13.7	11.1	11.7	11.0	8.0	6.6	6.0	8.9	8.9	7.6	6.1	6.0	3.6	4.2	1.3	0.6	0.2	1.1	7.4	13.7	
20-Oct	1.4	3.1	2.7	Z	2.1	0.4	0.3	1.4	3.1	12.2	8.1	5.0	4.1	3.8	3.8	5.7	9.6	12.3	8.1	6.1	3.9	2.3	1.9	0.9	4.4	12.3	
21-Oct	0.5	0.3	1.2	2.8	Z	2.3	2.8	3.5	2.8	3.2	3.2	5.0	5.7	5.2	3.6	4.3	8.7	1.2	0.2	0.2	0.2	0.2	0.2	0.1	2.5	8.7	
22-Oct	0.1	0.1	0.1	0.1	0.2	Z	2.4	1.7	2.7	1.2	0.5	0.5	0.4	0.4	0.4	0.7	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.7	2.7
23-Oct	Z	0.6	0.5	0.4	0.3	0.3	0.2	0.4	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.6
24-Oct	0.4	Z	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.1	1.9	0.5	2.8	3.1	
25-Oct	5.8	9.2	Z	4.7	0.9	0.5	0.6	0.2	0.3	0.3	0.4	0.5	0.4	0.5	0.2	0.2	0.2	0.2	0.9	0.2	0.2	1.6	0.5	0.9	1.3	9.2	
26-Oct	3.1	8.8	9.9	Z	13.6	8.0	18.9	16.0	9.6	11.0	6.0	7.5	7.2	9.4	9.6	15.5	22.7	5.7	20.2	26.4	27.3	26.8	25.5	23.3	14.4	27.3	
27-Oct	22.1	23.6	20.4	19.2	Z	16.1	18.1	14.7	14.2	16.8	17.8	21.3	20.4	22.0	14.2	22.5	23.0	21.9	19.5	24.4	24.2	24.4	23.4	19.9	20.2	24.4	
28-Oct	9.9	2.0	1.2	0.7	0.7	Z	1.8	1.3	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	1.0	9.9	
29-Oct	Z	0.3	0.1	0.1	0.2	0.1	0.1	0.4	0.9	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.7	3.1	6.1	5.1	4.1	12.5	17.8	17.2	3.0	17.8	
30-Oct	2.4	Z	9.9	3.6	3.6	7.5	10.2	8.1	9.3	6.8	4.3	4.0	2.5	2.6	3.3	3.8	2.0	3.6	2.9	6.2	2.7	3.8	4.9	18.8	5.5	18.8	
31-Oct	17.5	16.6	Z	17.5	15.6	20.2	16.3	13.7	8.8	8.6	3.3	4.0	3.3	1.6	5.9	4.4	5.4	4.6	4.6	5.8	4.8	3.1	1.3	0.8	8.2	20.2	
4.1 5.6 4.1 3.9 3.6 4.2 4.8 4.2 4.0 4.8 3.9 4.0 3.8 4.3 4.9 5.4 6.2 6.1 6.0 6.7 6.4 6.1 4.8 4.4																								Diurnal Average			
22.1 23.9 20.4 19.2 17.4 20.2 18.9 16.0 14.2 20.2 17.8 21.3 20.4 22.0 22.1 22.5 28.3 29.4 26.4 26.4 27.3 26.8 25.5 23.3																								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 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	674	95.33	95.33
21 - 40	33	4.67	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 - October 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	69	41	12	6	8	10	19	52	72	102	95	38	44	74	13	12	667
21 - 40	10	4	1	0	0	0	0	2	1	1	0	0	0	0	5	8	32
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	79	45	13	6	8	10	19	54	73	103	95	38	44	74	18	20	699

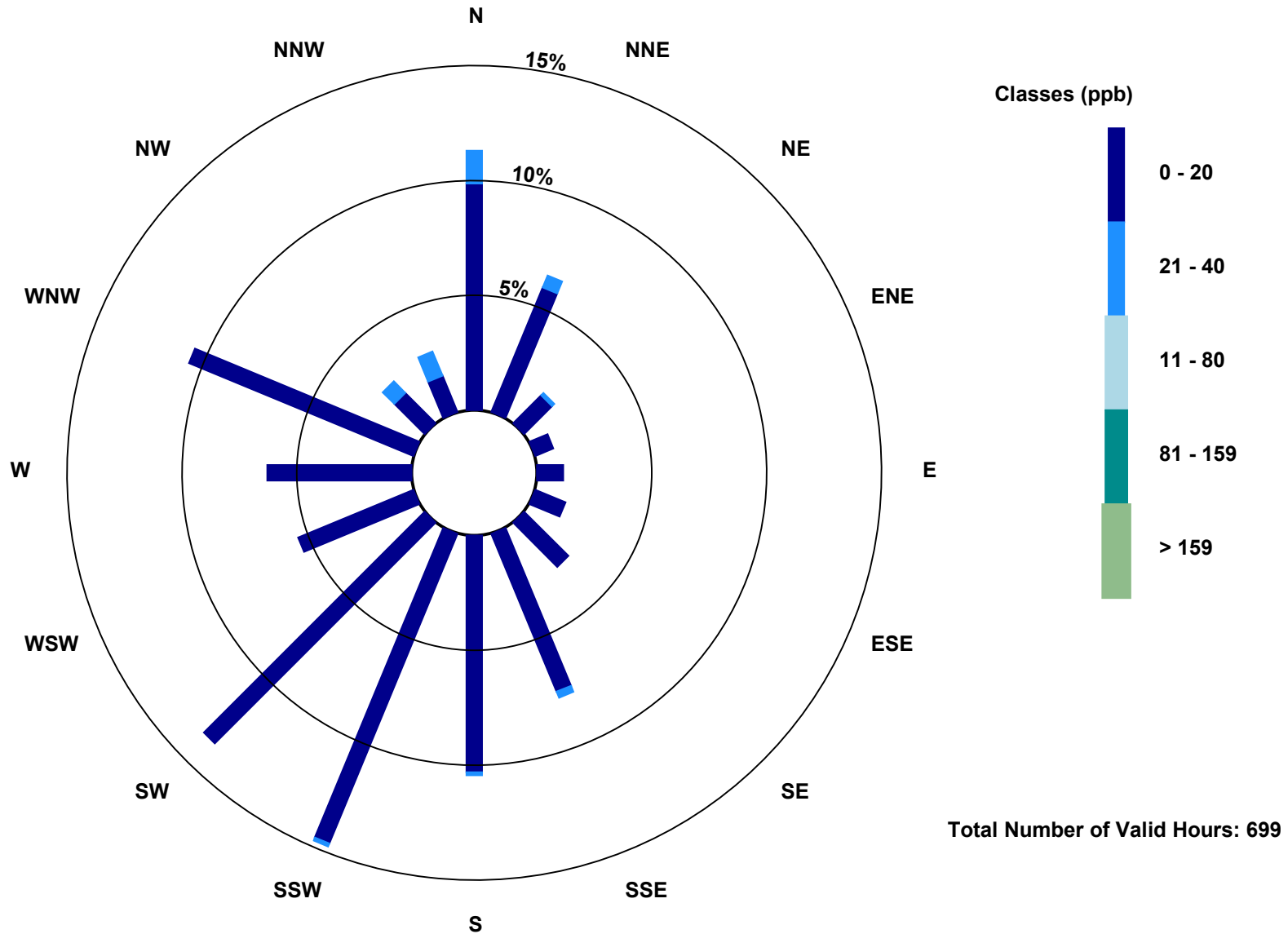
Total Number of Valid Hours: 699

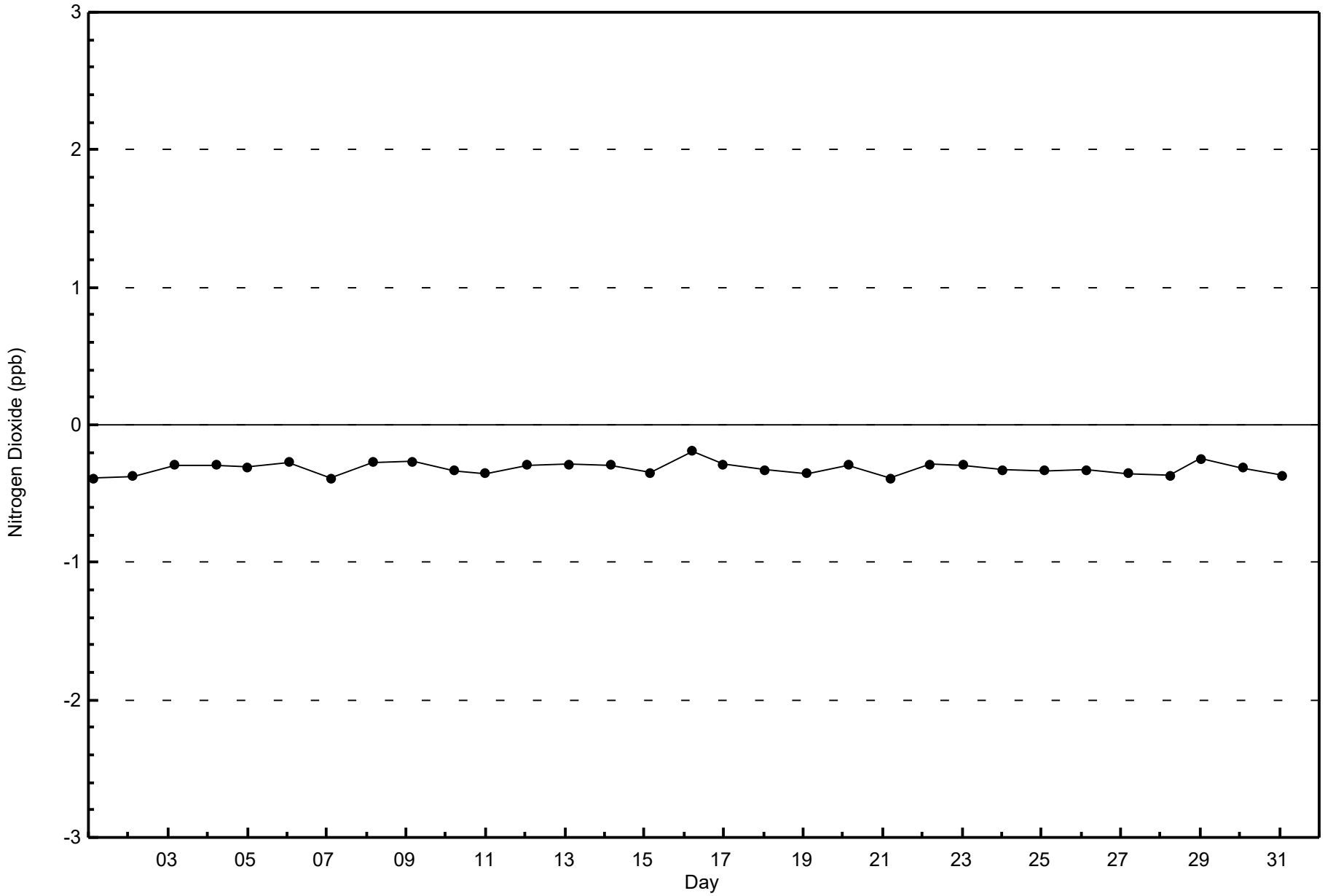
Total Number of Hours: 744

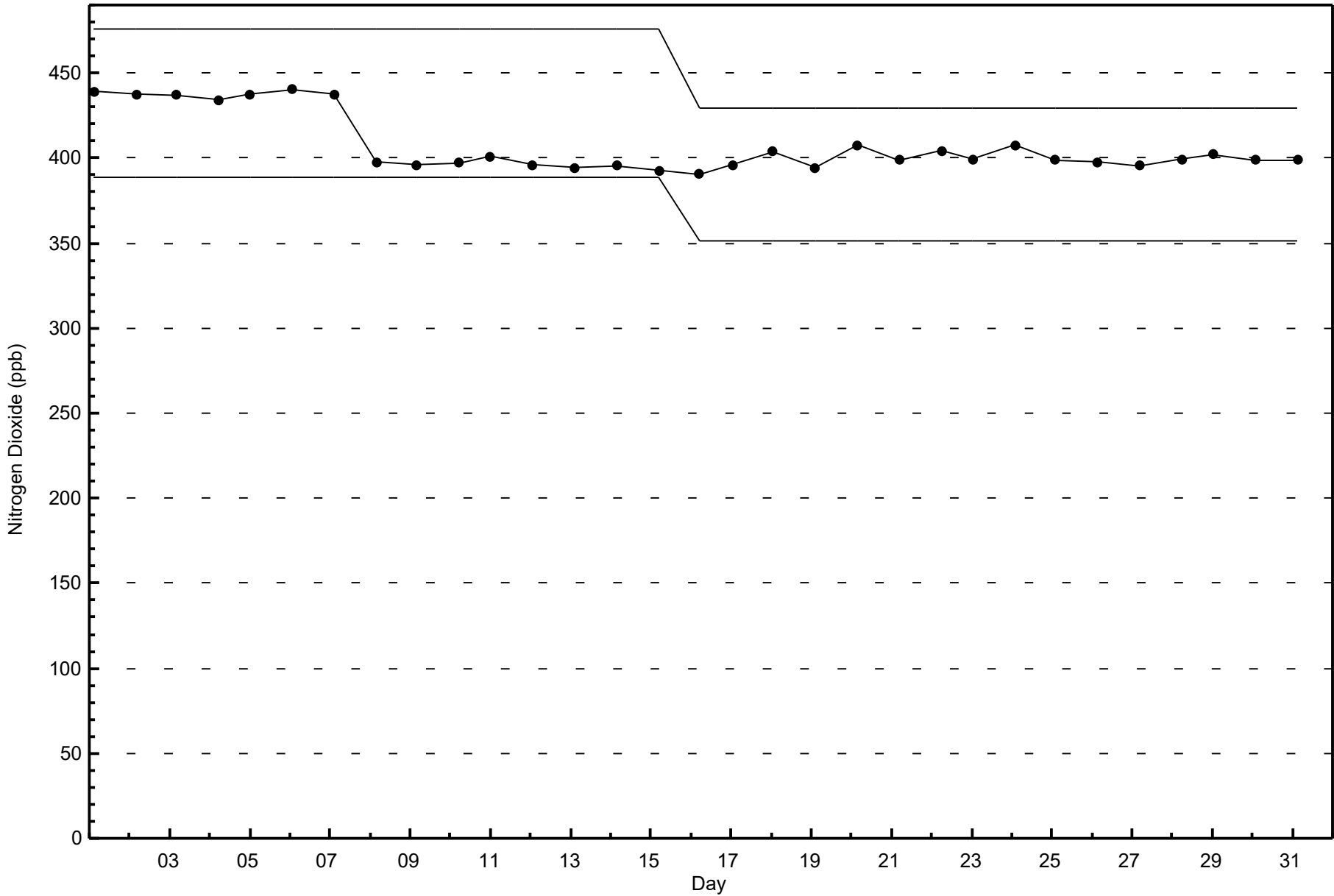


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Ells River







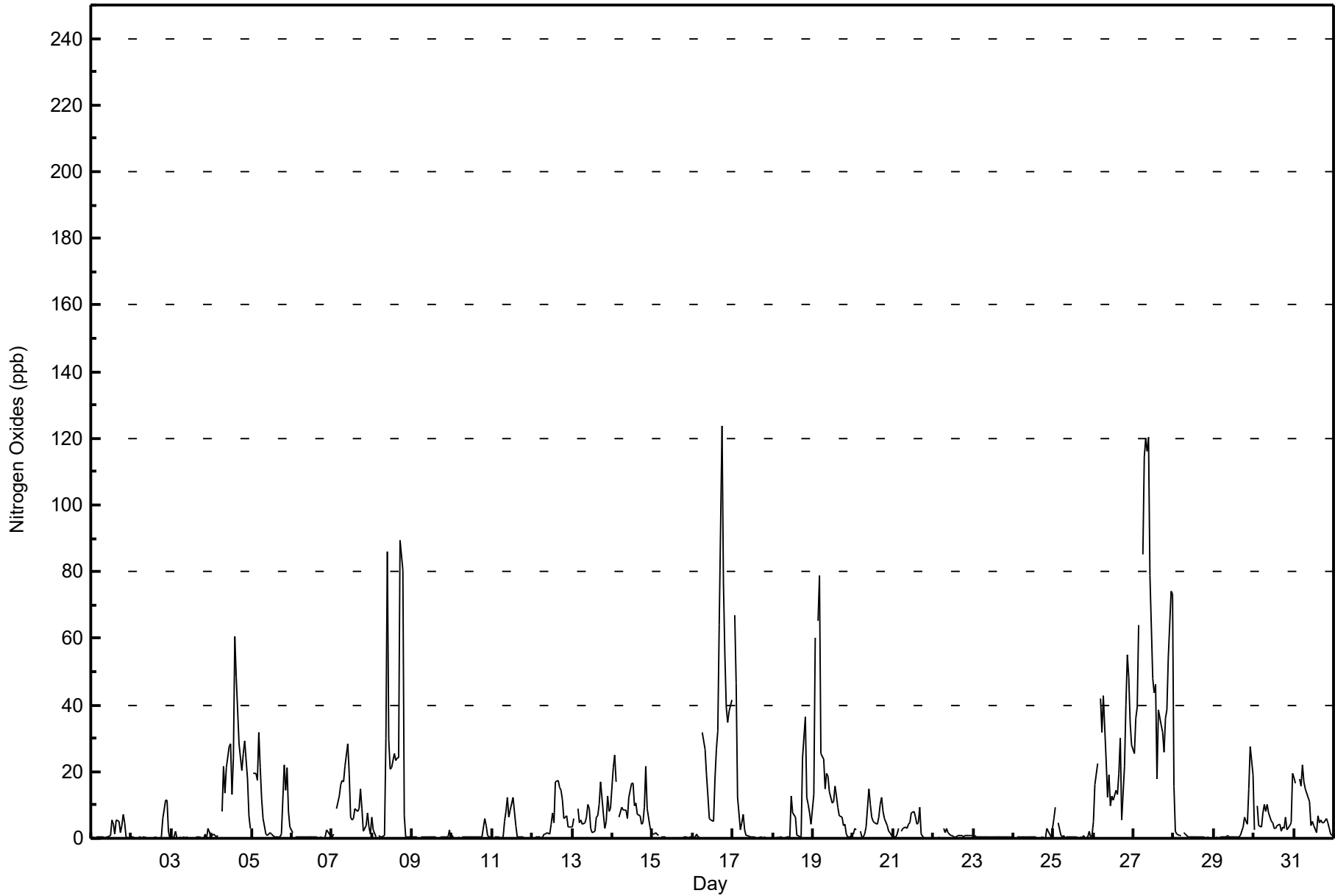




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - October 2024**

Maximum Value: 123.6 ppb on Oct 16 18:00      Maximum Daily Average: 59.2 ppb on Oct 27																						Hours in Service:	744																								
Minimum Value: 0.1 ppb on Oct 22 04:00      Minimum Daily Average: 0.4 ppb on Oct 23																						Hours of Data:	707																								
Maximum Diurnal Average: 12.7 ppb at hour 10      Minimum Diurnal Average: 4.8 ppb at hour 1																						Hours of Missing Data:	37																								
Monthly Average: 8.54 ppb      Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 1.3 Q <sub>3</sub> = 8.7 P <sub>90</sub> = 24.1 P <sub>99</sub> = 84.7																						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-Oct	0.2	0.2	Z	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.6	1.0	5.4	4.2	1.5	5.6	5.3	1.8	4.0	7.4	4.7	0.2	0.1	0.2	1.9	7.4																					
2-Oct	0.5	0.2	0.1	Z	0.3	0.2	0.2	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.4	6.1	11.5	11.4	2.3	0.2	1.6	11.5																					
3-Oct	0.2	0.6	2.2	0.1	Z	0.2	0.2	0.6	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.2	0.2	0.2	1.3	0.2	3.1	0.8	0.5	3.1																					
4-Oct	1.0	1.3	0.8	0.3	0.6	Z	8.0	21.6	13.7	21.3	27.4	28.5	13.1	24.2	60.5	48.1	28.5	24.1	20.5	25.4	29.4	17.9	6.6	3.0	18.5	60.5																					
5-Oct	Z	19.3	19.5	17.5	31.9	21.1	11.9	6.0	1.2	0.7	1.2	1.8	1.2	0.5	0.4	0.3	0.3	0.3	1.3	22.0	14.5	21.1	8.0	3.4	8.9	31.9																					
6-Oct	1.7	Z	0.5	0.4	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	0.3	2.6	1.4	0.4	0.5	2.6																					
7-Oct	0.3	1.2	Z	8.7	12.5	16.0	17.3	17.0	21.4	28.3	19.6	6.3	5.6	5.9	9.1	8.1	8.8	14.9	8.9	2.0	3.6	7.8	3.4	1.4	9.9	28.3																					
8-Oct	6.3	2.5	0.5	Z	0.8	0.5	0.5	0.8	29.9	86.0	29.5	20.9	21.1	25.3	23.3	24.3	24.1	89.5	80.4	7.0	0.5	0.4	0.4	0.4	20.6	89.5																					
9-Oct	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.4	2.7	0.2	0.4	2.7																					
10-Oct	1.0	0.2	0.2	0.2	0.2	Z	0.4	0.3	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.6	5.8	4.0	0.8	0.3	0.3	0.8	5.8																					
11-Oct	Z	0.4	0.4	0.6	0.3	0.2	0.4	5.0	8.0	12.2	6.4	8.6	12.4	8.0	3.8	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	3.0	12.4																					
12-Oct	0.2	Z	0.3	0.2	0.3	0.2	0.4	1.2	1.3	1.7	1.3	4.3	7.4	4.8	16.9	17.2	15.1	14.6	11.3	6.1	7.0	3.4	3.4	3.2	5.3	17.2																					
13-Oct	3.4	5.8	Z	8.7	4.7	5.4	4.3	4.5	6.5	10.2	8.9	3.1	1.9	2.0	6.5	6.9	10.2	17.0	7.1	2.8	5.1	12.6	8.0	8.8	6.7	17.0																					
14-Oct	21.0	24.9	17.0	Z	6.3	9.3	8.7	8.3	8.4	5.9	12.4	16.5	16.3	9.6	10.4	7.0	6.6	4.3	4.9	9.3	21.4	8.7	3.3	1.6	10.5	24.9																					
15-Oct	1.2	1.2	1.8	0.9	Z	0.6	0.5	0.5	0.5	C	C	C	C	C	C	0.2	0.2	0.1	0.2	0.4	0.4	0.2	0.2	0.2	--	1.8																					
16-Oct	0.1	0.6	1.3	0.4	0.3	Z	31.7	26.9	19.2	12.6	6.0	5.5	5.1	17.7	26.6	32.3	63.8	123.6	76.9	54.9	39.6	34.9	38.1	41.7	28.7	123.6																					
17-Oct	Z	67.0	46.8	12.1	2.6	4.8	7.0	2.7	0.8	0.7	0.6	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	6.4	67.0																					
18-Oct	0.1	Z	0.2	0.2	0.4	0.2	0.1	0.2	0.3	0.5	0.6	12.9	7.6	6.3	0.7	0.7	0.3	0.5	24.4	36.3	12.4	10.0	7.7	4.4	5.5	36.3																					
19-Oct	13.0	60.2	Z	65.4	78.6	25.5	23.5	15.0	19.4	18.6	14.0	10.8	11.0	15.8	12.7	9.4	6.8	6.2	3.7	4.3	1.3	0.6	0.3	1.1	18.1	78.6																					
20-Oct	1.4	3.1	2.7	Z	2.1	0.4	0.3	1.4	3.3	14.7	10.2	6.5	5.1	4.6	4.4	6.2	10.1	12.5	8.1	6.1	3.9	2.3	1.9	0.9	4.9	14.7																					
21-Oct	0.5	0.3	1.2	2.8	Z	2.3	2.8	3.5	3.1	4.2	4.8	7.8	7.9	6.5	4.1	4.7	9.3	1.2	0.2	0.2	0.2	0.2	0.2	0.1	3.0	9.3																					
22-Oct	0.1	0.1	0.1	0.1	0.2	Z	3.1	1.7	3.1	1.5	0.6	0.7	0.5	0.5	0.5	0.8	0.9	0.9	0.6	0.7	0.6	0.7	0.7	0.7	0.8	3.1																					
23-Oct	Z	0.7	0.6	0.5	0.4	0.4	0.3	0.5	0.4	0.3	0.5	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7																					
24-Oct	0.4	Z	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.1	1.9	0.5	3.0	0.6	3.1																					
25-Oct	5.8	9.2	Z	4.7	0.9	0.5	0.7	0.2	0.3	0.4	0.5	0.6	0.4	0.6	0.2	0.2	0.2	0.2	1.0	0.2	0.2	2.3	0.5	0.9	1.3	9.2																					
26-Oct	5.2	16.1	22.6	Z	41.8	31.7	42.6	23.4	12.2	19.1	9.9	12.9	11.4	14.5	13.0	19.6	30.1	5.7	21.4	40.2	55.0	48.3	34.9	27.8	24.3	55.0																					
27-Oct	25.5	36.1	39.4	63.8	Z	85.0	114.5	120.1	116.0	120.2	78.7	47.9	43.8	46.4	17.8	38.5	33.9	31.8	25.7	36.2	38.4	54.3	74.2	73.4	59.2	120.2																					
28-Oct	15.8	2.0	1.2	0.7	0.7	Z	1.8	1.3	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	1.2	15.8																						
29-Oct	Z	0.4	0.2	0.2	0.3	0.2	0.2	0.5	1.0	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.9	3.3	6.3	5.3	4.3	14.8	27.3	18.9	3.7	27.3																					
30-Oct	2.5	Z	9.9	3.6	3.6	7.5	10.2	8.2	10.1	7.8	5.2	4.8	2.9	3.1	3.8	4.1	2.0	3.6	2.9	6.2	2.7	3.8	4.9	19.3	5.8	19.3																					
31-Oct	18.2	16.7	Z	17.6	15.9	22.0	17.0	14.8	12.3	10.8	3.8	5.0	3.9	1.7	6.6	4.6	5.5	4.6	4.6	5.8	4.8	3.1	1.3	0.8	8.8	22.0																					
4.8																						10.4	6.8	8.1	8.0	9.1	10.0	9.3	9.5	12.7	8.2	7.0	6.2	6.8	7.5	7.8	8.6	11.7	10.2	9.4	8.8	8.6	7.6	7.0	Diurnal Average		
25.5																						67.0	46.8	65.4	78.6	85.0	114.5	120.1	116.0	120.2	78.7	47.9	43.8	46.4	60.5	48.1	63.8	123.6	80.4	54.9	55.0	54.3	74.2	73.4	Diurnal Maximum		
Z - zerospan																						C - Calibration																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	619	87.55	87.55
21 - 40	56	7.92	95.47
41 - 80	24	3.39	98.87
81 - 159	8	1.13	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 - October 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	61	36	12	5	8	9	15	44	67	100	93	38	44	68	9	6	615
21 - 40	10	7	1	1	0	1	4	8	6	2	0	0	0	1	5	9	55
11 - 80	7	2	0	0	0	0	0	1	0	1	2	0	0	3	3	4	23
81 - 159	1	0	0	0	0	0	0	1	0	0	0	0	0	2	1	1	6
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	79	45	13	6	8	10	19	54	73	103	95	38	44	74	18	20	699

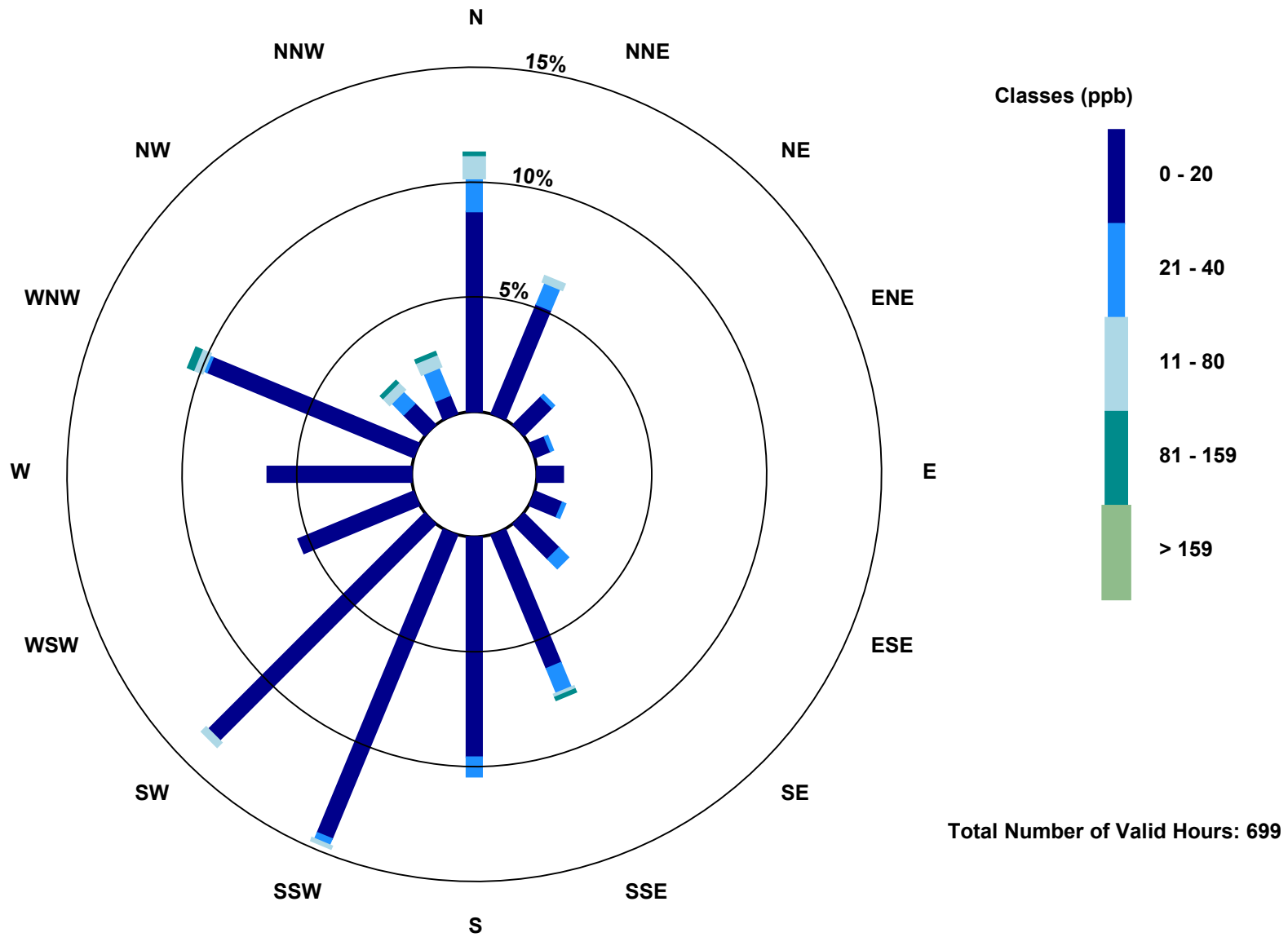
Total Number of Valid Hours: 699

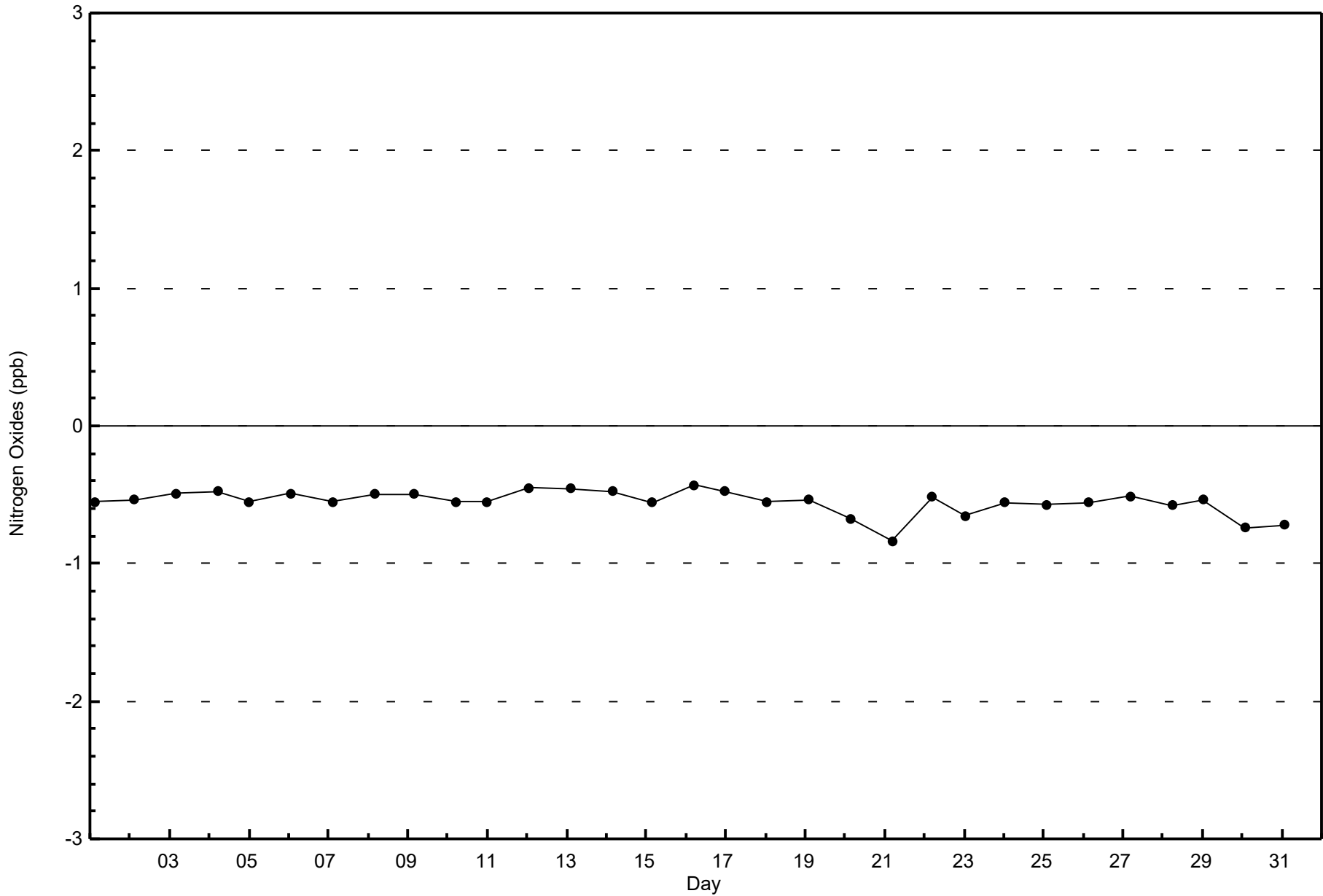
Total Number of Hours: 744

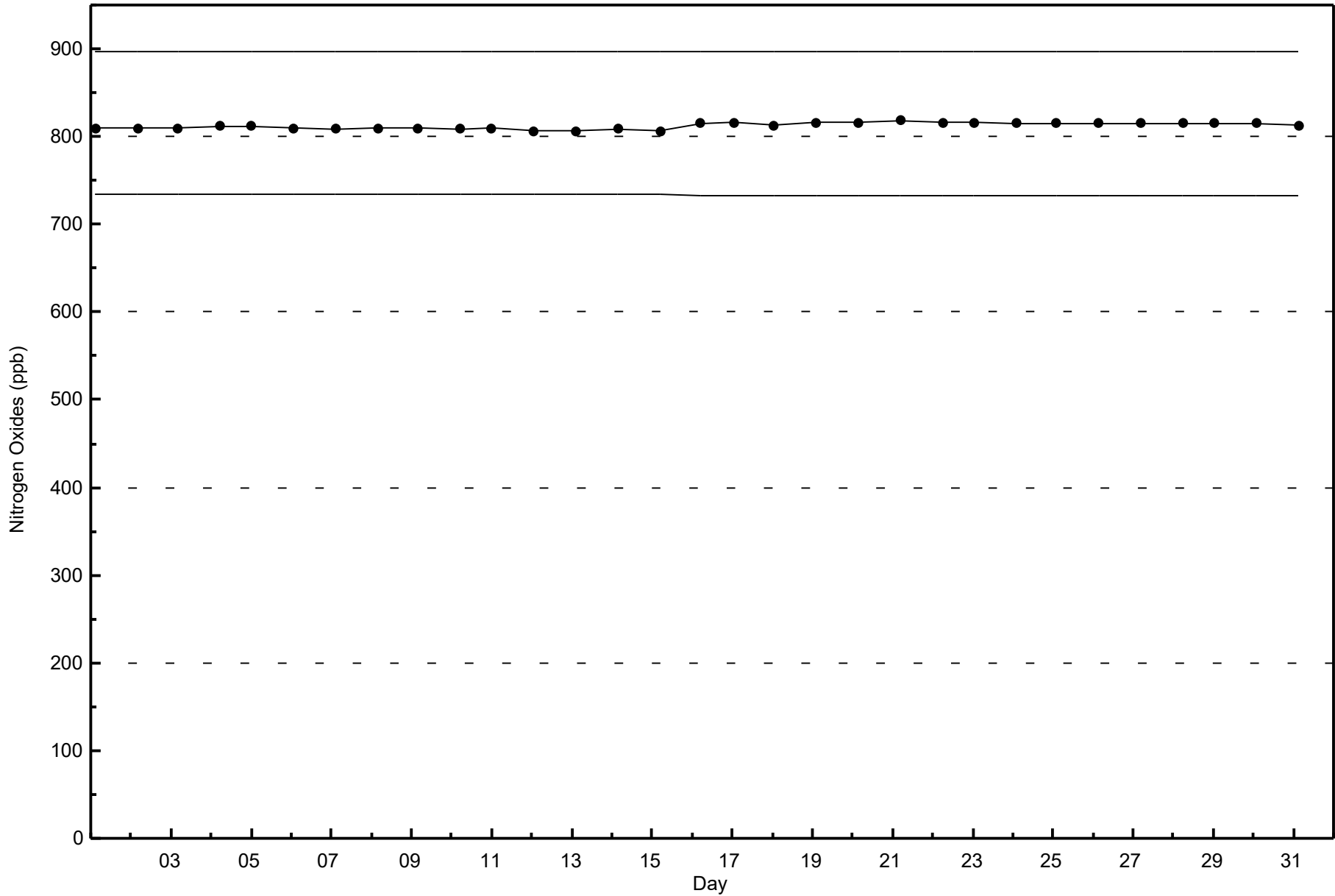


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Ells River







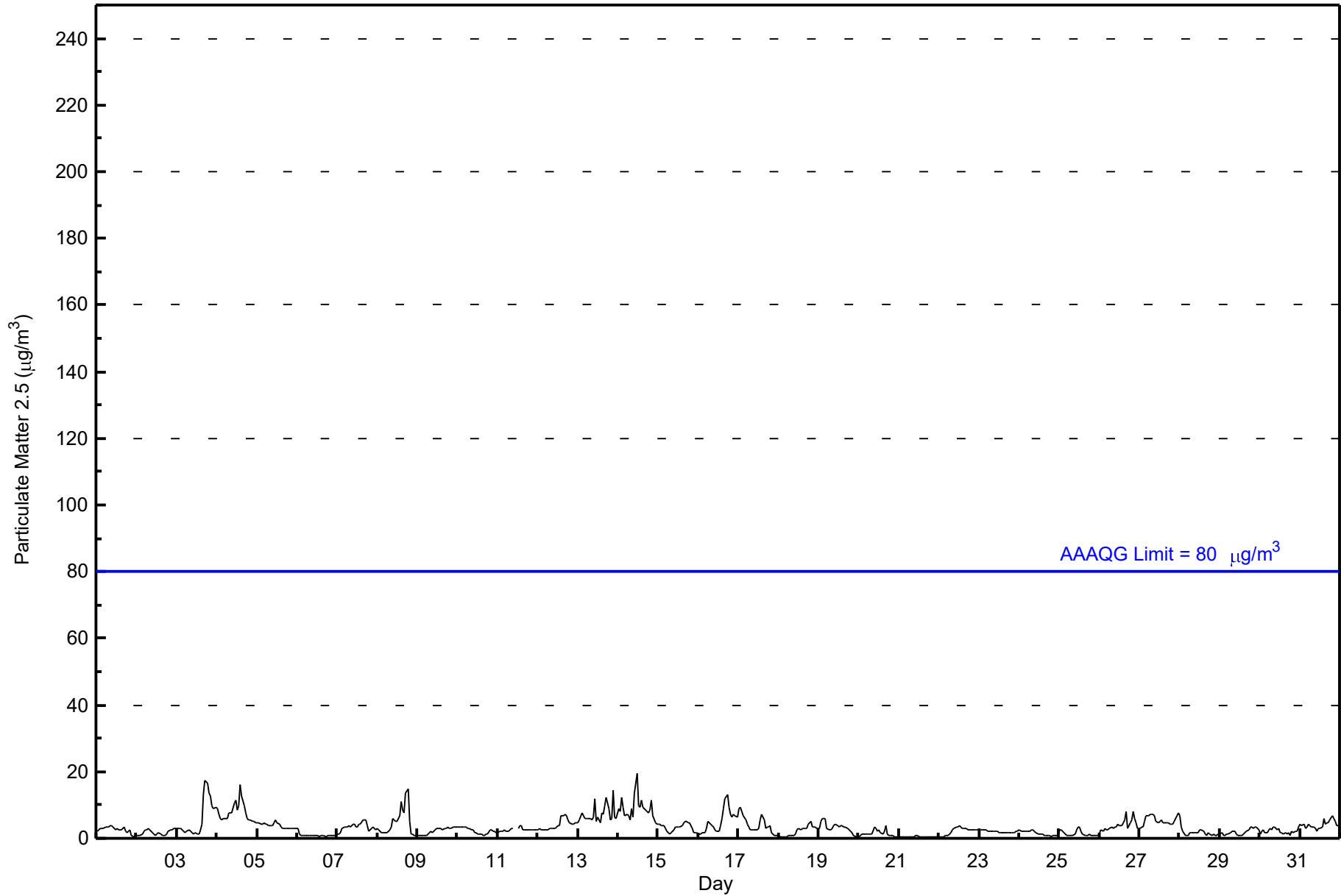


Summary of Hour Averages

Ells River - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 19.6 µg/m <sup>3</sup> on Oct 14 12:00		Maximum Daily Average: 8.9 µg/m <sup>3</sup> on Oct 14																	Hours of Data: 742																														
Minimum Value: 0.3 µg/m <sup>3</sup> on Oct 19 23:00		Minimum Daily Average: 0.4 µg/m <sup>3</sup> on Oct 21																	Hours of Missing Data: 2																														
Maximum Diurnal Average: 4.4 µg/m <sup>3</sup> at hour 18		Minimum Diurnal Average: 2.8 µg/m <sup>3</sup> at hour 6																	Hours of Calibration: 2																														
Monthly Average: 3.36 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.5 Median = 2.7 Q <sub>3</sub> = 4.2 P <sub>90</sub> = 6.8 P <sub>99</sub> = 13.4																	Percent Operational Time: 100.0																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	2.3	2.5	2.8	3.1	3.1	3.3	3.4	3.5	3.9	4.0	3.2	2.6	2.8	2.7	2.6	2.6	3.5	2.0	1.6	2.3	2.4	0.7	0.6	0.6	2.6	4.0																							
2-Oct	0.9	0.9	1.0	1.2	2.2	2.5	2.7	3.0	2.5	1.5	1.3	1.0	1.3	1.9	1.1	0.8	1.0	1.0	1.4	2.1	2.7	2.7	3.0	2.8	1.8	3.0																							
3-Oct	2.9	2.9	3.2	2.6	2.2	1.9	2.2	2.4	2.1	1.7	1.4	1.5	1.3	1.3	2.3	4.4	13.3	17.4	16.3	13.4	12.6	9.7	8.8	9.3	5.7	17.4																							
4-Oct	8.7	7.0	6.1	5.7	5.8	5.9	6.0	7.8	7.8	7.8	10.6	11.6	8.4	9.8	16.3	12.7	9.8	7.7	6.1	5.5	5.4	5.3	5.0	4.8	7.8	16.3																							
5-Oct	4.8	4.5	4.3	4.4	4.6	4.4	4.2	3.8	3.8	3.9	4.7	5.4	4.7	4.2	3.6	2.8	3.0	3.2	3.1	3.1	3.1	3.1	3.2	3.0	3.9	5.4																							
6-Oct	2.9	1.3	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.9	0.9	2.9																							
7-Oct	1.1	1.3	1.6	2.8	3.4	3.4	3.6	3.8	3.5	4.3	4.2	3.3	3.4	4.4	4.3	5.6	5.7	5.6	3.9	2.2	2.8	3.4	3.0	2.3	3.5	5.7																							
8-Oct	3.1	2.5	1.8	1.7	1.9	1.8	1.7	2.3	3.4	6.1	5.4	5.0	5.2	7.0	11.2	8.6	7.8	13.5	14.7	5.1	1.2	1.2	1.0	0.9	4.8	14.7																							
9-Oct	0.8	0.8	0.9	0.8	0.9	1.0	1.4	1.9	2.1	1.8	2.4	2.9	3.0	2.9	2.9	2.7	2.9	3.1	3.2	3.1	3.2	3.2	3.4	3.4	2.3	3.4																							
10-Oct	3.5	3.4	3.3	3.2	3.3	3.2	3.1	2.9	2.6	2.4	1.9	1.8	1.5	1.4	1.2	1.0	1.1	1.2	1.2	2.5	2.5	1.9	2.0	1.9	2.2	3.5																							
11-Oct	1.7	1.9	2.0	2.3	2.4	2.3	2.3	2.6	2.8	2.9	C	C	3.2	4.0	3.9	2.6	2.5	2.4	2.5	2.6	2.6	2.7	2.6	2.7	2.6	4.0																							
12-Oct	2.7	2.8	2.7	2.6	2.7	2.7	2.7	2.8	2.8	2.8	3.1	3.6	4.0	3.7	6.6	6.7	7.3	6.7	5.7	4.6	4.4	4.3	4.5	4.5	4.0	7.3																							
13-Oct	4.6	5.3	7.6	6.6	5.8	5.9	5.7	5.9	5.7	6.6	12.0	5.2	6.3	4.7	7.7	7.3	9.9	12.1	8.8	5.6	6.1	14.4	6.2	6.0	7.2	14.4																							
14-Oct	9.1	8.1	12.1	9.4	6.9	7.1	6.8	5.7	8.8	6.2	13.6	19.6	9.9	9.3	11.5	9.3	8.6	7.9	7.5	8.6	11.4	6.9	4.8	4.1	8.9	19.6																							
15-Oct	4.0	4.0	3.9	3.7	2.9	1.9	1.6	1.3	1.6	2.7	3.2	3.2	3.2	3.5	3.8	4.5	5.3	5.1	4.6	4.6	3.2	1.9	1.6	1.6	3.2	5.3																							
16-Oct	1.4	1.4	1.6	1.6	1.6	3.1	5.0	4.1	3.6	3.5	2.7	2.2	2.1	3.9	5.8	8.7	11.7	13.1	9.4	7.3	6.6	7.0	6.8	6.5	5.0	13.1																							
17-Oct	8.8	9.4	7.9	6.7	5.3	4.2	3.2	2.7	2.7	2.6	2.6	2.5	3.0	5.6	7.3	5.4	3.0	3.3	3.2	3.7	1.5	0.8	0.9	1.0	4.1	9.4																							
18-Oct	0.9	0.6	0.6	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2	2.5	2.9	2.7	2.9	3.1	3.0	2.8	4.1	5.2	3.6	3.4	3.2	2.9	2.1	5.2																							
19-Oct	3.1	5.0	5.8	5.9	5.8	3.2	2.5	2.6	3.1	3.9	4.3	3.7	3.4	3.8	3.7	3.6	3.5	3.1	2.6	2.2	1.5	0.7	0.3	0.3	3.2	5.9																							
20-Oct	0.5	0.8	1.1	1.2	1.1	1.1	1.1	1.1	1.5	3.3	3.0	2.2	2.6	1.7	1.3	2.0	3.7	1.4	0.9	0.9	0.7	0.6	0.6	0.6	1.5	3.7																							
21-Oct	0.6	0.5	0.6	0.5	0.4	0.3	0.3	0.4	0.3	0.6	0.7	0.7	0.4	0.5	0.4	0.4	0.6	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.7																							
22-Oct	0.5	0.5	0.5	0.6	0.7	1.0	1.4	1.8	2.5	2.8	3.2	3.5	4.0	3.6	3.2	2.9	2.8	2.7	2.6	2.5	2.5	2.5	2.5	2.6	2.2	4.0																							
23-Oct	2.5	2.5	2.5	2.4	2.3	2.2	2.1	2.1	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.8	1.7	2.1	2.3	2.0	2.5																								
24-Oct	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.2	1.8	1.5	1.5	1.2	1.1	0.9	0.8	0.8	0.6	0.6	0.8	0.8	0.9	1.5	2.5																								
25-Oct	2.4	2.7	2.2	1.5	1.0	0.9	1.0	0.9	0.9	1.1	2.3	3.5	3.2	2.3	1.3	0.7	0.8	0.8	1.2	0.7	0.7	0.8	0.8	0.8	1.4	3.5																							
26-Oct	1.4	2.7	2.3	2.8	2.7	2.4	3.0	3.2	3.1	3.4	3.3	4.3	3.7	3.8	4.6	5.4	8.2	3.0	4.5	5.7	8.1	5.9	4.8	3.2	4.0	8.2																							
27-Oct	2.9	3.2	3.5	5.3	6.9	6.9	7.3	7.1	7.2	6.7	5.0	4.8	5.1	5.4	4.6	4.5	4.7	4.6	4.4	4.3	4.3	4.9	6.6	7.7	5.3	7.7																							
28-Oct	6.7	3.5	2.1	0.9	0.8	0.9	1.5	1.7	1.9	1.6	1.6	1.6	2.5	2.4	1.9	1.3	0.9	1.7	1.5	0.9	1.2	1.1	1.0	1.2	1.8	6.7																							
29-Oct	1.5	1.7	1.0	0.9	1.3	1.4	1.7	1.9	2.1	2.1	1.4	0.7	0.8	0.9	1.1	1.5	2.0	2.5	3.5	3.6	3.0	3.3	3.2	2.5	1.9	3.6																							
30-Oct	1.3	2.2	2.7	1.8	1.6	2.6	3.0	2.7	3.2	3.3	2.6	3.2	1.8	1.6	1.5	1.7	1.1	1.5	1.0	2.0	1.8	2.0	2.2	3.4	2.2	3.4																							
31-Oct	4.1	3.8	4.1	3.0	3.4	4.1	3.7	3.5	3.4	3.0	2.2	2.8	3.1	3.2	6.0	4.2	4.7	4.6	5.4	6.7	6.1	5.0	4.0	3.7	4.1	6.7																							
																								3.0	3.0	3.1	2.9	2.8	2.8	2.8	2.9	3.1	3.2	3.6	3.6	3.3	3.4	4.1	3.9	4.4	4.4	4.1	3.7	3.5	3.3	2.9	2.9	Diurnal Average	
																								9.1	9.4	12.1	9.4	6.9	7.1	7.3	7.8	8.8	7.8	13.6	19.6	9.9	9.8	16.3	12.7	13.3	17.4	16.3	13.4	12.6	14.4	8.8	9.3	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>) -  $\mu\text{g}/\text{m}^3$**   
**Ells River - October 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	622	83.83	83.83
6 - 15	116	15.63	99.46
16 - 25	4	0.54	100.00
26 - 80	0	0.00	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>**  
**Ells River - October 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	38	13	4	5	9	9	29	60	102	94	41	40	70	16	14	616
6 - 15	10	7	1	2	3	1	10	28	15	6	6	1	5	6	5	7	113
16 - 25	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
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>	83	45	14	6	8	10	19	57	75	111	100	42	45	76	21	21	733

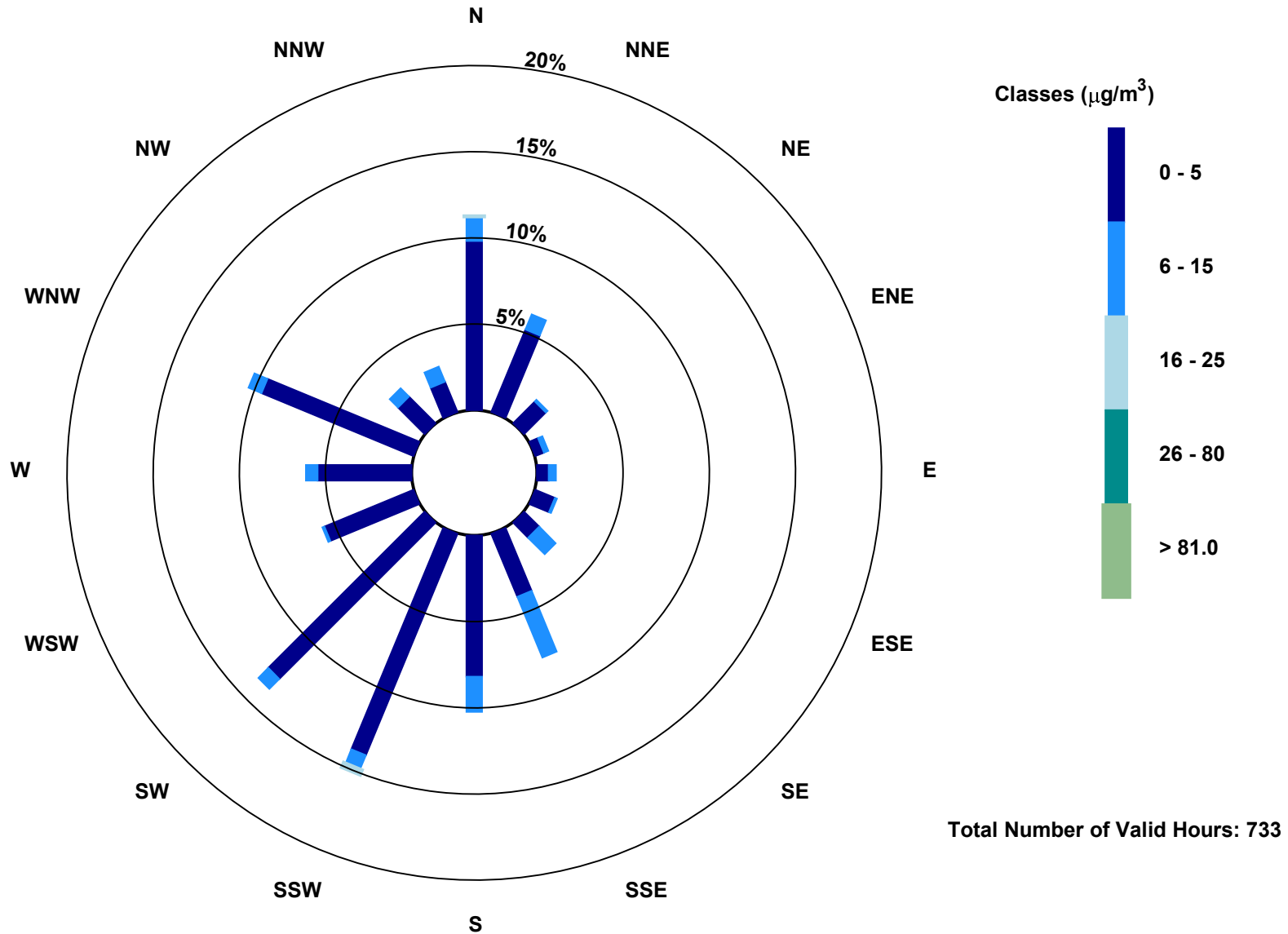
Total Number of Valid Hours: 733

Total Number of Hours: 744



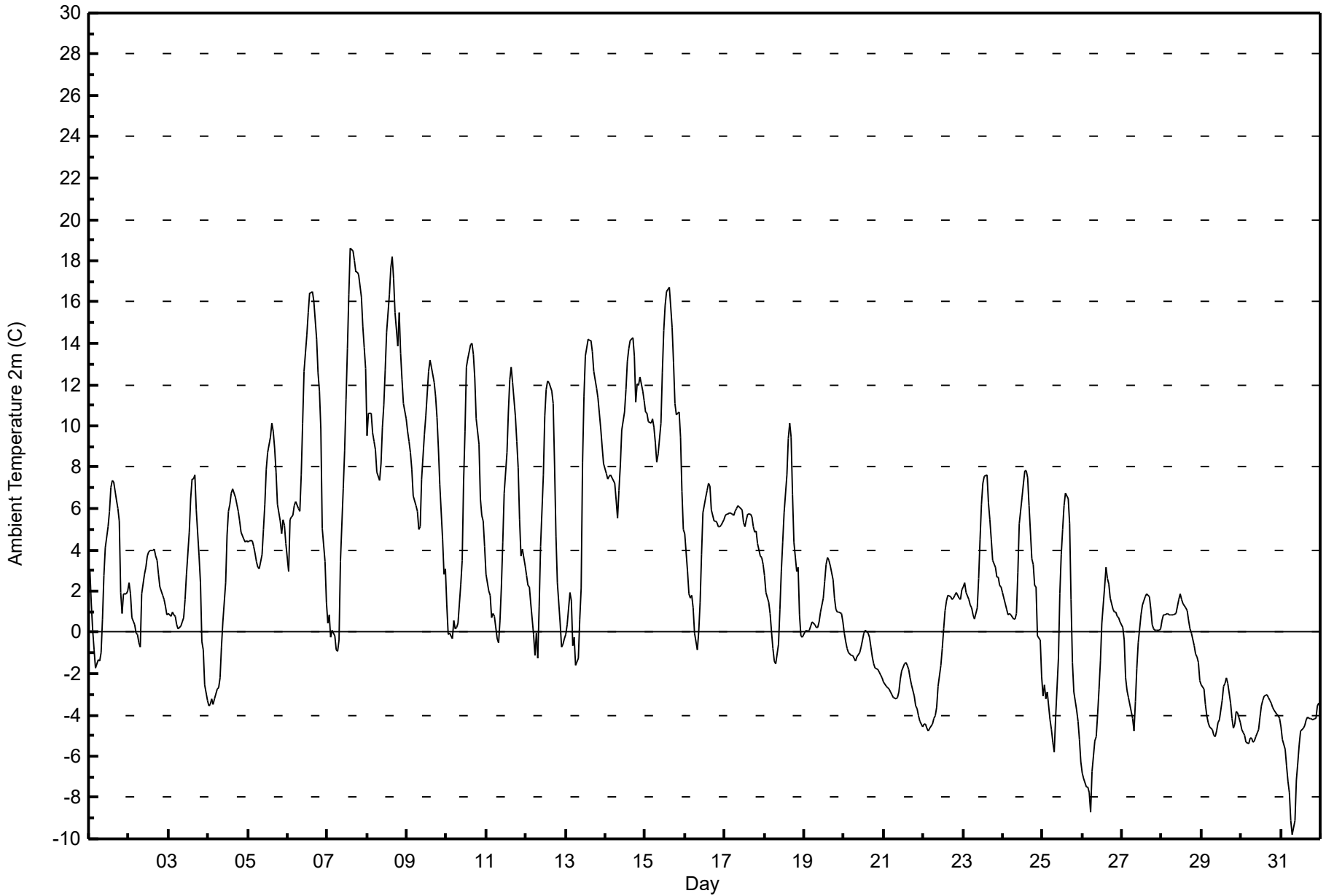
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Ells River





Maximum Value: 18.6 C on Oct 7 15:00		Maximum Daily Average: 12.1 C on Oct 8		Hours in Service: 744																							
Minimum Value: -9.8 C on Oct 31 08:00		Minimum Daily Average: -5.6 C on Oct 31		Hours of Data: 744																							
Maximum Diurnal Average: 7.4 C at hour 15		Minimum Diurnal Average: -0.3 C at hour 8		Hours of Missing Data: 0																							
Monthly Average: 3.09 C		Percentiles: P <sub>1</sub> = -7.4 P <sub>10</sub> = -4.1 Q <sub>1</sub> = -0.8 Median = 1.9 Q <sub>3</sub> = 6.5 P <sub>90</sub> = 11.6 P <sub>99</sub> = 17.2		Hours of Calibration: 0																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Oct	3.0	1.4	0.1	-0.8	-1.7	-1.3	-1.4	-1.0	0.6	2.7	4.1	5.1	5.9	7.0	7.4	7.3	6.4	6.0	5.4	1.9	0.9	1.9	1.9	2.0	2.7	7.4	
2-Oct	2.4	1.9	0.7	0.4	-0.1	-0.1	-0.5	-0.7	1.9	2.8	3.2	3.7	3.9	4.0	4.0	4.0	3.7	3.5	2.8	2.2	1.8	1.6	1.2	0.8	2.0	4.0	
3-Oct	0.9	0.8	1.0	0.8	0.8	0.4	0.2	0.3	0.5	0.7	1.6	2.8	4.8	6.5	7.4	7.4	7.6	6.0	3.7	2.4	-0.5	-0.9	-2.6	-3.3	2.1	7.6	
4-Oct	-3.6	-3.5	-3.2	-3.5	-3.2	-2.8	-2.7	-2.2	-0.7	0.5	2.4	4.7	5.8	6.2	6.8	7.0	6.5	6.2	5.9	5.4	4.8	4.5	4.4	4.5	2.1	7.0	
5-Oct	4.3	4.5	4.4	4.2	3.8	3.4	3.2	3.1	3.8	5.0	6.2	7.9	8.7	9.5	10.1	9.8	8.9	7.8	6.2	5.4	4.8	5.4	5.2	4.3	5.8	10.1	
6-Oct	3.0	5.4	5.6	5.7	6.1	6.3	6.0	5.9	7.6	10.2	12.6	14.4	15.5	16.5	16.5	16.1	14.2	12.5	11.7	9.9	5.1	3.4	1.4	9.5	16.5		
7-Oct	0.4	0.9	-0.2	0.1	-0.2	-0.8	-0.9	-0.4	3.4	6.9	8.8	11.3	13.7	16.4	18.6	18.5	18.0	17.5	17.5	17.3	16.2	14.8	13.8	12.8	9.3	18.6	
8-Oct	9.5	10.6	10.6	9.7	9.2	8.8	7.7	7.4	8.2	10.0	11.0	12.7	14.6	16.4	17.7	18.2	17.1	15.5	13.9	15.5	13.5	12.3	11.1	10.4	12.1	18.2	
9-Oct	9.7	9.2	8.7	7.9	6.6	6.1	5.8	5.0	5.1	7.4	9.6	10.5	11.6	12.7	13.2	12.8	12.1	11.4	10.4	8.9	7.2	4.5	2.8	3.1	8.4	13.2	
10-Oct	1.3	-0.1	-0.1	-0.3	0.5	0.2	0.2	0.5	2.3	3.5	7.3	9.7	12.8	13.3	13.9	14.0	13.4	12.3	10.3	9.1	6.5	5.7	5.4	4.2	6.1	14.0	
11-Oct	2.8	2.0	1.8	0.7	0.9	0.8	-0.3	-0.5	0.6	2.2	4.4	6.7	8.7	10.6	12.3	12.8	12.1	10.5	9.3	8.0	5.5	3.7	4.0	3.2	5.1	12.8	
12-Oct	2.7	2.3	2.2	1.4	-0.1	-1.1	-0.1	-1.2	1.2	4.2	7.6	10.5	11.8	12.2	12.1	11.7	11.1	8.1	4.7	2.4	0.4	-0.7	-0.6	-0.3	4.3	12.2	
13-Oct	-0.1	0.4	1.9	1.5	-0.6	-0.3	-1.6	-1.3	0.7	2.2	8.2	11.4	13.4	14.2	14.1	14.1	13.6	12.7	11.8	11.3	10.6	9.9	9.0	8.1	6.9	14.2	
14-Oct	7.7	7.4	7.5	7.7	7.5	7.2	6.4	5.5	6.8	8.1	9.8	10.7	11.8	13.1	13.8	14.1	14.3	13.4	11.2	12.0	12.0	12.4	11.7	11.2	10.1	14.3	
15-Oct	10.7	10.6	10.2	10.1	10.4	10.0	9.2	8.3	8.7	10.2	12.5	14.6	15.9	16.5	16.7	15.7	14.8	13.1	11.1	10.5	10.7	9.5	6.8	5.0	11.3	16.7	
16-Oct	4.8	2.9	1.8	1.6	1.8	1.2	0.0	-0.9	0.1	1.5	3.7	5.8	6.5	6.9	7.2	7.1	5.9	5.4	5.4	5.3	5.1	5.1	5.2	5.5	4.0	7.2	
17-Oct	5.7	5.7	5.7	5.8	5.7	5.6	5.8	6.0	6.2	6.1	6.0	5.3	5.1	5.5	5.7	5.7	5.6	5.1	4.8	4.9	4.3	3.7	3.6	3.3	5.3	6.2	
18-Oct	2.7	1.9	1.5	0.9	0.0	-0.8	-1.4	-1.5	-0.6	1.1	3.0	4.4	5.8	7.6	9.4	10.2	9.5	6.7	4.4	2.9	3.2	0.9	-0.2	-0.2	3.0	10.2	
19-Oct	0.1	0.1	0.0	0.1	0.3	0.5	0.4	0.2	0.3	0.5	1.0	1.7	2.5	3.3	3.6	3.5	3.2	2.5	1.7	1.1	1.0	1.0	0.9	0.5	1.2	3.6	
20-Oct	0.0	-0.5	-0.8	-1.0	-1.1	-1.1	-1.3	-1.4	-1.2	-1.0	-0.7	-0.3	0.0	0.1	0.0	-0.2	-0.7	-1.2	-1.5	-1.7	-1.8	-1.9	-2.1	-2.2	-1.0	0.1	
21-Oct	-2.4	-2.6	-2.7	-2.7	-2.8	-3.0	-3.2	-3.2	-3.1	-2.9	-2.3	-1.9	-1.5	-1.4	-1.6	-1.8	-2.2	-2.5	-3.1	-3.5	-3.7	-4.0	-4.3	-4.6	-2.8	-1.4	
22-Oct	-4.4	-4.4	-4.6	-4.8	-4.6	-4.4	-4.2	-4.1	-3.6	-2.6	-1.6	-0.8	0.1	1.1	1.5	1.8	1.7	1.6	1.6	1.8	1.9	1.6	1.6	2.1	-1.1	2.1	
23-Oct	2.2	2.4	1.9	1.6	1.3	1.2	0.8	0.6	1.2	2.6	4.5	6.2	7.2	7.5	7.7	6.3	5.4	4.5	3.5	3.2	2.7	2.7	2.3	2.2	3.4	7.7	
24-Oct	1.9	1.4	1.1	0.8	0.9	0.9	0.7	0.6	0.9	2.9	5.3	6.5	7.2	7.8	7.9	7.5	6.1	3.6	3.3	2.3	2.2	-0.2	-0.4	-2.1	2.9	7.9	
25-Oct	-3.1	-2.5	-3.2	-2.9	-4.2	-4.7	-5.3	-5.8	-4.1	-1.3	1.9	3.8	5.0	6.1	6.8	6.5	5.3	1.6	-1.5	-2.9	-3.8	-4.3	-5.2	-6.3	-1.0	6.8	
26-Oct	-6.8	-7.1	-7.5	-7.5	-7.8	-8.7	-6.8	-5.3	-5.0	-3.9	-2.7	-1.4	0.4	2.2	3.2	2.6	2.3	1.6	1.2	1.0	1.0	0.8	0.7	0.5	-2.2	3.2	
27-Oct	0.3	-0.4	-2.2	-2.8	-3.1	-3.8	-4.1	-4.8	-3.4	-1.8	-0.5	0.9	1.3	1.5	1.7	1.9	1.7	1.1	0.4	0.2	0.1	0.1	0.1	0.1	-0.6	1.9	
28-Oct	0.6	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.9	1.3	1.6	1.9	1.6	1.4	1.2	1.0	0.6	0.1	0.0	-0.6	-1.0	-1.2	-1.5	-2.3	0.5	1.9	
29-Oct	-2.6	-2.7	-3.5	-4.0	-4.4	-4.6	-4.7	-5.0	-5.1	-4.8	-4.4	-4.2	-3.3	-2.6	-2.5	-2.2	-2.5	-3.4	-4.2	-4.6	-4.5	-3.9	-3.9	-4.4	-3.8	-2.2	
30-Oct	-4.7	-4.8	-5.0	-5.3	-5.4	-5.1	-5.1	-5.3	-5.3	-5.1	-4.7	-4.1	-3.6	-3.3	-3.1	-3.0	-3.1	-3.3	-3.4	-3.6	-3.8	-3.9	-4.0	-4.2	-4.3	-3.0	
31-Oct	-4.6	-5.2	-5.7	-6.5	-7.3	-7.7	-9.1	-9.8	-9.1	-7.2	-6.4	-5.5	-4.7	-4.6	-4.5	-4.2	-4.1	-4.2	-4.2	-4.2	-4.2	-4.2	-3.5	-3.4	-5.6	-3.4	
		1.4	1.3	0.9	0.6	0.3	0.1	-0.2	-0.3	0.6	2.0	3.6	5.0	6.1	6.9	7.4	7.3	6.8	5.7	4.7	4.1	3.3	2.6	2.2	1.7	Diurnal Average	
		10.7	10.6	10.6	10.1	10.4	10.0	9.2	8.3	8.7	10.2	12.6	14.6	15.9	16.5	18.6	18.5	18.0	17.5	17.5	17.3	16.2	14.8	13.8	12.8	Diurnal Maximum	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C**  
**Ells River - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	230	30.91	30.91
0 - 10	406	54.57	85.48
10 - 20	108	14.52	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 2m (RH2) - %**  
**Ells River - October 2024**

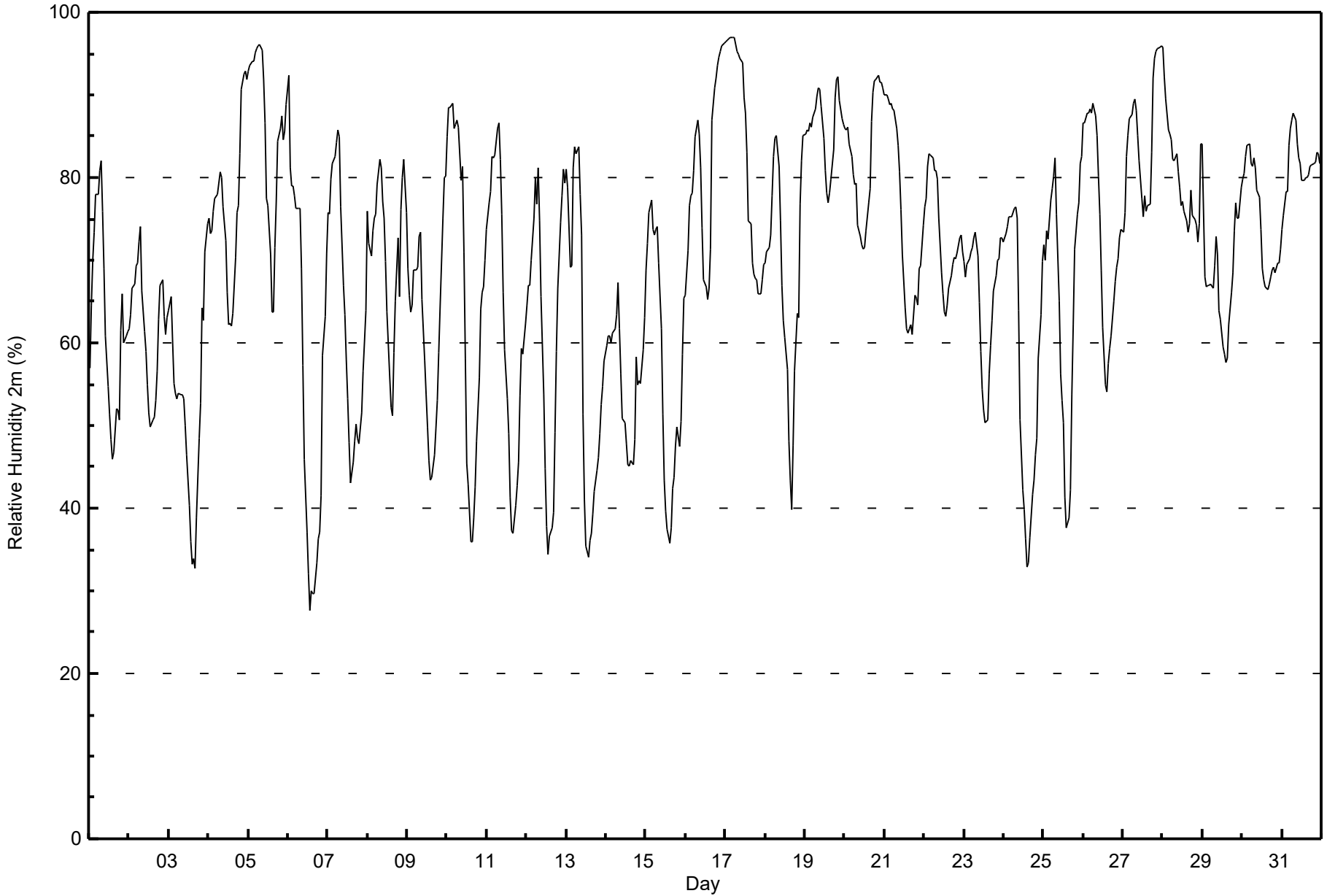
Maximum Value: 97.0 % on Oct 17 05:00		Maximum Daily Average: 86.0 % on Oct 19		Hours in Service: 744																							
Minimum Value: 27.7 % on Oct 6 14:00		Minimum Daily Average: 52.1 % on Oct 3		Hours of Data: 744																							
Maximum Diurnal Average: 81.1 % at hour 8		Minimum Diurnal Average: 53.4 % at hour 15		Hours of Missing Data: 0																							
Monthly Average: 69.51 %		Percentiles: P <sub>1</sub> = 33.3 P <sub>10</sub> = 46.2 Q <sub>1</sub> = 60.0 Median = 71.6 Q <sub>3</sub> = 81.2 P <sub>90</sub> = 88.0 P <sub>99</sub> = 96.1		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-Oct	56.9	64.6	70.1	73.4	78.0	78.0	80.9	82.0	75.9	69.0	60.8	54.8	51.3	48.4	46.0	46.7	52.0	51.9	50.6	61.6	65.9	60.0	60.8	61.3	62.5	82.0	
2-Oct	61.8	63.4	66.6	67.0	69.4	69.7	72.3	74.1	66.2	61.4	58.9	55.0	51.4	49.8	50.7	50.9	53.1	56.6	62.8	67.0	67.6	63.2	61.0	63.1	61.8	74.1	
3-Oct	63.9	65.5	60.2	55.0	53.8	53.2	54.0	53.8	53.8	53.2	49.9	46.4	40.3	35.9	33.2	33.9	32.7	38.8	48.4	52.8	64.2	62.7	71.0	74.4	52.1	74.4	
4-Oct	75.2	73.2	73.6	76.0	77.5	78.0	79.4	80.7	80.0	76.4	72.4	66.2	62.1	62.3	62.1	63.6	70.3	75.8	76.6	82.9	90.7	92.5	92.9	91.8	76.3	92.9	
5-Oct	92.8	93.6	94.0	94.0	95.2	95.6	96.0	96.0	95.4	91.8	86.7	77.4	76.6	70.7	63.7	63.7	71.6	77.1	84.3	85.9	87.4	84.6	85.7	88.8	85.4	96.0	
6-Oct	92.3	81.2	79.0	79.0	77.8	76.3	76.3	76.3	69.0	57.4	46.0	37.1	32.1	27.7	30.1	29.7	29.6	33.4	36.3	37.1	41.5	58.5	63.3	70.9	55.7	92.3	
7-Oct	75.7	75.7	79.8	81.8	82.5	84.3	85.7	84.9	76.5	67.0	63.4	58.0	53.2	48.0	43.0	45.6	48.1	50.2	48.5	47.7	51.6	56.5	60.2	63.8	63.8	85.7	
8-Oct	76.0	72.0	70.6	73.5	75.1	75.6	79.2	82.2	81.2	77.2	75.1	69.8	63.8	56.0	52.1	51.3	58.8	65.2	72.8	65.6	76.0	80.1	82.3	75.8	71.1	82.3	
9-Oct	69.0	65.8	63.8	64.5	68.8	68.9	69.1	72.9	73.4	65.2	57.8	53.7	49.8	45.8	43.4	43.7	46.4	49.7	53.0	58.9	64.4	75.1	80.0	80.2	61.8	80.2	
10-Oct	84.9	88.6	88.5	88.9	85.9	86.4	87.0	86.1	79.7	81.4	71.1	58.1	45.4	42.9	35.9	35.9	38.8	42.6	48.1	55.7	64.1	66.1	66.7	70.0	66.6	88.9	
11-Oct	73.8	76.9	78.2	82.5	82.5	82.6	86.0	86.5	82.1	75.6	66.1	59.1	53.3	48.9	41.4	37.3	37.0	40.3	42.8	45.7	53.5	59.4	58.6	62.4	63.0	86.5	
12-Oct	64.5	66.9	67.0	70.0	75.1	80.0	76.7	81.1	74.7	65.6	53.7	44.7	37.7	34.4	36.7	37.7	39.6	49.2	59.1	66.5	74.6	77.7	81.1	79.4	62.2	81.1	
13-Oct	81.0	78.9	69.2	69.4	81.1	83.8	83.0	83.8	77.9	73.0	51.3	41.1	35.4	34.1	36.0	37.0	39.4	42.0	44.5	46.1	49.1	52.5	54.7	57.7	58.4	83.8	
14-Oct	59.6	60.9	60.8	60.0	61.1	61.7	63.4	67.3	61.6	56.3	50.9	50.4	47.7	45.2	45.0	45.7	45.3	48.3	58.3	54.9	55.4	55.0	59.1	63.1	55.7	67.3	
15-Oct	68.9	72.0	75.7	77.3	73.8	73.1	73.7	74.0	69.7	61.7	51.4	43.4	39.6	37.4	35.7	37.6	42.4	43.8	47.5	49.8	47.5	50.5	58.7	65.5	57.1	77.3	
16-Oct	65.8	71.3	76.6	77.8	78.1	80.8	84.8	86.9	85.2	81.3	73.9	67.7	66.8	65.2	66.6	71.3	86.9	90.8	92.0	93.5	94.6	95.3	96.0	96.3	81.1	96.3	
17-Oct	96.5	96.7	96.8	97.0	97.0	97.0	96.1	95.2	94.8	94.5	93.9	89.6	87.7	83.0	74.7	74.3	69.7	68.3	67.8	67.6	65.9	65.9	67.6	69.4	83.6	97.0	
18-Oct	69.7	71.0	71.5	73.1	77.8	82.5	84.7	85.0	81.3	74.8	66.9	62.7	60.7	56.8	48.2	43.4	39.8	47.7	56.6	63.5	63.1	76.8	82.0	85.2	67.7	85.2	
19-Oct	85.3	85.7	85.6	86.6	86.1	87.3	88.3	89.8	90.8	90.7	88.6	84.7	80.8	78.1	77.0	78.1	79.9	83.4	89.7	91.9	92.1	89.3	87.1	86.4	86.0	92.1	
20-Oct	85.9	85.8	86.1	84.1	82.5	80.3	79.1	79.3	74.2	73.0	71.8	71.3	71.6	73.5	76.9	78.6	86.8	90.4	91.8	91.9	92.4	91.5	91.6	90.9	82.5	92.4	
21-Oct	89.9	90.0	89.5	88.9	89.1	88.3	88.1	85.9	83.9	80.6	76.0	70.6	64.2	61.6	61.2	61.7	62.3	61.1	65.7	65.4	64.6	68.9	69.3	74.2	75.0	90.0	
22-Oct	76.5	77.4	81.4	82.9	82.8	82.3	80.8	80.9	79.9	75.1	68.5	65.9	63.8	63.2	64.5	66.6	68.1	69.6	70.3	70.2	70.8	72.7	73.1	71.0	73.3	82.9	
23-Oct	69.9	68.0	69.4	70.1	71.0	71.6	72.7	73.3	70.5	64.9	59.1	54.5	51.8	50.3	50.7	56.2	59.6	62.7	66.3	68.2	70.0	70.2	72.7	72.7	65.3	73.3	
24-Oct	72.3	73.3	74.1	75.3	75.2	75.3	76.2	76.5	75.1	63.9	50.7	42.2	39.8	36.3	32.9	33.3	36.5	41.6	43.3	46.4	48.5	58.2	63.4	69.8	57.5	76.5	
25-Oct	71.9	70.0	73.6	72.6	77.2	78.6	80.2	82.4	75.5	65.1	56.3	53.1	50.3	41.3	37.5	38.8	42.3	53.8	62.2	71.4	75.6	77.0	81.7	82.6	65.5	82.6	
26-Oct	86.7	86.6	87.8	87.9	88.3	87.8	89.0	87.5	85.1	80.1	75.6	68.8	61.8	54.9	54.1	57.4	59.2	60.8	65.0	67.4	69.1	70.1	72.6	73.7	74.1	89.0	
27-Oct	73.4	75.8	82.6	85.1	87.1	87.6	88.9	89.4	88.1	85.2	82.1	77.4	75.2	77.8	75.9	76.6	76.7	83.0	92.0	94.4	95.3	95.6	95.8	95.9	84.9	95.9	
28-Oct	95.7	92.2	89.4	85.8	85.3	84.6	82.2	82.0	82.9	80.6	78.8	76.6	77.2	75.9	74.7	73.4	74.5	78.6	75.5	75.0	74.2	72.3	74.4	84.1	80.2	95.7	
29-Oct	84.0	67.9	66.7	67.0	66.9	67.2	66.7	69.4	72.9	70.6	63.9	62.8	59.5	58.6	57.6	58.2	62.2	66.0	68.5	73.5	76.9	75.1	75.0	78.8	68.2	84.0	
30-Oct	79.9	80.5	82.5	84.0	84.0	81.7	81.4	82.5	81.1	78.5	77.6	73.8	69.0	67.6	66.7	66.4	67.1	68.0	68.8	69.2	68.5	69.6	69.7	71.3	74.6	84.0	
31-Oct	73.7	75.5	78.3	78.2	83.9	85.9	86.9	87.8	86.9	84.0	82.3	81.8	79.7	79.7	80.0	79.9	80.4	81.3	81.6	81.8	81.9	83.0	82.9	81.8	81.6	87.8	
		76.6	76.3	77.1	77.7	79.0	79.5	80.3	81.1	78.2	73.4	67.1	61.9	58.1	55.2	53.4	54.0	56.7	60.4	64.2	66.8	69.6	71.8	73.9	75.9	Diurnal Average	
		96.5	96.7	96.8	97.0	97.0	96.1	96.0	95.4	94.5	93.9	89.6	87.7	83.0	80.0	79.9	86.9	90.8	92.0	94.4	95.3	95.6	96.0	96.3	Diurnal Maximum		





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity 2m (RH2) - %**  
**Ells River - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %**  
**Ells River - October 2024**

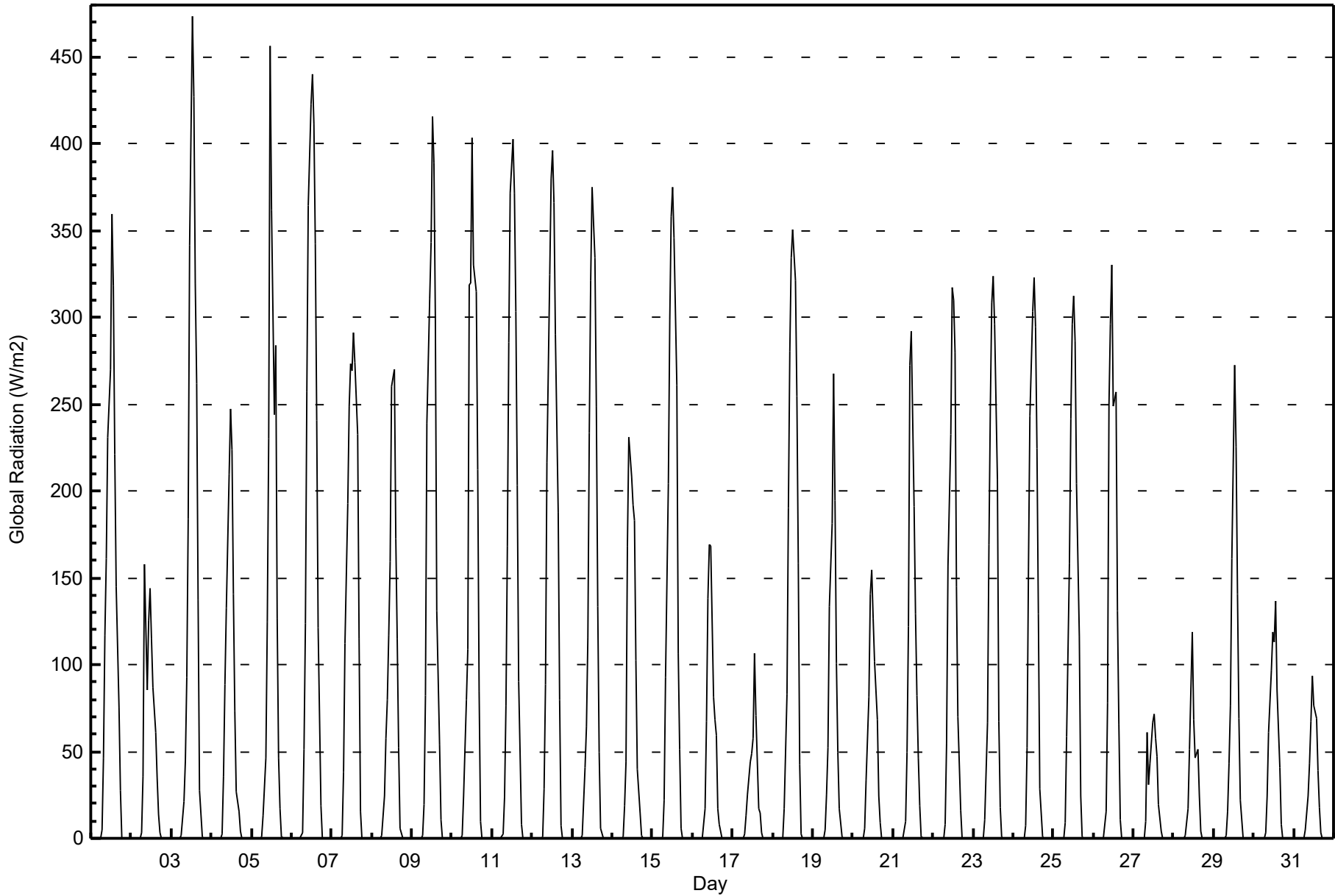
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	41	5.51	5.51
40 - 60	145	19.49	25.00
60 - 80	349	46.91	71.91
80 - 100	209	28.09	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 473.5 W/m2 on Oct 3 13:00		Maximum Daily Average: 116.6 W/m2 on Oct 6		Hours in Service: 744																						
Minimum Value: 0.0 W/m2 on Oct 1 02:00		Minimum Daily Average: 16.8 W/m2 on Oct 17		Hours of Data: 744																						
Maximum Diurnal Average: 266.4 W/m2 at hour 13		Minimum Diurnal Average: 0.0 W/m2 at hour 6		Hours of Missing Data: 0																						
Monthly Average: 62.73 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> = 79.7 P <sub>90</sub> = 253.3 P <sub>99</sub> = 402.9		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-Oct	0.0	0.0	0.0	0.1	0.0	0.0	4.7	46.4	116.9	161.4	230.7	270.1	359.5	318.3	221.3	145.2	75.5	27.5	0.4	0.1	0.0	0.0	0.0	0.0	82.4	359.5
2-Oct	0.0	0.0	0.0	0.0	0.0	0.0	3.6	35.9	158.0	85.6	125.0	143.9	114.5	87.0	61.1	35.1	14.1	3.3	0.0	0.0	0.0	0.0	0.0	0.0	36.1	158.0
3-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.8	21.2	45.1	92.3	184.2	342.1	473.5	427.0	319.3	262.1	137.4	27.4	0.5	0.2	0.2	0.2	0.2	0.2	97.3	473.5
4-Oct	0.1	0.1	0.0	0.0	0.0	0.0	2.5	36.0	88.7	132.9	209.9	247.2	223.3	140.5	73.3	27.1	15.8	4.3	0.0	0.0	0.0	0.0	0.0	0.0	50.1	247.2
5-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.8	12.9	46.1	124.5	230.2	456.8	362.1	244.2	283.9	127.0	46.4	17.4	0.4	0.0	0.0	0.0	0.0	0.0	81.4	456.8
6-Oct	0.0	0.1	0.0	0.0	0.0	0.0	3.1	51.3	123.8	257.4	364.3	422.8	440.0	411.4	342.8	240.5	120.8	18.4	0.3	0.1	0.1	0.1	0.1	0.1	116.6	440.0
7-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.9	38.2	112.4	193.2	249.3	273.6	269.1	291.5	274.3	233.0	114.4	15.7	0.0	0.0	0.0	0.0	0.0	0.0	86.1	291.5
8-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.4	24.1	58.1	79.4	117.1	159.1	260.5	270.4	172.7	114.5	52.4	6.1	0.0	0.0	0.0	0.0	0.0	0.0	54.8	270.4
9-Oct	0.0	0.1	0.0	0.1	0.1	0.1	1.9	19.8	82.0	239.4	310.4	343.0	416.1	389.2	300.0	131.0	54.1	10.9	0.1	0.0	0.0	0.0	0.0	0.0	95.8	416.1
10-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.0	24.7	79.6	108.7	318.6	319.9	403.2	330.2	314.4	212.3	84.5	9.6	0.0	0.0	0.0	0.0	0.0	0.0	92.0	403.2
11-Oct	0.0	0.0	0.0	0.0	0.0	0.0	2.2	23.7	76.6	168.6	285.3	371.8	402.5	371.7	303.4	203.7	90.3	8.4	0.0	0.0	0.0	0.0	0.0	0.0	96.2	402.5
12-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.9	28.6	88.5	216.5	324.5	380.2	396.0	366.4	290.7	188.3	79.7	7.5	0.0	0.0	0.0	0.0	0.0	0.0	98.7	396.0
13-Oct	0.0	0.0	0.0	0.0	0.0	0.0	1.2	40.7	64.5	115.6	233.8	321.6	374.9	334.1	249.3	133.5	49.4	5.6	0.0	0.0	0.0	0.0	0.0	0.0	80.2	374.9
14-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.5	18.9	43.6	168.4	230.8	208.6	192.2	183.4	102.8	40.1	14.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	50.2	230.8
15-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.7	22.1	92.9	204.6	298.9	357.8	375.3	345.5	260.8	106.3	51.6	5.5	0.1	0.0	0.0	0.1	0.1	0.1	88.4	375.3
16-Oct	0.0	0.1	0.0	0.0	0.0	0.0	0.2	16.7	67.7	138.5	169.3	168.0	81.5	68.1	59.3	17.2	8.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	33.1	169.3
17-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	12.6	24.8	43.8	49.0	57.7	106.8	70.8	17.1	14.3	3.2	0.0	0.0	0.0	0.0	0.0	0.0	16.8	106.8
18-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.4	16.8	83.3	190.6	280.7	334.3	351.1	321.8	254.9	158.9	42.1	2.4	0.0	0.0	0.0	0.0	0.0	0.0	84.9	351.1
19-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	24.9	52.1	133.7	181.2	267.7	194.6	101.1	49.5	17.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	42.8	267.7
20-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	33.0	81.4	140.6	154.3	127.2	101.9	68.2	24.1	9.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	31.1	154.3
21-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	50.0	122.2	272.5	291.7	191.1	129.3	82.2	46.5	18.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	50.6	291.7
22-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	54.4	157.4	232.6	316.9	309.7	280.2	145.1	70.0	16.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	66.3	316.9
23-Oct	0.1	0.0	0.1	0.0	0.0	0.0	0.0	10.8	66.4	169.5	248.6	308.4	323.9	295.9	207.0	67.8	17.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	71.6	323.9
24-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	51.9	156.1	243.2	303.2	322.7	294.2	224.8	129.3	28.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	73.4	322.7
25-Oct	0.0	0.0	0.1	0.0	0.0	0.1	0.1	8.6	58.5	158.9	241.3	295.8	312.0	286.5	204.0	115.9	24.2	0.8	0.1	0.1	0.1	0.1	0.1	0.1	71.1	312.0
26-Oct	0.1	0.0	0.0	0.1	0.1	0.0	0.0	15.6	78.3	249.7	296.3	330.1	248.7	257.0	130.9	65.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.1	330.1
27-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	60.9	31.1	42.8	66.5	71.4	57.8	47.6	19.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.1	71.4
28-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	16.7	51.6	85.5	118.9	68.5	46.8	51.3	24.5	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	118.9
29-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	15.6	43.0	76.4	161.2	272.5	225.3	140.5	69.5	22.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	42.8	272.5
30-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	24.5	60.9	96.7	118.7	113.4	136.8	85.6	40.4	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.7	136.8
31-Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.3	24.5	43.5	67.4	93.8	76.8	69.0	39.5	18.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	93.8
		0.0	0.0	0.0	0.0	0.0	1.0	18.5	64.5	131.6	205.9	255.2	266.4	238.1	176.9	101.1	40.3	5.8	0.1	0.0	0.0	0.0	0.0	0.0	Diurnal Average	
		0.1	0.1	0.1	0.1	0.1	4.7	51.3	158.0	257.4	364.3	456.8	473.5	427.0	342.8	262.1	137.4	27.5	0.5	0.2	0.2	0.2	0.2	0.2	Diurnal Maximum	



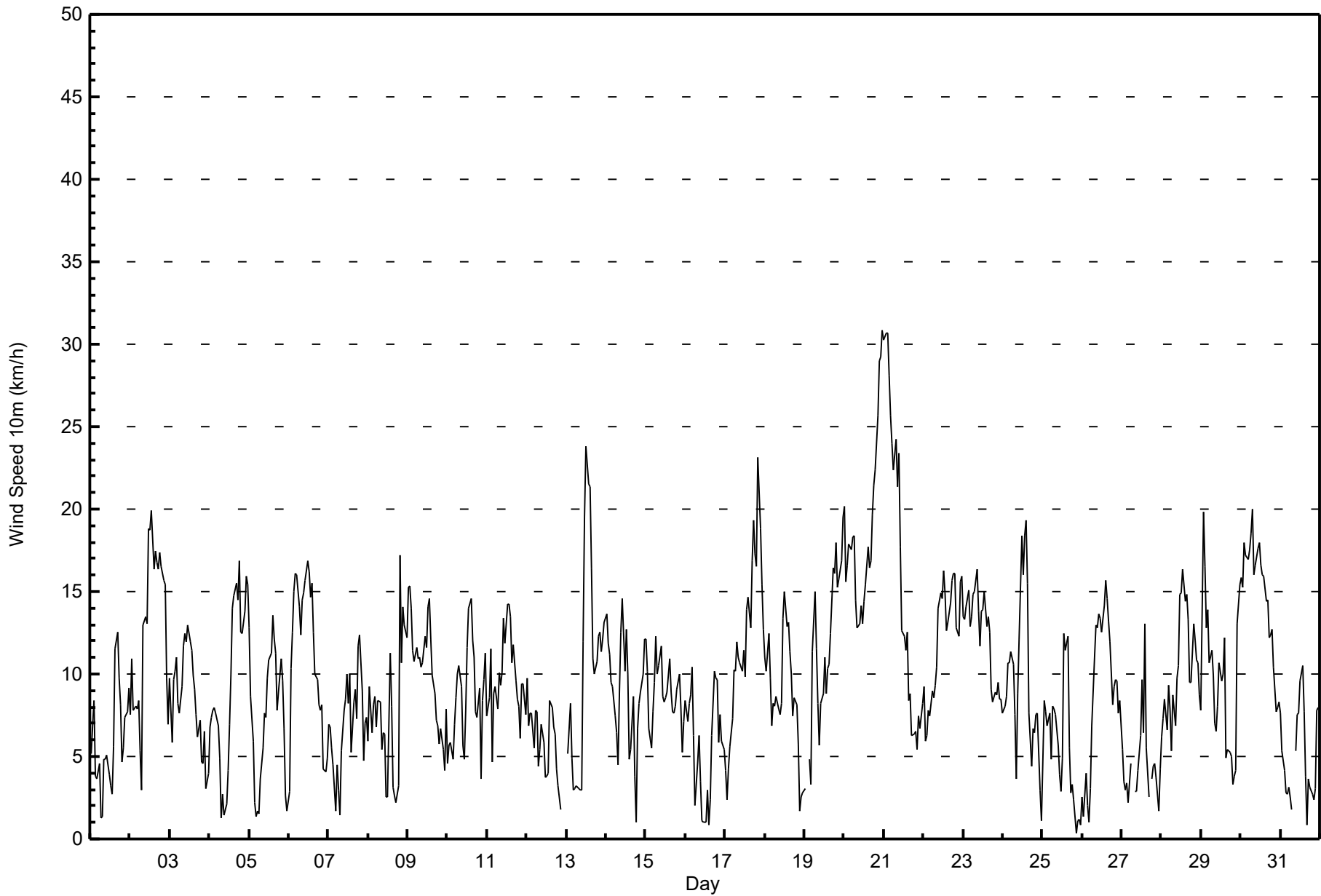


Maximum Speed: 31 km/h on Oct 21 00:00	Maximum Daily Speed Average: 18.6 km/h on Oct 20	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 25 21:00	Minimum Daily Speed Average: 0.4 km/h on Oct 16	Hours of Data: 735
Maximum Diurnal Speed Average: 3.8 km/h at hour 4	Minimum Diurnal Speed Average: 1.4 km/h at hour 18	Hours of Missing Data: 9
Monthly Average Velocity: 2.9 km/h 254.1 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 16 P <sub>99</sub> = 26	Percent Operational Time: 98.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	SW5	WSW7	WSW8	SSW4	SSW4	SW5	WSW1	W1	WSW5	WNW5	NNE5	NNE4	NE3	N3	NNW6	N12	NNE13	NNE10	N8	WNW5	W5	WNW7	W8	WNW9	NW3.1	NNE13
2-Oct	WNW8	WNW11	W8	WSW8	W8	WSW8	SW5	SW3	WNW13	WNW14	WNW13	WNW19	WNW19	WNW20	WNW16	WNW17	WNW17	NW16	NW17	NNW17	NNW16	NNW15	NW10	WNW7	WNW11.8	WNW20
3-Oct	WNW10	WNW6	WNW10	WNW10	NW11	W8	W8	WNW9	WNW12	WNW12	WNW12	NW13	WNW12	W11	WSW10	WSW9	W8	SSW6	SSW7	SSW5	SSW5	SW7	SE3	SSE4	W6.9	NW13
4-Oct	S7	SSW7	S8	S8	S8	SSE7	SSE5	S1	W3	NNE1	NNE2	NNW4	N7	N10	N14	N15	N16	N14	NNE17	NNE13	N12	N14	N16	N15	N5.0	NNE17
5-Oct	N13	N9	N6	WNW2	SSW1	SE2	WSW2	SW4	SW5	SW8	SW7	SW10	SSW11	SSW11	SSW14	SSW12	SSW11	S8	S9	SSE11	SSE10	S7	W3	SW2	SSW4.5	SSW14
6-Oct	W3	SW10	SW13	SW15	SW16	WSW16	WSW14	SW12	SW14	SW15	SW16	SW17	SW16	WSW15	SW16	SW13	SW10	SW10	SW8	SW8	SW8	SSE4	S4	S5	SW11.1	SW17
7-Oct	SSE7	S7	SSE5	S4	WSW2	S5	S3	SSW1	SSW5	S8	SSE9	SSE10	S8	S10	SW5	SE8	SE9	SSE7	S12	S12	SSE9	S5	S7	SSW7	S6.6	S12
8-Oct	S6	S9	S6	S8	S9	SSW7	S8	S8	S5	SSE6	SE6	SSE3	ESE3	SE11	SSE8	SE3	NNE3	NW2	SSW3	W17	WSW11	SW14	SSW13	SSW12	SSW5.8	W17
9-Oct	SW15	SSW15	SSW14	SSW11	SSW11	SSW12	SSW11	SW11	SW10	SW11	WSW12	SW12	SW14	SW15	SW12	SSW10	SSW9	SSW7	SSW7	SW6	SW7	WSW5	SSW4	WSW8	SW10.0	SSW15
10-Oct	SSW5	SSW6	S6	SSW5	SSW7	SSW9	SSW10	SSW10	SSW9	SSW6	SW5	S8	SSW12	SSW14	SSW15	SW12	SW11	SW8	WNW7	NW9	WSW4	WSW8	SW10	SW11	SW7.5	SSW15
11-Oct	SW7	SW9	SW12	SW5	SW9	SSW9	S8	S10	S9	S10	S13	SSE12	SSE14	S14	S13	SSW11	SSW12	SSW10	SSW8	SW8	SW6	SSW9	SSW9	SW8	SSW9.1	S14
12-Oct	SW10	WSW7	WSW8	WSW8	SW6	SW8	SW8	SSW4	SSE5	SE7	ESE6	E4	NNE4	N4	ENE8	E8	E7	E6	ESE4	S3	SE2	UO	WNW2	UO	S1.8	SW10
13-Oct	UO	SSE5	SSE8	S5	SSW3	SSE3	S3	WNW3	SW3	SW3	SSE12	SSE19	SSE24	SSE22	SE21	SE16	SE11	SSE10	SSE11	SSE12	SSE13	SSE11	SSE12	S13	SSE10.1	SSE24
14-Oct	S14	SSE12	SSE11	S9	SSE9	SSE7	SSE6	SSE4	SSE9	SSE13	SSE15	SSW10	S13	S10	S5	SSE5	SE9	S4	W1	S7	SSE8	SSW9	SSW10	S12	S8.5	SSE15
15-Oct	SSW12	SSW10	S7	SSW6	SSW8	SW10	SW12	SW10	SW11	SW12	SW9	SW8	SSW9	SSW9	SW11	SSW9	S8	SSW8	SSW8	SSW9	SSW10	SW8	S5	S7	SSW8.5	SW12
16-Oct	SSW8	S7	S8	S9	SSW10	S6	S2	SSE5	SSE6	SSE3	E1	ESE1	N1	E3	ENE1	NE2	N6	N10	N10	NNW10	NNW6	NNW8	NW6	NW5	WSW0.4	SSW10
17-Oct	NW4	WNW2	SW4	SW6	SSW7	SW10	SW10	SW12	WSW11	WSW11	WSW10	WSW11	SW10	WSW14	W15	WSW13	W17	W19	W17	W16	WNW23	WNW19	WNW15	WNW13	W11.0	WNW23
18-Oct	W11	WNW10	W12	W10	SSW7	SSW8	SSW8	SSW9	SSW8	S8	SE8	SSE13	S15	S13	S13	S11	SSW10	SSE7	SSE9	SSE8	SSE6	WNW2	WNW3	WNW3	SSW6.3	SSE15
19-Oct	W3	UO	UO	WNW5	NW3	NNW11	NNW15	N11	N8	NNE6	N8	NNE9	N11	NE9	NE10	NE11	NNE12	NNE16	N16	N18	N15	N16	N17	N20	N10.8	N20
20-Oct	N20	N16	N17	N18	N18	N18	N18	N15	NNE13	NNE13	NNE14	NNE13	NNE14	NNE15	NNE18	NNE16	NNE17	NNE20	NNE21	N22	NNE26	NNE29	N29	N31	NNE18.6	N31
21-Oct	N30	N31	N31	N28	N26	N24	N22	N24	N21	N23	N18	N13	NNW12	NNW11	NW13	NW8	NW9	W6	W6	W7	W5	WSW7	SW7	S8	NNW13.6	N31
22-Oct	SSW9	SSW6	S6	S8	SSE7	SSE9	S9	SSE9	S10	SSW14	SW15	SW15	SSW16	SSW15	SSW13	SSW13	S14	S16	S16	SSW16	SSW13	SSW12	SSW16	SSW16	SSW11.9	SSW16
23-Oct	SSW13	SSW13	SSW14	SW15	WSW13	WSW13	SW15	SW15	SW16	SW14	SW12	WSW14	SW14	SW15	SW13	SSW13	SW13	SW9	SW8	WSW9	SW9	SSW9	SSW9	SSW8	SW12.1	SW16
24-Oct	SSW8	SSW8	SW9	SW11	SW11	SW11	SW11	SSW8	SSW4	WSW9	WSW12	W18	WNW16	WNW18	WNW19	WNW15	WNW8	WSW4	W7	WNW6	NW8	WSW8	N3	ENE1	W7.9	WNW19
25-Oct	SSE5	S8	SSW8	SW7	SSW8	SSW5	S8	SSW8	SSW8	SSW6	SSW4	E3	NNE5	WNW12	W11	WNW12	W6	WSW3	S3	SW2	SSW0	SSW1	W1	SW1	SW3.6	WNW12
26-Oct	WNW3	WSW1	NW4	NW2	SSE1	NW3	NNW7	N11	N13	N13	N14	NNE13	N13	N14	N16	N15	N13	NNE12	NNE8	NNE9	N10	NNE10	N8	NNE8	N8.7	N16
27-Oct	NW5	NNW3	WNW3	WNW3	NNW2	WNW5	UO	UO	WNW3	NNW3	NNW4	N6	N10	N6	NNE13	NNW6	NNW3	UO	NW4	N4	NNW5	NW4	NNW2	SW4	NNW3.9	NNE13
28-Oct	W6	W7	W8	W7	WNW9	WNW8	WNW5	WNW9	W7	WNW10	WNW11	WNW15	WNW15	WNW16	WNW14	WNW15	WNW13	W9	WNW9	W13	W12	W11	W11	W9	WNW10.2	WNW16
29-Oct	W8	WNW20	WNW17	WNW13	WNW14	WNW11	WNW11	WNW10	WNW7	WSW7	W8	SW11	SW10	SW10	SSW12	SSW5	SE5	ESE5	ESE5	ESE3	ESE4	ENE4	N13	N15	W5.1	WNW20
30-Oct	N16	N15	N18	N17	N17	N18	N19	N20	NNE16	NNE17	NNE18	NNE18	NE17	NE16	NNE16	NNE14	NNE14	NE12	NNE12	NE13	ENE10	NE8	NE8	NE8	NNE14.3	N20
31-Oct	NE8	NE5	NE4	ENE3	N3	N3	N3	N2	UO	ESE5	ESE8	SE8	SE10	SSE10	SE8	E4	SE1	W4	WNW3	WNW3	SSE2	S3	S8	SSW8	SE2.2	SSE10

WSW2.9	WSW3.4	WSW3.8	WSW3.8	WSW3.7	WSW3.5	WSW3.4	WSW3.0	WSW3.7	WSW3.1	WSW2.7	WSW2.8	SW2.9	WSW3.8	WSW3.1	W2.5	W1.9	W1.4	W2.0	W2.5	W2.4	W2.9	W2.3	W2.4	Diurnal Average
N30	N31	N31	N28	N26	N24	N22	N24	N21	N23	N18	SSE19	SSE24	SSE22	SE21	WNW17	NNE17	NNE20	NNE21	N22	NNE26	NNE29	N29	N31	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 10m (WS10) - km/h**  
**Ells River - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	165	22.45	22.45
6 - 11	327	44.49	66.94
12 - 19	217	29.52	96.46
20 - 28	20	2.72	99.18
29 - 38	6	0.82	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 735

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Ells River - October 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	7	4	4	5	8	6	15	17	20	15	9	10	18	10	8	165
6 - 11	17	8	7	2	3	2	11	29	45	64	52	22	25	25	7	8	327
12 - 19	41	26	3	0	0	0	1	12	14	27	33	11	10	30	4	5	217
20 - 28	11	3	0	0	0	0	1	2	0	0	0	0	0	3	0	0	20
29 - 38	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	83	45	14	6	8	10	19	58	76	111	100	42	45	76	21	21	735

Total Number of Valid Hours: 735

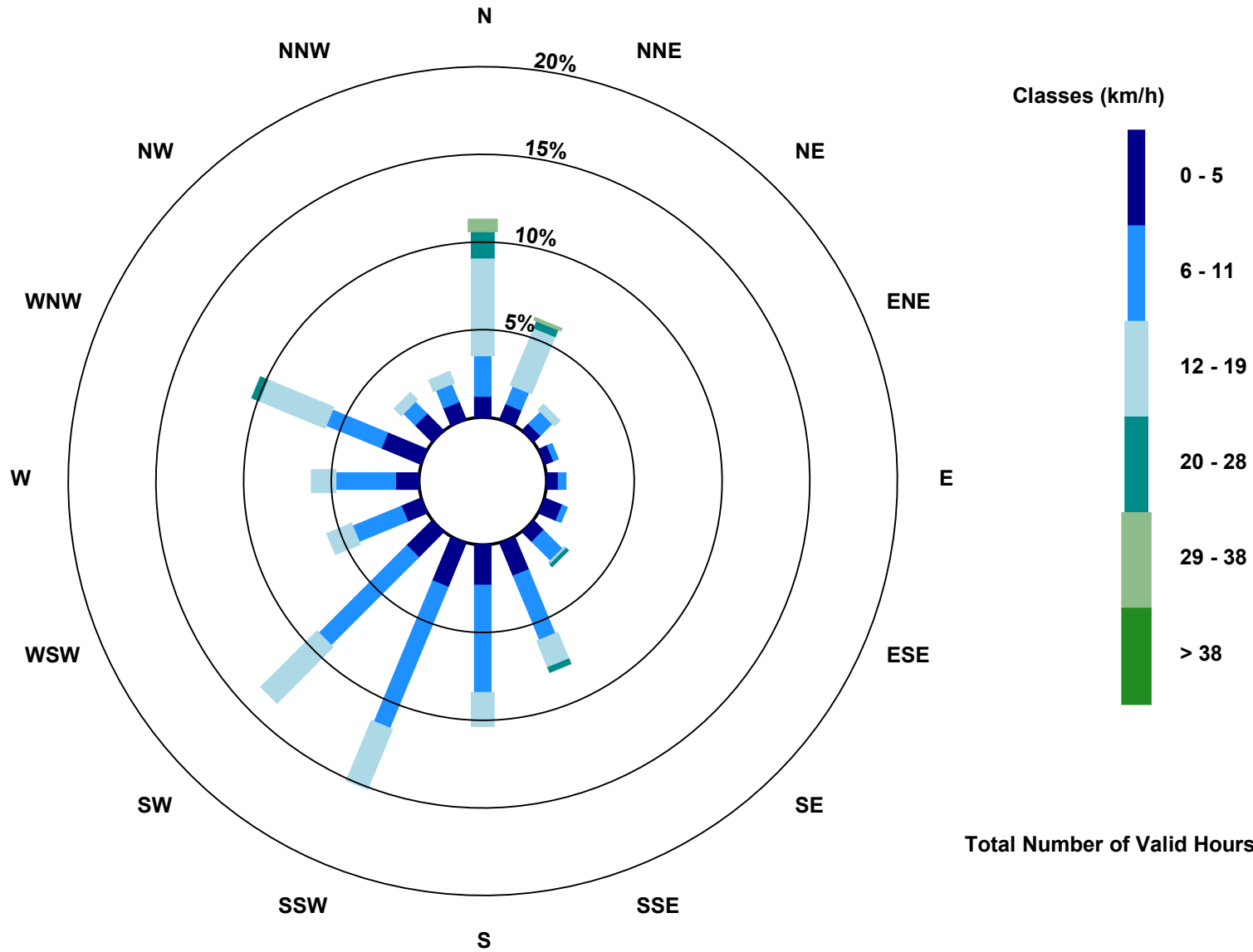
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Ells River



Total Number of Valid Hours: 735



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Ells River - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Oct 2 09:00 Minimum Value: 1 km/h on Oct 31 18:00 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: 735 Hours of Missing Data: 9 Hours of Calibration: 0 Percent Operational Time: 98.8								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	2	2	2	1	1	2	1	1	3	1	1	2	2	3	3	6	2	2	2	2	3	1	1	2	6
2-Oct	2	3	2	2	2	2	2	1	7	3	4	4	5	5	5	5	5	4	4	4	3	3	2	2	7
3-Oct	3	1	3	2	3	2	2	2	4	3	3	4	4	4	4	3	3	1	1	2	3	2	2	4	
4-Oct	1	1	2	1	2	2	1	2	1	2	1	2	3	1	2	2	2	2	2	2	2	2	2	3	
5-Oct	3	2	1	2	2	1	2	1	1	1	2	3	3	4	4	4	2	1	1	2	2	2	2	4	
6-Oct	2	4	3	4	4	4	4	3	4	5	5	6	5	5	5	4	3	3	2	2	2	1	1	6	
7-Oct	3	3	3	1	2	3	2	2	3	2	2	2	2	3	2	2	2	2	2	2	2	1	2	3	
8-Oct	2	1	2	1	1	2	2	2	2	2	2	1	3	2	3	2	2	2	4	7	4	4	3	7	
9-Oct	4	4	3	4	2	3	2	3	3	4	4	4	4	4	4	3	2	1	1	2	2	2	2	4	
10-Oct	2	2	2	2	3	1	2	2	3	2	2	3	4	4	4	4	3	2	2	3	1	2	2	4	
11-Oct	2	2	2	3	3	2	1	2	2	2	3	2	3	3	4	3	3	2	1	2	1	2	1	4	
12-Oct	3	1	2	3	2	2	3	2	1	1	1	2	2	3	3	2	1	2	2	2	1	UO	1	3	
13-Oct	UO	3	2	2	2	3	1	1	1	2	6	4	5	5	4	3	3	1	2	2	2	1	2	6	
14-Oct	2	2	2	2	2	2	2	2	3	3	3	2	2	3	2	3	2	2	1	2	1	2	3	3	
15-Oct	3	2	2	1	2	3	3	3	3	3	2	2	2	3	3	3	1	1	1	2	2	3	1	3	
16-Oct	1	1	2	2	2	2	2	1	1	2	2	1	1	2	2	2	2	2	1	1	2	2	1	2	
17-Oct	1	1	1	2	2	3	3	3	3	3	4	3	3	4	5	5	6	6	6	5	7	5	5	7	
18-Oct	3	3	3	3	2	2	1	1	2	2	2	3	3	3	3	3	3	1	1	1	2	2	2	3	
19-Oct	1	UO	UO	1	3	2	3	4	1	3	2	2	3	2	2	2	3	2	2	3	3	2	2	4	
20-Oct	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	2	2	3	3	3	4	4	4	4	
21-Oct	4	4	4	4	4	3	4	3	3	4	3	3	2	3	3	2	2	3	1	2	2	2	2	4	
22-Oct	3	2	1	2	2	2	1	1	2	4	5	4	4	4	3	3	3	3	4	4	4	3	3	5	
23-Oct	3	3	4	4	4	4	3	3	4	4	3	4	4	4	4	3	3	2	2	3	2	2	1	4	
24-Oct	2	2	3	3	3	3	3	2	2	2	4	5	4	5	5	4	3	2	1	2	2	2	2	5	
25-Oct	3	2	3	3	3	2	2	1	2	2	1	1	2	6	4	4	2	2	3	2	3	2	2	6	
26-Oct	2	3	2	2	2	1	2	2	2	2	3	2	1	2	2	2	2	2	1	2	2	1	2	3	
27-Oct	1	1	2	2	1	1	UO	UO	1	1	1	1	3	4	2	1	1	UO	1	1	1	1	1	4	
28-Oct	2	2	2	3	2	2	2	2	2	2	2	4	4	3	3	3	3	2	3	3	3	3	3	4	
29-Oct	3	4	4	3	3	2	3	2	2	2	2	3	3	3	3	2	2	1	1	2	1	2	2	4	
30-Oct	2	3	2	2	2	2	2	2	2	3	2	3	3	3	3	3	2	2	2	2	2	1	1	3	
31-Oct	1	1	1	2	1	1	1	1	UO	3	2	2	3	2	3	1	1	1	1	1	1	1	3	3	
Diurnal Maximum																									
UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

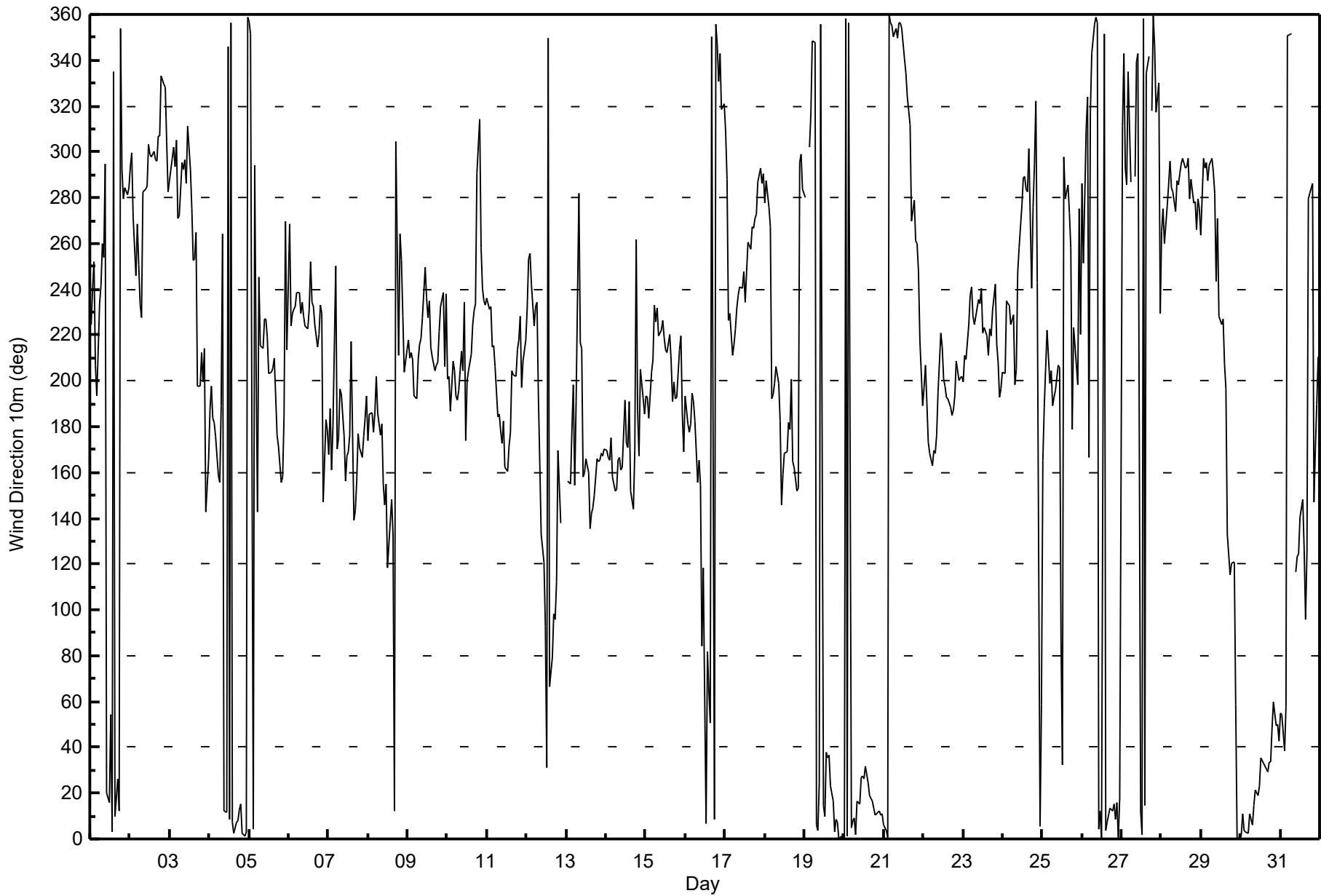
**Wind Direction 10m (WD10) - deg**  
**Ells River - October 2024**

Direction of Maximum Speed: 11 deg on Oct 21 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 12.3 deg on Oct 20	Hours of Data: 735
Direction of Minimum Speed: 207 deg on Oct 25 21:00	Direction of Minimum Daily Speed Average: 0.4 deg on Oct 16
Direction of Minimum Speed: 207 deg on Oct 25 21:00	Hours of Missing Data: 9
Monthly Average Direction: 254.1 deg	Percent Operational Time: 98.8

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	225	241	252	207	194	233	242	260	254	294	20	16	54	3	335	9	26	12	354	292	279	284	281	284	309.8
2-Oct	293	300	271	246	268	251	234	228	282	284	285	303	299	298	300	297	296	307	307	333	329	328	305	282	296.7
3-Oct	287	297	302	294	305	271	272	296	292	296	286	311	292	275	252	253	265	198	198	212	200	214	143	165	274.9
4-Oct	187	197	184	182	176	159	156	189	264	12	12	346	9	357	7	2	7	8	13	15	3	1	3	359	6.2
5-Oct	357	352	4	294	208	143	246	216	214	227	227	219	203	204	205	210	193	176	172	155	158	185	270	214	204.4
6-Oct	268	224	230	231	232	238	238	229	234	228	224	222	231	252	235	233	224	215	220	233	230	147	183	178	228.9
7-Oct	168	188	161	181	250	170	175	196	194	176	156	167	169	176	217	139	143	156	177	171	167	176	184	194	172.1
8-Oct	174	185	186	178	186	202	186	177	181	155	146	155	118	139	148	132	12	305	211	264	252	228	204	213	194.1
9-Oct	218	210	212	209	193	192	210	216	218	228	249	236	228	235	215	210	204	207	208	221	233	238	206	238	218.2
10-Oct	201	202	187	208	204	193	192	196	213	204	235	174	200	205	212	225	231	234	290	314	258	241	235	233	217.5
11-Oct	236	231	232	215	215	206	184	185	178	173	182	162	160	171	178	205	203	202	213	218	228	197	209	218	196.5
12-Oct	232	253	256	242	224	232	234	194	164	133	121	93	31	349	66	80	98	96	112	170	138	UO	285	UO	175.4
13-Oct	UO	156	155	179	198	154	191	282	216	214	158	160	166	160	136	142	145	150	166	165	166	168	167	170	160.9
14-Oct	170	167	165	175	158	152	153	165	167	161	163	192	172	171	191	152	144	170	262	187	167	205	192	186	171.1
15-Oct	193	193	184	204	209	233	226	232	219	222	227	219	213	212	220	209	191	199	192	193	213	220	186	169	209.2
16-Oct	193	181	178	181	194	191	182	156	166	154	84	118	7	82	65	51	350	9	356	347	331	343	319	321	238.8
17-Oct	308	288	226	229	211	216	222	232	238	241	240	248	234	248	261	258	267	267	271	273	287	293	286	290	259.8
18-Oct	277	287	276	267	192	194	199	206	199	182	146	159	169	169	182	179	201	165	162	152	153	295	299	284	195.4
19-Oct	280	UO	UO	302	317	348	348	6	4	24	356	15	10	38	36	36	23	16	3	8	7	0	1	0	6.3
20-Oct	1	358	1	356	5	8	9	2	16	15	27	28	26	32	24	19	18	16	14	10	12	12	11	11	12.3
21-Oct	6	4	1	360	356	355	350	354	350	356	357	354	340	334	324	318	312	270	279	261	260	248	218	189	346.2
22-Oct	197	207	190	173	168	163	170	168	177	195	221	215	201	198	193	192	189	185	187	193	209	200	201	202	193.5
23-Oct	200	211	209	224	237	241	228	225	232	236	234	240	221	223	219	211	223	220	231	242	216	208	193	197	222.6
24-Oct	204	203	235	234	233	225	229	199	205	247	258	277	289	289	284	283	302	240	276	295	322	243	6	59	260.7
25-Oct	165	189	206	222	199	204	189	193	196	207	205	87	32	298	280	286	274	258	179	223	207	198	275	220	226.2
26-Oct	286	252	310	324	167	317	343	356	359	356	4	12	0	352	4	8	11	13	12	15	9	16	1	18	1.9
27-Oct	311	343	293	285	335	287	UO	UO	289	339	343	11	2	358	14	334	342	UO	318	359	346	317	330	229	338.1
28-Oct	266	275	260	276	285	296	284	282	274	288	285	290	294	297	293	293	297	279	288	277	278	266	280	275	284.3
29-Oct	264	297	293	295	287	294	297	291	282	244	271	228	224	227	207	197	133	115	120	121	121	58	0	0	278.5
30-Oct	2	11	4	3	2	11	8	6	15	21	19	23	35	34	33	31	30	34	33	48	60	49	50	43	22.0
31-Oct	55	54	39	58	351	351	351	351	UO	117	123	125	140	148	127	96	125	279	282	286	147	170	190	210	124.4

257.1 254.1 253.0 250.6 244.0 245.6 247.8 251.3 245.9 244.0 245.7 244.7 234.4 242.4 249.8 260.2 270.6 268.9 275.6 275.2 276.2 273.5 274.3 263.3  
 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 10m (WD10) - deg**  
**Ells River - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Oct 1 14:00 Minimum Value: 0 deg on Oct 31 07:00 Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 10 Q <sub>1</sub> = 13 Median = 17 Q <sub>3</sub> = 24 P <sub>90</sub> = 41 P <sub>99</sub> = 82																		Hours in Service: 744 Hours of Data: 735 Hours of Missing Data: 9 Hours of Calibration: 0 Percent Operational Time: 98.8							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	45	17	14	32	34	40	54	49	36	27	20	35	54	99	56	37	12	14	15	28	25	12	11	10	99
2-Oct	23	17	18	20	19	19	34	69	23	17	18	15	15	15	16	14	14	15	13	14	12	12	14	17	69
3-Oct	18	16	15	14	17	19	18	17	15	19	20	23	33	33	36	32	31	15	11	49	25	34	52	23	52
4-Oct	10	12	21	10	13	18	17	88	40	61	49	28	20	13	9	10	8	9	7	7	11	12	11	13	88
5-Oct	12	14	13	44	52	57	69	32	17	14	19	24	22	21	23	23	14	9	4	7	11	19	56	66	69
6-Oct	47	19	21	20	21	21	21	21	21	25	26	23	23	28	26	24	22	17	16	18	15	60	19	17	60
7-Oct	50	27	48	21	29	24	71	63	47	26	22	19	30	27	40	21	11	11	11	8	11	14	11	71	
8-Oct	20	10	20	8	12	18	11	10	26	12	18	65	76	11	14	40	40	65	47	23	27	21	17	20	76
9-Oct	18	17	18	18	13	12	17	18	21	25	25	23	24	27	26	24	15	14	12	21	12	19	36	12	36
10-Oct	35	21	17	31	20	10	11	10	24	34	45	39	26	21	20	26	20	19	27	16	26	11	12	11	45
11-Oct	16	14	13	36	17	16	13	9	12	12	13	17	16	17	25	23	15	15	13	13	20	17	12	19	36
12-Oct	22	13	13	20	25	28	47	44	34	11	18	55	37	76	53	20	17	8	32	54	36	UO	36	UO	76
13-Oct	UO	21	12	15	40	31	52	19	49	68	27	14	14	15	9	10	10	9	7	9	10	7	7	8	68
14-Oct	10	12	11	13	17	20	22	32	14	14	17	20	16	23	23	28	12	41	90	20	19	17	15	13	90
15-Oct	14	15	24	28	17	21	21	25	18	19	22	27	35	35	26	19	10	11	7	7	16	18	18	14	35
16-Oct	10	17	12	11	12	13	45	29	12	26	65	88	68	33	84	41	16	10	13	10	45	16	15	18	88
17-Oct	14	33	17	19	16	17	18	20	19	19	19	20	20	22	22	23	21	21	22	19	16	16	18	19	33
18-Oct	19	17	17	23	34	33	15	13	18	27	22	16	16	19	22	17	16	7	6	12	17	46	20	19	46
19-Oct	16	UO	UO	24	45	12	12	15	15	26	16	13	18	22	13	13	9	7	13	11	13	12	13	12	45
20-Oct	15	14	14	13	11	10	10	12	11	13	11	15	14	12	10	8	7	8	7	7	8	8	9	10	15
21-Oct	12	13	14	15	15	14	12	14	12	13	12	14	19	18	13	11	12	20	21	21	32	25	31	14	32
22-Oct	17	32	14	8	12	9	9	10	11	15	23	22	17	18	16	14	13	12	13	15	18	15	15	16	32
23-Oct	15	20	18	19	23	20	13	17	18	19	20	18	22	21	20	18	17	18	19	23	16	15	10	13	23
24-Oct	18	24	22	17	17	17	18	21	45	24	23	21	20	19	18	18	9	23	16	22	21	13	60	68	68
25-Oct	74	13	31	27	27	47	19	9	14	39	48	65	24	42	24	16	23	32	79	53	84	81	52	69	84
26-Oct	69	67	43	30	82	14	14	13	10	11	10	7	12	12	9	7	4	4	6	8	10	15	29	24	82
27-Oct	22	23	43	26	21	21	UO	UO	31	31	17	20	13	26	7	34	39	UO	15	8	23	14	54	15	54
28-Oct	28	20	20	28	16	17	26	18	20	15	14	15	13	11	12	12	12	17	16	17	17	10	13	15	28
29-Oct	19	12	13	13	15	13	13	13	17	15	33	25	34	25	20	26	8	3	1	0	0	53	10	11	53
30-Oct	13	12	11	11	11	8	10	9	10	10	8	9	11	13	10	11	8	9	8	16	12	12	10	10	16
31-Oct	8	11	14	46	1	0	0	2	UO	42	14	15	17	16	20	29	84	18	14	17	45	25	19	21	84
74 67 48 46 82 57 71 88 49 68 65 88 76 99 84 41 84 65 90 54 84 81 60 69																								Diurnal Maximum	
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS506**  
**JACKFISH 1**  
**OCTOBER 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 1 (AMS506)  
OCTOBER 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	710	34	34	100	12.6	0	3.9	0
H2S (ppb) Average	708	36	36	100	1.9	0	0.3	0
NO2 (ppb) Average	708	36	36	100	13.1	0	5.7	-
NO (ppb) Average	708	36	36	100	12.7	-	3.9	-
NOX (ppb) Average	708	36	36	100	25.8	-	9.6	-
Temperature 2 m (C) Average	744	0	0	100	21.6	-	13.1	-
Relative Humidity (%) Average	744	0	0	100	98.6	-	97.6	-
Wind Speed 10 m (km/h) Average	653	0	91	87.77	15	-	7	-
Wind Direction 10 m (deg) Average	653	0	91	87.77	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 1 (AMS506)  
 OCTOBER 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	0.55	1.3	-	0	0	0.1	0.2	0.5	1.2	12.6
H2S (ppb) Average	708	0.13	0.1	-	0	0	0.1	0.1	0.2	0.3	1.9
NO2 (ppb) Average	708	1.99	2	-	0	0.4	0.7	1.4	2.4	4.4	13.1
NO (ppb) Average	708	0.66	1.5	-	0	0	0	0.1	0.5	1.8	12.7
NOX (ppb) Average	708	2.65	3.3	-	0	0.5	0.8	1.6	2.9	6.2	25.8
Temperature 2 m (C) Average	744	3.16	5.3	-	-7.6	-3.1	-0.6	2.8	6	10.1	21.6
Relative Humidity (%) Average	744	76.28	17.3	-	31.5	50.4	64.1	79	91.6	97.6	98.6
Wind Speed 10 m (km/h) Average	653	4.9	2	-	0	2	3	5	6	8	15
Wind Direction 10 m (deg) Average	653	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 1 (AMS506)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	12 Oct 2024 08:00	12 Oct 2024 08:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	21 Oct 2024 05:00	22 Oct 2024 09:00	29	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 06:00	28 Oct 2024 10:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Oct 2024 16:00	29 Oct 2024 12:00	21	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Oct 2024 20:00	30 Oct 2024 11:00	16	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	30 Oct 2024 18:00	31 Oct 2024 11:00	18	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	31 Oct 2024 12:00	31 Oct 2024 12:00	1	Maintenance - de-ice wind sensor



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

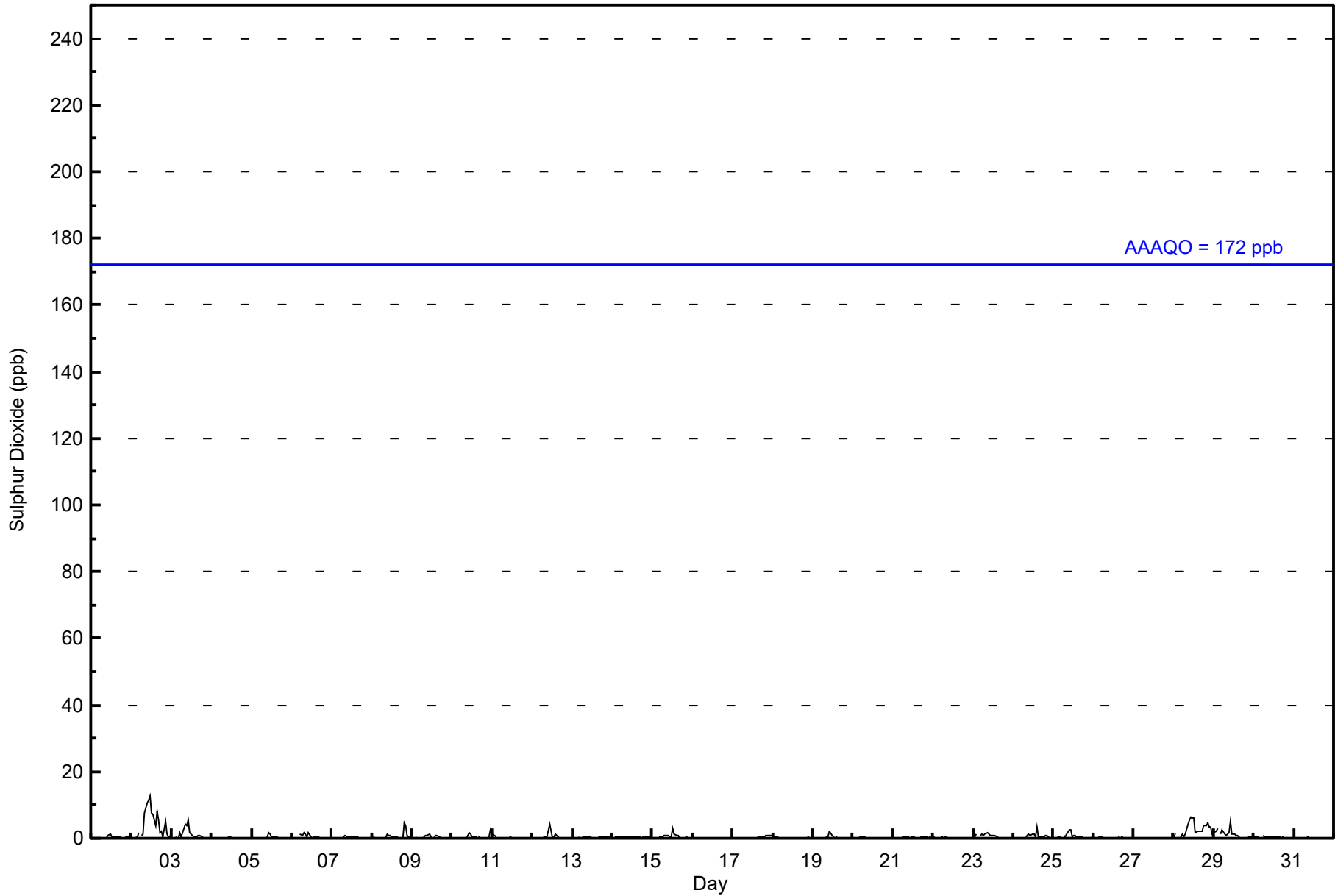
Jackfish 1 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 12.6 ppb on Oct 2 12:00		Maximum Daily Average: 3.9 ppb on Oct 2																	Hours of Data: 710		Daily Average		Daily Maximum																										
Minimum Value: 0.0 ppb on Oct 4 23:00		Minimum Daily Average: 0.0 ppb on Oct 27																	Hours of Missing Data: 34		Daily Average		Daily Maximum																										
Maximum Diurnal Average: 1.6 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 4																	Hours of Calibration: 34		Daily Average		Daily Maximum																										
Monthly Average: 0.55 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 1.2 P <sub>99</sub> = 6.5																	Percent Operational Time: 100.0		Daily Average		Daily Maximum																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Oct	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	1.0	1.4	0.4	0.5	0.4	0.3	0.6	0.2	0.1	0.1	0.1	0.4	0.4	0.4	0.3	1.4																							
2-Oct	0.1	0.2	0.1	0.5	1.7	Z	0.9	1.4	7.6	10.5	11.4	12.6	7.8	7.0	3.8	7.9	5.3	1.9	2.0	0.4	5.2	1.1	0.4	0.6	3.9	12.6																							
3-Oct	1.7	Z	0.3	0.1	0.1	1.5	0.3	3.1	4.2	3.9	5.4	1.5	0.6	0.4	0.5	0.5	0.8	0.7	0.3	0.2	0.2	0.2	0.1	0.1	1.2	5.4																							
4-Oct	0.2	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
5-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.5	1.7	1.2	0.5	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.7																							
6-Oct	0.0	0.0	0.0	0.1	Z	1.1	0.8	1.5	1.5	0.5	1.8	0.6	0.2	0.3	0.3	0.4	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.4	1.8																							
7-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.4	0.7	0.6	0.4	0.5	0.6	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.7																							
8-Oct	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.5	1.4	1.0	0.7	0.6	0.5	0.4	0.4	0.1	0.1	0.1	4.8	3.8	0.7	0.5	0.4	0.7	4.8																							
9-Oct	0.9	Z	0.4	0.2	0.0	0.2	0.0	0.3	0.7	1.0	1.2	0.5	0.2	0.2	0.9	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2																							
10-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	1.2	0.5	0.3	0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.4	2.5	0.3	2.5																							
11-Oct	1.2	0.7	0.3	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2																							
12-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.3	0.2	0.5	4.2	2.0	0.2	0.5	1.2	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.5	4.2																							
13-Oct	0.1	0.1	0.1	0.1	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.6	0.6	0.5	0.4	0.3	0.6																							
14-Oct	Z	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.4	0.3	0.4	0.3	0.2	0.1	0.2	0.3	0.4	0.4	0.3	0.1	0.3	0.5																							
15-Oct	0.0	Z	0.1	0.2	0.3	0.4	0.6	0.7	1.0	0.7	0.3	0.2	3.1	1.2	0.7	0.8	0.2	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.5	3.1																							
16-Oct	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
17-Oct	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.6	0.3	0.5	0.6	0.7	0.9	0.8	0.7	0.3	0.9																							
18-Oct	0.7	0.3	0.5	0.5	Z	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	0.4	0.1	0.0	0.1	0.7																							
19-Oct	0.0	0.0	0.1	0.1	0.1	Z	0.0	0.0	0.2	0.2	2.0	1.0	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0																							
20-Oct	Z	0.0	0.1	0.1	0.2	0.4	0.4	0.3	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	0.1	0.4																							
21-Oct	0.0	Z	0.0	0.0	0.1	0.1	0.4	0.4	0.5	0.6	0.2	0.4	0.2	0.1	0.0	0.0	0.1	0.3	0.4	0.5	0.2	0.2	0.3	0.1	0.2	0.6																							
22-Oct	0.3	0.1	Z	0.1	0.0	0.3	0.0	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																							
23-Oct	0.4	0.6	1.1	Z	0.9	1.4	1.1	1.4	1.6	1.2	0.8	0.8	0.8	0.6	0.4	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.6	1.6																							
24-Oct	0.2	0.1	0.1	0.0	Z	0.1	0.1	0.2	0.8	1.3	0.6	1.2	1.2	0.5	3.4	0.6	0.2	0.2	0.3	0.7	0.7	0.2	0.1	0.2	0.6	3.4																							
25-Oct	0.1	0.1	0.1	0.2	0.4	Z	0.7	0.4	1.1	2.5	2.4	0.6	1.0	0.8	0.6	0.3	0.4	0.4	0.2	0.2	0.1	0.1	0.2	0.3	0.6	2.5																							
26-Oct	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.0	0.3	0.2	0.2	0.1	0.2	0.0	0.0	0.2	0.0	0.1	0.3																							
27-Oct	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
28-Oct	0.1	1.8	Z	0.2	0.4	1.5	0.3	1.5	4.4	5.6	6.2	5.9	6.5	1.6	2.1	2.2	2.2	2.3	3.9	3.7	4.5	3.2	3.5	1.1	2.8	6.5																							
29-Oct	1.8	2.3	3.1	Z	1.1	2.5	1.1	1.0	1.2	1.6	4.9	1.5	1.1	0.7	0.8	0.6	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	1.2	4.9																							
30-Oct	0.3	0.3	0.5	0.5	Z	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.6																							
31-Oct	0.2	0.1	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2																							
																								0.3	0.3	0.3	0.2	0.3	0.5	0.3	0.5	0.9	1.1	1.6	1.2	0.9	0.6	0.6	0.4	0.3	0.3	0.4	0.6	0.3	0.3	0.2	Diurnal Average		
																								1.8	2.3	3.1	0.5	1.7	2.5	1.1	3.1	7.6	10.5	11.4	12.6	7.8	7.0	3.8	7.9	5.3	2.3	3.9	4.8	5.2	3.2	3.5	2.5	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 1 - October 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 1 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	708	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: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 1 - October 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	2	6	9	18	13	25	22	83	94	114	28	26	45	86	26	24	621
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	2	6	9	18	13	25	22	83	94	114	28	26	45	87	27	24	623

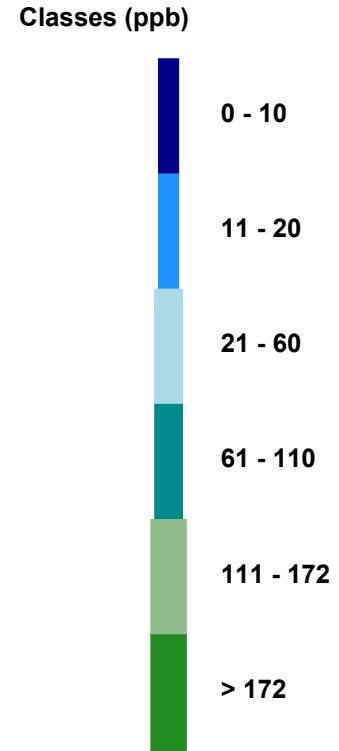
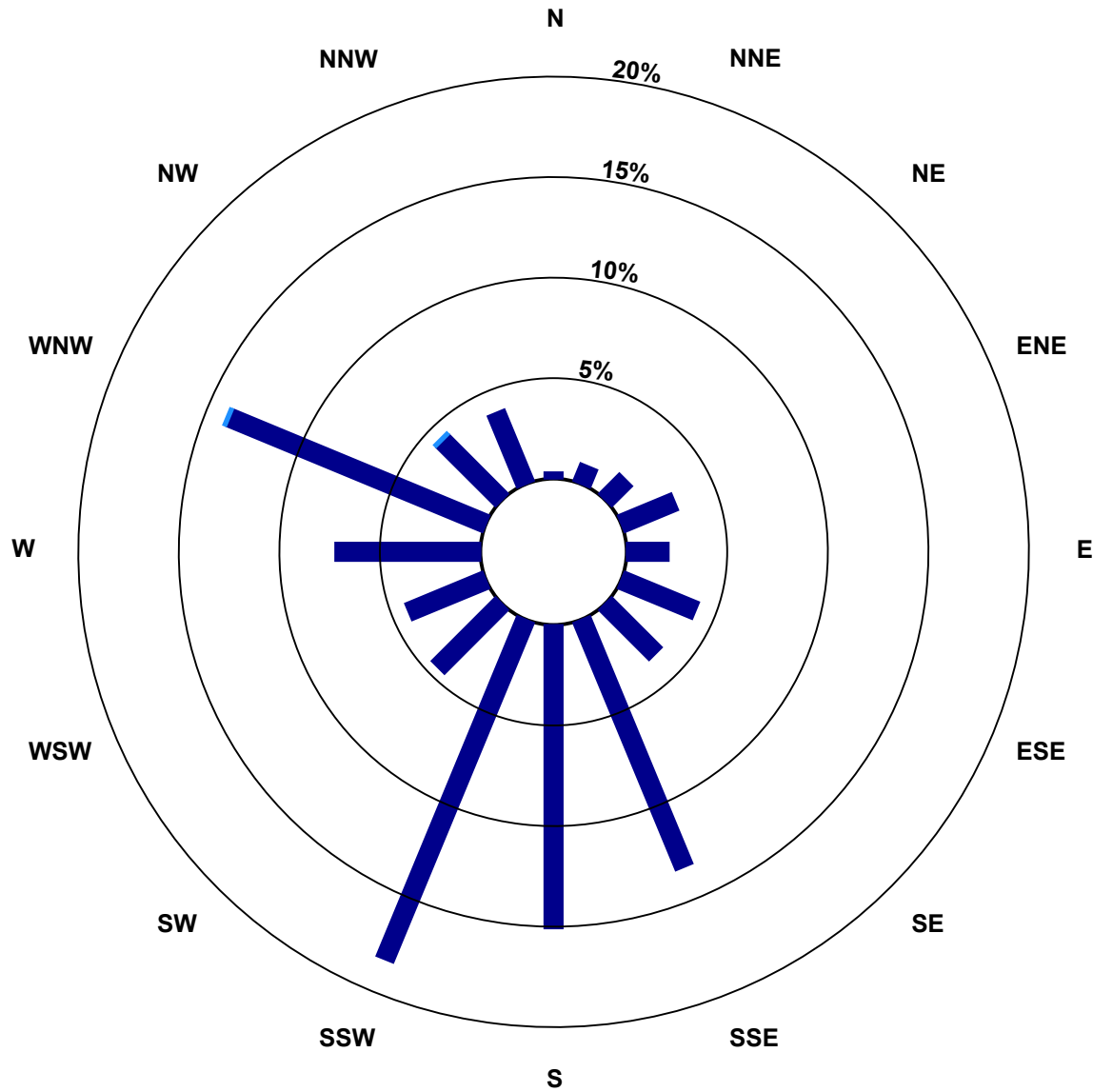
Total Number of Valid Hours: 623

Total Number of Hours: 744

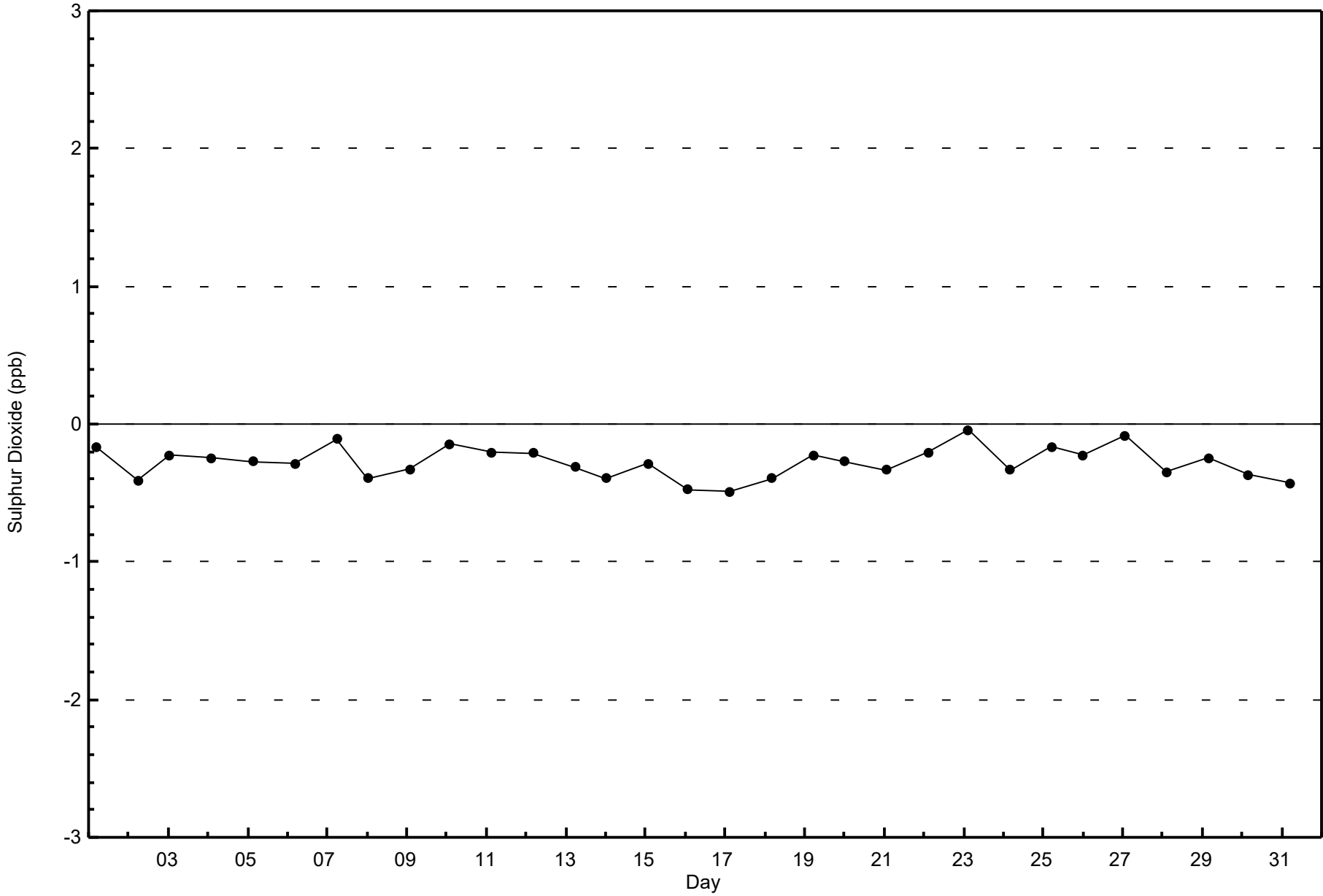


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 1



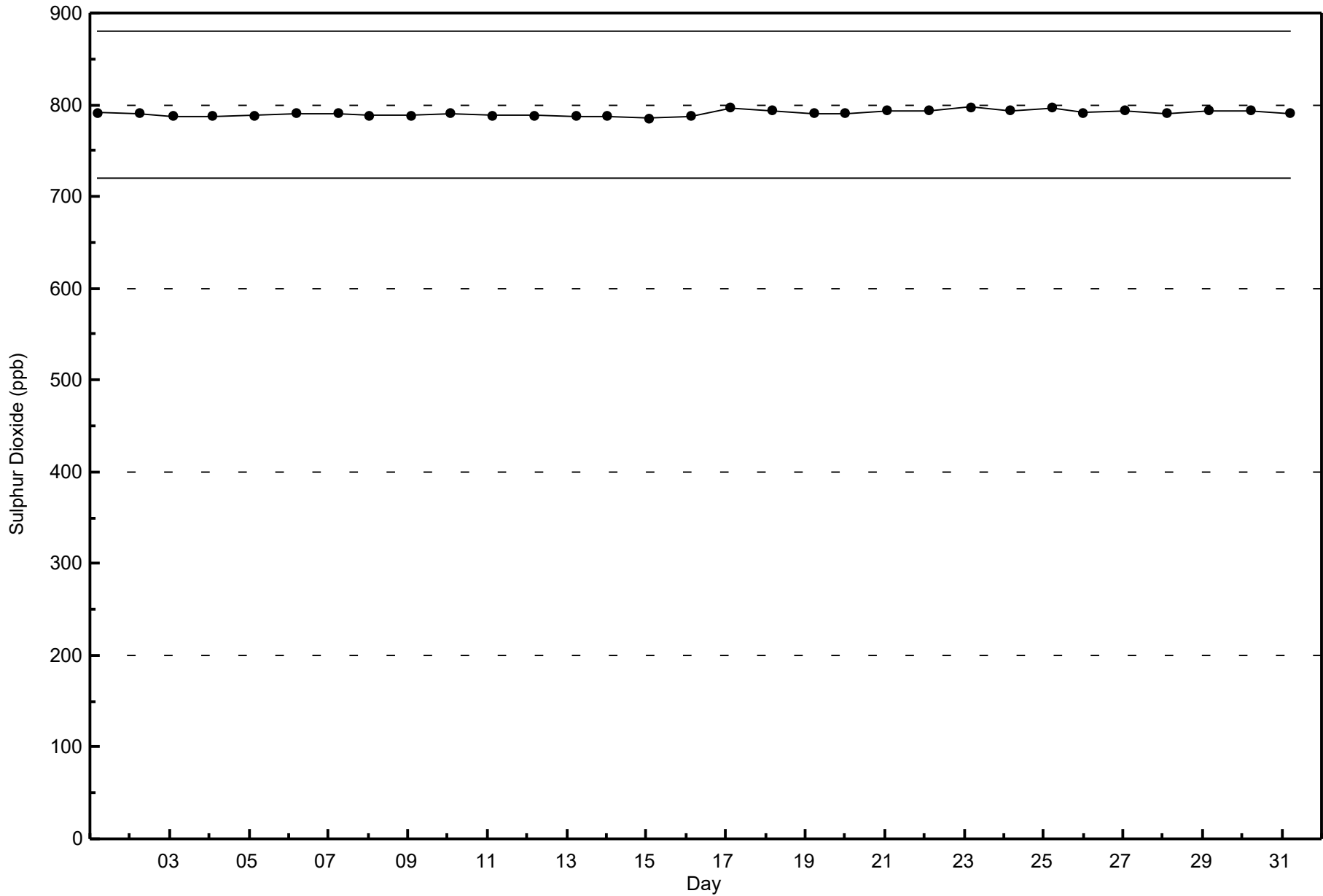
Total Number of Valid Hours: 623





**Wood Buffalo Environmental Association**  
**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 1 - October 2024**







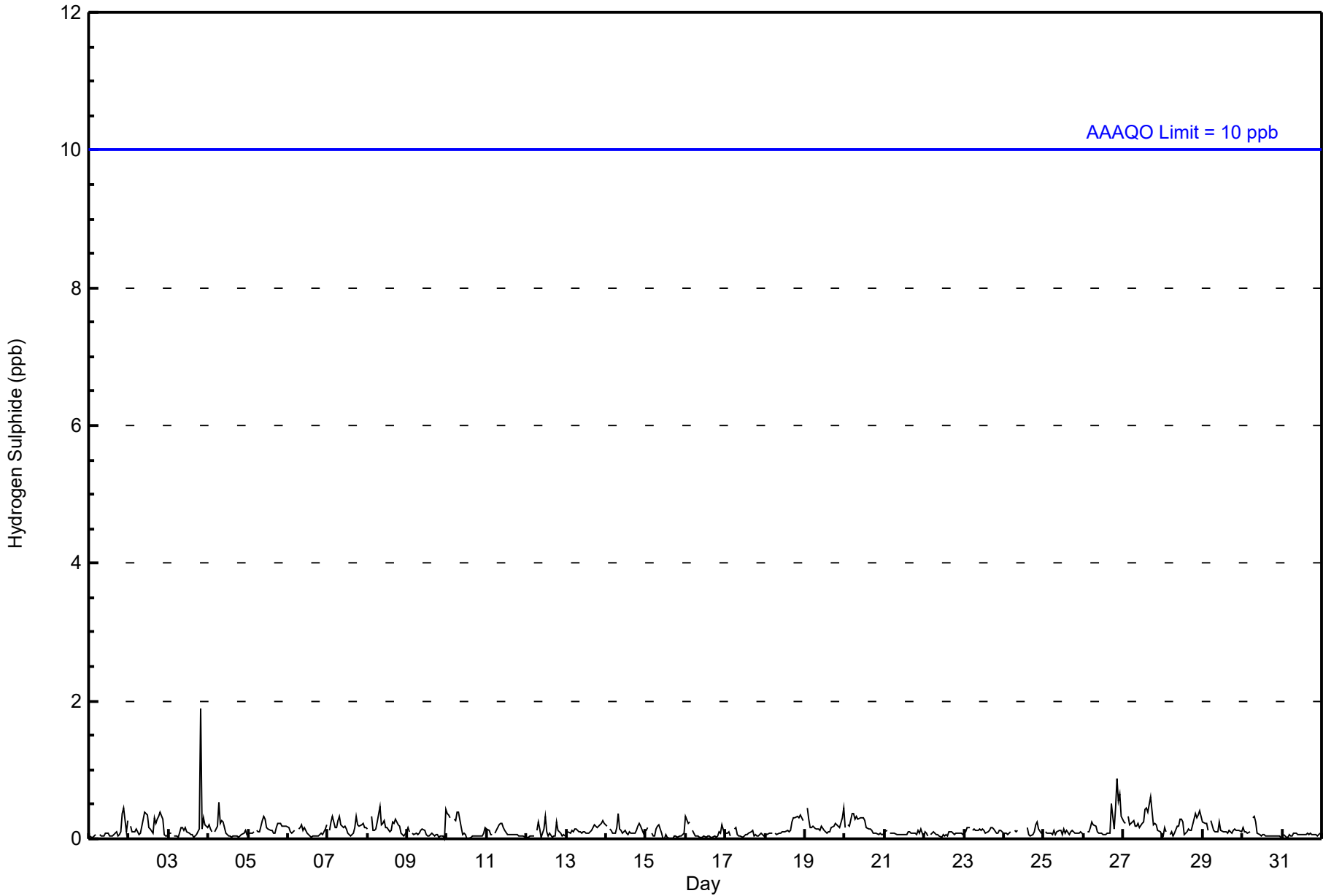
Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H2S) - ppb

Jackfish 1 - October 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744							
Maximum Value: 1.9 ppb on Oct 3 20:00		Maximum Daily Average: 0.3 ppb on Oct 27		Hours of Data:														708									
Minimum Value: 0.0 ppb on Oct 15 15:00		Minimum Daily Average: 0.1 ppb on Oct 31		Hours of Missing Data:														36									
Maximum Diurnal Average: 0.2 ppb at hour 20		Minimum Diurnal Average: 0.1 ppb at hour 14		Hours of Calibration:														36									
Monthly Average: 0.13 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.5		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-Oct	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.4	0.4	0.1	0.3	0.1	0.4		
2-Oct	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.4	0.3	0.2	0.1	0.1	0.3	0.2	0.3	0.3	0.4	0.3	0.1	0.0	0.0	0.2	0.4	
3-Oct	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	1.9	0.1	0.3	0.2	0.2	0.2	1.9	
4-Oct	0.2	0.1	0.1	Z	0.1	0.2	0.5	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.5	
5-Oct	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
6-Oct	0.2	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
7-Oct	Z	0.1	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
8-Oct	0.1	Z	0.3	0.1	0.1	0.1	0.2	0.5	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5	
9-Oct	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	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.4	0.4	
10-Oct	0.4	0.3	0.3	Z	0.3	0.3	0.4	0.4	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	0.1	0.2	0.1	0.4	
11-Oct	0.2	0.1	0.1	0.1	Z	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	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
12-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.3	
13-Oct	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	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.3	
14-Oct	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.4	
15-Oct	0.1	0.2	Z	0.1	0.0	0.0	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	0.0	0.1	0.1	0.1	0.2	
16-Oct	0.3	0.2	0.2	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	0.1	0.1	0.2	0.1	0.1	0.3	
17-Oct	0.1	0.1	0.1	0.0	Z	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	
18-Oct	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	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	
19-Oct	Z	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.2	0.5	
20-Oct	0.2	Z	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
21-Oct	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	0.0	0.1	0.1
22-Oct	0.1	0.1	0.0	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23-Oct	0.1	0.1	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	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
24-Oct	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	C	C	C	C	C	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	
25-Oct	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	
26-Oct	0.1	Z	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.5	0.9	0.6	0.6	0.3	0.2	0.9	
27-Oct	0.3	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.6	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.6	
28-Oct	0.1	0.2	0.1	Z	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.4	0.3	0.4	
29-Oct	0.2	0.2	0.2	0.1	Z	0.3	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
30-Oct	0.2	0.1	0.1	0.1	0.1	Z	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
31-Oct	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	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	
																								Diurnal Average			
																								Diurnal Maximum			
																								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 0.2 0.2 0.1 0.1 0.1 0.1 0.1			
																								0.4 0.5 0.3 0.3 0.4 0.4 0.5 0.5 0.3 0.4 0.4 0.3 0.3 0.4 0.4 0.4 0.6 0.5 0.3 1.9 0.9 0.6 0.6 0.5 0.5 0.5 0.5			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 1 - October 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  
Jackfish 1 - October 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	3	7	10	18	14	26	21	82	94	115	28	27	44	84	26	22	621
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>	<b>3</b>	<b>7</b>	<b>10</b>	<b>18</b>	<b>14</b>	<b>26</b>	<b>21</b>	<b>82</b>	<b>94</b>	<b>115</b>	<b>28</b>	<b>27</b>	<b>44</b>	<b>84</b>	<b>26</b>	<b>22</b>	<b>621</b>

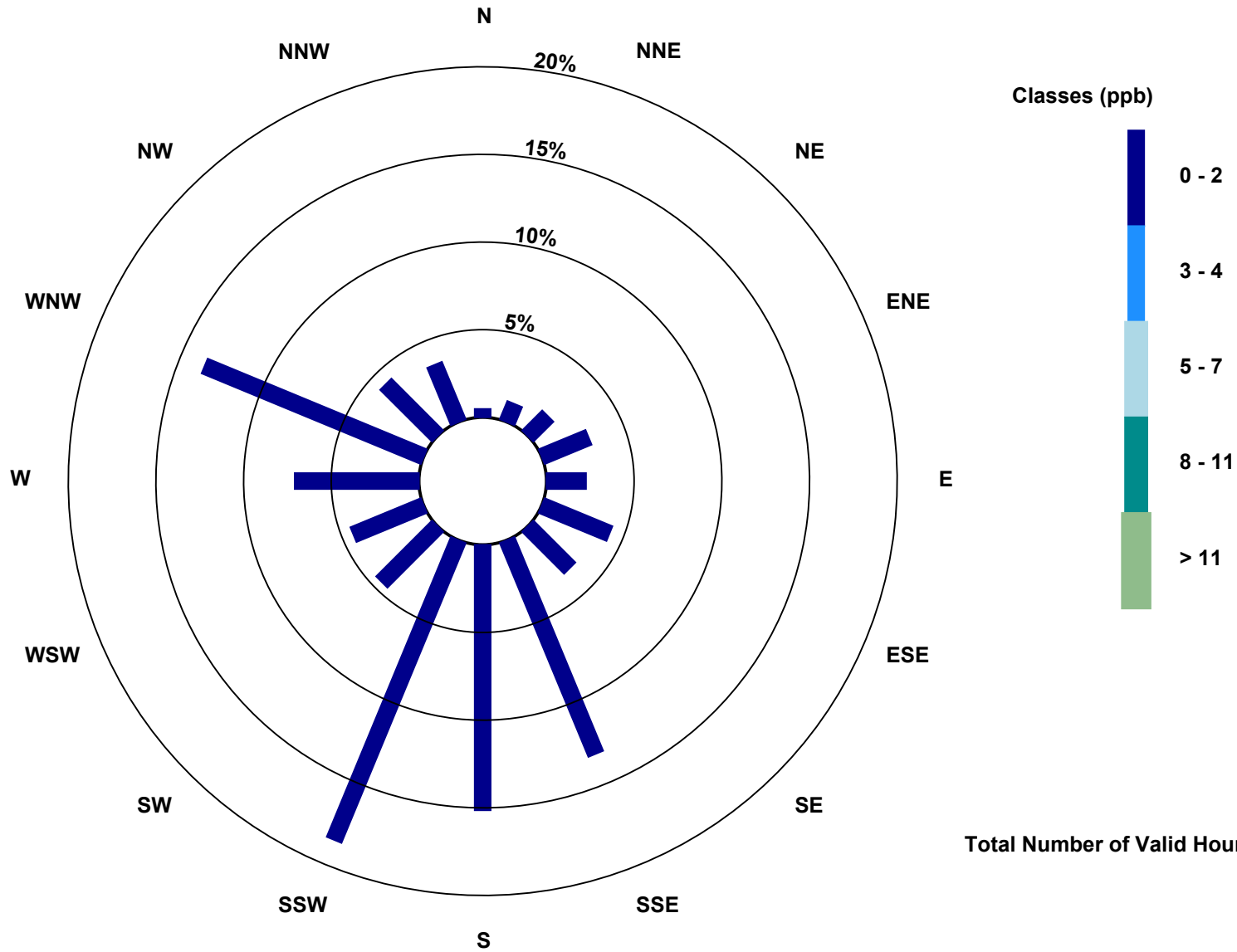
Total Number of Valid Hours: 621

Total Number of Hours: 744

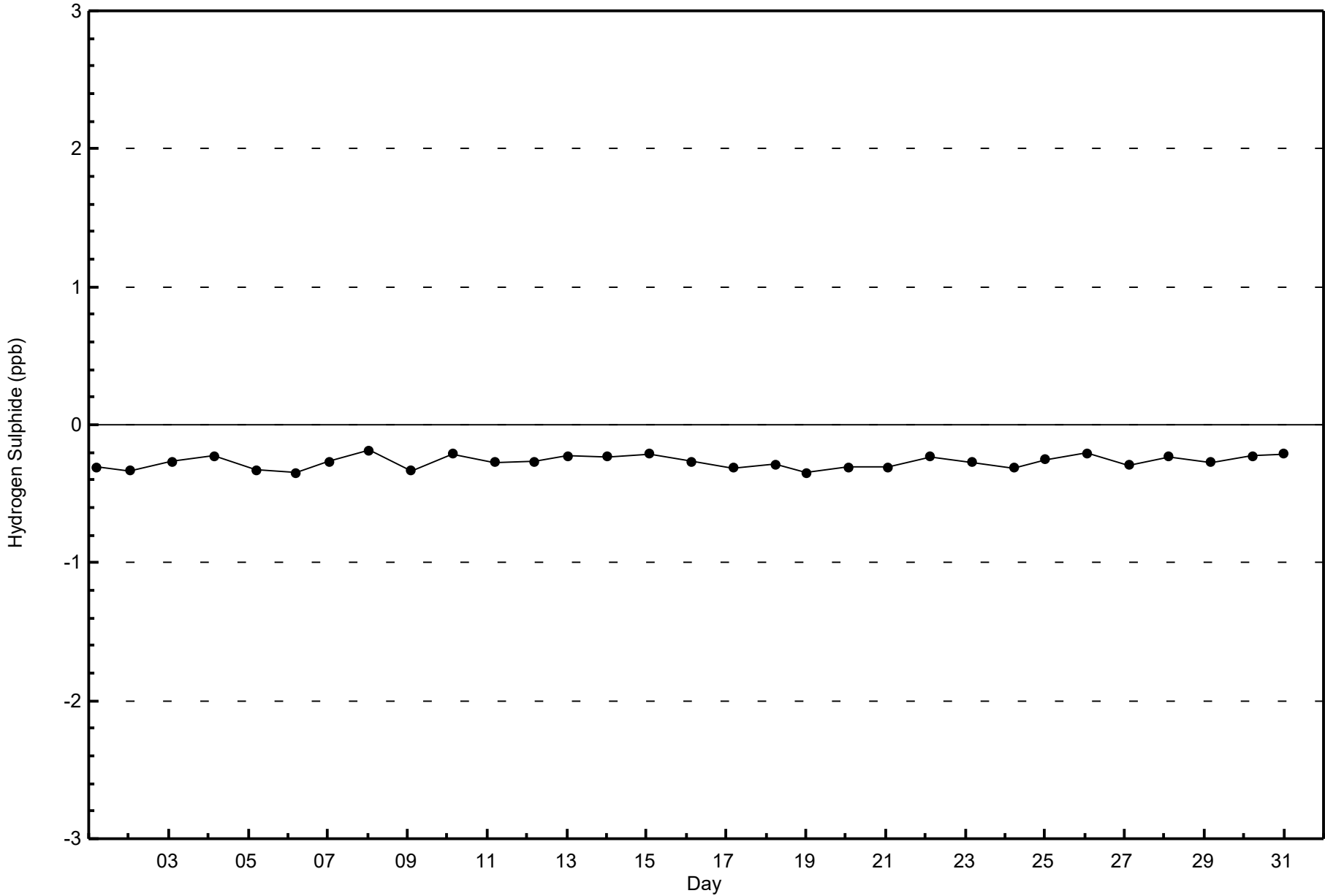


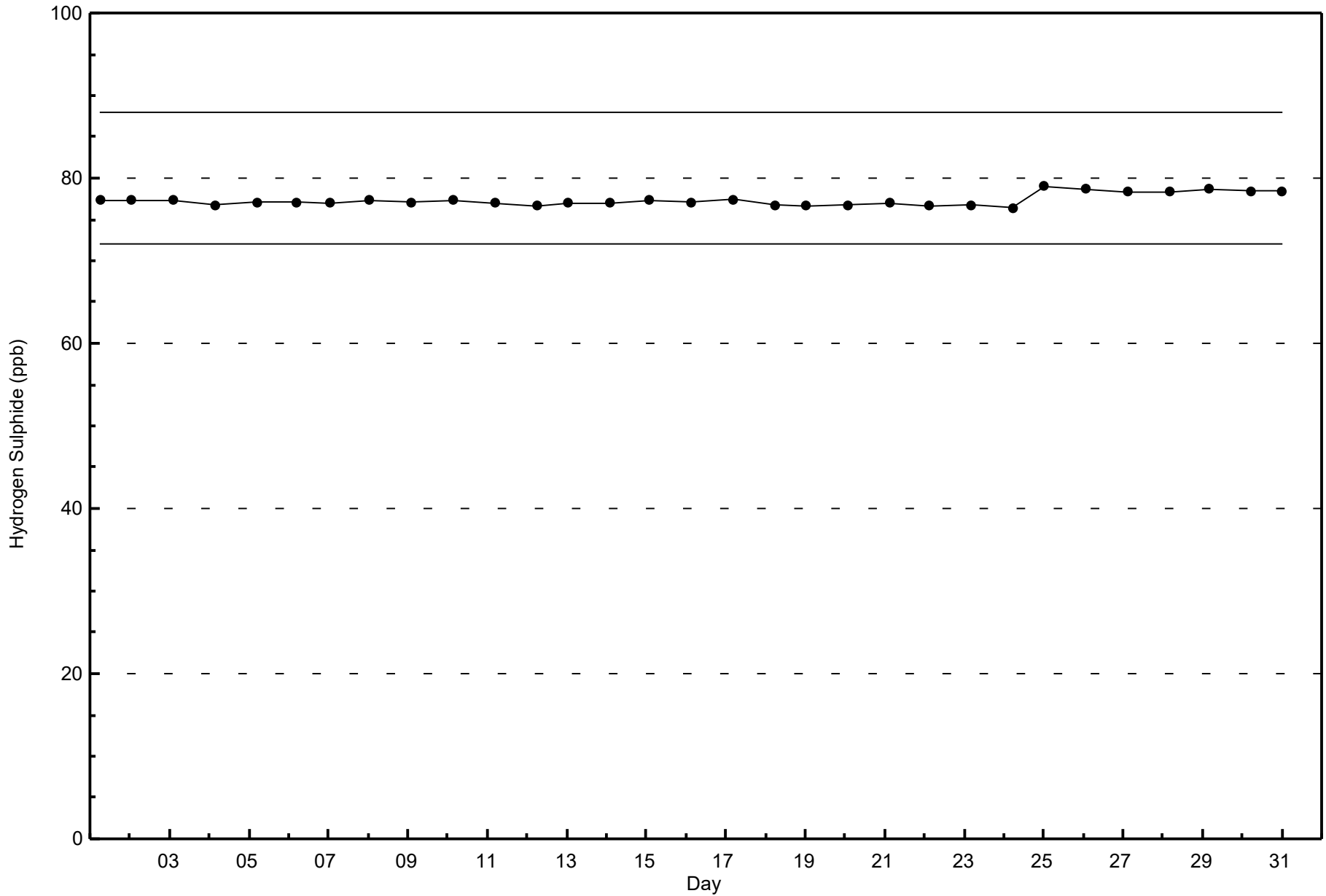
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 1



Total Number of Valid Hours: 621







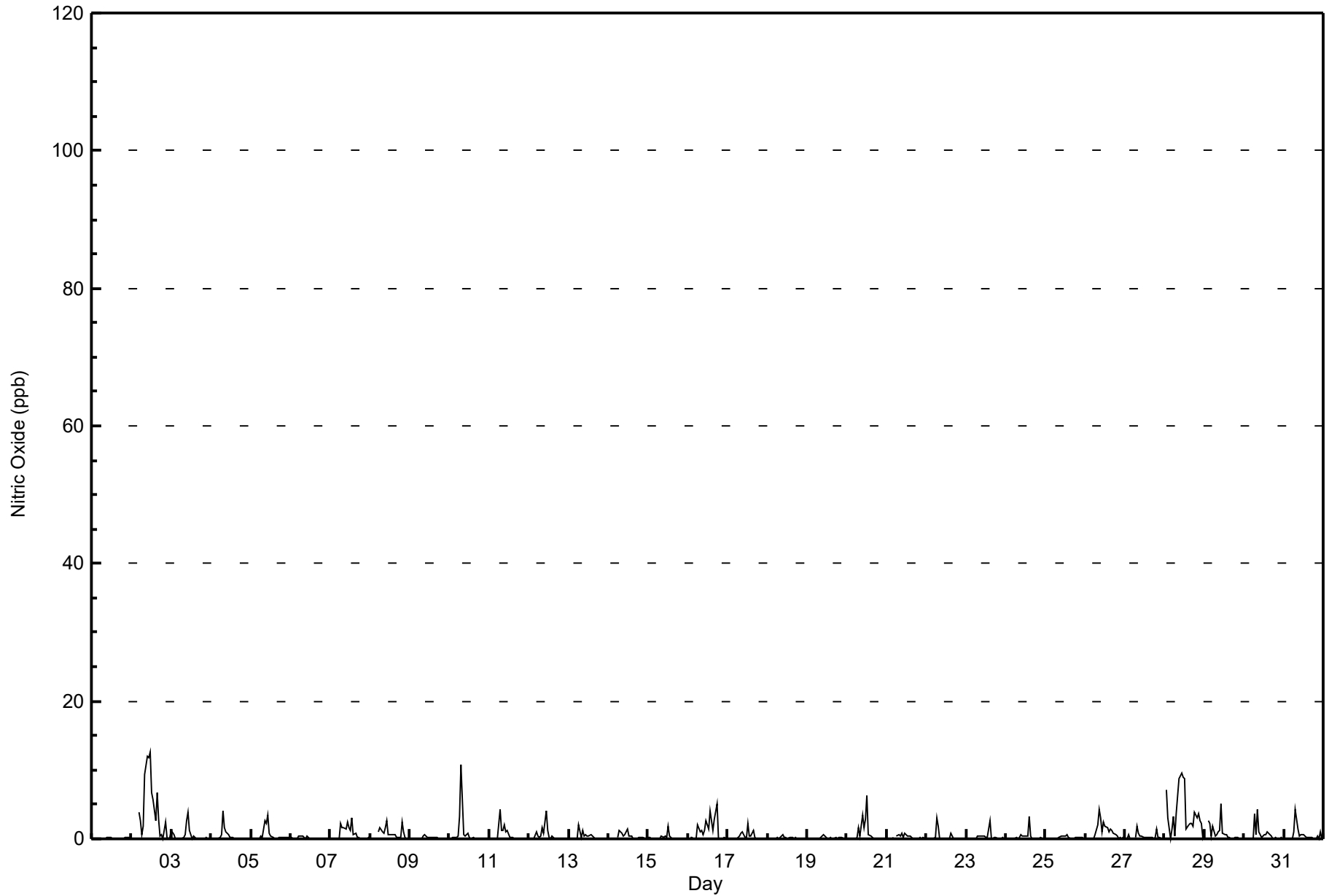
Maximum Value: 12.7 ppb on Oct 2 12:00		Maximum Daily Average: 3.9 ppb on Oct 28		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Oct 1 01:00		Minimum Daily Average: 0.1 ppb on Oct 1		Hours of Data: 708																							
Maximum Diurnal Average: 1.8 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 24		Hours of Missing Data: 36																							
Monthly Average: 0.66 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> = 0.5 P <sub>90</sub> = 1.8 P <sub>99</sub> = 8.9		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-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.1	0.3	
2-Oct	0.0	0.1	0.0	Z	3.9	2.7	0.6	1.7	9.3	11.9	11.8	12.7	6.6	5.7	2.6	6.6	2.9	0.4	0.7	0.0	2.5	0.2	0.0	0.2	3.6	12.7	
3-Oct	1.3	0.7	0.0	0.0	0.0	Z	0.0	0.2	0.7	2.7	3.9	1.1	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.5	3.9	
4-Oct	Z	0.0	0.0	0.0	0.0	0.2	0.6	4.1	1.6	1.1	0.6	0.2	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.1	
5-Oct	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.2	2.7	2.2	3.6	0.8	0.4	0.2	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.5	3.6	
6-Oct	0.1	0.0	Z	0.0	0.0	0.4	0.4	0.3	0.2	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4	
7-Oct	0.1	0.1	0.1	Z	0.0	0.0	2.3	1.6	1.6	1.5	2.4	1.6	1.2	3.1	0.6	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	3.1	
8-Oct	0.1	0.1	0.0	0.0	Z	1.1	1.6	0.9	0.9	1.7	2.6	0.6	0.7	0.6	0.6	0.6	0.2	0.2	0.1	2.4	1.1	0.2	0.0	0.0	0.7	2.6	
9-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.4	0.6	0.2	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	0.1	0.6	
10-Oct	Z	0.1	0.1	0.1	0.1	0.4	3.3	10.9	0.6	0.4	0.6	0.9	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	10.9	
11-Oct	0.1	Z	0.0	0.0	0.0	0.0	4.3	1.1	1.2	2.1	0.9	1.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.5	4.3	
12-Oct	0.0	0.0	Z	0.0	1.0	0.4	0.2	0.4	1.6	0.8	4.0	1.2	0.1	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.0	
13-Oct	0.0	0.0	0.0	Z	0.0	0.0	2.1	0.1	1.3	0.5	0.6	0.4	0.4	0.7	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	2.1	
14-Oct	0.1	0.1	0.1	0.0	Z	0.1	1.3	1.1	0.8	0.4	0.6	1.5	0.4	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	1.5	
15-Oct	0.1	0.1	0.1	0.0	0.0	Z	0.0	0.1	0.4	0.1	0.3	0.2	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.7	
16-Oct	Z	0.1	0.1	0.1	0.1	0.1	2.0	1.0	1.3	0.7	1.3	2.7	1.4	4.0	2.6	1.3	2.8	5.1	0.0	0.0	0.1	0.1	0.1	0.1	1.2	5.1	
17-Oct	0.1	Z	0.0	0.0	0.0	0.0	0.2	0.5	0.8	1.1	0.3	0.2	2.2	0.3	0.4	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2	
18-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.5	0.5	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
19-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.3	0.5	0.2	0.1	0.0	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.5	
20-Oct	0.1	0.0	0.0	0.0	Z	0.0	0.2	1.6	0.5	3.5	1.6	2.8	6.2	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	6.2	
21-Oct	0.0	0.0	0.0	0.0	0.1	Z	0.4	0.6	0.4	0.9	0.3	0.8	0.4	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.9	
22-Oct	Z	0.0	0.0	0.0	0.0	0.1	3.1	1.8	0.1	C	C	C	C	C	0.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.1	
23-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.5	0.3	0.3	0.2	2.7	0.1	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.3	2.7	
24-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.0	0.3	0.5	0.4	0.4	0.5	0.3	3.3	0.4	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.3	3.3	
25-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.5	0.4	0.4	0.3	0.6	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6	
26-Oct	0.1	0.0	0.0	0.0	Z	0.0	0.6	2.1	4.3	3.0	1.0	2.4	1.8	1.7	1.0	1.4	1.1	0.8	0.5	0.3	0.1	0.3	0.0	0.3	1.0	4.3	
27-Oct	0.0	0.0	0.6	0.0	0.0	Z	0.1	1.8	0.9	0.3	0.4	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.2	1.4	0.1	0.1	0.1	0.2	0.3	1.8	
28-Oct	Z	7.1	3.0	0.0	1.4	3.2	0.3	3.7	8.8	9.1	9.5	8.9	8.8	1.4	2.1	2.3	2.2	1.8	3.8	3.1	3.6	2.6	2.3	0.2	3.9	9.5	
29-Oct	1.1	Z	2.7	2.2	0.4	1.8	0.4	0.6	1.0	1.3	5.2	0.8	0.6	0.7	0.2	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.9	5.2	
30-Oct	0.1	0.1	Z	0.0	0.0	0.0	3.6	0.6	4.2	0.9	0.2	0.4	0.6	0.6	1.0	0.5	0.4	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.6	4.2	
31-Oct	0.2	0.0	0.1	Z	0.1	0.0	0.9	4.2	1.3	0.4	0.6	0.6	0.5	0.1	0.2	0.2	0.1	0.3	0.0	0.0	0.4	0.0	1.1	0.0	0.5	4.2	
		0.1	0.3	0.3	0.1	0.3	0.4	0.9	1.4	1.6	1.7	1.8	1.5	1.2	0.8	0.7	0.6	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.1	Diurnal Average	
		1.3	7.1	3.0	2.2	3.9	3.2	4.3	10.9	9.3	11.9	11.8	12.7	8.8	5.7	3.3	6.6	2.9	5.1	3.8	3.1	3.6	2.6	2.3	0.3	Diurnal Maximum	
Z - zerspan		C - Calibration																									





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Jackfish 1 - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Jackfish 1 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Jackfish 1 - October 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	3	7	10	18	14	26	23	80	95	112	25	27	44	87	27	24	622
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>3</b>	<b>7</b>	<b>10</b>	<b>18</b>	<b>14</b>	<b>26</b>	<b>23</b>	<b>80</b>	<b>95</b>	<b>112</b>	<b>25</b>	<b>27</b>	<b>44</b>	<b>87</b>	<b>27</b>	<b>24</b>	<b>622</b>

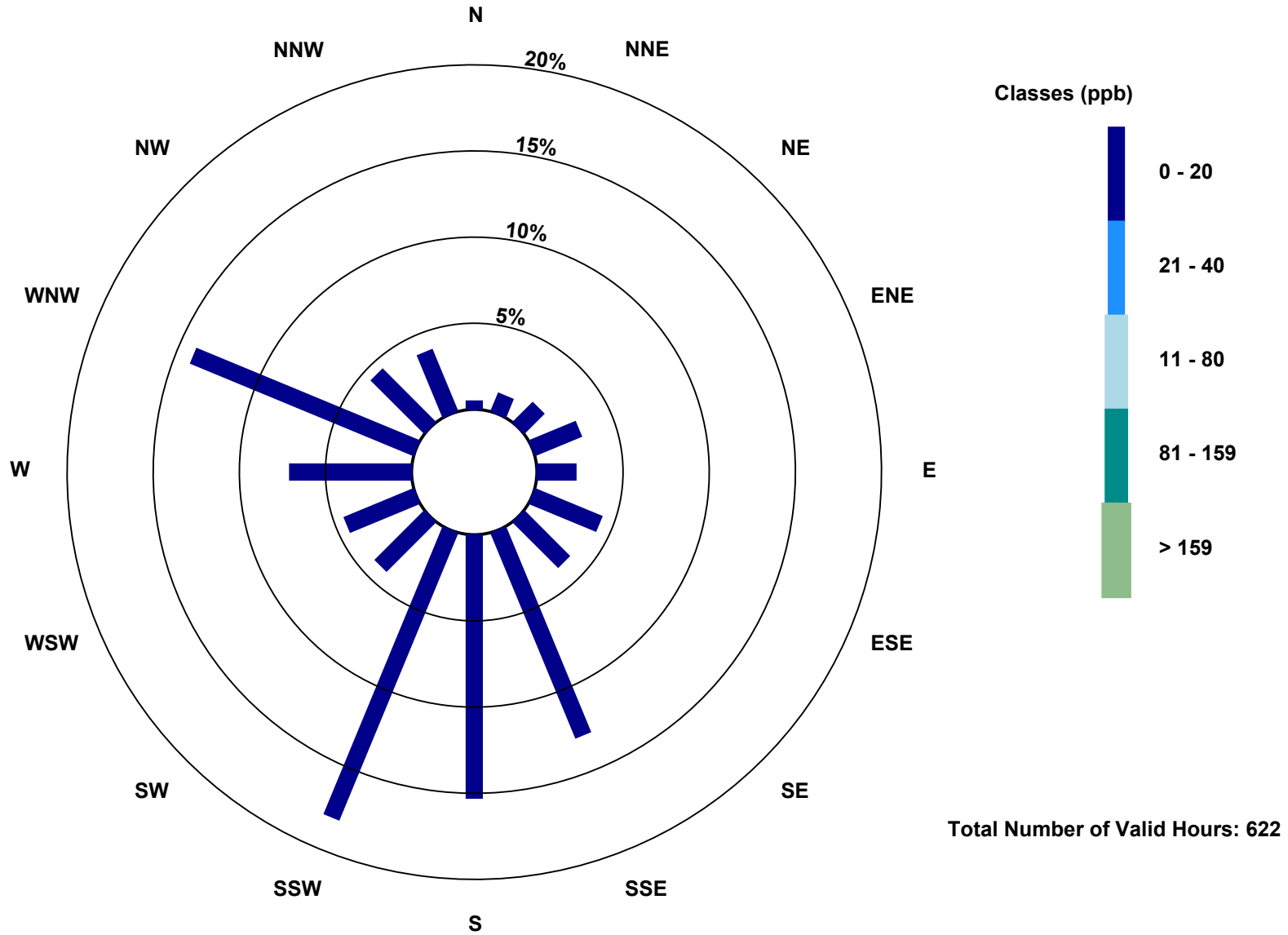
Total Number of Valid Hours: 622

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

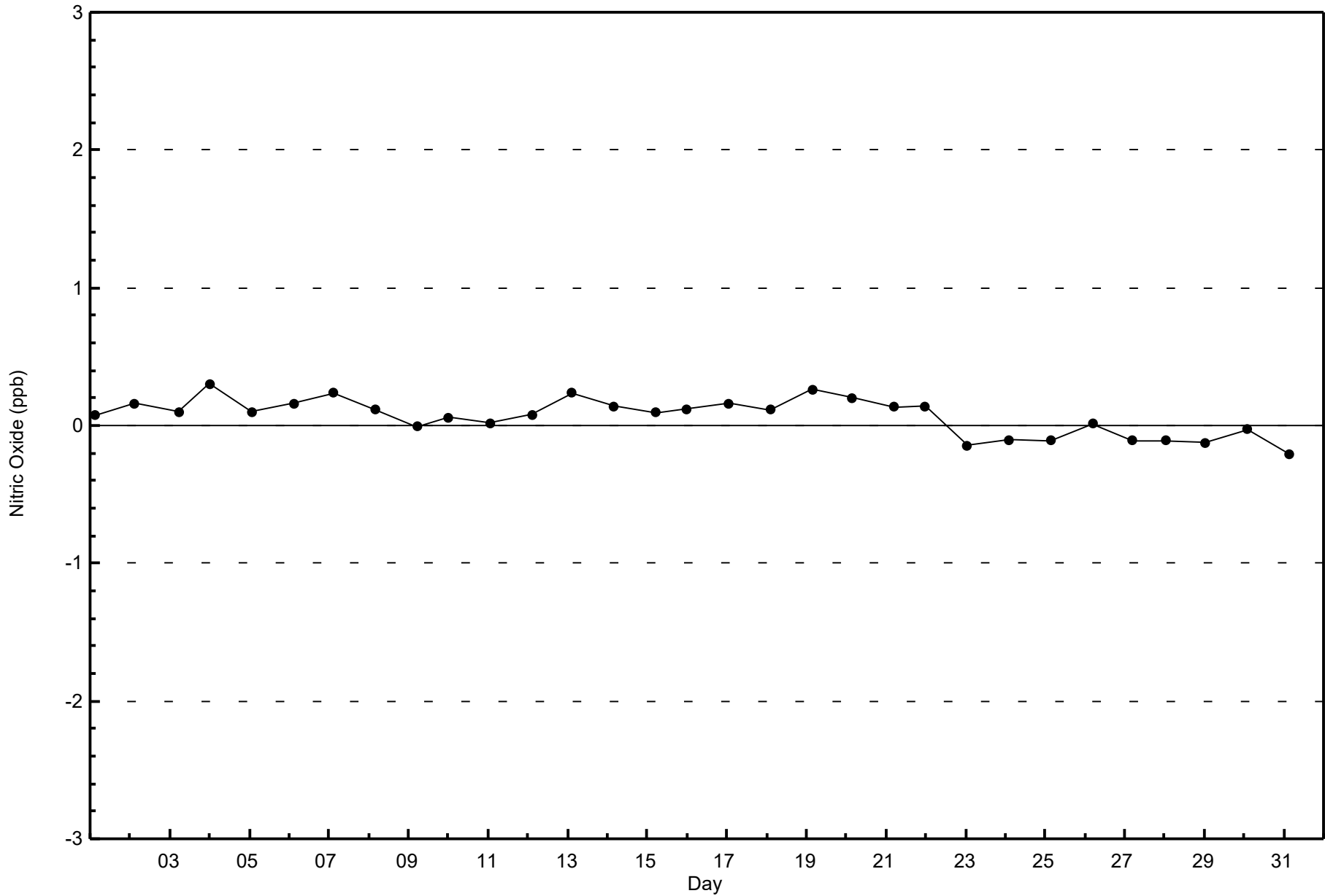
Nitric Oxide (NO) - ppb  
Jackfish 1





Wood Buffalo Environmental Association  
Zero Responses

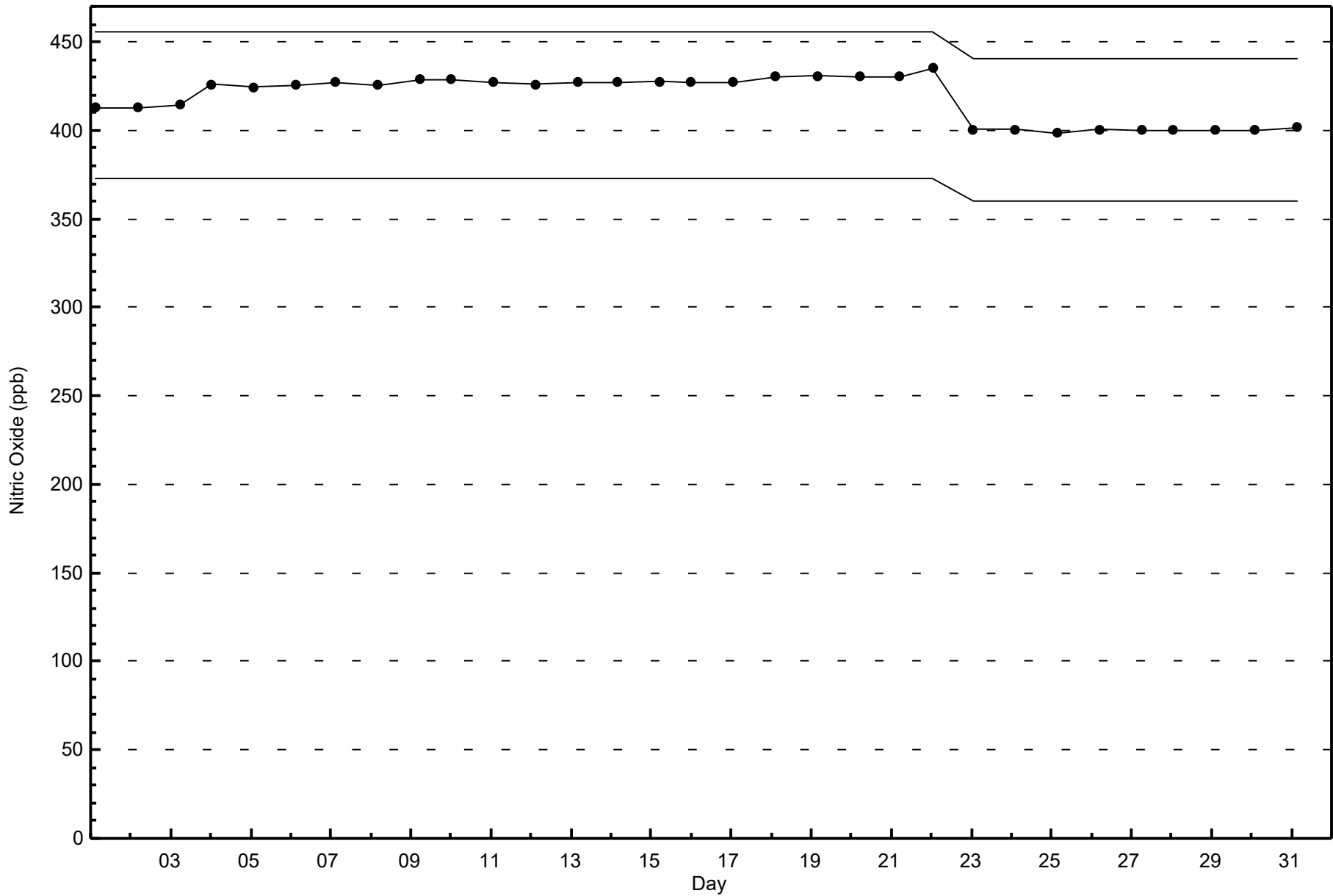
Nitric Oxide (NO) - ppb  
Jackfish 1 - October 2024





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Jackfish 1 - October 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Jackfish 1 - October 2024

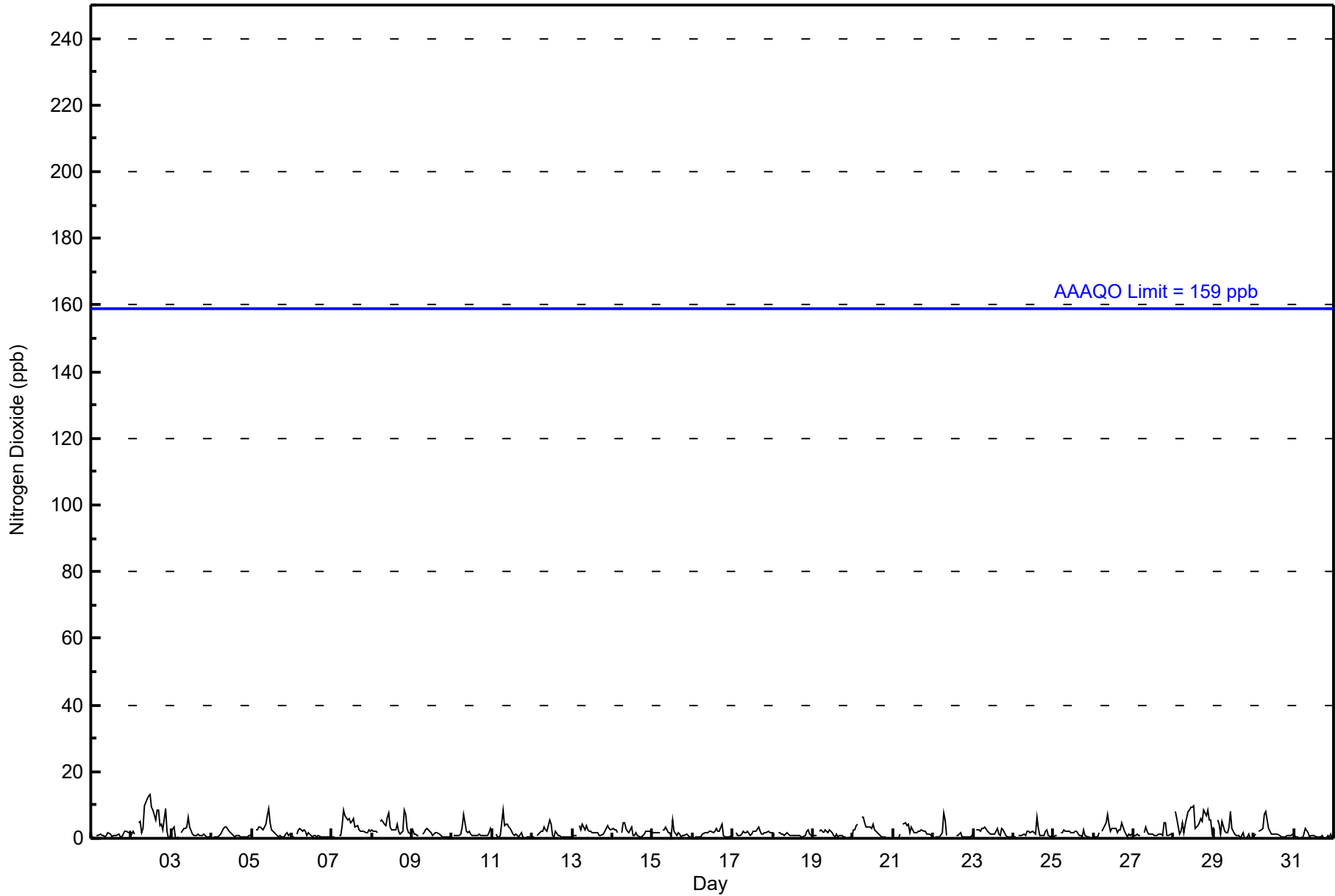
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 13.1 ppb on Oct 2 12:00		Maximum Daily Average: 5.7 ppb on Oct 28		Hours of Data: 708														Hours of Missing Data: 36		Hours of Calibration: 36							
Minimum Value: 0.0 ppb on Oct 20 21:00		Minimum Daily Average: 0.7 ppb on Oct 31		Hours of Operational Time: 100.0														Percent Operational Time: 100.0									
Maximum Diurnal Average: 3.5 ppb at hour 11		Minimum Diurnal Average: 1.0 ppb at hour 24		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.7 Median = 1.4 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 4.4 P <sub>99</sub> = 9.3																							
Monthly Average: 1.99 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-Oct	0.4	0.6	Z	0.8	0.8	1.1	1.0	0.7	0.6	0.9	1.6	1.3	0.6	0.8	0.9	1.0	1.3	0.6	0.3	1.2	2.3	2.2	1.6	2.1	1.1	2.3	
2-Oct	1.2	2.2	1.2	Z	4.7	5.2	1.8	3.0	9.9	11.8	12.7	13.1	9.4	8.3	5.6	8.5	8.3	3.9	4.2	2.6	9.1	2.1	0.1	0.6	5.6	13.1	
3-Oct	2.2	3.3	0.2	0.1	0.3	Z	1.7	3.1	3.1	3.5	6.5	3.3	1.3	0.9	0.8	0.7	1.1	1.0	0.7	1.2	0.8	0.6	0.5	0.4	1.6	6.5	
4-Oct	Z	0.6	0.4	0.5	0.6	1.1	2.0	3.0	3.3	3.2	2.1	1.7	1.2	0.9	0.6	0.8	0.7	0.5	0.4	0.4	0.4	0.6	0.7	0.8	1.2	3.3	
5-Oct	1.4	Z	2.5	2.4	3.3	3.4	2.8	2.4	4.1	6.6	9.1	4.8	2.4	1.8	1.1	0.8	0.5	0.8	0.5	0.4	1.3	1.6	0.9	1.2	2.4	9.1	
6-Oct	0.5	0.6	Z	1.1	2.5	3.0	2.1	2.7	2.1	1.0	1.6	0.7	0.6	0.8	0.8	0.5	0.7	0.5	0.5	0.5	0.6	0.5	0.3	0.2	1.1	3.0	
7-Oct	0.3	0.3	0.2	Z	0.7	0.9	3.9	8.6	6.6	5.7	5.9	4.6	4.9	6.1	3.3	4.0	2.7	2.3	2.2	2.1	1.9	1.9	2.4	2.3	3.2	8.6	
8-Oct	2.4	2.0	2.1	1.9	Z	4.9	5.5	4.4	3.7	6.2	7.7	3.3	2.7	2.5	2.4	4.2	2.1	1.3	2.2	8.6	7.4	2.8	1.8	1.2	3.6	8.6	
9-Oct	2.5	1.3	1.4	0.9	0.7	Z	1.1	1.5	2.7	2.9	2.2	1.5	1.0	1.1	1.6	1.6	1.4	0.8	0.5	0.4	0.5	0.5	0.6	0.6	1.3	2.9	
10-Oct	Z	0.8	0.7	0.7	0.9	1.3	3.5	7.1	2.3	1.5	2.3	1.4	1.0	0.7	1.0	0.7	1.1	0.9	1.0	0.7	0.7	0.9	1.5	3.1	1.6	7.1	
11-Oct	1.9	Z	1.3	0.5	0.5	0.7	8.5	3.9	4.1	4.3	3.4	2.8	1.1	0.9	1.1	1.0	0.5	1.5	0.4	0.2	0.1	0.4	0.4	0.4	1.7	8.5	
12-Oct	0.5	0.5	Z	0.8	1.7	2.3	2.0	3.2	2.7	2.2	5.6	4.1	0.8	0.6	2.1	0.7	0.8	0.5	0.6	0.3	0.3	0.4	0.3	0.3	1.4	5.6	
13-Oct	0.5	0.7	1.0	Z	3.7	2.4	4.4	2.4	3.9	2.6	2.2	2.0	1.5	1.6	1.8	1.6	1.0	1.0	1.2	2.2	3.0	3.7	3.0	2.7	2.2	4.4	
14-Oct	2.8	2.4	2.4	1.9	Z	1.6	4.8	4.8	2.8	2.1	1.9	3.6	0.8	0.9	1.7	0.7	0.4	0.6	0.9	1.4	2.1	2.3	2.0	1.8	2.0	4.8	
15-Oct	1.6	1.5	1.6	1.7	1.8	Z	2.7	2.4	3.3	1.7	1.6	0.5	5.4	2.1	1.0	1.5	1.1	0.6	0.7	0.9	1.3	0.9	0.5	0.5	1.6	5.4	
16-Oct	Z	0.6	0.4	0.4	0.6	0.5	1.2	1.5	1.5	1.8	2.0	2.2	1.7	2.0	3.0	2.1	2.3	4.3	1.0	0.4	0.4	0.3	0.3	0.9	1.4	4.3	
17-Oct	1.2	Z	1.8	1.0	1.0	1.3	2.1	1.7	1.7	2.0	0.9	1.2	2.0	2.0	2.2	3.6	2.2	1.2	1.3	1.7	1.9	2.2	1.9	1.6	1.7	3.6	
18-Oct	1.5	0.9	Z	1.6	1.8	1.2	1.3	0.7	1.5	1.3	0.9	0.9	0.7	0.7	0.8	1.0	1.0	0.4	0.6	0.7	2.1	2.6	1.3	0.8	1.1	2.6	
19-Oct	0.8	0.9	1.0	Z	2.2	2.6	1.7	2.4	2.3	1.9	2.7	1.5	0.8	0.5	1.1	0.6	0.9	1.0	0.4	0.5	0.2	0.1	0.3	0.3	1.2	2.7	
20-Oct	2.4	2.7	3.8	4.4	Z	6.3	6.2	4.5	3.4	3.6	3.2	3.1	4.3	2.7	1.6	1.2	1.0	0.5	0.5	0.3	0.0	0.0	0.0	0.0	2.4	6.3	
21-Oct	0.1	0.0	0.2	0.1	1.1	Z	4.1	4.8	3.8	4.4	1.9	3.6	1.9	1.9	1.7	2.1	2.1	2.6	2.0	2.1	1.3	1.4	1.4	0.3	2.0	4.8	
22-Oct	Z	0.4	0.3	0.4	0.3	1.8	7.8	5.4	1.0	C	C	C	C	C	0.8	0.9	1.5	0.5	0.3	0.4	0.5	0.6	0.6	0.7	1.3	7.8	
23-Oct	2.1	Z	2.5	2.4	2.1	2.9	2.9	3.6	2.3	1.5	1.4	1.2	1.3	1.1	3.1	1.3	0.9	2.8	2.4	0.7	0.6	0.3	0.3	0.4	1.7	3.6	
24-Oct	0.5	0.6	Z	1.0	0.8	0.8	1.1	1.0	2.2	2.1	1.6	2.1	1.9	1.2	6.3	2.9	1.0	0.7	0.8	2.2	2.6	0.7	0.6	0.8	1.5	6.3	
25-Oct	0.6	0.7	1.0	Z	1.8	1.5	2.6	2.0	2.0	2.3	1.8	1.5	1.7	2.3	2.0	0.8	0.7	0.5	2.5	0.8	0.5	0.3	0.2	0.2	1.3	2.6	
26-Oct	0.2	0.3	0.6	1.7	Z	2.0	2.8	4.8	7.0	4.4	2.3	2.8	2.8	2.8	1.7	2.5	2.6	4.6	2.1	1.4	0.6	1.1	0.8	1.1	2.3	7.0	
27-Oct	1.0	0.7	1.2	0.7	0.7	Z	1.6	3.5	2.2	1.3	1.4	1.1	0.9	0.9	1.0	1.1	1.1	0.9	4.5	4.5	0.9	1.0	1.1	1.1	1.5	4.5	
28-Oct	Z	8.0	5.8	1.2	2.1	4.8	1.6	4.4	8.1	8.5	9.4	9.3	9.9	3.1	3.8	4.8	5.8	5.0	8.6	6.9	8.4	5.5	5.6	1.5	5.7	9.9	
29-Oct	3.6	Z	5.4	4.3	1.4	5.2	2.0	1.5	1.7	3.3	8.0	3.1	1.3	1.0	0.7	1.0	0.0	1.8	0.2	0.0	0.6	1.2	0.0	0.2	2.1	8.0	
30-Oct	0.7	1.2	Z	2.2	2.6	2.9	7.1	8.0	5.5	2.8	1.4	1.1	1.4	1.2	1.3	1.0	0.5	0.6	0.4	0.6	0.7	0.8	1.0	1.3	2.0	8.0	
31-Oct	1.1	0.4	0.3	Z	0.5	0.2	1.1	2.8	1.8	0.4	0.7	0.9	0.9	0.3	0.5	0.5	0.5	0.7	0.2	0.0	0.7	0.3	1.1	0.2	0.7	2.8	
																								Diurnal Average		Diurnal Maximum	
																								1.3		3.6	
																								1.3		8.0	
																								1.6		5.8	
																								1.4		4.4	
																								1.5		4.7	
																								2.4		6.3	
																								3.1		8.5	
																								3.4		8.6	
																								3.3		9.9	
																								3.3		11.8	
																								3.5		12.7	
																								2.8		13.1	
																								2.3		9.9	
																								1.8		8.3	
																								1.9		6.3	
																								1.8		8.5	
																								1.5		8.3	
																								1.4		5.0	
																								1.4		8.6	
																								1.5		8.6	
																								1.7		9.1	
																								1.3		5.5	
																								1.1		5.6	
																								1.0		3.1	

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**  
**Jackfish 1 - October 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 1 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	708	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 1 - October 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	3	7	10	18	14	26	23	80	95	112	25	27	44	87	27	24	622
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>	3	7	10	18	14	26	23	80	95	112	25	27	44	87	27	24	622

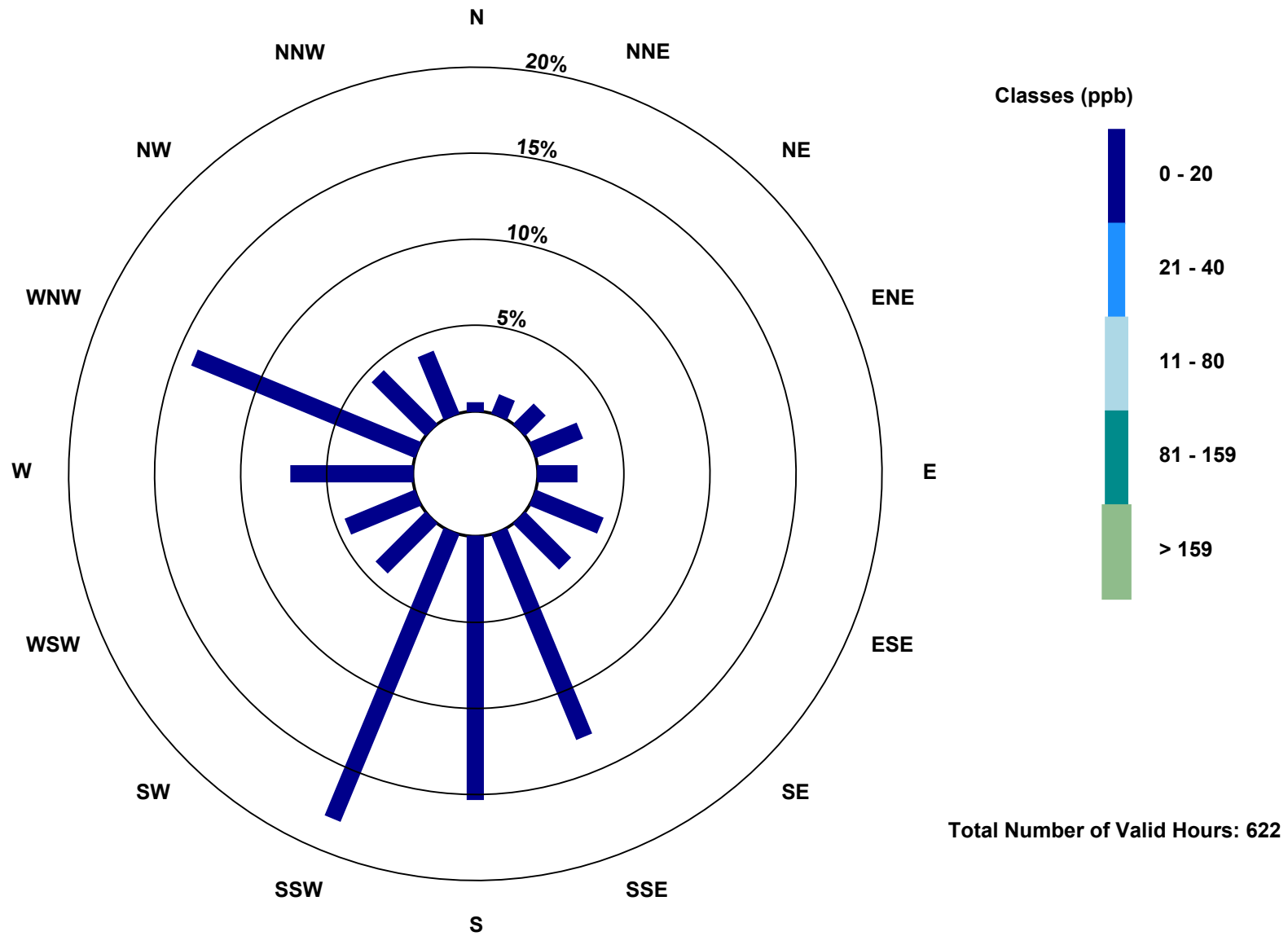
Total Number of Valid Hours: 622

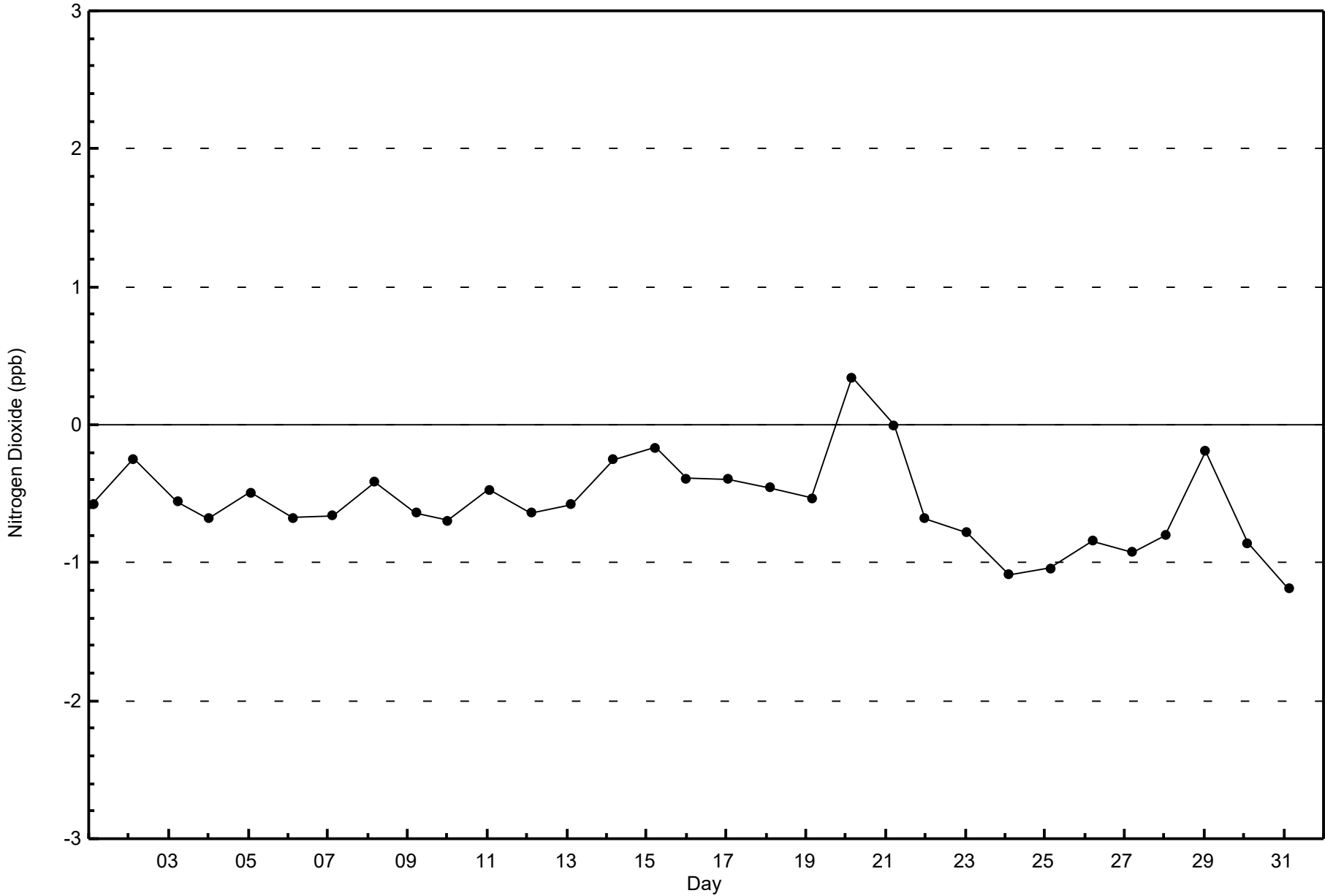
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 1

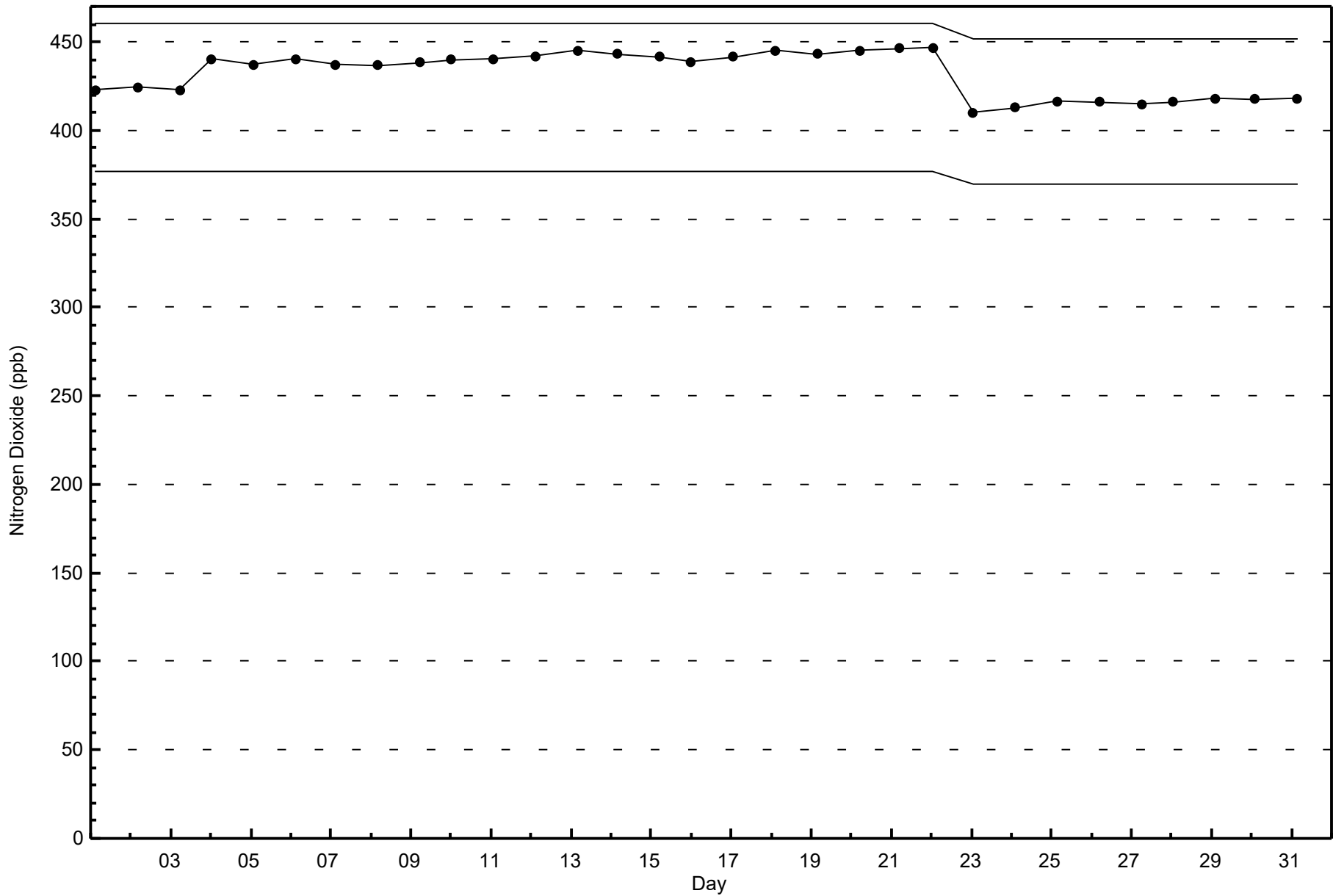






Wood Buffalo Environmental Association  
Span Responses

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 1 - October 2024



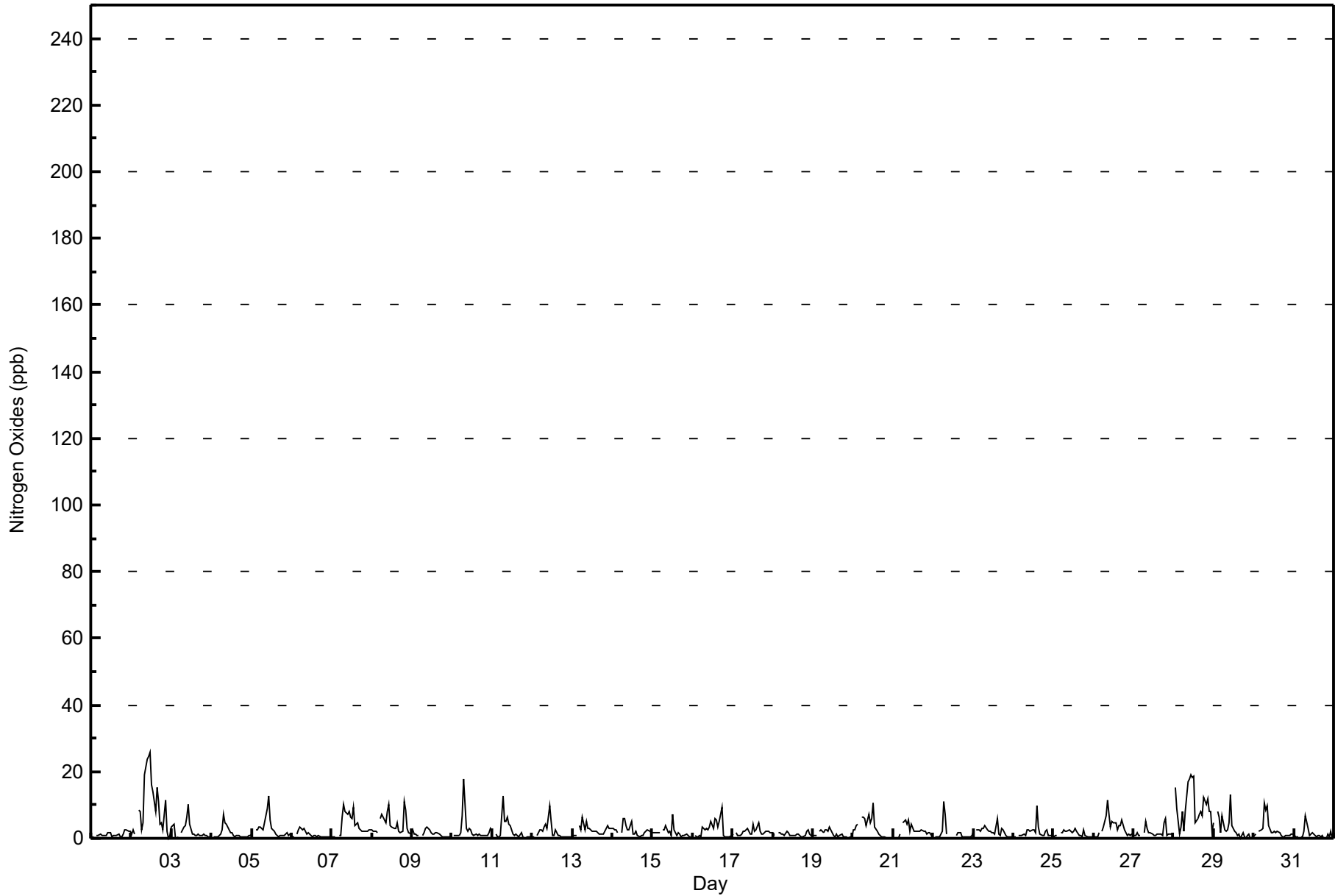


Maximum Value: 25.8 ppb on Oct 2 12:00		Maximum Daily Average: 9.6 ppb on Oct 28		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Oct 21 00:00		Minimum Daily Average: 1.1 ppb on Oct 1		Hours of Data: 708																																													
Maximum Diurnal Average: 5.4 ppb at hour 11		Minimum Diurnal Average: 1.0 ppb at hour 24		Hours of Missing Data: 36																																													
Monthly Average: 2.65 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.8 Median = 1.6 Q <sub>3</sub> = 2.9 P <sub>90</sub> = 6.2 P <sub>99</sub> = 17.9		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-Oct	0.4	0.6	Z	0.8	0.8	1.1	1.0	0.8	0.7	1.0	1.8	1.5	0.6	0.8	1.0	1.1	1.3	0.6	0.3	1.2	2.5	2.4	1.9	2.2	1.1	2.5																							
2-Oct	1.2	2.3	1.2	Z	8.6	7.9	2.4	4.7	19.2	23.7	24.5	25.8	16.0	14.0	8.2	15.1	11.2	4.3	4.9	2.6	11.6	2.3	0.1	0.8	9.2	25.8																							
3-Oct	3.5	4.0	0.2	0.1	0.3	Z	1.7	3.3	3.8	6.2	10.4	4.4	1.4	1.4	0.9	0.7	1.1	1.0	0.7	1.2	0.8	0.7	0.6	0.5	2.1	10.4																							
4-Oct	Z	0.6	0.4	0.5	0.6	1.3	2.6	7.1	4.9	4.3	2.7	1.9	1.5	1.0	0.6	0.9	0.8	0.5	0.4	0.4	0.4	0.6	0.7	0.8	1.5	7.1																							
5-Oct	1.4	Z	2.5	2.4	3.3	3.5	3.1	2.6	6.8	8.8	12.7	5.6	2.8	2.0	1.2	0.8	0.5	0.9	0.7	0.6	1.4	1.7	1.0	1.3	2.9	12.7																							
6-Oct	0.6	0.6	Z	1.1	2.5	3.4	2.5	3.0	2.3	1.1	1.9	0.8	0.6	0.8	0.9	0.5	0.7	0.5	0.5	0.5	0.6	0.5	0.4	0.3	1.2	3.4																							
7-Oct	0.4	0.4	0.3	Z	0.7	0.9	6.2	10.2	8.2	7.2	8.3	6.2	6.1	9.2	3.9	4.7	2.9	2.4	2.3	2.2	2.0	2.0	2.5	2.4	4.0	10.2																							
8-Oct	2.5	2.1	2.1	1.9	Z	6.0	7.1	5.3	4.6	7.9	10.3	3.9	3.4	3.1	3.0	4.8	2.3	1.5	2.3	11.0	8.5	3.0	1.8	1.2	4.3	11.0																							
9-Oct	2.5	1.3	1.4	0.9	0.7	Z	1.1	1.6	3.1	3.5	2.4	1.6	1.1	1.2	1.8	1.7	1.5	0.8	0.5	0.4	0.5	0.5	0.6	0.6	1.4	3.5																							
10-Oct	Z	0.9	0.8	0.8	1.0	1.7	6.8	17.9	2.9	1.9	2.9	2.3	1.2	0.8	1.1	0.8	1.1	0.9	1.0	0.7	0.7	0.9	1.5	3.1	2.3	17.9																							
11-Oct	2.0	Z	1.3	0.5	0.5	0.7	12.8	5.0	5.3	6.4	4.3	3.9	1.3	1.0	1.2	1.1	0.6	1.6	0.5	0.2	0.2	0.4	0.4	0.4	2.2	12.8																							
12-Oct	0.5	0.5	Z	0.8	2.7	2.7	2.2	3.6	4.3	3.0	9.6	5.3	0.9	0.7	2.6	0.7	0.8	0.5	0.6	0.3	0.3	0.4	0.3	0.3	1.9	9.6																							
13-Oct	0.5	0.7	1.0	Z	3.7	2.4	6.5	2.5	5.2	3.1	2.8	2.4	1.9	2.3	2.1	1.9	1.1	1.1	1.3	2.3	3.1	3.8	3.1	2.8	2.5	6.5																							
14-Oct	2.9	2.5	2.5	1.9	Z	1.7	6.1	5.9	3.6	2.5	2.5	5.1	1.2	1.3	2.2	0.8	0.5	0.7	1.0	1.5	2.2	2.4	2.1	1.9	2.4	6.1																							
15-Oct	1.7	1.6	1.7	1.7	1.8	Z	2.7	2.5	3.7	1.8	1.9	0.7	7.1	2.5	1.0	1.5	1.1	0.6	0.7	0.9	1.3	0.9	0.5	0.6	1.8	7.1																							
16-Oct	Z	0.7	0.5	0.5	0.7	0.6	3.2	2.5	2.8	2.5	3.3	4.9	3.1	6.0	5.6	3.4	5.1	9.4	1.0	0.4	0.5	0.4	0.4	1.0	2.5	9.4																							
17-Oct	1.3	Z	1.8	1.0	1.0	1.3	2.3	2.2	2.5	3.1	1.2	1.4	4.2	2.3	2.6	4.8	2.3	1.2	1.3	1.7	1.9	2.2	1.9	1.6	2.0	4.8																							
18-Oct	1.5	0.9	Z	1.6	1.8	1.2	1.4	0.8	2.0	1.8	1.0	1.0	0.8	0.8	1.1	1.1	1.1	0.5	0.6	0.7	2.1	2.6	1.3	0.8	1.2	2.6																							
19-Oct	0.8	0.9	1.0	Z	2.2	2.6	1.7	2.4	2.6	2.2	3.2	1.7	0.9	0.5	1.3	0.6	0.9	1.1	0.5	0.6	0.3	0.2	0.4	0.5	1.3	3.2																							
20-Oct	2.5	2.7	3.8	4.4	Z	6.3	6.4	6.1	3.9	7.1	4.8	5.9	10.5	3.4	2.0	1.3	1.0	0.5	0.5	0.3	0.0	0.0	0.0	0.0	3.2	10.5																							
21-Oct	0.1	0.0	0.2	0.1	1.2	Z	4.5	5.4	4.2	5.3	2.2	4.4	2.3	2.3	2.1	2.3	2.1	2.6	2.0	2.1	1.4	1.5	1.5	0.3	2.2	5.4																							
22-Oct	Z	0.4	0.3	0.4	0.3	1.9	10.9	7.2	1.1	C	C	C	C	C	0.9	1.6	1.5	0.5	0.3	0.4	0.5	0.6	0.6	0.7	1.7	10.9																							
23-Oct	2.1	Z	2.5	2.4	2.1	2.9	2.9	3.9	2.7	2.0	1.9	1.5	1.6	1.3	5.8	1.4	1.0	3.0	2.6	0.8	0.6	0.4	0.4	0.5	2.0	5.8																							
24-Oct	0.5	0.6	Z	1.0	0.8	0.8	1.3	1.0	2.5	2.6	2.0	2.5	2.4	1.5	9.6	3.3	1.1	0.7	0.9	2.3	2.7	0.8	0.7	0.8	1.9	9.6																							
25-Oct	0.6	0.7	1.0	Z	1.8	1.5	2.6	2.1	2.3	2.8	2.2	1.9	2.0	2.9	2.2	0.8	0.7	0.5	2.6	0.9	0.6	0.4	0.3	0.3	1.5	2.9																							
26-Oct	0.3	0.3	0.6	1.7	Z	2.0	3.4	6.9	11.3	7.4	3.3	5.2	4.6	4.5	2.7	3.9	3.7	5.4	2.6	1.7	0.7	1.4	0.8	1.4	3.3	11.3																							
27-Oct	1.0	0.7	1.8	0.7	0.7	Z	1.7	5.3	3.1	1.6	1.8	1.3	1.0	1.1	1.3	1.3	1.2	1.0	4.7	5.9	1.0	1.1	1.2	1.3	1.8	5.9																							
28-Oct	Z	15.1	8.8	1.2	3.5	8.0	1.9	8.1	16.9	17.6	18.9	18.2	18.7	4.5	5.9	7.1	8.0	6.8	12.4	10.0	12.0	8.1	7.9	1.7	9.6	18.9																							
29-Oct	4.7	Z	8.1	6.5	1.8	7.0	2.4	2.1	2.7	4.6	13.2	3.9	1.9	1.7	0.9	1.1	0.0	1.9	0.4	0.1	0.8	1.3	0.1	0.3	2.9	13.2																							
30-Oct	0.8	1.3	Z	2.2	2.6	2.9	10.7	8.6	9.7	3.7	1.6	1.5	2.0	1.8	2.3	1.5	0.9	0.6	0.4	0.7	0.7	0.8	1.2	1.3	2.6	10.7																							
31-Oct	1.3	0.4	0.4	Z	0.6	0.2	2.0	7.0	3.1	0.8	1.3	1.5	1.4	0.4	0.7	0.7	0.6	1.0	0.2	0.0	1.1	0.3	2.2	0.2	1.2	7.0																							
																								1.4	1.7	1.8	1.5	1.8	2.8	4.0	4.8	4.9	4.9	5.4	4.3	3.5	2.6	2.5	2.4	1.9	1.8	1.6	1.8	2.0	1.4	1.2	1.0	Diurnal Average	
																								4.7	15.1	8.8	6.5	8.6	8.0	12.8	17.9	19.2	23.7	24.5	25.8	18.7	14.0	9.6	15.1	11.2	9.4	12.4	11.0	12.0	8.1	7.9	3.1	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 1 - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 1 - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	99.58	99.58
21 - 40	3	0.42	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 Oxides (NO<sub>x</sub>) - ppb  
Jackfish 1 - October 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	3	7	10	18	14	26	23	80	95	112	25	27	44	86	25	24	619
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	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>	<b>3</b>	<b>7</b>	<b>10</b>	<b>18</b>	<b>14</b>	<b>26</b>	<b>23</b>	<b>80</b>	<b>95</b>	<b>112</b>	<b>25</b>	<b>27</b>	<b>44</b>	<b>87</b>	<b>27</b>	<b>24</b>	<b>622</b>

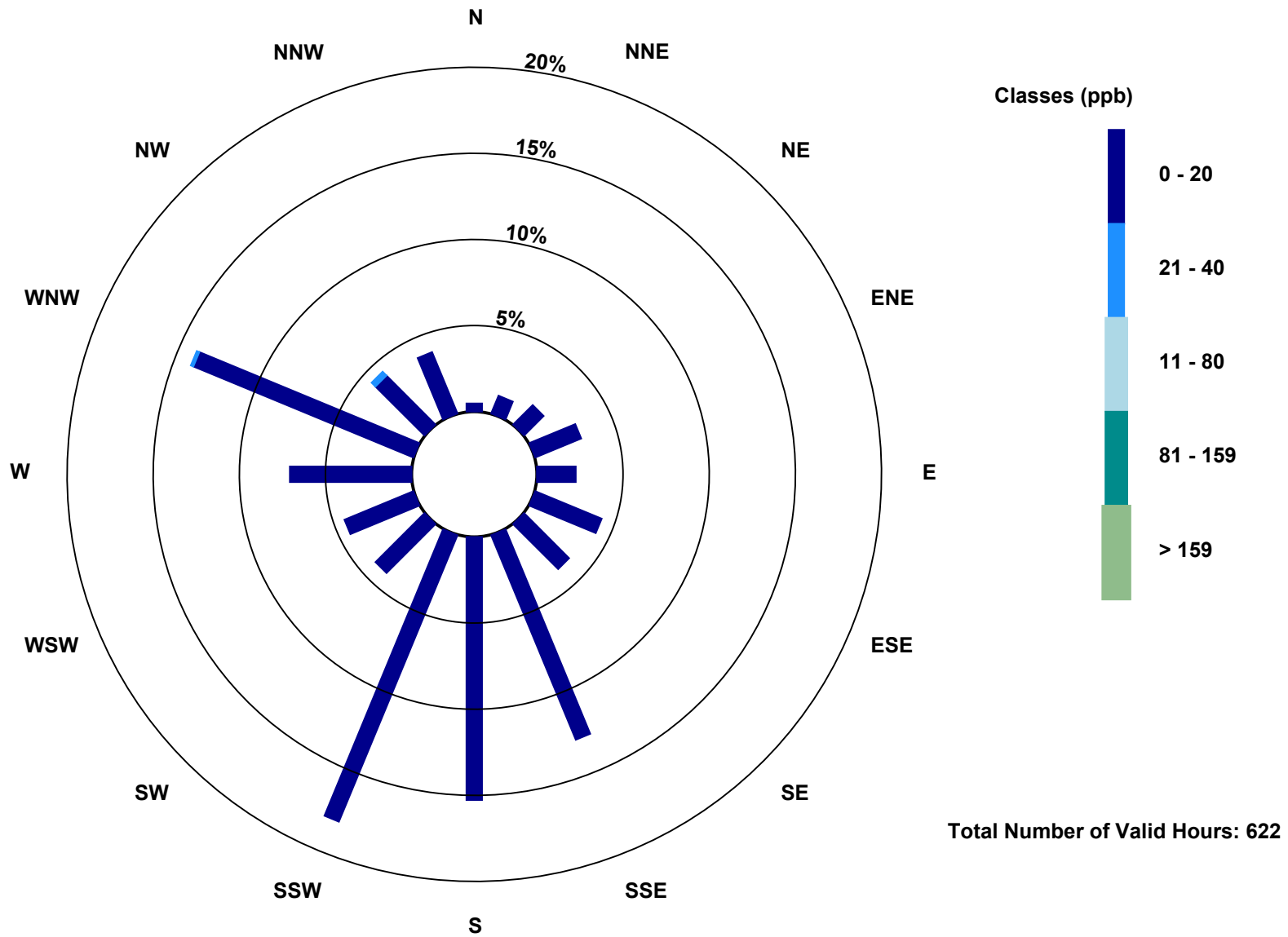
Total Number of Valid Hours: 622

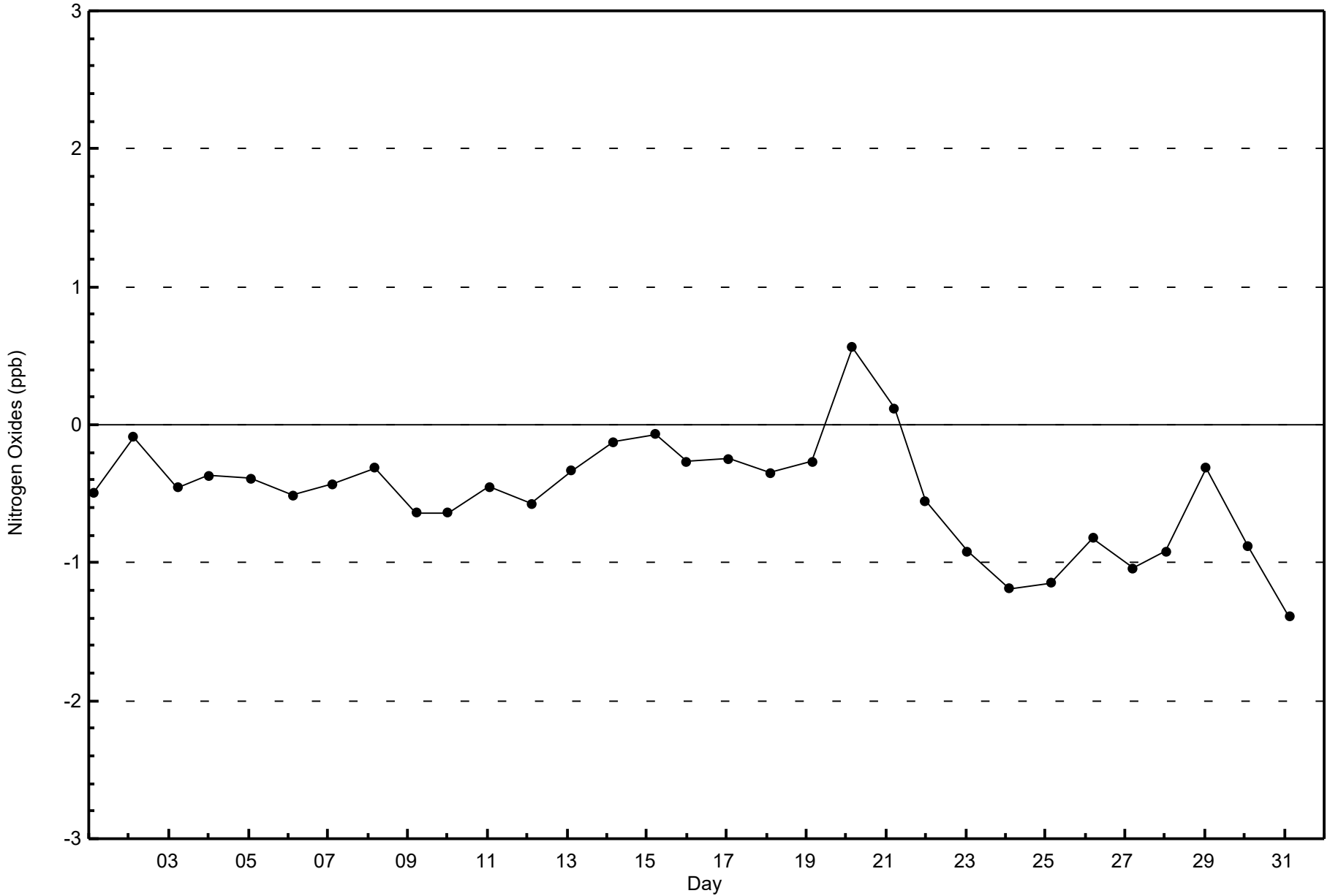
Total Number of Hours: 744

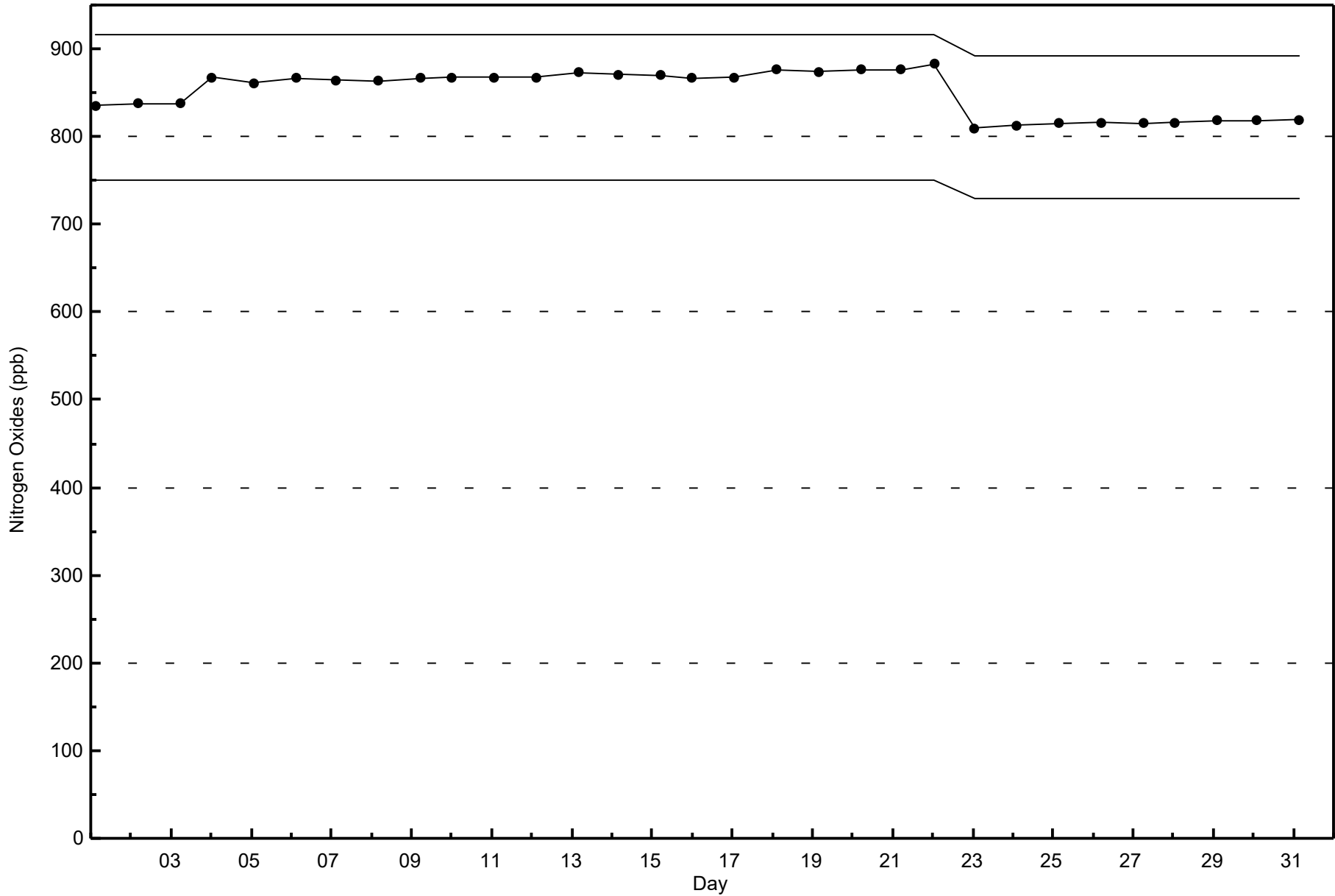


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 1









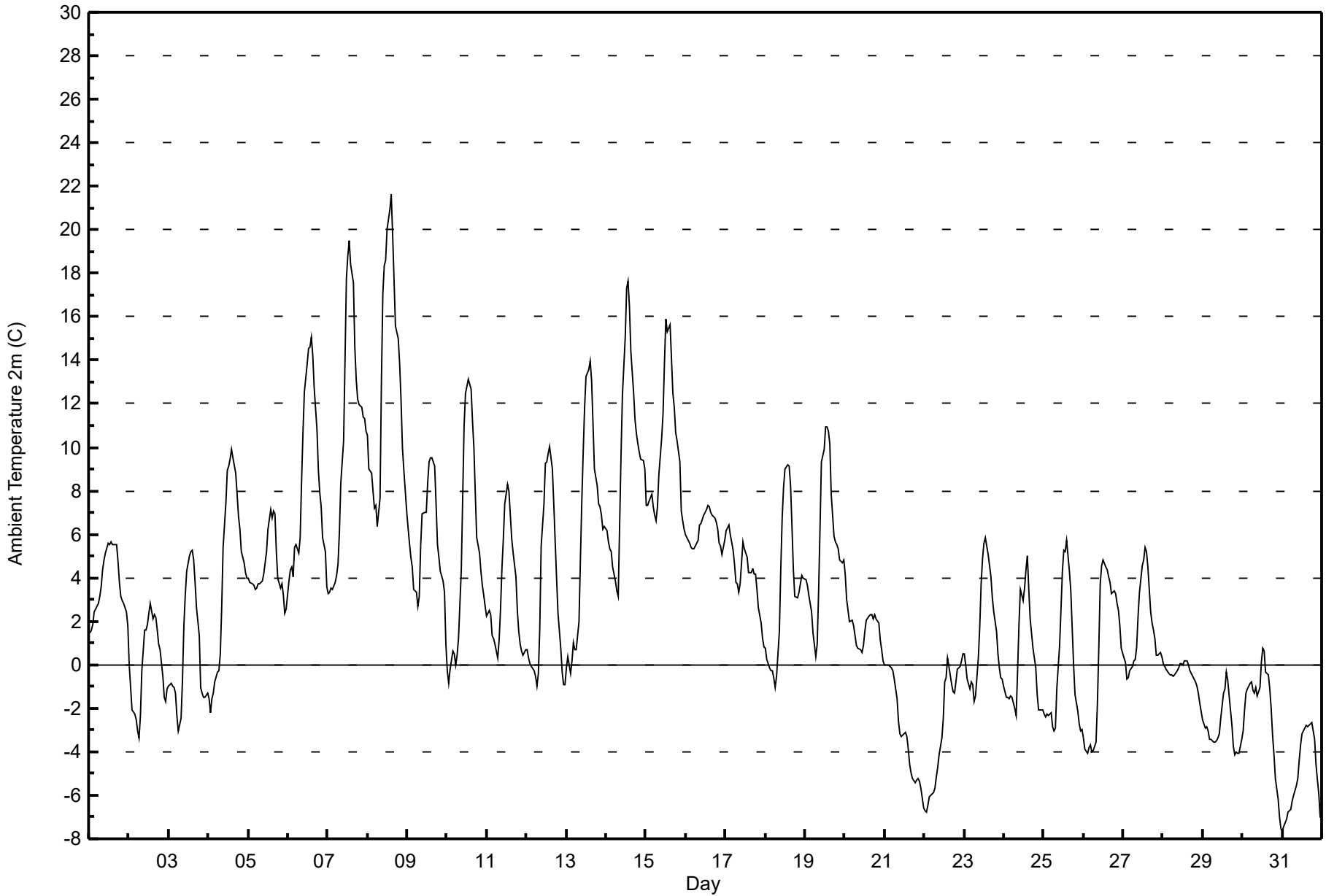
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**

**Jackfish 1 - October 2024**

Maximum Value: 21.6 C on Oct 8 15:00      Maximum Daily Average: 13.1 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -7.6 C on Oct 31 01:00      Minimum Daily Average: -5.0 C on Oct 31 Maximum Diurnal Average: 7.2 C at hour 14      Minimum Diurnal Average: 0.4 C at hour 7 Monthly Average: 3.16 C      Percentiles: P <sub>1</sub> = -6.7 P <sub>10</sub> = -3.1 Q <sub>1</sub> = -0.6 Median = 2.8 Q <sub>3</sub> = 6.0 P <sub>90</sub> = 10.1 P <sub>99</sub> = 18.4																				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-Oct	1.5	1.6	1.8	2.5	2.5	2.8	3.1	3.6	4.4	4.8	5.1	5.6	5.5	5.7	5.5	5.5	5.5	4.7	3.8	3.2	3.0	2.8	2.4	1.8	3.7	5.7
2-Oct	0.0	-1.1	-2.1	-2.2	-2.6	-3.1	-3.4	-2.3	-0.3	1.6	1.6	1.8	2.3	2.8	2.1	2.3	2.2	1.6	1.0	0.7	-0.5	-1.5	-1.7	-1.1	-0.1	2.8
3-Oct	-1.0	-0.8	-1.0	-1.1	-1.3	-2.3	-3.0	-2.5	-0.8	1.8	3.2	4.3	5.0	5.2	5.3	4.8	3.8	2.6	1.3	-1.0	-1.3	-1.5	-1.5	-1.3	0.7	5.3
4-Oct	-1.6	-2.2	-1.5	-1.3	-0.8	-0.3	-0.3	0.5	2.6	5.4	7.5	8.9	9.2	9.4	9.9	9.5	8.8	7.8	6.8	6.2	5.2	4.7	4.3	4.0	4.3	9.9
5-Oct	4.0	3.8	3.7	3.6	3.5	3.6	3.7	3.7	3.9	4.2	4.7	5.2	6.3	7.1	6.8	7.0	6.9	5.2	4.0	3.5	3.8	3.2	2.4	2.6	4.4	7.1
6-Oct	3.8	4.4	4.5	4.0	5.4	5.5	5.2	5.9	8.4	10.7	12.5	13.9	14.5	14.6	15.1	14.2	12.7	10.8	8.9	7.9	7.3	5.8	5.2	3.6	8.5	15.1
7-Oct	3.2	3.3	3.5	3.4	3.8	4.1	4.6	6.1	8.3	10.3	14.0	17.8	18.8	19.5	18.4	17.6	14.6	13.1	12.2	12.0	11.9	11.4	11.3	10.7	10.6	19.5
8-Oct	10.6	9.0	8.8	8.0	7.2	7.3	6.4	7.6	13.1	17.1	18.3	18.6	20.0	20.9	21.6	19.7	17.7	15.6	15.0	13.8	12.1	10.0	8.9	7.1	13.1	21.6
9-Oct	6.3	5.6	5.0	4.5	3.4	3.4	2.7	3.2	5.5	7.0	7.0	7.0	8.3	9.3	9.5	9.5	9.1	7.4	5.5	5.0	4.3	3.9	3.3	1.0	5.7	9.5
10-Oct	-0.3	-0.9	-0.2	0.6	0.5	0.0	0.4	1.2	4.3	7.7	11.0	12.5	12.8	13.1	12.7	11.2	10.0	7.9	5.8	5.1	4.3	3.6	3.2	2.7	5.4	13.1
11-Oct	2.2	2.5	2.3	1.3	1.2	1.0	0.3	1.1	2.6	4.4	5.8	7.4	8.3	8.0	6.9	5.8	5.1	4.0	2.5	1.6	0.9	0.6	0.5	0.7	3.2	8.3
12-Oct	0.7	0.3	0.1	-0.1	-0.2	-0.6	-1.0	-0.4	1.7	5.4	7.4	9.2	9.3	9.7	10.1	9.0	7.4	5.6	4.0	2.4	0.7	-0.4	-0.9	-0.9	3.3	10.1
13-Oct	-0.1	0.4	-0.4	0.2	1.0	0.7	0.7	2.0	4.8	7.6	9.8	11.8	13.2	13.6	14.0	13.1	11.1	9.0	8.2	7.4	7.2	6.9	6.2	6.3	6.4	14.0
14-Oct	6.2	5.6	5.4	5.2	4.5	3.8	3.4	3.2	6.4	9.7	12.4	15.1	17.3	17.6	16.5	14.4	12.5	11.3	10.6	10.2	9.7	9.5	9.4	9.0	9.5	17.6
15-Oct	7.4	7.3	7.5	7.8	7.3	6.9	6.6	7.3	8.7	10.4	11.6	13.9	15.9	15.3	15.6	14.1	12.4	11.8	10.7	10.3	9.3	7.1	6.6	6.2	9.9	15.9
16-Oct	6.0	5.7	5.6	5.4	5.3	5.3	5.4	5.7	6.4	6.5	6.7	6.9	7.2	7.3	7.3	7.0	6.9	6.8	6.6	6.2	5.6	5.5	5.1	5.7	6.2	7.3
17-Oct	6.1	6.3	6.4	6.0	5.3	4.6	3.8	3.7	3.4	3.7	5.7	5.3	5.2	5.0	4.3	4.2	4.4	4.2	4.2	3.5	2.6	1.9	1.2	0.8	4.2	6.4
18-Oct	0.7	0.2	-0.2	-0.2	-0.3	-0.6	-1.0	-0.5	1.6	4.4	6.7	8.2	9.0	9.2	9.1	8.3	6.4	4.4	3.1	3.1	3.3	3.7	4.1	4.0	3.6	9.2
19-Oct	3.9	3.7	3.2	2.8	2.5	1.5	0.4	0.9	3.3	6.2	9.3	9.9	10.9	11.0	10.8	10.2	7.8	5.9	5.6	5.5	5.3	4.8	4.7	4.8	5.6	11.0
20-Oct	4.2	3.0	2.5	2.0	2.0	1.8	1.4	0.9	0.8	0.7	0.6	0.9	1.6	2.0	2.2	2.3	2.3	2.1	2.3	2.1	1.9	1.2	0.7	0.2	1.7	4.2
21-Oct	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.6	-1.6	-2.6	-3.1	-3.3	-3.2	-3.1	-3.3	-3.9	-4.6	-4.9	-5.2	-5.4	-5.3	-5.2	-5.3	-5.7	-6.6	-3.1	0.0
22-Oct	-6.7	-6.7	-6.5	-6.1	-6.0	-5.9	-5.7	-5.2	-4.7	-4.1	-3.3	-2.5	-0.8	-0.6	0.3	-0.1	-0.9	-1.2	-1.3	-0.8	-0.2	-0.1	0.2	0.5	-2.8	0.5
23-Oct	0.5	0.0	-0.7	-1.1	-0.8	-0.9	-1.7	-1.4	0.3	1.7	3.7	4.9	5.6	5.9	5.1	4.5	4.1	3.1	2.5	1.5	0.5	-0.2	-0.6	-0.7	1.5	5.9
24-Oct	-1.0	-1.5	-1.5	-1.5	-1.4	-1.5	-2.0	-2.3	-0.4	1.8	3.5	2.9	3.5	4.4	5.0	3.5	2.1	0.7	0.3	-0.2	-1.3	-2.1	-2.0	-2.1	0.3	5.0
25-Oct	-2.3	-2.4	-2.3	-2.3	-2.2	-2.9	-3.0	-2.9	-1.1	0.9	2.6	4.3	5.3	5.2	5.7	4.3	3.4	1.7	0.0	-1.4	-2.1	-2.7	-3.0	-3.0	0.0	5.7
26-Oct	-3.4	-3.9	-4.1	-3.8	-3.7	-4.0	-3.9	-3.5	-1.8	0.8	3.7	4.5	4.8	4.5	4.4	4.1	3.8	3.3	3.4	3.3	2.8	2.5	1.8	0.8	0.7	4.8
27-Oct	0.3	0.1	-0.6	-0.6	-0.3	0.0	0.2	0.3	0.8	2.3	3.4	4.6	4.8	5.4	5.2	4.5	2.5	1.9	1.6	1.2	0.5	0.4	0.6	0.4	1.6	5.4
28-Oct	0.0	-0.1	-0.2	-0.4	-0.5	-0.4	-0.5	-0.5	-0.3	-0.1	0.1	0.1	0.0	0.2	0.2	0.0	-0.2	-0.4	-0.5	-0.8	-1.0	-1.3	-1.8	-2.2	-0.4	0.2
29-Oct	-2.5	-2.9	-2.9	-3.1	-3.4	-3.5	-3.6	-3.6	-3.5	-3.3	-3.1	-2.4	-1.3	-1.1	-0.3	-0.7	-1.5	-2.8	-3.8	-4.1	-4.0	-4.1	-4.1	-3.4	-2.9	-0.3
30-Oct	-3.1	-2.1	-1.3	-1.1	-0.9	-0.8	-1.2	-1.3	-1.0	-1.4	-1.0	0.1	0.8	0.6	-0.3	-0.5	-1.1	-2.0	-3.3	-4.2	-5.2	-6.2	-7.1	-7.5	-2.1	0.8
31-Oct	-7.6	-7.4	-7.1	-6.8	-6.7	-6.6	-6.3	-6.0	-5.5	-5.2	-4.4	-3.7	-3.2	-2.9	-2.8	-2.8	-2.8	-2.7	-2.6	-3.4	-4.6	-5.3	-6.0	-7.0	-5.0	-2.6
	1.2	1.0	0.9	0.8	0.8	0.6	0.4	0.7	2.2	3.9	5.2	6.3	7.0	7.2	7.2	6.5	5.6	4.5	3.6	3.0	2.5	1.9	1.5	1.2	Diurnal Average	
	10.6	9.0	8.8	8.0	7.3	7.3	6.6	7.6	13.1	17.1	18.3	18.6	20.0	20.9	21.6	19.7	17.7	15.6	15.0	13.8	12.1	11.4	11.3	10.7	Diurnal Maximum	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C**  
**Jackfish 1 - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	235	31.59	31.59
0 - 10	433	58.20	89.78
10 - 20	73	9.81	99.60
> 20	3	0.40	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**

**Jackfish 1 - October 2024**

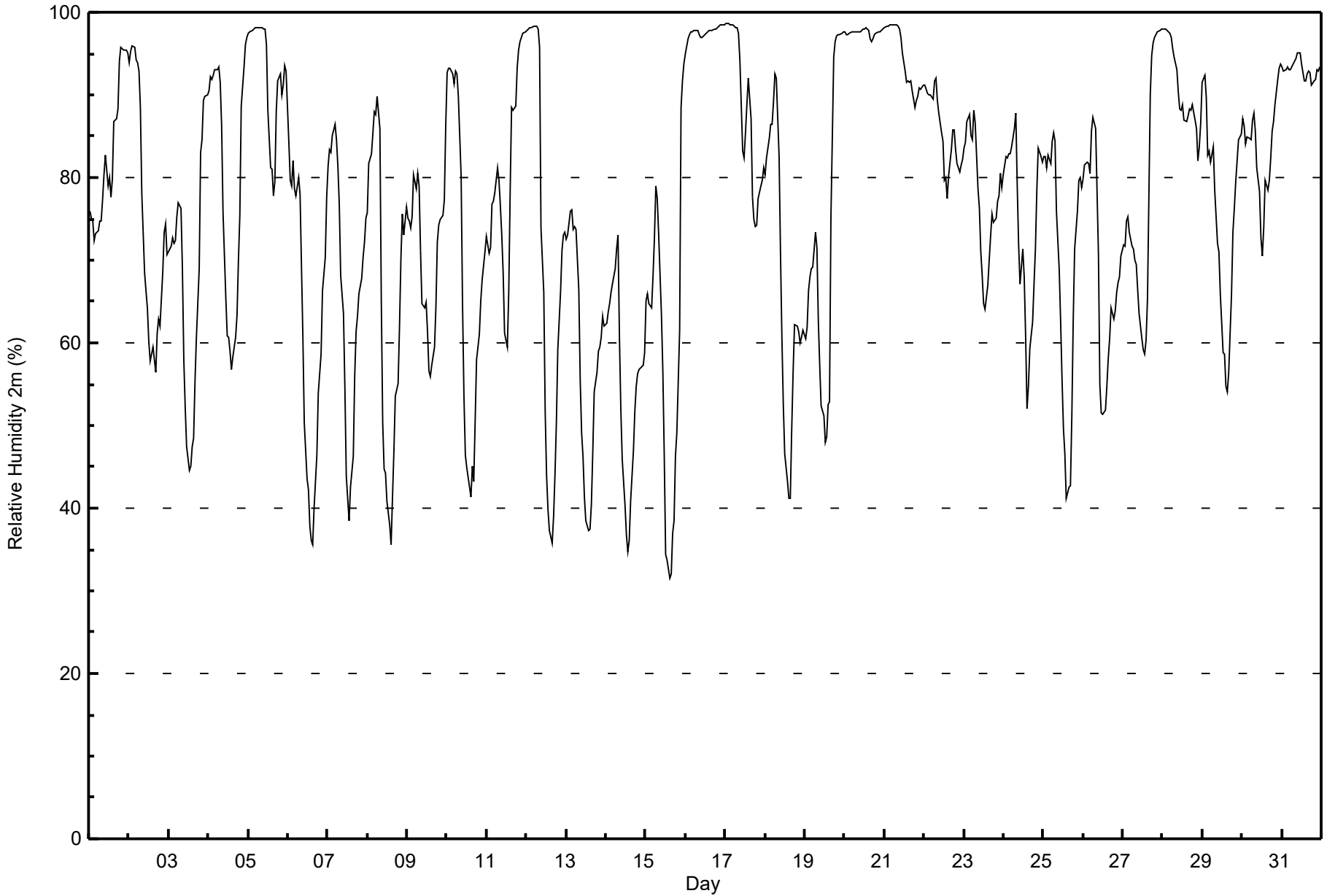
Maximum Value: 98.6 % on Oct 17 02:00      Maximum Daily Average: 97.6 % on Oct 16																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 31.5 % on Oct 15 15:00      Minimum Daily Average: 55.2 % on Oct 14																						Hours of Missing Data: 0 Hours of Calibration: 0				
Maximum Diurnal Average: 86.8 % at hour 7      Minimum Diurnal Average: 60.9 % at hour 14																						Percent Operational Time: 100.0				
Monthly Average: 76.28 %      Percentiles: P <sub>1</sub> = 35.9 P <sub>10</sub> = 50.4 Q <sub>1</sub> = 64.1 Median = 79.0 Q <sub>3</sub> = 91.6 P <sub>90</sub> = 97.6 P <sub>99</sub> = 98.5																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	75.8	75.0	74.7	72.4	73.2	73.6	74.8	74.7	77.2	80.4	82.7	79.1	80.0	77.7	79.8	86.8	87.2	88.4	94.1	95.8	95.5	95.3	95.4	95.1	82.7	95.8
2-Oct	93.9	95.2	96.0	95.8	94.3	93.9	92.9	88.5	78.2	68.5	66.3	64.2	60.1	57.9	59.5	58.0	56.4	61.2	62.8	62.1	68.7	73.3	74.5	70.8	74.7	96.0
3-Oct	71.0	71.7	72.7	72.0	72.4	75.3	76.9	76.3	68.9	57.9	52.2	47.4	44.5	45.0	47.4	48.5	55.4	60.7	69.0	83.0	84.6	89.2	89.9	89.9	67.6	89.9
4-Oct	90.5	92.2	91.9	92.3	93.1	93.1	93.3	91.5	86.3	75.7	65.4	60.8	60.7	59.0	56.8	58.3	60.7	63.4	70.0	75.4	88.6	93.4	96.0	97.0	79.4	97.0
5-Oct	97.5	97.7	97.8	98.0	98.1	98.2	98.2	98.2	98.1	98.0	97.9	96.1	88.1	81.2	81.0	77.8	79.4	88.0	91.7	92.6	90.0	91.2	93.6	92.9	92.5	98.2
6-Oct	84.2	79.6	79.0	82.1	78.7	77.7	80.0	77.9	69.3	60.8	50.4	43.5	42.3	37.9	36.1	35.6	40.1	46.5	53.9	56.2	58.7	66.3	70.3	77.6	61.8	84.2
7-Oct	81.3	83.4	83.0	85.2	86.4	84.5	81.3	76.7	68.1	63.5	54.5	43.9	41.1	38.5	42.5	46.3	55.9	61.4	63.2	66.0	67.9	70.4	72.2	75.1	66.4	86.4
8-Oct	75.7	81.7	82.9	85.5	87.9	87.6	89.8	85.8	65.2	50.4	44.8	44.2	40.9	37.9	35.6	41.3	46.9	53.6	55.1	62.1	70.2	75.5	73.0	76.4	64.6	89.8
9-Oct	75.0	74.7	73.8	75.2	80.3	78.7	80.6	79.0	71.1	64.7	64.3	65.0	61.3	56.6	55.9	57.3	59.4	64.3	72.2	74.3	74.9	75.4	77.2	86.3	70.7	86.3
10-Oct	92.8	93.2	93.2	92.5	91.4	92.9	92.5	89.8	80.2	64.6	53.6	46.4	45.0	43.7	41.4	45.1	43.2	50.5	57.9	61.1	65.0	67.6	69.3	71.1	68.5	93.2
11-Oct	72.9	70.9	71.6	76.8	77.1	78.2	81.3	79.6	76.5	73.1	68.5	61.1	59.6	66.2	78.4	88.5	88.1	88.7	93.2	95.4	96.4	97.0	97.4	97.7	80.6	97.7
12-Oct	97.9	98.0	98.1	98.2	98.3	98.3	98.3	98.0	95.8	74.0	66.1	51.7	43.8	39.7	37.2	35.7	39.0	44.1	50.4	59.2	66.3	71.1	73.0	73.4	71.1	98.3
13-Oct	72.5	73.1	75.9	76.1	73.7	74.1	73.8	66.4	55.6	49.1	46.3	41.3	38.5	37.4	37.5	40.6	46.9	54.0	56.4	59.0	59.4	60.7	63.3	62.0	58.1	76.1
14-Oct	62.4	63.7	64.7	66.1	67.2	68.9	71.4	73.1	60.9	52.0	46.0	40.4	36.8	34.8	36.1	40.8	46.9	51.7	54.8	56.2	56.7	57.0	57.2	58.7	55.2	73.1
15-Oct	65.1	66.0	64.7	64.2	68.2	72.8	79.0	77.5	73.3	63.4	56.6	46.4	34.4	33.8	31.5	32.0	37.0	38.4	46.2	49.2	61.6	88.5	91.6	93.7	59.8	93.7
16-Oct	95.0	96.7	97.3	97.6	97.7	97.7	97.8	97.8	97.2	96.9	96.9	97.1	97.5	97.7	97.8	97.8	97.7	97.9	98.1	98.2	98.3	98.4	98.5	98.6	97.6	98.6
17-Oct	98.6	98.6	98.6	98.5	98.5	98.4	98.2	98.1	97.4	94.2	83.1	82.4	85.5	88.9	92.0	87.1	77.7	74.8	74.0	74.3	77.5	79.0	79.6	81.1	88.2	98.6
18-Oct	80.3	82.3	84.8	86.5	86.4	89.1	92.5	92.0	82.5	70.9	60.6	52.6	46.6	43.3	41.2	41.2	49.5	56.4	62.1	62.1	61.4	60.1	60.7	61.5	66.9	92.5
19-Oct	60.6	61.9	66.3	68.0	69.0	69.1	73.3	71.6	62.7	57.3	52.4	51.2	47.9	48.6	52.6	52.9	75.1	94.6	96.4	97.1	97.3	97.3	97.5	97.7	71.6	97.7
20-Oct	97.7	97.3	97.3	97.4	97.6	97.6	97.6	97.6	97.6	97.6	97.8	97.9	98.0	98.1	97.8	96.9	96.4	96.8	97.2	97.5	97.7	97.7	97.9	97.9	97.5	98.1
21-Oct	98.1	98.2	98.3	98.4	98.5	98.5	98.5	98.5	98.4	98.0	97.0	95.1	93.0	91.6	91.7	91.5	91.6	90.6	88.5	89.4	89.8	90.9	90.7	91.2	94.4	98.5
22-Oct	91.1	90.6	90.2	90.0	90.1	89.4	91.6	92.0	89.4	87.8	85.4	84.4	79.7	80.1	77.5	80.2	83.5	85.8	85.7	83.3	81.7	80.6	81.5	82.2	85.6	92.0
23-Oct	83.6	84.3	86.7	87.7	85.1	84.6	88.2	86.6	78.7	76.3	71.0	68.1	64.8	64.1	66.9	70.0	72.8	75.6	74.5	75.0	77.1	77.9	80.5	78.8	77.5	88.2
24-Oct	80.3	82.6	82.4	82.8	82.8	83.7	85.9	87.9	79.2	71.8	67.1	71.4	68.0	60.8	52.0	54.8	59.3	62.5	67.2	71.4	78.5	83.5	82.5	81.9	74.2	87.9
25-Oct	82.5	82.6	81.1	82.8	81.7	84.3	85.5	84.4	75.9	68.9	62.6	55.6	49.6	46.5	41.2	42.5	42.7	51.1	62.8	71.3	75.9	79.7	80.1	78.8	68.8	85.5
26-Oct	79.8	81.5	81.9	81.7	80.6	85.6	87.3	86.0	78.3	70.7	55.0	51.5	51.4	51.9	54.7	58.1	60.6	64.2	62.8	63.9	66.1	67.2	67.9	70.4	69.1	87.3
27-Oct	71.9	71.8	74.7	75.3	73.4	71.7	71.3	69.9	69.6	66.5	63.5	60.6	59.2	58.7	60.4	65.3	90.1	94.7	96.3	97.0	97.4	97.7	97.8	97.9	77.2	97.9
28-Oct	98.0	98.0	97.9	97.7	97.5	96.9	95.6	94.6	93.1	90.3	88.4	88.1	88.8	87.0	86.8	87.5	88.3	88.1	88.7	86.9	86.0	82.1	83.8	86.6	90.7	98.0
29-Oct	91.5	92.3	89.7	82.6	83.2	81.8	83.7	78.4	75.2	72.0	71.1	65.9	58.9	58.6	54.8	54.1	56.4	65.9	73.5	76.2	79.4	82.0	84.6	85.3	74.9	92.3
30-Oct	87.1	86.3	84.1	85.0	84.8	84.6	86.9	87.9	85.5	81.2	78.3	72.8	70.6	73.8	79.6	78.5	79.6	82.4	85.6	86.8	88.8	91.8	93.2	93.7	83.7	93.7
31-Oct	93.4	92.9	93.1	93.5	93.1	93.1	93.4	93.7	94.5	95.1	95.1	95.1	93.8	91.7	91.6	92.5	92.9	92.8	91.2	91.6	91.9	93.0	93.0	93.4	93.1	95.1
83.8 84.3 84.7 85.1 85.2 85.6 86.8 85.5 80.0 73.9 69.1 65.2 62.3 60.9 61.1 62.7 66.4 70.6 74.1 76.4 79.0 81.6 82.7 83.7																								Diurnal Average		
98.6 98.6 98.6 98.5 98.5 98.5 98.5 98.5 98.5 98.4 98.0 97.9 97.9 98.0 98.1 97.8 97.8 97.7 97.9 98.1 98.2 98.3 98.4 98.5 98.6																								Diurnal Maximum		





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity 2m (RH2) - %**  
**Jackfish 1 - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %**  
**Jackfish 1 - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	22	2.96	2.96
40 - 60	119	15.99	18.95
60 - 80	248	33.33	52.28
80 - 100	355	47.72	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

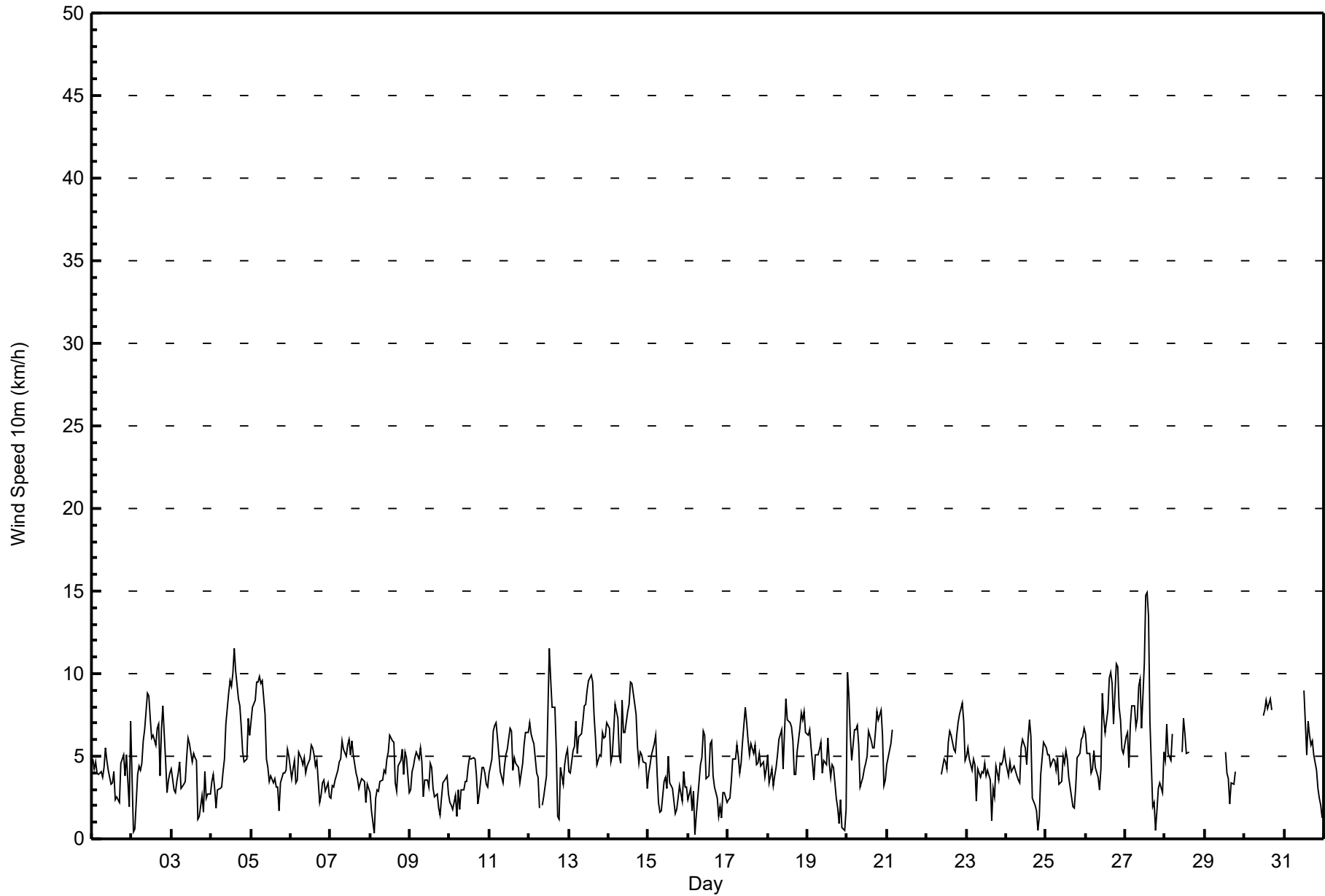
## Jackfish 1 - October 2024

Maximum Speed: 15 km/h on Oct 27 14:00	Maximum Daily Speed Average: 6.6 km/h on Oct 13	Hours in Service: 744
Minimum Speed Value: 0 km/h on Oct 16 05:00	Minimum Daily Speed Average: 2.1 km/h on Oct 16	Hours of Data: 653
Maximum Diurnal Speed Average: 2.6 km/h at hour 5	Minimum Diurnal Speed Average: 1.0 km/h at hour 15	Hours of Missing Data: 91
Monthly Average Velocity: 1.8 km/h 203.7 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 5 Q <sub>3</sub> = 6 P <sub>90</sub> = 8 P <sub>99</sub> = 10	Percent Operational Time: 87.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	SSW5	SSW4	SSW5	SSW4	SSW4	SSW4	SSW4	SSW4	SSW5	WSW5	WSW4	W3	WSW3	WSW4	WSW2	WNW3	WNW2	NW5	N5	NNW5	NW4	NW5	WNW2	NNW7	WSW2.5	NNW7
2-Oct	NW4	SSW0	WNW1	WNW4	WNW4	WNW4	WNW5	WNW6	WNW7	NW9	NW9	WNW7	WNW6	WNW6	WNW6	NW7	NW7	NW4	NW7	NW8	WNW5	W3	W4	WNW4	WNW5.1	NW9
3-Oct	WNW4	W3	W3	W3	WNW4	WNW5	W3	W3	W3	WNW5	WNW6	WNW6	WNW5	W5	W5	W5	W1	S1	SSW3	SSE2	S4	S2	S3	SSE3	W2.7	WNW6
4-Oct	SSE3	SSE4	SSE3	SSE2	S3	SSE3	S3	SSE4	SE5	SE7	ESE9	ESE10	E9	ESE10	ESE12	ESE10	E8	E8	ENE7	NE5	N5	NNW5	NNW7	NNW6	ESE4.0	ESE12
5-Oct	NNW7	NW8	NNW8	NNW9	NNW9	NNW10	NW9	NW10	NW8	NW5	NW4	WNW3	W4	WNW3	W4	SW3	SSW3	SSE2	S3	S4	S4	S4	S5	S5	WNW3.2	NNW10
6-Oct	S4	SSW4	SSW5	SW3	WSW4	NW5	NW5	NW4	WNW5	WNW4	WNW4	WSW5	WSW6	W6	W5	W4	WSW5	SSW2	SSW3	SSW3	S4	S3	SSE3	SSE3	WSW2.8	WSW6
7-Oct	SSE2	SSE3	SSE3	SSE4	S4	S5	S5	S6	SSE5	S5	S6	S6	S5	S6	S5	S4	S4	SSE3	SSE3	S4	S4	SSE2	S3	S3	S4.1	S6
8-Oct	S3	S2	SSE0	SSE2	S3	SSE3	S3	SSE4	SSE4	SSE4	S5	SSE5	SSE6	SSE6	SSE6	S3	S3	S4	SSW5	NW5	WNW4	WNW5	WNW5	WNW3	S2.5	SSE6
9-Oct	SSW3	SSW4	SSW4	SSW5	SSW5	SSW5	SSW5	SSW5	WSW3	WNW4	WSW4	WSW3	SSW5	WSW4	WSW3	WSW3	SSW3	SSW2	SSW1	SW2	SSW3	SW4	SSW4	S3	SW3.3	SSW5
10-Oct	SSW2	S2	SSW2	S3	S1	SSE3	S2	S3	SSW3	SW3	W3	WNW4	WSW5	W5	W5	WNW5	W4	SSW2	SSW3	SSW4	SSW4	SSW4	SSW3	SSW3	SW2.5	WSW5
11-Oct	SSW4	SSW5	SSW7	SSW7	SSW7	SW6	SSW4	S4	S3	S4	S5	S5	SSW7	SSW6	SSW4	S5	S5	SSW4	SSW3	SSW4	SSW5	SSW6	SSW6	SW6	SSW5.0	SSW7
12-Oct	SSW7	SSW6	SSW6	SSW6	SSW4	SSW4	SSW2	UO	WNW2	NW3	NW4	NW8	NW12	NNW10	NNW8	NW8	NW5	NW1	SW1	S4	S3	S4	S5	S5	W2.2	NW12
13-Oct	S4	S4	S5	S6	S7	SSE5	SSE6	SSE6	SSE7	SSE8	SSE8	SSE9	SSE10	SSE10	SSE9	SSE7	SSE6	SSE5	SSE5	SSE5	S6	SSE6	SSE6	SSE7	SSE6.6	SSE10
14-Oct	SSE7	SSE5	SSE5	SE7	SSE8	SSE7	S5	SSE5	SSE8	SSE6	SSE6	SSE8	SSE8	SSE8	SSE10	SSE9	SSE9	SSE8	SSE6	SSE5	S5	S5	S5	S3	SSE6.3	SSE10
15-Oct	S4	S5	SSW5	SSW6	SSW4	SW2	SW2	W2	WNW3	WNW4	W3	WNW5	WNW3	W3	WNW2	SW1	SSW2	SW2	SSW3	WSW2	SW4	SSW3	SSW3	SSW3	SW2.6	SSW6
16-Oct	SSE2	SSE3	ESE2	SE3	NE0	ENE1	ENE2	ESE5	E5	E6	E6	NNE4	NE4	NE6	NE6	ENE4	NE3	NE2	E1	SE2	S1	S3	S3	WSW2	E2.1	E6
17-Oct	W2	W2	W3	WNW5	WNW5	WNW6	WNW5	SW4	WSW5	WSW6	WSW8	W7	WNW6	WNW5	WNW6	WNW5	WNW6	WNW5	W5	W5	W4	WNW5	WNW4	W4	W4.6	WSW8
18-Oct	WNW5	WNW3	WNW4	W3	SW4	SSW4	SSW5	SSW6	SSW7	SW4	SSW6	SSW8	SW7	SSW7	SSW7	SSW6	S4	SSE4	SSE5	SSE7	SSE8	SSE7	SSE8	SSE6	SSW4.4	SSW8
19-Oct	SSE6	SSE7	SSE6	S5	S4	SSW5	SSW5	SSW5	SSW6	SW4	W5	W5	SW6	WSW5	W4	SSW5	SSW4	S2	S2	ENE1	SE2	E1	SSW0	WNW2	SSW3.0	SSE7
20-Oct	NW10	NNW9	NNW6	NNW5	NNW7	NNW7	NNW7	NNW6	NNW3	ENE4	NE4	ENE5	ENE5	ESE7	E6	E6	ENE5	E7	ESE8	ESE7	ESE8	E6	ENE3	NNE4	NE3.0	NW10
21-Oct	N4	N5	NNW6	NNW7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNW7
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	SW4	SW5	SSW5	SW4	SW6	SSW7	SSW6	SSW5	S5	S6	S7	SSW8	SSW8	SSW7	SW5	---	SSW8
23-Oct	WNW5	W5	WNW5	WNW4	W5	WNW5	W2	WSW4	WSW4	WNW4	WNW4	WNW5	W4	WSW4	W4	SSW1	SSW3	S3	SSW4	SSW4	SSW5	SSW4	S5	SSW5	WSW3.1	W5
24-Oct	SSW5	SSW4	SSW5	SSW4	SSW4	SW4	SW4	SW4	WSW3	WNW6	WNW6	WNW5	WNW5	WNW6	WNW7	WNW6	W2	SSW2	SSW2	SE1	SSW1	S4	SSW6	SSW6	WSW3.2	WNW7
25-Oct	SSW5	SSW5	SSW5	SSW4	SSW5	SSW4	SSW5	SSW4	SSW5	SW3	WNW3	WNW5	WNW5	WNW5	WNW4	W3	SSW2	S2	S3	S5	S5	S6	S6	S7	SW3.2	S7
26-Oct	S6	S5	S5	S4	SSE4	SE5	SE4	ESE4	ENE3	ENE4	E9	ENE7	ENE6	ENE8	E10	E10	ESE9	ESE7	ESE11	ESE10	SE8	SE7	SE5	SE5	ESE5.5	ESE11
27-Oct	SE6	SE6	SE4	SSE7	SSE8	SSE8	SE7	ESE7	SE9	SE10	ESE7	SE11	ESE15	SE15	SE14	SE7	SSE2	SSE2	S0	S2	S3	SW3	W3	WNW5	SE5.7	SE15
28-Oct	WNW5	WNW7	WNW5	WNW5	WNW6	UO	UO	UO	UO	UO	WNW5	WNW7	WNW6	WNW5	WNW5	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WNW7
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	WNW5	WNW4	WNW4	W2	SSW3	S3	S4	UO	UO	UO	UO	---	WNW5
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNE7	NNE8	NNE8	NE8	ENE8	NE8	UO	UO	UO	UO	UO	---	ENE8
31-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	ESE9	ENE5	ESE7	ESE6	ESE6	SE6	ESE5	ESE4	ENE3	NNE2	NNE2	NW1	---	ESE9

SW2.1	SW2.2	SW2.1	SW2.2	SW2.6	SW2.3	SW2.0	SSW2.2	SSW1.9	SW1.6	SW1.0	SSW1.5	SW1.2	SW1.1	SSW1.0	S1.3	S1.3	SSE1.9	SSE2.1	S2.1	S2.5	S2.5	SSW2.6	SSW2.2	Diurnal Average
NW10	NNW9	NNW8	NNW9	NNW9	NNW10	NW9	NNW10	SE9	SE10	E9	SE11	ESE15	SE15	SE14	ESE10	ESE9	E8	ESE11	ESE10	SE8	SSW8	SSE8	NNW7	Diurnal Maximum

M - Maintenance      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Jackfish 1 - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	450	68.91	68.91
6 - 11	198	30.32	99.23
12 - 19	5	0.77	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: 653

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Jackfish 1 - October 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	4	6	13	3	5	9	44	86	94	24	24	44	70	16	5	450
6 - 11	0	3	4	5	11	19	12	42	12	28	5	3	2	21	11	20	198
12 - 19	0	0	0	0	0	2	2	0	0	0	0	0	0	0	1	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>	3	7	10	18	14	26	23	86	98	122	29	27	46	91	28	25	653

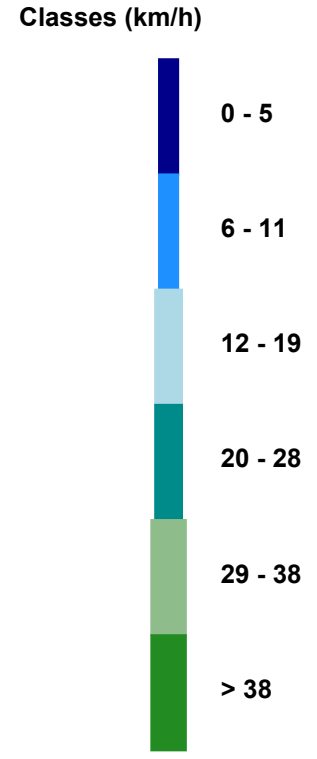
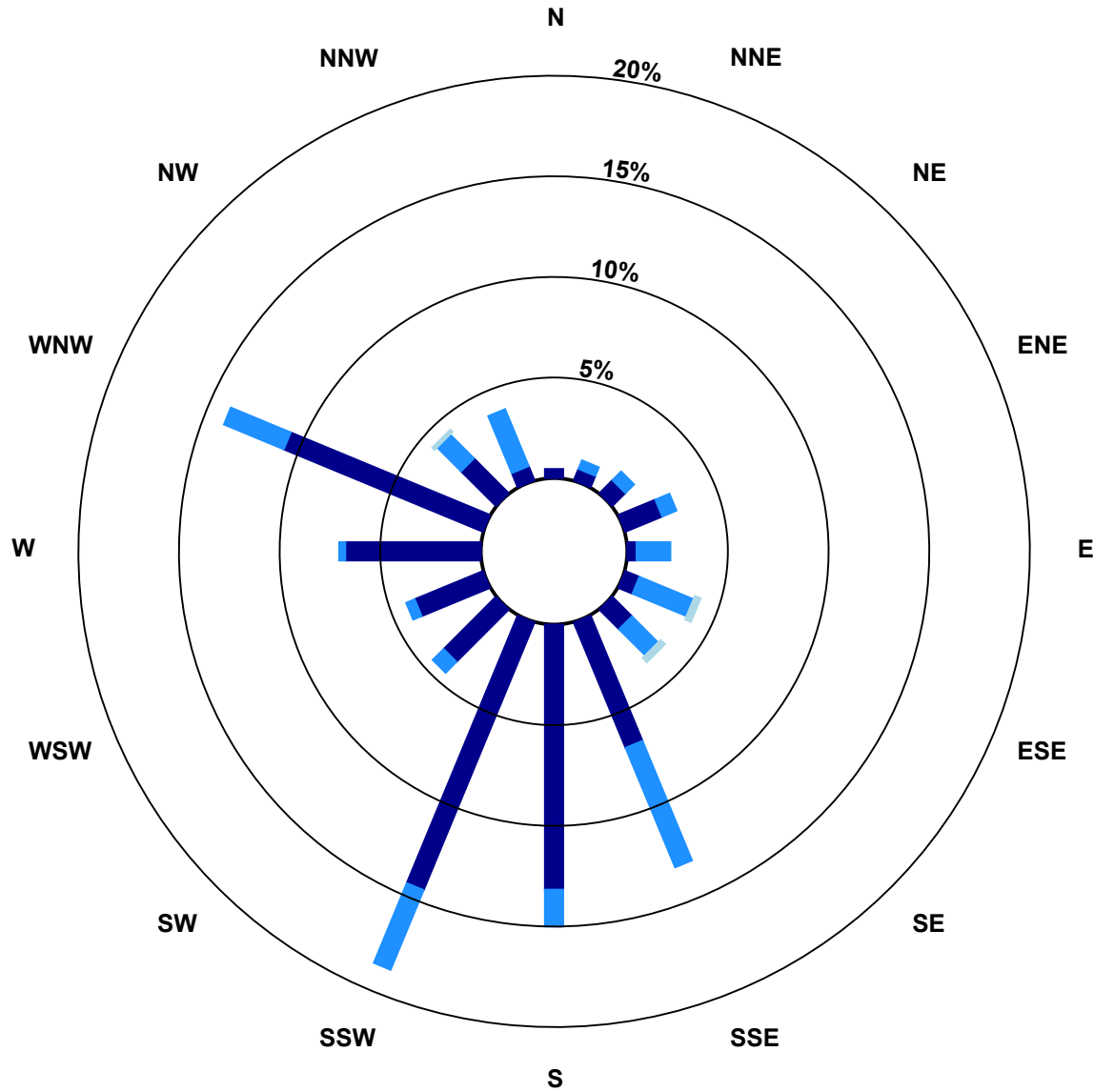
Total Number of Valid Hours: 653

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Jackfish 1



Total Number of Valid Hours: 653



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Jackfish 1 - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Oct 27 14:00 Minimum Value: 0 km/h on Oct 7 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: 653 Hours of Missing Data: 91 Hours of Calibration: 0 Percent Operational Time: 87.8								
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-Oct	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1	2	1	2	3	3	1	2	3
2-Oct	1	1	1	1	1	1	1	2	2	2	3	3	2	2	2	2	2	2	3	3	2	1	1	1	3
3-Oct	2	1	1	1	2	2	1	2	2	2	2	2	2	3	3	2	1	1	1	2	1	1	1	3	
4-Oct	1	0	1	1	0	1	1	1	2	2	3	3	3	3	4	4	3	3	2	2	2	1	2	4	
5-Oct	2	2	2	3	3	2	2	2	2	2	2	1	1	1	2	2	2	1	1	1	1	1	1	3	
6-Oct	2	2	2	2	3	3	2	2	2	2	2	2	3	3	3	3	2	2	1	2	1	1	1	3	
7-Oct	1	1	0	1	1	1	1	2	2	2	2	3	2	3	2	2	1	1	1	1	1	1	1	3	
8-Oct	1	1	1	1	1	1	0	1	1	2	2	2	3	2	2	1	1	1	2	3	3	2	2	3	
9-Oct	1	1	1	2	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	2	
10-Oct	1	1	1	1	1	1	1	1	2	1	2	2	3	3	3	2	3	2	1	2	2	1	1	3	
11-Oct	1	1	2	2	2	2	2	1	1	2	2	2	3	3	2	2	2	2	2	1	2	2	2	3	
12-Oct	2	2	2	2	1	1	2	UO	1	1	2	3	3	3	3	2	2	1	1	1	1	1	1	3	
13-Oct	1	1	1	2	2	1	2	2	2	3	3	3	3	3	3	3	3	1	1	1	2	2	2	3	
14-Oct	2	1	1	2	2	3	1	1	2	2	2	3	3	3	4	3	3	2	2	2	1	2	1	4	
15-Oct	1	1	2	1	2	2	1	1	1	2	1	1	2	2	2	1	1	1	1	1	1	1	1	2	
16-Oct	1	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	2	
17-Oct	2	2	2	2	2	2	2	2	2	3	4	4	3	2	3	3	2	2	3	3	3	3	2	4	
18-Oct	2	2	2	2	2	2	1	2	2	2	2	3	4	3	3	2	1	1	1	1	2	2	2	4	
19-Oct	2	1	1	1	1	2	1	2	2	2	2	2	3	2	2	2	2	1	1	1	1	1	1	3	
20-Oct	2	2	3	1	2	2	2	2	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	3	
21-Oct	1	2	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	3	2	3	3	3	3	2	2	2	3	2	3	3	
23-Oct	2	3	2	2	3	3	2	2	2	2	2	2	2	2	3	1	2	1	2	1	2	2	2	3	
24-Oct	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	1	1	1	1	1	3	
25-Oct	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	
26-Oct	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	2	2	2	3	
27-Oct	1	2	1	1	2	2	2	2	3	3	2	3	4	5	5	3	1	2	1	1	1	1	2	5	
28-Oct	2	2	2	2	2	UO	UO	UO	UO	UO	UO	3	2	2	2	1	UO	UO	UO	UO	UO	UO	UO	3	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	2	1	1	1	UO	UO	UO	2	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	3	3	3	3	3	UO	UO	UO	UO	UO	3	
31-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	2	2	2	2	2	2	2	1	1	1	1	2	
Diurnal Maximum																									
M - Maintenance UO - Unstable Operation																									

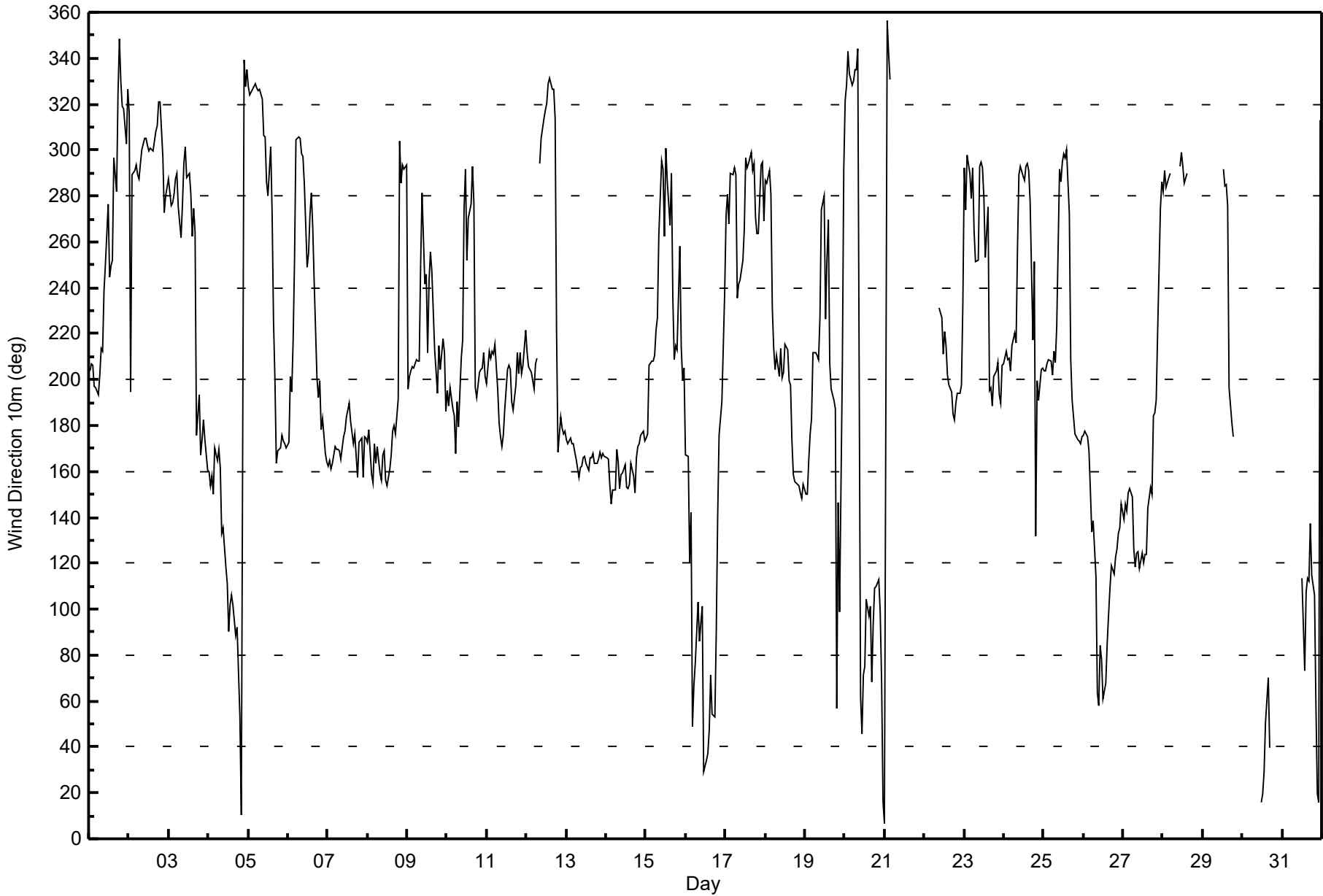




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction 10m (WD10) - deg**  
**Jackfish 1 - October 2024**

Direction of Maximum Speed: 124 deg on Oct 27 14:00																						Hours in Service: 744				
Direction of Maximum Daily Speed Average: 166.1 deg on Oct 13																						Hours of Data: 653				
Direction of Minimum Speed: 49 deg on Oct 16 05:00											Direction of Minimum Daily Speed Average: 2.1 deg on Oct 16											Hours of Missing Data: 91				
Monthly Average Direction: 203.7 deg																						Percent Operational Time: 87.8				
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-Oct	204	207	206	197	196	193	202	213	212	238	250	276	245	249	252	296	282	325	349	330	319	318	303	327	255.9	
2-Oct	316	194	289	291	294	289	288	294	300	305	305	302	299	301	300	304	308	311	321	321	297	272	280	284	301.2	
3-Oct	287	276	277	281	288	290	275	262	276	294	302	288	290	281	262	275	264	176	193	167	174	183	174	160	267.7	
4-Oct	160	154	158	150	170	164	170	162	133	135	118	111	90	102	106	102	88	92	73	53	11	339	328	335	102.7	
5-Oct	328	324	327	328	329	327	326	326	322	306	305	286	280	302	272	225	200	164	169	170	176	173	172	170	303.3	
6-Oct	173	201	194	217	253	305	305	305	298	297	285	249	255	272	281	266	243	201	192	200	178	183	168	164	246.7	
7-Oct	162	165	161	163	171	170	170	169	165	175	178	184	187	190	182	172	176	167	157	173	175	158	175	175	173.1	
8-Oct	173	178	159	155	172	164	171	159	156	167	169	156	154	161	167	178	180	177	192	304	286	294	292	293	184.4	
9-Oct	196	201	204	206	205	208	208	208	250	282	242	246	212	243	255	247	213	204	194	215	205	218	211	186	217.7	
10-Oct	195	189	197	188	185	168	191	180	209	217	275	292	252	270	276	293	277	196	192	203	204	205	211	201	227.0	
11-Oct	199	213	209	212	211	215	196	181	175	171	176	186	205	206	204	190	186	198	212	203	212	203	206	221	201.3	
12-Oct	211	205	204	203	196	207	209	UO	294	305	314	317	320	329	331	326	326	314	221	169	184	179	177	178	261.1	
13-Oct	174	172	175	172	172	168	166	157	162	162	166	166	163	160	166	166	168	163	163	165	169	166	168	167	166.1	
14-Oct	166	166	154	146	152	152	169	164	152	159	163	153	153	155	163	158	151	166	171	172	176	178	173	173	159.7	
15-Oct	175	176	206	208	208	210	222	227	263	295	291	262	301	287	267	290	236	208	215	213	258	214	200	205	230.0	
16-Oct	167	167	120	142	49	67	76	103	86	94	101	29	34	37	48	71	54	53	90	141	176	183	190	238	89.5	
17-Oct	271	280	268	290	289	292	289	236	242	243	252	265	297	292	294	299	291	294	271	264	264	293	295	269	276.8	
18-Oct	287	286	291	281	231	213	205	211	202	214	201	203	215	213	199	198	173	159	156	154	154	150	148	154	195.1	
19-Oct	150	150	165	176	183	212	212	211	209	227	274	280	226	253	270	207	196	191	188	57	146	99	207	291	205.5	
20-Oct	322	328	343	333	328	330	335	335	344	62	46	71	75	104	97	101	69	93	109	110	113	99	69	17	42.6	
21-Oct	7	356	342	330	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	231	227	211	221	215	202	198	194	185	182	190	194	194	198	233	--
23-Oct	292	274	298	290	279	292	265	252	252	293	295	292	280	253	275	195	197	188	201	204	207	193	190	206	253.3	
24-Oct	207	212	209	209	204	215	220	216	257	289	293	289	287	293	294	291	278	217	251	132	200	191	205	205	245.3	
25-Oct	204	204	207	209	208	202	213	207	224	291	286	295	299	296	300	272	209	191	184	176	174	173	172	175	216.4	
26-Oct	176	177	175	169	152	134	139	114	63	58	84	78	61	67	85	98	109	119	116	123	126	133	136	146	114.8	
27-Oct	139	146	143	151	152	149	126	118	125	125	118	125	120	124	124	144	153	150	184	185	191	220	275	286	136.3	
28-Oct	282	291	284	288	290	UO	UO	UO	UO	UO	293	299	293	285	290	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	292	284	285	276	196	181	175	UO	UO	UO	UO	--	
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	16	20	30	51	70	40	UO	UO	UO	UO	UO	UO	--	
31-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	113	73	107	114	113	137	115	106	58	19	16	313	--	
214.3 213.8 217.6 219.3 217.2 215.6 214.5 204.5 204.1 221.5 235.1 240.9 232.4 227.1 198.6 183.9 174.5 161.9 164.9 173.6 182.0 189.7 194.6 209.9																										
Diurnal Average																										
M - Maintenance 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 10m (WD10) - deg**  
**Jackfish 1 - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 118 deg on Oct 3 17:00 Minimum Value: 6 deg on Oct 26 03:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 14 Q <sub>1</sub> = 19 Median = 29 Q <sub>3</sub> = 50 P <sub>90</sub> = 68 P <sub>99</sub> = 90																	Hours in Service: 744 Hours of Data: 653 Hours of Missing Data: 91 Hours of Calibration: 0 Percent Operational Time: 87.8								
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-Oct	29	33	42	37	38	51	58	58	57	73	70	68	67	67	75	56	73	37	23	26	38	31	39	14	75
2-Oct	12	97	93	25	23	29	26	31	28	25	22	31	39	42	41	32	24	28	28	18	30	48	37	36	97
3-Oct	35	38	49	39	41	37	39	55	65	60	48	63	76	71	71	72	118	77	15	41	14	13	14	12	118
4-Oct	13	12	20	14	8	21	15	14	22	31	24	27	29	27	27	30	27	26	29	38	33	27	17	20	38
5-Oct	17	14	13	17	17	16	15	16	15	25	25	50	53	49	66	55	52	12	11	18	21	14	13	23	66
6-Oct	51	77	67	83	100	79	65	54	45	63	78	69	70	74	68	88	74	47	36	47	28	22	15	13	100
7-Oct	15	9	6	6	9	9	9	17	26	40	37	39	44	45	45	38	20	11	8	15	19	23	12	13	45
8-Oct	11	49	97	13	11	16	8	13	31	33	41	33	37	38	34	33	23	16	27	55	71	48	43	63	97
9-Oct	71	36	33	34	26	31	23	30	63	54	63	76	53	61	64	55	52	26	17	19	14	16	17	29	76
10-Oct	46	44	65	18	72	32	67	27	41	44	62	62	76	77	62	61	85	67	42	33	35	29	27	28	85
11-Oct	18	26	20	20	19	22	21	22	19	23	25	32	47	40	46	28	29	26	35	23	28	19	22	30	47
12-Oct	26	22	25	22	32	30	87	UO	53	31	39	25	19	27	27	19	18	56	61	25	11	9	7	7	87
13-Oct	7	8	8	14	18	15	18	20	24	26	29	32	28	25	26	24	24	15	17	17	17	18	14	15	32
14-Oct	15	16	14	16	14	19	15	10	17	32	26	25	26	25	22	22	20	17	20	19	18	18	22	19	32
15-Oct	15	23	25	17	21	28	39	64	71	49	48	62	34	58	66	51	59	13	18	41	65	22	27	22	71
16-Oct	34	14	49	22	80	40	25	19	25	25	22	38	27	27	26	30	35	34	43	45	54	24	31	76	80
17-Oct	81	72	71	40	47	49	61	69	66	72	64	70	56	58	57	66	50	59	80	86	92	75	86	80	92
18-Oct	65	82	63	87	58	38	21	18	24	56	40	35	56	54	46	35	16	8	9	12	13	13	14	14	87
19-Oct	14	11	14	19	18	24	22	28	26	53	58	66	49	60	54	38	21	20	24	54	54	70	55	53	70
20-Oct	13	15	42	16	15	18	18	26	42	33	28	31	30	24	24	21	33	25	19	16	18	25	35	35	42
21-Oct	26	24	22	17	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	26
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	43	49	47	55	55	36	32	27	30	26	30	28	28	37	78	78
23-Oct	77	66	59	69	75	73	89	73	71	64	59	46	66	61	66	68	24	18	32	39	29	25	30	33	89
24-Oct	44	58	52	56	39	47	61	39	81	50	41	56	65	43	33	36	58	64	64	91	73	17	22	21	91
25-Oct	27	30	39	41	37	27	38	28	65	77	59	48	43	35	50	59	41	13	13	8	9	9	10	10	77
26-Oct	9	7	6	9	9	11	14	25	26	30	27	28	31	29	28	25	18	18	16	16	15	15	14	12	31
27-Oct	16	14	11	12	14	14	16	16	16	21	18	19	18	17	19	29	37	49	56	11	17	38	35	26	56
28-Oct	30	21	32	43	24	UO	UO	UO	UO	UO	19	19	20	25	19	UO	UO	UO	UO	UO	UO	UO	UO	UO	43
29-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	53	61	73	85	20	15	10	UO	UO	UO	85
30-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	27	32	34	31	26	27	UO	UO	UO	UO	UO	34
31-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	19	38	24	22	24	20	29	21	25	17	19	17	38
Diurnal Maximum																									
81 97 97 87 100 79 89 73 81 77 78 76 76 77 75 88 118 77 80 91 92 75 86 80																									
M - Maintenance UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS508**  
**KIRBY NORTH**  
**OCTOBER 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY NORTH (AMS 508)  
OCTOBER 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	2.9	0	0.9	0
H2S (ppb) Average	705	37	39	99.73	1.8	0	0.4	0
THC (ppm) Average	708	36	36	100	2.5	-	2.4	-
NO2 (ppb) Average	705	37	39	99.73	7.6	0	2.4	-
NO (ppb) Average	705	37	39	99.73	5.6	-	1.1	-
NOX (ppb) Average	705	37	39	99.73	10.3	-	2.7	-
Temperature 2 m (C) Average	744	0	0	100	19.6	-	13.2	-
Relative Humidity (%) Average	744	0	0	100	99	-	98.2	-
Wind Speed 10 m (km/h) Average	697	0	47	93.68	23	-	18	-
Wind Direction 10 m (deg) Average	697	0	47	93.68	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY NORTH (AMS508)  
 OCTOBER 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	0.27	0.5	-	0	0	0	0.1	0.3	0.8	2.9
H2S (ppb) Average	705	0.13	0.2	-	0	0	0.1	0.1	0.1	0.3	1.8
THC (ppm) Average	708	2.31	0.1	-	2.2	2.2	2.3	2.3	2.3	2.4	2.5
NO2 (ppb) Average	705	1.25	0.9	-	0.1	0.4	0.6	1	1.7	2.4	7.6
NO (ppb) Average	705	0.31	0.6	-	0	0	0	0.1	0.3	0.8	5.6
NOX (ppb) Average	705	1.55	1.3	-	0.2	0.5	0.7	1.2	2	3.1	10.3
Temperature 2 m (C) Average	744	2.98	5	-	-7	-3.3	-0.6	2.5	5.7	9.7	19.6
Relative Humidity (%) Average	744	75.5	17.1	-	32.9	51.5	63.2	77.6	90.6	96.5	99
Wind Speed 10 m (km/h) Average	697	11.1	4	-	1	6	9	11	14	17	23
Wind Direction 10 m (deg) Average	697	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY NORTH (AMS508)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2	17 Oct 2024 10:00	17 Oct 2024 11:00	2	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	02 Oct 2024 04:00	02 Oct 2024 09:00	6	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	12 Oct 2024 06:00	12 Oct 2024 08:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	21 Oct 2024 01:00	22 Oct 2024 14:00	38	Flat line in sensor output signal - Sensor frozen

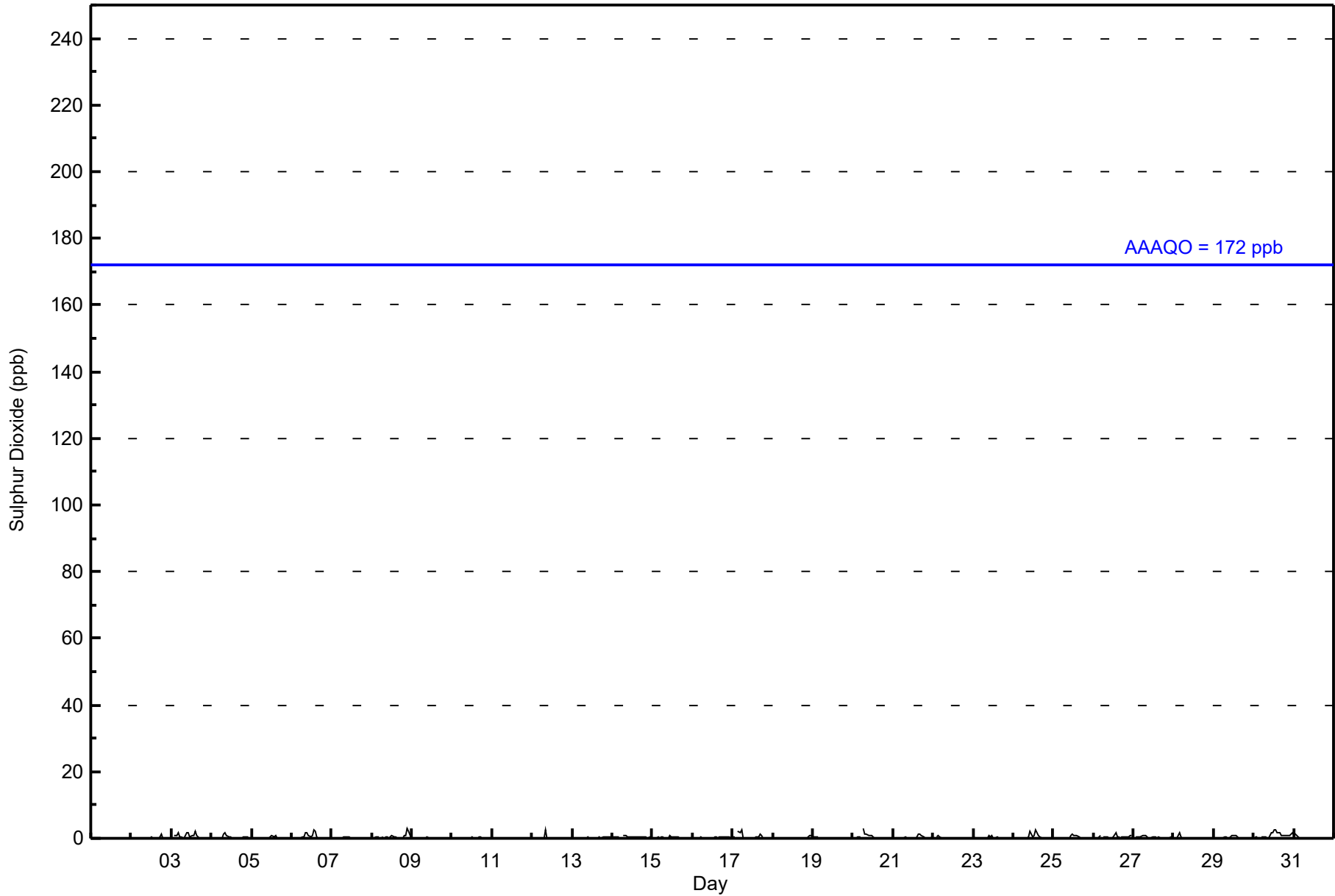






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby North - October 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**  
**Kirby North - October 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	15	10	23	29	33	21	18	54	97	85	79	84	24	38	40	14	664
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>	15	10	23	29	33	21	18	54	97	85	79	84	24	38	40	14	664

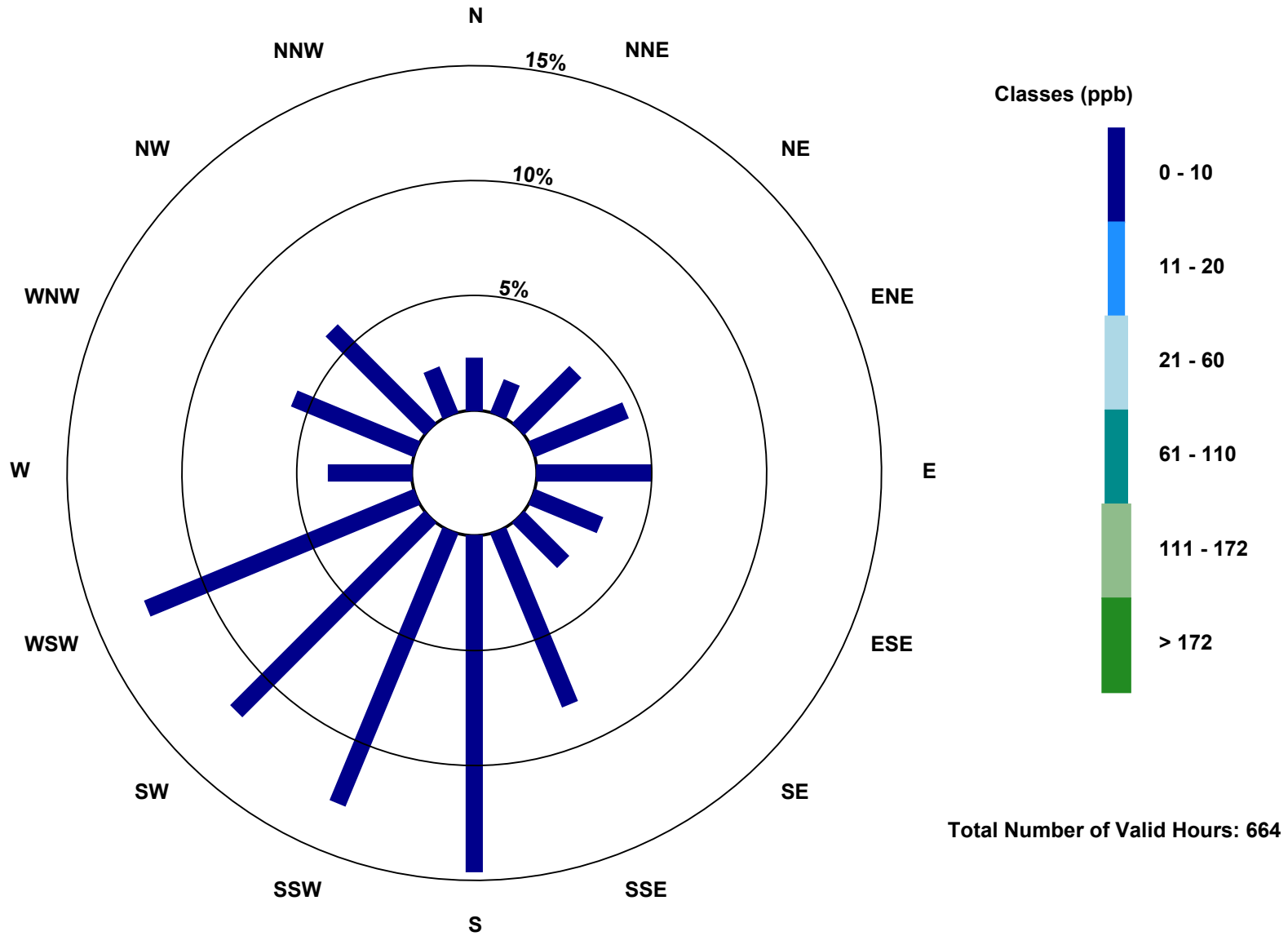
Total Number of Valid Hours: 664

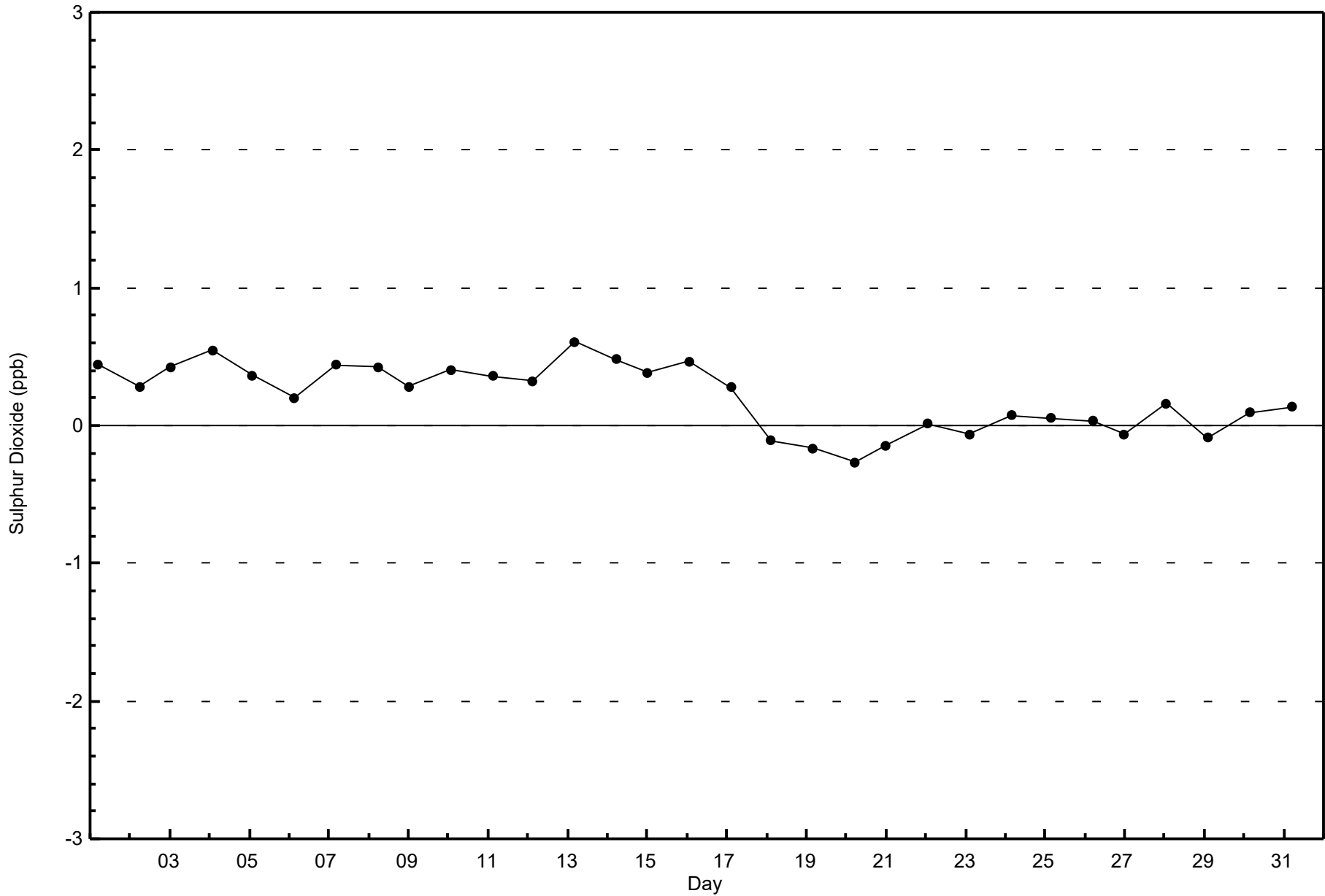
Total Number of Hours: 744

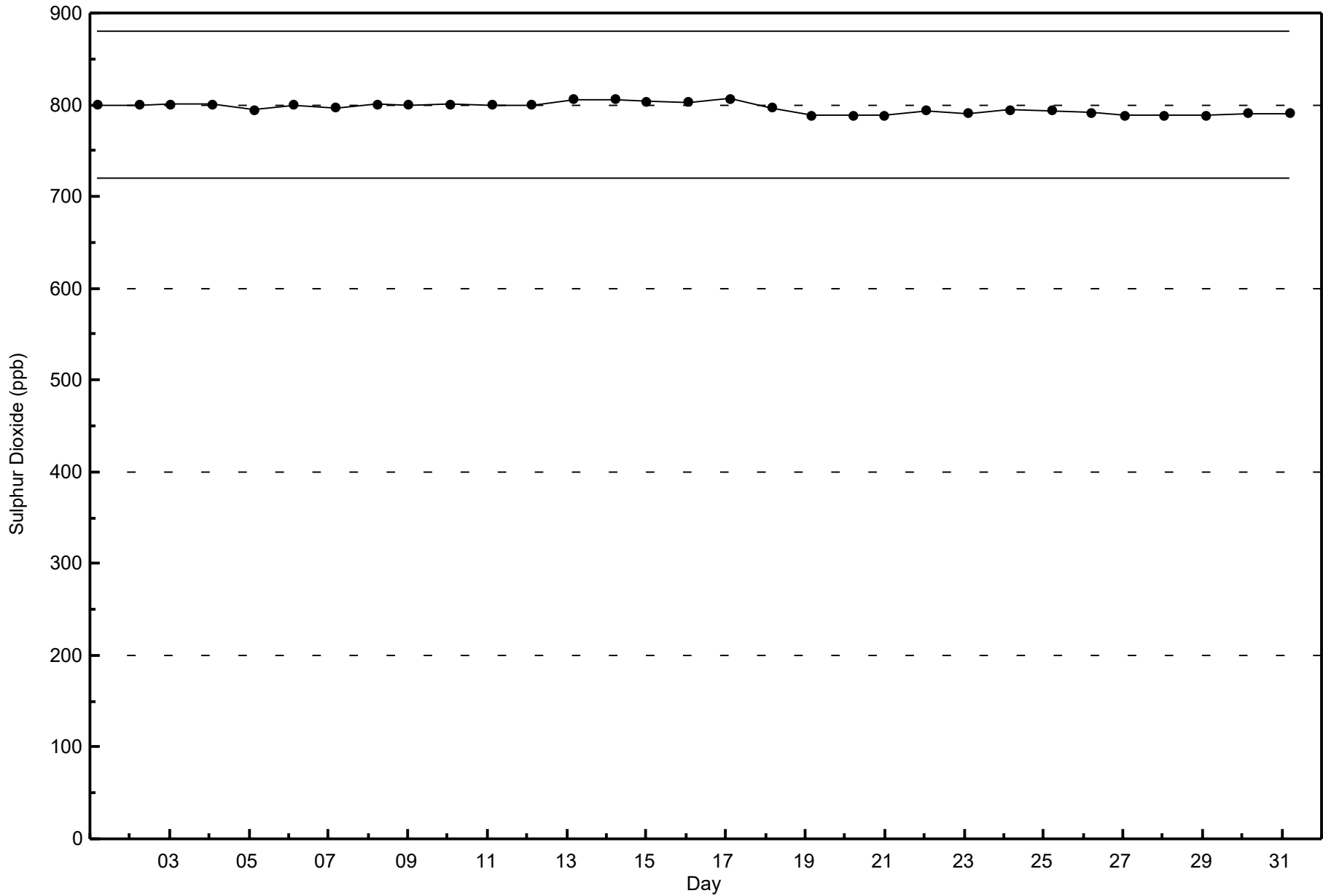


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

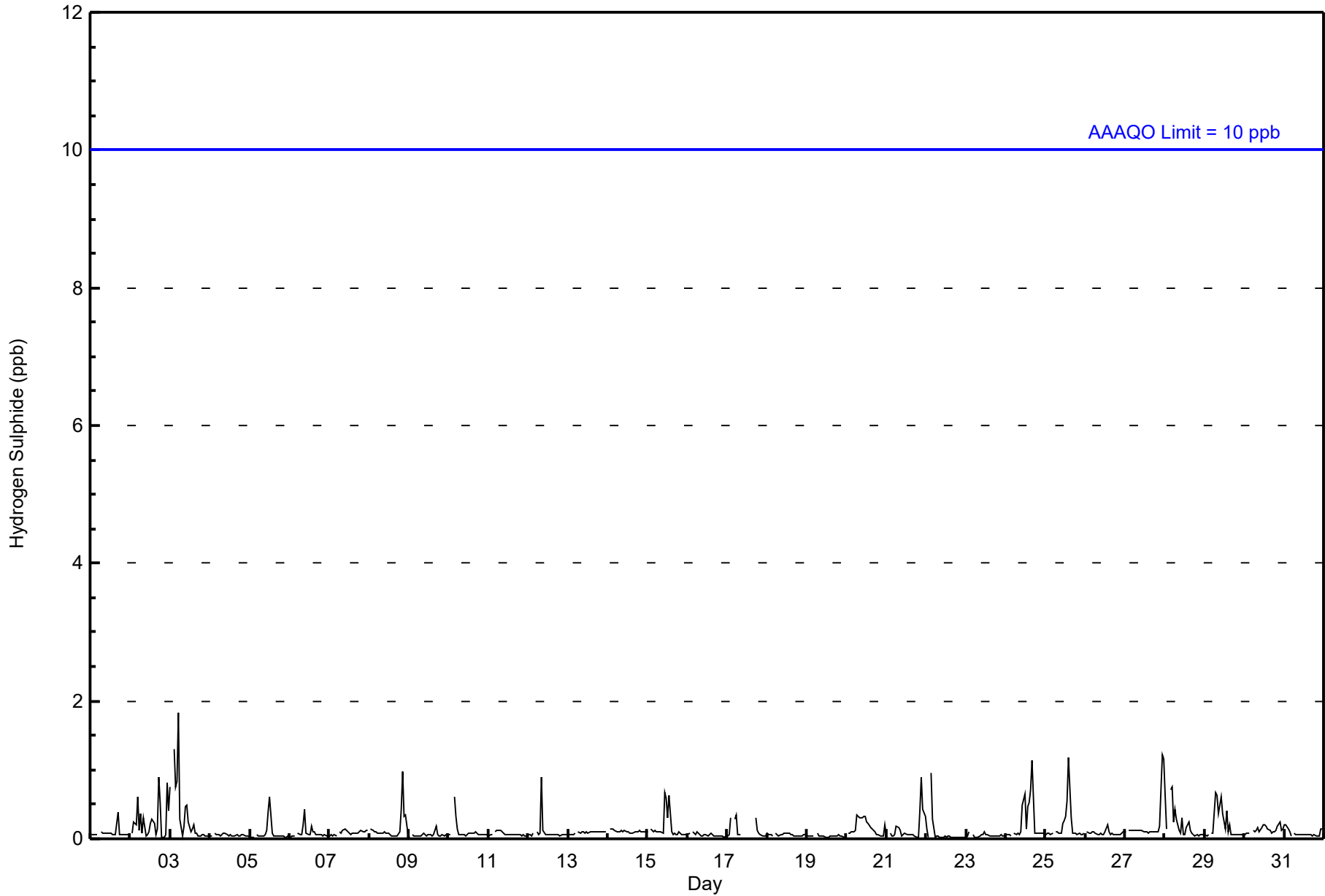
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Kirby North















**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby North - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	705	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby North - October 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	14	10	23	29	32	22	17	54	99	85	79	82	22	37	41	14	660
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>	14	10	23	29	32	22	17	54	99	85	79	82	22	37	41	14	660

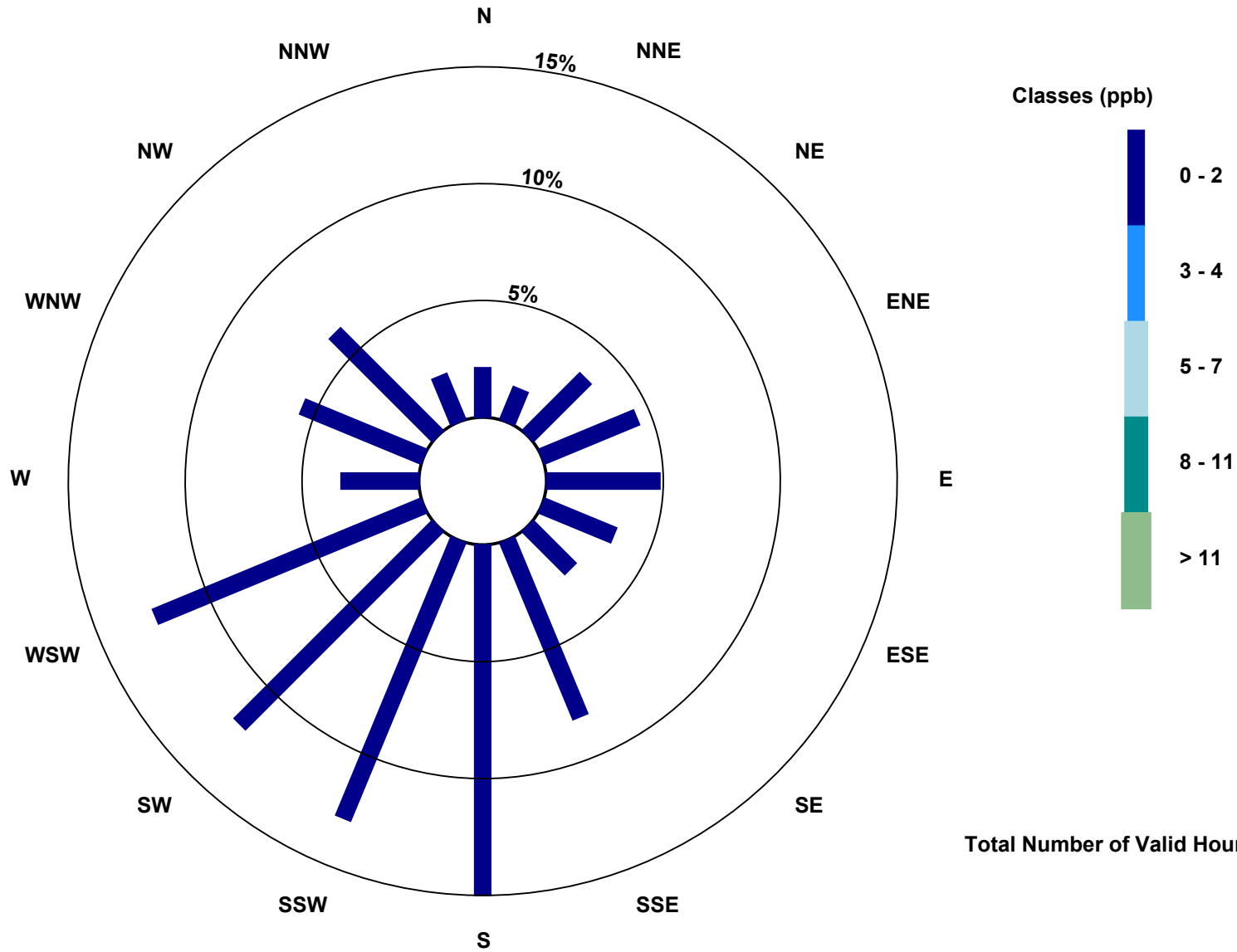
Total Number of Valid Hours: 660

Total Number of Hours: 744

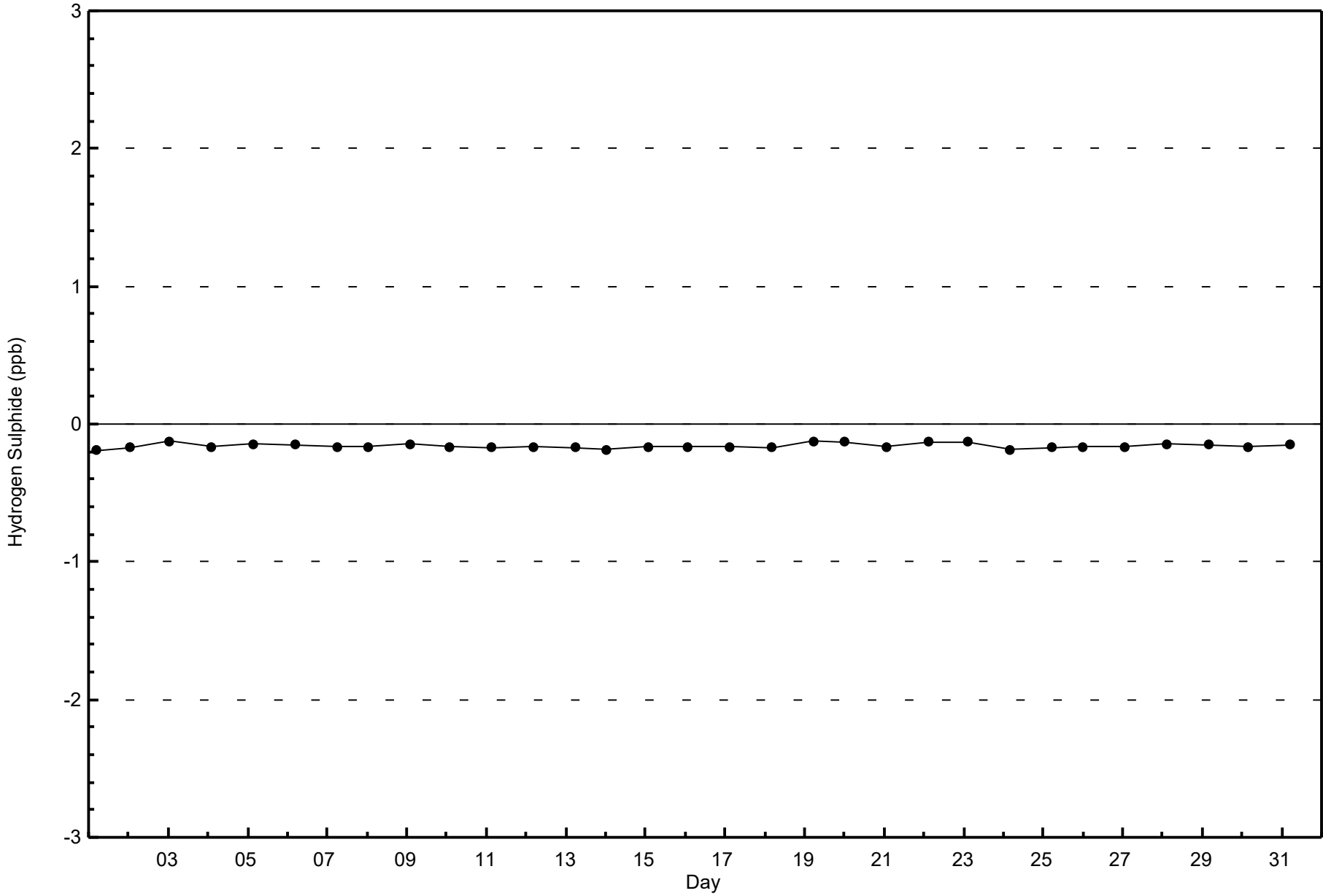


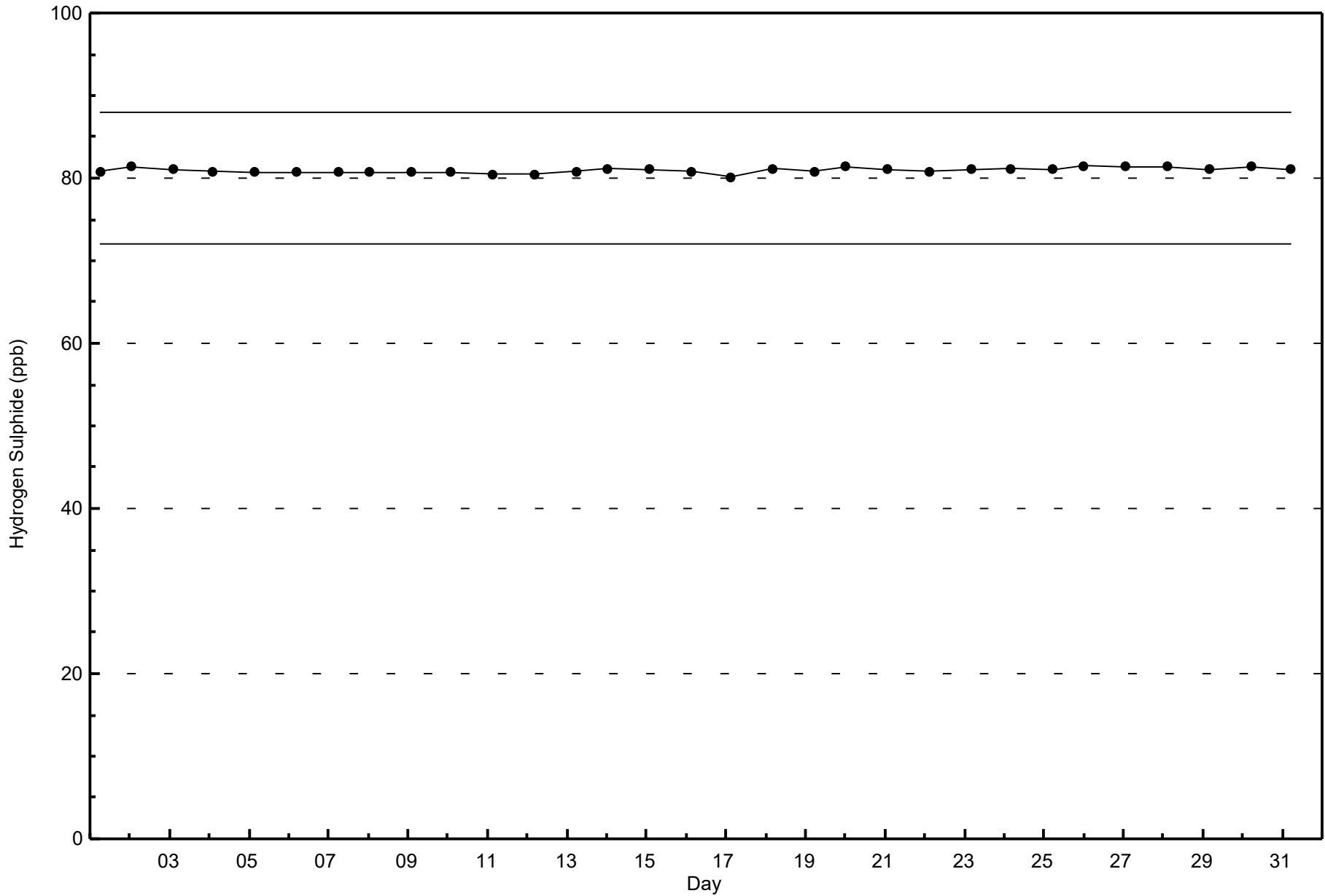
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby North



Total Number of Valid Hours: 660







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

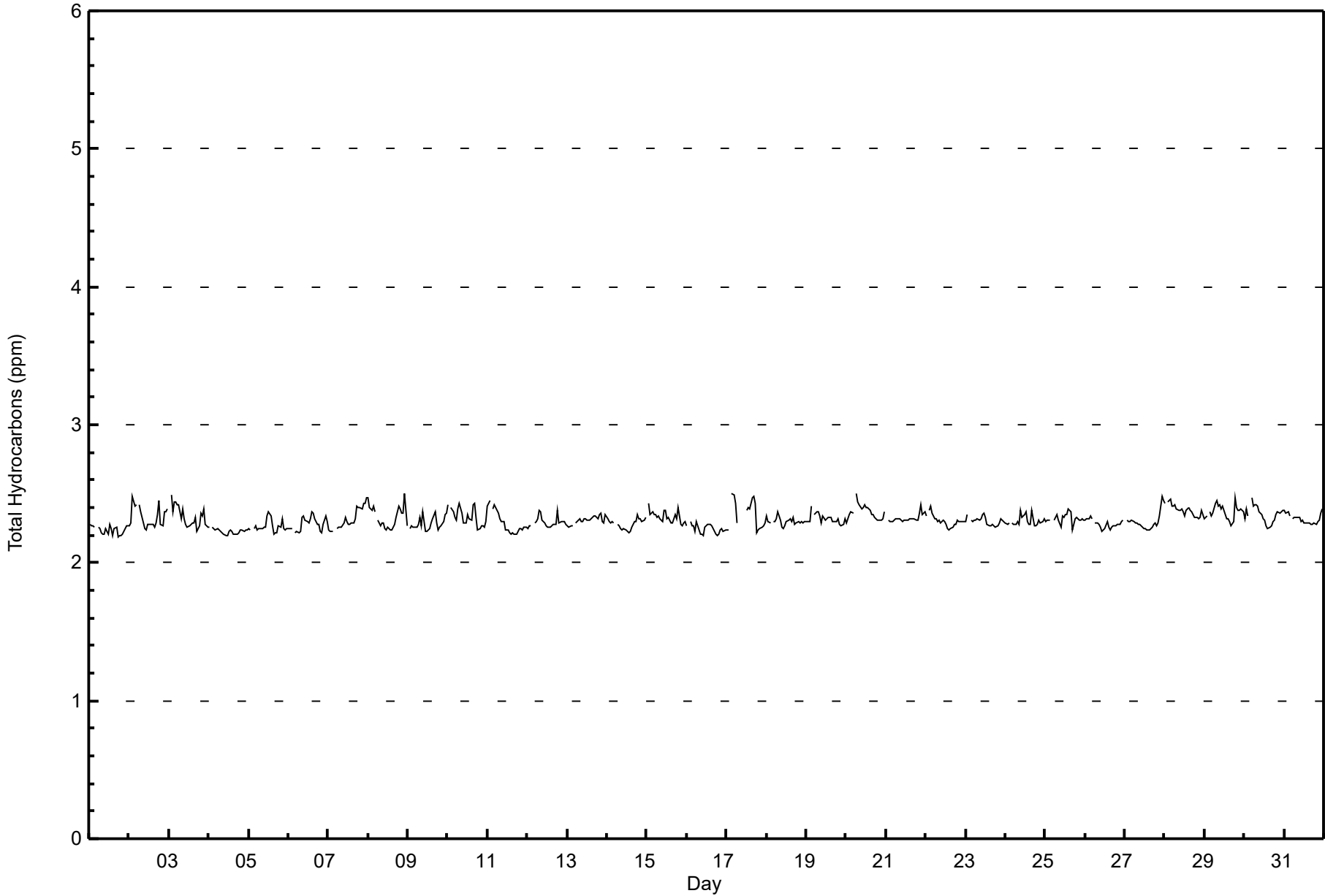
Kirby North - October 2024

Maximum Value: 2.5 ppm on Oct 17 04:00		Maximum Daily Average: 2.4 ppm on Oct 28		Hours in Service: 744																						
Minimum Value: 2.2 ppm on Oct 1 18:00		Minimum Daily Average: 2.2 ppm on Oct 4		Hours of Data: 708																						
Maximum Diurnal Average: 2.3 ppm at hour 4		Minimum Diurnal Average: 2.3 ppm at hour 15		Hours of Missing Data: 36																						
Monthly Average: 2.31 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> = 2.3 P <sub>90</sub> = 2.4 P <sub>99</sub> = 2.5		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-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3
2-Oct	2.3	2.3	2.5	2.4	2.4	Z	2.4	2.4	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	2.4	2.4	2.4	2.3	2.5
3-Oct	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.4	2.3	2.4	2.3	2.3	2.3	2.5
4-Oct	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
5-Oct	2.2	2.2	Z	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.4
6-Oct	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.4
7-Oct	2.2	2.2	2.2	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.3	2.5
8-Oct	2.5	2.4	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.3	2.3	2.5
9-Oct	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4
10-Oct	2.4	Z	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4
11-Oct	2.4	2.5	Z	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5
12-Oct	2.2	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4
13-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.4
14-Oct	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.2	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
15-Oct	Z	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4
16-Oct	2.3	Z	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
17-Oct	2.2	2.2	Z	2.5	2.5	2.4	2.3	C	C	C	C	C	2.4	2.4	2.4	2.5	2.5	2.4	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.5
18-Oct	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	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	2.4
19-Oct	2.3	2.3	2.3	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
20-Oct	2.3	2.3	2.4	2.4	2.4	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5
21-Oct	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	2.4	2.3	2.4
22-Oct	2.3	Z	2.4	2.4	2.4	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	2.4
23-Oct	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
24-Oct	2.3	2.3	2.3	Z	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
25-Oct	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
26-Oct	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.2	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
27-Oct	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.5	2.5
28-Oct	2.4	Z	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.5
29-Oct	2.3	2.3	Z	2.4	2.3	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5
30-Oct	2.3	2.4	2.3	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	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5
31-Oct	2.4	2.4	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	2.4	2.4	2.4
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Kirby North - October 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	708	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: 708

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Kirby North - October 2024**

<b>Concentration</b> <b>Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	15	10	23	29	33	21	18	54	97	85	79	84	24	38	40	14	664
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>	15	10	23	29	33	21	18	54	97	85	79	84	24	38	40	14	664

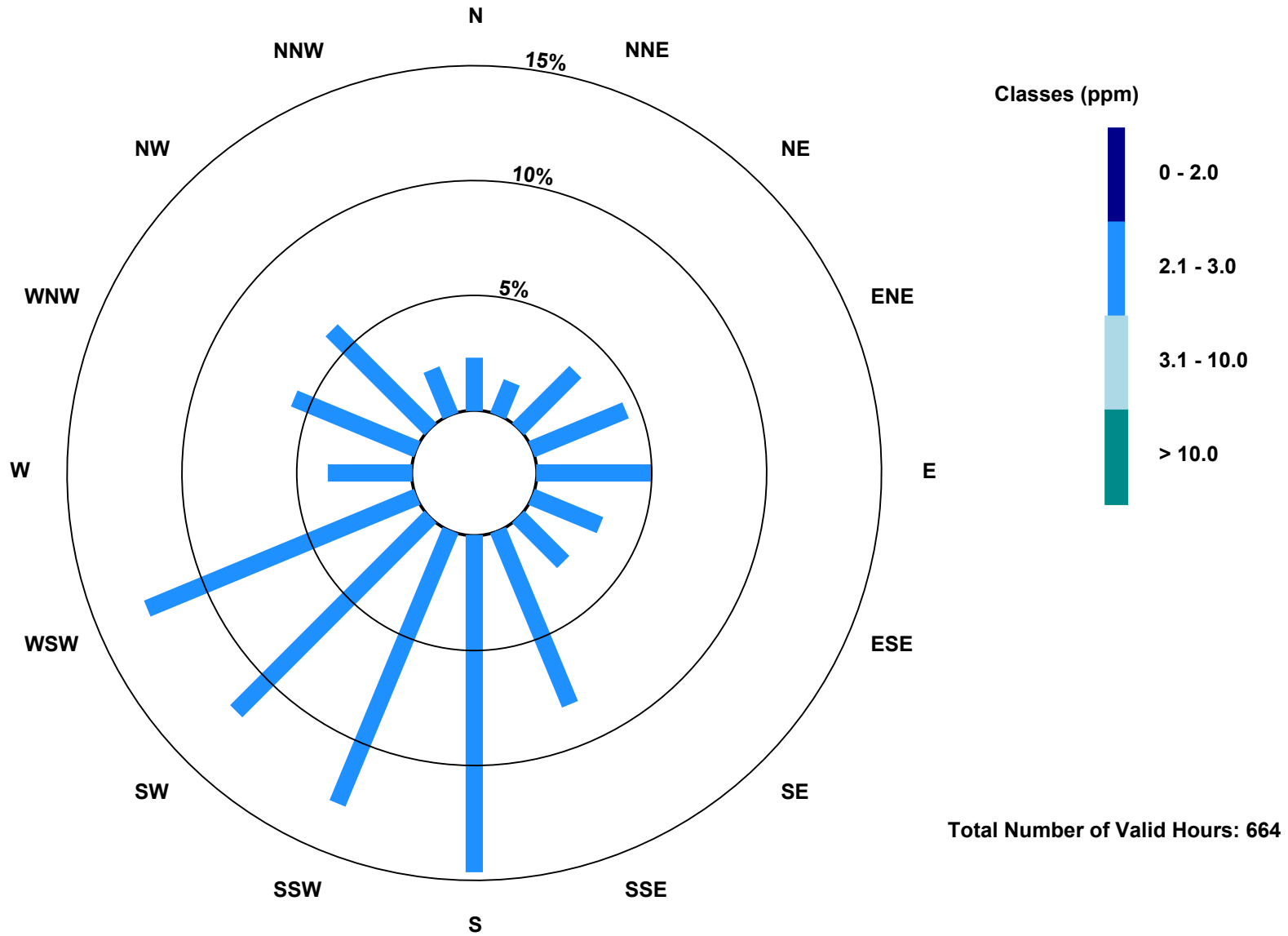
Total Number of Valid Hours: 664

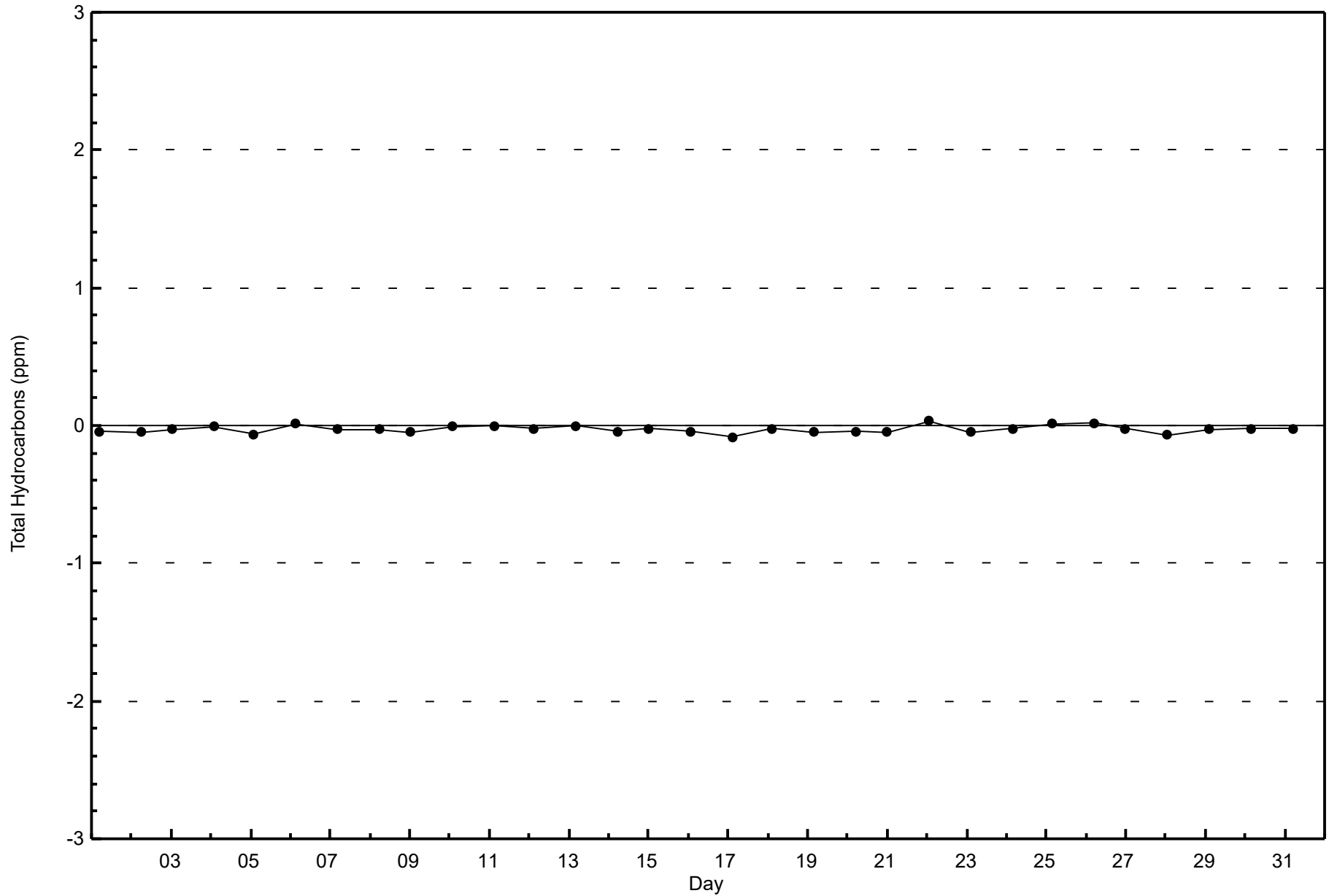
Total Number of Hours: 744

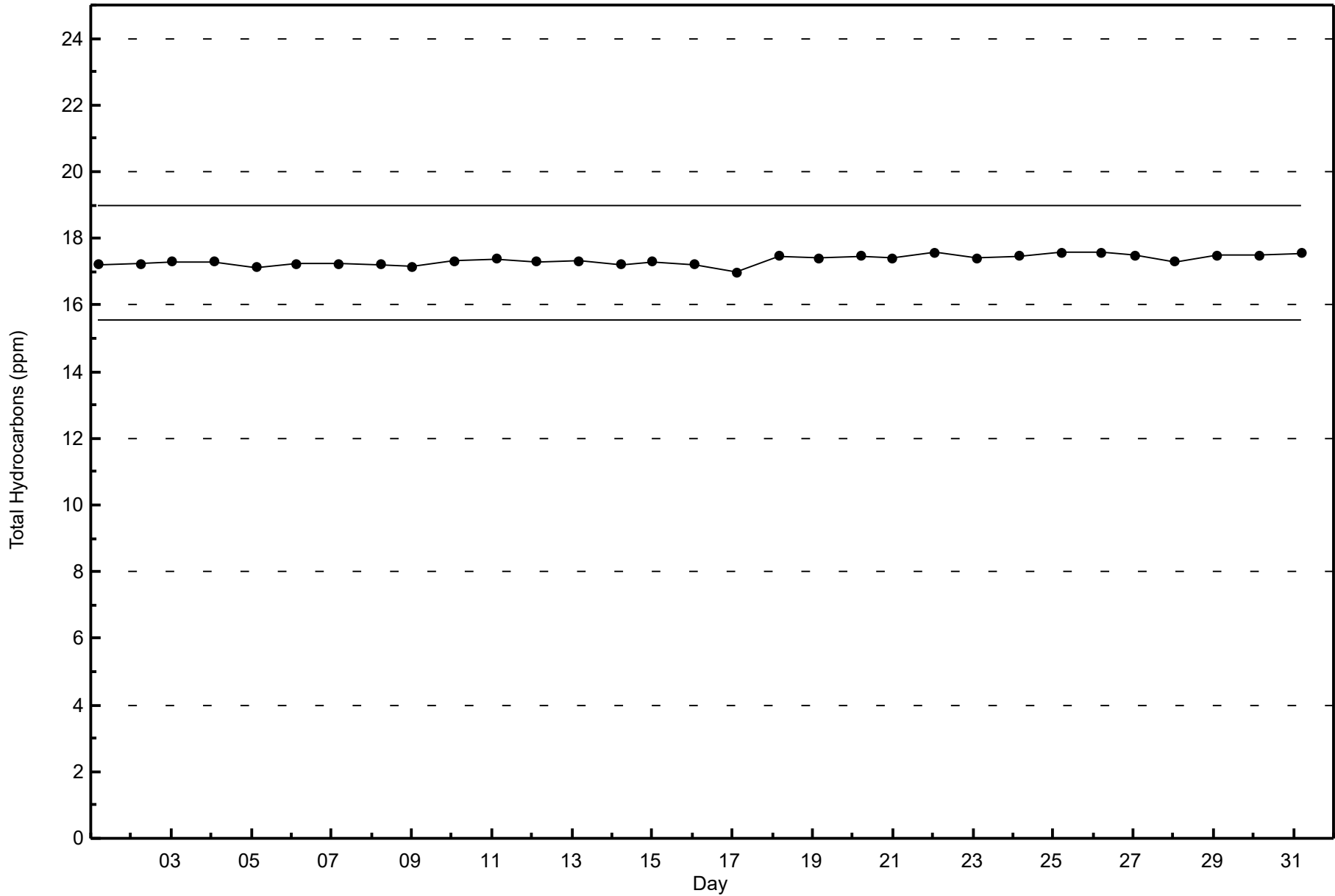


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Total Hydrocarbons (THC) - ppm  
Kirby North









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

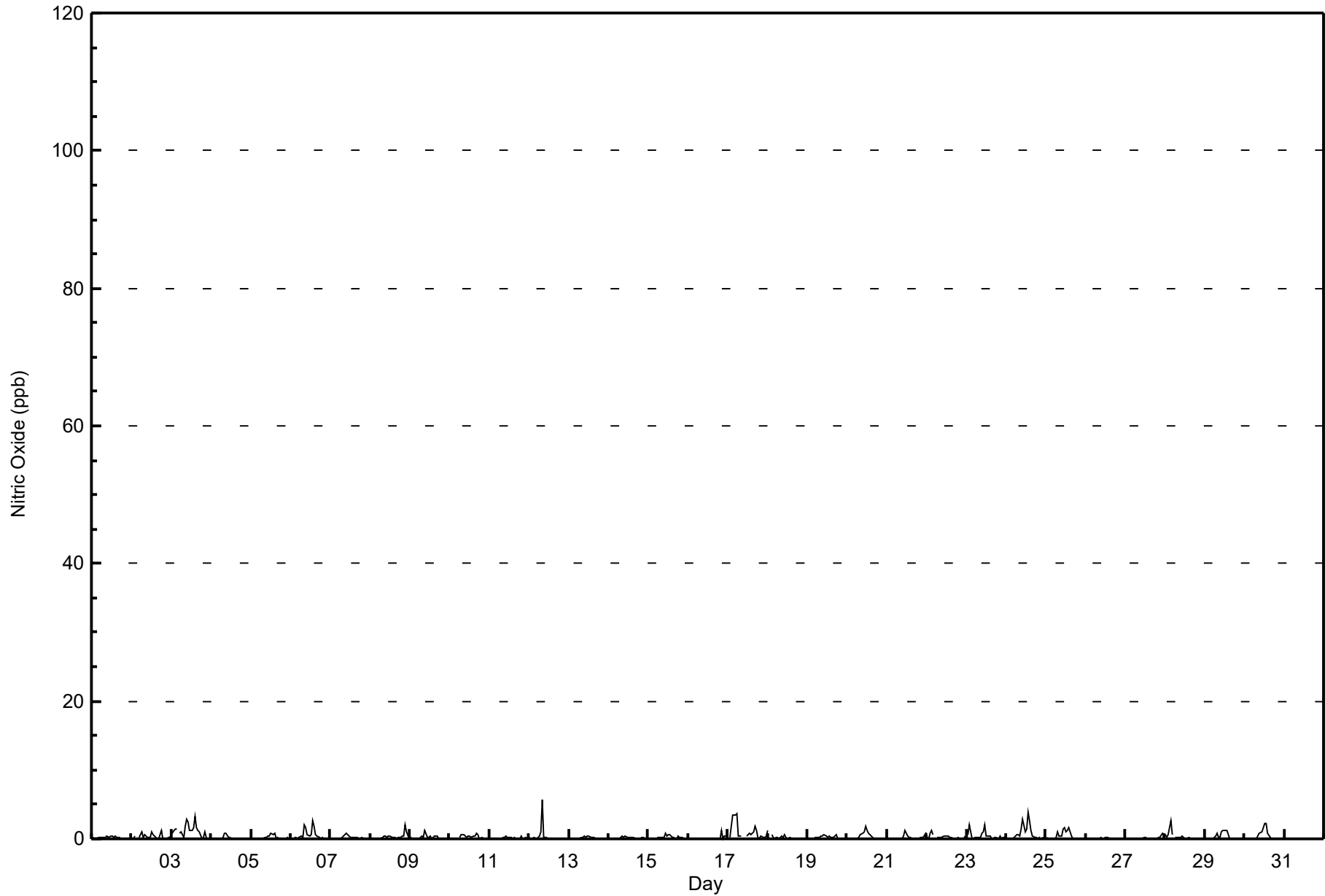
**Nitric Oxide (NO) - ppb**  
**Kirby North - October 2024**

Maximum Value: 5.6 ppb on Oct 12 09:00		Maximum Daily Average: 1.1 ppb on Oct 3		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Oct 1 21:00		Minimum Daily Average: 0.0 ppb on Oct 31		Hours of Data: 705																						
Maximum Diurnal Average: 0.7 ppb at hour 14		Minimum Diurnal Average: 0.1 ppb at hour 20		Hours of Missing Data: 39																						
Monthly Average: 0.31 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.9		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-Oct	0.2	0.1	Z	0.0	0.1	0.1	0.3	0.2	0.3	0.4	0.2	0.3	0.3	0.3	0.4	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4
2-Oct	0.0	0.0	0.3	Z	0.2	0.6	1.1	0.3	0.7	0.1	0.2	0.1	1.0	0.6	0.3	0.1	0.0	0.6	1.3	0.0	0.1	0.1	0.3	0.2	0.4	1.3
3-Oct	0.5	1.3	1.3	1.4	Z	0.8	1.1	0.2	1.8	2.9	2.5	1.3	1.2	1.6	3.2	1.7	1.3	0.9	0.0	0.2	0.9	0.2	0.0	0.0	1.1	3.2
4-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.8	0.7	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	0.1	0.8
5-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.5	0.8	0.6	0.9	0.1	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.9
6-Oct	0.1	Z	0.1	0.2	0.0	0.2	0.3	0.1	2.1	1.7	0.7	0.4	0.5	2.5	1.8	0.7	0.5	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.6	2.5
7-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.5	0.7	0.7	0.4	0.2	0.3	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.7
8-Oct	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.4	0.4	0.1	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.3	0.5	0.4	2.1	1.0	0.1	0.3	2.1
9-Oct	0.2	0.0	0.0	0.0	Z	0.1	0.1	0.4	0.3	1.2	0.3	0.1	0.3	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2
10-Oct	0.0	0.1	0.0	0.0	0.0	Z	0.2	0.6	0.6	0.4	0.2	0.5	0.5	0.3	0.4	0.4	0.9	0.5	0.0	0.2	0.0	0.1	0.1	0.0	0.3	0.9
11-Oct	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.5	0.1	0.0	0.1	0.1	0.1	0.5
12-Oct	0.2	Z	0.0	0.1	0.1	0.2	0.4	1.0	5.6	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.6
13-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.4
14-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	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	0.1	0.3
15-Oct	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.3	0.1	0.8	0.4	0.6	0.6	0.2	0.2	0.0	0.0	0.5	0.2	0.2	0.0	0.0	0.0	0.2	0.8
16-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.0	0.0	1.2	0.0	0.5	0.4	--	1.2
17-Oct	Z	0.2	1.9	3.5	3.5	3.6	0.4	0.3	0.4	M	M	0.5	0.6	0.8	0.6	1.0	1.8	1.3	0.3	0.1	0.5	0.1	0.2	0.5	1.1	3.6
18-Oct	1.1	Z	0.7	0.1	0.0	0.2	0.3	0.1	0.4	0.3	0.6	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
19-Oct	0.0	0.0	Z	0.0	0.1	0.2	0.3	0.2	0.5	0.4	0.6	0.4	0.2	0.5	0.1	0.1	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
20-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.6	0.7	0.9	1.8	1.2	0.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.8
21-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.4	1.3	0.4	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.9	0.2	1.3
22-Oct	0.3	0.0	0.8	1.3	0.6	Z	0.3	0.3	0.2	0.3	0.4	0.3	0.5	0.4	0.3	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.3	0.3	1.3
23-Oct	Z	0.6	2.0	0.0	0.1	0.1	0.3	0.3	0.2	0.9	0.9	2.0	0.4	0.4	0.5	0.1	0.0	0.1	0.2	0.0	0.4	0.0	0.1	0.1	0.4	2.0
24-Oct	0.0	Z	0.1	0.0	0.0	0.1	0.5	0.6	0.4	1.5	2.9	1.0	1.5	3.8	2.6	1.2	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.8	3.8
25-Oct	0.0	0.2	Z	0.1	0.0	0.1	0.2	1.1	0.4	0.3	1.5	1.5	1.0	1.2	1.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.5
26-Oct	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
27-Oct	0.0	0.0	0.0	0.0	Z	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	0.1	0.1	0.3	0.3	0.8	0.6	0.1	0.8
28-Oct	0.7	0.1	0.5	2.6	0.7	Z	0.2	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.6
29-Oct	Z	0.0	0.0	0.1	0.0	0.0	0.4	0.8	0.2	0.2	1.1	1.2	1.2	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.3
30-Oct	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	1.1	1.6	2.2	2.2	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.2
31-Oct	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
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Kirby North - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Kirby North - October 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	13	10	23	21	34	22	17	52	100	83	81	86	25	38	40	16	661
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>	13	10	23	21	34	22	17	52	100	83	81	86	25	38	40	16	661

Total Number of Valid Hours: 661

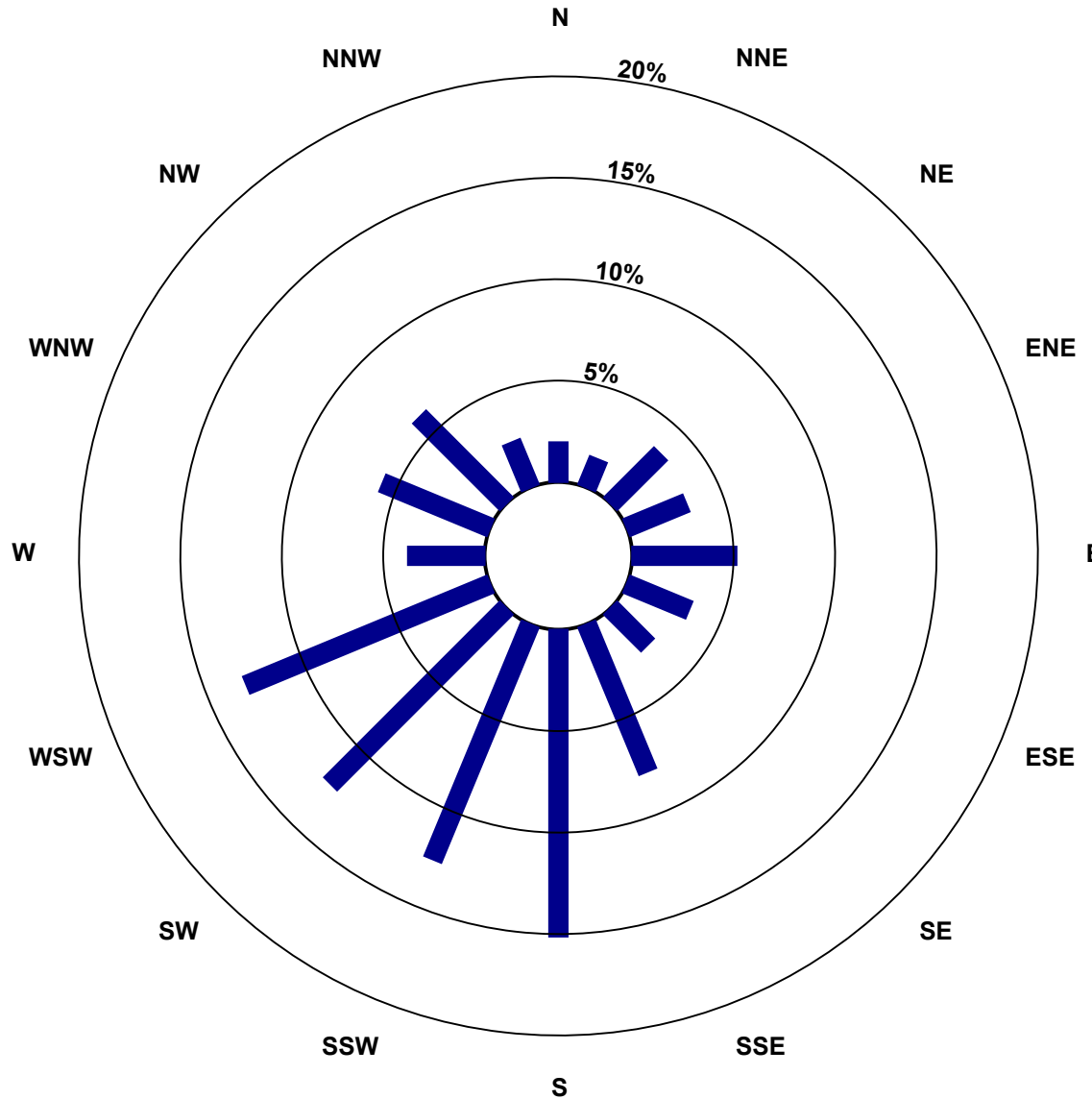
Total Number of Hours: 744



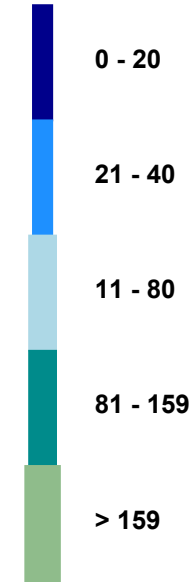


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

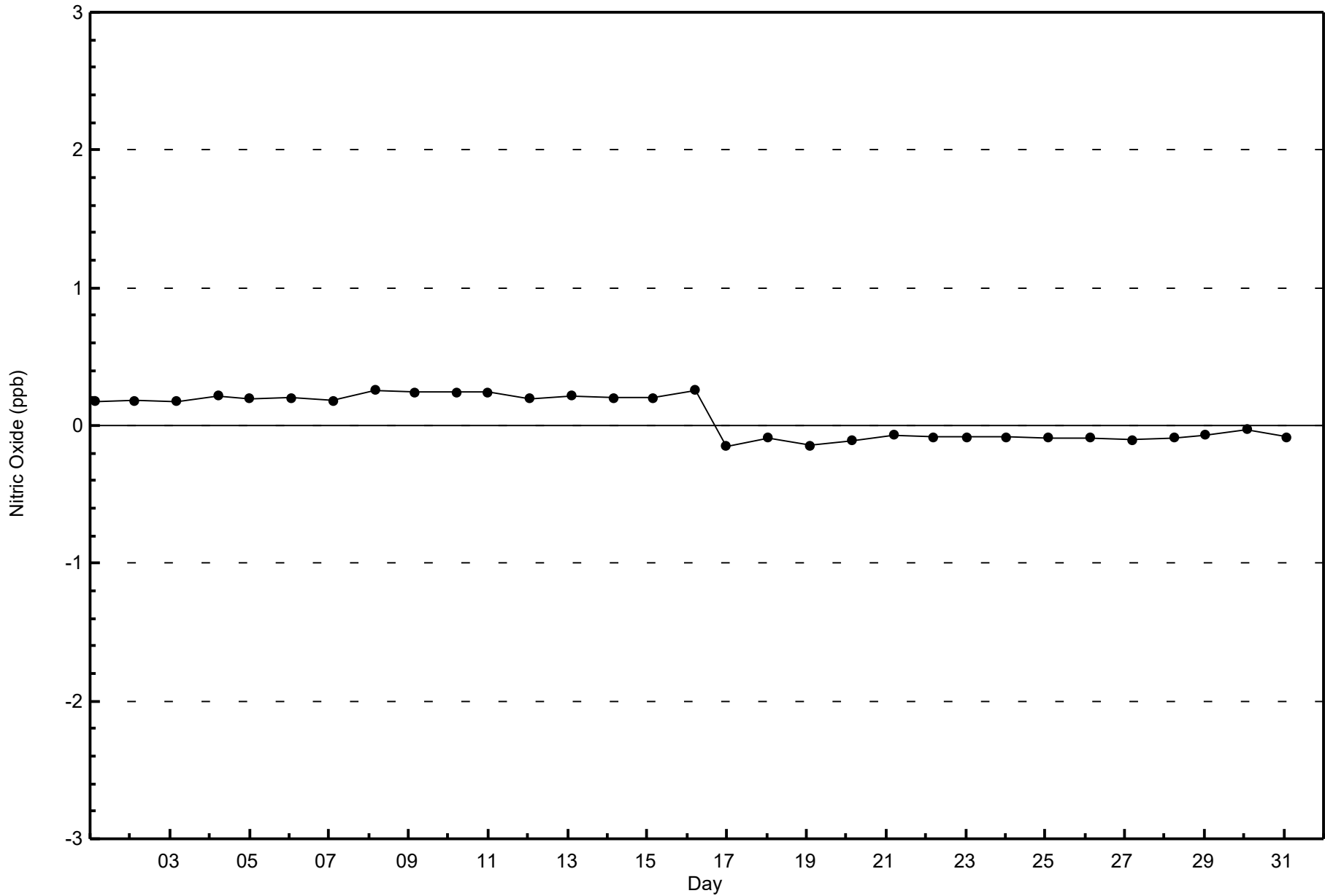
Nitric Oxide (NO) - ppb  
Kirby North

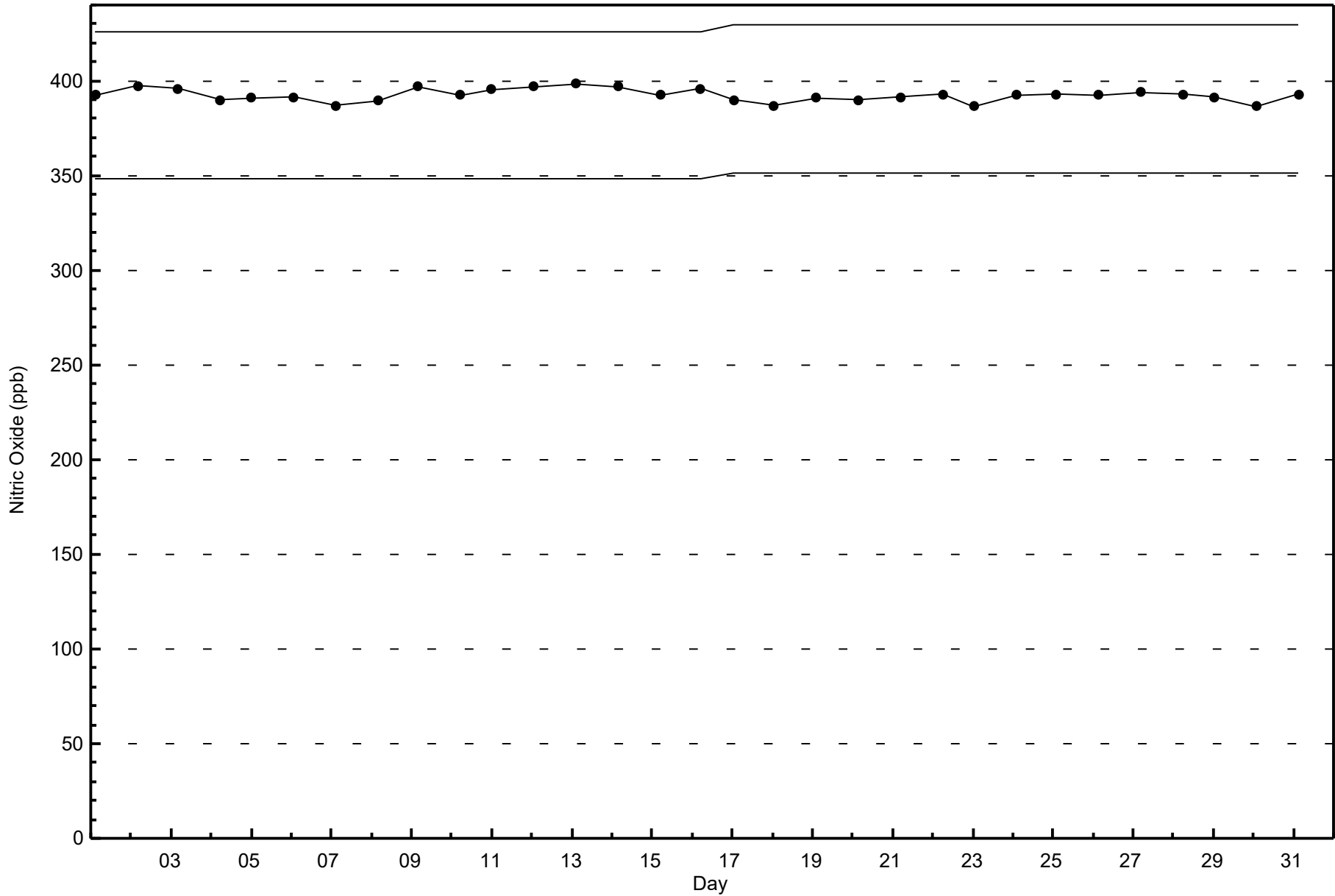


Classes (ppb)



Total Number of Valid Hours: 661







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

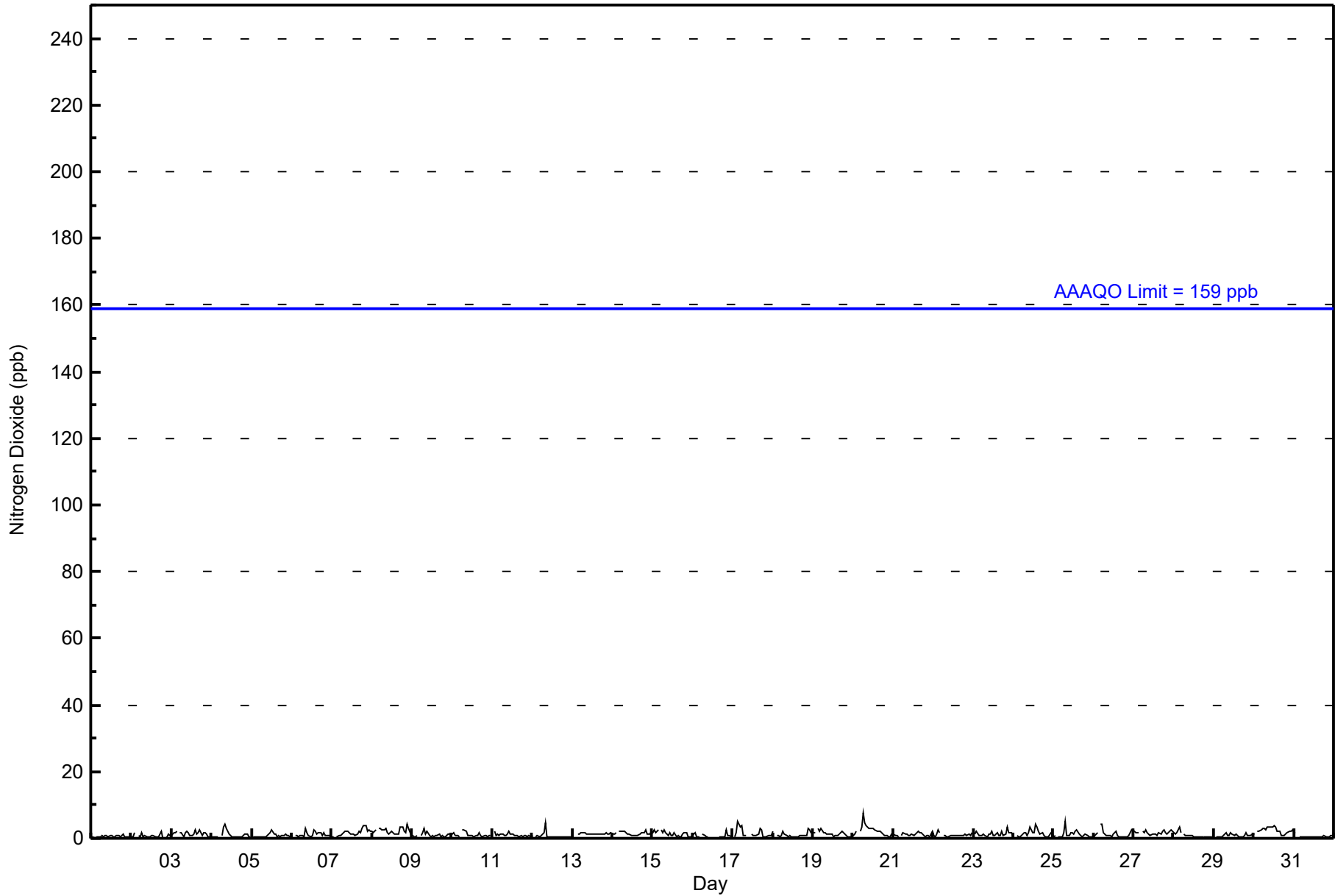
Kirby North - October 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum			
Maximum Value: 7.6 ppb on Oct 20 07:00		Maximum Daily Average: 2.4 ppb on Oct 20																	Hours of Data: 705		Daily Maximum					
Minimum Value: 0.1 ppb on Oct 2 21:00		Minimum Daily Average: 0.6 ppb on Oct 31																	Hours of Missing Data: 39		Daily Maximum					
Maximum Diurnal Average: 1.7 ppb at hour 8		Minimum Diurnal Average: 1.0 ppb at hour 16																	Hours of Calibration: 37		Daily Maximum					
Monthly Average: 1.25 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.6 Median = 1.0 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 2.4 P <sub>99</sub> = 4.3																	Percent Operational Time: 99.7		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-Oct	0.6	0.4	Z	0.5	0.6	0.6	0.8	0.5	0.9	1.0	0.5	0.7	0.8	0.6	0.6	0.7	0.9	0.3	0.9	1.2	0.3	0.4	0.4	0.4	0.6	1.2
2-Oct	0.3	0.4	1.7	Z	0.8	0.6	1.5	0.5	0.9	0.3	0.3	0.3	1.0	0.8	0.4	0.3	0.3	1.2	2.0	0.2	0.1	0.4	1.2	0.8	0.7	2.0
3-Oct	0.9	1.6	1.7	2.0	Z	1.6	1.6	0.3	1.5	2.1	1.9	0.9	0.9	1.1	2.4	1.3	1.8	2.4	0.9	1.5	1.8	1.3	0.4	0.5	1.4	2.4
4-Oct	0.5	0.4	0.4	0.5	0.4	Z	0.8	3.4	4.3	3.0	1.2	1.0	0.6	0.5	0.4	0.4	0.5	0.5	0.4	0.8	1.4	1.4	0.6	0.6	1.0	4.3
5-Oct	Z	0.5	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.8	1.3	1.7	2.5	1.1	1.2	0.3	0.8	0.4	0.9	0.7	1.4	0.7	0.8	0.5	0.8	2.5
6-Oct	0.8	Z	1.0	0.7	0.6	0.8	0.9	0.6	2.8	1.9	0.7	0.5	0.8	2.7	2.0	1.3	1.7	1.7	0.7	1.6	0.9	0.7	0.7	0.6	1.2	2.8
7-Oct	0.5	0.4	Z	0.6	0.7	1.0	1.1	1.5	2.2	2.3	1.7	1.4	1.1	1.1	1.0	1.3	2.1	1.7	2.9	3.7	3.8	2.1	2.4	2.2	1.7	3.8
8-Oct	2.0	1.9	2.4	Z	2.8	3.1	2.4	2.4	2.8	1.8	1.2	1.7	2.1	1.3	1.2	1.2	1.3	3.6	3.4	2.2	1.9	4.2	2.8	1.0	2.2	4.2
9-Oct	0.9	0.6	0.6	0.8	Z	0.9	1.7	2.8	1.2	2.2	0.8	0.6	1.0	0.5	0.7	1.0	1.1	0.6	1.0	0.3	0.6	1.4	1.1	1.1	1.0	2.8
10-Oct	1.4	1.7	1.0	0.8	0.5	Z	2.7	2.5	2.2	1.0	0.7	0.8	1.0	0.5	0.9	0.8	1.5	1.0	0.6	1.0	0.7	0.6	1.0	0.7	1.1	2.7
11-Oct	Z	2.0	1.0	1.2	0.9	1.1	1.2	1.0	1.0	1.4	2.0	1.1	1.2	0.9	0.7	0.8	0.4	0.7	0.4	1.0	0.7	0.5	0.7	0.4	1.0	2.0
12-Oct	0.8	Z	0.6	0.8	0.6	0.8	1.1	1.7	4.7	0.6	0.5	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.5	0.3	0.3	0.5	0.6	0.4	0.8	4.7
13-Oct	0.3	0.5	Z	1.1	1.4	1.5	1.5	1.6	1.4	1.3	1.3	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.6	1.1	1.2	1.9	1.2	1.9
14-Oct	1.3	1.4	1.8	Z	2.2	2.3	2.1	2.0	1.6	1.2	1.1	0.9	0.9	1.0	1.0	1.2	1.5	1.7	1.8	2.5	1.4	1.2	2.0	1.5	1.5	2.5
15-Oct	1.8	2.5	1.7	2.5	Z	2.5	1.8	2.6	1.6	0.9	1.7	1.0	1.0	1.5	0.6	1.0	0.6	0.6	1.2	1.6	1.6	0.4	0.4	0.6	1.4	2.6
16-Oct	0.9	1.8	0.6	0.5	0.4	Z	1.1	0.8	0.4	0.3	C	C	C	C	C	C	0.4	0.4	0.3	0.4	2.5	0.7	0.7	0.5	--	2.5
17-Oct	Z	0.6	1.8	4.9	3.6	3.8	1.0	0.9	0.7	M	M	1.1	0.9	0.8	0.8	1.4	3.0	2.4	0.6	0.5	0.6	0.7	0.7	0.7	1.5	4.9
18-Oct	2.2	Z	1.0	0.8	0.5	0.9	2.3	1.1	1.0	0.6	0.8	0.6	0.5	0.6	0.4	0.4	0.9	0.8	0.9	0.8	0.9	2.9	2.7	1.8	1.1	2.9
19-Oct	1.6	1.7	Z	2.8	2.1	2.8	1.9	1.5	1.3	1.2	1.2	1.1	0.6	1.0	0.8	1.0	1.4	2.1	1.9	1.1	0.8	0.6	0.6	0.5	1.4	2.8
20-Oct	0.9	1.4	2.3	Z	2.3	3.4	7.6	4.8	3.9	3.1	3.0	3.0	2.9	2.6	2.3	2.0	2.1	1.6	1.1	0.9	0.7	0.6	0.5	1.2	2.4	7.6
21-Oct	1.2	0.8	0.7	0.3	Z	0.7	1.5	1.4	1.1	0.9	1.0	1.1	0.9	1.1	1.8	2.3	1.9	1.5	0.8	0.5	0.8	1.0	0.6	2.3	1.1	2.3
22-Oct	0.8	0.4	1.2	2.5	1.8	Z	0.7	0.7	0.5	0.6	0.9	0.7	0.7	0.7	0.7	0.9	0.8	0.8	0.9	1.2	1.0	1.1	1.0	1.5	1.0	2.5
23-Oct	Z	1.3	2.2	0.7	0.7	0.9	1.2	0.8	0.6	1.1	1.2	2.1	0.7	0.8	1.5	0.9	0.8	2.0	0.8	1.2	3.6	1.8	1.7	1.6	1.3	3.6
24-Oct	0.6	Z	0.8	0.5	0.5	0.8	1.7	1.7	0.8	1.6	3.3	1.8	1.7	4.3	3.3	2.1	1.4	1.5	0.8	0.5	0.6	0.6	1.9	1.3	1.5	4.3
25-Oct	0.6	0.9	Z	0.6	0.5	0.5	1.9	5.2	1.0	0.8	1.9	1.9	1.4	2.2	2.7	1.1	0.9	0.6	0.8	1.1	0.7	0.5	0.5	0.5	1.3	5.2
26-Oct	0.5	1.0	1.5	Z	4.4	4.1	1.9	0.9	0.8	0.8	0.8	0.6	1.1	2.2	0.8	0.6	0.6	0.6	0.5	0.5	0.5	0.9	1.9	2.7	1.3	4.4
27-Oct	2.2	1.8	1.7	1.8	Z	2.0	1.8	2.6	1.7	1.2	0.9	1.3	1.3	1.3	0.8	1.6	1.4	2.0	2.4	1.9	1.3	1.5	2.4	2.0	1.7	2.6
28-Oct	1.9	1.3	1.7	3.2	1.5	Z	1.1	0.9	0.8	0.7	1.0	0.7	0.6	0.6	0.5	0.6	0.6	0.5	0.4	0.6	0.5	0.4	0.5	0.3	0.9	3.2
29-Oct	Z	0.3	0.4	0.3	0.3	0.3	1.2	1.8	1.0	0.7	1.5	1.1	0.9	1.3	0.8	0.5	0.3	0.3	0.7	1.7	1.0	1.0	0.7	1.2	0.8	1.8
30-Oct	1.3	Z	2.1	2.3	2.6	2.9	2.8	2.7	3.2	3.4	3.4	3.4	3.4	3.7	3.4	2.2	2.0	0.9	1.0	0.9	1.1	1.5	2.0	2.3	2.5	3.7
31-Oct	1.6	1.8	Z	0.6	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8	0.5	0.3	0.3	0.7	0.8	0.6	1.8
1.1 1.1 1.3 1.3 1.3 1.6 1.7 1.7 1.6 1.3 1.3 1.2 1.2 1.3 1.2 1.0 1.1 1.2 1.1 1.1 1.2 1.1 1.1 1.1																								Diurnal Average		
2.2 2.5 2.4 4.9 4.4 4.1 7.6 5.2 4.7 3.4 3.4 3.4 3.4 3.7 4.3 3.3 2.3 3.0 3.6 3.4 3.7 3.8 4.2 2.8 2.7																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby North - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby North - October 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	13	10	23	21	34	22	17	52	100	83	81	86	25	38	40	16	661
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>	13	10	23	21	34	22	17	52	100	83	81	86	25	38	40	16	661

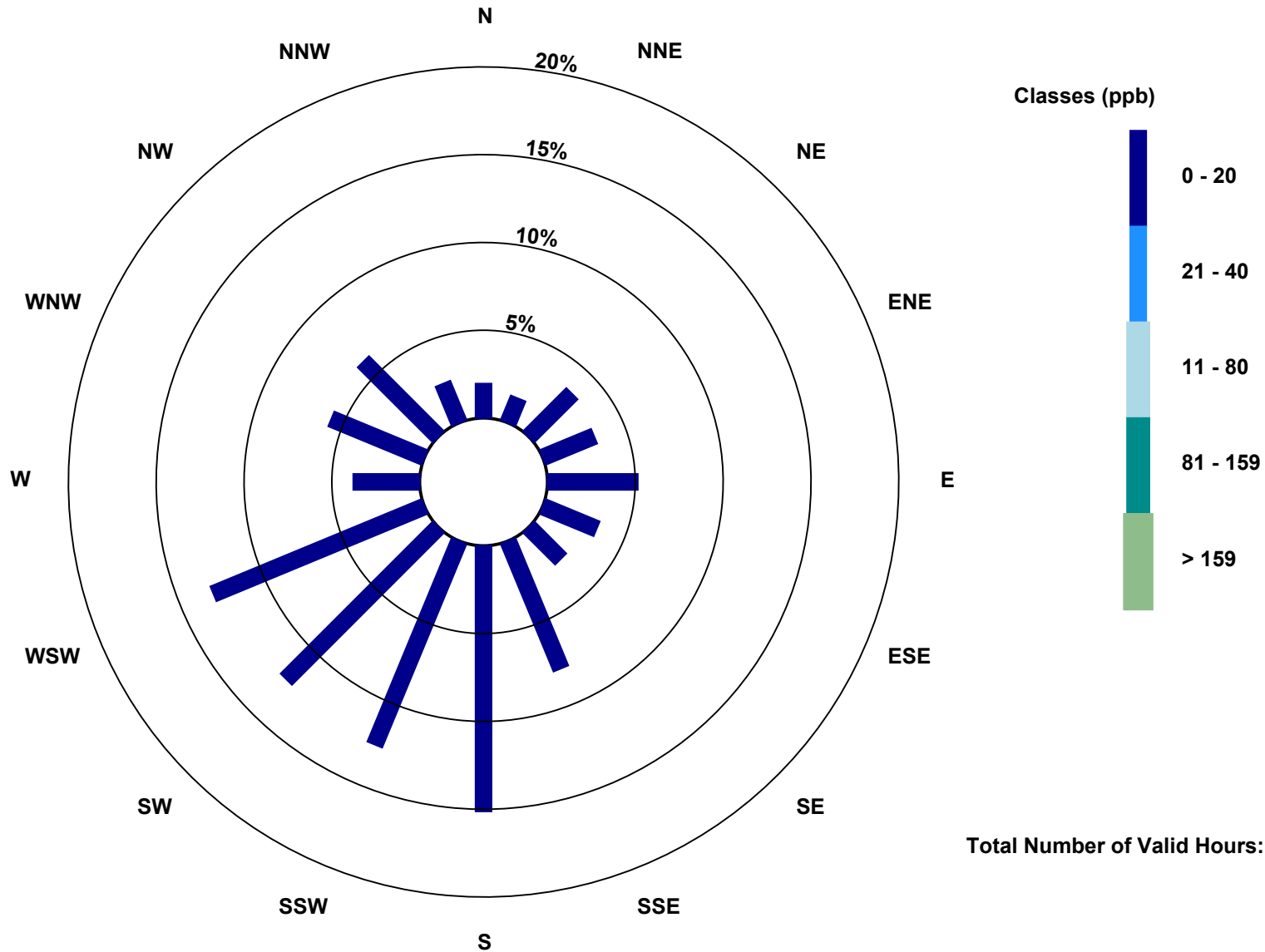
Total Number of Valid Hours: 661

Total Number of Hours: 744

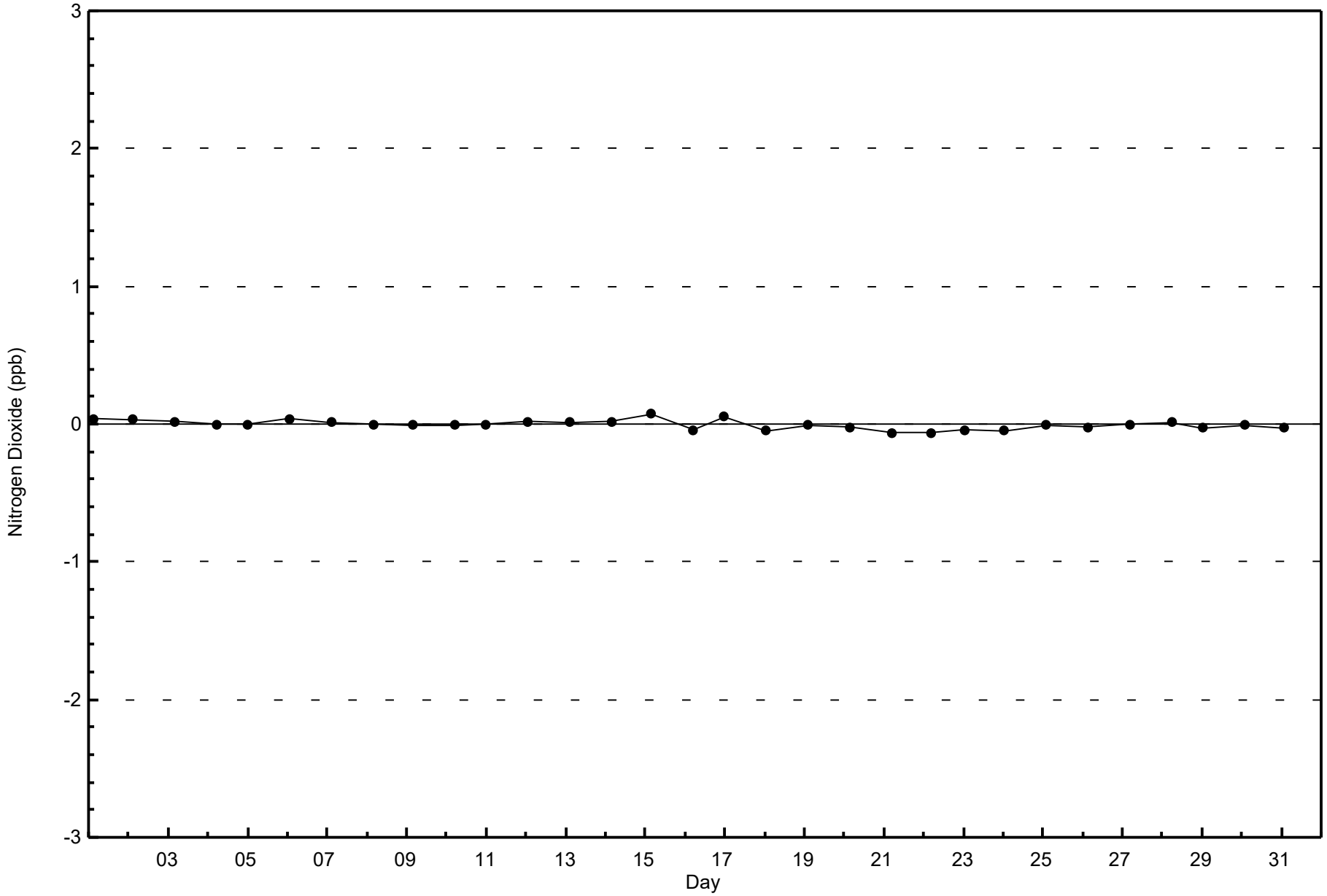


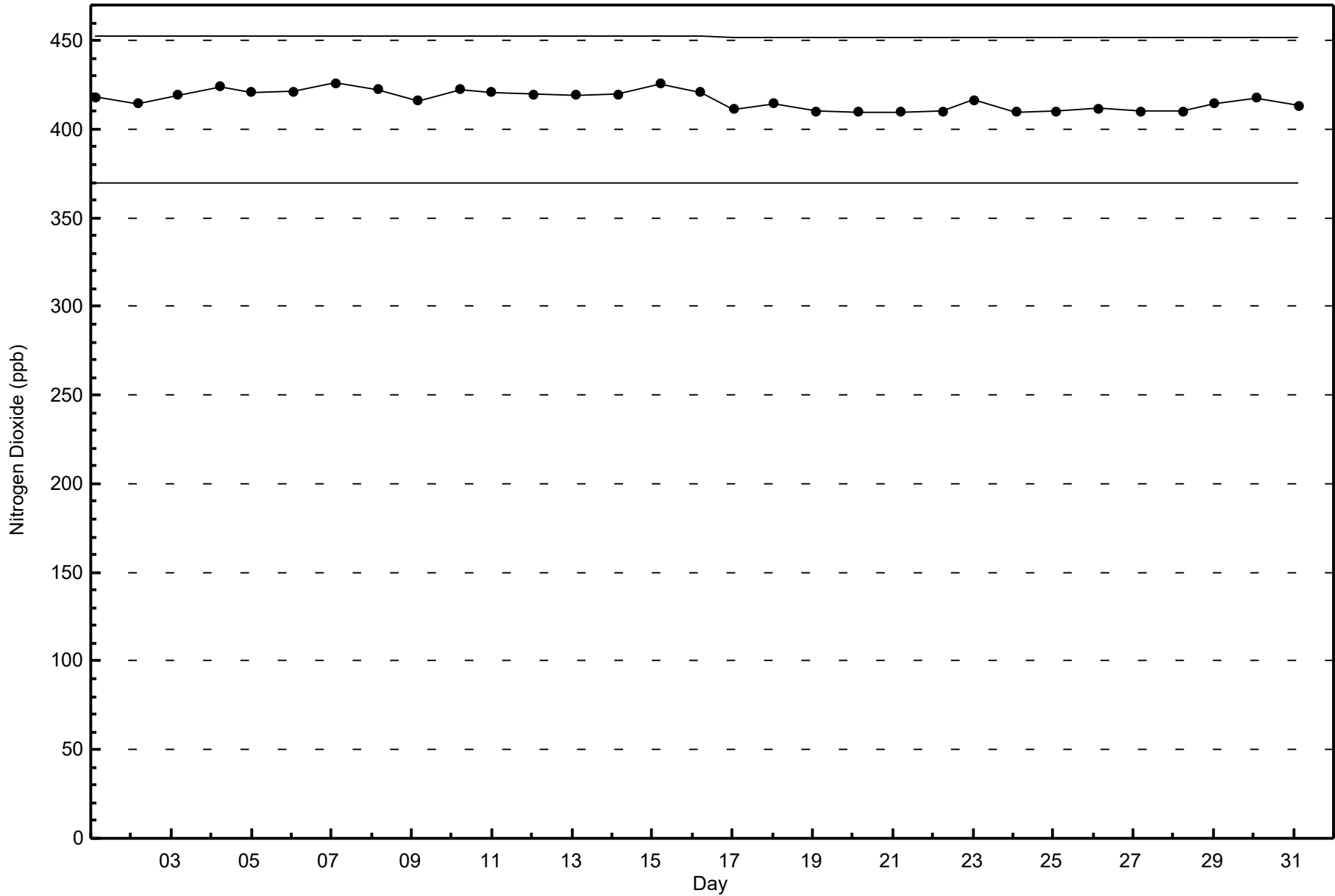
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby North











**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

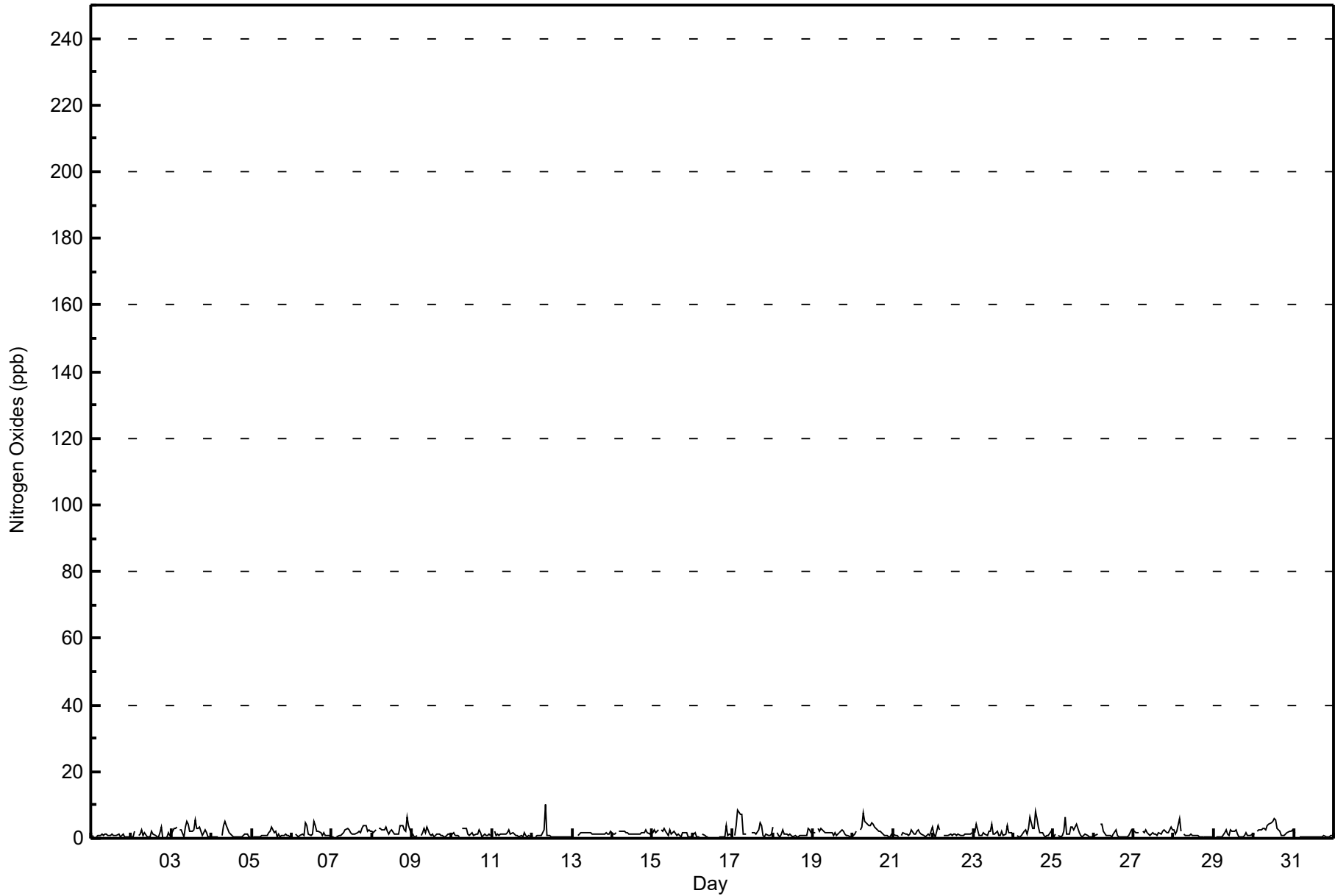
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby North - October 2024**

Maximum Value: 10.3 ppb on Oct 12 09:00		Maximum Daily Average: 2.7 ppb on Oct 30		Hours in Service: 744																																													
Minimum Value: 0.2 ppb on Oct 2 20:00		Minimum Daily Average: 0.6 ppb on Oct 31		Hours of Data: 705																																													
Maximum Diurnal Average: 2.2 ppb at hour 9		Minimum Diurnal Average: 1.2 ppb at hour 20		Hours of Missing Data: 39																																													
Monthly Average: 1.55 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.7 Median = 1.2 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 3.1 P <sub>99</sub> = 6.3		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-Oct	0.8	0.5	Z	0.5	0.7	0.7	1.1	0.7	1.2	1.4	0.7	1.0	1.1	0.9	1.0	0.9	1.1	0.3	1.0	1.2	0.3	0.4	0.4	0.4	0.8	1.4																							
2-Oct	0.3	0.4	2.0	Z	1.0	1.2	2.6	0.8	1.6	0.4	0.5	0.4	2.0	1.4	0.7	0.4	0.3	1.8	3.3	0.2	0.2	0.5	1.5	1.0	1.1	3.3																							
3-Oct	1.4	2.9	3.0	3.4	Z	2.4	2.7	0.5	3.3	5.0	4.4	2.2	2.1	2.7	5.6	3.0	3.1	3.3	0.9	1.7	2.7	1.5	0.4	0.5	2.6	5.6																							
4-Oct	0.5	0.4	0.4	0.5	0.4	Z	0.8	3.6	5.1	3.7	1.5	1.2	0.7	0.5	0.4	0.5	0.5	0.4	0.8	1.4	1.4	0.6	0.6	1.1	5.1																								
5-Oct	Z	0.5	0.4	0.4	0.6	0.6	0.7	0.7	0.7	0.9	1.7	2.2	3.3	1.7	2.1	0.4	1.1	0.4	0.9	0.7	1.4	0.7	1.0	0.5	1.0	3.3																							
6-Oct	0.9	Z	1.1	0.9	0.6	1.0	1.2	0.7	4.9	3.6	1.4	0.9	1.3	5.2	3.8	2.0	2.2	1.9	0.8	1.8	0.9	0.7	0.7	0.6	1.7	5.2																							
7-Oct	0.5	0.4	Z	0.6	0.7	1.0	1.1	1.6	2.7	3.0	2.4	1.8	1.3	1.4	1.2	1.5	2.3	1.7	2.9	3.8	3.9	2.1	2.4	2.2	1.8	3.9																							
8-Oct	2.0	1.9	2.4	Z	2.9	3.1	2.4	2.6	3.2	2.2	1.3	2.0	2.5	1.5	1.4	1.3	1.4	3.7	3.7	2.7	2.3	6.3	3.8	1.1	2.5	6.3																							
9-Oct	1.1	0.6	0.6	0.8	Z	1.0	1.8	3.2	1.5	3.4	1.1	0.7	1.3	0.6	0.8	1.3	1.4	0.6	1.0	0.3	0.6	1.4	1.1	1.1	1.2	3.4																							
10-Oct	1.4	1.8	1.0	0.8	0.5	Z	2.9	3.1	2.8	1.4	0.9	1.3	1.5	0.8	1.3	1.2	2.4	1.5	0.6	1.2	0.7	0.7	1.1	0.7	1.4	3.1																							
11-Oct	Z	2.1	1.0	1.2	0.9	1.1	1.2	1.1	1.1	1.7	2.4	1.3	1.5	1.1	0.8	0.9	0.4	0.8	0.4	1.5	0.8	0.5	0.8	0.5	1.1	2.4																							
12-Oct	1.0	Z	0.6	0.9	0.7	1.0	1.5	2.7	10.3	0.9	0.7	0.4	0.3	0.3	0.4	0.3	0.4	0.5	0.5	0.3	0.3	0.5	0.6	0.4	1.1	10.3																							
13-Oct	0.3	0.5	Z	1.1	1.4	1.5	1.5	1.7	1.7	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.6	1.1	1.2	2.0	1.3	2.0																							
14-Oct	1.3	1.4	1.8	Z	2.2	2.3	2.1	2.2	1.9	1.5	1.4	1.2	1.1	1.1	1.2	1.1	1.3	1.6	1.8	1.9	2.6	1.5	1.3	2.1	1.7	2.6																							
15-Oct	1.9	2.6	1.8	2.6	Z	2.7	2.0	2.8	1.9	1.0	2.5	1.4	1.6	2.1	0.8	1.2	0.6	0.6	1.7	1.8	1.8	0.4	0.4	0.6	1.6	2.8																							
16-Oct	0.9	1.8	0.6	0.5	0.4	Z	1.1	0.8	0.4	0.3	C	C	C	C	C	C	0.4	0.4	0.3	0.4	3.7	0.7	1.2	0.9	--	3.7																							
17-Oct	Z	0.8	3.7	8.4	7.1	7.4	1.4	1.2	1.1	M	M	1.6	1.5	1.6	1.4	2.4	4.8	3.7	0.9	0.6	1.1	0.8	0.9	1.2	2.6	8.4																							
18-Oct	3.3	Z	1.7	0.9	0.5	1.1	2.6	1.2	1.4	0.9	1.4	0.7	0.6	0.8	0.5	0.4	0.9	0.8	0.9	0.8	0.9	2.9	2.7	1.8	1.3	3.3																							
19-Oct	1.6	1.7	Z	2.8	2.2	3.0	2.2	1.7	1.8	1.6	1.8	1.5	0.8	1.5	0.9	1.1	1.7	2.6	1.9	1.1	0.8	0.6	0.6	0.5	1.6	3.0																							
20-Oct	0.9	1.4	2.3	Z	2.3	3.4	7.6	5.0	4.5	3.8	3.9	4.8	4.1	3.4	2.6	2.2	2.1	1.6	1.1	0.9	0.7	0.6	0.5	1.2	2.7	7.6																							
21-Oct	1.2	0.8	0.7	0.3	Z	0.7	1.5	1.4	1.2	1.0	1.4	2.4	1.3	1.2	2.0	2.4	1.9	1.5	0.8	0.5	0.9	1.2	0.8	3.2	1.3	3.2																							
22-Oct	1.1	0.4	2.0	3.8	2.4	Z	1.0	1.0	0.7	0.9	1.3	1.0	1.2	1.1	1.0	1.1	0.9	0.8	0.9	1.4	1.1	1.1	1.1	1.8	1.3	3.8																							
23-Oct	Z	1.9	4.2	0.7	0.8	1.0	1.5	1.1	0.8	2.0	2.1	4.1	1.1	1.2	2.0	1.0	0.8	2.1	1.0	1.2	4.0	1.8	1.8	1.7	1.7	4.2																							
24-Oct	0.6	Z	0.9	0.5	0.5	0.9	2.2	2.3	1.2	3.1	6.2	2.8	3.2	8.1	5.9	3.3	1.8	1.7	0.9	0.6	0.7	0.7	2.1	1.4	2.2	8.1																							
25-Oct	0.6	1.1	Z	0.7	0.5	0.6	2.1	6.3	1.4	1.1	3.4	3.4	2.4	3.4	4.2	1.5	0.9	0.6	0.8	1.1	0.7	0.5	0.5	0.5	1.7	6.3																							
26-Oct	0.5	1.0	1.5	Z	4.4	4.1	1.9	0.9	0.9	0.9	0.8	0.6	1.2	2.5	0.9	0.6	0.6	0.6	0.5	0.5	0.5	0.9	1.9	2.7	1.3	4.4																							
27-Oct	2.2	1.8	1.7	1.8	Z	2.0	1.8	2.6	1.8	1.3	1.0	1.5	1.4	1.4	0.8	1.6	1.4	2.0	2.5	2.0	1.6	1.8	3.2	2.6	1.8	3.2																							
28-Oct	2.6	1.4	2.2	5.8	2.2	Z	1.3	1.0	1.0	0.8	1.3	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.4	0.6	0.5	0.4	0.5	0.3	1.2	5.8																							
29-Oct	Z	0.3	0.4	0.4	0.3	0.3	1.6	2.6	1.2	0.9	2.6	2.3	2.1	2.6	1.5	0.5	0.3	0.3	0.7	1.7	1.0	1.0	0.7	1.3	1.2	2.6																							
30-Oct	1.3	Z	2.1	2.3	2.6	2.9	2.8	2.7	3.6	4.2	4.5	5.0	5.9	5.6	3.1	2.3	0.9	1.0	0.9	1.1	1.5	2.0	2.3	2.5	2.7	5.9																							
31-Oct	1.6	1.8	Z	0.6	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8	0.5	0.3	0.3	0.7	0.8	0.6	1.8																						
																								1.2	1.2	1.6	1.7	1.5	1.8	1.9	1.9	2.2	1.8	1.9	1.8	1.7	1.9	1.7	1.3	1.3	1.3	1.2	1.2	1.4	1.2	1.2	1.3	Diurnal Average	
																								3.3	2.9	4.2	8.4	7.1	7.4	7.6	6.3	10.3	5.0	6.2	5.0	5.9	8.1	5.9	3.3	4.8	3.7	3.7	3.8	4.0	6.3	3.8	3.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby North - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby North - October 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	13	10	23	21	34	22	17	52	100	83	81	86	25	38	40	16	661
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>	13	10	23	21	34	22	17	52	100	83	81	86	25	38	40	16	661

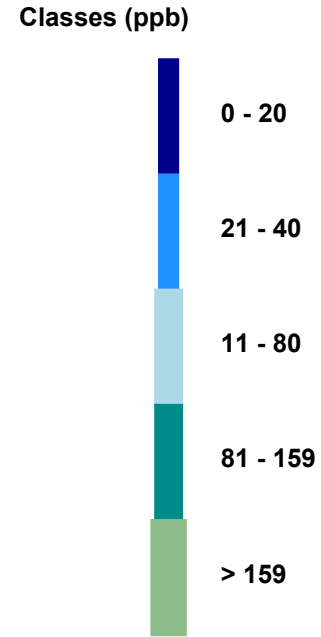
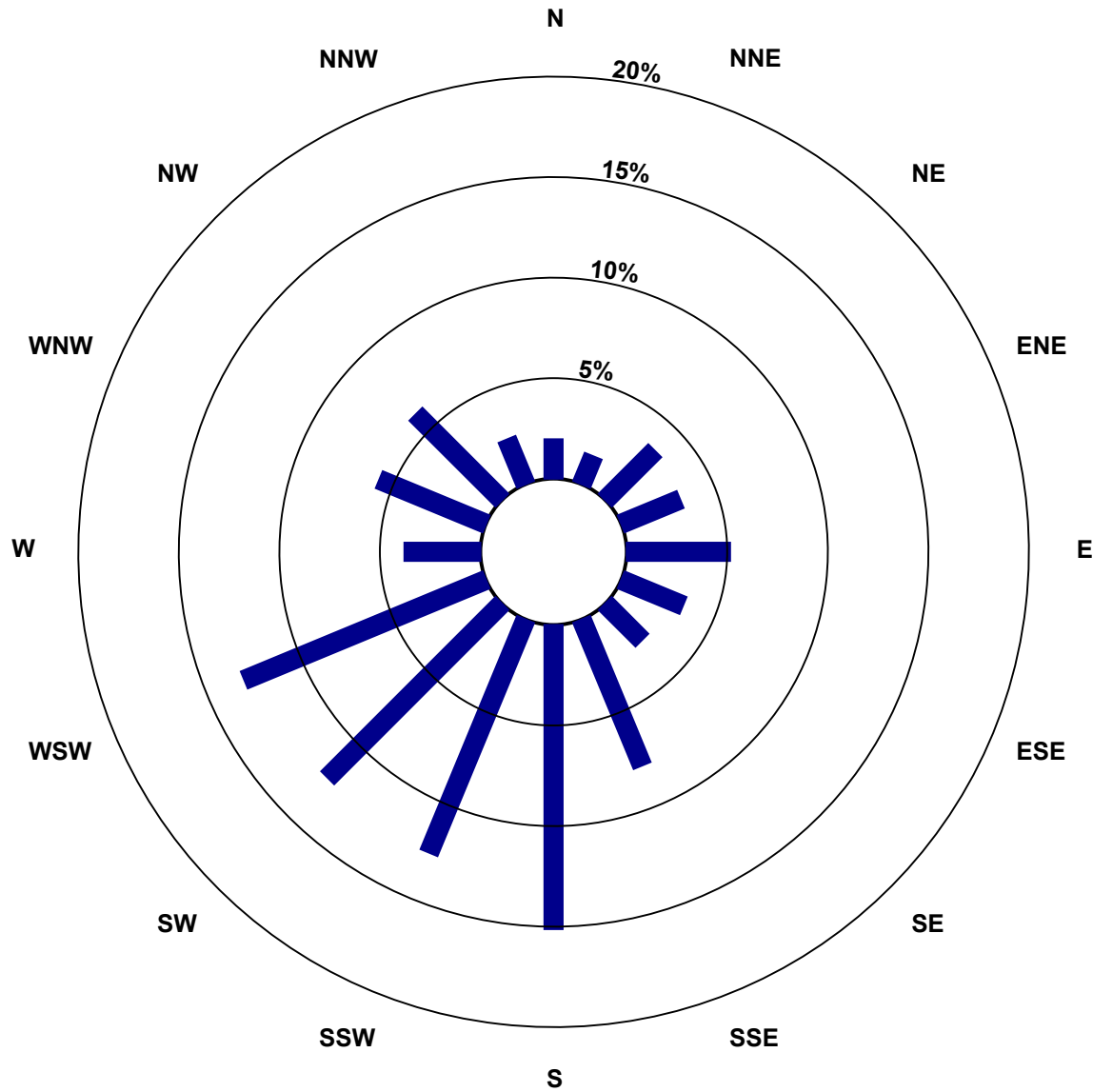
Total Number of Valid Hours: 661

Total Number of Hours: 744

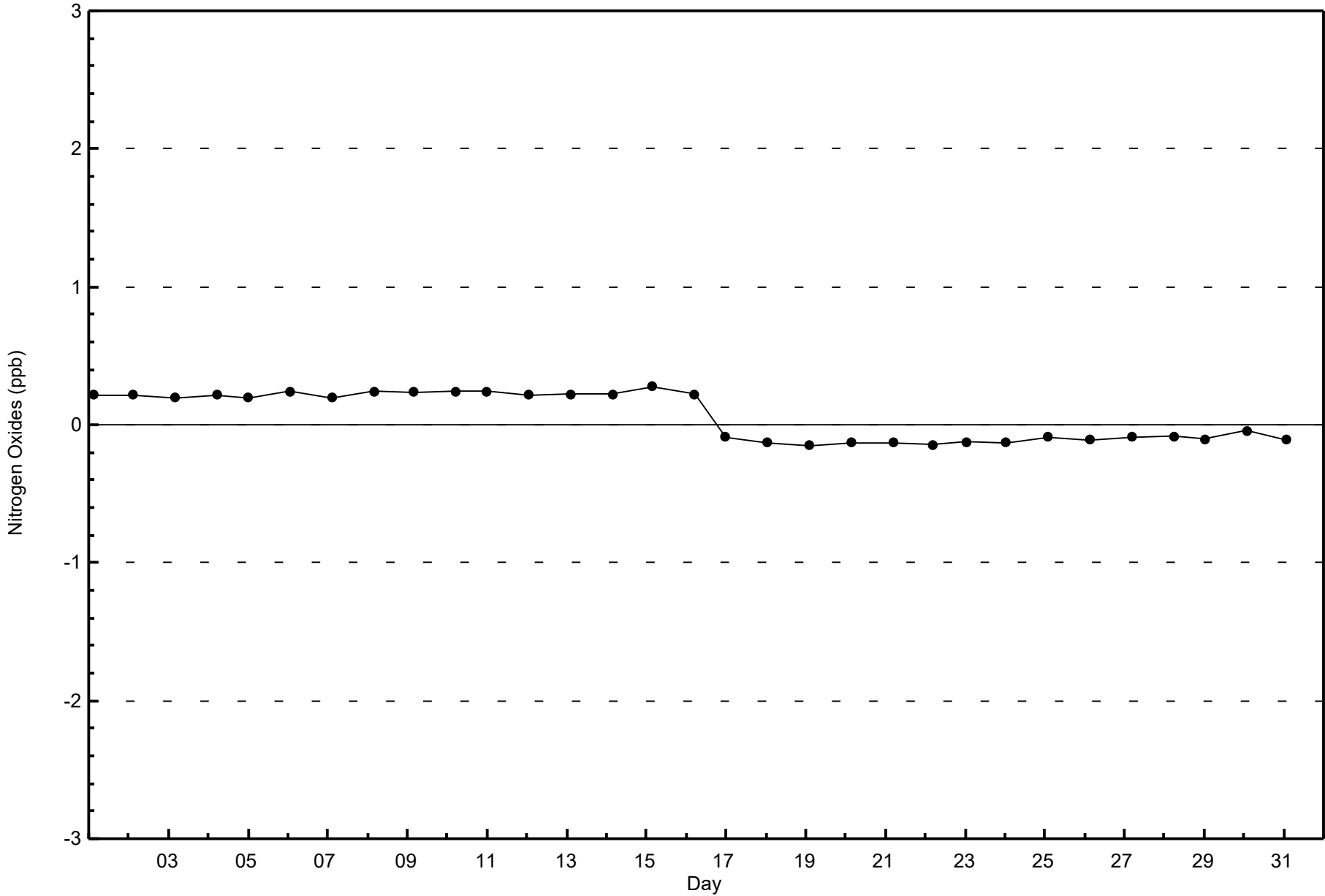


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby North



Total Number of Valid Hours: 661

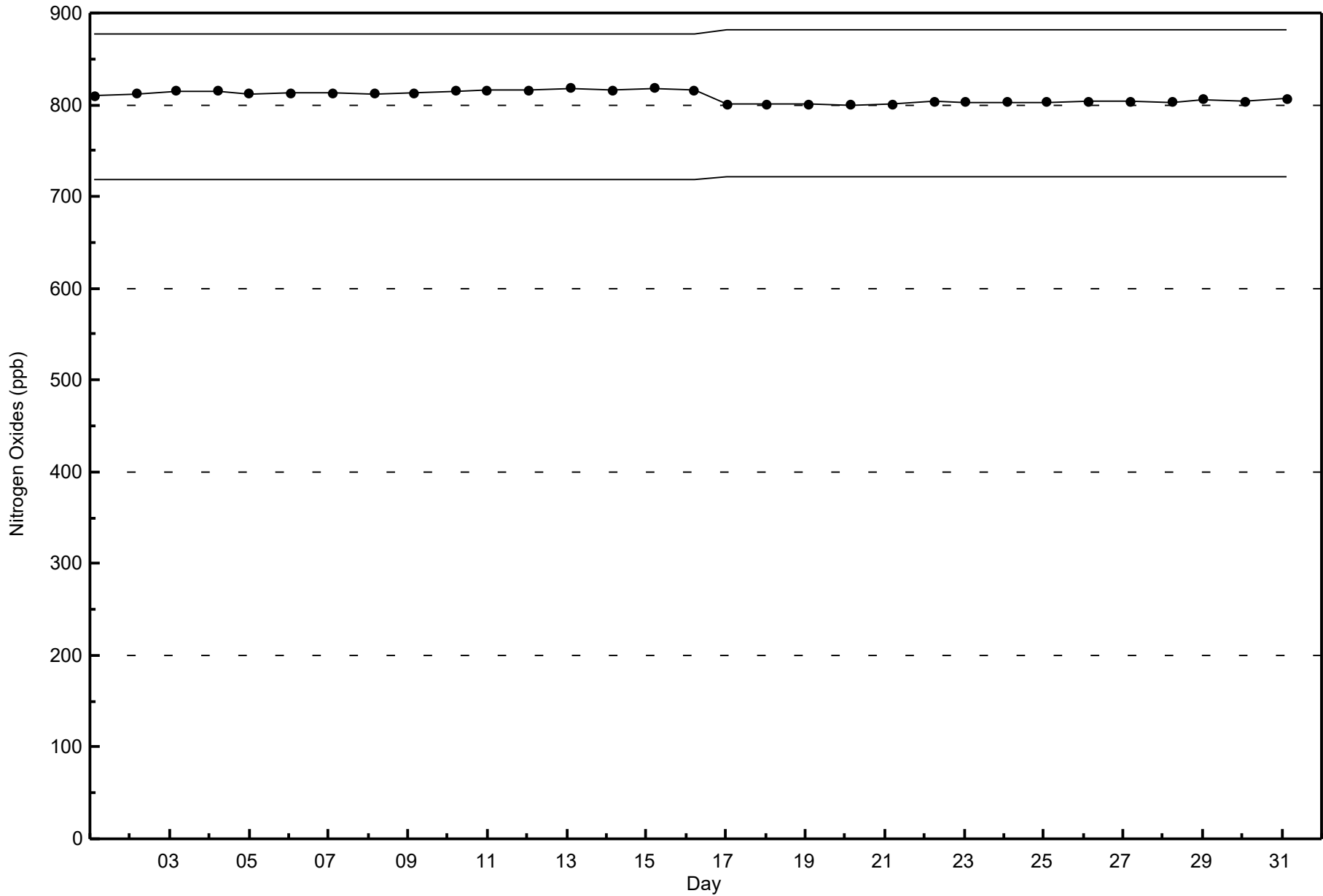






Wood Buffalo Environmental Association  
Span Responses

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby North - October 2024



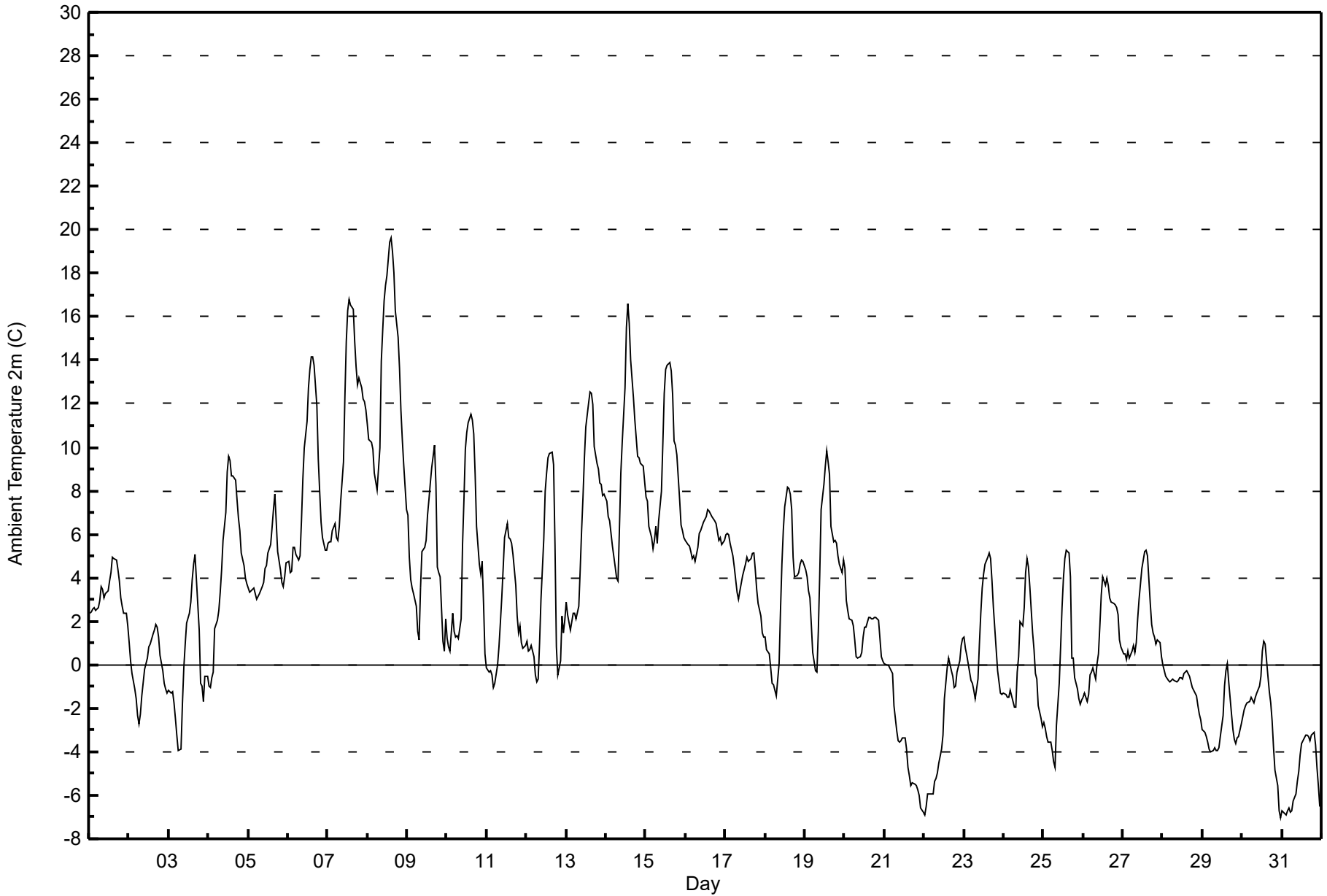


Maximum Value: 19.6 C on Oct 8 15:00      Maximum Daily Average: 13.2 C on Oct 8																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: -7.0 C on Oct 31 00:00      Minimum Daily Average: -5.0 C on Oct 31 Maximum Diurnal Average: 6.5 C at hour 15      Minimum Diurnal Average: 0.5 C at hour 7 Monthly Average: 2.98 C      Percentiles: P <sub>1</sub> = -6.7 P <sub>10</sub> = -3.3 Q <sub>1</sub> = -0.6 Median = 2.5 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 9.7 P <sub>99</sub> = 16.7																				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-Oct	2.4	2.4	2.6	2.6	2.5	2.6	2.9	3.6	3.5	3.1	3.3	3.4	3.9	4.2	5.0	4.9	4.8	4.3	3.9	3.1	2.7	2.4	2.3	1.8	3.3	5.0
2-Oct	1.0	0.2	-0.4	-1.1	-1.6	-2.3	-2.7	-2.3	-1.4	-0.2	0.0	0.3	0.8	0.9	1.4	1.6	1.9	1.7	1.3	0.4	-0.3	-0.9	-1.1	-1.3	-0.2	1.9
3-Oct	-1.2	-1.3	-1.2	-1.7	-2.4	-3.2	-3.9	-3.9	-1.8	-0.2	1.0	1.9	2.4	2.9	3.9	4.7	5.1	3.9	1.6	-0.9	-1.0	-1.7	-0.5	-0.5	0.1	5.1
4-Oct	-1.0	-1.1	-0.6	-0.4	1.7	2.0	2.5	3.3	4.4	5.7	7.0	8.9	9.6	9.4	8.7	8.7	8.5	7.6	6.7	6.2	5.1	4.6	4.0	3.7	4.8	9.6
5-Oct	3.6	3.4	3.4	3.5	3.3	3.0	3.1	3.3	3.6	3.8	4.4	4.6	5.2	5.5	6.3	7.1	7.8	6.6	5.2	4.3	3.8	3.6	4.0	4.7	4.5	7.8
6-Oct	4.7	4.2	4.3	5.4	5.4	5.1	4.8	5.0	6.6	8.6	10.0	11.2	12.7	13.6	14.2	14.1	13.8	11.9	9.4	8.0	6.6	5.8	5.3	5.3	8.2	14.2
7-Oct	5.6	5.6	5.6	6.2	6.5	5.8	5.7	6.4	7.5	9.3	12.3	14.9	16.3	16.8	16.6	16.3	14.9	13.7	12.9	13.2	12.7	12.2	12.1	11.7	10.9	16.8
8-Oct	11.1	10.4	10.2	9.9	8.8	8.4	8.0	9.9	13.9	15.4	16.7	17.4	17.9	19.4	19.6	19.0	18.0	16.3	15.1	13.6	11.7	10.3	9.2	7.1	13.2	19.6
9-Oct	6.9	5.0	3.9	3.6	3.3	2.7	1.6	1.2	3.5	5.2	5.4	5.7	6.9	7.6	8.4	9.1	10.1	8.3	4.5	4.2	4.0	1.1	0.7	2.1	4.8	10.1
10-Oct	1.2	0.8	0.6	2.4	1.6	1.3	1.4	1.2	2.1	5.5	7.6	9.9	10.7	11.1	11.5	11.3	10.6	8.8	6.3	4.6	4.1	4.8	2.8	0.5	5.1	11.5
11-Oct	-0.1	-0.4	-0.3	-0.5	-1.0	-0.9	0.0	0.8	1.9	3.1	4.4	5.9	6.5	5.9	5.8	5.6	5.1	3.6	2.2	1.5	1.8	1.0	0.8	0.9	2.2	6.5
12-Oct	1.1	0.6	0.7	0.9	0.3	-0.5	-0.8	-0.6	1.0	3.0	5.8	8.0	8.8	9.5	9.7	9.8	9.2	5.5	0.8	-0.5	0.2	2.2	1.5	2.0	3.3	9.8
13-Oct	2.9	2.3	1.6	2.0	2.4	2.4	2.1	2.7	4.4	6.2	7.7	9.5	10.9	12.0	12.6	12.5	12.0	10.0	9.3	9.0	8.4	8.3	7.8	7.8	6.9	12.6
14-Oct	7.6	6.8	6.6	6.0	5.5	4.5	4.0	3.9	6.3	8.8	10.2	12.7	15.5	16.6	15.7	14.0	12.3	11.3	10.4	9.6	9.5	9.3	9.2	8.4	9.4	16.6
15-Oct	7.7	7.5	6.3	5.8	5.4	5.7	6.4	5.6	6.6	8.0	10.2	12.5	13.5	13.7	13.9	13.5	12.4	10.3	10.1	9.7	7.6	6.4	6.2	5.9	8.8	13.9
16-Oct	5.7	5.5	5.4	5.2	4.9	5.0	4.7	5.4	6.1	6.2	6.4	6.6	6.8	7.1	7.1	7.0	6.8	6.6	6.5	6.1	5.7	5.8	5.5	5.7	6.0	7.1
17-Oct	6.0	6.1	6.0	5.6	5.0	4.5	3.9	3.3	3.0	3.4	4.1	4.4	4.6	4.9	4.7	4.9	5.1	5.1	4.3	3.4	2.8	2.3	1.5	1.3	4.2	6.1
18-Oct	1.3	0.7	0.5	-0.2	-0.9	-0.9	-1.2	-1.4	0.1	2.5	4.6	6.2	7.2	8.2	8.1	7.9	7.1	5.0	4.1	4.1	4.2	4.6	4.8	4.7	3.4	8.2
19-Oct	4.4	4.0	3.4	3.1	1.9	0.6	-0.3	-0.3	1.6	4.1	7.1	8.3	9.1	9.8	9.3	8.8	6.4	5.7	5.7	5.6	5.0	4.6	4.2	4.8	4.9	9.8
20-Oct	4.4	3.0	2.5	2.1	2.0	1.8	1.2	0.4	0.3	0.4	0.6	1.3	1.7	1.7	2.2	2.2	2.1	2.1	2.2	2.2	2.0	1.2	0.4	0.2	1.7	4.4
21-Oct	0.1	0.0	0.0	-0.1	-0.2	-0.4	-1.9	-3.1	-3.5	-3.5	-3.5	-3.4	-3.4	-3.9	-4.7	-5.1	-5.6	-5.5	-5.5	-5.5	-5.7	-6.0	-6.6	-6.8	-3.5	0.1
22-Oct	-6.9	-6.5	-6.0	-5.9	-5.9	-5.9	-5.4	-5.2	-5.0	-4.5	-3.9	-3.2	-1.6	-0.9	-0.1	0.3	-0.2	-0.5	-1.0	-1.0	-0.4	0.2	0.9	1.2	-2.8	1.2
23-Oct	1.3	0.8	0.4	-0.3	-0.7	-0.9	-1.2	-1.6	-0.7	0.9	2.3	3.5	4.2	4.6	4.9	5.2	4.9	3.8	2.6	0.7	-0.2	-0.8	-1.3	-1.4	1.3	5.2
24-Oct	-1.3	-1.4	-1.5	-1.5	-1.2	-1.4	-1.9	-1.9	-0.3	0.3	2.0	1.8	2.6	4.2	4.9	4.5	3.6	1.5	0.7	-0.4	-0.6	-1.9	-2.5	-2.9	0.2	4.9
25-Oct	-2.6	-2.9	-3.3	-3.6	-3.5	-3.9	-4.4	-4.7	-2.8	-0.8	0.8	2.7	4.0	4.9	5.3	5.2	4.0	0.3	0.3	-0.6	-1.1	-1.5	-1.8	-1.6	-0.5	5.3
26-Oct	-1.5	-1.3	-1.7	-1.4	-0.4	-0.4	-0.1	-0.7	0.1	0.5	1.8	3.2	4.0	3.7	4.0	3.6	3.1	2.9	2.8	2.7	2.6	2.3	1.2	0.8	1.3	4.0
27-Oct	0.5	0.5	0.3	0.6	0.3	0.6	0.9	0.6	1.0	2.1	3.0	4.4	4.8	5.2	5.3	5.0	2.8	1.8	1.5	1.3	1.0	1.2	1.0	0.4	1.9	5.3
28-Oct	0.0	-0.3	-0.5	-0.7	-0.8	-0.7	-0.6	-0.7	-0.8	-0.7	-0.6	-0.6	-0.7	-0.4	-0.2	-0.4	-0.5	-0.8	-1.0	-1.3	-1.4	-1.9	-2.3	-2.5	-0.9	0.0
29-Oct	-3.0	-3.1	-3.3	-3.6	-3.9	-4.0	-3.9	-3.8	-3.9	-3.9	-3.8	-3.3	-2.3	-1.0	-0.3	0.0	-0.8	-2.3	-3.0	-3.4	-3.7	-3.3	-3.3	-2.7	-2.9	0.0
30-Oct	-2.4	-2.1	-1.9	-1.8	-1.7	-1.5	-1.6	-1.7	-1.5	-1.3	-1.0	-0.5	0.6	1.1	1.0	-0.5	-1.3	-1.7	-2.6	-3.8	-4.8	-5.6	-6.7	-7.0	-2.1	1.1
31-Oct	-6.7	-6.8	-6.9	-6.7	-6.6	-6.8	-6.7	-6.3	-5.9	-5.4	-4.9	-4.1	-3.6	-3.3	-3.2	-3.2	-3.3	-3.5	-3.3	-3.1	-3.7	-4.7	-5.6	-6.5	-5.0	-3.1
	1.7	1.4	1.2	1.1	1.0	0.7	0.5	0.6	1.6	2.8	3.9	5.0	5.8	6.3	6.5	6.4	5.8	4.7	3.7	3.0	2.5	2.1	1.7	1.5	Diurnal Average	
	11.1	10.4	10.2	9.9	8.8	8.4	8.0	9.9	13.9	15.4	16.7	17.4	17.9	19.4	19.6	19.0	18.0	16.3	15.1	13.6	12.7	12.2	12.1	11.7	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature 2m (AT2) - C**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C  
Kirby North - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	229	30.78	30.78
0 - 10	447	60.08	90.86
10 - 20	68	9.14	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**

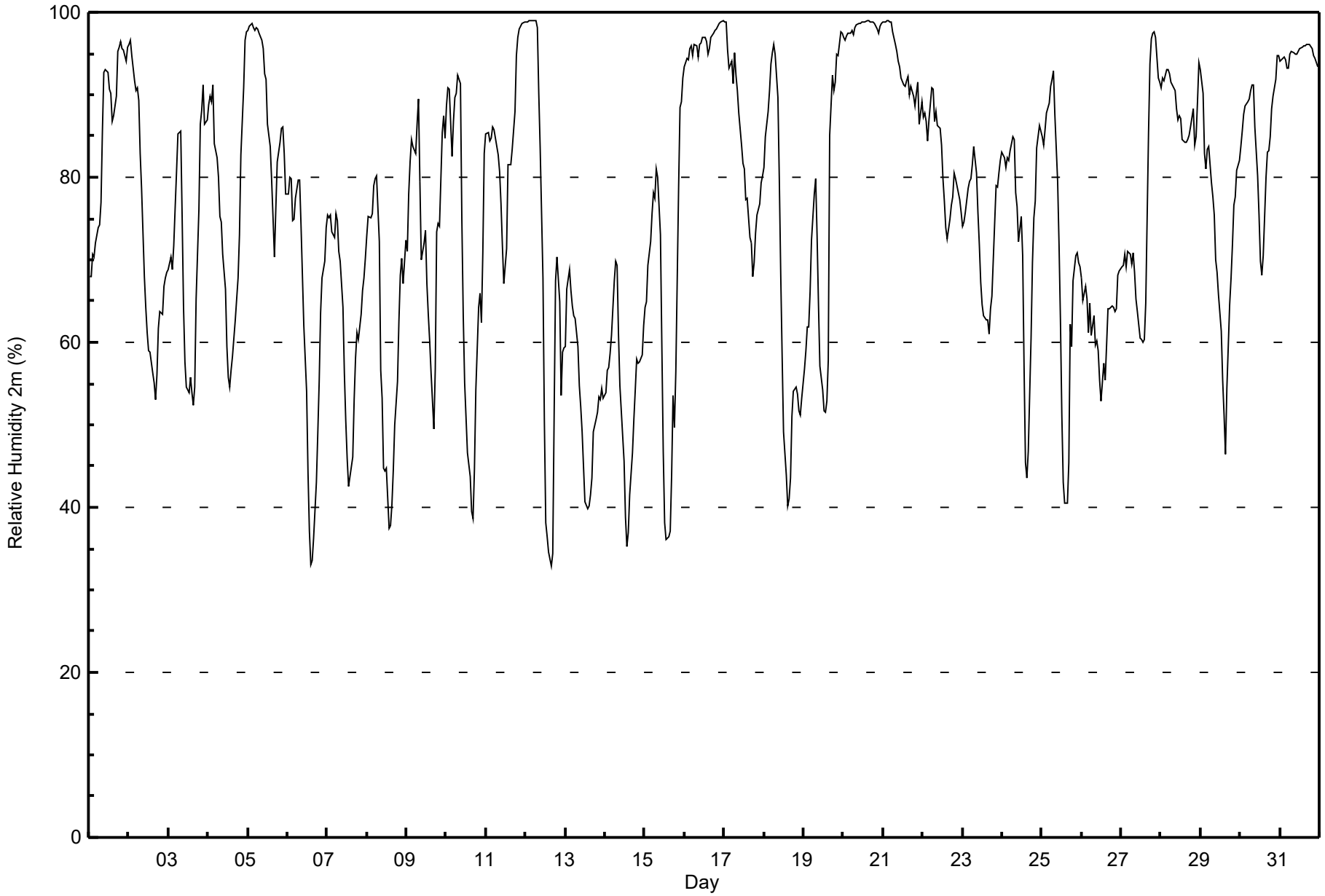
**Relative Humidity 2m (RH2) - %**  
**Kirby North - October 2024**

Maximum Value: 99.0 % on Oct 17 00:00      Maximum Daily Average: 98.2 % on Oct 20 Minimum Value: 32.9 % on Oct 12 16:00      Minimum Daily Average: 53.5 % on Oct 13 Maximum Diurnal Average: 84.7 % at hour 7      Minimum Diurnal Average: 60.6 % at hour 15 Monthly Average: 75.50 %      Percentiles: P <sub>1</sub> = 36.3 P <sub>10</sub> = 51.5 Q <sub>1</sub> = 63.2 Median = 77.6 Q <sub>3</sub> = 90.6 P <sub>90</sub> = 96.5 P <sub>99</sub> = 98.9																						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-Oct	67.9	68.0	70.6	70.3	72.1	74.0	74.3	77.0	85.7	92.7	93.0	92.7	90.7	90.2	86.8	87.4	89.8	95.2	95.7	96.5	95.7	95.4	94.0	95.7	85.5	96.5																					
2-Oct	96.1	96.6	94.8	91.7	90.6	90.8	89.4	82.9	78.7	67.9	64.3	61.2	58.9	58.8	56.4	55.0	53.1	56.1	61.7	63.7	63.4	66.7	67.9	68.5	72.3	96.6																					
3-Oct	68.9	70.3	68.8	71.8	76.3	80.7	85.3	85.6	75.2	64.3	57.7	54.6	54.0	55.8	53.8	52.4	54.5	65.2	76.1	86.4	88.1	91.1	86.5	86.9	71.3	91.1																					
4-Oct	88.9	89.9	89.1	91.2	84.1	82.4	80.0	75.3	74.5	70.7	66.5	59.4	55.7	54.6	56.6	58.4	62.6	65.3	67.9	73.0	82.6	90.8	96.5	97.7	75.6	97.7																					
5-Oct	97.8	98.3	98.6	98.1	97.8	98.1	98.0	97.4	96.5	95.6	92.5	91.8	86.5	83.7	79.7	75.0	70.3	76.3	81.9	84.3	85.9	86.1	82.8	78.0	88.8	98.6																					
6-Oct	77.9	80.1	79.8	74.7	75.0	77.4	79.6	79.6	74.3	68.1	62.0	54.1	44.3	37.1	33.0	33.5	36.2	43.0	49.0	55.2	63.6	67.8	69.9	73.8	62.0	80.1																					
7-Oct	75.5	75.0	75.4	73.5	72.8	75.6	74.7	71.0	69.8	64.3	56.2	50.5	45.9	42.6	43.7	46.1	53.1	58.2	61.2	60.3	63.3	66.2	67.8	70.2	63.0	75.6																					
8-Oct	72.9	75.2	75.2	75.7	78.9	79.8	80.2	72.2	56.6	53.3	44.7	44.4	44.7	37.4	37.9	40.3	44.7	50.1	55.2	62.5	68.2	70.1	67.1	72.4	60.8	80.2																					
9-Oct	71.1	78.0	81.9	84.6	83.8	82.9	86.4	89.5	79.6	70.0	72.1	73.5	67.1	63.3	60.1	56.2	49.6	56.8	73.4	74.4	74.1	85.4	87.4	84.7	74.4	89.5																					
10-Oct	88.7	90.8	90.7	82.5	86.7	89.7	90.1	92.4	91.4	74.9	63.2	55.1	50.8	46.6	43.7	39.5	38.6	44.6	54.3	64.3	65.9	62.4	70.8	82.9	69.2	92.4																					
11-Oct	85.3	85.4	84.5	84.7	86.2	85.8	83.8	82.7	80.7	76.8	71.6	67.1	71.4	81.5	81.5	81.5	83.4	88.0	94.7	97.0	97.9	98.4	98.7	98.7	85.3	98.7																					
12-Oct	98.8	98.8	98.9	98.9	98.9	98.9	98.9	98.1	90.3	83.6	67.8	50.5	38.1	36.5	34.5	32.9	34.4	51.4	67.5	70.3	65.0	53.6	58.8	59.3	70.2	98.9																					
13-Oct	59.4	66.5	68.8	66.3	64.5	63.2	63.0	59.5	54.7	52.3	49.1	44.9	40.7	39.8	40.2	41.5	43.6	49.1	50.7	51.5	53.4	53.1	54.5	53.2	53.5	68.8																					
14-Oct	53.9	56.5	56.9	58.6	60.8	67.5	69.9	69.4	61.0	54.8	51.6	45.6	38.8	35.2	37.0	41.6	46.6	50.7	54.2	57.9	57.5	57.6	58.5	62.0	54.3	69.9																					
15-Oct	64.3	64.9	69.2	72.2	75.6	78.2	77.4	81.0	80.0	73.0	59.7	46.8	38.2	36.2	36.4	37.2	43.9	53.5	49.6	56.4	78.9	88.5	89.2	92.0	64.3	92.0																					
16-Oct	93.4	94.4	94.2	95.5	95.9	94.8	96.1	96.0	94.6	96.1	96.3	97.0	97.0	96.5	94.9	95.6	96.9	97.5	97.8	98.1	98.3	98.7	98.8	99.0	96.4	99.0																					
17-Oct	98.9	98.7	95.4	93.2	94.1	91.4	95.0	92.3	90.5	87.8	83.9	81.7	81.1	77.3	77.4	72.8	72.0	68.0	69.7	73.3	75.5	76.9	79.3	80.2	83.6	98.9																					
18-Oct	81.2	84.9	88.0	90.6	93.7	95.1	96.1	94.8	89.7	79.6	68.3	58.5	49.2	43.9	40.2	41.0	43.5	51.1	54.0	54.5	53.7	51.6	51.3	53.2	67.0	96.1																					
19-Oct	56.8	58.9	61.9	61.8	66.2	72.4	78.0	79.7	72.8	64.5	57.1	54.3	51.7	51.4	52.8	57.8	85.0	92.4	90.5	91.5	94.9	94.8	97.6	97.5	72.6	97.6																					
20-Oct	96.9	96.6	97.1	97.5	97.5	97.9	97.4	98.1	98.5	98.6	98.7	98.8	98.8	98.9	98.9	98.9	98.9	98.8	98.8	98.6	97.9	97.5	98.2	98.6	98.2	98.9																					
21-Oct	98.8	98.9	98.9	98.9	98.9	98.8	97.6	96.0	95.2	94.2	93.4	92.1	91.2	91.1	91.7	92.1	89.9	91.0	89.8	88.7	90.2	91.6	86.4	89.2	93.5	98.9																					
22-Oct	87.3	87.9	86.8	84.4	87.0	90.9	90.6	86.8	88.0	86.3	86.0	83.9	79.8	77.1	73.9	72.6	75.0	76.6	77.6	80.4	79.9	78.2	77.3	75.7	82.1	90.9																					
23-Oct	74.1	74.7	75.8	78.6	79.5	79.8	81.5	83.7	80.5	75.7	71.8	67.2	64.5	63.2	62.7	62.8	60.9	64.0	65.6	74.6	78.9	78.8	80.6	82.1	73.4	83.7																					
24-Oct	83.0	82.5	81.2	82.4	82.1	83.2	85.0	84.5	78.2	76.4	72.2	75.2	70.5	56.9	45.4	43.5	46.7	60.4	69.6	75.1	77.1	83.5	86.3	85.6	73.6	86.3																					
25-Oct	84.9	83.9	85.7	87.8	89.0	91.0	91.9	92.8	87.6	79.4	71.8	62.7	51.1	43.1	40.5	40.5	45.4	62.3	59.5	67.4	70.5	70.9	69.6	69.1	70.8	92.8																					
26-Oct	67.7	65.1	66.8	65.2	61.1	64.8	60.8	63.3	59.6	60.2	58.9	55.5	53.0	57.5	55.5	59.7	64.1	64.0	64.2	63.7	64.0	68.1	68.6	62.3	68.6																						
27-Oct	69.2	69.3	70.7	69.2	71.0	70.6	69.5	70.8	68.5	65.3	63.7	60.4	60.4	60.1	60.3	64.7	85.4	93.8	96.7	97.4	97.7	96.9	92.1	91.5	75.6	97.7																					
28-Oct	90.9	92.0	91.6	93.0	93.0	92.6	91.5	91.2	90.5	88.3	87.0	87.4	87.1	84.6	84.3	84.2	84.5	85.1	86.1	88.3	84.0	84.9	89.1	93.9	88.5	93.9																					
29-Oct	93.0	90.2	82.9	81.1	83.5	83.7	79.4	77.7	75.4	70.0	68.5	65.7	61.4	55.4	51.1	46.5	54.5	64.5	67.8	71.9	76.6	77.5	80.9	82.0	72.5	93.0																					
30-Oct	83.7	85.7	87.6	88.6	89.2	89.6	90.4	91.2	91.3	86.2	80.2	75.4	69.8	68.1	70.6	80.0	83.0	83.3	84.9	88.2	89.9	91.9	94.8	94.7	84.9	94.8																					
31-Oct	94.0	94.2	94.5	94.3	93.3	93.2	94.9	95.2	95.1	94.9	94.9	95.3	95.6	95.8	95.9	96.0	96.2	96.2	96.1	95.6	94.8	94.4	93.9	93.3	94.9	96.2																					
																						81.3	82.3	82.7	82.5	83.2	84.3	84.7	84.1	80.8	76.3	71.8	67.9	64.1	61.9	60.6	60.9	64.1	69.4	73.0	76.2	78.3	79.5	80.5	81.6	Diurnal Average	
																						98.9	98.9	98.9	98.9	98.9	98.9	98.9	98.1	98.5	98.6	98.7	98.8	98.8	98.9	98.9	98.9	98.9	98.8	98.8	98.6	98.3	98.7	98.8	99.0	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity 2m (RH2) - %**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %**  
**Kirby North - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	21	2.82	2.82
40 - 60	134	18.01	20.83
60 - 80	248	33.33	54.17
80 - 100	341	45.83	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed 10m (WS10) - km/h

## Kirby North - October 2024

Maximum Speed: 23 km/h on Oct 17 14:00	Maximum Daily Speed Average: 17.3 km/h on Oct 17	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 30 08:00	Minimum Daily Speed Average: 1.9 km/h on Oct 12	Hours of Data: 697
Maximum Diurnal Speed Average: 6.0 km/h at hour 13	Minimum Diurnal Speed Average: 3.5 km/h at hour 20	Hours of Missing Data: 47
Monthly Average Velocity: 4.7 km/h 218.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 6 Q <sub>1</sub> = 9 Median = 11 Q <sub>3</sub> = 14 P <sub>90</sub> = 17 P <sub>99</sub> = 20	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-Oct	SW13	SW13	SW10	SW11	SW10	SW11	SW11	WSW15	WSW15	WSW12	WSW11	WSW10	WSW9	WSW11	WSW12	WSW11	W8	N6	N7	NNE7	N6	NNW6	NW6	NW7	WSW7.3	WSW15			
2-Oct	NNW6	NNW7	NW7	UO	UO	UO	UO	UO	UO	UO	NW21	NW19	NW18	NW17	NW17	NW17	NW16	NW16	NNW13	NNW11	NNW10	NW10	NW9	NNW12	NW11	NW13.0	NW21		
3-Oct	WNW11	WNW10	WNW14	WNW11	WNW13	WNW13	W9	WSW12	W10	WNW16	WNW16	W15	WSW18	W19	W17	WSW18	WSW14	WSW9	SSE1	SW3	SSE4	SSE5	S9	S10	W9.6	W19			
4-Oct	S9	S9	S9	SSE9	SSE8	SSE8	SE9	SE12	SE13	SE16	ESE17	ESE16	E17	E20	E20	E15	ENE10	ENE16	E18	NE12	NNE11	NNE10	NNE13	NNE13	E9.4	E20			
5-Oct	N11	N10	NNW11	NNW12	NNW12	NNW12	N10	NNW10	NNW11	NW11	NW12	NW11	WNW11	WSW14	WSW12	SW10	SW10	SSW7	SSW9	S8	S9	SSW10	SSW10	SSW13	WNW5.2	WSW14			
6-Oct	SSW12	SSW12	SSW12	SW16	SW17	WSW17	WSW16	WSW15	W12	W12	WSW12	WSW15	WSW18	W18	W19	WSW17	WSW14	SW9	SW9	SW9	SSW10	SSW8	S9	S9	WSW12.1	W19			
7-Oct	S10	SSE9	SSE9	S10	S11	S9	S10	S11	S10	S11	SSW12	SSW13	SSW16	SSW18	SSW15	SSW14	SSW10	S8	S8	SSW8	S7	S8	S8	S8	S10.1	SSW18			
8-Oct	S8	S8	S8	S8	S9	SSE9	SSE9	SSE8	SSE9	SSE12	S13	SSE13	SSE13	S13	S11	S10	SSW9	SSW9	SW10	WNW19	WNW13	W16	W12	WSW10	SSW7.2	WNW19			
9-Oct	WSW13	SW10	SSW10	SW11	SW11	SW9	SSW6	SSW3	SW11	WSW12	SW11	SW10	SW11	SW10	SW8	WSW8	WSW8	SW7	S4	ESE2	SSE4	S7	SE2	SSW3	SW7.3	WSW13			
10-Oct	S4	S5	W2	W4	SSW3	S3	SSW6	S5	SSW8	SSW8	SW10	WSW15	WSW19	WSW18	WSW18	WSW18	WSW17	WSW14	SW11	SW11	SW12	WSW13	SW4	SSE4	SW8.8	WSW19			
11-Oct	S3	S4	S10	S11	S11	S10	S11	S10	S9	S8	S9	SSW12	SW14	SW13	SSW14	SSW12	SSW11	SSW10	SW9	SSW7	SW10	SSW9	SSW10	SW12	SSW9.4	SW14			
12-Oct	SW12	SSW10	SSW10	SW10	SW9	UO	UO	UO	WNW12	NNW6	NW9	NNW13	NNW15	N12	N11	NNW9	N7	ENE5	SE3	SSE5	SSE7	SE9	SSE8	SSE8	W1.9	NNW15			
13-Oct	SSE10	SSE9	SSE12	SSE13	S13	S14	S15	S17	S19	S18	S18	S19	S21	S19	S19	S17	S12	S10	S14	S15	S15	S15	S15	S14	S15.1	S21			
14-Oct	S13	S12	S13	S12	SSE15	S13	SSE14	SSE17	S13	S17	S17	S17	S17	S19	S15	S15	S12	S11	S8	SSW8	SSW9	SSW9	SSW10	SSW9	S12.7	S19			
15-Oct	S9	S9	SSW9	SSW9	SSW9	SW4	SSW3	SSE1	SSW5	WSW6	WNW10	WNW11	WNW11	WNW11	WSW9	WSW7	SSW1	SSE2	SW9	SW7	SSW8	SSW7	S7	S7	SW5.2	WNW11			
16-Oct	S7	S5	E1	NNE5	NE4	ENE8	ENE8	E9	ENE10	ENE10	ENE8	ENE8	ENE9	ENE11	ENE12	ENE8	ENE7	ENE6	E4	ESE3	SSW4	SW7	SW8	WSW13	E3.9	WSW13			
17-Oct	WSW12	WSW12	W18	W16	W19	W18	WSW14	WSW17	WSW18	WSW21	WSW20	WSW20	WSW21	WSW23	WSW21	WSW20	W14	W16	WSW19	WSW19	WSW18	WSW16	WSW15	WSW15	WSW17.3	WSW23			
18-Oct	WSW16	WSW14	WSW15	SW12	SW10	SSW9	SSW9	S9	SSW10	SSW12	SW14	SW15	SW18	SW18	SW16	SW12	SSW10	SSE9	SSE9	SSE10	SSE12	SE14	SE14	SSE13	SSW10.4	SW18			
19-Oct	SSE11	SSE11	S9	S10	SSW9	SSW9	SW10	SSW8	SSW12	SW11	WSW12	WSW13	SW13	SW14	SW12	SW10	SSW7	SSW6	S7	NNE2	NE5	NE4	NE4	NNW4	SSW6.7	SW14			
20-Oct	N9	N10	NNE10	N6	N6	NNW6	N8	N8	NNE4	NE6	ENE6	E7	ENE8	E9	E8	E13	E12	E10	E11	ESE11	ESE11	E9	NE8	NE10	ENE6.3	E13			
21-Oct	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-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SW17	SW16	SW15	SW13	SSW13	SSW13	SSW13	SW15	SW16	SW17	---	SW17
23-Oct	WSW17	WSW18	WSW18	WSW16	WSW16	WSW15	WSW15	WSW15	SW14	WSW15	WSW14	WSW15	WSW16	WSW13	WSW11	SW7	SW8	SW9	SW11	SSW9	SSW9	SSW9	SSW9	SSW10	WSW12.4	WSW18			
24-Oct	SSW11	SW11	SW11	SSW11	SSW12	SSW12	SW12	WSW15	WSW15	WNW16	WNW16	W18	WNW20	WNW20	WNW19	WNW12	WSW11	SW13	SW11	WSW13	SW10	SSW8	SSW9	WSW11.4	WNW20				
25-Oct	SSW11	SSW9	SSW9	SSW10	SW11	SW10	SSW10	SSW9	SW11	WSW13	WSW12	W12	W14	WNW13	W10	W9	SW7	S6	SSE7	S7	SSE7	SSE7	SSE8	SSE8	SW7.6	W14			
26-Oct	SE8	SE10	SSE8	SE9	SE10	ESE11	ESE15	E16	E18	E18	E18	E15	ENE14	ENE14	ENE18	E16	E11	ESE11	ESE14	ESE11	ESE11	SE9	SE8	SSE8	ESE11.3	ENE18			
27-Oct	SSE9	SSE12	SSE10	SSE16	SSE16	SSE16	SE9	E6	SE13	ESE9	ESE9	ESE12	ESE14	ESE14	ESE8	SSE9	SE7	SSW4	S3	SW6	SW10	WSW9	WNW15	WNW15	SSE6.3	SSE16			
28-Oct	WNW16	NW15	WNW17	WNW17	WNW18	NW15	WNW15	NW16	NW15	NW15	NW16	NW14	NW13	NW12	NW13	NW13	NW13	NW13	NW11	NW11	NW10	NW12	NW12	NW9	NW10	NW13.6	WNW18		
29-Oct	NW9	NW11	NW14	NW11	NW11	NW12	WNW11	WNW12	NW14	WNW15	WNW16	W15	WSW15	W12	WSW14	WSW12	SW7	SSW6	S8	S9	S9	S8	S9	S9	W7.5	WNW16			
30-Oct	S9	S9	SSW8	S8	S7	SSW3	S4	NE1	NE6	NE9	NE10	NE12	ENE13	ENE14	NE15	NE16	ENE15	ENE18	ENE15	ENE14	NE13	NE12	NE12	NE11	ENE7.5	ENE18			
31-Oct	NE13	NE15	ENE13	ENE11	E11	E12	E12	E11	E9	ESE7	E9	E7	E8	E8	E7	ESE5	ESE7	SE7	ESE3	SE5	E4	NE4	NE5	NNE5	E7.6	NE15			

SW5.4	SSW5.2	SW5.3	SW6.0	SW6.0	SW5.1	SSW5.0	SSW4.7	SSW4.9	SW4.5	WSW4.9	WSW5.2	WSW6.0	WSW5.9	WSW6.0	SW5.5	SW3.9	SSW3.5	SSW4.3	SSW3.5	SSW4.0	SSW4.3	SSW3.9	SSW4.3	Diurnal Average
WSW17	WSW18	WSW18	WNW17	W19	W18	WSW16	S17	S19	WSW21	WSW20	WSW20	S21	WSW23	WSW21	WSW20	WSW17	ENE18	WSW19	WNW19	WSW18	WSW16	SW16	SW17	Diurnal Maximum

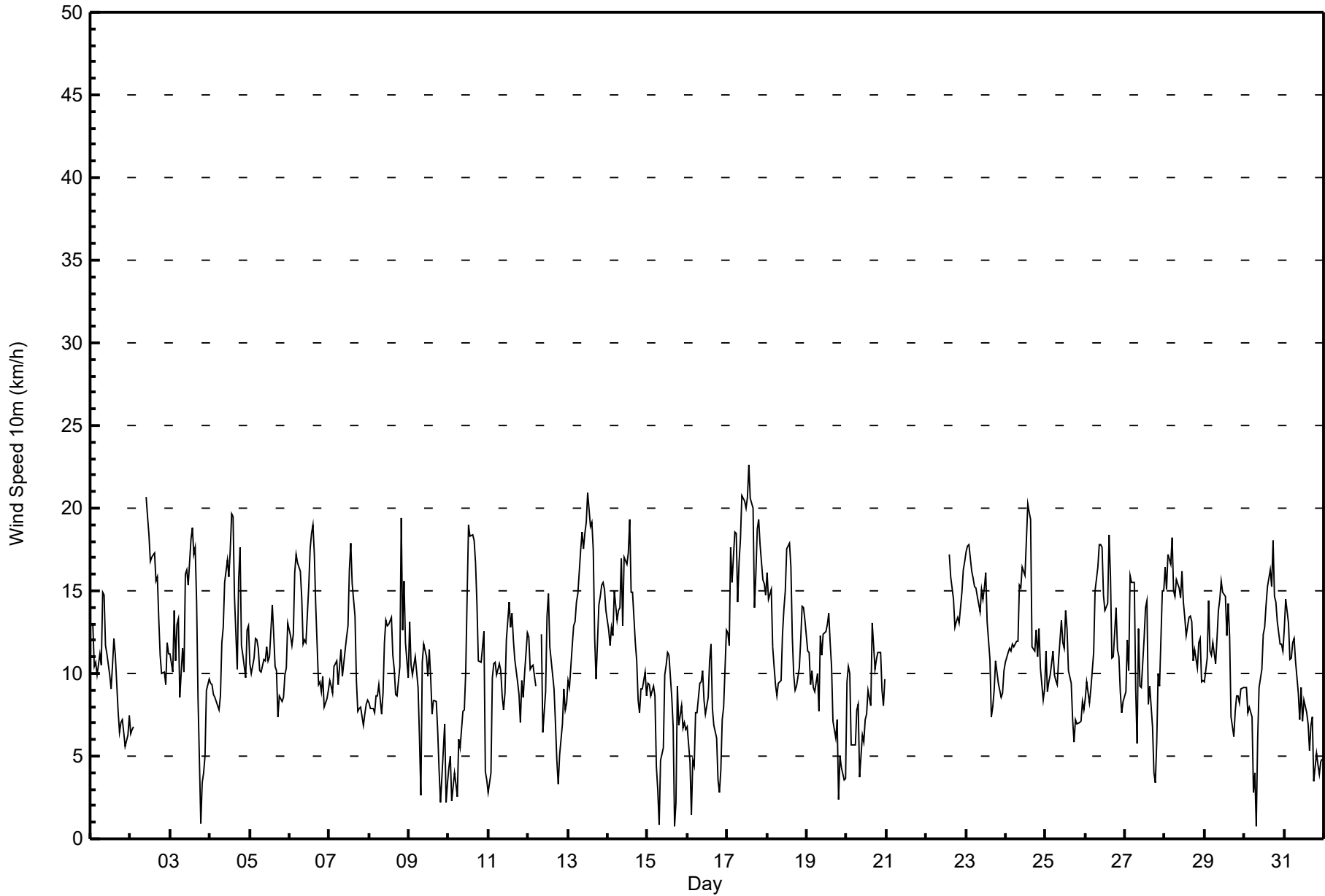
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed 10m (WS10) - km/h**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Kirby North - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	55	7.89	7.89
6 - 11	340	48.78	56.67
12 - 19	289	41.46	98.13
20 - 28	13	1.87	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Kirby North - October 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	0	4	7	1	3	4	3	8	10	9	3	1	1	0	0	1	55
6 - 11	14	4	7	15	17	11	11	30	63	58	52	15	5	10	18	10	340
12 - 19	1	2	9	13	12	7	4	18	32	20	29	68	19	27	23	5	289
20 - 28	0	0	0	0	2	0	0	0	1	0	0	7	0	2	1	0	13
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>	15	10	23	29	34	22	18	56	106	87	84	91	25	39	42	16	697

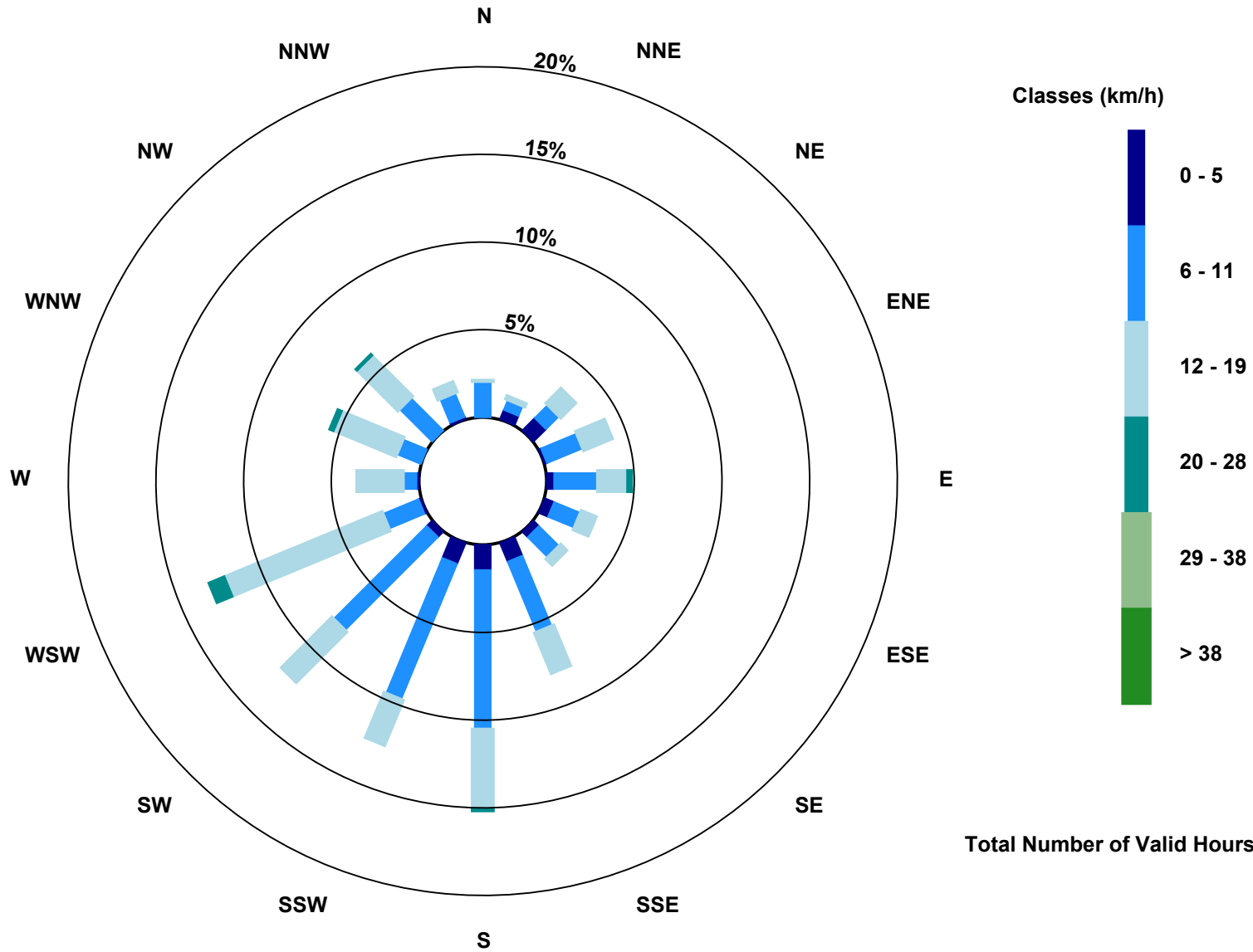
Total Number of Valid Hours: 697

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Kirby North



Total Number of Valid Hours: 697



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Kirby North - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Oct 13 13:00 Minimum Value: 0 km/h on Nov 1 00:00 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> = 6																		Hours in Service: 744 Hours of Data: 697 Hours of Missing Data: 47 Hours of Calibration: 0 Percent Operational Time: 93.7							
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-Oct	2	3	2	2	2	2	2	4	3	3	3	2	2	2	3	2	3	2	2	2	1	1	2	2	4
2-Oct	1	1	1	UO	UO	UO	UO	UO	UO	6	5	5	5	5	5	4	5	3	3	2	3	3	3	3	6
3-Oct	3	3	3	3	3	3	3	2	3	4	4	4	4	5	5	4	4	3	1	1	2	2	1	2	5
4-Oct	1	1	1	1	1	1	2	3	3	4	4	5	4	6	5	5	3	4	4	2	2	2	2	2	6
5-Oct	2	2	3	3	3	3	2	2	3	3	3	3	4	3	3	3	3	2	2	2	2	2	2	3	4
6-Oct	3	2	3	4	4	3	3	3	3	3	3	4	5	5	5	4	4	2	1	2	1	1	1	1	5
7-Oct	1	1	1	2	2	2	2	3	3	3	3	4	5	5	4	4	3	2	2	2	1	1	1	1	5
8-Oct	1	1	1	1	2	1	2	2	2	3	4	4	3	4	4	3	2	2	3	6	3	4	3	2	6
9-Oct	2	2	2	1	2	2	3	2	4	3	2	2	3	3	3	2	3	1	1	1	3	1	2	3	4
10-Oct	3	2	2	3	2	3	2	2	2	2	3	5	4	4	4	5	4	3	1	1	2	2	2	2	5
11-Oct	2	4	2	1	1	1	1	2	2	2	2	3	4	3	4	3	3	2	2	2	2	2	2	3	4
12-Oct	3	2	3	3	2	UO	UO	UO	4	2	3	4	4	3	3	3	2	1	2	1	2	1	1	2	4
13-Oct	2	2	2	3	3	4	4	5	5	5	5	6	7	6	6	5	4	3	4	4	4	4	4	4	7
14-Oct	3	3	3	3	4	4	4	4	4	5	5	5	6	6	4	5	4	3	2	2	2	2	2	2	6
15-Oct	1	1	2	2	2	3	2	2	2	3	3	3	3	3	3	3	1	2	1	3	2	2	2	1	3
16-Oct	2	2	2	1	1	1	1	2	3	3	2	2	2	2	3	3	2	2	1	1	2	2	2	3	3
17-Oct	3	3	4	4	4	5	3	4	4	5	5	5	5	5	6	5	4	5	4	4	4	4	3	3	6
18-Oct	3	3	3	2	1	2	2	2	2	3	3	4	4	5	5	3	5	2	2	2	3	4	4	3	5
19-Oct	3	3	2	2	2	2	2	2	3	3	4	3	3	5	3	2	2	1	1	2	2	2	1	1	5
20-Oct	4	2	3	1	1	2	2	2	2	2	1	2	2	2	2	3	3	3	3	3	3	2	1	2	4
21-Oct	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-Oct	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
23-Oct	4	4	4	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	1	1	1	1	2	4
24-Oct	2	2	2	2	2	2	2	2	3	3	5	4	5	5	6	5	3	3	3	2	3	2	2	2	6
25-Oct	2	2	2	2	2	2	2	2	2	3	3	3	3	4	3	2	2	1	1	1	1	1	1	1	4
26-Oct	1	2	1	2	2	2	3	4	4	4	4	4	4	3	4	4	3	3	3	2	2	2	2	2	4
27-Oct	3	3	3	4	3	4	5	2	4	3	3	3	4	4	3	3	2	1	1	2	2	3	4	3	5
28-Oct	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	2	4
29-Oct	2	3	4	3	3	3	3	4	3	4	4	4	4	4	3	3	2	1	1	2	2	2	2	2	4
30-Oct	2	2	1	2	2	2	2	2	1	2	2	3	3	3	3	4	4	4	3	3	3	2	2	2	4
31-Oct	3	3	4	3	3	3	3	3	3	2	3	2	2	2	2	2	2	2	1	1	1	0	1	0	4
Diurnal Maximum																									
UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction 10m (WD10) - deg**  
**Kirby North - October 2024**

Direction of Maximum Speed: 256 deg on Oct 17 14:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 251.6 deg on Oct 17	Hours of Data: 697
Direction of Minimum Speed: 52 deg on Oct 30 08:00	Hours of Missing Data: 47
Direction of Minimum Daily Speed Average: 1.9 deg on Oct 12	Percent Operational Time: 93.7
Monthly Average Direction: 218.9 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-Oct	222	217	221	223	219	216	218	239	241	241	250	241	252	243	242	249	272	350	352	15	351	341	321	323	248.5	
2-Oct	338	329	306	UO	UO	UO	UO	UO	UO	316	314	311	307	304	308	314	310	298	287	328	326	311	297	304	310.3	
3-Oct	300	282	296	289	294	296	272	247	270	288	287	274	256	260	268	255	255	237	153	224	168	161	176	169	265.7	
4-Oct	169	170	169	154	151	152	146	139	126	127	120	111	98	97	101	88	73	77	79	48	31	25	23	17	101.2	
5-Oct	8	350	342	341	342	336	351	337	330	320	321	304	294	254	250	229	224	197	193	189	187	199	196	207	286.6	
6-Oct	210	208	209	232	236	242	243	242	265	266	248	252	249	263	262	251	249	235	226	214	208	198	175	175	236.9	
7-Oct	171	166	167	170	173	169	171	172	174	180	199	204	209	212	211	211	193	181	177	192	190	183	185	182	187.7	
8-Oct	174	179	183	177	177	165	161	164	157	162	170	162	152	169	181	186	204	194	231	297	288	279	278	237	196.4	
9-Oct	239	219	213	216	221	225	210	201	236	256	229	215	216	220	236	253	253	225	187	110	154	183	145	207	222.7	
10-Oct	175	190	261	259	194	175	209	185	193	201	215	242	254	249	245	254	256	248	233	223	226	243	228	158	233.8	
11-Oct	177	189	181	185	179	178	175	174	177	182	186	213	228	227	206	201	195	205	216	202	219	196	202	216	198.3	
12-Oct	215	202	210	223	215	UO	UO	UO	288	329	316	340	338	353	349	348	6	62	131	162	147	141	155	157	275.7	
13-Oct	159	159	165	168	176	176	174	176	176	175	179	179	175	177	180	179	178	173	178	181	186	178	174	184	176.0	
14-Oct	185	178	175	176	168	169	168	167	164	178	173	172	176	173	175	173	169	174	188	192	195	200	210	205	177.1	
15-Oct	185	187	200	202	204	224	204	165	200	244	293	294	295	297	243	241	213	167	228	231	204	194	177	178	226.5	
16-Oct	182	190	99	12	35	67	59	80	78	77	75	66	71	73	72	73	66	73	96	120	205	218	216	244	85.1	
17-Oct	242	242	259	270	261	270	242	243	243	244	247	250	253	256	255	258	273	259	246	244	245	245	243	245	251.6	
18-Oct	251	245	247	231	220	210	199	191	196	212	219	219	223	225	225	216	199	161	155	150	149	146	146	155	204.0	
19-Oct	159	164	178	187	198	202	215	207	212	221	245	243	227	233	222	220	195	204	190	20	53	45	41	347	208.5	
20-Oct	357	11	15	354	357	341	355	9	29	48	60	93	73	83	91	101	92	96	101	102	111	97	54	38	60.9	
21-Oct	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	--
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	231	227	221	214	205	210	210	215	224	235	--
23-Oct	246	250	258	245	242	238	244	239	236	249	252	255	253	249	246	226	225	225	228	207	204	201	201	208	238.6	
24-Oct	213	215	214	213	213	212	218	228	245	253	283	289	259	282	288	293	288	237	233	228	242	216	205	204	246.4	
25-Oct	212	209	204	206	214	214	209	205	225	239	255	260	273	288	274	259	230	182	160	172	162	163	164	159	220.7	
26-Oct	146	146	148	145	129	122	115	101	98	89	90	81	73	61	69	79	86	103	106	114	121	136	145	151	104.1	
27-Oct	156	163	157	163	162	162	143	94	128	116	114	113	114	117	118	151	127	201	191	222	232	252	297	298	153.5	
28-Oct	296	308	299	290	296	305	302	307	309	310	304	310	315	311	306	309	314	319	326	321	324	325	318	322	308.8	
29-Oct	326	320	313	317	320	315	297	290	304	303	296	271	256	261	252	247	219	195	182	183	181	185	182	185	271.7	
30-Oct	186	188	195	180	173	194	177	52	34	49	52	52	63	58	51	55	74	59	67	60	53	50	46	50	68.1	
31-Oct	55	52	62	69	80	89	84	96	96	103	97	95	94	95	92	102	114	126	116	124	94	55	46	32	84.1	

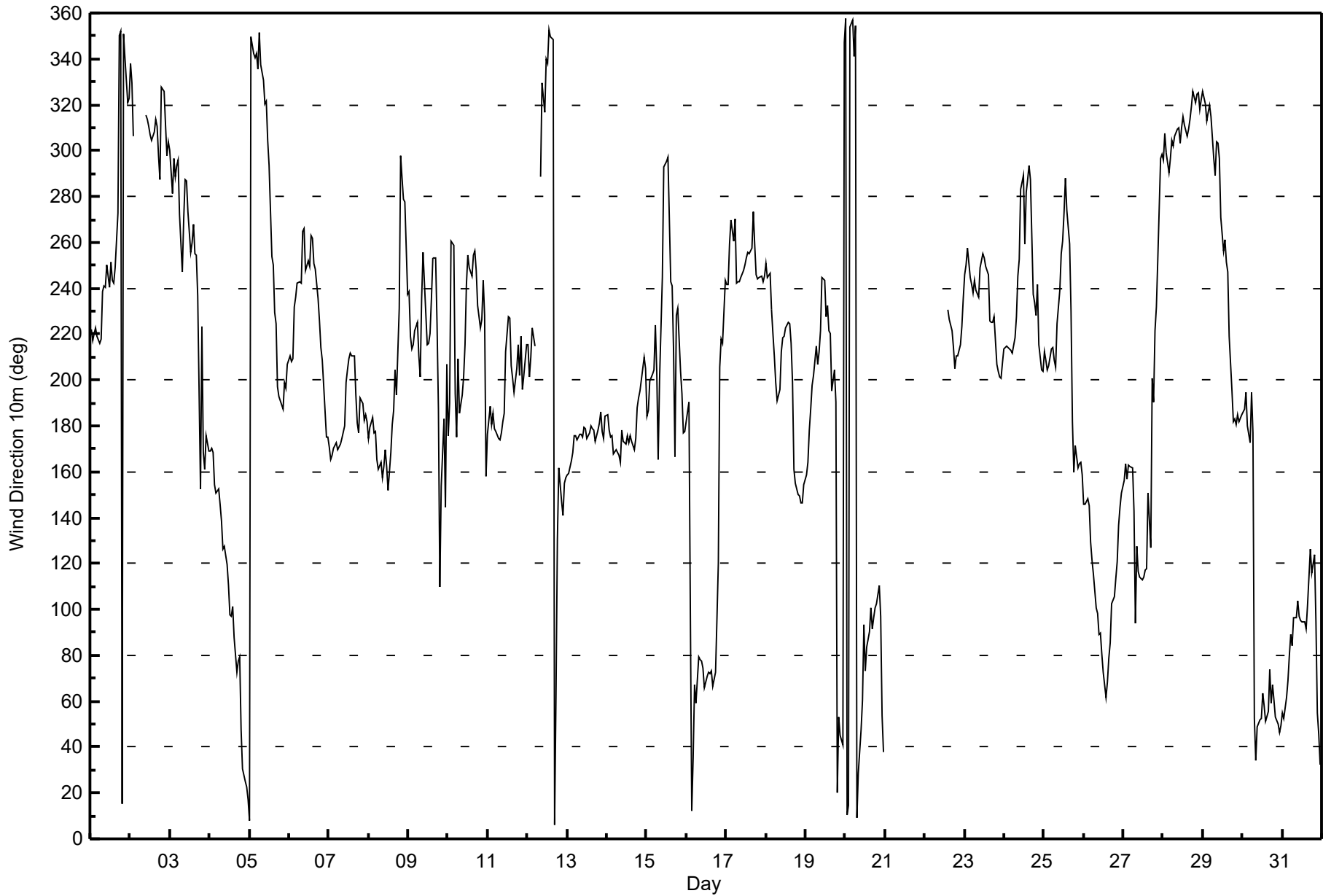
215.6 212.3 222.8 216.8 214.0 214.0 204.0 203.5 212.5 234.0 241.2 241.9 238.7 240.3 237.3 232.2 225.1 197.7 192.7 200.0 200.3 202.4 205.1 212.3  
 Diurnal Average

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction 10m (WD10) - deg**  
**Kirby North - October 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 10m (WD10) - deg**  
**Kirby North - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Oct 15 08:00 Minimum Value: 7 deg on Nov 1 00:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 12 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 19 P <sub>90</sub> = 24 P <sub>99</sub> = 77											Hours in Service: 744 Hours of Data: 697 Hours of Missing Data: 47 Hours of Calibration: 0 Percent Operational Time: 93.7															
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-Oct	12	13	14	14	15	13	14	14	13	13	14	13	18	16	15	14	37	18	27	14	18	15	16	16	37	
2-Oct	16	11	14	UO	UO	UO	UO	UO	UO	17	17	18	20	19	19	18	18	17	22	18	15	17	15	17	22	
3-Oct	17	19	15	17	16	14	21	13	22	20	19	28	19	20	21	17	16	16	85	42	23	19	8	9	85	
4-Oct	7	8	10	9	15	17	15	13	15	14	16	17	16	16	16	16	18	14	13	16	15	16	11	12	18	
5-Oct	14	19	16	16	16	16	17	16	15	15	15	16	22	13	16	17	18	17	14	14	12	16	16	17	22	
6-Oct	14	13	15	14	13	12	12	12	21	23	19	16	19	21	18	17	13	13	9	12	11	14	9	9	23	
7-Oct	9	9	10	13	16	16	14	17	18	19	21	20	18	16	17	16	19	17	15	18	13	12	11	12	21	
8-Oct	11	12	9	8	11	7	11	17	17	19	19	19	18	22	23	21	19	16	23	21	21	22	20	15	23	
9-Oct	11	12	10	11	11	16	52	52	21	18	14	16	17	18	24	18	24	16	47	28	51	10	50	77	77	
10-Oct	52	17	82	34	36	50	37	30	16	24	20	22	16	16	17	15	14	11	9	7	11	13	43	51	82	
11-Oct	72	77	11	9	9	9	9	11	13	16	19	19	15	15	18	21	20	15	13	17	14	19	17	14	77	
12-Oct	15	17	17	17	17	UO	UO	UO	14	21	20	22	21	27	23	25	17	27	40	21	11	9	10	15	40	
13-Oct	15	16	14	16	17	19	18	19	19	20	19	22	20	23	21	20	21	18	18	19	18	17	17	18	23	
14-Oct	18	16	18	18	17	19	17	17	18	26	18	19	21	21	20	21	18	19	18	16	18	16	15	15	26	
15-Oct	9	10	16	13	16	50	68	99	49	33	22	23	26	22	24	36	86	56	10	27	16	56	20	8	99	
16-Oct	32	26	77	17	24	11	13	14	18	16	16	15	15	17	13	15	13	20	21	42	36	16	16	13	77	
17-Oct	13	13	15	17	14	18	12	12	12	13	14	13	15	13	13	13	20	16	12	12	12	11	12	12	20	
18-Oct	12	13	12	12	10	15	13	13	17	17	17	18	18	18	16	18	22	13	15	16	16	15	16	16	22	
19-Oct	16	16	15	16	14	15	13	21	14	15	18	16	19	17	16	14	20	19	18	69	23	45	15	38	69	
20-Oct	26	13	21	17	17	25	15	18	30	17	21	20	18	16	15	13	14	16	17	15	15	18	12	12	30	
21-Oct	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	--
22-Oct	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	13	14	13	15	16	15	15	16	14	14	16
23-Oct	13	12	14	11	11	11	12	11	12	13	13	14	13	13	12	13	13	16	11	12	11	13	13	12	16	
24-Oct	13	13	13	12	13	12	11	13	12	14	18	21	15	17	18	15	27	11	13	13	13	14	15	15	27	
25-Oct	13	17	16	14	13	14	13	14	15	13	23	23	24	23	25	25	15	17	12	9	10	9	8	8	25	
26-Oct	8	13	13	12	12	11	12	14	14	14	14	15	22	13	13	14	16	15	15	14	14	18	14	17	22	
27-Oct	15	16	17	16	14	16	40	27	20	31	24	20	16	17	28	20	17	28	28	21	12	28	14	14	40	
28-Oct	15	18	16	18	15	16	15	16	17	15	15	16	15	16	15	15	15	16	14	16	15	15	17	18	18	
29-Oct	16	14	15	16	17	16	20	22	15	15	18	25	19	26	15	13	17	12	11	13	13	15	15	16	26	
30-Oct	14	15	15	13	28	77	24	77	16	14	15	14	19	16	16	14	18	13	15	13	13	13	10	12	77	
31-Oct	12	13	15	15	17	17	16	18	18	21	19	19	18	19	21	28	21	16	26	16	22	11	8	7	28	
Diurnal Maximum																										
UO - Unstable Operation																										





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS508 HANGINGSTONE EXPANSION OCTOBER 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

November 29, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - HANGINGSTONE EXPANSION (AMS512)  
OCTOBER 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	691	33	53	97.31	134.2	0	26.1	0
H2S (ppb) Average	690	34	54	97.31	2.5	0	0.5	0
NO2 (ppb) Average	690	34	54	97.31	16.1	0	4.6	-
NO (ppb) Average	690	34	54	97.31	19.7	-	2.5	-
NOX (ppb) Average	690	34	54	97.31	35.8	-	7.1	-
Temperature 2 m (C) Average	724	0	20	97.31	19.7	-	14.3	-
Relative Humidity (%) Average	724	0	20	97.31	99.2	-	95.5	-
Wind Speed 10 m (km/h) Average	724	0	20	97.31	26	-	19	-
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 - HANGINGSTONE EXPANSION (AMS512)  
 OCTOBER 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	691	4.93	14.1	-	0	0	0.1	0.3	1.4	14.4	134.2
H2S (ppb) Average	690	0.2	0.3	-	0	0	0	0.1	0.2	0.5	2.5
NO2 (ppb) Average	690	1.6	1.8	-	0	0.2	0.5	1.1	2	3.6	16.1
NO (ppb) Average	690	0.31	1.1	-	0	0	0	0.1	0.3	0.7	19.7
NOX (ppb) Average	690	1.91	2.6	-	0	0.2	0.6	1.2	2.3	4.2	35.8
Temperature 2 m (C) Average	724	2.99	5.6	-	-7.4	-4.7	-0.9	2.7	6.4	10.7	19.7
Relative Humidity (%) Average	724	71.71	16.8	-	32.2	48.1	58.8	72.4	86.8	94.4	99.2
Wind Speed 10 m (km/h) Average	724	11.2	4	-	1	7	8	11	14	16	26
Wind Direction 10 m (deg) Average	724	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - HANGINGSTONE EXPANSION (AMS512)  
OCTOBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	05 Oct 2024 07:00	05 Oct 2024 09:00	3	Station power failure
ALL PARAMETERS	05 Oct 2024 13:00	05 Oct 2024 14:00	2	Station power failure
ALL PARAMETERS	07 Oct 2024 01:00	07 Oct 2024 06:00	6	Station power failure
ALL PARAMETERS	08 Oct 2024 07:00	08 Oct 2024 08:00	2	Station power failure
ALL PARAMETERS	14 Oct 2024 00:00	14 Oct 2024 01:00	2	Station power failure
ALL PARAMETERS	19 Oct 2024 10:00	19 Oct 2024 14:00	5	Station power failure



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

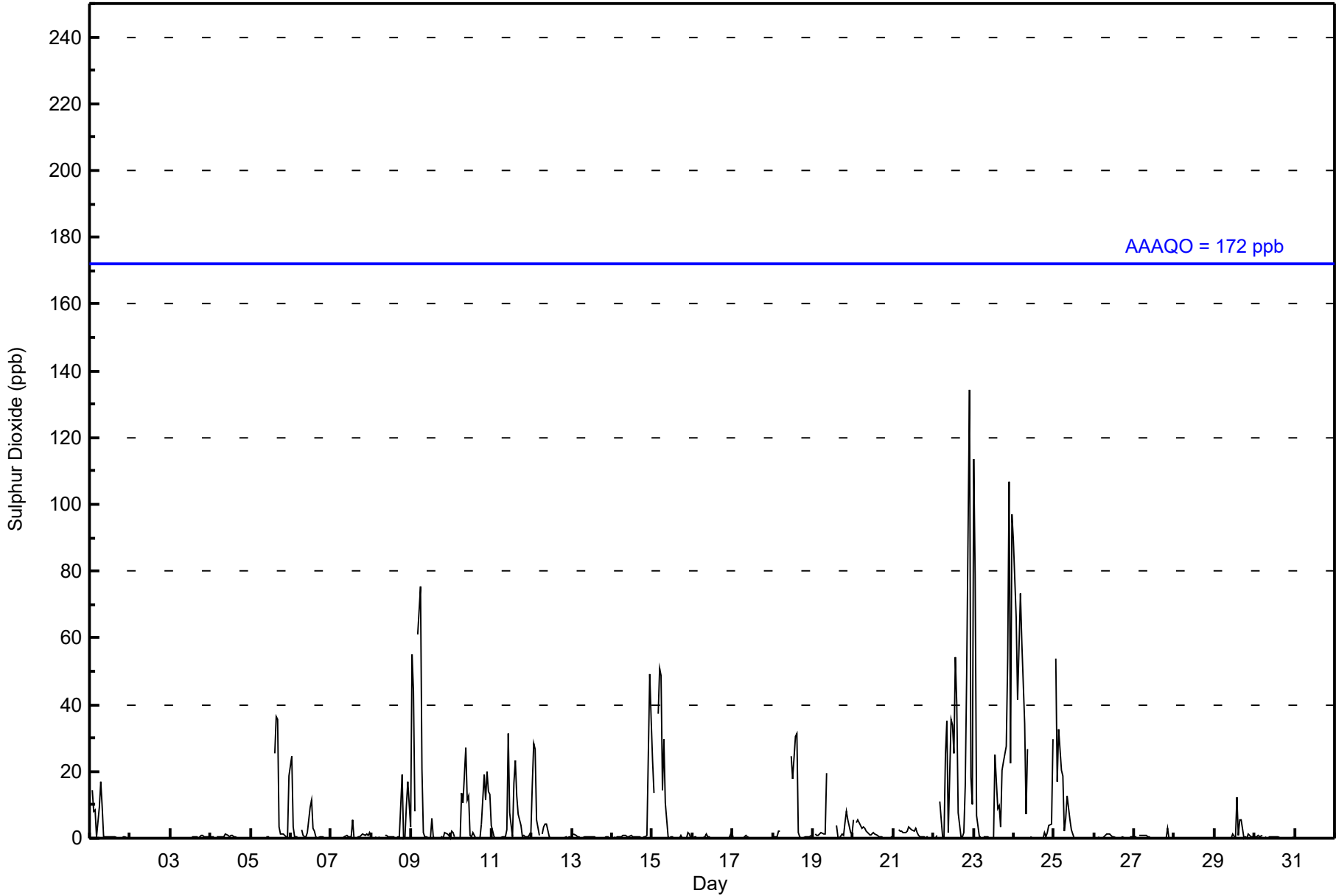
Hangingsstone Expansion - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 134.2 ppb on Oct 22 22:00	Maximum Daily Average: 26.1 ppb on Oct 23		Hours of Data:	691
Minimum Value: 0.0 ppb on Oct 1 20:00	Minimum Daily Average: 0.0 ppb on Oct 31		Hours of Missing Data:	53
Maximum Diurnal Average: 14.0 ppb at hour 1	Minimum Diurnal Average: 1.1 ppb at hour 18		Hours of Calibration:	33
Monthly Average: 4.93 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 14.4 P <sub>99</sub> = 73.4		Percent Operational Time:	97.3

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-Oct	Z	14.4	8.1	8.4	0.5	9.3	17.0	9.2	0.5	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.3	0.6	0.1	0.2	3.1	17.0		
2-Oct	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	
3-Oct	0.0	0.0	Z	0.2	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.2	1.0	0.7	0.3	0.2	0.3	0.3	0.2	1.0	
4-Oct	0.3	0.3	0.2	Z	0.2	0.3	0.3	0.3	0.3	1.1	0.6	0.5	0.7	0.7	0.3	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.3	
5-Oct	0.2	0.2	0.1	0.2	Z	0.5	PF	PF	PF	0.6	0.2	0.2	PF	PF	25.6	36.4	35.5	3.5	1.1	1.1	0.7	0.4	0.4	18.8	7.0	36.4	
6-Oct	24.7	3.4	0.4	0.5	0.4	Z	2.6	0.7	0.3	0.3	1.7	9.3	11.4	3.1	2.0	0.2	0.2	0.3	0.4	0.4	0.2	0.1	0.1	0.2	2.7	24.7	
7-Oct	PF	PF	PF	PF	PF	PF	0.1	0.2	0.3	0.8	0.5	0.5	0.4	5.6	0.0	0.0	0.3	0.5	1.0	1.2	1.0	1.3	0.8	1.7	0.9	5.6	
8-Oct	0.4	Z	0.3	0.2	0.2	0.3	PF	PF	1.0	0.8	0.5	0.4	0.4	0.5	0.1	0.0	0.3	0.2	18.9	0.1	0.3	9.7	17.0	3.3	2.6	18.9	
9-Oct	54.9	44.1	8.1	Z	60.8	75.5	20.8	1.7	0.4	0.2	0.2	0.2	6.0	0.3	0.0	0.0	0.0	0.0	0.4	0.1	1.7	1.2	0.7	0.1	12.1	75.5	
10-Oct	2.2	1.7	0.6	Z	0.1	0.0	13.7	10.6	27.3	11.3	12.7	0.8	0.3	1.7	0.1	0.0	0.0	0.0	4.0	19.1	11.7	19.7	14.0	13.0	7.2	27.3	
11-Oct	3.7	0.3	0.2	0.2	Z	0.2	0.3	0.4	0.6	2.7	31.3	7.7	0.4	16.5	23.3	12.6	7.1	3.7	0.3	0.9	0.3	0.3	0.2	1.5	5.0	31.3	
12-Oct	16.2	28.5	26.7	5.4	0.7	Z	1.2	3.4	4.4	4.3	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.2	0.2	0.5	4.1	28.5
13-Oct	Z	1.2	0.7	0.4	0.3	0.2	0.1	0.3	0.4	0.5	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	PF	0.3	1.2	
14-Oct	PF	0.3	0.2	0.3	0.4	0.5	0.8	0.7	0.7	0.6	0.6	0.8	0.6	0.4	0.3	0.4	0.5	0.1	0.2	0.2	0.5	0.7	49.0	35.5	4.1	49.0	
15-Oct	23.4	13.6	Z	37.3	50.8	48.6	14.3	29.7	10.6	0.4	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.8	0.2	0.1	0.2	1.6	1.4	0.1	10.2	50.8	
16-Oct	0.2	0.3	0.3	Z	0.1	0.1	0.0	0.6	1.3	0.6	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	2.3	0.3	2.3	
17-Oct	0.2	0.2	0.1	0.1	Z	0.1	0.2	0.2	0.8	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	0.2	0.8	
18-Oct	0.2	0.2	0.2	2.1	2.0	Z	0.3	C	C	C	C	24.6	17.9	30.7	31.2	1.8	0.3	0.1	0.1	0.2	0.3	0.3	0.3	0.7	6.0	31.2	
19-Oct	Z	1.2	1.0	1.0	1.1	1.8	1.4	1.1	19.3	PF	PF	PF	PF	PF	4.0	0.3	0.2	1.4	0.9	4.5	8.2	5.4	1.5	1.2	3.1	19.3	
20-Oct	5.5	Z	4.6	5.4	3.8	2.9	3.4	3.0	2.2	1.3	1.0	1.3	1.9	1.4	0.7	0.5	0.5	0.5	0.2	0.0	0.0	0.0	0.2	0.2	1.8	5.5	
21-Oct	0.2	0.0	Z	2.5	2.2	1.9	1.9	1.5	2.0	3.3	2.9	2.4	2.3	3.1	1.8	0.7	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.1	1.3	3.3	
22-Oct	0.1	0.0	0.7	Z	11.2	0.4	0.4	25.1	35.0	1.9	35.8	33.8	25.3	54.0	40.4	7.6	0.6	0.4	1.8	15.7	48.8	134.2	18.1	10.1	21.8	134.2	
23-Oct	113.5	79.0	6.6	0.5	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.1	25.1	9.0	9.7	3.5	20.4	23.0	27.6	53.7	106.8	22.5	96.9	26.1	113.5		
24-Oct	89.3	66.1	41.6	57.3	73.2	58.3	34.4	7.3	26.8	Z	0.4	0.2	0.1	0.2	0.1	0.0	0.1	0.2	1.7	0.4	1.7	3.7	4.4	29.8	21.6	89.3	
25-Oct	Z	53.7	16.9	32.5	20.4	18.6	2.3	6.1	12.7	5.5	2.6	1.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.0	7.5	53.7	
26-Oct	0.0	Z	0.2	0.0	0.0	0.1	0.2	1.1	1.4	1.5	0.8	0.4	0.5	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.2	0.2	0.3	0.3	1.5	
27-Oct	0.4	0.6	Z	0.7	0.7	0.9	0.7	0.7	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	3.1	0.2	0.1	0.0	0.4	3.1	
28-Oct	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	
29-Oct	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.1	1.2	0.2	12.1	0.9	5.7	5.3	0.2	0.4	0.2	1.4	0.7	0.5	0.4	1.3	12.1	
30-Oct	0.4	0.5	1.0	0.5	0.8	Z	0.5	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.3	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.4	0.3	1.0	
31-Oct	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	

14.0	11.9	4.6	6.5	8.9	8.8	4.0	3.7	5.2	1.4	3.3	2.9	2.4	5.4	4.6	2.5	1.8	1.1	1.8	2.4	4.4	9.3	4.3	7.3	Diurnal Average	
113.5	79.0	41.6	57.3	73.2	75.5	34.4	29.7	35.0	11.3	35.8	33.8	25.3	54.0	40.4	36.4	35.5	20.4	23.0	27.6	53.7	134.2	49.0	96.9	Diurnal Maximum	

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**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Hangingsstone Expansion - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	606	87.70	87.70
11 - 20	32	4.63	92.33
21 - 60	43	6.22	98.55
61 - 110	8	1.16	99.71
111 - 172	2	0.29	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 691

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Hangingsstone Expansion - October 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	22	9	10	23	33	32	45	75	87	22	72	74	56	22	10	606
11 - 20	0	0	0	0	0	0	0	0	0	0	19	13	0	0	0	0	32
21 - 60	0	0	0	0	0	0	0	0	0	0	32	11	0	0	0	0	43
61 - 110	0	0	0	0	0	0	0	0	0	0	6	2	0	0	0	0	8
111 - 172	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	14	22	9	10	23	33	32	45	75	87	81	98	74	56	22	10	691

Total Number of Valid Hours: 691

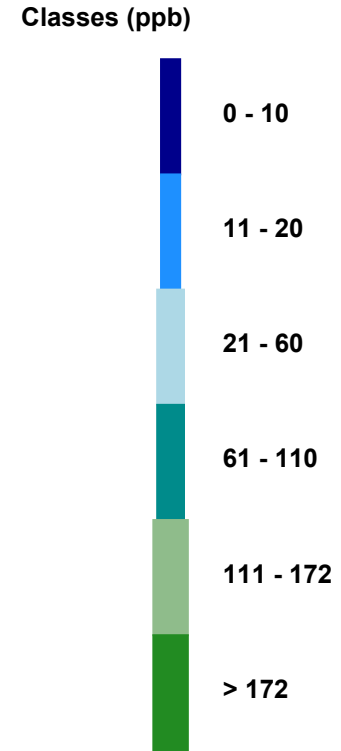
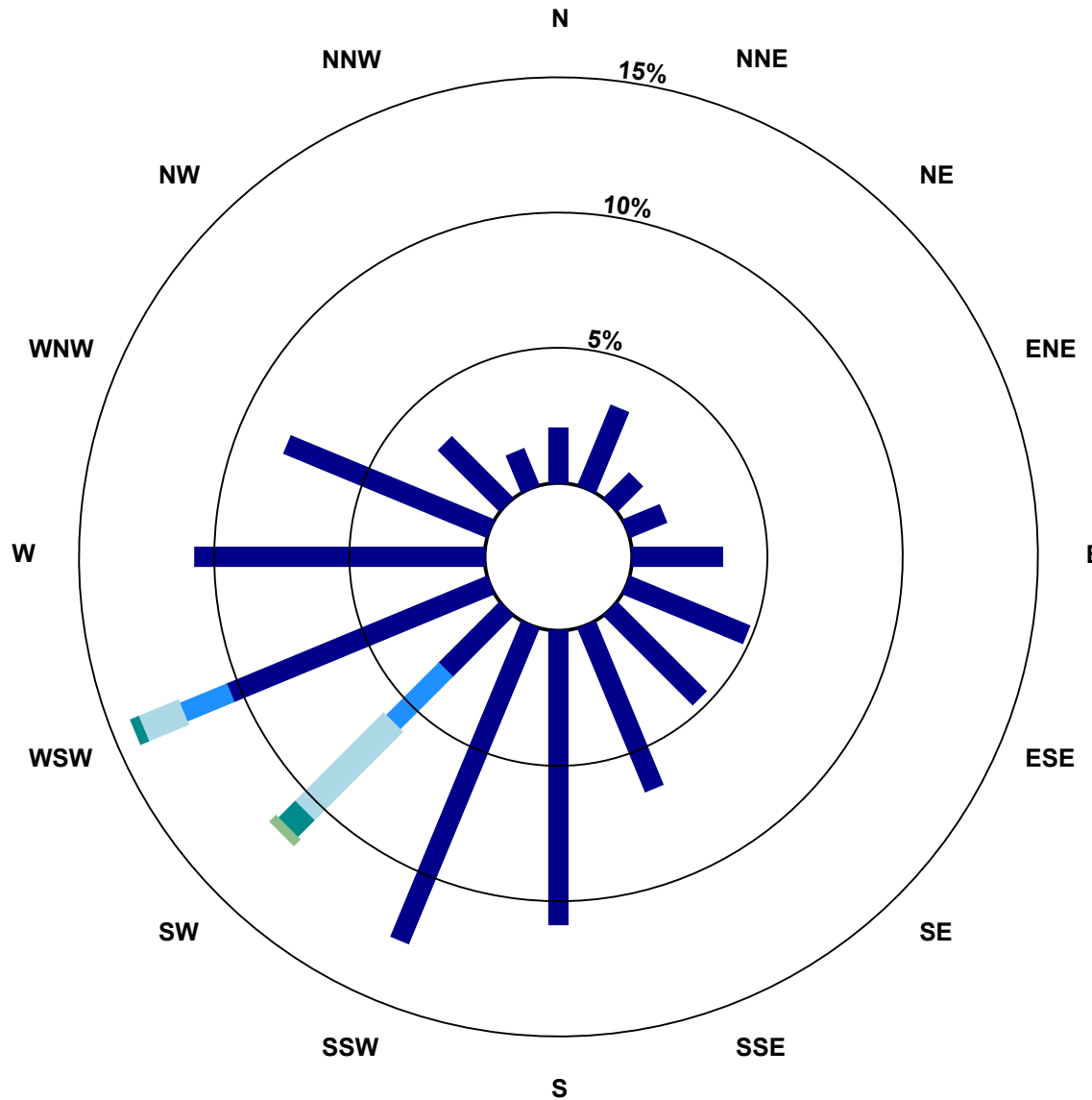
Total Number of Hours: 744



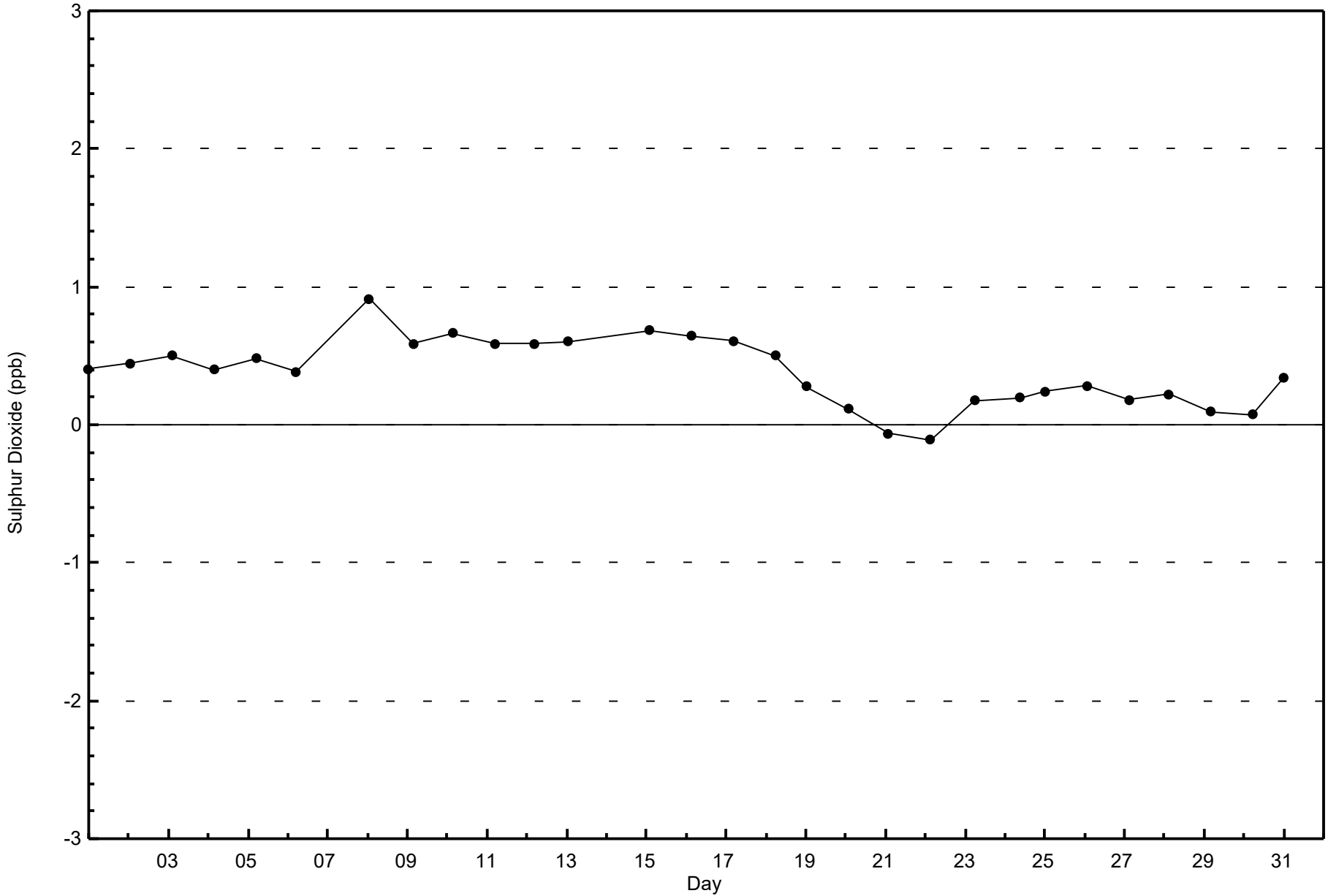


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Hangingstone Expansion



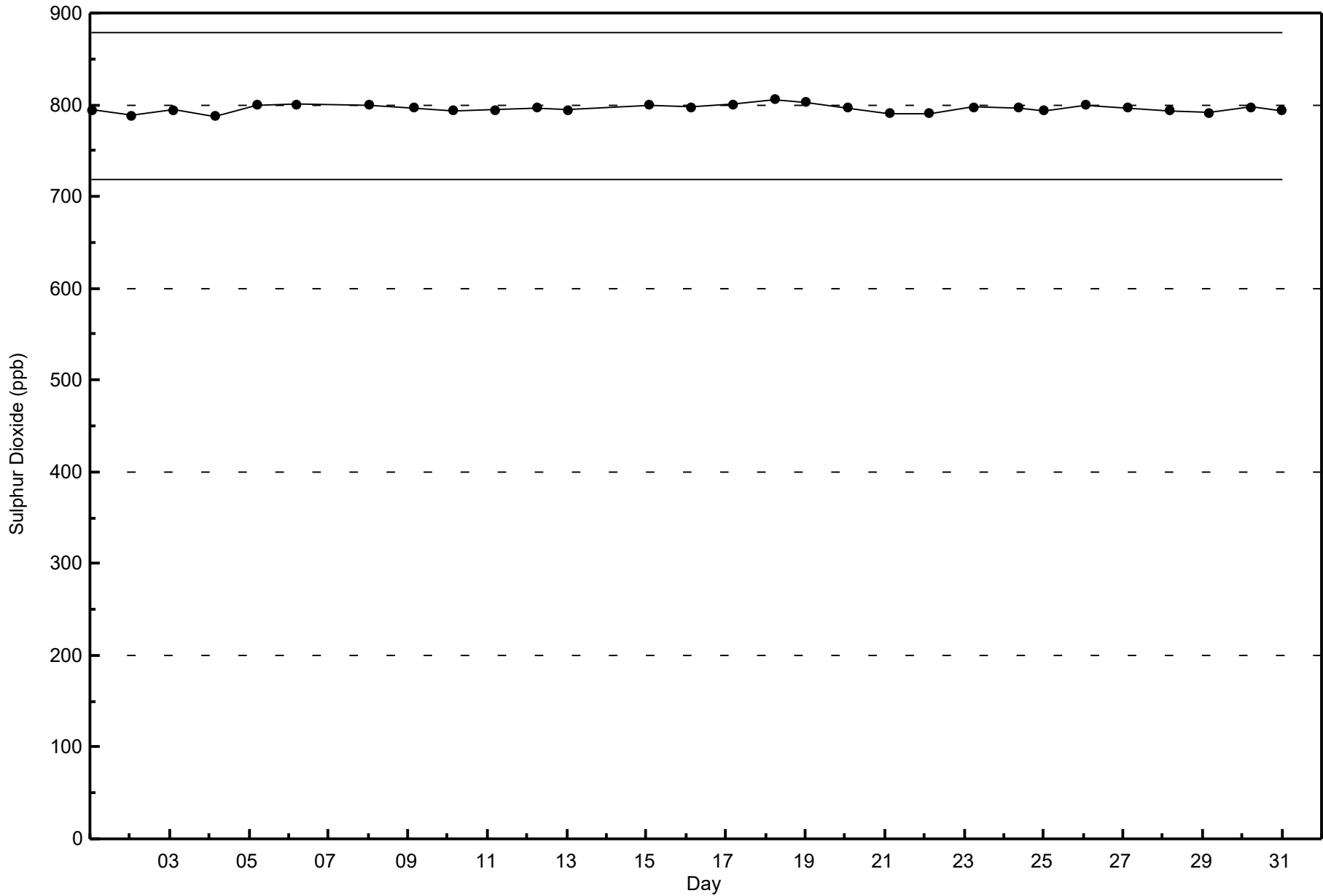
Total Number of Valid Hours: 691





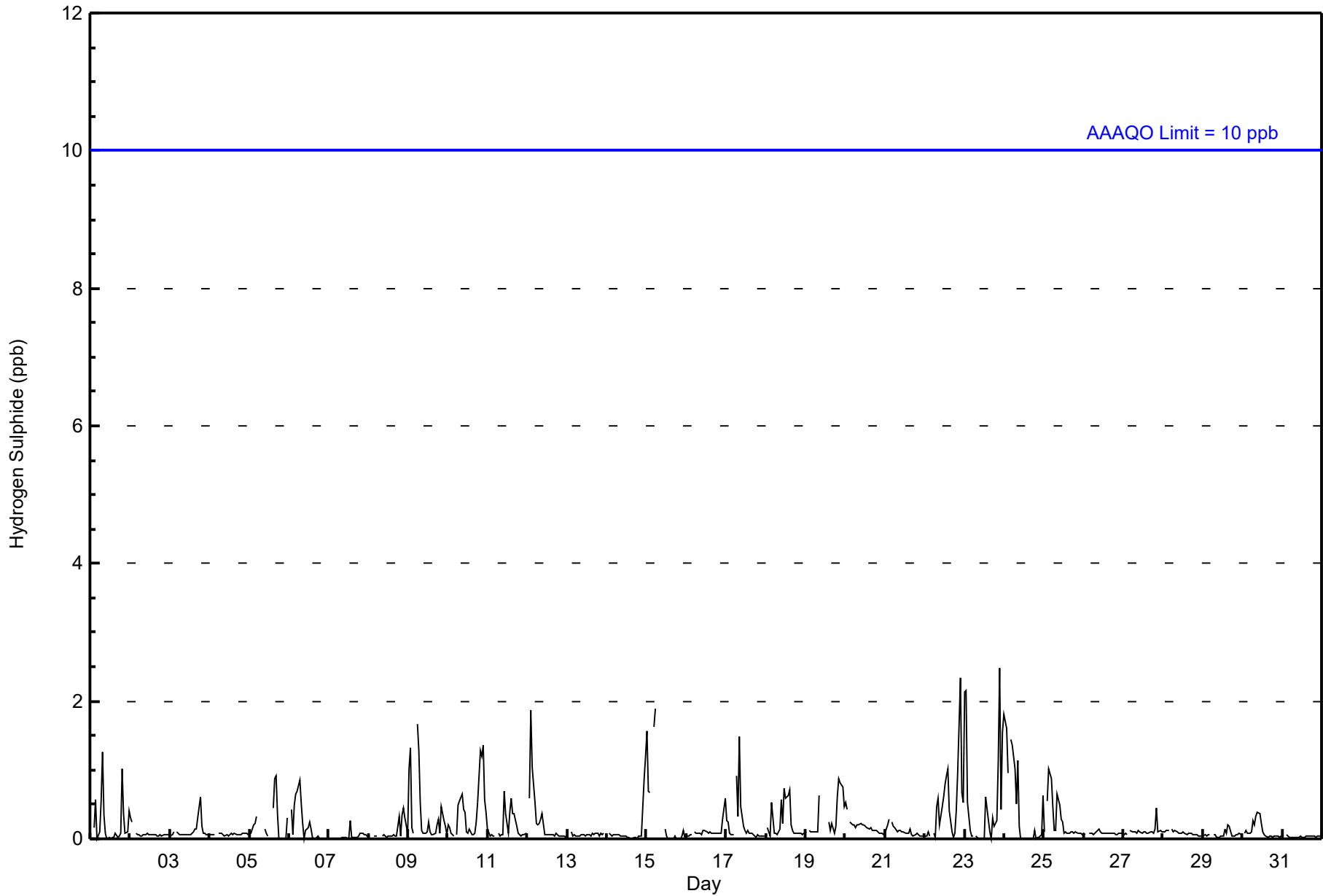
Wood Buffalo Environmental Association  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Hangingstone Expansion - October 2024





Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum																											
Maximum Value: 2.5 ppb on Oct 23 22:00		Maximum Daily Average: 0.5 ppb on Oct 23		Hours of Data: 690														Hours of Missing Data: 54		Hours of Calibration: 34																													
Minimum Value: 0.0 ppb on Oct 1 05:00		Minimum Daily Average: 0.0 ppb on Oct 31		Hours of Calibration: 34														Percent Operational Time: 97.3																															
Maximum Diurnal Average: 0.4 ppb at hour 1		Minimum Diurnal Average: 0.1 ppb at hour 18		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 1.7																																													
Monthly Average: 0.20 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-Oct	0.3	Z	0.2	0.6	0.0	0.1	0.5	1.3	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	1.0	0.4	0.1	0.1	0.4	0.2	1.3																								
2-Oct	0.3	0.2	Z	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	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
3-Oct	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6	0.2	0.1	0.1	0.1	0.1	0.6																								
4-Oct	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	0.1	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-Oct	0.1	0.1	0.2	0.2	0.3	Z	PF	PF	PF	0.1	0.1	0.0	PF	PF	0.5	0.9	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.9																							
6-Oct	Z	0.4	0.1	0.5	0.7	0.7	0.9	0.5	0.2	0.0	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	0.2	0.9																							
7-Oct	PF	PF	PF	PF	PF	PF	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	0.1	0.1	0.1	0.1	0.0	0.0	0.3																							
8-Oct	0.0	0.0	Z	0.0	0.0	0.0	PF	PF	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.3	0.4	0.3	0.1	0.1	0.4																								
9-Oct	1.0	1.3	0.2	0.1	Z	1.7	1.3	0.5	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.5	0.3	0.2	0.1	0.4	1.7																							
10-Oct	0.2	0.2	0.1	0.0	Z	0.1	0.5	0.6	0.7	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	1.3	1.2	1.4	0.6	0.4	0.4	1.4																							
11-Oct	0.1	0.0	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.7	0.4	0.1	0.4	0.6	0.4	0.4	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.7																							
12-Oct	Z	0.6	1.9	1.0	0.5	0.2	0.2	0.2	0.3	0.4	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	0.3	1.9																							
13-Oct	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	PF	0.1	0.1																							
14-Oct	PF	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.2	0.1	1.2																							
15-Oct	1.6	0.7	0.7	Z	1.6	1.9	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	1.9																							
16-Oct	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6	0.1	0.6																							
17-Oct	0.3	0.2	0.1	0.1	0.1	Z	0.9	0.3	1.5	0.5	0.2	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	0.2	1.5																							
18-Oct	Z	0.2	0.0	0.5	0.3	0.1	0.1	0.1	0.1	0.6	0.2	0.7	0.6	0.6	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7																							
19-Oct	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.6	PF	PF	PF	PF	PF	0.2	0.1	0.2	0.1	0.2	0.6	0.9	0.8	0.7	0.5	0.3	0.9																							
20-Oct	0.5	0.4	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5																							
21-Oct	0.1	0.2	0.3	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	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.3																							
22-Oct	0.0	0.0	0.1	0.0	Z	0.1	0.0	0.5	0.6	0.2	0.5	0.6	0.8	0.9	1.0	0.4	0.1	0.0	0.1	0.4	1.0	2.3	0.7	0.5	0.5	2.3																							
23-Oct	2.1	2.2	0.5	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.1	0.0	0.3	0.2	0.3	1.1	2.5	0.4	1.5	0.5	2.5																								
24-Oct	1.8	1.6	1.0	Z	1.5	1.4	1.0	0.5	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.6	0.5	1.8																								
25-Oct	0.1	Z	0.5	1.0	0.9	0.5	0.1	0.1	0.6	0.5	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	1.0																							
26-Oct	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																						
27-Oct	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	0.5	0.1	0.1	0.1	0.1	0.5																							
28-Oct	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1																							
29-Oct	0.0	0.1	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2																							
30-Oct	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.4	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
31-Oct	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1																							
																								0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	Diurnal Average	
																								2.1	2.2	1.9	1.0	1.6	1.9	1.3	1.3	1.5	0.6	0.7	0.7	0.8	0.9	1.0	0.9	0.9	0.4	0.6	1.3	1.2	2.5	0.9	1.5	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**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Hangingstone Expansion - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	690	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: 690

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Hangingstone Expansion - October 2024**

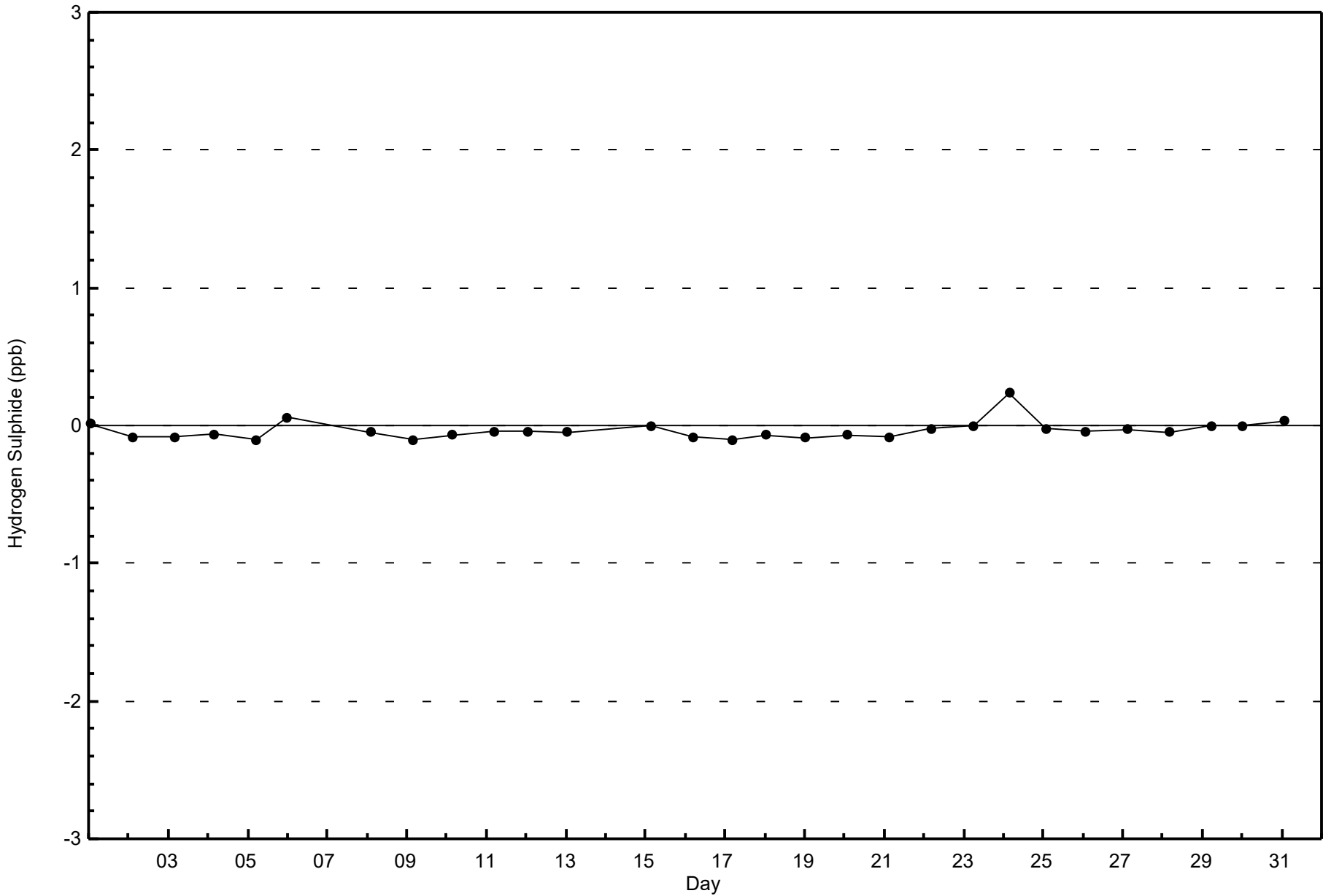
<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 2	13	24	9	10	23	33	32	45	74	92	81	94	72	57	22	9	690
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>	13	24	9	10	23	33	32	45	74	92	81	94	72	57	22	9	690

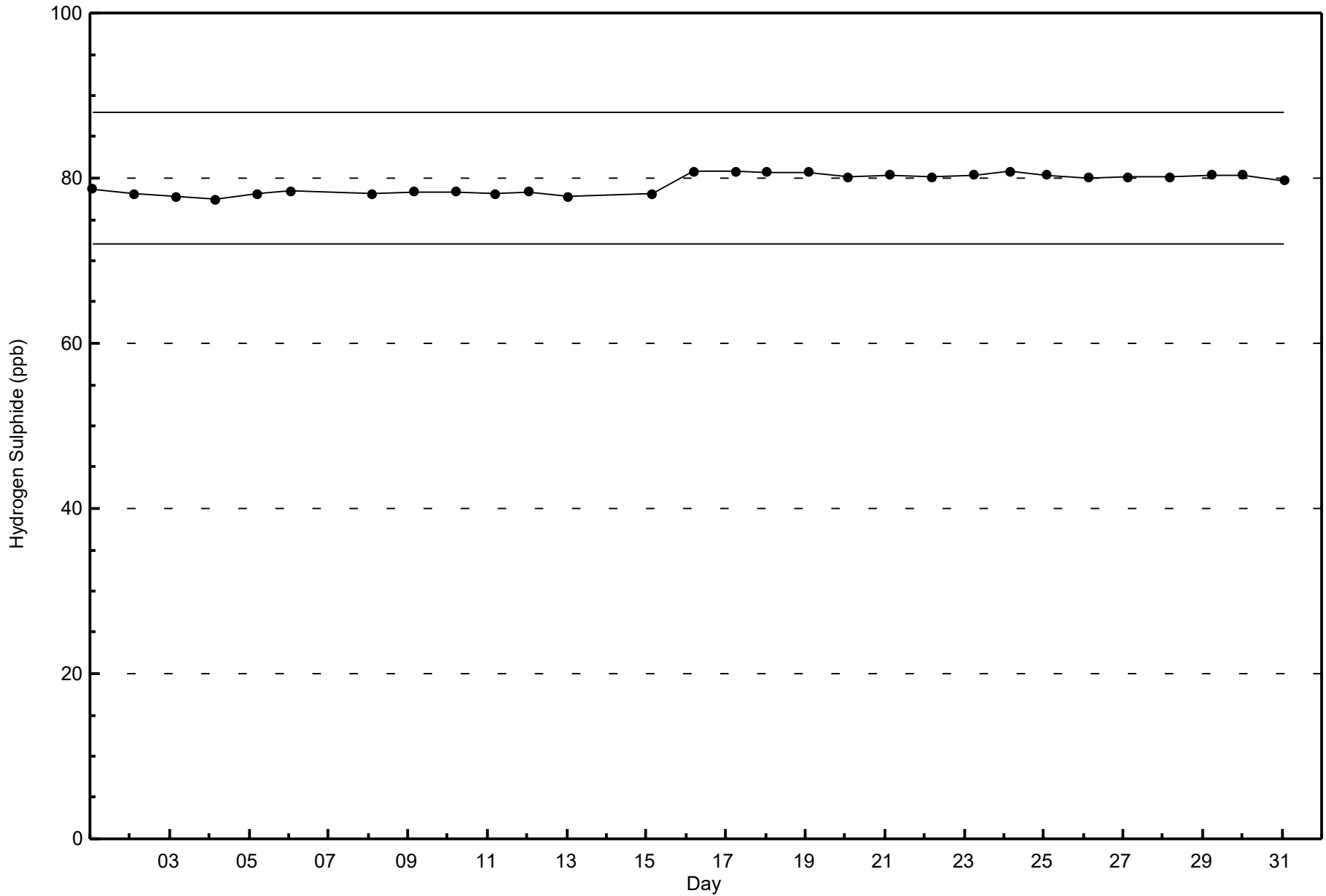
Total Number of Valid Hours: 690

Total Number of Hours: 744



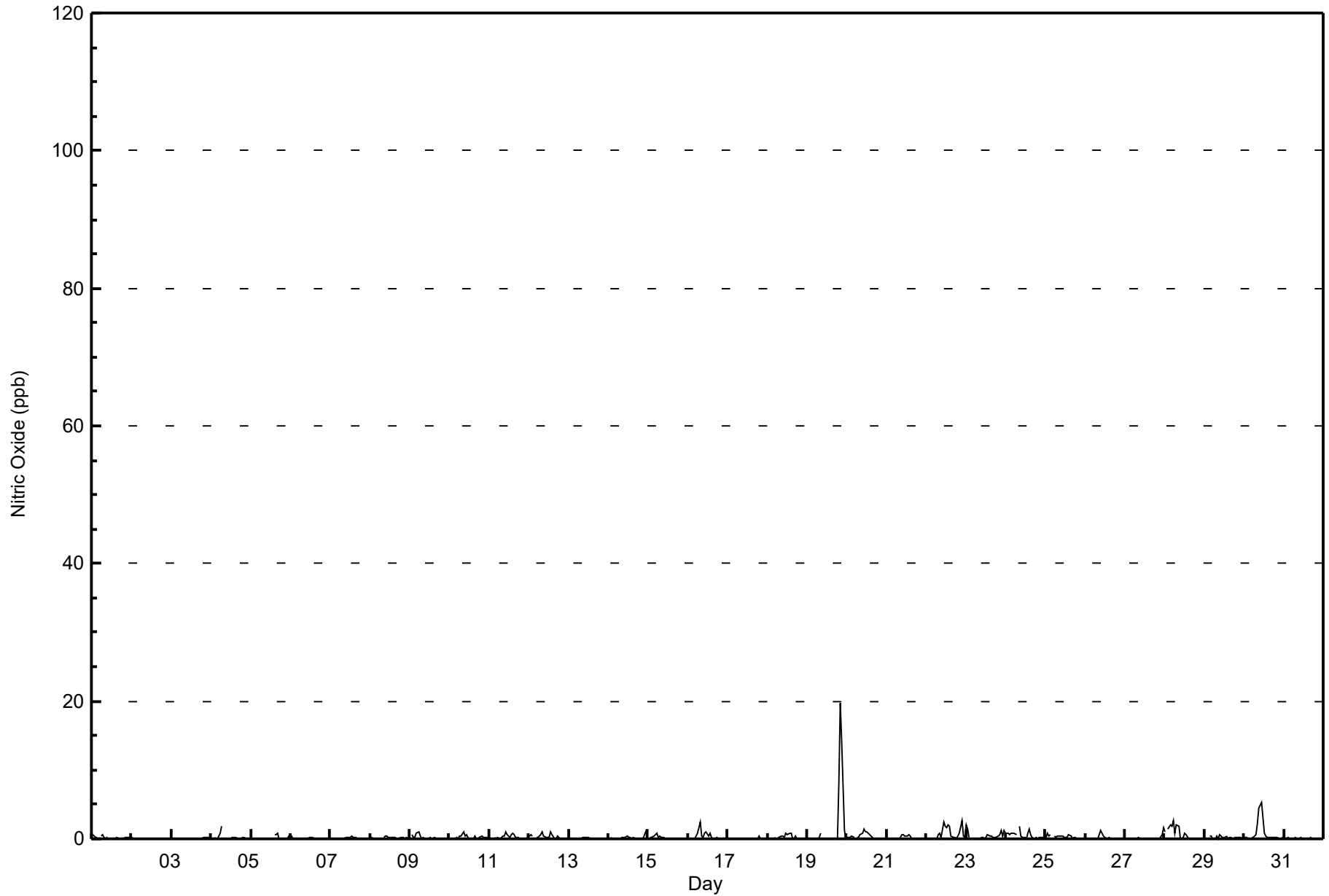








Maximum Value: 19.7 ppb on Oct 19 21:00																				Maximum Daily Average: 2.5 ppb on Oct 19					Hours in Service: 744				
Minimum Value: 0.0 ppb on Oct 2 16:00																				Minimum Daily Average: 0.0 ppb on Oct 2					Hours of Data: 690				
Maximum Diurnal Average: 0.7 ppb at hour 21																				Minimum Diurnal Average: 0.1 ppb at hour 19					Hours of Missing Data: 54				
Monthly Average: 0.31 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 2.6					Hours of Calibration: 34				
																				Percent Operational Time: 97.3									
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-Oct	0.5	0.4	0.3	0.2	Z	0.5	0.7	0.3	0.0	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	0.2	0.2	0.7			
2-Oct	0.1	0.0	0.1	0.1	0.1	Z	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	0.1		
3-Oct	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2		
4-Oct	0.1	Z	0.1	0.1	0.1	0.7	1.8	C	C	C	C	C	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	1.8		
5-Oct	0.0	0.0	Z	0.0	0.0	0.0	0.0	PF	PF	PF	0.0	0.0	0.0	PF	PF	0.5	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.8		
6-Oct	0.4	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.1	0.4		
7-Oct	PF	PF	PF	PF	PF	PF	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.3		
8-Oct	0.0	0.2	0.1	0.1	0.1	Z	0.0	PF	PF	0.1	0.4	0.5	0.3	0.2	0.3	0.2	0.1	0.1	0.0	0.3	0.1	0.2	0.1	0.1	0.0	0.2	0.5		
9-Oct	Z	0.6	0.1	0.2	0.8	1.1	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	1.1	1.1		
10-Oct	0.0	Z	0.0	0.1	0.1	0.1	0.3	0.3	1.0	0.5	0.5	0.1	0.1	0.1	0.1	0.4	0.0	0.0	0.1	0.3	0.1	0.3	0.1	0.2	0.2	1.0	1.0		
11-Oct	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.2	0.4	0.4	1.0	0.5	0.3	0.6	0.7	0.5	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.3	1.0	1.0		
12-Oct	0.5	0.7	0.4	Z	0.1	0.2	0.3	0.6	1.0	0.5	0.3	0.1	0.1	1.0	0.6	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.0	1.0		
13-Oct	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2		
14-Oct	PF	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	1.0	0.5	1.0	1.0		
15-Oct	Z	0.2	0.2	0.4	0.6	0.8	0.1	0.4	0.3	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	0.0	0.0	0.2	0.8	0.8		
16-Oct	0.0	Z	0.0	0.1	0.1	0.3	0.8	2.4	0.4	0.3	0.9	1.1	0.4	0.8	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.4	2.4	2.4		
17-Oct	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.3		
18-Oct	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.3	0.3	0.3	0.9	0.6	0.8	0.9	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.9		
19-Oct	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.7	PF	PF	PF	PF	PF	0.1	0.0	0.0	0.0	0.1	8.1	19.7	14.2	1.2	0.1	2.5	19.7	19.7		
20-Oct	0.1	0.1	0.2	0.4	0.2	Z	0.1	0.2	0.6	0.8	1.3	1.0	1.1	0.9	0.4	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.4	1.3	1.3		
21-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.6	0.5	0.4	0.6	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.6	0.6		
22-Oct	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.6	0.9	0.3	2.3	1.9	1.6	2.1	1.8	0.5	0.2	0.2	0.0	0.4	0.9	2.7	0.3	0.2	0.7	2.7	2.7		
23-Oct	2.0	1.5	0.2	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.6	0.3	0.3	0.2	0.2	0.3	0.3	0.6	1.1	0.3	1.2	0.4	2.0	2.0		
24-Oct	0.9	0.7	0.6	0.8	0.8	0.8	0.5	Z	1.9	0.3	0.2	0.2	0.1	0.8	1.3	0.7	0.1	0.0	0.2	0.1	0.2	0.1	0.2	0.5	0.5	1.9	1.9		
25-Oct	0.2	0.8	0.4	0.5	Z	0.4	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.6	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.8		
26-Oct	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.5	1.2	0.7	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	1.2		
27-Oct	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.7	1.7	1.7		
28-Oct	1.0	Z	1.3	2.0	1.7	2.6	0.8	2.0	1.8	0.0	0.0	0.3	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.6	2.6		
29-Oct	0.0	0.1	Z	0.5	0.3	0.1	0.0	0.4	0.1	0.7	0.4	0.2	0.2	0.5	0.1	0.2	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.7	0.7		
30-Oct	0.2	0.2	0.2	Z	0.2	0.2	0.4	0.6	2.2	4.4	5.2	3.1	0.9	0.5	0.3	0.2	0.1	0.3	0.1	0.2	0.2	0.0	0.0	0.1	0.9	5.2	5.2		
31-Oct	0.1	0.0	0.1	0.1	Z	0.0	0.0	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3		
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan      C - Calibration      PF - Power Failure																													





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Hangingsstone Expansion - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	690	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: 690

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Hangingsstone Expansion - October 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	14	22	9	9	22	31	29	49	72	91	85	96	72	57	22	10	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>	14	22	9	9	22	31	29	49	72	91	85	96	72	57	22	10	690

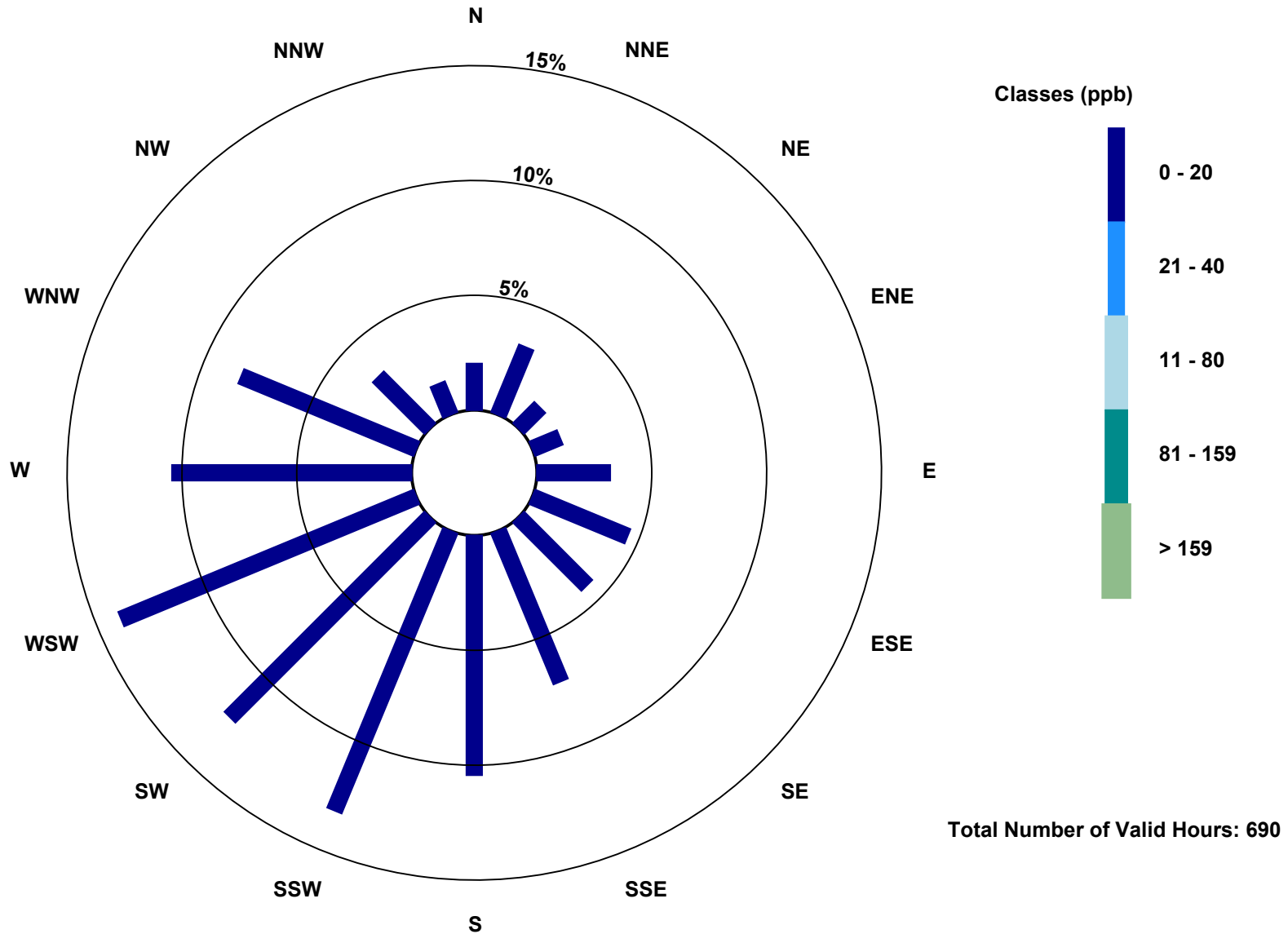
Total Number of Valid Hours: 690

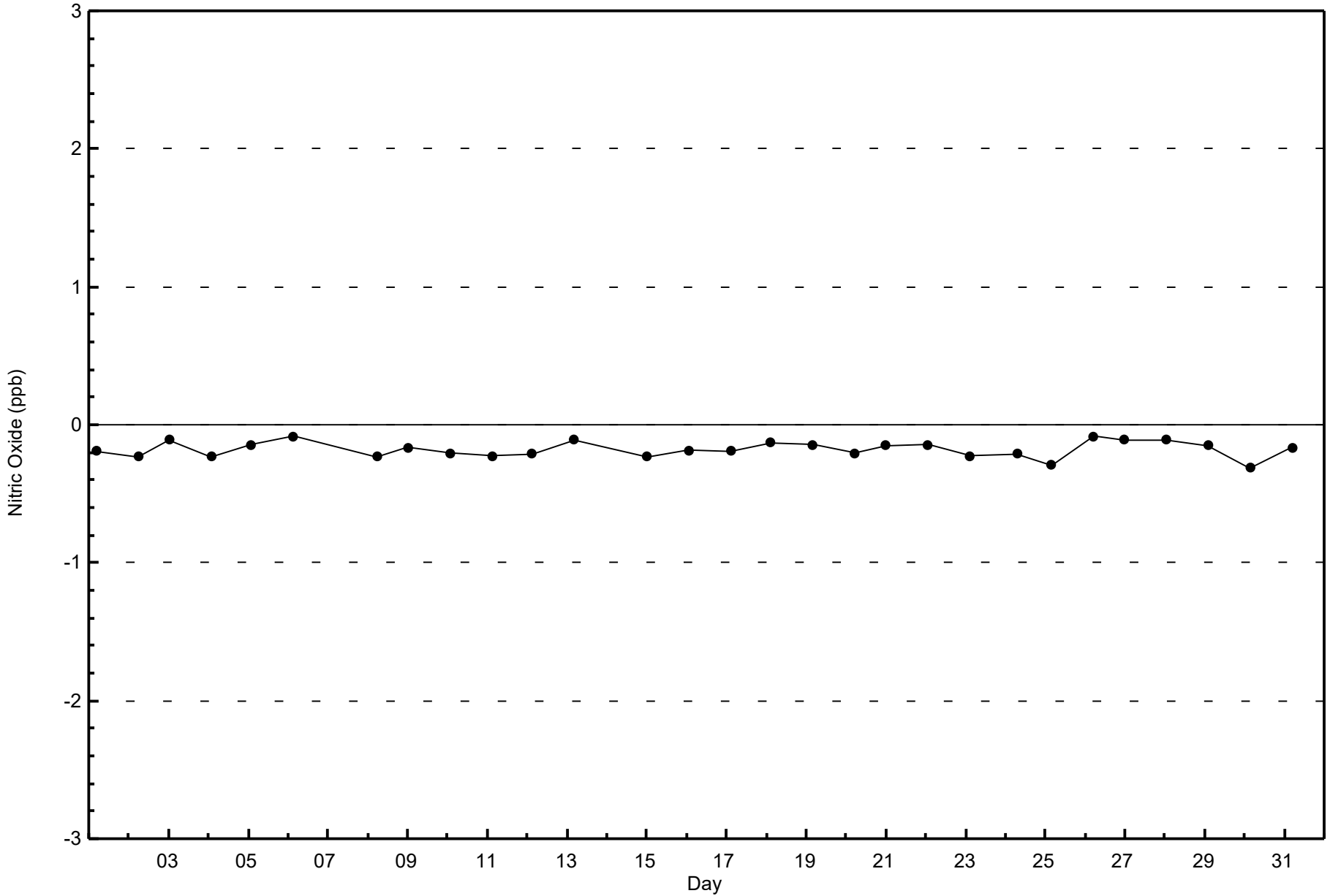
Total Number of Hours: 744



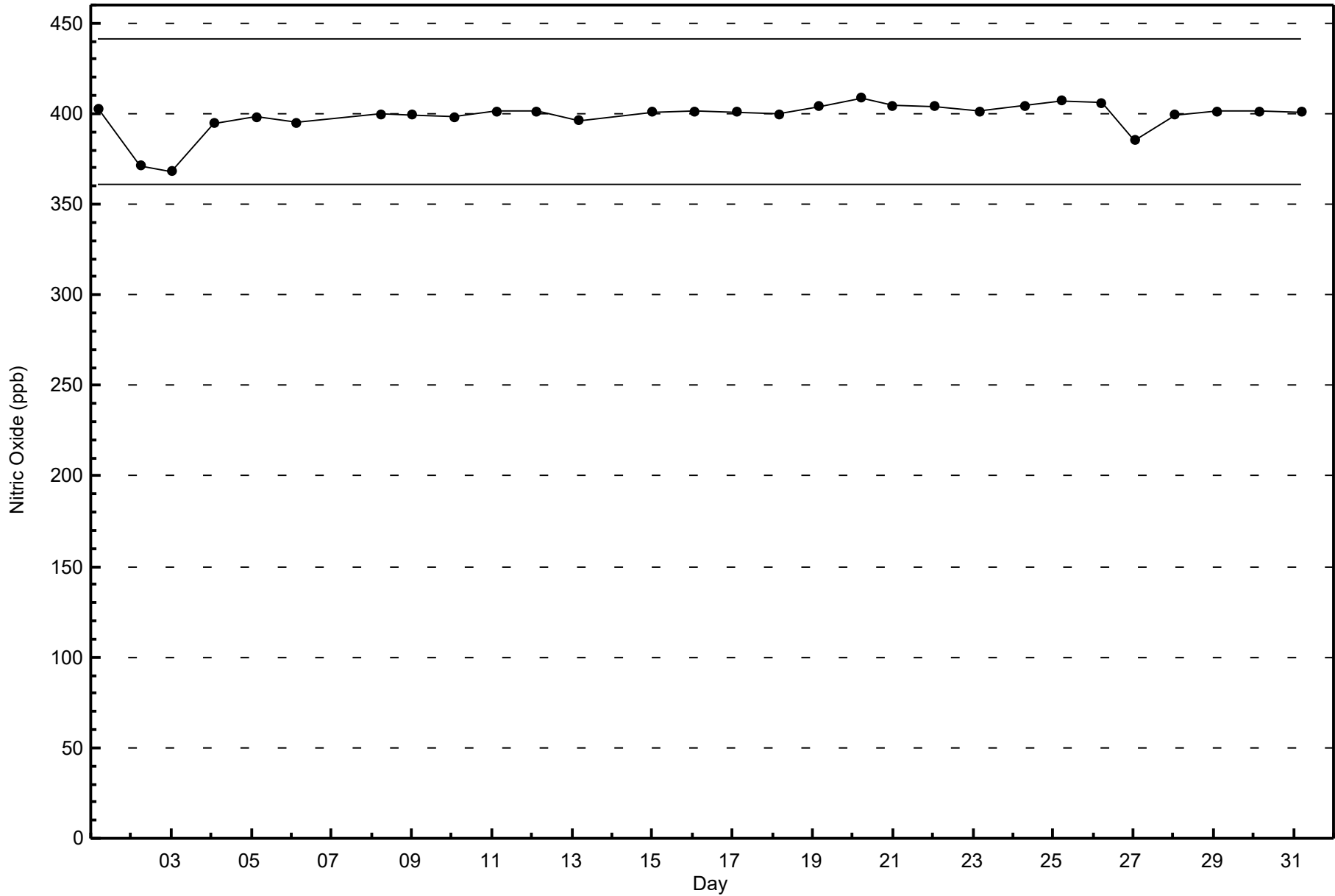
Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Nitric Oxide (NO) - ppb  
Hangingstone Expansion











Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Hangingsstone Expansion - October 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 16.1 ppb on Oct 19 21:00	Maximum Daily Average: 4.6 ppb on Oct 19		Hours of Data:	690
Minimum Value: 0.0 ppb on Oct 2 05:00	Minimum Daily Average: 0.4 ppb on Oct 2		Hours of Missing Data:	54
Maximum Diurnal Average: 2.4 ppb at hour 5	Minimum Diurnal Average: 0.7 ppb at hour 17		Hours of Calibration:	34
Monthly Average: 1.60 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.5 Median = 1.1 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 3.6 P <sub>99</sub> = 9.3		Percent Operational Time:	97.3

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-Oct	2.0	1.3	1.1	1.3	Z	2.8	3.6	1.6	0.4	0.3	0.2	0.3	0.4	0.5	0.3	0.6	0.2	0.2	0.1	0.1	0.9	4.4	3.0	4.3	1.3	4.4
2-Oct	4.0	2.4	0.8	0.1	0.0	Z	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.4	4.0
3-Oct	Z	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.5	3.5	2.3	1.8	2.2	1.0	0.6	3.5
4-Oct	0.9	Z	1.4	1.7	1.5	3.6	4.5	C	C	C	C	C	1.5	1.4	0.7	0.9	0.8	0.7	0.6	0.7	1.1	0.6	1.6	0.6	1.4	4.5
5-Oct	0.4	0.5	Z	1.6	2.0	2.6	PF	PF	PF	0.9	0.2	0.1	PF	PF	1.8	2.6	2.6	1.0	1.1	1.2	0.8	0.6	0.6	1.8	1.2	2.6
6-Oct	2.5	0.6	0.2	Z	0.3	0.2	0.8	0.3	0.2	0.1	0.2	0.7	0.7	0.4	0.3	0.1	0.0	0.1	1.4	1.3	0.9	1.0	1.3	0.7	0.6	2.5
7-Oct	PF	PF	PF	PF	PF	PF	0.6	0.7	0.9	1.0	0.7	0.7	0.7	1.2	0.9	1.0	1.1	1.4	1.9	3.0	2.8	3.0	2.2	2.0	1.4	3.0
8-Oct	2.1	1.8	1.2	1.1	2.0	Z	PF	PF	2.4	3.1	2.2	1.5	1.4	1.2	1.1	0.9	1.0	1.2	1.8	0.5	0.4	0.9	1.6	0.5	1.4	3.1
9-Oct	Z	4.1	0.9	0.8	4.4	6.0	2.0	0.7	0.4	0.3	0.1	0.2	0.5	0.1	0.2	0.2	0.1	0.2	2.1	3.0	2.5	1.9	2.0	0.8	1.5	6.0
10-Oct	1.0	Z	1.2	1.7	0.9	1.8	2.9	2.8	3.4	1.2	1.2	0.4	0.3	0.4	0.2	0.4	0.3	0.3	1.3	2.1	1.4	2.0	1.5	1.4	1.3	3.4
11-Oct	0.9	0.9	Z	1.5	1.2	2.3	2.4	2.1	2.5	1.7	2.6	1.4	0.9	1.6	1.7	1.1	0.7	1.7	2.0	2.2	1.2	1.1	1.3	1.4	1.6	2.6
12-Oct	2.0	2.8	2.9	Z	0.7	2.9	3.1	3.7	2.5	0.9	0.4	0.4	0.3	0.9	0.7	0.2	0.2	5.3	3.8	4.0	1.3	0.4	0.3	0.2	1.7	5.3
13-Oct	0.5	1.0	0.7	0.5	Z	0.6	0.7	1.1	1.2	1.3	1.1	0.9	0.8	0.7	0.7	0.9	0.9	0.8	0.8	0.8	1.0	0.9	1.0	PF	0.9	1.3
14-Oct	PF	0.9	0.9	0.9	1.1	1.5	1.7	1.7	1.6	1.3	1.2	1.3	1.0	0.7	0.7	1.0	1.3	0.6	0.8	1.3	1.4	1.7	4.3	3.5	1.4	4.3
15-Oct	Z	2.2	1.9	2.8	3.6	4.4	1.5	2.1	1.2	0.3	0.2	0.1	0.2	0.1	0.2	0.4	1.1	3.2	3.8	1.9	1.2	1.0	1.3	1.1	1.6	4.4
16-Oct	1.6	Z	2.0	2.4	4.2	5.7	7.5	9.2	2.7	2.9	4.6	5.0	1.7	1.7	1.4	1.2	0.8	1.0	2.0	1.4	0.8	0.9	0.6	0.7	2.7	9.2
17-Oct	0.4	0.4	Z	0.6	0.5	0.6	0.7	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.1	0.2	0.1	0.2	0.3	3.9	0.3	0.2	0.2	0.3	0.5	3.9
18-Oct	0.3	0.3	0.2	Z	1.2	1.4	1.3	1.8	1.9	1.1	0.9	1.8	1.4	1.8	2.1	0.5	1.2	3.0	0.7	0.6	0.7	0.9	1.1	1.4	1.2	3.0
19-Oct	2.0	2.1	1.9	1.8	Z	2.6	2.0	1.4	2.6	PF	PF	PF	PF	PF	0.7	0.6	1.1	1.4	2.8	13.0	16.1	15.0	10.2	5.6	4.6	16.1
20-Oct	6.4	6.7	7.1	11.6	11.9	Z	9.9	6.6	4.2	4.1	3.5	2.2	2.6	3.1	2.4	2.2	1.9	1.8	1.3	1.2	0.8	0.9	0.9	0.4	4.1	11.9
21-Oct	Z	2.0	2.5	2.8	2.2	1.9	1.8	2.2	2.9	3.4	3.1	2.9	2.4	2.5	2.2	0.3	0.1	0.2	2.5	3.7	2.8	1.0	0.1	0.0	2.0	3.7
22-Oct	0.0	Z	0.3	0.1	1.3	0.5	0.9	2.2	2.4	1.0	2.7	2.0	1.9	2.3	2.4	1.2	1.1	1.4	0.8	1.5	2.9	8.1	1.8	1.4	1.7	8.1
23-Oct	6.7	5.2	1.2	Z	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	1.6	1.1	1.4	0.9	2.1	2.0	2.6	3.8	7.1	1.9	6.2	2.0	7.1
24-Oct	5.9	4.8	3.0	3.9	4.9	4.2	3.0	Z	5.1	1.1	0.5	0.4	0.4	2.3	3.9	2.5	0.3	0.4	0.4	0.8	1.0	1.0	0.9	2.2	2.3	5.9
25-Oct	0.6	3.8	1.7	2.4	Z	2.7	1.0	1.6	1.4	1.0	0.5	0.5	0.3	0.5	1.8	1.2	0.4	5.8	6.1	2.5	1.0	0.9	0.4	0.5	1.7	6.1
26-Oct	0.7	0.5	0.4	0.5	1.6	Z	1.3	3.3	4.1	4.0	2.3	1.1	1.4	0.7	0.6	0.7	1.0	1.1	0.7	0.4	0.3	0.4	0.4	0.6	1.2	4.1
27-Oct	Z	1.1	1.4	1.6	1.7	2.1	2.0	2.0	1.7	1.1	0.9	1.0	0.8	0.8	0.7	0.7	0.6	1.2	0.7	1.3	1.1	0.6	2.0	4.0	1.4	4.0
28-Oct	3.6	Z	3.6	4.7	4.4	5.4	2.1	4.1	3.9	0.8	0.6	1.1	2.3	2.2	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	1.8	5.4
29-Oct	0.5	1.3	Z	4.8	3.7	0.3	0.2	2.7	0.5	2.9	1.2	0.3	0.3	0.7	0.2	0.5	0.9	1.8	1.3	0.9	1.4	0.9	0.9	1.0	1.3	4.8
30-Oct	1.7	2.0	2.5	Z	2.9	2.8	6.2	5.6	7.3	6.7	6.0	3.5	1.2	0.8	0.6	0.7	0.7	1.3	1.2	0.8	0.9	1.1	0.8	2.2	2.6	7.3
31-Oct	1.2	0.9	0.3	0.2	Z	0.5	0.5	0.9	0.7	0.4	0.5	0.4	0.4	0.4	0.6	0.8	1.0	0.6	0.6	0.7	0.8	0.9	1.1	0.6	0.7	1.2

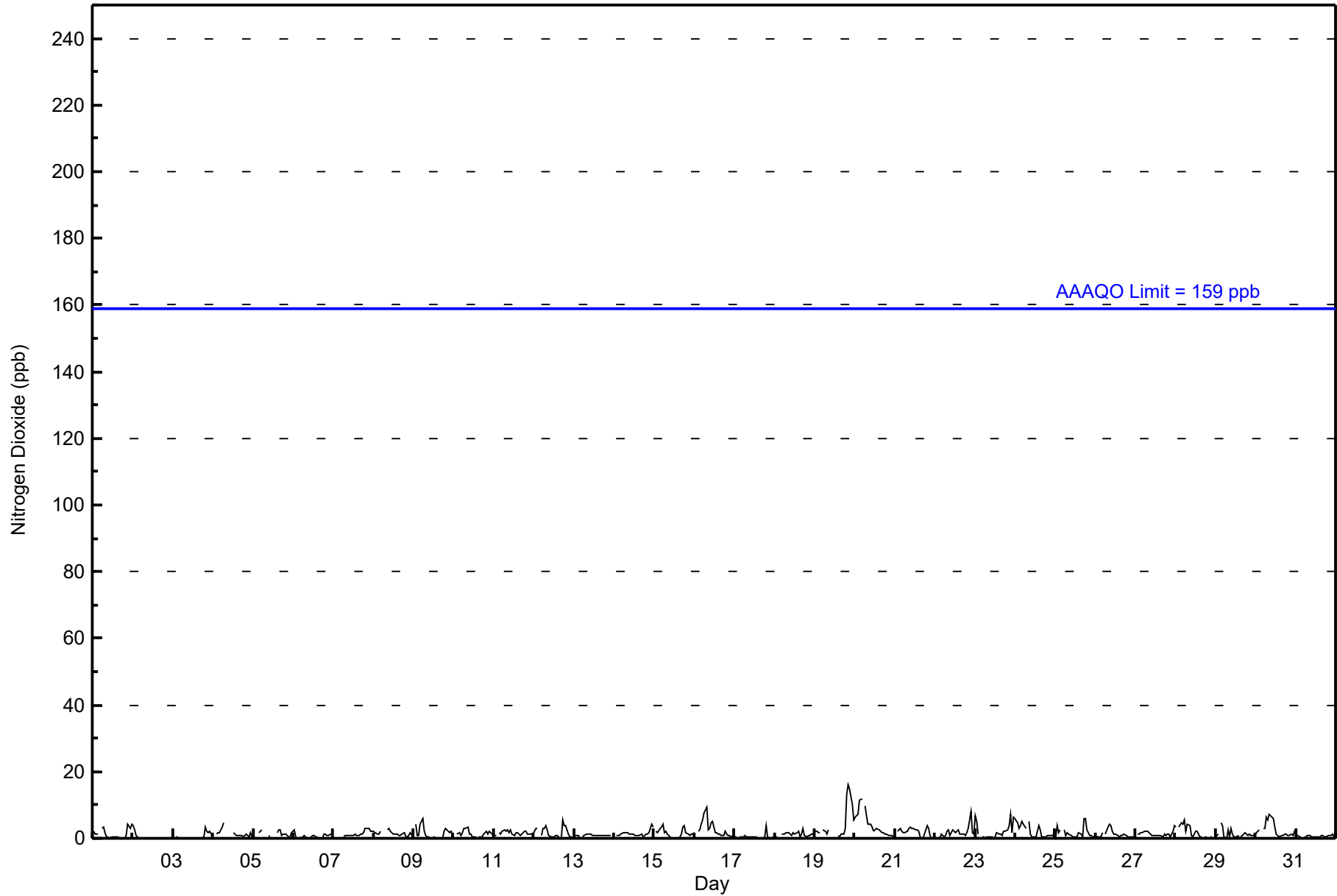
2.0	2.0	1.6	2.1	2.4	2.3	2.2	2.3	2.0	1.5	1.3	1.1	0.9	1.1	1.0	0.8	0.7	1.3	1.5	2.0	1.7	2.0	1.5	1.6	Diurnal Average	
6.7	6.7	7.1	11.6	11.9	6.0	9.9	9.2	7.3	6.7	6.0	5.0	2.6	3.1	3.9	2.6	2.6	5.8	6.1	13.0	16.1	15.0	10.2	6.2	Diurnal Maximum	

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  
Hangingstone Expansion - October 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Hangingstone Expansion - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	690	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: 690

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Hangingstone Expansion - October 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	14	22	9	9	22	31	29	49	72	91	85	96	72	57	22	10	690
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>	14	22	9	9	22	31	29	49	72	91	85	96	72	57	22	10	690

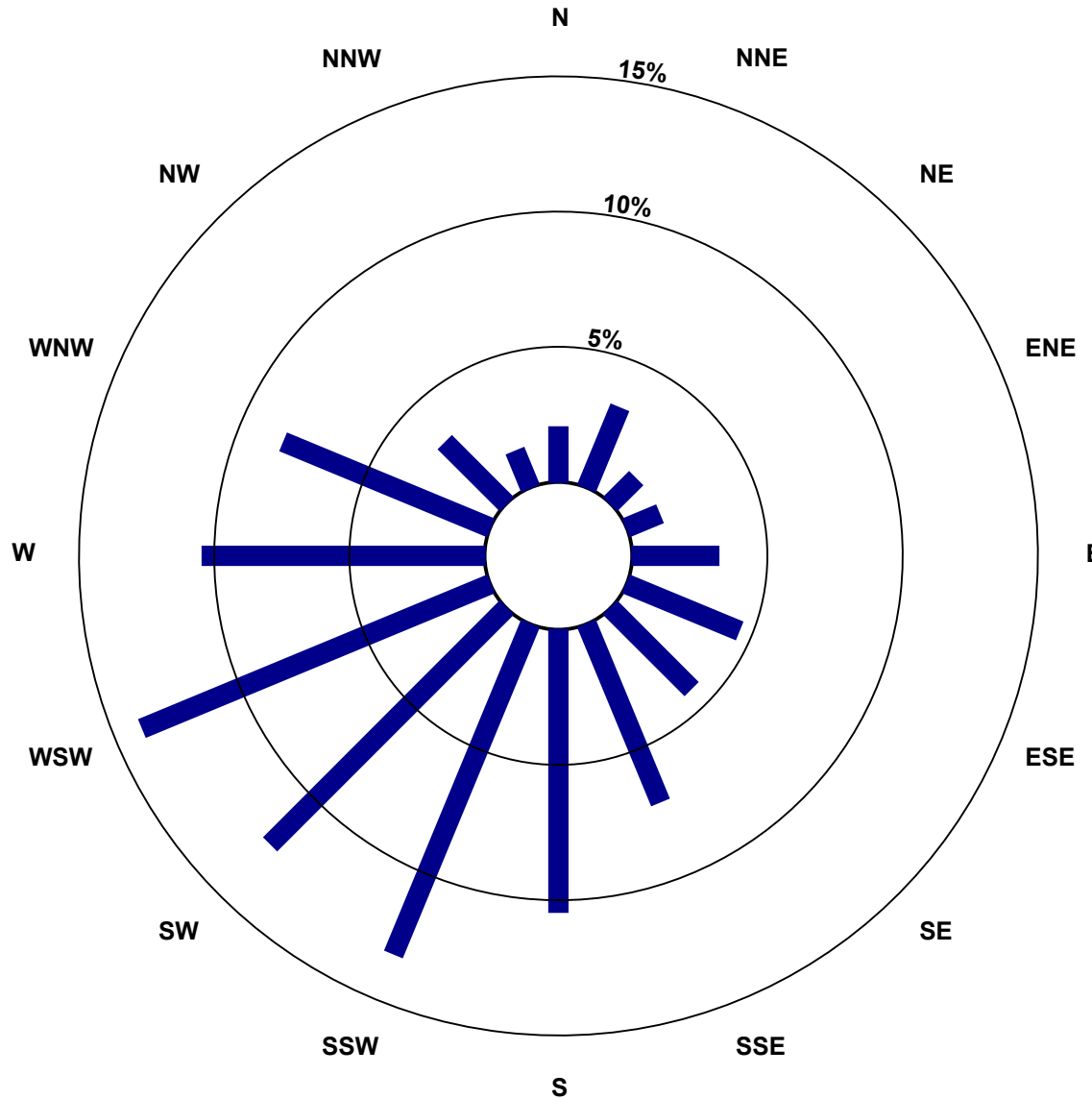
Total Number of Valid Hours: 690

Total Number of Hours: 744

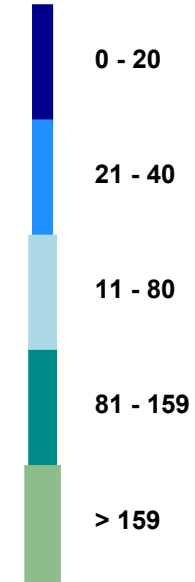


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

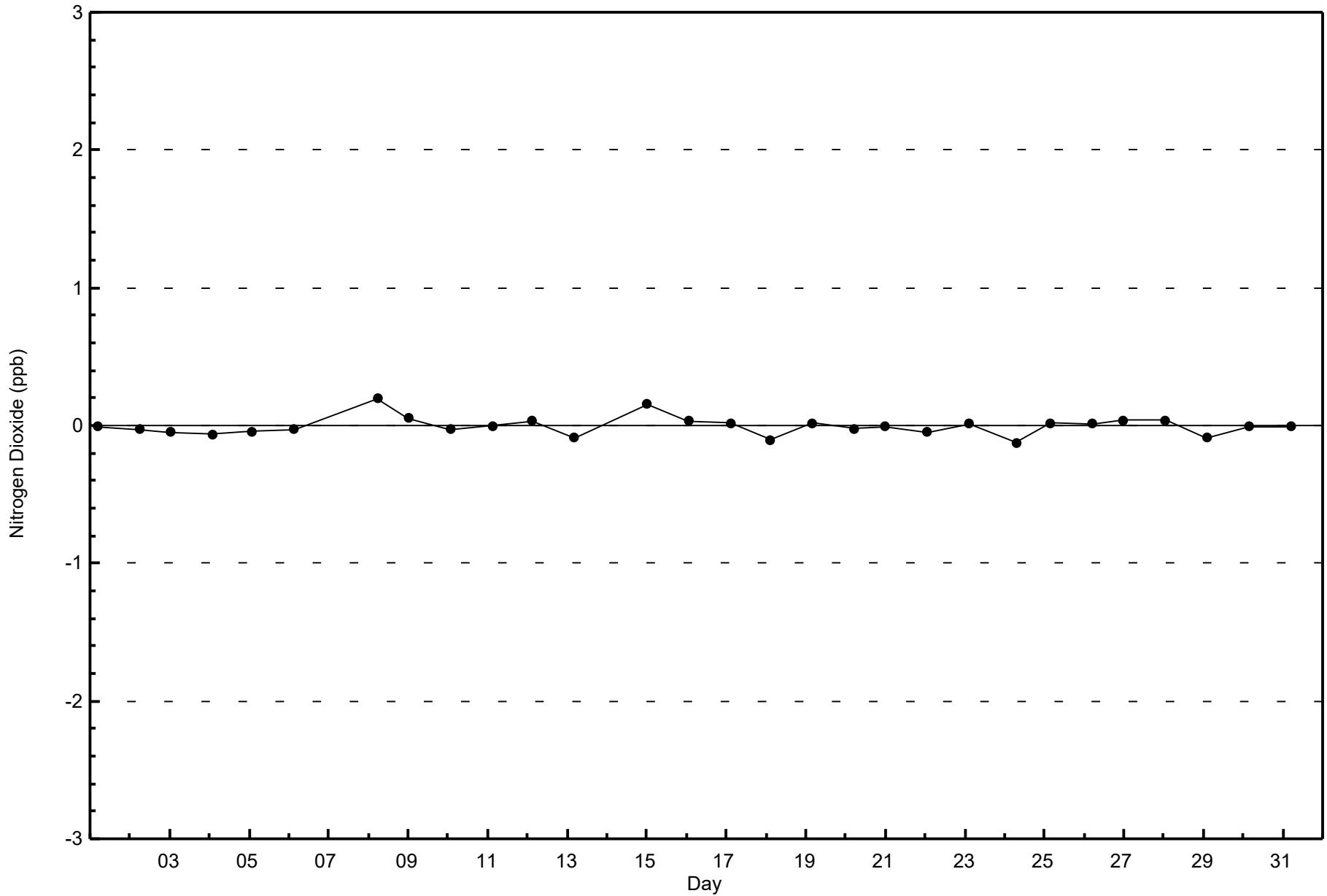
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Hangingstone Expansion

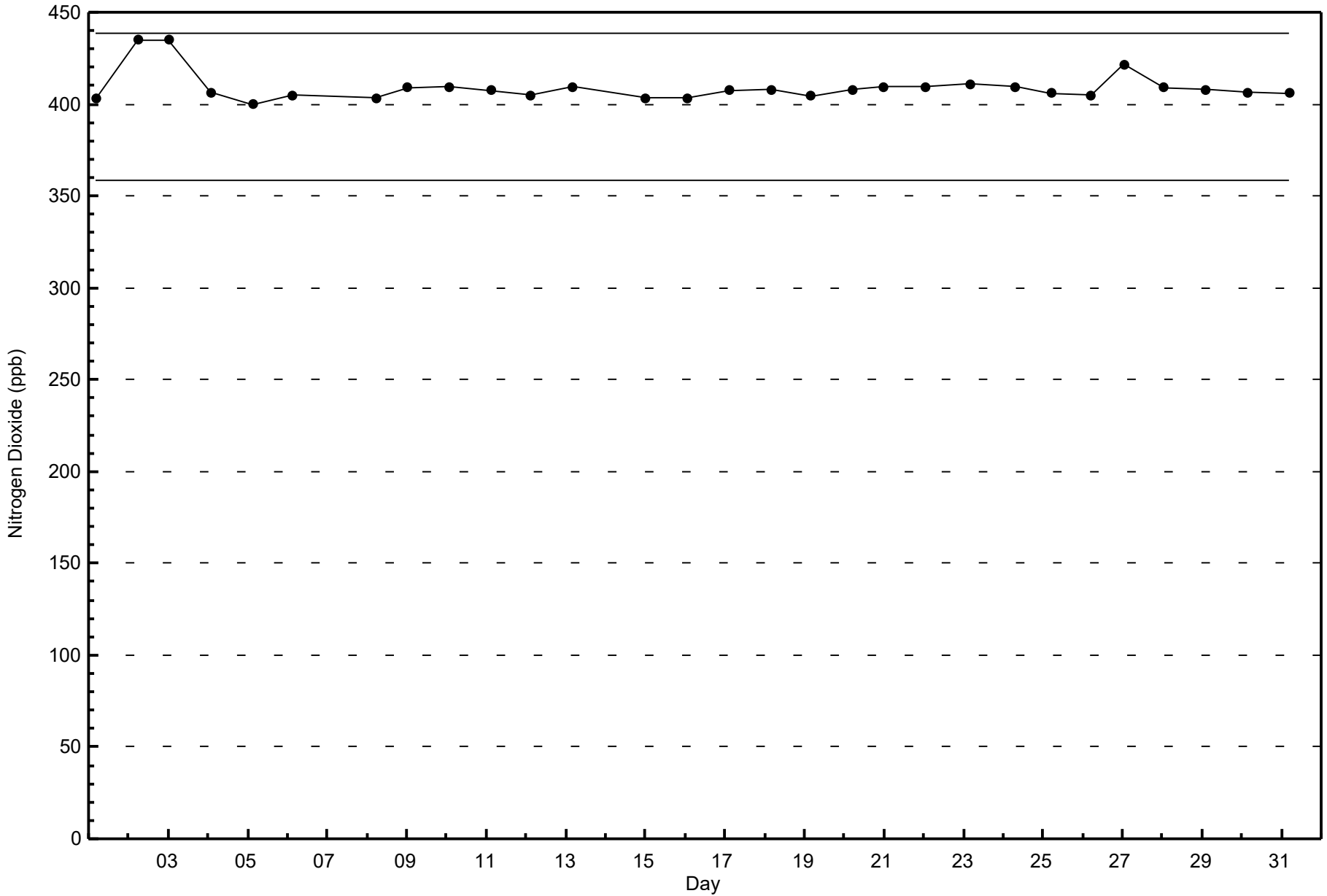


Classes (ppb)



Total Number of Valid Hours: 690









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO<sub>x</sub>) - ppb

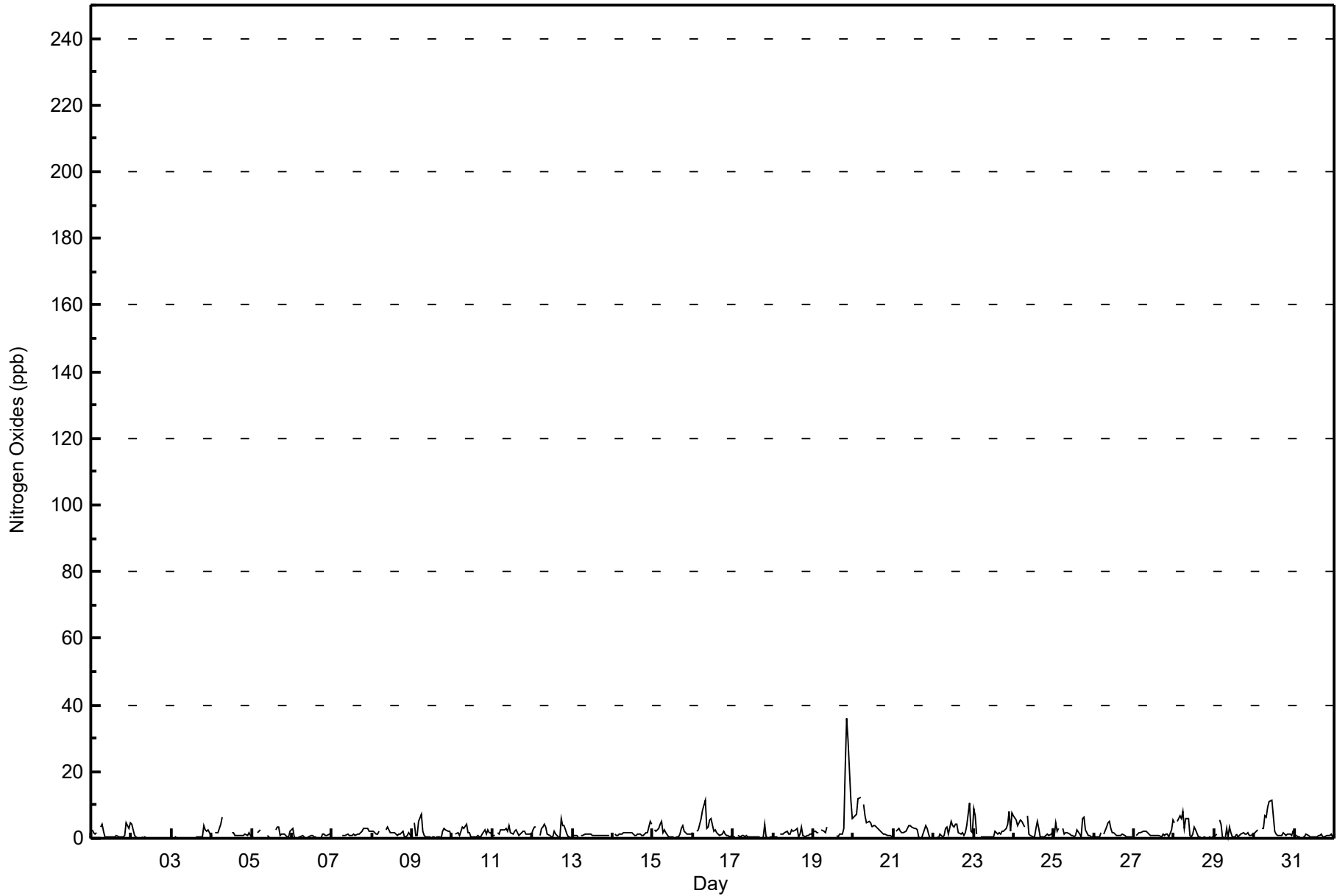
Hangingsstone Expansion - October 2024

Maximum Value: 35.8 ppb on Oct 19 21:00																				Maximum Daily Average: 7.1 ppb on Oct 19					Hours in Service: 744																								
Minimum Value: 0.0 ppb on Oct 6 17:00																				Minimum Daily Average: 0.4 ppb on Oct 2					Hours of Data: 690																								
Maximum Diurnal Average: 2.6 ppb at hour 8																				Minimum Diurnal Average: 0.8 ppb at hour 17					Hours of Missing Data: 54																								
Monthly Average: 1.91 ppb																				Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.6 Median = 1.2 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 4.2 P <sub>99</sub> = 11.3					Hours of Calibration: 34																								
																									Percent Operational Time: 97.3																								
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-Oct	2.5	1.7	1.4	1.5	Z	3.3	4.3	1.9	0.4	0.5	0.3	0.4	0.5	0.5	0.4	0.7	0.3	0.3	0.2	0.2	1.0	4.5	3.1	4.5	1.5	4.5																							
2-Oct	4.1	2.4	0.9	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	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.4	4.1																							
3-Oct	Z	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.6	3.6	2.4	1.9	2.4	1.1	0.7	3.6																							
4-Oct	1.0	Z	1.5	1.8	1.6	4.3	6.3	C	C	C	C	C	1.8	1.6	0.8	1.0	0.9	0.7	0.7	0.8	1.2	0.7	1.6	0.6	1.6	6.3																							
5-Oct	0.4	0.5	Z	1.6	2.0	2.6	PF	PF	PF	PF	0.9	0.2	0.1	PF	PF	2.3	3.3	3.4	1.0	1.1	1.2	0.8	0.6	0.6	2.1	1.4	3.4																						
6-Oct	2.9	0.6	0.2	Z	0.3	0.2	0.8	0.3	0.2	0.1	0.2	1.0	1.0	0.6	0.4	0.1	0.0	0.1	1.4	1.3	0.9	1.0	1.3	0.7	0.7	2.9	2.9																						
7-Oct	PF	PF	PF	PF	PF	PF	0.6	0.7	1.0	1.2	0.9	0.9	0.9	1.5	1.0	1.1	1.1	1.5	1.9	3.0	2.9	3.0	2.2	2.1	1.5	3.0																							
8-Oct	2.1	2.0	1.3	1.2	2.1	Z	PF	PF	2.5	3.5	2.7	1.8	1.6	1.5	1.3	1.0	1.1	1.2	2.1	0.6	0.6	1.0	1.7	0.5	1.6	3.5																							
9-Oct	Z	4.7	1.0	1.0	5.2	7.1	2.3	0.8	0.5	0.3	0.2	0.2	0.6	0.2	0.2	0.4	0.2	0.2	2.1	3.0	2.6	2.0	2.0	0.9	1.6	7.1																							
10-Oct	1.0	Z	1.2	1.8	1.0	1.9	3.2	3.1	4.4	1.7	1.7	0.5	0.4	0.5	0.3	0.8	0.3	0.3	1.4	2.4	1.5	2.3	1.6	1.6	1.5	4.4																							
11-Oct	1.0	0.9	Z	1.6	1.3	2.4	2.5	2.3	2.9	2.1	3.6	1.9	1.2	2.2	2.4	1.6	0.9	1.9	2.1	2.2	1.3	1.2	1.4	1.5	1.8	3.6																							
12-Oct	2.5	3.5	3.3	Z	0.8	3.1	3.4	4.3	3.5	1.4	0.7	0.5	0.4	1.9	1.3	0.2	0.2	5.8	3.9	4.0	1.3	0.4	0.3	0.2	2.0	5.8																							
13-Oct	0.5	1.0	0.7	0.5	Z	0.6	0.7	1.1	1.3	1.4	1.3	1.1	0.9	0.8	0.8	0.9	0.9	0.8	0.8	0.8	1.0	0.9	1.0	PF	0.9	1.4																							
14-Oct	PF	1.1	0.9	0.9	1.1	1.5	1.7	1.8	1.7	1.5	1.5	1.6	1.2	0.9	0.8	1.1	1.4	0.7	0.8	1.3	1.5	1.8	5.3	4.0	1.6	5.3																							
15-Oct	Z	2.4	2.1	3.2	4.2	5.2	1.6	2.5	1.5	0.4	0.3	0.2	0.3	0.2	0.2	0.4	1.2	3.2	3.9	1.9	1.3	1.1	1.3	1.1	1.7	5.2																							
16-Oct	1.6	Z	2.0	2.5	4.3	6.0	8.3	11.6	3.1	3.2	5.5	6.1	2.1	2.5	1.6	1.3	0.9	1.1	2.1	1.4	0.8	1.0	0.6	0.8	3.1	11.6																							
17-Oct	0.4	0.4	Z	0.7	0.6	0.6	0.8	0.5	0.7	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.2	0.3	4.2	0.3	0.2	0.2	0.3	0.6	4.2																							
18-Oct	0.3	0.3	0.2	Z	1.3	1.4	1.3	1.9	2.2	1.4	1.2	2.7	2.0	2.6	3.0	0.6	1.3	3.4	0.7	0.6	0.7	0.9	1.1	1.4	1.4	3.4																							
19-Oct	2.0	2.1	1.9	1.8	Z	2.7	2.1	1.5	3.3	PF	PF	PF	PF	PF	0.8	0.6	1.1	1.4	2.9	21.1	35.8	29.2	11.4	5.7	7.1	35.8																							
20-Oct	6.5	6.8	7.3	12.0	12.1	Z	10.0	6.8	4.8	4.9	4.8	3.2	3.7	4.0	2.8	2.4	2.0	1.8	1.4	1.3	0.8	0.9	0.9	0.4	4.4	12.1																							
21-Oct	Z	2.0	2.5	2.8	2.2	1.9	1.8	2.2	3.1	3.9	3.7	3.4	2.8	3.1	2.5	0.3	0.1	0.2	2.6	3.8	2.8	1.1	0.1	0.0	2.1	3.9																							
22-Oct	0.0	Z	0.3	0.1	1.4	0.5	0.9	2.8	3.3	1.3	5.0	3.9	3.5	4.4	4.2	1.7	1.3	1.6	0.8	1.9	3.8	10.8	2.1	1.6	2.5	10.8																							
23-Oct	8.7	6.7	1.4	Z	0.5	0.4	0.3	0.3	0.4	0.4	0.5	0.3	0.5	2.2	1.4	1.7	1.1	2.3	2.3	2.9	4.4	8.2	2.2	7.4	2.5	8.7																							
24-Oct	6.8	5.5	3.6	4.7	5.7	5.0	3.5	Z	7.0	1.4	0.7	0.6	0.5	3.1	5.2	3.2	0.4	0.4	0.6	0.9	1.2	1.1	1.1	2.7	2.8	7.0																							
25-Oct	0.8	4.6	2.1	2.9	Z	3.1	1.2	1.9	1.8	1.4	0.9	0.8	0.5	0.7	2.4	1.5	0.5	6.0	6.2	2.5	1.0	0.9	0.4	0.5	1.9	6.2																							
26-Oct	0.7	0.5	0.4	0.5	1.6	Z	1.3	3.4	4.6	5.2	3.0	1.5	1.6	0.8	0.7	0.7	1.0	1.2	0.7	0.4	0.3	0.4	0.4	0.6	1.4	5.2																							
27-Oct	Z	1.1	1.4	1.6	1.7	2.1	2.0	2.1	1.8	1.2	1.0	1.0	0.9	0.8	0.7	0.7	0.6	1.2	0.7	1.3	1.1	0.6	2.6	5.7	1.5	5.7																							
28-Oct	4.6	Z	4.9	6.7	6.1	8.0	2.9	6.1	5.7	0.8	0.6	1.4	3.2	2.7	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	2.4	8.0																							
29-Oct	0.5	1.4	Z	5.3	4.0	0.4	0.2	3.1	0.6	3.6	1.6	0.5	0.5	1.2	0.3	0.7	1.1	1.8	1.4	1.1	1.6	1.0	1.0	1.1	1.5	5.3																							
30-Oct	1.9	2.2	2.7	Z	3.1	3.0	6.6	6.2	9.5	11.1	11.2	6.6	2.1	1.3	0.9	0.9	0.8	1.6	1.3	1.0	1.1	1.1	0.8	2.3	3.5	11.2																							
31-Oct	1.3	0.9	0.4	0.3	Z	0.5	0.5	1.2	0.8	0.4	0.6	0.5	0.4	0.4	0.7	0.8	1.2	0.6	0.6	0.7	0.8	0.9	1.1	0.6	0.7	1.3																							
																								2.2	2.2	1.8	2.3	2.6	2.6	2.5	2.6	2.5	1.9	1.9	1.5	1.2	1.5	1.3	1.0	0.8	1.4	1.6	2.3	2.5	2.6	1.7	1.8	Diurnal Average	
																								8.7	6.8	7.3	12.0	12.1	8.0	10.0	11.6	9.5	11.1	11.2	6.6	3.7	4.4	5.2	3.3	3.4	6.0	6.2	21.1	35.8	29.2	11.4	7.4	Diurnal Maximum	
Z - zerospan			C - Calibration			PF - Power Failure																																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Hangingsstone Expansion - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Hangingstone Expansion - October 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	687	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: 690

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Hangingstone Expansion - October 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	14	20	8	9	22	31	29	49	72	91	85	96	72	57	22	10	687
21 - 40	0	2	1	0	0	0	0	0	0	0	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>	14	22	9	9	22	31	29	49	72	91	85	96	72	57	22	10	690

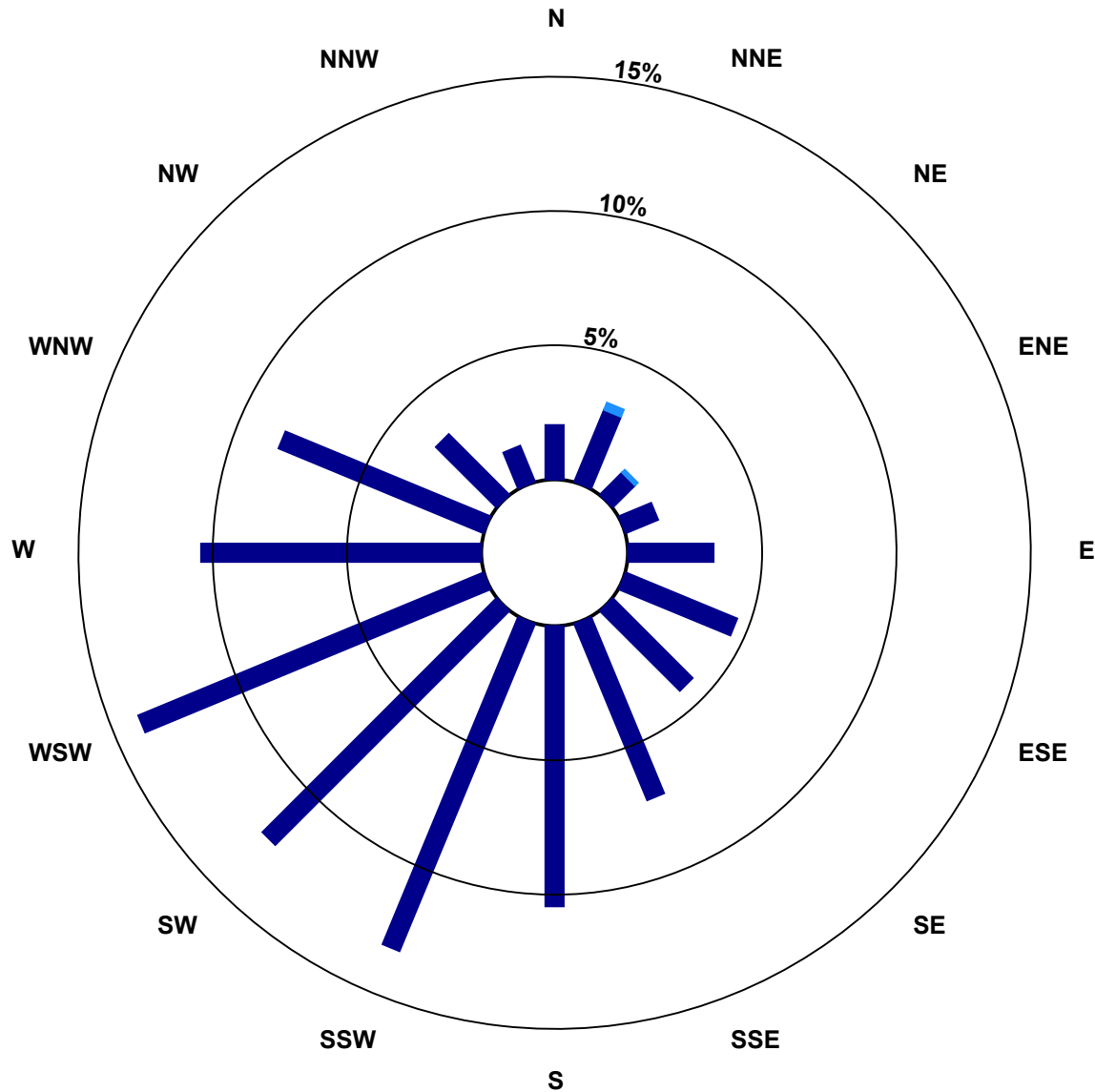
Total Number of Valid Hours: 690

Total Number of Hours: 744

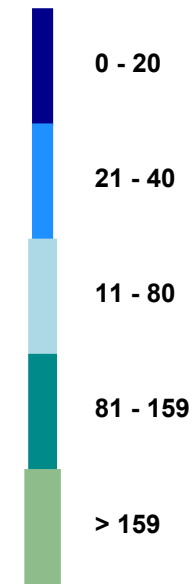


Wood Buffalo Environmental Association  
Wind Rose Oct 2024

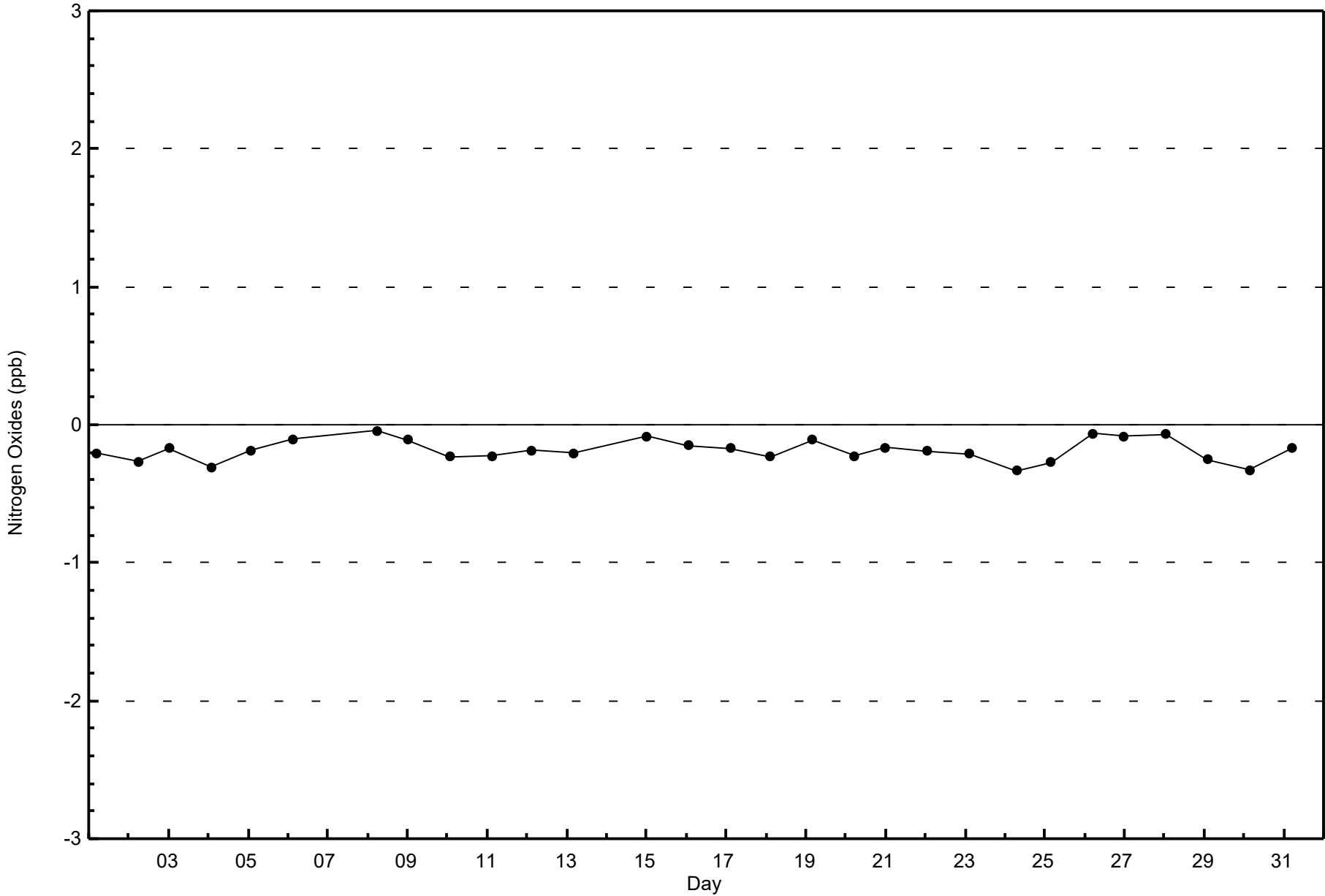
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Hangingstone Expansion

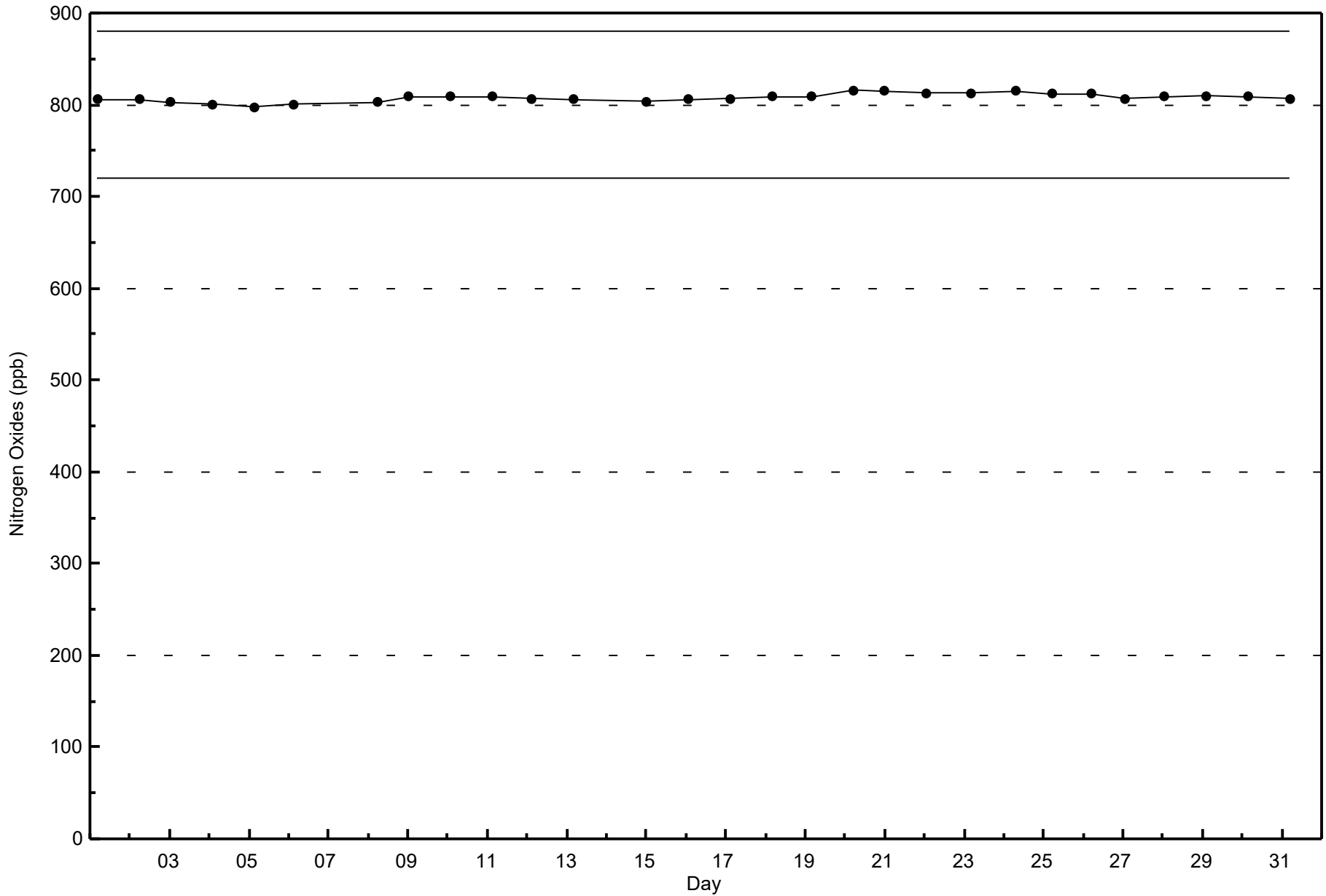


Classes (ppb)



Total Number of Valid Hours: 690





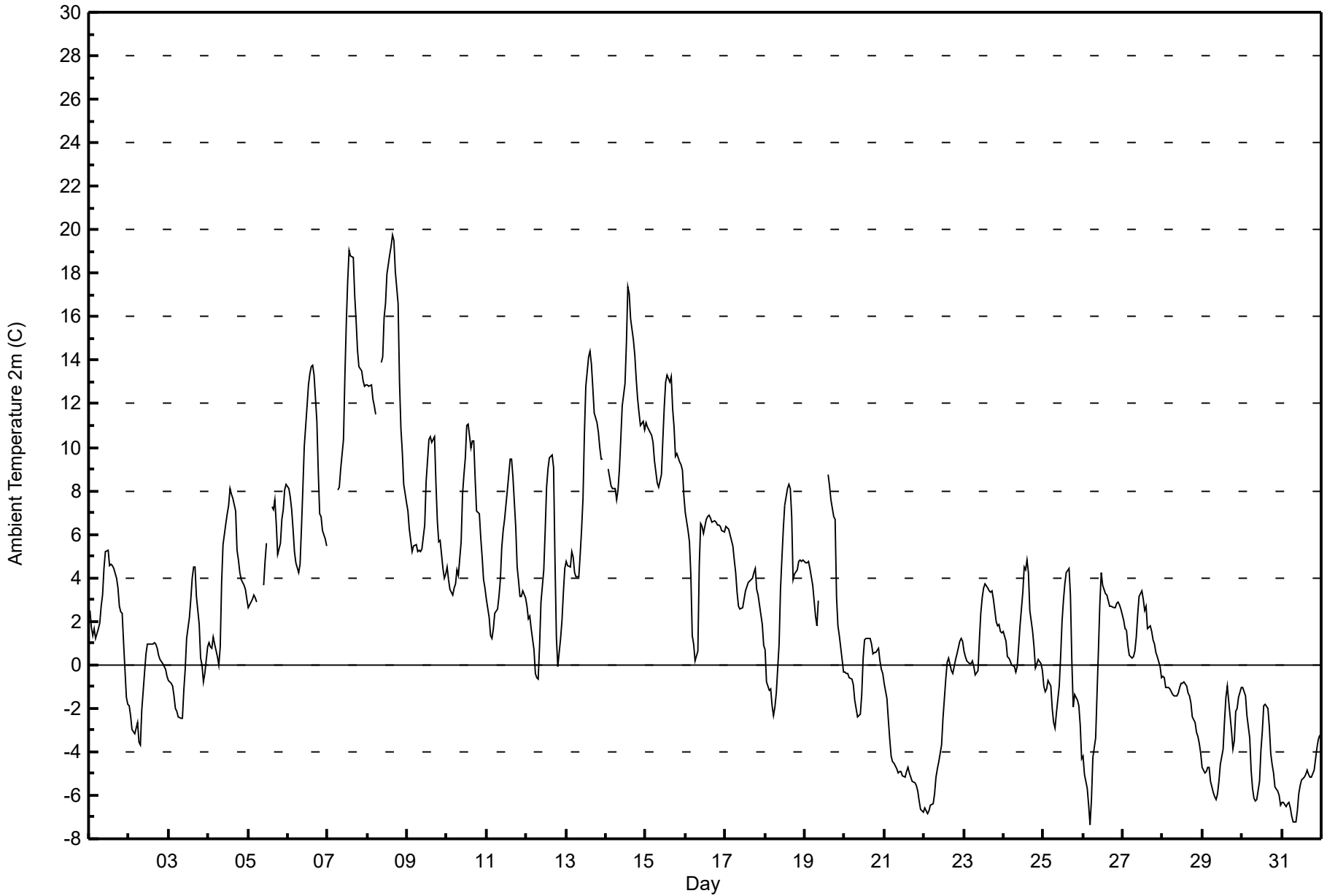


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Hangingsstone Expansion - October 2024**

Maximum Value: 19.7 C on Oct 8 16:00 Minimum Value: -7.4 C on Oct 26 05:00 Maximum Diurnal Average: 6.2 C at hour 15 Monthly Average: 2.99 C		Maximum Daily Average: 14.3 C on Oct 8 Minimum Daily Average: -5.6 C on Oct 31 Minimum Diurnal Average: 0.2 C at hour 7 Percentiles: P <sub>1</sub> = -6.7 P <sub>10</sub> = -4.7 Q <sub>1</sub> = -0.9 Median = 2.7 Q <sub>3</sub> = 6.4 P <sub>90</sub> = 10.7 P <sub>99</sub> = 18.0		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 Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	2.5	1.7	1.4	1.7	1.2	1.6	1.9	2.7	3.2	4.5	5.2	5.3	4.6	4.6	4.6	4.4	4.0	3.6	2.7	2.4	2.4	1.0	-1.5	-1.8	2.7	5.3
2-Oct	-1.9	-2.3	-3.0	-3.2	-2.9	-2.6	-3.5	-3.7	-2.1	-0.3	0.5	0.9	1.0	0.9	0.9	1.0	1.0	0.8	0.5	0.2	0.1	-0.1	-0.2	-0.5	-0.8	1.0
3-Oct	-0.7	-0.9	-1.0	-1.4	-2.0	-2.2	-2.4	-2.5	-1.1	-0.2	1.2	2.2	3.0	4.0	4.5	4.5	3.2	1.9	0.3	0.0	-0.8	-0.4	0.8	0.3	4.5	
4-Oct	1.0	0.8	0.8	1.3	0.9	0.4	0.0	0.8	3.8	5.5	6.5	7.0	7.3	8.1	7.8	7.6	7.1	5.3	4.8	4.3	3.9	3.7	3.5	3.0	4.0	8.1
5-Oct	2.6	2.7	3.0	3.2	3.1	2.9	PF	PF	PF	3.7	4.8	5.6	PF	PF	7.3	7.2	7.6	6.5	5.1	5.6	6.7	7.2	8.0	8.3	5.3	8.3
6-Oct	8.1	7.7	7.2	6.2	5.2	4.7	4.2	4.7	6.3	8.1	10.1	11.9	12.9	13.4	13.7	13.8	13.3	11.2	8.8	6.9	6.8	6.2	5.8	5.4	8.4	13.8
7-Oct	PF	PF	PF	PF	PF	PF	8.1	8.1	9.0	10.3	13.3	15.7	17.6	19.1	18.8	18.7	17.0	15.9	14.5	13.7	13.5	13.1	12.8	12.9	14.0	19.1
8-Oct	12.9	12.8	12.8	12.2	11.9	11.5	PF	PF	13.9	14.2	16.0	16.6	17.9	18.9	19.3	19.7	19.5	18.1	16.6	13.0	10.9	9.8	8.3	7.5	14.3	19.7
9-Oct	7.0	6.2	5.7	5.2	5.5	5.5	5.2	5.3	5.2	5.3	6.4	8.4	9.4	10.4	10.5	10.3	10.5	8.4	6.6	5.7	5.7	4.4	4.0	4.1	6.7	10.5
10-Oct	4.5	3.9	3.5	3.2	3.5	3.7	4.3	4.1	5.6	7.9	8.7	9.5	11.0	11.1	10.0	10.3	10.3	8.6	7.1	6.9	5.9	4.9	3.9	3.5	6.5	11.1
11-Oct	3.0	2.2	1.3	1.2	1.7	2.4	2.5	3.1	3.9	5.4	6.1	6.7	8.0	8.8	9.4	9.4	8.6	6.3	4.5	3.9	3.1	3.1	3.4	3.1	4.6	9.4
12-Oct	2.7	2.1	2.2	1.6	0.7	-0.4	-0.6	-0.7	0.9	2.9	4.4	6.2	8.2	9.0	9.5	9.6	9.1	4.8	1.3	-0.1	1.2	2.0	3.4	4.4	3.5	9.6
13-Oct	4.7	4.6	4.5	5.2	4.9	4.2	4.1	4.1	5.1	6.2	7.7	10.6	12.8	14.2	14.4	13.9	12.7	11.6	11.1	10.7	10.0	9.5	9.4	PF	8.5	14.4
14-Oct	PF	9.0	8.6	8.3	8.1	8.1	7.6	8.0	9.0	10.4	11.9	13.0	14.8	17.4	17.0	15.9	14.9	14.2	13.1	12.2	11.6	11.0	11.2	10.8	11.6	17.4
15-Oct	11.2	10.9	10.8	10.6	10.2	9.4	8.9	8.4	8.2	8.8	10.3	11.9	13.0	13.3	13.0	13.2	11.8	10.9	9.6	9.7	9.3	9.2	9.0	7.8	10.4	13.3
16-Oct	7.0	6.1	5.6	4.1	1.4	0.9	0.2	0.7	4.6	6.5	6.4	6.0	6.7	6.8	6.9	6.7	6.6	6.6	6.6	6.4	6.4	6.4	6.2	6.1	5.3	7.0
17-Oct	6.4	6.3	6.2	6.0	5.5	4.8	4.2	3.3	2.7	2.5	2.7	3.0	3.4	3.6	3.8	3.9	4.0	4.2	4.5	3.5	3.2	2.3	1.8	0.9	3.9	6.4
18-Oct	0.7	-0.8	-1.2	-1.1	-1.9	-2.3	-2.0	-1.3	1.0	3.4	4.9	6.2	7.3	8.1	8.3	8.1	6.8	3.9	4.1	4.4	4.7	4.8	4.8	4.8	3.2	8.3
19-Oct	4.7	4.7	4.8	4.4	4.0	3.7	2.2	1.8	3.0	PF	PF	PF	PF	PF	8.8	8.2	7.6	6.8	6.7	3.1	1.8	1.3	0.2	-0.3	4.1	8.8
20-Oct	-0.4	-0.4	-0.4	-0.6	-0.6	-0.9	-1.6	-2.0	-2.4	-2.3	-1.3	0.3	1.2	1.2	1.2	1.2	1.0	0.5	0.6	0.6	0.7	0.2	-0.2	-0.4	-0.2	1.2
21-Oct	-0.9	-1.5	-2.5	-3.4	-4.2	-4.5	-4.5	-4.8	-4.9	-4.9	-4.9	-5.1	-5.2	-4.9	-4.7	-4.9	-5.1	-5.3	-5.4	-5.5	-5.8	-6.2	-6.6	-6.8	-4.7	-0.9
22-Oct	-6.6	-6.7	-6.9	-6.7	-6.4	-6.4	-5.9	-5.2	-4.8	-4.5	-3.7	-2.4	-1.6	-0.7	0.1	0.3	-0.3	-0.4	-0.1	0.2	0.5	1.1	1.2	1.1	-2.7	1.2
23-Oct	0.6	0.4	0.2	0.0	0.1	0.2	-0.1	-0.5	-0.3	1.1	2.3	3.1	3.5	3.7	3.6	3.4	3.3	3.4	3.0	2.0	1.8	1.8	1.5	1.5	1.7	3.7
24-Oct	1.5	1.1	0.4	0.3	0.2	0.0	-0.1	-0.3	-0.1	0.8	1.8	3.3	4.5	4.3	4.8	4.3	2.5	1.5	0.8	-0.1	0.1	0.3	0.0	-0.3	1.3	4.8
25-Oct	-1.0	-1.2	-1.1	-0.7	-0.9	-2.0	-2.6	-2.9	-2.2	-1.0	0.3	2.0	3.0	3.7	4.2	4.4	3.2	0.2	-2.0	-1.4	-1.6	-1.9	-2.8	-4.3	-0.4	4.4
26-Oct	-4.2	-5.1	-5.7	-6.5	-7.4	-6.2	-4.3	-3.4	-1.3	0.7	2.8	4.2	3.7	3.3	3.2	3.0	2.7	2.7	2.6	2.6	2.8	2.9	2.7	2.5	-0.1	4.2
27-Oct	2.0	1.7	1.6	0.9	0.4	0.3	0.3	0.6	1.3	2.3	3.1	3.4	3.0	2.5	2.7	1.7	1.8	1.5	1.1	0.9	0.6	0.4	-0.1	-0.6	1.4	3.4
28-Oct	-0.6	-0.6	-1.0	-1.0	-1.1	-1.2	-1.4	-1.4	-1.5	-1.3	-1.0	-0.9	-0.9	-0.8	-1.0	-1.3	-1.4	-1.8	-2.4	-2.6	-3.1	-3.3	-3.6	-4.1	-1.6	-0.6
29-Oct	-4.7	-4.9	-4.9	-4.7	-4.7	-5.3	-5.8	-6.1	-6.2	-5.9	-5.4	-4.6	-3.9	-2.6	-1.5	-1.0	-1.7	-3.1	-3.9	-3.5	-2.2	-2.0	-1.5	-1.0	-3.8	-1.0
30-Oct	-1.1	-1.2	-1.5	-2.3	-3.4	-4.8	-5.7	-6.1	-6.3	-6.2	-5.4	-4.0	-3.0	-1.9	-1.8	-2.0	-2.9	-4.1	-4.6	-5.0	-5.6	-5.8	-6.0	-6.5	-4.0	-1.1
31-Oct	-6.3	-6.3	-6.5	-6.4	-6.3	-6.6	-6.9	-7.3	-7.2	-6.7	-5.9	-5.6	-5.3	-5.1	-5.1	-4.8	-5.0	-5.2	-5.2	-4.9	-4.3	-3.8	-3.4	-3.3	-5.6	-3.3
1.9 1.8 1.5 1.3 0.9 0.6 0.2 0.3 1.5 2.5 3.6 4.6 5.4 6.0 6.2 6.1 5.6 4.5 3.7 3.1 2.9 2.7 2.4 2.0																								Diurnal Average		
12.9 12.8 12.8 12.2 11.9 11.5 8.9 8.4 13.9 14.2 16.0 16.6 17.9 19.1 19.3 19.7 19.5 18.1 16.6 13.7 13.5 13.1 12.8 12.9																								Diurnal Maximum		
PF - Power Failure																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C  
Hangingstone Expansion - October 2024**

<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	227	31.35	31.35
0 - 10	410	56.63	87.98
10 - 20	87	12.02	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 724

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

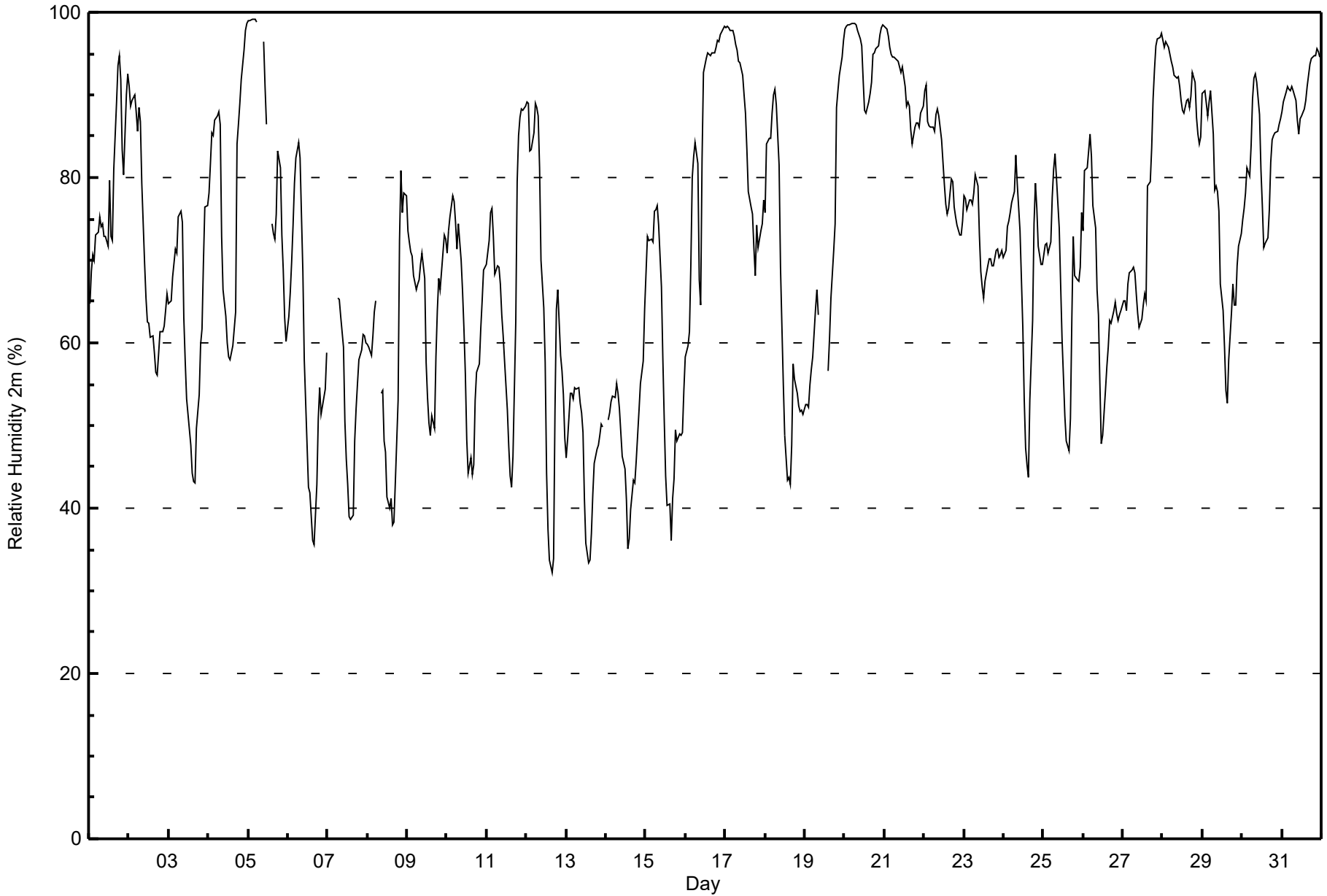
**Relative Humidity 2m (RH2) - %**  
**Hangingsstone Expansion - October 2024**

Maximum Value: 99.2 % on Oct 5 04:00      Maximum Daily Average: 95.5 % on Oct 20 Minimum Value: 32.2 % on Oct 12 16:00      Minimum Daily Average: 47.1 % on Oct 13 Maximum Diurnal Average: 79.8 % at hour 6      Minimum Diurnal Average: 59.0 % at hour 15 Monthly Average: 71.71 %      Percentiles: P <sub>1</sub> = 35.8 P <sub>10</sub> = 48.1 Q <sub>1</sub> = 58.8 Median = 72.4 Q <sub>3</sub> = 86.8 P <sub>90</sub> = 94.4 P <sub>99</sub> = 98.7																						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 Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Oct	64.8	68.6	70.7	69.9	73.0	73.5	75.2	74.0	74.4	72.9	72.9	71.7	79.7	72.9	72.3	81.1	89.1	93.6	94.7	91.8	83.4	80.3	90.0	92.5	78.5	94.7																					
2-Oct	91.0	88.6	89.2	90.0	88.0	85.5	88.5	86.8	79.2	69.6	65.4	62.6	62.3	60.6	60.8	58.9	56.4	56.1	58.6	61.4	61.4	62.0	63.8	65.9	71.4	91.0																					
3-Oct	64.8	65.1	68.0	69.7	71.3	70.9	75.2	76.0	74.5	63.0	57.8	53.2	49.5	47.7	44.3	43.2	43.1	49.7	53.8	59.8	61.8	69.6	76.4	76.5	61.9	76.5																					
4-Oct	78.2	81.7	85.4	85.1	87.0	87.4	88.0	86.5	72.8	66.5	63.3	59.9	58.3	57.9	58.8	59.7	63.8	84.1	86.4	89.0	91.9	95.5	97.8	98.6	78.5	98.6																					
5-Oct	99.0	99.1	99.2	99.2	99.1	98.9	PF	PF	PF	96.5	91.0	86.5	PF	PF	74.4	73.3	72.6	75.6	83.2	81.1	73.1	68.8	63.0	60.2	83.9	99.2																					
6-Oct	63.2	66.2	69.8	74.2	79.2	82.3	84.3	82.4	75.4	68.6	58.0	47.6	42.6	41.8	38.9	36.1	35.6	42.9	50.8	54.6	51.3	52.5	54.4	58.9	58.8	84.3																					
7-Oct	PF	PF	PF	PF	PF	PF	65.5	65.3	63.2	59.5	50.6	45.9	43.0	39.1	38.7	39.2	48.1	52.0	55.2	57.9	59.2	61.0	60.9	60.0	53.6	65.5																					
8-Oct	59.8	59.5	58.6	60.9	63.7	65.1	PF	PF	53.9	54.3	48.1	46.8	41.3	40.0	41.2	38.0	38.3	43.1	53.1	72.3	80.9	75.8	78.2	77.9	56.9	80.9																					
9-Oct	73.5	72.2	71.1	70.5	68.2	66.5	67.2	67.7	69.5	70.9	67.8	57.6	53.4	50.3	48.9	51.2	49.6	58.4	63.8	67.7	66.4	70.9	73.0	72.5	64.5	73.5																					
10-Oct	70.9	73.5	75.2	77.7	77.2	74.5	71.3	74.4	70.1	66.2	61.6	56.2	48.3	44.2	46.1	44.1	45.2	53.0	56.5	57.5	61.7	65.2	68.8	69.2	62.9	77.7																					
11-Oct	69.5	72.3	75.8	76.2	72.9	68.3	69.4	69.1	67.2	63.3	60.8	57.9	51.8	47.4	43.9	42.6	46.2	62.5	79.5	85.2	87.3	88.2	88.2	88.6	68.1	88.6																					
12-Oct	89.1	89.0	83.2	83.4	85.3	88.9	88.4	87.4	81.2	70.1	64.3	57.6	44.3	37.4	33.7	32.2	34.0	51.9	64.1	66.5	58.5	56.6	53.7	48.5	64.6	89.1																					
13-Oct	46.1	48.3	53.8	53.9	53.2	54.6	54.4	54.6	52.7	51.6	49.2	41.1	35.7	33.5	33.8	36.9	41.6	45.5	47.1	47.6	48.9	50.1	49.8	PF	47.1	54.6																					
14-Oct	PF	50.6	51.6	53.0	53.6	53.4	55.0	53.8	52.1	49.2	46.3	44.7	41.0	35.1	36.3	39.8	43.4	43.1	45.8	48.8	51.9	55.2	57.8	64.1	48.9	64.1																					
15-Oct	68.5	72.8	72.4	72.6	72.2	75.9	76.1	76.6	74.3	66.7	58.1	50.7	43.8	40.3	40.5	36.0	41.2	43.6	49.5	48.1	48.9	48.8	49.2	54.2	57.6	76.6																					
16-Oct	58.2	59.6	61.4	69.5	80.0	82.5	84.2	81.7	67.7	64.6	82.1	92.7	94.5	95.2	94.9	94.8	95.1	95.8	96.6	96.5	97.3	97.7	98.3	84.8	98.3																						
17-Oct	98.1	98.3	98.1	97.8	97.8	97.1	96.1	95.4	94.1	93.9	92.4	90.0	87.9	83.3	78.4	76.5	75.5	71.6	68.1	74.2	71.5	73.6	74.5	77.3	85.9	98.3																					
18-Oct	75.8	84.1	84.8	84.7	87.8	90.0	90.7	88.8	81.6	69.1	62.0	55.1	48.8	43.3	43.7	42.9	47.6	57.5	55.6	53.9	52.4	51.7	51.8	51.4	64.8	90.7																					
19-Oct	52.5	52.6	52.3	54.9	56.7	58.3	64.0	66.5	63.4	PF	PF	PF	PF	PF	56.7	60.4	65.5	71.3	74.5	88.5	90.5	92.3	94.5	96.6	69.1	96.6																					
20-Oct	97.9	98.3	98.5	98.5	98.6	98.7	98.7	98.5	97.9	96.8	96.0	91.8	88.2	87.8	89.2	90.1	91.5	94.9	95.1	95.5	95.9	97.2	98.2	98.4	95.5	98.7																					
21-Oct	98.4	98.0	97.1	95.8	94.8	94.6	94.5	94.3	94.0	93.3	92.8	93.3	91.1	88.6	89.2	88.7	85.7	84.1	86.0	86.7	86.6	86.1	87.9	88.7	91.3	98.4																					
22-Oct	90.5	91.2	86.8	86.2	86.0	86.1	85.5	87.7	88.3	87.4	84.6	81.8	79.1	76.8	75.5	76.2	79.8	79.5	76.5	75.3	74.2	73.1	73.1	74.8	81.5	91.2																					
23-Oct	77.8	77.4	76.0	77.2	77.4	76.8	78.1	80.4	79.0	73.1	68.7	66.7	65.4	67.5	69.4	70.2	70.1	69.4	69.3	71.2	71.4	70.4	70.7	71.2	72.7	80.4																					
24-Oct	70.3	71.3	74.0	74.7	75.8	77.0	78.3	82.7	79.4	76.5	73.5	61.9	53.3	47.2	45.3	43.7	53.0	62.8	74.5	79.2	76.3	71.8	69.5	69.4	68.4	82.7																					
25-Oct	70.7	71.9	72.0	70.9	72.3	77.7	81.1	83.0	80.0	74.0	67.1	60.4	55.9	51.2	48.1	47.0	50.8	62.8	72.9	68.2	67.7	67.4	69.2	75.8	67.4	83.0																					
26-Oct	73.6	80.8	81.1	83.2	85.3	82.6	76.6	73.9	66.5	63.4	55.3	47.8	48.8	54.3	57.1	59.6	62.7	62.4	63.9	64.9	63.5	62.7	63.5	63.8	66.5	85.3																					
27-Oct	65.0	65.0	63.8	67.1	68.5	68.7	69.2	68.4	66.0	63.5	61.8	62.9	64.6	65.9	65.0	79.1	79.6	83.6	89.6	93.0	96.0	96.8	96.9	97.5	74.9	97.5																					
28-Oct	96.6	95.8	96.5	95.7	94.9	94.1	93.3	92.4	92.1	92.3	91.0	89.4	88.1	87.7	89.3	89.5	88.5	89.8	92.8	91.5	87.2	85.2	84.1	84.9	90.9	96.6																					
29-Oct	90.2	90.6	89.1	87.5	89.2	90.6	85.3	78.5	78.9	78.3	76.0	67.1	63.8	59.6	54.2	52.8	57.9	63.7	67.2	64.6	64.6	69.3	71.7	73.2	73.5	90.6																					
30-Oct	74.9	76.2	78.2	81.1	80.1	83.9	89.6	92.0	92.5	91.5	87.7	81.0	76.6	71.5	72.1	72.7	76.1	81.9	84.6	85.1	85.4	85.6	86.5	87.0	82.2	92.5																					
31-Oct	88.0	89.2	90.4	91.0	90.7	90.5	91.0	90.4	89.3	86.9	85.2	87.2	87.5	88.3	89.4	91.0	92.4	93.7	94.4	94.8	94.7	95.7	95.3	94.6	90.9	95.7																					
																						76.5	76.9	77.5	78.4	79.3	79.8	79.8	79.6	75.7	73.1	69.7	65.6	61.7	59.2	59.0	59.6	61.9	67.1	71.1	73.3	72.9	73.4	74.5	76.4	Diurnal Average	
																						99.0	99.1	99.2	99.2	99.1	98.9	98.7	98.5	97.9	96.8	96.0	93.3	94.5	95.2	94.9	94.8	95.1	95.1	95.8	96.6	96.5	97.3	98.2	98.6	Diurnal Maximum	
PF - Power Failure																																															



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity 2m (RH2) - %**  
**Hangingsstone Expansion - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %**  
**Hangingstone Expansion - October 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	0	0.00	0.00
20 - 40	20	2.76	2.76
40 - 60	174	24.03	26.80
60 - 80	279	38.54	65.33
80 - 100	251	34.67	100.00

Total Number of Valid Hours: 724

Total Number of Hours: 744



Maximum Speed: 26 km/h on Oct 14 07:00	Maximum Daily Speed Average: 19.0 km/h on Oct 13	Hours in Service: 744
Minimum Speed Value: 1 km/h on Oct 27 19:00	Minimum Daily Speed Average: 3.6 km/h on Oct 19	Hours of Data: 724
Maximum Diurnal Speed Average: 6.1 km/h at hour 2	Minimum Diurnal Speed Average: 3.8 km/h at hour 17	Hours of Missing Data: 20
Monthly Average Velocity: 5.1 km/h 219.9 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 8 Median = 11 Q <sub>3</sub> = 14 P <sub>90</sub> = 16 P <sub>99</sub> = 23	Percent Operational Time: 97.3

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-Oct	SW10	SW10	SW10	SW7	SSW7	SW8	SW8	WSW9	WSW10	W12	WNW14	NW9	NW8	NW7	WNW5	WSW3	WSW6	W5	WSW5	WSW5	NW5	NNE7	WSW2	WSW6	WSW5.7	WNW14	
2-Oct	W6	WSW7	WSW7	W8	W10	W10	W8	WSW7	W10	WNW18	NW19	NW18	NW16	WNW16	WNW17	WNW17	WNW17	WNW16	WNW13	WNW11	WNW12	WNW13	WNW13	NW13	WNW12.2	NW19	
3-Oct	NW13	NW11	WNW10	WNW12	W8	W8	W10	W10	WNW15	WNW17	WNW15	W14	W13	WNW14	W13	W11	WSW8	SW7	SSW7	SSW8	S5	S8	S9	W9.0	WNW17		
4-Oct	SSW8	SSW7	SSW6	SSW6	S5	SSE7	ESE8	SE7	SE9	SE12	ESE13	ESE16	E15	E17	E18	ENE15	E17	E18	E18	E16	ENE11	NE8	NNE7	NNE10	ESE8.9	E18	
5-Oct	NNE12	NNE11	NNE9	NNE11	NNE11	N9	PF	PF	PF	W8	W8	W9	PF	PF	SW13	SW13	SW10	SSW8	S10	S12	S12	SSW12	SSW12	SW15	WSW4.0	SW15	
6-Oct	WSW16	WSW16	WSW15	WSW14	WSW13	WSW12	WSW13	WSW12	WSW12	WSW9	WSW11	WSW11	WSW14	WSW15	WSW14	W12	W10	WSW5	SSW6	S7	SSW8	SSW8	S8	S9	WSW10.4	WSW16	
7-Oct	PF	PF	PF	PF	PF	PF	S15	S16	S15	S16	S15	S15	S14	SSW15	SSW14	SSW12	S9	S11	SSW10	SSW11	S9	S9	SSW10	SSW7	S12.2	S16	
8-Oct	SSW8	SSW6	SSW6	S7	S7	S9	PF	PF	SSE14	S11	S12	SSE14	SSE15	SSE17	SSE16	SSE18	S12	S12	WSW21	W17	WSW12	WSW12	SW9	SSW11	SSW9.9	WSW21	
9-Oct	SW12	SW12	SW12	SW12	SW12	SW12	WSW12	W12	W11	W11	W9	WSW11	WSW12	W12	W10	W9	W9	WSW5	SSW6	SSW7	SW7	SSW7	SSW7	SSW8	WSW8.8	WSW12	
10-Oct	SSW7	SSW7	SSW7	SSW8	SSW8	SSW8	SW9	SW9	SW9	WSW11	WSW11	W11	W13	W12	WNW12	W11	W12	WSW8	SW8	WSW12	SW10	SW9	SW9	SW9	WSW8.6	W13	
11-Oct	SSW8	SSW8	SSW8	SSW8	SSW9	SSW8	SSW9	SSW9	SSW9	SSW9	SW8	SW10	SSW9	SW10	SW10	WSW11	WSW8	SSW8	SSW11	SSW11	SSW11	SSW11	SSW11	SSW11	SSW11	SSW9.1	SW12
12-Oct	SW12	SW10	WSW11	WSW9	WSW7	SSW7	SSW9	SW8	SW8	WSW8	W8	NW7	NW9	NNW9	NNW9	NNW7	NNW4	SE4	SSE9	SSE9	SSE10	SSE10	SSE11	SSE14	SW4.5	SSE14	
13-Oct	SSE15	SSE15	SSE15	S19	S21	S23	S23	S22	S22	S23	S21	S23	S22	S19	S18	S17	S14	S15	S18	S20	S18	S18	S19	PF	S19.0	S23	
14-Oct	PF	S16	S14	S13	S13	SSE21	SSE26	SSE24	S20	SSE25	S24	SSE26	S21	S16	SSE18	SSE13	S7	S11	SSW13	SSW12	S11	SSW10	SW12	SW11	S15.7	SSE26	
15-Oct	WSW10	SW8	SW10	SW11	SW12	WSW11	WSW13	WSW12	WSW13	WSW13	W12	W12	W12	W13	W8	W7	WSW3	SSW5	SSW6	SSW9	SSW6	SSW6	SW7	SSW5	WSW8.7	WSW13	
16-Oct	SSW7	SSW6	SSW6	SSE6	SSE7	SSE8	SE8	SE9	SE9	ESE7	E3	ENE5	E9	E10	ESE10	ESE10	ESE11	ESE9	ESE5	SE4	S3	SSW3	W5	WSW7	SE5.0	ESE11	
17-Oct	WSW10	WSW10	W9	W11	W13	W14	WSW14	WSW15	WSW17	WSW15	WSW16	WSW16	WSW17	WSW18	WSW17	WSW17	W15	W14	W14	WNW15	W14	W13	W14	W12	W14.0	WSW18	
18-Oct	W12	WSW10	W9	WSW10	SSW7	SSW8	SSW7	SSW7	SSW8	SSW10	SW13	SW15	SW15	SW15	SW14	SSW12	S7	SSE10	SSE13	SSE15	SSE15	SSE16	SSE15	SSE16	SSW9.6	SSE16	
19-Oct	SSE16	SSE13	S12	S10	S10	SSW7	SSW8	SSW10	SW9	PF	PF	PF	PF	PF	PF	WSW7	WSW6	SSW6	SSW8	NW5	NE8	NNE6	NNE6	NNE8	NNE10	S3.6	SSE16
20-Oct	N7	NW6	NNW5	NNW7	N6	N7	NNE6	NNE7	NNE9	ENE6	E6	SE5	ESE7	ESE8	ESE8	ESE10	ESE10	ESE9	SE10	SE12	E6	NNE6	NNE7	NNE9	ENE4.3	SE12	
21-Oct	NNE10	NNE11	N12	N15	N16	N16	N16	N16	N16	N16	N16	N14	N14	NNW11	NNW11	NNW12	NW9	NW7	WNW6	WNW7	WNW8	WNW10	W9	W7	NNW10.3	N16	
22-Oct	W8	W11	WSW9	WSW9	WSW9	SSW8	SSW10	SW9	SW10	WSW14	WSW14	SW14	SW15	SW17	SW15	SW15	SW13	SSW14	SW15	SW17	SW17	SW17	SW17	WSW18	WSW18	SW12.6	WSW18
23-Oct	SW14	WSW17	WSW17	WSW16	W16	WSW17	WSW17	WSW14	W14	W15	W16	W11	WSW12	WSW11	WSW11	SW11	SW10	SW9	SW8	SW10	SW11	SW10	SW12	SW11	WSW12.4	WSW17	
24-Oct	SW11	WSW11	SW11	WSW12	SW12	SW11	WSW12	WSW12	SW11	WSW12	W12	W13	W16	WNW19	WNW17	WNW14	WSW10	WSW10	SW10	SSW8	SSW8	SSW10	SW12	SW10	WSW10.9	WNW19	
25-Oct	SW11	SW8	SW10	WSW10	SW11	SW9	SSW10	SW10	WSW11	WSW9	WSW10	WSW10	W11	W11	WNW10	W7	WSW5	SSW3	S6	S8	S9	S8	S6	S7	SW7.3	WSW11	
26-Oct	SSE9	SSE7	SSE7	SE8	SE9	ESE11	ESE10	SE11	ESE10	ESE13	ESE16	E18	E16	E15	E16	E15	E15	ESE17	ESE17	SE20	SE20	SE16	SSE16	SE14	ESE12.6	SE20	
27-Oct	SSE13	SSE15	SSE13	SSE12	SSE11	SSE11	SE10	SE8	SE14	SE13	SE19	SE21	ESE21	ESE17	SE14	SE13	SE8	ESE1	NNE1	SW4	WSW4	W7	W12	WNW14	SE8.3	ESE21	
28-Oct	WNW12	WNW16	WNW17	WNW15	WNW14	WNW15	WNW15	WNW13	WNW13	WNW14	WNW14	WNW14	WNW13	WNW11	WNW13	NW14	NW10	NW11	WNW12	NW13	NW13	NW13	NW15	WNW12	WNW13.3	WNW17	
29-Oct	WNW11	WNW11	WNW9	WNW10	WNW10	NW15	NW13	WNW8	WNW10	WNW10	W10	W12	W11	WSW11	WSW10	WSW8	SW7	S8	S8	S10	SSW12	SSW11	SSW10	SSW8	W7.1	NW15	
30-Oct	SSW7	SSW7	NNW3	ENE3	NNE6	NNE8	NE9	NE10	NNE10	NE11	NE10	NE12	NE13	NE12	ENE11	ENE12	ENE13	ENE12	ENE13	E13	E13	ESE13	ESE12	E11	ENE8.0	ENE13	
31-Oct	ESE12	ESE11	ESE10	ESE11	E10	ESE11	ESE10	ESE9	E8	SE10	SE8	SE8	SE7	SSE7	SSE6	SSE7	SE8	SSE7	S6	SSE6	S5	SSW5	S4	S6	SE7.1	ESE12	

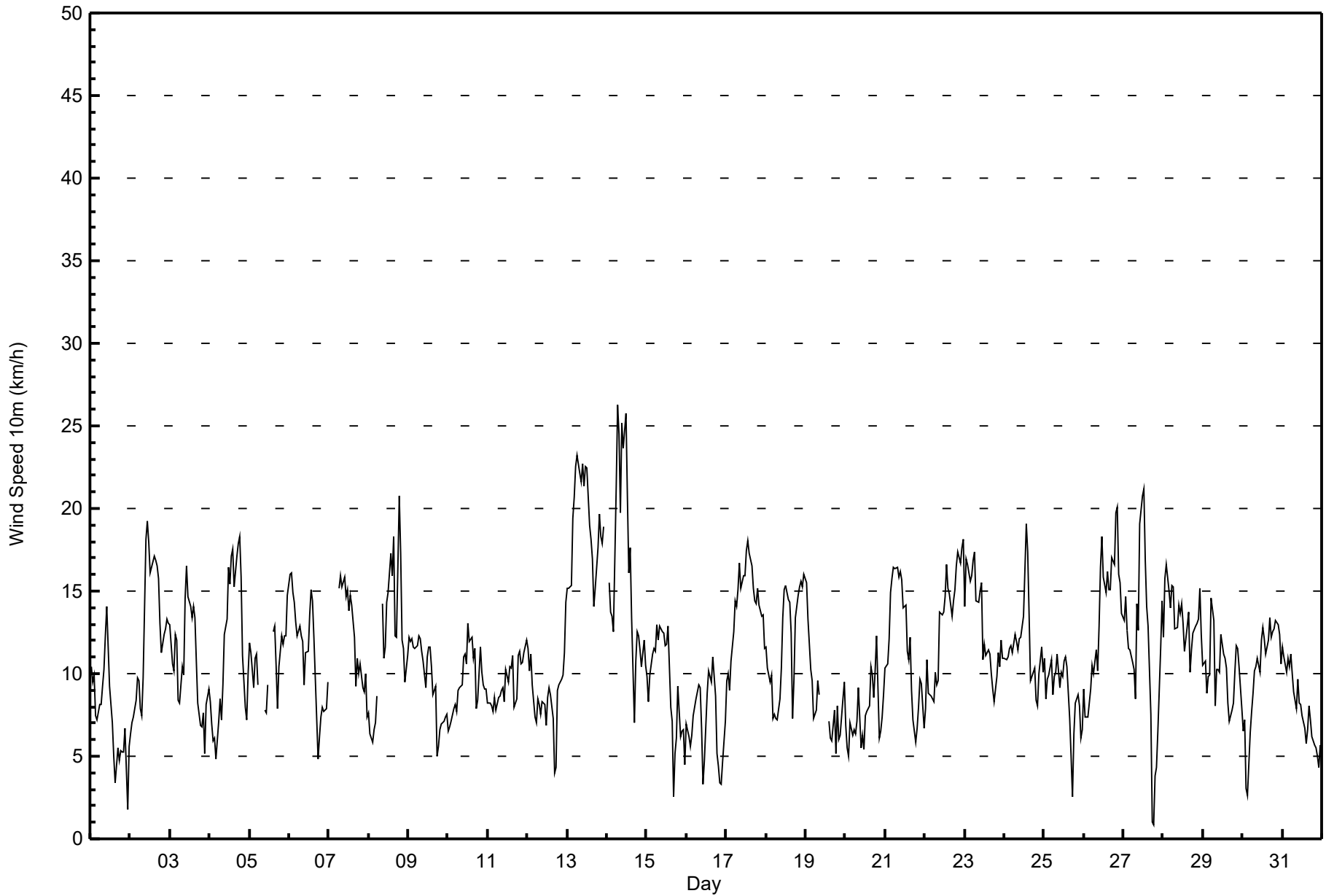
SW5.7 SW6.1 SW5.8 SW5.3 SW5.0 SW5.0 SW5.7 SW5.6 SW5.4 SW5.3	WSW5.2 SW5.0 SW4.8	WSW4.8	WSW4.7 SW4.5 SW3.8	SSW4.4	SSW5.5	SSW5.8	SSW5.7	SSW5.4	SSW5.9	SW5.3	Diurnal Average														
WSW16	WSW17	WSW17	S19	S21	S23	SSE26	SSE24	S22	SSE25	S24	SSE26	S22	WNW19	S18	SSE18	E17	E18	WSW21	SE20	SE20	S18	S19	WSW18	Diurnal Maximum	

PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed 10m (WS10) - km/h**  
**Hangingsstone Expansion - October 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h**  
**Hangingstone Expansion - October 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	37	5.11	5.11
6 - 11	383	52.90	58.01
12 - 19	281	38.81	96.82
20 - 28	23	3.18	100.00
29 - 38	0	0.00	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 10m (WS10) - km/h  
Hangingstone Expansion - October 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	0	1	0	2	1	2	3	0	5	5	1	9	2	1	2	3	37
6 - 11	4	22	6	3	7	21	17	20	29	81	53	47	39	18	10	6	383
12 - 19	11	1	3	5	15	10	9	25	28	10	32	46	34	40	11	1	281
20 - 28	0	0	0	0	0	1	3	5	13	0	0	1	0	0	0	0	23
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>	15	24	9	10	23	34	32	50	75	96	86	103	75	59	23	10	724

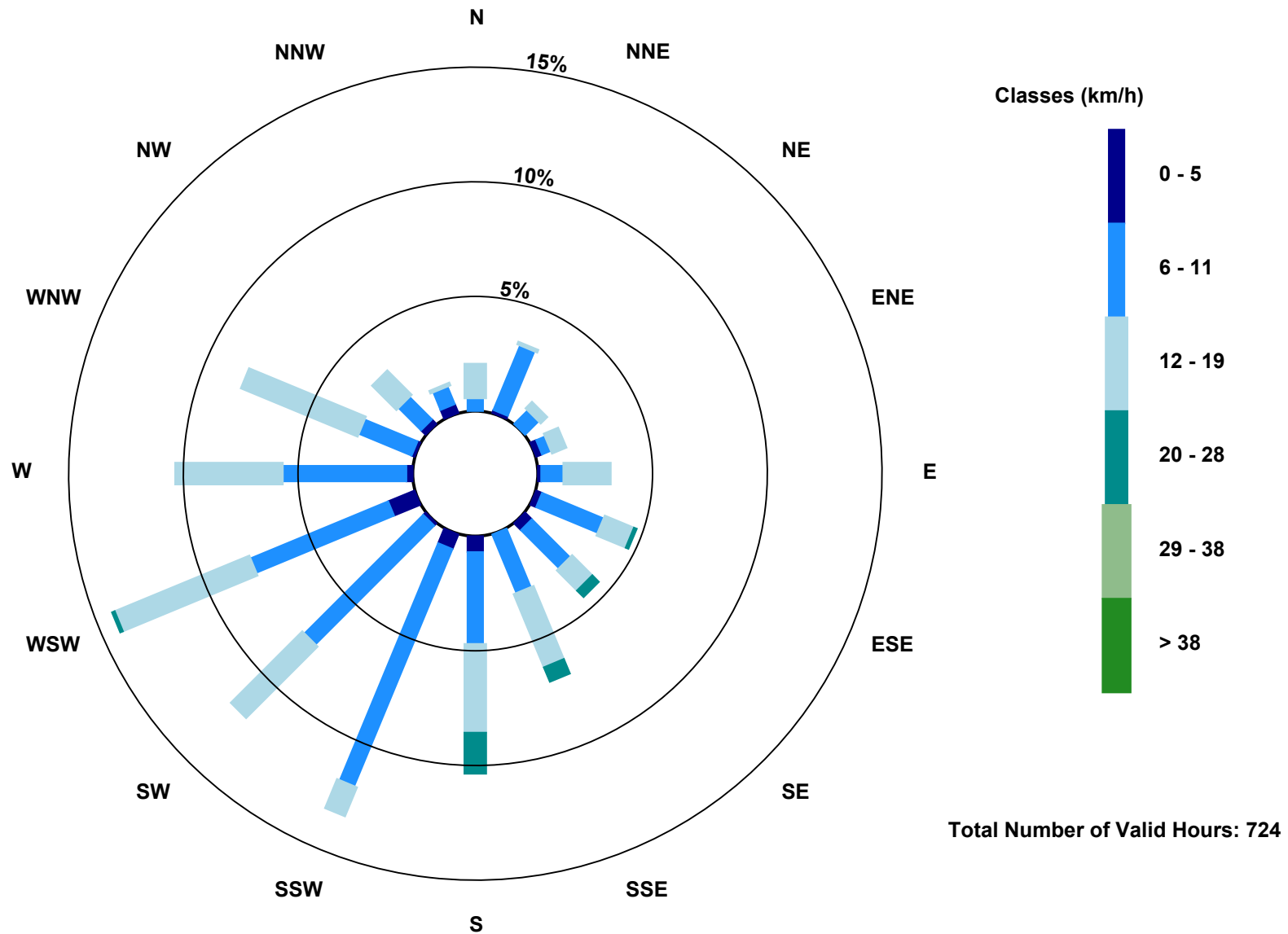
Total Number of Valid Hours: 724

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose Oct 2024

Wind Speed 10m (WS10) - km/h  
Hangingstone Expansion





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Hangingsone Expansion - October 2024**

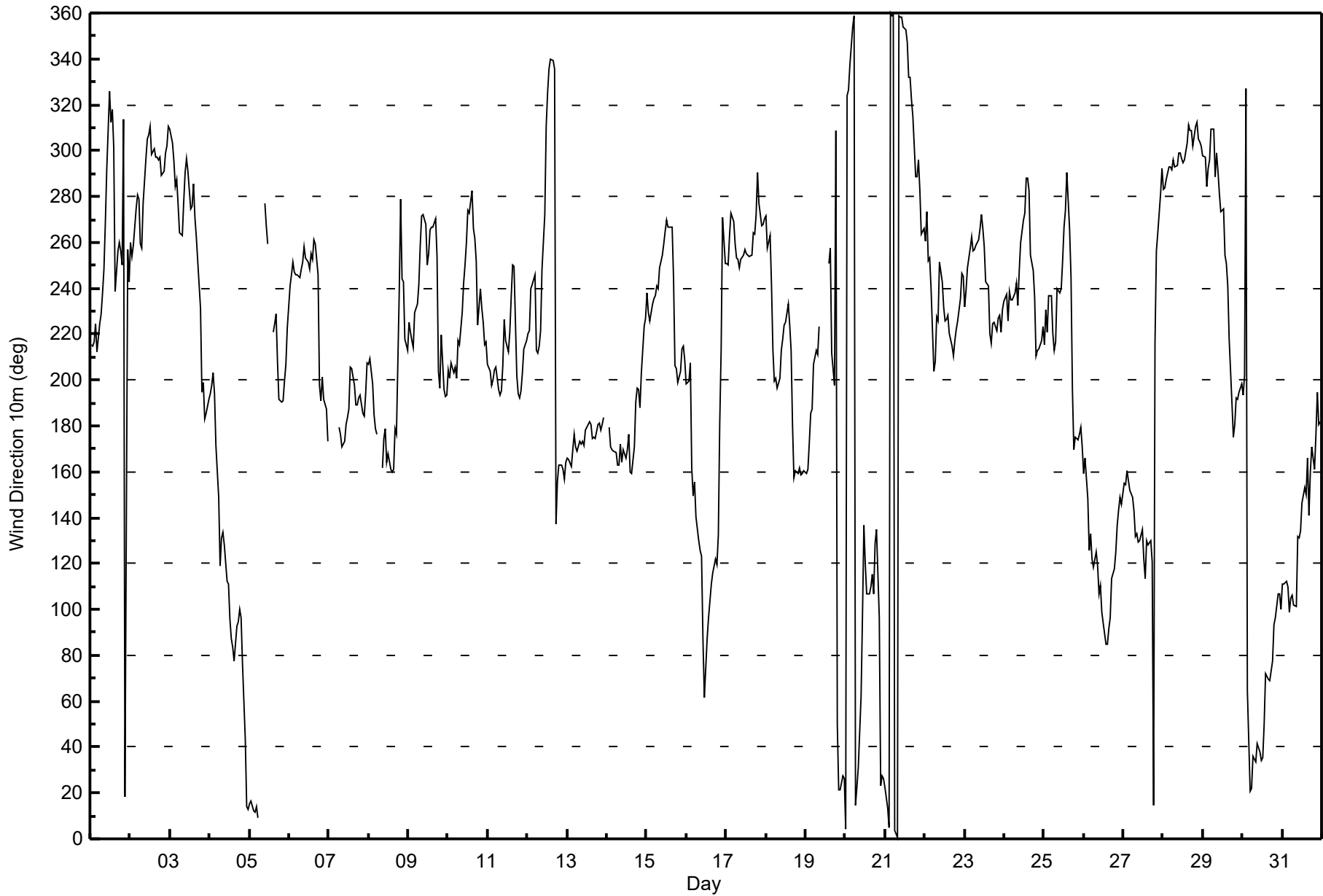
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Oct 27 14:00 Minimum Value: 1 km/h on Oct 26 05:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 6																		Hours in Service: 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-Oct	3	3	3	3	2	2	3	3	3	4	4	3	3	3	1	1	1	1	1	1	2	2	2	1	4
2-Oct	1	2	2	2	3	3	2	2	3	5	4	5	4	4	5	4	4	4	3	3	3	3	3	4	5
3-Oct	3	2	3	3	3	3	2	3	3	4	4	4	4	4	4	4	3	2	2	2	1	1	1	2	4
4-Oct	2	2	1	1	1	1	2	1	2	4	3	4	5	5	5	4	4	4	5	5	3	2	2	2	5
5-Oct	3	3	2	3	3	3	PF	PF	PF	2	2	3	PF	PF	4	4	3	2	2	3	3	3	4	5	5
6-Oct	5	5	5	4	3	3	4	4	4	3	3	4	4	5	5	4	3	1	2	2	2	1	2	1	5
7-Oct	PF	PF	PF	PF	PF	PF	4	3	3	4	4	4	4	5	4	4	2	2	3	2	2	2	2	2	5
8-Oct	2	2	2	1	1	1	PF	PF	3	3	3	3	4	4	4	4	4	4	8	8	4	4	3	3	8
9-Oct	4	3	4	3	4	4	4	4	3	3	3	4	4	4	3	2	3	1	1	1	2	1	1	1	4
10-Oct	1	1	2	2	2	2	3	3	3	4	4	3	4	4	4	3	4	2	2	4	3	3	2	2	4
11-Oct	2	2	1	2	2	2	2	1	2	3	3	3	3	3	4	4	2	2	2	2	2	3	3	3	4
12-Oct	3	3	3	3	2	2	2	2	2	3	2	3	3	4	4	3	2	2	1	1	1	1	2	3	4
13-Oct	3	3	3	5	5	6	6	5	6	6	6	6	7	5	5	4	4	4	5	5	5	5	4	PF	7
14-Oct	PF	4	4	4	4	5	6	6	6	6	6	6	6	4	5	4	2	3	4	4	3	3	4	3	6
15-Oct	3	3	3	4	4	4	4	4	4	4	4	4	3	4	2	2	1	1	2	2	2	2	2	1	4
16-Oct	3	2	2	1	1	1	1	1	2	2	1	2	3	2	3	3	3	3	1	1	1	1	2	2	3
17-Oct	3	3	3	3	4	5	4	5	5	5	5	5	6	5	5	5	5	4	4	4	4	4	5	4	6
18-Oct	3	3	3	3	3	2	2	2	2	3	4	5	5	5	5	4	2	2	2	3	3	3	3	3	5
19-Oct	3	3	3	2	2	2	2	3	3	PF	PF	PF	PF	PF	3	2	2	2	2	2	1	2	3	2	3
20-Oct	3	1	1	2	2	1	1	2	2	2	2	2	2	2	2	3	2	2	3	3	3	1	2	2	3
21-Oct	2	2	3	4	3	4	4	4	4	4	4	4	3	3	3	3	3	2	2	2	2	3	3	2	4
22-Oct	2	4	3	3	3	2	3	3	3	4	5	5	5	6	5	5	4	4	5	5	5	5	5	5	6
23-Oct	4	5	5	5	5	5	5	5	4	5	5	3	4	4	4	3	3	3	3	3	4	3	3	4	5
24-Oct	3	4	4	4	4	4	4	4	4	4	4	4	5	6	5	5	3	3	3	2	2	3	3	3	6
25-Oct	3	3	3	3	4	3	3	3	4	3	3	3	3	3	3	2	2	1	3	1	1	1	1	2	4
26-Oct	1	1	1	1	1	1	1	1	2	3	5	5	5	4	5	5	4	5	5	6	6	5	4	4	6
27-Oct	3	4	3	2	3	2	3	3	3	5	5	6	5	10	5	4	3	3	1	1	1	2	4	4	10
28-Oct	3	4	4	4	3	4	3	3	3	3	3	3	3	3	3	3	2	3	3	4	3	3	4	3	4
29-Oct	2	3	2	2	2	4	4	3	2	3	3	4	3	4	4	3	2	1	1	2	3	2	2	2	4
30-Oct	2	2	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	3	3	4
31-Oct	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	1	2	3
Diurnal Maximum																								5	
PF - Power Failure																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction 10m (WD10) - deg**  
**Hangingsstone Expansion - October 2024**

Direction of Maximum Speed: 163 deg on Oct 14 07:00																				Hours in Service: 744							
Direction of Maximum Daily Speed Average: 174.9 deg on Oct 13																				Hours of Data: 724							
Direction of Minimum Speed: 14 deg on Oct 27 19:00										Direction of Minimum Daily Speed Average: 3.6 deg on Oct 19										Hours of Missing Data: 20							
Monthly Average Direction: 219.9 deg																								Percent Operational Time: 97.3			
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-Oct	216	215	217	225	212	224	229	238	248	269	292	326	312	318	302	238	256	260	256	250	314	18	257	243	257.4		
2-Oct	260	254	258	275	280	279	259	257	277	297	305	307	310	298	301	297	297	296	297	289	291	299	302	311	292.6		
3-Oct	309	304	295	285	287	276	264	263	278	290	296	291	275	276	285	271	262	252	231	195	199	183	186	191	271.3		
4-Oct	194	198	203	194	172	149	119	131	133	128	112	111	96	87	84	78	93	94	100	96	76	44	14	13	103.2		
5-Oct	15	16	12	12	14	9	PF	PF	PF	277	267	259	PF	PF	221	225	229	208	191	190	191	200	207	223	239.2		
6-Oct	241	246	251	247	246	246	245	248	251	258	253	251	249	255	253	261	259	246	198	191	201	192	187	173	240.9		
7-Oct	PF	PF	PF	PF	PF	PF	179	176	171	174	181	184	187	206	205	198	189	189	193	194	186	184	194	207	187.5		
8-Oct	207	209	199	185	179	176	PF	PF	162	175	179	164	168	161	160	161	179	176	238	279	244	243	218	213	192.0		
9-Oct	225	221	217	214	229	233	242	259	272	272	268	250	255	265	267	267	271	254	204	196	219	196	193	194	239.5		
10-Oct	204	201	207	203	206	201	217	216	230	243	250	260	274	273	282	266	262	252	224	240	231	225	215	216	237.3		
11-Oct	207	204	198	200	204	206	196	194	196	206	226	217	212	221	236	250	249	202	194	192	195	203	213	217	210.1		
12-Oct	220	221	240	242	246	213	212	215	222	248	272	311	325	335	340	339	335	137	155	163	163	161	157	164	220.3		
13-Oct	166	165	162	170	176	171	169	173	172	173	171	178	180	182	180	175	175	174	181	181	178	180	184	PF	174.9		
14-Oct	PF	179	171	169	169	168	163	163	172	164	169	166	170	176	160	159	171	190	197	196	188	203	224	227	174.8		
15-Oct	238	229	226	233	236	237	241	240	249	254	259	265	270	267	266	267	244	206	205	199	204	213	215	209	240.4		
16-Oct	198	199	208	162	150	155	140	130	126	123	87	62	87	96	104	111	116	122	119	133	181	213	271	251	135.5		
17-Oct	251	250	263	272	269	259	254	253	249	252	254	257	255	254	254	255	264	264	272	290	277	267	268	270	261.0		
18-Oct	272	257	263	241	213	200	201	197	200	213	218	224	225	233	224	213	181	157	161	159	161	159	159	161	201.1		
19-Oct	159	161	173	186	187	207	213	211	224	PF	PF	PF	PF	PF	251	258	212	198	309	50	21	22	27	26	191.0		
20-Oct	4	324	327	337	354	359	14	22	31	62	98	137	120	107	107	110	115	107	128	135	96	23	28	26	67.7		
21-Oct	23	13	5	360	359	359	4	1	359	358	358	354	352	347	332	332	322	315	288	289	296	282	264	266	344.8		
22-Oct	260	273	252	253	240	204	208	228	226	251	243	232	226	227	228	220	215	210	217	222	226	236	246	245	232.0		
23-Oct	232	239	249	258	262	256	257	258	261	266	272	266	258	243	241	220	216	225	225	221	227	229	221	231	245.6		
24-Oct	234	238	226	239	235	235	238	242	232	248	260	270	273	288	288	283	254	248	236	211	213	213	217	223	247.2		
25-Oct	216	231	221	237	236	220	213	217	240	238	240	252	266	274	290	265	245	196	170	175	174	176	180	171	227.1		
26-Oct	159	166	148	126	133	122	118	125	119	107	110	99	94	85	85	92	97	113	118	125	137	144	149	146	118.6		
27-Oct	155	155	161	156	152	149	143	132	133	129	130	135	122	114	130	128	130	121	14	216	256	264	281	293	144.0		
28-Oct	283	283	287	293	293	292	296	293	293	299	299	297	295	296	303	311	309	309	302	311	313	305	304	302	298.2		
29-Oct	298	297	285	293	296	310	309	289	299	291	281	273	275	255	251	241	218	190	175	180	192	192	194	198	260.2		
30-Oct	194	202	327	65	21	22	36	35	33	41	38	34	35	50	72	70	69	73	77	94	96	107	107	100	65.4		
31-Oct	111	111	112	110	99	105	106	102	101	132	131	134	146	153	150	166	141	160	171	161	176	195	181	182	131.2		
224.1	224.9	228.4	230.8	231.0	221.7	213.9	214.9	218.1	230.9	236.3	230.6	233.5	239.5	236.8	227.1	215.4	196.5	198.0	193.7	200.3	207.6	213.8	220.3				
Diurnal Average																											
PF - Power Failure																											
All monthly, daily, and diurnal averages have been calculated using vector methods																											





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 10m (WD10) - deg**  
**Hangingsstone Expansion - October 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 104 deg on Oct 27 18:00 Minimum Value: 5 deg on Oct 12 20:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 14 Q <sub>1</sub> = 16 Median = 20 Q <sub>3</sub> = 24 P <sub>90</sub> = 27 P <sub>99</sub> = 46																			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-Oct	23	22	23	28	21	23	26	29	24	26	20	32	29	24	15	40	19	22	21	22	49	15	59	19	59																						
2-Oct	19	21	23	22	19	21	22	21	24	17	18	15	16	17	16	16	15	15	14	16	16	14	14	15	24																						
3-Oct	14	14	15	18	18	21	22	21	22	20	19	24	26	25	23	25	24	23	25	20	16	20	12	14	26																						
4-Oct	17	17	17	15	18	9	15	17	15	18	20	15	17	16	17	18	16	15	15	16	19	18	15	15	20																						
5-Oct	16	16	18	17	17	18	PF	PF	PF	22	26	25	PF	PF	26	25	27	27	16	17	18	20	22	24	27																						
6-Oct	25	23	23	23	23	24	23	24	24	25	24	29	28	25	26	25	24	28	18	21	14	14	12	9	29																						
7-Oct	PF	PF	PF	PF	PF	PF	15	16	15	16	18	18	21	27	22	21	20	19	22	17	17	15	17	23	27																						
8-Oct	19	19	22	11	15	10	PF	PF	14	21	21	16	16	15	17	15	23	17	34	22	23	26	26	23	34																						
9-Oct	26	25	24	24	26	24	26	24	22	22	27	26	28	27	25	23	23	20	16	18	20	14	10	12	28																						
10-Oct	13	11	18	15	17	19	24	23	27	27	24	29	26	28	21	24	24	21	27	26	26	25	20	21	29																						
11-Oct	20	18	15	16	20	20	16	14	16	25	30	24	25	26	31	28	26	23	16	16	17	21	23	23	31																						
12-Oct	24	25	26	27	31	21	17	20	24	27	25	33	34	36	36	31	32	25	6	5	8	9	12	14	36																						
13-Oct	15	15	14	16	17	16	16	16	16	16	17	19	19	19	21	18	17	18	19	17	18	18	17	PF	21																						
14-Oct	PF	17	16	18	20	16	15	14	18	14	16	15	17	21	16	15	23	20	21	21	18	23	27	28	28																						
15-Oct	26	28	28	26	27	27	26	25	24	24	26	26	24	24	26	23	55	27	25	22	27	23	22	26	55																						
16-Oct	29	17	15	26	8	7	5	7	10	14	31	17	24	15	16	16	16	15	16	19	43	39	31	27	43																						
17-Oct	22	23	23	21	23	24	24	24	24	23	24	24	24	23	23	23	24	23	23	17	21	24	23	22	24																						
18-Oct	20	22	23	26	25	20	20	19	20	24	24	25	25	29	26	23	23	9	12	12	13	13	13	13	29																						
19-Oct	14	13	16	16	16	22	22	22	26	PF	PF	PF	PF	PF	36	26	30	24	46	21	16	27	18	14	46																						
20-Oct	24	17	17	18	18	23	16	17	16	24	24	26	20	19	16	14	15	17	18	15	37	11	12	12	37																						
21-Oct	13	15	17	17	16	18	17	17	17	18	18	18	18	17	16	15	17	20	20	18	16	21	23	24	24																						
22-Oct	22	22	24	22	27	25	24	29	30	24	26	29	28	25	27	25	24	23	25	25	25	26	25	23	30																						
23-Oct	26	25	25	23	22	22	23	23	23	22	21	24	22	28	29	24	25	26	27	23	25	23	24	26	29																						
24-Oct	26	26	28	29	27	29	27	26	26	26	26	23	23	20	18	20	23	23	31	20	22	23	23	26	31																						
25-Oct	25	31	24	28	25	26	24	25	27	28	28	27	26	23	23	26	26	32	9	8	8	10	11	12	32																						
26-Oct	5	7	16	9	9	9	9	9	15	14	15	16	18	18	16	16	17	17	18	16	16	18	15	17	18																						
27-Oct	15	15	15	13	14	14	15	19	15	20	16	16	14	58	21	17	45	104	96	29	26	23	21	16	104																						
28-Oct	18	18	17	16	15	16	14	15	17	14	14	14	15	16	14	15	15	16	14	16	15	14	14	14	18																						
29-Oct	13	15	18	15	15	15	15	20	15	17	21	25	24	29	27	32	30	15	10	14	17	16	16	21	32																						
30-Oct	19	17	61	31	15	14	13	13	14	12	12	13	13	19	18	17	15	15	14	17	16	16	16	16	61																						
31-Oct	17	17	17	18	16	17	16	17	19	20	22	23	27	28	37	27	17	21	23	18	23	23	22	23	37																						
Diurnal Maximum																								29	31	61	31	31	29	27	29	30	28	31	33	34	58	37	40	55	104	96	29	49	39	59	28
PF - Power Failure																																															



End of Report

---

**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

---

November 29, 2024  
1:02:54 PM  
Request # 4744367

**Submitted by:** EN6138\_DENNY  
**Submission Date:** Nov 29, 2024 1:01:51 PM

File Type

Calibration Report

File Name

CAL-WBEA-202410.pdf

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*



---

**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

---

November 29, 2024  
1:03:47 PM  
Request # 4744368

**Submitted by:** EN6138\_DENNY  
**Submission Date:** Nov 29, 2024 1:03:32 PM

File Type  
Airshed Monitoring Report

File Name  
WBEA-202410.pdf

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*

---

**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

November 29, 2024  
12:13:50 PM  
Request # 4744328

---

**Submitted by:** EN6138\_DENNY  
**Submission Date:** Nov 29, 2024 11:47:54 AM

File Type

Ambient Data

File Name

AMB-WBEA-202410-V00.xml

**Total Number of Files: 1**

\*\*\* End of Report \*\*\*